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March 23rd, 2016

Mr. Randy Bryant
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Subject: **Domtar Paper Company, LLC, Plymouth Site**
Year 4 Enhanced Monitored Natural Recovery (eMNR™) Performance Monitoring Report for the Welch Creek Operable Unit (OU-4)

Dear Randy:

Please find enclosed a copy of the Year 4 Enhanced Monitored Natural Recovery (eMNR™) Performance Monitoring Report prepared by TRC for Welch Creek (Operable Unit 4 (OU-4)).

This Year 4 eMNR™ Performance Monitoring Report documents the fourth year of monitoring activities following installation of the thin layer capping remedy at OU-4 and certifies that this phase of the remedial action (RA) remains in conformance with the design specifications and modifications approved by the United States Environmental Protection Agency (USEPA) and North Carolina Department of Environmental Resources (NC DENR) in the *Final Design Report* (RMT, 2010).

If you require additional information, please feel free to contact me.

Sincerely,

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Encl.

C.C.: Niles Testerman, NCDEQ
Diane Hardison, Domtar Plymouth Mill

Year 4 Enhanced Monitored Natural Recovery (eMNR™) Performance Monitoring Report

Domtar Paper Company, LLC
Welch Creek Operable Unit #4 (OU-4)
Plymouth, Martin County, North Carolina

March 2016

Year 4 Enhanced Monitored Natural Recovery (eMNR™) Performance Monitoring Report

Domtar Paper Company, LLC

Welch Creek Operable Unit #4 (OU-4)
Plymouth, Martin County, North Carolina

March 2016

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List of Acronyms

ALS	ALS Environmental Laboratory
AOC	Administrative Order of Consent
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COCs	constituents of concern
CT	cover thickness
CZR	CZR, Inc.
DO	dissolved oxygen
DOC	dissolved organic carbon
Domtar	Domtar Paper Company LLC
eMNR™	Enhanced Monitored Natural Recovery
FS	Feasibility Study
FSP	Field Sampling and Analysis Plan
GPS	Global Positioning System
HpCDD	heptachlorinated dibenzo-p-dioxins
I-TEF	International Toxic Equivalency Factor
I-TEQ	International Toxicity Equivalent Concentration
LRR	Lower Roanoke River
mg/L	milligrams per liter
NC DHHS	North Carolina Department of Health and Human Services
NC DEQ	North Carolina Department of Environmental Quality[1]
NC DWQ	North Carolina Division of Water Quality
ng/kg	nanogram per kilogram
NOAA	National Oceanic Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
OCDD	octachlorodibenzo-p-dioxin

[1] On September 18, 2015, the North Carolina Department of Environment and Natural Resources was renamed the North Carolina Department of Environmental Quality.

OCDF	octachlorodibenzofuran
OMP	Operations and Maintenance Plan
OU	Operable Unit
PCDD	polychlorinated dibenzo p-dioxins
PCDF	polychlorinated dibenzo-furans
ppb	parts per billion
PSVP	Performance Standards Verification Plan
PT	performance transect
QAPP	Quality Assurance Project Plan
RA	remedial action
RA Report	Remedial Action Report
RAOs	remedial action objectives
RAWP	Remedial Action Work Plan
RD	remedial design
RGOs	remedial goal options
RI	Remedial Investigation
ROD	Record of Decision
SWAC	surface weighted area concentration
TCDD	tetrachlorodibenzo-p-dioxins
TCDF	tetrachlorodibenzo-furan
TEF	Toxic Equivalency Factors
TOC	total organic carbon
TRC	TRC Environmental Corporation
TSS	total suspended solids
µg/kg	microgram per kilogram
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VSS	volatile suspended solids
Weyerhaeuser	Weyerhaeuser Company
WHO	World Health Organization

Section 1
Introduction

The purpose of this Year 4 Enhanced Monitored Natural Recovery (eMNR™) Performance Monitoring Report is to document the fourth year of monitoring activities following installation of the thin layer capping remedy within the Welch Creek Operable Unit (OU-4). Additionally, this report certifies that this phase of the remedial action (RA) remains in conformance with the design specifications and modifications approved by the United States Environmental Protection Agency (USEPA) and North Carolina Department of Environmental Quality (NC DEQ) in the *Final Design Report* (RMT, 2010).

1.1 Background

The Welch Creek Area of the Domtar[2] (formerly Weyerhaeuser Company) Plymouth Site, Martin County, North Carolina (site) is identified as Operable Unit 4 (OU-4) and shown on Figure 1-1. A Remedial Investigation and Feasibility Study (RI/FS) was completed for this area between 1998 and 2007 under a negotiated Administrative Order of Consent (AOC). The remedy for the Welch Creek Area was selected by USEPA in accordance with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The remedy was summarized in the Record of Decision (ROD) and more fully outlined in the *Final Design Report* (RMT, 2010). Additional remedial design (RD) data collection and evaluation activities were performed in 2009 as described in the approved *Remedial Design Workplan* (RMT, 2009). The *Field Sampling and Analysis Plan* (FSP; RMT, 2009) and *Quality Assurance Project Plan* (QAPP; RMT, 2009) developed as part of the *Remedial Design Workplan* were relied upon in the implementation of the RA.

The RA selected in the ROD and defined in the USEPA-approved Final RD Report and RA workplanning documents has five components:

1. eMNR™ of sediment contaminated with dioxin above clean-up goals in the Upper Reach of Welch Creek;
2. Mobility monitoring for the less contaminated sediment in the Midstream Reach;
3. Long-term monitoring and maintenance of the eMNR™ sand cover;

2 Domtar Paper Company, LLC (Domtar) took ownership of the pulp and paper operations at the Plymouth Mill and assumed related environmental obligations from Weyerhaeuser Company (Weyerhaeuser) on March 7, 2007. Required reports under the AOC prior to March 2007 were submitted by Weyerhaeuser.

4. Long-term testing and monitoring of sediment, surface water, and biota to document the performance of the remedy and compliance with clean-up goals; and
5. Institutional controls.

The *Remedial Action Work Plan* (RAWP; RMT, Revised November 2010), approved by USEPA on November 29, 2010, provided a detailed plan of action for construction and implementation of the remedy set forth in the ROD and *Final Design Report* (RMT, 2010).

The *Performance Standard Verification Plan/Operations and Maintenance Plan* (PSVP/OMP; RMT, 2011) was revised in September 2011 (TRC Environmental Corporation [TRC]). The purpose of the PSVP/OMP was to outline performance monitoring methods to ensure that the RA for the Welch Creek Area achieves the overall remedial action objectives (RAOs) by meeting defined short- and long-term performance standards. These performance standards for the remedy incorporate the clean-up levels presented in the OU-4 ROD (USEPA, 2007) as well as other monitoring activities. The implementation of the eMNR™ remedy was summarized in the *Remedial Action Report* (RA Report; TRC, Revised June 2012).

The following modifications to the sampling plan, as approved in the *Second Five-Year Review Report* (USEPA, June 2015) were implemented during Year 4 (2015):

- Discontinue the annual baseline mobility monitoring, post-flood sampling, and hourly water quality readings.
- Discontinue the collection of annual Midstream Reach sediment. Midstream Reach sediment sampling will be performed following a severe storm event, proposed as the 25-year storm, which equates to a storm with peak intensity of approximately 9.0 inches of rainfall per hour[3]. Following a severe storm, the Midstream Reach sediment sampling will be conducted during the regularly scheduled Welch Creek November site visit.
- Reduce the frequency of mercury in fish tissue from annual to once in the next five-year review period (2015 through 2019).

1.2 Remedial Action Objectives

As documented in the ROD for Welch Creek, the agreed-upon RAOs for Welch Creek include goals for the protection of human health and the environment and for the management of migration potential as follows.

[3] The 25-year storm peak intensity was obtained from NC Stormwater Best Management Practice guidance on storm intensity for Greenville, NC and NOAA Atlas 14 Point Precipitation Frequency Estimates for NC.

1.2.1 Human Health Remedial Action Objectives

- Maintain acceptable levels of potential risk to site-specific human receptors.
- Continue progress toward removing the fish consumption advisory in Welch Creek.

1.2.2 Ecological Remedial Action Objectives

- Protect the health of local biological populations and communities.
- Reduce dioxin concentrations in whole fish tissues over time, to the extent practicable.
- Achieve surface water concentrations at or below surface water standards, to the extent practicable.
- Limit biological uptake of constituents of concern (COCs) from the sediment in areas with excess potential risk, to the extent practicable.
- Minimize the adverse effects of remediation activities on the existing aquatic environment and/or wetland habitat, to the extent practicable.

1.2.3 Management of Migration Potential

- Minimize significant migration of COC-containing sediment in delineated areas of concern, to the extent practicable.

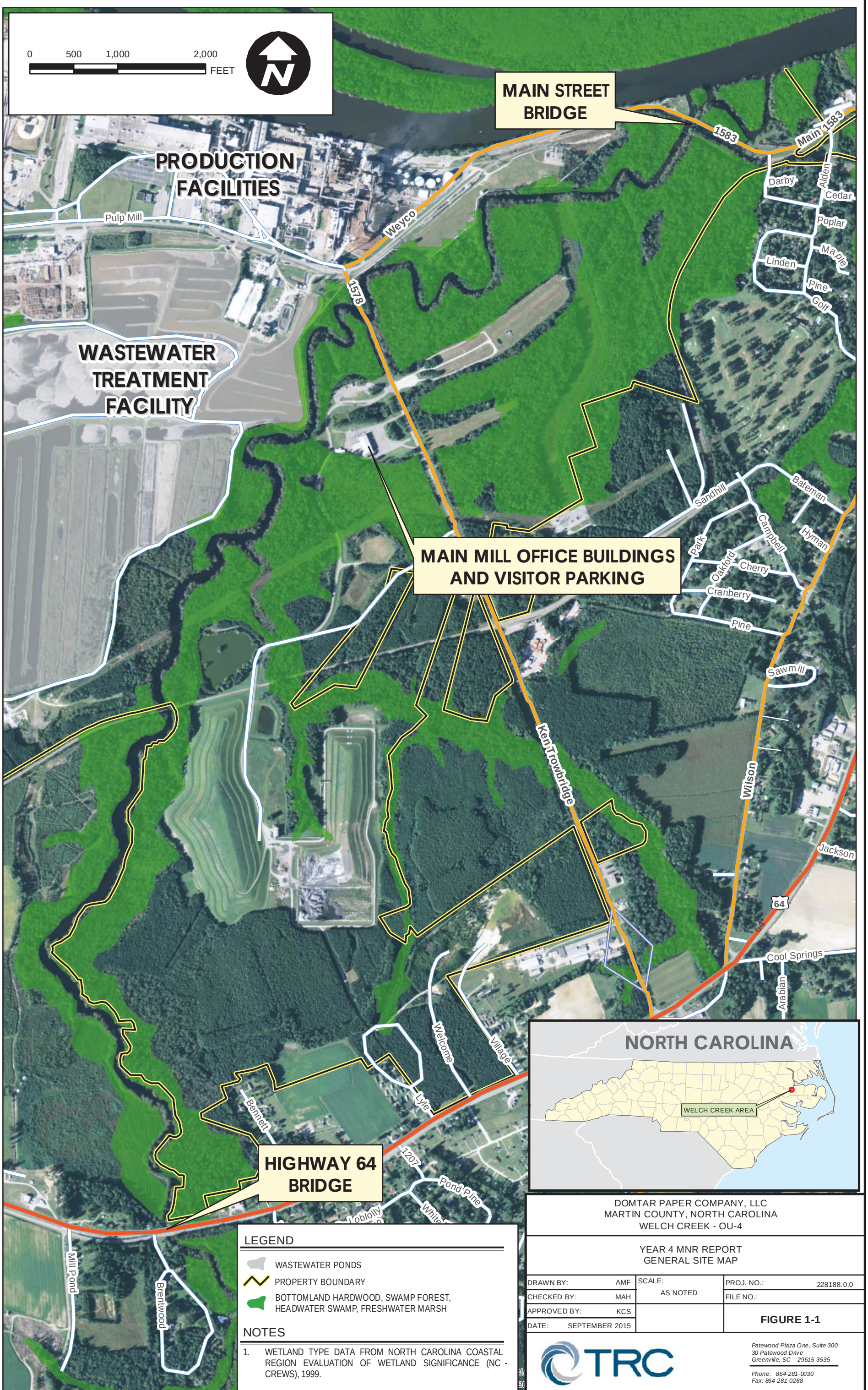
1.3 Remedial Goal Options

Remedial goal options (RGOs) for the two final COCs (dioxin and mercury) were addressed in the Welch Creek ROD. For OU-4, the term RGO was used to identify a dioxin concentration (as International Toxicity Equivalent Concentration [I-TEQ]) quantified in surficial sediment. The RGO was used to define the areas targeted for remediation in Welch Creek. The ROD selected a clean-up goal of 1 part per billion (ppb) I-TEQ which was within the desired range of risk protection and consistent with existing USEPA guidance for residential use. The USEPA also addressed considerations for a mercury RGO and determined that establishing a RGO for mercury was not appropriate at this time due to the possibility of airborne deposition from other sources. Mercury monitoring will be included in the long-term monitoring to confirm that mercury in fish is not a site-specific issue.

1.4 Organization of the Report

The Year 4 eMNR™ Performance Monitoring Report for OU-4 Welch Creek is organized as follows:

- Section 1 – Introduction
- Section 2 – Sediment Sampling and Analyses
- Section 3 – Surface Water Sampling and Analyses
- Section 4 – Fish Tissue Sampling and Analyses
- Section 5 – Sign Inspection
- Section 6 – Conclusions
- Section 7 – Recommendations
- Section 8 – References



LEGEND

- WASTEWATER PONDS
- PROPERTY BOUNDARY
- BOTTOMLAND HARDWOOD, SWAMP FOREST, HEADWATER SWAMP, FRESHWATER MARSH

NOTES

1. WETLAND TYPE DATA FROM NORTH CAROLINA COASTAL REGION EVALUATION OF WETLAND SIGNIFICANCE (NC - CREWS), 1999.

DOMTAR PAPER COMPANY, LLC
MARTIN COUNTY, NORTH CAROLINA
WELCH CREEK - OU-4

YEAR 4 MNR REPORT
GENERAL SITE MAP

DRAWN BY: AMF	SCALE: AS NOTED	PROJ. NO.: 228188.0.0	
CHECKED BY: MAH		FILE NO.:	
APPROVED BY: KCS		FIGURE 1-1	
DATE: SEPTEMBER 2015			

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Path: P:_Vision\228188 - Domtar Welch Creek 2015\ArcGIS10\WC_SiteLocation_Fig1-1.mxd
Date Saved: 12/17/2015 10:24:46 AM

Section 2
Sediment Sampling and Analyses

This section describes the sediment performance monitoring conducted during Year 4 following installation of the sediment capping remedy in the Upper Reach of OU-4. Performance monitoring activities related to sediment include the following:

- Physical assessment of the thin-layer capping system within the Upper Reach of OU-4
- Chemical assessments of the surficial sediments of the thin-layer capping system within the Upper Reach of OU-4

2.1 eMNR™ Cap Integrity Performance Monitoring

Cover integrity monitoring refers to both visual inspections and laboratory analyses of the eMNR™ cap remedy installed October 2011 through February 2012. For the Year 4 cover integrity performance monitoring, 10 core locations were randomly selected from the original set of 92 post-remedy cover thickness (CT) sample locations. The 10 selected cores (CT-01C, CT-03A, CT-06B, CT-08C, CT-10B, CT-15B, CT-16B, CT-17C, CT-21D, CT-23C) for cap integrity performance monitoring were collected on November 3 and 4, 2015. Consistent with data collected during previous years, the Year 4 performance monitoring cores were collected as close to the original CT core locations as possible using Trimble® GeoXT Global Positioning System (GPS) equipped with ESRI® ArcPad 10 software. At each location, a Lexan tube was driven into the thin layer cap and recovered for visual observation and sample collection. The cap sampling method was identical to that utilized for post-remedy CT sampling. Locations of the 10 sediment cores collected for Year 4 eMNR™ Performance Monitoring are illustrated in Figure 2-1.

2.1.1 eMNR™ Cap Physical Observations

Visual assessment included verification of cap thickness and identification of cap disturbance by debris emplacement, scour, compaction, or bioturbation. Table 2-1 summarizes the sand cap integrity measurements and physical observations. Field notes from the cover integrity monitoring event are included in Appendix A and the photographic log of core sampling is included in Appendix B. In all 10 of the retrieved cores, the cap thickness met the design thickness range for the given area compared to the baseline thicknesses.

Cap thickness in nine of the 10 cores was greater than the original measurement gathered immediately following cap placement. Slight deviations (less than 1 inch) in

measured thicknesses are potentially due to boat drift from the original location or sample collection variations. One of these nine cores exhibited a measured thickness increase greater than 1 inch. This increase is potentially related to localized sediment mobilization and re-deposition or deposition of debris. One core displayed no change in thickness from the initial cap measurement following remedy implementation.

Of the 10 cores collected in 2015, natural sedimentation was noted in four performance monitoring cores, CT-06B, CT-10B, CT-15B, and CT-16B, in which sediments consisting of a black silty-mud overlaid the thin-layer cap. This sedimentation is most likely due to deposition of upstream or wetland sediments. A 1-inch thick black silty-mud layer was observed in-between the two sand layers in CT-21D. Boat drift from the original sample location or tree limbs underneath the water surface could potentially have caused this inconsistency. Visual observation indicated two cores (CT-16B and CT-21D) were unevenly compacted at the sand cap/native sediment interface. Uneven compaction could potentially be due to the heavier nature of the sand channeling into the very fine and loosely compacted native sediment surface. Leaf and twig debris were observed on the surface of seven of the cores and did not appear to damage the cap integrity. Neither organisms nor bioturbation were observed in the 10 performance monitoring cores.

2.1.2 eMNR™ Cap Sediment Analyses

The top five centimeters (2 inches) including the redeposited sediments in the 10 CT samples were collected for analysis of 2,3,7,8-substituted polychlorinated dibenzo-p-dioxins/ dibenzofurans (2,3,7,8-PCDD/PCDFs) using USEPA Method 1613B. Analyses were performed by ALS Environmental Laboratory (ALS). These analyses were used to confirm that the thin-layer cap was continuing to serve as an exposure control barrier to underlying sediments and limiting re-suspension of impacted underlying sediments. The laboratory analytical reports provided total dioxin TEQ values using the 2005 World Health Organization (WHO) Toxic Equivalency Factors (TEF). However, the selected performance target for each sediment sample defined in the ROD was 1 ppb (or 1 microgram per kilogram [μg/kg]) I-TEQ which is within the desired range of risk protection and consistent with existing USEPA 1989 TEF guidance for residential use. To calculate the USEPA 1989 I-TEQ values, the congener-specific analytical results were multiplied by the 1989 TEFs and then summed. Non-detected values were treated as zero.

The individual I-TEQ concentrations from nine of the ten core samples collected during the Year 4 performance monitoring were below the performance target of 1 ppb (or 1 μg/kg). The I-TEQ concentration from CT-16B was above 1 μg/kg during the Year 4

sampling event (1.43 μg/kg). A minimal layer of black, silty-mud was observed on top of the sand cap, but the potential cause of the elevated concentration was not apparent from the field work.

Given that the observation at CT-16B was inconsistent with previous observations, remaining CT-16B core sample from the November 2015 sampling event was re-extracted and re-analyzed. The analytical results from the re-analysis of CT-16B sediment was nearly three times lower and below the performance target of 1 ppb, with a calculated I-TEQ of 0.535 μg/kg. Although below the target level, the I-TEQ concentration in the CT-16B re-extraction sample was approximately an order of magnitude higher than previously collected CT samples and other Year 4 CT samples.

Nearby site features, wetland sediment data, and original Welch Creek sediment data from the RI were evaluated as potential influences on the increased I-TEQ in CT-16B. The location of CT-16B is slightly downstream of a small tributary converging with Welch Creek. In 2015, a random sediment sample was collected at CT-15B, which is also located immediately downstream of this tributary. The sediment in CT-15B did not have a comparable dioxin I-TEQ increase as observed in CT-16B indicating the increase in I-TEQ is not likely related to this tributary. The location of CT-16B is also adjacent to two wetland sediment samples collected during the 2011 baseline pre-construction activities. The dioxin congener profiles of these wetland sediment samples were compared to the dioxin profiles of both the original and the re-extracted CT-16B sample results. Dioxin congener profiles were not similar and wetland I-TEQ concentrations were less than CT-16B concentrations, indicating the observed increase in I-TEQ in CT-16B is not likely influenced by runoff from the adjacent wetlands.

The dioxin congener profiles of nearby Welch Creek sediment samples collected during the 1995 Remedial Investigation were compared to the CT-16B profiles. The dioxin congener profiles bear a strong similarity, indicating the elevated I-TEQ in cover sample CT-16B is potentially due to underlying sediments. The physical observations at CT-16B confirm that 4 inches (~10 cm) of sand cap material is present with a minimal accumulation of mud observed on the top of the sand cap. This accumulation could potentially be related to a localized upstream event that disrupted the integrity of the cap and deposited affected sediments in the vicinity of CT-16B. Given the I-TEQ is not elevated in immediate upstream samples (CT-15B-2015) or downstream samples (CT-17C-2015), both collected in 2015, the potential disruption to the upstream capped area appears to be extremely localized.

The dioxin I-TEQ concentration in the CT-10B, CT-15B, and CT-06B cores (described above with the natural sedimentation noted on top of the sand cap and located at the convergence between Welch Creek and a tributary of the adjacent wetland) were below the performance target, further substantiating the overlying sediment originated from either the wetlands or upstream and not indicative of impacted sediment from beneath the sand cap remedy.

The I-TEQ concentrations in the Year 4 performance monitoring cores ranged from 0.0007 to 1.43 μg/kg, with a median I-TEQ concentration of 0.042 μg/kg and a mean I-TEQ concentration of 0.201 μg/kg, *i.e.*, the median demonstrates that most of the values were lower than the mean, which was skewed due to the observed concentration of CT-16B. If the lower I-TEQ results from the reanalysis (0.535 μg/kg) are relied upon in the evaluation, the mean I-TEQ concentration is 0.11 μg/kg. Prior to installation of the thin-layer capping remedy, I-TEQ concentrations for surficial sediments in the Upper Reach of Welch Creek ranged from 0.6 to 7.6 μg/kg with a mean concentration of 2.5 μg/kg. Table 2-2 summarizes the Year 4 I-TEQ concentrations for the 10 core samples. Figure 2-2 illustrates the historical comparison of I-TEQ concentrations of discrete sediment samples collected in OU-4.

The surface weighted area concentration (SWAC) calculated following the remedy implementation was calculated by averaging the I-TEQ concentrations of three performance transect (PT) samples within each of 23 segments, then multiplying the 23 TEQ averages by their respective segment-weighted surface area as presented in the *Remedial Action Report* (RA Report; TRC, 2012). As specified in the PSVP, the annual performance monitoring consists of 10 randomly selected CT samples. A SWAC based on Year 4 performance monitoring was determined for the segments represented by the 10 individual CT samples based on observed I-TEQ concentrations and respective surface area. The calculated SWAC in Year 4 (2015) was 0.085 μg/kg, which is below the target I-TEQ for SWAC of 0.41 μg/kg. If the lower I-TEQ results from the reanalysis (0.535 μg/kg) is relied upon in the evaluation, the SWAC for Year 4 is 0.048 μg/kg. The calculated SWAC immediately post-remedy was 0.0004 μg/kg; the calculated Year 1 (2012) I-TEQ SWAC was 0.029 μg/kg; the calculated Year 2 (2013) I-TEQ SWAC was 0.006 μg/kg; and the calculated Year 3 (2014) I-TEQ SWAC was 0.015. The SWACs from the post-remedy and annual performance monitoring are summarized in Table 2-2.

Although nine of 10 discrete core samples were below the 1 μg/kg dioxin target level, the average I-TEQ from the Year 4 performance monitoring cores was greater than average I-TEQ observed in performance transect cores collected immediately following remedy installation. Given the absence of noticeable mixing of the underlying

sediments and the eMNR™ thin layer cap, increases in dioxin concentrations observed during post-remedy monitoring do not appear to be related to the interaction of the thin-layer cap with underlying impacted creek sediments. Instead, observed increases in dioxin concentrations are likely attributable to one or more of the following sources: limited accumulation of new surficial sediment from adjoining wetlands or upstream runoff, surficial debris, and/or atmospheric deposition. Newly accumulated surficial sediment and debris could be sourced from near-bank wetland sources, or deposited from upstream sources. Based on information gathered during the RI, dioxin concentrations in near-bank wetland soil samples ranged from 0.29 to 1.0 µg/kg. The I-TEQ values from the segment transects obtained post-remedy that correspond to the cores collected during the Year 4 performance monitoring are summarized in Table 2-2. The original laboratory analytical report for the sediment analysis and the analytical report for the re-extraction and analysis of CT-16B are included in Appendix C.

Table 2-1
Summary of Core Physical Characteristics

GENERAL LOCATION	SAMPLE[1]	DATE	INITIAL CAP THICKNESS[2] (in.)	CAP THICKNESS (2015) (in.)	VARIANCE BETWEEN INITIAL AND 2014 (in.)	COMPACTION[3]	DISTURBANCE[4]	SCOUR	DEBRIS	ORGANISMS	BIOTURBATION
Between MT-3 and GT-5	CT-01C	11/03/15	2.75	3.00	+0.25	evenly compacted; 2 distinct sand layers	none	none	minimal (leaves and twigs)	none	none
	CT-03A	11/03/15	2.50	3.00	+0.50	evenly compacted	none	none	very minimal (leaves)	none	none
Between GT-5 and GT-10	CT-06B	11/03/15	2.25	2.50	+0.25	evenly compacted	yes[5]	none	none	none	none
	CT-08C	11/03/15	3.00	4.50	+1.50	evenly compacted; 2 distinct sand layers	none	none	none	none	none
	CT-10B	11/03/15	2.75	3.00	+0.25	evenly compacted	minimal mud on top of core	none	moderate (top of core covered with leaves)	none	none
	CT-15B	11/03/15	3.25	4.00	+0.75	evenly compacted; 2 distinct sand layers	yes[6]	none	minimal (twigs)	none	none
	CT-16B	11/04/15	3.00	4.00	+1.00	unevenly compacted	minimal mud on top of core	none	none	none	none
	CT-17C	11/04/15	3.00	3.00	0.00	evenly compacted	none	none	minimal (leaves and twigs)	none	none
Between GT-10 and MT-6	CT-21D	11/04/15	3.00	4.00	+1.00	unevenly compacted	yes[7]	none	minimal (leaves)	none	none
	CT-23C	11/04/15	3.50	3.75	+0.25	evenly compacted	none	none	moderate (twigs and leaves)	none	none
Design Cap Thickness			**2.0 - 4.0 in.**								

(1) Core samples were randomly selected.
(2) Measurements obtained 24-hours following sand cap installation from December 2011 through February 2012.
(3) Compaction refers to the presence of voids observed in the core tube and the physical characteristics of the sand installation.
(4) Disturbance refers to the integrity of the sand cap.
(5) Observed 1 inch of black mud on top of core; sample is adjacent to wetland stream inlet to Welch Creek.
(6) Observed 2 inches of black mud on top of core.
(7) Observed 1 inch of black mud between two, two-inch sand layers.

Table 2-2
Summary of Surface Weighted Area Concentrations of Core Samples

GENERAL LOCATION	CREEK SEGMENT REPRESENTED	2015 CT SAMPLE[1]	DATE	TEQs (µg/kg)					
				2011 POST-REMEDY			YEAR 4 (2015)	2011 POST-REMEDY	YEAR 4 (2015)
				TEQ RANGES PER SEGMENT [2]		AVERAGE TEQ PER SEGMENT [2]	TEQ PER CT SAMPLE[3]	WEIGHTED TEQ CONTRIBUTION PER SEGMENT FOR SWAC [4]	WEIGHTED TEQ CONTRIBUTION PER SEGMENT FOR SWAC[5]
				MINIMUM	MAXIMUM				
Between MT-3 and GT-5	1	CT-01C	11/03/15	2.08E-05	1.11E-04	6.47E-05	1.11E-03	3.85E-06	6.58E-05
	3	CT-03A	11/03/15	0.00E+00	5.61E-05	1.87E-05	7.26E-04	7.63E-07	2.96E-05
Between GT-5 and GT-10	6	CT-06B	11/03/15	2.22E-05	2.59E-04	1.06E-04	6.66E-02	4.79E-06	3.02E-03
	8	CT-08C	11/03/15	1.13E-05	1.07E-04	5.23E-05	4.81E-03	2.12E-06	1.95E-04
	10	CT-10B	11/03/15	4.48E-05	1.83E-04	1.30E-04	2.02E-01	4.96E-06	7.74E-03
	15	CT-15B	11/03/15	3.60E-03	4.24E-03	3.87E-03	6.42E-03	1.64E-04	2.72E-04
	16	CT-16B	11/04/15	2.28E-05	3.43E-04	1.29E-04	1.43E+00	5.37E-06	5.96E-02
	16 (reanalysis)[6]	CT-16B[6]	11/04/15	2.28E-05	3.43E-04	1.29E-04	5.35E-01	5.37E-06	2.22E-02
	17	CT-17C	11/04/15	2.24E-05	7.37E-04	4.97E-04	6.28E-02	2.20E-05	2.76E-03
Between GT-10 and MT-6	21	CT-21D	11/04/15	6.21E-04	7.85E-03	3.16E-03	2.11E-01	1.53E-04	1.02E-02
	23	CT-23C	11/04/15	3.21E-06	2.22E-04	1.10E-04	2.02E-02	5.35E-06	9.87E-04
Target I-TEQ RGO for Discrete Samples				**1.0**					
Post-Remedy Calculated I-TEQ SWAC								0.0004	
Year 1 (2012) Calculated I-TEQ SWAC								0.029	
Year 2 (2013) Calculated I-TEQ SWAC								0.006	
Year 3 (2014) Calculated I-TEQ SWAC								0.015	
Year 4 (2015) Calculated I-TEQ SWAC								0.085; 0.048[7]	
Target I-TEQ RGO for SWAC								**0.41**	

Bolding indicates exceedance of target RGO.

(1) Core samples were randomly selected.

(2) TEQ values per corresponding transect based on three PT samples collected immediately post-remedy and documented in the 2012 Remedial Action Report (TRC). TEQs calculated using the 1989 Mammalian Toxic Equivalency Factor (TEF), where non-detect equals 0.

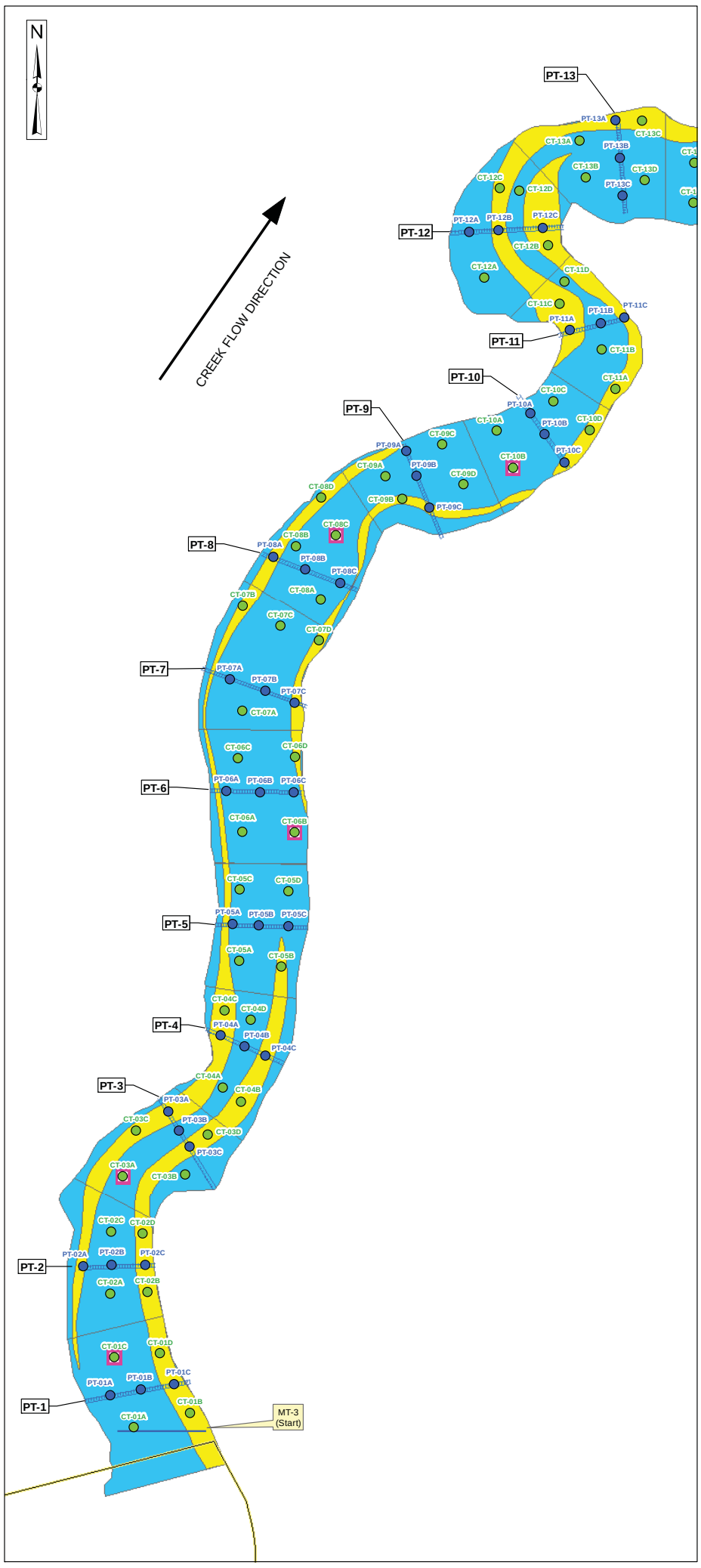
(3) Average TEQ per corresponding transect based on three PT samples collected immediately post-remedy and documented in the 2012 Remedial Action Report (TRC).

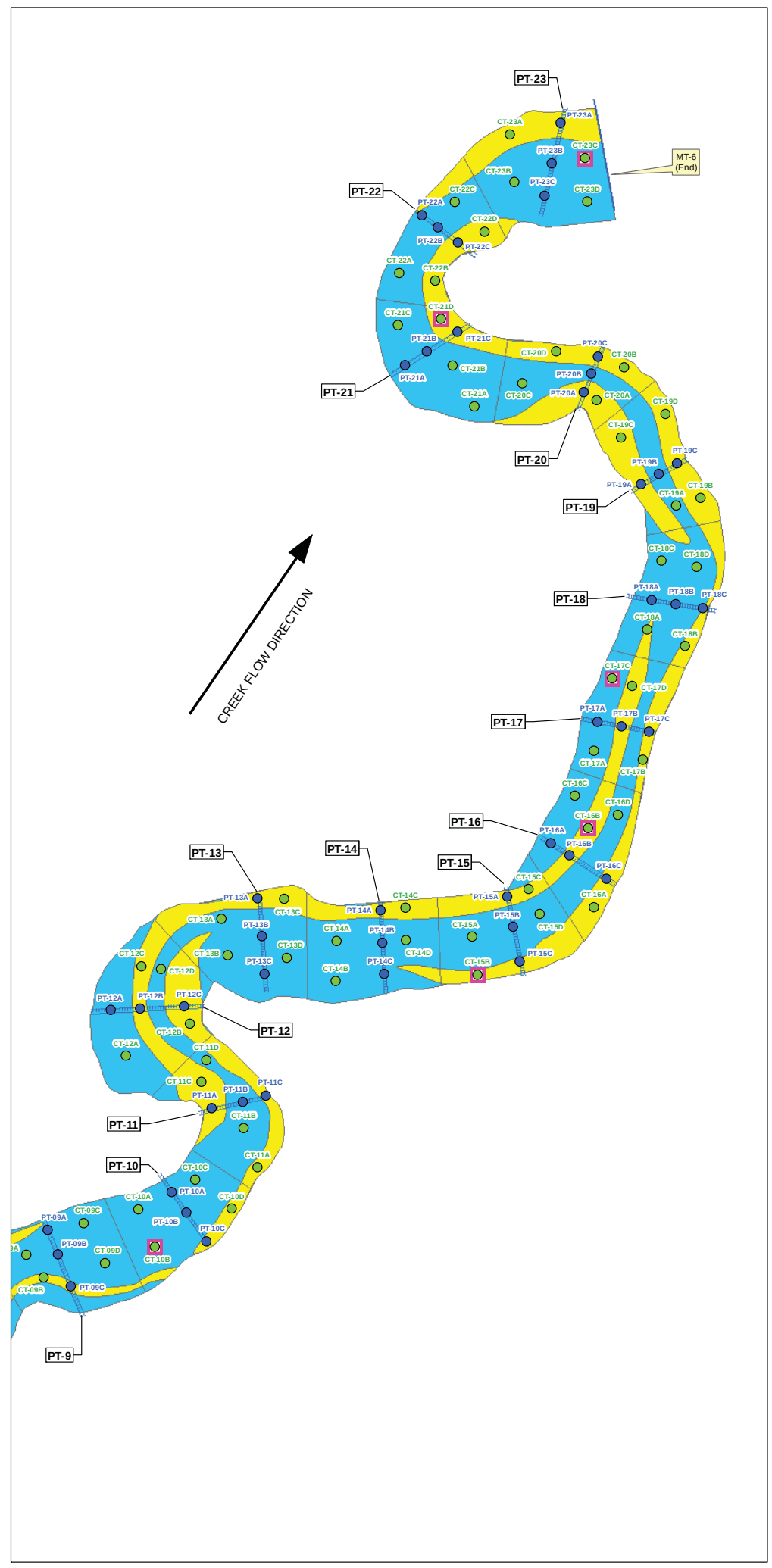
(4) The weighted TEQ contribution refers to the area weighted average of each segment multiplied by the average TEQ values of the PT samples within that segment.

(5) The Year 2 weighted TEQ contribution refers to the weighted average of each segment multiplied by the CT sample TEQ value within that respective segment.

(6) A new sediment aliquot was used for re-extraction and analysis of the original CT-16B sediment sample.

(7) Using the original CT-16B analysis, the calculated I-TEQ SWAC is 0.085 µg/kg. Using the reanalysis, the I-TEQ SWAC is 0.048 µg/kg.





PERFORMANCE TRANSECT SAMPLE COORDINATES

Sample ID	Northing	Easting	Sample ID	Northing	Easting
PT-01A	770051	2656467	PT-13A	771968	2657227
PT-01B	770059	2656513	PT-13B	771911	2657233
PT-01C	770067	2656563	PT-13C	771854	2657238
PT-02A	770245	2656426	PT-14A	771949	2657411
PT-02B	770246	2656469	PT-14B	771901	2657414
PT-02C	770246	2656519	PT-14C	771854	2657417
PT-03A	770478	2656554	PT-15A	771970	2657602
PT-03B	770448	2656571	PT-15B	771925	2657610
PT-03C	770425	2656586	PT-15C	771873	2657621
PT-04A	770592	2656633	PT-16A	772050	2657667
PT-04B	770575	2656669	PT-16B	772032	2657695
PT-04C	770562	2656700	PT-16C	771997	2657750
PT-05A	770759	2656651	PT-17A	772232	2657737
PT-05B	770757	2656690	PT-17B	772226	2657773
PT-05C	770756	2656735	PT-17C	772218	2657814
PT-06A	770959	2656642	PT-18A	772415	2657819
PT-06B	770957	2656692	PT-18B	772409	2657855
PT-06C	770957	2656743	PT-18C	772403	2657895
PT-07A	771127	2656647	PT-19A	772589	2657803
PT-07B	771110	2656700	PT-19B	772604	2657829
PT-07C	771092	2656744	PT-19C	772620	2657856
PT-08A	771311	2656712	PT-20A	772727	2657716
PT-08B	771293	2656761	PT-20B	772755	2657728
PT-08C	771272	2656813	PT-20C	772780	2657738
PT-09A	771470	2656913	PT-21A	772767	2657448
PT-09B	771434	2656928	PT-21B	772788	2657481
PT-09C	771386	2656947	PT-21C	772818	2657527
PT-10A	771527	2657099	PT-22A	772993	2657474
PT-10B	771496	2657120	PT-22B	772974	2657498
PT-10C	771453	2657150	PT-22C	772951	2657527
PT-11A	771653	2657159	PT-23A	773131	2657682
PT-11B	771662	2657205	PT-23B	773070	2657668
PT-11C	771671	2657240	PT-23C	773021	2657657
PT-12A	771800	2657007			
PT-12B	771802	2657051			
PT-12C	771806	2657117			

COVER THICKNESS VERIFICATION COORDINATES

SampleID	Northing	Easting	SampleID	Northing	Easting	SampleID	Northing	Easting
CT-01A	770002	2656502	CT-09A	771433	2656881	CT-17A	772189	2657732
CT-01B	770024	2656587	CT-09B	771399	2656907	CT-17B	772175	2657805
CT-01C	770108	2656473	CT-09C	771480	2656966	CT-17C	772297	2657759
CT-01D	770114	2656542	CT-09D	771420	2656998	CT-17D	772286	2657789
CT-02A	770204	2656467	CT-10A	771501	2657048	CT-18A	772371	2657811
CT-02B	770206	2656523	CT-10B	771445	2657073	CT-18B	772346	2657868
CT-02C	770297	2656468	CT-10C	771545	2657134	CT-18C	772474	2657833
CT-02D	770294	2656516	CT-10D	771502	2657189	CT-18D	772465	2657886
CT-03A	770380	2656486	CT-11A	771564	2657227	CT-19A	772557	2657855
CT-03B	770383	2656580	CT-11B	771623	2657206	CT-19B	772568	2657892
CT-03C	770449	2656506	CT-11C	771692	2657143	CT-19C	772659	2657772
CT-03D	770443	2656614	CT-11D	771725	2657150	CT-19D	772694	2657839
CT-04A	770513	2656636	CT-12A	771731	2657029	CT-20A	772715	2657736
CT-04B	770492	2656664	CT-12B	771780	2657126	CT-20B	772764	2657777
CT-04C	770629	2656639	CT-12C	771866	2657053	CT-20C	772741	2657624
CT-04D	770616	2656678	CT-12D	771861	2657082	CT-20D	772788	2657675
CT-05A	770704	2656661	CT-13A	771937	2657173	CT-21A	772705	2657552
CT-05B	770695	2656724	CT-13B	771882	2657182	CT-21B	772767	2657520
CT-05C	770811	2656662	CT-13C	771967	2657267	CT-21C	772827	2657437
CT-05D	770808	2656735	CT-13D	771878	2657271	CT-21D	772837	2657503
CT-06A	770898	2656666	CT-14A	771904	2657346	CT-22A	772906	2657440
CT-06B	770897	2656744	CT-14B	771844	2657345	CT-22B	772894	2657494
CT-06C	771008	2656659	CT-14C	771953	2657449	CT-22C	773012	2657523
CT-06D	771010	2656745	CT-14D	771905	2657450	CT-22D	772968	2657568
CT-07A	771080	2656666	CT-15A	771910	2657549	CT-23A	773113	2657606
CT-07B	771238	2656667	CT-15B	771853	2657557	CT-23B	773042	2657612
CT-07C	771208	2656723	CT-15C	771981	2657634	CT-23C	773078	2657718
CT-07D	771186	2656781	CT-15D	771944	2657650	CT-23D	773013	2657722
CT-08A	771247	2656784	CT-16A	771954	2657732			
CT-08B	771327	2656746	CT-16B	772073	2657723			
CT-08C	771344	2656806	CT-16C	772122	2657703			
CT-08D	771401	2656785	CT-16D	772093	2657768			

LEGEND

- PERFORMANCE TRANSECT (PT) SAMPLE DURING CONSTRUCTION
- COVER THICKNESS (CT) SAMPLE DURING CONSTRUCTION
- YEAR 4 PERFORMANCE MONITORING VERIFICATION SAMPLES
- PERFORMANCE TRANSECT (PT)

eMNR PLACEMENT SECTIONS SIDE SLOPES (APPROX.)

- <15 Degrees
- >15 Degrees
- PROPERTY BOUNDARY

PROJECTION: NORTH CAROLINA STATE PLANE
DATUM: NAD83
UNITS: FEET (U.S.)

0 100 200
Feet

DOMTAR PAPER COMPANY, LLC
MARTIN COUNTY, NORTH CAROLINA
WELCH CREEK - OU-4

PERFORMANCE MONITORING
LOCATIONS OF PERFORMANCE TRANSECT AND
COVER THICKNESS VERIFICATION SAMPLES

DRAWN BY: AMF	SCALE AS NOTED	PROJECT NO.: 228188.0.0	
CHECKED BY: MAH		FILE NO.:	
APPROVED BY: KCS	REFERENCE INFO: 00625; 005877	FIGURE NO.: 2-1	
DATE: SEPTMEBER 2015			

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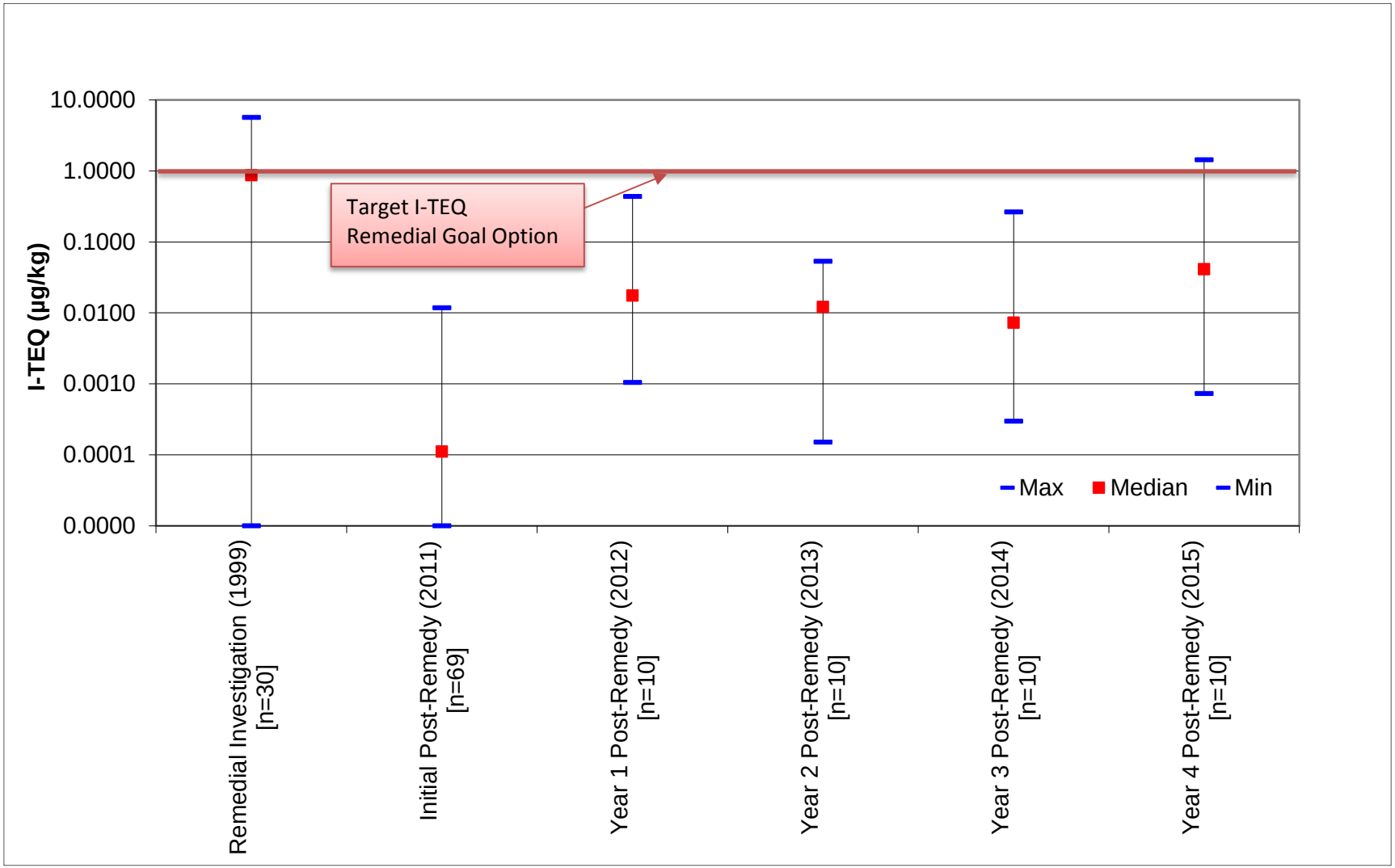
Figure 2-2
Comparison of I-TEQ Concentrations in Discrete Sediment Samples



Section 3
Surface Water Sampling and Analyses

This section presents the methods and results of surface water sampling conducted during Year 4 following installation of the sediment capping remedy. Year 4 performance monitoring activities related to surface water include the following:

- Annual surface water grab samples from three locations for chemical water quality and indicator parameters

3.1 Annual Surface Water Performance Monitoring

Three surface water grab samples were collected from the Upper Reach transects GT-4 (upstream background location), MT-4, and MT-6 on November 3, 2015. The surface water samples were collected with a Geopump® and polyurethane tubing at mid-depth of the water column and analyzed by ALS for 2,3,7,8-PCDD/PCDFs by USEPA Method 1613B, total suspended solids (TSS) by USEPA Method 2540D, volatile suspended solids (VSS) by USEPA Method 160.4, dissolved organic carbon (DOC) and total organic carbon (TOC) by USEPA Method 5310B, and metals by USEPA Method 6010C. Surface water sampling and analytical procedures were performed consistent with those outlined in the FSP (RMT, 2009) and QAPP (RMT, 2009). Figure 3-1 illustrates transect sampling locations and field notes from the sampling event are included in Appendix A.

Table 3-1 summarizes the surface water analytical results and the water quality parameters from the 2015 annual sampling event. 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) was not detected at the lowest estimated instrument detection limits in any of the three surface water samples[4]. VSS concentrations were below laboratory detection limits in each of the three surface water samples while TSS concentrations were detected in the upstream (GT-4) and the downstream (MT-6) locations. TOC ranged from 12.4 to 13.8 milligrams per liter (mg/L) with a mean of 13.0 mg/L. DOC ranged from 11.9 mg/L and 13.4 mg/L with a mean of 12.57 mg/L. Prior to collection of the surface water grab samples from GT-4, MT-4, and MT-6, water quality measurements were obtained for DO, specific conductivity, temperature, pH, oxidation reduction potential (ORP), and turbidity. Water quality measurements are summarized in Table 3-1. Laboratory analytical reports are included in Appendix C.

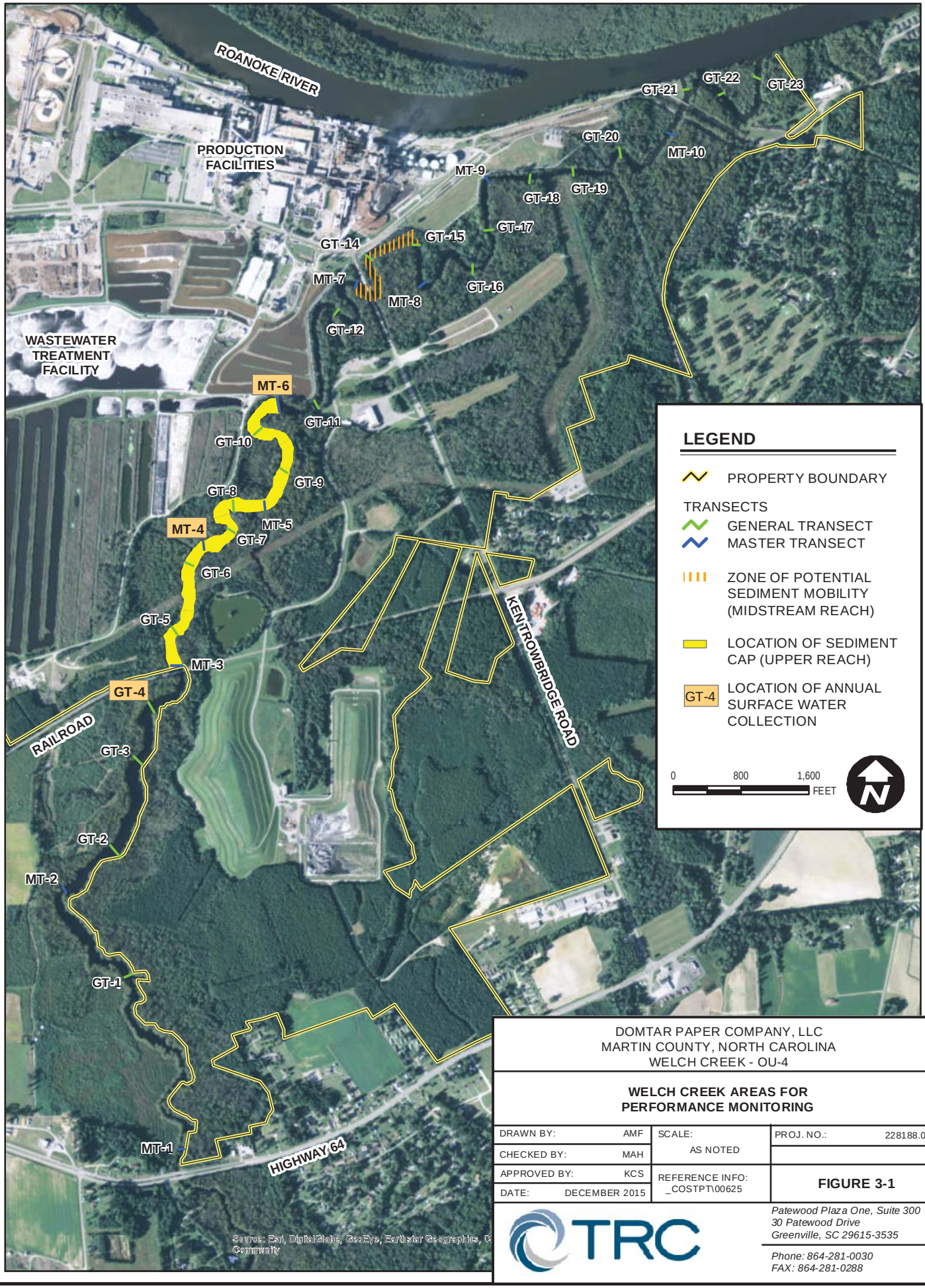
[4] Surface water samples were collected for comparison to state water quality standards using 1-liter sample containers consistent with USEPA Method 1613B and Region 4 SOPs. USEPA Method 1613B is identified in the North Carolina Surface Water and Wetland Standards (15A NCAC 02B.0103) by reference to 40 CFR Part 136.

Supplemental fingerprinting analyses were created to illustrate the patterns observed in the detected dioxin/furan congener profiles between Years 3 through 4 only because the full congener lists were not analyzed in Years 2 and 3. Congener profiles for OU-4 surface water from sampling events in years 2014 and 2015 primarily consist of detections of two or three congeners. Congener profiles for OU-4 surface water samples collected in 2014 included predominant detections of 1,2,3,4,6,7,8- HpCDD, OCDD, and octachlorodibenzofuran (OCDF), while principal congeners observed in the 2015 surface water samples were OCDD and OCDF. In both years, congener profiles were generally the same in the upgradient and downgradient samples demonstrating limited to no effect from the site on the water quality. Fingerprinting analyses from the 2014 and 2015 surface water sampling events are included as Appendix D.

Table 3-1
Summary of Annual Surface Water Analytical Results

PARAMETER[1]	NC SWQC[2]	LOCATION/SAMPLE DATE											
		SW-2012-GT4 11/06/12 (Year 1)	SW-2013-GT4 11/05/13 (Year 2)	SW-2014-GT4 11/04/14 (Year 3)	SW-2015-GT4 11/03/15 (Year 4)	SW-2012-MT4 11/06/12 (Year 1)	SW-2013-MT4 11/04/13 (Year 2)	SW-2014-MT4 11/04/14 (Year 3)	SW-2015-MT4 11/03/15 (Year 4)	SW-2012-MT6 11/06/12 (Year 1)	SW-2013-MT6 11/04/13 (Year 2)	SW-2014-MT6 11/04/14 (Year 3)	SW-2015-MT6 11/03/15 (Year 4)
Dioxin													
2,3,7,8-Tetrachlorodibenzo-p-dioxin (µg/L)	0.000000005	<0.00000417	<0.00000506	<0.00000204	<0.000000604	<0.00000367	<0.00000510	<0.00000133	<0.00000247	<0.00000364	<0.00000522	<0.00000165	<0.00000109
Metals													
Aluminum, total recoverable	--	**0.15 B**	**0.120 B**	<0.090 BJ	<0.11 B	**0.16 B**	**0.120 B**	<0.080 BJ	<0.09 BJ	**0.18 B**	**0.13 B**	<0.110 B	<0.13 B
Barium, total recoverable	--	**0.035**	**0.046**	**0.048**	**0.055**	**0.036**	**0.047**	**0.050**	**0.058**	**0.037**	**0.048**	**0.050**	**0.052**
Calcium, total recoverable	--	**8.73**	**11.7**	**12.2**	**13.0**	**9.17**	**13.0**	**13.6**	**13.5**	**9.82**	**13.4**	**14.2**	**13.6**
Iron, total recoverable	1.0	**1.19**	**2.97**	**2.02**	**2.96**	**1.39**	**3.52**	**2.37**	**2.25**	**1.84**	**4.09**	**2.18**	**2.59**
Magnesium, total recoverable	--	**2.04**	**2.86**	**2.93**	**3.28**	**2.07**	**3.08**	**3.21**	**3.45**	**2.27**	**3.09**	**3.29**	**3.48**
Manganese, total recoverable	--	**0.029**	**0.145**	**0.189**	**0.226**	**0.032**	**0.189**	**0.228**	**0.206**	**0.042**	**0.222**	**0.213**	**0.214**
Titanium, total recoverable	--	<0.050	**0.001 BJ**	<0.050	**0.001 J**	<0.0004	**0.001 BJ**	<0.050	**0.001 J**	**0.001 J**	**0.001 BJ**	<0.050	**0.001 J**
Wet Chemistry													
Solids, total suspended	--	**6.5 j**	<5.0	<5.0	**14.0**	**7.0 j**	<5.0	<5.0	<5.0	**7.5 j**	**5.5**	<5.0	**6.0**
Solids, total suspended, volatile	--	<10 uj	<10	<10	<10	<10 j	<10	<10	<10	<10 j	<10	<10	<10
Dissolved organic carbon	--	**15.0**	**12.1**	**35.8**	**11.9**	**17.4**	**12.9**	**37.1**	**12.4**	**18.4**	**12.9**	**22.9 Xj**	**13.4**
Total organic carbon	--	**18.5**	**11.6**	**23.1 j+**	**12.8**	**19.9**	**12.4**	**24.2 j+**	**12.4**	**19.3**	**12.7**	**14.5 j+**	**13.8**
Field Parameters													
Conductance, specific (mS/cm)	--	0.113	0.102	0.156	0.110	0.116	0.113	0.186	0.115	0.128	0.119	0.199	0.135
DO	--	5.45	3.10	6.05	0.69	7.58	3.58	6.91	0.00	8.48	4.60	7.46	0.79
pH	--	6.16	6.67	6.31	7.07	6.16	6.85	6.36	7.16	5.99	6.9	6.44	7.35
ORP (mV)	--	--	177	165	87	--	168	171	168	--	130	157	319
Temperature (°C)	--	9.74	14.68	13.16	16.43	9.69	14.79	12.70	16.39	9.63	14.99	12.15	16.72
Turbidity (ntu)	--	4.53	5.87	7.41	6.63	5.26	6.43	8.48	5.97	7.67	9.20	7.21	5.45

(1) Analytical results are reported in milligrams per liter (mg/L) unless otherwise noted.
(2) Surface water quality criteria specified by Title 15A subchapter 2B of the North Carolina Administrative Code (15A NCAC2B).
B Analyte was found in the associated method blank as well as in the sample.
J Estimated value. Concentration found below MRL.
j Concentration considered an estimate based on data validation.
uj Not detected; quantitation limit may be inaccurate or imprecise.
X Indicates a calibration issue associated with DOC; see case narrative of analytical report.
\+ Estimated value, biased high.
Bolding indicates constituent detection.



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MARTIN COUNTY, NORTH CAROLINA
WELCH CREEK - OU-4

WELCH CREEK AREAS FOR PERFORMANCE MONITORING

DRAWN BY: AMF	SCALE: AS NOTED	PROJ. NO.: 228188.0.0	
CHECKED BY: MAH			
APPROVED BY: KCS	REFERENCE INFO: _COSTPT\00625	**FIGURE 3-1**	
DATE: DECEMBER 2015			

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Section 4
Fish Tissue Sampling and Analyses

This section documents the fish tissue sampling conducted in Welch Creek during Year 4 following installation of the sediment capping remedy.

4.1 Fish Collection and Sampling

The goal of the fish tissue sampling was to collect three species of fish at each of four locations: an upstream reference point between MT-1 and MT-2, the Upper Reach between transects MT-3 and MT-6, the Midstream Reach between transects MT-7 and MT-8, and the downstream location between MT-8 and GT-19. CZR, Inc. (CZR) was subcontracted to conduct the fish tissue sampling, which occurred in late April/early May 2015. The 2015 fish tissue sampling effort is documented in CZR's report entitled *Welch Creek Fish Dioxin and Furan Monitoring, April/May 2015*, which is attached as Appendix E to this Year 4 monitoring report.

Both active and passive fish collection techniques were utilized in Welch Creek, including electroshocking, trot lines, and gill net collection. Effort was made during fish collection to not disturb the capping system remedy installed between MT-3 and MT-6.

Table 4-1 summarizes the composition of the fish samples for Year 4 of the OU-4 Performance Monitoring. Composites were prepared according to the NC DEQ Fish Tissue Assessment SOP using the following guidelines:

- Composites were comprised of a single species
- Targeted composite samples ideally would consist of three to five individual fish of a given species within each guild
- Each individual fish within the composite will be within ± 25 percent of the average weight of all fish within the composite
- Individual fish within the composite will be no less than 75 percent of the maximum length of the largest member of the composite.

Even though a variety of collection methods was used during the 2015 fish sampling event, the sampling event did not generate sufficient fish tissue to fully achieve the bottom feeder targets. Reduced capture success has been observed in prior Welch Creek sampling events, and this has been attributed to decreased dissolved oxygen (DO). The average DO was 2.98 mg/L in Welch Creek during the spring 2015 sampling event.

Composited bottom feeder fillets and composited small and large forage species carcass and fillet portions were submitted to ALS for 2,3,7,8-PCDD/PCDF analyses using USEPA Method 1613B.

Right fillets were removed from the forage fish and then analyzed separately from the remaining carcass remnants (whole fish minus right fillet) to further evaluate dioxin trends. Fish tissue composite samples were analyzed for lipid content. The analytical results for the fish tissue analyses are included in Appendix C. Additional details with respect to sampling location descriptions, field, analytical, and data analysis methods are provided in the 2015 CZR report (Appendix E).

4.2 Results of Fish Tissue Analyses

The following narrative summarizes the findings of the 2015 CZR Welch Creek fish sampling and analysis effort. The carcass and fillet portions of each large and small forage sample were weighed prior to laboratory submittal. For the purpose of comparison to previously collected whole fish samples, carcasses and corresponding fillets were mathematically combined on a weighted basis to arrive at a whole fish concentration for percent lipid, and 2,3,7,8-PCDD/PCDF. Table 4-2 provides values of average weight, percent lipid and dioxin I-TEQs for composited fish tissue samples. The TEQs are reported for both WHO TEFs and I-TEFs.

4.2.1 Fish Tissue – Percent Lipid

During previous sampling events, the fish tissue lipid content ranged between 0.01 and 15.2 percent. The fish tissue collected during the Year 4 performance monitoring effort exhibited lipid values within the previously observed range with percentages between 0.98 and 8.20. Fish tissue lipid content is summarized on Table 4-2.

4.2.2 Fish Tissue – Dioxin/Furan Observations

Fish collected during the Year 4 performance monitoring effort from Welch Creek exhibited similar dioxin I-TEQ concentrations relative to previous years, with the exception of 2012 for which the results are unreliable[5]. As shown in Table 4-2, dioxin/furan results observed in fish tissues collected from the Upper Reach (MT-3 to MT-6) and the Midstream Reach (MT-7 to GT-15) are higher, on average, as compared to the upstream reference station and the downstream station for both fillet and whole fish samples.

The North Carolina Department of Health and Human Services (NC DHHS) issues a fish consumption advisory when the dioxin I-TEQ concentration in edible fish tissue exceeds 4.0 ng/kg. Dioxin concentrations below this amount are considered safe and acceptable by the NC DHHS. Edible portions of the fish typically refer to the fillet tissue; therefore, for this study, the forage feeder species were segregated into fillet and remaining carcass samples prior to laboratory analysis to further evaluate dioxin trends

5 As discussed in the Year 1 Performance Monitoring Report (TRC, 2013), the 2012 I-TEQ results were considered unreliable.

in fillet fish tissue. Of the fillet composites collected from Welch Creek in 2015, one bottom feeder sample collected from the downstream location (common carp; PLY-14-15 MT8/GT19 CC) exhibited a dioxin I-TEQ concentration (6.19 ng/kg) greater than the North Carolina fish consumption advisory level. This composited common carp sample was approximately 600 percent to 1,000 percent heavier by weight than the other bottom feeder composites. Figure 4-1 summarizes the I-TEQ concentrations in forage and bottom feeder fillet samples collected in 2015.

Figure 4-2 presents the I-TEQ concentrations in fillet (edible) fish tissue from all sampling locations from the 1999 Welch Creek RI, the 2006 through 2010 NPDES permit sampling in the Lower Roanoke River and lower Welch Creek, and the 2012 through 2015 Performance Monitoring in both Welch Creek and the Lower Roanoke River. As demonstrated in Figure 4-2, the I-TEQ concentrations in 2015 fillet fish tissue in Welch Creek are comparable to the concentrations collected historically during the NPDES permit sampling, with exception to the 2012 results, which are considered unreliable. The forage fish guilds in Figure 4-2 are represented by the red data series while the bottom feeder guilds are represented by the blue data series. Forage fillets continue to be below the North Carolina fish consumption advisory level, as illustrated in Figure 4-2. Although bottom feeder I-TEQ concentrations in Welch Creek have significantly decreased from those reported during the RI, at least one composite from each sampling event exhibits I-TEQ concentrations slightly above the current North Carolina fish consumption advisory level.

Figure 4-3 compares I-TEQ concentrations in small forage (whole) fish, large forage (whole) fish, and bottom feeder (fillets) fish tissues sampled from OU-4 over time. The concentrations within each guild indicate a decreasing trend since the 1999 RI. Among the sampled fish guilds, bottom feeders are typically compared to the North Carolina fish consumption advisory level because this represents available fillet data and this guild is considered the most desirable for consumption. As illustrated in Figure 4-3, the median dioxin concentrations for bottom feeding guild tissue samples collected after the RI have been below the current North Carolina fish consumption advisory level, with the exception of the unreliable dataset from 2012.

Figure 4-4 illustrates comparison between I-TEQ concentrations in mixed fish tissues (whole and fillet) from Welch Creek, the Lower Roanoke River, and other nearby water bodies. As shown in Figure 4-4, fish tissue collected in Welch Creek indicate median I-TEQ concentrations similar to those collected in the Lower Roanoke River and other locations.

The dioxin/furan profiles for the 2015 fish tissue samples were compared to those from previous years (1999, 2010, and 2012 through 2015). Typically, the four congeners that

predominate the congener profiles for Welch Creek fish tissues are 2,3,7,8-TCDF, OCDD, 2,3,7,8-TCDD, and 1,2,3,4,6,7,8-HpCDD. Fish tissue congener profiles for 2015 primarily consisted of 2,3,7,8-TCDD, OCDD, and OCDF. Congener profiles for 2012 Welch Creek fish tissues were markedly different than other congener profiles and, as discussed in the *Year 1 Performance Monitoring Report* (TRC, 2013) and are considered unreliable. The dioxin/furan congener profiles from 1999, 2010, and 2012 through 2015 are included as Appendix F.

In addition, supplemental fingerprinting analyses were created to illustrate the patterns observed in the dioxin/furan congener profiles within each of the three fish guilds: bottom feeder, large forage, and small forage. Fingerprinting analyses mirror the dioxin congener profiles for fish tissue. Fingerprinting from each fish guild during the 1999, 2010, and 2012 through 2015 sampling events are included as Appendix G.

4.3 Summary of Fish Tissue Analyses

Fish collected during the Year-4 performance monitoring effort from Welch Creek revealed dioxin I-TEQ concentrations similar to previous years with the exception of the unreliable Year 1 (2012) fish tissue results.

The NC DHHS issues a fish consumption advisory when the dioxin I-TEQ concentration in edible (fillet) fish tissue exceeds 4.0 ng/kg. One composite sample from the 2015 Welch Creek fish tissue sampling event (common carp; PLY-14-15 MT8/GT19 CC) exhibited a dioxin I-TEQ of 6.19 ng/kg, which is greater than the current North Carolina fish consumption advisory level. The 2015 I-TEQ concentrations in the edible fillet fish tissue have substantially decreased from the concentrations observed during the 1999 RI. The I-TEQ concentrations in edible fillet tissue of forage fish have consistently been below the current North Carolina fish consumption advisory level. With few exceptions, bottom feeder I-TEQ concentrations have been below the fish consumption advisory level.

Table 4-1
Summary of Composited Fish Tissue Samples

	TARGET SAMPLES	YEAR 4 (2015) COMPOSITED SAMPLES
MT-1 TO MT-2 (UPSTREAM)	**1 Small Forage Composite**	**Small Forage Feeder** ▪ 1 composite – 5 bluegill (carcass); PLY-01-15 MT1/MT2 BG - Carcass ▪ 1 composite – 5 bluegill (fillet); PLY-01-15 MT1/MT2 BG - Fillet
	1 Large Forage Composite	**Large Forage Feeder** ▪ 1 composite – 5 largemouth bass (carcass); PLY-02-15 MT1/MT2 LB - Carcass ▪ 1 composite – 5 largemouth bass (fillet); PLY-02-15 MT1/MT2 LB - Fillet
	1 Bottom Feeder Composite	**Bottom Feeder** ▪ 1 composite – 2 yellow bullhead (fillet); PLY-03-15 MT1/MT2 YB - Fillet
MT-3 TO MT-6	**2 Small Forage Composites**	**Small Forage Feeder** ▪ 1 composite – 5 bluegill (carcass); PLY-04-15 MT3/MT6 BG - Carcass ▪ 1 composite – 5 bluegill (fillet); PLY-04-15 MT3/MT6 BG - Fillet ▪ 1 composite – 5 bluegill (carcass); PLY-05-15 MT3/MT6 BG - Carcass ▪ 1 composite – 5 bluegill (fillet); PLY-05-15 MT3/MT6 BG - Fillet
	1 Large Forage Composite	**Large Forage Feeder** ▪ 1 composite – 5 largemouth bass (carcass); PLY-06-15 MT3/MT6 LB - Carcass ▪ 1 composite – 5 largemouth bass (fillet); PLY-06-15 MT3/MT6 LB - Fillet
	2 Bottom Feeder Composites	**Bottom Feeder** ▪ 1 composite – 5 yellow bullhead (fillet); PLY-07-15 MT3/MT6 YB – Fillet ▪ Lacking the secondary composite sample
MT-7 TO MT-8	**2 Small Forage Composites**	**Small Forage Feeder** ▪ 1 composite – 5 bluegill (carcass); PLY-08-15 MT7/MT8 BG - Carcass ▪ 1 composite – 5 bluegill (fillet); PLY-08-15 MT7/MT8 BG - Fillet ▪ 1 composite – 5 bluegill (carcass); PLY-09-15 MT7/MT8 BG - Carcass ▪ 1 composite – 5 bluegill (fillet); PLY-09-15 MT7/MT8 BG - Fillet
	1 Large Forage Composite	**Large Forage Feeder** ▪ 1 composite – 5 largemouth bass (carcass); PLY-10-15 MT7/MT8 LB - Carcass ▪ 1 composite – 5 largemouth bass (fillet); PLY-10-15 MT7/MT8 LB - Fillet
	2 Bottom Feeder Composites	**Bottom Feeder** ▪ 1 composite – 3 yellow bullhead (fillet); PLY-11-15 MT7/MT8 YB – Fillet ▪ Lacking secondary composite sample

Table 4-1
Summary of Composited Fish Tissue Samples

	TARGET SAMPLES	YEAR 4 (2015) COMPOSITED SAMPLES
MT-8 TO GT-19 (DOWNSTREAM)	**1 Small Forage Composite**	**Small Forage Feeder** ▪ 1 composite – 5 bluegill (carcass); PLY-12-15 MT8/GT19 BG - Carcass ▪ 1 composite – 5 bluegill (fillet); PLY-12-15 MT8/GT19 BG - Fillet
	1 Large Forage Composite	**Large Forage Feeder** ▪ 1 composite – 5 largemouth bass (carcass); PLY-13-15 MT8/GT19 LB - Carcass ▪ 1 composite – 5 largemouth bass (fillet); PLY-13-15 MT8/GT19 LB - Fillet
	1 Bottom Feeder Composite	**Bottom Feeder** ▪ 1 composite – 3 common carp (fillet); PLY-14-15 MT8/GT19 CC - Fillet

Note: Targeted composites should consist of 3 to 5 individual species.

Table 4-2
Fish Tissue Analytical Results

STATION	SPECIES	SAMPLE TYPE [1]	NUMBER OF FISH PER COMPOSITE	AVG. WT. (g)	AVG. LENGTH (mm)	% LIPID	TEQ WHO TEFs (ng/kg)	TEQ I-TEFs (ng/kg)	ESTIMATED WHOLE FISH CONCENTRATIONS: CALCULATED % LIPID [2]	CALCULATED TEQ WHO TEFs (ng/kg) [2]	CALCULATED TEQ I-TEFs (ng/kg) [2]
MT-1/MT-2 (Reference)	Bluegill	Carcass	5	60	152	7.58	0.76	0.79	6.94	0.69	0.73
	Bluegill	Fillet	5	7		1.46	0.14	0.18			
	Largemouth bass	Carcass	5	440	341	4.18	2.90	2.93	3.76	2.60	2.63
	Largemouth bass	Fillet	5	75		1.26	0.89	0.92			
	Yellow bullhead	Fillet	2	55	322	1.42	0.25	0.28	1.42	0.25	0.28
MT-3/MT-6	Bluegill	Carcass	5	79	164	7.03	2.22	2.25	6.65	2.10	2.14
	Bluegill	Fillet	5	6		1.71	0.62	0.65			
	Bluegill	Carcass	5	101	172	8.61	3.47	3.51	8.20	3.18	3.21
	Bluegill	Fillet	5	10		4.08	0.17	0.20			
	Largemouth bass	Carcass	5	337	318	4.39	2.50	2.53	3.86	2.11	2.14
	Largemouth bass	Fillet	5	65		1.11	0.10	0.14			
	Yellow bullhead	Fillet	5	37	279	1.48	0.84	0.92	1.48	0.84	0.92
MT-7/MT-8	Bluegill	Carcass	5	61	152	4.93	3.12	3.15	4.77	2.85	2.88
	Bluegill	Fillet	5	6		3.22	0.11	0.14			
	Bluegill	Carcass	5	112	183	6.16	3.72	3.76	5.38	3.23	3.27
	Bluegill	Fillet	5	21		1.26	0.63	0.67			
	Largemouth bass	Carcass	5	302	293	5.88	7.24	7.28	5.32	6.31	6.35
	Largemouth bass	Fillet	5	51		1.99	0.78	0.81			
	Yellow bullhead	Fillet	3	32	264	0.98	1.06	1.07	0.98	1.06	1.07
MT-8/GT-19 (Downstream)	Bluegill	Carcass	5	68	157	5.86	2.04	2.07	5.47	1.87	1.90
	Bluegill	Fillet	5	7		1.69	0.18	0.21			
	Largemouth bass	Carcass	5	305	295	3.46	3.47	3.50	3.12	3.04	3.08
	Largemouth bass	Fillet	5	63		1.45	1.01	1.04			
	Common carp	Fillet	3	350	624	7.68	6.21	**6.19**	7.68	6.21	**6.19**

[1] Each small and large forage feeder composite was segregated into a carcass and fillet sample. The carcass sample is comprised of the whole body minus one fillet. The fillet sample is the remaining fillet of the respective fish.

[2] Whole fish % lipid and TEQ concentrations were calculated using the individual carcass and fillet concentrations on a weighted basis using the following equation:
Whole fish concentrations = [(avg. wt. of carcass * concentration of carcass) + (avg. wt. of fillet * concentration of fillet)]/(avg. wt. of carcass + avg. wt. of fillet)

Figure 4-1
Comparison of 2015 Fish Tissue Fillet I-TEQ by Fish Guild within Welch Creek

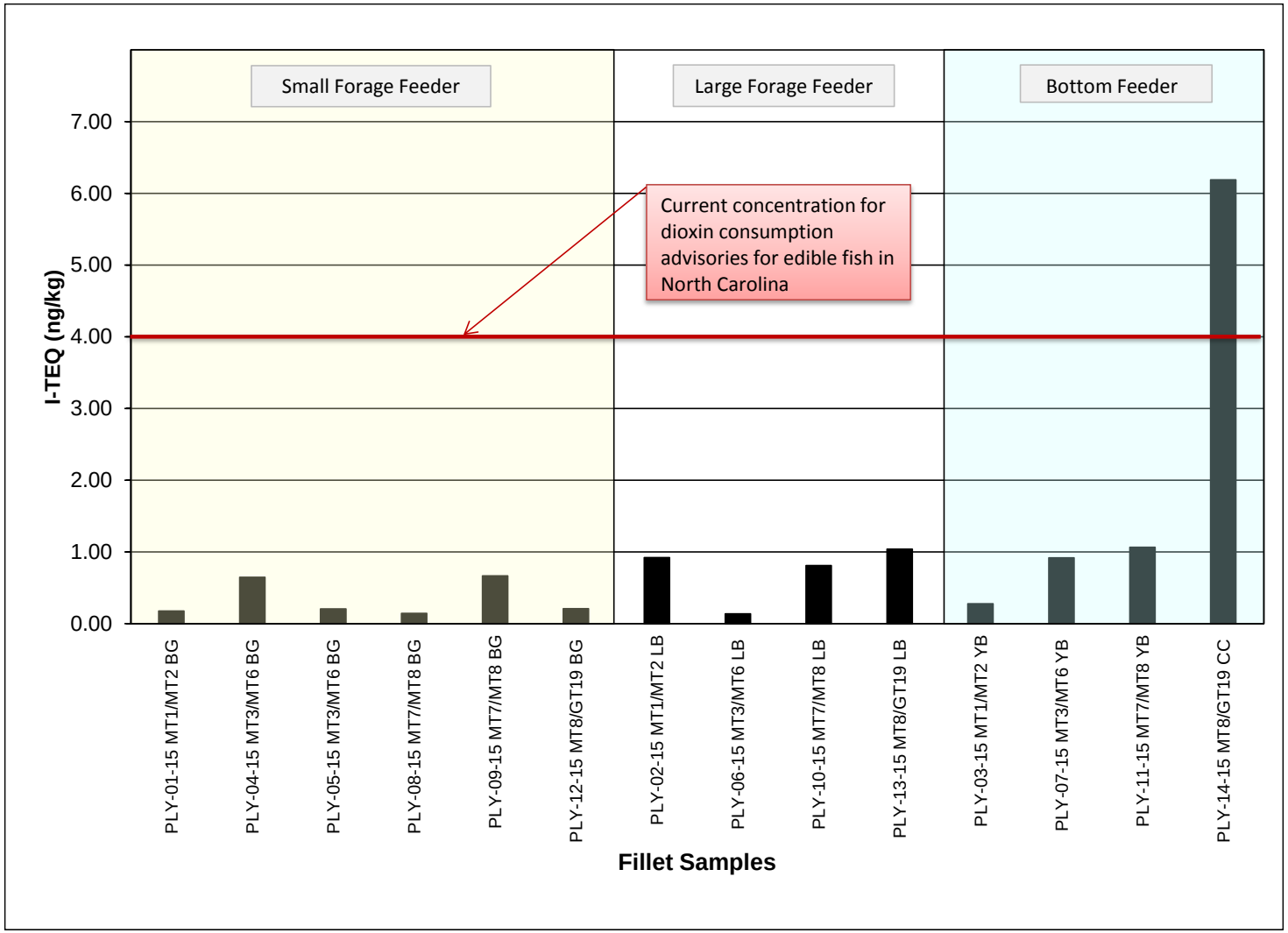


Figure 4-2
Comparison of Fillet Fish Tissue I-TEQ in All Locations over Time

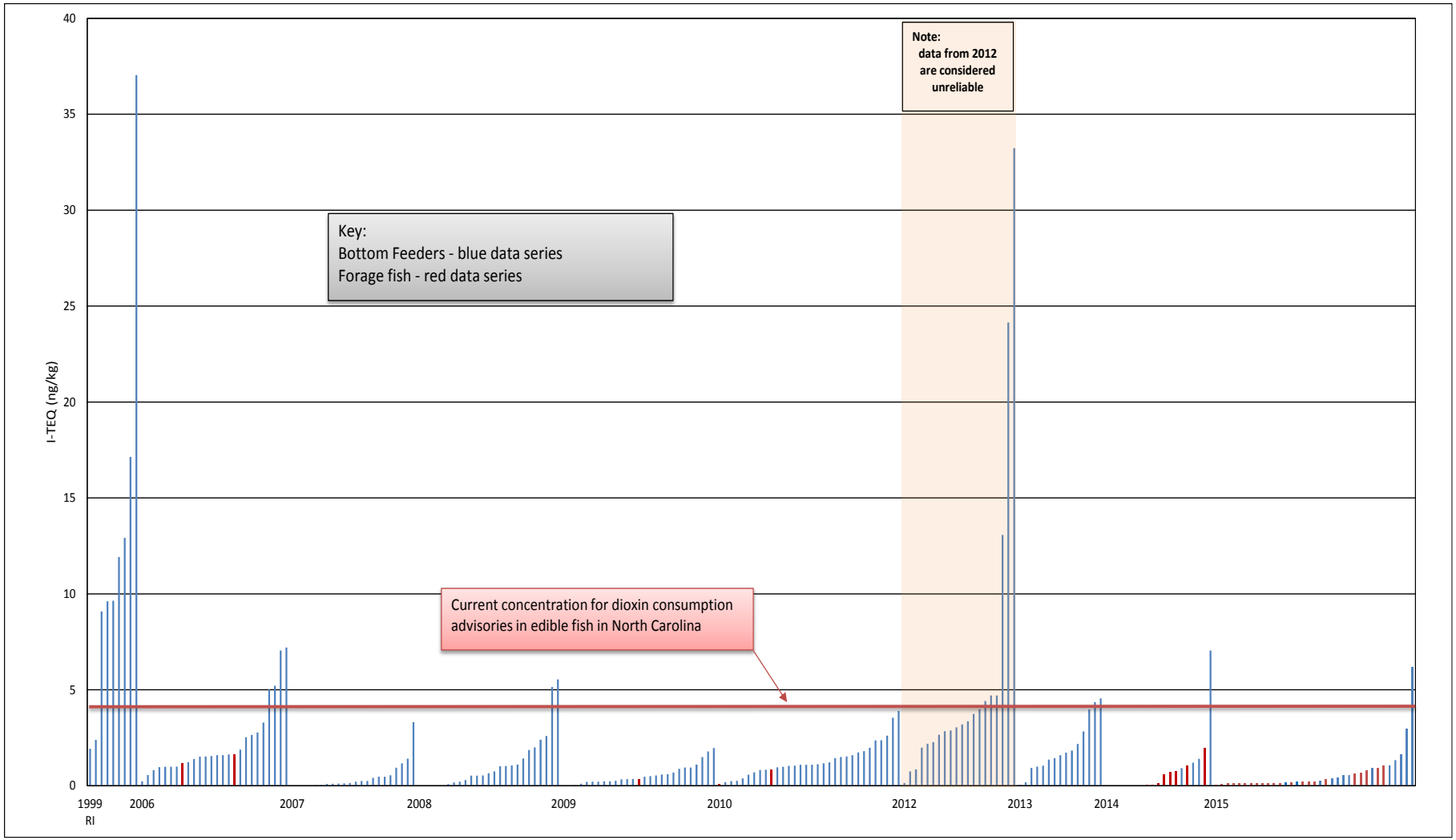


Figure 4-3
Comparison of Fish Tissue I-TEQ by Fish Guild within Welch Creek over Time

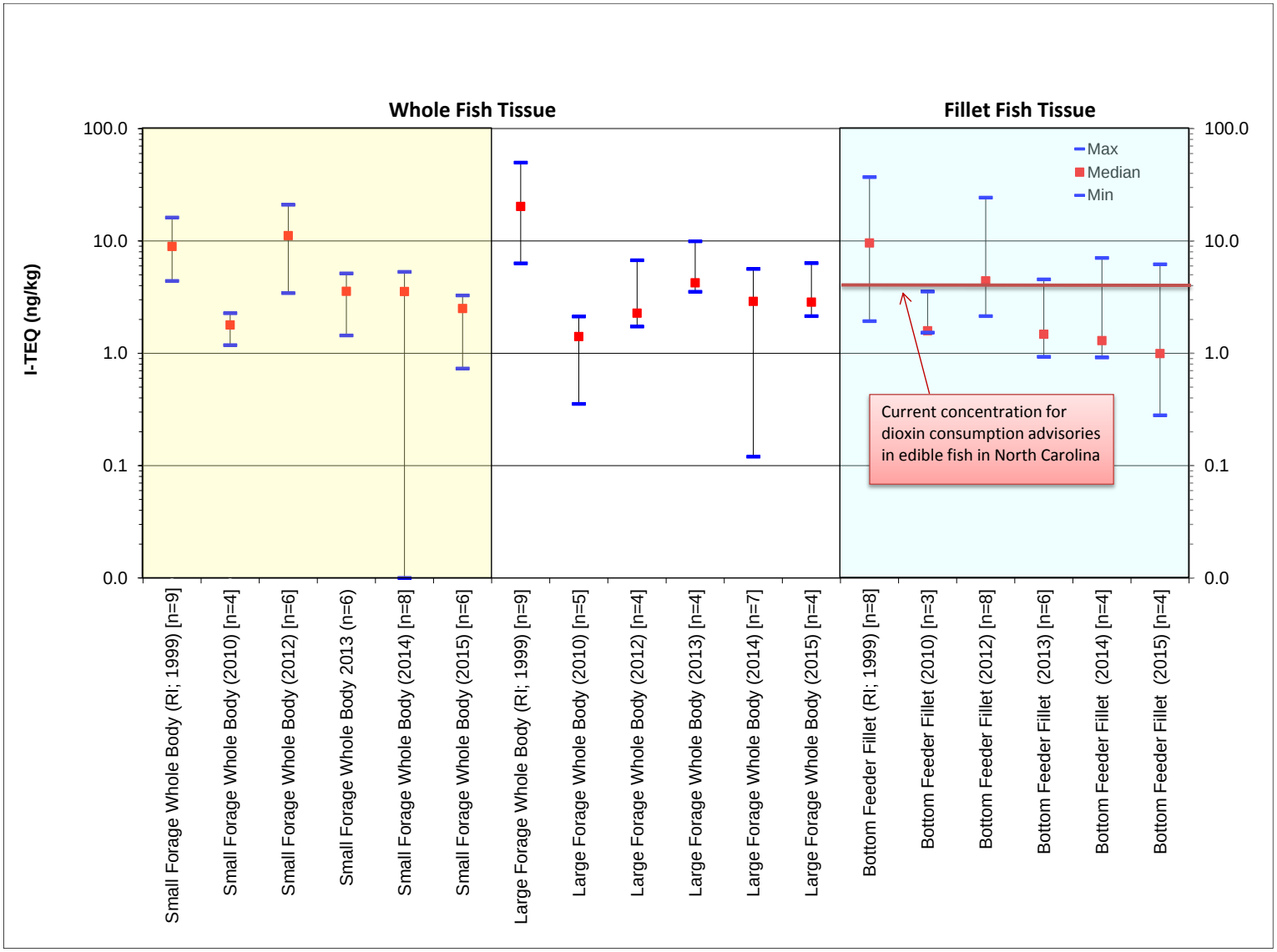
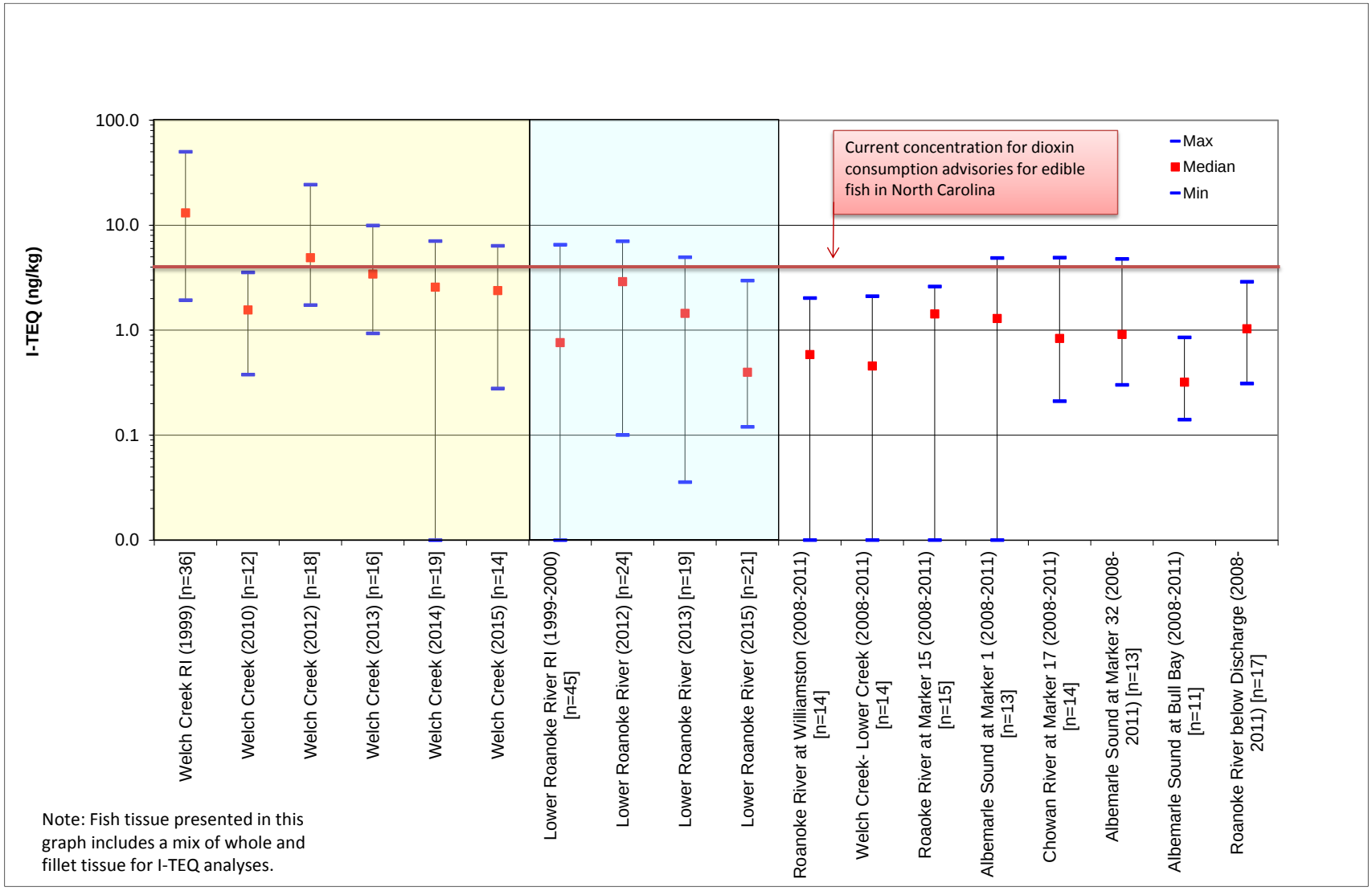


Figure 4-4
Comparison of Fish Tissue I-TEQ in Welch Creek, the Lower Roanoke River, and Other Locations



Note: Fish tissue presented in this graph includes a mix of whole and fillet tissue for I-TEQ analyses.

Section 5
Sign Inspection

In March 2012 signage was posted at several locations on Welch Creek notifying boaters of the presence of the remediation area and the NC DHHS fish consumption advisory. The signage also sets forth restrictions on bottom dragging and anchoring within the eMNR™ cover area. Signs are located at the confluence of Welch Creek and the Lower Roanoke River on the Weyco Drive bridge supports (2 signs), on the Ken Trowbridge Road supports (2 signs), on the pipe bridge near the GT-11 station (2 signs), and at the railroad trestle near MT-3 (2 signs). Signage regarding the current fish consumption advisory is to be maintained until NC DHHS removes the advisory.

During the November 2015 inspection, the posted signage was observed to be in place and in good condition. Photo documentation of the signage is included in Appendix B.

Section 6
Conclusions

The Year 4 performance monitoring for the Welch Creek OU-4 eMNR™ was completed in 2015. Year 4 performance monitoring included sediment sampling of the eMNR™ cap, surface water sampling, and collection and analysis of fish tissue.

6.1 Sediment Performance Monitoring

Ten core locations were randomly selected to investigate the eMNR™ integrity as demonstrated by cap thickness after four years of placement and to evaluate I-TEQ dioxin concentrations in the top five centimeters of the cover. At each location sampled in 2015, the eMNR™ cap met the required thickness or allowable thickness deviation, findings that mirror prior monitoring events (2012 through 2014). The I-TEQ concentrations for Year 4 performance monitoring cores were below the RGO target level of 1 ppb in nine of 10 collected core samples. Following re-extraction and analysis of the one sediment sample above the RGO (CT-16B), the I-TEQ was below the RGO target level. The calculated SWAC was below the RGO of 0.41 ppb for the 10 samples collected in 2015.

6.2 Surface Water Performance Monitoring

Surface water samples were collected for comparison to North Carolina water quality standards consistent with USEPA Method 1613B and Region 4 SOPs. USEPA Method 1613B is identified in the North Carolina Surface Water and Wetland Standards (15A NCAC 02B.0103) by reference to 40 CFR Part 136. The analytical results from the annual surface water collected during the 2015 performance monitoring were consistent with the samples collected during eMNR™ remedy implementation. 2,3,7,8-TCDD was not detected in Welch Creek surface water samples collected during Year 4 performance monitoring.

6.3 Fish Tissue Performance Monitoring

Welch Creek has historically proven a difficult setting from which to obtain targeted fish tissue samples, especially with respect to bottom feeding fish. This is attributed to water temperature, DO content, and anoxic conditions associated with extreme storm activity. In 2015, the fish collection effort was more successful than other recent sampling events and all targeted composites were collected.

Fish collected during the 2015 performance monitoring effort from Welch Creek displayed dioxin I-TEQ concentrations consistent with previous years with the exception of the unreliable

2012 results. Of the edible (fillet) fish composites collected during the Welch Creek 2015 sampling effort, only one bottom feeder composite sample exhibited a dioxin I-TEQ concentration (6.19 ug/kg) greater than the current North Carolina fish consumption advisory level (4 ug/kg). The I-TEQ concentrations of the remaining fillet samples collected in 2015 were below the current North Carolina fish consumption advisory level.

Section 7
Recommendations

Based on the data collected from Years 1 through 4 and the recommendations in the *Second Five-Year Review Report* (USEPA, 2015), the following sampling regime was recommended for the Third Five-Year Review period from 2015 (Year 4; the subject of this report) through 2019 (Year 8).

- Continue collecting 10 sediment samples in the eMNR™ area for both cap thickness and dioxin annually. Following Year 5 (2016), the frequency of the sediment sampling will be re-evaluated pursuant to the *PSVP/OMP*.
- Continue collecting annual Welch Creek surface water samples in November. Surface water samples will be analyzed for dioxin, indicator metals (aluminum, barium, calcium, iron, magnesium, manganese, and titanium), TSS, VSS, DOC, and TOC. Following Year 5 (2016), the frequency of the surface water sampling will be evaluated pursuant to the *PSVP/OMP*.
- As specified in the *PSVP/OMP*, benthic sampling will occur in Year 5 (2016) of performance monitoring. Qualitative and quantitative benthic sampling will be scheduled for the spring of 2016, and benthic tissue sampling for dioxin/furan analysis will be scheduled for the summer of 2016.
- Continue annual fish tissue sampling through Year 8 (2019). Bottom feeding samples will be filleted. Right fillets will be removed from large and small forage fish and will be analyzed separately from the remaining carcass. Fish tissue will be analyzed for TCDD/TCDF. In Year 6 (2017), fish tissues will also be analyzed for mercury. Following Year 8 (2019), the frequency of fish tissue sampling will be re-evaluated.
- Three Midstream Reach sediment samples located near MT-7, GT-14, and GT-15, will be collected following a severe storm event, defined as the 25-year storm, which would equate to a storm with peak intensity of approximately 9 inches of rainfall per hour. If this condition is met, the Midstream Reach sediment samples will be collected during a routine Welch Creek sampling event, typically scheduled in November. The Midstream Reach sediment samples will be analyzed for mercury, TOC, and grain size.
- Continue annual signage inspections along Welch Creek.

Section 8
References

NC DENR. 2011. Standard Operating Procedures, Fish Tissue Assessments, Version 1.1. NC DENR, Division of Water Quality, Environmental Sciences Section, Biological Assessment Unit, Raleigh, North Carolina. December 2011.

National Oceanic Atmospheric Administration, Atlas 14 Point Precipitation Frequency Estimates: NC. (http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=nc)

USDA. 1986. Urban Hydrology for Small Watersheds, Technical Release 55. USDA, Natural Resource Conservation Service, Conservation Engineering Division, June 1986. Figure B-6.

USEPA. 2015. Second Five-year Review Report for Weyerhaeuser Co. Plymouth Wood Treating Plant. June 2015.

Appendix A
Field Notes

228188.0.0

1:6

Date: Tuesday, Nov 3, 2015
Site: Welch Creek; Year 4 Monitoring
Personnel: Michelle Hays + Ben Medlin
Task: SW + sediment samples in W.C.
Weather: 65; cloudy, drizzling

8:00 - Onsite; drive Ben around Mill to show him ambulance pick up points.
- Retrieve equipment from boathouse.
- Prep SW sampling
- Horiba U-53; serial # cannot read
  - Calibrated from AIR

	Result	solution
Temp °C	22	22
pH	4.01/7.00	4/7
Cond. mS/cm	0.00mS/4.49mS	0/4.49
Turbidity	0/800	0/~~800~~ 800
DO mg/L	0/9.61	0/9.61
ORP mV	228	228

915 - Collect SW-2015-MT6 (downstream)
coordinates: 265773.4536 / 773086.007N
total depth = 5
tubing = 2.5'
- Water quality @ MT-6

→

21/58/12

pH - 7.35
DO - 0.79 mg/L
conductivity - 0.135 mS/cm
turbidity - 5.45 NTU
temp - 16.72 C
ORP - 319 mV
- Sample SW-2015-MT6 collected for Dioxin, Total recoverable metals (Mn, Mg, Ca, Ba, Fe, Al, Ti), VSS, TSS, DOC, TOC.

930 - Set up on SW-2015-MT4
coordinates: 2656863.138E / 774422.755N
total depth: 10'
tubing @: 5'
- water quality:

pH	7.16
DO (mg/L)	0.00
conductivity (mS/cm)	0.115
turbidity (NTU)	5.97
temp (°C)	16.39
ORP (mV)	168

935 - Sample SW-2015-MT4 for dioxin, metals (SAA), VSS, TSS, DOC, TOC.
* DU-15401 collected at SW-2015-MT4

21-8710

- Set up on SW-2015-GT4 (upstream)
- coordinates: 2656230.167E/769448.556N
- Total depth: 13.5
- Tubing ∅: 6.5
- Water quality:

pH	7.07
DO (mg/L)	0.69
cond (ms/cm)	0.110
turb (NTU)	6.63
Temp (°C)	16.43
ORP (mV)	87

1030 - Sample SW-2015-GT4 for dioxin, TSS, VSS, TOC, DOC, Total recoverable metals (Mn, Mg, Al, Ba, Ca, Fe, Ti).

1050 - Off water due to rain
- FCP inspection. Take photos. Relabel CP10-1 & 2.
- lunch - 11:58 - 1250
- Begin to collect core samples
- CT-01C
- 2011 thickness - 2.75"
- 2015 thickness - 3"
- compaction - good, 2 layers sand observed
- disturbance - None
- Scour - None
- debris - minimal leaves & twigs

→

- organisms - None
- bioturbation - None
- photodocumentation
- Sample CT-01C collected for dioxin
* DU-15402 collected @ CT-01C

- CT-03A
- 2011 thickness = 2.50
- 2015 thickness = 3"
- compaction - good
- disturbance - None
- scour - None
- debris - v. minimal leaves
- organisms - None
- bioturbation - None
- photodocumentation collected
1445 - Sample CT-03A-2015 collected for dioxin

- CT-06B
- 2011 thickness = 2.25"
- 2015 thickness - 2.5"
- compaction - good
- disturbance - yes, 1" f.g. black mud on top *see note p.5.
- scour - None
- debris - None

→

11/3/15

- organisms - None
- bioturbation - None
- photodocumentation

1500 - Sample CT-06B collected for dioxin

*this sample is from adjacent to wetland stream that enters W.C., near transmission lines. Mud is most likely from wetlands.

- CT-08C
- 2011 thickness = 3.0"
- 2015 thickness = 4.5"
- compaction - good - 2 layers visible
- disturbance - None
- scour - None
- debris - None
- organisms - None
- bioturbation - None
- photodocumentation

1533 - Sample CT-08C-2015 for dioxin

- CT-10B
- 2011 thickness - 2.75"
- 2015 thickness - 3"
- compaction - good
- disturbance - None

→

dioxin

see note p. 5.

21195103

11/3/15 6:6

- scour - blk mud on top, v.f. grained
- debris - yes, top of core covered w/ leaves
- organisms - none
- bioturbation - none
- photo documentation

1542 - Sample CT-10B-2015 collected for dioxin

- CT-15B
- 2011 thickness - 3.25"
- 2015 thickness - 4"
- compaction - good, 2 layers visible
- disturbance - none
- scour - 2" blk mud on top of core
- debris - minimal twigs
- organisms - none
- bioturbation - none
- photodocumentation

1604 - Sample collected @ CT-15B-2015 for dioxin

- Unload boat

1706 - Offsite

Michelle Hays

Date: Wed, Nov. 4, 2015
Site: Welch Creek
Personnel: Michelle Hays + Ben Medlin
Task: Year 4 Performance Monitoring / Annual Sampling
Weather: 65, cloudy, no rain

7:55 - Onsite - Review HASP, plan for day
- Pick up Wagner Boat
8:20 - Continue collecting cores.
- CT-16B
- 2011 thickness = 3.00"
- 2015 thickness - 4'
- compaction - questionable
- disturbance - yes
- scour - yes, mud deposited only
- organisms - None
- bioturbation None
- photo documentation
8:30 - Sample CT-16B-2015 collected for dioxin

- CT-17C
- 2011 thickness = 3.00"
- 2015 thickness = 3.00'
- compaction - good
- disturbance - none
- debris - minimal twigs / leaves

→

11/4/15

2:3

- scour - None
- organisms - None
- bioturbation - NONE
- photo documentation
850 - Sample CT-17C-2015 collected for dioxin

- CT-21D
- 2011 thickness - 3.00"
- 2015 thickness - 2" top, 1" mud, 2" sand
- compaction - disturbed, intermixed
- disturbance - None
- debris - minimal leaves
- scour - None
- organisms - None
- bioturbation - None
- photodocumentation
923 - Sample CT-21D-2015 for dioxin

- CT-23C
- 2011 thickness = 3.50"
- 2015 thickness 3.75"
- compaction - good
- disturbance - None
- debris - moderate twigs + leaves
- scour - None
- organisms - None
- bioturbation - None

→

9:4
10:
1415
1445

11/4/15 3-3

+ photo documentation
9:45 - Sample CT-23C-2015 for dioxin
10:17 - Paid Wagner for boat
- Perform landfill inspection
- Inspect wells & cover
- gravel area is being used as a lay-down yard w/ various equipment, structures.
- Domtar wants to move fence to expand a secured laydown area. Informed Diana Hardison that NC DEQ should be notified & old fence post holes should be filled w/ like material.
- Although it rained all day yesterday, there was no ponding at the grass covered portion
- Domtar installed culvert to prevent stormwater from gravel cap increasing TSS at outfall. Photos ~~of~~ taken
- lunch onsite
1415 - Wrap up, turn in respirators + permits
1445 - Off site for sample management/Fedex

[illegible]

21/9/01

Certificate of Calibration

Instrument Type: **Horiba U-53** Serial Number: **Y2SKS03T**

Calibration Solution Lot #: **C473315 Exp. 03/2016**

Calibration Solution	***Result***
Temp 22 C	Temp 22 C
pH 4.00 / 7.00	pH 4.00 / 7.00
Cond. 0.00 mS/cm / 4.49 mS/cm	Cond. 0.00 mS/cm / 4.49 mS/cm
Turbidity 0 NTU / 800 NTU	Turbidity 0 NTU / 800 NTU
DO 0.00 mg/l / 9.61 mg/l @ 22 C	DO 0.00 mg/l / 9.61 mg/l @ 22 C
ORP 228mv	ORP 228mv

Calibrated by: JM Calibration Date: 10/28/15

Atlanta Instrument Rental, Inc.
(888) 350-7368

Sample Collection Checklist
November 2015 Sampling Event

Project: Domtar - Welch Creek 2015 Performance Monitoring (Year 4)
Project Number: 228188.0000.0000

Sample Date: November 2015
Type of Turnaround: Standard
QC Package: Level 2
TRC Format EDD needed: Yes

TRC Project Manager: Karen Saucier
TRC Project Contact: Michelle Hays
TRC Alternate Contacts: Terry Hertz
Work Order Prepared By/Date: MAH-8/21/15
Work Order QCed By/Date: RSW-8/24/15

ALS Environmental Laboratory
Jerry Allen
9143 Phillips Highway, Suite 200
Jacksonville, Fl 32256
904.394.4426

STATION	Dioxin (17 congeners)	VSS, TSS, TOC, DOC, Total Recoverable Metals (Al, Ba, Ca, Fe, Mg, Mn, Ti)	DO, pH, Temp, ORP, Spec. Cond. & Turbidity	Media	Comments
SW-2015-GT4	x	x	x	SW	Make sure to note on COC that DOC samples must be filtered by lab
SW-2015-MT4	x	x	x	SW	
SW-2015-MT6	x	x	x	SW	
DU-15401	x	x	x	SW	
CT-01C-2015	x			Sed	
CT-03A-2015	x			Sed	
CT-06B-2015	x			Sed	
CT-08C-2015	x			Sed	
CT-10B-2015	x			Sed	
CT-15B-2015	x			Sed	
CT-16B-2015	x			Sed	
CT-17C-2015	x			Sed	
CT-21D-2015	x			Sed	
CT-23C-2015	x			Sed	
DU-15402	x			Sed	do not use 03A

Metals (surface water): one 250 ml HDPE, HNO3; ice; HT- 28 days for Hg, 180 days other metals; methods SW-846 6010; Hg 7471
TOC/DOC: two 40 ml amber vials with HCL, 2 empty for DOC; ice, method 5310B, write unfiltered on COC for DOC; request lab filter these
D/F (surface water): one (minimum, 2 preferable) 1L amber glass, ice; HT - 30 days; Method 1613B
D/F (sediment): one 4oz glass jar; ice; HT - 30 days; Method 1613B; No extra volume for MS/MSD.
TSS/VSS: one 500 mL HDPE; ice; HT - 7 days; method 2540D/160.4

Appendix B
Photographic Log

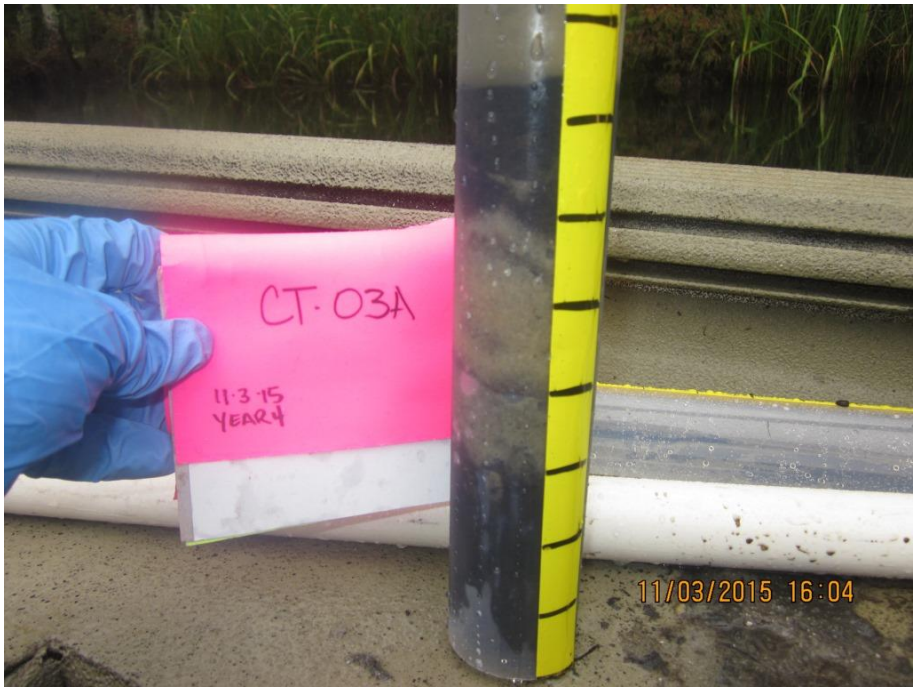
Photographic Log

Photo No.	Date
1	11/03/15

Description
CT-01C sand cap measured 3.0 inches

Photo No.	Date
2	11/03/15

Description
CT-03A sand cap measured 3.0 inches



Photographic Log

Photo No.	Date
3	11/03/15

Description
CT-06B sand cap measured 2.5 inches

Photo No.	Date
4	11/03/15

Description
CT-08C sand cap measured 4.5 inches

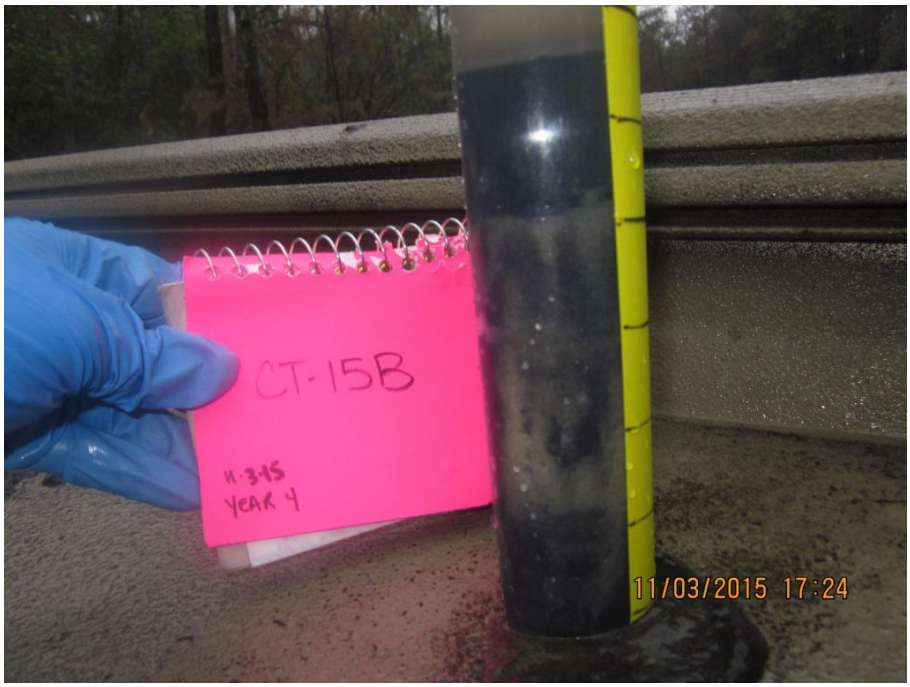
Photographic Log

Photo No.	Date
5	11/03/15

Description
CT-10B sand cap measured 3.0 inches

Photo No.	Date
6	11/03/15

Description
CT-15B sand cap measured 4.0 inches



Photographic Log

Photo No.	Date
7	11/04/15

Description
CT-16B sand cap measured 4.0 inches

Photo No.	Date
8	11/04/15

Description
CT-17C sand cap measured 3.0 inches

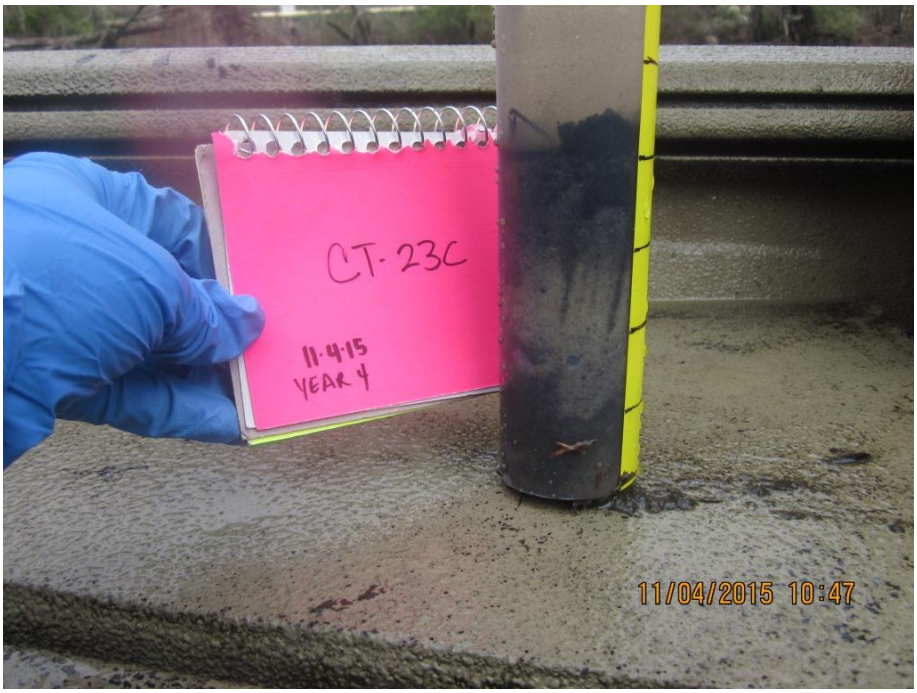
Photographic Log

Photo No.	Date
9	11/04/15

Description
CT-21D sand cap measured 4.0 inches

Photo No.	Date
10	11/04/15

Description
CT-23C sand cap measured 3.75 inches



Photographic Log

Photo No.	Date
11	11/03/15

Description
Signage at the MT-3 railroad trestle

Photo No.	Date
12	11/04/15

Description
Signage at the GT-11 pipe bridge

Appendix C
Laboratory Analytical Reports

Sediment

Laboratory Data Quality Review Notes

Project Name: Domtar-Plymouth 2015 Welch Creek Sediment Samples

Project Number: 228188.0000.0000

Lab Report: J1508878 (dioxin congeners)

Chain of Custody: Signed.

Sample Temperature & Preservative: Samples arrived at lab at an acceptable temperature. No additional preservation required for the requested dioxin congener analyses.

Hold Time: OK. Samples prepared for analysis within 15 days of collection. Analyses performed within 10 days of extraction.

Surrogates: Recoveries of isotopically labelled compounds were within QC limits.

Method Blank(s): The method blank for QC batch EQ1500668, which is associated with LIMS IDs EQ1508878-001 through -011, contains the following detections:

- 1,2,3,4,7,8-HxCDD at 0.104 J ng/kg. **1,2,3,4,7,8-HxCDD in the following samples are assigned a "u" qualifier: CT-01C-2015, CT-15B-2015, and CT-17C-2015.**
- 1,2,3,6,7,8-HxCDD at 0.115 J ng/kg. **1,2,3,6,7,8-HxCDD in the following sample is assigned a "u" qualifier: CT-01C-2015.**
- 1,2,3,4,6,7,8-HpCDD at 0.195 J ng/kg. No comparable detections (*i.e.,* a concentration in a field sample that is within 5X the concentration in the method blank) occurred in associated field samples. No qualifier assigned.
- OCDD at 0.655 J ng/kg. No comparable detections occurred in associated field samples. No qualifier assigned.
- 2,3,4,7,8-PeCDF at 0.106 J ng/kg. **2,3,4,7,8-PeCDF in the following samples are assigned a "u" qualifier: CT-08C-2015, CT-15B-2015, and CT-23C-2015.**
- 1,2,3,4,7,8-HxCDF at 0.0838 J ng/kg. **1,2,3,4,7,8-HxCDF in the following samples are assigned a "u" qualifier: CT-03A-2015, CT-08C-2015, and CT-15B-2015.**
- 1,2,3,6,7,8-HxCDF at 0.0859 J ng/kg. **1,2,3,6,7,8-HxCDF in the following samples are assigned a "u" qualifier: CT-06B-2015, CT-08C-2015, and CT-23C-2015.**
- 1,2,3,7,8,9-HxCDF at 0.144 J ng/kg. **1,2,3,7,8,9-HxCDF in the following samples are assigned a "u" qualifier: CT-01C-2015, CT-06B-2015, CT-08C-2015, and CT-10B-2015.**
- 1,2,3,4,6,7,8-HpCDF at 0.117 J ng/kg. **1,2,3,4,6,7,8-HpCDF in the following samples are assigned a "u" qualifier: CT-01C-2015, CT-08C-2015, and DU-15402.**
- Four congeners (1,2,3,7,8,9-HxCDD, 2,3,4,6,7,8-HxCDF, 1,2,3,4,7,8,9-HpCDF, and OCDF) have reported detections with a "K" lab qualifier. Reported results with a

"K" qualifier indicating Estimated Maximum Possible Concentration (EMPC) are not considered to be confirmed detections.

Trip Blank(s): Not applicable.

Field Blank(s): None collected.

Equipment Rinse Blank(s): None collected.

LCS/LCSD: LCS recoveries, LCSD recoveries, and LCS/LCSD RPDs were within QC limits.

MS/MSD: MS/MSD analyses not performed.

Duplicates: DU-15402 is a field duplicate of CT-01C-2015. Congeners that have valid detections in both the parent and duplicate have RPDs less than 25% if both detections were greater than twice the reporting limit (RL) (*i.e.*, OCDD and 2,3,7,8-TCDF), or have a difference less than the RL where both detections are less than twice the RL (*i.e.*, 1,2,3,4,6,7,8-HpCDD). The precision of these detections is acceptable.

Other: Laboratory assigned "K" flags indicate an EMPC result which does not meet acceptance criteria. **All "K" flagged results are assigned a "u" flag. See the accompanying Table A for a matrix of "u" flags assigned to "K"-flagged results.**

Laboratory assigned "P" flags indicate the presence of an interfering compound. **A "j" flag is assigned in the following case where a "P" flag was not accompanied by a laboratory "J" flag:**

- **1,2,3,4,6,7,8-HpCDF in CT-10B-2015**

Data review performed by: Terry Hertz; 12/8/2015

Project name and sample type description		Domtar - Welch Creek Sediment
Lab Report #	Lab Report J1508878	Samples collected November
Project #	228188.0000.0000	2015

Table A

Laboratory "K" flagged data that are assigned a "u" flag designating an unvalidated detection

J1508878-0##	01	02	03	04	05	06	07	08	09	10	11
Field Sample ID	CT-01C-2015	CT-03A-2015	CT-06B-2015	CT-08C-2015	CT-10B-2015	CT-15B-2015	CT-16B-2015	CT-17C-2015	CT-21D-2015	CT-23C-2015	DU-15402 (CT-01C-2015)
2,3,7,8-TCDD		u									u
1,2,3,7,8-PeCDD	u	u						u			
1,2,3,4,7,8-HxCDD			u	u	u					u	
1,2,3,6,7,8-HxCDD		u				u				u	u
1,2,3,7,8,9-HxCDD		u									
1,2,3,4,6,7,8-HpCDD											
OCDD											
2,3,7,8-TCDF											
1,2,3,7,8-PeCDF	u			u		u				u	
2,3,4,7,8-PeCDF											
1,2,3,4,7,8-HxCDF	u		u					u		u	
1,2,3,6,7,8-HxCDF	u	u				u		u			
1,2,3,7,8,9-HxCDF		u				u	u				
2,3,4,6,7,8-HxCDF								u		u	
1,2,3,4,6,7,8-HpCDF		u									
1,2,3,4,7,8,9-HpCDF	u	u		u				u			
OCDF											u

December 02 2015 Service Re uest o 1508878

Michelle ays
TRC nvironmental Corporation
30 Patewood Drive Suite 300
Greenville SC 29615

Laboratory Results for: Domtar Welch Creek

Dear Michelle

  nclosed are the results of the sample(s) submitted to our laboratory ovember 05 2015
For your reference these analyses have been assigned our service re uest number **J1508878.**

All analyses were performed according to our laboratory s uality assurance program. The test results meet re uirements of the LAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety and ALS nvironmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analy ed as listed in the report. In accordance to the LAC 2003 Standard a statement on the estimated uncertainty of measurement of any uantitative analysis will be supplied upon re uest.

Please contact me if you have any uestions. My extension is 4410. You may also contact me via email at erry.Allen alsglobal.com.

Respectfully submitted

ALS Group USA, Corp. dba ALS Environmental

  erry Allen
Pro ect Manager

ADDRESS 9143 Philips Highway, Suite 200, Jacksonville, FL 32256
PHONE +1 904 739 2277 | FAX +1 904 739 2011
ALS Group USA, Corp.
dba ALS Environmental

Client: TRC nvironmental Corporation **Service Request:** 1508878
Project: Domtar Welch Creek/228188.0.0

SAMPLE CROSS-REFERENCE

SAMPL	CLI T SAMPL ID	DAT	TIM
1508878-001	CT-01C-2015	11/3/2015	1422
1508878-002	CT-03A-2015	11/3/2015	1445
1508878-003	CT-06B-2015	11/3/2015	1500
1508878-004	CT-08C-2015	11/3/2015	1535
1508878-005	CT-10B-2015	11/3/2015	1542
1508878-006	CT-15B-2015	11/3/2015	1604
1508878-007	CT-16B-2015	11/4/2015	0830
1508878-008	CT-17C-2015	11/4/2015	0850
1508878-009	CT-21D-2015	11/4/2015	0923
1508878-010	CT-23C-2015	11/4/2015	0945
1508878-011	D -15402	11/4/2015	0000

ALS Environmental

Cooler Receipt Form

Client: TRC

Service Request #: J1508878

Project: Downtown Welch Creek

Cooler received on 11/5/15 and opened on 11/6/15 by LM

COURIER: ALS UPS FEDEX Client Other _____ Airbill # _____

1	Were custody seals on outside of cooler?	Yes	No		
	If yes, how many and where?	#: 1	on lid	other	
2	Were seals intact and signature and date correct?	Yes	No	N/A	
3	Were custody papers properly filled out?	Yes	No	N/A	
4	Temperature of cooler(s) upon receipt (Should be 0°C and ≤ 6°C)	1.9			
5	Thermometer ID	T124			
6	Temperature Blank Present?	Yes	No		
7	Were Ice or Ice Packs present	Ice	Ice Packs	No	
8	Did all bottles arrive in good condition (unbroken, etc....)?	Yes	No	N/A	
9	Type of packing material present	Netting	Vial Holder	Bubble Wrap	
		Paper	Styrofoam	Other	N/A
10	Were all bottle labels complete (sample ID, preservation, etc....)?	Yes	No	N/A	
11	Did all bottle labels and tags agree with custody papers?	Yes	No	N/A	
12	Were the correct bottles used for the tests indicated?	Yes	No	N/A	
13	Were all of the preserved bottles received with the appropriate preservative?	Yes	No	N/A	
	HNO3 pH<2 H2SO4 pH<2 ZnAc2/NaOH pH>9 NaOH pH>12 HCl pH<2				
	Preservative additions noted below				
14	Were all samples received within analysis holding times?	Yes	No	N/A	
15	Were all VOA vials free of air bubbles? If present, note below	Yes	No	N/A	
16	Where did the bottles originate?	ALS	Client		

Sample ID	Reagent	Lot #	ml added	Initials Date/Time

Additional comments and/or explanation of all discrepancies noted above:

Client approval to run samples if discrepancies noted: Date:

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

9143 Philips Highway, Ste 200 • Jacksonville, FL 32256 (904) 739-2277 • 800-695-7222 x06 • FAX (904) 739-2011

PAGE 1 OF 1

SR# J15088978

CAS Contract

Project Name: Domtar Welch Creek

Project Number: 228188.0.0

Project Manager: Karen Sawyer / Michelle Hays

Email Address: MHAYS@TRCSOLUTIONS.COM

Company/Address: TRC, 30 Parkwood Drive, Ste 300, Greenville, SC 29615

Phone #: 864.608.1836

FAX #:

Sampler's Signature: Michelle Hays

Sampler's Printed Name: Michelle Hays

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 0

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	DIOXIN - all 17 congeners	REMARKS/ ALTERNATE DESCRIPTION
CT-01C-2015		11/3/15	1422	SP	1	X	
CT-03A-2015		11/3/15	1445		1	X	
CT-06B-2015		11/3/15	1500		1	X	
CT-08C-2015		11/3/15	1535		1	X	
CT-10B-2015		11/3/15	1542		1	X	
CT-15B-2015		11/3/15	1604		1	X	
CT-16B-2015		11/4/15	830		1	X	
CT-17C-2015		11/4/15	850		1	X	
CT-21D-2015		11/4/15	923		1	X	
CT-23C-2015		11/4/15	946		1	X	
DU-15402		—	—		1	X	

SPECIAL INSTRUCTIONS/COMMENTS

1.9 °C

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
X STANDARD

REQUESTED FAX DATE

REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
____ V. Specialized Forms / Custom Report
Edata ✓ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO: DOMTAR
LINDA Belanger

SAMPLE RECEIPT: CONDITION/COOLER TEMP:

CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Michelle Hays	Signature: FEDEX	Signature: Michael Wallace	Signature	Signature	Signature
Printed Name: Michelle Hays	Printed Name	Printed Name: Michael Wallace	Printed Name	Printed Name	Printed Name
Firm: TRC	Firm	Firm: ALS	Firm	Firm	Firm
Date/Time: 11-4-15 / 1400	Date/Time	Date/Time: 11/4/15 1020	Date/Time	Date/Time	Date/Time

December 01, 2015 Service Request No:J1508878

Michelle Hays
TRC Environmental Corporation
30 Patewood Drive, Suite 300
Greenville, SC 29615

Laboratory Results for: Domtar Welch Creek

Dear Michelle,

Enclosed are the results of the sample(s) submitted to our laboratory November 05, 2015
For your reference, these analyses have been assigned our service request number **J1508878.**

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the NELAC 2003 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My direct number is 281-575-2284. You may also contact me via email at Nicole.Brown@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Nicole Brown
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 713 266 1599 | FAX +1 713 266 0130
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	TRC Environmental Corporation	**Service Request No.:**	J1508878
Project:	Domtar Welch Creek 228188.0.0	**Date Received:**	11/11/15
Sample Matrix:	Sediment		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Eleven sediment samples were received for analysis at ALS Environmental in Houston on 11/11/15.

Please note the reporting forms are currently referencing the date ALS-Jacksonville received the samples (11/05/15) and not the date ALS-Houston received the samples (11/11/15).

The samples were received at 0.9 °C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

B flags – Method Blanks

The Method Blank EQ1500668-01 contained low levels of various compounds below the Method Reporting Limit (MRL). The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

MS/MSD

EQ1500668: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

The TEQ Summary results for each sample have been calculated by ALS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
J1508878-001	CT-01C-2015	11/3/2015	1422
J1508878-002	CT-03A-2015	11/3/2015	1445
J1508878-003	CT-06B-2015	11/3/2015	1500
J1508878-004	CT-08C-2015	11/3/2015	1535
J1508878-005	CT-10B-2015	11/3/2015	1542
J1508878-006	CT-15B-2015	11/3/2015	1604
J1508878-007	CT-16B-2015	11/4/2015	0830
J1508878-008	CT-17C-2015	11/4/2015	0850
J1508878-009	CT-21D-2015	11/4/2015	0923
J1508878-010	CT-23C-2015	11/4/2015	0945
J1508878-011	DU-15402	11/4/2015	0000

Service Request Summary

Folder #: **J1508878**
Client Name: TRC Environmental Corporation
Project Name: Domtar Welch Creek
Project Number: 228188.0.0

Report To: Michelle Hays
TRC Environmental Corporation
30 Patewood Drive, Suite 300
Greenville, SC 29615
USA
Phone Number: 864-608-1836
Cell Number:
Fax Number:
E-mail: mhays@trcsolutions.com

Project Chemist: Jerry Allen
Originating Lab: JAX
Logged By: MGWALLACE
Date Received: 11/05/15
Internal Due Date: 11/30/2015
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: N
Report to MDL?: Y
P.O. Number:
EDD: BASIC_WQC

11 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 5B
Pressure Gas:

				HOUSTON	
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Dioxins Furans/1613B	Total Solids/ALS SOP
J1508878-001	CT-01C-2015	Sediment	11/03/15 1422	II	II
J1508878-002	CT-03A-2015	Sediment	11/03/15 1445	II	II
J1508878-003	CT-06B-2015	Sediment	11/03/15 1500	II	II
J1508878-004	CT-08C-2015	Sediment	11/03/15 1535	II	II
J1508878-005	CT-10B-2015	Sediment	11/03/15 1542	II	II
J1508878-006	CT-15B-2015	Sediment	11/03/15 1604	II	II
J1508878-007	CT-16B-2015	Sediment	11/04/15 0830	II	II
J1508878-008	CT-17C-2015	Sediment	11/04/15 0850	II	II
J1508878-009	CT-21D-2015	Sediment	11/04/15 0923	II	II
J1508878-010	CT-23C-2015	Sediment	11/04/15 0945	II	II
J1508878-011	DU-15402	Sediment	11/04/15 0000	II	II

Service Request Summary

Folder #:	**J1508878**
Client Name:	TRC Environmental Corporation
Project Name:	Domtar Welch Creek
Project Number:	228188.0.0
Report To:	Michelle Hays TRC Environmental Corporation 30 Patewood Drive, Suite 300 Greenville, SC 29615 USA
Phone Number:	864-608-1836
Cell Number:	
Fax Number:	
E-mail:	mhays@trcsolutions.com

Project Chemist:	Jerry Allen
Originating Lab:	JAX
Logged By:	MGWALLACE
Date Received:	11/05/15
Internal Due Date:	11/30/2015
QAP:	LAB QAP
Qualifier Set:	Lab Standard
Formset:	Lab Standard
Merged?:	N
Report to MDL?:	Y
P.O. Number:	
EDD:	BASIC_WQC

11 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 5B

Pressure Gas:

Data Qualifiers

HRMS Qualifier Set

B Indicates the associated analyte was found in the method blank at >1/10th the reported value.

E Estimated value. The reported concentration is above the calibration range of the instrument.

H Sample extracted and/or analyzed out of suggested holding time.

J Estimated value. The reported concentration is below the MRL.

K The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits. Reported concentration is a conservative estimate, however EMPC correction was not applied.

P Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.

Q Monitored lock-mass indicates matrix-interference. Reported result is estimated.

S Signal saturated detector. Result reported from dilution.

U Compound was analyzed for, but was not detected (ND).

X See Case Narrative.

Y Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.

i The MDL/MRL have been elevated due to a matrix interference.

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Arizona Department of Health Services	AZ0793	5/27/2016
Arkansas Department of Environmental Quality	14-038-0	6/16/2016
California Department of Health Services	2452	2/28/2017
Florida Department of Health	E87611	6/30/2016
Kansas Department of Health and Environment	E-10406	1/31/2016
Louisiana Department of Environmental Quality	03048	6/30/2016
Louisiana Department of Health and Hospitals	LA150026	12/31/2015
Maine Center for Disease Control and Prevention	2014019	6/5/2016
Maryland Department of the Environment	343	6/30/2016
Michigan Depratment of Environmental Quality	9971	6/30/2016
Minnesota Department of Health	840911	12/31/2015
Nebraska Department of Health and Human Services	NE-OS-25-13	6/30/2016
New Mexico Environment Department	TX02694	6/30/2016
New York Department of Health	11707	4/1/2016
Oregon Environmental Laboratory Accreditation Program	TX200002	3/24/2016
Pennsylvania Department of Environmental Protection	68-03441	6/30/2016
Texas Commision on Environmental Quality	TX104704216-14-5	6/30/2016
United States Department of Agriculture	P330-14-00067	2/21/2017
West Virginia Department of Environmental Protection	347	6/30/2016

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID J1508878 DB-5MSUI SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
11/30/15	JC	001-008

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/01/15	[illegible]	001-008

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID J1508878 DB-5MSUI SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date: 12/01/15 Analyst: JC Samples: 007DL

Second Level - Data Review – to be filled by person doing peer review

Date: 12/01/15 Analyst: JC Samples: 007DL

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID J1508878 DB-5MSUI SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
11/30/15	JC	009, 010, 011

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
11/30/15	LKL	009, 010, 011

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Intra-Network Chain of Custody

9143 Philips Highway, Suite 200 • Jacksonville, FL 32256 • 904-739-2277 • FAX 904-739-2011

ALS Contact: Jerry Allen

Project Name: Domtar Welch Creek
Project Number: 228188.0.0
Project Manager: Michelle Hays
Company: TRC Environmental Corporation
QAP: LAB QAP

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Date Received	Send To	Dioxins Furans 1613B	Total Solids ALS SOP
J1508878-001	CT-01C-2015	1	Sediment	11/3/15	1422	11/5/15	HOUSTON	II	II
J1508878-002	CT-03A-2015	1	Sediment	11/3/15	1445	11/5/15	HOUSTON	II	II
J1508878-003	CT-06B-2015	1	Sediment	11/3/15	1500	11/5/15	HOUSTON	II	II
J1508878-004	CT-08C-2015	1	Sediment	11/3/15	1535	11/5/15	HOUSTON	II	II
J1508878-005	CT-10B-2015	1	Sediment	11/3/15	1542	11/5/15	HOUSTON	II	II
J1508878-006	CT-15B-2015	1	Sediment	11/3/15	1604	11/5/15	HOUSTON	II	II
J1508878-007	CT-16B-2015	1	Sediment	11/4/15	0830	11/5/15	HOUSTON	II	II
J1508878-008	CT-17C-2015	1	Sediment	11/4/15	0850	11/5/15	HOUSTON	II	II
J1508878-009	CT-21D-2015	1	Sediment	11/4/15	0923	11/5/15	HOUSTON	II	II
J1508878-010	CT-23C-2015	1	Sediment	11/4/15	0945	11/5/15	HOUSTON	II	II
J1508878-011	DU-15402	1	Sediment	11/4/15	0000	11/5/15	HOUSTON	II	II

J1508878 5
TRC Environmental Corporation
Domtar Welch Creek

Special Instructions/Comments

Full list

pH Checked _____

Turnaround Requirements

____ **RUSH** (Surcharges Apply)

PLEASE CIRCLE WORK DAYS
1 2 3 4 5

____ **STANDARD**

Requested FAX Date: _____

Requested Report Date: 11/27/15

Report Requirements

____ I. Results Only

____ II. Results + QC Summaries

____ III. Results + QC and Calibration Summaries

____ IV. Data Validation Report with Raw Data

PQL/MDL/J Y
EDD Y

Invoice Information

PO# 53J1508878

Bill to

Relinquished By: J1508878 11/10/15

Received By: 11/11/15

Airbill Number:

ALS Environmental

Cooler Receipt Form

Project Chemist NB

Client/Project TRC Environmental

Thermometer ID SMO 4

Date/Time Received: 11/11/15 9:15 Initials: AL

Date/Time Logged in: 11/13/15 Initials AL

1. Method of delivery: ○ US Mail ✓ Fed Ex ○ UPS ○ DHL ○ Courier ○ Client
2. Samples received in: ✓ Cooler ○ Box ○ Envelope ○ Other
3. Were custody seals on coolers? ✓ Yes ○ No
   Were they intact? ✓ Yes ○ No ○ N/A
   Were they signed and dated? ✓ Yes ○ No ○ N/A
   If yes, how many and where? 1 Seal
4. Packing Material: ○ Inserts ✓ Baggies ✓ Bubble Wrap ○ Gel Packs ✓ Wet Ice ○ Sleeves ○ Other
5. Foreign or Regulated Soil? ○ Yes ✓ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
5498 9753 8419		11/11/15	10:32	AL	-0.1/0.9	☐
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ✓ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ✓ No AL 11/13/15
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ○ No
10. Did sample labels and tags agree with custody documents? ✓ Yes ○ No

Notes, Discrepancies, & Resolutions:

Samples J1508878-002 and J1508878-010 arrived with cracked lids AL 11/13/15

Service request Label: J1508878 5

TRC Environmental Corporation
Domtar Welch Creek

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SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 250187 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/DEDWARDS **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/18/15 09:40 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	EQ1500668-01	MB		1613B/Dioxins Furans			Solid	10.074g	
2	EQ1500668-02	LCS		1613B/Dioxins Furans			Solid	10.358g	
3	EQ1500668-03	DLCS		1613B/Dioxins Furans			Solid	10.432g	
4	J1508878-001	CT-01C-2015	.01	1613B/Dioxins Furans			Sediment	10.250g	Watery Brown Sediment
5	J1508878-002	CT-03A-2015	.01	1613B/Dioxins Furans			Sediment	10.482g	Watery Brown Sediment
6	J1508878-003	CT-06B-2015	.01	1613B/Dioxins Furans			Sediment	10.078g	Watery Dark Green Sediment
7	J1508878-004	CT-08C-2015	.01	1613B/Dioxins Furans			Sediment	10.453g	Moist Green Sediment
8	J1508878-005	CT-10B-2015	.01	1613B/Dioxins Furans			Sediment	10.127g	Watery Dark Green Sediment
9	J1508878-006	CT-15B-2015	.01	1613B/Dioxins Furans			Sediment	10.179g	Brown Moist Sediment
10	J1508878-007	CT-16B-2015	.01	1613B/Dioxins Furans			Sediment	10.217g	Watery Dark Green Sediment
11	J1508878-008	CT-17C-2015	.01	1613B/Dioxins Furans			Sediment	10.140g	Moist Green Sediment
12	J1508878-009	CT-21D-2015	.01	1613B/Dioxins Furans			Sediment	10.411g	Watery Dark Green Sediment
13	J1508878-010	CT-23C-2015	.01	1613B/Dioxins Furans			Sediment	10.256g	Watery Green Sediment
14	J1508878-011	DU-15402	.01	1613B/Dioxins Furans			Sediment	10.134g	Watery Brown Sediment
15	K1512635-001	1082	.04	1613B/Dioxins Furans			Paperboard	10.126g	Grey Paperboard Strips
16	K1512635-019	1088	.01	1613B/Dioxins Furans			Paperboard	10.099g	Grey Paperboard Strips
17	K1512800-001	15-1343-001	.01	1613B/Dioxins Furans			Paper	10.053g	White Small Squares of Paperboard

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 85723 Logbook Ref: JP 85723 11/06/15 2-20 ng/mL Expires On: 05/04/2016

EQ1500668-02	100.00µL	EQ1500668-03	100.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 85883 Logbook Ref: 85883 11/16/2015 8.0ng/ml CID Expires On: 05/14/2016

EQ1500668-01	100.00µL	EQ1500668-02	100.00µL	EQ1500668-03	100.00µL	J1508878-001	100.00µL	J1508878-002	100.00µL	J1508878-003	100.00µL
J1508878-004	100.00µL	J1508878-005	100.00µL	J1508878-006	100.00µL	J1508878-007	100.00µL	J1508878-007.R	100.00µL	J1508878-008	100.00µL
J1508878-009	100.00µL	J1508878-010	100.00µL	J1508878-011	100.00µL	K1512635-001	100.00µL	K1512635-019	100.00µL	K1512800-001	100.00µL

Name: 1613B Labeled Working Standard Inventory ID 85886 Logbook Ref: 85886 JP 11/16/15 2-4ng/mL Expires On: 04/23/2016

EQ1500668-01	1,000.00µL	EQ1500668-02	1,000.00µL	EQ1500668-03	1,000.00µL	J1508878-001	1,000.00µL	J1508878-002	1,000.00µL	J1508878-003	1,000.00µL
J1508878-004	1,000.00µL	J1508878-005	1,000.00µL	J1508878-006	1,000.00µL	J1508878-007	1,000.00µL	J1508878-007.R	1,000.00µL	J1508878-008	1,000.00µL
J1508878-009	1,000.00µL	J1508878-010	1,000.00µL	J1508878-011	1,000.00µL	K1512635-001	1,000.00µL	K1512635-019	1,000.00µL	K1512800-001	1,000.00µL

Preparation Information Benchsheet

Prep Run#: 250187 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/DEDWARDS **Prep Method:** Method Soxhlet **Prep Date/Time:** 11/18/15 09:40 AM

Preparation Materials

Carbon, High Purity	AL 11/02/15 (85543)	Ethyl Acetate 99.9% Minimum EtOAc	LM 10/8/15 (84814)	Glass Wool	CID 11/12/2015 (85842)
Hexanes 95%	CID 11/12/2015 (85840)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	DE 11/2/15 (85540)	Sodium Chloride Reagent Grade NaCl	C2-65-5 (38670)
Sodium Hydroxide Reagent Grade NaOH	LM 09/02/14 (74232)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	LM 9/24/15 (84454)	Tridecane (n-Tridecane)	DE 11/17/15 (85916)
Silica Gel	11/19/2015 CID (86009)	sulfuric acid	CID 11/06/15 (85764)	Toluene 99.9% Minimum	DE 10/27/15 (85412)

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	11/18/15 09:40	Started:	11/23/15 10:00	Started:	11/24/15 08:30	Started:	11/25/15 13:40
Finished:	~~11/20/1~~5 08:30 11/19/15	Finished:	11/23/15 10:25	Finished:	11/24/15 10:20	Finished:	11/25/15 14:05
By:	DEDWARDS	By:	CDIAZ	By:	CDIAZ	By:	CDIAZ
Comments	ak 12/1/15	Comments		Comments		Comments	

Comments: _____

Reviewed By: ak Date: 12/1/15

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

J1508878 Page 24 of 91 20 of 87

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
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Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 14:22
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-01C-2015	**Units:**	ng/Kg
Lab Code:	J1508878-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/25/15 20:03
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.250g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401100	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.647**J**		0.0630	0.649	0.65	1.001	1
1,2,3,7,8-PeCDD	0.198**JK**		0.0562	3.24	1.96	1.000	1
1,2,3,4,7,8-HxCDD	0.148**BJ**		0.0456	3.24	1.38	1.001	1
1,2,3,6,7,8-HxCDD	0.257**BJ**		0.0453	3.24	1.23	1.000	1
1,2,3,7,8,9-HxCDD	0.293**BJ**		0.0421	3.24	1.34	1.006	1
1,2,3,4,6,7,8-HpCDD	2.54**J**		0.127	3.24	1.10	1.000	1
OCDD	68.7		0.146	6.49	0.89	1.000	1
2,3,7,8-TCDF	3.16		0.0484	0.649	0.78	1.001	1
1,2,3,7,8-PeCDF	0.143**JK**		0.0488	3.24	0.96	1.000	1
2,3,4,7,8-PeCDF	ND	U	0.0521	3.24			1
1,2,3,4,7,8-HxCDF	0.168**BJK**		0.0385	3.24	1.85	1.000	1
1,2,3,6,7,8-HxCDF	0.163**BJK**		0.0368	3.24	1.44	1.000	1
1,2,3,7,8,9-HxCDF	0.173**BJ**		0.0508	3.24	1.05	1.000	1
2,3,4,6,7,8-HxCDF	0.180**BJ**		0.0407	3.24	1.42	1.000	1
1,2,3,4,6,7,8-HpCDF	0.372**BJ**		0.0466	3.24	1.13	1.000	1
1,2,3,4,7,8,9-HpCDF	0.224**BJK**		0.0660	3.24	0.74	1.000	1
OCDF	1.77**BJ**		0.116	6.49	0.95	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 14:22
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-01C-2015	**Units:**	ng/Kg
Lab Code:	J1508878-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/25/15 20:03
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.250g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401100	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.0630	0.649			1
Total Penta-Dioxins	ND	U	0.0562	3.24			1
Total Hexa-Dioxins	2.36**J**		0.0443	3.24	1.22		1
Total Hepta-Dioxins	6.64		0.127	3.24	1.01		1
Total Tetra-Furans	5.03		0.0484	0.649	0.79		1
Total Penta-Furans	ND	U	0.0504	3.24			1
Total Hexa-Furans	0.180**J**		0.0410	3.24	1.42		1
Total Hepta-Furans	0.372**J**		0.0553	3.24	1.13		1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 14:22
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-01C-2015	**Units:**	Percent
Lab Code:	J1508878-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/25/15 20:03
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.250g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401100	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	804.467	40		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	693.536	35		25-181	1.55	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1142.487	57		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1244.394	62		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	970.351	49		23-140	1.05	1.065
13C-OCDD	4000	1602.888	40		17-157	0.89	1.139
13C-2,3,7,8-TCDF	2000	743.402	37		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	685.107	34		24-185	1.57	1.134
13C-2,3,4,7,8-PeCDF	2000	641.338	32		21-178	1.56	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1130.775	57		26-152	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1195.197	60		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	932.285	47		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1066.490	53		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	906.737	45		28-143	0.45	1.040
13C-1,2,3,4,7,8,9-HpCDF	2000	909.221	45		26-138	0.44	1.078
37Cl-2,3,7,8-TCDD	800	350.122	44		35-197	NA	1.021

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 14:22
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-01C-2015	**Units:**	ng/Kg
Lab Code:	J1508878-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.647**	0.0630	0.649	1	1	0.647
1,2,3,7,8-PeCDD	**0.198**	0.0562	3.24	1	1	0.198
1,2,3,4,7,8-HxCDD	**0.148**	0.0456	3.24	1	0.1	0.0148
1,2,3,6,7,8-HxCDD	**0.257**	0.0453	3.24	1	0.1	0.0257
1,2,3,7,8,9-HxCDD	**0.293**	0.0421	3.24	1	0.1	0.0293
1,2,3,4,6,7,8-HpCDD	**2.54**	0.127	3.24	1	0.01	0.0254
OCDD	**68.7**	0.146	6.49	1	0.0003	0.0206
2,3,7,8-TCDF	**3.16**	0.0484	0.649	1	0.1	0.316
1,2,3,7,8-PeCDF	**0.143**	0.0488	3.24	1	0.03	0.00429
2,3,4,7,8-PeCDF	ND	0.0521	3.24	1	0.3	
1,2,3,4,7,8-HxCDF	**0.168**	0.0385	3.24	1	0.1	0.0168
1,2,3,6,7,8-HxCDF	**0.163**	0.0368	3.24	1	0.1	0.0163
1,2,3,7,8,9-HxCDF	**0.173**	0.0508	3.24	1	0.1	0.0173
2,3,4,6,7,8-HxCDF	**0.180**	0.0407	3.24	1	0.1	0.0180
1,2,3,4,6,7,8-HpCDF	**0.372**	0.0466	3.24	1	0.01	0.00372
1,2,3,4,7,8,9-HpCDF	**0.224**	0.0660	3.24	1	0.01	0.00224
OCDF	**1.77**	0.116	6.49	1	0.0003	0.000531
		Total TEQ				1.36

2005 WHO TEFs, ND = 0

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 14:22
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-01C-2015	**Units:**	Percent
Lab Code:	J1508878-001	**Basis:**	Dry

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/20/15 11:17
	10.149g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	75.2		-	-			1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 14:45
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-03A-2015	**Units:**	ng/Kg
Lab Code:	J1508878-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/25/15 20:52
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.482g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401101	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.919**K**		0.133	0.641	0.60	1.001	1
1,2,3,7,8-PeCDD	0.151**JK**		0.101	3.21	1.01	1.001	1
1,2,3,4,7,8-HxCDD	ND	U	0.0713	3.21			1
1,2,3,6,7,8-HxCDD	0.332**BJK**		0.0746	3.21	1.68	1.000	1
1,2,3,7,8,9-HxCDD	0.290**BJK**		0.0675	3.21	0.82	1.007	1
1,2,3,4,6,7,8-HpCDD	3.92		0.162	3.21	0.94	1.000	1
OCDD	255		0.175	6.41	0.90	1.000	1
2,3,7,8-TCDF	4.14		0.121	0.641	0.77	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0879	3.21			1
2,3,4,7,8-PeCDF	ND	U	0.0894	3.21			1
1,2,3,4,7,8-HxCDF	0.146**BJ**		0.0495	3.21	1.37	1.000	1
1,2,3,6,7,8-HxCDF	0.131**BJK**		0.0467	3.21	1.86	1.000	1
1,2,3,7,8,9-HxCDF	0.206**BJK**		0.0658	3.21	1.80	1.000	1
2,3,4,6,7,8-HxCDF	0.164**BJ**		0.0503	3.21	1.30	1.000	1
1,2,3,4,6,7,8-HpCDF	0.408**BJK**		0.0486	3.21	1.33	1.000	1
1,2,3,4,7,8,9-HpCDF	0.188**BJK**		0.0669	3.21	0.68	1.000	1
OCDF	1.88**BJ**		0.156	6.41	0.96	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 14:45
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-03A-2015	**Units:**	ng/Kg
Lab Code:	J1508878-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/25/15 20:52
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.482g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401101	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.133	0.641			1
Total Penta-Dioxins	ND	U	0.101	3.21			1
Total Hexa-Dioxins	2.21**J**		0.0711	3.21	1.16		1
Total Hepta-Dioxins	10.3		0.162	3.21	1.07		1
Total Tetra-Furans	6.05		0.121	0.641	0.84		1
Total Penta-Furans	ND	U	0.0887	3.21			1
Total Hexa-Furans	0.380**J**		0.0522	3.21	1.12		1
Total Hepta-Furans	ND	U	0.0570	3.21			1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 14:45
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-03A-2015	**Units:**	Percent
Lab Code:	J1508878-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/25/15 20:52
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.482g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401101	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1019.968	51		25-164	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1049.508	52		25-181	1.58	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1518.141	76		32-141	1.33	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1614.970	81		28-130	1.21	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1388.849	69		23-140	1.05	1.065
13C-OCDD	4000	2418.929	60		17-157	0.89	1.140
13C-2,3,7,8-TCDF	2000	936.258	47		24-169	0.78	0.994
13C-1,2,3,7,8-PeCDF	2000	997.683	50		24-185	1.57	1.134
13C-2,3,4,7,8-PeCDF	2000	972.391	49		21-178	1.56	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1412.114	71		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1518.617	76		26-123	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1162.843	58		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1389.398	69		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1248.402	62		28-143	0.45	1.040
13C-1,2,3,4,7,8,9-HpCDF	2000	1307.642	65		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	422.078	53		35-197	NA	1.021

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 14:45
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-03A-2015	**Units:**	ng/Kg
Lab Code:	J1508878-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.919**	0.133	0.641	1	1	0.919
1,2,3,7,8-PeCDD	**0.151**	0.101	3.21	1	1	0.151
1,2,3,4,7,8-HxCDD	ND	0.0713	3.21	1	0.1	
1,2,3,6,7,8-HxCDD	**0.332**	0.0746	3.21	1	0.1	0.0332
1,2,3,7,8,9-HxCDD	**0.290**	0.0675	3.21	1	0.1	0.0290
1,2,3,4,6,7,8-HpCDD	**3.92**	0.162	3.21	1	0.01	0.0392
OCDD	**255**	0.175	6.41	1	0.0003	0.0765
2,3,7,8-TCDF	**4.14**	0.121	0.641	1	0.1	0.414
1,2,3,7,8-PeCDF	ND	0.0879	3.21	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0894	3.21	1	0.3	
1,2,3,4,7,8-HxCDF	**0.146**	0.0495	3.21	1	0.1	0.0146
1,2,3,6,7,8-HxCDF	**0.131**	0.0467	3.21	1	0.1	0.0131
1,2,3,7,8,9-HxCDF	**0.206**	0.0658	3.21	1	0.1	0.0206
2,3,4,6,7,8-HxCDF	**0.164**	0.0503	3.21	1	0.1	0.0164
1,2,3,4,6,7,8-HpCDF	**0.408**	0.0486	3.21	1	0.01	0.00408
1,2,3,4,7,8,9-HpCDF	**0.188**	0.0669	3.21	1	0.01	0.00188
OCDF	**1.88**	0.156	6.41	1	0.0003	0.000564
		Total TEQ				1.73

2005 WHO TEFs, ND = 0

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 14:45
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-03A-2015	**Units:**	Percent
Lab Code:	J1508878-002	**Basis:**	Dry

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/20/15 11:17
	9.168g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	74.4		-	-			1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 15:00
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-06B-2015	**Units:**	ng/Kg
Lab Code:	J1508878-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/25/15 21:41
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.078g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401102	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	39.1		0.0791	1.34	0.78	1.001	1
1,2,3,7,8-PeCDD	1.12	**J**	0.101	6.72	1.69	1.000	1
1,2,3,4,7,8-HxCDD	0.748	**BJK**	0.0872	6.72	1.44	1.000	1
1,2,3,6,7,8-HxCDD	4.98	**J**	0.0888	6.72	1.13	1.000	1
1,2,3,7,8,9-HxCDD	3.29	**J**	0.0815	6.72	1.34	1.006	1
1,2,3,4,6,7,8-HpCDD	52.0		0.272	6.72	1.04	1.000	1
OCDD	1540		0.156	13.4	0.89	1.000	1
2,3,7,8-TCDF	228		0.0649	1.34	0.78	1.001	1
1,2,3,7,8-PeCDF	1.21	**J**	0.116	6.72	1.58	1.001	1
2,3,4,7,8-PeCDF	2.07	**J**	0.120	6.72	1.60	1.000	1
1,2,3,4,7,8-HxCDF	0.521	**BJK**	0.0710	6.72	1.46	1.000	1
1,2,3,6,7,8-HxCDF	0.482	**BJ**	0.0692	6.72	1.23	1.000	1
1,2,3,7,8,9-HxCDF	0.354	**BJ**	0.0877	6.72	1.08	1.000	1
2,3,4,6,7,8-HxCDF	0.573	**BJ**	0.0729	6.72	1.35	1.000	1
1,2,3,4,6,7,8-HpCDF	4.63	**JP**	0.118	6.72	1.07	1.000	1
1,2,3,4,7,8,9-HpCDF	0.558	**BJ**	0.142	6.72	0.94	1.000	1
OCDF	15.0		0.176	13.4	0.91	1.005	1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 15:00
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-06B-2015	**Units:**	ng/Kg
Lab Code:	J1508878-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/25/15 21:41
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.078g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401102	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	45.4		0.0791	1.34	0.77		1
Total Penta-Dioxins	8.62		0.101	6.72	1.59		1
Total Hexa-Dioxins	47.2		0.0858	6.72	1.25		1
Total Hepta-Dioxins	131		0.272	6.72	1.04		1
Total Tetra-Furans	412		0.0649	1.34	0.72		1
Total Penta-Furans	9.60		0.118	6.72	1.64		1
Total Hexa-Furans	7.89		0.0745	6.72	1.20		1
Total Hepta-Furans	14.8		0.130	6.72	1.07		1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 15:00
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-06B-2015	**Units:**	Percent
Lab Code:	J1508878-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/25/15 21:41
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.078g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401102	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1019.554	51		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	934.795	47		25-181	1.57	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1426.016	71		32-141	1.27	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1490.079	75		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1176.966	59		23-140	1.06	1.065
13C-OCDD	4000	1876.957	47		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	928.583	46		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	896.261	45		24-185	1.57	1.134
13C-2,3,4,7,8-PeCDF	2000	877.028	44		21-178	1.58	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1374.454	69		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1390.819	70		26-123	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1173.474	59		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1313.528	66		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1044.761	52		28-143	0.45	1.040
13C-1,2,3,4,7,8,9-HpCDF	2000	1202.235	60		26-138	0.44	1.078
37Cl-2,3,7,8-TCDD	800	438.556	55		35-197	NA	1.021

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 15:00
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-06B-2015	**Units:**	ng/Kg
Lab Code:	J1508878-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**39.1**	0.0791	1.34	1	1	39.1
1,2,3,7,8-PeCDD	**1.12**	0.101	6.72	1	1	1.12
1,2,3,4,7,8-HxCDD	**0.748**	0.0872	6.72	1	0.1	0.0748
1,2,3,6,7,8-HxCDD	**4.98**	0.0888	6.72	1	0.1	0.498
1,2,3,7,8,9-HxCDD	**3.29**	0.0815	6.72	1	0.1	0.329
1,2,3,4,6,7,8-HpCDD	**52.0**	0.272	6.72	1	0.01	0.520
OCDD	**1540**	0.156	13.4	1	0.0003	0.462
2,3,7,8-TCDF	**228**	0.0649	1.34	1	0.1	22.8
1,2,3,7,8-PeCDF	**1.21**	0.116	6.72	1	0.03	0.0363
2,3,4,7,8-PeCDF	**2.07**	0.120	6.72	1	0.3	0.621
1,2,3,4,7,8-HxCDF	**0.521**	0.0710	6.72	1	0.1	0.0521
1,2,3,6,7,8-HxCDF	**0.482**	0.0692	6.72	1	0.1	0.0482
1,2,3,7,8,9-HxCDF	**0.354**	0.0877	6.72	1	0.1	0.0354
2,3,4,6,7,8-HxCDF	**0.573**	0.0729	6.72	1	0.1	0.0573
1,2,3,4,6,7,8-HpCDF	**4.63**	0.118	6.72	1	0.01	0.0463
1,2,3,4,7,8,9-HpCDF	**0.558**	0.142	6.72	1	0.01	0.00558
OCDF	**15.0**	0.176	13.4	1	0.0003	0.00450
		Total TEQ				65.8

2005 WHO TEFs, ND = 0

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 15:00
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-06B-2015	**Units:**	Percent
Lab Code:	J1508878-003	**Basis:**	Dry

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/20/15 11:17
	6.201g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	36.9		-	-			1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 15:35
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-08C-2015	**Units:**	ng/Kg
Lab Code:	J1508878-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/25/15 22:30
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.453g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401103	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1.89		0.0446	0.629	0.71	1.001	1
1,2,3,7,8-PeCDD	0.115	**J**	0.0619	3.15	1.60	1.000	1
1,2,3,4,7,8-HxCDD	0.162	**BJK**	0.0653	3.15	1.89	1.000	1
1,2,3,6,7,8-HxCDD	2.95	**J**	0.0680	3.15	1.29	1.000	1
1,2,3,7,8,9-HxCDD	1.02	**J**	0.0617	3.15	1.33	1.007	1
1,2,3,4,6,7,8-HpCDD	32.9		0.151	3.15	1.02	1.000	1
OCDD	1080		0.103	6.29	0.88	1.000	1
2,3,7,8-TCDF	10.5		0.0469	0.629	0.78	1.001	1
1,2,3,7,8-PeCDF	0.113	**JK**	0.0486	3.15	1.85	1.001	1
2,3,4,7,8-PeCDF	0.183	**BJ**	0.0505	3.15	1.75	1.000	1
1,2,3,4,7,8-HxCDF	0.108	**BJ**	0.0225	3.15	1.15	1.000	1
1,2,3,6,7,8-HxCDF	0.106	**BJ**	0.0212	3.15	1.38	1.001	1
1,2,3,7,8,9-HxCDF	0.106	**BJ**	0.0294	3.15	1.32	1.000	1
2,3,4,6,7,8-HxCDF	0.0919	**BJ**	0.0236	3.15	1.29	1.000	1
1,2,3,4,6,7,8-HpCDF	0.393	**BJP**	0.0344	3.15	0.97	1.000	1
1,2,3,4,7,8,9-HpCDF	0.139	**BJK**	0.0460	3.15	1.48	1.000	1
OCDF	1.84	**BJ**	0.0882	6.29	0.89	1.005	1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 15:35
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-08C-2015	**Units:**	ng/Kg
Lab Code:	J1508878-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/25/15 22:30
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.453g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401103	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	26.3		0.0446	0.629	0.73		1
Total Penta-Dioxins	19.7		0.0619	3.15	1.59		1
Total Hexa-Dioxins	52.0		0.0649	3.15	1.25		1
Total Hepta-Dioxins	73.4		0.151	3.15	1.04		1
Total Tetra-Furans	17.2		0.0469	0.629	0.80		1
Total Penta-Furans	0.183	**J**	0.0496	3.15	1.75		1
Total Hexa-Furans	0.845	**J**	0.0238	3.15	1.17		1
Total Hepta-Furans	0.978	**J**	0.0397	3.15	0.97		1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 15:35
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-08C-2015	**Units:**	Percent
Lab Code:	J1508878-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/25/15 22:30
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.453g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401103	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	863.471	43		25-164	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	845.786	42		25-181	1.56	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1514.379	76		32-141	1.26	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1597.163	80		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1302.731	65		23-140	1.06	1.065
13C-OCDD	4000	2224.585	56		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	778.555	39		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	804.530	40		24-185	1.57	1.134
13C-2,3,4,7,8-PeCDF	2000	777.018	39		21-178	1.57	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1399.543	70		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1497.621	75		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1170.603	59		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1366.080	68		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1152.228	58		28-143	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1185.337	59		26-138	0.44	1.078
37Cl-2,3,7,8-TCDD	800	368.403	46		35-197	NA	1.020

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 15:35
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-08C-2015	**Units:**	ng/Kg
Lab Code:	J1508878-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1.89**	0.0446	0.629	1	1	1.89
1,2,3,7,8-PeCDD	**0.115**	0.0619	3.15	1	1	0.115
1,2,3,4,7,8-HxCDD	**0.162**	0.0653	3.15	1	0.1	0.0162
1,2,3,6,7,8-HxCDD	**2.95**	0.0680	3.15	1	0.1	0.295
1,2,3,7,8,9-HxCDD	**1.02**	0.0617	3.15	1	0.1	0.102
1,2,3,4,6,7,8-HpCDD	**32.9**	0.151	3.15	1	0.01	0.329
OCDD	**1080**	0.103	6.29	1	0.0003	0.324
2,3,7,8-TCDF	**10.5**	0.0469	0.629	1	0.1	1.05
1,2,3,7,8-PeCDF	**0.113**	0.0486	3.15	1	0.03	0.00339
2,3,4,7,8-PeCDF	**0.183**	0.0505	3.15	1	0.3	0.0549
1,2,3,4,7,8-HxCDF	**0.108**	0.0225	3.15	1	0.1	0.0108
1,2,3,6,7,8-HxCDF	**0.106**	0.0212	3.15	1	0.1	0.0106
1,2,3,7,8,9-HxCDF	**0.106**	0.0294	3.15	1	0.1	0.0106
2,3,4,6,7,8-HxCDF	**0.0919**	0.0236	3.15	1	0.1	0.00919
1,2,3,4,6,7,8-HpCDF	**0.393**	0.0344	3.15	1	0.01	0.00393
1,2,3,4,7,8,9-HpCDF	**0.139**	0.0460	3.15	1	0.01	0.00139
OCDF	**1.84**	0.0882	6.29	1	0.0003	0.000552
		Total TEQ				4.23

2005 WHO TEFs, ND = 0

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 15:35
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-08C-2015	**Units:**	Percent
Lab Code:	J1508878-004	**Basis:**	Dry

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/20/15 11:17
	7.582g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	76.0		-	-			1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 15:42
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-10B-2015	**Units:**	ng/Kg
Lab Code:	J1508878-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/25/15 23:19
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.127g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401104	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	120		0.117	2.24	0.78	1.001	1
1,2,3,7,8-PeCDD	3.06**J**		0.150	11.2	1.50	1.000	1
1,2,3,4,7,8-HxCDD	1.91**JK**		0.118	11.2	1.44	1.000	1
1,2,3,6,7,8-HxCDD	14.5		0.123	11.2	1.30	1.000	1
1,2,3,7,8,9-HxCDD	8.19**J**		0.111	11.2	1.09	1.006	1
1,2,3,4,6,7,8-HpCDD	176		1.05	11.2	1.04	1.000	1
OCDD	4030		0.363	22.4	0.89	1.000	1
2,3,7,8-TCDF	692		0.135	2.24	0.78	1.001	1
1,2,3,7,8-PeCDF	3.11**J**		0.189	11.2	1.53	1.000	1
2,3,4,7,8-PeCDF	5.36**J**		0.202	11.2	1.54	1.000	1
1,2,3,4,7,8-HxCDF	1.49**J**		0.183	11.2	1.25	1.000	1
1,2,3,6,7,8-HxCDF	1.18**J**		0.170	11.2	1.29	1.000	1
1,2,3,7,8,9-HxCDF	0.687**BJ**		0.234	11.2	1.16	1.001	1
2,3,4,6,7,8-HxCDF	1.51**J**		0.189	11.2	1.21	1.000	1
1,2,3,4,6,7,8-HpCDF	18.8**P**		0.325	11.2	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	1.47**J**		0.396	11.2	1.13	1.000	1
OCDF	ND	U	0.224	22.4			1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 15:42
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-10B-2015	**Units:**	ng/Kg
Lab Code:	J1508878-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/25/15 23:19
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.127g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401104	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	141		0.117	2.24	0.80		1
Total Penta-Dioxins	29.1		0.150	11.2	1.52		1
Total Hexa-Dioxins	134		0.117	11.2	1.22		1
Total Hepta-Dioxins	479		1.05	11.2	1.04		1
Total Tetra-Furans	1250		0.135	2.24	0.79		1
Total Penta-Furans	27.6		0.196	11.2	1.61		1
Total Hexa-Furans	27.9		0.191	11.2	1.14		1
Total Hepta-Furans	89.7		0.358	11.2	1.02		1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 15:42
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-10B-2015	**Units:**	Percent
Lab Code:	J1508878-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/25/15 23:19
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.127g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401104	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1071.909	54		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	967.331	48		25-181	1.57	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1603.910	80		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1650.856	83		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1333.318	67		23-140	1.05	1.065
13C-OCDD	4000	2083.732	52		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	968.682	48		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	937.481	47		24-185	1.57	1.134
13C-2,3,4,7,8-PeCDF	2000	899.886	45		21-178	1.57	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1490.897	75		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1566.159	78		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1238.722	62		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1455.651	73		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1171.487	59		28-143	0.45	1.040
13C-1,2,3,4,7,8,9-HpCDF	2000	1311.873	66		26-138	0.45	1.078
37Cl-2,3,7,8-TCDD	800	474.742	59		35-197	NA	1.020

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 15:42
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-10B-2015	**Units:**	ng/Kg
Lab Code:	J1508878-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**120**	0.117	2.24	1	1	120
1,2,3,7,8-PeCDD	**3.06**	0.150	11.2	1	1	3.06
1,2,3,4,7,8-HxCDD	**1.91**	0.118	11.2	1	0.1	0.191
1,2,3,6,7,8-HxCDD	**14.5**	0.123	11.2	1	0.1	1.45
1,2,3,7,8,9-HxCDD	**8.19**	0.111	11.2	1	0.1	0.819
1,2,3,4,6,7,8-HpCDD	**176**	1.05	11.2	1	0.01	1.76
OCDD	**4030**	0.363	22.4	1	0.0003	1.21
2,3,7,8-TCDF	**692**	0.135	2.24	1	0.1	69.2
1,2,3,7,8-PeCDF	**3.11**	0.189	11.2	1	0.03	0.0933
2,3,4,7,8-PeCDF	**5.36**	0.202	11.2	1	0.3	1.61
1,2,3,4,7,8-HxCDF	**1.49**	0.183	11.2	1	0.1	0.149
1,2,3,6,7,8-HxCDF	**1.18**	0.170	11.2	1	0.1	0.118
1,2,3,7,8,9-HxCDF	**0.687**	0.234	11.2	1	0.1	0.0687
2,3,4,6,7,8-HxCDF	**1.51**	0.189	11.2	1	0.1	0.151
1,2,3,4,6,7,8-HpCDF	**18.8**	0.325	11.2	1	0.01	0.188
1,2,3,4,7,8,9-HpCDF	**1.47**	0.396	11.2	1	0.01	0.0147
OCDF	ND	0.224	22.4	1	0.0003	
		Total TEQ				200

2005 WHO TEFs, ND = 0

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 15:42
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-10B-2015	**Units:**	Percent
Lab Code:	J1508878-005	**Basis:**	Dry

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/20/15 11:17
	7.856g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	22.0		-	-			1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 16:04
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-15B-2015	**Units:**	ng/Kg
Lab Code:	J1508878-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/26/15 00:09
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.179g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401105	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	3.74		0.134	0.640	0.78	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.108	3.20			1
1,2,3,4,7,8-HxCDD	0.176**BJ**		0.0873	3.20	1.21	1.000	1
1,2,3,6,7,8-HxCDD	0.507**BJK**		0.0878	3.20	1.49	1.000	1
1,2,3,7,8,9-HxCDD	0.548**BJ**		0.0810	3.20	1.25	1.007	1
1,2,3,4,6,7,8-HpCDD	11.2		0.219	3.20	1.02	1.000	1
OCDD	609		0.238	6.40	0.88	1.000	1
2,3,7,8-TCDF	18.8		0.126	0.640	0.76	1.001	1
1,2,3,7,8-PeCDF	0.177**JK**		0.0933	3.20	1.10	1.001	1
2,3,4,7,8-PeCDF	0.264**BJ**		0.0946	3.20	1.40	1.000	1
1,2,3,4,7,8-HxCDF	0.155**BJ**		0.0583	3.20	1.12	1.000	1
1,2,3,6,7,8-HxCDF	0.113**BJK**		0.0565	3.20	1.04	1.000	1
1,2,3,7,8,9-HxCDF	0.165**BJK**		0.0804	3.20	0.92	1.000	1
2,3,4,6,7,8-HxCDF	0.133**BJ**		0.0601	3.20	1.11	1.000	1
1,2,3,4,6,7,8-HpCDF	0.895**BJ**		0.0836	3.20	1.05	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.111	3.20			1
OCDF	3.02**BJ**		0.223	6.40	0.91	1.005	1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 16:04
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-15B-2015	**Units:**	ng/Kg
Lab Code:	J1508878-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/26/15 00:09
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.179g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401105	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	4.03		0.134	0.640	0.81		1
Total Penta-Dioxins	0.473**J**		0.108	3.20	1.39		1
Total Hexa-Dioxins	8.39		0.0852	3.20	1.21		1
Total Hepta-Dioxins	29.8		0.219	3.20	0.98		1
Total Tetra-Furans	32.3		0.126	0.640	0.68		1
Total Penta-Furans	0.264**J**		0.0941	3.20	1.40		1
Total Hexa-Furans	0.787**J**		0.0627	3.20	1.36		1
Total Hepta-Furans	0.895**J**		0.0964	3.20	1.05		1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 16:04
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-15B-2015	**Units:**	Percent
Lab Code:	J1508878-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/26/15 00:09
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.179g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401105	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	861.326	43		25-164	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	933.614	47		25-181	1.57	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1286.493	64		32-141	1.26	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1426.233	71		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1216.660	61		23-140	1.06	1.065
13C-OCDD	4000	2067.413	52		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	785.091	39		24-169	0.79	0.995
13C-1,2,3,7,8-PeCDF	2000	879.108	44		24-185	1.58	1.134
13C-2,3,4,7,8-PeCDF	2000	853.162	43		21-178	1.59	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1225.116	61		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1303.156	65		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	982.509	49		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1188.930	59		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	995.451	50		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1105.833	55		26-138	0.45	1.079
37Cl-2,3,7,8-TCDD	800	356.399	45		35-197	NA	1.021

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 16:04
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-15B-2015	**Units:**	ng/Kg
Lab Code:	J1508878-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**3.74**	0.134	0.640	1	1	3.74
1,2,3,7,8-PeCDD	ND	0.108	3.20	1	1	
1,2,3,4,7,8-HxCDD	**0.176**	0.0873	3.20	1	0.1	0.0176
1,2,3,6,7,8-HxCDD	**0.507**	0.0878	3.20	1	0.1	0.0507
1,2,3,7,8,9-HxCDD	**0.548**	0.0810	3.20	1	0.1	0.0548
1,2,3,4,6,7,8-HpCDD	**11.2**	0.219	3.20	1	0.01	0.112
OCDD	**609**	0.238	6.40	1	0.0003	0.183
2,3,7,8-TCDF	**18.8**	0.126	0.640	1	0.1	1.88
1,2,3,7,8-PeCDF	**0.177**	0.0933	3.20	1	0.03	0.00531
2,3,4,7,8-PeCDF	**0.264**	0.0946	3.20	1	0.3	0.0792
1,2,3,4,7,8-HxCDF	**0.155**	0.0583	3.20	1	0.1	0.0155
1,2,3,6,7,8-HxCDF	**0.113**	0.0565	3.20	1	0.1	0.0113
1,2,3,7,8,9-HxCDF	**0.165**	0.0804	3.20	1	0.1	0.0165
2,3,4,6,7,8-HxCDF	**0.133**	0.0601	3.20	1	0.1	0.0133
1,2,3,4,6,7,8-HpCDF	**0.895**	0.0836	3.20	1	0.01	0.00895
1,2,3,4,7,8,9-HpCDF	ND	0.111	3.20	1	0.01	
OCDF	**3.02**	0.223	6.40	1	0.0003	0.000906
		Total TEQ				6.19

2005 WHO TEFs, ND = 0

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/03/15 16:04
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-15B-2015	**Units:**	Percent
Lab Code:	J1508878-006	**Basis:**	Dry

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/20/15 11:17
	7.571g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	76.7		-	-			1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 08:30
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-16B-2015	**Units:**	ng/Kg
Lab Code:	J1508878-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/26/15 00:58
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.217g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401106	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	650		0.168	3.55	0.78	1.001	1
1,2,3,7,8-PeCDD	9.62**J**		0.253	17.7	1.68	1.000	1
1,2,3,4,7,8-HxCDD	3.04**J**		0.263	17.7	1.27	1.000	1
1,2,3,6,7,8-HxCDD	24.1		0.265	17.7	1.20	1.000	1
1,2,3,7,8,9-HxCDD	15.4**J**		0.244	17.7	1.23	1.007	1
1,2,3,4,6,7,8-HpCDD	255		0.635	17.7	1.02	1.000	1
OCDD	9510		0.562	35.5	0.89	1.000	1
2,3,7,8-TCDF	7430		20.2	20.2	0.74	1.001	5
1,2,3,7,8-PeCDF	21.5		1.03	17.7	1.52	1.001	1
2,3,4,7,8-PeCDF	36.5		1.11	17.7	1.55	1.000	1
1,2,3,4,7,8-HxCDF	3.31**J**		0.171	17.7	1.21	1.000	1
1,2,3,6,7,8-HxCDF	1.74**J**		0.163	17.7	1.19	1.000	1
1,2,3,7,8,9-HxCDF	1.59**JK**		0.213	17.7	0.89	1.001	1
2,3,4,6,7,8-HxCDF	2.21**J**		0.179	17.7	1.17	1.000	1
1,2,3,4,6,7,8-HpCDF	15.9**JP**		0.364	17.7	1.07	1.000	1
1,2,3,4,7,8,9-HpCDF	1.88**J**		0.438	17.7	1.17	1.000	1
OCDF	64.3		0.455	35.5	0.87	1.005	1

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Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 08:30
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-16B-2015	**Units:**	ng/Kg
Lab Code:	J1508878-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/26/15 00:58
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.217g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401106	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	716		0.168	3.55	0.76		1
Total Penta-Dioxins	62.8		0.253	17.7	1.48		1
Total Hexa-Dioxins	242		0.257	17.7	1.21		1
Total Hepta-Dioxins	607		0.635	17.7	1.04		1
Total Tetra-Furans	10400		0.206	3.55	0.80		1
Total Penta-Furans	131		1.07	17.7	1.67		1
Total Hexa-Furans	27.7		0.180	17.7	1.23		1
Total Hepta-Furans	49.2		0.398	17.7	1.07		1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 08:30
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-16B-2015	**Units:**	Percent
Lab Code:	J1508878-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/26/15 00:58
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.217g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401106	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1010.011	51		25-164	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	964.291	48		25-181	1.57	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1433.701	72		32-141	1.26	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1483.433	74		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1176.839	59		23-140	1.05	1.065
13C-OCDD	4000	1870.995	47		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	964.270	48		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	927.989	46		24-185	1.57	1.134
13C-2,3,4,7,8-PeCDF	2000	889.490	44		21-178	1.57	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1378.130	69		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1389.083	69		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1159.304	58		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1325.516	66		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1046.407	52		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1164.371	58		26-138	0.45	1.078
37Cl-2,3,7,8-TCDD	800	475.571	59		35-197	NA	1.020

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 08:30
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-16B-2015	**Units:**	ng/Kg
Lab Code:	J1508878-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**650**	0.168	3.55	1	1	650
1,2,3,7,8-PeCDD	**9.62**	0.253	17.7	1	1	9.62
1,2,3,4,7,8-HxCDD	**3.04**	0.263	17.7	1	0.1	0.304
1,2,3,6,7,8-HxCDD	**24.1**	0.265	17.7	1	0.1	2.41
1,2,3,7,8,9-HxCDD	**15.4**	0.244	17.7	1	0.1	1.54
1,2,3,4,6,7,8-HpCDD	**255**	0.635	17.7	1	0.01	2.55
OCDD	**9510**	0.562	35.5	1	0.0003	2.85
2,3,7,8-TCDF	**7430**	20.2	20.2	5	0.1	743
1,2,3,7,8-PeCDF	**21.5**	1.03	17.7	1	0.03	0.645
2,3,4,7,8-PeCDF	**36.5**	1.11	17.7	1	0.3	11.0
1,2,3,4,7,8-HxCDF	**3.31**	0.171	17.7	1	0.1	0.331
1,2,3,6,7,8-HxCDF	**1.74**	0.163	17.7	1	0.1	0.174
1,2,3,7,8,9-HxCDF	**1.59**	0.213	17.7	1	0.1	0.159
2,3,4,6,7,8-HxCDF	**2.21**	0.179	17.7	1	0.1	0.221
1,2,3,4,6,7,8-HpCDF	**15.9**	0.364	17.7	1	0.01	0.159
1,2,3,4,7,8,9-HpCDF	**1.88**	0.438	17.7	1	0.01	0.0188
OCDF	**64.3**	0.455	35.5	1	0.0003	0.0193
		Total TEQ				1430

2005 WHO TEFs, ND = 0

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 08:30
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-16B-2015	**Units:**	Percent
Lab Code:	J1508878-007	**Basis:**	Dry

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/20/15 11:17
	6.199g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	13.8		-	-			1

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Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 08:50
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-17C-2015	**Units:**	ng/Kg
Lab Code:	J1508878-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/26/15 01:47
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.140g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401107	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	36.1		0.138	1.04	0.76	1.001	1
1,2,3,7,8-PeCDD	0.818**JK**		0.128	5.18	1.98	1.001	1
1,2,3,4,7,8-HxCDD	0.330**BJ**		0.177	5.18	1.28	1.000	1
1,2,3,6,7,8-HxCDD	2.68**J**		0.184	5.18	1.17	1.000	1
1,2,3,7,8,9-HxCDD	1.54**J**		0.167	5.18	1.24	1.007	1
1,2,3,4,6,7,8-HpCDD	31.1		0.264	5.18	1.00	1.000	1
OCDD	951		0.326	10.4	0.89	1.000	1
2,3,7,8-TCDF	240		0.189	1.04	0.77	1.001	1
1,2,3,7,8-PeCDF	1.01**J**		0.201	5.18	1.38	1.001	1
2,3,4,7,8-PeCDF	1.73**J**		0.201	5.18	1.42	1.001	1
1,2,3,4,7,8-HxCDF	0.680**BJK**		0.112	5.18	1.47	1.000	1
1,2,3,6,7,8-HxCDF	0.284**BJK**		0.106	5.18	1.48	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.138	5.18			1
2,3,4,6,7,8-HxCDF	0.315**BJK**		0.111	5.18	1.61	1.000	1
1,2,3,4,6,7,8-HpCDF	4.09**JP**		0.147	5.18	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	0.363**BJK**		0.171	5.18	1.32	1.000	1
OCDF	11.8		0.290	10.4	0.90	1.005	1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 08:50
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-17C-2015	**Units:**	ng/Kg
Lab Code:	J1508878-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/26/15 01:47
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.140g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401107	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	40.6		0.138	1.04	0.77		1
Total Penta-Dioxins	3.32**J**		0.128	5.18	1.50		1
Total Hexa-Dioxins	25.0		0.176	5.18	1.28		1
Total Hepta-Dioxins	79.9		0.264	5.18	1.01		1
Total Tetra-Furans	422		0.189	1.04	0.81		1
Total Penta-Furans	5.12**J**		0.201	5.18	1.42		1
Total Hexa-Furans	1.88**J**		0.115	5.18	1.17		1
Total Hepta-Furans	12.2		0.159	5.18	1.00		1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 08:50
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-17C-2015	**Units:**	Percent
Lab Code:	J1508878-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/26/15 01:47
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.140g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401107	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1119.841	56		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1248.574	62		25-181	1.57	1.173
13C-1,2,3,4,7,8-HxCDD	2000	1632.258	82		32-141	1.27	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1624.642	81		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1494.008	75		23-140	1.05	1.065
13C-OCDD	4000	2571.387	64		17-157	0.91	1.139
13C-2,3,7,8-TCDF	2000	1021.260	51		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1153.756	58		24-185	1.58	1.134
13C-2,3,4,7,8-PeCDF	2000	1158.516	58		21-178	1.57	1.164
13C-1,2,3,4,7,8-HxCDF	2000	1447.670	72		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1492.347	75		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1247.566	62		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1441.612	72		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1226.417	61		28-143	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1463.584	73		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	480.981	60		35-197	NA	1.020

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 08:50
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-17C-2015	**Units:**	ng/Kg
Lab Code:	J1508878-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**36.1**	0.138	1.04	1	1	36.1
1,2,3,7,8-PeCDD	**0.818**	0.128	5.18	1	1	0.818
1,2,3,4,7,8-HxCDD	**0.330**	0.177	5.18	1	0.1	0.0330
1,2,3,6,7,8-HxCDD	**2.68**	0.184	5.18	1	0.1	0.268
1,2,3,7,8,9-HxCDD	**1.54**	0.167	5.18	1	0.1	0.154
1,2,3,4,6,7,8-HpCDD	**31.1**	0.264	5.18	1	0.01	0.311
OCDD	**951**	0.326	10.4	1	0.0003	0.285
2,3,7,8-TCDF	**240**	0.189	1.04	1	0.1	24.0
1,2,3,7,8-PeCDF	**1.01**	0.201	5.18	1	0.03	0.0303
2,3,4,7,8-PeCDF	**1.73**	0.201	5.18	1	0.3	0.519
1,2,3,4,7,8-HxCDF	**0.680**	0.112	5.18	1	0.1	0.0680
1,2,3,6,7,8-HxCDF	**0.284**	0.106	5.18	1	0.1	0.0284
1,2,3,7,8,9-HxCDF	ND	0.138	5.18	1	0.1	
2,3,4,6,7,8-HxCDF	**0.315**	0.111	5.18	1	0.1	0.0315
1,2,3,4,6,7,8-HpCDF	**4.09**	0.147	5.18	1	0.01	0.0409
1,2,3,4,7,8,9-HpCDF	**0.363**	0.171	5.18	1	0.01	0.00363
OCDF	**11.8**	0.290	10.4	1	0.0003	0.00354
		Total TEQ				62.7

2005 WHO TEFs, ND = 0

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 08:50
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-17C-2015	**Units:**	Percent
Lab Code:	J1508878-008	**Basis:**	Dry

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/20/15 11:17
	8.584g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	47.6		-	-			1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 09:23
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-21D-2015	**Units:**	ng/Kg
Lab Code:	J1508878-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/28/15 19:34
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.411g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401145	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401138

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	115		0.735	1.86	0.77	1.001	1
1,2,3,7,8-PeCDD	15.6		0.828	9.31	1.57	1.001	1
1,2,3,4,7,8-HxCDD	6.01**J**		0.447	9.31	1.21	1.000	1
1,2,3,6,7,8-HxCDD	139		0.442	9.31	1.22	1.000	1
1,2,3,7,8,9-HxCDD	68.1		0.412	9.31	1.29	1.007	1
1,2,3,4,6,7,8-HpCDD	503		1.35	9.31	1.05	1.000	1
OCDD	5980		0.665	18.6	0.89	1.000	1
2,3,7,8-TCDF	526		0.659	1.86	0.77	1.001	1
1,2,3,7,8-PeCDF	3.15**J**		0.393	9.31	1.61	1.000	1
2,3,4,7,8-PeCDF	4.68**J**		0.382	9.31	1.43	1.000	1
1,2,3,4,7,8-HxCDF	2.38**J**		0.266	9.31	1.37	1.000	1
1,2,3,6,7,8-HxCDF	1.81**J**		0.272	9.31	1.21	1.000	1
1,2,3,7,8,9-HxCDF	1.42**BJ**		0.297	9.31	1.41	1.000	1
2,3,4,6,7,8-HxCDF	2.26**J**		0.267	9.31	1.08	1.000	1
1,2,3,4,6,7,8-HpCDF	20.2		0.565	9.31	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	2.80**J**		0.656	9.31	0.90	1.000	1
OCDF	71.9		0.871	18.6	0.84	1.005	1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 09:23
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-21D-2015	**Units:**	ng/Kg
Lab Code:	J1508878-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/28/15 19:34
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.411g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401145	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401138

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	173		0.735	1.86	0.71		1
Total Penta-Dioxins	169		0.828	9.31	1.56		1
Total Hexa-Dioxins	955		0.433	9.31	1.24		1
Total Hepta-Dioxins	944		1.35	9.31	1.04		1
Total Tetra-Furans	994		0.659	1.86	0.75		1
Total Penta-Furans	35.9		0.388	9.31	1.32		1
Total Hexa-Furans	36.9		0.275	9.31	1.23		1
Total Hepta-Furans	69.5		0.608	9.31	1.02		1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 09:23
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-21D-2015	**Units:**	Percent
Lab Code:	J1508878-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/28/15 19:34
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.411g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401145	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401138

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1075.349	54		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1242.823	62		25-181	1.59	1.173
13C-1,2,3,4,7,8-HxCDD	2000	1432.892	72		32-141	1.31	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1468.044	73		28-130	1.22	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1266.003	63		23-140	1.05	1.065
13C-OCDD	4000	1868.256	47		17-157	0.91	1.141
13C-2,3,7,8-TCDF	2000	1004.269	50		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1161.771	58		24-185	1.55	1.134
13C-2,3,4,7,8-PeCDF	2000	1172.219	59		21-178	1.58	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1342.979	67		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1321.025	66		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1249.019	62		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1337.603	67		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1087.133	54		28-143	0.45	1.040
13C-1,2,3,4,7,8,9-HpCDF	2000	1248.718	62		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	456.386	57		35-197	NA	1.020

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 09:23
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-21D-2015	**Units:**	ng/Kg
Lab Code:	J1508878-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**115**	0.735	1.86	1	1	115
1,2,3,7,8-PeCDD	**15.6**	0.828	9.31	1	1	15.6
1,2,3,4,7,8-HxCDD	**6.01**	0.447	9.31	1	0.1	0.601
1,2,3,6,7,8-HxCDD	**139**	0.442	9.31	1	0.1	13.9
1,2,3,7,8,9-HxCDD	**68.1**	0.412	9.31	1	0.1	6.81
1,2,3,4,6,7,8-HpCDD	**503**	1.35	9.31	1	0.01	5.03
OCDD	**5980**	0.665	18.6	1	0.0003	1.79
2,3,7,8-TCDF	**526**	0.659	1.86	1	0.1	52.6
1,2,3,7,8-PeCDF	**3.15**	0.393	9.31	1	0.03	0.0945
2,3,4,7,8-PeCDF	**4.68**	0.382	9.31	1	0.3	1.40
1,2,3,4,7,8-HxCDF	**2.38**	0.266	9.31	1	0.1	0.238
1,2,3,6,7,8-HxCDF	**1.81**	0.272	9.31	1	0.1	0.181
1,2,3,7,8,9-HxCDF	**1.42**	0.297	9.31	1	0.1	0.142
2,3,4,6,7,8-HxCDF	**2.26**	0.267	9.31	1	0.1	0.226
1,2,3,4,6,7,8-HpCDF	**20.2**	0.565	9.31	1	0.01	0.202
1,2,3,4,7,8,9-HpCDF	**2.80**	0.656	9.31	1	0.01	0.0280
OCDF	**71.9**	0.871	18.6	1	0.0003	0.0216
		Total TEQ				214

2005 WHO TEFs, ND = 0

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 09:23
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-21D-2015	**Units:**	Percent
Lab Code:	J1508878-009	**Basis:**	Dry

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/20/15 11:17
	6.5g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	25.8		-	-			1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 09:45
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-23C-2015	**Units:**	ng/Kg
Lab Code:	J1508878-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/28/15 20:23
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.256g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401146	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401138

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	12.9		0.102	0.722	0.74	1.001	1
1,2,3,7,8-PeCDD	0.327**J**		0.118	3.61	1.68	1.000	1
1,2,3,4,7,8-HxCDD	0.230**BJK**		0.121	3.61	1.46	1.000	1
1,2,3,6,7,8-HxCDD	0.859**BJK**		0.121	3.61	1.46	1.000	1
1,2,3,7,8,9-HxCDD	0.677**BJ**		0.112	3.61	1.09	1.009	1
1,2,3,4,6,7,8-HpCDD	16.1		0.384	3.61	1.04	1.000	1
OCDD	695		0.645	7.22	0.90	1.000	1
2,3,7,8-TCDF	62.0		0.0873	0.722	0.79	1.001	1
1,2,3,7,8-PeCDF	0.324**JK**		0.138	3.61	1.94	1.001	1
2,3,4,7,8-PeCDF	0.506**BJ**		0.142	3.61	1.59	1.000	1
1,2,3,4,7,8-HxCDF	0.280**BJK**		0.0755	3.61	2.14	1.000	1
1,2,3,6,7,8-HxCDF	0.270**BJ**		0.0737	3.61	1.27	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0993	3.61			1
2,3,4,6,7,8-HxCDF	0.348**BJK**		0.0772	3.61	0.68	1.000	1
1,2,3,4,6,7,8-HpCDF	1.96**JP**		0.190	3.61	0.96	1.000	1
1,2,3,4,7,8,9-HpCDF	0.332**BJ**		0.233	3.61	0.96	1.000	1
OCDF	13.0		0.490	7.22	0.83	1.005	1

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Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 09:45
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-23C-2015	**Units:**	ng/Kg
Lab Code:	J1508878-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/28/15 20:23
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.256g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401146	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401138

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	13.0		0.102	0.722	0.69		1
Total Penta-Dioxins	1.48**J**		0.118	3.61	1.47		1
Total Hexa-Dioxins	10.4		0.118	3.61	1.16		1
Total Hepta-Dioxins	37.4		0.384	3.61	1.01		1
Total Tetra-Furans	106		0.0873	0.722	0.84		1
Total Penta-Furans	1.10**J**		0.140	3.61	1.59		1
Total Hexa-Furans	2.01**J**		0.0804	3.61	1.16		1
Total Hepta-Furans	6.97		0.210	3.61	0.96		1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 09:45
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-23C-2015	**Units:**	Percent
Lab Code:	J1508878-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/28/15 20:23
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.256g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401146	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401138

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1201.355	60		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1095.436	55		25-181	1.59	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1808.762	90		32-141	1.33	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1868.962	93		28-130	1.33	0.992
13C-1,2,3,4,6,7,8-HpCDD	2000	1365.236	68		23-140	1.07	1.065
13C-OCDD	4000	1920.999	48		17-157	0.89	1.140
13C-2,3,7,8-TCDF	2000	1095.558	55		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1093.848	55		24-185	1.57	1.134
13C-2,3,4,7,8-PeCDF	2000	1046.564	52		21-178	1.57	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1702.044	85		26-152	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1717.352	86		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1369.790	68		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1641.440	82		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1213.763	61		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1300.550	65		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	487.725	61		35-197	NA	1.021

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 09:45
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-23C-2015	**Units:**	ng/Kg
Lab Code:	J1508878-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**12.9**	0.102	0.722	1	1	12.9
1,2,3,7,8-PeCDD	**0.327**	0.118	3.61	1	1	0.327
1,2,3,4,7,8-HxCDD	**0.230**	0.121	3.61	1	0.1	0.0230
1,2,3,6,7,8-HxCDD	**0.859**	0.121	3.61	1	0.1	0.0859
1,2,3,7,8,9-HxCDD	**0.677**	0.112	3.61	1	0.1	0.0677
1,2,3,4,6,7,8-HpCDD	**16.1**	0.384	3.61	1	0.01	0.161
OCDD	**695**	0.645	7.22	1	0.0003	0.209
2,3,7,8-TCDF	**62.0**	0.0873	0.722	1	0.1	6.20
1,2,3,7,8-PeCDF	**0.324**	0.138	3.61	1	0.03	0.00972
2,3,4,7,8-PeCDF	**0.506**	0.142	3.61	1	0.3	0.152
1,2,3,4,7,8-HxCDF	**0.280**	0.0755	3.61	1	0.1	0.0280
1,2,3,6,7,8-HxCDF	**0.270**	0.0737	3.61	1	0.1	0.0270
1,2,3,7,8,9-HxCDF	ND	0.0993	3.61	1	0.1	
2,3,4,6,7,8-HxCDF	**0.348**	0.0772	3.61	1	0.1	0.0348
1,2,3,4,6,7,8-HpCDF	**1.96**	0.190	3.61	1	0.01	0.0196
1,2,3,4,7,8,9-HpCDF	**0.332**	0.233	3.61	1	0.01	0.00332
OCDF	**13.0**	0.490	7.22	1	0.0003	0.00390
		Total TEQ				20.3

2005 WHO TEFs, ND = 0

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 09:45
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-23C-2015	**Units:**	Percent
Lab Code:	J1508878-010	**Basis:**	Dry

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/20/15 11:17
	9.3g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	67.5		-	-			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 00:00
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	DU-15402	**Units:**	ng/Kg
Lab Code:	J1508878-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/28/15 21:12
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.134g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401147	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401138

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.657**K**		0.0845	0.636	0.64	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.0761	3.18			1
1,2,3,4,7,8-HxCDD	ND	U	0.0690	3.18			1
1,2,3,6,7,8-HxCDD	0.198**BJK**		0.0702	3.18	0.99	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.0644	3.18			1
1,2,3,4,6,7,8-HpCDD	1.69**BJ**		0.0732	3.18	0.95	1.000	1
OCDD	55.4		0.184	6.36	0.87	1.000	1
2,3,7,8-TCDF	2.82		0.0930	0.636	0.74	1.000	1
1,2,3,7,8-PeCDF	ND	U	0.0737	3.18			1
2,3,4,7,8-PeCDF	ND	U	0.0763	3.18			1
1,2,3,4,7,8-HxCDF	ND	U	0.0680	3.18			1
1,2,3,6,7,8-HxCDF	ND	U	0.0645	3.18			1
1,2,3,7,8,9-HxCDF	ND	U	0.101	3.18			1
2,3,4,6,7,8-HxCDF	ND	U	0.0718	3.18			1
1,2,3,4,6,7,8-HpCDF	0.230**BJ**		0.0589	3.18	1.17	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0753	3.18			1
OCDF	1.42**BJK**		0.191	6.36	1.12	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 00:00
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	DU-15402	**Units:**	ng/Kg
Lab Code:	J1508878-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/28/15 21:12
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.134g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401147	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401138

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.0845	0.636			1
Total Penta-Dioxins	ND	U	0.0761	3.18			1
Total Hexa-Dioxins	0.628**J**		0.0678	3.18	1.14		1
Total Hepta-Dioxins	1.69**J**		0.0732	3.18	0.95		1
Total Tetra-Furans	4.16		0.0930	0.636	0.74		1
Total Penta-Furans	ND	U	0.0751	3.18			1
Total Hexa-Furans	ND	U	0.0741	3.18			1
Total Hepta-Furans	0.483**J**		0.0664	3.18	1.17		1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 00:00
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	DU-15402	**Units:**	Percent
Lab Code:	J1508878-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/28/15 21:12
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.134g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401147	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401138

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1057.635	53		25-164	0.80	1.020
13C-1,2,3,7,8-PeCDD	2000	976.805	49		25-181	1.58	1.173
13C-1,2,3,4,7,8-HxCDD	2000	1900.526	95		32-141	1.27	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1964.241	98		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1418.152	71		23-140	1.06	1.065
13C-OCDD	4000	2018.058	50		17-157	0.90	1.140
13C-2,3,7,8-TCDF	2000	999.851	50		24-169	0.79	0.995
13C-1,2,3,7,8-PeCDF	2000	960.803	48		24-185	1.59	1.134
13C-2,3,4,7,8-PeCDF	2000	919.753	46		21-178	1.55	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1795.810	90		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1856.461	93		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1301.134	65		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1683.492	84		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1236.266	62		28-143	0.46	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1306.136	65		26-138	0.46	1.079
37Cl-2,3,7,8-TCDD	800	465.822	58		35-197	NA	1.020

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 00:00
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	DU-15402	**Units:**	ng/Kg
Lab Code:	J1508878-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.657**	0.0845	0.636	1	1	0.657
1,2,3,7,8-PeCDD	ND	0.0761	3.18	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0690	3.18	1	0.1	
1,2,3,6,7,8-HxCDD	**0.198**	0.0702	3.18	1	0.1	0.0198
1,2,3,7,8,9-HxCDD	ND	0.0644	3.18	1	0.1	
1,2,3,4,6,7,8-HpCDD	**1.69**	0.0732	3.18	1	0.01	0.0169
OCDD	**55.4**	0.184	6.36	1	0.0003	0.0166
2,3,7,8-TCDF	**2.82**	0.0930	0.636	1	0.1	0.282
1,2,3,7,8-PeCDF	ND	0.0737	3.18	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0763	3.18	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0680	3.18	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0645	3.18	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.101	3.18	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0718	3.18	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.230**	0.0589	3.18	1	0.01	0.00230
1,2,3,4,7,8,9-HpCDF	ND	0.0753	3.18	1	0.01	
OCDF	**1.42**	0.191	6.36	1	0.0003	0.000426
		Total TEQ				0.995

2005 WHO TEFs, ND = 0

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 00:00
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	DU-15402	**Units:**	Percent
Lab Code:	J1508878-011	**Basis:**	Dry

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/20/15 11:17
	9.18g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	77.6		-	-			1

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Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1500668-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/25/15 19:13
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.074g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401099	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.0323	0.496			1
1,2,3,7,8-PeCDD	ND	U	0.0435	2.48			1
1,2,3,4,7,8-HxCDD	0.104**J**		0.0334	2.48	1.38	1.000	1
1,2,3,6,7,8-HxCDD	0.115**J**		0.0344	2.48	1.16	1.000	1
1,2,3,7,8,9-HxCDD	0.101**JK**		0.0314	2.48	0.87	1.006	1
1,2,3,4,6,7,8-HpCDD	0.195**J**		0.0396	2.48	1.09	1.000	1
OCDD	0.655**J**		0.0944	4.96	0.81	1.000	1
2,3,7,8-TCDF	ND	U	0.0274	0.496			1
1,2,3,7,8-PeCDF	ND	U	0.0331	2.48			1
2,3,4,7,8-PeCDF	0.106**J**		0.0342	2.48	1.68	1.000	1
1,2,3,4,7,8-HxCDF	0.0838**J**		0.0176	2.48	1.22	1.000	1
1,2,3,6,7,8-HxCDF	0.0859**J**		0.0164	2.48	1.35	1.000	1
1,2,3,7,8,9-HxCDF	0.144**J**		0.0243	2.48	1.24	1.000	1
2,3,4,6,7,8-HxCDF	0.109**JK**		0.0184	2.48	1.03	1.000	1
1,2,3,4,6,7,8-HpCDF	0.117**J**		0.0341	2.48	1.07	1.000	1
1,2,3,4,7,8,9-HpCDF	0.108**JK**		0.0468	2.48	0.85	1.000	1
OCDF	0.321**JK**		0.101	4.96	0.72	1.005	1

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Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1500668-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/25/15 19:13
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.074g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401099	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.0323	0.496			1
Total Penta-Dioxins	ND	U	0.0435	2.48			1
Total Hexa-Dioxins	0.219**J**		0.0330	2.48	1.38		1
Total Hepta-Dioxins	0.195**J**		0.0396	2.48	1.09		1
Total Tetra-Furans	ND	U	0.0274	0.496			1
Total Penta-Furans	0.106**J**		0.0337	2.48	1.68		1
Total Hexa-Furans	0.313**J**		0.0188	2.48	1.22		1
Total Hepta-Furans	0.117**J**		0.0399	2.48	1.07		1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1500668-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/25/15 19:13
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.074g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401099	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401096

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	920.424	46		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	826.884	41		25-181	1.58	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1376.395	69		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1482.085	74		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1146.029	57		23-140	1.06	1.065
13C-OCDD	4000	1780.231	45		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	833.262	42		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	799.792	40		24-185	1.57	1.134
13C-2,3,4,7,8-PeCDF	2000	765.452	38		21-178	1.57	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1294.479	65		26-152	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1405.016	70		26-123	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1022.631	51		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1262.937	63		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1046.094	52		28-143	0.45	1.040
13C-1,2,3,4,7,8,9-HpCDF	2000	1066.009	53		26-138	0.45	1.078
37Cl-2,3,7,8-TCDD	800	388.384	49		35-197	NA	1.021

Accuracy & Precision

ALS Environmental - Houston HRMS
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Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Analyzed:**	11/28/15
Sample Matrix:	Sediment	**Date Extracted:**	11/18/15

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	474210

	Lab Control Sample EQ1500668-02			Duplicate Lab Control Sample EQ1500668-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	92.3	96.5	96	92.0	95.9	96	70-140	<1	50
1,2,3,4,7,8-HxCDD	97.3	96.5	101	94.5	95.9	99	70-164	3	50
1,2,3,6,7,8-HxCDD	92.1	96.5	95	92.8	95.9	97	76-134	<1	50
1,2,3,7,8,9-HxCDD	76.9	96.5	80	85.5	95.9	89	64-162	11	50
1,2,3,7,8-PeCDD	99.7	96.5	103	99.6	95.9	104	70-142	<1	50
2,3,7,8-TCDD	18.4	19.3	95	17.9	19.2	93	67-158	3	50
OCDD	202	193	104	191	192	99	78-144	5	50
1,2,3,4,6,7,8-HpCDF	96.5	96.5	100	97.1	95.9	101	82-122	<1	50
1,2,3,4,7,8,9-HpCDF	92.8	96.5	96	93.1	95.9	97	78-138	<1	50
1,2,3,4,7,8-HxCDF	98.0	96.5	102	95.5	95.9	100	72-134	3	50
1,2,3,6,7,8-HxCDF	90.1	96.5	93	93.7	95.9	98	84-130	4	50
1,2,3,7,8,9-HxCDF	92.9	96.5	96	92.2	95.9	96	78-130	<1	50
1,2,3,7,8-PeCDF	88.6	96.5	92	89.4	95.9	93	80-134	<1	50
2,3,4,6,7,8-HxCDF	92.1	96.5	95	92.0	95.9	96	70-156	<1	50
2,3,4,7,8-PeCDF	95.8	96.5	99	96.4	95.9	101	68-160	<1	50
2,3,7,8-TCDF	18.9	19.3	98	18.8	19.2	98	75-158	<1	50
OCDF	236	193	122	192	192	100	63-170	21	50

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Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1500668-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/28/15 22:50
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.358g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401149	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401138

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	18.4		0.319	0.483	0.79	1.001	1
1,2,3,7,8-PeCDD	99.7		0.592	2.41	1.58	1.000	1
1,2,3,4,7,8-HxCDD	97.3		0.132	2.41	1.23	1.000	1
1,2,3,6,7,8-HxCDD	92.1		0.156	2.41	1.28	1.000	1
1,2,3,7,8,9-HxCDD	76.9		0.133	2.41	1.29	1.007	1
1,2,3,4,6,7,8-HpCDD	92.3		0.145	2.41	1.05	1.000	1
OCDD	202		0.377	4.83	0.89	1.000	1
2,3,7,8-TCDF	18.9		0.373	0.483	0.81	1.000	1
1,2,3,7,8-PeCDF	88.6		0.680	2.41	1.58	1.000	1
2,3,4,7,8-PeCDF	95.8		0.673	2.41	1.52	1.000	1
1,2,3,4,7,8-HxCDF	98.0		0.0635	2.41	1.26	1.000	1
1,2,3,6,7,8-HxCDF	90.1		0.0666	2.41	1.27	1.000	1
1,2,3,7,8,9-HxCDF	92.9		0.121	2.41	1.26	1.000	1
2,3,4,6,7,8-HxCDF	92.1		0.0788	2.41	1.25	1.000	1
1,2,3,4,6,7,8-HpCDF	96.5		0.370	2.41	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	92.8		0.518	2.41	1.02	1.000	1
OCDF	236		0.411	4.83	0.87	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1500668-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/28/15 22:50
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.358g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401149	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401138

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	18.4		0.319	0.483	0.79		1
Total Penta-Dioxins	101		0.592	2.41	1.58		1
Total Hexa-Dioxins	266		0.140	2.41	1.23		1
Total Hepta-Dioxins	92.3		0.145	2.41	1.05		1
Total Tetra-Furans	18.9		0.373	0.483	0.81		1
Total Penta-Furans	185		0.677	2.41	1.37		1
Total Hexa-Furans	373		0.0778	2.41	1.26		1
Total Hepta-Furans	189		0.437	2.41	1.01		1

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1500668-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/28/15 22:50
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.358g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401149	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401138

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1003.474	50		25-164	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	916.153	46		25-181	1.61	1.173
13C-1,2,3,4,7,8-HxCDD	2000	1902.202	95		32-141	1.27	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1836.879	92		28-130	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1462.546	73		23-140	1.06	1.065
13C-OCDD	4000	1709.063	43		17-157	0.92	1.139
13C-2,3,7,8-TCDF	2000	940.503	47		24-169	0.79	0.995
13C-1,2,3,7,8-PeCDF	2000	759.868	38		24-185	1.58	1.134
13C-2,3,4,7,8-PeCDF	2000	750.806	38		21-178	1.56	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1970.396	99		26-152	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1840.282	92		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1126.484	56		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1627.629	81		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1216.549	61		28-143	0.44	1.040
13C-1,2,3,4,7,8,9-HpCDF	2000	1245.856	62		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	408.065	51		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1500668-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/28/15 23:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.432g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401150	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401138

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	17.9		0.0619	0.479	0.81	1.001	1
1,2,3,7,8-PeCDD	99.6		0.0421	2.40	1.58	1.001	1
1,2,3,4,7,8-HxCDD	94.5		0.0366	2.40	1.28	1.000	1
1,2,3,6,7,8-HxCDD	92.8		0.0392	2.40	1.27	1.000	1
1,2,3,7,8,9-HxCDD	85.5		0.0350	2.40	1.26	1.007	1
1,2,3,4,6,7,8-HpCDD	92.0		0.0505	2.40	1.04	1.000	1
OCDD	191		0.167	4.79	0.89	1.000	1
2,3,7,8-TCDF	18.8		0.0502	0.479	0.79	1.000	1
1,2,3,7,8-PeCDF	89.4		0.0837	2.40	1.52	1.000	1
2,3,4,7,8-PeCDF	96.4		0.0851	2.40	1.54	1.000	1
1,2,3,4,7,8-HxCDF	95.5		0.0408	2.40	1.22	1.000	1
1,2,3,6,7,8-HxCDF	93.7		0.0396	2.40	1.20	1.000	1
1,2,3,7,8,9-HxCDF	92.2		0.0583	2.40	1.23	1.000	1
2,3,4,6,7,8-HxCDF	92.0		0.0437	2.40	1.20	1.000	1
1,2,3,4,6,7,8-HpCDF	97.1		0.203	2.40	1.06	1.000	1
1,2,3,4,7,8,9-HpCDF	93.1		0.265	2.40	1.02	1.000	1
OCDF	192		0.185	4.79	0.91	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1500668-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/28/15 23:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.432g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401150	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401138

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	17.9		0.0619	0.479	0.81		1
Total Penta-Dioxins	99.6		0.0421	2.40	1.58		1
Total Hexa-Dioxins	273		0.0369	2.40	1.28		1
Total Hepta-Dioxins	92.0		0.0505	2.40	1.04		1
Total Tetra-Furans	19.3		0.0502	0.479	0.83		1
Total Penta-Furans	189		0.0845	2.40	1.39		1
Total Hexa-Furans	374		0.0446	2.40	1.22		1
Total Hepta-Furans	190		0.231	2.40	1.06		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1500668-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/28/15 23:39
Prep Method:	Method Soxhlet	**Date Extracted:**	11/18/15
Sample Amount:	10.432g	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401150	**Blank File Name:**	P401099
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401138

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1121.521	56		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1034.120	52		25-181	1.59	1.173
13C-1,2,3,4,7,8-HxCDD	2000	1891.864	95		32-141	1.28	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1867.209	93		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1367.346	68		23-140	1.05	1.065
13C-OCDD	4000	1921.970	48		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	1056.497	53		24-169	0.80	0.995
13C-1,2,3,7,8-PeCDF	2000	1004.684	50		24-185	1.56	1.134
13C-2,3,4,7,8-PeCDF	2000	961.634	48		21-178	1.59	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1750.480	88		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1806.199	90		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1307.938	65		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1632.454	82		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1229.557	61		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1253.272	63		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	467.254	58		35-197	NA	1.020

Laboratory Data Quality Review Notes

Project Name: Domtar-Plymouth 2015 Welch Creek Sediment Samples

Project Number: 228188.0000.0000

Lab Report: J1600251 (dioxin congeners); reanalysis of CT-16B-2015; refer to report J1508878 for initial analysis

Chain of Custody: Signed in initial report (J1508878).

Sample Temperature & Preservative: Per initial report, samples arrived at lab at an acceptable temperature. Per initial report, no additional preservation required for the requested dioxin congener analyses.

Hold Time: Samples re-extracted for analysis 63 days after collection. Analyses performed within 10 days of extraction. These extraction and analysis hold times are acceptable.

Surrogates: Recoveries of isotopically labelled compounds were within QC limits.

Method Blank(s): The method blank for QC batch EQ1600008, which is associated with sample CT-16B-2015, contains the following detections:

- 1,2,3,4,6,7,8-HpCDD at 0.211 J ng/kg. No comparable detection (*i.e.,* a concentration in CT-16B-2015 that is within 5X the concentration in the method blank) occurred in sample CT-16B-2015. No qualifier assigned.
- OCDD at 0.645 J ng/kg. No comparable detection occurred in CT-16B-2015. No qualifier assigned.
- 2,3,4,6,7,8-HxCDF at 0.0947 J ng/kg. No comparable detection occurred in CT-16B-2015. No qualifier assigned.
- 1,2,3,4,6,7,8-HpCDF at 0.337 J ng/kg . No comparable detection occurred in CT-16B-2015. No qualifier assigned.
- 1,2,3,4,7,8,9-HpCDF at 0.198 J ng/kg. No comparable detection occurred in CT-16B-2015. No qualifier assigned.
- OCDF at 1.99 J ng/kg. No comparable detection occurred in CT-16B-2015. No qualifier assigned.
- 1,2,3,4,7,8-HxCDF and 1,2,3,6,7,8-HxCDF have reported detections in the method blank with a “K” lab qualifier. Reported results with a “K” qualifier indicating Estimated Maximum Possible Concentration (EMPC) are not considered to be confirmed detections.

Trip Blank(s): Not applicable.

Field Blank(s): None collected.

Equipment Rinse Blank(s): None collected.

LCS/LCSD: LCS recoveries, LCSD recoveries, and LCS/LCSD RPDs were within QC limits.

MS/MSD: MS/MSD analyses not performed.

Duplicates: None collected.

No qualifiers assigned.

Data review performed by: Terry Hertz; TRC Environmental Corp.; 1/14/2016

January 12, 2016 Service Request No:J1508878

Michelle Hays
TRC Environmental Corporation
30 Patewood Drive, Suite 300
Greenville, SC 29615

Laboratory Results for: Domtar Welch Creek

Dear Michelle,

Enclosed are the results of the sample(s) submitted to our laboratory November 05, 2015
For your reference, these analyses have been assigned our service request number **J1508878.**

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the NELAC 2003 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My direct number is 281-575-2284. You may also contact me via email at Nicole.Brown@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Nicole Brown
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 713 266 1599 | FAX +1 713 266 0130
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	TRC Environmental Corporation	**Service Request No.:**	J1508878-007 RE
Project:	Domtar Welch Creek 228188.0.0	**Date Received:**	11/11/15
Sample Matrix:	Sediment		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Eleven sediment samples were received for analysis at ALS Environmental in Houston on 11/11/15.

Please note the reporting forms are currently referencing the date ALS-Jacksonville received the samples (11/05/15) and not the date ALS-Houston received the samples (11/11/15).

The samples were received at 0.9 °C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Re-Analysis

Sample CT-16B-2015 with laboratory identification number J1508878-007 was originally extracted and reported from batch EQ1500668 along with the rest of the samples submitted as part of this service request. Per client request, J1508878-007 was reanalyzed for confirmation of results. This report only includes the reanalysis for this individual sample.

Data Validation Notes and Discussion

B flags – Method Blanks

The Method Blank EQ1600008-01 contained low levels of various compounds below the Method Reporting Limit (MRL). The associated compounds in the samples are not flagged with 'B' flags where the sample result is greater than ten times the level detected in the method blank.

MS/MSD

EQ1600008: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/MSD for this extraction batch.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

The TEQ Summary results for each sample have been calculated by ALS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
J1508878-001	CT-01C-2015	11/3/2015	1422
J1508878-002	CT-03A-2015	11/3/2015	1445
J1508878-003	CT-06B-2015	11/3/2015	1500
J1508878-004	CT-08C-2015	11/3/2015	1535
J1508878-005	CT-10B-2015	11/3/2015	1542
J1508878-006	CT-15B-2015	11/3/2015	1604
J1508878-007	CT-16B-2015	11/4/2015	0830
J1508878-008	CT-17C-2015	11/4/2015	0850
J1508878-009	CT-21D-2015	11/4/2015	0923
J1508878-010	CT-23C-2015	11/4/2015	0945
J1508878-011	DU-15402	11/4/2015	0000

Service Request Summary

Folder #: **J1508878**
Client Name: TRC Environmental Corporation
Project Name: Domtar Welch Creek
Project Number: 228188.0.0

Report To: Michelle Hays
TRC Environmental Corporation
30 Patewood Drive, Suite 300
Greenville, SC 29615
USA
Phone Number: 864-608-1836
Cell Number:
Fax Number:
E-mail: mhays@trcsolutions.com

Project Chemist: Jerry Allen
Originating Lab: JAX
Logged By: MGWALLACE
Date Received: 11/05/15
Internal Due Date: 11/30/2015
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: N
Report to MDL?: Y
P.O. Number:
EDD: BASIC_WQC

11 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-WIC 5B
Pressure Gas:

				HOUSTON	
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Dioxins Furans/1613B	Total Solids/ALS SOP
J1508878-001	CT-01C-2015	Sediment	11/03/15 1422	II	II
J1508878-002	CT-03A-2015	Sediment	11/03/15 1445	II	II
J1508878-003	CT-06B-2015	Sediment	11/03/15 1500	II	II
J1508878-004	CT-08C-2015	Sediment	11/03/15 1535	II	II
J1508878-005	CT-10B-2015	Sediment	11/03/15 1542	II	II
J1508878-006	CT-15B-2015	Sediment	11/03/15 1604	II	II
J1508878-007	CT-16B-2015	Sediment	11/04/15 0830	II	II
J1508878-008	CT-17C-2015	Sediment	11/04/15 0850	II	II
J1508878-009	CT-21D-2015	Sediment	11/04/15 0923	II	II
J1508878-010	CT-23C-2015	Sediment	11/04/15 0945	II	II
J1508878-011	DU-15402	Sediment	11/04/15 0000	II	II

Service Request Summary

Folder #:	**J1508878**
Client Name:	TRC Environmental Corporation
Project Name:	Domtar Welch Creek
Project Number:	228188.0.0
Report To:	Michelle Hays TRC Environmental Corporation 30 Patewood Drive, Suite 300 Greenville, SC 29615 USA
Phone Number:	864-608-1836
Cell Number:	
Fax Number:	
E-mail:	mhays@trcsolutions.com

Project Chemist:	Jerry Allen
Originating Lab:	JAX
Logged By:	MGWALLACE
Date Received:	11/05/15
Internal Due Date:	11/30/2015
QAP:	LAB QAP
Qualifier Set:	Lab Standard
Formset:	Lab Standard
Merged?:	N
Report to MDL?:	Y
P.O. Number:	
EDD:	BASIC_WQC

11 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 5B

Pressure Gas:

Data Qualifiers

HRMS Qualifier Set

B Indicates the associated analyte was found in the method blank at >1/10th the reported value.
E Estimated value. The reported concentration is above the calibration range of the instrument.
H Sample extracted and/or analyzed out of suggested holding time.
J Estimated value. The reported concentration is below the MRL.
K The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits. Reported concentration is a conservative estimate, however EMPC correction was not applied.
P Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
Q Monitored lock-mass indicates matrix-interference. Reported result is estimated.
S Signal saturated detector. Result reported from dilution.
U Compound was analyzed for, but was not detected (ND).
X See Case Narrative.
Y Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
i The MDL/MRL have been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01	1/31/2016
Arizona Department of Health Services	AZ0793	5/27/2016
Arkansas Department of Environmental Quality	14-038-0	6/16/2016
California Department of Health Services	2452	2/28/2017
Florida Department of Health	E87611	6/30/2016
Hawaii Department of Health	TX02694	6/30/2016
Illinois Environmental Protection Agency	200057	10/6/2016
Kansas Department of Health and Environment	E-10406	1/31/2016
Louisiana Department of Environmental Quality	03048	6/30/2016
Maine Center for Disease Control and Prevention	2014019	6/5/2016
Maryland Department of the Environment	343	6/30/2016
Michigan Depratment of Environmental Quality	9971	6/30/2016
Nebraska Department of Health and Human Services	NE-OS-25-13	6/30/2016
Nevada Department of Concervation and Natural Resources	TX014112013-2	7/31/2016
New Jersey Department of Environmental Protection	NLC140001	6/30/2016
New Mexico Environment Department	TX02694	6/30/2016
New York Department of Health	11707	4/1/2016
Oklahoma Department of Environmental Quality	2014 124	8/31/2016
Oregon Environmental Laboratory Accreditation Program	TX200002	3/24/2016
Pennsylvania Department of Environmental Protection	68-03441	6/30/2016
Tennessee Department of Environment and Concervation	04016	6/30/2016
Texas Commision on Environmental Quality	TX104704216-14-5	6/30/2016
United States Department of Agriculture	P330-14-00067	2/21/2017
Utah Department of Health Environmental Laboratory Certification	TX02694	7/31/2016
Washington Department of Health	c819	11/14/2016
West Virginia Department of Environmental Protection	347	6/30/2016

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID J1508878 DB-5MSUI SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
01/11/16	JC	-007RE

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
01/11/16	LKL	007RE

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Intra-Network Chain of Custody

9143 Philips Highway, Suite 200 • Jacksonville, FL 32256 • 904-739-2277 • FAX 904-739-2011

ALS Contact: Jerry Allen

Project Name: Domtar Welch Creek
Project Number: 228188.0.0
Project Manager: Michelle Hays
Company: TRC Environmental Corporation
QAP: LAB QAP

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Date Received	Send To	Dioxins Furans 1613B	Total Solids ALS SOP
J1508878-001	CT-01C-2015	1	Sediment	11/3/15	1422	11/5/15	HOUSTON	II	II
J1508878-002	CT-03A-2015	1	Sediment	11/3/15	1445	11/5/15	HOUSTON	II	II
J1508878-003	CT-06B-2015	1	Sediment	11/3/15	1500	11/5/15	HOUSTON	II	II
J1508878-004	CT-08C-2015	1	Sediment	11/3/15	1535	11/5/15	HOUSTON	II	II
J1508878-005	CT-10B-2015	1	Sediment	11/3/15	1542	11/5/15	HOUSTON	II	II
J1508878-006	CT-15B-2015	1	Sediment	11/3/15	1604	11/5/15	HOUSTON	II	II
J1508878-007	CT-16B-2015	1	Sediment	11/4/15	0830	11/5/15	HOUSTON	II	II
J1508878-008	CT-17C-2015	1	Sediment	11/4/15	0850	11/5/15	HOUSTON	II	II
J1508878-009	CT-21D-2015	1	Sediment	11/4/15	0923	11/5/15	HOUSTON	II	II
J1508878-010	CT-23C-2015	1	Sediment	11/4/15	0945	11/5/15	HOUSTON	II	II
J1508878-011	DU-15402	1	Sediment	11/4/15	0000	11/5/15	HOUSTON	II	II

J1508878 5
TRC Environmental Corporation
Domtar Welch Creek

Special Instructions/Comments

Full list

pH Checked _____

Turnaround Requirements

____ **RUSH** (Surcharges Apply)

PLEASE CIRCLE WORK DAYS
1 2 3 4 5

____ **STANDARD**

Requested FAX Date: _____

Requested Report Date: 11/27/15

Report Requirements

____ I. Results Only

____ II. Results + QC Summaries

____ III. Results + QC and Calibration Summaries

____ IV. Data Validation Report with Raw Data

PQL/MDL/J Y
EDD Y

Invoice Information

PO# 53J1508878

Bill to

Relinquished By: [signature] 11/10/15 Received By: [signature] 11/11/15 Airbill Number: _____

ALS Environmental

Cooler Receipt Form

Project Chemist NB

Client/Project TRC Environmental

Thermometer ID SMO 4

Date/Time Received: 11/11/15 9:15 Initials: AL

Date/Time Logged in: 11/13/15 Initials AL

1. Method of delivery: ○ US Mail ✓ Fed Ex ○ UPS ○ DHL ○ Courier ○ Client
2. Samples received in: ✓ Cooler ○ Box ○ Envelope ○ Other
3. Were custody seals on coolers? ✓ Yes ○ No
   Were they intact? ✓ Yes ○ No ○ N/A
   Were they signed and dated? ✓ Yes ○ No ○ N/A
   If yes, how many and where? 1 Seal
4. Packing Material: ○ Inserts ✓ Baggies ✓ Bubble Wrap ○ Gel Packs ✓ Wet Ice ○ Sleeves ○ Other
5. Foreign or Regulated Soil? ○ Yes ✓ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
5498 9753 8419		11/11/15	10:32	AL	-0.1/0.9	☐
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ✓ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ✓ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ○ No
10. Did sample labels and tags agree with custody documents? ✓ Yes ○ No

Notes, Discrepancies, & Resolutions:

Samples J1508878-002 and J1508878-010 arrived with cracked lids AL 11/13/15

Service request Label: J1508878 5

TRC Environmental Corporation
Domtar Welch Creek

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SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
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www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 253274 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/DEDWARDS **Prep Method:** Method Soxhlet **Prep Date/Time:** 1/6/16 04:00 PM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	EQ1600008-01	MB		1613B/Dioxins Furans			Solid	10.108g	
2	EQ1600008-02	LCS		1613B/Dioxins Furans			Solid	10.201g	
3	EQ1600008-03	DLCS		1613B/Dioxins Furans			Solid	10.371g	
4	J1508878-007RE	CT-16B-2015	.01	1613B/Dioxins Furans			Sediment	10.197g	Watery Dark Green Sediment
5	K1514413-008	Composite	.02	1613B/Dioxins Furans			Paperboard	10.213g	Brown Paperboard Strips
6	K1514691-001	SD0001	.03	1613B/Dioxins Furans			Sediment	10.314g	Dark Green Sediment Watery
7	K1514691-002	SD0002	.03	1613B/Dioxins Furans			Sediment	10.357g	Dark Green Sediment Watery
8	K1514691-003	SD0003	.03	1613B/Dioxins Furans			Sediment	10.356g	Dark Green Sediment Watery
9	K1514691-004	SD0004	.03	1613B/Dioxins Furans			Sediment	10.290g	Dark Green Sediment Watery
10	K1514691-005	SD0007	.03	1613B/Dioxins Furans			Sediment	10.116g	Dark Green Sediment Watery
11	K1514691-006	SD0008	.03	1613B/Dioxins Furans			Sediment	10.295g	Dark Green Sediment Watery
12	K1514691-007	SD0010	.03	1613B/Dioxins Furans			Sediment	10.242g	Dark Green Sediment Watery

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 86560 Logbook Ref: 86560 DE 12/11/15 2-20ng/mL Expires On: 06/08/2016

EQ1600008-02	100.00µL	EQ1600008-03	100.00µL

Name: 8290/1613B Cleanup Working Standard Inventory ID 87002 Logbook Ref: 87002 12/30/2015 CID 8.0ng/ml Expires On: 06/27/2016

EQ1600008-01	100.00µL	EQ1600008-02	100.00µL	EQ1600008-03	100.00µL	J1508878-007	100.00µL	K1514413-008	100.00µL	K1514691-001	100.00µL
K1514691-002	100.00µL	K1514691-003	100.00µL	K1514691-004	100.00µL	K1514691-005	100.00µL	K1514691-006	100.00µL	K1514691-007	100.00µL

Name: 1613B Labeled Working Standard Inventory ID 87175 Logbook Ref: 87175 DE 1-6-16 2-4ng/mL Expires On: 07/03/2016

EQ1600008-01	1,000.00µL	EQ1600008-02	1,000.00µL	EQ1600008-03	1,000.00µL	J1508878-007	1,000.00µL	K1514413-008	1,000.00µL	K1514691-001	1,000.00µL
K1514691-002	1,000.00µL	K1514691-003	1,000.00µL	K1514691-004	1,000.00µL	K1514691-005	1,000.00µL	K1514691-006	1,000.00µL	K1514691-007	1,000.00µL

Preparation Materials

Carbon, High Purity	CID 12/18/2015 (86802)	Ethyl Acetate 99.9% Minimum EtOAc	LM 10/8/15 (84814)	Glass Wool	AL 12/4/15 (86383)
Hexanes 95%	CID 12/30/2015 (87036)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	DE 11/2/15 (85540)	Sodium Chloride Reagent Grade NaCl	C2-65-5 (38670)
Sodium Hydroxide Reagent Grade NaOH	LM 09/02/14 (74232)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	LM 9/24/15 (84454)	Tridecane (n-Tridecane)	JP 11-24-15 (86139)
Silica Gel	CID 12/21/2015 (86823)	sulfuric acid	CID 11/06/15 (85764)	Toluene 99.9% Minimum	CID 12/30/2015 (87037)

Preparation Information Benchsheet

Prep Run#: 253274 **Prep WorkFlow:** OrgExtS(365) **Status:** Prepped
Team: Semivoa GCMS/DEDWARDS **Prep Method:** Method Soxhlet **Prep Date/Time:** 1/6/16 04:00 PM

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	1/6/16 16:00	Started:	1/7/16 09:00	Started:	1/7/16 11:00	Started:	1/7/16 14:40
Finished:	1/7/16 08:10	Finished:	1/7/16 10:20	Finished:	1/7/16 12:20	Finished:	1/7/16 15:25
By:	DEDWARDS	By:	CDIAZ	By:	CDIAZ	By:	CDIAZ
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: ak Date: 1/11/16

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Analytical Results

ALS Environmental - Houston HRMS
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www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 08:30
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-16B-2015	**Units:**	ng/Kg
Lab Code:	J1508878-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	01/08/16 02:03
Prep Method:	Method Soxhlet	**Date Extracted:**	1/6/16
Sample Amount:	10.197g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P602293	**Blank File Name:**	P602328
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P602289

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	280		0.698	3.55	0.79	1.001	1
1,2,3,7,8-PeCDD	5.23**J**		0.430	17.8	1.42	1.001	1
1,2,3,4,7,8-HxCDD	2.38**J**		0.477	17.8	1.15	1.000	1
1,2,3,6,7,8-HxCDD	9.33**J**		0.479	17.8	1.33	1.000	1
1,2,3,7,8,9-HxCDD	7.18**J**		0.432	17.8	1.11	1.007	1
1,2,3,4,6,7,8-HpCDD	93.6		0.472	17.8	1.06	1.000	1
OCDD	3970		0.548	35.5	0.89	1.000	1
2,3,7,8-TCDF	2360		0.875	3.55	0.77	1.001	1
1,2,3,7,8-PeCDF	10.3**J**		0.784	17.8	1.41	1.000	1
2,3,4,7,8-PeCDF	15.2**J**		0.767	17.8	1.50	1.000	1
1,2,3,4,7,8-HxCDF	5.99**J**		0.445	17.8	1.25	1.000	1
1,2,3,6,7,8-HxCDF	2.93**J**		0.436	17.8	1.41	1.000	1
1,2,3,7,8,9-HxCDF	2.57**J**		0.618	17.8	1.12	1.000	1
2,3,4,6,7,8-HxCDF	2.37**J**		0.456	17.8	1.15	1.000	1
1,2,3,4,6,7,8-HpCDF	14.5**J**		0.573	17.8	1.08	1.000	1
1,2,3,4,7,8,9-HpCDF	4.10**J**		0.644	17.8	1.16	1.001	1
OCDF	65.4		0.961	35.5	0.89	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 08:30
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-16B-2015	**Units:**	ng/Kg
Lab Code:	J1508878-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	01/08/16 02:03
Prep Method:	Method Soxhlet	**Date Extracted:**	1/6/16
Sample Amount:	10.197g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P602293	**Blank File Name:**	P602328
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P602289

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	302		0.698	3.55	0.78		1
Total Penta-Dioxins	22.8		0.430	17.8	1.40		1
Total Hexa-Dioxins	102		0.462	17.8	1.30		1
Total Hepta-Dioxins	231		0.472	17.8	1.03		1
Total Tetra-Furans	4240		0.875	3.55	0.77		1
Total Penta-Furans	52.3		0.775	17.8	1.63		1
Total Hexa-Furans	26.0		0.481	17.8	1.20		1
Total Hepta-Furans	33.2		0.607	17.8	1.08		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 08:30
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-16B-2015	**Units:**	Percent
Lab Code:	J1508878-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	01/08/16 02:03
Prep Method:	Method Soxhlet	**Date Extracted:**	1/6/16
Sample Amount:	10.197g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P602293	**Blank File Name:**	P602328
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P602289

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	992.424	50		25-164	0.76	1.022
13C-1,2,3,7,8-PeCDD	2000	1131.482	57		25-181	1.61	1.196
13C-1,2,3,4,7,8-HxCDD	2000	1082.221	54		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1220.181	61		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	977.439	49		23-140	1.06	1.067
13C-OCDD	4000	1606.334	40		17-157	0.92	1.140
13C-2,3,7,8-TCDF	2000	1183.619	59		24-169	0.81	0.991
13C-1,2,3,7,8-PeCDF	2000	1226.886	61		24-185	1.59	1.152
13C-2,3,4,7,8-PeCDF	2000	1258.693	63		21-178	1.57	1.186
13C-1,2,3,4,7,8-HxCDF	2000	1056.097	53		26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1115.039	56		26-123	0.52	0.973
13C-1,2,3,7,8,9-HxCDF	2000	914.264	46		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1035.548	52		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	857.275	43		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	859.423	43		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	501.796	63		35-197	NA	1.022

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 08:30
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-16B-2015	**Units:**	ng/Kg
Lab Code:	J1508878-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**280**	0.698	3.55	1	1	280
1,2,3,7,8-PeCDD	**5.23**	0.430	17.8	1	1	5.23
1,2,3,4,7,8-HxCDD	**2.38**	0.477	17.8	1	0.1	0.238
1,2,3,6,7,8-HxCDD	**9.33**	0.479	17.8	1	0.1	0.933
1,2,3,7,8,9-HxCDD	**7.18**	0.432	17.8	1	0.1	0.718
1,2,3,4,6,7,8-HpCDD	**93.6**	0.472	17.8	1	0.01	0.936
OCDD	**3970**	0.548	35.5	1	0.0003	1.19
2,3,7,8-TCDF	**2360**	0.875	3.55	1	0.1	236
1,2,3,7,8-PeCDF	**10.3**	0.784	17.8	1	0.03	0.309
2,3,4,7,8-PeCDF	**15.2**	0.767	17.8	1	0.3	4.56
1,2,3,4,7,8-HxCDF	**5.99**	0.445	17.8	1	0.1	0.599
1,2,3,6,7,8-HxCDF	**2.93**	0.436	17.8	1	0.1	0.293
1,2,3,7,8,9-HxCDF	**2.57**	0.618	17.8	1	0.1	0.257
2,3,4,6,7,8-HxCDF	**2.37**	0.456	17.8	1	0.1	0.237
1,2,3,4,6,7,8-HpCDF	**14.5**	0.573	17.8	1	0.01	0.145
1,2,3,4,7,8,9-HpCDF	**4.10**	0.644	17.8	1	0.01	0.0410
OCDF	**65.4**	0.961	35.5	1	0.0003	0.0196
		Total TEQ				532

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	11/04/15 08:30
Sample Matrix:	Sediment	**Date Received:**	11/05/15 10:20
Sample Name:	CT-16B-2015	**Units:**	Percent
Lab Code:	J1508878-007	**Basis:**	Dry

Total Solids

Analysis Method:	ALS SOP	**Date Analyzed:**	11/20/15 11:17
	6.199g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Solids	13.8		-	-			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1600008-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	01/09/16 10:50
Prep Method:	Method Soxhlet	**Date Extracted:**	1/6/16
Sample Amount:	10.108g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P602328	**Blank File Name:**	P602328
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P602325

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.0665	0.495			1
1,2,3,7,8-PeCDD	ND	U	0.0501	2.47			1
1,2,3,4,7,8-HxCDD	ND	U	0.0574	2.47			1
1,2,3,6,7,8-HxCDD	ND	U	0.0595	2.47			1
1,2,3,7,8,9-HxCDD	ND	U	0.0528	2.47			1
1,2,3,4,6,7,8-HpCDD	0.211**J**		0.0359	2.47	0.99	1.000	1
OCDD	0.645**J**		0.0363	4.95	0.90	1.000	1
2,3,7,8-TCDF	ND	U	0.100	0.495			1
1,2,3,7,8-PeCDF	ND	U	0.0644	2.47			1
2,3,4,7,8-PeCDF	ND	U	0.0654	2.47			1
1,2,3,4,7,8-HxCDF	0.0814**JK**		0.0541	2.47	1.48	1.000	1
1,2,3,6,7,8-HxCDF	0.0860**JK**		0.0524	2.47	0.99	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0743	2.47			1
2,3,4,6,7,8-HxCDF	0.0947**J**		0.0550	2.47	1.19	1.000	1
1,2,3,4,6,7,8-HpCDF	0.337**J**		0.0302	2.47	0.94	1.000	1
1,2,3,4,7,8,9-HpCDF	0.198**J**		0.0376	2.47	0.89	1.000	1
OCDF	1.99**J**		0.0796	4.95	0.90	1.005	1

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Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1600008-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	01/09/16 10:50
Prep Method:	Method Soxhlet	**Date Extracted:**	1/6/16
Sample Amount:	10.108g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P602328	**Blank File Name:**	P602328
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P602325

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.0665	0.495			1
Total Penta-Dioxins	ND	U	0.0501	2.47			1
Total Hexa-Dioxins	ND	U	0.0564	2.47			1
Total Hepta-Dioxins	0.342**J**		0.0359	2.47	1.04		1
Total Tetra-Furans	ND	U	0.100	0.495			1
Total Penta-Furans	ND	U	0.0649	2.47			1
Total Hexa-Furans	0.233**J**		0.0581	2.47	1.18		1
Total Hepta-Furans	0.732**J**		0.0338	2.47	0.94		1

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Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1600008-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	01/09/16 10:50
Prep Method:	Method Soxhlet	**Date Extracted:**	1/6/16
Sample Amount:	10.108g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P602328	**Blank File Name:**	P602328
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P602325

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1177.039	59		25-164	0.76	1.022
13C-1,2,3,7,8-PeCDD	2000	1331.981	67		25-181	1.63	1.196
13C-1,2,3,4,7,8-HxCDD	2000	1344.396	67		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1481.939	74		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1292.947	65		23-140	1.05	1.067
13C-OCDD	4000	2421.580	61		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	1383.180	69		24-169	0.80	0.992
13C-1,2,3,7,8-PeCDF	2000	1460.731	73		24-185	1.60	1.152
13C-2,3,4,7,8-PeCDF	2000	1430.500	72		21-178	1.57	1.186
13C-1,2,3,4,7,8-HxCDF	2000	1273.817	64		26-152	0.51	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1385.905	69		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1154.376	58		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1304.862	65		28-136	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1158.286	58		28-143	0.44	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1075.330	54		26-138	0.43	1.080
37Cl-2,3,7,8-TCDD	800	481.423	60		35-197	NA	1.023

Accuracy & Precision

ALS Environmental - Houston HRMS
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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Analyzed:**	01/07/16
Sample Matrix:	Sediment	**Date Extracted:**	01/06/16

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Dry
		Analysis Lot:	479623

	Lab Control Sample EQ1600008-02			Duplicate Lab Control Sample EQ1600008-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	94.7	98.0	97	92.1	96.4	96	70-140	3	50
1,2,3,4,7,8-HxCDD	106	98.0	108	99.8	96.4	103	70-164	6	50
1,2,3,6,7,8-HxCDD	97.3	98.0	99	98.1	96.4	102	76-134	<1	50
1,2,3,7,8,9-HxCDD	91.3	98.0	93	91.1	96.4	94	64-162	<1	50
1,2,3,7,8-PeCDD	114	98.0	116	110	96.4	114	70-142	3	50
2,3,7,8-TCDD	22.3	19.6	114	20.2	19.3	105	67-158	10	50
OCDD	209	196	107	199	193	103	78-144	5	50
1,2,3,4,6,7,8-HpCDF	98.5	98.0	100	97.5	96.4	101	82-122	1	50
1,2,3,4,7,8,9-HpCDF	99.2	98.0	101	96.2	96.4	100	78-138	3	50
1,2,3,4,7,8-HxCDF	101	98.0	103	99.0	96.4	103	72-134	2	50
1,2,3,6,7,8-HxCDF	99.4	98.0	101	96.8	96.4	100	84-130	3	50
1,2,3,7,8,9-HxCDF	93.5	98.0	95	91.8	96.4	95	78-130	2	50
1,2,3,7,8-PeCDF	94.8	98.0	97	93.7	96.4	97	80-134	1	50
2,3,4,6,7,8-HxCDF	95.1	98.0	97	94.6	96.4	98	70-156	<1	50
2,3,4,7,8-PeCDF	97.8	98.0	100	97.0	96.4	101	68-160	<1	50
2,3,7,8-TCDF	19.5	19.6	99	20.2	19.3	105	75-158	4	50
OCDF	213	196	109	213	193	110	63-170	<1	50

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Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600008-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	01/07/16 19:10
Prep Method:	Method Soxhlet	**Date Extracted:**	1/6/16
Sample Amount:	10.201g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P602285	**Blank File Name:**	P602328
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P602278

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	22.3		0.0968	0.490	0.79	1.001	1
1,2,3,7,8-PeCDD	114		0.0449	2.45	1.59	1.001	1
1,2,3,4,7,8-HxCDD	106		0.0704	2.45	1.33	1.000	1
1,2,3,6,7,8-HxCDD	97.3		0.0704	2.45	1.19	1.000	1
1,2,3,7,8,9-HxCDD	91.3		0.0636	2.45	1.23	1.007	1
1,2,3,4,6,7,8-HpCDD	94.7		0.0624	2.45	1.04	1.000	1
OCDD	209		0.652	4.90	0.88	1.000	1
2,3,7,8-TCDF	19.5		0.116	0.490	0.76	1.001	1
1,2,3,7,8-PeCDF	94.8		0.0821	2.45	1.53	1.001	1
2,3,4,7,8-PeCDF	97.8		0.0815	2.45	1.52	1.001	1
1,2,3,4,7,8-HxCDF	101		0.0689	2.45	1.24	1.000	1
1,2,3,6,7,8-HxCDF	99.4		0.0655	2.45	1.22	1.000	1
1,2,3,7,8,9-HxCDF	93.5		0.105	2.45	1.26	1.000	1
2,3,4,6,7,8-HxCDF	95.1		0.0699	2.45	1.23	1.001	1
1,2,3,4,6,7,8-HpCDF	98.5		0.130	2.45	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	99.2		0.163	2.45	1.00	1.000	1
OCDF	213		0.0976	4.90	0.88	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600008-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	01/07/16 19:10
Prep Method:	Method Soxhlet	**Date Extracted:**	1/6/16
Sample Amount:	10.201g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P602285	**Blank File Name:**	P602328
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P602278

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	22.3		0.0968	0.490	0.79		1
Total Penta-Dioxins	114		0.0449	2.45	1.59		1
Total Hexa-Dioxins	295		0.0680	2.45	1.33		1
Total Hepta-Dioxins	95.7		0.0624	2.45	1.07		1
Total Tetra-Furans	19.8		0.116	0.490	0.72		1
Total Penta-Furans	195		0.0818	2.45	1.42		1
Total Hexa-Furans	390		0.0751	2.45	1.14		1
Total Hepta-Furans	199		0.146	2.45	1.04		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1600008-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	01/07/16 19:10
Prep Method:	Method Soxhlet	**Date Extracted:**	1/6/16
Sample Amount:	10.201g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P602285	**Blank File Name:**	P602328
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P602278

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1211.377	61		25-164	0.77	1.022
13C-1,2,3,7,8-PeCDD	2000	1492.764	75		25-181	1.65	1.196
13C-1,2,3,4,7,8-HxCDD	2000	1372.131	69		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1617.208	81		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1328.687	66		23-140	1.07	1.067
13C-OCDD	4000	2365.329	59		17-157	0.89	1.140
13C-2,3,7,8-TCDF	2000	1449.780	72		24-169	0.80	0.992
13C-1,2,3,7,8-PeCDF	2000	1596.770	80		24-185	1.57	1.152
13C-2,3,4,7,8-PeCDF	2000	1610.101	81		21-178	1.57	1.185
13C-1,2,3,4,7,8-HxCDF	2000	1306.730	65		26-152	0.51	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1414.081	71		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1074.560	54		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1339.179	67		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1140.568	57		28-143	0.44	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1080.020	54		26-138	0.44	1.080
37Cl-2,3,7,8-TCDD	800	489.822	61		35-197	NA	1.023

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600008-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	01/07/16 19:59
Prep Method:	Method Soxhlet	**Date Extracted:**	1/6/16
Sample Amount:	10.371g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P602286	**Blank File Name:**	P602328
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P602278

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	20.2		0.0864	0.482	0.78	1.001	1
1,2,3,7,8-PeCDD	110		0.0546	2.41	1.57	1.000	1
1,2,3,4,7,8-HxCDD	99.8		0.0459	2.41	1.26	1.000	1
1,2,3,6,7,8-HxCDD	98.1		0.0470	2.41	1.23	1.000	1
1,2,3,7,8,9-HxCDD	91.1		0.0420	2.41	1.26	1.006	1
1,2,3,4,6,7,8-HpCDD	92.1		0.0320	2.41	1.04	1.000	1
OCDD	199		0.309	4.82	0.89	1.000	1
2,3,7,8-TCDF	20.2		0.0937	0.482	0.75	1.001	1
1,2,3,7,8-PeCDF	93.7		0.0500	2.41	1.54	1.001	1
2,3,4,7,8-PeCDF	97.0		0.0474	2.41	1.55	1.001	1
1,2,3,4,7,8-HxCDF	99.0		0.0627	2.41	1.23	1.000	1
1,2,3,6,7,8-HxCDF	96.8		0.0604	2.41	1.23	1.000	1
1,2,3,7,8,9-HxCDF	91.8		0.0954	2.41	1.25	1.000	1
2,3,4,6,7,8-HxCDF	94.6		0.0653	2.41	1.23	1.000	1
1,2,3,4,6,7,8-HpCDF	97.5		0.148	2.41	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	96.2		0.172	2.41	1.01	1.000	1
OCDF	213		0.119	4.82	0.88	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1600008-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	01/07/16 19:59
Prep Method:	Method Soxhlet	**Date Extracted:**	1/6/16
Sample Amount:	10.371g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P602286	**Blank File Name:**	P602328
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P602278

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	20.2		0.0864	0.482	0.72		1
Total Penta-Dioxins	110		0.0546	2.41	1.57		1
Total Hexa-Dioxins	289		0.0449	2.41	1.26		1
Total Hepta-Dioxins	92.8		0.0320	2.41	1.14		1
Total Tetra-Furans	20.9		0.0937	0.482	0.75		1
Total Penta-Furans	193		0.0487	2.41	1.54		1
Total Hexa-Furans	382		0.0692	2.41	1.23		1
Total Hepta-Furans	194		0.160	2.41	1.03		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508878
Project:	Domtar Welch Creek/228188.0.0	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1600008-03	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	01/07/16 19:59
Prep Method:	Method Soxhlet	**Date Extracted:**	1/6/16
Sample Amount:	10.371g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P602286	**Blank File Name:**	P602328
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P602278

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1235.500	62		25-164	0.78	1.022
13C-1,2,3,7,8-PeCDD	2000	1503.466	75		25-181	1.61	1.196
13C-1,2,3,4,7,8-HxCDD	2000	1361.410	68		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1504.594	75		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1239.839	62		23-140	1.06	1.067
13C-OCDD	4000	2134.558	53		17-157	0.90	1.140
13C-2,3,7,8-TCDF	2000	1469.005	73		24-169	0.80	0.992
13C-1,2,3,7,8-PeCDF	2000	1590.069	80		24-185	1.57	1.152
13C-2,3,4,7,8-PeCDF	2000	1624.679	81		21-178	1.59	1.185
13C-1,2,3,4,7,8-HxCDF	2000	1268.390	63		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1375.884	69		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1056.262	53		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1251.577	63		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1053.957	53		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1046.952	52		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	538.179	67		35-197	NA	1.022

Annual Surface Water

Laboratory Data Quality Review Notes

Project Name: Domtar-Plymouth 2015 Welch Creek Surface Water Samples

Project Number: 228188.0000.0000

Lab Report: J1508875 (dioxin congeners, volatile suspended solids [VSS], total suspended solids [TSS], total organic carbon [TOC], dissolved organic carbon DOC], metals)

Chain of Custody: Signed.

Sample Temperature & Preservative: Samples arrived at lab at an acceptable temperature. Samples were properly preserved.

Hold Time: Analyses performed within hold times.

Surrogates: Recoveries of isotopically labelled compounds were within QC limits.

Method Blanks: Method blanks associated with the reported analyses have the following detections:

- Aluminum (total) at 50 J ug/L. **Aluminum (total) in the following samples is assigned a "u" qualifier: SW-2015-MT6, SW-2015-MT4, SW-2015-GT4, and DU-15401.**
- OCDD at 9.88 J pg/L. **OCDD in the following samples are assigned a "u" qualifier: SW-2015-MT6, SW-2015-MT4, SW-2015-GT4, and DU-15401.**
- 1,2,3,4,7,8-HxCDF at 0.977 J pg/L. **1,2,3,4,7,8-HxCDF in the following sample is assigned a "u" qualifier: SW-2015-MT6.**
- 1,2,3,4,6,7,8-HpCDF at 2.17 J pg/L. **1,2,3,4,6,7,8-HpCDF in the following sample is assigned a "u" qualifier: SW-2015-MT6.**
- Five congeners (1,2,3,4,6,7,8-HpCDD, 1,2,3,7,8,9-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,4,7,8,9-HpCDF, and OCDF) have reported detections with a "K" lab qualifier. Reported results with a "K" qualifier indicating Estimated Maximum Possible Concentration (EMPC) are not considered to be confirmed detections.

Trip Blank(s): Not applicable.

Field Blank(s): None collected.

Equipment Rinse Blank(s): None collected.

LCS/LCSD: LCS recoveries for dioxin congeners, metals, TOC, DOC, and TSS were within control limits. LCSD analyses were not performed.

MS/MSD: MS analyses were performed for TOC and VOC using SW-2015-MT6. MS recoveries for TOC and DOC were within QC limits. MSD analyses for TOC and DOC were not performed.

Duplicates: DU-15401 is a field duplicate of SW-2015-MT4. RPDs are 5% or less for barium, calcium, iron, magnesium, manganese, titanium, TOC and DOC. Dioxin congeners that have valid detections in both the parent and duplicate samples (*i.e.*, 1,2,3,4,6,7,8-HpCDD, 1,2,3,7,8,9-HxCDF, and 2,3,4,6,7,8-HxCDF) have concentrations less than the reporting limit (RL) in both samples. The precision of these detections is acceptable.

Laboratory duplicate analyses were performed for TOC, TSS and VSS using sample SW-2015-MT6. The RPD for TOC was within QC limits. The RPDs for TSS and VSS were not calculated because these analytes were not detected in the sample.

Other: Laboratory assigned "K" flags indicate an EMPC result which does not meet acceptance criteria. **All "K" flagged results are assigned a "u" flag. See the accompanying Table A for a matrix of "u" flags assigned to "K"-flagged results.**

Data review performed by: Terry Hertz; 12/10/2015

Project name and sample type description		Domtar - Welch Creek Surface
Lab Report #	Lab Report J1508875	Water Samples collected
Project #	228188.0000.0000	November 2015

Table A

Laboratory "K" flagged data that are assigned a "u" flag designating an unvalidated detection

J1508875-0##	01	02	03	04
Field Sample ID	SW-2015-MT6	SW-2015-MT4	SW-2015-GT4	SW-2015-MT6 (DU-15401)
2,3,7,8-TCDD				
1,2,3,7,8-PeCDD				
1,2,3,4,7,8-HxCDD		u		
1,2,3,6,7,8-HxCDD		u		
1,2,3,7,8,9-HxCDD				
1,2,3,4,6,7,8-HpCDD				
OCDD				
2,3,7,8-TCDF				
1,2,3,7,8-PeCDF		u		
2,3,4,7,8-PeCDF				u
1,2,3,4,7,8-HxCDF		u	u	u
1,2,3,6,7,8-HxCDF	u		u	u
1,2,3,7,8,9-HxCDF				
2,3,4,6,7,8-HxCDF	u		u	
1,2,3,4,6,7,8-HpCDF		u	u	u
1,2,3,4,7,8,9-HpCDF				
OCDF		u		

December 08 2015 Service Re uest o 1508875

Michelle ays
TRC nvironmental Corporation
30 Patewood Drive Suite 300
Greenville SC 29615

Laboratory Results for: Domtar Welch Creek

Dear Michelle

  nclosed are the results of the sample(s) submitted to our laboratory ovember 05 2015
For your reference these analyses have been assigned our service re uest number **J1508875.**

All analyses were performed according to our laboratory s uality assurance program. The test results meet re uirements of the LAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety and ALS nvironmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analy ed as listed in the report. In accordance to the LAC 2003 Standard a statement on the estimated uncertainty of measurement of any uantitative analysis will be supplied upon re uest.

Please contact me if you have any uestions. My extension is 4410. You may also contact me via email at erry.Allen alsglobal.com.

Respectfully submitted

ALS Group USA, Corp. dba ALS Environmental

  erry Allen
Pro ect Manager

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ALS Group USA, Corp.
dba ALS Environmental

9143 Philips Highway, Suite 200, Jacksonville, FL 32256 | 904-739-2277 | www.alsglobal.com

Client: TRC nvironmental Corporation
Project: Domtar Welch Creek/218188.0000.0000
Sample Matrix: Surface Water

Service Request: 1508875
Date Received: 11/5/15

CASE NARRATIVE

All analyses were performed consistent with the uality assurance program of ALS nvironmental. This report contains analytical results for samples designated for Tier II data deliverables including results of C samples analy ed from this delivery group. When appropriate to the procedure method blank results have been reported with each analytical test. Analytical procedures performed by the lab are validated in accordance with LAC standards. Parameters that are included in the LAC Fields of Testing but are not included in the lab s LAC accreditation are identified in the discussion of each analytical procedure.

Sample Receipt

Four surface water samples were received for analysis at ALS nvironmental on 11/5/15. The samples were received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at _6 C upon receipt at the lab except for a ueous samples designated for metals analyses which are stored at room temperature.

Metals Analyses:

o significant data anomalies were noted with this analysis.

General Chemistry Analyses:

o significant data anomalies were noted with this analysis.

Subcontracted Analytical Parameters:

An ali uot of the samples were delivered to ALS in ouston T for 1613B determination. The certified analytical report has been included in its entirety in Appendix A Subcontracted Analytical Results.

Approved by _____ Date 12/8/2015

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Department of Defense	66206	9/20/2016
Florida Department of Health	E82502	6/30/2016
Georgia Department of Natural Resources	958	6/30/2016
Kentucky Division of Waste Management	63	6/30/2016
Louisiana Department of Environmental Quality	02086	6/30/2016
Maine Department of Health and Human Services	2015002	2/3/2017
North Carolina Department of Environment and Natural Resources	527	12/31/2015
Pennsylvania Department of Environmental Protection	68-04835	8/31/2016
South Carolina Department of Health and Environmental Control	96021001	6/30/2016
Texas Commision on Environmental Quality	T104704197-13-5	5/31/2016
Virginia Environmental Accreditation Program	460191	12/14/2015

Data Qualifiers

Lab Standard

+	Possible Tedlar bag artifact.
A	TIC is a suspected aldol-condensation product
B	Analyte found in the associated method blank as well as in the sample.
BC	Reported results are not blank corrected.
BH	The back section of the tube yielded higher results than the front.
BT	Results indicated possible breakthrough; back section >=10% front section.
C	Result identification confirmed.
D	Compound identified in an analysis at a secondary dilution factor
D	Spike was diluted out
DE	Reported results are corrected for desorption efficiency.
E	Estimated value. Concentration above calibration range
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
H1	Sample analysis performed past holding time. See case narrative.
H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
H3	Sample was received and analyzed past holding time.
H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time. See case narrative.
I	Internal standard not within the specified limits. See case narrative.
J	Estimated Value. Concentration found below MRL.
K	A deflection in the QC ion may indicate interference with the quantitation of this ion. The concentration of this analyte should be considered as an estimate.
K	Analyte was detected above the method reporting limit prior to normalization.
L1	Laboratory control sample recovery outside the specified limits; results may be biased high.
L2	Laboratory control sample recovery outside the specified limits; results may be biased low.
L3	Laboratory control sample recovery outside the specified limits.
M	Matrix interference; results may be biased high.
M	The duplicate injection precision not met.
M1	Matrix interference due to coelution with a non-target compound; results may be biased high.
N	Presumptive evidence of a compound for TICs that have been identified based on a mass spectral library search.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
P	Indicates chlorodiphenyl ether interference present at the retention time of the target compound.
P	Pesticide/Aroclor target analyte > 40% difference for detected concentrations between GC columns
Q	Indicates as estimated value because the P and P + 2 theoretical abundance ratio does not meet method criteria.
R	Duplicate Precision not met.
R1	Duplicate precision not within the specified limits; however, the results are below the MRL and considered estimated.
S	Surrogate recovery not within specified limits.

Data Qualifiers

Lab Standard

S	The reported value was determined by the Method of Standard Additions (MSA).
T	Analyte is a tentatively identified compound, result is estimated.
U	Compound was analyzed for, but was not detected (ND).
V1	The continuing calibration verification standard was outside (biased high) the specified limits for this compound.
V2	The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
W	Result quantified, but the corresponding peak was detected outside the generated retention time window.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
X	See case narrative.
Y	Recovery outside limits
Y	The chromatogram resembles a petroleum product but does not match the calibration standard.
Z	The chromatogram does not resemble a petroleum product.
i	The MRL/MDL has been elevated due to a matrix interference.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: TRC nvironmental Corporation **Service Request:** 1508875
Project: Domtar Welch Creek/218188.0000.0000

SAMPLE CROSS-REFERENCE

SAMPL	CLI T SAMPL ID	DAT	TIM
1508875-001	SW-2015-MT6	11/3/2015	0915
1508875-002	SW-2015-MT4	11/3/2015	0935
1508875-003	SW-2015-GT4	11/3/2015	1030
1508875-004	D -15401	11/3/2015	0000

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 09:15
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	SW-2015-MT6	**Basis:**	NA
Lab Code:	J1508875-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Q	Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**130**	**B**	ug/L	100	20	1	11/13/15 03:30	11/10/15	
Barium, Total	6010C	**52**		ug/L	10	0.3	1	11/13/15 03:31	11/10/15	
Calcium, Total	6010C	**13.6**		mg/L	0.10	0.02	1	11/13/15 03:30	11/10/15	
Iron, Total	6010C	**2590**		ug/L	100	5	1	11/13/15 03:30	11/10/15	
Magnesium, Total	6010C	**3.48**		mg/L	0.10	0.02	1	11/13/15 03:30	11/10/15	
Manganese, Total	6010C	**214**		ug/L	10	0.3	1	11/13/15 03:31	11/10/15	
Titanium, Total	6010C	**1**	**J**	ug/L	50	1.0	1	11/13/15 03:31	11/10/15	

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 09:15
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	SW-2015-MT6	**Basis:**	NA
Lab Code:	J1508875-001		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	PQL	MDL	Dil.	Date Analyzed	Q
Carbon, Dissolved Organic (DOC)	SM 5310 B	**13.4**	mg/L	1.0	0.09	1	11/11/15 03:30	
Carbon, Total Organic (TOC)	SM 5310 B	**13.8**	mg/L	1.0	0.09	1	11/11/15 01:26	
Solids, Total Suspended (TSS)	SM 2540 D	**6.0**	mg/L	5.0	5.0	1	11/09/15 10:02	
Solids, Total Suspended, Volatile	160.4	10 U	mg/L	10	10	1	11/09/15 10:02	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 09:35
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	SW-2015-MT4	**Basis:**	NA
Lab Code:	J1508875-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Q	Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**90**	**BJ**	ug/L	100	20	1	11/13/15 03:35	11/10/15	
Barium, Total	6010C	**58**		ug/L	10	0.3	1	11/13/15 03:36	11/10/15	
Calcium, Total	6010C	**13.5**		mg/L	0.10	0.02	1	11/13/15 03:35	11/10/15	
Iron, Total	6010C	**2250**		ug/L	100	5	1	11/13/15 03:35	11/10/15	
Magnesium, Total	6010C	**3.45**		mg/L	0.10	0.02	1	11/13/15 03:35	11/10/15	
Manganese, Total	6010C	**206**		ug/L	10	0.3	1	11/13/15 03:36	11/10/15	
Titanium, Total	6010C	**1**	**J**	ug/L	50	1.0	1	11/13/15 03:36	11/10/15	

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 09:35
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	SW-2015-MT4	**Basis:**	NA
Lab Code:	J1508875-002		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	PQL	MDL	Dil.	Date Analyzed	Q
Carbon, Dissolved Organic (DOC)	SM 5310 B	**12.4**	mg/L	1.0	0.09	1	11/11/15 04:43	
Carbon, Total Organic (TOC)	SM 5310 B	**12.4**	mg/L	1.0	0.09	1	11/11/15 02:16	
Solids, Total Suspended (TSS)	SM 2540 D	5.0 U	mg/L	5.0	5.0	1	11/09/15 10:02	
Solids, Total Suspended, Volatile	160.4	10 U	mg/L	10	10	1	11/09/15 10:02	

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 10:30
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	SW-2015-GT4	**Basis:**	NA
Lab Code:	J1508875-003		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**110 B**	ug/L	100	20	1	11/13/15 03:40	11/10/15	
Barium, Total	6010C	**55**	ug/L	10	0.3	1	11/13/15 03:41	11/10/15	
Calcium, Total	6010C	**13.0**	mg/L	0.10	0.02	1	11/13/15 03:40	11/10/15	
Iron, Total	6010C	**2960**	ug/L	100	5	1	11/13/15 03:40	11/10/15	
Magnesium, Total	6010C	**3.28**	mg/L	0.10	0.02	1	11/13/15 03:40	11/10/15	
Manganese, Total	6010C	**226**	ug/L	10	0.3	1	11/13/15 03:41	11/10/15	
Titanium, Total	6010C	**1 J**	ug/L	50	1.0	1	11/13/15 03:41	11/10/15	

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 10:30
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	SW-2015-GT4	**Basis:**	NA
Lab Code:	J1508875-003		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	PQL	MDL	Dil.	Date Analyzed	Q
Carbon, Dissolved Organic (DOC)	SM 5310 B	**11.9**	mg/L	1.0	0.09	1	11/11/15 04:57	
Carbon, Total Organic (TOC)	SM 5310 B	**12.8**	mg/L	1.0	0.09	1	11/11/15 02:30	
Solids, Total Suspended (TSS)	SM 2540 D	**14.0**	mg/L	5.0	5.0	1	11/09/15 10:02	
Solids, Total Suspended, Volatile	160.4	10 U	mg/L	10	10	1	11/09/15 10:02	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 00:00
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	DU-15401	**Basis:**	NA
Lab Code:	J1508875-004		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**90 BJ**	ug/L	100	20	1	11/13/15 03:44	11/10/15	
Barium, Total	6010C	**58**	ug/L	10	0.3	1	11/13/15 03:45	11/10/15	
Calcium, Total	6010C	**13.5**	mg/L	0.10	0.02	1	11/13/15 03:44	11/10/15	
Iron, Total	6010C	**2140**	ug/L	100	5	1	11/13/15 03:44	11/10/15	
Magnesium, Total	6010C	**3.45**	mg/L	0.10	0.02	1	11/13/15 03:44	11/10/15	
Manganese, Total	6010C	**198**	ug/L	10	0.3	1	11/13/15 03:45	11/10/15	
Titanium, Total	6010C	**1 J**	ug/L	50	1.0	1	11/13/15 03:45	11/10/15	

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 00:00
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	DU-15401	**Basis:**	NA
Lab Code:	J1508875-004		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	PQL	MDL	Dil.	Date Analyzed	Q
Carbon, Dissolved Organic (DOC)	SM 5310 B	**12.4**	mg/L	1.0	0.09	1	11/11/15 05:11	
Carbon, Total Organic (TOC)	SM 5310 B	**12.3**	mg/L	1.0	0.09	1	11/11/15 02:48	
Solids, Total Suspended (TSS)	SM 2540 D	5.0 U	mg/L	5.0	5.0	1	11/09/15 10:02	
Solids, Total Suspended, Volatile	160.4	10 U	mg/L	10	10	1	11/09/15 10:02	

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	NA
Sample Matrix:	Surface Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	J1508875-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result		Units	PQL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**50**	**J**	ug/L	100	20	1	11/13/15 02:41	11/10/15	
Barium, Total	6010C	0.3	U	ug/L	10	0.3	1	11/13/15 02:42	11/10/15	
Calcium, Total	6010C	0.02	U	mg/L	0.10	0.02	1	11/13/15 02:41	11/10/15	
Iron, Total	6010C	5	U	ug/L	100	5	1	11/13/15 02:41	11/10/15	
Magnesium, Total	6010C	0.02	U	mg/L	0.10	0.02	1	11/13/15 02:41	11/10/15	
Manganese, Total	6010C	0.3	U	ug/L	10	0.3	1	11/13/15 02:42	11/10/15	
Titanium, Total	6010C	1.0	U	ug/L	50	1.0	1	11/13/15 02:42	11/10/15	

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	NA
Sample Matrix:	Surface Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	J1508875-MB		

General Chemistry Parameters

Analyte Name	Analysis Method	Result		Units	PQL	MDL	Dil.	Date Analyzed	Q
Carbon, Dissolved Organic (DOC)	SM 5310 B	1.0	U	mg/L	1.0	0.09	1	11/11/15 03:00	
Carbon, Total Organic (TOC)	SM 5310 B	0.09	U	mg/L	1.0	0.09	1	11/10/15 23:06	
Solids, Total Suspended (TSS)	SM 2540 D	5.0	U	mg/L	5.0	5.0	1	11/09/15 10:02	
Solids, Total Suspended, Volatile	160.4	10	U	mg/L	10	10	1	11/09/15 10:02	

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Analyzed:**	11/13/15
Sample Matrix:	Surface Water	**Date Extracted:**	11/10/15

Lab Control Sample Summary
Inorganic Parameters

Analysis Method:	6010C	**Units:**	ug/L
Prep Method:	EPA 3005A	**Basis:**	NA
		Analysis Lot:	471841

Lab Control Sample
J1508875-LCS

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Aluminum, Total	5210	5000	104	80-120
Barium, Total	515	500	103	80-120
Calcium, Total	5.17	5.00	103	80-120
Iron, Total	5160	5000	103	80-120
Magnesium, Total	5.16	5.00	103	80-120
Manganese, Total	516	500	103	80-120
Titanium, Total	2590	2500	104	80-120

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15
Sample Matrix:	Surface Water	**Date Received:**	11/05/15
		Date Analyzed:	11/09/15 - 11/11/15

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	SW-2015-MT6	**Units:**	mg/L
Lab Code:	J1508875-001	**Basis:**	NA

Analyte Name	Analysis Method	PQL	MDL	Sample Result	Duplicate Sample J1508875-001DUP Result	Average	RPD	RPD Limit
Carbon, Total Organic (TOC)	SM 5310 B	1.0	0.09	13.8	13.6	13.7	2	20
Solids, Total Suspended (TSS)	SM 2540 D	5.0	5.0	6.0	5.0 U	NC	NC	10
Solids, Total Suspended, Volatile	160.4	10	10	10 U	10 U	NC	NC	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15
Sample Matrix:	Surface Water	**Date Received:**	11/05/15
		Date Analyzed:	11/11/15

Matrix Spike Summary
General Chemistry Parameters

Sample Name:	SW-2015-MT6	**Units:**	mg/L
Lab Code:	J1508875-001	**Basis:**	NA

Matrix Spike
J1508875-001MS

Analyte Name	Method	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Dissolved Organic (DOC)	SM 5310 B	13.4	65.4	50.0	104	90-110
Carbon, Total Organic (TOC)	SM 5310 B	13.8	61.0	50.0	94	90-110

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: TRC Environmental Corporation
Project: Domtar Welch Creek/218188.0000.0000
Sample Matrix: Surface Water

Service Request: J1508875
Date Analyzed: 11/11/15

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
J1508875-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Dissolved Organic (DOC)	SM 5310 B	48.0	50.0	96	90-110

Client: TRC Environmental Corporation
Project: Domtar Welch Creek/218188.0000.0000
Sample Matrix: Surface Water

Service Request: J1508875
Date Analyzed: 11/10/15

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
J1508875-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic (TOC)	SM 5310 B	47.8	50.0	96	90-110

Client: TRC Environmental Corporation
Project: Domtar Welch Creek/218188.0000.0000
Sample Matrix: Surface Water

Service Request: J1508875
Date Analyzed: 11/09/15

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
J1508875-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Solids, Total Suspended (TSS)	SM 2540 D	111	100	111	85-115

ALS Environmental

Cooler Receipt Form

Client: TRC

Service Request #: J1508875

Project: Domtar Welch Creek

Cooler received on 11/5/15 and opened on 11/6/15 by MM

COURIER: ALS UPS FEDEX Client Other _____ Airbill # _____

1	Were custody seals on outside of cooler?	Yes	No		
	If yes, how many and where?	#: 1 on lid	other		
2	Were seals intact and signature and date correct?	Yes	No	N/A	
3	Were custody papers properly filled out?	Yes	No	N/A	
4	Temperature of cooler(s) upon receipt (Should be 0°C and ≤ 6°C)	1.4			
5	Thermometer ID	T124			
6	Temperature Blank Present?	Yes	No		
7	Were Ice or Ice Packs present	Ice	Ice Packs	No	
8	Did all bottles arrive in good condition (unbroken, etc....)?	Yes	No	N/A	
9	Type of packing material present	Netting	Vial Holder	Bubble Wrap	
		Paper	Styrofoam	Other	N/A
10	Were all bottle labels complete (sample ID, preservation, etc....)?	Yes	No	N/A	
11	Did all bottle labels and tags agree with custody papers?	Yes	No	N/A	
12	Were the correct bottles used for the tests indicated?	Yes	No	N/A	
13	Were all of the preserved bottles received with the appropriate preservative?	Yes	No	N/A	
	HNO3 pH<2 H2SO4 pH<2 ZnAc2/NaOH pH>9 NaOH pH>12 HCl pH<2				
	Preservative additions noted below				
14	Were all samples received within analysis holding times?	Yes	No	N/A	
15	Were all VOA vials free of air bubbles? If present, note below	Yes	No	N/A	
16	Where did the bottles originate?	ALS	Client		

Sample ID	Reagent	Lot #	ml added	Initials Date/Time

Additional comments and/or explanation of all discrepancies noted above:

Client approval to run samples if discrepancies noted: Date:

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

ALS Environmental

9143 Philips Highway, Ste 200 • Jacksonville, FL 32256 (904) 739-2277 • 800-695-7222 x06 • FAX (904) 739-2011

PAGE 1 OF 1

SR# J1508875

CAS Contract

J1508875 5

TRC Environmental Corporation
Domtar Welch Creek

Project Name: DOMTAR Welch Creek	Project Number: 228188.0000.0000
Project Manager: Karen Sarcier/Michelle Hays	Email Address: MHAYS@TRCSOLUTIONS.COM
Company/Address: TRC, 30 Patewood Drive, Ste 300, Greenville, SC 29615	
Phone #: 864.608.1836	FAX #: —
Sampler's Signature: Michelle Hays	Sampler's Printed Name: Michelle Hays

ANALYSIS REQUESTED (Include Method Number)

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	Didym - 201.7 Longcrew	VSS & TSS	Total recoverable Mg, Mn, Ca, Ba, Al, Fe	TOC & DOC	REMARKS/ ALTERNATE DESCRIPTION
PRESERVATIVE						0	0	2	1	
SW-2015-MT6		11/3/15	915	SW	8	X	X	X	X	
SW-2015-MT4		11/3/15	935	SW	8	X	X	X	X	
SW-2015-GT4				SW	8	X	X	X	X	
DU-15401		—	—	SW	8	X	X	X	X	

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS
* Lab needs to filter DOC

1.4°C

See QAPP ☐

TURNAROUND REQUIREMENTS
___ RUSH (SURCHARGES APPLY)
X STANDARD
REQUESTED FAX DATE
REQUESTED REPORT DATE

REPORT REQUIREMENTS
___ I. Results Only
X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
___ III. Results + QC and Calibration Summaries
___ IV. Data Validation Report with Raw Data
___ V. Specialized Forms / Custom Report
Edata ✓ Yes ___ No

INVOICE INFORMATION
PO #
BILL TO: DOMTAR
LINDA Belanger

SAMPLE RECEIPT: CONDITION/COOLER TEMP: 1.4° CUSTODY SEALS: Y N

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Michelle Hays	Signature: [illegible]	Signature	Signature	Signature	Signature
Printed Name: TRC	Printed Name: Michael Walker	Printed Name	Printed Name	Printed Name	Printed Name
Firm: 11-4-15 / 1400	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time	Date/Time: 11/6/15 1030	Date/Time	Date/Time	Date/Time	Date/Time

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Appendix A:
Subcontracted Parameters

December 07, 2015 Service Request No:J1508875

Michelle Hays
TRC Environmental Corporation
30 Patewood Drive, Suite 300
Greenville, SC 29615

Laboratory Results for: Domtar Welch Creek

Dear Michelle,

Enclosed are the results of the sample(s) submitted to our laboratory November 05, 2015
For your reference, these analyses have been assigned our service request number **J1508875.**

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the NELAC 2003 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My extension is 4410. You may also contact me via email at Jerry.Allen@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

for NB (ak 12/7/15)

Jerry Allen
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 713 266 1599 | FAX +1 713 266 0130
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS ENVIRONMENTAL

Client:	TRC Environmental Corporation	**Service Request No.:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Received:**	11/13/15
Sample Matrix:	Surface Waters		

ALS ENVIRONMENTAL NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Four surface waters were received for analysis at ALS Environmental – Houston HRMS on 11/13/15.

The date of receipt currently references the date ALS Environmental-Jacksonville received the samples (11/5/15) and not the date ALS Environmental-Houston HRMS received the samples (11/13/15).

The samples were received at 0.7°C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Method Blank

The Method Blank EQ1500676-01 contained low levels of various anlaytes above the EDL, but below the Method Reporting Limit (MRL).

The associated compounds in the samples, regardless of concentration, are flagged with 'B' flags, which may be > or equal to 10 times the concentration in the MB.

Precision and Accuracy

EQ1500676: Laboratory Control Spike (LCS) sample was analyzed and reported in addition to an MS/DMS for this extraction batch. The batch quality control criteria were met. Batch precision (MS/DMS) measurements were determined on a sample unrelated to this Service Request. The MS/DMS results are not included in this report.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions were sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

The TEQ Summary results for each sample have been calculated by ALS ENVIRONMENTAL/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
J1508875-001	SW-2015-MT6	11/3/2015	0915
J1508875-002	SW-2015-MT4	11/3/2015	0935
J1508875-003	SW-2015-GT4	11/3/2015	1030
J1508875-004	DU-15401	11/3/2015	0000

Service Request Summary

Folder #: **J1508875**
Client Name: TRC Environmental Corporation
Project Name: Domtar Welch Creek
Project Number: 218188.0000.0000

Report To: Michelle Hays
TRC Environmental Corporation
30 Patewood Drive, Suite 300
Greenville, SC 29615
USA
Phone Number: 864-608-1836
Cell Number:
Fax Number:
E-mail: mhays@trcsolutions.com

Project Chemist: Jerry Allen
Originating Lab: JAX
Logged By: MGWALLACE
Date Received: 11/05/15
Internal Due Date: 11/30/2015
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: N, Y
Report to MDL?: N, Y
P.O. Number:
EDD: BASIC_WQC

18 40 mL-Glass Vial VOA AMBER Tef/Silicone Septa HCL
4 500 ml-Plastic Bottle WM CLEAR Unpreserved
4 250 ml-Plastic Bottle WM CLEAR HNO3
8 1000 mL-Glass Bottle WM AMBER Teflon Liner Unpreserved

Location: J-007-TOC16, J-007-E2, J-212-M01, E-Disposed, EHRMS-WIC 5B, In Lab

Pressure Gas:

				JAX				JAX	HOUSTON
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	TOC D/SM 5310 B	TOC T/SM 5310 B	TSS Vol/160.4	TSS/SM 2540 D	Metals T/6010C	Dioxins Furans/1613B
J1508875-001	SW-2015-MT6	Surface Water	11/03/15 0915	II	II	II	II	II	II
J1508875-002	SW-2015-MT4	Surface Water	11/03/15 0935	II	II	II	II	II	II
J1508875-003	SW-2015-GT4	Surface Water	11/03/15 1030	II	II	II	II	II	II
J1508875-004	DU-15401	Surface Water	11/03/15 0000	II	II	II	II	II	II

Service Request Summary

Folder #:	**J1508875**
Client Name:	TRC Environmental Corporation
Project Name:	Domtar Welch Creek
Project Number:	218188.0000.0000
Report To:	Michelle Hays TRC Environmental Corporation 30 Patewood Drive, Suite 300 Greenville, SC 29615 USA
Phone Number:	864-608-1836
Cell Number:	
Fax Number:	
E-mail:	mhays@trcsolutions.com

Project Chemist:	Jerry Allen
Originating Lab:	JAX
Logged By:	MGWALLACE
Date Received:	11/05/15
Internal Due Date:	11/30/2015
QAP:	LAB QAP
Qualifier Set:	Lab Standard
Formset:	Lab Standard
Merged?:	N, Y
Report to MDL?:	N, Y
P.O. Number:	
EDD:	BASIC_WQC

18	40 mL-Glass Vial VOA AMBER Tef/Silicone Septa HCL
4	500 ml-Plastic Bottle WM CLEAR Unpreserved
4	250 ml-Plastic Bottle WM CLEAR HNO3
8	1000 mL-Glass Bottle WM AMBER Teflon Liner Unpreserved

Location: J-007-TOC16, J-007-E2, J-212-M01, E-Disposed, EHRMS-WIC 5B, In Lab

Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
GenChem	TOC D/SM 5310 B	4	Filter DOC in the Lab
Metals	Filter Met/Filter Met	4	Filter for DOC
Metals	Metals T/6010C	4	Mn Mg Fe Ca Ba Al Ti
Semivoa GCMS	Dioxins Furans/1613B	4	Full List

Data Qualifiers

HRMS Qualifier Set

B Indicates the associated analyte was found in the method blank at >1/10th the reported value.
E Estimated value. The reported concentration is above the calibration range of the instrument.
H Sample extracted and/or analyzed out of suggested holding time.
J Estimated value. The reported concentration is below the MRL.
K The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits. Reported concentration is a conservative estimate, however EMPC correction was not applied.
P Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
Q Monitored lock-mass indicates matrix-interference. Reported result is estimated.
S Signal saturated detector. Result reported from dilution.
U Compound was analyzed for, but was not detected (ND).
X See Case Narrative.
Y Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
i The MDL/MRL have been elevated due to a matrix interference.

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Arizona Department of Health Services	AZ0793	5/27/2016
Arkansas Department of Environmental Quality	14-038-0	6/16/2016
California Department of Health Services	2452	2/28/2017
Florida Department of Health	E87611	6/30/2016
Kansas Department of Health and Environment	E-10406	1/31/2016
Louisiana Department of Environmental Quality	03048	6/30/2016
Louisiana Department of Health and Hospitals	LA150026	12/31/2015
Maine Center for Disease Control and Prevention	2014019	6/5/2016
Maryland Department of the Environment	343	6/30/2016
Michigan Depratment of Environmental Quality	9971	6/30/2016
Minnesota Department of Health	840911	12/31/2015
Nebraska Department of Health and Human Services	NE-OS-25-13	6/30/2016
New Mexico Environment Department	TX02694	6/30/2016
New York Department of Health	11707	4/1/2016
Oregon Environmental Laboratory Accreditation Program	TX200002	3/24/2016
Pennsylvania Department of Environmental Protection	68-03441	6/30/2016
Texas Commision on Environmental Quality	TX104704216-14-5	6/30/2016
United States Department of Agriculture	P330-14-00067	2/21/2017
West Virginia Department of Environmental Protection	347	6/30/2016

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID J1508875 DB-5MSUI SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
12/03/15	JC	001-004

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
12/04/15	LKL	001-004

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Intra-Network Chain of Custody

9143 Philips Highway, Suite 200 • Jacksonville, FL 32256 • 904-739-2277 • FAX 904-739-2011

ALS Contact: Jerry Allen

Project Name: Domtar Welch Creek
Project Number: 218188.0000.0000
Project Manager: Michelle Hays
Company: TRC Environmental Corporation
QAP: LAB QAP

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Date Received	Send To	Dioxins Furans 1613B
J1508875-001	SW-2015-MT6	2	Surface Water	11/3/15	0915	11/5/15	HOUSTON	II
J1508875-002	SW-2015-MT4	2	Surface Water	11/3/15	0935	11/5/15	HOUSTON	II
J1508875-003	SW-2015-GT4	2	Surface Water	11/3/15	1030	11/5/15	HOUSTON	II
J1508875-004	DU-15401	2	Surface Water	11/3/15	0000	11/5/15	HOUSTON	II

Test Comments

Dioxins Furans - 1613B J1508875-001,2,3,4 Full List

J1508875 5
TRC Environmental Corporation
Domtar Welch Creek

Special Instructions/Comments	Turnaround Requirements	Report Requirements	Invoice Information
pH Checked _____	____RUSH (Surcharges Apply) PLEASE CIRCLE WORK DAYS 1 2 3 4 5 ____ STANDARD Requested FAX Date: _____ Requested Report Date: 11/27/15	____ I. Results Only ____ II. Results + QC Summaries ____ III. Results + QC and Calibration Summaries ____ IV. Data Validation Report with Raw Data PQL/MDL/J Y EDD Y	PO# 53J1508875 Bill to

Relinquished By: 11/10/15 Received By: 11/11/15 Airbill Number:

ALS Environmental

Cooler Receipt Form

Project Chemist NB

Client/Project TRC Environmental

Thermometer ID SMO 4

Date/Time Received: 11/11/15 9:45 Initials: AL Date/Time Logged in: 11/13/15 Initials AL

1. Method of delivery: ○ US Mail ✓ Fed Ex ○ UPS ○ DHL ○ Courier ○ Client
2. Samples received in: ✓ Cooler ○ Box ○ Envelope ○ Other
3. Were custody seals on coolers? ✓ Yes ○ No
   Were they intact? ✓ Yes ○ No ○ N/A
   Were they signed and dated? ✓ Yes ○ No ○ N/A
   If yes, how many and where? 1 Seal
4. Packing Material: ○ Inserts ✓ Baggies ✓ Bubble Wrap ○ Gel Packs ✓ Wet Ice ○ Sleeves ○ Other
5. Foreign or Regulated Soil? ○ Yes ✓ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
5498 9753 8408		11/11/15	10:38	AL	-0.3/0.7	☐
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ✓ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ○ No
10. Did sample labels and tags agree with custody documents? ✓ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label: J1508875 5
TRC Environmental Corporation
Domtar Welch Creek

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 250696 **Prep WorkFlow:** OrgExtAq(365) **Status:** Prepped
Team: Semivoa GCMS/JPHAN **Prep Method:** Method Sep Funnel/Jar **Prep Date/Time:** 11/24/15 11:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	EQ1500676-01	MB		1613B/Dioxins Furans	5	x	Liquid	1000mL	
2	EQ1500676-02	LCS		1613B/Dioxins Furans	5	x	Liquid	1000mL	
3	EQ1500676-03	LCS		1613B/Dioxins Furans	5	x	Liquid	1000mL	
4	EQ1500676-04	Q28115 MS	.45	1613B/Dioxins Furans	7	x	Liquid	1070mL	
5	EQ1500676-05	Q28115 DMS	.46	1613B/Dioxins Furans	7	x	Liquid	1077mL	
6	J1508875-001	SW-2015-MT6	.09	1613B/Dioxins Furans	6	x	Surface Water	956mL	Cloudy Yellow Liquid
7	J1508875-002	SW-2015-MT4	.09	1613B/Dioxins Furans	6	x	Surface Water	985mL	Cloudy Yellow Liquid
8	J1508875-003	SW-2015-GT4	.09	1613B/Dioxins Furans	6	x	Surface Water	976mL	Cloudy Yellow Liquid
9	J1508875-004	DU-15401	.09	1613B/Dioxins Furans	6	x	Surface Water	990mL	Cloudy Yellow Liquid
10	K1510594-001	PF-1-0915	.11	1613B/Dioxins Furans	7	x	Water	994mL	Clear Colorless Liquid
11	K1510594-002	PF-3-0915	.13	1613B/Dioxins Furans	7	x	Water	894mL	Clear Colorless Liquid
12	K1510594-003	PF-5-0915	.18	1613B/Dioxins Furans	7	x	Water	1033mL	Clear Colorless Liquid
13	K1510594-004	PF-9-0915	.18	1613B/Dioxins Furans	7	x	Water	931mL	Clear Colorless Liquid
14	K1512289-008	Q28104	.15	1613B/Dioxins Furans	7	x	Ocean Water	1068mL	Clear Colorless Liquid
15	K1512289-009	Q28109	.15	1613B/Dioxins Furans	7	x	Ocean Water	1054mL	Clear Colorless Liquid
16	K1512289-010	Q28115	.44	1613B/Dioxins Furans	7	x	Ocean Water	1072mL	Clear Colorless Liquid
17	K1512289-011	Q28120	.15	1613B/Dioxins Furans	7	x	Ocean Water	1058mL	Clear Colorless Liquid
18	K1512289-012	Q28125	.15	1613B/Dioxins Furans	7	x	Ocean Water	1071mL	Clear Colorless Liquid
19	K1512289-013	Q28130FD4	.15	1613B/Dioxins Furans	7	x	Ocean Water	1072mL	Clear Colorless Liquid
20	K1512289-014	Q28136	.15	1613B/Dioxins Furans	7	x	Ocean Water	1067mL	Clear Colorless Liquid
21	K1512289-015	Q28141	.15	1613B/Dioxins Furans	7	x	Ocean Water	1065mL	Clear Colorless Liquid
22	K1512289-016	Q28146	.15	1613B/Dioxins Furans	7	x	Ocean Water	1047mL	Clear Colorless Liquid
23	K1512289-017	Q28152EB2	.15	1613B/Dioxins Furans	5	x	Water	1044mL	Clear Colorless Liquid
24	K1512746-003	Composite	.01	1613B/Dioxins Furans	6	x	Water	901mL	Cloudy Colorless Liquid

Preparation Information Benchsheet

Prep Run#: 250696 **Prep WorkFlow:** OrgExtAq(365) **Status:** Prepped
Team: Semivoa GCMS/JPHAN **Prep Method:** Method Sep Funnel/Jar **Prep Date/Time:** 11/24/15 11:00 AM

Spiking Solutions

Name:	1613B Labeled Working Standard	Inventory ID	86082	Logbook Ref:	86082 DE 11/23/15 2-4ng/mL	Expires On:	04/23/2016

EQ1500676-01	1,000.00µL	EQ1500676-02	1,000.00µL	EQ1500676-03	1,000.00µL	EQ1500676-04	1,000.00µL	EQ1500676-05	1,000.00µL	J1508875-001	1,000.00µL
J1508875-002	1,000.00µL	J1508875-003	1,000.00µL	J1508875-004	1,000.00µL	K1510594-001	1,000.00µL	K1510594-002	1,000.00µL	K1510594-003	1,000.00µL
K1510594-004	1,000.00µL	K1512289-008	1,000.00µL	K1512289-009	1,000.00µL	K1512289-010	1,000.00µL	K1512289-011	1,000.00µL	K1512289-012	1,000.00µL
K1512289-013	1,000.00µL	K1512289-014	1,000.00µL	K1512289-015	1,000.00µL	K1512289-016	1,000.00µL	K1512289-017	1,000.00µL	K1512746-003	1,000.00µL

Name:	1613B Matrix Working Standard	Inventory ID	86089	Logbook Ref:	86089 DE 11/20/15 2-20ng/mL	Expires On:	05/18/2016

EQ1500676-02	100.00µL	EQ1500676-03	100.00µL	EQ1500676-04	100.00µL	EQ1500676-05	100.00µL

Name:	8290/1613B Cleanup Working Standard	Inventory ID	86166	Logbook Ref:	86166 11/25/2015 CID 8.0 ng/ml	Expires On:	05/23/2016

EQ1500676-01	100.00µL	EQ1500676-02	100.00µL	EQ1500676-03	100.00µL	EQ1500676-04	100.00µL	EQ1500676-05	100.00µL	J1508875-001	100.00µL
J1508875-002	100.00µL	J1508875-003	100.00µL	J1508875-004	100.00µL	K1510594-001	100.00µL	K1510594-002	100.00µL	K1510594-003	100.00µL
K1510594-004	100.00µL	K1512289-008	100.00µL	K1512289-009	100.00µL	K1512289-010	100.00µL	K1512289-011	100.00µL	K1512289-012	100.00µL
K1512289-013	100.00µL	K1512289-014	100.00µL	K1512289-015	100.00µL	K1512289-016	100.00µL	K1512289-017	100.00µL	K1512746-003	100.00µL

Preparation Materials

Sensafe Free Chlorine WTR CHK	LM 3/19/15 (79756)	Carbon, High Purity	CID 11/26/2015 (86176)	Ethyl Acetate 99.9% Minimum EtOAc	LM 10/8/15 (84814)
Glass Wool	CID 11/12/2015 (85842)	Hexanes 95%	CID 11/12/2015 (85840)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	DE 11/2/15 (85540)
Sodium Hydroxide Reagent Grade NaOH	LM 09/02/14 (74232)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	LM 9/24/15 (84454)	Tridecane (n-Tridecane)	DE 11/17/15 (85916)
ColorpHast pH-Indicator Strips	DE 11/11/15 (85766)	Silica Gel	11/19/2015 CID (86009)	sulfuric acid	CID 11/06/15 (85764)
Toluene 99.9% Minimum	DE 10/27/15 (85412)				

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	11/24/15 11:00	Started:	11/26/15 00:00	Started:	11/26/15 08:45	Started:	11/26/15 13:10
Finished:	11/24/15 18:00	Finished:	11/26/15 00:00	Finished:	11/26/15 10:20	Finished:	11/26/15 13:50
By:	JPHAN	By:	CDIAZ	By:	CDIAZ	By:	CDIAZ
Comments		Comments		Comments		Comments	

Comments: _____

Preparation Information Benchsheet

Prep Run#: 250696 **Prep WorkFlow:** OrgExtAq(365) **Status:** Prepped
Team: Semivoa GCMS/JPHAN **Prep Method:** Method Sep Funnel/Jar **Prep Date/Time:** 11/24/15 11:00 AM

Reviewed By: ak Date: 12/1/15

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

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Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 09:15
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	SW-2015-MT6	**Units:**	pg/L
Lab Code:	J1508875-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/15 13:17
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/24/15
Sample Amount:	956mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401220	**Blank File Name:**	P601768
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401216

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	1.09	5.23			1
1,2,3,7,8-PeCDD	ND	U	2.12	26.2			1
1,2,3,4,7,8-HxCDD	ND	U	1.03	26.2			1
1,2,3,6,7,8-HxCDD	ND	U	1.07	26.2			1
1,2,3,7,8,9-HxCDD	1.60**J**		0.968	26.2	1.41	1.006	1
1,2,3,4,6,7,8-HpCDD	3.36**BJ**		0.959	26.2	1.03	1.000	1
OCDD	37.2**BJ**		2.09	52.3	0.93	1.000	1
2,3,7,8-TCDF	ND	U	0.990	5.23			1
1,2,3,7,8-PeCDF	ND	U	1.15	26.2			1
2,3,4,7,8-PeCDF	ND	U	1.17	26.2			1
1,2,3,4,7,8-HxCDF	1.48**BJ**		0.683	26.2	1.09	1.000	1
1,2,3,6,7,8-HxCDF	1.25**JK**		0.603	26.2	0.87	1.000	1
1,2,3,7,8,9-HxCDF	2.55**BJ**		0.898	26.2	1.07	1.000	1
2,3,4,6,7,8-HxCDF	1.38**BJK**		0.718	26.2	1.55	1.000	1
1,2,3,4,6,7,8-HpCDF	2.78**BJ**		0.755	26.2	1.11	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.973	26.2			1
OCDF	19.5**BJ**		2.22	52.3	1.01	1.005	1

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 09:15
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	SW-2015-MT6	**Units:**	pg/L
Lab Code:	J1508875-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/15 13:17
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/24/15
Sample Amount:	956mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401220	**Blank File Name:**	P601768
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401216

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	1.09	5.23			1
Total Penta-Dioxins	ND	U	2.12	26.2			1
Total Hexa-Dioxins	1.60**J**		1.02	26.2	1.41		1
Total Hepta-Dioxins	3.36**J**		0.959	26.2	1.03		1
Total Tetra-Furans	ND	U	0.990	5.23			1
Total Penta-Furans	ND	U	1.16	26.2			1
Total Hexa-Furans	4.03**J**		0.712	26.2	1.09		1
Total Hepta-Furans	2.78**J**		0.855	26.2	1.11		1

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 09:15
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	SW-2015-MT6	**Units:**	Percent
Lab Code:	J1508875-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/15 13:17
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/24/15
Sample Amount:	956mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401220	**Blank File Name:**	P601768
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401216

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	749.840	37		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	706.122	35		25-181	1.57	1.173
13C-1,2,3,4,7,8-HxCDD	2000	1088.226	54		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1158.405	58		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	879.198	44		23-140	1.07	1.065
13C-OCDD	4000	1182.955	30		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	754.691	38		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	740.844	37		24-185	1.59	1.134
13C-2,3,4,7,8-PeCDF	2000	714.347	36		21-178	1.59	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1096.364	55		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1251.828	63		26-123	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	929.488	46		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1030.925	52		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	857.897	43		28-143	0.44	1.040
13C-1,2,3,4,7,8,9-HpCDF	2000	926.952	46		26-138	0.45	1.078
37Cl-2,3,7,8-TCDD	800	321.647	40		35-197	NA	1.020

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 09:15
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	SW-2015-MT6	**Units:**	pg/L
Lab Code:	J1508875-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Sep Funnel/Jar

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	1.09	5.23	1	1	
1,2,3,7,8-PeCDD	ND	2.12	26.2	1	1	
1,2,3,4,7,8-HxCDD	ND	1.03	26.2	1	0.1	
1,2,3,6,7,8-HxCDD	ND	1.07	26.2	1	0.1	
1,2,3,7,8,9-HxCDD	**1.60**	0.968	26.2	1	0.1	0.160
1,2,3,4,6,7,8-HpCDD	**3.36**	0.959	26.2	1	0.01	0.0336
OCDD	**37.2**	2.09	52.3	1	0.0003	0.0112
2,3,7,8-TCDF	ND	0.990	5.23	1	0.1	
1,2,3,7,8-PeCDF	ND	1.15	26.2	1	0.03	
2,3,4,7,8-PeCDF	ND	1.17	26.2	1	0.3	
1,2,3,4,7,8-HxCDF	**1.48**	0.683	26.2	1	0.1	0.148
1,2,3,6,7,8-HxCDF	**1.25**	0.603	26.2	1	0.1	0.125
1,2,3,7,8,9-HxCDF	**2.55**	0.898	26.2	1	0.1	0.255
2,3,4,6,7,8-HxCDF	**1.38**	0.718	26.2	1	0.1	0.138
1,2,3,4,6,7,8-HpCDF	**2.78**	0.755	26.2	1	0.01	0.0278
1,2,3,4,7,8,9-HpCDF	ND	0.973	26.2	1	0.01	
OCDF	**19.5**	2.22	52.3	1	0.0003	0.00585
		Total TEQ				0.904

2005 WHO TEFs, ND = 0

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 09:35
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	SW-2015-MT4	**Units:**	pg/L
Lab Code:	J1508875-002	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/15 14:06
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/24/15
Sample Amount:	985mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401221	**Blank File Name:**	P601768
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401216

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	2.47	5.08			1
1,2,3,7,8-PeCDD	ND	U	1.99	25.4			1
1,2,3,4,7,8-HxCDD	2.53**JK**		1.32	25.4	0.82	1.000	1
1,2,3,6,7,8-HxCDD	2.13**JK**		1.36	25.4	1.53	1.000	1
1,2,3,7,8,9-HxCDD	2.36**J**		1.24	25.4	1.25	1.007	1
1,2,3,4,6,7,8-HpCDD	4.88**BJ**		1.22	25.4	1.06	1.000	1
OCDD	25.5**BJ**		4.40	50.8	0.85	1.000	1
2,3,7,8-TCDF	ND	U	2.52	5.08			1
1,2,3,7,8-PeCDF	2.46**JK**		1.38	25.4	0.96	1.001	1
2,3,4,7,8-PeCDF	ND	U	1.35	25.4			1
1,2,3,4,7,8-HxCDF	2.21**BJK**		0.977	25.4	0.99	1.000	1
1,2,3,6,7,8-HxCDF	2.49**J**		0.896	25.4	1.41	1.001	1
1,2,3,7,8,9-HxCDF	4.12**BJ**		1.57	25.4	1.24	1.000	1
2,3,4,6,7,8-HxCDF	2.67**BJ**		1.05	25.4	1.25	1.000	1
1,2,3,4,6,7,8-HpCDF	3.23**BJK**		1.57	25.4	1.59	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	2.28	25.4			1
OCDF	17.0**BJK**		4.82	50.8	0.69	1.006	1

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 09:35
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	SW-2015-MT4	**Units:**	pg/L
Lab Code:	J1508875-002	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/15 14:06
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/24/15
Sample Amount:	985mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401221	**Blank File Name:**	P601768
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401216

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	2.47	5.08			1
Total Penta-Dioxins	ND	U	1.99	25.4			1
Total Hexa-Dioxins	2.36**J**		1.30	25.4	1.25		1
Total Hepta-Dioxins	4.88**J**		1.22	25.4	1.06		1
Total Tetra-Furans	ND	U	2.52	5.08			1
Total Penta-Furans	ND	U	1.36	25.4			1
Total Hexa-Furans	9.28**J**		1.08	25.4	1.41		1
Total Hepta-Furans	ND	U	1.88	25.4			1

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 09:35
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	SW-2015-MT4	**Units:**	Percent
Lab Code:	J1508875-002	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/15 14:06
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/24/15
Sample Amount:	985mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401221	**Blank File Name:**	P601768
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401216

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	992.675	50		25-164	0.82	1.019
13C-1,2,3,7,8-PeCDD	2000	1071.875	54		25-181	1.60	1.173
13C-1,2,3,4,7,8-HxCDD	2000	1519.445	76		32-141	1.27	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1693.600	85		28-130	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1281.355	64		23-140	1.07	1.065
13C-OCDD	4000	1669.367	42		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	978.168	49		24-169	0.80	0.994
13C-1,2,3,7,8-PeCDF	2000	1070.465	54		24-185	1.59	1.134
13C-2,3,4,7,8-PeCDF	2000	1093.025	55		21-178	1.60	1.164
13C-1,2,3,4,7,8-HxCDF	2000	1588.947	79		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1746.514	87		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1112.303	56		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1489.930	74		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1296.438	65		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1285.852	64		26-138	0.45	1.079
37Cl-2,3,7,8-TCDD	800	453.276	57		35-197	NA	1.020

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 09:35
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	SW-2015-MT4	**Units:**	pg/L
Lab Code:	J1508875-002	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Sep Funnel/Jar

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	2.47	5.08	1	1	
1,2,3,7,8-PeCDD	ND	1.99	25.4	1	1	
1,2,3,4,7,8-HxCDD	**2.53**	1.32	25.4	1	0.1	0.253
1,2,3,6,7,8-HxCDD	**2.13**	1.36	25.4	1	0.1	0.213
1,2,3,7,8,9-HxCDD	**2.36**	1.24	25.4	1	0.1	0.236
1,2,3,4,6,7,8-HpCDD	**4.88**	1.22	25.4	1	0.01	0.0488
OCDD	**25.5**	4.40	50.8	1	0.0003	0.00765
2,3,7,8-TCDF	ND	2.52	5.08	1	0.1	
1,2,3,7,8-PeCDF	**2.46**	1.38	25.4	1	0.03	0.0738
2,3,4,7,8-PeCDF	ND	1.35	25.4	1	0.3	
1,2,3,4,7,8-HxCDF	**2.21**	0.977	25.4	1	0.1	0.221
1,2,3,6,7,8-HxCDF	**2.49**	0.896	25.4	1	0.1	0.249
1,2,3,7,8,9-HxCDF	**4.12**	1.57	25.4	1	0.1	0.412
2,3,4,6,7,8-HxCDF	**2.67**	1.05	25.4	1	0.1	0.267
1,2,3,4,6,7,8-HpCDF	**3.23**	1.57	25.4	1	0.01	0.0323
1,2,3,4,7,8,9-HpCDF	ND	2.28	25.4	1	0.01	
OCDF	**17.0**	4.82	50.8	1	0.0003	0.00510
		Total TEQ				2.02

2005 WHO TEFs, ND = 0

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 10:30
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	SW-2015-GT4	**Units:**	pg/L
Lab Code:	J1508875-003	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/15 14:56
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/24/15
Sample Amount:	976mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401222	**Blank File Name:**	P601768
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401216

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.604	5.12			1
1,2,3,7,8-PeCDD	ND	U	0.672	25.6			1
1,2,3,4,7,8-HxCDD	ND	U	0.576	25.6			1
1,2,3,6,7,8-HxCDD	ND	U	0.615	25.6			1
1,2,3,7,8,9-HxCDD	ND	U	0.552	25.6			1
1,2,3,4,6,7,8-HpCDD	2.40**BJ**		0.761	25.6	1.15	1.000	1
OCDD	19.5**BJ**		2.06	51.2	0.99	1.000	1
2,3,7,8-TCDF	ND	U	0.653	5.12			1
1,2,3,7,8-PeCDF	ND	U	0.410	25.6			1
2,3,4,7,8-PeCDF	ND	U	0.411	25.6			1
1,2,3,4,7,8-HxCDF	0.758**BJK**		0.397	25.6	1.55	1.000	1
1,2,3,6,7,8-HxCDF	0.724**JK**		0.362	25.6	1.03	1.000	1
1,2,3,7,8,9-HxCDF	0.906**BJ**		0.572	25.6	1.16	1.000	1
2,3,4,6,7,8-HxCDF	0.756**BJK**		0.419	25.6	1.50	1.000	1
1,2,3,4,6,7,8-HpCDF	1.59**BJK**		0.691	25.6	0.77	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.877	25.6			1
OCDF	15.1**BJ**		1.97	51.2	0.98	1.005	1

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 10:30
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	SW-2015-GT4	**Units:**	pg/L
Lab Code:	J1508875-003	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/15 14:56
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/24/15
Sample Amount:	976mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401222	**Blank File Name:**	P601768
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401216

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.604	5.12			1
Total Penta-Dioxins	ND	U	0.672	25.6			1
Total Hexa-Dioxins	ND	U	0.580	25.6			1
Total Hepta-Dioxins	5.25**J**		0.761	25.6	0.98		1
Total Tetra-Furans	ND	U	0.653	5.12			1
Total Penta-Furans	ND	U	0.411	25.6			1
Total Hexa-Furans	0.906**J**		0.427	25.6	1.16		1
Total Hepta-Furans	ND	U	0.777	25.6			1

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 10:30
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	SW-2015-GT4	**Units:**	Percent
Lab Code:	J1508875-003	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/15 14:56
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/24/15
Sample Amount:	976mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401222	**Blank File Name:**	P601768
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401216

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	942.744	47		25-164	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	906.752	45		25-181	1.59	1.173
13C-1,2,3,4,7,8-HxCDD	2000	1430.926	72		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1509.434	75		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1108.725	55		23-140	1.08	1.065
13C-OCDD	4000	1459.341	36		17-157	0.91	1.139
13C-2,3,7,8-TCDF	2000	957.082	48		24-169	0.80	0.994
13C-1,2,3,7,8-PeCDF	2000	927.834	46		24-185	1.59	1.134
13C-2,3,4,7,8-PeCDF	2000	911.474	46		21-178	1.60	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1432.834	72		26-152	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1582.182	79		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1113.787	56		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1351.554	68		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1099.551	55		28-143	0.45	1.040
13C-1,2,3,4,7,8,9-HpCDF	2000	1193.377	60		26-138	0.46	1.078
37Cl-2,3,7,8-TCDD	800	476.079	60		35-197	NA	1.020

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 10:30
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	SW-2015-GT4	**Units:**	pg/L
Lab Code:	J1508875-003	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Sep Funnel/Jar

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.604	5.12	1	1	
1,2,3,7,8-PeCDD	ND	0.672	25.6	1	1	
1,2,3,4,7,8-HxCDD	ND	0.576	25.6	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.615	25.6	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.552	25.6	1	0.1	
1,2,3,4,6,7,8-HpCDD	**2.40**	0.761	25.6	1	0.01	0.0240
OCDD	**19.5**	2.06	51.2	1	0.0003	0.00585
2,3,7,8-TCDF	ND	0.653	5.12	1	0.1	
1,2,3,7,8-PeCDF	ND	0.410	25.6	1	0.03	
2,3,4,7,8-PeCDF	ND	0.411	25.6	1	0.3	
1,2,3,4,7,8-HxCDF	**0.758**	0.397	25.6	1	0.1	0.0758
1,2,3,6,7,8-HxCDF	**0.724**	0.362	25.6	1	0.1	0.0724
1,2,3,7,8,9-HxCDF	**0.906**	0.572	25.6	1	0.1	0.0906
2,3,4,6,7,8-HxCDF	**0.756**	0.419	25.6	1	0.1	0.0756
1,2,3,4,6,7,8-HpCDF	**1.59**	0.691	25.6	1	0.01	0.0159
1,2,3,4,7,8,9-HpCDF	ND	0.877	25.6	1	0.01	
OCDF	**15.1**	1.97	51.2	1	0.0003	0.00453
		Total TEQ				0.365

2005 WHO TEFs, ND = 0

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 00:00
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	DU-15401	**Units:**	pg/L
Lab Code:	J1508875-004	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/15 15:45
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/24/15
Sample Amount:	990mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401223	**Blank File Name:**	P601768
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401216

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.541	5.05			1
1,2,3,7,8-PeCDD	0.991**J**		0.678	25.3	1.67	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.389	25.3			1
1,2,3,6,7,8-HxCDD	ND	U	0.420	25.3			1
1,2,3,7,8,9-HxCDD	ND	U	0.374	25.3			1
1,2,3,4,6,7,8-HpCDD	2.57**BJ**		0.532	25.3	0.96	1.000	1
OCDD	17.9**BJ**		0.986	50.5	0.77	1.000	1
2,3,7,8-TCDF	ND	U	0.598	5.05			1
1,2,3,7,8-PeCDF	ND	U	0.454	25.3			1
2,3,4,7,8-PeCDF	0.656**JK**		0.445	25.3	1.09	1.000	1
1,2,3,4,7,8-HxCDF	0.776**BJK**		0.173	25.3	1.53	1.000	1
1,2,3,6,7,8-HxCDF	0.541**JK**		0.159	25.3	0.90	1.000	1
1,2,3,7,8,9-HxCDF	0.990**BJ**		0.259	25.3	1.14	1.000	1
2,3,4,6,7,8-HxCDF	0.785**BJ**		0.183	25.3	1.31	1.000	1
1,2,3,4,6,7,8-HpCDF	1.61**BJK**		0.632	25.3	0.74	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.821	25.3			1
OCDF	12.7**BJ**		1.29	50.5	1.01	1.005	1

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 00:00
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	DU-15401	**Units:**	pg/L
Lab Code:	J1508875-004	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/15 15:45
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/24/15
Sample Amount:	990mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401223	**Blank File Name:**	P601768
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401216

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.541	5.05			1
Total Penta-Dioxins	0.991**J**		0.678	25.3	1.67		1
Total Hexa-Dioxins	ND	U	0.394	25.3			1
Total Hepta-Dioxins	5.48**J**		0.532	25.3	1.02		1
Total Tetra-Furans	ND	U	0.598	5.05			1
Total Penta-Furans	ND	U	0.450	25.3			1
Total Hexa-Furans	2.43**J**		0.187	25.3	1.10		1
Total Hepta-Furans	ND	U	0.719	25.3			1

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 00:00
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	DU-15401	**Units:**	Percent
Lab Code:	J1508875-004	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/15 15:45
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/24/15
Sample Amount:	990mL	**Instrument Name:**	E-HRMS-06
		GC Column:	DB-5MSUI
Data File Name:	P401223	**Blank File Name:**	P601768
ICAL Date:	09/23/15	**Cal Ver. File Name:**	P401216

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1018.205	51		25-164	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	973.187	49		25-181	1.60	1.173
13C-1,2,3,4,7,8-HxCDD	2000	1537.903	77		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1590.158	80		28-130	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1159.539	58		23-140	1.06	1.065
13C-OCDD	4000	1508.511	38		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	1039.914	52		24-169	0.80	0.994
13C-1,2,3,7,8-PeCDF	2000	992.611	50		24-185	1.58	1.134
13C-2,3,4,7,8-PeCDF	2000	981.981	49		21-178	1.57	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1551.564	78		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1698.769	85		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1166.649	58		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1450.445	73		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1142.550	57		28-143	0.45	1.040
13C-1,2,3,4,7,8,9-HpCDF	2000	1224.655	61		26-138	0.45	1.078
37Cl-2,3,7,8-TCDD	800	531.004	66		35-197	NA	1.020

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	11/03/15 00:00
Sample Matrix:	Surface Water	**Date Received:**	11/05/15 13:06
Sample Name:	DU-15401	**Units:**	pg/L
Lab Code:	J1508875-004	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Sep Funnel/Jar

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.541	5.05	1	1	
1,2,3,7,8-PeCDD	**0.991**	0.678	25.3	1	1	0.991
1,2,3,4,7,8-HxCDD	ND	0.389	25.3	1	0.1	
1,2,3,6,7,8-HxCDD	ND	0.420	25.3	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.374	25.3	1	0.1	
1,2,3,4,6,7,8-HpCDD	**2.57**	0.532	25.3	1	0.01	0.0257
OCDD	**17.9**	0.986	50.5	1	0.0003	0.00537
2,3,7,8-TCDF	ND	0.598	5.05	1	0.1	
1,2,3,7,8-PeCDF	ND	0.454	25.3	1	0.03	
2,3,4,7,8-PeCDF	**0.656**	0.445	25.3	1	0.3	0.197
1,2,3,4,7,8-HxCDF	**0.776**	0.173	25.3	1	0.1	0.0776
1,2,3,6,7,8-HxCDF	**0.541**	0.159	25.3	1	0.1	0.0541
1,2,3,7,8,9-HxCDF	**0.990**	0.259	25.3	1	0.1	0.0990
2,3,4,6,7,8-HxCDF	**0.785**	0.183	25.3	1	0.1	0.0785
1,2,3,4,6,7,8-HpCDF	**1.61**	0.632	25.3	1	0.01	0.0161
1,2,3,4,7,8,9-HpCDF	ND	0.821	25.3	1	0.01	
OCDF	**12.7**	1.29	50.5	1	0.0003	0.00381
		Total TEQ				1.55

2005 WHO TEFs, ND = 0

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	NA
Sample Matrix:	Surface Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg/L
Lab Code:	EQ1500676-01	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/15 20:15
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/24/15
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P601768	**Blank File Name:**	P601768
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P601764

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	1.14	5.00			1
1,2,3,7,8-PeCDD	ND	U	1.12	25.0			1
1,2,3,4,7,8-HxCDD	ND	U	0.718	25.0			1
1,2,3,6,7,8-HxCDD	ND	U	0.770	25.0			1
1,2,3,7,8,9-HxCDD	ND	U	0.672	25.0			1
1,2,3,4,6,7,8-HpCDD	2.13**JK**		0.541	25.0	0.69	1.000	1
OCDD	6.88**J**		0.688	50.0	0.77	1.000	1
2,3,7,8-TCDF	ND	U	1.45	5.00			1
1,2,3,7,8-PeCDF	ND	U	0.859	25.0			1
2,3,4,7,8-PeCDF	ND	U	0.813	25.0			1
1,2,3,4,7,8-HxCDF	0.977**J**		0.293	25.0	1.07	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.285	25.0			1
1,2,3,7,8,9-HxCDF	1.50**JK**		0.298	25.0	1.63	1.001	1
2,3,4,6,7,8-HxCDF	0.598**JK**		0.284	25.0	0.83	1.000	1
1,2,3,4,6,7,8-HpCDF	2.17**J**		0.397	25.0	1.19	1.000	1
1,2,3,4,7,8,9-HpCDF	1.56**JK**		0.391	25.0	0.72	1.000	1
OCDF	2.86**JK**		1.15	50.0	0.60	1.004	1

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	NA
Sample Matrix:	Surface Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg/L
Lab Code:	EQ1500676-01	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/15 20:15
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/24/15
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P601768	**Blank File Name:**	P601768
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P601764

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	1.14	5.00			1
Total Penta-Dioxins	1.89**J**		1.12	25.0	1.67		1
Total Hexa-Dioxins	ND	U	0.718	25.0			1
Total Hepta-Dioxins	2.77**J**		0.541	25.0	1.05		1
Total Tetra-Furans	ND	U	1.45	5.00			1
Total Penta-Furans	ND	U	0.836	25.0			1
Total Hexa-Furans	0.977**J**		0.289	25.0	1.07		1
Total Hepta-Furans	2.17**J**		0.393	25.0	1.19		1

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	NA
Sample Matrix:	Surface Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1500676-01	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/01/15 20:15
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/24/15
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P601768	**Blank File Name:**	P601768
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P601764

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1018.671	51		25-164	0.77	1.021
13C-1,2,3,7,8-PeCDD	2000	1121.656	56		25-181	1.64	1.190
13C-1,2,3,4,7,8-HxCDD	2000	1490.500	75		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1562.905	78		28-130	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1411.839	71		23-140	1.06	1.067
13C-OCDD	4000	2482.368	62		17-157	0.90	1.140
13C-2,3,7,8-TCDF	2000	1281.123	64		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1234.724	62		24-185	1.56	1.147
13C-2,3,4,7,8-PeCDF	2000	1295.088	65		21-178	1.58	1.180
13C-1,2,3,4,7,8-HxCDF	2000	1512.069	76		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1564.255	78		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1677.656	84		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1545.094	77		28-136	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1293.241	65		28-143	0.43	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1394.574	70		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	459.270	57		35-197	NA	1.022

Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Analyzed:**	12/02/15
Sample Matrix:	Surface Water	**Date Extracted:**	11/24/15

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	pg/L
Prep Method:	Method Sep Funnel/Jar	**Basis:**	NA
		Analysis Lot:	475139

Lab Control Sample
EQ1500676-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	949	1000	95	70-140
1,2,3,4,7,8-HxCDD	1050	1000	105	70-164
1,2,3,6,7,8-HxCDD	1030	1000	103	76-134
1,2,3,7,8,9-HxCDD	1010	1000	101	64-162
1,2,3,7,8-PeCDD	1140	1000	114	70-142
2,3,7,8-TCDD	212	200	106	67-158
OCDD	1980	2000	99	78-144
1,2,3,4,6,7,8-HpCDF	932	1000	93	82-122
1,2,3,4,7,8,9-HpCDF	916	1000	92	78-138
1,2,3,4,7,8-HxCDF	967	1000	97	72-134
1,2,3,6,7,8-HxCDF	924	1000	92	84-130
1,2,3,7,8,9-HxCDF	930	1000	93	78-130
1,2,3,7,8-PeCDF	940	1000	94	80-134
2,3,4,6,7,8-HxCDF	938	1000	94	70-156
2,3,4,7,8-PeCDF	1000	1000	100	68-160
2,3,7,8-TCDF	199	200	99	75-158
OCDF	2120	2000	106	63-170

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	NA
Sample Matrix:	Surface Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg/L
Lab Code:	EQ1500676-02	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/15 03:37
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/24/15
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P601777	**Blank File Name:**	P601768
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P601764

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	212		1.01	5.00	0.76	1.001	1
1,2,3,7,8-PeCDD	1140		1.03	25.0	1.59	1.001	1
1,2,3,4,7,8-HxCDD	1050		0.633	25.0	1.24	1.000	1
1,2,3,6,7,8-HxCDD	1030		0.657	25.0	1.22	1.000	1
1,2,3,7,8,9-HxCDD	1010		0.583	25.0	1.24	1.007	1
1,2,3,4,6,7,8-HpCDD	949		0.421	25.0	1.01	1.000	1
OCDD	1980		1.08	50.0	0.88	1.000	1
2,3,7,8-TCDF	199		1.23	5.00	0.75	1.001	1
1,2,3,7,8-PeCDF	940		0.983	25.0	1.56	1.001	1
2,3,4,7,8-PeCDF	1000		1.03	25.0	1.55	1.000	1
1,2,3,4,7,8-HxCDF	967		0.517	25.0	1.23	1.000	1
1,2,3,6,7,8-HxCDF	924		0.498	25.0	1.23	1.000	1
1,2,3,7,8,9-HxCDF	930		0.562	25.0	1.23	1.000	1
2,3,4,6,7,8-HxCDF	938		0.528	25.0	1.21	1.000	1
1,2,3,4,6,7,8-HpCDF	932		1.50	25.0	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	916		1.59	25.0	1.02	1.000	1
OCDF	2120		1.21	50.0	0.89	1.005	1

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	NA
Sample Matrix:	Surface Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg/L
Lab Code:	EQ1500676-02	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/15 03:37
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/24/15
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P601777	**Blank File Name:**	P601768
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P601764

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	212		1.01	5.00	0.76		1
Total Penta-Dioxins	1140		1.03	25.0	1.59		1
Total Hexa-Dioxins	3080		0.623	25.0	1.24		1
Total Hepta-Dioxins	954		0.421	25.0	1.03		1
Total Tetra-Furans	199		1.23	5.00	0.75		1
Total Penta-Furans	1940		1.01	25.0	1.56		1
Total Hexa-Furans	3760		0.525	25.0	1.23		1
Total Hepta-Furans	1850		1.54	25.0	1.01		1

Client:	TRC Environmental Corporation	**Service Request:**	J1508875
Project:	Domtar Welch Creek/218188.0000.0000	**Date Collected:**	NA
Sample Matrix:	Surface Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1500676-02	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	12/02/15 03:37
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/24/15
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P601777	**Blank File Name:**	P601768
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P601764

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1046.553	52		25-164	0.77	1.022
13C-1,2,3,7,8-PeCDD	2000	1157.297	58		25-181	1.61	1.190
13C-1,2,3,4,7,8-HxCDD	2000	1654.128	83		32-141	1.31	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1780.887	89		28-130	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1598.605	80		23-140	1.06	1.067
13C-OCDD	4000	2815.212	70		17-157	0.91	1.140
13C-2,3,7,8-TCDF	2000	1276.422	64		24-169	0.80	0.992
13C-1,2,3,7,8-PeCDF	2000	1289.626	64		24-185	1.54	1.147
13C-2,3,4,7,8-PeCDF	2000	1278.143	64		21-178	1.57	1.181
13C-1,2,3,4,7,8-HxCDF	2000	1676.069	84		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1746.148	87		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1700.228	85		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1680.386	84		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1444.391	72		28-143	0.43	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1565.297	78		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	434.634	54		35-197	NA	1.022

Fish Tissue

Laboratory Data Quality Review Notes

Project Name: Domtar-Plymouth 2015 Welch Creek Fish Tissue Samples

Project Number: 228188.0000.0000

Lab Report: E1500743

Chain of Custody: Signed.

Sample Temperature: Samples arrived at lab frozen as required.

Hold Time: OK. Samples prepared for analysis within 4 months of collection. Analyses performed <35 days after extraction.

Surrogates: Recoveries of isotopically labelled compounds were within QC limits except as follows:

- ^{13}C-1,2,3,4,7,8,9-HpCDF recovery in PLY-06-15 MT3/MT6 LB-Fillet was below the lower QC Limit but >10%. 1,2,3,4,7,8,9-HpCDF was not detected in PLY-06-15 MT3/MT6 LB-Fillet. **1,2,3,4,7,8,9-HpCDF in PLY-06-15 MT3/MT6 LB-Fillet is assigned a "uj" qualifier.**
- ^{13}C-OCDD recovery in PLY-14-15 MT8/GT19 CC-Fillet was below the lower QC Limit but >10%. OCDD was detected in PLY-14-15 MT8/GT19 CC-Fillet. **OCDD in PLY-14-15 MT8/GT19 CC-Fillet is assigned a "j" qualifier.**
- ^{13}C-1,2,3,4,6,7,8-HpCDF recovery in PLY-14-15 MT8/GT19 CC-Fillet was below the lower QC Limit but >10%. 1,2,3,4,6,7,8-HpCDF was detected in PLY-14-15 MT8/GT19 CC-Fillet. **1,2,3,4,6,7,8-HpCDF in PLY-14-15 MT8/GT19 CC-Fillet is assigned a "j" qualifier.**
- ^{13}C-1,2,3,4,7,8,9-HpCDF recovery in PLY-14-15 MT8/GT19 CC-Fillet was 10%. 1,2,3,4,7,8,9-HpCDF was not detected in PLY-14-15 MT8/GT19 CC-Fillet. **1,2,3,4,7,8,9-HpCDF in PLY-14-15 MT8/GT19 CC-Fillet is assigned a "uj" qualifier.**

Method Blank(s): The method blank for QC batch EQ1500471, which is associated with LIMS IDs EQ1500471-001 through -020, contains OCDD at 1.37 J ng/kg and 1,2,3,4,6,7,8-HpCDD at 0.542 J ng/kg. All twenty samples have OCDD detections, but at concentrations >10X the blank concentrations. All twenty samples have 1,2,3,4,6,7,8-HpCDD detections, but at concentrations >5X the blank concentrations. No qualifiers are assigned.

The method blank for QC batch EQ1500484, which is associated with LIMS IDs EQ1500471-021 through -024, contains OCDD at 0.300 J ng/kg, 1,2,3,4,7,8-HxCDF at 0.0312 J ng/kg, and 1,2,3,7,8,9-HxCDF at 0.0226 J ng/kg. All four associated samples have OCDD detections, but at concentrations >10X the blank concentrations. All four

associated samples are non-detect for both 1,2,3,4,7,8-HxCDF and 1,2,3,7,8,9-HxCDF. No qualifiers are assigned.

Trip Blank(s): Not applicable.

Field Blank(s): None collected.

Equipment Rinse Blank(s): None collected.

LCS/LCSD: LCS recoveries, LCSD recoveries, and LCS/LCSD RPDs were within QC limits except as follows:

- Low recovery of 1,2,3,7,8,9-HxCDF occurs in LCS and LCSD in QC batch EQ1500471. High recovery of 1,2,3,4,6,7,8-HpCDF occurs in LCS and LCSD in QC batch EQ1500471. QC batch EQ1500471 is associated with samples having LIMS IDs EQ1500471-001 through EQ1500471-020.
  - **The detection of 1,2,3,7,8,9-HxCDF in the following sample is assigned a "j" qualifier: PLY-04-15 MT3/MT6 BG-Fillet.**
  - **The following samples with non-detect results for 1,2,3,7,8,9-HxCDF are assigned a "uj" qualifier: PLY-01-15 MT1/MT2 BG-Carcass, PLY-01-15 MT1/MT2 BG-Fillet, PLY-02-15 MT1/MT2 LB-Carcass, PLY-02-15 MT1/MT2 LB-Fillet, PLY-03-15 MT1/MT2 YB-Fillet, PLY-04-15 MT3/MT6 BG-Carcass, PLY-05-15 MT3/MT6 BG-Carcass, PLY-05-15 MT3/MT6 BG-Fillet, PLY-06-15 MT3/MT6 LB-Carcass, PLY-06-15 MT3/MT6 LB-Fillet, PLY-07-15 MT3/MT6 YB-Fillet, PLY-08-15 MT7/MT8 BG-Carcass, PLY-08-15 MT7/MT8 BG-Fillet, PLY-09-15 MT7/MT8 BG-Carcass, PLY-09-15 MT7/MT8 BG-Fillet, PLY-10-15 MT7/MT8 LB-Carcass, PLY-10-15 MT7/MT8 LB-Fillet, PLY-11-15 MT7/MT8 YB-Fillet, PLY-12-15 MT8/GT19 BG-Carcass**
  - **Detections of 1,2,3,4,6,7,8-HpCDF in the following samples associated with QC batch EQ1500471 are assigned a "j" qualifier: PLY-01-15 MT1/MT2 BG-Carcass, PLY-01-15 MT1/MT2 BG-Fillet, PLY-02-15 MT1/MT2 LB-Carcass, PLY-02-15 MT1/MT2 LB-Fillet, PLY-03-15 MT1/MT2 YB-Fillet, PLY-04-15 MT3/MT6 BG-Carcass, PLY-04-15 MT3/MT6 BG-Fillet, PLY-05-15 MT3/MT6 BG-Carcass, PLY-05-15 MT3/MT6 BG-Fillet, PLY-06-15 MT3/MT6 LB-Carcass, PLY-07-15 MT3/MT6 YB-Fillet, PLY-08-15 MT7/MT8 BG-Carcass, PLY-08-15 MT7/MT8 BG-Fillet, PLY-09-15 MT7/MT8 BG-Carcass, PLY-09-15 MT7/MT8 BG-Fillet, PLY-10-15 MT7/MT8 LB-Carcass, PLY-10-15 MT7/MT8 LB-Fillet, PLY-11-15 MT7/MT8 YB-Fillet, PLY-12-15 MT8/GT19 BG-Carcass**
  - The reported detection of 1,2,3,4,6,7,8-HpCDF in sample PLY-06-15 MT3/MT6 LB-Fillet is not assigned a "j" flag because it is assigned a "u" flag in the "Other" section of these Review Notes.

MS/MSD: None performed.

Duplicates: None collected.

Other: Laboratory assigned “K” flags indicate an EMPC result which does not meet acceptance criteria.
All “K” flagged results are assigned a “u” flag. See the accompanying Table A for a matrix of “u” flags assigned to “K”-flagged results.

Data review performed by: Terry Hertz; 9/3/2015

Project name and sample type description — Domtar - Welch Creek Fish Tissue

Lab Report # — Lab Report E1500743 — Samples collected April-May 2015

Project # — 228188.0000.0000

Table A

Laboratory "K" flagged data that are assigned a "u" flag designating an unvalidated detection

E1500743-0##	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Sample ID	PLY-01-15 MT1/MT2 BG-Carcass	PLY-01-15 MT1/MT2 BG-Fillet	PLY-02-15 MT1/MT2 LB-Carcass	PLY-02-15 MT1/MT2 LB-Fillet	PLY-03-15 MT1/MT2 YB-Fillet	PLY-04-15 MT3/MT6 BG-Carcass	PLY-04-15 MT3/MT6 BG-Fillet	PLY-05-15 MT3/MT6 BG-Carcass	PLY-05-15 MT3/MT6 BG-Fillet	PLY-06-15 MT3/MT6 LB-Carcass	PLY-06-15 MT3/MT6 LB-Fillet	PLY-07-15 MT3/MT6 YB-Fillet	PLY-08-15 MT7/MT8 BG-Carcass	PLY-08-15 MT7/MT8 BG-Fillet	PLY-09-15 MT7/MT8 BG-Carcass	PLY-09-15 MT7/MT8 BG-Fillet	PLY-10-15 MT7/MT8 LB-Carcass	PLY-10-15 MT7/MT8 LB-Fillet	PLY-11-15 MT7/MT8 YB-Fillet	PLY-12-15 MT8/GT19 BG-Carcass	PLY-12-15 MT8/GT19 BG-Fillet	PLY-13-15 MT8/GT19 LB-Carcass	PLY-13-15 MT8/GT19 LB-Fillet	PLY-14-15 MT8/GT19 CC-Fillet
2,3,7,8-TCDD					u				u		u			u							u			
1,2,3,7,8-PeCDD																				u	u	u		
1,2,3,4,7,8-HxCDD													u		u						u			
1,2,3,6,7,8-HxCDD			u			u			u	u			u			u						u		
1,2,3,7,8,9-HxCDD	u								u	u					u									
1,2,3,4,6,7,8-HpCDD																								
OCDD																								
2,3,7,8-TCDF				u										u									u	
1,2,3,7,8-PeCDF																								
2,3,4,7,8-PeCDF												u							u	u				u
1,2,3,4,7,8-HxCDF						u														u				
1,2,3,6,7,8-HxCDF							u								u									u
1,2,3,7,8,9-HxCDF																								
2,3,4,6,7,8-HxCDF						u	u				u		u						u			u		
1,2,3,4,6,7,8-HpCDF											u													
1,2,3,4,7,8,9-HpCDF												u							u					
OCDF																								

August 31, 2015 Service Request No:E1500743

Linda Belanger
Domtar Paper Company LLC
395 de Maisonneuve Blvd West
Montreal, QC H3A 1L6

Laboratory Results for: Plymouth - 2015 Fish Tissue Samples

Dear Linda,

Enclosed are the results of the sample(s) submitted to our laboratory July 30, 2015
For your reference, these analyses have been assigned our service request number **E1500743.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My extension is 2279. You may also contact me via email at Arthi.Kodur@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Arthi Kodur
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 713 266 1599 | FAX +1 713 266 0130
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
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www.alsglobal.com

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ALS ENVIRONMENTAL

Client:	Domtar Industries, LLC (Plymouth)	**Service Request No.:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples Welch Creek Monitoring	**Date Received:**	7/30/15
Sample Matrix:	Tissue		

ALS ENVIRONMENTAL NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Twenty four tissue samples were received for analysis at ALS Environmental – Houston HRMS on 7/30/15.

The samples were received at -33.8°C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a freezer at -20°C upon receipt at the laboratory.

The following discrepancies were also noted upon initial sample inspection: no custody seals on cooler. The exceptions are also noted on the cooler receipt and preservation form included in this data package

Sample Composite

All samples were composited as ALS-Houston HRMS per client instructions. Additional aliquots of samples were created for pending mercury test by 1631.

Data Validation Notes and Discussion

Method Blank

The Method Blank EQ1500471-01 contained low levels of various analytes above the EDL, but below the Method Reporting Limit (MRL).

The Method Blank EQ1500484-01 contained low levels of various analytes above the EDL, but below the Method Reporting Limit (MRL).

The associated compounds in the samples are flagged with ‘B’ flags.

MS/MSD

EQ1500471: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/DMS for this extraction batch. 1234678-HpCDF and 123789-HxCDF were outside the control limits.

EQ1500484: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/DMS for this extraction batch. The batch quality control criteria were met.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions were sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Y flags – Labeled Standards

Samples that had recoveries of labeled standards outside the acceptance limits are flagged with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1, making these data acceptable.

Sample E1500743-024 had low labeled standards.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

The TEQ Summary results for each sample have been calculated by ALS ENVIRONMENTAL/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur

irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Client: Domtar Industries, LLC (Plymouth) **Service Request:**E1500743
Project: Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1500743-001	PLY-01-15 MT1/MT2 BG-Carcass	4/30/2015	0000
E1500743-002	PLY-01-15 MT1/MT2 BG-Fillet	4/30/2015	0000
E1500743-003	PLY-02-15 MT1/MT2 LB-Carcass	5/4/2015	0000
E1500743-004	PLY-02-15 MT1/MT2 LB-Fillet	5/4/2015	0000
E1500743-005	PLY-03-15 MT1/MT2 YB-Fillet	5/5/2015	0000
E1500743-006	PLY-04-15 MT3/MT6 BG-Carcass	4/29/2015	0000
E1500743-007	PLY-04-15 MT3/MT6 BG-Fillet	4/29/2015	0000
E1500743-008	PLY-05-15 MT3/MT6 BG-Carcass	4/30/2015	0000
E1500743-009	PLY-05-15 MT3/MT6 BG-Fillet	4/30/2015	0000
E1500743-010	PLY-06-15 MT3/MT6 LB-Carcass	4/30/2015	0000
E1500743-011	PLY-06-15 MT3/MT6 LB-Fillet	4/30/2015	0000
E1500743-012	PLY-07-15 MT3/MT6 YB-Fillet	5/7/2015	0000
E1500743-013	PLY-08-15 MT7/MT8 BG-Carcass	5/4/2015	0000
E1500743-014	PLY-08-15 MT7/MT8 BG-Fillet	5/4/2015	0000
E1500743-015	PLY-09-15 MT7/MT8 BG-Carcass	5/5/2015	0000
E1500743-016	PLY-09-15 MT7/MT8 BG-Fillet	5/5/2015	0000
E1500743-017	PLY-10-15 MT7/MT8 LB-Carcass	5/4/2015	0000
E1500743-018	PLY-10-15 MT7/MT8 LB-Fillet	5/4/2015	0000
E1500743-019	PLY-11-15 MT7/MT8 YB-Fillet	5/14/2015	0000
E1500743-020	PLY-12-15 MT8/GT19 BG-Carcass	5/4/2015	0000
E1500743-021	PLY-12-15 MT8/GT19 BG-Fillet	5/4/2015	0000
E1500743-022	PLY-13-15 MT8/GT19 LB-Carcass	5/5/2015	0000
E1500743-023	PLY-13-15 MT8/GT19 LB-Fillet	5/5/2015	0000
E1500743-024	PLY-14-15 MT8/GT19 CC-Fillet	5/14/2015	0000

Folder #: **E1500743**
Client Name: Domtar Industries, LLC (Plymouth)
Project Name: Plymouth - 2015 Fish Tissue Samples
Project Number: Welch Creek Monitoring

Report To: Linda Belanger
Domtar Paper Company LLC
395 de Maisonneuve Blvd West
Montreal, QC H3A 1L6
CANADA
Phone Number: 514-848-5555
Cell Number:
Fax Number: 514-848-6558
E-mail: linda.belanger@domtar.com

Project Chemist: Arthi Kodur
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 07/30/15
Internal Due Date: 8/27/2015
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N
Report to MDL?: N, Y
P.O. Number:
EDD: BASIC_WQC

53 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
16 32 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-Freezer2D, EHRMS-WIC 10A
Pressure Gas:
NPDES

				KELSO	HOUSTON		
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Hg LL T/1631app	Dioxins Furans/1613B	LIPIDS/Lipids	TS Frz Dry/ALS SOP
E1500743-001	PLY-01-15 MT1/MT2 BG-Carcass	Animal Tissue	04/30/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-002	PLY-01-15 MT1/MT2 BG-Fillet	Animal Tissue	04/30/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-003	PLY-02-15 MT1/MT2 LB-Carcass	Animal Tissue	05/04/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-004	PLY-02-15 MT1/MT2 LB-Fillet	Animal Tissue	05/04/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-005	PLY-03-15 MT1/MT2 YB-Fillet	Animal Tissue	05/05/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-006	PLY-04-15 MT3/MT6 BG-Carcass	Animal Tissue	04/29/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-007	PLY-04-15 MT3/MT6 BG-Fillet	Animal Tissue	04/29/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-008	PLY-05-15 MT3/MT6 BG-Carcass	Animal Tissue	04/30/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-009	PLY-05-15 MT3/MT6 BG-Fillet	Animal Tissue	04/30/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-010	PLY-06-15 MT3/MT6 LB-Carcass	Animal Tissue	04/30/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-011	PLY-06-15 MT3/MT6 LB-Fillet	Animal Tissue	04/30/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-012	PLY-07-15 MT3/MT6 YB-Fillet	Animal Tissue	05/07/15 0000	**IV**	**IV**	**IV**	**IV**

Folder #: **E1500743**
Client Name: Domtar Industries, LLC (Plymouth)
Project Name: Plymouth - 2015 Fish Tissue Samples
Project Number: Welch Creek Monitoring

Report To: Linda Belanger
Domtar Paper Company LLC
395 de Maisonneuve Blvd West
Montreal, QC H3A 1L6
CANADA
Phone Number: 514-848-5555
Cell Number:
Fax Number: 514-848-6558
E-mail: linda.belanger@domtar.com

Project Chemist: Arthi Kodur
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 07/30/15
Internal Due Date: 8/27/2015
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: N
Report to MDL?: N, Y
P.O. Number:
EDD: BASIC_WQC

53 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
16 32 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: EHRMS-Freezer2D, EHRMS-WIC 10A
Pressure Gas:
NPDES

				KELSO	HOUSTON		
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**	Hg LL T/1631app	Dioxins Furans/1613B	LIPIDS/Lipids	TS Frz Dry/ALS SOP
E1500743-013	PLY-08-15 MT7/MT8 BG-Carcass	Animal Tissue	05/04/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-014	PLY-08-15 MT7/MT8 BG-Fillet	Animal Tissue	05/04/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-015	PLY-09-15 MT7/MT8 BG-Carcass	Animal Tissue	05/05/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-016	PLY-09-15 MT7/MT8 BG-Fillet	Animal Tissue	05/05/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-017	PLY-10-15 MT7/MT8 LB-Carcass	Animal Tissue	05/04/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-018	PLY-10-15 MT7/MT8 LB-Fillet	Animal Tissue	05/04/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-019	PLY-11-15 MT7/MT8 YB-Fillet	Animal Tissue	05/14/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-020	PLY-12-15 MT8/GT19 BG-Carcass	Animal Tissue	05/04/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-021	PLY-12-15 MT8/GT19 BG-Fillet	Animal Tissue	05/04/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-022	PLY-13-15 MT8/GT19 LB-Carcass	Animal Tissue	05/05/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-023	PLY-13-15 MT8/GT19 LB-Fillet	Animal Tissue	05/05/15 0000	**IV**	**IV**	**IV**	**IV**
E1500743-024	PLY-14-15 MT8/GT19 CC-Fillet	Animal Tissue	05/14/15 0000	**IV**	**IV**	**IV**	**IV**

Folder #:	**E1500743**
Client Name:	Domtar Industries, LLC (Plymouth)
Project Name:	Plymouth - 2015 Fish Tissue Samples
Project Number:	Welch Creek Monitoring
Report To:	Linda Belanger Domtar Paper Company LLC 395 de Maisonneuve Blvd West Montreal, QC H3A 1L6 CANADA
Phone Number:	514-848-5555
Cell Number:	
Fax Number:	514-848-6558
E-mail:	linda.belanger@domtar.com

Project Chemist:	Arthi Kodur
Originating Lab:	HOUSTON
Logged By:	ALOPEZ
Date Received:	07/30/15
Internal Due Date:	8/27/2015
QAP:	LAB QAP
Qualifier Set:	HRMS Qualifier Set
Formset:	Lab Standard
Merged?:	N
Report to MDL?:	N, Y
P.O. Number:	
EDD:	BASIC_WQC

53 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
16 32 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-Freezer2D, EHRMS-WIC 10A

Pressure Gas:

NPDES

Folder #:	**E1500743**
Client Name:	Domtar Industries, LLC (Plymouth)
Project Name:	Plymouth - 2015 Fish Tissue Samples
Project Number:	Welch Creek Monitoring

Report To: Linda Belanger
Domtar Paper Company LLC
395 de Maisonneuve Blvd West
Montreal, QC H3A 1L6
CANADA

Phone Number:	514-848-5555
Cell Number:	
Fax Number:	514-848-6558
E-mail:	linda.belanger@domtar.com

Project Chemist:	Arthi Kodur
Originating Lab:	HOUSTON
Logged By:	ALOPEZ
Date Received:	07/30/15
Internal Due Date:	8/27/2015
QAP:	LAB QAP
Qualifier Set:	HRMS Qualifier Set
Formset:	Lab Standard
Merged?:	N
Report to MDL?:	N, Y
P.O. Number:	
EDD:	BASIC_WQC

53 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
16 32 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-Freezer2D, EHRMS-WIC 10A

Pressure Gas:

NPDES

Test Comments:

Group	Test/Method	Samples	Comments
Metals	Hg LL T/1631app	24	full list (ak 7/30/15)
Semivoa GCMS	Dioxins Furans/1613B	24	full list (ak 7/30/15)
Semivoa GCMS	TS Frz Dry/ALS SOP	24	full list (ak 7/30/15)
Semivoa GCMS	LIPIDS/Lipids	24	full list (ak 7/30/15)
SMO	Composite/Composite	24	full list (ak 7/30/15)

Superset Summary

Service Request: E1500743 **SuperSet Reference:** 15-0000340839 rev 00

Analytical Method: **1613B**

Calibrations: 08/19/15

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P600126	P600116	P600058	E1500743-019
P600127	P600116	P600058	E1500743-020
P600058	P600055	P600058	EQ1500471-01
P600104	P600103	P600104	EQ1500484-01

Calibrations: 08/21/15

Data Files:

Raw Data	Begin CCAL	Method Blank	Lab ID
P301057	P301051	P600058	E1500743-001
P301058	P301051	P600058	E1500743-002
P301059	P301051	P600058	E1500743-003
P301060	P301051	P600058	E1500743-004
P301061	P301051	P600058	E1500743-005
P301062	P301051	P600058	E1500743-006
P301068	P301064	P600058	E1500743-007
P301069	P301064	P600058	E1500743-008
P301070	P301064	P600058	E1500743-009
P301071	P301064	P600058	E1500743-010
P301072	P301064	P600058	E1500743-011
P301073	P301064	P600058	E1500743-012
P301074	P301064	P600058	E1500743-013
P301075	P301064	P600058	E1500743-014
P301076	P301064	P600058	E1500743-015
P301077	P301064	P600058	E1500743-016
P301081	P301078	P600058	E1500743-017
P301082	P301078	P600058	E1500743-018
P301041	P301038	P600104	E1500743-021
P301042	P301038	P600104	E1500743-022
P301043	P301038	P600104	E1500743-023
P301044	P301038	P600104	E1500743-024
P301095	P301091	P600058	EQ1500471-02
P301096	P301091	P600058	EQ1500471-03
P301088	P301078	P600104	EQ1500484-02
P301089	P301078	P600104	EQ1500484-03

Data Qualifiers

HRMS Qualifier Set

B Indicates the associated analyte was found in the method blank at >1/10th the reported value.

E Estimated value. The reported concentration is above the calibration range of the instrument.

H Sample extracted and/or analyzed out of suggested holding time.

J Estimated value. The reported concentration is below the MRL.

K The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits. Reported concentration is a conservative estimate, however EMPC correction was not applied.

P Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.

Q Monitored lock-mass indicates matrix-interference. Reported result is estimated.

S Signal saturated detector. Result reported from dilution.

U Compound was analyzed for, but was not detected (ND).

X See Case Narrative.

Y Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.

i The MDL/MRL have been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01	11/30/2015
Arizona Department of Health Services	AZ0793	5/27/2016
Arkansas Department of Environmental Quality	14-038-0	6/16/2016
California Department of Health Services	2452	2/28/2017
Florida Department of Health	E87611	6/30/2016
Illinois Environmental Protection Agency	200057	10/6/2015
Kansas Department of Health and Environment	E-10406	1/31/2016
Louisiana Department of Environmental Quality	03048	6/30/2016
Louisiana Department of Health and Hospitals	LA150026	12/31/2015
Maine Center for Disease Control and Prevention	2014019	6/5/2016
Maryland Department of the Environment	343	6/30/2016
Michigan Depratment of Environmental Quality	9971	6/30/2016
Minnesota Department of Health	840911	12/31/2015
Nebraska Department of Health and Human Services	NE-OS-25-13	6/30/2016
New Mexico Environment Department	TX02694	6/30/2016
New York Department of Health	11707	4/1/2016
Oregon Environmental Laboratory Accreditation Program	TX200002	3/24/2016
Pennsylvania Department of Environmental Protection	68-03441	6/30/2016
Texas Commision on Environmental Quality	TX104704216-14-5	6/30/2016
United States Department of Agriculture	P330-14-00067	2/21/2017
Washington Department of Health	c819	11/14/2015
West Virginia Department of Environmental Protection	347	6/30/2016

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1500743 DB-5MSUI SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date: 08/28/15 Analyst: [illegible] Samples: 001-006

Second Level - Data Review – to be filled by person doing peer review

Date: 08/31/15 Analyst: [illegible] Samples: 001-006

ALS ENVIRONMENTAL – Houston

Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1500743 DB-5 DB-5MSUI DB-225 SPB-Octyl

First Level – Data Processing – to be filled by person generating the forms

Date:	Analyst:	Samples:
08/28/15	TC	-007, -008, -009, -010, -011, -012, -013 -014, -015, -016

Second Level – Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
08/31/15	LKL	007 – 016

PEER REVIEW PAGE

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1500743 DB-5MSUI SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date: 08/31/15 Analyst: [illegible] Samples: 017, 018

Second Level - Data Review – to be filled by person doing peer review

Date: 08/31/15 Analyst: [illegible] Samples: 017, 018

ALS ENVIRONMENTAL – Houston

Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1500743 DB-5 DB-5MSU DB-225 SPB-Octyl

First Level – Data Processing – to be filled by person generating the forms

Date:	Analyst:	Samples:
08/26/15	JC	-019, -020

Second Level – Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
08/26/15	LKL	019, 020

PEER REVIEW PAGE

ALS ENVIRONMENTAL – Houston

Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1500743 DB-5 DB-5MSUI DB-225 SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
08/27/15	JC	-021, -022, -023, -024

Second Level - Data Review - to be filled by person doing peer review

Date:	Analyst:	Samples:
08/28/15	LKL	021-024

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental-HRMS

Attn: Ms. Arthi Kodur
10450 Stancliff Road, Suite 210 Houston, TX 77099
DIRECT (281) 994-2959 or (713) 266-1599 FAX (713) 266-0130

CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM

Project: Plymouth - 2015 Fish Tissue Samples For Welch Creek Monitoring

Project Manager: Domtar - Linda Belanger **Sampler:** CZR Inc. - Sam Cooper / Randy Pulley

Company/Address: CZR 4709 College Acres Drive, Suite 2 **Phone:** (910) 392 - 9253

City, State, Zip: Wilmington, NC 28403 **Email:** linda.belanger@domtar.com; mhays@trcsolutions.com; rpulley@czr-inc.com

Results To: Linda Belanger **cc:** Michelle Hays, Randy Pulley

Sample I.D.	Dates	Time			Sample Matrix		Number of Containers/Zip-Lock Bags	Dioxin - Full Screen Congeners - EPA Method 1613B	Mercury - EPA Method 1631 (Possibly at a later date)	Percent (%) Lipid	Percent (%) Moisture		REMARKS
								Analysis Requested					
PLY-01-15 MT1/MT2 BG - Carcass	29, 30 April	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - carcass
PLY-01-15 MT1/MT2 BG - Fillet	29, 30 April	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - fillet
PLY-02-15 MT1/MT2 LB - Carcass	29, 30 April; 4 May	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - carcass
PLY-02-15 MT1/MT2 LB - Fillet	29, 30 April; 4 May	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - fillet
PLY-03-15 MT1/MT2 YB - Fillet	5 May	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		2 Fish - fillet
PLY-04-15 MT3/MT6 BG - Carcass	29 April	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - carcass
PLY-04-15 MT3/MT6 BG - Fillet	29 April	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - fillet
PLY-05-15 MT3/MT6 BG - Carcass	29, 30 April	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - carcass
PLY-05-15 MT3/MT6 BG - Fillet	29, 30 April	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - fillet
PLY-06-15 MT3/MT6 LB - Carcass	29, 30 April	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - carcass
PLY-06-15 MT3/MT6 LB - Fillet	29, 30 April	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - fillet

TURNAROUND TIME

____ 72 hr ____ One week
_X_ Standard (21 days hardcopy and digital results)

QC-LEVEL NEEDED

____ I. Results, method blank, labeled std. rec.
____ II. QC Summary Reports: reports batch QC
_X_ IV. Data Validation Report (Includes raw data)

Comments/Special Instructions:

1. Expected dioxin (2,3,7,8 - TCDD) <10ppt, report limits <1ppt fresh weight.
2. Archive remaining samples for 3 years - required.
3. Retain an extra aliquot (duplicate) of fish tissue for posible mercury testing. A decision will be made as to the mercury analysis in the next couple of months.
4. Samples are in two 48 qt. coolers.
   Blue Coleman 48 qt. (Cooler 1) - samples 1 through 9 (Carcass and fillet)
   White Igloo Marine 48 qt. (Cooler 2) - samples 10 through 14 (Carcass and fillet)
5. Carcasses are missing right fillet.

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Randall Lee Pulley	Signature: [signature]	Signature:	Signature:
Printed Name: Randall Lee Pulley	Printed Name: Andrew Lopez	Printed Name:	Printed Name:
Firm: CZR Incorporated	Firm: ALS HRMS	Firm:	Firm:
Date/Time: 7/29/15 1500	Date/Time: 7/30/15 910	Date/Time:	Date/Time:

E1500743 5
TRC Environmental Corporation
Plymouth - NPDES Fish Fillets

ALS Environmental-HRMS

Attn: Ms. Arthi Kodur
10450 Stancliff Road, Suite 210 Houston, TX 77099
DIRECT (281) 994-2959 or (713) 266-1599 FAX (713) 266-0130

CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM

Project: Plymouth - 2015 Fish Tissue Samples For Welch Creek Monitoring

Project Manager: Domtar - Linda Belanger **Sampler:** CZR Inc. - Sam Cooper / Randy Pulley

Company/Address: CZR 4709 College Acres Drive, Suite 2 **Phone:** (910) 392 - 9253

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Results To: Linda Belanger **cc:** Michelle Hays, Randy Pulley

Sample I.D.	Dates	Time			Sample Matrix		Number of Containers/Zip-Lock Bags	Analysis Requested: Dioxin - Full Screen Congeners - EPA Method 1613B	Mercury - EPA Method 1631 (Possibly at a later date)	Percent (%) Lipid	Percent (%) Moisture		REMARKS
PLY-07-15 MT3/MT6 YB - Fillet	6, 7 May	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - fillet
PLY-08-15 MT7/MT8 BG - Carcass	29, 30 April; 4 May	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - carcass
PLY-08-15 MT7/MT8 BG - Fillet	29, 30 April; 4 May	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - fillet
PLY-09-15 MT7/MT8 BG - Carcass	29, 30 April; 4, 5 May	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - carcass
PLY-09-15 MT7/MT8 BG - Fillet	29, 30 April; 4, 5 May	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - fillet
PLY-10-15 MT7/MT8 LB - Carcass	29, 30 April; 4 May	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - carcass
PLY-10-15 MT7/MT8 LB - Fillet	29, 30 April; 4 May	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - fillet
PLY-11-15 MT7/MT8 YB - Fillet	14 May	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		3 Fish - fillet
PLY-12-15 MT8/GT19 BG - Carcass	29, 30 April; 4 May	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - carcass
PLY-12-15 MT8/GT19 BG - Fillet	29, 30 April; 4 May	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - fillet
PLY-13-15 MT8/GT19 LB - Carcass	29, 30 April; 4, 5 May	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - carcass

TURNAROUND TIME

____ 72 hr ____ One week
_X_ Standard (21 days hardcopy and digital results)

QC-LEVEL NEEDED

____ I. Results, method blank, labeled std. rec.
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_X_ IV. Data Validation Report (Includes raw data)

Comments/Special Instructions:

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   Blue Coleman 48 qt. (Cooler 1) - samples 1 through 9 (Carcass and fillet)
   White Igloo Marine 48 qt. (Cooler 2) - samples 10 through 14 (Carcass and fillet)
5. Carcasses are missing right fillet.

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Randall Lee Pulley	Signature:	Signature:	Signature:
Printed Name: Randall Lee Pulley	Printed Name:	Printed Name:	Printed Name:
Firm: CZR Incorporated	Firm:	Firm:	Firm:
Date/Time: 7/29/15 1500	Date/Time: 7/30/15 910	Date/Time:	Date/Time:

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TRC Environmental Corporation
Plymouth - NPDES Fish Fillets

ALS Environmental-HRMS

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CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM

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Results To: Linda Belanger **cc:** Michelle Hays, Randy Pulley

Sample I.D.	Dates	Time			Sample Matrix		Number of Containers/Zip-Lock Bags	Analysis Requested: Dioxin - Full Screen Congeners - EPA Method 1613B	Mercury - EPA Method 1631 (Possibly at a later date)	Percent (%) Lipid	Percent (%) Moolsture		REMARKS
PLY-13-15 MT8/GT19 LB - Fillet	29, 30 April; 4, 5 May	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		5 Fish - fillet
PLY-14-15 MT8/GT19 CC - Fillet	6, 13, 14 May	N/A			FROZEN TISSUE		1	✓	✓	✓	✓		3 Fish - fillet
		N/A			FROZEN TISSUE								
		N/A			FROZEN TISSUE								
		N/A			FROZEN TISSUE								
		N/A			FROZEN TISSUE								
		N/A			FROZEN TISSUE								
		N/A			FROZEN TISSUE								
		N/A			FROZEN TISSUE								
		N/A			FROZEN TISSUE								
		N/A			FROZEN TISSUE								

TURNAROUND TIME

____ 72 hr ____ One week
X Standard (21 days hardcopy and digital results)

QC-LEVEL NEEDED

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X IV. Data Validation Report (Includes raw data)

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   White Igloo Marine 48 qt. (Cooler 2) - samples 10 through 14 (Carcass and fillet)
5. Carcasses are missing right fillet.

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Randall Lee Pulley	Signature: [signature]	Signature:	Signature:
Printed Name: Randall Lee Pulley	Printed Name:	Printed Name:	Printed Name:
Firm: CZR Incorporated	Firm:	Firm:	Firm:
Date/Time: 7/29/15 1500	Date/Time: 7/30/15 910	Date/Time:	Date/Time:

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TRC Environmental Corporation
Plymouth - NPDES Fish Fillets

ALS Environmental

Cooler Receipt Form

Project Chemist: AK

Client/Project: Domtar

Thermometer ID: SMO 4

Date/Time Received: 7/30/15 910 Initials: AL

Date/Time Logged in: 7/30/15 Initials: AL

1. Method of delivery: ○ US Mail ✓ Fed Ex ○ UPS ○ DHL ○ Courier ○ Client
2. Samples received in: ✓ Cooler ○ Box ○ Envelope ○ Other
3. Were custody seals on coolers? ○ Yes ✓ No
   Were they intact? ○ Yes ○ No ✓ N/A
   Were they signed and dated? ○ Yes ○ No ✓ N/A
   If yes, how many and where? No Seals
4. Packing Material: ○ Inserts ○ Baggies ○ Bubble Wrap ○ Gel Packs ○ Wet Ice ○ Sleeves ✓ Other Dry Ice/Packing Paper
5. Foreign or Regulated Soil? ○ Yes ✓ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
7810 6323 0040		7/30/15	917	AL	-34/-33.8	☐
8081 8521 3868		7/30/15	923	AL	-34/-33.8	☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ✓ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ○ No
10. Did sample labels and tags agree with custody documents? ✓ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label: E1500743 5
TRC Environmental Corporation
Plymouth - NPDES Fish Fillets

Effective 10/04/2013

ALS Environmental - Houston HRMS

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Preparation Information Benchsheet

Prep Run#: 241955 **Prep WorkFlow:** OrgExtT(365) **Status:** Prepped
Team: Semivoa GCMS/LMCCRINK **Prep Method:** Method Soxhlet **Prep Date/Time:** 8/6/15 09:40 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Sample Description
1	E1500743-001	PLY-01-15 MT1/MT2 BG-Carcass	.02	1613B/Dioxins Furans		Animal Tissue	10.349g	heterogeneous brown tissue paste
2	E1500743-002	PLY-01-15 MT1/MT2 BG-Fillet	.02	1613B/Dioxins Furans		Animal Tissue	10.249g	beigh tissue with gray skin
3	E1500743-003	PLY-02-15 MT1/MT2 LB-Carcass	.03	1613B/Dioxins Furans		Animal Tissue	10.237g	heterogeneous brown tissue paste
4	E1500743-004	PLY-02-15 MT1/MT2 LB-Fillet	.01	1613B/Dioxins Furans		Animal Tissue	10.283g	beigh tissue with gray skin
5	E1500743-005	PLY-03-15 MT1/MT2 YB-Fillet	.01	1613B/Dioxins Furans		Animal Tissue	10.154g	homogenous pink tissue mixture
6	E1500743-006	PLY-04-15 MT3/MT6 BG-Carcass	.02	1613B/Dioxins Furans		Animal Tissue	10.133g	heterogeneous brown tissue paste
7	E1500743-007	PLY-04-15 MT3/MT6 BG-Fillet	.01	1613B/Dioxins Furans		Animal Tissue	10.169g	beigh tissue with gray skin
8	E1500743-008	PLY-05-15 MT3/MT6 BG-Carcass	.01	1613B/Dioxins Furans		Animal Tissue	10.129g	heterogeneous brown tissue paste
9	E1500743-009	PLY-05-15 MT3/MT6 BG-Fillet	.02	1613B/Dioxins Furans		Animal Tissue	10.092g	beigh tissue with gray skin
10	E1500743-010	PLY-06-15 MT3/MT6 LB-Carcass	.03	1613B/Dioxins Furans		Animal Tissue	10.013g	heterogeneous brown tissue paste
11	E1500743-011	PLY-06-15 MT3/MT6 LB-Fillet	.02	1613B/Dioxins Furans		Animal Tissue	10.235g	beigh tissue with gray skin
12	E1500743-012	PLY-07-15 MT3/MT6 YB-Fillet	.02	1613B/Dioxins Furans		Animal Tissue	10.402g	homogenous pink tissue mixture
13	E1500743-013	PLY-08-15 MT7/MT8 BG-Carcass	.01	1613B/Dioxins Furans		Animal Tissue	10.105g	heterogeneous brown tissue paste
14	E1500743-014	PLY-08-15 MT7/MT8 BG-Fillet	.01	1613B/Dioxins Furans		Animal Tissue	10.259g	beigh tissue with gray skin
15	E1500743-015	PLY-09-15 MT7/MT8 BG-Carcass	.02	1613B/Dioxins Furans		Animal Tissue	10.006g	heterogeneous brown tissue paste
16	E1500743-016	PLY-09-15 MT7/MT8 BG-Fillet	.01	1613B/Dioxins Furans		Animal Tissue	10.157g	beigh tissue with gray skin
17	E1500743-017	PLY-10-15 MT7/MT8 LB-Carcass	.03	1613B/Dioxins Furans		Animal Tissue	10.028g	heterogeneous brown tissue paste
18	E1500743-018	PLY-10-15 MT7/MT8 LB-Fillet	.02	1613B/Dioxins Furans		Animal Tissue	10.431g	beigh tissue with gray skin
19	E1500743-019	PLY-11-15 MT7/MT8 YB-Fillet	.02	1613B/Dioxins Furans		Animal Tissue	10.227g	homogenous pink tissue mixture
20	E1500743-020	PLY-12-15 MT8/GT19 BG-Carcass	.02	1613B/Dioxins Furans		Animal Tissue	10.552g	heterogeneous brown tissue paste
21	EQ1500471-01	MB		1613B/Dioxins Furans		Tissue	10.530g	
22	EQ1500471-02	LCS		1613B/Dioxins Furans		Tissue	11.310g	
23	EQ1500471-03	DLCS		1613B/Dioxins Furans		Tissue	10.750g	

Preparation Information Benchsheet

Prep Run#: 241955 **Prep WorkFlow:** OrgExtT(365) **Status:** Prepped
Team: Semivoa GCMS/LMCCRINK **Prep Method:** Method Soxhlet **Prep Date/Time:** 8/6/15 09:40 AM

Spiking Solutions

Name:	1613B Matrix Working Standard	Inventory ID	82970	Logbook Ref:	2-20ng/ml 82970 DE 8/3/15	Expires On:	05/19/2016

EQ1500471-02	100.00µL	EQ1500471-03	100.00µL

Name:	1613B Labeled Working Standard	Inventory ID	83128	Logbook Ref:	83128 2-4 ng/mL LM 8/7/15	Expires On:	07/21/2016

E1500743-001	1,000.00µL	E1500743-002	1,000.00µL	E1500743-003	1,000.00µL	E1500743-004	1,000.00µL	E1500743-005	1,000.00µL	E1500743-006	1,000.00µL
E1500743-007	1,000.00µL	E1500743-008	1,000.00µL	E1500743-009	1,000.00µL	E1500743-010	1,000.00µL	E1500743-011	1,000.00µL	E1500743-012	1,000.00µL
E1500743-013	1,000.00µL	E1500743-014	1,000.00µL	E1500743-015	1,000.00µL	E1500743-016	1,000.00µL	E1500743-017	1,000.00µL	E1500743-018	1,000.00µL
E1500743-019	1,000.00µL	E1500743-020	1,000.00µL	EQ1500471-01	1,000.00µL	EQ1500471-02	1,000.00µL	EQ1500471-03	1,000.00µL		

Name:	8290/1613B Cleanup Working Standard	Inventory ID	83209	Logbook Ref:	83209 CID 8/12/15 8 ng/ml EXT	Expires On:	02/08/2016

E1500743-001	100.00µL	E1500743-002	100.00µL	E1500743-003	100.00µL	E1500743-004	100.00µL	E1500743-005	100.00µL	E1500743-006	100.00µL
E1500743-007	100.00µL	E1500743-008	100.00µL	E1500743-009	100.00µL	E1500743-010	100.00µL	E1500743-011	100.00µL	E1500743-012	100.00µL
E1500743-013	100.00µL	E1500743-014	100.00µL	E1500743-015	100.00µL	E1500743-016	100.00µL	E1500743-017	100.00µL	E1500743-018	100.00µL
E1500743-019	100.00µL	E1500743-020	100.00µL	EQ1500471-01	100.00µL	EQ1500471-02	100.00µL	EQ1500471-03	100.00µL		

Preparation Materials

Carbon, High Purity	AL 07/28/15 (82889)	Ethyl Acetate 99.9% Minimum EtOAc	AL 07/16/15 (82546)	Glass Wool	AL 04/17/15 (80420)
Sulfuric Acid Reagent Grade H2SO4	LM 3/4/15 (79265)	Hexanes 95%	AL 07/24/15 (82843)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL 07/27/15 (82887)
Sodium Chloride Reagent Grade NaCl	C2-65-5 (38670)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	DE 7/30/15 (82937)	Canola Oil (Wesson)	2-26-15 DE (79065)
Toluene 99.9% Minimum	AL 07/24/15 (82844)	Silica Gel Reagent Grade	AL 06/04/15 (81560)	Sodium Hydroxide Reagent Grade NaOH	LM 09/02/14 (74232)

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	8/6/15 09:40	Started:	8/12/15 13:00	Started:	8/15/15 ~~20:30~~ 08:30	Started:	8/17/15 09:35
Finished:	8/8/15 09:00	Finished:	8/12/15 14:00	Finished:	8/15/15 ~~22:40~~ 10:40	Finished:	8/17/15 10:15
By:	LMCCRINK	By:	CDIAZ	By:	CDIAZ	By:	CDIAZ
Comments		Comments		Comments	ak 8/18/15	Comments	

Comments: _____

Preparation Information Benchsheet

Prep Run#: 241955
Team: Semivoa GCMS/LMCCRINK

Prep WorkFlow: OrgExtT(365)
Prep Method: Method Soxhlet

Status: Prepped
Prep Date/Time: 8/6/15 09:40 AM

Reviewed By: ak Date: 8/18/15

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 242304 **Prep WorkFlow:** OrgExtT(365) **Status:** Prepped
Team: Semivoa GCMS/LMCCRINK **Prep Method:** Method Soxhlet **Prep Date/Time:** 8/11/15 03:15 PM

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Sample Description
1	E1500743-021	PLY-12-15 MT8/GT19 BG-Fillet	.01	1613B/Dioxins Furans		Animal Tissue	10.082g	beigh tissue with gray skin
2	E1500743-022	PLY-13-15 MT8/GT19 LB-Carcass	.01	1613B/Dioxins Furans		Animal Tissue	10.343g	heterogenous brown tissue paste
3	E1500743-023	PLY-13-15 MT8/GT19 LB-Fillet	.01	1613B/Dioxins Furans		Animal Tissue	10.052g	beigh tissue with gray skin
4	E1500743-024	PLY-14-15 MT8/GT19 CC-Fillet	.01	1613B/Dioxins Furans		Animal Tissue	10.182g	homogenous brown tissue paste
5	E1500745-001	PLY-01-15 SITE 1 BG - Carcass	.01	1613B/Dioxins Furans		Animal Tissue	10.301g	heterogenous brown tissue paste
6	E1500745-002	PLY-01-15 SITE 1 BG - Fillet	.01	1613B/Dioxins Furans		Animal Tissue	10.024g	beigh tissue with gray skin
7	E1500745-003	PLY-02-15 SITE 1 BG - Carcass	.01	1613B/Dioxins Furans		Animal Tissue	10.036g	heterogenous brown tissue paste
8	E1500745-004	PLY-02-15 SITE 1 BG - Fillet	.01	1613B/Dioxins Furans		Animal Tissue	10.351g	beigh tissue with gray skin
9	E1500745-005	PLY-03-15 SITE 1 LB - Carcass	.01	1613B/Dioxins Furans		Animal Tissue	10.094g	heterogenous brown tissue paste
10	E1500745-006	PLY-03-15 SITE 1 LB - Fillet	.01	1613B/Dioxins Furans		Animal Tissue	10.331g	beigh tissue with gray skin
11	E1500745-007	PLY-04-15 SITE 1 LB - Carcass	.01	1613B/Dioxins Furans		Animal Tissue	10.409g	heterogenous brown tissue paste
12	E1500745-008	PLY-04-15 SITE 1 LB - Fillet	.01	1613B/Dioxins Furans		Animal Tissue	10.022g	beigh tissue with gray skin
13	E1500745-009	PLY-05-15 SITE 1 CH - Fillet	.01	1613B/Dioxins Furans		Animal Tissue	9.909g	homogenous pink tissue paste
14	E1500745-010	PLY-06-15 SITE 1 CC - Fillet	.01	1613B/Dioxins Furans		Animal Tissue	10.462g	homogenous beigh tissue paste
15	E1500745-011	PLY-07-15 SITE 1 WC - Fillet	.01	1613B/Dioxins Furans		Animal Tissue	10.348g	homogenous pink tissue mixture
16	E1500745-012	PLY-08-15 SITE 2 BG - Carcass	.01	1613B/Dioxins Furans		Animal Tissue	10.166g	heterogenous brown tissue paste
17	E1500745-013	PLY-08-15 SITE 2 BG - Fillet	.01	1613B/Dioxins Furans		Animal Tissue	10.003g	beigh tissue with gray skin
18	E1500745-014	PLY-09-15 SITE 2 BG - Carcass	.01	1613B/Dioxins Furans		Animal Tissue	10.271g	heterogenous brown tissue paste
19	E1500745-015	PLY-09-15 SITE 2 BG - Fillet	.01	1613B/Dioxins Furans		Animal Tissue	9.905g	beigh tissue with gray skin
20	EQ1500484-01	MB		1613B/Dioxins Furans		Tissue	10.510g	
21	EQ1500484-02	LCS		1613B/Dioxins Furans		Tissue	10.370g	
22	EQ1500484-03	DLCS		1613B/Dioxins Furans		Tissue	10.330g	

Preparation Information Benchsheet

Prep Run#: 242304 **Prep WorkFlow:** OrgExtT(365) **Status:** Prepped
Team: Semivoa GCMS/LMCCRINK **Prep Method:** Method Soxhlet **Prep Date/Time:** 8/11/15 03:15 PM

Spiking Solutions

Name:	1613B Matrix Working Standard	Inventory ID	82970	Logbook Ref:	2-20ng/ml 82970 DE 8/3/15	Expires On:	05/19/2016

EQ1500484-02	100.00µL	EQ1500484-03	100.00µL

Name:	1613B Labeled Working Standard	Inventory ID	83132	Logbook Ref:	83132 2-4 ng/mL LM 8/7/15	Expires On:	07/21/2016

E1500743-021	1,000.00µL	E1500743-022	1,000.00µL	E1500743-023	1,000.00µL	E1500743-024	1,000.00µL	E1500745-001	1,000.00µL	E1500745-002	1,000.00µL
E1500745-003	1,000.00µL	E1500745-004	1,000.00µL	E1500745-005	1,000.00µL	E1500745-006	1,000.00µL	E1500745-007	1,000.00µL	E1500745-008	1,000.00µL
E1500745-009	1,000.00µL	E1500745-010	1,000.00µL	E1500745-011	1,000.00µL	E1500745-012	1,000.00µL	E1500745-013	1,000.00µL	E1500745-014	1,000.00µL
E1500745-015	1,000.00µL	EQ1500484-01	1,000.00µL	EQ1500484-02	1,000.00µL	EQ1500484-03	1,000.00µL				

Name:	8290/1613B Cleanup Working Standard	Inventory ID	83209	Logbook Ref:	83209 CID 8/12/15 8 ng/ml EXT	Expires On:	02/08/2016

E1500743-021	100.00µL	E1500743-022	100.00µL	E1500743-023	100.00µL	E1500743-024	100.00µL	E1500745-001	100.00µL	E1500745-002	100.00µL
E1500745-003	100.00µL	E1500745-004	100.00µL	E1500745-005	100.00µL	E1500745-006	100.00µL	E1500745-007	100.00µL	E1500745-008	100.00µL
E1500745-009	100.00µL	E1500745-010	100.00µL	E1500745-011	100.00µL	E1500745-012	100.00µL	E1500745-013	100.00µL	E1500745-014	100.00µL
E1500745-015	100.00µL	EQ1500484-01	100.00µL	EQ1500484-02	100.00µL	EQ1500484-03	100.00µL				

Preparation Materials

Carbon, High Purity	CID 08/18/2015 (83326)	Ethyl Acetate 99.9% Minimum EtOAc	AL 07/16/15 (82546)	Glass Wool	AL 04/17/15 (80420)
Sulfuric Acid Reagent Grade H2SO4	LM 3/4/15 (79265)	Hexanes 95%	CID 08/13/20 15 (83226)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL 07/27/15 (82887)
Sodium Chloride Reagent Grade NaCl	C2-65-5 (38670)	Sodium Hydroxide Reagent Grade NaOH	LM 09/02/14 (74232)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	DE 7/30/15 (82937)
Canola Oil (Wesson)	2-26-15 DE (79065)	Silica Gel	CID 08/18/2018 (83330)	Toluene 99.9% Minimum	AL 08/05/15 (83043)

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	8/11/15 15:15	Started:	8/19/15 10:00	Started:	8/20/15 08:30	Started:	8/21/15 10:00
Finished:	8/14/15 ~~20:30~~ 08:30 ak 8/24/15	Finished:	8/19/15 10:45	Finished:	8/20/15 10:30	Finished:	8/21/15 10:40
By:	LMCCRINK	By:	CDIAZ	By:	CDIAZ	By:	CDIAZ
Comments		Comments		Comments		Comments	

Comments:

Reviewed By: ak Date: 8/24/15

Preparation Information Benchsheet

Prep Run#: 242304
Team: Semivoa GCMS/LMCCRINK

Prep WorkFlow: OrgExtT(365)
Prep Method: Method Soxhlet

Status: Prepped
Prep Date/Time: 8/11/15 03:15 PM

Chain of Custody

Relinquished By:	_____	Date:	_____	Extracts Examined
Received By:	_____	Date:	_____	Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-01-15 MT1/MT2 BG-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-001	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/27/15 22:16
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.349g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301057	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301051

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.550		0.0946	0.483	0.70	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.140	2.42			1
1,2,3,4,7,8-HxCDD	ND	U	0.0787	2.42			1
1,2,3,6,7,8-HxCDD	0.365**J**		0.0851	2.42	1.16	1.000	1
1,2,3,7,8,9-HxCDD	0.108**JK**		0.0773	2.42	0.68	1.007	1
1,2,3,4,6,7,8-HpCDD	5.87**B**		0.121	2.42	1.05	1.000	1
OCDD	38.9**B**		0.130	4.83	0.87	1.000	1
2,3,7,8-TCDF	0.807		0.156	0.483	0.79	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.104	2.42			1
2,3,4,7,8-PeCDF	ND	U	0.108	2.42			1
1,2,3,4,7,8-HxCDF	ND	U	0.0615	2.42			1
1,2,3,6,7,8-HxCDF	ND	U	0.0575	2.42			1
1,2,3,7,8,9-HxCDF	ND	U	0.0478	2.42			1
2,3,4,6,7,8-HxCDF	ND	U	0.0593	2.42			1
1,2,3,4,6,7,8-HpCDF	1.69**BJ**		0.0935	2.42	0.96	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.149	2.42			1
OCDF	7.48		0.258	4.83	0.86	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-01-15 MT1/MT2 BG-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-001	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/27/15 22:16
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.349g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301057	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301051

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	0.550		0.0946	0.483	0.70		1
Total Penta-Dioxins	ND	U	0.140	2.42			1
Total Hexa-Dioxins	1.97**J**		0.0803	2.42	1.10		1
Total Hepta-Dioxins	16.0		0.121	2.42	1.01		1
Total Tetra-Furans	1.47		0.156	0.483	0.67		1
Total Penta-Furans	ND	U	0.106	2.42			1
Total Hexa-Furans	1.02**J**		0.0558	2.42	1.36		1
Total Hepta-Furans	8.83		0.118	2.42	0.96		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-01-15 MT1/MT2 BG-Carcass	**Units:**	Percent
Lab Code:	E1500743-001	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/27/15 22:16
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.349g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301057	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301051

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1583.970	79		25-164	0.77	1.019
13C-1,2,3,7,8-PeCDD	2000	1623.286	81		25-181	1.56	1.175
13C-1,2,3,4,7,8-HxCDD	2000	1447.734	72		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1347.879	67		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1392.879	70		23-140	1.07	1.066
13C-OCDD	4000	2589.170	65		17-157	0.90	1.141
13C-2,3,7,8-TCDF	2000	1454.324	73		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	1590.274	80		24-185	1.57	1.134
13C-2,3,4,7,8-PeCDF	2000	1622.044	81		21-178	1.58	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1323.823	66		26-152	0.53	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1361.724	68		26-123	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	2066.179	103		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1418.735	71		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1265.348	63		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1152.972	58		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	648.198	81		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-01-15 MT1/MT2 BG-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-001	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.550**	0.0946	0.483	1	1	0.550
1,2,3,7,8-PeCDD	ND	0.140	2.42	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0787	2.42	1	0.1	
1,2,3,6,7,8-HxCDD	**0.365**	0.0851	2.42	1	0.1	0.0365
1,2,3,7,8,9-HxCDD	**0.108**	0.0773	2.42	1	0.1	0.0108
1,2,3,4,6,7,8-HpCDD	**5.87**	0.121	2.42	1	0.01	0.0587
OCDD	**38.9**	0.130	4.83	1	0.0003	0.0117
2,3,7,8-TCDF	**0.807**	0.156	0.483	1	0.1	0.0807
1,2,3,7,8-PeCDF	ND	0.104	2.42	1	0.03	
2,3,4,7,8-PeCDF	ND	0.108	2.42	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0615	2.42	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0575	2.42	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0478	2.42	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0593	2.42	1	0.1	
1,2,3,4,6,7,8-HpCDF	**1.69**	0.0935	2.42	1	0.01	0.0169
1,2,3,4,7,8,9-HpCDF	ND	0.149	2.42	1	0.01	
OCDF	**7.48**	0.258	4.83	1	0.0003	0.00224
		Total TEQ				0.768

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-01-15 MT1/MT2 BG-Carcass	**Units:**	Percent
Lab Code:	E1500743-001	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.349g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	25.2		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-01-15 MT1/MT2 BG-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-002	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/27/15 23:05
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.249g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301058	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301051

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.125	0.488			1
1,2,3,7,8-PeCDD	ND	U	0.126	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.0894	2.44			1
1,2,3,6,7,8-HxCDD	0.318**J**		0.0942	2.44	1.14	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.0866	2.44			1
1,2,3,4,6,7,8-HpCDD	7.59**B**		0.133	2.44	1.04	1.000	1
OCDD	44.9**B**		0.202	4.88	0.88	1.000	1
2,3,7,8-TCDF	ND	U	0.176	0.488			1
1,2,3,7,8-PeCDF	ND	U	0.111	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.113	2.44			1
1,2,3,4,7,8-HxCDF	ND	U	0.0876	2.44			1
1,2,3,6,7,8-HxCDF	ND	U	0.0833	2.44			1
1,2,3,7,8,9-HxCDF	ND	U	0.0728	2.44			1
2,3,4,6,7,8-HxCDF	ND	U	0.0871	2.44			1
1,2,3,4,6,7,8-HpCDF	1.77**BJ**		0.0977	2.44	0.98	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.154	2.44			1
OCDF	7.66		0.290	4.88	0.88	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-01-15 MT1/MT2 BG-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-002	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/27/15 23:05
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.249g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301058	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301051

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.125	0.488			1
Total Penta-Dioxins	ND	U	0.126	2.44			1
Total Hexa-Dioxins	1.40**J**		0.0900	2.44	1.13		1
Total Hepta-Dioxins	19.0		0.133	2.44	1.01		1
Total Tetra-Furans	ND	U	0.176	0.488			1
Total Penta-Furans	ND	U	0.112	2.44			1
Total Hexa-Furans	0.991**J**		0.0819	2.44	1.12		1
Total Hepta-Furans	9.07		0.122	2.44	0.98		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-01-15 MT1/MT2 BG-Fillet	**Units:**	Percent
Lab Code:	E1500743-002	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/27/15 23:05
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.249g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301058	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301051

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1615.412	81		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1685.565	84		25-181	1.56	1.175
13C-1,2,3,4,7,8-HxCDD	2000	1475.823	74		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1431.810	72		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1436.900	72		23-140	1.04	1.066
13C-OCDD	4000	2622.332	66		17-157	0.90	1.141
13C-2,3,7,8-TCDF	2000	1470.249	74		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	1643.231	82		24-185	1.58	1.134
13C-2,3,4,7,8-PeCDF	2000	1670.552	84		21-178	1.58	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1349.839	67		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1393.642	70		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	2013.744	101		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1444.590	72		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1250.340	63		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1114.919	56		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	672.418	84		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-01-15 MT1/MT2 BG-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-002	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.125	0.488	1	1	
1,2,3,7,8-PeCDD	ND	0.126	2.44	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0894	2.44	1	0.1	
1,2,3,6,7,8-HxCDD	**0.318**	0.0942	2.44	1	0.1	0.0318
1,2,3,7,8,9-HxCDD	ND	0.0866	2.44	1	0.1	
1,2,3,4,6,7,8-HpCDD	**7.59**	0.133	2.44	1	0.01	0.0759
OCDD	**44.9**	0.202	4.88	1	0.0003	0.0135
2,3,7,8-TCDF	ND	0.176	0.488	1	0.1	
1,2,3,7,8-PeCDF	ND	0.111	2.44	1	0.03	
2,3,4,7,8-PeCDF	ND	0.113	2.44	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0876	2.44	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0833	2.44	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0728	2.44	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0871	2.44	1	0.1	
1,2,3,4,6,7,8-HpCDF	**1.77**	0.0977	2.44	1	0.01	0.0177
1,2,3,4,7,8,9-HpCDF	ND	0.154	2.44	1	0.01	
OCDF	**7.66**	0.290	4.88	1	0.0003	0.00230
		Total TEQ				0.141

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-01-15 MT1/MT2 BG-Fillet	**Units:**	Percent
Lab Code:	E1500743-002	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.249g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	18.1		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-02-15 MT1/MT2 LB-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-003	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/27/15 23:53
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.237g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301059	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301051

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	2.60		0.128	0.488	0.82	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.125	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.120	2.44			1
1,2,3,6,7,8-HxCDD	0.402**JK**		0.129	2.44	1.44	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.117	2.44			1
1,2,3,4,6,7,8-HpCDD	5.86**B**		0.142	2.44	1.06	1.000	1
OCDD	35.1**B**		0.193	4.88	0.86	1.000	1
2,3,7,8-TCDF	2.09		0.176	0.488	0.72	1.000	1
1,2,3,7,8-PeCDF	ND	U	0.120	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.121	2.44			1
1,2,3,4,7,8-HxCDF	ND	U	0.0776	2.44			1
1,2,3,6,7,8-HxCDF	ND	U	0.0718	2.44			1
1,2,3,7,8,9-HxCDF	ND	U	0.0618	2.44			1
2,3,4,6,7,8-HxCDF	ND	U	0.0738	2.44			1
1,2,3,4,6,7,8-HpCDF	1.62**BJ**		0.0940	2.44	1.14	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.137	2.44			1
OCDF	7.59		0.227	4.88	0.88	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-02-15 MT1/MT2 LB-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-003	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/27/15 23:53
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.237g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301059	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301051

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	2.60		0.128	0.488	0.82		1
Total Penta-Dioxins	ND	U	0.125	2.44			1
Total Hexa-Dioxins	0.818**J**		0.122	2.44	1.09		1
Total Hepta-Dioxins	15.6		0.142	2.44	1.09		1
Total Tetra-Furans	2.47		0.176	0.488	0.81		1
Total Penta-Furans	ND	U	0.121	2.44			1
Total Hexa-Furans	0.285**J**		0.0705	2.44	1.19		1
Total Hepta-Furans	8.59		0.113	2.44	1.14		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-02-15 MT1/MT2 LB-Carcass	**Units:**	Percent
Lab Code:	E1500743-003	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/27/15 23:53
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.237g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301059	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301051

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1554.044	78		25-164	0.77	1.019
13C-1,2,3,7,8-PeCDD	2000	1613.824	81		25-181	1.58	1.175
13C-1,2,3,4,7,8-HxCDD	2000	1437.961	72		32-141	1.33	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1381.981	69		28-130	1.22	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1430.519	72		23-140	1.05	1.066
13C-OCDD	4000	2765.938	69		17-157	0.89	1.141
13C-2,3,7,8-TCDF	2000	1430.475	72		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1570.750	79		24-185	1.58	1.134
13C-2,3,4,7,8-PeCDF	2000	1601.654	80		21-178	1.58	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1329.203	66		26-152	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1366.800	68		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	2065.792	103		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1442.021	72		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1285.388	64		28-143	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1248.140	62		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	634.301	79		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-02-15 MT1/MT2 LB-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-003	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2.60**	0.128	0.488	1	1	2.60
1,2,3,7,8-PeCDD	ND	0.125	2.44	1	1	
1,2,3,4,7,8-HxCDD	ND	0.120	2.44	1	0.1	
1,2,3,6,7,8-HxCDD	**0.402**	0.129	2.44	1	0.1	0.0402
1,2,3,7,8,9-HxCDD	ND	0.117	2.44	1	0.1	
1,2,3,4,6,7,8-HpCDD	**5.86**	0.142	2.44	1	0.01	0.0586
OCDD	**35.1**	0.193	4.88	1	0.0003	0.0105
2,3,7,8-TCDF	**2.09**	0.176	0.488	1	0.1	0.209
1,2,3,7,8-PeCDF	ND	0.120	2.44	1	0.03	
2,3,4,7,8-PeCDF	ND	0.121	2.44	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0776	2.44	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0718	2.44	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0618	2.44	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0738	2.44	1	0.1	
1,2,3,4,6,7,8-HpCDF	**1.62**	0.0940	2.44	1	0.01	0.0162
1,2,3,4,7,8,9-HpCDF	ND	0.137	2.44	1	0.01	
OCDF	**7.59**	0.227	4.88	1	0.0003	0.00228
		Total TEQ				2.94

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-02-15 MT1/MT2 LB-Carcass	**Units:**	Percent
Lab Code:	E1500743-003	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.237g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	24.3		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-02-15 MT1/MT2 LB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-004	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 00:42
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.283g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301060	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301051

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.728		0.136	0.486	0.70	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.127	2.43			1
1,2,3,4,7,8-HxCDD	ND	U	0.0891	2.43			1
1,2,3,6,7,8-HxCDD	0.334**J**		0.0938	2.43	1.06	1.000	1
1,2,3,7,8,9-HxCDD	0.138**J**		0.0863	2.43	1.38	1.006	1
1,2,3,4,6,7,8-HpCDD	5.98**B**		0.138	2.43	1.04	1.000	1
OCDD	41.0**B**		0.166	4.86	0.88	1.000	1
2,3,7,8-TCDF	0.426**JK**		0.160	0.486	0.99	1.000	1
1,2,3,7,8-PeCDF	ND	U	0.0939	2.43			1
2,3,4,7,8-PeCDF	ND	U	0.107	2.43			1
1,2,3,4,7,8-HxCDF	ND	U	0.0695	2.43			1
1,2,3,6,7,8-HxCDF	ND	U	0.0619	2.43			1
1,2,3,7,8,9-HxCDF	ND	U	0.0682	2.43			1
2,3,4,6,7,8-HxCDF	0.119**J**		0.0670	2.43	1.07	1.000	1
1,2,3,4,6,7,8-HpCDF	2.52**B**		0.110	2.43	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.235	2.43			1
OCDF	8.58		0.244	4.86	0.95	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-02-15 MT1/MT2 LB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-004	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 00:42
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.283g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301060	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301051

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	0.728		0.136	0.486	0.70		1
Total Penta-Dioxins	ND	U	0.127	2.43			1
Total Hexa-Dioxins	2.06**J**		0.0897	2.43	1.20		1
Total Hepta-Dioxins	16.4		0.138	2.43	1.02		1
Total Tetra-Furans	0.481**J**		0.160	0.486	0.81		1
Total Penta-Furans	ND	U	0.0998	2.43			1
Total Hexa-Furans	0.217**J**		0.0664	2.43	1.36		1
Total Hepta-Furans	13.9		0.155	2.43	1.00		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-02-15 MT1/MT2 LB-Fillet	**Units:**	Percent
Lab Code:	E1500743-004	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 00:42
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.283g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301060	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301051

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1568.248	78		25-164	0.77	1.019
13C-1,2,3,7,8-PeCDD	2000	1625.051	81		25-181	1.58	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1386.898	69		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1346.803	67		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1335.727	67		23-140	1.04	1.066
13C-OCDD	4000	2336.345	58		17-157	0.89	1.141
13C-2,3,7,8-TCDF	2000	1424.779	71		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1639.891	82		24-185	1.55	1.134
13C-2,3,4,7,8-PeCDF	2000	1573.690	79		21-178	1.59	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1171.656	59		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1257.817	63		26-123	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1474.434	74		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1280.131	64		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	899.568	45		28-143	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	590.392	30		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	657.565	82		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-02-15 MT1/MT2 LB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-004	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.728**	0.136	0.486	1	1	0.728
1,2,3,7,8-PeCDD	ND	0.127	2.43	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0891	2.43	1	0.1	
1,2,3,6,7,8-HxCDD	**0.334**	0.0938	2.43	1	0.1	0.0334
1,2,3,7,8,9-HxCDD	**0.138**	0.0863	2.43	1	0.1	0.0138
1,2,3,4,6,7,8-HpCDD	**5.98**	0.138	2.43	1	0.01	0.0598
OCDD	**41.0**	0.166	4.86	1	0.0003	0.0123
2,3,7,8-TCDF	**0.426**	0.160	0.486	1	0.1	0.0426
1,2,3,7,8-PeCDF	ND	0.0939	2.43	1	0.03	
2,3,4,7,8-PeCDF	ND	0.107	2.43	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0695	2.43	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0619	2.43	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0682	2.43	1	0.1	
2,3,4,6,7,8-HxCDF	**0.119**	0.0670	2.43	1	0.1	0.0119
1,2,3,4,6,7,8-HpCDF	**2.52**	0.110	2.43	1	0.01	0.0252
1,2,3,4,7,8,9-HpCDF	ND	0.235	2.43	1	0.01	
OCDF	**8.58**	0.244	4.86	1	0.0003	0.00257
		Total TEQ				0.930

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-02-15 MT1/MT2 LB-Fillet	**Units:**	Percent
Lab Code:	E1500743-004	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.283g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	19.7		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-03-15 MT1/MT2 YB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-005	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 01:31
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.154g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301061	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301051

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.510**K**		0.106	0.492	0.50	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.149	2.46			1
1,2,3,4,7,8-HxCDD	ND	U	0.0793	2.46			1
1,2,3,6,7,8-HxCDD	0.327**J**		0.0855	2.46	1.15	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.0778	2.46			1
1,2,3,4,6,7,8-HpCDD	5.91**B**		0.0820	2.46	1.02	1.000	1
OCDD	37.0**B**		0.147	4.92	0.86	1.000	1
2,3,7,8-TCDF	1.25		0.189	0.492	0.79	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.101	2.46			1
2,3,4,7,8-PeCDF	ND	U	0.106	2.46			1
1,2,3,4,7,8-HxCDF	ND	U	0.0555	2.46			1
1,2,3,6,7,8-HxCDF	ND	U	0.0523	2.46			1
1,2,3,7,8,9-HxCDF	ND	U	0.0438	2.46			1
2,3,4,6,7,8-HxCDF	ND	U	0.0554	2.46			1
1,2,3,4,6,7,8-HpCDF	1.69**BJ**		0.0741	2.46	1.09	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.115	2.46			1
OCDF	6.84		0.212	4.92	0.90	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-03-15 MT1/MT2 YB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-005	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 01:31
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.154g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301061	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301051

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.106	0.492			1
Total Penta-Dioxins	ND	U	0.149	2.46			1
Total Hexa-Dioxins	1.33**J**		0.0808	2.46	1.24		1
Total Hepta-Dioxins	15.8		0.0820	2.46	1.05		1
Total Tetra-Furans	1.25		0.189	0.492	0.79		1
Total Penta-Furans	ND	U	0.104	2.46			1
Total Hexa-Furans	0.909**J**		0.0511	2.46	1.14		1
Total Hepta-Furans	8.32		0.0913	2.46	1.09		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-03-15 MT1/MT2 YB-Fillet	**Units:**	Percent
Lab Code:	E1500743-005	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 01:31
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.154g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301061	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301051

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1553.992	78		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1626.679	81		25-181	1.60	1.175
13C-1,2,3,4,7,8-HxCDD	2000	1481.114	74		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1412.960	71		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1474.074	74		23-140	1.07	1.066
13C-OCDD	4000	2757.945	69		17-157	0.90	1.141
13C-2,3,7,8-TCDF	2000	1411.271	71		24-169	0.80	0.993
13C-1,2,3,7,8-PeCDF	2000	1615.507	81		24-185	1.58	1.135
13C-2,3,4,7,8-PeCDF	2000	1621.610	81		21-178	1.57	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1374.951	69		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1409.022	70		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	2162.747	108		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1454.909	73		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1337.743	67		28-143	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1178.390	59		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	666.843	83		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-03-15 MT1/MT2 YB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-005	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.510**	0.106	0.492	1	1	0.510
1,2,3,7,8-PeCDD	ND	0.149	2.46	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0793	2.46	1	0.1	
1,2,3,6,7,8-HxCDD	**0.327**	0.0855	2.46	1	0.1	0.0327
1,2,3,7,8,9-HxCDD	ND	0.0778	2.46	1	0.1	
1,2,3,4,6,7,8-HpCDD	**5.91**	0.0820	2.46	1	0.01	0.0591
OCDD	**37.0**	0.147	4.92	1	0.0003	0.0111
2,3,7,8-TCDF	**1.25**	0.189	0.492	1	0.1	0.125
1,2,3,7,8-PeCDF	ND	0.101	2.46	1	0.03	
2,3,4,7,8-PeCDF	ND	0.106	2.46	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0555	2.46	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0523	2.46	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0438	2.46	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0554	2.46	1	0.1	
1,2,3,4,6,7,8-HpCDF	**1.69**	0.0741	2.46	1	0.01	0.0169
1,2,3,4,7,8,9-HpCDF	ND	0.115	2.46	1	0.01	
OCDF	**6.84**	0.212	4.92	1	0.0003	0.00205
		Total TEQ				0.757

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-03-15 MT1/MT2 YB-Fillet	**Units:**	Percent
Lab Code:	E1500743-005	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.154g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	17.3		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/29/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-04-15 MT3/MT6 BG-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-006	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 02:19
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.133g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301062	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301051

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1.77		0.125	0.493	0.74	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.137	2.47			1
1,2,3,4,7,8-HxCDD	ND	U	0.0643	2.47			1
1,2,3,6,7,8-HxCDD	0.318**JK**		0.0685	2.47	0.92	1.000	1
1,2,3,7,8,9-HxCDD	0.129**J**		0.0626	2.47	1.09	1.006	1
1,2,3,4,6,7,8-HpCDD	5.97**B**		0.129	2.47	1.05	1.000	1
OCDD	44.5**B**		0.100	4.93	0.90	1.000	1
2,3,7,8-TCDF	3.40		0.175	0.493	0.74	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.120	2.47			1
2,3,4,7,8-PeCDF	ND	U	0.128	2.47			1
1,2,3,4,7,8-HxCDF	0.0859**JK**		0.0708	2.47	1.66	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.0677	2.47			1
1,2,3,7,8,9-HxCDF	ND	U	0.0556	2.47			1
2,3,4,6,7,8-HxCDF	0.0771**JK**		0.0723	2.47	1.44	1.000	1
1,2,3,4,6,7,8-HpCDF	1.76**BJ**		0.0745	2.47	1.09	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.107	2.47			1
OCDF	7.48		0.184	4.93	0.86	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/29/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-04-15 MT3/MT6 BG-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-006	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 02:19
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.133g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301062	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301051

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1.77		0.125	0.493	0.74		1
Total Penta-Dioxins	ND	U	0.137	2.47			1
Total Hexa-Dioxins	1.93**J**		0.0651	2.47	1.19		1
Total Hepta-Dioxins	16.6		0.129	2.47	1.04		1
Total Tetra-Furans	4.33		0.175	0.493	0.81		1
Total Penta-Furans	ND	U	0.124	2.47			1
Total Hexa-Furans	1.12**J**		0.0657	2.47	1.21		1
Total Hepta-Furans	9.17		0.0886	2.47	1.09		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/29/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-04-15 MT3/MT6 BG-Carcass	**Units:**	Percent
Lab Code:	E1500743-006	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 02:19
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.133g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301062	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301051

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1572.090	79		25-164	0.78	1.018
13C-1,2,3,7,8-PeCDD	2000	1627.958	81		25-181	1.58	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1387.713	69		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1341.816	67		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1410.519	71		23-140	1.06	1.066
13C-OCDD	4000	2819.384	70		17-157	0.90	1.141
13C-2,3,7,8-TCDF	2000	1439.100	72		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1571.141	79		24-185	1.59	1.134
13C-2,3,4,7,8-PeCDF	2000	1606.743	80		21-178	1.57	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1307.597	65		26-152	0.51	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1328.258	66		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	2046.868	102		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1400.694	70		28-136	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1290.326	65		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1227.364	61		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	646.380	81		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/29/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-04-15 MT3/MT6 BG-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-006	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1.77**	0.125	0.493	1	1	1.77
1,2,3,7,8-PeCDD	ND	0.137	2.47	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0643	2.47	1	0.1	
1,2,3,6,7,8-HxCDD	**0.318**	0.0685	2.47	1	0.1	0.0318
1,2,3,7,8,9-HxCDD	**0.129**	0.0626	2.47	1	0.1	0.0129
1,2,3,4,6,7,8-HpCDD	**5.97**	0.129	2.47	1	0.01	0.0597
OCDD	**44.5**	0.100	4.93	1	0.0003	0.0134
2,3,7,8-TCDF	**3.40**	0.175	0.493	1	0.1	0.340
1,2,3,7,8-PeCDF	ND	0.120	2.47	1	0.03	
2,3,4,7,8-PeCDF	ND	0.128	2.47	1	0.3	
1,2,3,4,7,8-HxCDF	**0.0859**	0.0708	2.47	1	0.1	0.00859
1,2,3,6,7,8-HxCDF	ND	0.0677	2.47	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0556	2.47	1	0.1	
2,3,4,6,7,8-HxCDF	**0.0771**	0.0723	2.47	1	0.1	0.00771
1,2,3,4,6,7,8-HpCDF	**1.76**	0.0745	2.47	1	0.01	0.0176
1,2,3,4,7,8,9-HpCDF	ND	0.107	2.47	1	0.01	
OCDF	**7.48**	0.184	4.93	1	0.0003	0.00224
		Total TEQ				2.26

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/29/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-04-15 MT3/MT6 BG-Carcass	**Units:**	Percent
Lab Code:	E1500743-006	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.133g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	24.3		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/29/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-04-15 MT3/MT6 BG-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-007	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 07:11
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.169g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301068	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.424**J**		0.104	0.492	0.68	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.161	2.46			1
1,2,3,4,7,8-HxCDD	ND	U	0.0900	2.46			1
1,2,3,6,7,8-HxCDD	0.339**J**		0.0968	2.46	1.19	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.0881	2.46			1
1,2,3,4,6,7,8-HpCDD	5.62**B**		0.124	2.46	1.00	1.000	1
OCDD	38.3**B**		0.142	4.92	0.91	1.000	1
2,3,7,8-TCDF	0.532		0.138	0.492	0.72	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0768	2.46			1
2,3,4,7,8-PeCDF	ND	U	0.0807	2.46			1
1,2,3,4,7,8-HxCDF	0.0901**J**		0.0540	2.46	1.05	1.000	1
1,2,3,6,7,8-HxCDF	0.0714**JK**		0.0511	2.46	2.06	1.000	1
1,2,3,7,8,9-HxCDF	0.0610**BJ**		0.0483	2.46	1.29	1.000	1
2,3,4,6,7,8-HxCDF	0.0756**JK**		0.0531	2.46	0.95	1.000	1
1,2,3,4,6,7,8-HpCDF	1.98**BJ**		0.112	2.46	1.13	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.202	2.46			1
OCDF	7.82		0.249	4.92	0.92	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/29/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-04-15 MT3/MT6 BG-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-007	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 07:11
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.169g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301068	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	0.424**J**		0.104	0.492	0.68		1
Total Penta-Dioxins	ND	U	0.161	2.46			1
Total Hexa-Dioxins	1.17**J**		0.0915	2.46	1.13		1
Total Hepta-Dioxins	15.1		0.124	2.46	1.04		1
Total Tetra-Furans	2.47		0.138	0.492	0.85		1
Total Penta-Furans	ND	U	0.0786	2.46			1
Total Hexa-Furans	0.350**J**		0.0514	2.46	1.13		1
Total Hepta-Furans	10.6		0.148	2.46	1.13		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/29/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-04-15 MT3/MT6 BG-Fillet	**Units:**	Percent
Lab Code:	E1500743-007	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 07:11
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.169g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301068	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1546.787	77		25-164	0.77	1.019
13C-1,2,3,7,8-PeCDD	2000	1620.836	81		25-181	1.58	1.175
13C-1,2,3,4,7,8-HxCDD	2000	1434.184	72		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1357.230	68		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1378.795	69		23-140	1.06	1.066
13C-OCDD	4000	2486.383	62		17-157	0.90	1.142
13C-2,3,7,8-TCDF	2000	1426.329	71		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1583.589	79		24-185	1.56	1.135
13C-2,3,4,7,8-PeCDF	2000	1577.029	79		21-178	1.57	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1275.300	64		26-152	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1331.417	67		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1767.619	88		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1357.750	68		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1088.753	54		28-143	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	851.672	43		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	643.081	80		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/29/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-04-15 MT3/MT6 BG-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-007	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.424**	0.104	0.492	1	1	0.424
1,2,3,7,8-PeCDD	ND	0.161	2.46	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0900	2.46	1	0.1	
1,2,3,6,7,8-HxCDD	**0.339**	0.0968	2.46	1	0.1	0.0339
1,2,3,7,8,9-HxCDD	ND	0.0881	2.46	1	0.1	
1,2,3,4,6,7,8-HpCDD	**5.62**	0.124	2.46	1	0.01	0.0562
OCDD	**38.3**	0.142	4.92	1	0.0003	0.0115
2,3,7,8-TCDF	**0.532**	0.138	0.492	1	0.1	0.0532
1,2,3,7,8-PeCDF	ND	0.0768	2.46	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0807	2.46	1	0.3	
1,2,3,4,7,8-HxCDF	**0.0901**	0.0540	2.46	1	0.1	0.00901
1,2,3,6,7,8-HxCDF	**0.0714**	0.0511	2.46	1	0.1	0.00714
1,2,3,7,8,9-HxCDF	**0.0610**	0.0483	2.46	1	0.1	0.00610
2,3,4,6,7,8-HxCDF	**0.0756**	0.0531	2.46	1	0.1	0.00756
1,2,3,4,6,7,8-HpCDF	**1.98**	0.112	2.46	1	0.01	0.0198
1,2,3,4,7,8,9-HpCDF	ND	0.202	2.46	1	0.01	
OCDF	**7.82**	0.249	4.92	1	0.0003	0.00235
		Total TEQ				0.631

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/29/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-04-15 MT3/MT6 BG-Fillet	**Units:**	Percent
Lab Code:	E1500743-007	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.169g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	19.9		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-05-15 MT3/MT6 BG-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-008	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 08:00
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.129g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301069	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	2.83		0.120	0.494	0.77	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.115	2.47			1
1,2,3,4,7,8-HxCDD	ND	U	0.0856	2.47			1
1,2,3,6,7,8-HxCDD	0.302**J**		0.0870	2.47	1.43	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.0815	2.47			1
1,2,3,4,6,7,8-HpCDD	5.92**B**		0.0852	2.47	0.94	1.000	1
OCDD	42.7**B**		0.158	4.94	0.88	1.000	1
2,3,7,8-TCDF	5.21		0.141	0.494	0.77	1.000	1
1,2,3,7,8-PeCDF	ND	U	0.109	2.47			1
2,3,4,7,8-PeCDF	ND	U	0.114	2.47			1
1,2,3,4,7,8-HxCDF	ND	U	0.0597	2.47			1
1,2,3,6,7,8-HxCDF	ND	U	0.0559	2.47			1
1,2,3,7,8,9-HxCDF	ND	U	0.0456	2.47			1
2,3,4,6,7,8-HxCDF	ND	U	0.0573	2.47			1
1,2,3,4,6,7,8-HpCDF	1.81**BJ**		0.105	2.47	1.10	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.148	2.47			1
OCDF	7.95		0.178	4.94	0.86	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-05-15 MT3/MT6 BG-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-008	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 08:00
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.129g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301069	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	2.83		0.120	0.494	0.77		1
Total Penta-Dioxins	ND	U	0.115	2.47			1
Total Hexa-Dioxins	0.180**J**		0.0847	2.47	1.10		1
Total Hepta-Dioxins	16.7		0.0852	2.47	1.07		1
Total Tetra-Furans	5.21		0.141	0.494	0.77		1
Total Penta-Furans	ND	U	0.111	2.47			1
Total Hexa-Furans	0.252**J**		0.0539	2.47	1.23		1
Total Hepta-Furans	8.96		0.124	2.47	1.10		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-05-15 MT3/MT6 BG-Carcass	**Units:**	Percent
Lab Code:	E1500743-008	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 08:00
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.129g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301069	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1581.157	79		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1665.985	83		25-181	1.58	1.175
13C-1,2,3,4,7,8-HxCDD	2000	1392.180	70		32-141	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1394.421	70		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1370.311	69		23-140	1.05	1.066
13C-OCDD	4000	2508.754	63		17-157	0.90	1.142
13C-2,3,7,8-TCDF	2000	1447.981	72		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1625.184	81		24-185	1.58	1.134
13C-2,3,4,7,8-PeCDF	2000	1669.994	83		21-178	1.59	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1325.422	66		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1357.936	68		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	2092.807	105		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1415.186	71		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1247.690	62		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1216.027	61		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	642.148	80		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-05-15 MT3/MT6 BG-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-008	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2.83**	0.120	0.494	1	1	2.83
1,2,3,7,8-PeCDD	ND	0.115	2.47	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0856	2.47	1	0.1	
1,2,3,6,7,8-HxCDD	**0.302**	0.0870	2.47	1	0.1	0.0302
1,2,3,7,8,9-HxCDD	ND	0.0815	2.47	1	0.1	
1,2,3,4,6,7,8-HpCDD	**5.92**	0.0852	2.47	1	0.01	0.0592
OCDD	**42.7**	0.158	4.94	1	0.0003	0.0128
2,3,7,8-TCDF	**5.21**	0.141	0.494	1	0.1	0.521
1,2,3,7,8-PeCDF	ND	0.109	2.47	1	0.03	
2,3,4,7,8-PeCDF	ND	0.114	2.47	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0597	2.47	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0559	2.47	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0456	2.47	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0573	2.47	1	0.1	
1,2,3,4,6,7,8-HpCDF	**1.81**	0.105	2.47	1	0.01	0.0181
1,2,3,4,7,8,9-HpCDF	ND	0.148	2.47	1	0.01	
OCDF	**7.95**	0.178	4.94	1	0.0003	0.00239
		Total TEQ				3.47

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-05-15 MT3/MT6 BG-Carcass	**Units:**	Percent
Lab Code:	E1500743-008	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.129g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	25.3		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-05-15 MT3/MT6 BG-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-009	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 08:48
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.092g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301070	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.400**JK**		0.0928	0.495	0.54	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.148	2.48			1
1,2,3,4,7,8-HxCDD	ND	U	0.0740	2.48			1
1,2,3,6,7,8-HxCDD	0.395**JK**		0.0791	2.48	1.04	1.000	1
1,2,3,7,8,9-HxCDD	0.147**JK**		0.0722	2.48	0.62	1.006	1
1,2,3,4,6,7,8-HpCDD	8.08**B**		0.102	2.48	1.03	1.000	1
OCDD	49.0**B**		0.144	4.95	0.89	1.000	1
2,3,7,8-TCDF	0.489**J**		0.187	0.495	0.66	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.101	2.48			1
2,3,4,7,8-PeCDF	ND	U	0.105	2.48			1
1,2,3,4,7,8-HxCDF	ND	U	0.0778	2.48			1
1,2,3,6,7,8-HxCDF	ND	U	0.0725	2.48			1
1,2,3,7,8,9-HxCDF	ND	U	0.0687	2.48			1
2,3,4,6,7,8-HxCDF	ND	U	0.0785	2.48			1
1,2,3,4,6,7,8-HpCDF	1.88**BJ**		0.102	2.48	0.96	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.194	2.48			1
OCDF	7.36		0.241	4.95	0.85	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-05-15 MT3/MT6 BG-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-009	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 08:48
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.092g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301070	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.0928	0.495			1
Total Penta-Dioxins	ND	U	0.148	2.48			1
Total Hexa-Dioxins	1.92**J**		0.0751	2.48	1.29		1
Total Hepta-Dioxins	20.4		0.102	2.48	1.02		1
Total Tetra-Furans	0.489**J**		0.187	0.495	0.66		1
Total Penta-Furans	ND	U	0.103	2.48			1
Total Hexa-Furans	1.25**J**		0.0740	2.48	1.09		1
Total Hepta-Furans	10.1		0.138	2.48	0.96		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-05-15 MT3/MT6 BG-Fillet	**Units:**	Percent
Lab Code:	E1500743-009	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 08:48
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.092g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301070	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1502.429	75		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1592.481	80		25-181	1.58	1.175
13C-1,2,3,4,7,8-HxCDD	2000	1467.226	73		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1400.184	70		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1469.878	73		23-140	1.04	1.066
13C-OCDD	4000	2770.706	69		17-157	0.90	1.141
13C-2,3,7,8-TCDF	2000	1376.310	69		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1523.423	76		24-185	1.57	1.134
13C-2,3,4,7,8-PeCDF	2000	1566.366	78		21-178	1.59	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1337.417	67		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1386.008	69		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1842.528	92		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1426.354	71		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1228.315	61		28-143	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	933.382	47		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	648.643	81		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-05-15 MT3/MT6 BG-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-009	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.400**	0.0928	0.495	1	1	0.400
1,2,3,7,8-PeCDD	ND	0.148	2.48	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0740	2.48	1	0.1	
1,2,3,6,7,8-HxCDD	**0.395**	0.0791	2.48	1	0.1	0.0395
1,2,3,7,8,9-HxCDD	**0.147**	0.0722	2.48	1	0.1	0.0147
1,2,3,4,6,7,8-HpCDD	**8.08**	0.102	2.48	1	0.01	0.0808
OCDD	**49.0**	0.144	4.95	1	0.0003	0.0147
2,3,7,8-TCDF	**0.489**	0.187	0.495	1	0.1	0.0489
1,2,3,7,8-PeCDF	ND	0.101	2.48	1	0.03	
2,3,4,7,8-PeCDF	ND	0.105	2.48	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0778	2.48	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0725	2.48	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0687	2.48	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0785	2.48	1	0.1	
1,2,3,4,6,7,8-HpCDF	**1.88**	0.102	2.48	1	0.01	0.0188
1,2,3,4,7,8,9-HpCDF	ND	0.194	2.48	1	0.01	
OCDF	**7.36**	0.241	4.95	1	0.0003	0.00221
		Total TEQ				0.620

2005 WHO TEFs, ND = 0

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Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-05-15 MT3/MT6 BG-Fillet	**Units:**	Percent
Lab Code:	E1500743-009	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.092g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	20.0		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-06-15 MT3/MT6 LB-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-010	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 09:37
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.013g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301071	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	2.24		0.117	0.499	0.78	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.115	2.50			1
1,2,3,4,7,8-HxCDD	ND	U	0.0797	2.50			1
1,2,3,6,7,8-HxCDD	0.561**JK**		0.0847	2.50	1.44	1.000	1
1,2,3,7,8,9-HxCDD	0.166**JK**		0.0775	2.50	0.89	1.006	1
1,2,3,4,6,7,8-HpCDD	5.91**B**		0.115	2.50	1.01	1.000	1
OCDD	37.8**B**		0.106	4.99	0.90	1.000	1
2,3,7,8-TCDF	1.56		0.156	0.499	0.73	1.000	1
1,2,3,7,8-PeCDF	ND	U	0.0809	2.50			1
2,3,4,7,8-PeCDF	ND	U	0.0831	2.50			1
1,2,3,4,7,8-HxCDF	ND	U	0.0776	2.50			1
1,2,3,6,7,8-HxCDF	ND	U	0.0739	2.50			1
1,2,3,7,8,9-HxCDF	ND	U	0.0666	2.50			1
2,3,4,6,7,8-HxCDF	0.105**J**		0.0784	2.50	1.31	1.000	1
1,2,3,4,6,7,8-HpCDF	1.71**BJ**		0.0922	2.50	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.158	2.50			1
OCDF	7.35		0.234	4.99	0.86	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-06-15 MT3/MT6 LB-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-010	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 09:37
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.013g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301071	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	2.24		0.117	0.499	0.78		1
Total Penta-Dioxins	ND	U	0.115	2.50			1
Total Hexa-Dioxins	1.66**J**		0.0806	2.50	1.24		1
Total Hepta-Dioxins	15.6		0.115	2.50	1.05		1
Total Tetra-Furans	2.28		0.156	0.499	0.67		1
Total Penta-Furans	0.104**J**		0.0819	2.50	1.46		1
Total Hexa-Furans	1.16**J**		0.0737	2.50	1.19		1
Total Hepta-Furans	9.19		0.120	2.50	1.02		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-06-15 MT3/MT6 LB-Carcass	**Units:**	Percent
Lab Code:	E1500743-010	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 09:37
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.013g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301071	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1617.364	81		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1650.913	83		25-181	1.59	1.175
13C-1,2,3,4,7,8-HxCDD	2000	1483.711	74		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1421.123	71		28-130	1.25	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1504.827	75		23-140	1.06	1.066
13C-OCDD	4000	2943.970	74		17-157	0.90	1.142
13C-2,3,7,8-TCDF	2000	1475.016	74		24-169	0.78	0.994
13C-1,2,3,7,8-PeCDF	2000	1610.323	81		24-185	1.59	1.135
13C-2,3,4,7,8-PeCDF	2000	1631.736	82		21-178	1.58	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1373.778	69		26-152	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1411.828	71		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1949.046	97		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1452.987	73		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1289.762	64		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1079.813	54		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	663.818	83		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-06-15 MT3/MT6 LB-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-010	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2.24**	0.117	0.499	1	1	2.24
1,2,3,7,8-PeCDD	ND	0.115	2.50	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0797	2.50	1	0.1	
1,2,3,6,7,8-HxCDD	**0.561**	0.0847	2.50	1	0.1	0.0561
1,2,3,7,8,9-HxCDD	**0.166**	0.0775	2.50	1	0.1	0.0166
1,2,3,4,6,7,8-HpCDD	**5.91**	0.115	2.50	1	0.01	0.0591
OCDD	**37.8**	0.106	4.99	1	0.0003	0.0113
2,3,7,8-TCDF	**1.56**	0.156	0.499	1	0.1	0.156
1,2,3,7,8-PeCDF	ND	0.0809	2.50	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0831	2.50	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0776	2.50	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0739	2.50	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0666	2.50	1	0.1	
2,3,4,6,7,8-HxCDF	**0.105**	0.0784	2.50	1	0.1	0.0105
1,2,3,4,6,7,8-HpCDF	**1.71**	0.0922	2.50	1	0.01	0.0171
1,2,3,4,7,8,9-HpCDF	ND	0.158	2.50	1	0.01	
OCDF	**7.35**	0.234	4.99	1	0.0003	0.00221
		Total TEQ				2.57

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-06-15 MT3/MT6 LB-Carcass	**Units:**	Percent
Lab Code:	E1500743-010	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.013g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	25.1		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-06-15 MT3/MT6 LB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-011	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 10:26
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.235g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301072	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.368**JK**		0.125	0.489	0.57	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.131	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.0830	2.44			1
1,2,3,6,7,8-HxCDD	0.296**J**		0.0823	2.44	1.41	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.0779	2.44			1
1,2,3,4,6,7,8-HpCDD	5.95**B**		0.107	2.44	1.04	1.000	1
OCDD	40.3**B**		0.149	4.89	0.90	1.000	1
2,3,7,8-TCDF	ND	U	0.180	0.489			1
1,2,3,7,8-PeCDF	ND	U	0.103	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.121	2.44			1
1,2,3,4,7,8-HxCDF	ND	U	0.0990	2.44			1
1,2,3,6,7,8-HxCDF	ND	U	0.0852	2.44			1
1,2,3,7,8,9-HxCDF	ND	U	0.118	2.44			1
2,3,4,6,7,8-HxCDF	0.102**JK**		0.0927	2.44	3.11	1.000	1
1,2,3,4,6,7,8-HpCDF	3.36**BK**		0.194	2.44	0.86	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.722	2.44			1
OCDF	8.65		0.275	4.89	0.93	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-06-15 MT3/MT6 LB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-011	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 10:26
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.235g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301072	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.125	0.489			1
Total Penta-Dioxins	ND	U	0.131	2.44			1
Total Hexa-Dioxins	1.09**J**		0.0810	2.44	1.29		1
Total Hepta-Dioxins	16.2		0.107	2.44	1.04		1
Total Tetra-Furans	1.85		0.180	0.489	0.69		1
Total Penta-Furans	ND	U	0.111	2.44			1
Total Hexa-Furans	1.41**J**		0.0971	2.44	1.32		1
Total Hepta-Furans	18.8		0.325	2.44	1.01		1

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Analytical Report

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Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-06-15 MT3/MT6 LB-Fillet	**Units:**	Percent
Lab Code:	E1500743-011	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 10:26
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.235g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301072	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1586.660	79		25-164	0.77	1.019
13C-1,2,3,7,8-PeCDD	2000	1607.288	80		25-181	1.58	1.175
13C-1,2,3,4,7,8-HxCDD	2000	1325.035	66		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1351.763	68		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1348.189	67		23-140	1.05	1.066
13C-OCDD	4000	2423.575	61		17-157	0.91	1.142
13C-2,3,7,8-TCDF	2000	1408.651	70		24-169	0.80	0.993
13C-1,2,3,7,8-PeCDF	2000	1618.779	81		24-185	1.59	1.135
13C-2,3,4,7,8-PeCDF	2000	1524.373	76		21-178	1.57	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1016.523	51		26-152	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1144.493	57		26-123	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1028.732	51		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1161.806	58		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	674.552	34		28-143	0.43	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	255.939	13	**Y**	26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	654.590	82		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-06-15 MT3/MT6 LB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-011	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.368**	0.125	0.489	1	1	0.368
1,2,3,7,8-PeCDD	ND	0.131	2.44	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0830	2.44	1	0.1	
1,2,3,6,7,8-HxCDD	**0.296**	0.0823	2.44	1	0.1	0.0296
1,2,3,7,8,9-HxCDD	ND	0.0779	2.44	1	0.1	
1,2,3,4,6,7,8-HpCDD	**5.95**	0.107	2.44	1	0.01	0.0595
OCDD	**40.3**	0.149	4.89	1	0.0003	0.0121
2,3,7,8-TCDF	ND	0.180	0.489	1	0.1	
1,2,3,7,8-PeCDF	ND	0.103	2.44	1	0.03	
2,3,4,7,8-PeCDF	ND	0.121	2.44	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0990	2.44	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0852	2.44	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.118	2.44	1	0.1	
2,3,4,6,7,8-HxCDF	**0.102**	0.0927	2.44	1	0.1	0.0102
1,2,3,4,6,7,8-HpCDF	**3.36**	0.194	2.44	1	0.01	0.0336
1,2,3,4,7,8,9-HpCDF	ND	0.722	2.44	1	0.01	
OCDF	**8.65**	0.275	4.89	1	0.0003	0.00260
		Total TEQ				0.516

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	04/30/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-06-15 MT3/MT6 LB-Fillet	**Units:**	Percent
Lab Code:	E1500743-011	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.235g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	19.2		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/07/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-07-15 MT3/MT6 YB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-012	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 11:14
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.402g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301073	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.478**J**		0.136	0.481	0.69	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.146	2.40			1
1,2,3,4,7,8-HxCDD	ND	U	0.0893	2.40			1
1,2,3,6,7,8-HxCDD	0.377**J**		0.0912	2.40	1.39	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.0851	2.40			1
1,2,3,4,6,7,8-HpCDD	11.5**B**		0.174	2.40	1.00	1.000	1
OCDD	108**B**		0.156	4.81	0.90	1.000	1
2,3,7,8-TCDF	1.54		0.194	0.481	0.75	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.109	2.40			1
2,3,4,7,8-PeCDF	0.184**JK**		0.116	2.40	0.91	1.000	1
1,2,3,4,7,8-HxCDF	ND	U	0.0720	2.40			1
1,2,3,6,7,8-HxCDF	ND	U	0.0672	2.40			1
1,2,3,7,8,9-HxCDF	ND	U	0.0562	2.40			1
2,3,4,6,7,8-HxCDF	ND	U	0.0713	2.40			1
1,2,3,4,6,7,8-HpCDF	1.81**BJ**		0.0813	2.40	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	0.131**BJK**		0.124	2.40	1.44	1.000	1
OCDF	7.14		0.238	4.81	0.91	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/07/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-07-15 MT3/MT6 YB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-012	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 11:14
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.402g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301073	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	0.478**J**		0.136	0.481	0.69		1
Total Penta-Dioxins	ND	U	0.146	2.40			1
Total Hexa-Dioxins	2.19**J**		0.0885	2.40	1.12		1
Total Hepta-Dioxins	30.1		0.174	2.40	1.02		1
Total Tetra-Furans	2.07		0.194	0.481	0.73		1
Total Penta-Furans	ND	U	0.113	2.40			1
Total Hexa-Furans	1.15**J**		0.0658	2.40	1.25		1
Total Hepta-Furans	8.92		0.101	2.40	1.04		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/07/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-07-15 MT3/MT6 YB-Fillet	**Units:**	Percent
Lab Code:	E1500743-012	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 11:14
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.402g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301073	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1509.776	75		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1579.232	79		25-181	1.56	1.175
13C-1,2,3,4,7,8-HxCDD	2000	1401.164	70		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1363.878	68		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1397.220	70		23-140	1.06	1.066
13C-OCDD	4000	2826.988	71		17-157	0.90	1.142
13C-2,3,7,8-TCDF	2000	1370.316	69		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	1527.715	76		24-185	1.56	1.135
13C-2,3,4,7,8-PeCDF	2000	1552.164	78		21-178	1.57	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1317.846	66		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1345.250	67		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	2041.213	102		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1415.910	71		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1268.874	63		28-143	0.43	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1188.756	59		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	628.928	79		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/07/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-07-15 MT3/MT6 YB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-012	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.478**	0.136	0.481	1	1	0.478
1,2,3,7,8-PeCDD	ND	0.146	2.40	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0893	2.40	1	0.1	
1,2,3,6,7,8-HxCDD	**0.377**	0.0912	2.40	1	0.1	0.0377
1,2,3,7,8,9-HxCDD	ND	0.0851	2.40	1	0.1	
1,2,3,4,6,7,8-HpCDD	**11.5**	0.174	2.40	1	0.01	0.115
OCDD	**108**	0.156	4.81	1	0.0003	0.0324
2,3,7,8-TCDF	**1.54**	0.194	0.481	1	0.1	0.154
1,2,3,7,8-PeCDF	ND	0.109	2.40	1	0.03	
2,3,4,7,8-PeCDF	**0.184**	0.116	2.40	1	0.3	0.0552
1,2,3,4,7,8-HxCDF	ND	0.0720	2.40	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0672	2.40	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0562	2.40	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0713	2.40	1	0.1	
1,2,3,4,6,7,8-HpCDF	**1.81**	0.0813	2.40	1	0.01	0.0181
1,2,3,4,7,8,9-HpCDF	**0.131**	0.124	2.40	1	0.01	0.00131
OCDF	**7.14**	0.238	4.81	1	0.0003	0.00214
		Total TEQ				0.894

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/07/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-07-15 MT3/MT6 YB-Fillet	**Units:**	Percent
Lab Code:	E1500743-012	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.402g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	17.7		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-08-15 MT7/MT8 BG-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-013	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 12:03
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.105g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301074	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	2.64		0.0931	0.495	0.78	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.129	2.47			1
1,2,3,4,7,8-HxCDD	0.107**JK**		0.0693	2.47	1.04	1.000	1
1,2,3,6,7,8-HxCDD	0.276**JK**		0.0746	2.47	1.44	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.0678	2.47			1
1,2,3,4,6,7,8-HpCDD	6.06**B**		0.106	2.47	1.03	1.000	1
OCDD	38.3**B**		0.132	4.95	0.90	1.000	1
2,3,7,8-TCDF	3.89		0.157	0.495	0.73	1.000	1
1,2,3,7,8-PeCDF	ND	U	0.0864	2.47			1
2,3,4,7,8-PeCDF	ND	U	0.0880	2.47			1
1,2,3,4,7,8-HxCDF	ND	U	0.0544	2.47			1
1,2,3,6,7,8-HxCDF	ND	U	0.0520	2.47			1
1,2,3,7,8,9-HxCDF	ND	U	0.0452	2.47			1
2,3,4,6,7,8-HxCDF	0.0685**JK**		0.0537	2.47	2.97	1.000	1
1,2,3,4,6,7,8-HpCDF	1.77**BJ**		0.0936	2.47	1.09	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.144	2.47			1
OCDF	7.43		0.177	4.95	0.86	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-08-15 MT7/MT8 BG-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-013	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 12:03
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.105g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301074	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	2.64		0.0931	0.495	0.78		1
Total Penta-Dioxins	ND	U	0.129	2.47			1
Total Hexa-Dioxins	1.63**J**		0.0705	2.47	1.31		1
Total Hepta-Dioxins	16.5		0.106	2.47	1.05		1
Total Tetra-Furans	3.89		0.157	0.495	0.73		1
Total Penta-Furans	0.109**J**		0.0872	2.47	1.41		1
Total Hexa-Furans	ND	U	0.0508	2.47			1
Total Hepta-Furans	9.33		0.116	2.47	1.09		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-08-15 MT7/MT8 BG-Carcass	**Units:**	Percent
Lab Code:	E1500743-013	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 12:03
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.105g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301074	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1542.164	77		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1595.967	80		25-181	1.58	1.175
13C-1,2,3,4,7,8-HxCDD	2000	1456.040	73		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1348.378	67		28-130	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1435.135	72		23-140	1.06	1.066
13C-OCDD	4000	2836.141	71		17-157	0.90	1.141
13C-2,3,7,8-TCDF	2000	1415.717	71		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1545.071	77		24-185	1.58	1.135
13C-2,3,4,7,8-PeCDF	2000	1578.735	79		21-178	1.56	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1387.528	69		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1391.817	70		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	2059.767	103		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1447.786	72		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1292.854	65		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1182.143	59		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	632.852	79		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-08-15 MT7/MT8 BG-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-013	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2.64**	0.0931	0.495	1	1	2.64
1,2,3,7,8-PeCDD	ND	0.129	2.47	1	1	
1,2,3,4,7,8-HxCDD	**0.107**	0.0693	2.47	1	0.1	0.0107
1,2,3,6,7,8-HxCDD	**0.276**	0.0746	2.47	1	0.1	0.0276
1,2,3,7,8,9-HxCDD	ND	0.0678	2.47	1	0.1	
1,2,3,4,6,7,8-HpCDD	**6.06**	0.106	2.47	1	0.01	0.0606
OCDD	**38.3**	0.132	4.95	1	0.0003	0.0115
2,3,7,8-TCDF	**3.89**	0.157	0.495	1	0.1	0.389
1,2,3,7,8-PeCDF	ND	0.0864	2.47	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0880	2.47	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0544	2.47	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0520	2.47	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0452	2.47	1	0.1	
2,3,4,6,7,8-HxCDF	**0.0685**	0.0537	2.47	1	0.1	0.00685
1,2,3,4,6,7,8-HpCDF	**1.77**	0.0936	2.47	1	0.01	0.0177
1,2,3,4,7,8,9-HpCDF	ND	0.144	2.47	1	0.01	
OCDF	**7.43**	0.177	4.95	1	0.0003	0.00223
		Total TEQ				3.17

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-08-15 MT7/MT8 BG-Carcass	**Units:**	Percent
Lab Code:	E1500743-013	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.105g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	23.8		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-08-15 MT7/MT8 BG-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-014	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 12:51
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.259g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301075	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.458**JK**		0.119	0.487	0.58	1.000	1
1,2,3,7,8-PeCDD	ND	U	0.112	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.0783	2.44			1
1,2,3,6,7,8-HxCDD	0.293**J**		0.0798	2.44	1.11	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.0746	2.44			1
1,2,3,4,6,7,8-HpCDD	5.44**B**		0.167	2.44	0.98	1.000	1
OCDD	35.1**B**		0.125	4.87	0.91	1.000	1
2,3,7,8-TCDF	0.452**JK**		0.146	0.487	0.60	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.109	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.116	2.44			1
1,2,3,4,7,8-HxCDF	ND	U	0.0667	2.44			1
1,2,3,6,7,8-HxCDF	ND	U	0.0612	2.44			1
1,2,3,7,8,9-HxCDF	ND	U	0.0564	2.44			1
2,3,4,6,7,8-HxCDF	ND	U	0.0635	2.44			1
1,2,3,4,6,7,8-HpCDF	1.84**BJ**		0.123	2.44	1.07	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.189	2.44			1
OCDF	7.39		0.229	4.87	0.90	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-08-15 MT7/MT8 BG-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-014	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 12:51
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.259g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301075	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.119	0.487			1
Total Penta-Dioxins	ND	U	0.112	2.44			1
Total Hexa-Dioxins	1.31**J**		0.0775	2.44	1.07		1
Total Hepta-Dioxins	15.8		0.167	2.44	1.03		1
Total Tetra-Furans	0.812		0.146	0.487	0.81		1
Total Penta-Furans	ND	U	0.112	2.44			1
Total Hexa-Furans	0.972**J**		0.0616	2.44	1.24		1
Total Hepta-Furans	10.0		0.151	2.44	1.07		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-08-15 MT7/MT8 BG-Fillet	**Units:**	Percent
Lab Code:	E1500743-014	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 12:51
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.259g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301075	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1578.795	79		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1622.621	81		25-181	1.58	1.175
13C-1,2,3,4,7,8-HxCDD	2000	1428.006	71		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1397.509	70		28-130	1.24	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1378.048	69		23-140	1.06	1.066
13C-OCDD	4000	2622.929	66		17-157	0.91	1.142
13C-2,3,7,8-TCDF	2000	1467.525	73		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	1579.140	79		24-185	1.58	1.135
13C-2,3,4,7,8-PeCDF	2000	1601.149	80		21-178	1.56	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1305.711	65		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1356.596	68		26-123	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1845.799	92		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1425.271	71		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1115.082	56		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	943.222	47		26-138	0.45	1.079
37Cl-2,3,7,8-TCDD	800	665.538	83		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-08-15 MT7/MT8 BG-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-014	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.458**	0.119	0.487	1	1	0.458
1,2,3,7,8-PeCDD	ND	0.112	2.44	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0783	2.44	1	0.1	
1,2,3,6,7,8-HxCDD	**0.293**	0.0798	2.44	1	0.1	0.0293
1,2,3,7,8,9-HxCDD	ND	0.0746	2.44	1	0.1	
1,2,3,4,6,7,8-HpCDD	**5.44**	0.167	2.44	1	0.01	0.0544
OCDD	**35.1**	0.125	4.87	1	0.0003	0.0105
2,3,7,8-TCDF	**0.452**	0.146	0.487	1	0.1	0.0452
1,2,3,7,8-PeCDF	ND	0.109	2.44	1	0.03	
2,3,4,7,8-PeCDF	ND	0.116	2.44	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0667	2.44	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0612	2.44	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0564	2.44	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0635	2.44	1	0.1	
1,2,3,4,6,7,8-HpCDF	**1.84**	0.123	2.44	1	0.01	0.0184
1,2,3,4,7,8,9-HpCDF	ND	0.189	2.44	1	0.01	
OCDF	**7.39**	0.229	4.87	1	0.0003	0.00222
		Total TEQ				0.618

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-08-15 MT7/MT8 BG-Fillet	**Units:**	Percent
Lab Code:	E1500743-014	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.259g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	20.0		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-09-15 MT7/MT8 BG-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-015	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 13:49
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.006g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301076	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	3.05		0.126	0.500	0.73	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.138	2.50			1
1,2,3,4,7,8-HxCDD	0.0913**JK**		0.0753	2.50	0.58	1.000	1
1,2,3,6,7,8-HxCDD	0.398**J**		0.0818	2.50	1.19	1.000	1
1,2,3,7,8,9-HxCDD	0.128**JK**		0.0741	2.50	0.91	1.007	1
1,2,3,4,6,7,8-HpCDD	6.24**B**		0.154	2.50	1.00	1.000	1
OCDD	50.6**B**		0.131	5.00	0.89	1.000	1
2,3,7,8-TCDF	5.30		0.148	0.500	0.79	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.114	2.50			1
2,3,4,7,8-PeCDF	ND	U	0.118	2.50			1
1,2,3,4,7,8-HxCDF	ND	U	0.0608	2.50			1
1,2,3,6,7,8-HxCDF	0.0975**JK**		0.0576	2.50	1.63	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0514	2.50			1
2,3,4,6,7,8-HxCDF	ND	U	0.0620	2.50			1
1,2,3,4,6,7,8-HpCDF	1.80**BJ**		0.0842	2.50	0.98	1.000	1
1,2,3,4,7,8,9-HpCDF	0.146**BJ**		0.118	2.50	1.00	1.000	1
OCDF	7.87		0.255	5.00	0.87	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-09-15 MT7/MT8 BG-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-015	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 13:49
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.006g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301076	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	3.05		0.126	0.500	0.73		1
Total Penta-Dioxins	ND	U	0.138	2.50			1
Total Hexa-Dioxins	1.61**J**		0.0770	2.50	1.30		1
Total Hepta-Dioxins	17.0		0.154	2.50	1.00		1
Total Tetra-Furans	5.59		0.148	0.500	0.79		1
Total Penta-Furans	0.157**J**		0.116	2.50	1.42		1
Total Hexa-Furans	ND	U	0.0574	2.50			1
Total Hepta-Furans	9.25		0.0994	2.50	0.98		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-09-15 MT7/MT8 BG-Carcass	**Units:**	Percent
Lab Code:	E1500743-015	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 13:49
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.006g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301076	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1534.411	77		25-164	0.77	1.019
13C-1,2,3,7,8-PeCDD	2000	1622.560	81		25-181	1.59	1.175
13C-1,2,3,4,7,8-HxCDD	2000	1452.130	73		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1376.663	69		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1422.881	71		23-140	1.06	1.066
13C-OCDD	4000	2634.590	66		17-157	0.89	1.141
13C-2,3,7,8-TCDF	2000	1387.226	69		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1580.673	79		24-185	1.57	1.135
13C-2,3,4,7,8-PeCDF	2000	1589.209	79		21-178	1.58	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1364.845	68		26-152	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1397.851	70		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	2004.301	100		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1450.921	73		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1294.633	65		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1259.330	63		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	629.357	79		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-09-15 MT7/MT8 BG-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-015	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**3.05**	0.126	0.500	1	1	3.05
1,2,3,7,8-PeCDD	ND	0.138	2.50	1	1	
1,2,3,4,7,8-HxCDD	**0.0913**	0.0753	2.50	1	0.1	0.00913
1,2,3,6,7,8-HxCDD	**0.398**	0.0818	2.50	1	0.1	0.0398
1,2,3,7,8,9-HxCDD	**0.128**	0.0741	2.50	1	0.1	0.0128
1,2,3,4,6,7,8-HpCDD	**6.24**	0.154	2.50	1	0.01	0.0624
OCDD	**50.6**	0.131	5.00	1	0.0003	0.0152
2,3,7,8-TCDF	**5.30**	0.148	0.500	1	0.1	0.530
1,2,3,7,8-PeCDF	ND	0.114	2.50	1	0.03	
2,3,4,7,8-PeCDF	ND	0.118	2.50	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0608	2.50	1	0.1	
1,2,3,6,7,8-HxCDF	**0.0975**	0.0576	2.50	1	0.1	0.00975
1,2,3,7,8,9-HxCDF	ND	0.0514	2.50	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0620	2.50	1	0.1	
1,2,3,4,6,7,8-HpCDF	**1.80**	0.0842	2.50	1	0.01	0.0180
1,2,3,4,7,8,9-HpCDF	**0.146**	0.118	2.50	1	0.01	0.00146
OCDF	**7.87**	0.255	5.00	1	0.0003	0.00236
		Total TEQ				3.75

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-09-15 MT7/MT8 BG-Carcass	**Units:**	Percent
Lab Code:	E1500743-015	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.006g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	23.4		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-09-15 MT7/MT8 BG-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-016	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 14:36
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.157g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301077	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.452**J**		0.127	0.492	0.72	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.124	2.46			1
1,2,3,4,7,8-HxCDD	ND	U	0.0958	2.46			1
1,2,3,6,7,8-HxCDD	0.345**JK**		0.102	2.46	0.89	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.0932	2.46			1
1,2,3,4,6,7,8-HpCDD	7.48**B**		0.140	2.46	1.11	1.000	1
OCDD	50.0**B**		0.161	4.92	0.87	1.000	1
2,3,7,8-TCDF	0.655		0.165	0.492	0.86	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.126	2.46			1
2,3,4,7,8-PeCDF	ND	U	0.136	2.46			1
1,2,3,4,7,8-HxCDF	ND	U	0.0759	2.46			1
1,2,3,6,7,8-HxCDF	ND	U	0.0703	2.46			1
1,2,3,7,8,9-HxCDF	ND	U	0.0609	2.46			1
2,3,4,6,7,8-HxCDF	ND	U	0.0757	2.46			1
1,2,3,4,6,7,8-HpCDF	1.77**BJ**		0.0768	2.46	0.93	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.117	2.46			1
OCDF	7.27		0.226	4.92	0.84	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-09-15 MT7/MT8 BG-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-016	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 14:36
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.157g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301077	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	0.452**J**		0.127	0.492	0.72		1
Total Penta-Dioxins	ND	U	0.124	2.46			1
Total Hexa-Dioxins	0.815**J**		0.0968	2.46	1.14		1
Total Hepta-Dioxins	19.1		0.140	2.46	1.02		1
Total Tetra-Furans	2.00		0.165	0.492	0.77		1
Total Penta-Furans	ND	U	0.131	2.46			1
Total Hexa-Furans	1.23**J**		0.0700	2.46	1.14		1
Total Hepta-Furans	8.91		0.0943	2.46	0.93		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-09-15 MT7/MT8 BG-Fillet	**Units:**	Percent
Lab Code:	E1500743-016	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 14:36
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.157g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301077	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301064

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1585.006	79		25-164	0.77	1.019
13C-1,2,3,7,8-PeCDD	2000	1693.442	85		25-181	1.56	1.175
13C-1,2,3,4,7,8-HxCDD	2000	1443.097	72		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1399.500	70		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1444.421	72		23-140	1.04	1.066
13C-OCDD	4000	2684.134	67		17-157	0.90	1.142
13C-2,3,7,8-TCDF	2000	1444.034	72		24-169	0.80	0.993
13C-1,2,3,7,8-PeCDF	2000	1629.004	81		24-185	1.57	1.135
13C-2,3,4,7,8-PeCDF	2000	1659.159	83		21-178	1.58	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1333.700	67		26-152	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1368.051	68		26-123	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1980.054	99		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1426.290	71		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1246.794	62		28-143	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1135.920	57		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	658.678	82		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-09-15 MT7/MT8 BG-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-016	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.452**	0.127	0.492	1	1	0.452
1,2,3,7,8-PeCDD	ND	0.124	2.46	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0958	2.46	1	0.1	
1,2,3,6,7,8-HxCDD	**0.345**	0.102	2.46	1	0.1	0.0345
1,2,3,7,8,9-HxCDD	ND	0.0932	2.46	1	0.1	
1,2,3,4,6,7,8-HpCDD	**7.48**	0.140	2.46	1	0.01	0.0748
OCDD	**50.0**	0.161	4.92	1	0.0003	0.0150
2,3,7,8-TCDF	**0.655**	0.165	0.492	1	0.1	0.0655
1,2,3,7,8-PeCDF	ND	0.126	2.46	1	0.03	
2,3,4,7,8-PeCDF	ND	0.136	2.46	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0759	2.46	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0703	2.46	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0609	2.46	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0757	2.46	1	0.1	
1,2,3,4,6,7,8-HpCDF	**1.77**	0.0768	2.46	1	0.01	0.0177
1,2,3,4,7,8,9-HpCDF	ND	0.117	2.46	1	0.01	
OCDF	**7.27**	0.226	4.92	1	0.0003	0.00218
		Total TEQ				0.662

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-09-15 MT7/MT8 BG-Fillet	**Units:**	Percent
Lab Code:	E1500743-016	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.157g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	20.0		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-10-15 MT7/MT8 LB-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-017	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 19:24
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.028g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301081	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301078

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	6.54		0.261	0.499	0.74	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.290	2.49			1
1,2,3,4,7,8-HxCDD	ND	U	0.146	2.49			1
1,2,3,6,7,8-HxCDD	0.390**J**		0.149	2.49	1.26	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.139	2.49			1
1,2,3,4,6,7,8-HpCDD	6.93**B**		0.270	2.49	0.99	1.000	1
OCDD	46.8**B**		0.351	4.99	0.90	1.000	1
2,3,7,8-TCDF	5.54		0.556	0.556	0.80	1.000	1
1,2,3,7,8-PeCDF	ND	U	0.250	2.49			1
2,3,4,7,8-PeCDF	ND	U	0.261	2.49			1
1,2,3,4,7,8-HxCDF	ND	U	0.221	2.49			1
1,2,3,6,7,8-HxCDF	ND	U	0.210	2.49			1
1,2,3,7,8,9-HxCDF	ND	U	0.170	2.49			1
2,3,4,6,7,8-HxCDF	ND	U	0.220	2.49			1
1,2,3,4,6,7,8-HpCDF	2.19**BJ**		0.197	2.49	0.94	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.248	2.49			1
OCDF	8.57		0.461	4.99	0.82	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-10-15 MT7/MT8 LB-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-017	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 19:24
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.028g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301081	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301078

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	6.54		0.261	0.499	0.74		1
Total Penta-Dioxins	ND	U	0.290	2.49			1
Total Hexa-Dioxins	1.37**J**		0.145	2.49	1.23		1
Total Hepta-Dioxins	18.4		0.270	2.49	0.99		1
Total Tetra-Furans	5.54		0.556	0.556	0.80		1
Total Penta-Furans	ND	U	0.255	2.49			1
Total Hexa-Furans	1.37**J**		0.202	2.49	1.17		1
Total Hepta-Furans	9.16		0.220	2.49	0.94		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-10-15 MT7/MT8 LB-Carcass	**Units:**	Percent
Lab Code:	E1500743-017	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 19:24
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.028g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301081	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301078

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1497.344	75		25-164	0.76	1.019
13C-1,2,3,7,8-PeCDD	2000	1756.127	88		25-181	1.58	1.175
13C-1,2,3,4,7,8-HxCDD	2000	1426.590	71		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1419.171	71		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1543.075	77		23-140	1.04	1.066
13C-OCDD	4000	3152.459	79		17-157	0.90	1.141
13C-2,3,7,8-TCDF	2000	1331.128	67		24-169	0.78	0.994
13C-1,2,3,7,8-PeCDF	2000	1655.704	83		24-185	1.57	1.135
13C-2,3,4,7,8-PeCDF	2000	1725.753	86		21-178	1.59	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1323.716	66		26-152	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1380.448	69		26-123	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	2101.415	105		29-147	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1425.978	71		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1423.292	71		28-143	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1463.433	73		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	607.431	76		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-10-15 MT7/MT8 LB-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-017	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**6.54**	0.261	0.499	1	1	6.54
1,2,3,7,8-PeCDD	ND	0.290	2.49	1	1	
1,2,3,4,7,8-HxCDD	ND	0.146	2.49	1	0.1	
1,2,3,6,7,8-HxCDD	**0.390**	0.149	2.49	1	0.1	0.0390
1,2,3,7,8,9-HxCDD	ND	0.139	2.49	1	0.1	
1,2,3,4,6,7,8-HpCDD	**6.93**	0.270	2.49	1	0.01	0.0693
OCDD	**46.8**	0.351	4.99	1	0.0003	0.0140
2,3,7,8-TCDF	**5.54**	0.556	0.556	1	0.1	0.554
1,2,3,7,8-PeCDF	ND	0.250	2.49	1	0.03	
2,3,4,7,8-PeCDF	ND	0.261	2.49	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.221	2.49	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.210	2.49	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.170	2.49	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.220	2.49	1	0.1	
1,2,3,4,6,7,8-HpCDF	**2.19**	0.197	2.49	1	0.01	0.0219
1,2,3,4,7,8,9-HpCDF	ND	0.248	2.49	1	0.01	
OCDF	**8.57**	0.461	4.99	1	0.0003	0.00257
		Total TEQ				7.24

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-10-15 MT7/MT8 LB-Carcass	**Units:**	Percent
Lab Code:	E1500743-017	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.028g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	24.8		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-10-15 MT7/MT8 LB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-018	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 20:13
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.431g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301082	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301078

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.629		0.105	0.479	0.66	1.000	1
1,2,3,7,8-PeCDD	ND	U	0.109	2.40			1
1,2,3,4,7,8-HxCDD	ND	U	0.0877	2.40			1
1,2,3,6,7,8-HxCDD	0.274**J**		0.0941	2.40	1.28	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.0857	2.40			1
1,2,3,4,6,7,8-HpCDD	5.37**B**		0.0820	2.40	0.98	1.000	1
OCDD	33.5**B**		0.0974	4.79	0.88	1.000	1
2,3,7,8-TCDF	0.448**J**		0.156	0.479	0.79	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0826	2.40			1
2,3,4,7,8-PeCDF	ND	U	0.0877	2.40			1
1,2,3,4,7,8-HxCDF	ND	U	0.0679	2.40			1
1,2,3,6,7,8-HxCDF	ND	U	0.0642	2.40			1
1,2,3,7,8,9-HxCDF	ND	U	0.0597	2.40			1
2,3,4,6,7,8-HxCDF	ND	U	0.0667	2.40			1
1,2,3,4,6,7,8-HpCDF	1.68**BJ**		0.0945	2.40	0.91	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.164	2.40			1
OCDF	7.15		0.211	4.79	0.84	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-10-15 MT7/MT8 LB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-018	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 20:13
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.431g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301082	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301078

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	0.629		0.105	0.479	0.66		1
Total Penta-Dioxins	ND	U	0.109	2.40			1
Total Hexa-Dioxins	1.72**J**		0.0890	2.40	1.26		1
Total Hepta-Dioxins	14.6		0.0820	2.40	1.05		1
Total Tetra-Furans	1.73		0.156	0.479	0.78		1
Total Penta-Furans	ND	U	0.0850	2.40			1
Total Hexa-Furans	1.13**J**		0.0642	2.40	1.18		1
Total Hepta-Furans	9.48		0.123	2.40	0.91		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-10-15 MT7/MT8 LB-Fillet	**Units:**	Percent
Lab Code:	E1500743-018	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/28/15 20:13
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.431g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301082	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301078

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1632.824	82		25-164	0.77	1.019
13C-1,2,3,7,8-PeCDD	2000	1661.389	83		25-181	1.55	1.175
13C-1,2,3,4,7,8-HxCDD	2000	1521.974	76		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1424.702	71		28-130	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1474.993	74		23-140	1.04	1.066
13C-OCDD	4000	2780.676	70		17-157	0.90	1.141
13C-2,3,7,8-TCDF	2000	1505.682	75		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1656.673	83		24-185	1.57	1.135
13C-2,3,4,7,8-PeCDF	2000	1658.001	83		21-178	1.59	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1362.332	68		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1438.889	72		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1947.331	97		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1447.749	72		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1214.286	61		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	999.905	50		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	689.686	86		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-10-15 MT7/MT8 LB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-018	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.629**	0.105	0.479	1	1	0.629
1,2,3,7,8-PeCDD	ND	0.109	2.40	1	1	
1,2,3,4,7,8-HxCDD	ND	0.0877	2.40	1	0.1	
1,2,3,6,7,8-HxCDD	**0.274**	0.0941	2.40	1	0.1	0.0274
1,2,3,7,8,9-HxCDD	ND	0.0857	2.40	1	0.1	
1,2,3,4,6,7,8-HpCDD	**5.37**	0.0820	2.40	1	0.01	0.0537
OCDD	**33.5**	0.0974	4.79	1	0.0003	0.0101
2,3,7,8-TCDF	**0.448**	0.156	0.479	1	0.1	0.0448
1,2,3,7,8-PeCDF	ND	0.0826	2.40	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0877	2.40	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0679	2.40	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0642	2.40	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0597	2.40	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0667	2.40	1	0.1	
1,2,3,4,6,7,8-HpCDF	**1.68**	0.0945	2.40	1	0.01	0.0168
1,2,3,4,7,8,9-HpCDF	ND	0.164	2.40	1	0.01	
OCDF	**7.15**	0.211	4.79	1	0.0003	0.00215
		Total TEQ				0.784

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-10-15 MT7/MT8 LB-Fillet	**Units:**	Percent
Lab Code:	E1500743-018	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	9.431g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	22.6		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/14/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-11-15 MT7/MT8 YB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-019	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/25/15 09:31
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.227g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P600126	**Blank File Name:**	P600058
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P600116

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.632		0.0243	0.489	0.68	1.001	1
1,2,3,7,8-PeCDD	0.0842**J**		0.0437	2.44	1.72	1.001	1
1,2,3,4,7,8-HxCDD	0.0875**J**		0.0199	2.44	1.23	1.000	1
1,2,3,6,7,8-HxCDD	0.355**J**		0.0206	2.44	1.23	1.000	1
1,2,3,7,8,9-HxCDD	0.104**J**		0.0182	2.44	1.28	1.007	1
1,2,3,4,6,7,8-HpCDD	8.92**B**		0.0573	2.44	1.05	1.000	1
OCDD	58.9**B**		0.0495	4.89	0.89	1.000	1
2,3,7,8-TCDF	1.47		0.0230	0.489	0.77	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0332	2.44			1
2,3,4,7,8-PeCDF	0.0771**JK**		0.0339	2.44	2.48	1.000	1
1,2,3,4,7,8-HxCDF	0.0571**J**		0.0206	2.44	1.11	1.000	1
1,2,3,6,7,8-HxCDF	0.0471**J**		0.0192	2.44	1.11	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0147	2.44			1
2,3,4,6,7,8-HxCDF	0.0526**JK**		0.0204	2.44	0.93	1.000	1
1,2,3,4,6,7,8-HpCDF	2.21**BJ**		0.0348	2.44	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	0.160**BJK**		0.0239	2.44	0.86	1.000	1
OCDF	9.57		0.0822	4.89	0.87	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/14/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-11-15 MT7/MT8 YB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-019	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/25/15 09:31
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.227g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P600126	**Blank File Name:**	P600058
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P600116

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	0.632		0.0243	0.489	0.68		1
Total Penta-Dioxins	0.209**J**		0.0437	2.44	1.61		1
Total Hexa-Dioxins	3.38		0.0195	2.44	1.23		1
Total Hepta-Dioxins	27.9		0.0573	2.44	1.05		1
Total Tetra-Furans	2.86		0.0230	0.489	0.72		1
Total Penta-Furans	0.0559**J**		0.0336	2.44	1.73		1
Total Hexa-Furans	1.57**J**		0.0184	2.44	1.06		1
Total Hepta-Furans	11.8		0.0279	2.44	1.02		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/14/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-11-15 MT7/MT8 YB-Fillet	**Units:**	Percent
Lab Code:	E1500743-019	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/25/15 09:31
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.227g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P600126	**Blank File Name:**	P600058
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P600116

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1334.231	67		25-164	0.79	1.018
13C-1,2,3,7,8-PeCDD	2000	1636.440	82		25-181	1.57	1.167
13C-1,2,3,4,7,8-HxCDD	2000	1392.150	70		32-141	1.27	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1407.951	70		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1244.846	62		23-140	1.05	1.066
13C-OCDD	4000	2333.389	58		17-157	0.90	1.142
13C-2,3,7,8-TCDF	2000	1559.931	78		24-169	0.80	0.994
13C-1,2,3,7,8-PeCDF	2000	1683.169	84		24-185	1.58	1.128
13C-2,3,4,7,8-PeCDF	2000	1629.964	81		21-178	1.58	1.159
13C-1,2,3,4,7,8-HxCDF	2000	1415.539	71		26-152	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1496.999	75		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	2145.583	107		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1420.739	71		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	737.018	37		28-143	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1164.606	58		26-138	0.45	1.079
37Cl-2,3,7,8-TCDD	800	559.627	70		35-197	NA	1.019

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/14/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-11-15 MT7/MT8 YB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-019	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.632**	0.0243	0.489	1	1	0.632
1,2,3,7,8-PeCDD	**0.0842**	0.0437	2.44	1	1	0.0842
1,2,3,4,7,8-HxCDD	**0.0875**	0.0199	2.44	1	0.1	0.00875
1,2,3,6,7,8-HxCDD	**0.355**	0.0206	2.44	1	0.1	0.0355
1,2,3,7,8,9-HxCDD	**0.104**	0.0182	2.44	1	0.1	0.0104
1,2,3,4,6,7,8-HpCDD	**8.92**	0.0573	2.44	1	0.01	0.0892
OCDD	**58.9**	0.0495	4.89	1	0.0003	0.0177
2,3,7,8-TCDF	**1.47**	0.0230	0.489	1	0.1	0.147
1,2,3,7,8-PeCDF	ND	0.0332	2.44	1	0.03	
2,3,4,7,8-PeCDF	**0.0771**	0.0339	2.44	1	0.3	0.0231
1,2,3,4,7,8-HxCDF	**0.0571**	0.0206	2.44	1	0.1	0.00571
1,2,3,6,7,8-HxCDF	**0.0471**	0.0192	2.44	1	0.1	0.00471
1,2,3,7,8,9-HxCDF	ND	0.0147	2.44	1	0.1	
2,3,4,6,7,8-HxCDF	**0.0526**	0.0204	2.44	1	0.1	0.00526
1,2,3,4,6,7,8-HpCDF	**2.21**	0.0348	2.44	1	0.01	0.0221
1,2,3,4,7,8,9-HpCDF	**0.160**	0.0239	2.44	1	0.01	0.00160
OCDF	**9.57**	0.0822	4.89	1	0.0003	0.00287
		Total TEQ				1.09

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/14/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-11-15 MT7/MT8 YB-Fillet	**Units:**	Percent
Lab Code:	E1500743-019	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.227g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	18.1		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-12-15 MT8/GT19 BG-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-020	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/25/15 10:20
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.552g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P600127	**Blank File Name:**	P600058
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P600116

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	1.62		0.0171	0.474	0.72	1.001	1
1,2,3,7,8-PeCDD	0.0747**JK**		0.0367	2.37	0.98	1.000	1
1,2,3,4,7,8-HxCDD	0.0760**J**		0.0190	2.37	1.50	1.000	1
1,2,3,6,7,8-HxCDD	0.304**J**		0.0210	2.37	1.28	1.000	1
1,2,3,7,8,9-HxCDD	0.108**J**		0.0181	2.37	1.36	1.007	1
1,2,3,4,6,7,8-HpCDD	5.74**B**		0.0295	2.37	1.07	1.000	1
OCDD	36.2**B**		0.0369	4.74	0.89	1.000	1
2,3,7,8-TCDF	2.73		0.0162	0.474	0.76	1.001	1
1,2,3,7,8-PeCDF	0.0420**J**		0.0185	2.37	1.35	1.001	1
2,3,4,7,8-PeCDF	0.0537**JK**		0.0198	2.37	2.58	1.000	1
1,2,3,4,7,8-HxCDF	0.0664**JK**		0.0281	2.37	1.59	1.000	1
1,2,3,6,7,8-HxCDF	0.0405**J**		0.0253	2.37	1.26	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0200	2.37			1
2,3,4,6,7,8-HxCDF	0.0446**J**		0.0274	2.37	1.17	1.000	1
1,2,3,4,6,7,8-HpCDF	1.71**BJ**		0.0185	2.37	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	0.0812**BJ**		0.0189	2.37	1.00	1.001	1
OCDF	7.15		0.0712	4.74	0.91	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-12-15 MT8/GT19 BG-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-020	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/25/15 10:20
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.552g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P600127	**Blank File Name:**	P600058
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P600116

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1.64		0.0171	0.474	0.86		1
Total Penta-Dioxins	0.124**J**		0.0367	2.37	1.45		1
Total Hexa-Dioxins	2.35**J**		0.0193	2.37	1.18		1
Total Hepta-Dioxins	15.6		0.0295	2.37	1.03		1
Total Tetra-Furans	5.23		0.0162	0.474	0.77		1
Total Penta-Furans	0.206**J**		0.0191	2.37	1.35		1
Total Hexa-Furans	1.43**J**		0.0248	2.37	1.25		1
Total Hepta-Furans	8.20		0.0187	2.37	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-12-15 MT8/GT19 BG-Carcass	**Units:**	Percent
Lab Code:	E1500743-020	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/25/15 10:20
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.552g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P600127	**Blank File Name:**	P600058
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P600116

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1363.432	68		25-164	0.79	1.018
13C-1,2,3,7,8-PeCDD	2000	1495.361	75		25-181	1.58	1.168
13C-1,2,3,4,7,8-HxCDD	2000	1431.373	72		32-141	1.32	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1387.704	69		28-130	1.21	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1233.446	62		23-140	1.06	1.065
13C-OCDD	4000	2237.143	56		17-157	0.90	1.142
13C-2,3,7,8-TCDF	2000	1587.071	79		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1555.909	78		24-185	1.59	1.129
13C-2,3,4,7,8-PeCDF	2000	1502.846	75		21-178	1.58	1.159
13C-1,2,3,4,7,8-HxCDF	2000	1434.098	72		26-152	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1564.999	78		26-123	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	2107.569	105		29-147	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1439.731	72		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1107.169	55		28-143	0.45	1.040
13C-1,2,3,4,7,8,9-HpCDF	2000	1143.887	57		26-138	0.45	1.079
37Cl-2,3,7,8-TCDD	800	594.278	74		35-197	NA	1.019

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-12-15 MT8/GT19 BG-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-020	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**1.62**	0.0171	0.474	1	1	1.62
1,2,3,7,8-PeCDD	**0.0747**	0.0367	2.37	1	1	0.0747
1,2,3,4,7,8-HxCDD	**0.0760**	0.0190	2.37	1	0.1	0.00760
1,2,3,6,7,8-HxCDD	**0.304**	0.0210	2.37	1	0.1	0.0304
1,2,3,7,8,9-HxCDD	**0.108**	0.0181	2.37	1	0.1	0.0108
1,2,3,4,6,7,8-HpCDD	**5.74**	0.0295	2.37	1	0.01	0.0574
OCDD	**36.2**	0.0369	4.74	1	0.0003	0.0109
2,3,7,8-TCDF	**2.73**	0.0162	0.474	1	0.1	0.273
1,2,3,7,8-PeCDF	**0.0420**	0.0185	2.37	1	0.03	0.00126
2,3,4,7,8-PeCDF	**0.0537**	0.0198	2.37	1	0.3	0.0161
1,2,3,4,7,8-HxCDF	**0.0664**	0.0281	2.37	1	0.1	0.00664
1,2,3,6,7,8-HxCDF	**0.0405**	0.0253	2.37	1	0.1	0.00405
1,2,3,7,8,9-HxCDF	ND	0.0200	2.37	1	0.1	
2,3,4,6,7,8-HxCDF	**0.0446**	0.0274	2.37	1	0.1	0.00446
1,2,3,4,6,7,8-HpCDF	**1.71**	0.0185	2.37	1	0.01	0.0171
1,2,3,4,7,8,9-HpCDF	**0.0812**	0.0189	2.37	1	0.01	0.000812
OCDF	**7.15**	0.0712	4.74	1	0.0003	0.00215
		Total TEQ				2.14

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-12-15 MT8/GT19 BG-Carcass	**Units:**	Percent
Lab Code:	E1500743-020	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/10/15 09:42
	10.552g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	24.6		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-12-15 MT8/GT19 BG-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-021	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/26/15 19:18
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.082g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301041	**Blank File Name:**	P600104
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301038

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.584**K**		0.104	0.496	0.62	1.001	1
1,2,3,7,8-PeCDD	0.201**JK**		0.128	2.48	1.81	1.000	1
1,2,3,4,7,8-HxCDD	0.250**JK**		0.0956	2.48	0.80	1.000	1
1,2,3,6,7,8-HxCDD	0.381**J**		0.0953	2.48	1.10	1.000	1
1,2,3,7,8,9-HxCDD	0.175**J**		0.0901	2.48	1.26	1.006	1
1,2,3,4,6,7,8-HpCDD	5.45**B**		0.0827	2.48	1.04	1.000	1
OCDD	31.2**B**		0.576	4.96	0.87	1.000	1
2,3,7,8-TCDF	0.445**J**		0.188	0.496	0.71	1.000	1
1,2,3,7,8-PeCDF	ND	U	0.0919	2.48			1
2,3,4,7,8-PeCDF	ND	U	0.0988	2.48			1
1,2,3,4,7,8-HxCDF	ND	U	0.0830	2.48			1
1,2,3,6,7,8-HxCDF	ND	U	0.0807	2.48			1
1,2,3,7,8,9-HxCDF	ND	U	0.0668	2.48			1
2,3,4,6,7,8-HxCDF	ND	U	0.0835	2.48			1
1,2,3,4,6,7,8-HpCDF	1.73**BJ**		0.0925	2.48	0.91	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.148	2.48			1
OCDF	6.67		0.317	4.96	0.84	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-12-15 MT8/GT19 BG-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-021	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/26/15 19:18
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.082g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301041	**Blank File Name:**	P600104
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301038

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.104	0.496			1
Total Penta-Dioxins	ND	U	0.128	2.48			1
Total Hexa-Dioxins	2.16**J**		0.0936	2.48	1.11		1
Total Hepta-Dioxins	15.1		0.0827	2.48	1.04		1
Total Tetra-Furans	3.82		0.188	0.496	0.74		1
Total Penta-Furans	ND	U	0.0953	2.48			1
Total Hexa-Furans	1.17**J**		0.0777	2.48	1.15		1
Total Hepta-Furans	8.83		0.117	2.48	0.91		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-12-15 MT8/GT19 BG-Fillet	**Units:**	Percent
Lab Code:	E1500743-021	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/26/15 19:18
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.082g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301041	**Blank File Name:**	P600104
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301038

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1581.678	79		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1675.812	84		25-181	1.57	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1413.263	71		32-141	1.27	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1440.455	72		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1417.795	71		23-140	1.04	1.066
13C-OCDD	4000	2829.053	71		17-157	0.89	1.141
13C-2,3,7,8-TCDF	2000	1437.416	72		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1629.527	81		24-185	1.57	1.134
13C-2,3,4,7,8-PeCDF	2000	1646.900	82		21-178	1.58	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1390.316	70		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1422.124	71		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	2087.306	104		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1453.207	73		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1303.489	65		28-143	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1146.255	57		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	675.320	84		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-12-15 MT8/GT19 BG-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-021	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.584**	0.104	0.496	1	1	0.584
1,2,3,7,8-PeCDD	**0.201**	0.128	2.48	1	1	0.201
1,2,3,4,7,8-HxCDD	**0.250**	0.0956	2.48	1	0.1	0.0250
1,2,3,6,7,8-HxCDD	**0.381**	0.0953	2.48	1	0.1	0.0381
1,2,3,7,8,9-HxCDD	**0.175**	0.0901	2.48	1	0.1	0.0175
1,2,3,4,6,7,8-HpCDD	**5.45**	0.0827	2.48	1	0.01	0.0545
OCDD	**31.2**	0.576	4.96	1	0.0003	0.00936
2,3,7,8-TCDF	**0.445**	0.188	0.496	1	0.1	0.0445
1,2,3,7,8-PeCDF	ND	0.0919	2.48	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0988	2.48	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0830	2.48	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0807	2.48	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0668	2.48	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0835	2.48	1	0.1	
1,2,3,4,6,7,8-HpCDF	**1.73**	0.0925	2.48	1	0.01	0.0173
1,2,3,4,7,8,9-HpCDF	ND	0.148	2.48	1	0.01	
OCDF	**6.67**	0.317	4.96	1	0.0003	0.00200
		Total TEQ				0.993

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/04/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-12-15 MT8/GT19 BG-Fillet	**Units:**	Percent
Lab Code:	E1500743-021	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/17/15 12:33
	10.082g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	19.7		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-13-15 MT8/GT19 LB-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-022	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/26/15 20:06
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.343g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301042	**Blank File Name:**	P600104
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301038

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	3.14		0.106	0.483	0.73	1.001	1
1,2,3,7,8-PeCDD	0.184**JK**		0.127	2.42	2.07	1.000	1
1,2,3,4,7,8-HxCDD	0.150**J**		0.0599	2.42	1.08	1.000	1
1,2,3,6,7,8-HxCDD	0.519**JK**		0.0652	2.42	1.04	1.000	1
1,2,3,7,8,9-HxCDD	0.174**J**		0.0589	2.42	1.21	1.006	1
1,2,3,4,6,7,8-HpCDD	6.09**B**		0.122	2.42	0.97	1.000	1
OCDD	39.3**B**		0.144	4.83	0.90	1.000	1
2,3,7,8-TCDF	2.00		0.156	0.483	0.76	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.108	2.42			1
2,3,4,7,8-PeCDF	ND	U	0.113	2.42			1
1,2,3,4,7,8-HxCDF	ND	U	0.0630	2.42			1
1,2,3,6,7,8-HxCDF	ND	U	0.0606	2.42			1
1,2,3,7,8,9-HxCDF	ND	U	0.0505	2.42			1
2,3,4,6,7,8-HxCDF	0.0929**JK**		0.0628	2.42	1.81	1.000	1
1,2,3,4,6,7,8-HpCDF	1.82**BJ**		0.101	2.42	0.90	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.139	2.42			1
OCDF	7.66		0.228	4.83	0.89	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-13-15 MT8/GT19 LB-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-022	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/26/15 20:06
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.343g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301042	**Blank File Name:**	P600104
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301038

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	3.14		0.106	0.483	0.73		1
Total Penta-Dioxins	ND	U	0.127	2.42			1
Total Hexa-Dioxins	2.10**J**		0.0613	2.42	1.16		1
Total Hepta-Dioxins	16.1		0.122	2.42	1.04		1
Total Tetra-Furans	3.16		0.156	0.483	0.87		1
Total Penta-Furans	ND	U	0.111	2.42			1
Total Hexa-Furans	0.995**J**		0.0584	2.42	1.30		1
Total Hepta-Furans	8.72		0.118	2.42	0.90		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-13-15 MT8/GT19 LB-Carcass	**Units:**	Percent
Lab Code:	E1500743-022	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/26/15 20:06
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.343g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301042	**Blank File Name:**	P600104
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301038

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1581.578	79		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1698.014	85		25-181	1.58	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1454.926	73		32-141	1.28	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1355.386	68		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1372.455	69		23-140	1.06	1.066
13C-OCDD	4000	2579.292	64		17-157	0.89	1.141
13C-2,3,7,8-TCDF	2000	1452.691	73		24-169	0.78	0.993
13C-1,2,3,7,8-PeCDF	2000	1641.176	82		24-185	1.56	1.134
13C-2,3,4,7,8-PeCDF	2000	1681.591	84		21-178	1.58	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1321.400	66		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1352.224	68		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	2095.573	105		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1407.931	70		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1257.107	63		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1238.248	62		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	663.752	83		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-13-15 MT8/GT19 LB-Carcass	**Units:**	ng/Kg
Lab Code:	E1500743-022	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**3.14**	0.106	0.483	1	1	3.14
1,2,3,7,8-PeCDD	**0.184**	0.127	2.42	1	1	0.184
1,2,3,4,7,8-HxCDD	**0.150**	0.0599	2.42	1	0.1	0.0150
1,2,3,6,7,8-HxCDD	**0.519**	0.0652	2.42	1	0.1	0.0519
1,2,3,7,8,9-HxCDD	**0.174**	0.0589	2.42	1	0.1	0.0174
1,2,3,4,6,7,8-HpCDD	**6.09**	0.122	2.42	1	0.01	0.0609
OCDD	**39.3**	0.144	4.83	1	0.0003	0.0118
2,3,7,8-TCDF	**2.00**	0.156	0.483	1	0.1	0.200
1,2,3,7,8-PeCDF	ND	0.108	2.42	1	0.03	
2,3,4,7,8-PeCDF	ND	0.113	2.42	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0630	2.42	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0606	2.42	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0505	2.42	1	0.1	
2,3,4,6,7,8-HxCDF	**0.0929**	0.0628	2.42	1	0.1	0.00929
1,2,3,4,6,7,8-HpCDF	**1.82**	0.101	2.42	1	0.01	0.0182
1,2,3,4,7,8,9-HpCDF	ND	0.139	2.42	1	0.01	
OCDF	**7.66**	0.228	4.83	1	0.0003	0.00230
		Total TEQ				3.71

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-13-15 MT8/GT19 LB-Carcass	**Units:**	Percent
Lab Code:	E1500743-022	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/17/15 12:33
	10.343g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	23.5		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-13-15 MT8/GT19 LB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-023	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/26/15 20:55
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.052g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301043	**Blank File Name:**	P600104
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301038

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	0.884		0.0947	0.497	0.74	1.001	1
1,2,3,7,8-PeCDD	ND	U	0.136	2.49			1
1,2,3,4,7,8-HxCDD	ND	U	0.102	2.49			1
1,2,3,6,7,8-HxCDD	0.340**J**		0.105	2.49	1.16	1.000	1
1,2,3,7,8,9-HxCDD	ND	U	0.0969	2.49			1
1,2,3,4,6,7,8-HpCDD	5.69**B**		0.123	2.49	1.02	1.000	1
OCDD	37.1**B**		0.196	4.97	0.89	1.000	1
2,3,7,8-TCDF	0.436**JK**		0.171	0.497	1.00	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.0943	2.49			1
2,3,4,7,8-PeCDF	ND	U	0.101	2.49			1
1,2,3,4,7,8-HxCDF	ND	U	0.0652	2.49			1
1,2,3,6,7,8-HxCDF	ND	U	0.0636	2.49			1
1,2,3,7,8,9-HxCDF	ND	U	0.0536	2.49			1
2,3,4,6,7,8-HxCDF	ND	U	0.0650	2.49			1
1,2,3,4,6,7,8-HpCDF	1.86**BJ**		0.0894	2.49	0.94	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.139	2.49			1
OCDF	8.02		0.248	4.97	0.91	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-13-15 MT8/GT19 LB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-023	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/26/15 20:55
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.052g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301043	**Blank File Name:**	P600104
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301038

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	0.884		0.0947	0.497	0.74		1
Total Penta-Dioxins	ND	U	0.136	2.49			1
Total Hexa-Dioxins	0.432**J**		0.101	2.49	1.36		1
Total Hepta-Dioxins	16.2		0.123	2.49	1.00		1
Total Tetra-Furans	ND	U	0.171	0.497			1
Total Penta-Furans	ND	U	0.0970	2.49			1
Total Hexa-Furans	1.21**J**		0.0612	2.49	1.16		1
Total Hepta-Furans	9.83		0.111	2.49	0.94		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-13-15 MT8/GT19 LB-Fillet	**Units:**	Percent
Lab Code:	E1500743-023	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/26/15 20:55
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.052g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301043	**Blank File Name:**	P600104
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301038

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1522.070	76		25-164	0.78	1.019
13C-1,2,3,7,8-PeCDD	2000	1605.631	80		25-181	1.58	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1380.098	69		32-141	1.34	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1337.322	67		28-130	1.21	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1337.986	67		23-140	1.07	1.066
13C-OCDD	4000	2454.029	61		17-157	0.90	1.142
13C-2,3,7,8-TCDF	2000	1391.017	70		24-169	0.78	0.992
13C-1,2,3,7,8-PeCDF	2000	1584.303	79		24-185	1.58	1.134
13C-2,3,4,7,8-PeCDF	2000	1598.540	80		21-178	1.58	1.164
13C-1,2,3,4,7,8-HxCDF	2000	1287.949	64		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1308.649	65		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1925.983	96		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1355.386	68		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1175.629	59		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1047.444	52		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	645.986	81		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-13-15 MT8/GT19 LB-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-023	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**0.884**	0.0947	0.497	1	1	0.884
1,2,3,7,8-PeCDD	ND	0.136	2.49	1	1	
1,2,3,4,7,8-HxCDD	ND	0.102	2.49	1	0.1	
1,2,3,6,7,8-HxCDD	**0.340**	0.105	2.49	1	0.1	0.0340
1,2,3,7,8,9-HxCDD	ND	0.0969	2.49	1	0.1	
1,2,3,4,6,7,8-HpCDD	**5.69**	0.123	2.49	1	0.01	0.0569
OCDD	**37.1**	0.196	4.97	1	0.0003	0.0111
2,3,7,8-TCDF	**0.436**	0.171	0.497	1	0.1	0.0436
1,2,3,7,8-PeCDF	ND	0.0943	2.49	1	0.03	
2,3,4,7,8-PeCDF	ND	0.101	2.49	1	0.3	
1,2,3,4,7,8-HxCDF	ND	0.0652	2.49	1	0.1	
1,2,3,6,7,8-HxCDF	ND	0.0636	2.49	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0536	2.49	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0650	2.49	1	0.1	
1,2,3,4,6,7,8-HpCDF	**1.86**	0.0894	2.49	1	0.01	0.0186
1,2,3,4,7,8,9-HpCDF	ND	0.139	2.49	1	0.01	
OCDF	**8.02**	0.248	4.97	1	0.0003	0.00241
		Total TEQ				1.05

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/05/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-13-15 MT8/GT19 LB-Fillet	**Units:**	Percent
Lab Code:	E1500743-023	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/17/15 12:33
	10.052g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	20.7		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/14/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-14-15 MT8/GT19 CC-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-024	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/26/15 21:44
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.182g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301044	**Blank File Name:**	P600104
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301038

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	2.49		0.172	0.491	0.81	1.001	1
1,2,3,7,8-PeCDD	0.957**J**		0.167	2.46	1.56	1.000	1
1,2,3,4,7,8-HxCDD	2.18**J**		0.194	2.46	1.06	1.000	1
1,2,3,6,7,8-HxCDD	4.52		0.195	2.46	1.15	1.000	1
1,2,3,7,8,9-HxCDD	4.21		0.184	2.46	1.12	1.006	1
1,2,3,4,6,7,8-HpCDD	94.3**B**		0.561	2.46	1.05	1.000	1
OCDD	614**B**		0.675	4.91	0.87	1.000	1
2,3,7,8-TCDF	4.39		0.245	0.491	0.78	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.122	2.46			1
2,3,4,7,8-PeCDF	0.470**JK**		0.165	2.46	1.18	1.000	1
1,2,3,4,7,8-HxCDF	ND	U	0.137	2.46			1
1,2,3,6,7,8-HxCDF	0.217**JK**		0.127	2.46	0.97	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.171	2.46			1
2,3,4,6,7,8-HxCDF	0.360**J**		0.155	2.46	1.34	1.000	1
1,2,3,4,6,7,8-HpCDF	6.25**B**		0.411	2.46	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	1.10	2.46			1
OCDF	35.6		1.20	4.91	0.81	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/14/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-14-15 MT8/GT19 CC-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-024	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/26/15 21:44
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.182g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301044	**Blank File Name:**	P600104
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301038

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	2.65		0.172	0.491	0.79		1
Total Penta-Dioxins	9.25		0.167	2.46	1.56		1
Total Hexa-Dioxins	119		0.191	2.46	1.22		1
Total Hepta-Dioxins	302		0.561	2.46	1.05		1
Total Tetra-Furans	6.39		0.245	0.491	0.85		1
Total Penta-Furans	0.754	**J**	0.141	2.46	1.42		1
Total Hexa-Furans	4.54		0.145	2.46	1.34		1
Total Hepta-Furans	35.0		0.620	2.46	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/14/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-14-15 MT8/GT19 CC-Fillet	**Units:**	Percent
Lab Code:	E1500743-024	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/26/15 21:44
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.182g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301044	**Blank File Name:**	P600104
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301038

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1090.571	55		25-164	0.77	1.019
13C-1,2,3,7,8-PeCDD	2000	1178.695	59		25-181	1.59	1.174
13C-1,2,3,4,7,8-HxCDD	2000	779.594	39		32-141	1.32	0.992
13C-1,2,3,6,7,8-HxCDD	2000	769.624	38		28-130	1.22	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	660.061	33		23-140	1.06	1.066
13C-OCDD	4000	512.546	13	**Y**	17-157	0.90	1.142
13C-2,3,7,8-TCDF	2000	1009.209	50		24-169	0.80	0.993
13C-1,2,3,7,8-PeCDF	2000	1376.930	69		24-185	1.57	1.134
13C-2,3,4,7,8-PeCDF	2000	1122.258	56		21-178	1.59	1.165
13C-1,2,3,4,7,8-HxCDF	2000	798.159	40		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	842.831	42		26-123	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	779.806	39		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	735.320	37		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	410.849	21	**Y**	28-143	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	208.987	10	**Y**	26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	633.979	79		35-197	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/14/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-14-15 MT8/GT19 CC-Fillet	**Units:**	ng/Kg
Lab Code:	E1500743-024	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B

Prep Method: Method Soxhlet

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2.49**	0.172	0.491	1	1	2.49
1,2,3,7,8-PeCDD	**0.957**	0.167	2.46	1	1	0.957
1,2,3,4,7,8-HxCDD	**2.18**	0.194	2.46	1	0.1	0.218
1,2,3,6,7,8-HxCDD	**4.52**	0.195	2.46	1	0.1	0.452
1,2,3,7,8,9-HxCDD	**4.21**	0.184	2.46	1	0.1	0.421
1,2,3,4,6,7,8-HpCDD	**94.3**	0.561	2.46	1	0.01	0.943
OCDD	**614**	0.675	4.91	1	0.0003	0.184
2,3,7,8-TCDF	**4.39**	0.245	0.491	1	0.1	0.439
1,2,3,7,8-PeCDF	ND	0.122	2.46	1	0.03	
2,3,4,7,8-PeCDF	**0.470**	0.165	2.46	1	0.3	0.141
1,2,3,4,7,8-HxCDF	ND	0.137	2.46	1	0.1	
1,2,3,6,7,8-HxCDF	**0.217**	0.127	2.46	1	0.1	0.0217
1,2,3,7,8,9-HxCDF	ND	0.171	2.46	1	0.1	
2,3,4,6,7,8-HxCDF	**0.360**	0.155	2.46	1	0.1	0.0360
1,2,3,4,6,7,8-HpCDF	**6.25**	0.411	2.46	1	0.01	0.0625
1,2,3,4,7,8,9-HpCDF	ND	1.10	2.46	1	0.01	
OCDF	**35.6**	1.20	4.91	1	0.0003	0.0107
		Total TEQ				6.38

2005 WHO TEFs, ND = 0

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Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	05/14/15 00:00
Sample Matrix:	Animal Tissue	**Date Received:**	07/30/15 09:10
Sample Name:	PLY-14-15 MT8/GT19 CC-Fillet	**Units:**	Percent
Lab Code:	E1500743-024	**Basis:**	Wet

Total Solids Freeze Dry

Analysis Method:	ALS SOP	**Date Analyzed:**	08/17/15 12:33
	10.182g		NA
			E-Balance-01

Native Analyte Results

Analyte Name	Result	Q	MRL	Dilution Factor
Solids, Total	23.7		-	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1500471-01	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/22/15 09:06
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.530g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P600058	**Blank File Name:**	P600058
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P600055

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.0421	0.475			1
1,2,3,7,8-PeCDD	ND	U	0.0678	2.37			1
1,2,3,4,7,8-HxCDD	ND	U	0.0328	2.37			1
1,2,3,6,7,8-HxCDD	ND	U	0.0351	2.37			1
1,2,3,7,8,9-HxCDD	ND	U	0.0306	2.37			1
1,2,3,4,6,7,8-HpCDD	0.542**J**		0.0371	2.37	1.13	1.001	1
OCDD	1.37**J**		0.0825	4.75	0.83	1.000	1
2,3,7,8-TCDF	ND	U	0.0346	0.475			1
1,2,3,7,8-PeCDF	ND	U	0.0545	2.37			1
2,3,4,7,8-PeCDF	ND	U	0.0625	2.37			1
1,2,3,4,7,8-HxCDF	ND	U	0.0185	2.37			1
1,2,3,6,7,8-HxCDF	ND	U	0.0169	2.37			1
1,2,3,7,8,9-HxCDF	0.0378**JK**		0.0172	2.37	0.99	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0182	2.37			1
1,2,3,4,6,7,8-HpCDF	0.0968**JK**		0.0330	2.37	0.47	1.000	1
1,2,3,4,7,8,9-HpCDF	0.0698**JK**		0.0491	2.37	1.26	1.001	1
OCDF	ND	U	0.172	4.75			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1500471-01	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/22/15 09:06
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.530g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P600058	**Blank File Name:**	P600058
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P600055

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	1.24		0.0421	0.475	0.87		1
Total Penta-Dioxins	ND	U	0.0678	2.37			1
Total Hexa-Dioxins	ND	U	0.0327	2.37			1
Total Hepta-Dioxins	0.968**J**		0.0371	2.37	1.02		1
Total Tetra-Furans	2.86		0.0346	0.475	0.75		1
Total Penta-Furans	0.869**J**		0.0583	2.37	1.68		1
Total Hexa-Furans	0.0619**J**		0.0176	2.37	1.37		1
Total Hepta-Furans	ND	U	0.0399	2.37			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1500471-01	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/22/15 09:06
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.530g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P600058	**Blank File Name:**	P600058
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P600055

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1156.952	58		25-164	0.79	1.018
13C-1,2,3,7,8-PeCDD	2000	1344.673	67		25-181	1.57	1.167
13C-1,2,3,4,7,8-HxCDD	2000	1231.016	62		32-141	1.26	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1200.141	60		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1038.554	52		23-140	1.05	1.065
13C-OCDD	4000	1710.803	43		17-157	0.90	1.142
13C-2,3,7,8-TCDF	2000	1409.438	70		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1497.600	75		24-185	1.57	1.128
13C-2,3,4,7,8-PeCDF	2000	1377.409	69		21-178	1.59	1.158
13C-1,2,3,4,7,8-HxCDF	2000	1226.068	61		26-152	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1282.010	64		26-123	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1413.499	71		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1213.281	61		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	972.495	49		28-143	0.44	1.040
13C-1,2,3,4,7,8,9-HpCDF	2000	714.900	36		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	556.587	70		35-197	NA	1.019

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1500484-01	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/24/15 14:46
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.510g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P600104	**Blank File Name:**	P600104
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P600103

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.0482	0.476			1
1,2,3,7,8-PeCDD	ND	U	0.0736	2.38			1
1,2,3,4,7,8-HxCDD	ND	U	0.0295	2.38			1
1,2,3,6,7,8-HxCDD	ND	U	0.0315	2.38			1
1,2,3,7,8,9-HxCDD	ND	U	0.0275	2.38			1
1,2,3,4,6,7,8-HpCDD	0.0870**JK**		0.0435	2.38	1.49	1.000	1
OCDD	0.300**J**		0.0615	4.76	0.90	1.000	1
2,3,7,8-TCDF	ND	U	0.0393	0.476			1
1,2,3,7,8-PeCDF	ND	U	0.0440	2.38			1
2,3,4,7,8-PeCDF	ND	U	0.0476	2.38			1
1,2,3,4,7,8-HxCDF	0.0312**J**		0.0200	2.38	1.33	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.0185	2.38			1
1,2,3,7,8,9-HxCDF	0.0226**J**		0.0135	2.38	1.23	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0189	2.38			1
1,2,3,4,6,7,8-HpCDF	0.0255**JK**		0.0214	2.38	1.28	1.000	1
1,2,3,4,7,8,9-HpCDF	0.0490**JK**		0.0278	2.38	0.84	1.000	1
OCDF	ND	U	0.106	4.76			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1500484-01	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/24/15 14:46
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.510g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P600104	**Blank File Name:**	P600104
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P600103

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.0482	0.476			1
Total Penta-Dioxins	ND	U	0.0736	2.38			1
Total Hexa-Dioxins	ND	U	0.0295	2.38			1
Total Hepta-Dioxins	0.120**J**		0.0435	2.38	1.12		1
Total Tetra-Furans	0.996		0.0393	0.476	0.81		1
Total Penta-Furans	ND	U	0.0457	2.38			1
Total Hexa-Furans	0.0539**J**		0.0174	2.38	1.33		1
Total Hepta-Furans	ND	U	0.0244	2.38			1

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Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1500484-01	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/24/15 14:46
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.510g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P600104	**Blank File Name:**	P600104
ICAL Date:	08/19/15	**Cal Ver. File Name:**	P600103

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1231.327	62		25-164	0.79	1.018
13C-1,2,3,7,8-PeCDD	2000	1490.175	75		25-181	1.56	1.168
13C-1,2,3,4,7,8-HxCDD	2000	1351.450	68		32-141	1.28	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1320.935	66		28-130	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1165.433	58		23-140	1.06	1.066
13C-OCDD	4000	2333.486	58		17-157	0.90	1.142
13C-2,3,7,8-TCDF	2000	1414.454	71		24-169	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1603.007	80		24-185	1.56	1.129
13C-2,3,4,7,8-PeCDF	2000	1486.726	74		21-178	1.59	1.159
13C-1,2,3,4,7,8-HxCDF	2000	1273.508	64		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1351.896	68		26-123	0.52	0.976
13C-1,2,3,7,8,9-HxCDF	2000	1997.233	100		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1337.490	67		28-136	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1172.896	59		28-143	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1038.610	52		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	589.818	74		35-197	NA	1.019

Percent Lipids

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Percent Lipids Report

Sample ID	Tare (g)	Initial Sample Mass (g)	Tare + Dry Wt.(g)	% Lipids
E1500743-001	202.690	10.349	203.082	7.576
E1500743-002	203.232	10.249	203.307	1.464
E1500743-003	201.023	10.237	201.237	4.181
E1500743-004	202.372	10.283	202.437	1.264
E1500743-005	201.790	10.154	201.862	1.418
E1500743-006	202.289	10.133	202.645	7.027
E1500743-007	201.952	10.169	202.039	1.711
E1500743-008	201.438	10.129	201.874	8.609
E1500743-009	202.284	10.092	202.490	4.082
E1500743-010	202.240	10.013	202.460	4.394
E1500743-011	203.471	10.235	203.528	1.114
E1500743-012	203.774	10.402	203.851	1.480
E1500743-013	200.485	10.105	200.734	4.928
E1500743-014	204.457	10.259	204.622	3.217
E1500743-015	203.376	10.006	203.684	6.156
E1500743-016	202.418	10.157	202.482	1.260
E1500743-017	203.547	10.028	203.842	5.884
E1500743-018	202.566	10.431	202.670	1.994
E1500743-019	203.294	10.227	203.344	0.978
E1500743-020	203.434	10.552	203.743	5.857

Batch No.: EQ1500471

Comments:

Analyst:	LM	Date/Time:	8/6/15	9:40 AM

ALS Environmental - Houston HRMS

Percent Lipids Report

Sample ID	Tare (g)	Initial Sample Mass (g)	Tare + Dry Wt.(g)	% Lipids
E1500743-021	203.077	10.082	203.162	1.686
E1500743-022	203.075	10.343	203.254	3.461
E1500743-023	201.816	10.052	201.889	1.452
E1500743-024	201.684	10.182	202.075	7.680
E1500745-001	201.829	10.301	202.044	4.174
E1500745-002	202.901	10.024	202.992	1.816
E1500745-003	201.569	10.036	201.900	6.596
E1500745-004	202.837	10.351	202.924	1.681
E1500745-005	201.299	10.094	201.460	3.190
E1500745-006	201.161	10.331	201.241	1.549
E1500745-007	202.053	10.409	202.232	3.439
E1500745-008	202.559	10.022	202.621	1.237
E1500745-009	201.380	9.909	201.582	4.077
E1500745-010	202.050	10.462	202.232	3.479
E1500745-011	201.950	10.348	202.182	4.484
E1500745-012	201.422	10.166	201.670	4.879
E1500745-013	202.308	10.003	202.386	1.560
E1500745-014	202.632	10.271	202.940	5.997
E1500745-015	202.333	9.905	202.404	1.434

Batch No.: EQ1500484

Comments:

Analyst:	LM	Date/Time:	8/19/15	8:30 AM

Accuracy & Precision

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QA/QC Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Analyzed:**	08/29/15
Sample Matrix:	Animal Tissue	**Date Extracted:**	08/06/15

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Wet
		Analysis Lot:	460192

	Lab Control Sample EQ1500471-02			Duplicate Lab Control Sample EQ1500471-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	106	88.4	119	112	93.0	120	70-140	6	50
1,2,3,4,7,8-HxCDD	103	88.4	116	107	93.0	115	70-164	4	50
1,2,3,6,7,8-HxCDD	102	88.4	115	108	93.0	116	76-134	5	50
1,2,3,7,8,9-HxCDD	107	88.4	121	117	93.0	126	64-162	9	50
1,2,3,7,8-PeCDD	111	88.4	125	118	93.0	126	70-142	6	50
2,3,7,8-TCDD	18.1	17.7	102	18.8	18.6	101	67-158	4	50
OCDD	221	177	125	248	186	133	78-144	11	50
1,2,3,4,6,7,8-HpCDF	109	88.4	123 *	121	93.0	131 *	82-122	11	50
1,2,3,4,7,8,9-HpCDF	102	88.4	116	106	93.0	114	78-138	3	50
1,2,3,4,7,8-HxCDF	102	88.4	115	108	93.0	116	72-134	6	50
1,2,3,6,7,8-HxCDF	98.6	88.4	111	105	93.0	113	84-130	6	50
1,2,3,7,8,9-HxCDF	65.6	88.4	74 *	68.6	93.0	74 *	78-130	4	50
1,2,3,7,8-PeCDF	98.0	88.4	111	101	93.0	109	80-134	3	50
2,3,4,6,7,8-HxCDF	101	88.4	115	106	93.0	114	70-156	5	50
2,3,4,7,8-PeCDF	104	88.4	117	111	93.0	120	68-160	7	50
2,3,7,8-TCDF	20.3	17.7	115	21.2	18.6	114	75-158	5	50
OCDF	180	177	102	166	186	89	63-170	8	50

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1500471-02	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/29/15 06:45
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	11.310g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301095	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301091

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	18.1		0.116	0.442	0.76	1.001	1
1,2,3,7,8-PeCDD	111		0.153	2.21	1.57	1.001	1
1,2,3,4,7,8-HxCDD	103		0.101	2.21	1.26	1.000	1
1,2,3,6,7,8-HxCDD	102		0.0985	2.21	1.26	1.000	1
1,2,3,7,8,9-HxCDD	107		0.0937	2.21	1.24	1.006	1
1,2,3,4,6,7,8-HpCDD	106		0.102	2.21	1.06	1.000	1
OCDD	221		0.204	4.42	0.90	1.000	1
2,3,7,8-TCDF	20.3		0.181	0.442	0.76	1.001	1
1,2,3,7,8-PeCDF	98.0		0.110	2.21	1.55	1.001	1
2,3,4,7,8-PeCDF	104		0.131	2.21	1.57	1.000	1
1,2,3,4,7,8-HxCDF	102		0.0512	2.21	1.22	1.000	1
1,2,3,6,7,8-HxCDF	98.6		0.0494	2.21	1.22	1.000	1
1,2,3,7,8,9-HxCDF	65.6		0.0418	2.21	1.26	1.000	1
2,3,4,6,7,8-HxCDF	101		0.0514	2.21	1.25	1.000	1
1,2,3,4,6,7,8-HpCDF	109		0.183	2.21	1.06	1.000	1
1,2,3,4,7,8,9-HpCDF	102		0.281	2.21	1.04	1.000	1
OCDF	180		0.333	4.42	0.90	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1500471-02	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/29/15 06:45
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	11.310g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301095	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301091

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	18.1		0.116	0.442	0.76		1
Total Penta-Dioxins	111		0.153	2.21	1.50		1
Total Hexa-Dioxins	313		0.0973	2.21	1.26		1
Total Hepta-Dioxins	118		0.102	2.21	1.03		1
Total Tetra-Furans	21.1		0.181	0.442	0.80		1
Total Penta-Furans	204		0.120	2.21	1.40		1
Total Hexa-Furans	369		0.0480	2.21	1.30		1
Total Hepta-Furans	220		0.225	2.21	1.06		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1500471-02	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/29/15 06:45
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	11.310g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301095	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301091

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1330.732	67		25-164	0.77	1.019
13C-1,2,3,7,8-PeCDD	2000	1125.419	56		25-181	1.60	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1127.404	56		32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1139.627	57		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1056.358	53		23-140	1.04	1.066
13C-OCDD	4000	1818.764	45		17-157	0.90	1.141
13C-2,3,7,8-TCDF	2000	1206.966	60		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1311.479	66		24-185	1.60	1.134
13C-2,3,4,7,8-PeCDF	2000	1160.756	58		21-178	1.58	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1101.468	55		26-152	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1143.037	57		26-123	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1653.295	83		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1148.894	57		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1014.997	51		28-143	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	906.352	45		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	582.167	73		35-197	NA	1.019

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1500471-03	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/29/15 07:33
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.750g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301096	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301091

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	18.8		0.116	0.465	0.75	1.001	1
1,2,3,7,8-PeCDD	118		0.179	2.33	1.57	1.000	1
1,2,3,4,7,8-HxCDD	107		0.111	2.33	1.27	1.000	1
1,2,3,6,7,8-HxCDD	108		0.111	2.33	1.27	1.000	1
1,2,3,7,8,9-HxCDD	117		0.105	2.33	1.23	1.007	1
1,2,3,4,6,7,8-HpCDD	112		0.140	2.33	1.07	1.000	1
OCDD	248		0.314	4.65	0.89	1.000	1
2,3,7,8-TCDF	21.2		0.160	0.465	0.75	1.000	1
1,2,3,7,8-PeCDF	101		0.0932	2.33	1.57	1.001	1
2,3,4,7,8-PeCDF	111		0.119	2.33	1.57	1.000	1
1,2,3,4,7,8-HxCDF	108		0.0623	2.33	1.25	1.000	1
1,2,3,6,7,8-HxCDF	105		0.0582	2.33	1.26	1.000	1
1,2,3,7,8,9-HxCDF	68.6		0.0542	2.33	1.26	1.000	1
2,3,4,6,7,8-HxCDF	106		0.0707	2.33	1.25	1.000	1
1,2,3,4,6,7,8-HpCDF	121		0.134	2.33	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	106		0.209	2.33	1.04	1.000	1
OCDF	166		0.448	4.65	0.89	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1500471-03	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/29/15 07:33
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.750g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301096	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301091

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	18.8		0.116	0.465	0.75		1
Total Penta-Dioxins	118		0.179	2.33	1.44		1
Total Hexa-Dioxins	334		0.109	2.33	1.20		1
Total Hepta-Dioxins	128		0.140	2.33	1.07		1
Total Tetra-Furans	23.0		0.160	0.465	0.71		1
Total Penta-Furans	216		0.105	2.33	1.43		1
Total Hexa-Furans	390		0.0607	2.33	1.15		1
Total Hepta-Furans	241		0.166	2.33	1.04		1

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Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1500471-03	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/29/15 07:33
Prep Method:	Method Soxhlet	**Date Extracted:**	8/6/15
Sample Amount:	10.750g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301096	**Blank File Name:**	P600058
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301091

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1204.368	60		25-164	0.77	1.019
13C-1,2,3,7,8-PeCDD	2000	1053.136	53		25-181	1.59	1.175
13C-1,2,3,4,7,8-HxCDD	2000	996.027	50		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	995.905	50		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1009.418	50		23-140	1.06	1.066
13C-OCDD	4000	1467.648	37		17-157	0.91	1.142
13C-2,3,7,8-TCDF	2000	1061.137	53		24-169	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1217.317	61		24-185	1.59	1.134
13C-2,3,4,7,8-PeCDF	2000	1073.161	54		21-178	1.57	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1077.220	54		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1117.010	56		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1482.678	74		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1008.329	50		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	910.058	46		28-143	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	791.813	40		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	590.131	74		35-197	NA	1.020

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QA/QC Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Analyzed:**	08/29/15
Sample Matrix:	Animal Tissue	**Date Extracted:**	08/11/15

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	ng/Kg
Prep Method:	Method Soxhlet	**Basis:**	Wet
		Analysis Lot:	460244

	Lab Control Sample EQ1500484-02			Duplicate Lab Control Sample EQ1500484-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	117	96.4	121	120	96.8	124	70-140	2	50
1,2,3,4,7,8-HxCDD	115	96.4	119	116	96.8	120	70-164	1	50
1,2,3,6,7,8-HxCDD	114	96.4	119	116	96.8	120	76-134	1	50
1,2,3,7,8,9-HxCDD	113	96.4	117	116	96.8	120	64-162	3	50
1,2,3,7,8-PeCDD	117	96.4	122	119	96.8	123	70-142	2	50
2,3,7,8-TCDD	20.1	19.3	104	20.7	19.4	107	67-158	3	50
OCDD	239	193	124	259	194	134	78-144	8	50
1,2,3,4,6,7,8-HpCDF	117	96.4	121	118	96.8	122	82-122	<1	50
1,2,3,4,7,8,9-HpCDF	115	96.4	119	116	96.8	119	78-138	<1	50
1,2,3,4,7,8-HxCDF	115	96.4	120	119	96.8	123	72-134	3	50
1,2,3,6,7,8-HxCDF	113	96.4	117	115	96.8	119	84-130	2	50
1,2,3,7,8,9-HxCDF	75.8	96.4	79	76.1	96.8	79	78-130	<1	50
1,2,3,7,8-PeCDF	110	96.4	114	111	96.8	114	80-134	<1	50
2,3,4,6,7,8-HxCDF	112	96.4	116	113	96.8	117	70-156	2	50
2,3,4,7,8-PeCDF	117	96.4	121	119	96.8	123	68-160	2	50
2,3,7,8-TCDF	22.5	19.3	117	23.3	19.4	120	75-158	3	50
OCDF	224	193	116	247	194	128	63-170	10	50

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1500484-02	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/29/15 01:04
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.370g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301088	**Blank File Name:**	P600104
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301078

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	20.1		0.113	0.482	0.77	1.000	1
1,2,3,7,8-PeCDD	117		0.119	2.41	1.57	1.001	1
1,2,3,4,7,8-HxCDD	115		0.0646	2.41	1.26	1.000	1
1,2,3,6,7,8-HxCDD	114		0.0674	2.41	1.24	1.000	1
1,2,3,7,8,9-HxCDD	113		0.0622	2.41	1.26	1.006	1
1,2,3,4,6,7,8-HpCDD	117		0.0997	2.41	1.06	1.000	1
OCDD	239		0.137	4.82	0.89	1.000	1
2,3,7,8-TCDF	22.5		0.128	0.482	0.77	1.001	1
1,2,3,7,8-PeCDF	110		0.0999	2.41	1.57	1.001	1
2,3,4,7,8-PeCDF	117		0.105	2.41	1.56	1.000	1
1,2,3,4,7,8-HxCDF	115		0.0539	2.41	1.24	1.000	1
1,2,3,6,7,8-HxCDF	113		0.0537	2.41	1.24	1.000	1
1,2,3,7,8,9-HxCDF	75.8		0.0422	2.41	1.26	1.000	1
2,3,4,6,7,8-HxCDF	112		0.0534	2.41	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	117		0.188	2.41	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	115		0.278	2.41	1.03	1.000	1
OCDF	224		0.165	4.82	0.90	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1500484-02	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/29/15 01:04
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.370g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301088	**Blank File Name:**	P600104
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301078

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	20.1		0.113	0.482	0.77		1
Total Penta-Dioxins	117		0.119	2.41	1.57		1
Total Hexa-Dioxins	343		0.0647	2.41	1.22		1
Total Hepta-Dioxins	127		0.0997	2.41	1.11		1
Total Tetra-Furans	23.5		0.128	0.482	0.87		1
Total Penta-Furans	228		0.102	2.41	1.57		1
Total Hexa-Furans	416		0.0501	2.41	1.35		1
Total Hepta-Furans	238		0.228	2.41	1.02		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1500484-02	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/29/15 01:04
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.370g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301088	**Blank File Name:**	P600104
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301078

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1595.760	80		25-164	0.79	1.019
13C-1,2,3,7,8-PeCDD	2000	1627.325	81		25-181	1.58	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1439.617	72		32-141	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1427.540	71		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1440.717	72		23-140	1.06	1.066
13C-OCDD	4000	2839.650	71		17-157	0.91	1.141
13C-2,3,7,8-TCDF	2000	1443.965	72		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1564.555	78		24-185	1.55	1.134
13C-2,3,4,7,8-PeCDF	2000	1601.753	80		21-178	1.57	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1365.005	68		26-152	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1371.043	69		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	2124.691	106		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1447.855	72		28-136	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1348.762	67		28-143	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1265.180	63		26-138	0.43	1.079
37Cl-2,3,7,8-TCDD	800	658.524	82		35-197	NA	1.019

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1500484-03	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/29/15 01:53
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.330g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301089	**Blank File Name:**	P600104
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301078

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	20.7		0.137	0.484	0.78	1.001	1
1,2,3,7,8-PeCDD	119		0.172	2.42	1.59	1.000	1
1,2,3,4,7,8-HxCDD	116		0.0840	2.42	1.24	1.000	1
1,2,3,6,7,8-HxCDD	116		0.0902	2.42	1.30	1.000	1
1,2,3,7,8,9-HxCDD	116		0.0821	2.42	1.24	1.006	1
1,2,3,4,6,7,8-HpCDD	120		0.122	2.42	1.04	1.001	1
OCDD	259		0.213	4.84	0.87	1.000	1
2,3,7,8-TCDF	23.3		0.168	0.484	0.78	1.001	1
1,2,3,7,8-PeCDF	111		0.162	2.42	1.56	1.001	1
2,3,4,7,8-PeCDF	119		0.163	2.42	1.55	1.000	1
1,2,3,4,7,8-HxCDF	119		0.0525	2.42	1.27	1.001	1
1,2,3,6,7,8-HxCDF	115		0.0498	2.42	1.25	1.000	1
1,2,3,7,8,9-HxCDF	76.1		0.0397	2.42	1.24	1.000	1
2,3,4,6,7,8-HxCDF	113		0.0521	2.42	1.26	1.000	1
1,2,3,4,6,7,8-HpCDF	118		0.172	2.42	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	116		0.244	2.42	1.02	1.000	1
OCDF	247		0.255	4.84	0.90	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1500484-03	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/29/15 01:53
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.330g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301089	**Blank File Name:**	P600104
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301078

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	20.7		0.137	0.484	0.78		1
Total Penta-Dioxins	119		0.172	2.42	1.59		1
Total Hexa-Dioxins	349		0.0853	2.42	1.16		1
Total Hepta-Dioxins	131		0.122	2.42	1.06		1
Total Tetra-Furans	24.5		0.168	0.484	0.84		1
Total Penta-Furans	231		0.163	2.42	1.56		1
Total Hexa-Furans	424		0.0478	2.42	1.23		1
Total Hepta-Furans	241		0.205	2.42	1.03		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Domtar Industries, LLC (Plymouth)	**Service Request:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples/Welch Creek Monitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1500484-03	**Basis:**	Wet

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	08/29/15 01:53
Prep Method:	Method Soxhlet	**Date Extracted:**	8/11/15
Sample Amount:	10.330g	**Instrument Name:**	E-HRMS-05
		GC Column:	DB-5MSUI
Data File Name:	P301089	**Blank File Name:**	P600104
ICAL Date:	08/21/15	**Cal Ver. File Name:**	P301078

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1315.362	66		25-164	0.76	1.019
13C-1,2,3,7,8-PeCDD	2000	1373.505	69		25-181	1.56	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1248.795	62		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1207.198	60		28-130	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1135.857	57		23-140	1.06	1.066
13C-OCDD	4000	1930.263	48		17-157	0.90	1.141
13C-2,3,7,8-TCDF	2000	1174.787	59		24-169	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1329.982	66		24-185	1.58	1.134
13C-2,3,4,7,8-PeCDF	2000	1353.018	68		21-178	1.56	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1161.049	58		26-152	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1188.937	59		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1851.861	93		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1238.734	62		28-136	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1058.301	53		28-143	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1054.185	53		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	590.792	74		35-197	NA	1.019

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ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-01-15 MTI

Run #13 Filename P301057 Samp: 1 Inj: 1 Acquired: 27-AUG-15 22:16:43
Processed: 28-AUG-15 11:53:14 Sample ID: E1500743-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:38	1.149e+02	1.457e+02	0.79	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.082
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:47	2.659e+02	2.774e+02	0.96	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.245
10	Unk	OCDF	42:44	8.028e+02	9.339e+02	0.86	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:23	6.635e+01	9.440e+01	0.70	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:02	5.499e+01	4.751e+01	1.16	yes	yes	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:16	1.335e+01	1.959e+01	0.68	no	yes	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	7.761e+02	7.423e+02	1.05	yes	no	0.949
17	Unk	OCDD	42:32	3.753e+03	4.334e+03	0.87	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:37	3.222e+04	4.123e+04	0.78	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	5.171e+04	3.290e+04	1.57	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:35	5.084e+04	3.209e+04	1.58	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	2.202e+04	4.185e+04	0.53	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	2.469e+04	4.869e+04	0.51	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	2.399e+04	4.600e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:33	3.088e+04	5.892e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	1.439e+04	3.276e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:12	1.136e+04	2.669e+04	0.43	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:22	2.563e+04	3.345e+04	0.77	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:51	3.836e+04	2.456e+04	1.56	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:56	3.294e+04	2.586e+04	1.27	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:01	3.125e+04	2.483e+04	1.26	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.727e+04	2.542e+04	1.07	yes	no	0.850
32	IS	13C-OCDD	42:32	3.578e+04	3.988e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:49	3.360e+04	4.293e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:16	4.984e+04	3.913e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	2.483e+04				no	1.001

$$\text{OCDD} = \frac{(3.753e+03 + 4.334e+03) \times 4000 \text{ pg} \times 1}{(3.578e+04 + 3.988e+04) \times 10.349 \text{ g} \times \quad / 100 \times 1.061} = 38.9 \text{ ng/g}$$

08/31/15

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-01-15 MTI/MT

Run #13 Filename P301057 Samp: 1 Inj: 1 Acquired: 27-AUG-15 22:16:43
Processed: 28-AUG-15 11:53:14 LAB. ID: E1500743-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.28e+04	1.68e+03	1.4e+01	2.81e+04	2.30e+03	1.2e+01
2	1,2,3,7,8-PeCDF	*	8.04e+02	*	*	2.64e+03	*
3	2,3,4,7,8-PeCDF	*	8.04e+02	*	*	2.64e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.74e+03	*	*	3.44e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.74e+03	*	*	3.44e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.74e+03	*	*	3.44e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.74e+03	*	*	3.44e+02	*
8	1,2,3,4,6,7,8-HpCDF	6.07e+04	1.54e+03	3.9e+01	6.35e+04	1.21e+03	5.2e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.54e+03	*	*	1.21e+03	*
10	OCDF	1.43e+05	1.45e+03	9.9e+01	1.68e+05	2.77e+03	6.1e+01
11	2,3,7,8-TCDD	1.22e+04	1.33e+03	9.1e+00	1.88e+04	1.01e+03	1.9e+01
12	1,2,3,7,8-PeCDD	*	2.48e+03	*	*	9.64e+02	*
13	1,2,3,4,7,8-HxCDD	*	5.48e+02	*	*	1.60e+03	*
14	1,2,3,6,7,8-HxCDD	1.31e+04	5.48e+02	2.4e+01	9.87e+03	1.60e+03	6.2e+00
15	1,2,3,7,8,9-HxCDD	3.74e+03	5.48e+02	6.8e+00	4.51e+03	1.60e+03	2.8e+00
16	1,2,3,4,6,7,8-HpCDD	1.61e+05	1.62e+03	1.0e+02	1.55e+05	9.56e+02	1.6e+02
17	OCDD	6.65e+05	4.88e+02	1.4e+03	7.89e+05	1.41e+03	5.6e+02
18	13C-2,3,7,8-TCDF	6.36e+06	1.76e+03	3.6e+03	8.14e+06	1.94e+03	4.2e+03
19	13C-1,2,3,7,8-PeCDF	1.05e+07	9.60e+02	1.1e+04	6.74e+06	2.86e+03	2.4e+03
20	13C-2,3,4,7,8-PeCDF	1.08e+07	9.60e+02	1.1e+04	6.81e+06	2.86e+03	2.4e+03
21	13C-1,2,3,4,7,8-HxCDF	4.90e+06	1.33e+03	3.7e+03	9.27e+06	1.95e+03	4.8e+03
22	13C-1,2,3,6,7,8-HxCDF	5.46e+06	1.33e+03	4.1e+03	1.06e+07	1.95e+03	5.4e+03
23	13C-2,3,4,6,7,8-HxCDF	5.44e+06	1.33e+03	4.1e+03	1.04e+07	1.95e+03	5.3e+03
24	13C-1,2,3,7,8,9-HxCDF	6.71e+06	1.33e+03	5.0e+03	1.28e+07	1.95e+03	6.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.32e+06	2.51e+03	1.3e+03	7.40e+06	2.57e+03	2.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.14e+06	2.51e+03	8.5e+02	5.01e+06	2.57e+03	1.9e+03
27	13C-2,3,7,8-TCDD	5.42e+06	7.18e+03	7.6e+02	7.05e+06	3.34e+03	2.1e+03
28	13C-1,2,3,7,8-PeCDD	8.16e+06	2.08e+03	3.9e+03	5.27e+06	1.56e+03	3.4e+03
29	13C-1,2,3,4,7,8-HxCDD	7.57e+06	1.92e+03	3.9e+03	5.92e+06	1.84e+03	3.2e+03
30	13C-1,2,3,6,7,8-HxCDD	6.96e+06	1.92e+03	3.6e+03	5.63e+06	1.84e+03	3.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.62e+06	2.45e+03	2.3e+03	5.25e+06	1.02e+03	5.2e+03
32	13C-OCDD	6.31e+06	9.00e+02	7.0e+03	7.01e+06	9.32e+02	7.5e+03
33	13C-1,2,3,4-TCDD	6.84e+06	7.18e+03	9.5e+02	8.70e+06	3.34e+03	2.6e+03
34	13C-1,2,3,7,8,9-HxCDD	1.08e+07	1.92e+03	5.6e+03	8.61e+06	1.84e+03	4.7e+03
35	37Cl-2,3,7,8-TCDD	5.24e+06	8.48e+02	6.2e+03			

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Peak List Summary

CLIENT ID.

PLY-01-15 MTI/MT

Entry: 36 Totals Name: Total Tetra-Furans

Run: 13 File: P301057 Sample:1 Injection:1 Function:1

Acquired: 27-AUG-15 22:16:43 Processed: 28-AUG-15 11:53:14

Mass: 303.9020 305.8990 Tot Response: 4.76e+02 RRF: 0.8496

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:15	8.59e+01	1.29e+02	0.67	yes	2.15e+02	n	n
2	28:38	1.15e+02	1.46e+02	0.79	yes	2.61e+02	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-01-15 MTI/MT

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 13 File: P301057 Sample:1 Injection:1 Function:1

Acquired: 27-AUG-15 22:16:43 Processed: 28-AUG-15 11:53:14

Mass: 319.8970 321.8940 Tot Response: 1.61e+02 RRF: 0.9567

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:23	6.63e+01	9.44e+01	0.70	yes	1.61e+02	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-01-15 MTI/MT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 13 File: P301057 Sample:1 Injection:1 Function:3

Acquired: 27-AUG-15 22:16:43 Processed: 28-AUG-15 11:53:14

Mass: 373.8210 375.8180 Tot Response: 4.27e+02 RRF: 1.094

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:47	2.46e+02	1.81e+02	1.36	yes	4.27e+02	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-01-15 MTI/MT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P301057 Sample:1 Injection:1 Function:3

Acquired: 27-AUG-15 22:16:43 Processed: 28-AUG-15 11:53:14

Mass: 389.8160 391.8130 Tot Response: 5.74e+02 RRF: 0.9904

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:37	1.27e+02	1.15e+02	1.10	yes	2.42e+02	y	n
2	36:22	1.33e+02	9.62e+01	1.38	yes	2.29e+02	y	n
3	37:02	5.50e+01	4.75e+01	1.16	yes	1.03e+02 1,2,3,6,7,8-HxCDD	y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-01-15 MTI/MT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 13 File: P301057 Sample:1 Injection:1 Function:4

Acquired: 27-AUG-15 22:16:43 Processed: 28-AUG-15 11:53:14

Mass: 407.7820 409.7790 Tot Response: 2.57e+03 RRF: 1.284

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:47	2.66e+02	2.77e+02	0.96	yes	5.43e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:12	1.04e+03	9.74e+02	1.07	yes	2.01e+03		n	n
3	39:18	5.80e+00	5.10e+00	1.14	yes	1.09e+01		n	n

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Peak List Summary

CLIENT ID.

PLY-01-15 MTI/MT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P301057 Sample:1 Injection:1 Function:4

Acquired: 27-AUG-15 22:16:43 Processed: 28-AUG-15 11:53:14

Mass: 423.7770 425.7740 Tot Response: 4.14e+03 RRF: 0.9492

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:03	1.32e+03	1.30e+03	1.01	yes	2.62e+03		n	n
2	39:43	7.76e+02	7.42e+02	1.05	yes	1.52e+03	1,2,3,4,6,7,8-HpCDD	n	n

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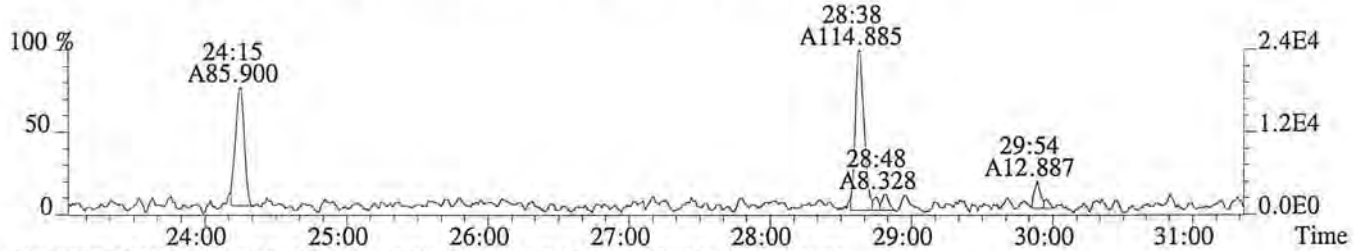
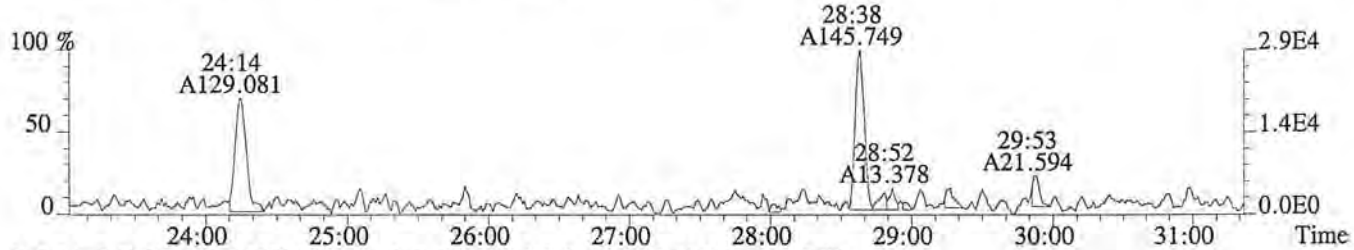
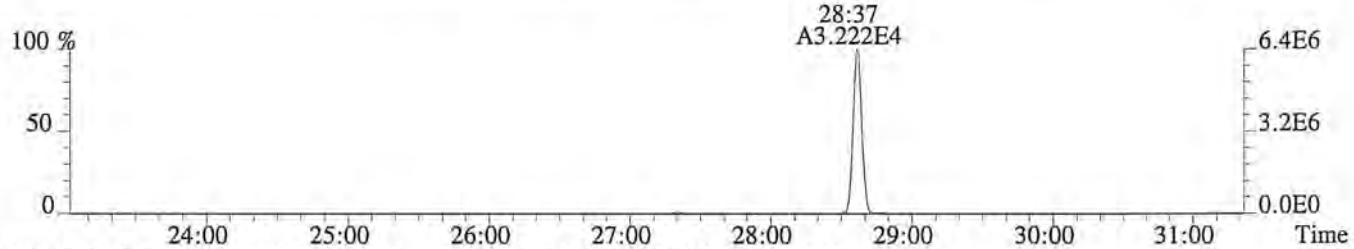
File:P301057 #1-591 Acq:27-AUG-2015 22:16:43 Probe EI+ Magnet SIR VG BioTech Mass spectÄ
Sample#1 Exp:E1500743-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1676.0,1.00%,F,T)



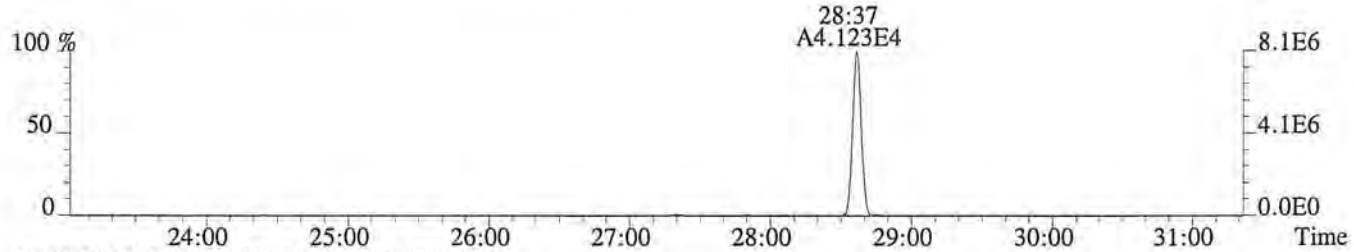
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2300.0,1.00%,F,T)



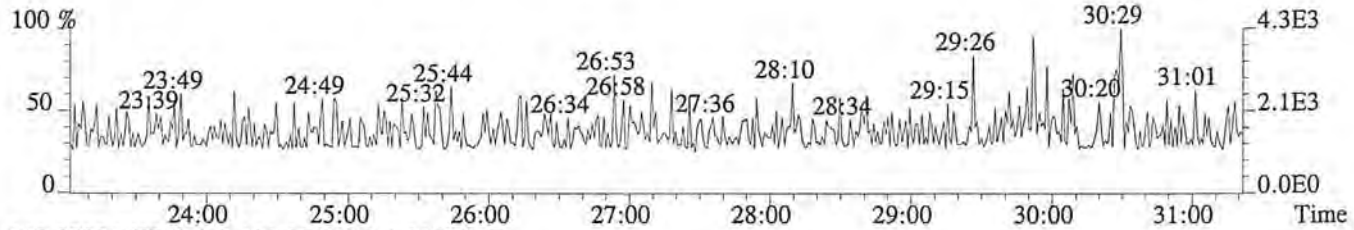
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1756.0,1.00%,F,T)



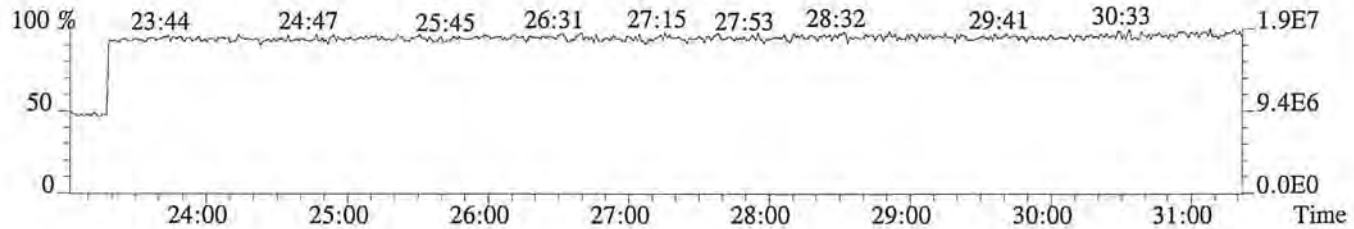
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



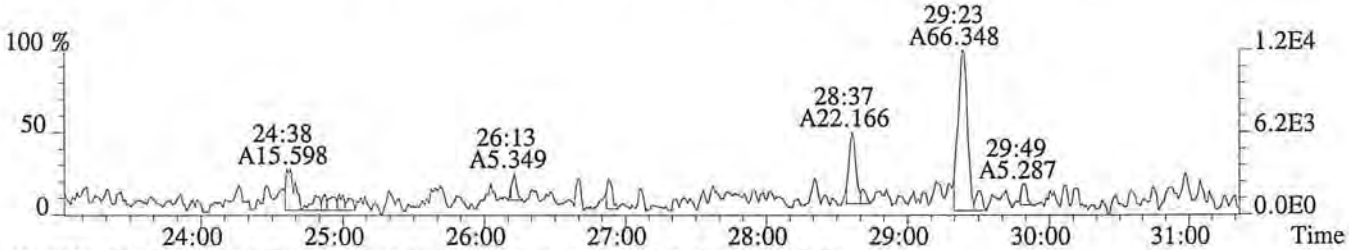
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



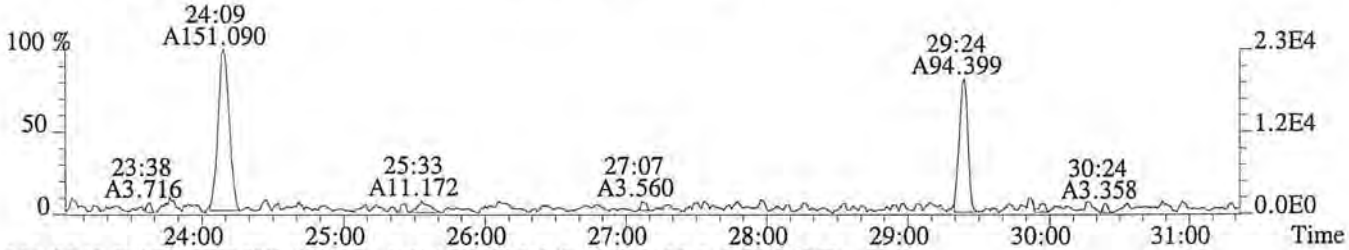
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



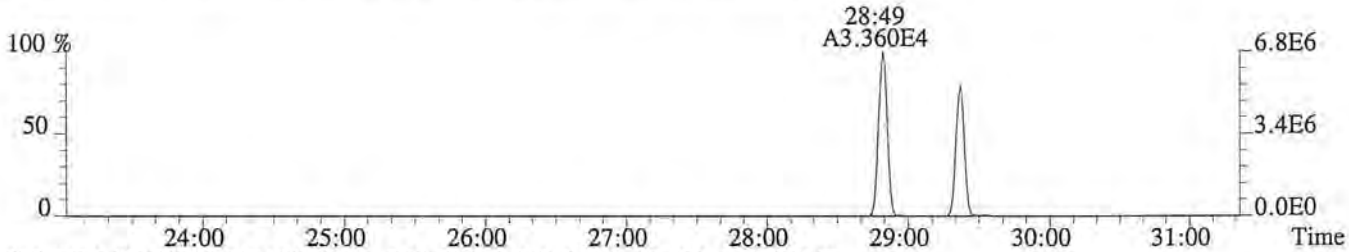
File:P301057 #1-591 Acq:27-AUG-2015 22:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-001
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1332.0,1.00%,F,T)



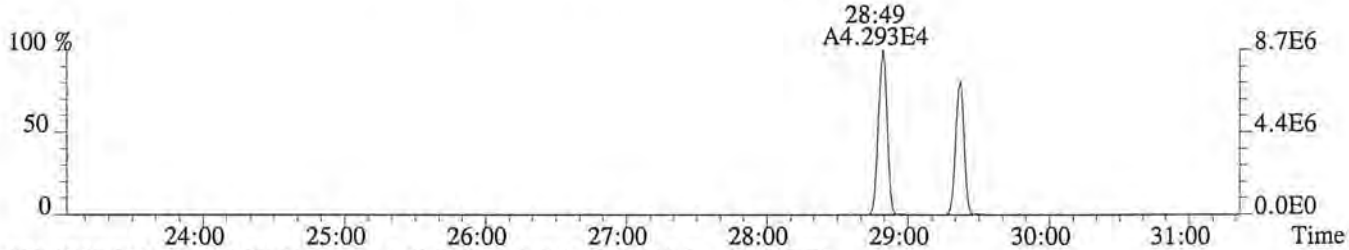
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



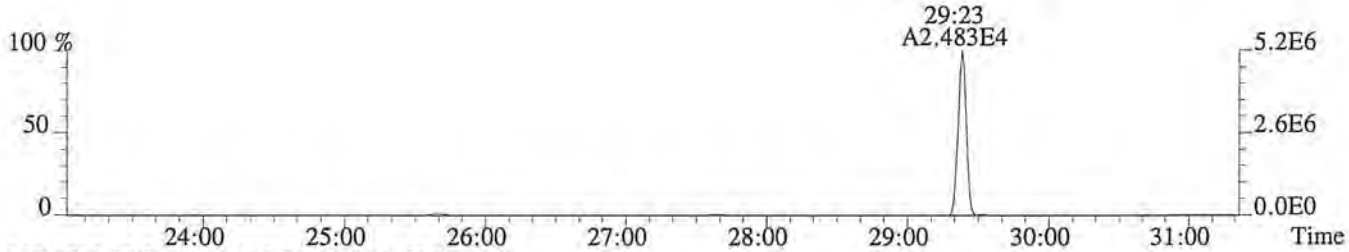
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7180.0,1.00%,F,T)



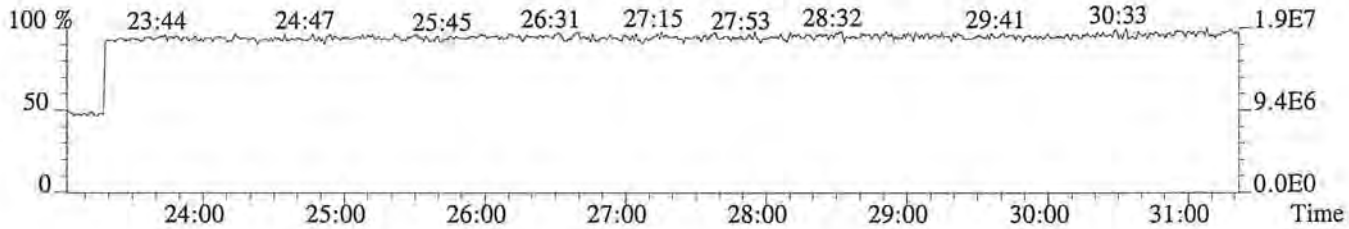
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3340.0,1.00%,F,T)



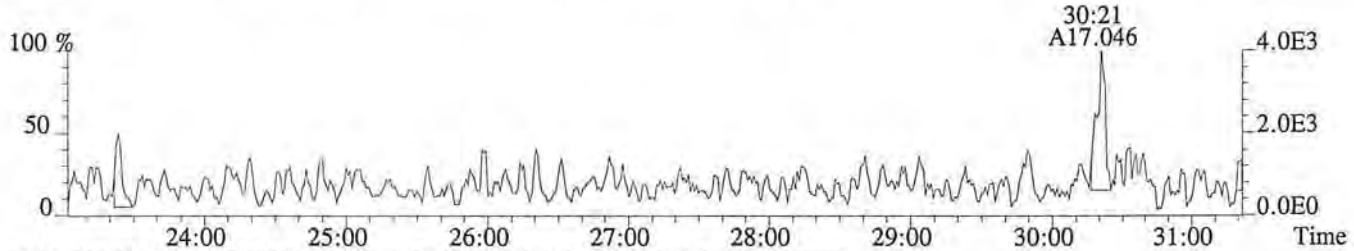
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



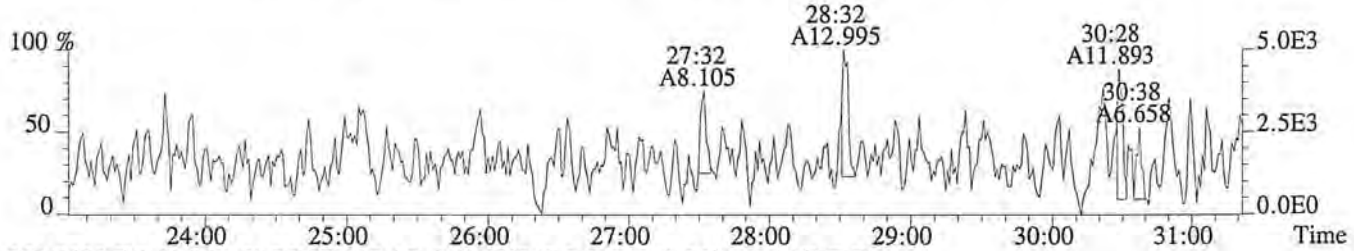
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



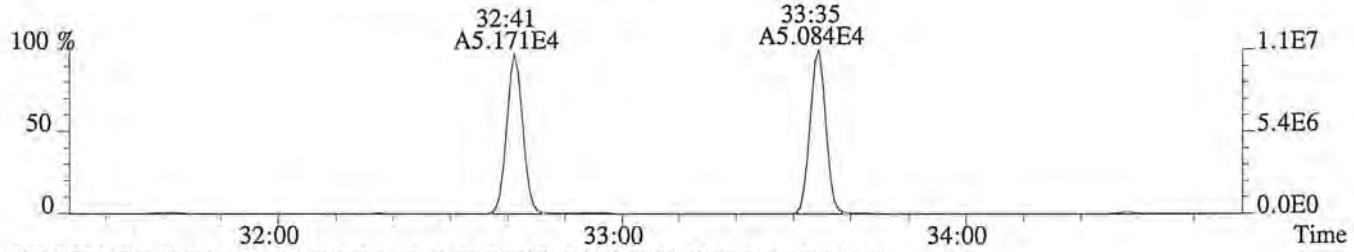
File:P301057 #1-591 Acq:27-AUG-2015 22:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-001
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



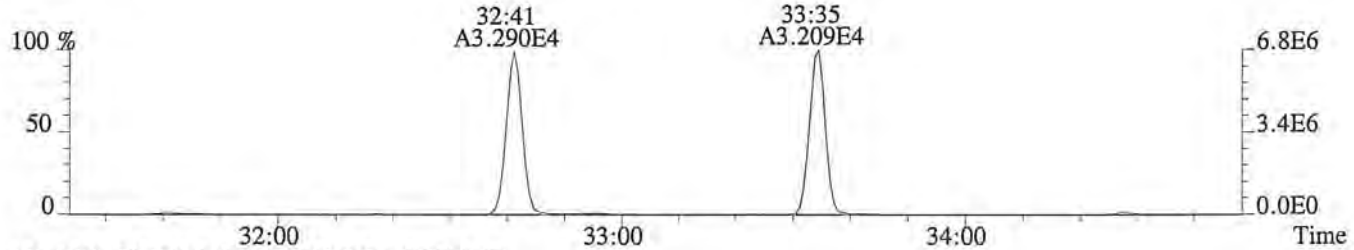
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2012.0,1.00%,F,T)



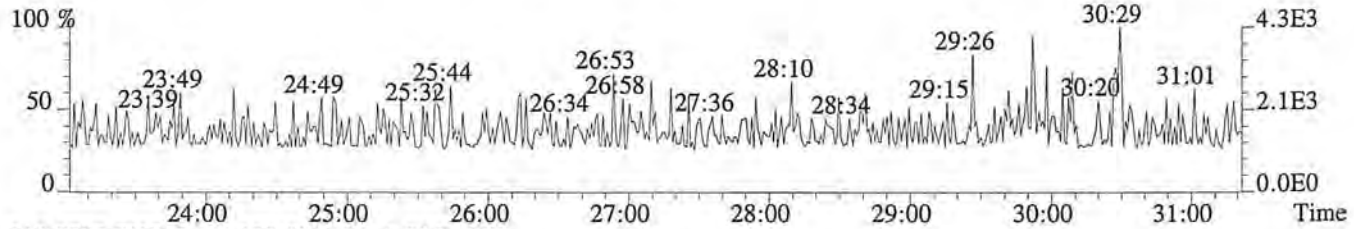
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



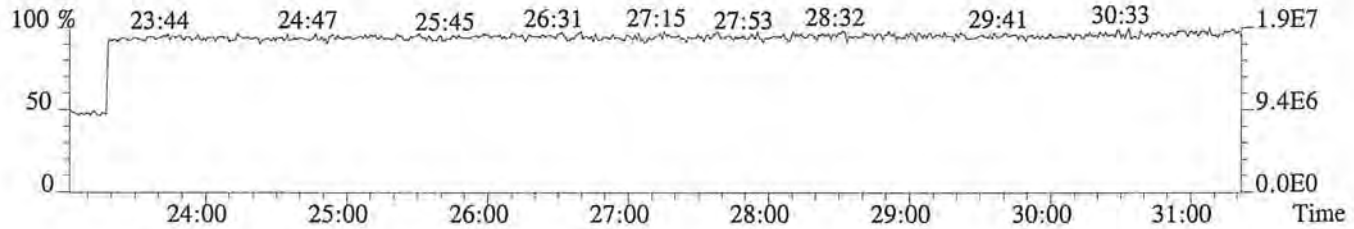
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2856.0,1.00%,F,T)



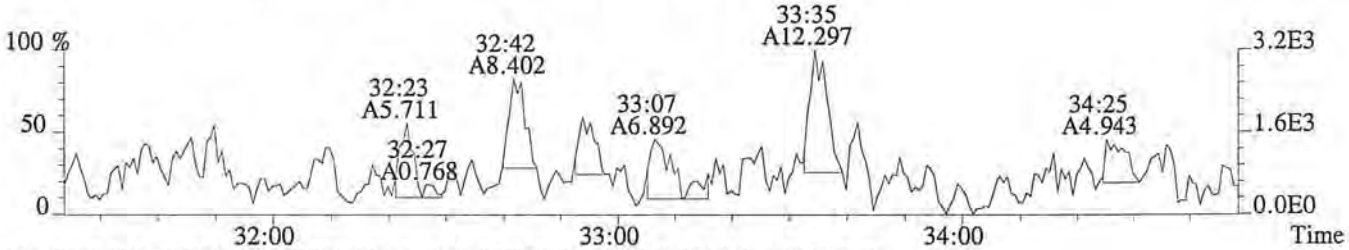
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



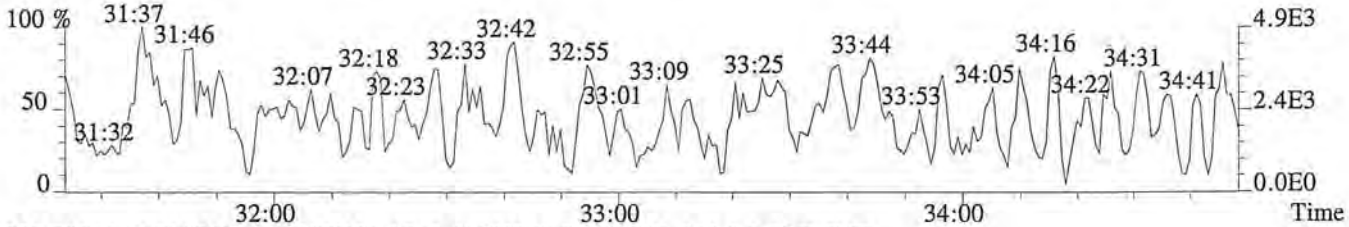
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



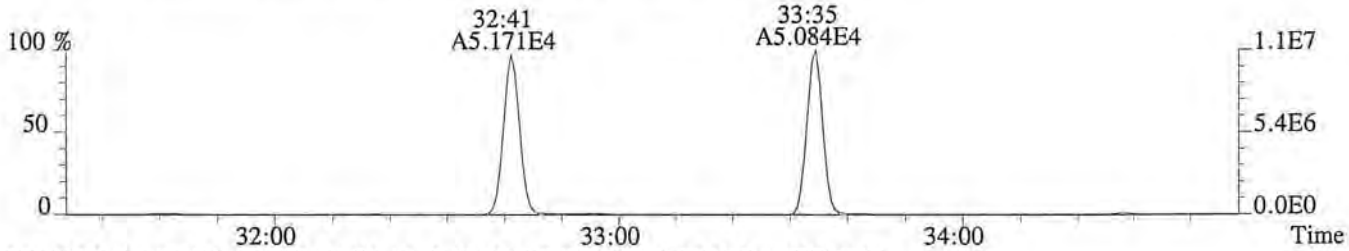
File:P301057 #1-308 Acq:27-AUG-2015 22:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-001
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



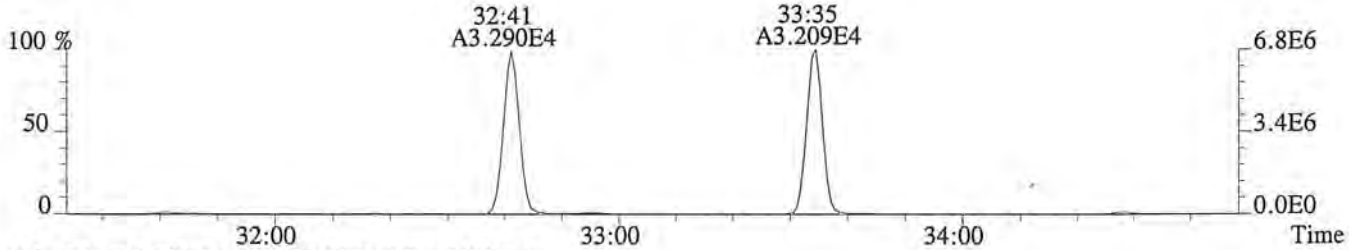
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



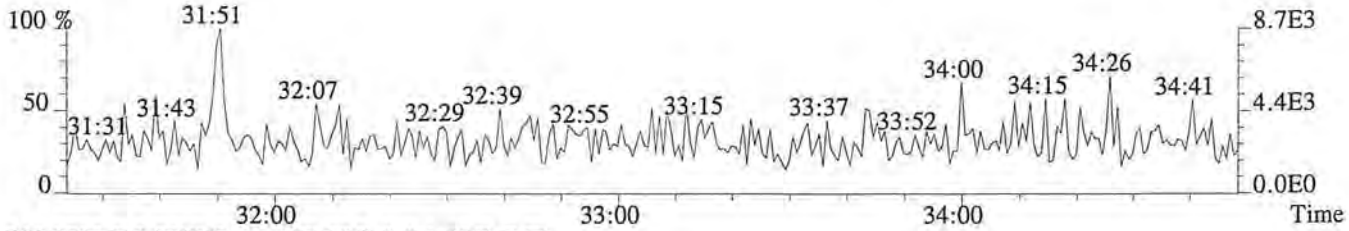
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



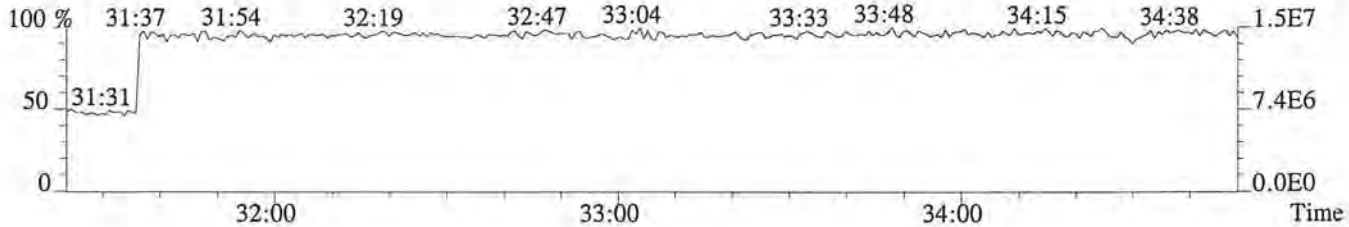
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2856.0,1.00%,F,T)



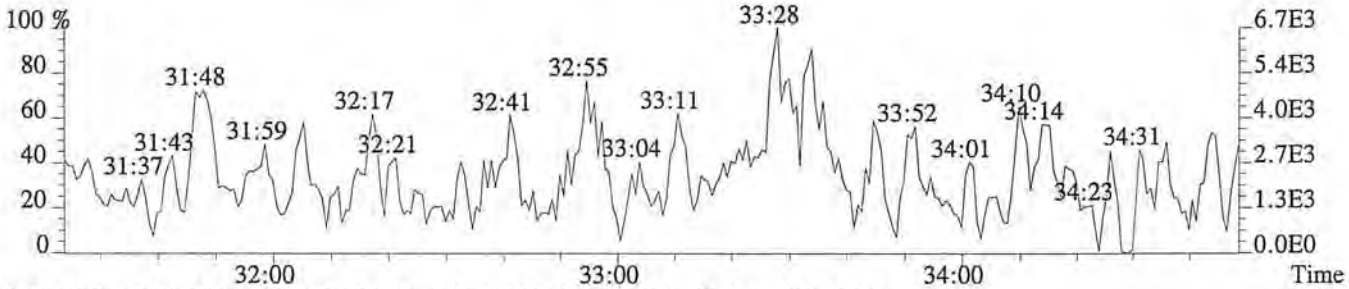
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



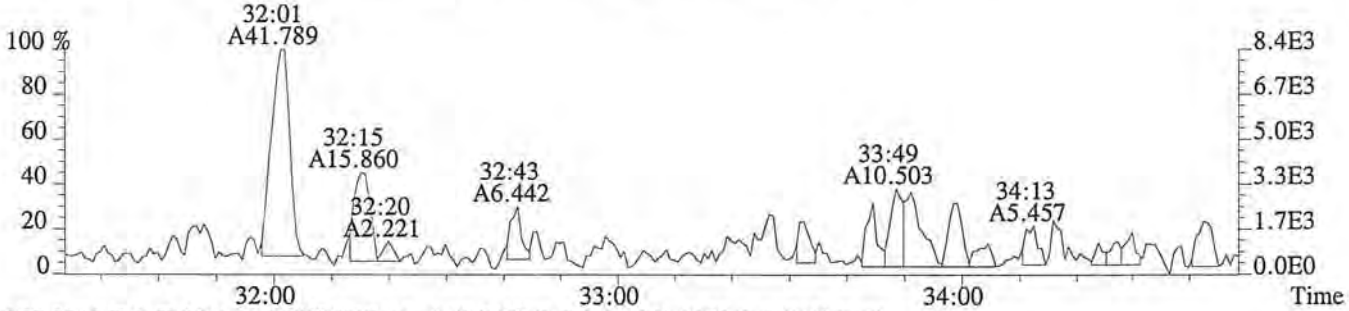
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



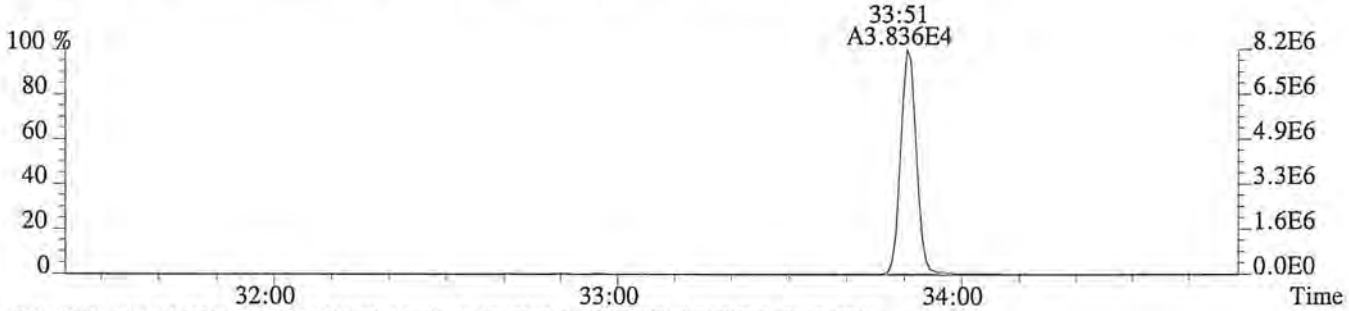
File:P301057 #1-308 Acq:27-AUG-2015 22:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2480.0,1.00%,F,T)



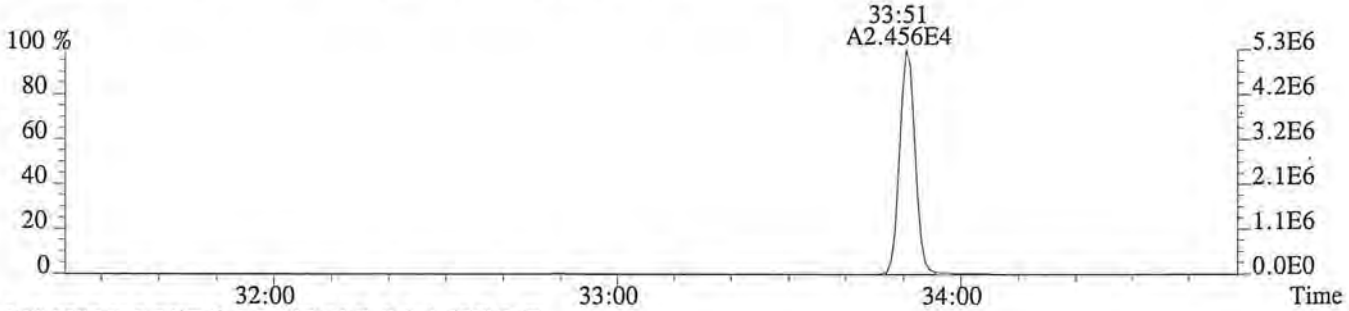
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



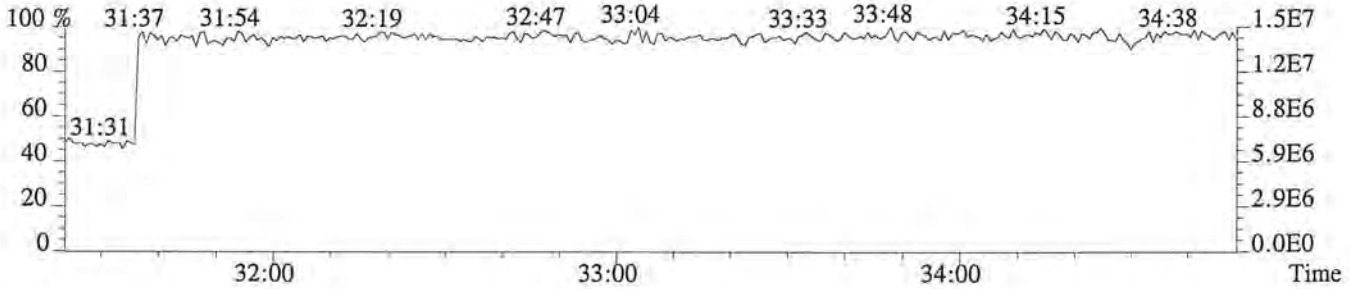
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2080.0,1.00%,F,T)



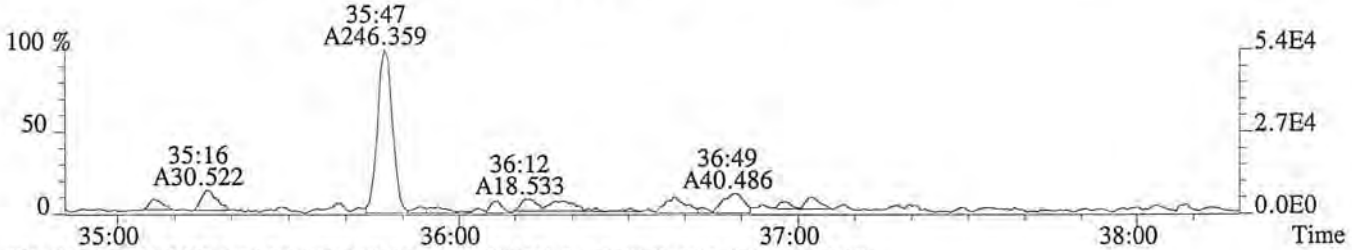
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1560.0,1.00%,F,T)



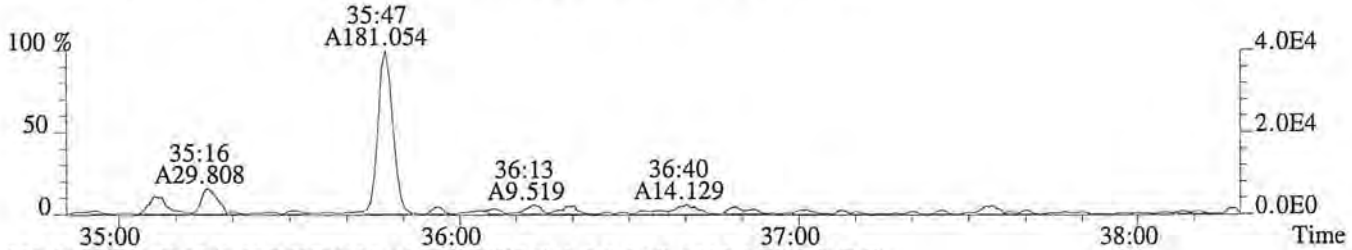
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



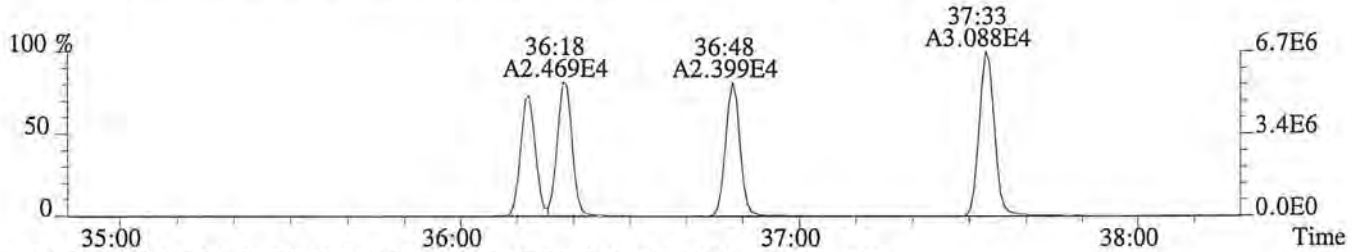
File:P301057 #1-312 Acq:27-AUG-2015 22:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-001
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1740.0,0.40%,F,T)



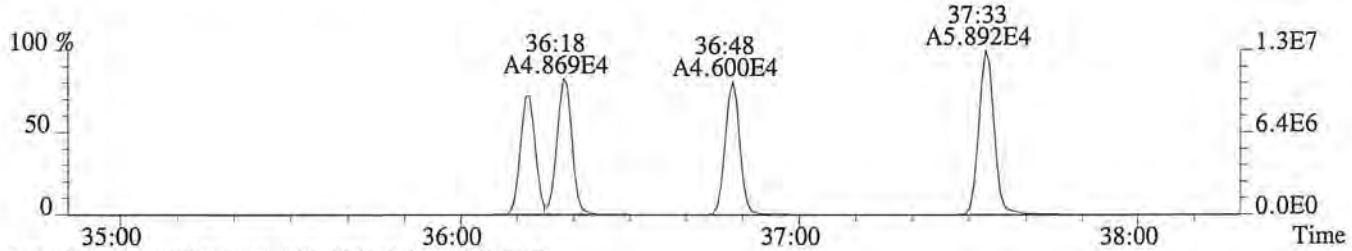
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



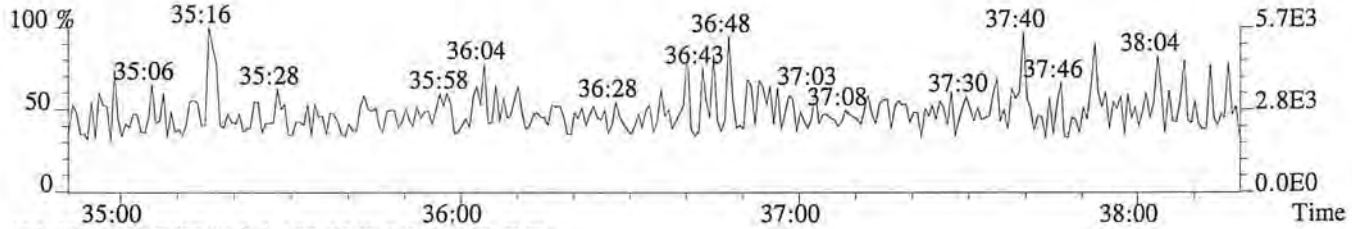
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)



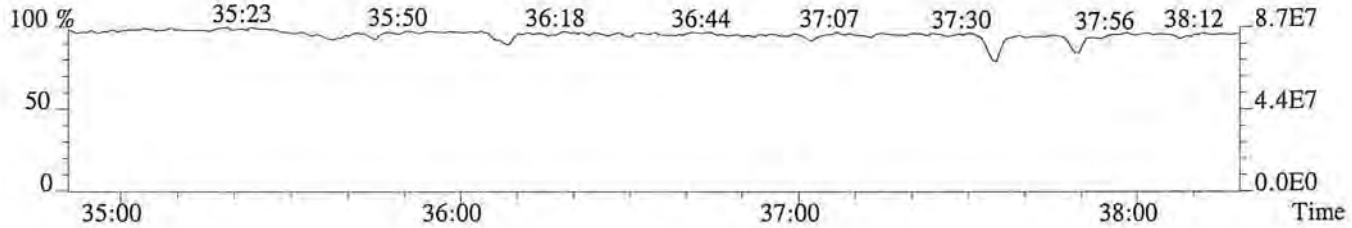
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1948.0,0.40%,F,T)



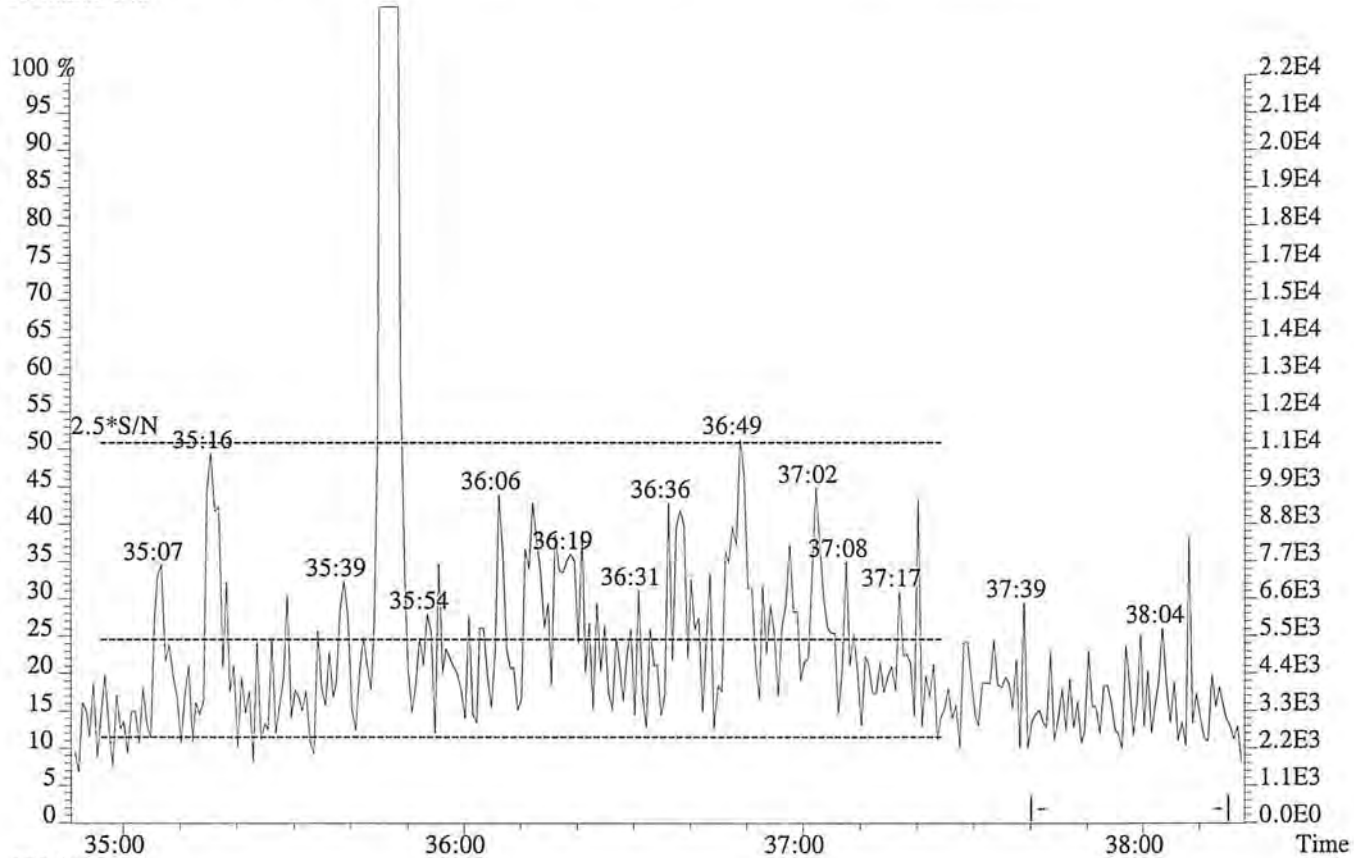
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



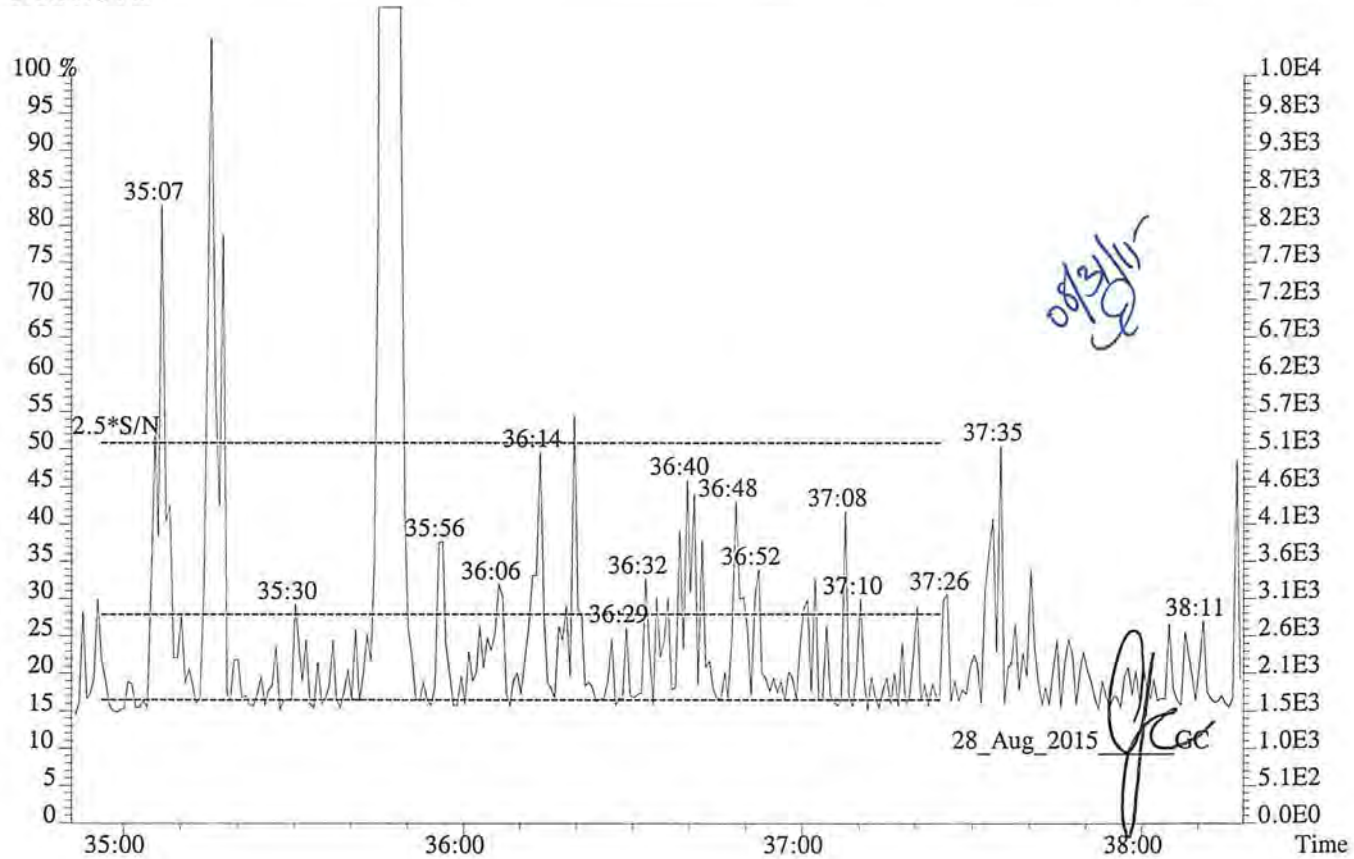
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P301057 #1-312 Acq:27-AUG-2015 22:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-001
373.8208 F:3



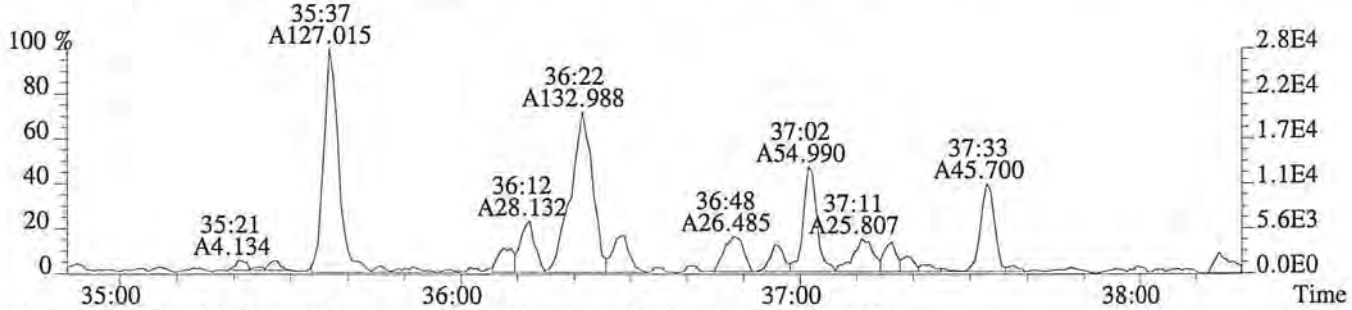
375.8178 F:3



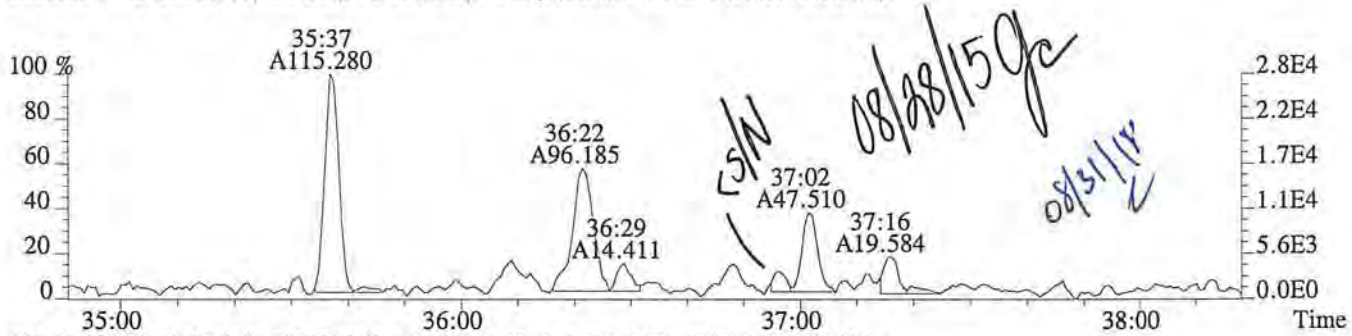
08/31/15

28_Aug_2015 GC

File:P301057 #1-312 Acq:27-AUG-2015 22:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-001
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)

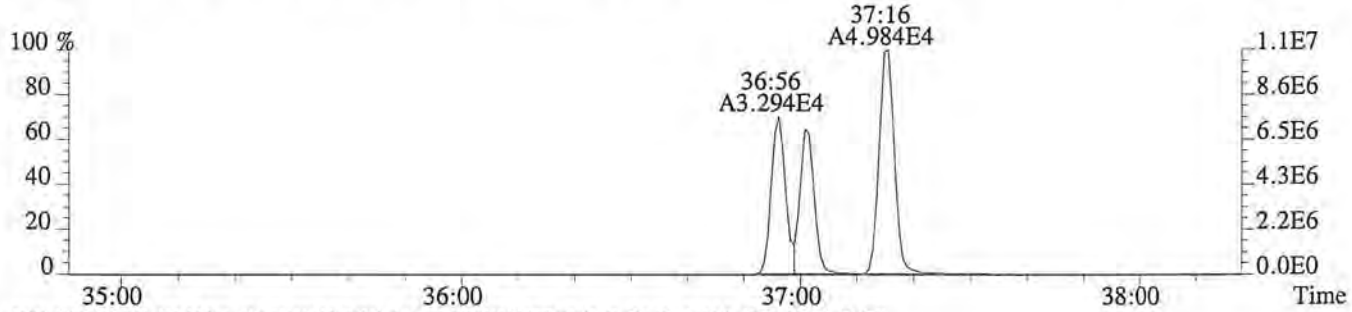


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.40%,F,T)

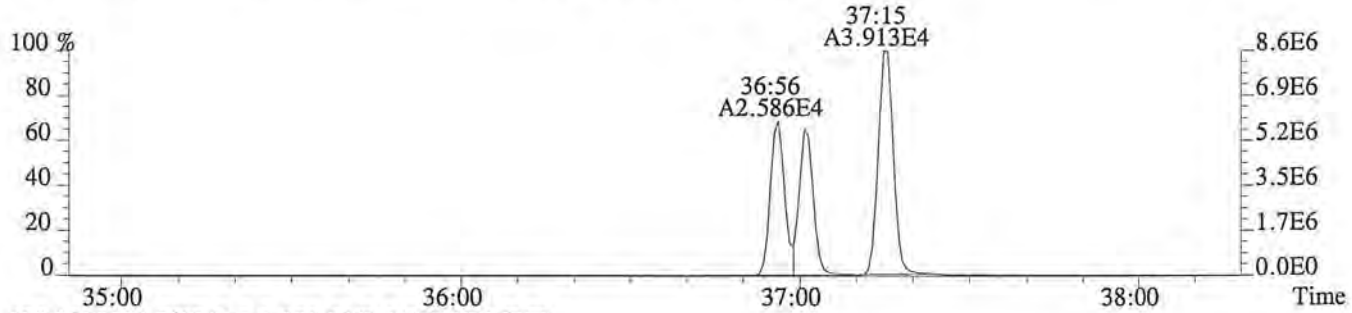


S/N 08/28/15 JC
08/31/15

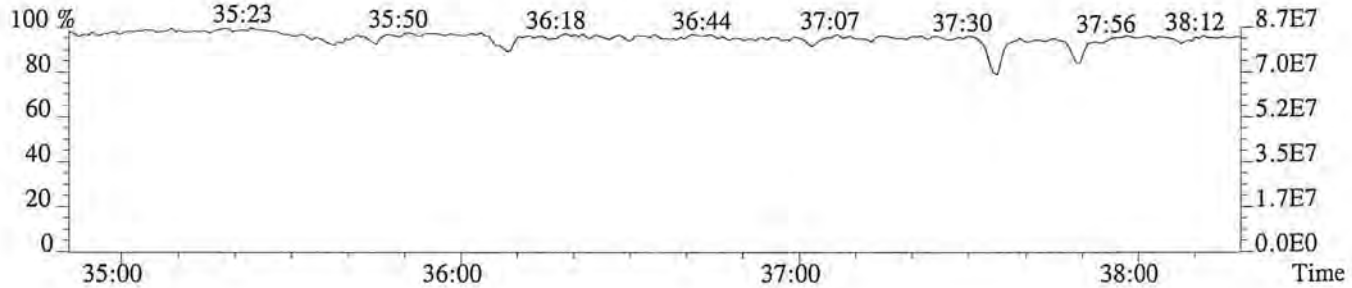
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1920.0,0.40%,F,T)



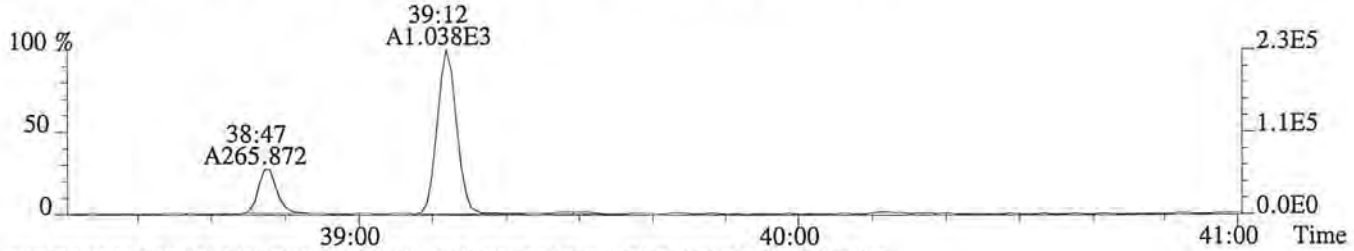
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1844.0,0.40%,F,T)



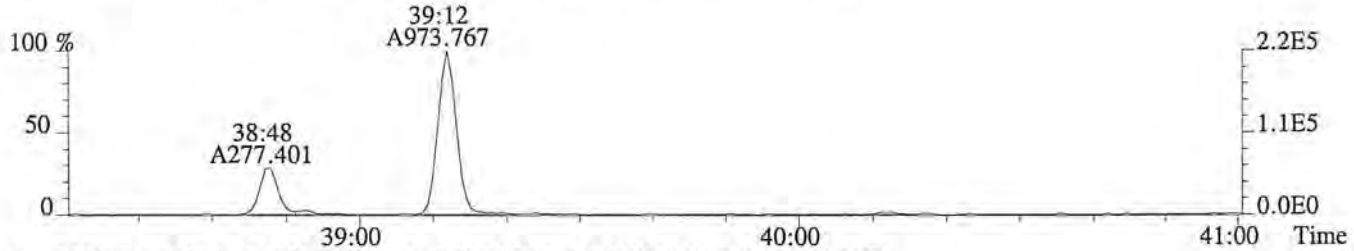
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



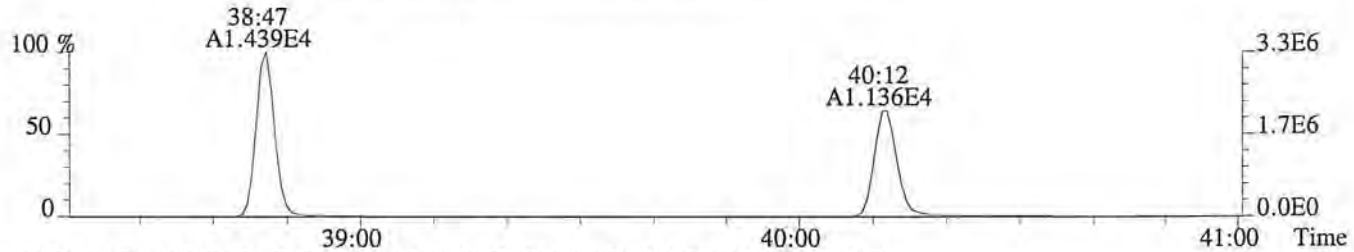
File:P301057 #1-241 Acq:27-AUG-2015 22:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-001
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.50%,F,T)



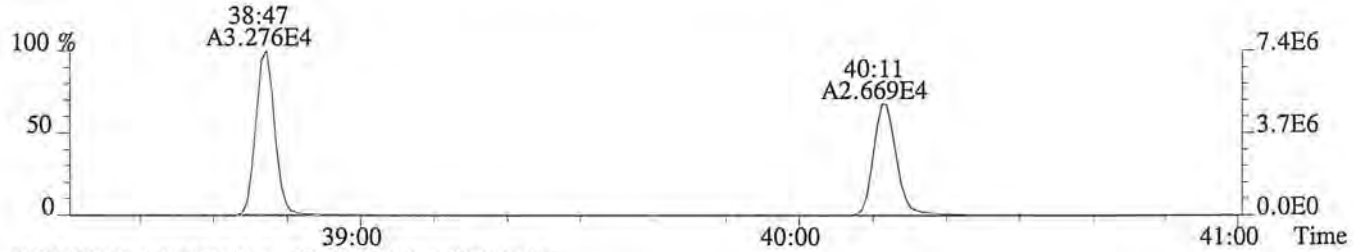
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1212.0,0.50%,F,T)



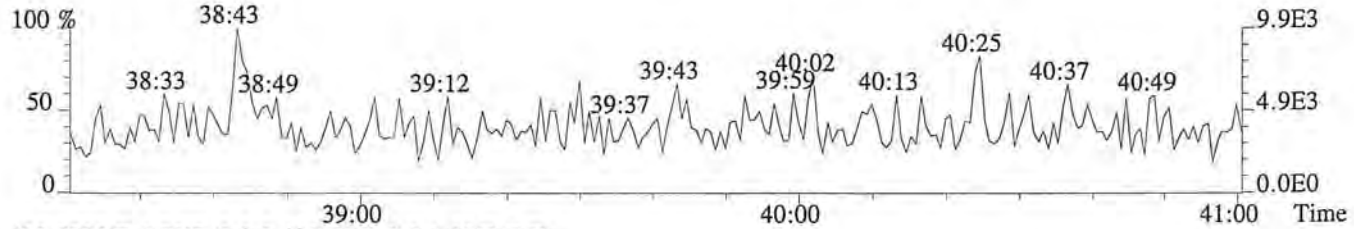
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2512.0,0.50%,F,T)



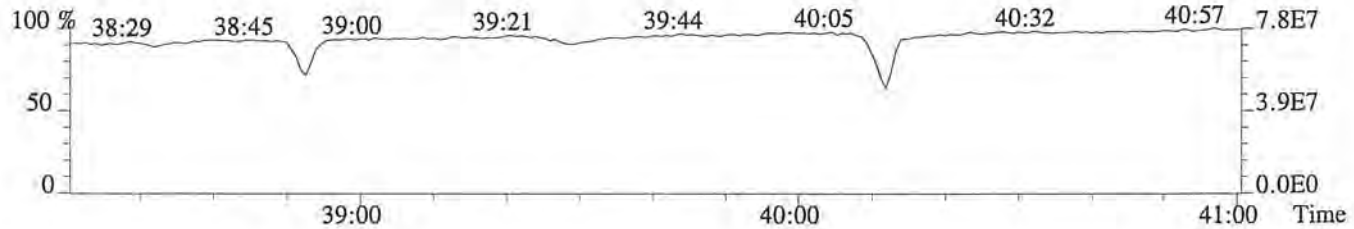
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2568.0,0.50%,F,T)



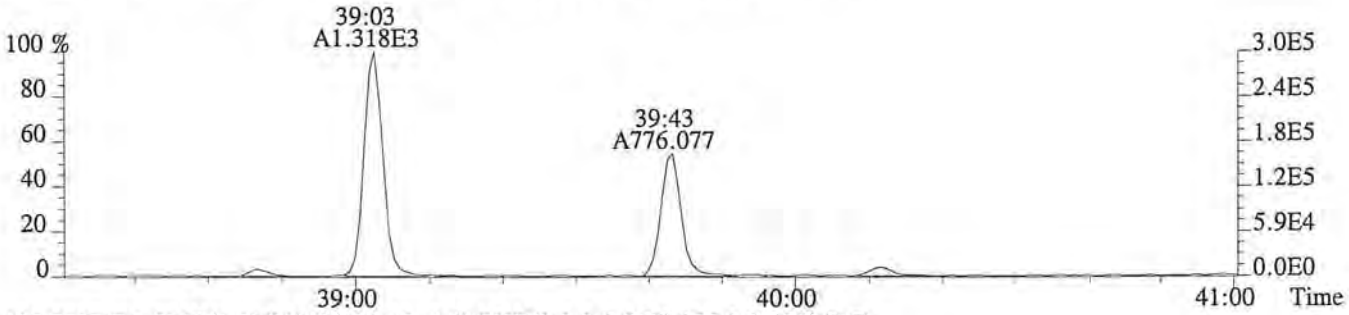
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



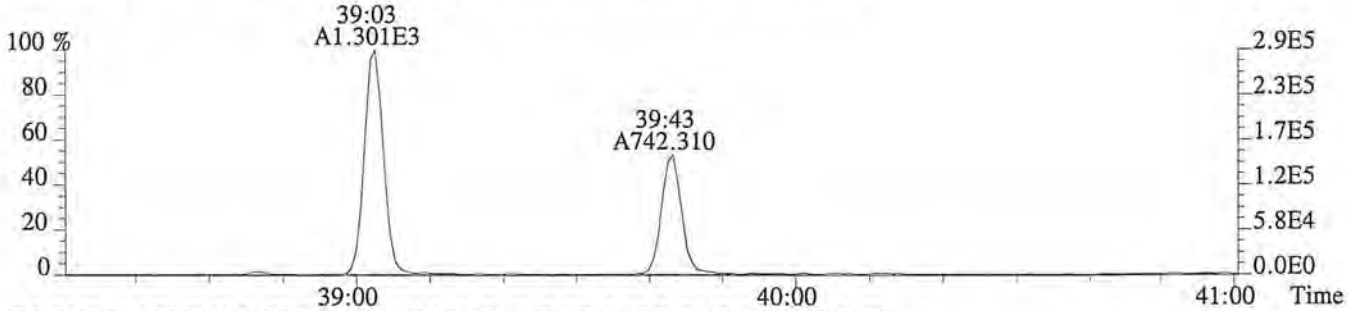
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



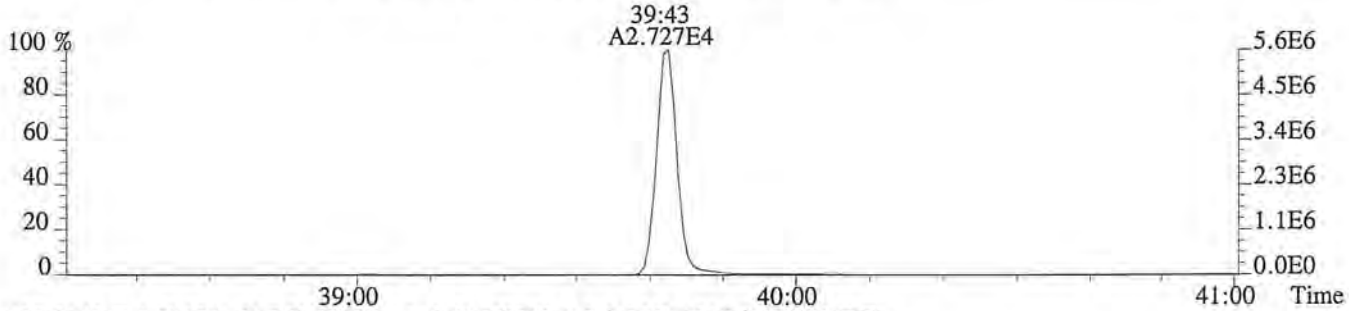
File:P301057 #1-241 Acq:27-AUG-2015 22:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-001
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1620.0,0.40%,F,T)



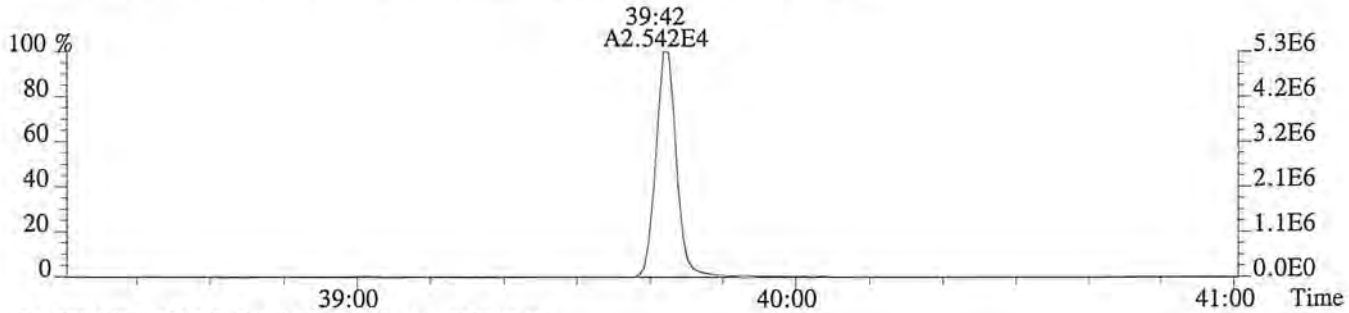
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



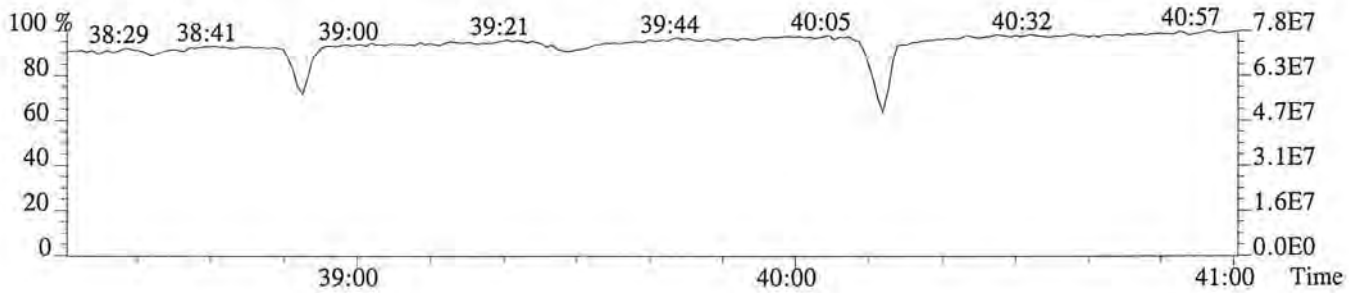
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2448.0,0.40%,F,T)



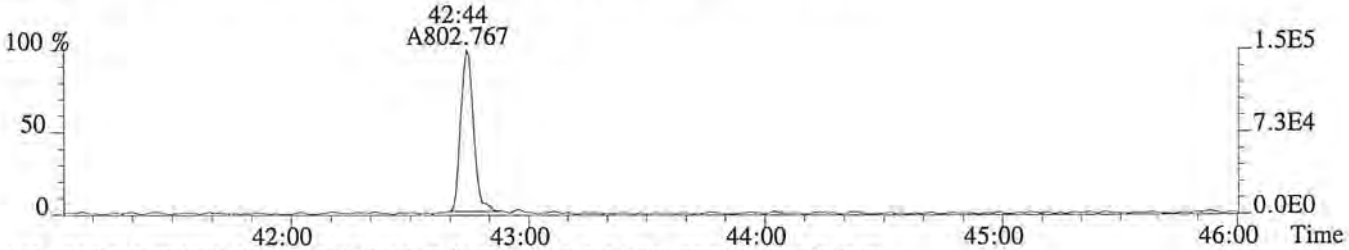
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



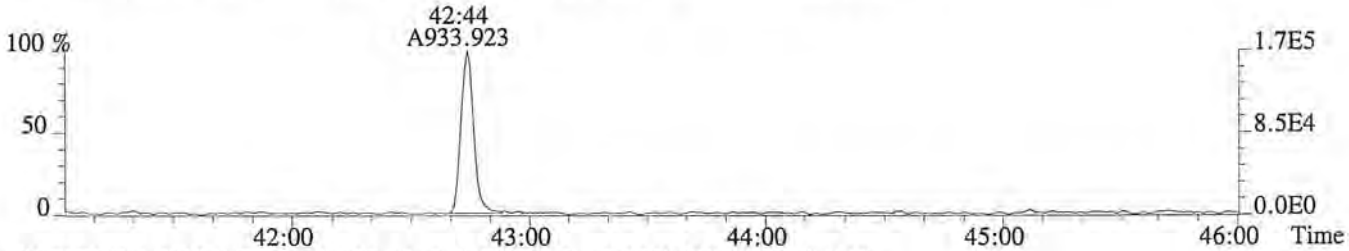
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



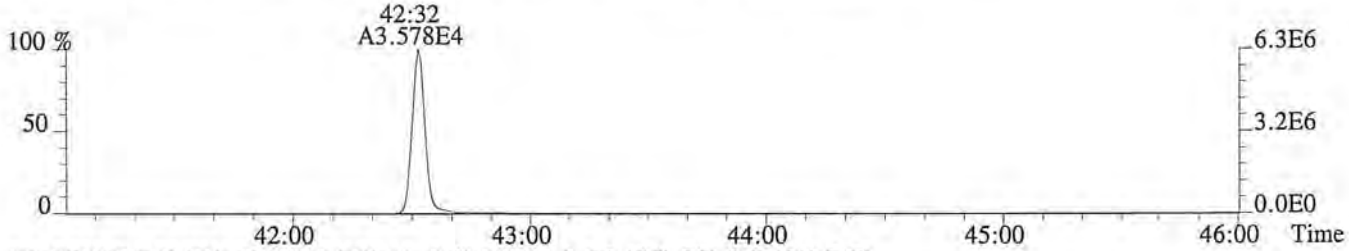
File:P301057 #1-447 Acq:27-AUG-2015 22:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-001
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1448.0,0.40%,F,T)



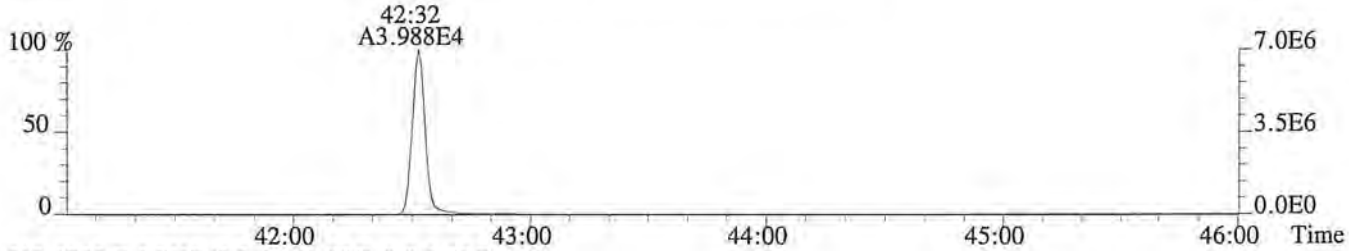
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2768.0,0.40%,F,T)



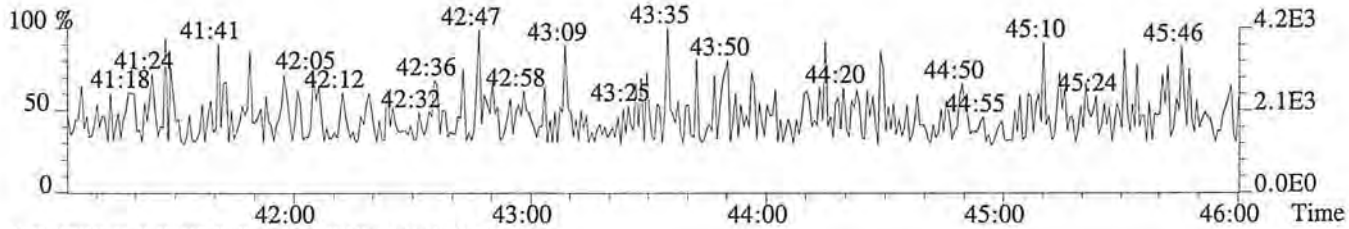
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,900.0,0.40%,F,T)



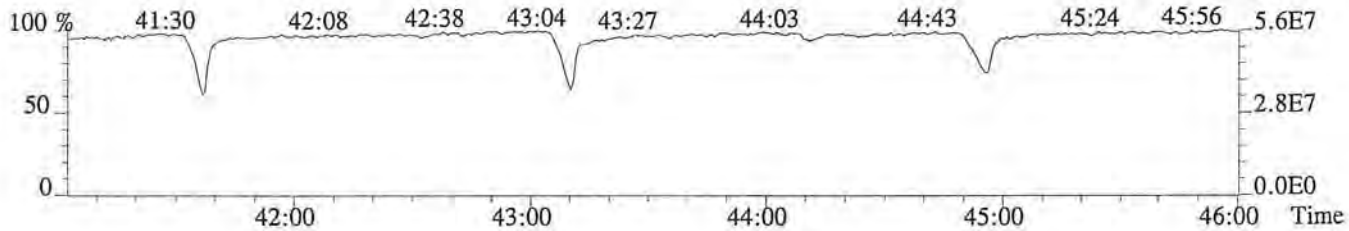
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,932.0,0.40%,F,T)



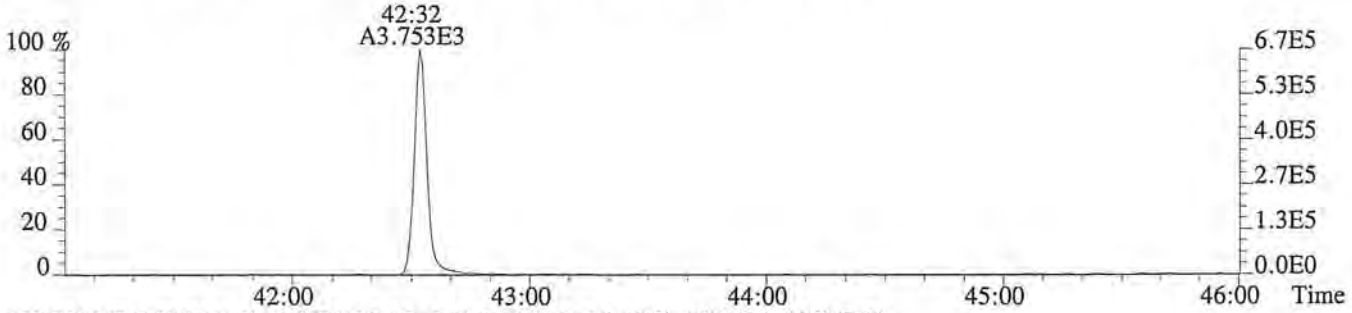
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



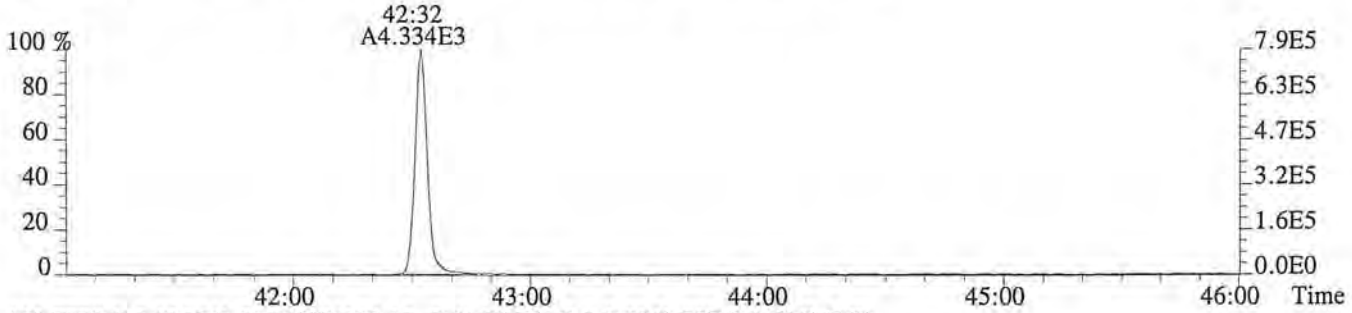
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



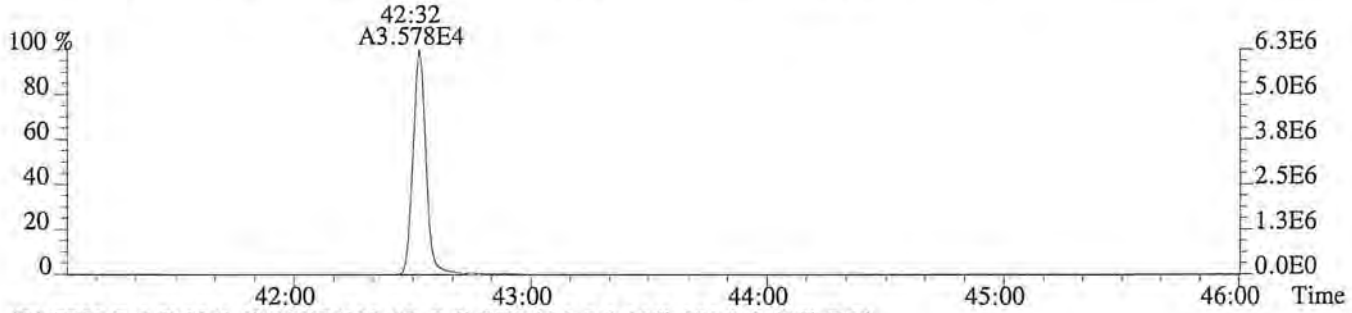
File:P301057 #1-447 Acq:27-AUG-2015 22:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-001
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



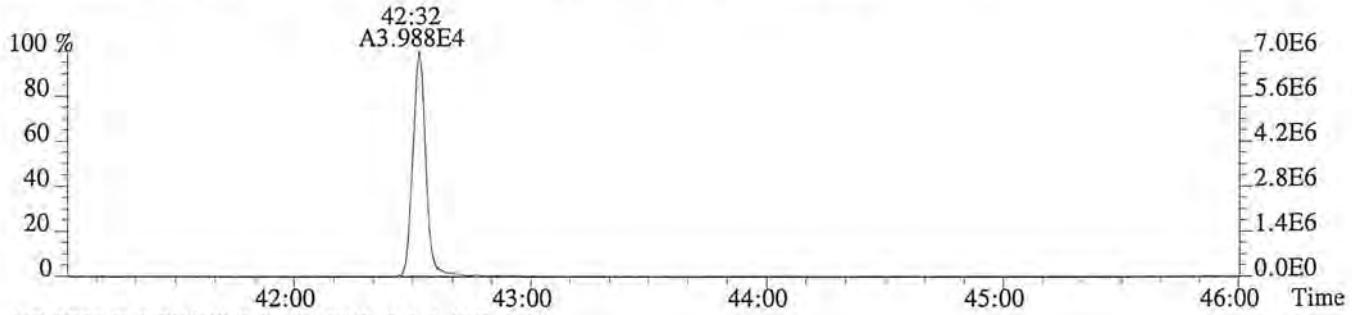
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1408.0,0.40%,F,T)



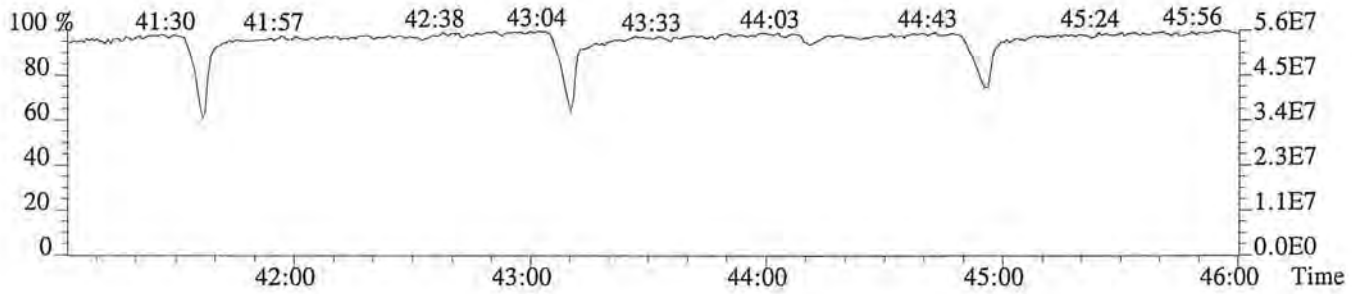
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,900.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,932.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-01-15 MTI

Run #14 Filename P301058 Samp: 1 Inj: 1 Acquired: 27-AUG-15 23:05:20
Processed: 28-AUG-15 11:53:15 Sample ID: E1500743-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	yes	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.644e+02	2.684e+02	0.98	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.245
10	Unk	OCDF	42:45	8.002e+02	9.052e+02	0.88	yes	no	1.186
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.887
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:02	4.783e+01	4.198e+01	1.14	yes	yes	0.967
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	9.775e+02	9.411e+02	1.04	yes	no	0.949
17	Unk	OCDD	42:32	4.188e+03	4.761e+03	0.88	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:37	3.094e+04	3.959e+04	0.78	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	5.086e+04	3.218e+04	1.58	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:35	4.967e+04	3.145e+04	1.58	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	2.134e+04	4.097e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:19	2.448e+04	4.737e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	2.310e+04	4.509e+04	0.51	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:34	2.851e+04	5.522e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	1.359e+04	3.098e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	1.078e+04	2.441e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:22	2.507e+04	3.216e+04	0.78	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:51	3.786e+04	2.419e+04	1.56	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:56	3.194e+04	2.540e+04	1.26	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:02	3.173e+04	2.526e+04	1.26	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.651e+04	2.549e+04	1.04	yes	no	0.850
32	IS	13C-OCDD	42:32	3.463e+04	3.869e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:49	3.210e+04	4.059e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:16	4.767e+04	3.745e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	2.446e+04				no	1.001

$$\text{OCDD} = \frac{(4.188e+03 + 4.761e+03) \times 4000 \text{ pg} \times 1}{(3.463e+04 + 3.869e+04) \times 10.249 \text{ g} \times \quad / 100 \times 1.061} = 44.9 \text{ ng/g}$$

08/31/15

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-01-15 MTI/MT

Run #14 Filename P301058 Samp: 1 Inj: 1 Acquired: 27-AUG-15 23:05:20
Processed: 28-AUG-15 11:53:15 LAB. ID: E1500743-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.62e+03	*	*	2.65e+03	*
2	1,2,3,7,8-PeCDF	*	7.92e+02	*	*	2.70e+03	*
3	2,3,4,7,8-PeCDF	*	7.92e+02	*	*	2.70e+03	*
4	1,2,3,4,7,8-HxCDF	*	2.16e+03	*	*	7.84e+02	*
5	1,2,3,6,7,8-HxCDF	*	2.16e+03	*	*	7.84e+02	*
6	2,3,4,6,7,8-HxCDF	*	2.16e+03	*	*	7.84e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.16e+03	*	*	7.84e+02	*
8	1,2,3,4,6,7,8-HpCDF	5.90e+04	1.27e+03	4.6e+01	6.00e+04	1.45e+03	4.1e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.27e+03	*	*	1.45e+03	*
10	OCDF	1.35e+05	1.70e+03	8.0e+01	1.54e+05	2.96e+03	5.2e+01
11	2,3,7,8-TCDD	*	1.74e+03	*	*	1.20e+03	*
12	1,2,3,7,8-PeCDD	*	2.26e+03	*	*	7.40e+02	*
13	1,2,3,4,7,8-HxCDD	*	5.56e+02	*	*	1.80e+03	*
14	1,2,3,6,7,8-HxCDD	1.10e+04	5.56e+02	2.0e+01	8.12e+03	1.80e+03	4.5e+00
15	1,2,3,7,8,9-HxCDD	*	5.56e+02	*	*	1.80e+03	*
16	1,2,3,4,6,7,8-HpCDD	2.10e+05	1.77e+03	1.2e+02	2.10e+05	1.10e+03	1.9e+02
17	OCDD	7.77e+05	1.19e+03	6.5e+02	8.63e+05	1.70e+03	5.1e+02
18	13C-2,3,7,8-TCDF	6.12e+06	1.77e+03	3.5e+03	7.82e+06	2.38e+03	3.3e+03
19	13C-1,2,3,7,8-PeCDF	1.00e+07	7.80e+02	1.3e+04	6.40e+06	1.42e+03	4.5e+03
20	13C-2,3,4,7,8-PeCDF	1.04e+07	7.80e+02	1.3e+04	6.66e+06	1.42e+03	4.7e+03
21	13C-1,2,3,4,7,8-HxCDF	4.88e+06	1.12e+03	4.4e+03	9.28e+06	2.04e+03	4.5e+03
22	13C-1,2,3,6,7,8-HxCDF	5.46e+06	1.12e+03	4.9e+03	1.04e+07	2.04e+03	5.1e+03
23	13C-2,3,4,6,7,8-HxCDF	5.20e+06	1.12e+03	4.7e+03	1.02e+07	2.04e+03	5.0e+03
24	13C-1,2,3,7,8,9-HxCDF	6.27e+06	1.12e+03	5.6e+03	1.20e+07	2.04e+03	5.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.12e+06	2.20e+03	1.4e+03	7.16e+06	3.48e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.11e+06	2.20e+03	9.6e+02	4.85e+06	3.48e+03	1.4e+03
27	13C-2,3,7,8-TCDD	5.26e+06	6.38e+03	8.3e+02	6.73e+06	4.12e+03	1.6e+03
28	13C-1,2,3,7,8-PeCDD	8.04e+06	1.78e+03	4.5e+03	5.10e+06	1.68e+03	3.0e+03
29	13C-1,2,3,4,7,8-HxCDD	7.31e+06	1.02e+03	7.1e+03	5.80e+06	2.03e+03	2.9e+03
30	13C-1,2,3,6,7,8-HxCDD	7.00e+06	1.02e+03	6.8e+03	5.56e+06	2.03e+03	2.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.71e+06	2.80e+03	2.0e+03	5.41e+06	1.41e+03	3.8e+03
32	13C-OCDD	6.20e+06	7.56e+02	8.2e+03	6.99e+06	1.21e+03	5.8e+03
33	13C-1,2,3,4-TCDD	6.41e+06	6.38e+03	1.0e+03	8.21e+06	4.12e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.07e+07	1.02e+03	1.0e+04	8.46e+06	2.03e+03	4.2e+03
35	37Cl-2,3,7,8-TCDD	5.07e+06	7.52e+02	6.7e+03			

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Peak List Summary

CLIENT ID.

PLY-01-15 MTI/MT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P301058 Sample:1 Injection:1 Function:3

Acquired: 27-AUG-15 23:05:20 Processed: 28-AUG-15 11:53:15

Mass: 373.8210 375.8180 Tot Response: 3.97e+02 RRF: 1.094

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:48	2.10e+02	1.87e+02	1.12	yes	3.97e+02	n	n

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Peak List Summary

CLIENT ID.

PLY-01-15 MTI/MT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P301058 Sample:1 Injection:1 Function:3

Acquired: 27-AUG-15 23:05:20 Processed: 28-AUG-15 11:53:15

Mass: 389.8160 391.8130 Tot Response: 4.04e+02 RRF: 0.9904

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:38	1.44e+02	1.27e+02	1.13	yes	2.70e+02	n	n
2	36:28	2.42e+01	1.99e+01	1.22	yes	4.41e+01	n	n
3	37:02	4.78e+01	4.20e+01	1.14	yes	8.98e+01 1,2,3,6,7,8-HxCDD	n	y

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Peak List Summary

CLIENT ID.

PLY-01-15 MTI/MT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P301058 Sample:1 Injection:1 Function:4

Acquired: 27-AUG-15 23:05:20 Processed: 28-AUG-15 11:53:15

Mass: 407.7820 409.7790 Tot Response: 2.45e+03 RRF: 1.284

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	2.64e+02	2.68e+02	0.98	yes	5.33e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:12	1.01e+03	9.12e+02	1.10	yes	1.92e+03		n	n

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Peak List Summary

CLIENT ID.

PLY-01-15 MTI/MT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P301058 Sample:1 Injection:1 Function:4

Acquired: 27-AUG-15 23:05:20 Processed: 28-AUG-15 11:53:15

Mass: 423.7770 425.7740 Tot Response: 4.80e+03 RRF: 0.9492

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:03	1.45e+03	1.43e+03	1.01	yes	2.88e+03		n	n
2	39:43	9.77e+02	9.41e+02	1.04	yes	1.92e+03	1,2,3,4,6,7,8-HpCDD	n	n

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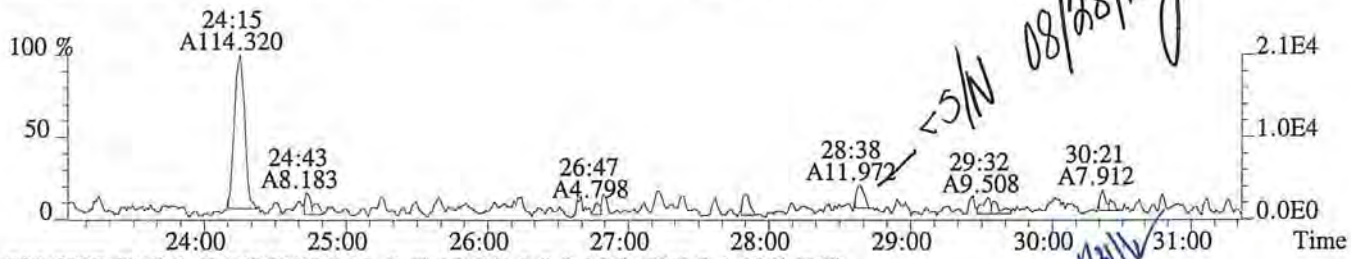
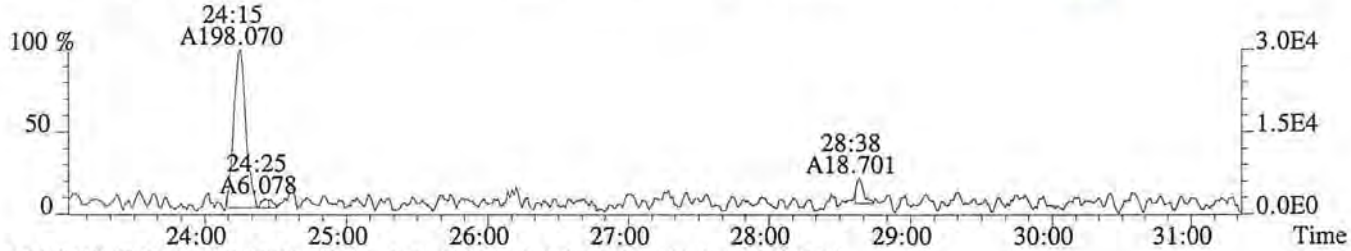
File:P301058 #1-591 Acq:27-AUG-2015 23:05:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-002
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



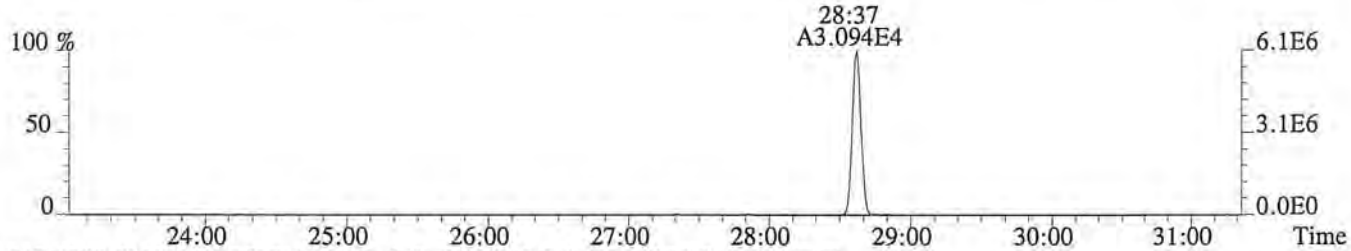
<5/N 08/28/15 gc

08/31/15

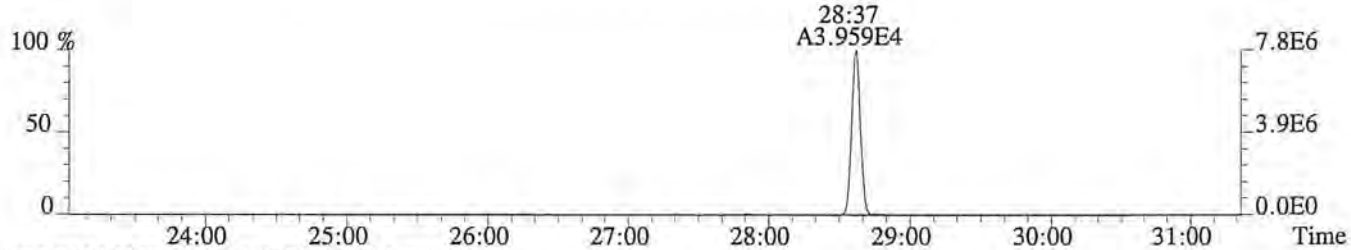
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2648.0,1.00%,F,T)



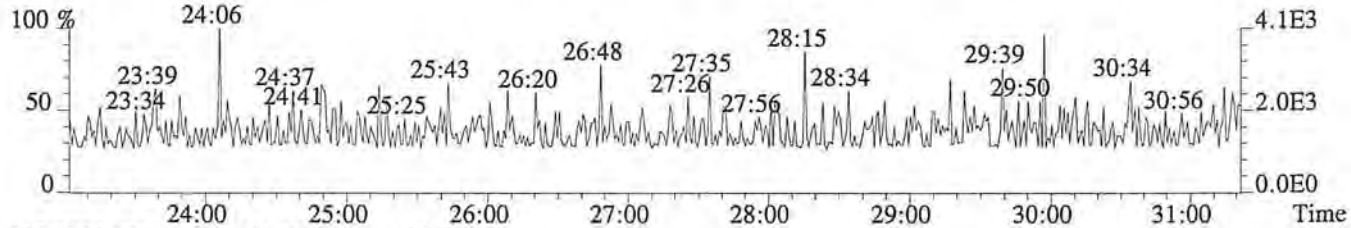
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1768.0,1.00%,F,T)



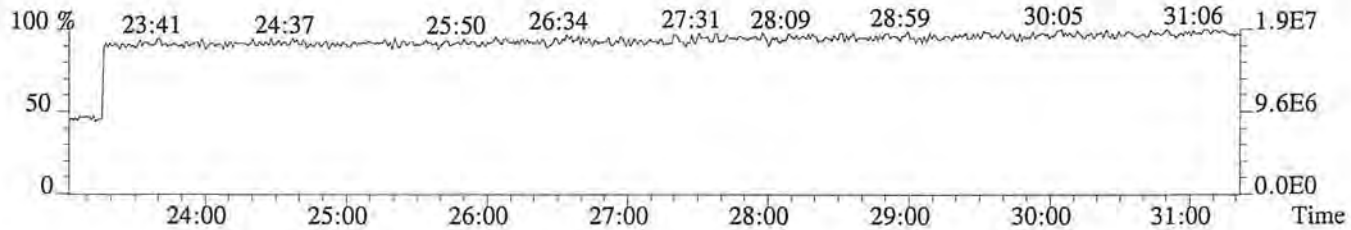
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2380.0,1.00%,F,T)



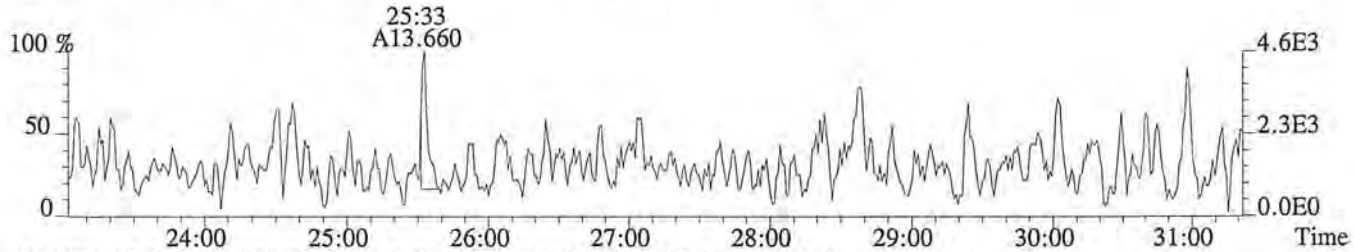
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



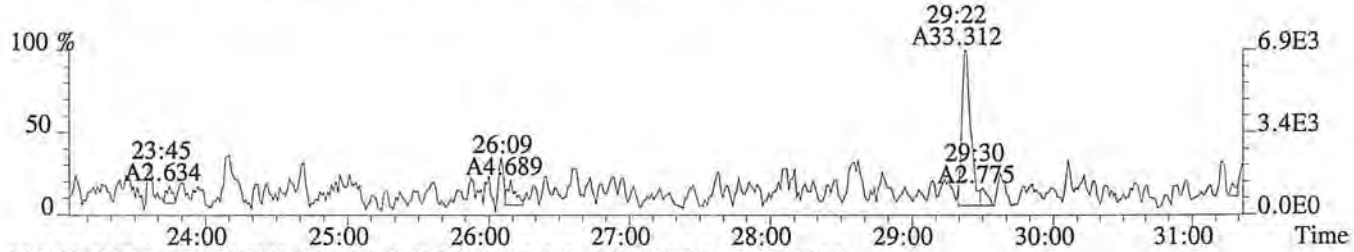
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



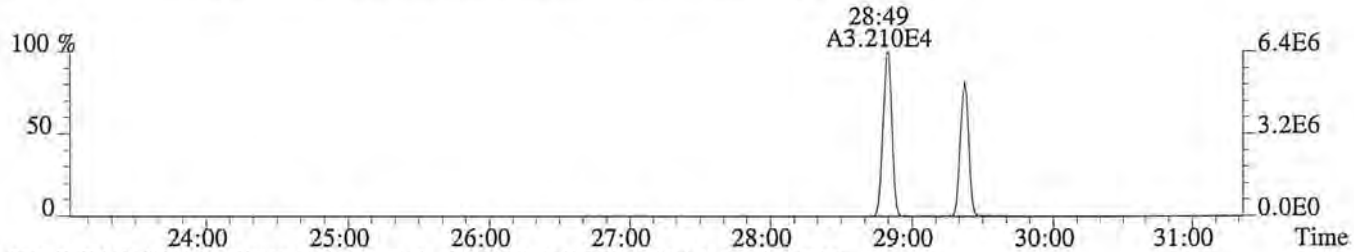
File:P301058 #1-591 Acq:27-AUG-2015 23:05:20 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1500743-002
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1740.0,1.00%,F,T)



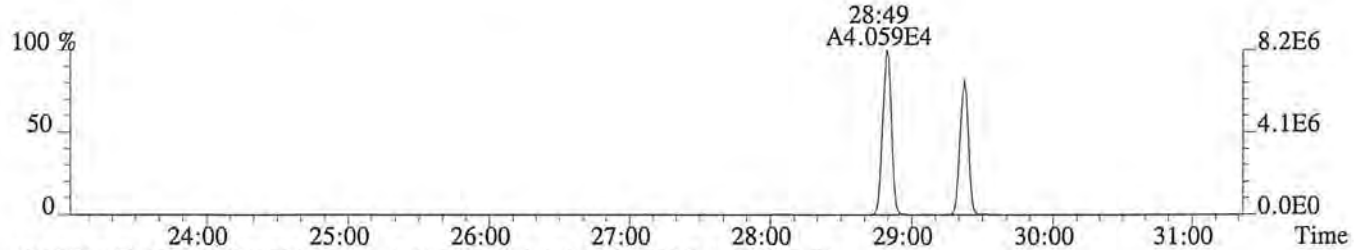
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



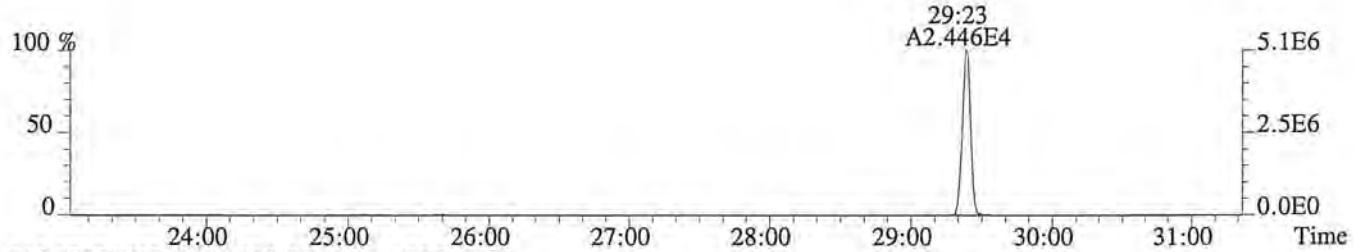
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6376.0,1.00%,F,T)



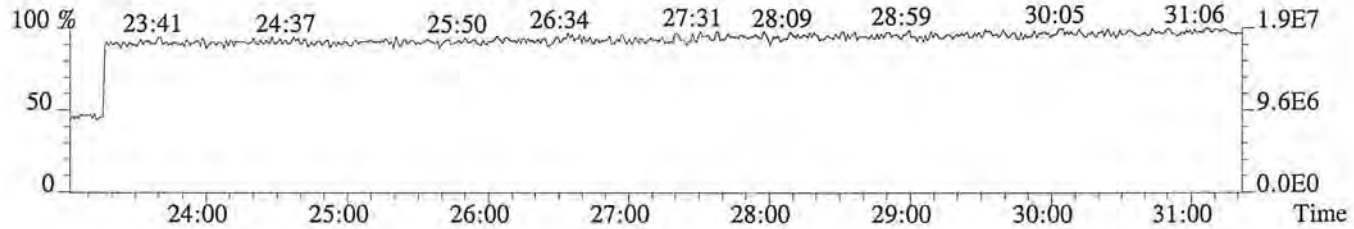
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4124.0,1.00%,F,T)



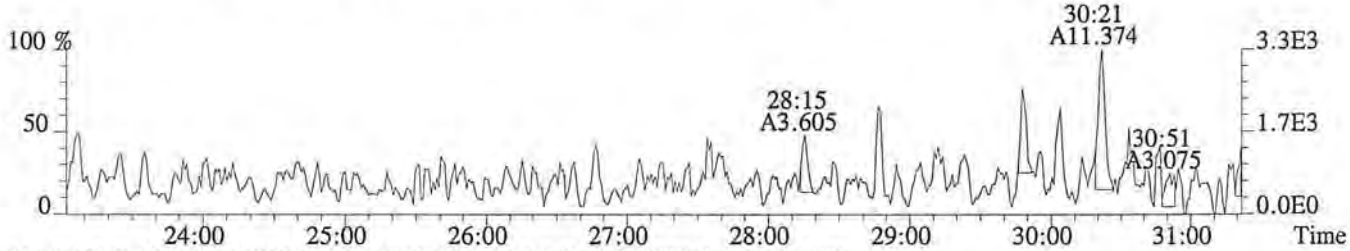
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



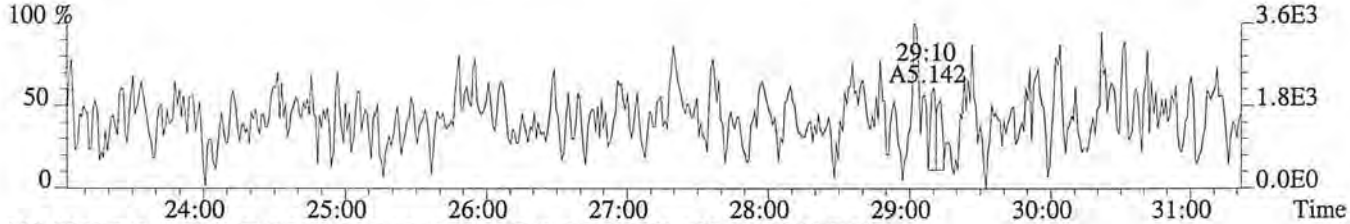
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



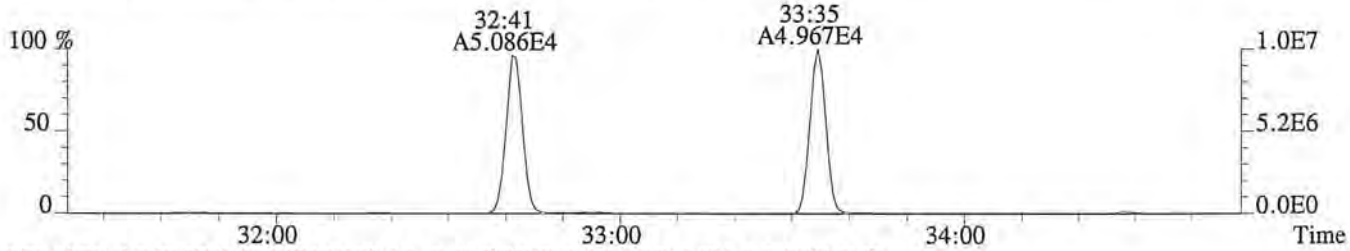
File:P301058 #1-591 Acq:27-AUG-2015 23:05:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-002
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



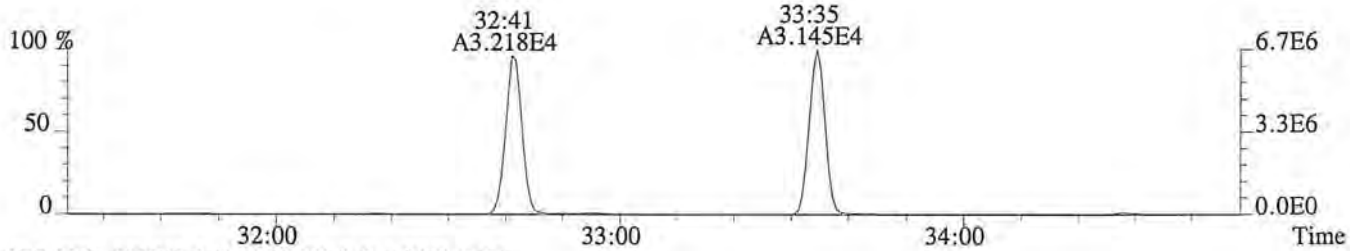
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2020.0,1.00%,F,T)



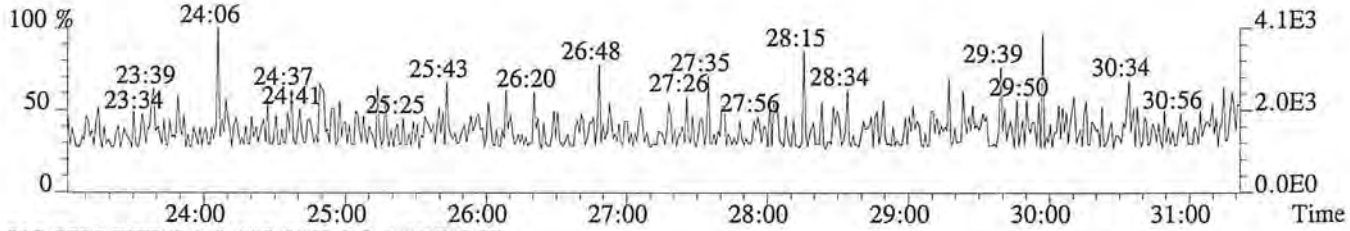
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



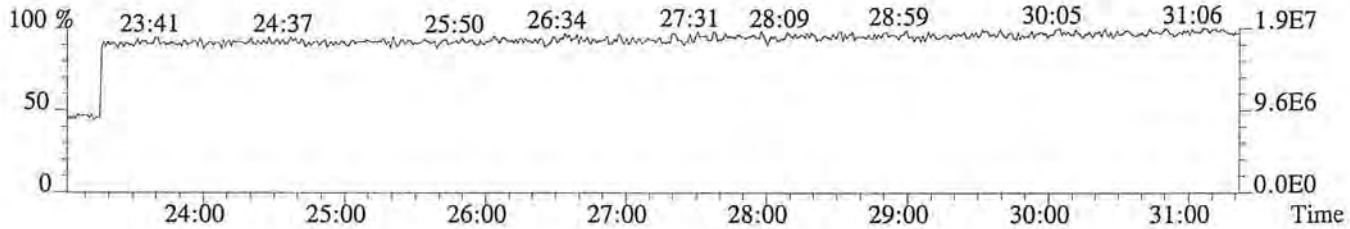
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



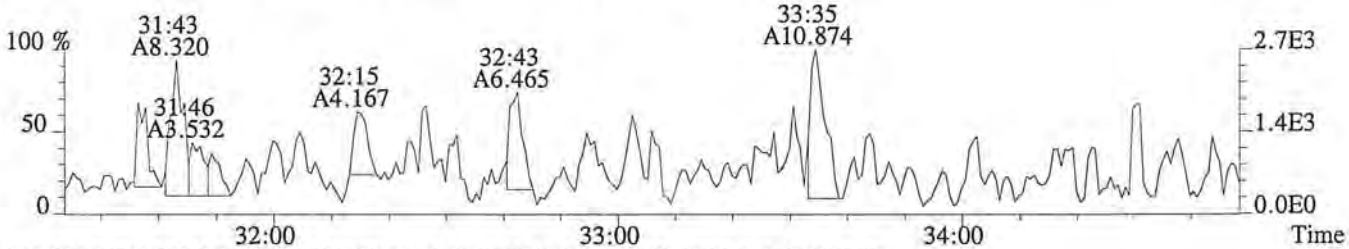
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



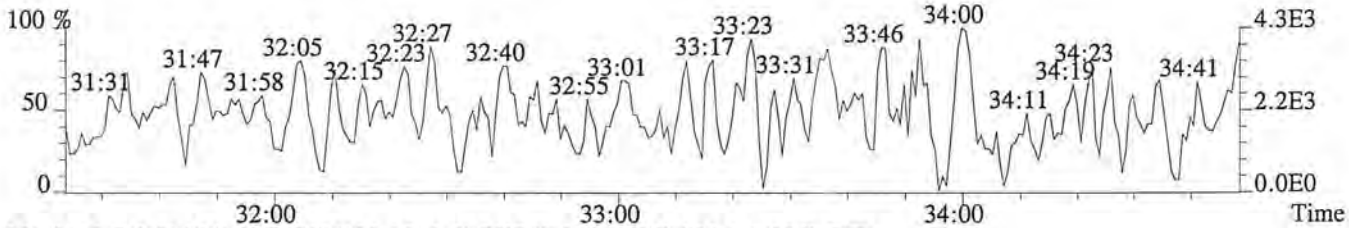
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



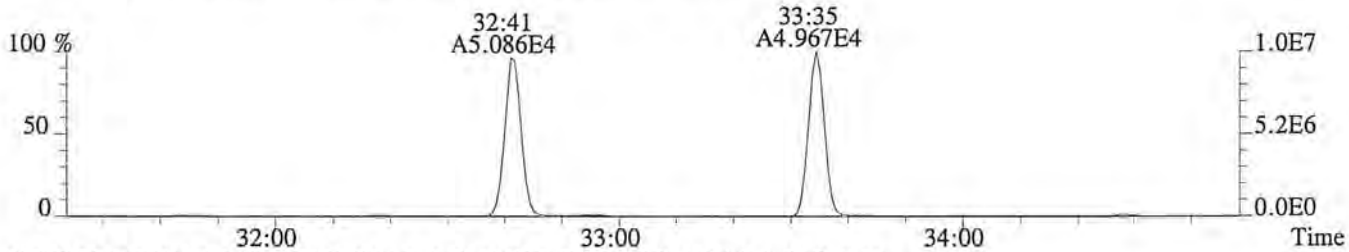
File:P301058 #1-308 Acq:27-AUG-2015 23:05:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-002
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



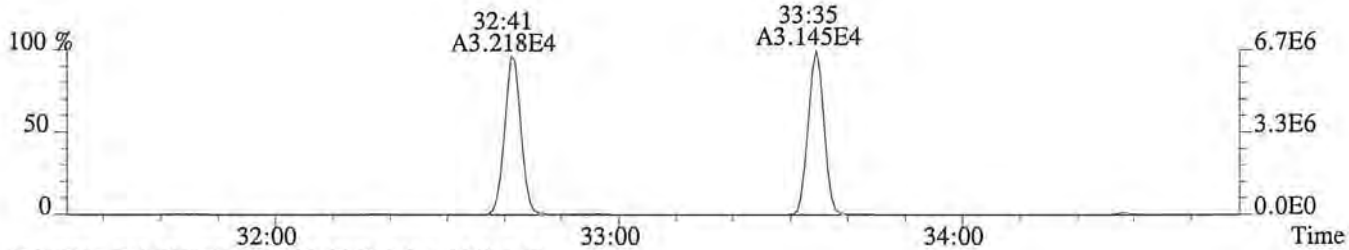
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2700.0,1.00%,F,T)



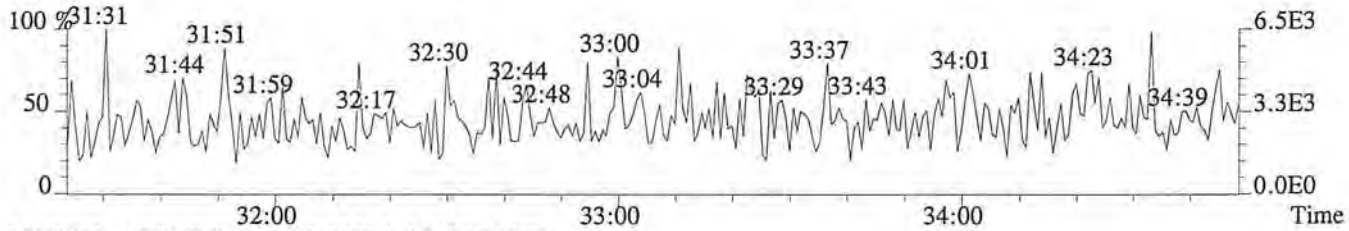
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



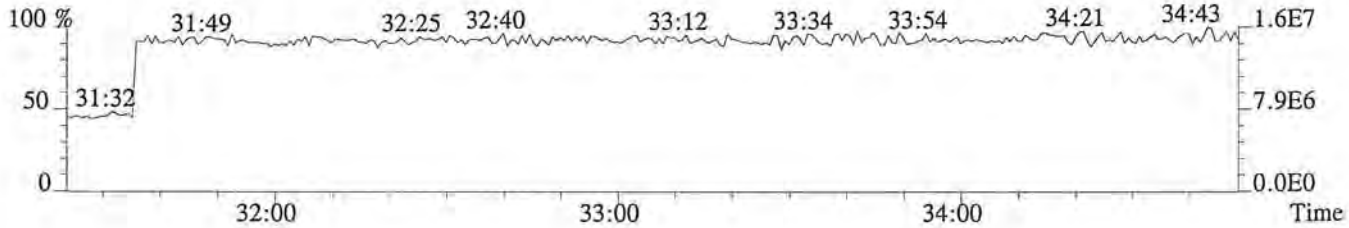
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



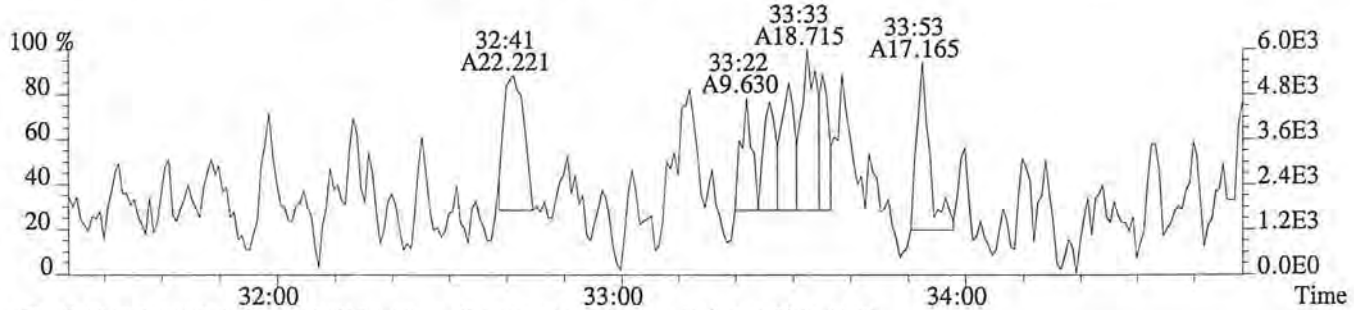
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



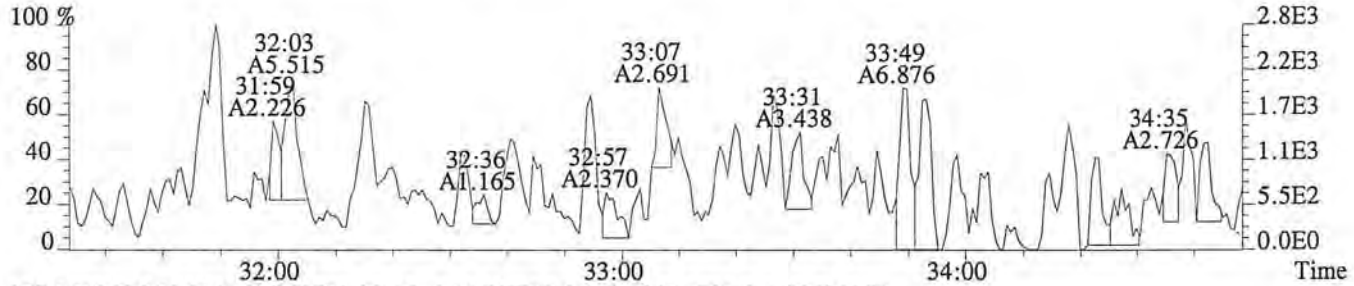
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



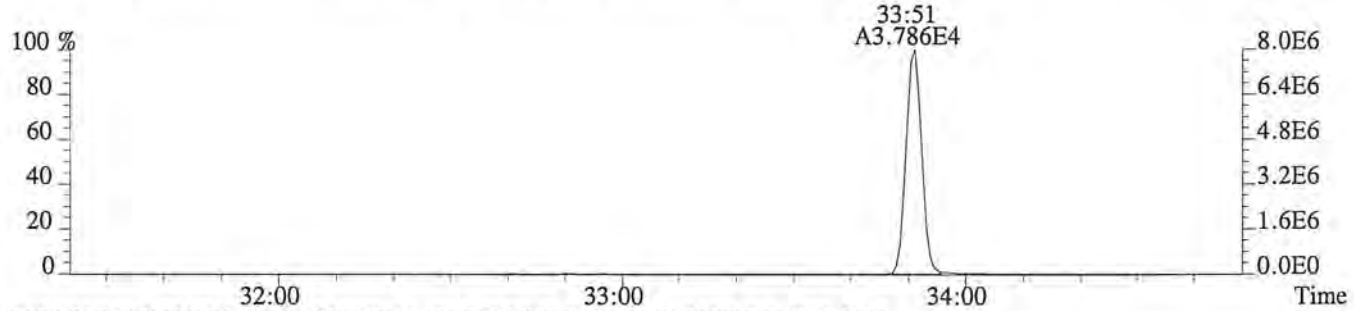
File:P301058 #1-308 Acq:27-AUG-2015 23:05:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-002
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2260.0,1.00%,F,T)



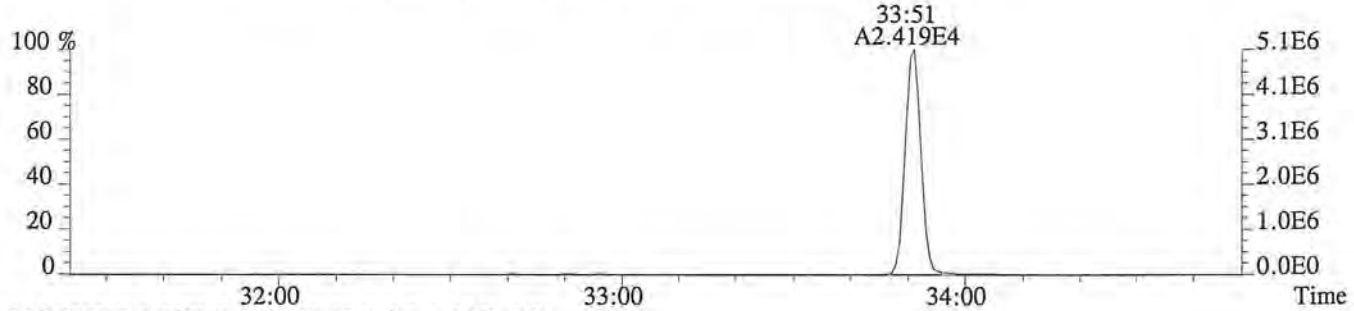
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



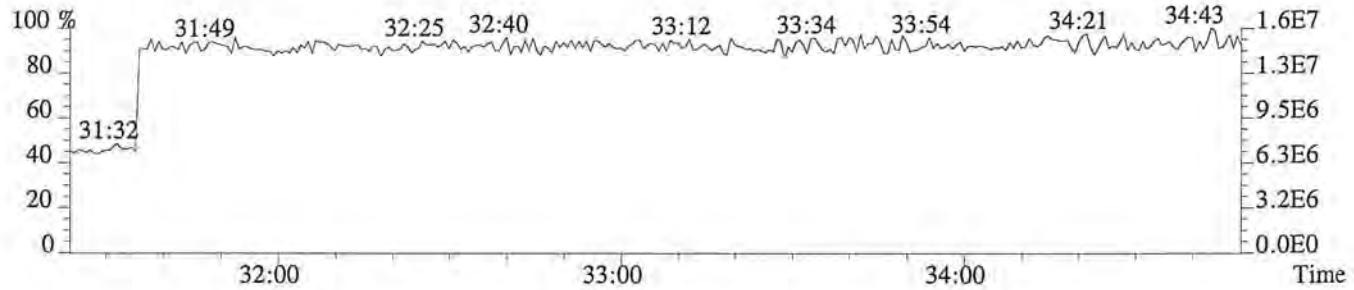
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1784.0,1.00%,F,T)



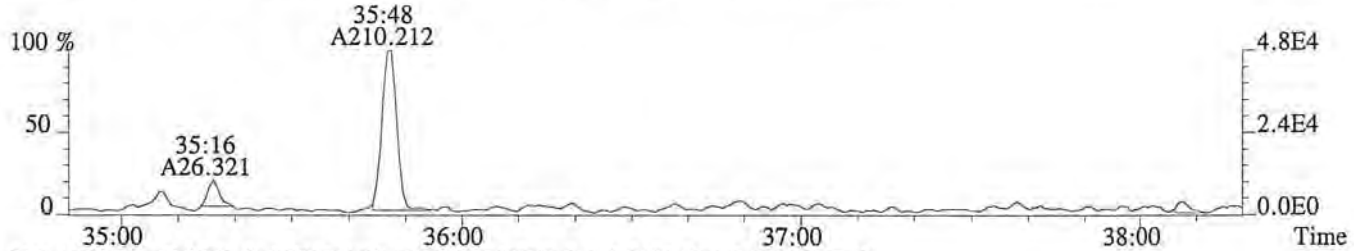
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1680.0,1.00%,F,T)



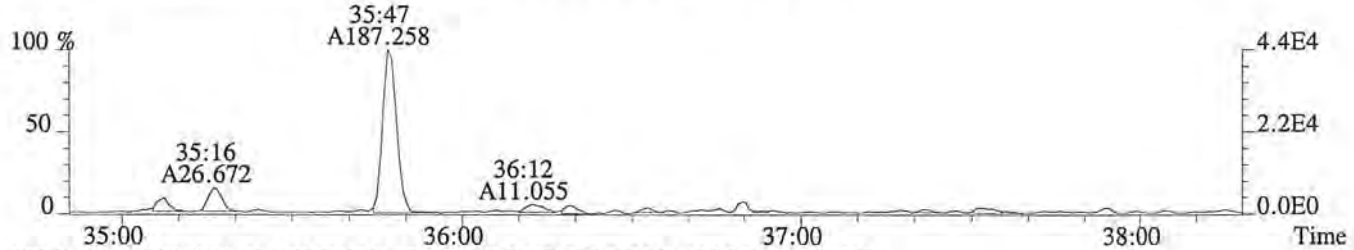
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



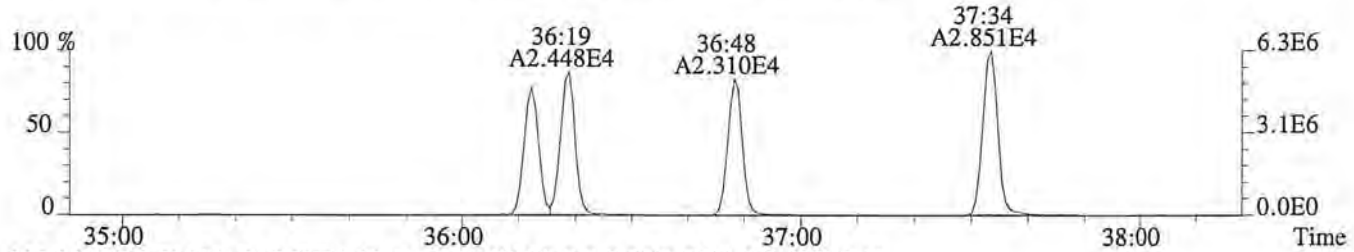
File:P301058 #1-312 Acq:27-AUG-2015 23:05:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-002
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2160.0,0.40%,F,T)



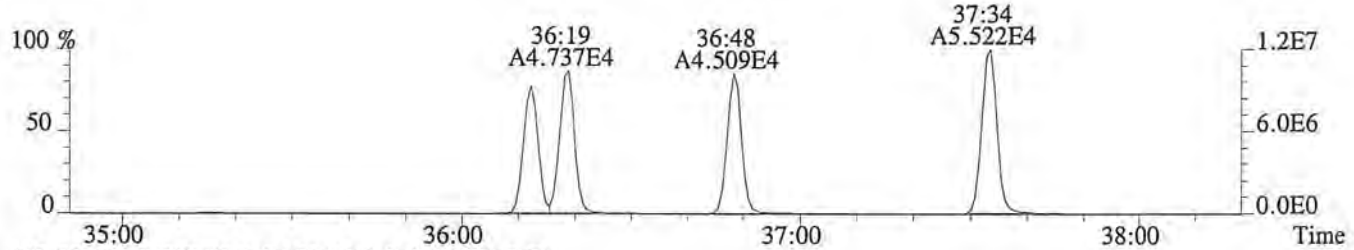
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



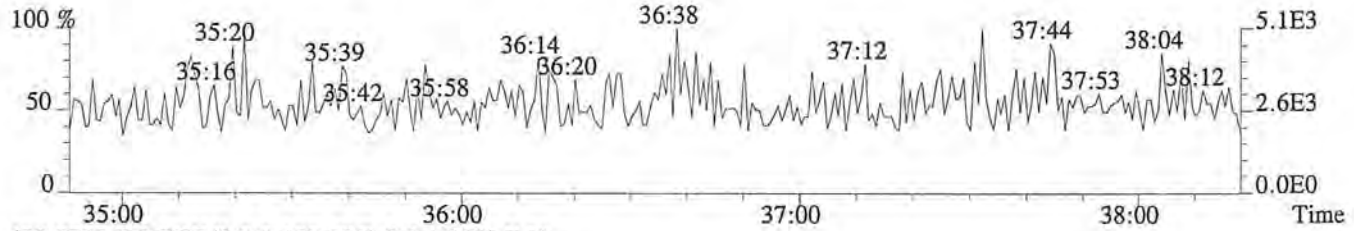
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



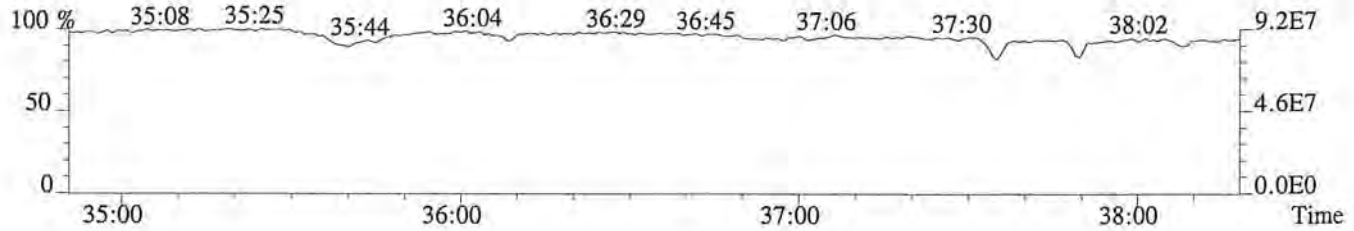
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2044.0,0.40%,F,T)



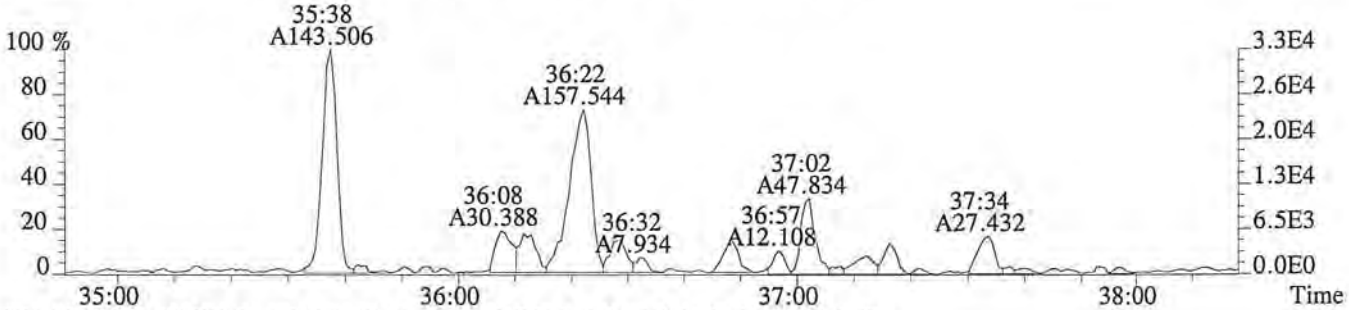
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



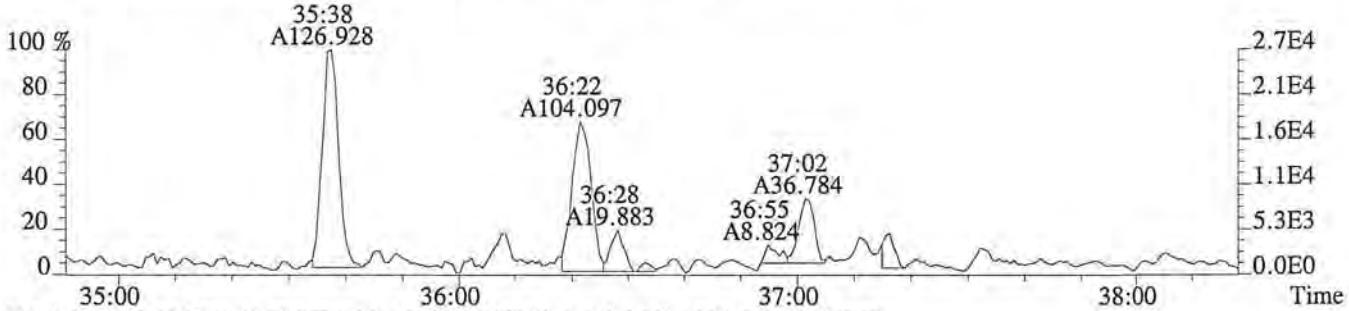
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



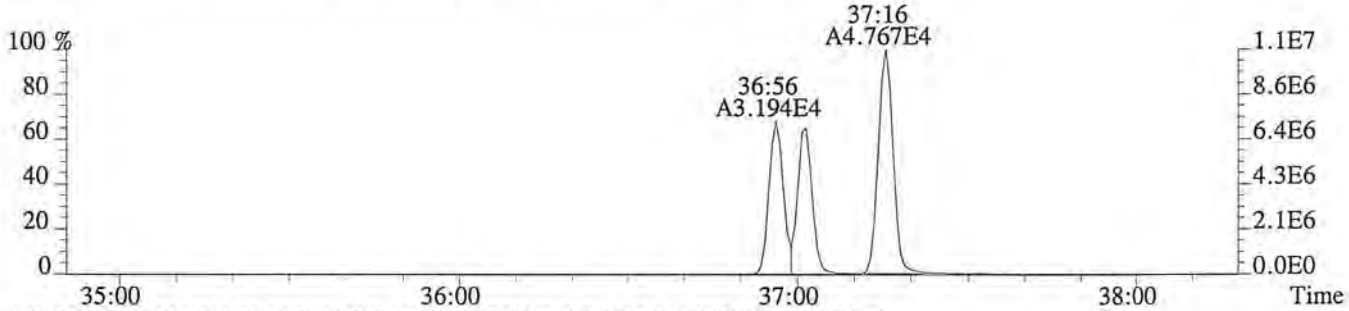
File:P301058 #1-312 Acq:27-AUG-2015 23:05:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-002
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



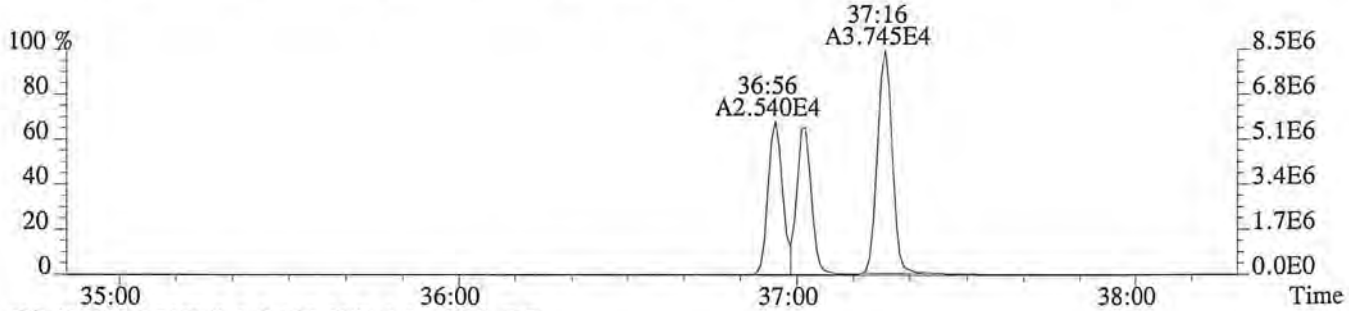
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1796.0,0.40%,F,T)



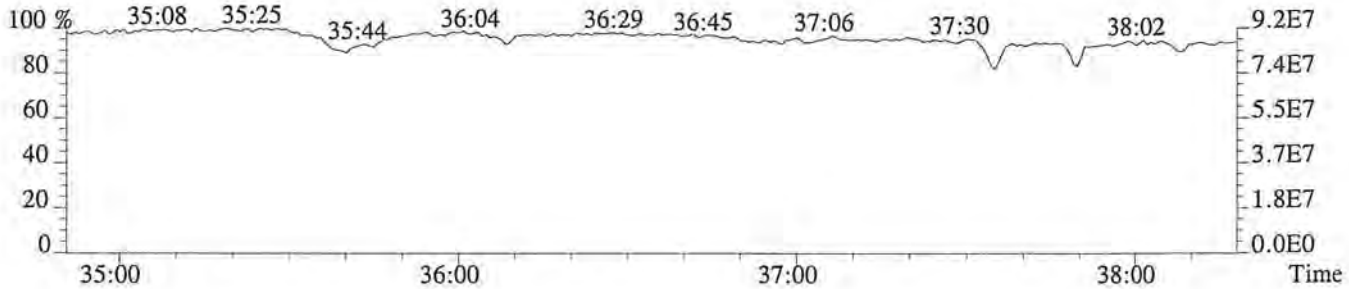
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1024.0,0.40%,F,T)



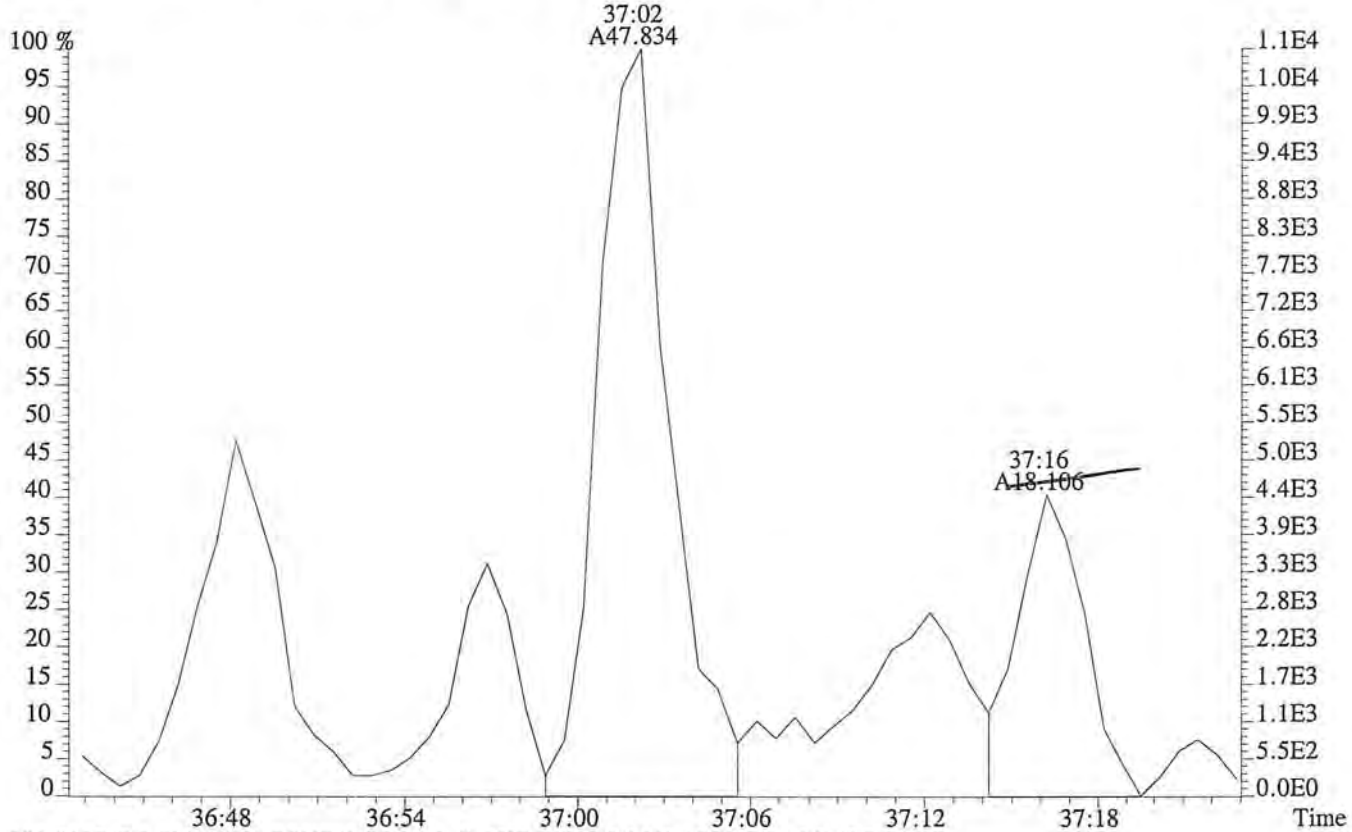
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2032.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

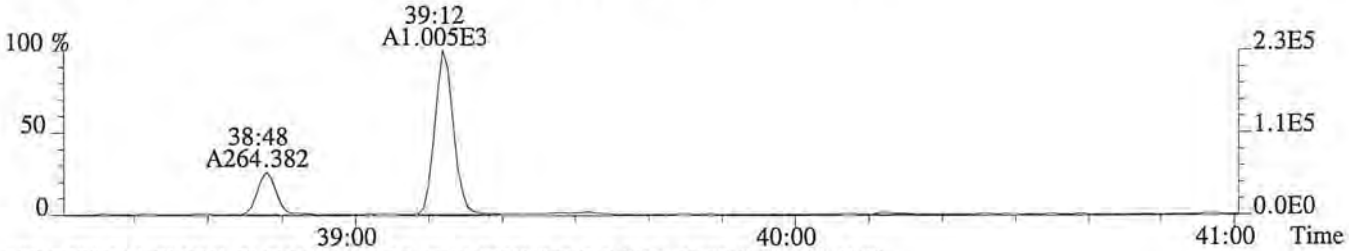


File:P301058 #1-312 Acq:27-AUG-2015 23:05:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-002
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)

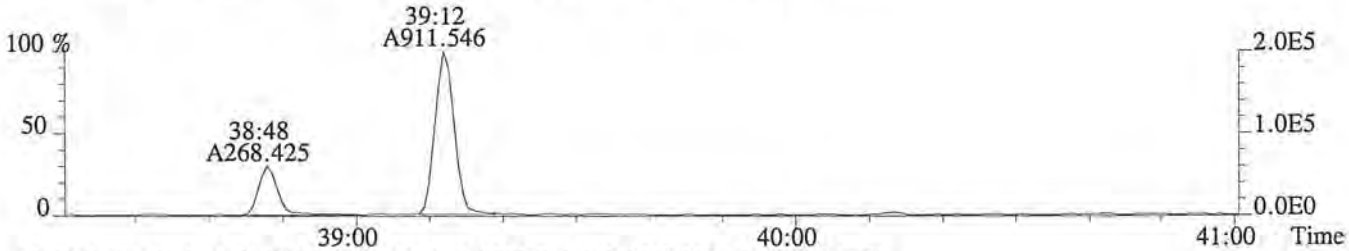


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1796.0,0.40%,F,T)

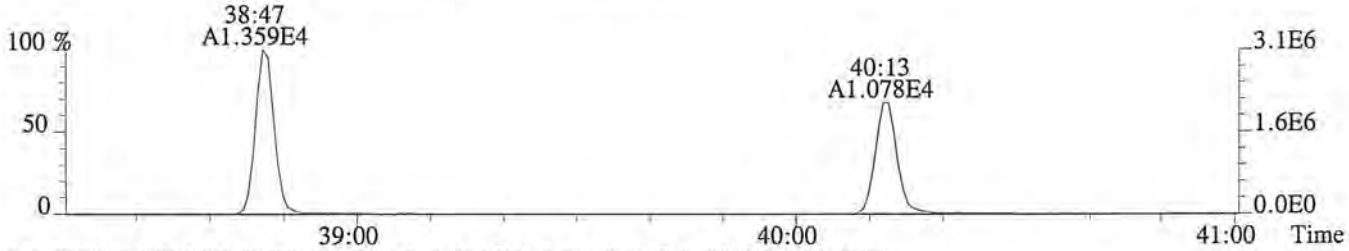
File:P301058 #1-241 Acq:27-AUG-2015 23:05:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-002
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1272.0,0.50%,F,T)



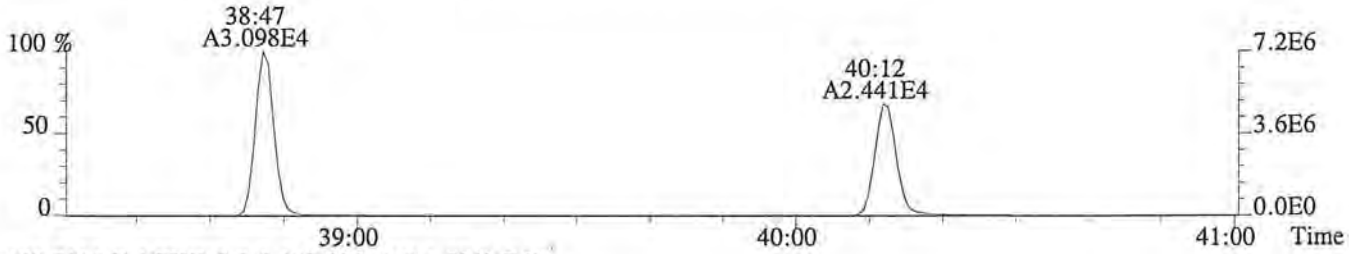
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1452.0,0.50%,F,T)



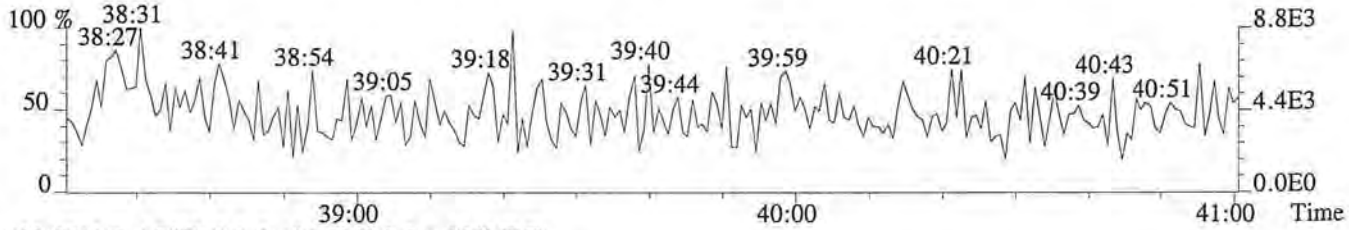
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2204.0,0.50%,F,T)



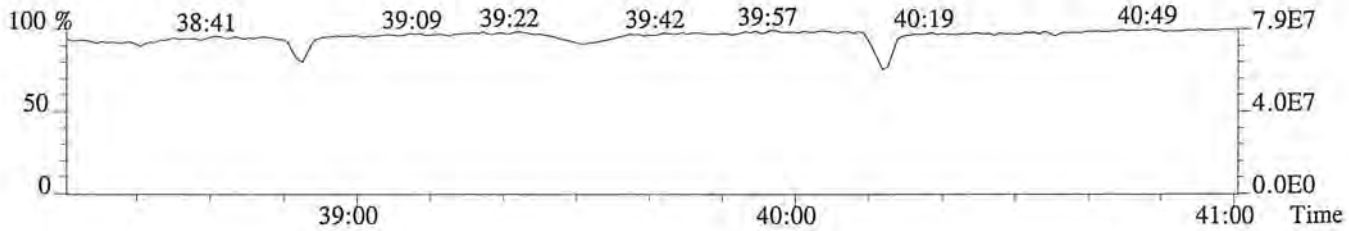
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3480.0,0.50%,F,T)



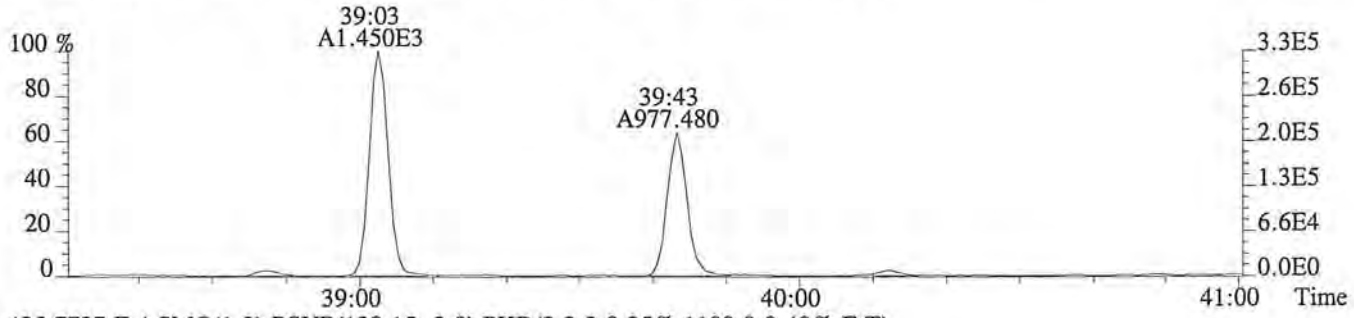
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



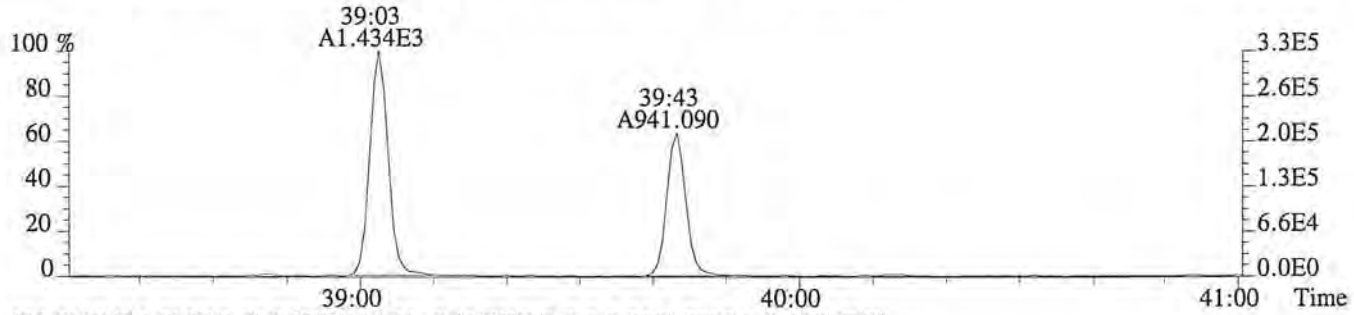
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



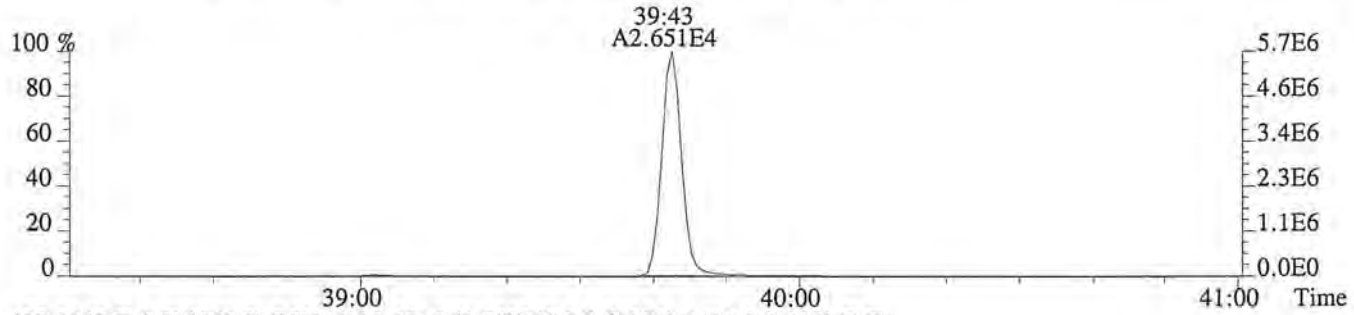
File:P301058 #1-241 Acq:27-AUG-2015 23:05:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-002
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1768.0,0.40%,F,T)



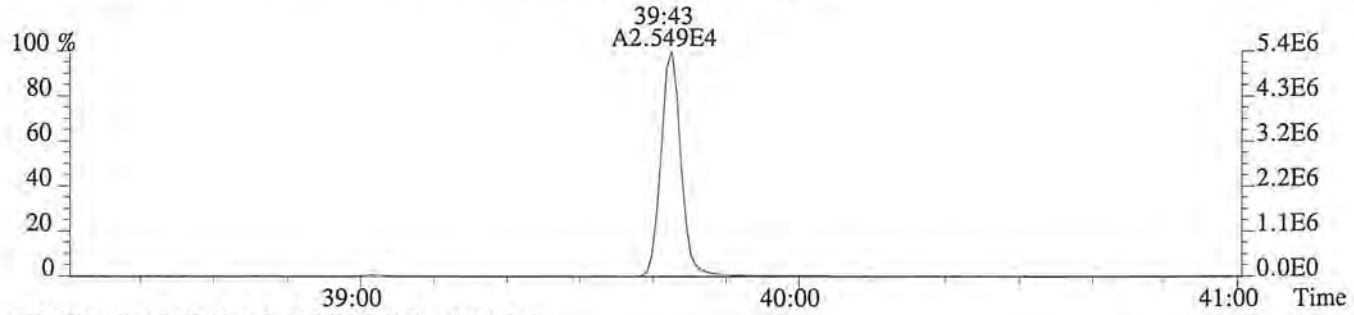
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



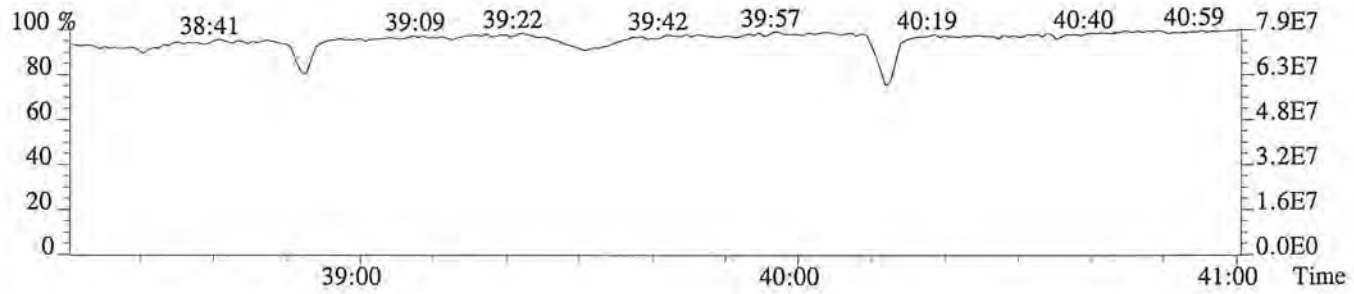
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2796.0,0.40%,F,T)



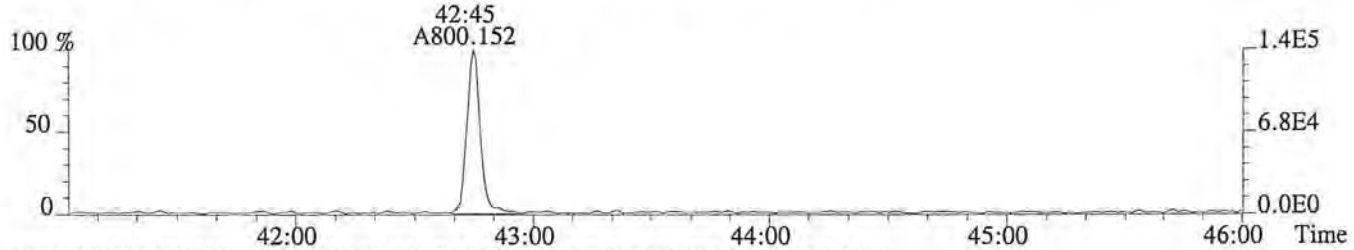
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



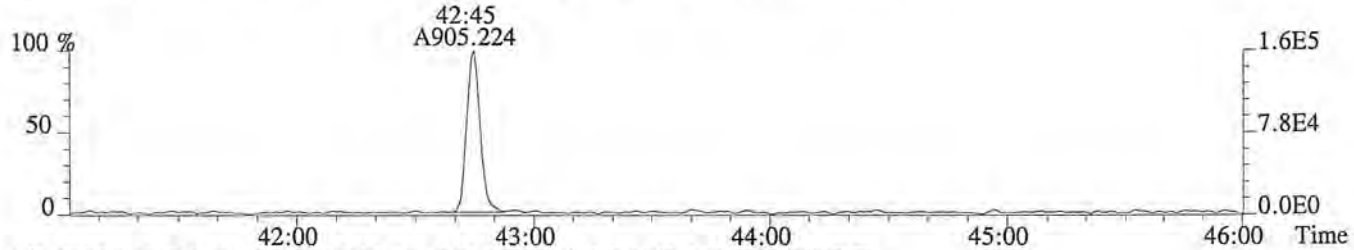
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



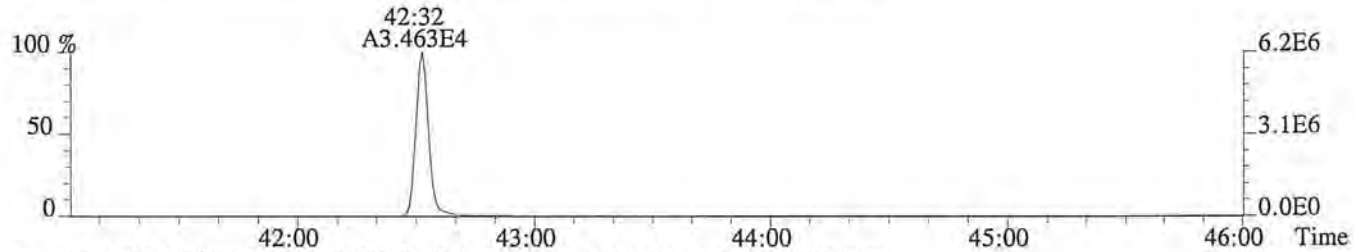
File:P301058 #1-447 Acq:27-AUG-2015 23:05:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-002
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1700.0,0.40%,F,T)



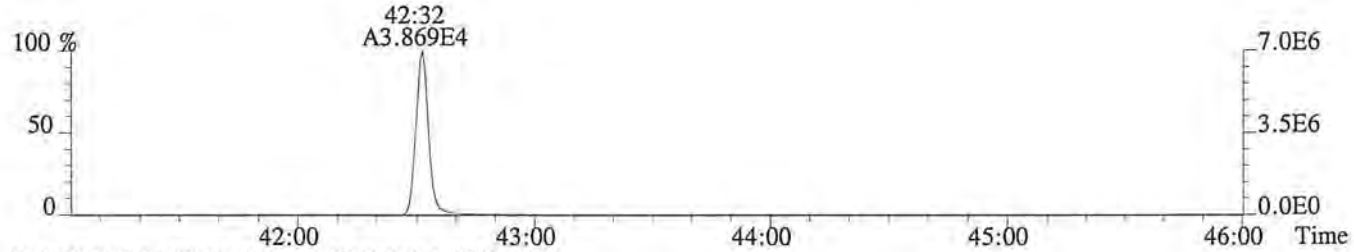
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2956.0,0.40%,F,T)



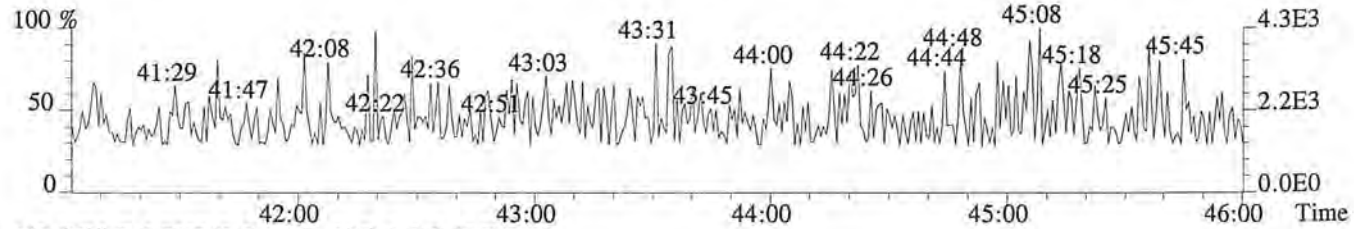
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,756.0,0.40%,F,T)



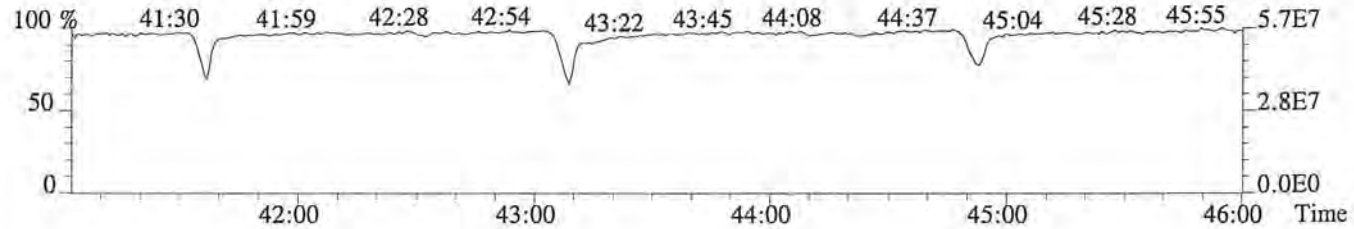
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1208.0,0.40%,F,T)



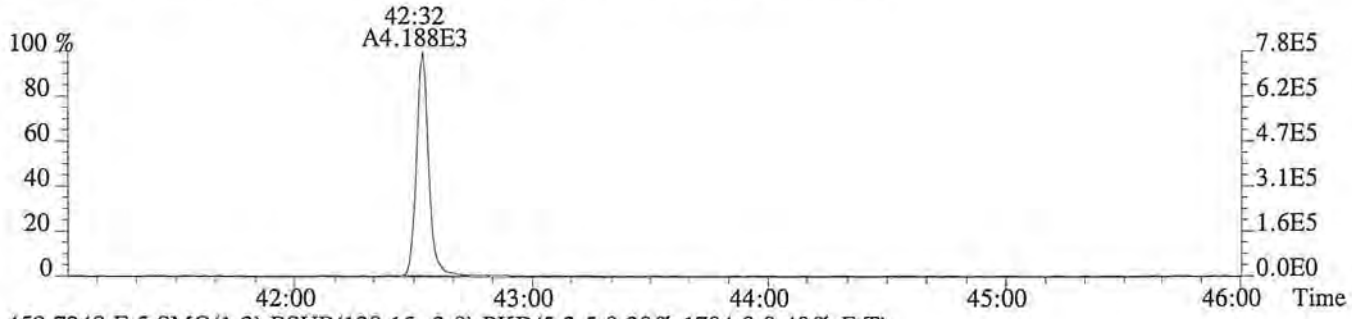
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



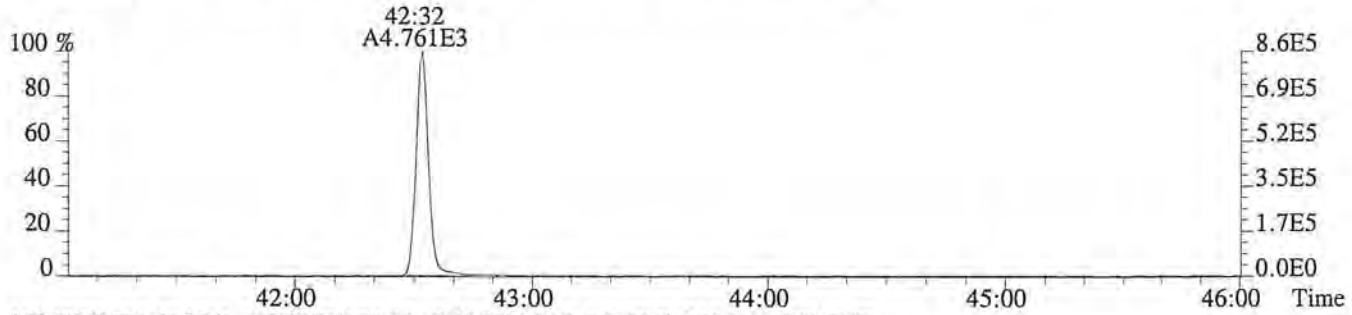
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



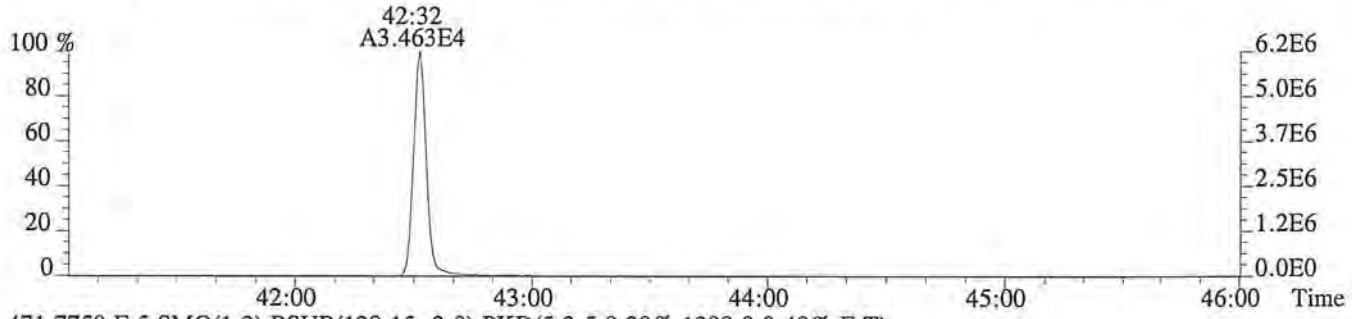
File:P301058 #1-447 Acq:27-AUG-2015 23:05:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-002
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



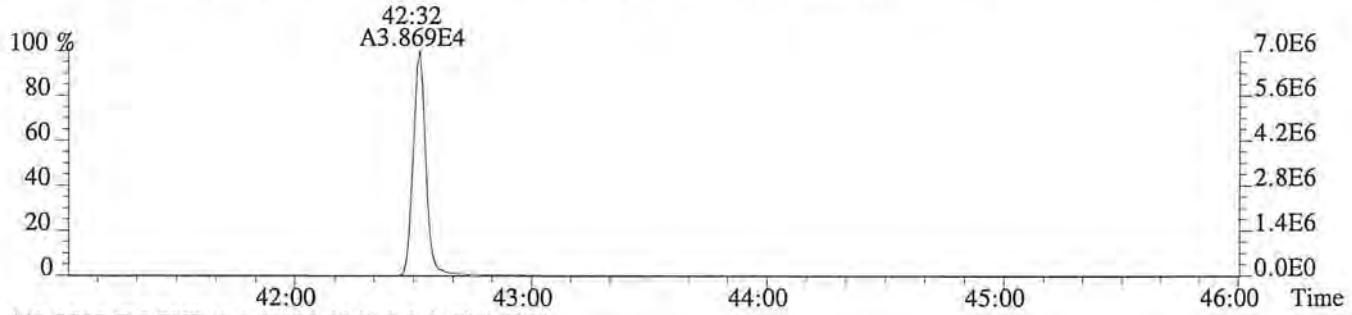
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1704.0,0.40%,F,T)



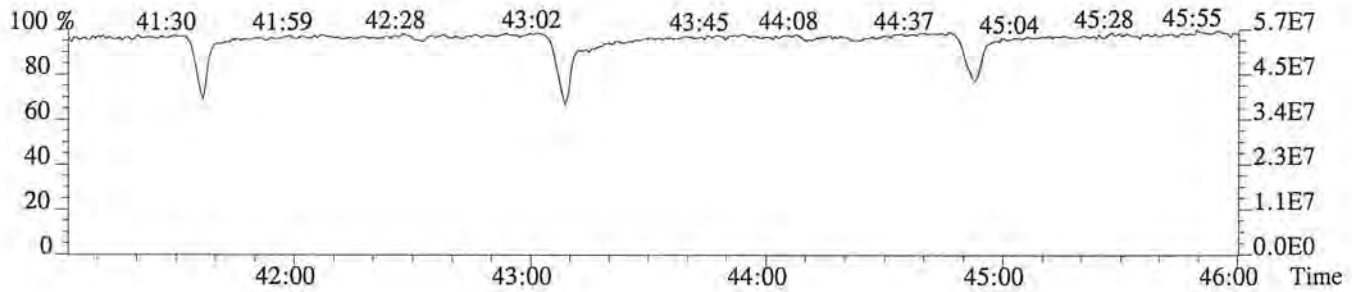
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,756.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1208.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-02-15 MTI

Run #15 Filename P301059 Samp: 1 Inj: 1 Acquired: 27-AUG-15 23:53:57
Processed: 28-AUG-15 11:53:15 Sample ID: E1500743-003

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	2.424e+02	3.376e+02	0.72	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:47	2.476e+02	2.175e+02	1.14	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.245
10	Unk	OCDF	42:44	7.715e+02	8.767e+02	0.88	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:23	2.939e+02	3.570e+02	0.82	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:01	5.982e+01	4.141e+01	1.44	no	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	7.026e+02	6.618e+02	1.06	yes	no	0.949
17	Unk	OCDD	42:32	3.154e+03	3.660e+03	0.86	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:37	2.807e+04	3.561e+04	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	4.508e+04	2.858e+04	1.58	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:34	4.424e+04	2.794e+04	1.58	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	1.914e+04	3.765e+04	0.51	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	2.220e+04	4.302e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	2.187e+04	4.112e+04	0.53	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:32	2.722e+04	5.227e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	1.282e+04	2.959e+04	0.43	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:11	1.100e+04	2.547e+04	0.43	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:22	2.223e+04	2.886e+04	0.77	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:51	3.374e+04	2.140e+04	1.58	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:56	2.956e+04	2.215e+04	1.33	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:00	2.802e+04	2.289e+04	1.22	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:42	2.453e+04	2.338e+04	1.05	yes	no	0.850
32	IS	13C-OCDD	42:31	3.379e+04	3.778e+04	0.89	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:49	2.965e+04	3.781e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:15	4.388e+04	3.490e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	2.142e+04				no	1.001

$$\text{OCDD} = \frac{(3.154e+03 + 3.660e+03) \times 4000 \text{ pg} \times 1}{(3.379e+04 + 3.778e+04) \times 10.037 \text{ g} \times \quad / 100 \times 1.061} = 35.1 \text{ ng/g}$$

08/31/15

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-02-15 MTI/MT

Run #15 Filename P301059 Samp: 1 Inj: 1 Acquired: 27-AUG-15 23:53:57
Processed: 28-AUG-15 11:53:15 LAB. ID: E1500743-003

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.70e+04	1.40e+03	3.4e+01	6.50e+04	2.52e+03	2.6e+01
2	1,2,3,7,8-PeCDF	*	8.80e+02	*	*	2.45e+03	*
3	2,3,4,7,8-PeCDF	*	8.80e+02	*	*	2.45e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.57e+03	*	*	7.76e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.57e+03	*	*	7.76e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.57e+03	*	*	7.76e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.57e+03	*	*	7.76e+02	*
8	1,2,3,4,6,7,8-HpCDF	5.78e+04	1.23e+03	4.7e+01	5.17e+04	1.31e+03	4.0e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.23e+03	*	*	1.31e+03	*
10	OCDF	1.32e+05	1.64e+03	8.1e+01	1.47e+05	1.90e+03	7.7e+01
11	2,3,7,8-TCDD	6.10e+04	1.25e+03	4.9e+01	7.48e+04	1.37e+03	5.5e+01
12	1,2,3,7,8-PeCDD	*	1.80e+03	*	*	8.64e+02	*
13	1,2,3,4,7,8-HxCDD	*	5.16e+02	*	*	2.35e+03	*
14	1,2,3,6,7,8-HxCDD	1.28e+04	5.16e+02	2.5e+01	9.75e+03	2.35e+03	4.2e+00
15	1,2,3,7,8,9-HxCDD	*	5.16e+02	*	*	2.35e+03	*
16	1,2,3,4,6,7,8-HpCDD	1.53e+05	1.19e+03	1.3e+02	1.49e+05	1.66e+03	9.0e+01
17	OCDD	5.60e+05	1.07e+03	5.2e+02	6.72e+05	1.63e+03	4.1e+02
18	13C-2,3,7,8-TCDF	5.61e+06	1.76e+03	3.2e+03	7.14e+06	2.76e+03	2.6e+03
19	13C-1,2,3,7,8-PeCDF	8.96e+06	5.80e+02	1.5e+04	5.63e+06	1.83e+03	3.1e+03
20	13C-2,3,4,7,8-PeCDF	9.34e+06	5.80e+02	1.6e+04	5.92e+06	1.83e+03	3.2e+03
21	13C-1,2,3,4,7,8-HxCDF	4.32e+06	1.61e+03	2.7e+03	8.43e+06	2.36e+03	3.6e+03
22	13C-1,2,3,6,7,8-HxCDF	5.00e+06	1.61e+03	3.1e+03	9.66e+06	2.36e+03	4.1e+03
23	13C-2,3,4,6,7,8-HxCDF	5.02e+06	1.61e+03	3.1e+03	9.46e+06	2.36e+03	4.0e+03
24	13C-1,2,3,7,8,9-HxCDF	5.86e+06	1.61e+03	3.6e+03	1.13e+07	2.36e+03	4.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.02e+06	2.73e+03	1.1e+03	6.95e+06	3.40e+03	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.20e+06	2.73e+03	8.1e+02	5.07e+06	3.40e+03	1.5e+03
27	13C-2,3,7,8-TCDD	4.57e+06	7.24e+03	6.3e+02	5.88e+06	4.15e+03	1.4e+03
28	13C-1,2,3,7,8-PeCDD	7.21e+06	2.02e+03	3.6e+03	4.53e+06	1.48e+03	3.1e+03
29	13C-1,2,3,4,7,8-HxCDD	6.75e+06	1.58e+03	4.3e+03	5.21e+06	1.93e+03	2.7e+03
30	13C-1,2,3,6,7,8-HxCDD	6.24e+06	1.58e+03	4.0e+03	4.97e+06	1.93e+03	2.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.26e+06	1.69e+03	3.1e+03	5.04e+06	1.69e+03	3.0e+03
32	13C-OCDD	6.05e+06	6.76e+02	9.0e+03	6.76e+06	9.12e+02	7.4e+03
33	13C-1,2,3,4-TCDD	6.10e+06	7.24e+03	8.4e+02	7.77e+06	4.15e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	9.95e+06	1.58e+03	6.3e+03	7.88e+06	1.93e+03	4.1e+03
35	37Cl-2,3,7,8-TCDD	4.51e+06	6.84e+02	6.6e+03			

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Peak List Summary

CLIENT ID.

PLY-02-15 MTI/MT

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P301059 Sample:1 Injection:1 Function:1

Acquired: 27-AUG-15 23:53:57 Processed: 28-AUG-15 11:53:15

Mass: 303.9020 305.8990 Tot Response: 6.84e+02 RRF: 0.8496

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:14	4.67e+01	5.75e+01	0.81	yes	1.04e+02	n	n
2	28:37	2.42e+02	3.38e+02	0.72	yes	5.80e+02 2,3,7,8-TCDF	n	n

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Peak List Summary

CLIENT ID.

PLY-02-15 MTI/MT

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 15 File: P301059 Sample:1 Injection:1 Function:1

Acquired: 27-AUG-15 23:53:57 Processed: 28-AUG-15 11:53:15

Mass: 319.8970 321.8940 Tot Response: 6.51e+02 RRF: 0.9567

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:23	2.94e+02	3.57e+02	0.82	yes	6.51e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.

PLY-02-15 MTI/MT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 15 File: P301059 Sample:1 Injection:1 Function:3

Acquired: 27-AUG-15 23:53:57 Processed: 28-AUG-15 11:53:15

Mass: 373.8210 375.8180 Tot Response: 1.05e+02 RRF: 1.094

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:06	1.91e+01	1.60e+01	1.19	yes	3.52e+01	n	n
2	35:16	3.78e+01	3.25e+01	1.16	yes	7.03e+01	n	n

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Peak List Summary

CLIENT ID.

PLY-02-15 MTI/MT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P301059 Sample:1 Injection:1 Function:3

Acquired: 27-AUG-15 23:53:57 Processed: 28-AUG-15 11:53:15

Mass: 389.8160 391.8130 Tot Response: 2.13e+02 RRF: 0.9904

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:37	1.11e+02	1.02e+02	1.09	yes	2.13e+02	n	n

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Peak List Summary

CLIENT ID.

PLY-02-15 MTI/MT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P301059 Sample:1 Injection:1 Function:4

Acquired: 27-AUG-15 23:53:57 Processed: 28-AUG-15 11:53:15

Mass: 407.7820 409.7790 Tot Response: 2.27e+03 RRF: 1.284

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:47	2.48e+02	2.17e+02	1.14	yes	4.65e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:11	8.91e+02	9.14e+02	0.97	yes	1.81e+03		n	n

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Peak List Summary

CLIENT ID.

PLY-02-15 MTI/MT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P301059 Sample:1 Injection:1 Function:4

Acquired: 27-AUG-15 23:53:57 Processed: 28-AUG-15 11:53:15

Mass: 423.7770 425.7740 Tot Response: 3.63e+03 RRF: 0.9492

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:02	1.18e+03	1.09e+03	1.09	yes	2.27e+03		n	n
2	39:43	7.03e+02	6.62e+02	1.06	yes	1.36e+03	1,2,3,4,6,7,8-HpCDD	n	n

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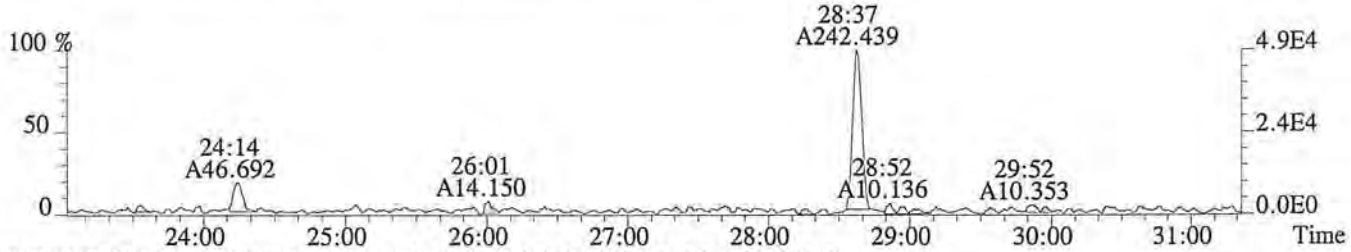
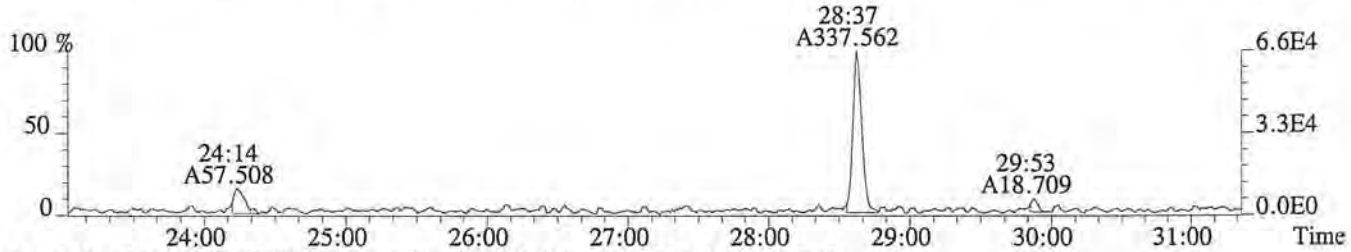
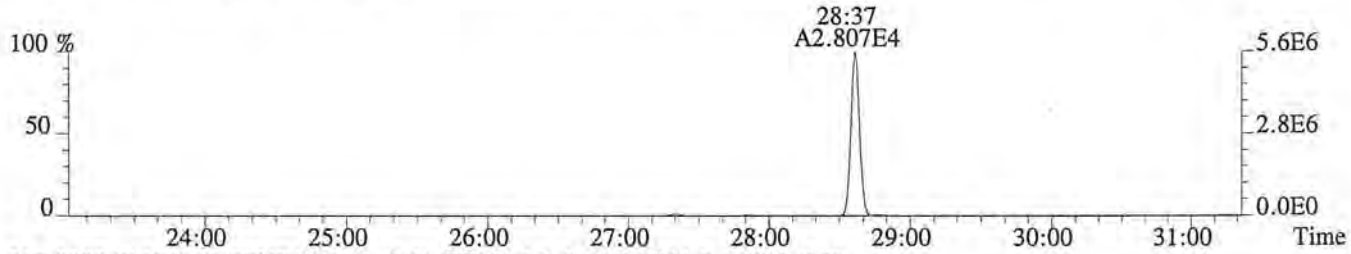
File:P301059 #1-591 Acq:27-AUG-2015 23:53:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-003
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1400.0,1.00%,F,T)



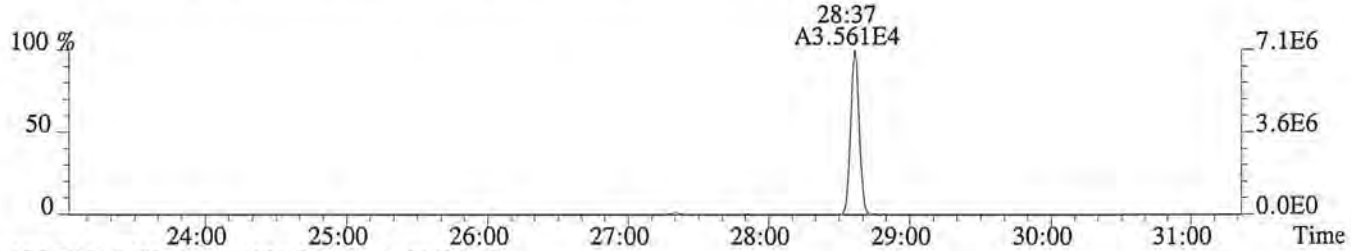
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2516.0,1.00%,F,T)



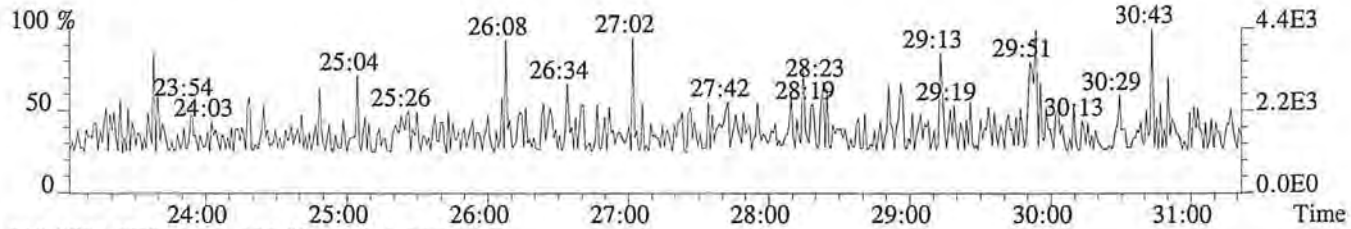
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1756.0,1.00%,F,T)



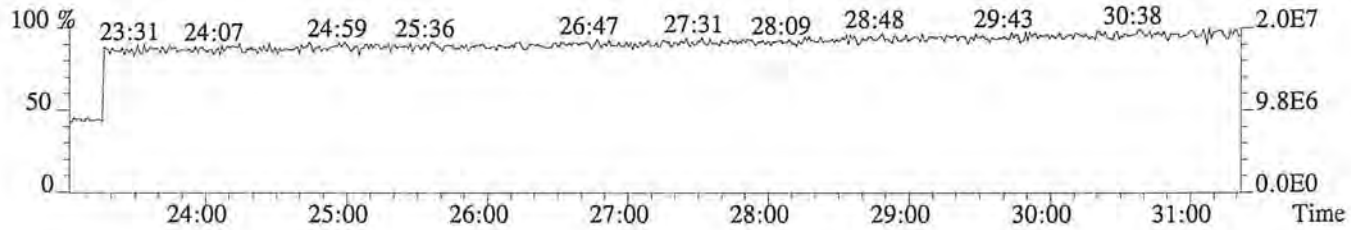
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2764.0,1.00%,F,T)



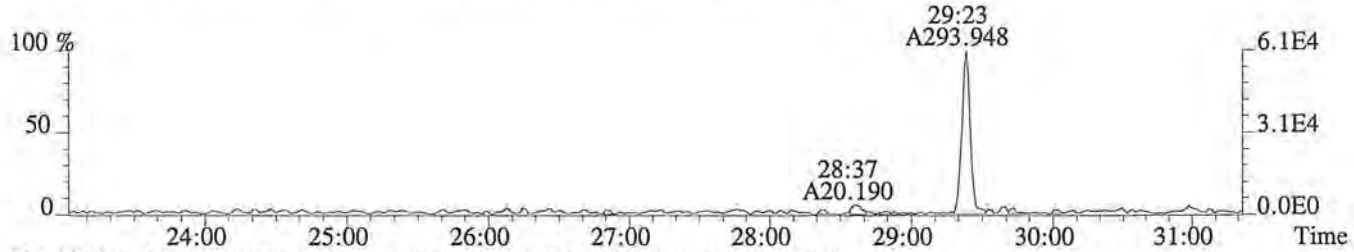
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



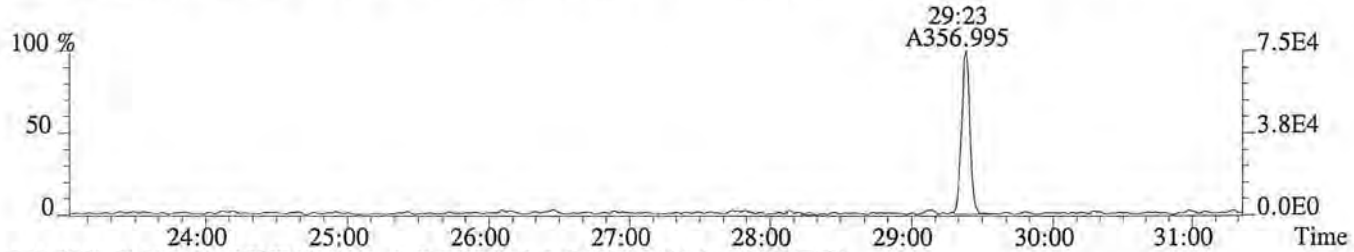
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



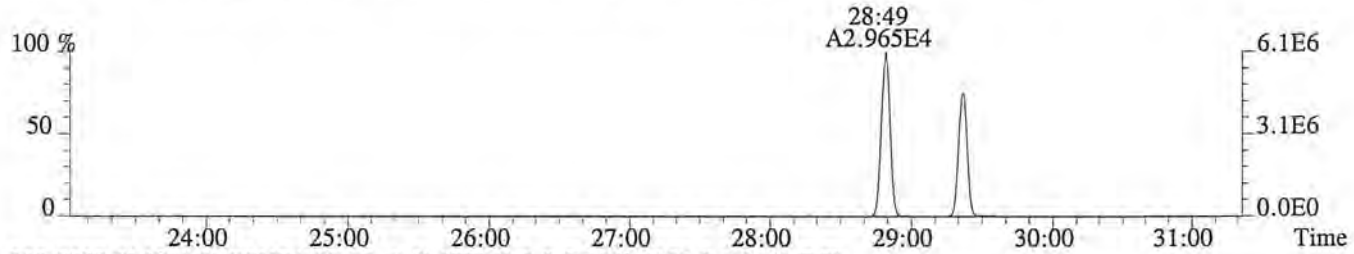
File:P301059 #1-591 Acq:27-AUG-2015 23:53:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-003
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



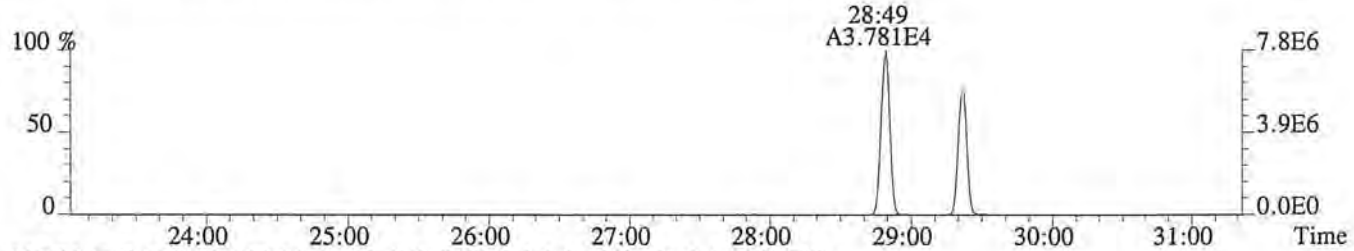
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



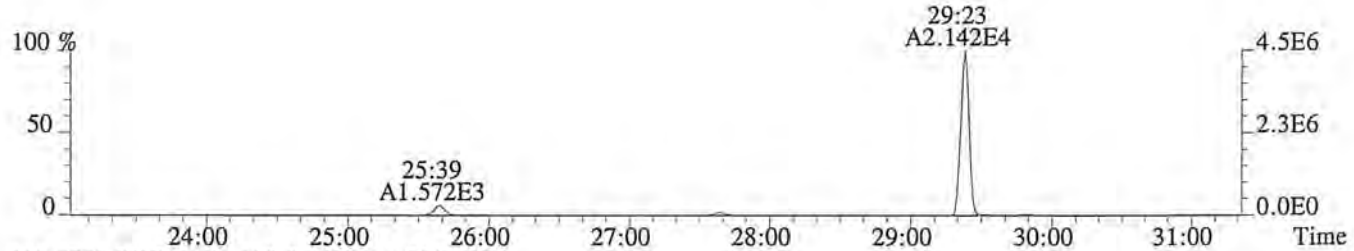
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7244.0,1.00%,F,T)



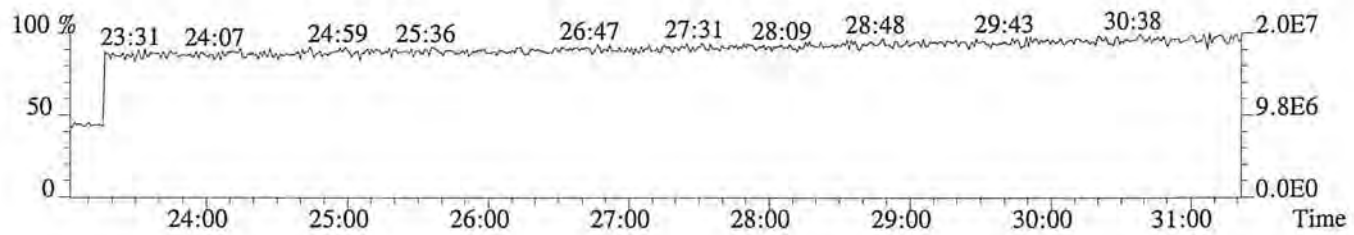
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4152.0,1.00%,F,T)



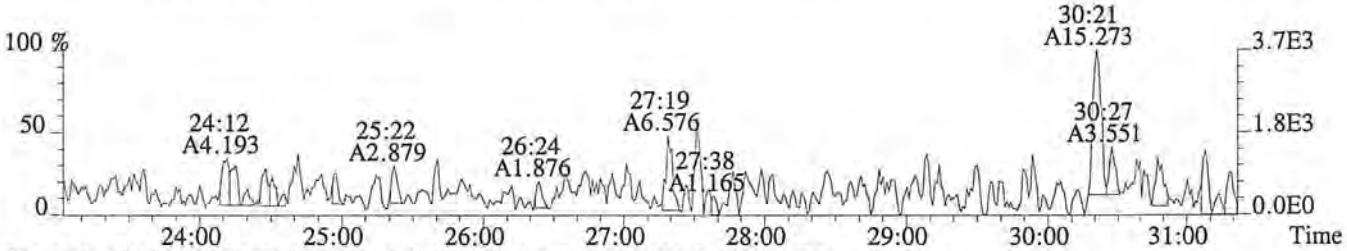
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



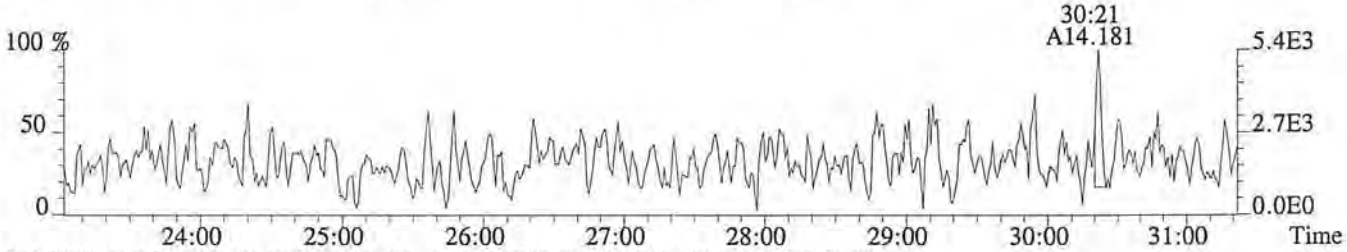
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



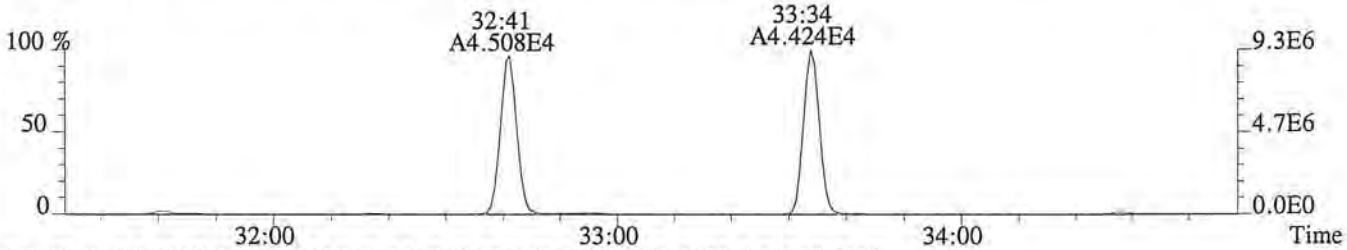
File:P301059 #1-591 Acq:27-AUG-2015 23:53:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-003
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



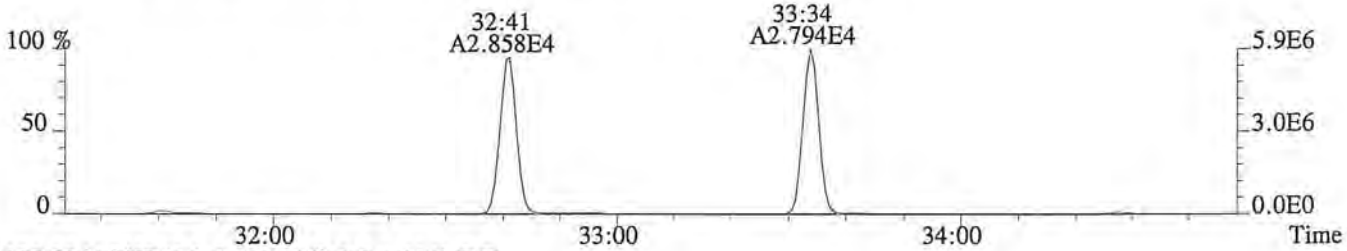
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2292.0,1.00%,F,T)



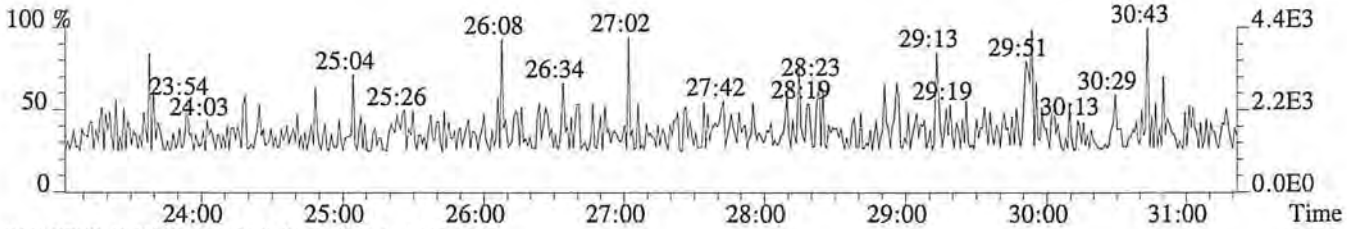
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



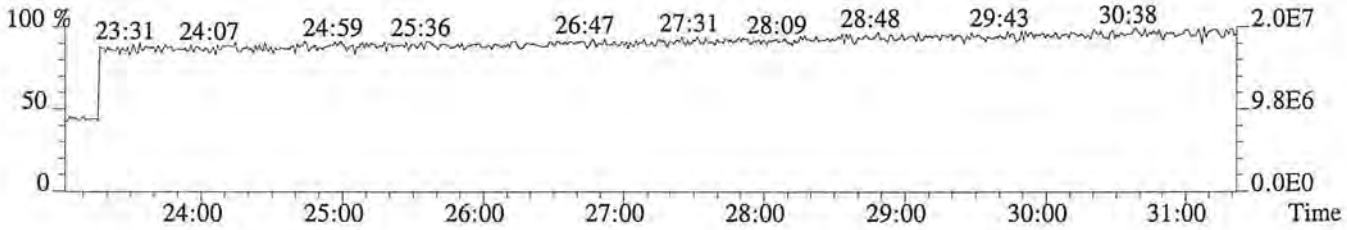
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)



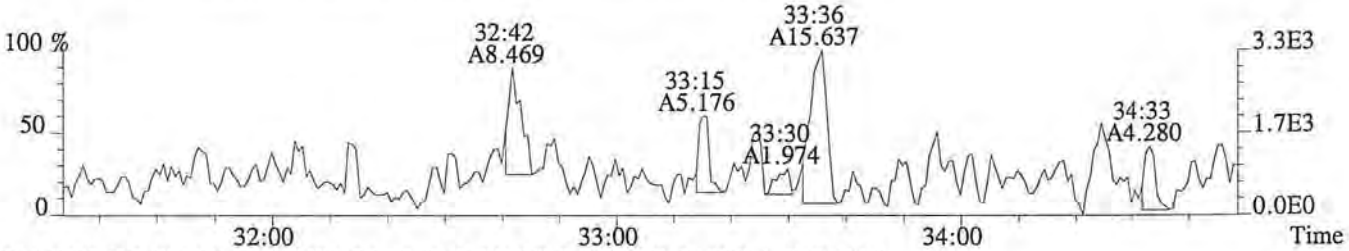
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



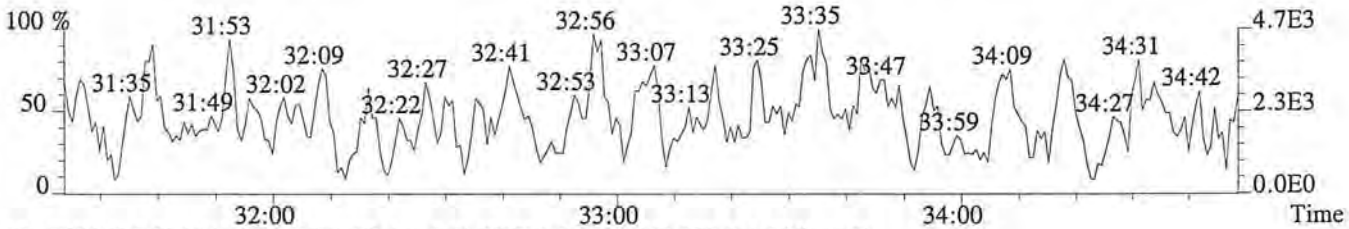
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



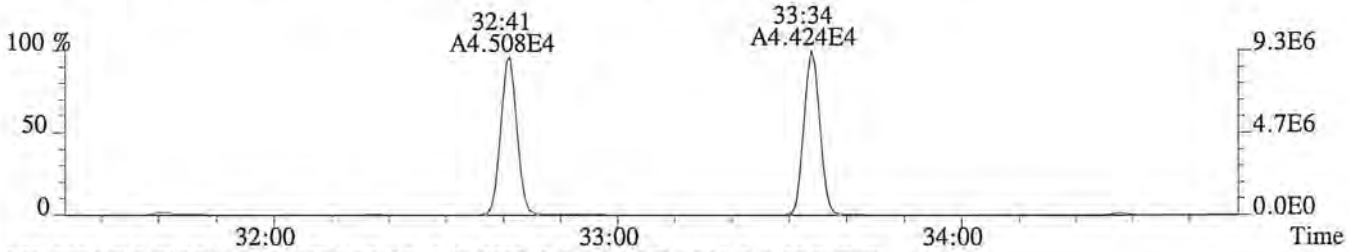
File:P301059 #1-308 Acq:27-AUG-2015 23:53:57 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1500743-003
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



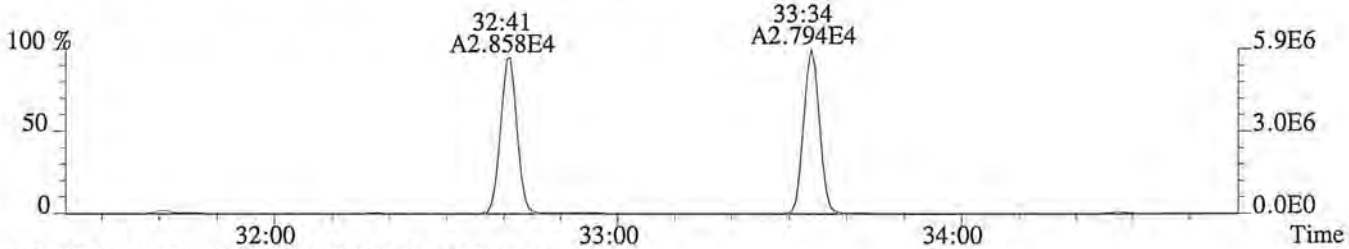
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2452.0,1.00%,F,T)



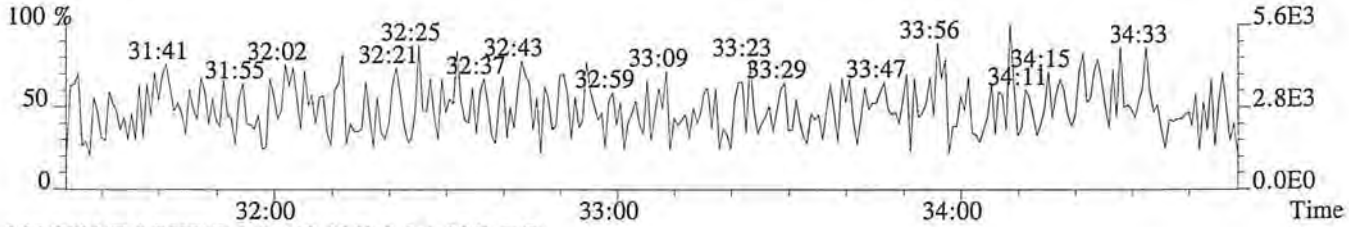
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



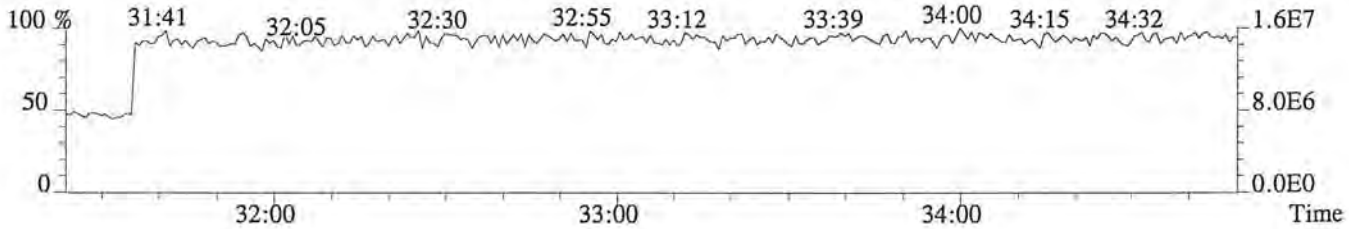
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)



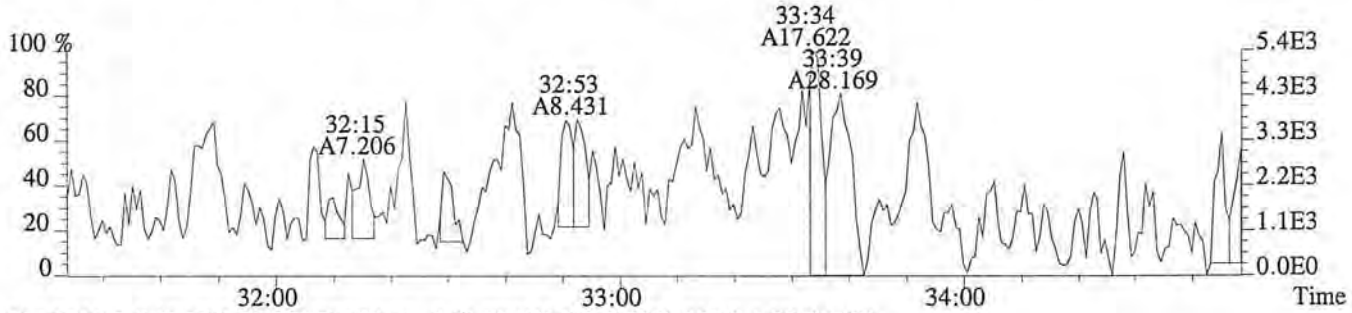
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



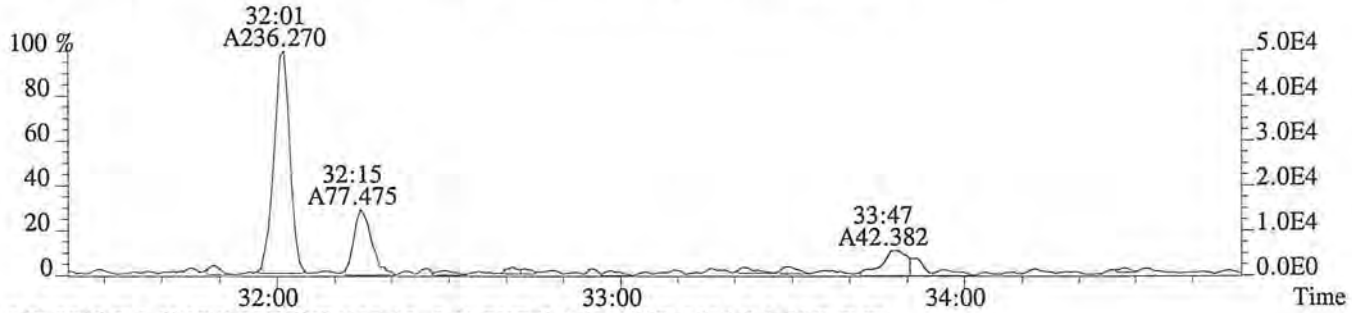
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



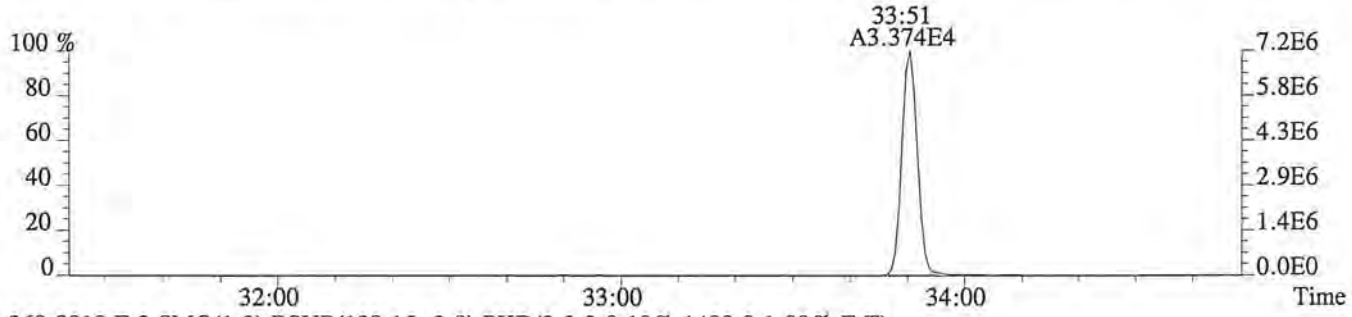
File:P301059 #1-308 Acq:27-AUG-2015 23:53:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-003
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1804.0,1.00%,F,T)



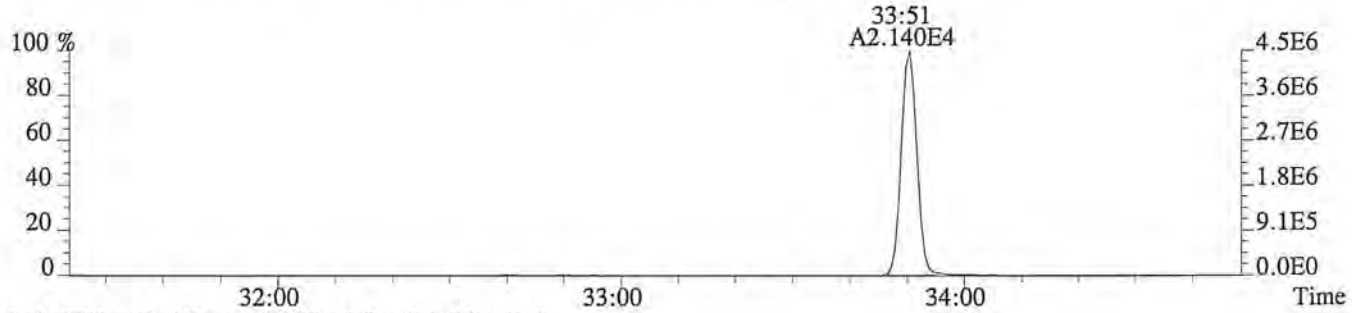
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



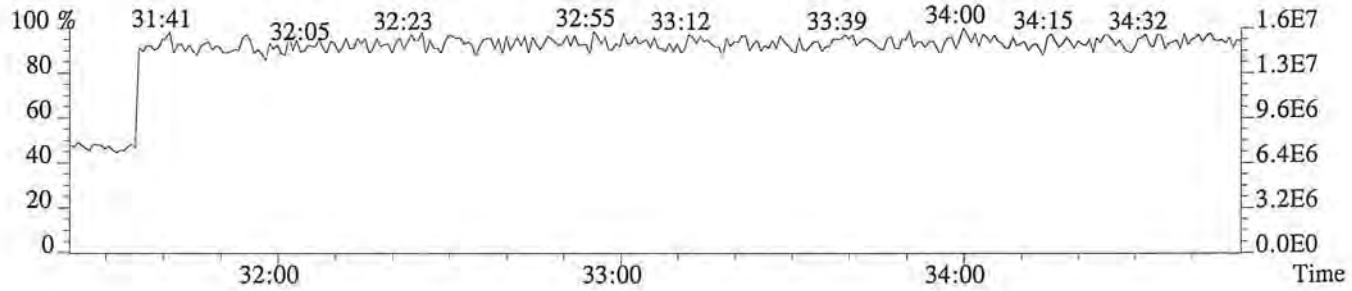
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2024.0,1.00%,F,T)



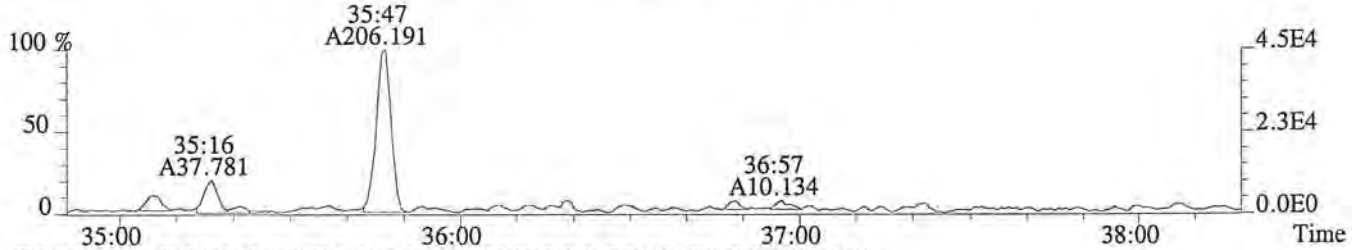
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



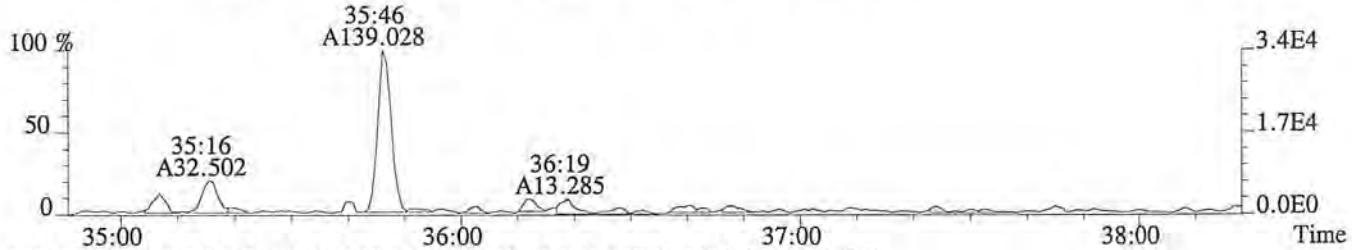
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



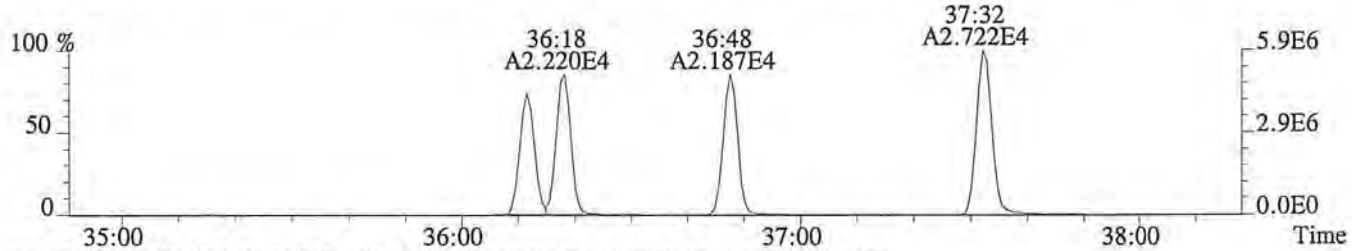
File:P301059 #1-312 Acq:27-AUG-2015 23:53:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-003
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



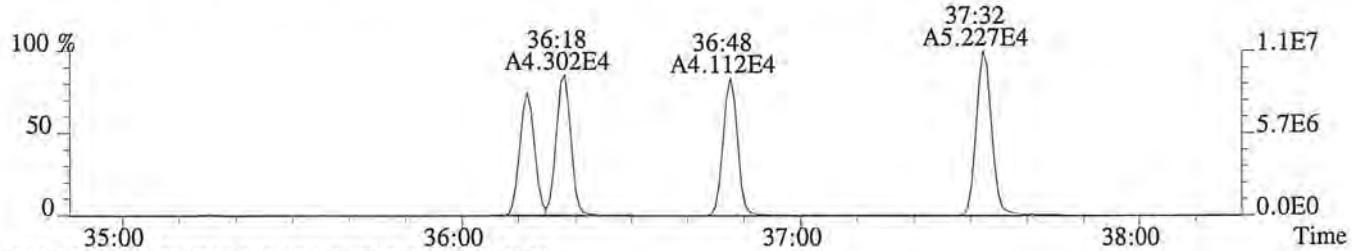
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,776.0,0.40%,F,T)



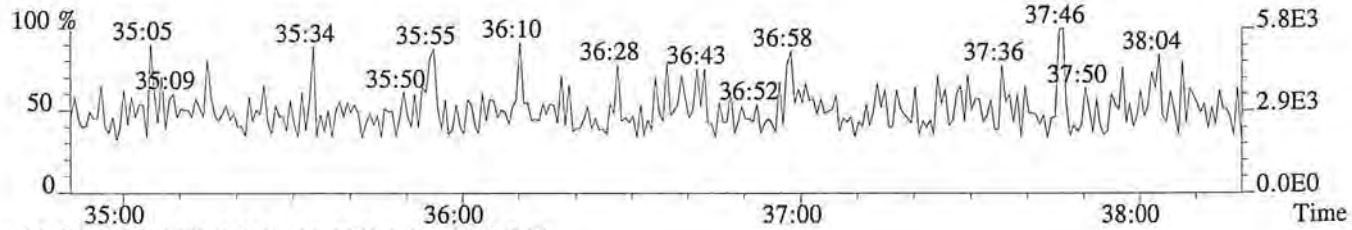
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1612.0,0.40%,F,T)



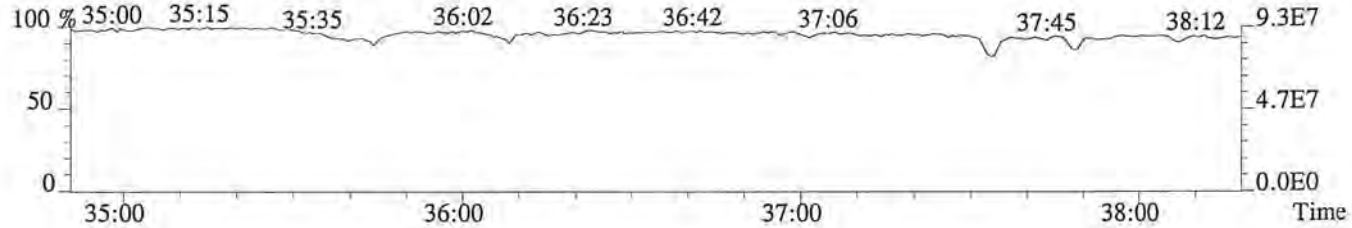
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2364.0,0.40%,F,T)



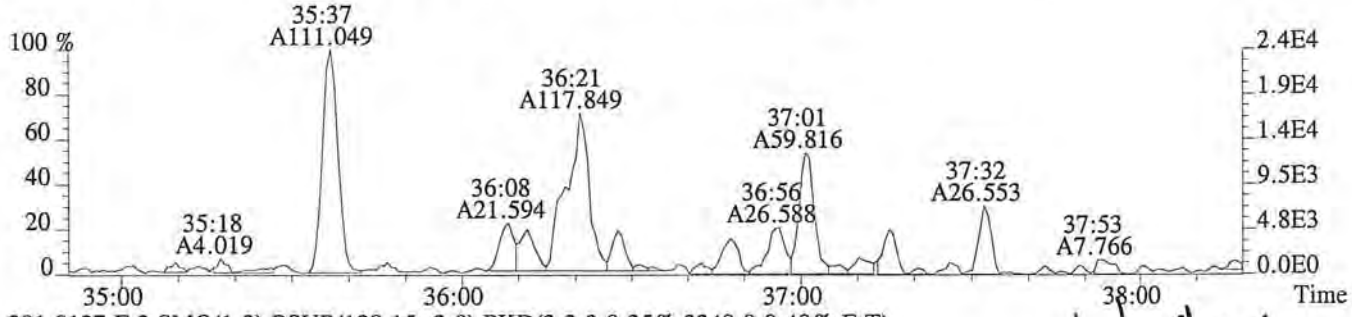
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



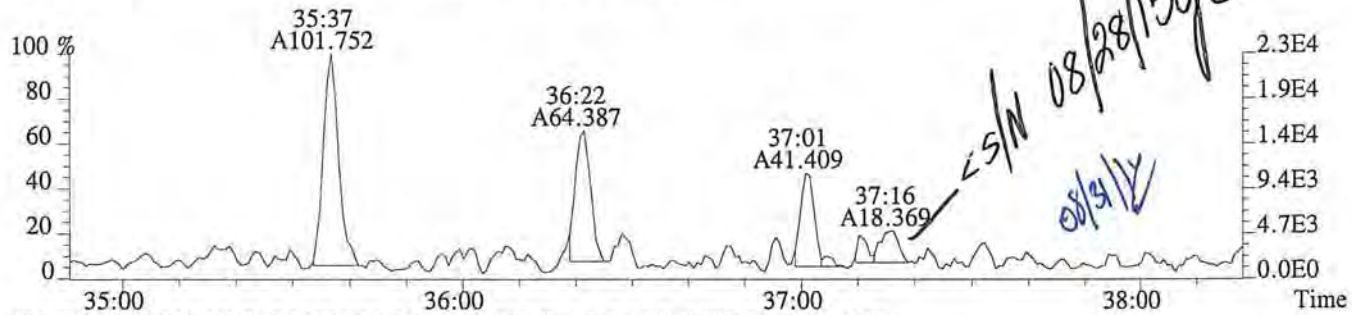
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P301059 #1-312 Acq:27-AUG-2015 23:53:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-003
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)

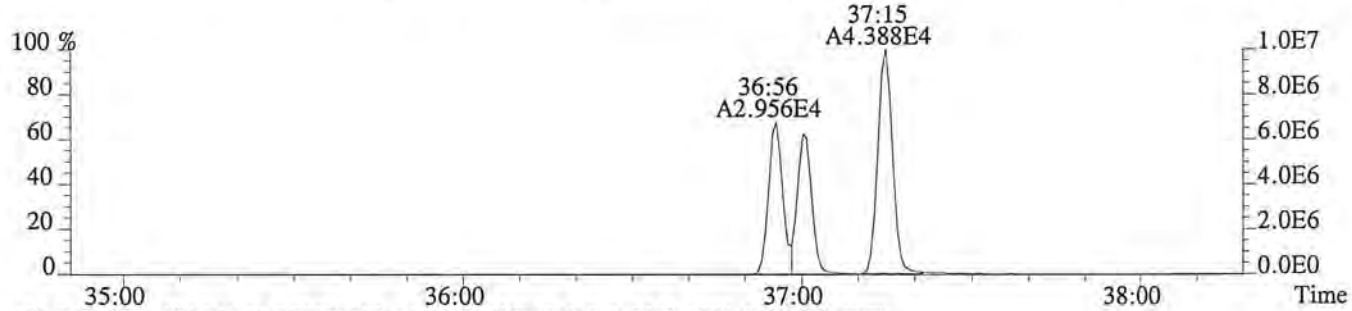


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2348.0,0.40%,F,T)

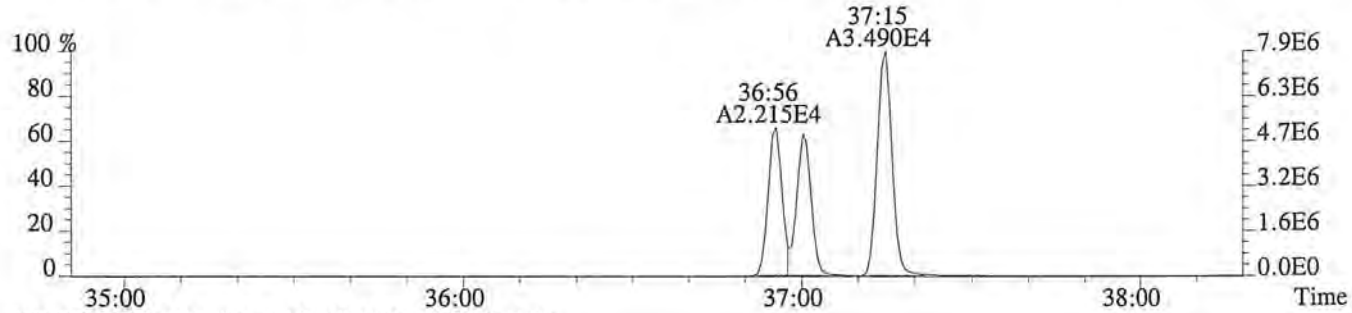


<S/N 08/28/15 JC
08/31/15

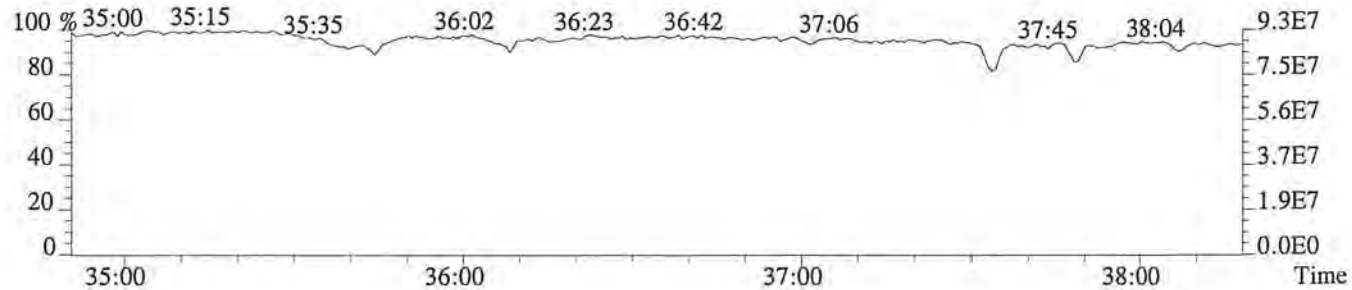
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1580.0,0.40%,F,T)



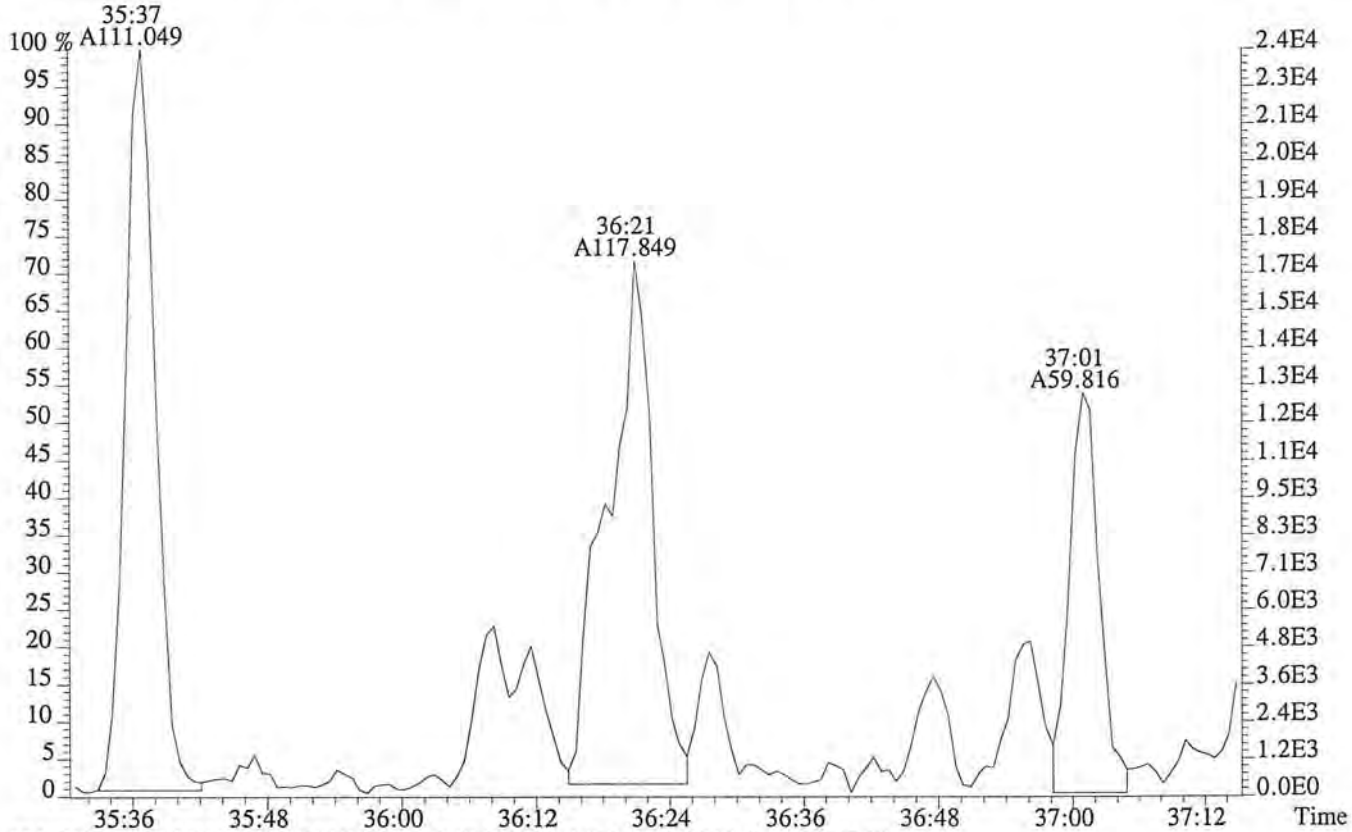
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1932.0,0.40%,F,T)



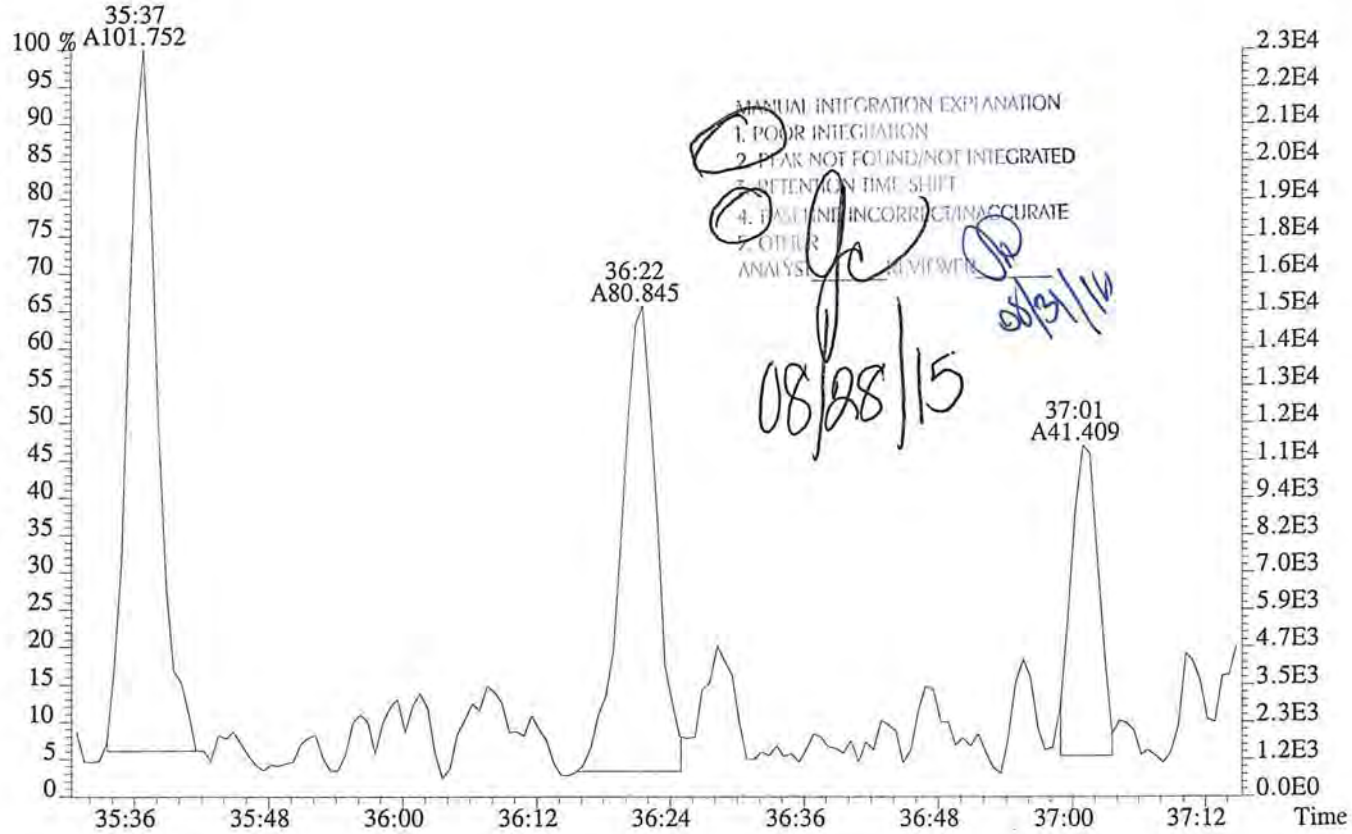
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



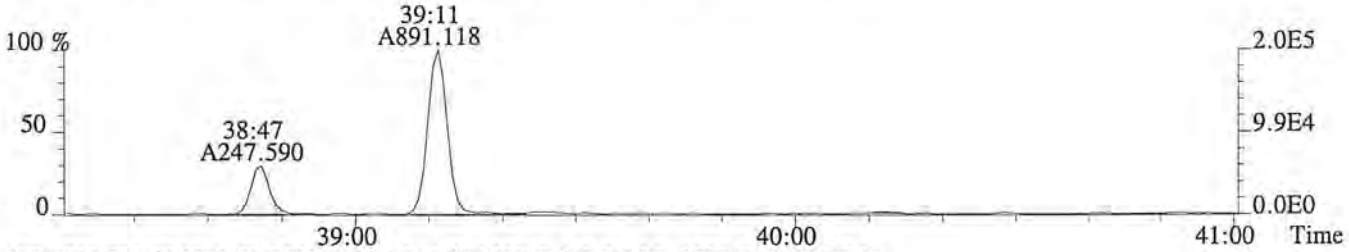
File:P301059 #1-312 Acq:27-AUG-2015 23:53:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-003
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



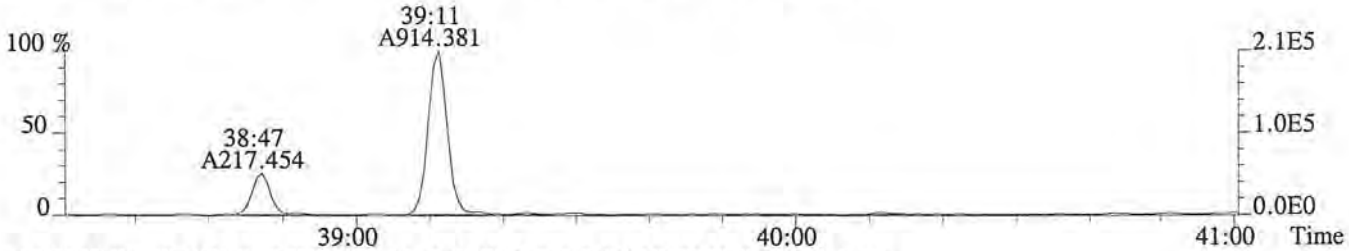
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2348.0,0.40%,F,T)



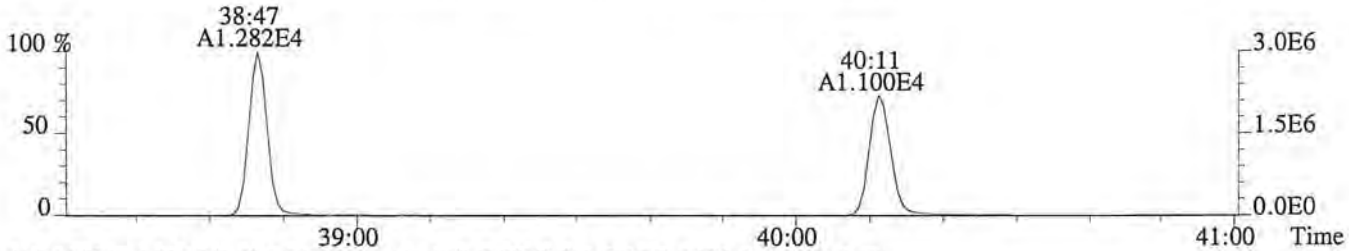
File:P301059 #1-241 Acq:27-AUG-2015 23:53:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-003
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.50%,F,T)



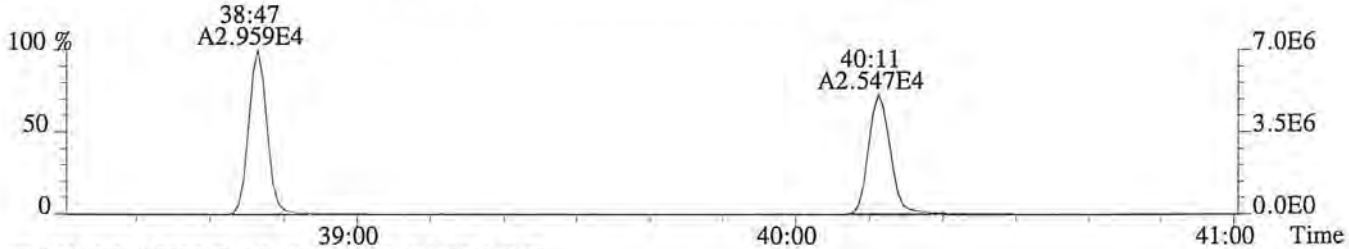
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1308.0,0.50%,F,T)



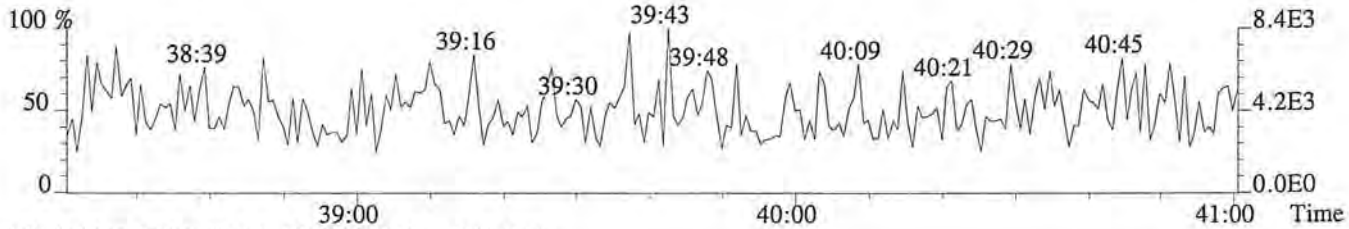
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2732.0,0.50%,F,T)



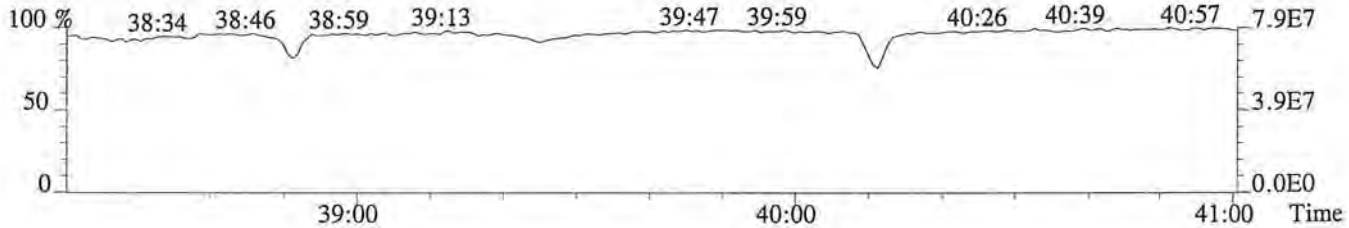
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3400.0,0.50%,F,T)



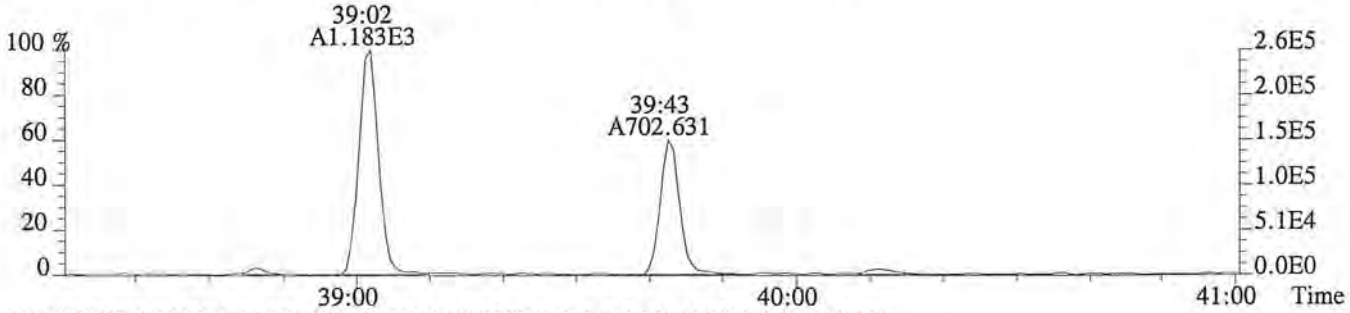
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



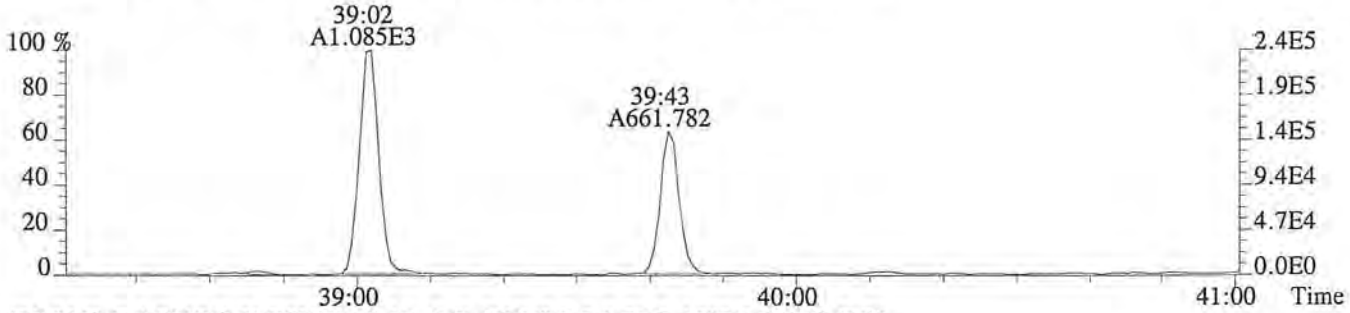
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



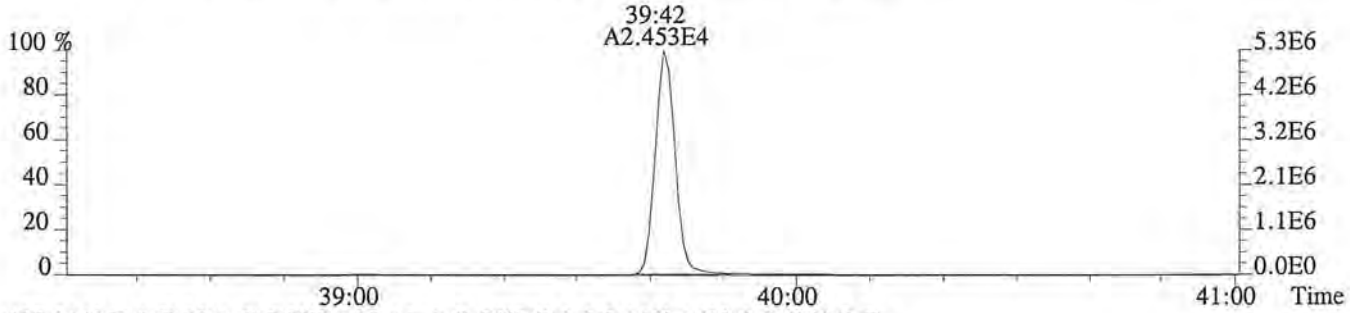
File:P301059 #1-241 Acq:27-AUG-2015 23:53:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-003
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.40%,F,T)



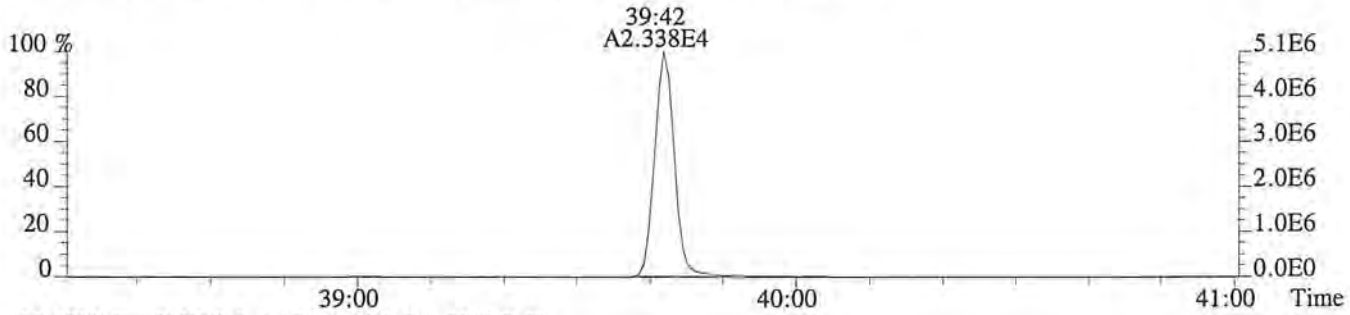
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1660.0,0.40%,F,T)



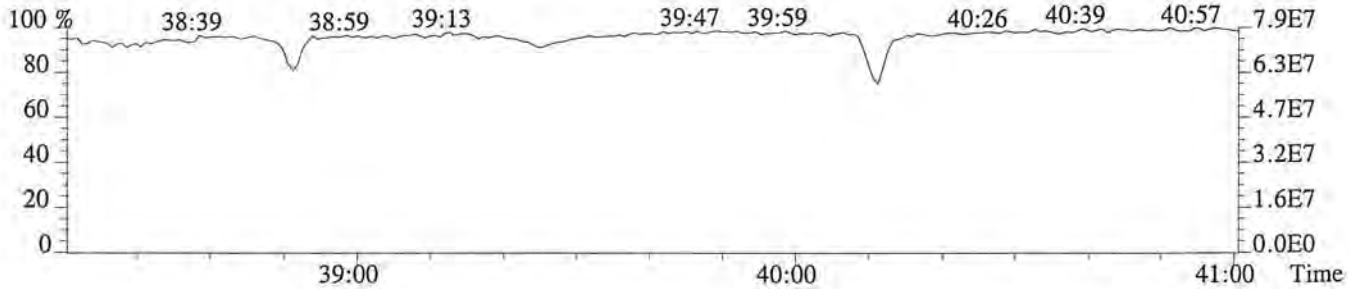
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1688.0,0.40%,F,T)



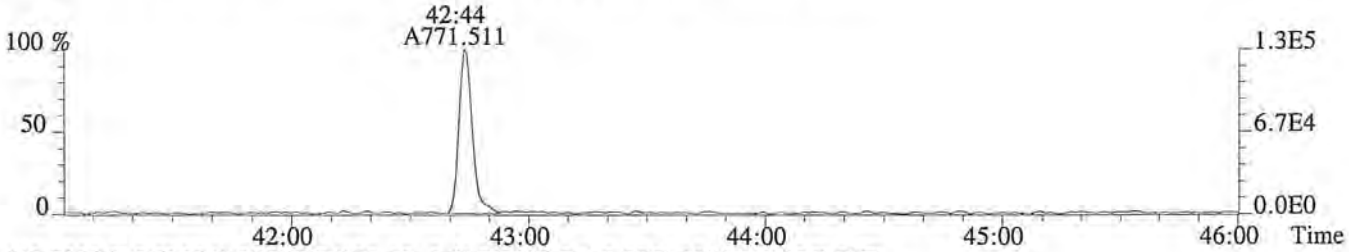
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1688.0,0.40%,F,T)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

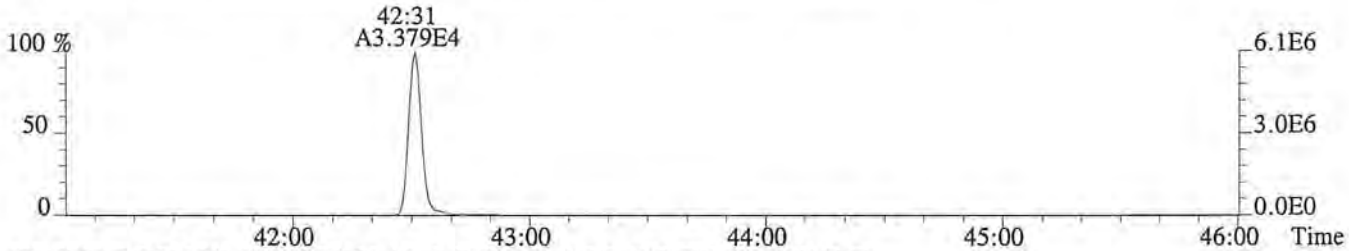


File:P301059 #1-447 Acq:27-AUG-2015 23:53:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-003
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1640.0,0.40%,F,T)

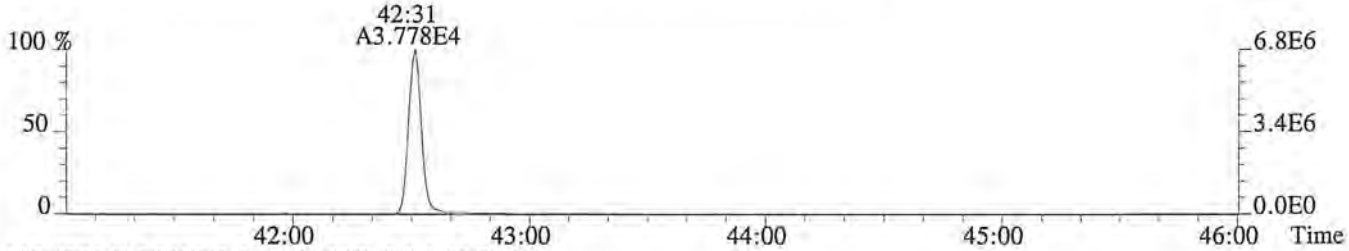


443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1904.0,0.40%,F,T)

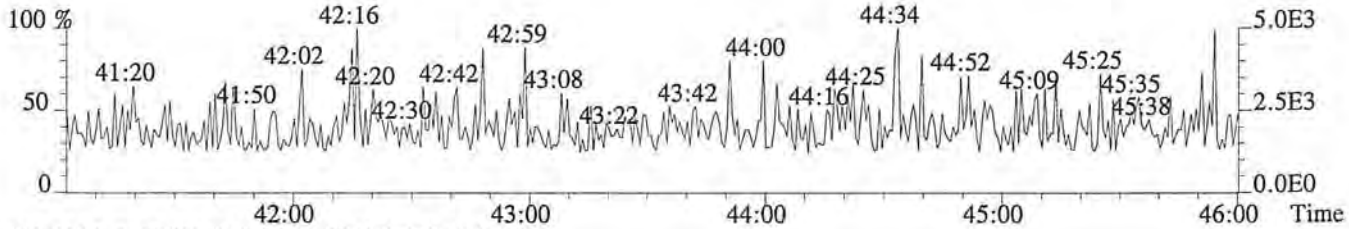
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,676.0,0.40%,F,T)



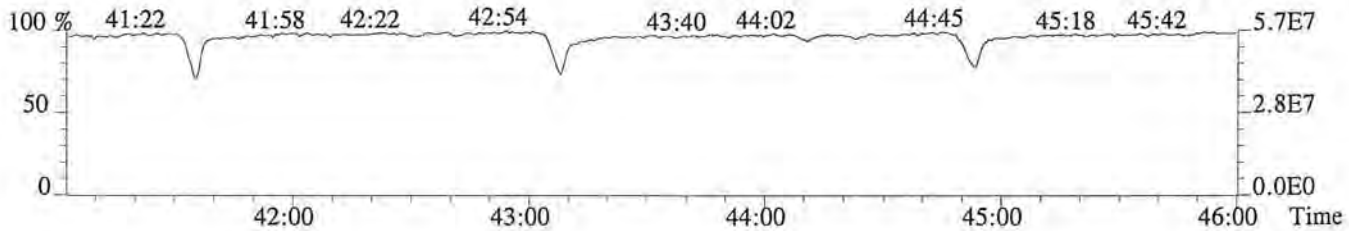
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



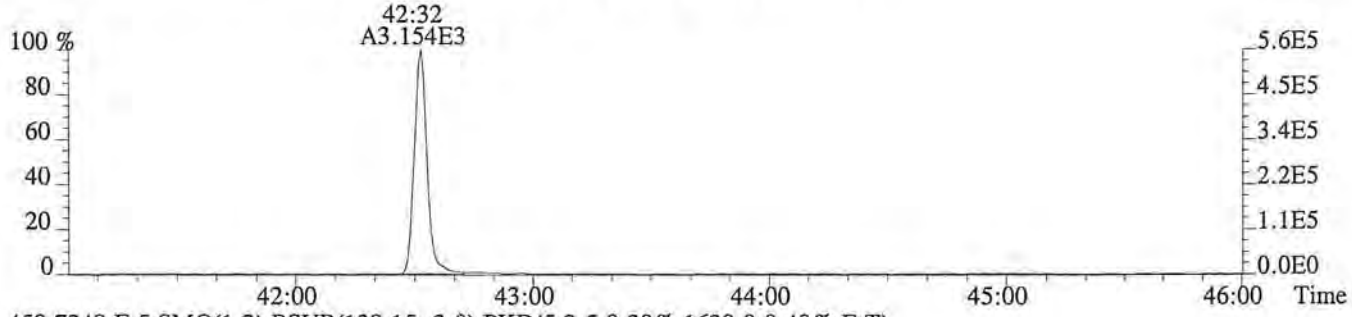
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



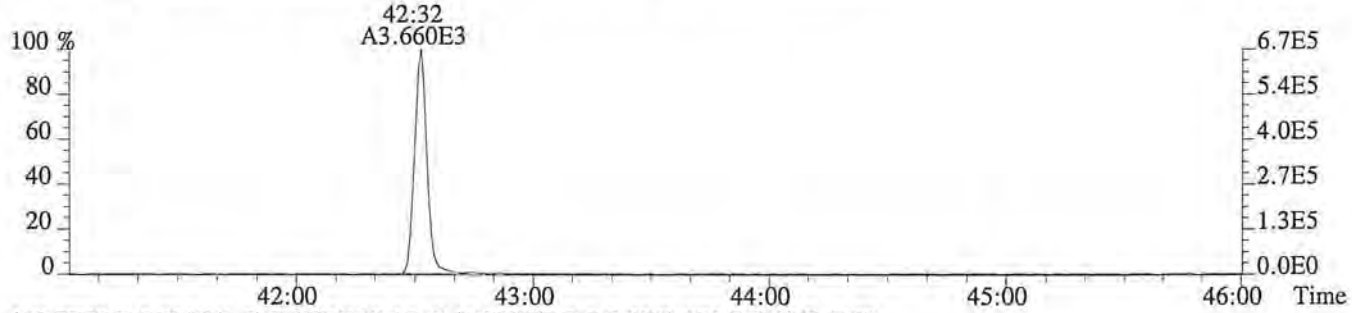
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



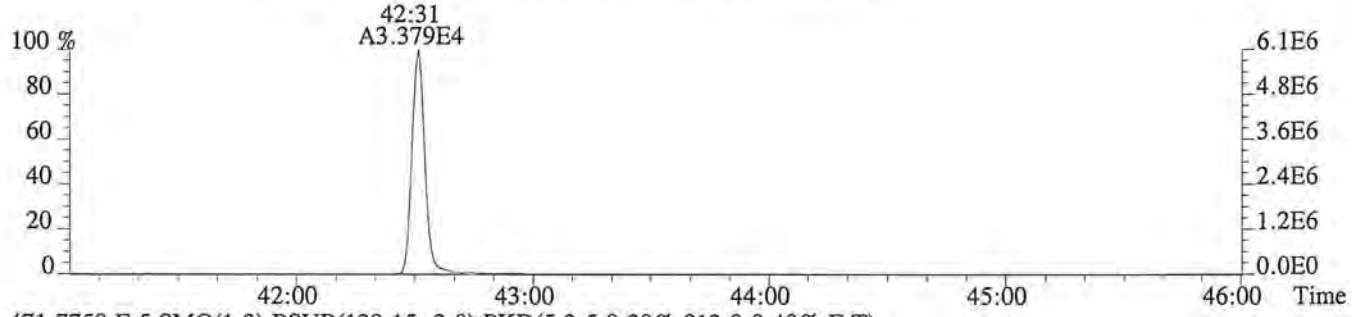
File:P301059 #1-447 Acq:27-AUG-2015 23:53:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-003
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1068.0,0.40%,F,T)



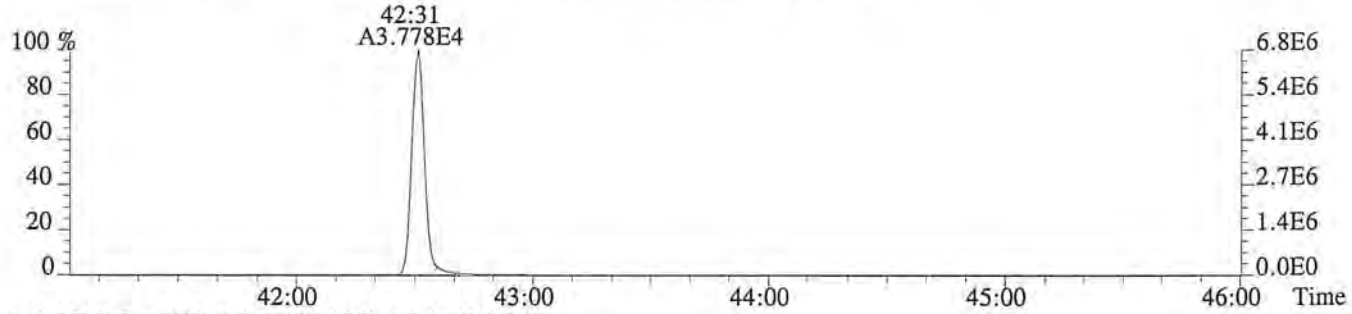
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1628.0,0.40%,F,T)



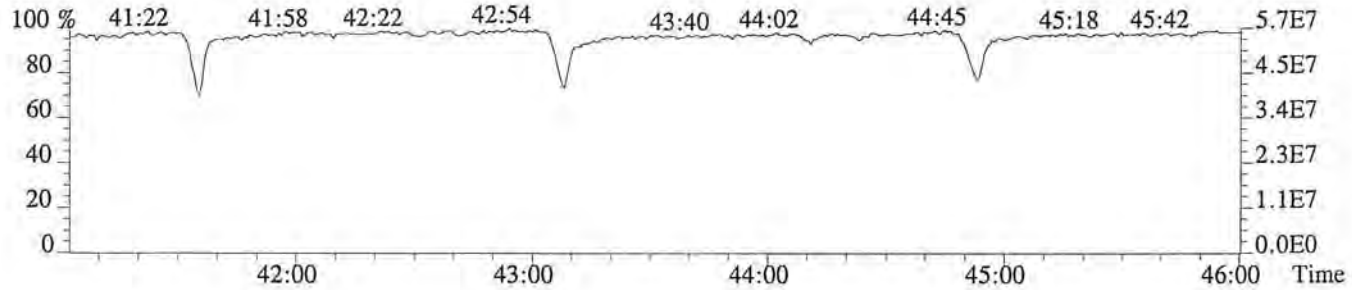
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,676.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-02-15 MTI

Run #16 Filename P301060 Samp: 1 Inj: 1 Acquired: 28-AUG-15 00:42:36
Processed: 28-AUG-15 11:53:15 Sample ID: E1500743-004

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	6.663e+01	6.715e+01	0.99	no	yes	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:49	2.131e+01	1.988e+01	1.07	yes	yes	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.848e+02	2.861e+02	1.00	yes	yes	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.245
10	Unk	OCDF	42:45	8.646e+02	9.122e+02	0.95	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:24	8.587e+01	1.233e+02	0.70	yes	yes	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.887
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:02	4.765e+01	4.497e+01	1.06	yes	yes	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:16	2.374e+01	1.722e+01	1.38	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	7.480e+02	7.186e+02	1.04	yes	no	0.949
17	Unk	OCDD	42:32	3.548e+03	4.049e+03	0.88	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:37	3.180e+04	4.004e+04	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:42	5.299e+04	3.412e+04	1.55	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:35	4.930e+04	3.102e+04	1.59	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	1.912e+04	3.712e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:19	2.289e+04	4.455e+04	0.51	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	2.158e+04	4.127e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:33	2.184e+04	4.192e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	1.010e+04	2.325e+04	0.43	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:12	5.787e+03	1.360e+04	0.43	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:23	2.535e+04	3.305e+04	0.77	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:51	3.851e+04	2.437e+04	1.58	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:56	3.157e+04	2.447e+04	1.29	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:02	3.126e+04	2.449e+04	1.28	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.568e+04	2.459e+04	1.04	yes	no	0.850
32	IS	13C-OCDD	42:32	3.198e+04	3.596e+04	0.89	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:50	3.356e+04	4.284e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:16	4.926e+04	3.927e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:24	2.515e+04				no	1.001

$$\text{OCDD} = \frac{(3.548e+03 + 4.049e+03) \times 4000 \text{ pg} \times 1}{(3.198e+04 + 3.596e+04) \times 10.283 \text{ g} \times \quad / 100 \times 1.061} = 41.0 \text{ ng/g}$$

08/31/15

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-02-15 MTI/MT

Run #16 Filename P301060 Samp: 1 Inj: 1 Acquired: 28-AUG-15 00:42:36
Processed: 28-AUG-15 11:53:15 LAB. ID: E1500743-004

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.04e+04	1.66e+03	6.3e+00	1.31e+04	2.35e+03	5.6e+00
2	1,2,3,7,8-PeCDF	*	7.76e+02	*	*	2.41e+03	*
3	2,3,4,7,8-PeCDF	*	7.76e+02	*	*	2.41e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.16e+03	*	*	9.44e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.16e+03	*	*	9.44e+02	*
6	2,3,4,6,7,8-HxCDF	4.90e+03	1.16e+03	4.2e+00	5.00e+03	9.44e+02	5.3e+00
7	1,2,3,7,8,9-HxCDF	*	1.16e+03	*	*	9.44e+02	*
8	1,2,3,4,6,7,8-HpCDF	6.62e+04	1.17e+03	5.6e+01	5.94e+04	1.10e+03	5.4e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.17e+03	*	*	1.10e+03	*
10	OCDF	1.46e+05	1.54e+03	9.5e+01	1.56e+05	2.10e+03	7.4e+01
11	2,3,7,8-TCDD	1.72e+04	2.02e+03	8.5e+00	2.37e+04	1.14e+03	2.1e+01
12	1,2,3,7,8-PeCDD	*	2.54e+03	*	*	5.52e+02	*
13	1,2,3,4,7,8-HxCDD	*	7.92e+02	*	*	1.56e+03	*
14	1,2,3,6,7,8-HxCDD	1.08e+04	7.92e+02	1.4e+01	9.61e+03	1.56e+03	6.2e+00
15	1,2,3,7,8,9-HxCDD	4.85e+03	7.92e+02	6.1e+00	4.45e+03	1.56e+03	2.9e+00
16	1,2,3,4,6,7,8-HpCDD	1.54e+05	1.50e+03	1.0e+02	1.53e+05	1.34e+03	1.1e+02
17	OCDD	6.37e+05	7.32e+02	8.7e+02	7.17e+05	1.48e+03	4.8e+02
18	13C-2,3,7,8-TCDF	6.30e+06	1.78e+03	3.5e+03	8.04e+06	2.54e+03	3.2e+03
19	13C-1,2,3,7,8-PeCDF	1.08e+07	1.44e+03	7.4e+03	6.94e+06	2.03e+03	3.4e+03
20	13C-2,3,4,7,8-PeCDF	1.02e+07	1.44e+03	7.0e+03	6.37e+06	2.03e+03	3.1e+03
21	13C-1,2,3,4,7,8-HxCDF	4.31e+06	1.56e+03	2.8e+03	8.44e+06	1.58e+03	5.4e+03
22	13C-1,2,3,6,7,8-HxCDF	5.16e+06	1.56e+03	3.3e+03	1.01e+07	1.58e+03	6.4e+03
23	13C-2,3,4,6,7,8-HxCDF	4.93e+06	1.56e+03	3.2e+03	9.31e+06	1.58e+03	5.9e+03
24	13C-1,2,3,7,8,9-HxCDF	4.75e+06	1.56e+03	3.1e+03	9.15e+06	1.58e+03	5.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.32e+06	3.01e+03	7.7e+02	5.32e+06	1.83e+03	2.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.12e+06	3.01e+03	3.7e+02	2.66e+06	1.83e+03	1.5e+03
27	13C-2,3,7,8-TCDD	5.12e+06	6.86e+03	7.5e+02	6.71e+06	3.77e+03	1.8e+03
28	13C-1,2,3,7,8-PeCDD	8.17e+06	1.79e+03	4.6e+03	5.16e+06	9.56e+02	5.4e+03
29	13C-1,2,3,4,7,8-HxCDD	7.38e+06	2.10e+03	3.5e+03	5.70e+06	1.30e+03	4.4e+03
30	13C-1,2,3,6,7,8-HxCDD	7.04e+06	2.10e+03	3.3e+03	5.51e+06	1.30e+03	4.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.36e+06	2.41e+03	2.2e+03	5.16e+06	1.85e+03	2.8e+03
32	13C-OCDD	5.74e+06	6.16e+02	9.3e+03	6.46e+06	1.41e+03	4.6e+03
33	13C-1,2,3,4-TCDD	6.76e+06	6.86e+03	9.9e+02	8.67e+06	3.77e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.09e+07	2.10e+03	5.2e+03	8.58e+06	1.30e+03	6.6e+03
35	37Cl-2,3,7,8-TCDD	5.35e+06	1.26e+03	4.2e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-02-15 MTI/MT

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P301060 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 00:42:36 Processed: 28-AUG-15 11:53:15

Mass: 303.9020 305.8990 Tot Response: 1.51e+02 RRF: 0.8496

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:15	6.76e+01	8.33e+01	0.81	yes	1.51e+02	n	n

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Peak List Summary

CLIENT ID.

PLY-02-15 MTI/MT

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 16 File: P301060 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 00:42:36 Processed: 28-AUG-15 11:53:15

Mass: 319.8970 321.8940 Tot Response: 2.09e+02 RRF: 0.9567

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:24	8.59e+01	1.23e+02	0.70	yes	2.09e+02	2,3,7,8-TCDD	y	n

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Peak List Summary

CLIENT ID.

PLY-02-15 MTI/MT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: P301060 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 00:42:36 Processed: 28-AUG-15 11:53:15

Mass: 373.8210 375.8180 Tot Response: 7.57e+01 RRF: 1.094

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:07	1.99e+01	1.46e+01	1.36	yes	3.45e+01	y	y
2	36:49	2.13e+01	1.99e+01	1.07	yes	4.12e+01	2,3,4,6,7,8-HxCDF	y	y

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Peak List Summary

CLIENT ID.

PLY-02-15 MTI/MT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P301060 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 00:42:36 Processed: 28-AUG-15 11:53:15

Mass: 389.8160 391.8130 Tot Response: 5.84e+02 RRF: 0.9904

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:38	1.16e+02	9.67e+01	1.20	yes	2.13e+02		n	n
2	36:09	1.93e+01	1.46e+01	1.31	yes	3.39e+01		n	n
3	36:22	1.09e+02	9.49e+01	1.15	yes	2.04e+02		n	y
4	37:02	4.76e+01	4.50e+01	1.06	yes	9.26e+01	1,2,3,6,7,8-HxCDD	n	y
5	37:16	2.37e+01	1.72e+01	1.38	yes	4.10e+01	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.

PLY-02-15 MTI/MT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P301060 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 00:42:36 Processed: 28-AUG-15 11:53:15

Mass: 407.7820 409.7790 Tot Response: 2.55e+03 RRF: 1.284

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	2.85e+02	2.86e+02	1.00	yes	5.71e+02	1,2,3,4,6,7,8-HpCDF	y	y
2	39:12	1.02e+03	9.59e+02	1.06	yes	1.98e+03		n	y

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Peak List Summary

CLIENT ID.

PLY-02-15 MTI/MT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P301060 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 00:42:36 Processed: 28-AUG-15 11:53:15

Mass: 423.7770 425.7740 Tot Response: 4.04e+03 RRF: 0.9492

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:03	1.30e+03	1.27e+03	1.02	yes	2.57e+03	n	n
2	39:43	7.48e+02	7.19e+02	1.04	yes	1.47e+03	1,2,3,4,6,7,8-HpCDD	n	n

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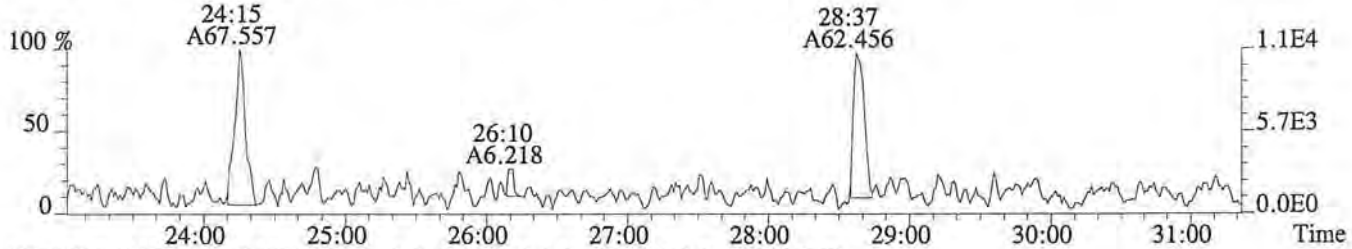
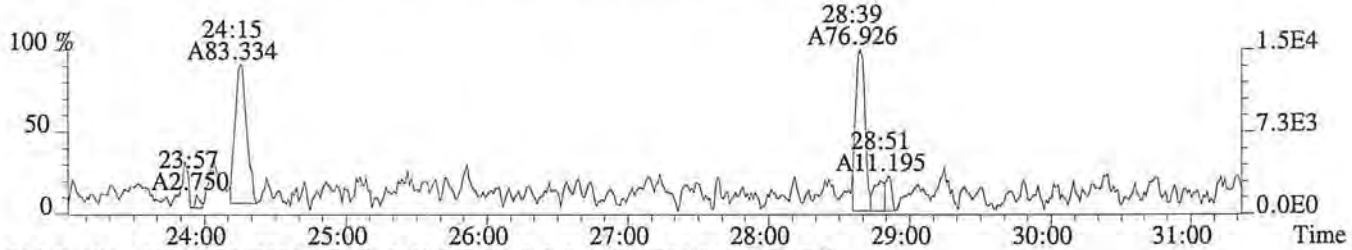
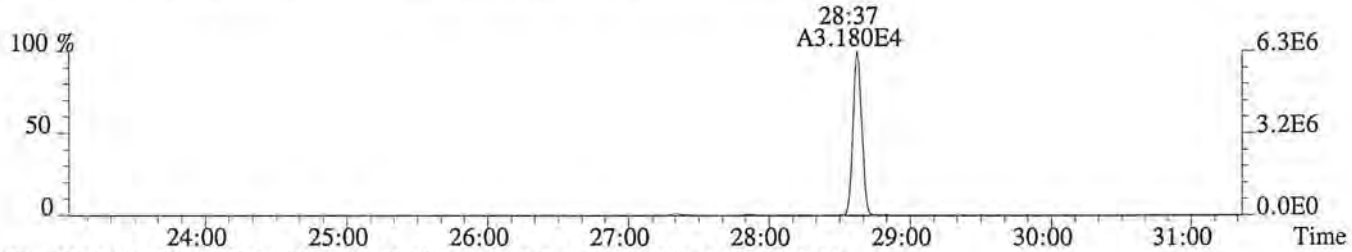
File:P301060 #1-591 Acq:28-AUG-2015 00:42:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-004
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



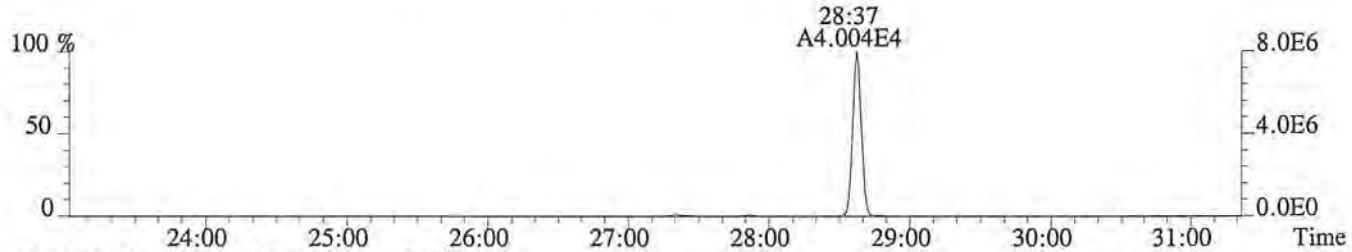
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2352.0,1.00%,F,T)



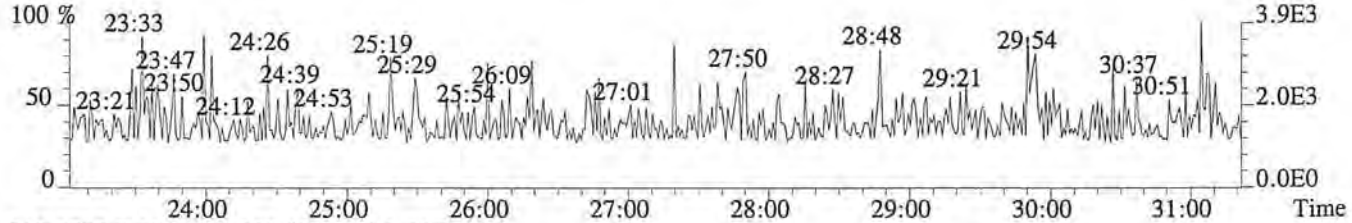
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1784.0,1.00%,F,T)



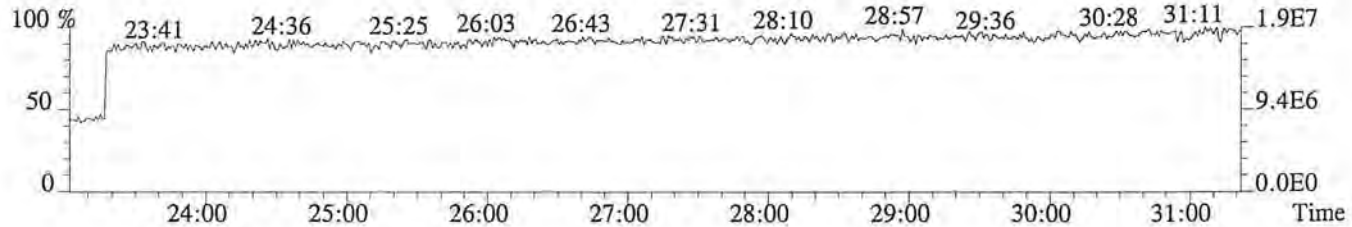
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2536.0,1.00%,F,T)



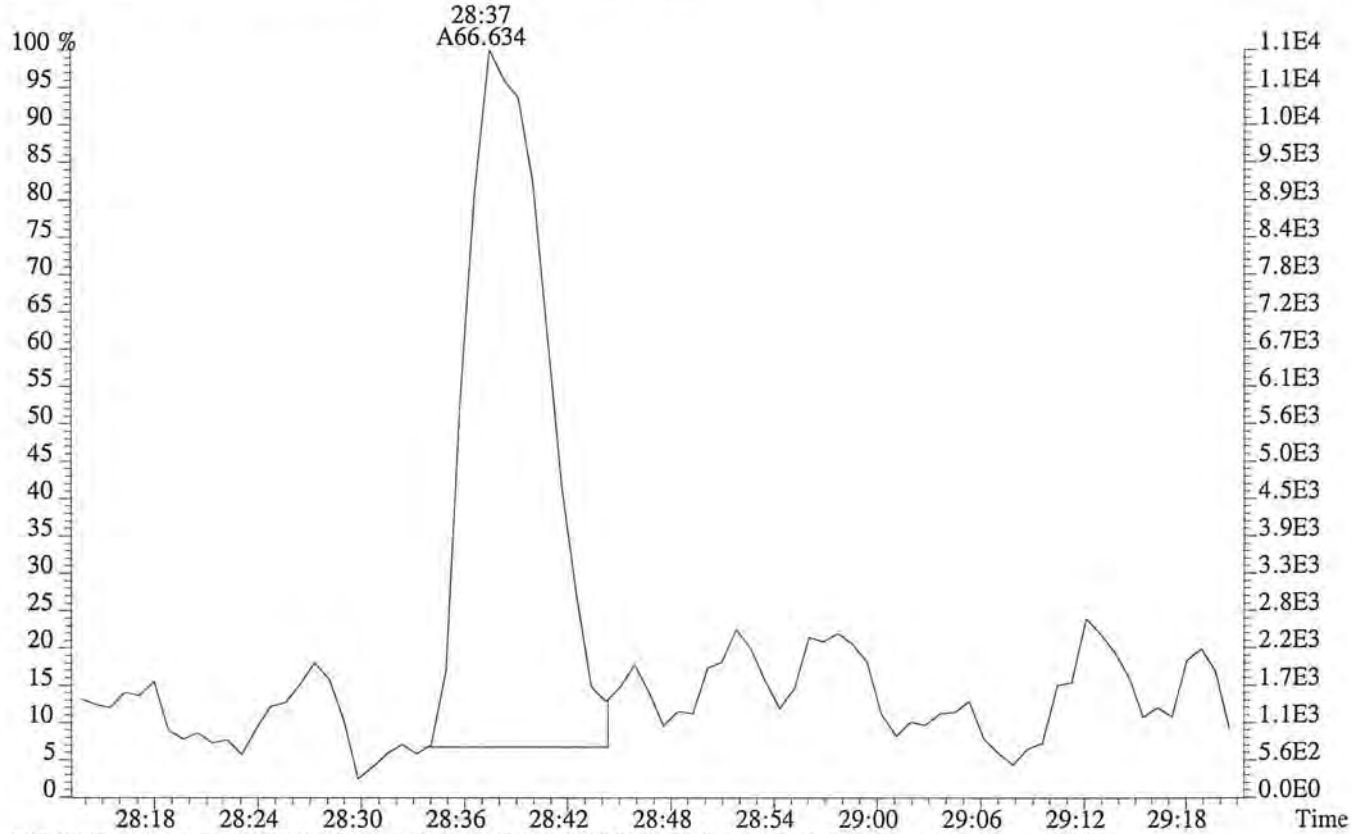
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



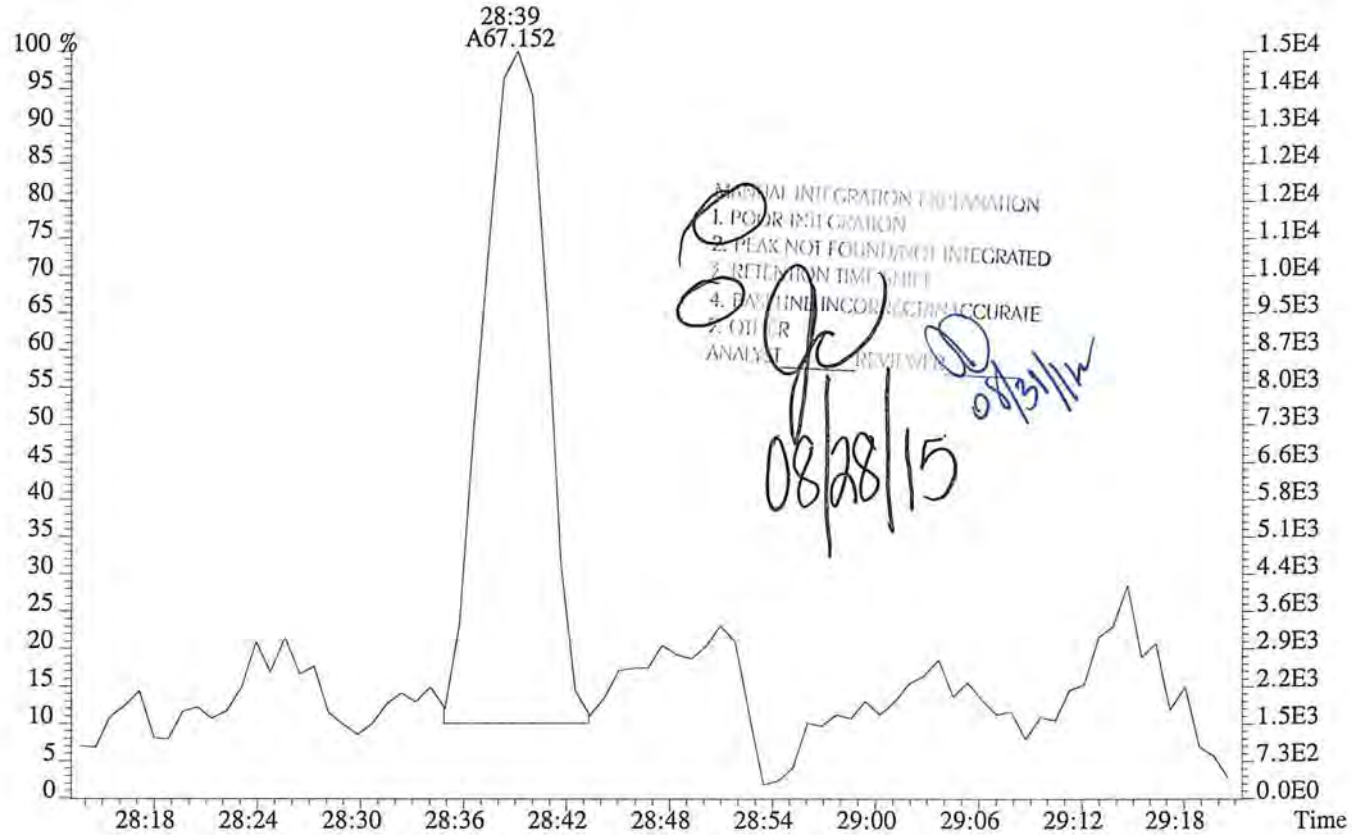
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P301060 #1-591 Acq:28-AUG-2015 00:42:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-004
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2352.0,1.00%,F,T)

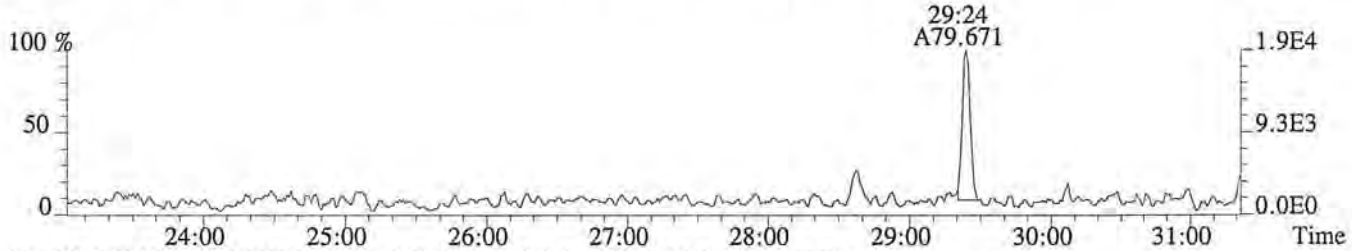


MANUAL INTEGRATION INFORMATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST _____ REVIEWER _____

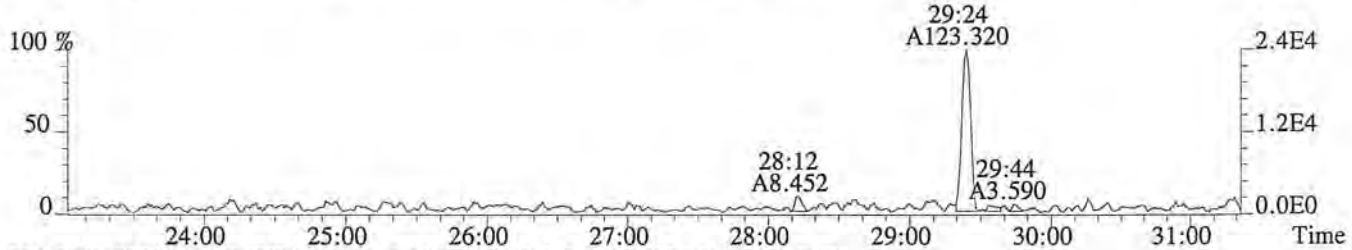
08/28/15

08/31/15

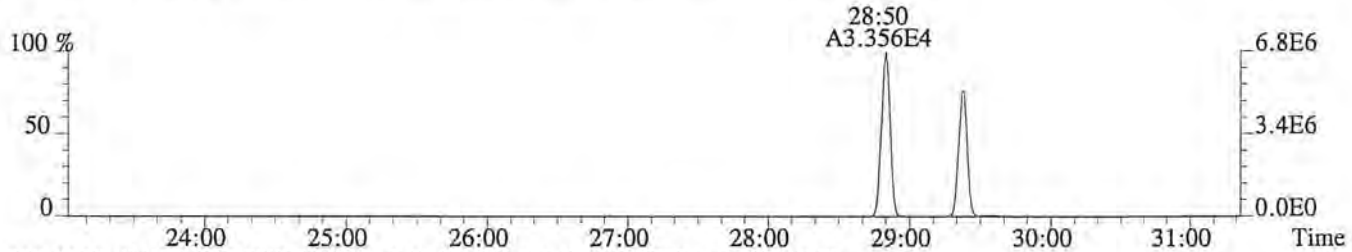
File:P301060 #1-591 Acq:28-AUG-2015 00:42:36 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1500743-004
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2024.0,1.00%,F,T)



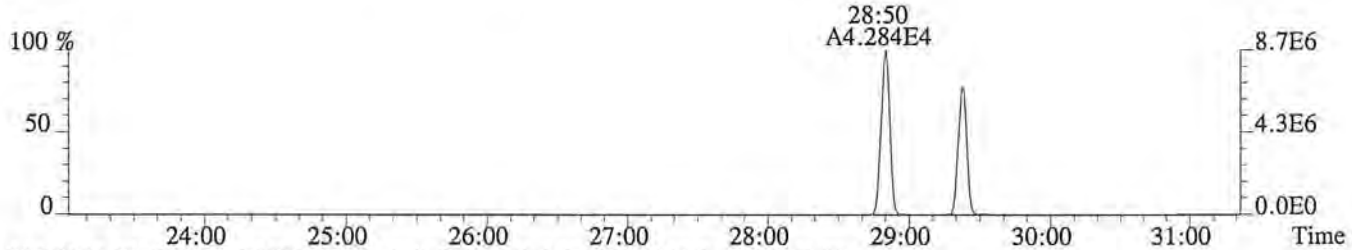
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



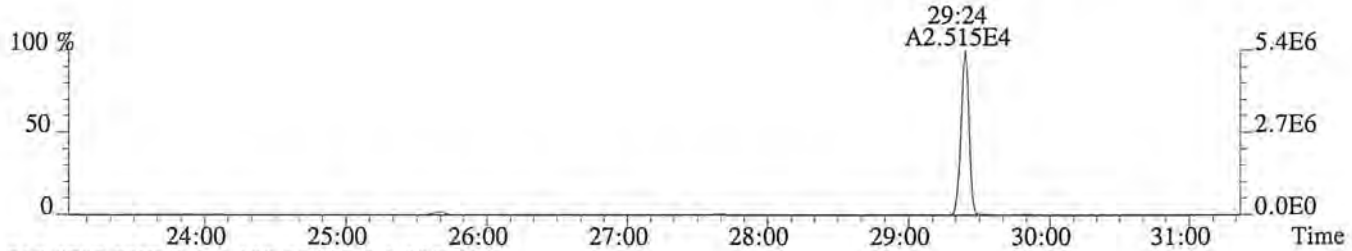
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6856.0,1.00%,F,T)



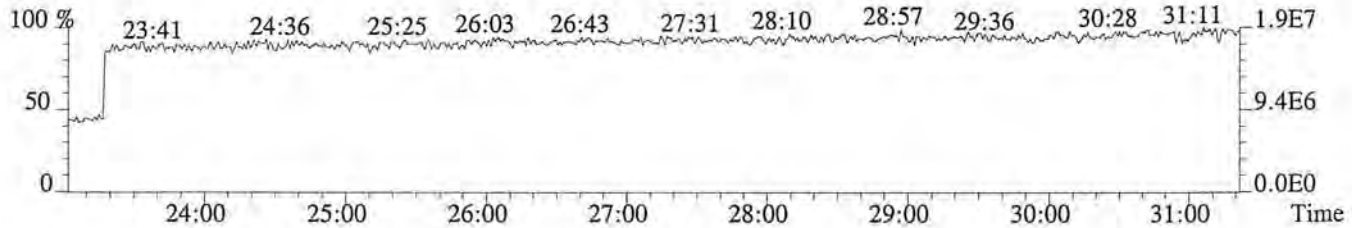
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3772.0,1.00%,F,T)



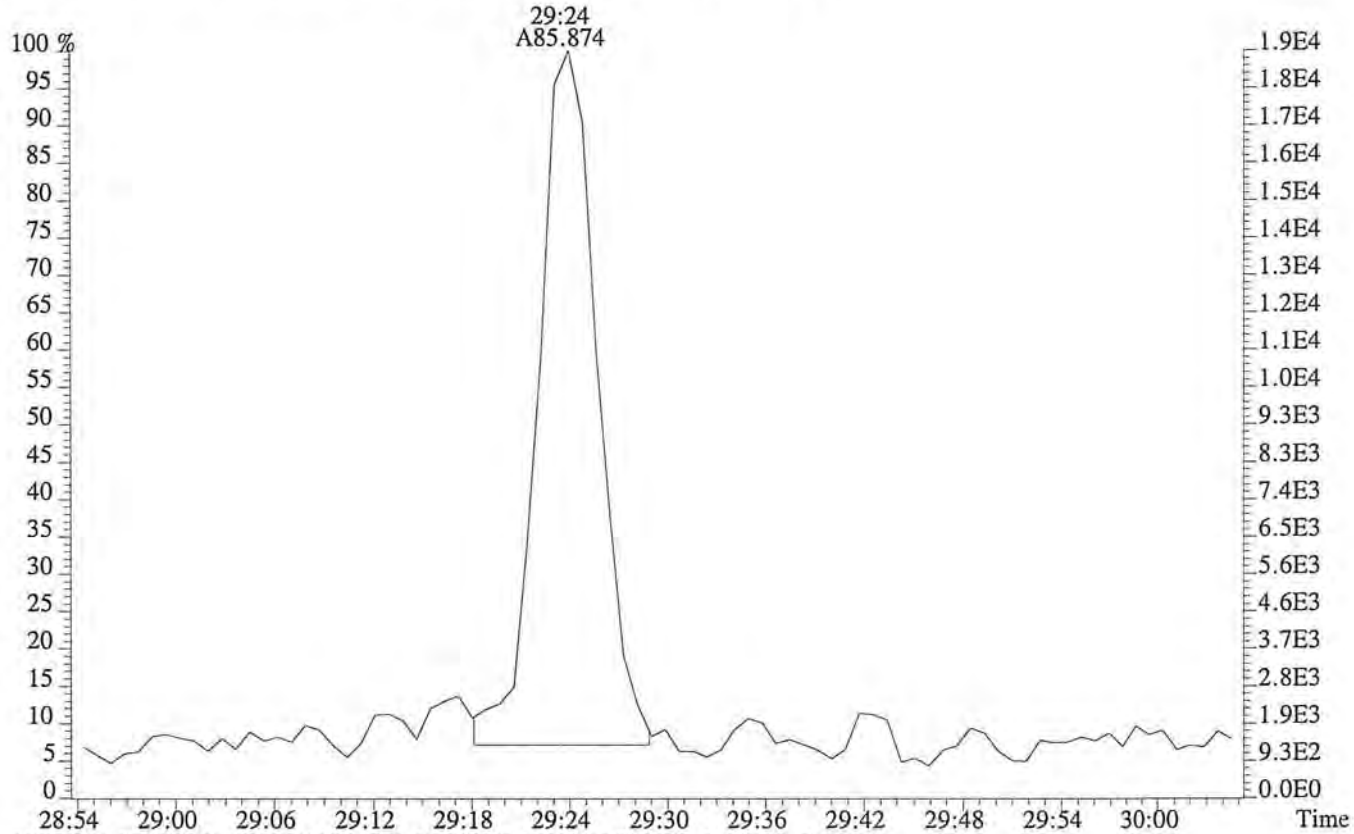
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1264.0,1.00%,F,T)



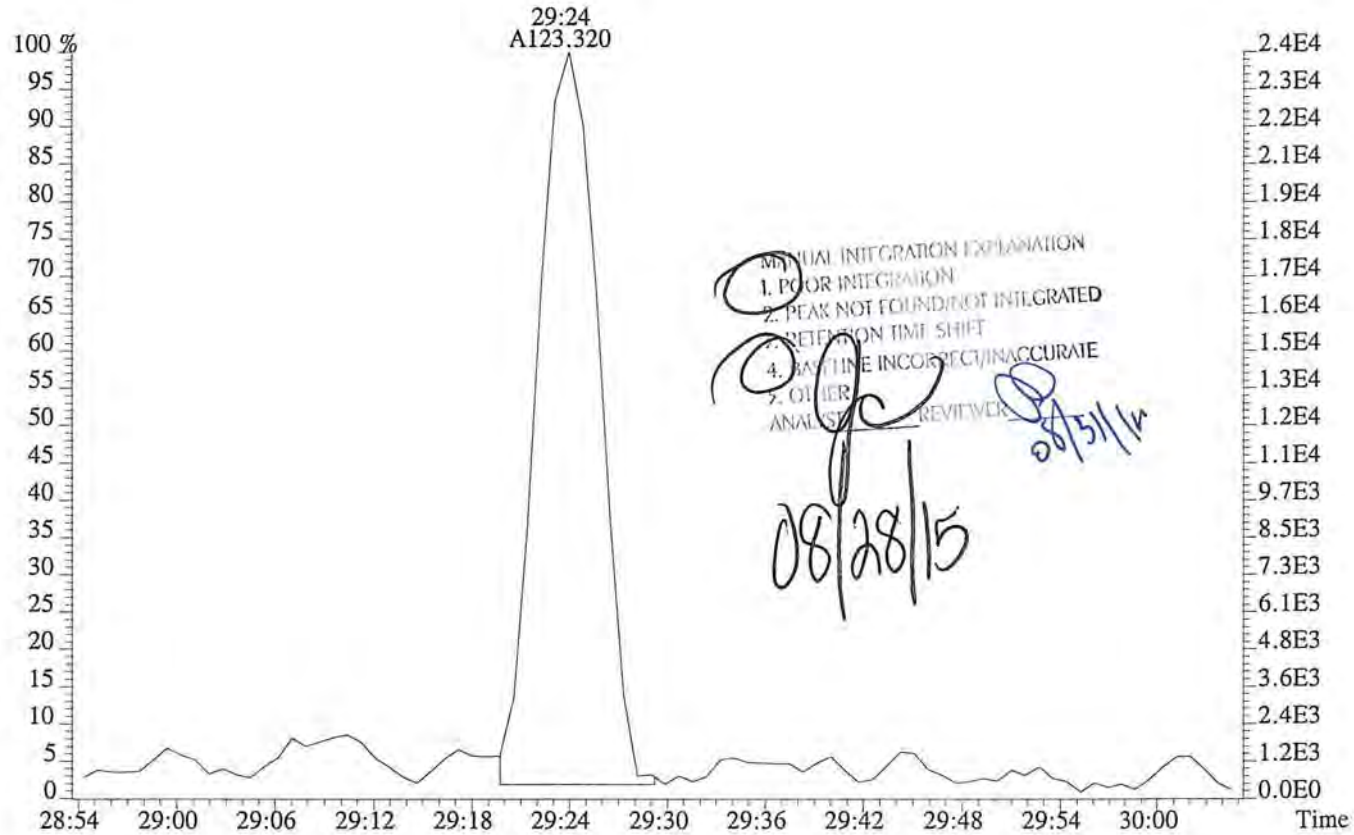
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



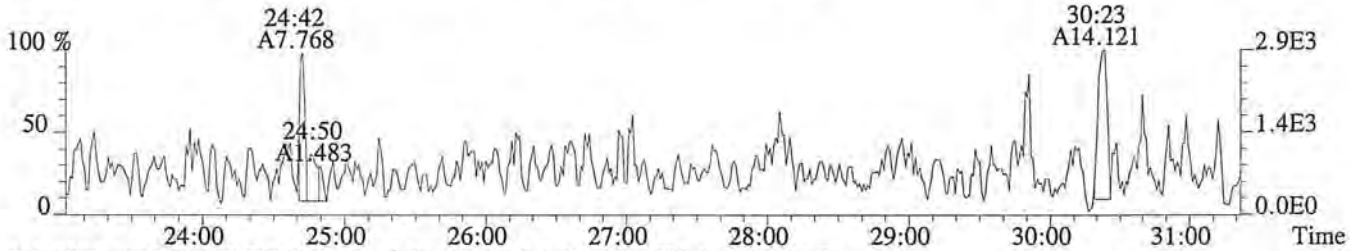
File:P301060 #1-591 Acq:28-AUG-2015 00:42:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-004
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2024.0,1.00%,F,T)



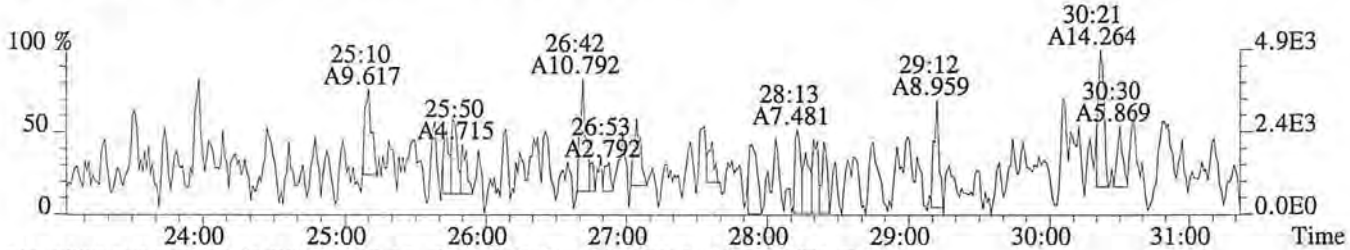
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



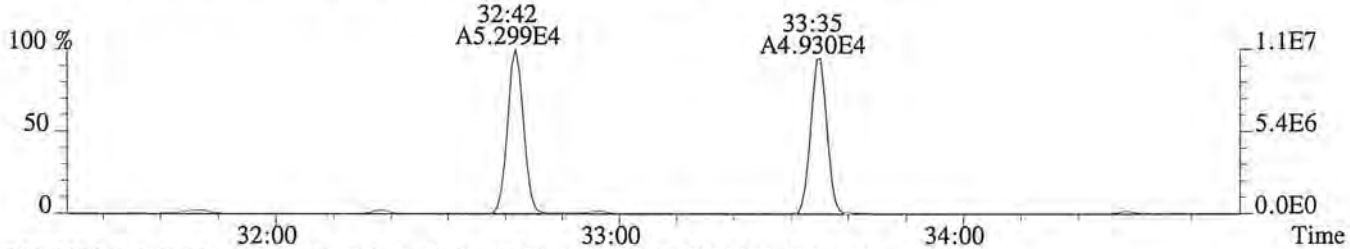
File:P301060 #1-591 Acq:28-AUG-2015 00:42:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-004
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



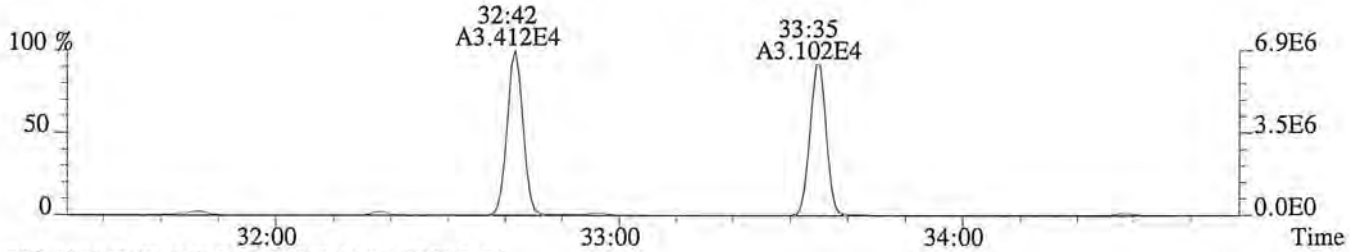
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1600.0,1.00%,F,T)



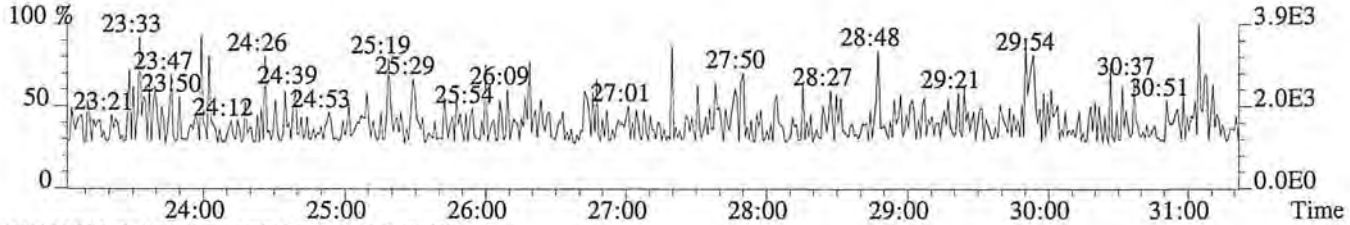
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1444.0,1.00%,F,T)



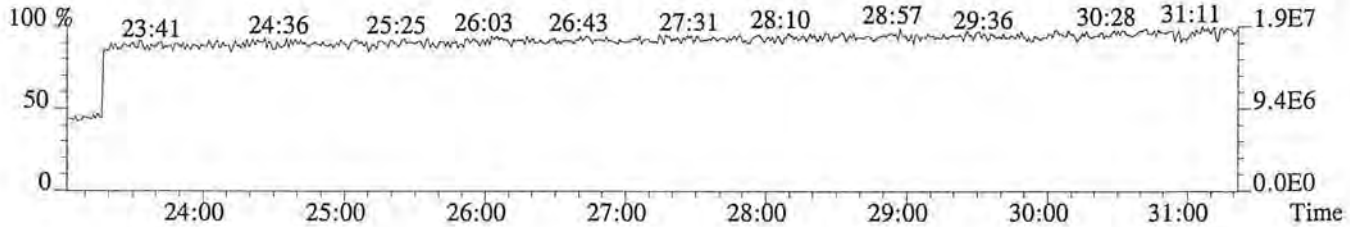
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2032.0,1.00%,F,T)



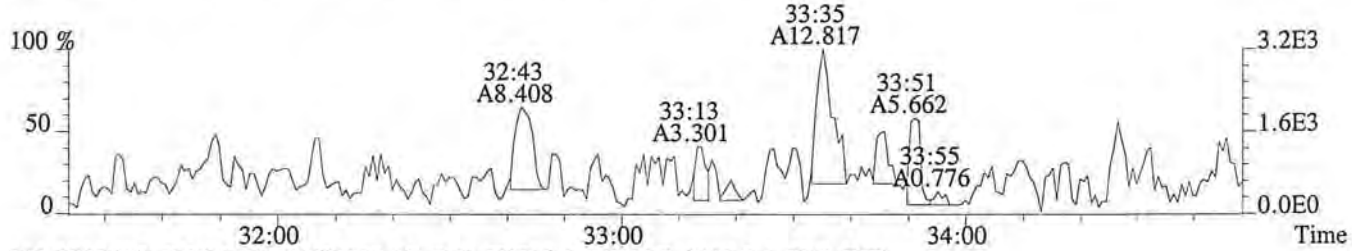
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



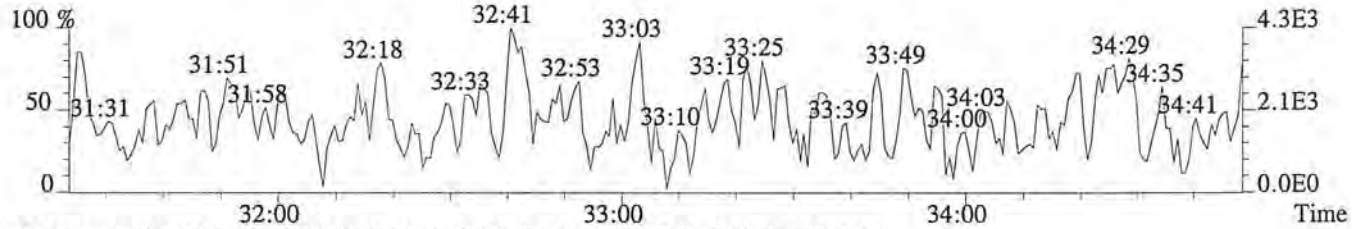
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



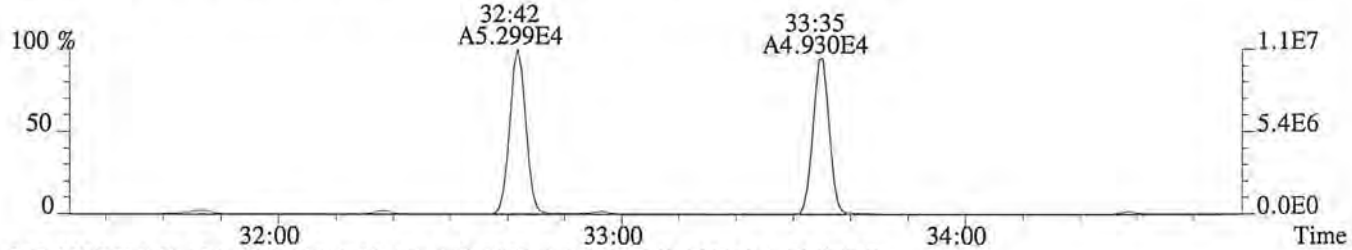
File:P301060 #1-308 Acq:28-AUG-2015 00:42:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-004
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



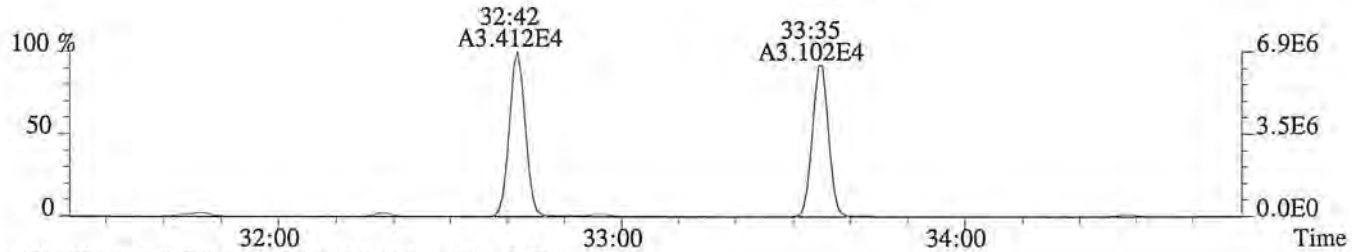
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2412.0,1.00%,F,T)



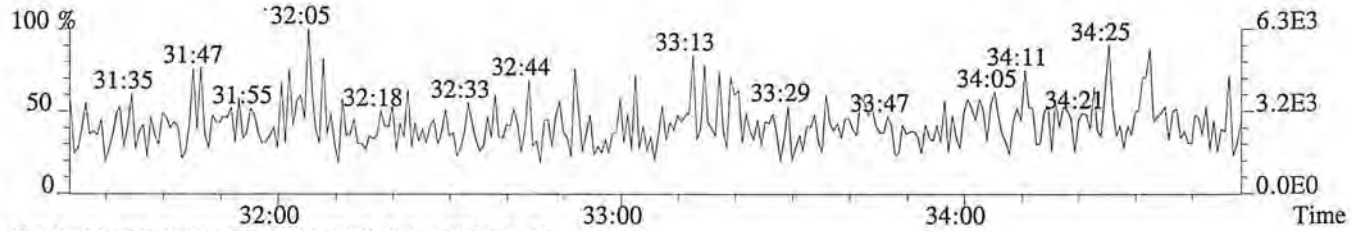
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1444.0,1.00%,F,T)



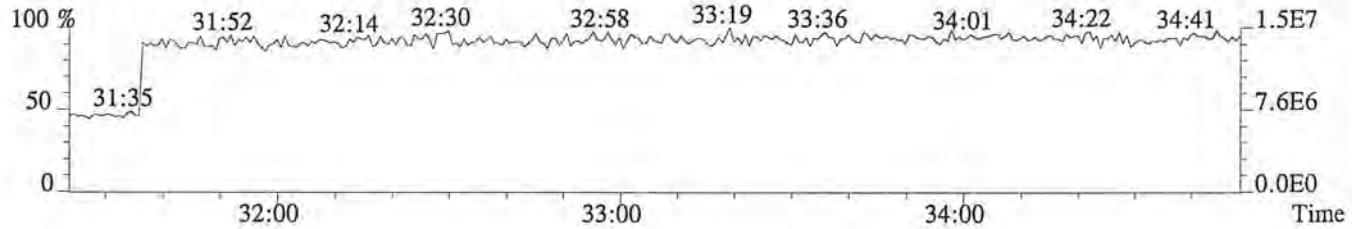
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2032.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

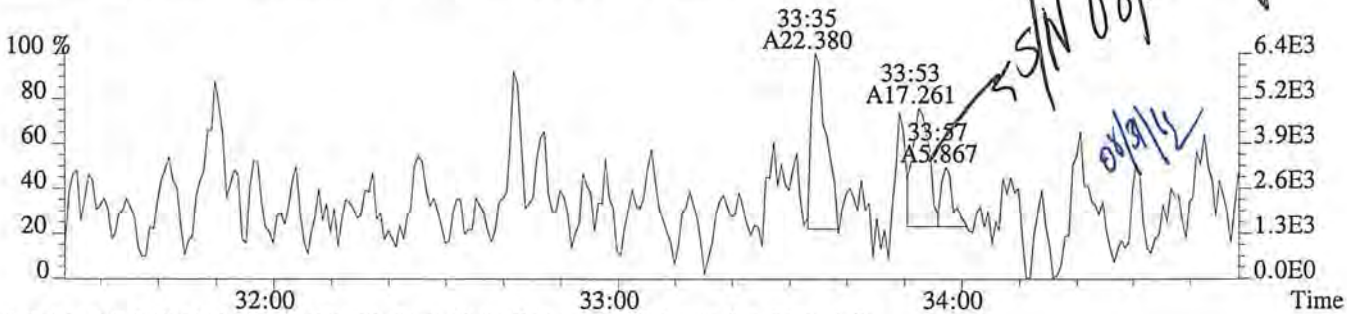


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

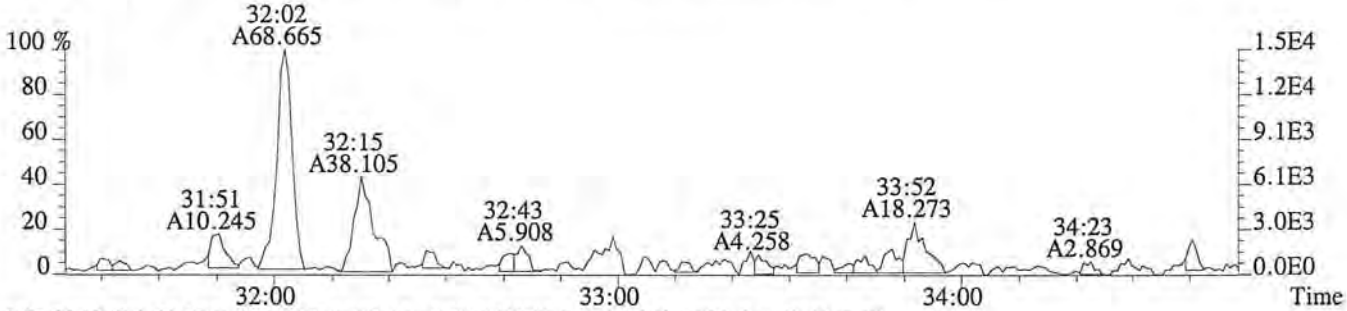


File:P301060 #1-308 Acq:28-AUG-2015 00:42:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-004
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2540.0,1.00%,F,T)

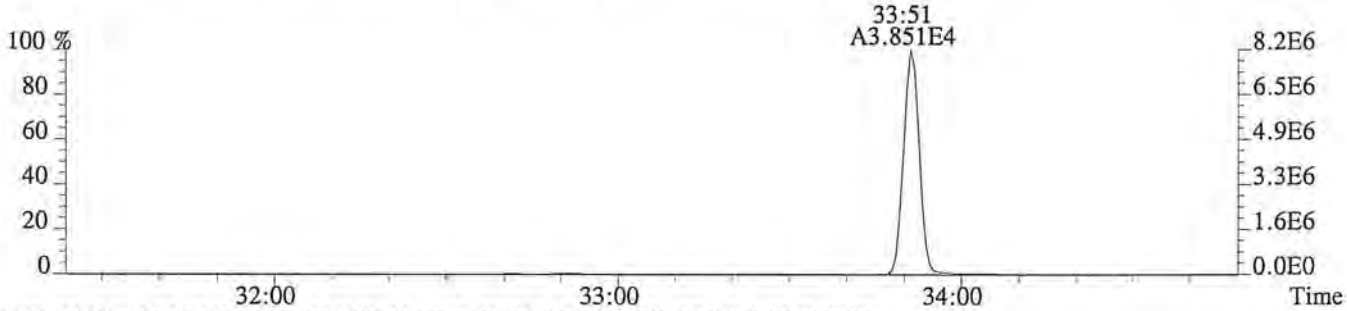
S/N 08/28/15



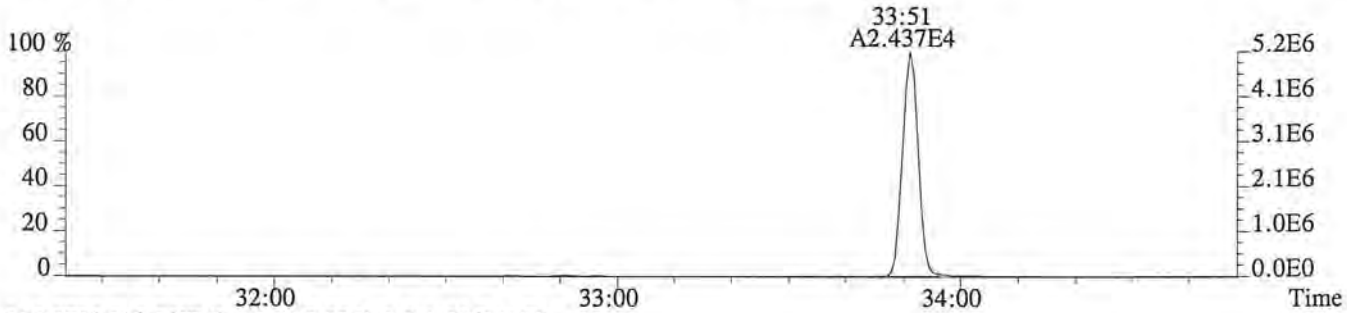
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



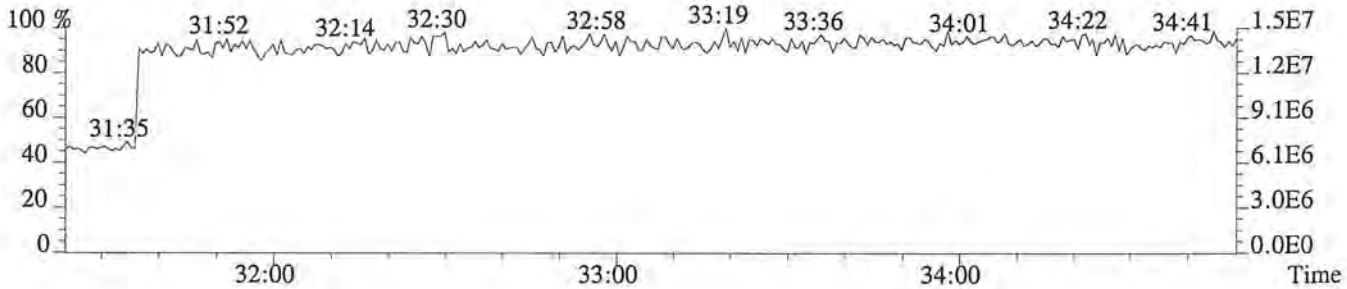
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1792.0,1.00%,F,T)



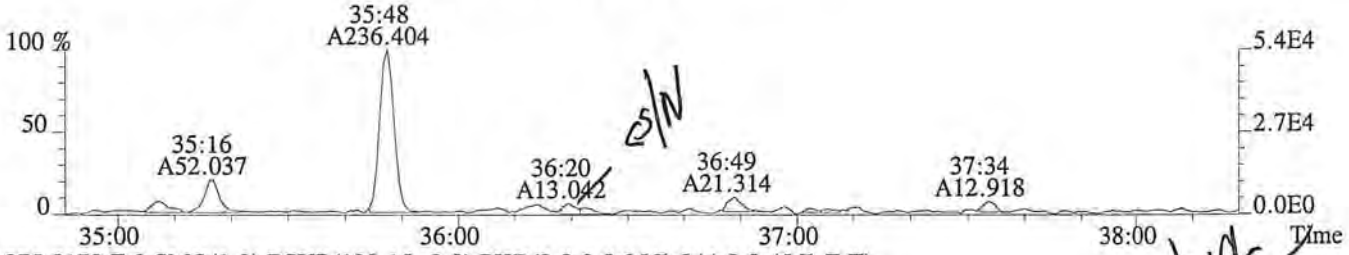
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



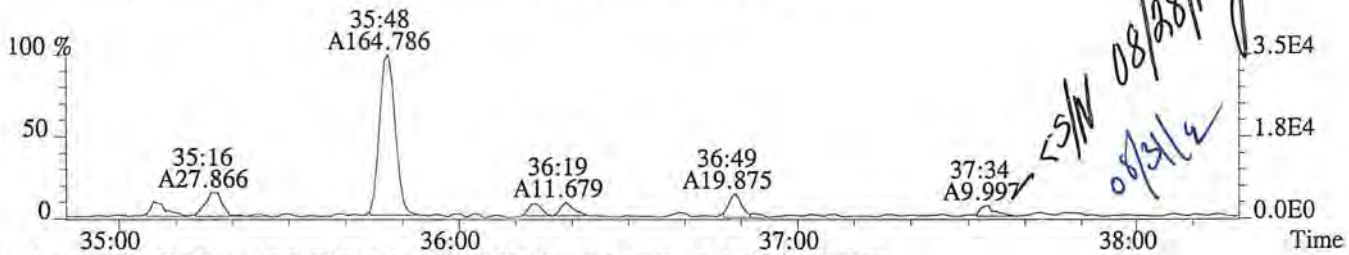
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



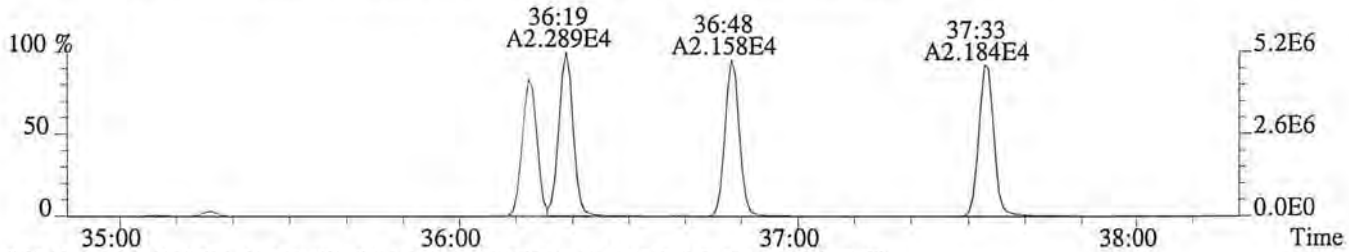
File:P301060 #1-312 Acq:28-AUG-2015 00:42:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-004
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1160.0,0.40%,F,T)



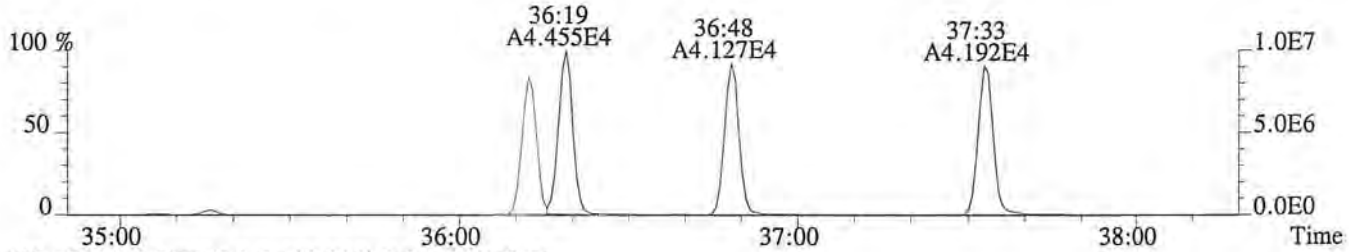
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,944.0,0.40%,F,T)



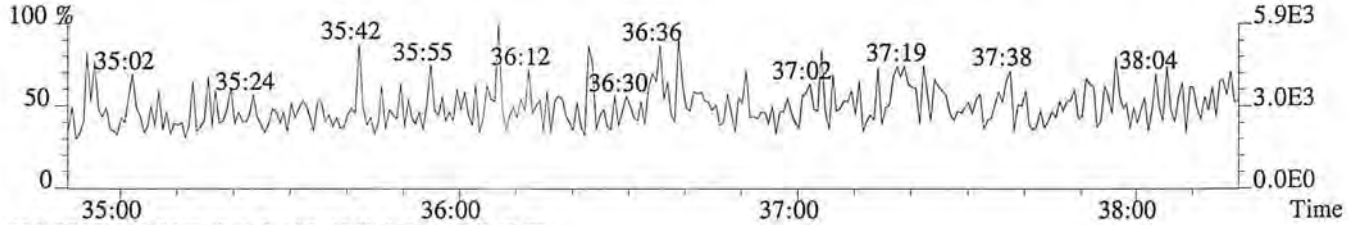
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.40%,F,T)



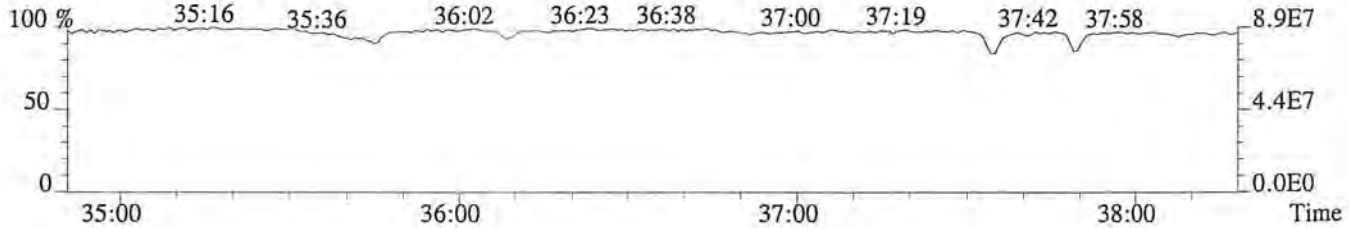
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



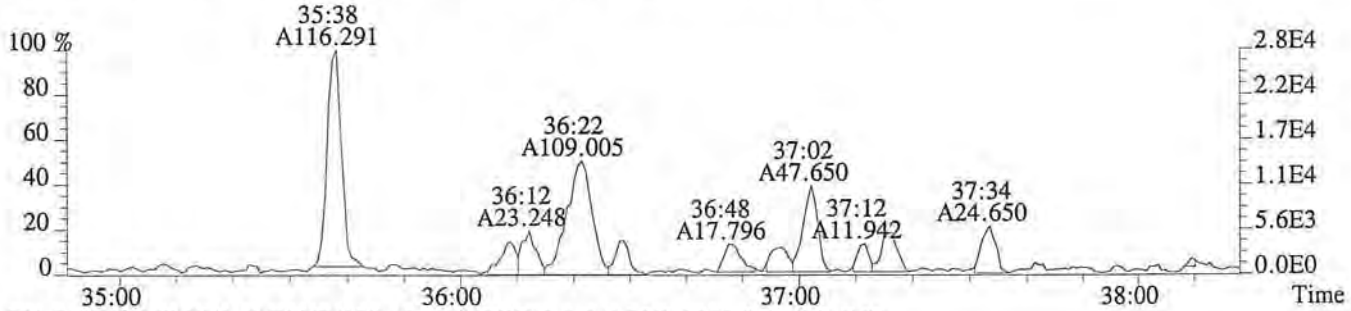
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



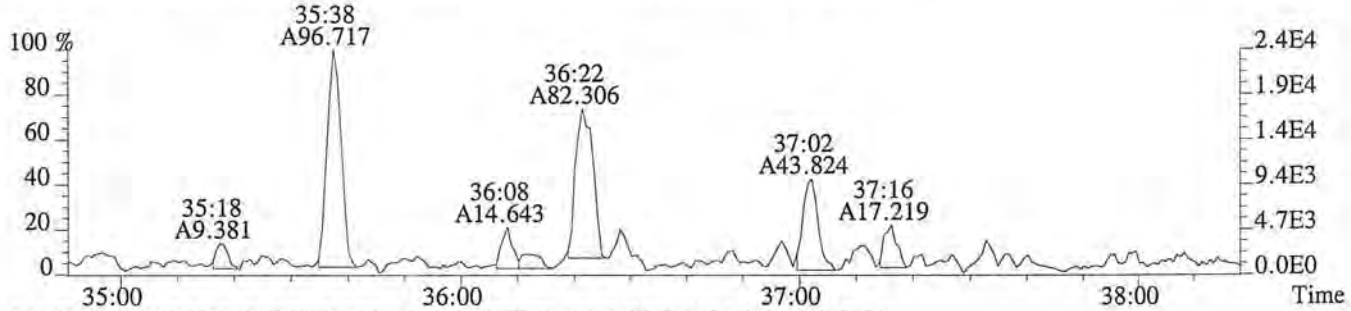
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



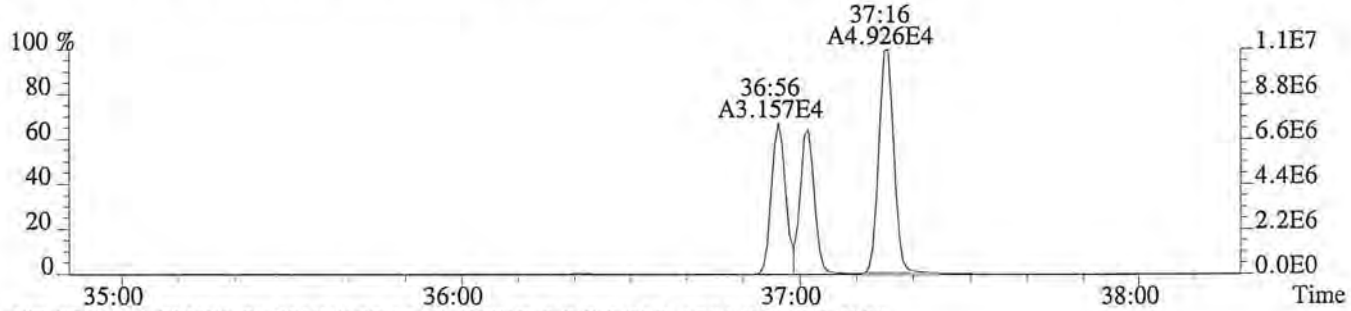
File:P301060 #1-312 Acq:28-AUG-2015 00:42:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-004
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.40%,F,T)



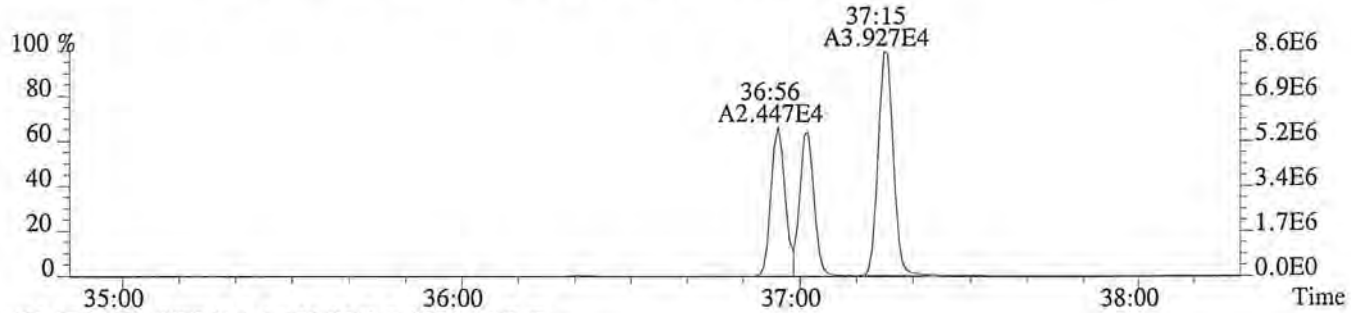
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.40%,F,T)



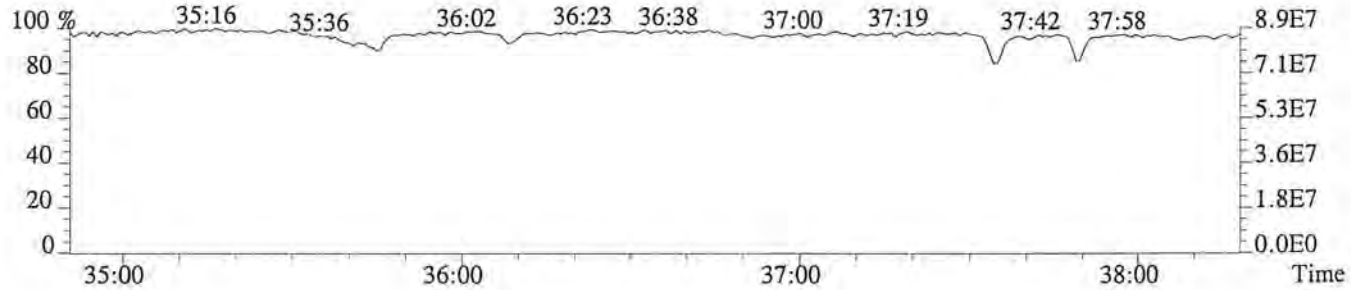
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.40%,F,T)



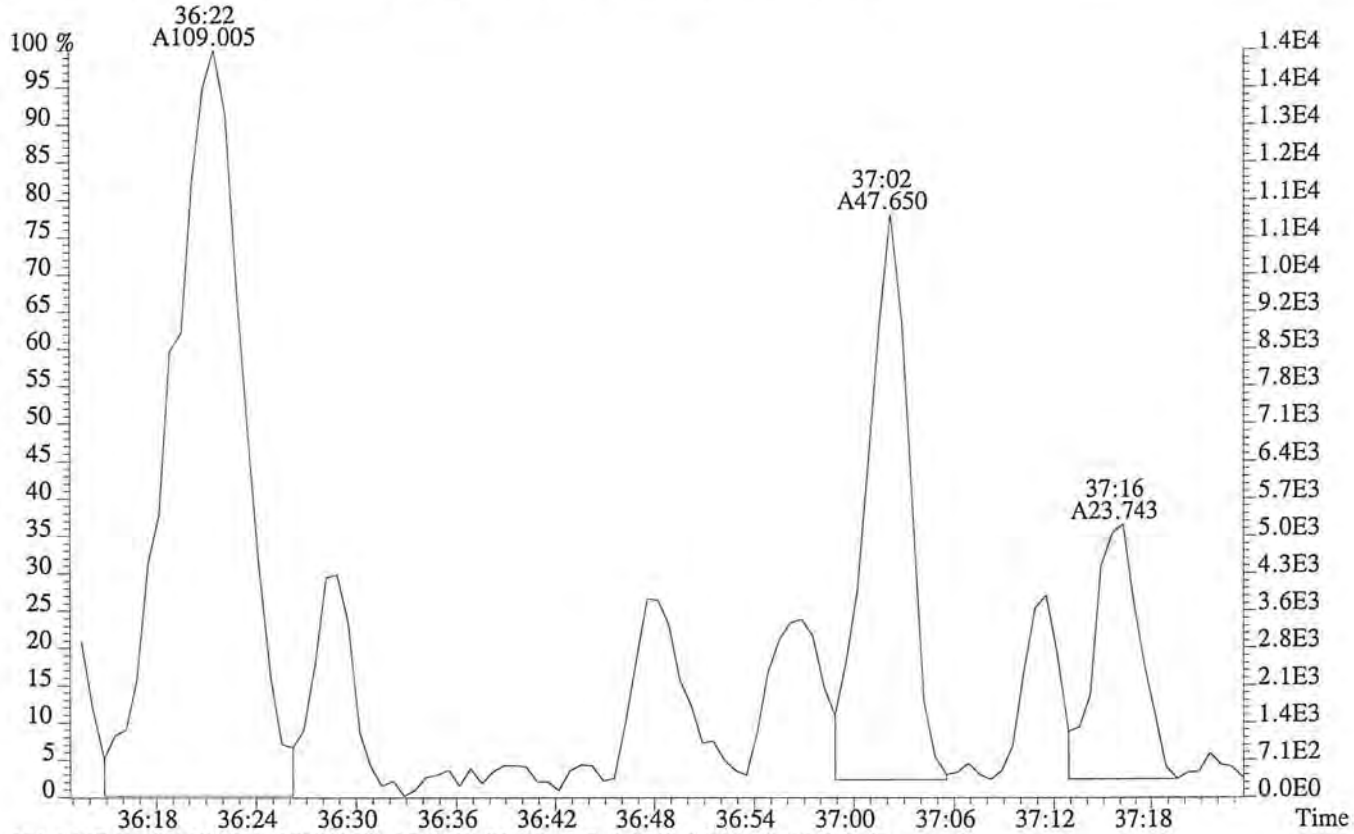
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1304.0,0.40%,F,T)



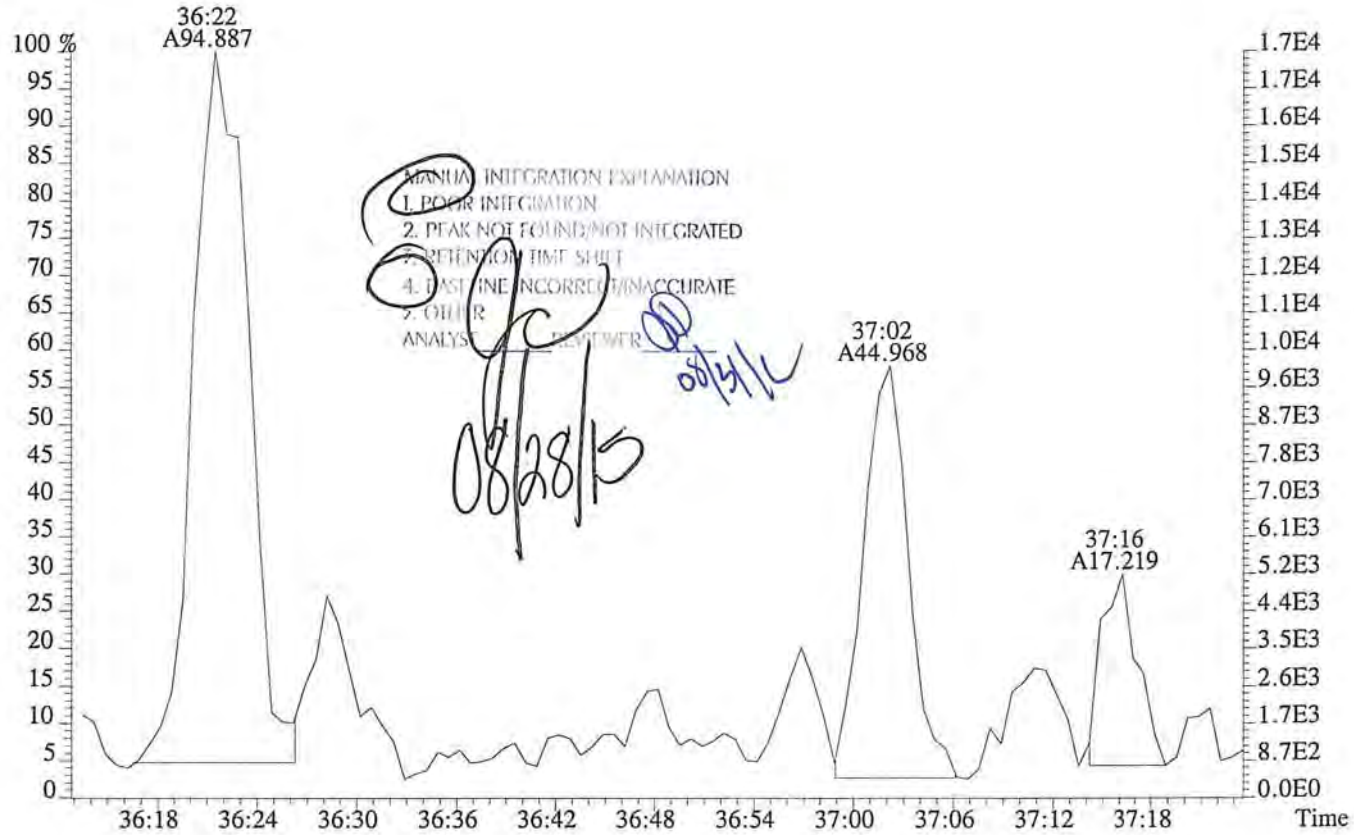
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P301060 #1-312 Acq:28-AUG-2015 00:42:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-004
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.40%,F,T)

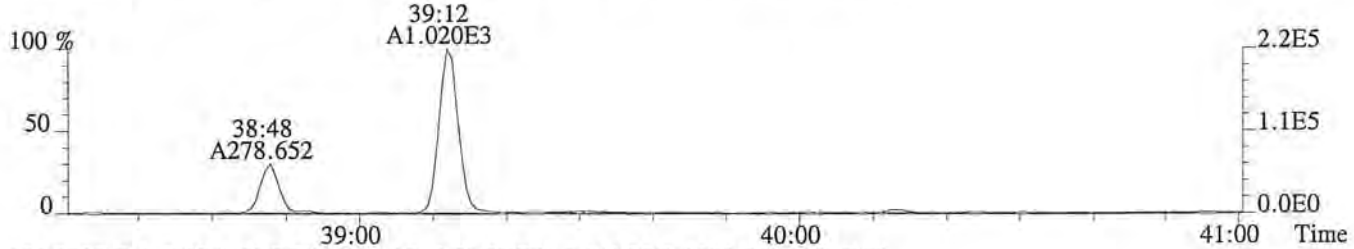


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.40%,F,T)

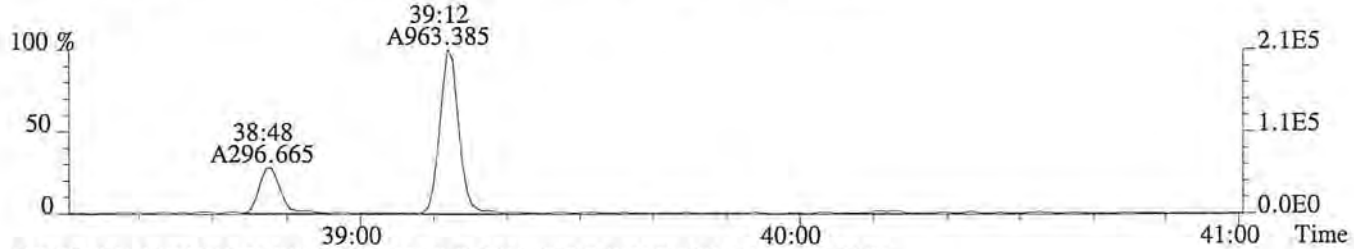


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST 08/28/15 REVIEWER 08/31/15

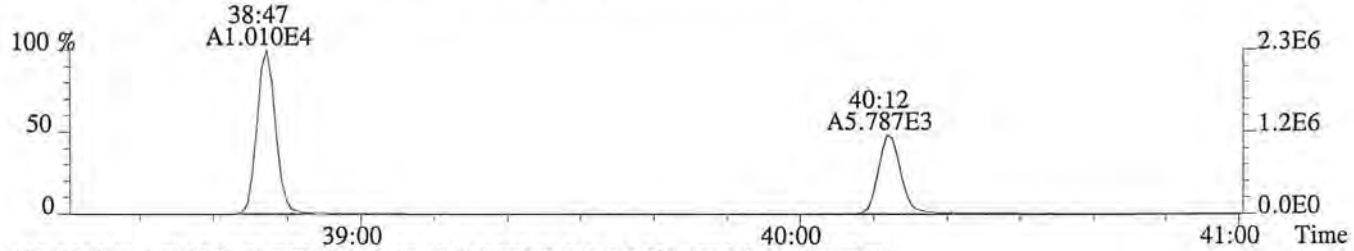
File:P301060 #1-241 Acq:28-AUG-2015 00:42:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-004
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.50%,F,T)



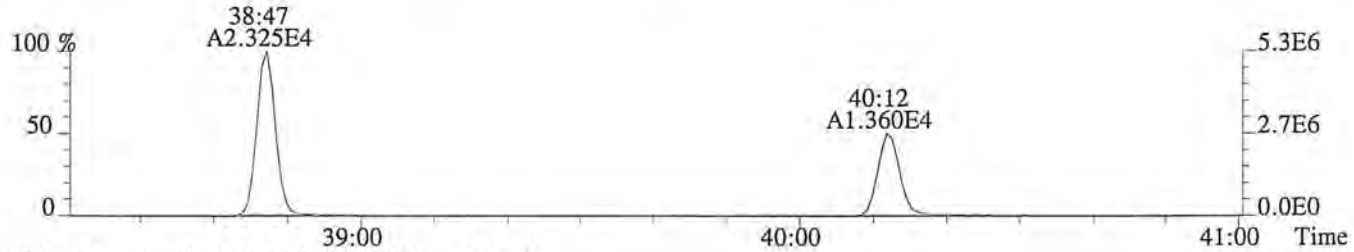
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.50%,F,T)



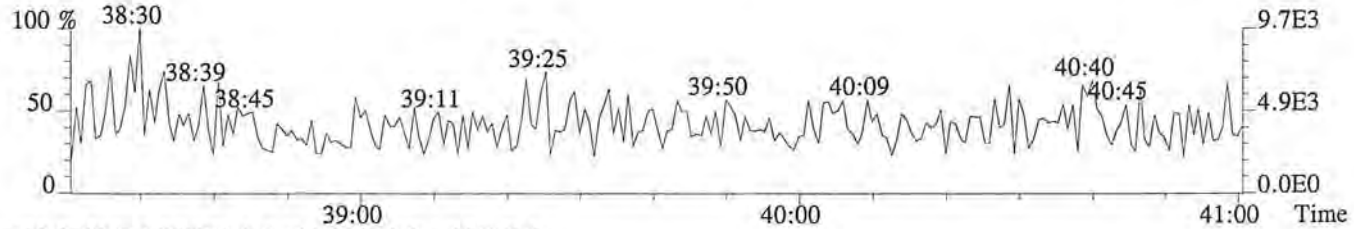
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3012.0,0.50%,F,T)



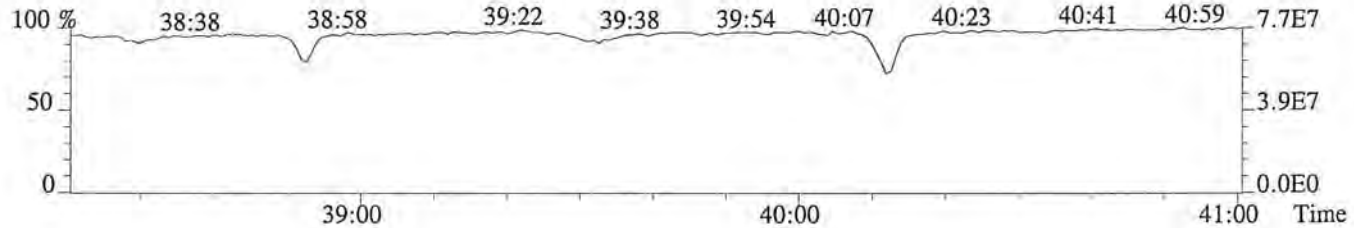
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1828.0,0.50%,F,T)



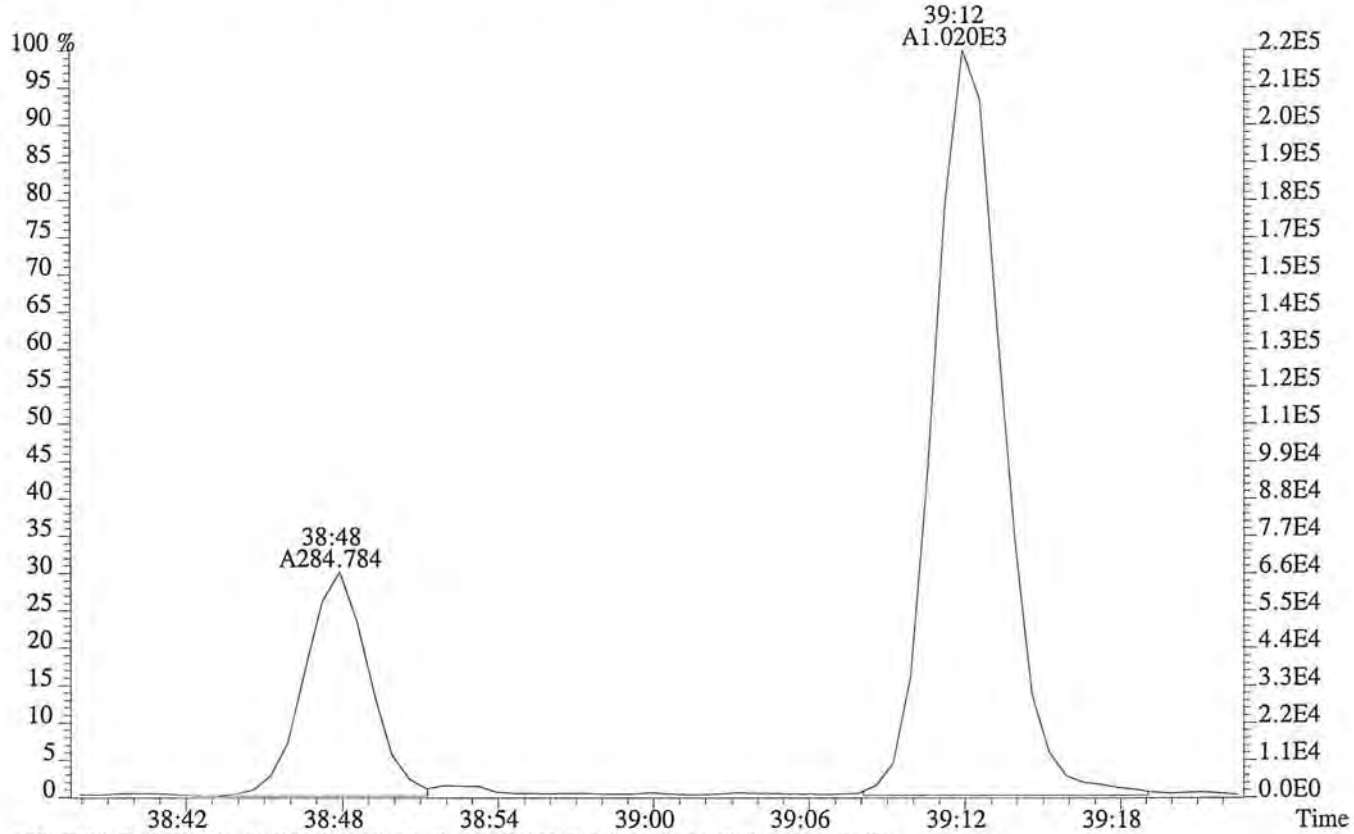
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



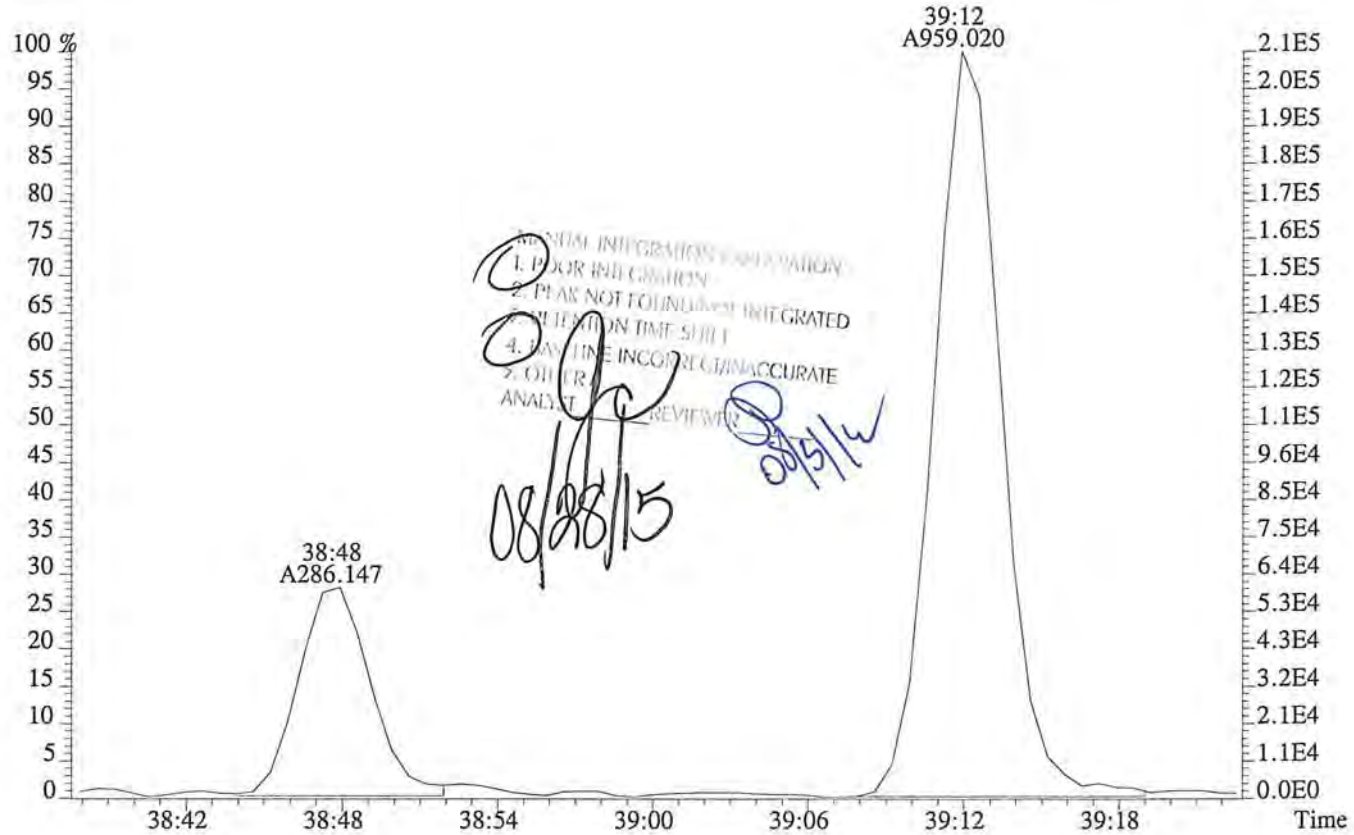
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



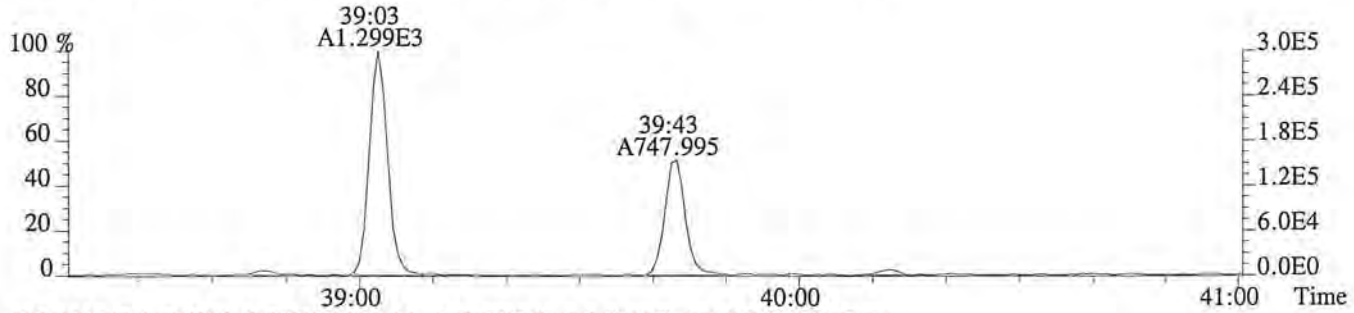
File:P301060 #1-241 Acq:28-AUG-2015 00:42:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-004
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.50%,F,T)



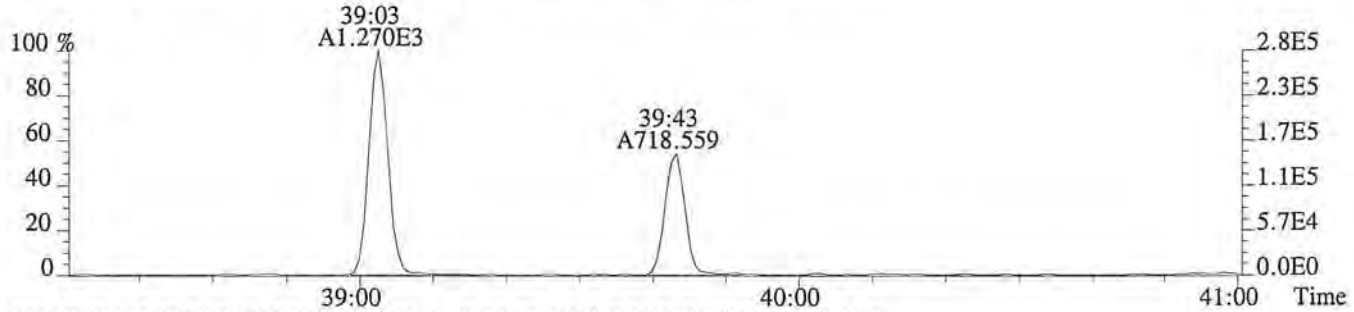
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.50%,F,T)



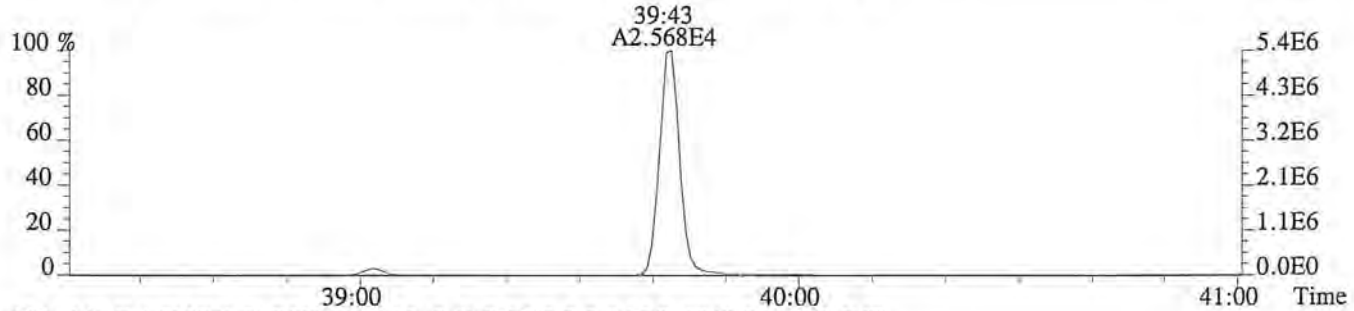
File:P301060 #1-241 Acq:28-AUG-2015 00:42:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-004
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



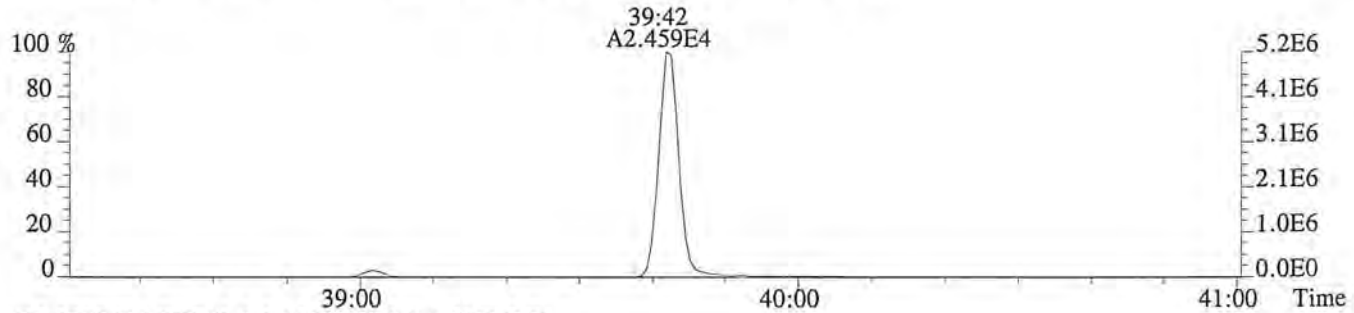
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1340.0,0.40%,F,T)



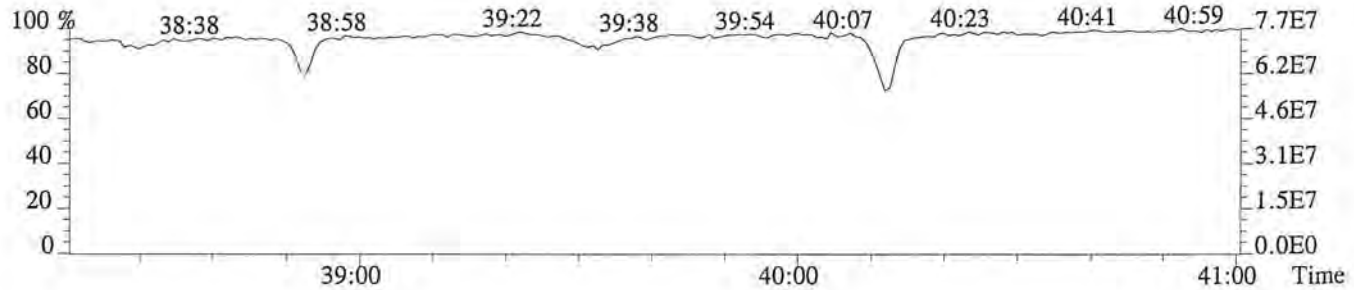
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2408.0,0.40%,F,T)



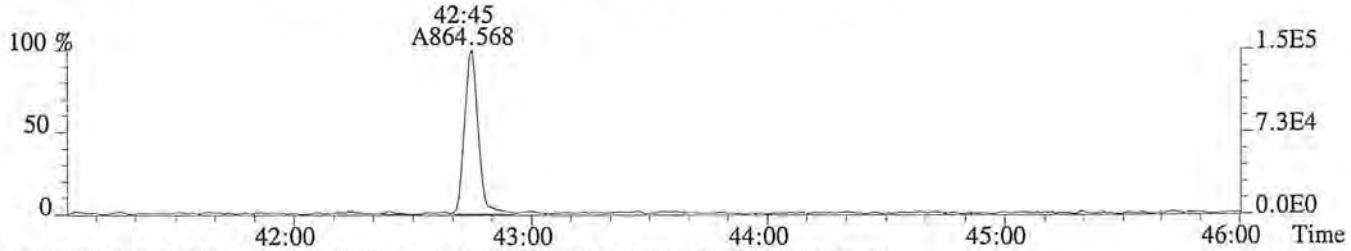
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



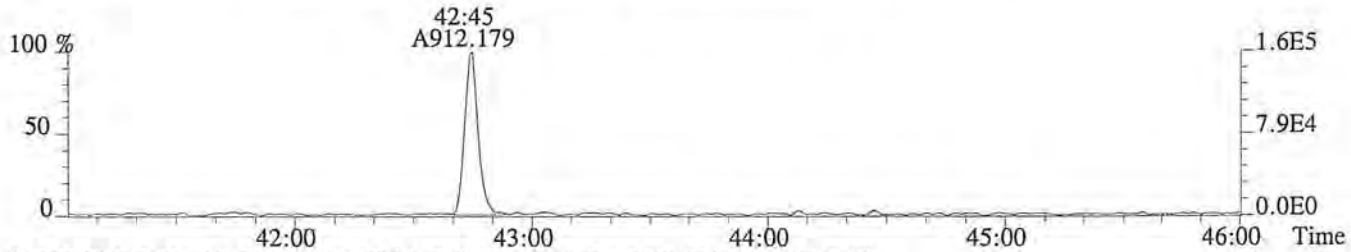
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



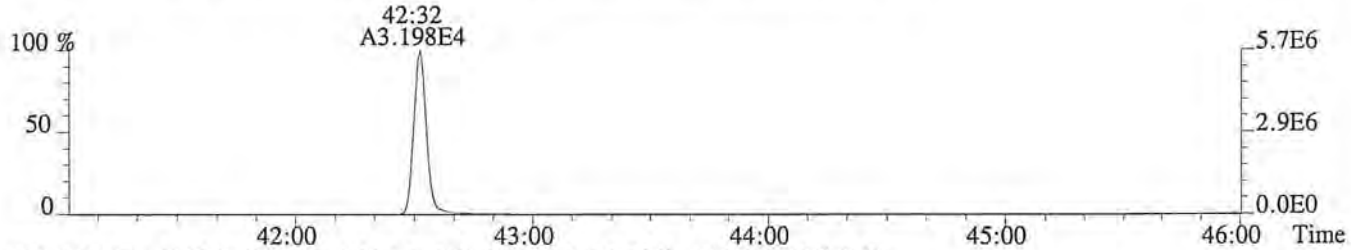
File:P301060 #1-447 Acq:28-AUG-2015 00:42:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-004
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1540.0,0.40%,F,T)



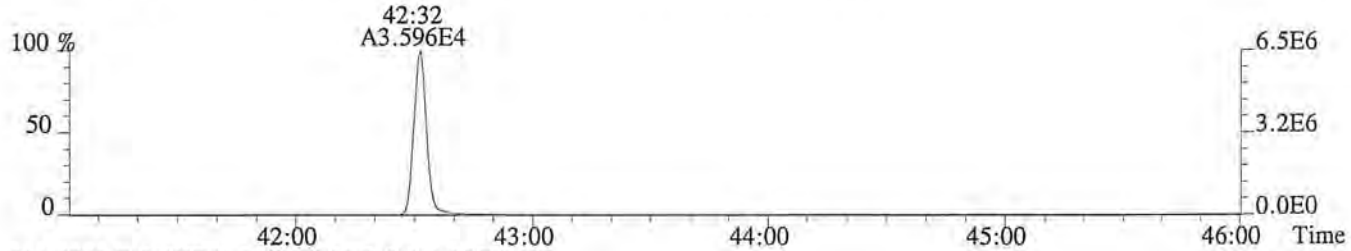
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2100.0,0.40%,F,T)



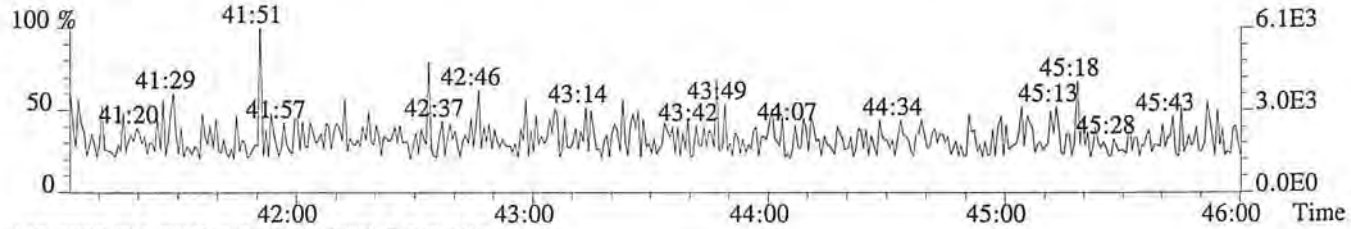
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



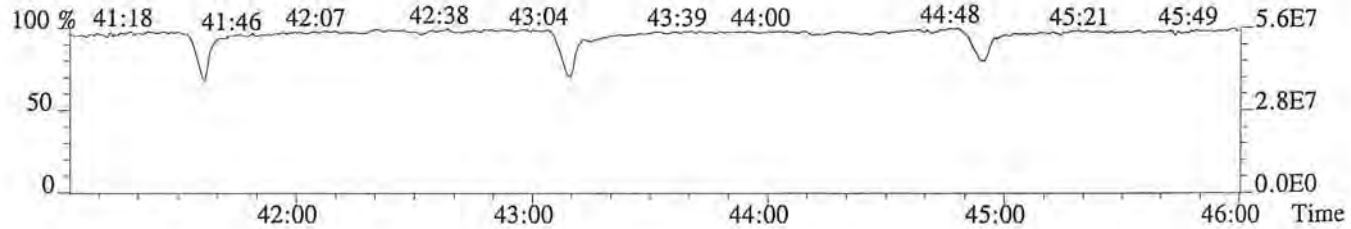
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1412.0,0.40%,F,T)



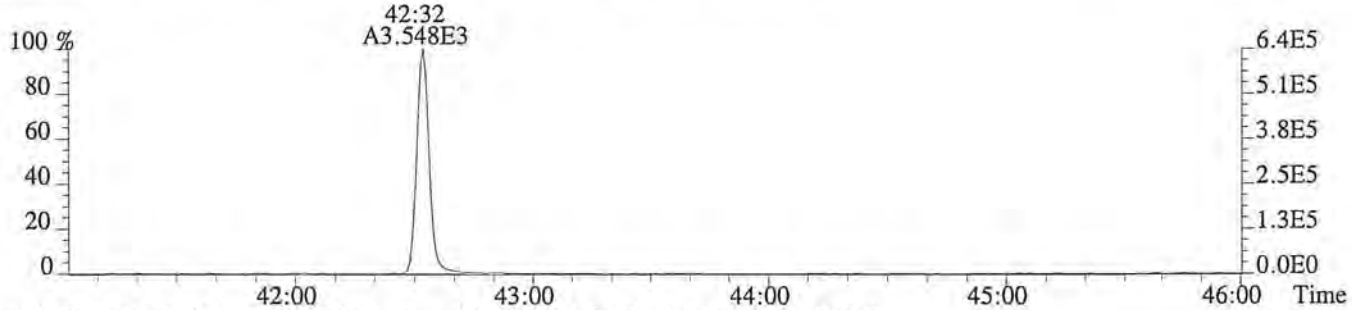
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



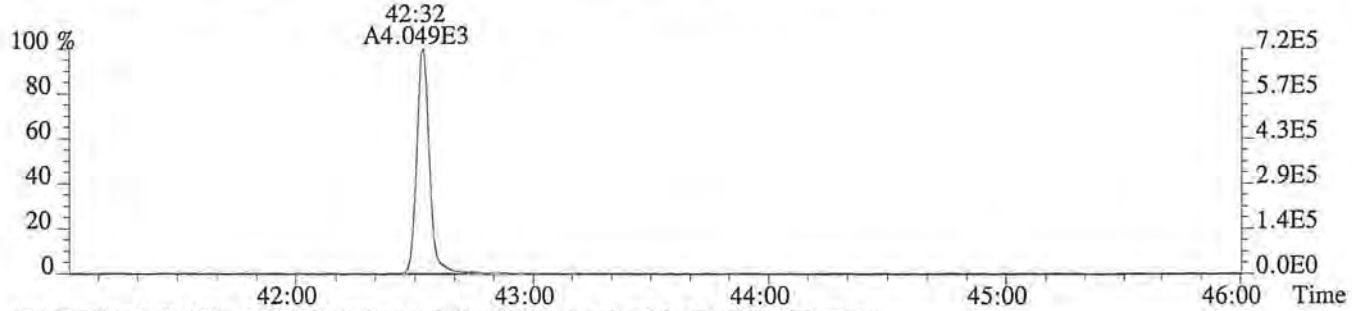
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



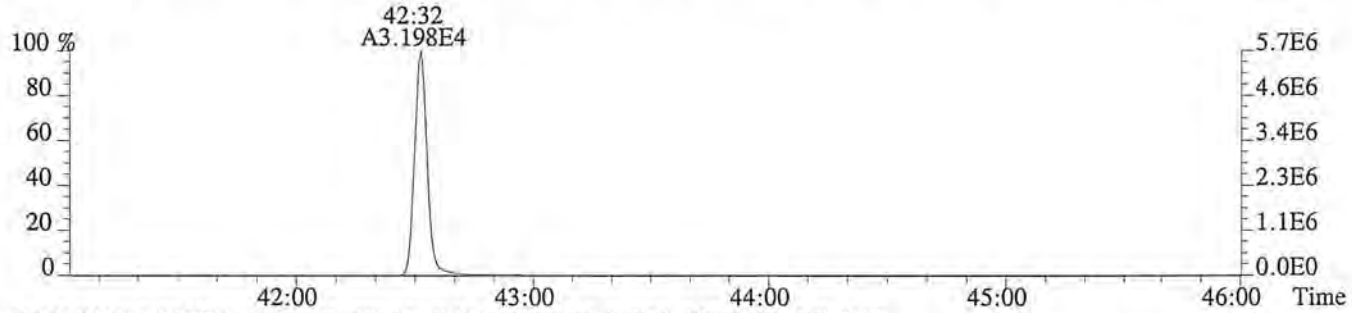
File:P301060 #1-447 Acq:28-AUG-2015 00:42:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-004
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,732.0,0.40%,F,T)



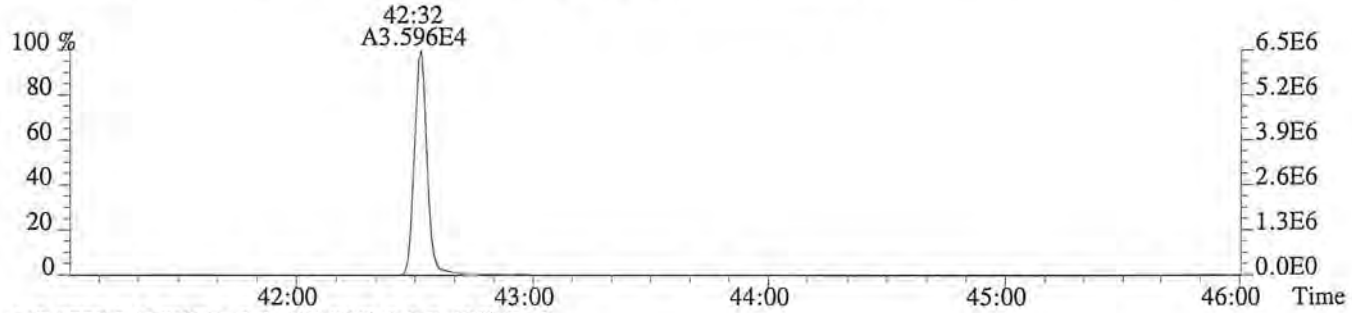
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1484.0,0.40%,F,T)



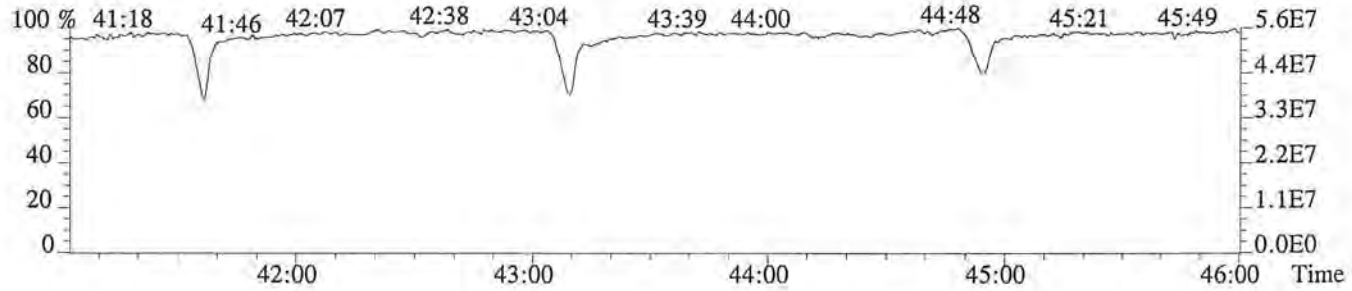
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1412.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-03-15 MTI

Run #17 Filename P301061 Samp: 1 Inj: 1 Acquired: 28-AUG-15 01:31:12
Processed: 28-AUG-15 11:53:15 Sample ID: E1500743-005

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:38	1.552e+02	1.962e+02	0.79	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.082
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:47	2.640e+02	2.414e+02	1.09	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.245
10	Unk	OCDF	42:45	7.038e+02	7.833e+02	0.90	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:24	4.391e+01	8.707e+01	0.50	no	yes	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:02	4.522e+01	3.939e+01	1.15	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	7.172e+02	7.055e+02	1.02	yes	no	0.949
17	Unk	OCDD	42:32	3.336e+03	3.858e+03	0.86	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:37	2.883e+04	3.616e+04	0.80	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:42	4.800e+04	3.037e+04	1.58	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:35	4.613e+04	2.946e+04	1.57	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	2.041e+04	3.905e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:19	2.332e+04	4.474e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	2.205e+04	4.229e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:34	2.865e+04	5.561e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	1.343e+04	3.125e+04	0.43	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:12	1.064e+04	2.421e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:22	2.309e+04	2.976e+04	0.78	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:51	3.533e+04	2.215e+04	1.60	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:56	3.007e+04	2.385e+04	1.26	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:02	2.957e+04	2.312e+04	1.28	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.580e+04	2.418e+04	1.07	yes	no	0.850
32	IS	13C-OCDD	42:32	3.429e+04	3.796e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:49	3.055e+04	3.922e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:16	4.454e+04	3.521e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	2.329e+04				no	1.001

$$\text{OCDD} = \frac{(3.336e{+}03 + 3.858e{+}03) \times 4000 \text{ pg} \times 1}{(3.429e{+}04 + 3.796e{+}04) \times 10.154 \text{ g} \times \quad / 100 \times 1.061} = 37.0$$

MS 08/27/15

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-03-15 MTI/MT

Run #17 Filename P301061 Samp: 1 Inj: 1 Acquired: 28-AUG-15 01:31:12
Processed: 28-AUG-15 11:53:15 LAB. ID: E1500743-005

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.93e+04	1.94e+03	1.5e+01	3.62e+04	2.27e+03	1.6e+01
2	1,2,3,7,8-PeCDF	*	7.24e+02	*	*	2.25e+03	*
3	2,3,4,7,8-PeCDF	*	7.24e+02	*	*	2.25e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.32e+03	*	*	4.36e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.32e+03	*	*	4.36e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.32e+03	*	*	4.36e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.32e+03	*	*	4.36e+02	*
8	1,2,3,4,6,7,8-HpCDF	5.64e+04	6.64e+02	8.5e+01	5.53e+04	1.34e+03	4.1e+01
9	1,2,3,4,7,8,9-HpCDF	*	6.64e+02	*	*	1.34e+03	*
10	OCDF	1.22e+05	1.25e+03	9.8e+01	1.43e+05	2.07e+03	6.9e+01
11	2,3,7,8-TCDD	9.48e+03	1.26e+03	7.5e+00	1.64e+04	1.02e+03	1.6e+01
12	1,2,3,7,8-PeCDD	*	2.87e+03	*	*	4.28e+02	*
13	1,2,3,4,7,8-HxCDD	*	4.36e+02	*	*	1.54e+03	*
14	1,2,3,6,7,8-HxCDD	9.20e+03	4.36e+02	2.1e+01	7.64e+03	1.54e+03	4.9e+00
15	1,2,3,7,8,9-HxCDD	*	4.36e+02	*	*	1.54e+03	*
16	1,2,3,4,6,7,8-HpCDD	1.56e+05	7.84e+02	2.0e+02	1.48e+05	8.76e+02	1.7e+02
17	OCDD	6.05e+05	7.16e+02	8.5e+02	7.02e+05	1.33e+03	5.3e+02
18	13C-2,3,7,8-TCDF	5.74e+06	1.69e+03	3.4e+03	7.15e+06	2.20e+03	3.2e+03
19	13C-1,2,3,7,8-PeCDF	9.55e+06	8.44e+02	1.1e+04	6.04e+06	1.78e+03	3.4e+03
20	13C-2,3,4,7,8-PeCDF	9.51e+06	8.44e+02	1.1e+04	6.15e+06	1.78e+03	3.5e+03
21	13C-1,2,3,4,7,8-HxCDF	4.63e+06	1.80e+03	2.6e+03	8.89e+06	1.25e+03	7.1e+03
22	13C-1,2,3,6,7,8-HxCDF	5.25e+06	1.80e+03	2.9e+03	9.98e+06	1.25e+03	8.0e+03
23	13C-2,3,4,6,7,8-HxCDF	4.99e+06	1.80e+03	2.8e+03	9.62e+06	1.25e+03	7.7e+03
24	13C-1,2,3,7,8,9-HxCDF	6.32e+06	1.80e+03	3.5e+03	1.20e+07	1.25e+03	9.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.08e+06	2.83e+03	1.1e+03	6.94e+06	8.72e+02	8.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.12e+06	2.83e+03	7.5e+02	4.78e+06	8.72e+02	5.5e+03
27	13C-2,3,7,8-TCDD	4.84e+06	7.84e+03	6.2e+02	6.23e+06	3.10e+03	2.0e+03
28	13C-1,2,3,7,8-PeCDD	7.56e+06	1.06e+03	7.1e+03	4.76e+06	1.09e+03	4.4e+03
29	13C-1,2,3,4,7,8-HxCDD	7.03e+06	2.15e+03	3.3e+03	5.54e+06	2.00e+03	2.8e+03
30	13C-1,2,3,6,7,8-HxCDD	6.61e+06	2.15e+03	3.1e+03	5.14e+06	2.00e+03	2.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.44e+06	1.88e+03	2.9e+03	5.03e+06	8.44e+02	6.0e+03
32	13C-OCDD	6.12e+06	9.40e+02	6.5e+03	6.85e+06	1.08e+03	6.4e+03
33	13C-1,2,3,4-TCDD	6.15e+06	7.84e+03	7.8e+02	7.87e+06	3.10e+03	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.01e+07	2.15e+03	4.7e+03	7.97e+06	2.00e+03	4.0e+03
35	37Cl-2,3,7,8-TCDD	4.84e+06	1.03e+03	4.7e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-03-15 MTI/MT

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P301061 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 01:31:12 Processed: 28-AUG-15 11:53:15

Mass: 303.9020 305.8990 Tot Response: 3.51e+02 RRF: 0.8496

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:38	1.55e+02	1.96e+02	0.79	yes	3.51e+02	2,3,7,8-TCDF	n	n

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Peak List Summary

CLIENT ID.

PLY-03-15 MTI/MT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P301061 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 01:31:12 Processed: 28-AUG-15 11:53:15

Mass: 373.8210 375.8180 Tot Response: 3.48e+02 RRF: 1.094

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:47	1.86e+02	1.63e+02	1.14	yes	3.48e+02	n	n

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Peak List Summary

CLIENT ID.

PLY-03-15 MTI/MT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P301061 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 01:31:12 Processed: 28-AUG-15 11:53:15

Mass: 389.8160 391.8130 Tot Response: 3.54e+02 RRF: 0.9904

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:38	1.20e+02	9.71e+01	1.24	yes	2.17e+02		n	n
2	36:09	2.93e+01	2.23e+01	1.31	yes	5.16e+01		y	y
3	37:02	4.52e+01	3.94e+01	1.15	yes	8.46e+01	1,2,3,6,7,8-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-03-15 MTI/MT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P301061 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 01:31:12 Processed: 28-AUG-15 11:53:15

Mass: 407.7820 409.7790 Tot Response: 2.23e+03 RRF: 1.284

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:47	2.64e+02	2.41e+02	1.09	yes	5.05e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:12	9.01e+02	8.19e+02	1.10	yes	1.72e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-03-15 MTI/MT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P301061 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 01:31:12 Processed: 28-AUG-15 11:53:15

Mass: 423.7770 425.7740 Tot Response: 3.81e+03 RRF: 0.9492

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:03	1.22e+03	1.17e+03	1.05	yes	2.39e+03		n	n
2	39:43	7.17e+02	7.05e+02	1.02	yes	1.42e+03	1,2,3,4,6,7,8-HpCDD	n	n

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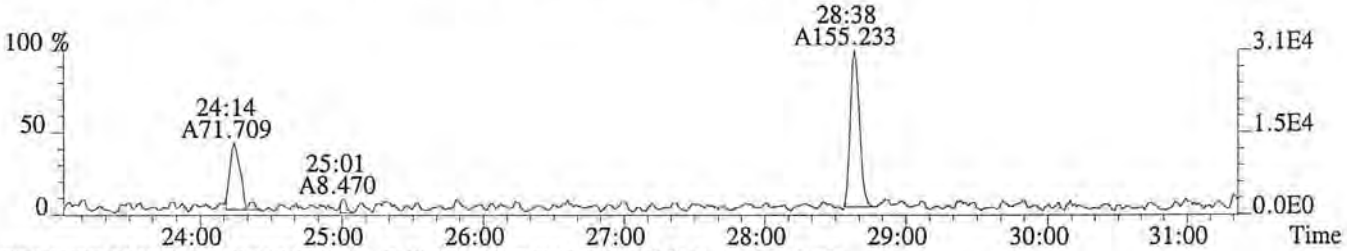
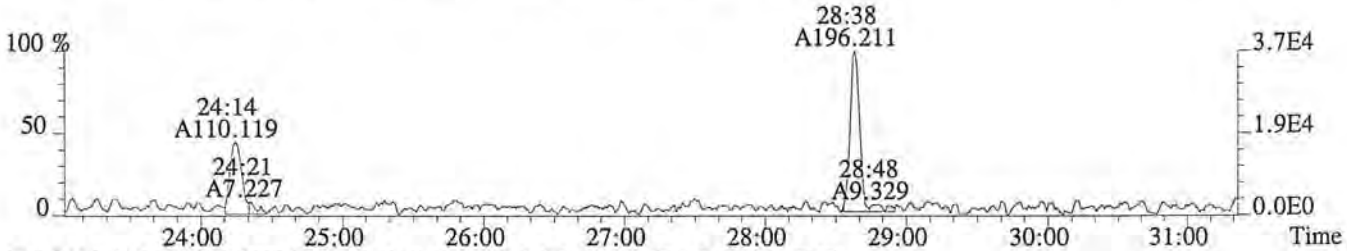
File:P301061 #1-591 Acq:28-AUG-2015 01:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-005

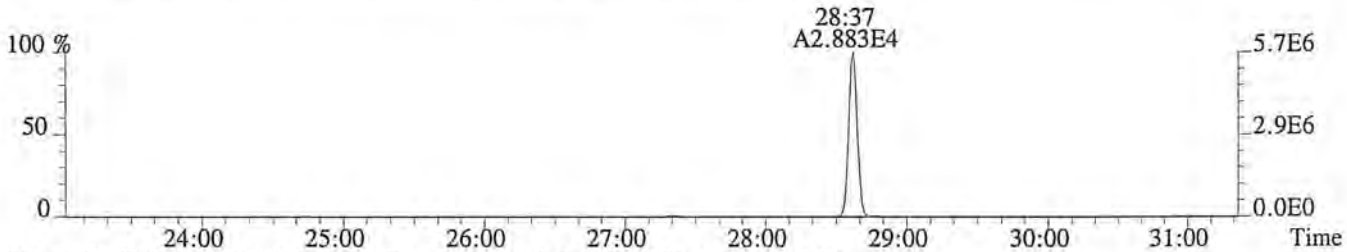
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1936.0,1.00%,F,T)



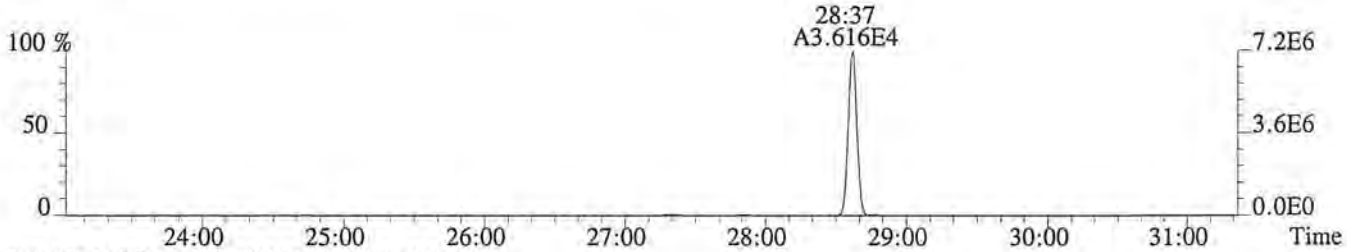
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



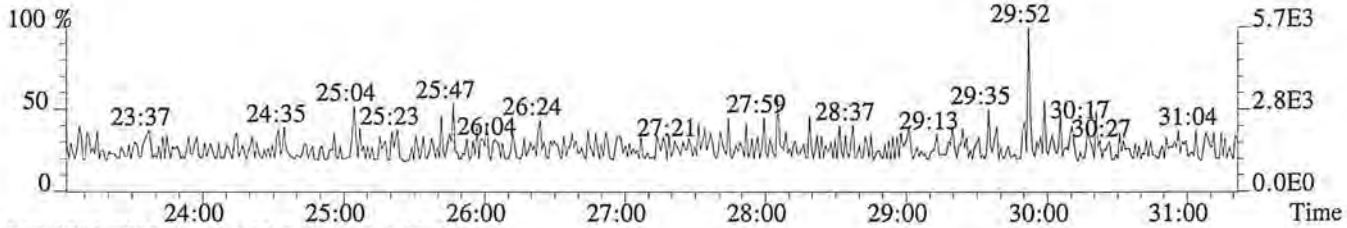
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1688.0,1.00%,F,T)



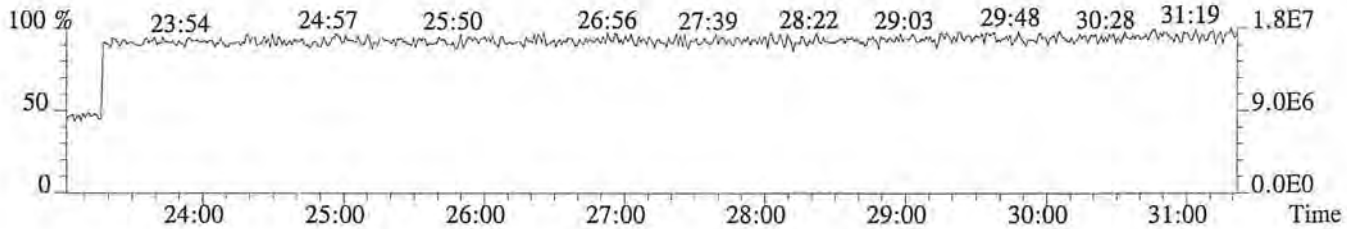
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



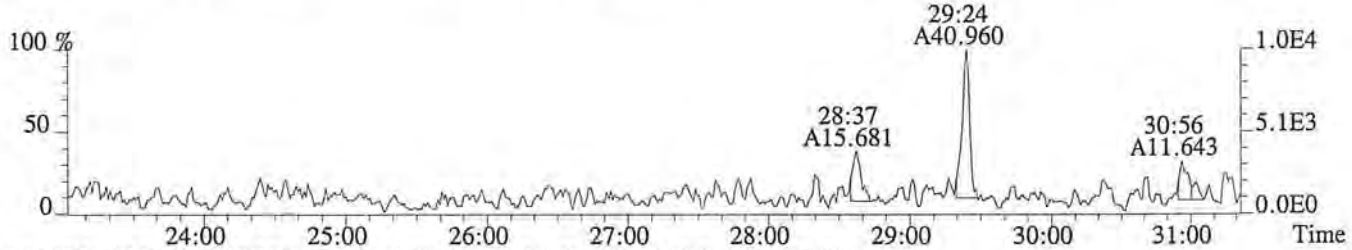
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



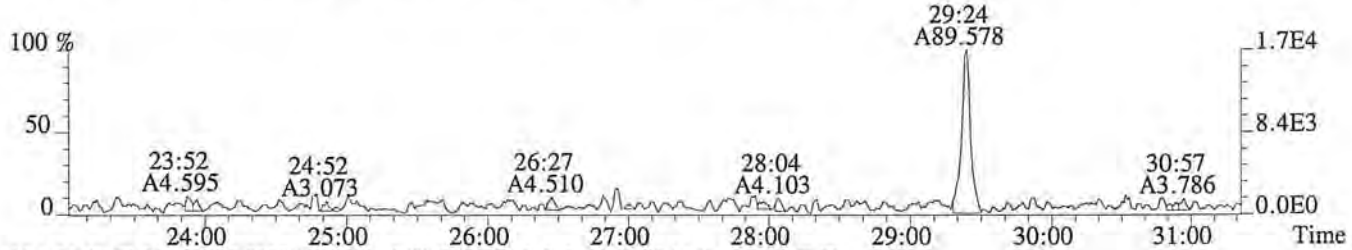
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



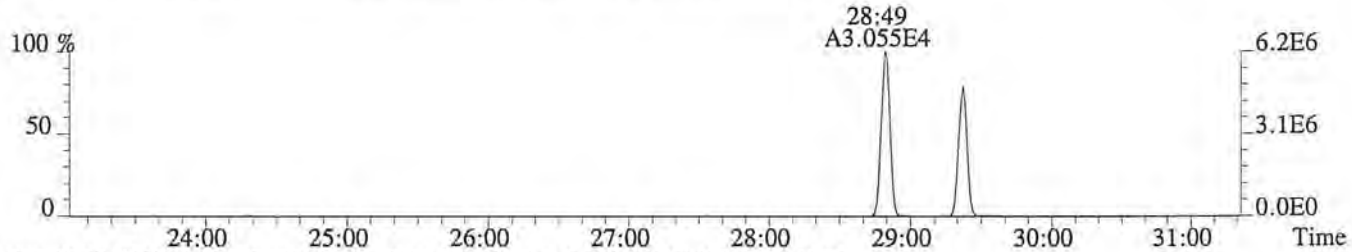
File:P301061 #1-591 Acq:28-AUG-2015 01:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-005
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



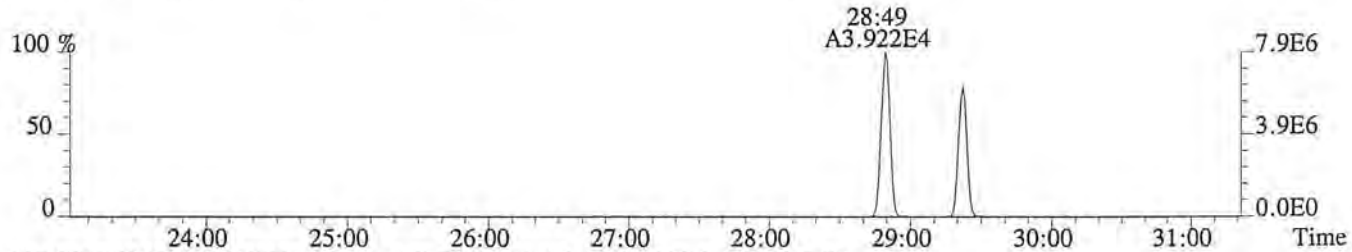
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



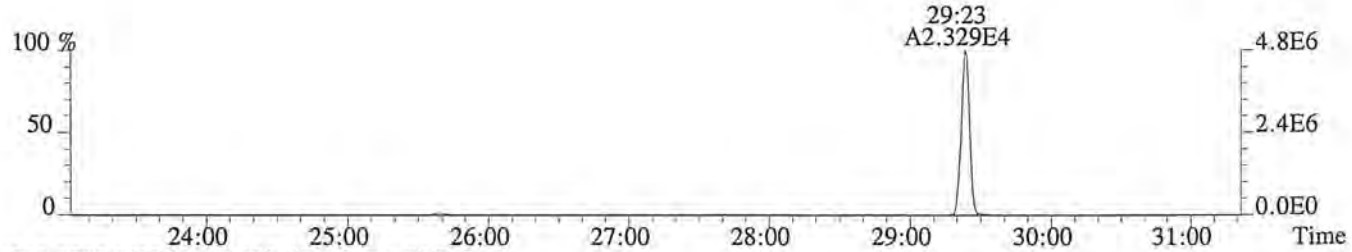
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7844.0,1.00%,F,T)



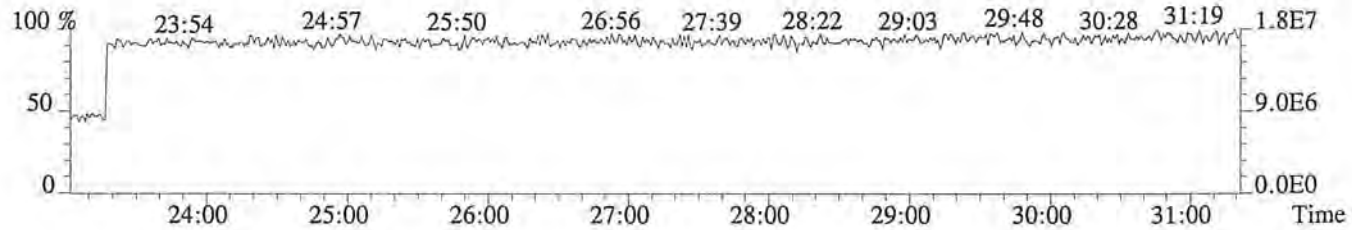
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3104.0,1.00%,F,T)



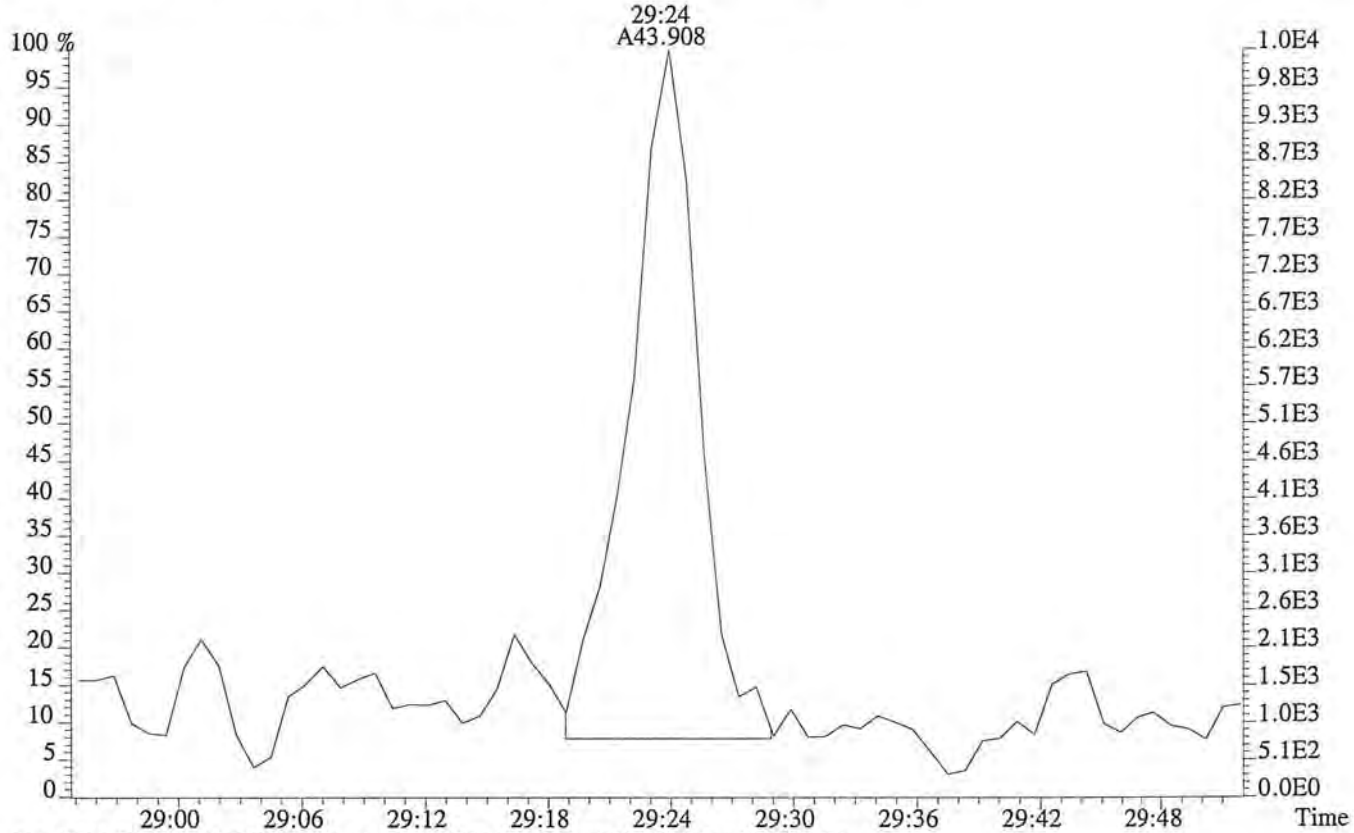
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



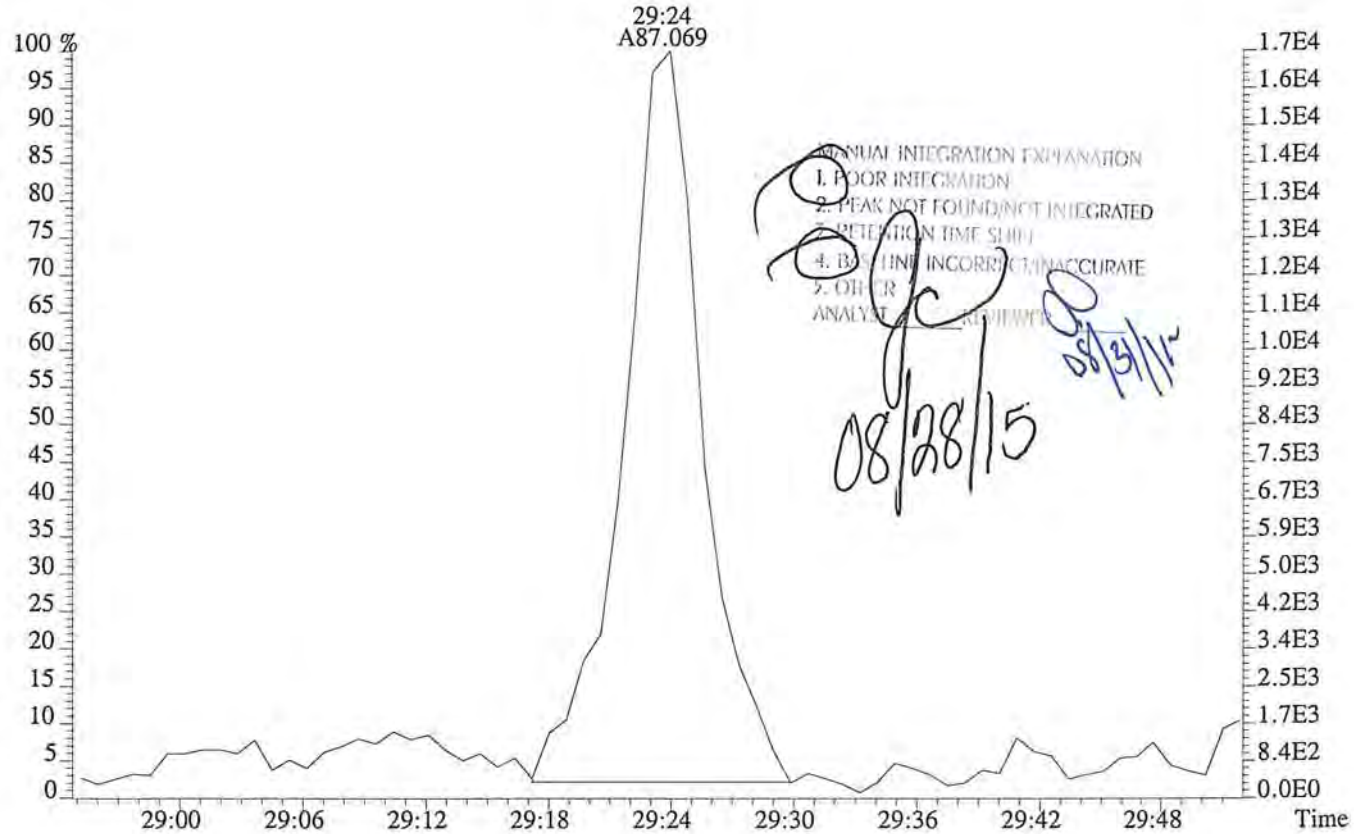
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



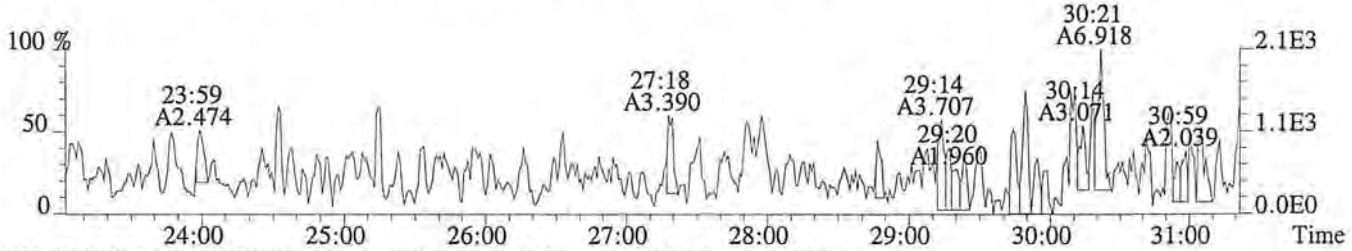
File:P301061 #1-591 Acq:28-AUG-2015 01:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-005
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



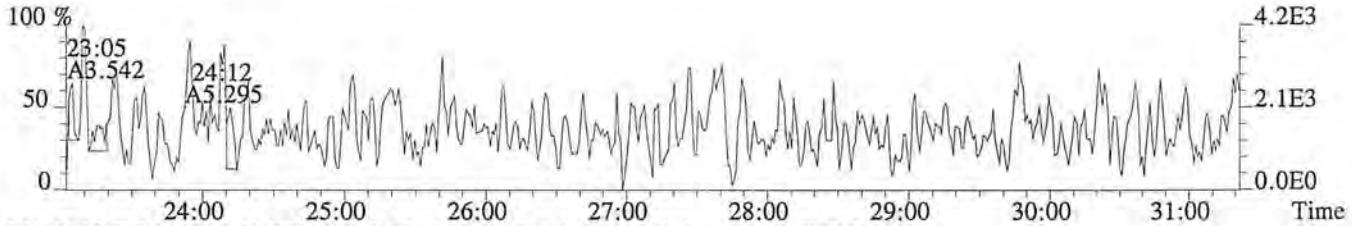
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



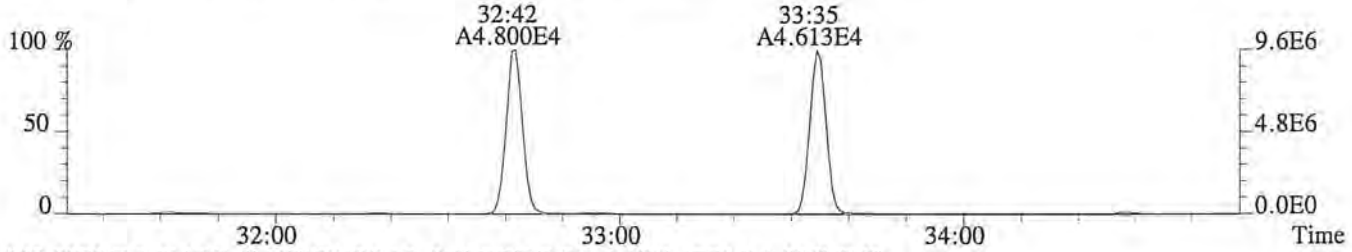
File:P301061 #1-591 Acq:28-AUG-2015 01:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-005
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



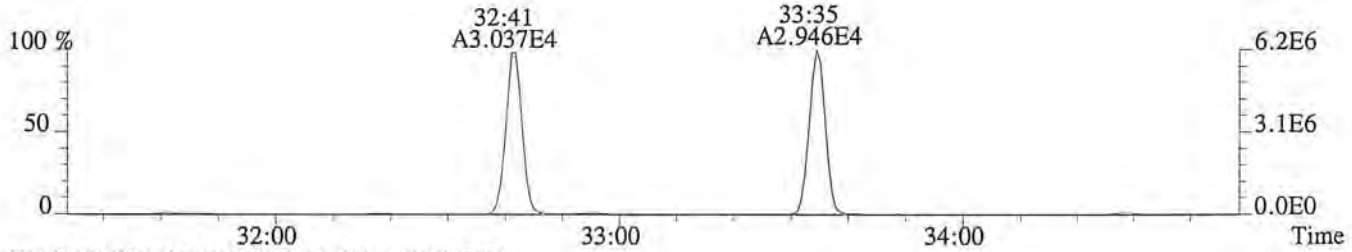
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1824.0,1.00%,F,T)



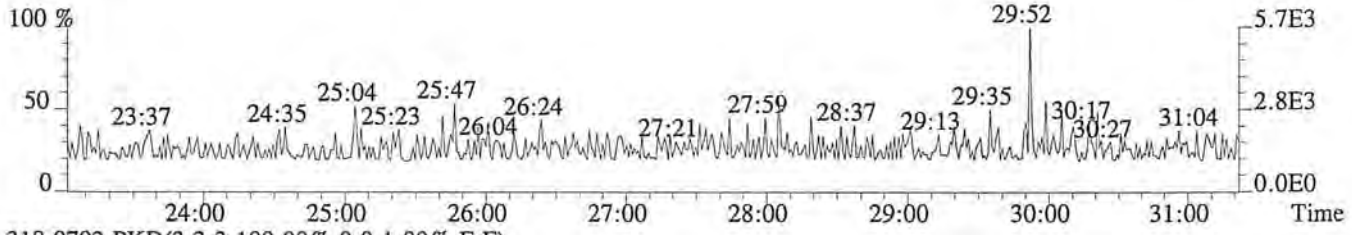
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



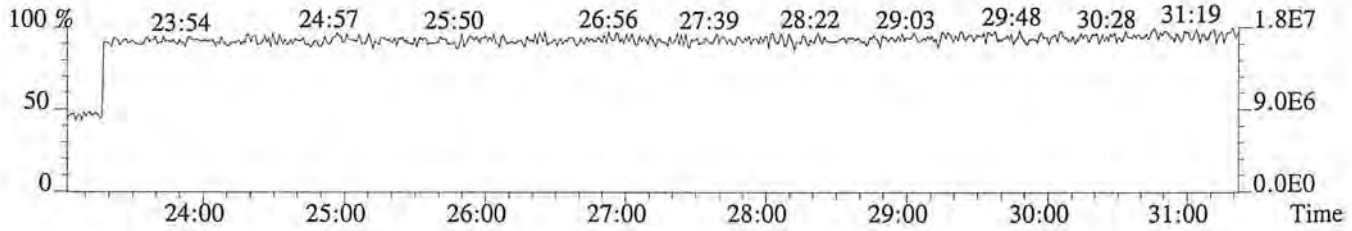
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



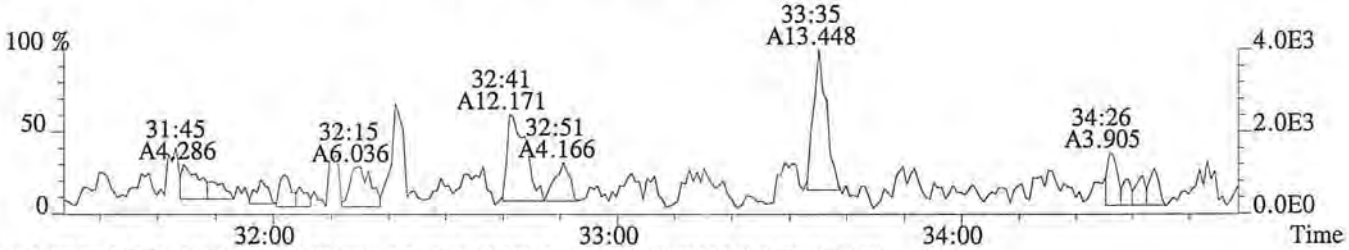
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



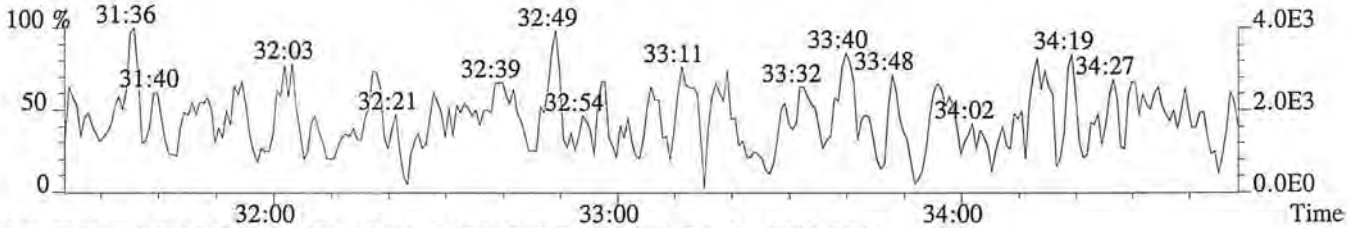
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



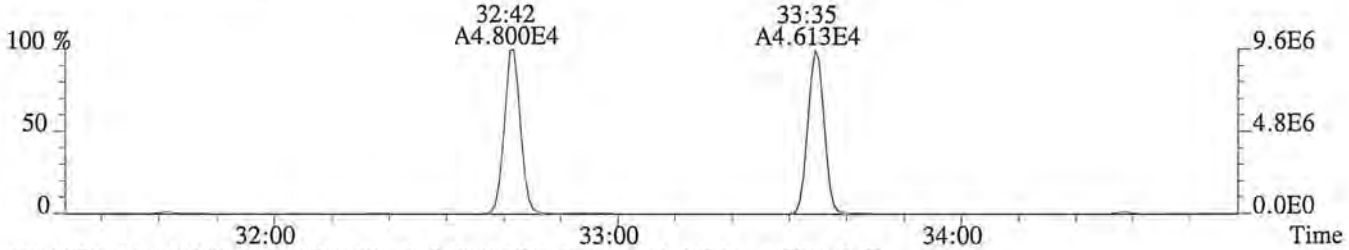
File:P301061 #1-308 Acq:28-AUG-2015 01:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-005
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



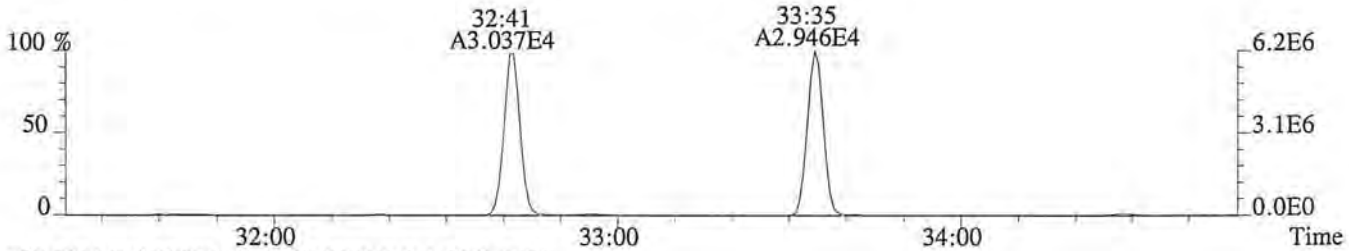
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2252.0,1.00%,F,T)



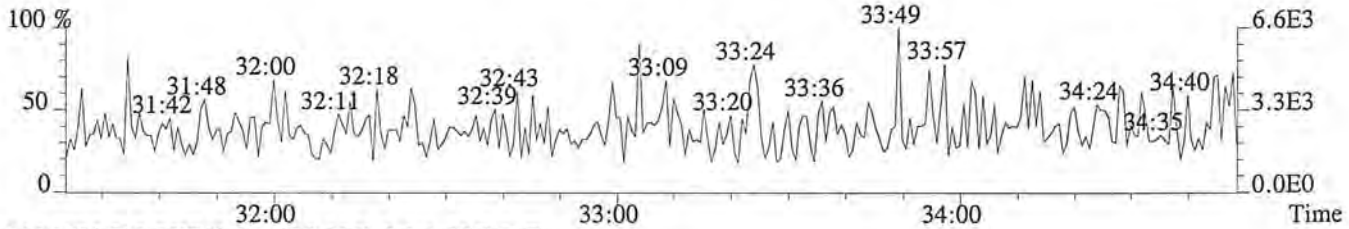
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



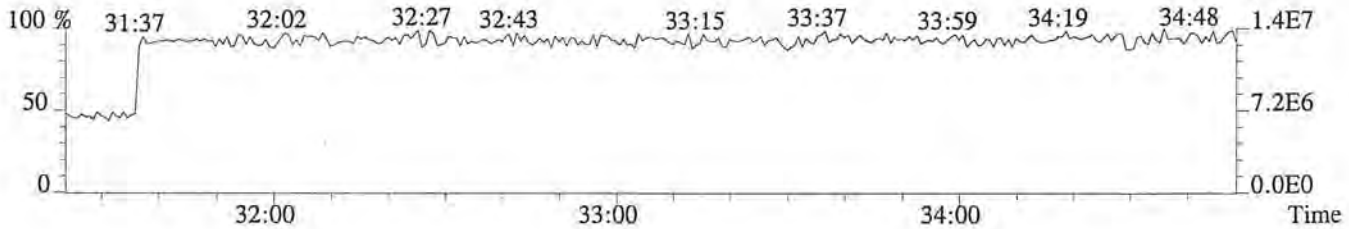
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



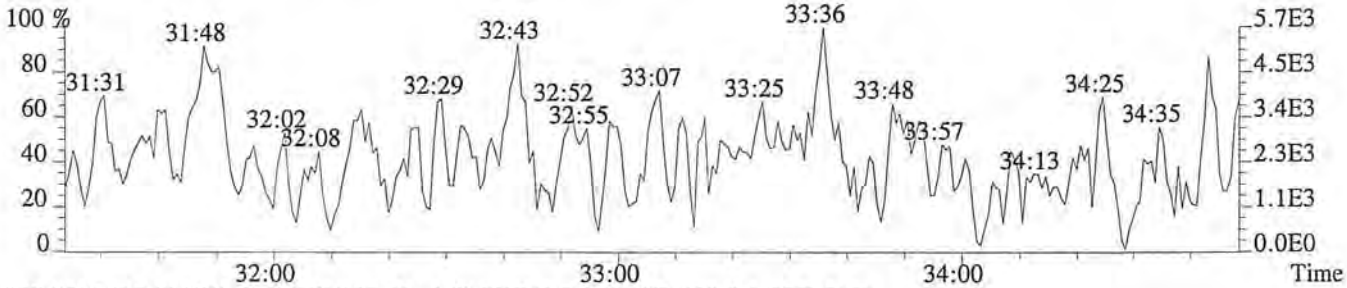
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



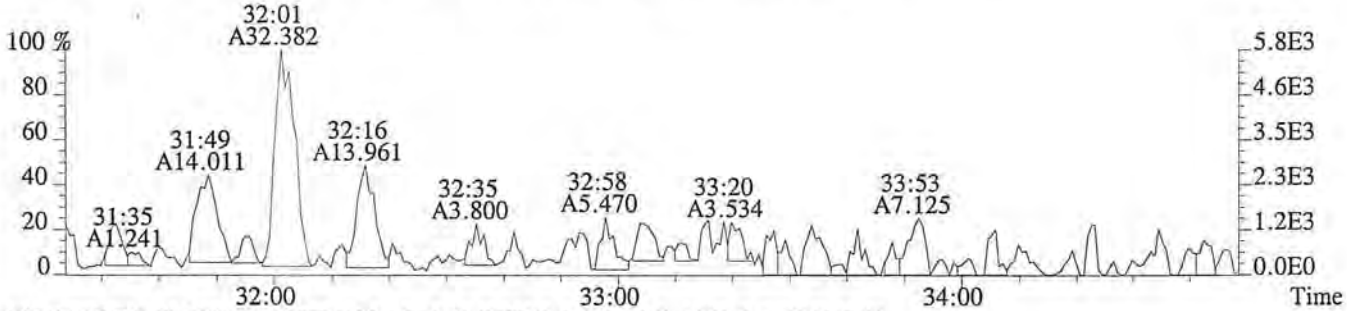
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



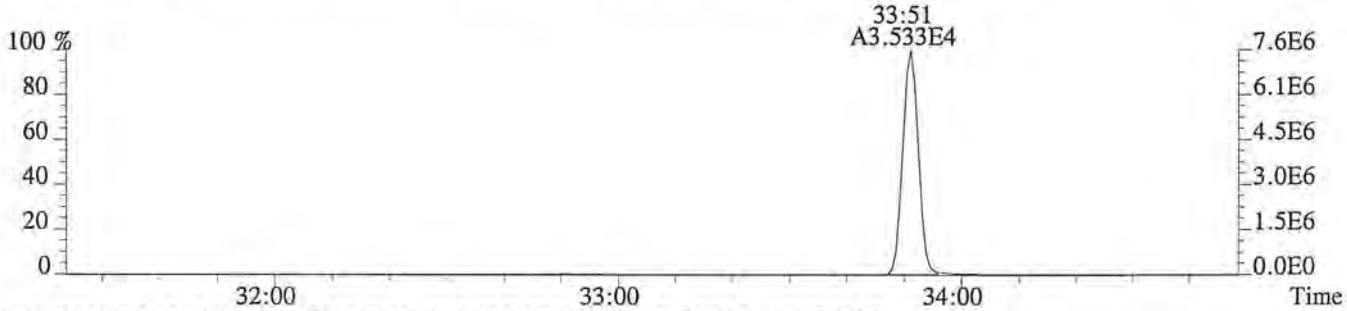
File:P301061 #1-308 Acq:28-AUG-2015 01:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-005
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2872.0,1.00%,F,T)



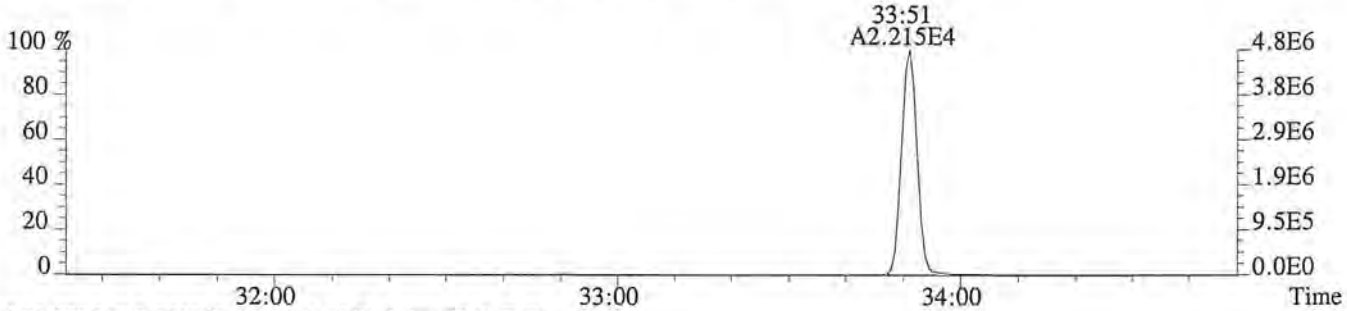
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



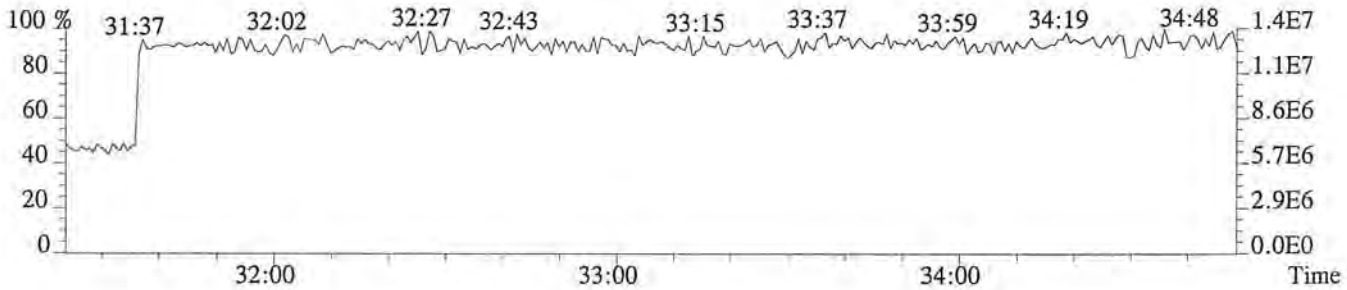
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



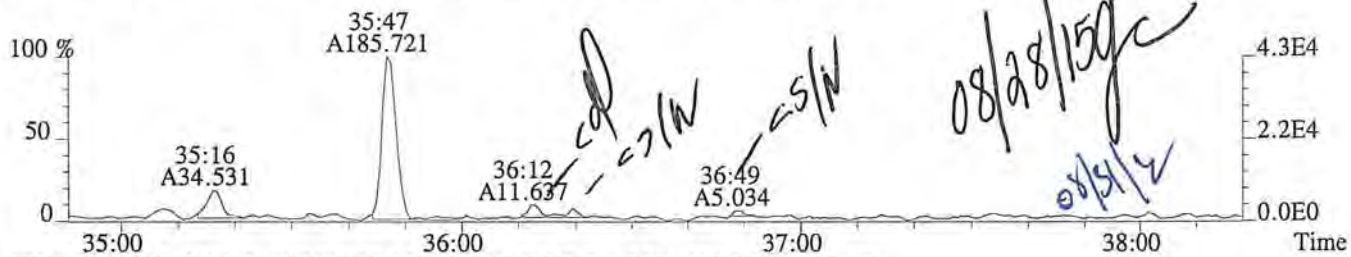
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



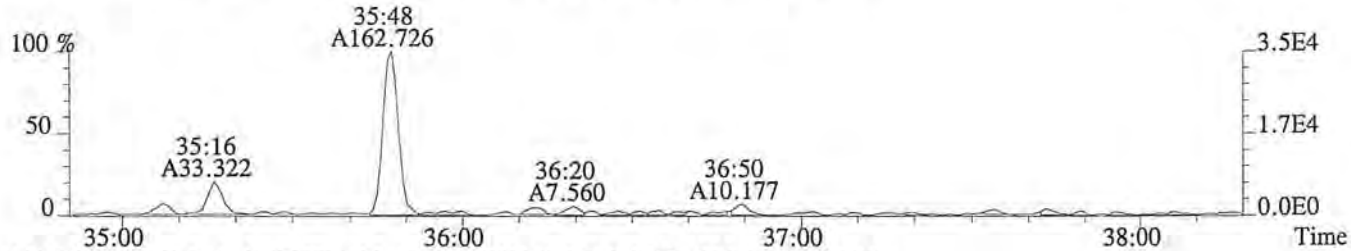
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



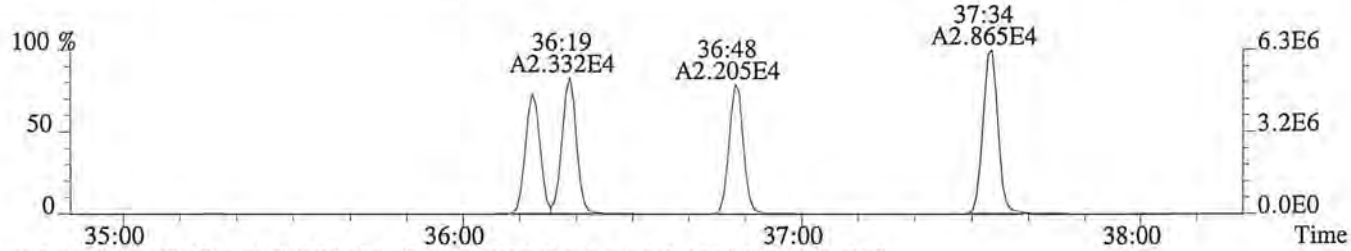
File:P301061 #1-312 Acq:28-AUG-2015 01:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-005
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



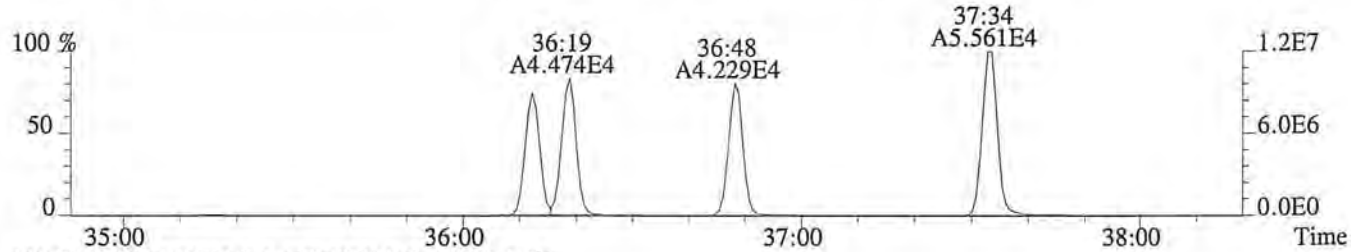
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



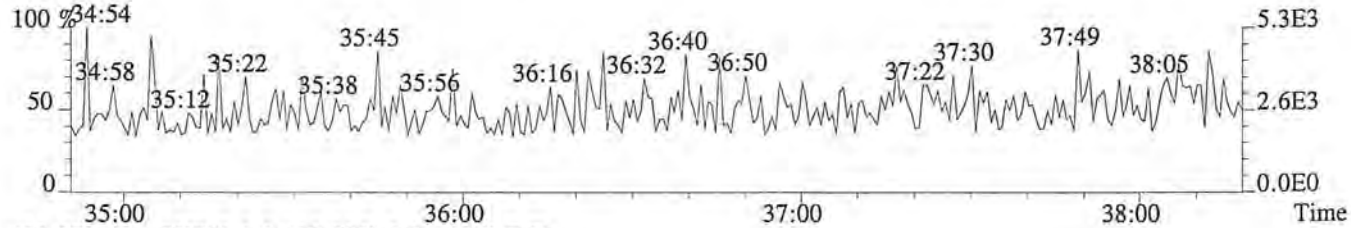
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1800.0,0.40%,F,T)



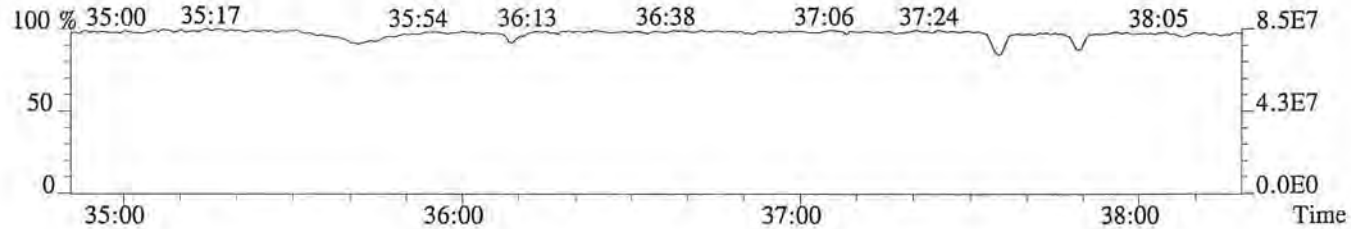
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)



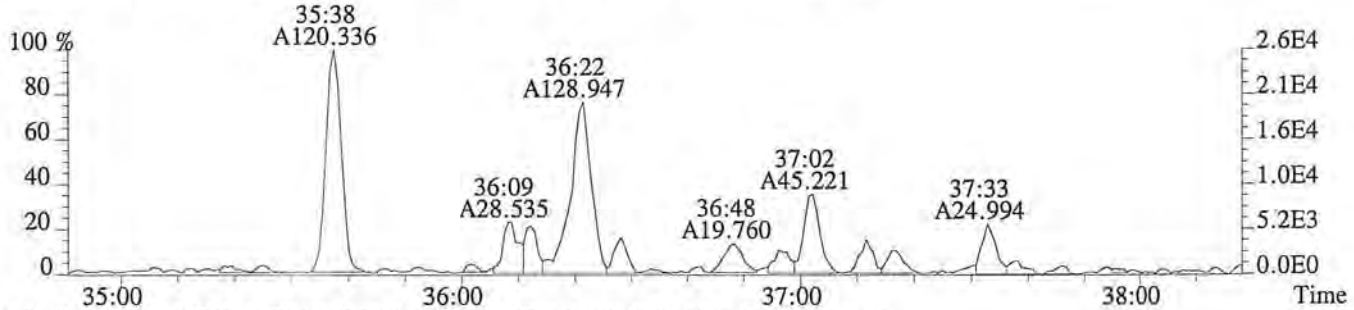
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



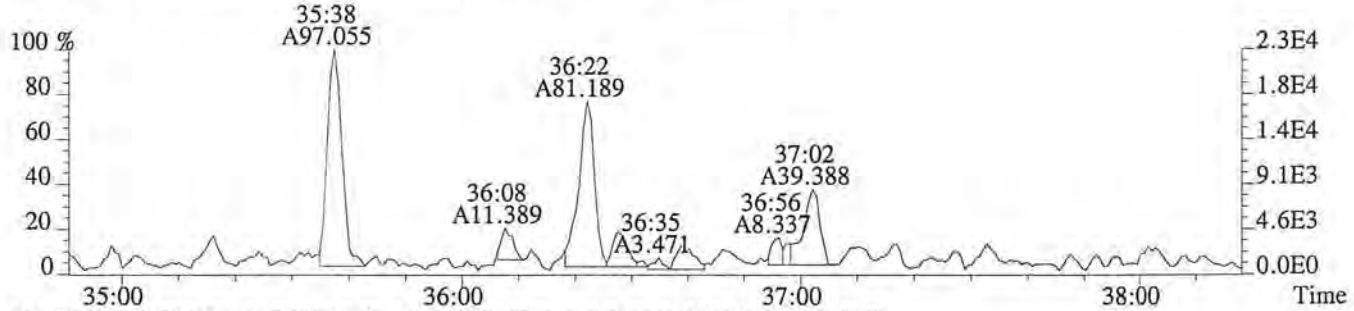
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



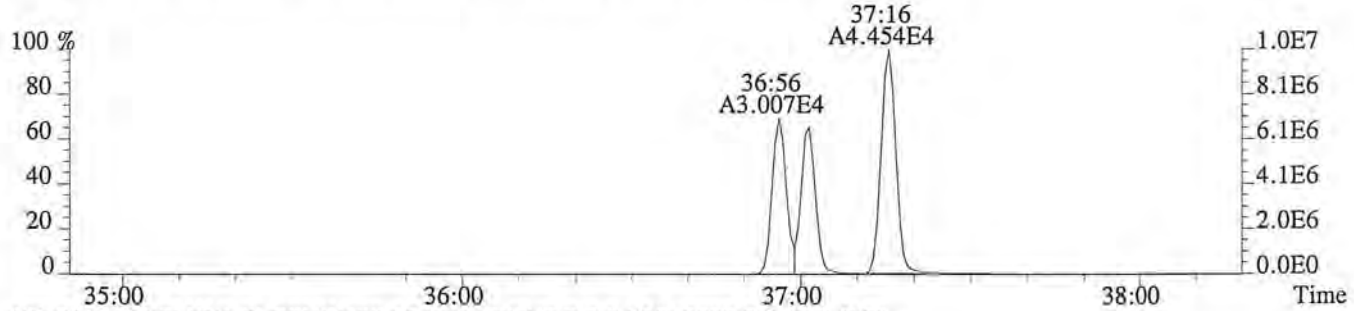
File:P301061 #1-312 Acq:28-AUG-2015 01:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



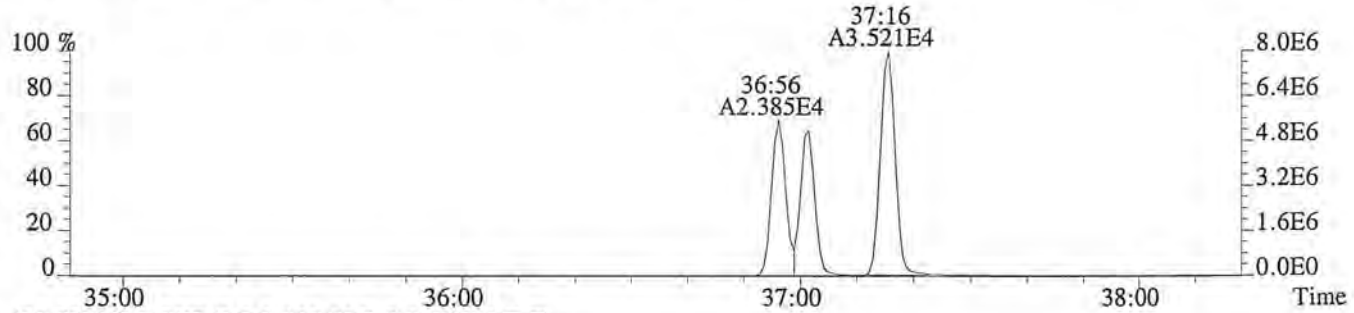
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.40%,F,T)



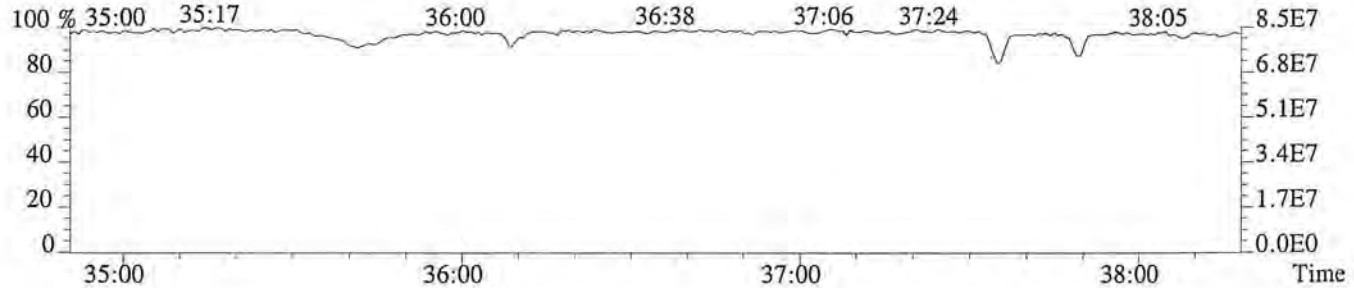
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2152.0,0.40%,F,T)



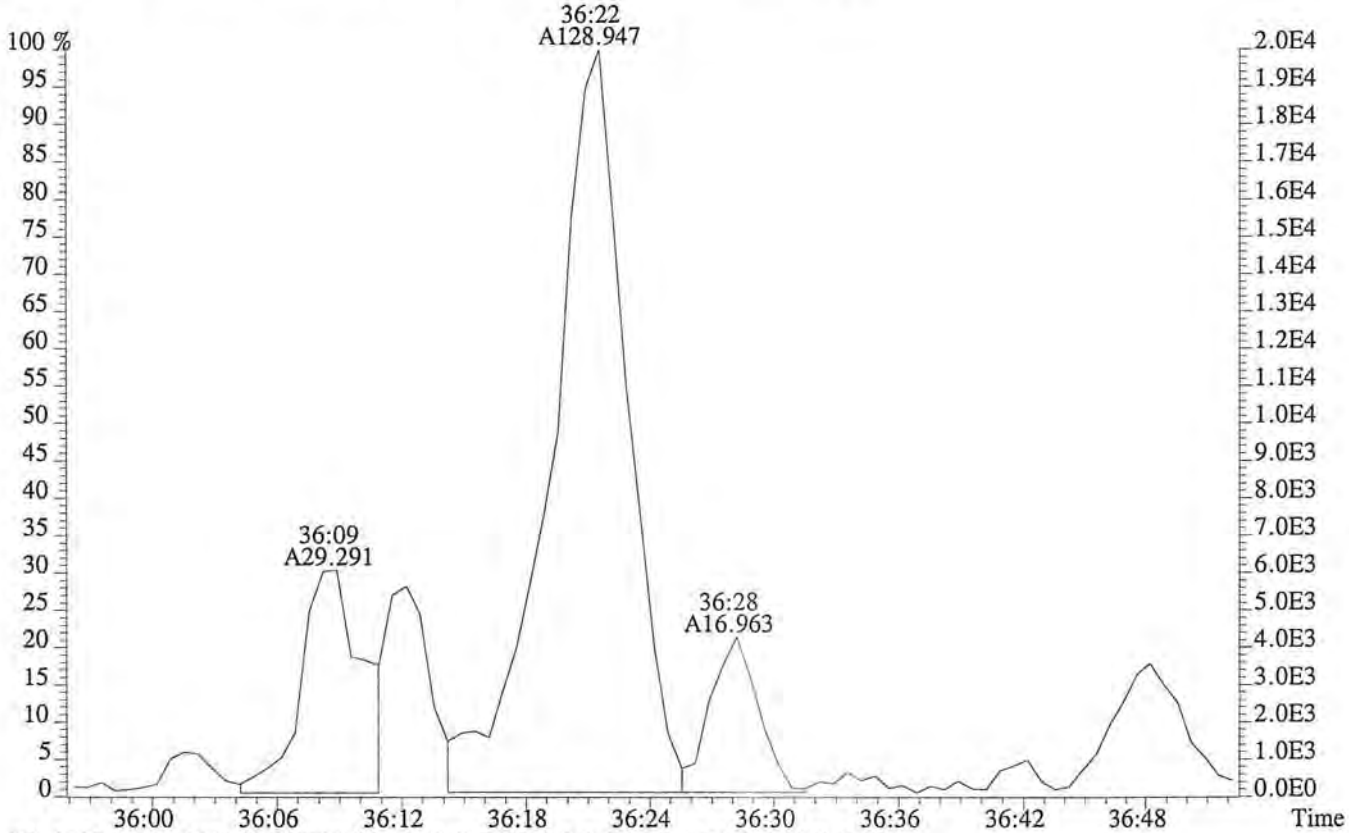
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2000.0,0.40%,F,T)



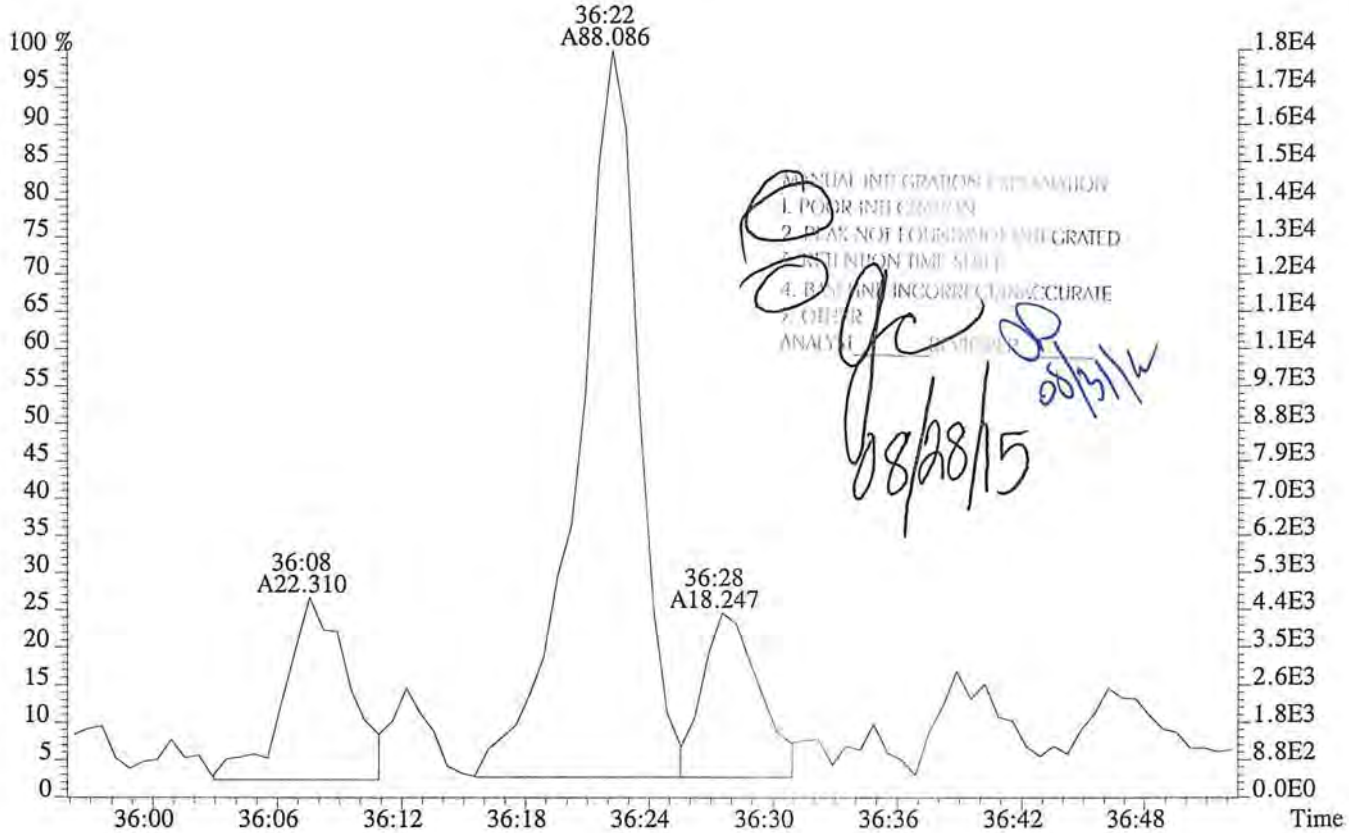
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



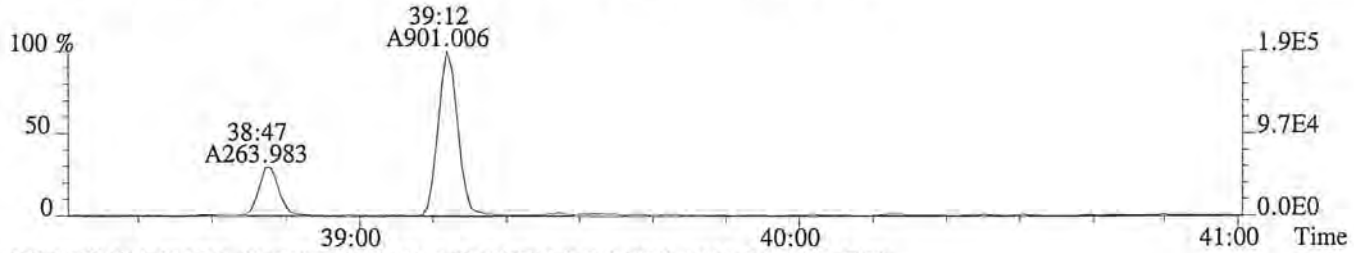
File:P301061 #1-312 Acq:28-AUG-2015 01:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



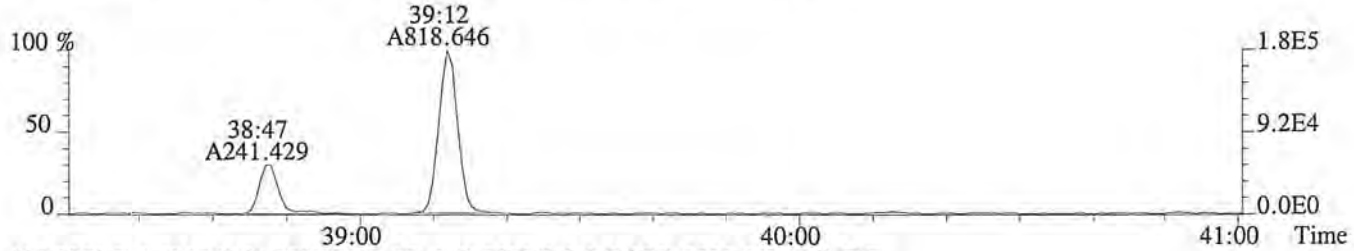
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.40%,F,T)



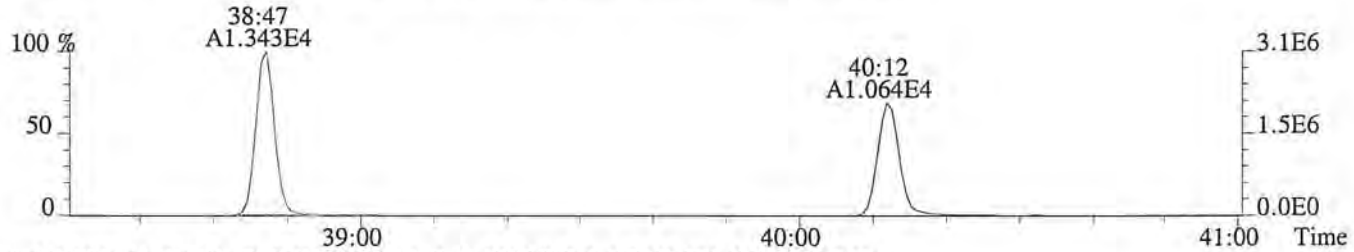
File:P301061 #1-241 Acq:28-AUG-2015 01:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-005
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.50%,F,T)



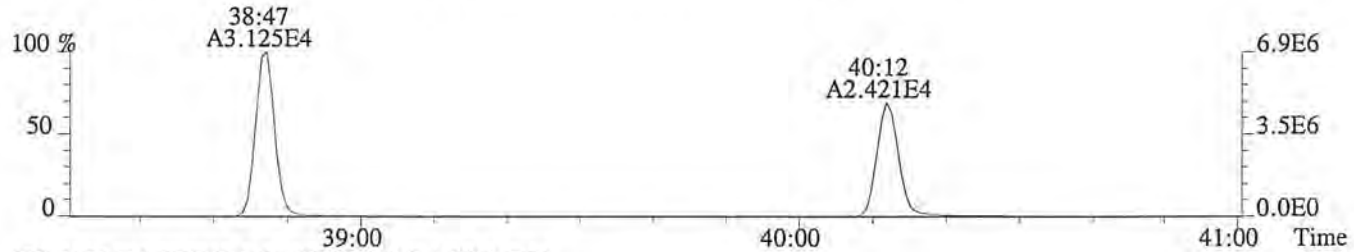
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1344.0,0.50%,F,T)



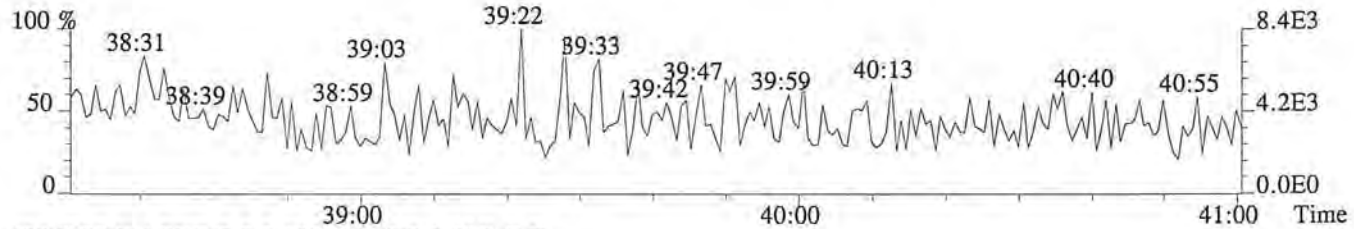
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2832.0,0.50%,F,T)



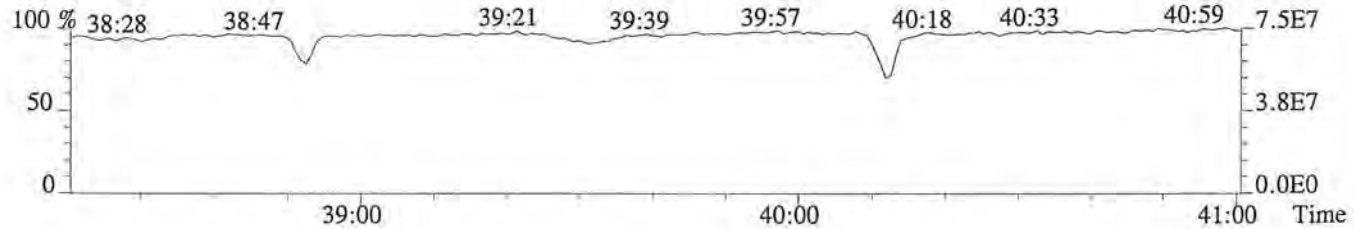
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.50%,F,T)



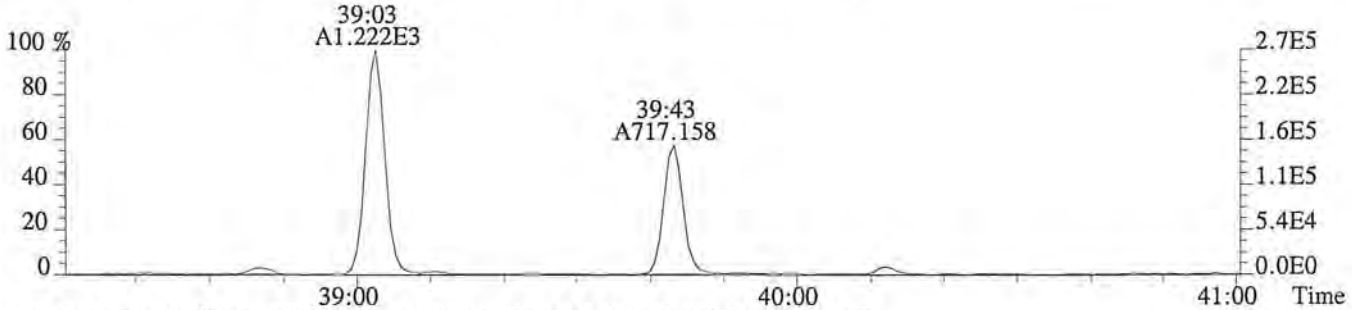
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



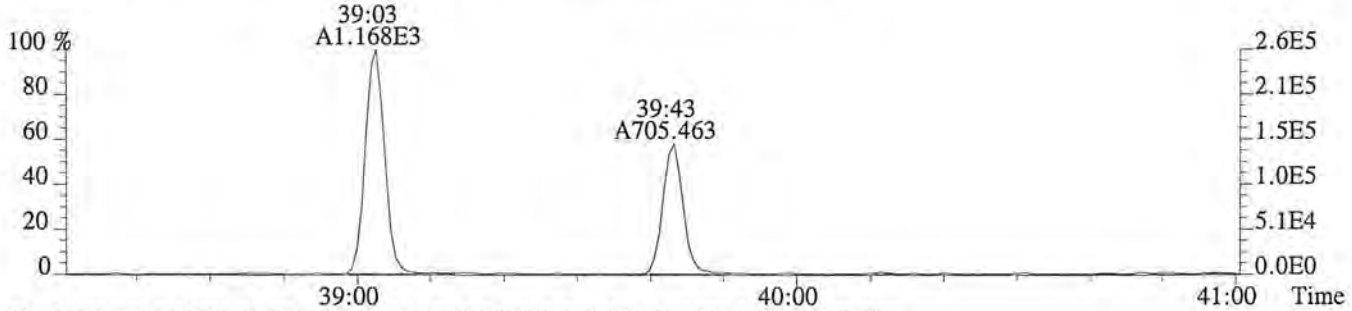
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



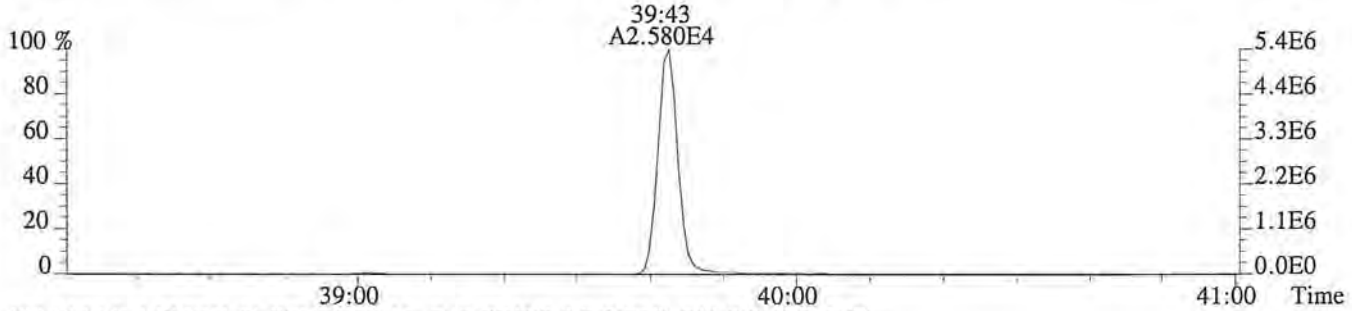
File:P301061 #1-241 Acq:28-AUG-2015 01:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-005
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



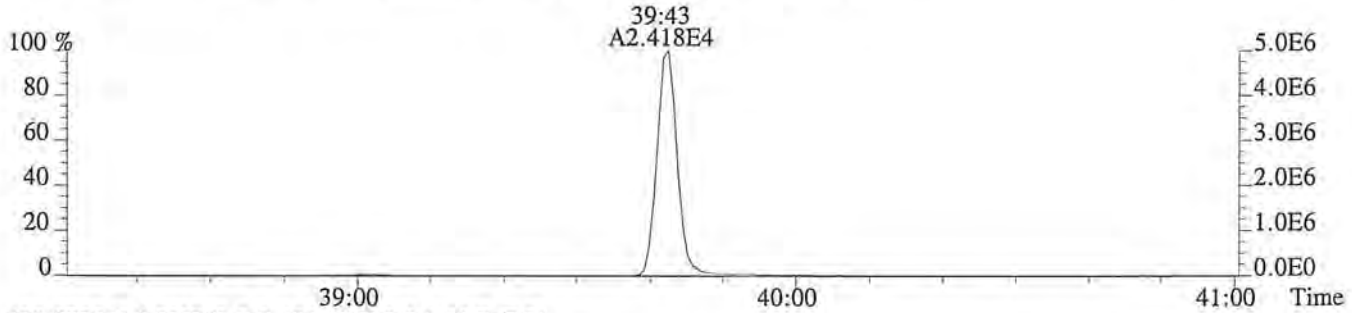
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



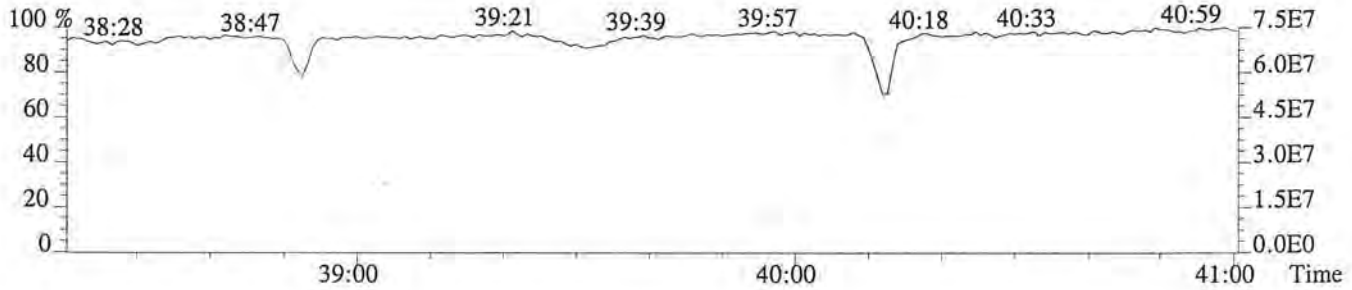
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1884.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)

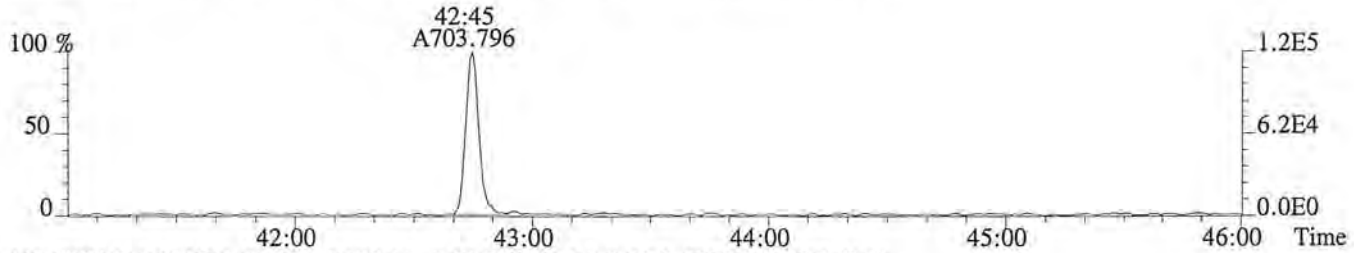


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

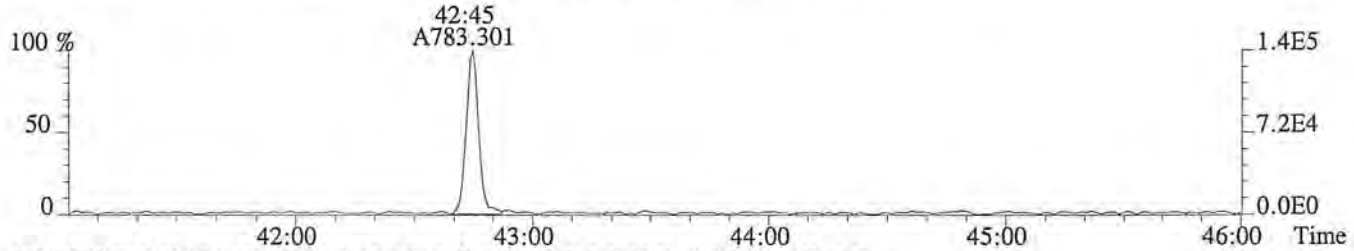


File:P301061 #1-447 Acq:28-AUG-2015 01:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-005

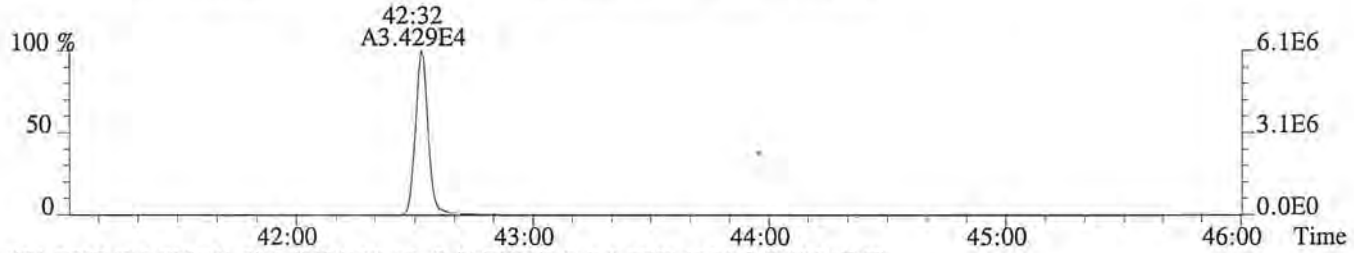
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1248.0,0.40%,F,T)



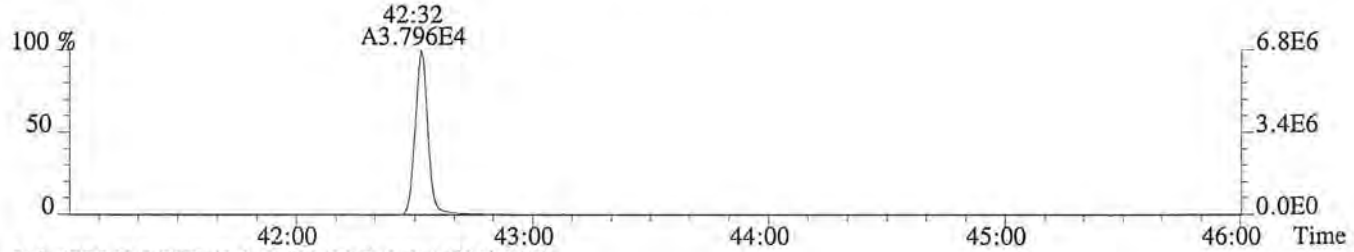
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2068.0,0.40%,F,T)



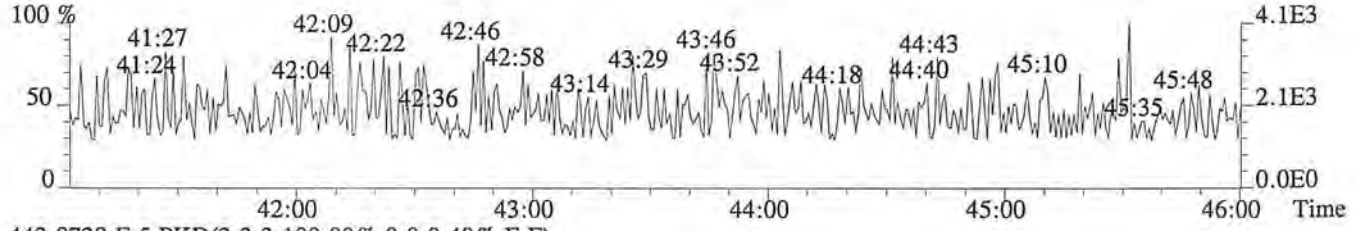
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,940.0,0.40%,F,T)



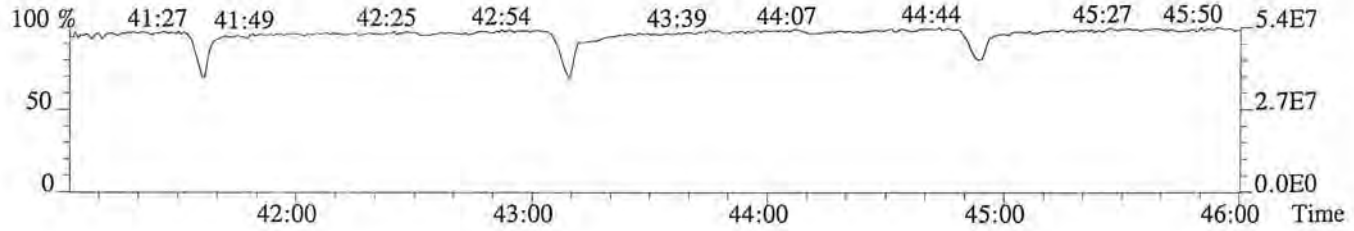
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



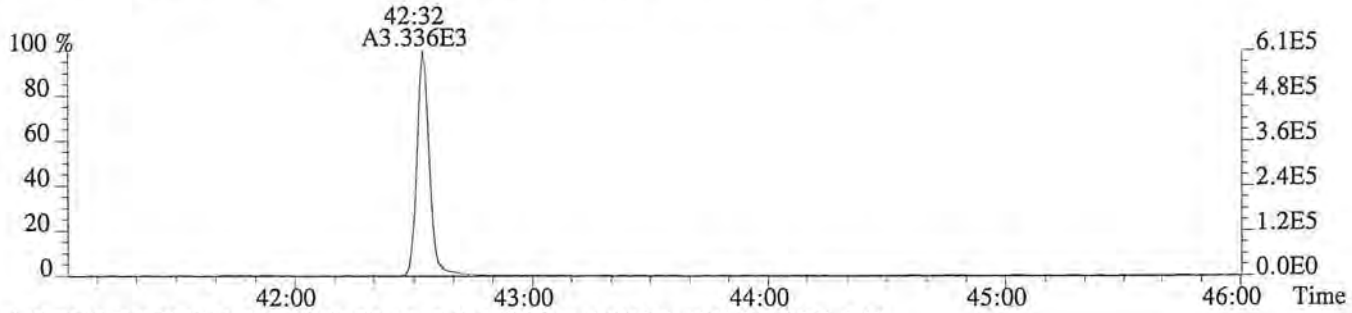
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



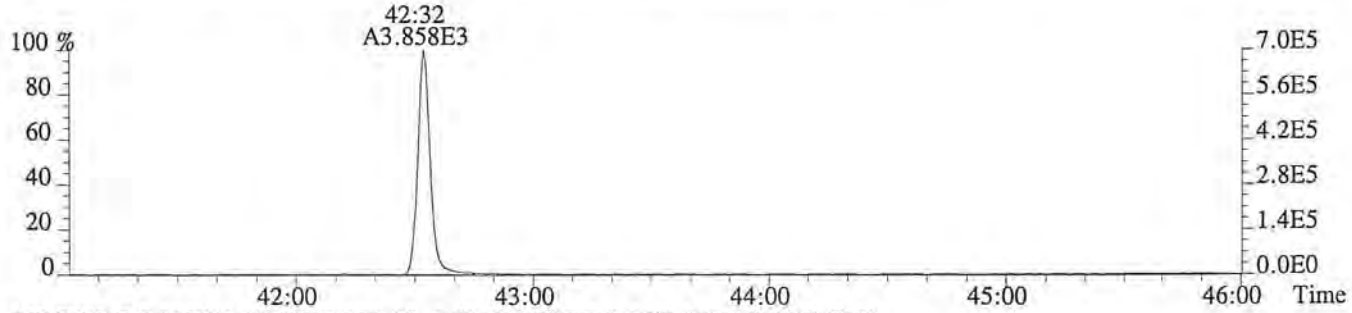
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



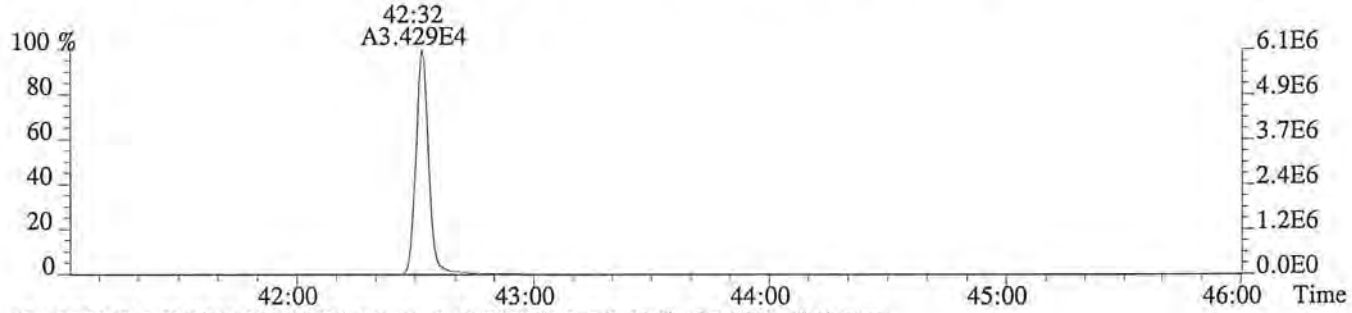
File:P301061 #1-447 Acq:28-AUG-2015 01:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-005
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,716.0,0.40%,F,T)



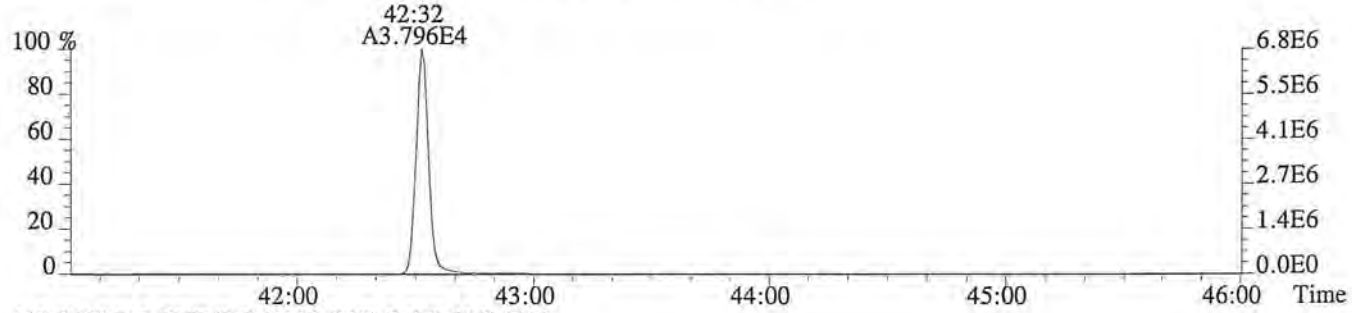
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1332.0,0.40%,F,T)



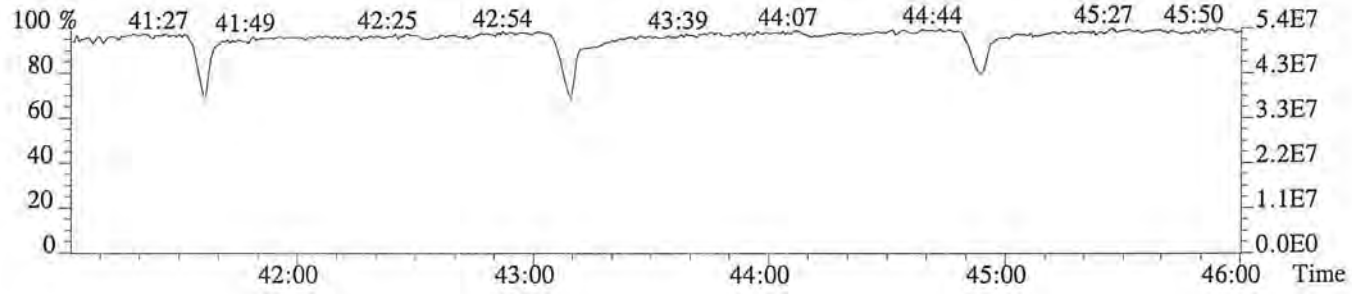
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,940.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-04-15 MT3

Run #18 Filename P301062 Samp: 1 Inj: 1 Acquired: 28-AUG-15 02:19:49
Processed: 28-AUG-15 11:53:15 Sample ID: E1500743-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:39	4.552e+02	6.126e+02	0.74	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	36:12	2.021e+01	1.218e+01	1.66	no	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:50	1.741e+01	1.208e+01	1.44	no	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	3.016e+02	2.777e+02	1.09	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.245
10	Unk	OCDF	42:46	8.777e+02	1.018e+03	0.86	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:24	2.145e+02	2.901e+02	0.74	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:02	4.251e+01	4.643e+01	0.92	no	yes	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:16	2.018e+01	1.850e+01	1.09	yes	yes	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	8.024e+02	7.672e+02	1.05	yes	no	0.949
17	Unk	OCDD	42:33	4.781e+03	5.304e+03	0.90	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:37	3.219e+04	4.081e+04	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:42	5.149e+04	3.246e+04	1.59	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:35	5.036e+04	3.213e+04	1.57	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	2.186e+04	4.274e+04	0.51	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:19	2.504e+04	4.825e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:49	2.386e+04	4.689e+04	0.51	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:34	3.110e+04	5.999e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.505e+04	3.418e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	1.257e+04	2.889e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:22	2.579e+04	3.309e+04	0.78	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:51	3.881e+04	2.456e+04	1.58	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:56	3.225e+04	2.545e+04	1.27	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:02	3.196e+04	2.521e+04	1.27	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.805e+04	2.658e+04	1.06	yes	no	0.850
32	IS	13C-OCDD	42:32	3.986e+04	4.450e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:50	3.365e+04	4.321e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:16	5.108e+04	4.002e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:24	2.487e+04				no	1.001

$$\text{OCDD} = \frac{(4.781e+03 + 5.304e+03)\ \times\ 4000\ \text{pg}\ \times\ 1}{(3.986e+04 + 4.450e+04)\ \times\ 10.133\ \text{g}\ \times\ \ /\ 100\ \times\ 1.061} = 44.5$$

NBB 08/31/15

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Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-04-15 MT3/MT6

Run #18 Filename P301062 Samp: 1 Inj: 1 Acquired: 28-AUG-15 02:19:49
Processed: 28-AUG-15 11:53:15 LAB. ID: E1500743-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.69e+04	1.42e+03	6.1e+01	1.14e+05	2.97e+03	3.8e+01
2	1,2,3,7,8-PeCDF	*	9.48e+02	*	*	2.89e+03	*
3	2,3,4,7,8-PeCDF	*	9.48e+02	*	*	2.89e+03	*
4	1,2,3,4,7,8-HxCDF	4.34e+03	1.70e+03	2.6e+00	3.21e+03	7.52e+02	4.3e+00
5	1,2,3,6,7,8-HxCDF	*	1.70e+03	*	*	7.52e+02	*
6	2,3,4,6,7,8-HxCDF	4.47e+03	1.70e+03	2.6e+00	2.67e+03	7.52e+02	3.6e+00
7	1,2,3,7,8,9-HxCDF	*	1.70e+03	*	*	7.52e+02	*
8	1,2,3,4,6,7,8-HpCDF	6.48e+04	1.12e+03	5.8e+01	6.30e+04	1.10e+03	5.7e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.12e+03	*	*	1.10e+03	*
10	OCDF	1.55e+05	1.29e+03	1.2e+02	1.78e+05	1.98e+03	9.0e+01
11	2,3,7,8-TCDD	4.40e+04	1.51e+03	2.9e+01	6.21e+04	1.46e+03	4.3e+01
12	1,2,3,7,8-PeCDD	*	2.55e+03	*	*	7.84e+02	*
13	1,2,3,4,7,8-HxCDD	*	5.72e+02	*	*	1.14e+03	*
14	1,2,3,6,7,8-HxCDD	9.29e+03	5.72e+02	1.6e+01	1.03e+04	1.14e+03	9.0e+00
15	1,2,3,7,8,9-HxCDD	4.50e+03	5.72e+02	7.9e+00	3.60e+03	1.14e+03	3.2e+00
16	1,2,3,4,6,7,8-HpCDD	1.72e+05	1.36e+03	1.3e+02	1.66e+05	1.57e+03	1.1e+02
17	OCDD	8.35e+05	4.68e+02	1.8e+03	9.38e+05	1.12e+03	8.4e+02
18	13C-2,3,7,8-TCDF	6.40e+06	1.77e+03	3.6e+03	8.13e+06	2.43e+03	3.3e+03
19	13C-1,2,3,7,8-PeCDF	1.04e+07	6.80e+02	1.5e+04	6.54e+06	1.61e+03	4.1e+03
20	13C-2,3,4,7,8-PeCDF	1.03e+07	6.80e+02	1.5e+04	6.61e+06	1.61e+03	4.1e+03
21	13C-1,2,3,4,7,8-HxCDF	4.99e+06	1.04e+03	4.8e+03	9.76e+06	2.50e+03	3.9e+03
22	13C-1,2,3,6,7,8-HxCDF	5.64e+06	1.04e+03	5.4e+03	1.08e+07	2.50e+03	4.3e+03
23	13C-2,3,4,6,7,8-HxCDF	5.32e+06	1.04e+03	5.1e+03	1.02e+07	2.50e+03	4.1e+03
24	13C-1,2,3,7,8,9-HxCDF	6.86e+06	1.04e+03	6.6e+03	1.33e+07	2.50e+03	5.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.37e+06	1.45e+03	2.3e+03	7.74e+06	2.81e+03	2.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.49e+06	1.45e+03	1.7e+03	5.75e+06	2.81e+03	2.0e+03
27	13C-2,3,7,8-TCDD	5.34e+06	5.78e+03	9.3e+02	6.90e+06	3.62e+03	1.9e+03
28	13C-1,2,3,7,8-PeCDD	8.29e+06	1.88e+03	4.4e+03	5.24e+06	1.08e+03	4.8e+03
29	13C-1,2,3,4,7,8-HxCDD	7.47e+06	1.92e+03	3.9e+03	5.92e+06	1.55e+03	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	7.11e+06	1.92e+03	3.7e+03	5.58e+06	1.55e+03	3.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.03e+06	1.99e+03	3.0e+03	5.80e+06	1.04e+03	5.6e+03
32	13C-OCDD	6.93e+06	5.16e+02	1.3e+04	7.79e+06	1.17e+03	6.7e+03
33	13C-1,2,3,4-TCDD	6.84e+06	5.78e+03	1.2e+03	8.75e+06	3.62e+03	2.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.14e+07	1.92e+03	5.9e+03	9.00e+06	1.55e+03	5.8e+03
35	37Cl-2,3,7,8-TCDD	5.20e+06	8.76e+02	5.9e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-04-15 MT3/MT6

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P301062 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 02:19:49 Processed: 28-AUG-15 11:53:15

Mass: 319.8970 321.8940 Tot Response: 5.05e+02 RRF: 0.9567

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:24	2.15e+02	2.90e+02	0.74	yes	5.05e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.

PLY-04-15 MT3/MT6

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P301062 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 02:19:49 Processed: 28-AUG-15 11:53:15

Mass: 373.8210 375.8180 Tot Response: 4.64e+02 RRF: 1.094

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	4.14e+01	3.43e+01	1.21	yes	7.58e+01	n	n
2	35:48	2.05e+02	1.83e+02	1.12	yes	3.88e+02	n	n

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Peak List Summary

CLIENT ID.

PLY-04-15 MT3/MT6

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P301062 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 02:19:49 Processed: 28-AUG-15 11:53:15

Mass: 389.8160 391.8130 Tot Response: 5.58e+02 RRF: 0.9904

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:38	1.33e+02	1.11e+02	1.19	yes	2.44e+02	n	n
2	36:22	1.37e+02	1.01e+02	1.36	yes	2.39e+02	y	y
3	37:12	2.05e+01	1.64e+01	1.25	yes	3.68e+01	y	y
4	37:16	2.02e+01	1.85e+01	1.09	yes	3.87e+01	1,2,3,7,8,9-HxCDD y	y

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Peak List Summary

CLIENT ID.

PLY-04-15 MT3/MT6

Entry: 43 Totals Name: Total Hepta-Furans

Run: 18 File: P301062 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 02:19:49 Processed: 28-AUG-15 11:53:15

Mass: 407.7820 409.7790 Tot Response: 2.77e+03 RRF: 1.284

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:49	3.02e+02	2.78e+02	1.09	yes	5.79e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:13	1.09e+03	1.09e+03	1.00	yes	2.19e+03		n	n

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Peak List Summary

CLIENT ID.

PLY-04-15 MT3/MT6

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P301062 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 02:19:49 Processed: 28-AUG-15 11:53:15

Mass: 423.7770 425.7740 Tot Response: 4.37e+03 RRF: 0.9492

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:03	1.43e+03	1.37e+03	1.04	yes	2.80e+03		n	n
2	39:44	8.02e+02	7.67e+02	1.05	yes	1.57e+03	1,2,3,4,6,7,8-HpCDD	n	n

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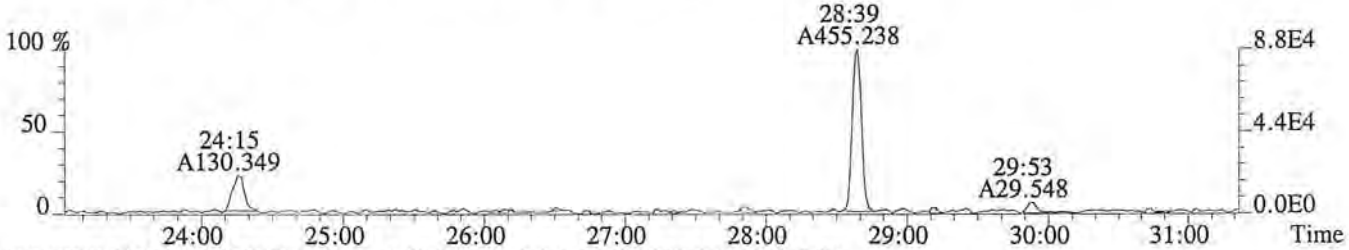
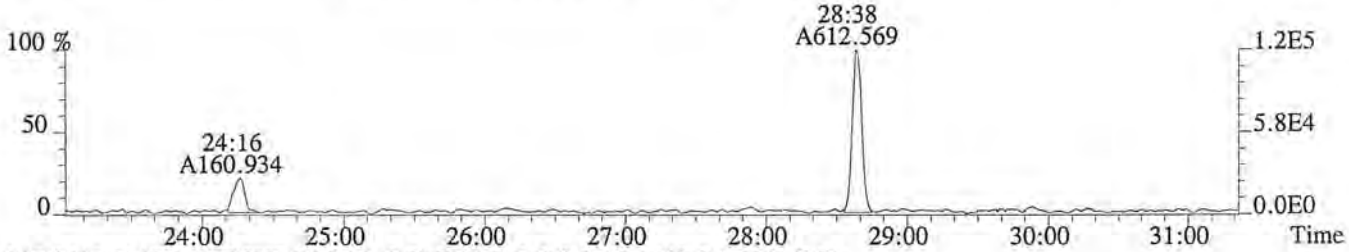
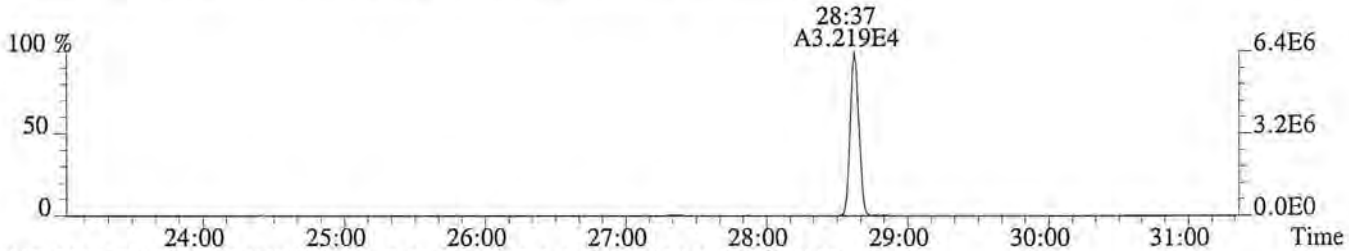
File:P301062 #1-591 Acq:28-AUG-2015 02:19:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-006
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



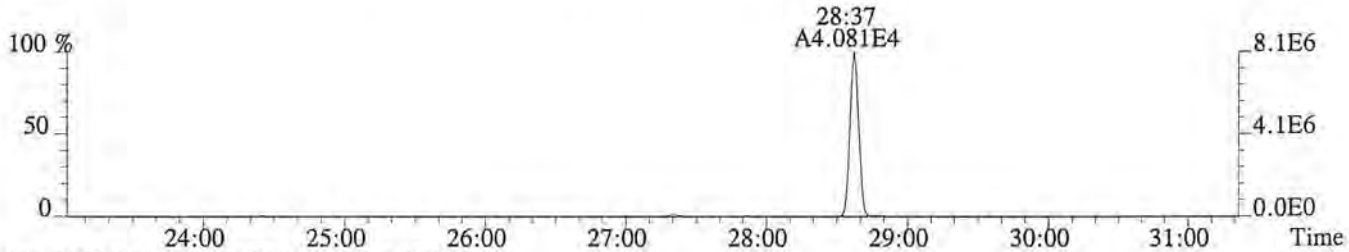
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2972.0,1.00%,F,T)



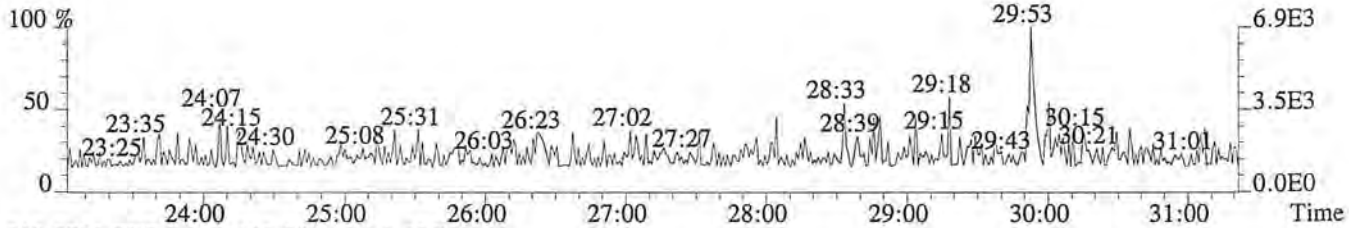
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1768.0,1.00%,F,T)



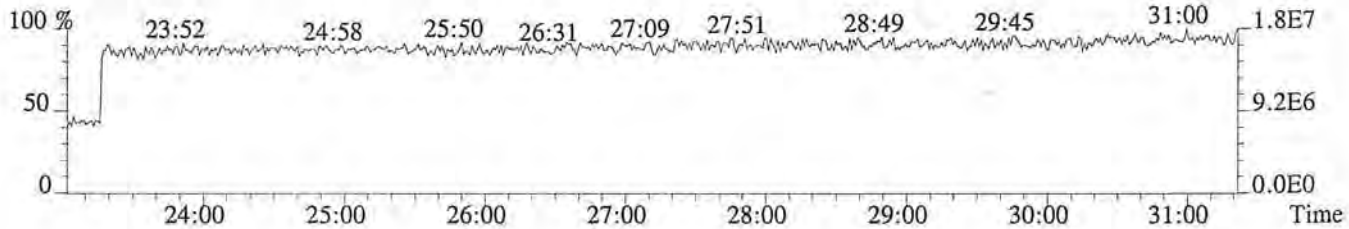
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2428.0,1.00%,F,T)



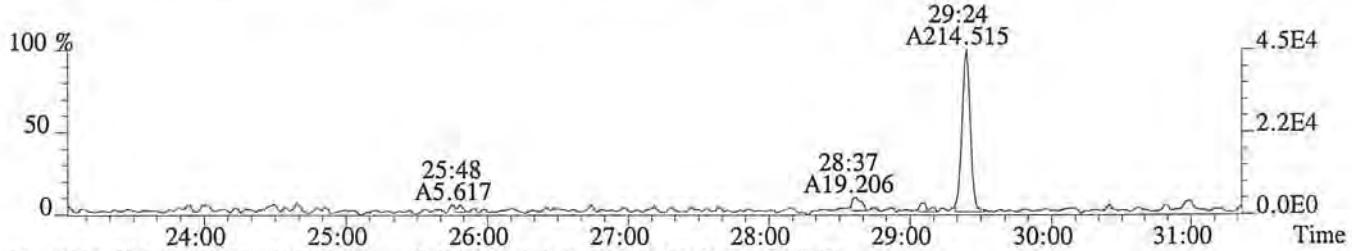
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



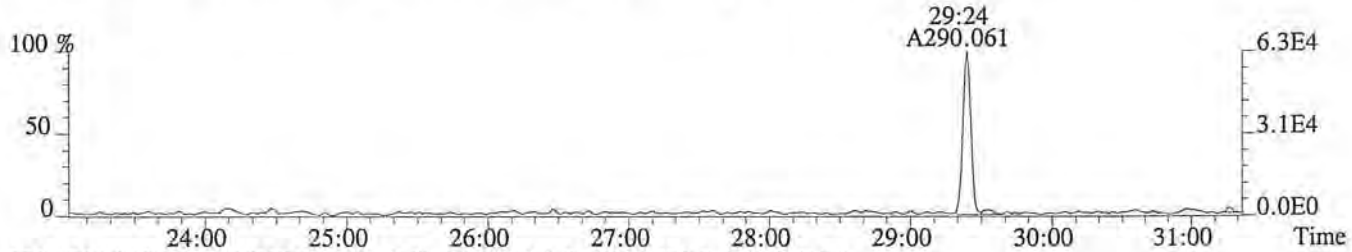
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



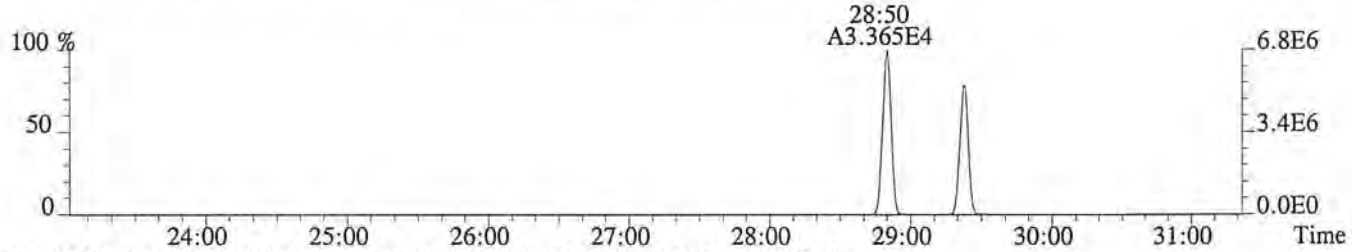
File:P301062 #1-591 Acq:28-AUG-2015 02:19:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1512.0,1.00%,F,T)



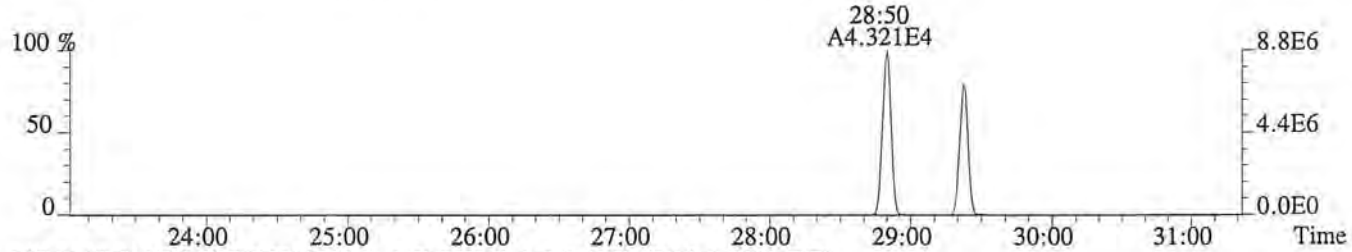
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



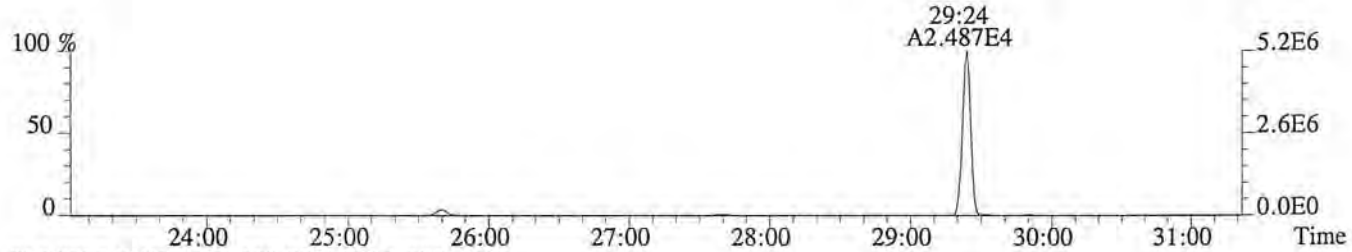
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5776.0,1.00%,F,T)



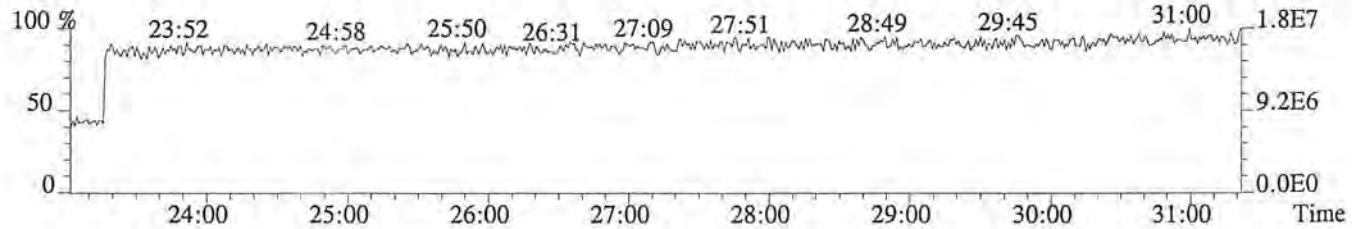
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3624.0,1.00%,F,T)



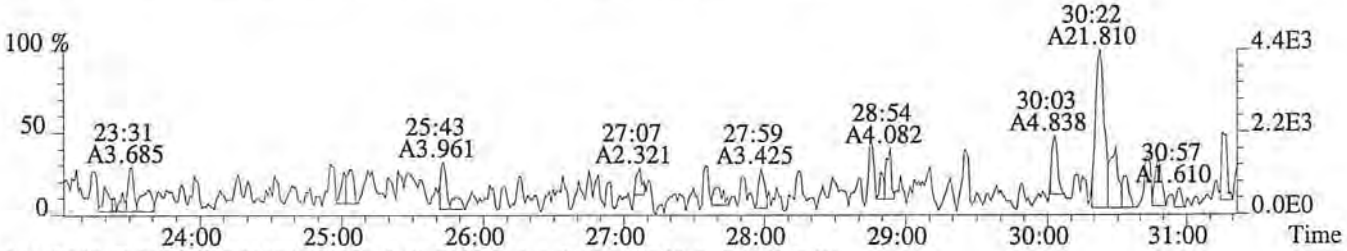
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,876.0,1.00%,F,T)



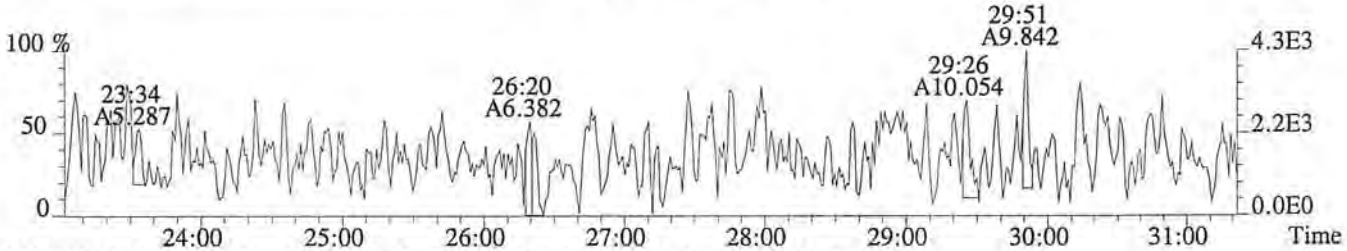
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



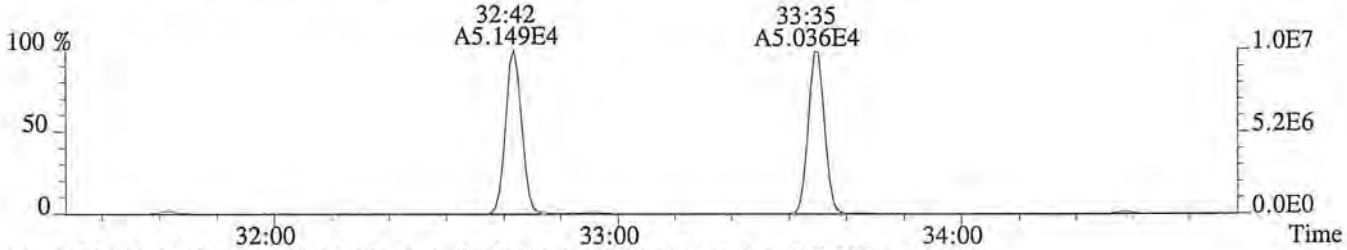
File:P301062 #1-591 Acq:28-AUG-2015 02:19:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-006
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



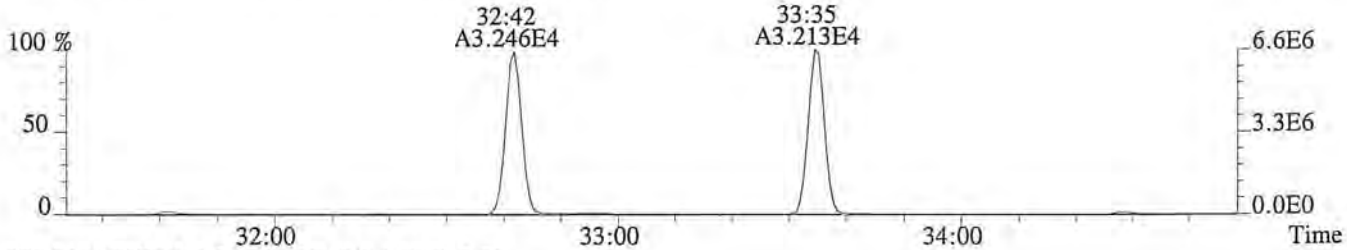
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1860.0,1.00%,F,T)



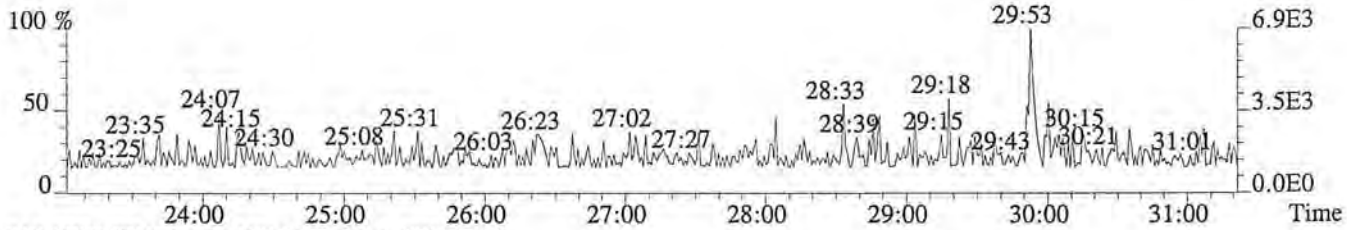
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



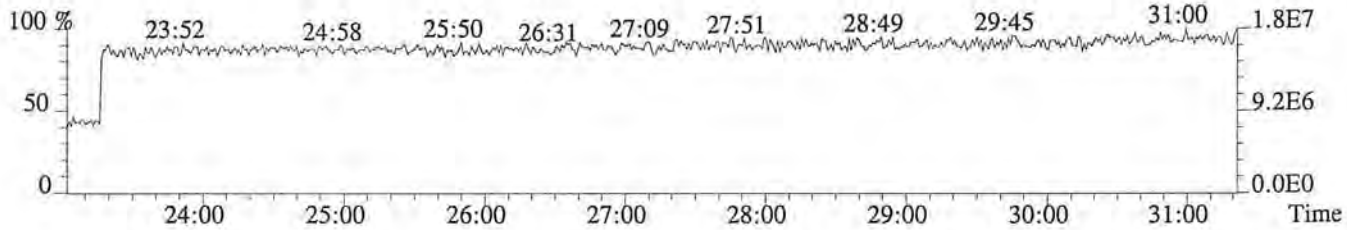
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



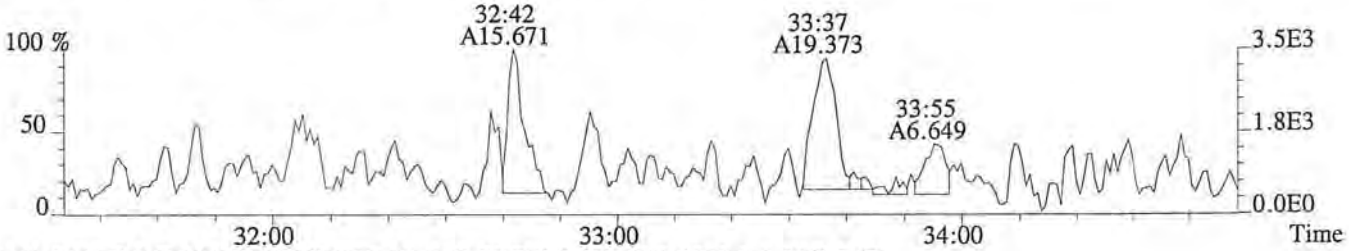
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



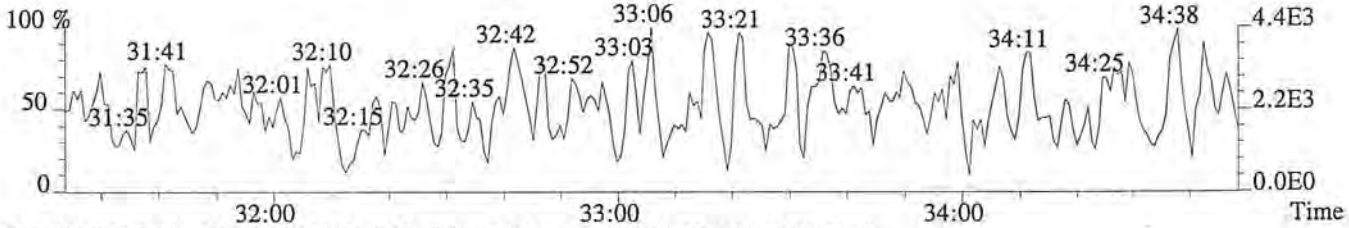
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



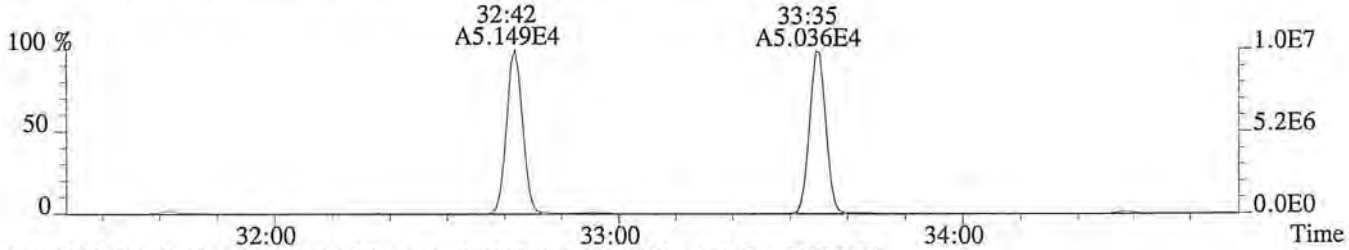
File:P301062 #1-308 Acq:28-AUG-2015 02:19:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



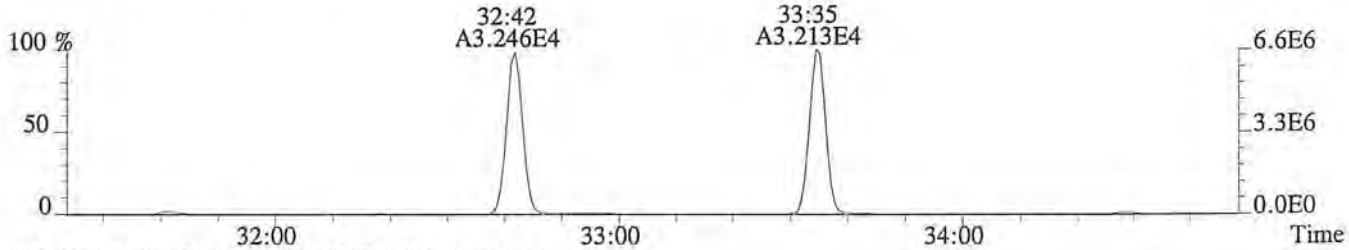
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2892.0,1.00%,F,T)



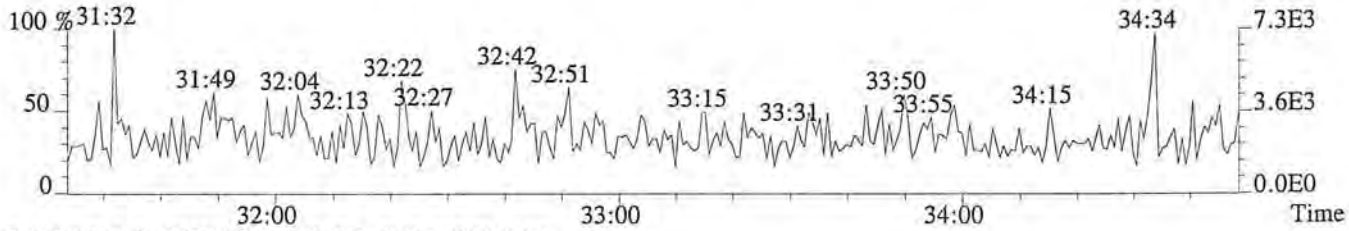
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



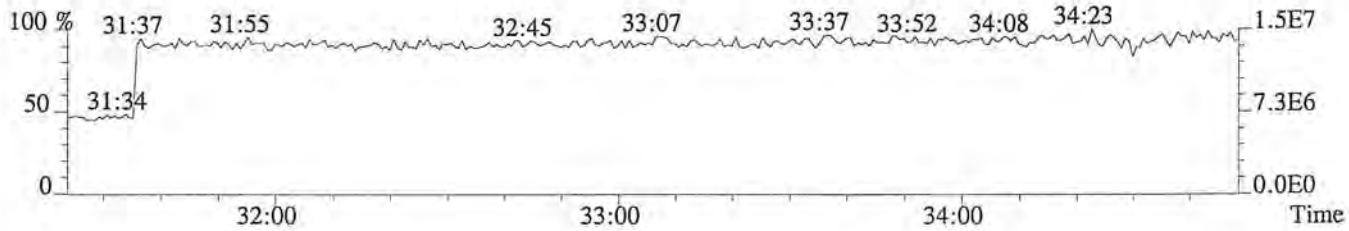
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



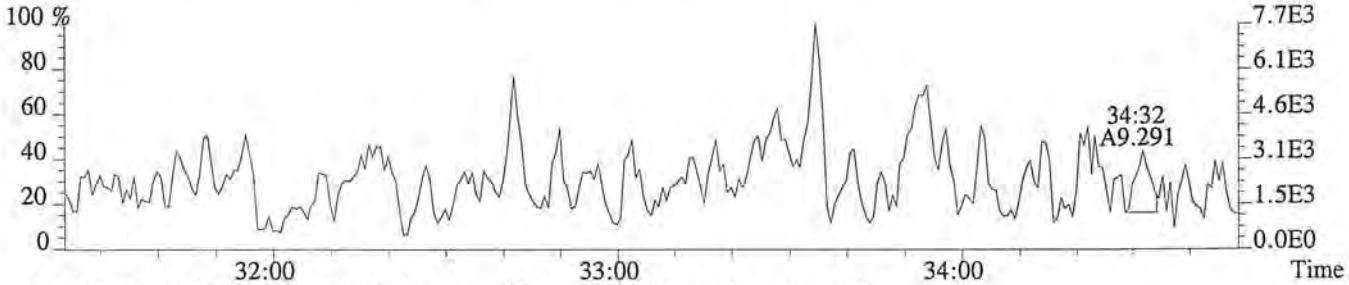
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



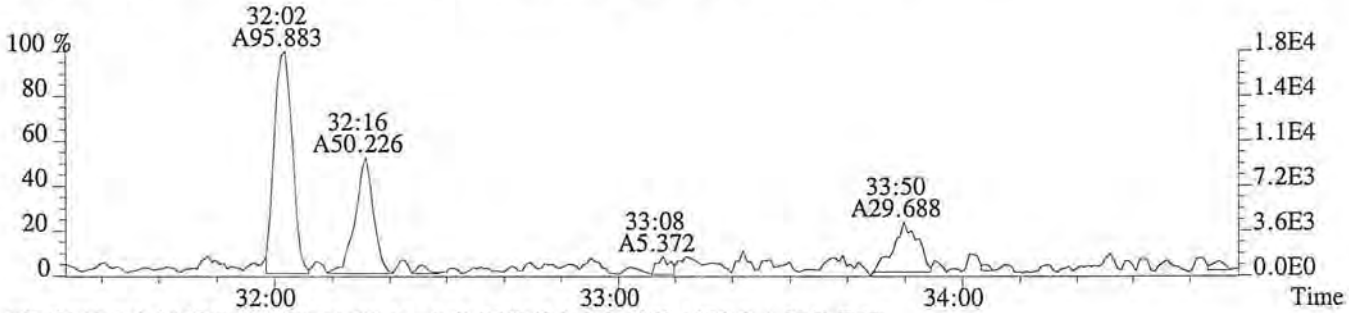
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



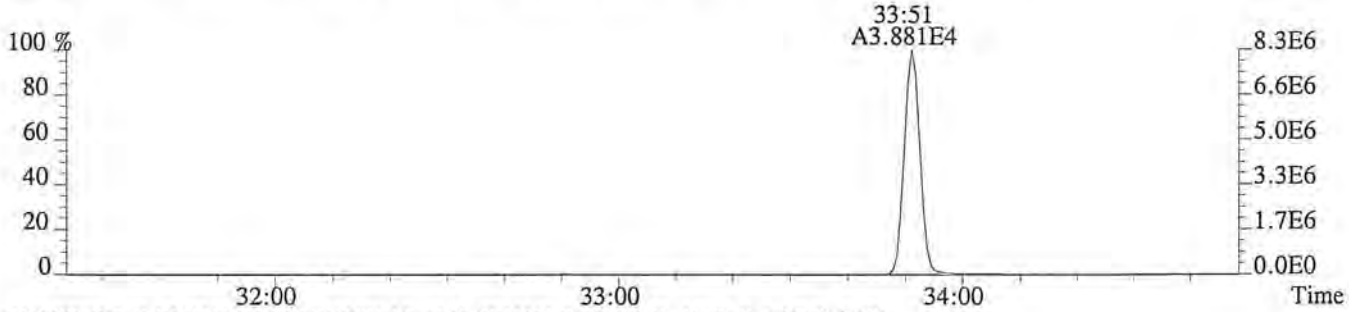
File:P301062 #1-308 Acq:28-AUG-2015 02:19:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



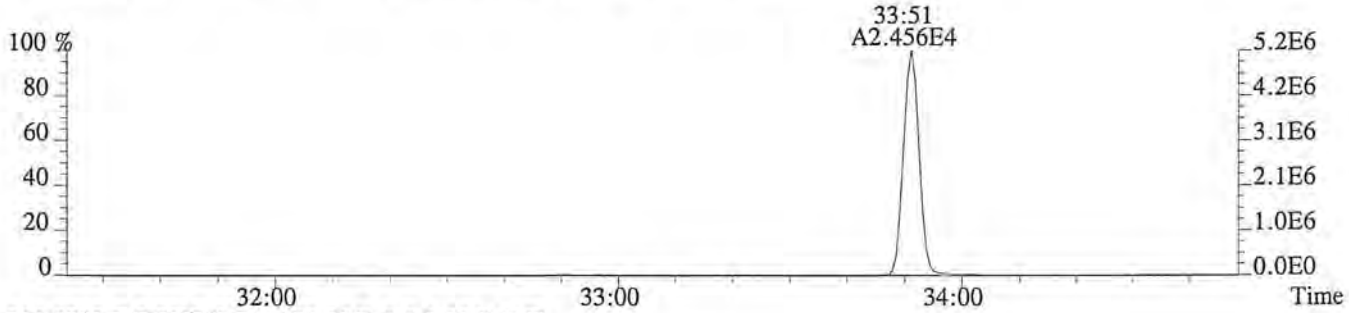
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



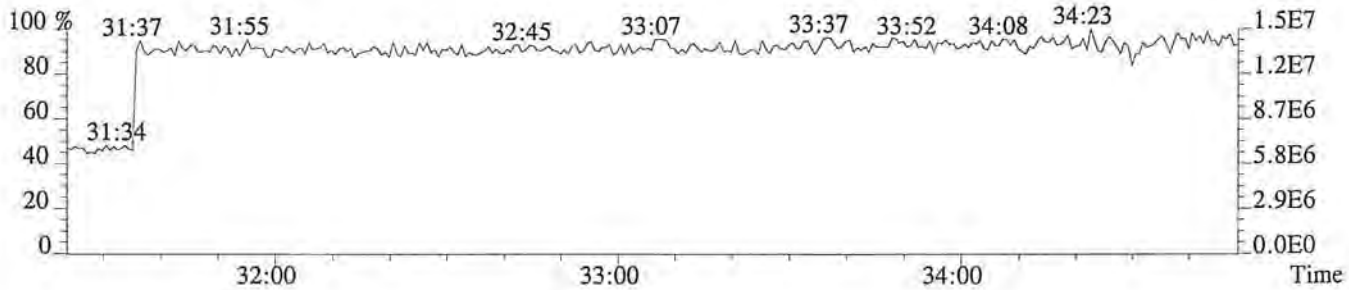
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1880.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)

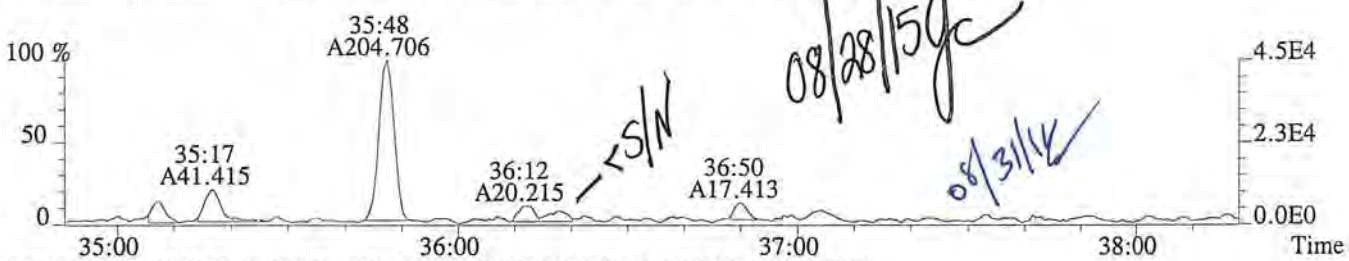


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



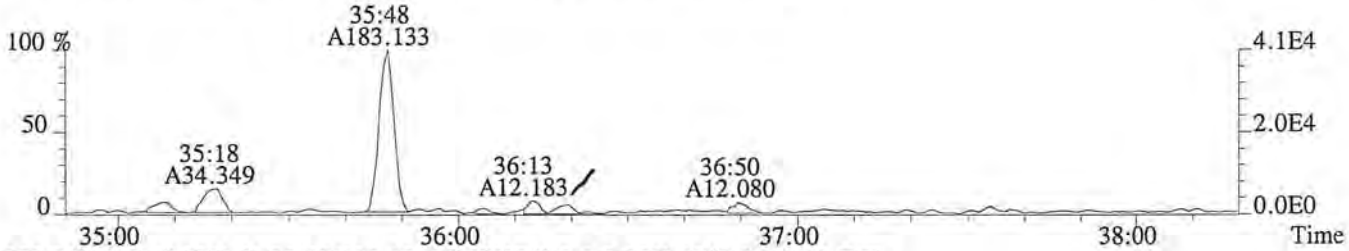
File:P301062 #1-312 Acq:28-AUG-2015 02:19:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-006

373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1696.0,0.40%,F,T)

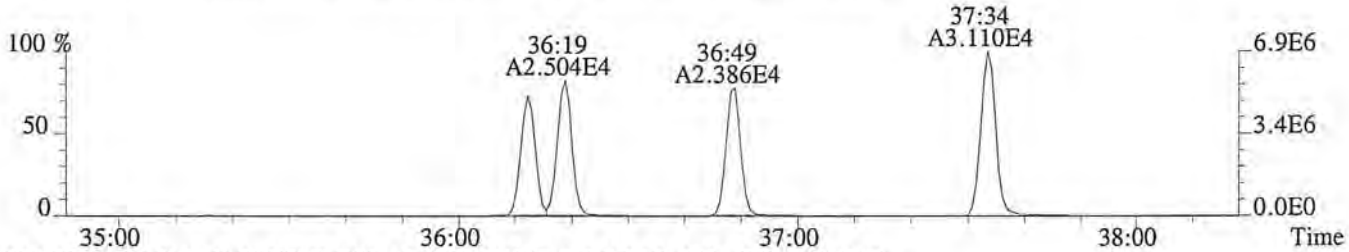


<S/N 08/28/15 gc 08/31/15

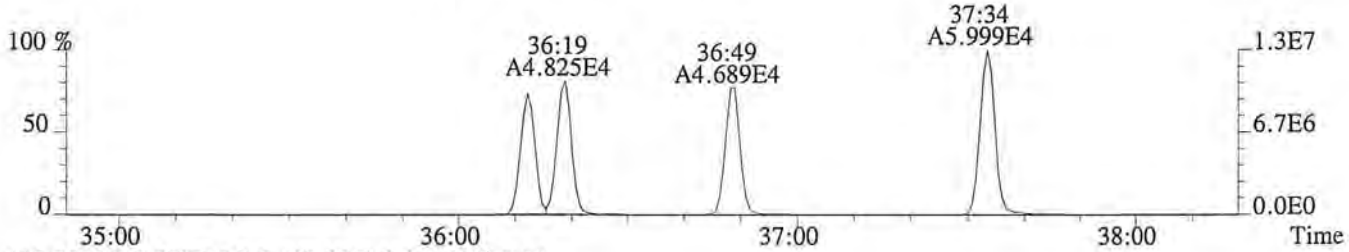
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,752.0,0.40%,F,T)



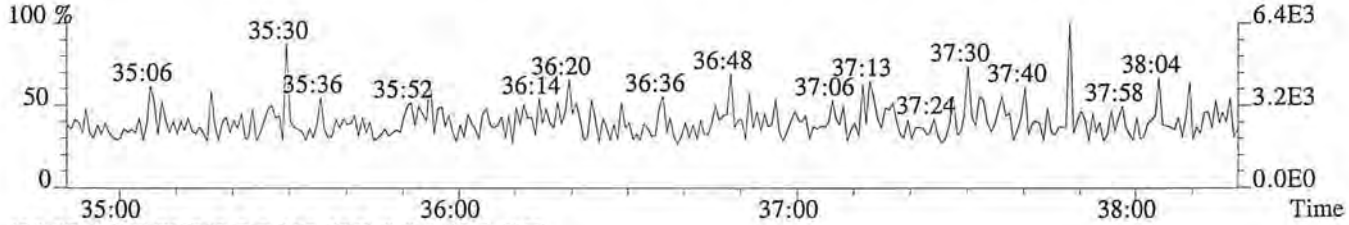
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.40%,F,T)



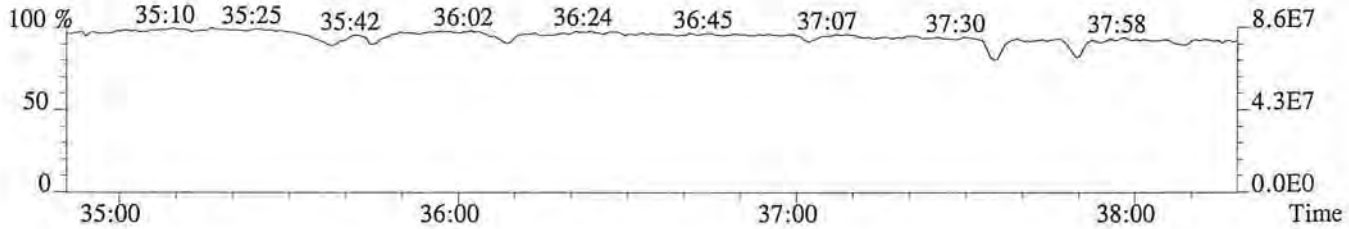
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2504.0,0.40%,F,T)



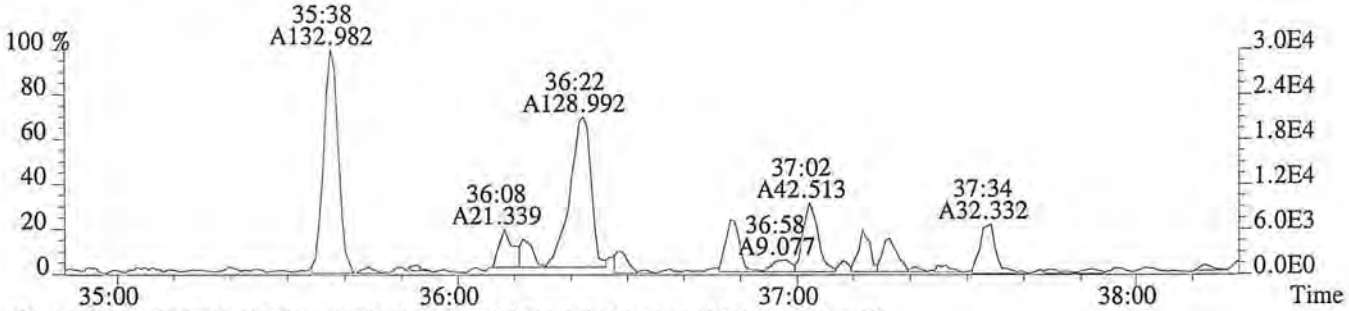
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



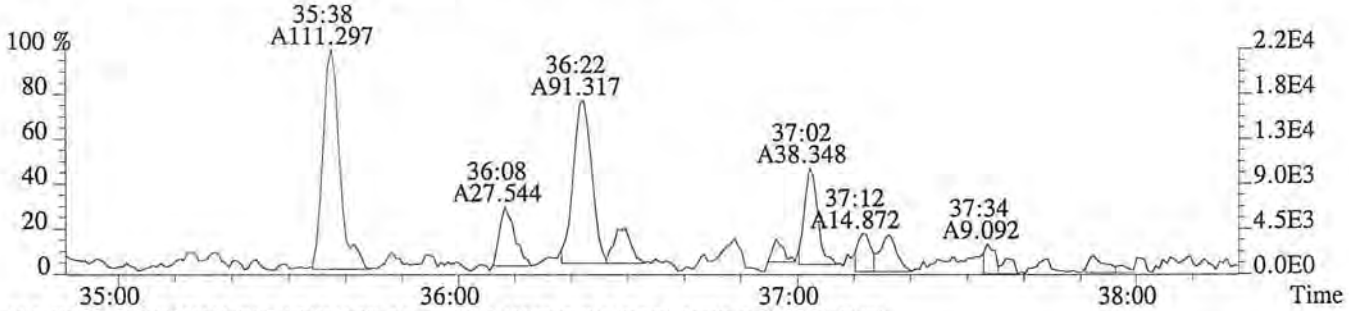
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



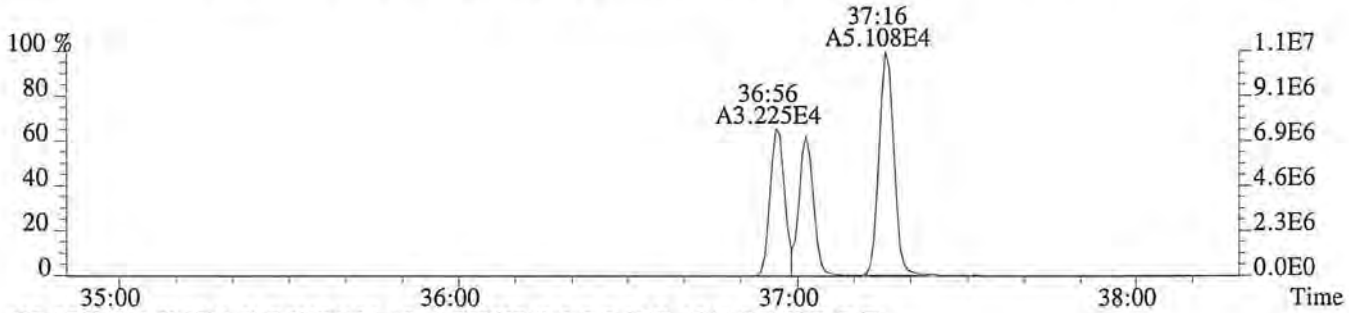
File:P301062 #1-312 Acq:28-AUG-2015 02:19:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



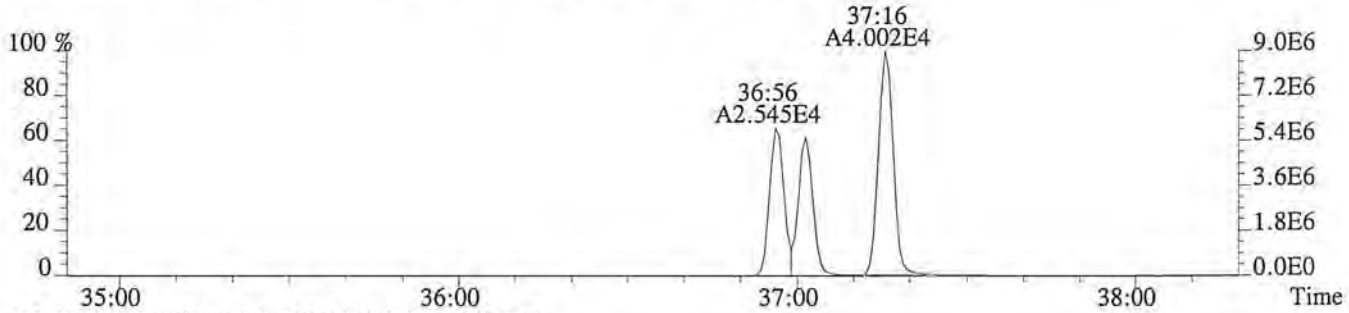
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



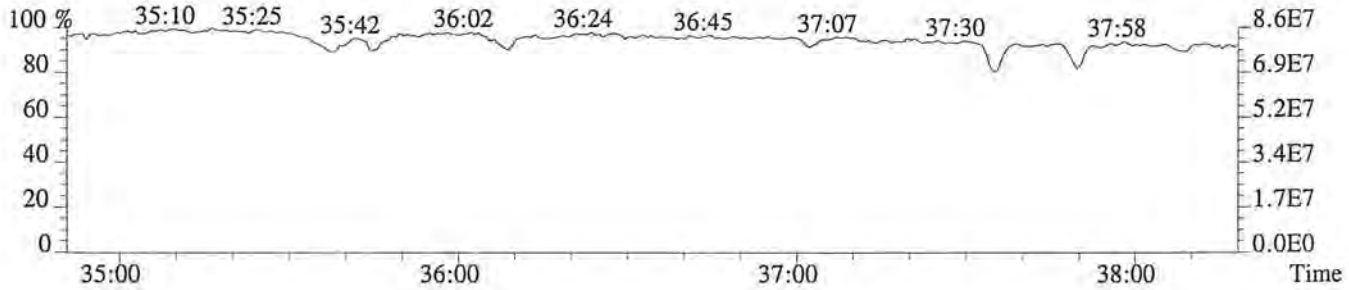
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1920.0,0.40%,F,T)



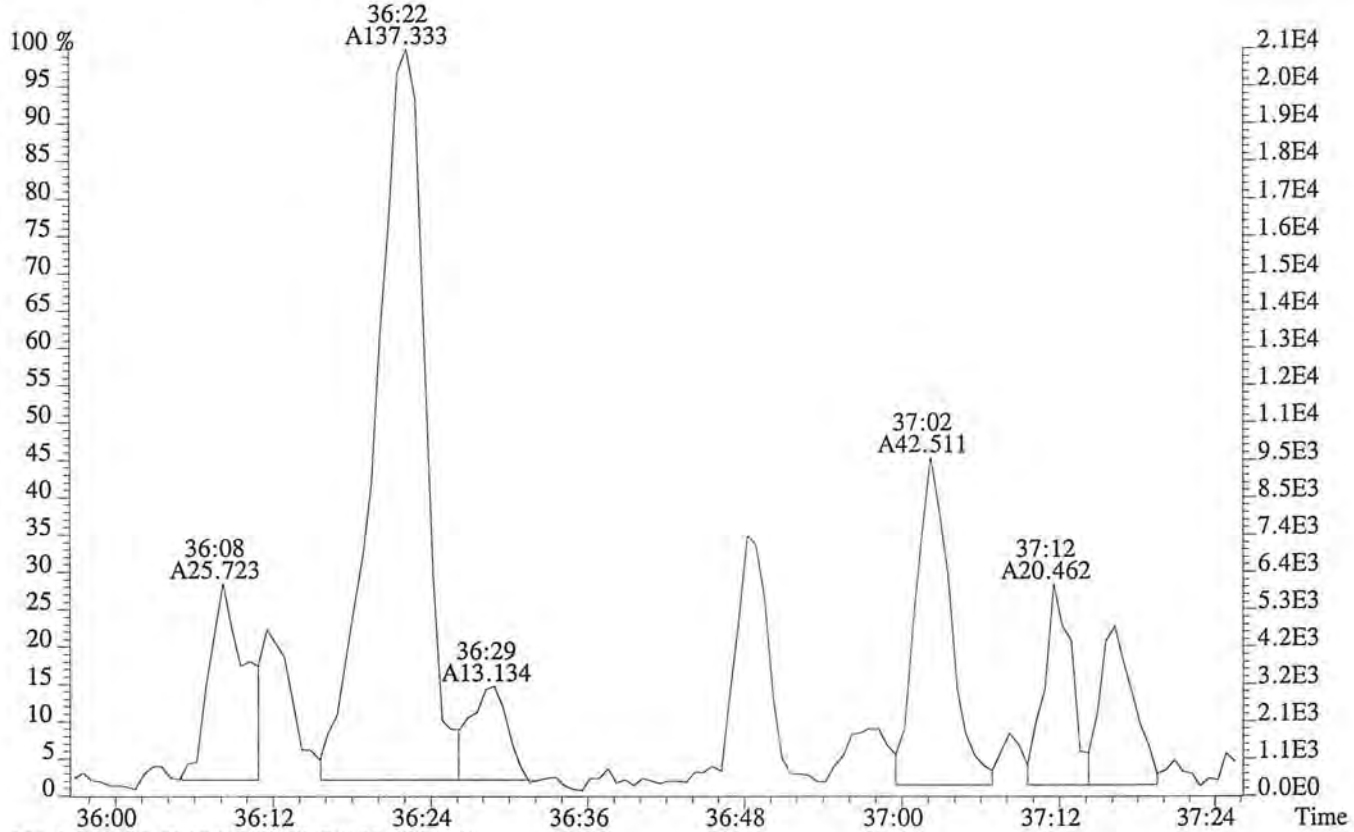
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



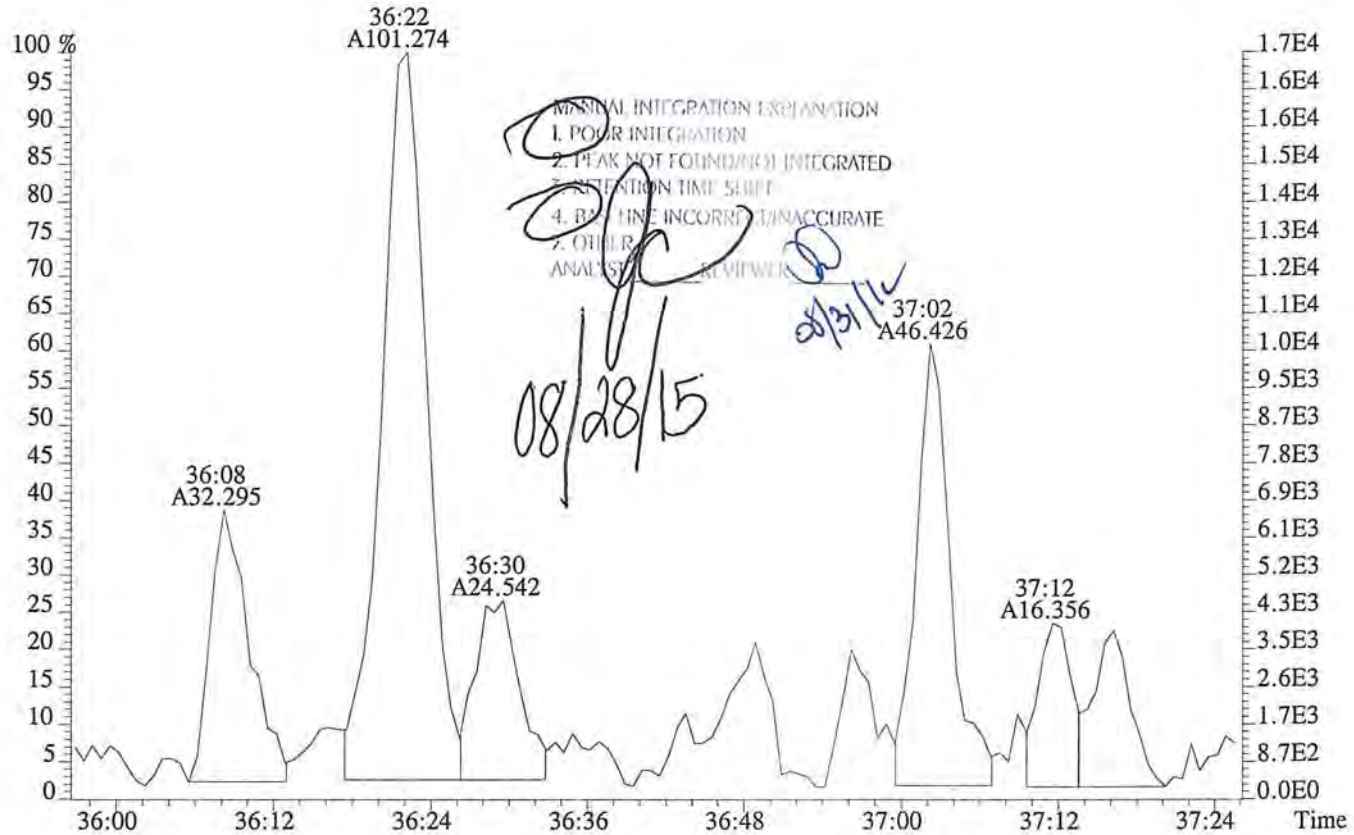
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P301062 #1-312 Acq:28-AUG-2015 02:19:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0)



391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0)

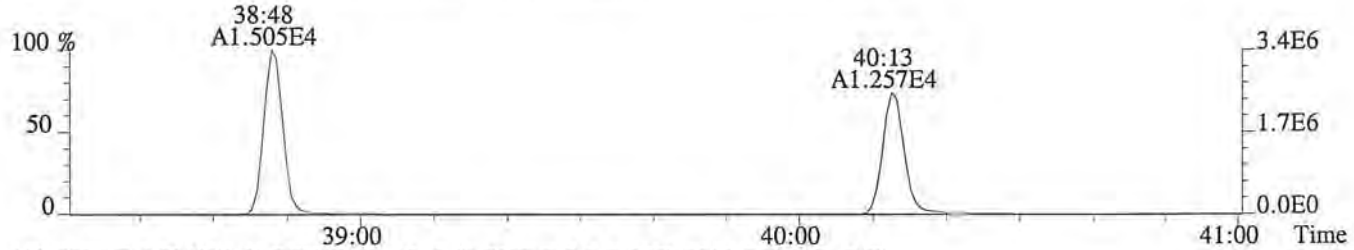


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST: REVIEWER:
08/28/15
08/31/15

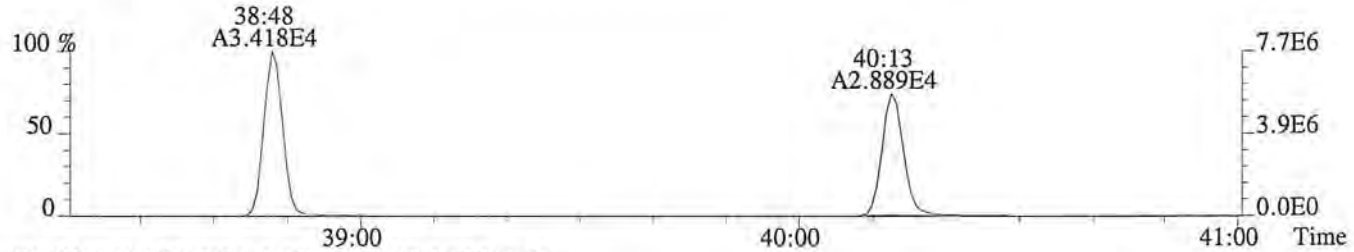
File:P301062 #1-241 Acq:28-AUG-2015 02:19:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-006
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.50%,F,T)

409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.50%,F,T)

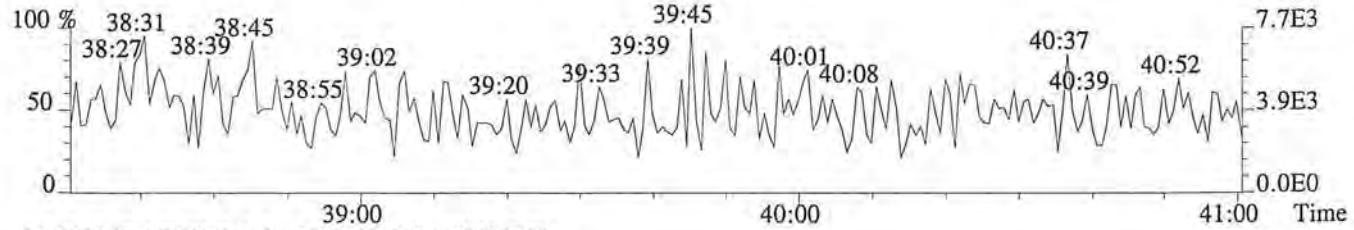
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1448.0,0.50%,F,T)



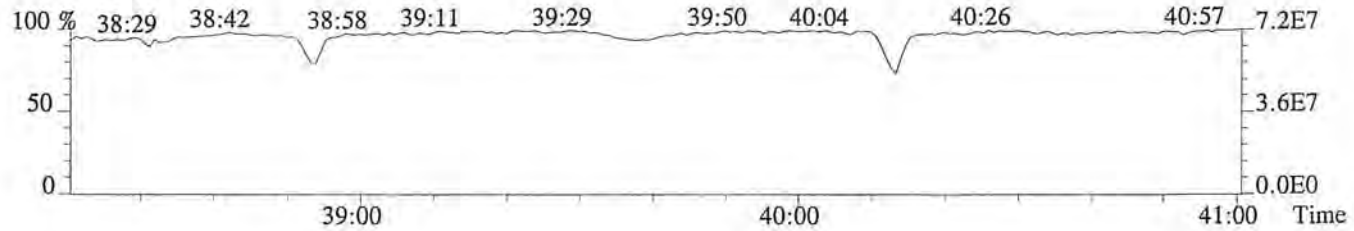
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2812.0,0.50%,F,T)



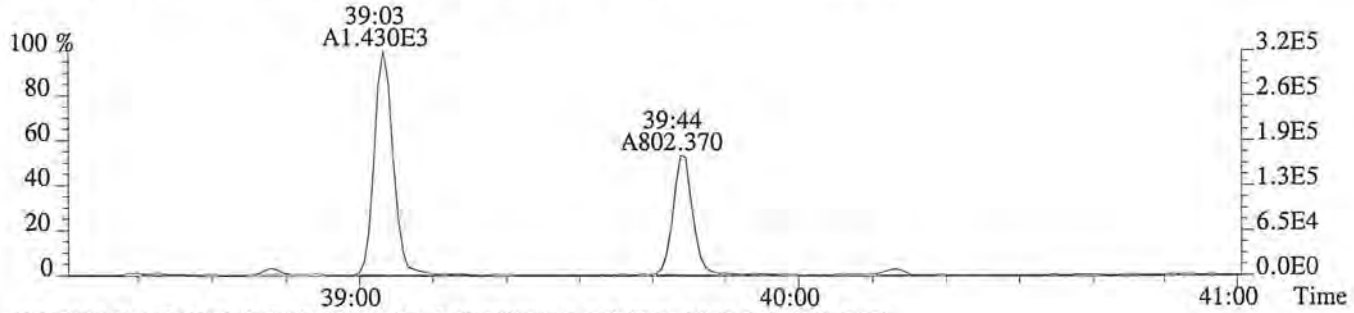
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



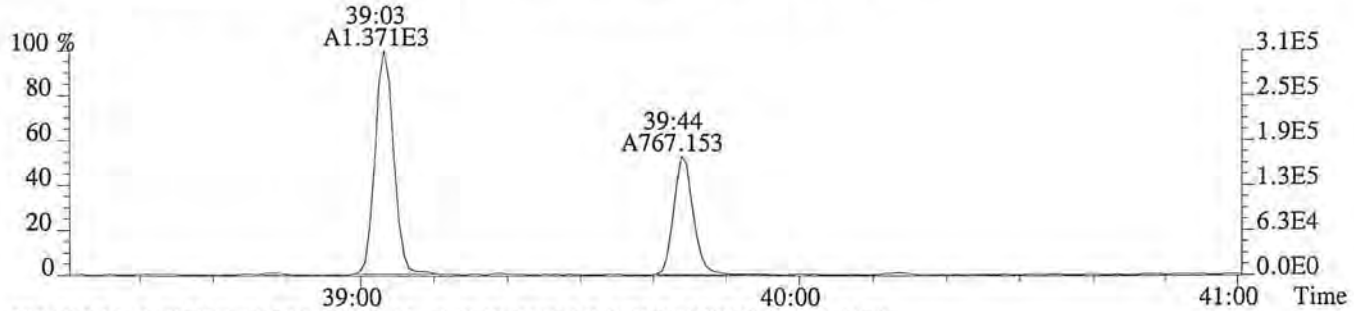
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



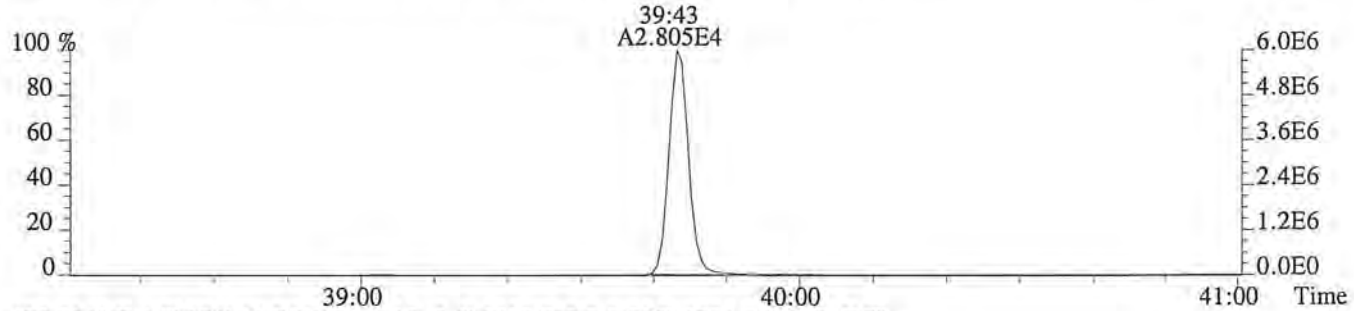
File:P301062 #1-241 Acq:28-AUG-2015 02:19:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-006
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



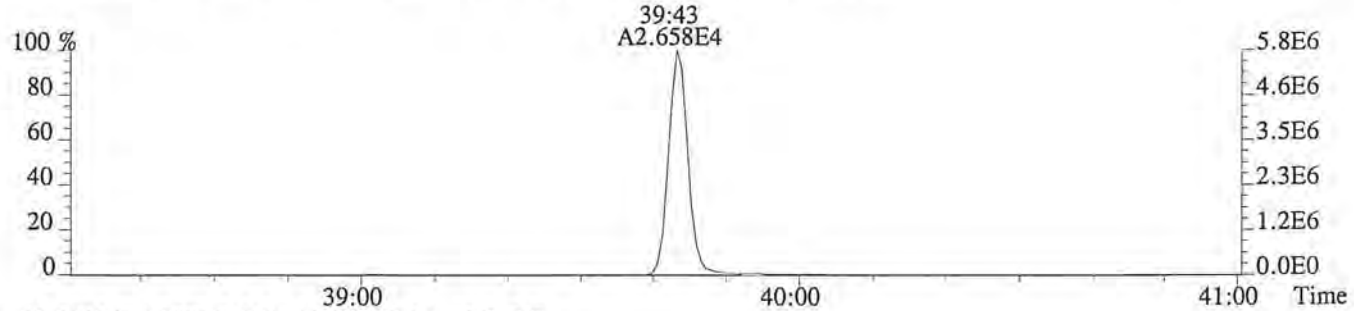
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1572.0,0.40%,F,T)



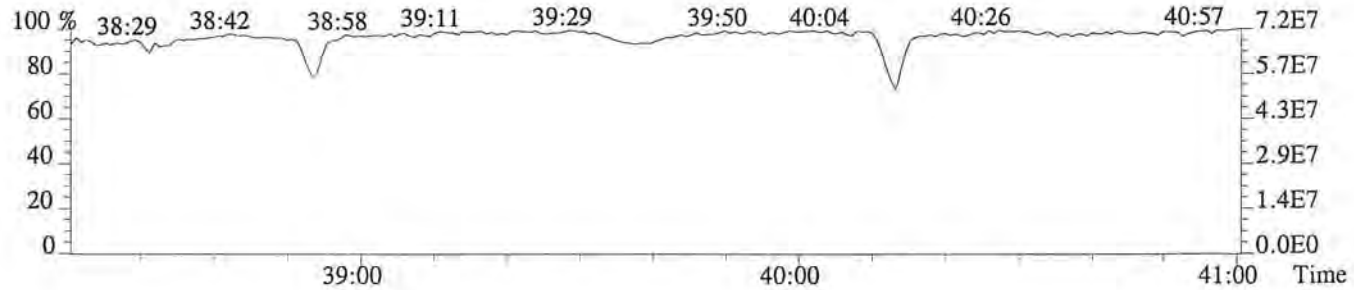
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1992.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.40%,F,T)

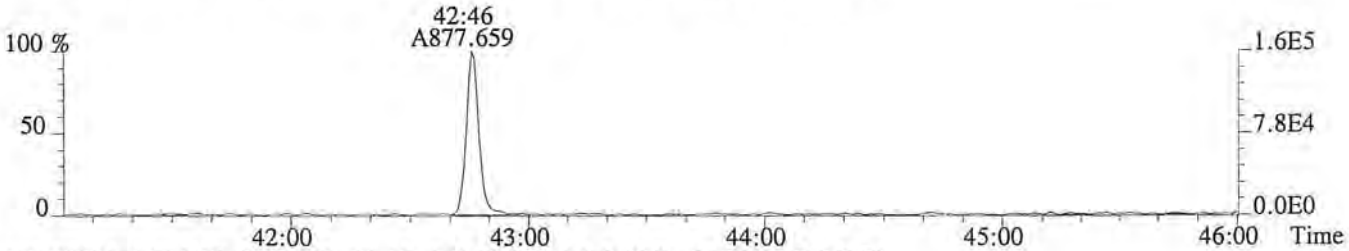


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

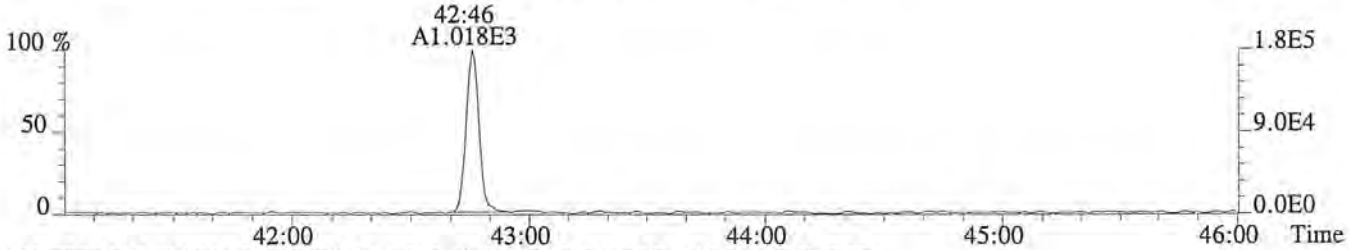


File:P301062 #1-447 Acq:28-AUG-2015 02:19:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-006

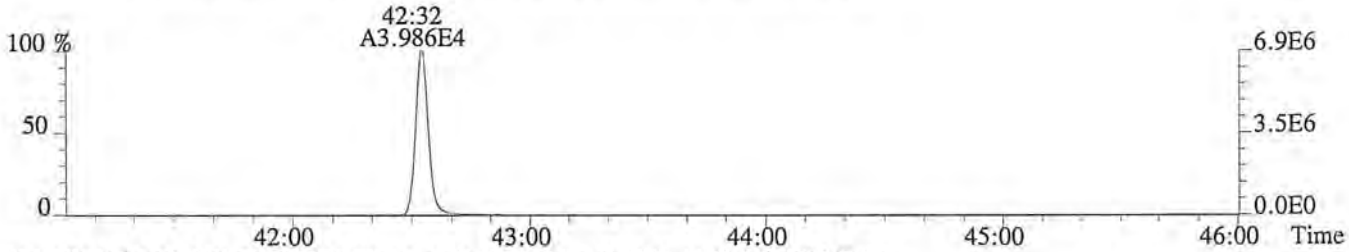
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1288.0,0.40%,F,T)



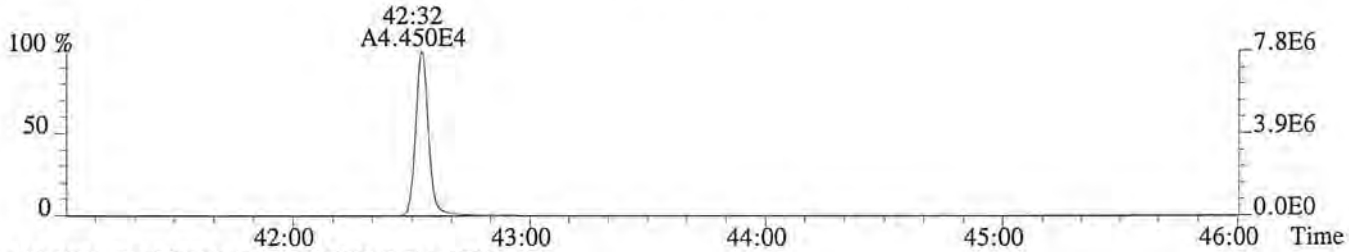
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1976.0,0.40%,F,T)



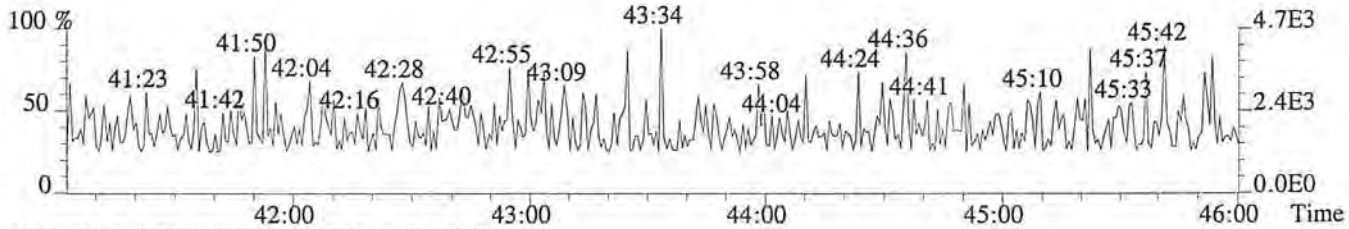
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,516.0,0.40%,F,T)



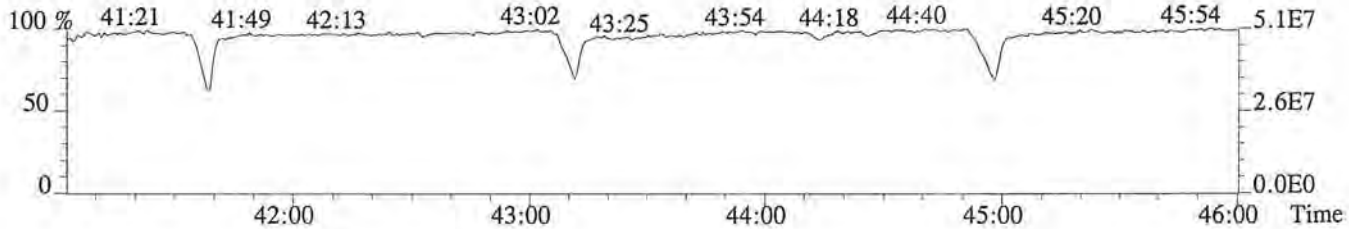
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1168.0,0.40%,F,T)



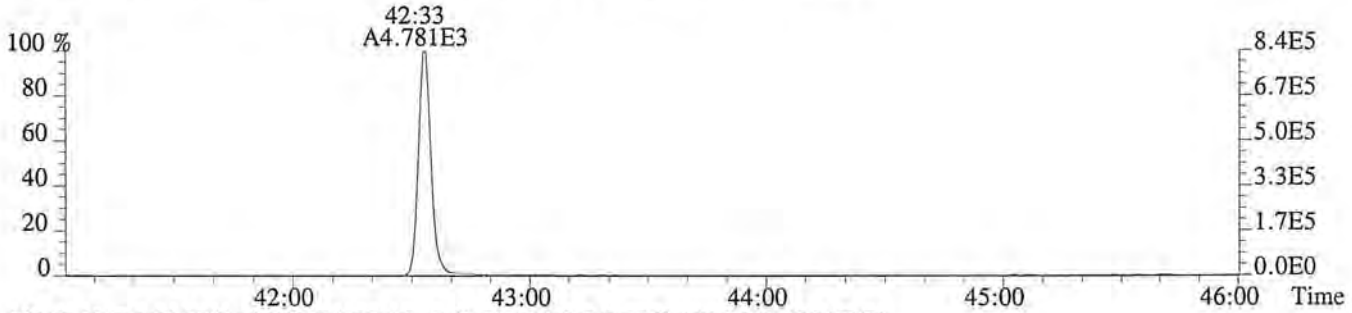
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



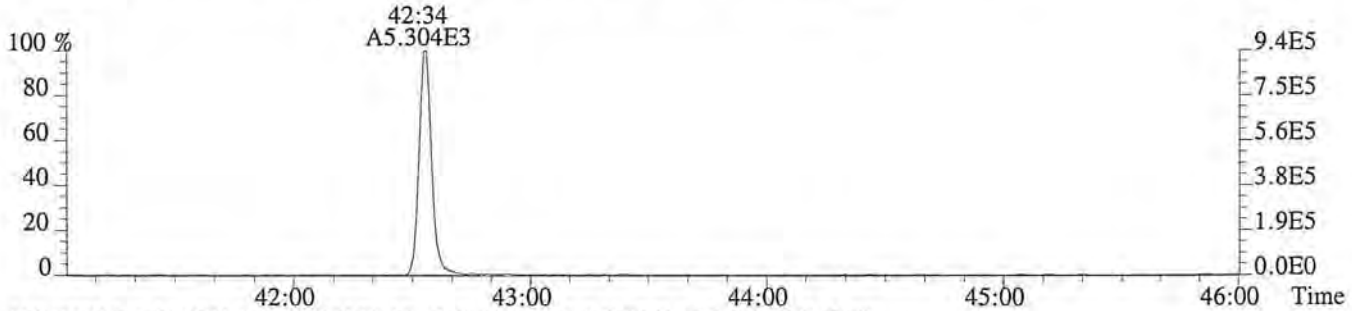
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



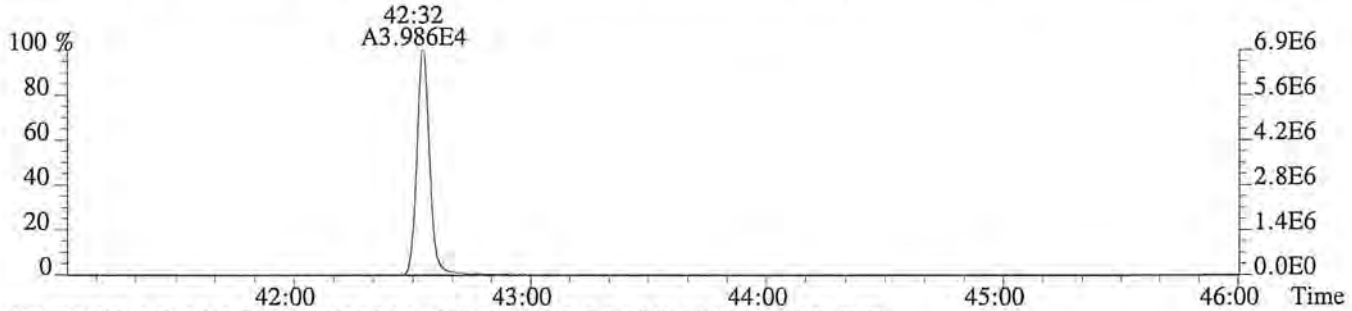
File:P301062 #1-447 Acq:28-AUG-2015 02:19:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-006
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



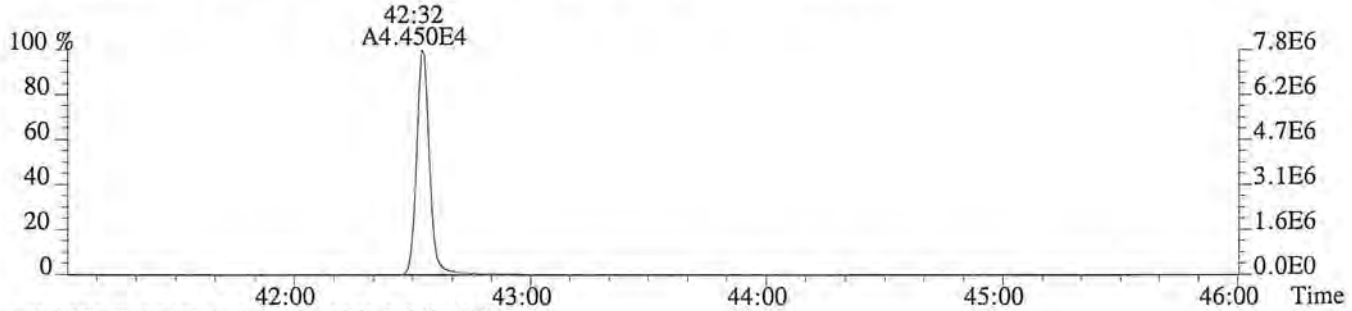
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1120.0,0.40%,F,T)



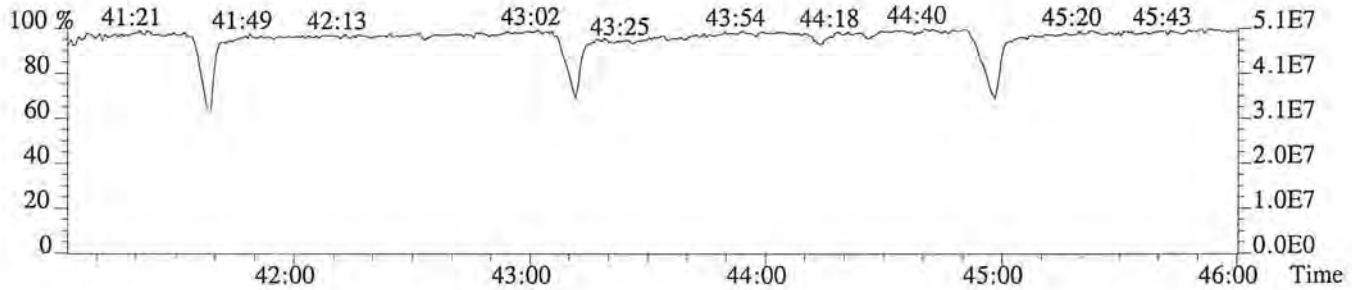
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,516.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1168.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-04-15 MT3

Run #9 Filename P301068 Samp: 1 Inj: 1 Acquired: 28-AUG-15 07:11:32
Processed: 28-AUG-15 16:48:03 Sample ID: E1500743-007

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	7.145e+01	9.963e+01	0.72	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	36:12	1.675e+01	1.602e+01	1.05	no	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:18	1.914e+01	9.311e+00	2.06	no	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:48	1.351e+01	1.423e+01	0.95	no	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	37:34	1.456e+01	1.127e+01	1.29	yes	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.882e+02	2.549e+02	1.13	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.245
10	Unk	OCDF	42:45	8.286e+02	8.987e+02	0.92	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:22	4.986e+01	7.326e+01	0.68	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:01	5.150e+01	4.341e+01	1.19	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	7.143e+02	7.121e+02	1.00	yes	no	0.949
17	Unk	OCDD	42:32	3.598e+03	3.970e+03	0.91	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:36	3.295e+04	4.152e+04	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	5.309e+04	3.401e+04	1.56	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:34	5.094e+04	3.241e+04	1.57	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	2.091e+04	4.117e+04	0.51	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	2.481e+04	4.758e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	2.315e+04	4.443e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:33	2.607e+04	5.144e+04	0.51	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	1.237e+04	2.856e+04	0.43	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:12	8.561e+03	1.979e+04	0.43	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:21	2.599e+04	3.365e+04	0.77	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:51	3.979e+04	2.515e+04	1.58	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:56	3.297e+04	2.579e+04	1.28	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:00	3.189e+04	2.508e+04	1.27	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.703e+04	2.559e+04	1.06	yes	no	0.850
32	IS	13C-OCDD	42:32	3.468e+04	3.863e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:48	3.466e+04	4.445e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:15	5.000e+04	3.976e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	2.547e+04				no	1.001

$$\text{OCDD} = \frac{(3.598e+03 + 3.970e+03) \times 4000 \text{ pg} \times 1}{(3.468e+04 + 3.863e+04) \times 10.169 \text{ g} \times 100 \;/\; 100 \times 1.061} = 38.27 \text{ ng/kg}$$

MM 08/31/15

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-04-15 MT3/MT

Run #9 Filename P301068 Samp: 1 Inj: 1 Acquired: 28-AUG-15 07:11:32
Processed: 28-AUG-15 16:48:03 LAB. ID: E1500743-007

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.32e+04	9.88e+02	1.3e+01	1.86e+04	2.46e+03	7.5e+00
2	1,2,3,7,8-PeCDF	*	7.28e+02	*	*	1.83e+03	*
3	2,3,4,7,8-PeCDF	*	7.28e+02	*	*	1.83e+03	*
4	1,2,3,4,7,8-HxCDF	3.61e+03	1.45e+03	2.5e+00	2.72e+03	3.24e+02	8.4e+00
5	1,2,3,6,7,8-HxCDF	4.03e+03	1.45e+03	2.8e+00	2.30e+03	3.24e+02	7.1e+00
6	2,3,4,6,7,8-HxCDF	3.79e+03	1.45e+03	2.6e+00	2.70e+03	3.24e+02	8.3e+00
7	1,2,3,7,8,9-HxCDF	3.84e+03	1.45e+03	2.6e+00	1.65e+03	3.24e+02	5.1e+00
8	1,2,3,4,6,7,8-HpCDF	6.80e+04	1.34e+03	5.1e+01	5.69e+04	1.45e+03	3.9e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.34e+03	*	*	1.45e+03	*
10	OCDF	1.46e+05	1.45e+03	1.0e+02	1.56e+05	2.46e+03	6.3e+01
11	2,3,7,8-TCDD	9.46e+03	1.41e+03	6.7e+00	1.45e+04	1.12e+03	1.3e+01
12	1,2,3,7,8-PeCDD	*	2.94e+03	*	*	9.32e+02	*
13	1,2,3,4,7,8-HxCDD	*	6.24e+02	*	*	1.80e+03	*
14	1,2,3,6,7,8-HxCDD	1.12e+04	6.24e+02	1.8e+01	9.40e+03	1.80e+03	5.2e+00
15	1,2,3,7,8,9-HxCDD	*	6.24e+02	*	*	1.80e+03	*
16	1,2,3,4,6,7,8-HpCDD	1.58e+05	1.76e+03	9.0e+01	1.55e+05	9.16e+02	1.7e+02
17	OCDD	6.48e+05	9.64e+02	6.7e+02	7.15e+05	1.03e+03	7.0e+02
18	13C-2,3,7,8-TCDF	6.38e+06	1.43e+03	4.5e+03	8.06e+06	1.77e+03	4.5e+03
19	13C-1,2,3,7,8-PeCDF	1.07e+07	8.56e+02	1.3e+04	6.86e+06	1.56e+03	4.4e+03
20	13C-2,3,4,7,8-PeCDF	1.09e+07	8.56e+02	1.3e+04	6.85e+06	1.56e+03	4.4e+03
21	13C-1,2,3,4,7,8-HxCDF	4.70e+06	8.08e+02	5.8e+03	9.24e+06	2.21e+03	4.2e+03
22	13C-1,2,3,6,7,8-HxCDF	5.40e+06	8.08e+02	6.7e+03	1.03e+07	2.21e+03	4.7e+03
23	13C-2,3,4,6,7,8-HxCDF	5.24e+06	8.08e+02	6.5e+03	1.01e+07	2.21e+03	4.6e+03
24	13C-1,2,3,7,8,9-HxCDF	5.65e+06	8.08e+02	7.0e+03	1.10e+07	2.21e+03	5.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.81e+06	2.63e+03	1.1e+03	6.51e+06	1.72e+03	3.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.65e+06	2.63e+03	6.3e+02	3.80e+06	1.72e+03	2.2e+03
27	13C-2,3,7,8-TCDD	5.43e+06	5.47e+03	9.9e+02	7.10e+06	3.51e+03	2.0e+03
28	13C-1,2,3,7,8-PeCDD	8.16e+06	1.04e+03	7.8e+03	5.17e+06	1.13e+03	4.6e+03
29	13C-1,2,3,4,7,8-HxCDD	7.60e+06	1.58e+03	4.8e+03	5.90e+06	1.76e+03	3.4e+03
30	13C-1,2,3,6,7,8-HxCDD	7.03e+06	1.58e+03	4.4e+03	5.63e+06	1.76e+03	3.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.78e+06	1.98e+03	2.9e+03	5.40e+06	8.00e+02	6.8e+03
32	13C-OCDD	6.18e+06	9.44e+02	6.5e+03	6.86e+06	1.38e+03	5.0e+03
33	13C-1,2,3,4-TCDD	6.99e+06	5.47e+03	1.3e+03	8.99e+06	3.51e+03	2.6e+03
34	13C-1,2,3,7,8,9-HxCDD	1.13e+07	1.58e+03	7.1e+03	8.85e+06	1.76e+03	5.0e+03
35	37Cl-2,3,7,8-TCDD	5.32e+06	8.28e+02	6.4e+03			

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Peak List Summary

CLIENT ID.

PLY-04-15 MT3/MT7

Entry: 36 Totals Name: Total Tetra-Furans

Run: 9 File: P301068 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 07:11:32 Processed: 28-AUG-15 16:48:03

Mass: 303.9020 305.8990 Tot Response: 7.95e+02 RRF: 0.8496

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:14	2.76e+02	3.26e+02	0.85	yes	6.02e+02	n	n
2	28:37	7.14e+01	9.96e+01	0.72	yes	1.71e+02	2,3,7,8-TCDF	n	n
3	28:48	9.86e+00	1.28e+01	0.77	yes	2.27e+01	n	n

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Peak List Summary

CLIENT ID.

PLY-04-15 MT3/MT7

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 9 File: P301068 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 07:11:32 Processed: 28-AUG-15 16:48:03

Mass: 319.8970 321.8940 Tot Response: 1.23e+02 RRF: 0.9567

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:22	4.99e+01	7.33e+01	0.68	yes	1.23e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.

PLY-04-15 MT3/MT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 9 File: P301068 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 07:11:32 Processed: 28-AUG-15 16:48:03

Mass: 373.8210 375.8180 Tot Response: 1.38e+02 RRF: 1.094

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:06	2.45e+01	2.17e+01	1.13	yes	4.62e+01		n	n
2	35:16	3.71e+01	2.93e+01	1.27	yes	6.63e+01		n	n
3	37:34	1.46e+01	1.13e+01	1.29	yes	2.58e+01	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.

PLY-04-15 MT3/MT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 9 File: P301068 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 07:11:32 Processed: 28-AUG-15 16:48:03

Mass: 389.8160 391.8130 Tot Response: 3.37e+02 RRF: 0.9904

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:36	1.29e+02	1.14e+02	1.13	yes	2.42e+02		n	n
2	37:01	5.15e+01	4.34e+01	1.19	yes	9.49e+01	1,2,3,6,7,8-HxCDD	n	n

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Peak List Summary

CLIENT ID.

PLY-04-15 MT3/MT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 9 File: P301068 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 07:11:32 Processed: 28-AUG-15 16:48:03

Mass: 407.7820 409.7790 Tot Response: 2.50e+03 RRF: 1.284

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	2.88e+02	2.55e+02	1.13	yes	5.43e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:12	9.80e+02	9.78e+02	1.00	yes	1.96e+03		n	n

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Peak List Summary

CLIENT ID.

PLY-04-15 MT3/MT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 9 File: P301068 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 07:11:32 Processed: 28-AUG-15 16:48:03

Mass: 423.7770 425.7740 Tot Response: 3.85e+03 RRF: 0.9492

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:03	1.24e+03	1.19e+03	1.04	yes	2.42e+03		n	n
2	39:43	7.14e+02	7.12e+02	1.00	yes	1.43e+03	1,2,3,4,6,7,8-HpCDD	n	n

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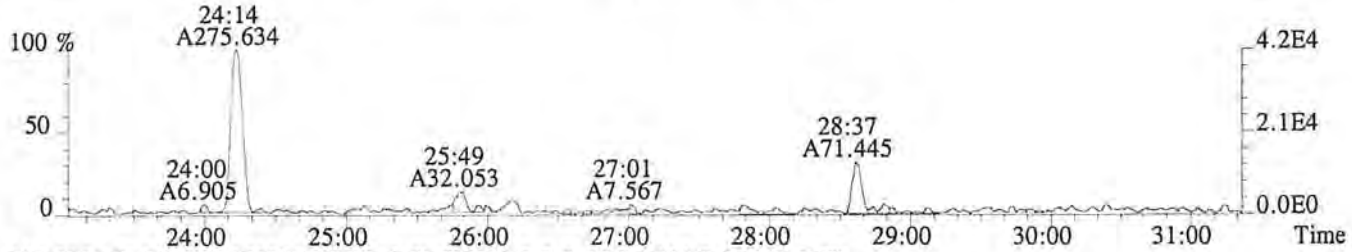
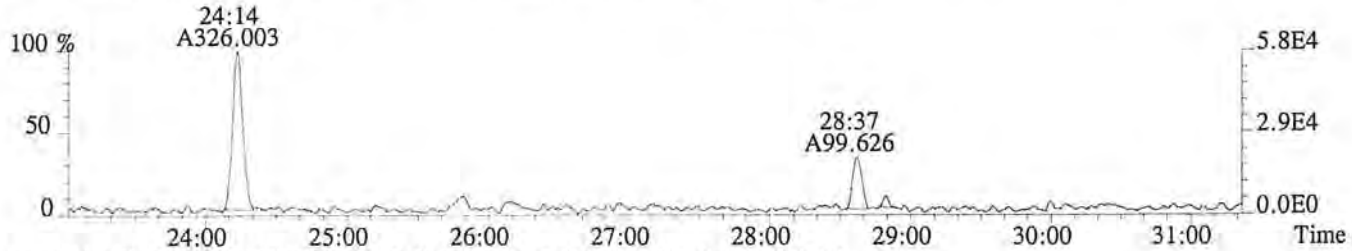
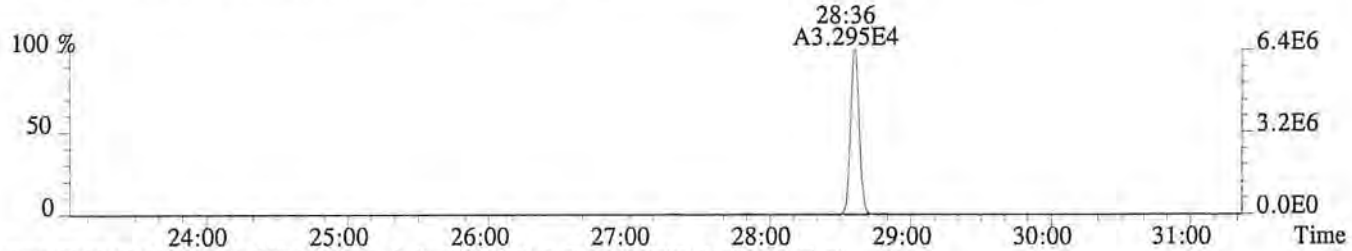
File:P301068 #1-591 Acq:28-AUG-2015 07:11:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-007
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



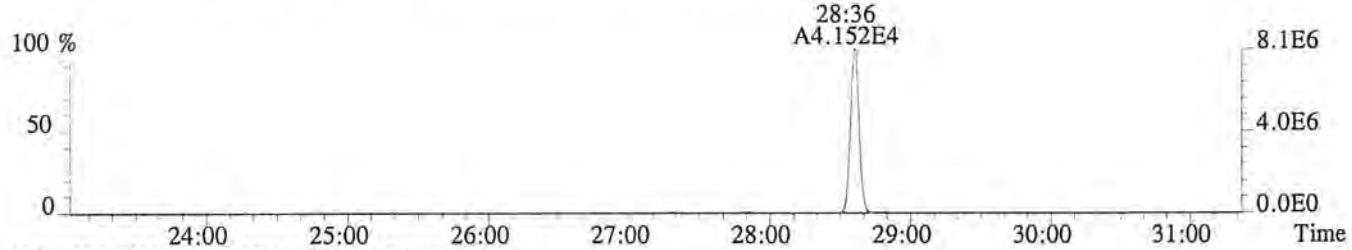
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2464.0,1.00%,F,T)



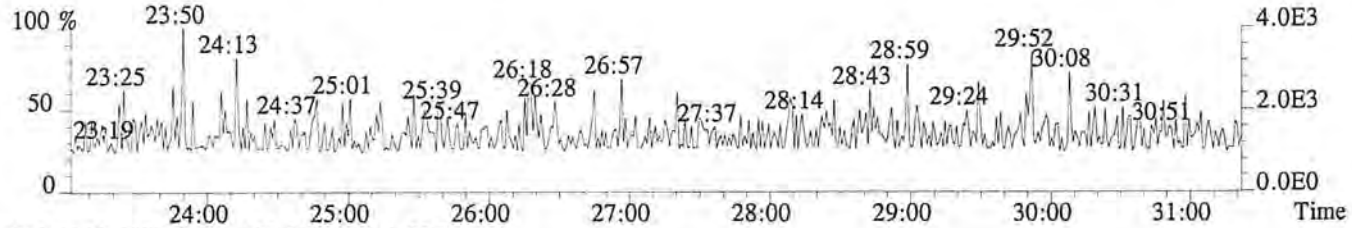
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



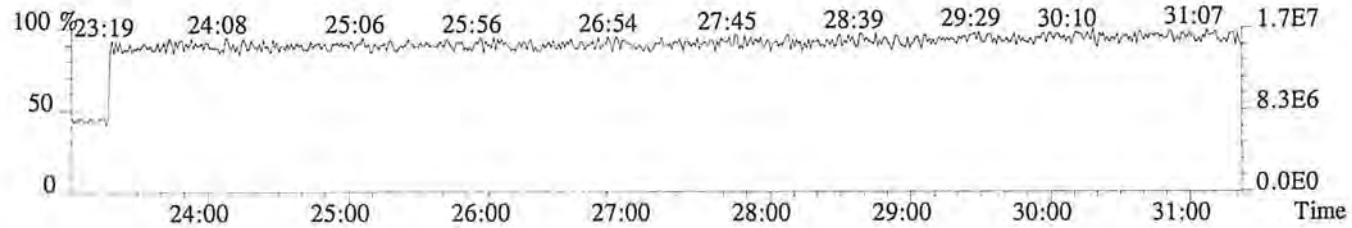
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1772.0,1.00%,F,T)



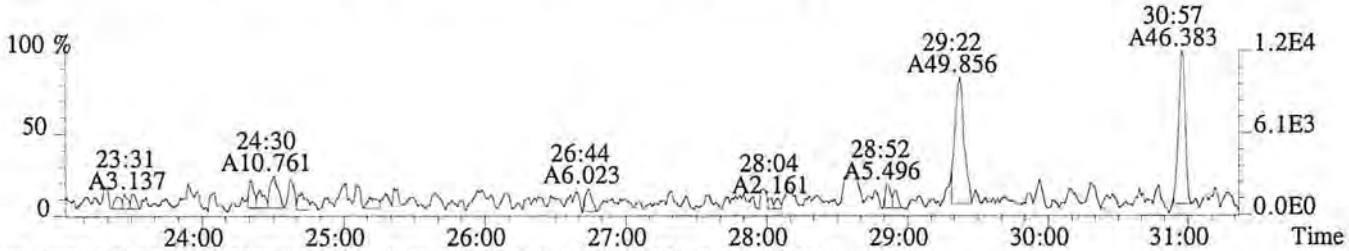
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



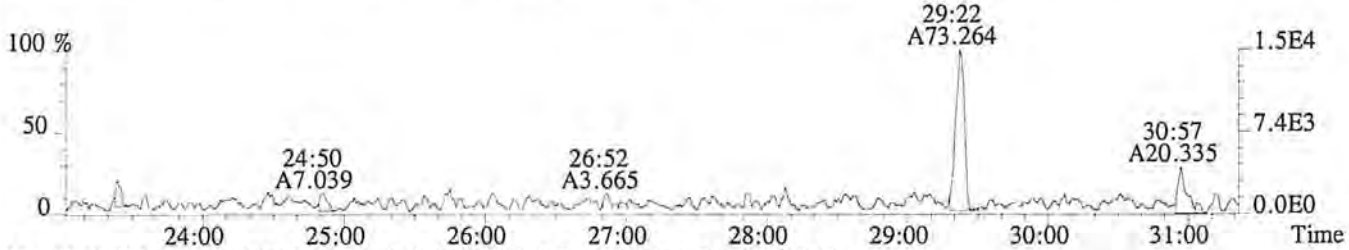
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



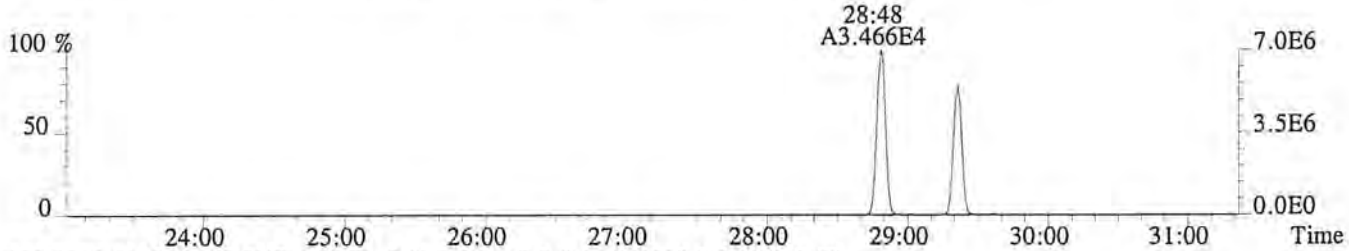
File:P301068 #1-591 Acq:28-AUG-2015 07:11:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-007
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



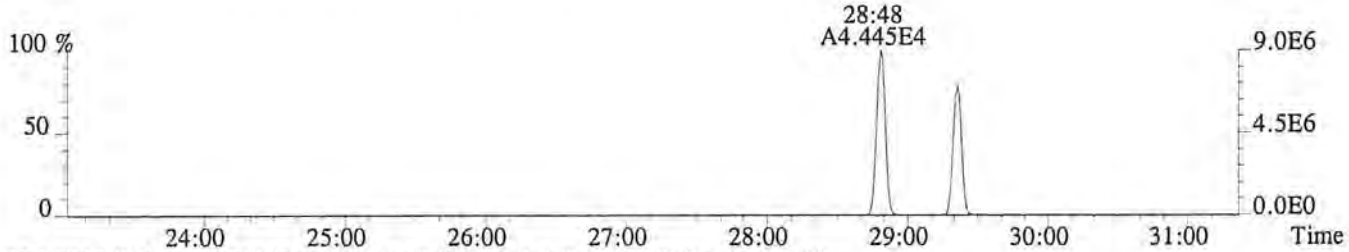
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



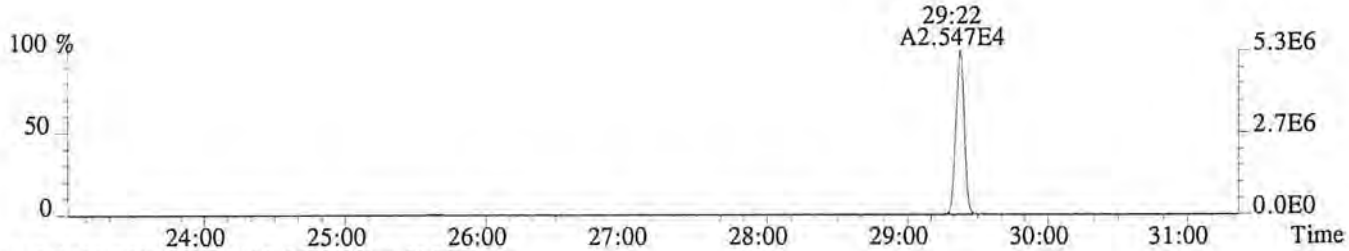
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5472.0,1.00%,F,T)



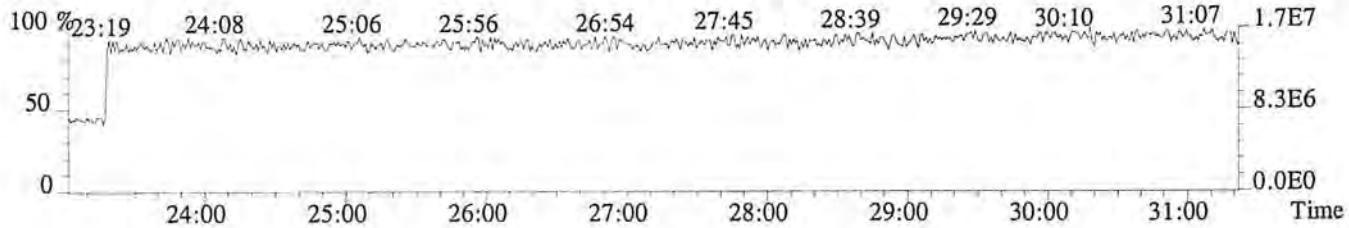
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3512.0,1.00%,F,T)



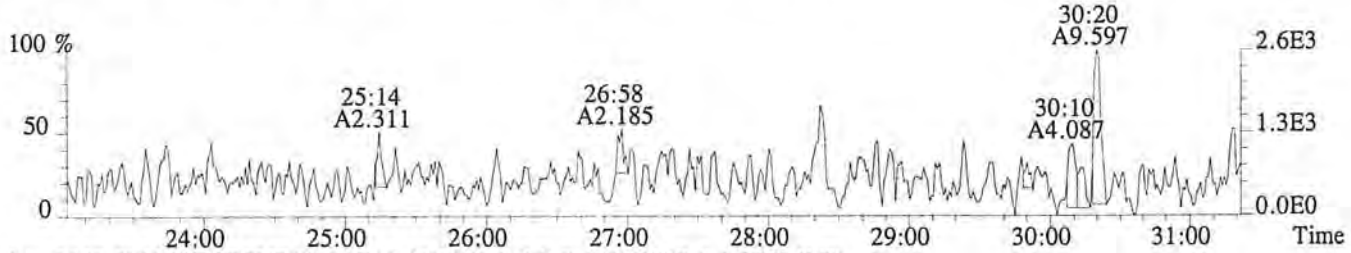
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



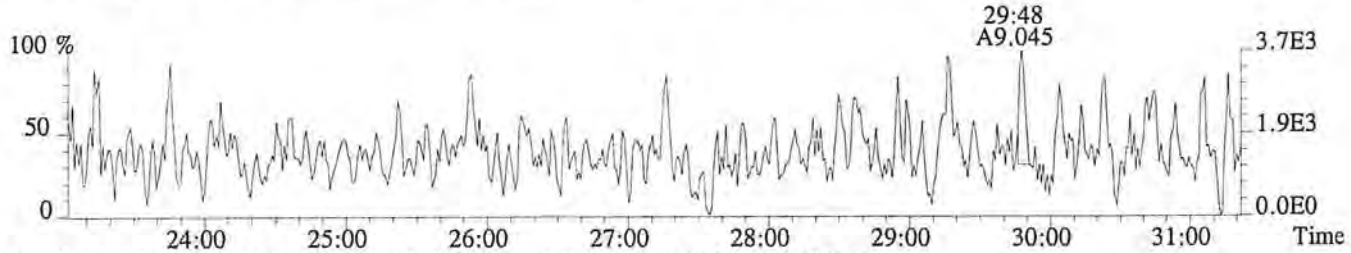
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



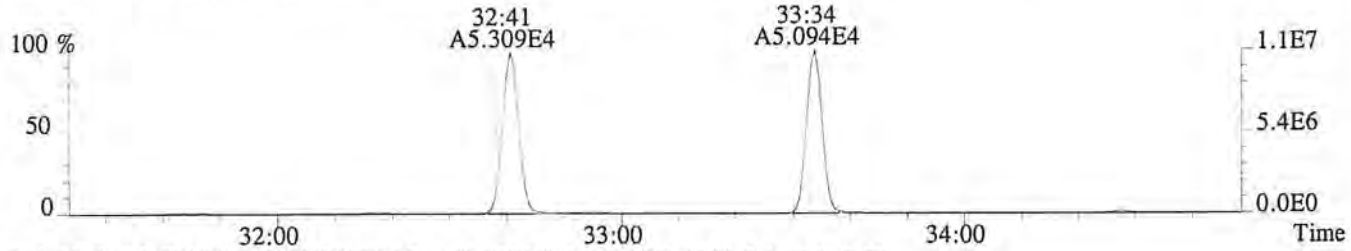
File:P301068 #1-591 Acq:28-AUG-2015 07:11:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-007
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



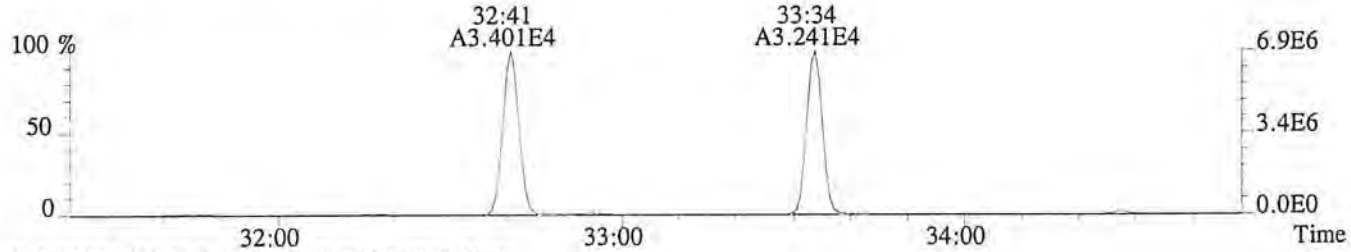
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)



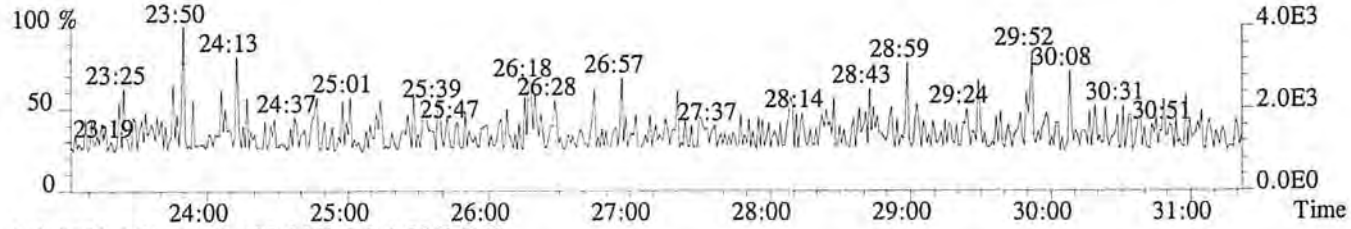
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



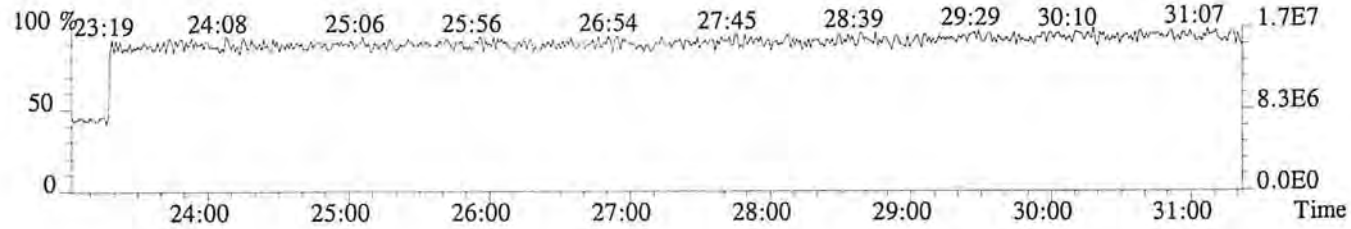
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



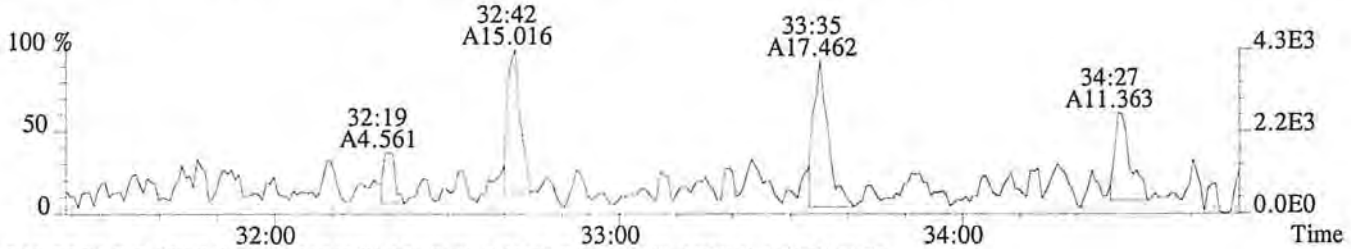
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



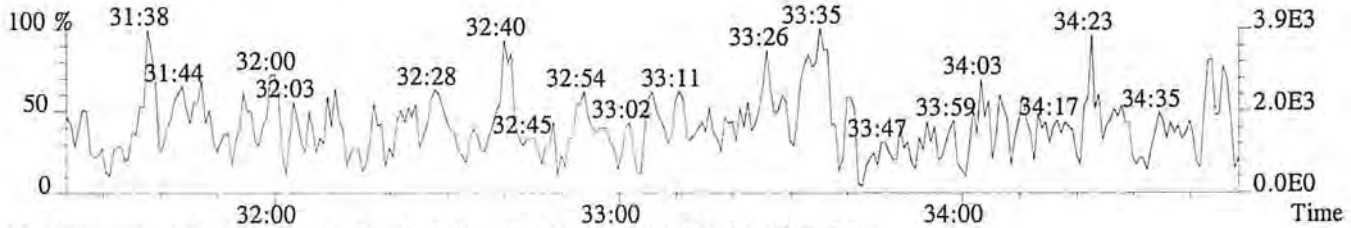
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



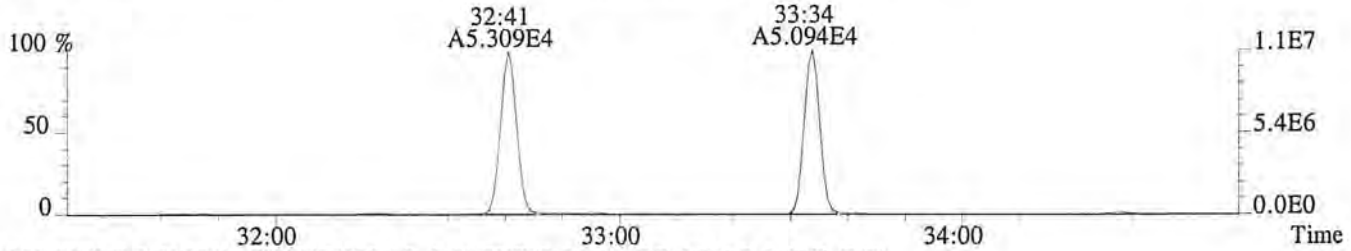
File:P301068 #1-308 Acq:28-AUG-2015 07:11:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-007
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



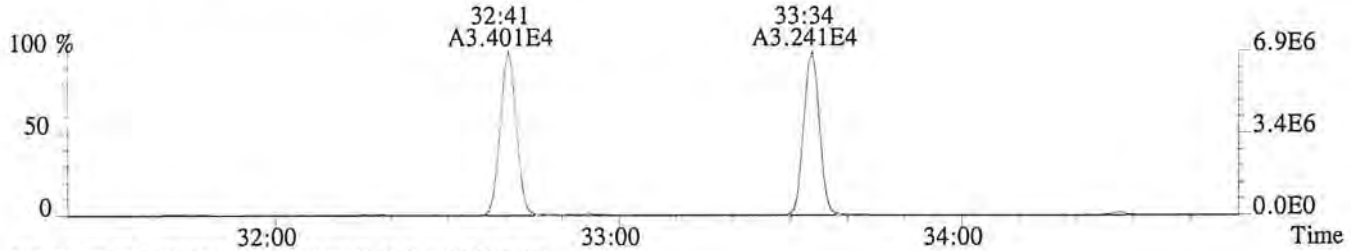
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)



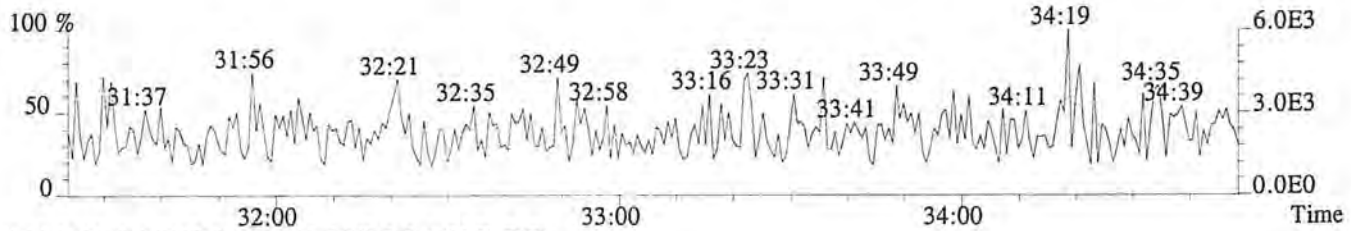
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



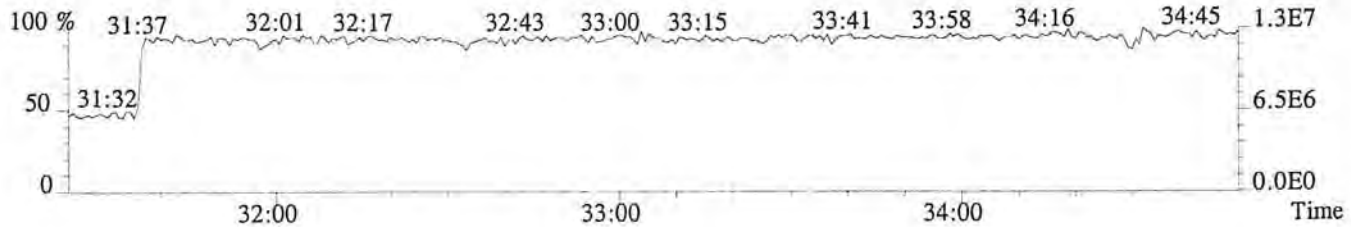
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



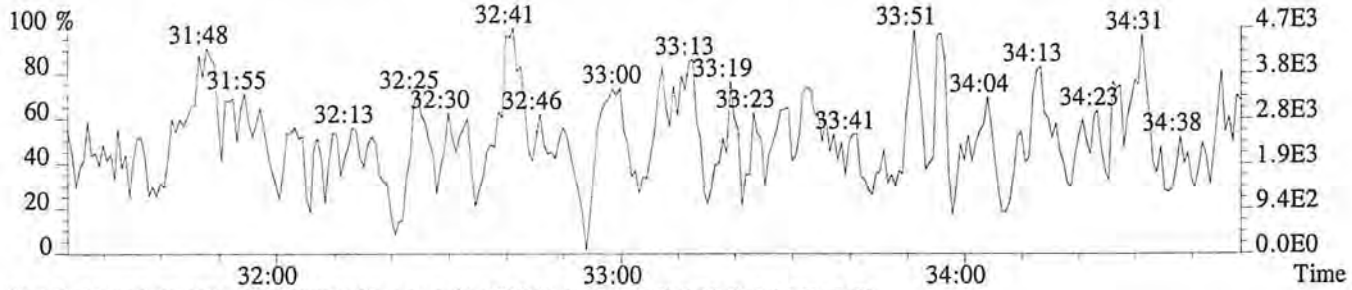
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



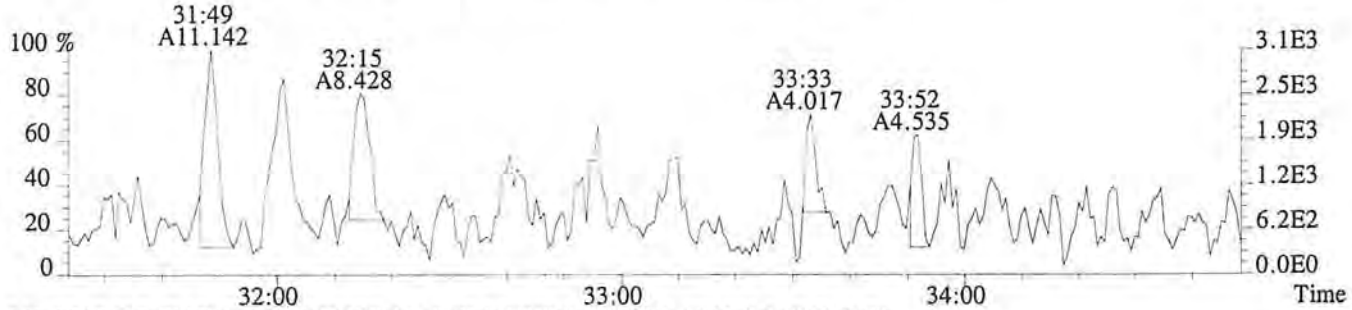
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



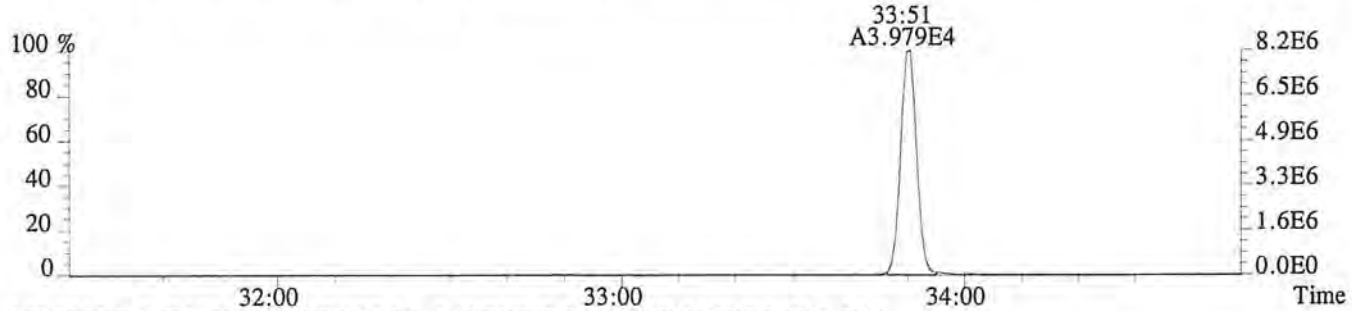
File:P301068 #1-308 Acq:28-AUG-2015 07:11:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-007
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2936.0,1.00%,F,T)



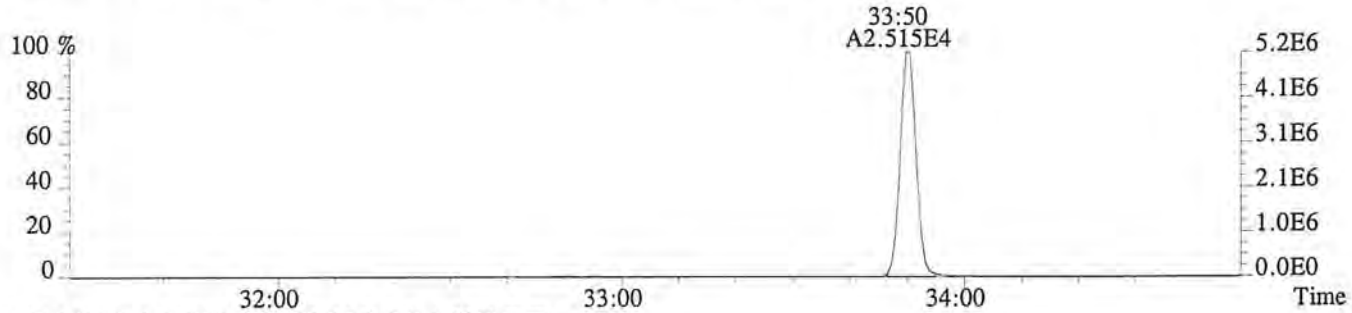
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



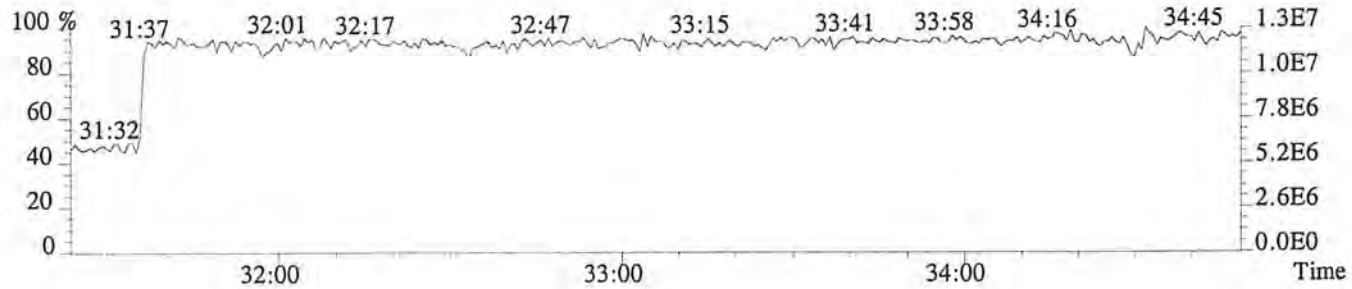
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



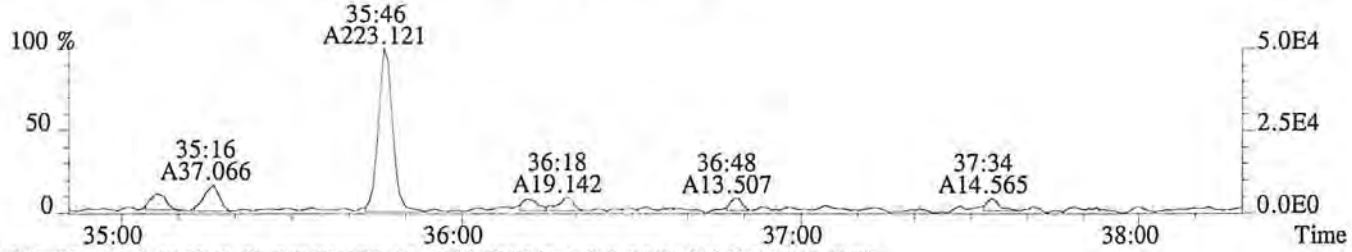
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



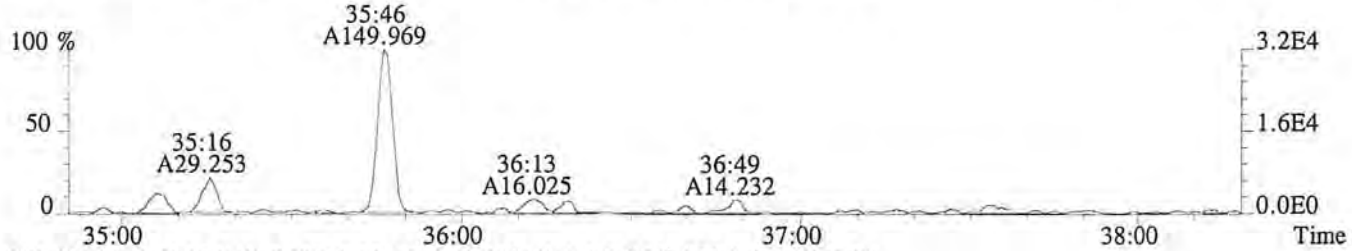
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



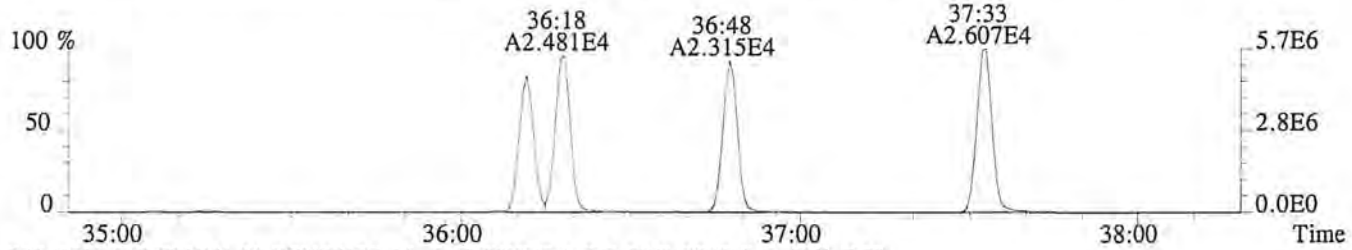
File:P301068 #1-312 Acq:28-AUG-2015 07:11:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-007
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1448.0,0.40%,F,T)



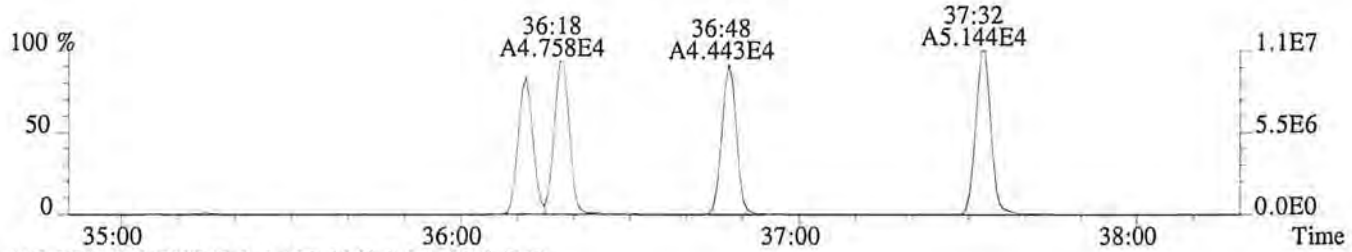
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



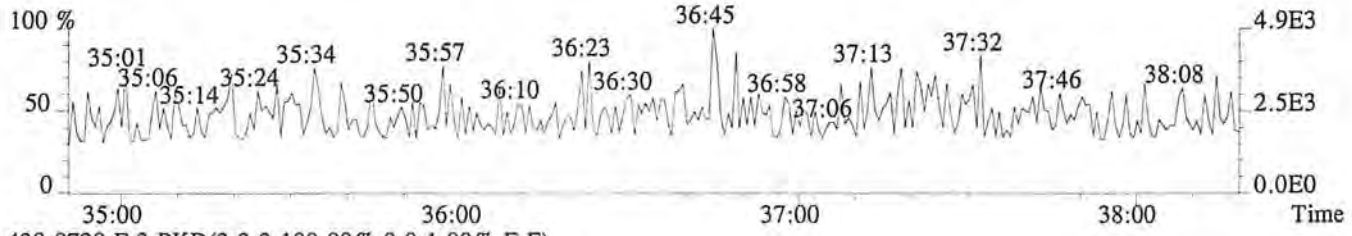
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



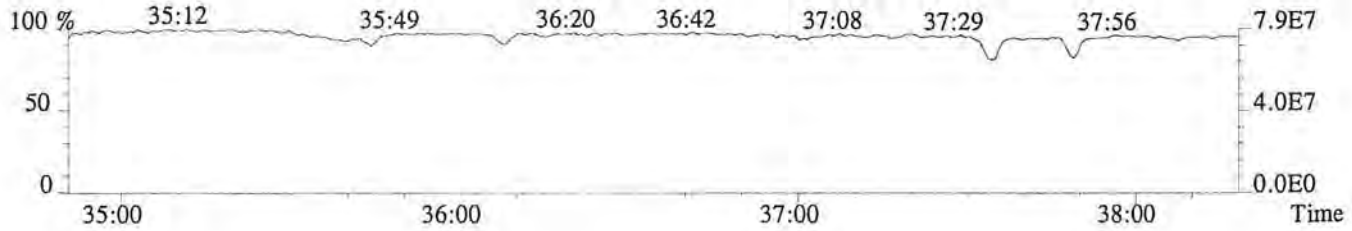
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2212.0,0.40%,F,T)



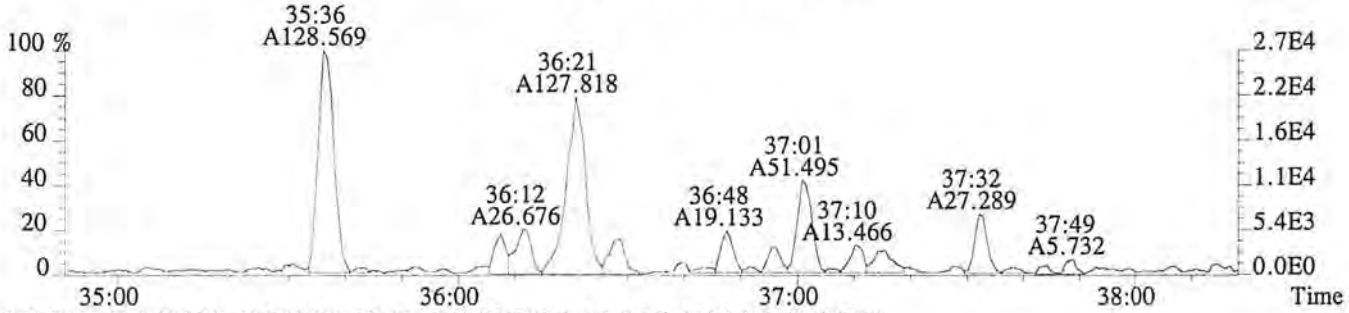
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



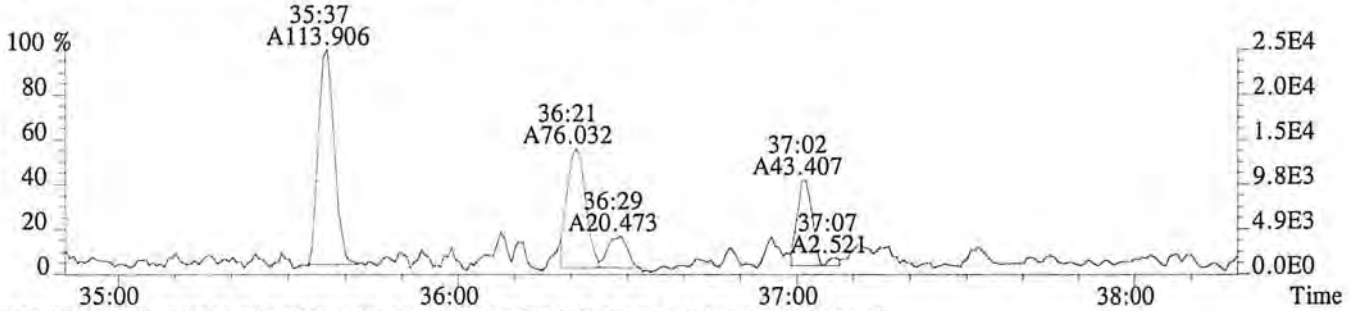
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



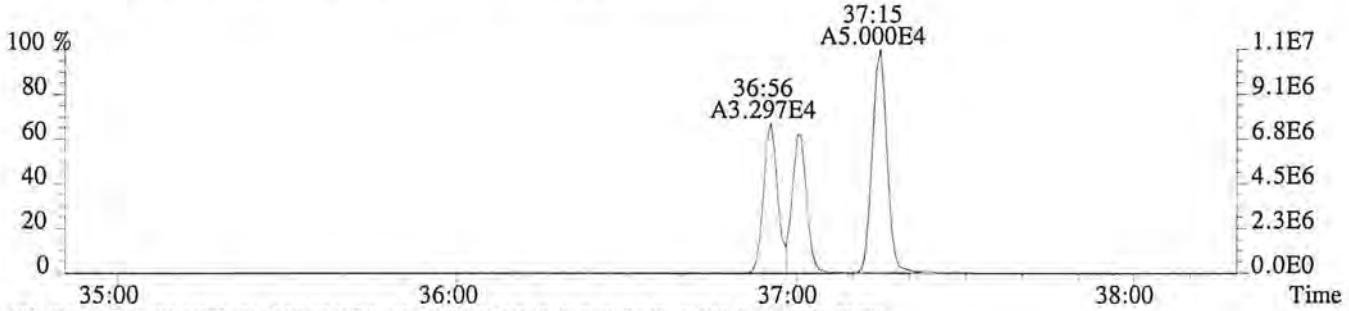
File:P301068 #1-312 Acq:28-AUG-2015 07:11:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-007
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



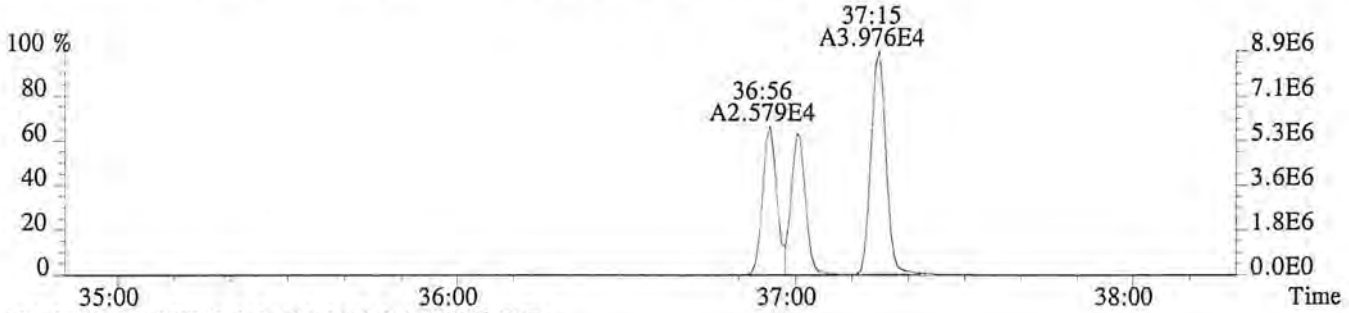
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1796.0,0.40%,F,T)



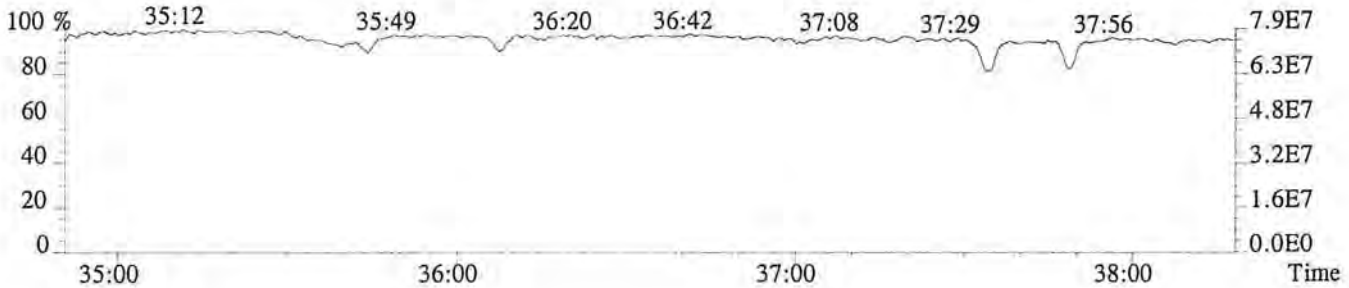
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1584.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



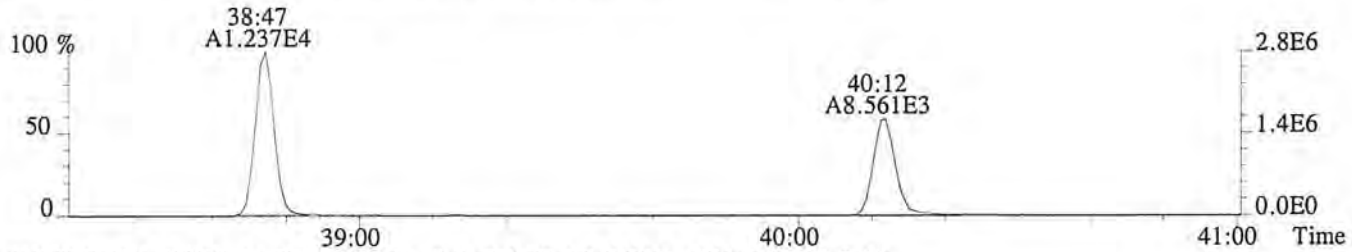
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



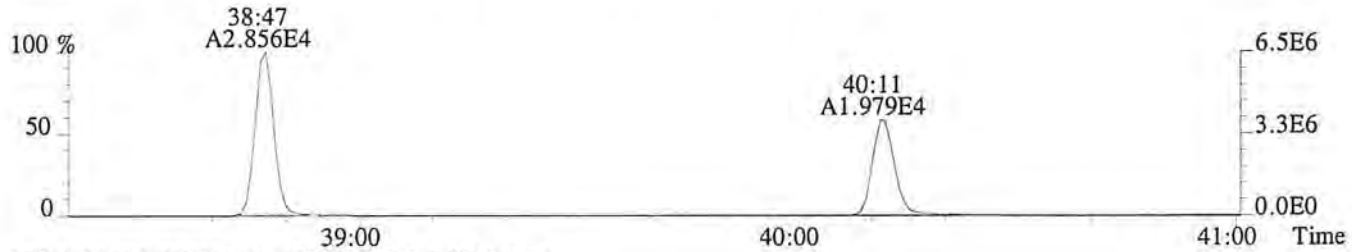
File:P301068 #1-241 Acq:28-AUG-2015 07:11:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-007
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1340.0,0.50%,F,T)

409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1448.0,0.50%,F,T)

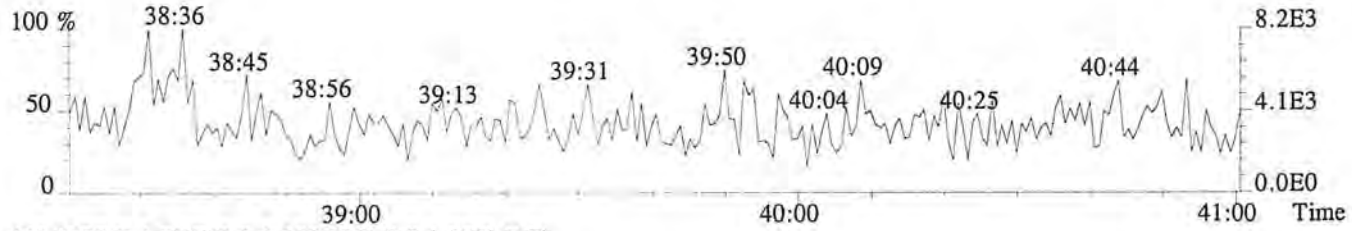
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2628.0,0.50%,F,T)



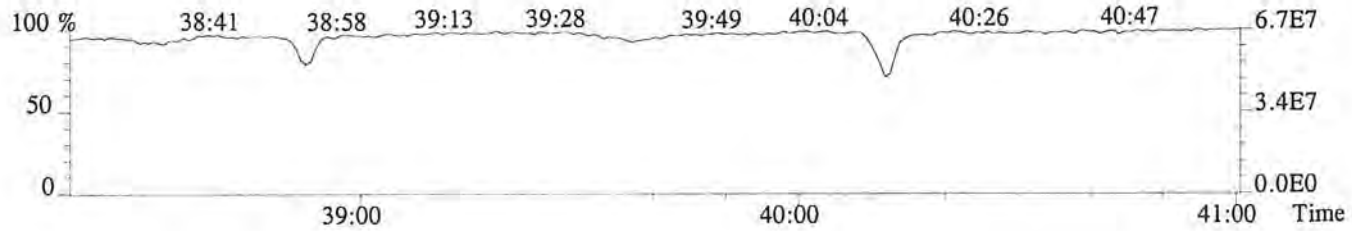
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1724.0,0.50%,F,T)



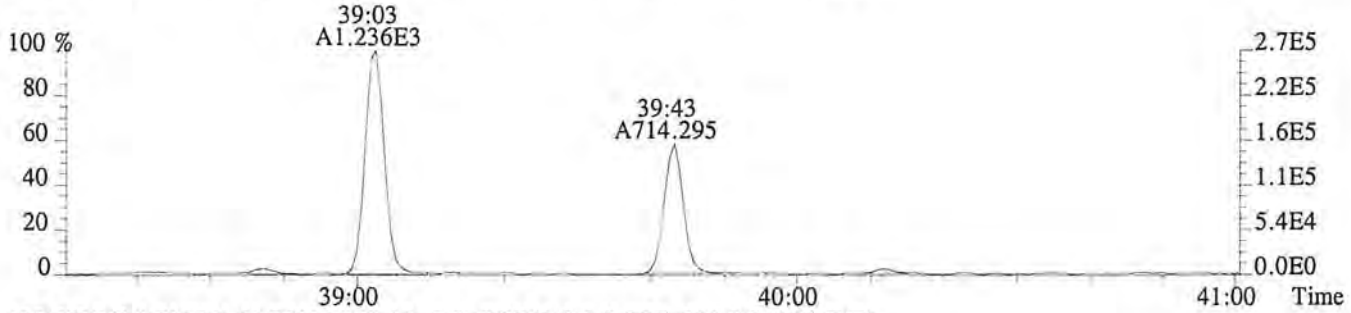
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



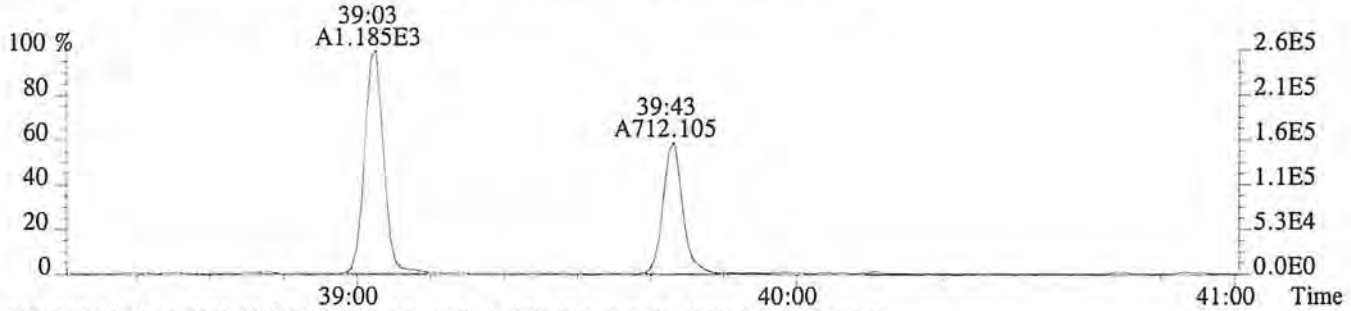
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



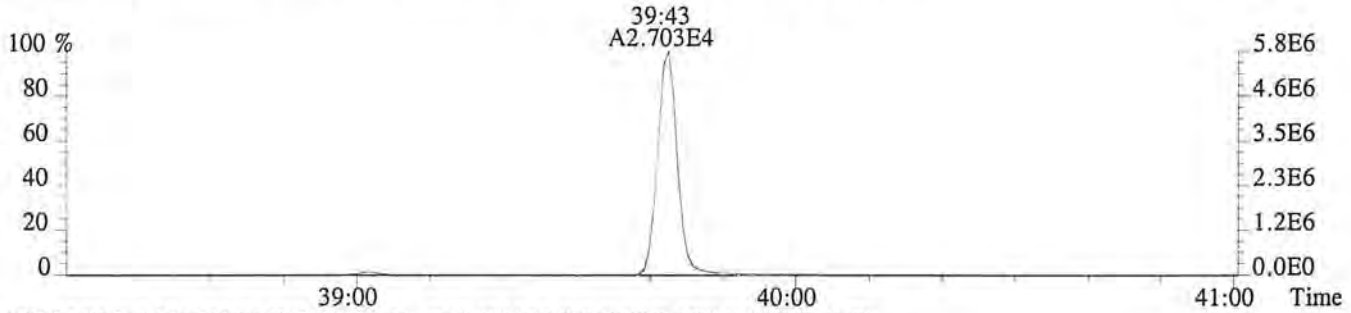
File:P301068 #1-241 Acq:28-AUG-2015 07:11:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-007
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1756.0,0.40%,F,T)



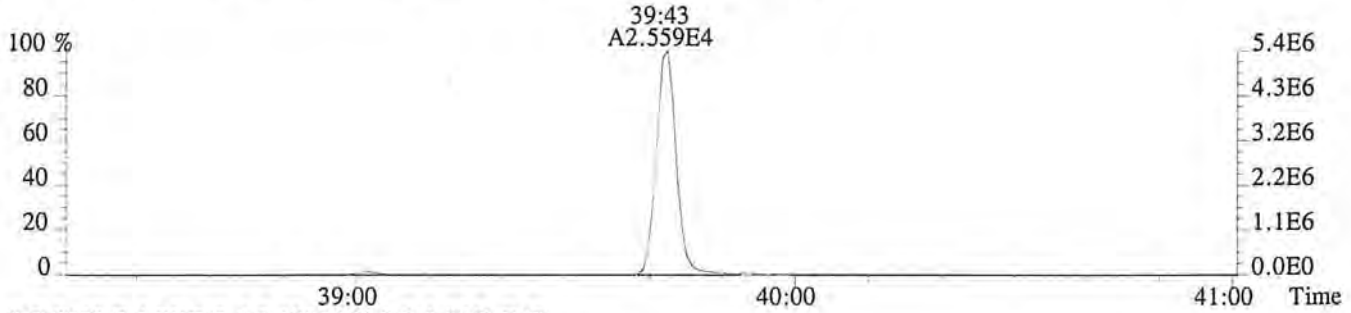
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



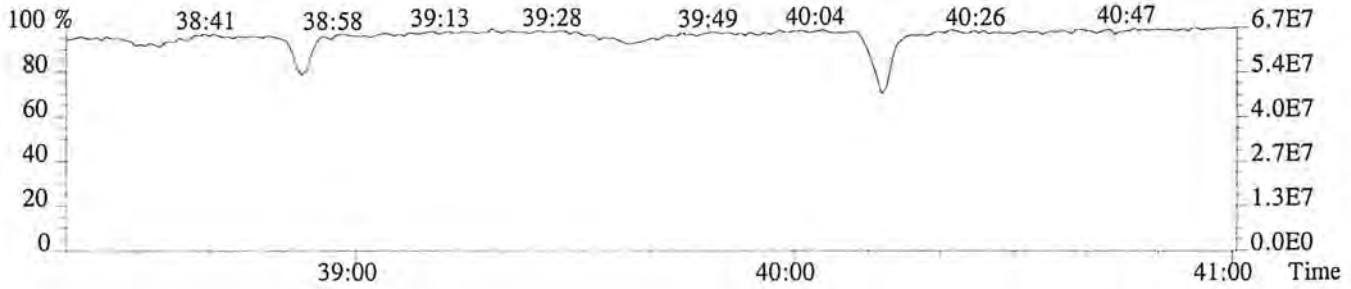
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1976.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)

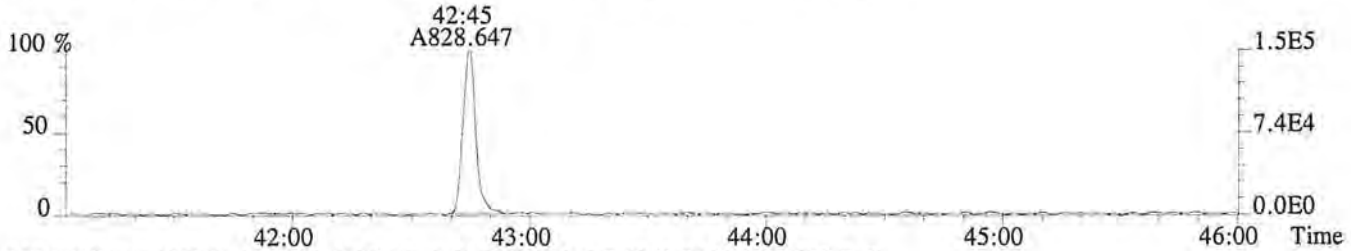


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



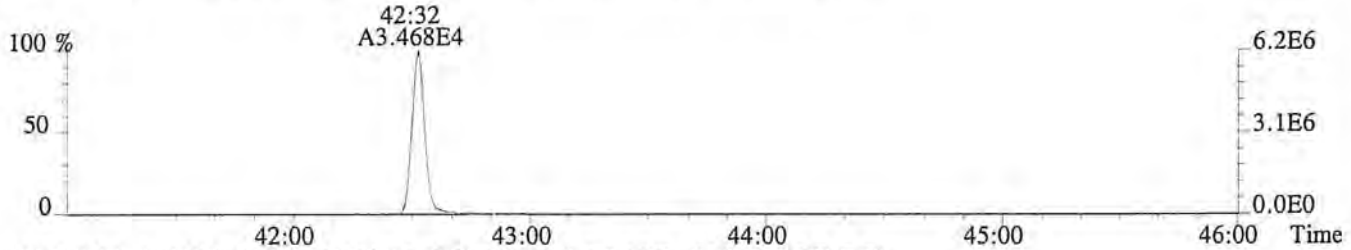
File:P301068 #1-447 Acq:28-AUG-2015 07:11:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-007

441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1452.0,0.40%,F,T)

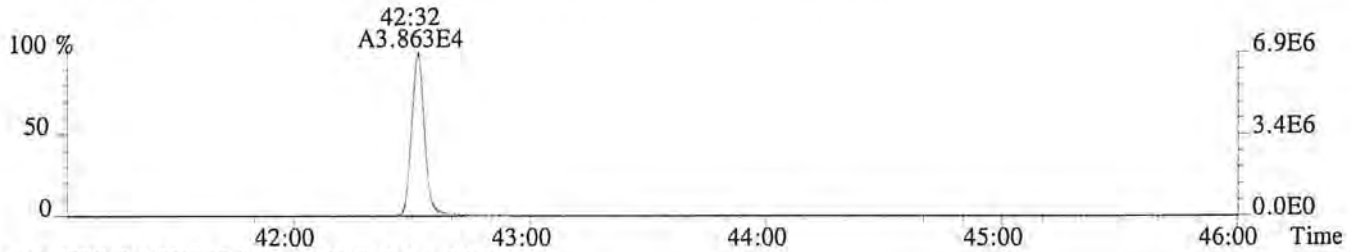


443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2464.0,0.40%,F,T)

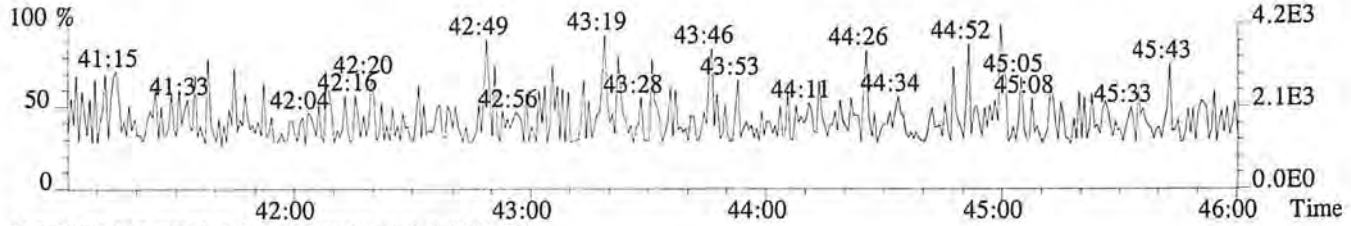
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,944.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)

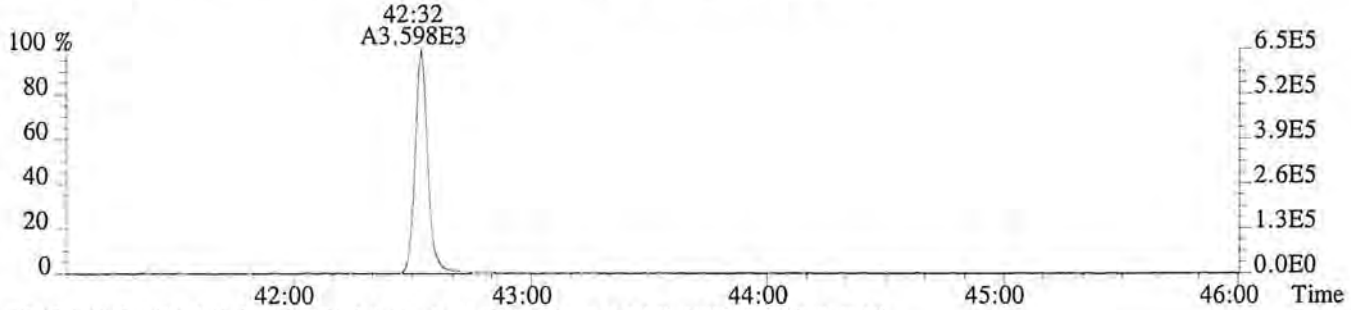


513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

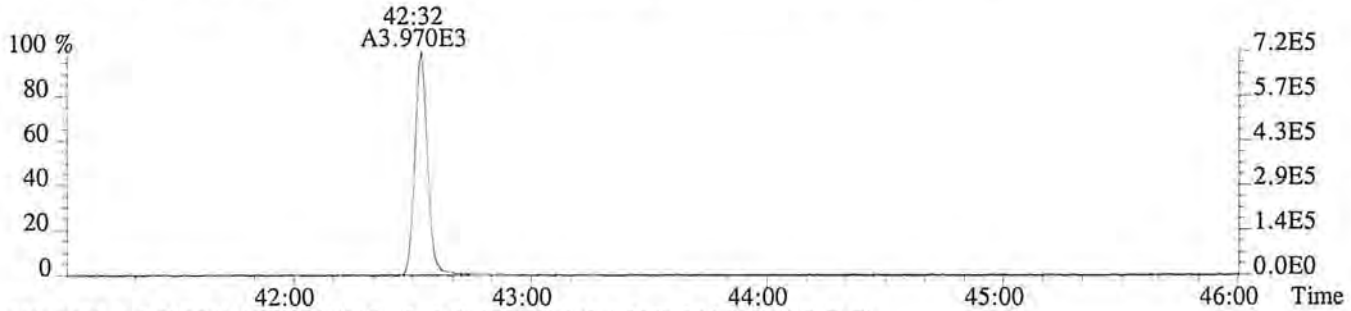


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

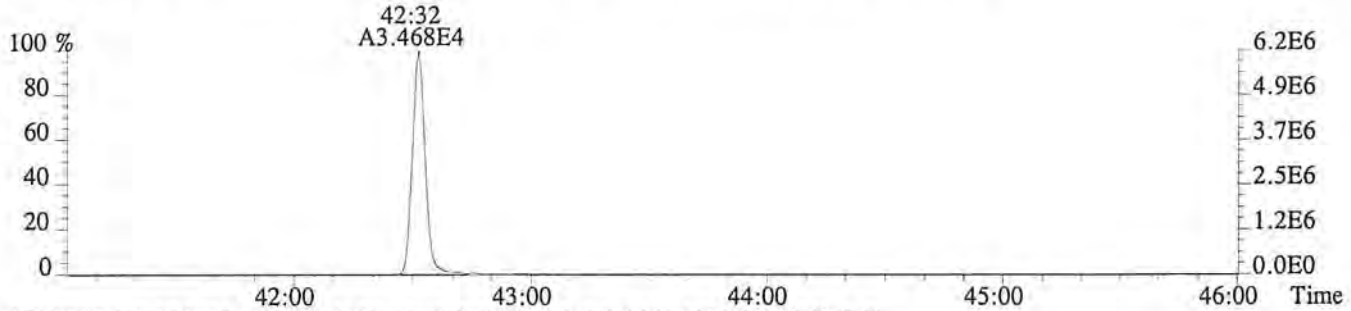
File:P301068 #1-447 Acq:28-AUG-2015 07:11:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-007
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,964.0,0.40%,F,T)



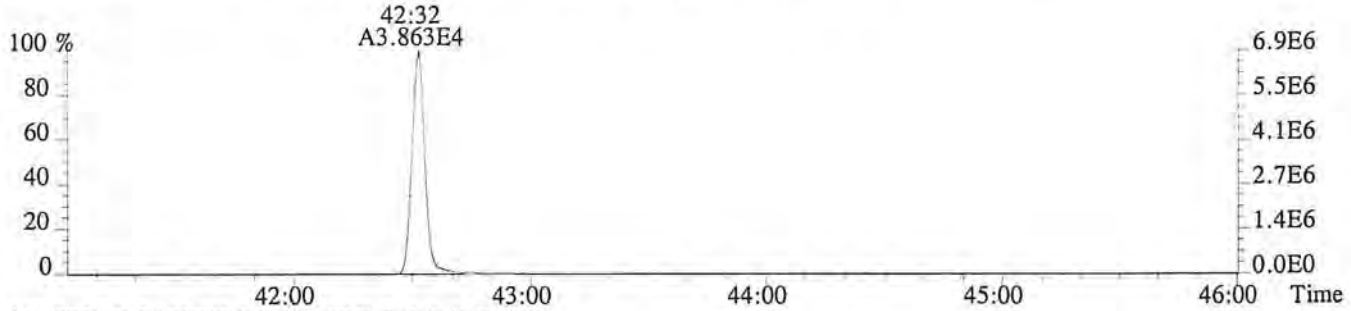
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1028.0,0.40%,F,T)



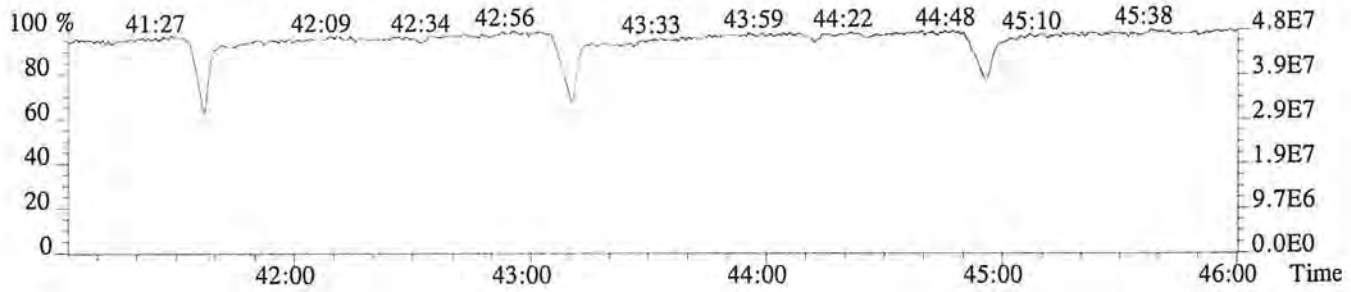
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,944.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-05-15 MT3

Run #10 Filename P301069 Samp: 1 Inj: 1 Acquired: 28-AUG-15 08:00:09
Processed: 28-AUG-15 16:51:44 Sample ID: E1500743-008

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	6.723e+02	8.715e+02	0.77	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.808e+02	2.563e+02	1.10	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.245
10	Unk	OCDF	42:44	7.723e+02	9.027e+02	0.86	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:23	3.319e+02	4.293e+02	0.77	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:02	4.834e+01	3.369e+01	1.43	no	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	6.832e+02	7.280e+02	0.94	yes	no	0.949
17	Unk	OCDD	42:32	3.772e+03	4.267e+03	0.88	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:37	3.042e+04	3.846e+04	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	4.985e+04	3.159e+04	1.58	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:34	4.933e+04	3.108e+04	1.59	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	2.092e+04	4.025e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	2.393e+04	4.607e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	2.274e+04	4.405e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:33	2.987e+04	5.715e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	1.366e+04	3.081e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:12	1.169e+04	2.670e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:21	2.437e+04	3.117e+04	0.78	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:51	3.729e+04	2.353e+04	1.58	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:56	3.043e+04	2.366e+04	1.29	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:01	3.112e+04	2.438e+04	1.28	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.538e+04	2.420e+04	1.05	yes	no	0.850
32	IS	13C-OCDD	42:32	3.327e+04	3.686e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:49	3.153e+04	4.055e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:15	4.744e+04	3.767e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	2.317e+04				no	1.001

$$\text{OCDD} = \frac{(3.772e{+}03 + 4.267e{+}03) \times 4000 \text{ pg} \times 1}{(3.327e{+}04 + 3.686e{+}04) \times 10.129 \text{ g} \times 100 \;/\; 100 \times 1.061} = 42.66 \text{ ng/kg}$$

UM 08/31/15

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-05-15 MT3/MT

Run #10 Filename P301069 Samp: 1 Inj: 1 Acquired: 28-AUG-15 08:00:09
Processed: 28-AUG-15 16:51:44 LAB. ID: E1500743-008

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.32e+05	1.57e+03	8.4e+01	1.75e+05	1.79e+03	9.8e+01
2	1,2,3,7,8-PeCDF	*	9.16e+02	*	*	2.47e+03	*
3	2,3,4,7,8-PeCDF	*	9.16e+02	*	*	2.47e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.30e+03	*	*	6.08e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.30e+03	*	*	6.08e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.30e+03	*	*	6.08e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.30e+03	*	*	6.08e+02	*
8	1,2,3,4,6,7,8-HpCDF	6.32e+04	1.32e+03	4.8e+01	5.71e+04	1.50e+03	3.8e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.32e+03	*	*	1.50e+03	*
10	OCDF	1.29e+05	9.16e+02	1.4e+02	1.65e+05	1.76e+03	9.4e+01
11	2,3,7,8-TCDD	6.98e+04	1.51e+03	4.6e+01	9.07e+04	1.18e+03	7.7e+01
12	1,2,3,7,8-PeCDD	*	1.87e+03	*	*	8.04e+02	*
13	1,2,3,4,7,8-HxCDD	*	6.52e+02	*	*	1.46e+03	*
14	1,2,3,6,7,8-HxCDD	1.12e+04	6.52e+02	1.7e+01	7.47e+03	1.46e+03	5.1e+00
15	1,2,3,7,8,9-HxCDD	*	6.52e+02	*	*	1.46e+03	*
16	1,2,3,4,6,7,8-HpCDD	1.44e+05	1.14e+03	1.3e+02	1.54e+05	5.72e+02	2.7e+02
17	OCDD	6.87e+05	7.56e+02	9.1e+02	7.73e+05	1.38e+03	5.6e+02
18	13C-2,3,7,8-TCDF	6.07e+06	1.71e+03	3.5e+03	7.72e+06	1.70e+03	4.5e+03
19	13C-1,2,3,7,8-PeCDF	1.01e+07	6.88e+02	1.5e+04	6.39e+06	1.90e+03	3.4e+03
20	13C-2,3,4,7,8-PeCDF	1.02e+07	6.88e+02	1.5e+04	6.48e+06	1.90e+03	3.4e+03
21	13C-1,2,3,4,7,8-HxCDF	4.70e+06	7.96e+02	5.9e+03	8.92e+06	2.28e+03	3.9e+03
22	13C-1,2,3,6,7,8-HxCDF	5.29e+06	7.96e+02	6.7e+03	1.02e+07	2.28e+03	4.5e+03
23	13C-2,3,4,6,7,8-HxCDF	5.25e+06	7.96e+02	6.6e+03	1.01e+07	2.28e+03	4.4e+03
24	13C-1,2,3,7,8,9-HxCDF	6.58e+06	7.96e+02	8.3e+03	1.26e+07	2.28e+03	5.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.12e+06	3.00e+03	1.0e+03	6.95e+06	3.02e+03	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.30e+06	3.00e+03	7.7e+02	5.23e+06	3.02e+03	1.7e+03
27	13C-2,3,7,8-TCDD	5.07e+06	6.02e+03	8.4e+02	6.47e+06	3.40e+03	1.9e+03
28	13C-1,2,3,7,8-PeCDD	7.92e+06	2.19e+03	3.6e+03	5.03e+06	1.42e+03	3.5e+03
29	13C-1,2,3,4,7,8-HxCDD	7.03e+06	1.58e+03	4.5e+03	5.43e+06	1.76e+03	3.1e+03
30	13C-1,2,3,6,7,8-HxCDD	6.95e+06	1.58e+03	4.4e+03	5.43e+06	1.76e+03	3.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.33e+06	1.21e+03	4.4e+03	5.06e+06	7.80e+02	6.5e+03
32	13C-OCDD	5.94e+06	7.16e+02	8.3e+03	6.59e+06	1.36e+03	4.8e+03
33	13C-1,2,3,4-TCDD	6.31e+06	6.02e+03	1.0e+03	8.08e+06	3.40e+03	2.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.04e+07	1.58e+03	6.6e+03	8.25e+06	1.76e+03	4.7e+03
35	37Cl-2,3,7,8-TCDD	4.90e+06	7.60e+02	6.5e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-05-15 MT3/MT

Entry: 36 Totals Name: Total Tetra-Furans

Run: 10 File: P301069 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 08:00:09 Processed: 28-AUG-15 16:51:44

Mass: 303.9020 305.8990 Tot Response: 1.54e+03 RRF: 0.8496

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:37	6.72e+02	8.72e+02	0.77	yes	1.54e+03	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-05-15 MT3/MT

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 10 File: P301069 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 08:00:09 Processed: 28-AUG-15 16:51:44

Mass: 319.8970 321.8940 Tot Response: 7.61e+02 RRF: 0.9567

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:23	3.32e+02	4.29e+02	0.77	yes	7.61e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.

PLY-05-15 MT3/MT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P301069 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 08:00:09 Processed: 28-AUG-15 16:51:44

Mass: 373.8210 375.8180 Tot Response: 9.94e+01 RRF: 1.094

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:07	1.65e+01	1.34e+01	1.23	yes	2.99e+01		n	n
2	35:16	3.97e+01	2.98e+01	1.33	yes	6.95e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-05-15 MT3/MT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P301069 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 08:00:09 Processed: 28-AUG-15 16:51:44

Mass: 389.8160 391.8130 Tot Response: 4.94e+01 RRF: 0.9904

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:28	2.59e+01	2.35e+01	1.10	yes	4.94e+01	n	n

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Peak List Summary

CLIENT ID.

PLY-05-15 MT3/MT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 10 File: P301069 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 08:00:09 Processed: 28-AUG-15 16:51:44

Mass: 407.7820 409.7790 Tot Response: 2.46e+03 RRF: 1.284

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	2.81e+02	2.56e+02	1.10	yes	5.37e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	38:53	8.41e+00	7.64e+00	1.10	yes	1.61e+01		n	n
3	39:12	9.87e+02	9.24e+02	1.07	yes	1.91e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-05-15 MT3/MT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P301069 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 08:00:09 Processed: 28-AUG-15 16:51:44

Mass: 423.7770 425.7740 Tot Response: 3.97e+03 RRF: 0.9492

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:03	1.32e+03	1.24e+03	1.07	yes	2.56e+03		n	n
2	39:43	6.83e+02	7.28e+02	0.94	yes	1.41e+03	1,2,3,4,6,7,8-HpCDD	n	n

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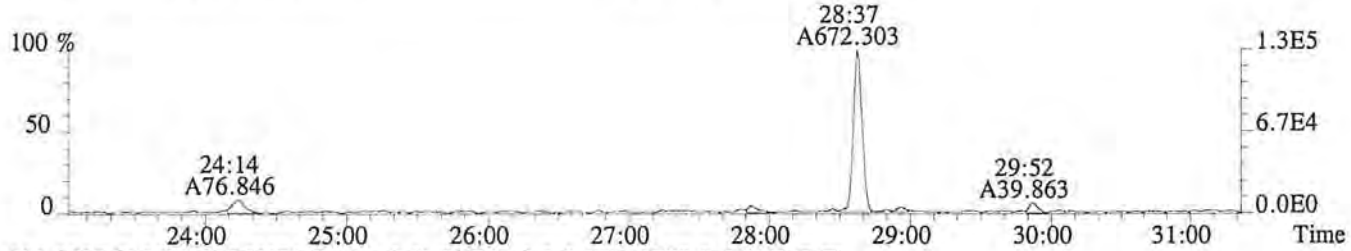
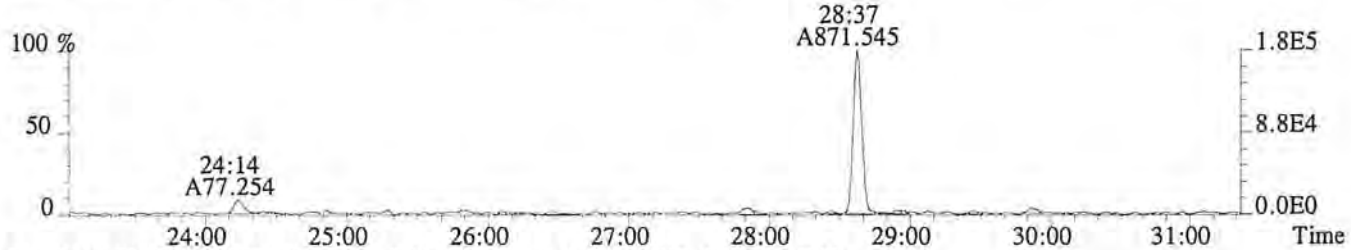
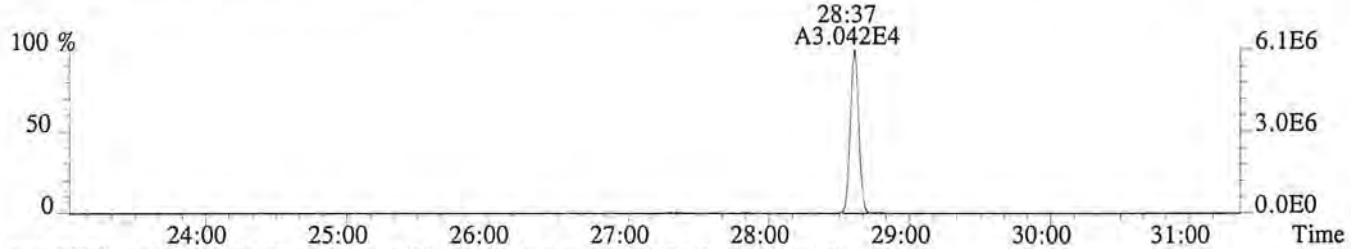
File:P301069 #1-591 Acq:28-AUG-2015 08:00:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-008
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1572.0,1.00%,F,T)



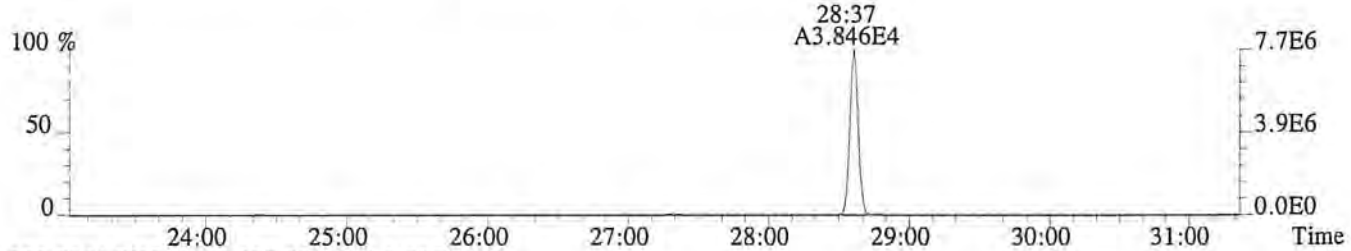
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1712.0,1.00%,F,T)

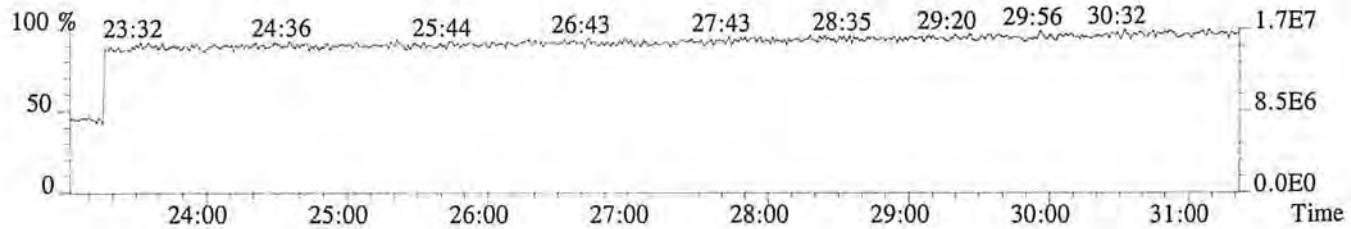


317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1700.0,1.00%,F,T)



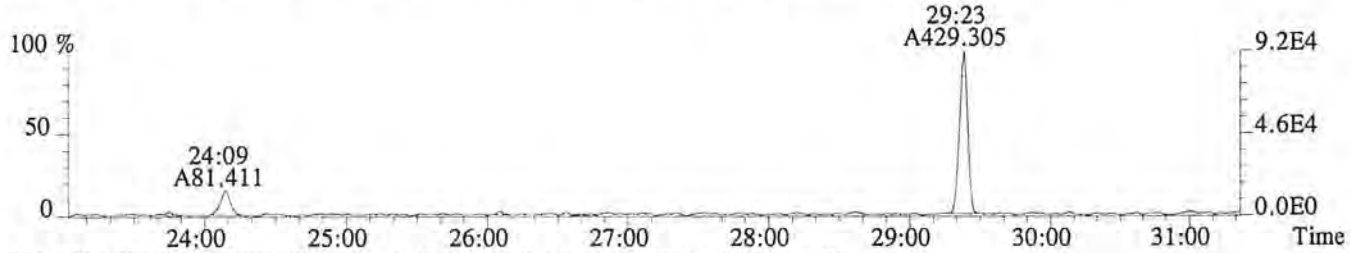
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

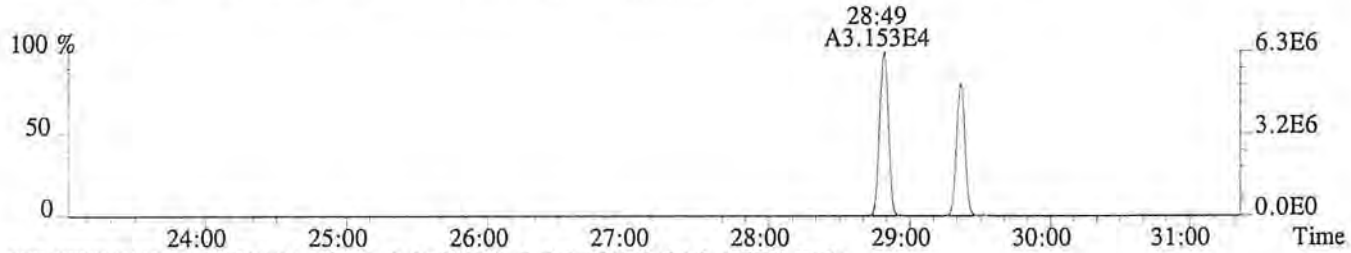


File:P301069 #1-591 Acq:28-AUG-2015 08:00:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-008
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1508.0,1.00%,F,T)

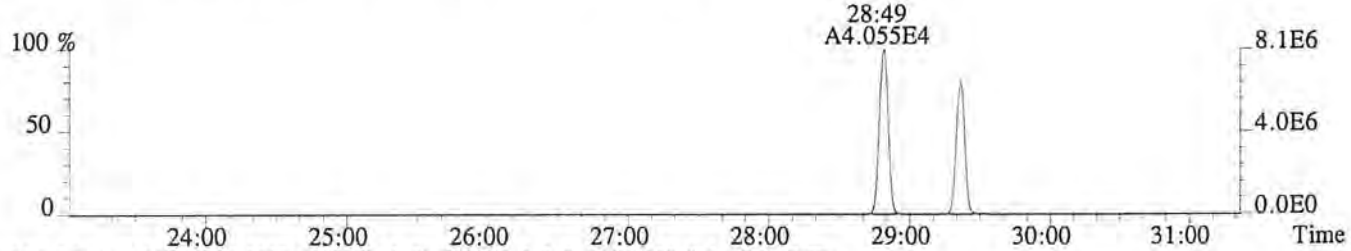
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



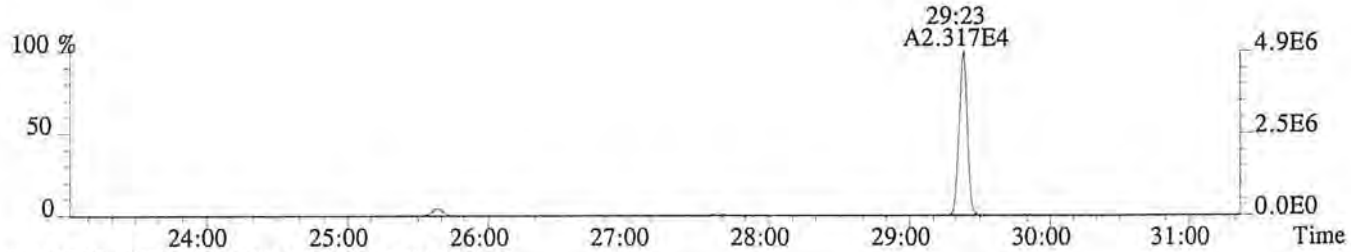
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6020.0,1.00%,F,T)



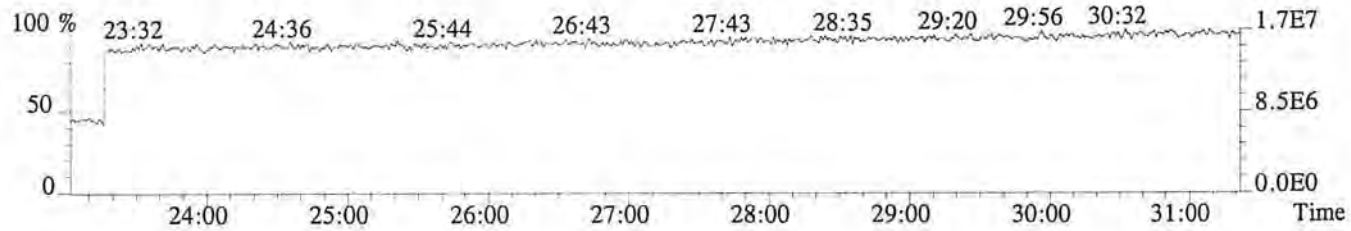
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3404.0,1.00%,F,T)



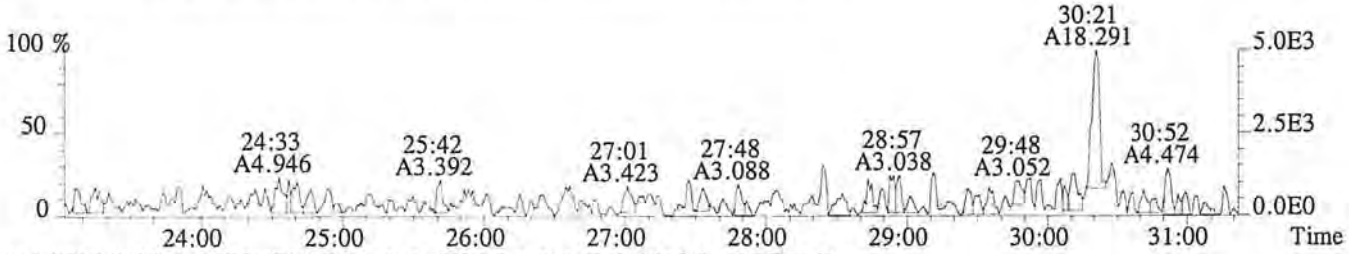
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



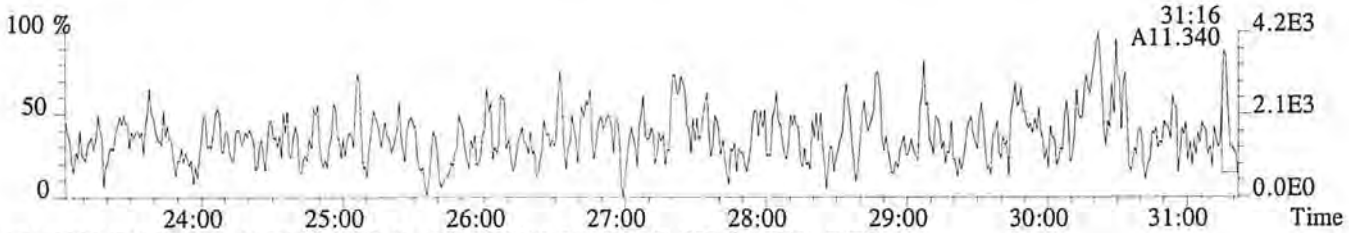
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



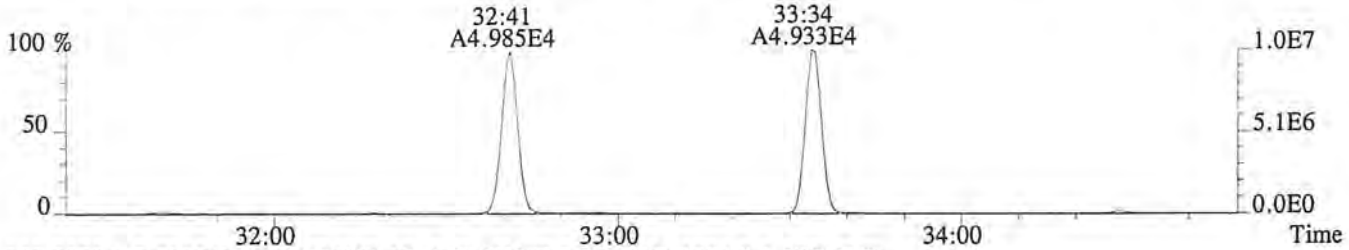
File:P301069 #1-591 Acq:28-AUG-2015 08:00:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-008
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



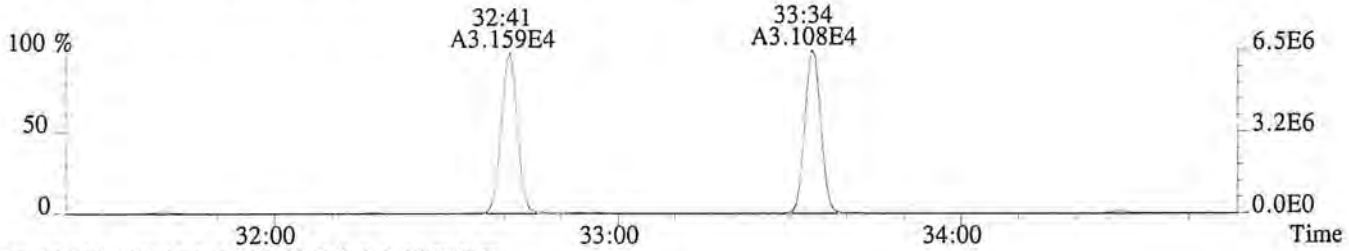
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1876.0,1.00%,F,T)



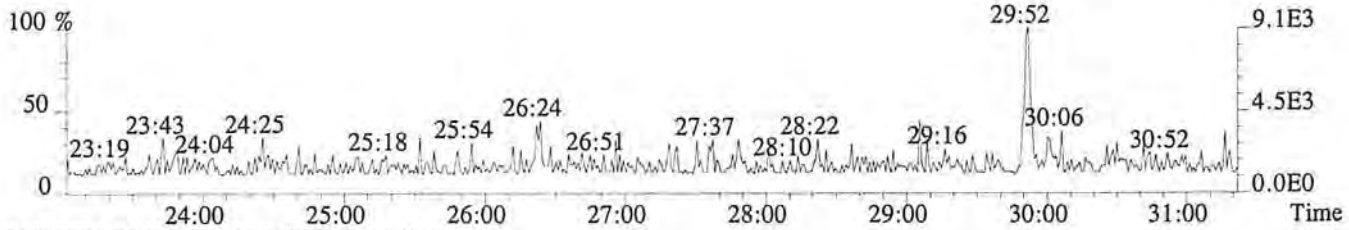
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



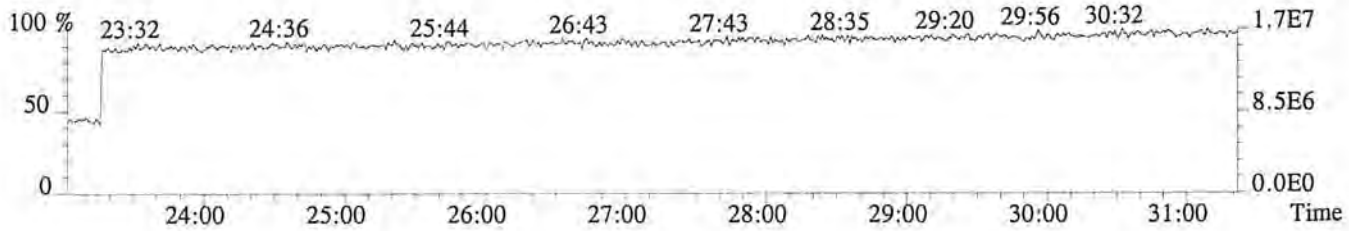
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1904.0,1.00%,F,T)



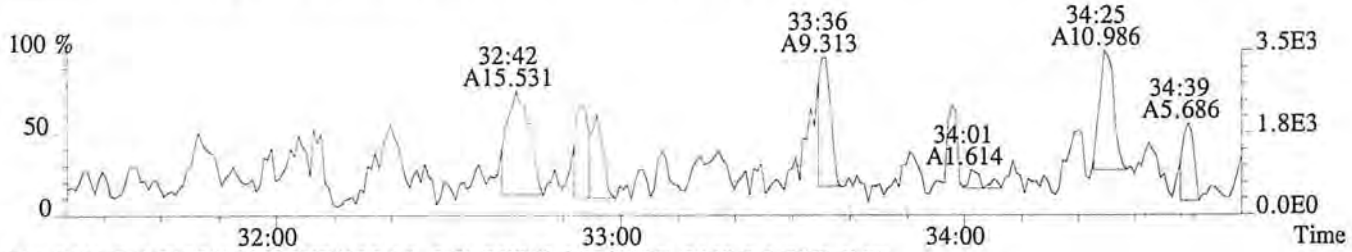
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



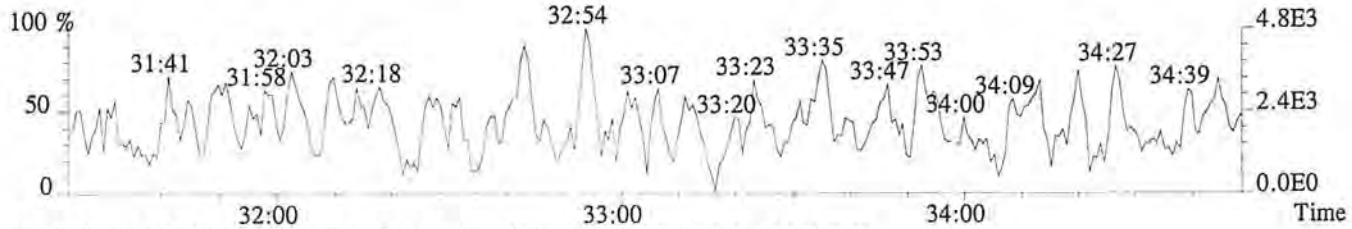
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



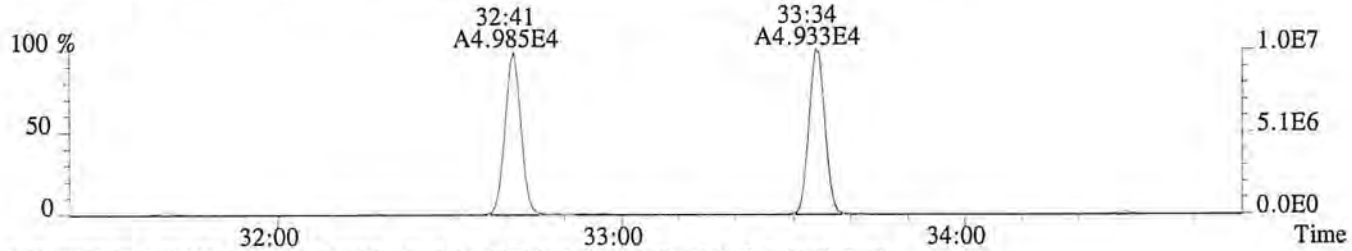
File:P301069 #1-308 Acq:28-AUG-2015 08:00:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-008
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



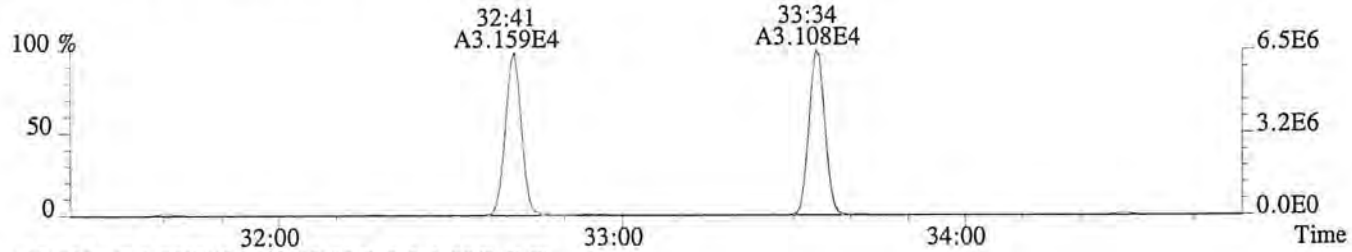
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2468.0,1.00%,F,T)



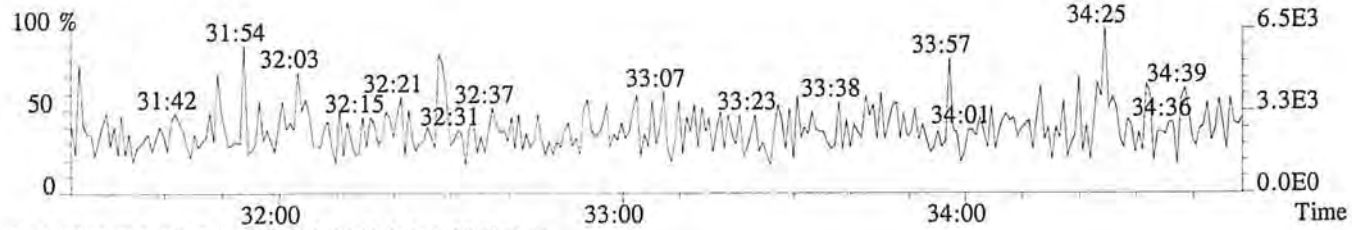
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



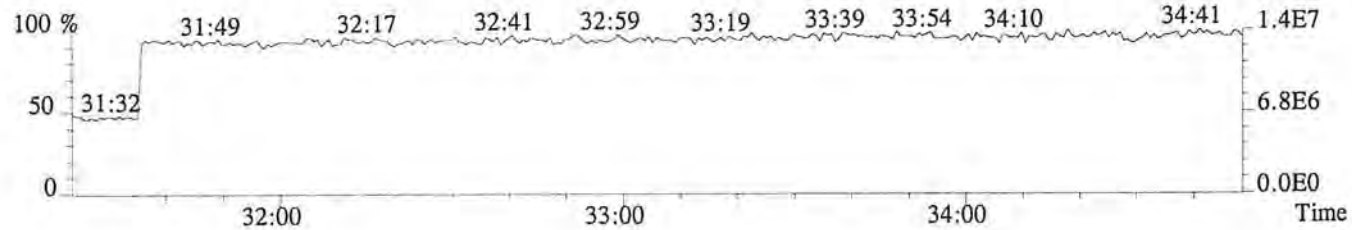
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1904.0,1.00%,F,T)



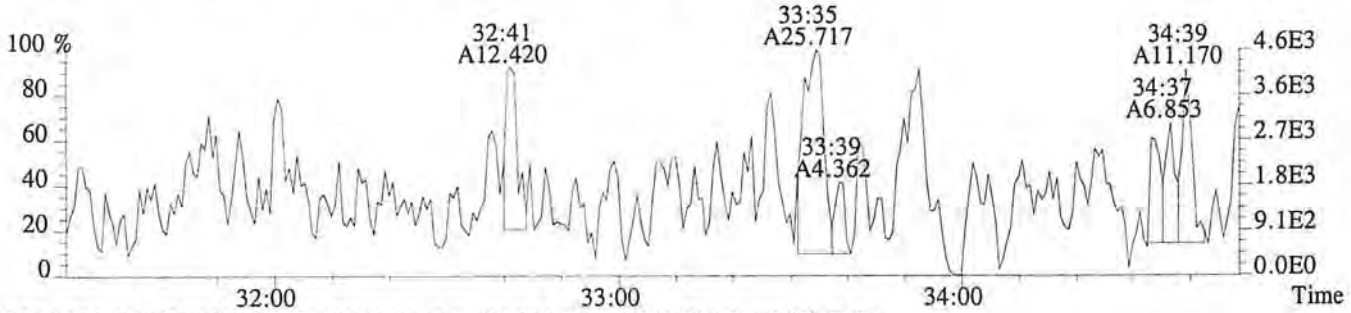
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



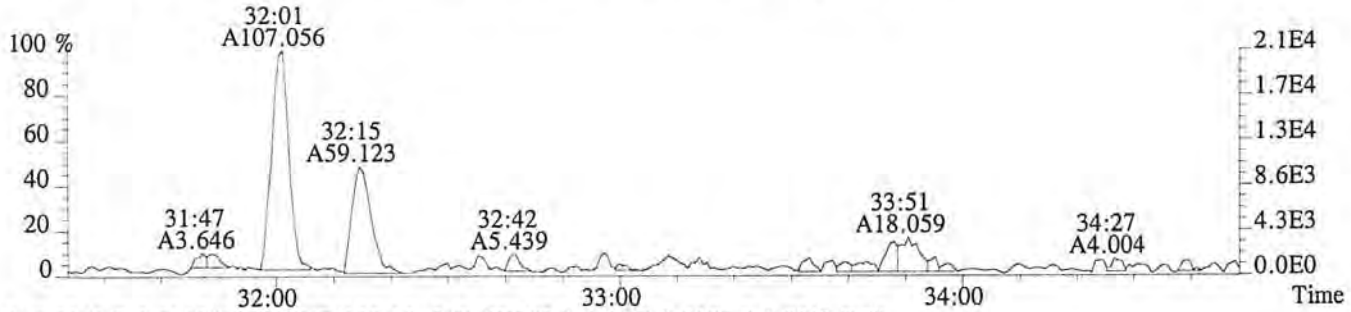
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



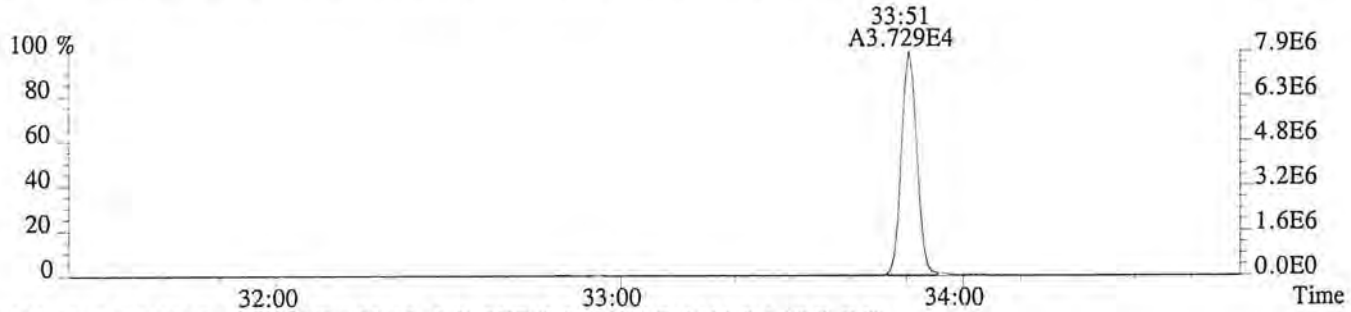
File:P301069 #1-308 Acq:28-AUG-2015 08:00:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-008
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1868.0,1.00%,F,T)



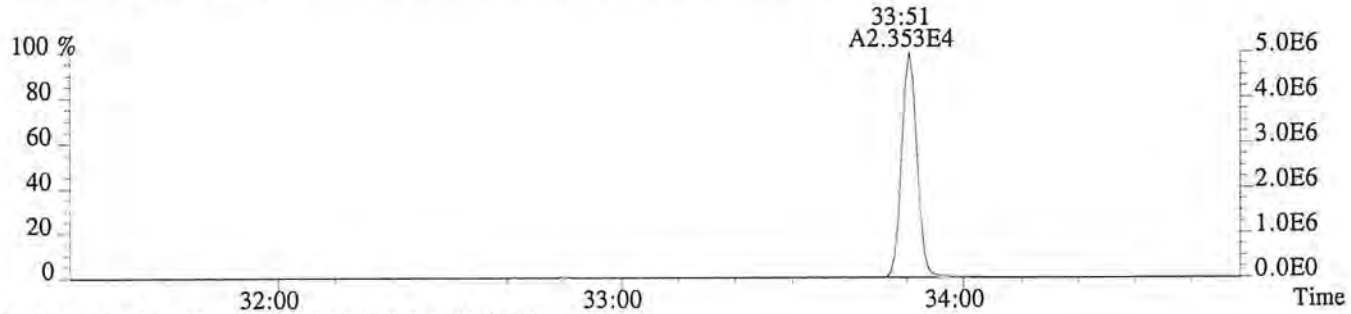
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



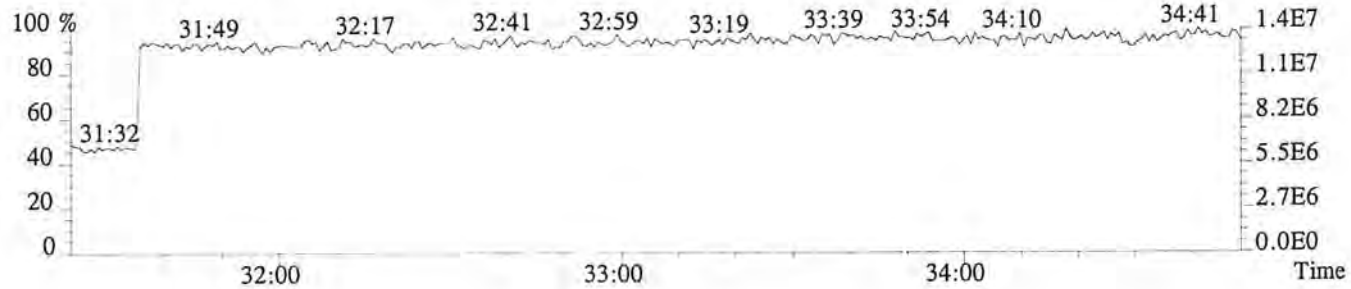
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2192.0,1.00%,F,T)



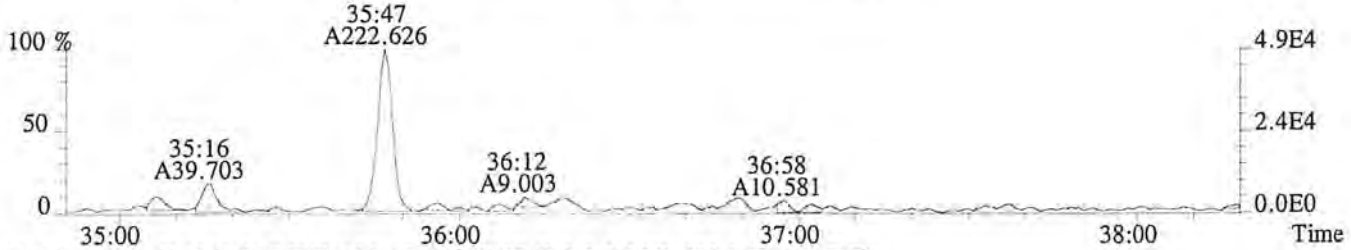
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)



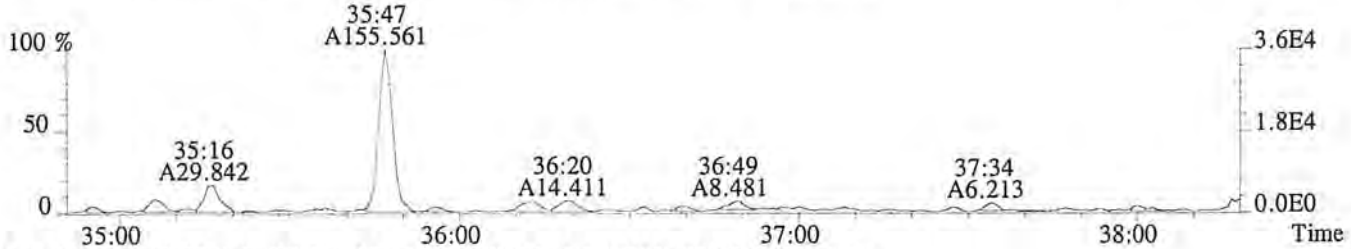
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



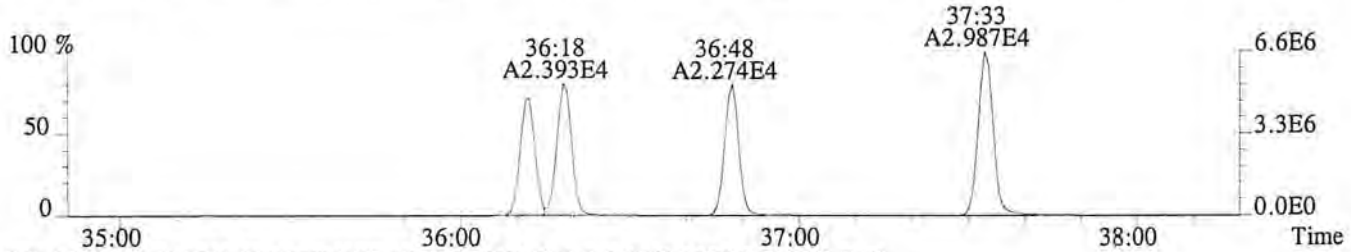
File:P301069 #1-312 Acq:28-AUG-2015 08:00:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-008
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1300.0,0.40%,F,T)



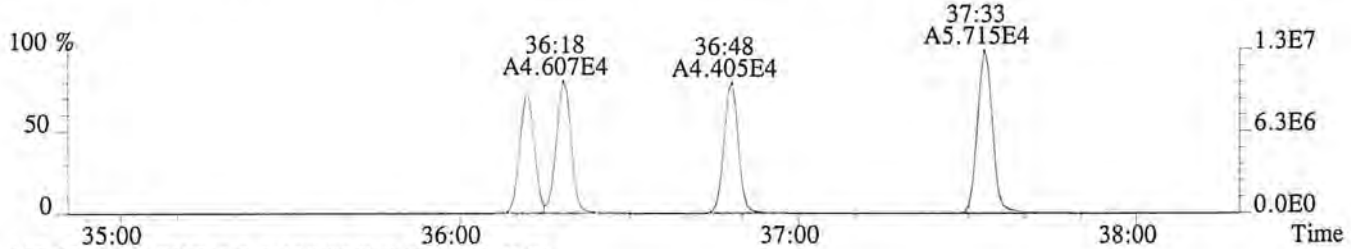
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



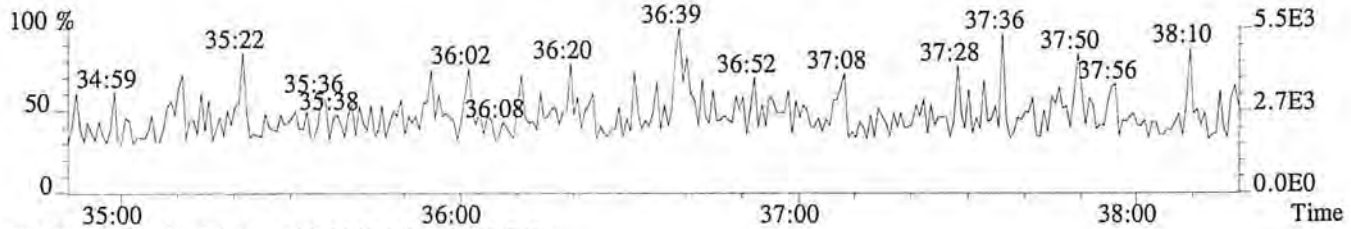
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



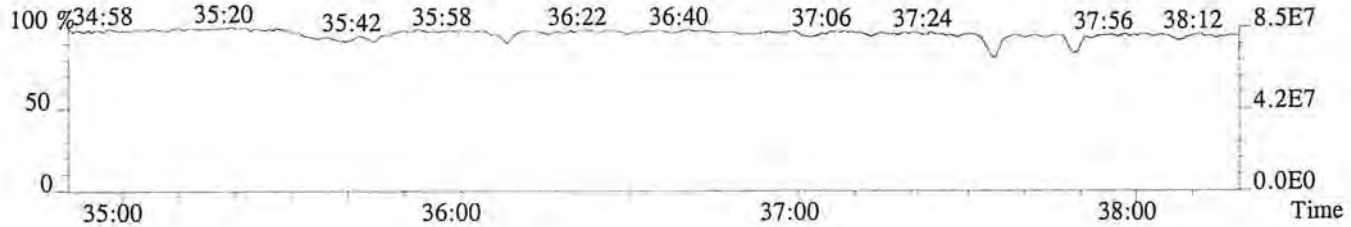
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2280.0,0.40%,F,T)



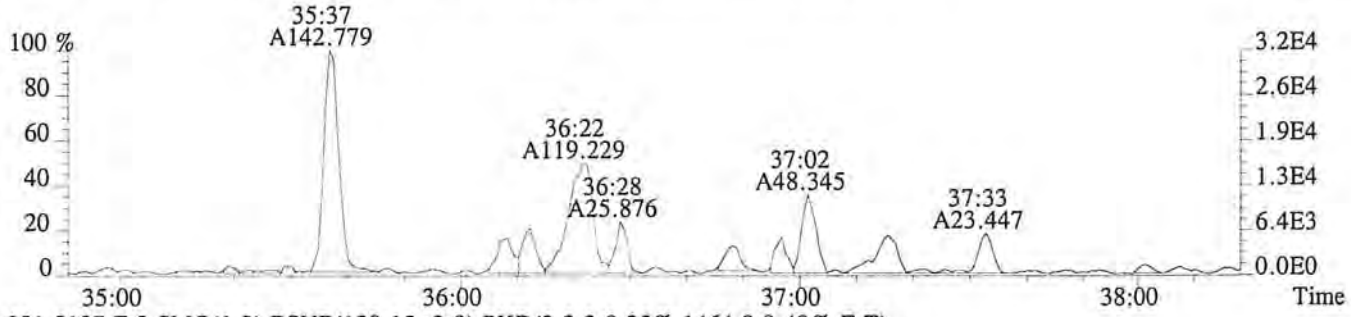
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

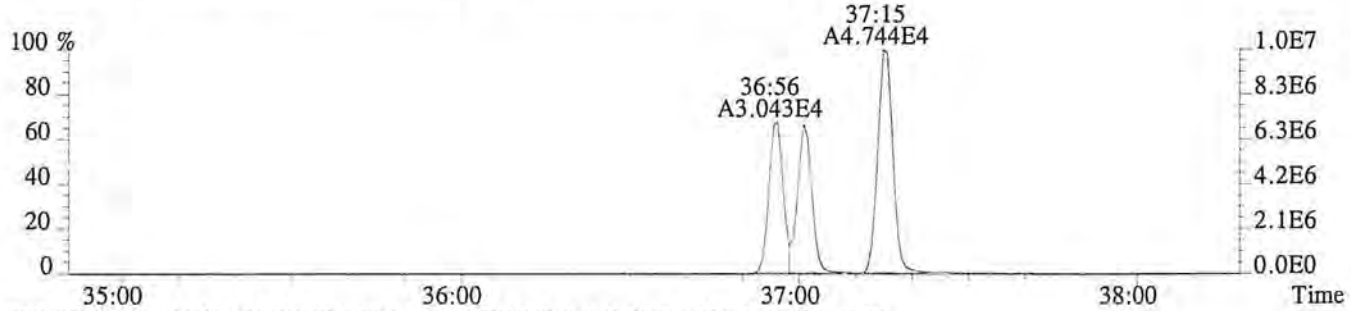


File:P301069 #1-312 Acq:28-AUG-2015 08:00:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-008
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)

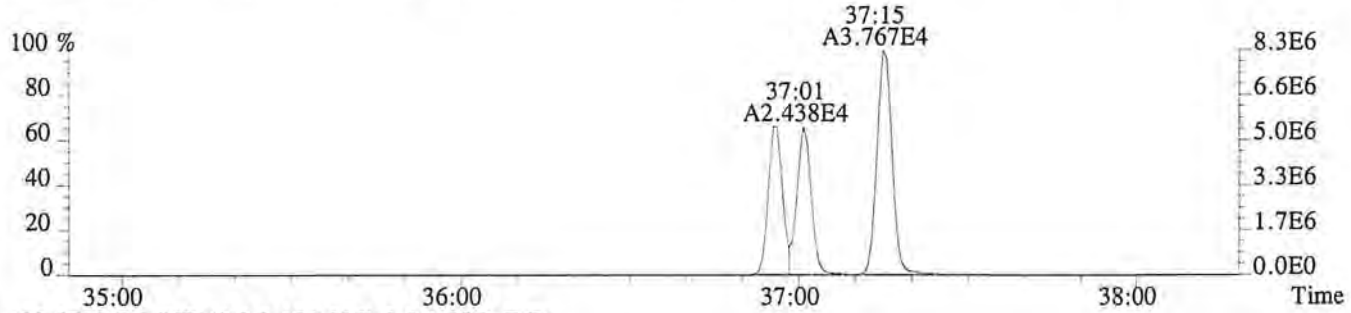


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1464.0,0.40%,F,T)

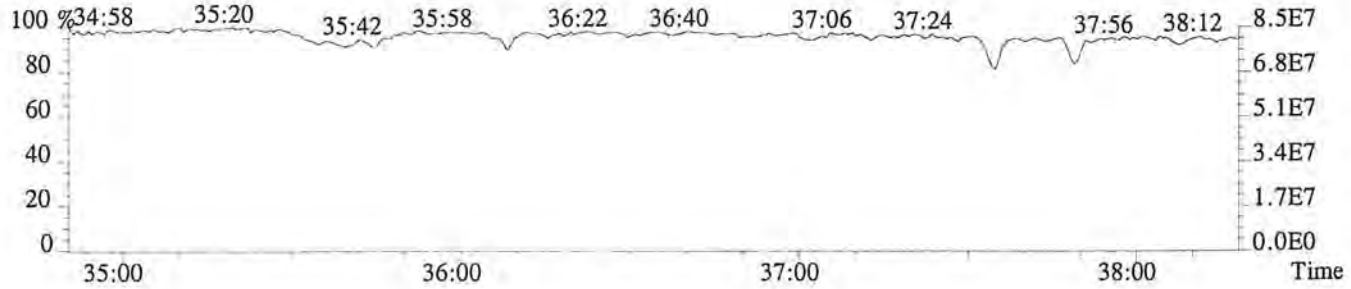
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1580.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1764.0,0.40%,F,T)

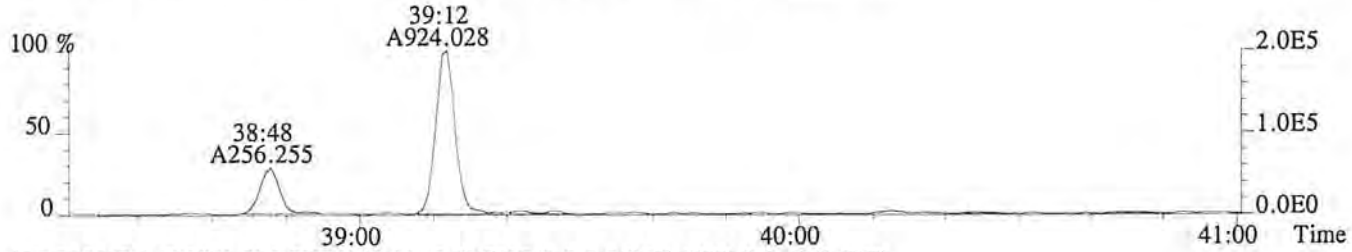


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

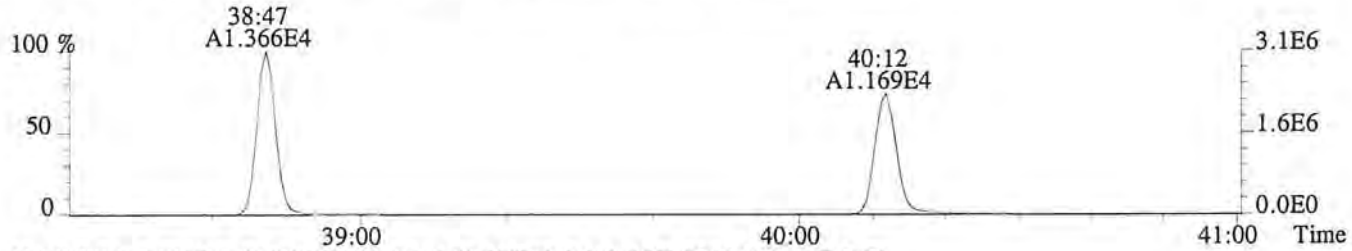


File:P301069 #1-241 Acq:28-AUG-2015 08:00:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-008
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.50%,F,T)

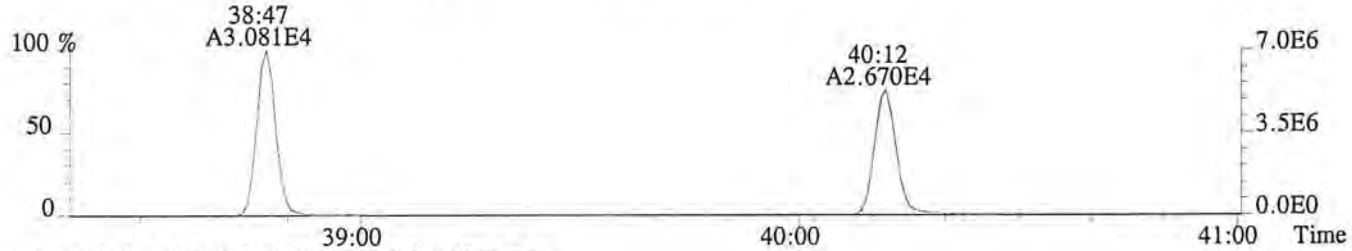
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1504.0,0.50%,F,T)



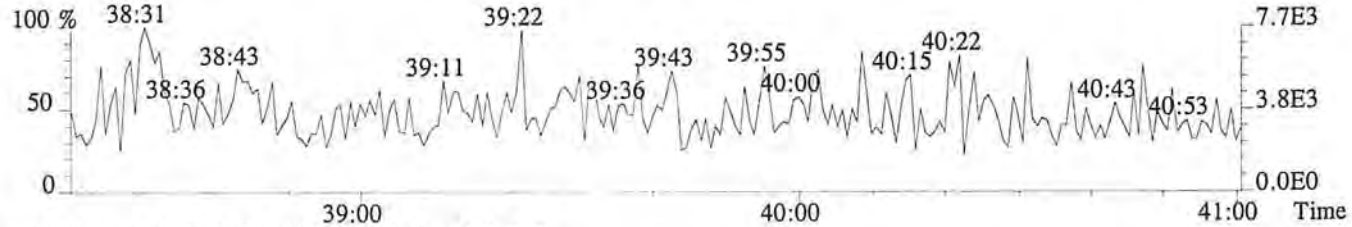
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3000.0,0.50%,F,T)



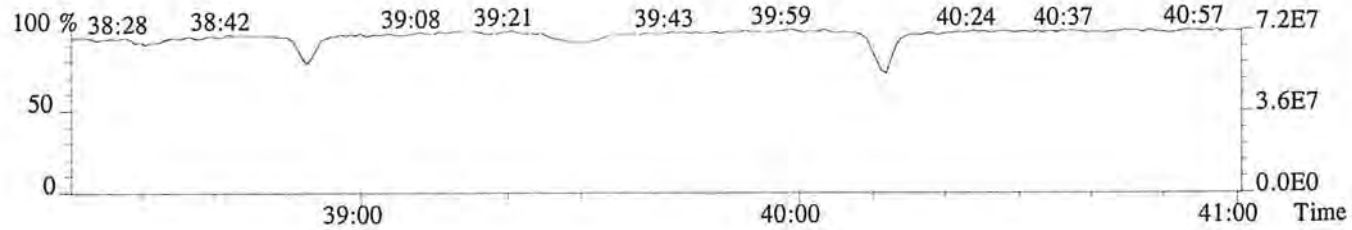
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3016.0,0.50%,F,T)



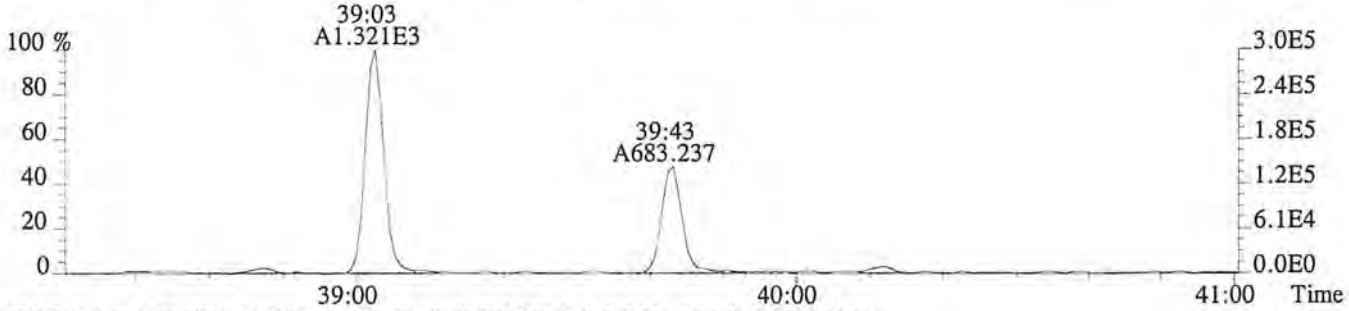
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



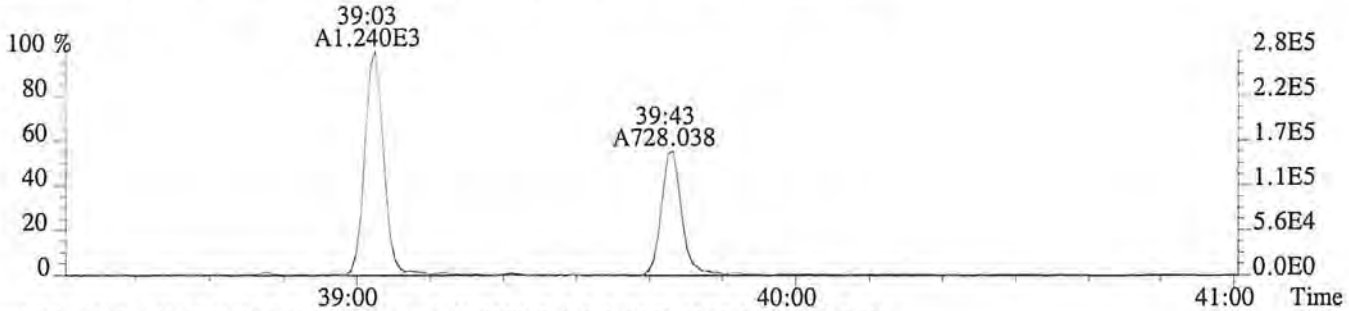
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



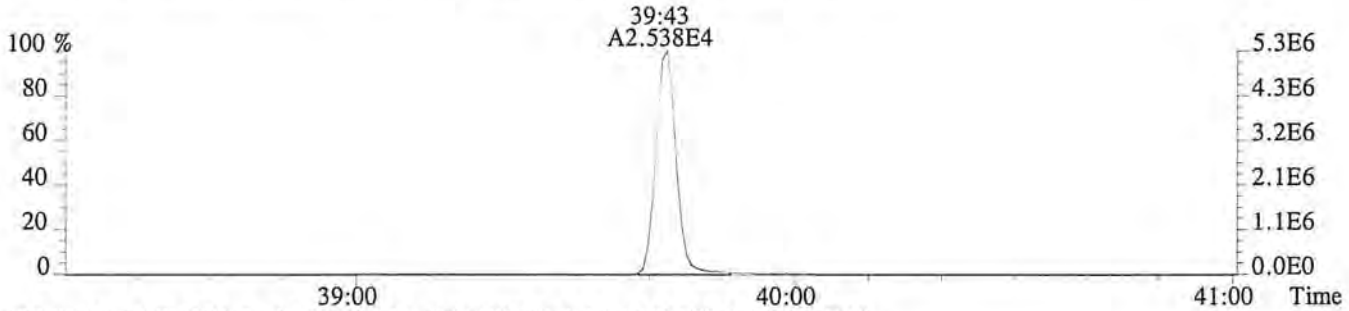
File:P301069 #1-241 Acq:28-AUG-2015 08:00:09 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1500743-008
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



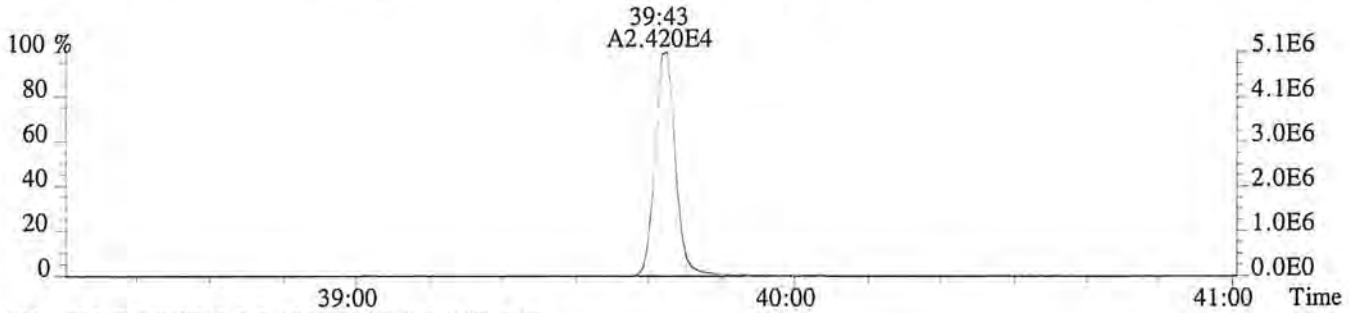
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



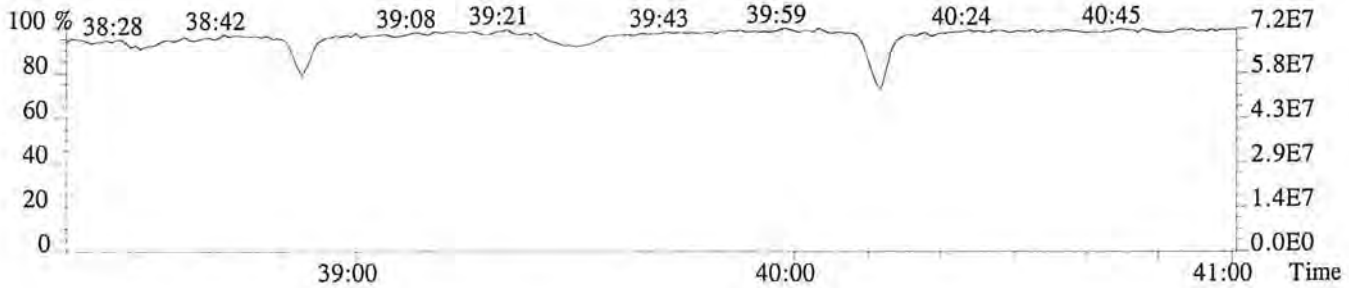
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1208.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)

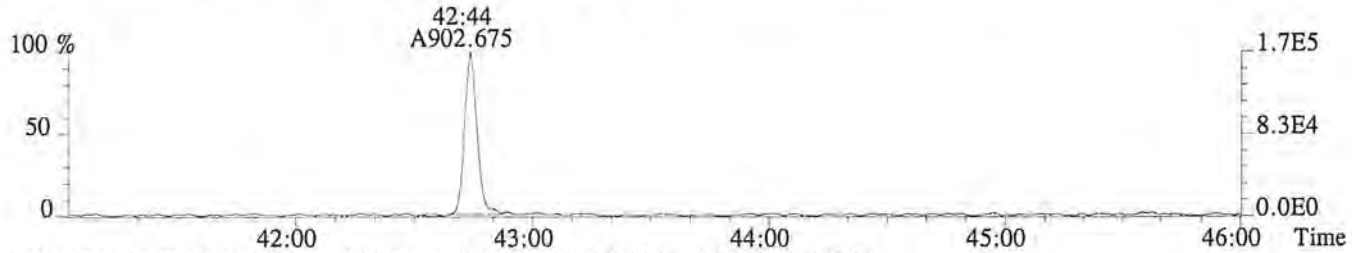


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

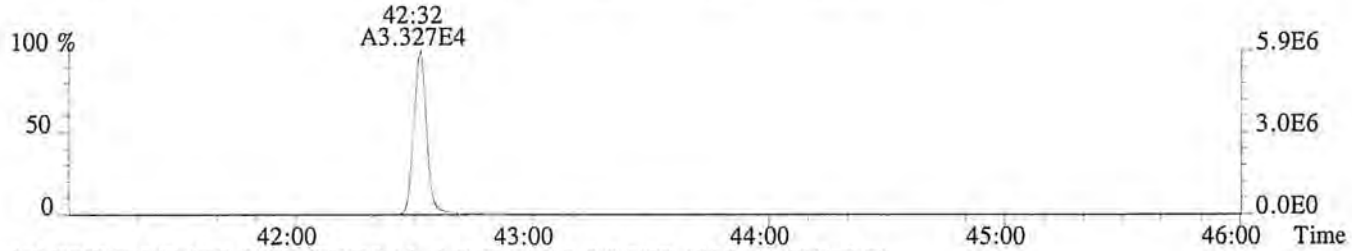


File:P301069 #1-447 Acq:28-AUG-2015 08:00:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-008
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,916.0,0.40%,F,T)

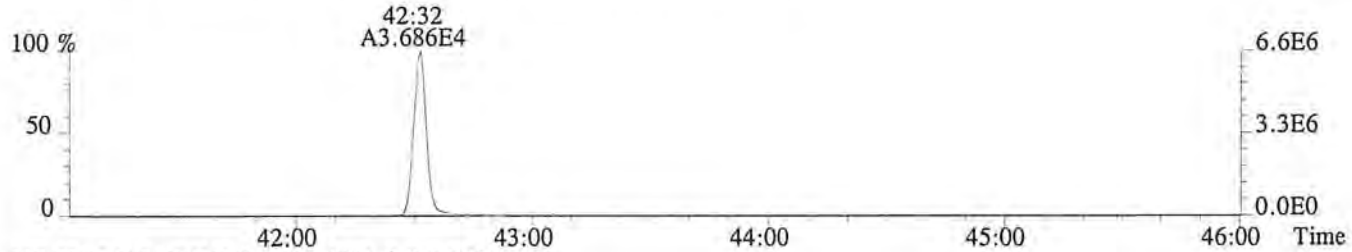
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



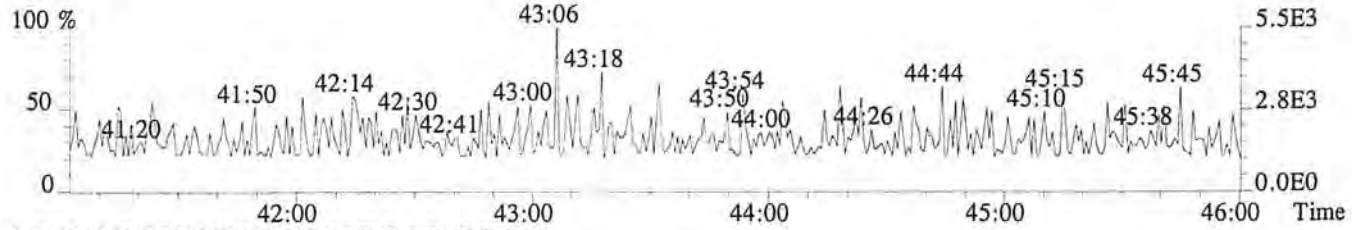
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,716.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1364.0,0.40%,F,T)

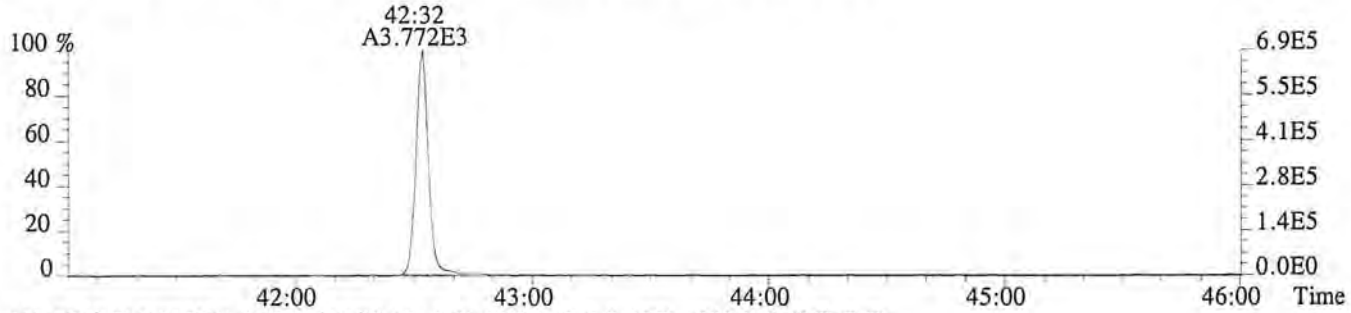


513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

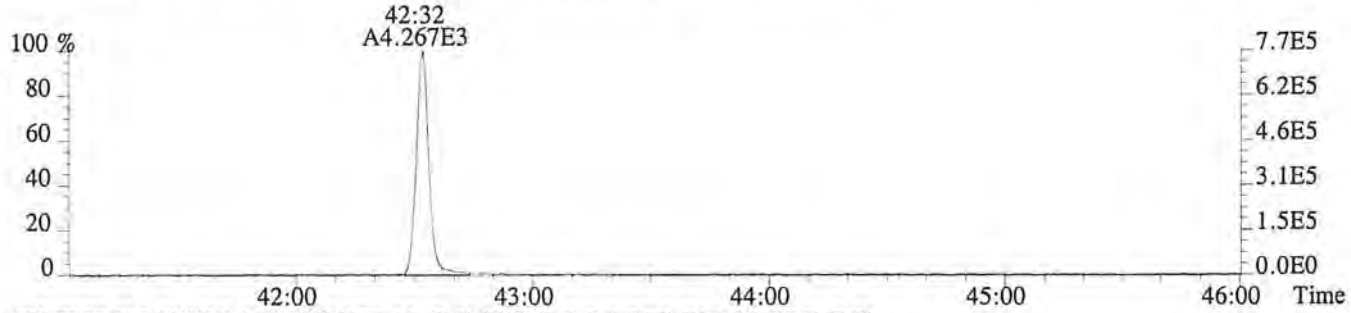


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

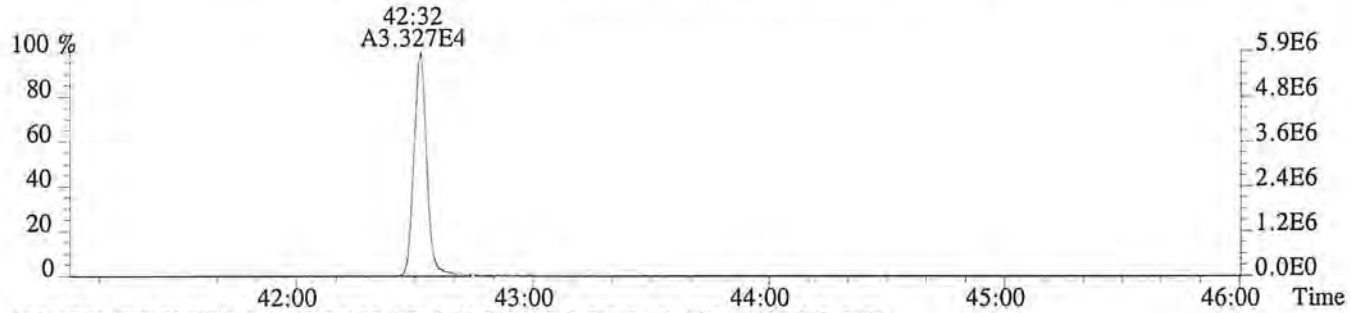
File:P301069 #1-447 Acq:28-AUG-2015 08:00:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-008
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,756.0,0.40%,F,T)



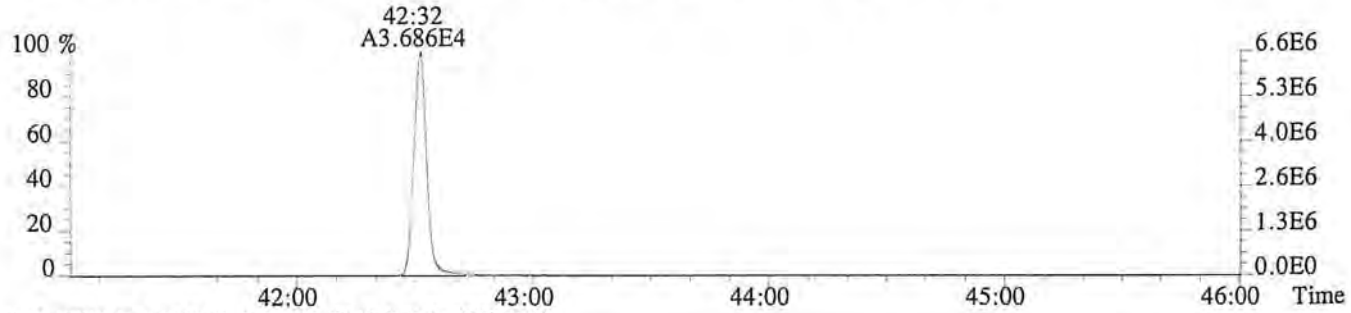
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1380.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,716.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1364.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-04-15 MT3

Run #11 Filename P301070 Samp: 1 Inj: 1 Acquired: 28-AUG-15 08:48:46
Processed: 28-AUG-15 16:51:46 Sample ID: E1500743-009

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:38	5.511e+01	8.378e+01	0.66	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.519e+02	2.631e+02	0.96	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.245
10	Unk	OCDF	42:44	7.351e+02	8.648e+02	0.85	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:23	3.611e+01	6.709e+01	0.54	no	no	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:02	5.131e+01	4.932e+01	1.04	no	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:15	1.542e+01	2.487e+01	0.62	no	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	9.802e+02	9.498e+02	1.03	yes	no	0.949
17	Unk	OCDD	42:32	4.489e+03	5.031e+03	0.89	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:37	2.920e+04	3.705e+04	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	4.716e+04	3.008e+04	1.57	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:34	4.682e+04	2.951e+04	1.59	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	1.969e+04	3.818e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	2.297e+04	4.402e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	2.165e+04	4.146e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:33	2.462e+04	4.720e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	1.242e+04	2.863e+04	0.43	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:11	8.360e+03	1.926e+04	0.43	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:22	2.335e+04	3.006e+04	0.78	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:51	3.606e+04	2.277e+04	1.58	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:56	2.993e+04	2.352e+04	1.27	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:01	2.911e+04	2.314e+04	1.26	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	2.546e+04	2.440e+04	1.04	yes	no	0.850
32	IS	13C-OCDD	42:31	3.432e+04	3.831e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:49	3.198e+04	4.095e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:15	4.472e+04	3.508e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	2.368e+04				no	1.001

$$\text{OCDD} = \frac{(4.489e+03 + 5.031e+03) \times 4000 \text{ pg} \times 1}{(3.432e+04 + 3.831e+04) \times 10.092\text{g} \times 100 \;/\; 100 \times 1.061} = 48.96 \text{ ng/kg}$$

MM 08/31/15

ALS ENVIRONMENTAL -- HOUSTON HRMS
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-04-15 MT3/MT¶

Run #11 Filename P301070 Samp: 1 Inj: 1 Acquired: 28-AUG-15 08:48:46
Processed: 28-AUG-15 16:51:46 LAB. ID: E1500743-009

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.15e+04	1.80e+03	6.4e+00	1.54e+04	2.36e+03	6.5e+00
2	1,2,3,7,8-PeCDF	*	8.92e+02	*	*	2.06e+03	*
3	2,3,4,7,8-PeCDF	*	8.92e+02	*	*	2.06e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.82e+03	*	*	5.88e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.82e+03	*	*	5.88e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.82e+03	*	*	5.88e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.82e+03	*	*	5.88e+02	*
8	1,2,3,4,6,7,8-HpCDF	5.59e+04	1.33e+03	4.2e+01	5.93e+04	1.24e+03	4.8e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.33e+03	*	*	1.24e+03	*
10	OCDF	1.33e+05	1.32e+03	1.0e+02	1.59e+05	2.37e+03	6.7e+01
11	2,3,7,8-TCDD	8.69e+03	1.26e+03	6.9e+00	1.16e+04	6.96e+02	1.7e+01
12	1,2,3,7,8-PeCDD	*	2.55e+03	*	*	7.76e+02	*
13	1,2,3,4,7,8-HxCDD	*	8.04e+02	*	*	1.01e+03	*
14	1,2,3,6,7,8-HxCDD	1.27e+04	8.04e+02	1.6e+01	1.02e+04	1.01e+03	1.0e+01
15	1,2,3,7,8,9-HxCDD	3.94e+03	8.04e+02	4.9e+00	6.01e+03	1.01e+03	6.0e+00
16	1,2,3,4,6,7,8-HpCDD	2.17e+05	1.09e+03	2.0e+02	2.05e+05	1.01e+03	2.0e+02
17	OCDD	8.08e+05	6.84e+02	1.2e+03	9.06e+05	1.28e+03	7.1e+02
18	13C-2,3,7,8-TCDF	5.72e+06	2.00e+03	2.9e+03	7.28e+06	2.18e+03	3.3e+03
19	13C-1,2,3,7,8-PeCDF	9.49e+06	4.28e+02	2.2e+04	6.10e+06	1.59e+03	3.8e+03
20	13C-2,3,4,7,8-PeCDF	9.65e+06	4.28e+02	2.3e+04	6.13e+06	1.59e+03	3.9e+03
21	13C-1,2,3,4,7,8-HxCDF	4.49e+06	7.60e+02	5.9e+03	8.74e+06	1.48e+03	5.9e+03
22	13C-1,2,3,6,7,8-HxCDF	5.20e+06	7.60e+02	6.8e+03	9.90e+06	1.48e+03	6.7e+03
23	13C-2,3,4,6,7,8-HxCDF	4.83e+06	7.60e+02	6.4e+03	9.36e+06	1.48e+03	6.3e+03
24	13C-1,2,3,7,8,9-HxCDF	5.55e+06	7.60e+02	7.3e+03	1.05e+07	1.48e+03	7.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.88e+06	1.94e+03	1.5e+03	6.60e+06	2.96e+03	2.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.60e+06	1.94e+03	8.2e+02	3.68e+06	2.96e+03	1.2e+03
27	13C-2,3,7,8-TCDD	4.76e+06	4.52e+03	1.1e+03	6.10e+06	3.54e+03	1.7e+03
28	13C-1,2,3,7,8-PeCDD	7.72e+06	1.84e+03	4.2e+03	4.86e+06	1.24e+03	3.9e+03
29	13C-1,2,3,4,7,8-HxCDD	6.96e+06	1.64e+03	4.3e+03	5.45e+06	1.48e+03	3.7e+03
30	13C-1,2,3,6,7,8-HxCDD	6.53e+06	1.64e+03	4.0e+03	5.17e+06	1.48e+03	3.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.54e+06	1.28e+03	4.3e+03	5.21e+06	1.38e+03	3.8e+03
32	13C-OCDD	5.99e+06	7.88e+02	7.6e+03	6.78e+06	1.02e+03	6.7e+03
33	13C-1,2,3,4-TCDD	6.46e+06	4.52e+03	1.4e+03	8.16e+06	3.54e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.01e+07	1.64e+03	6.2e+03	7.95e+06	1.48e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	5.02e+06	9.92e+02	5.1e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-04-15 MT3/MT

Entry: 36 Totals Name: Total Tetra-Furans

Run: 11 File: P301070 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 08:48:46 Processed: 28-AUG-15 16:51:46

Mass: 303.9020 305.8990 Tot Response: 1.39e+02 RRF: 0.8496

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:38	5.51e+01	8.38e+01	0.66	yes	1.39e+02	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-04-15 MT3/MT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 11 File: P301070 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 08:48:46 Processed: 28-AUG-15 16:51:46

Mass: 373.8210 375.8180 Tot Response: 4.50e+02 RRF: 1.094

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:16	3.50e+01	3.20e+01	1.09	yes	6.70e+01	n	n
2	35:47	2.16e+02	1.67e+02	1.29	yes	3.83e+02	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-04-15 MT3/MT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 11 File: P301070 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 08:48:46 Processed: 28-AUG-15 16:51:46

Mass: 389.8160 391.8130 Tot Response: 5.06e+02 RRF: 0.9904

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:37	1.26e+02	9.77e+01	1.29	yes	2.24e+02		n	n
2	36:21	1.61e+02	1.21e+02	1.33	yes	2.82e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-04-15 MT3/MT7

Entry: 43 Totals Name: Total Hepta-Furans

Run: 11 File: P301070 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 08:48:46 Processed: 28-AUG-15 16:51:46

Mass: 407.7820 409.7790 Tot Response: 2.33e+03 RRF: 1.284

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	2.52e+02	2.63e+02	0.96	yes	5.15e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:12	8.96e+02	9.23e+02	0.97	yes	1.82e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-04-15 MT3/MT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P301070 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 08:48:46 Processed: 28-AUG-15 16:51:46

Mass: 423.7770 425.7740 Tot Response: 4.88e+03 RRF: 0.9492

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:03	1.49e+03	1.46e+03	1.02	yes	2.95e+03	n	n
2	39:43	9.80e+02	9.50e+02	1.03	yes	1.93e+03	1,2,3,4,6,7,8-HpCDD	n	n

ALS ENVIRONMENTAL
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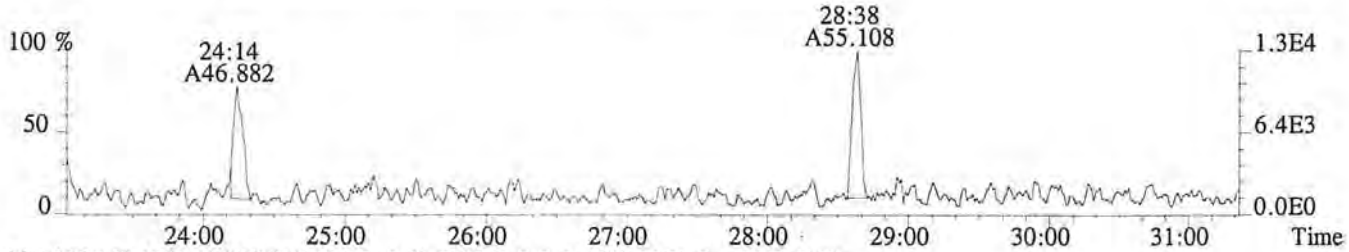
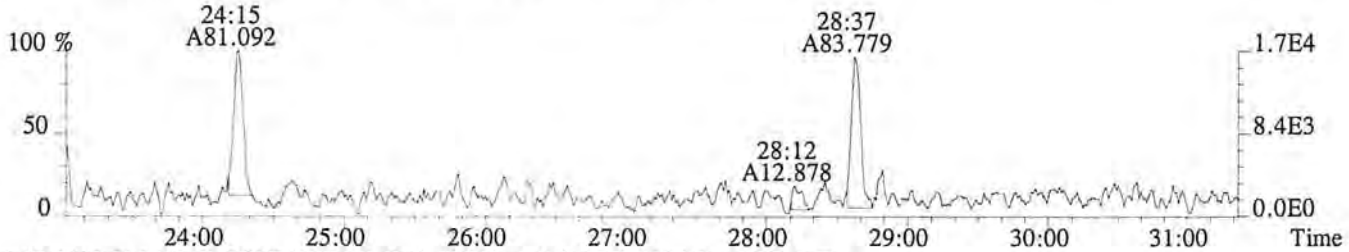
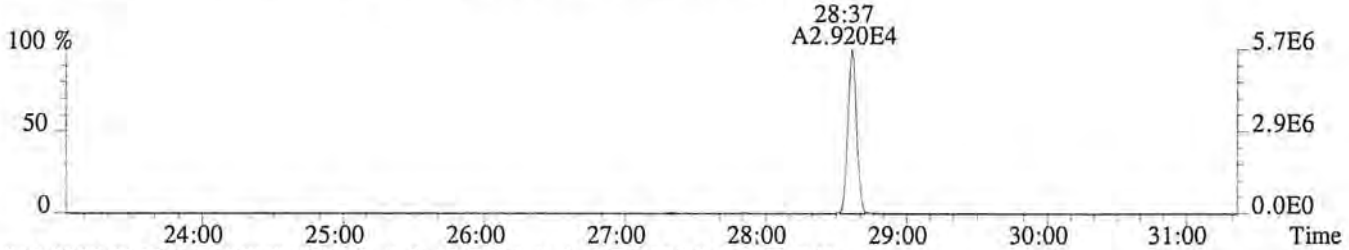
File:P301070 #1-591 Acq:28-AUG-2015 08:48:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-009
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1804.0,1.00%,F,T)



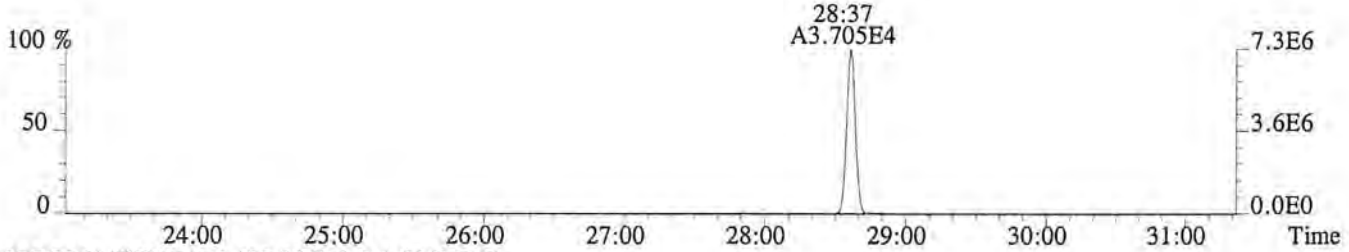
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2364.0,1.00%,F,T)



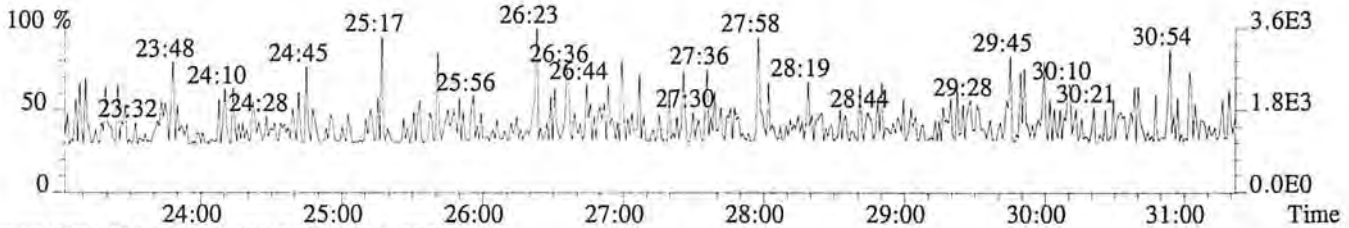
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1996.0,1.00%,F,T)



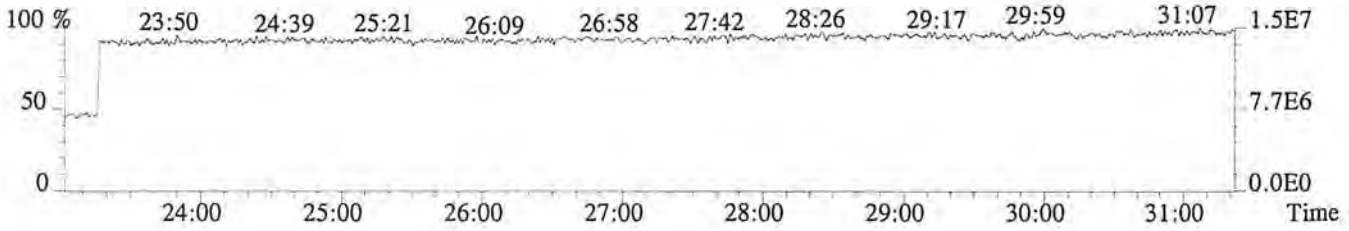
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



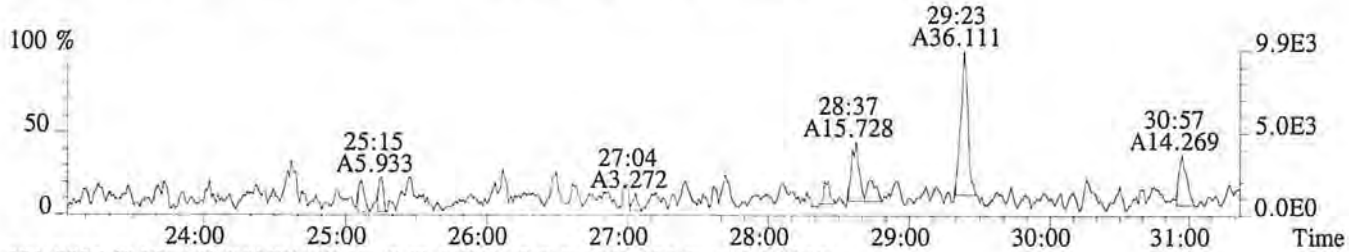
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



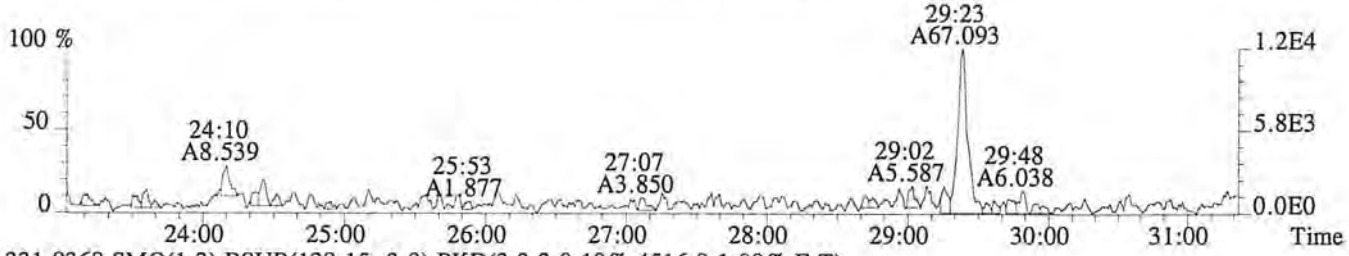
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



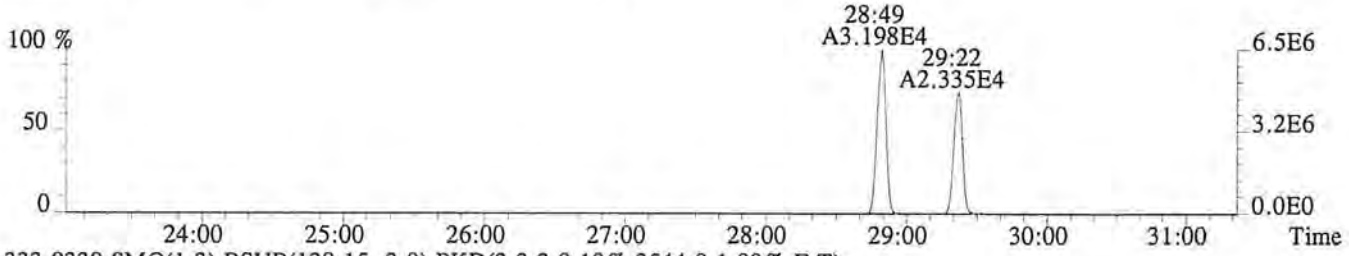
File:P301070 #1-591 Acq:28-AUG-2015 08:48:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-009
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



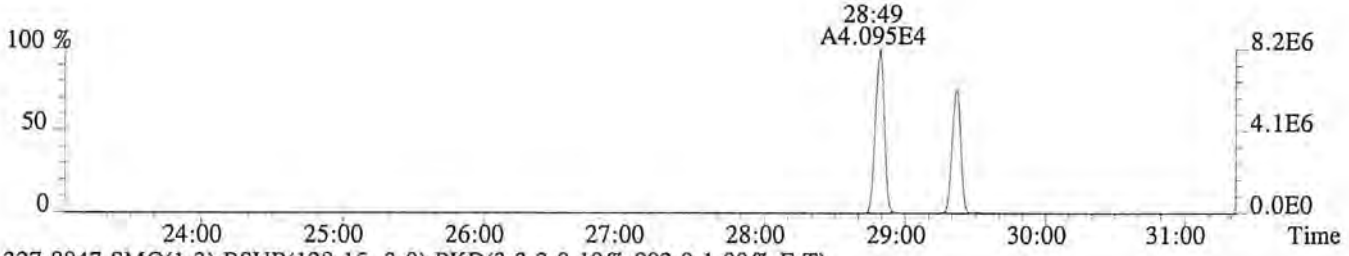
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



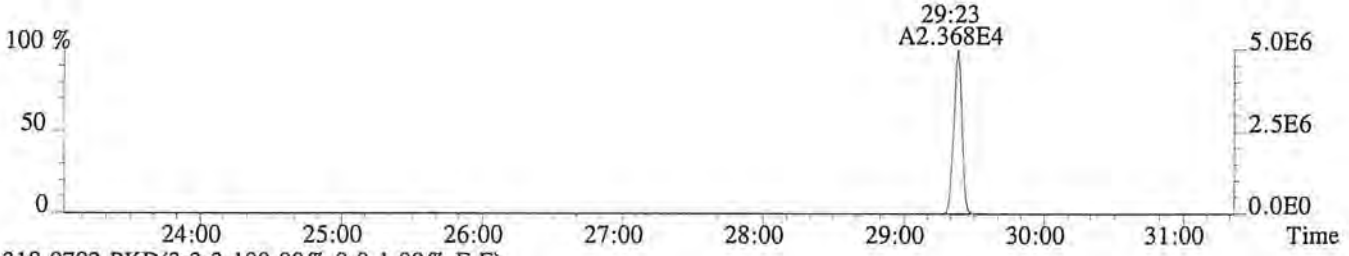
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4516.0,1.00%,F,T)



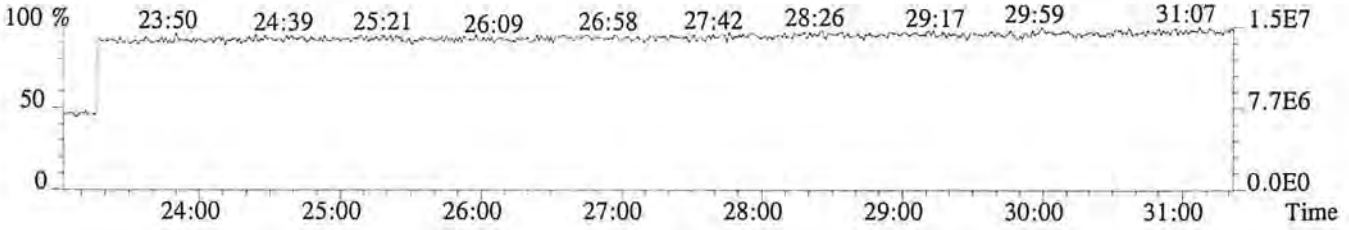
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3544.0,1.00%,F,T)



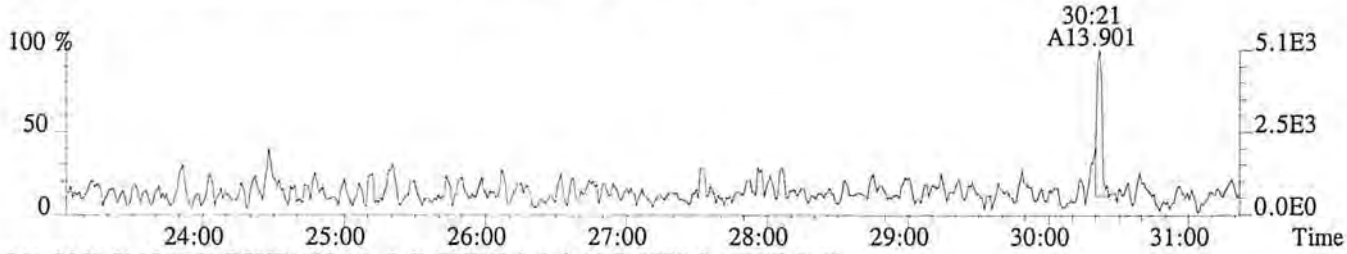
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



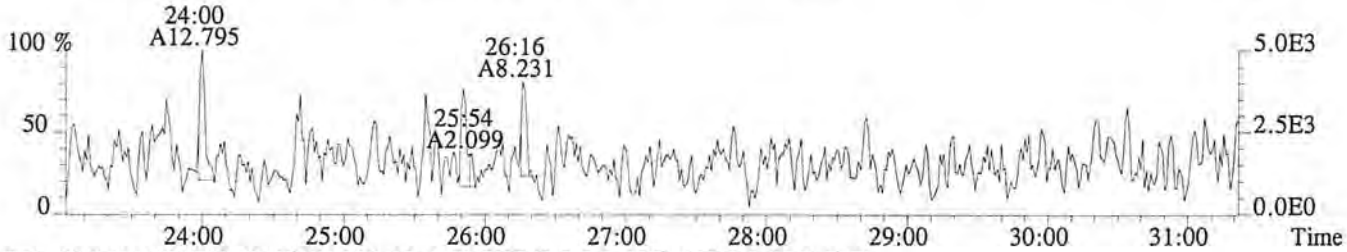
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



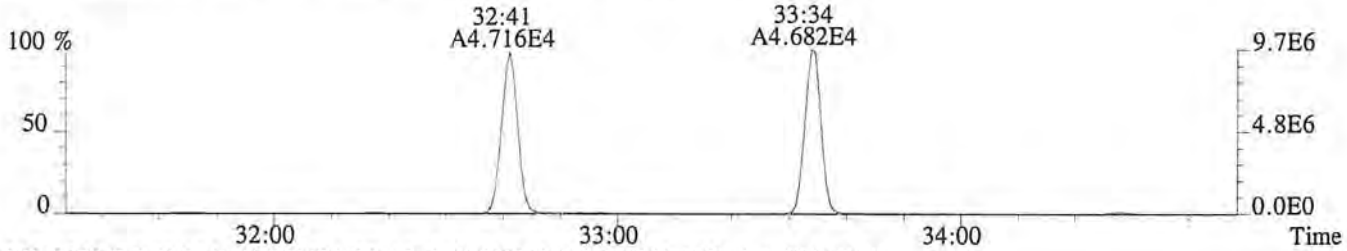
File:P301070 #1-591 Acq:28-AUG-2015 08:48:46 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1500743-009
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



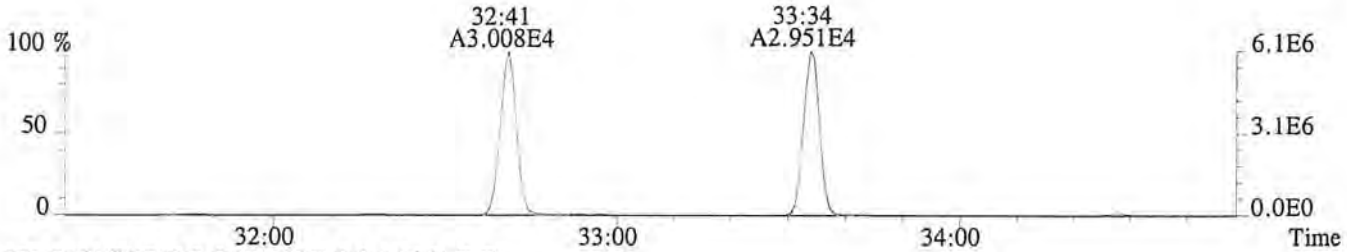
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2028.0,1.00%,F,T)



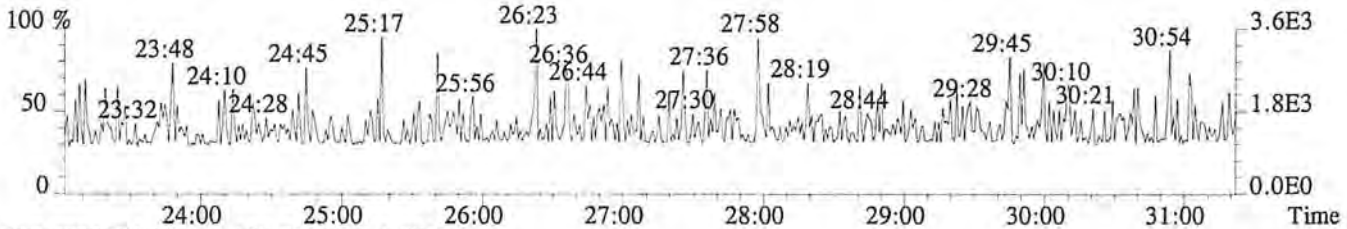
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



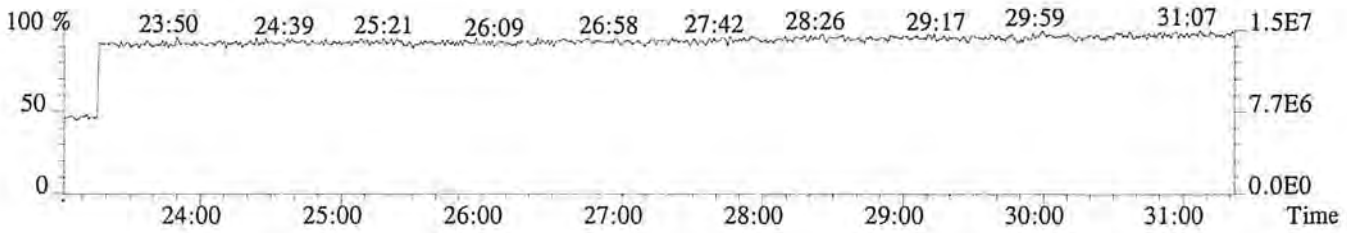
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



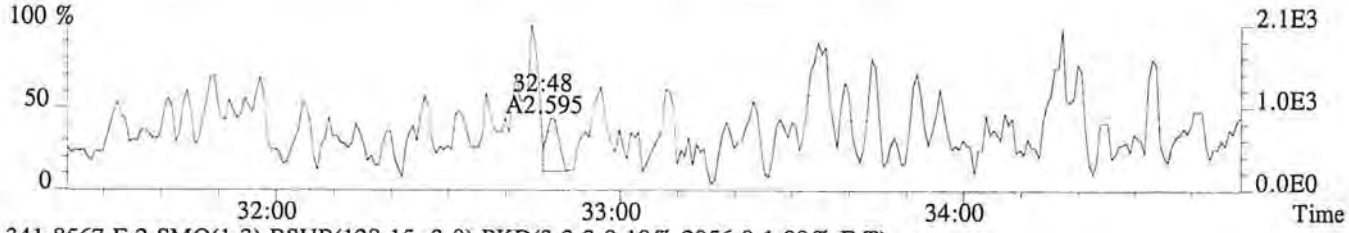
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



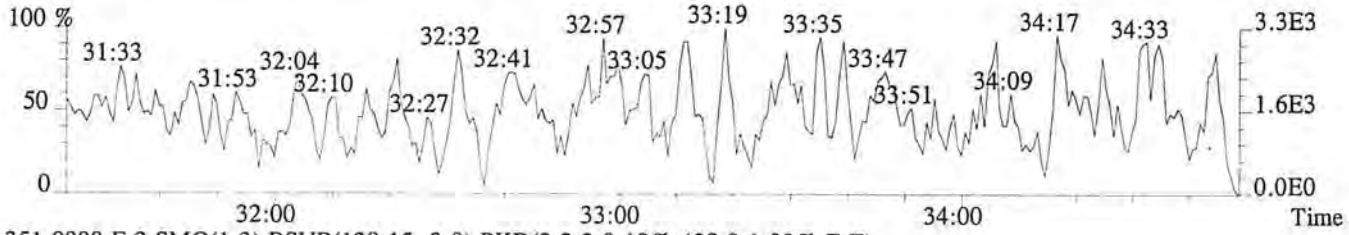
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



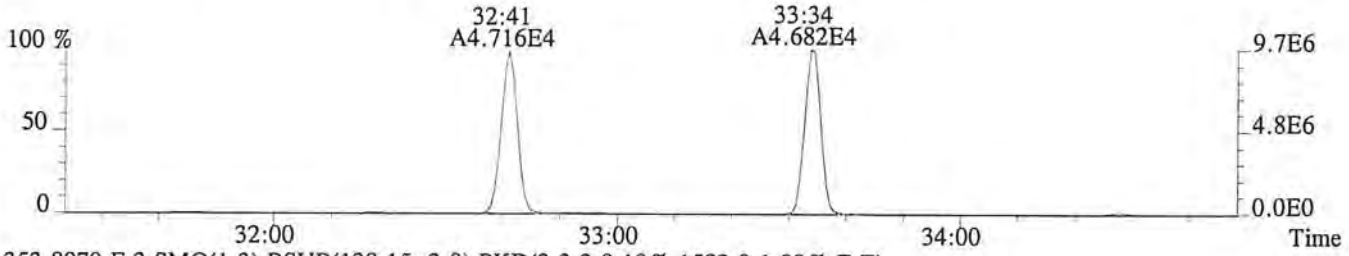
File:P301070 #1-308 Acq:28-AUG-2015 08:48:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-009
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



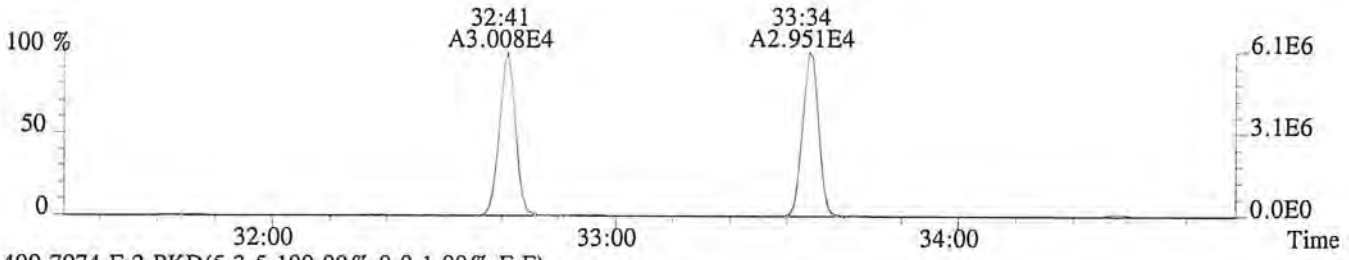
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



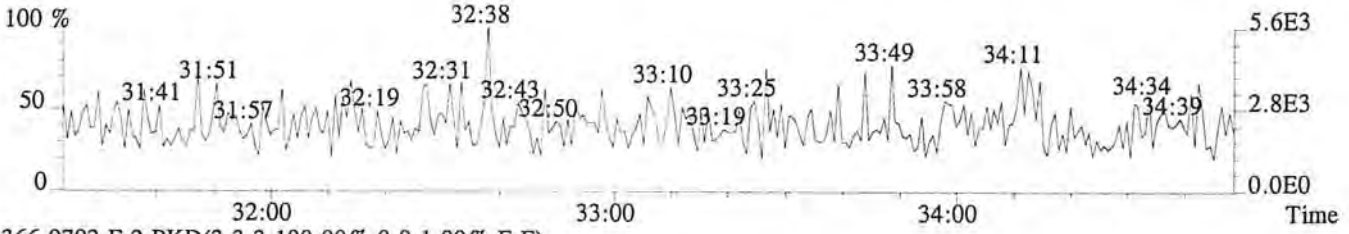
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)

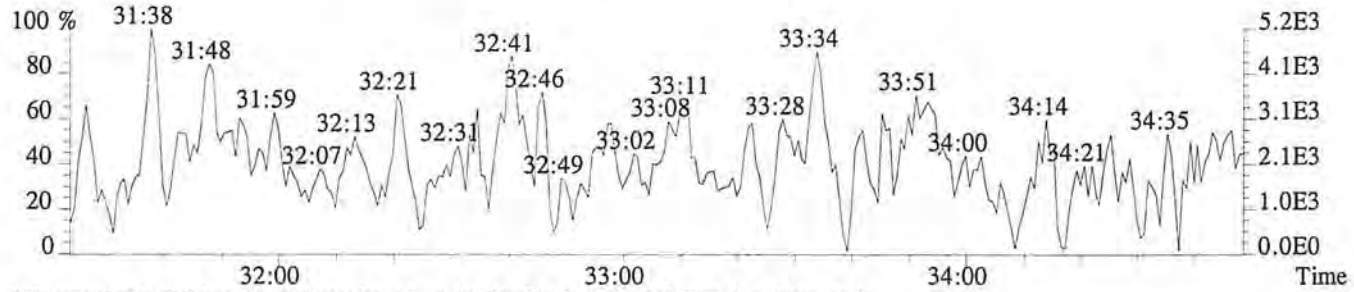


409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

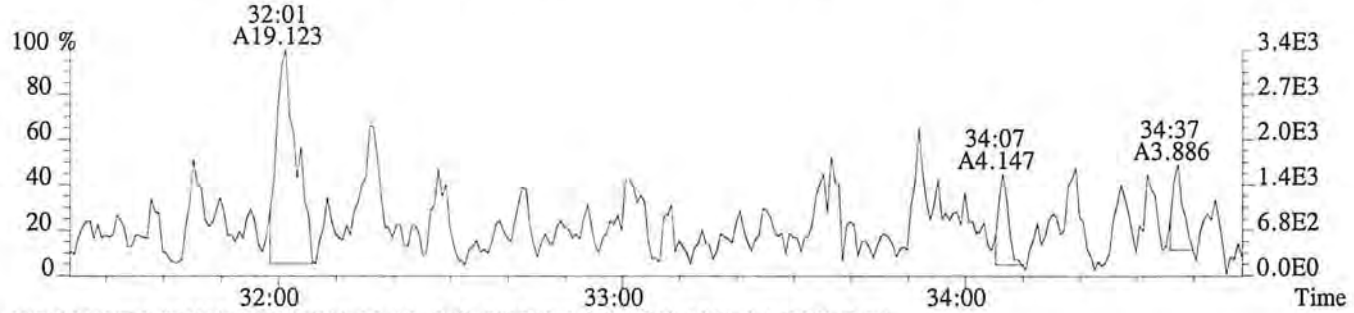


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

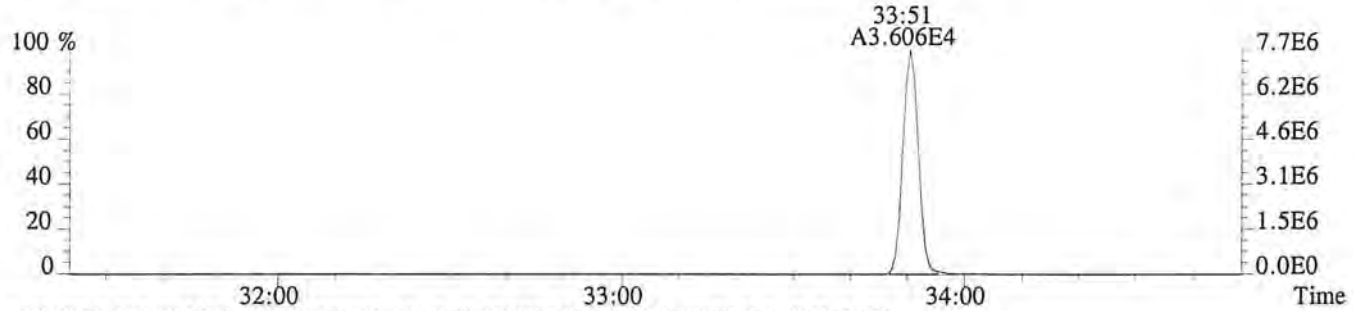
File:P301070 #1-308 Acq:28-AUG-2015 08:48:46 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1500743-009
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2548.0,1.00%,F,T)



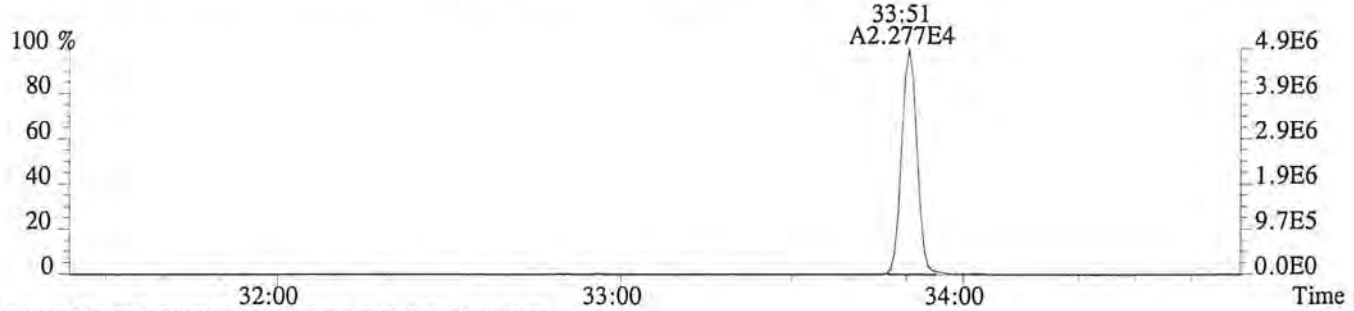
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



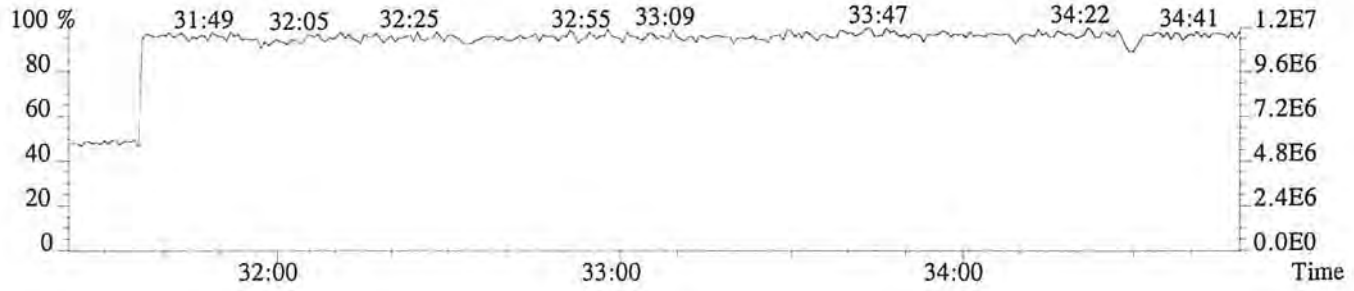
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1844.0,1.00%,F,T)



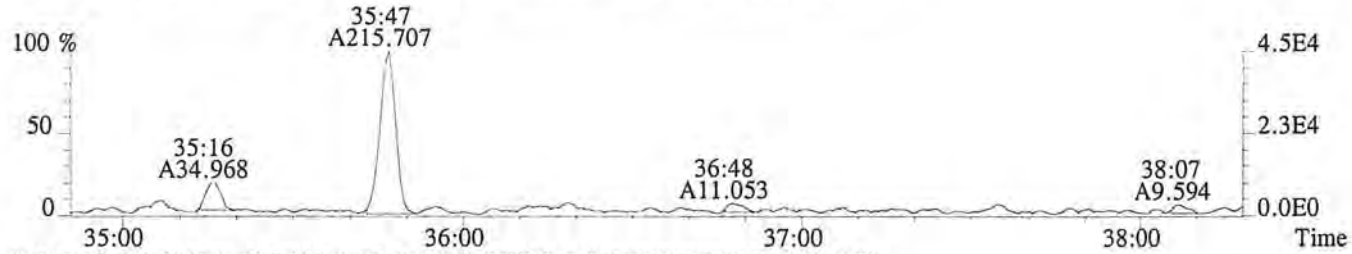
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1240.0,1.00%,F,T)



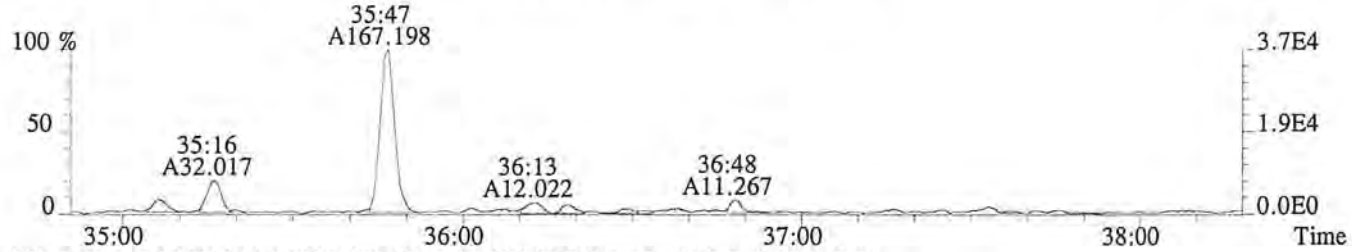
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



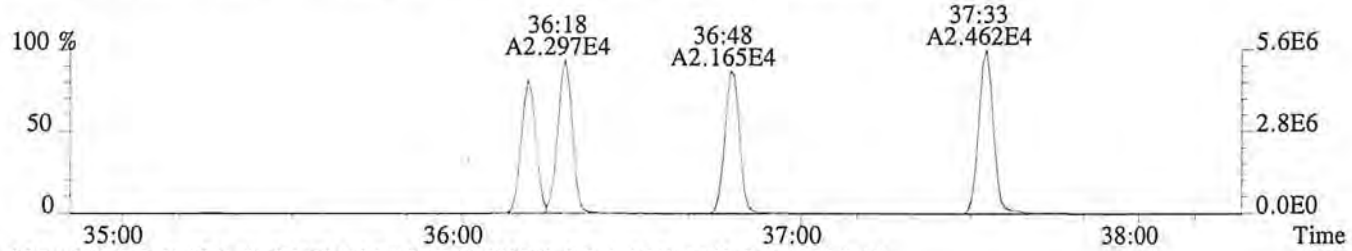
File:P301070 #1-312 Acq:28-AUG-2015 08:48:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-009
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1816.0,0.40%,F,T)



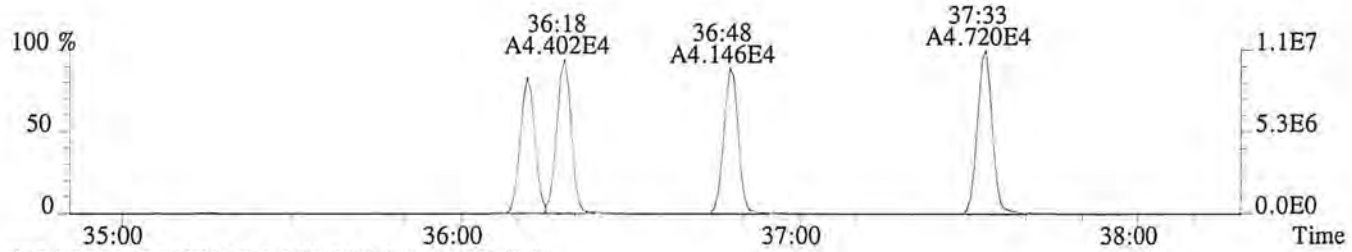
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



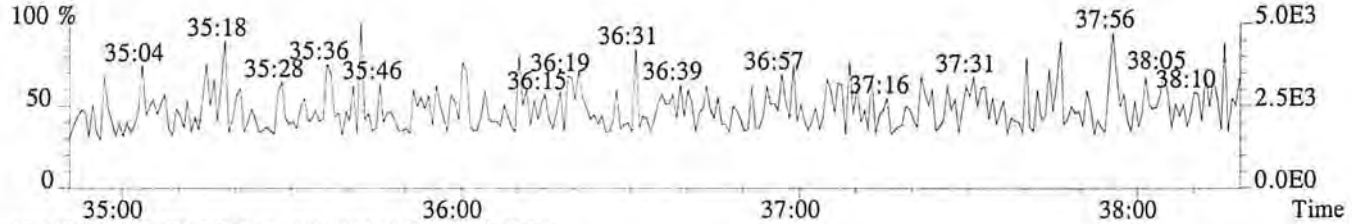
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



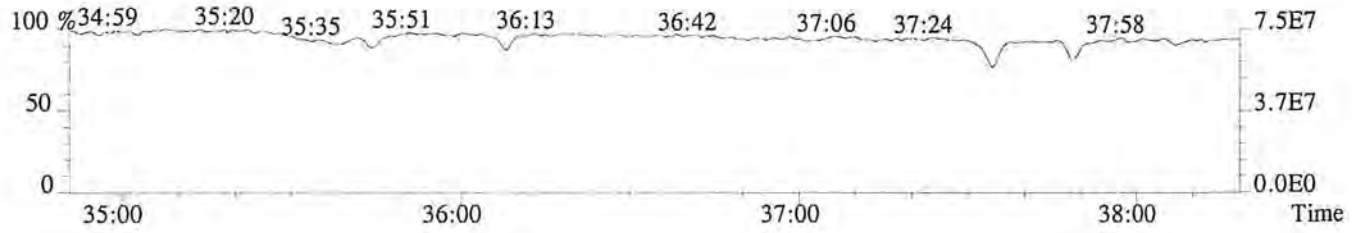
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1480.0,0.40%,F,T)



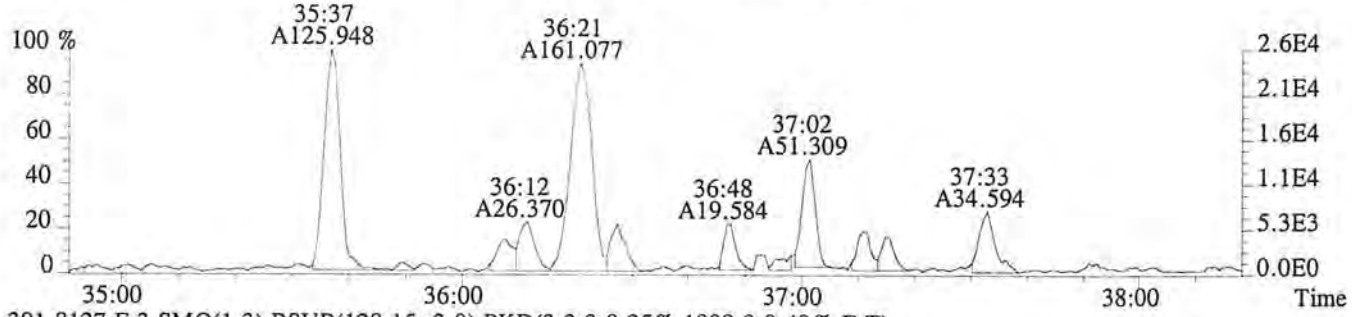
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



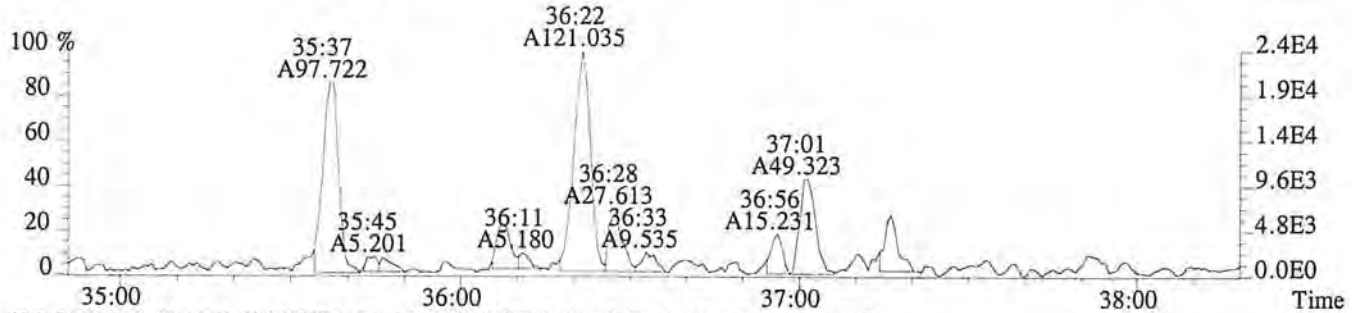
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



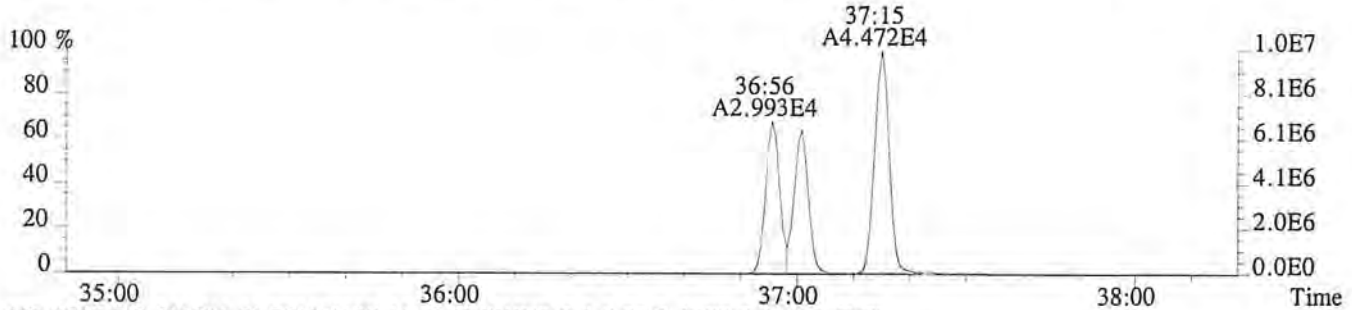
File:P301070 #1-312 Acq:28-AUG-2015 08:48:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-009
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



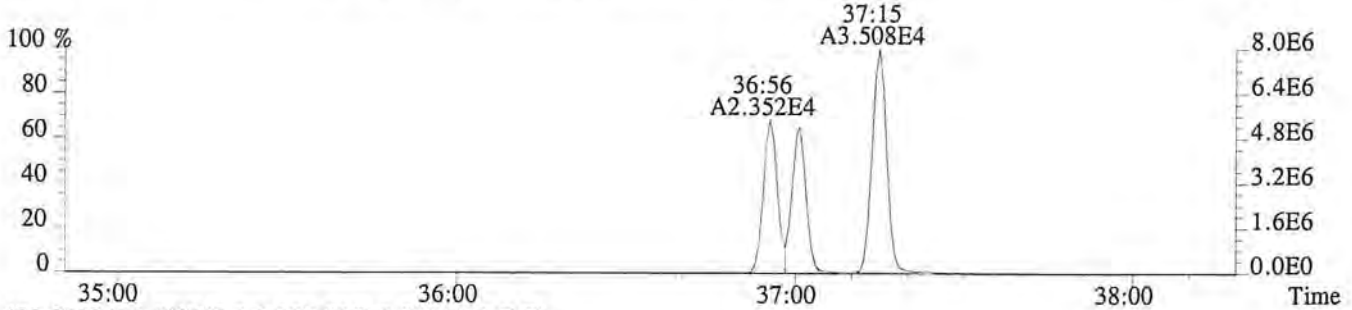
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



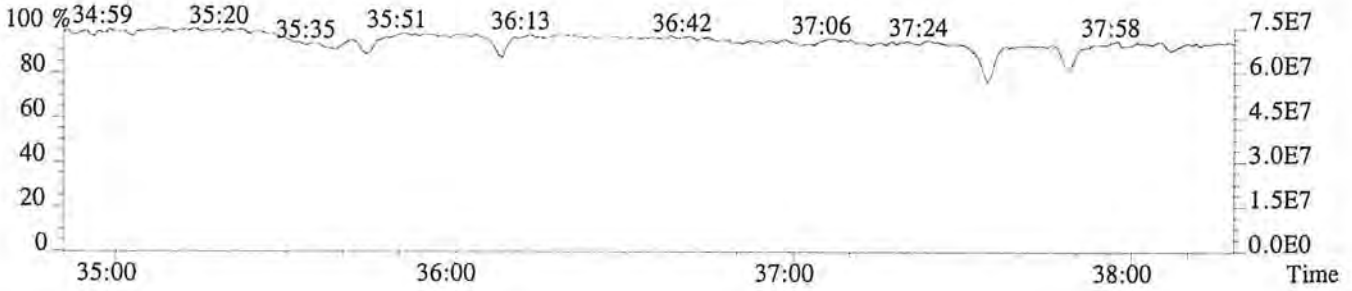
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1636.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1480.0,0.40%,F,T)



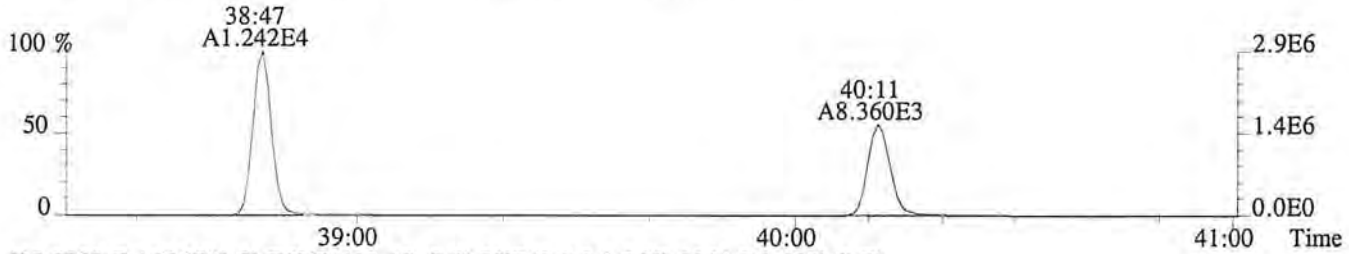
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P301070 #1-241 Acq:28-AUG-2015 08:48:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-009
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.50%,F,T)

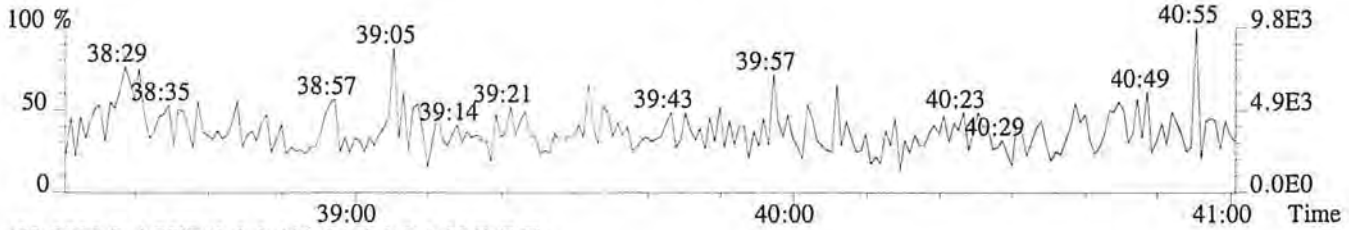
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1240.0,0.50%,F,T)

417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1936.0,0.50%,F,T)

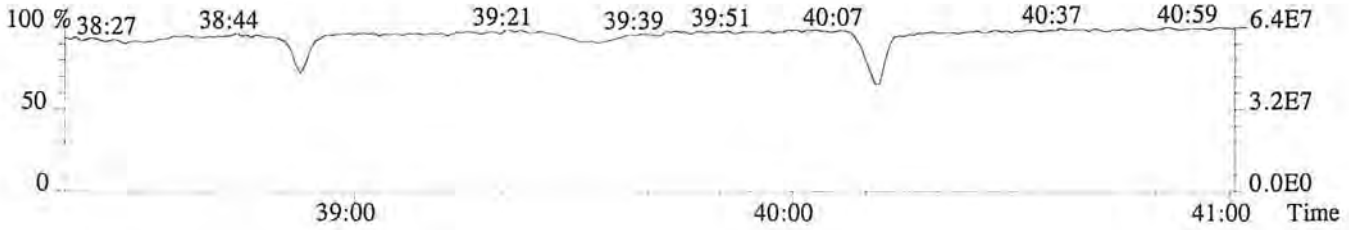


419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2964.0,0.50%,F,T)

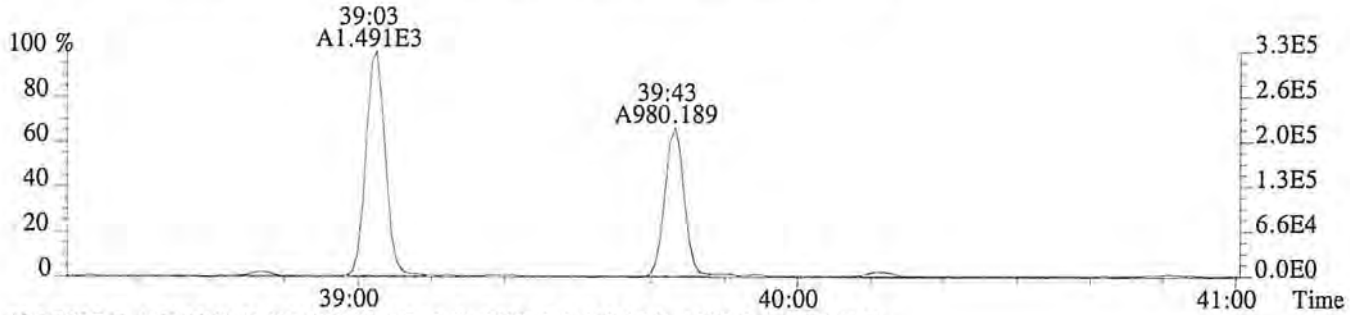
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



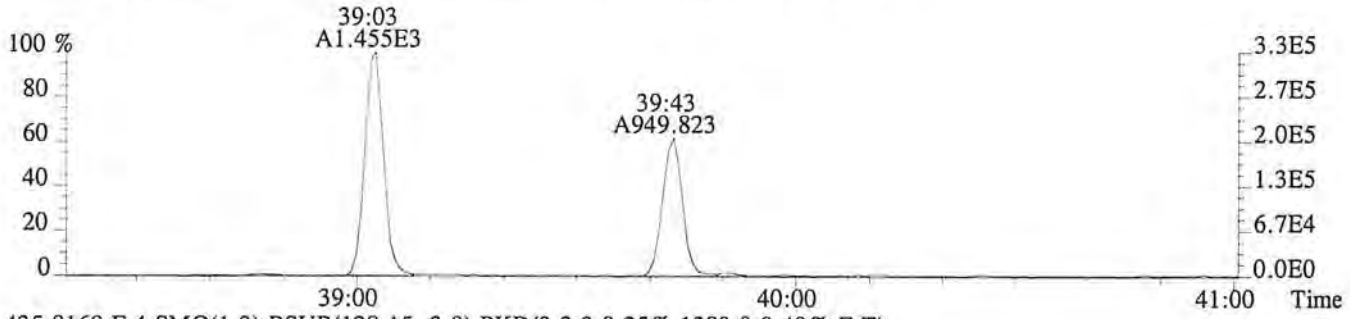
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



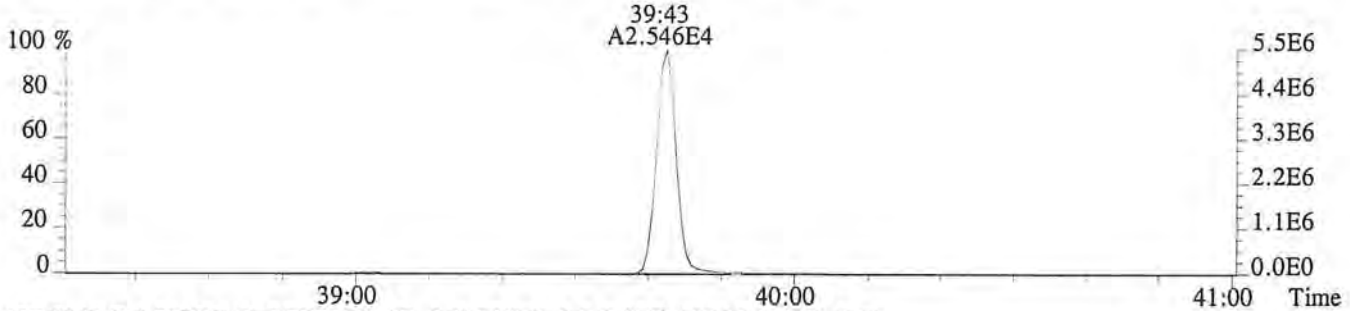
File:P301070 #1-241 Acq:28-AUG-2015 08:48:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-009
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1088.0,0.40%,F,T)



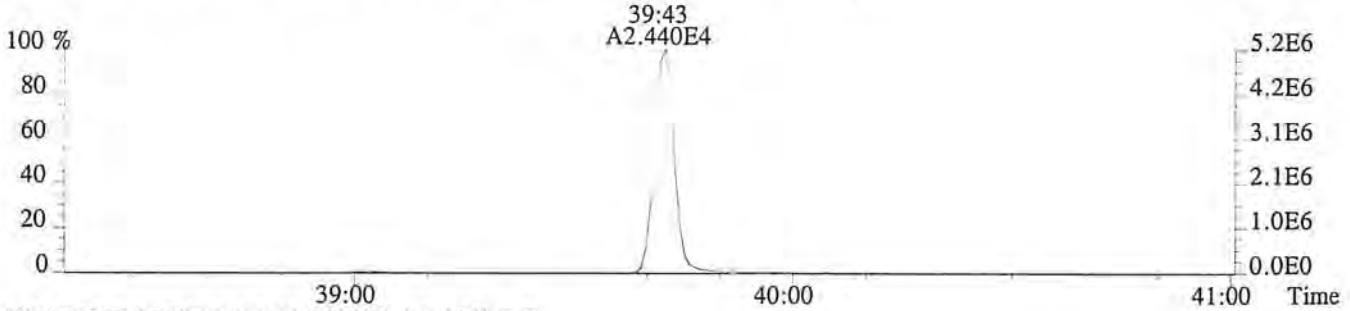
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



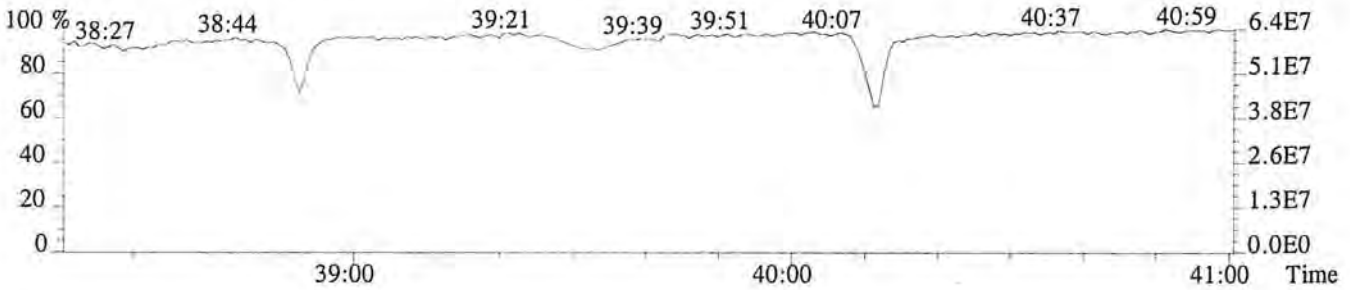
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1280.0,0.40%,F,T)



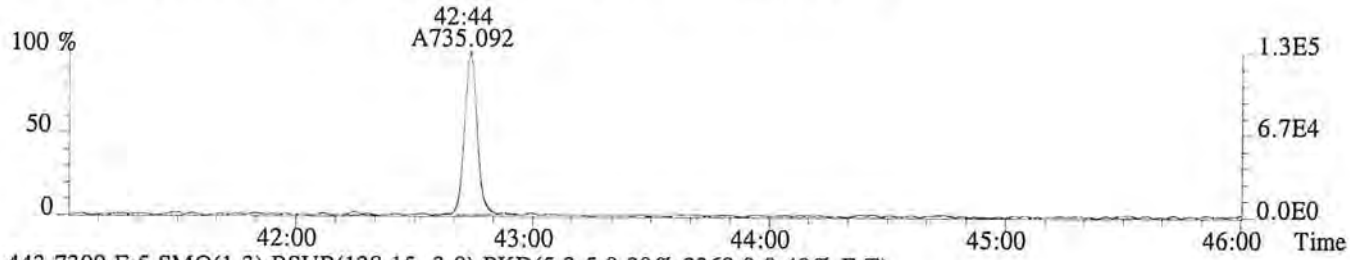
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1376.0,0.40%,F,T)



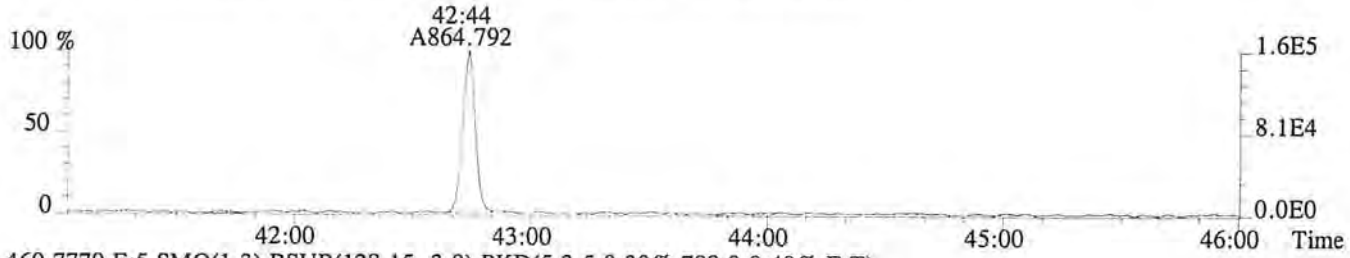
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



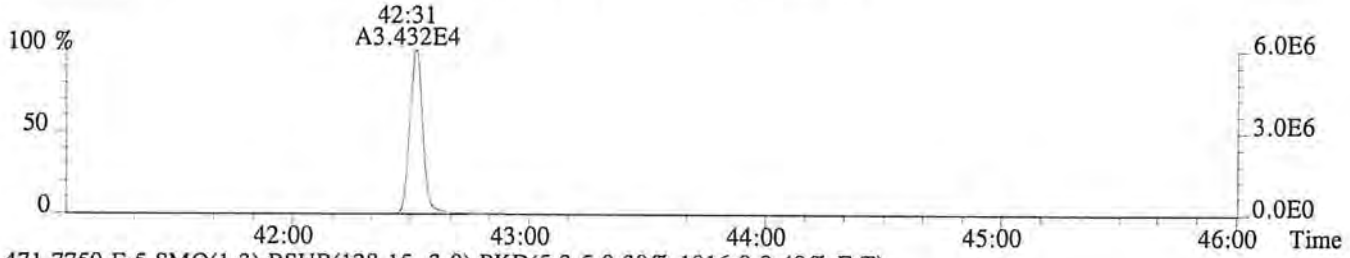
File:P301070 #1-447 Acq:28-AUG-2015 08:48:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-009
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1320.0,0.40%,F,T)



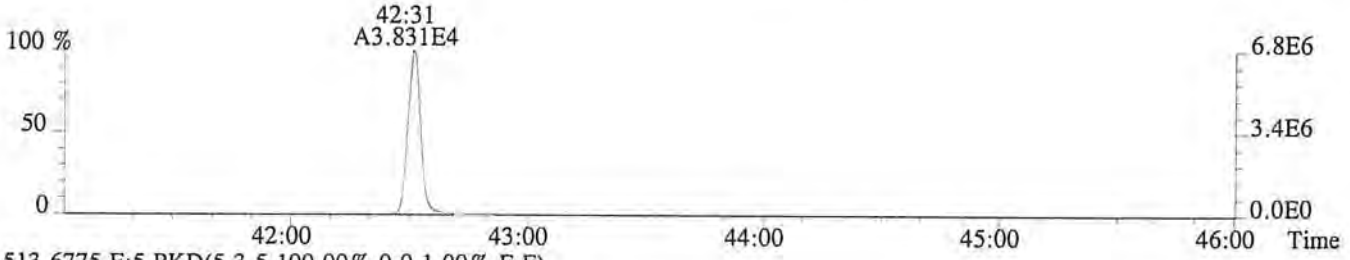
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2368.0,0.40%,F,T)



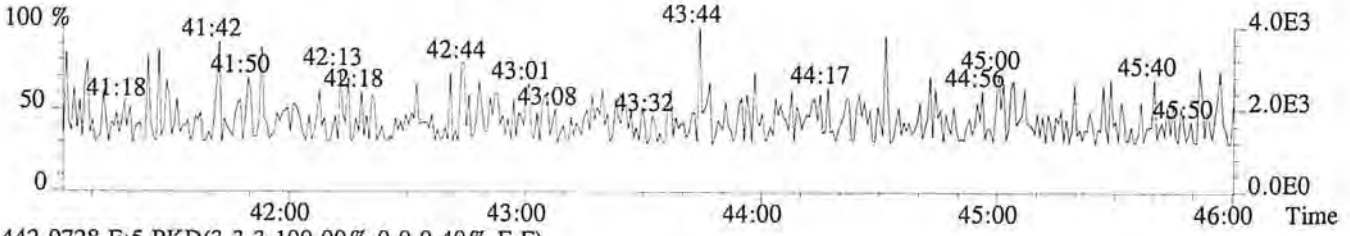
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,788.0,0.40%,F,T)



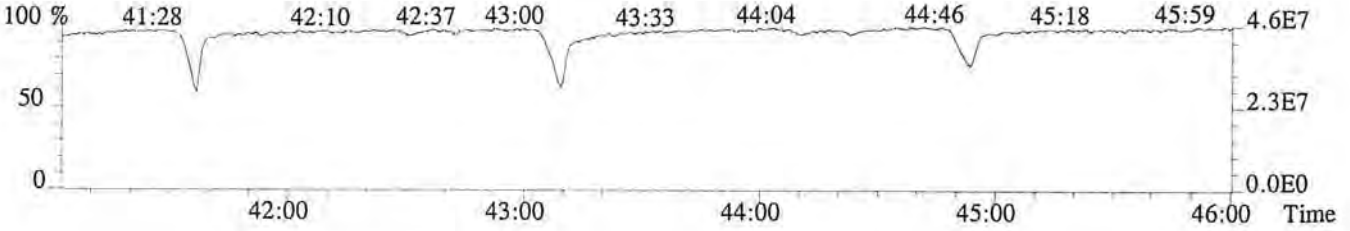
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1016.0,0.40%,F,T)



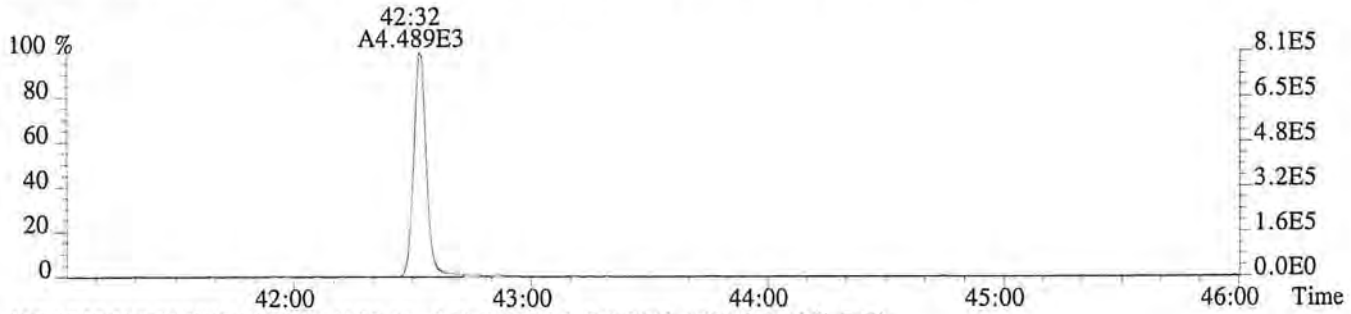
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



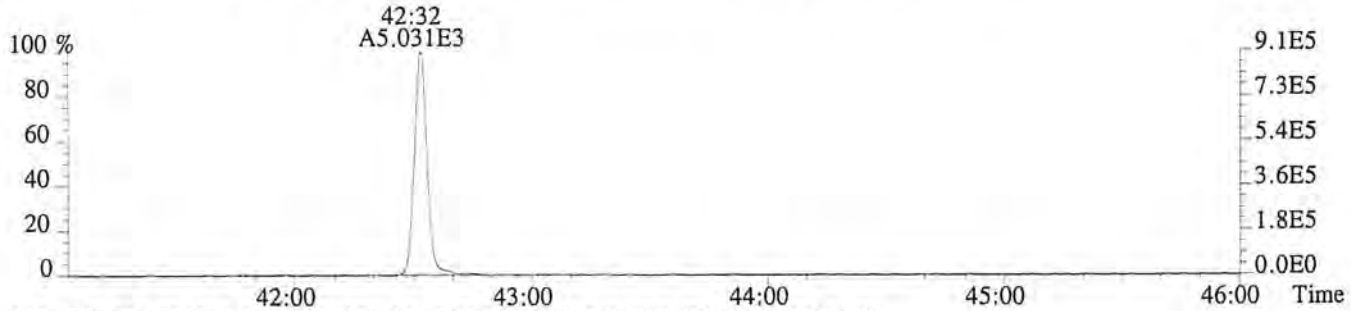
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



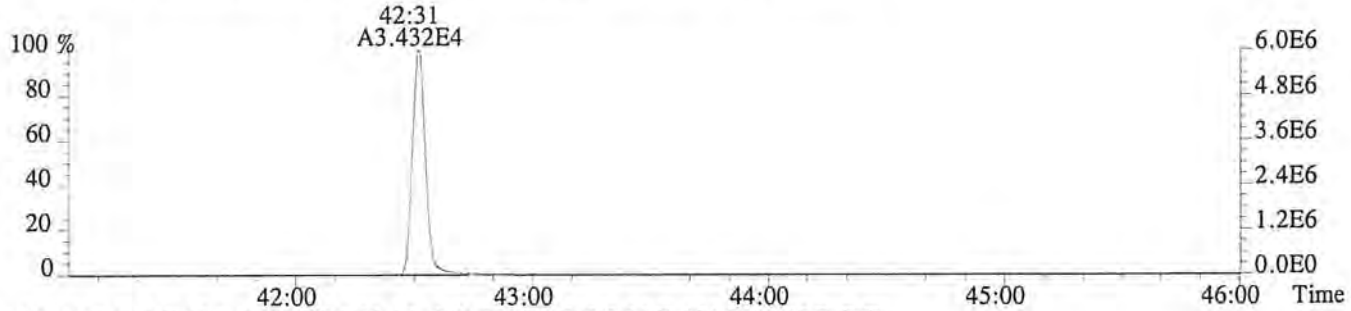
File:P301070 #1-447 Acq:28-AUG-2015 08:48:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-009
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,684.0,0.40%,F,T)



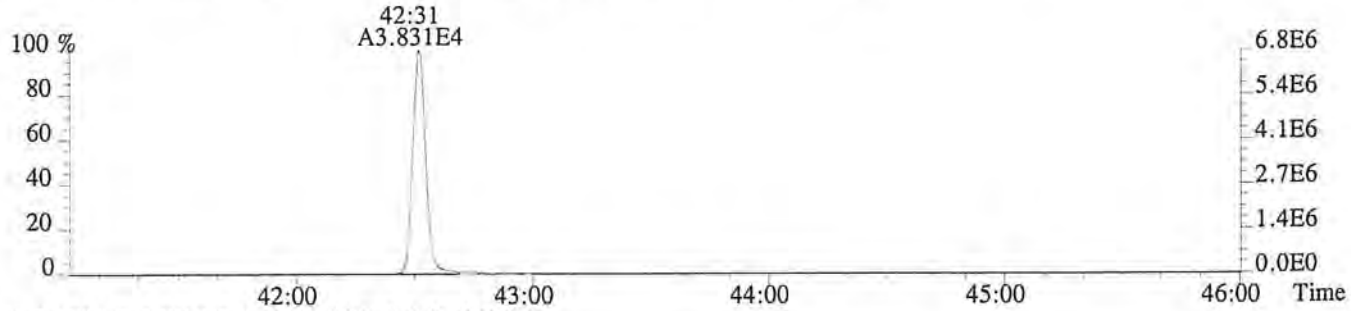
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1284.0,0.40%,F,T)



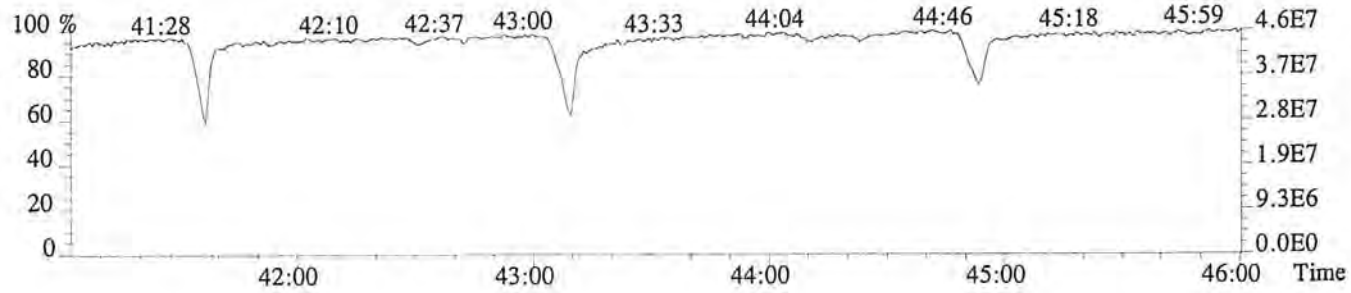
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,788.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1016.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-06-15 MT3

Run #12 Filename P301071 Samp: 1 Inj: 1 Acquired: 28-AUG-15 09:37:24
Processed: 28-AUG-15 16:51:47 Sample ID: E1500743-010

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	1.910e+02	2.607e+02	0.73	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:48	1.985e+01	1.513e+01	1.31	yes	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	2.375e+02	2.323e+02	1.02	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.245
10	Unk	OCDF	42:45	7.517e+02	8.755e+02	0.86	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:23	2.586e+02	3.314e+02	0.78	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:02	8.199e+01	5.708e+01	1.44	no	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:15	2.081e+01	2.343e+01	0.89	no	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	6.956e+02	6.901e+02	1.01	yes	no	0.949
17	Unk	OCDD	42:32	3.547e+03	3.950e+03	0.90	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:37	2.984e+04	3.812e+04	0.78	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	4.799e+04	3.017e+04	1.59	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:34	4.664e+04	2.947e+04	1.58	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	1.948e+04	3.798e+04	0.51	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	2.256e+04	4.340e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	2.135e+04	4.079e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:33	2.507e+04	4.837e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	1.268e+04	2.899e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:11	9.484e+03	2.140e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:21	2.408e+04	3.096e+04	0.78	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:51	3.582e+04	2.255e+04	1.59	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:56	2.912e+04	2.311e+04	1.26	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:01	2.849e+04	2.276e+04	1.25	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:42	2.542e+04	2.393e+04	1.06	yes	no	0.850
32	IS	13C-OCDD	42:32	3.526e+04	3.933e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:48	3.047e+04	3.935e+04	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:15	4.297e+04	3.416e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	2.320e+04				no	1.001

$$\text{OCDD} = \frac{(3.547e+03 + 3.950e+03) \times 4000 \text{ pg} \times 1}{(3.526e+04 + 3.933e+04) \times 10.013 \text{ g} \times 100 \;/\; 100 \times 1.061} = 37.84 \text{ ng/kg}$$

LLL 08/31/15

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-06-15 MT3/MT

Run #12 Filename P301071 Samp: 1 Inj: 1 Acquired: 28-AUG-15 09:37:24
Processed: 28-AUG-15 16:51:47 LAB. ID: E1500743-010

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.56e+04	1.50e+03	2.4e+01	4.81e+04	2.04e+03	2.4e+01
2	1,2,3,7,8-PeCDF	*	7.04e+02	*	*	1.68e+03	*
3	2,3,4,7,8-PeCDF	*	7.04e+02	*	*	1.68e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.93e+03	*	*	4.28e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.93e+03	*	*	4.28e+02	*
6	2,3,4,6,7,8-HxCDF	5.65e+03	1.93e+03	2.9e+00	3.68e+03	4.28e+02	8.6e+00
7	1,2,3,7,8,9-HxCDF	*	1.93e+03	*	*	4.28e+02	*
8	1,2,3,4,6,7,8-HpCDF	5.46e+04	1.11e+03	4.9e+01	5.12e+04	1.29e+03	4.0e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.11e+03	*	*	1.29e+03	*
10	OCDF	1.34e+05	1.42e+03	9.4e+01	1.50e+05	2.32e+03	6.4e+01
11	2,3,7,8-TCDD	5.46e+04	1.58e+03	3.5e+01	6.54e+04	1.02e+03	6.4e+01
12	1,2,3,7,8-PeCDD	*	1.64e+03	*	*	8.28e+02	*
13	1,2,3,4,7,8-HxCDD	*	6.20e+02	*	*	1.27e+03	*
14	1,2,3,6,7,8-HxCDD	1.81e+04	6.20e+02	2.9e+01	1.34e+04	1.27e+03	1.1e+01
15	1,2,3,7,8,9-HxCDD	5.10e+03	6.20e+02	8.2e+00	4.61e+03	1.27e+03	3.6e+00
16	1,2,3,4,6,7,8-HpCDD	1.48e+05	1.61e+03	9.2e+01	1.42e+05	6.92e+02	2.1e+02
17	OCDD	6.43e+05	9.28e+02	6.9e+02	7.17e+05	5.84e+02	1.2e+03
18	13C-2,3,7,8-TCDF	5.85e+06	1.76e+03	3.3e+03	7.43e+06	1.82e+03	4.1e+03
19	13C-1,2,3,7,8-PeCDF	9.65e+06	7.48e+02	1.3e+04	6.10e+06	1.33e+03	4.6e+03
20	13C-2,3,4,7,8-PeCDF	1.00e+07	7.48e+02	1.3e+04	6.28e+06	1.33e+03	4.7e+03
21	13C-1,2,3,4,7,8-HxCDF	4.45e+06	9.96e+02	4.5e+03	8.64e+06	1.68e+03	5.1e+03
22	13C-1,2,3,6,7,8-HxCDF	5.04e+06	9.96e+02	5.1e+03	9.60e+06	1.68e+03	5.7e+03
23	13C-2,3,4,6,7,8-HxCDF	4.82e+06	9.96e+02	4.8e+03	9.16e+06	1.68e+03	5.4e+03
24	13C-1,2,3,7,8,9-HxCDF	5.61e+06	9.96e+02	5.6e+03	1.08e+07	1.68e+03	6.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.99e+06	2.40e+03	1.2e+03	6.81e+06	2.20e+03	3.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.86e+06	2.40e+03	7.7e+02	4.21e+06	2.20e+03	1.9e+03
27	13C-2,3,7,8-TCDD	5.07e+06	6.33e+03	8.0e+02	6.54e+06	3.17e+03	2.1e+03
28	13C-1,2,3,7,8-PeCDD	7.47e+06	1.92e+03	3.9e+03	4.66e+06	1.03e+03	4.5e+03
29	13C-1,2,3,4,7,8-HxCDD	6.74e+06	1.64e+03	4.1e+03	5.35e+06	1.19e+03	4.5e+03
30	13C-1,2,3,6,7,8-HxCDD	6.40e+06	1.64e+03	3.9e+03	5.07e+06	1.19e+03	4.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.42e+06	1.47e+03	3.7e+03	5.14e+06	5.48e+02	9.4e+03
32	13C-OCDD	6.35e+06	6.72e+02	9.4e+03	7.09e+06	9.88e+02	7.2e+03
33	13C-1,2,3,4-TCDD	6.17e+06	6.33e+03	9.7e+02	7.93e+06	3.17e+03	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	9.64e+06	1.64e+03	5.9e+03	7.62e+06	1.19e+03	6.4e+03
35	37Cl-2,3,7,8-TCDD	4.76e+06	1.03e+03	4.6e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-06-15 MT3/MT7

Entry: 36 Totals Name: Total Tetra-Furans

Run: 12 File: P301071 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 09:37:24 Processed: 28-AUG-15 16:51:47

Mass: 303.9020 305.8990 Tot Response: 6.58e+02 RRF: 0.8496

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:14	8.27e+01	1.24e+02	0.67	yes	2.07e+02	n	n
2	28:37	1.91e+02	2.61e+02	0.73	yes	4.52e+02	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-06-15 MT3/MT

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 12 File: P301071 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 09:37:24 Processed: 28-AUG-15 16:51:47

Mass: 319.8970 321.8940 Tot Response: 5.90e+02 RRF: 0.9567

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:23	2.59e+02	3.31e+02	0.78	yes	5.90e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.

PLY-06-15 MT3/MT

Entry: 39 Totals Name: Total Penta-Furans2

Run: 12 File: P301071 Sample:1 Injection:1 Function:2

Acquired: 28-AUG-15 09:37:24 Processed: 28-AUG-15 16:51:47

Mass: 339.8600 341.8570 Tot Response: 3.63e+01 RRF: 0.9042

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:54	2.16e+01	1.48e+01	1.46	yes	3.63e+01	n	n

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Peak List Summary

CLIENT ID.

PLY-06-15 MT3/MT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 12 File: P301071 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 09:37:24 Processed: 28-AUG-15 16:51:47

Mass: 373.8210 375.8180 Tot Response: 4.09e+02 RRF: 1.094

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:46	2.04e+02	1.71e+02	1.19	yes	3.74e+02		n	n
2	36:48	1.98e+01	1.51e+01	1.31	yes	3.50e+01	2,3,4,6,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-06-15 MT3/MT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P301071 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 09:37:24 Processed: 28-AUG-15 16:51:47

Mass: 389.8160 391.8130 Tot Response: 4.27e+02 RRF: 0.9904

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:37	1.15e+02	9.35e+01	1.24	yes	2.09e+02		n	n
2	36:22	1.01e+02	7.68e+01	1.31	yes	1.77e+02		n	n
3	36:28	2.07e+01	1.95e+01	1.06	yes	4.02e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-06-15 MT3/MT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P301071 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 09:37:24 Processed: 28-AUG-15 16:51:47

Mass: 407.7820 409.7790 Tot Response: 2.22e+03 RRF: 1.284

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	2.37e+02	2.32e+02	1.02	yes	4.70e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:12	8.73e+02	8.73e+02	1.00	yes	1.75e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-06-15 MT3/MT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P301071 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 09:37:24 Processed: 28-AUG-15 16:51:47

Mass: 423.7770 425.7740 Tot Response: 3.67e+03 RRF: 0.9492

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:02	1.17e+03	1.11e+03	1.05	yes	2.28e+03		n	n
2	39:43	6.96e+02	6.90e+02	1.01	yes	1.39e+03	1,2,3,4,6,7,8-HpCDD	n	n

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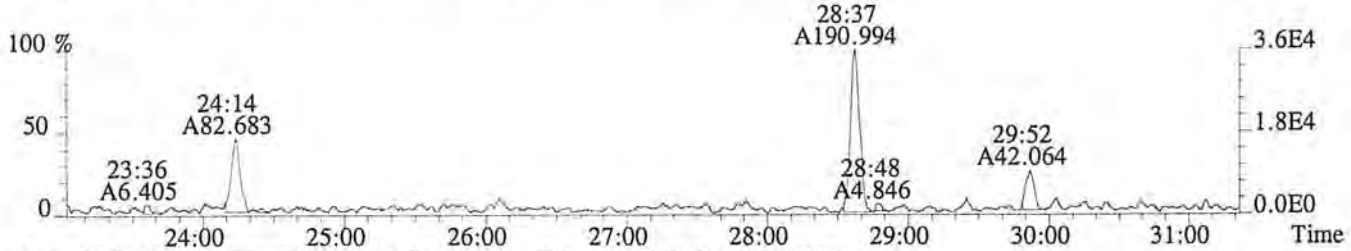
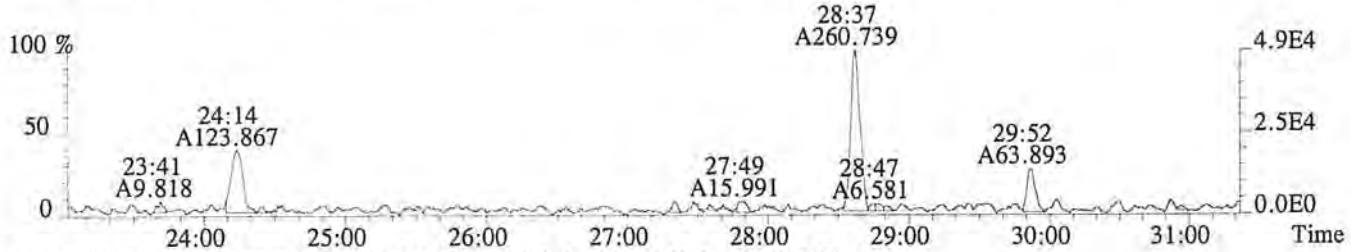
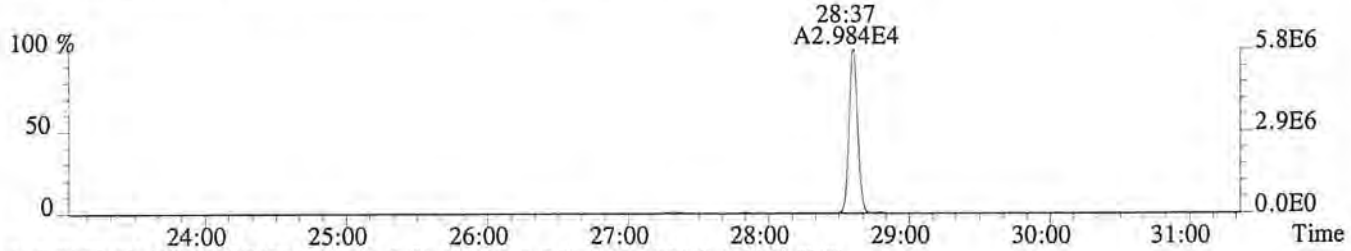
File:P301071 #1-591 Acq:28-AUG-2015 09:37:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-010
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1500.0,1.00%,F,T)



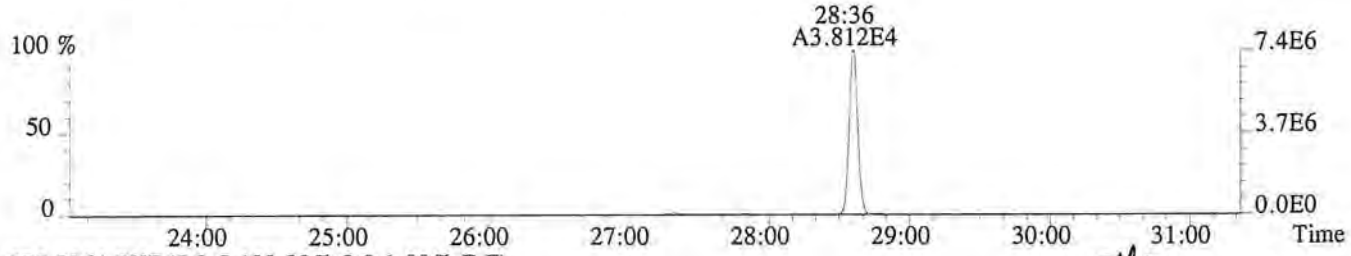
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)



315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1760.0,1.00%,F,T)



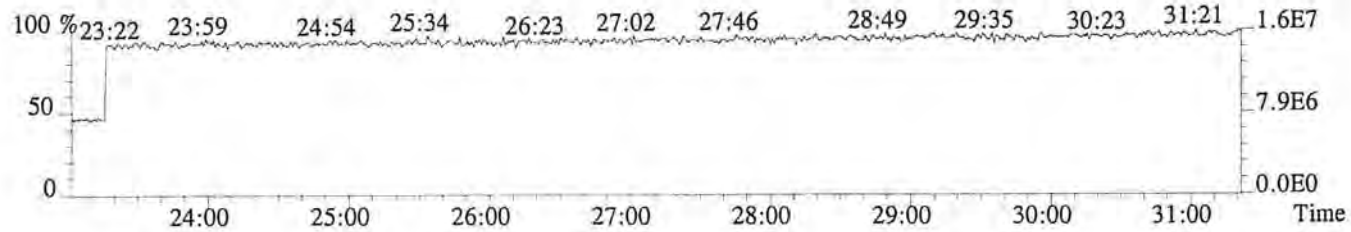
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



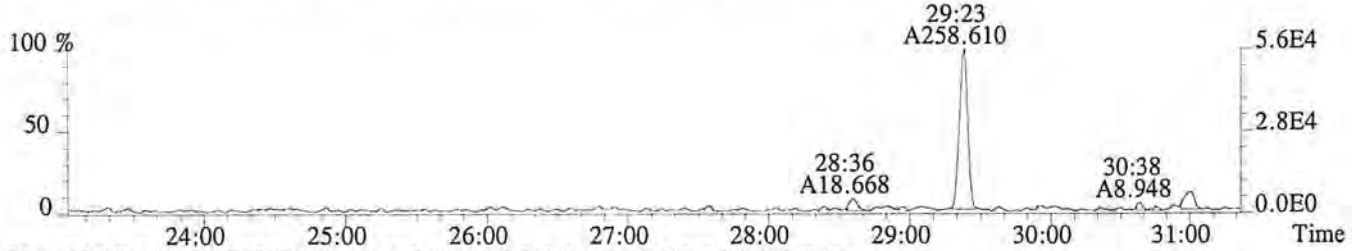
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

✓ Ether
LM 08/31/15
TC 08/31/15

318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

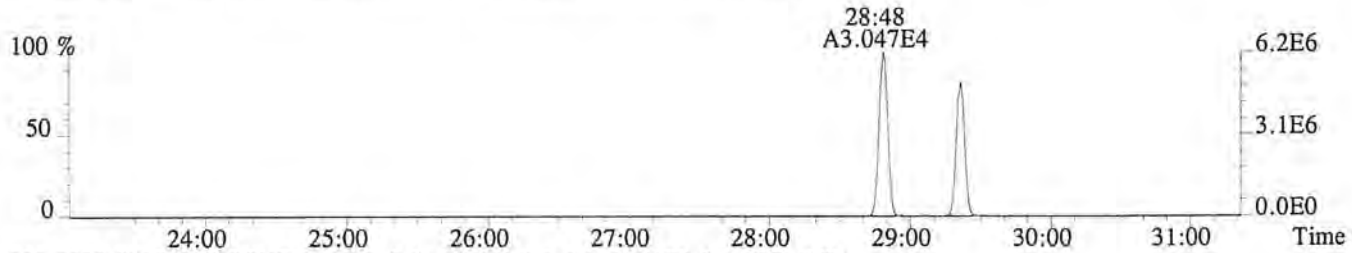


File:P301071 #1-591 Acq:28-AUG-2015 09:37:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-010
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)

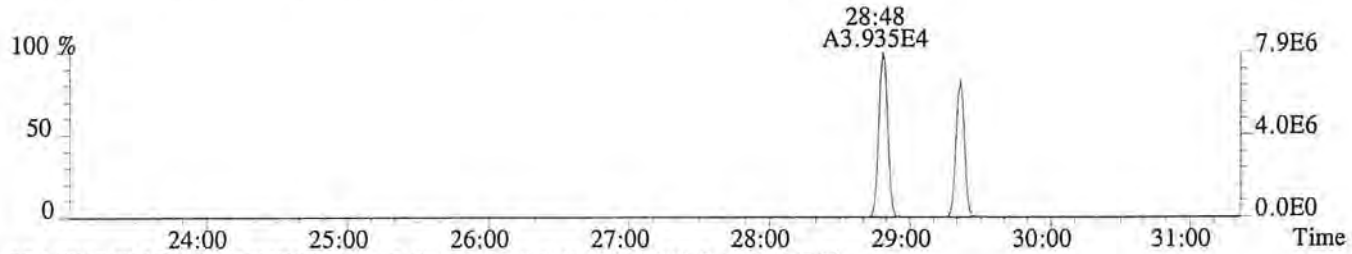


321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)

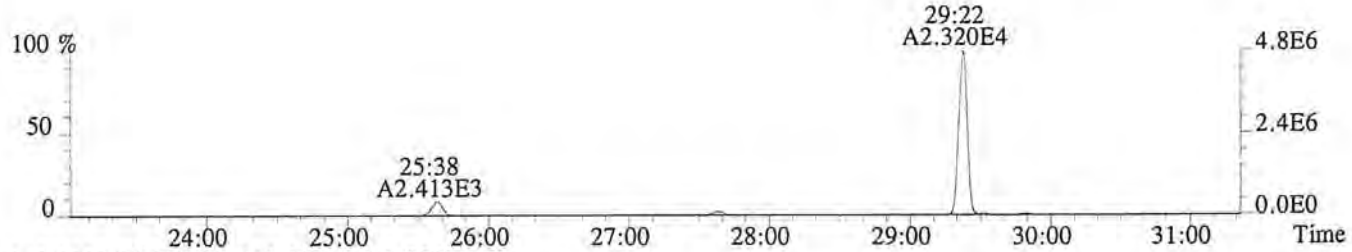
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6332.0,1.00%,F,T)



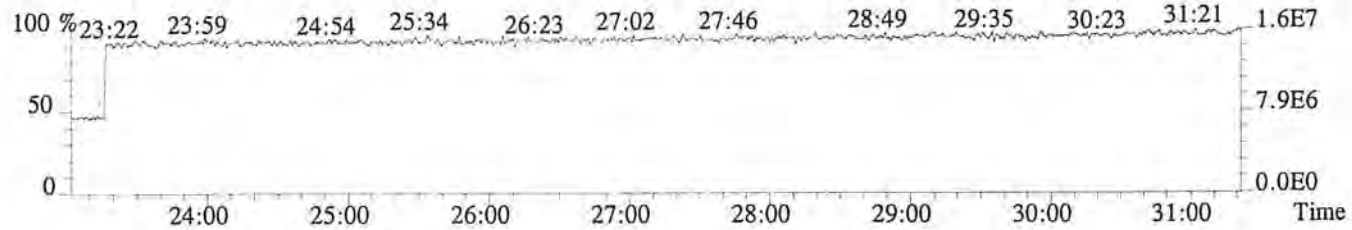
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3172.0,1.00%,F,T)



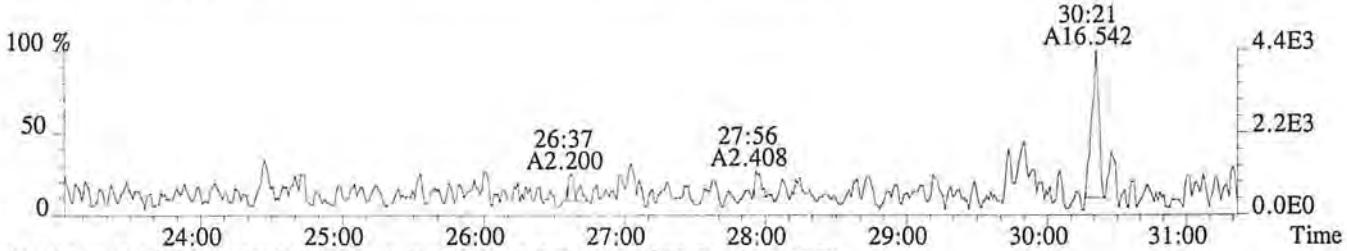
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



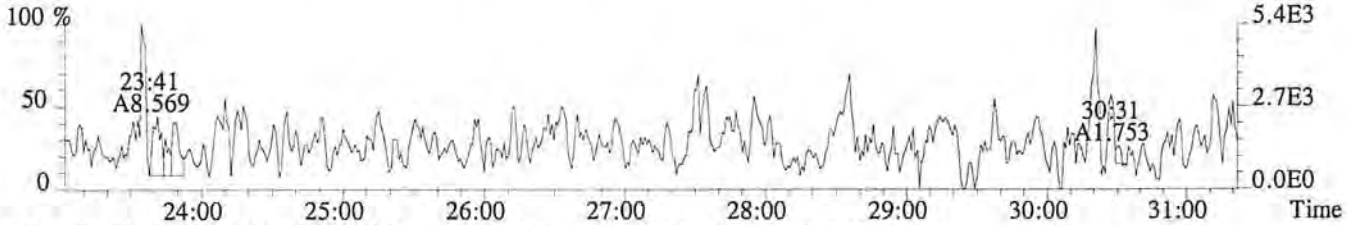
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



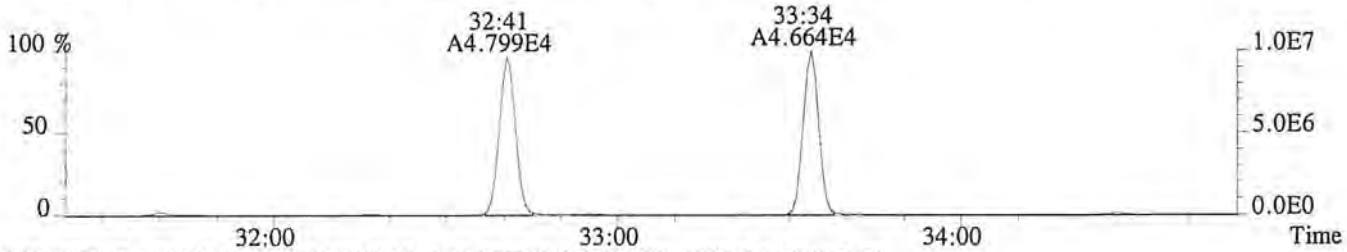
File:P301071 #1-591 Acq:28-AUG-2015 09:37:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-010
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



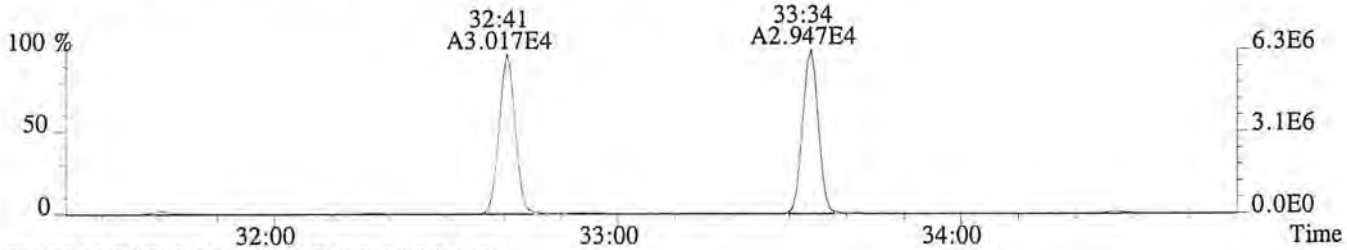
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)



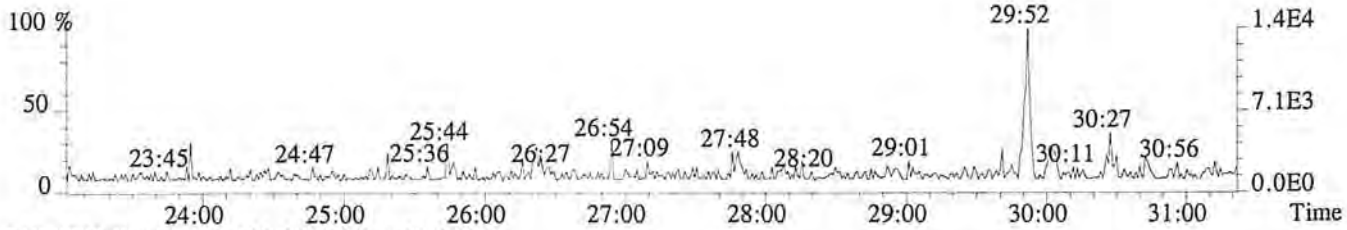
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1328.0,1.00%,F,T)

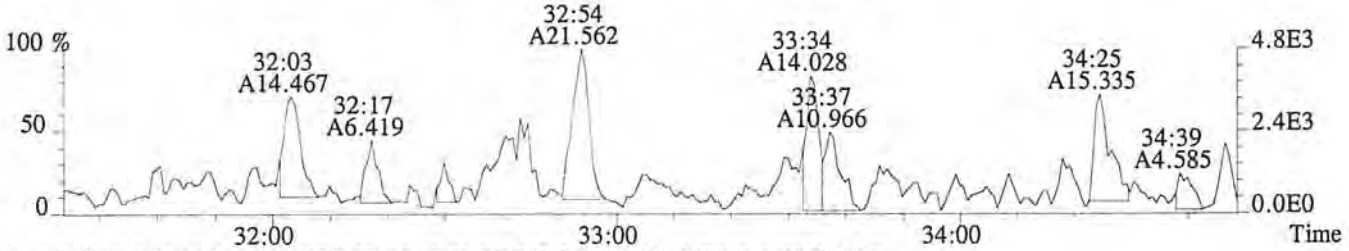


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

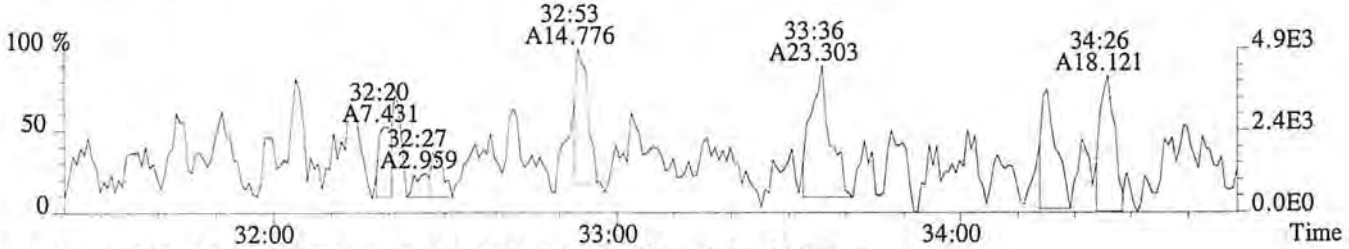


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

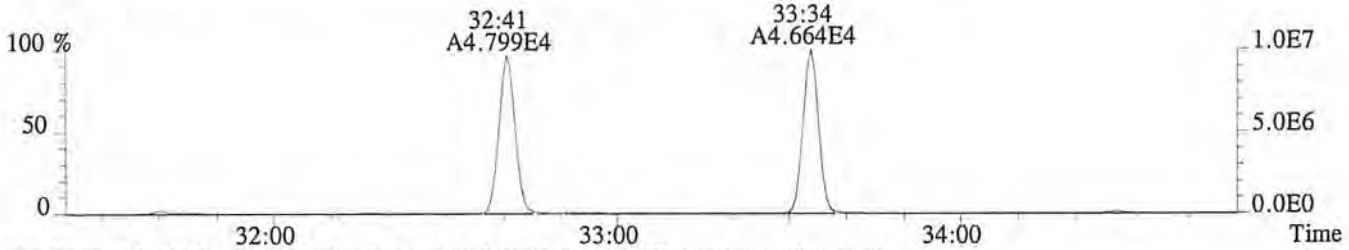
File:P301071 #1-308 Acq:28-AUG-2015 09:37:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-010
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



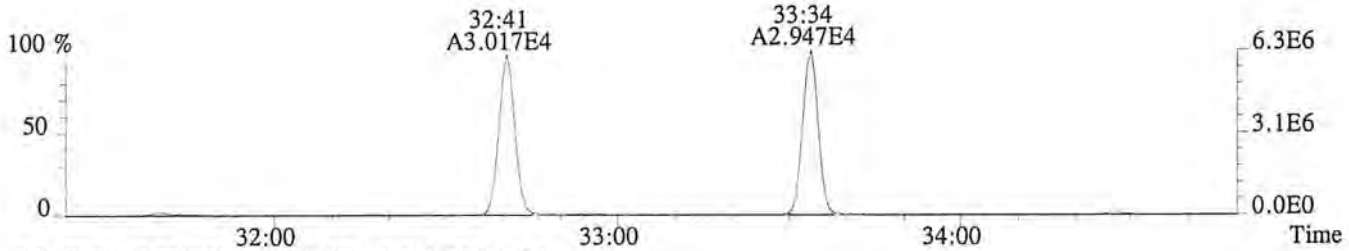
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1680.0,1.00%,F,T)



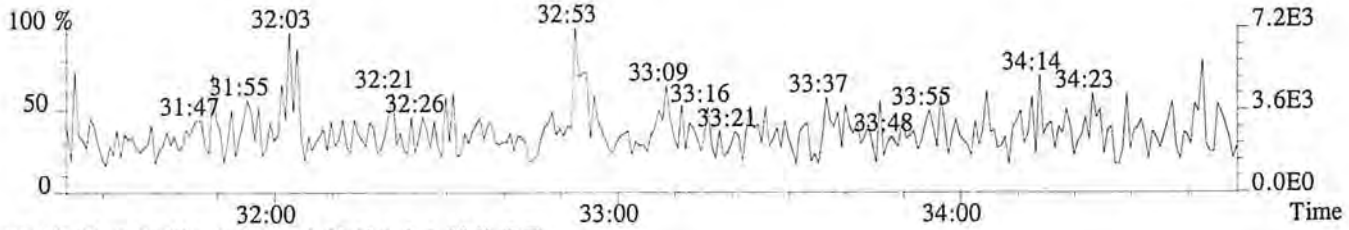
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



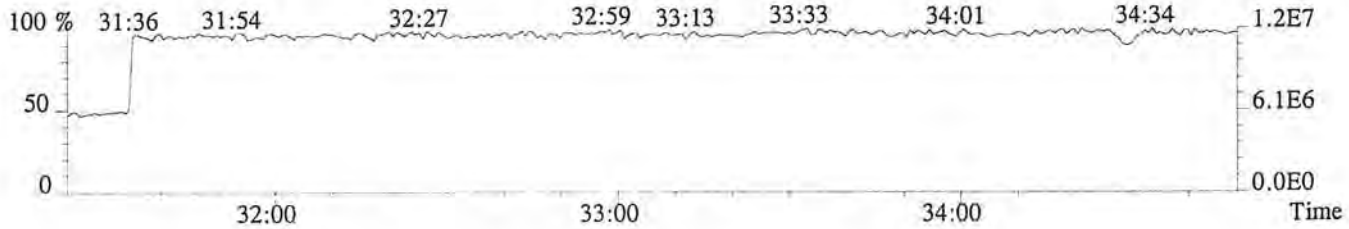
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1328.0,1.00%,F,T)



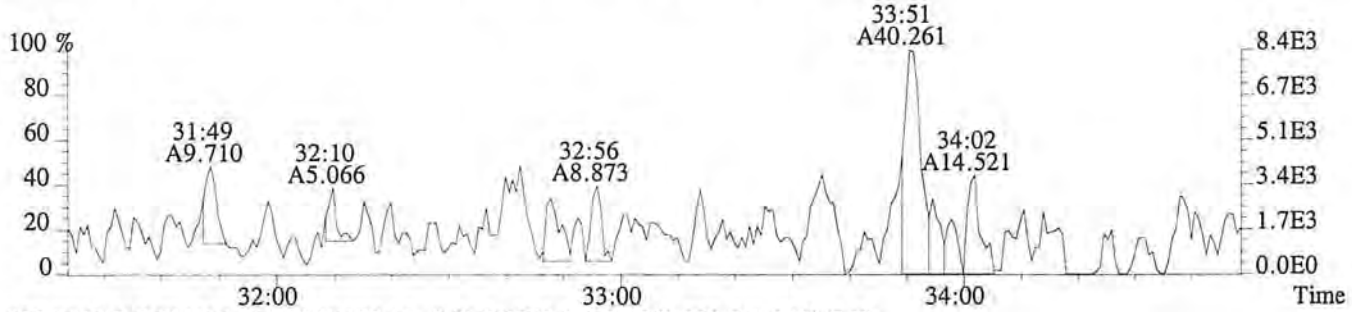
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



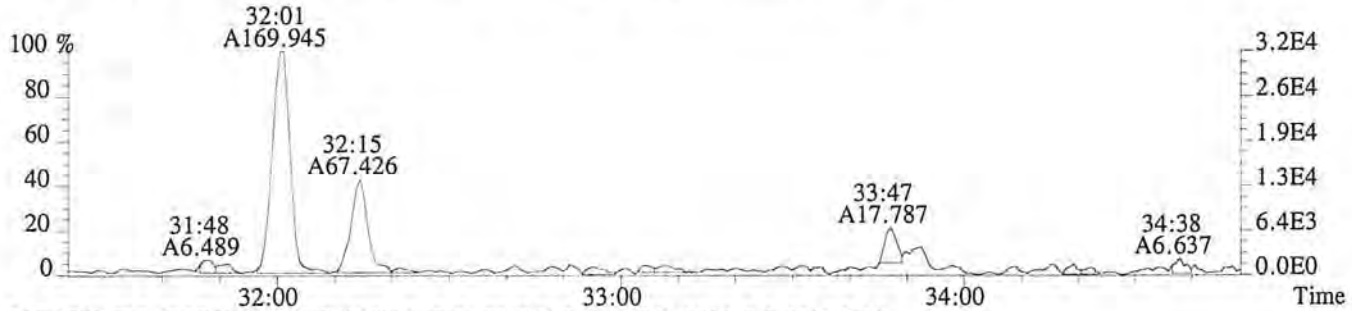
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



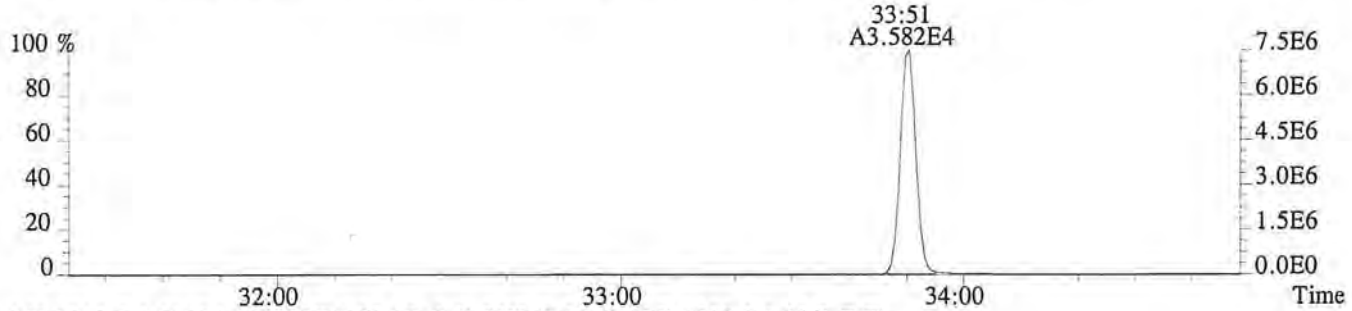
File:P301071 #1-308 Acq:28-AUG-2015 09:37:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-010
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)



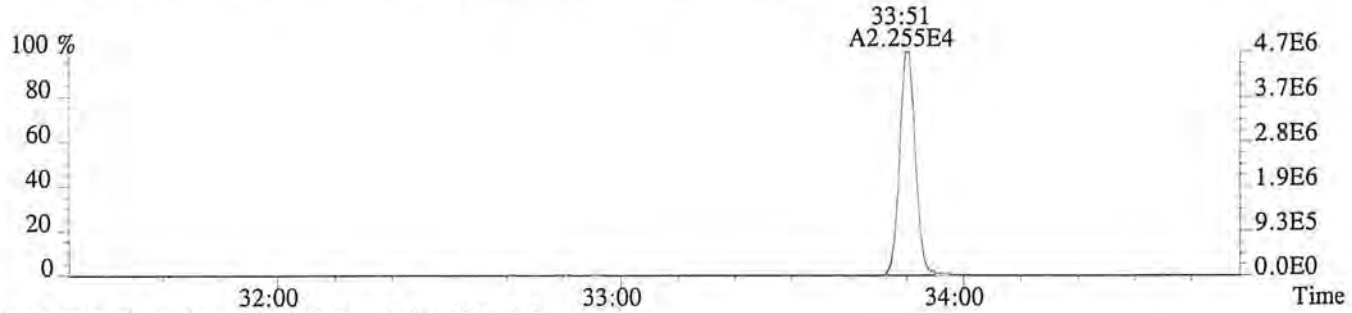
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



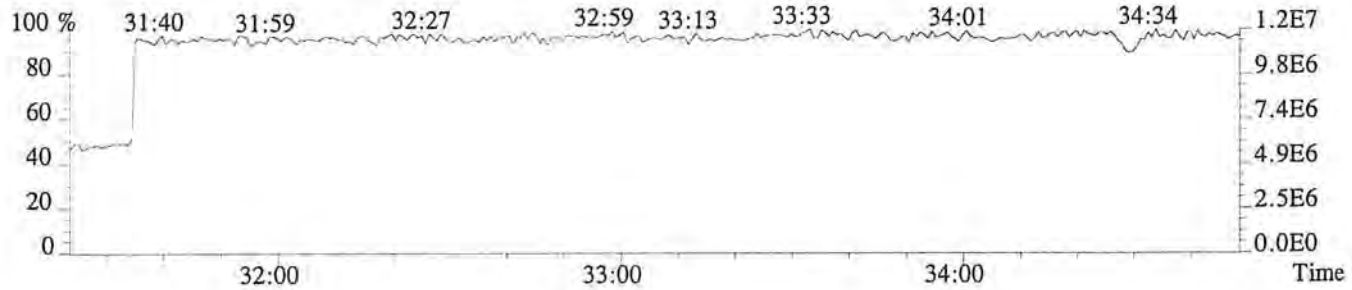
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1916.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)

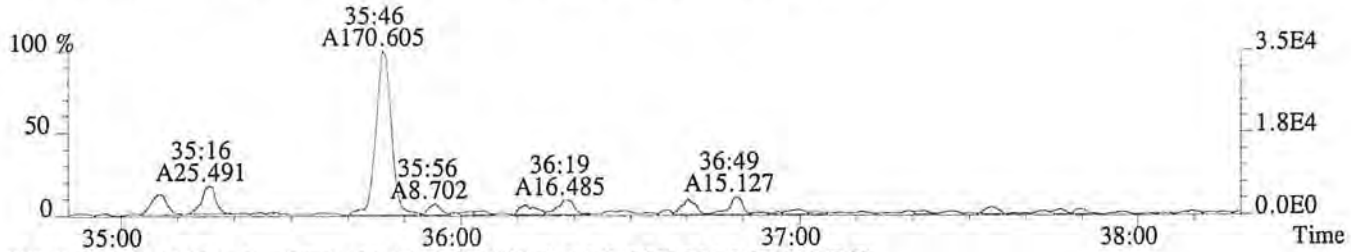


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

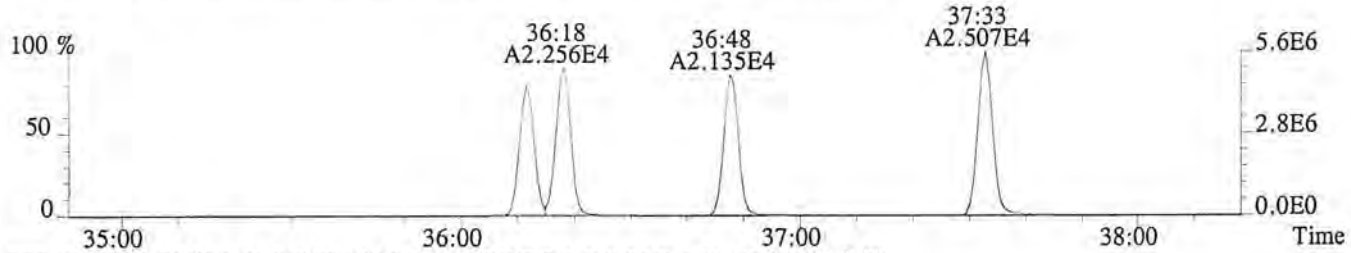


File:P301071 #1-312 Acq:28-AUG-2015 09:37:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-010
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1928.0,0.40%,F,T)

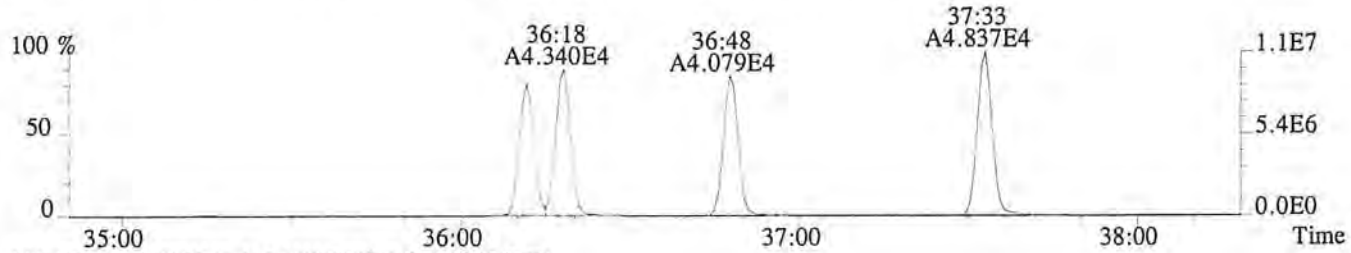
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.40%,F,T)

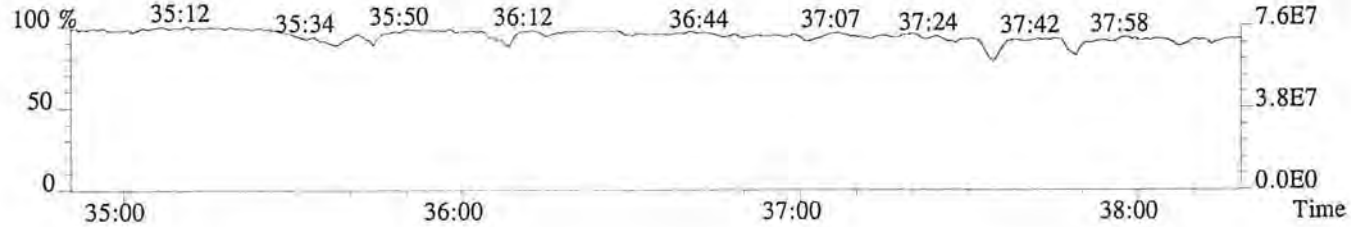


385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1684.0,0.40%,F,T)

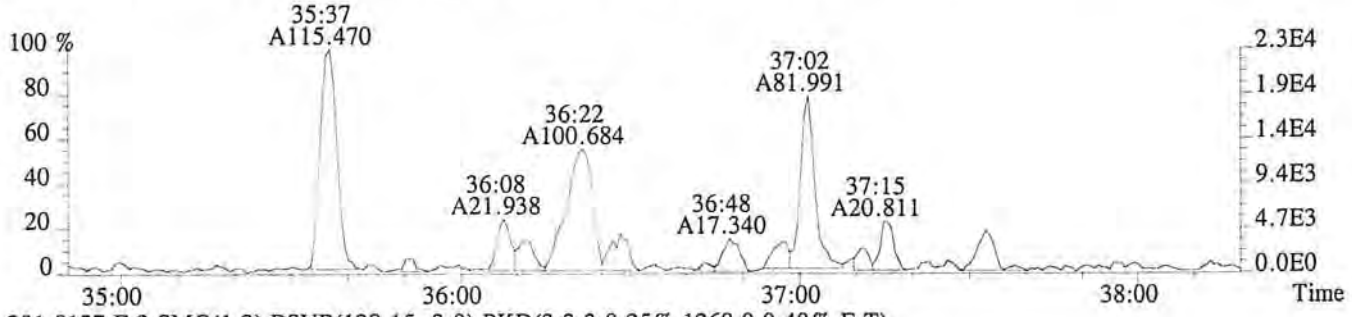


445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

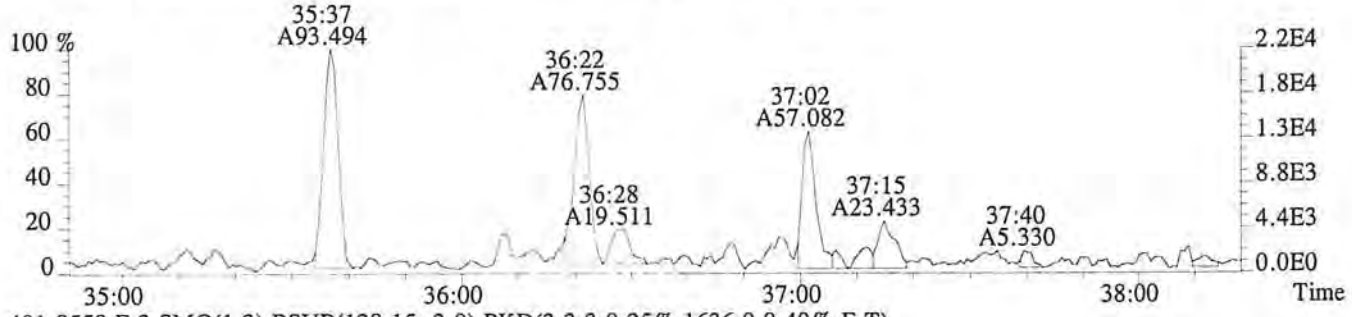
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



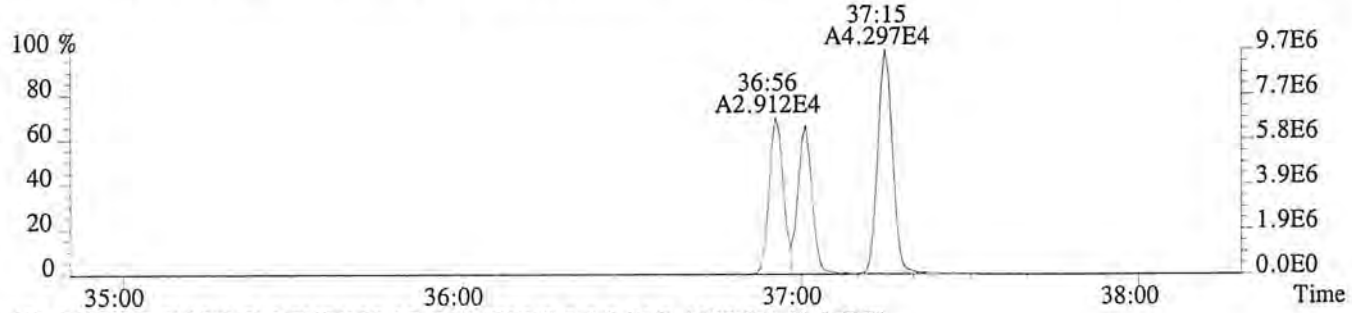
File:P301071 #1-312 Acq:28-AUG-2015 09:37:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-010
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



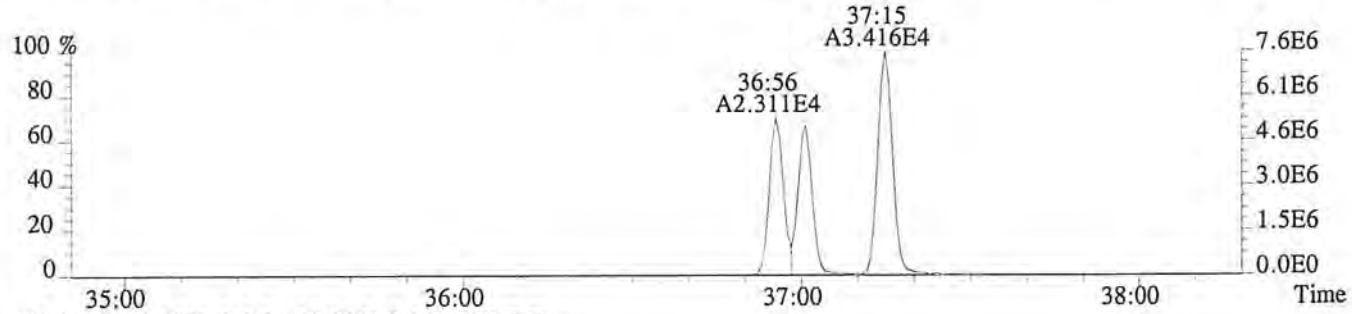
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1268.0,0.40%,F,T)



401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1636.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1188.0,0.40%,F,T)

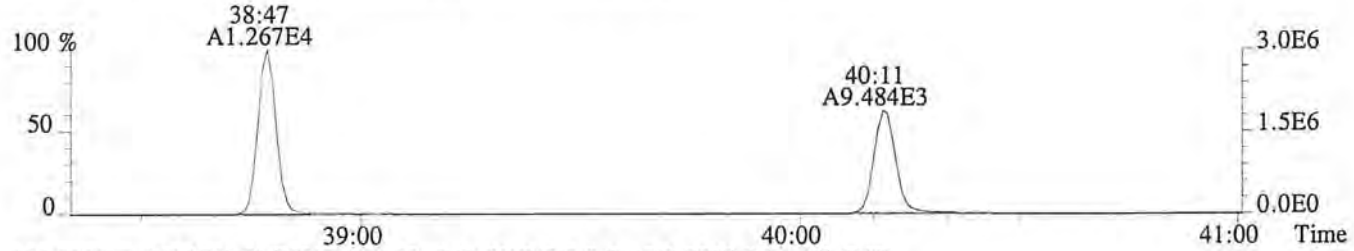


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

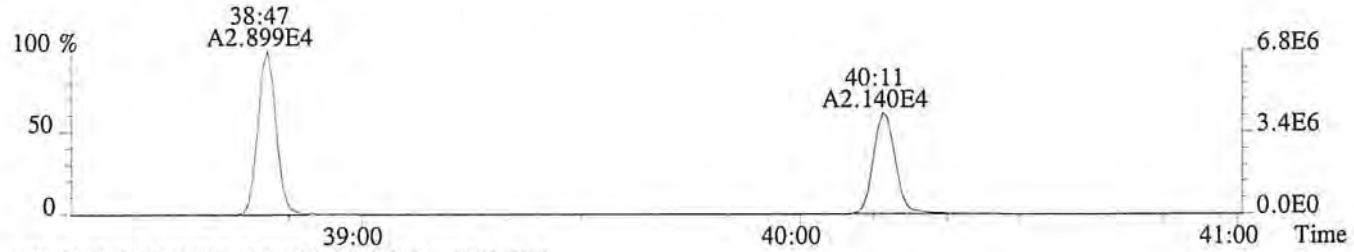
File:P301071 #1-241 Acq:28-AUG-2015 09:37:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-010
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1108.0,0.50%,F,T)

409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1288.0,0.50%,F,T)

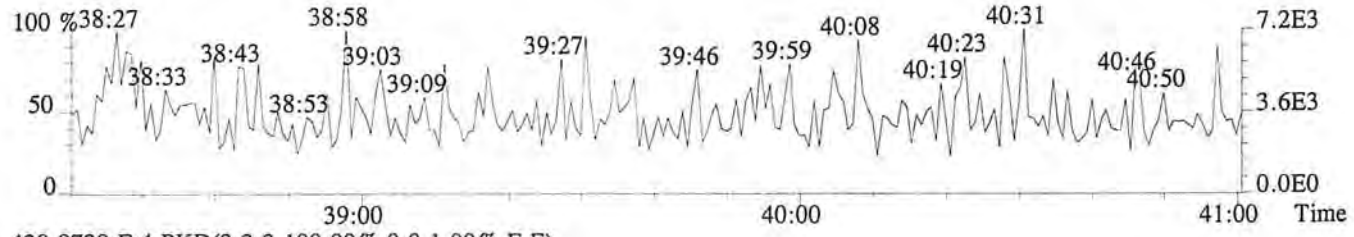
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2404.0,0.50%,F,T)



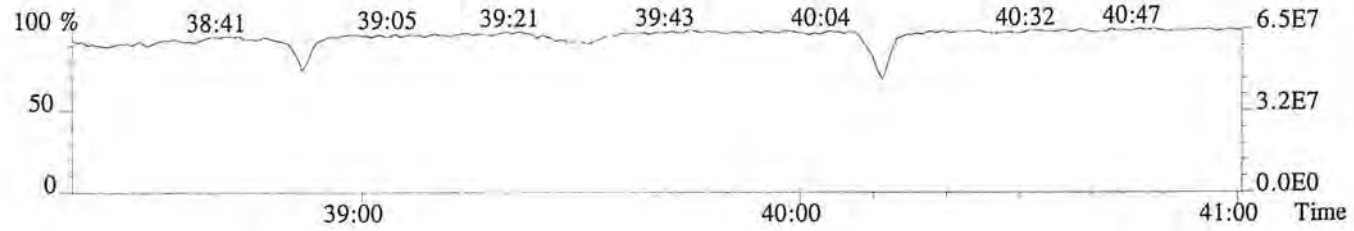
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2200.0,0.50%,F,T)



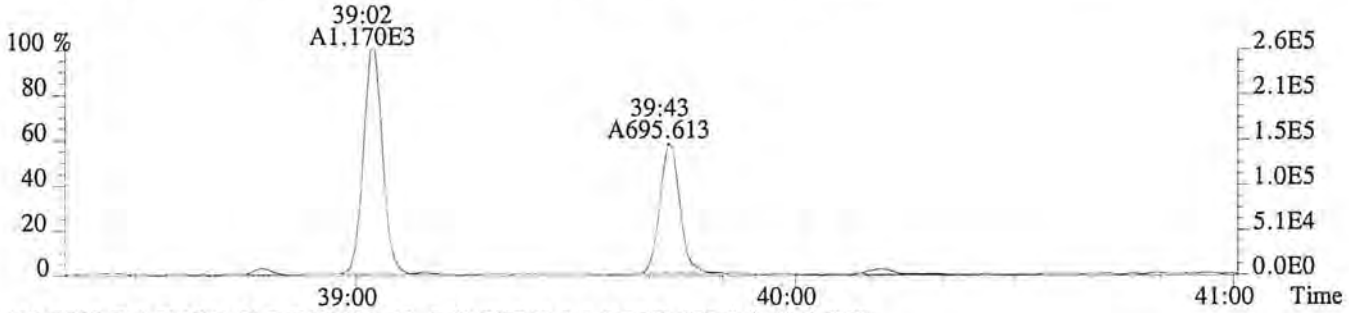
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



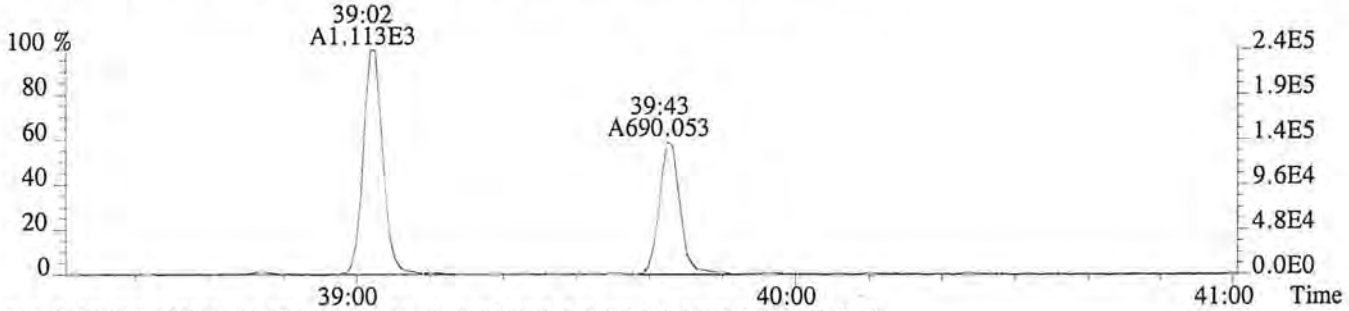
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



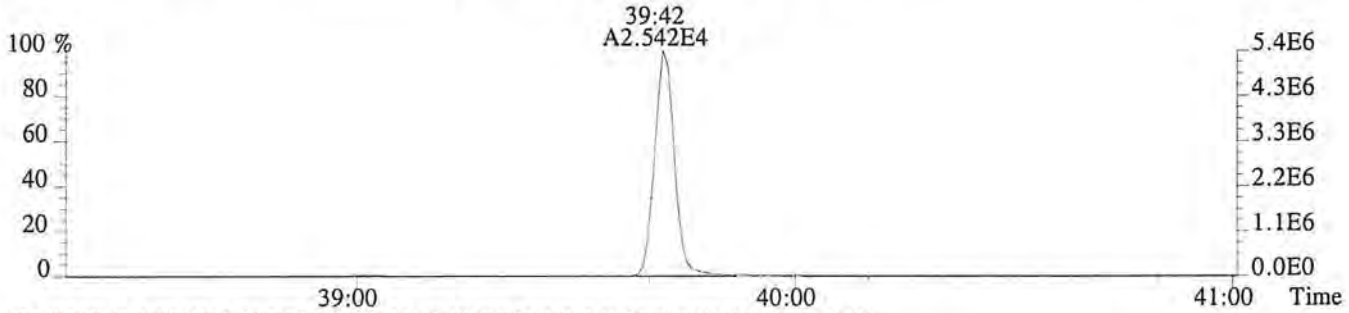
File:P301071 #1-241 Acq:28-AUG-2015 09:37:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-010
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1612.0,0.40%,F,T)



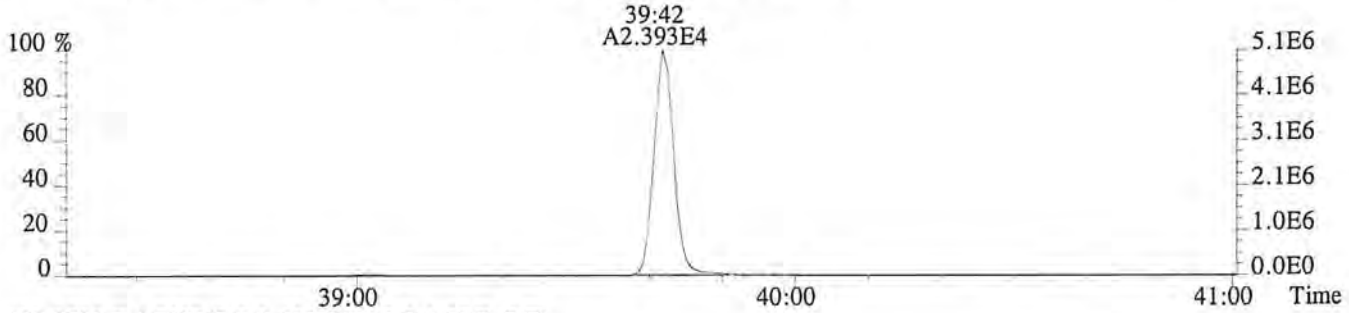
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



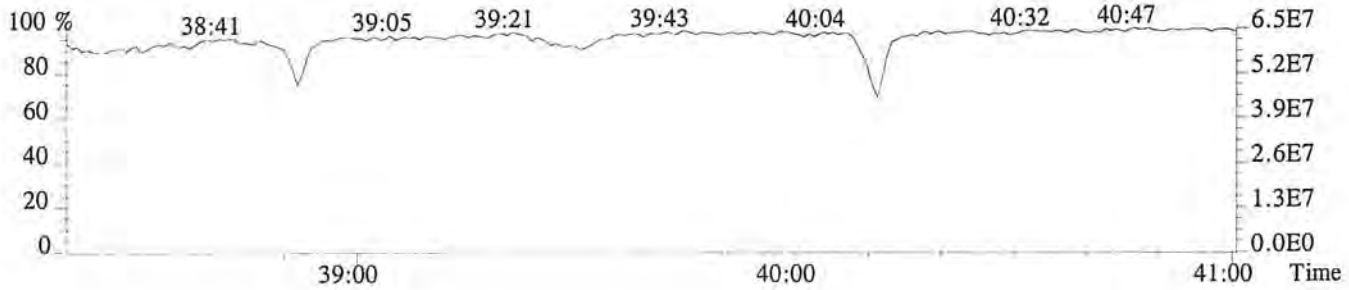
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1472.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



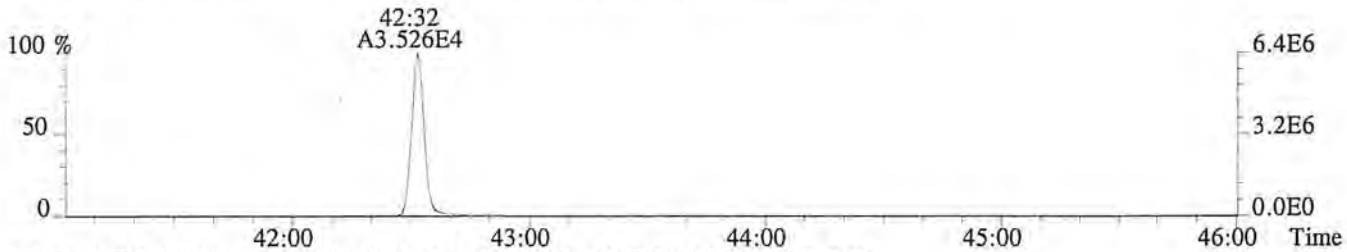
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



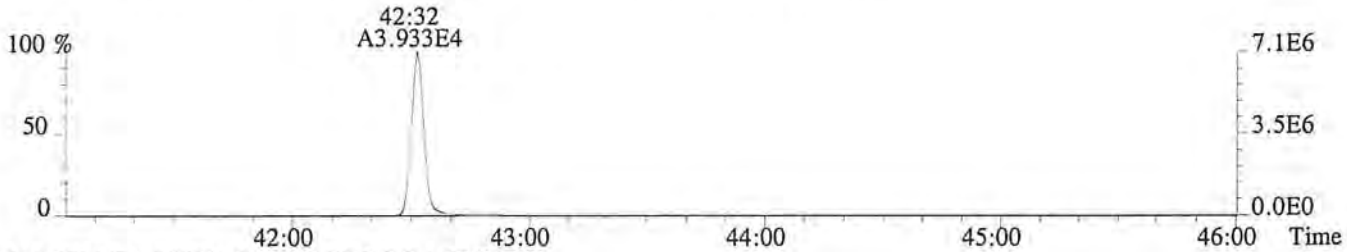
File:P301071 #1-447 Acq:28-AUG-2015 09:37:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-010
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1420.0,0.40%,F,T)

443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2324.0,0.40%,F,T)

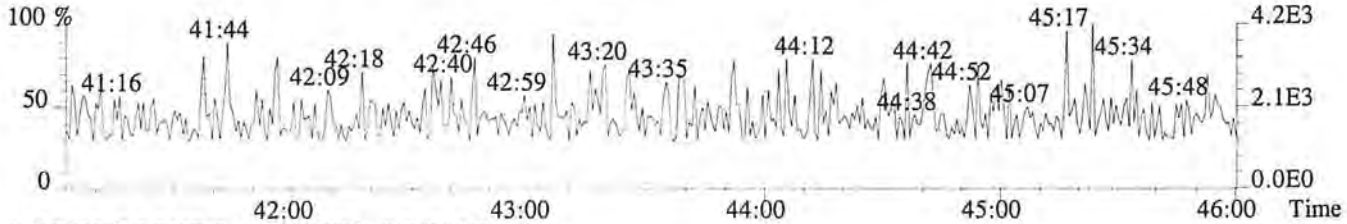
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,672.0,0.40%,F,T)



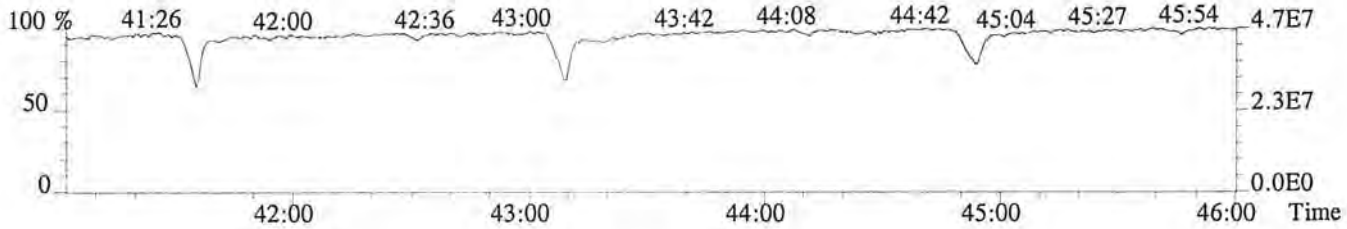
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,988.0,0.40%,F,T)



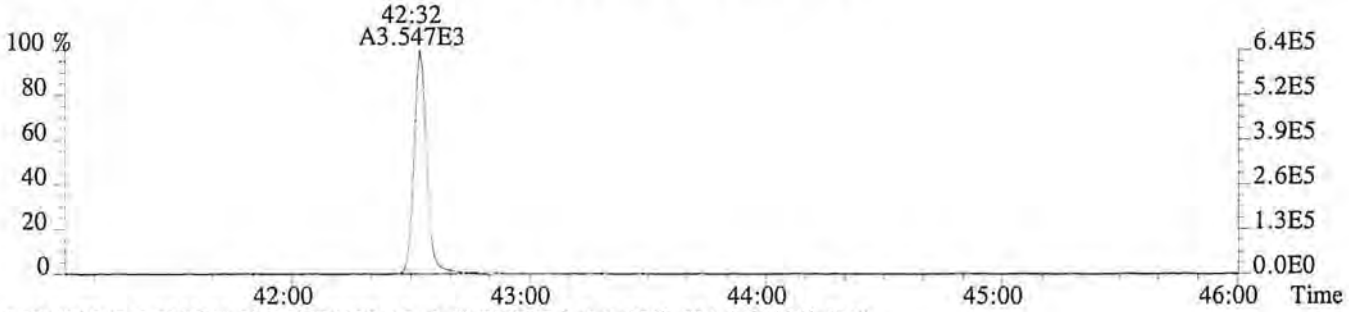
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



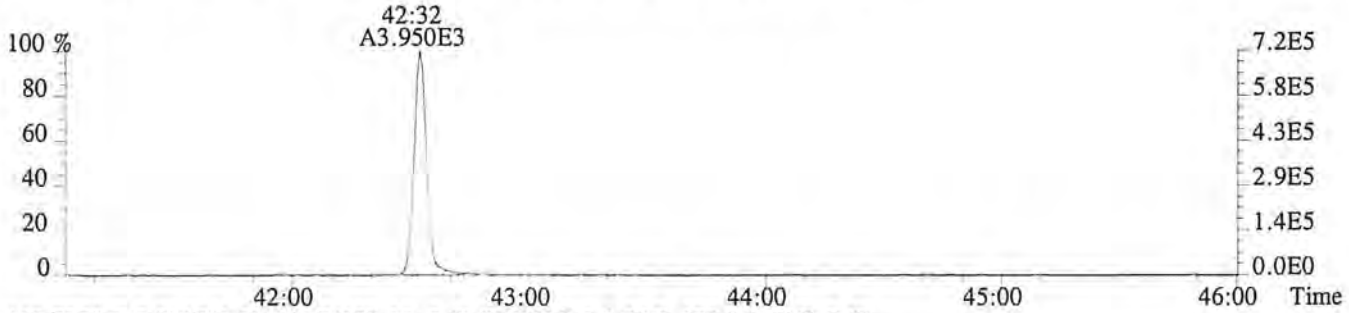
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



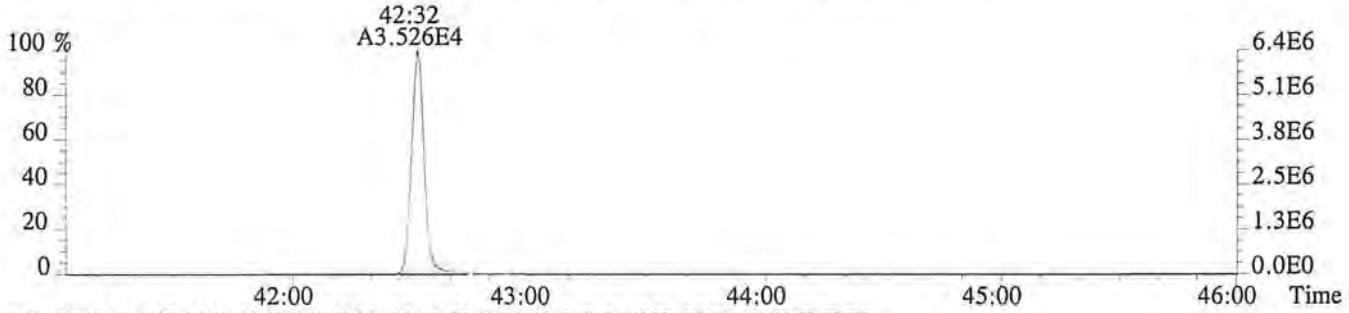
File:P301071 #1-447 Acq:28-AUG-2015 09:37:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-010
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,928.0,0.40%,F,T)



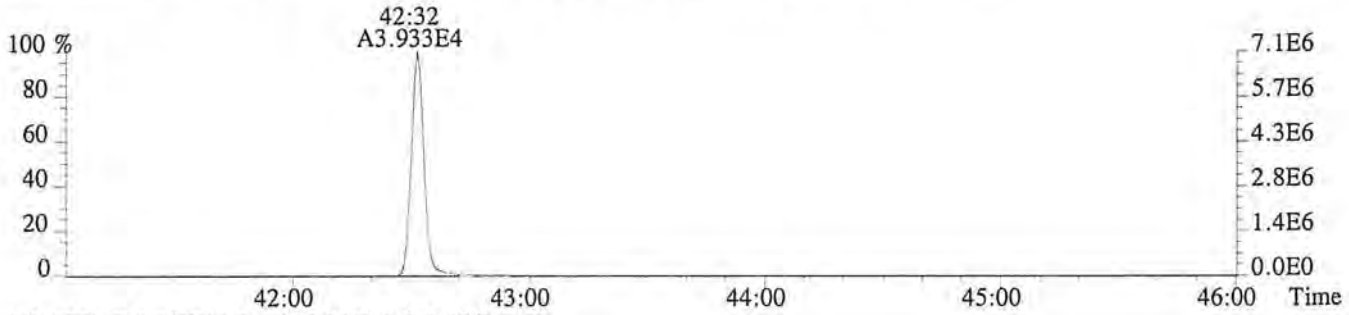
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,584.0,0.40%,F,T)



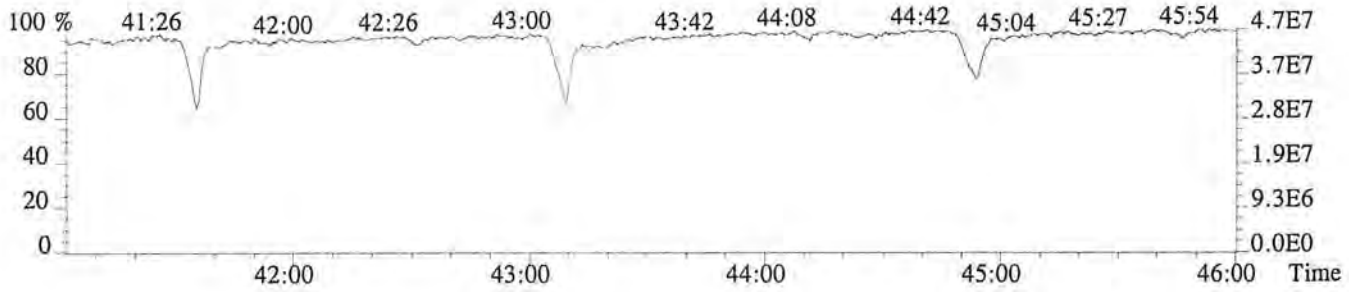
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,672.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,988.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-06-15 MT3

Run #13 Filename P301072 Samp: 1 Inj: 1 Acquired: 28-AUG-15 10:26:01
Processed: 28-AUG-15 16:51:48 Sample ID: E1500743-011

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	yes	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:48	2.199e+01	7.069e+00	3.11	no	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:47	2.412e+02	2.791e+02	0.86	no	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.245
10	Unk	OCDF	42:44	8.155e+02	8.786e+02	0.93	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:22	3.586e+01	6.249e+01	0.57	no	no	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:01	4.399e+01	3.110e+01	1.41	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	6.849e+02	6.578e+02	1.04	yes	no	0.949
17	Unk	OCDD	42:32	3.353e+03	3.712e+03	0.90	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:36	2.919e+04	3.650e+04	0.80	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	4.885e+04	3.067e+04	1.59	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:34	4.395e+04	2.802e+04	1.57	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:11	1.516e+04	2.955e+04	0.51	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	1.941e+04	3.682e+04	0.53	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	1.778e+04	3.447e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:32	1.375e+04	2.701e+04	0.51	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	6.926e+03	1.599e+04	0.43	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:11	2.306e+03	5.393e+03	0.43	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:21	2.379e+04	3.085e+04	0.77	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:50	3.525e+04	2.228e+04	1.58	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:55	2.739e+04	2.167e+04	1.26	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:00	2.869e+04	2.259e+04	1.27	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:42	2.385e+04	2.265e+04	1.05	yes	no	0.850
32	IS	13C-OCDD	42:31	3.070e+04	3.388e+04	0.91	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:48	3.093e+04	3.973e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:14	4.503e+04	3.608e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	2.315e+04				no	1.001

$$\text{OCDD} = \frac{(3.353e+03 + 3.712e+03) \times 4000 \text{ pg} \times 1}{(3.070e+04 + 3.388e+04) \times 10.235 \text{ g} \times 100 \;/\; 100 \times 1.061} = 40.3 \text{ ng/kg}$$

MM 8/31/15

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-06-15 MT3/MT

Run #13 Filename P301072 Samp: 1 Inj: 1 Acquired: 28-AUG-15 10:26:01
Processed: 28-AUG-15 16:51:48 LAB. ID: E1500743-011

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.39e+03	*	*	2.62e+03	*
2	1,2,3,7,8-PeCDF	*	7.48e+02	*	*	2.46e+03	*
3	2,3,4,7,8-PeCDF	*	7.48e+02	*	*	2.46e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.69e+03	*	*	6.88e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.69e+03	*	*	6.88e+02	*
6	2,3,4,6,7,8-HxCDF	4.52e+03	1.69e+03	2.7e+00	2.07e+03	6.88e+02	3.0e+00
7	1,2,3,7,8,9-HxCDF	*	1.69e+03	*	*	6.88e+02	*
8	1,2,3,4,6,7,8-HpCDF	5.42e+04	1.56e+03	3.5e+01	5.72e+04	1.24e+03	4.6e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.56e+03	*	*	1.24e+03	*
10	OCDF	1.43e+05	1.22e+03	1.2e+02	1.59e+05	2.56e+03	6.2e+01
11	2,3,7,8-TCDD	6.70e+03	1.65e+03	4.1e+00	1.30e+04	1.12e+03	1.2e+01
12	1,2,3,7,8-PeCDD	*	1.96e+03	*	*	9.48e+02	*
13	1,2,3,4,7,8-HxCDD	*	5.48e+02	*	*	1.32e+03	*
14	1,2,3,6,7,8-HxCDD	8.34e+03	5.48e+02	1.5e+01	7.87e+03	1.32e+03	5.9e+00
15	1,2,3,7,8,9-HxCDD	*	5.48e+02	*	*	1.32e+03	*
16	1,2,3,4,6,7,8-HpCDD	1.50e+05	1.30e+03	1.2e+02	1.41e+05	8.16e+02	1.7e+02
17	OCDD	5.95e+05	8.00e+02	7.4e+02	6.58e+05	1.03e+03	6.4e+02
18	13C-2,3,7,8-TCDF	5.65e+06	2.20e+03	2.6e+03	7.17e+06	2.10e+03	3.4e+03
19	13C-1,2,3,7,8-PeCDF	1.00e+07	9.16e+02	1.1e+04	6.31e+06	1.76e+03	3.6e+03
20	13C-2,3,4,7,8-PeCDF	9.07e+06	9.16e+02	9.9e+03	5.74e+06	1.76e+03	3.3e+03
21	13C-1,2,3,4,7,8-HxCDF	3.44e+06	1.42e+03	2.4e+03	6.73e+06	1.55e+03	4.3e+03
22	13C-1,2,3,6,7,8-HxCDF	4.36e+06	1.42e+03	3.1e+03	8.19e+06	1.55e+03	5.3e+03
23	13C-2,3,4,6,7,8-HxCDF	4.02e+06	1.42e+03	2.8e+03	7.64e+06	1.55e+03	4.9e+03
24	13C-1,2,3,7,8,9-HxCDF	3.11e+06	1.42e+03	2.2e+03	6.08e+06	1.55e+03	3.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.63e+06	1.95e+03	8.3e+02	3.70e+06	1.50e+03	2.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.58e+05	1.95e+03	2.3e+02	1.05e+06	1.50e+03	7.0e+02
27	13C-2,3,7,8-TCDD	4.94e+06	4.43e+03	1.1e+03	6.37e+06	3.64e+03	1.8e+03
28	13C-1,2,3,7,8-PeCDD	7.51e+06	1.72e+03	4.4e+03	4.71e+06	1.17e+03	4.0e+03
29	13C-1,2,3,4,7,8-HxCDD	6.27e+06	1.79e+03	3.5e+03	4.99e+06	2.03e+03	2.5e+03
30	13C-1,2,3,6,7,8-HxCDD	6.39e+06	1.79e+03	3.6e+03	5.07e+06	2.03e+03	2.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.26e+06	2.48e+03	2.1e+03	4.91e+06	1.27e+03	3.9e+03
32	13C-OCDD	5.38e+06	7.56e+02	7.1e+03	5.93e+06	1.15e+03	5.2e+03
33	13C-1,2,3,4-TCDD	6.35e+06	4.43e+03	1.4e+03	8.15e+06	3.64e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.00e+07	1.79e+03	5.6e+03	8.07e+06	2.03e+03	4.0e+03
35	37Cl-2,3,7,8-TCDD	4.92e+06	1.12e+03	4.4e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-06-15 MT3/MT

Entry: 36 Totals Name: Total Tetra-Furans

Run: 13 File: P301072 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 10:26:01 Processed: 28-AUG-15 16:51:48

Mass: 303.9020 305.8990 Tot Response: 5.29e+02 RRF: 0.8496

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:14	2.16e+02	3.13e+02	0.69	yes	5.29e+02	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-06-15 MT3/MT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 13 File: P301072 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 10:26:01 Processed: 28-AUG-15 16:51:48

Mass: 373.8210 375.8180 Tot Response: 3.82e+02 RRF: 1.094

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:46	2.17e+02	1.65e+02	1.32	yes	3.82e+02	n	n

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Peak List Summary

CLIENT ID.

PLY-06-15 MT3/MT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P301072 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 10:26:01 Processed: 28-AUG-15 16:51:48

Mass: 389.8160 391.8130 Tot Response: 2.76e+02 RRF: 0.9904

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:36	1.13e+02	8.77e+01	1.29	yes	2.01e+02		n	n
2	37:01	4.40e+01	3.11e+01	1.41	yes	7.51e+01	1,2,3,6,7,8-HxCDD	n	n

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Peak List Summary

CLIENT ID.

PLY-06-15 MT3/MT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 13 File: P301072 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 10:26:01 Processed: 28-AUG-15 16:51:48

Mass: 407.7820 409.7790 Tot Response: 1.89e+03 RRF: 1.284

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:11	9.54e+02	9.41e+02	1.01	yes	1.89e+03	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-06-15 MT3/MT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P301072 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 10:26:01 Processed: 28-AUG-15 16:51:48

Mass: 423.7770 425.7740 Tot Response: 3.66e+03 RRF: 0.9492

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:02	1.18e+03	1.14e+03	1.04	yes	2.32e+03	n	n
2	39:43	6.85e+02	6.58e+02	1.04	yes	1.34e+03	1,2,3,4,6,7,8-HpCDD	n	n

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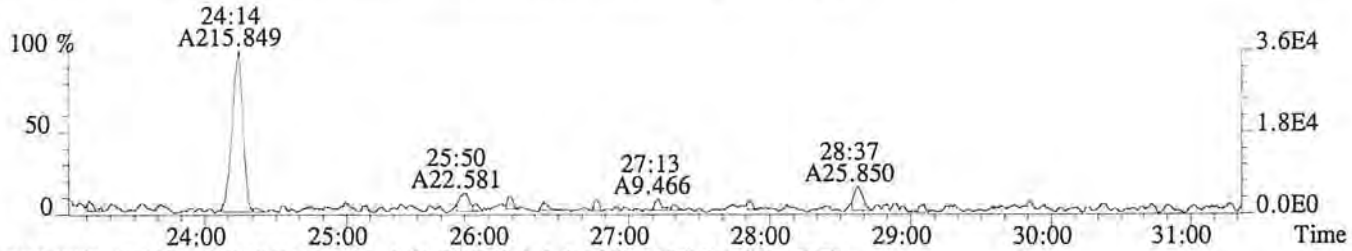
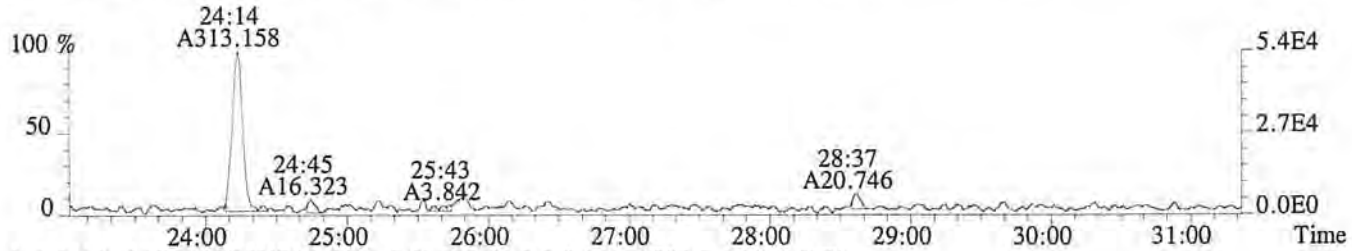
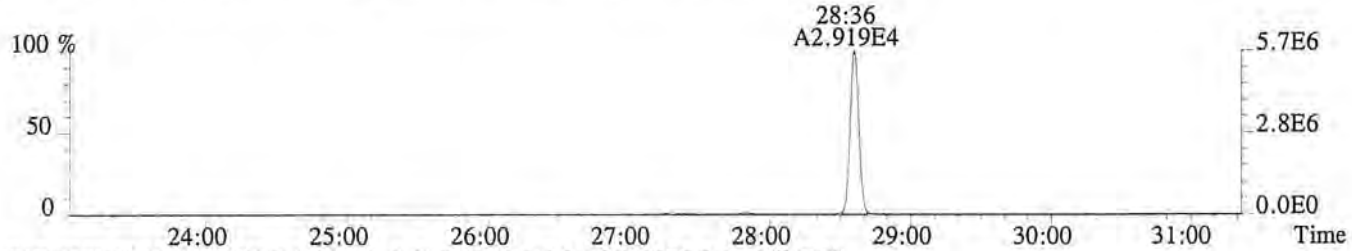
File:P301072 #1-591 Acq:28-AUG-2015 10:26:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-011
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1392.0,1.00%,F,T)



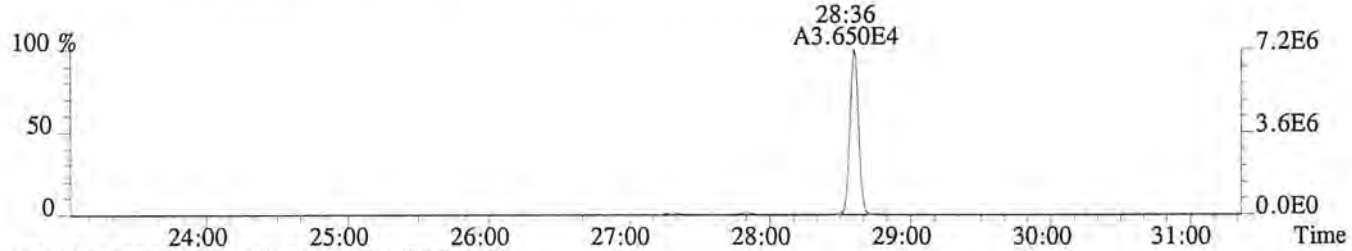
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2616.0,1.00%,F,T)



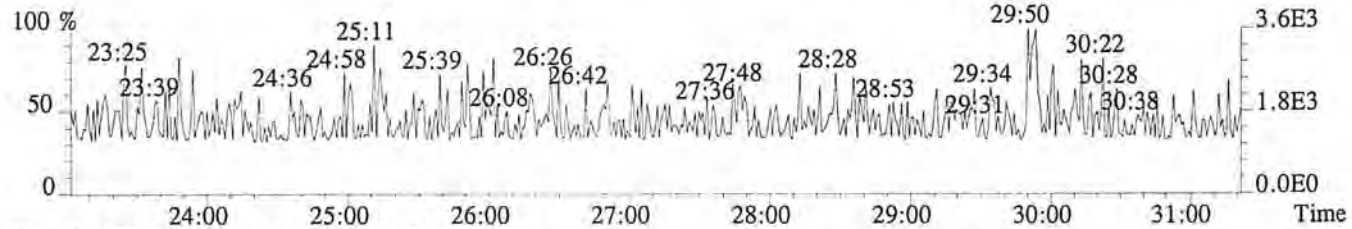
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



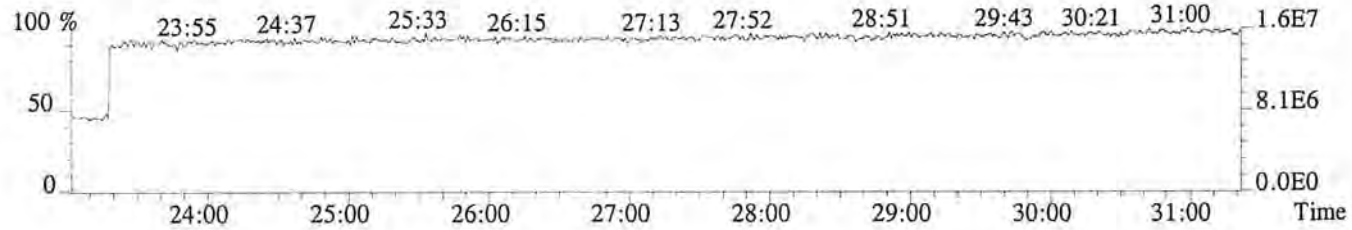
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



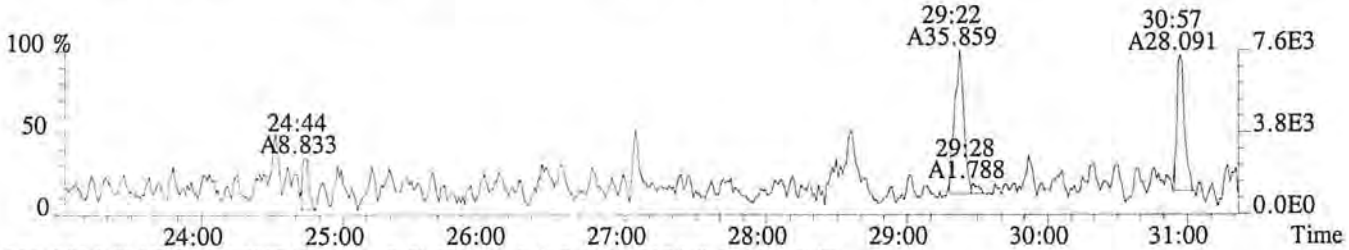
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



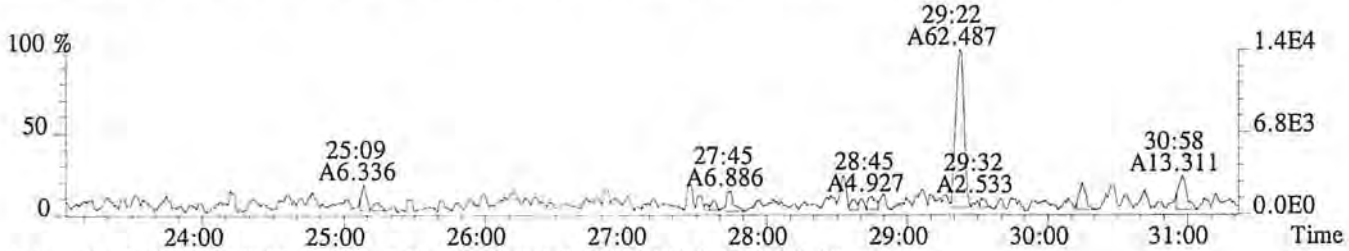
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



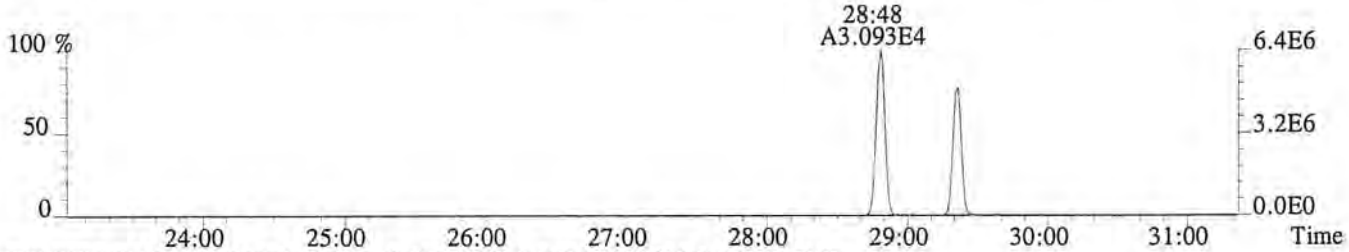
File:P301072 #1-591 Acq:28-AUG-2015 10:26:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-011
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1648.0,1.00%,F,T)



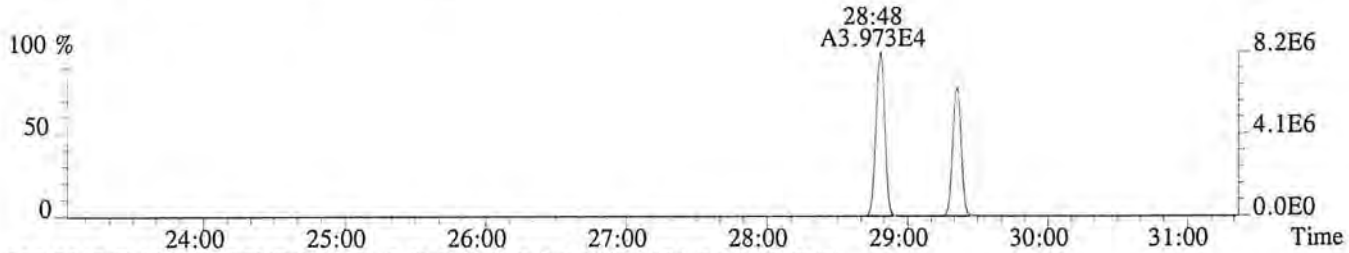
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



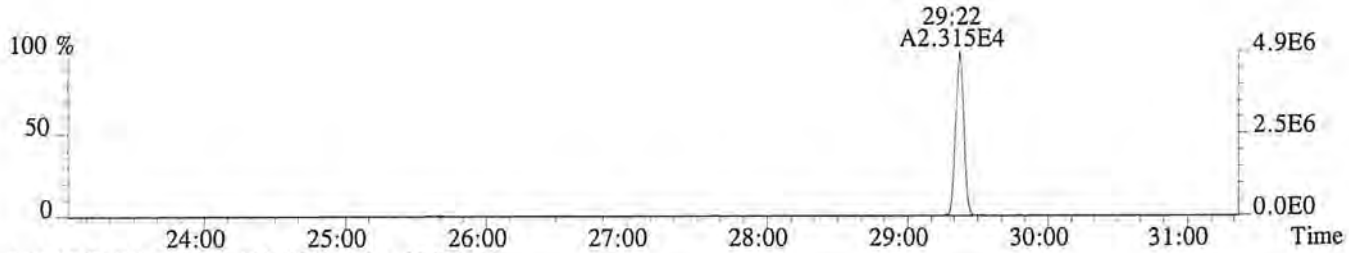
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4428.0,1.00%,F,T)



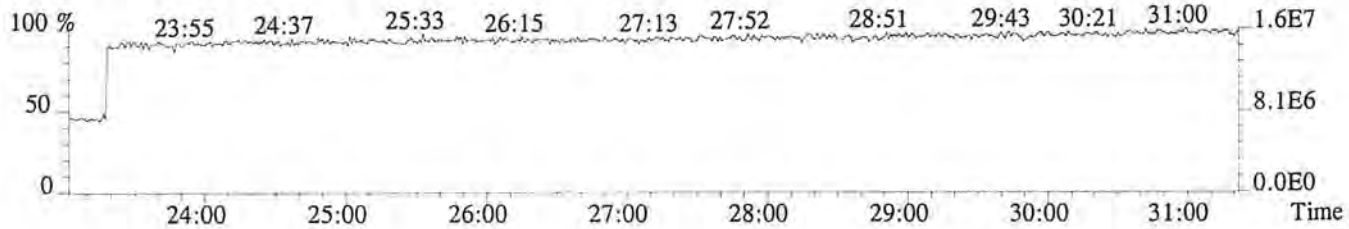
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3636.0,1.00%,F,T)



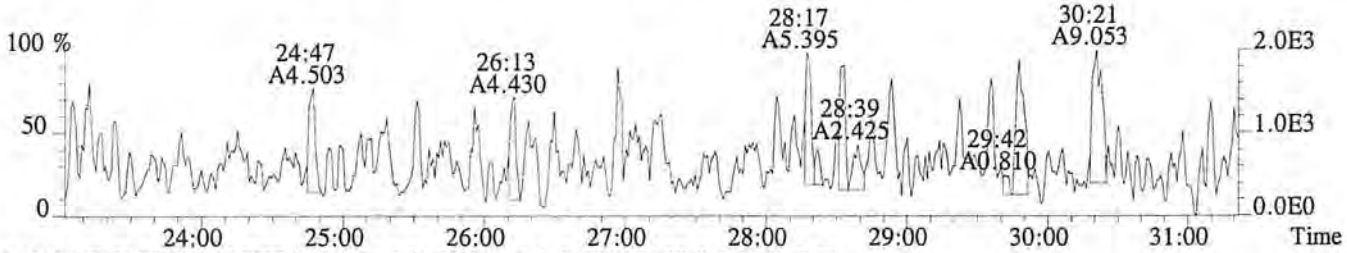
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



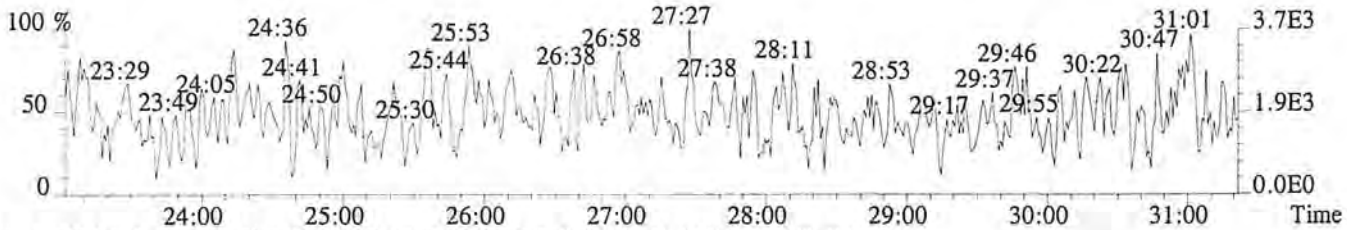
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



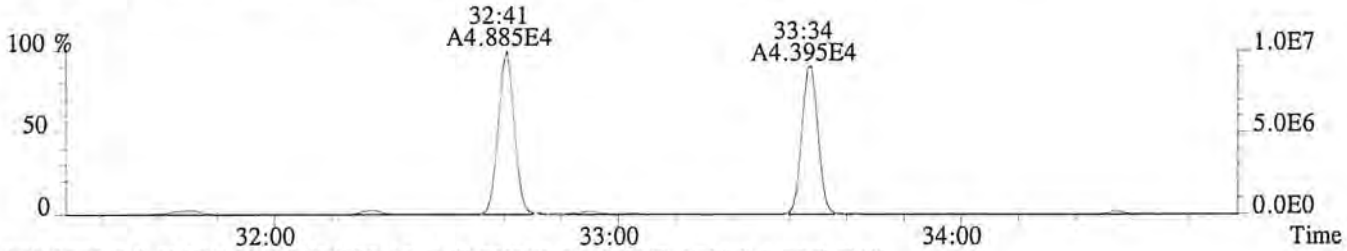
File:P301072 #1-591 Acq:28-AUG-2015 10:26:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-011
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



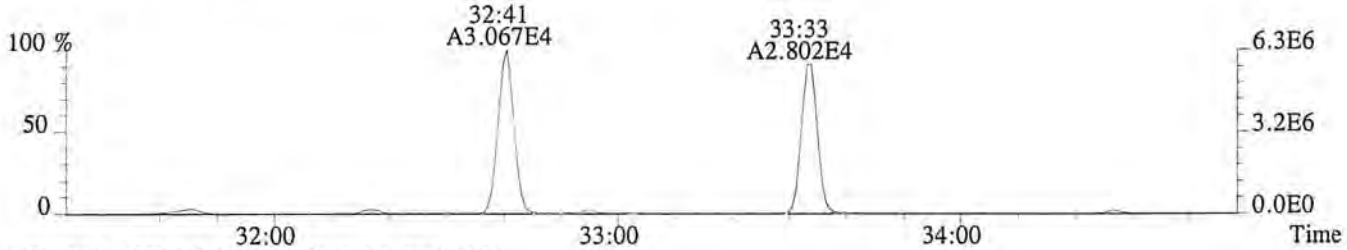
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2288.0,1.00%,F,T)



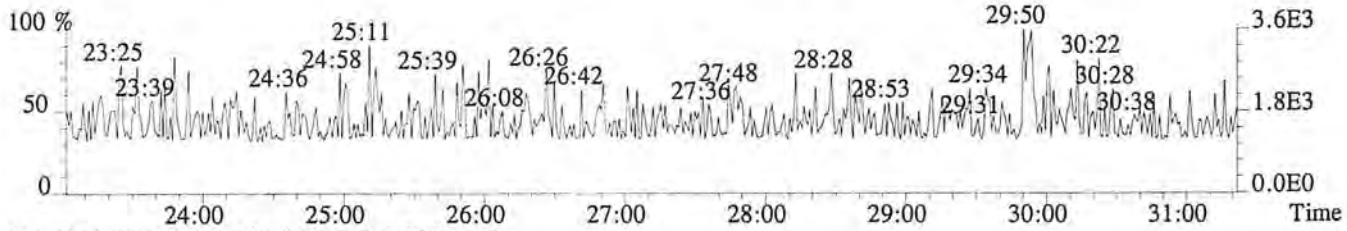
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



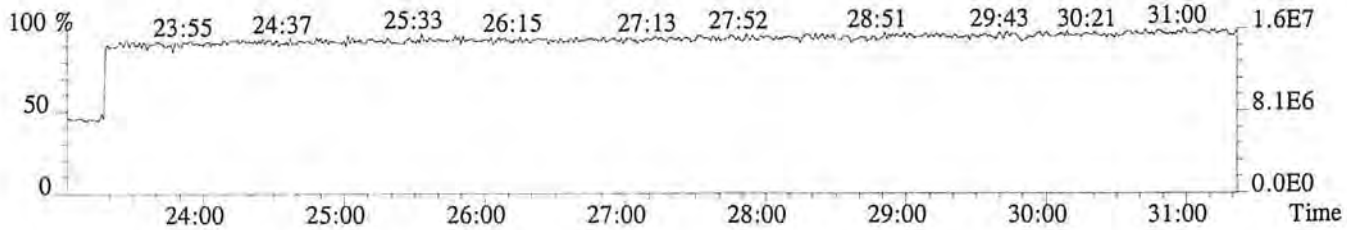
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1764.0,1.00%,F,T)



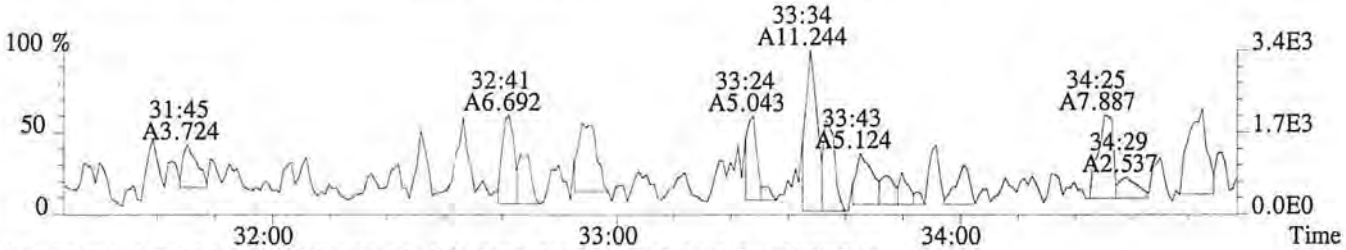
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



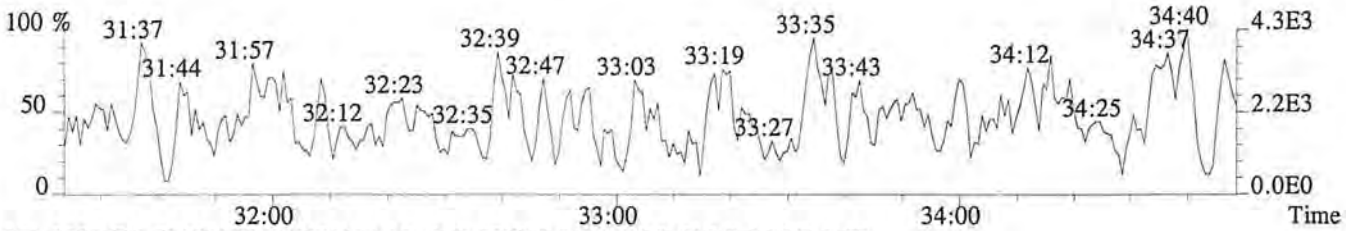
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



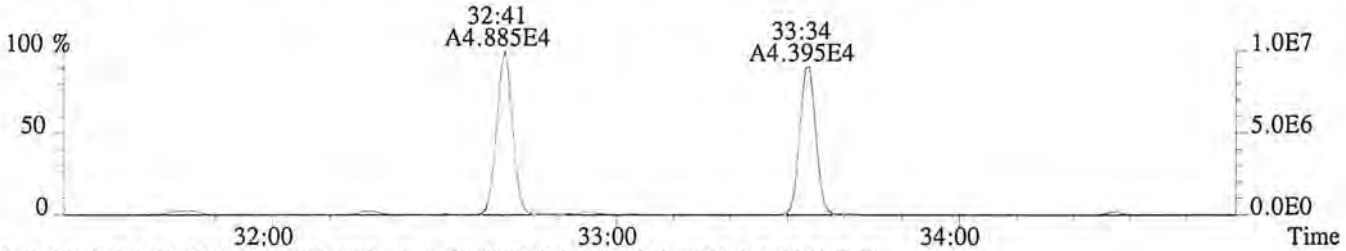
File:P301072 #1-308 Acq:28-AUG-2015 10:26:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-011
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



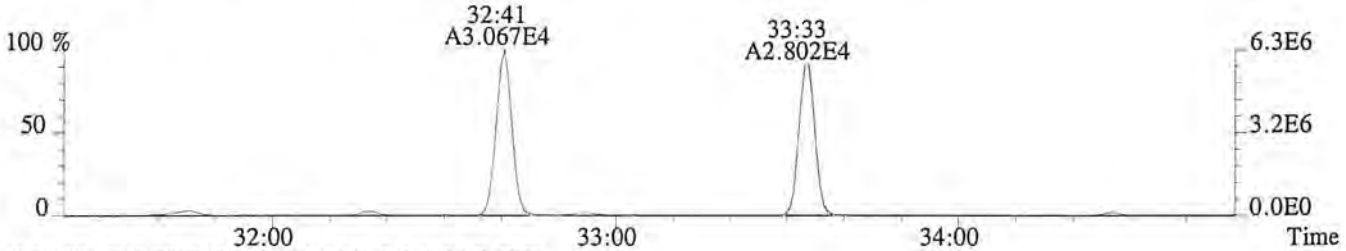
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2460.0,1.00%,F,T)



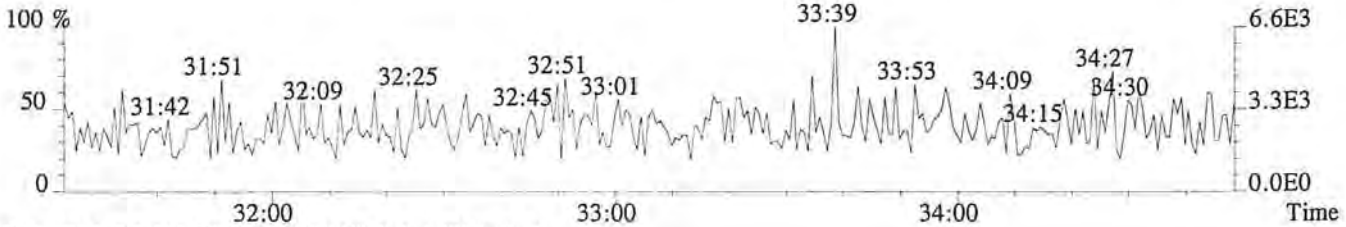
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



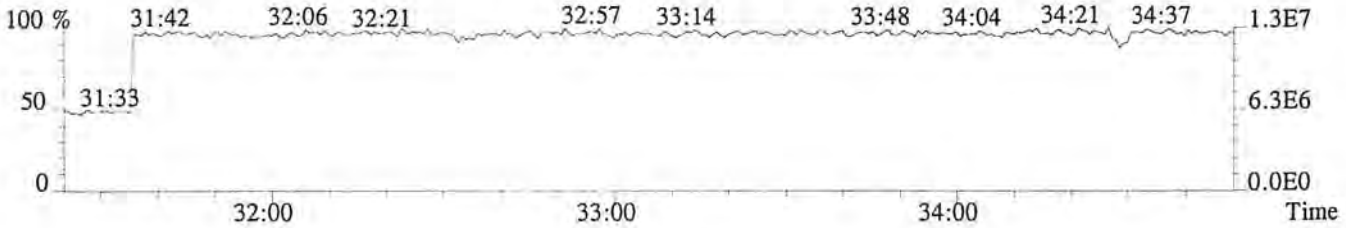
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1764.0,1.00%,F,T)



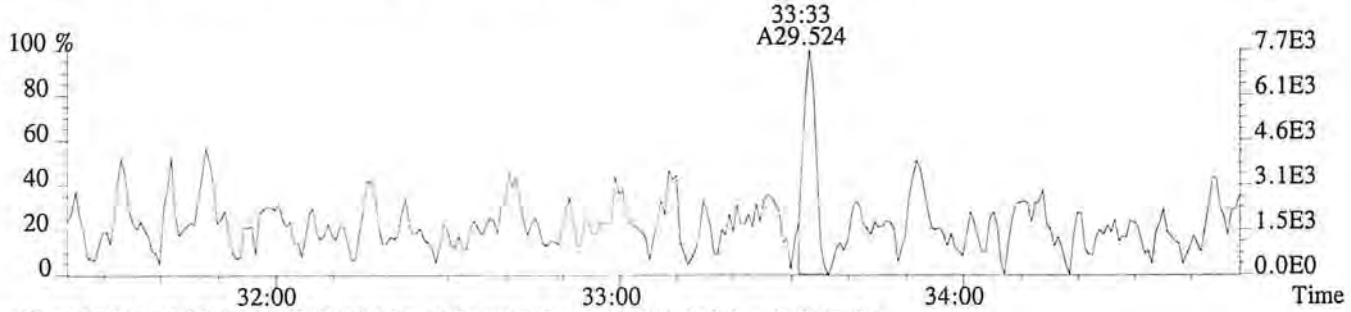
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



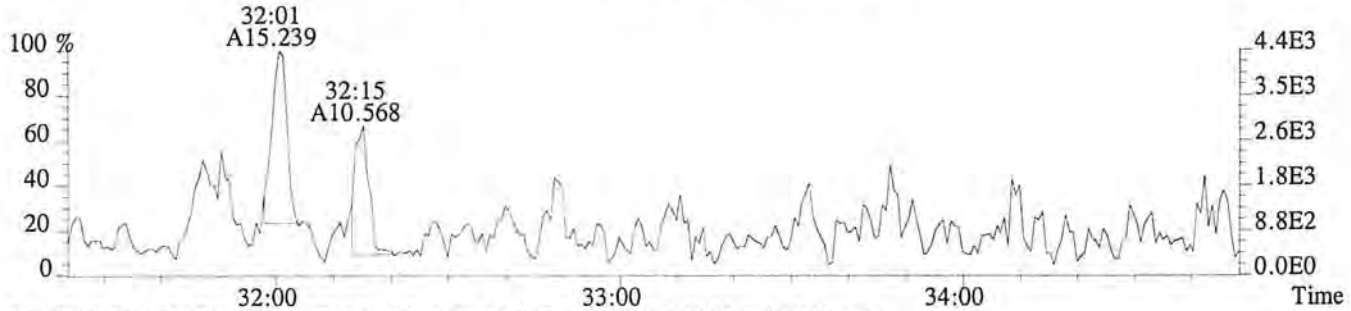
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



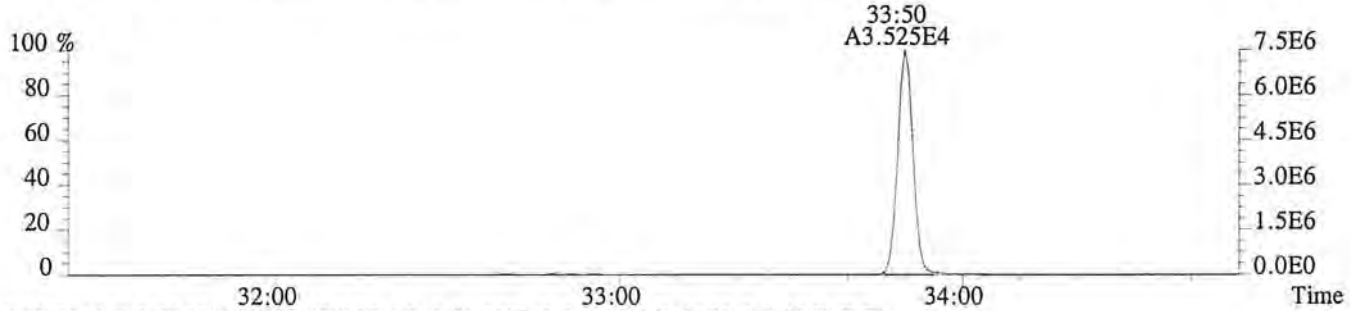
File:P301072 #1-308 Acq:28-AUG-2015 10:26:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-011
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1956.0,1.00%,F,T)



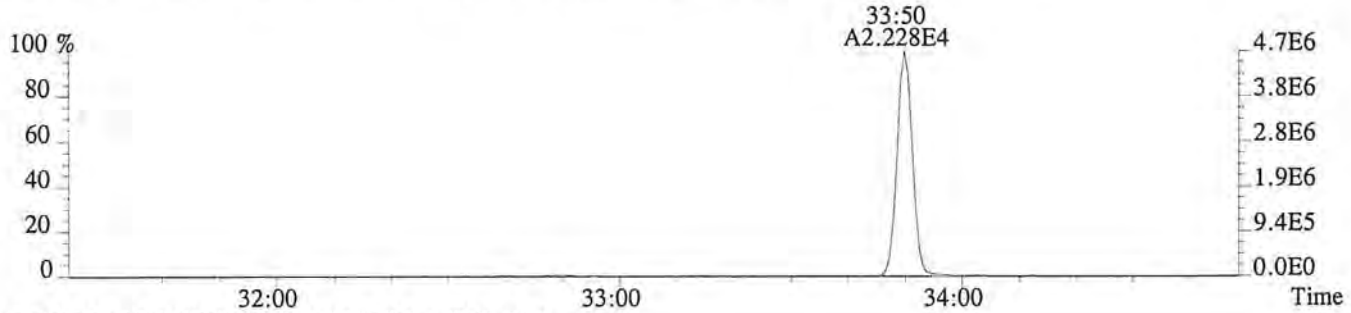
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



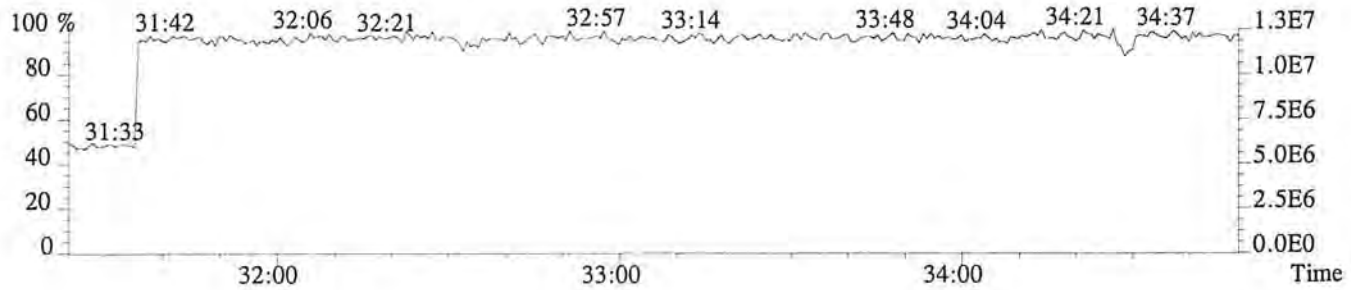
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



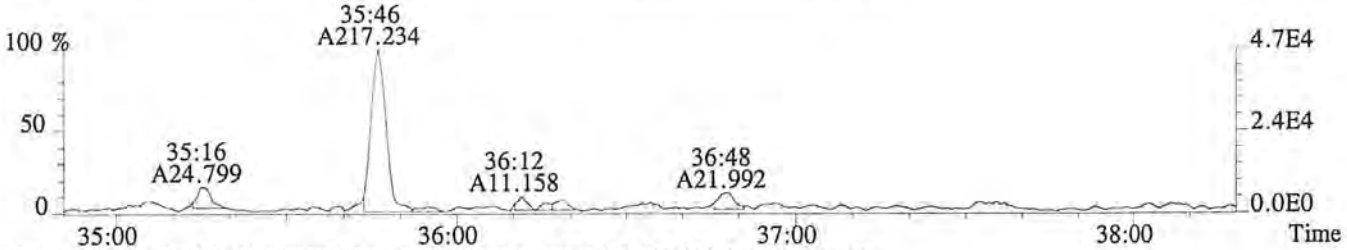
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



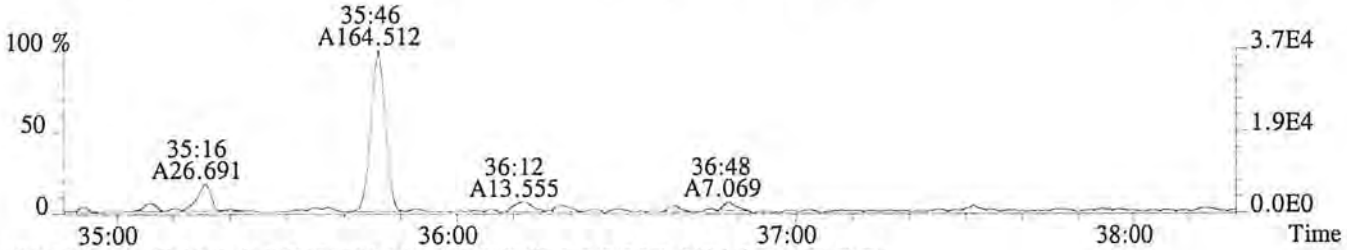
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



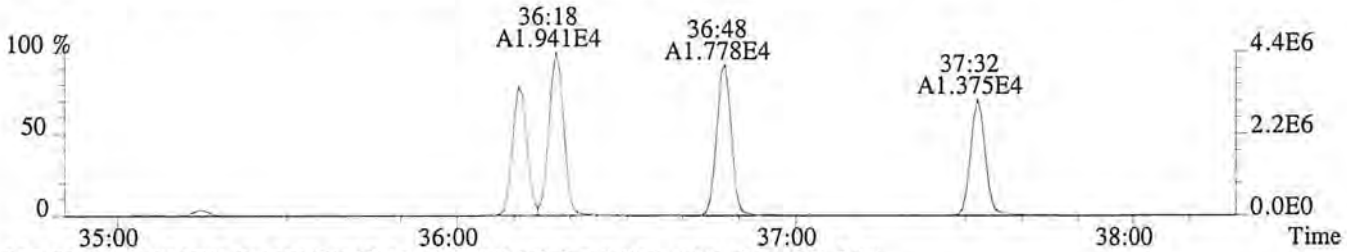
File:P301072 #1-312 Acq:28-AUG-2015 10:26:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-011
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1692.0,0.40%,F,T)



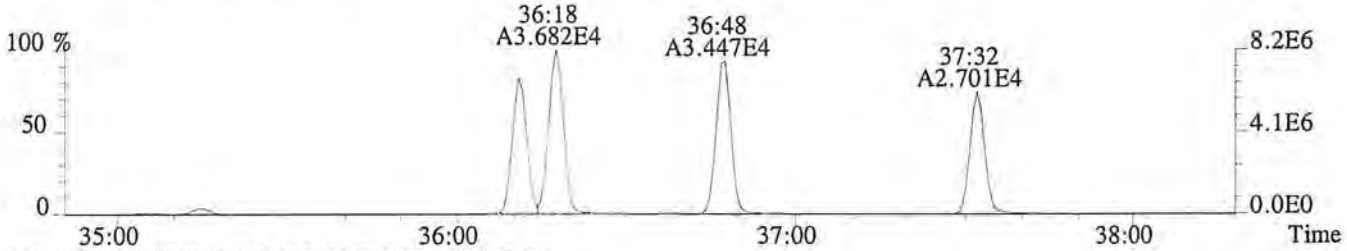
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



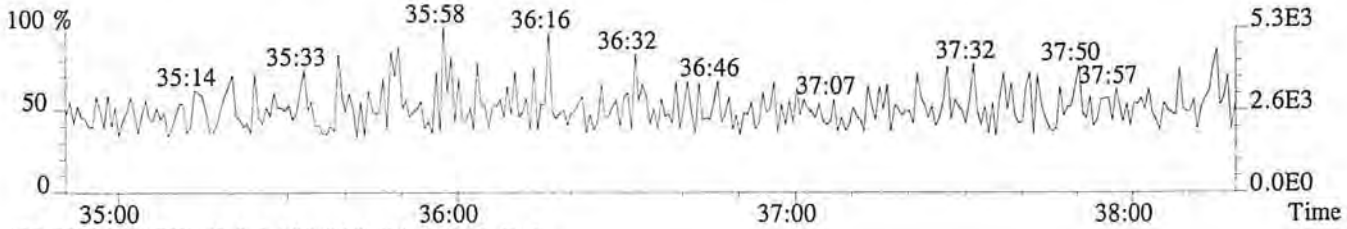
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



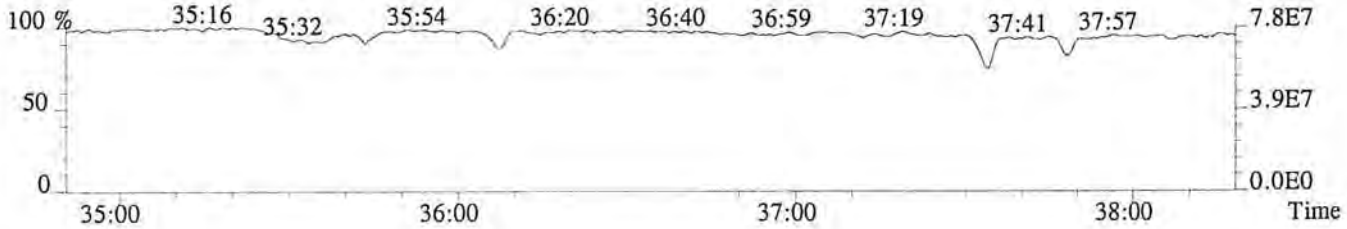
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1552.0,0.40%,F,T)



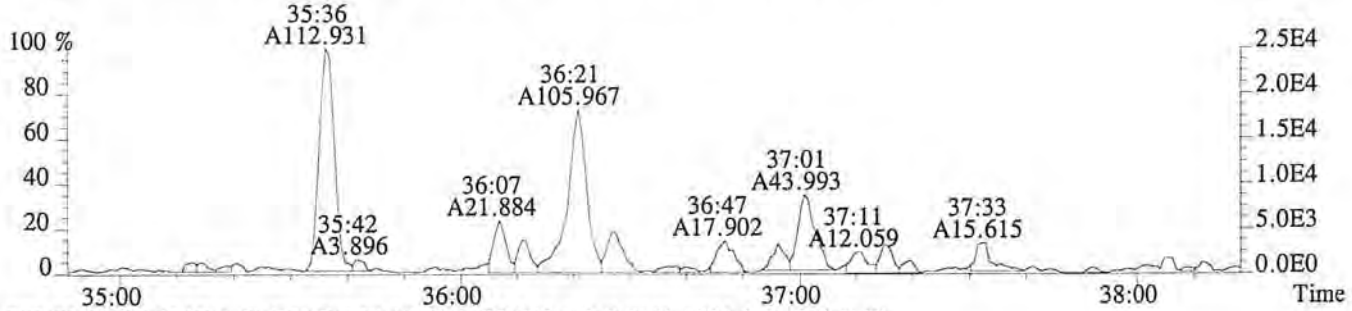
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



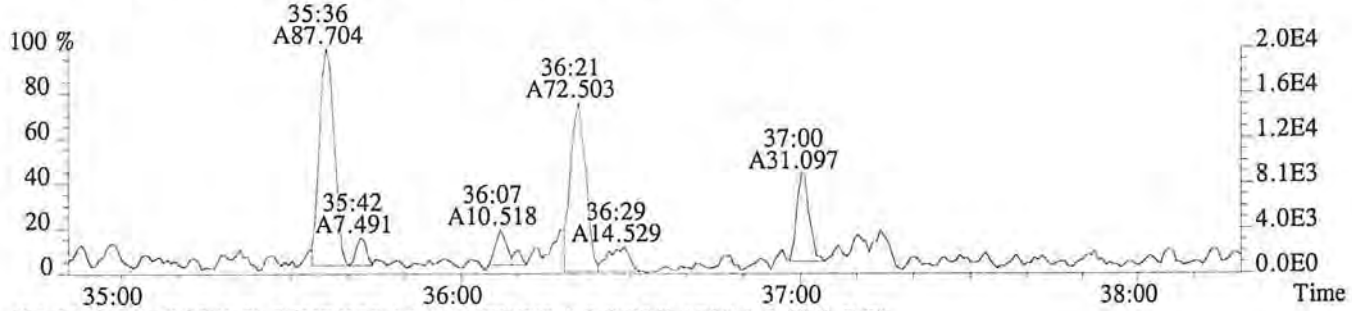
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



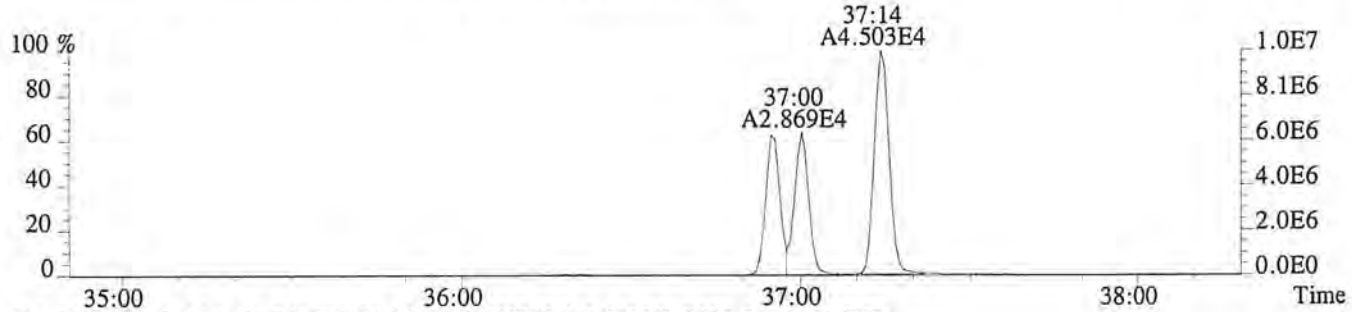
File:P301072 #1-312 Acq:28-AUG-2015 10:26:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-011
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



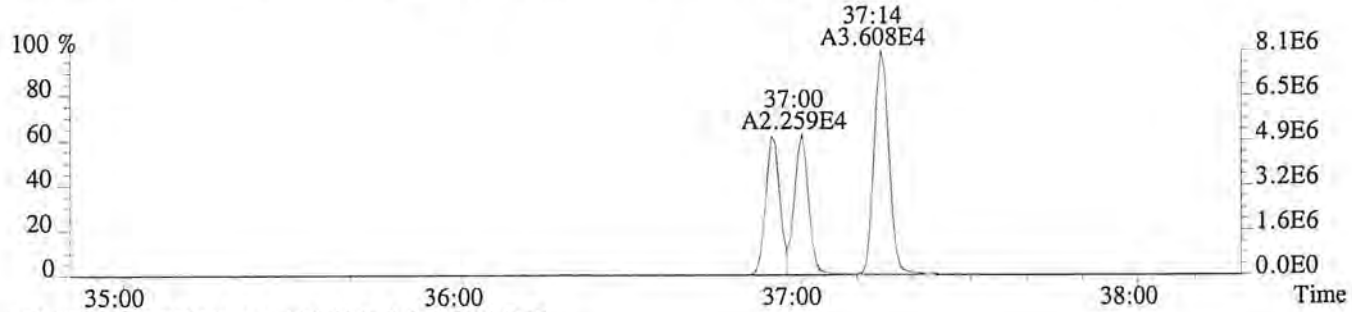
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



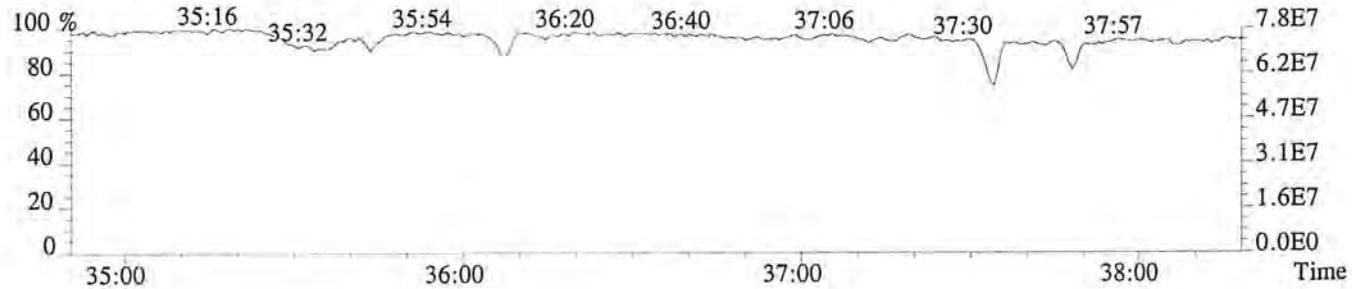
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1788.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2028.0,0.40%,F,T)

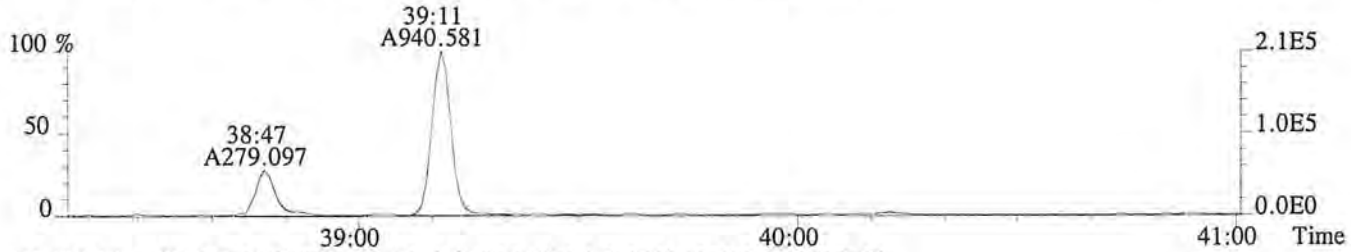


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

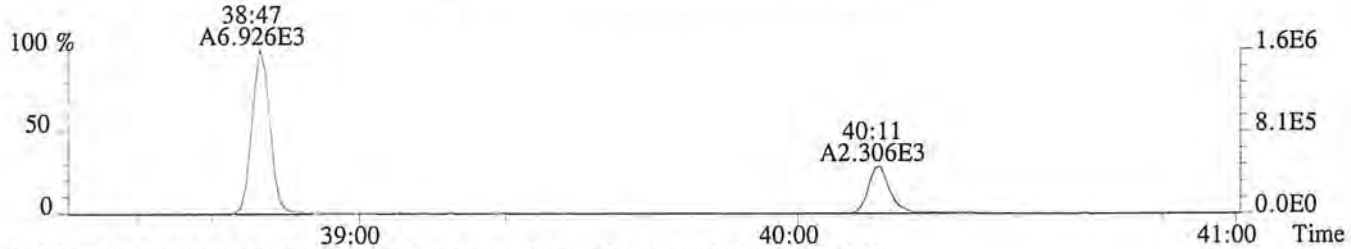


File:P301072 #1-241 Acq:28-AUG-2015 10:26:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-011
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1564.0,0.50%,F,T)

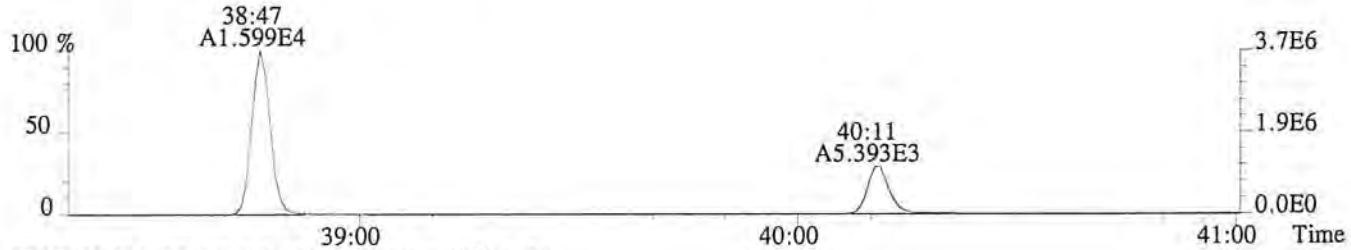
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1240.0,0.50%,F,T)



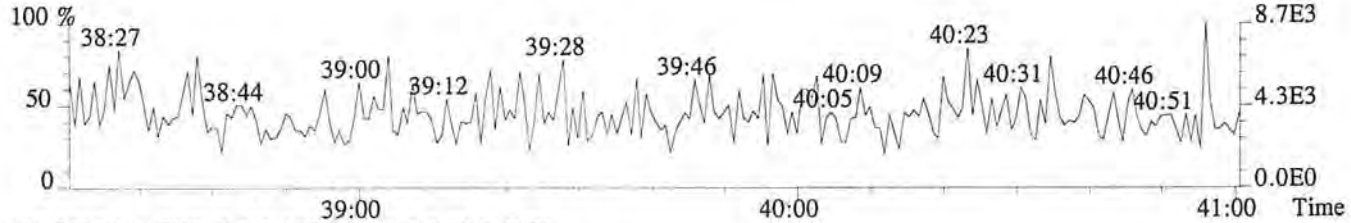
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1952.0,0.50%,F,T)



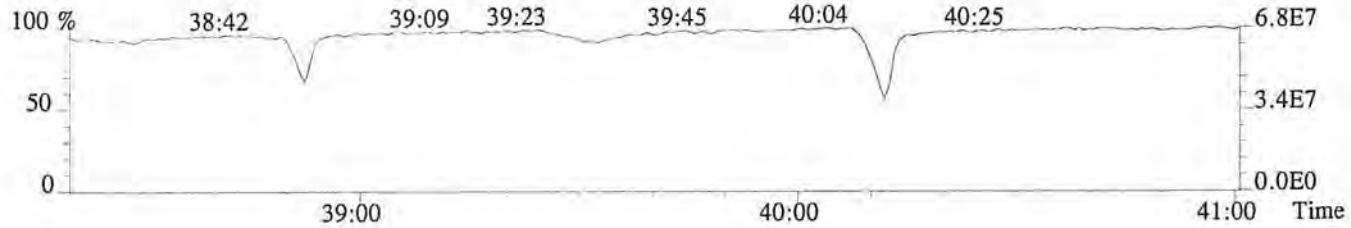
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.50%,F,T)



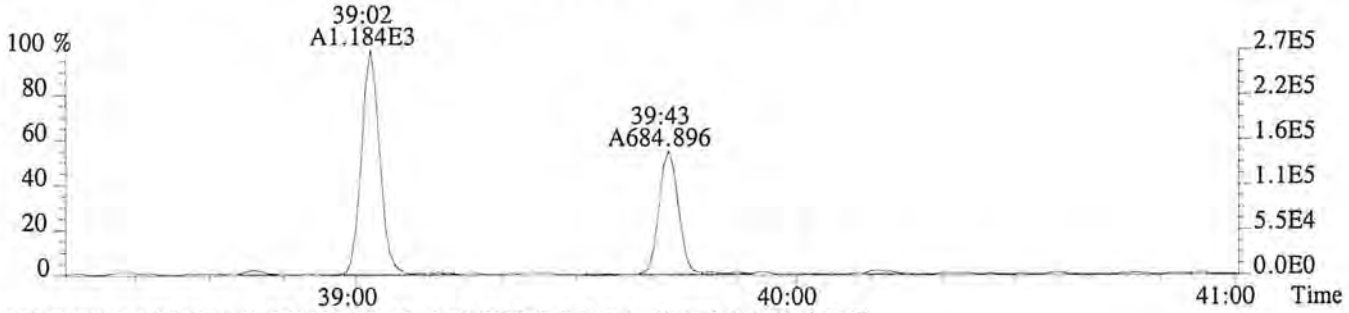
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



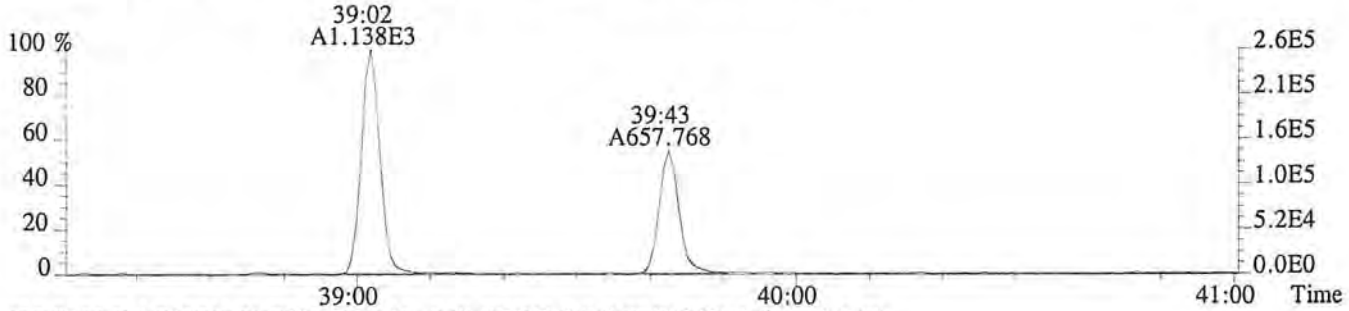
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



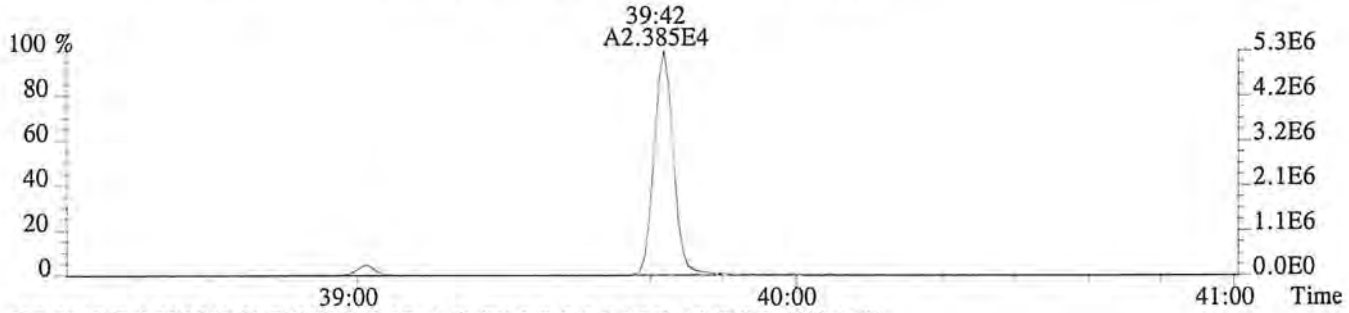
File:P301072 #1-241 Acq:28-AUG-2015 10:26:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-011
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1300.0,0.40%,F,T)



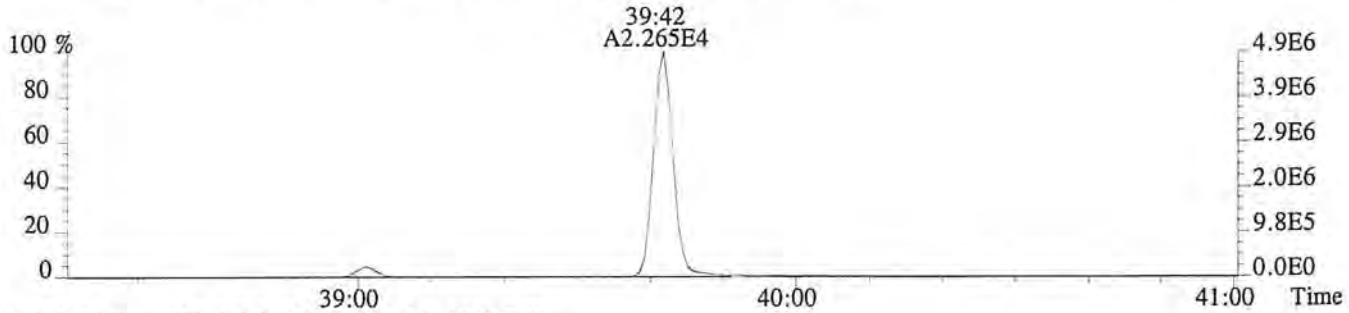
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



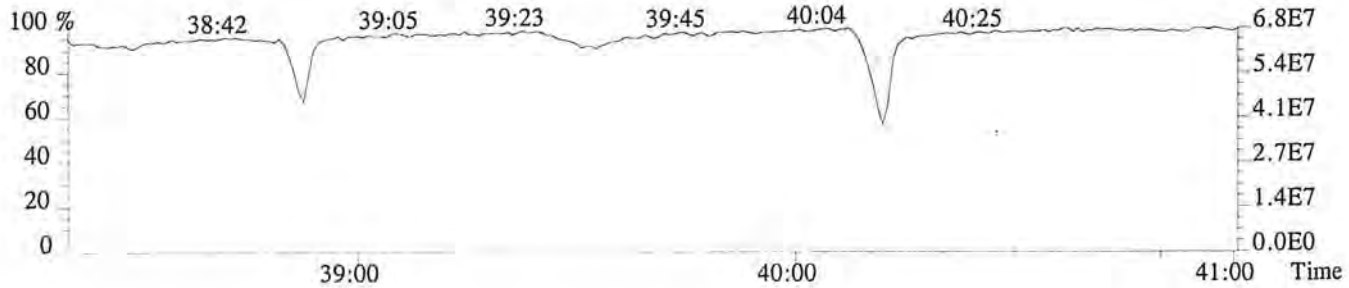
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2476.0,0.40%,F,T)



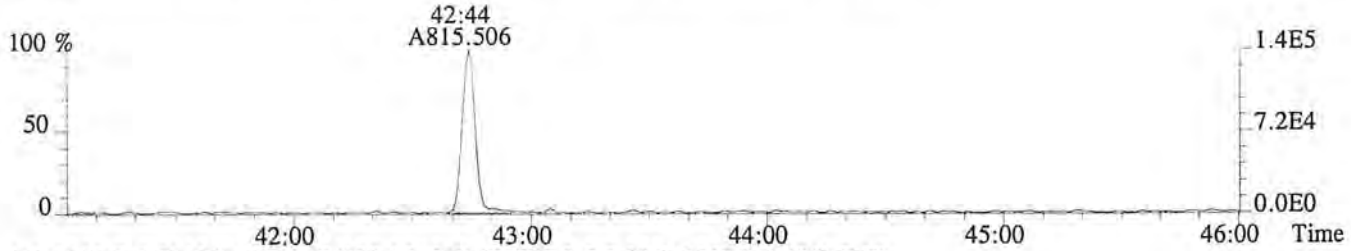
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1272.0,0.40%,F,T)



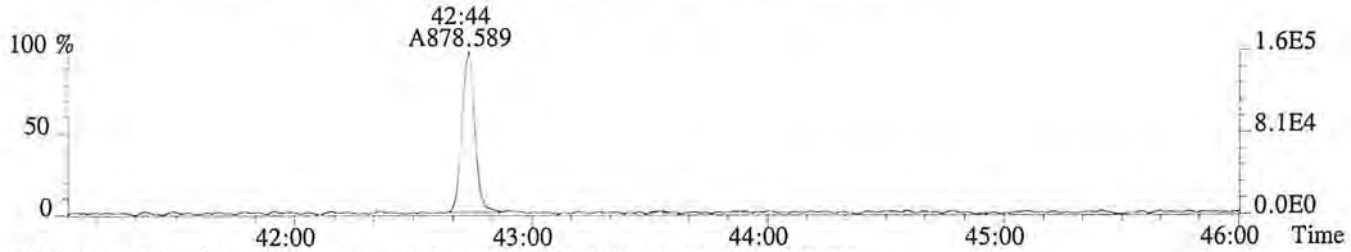
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



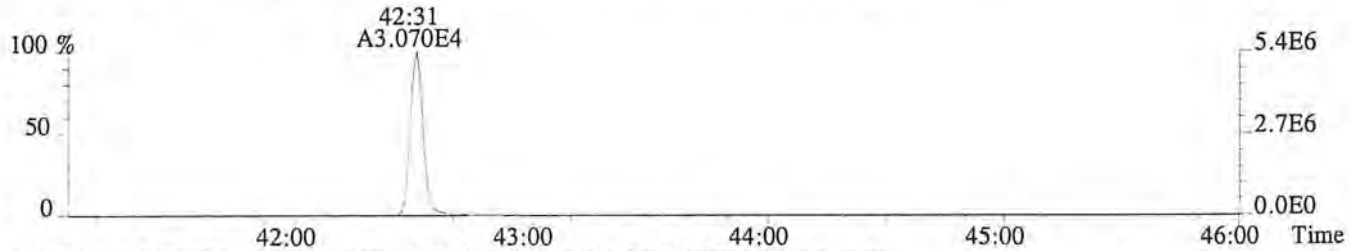
File:P301072 #1-447 Acq:28-AUG-2015 10:26:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-011
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



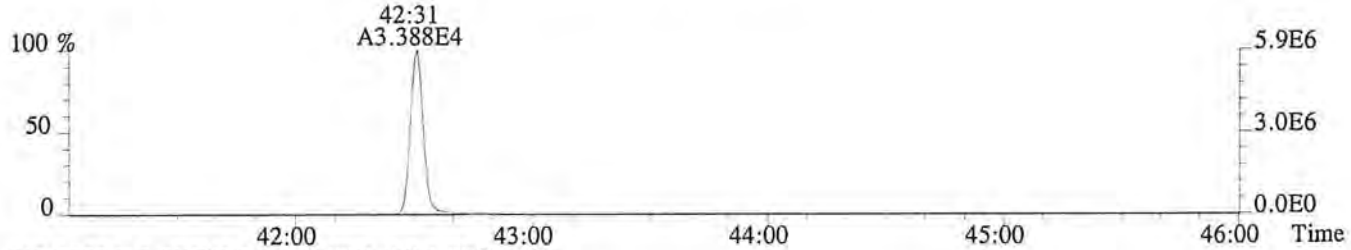
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2560.0,0.40%,F,T)



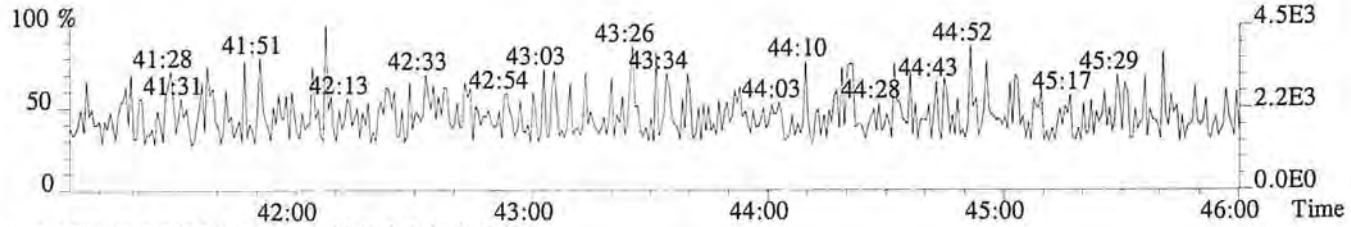
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,756.0,0.40%,F,T)



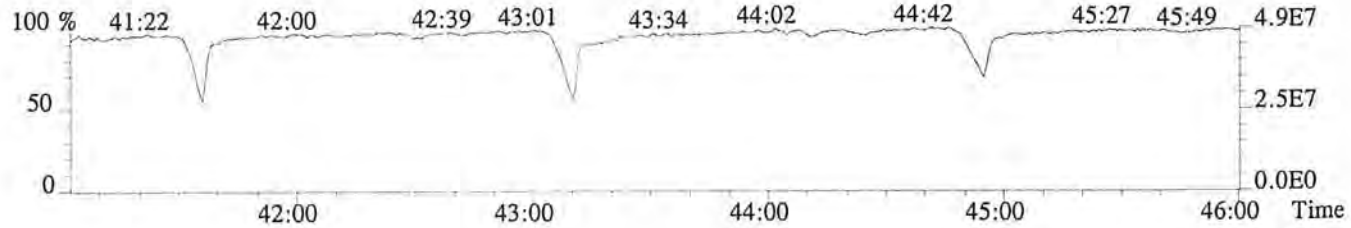
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1152.0,0.40%,F,T)



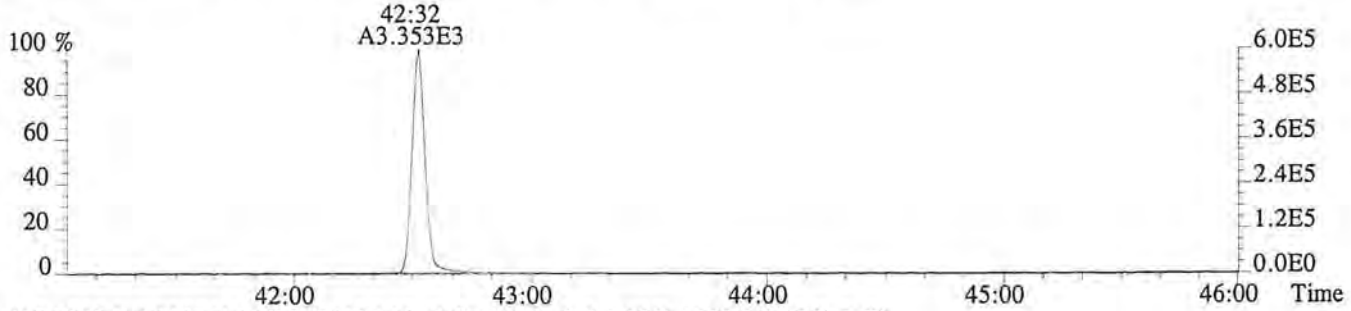
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



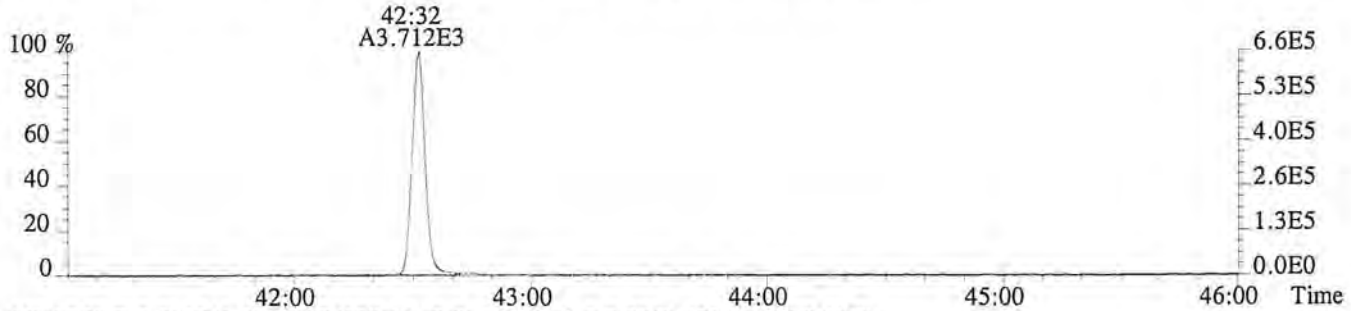
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



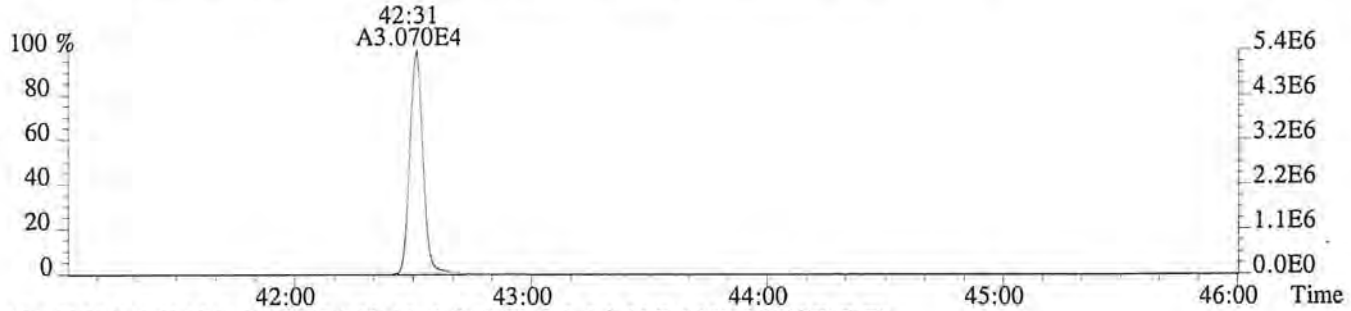
File:P301072 #1-447 Acq:28-AUG-2015 10:26:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-011
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



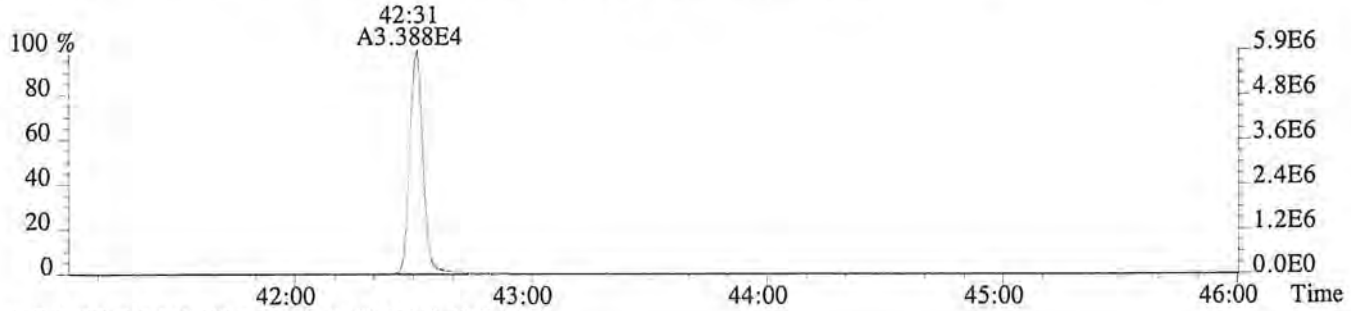
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1028.0,0.40%,F,T)



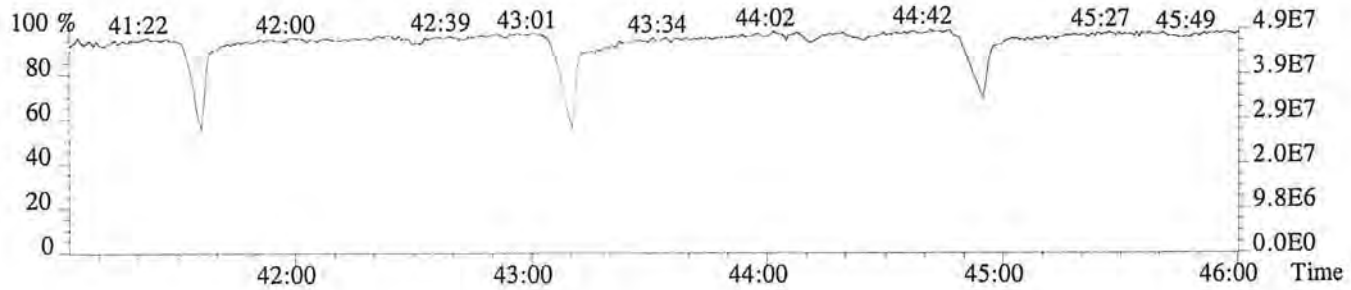
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,756.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1152.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-07-15 MT3

Run #14 Filename P301073 Samp: 1 Inj: 1 Acquired: 28-AUG-15 11:14:39
Processed: 28-AUG-15 16:51:50 Sample ID: E1500743-012

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	1.895e+02	2.535e+02	0.75	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	33:35	2.993e+01	3.286e+01	0.91	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:47	2.699e+02	2.594e+02	1.04	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	40:12	1.771e+01	1.230e+01	1.44	no	no	1.245
10	Unk	OCDF	42:44	7.830e+02	8.618e+02	0.91	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:22	5.151e+01	7.464e+01	0.69	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:01	5.650e+01	4.064e+01	1.39	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	1.355e+03	1.354e+03	1.00	yes	no	0.949
17	Unk	OCDD	42:32	1.058e+04	1.176e+04	0.90	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:36	2.865e+04	3.650e+04	0.78	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	4.665e+04	2.986e+04	1.56	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:34	4.559e+04	2.911e+04	1.57	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:11	1.964e+04	3.781e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	2.239e+04	4.311e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	2.161e+04	4.151e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:32	2.747e+04	5.269e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	1.293e+04	2.979e+04	0.43	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:11	1.078e+04	2.466e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:21	2.331e+04	2.970e+04	0.78	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:50	3.510e+04	2.252e+04	1.56	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:55	2.885e+04	2.256e+04	1.28	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:00	2.873e+04	2.254e+04	1.27	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:42	2.462e+04	2.314e+04	1.06	yes	no	0.850
32	IS	13C-OCDD	42:31	3.546e+04	3.919e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:48	3.151e+04	4.053e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:14	4.476e+04	3.563e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	2.268e+04				no	1.001

$$\text{OCDD} = \frac{(1.058e+04 + 1.176e+04) \times 4000 \text{ pg} \times 1}{(3.546e+04 + 3.919e+04) \times 10.402\text{g} \times 100 \;/\; 100 \times 1.061} = 108.4 \text{ ng/kg}$$

LMO 8/31/15

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-07-15 MT3/MT

Run #14 Filename P301073 Samp: 1 Inj: 1 Acquired: 28-AUG-15 11:14:39
Processed: 28-AUG-15 16:51:50 LAB. ID: E1500743-012

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.49e+04	1.40e+03	2.5e+01	4.99e+04	2.99e+03	1.7e+01
2	1,2,3,7,8-PeCDF	*	9.64e+02	*	*	2.33e+03	*
3	2,3,4,7,8-PeCDF	5.64e+03	9.64e+02	5.9e+00	6.53e+03	2.33e+03	2.8e+00
4	1,2,3,4,7,8-HxCDF	*	1.58e+03	*	*	6.56e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.58e+03	*	*	6.56e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.58e+03	*	*	6.56e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.58e+03	*	*	6.56e+02	*
8	1,2,3,4,6,7,8-HpCDF	6.31e+04	1.00e+03	6.3e+01	6.03e+04	1.20e+03	5.0e+01
9	1,2,3,4,7,8,9-HpCDF	3.41e+03	1.00e+03	3.4e+00	3.60e+03	1.20e+03	3.0e+00
10	OCDF	1.43e+05	1.72e+03	8.3e+01	1.59e+05	2.22e+03	7.2e+01
11	2,3,7,8-TCDD	1.04e+04	1.91e+03	5.4e+00	1.39e+04	1.08e+03	1.3e+01
12	1,2,3,7,8-PeCDD	*	2.59e+03	*	*	7.12e+02	*
13	1,2,3,4,7,8-HxCDD	*	7.56e+02	*	*	1.39e+03	*
14	1,2,3,6,7,8-HxCDD	1.34e+04	7.56e+02	1.8e+01	1.03e+04	1.39e+03	7.4e+00
15	1,2,3,7,8,9-HxCDD	*	7.56e+02	*	*	1.39e+03	*
16	1,2,3,4,6,7,8-HpCDD	2.96e+05	2.18e+03	1.4e+02	2.82e+05	1.32e+03	2.1e+02
17	OCDD	1.93e+06	6.48e+02	3.0e+03	2.07e+06	1.66e+03	1.3e+03
18	13C-2,3,7,8-TCDF	5.61e+06	1.22e+03	4.6e+03	7.19e+06	2.09e+03	3.4e+03
19	13C-1,2,3,7,8-PeCDF	9.45e+06	1.20e+03	7.9e+03	6.11e+06	1.41e+03	4.3e+03
20	13C-2,3,4,7,8-PeCDF	9.46e+06	1.20e+03	7.9e+03	6.04e+06	1.41e+03	4.3e+03
21	13C-1,2,3,4,7,8-HxCDF	4.40e+06	8.92e+02	4.9e+03	8.54e+06	1.84e+03	4.6e+03
22	13C-1,2,3,6,7,8-HxCDF	5.04e+06	8.92e+02	5.6e+03	9.69e+06	1.84e+03	5.3e+03
23	13C-2,3,4,6,7,8-HxCDF	4.82e+06	8.92e+02	5.4e+03	9.24e+06	1.84e+03	5.0e+03
24	13C-1,2,3,7,8,9-HxCDF	6.11e+06	8.92e+02	6.8e+03	1.16e+07	1.84e+03	6.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.99e+06	3.29e+03	9.1e+02	6.84e+06	1.32e+03	5.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.08e+06	3.29e+03	6.3e+02	4.76e+06	1.32e+03	3.6e+03
27	13C-2,3,7,8-TCDD	4.82e+06	4.69e+03	1.0e+03	6.16e+06	4.41e+03	1.4e+03
28	13C-1,2,3,7,8-PeCDD	7.49e+06	1.79e+03	4.2e+03	4.80e+06	1.01e+03	4.7e+03
29	13C-1,2,3,4,7,8-HxCDD	6.64e+06	1.75e+03	3.8e+03	5.18e+06	1.68e+03	3.1e+03
30	13C-1,2,3,6,7,8-HxCDD	6.54e+06	1.75e+03	3.7e+03	5.13e+06	1.68e+03	3.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.26e+06	1.71e+03	3.1e+03	4.92e+06	1.28e+03	3.9e+03
32	13C-OCDD	6.38e+06	9.12e+02	7.0e+03	6.98e+06	9.72e+02	7.2e+03
33	13C-1,2,3,4-TCDD	6.45e+06	4.69e+03	1.4e+03	8.31e+06	4.41e+03	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	9.94e+06	1.75e+03	5.7e+03	7.97e+06	1.68e+03	4.7e+03
35	37Cl-2,3,7,8-TCDD	4.77e+06	8.84e+02	5.4e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-07-15 MT3/MT

Entry: 36 Totals Name: Total Tetra-Furans

Run: 14 File: P301073 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 11:14:39 Processed: 28-AUG-15 16:51:50

Mass: 303.9020 305.8990 Tot Response: 5.97e+02 RRF: 0.8496

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:14	6.51e+01	8.89e+01	0.73	yes	1.54e+02		n	n
2	28:37	1.89e+02	2.54e+02	0.75	yes	4.43e+02	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-07-15 MT3/MT7

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 14 File: P301073 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 11:14:39 Processed: 28-AUG-15 16:51:50

Mass: 319.8970 321.8940 Tot Response: 1.26e+02 RRF: 0.9567

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:22	5.15e+01	7.46e+01	0.69	yes	1.26e+02	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-07-15 MT3/MT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 14 File: P301073 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 11:14:39 Processed: 28-AUG-15 16:51:50

Mass: 373.8210 375.8180 Tot Response: 4.37e+02 RRF: 1.094

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:16	4.48e+01	3.60e+01	1.25	yes	8.08e+01	n	n
2	35:46	2.01e+02	1.55e+02	1.29	yes	3.56e+02	n	n

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Peak List Summary

CLIENT ID.

PLY-07-15 MT3/MT7

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 14 File: P301073 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 11:14:39 Processed: 28-AUG-15 16:51:50

Mass: 389.8160 391.8130 Tot Response: 5.77e+02 RRF: 0.9904

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:36	1.16e+02	1.03e+02	1.12	yes	2.19e+02	n	n
2	36:21	1.37e+02	9.85e+01	1.39	yes	2.36e+02	n	n
3	36:27	1.34e+01	1.15e+01	1.16	yes	2.49e+01	n	n
4	37:01	5.65e+01	4.06e+01	1.39	yes	9.71e+01	1,2,3,6,7,8-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-07-15 MT3/MT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P301073 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 11:14:39 Processed: 28-AUG-15 16:51:50

Mass: 407.7820 409.7790 Tot Response: 2.39e+03 RRF: 1.284

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:47	2.70e+02	2.59e+02	1.04	yes	5.29e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:11	9.72e+02	8.71e+02	1.12	yes	1.84e+03		n	n
3	39:20	6.19e+00	6.86e+00	0.90	yes	1.31e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-07-15 MT3/MT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 14 File: P301073 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 11:14:39 Processed: 28-AUG-15 16:51:50

Mass: 423.7770 425.7740 Tot Response: 7.11e+03 RRF: 0.9492

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:02	2.22e+03	2.17e+03	1.02	yes	4.40e+03		n	n
2	39:43	1.36e+03	1.35e+03	1.00	yes	2.71e+03	1,2,3,4,6,7,8-HpCDD	n	n

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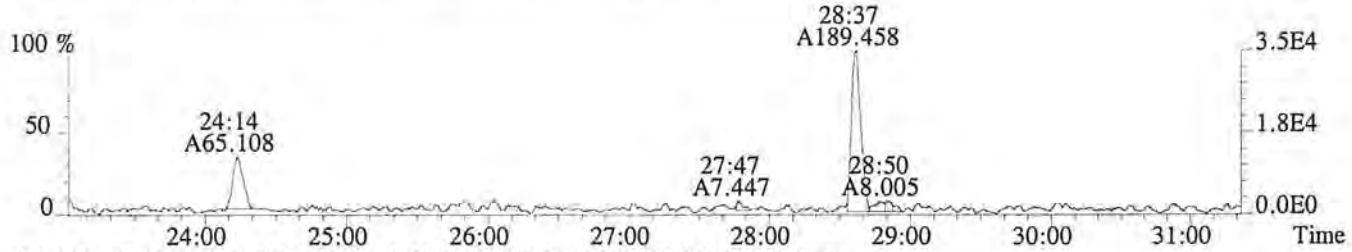
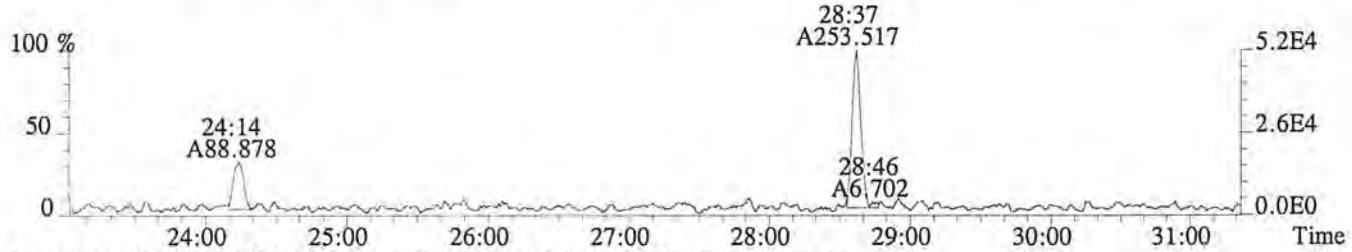
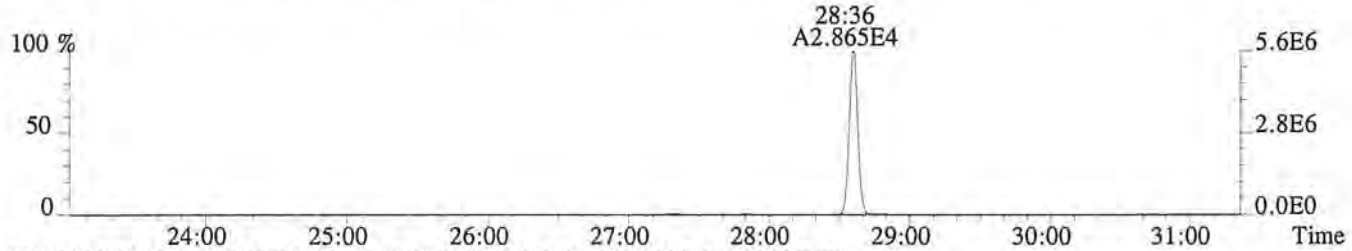
File:P301073 #1-591 Acq:28-AUG-2015 11:14:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-012
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1404.0,1.00%,F,T)



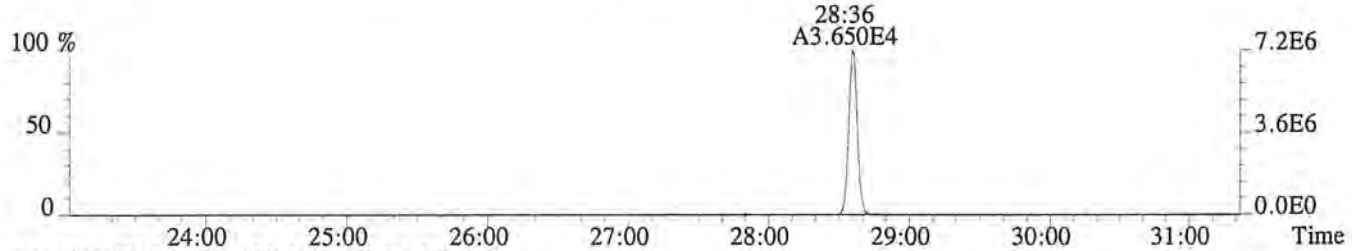
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2992.0,1.00%,F,T)



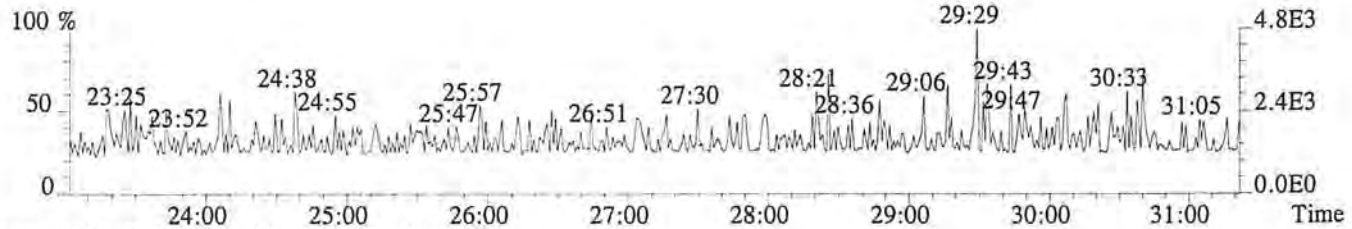
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1224.0,1.00%,F,T)



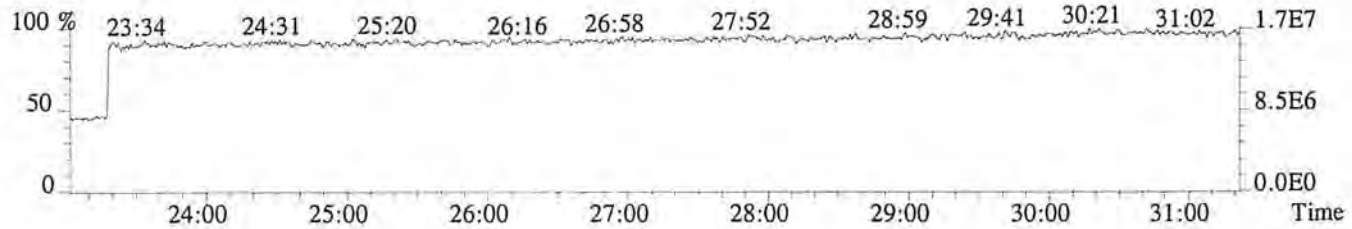
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2088.0,1.00%,F,T)



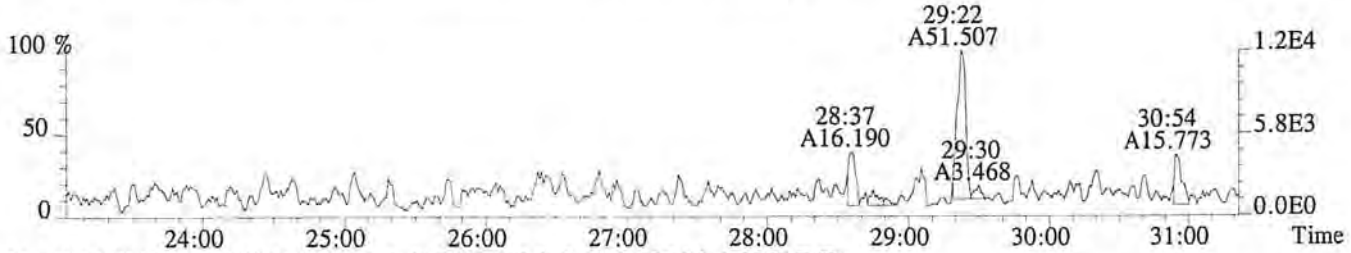
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



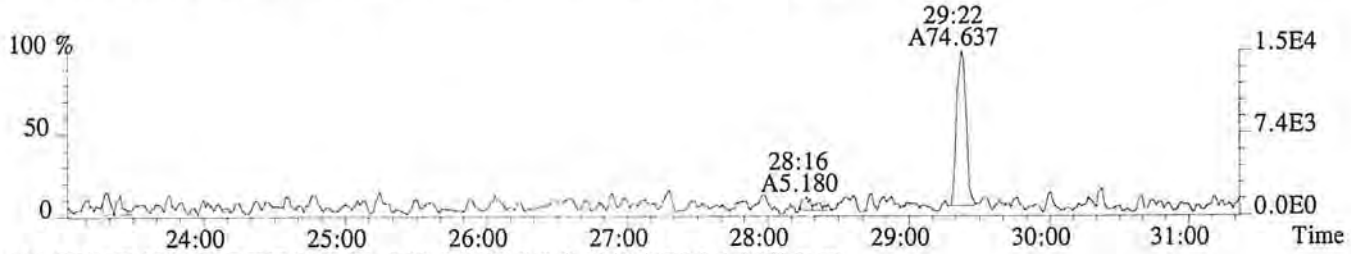
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



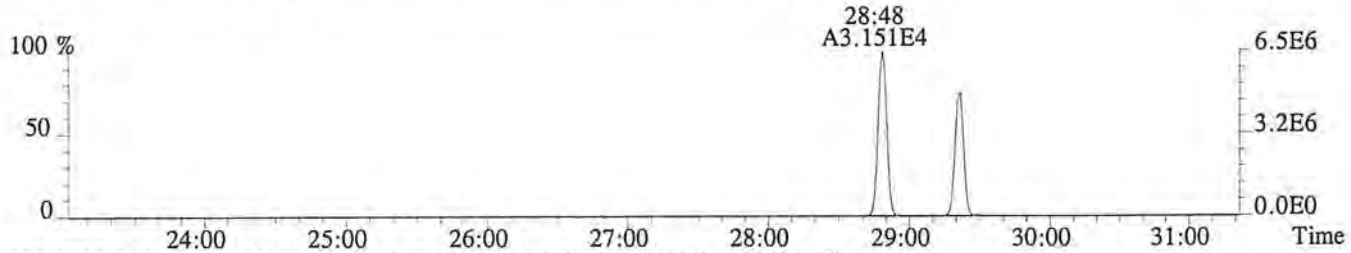
File:P301073 #1-591 Acq:28-AUG-2015 11:14:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-012
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1908.0,1.00%,F,T)



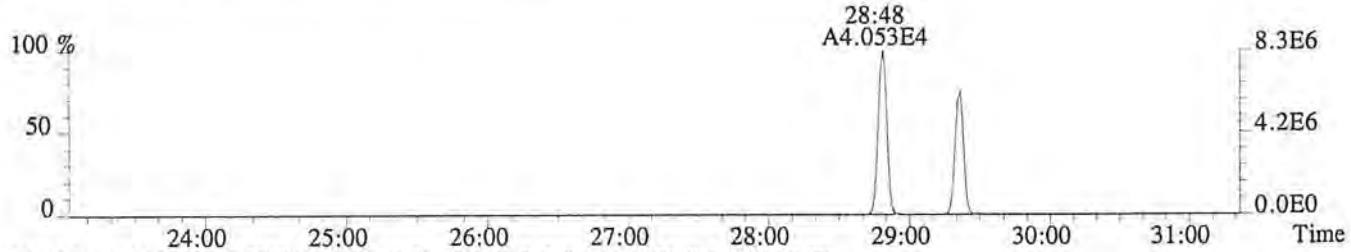
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



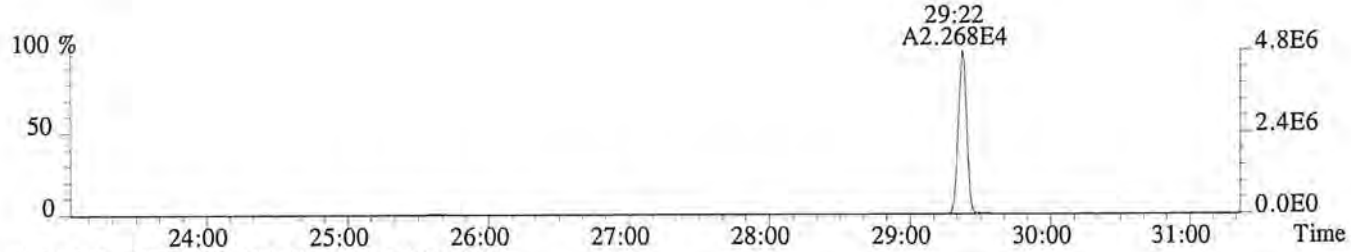
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4688.0,1.00%,F,T)



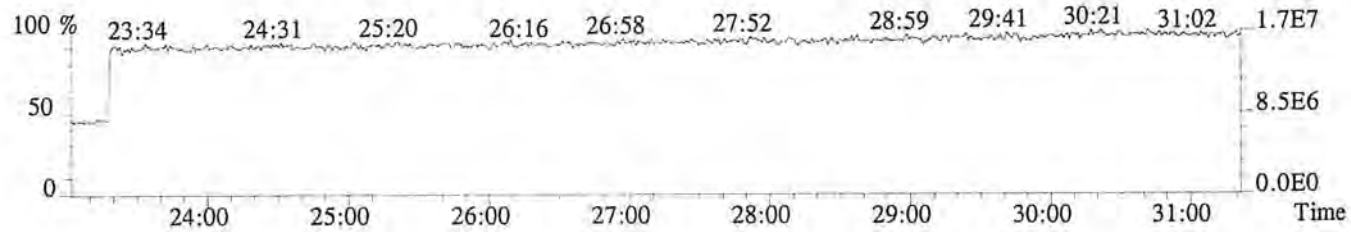
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4412.0,1.00%,F,T)



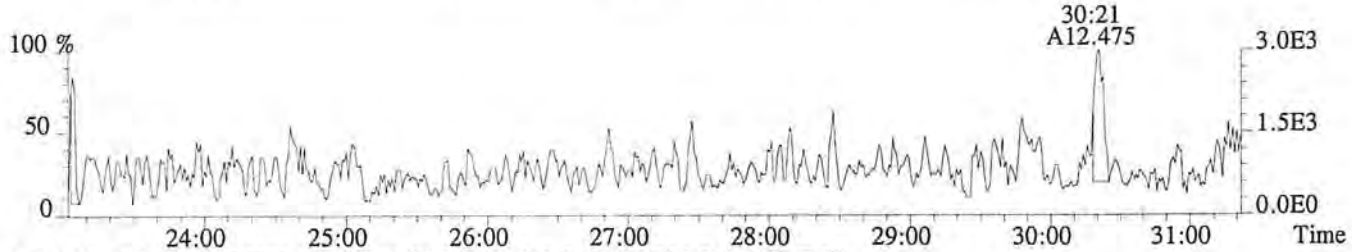
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



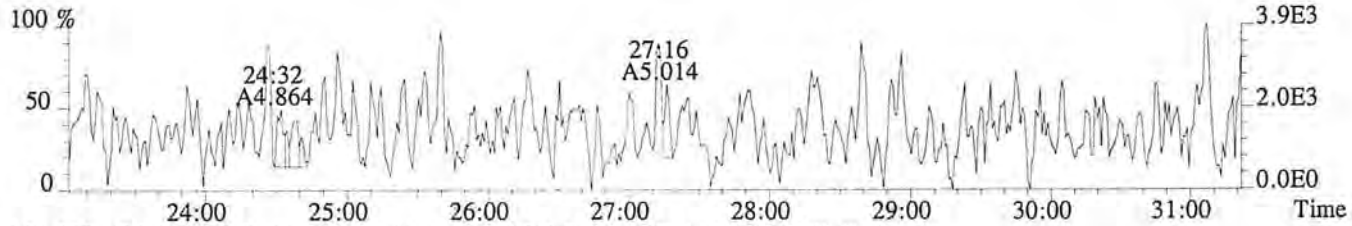
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



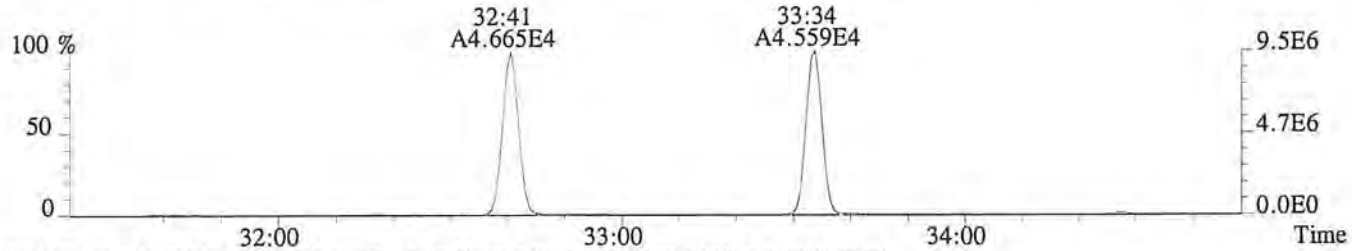
File:P301073 #1-591 Acq:28-AUG-2015 11:14:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-012
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



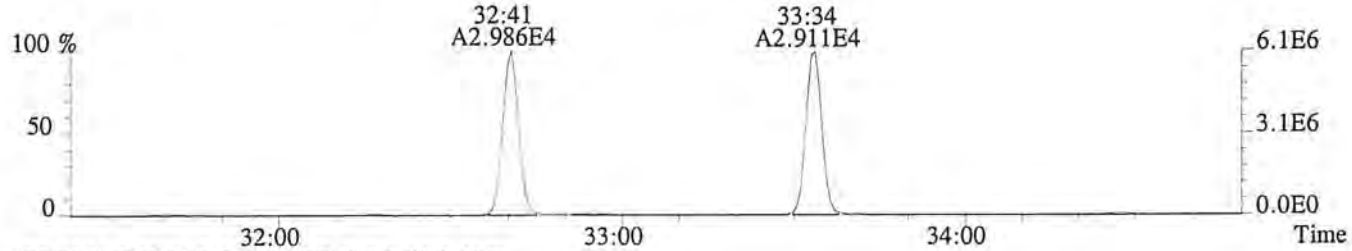
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1804.0,1.00%,F,T)



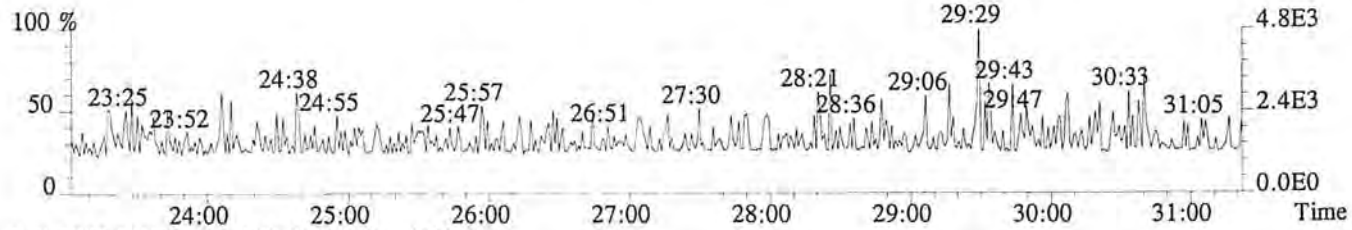
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



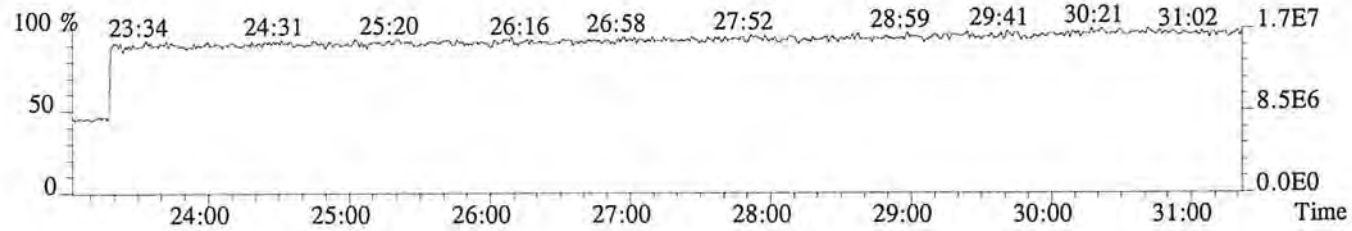
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



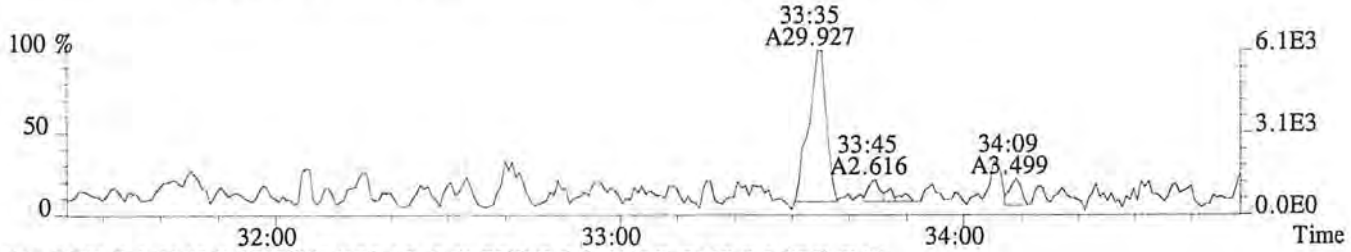
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



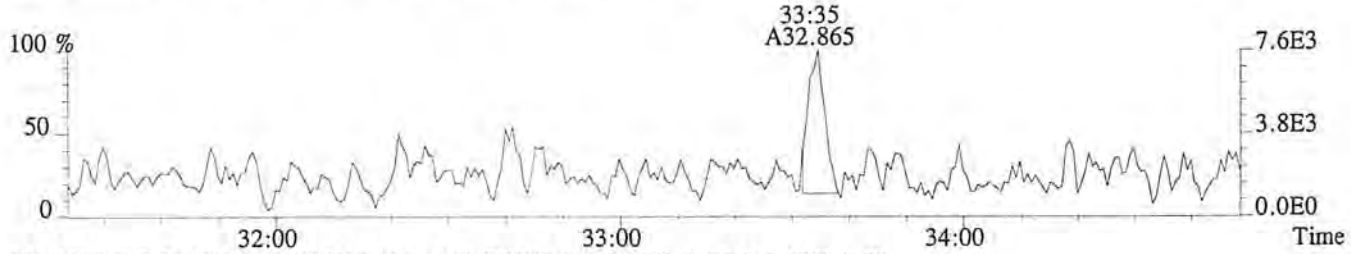
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



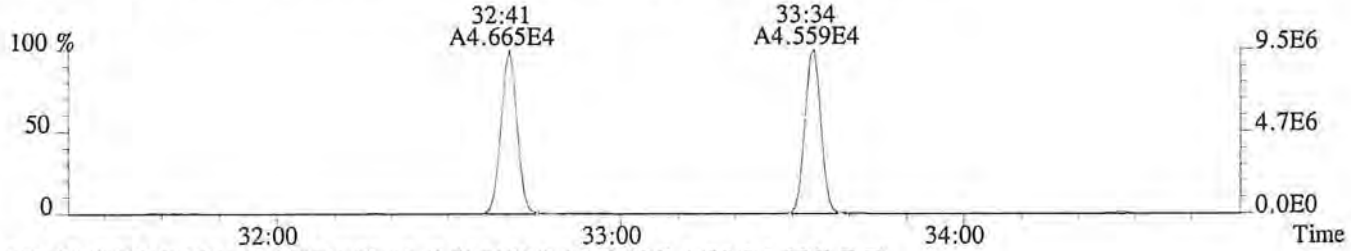
File:P301073 #1-308 Acq:28-AUG-2015 11:14:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-012
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



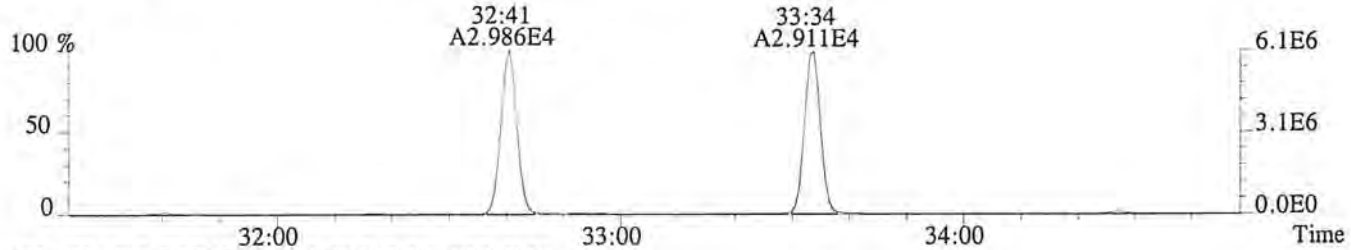
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2328.0,1.00%,F,T)



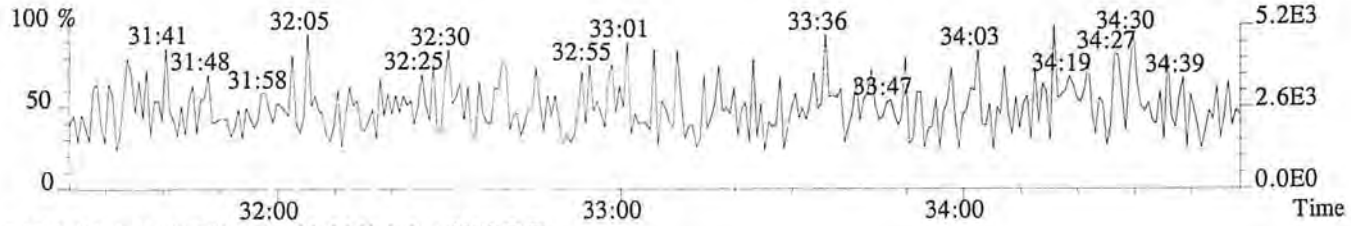
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



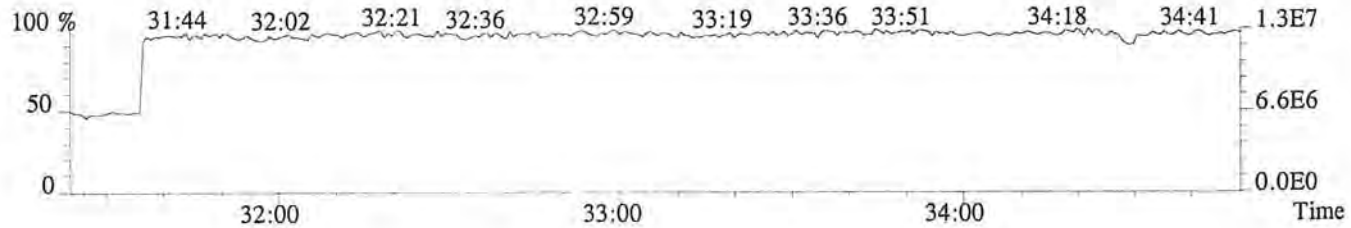
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1408.0,1.00%,F,T)



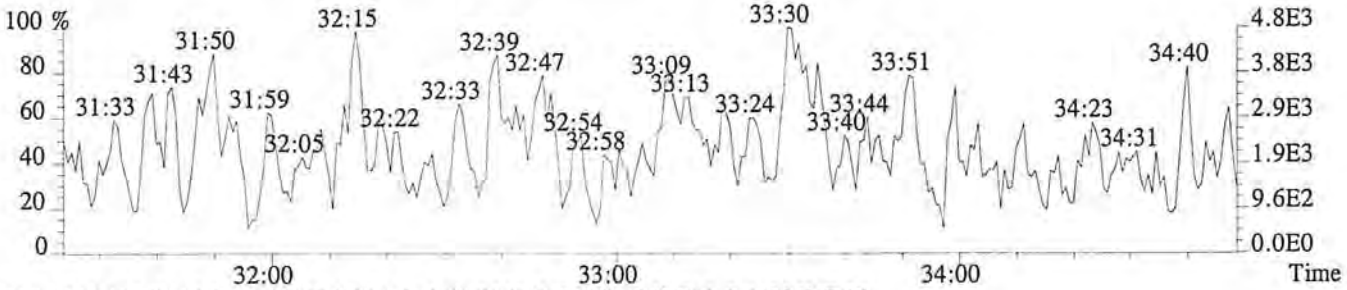
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



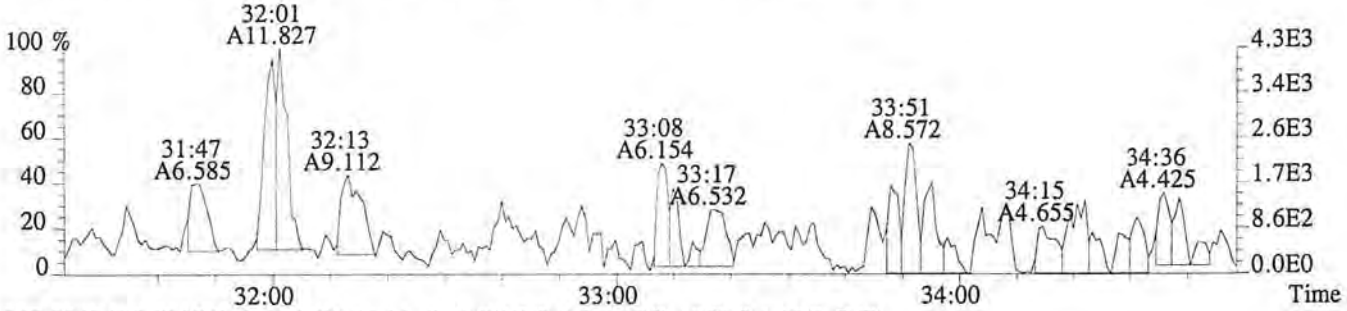
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



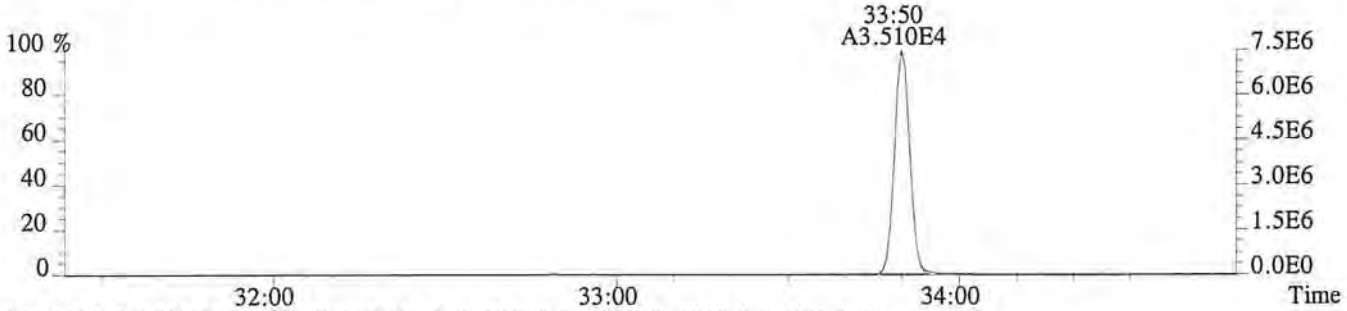
File:P301073 #1-308 Acq:28-AUG-2015 11:14:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-012
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



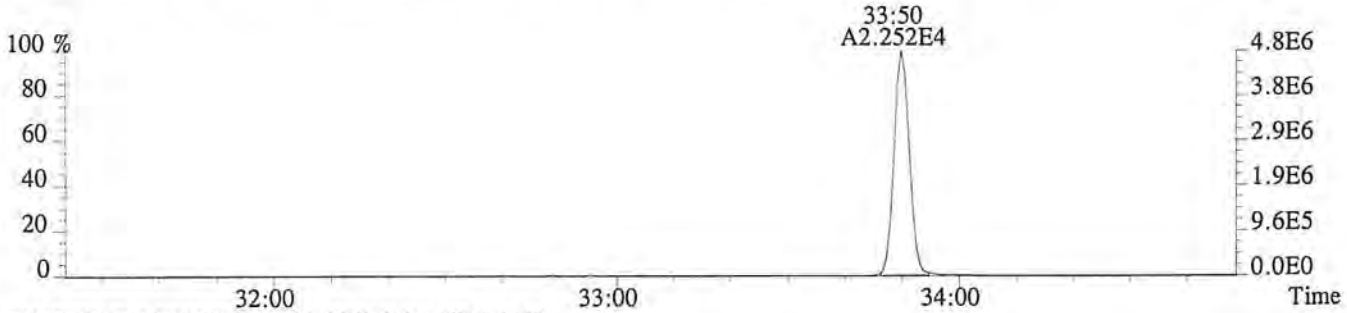
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



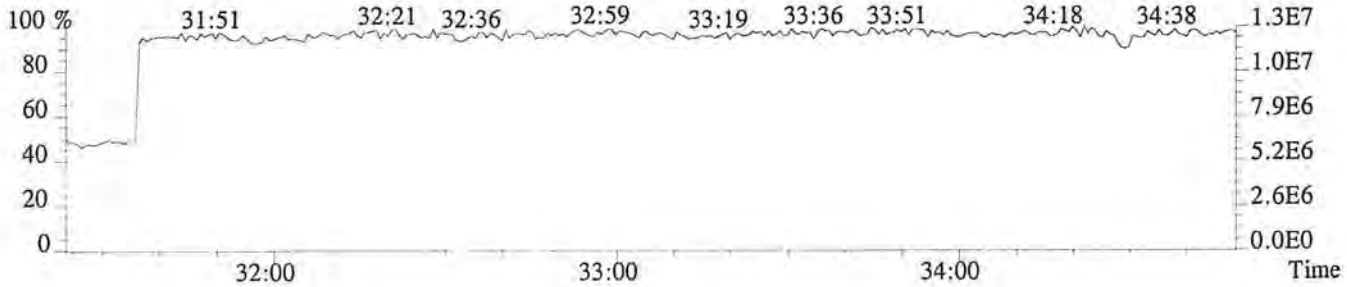
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1792.0,1.00%,F,T)



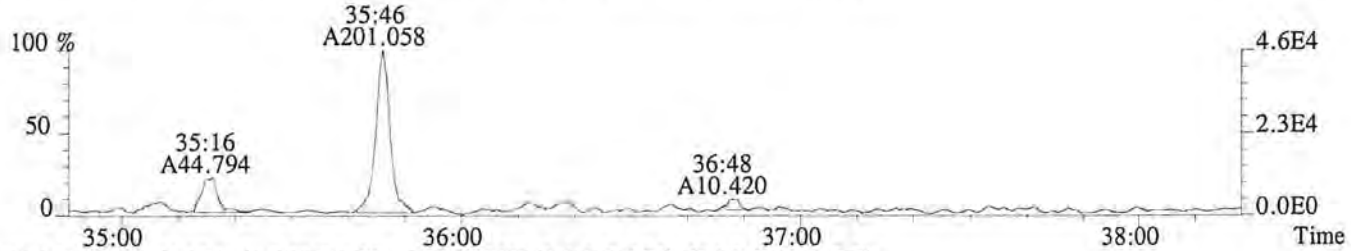
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



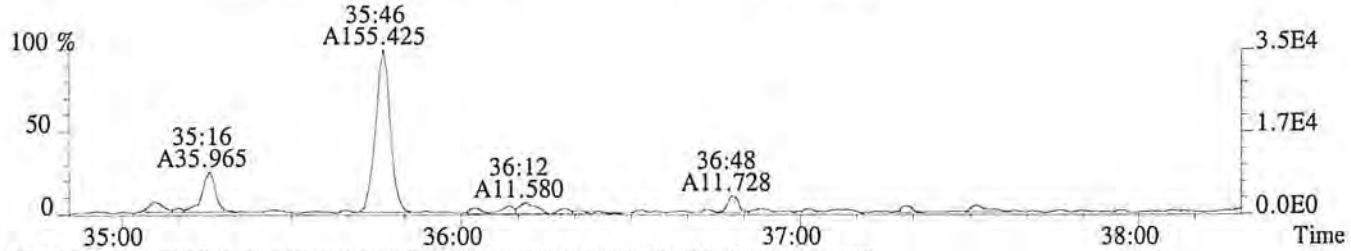
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



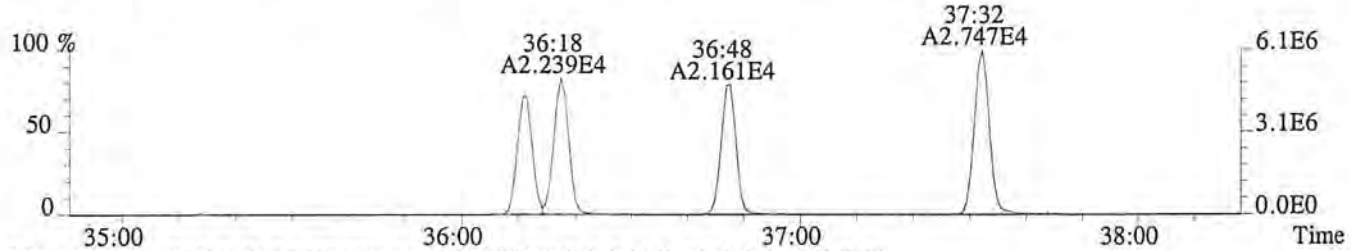
File:P301073 #1-312 Acq:28-AUG-2015 11:14:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-012
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1580.0,0.40%,F,T)



375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)

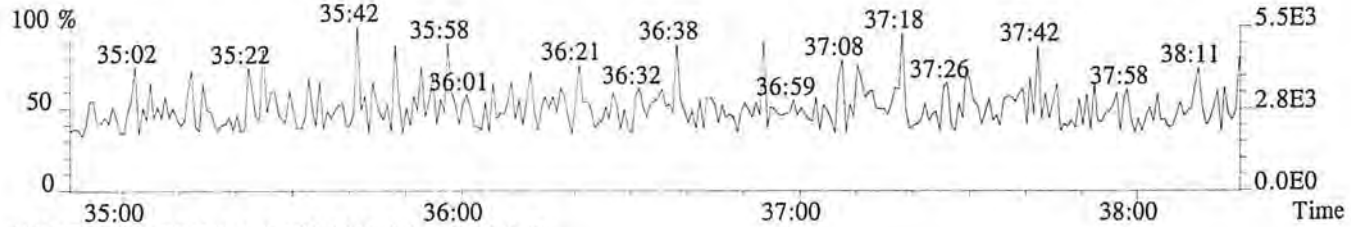


383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,892.0,0.40%,F,T)

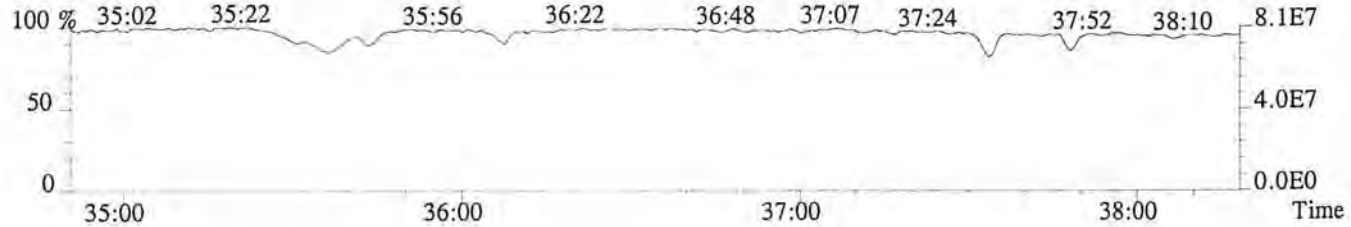


385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)

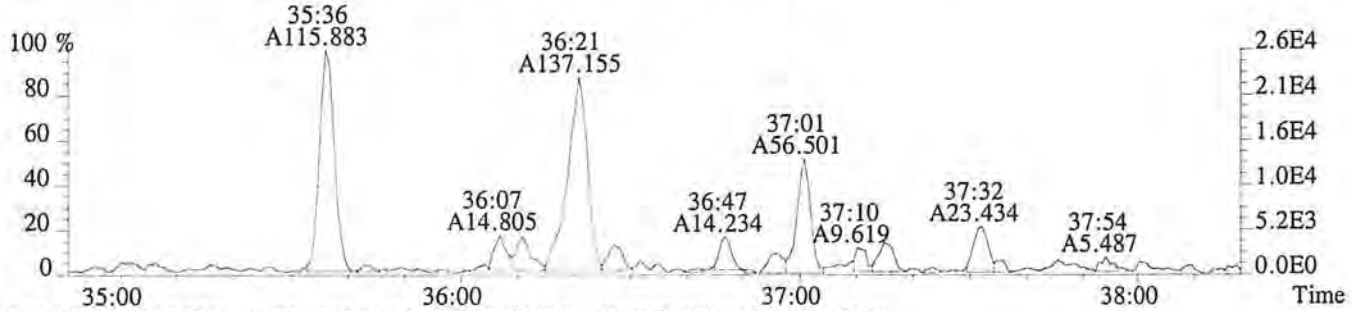
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



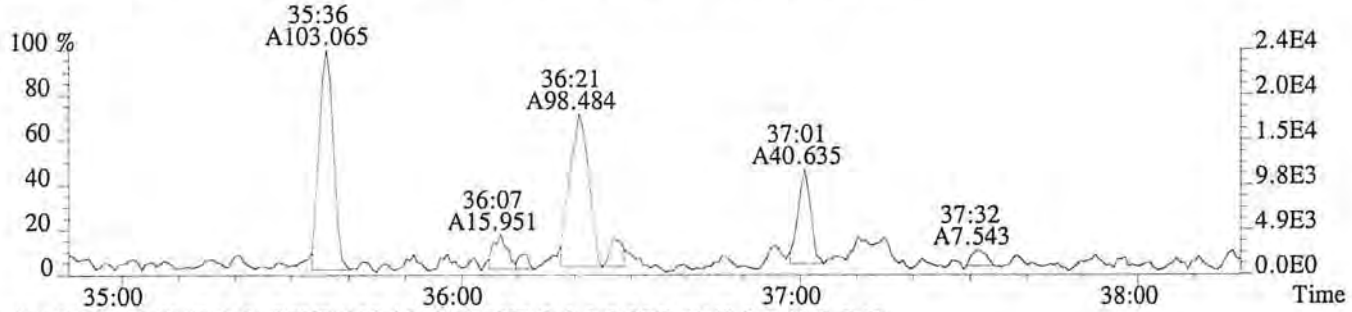
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



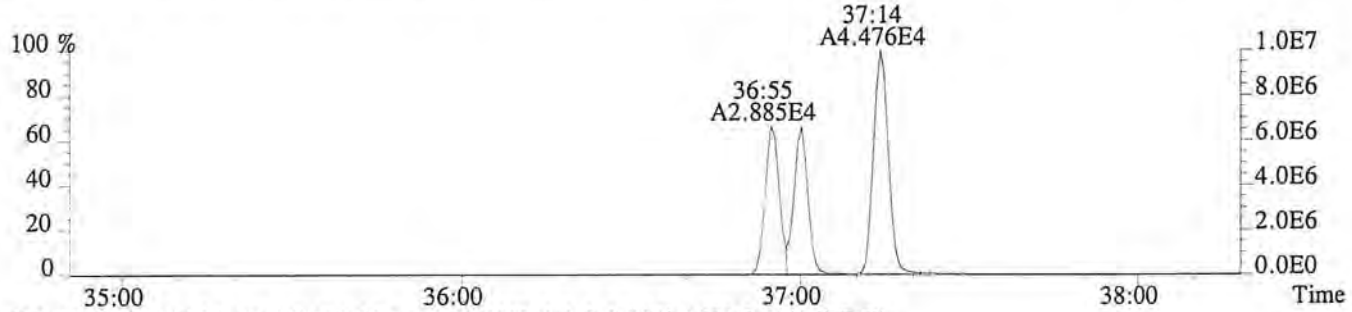
File:P301073 #1-312 Acq:28-AUG-2015 11:14:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-012
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



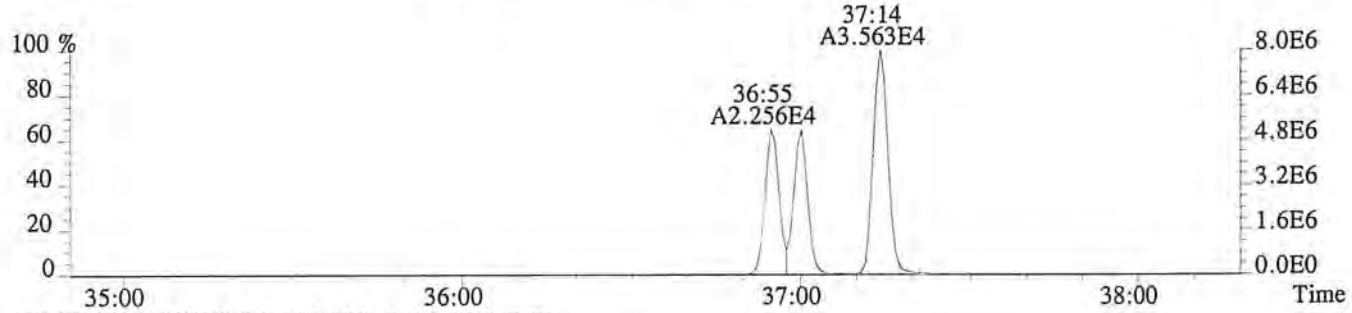
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1392.0,0.40%,F,T)



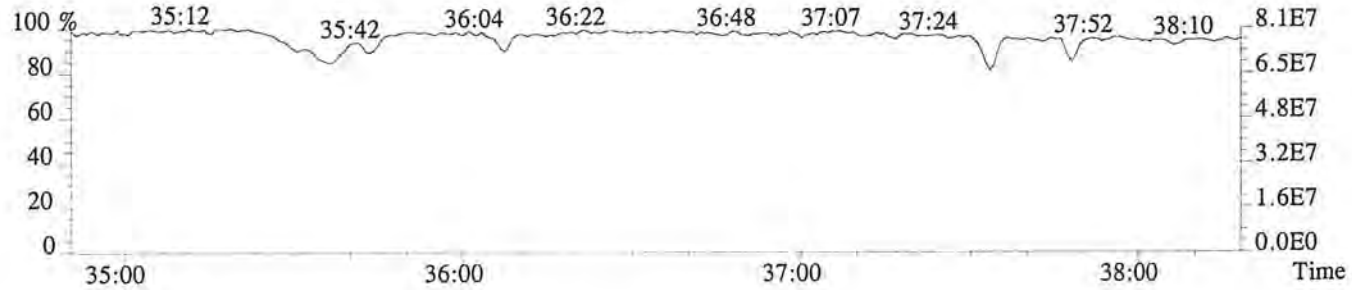
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1748.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



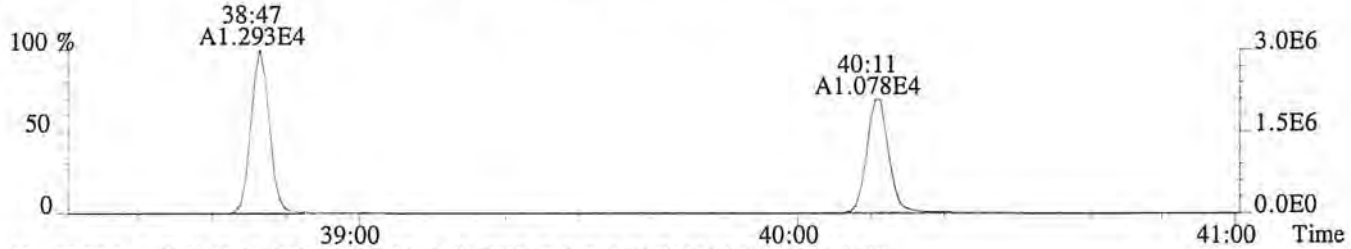
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



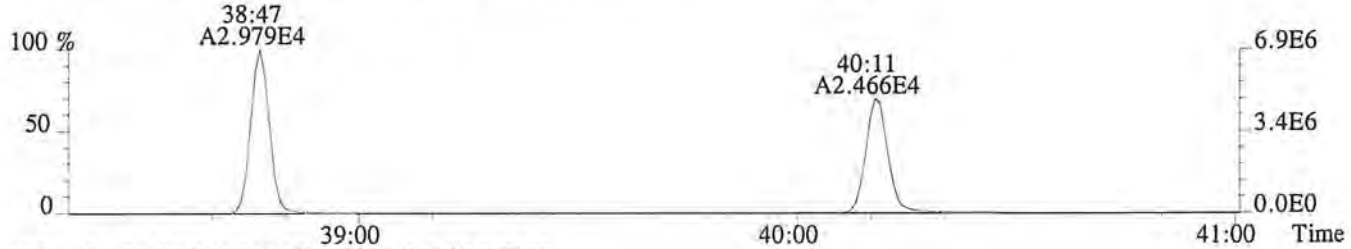
File:P301073 #1-241 Acq:28-AUG-2015 11:14:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-012
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.50%,F,T)

409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.50%,F,T)

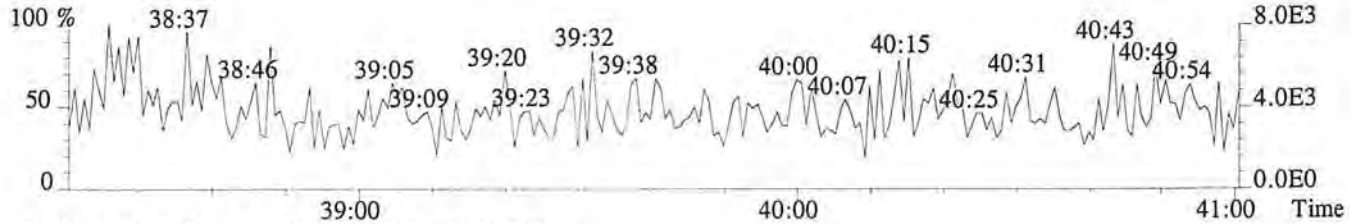
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3288.0,0.50%,F,T)



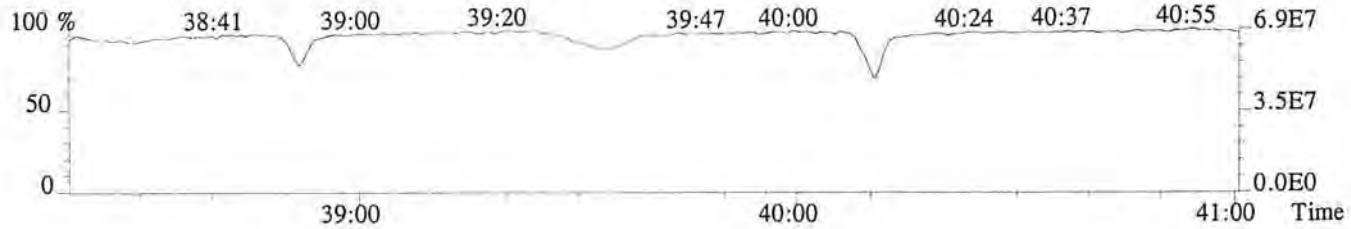
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.50%,F,T)



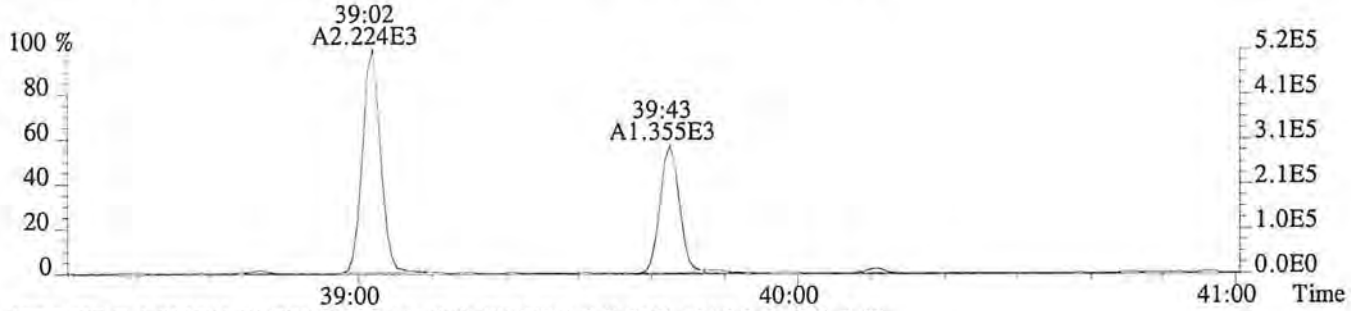
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



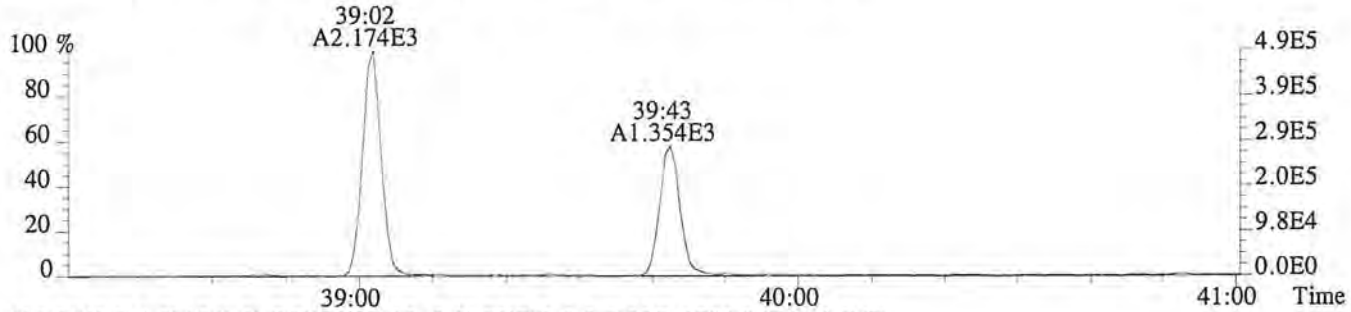
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



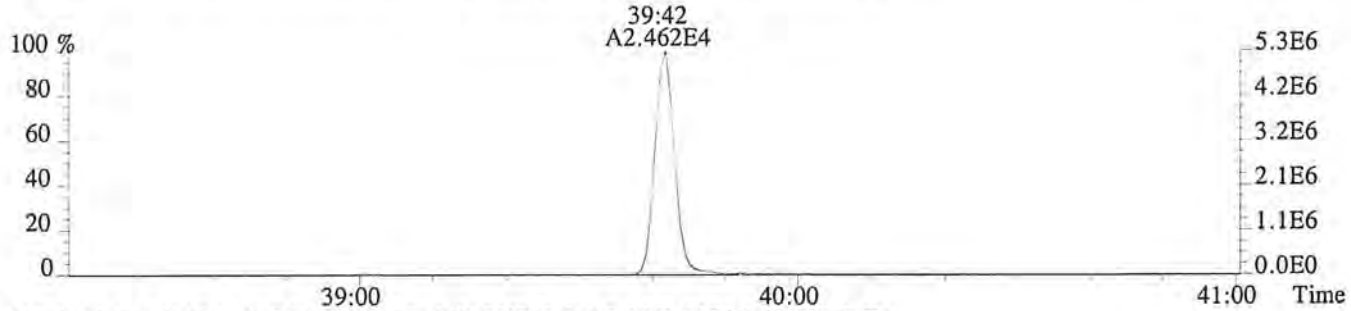
File:P301073 #1-241 Acq:28-AUG-2015 11:14:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-012
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)



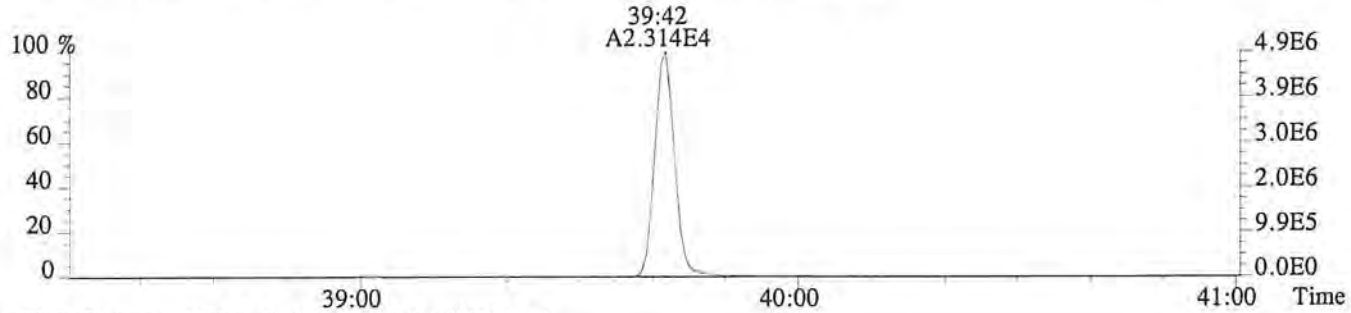
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)



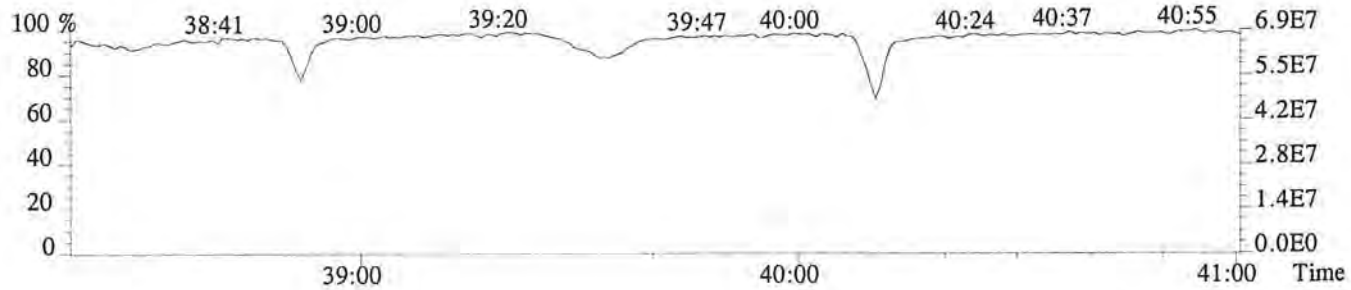
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1708.0,0.40%,F,T)



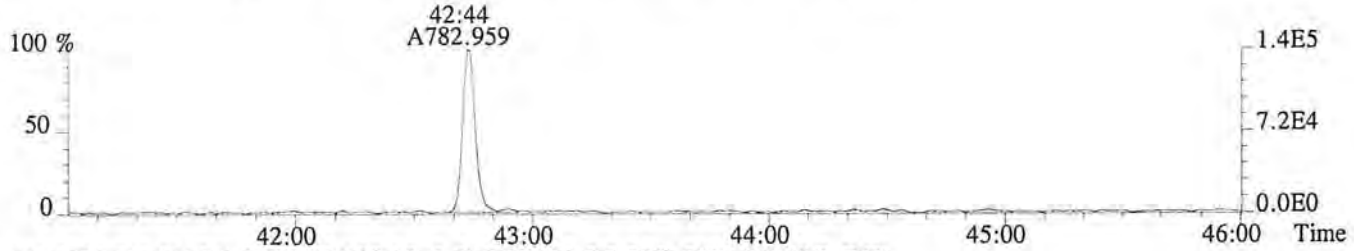
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1276.0,0.40%,F,T)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

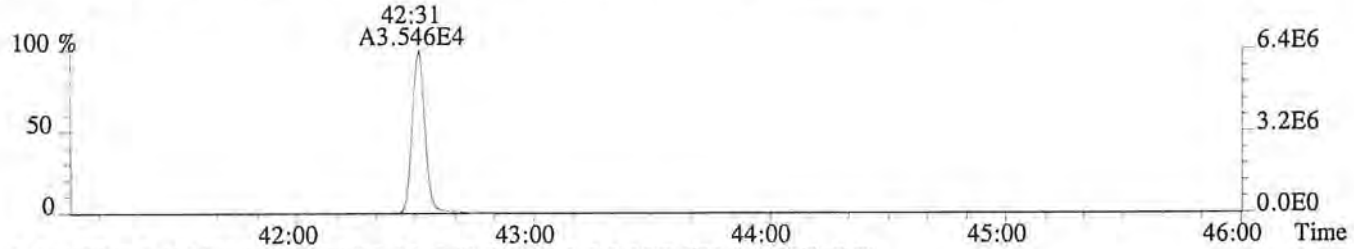


File:P301073 #1-447 Acq:28-AUG-2015 11:14:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-012
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1716.0,0.40%,F,T)

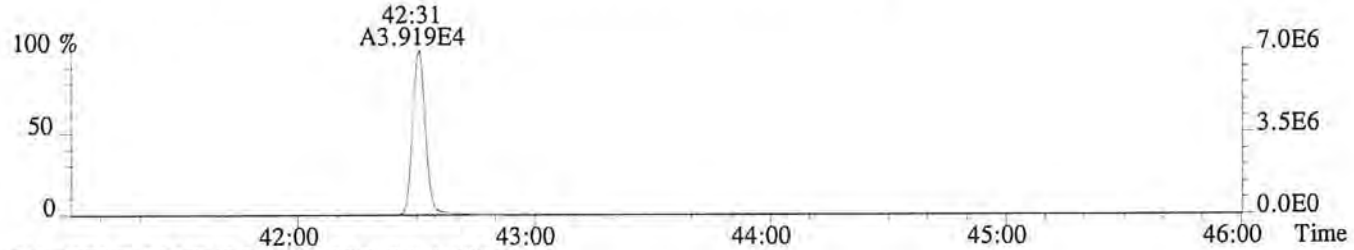


443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2216.0,0.40%,F,T)

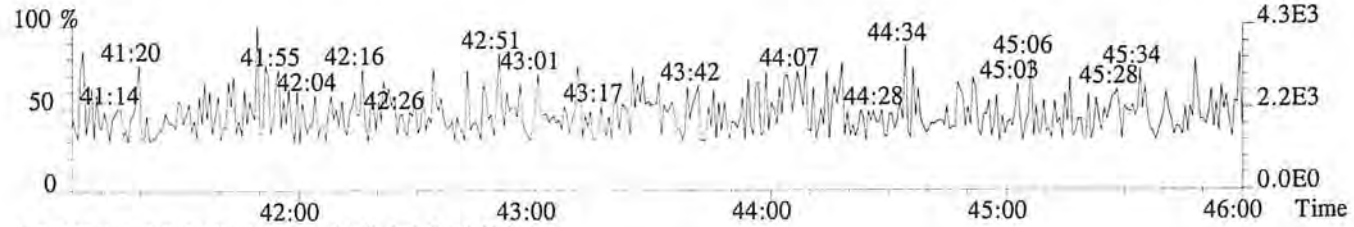
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,972.0,0.40%,F,T)

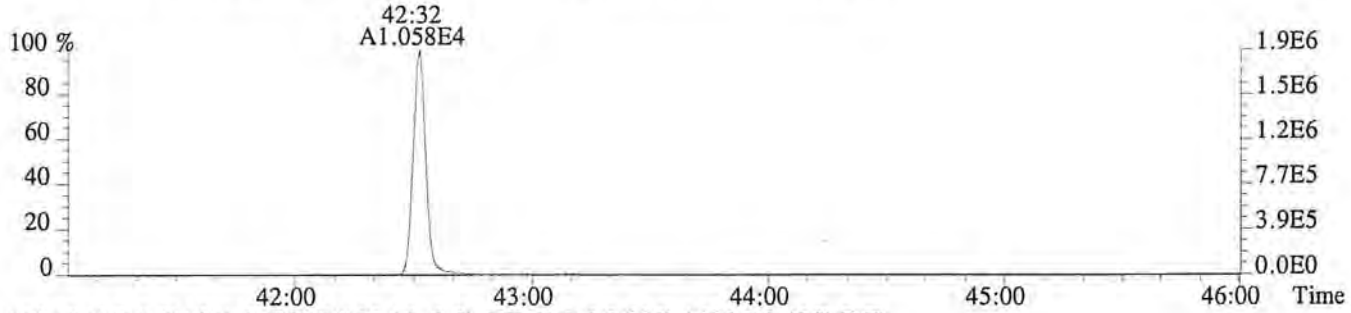


513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

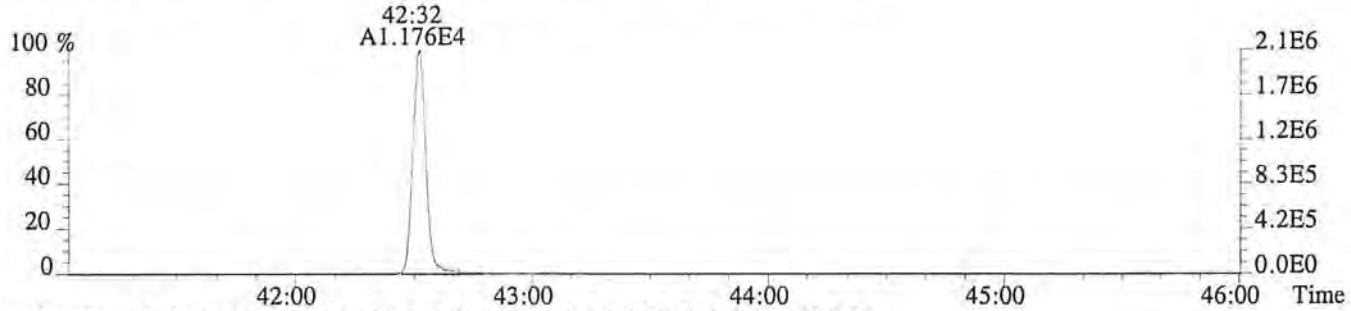


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

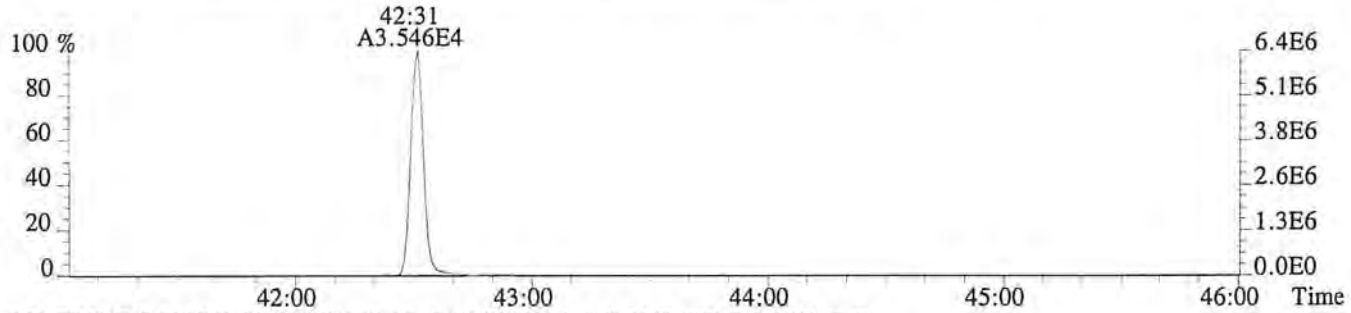
File:P301073 #1-447 Acq:28-AUG-2015 11:14:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-012
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



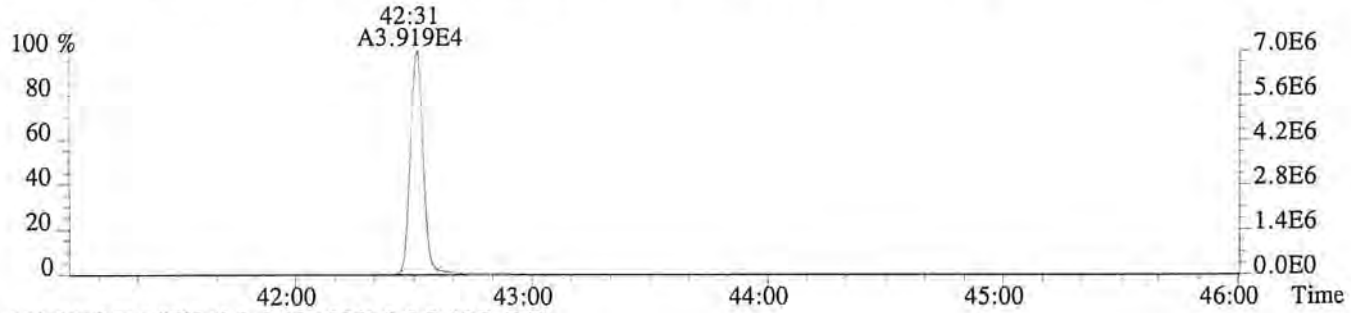
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1656.0,0.40%,F,T)



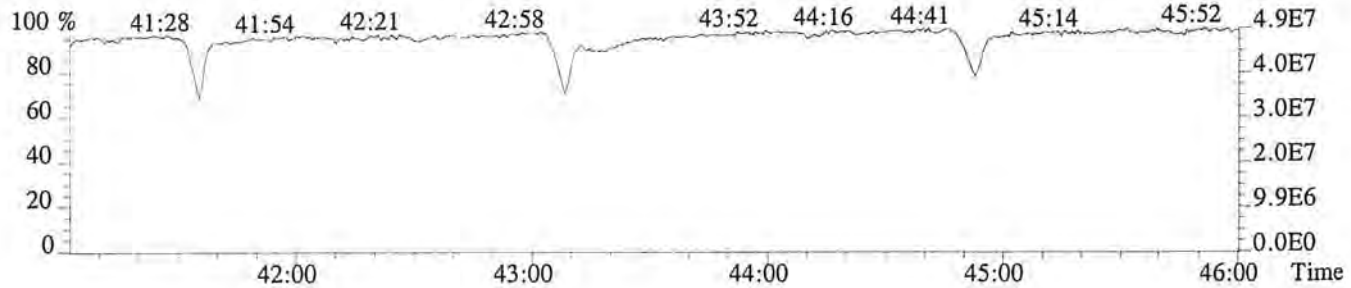
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,912.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,972.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-08-15 MT7

Run #15 Filename P301074 Samp: 1 Inj: 1 Acquired: 28-AUG-15 12:03:16
Processed: 28-AUG-15 16:51:51 Sample ID: E1500743-013

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	5.073e+02	6.915e+02	0.73	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:48	1.860e+01	6.254e+00	2.97	no	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:47	2.794e+02	2.555e+02	1.09	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.245
10	Unk	OCDF	42:44	8.031e+02	9.341e+02	0.86	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:23	3.226e+02	4.154e+02	0.78	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:56	1.496e+01	1.440e+01	1.04	no	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:01	4.200e+01	2.913e+01	1.44	no	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	7.530e+02	7.328e+02	1.03	yes	no	0.949
17	Unk	OCDD	42:32	3.801e+03	4.201e+03	0.90	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:37	3.181e+04	4.007e+04	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	5.066e+04	3.198e+04	1.58	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:34	4.948e+04	3.166e+04	1.56	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	2.149e+04	4.154e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	2.408e+04	4.653e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	2.305e+04	4.419e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:33	2.852e+04	5.576e+04	0.51	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	1.390e+04	3.145e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:11	1.111e+04	2.562e+04	0.43	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:21	2.532e+04	3.250e+04	0.78	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:51	3.805e+04	2.413e+04	1.58	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:56	3.102e+04	2.465e+04	1.26	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:00	2.946e+04	2.335e+04	1.26	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:42	2.626e+04	2.485e+04	1.06	yes	no	0.850
32	IS	13C-OCDD	42:31	3.697e+04	4.107e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:48	3.393e+04	4.301e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:15	4.667e+04	3.709e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	2.437e+04				no	1.001

$$\text{OCDD} = \frac{(3.801e+03 + 4.201e+03) \times 4000 \text{ pg} \times 1}{(3.697e+04 + 4.107e+04) \times 10.105 \text{ g} \times 100 \;/\; 100 \times 1.061} = 38.25 \text{ ng/kg}$$

LKL 08/31/15

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-08-15 MT7/MT7

Run #15 Filename P301074 Samp: 1 Inj: 1 Acquired: 28-AUG-15 12:03:16
Processed: 28-AUG-15 16:51:51 LAB. ID: E1500743-013

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.07e+05	1.87e+03	5.7e+01	1.38e+05	1.96e+03	7.1e+01
2	1,2,3,7,8-PeCDF	*	8.48e+02	*	*	1.82e+03	*
3	2,3,4,7,8-PeCDF	*	8.48e+02	*	*	1.82e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.32e+03	*	*	4.72e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.32e+03	*	*	4.72e+02	*
6	2,3,4,6,7,8-HxCDF	3.36e+03	1.32e+03	2.5e+00	1.76e+03	4.72e+02	3.7e+00
7	1,2,3,7,8,9-HxCDF	*	1.32e+03	*	*	4.72e+02	*
8	1,2,3,4,6,7,8-HpCDF	6.18e+04	1.18e+03	5.2e+01	6.09e+04	1.41e+03	4.3e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.18e+03	*	*	1.41e+03	*
10	OCDF	1.44e+05	1.12e+03	1.3e+02	1.62e+05	1.87e+03	8.6e+01
11	2,3,7,8-TCDD	6.47e+04	1.29e+03	5.0e+01	8.52e+04	8.88e+02	9.6e+01
12	1,2,3,7,8-PeCDD	*	2.20e+03	*	*	7.72e+02	*
13	1,2,3,4,7,8-HxCDD	3.77e+03	6.40e+02	5.9e+00	2.76e+03	1.09e+03	2.5e+00
14	1,2,3,6,7,8-HxCDD	1.01e+04	6.40e+02	1.6e+01	6.42e+03	1.09e+03	5.9e+00
15	1,2,3,7,8,9-HxCDD	*	6.40e+02	*	*	1.09e+03	*
16	1,2,3,4,6,7,8-HpCDD	1.57e+05	1.27e+03	1.2e+02	1.61e+05	9.68e+02	1.7e+02
17	OCDD	6.89e+05	7.60e+02	9.1e+02	7.68e+05	1.23e+03	6.2e+02
18	13C-2,3,7,8-TCDF	6.28e+06	1.61e+03	3.9e+03	7.93e+06	1.98e+03	4.0e+03
19	13C-1,2,3,7,8-PeCDF	9.97e+06	9.96e+02	1.0e+04	6.38e+06	1.48e+03	4.3e+03
20	13C-2,3,4,7,8-PeCDF	1.04e+07	9.96e+02	1.0e+04	6.65e+06	1.48e+03	4.5e+03
21	13C-1,2,3,4,7,8-HxCDF	4.84e+06	9.44e+02	5.1e+03	9.23e+06	2.10e+03	4.4e+03
22	13C-1,2,3,6,7,8-HxCDF	5.34e+06	9.44e+02	5.7e+03	1.04e+07	2.10e+03	5.0e+03
23	13C-2,3,4,6,7,8-HxCDF	5.29e+06	9.44e+02	5.6e+03	1.01e+07	2.10e+03	4.8e+03
24	13C-1,2,3,7,8,9-HxCDF	6.21e+06	9.44e+02	6.6e+03	1.20e+07	2.10e+03	5.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.16e+06	2.28e+03	1.4e+03	7.22e+06	2.92e+03	2.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.17e+06	2.28e+03	9.5e+02	4.93e+06	2.92e+03	1.7e+03
27	13C-2,3,7,8-TCDD	5.29e+06	5.93e+03	8.9e+02	6.76e+06	4.88e+03	1.4e+03
28	13C-1,2,3,7,8-PeCDD	7.87e+06	1.84e+03	4.3e+03	5.02e+06	8.12e+02	6.2e+03
29	13C-1,2,3,4,7,8-HxCDD	7.07e+06	1.33e+03	5.3e+03	5.56e+06	1.74e+03	3.2e+03
30	13C-1,2,3,6,7,8-HxCDD	6.56e+06	1.33e+03	4.9e+03	5.27e+06	1.74e+03	3.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.65e+06	2.18e+03	2.6e+03	5.39e+06	1.08e+03	5.0e+03
32	13C-OCDD	6.67e+06	5.96e+02	1.1e+04	7.38e+06	1.26e+03	5.9e+03
33	13C-1,2,3,4-TCDD	6.72e+06	5.93e+03	1.1e+03	8.58e+06	4.88e+03	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.04e+07	1.33e+03	7.8e+03	8.29e+06	1.74e+03	4.8e+03
35	37Cl-2,3,7,8-TCDD	4.99e+06	8.36e+02	6.0e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-08-15 MT7/MT

Entry: 36 Totals Name: Total Tetra-Furans

Run: 15 File: P301074 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 12:03:16 Processed: 28-AUG-15 16:51:51

Mass: 303.9020 305.8990 Tot Response: 1.20e+03 RRF: 0.8496

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:37	5.07e+02	6.92e+02	0.73	yes	1.20e+03	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-08-15 MT7/MT7

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 15 File: P301074 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 12:03:16 Processed: 28-AUG-15 16:51:51

Mass: 319.8970 321.8940 Tot Response: 7.38e+02 RRF: 0.9567

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:23	3.23e+02	4.15e+02	0.78	yes	7.38e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.

PLY-08-15 MT7/MT

Entry: 38 Totals Name: Total Penta-Furans1

Run: 15 File: P301074 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 12:03:16 Processed: 28-AUG-15 16:51:51

Mass: 339.8600 341.8570 Tot Response: 4.08e+01 RRF: 0.9042

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:21	2.39e+01	1.69e+01	1.41	yes	4.08e+01	n	n

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Peak List Summary

CLIENT ID.

PLY-08-15 MT7/MT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 15 File: P301074 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 12:03:16 Processed: 28-AUG-15 16:51:51

Mass: 389.8160 391.8130 Tot Response: 4.42e+02 RRF: 0.9904

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:36	1.44e+02	1.09e+02	1.31	yes	2.53e+02		n	n
2	36:21	1.01e+02	8.72e+01	1.16	yes	1.88e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-08-15 MT7/MT7

Entry: 43 Totals Name: Total Hepta-Furans

Run: 15 File: P301074 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 12:03:16 Processed: 28-AUG-15 16:51:51

Mass: 407.7820 409.7790 Tot Response: 2.55e+03 RRF: 1.284

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:47	2.79e+02	2.56e+02	1.09	yes	5.35e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:11	1.00e+03	9.98e+02	1.00	yes	2.00e+03		n	n
3	39:20	7.36e+00	6.66e+00	1.10	yes	1.40e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-08-15 MT7/MT7

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: P301074 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 12:03:16 Processed: 28-AUG-15 16:51:51

Mass: 423.7770 425.7740 Tot Response: 4.03e+03 RRF: 0.9492

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:02	1.30e+03	1.24e+03	1.05	yes	2.55e+03		n	n
2	39:43	7.53e+02	7.33e+02	1.03	yes	1.49e+03	1,2,3,4,6,7,8-HpCDD	n	n

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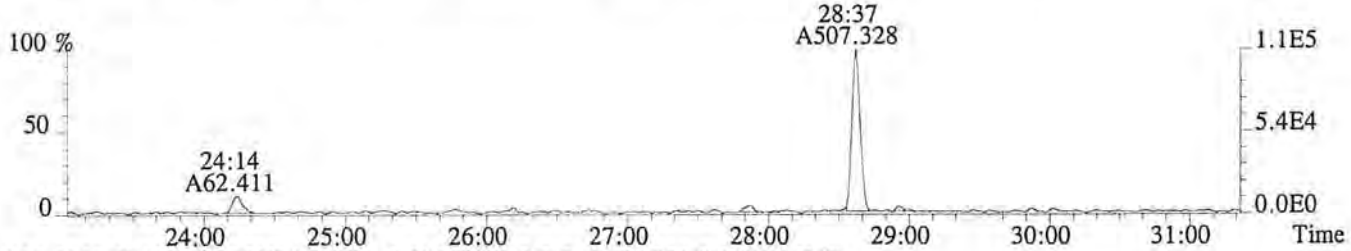
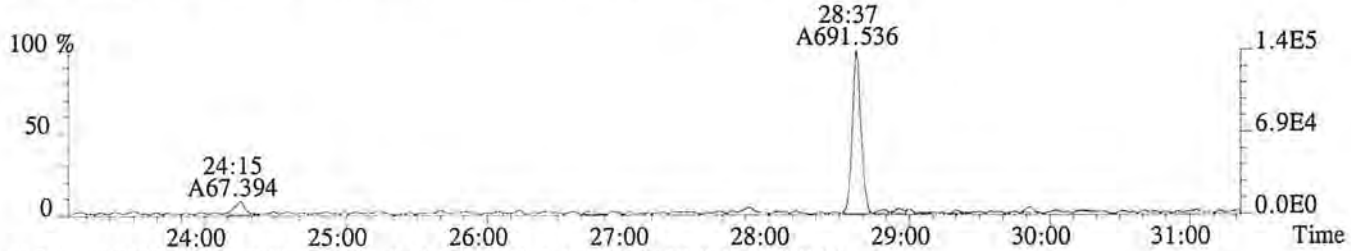
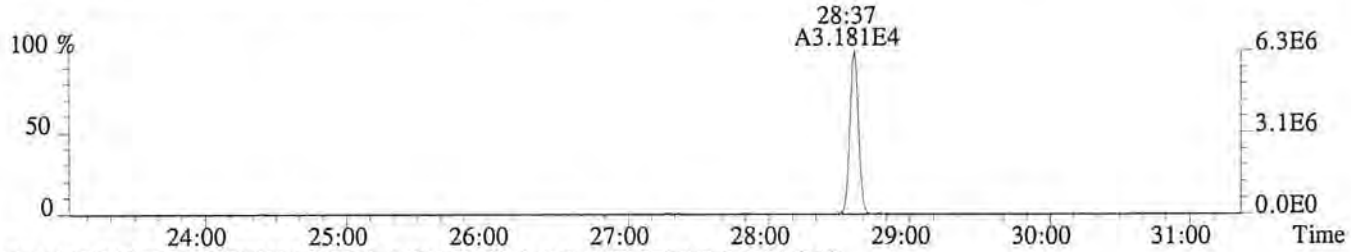
File:P301074 #1-591 Acq:28-AUG-2015 12:03:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-013
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1868.0,1.00%,F,T)



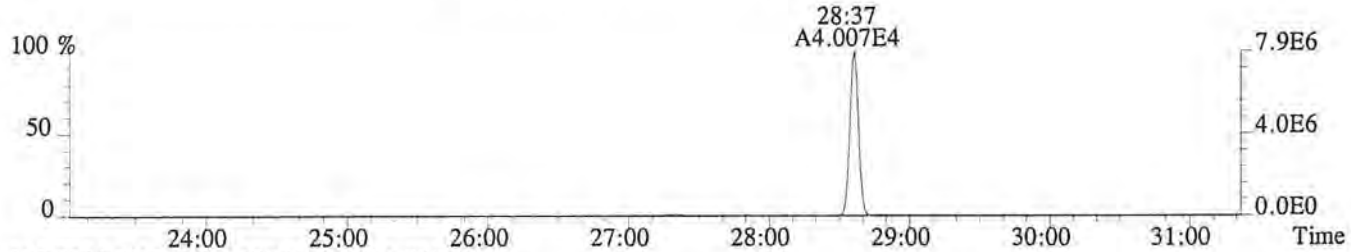
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1956.0,1.00%,F,T)



315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



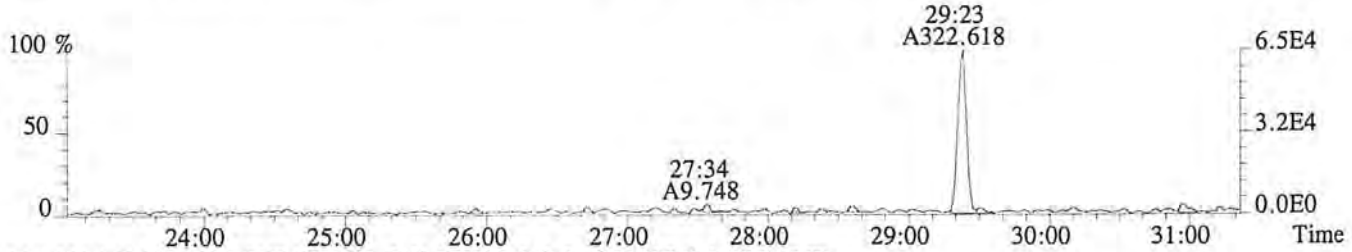
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1984.0,1.00%,F,T)



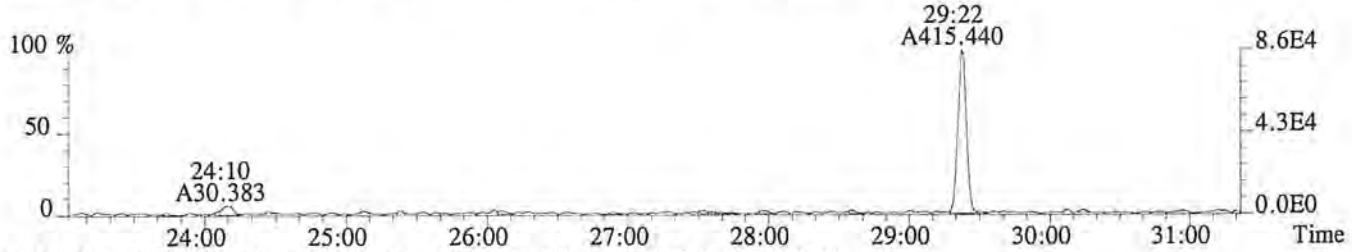
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

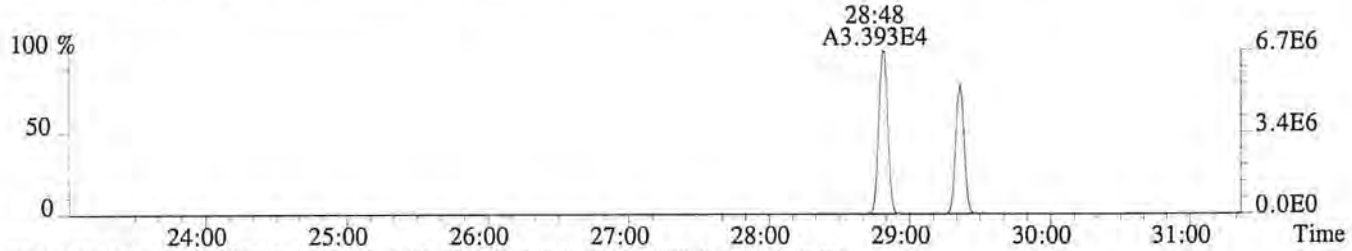
File:P301074 #1-591 Acq:28-AUG-2015 12:03:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-013
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



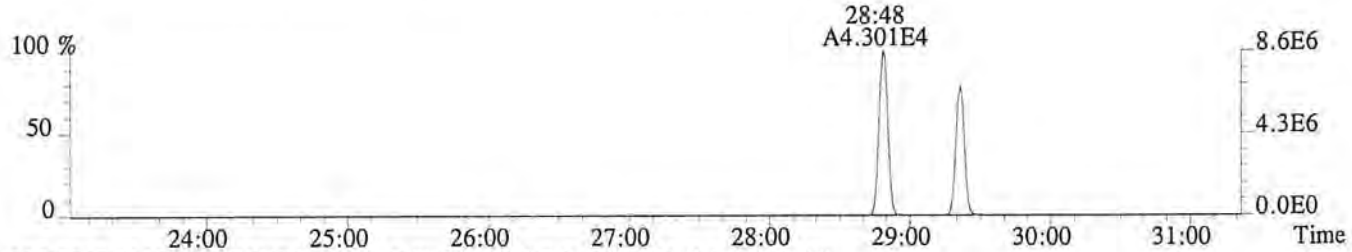
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



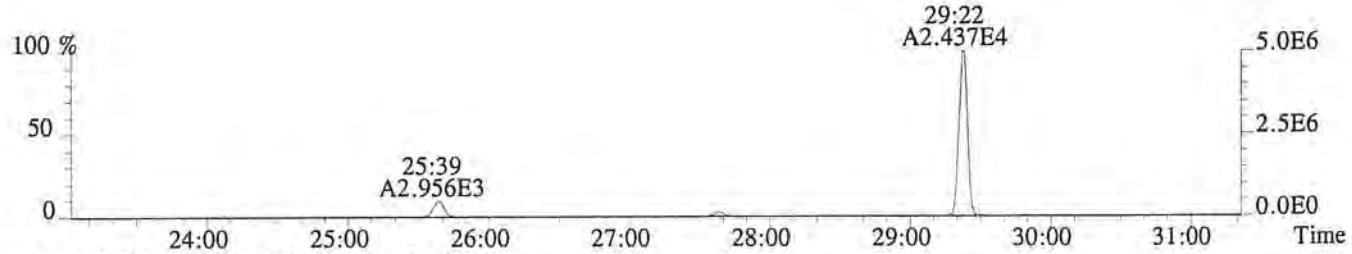
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5928.0,1.00%,F,T)



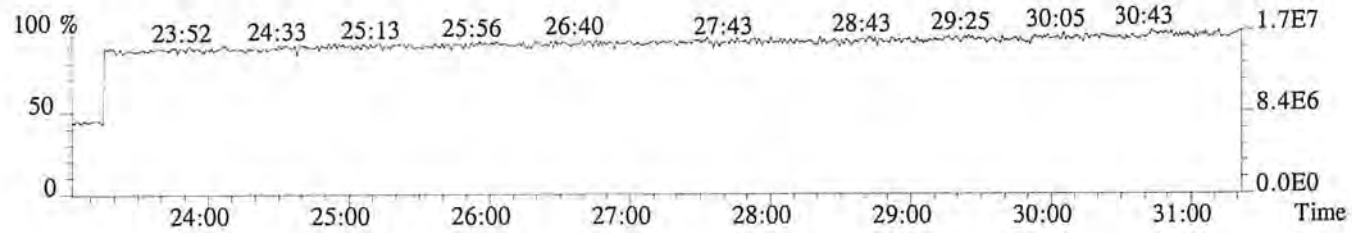
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4880.0,1.00%,F,T)



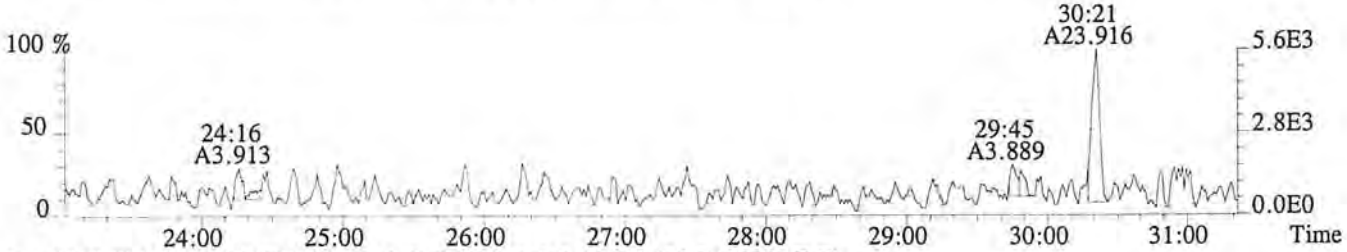
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



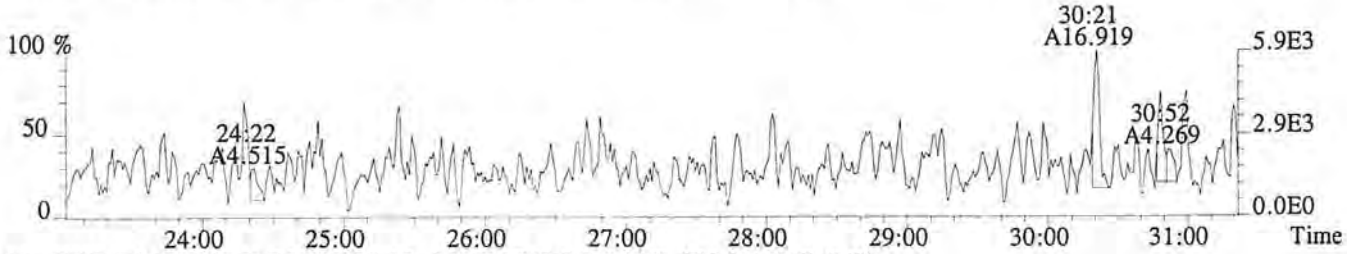
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



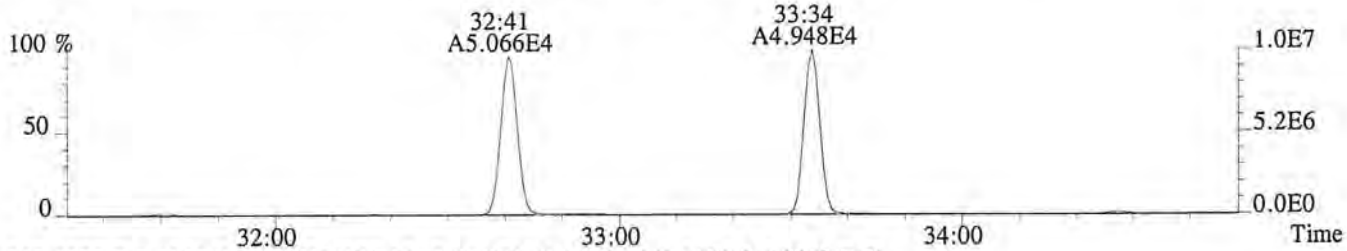
File:P301074 #1-591 Acq:28-AUG-2015 12:03:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-013
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



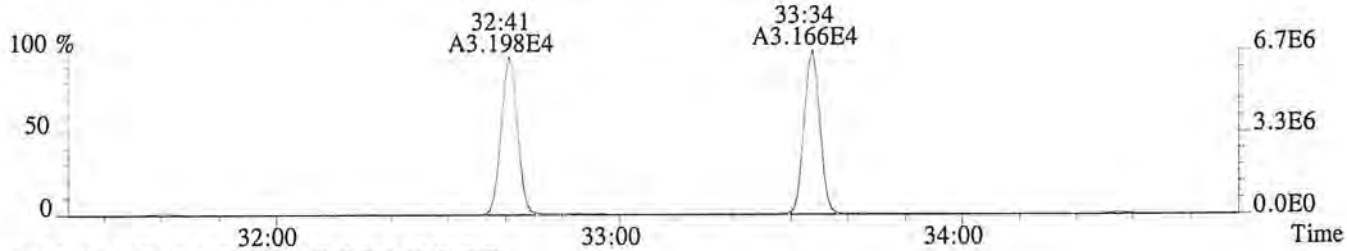
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



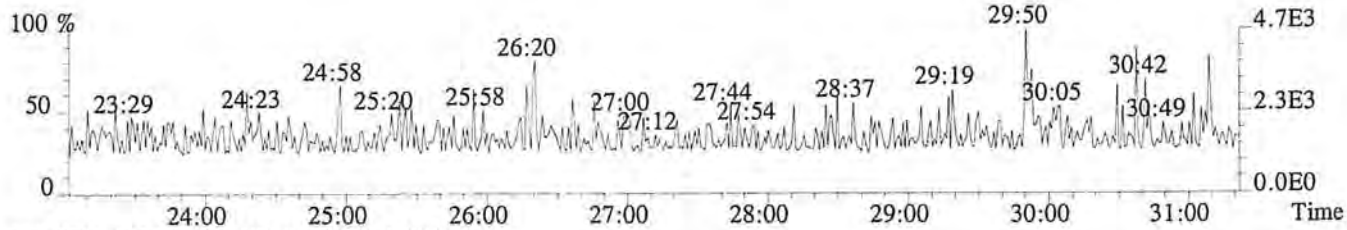
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



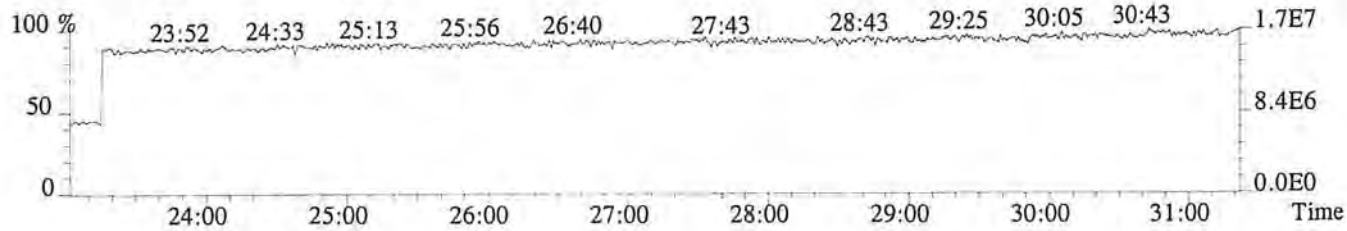
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



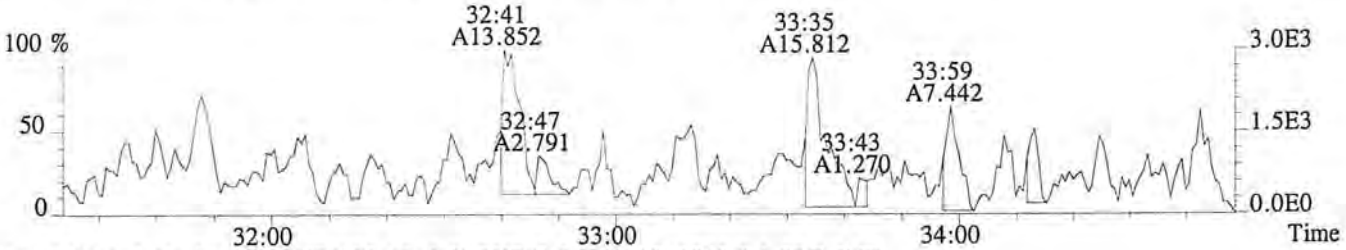
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



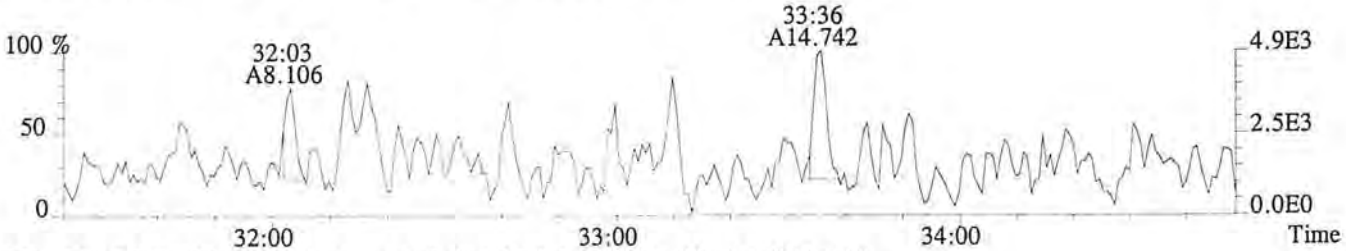
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



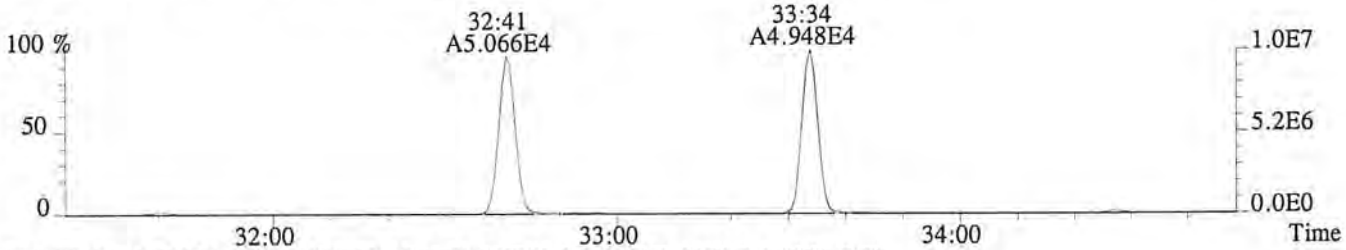
File:P301074 #1-308 Acq:28-AUG-2015 12:03:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-013
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



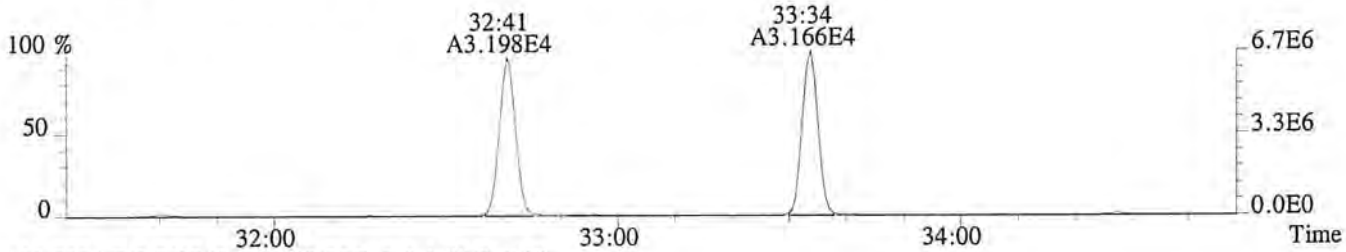
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1820.0,1.00%,F,T)



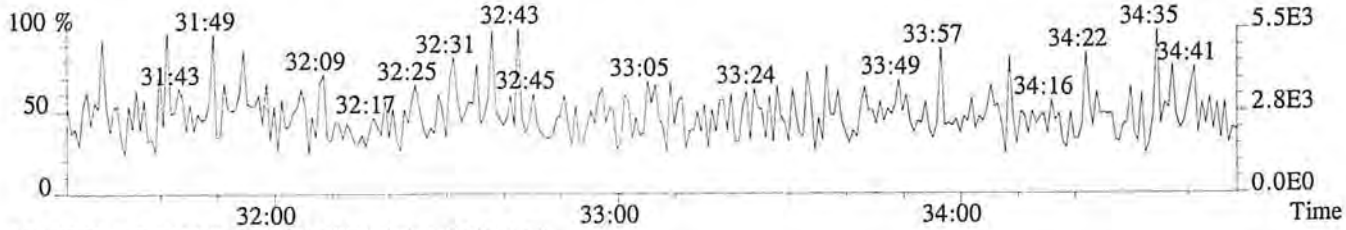
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



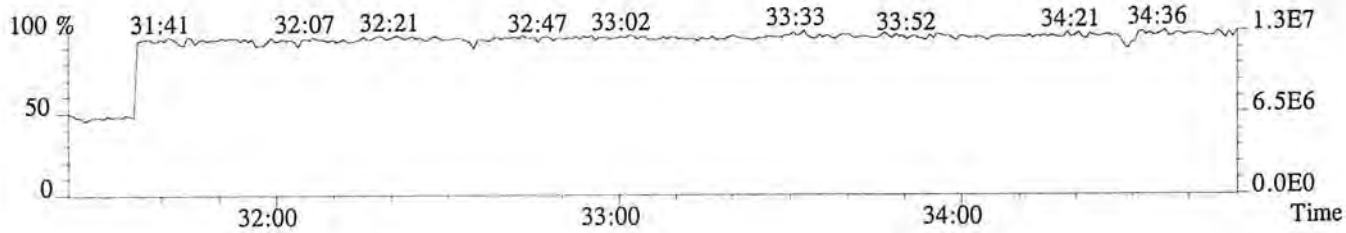
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1480.0,1.00%,F,T)



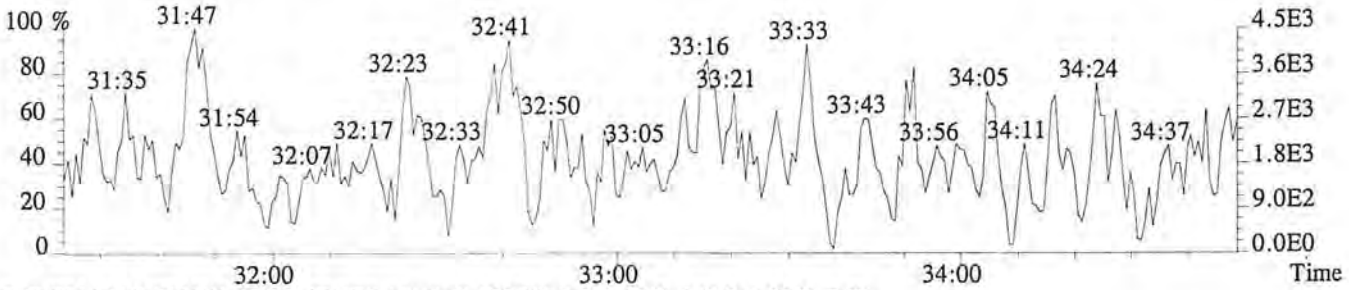
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



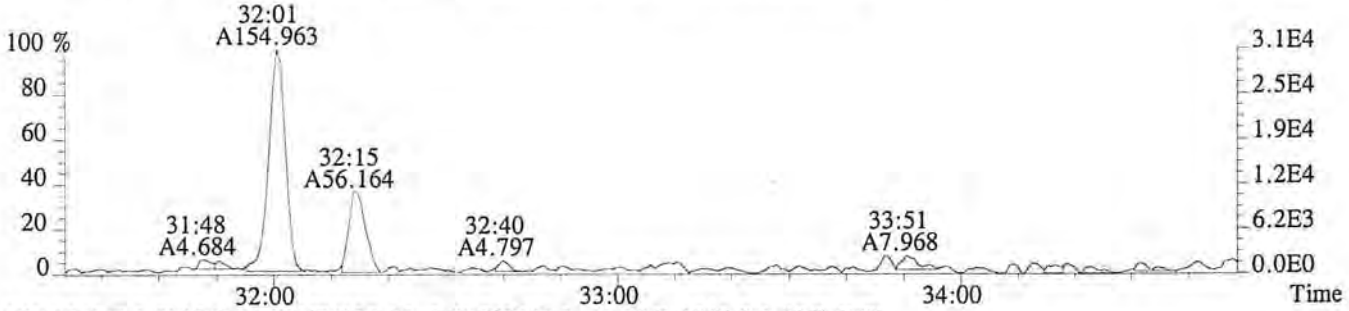
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



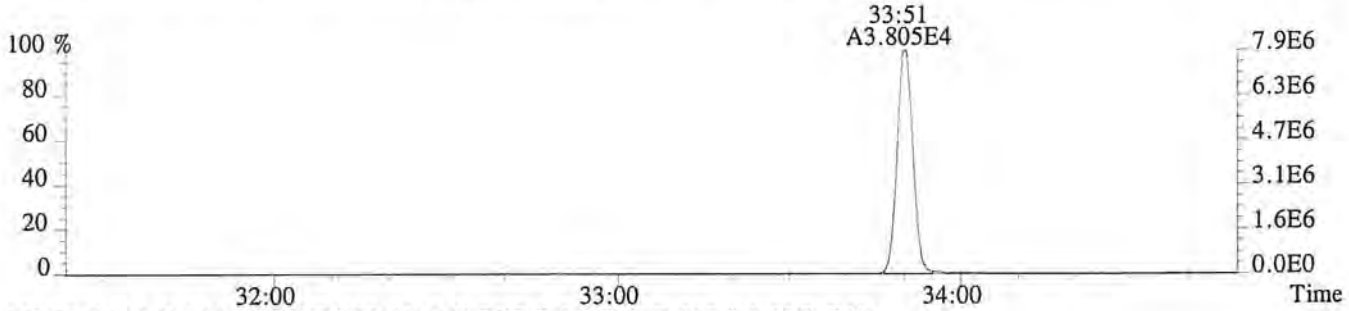
File:P301074 #1-308 Acq:28-AUG-2015 12:03:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-013
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



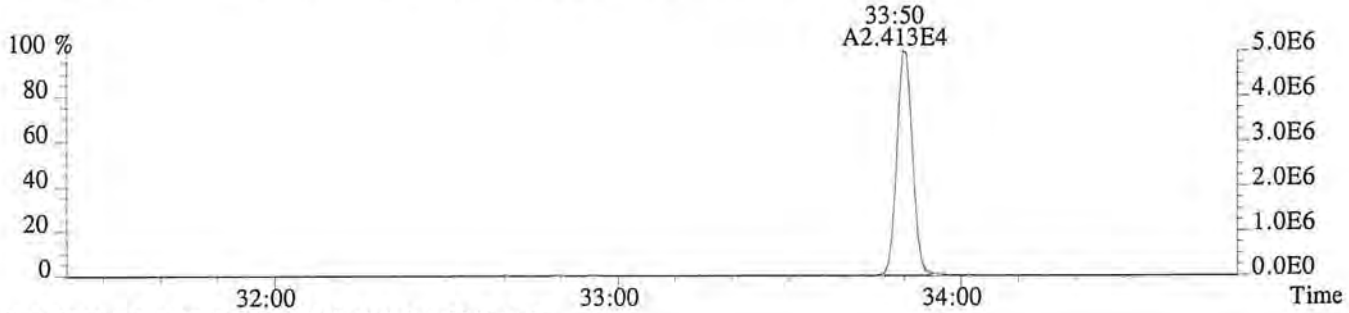
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



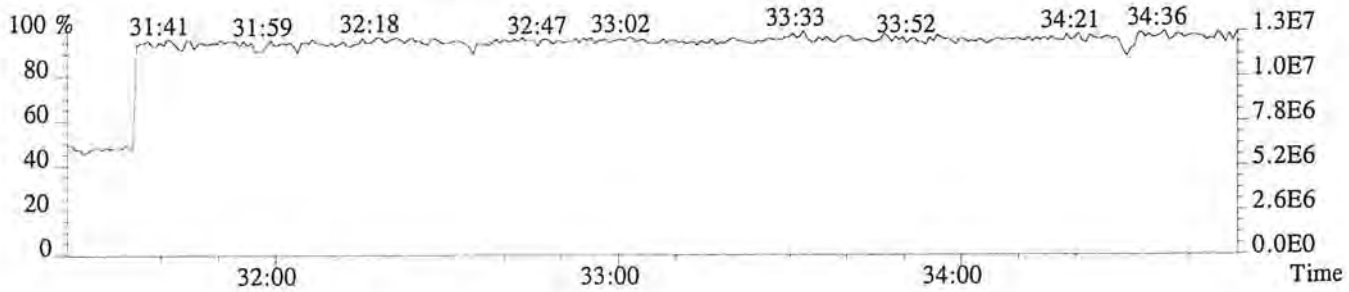
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1840.0,1.00%,F,T)



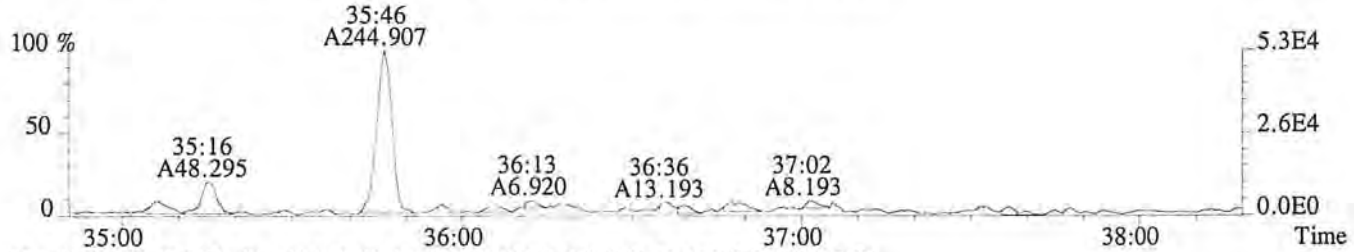
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

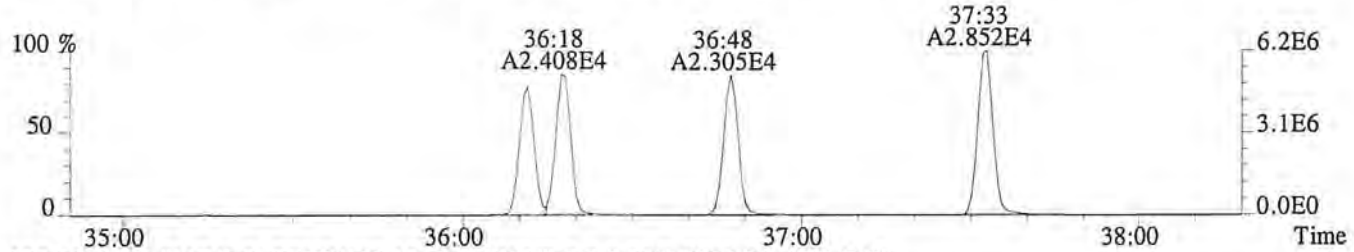


File:P301074 #1-312 Acq:28-AUG-2015 12:03:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-013
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)

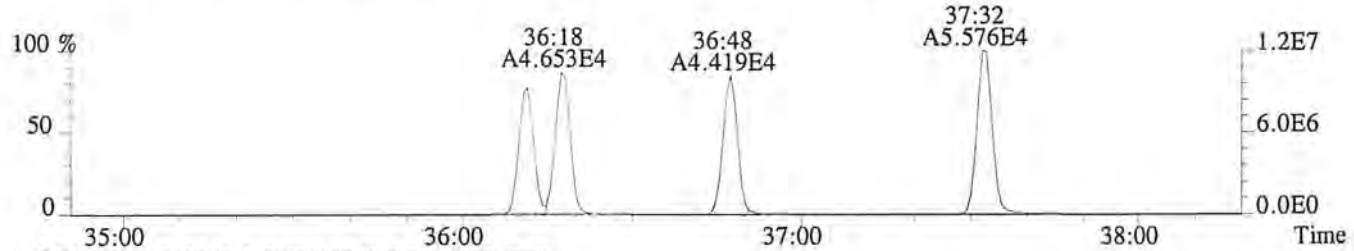


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)

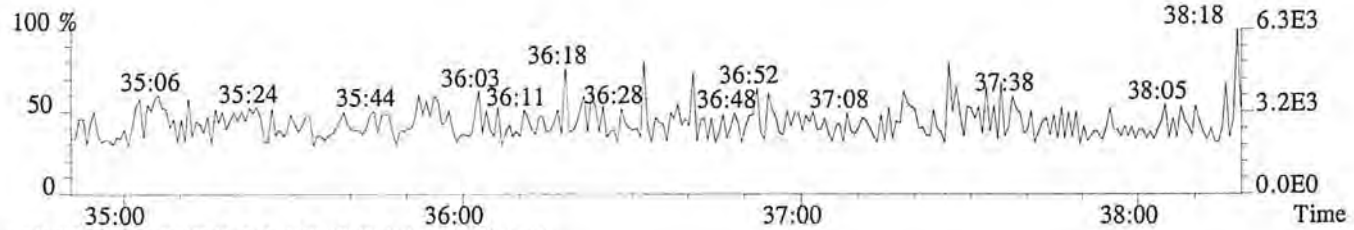
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,944.0,0.40%,F,T)



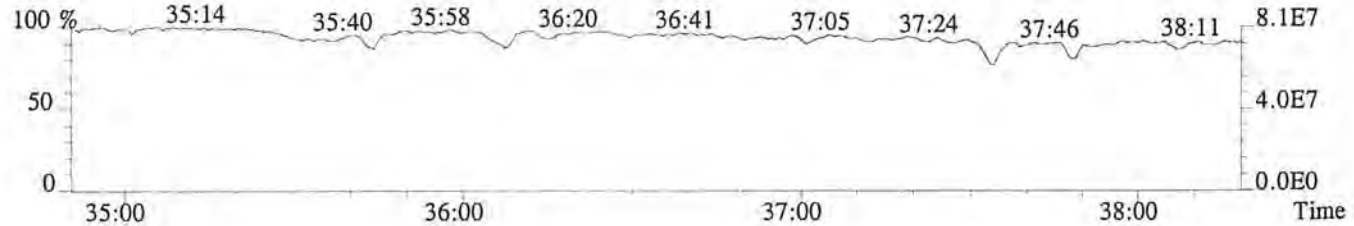
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2096.0,0.40%,F,T)



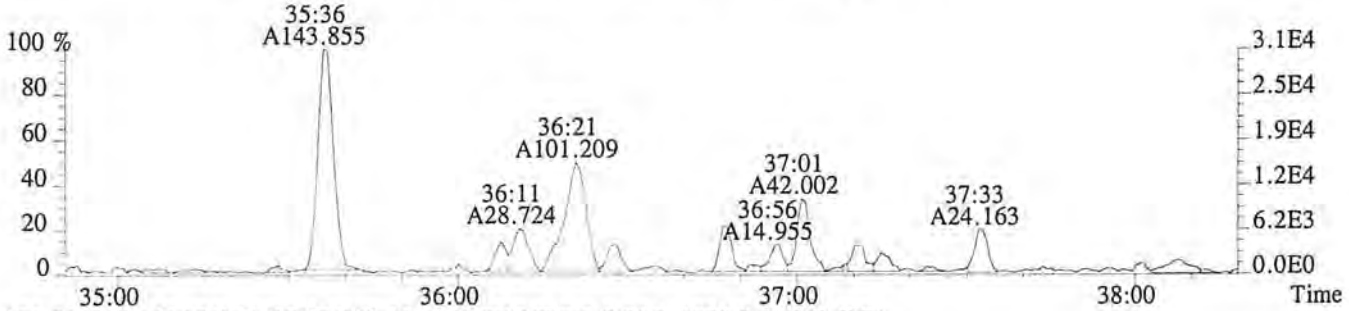
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



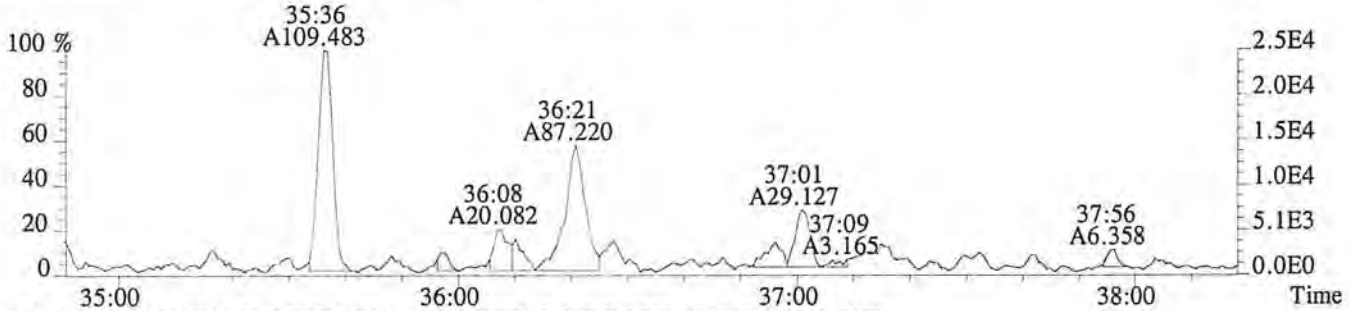
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



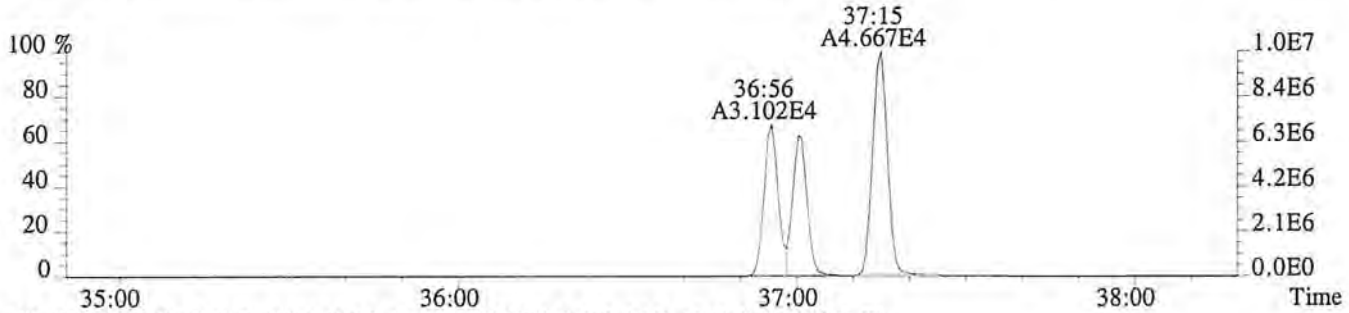
File:P301074 #1-312 Acq:28-AUG-2015 12:03:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-013
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



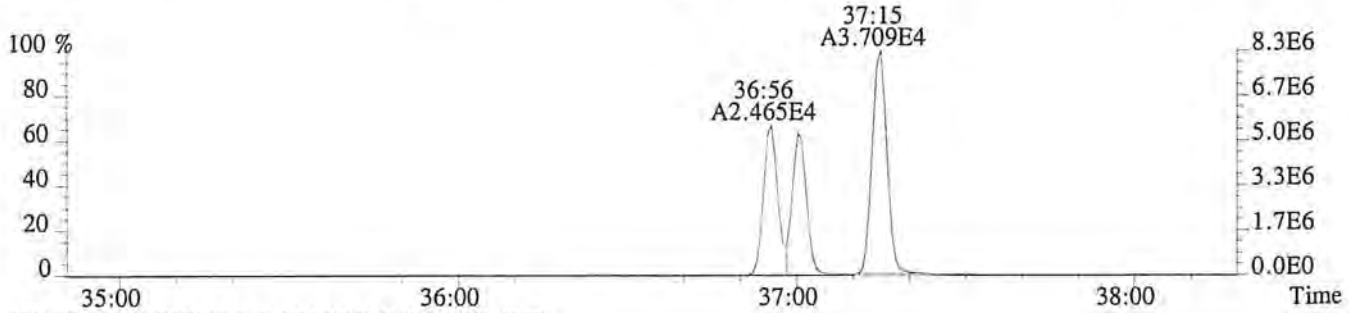
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1092.0,0.40%,F,T)



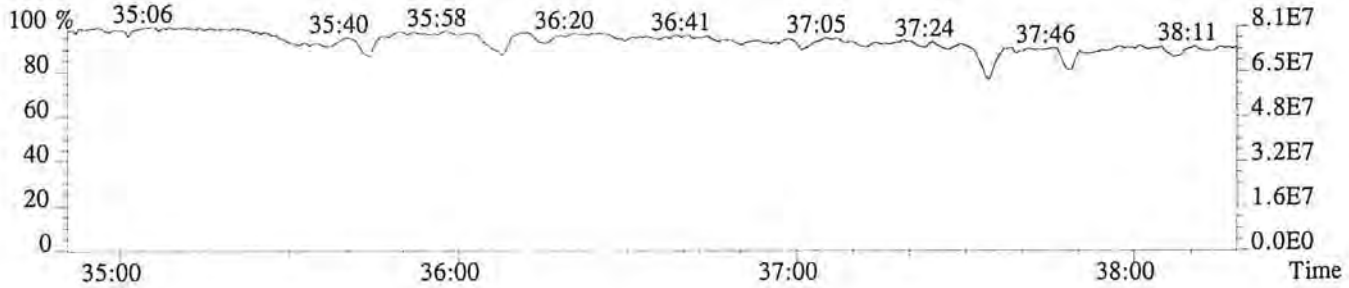
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1740.0,0.40%,F,T)



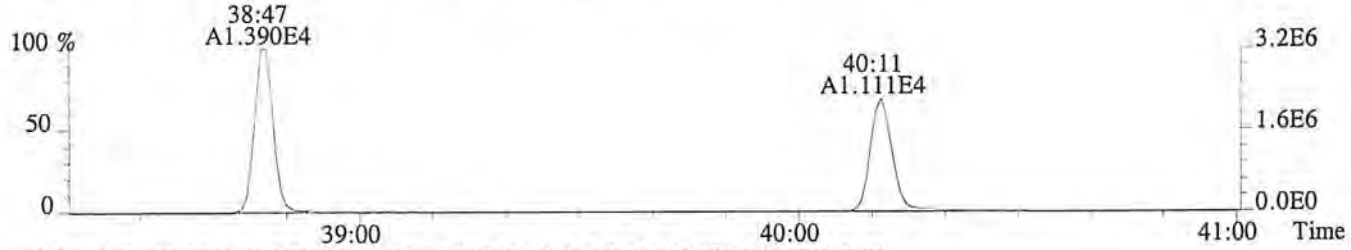
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



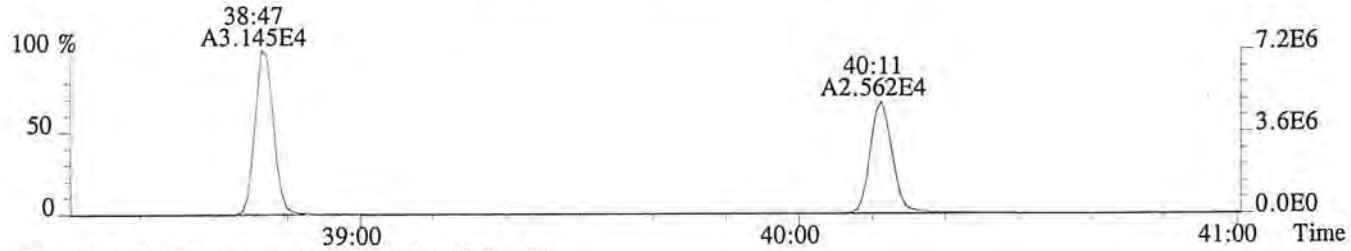
File:P301074 #1-241 Acq:28-AUG-2015 12:03:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-013
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1184.0,0.50%,F,T)

409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1408.0,0.50%,F,T)

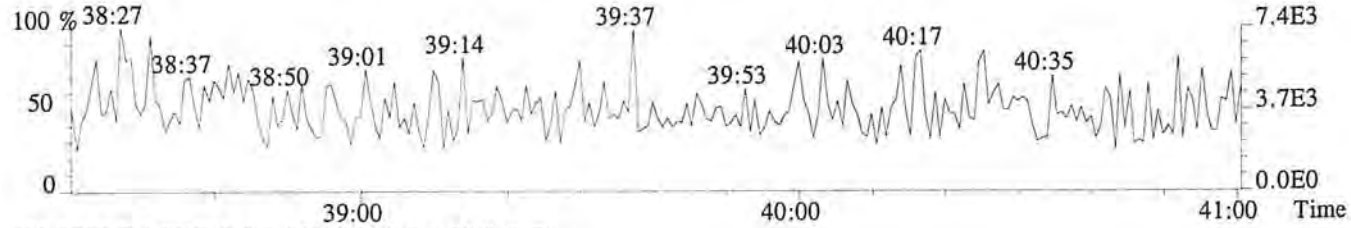
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2280.0,0.50%,F,T)



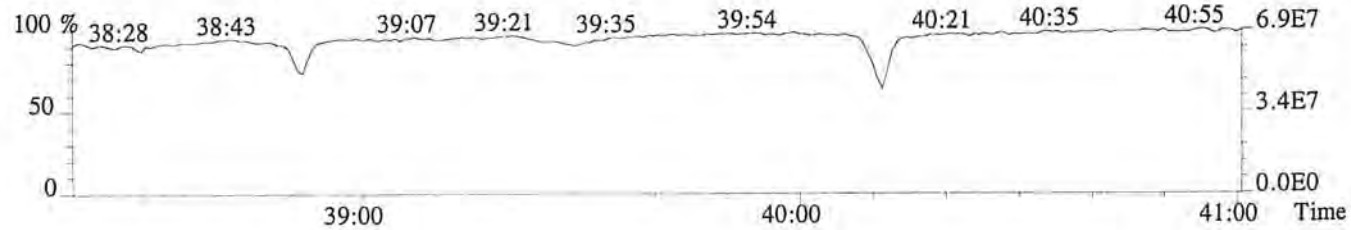
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.50%,F,T)



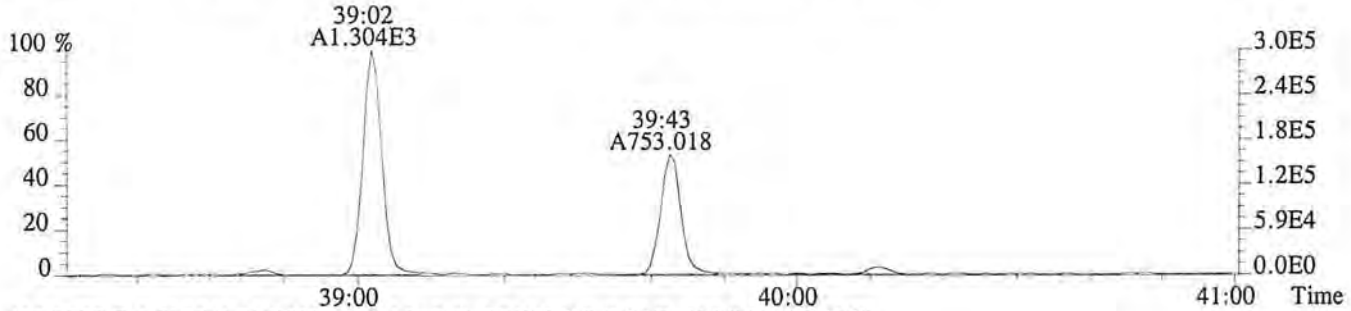
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



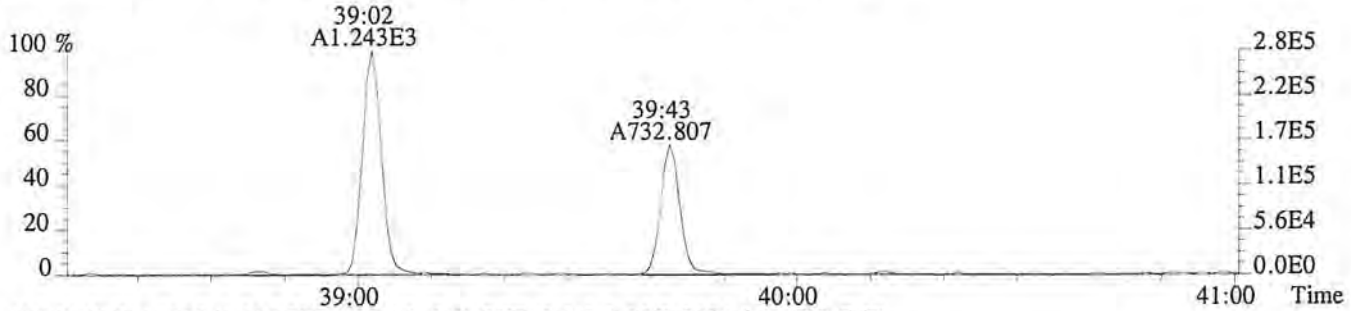
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



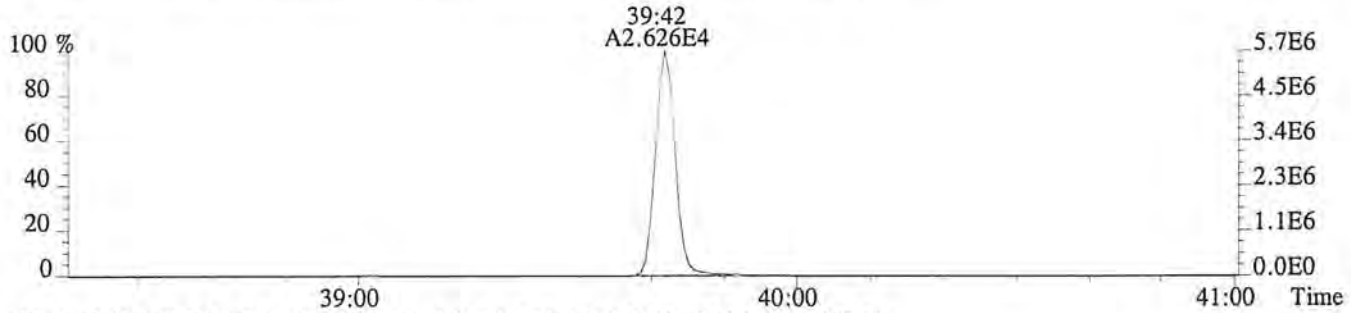
File:P301074 #1-241 Acq:28-AUG-2015 12:03:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-013
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1272.0,0.40%,F,T)



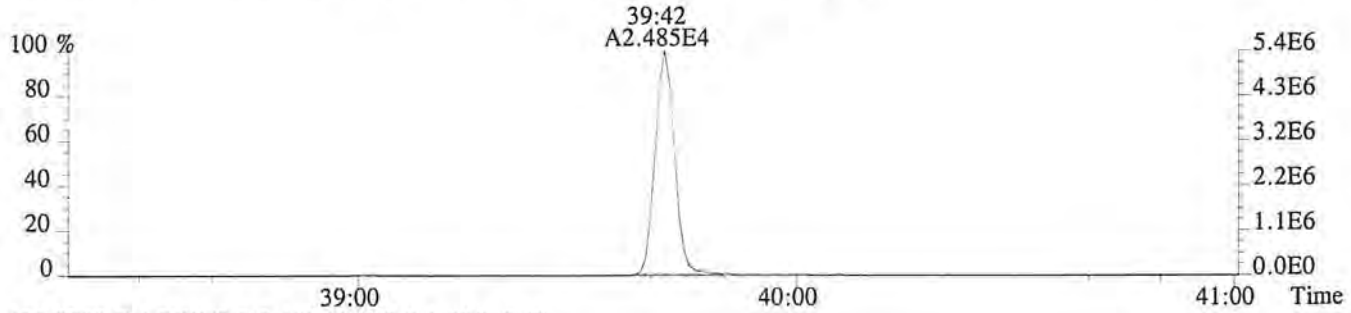
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,968.0,0.40%,F,T)



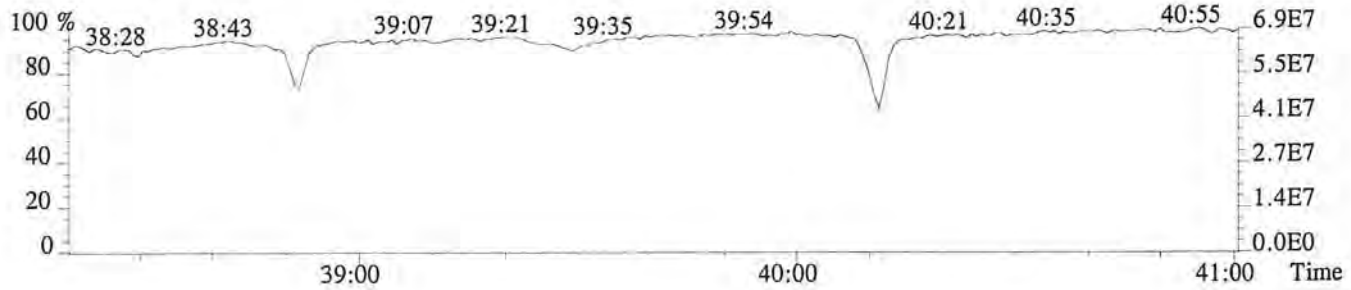
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2184.0,0.40%,F,T)



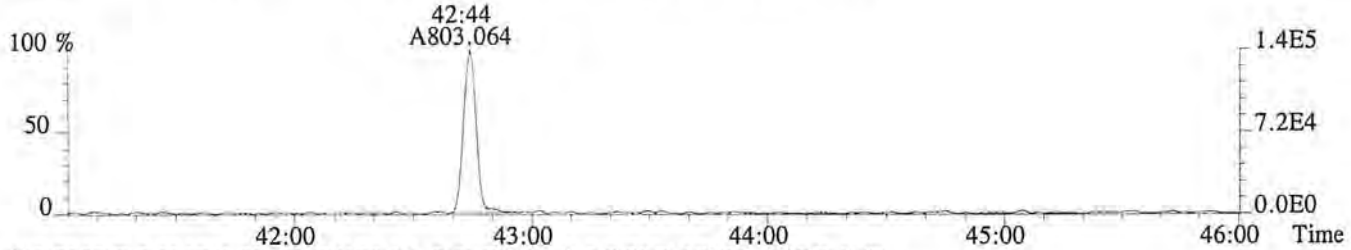
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



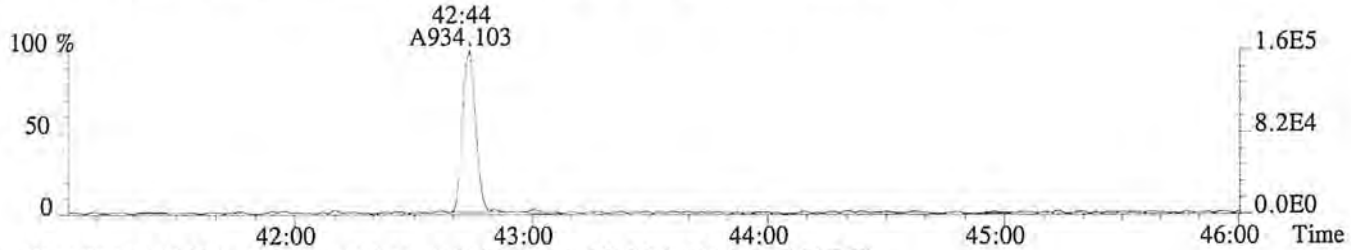
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



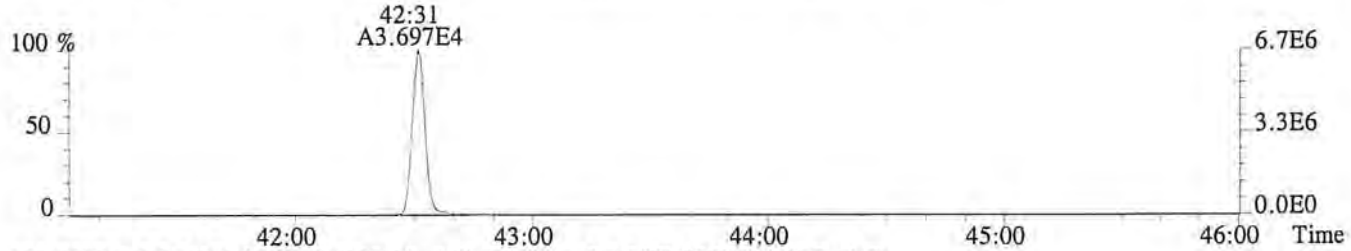
File:P301074 #1-447 Acq:28-AUG-2015 12:03:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-013
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1120.0,0.40%,F,T)



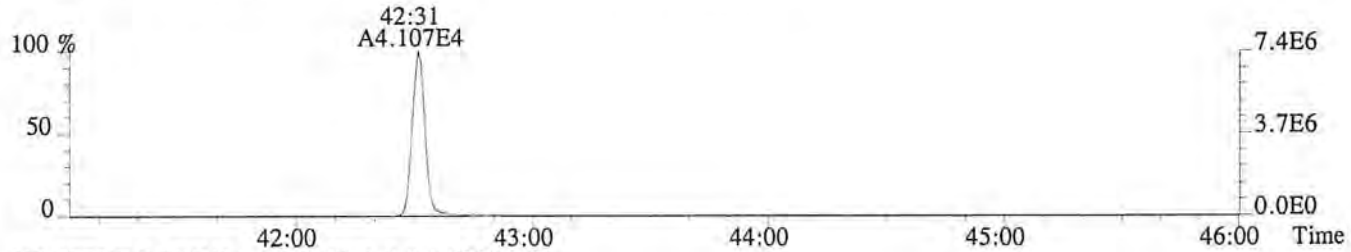
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1872.0,0.40%,F,T)



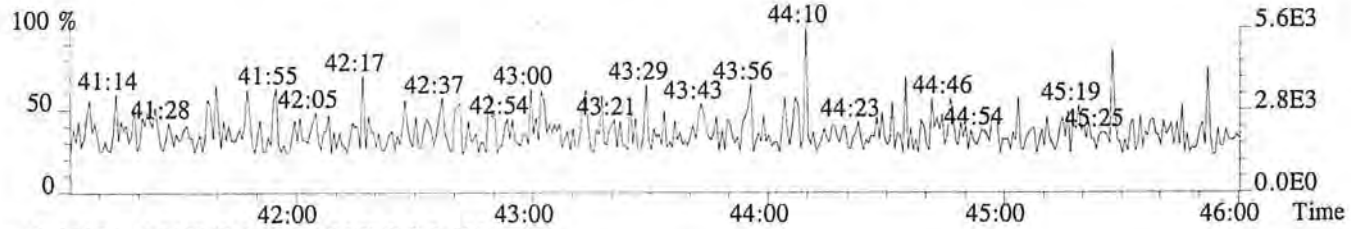
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1260.0,0.40%,F,T)

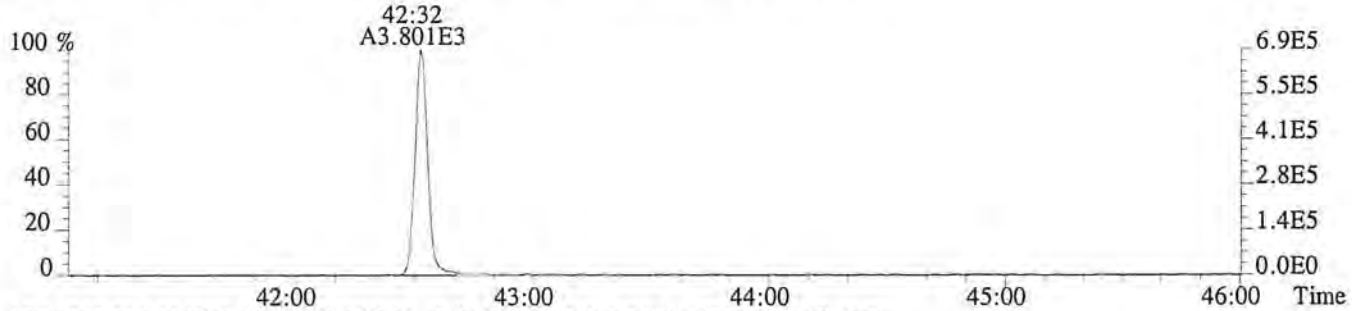


513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

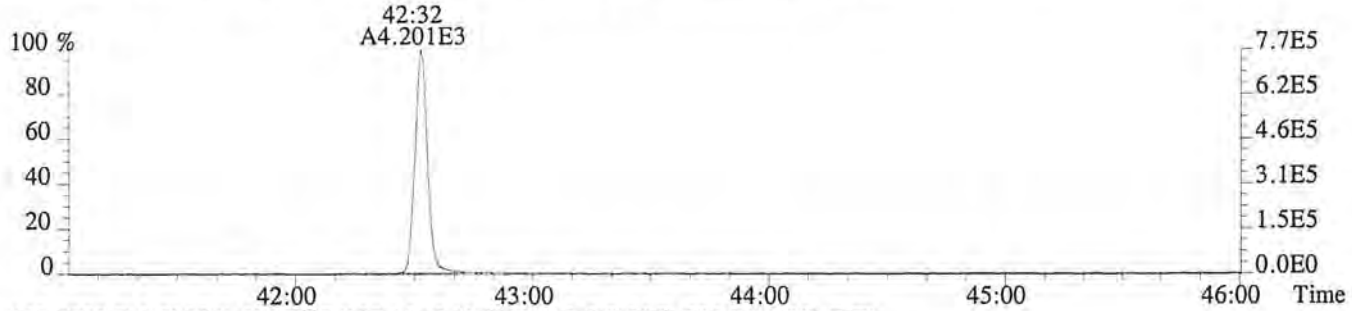


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

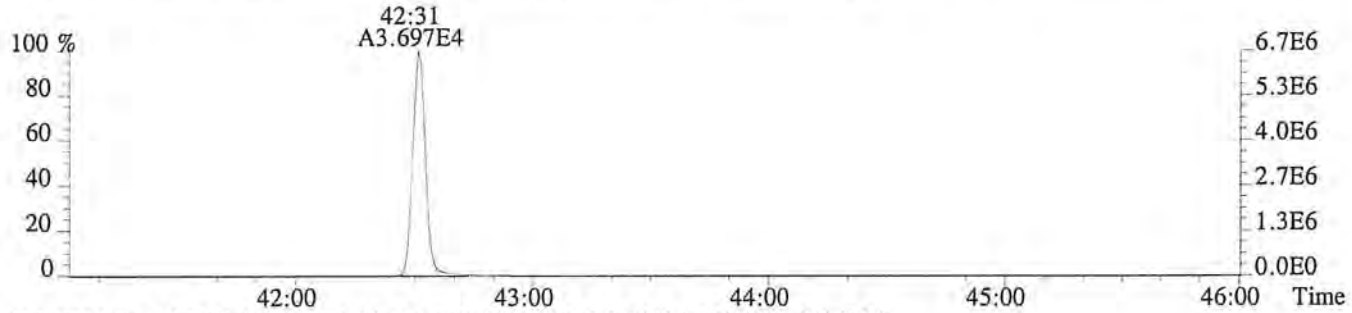
File:P301074 #1-447 Acq:28-AUG-2015 12:03:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-013
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,760.0,0.40%,F,T)



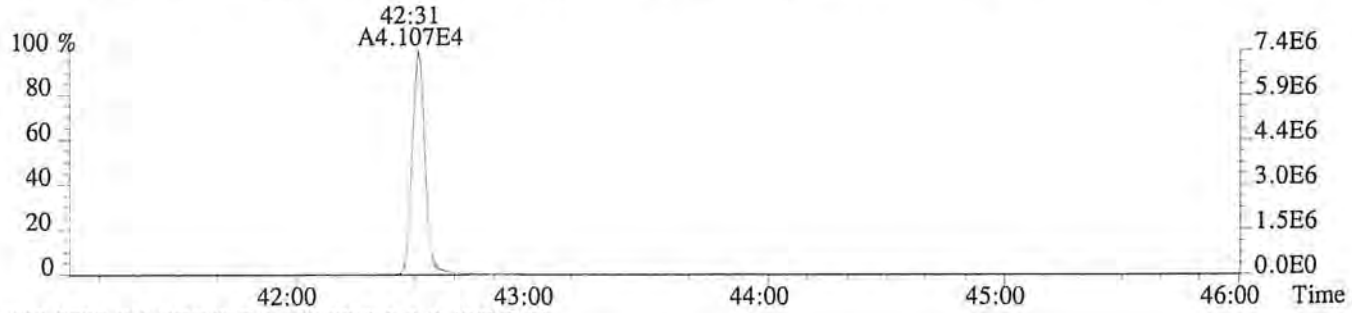
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1232.0,0.40%,F,T)



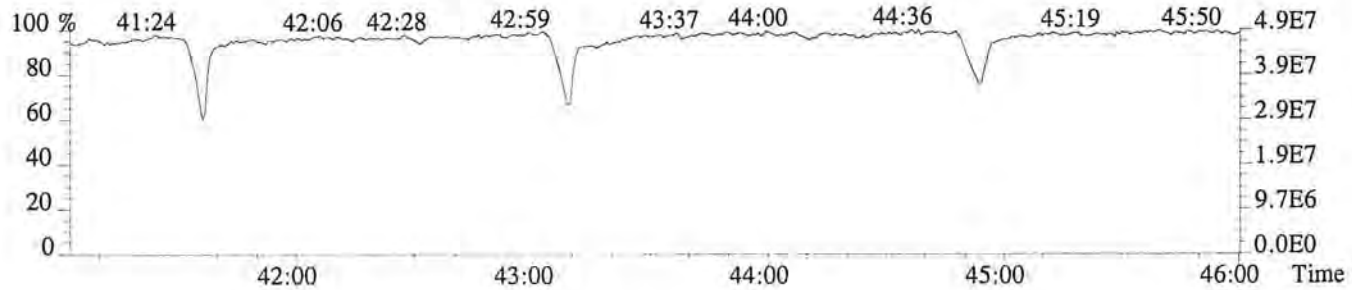
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1260.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-08-15 MT7

Run #16 Filename P301075 Samp: 1 Inj: 1 Acquired: 28-AUG-15 12:51:54
Processed: 28-AUG-15 16:51:53 Sample ID: E1500743-014

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:38	5.828e+01	9.784e+01	0.60	no	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:47	2.683e+02	2.512e+02	1.07	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.245
10	Unk	OCDF	42:44	8.169e+02	9.116e+02	0.90	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:21	5.172e+01	8.981e+01	0.58	no	no	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.887
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:01	4.458e+01	4.034e+01	1.11	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	6.849e+02	7.000e+02	0.98	yes	no	0.949
17	Unk	OCDD	42:32	3.501e+03	3.848e+03	0.91	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:36	3.471e+04	4.449e+04	0.78	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	5.500e+04	3.479e+04	1.58	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:33	5.336e+04	3.412e+04	1.56	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:11	2.153e+04	4.171e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	2.491e+04	4.848e+04	0.51	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	2.421e+04	4.638e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:32	2.748e+04	5.306e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	1.266e+04	2.906e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:11	9.625e+03	2.162e+04	0.45	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:21	2.757e+04	3.536e+04	0.78	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:50	4.113e+04	2.608e+04	1.58	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:55	3.254e+04	2.568e+04	1.27	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:00	3.231e+04	2.606e+04	1.24	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:42	2.690e+04	2.543e+04	1.06	yes	no	0.850
32	IS	13C-OCDD	42:31	3.661e+04	4.035e+04	0.91	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:48	3.588e+04	4.590e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:14	5.004e+04	3.928e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	2.724e+04				no	1.001

$$\text{OCDD} = \frac{(3.501e+03 + 3.848e+03) \times 4000 \text{ pg} \times 1}{(3.661e+04 + 4.035e+04) \times 10.259 \text{ g} \times 100 \;/\; 100 \times 1.061} = 35.1 \text{ ng/kg}$$

CKL 08/31/15

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-08-15 MT7/MT7

Run #16 Filename P301075 Samp: 1 Inj: 1 Acquired: 28-AUG-15 12:51:54
Processed: 28-AUG-15 16:51:53 LAB. ID: E1500743-014

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.12e+04	1.70e+03	6.6e+00	1.99e+04	2.30e+03	8.7e+00
2	1,2,3,7,8-PeCDF	*	1.03e+03	*	*	2.72e+03	*
3	2,3,4,7,8-PeCDF	*	1.03e+03	*	*	2.72e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.54e+03	*	*	6.96e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.54e+03	*	*	6.96e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.54e+03	*	*	6.96e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.54e+03	*	*	6.96e+02	*
8	1,2,3,4,6,7,8-HpCDF	6.01e+04	1.32e+03	4.6e+01	5.60e+04	1.76e+03	3.2e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.32e+03	*	*	1.76e+03	*
10	OCDF	1.39e+05	1.29e+03	1.1e+02	1.59e+05	2.58e+03	6.2e+01
11	2,3,7,8-TCDD	1.07e+04	1.58e+03	6.8e+00	1.92e+04	1.48e+03	1.3e+01
12	1,2,3,7,8-PeCDD	*	2.20e+03	*	*	7.16e+02	*
13	1,2,3,4,7,8-HxCDD	*	5.56e+02	*	*	1.53e+03	*
14	1,2,3,6,7,8-HxCDD	8.34e+03	5.56e+02	1.5e+01	8.80e+03	1.53e+03	5.7e+00
15	1,2,3,7,8,9-HxCDD	*	5.56e+02	*	*	1.53e+03	*
16	1,2,3,4,6,7,8-HpCDD	1.54e+05	2.02e+03	7.6e+01	1.58e+05	1.72e+03	9.2e+01
17	OCDD	6.45e+05	6.08e+02	1.1e+03	6.90e+05	1.28e+03	5.4e+02
18	13C-2,3,7,8-TCDF	6.90e+06	1.68e+03	4.1e+03	8.81e+06	2.10e+03	4.2e+03
19	13C-1,2,3,7,8-PeCDF	1.11e+07	8.44e+02	1.3e+04	7.01e+06	1.22e+03	5.7e+03
20	13C-2,3,4,7,8-PeCDF	1.09e+07	8.44e+02	1.3e+04	7.07e+06	1.22e+03	5.8e+03
21	13C-1,2,3,4,7,8-HxCDF	4.79e+06	9.16e+02	5.2e+03	9.32e+06	1.83e+03	5.1e+03
22	13C-1,2,3,6,7,8-HxCDF	5.57e+06	9.16e+02	6.1e+03	1.08e+07	1.83e+03	5.9e+03
23	13C-2,3,4,6,7,8-HxCDF	5.56e+06	9.16e+02	6.1e+03	1.04e+07	1.83e+03	5.7e+03
24	13C-1,2,3,7,8,9-HxCDF	6.09e+06	9.16e+02	6.6e+03	1.18e+07	1.83e+03	6.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.81e+06	3.45e+03	8.1e+02	6.47e+06	1.17e+03	5.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.96e+06	3.45e+03	5.7e+02	4.39e+06	1.17e+03	3.7e+03
27	13C-2,3,7,8-TCDD	5.78e+06	6.36e+03	9.1e+02	7.36e+06	4.34e+03	1.7e+03
28	13C-1,2,3,7,8-PeCDD	8.73e+06	1.90e+03	4.6e+03	5.57e+06	1.48e+03	3.8e+03
29	13C-1,2,3,4,7,8-HxCDD	7.38e+06	1.43e+03	5.2e+03	5.88e+06	1.28e+03	4.6e+03
30	13C-1,2,3,6,7,8-HxCDD	7.32e+06	1.43e+03	5.1e+03	5.85e+06	1.28e+03	4.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.92e+06	2.39e+03	2.5e+03	5.62e+06	1.23e+03	4.6e+03
32	13C-OCDD	6.63e+06	6.08e+02	1.1e+04	7.27e+06	1.01e+03	7.2e+03
33	13C-1,2,3,4-TCDD	7.28e+06	6.36e+03	1.1e+03	9.37e+06	4.34e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.11e+07	1.43e+03	7.8e+03	8.81e+06	1.28e+03	6.9e+03
35	37Cl-2,3,7,8-TCDD	5.79e+06	1.12e+03	5.2e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-08-15 MT7/MT7

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: P301075 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 12:51:54 Processed: 28-AUG-15 16:51:53

Mass: 303.9020 305.8990 Tot Response: 2.80e+02 RRF: 0.8496

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:14	1.25e+02	1.55e+02	0.81	yes	2.80e+02	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-08-15 MT7/MT7

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: P301075 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 12:51:54 Processed: 28-AUG-15 16:51:53

Mass: 373.8210 375.8180 Tot Response: 3.92e+02 RRF: 1.094

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:46	2.17e+02	1.75e+02	1.24	yes	3.92e+02	n	n

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Peak List Summary

CLIENT ID.

PLY-08-15 MT7/MT7

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: P301075 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 12:51:54 Processed: 28-AUG-15 16:51:53

Mass: 389.8160 391.8130 Tot Response: 3.85e+02 RRF: 0.9904

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:36	1.20e+02	1.12e+02	1.07	yes	2.32e+02		n	n
2	36:07	2.48e+01	1.85e+01	1.34	yes	4.33e+01		n	n
3	36:28	1.34e+01	1.06e+01	1.26	yes	2.40e+01		n	n
4	37:01	4.46e+01	4.03e+01	1.11	yes	8.49e+01	1,2,3,6,7,8-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-08-15 MT7/MT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: P301075 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 12:51:54 Processed: 28-AUG-15 16:51:53

Mass: 407.7820 409.7790 Tot Response: 2.49e+03 RRF: 1.284

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:47	2.68e+02	2.51e+02	1.07	yes	5.20e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:11	1.00e+03	9.68e+02	1.04	yes	1.97e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-08-15 MT7/MT7

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: P301075 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 12:51:54 Processed: 28-AUG-15 16:51:53

Mass: 423.7770 425.7740 Tot Response: 4.03e+03 RRF: 0.9492

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:02	1.34e+03	1.30e+03	1.03	yes	2.64e+03	n	n
2	39:43	6.85e+02	7.00e+02	0.98	yes	1.38e+03	1,2,3,4,6,7,8-HpCDD	n	n

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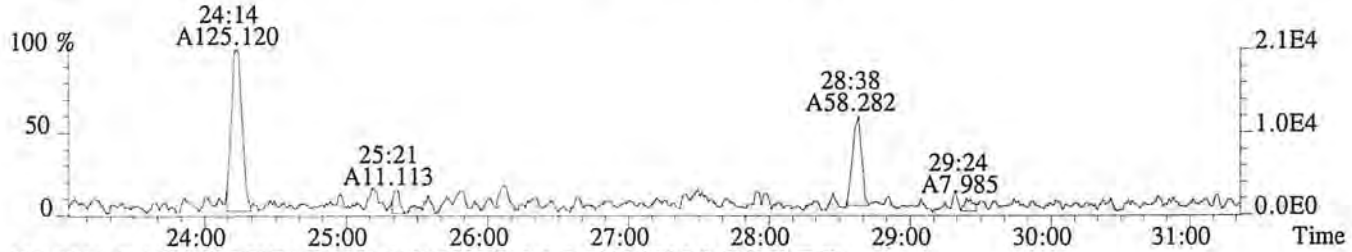
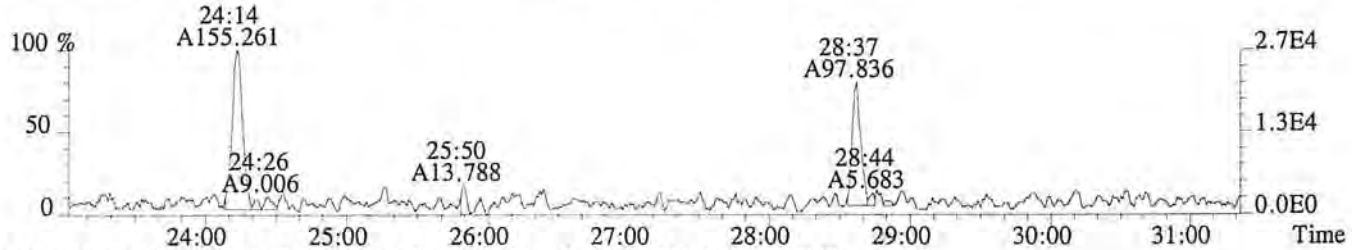
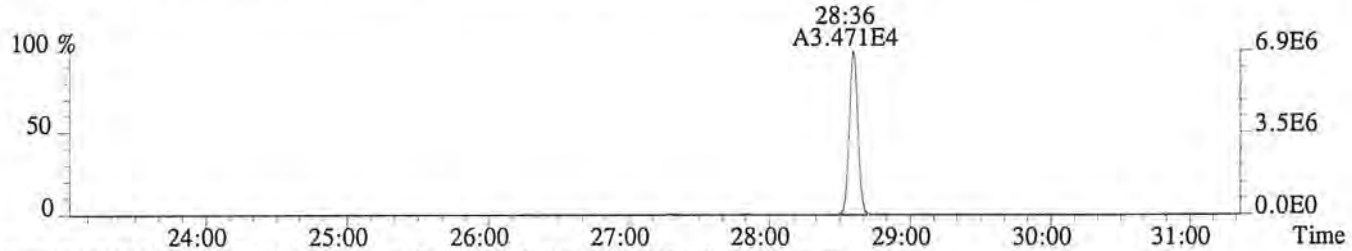
File:P301075 #1-591 Acq:28-AUG-2015 12:51:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-014
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1696.0,1.00%,F,T)



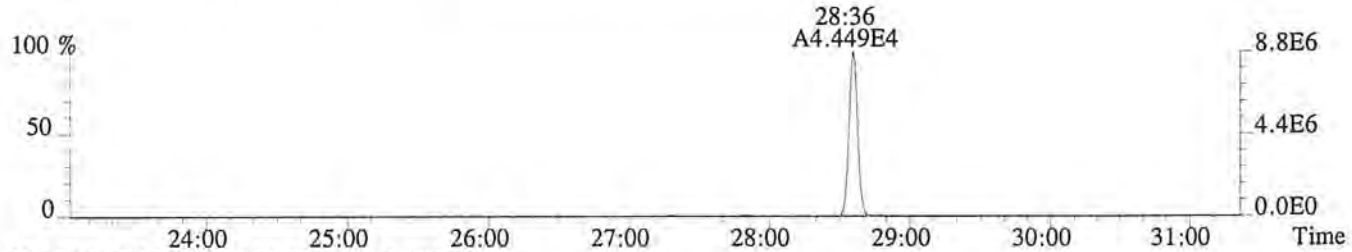
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2296.0,1.00%,F,T)



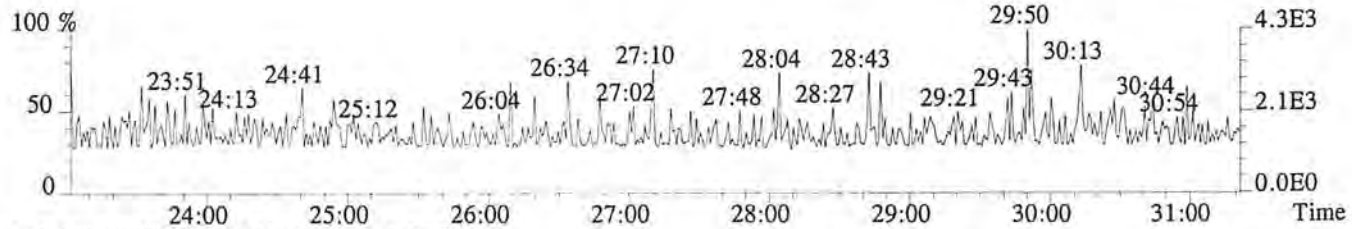
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)

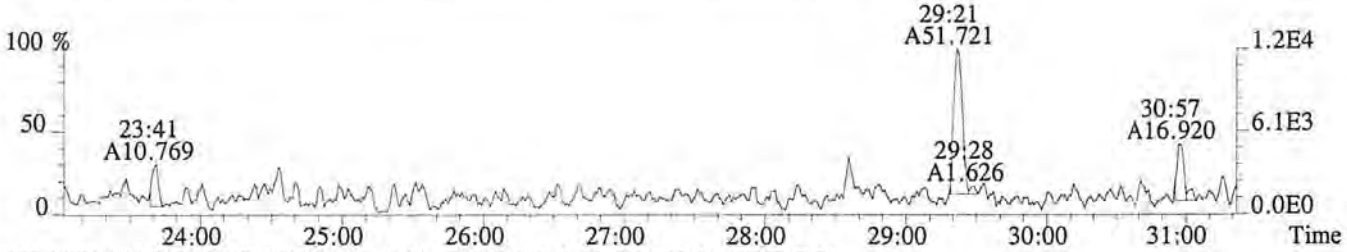


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

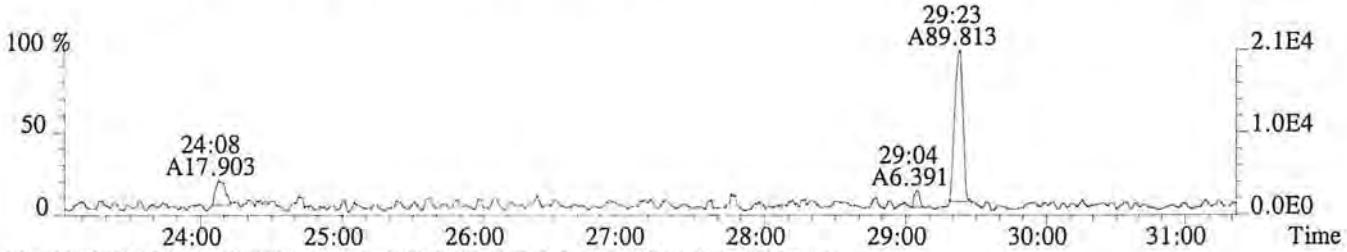


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

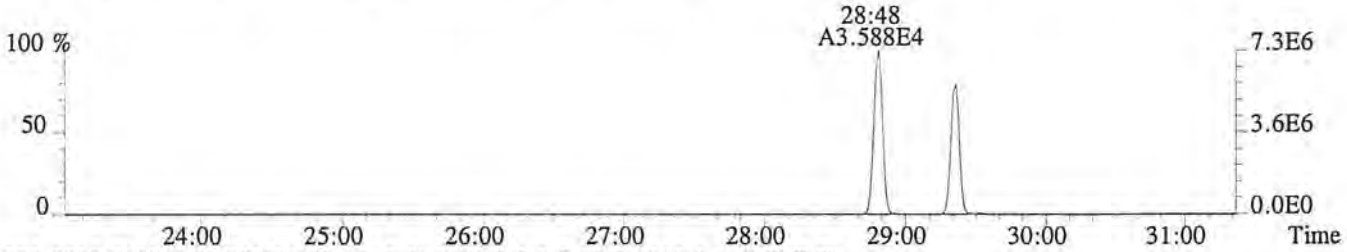
File:P301075 #1-591 Acq:28-AUG-2015 12:51:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-014
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)



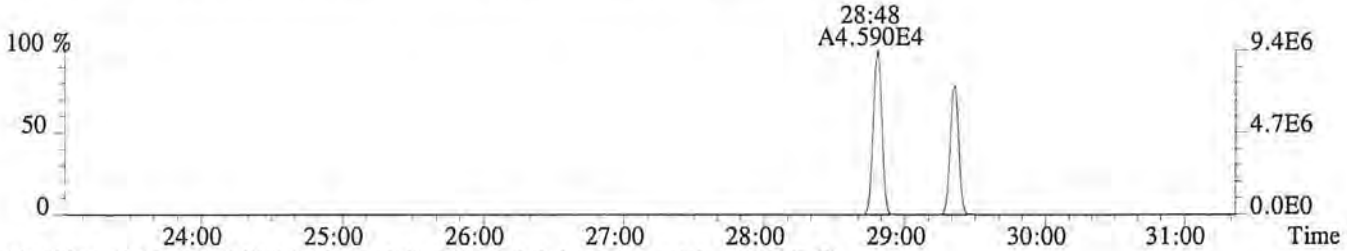
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1484.0,1.00%,F,T)



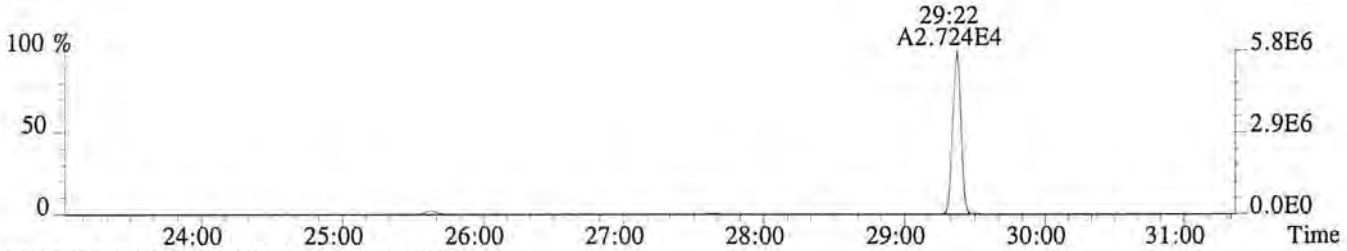
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6364.0,1.00%,F,T)



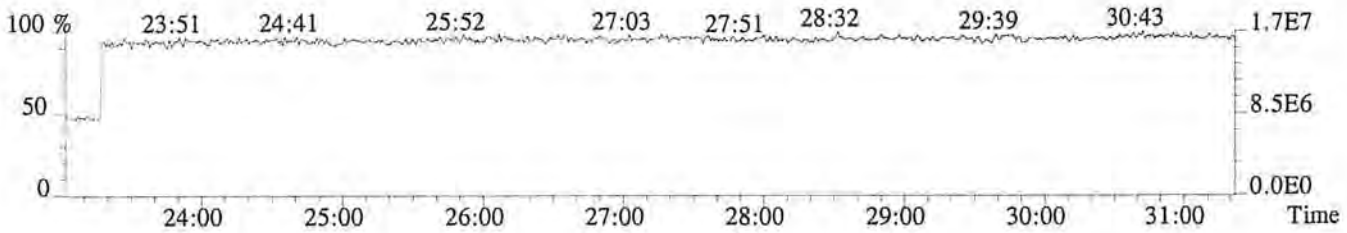
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4340.0,1.00%,F,T)



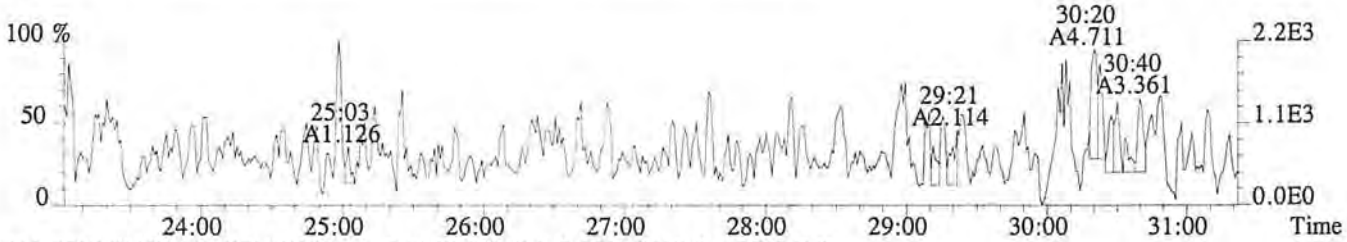
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



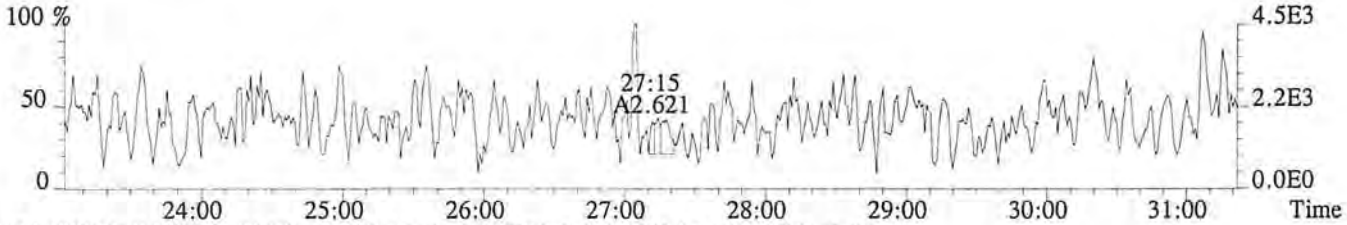
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



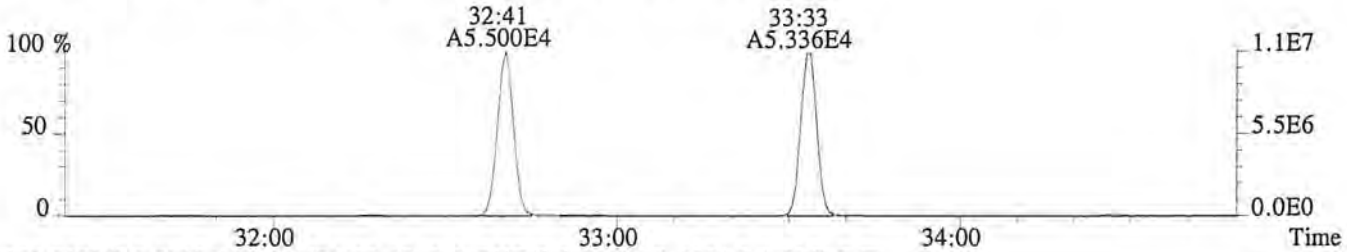
File:P301075 #1-591 Acq:28-AUG-2015 12:51:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-014
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



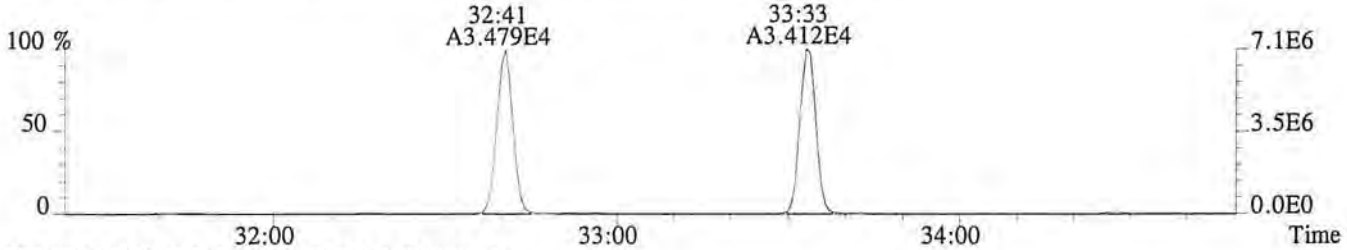
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2552.0,1.00%,F,T)



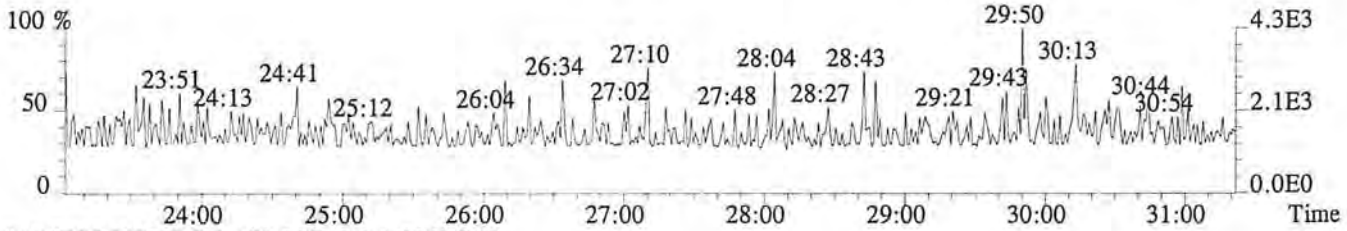
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



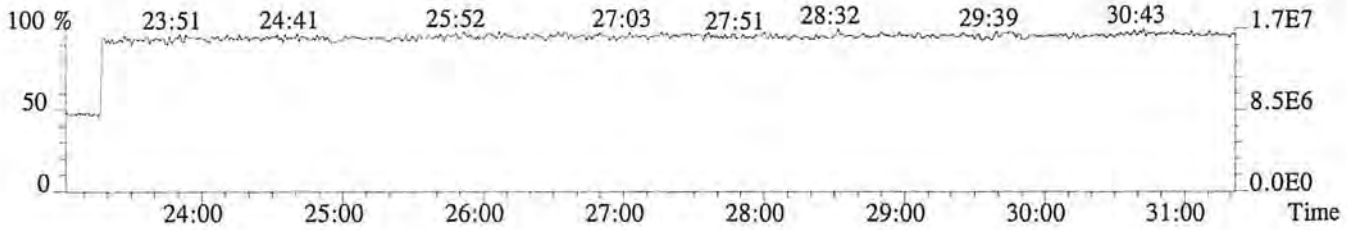
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1224.0,1.00%,F,T)



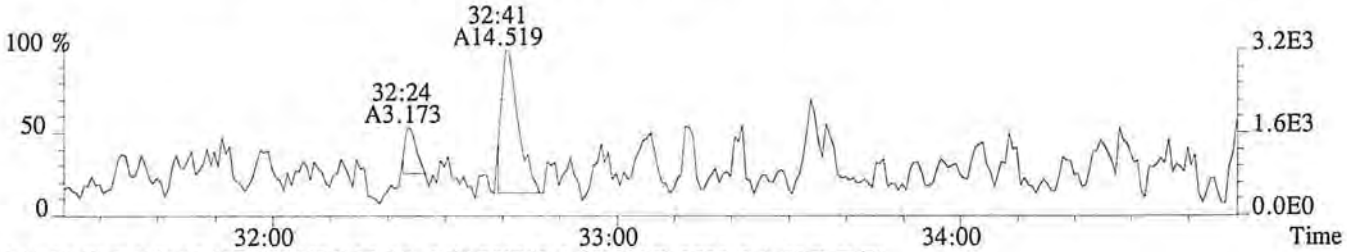
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



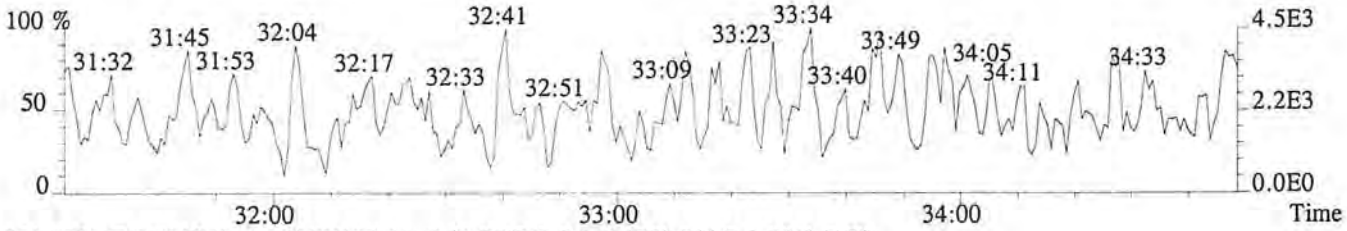
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



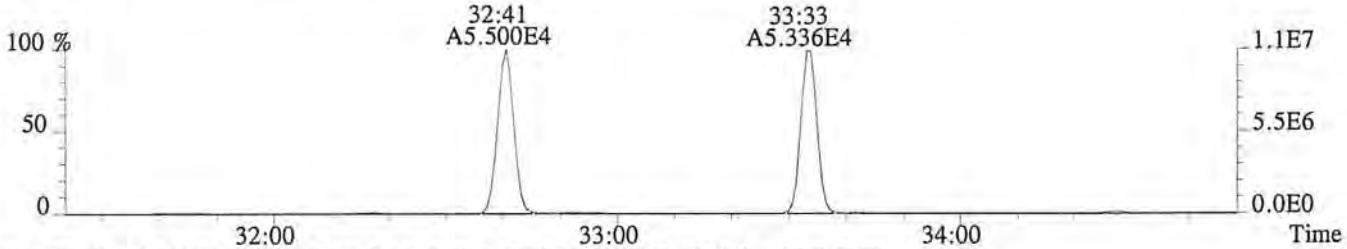
File:P301075 #1-308 Acq:28-AUG-2015 12:51:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-014
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



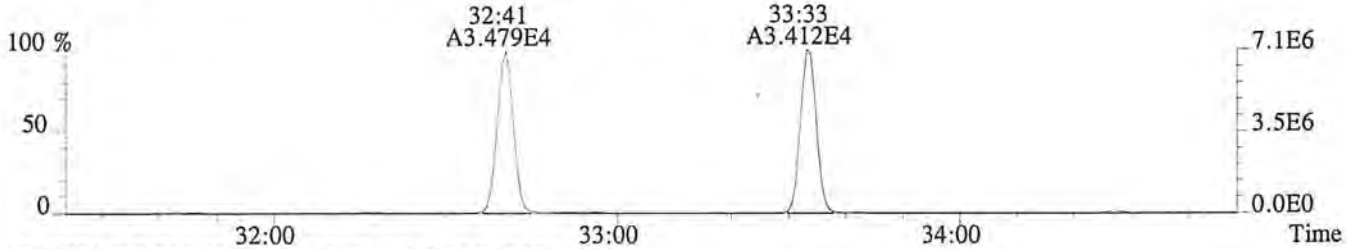
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2720.0,1.00%,F,T)



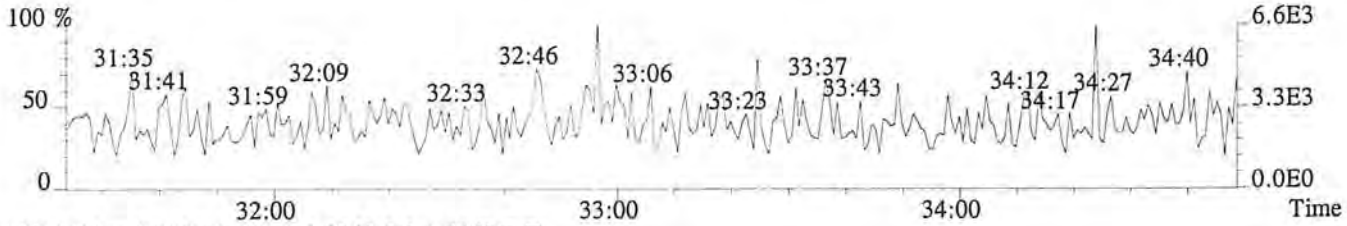
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



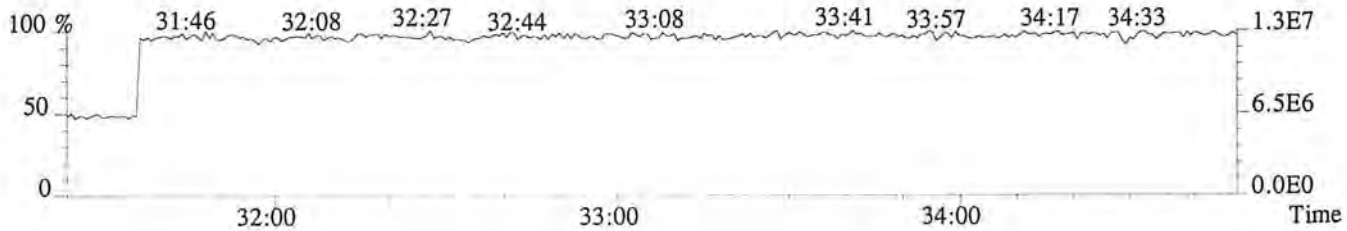
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1224.0,1.00%,F,T)



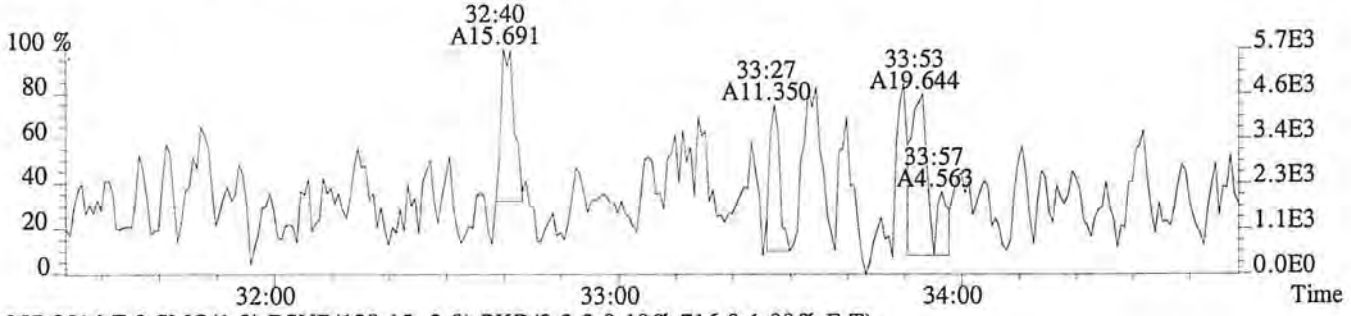
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



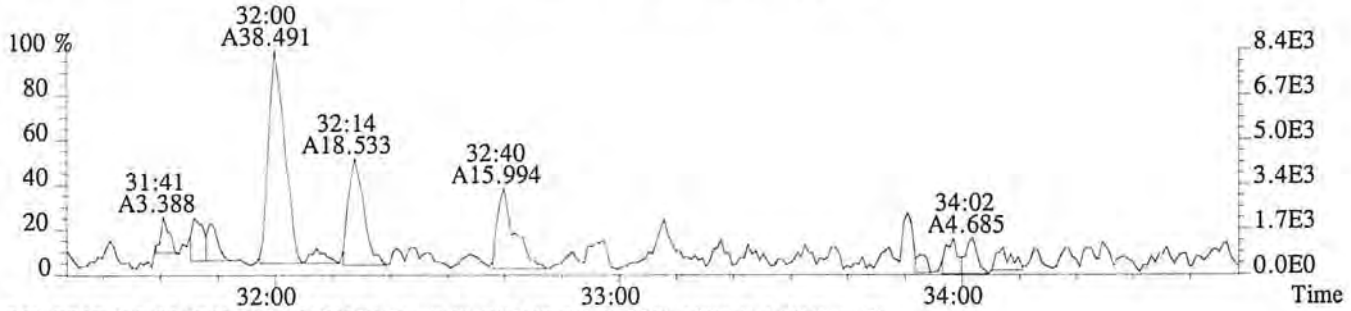
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



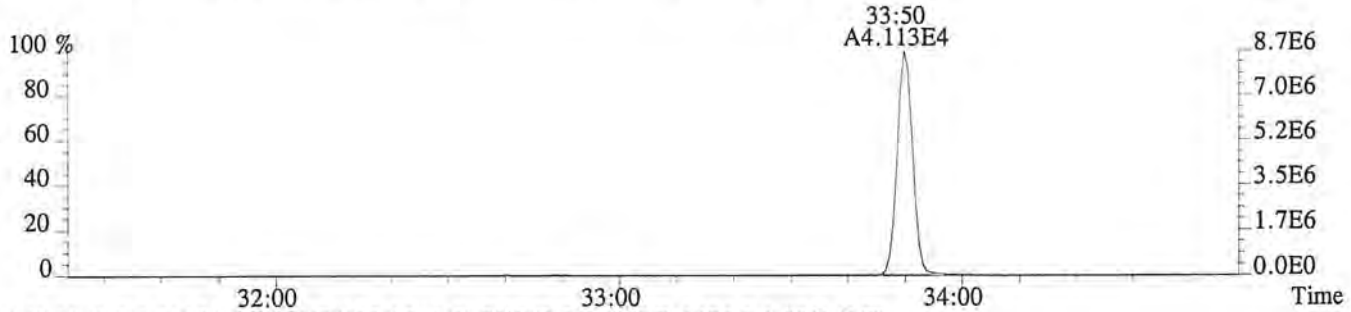
File:P301075 #1-308 Acq:28-AUG-2015 12:51:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-014
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2200.0,1.00%,F,T)



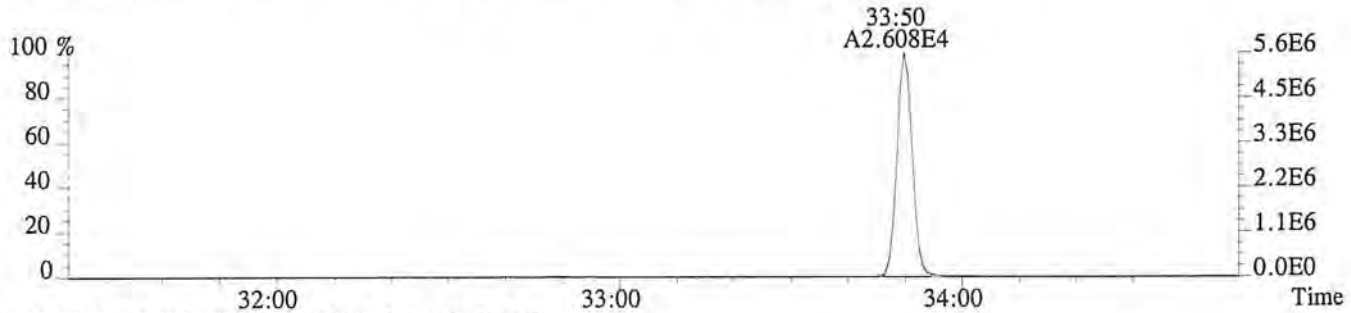
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



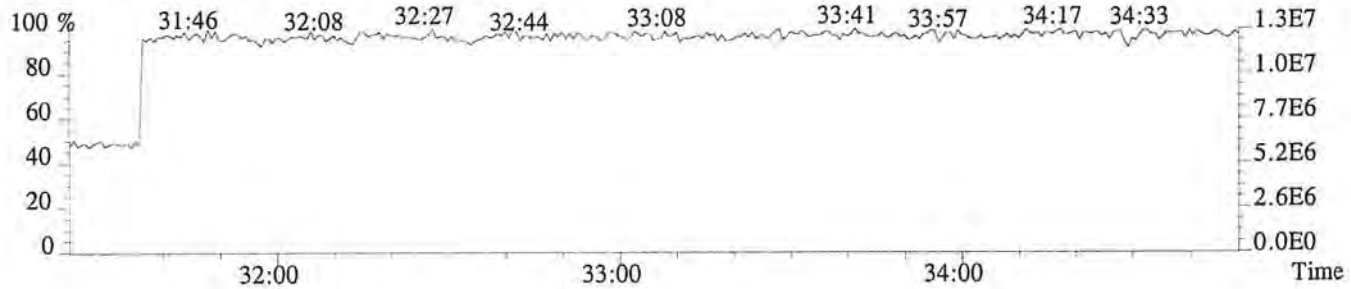
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



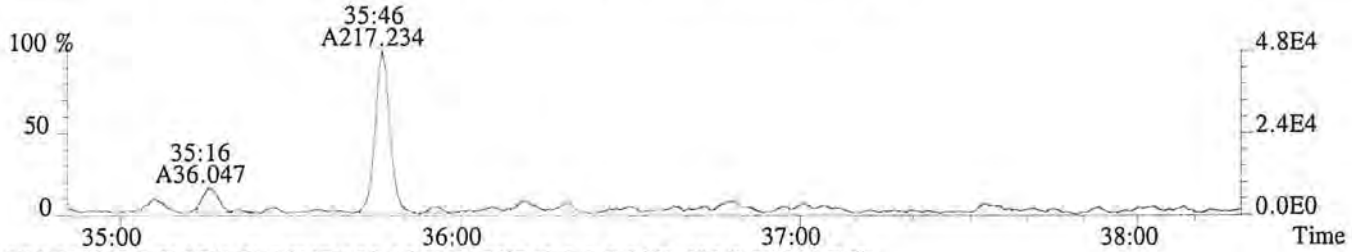
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



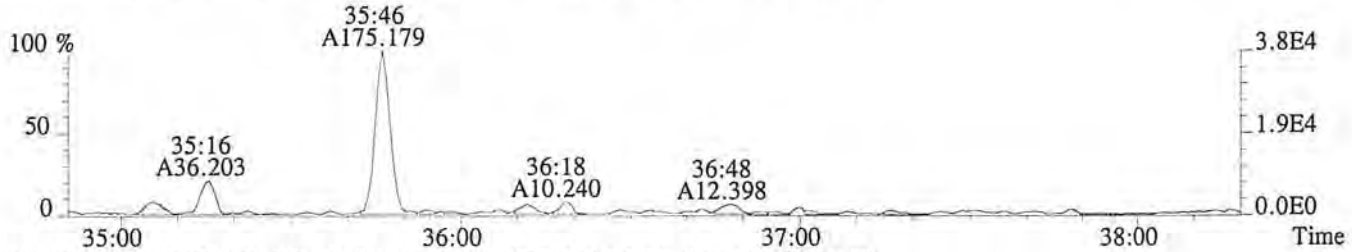
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



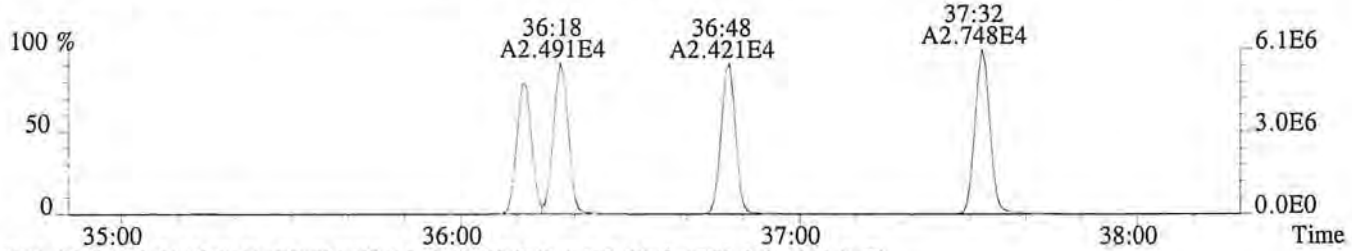
File:P301075 #1-312 Acq:28-AUG-2015 12:51:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-014
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



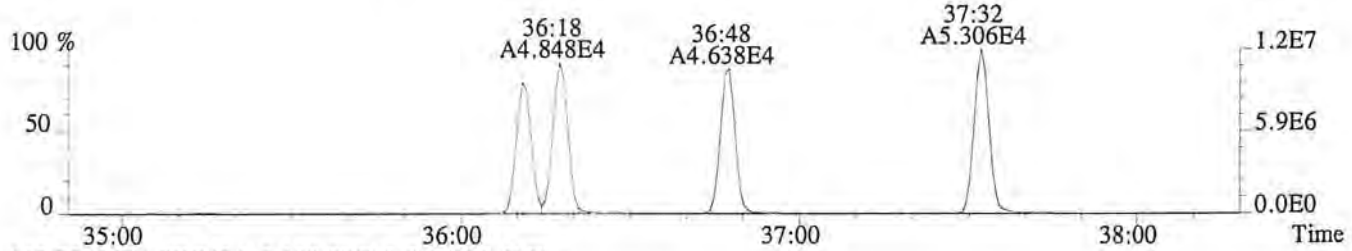
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



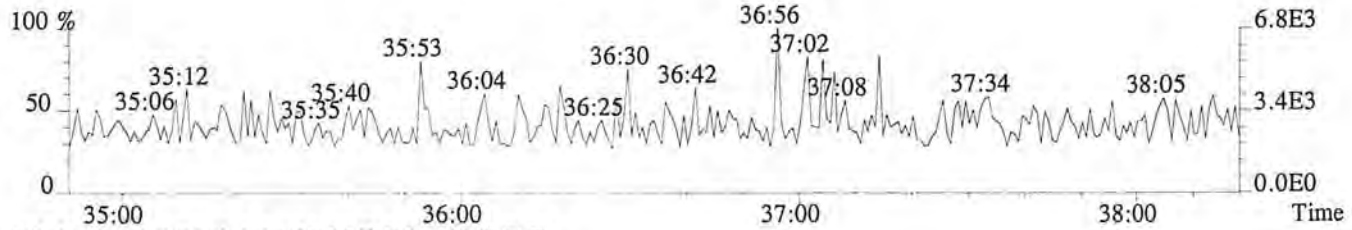
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



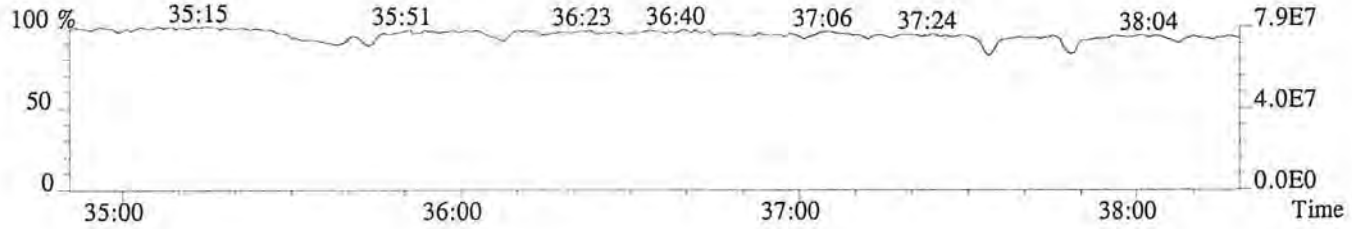
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1832.0,0.40%,F,T)



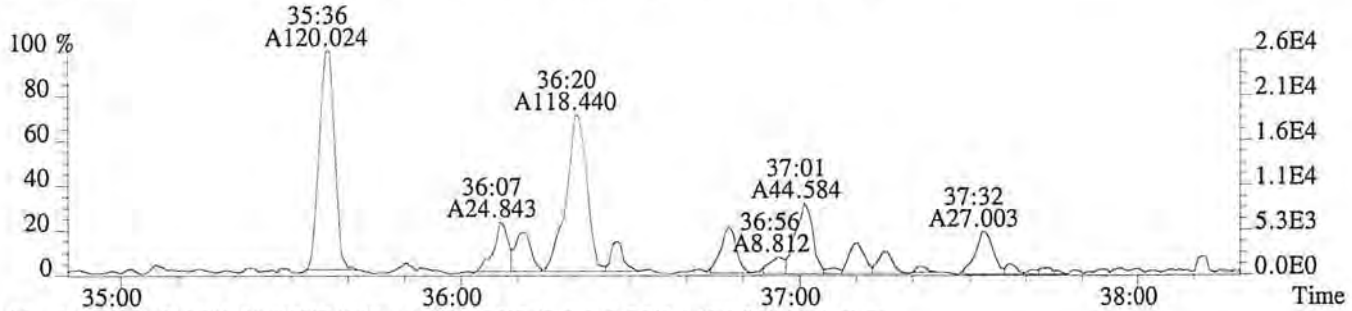
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



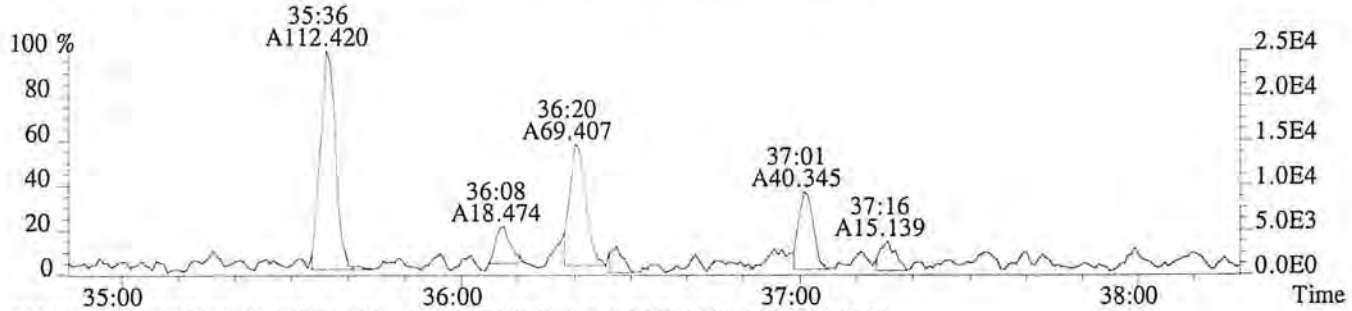
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



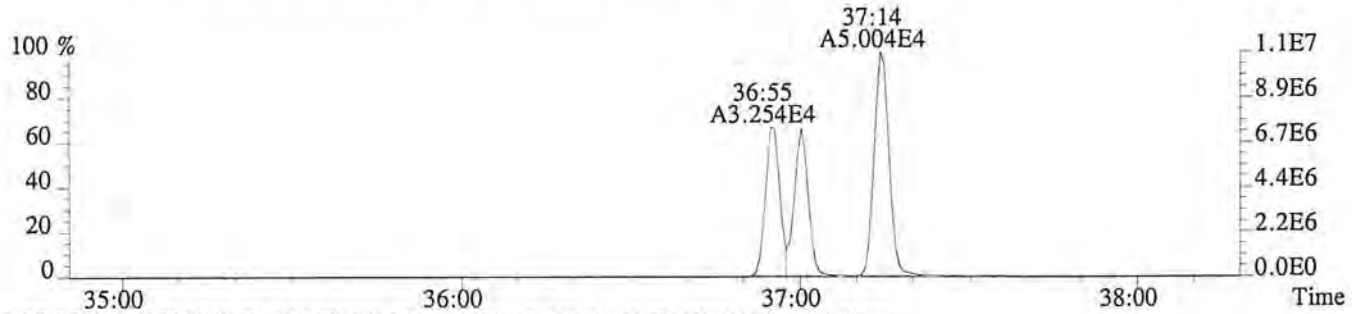
File:P301075 #1-312 Acq:28-AUG-2015 12:51:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-014
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



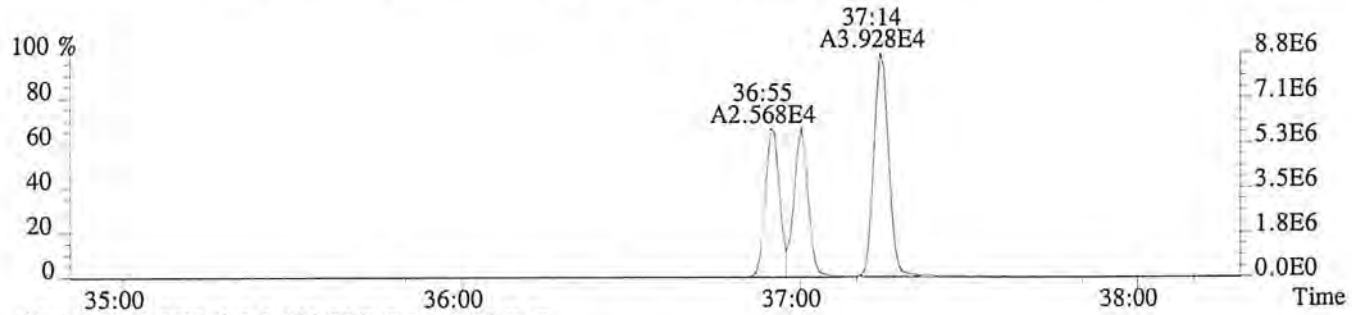
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1532.0,0.40%,F,T)



401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1284.0,0.40%,F,T)

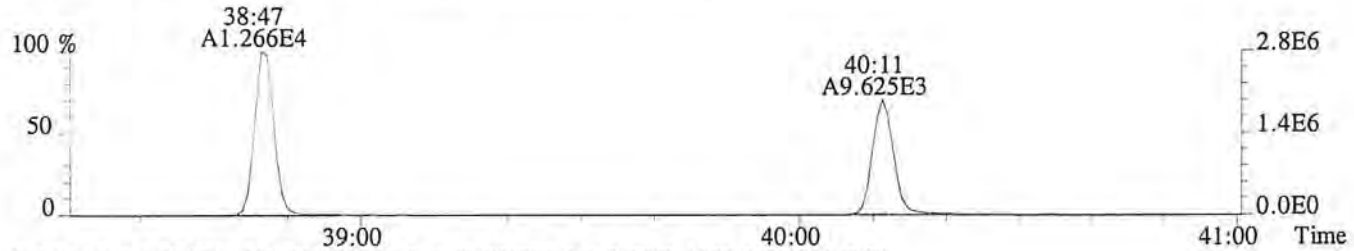


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

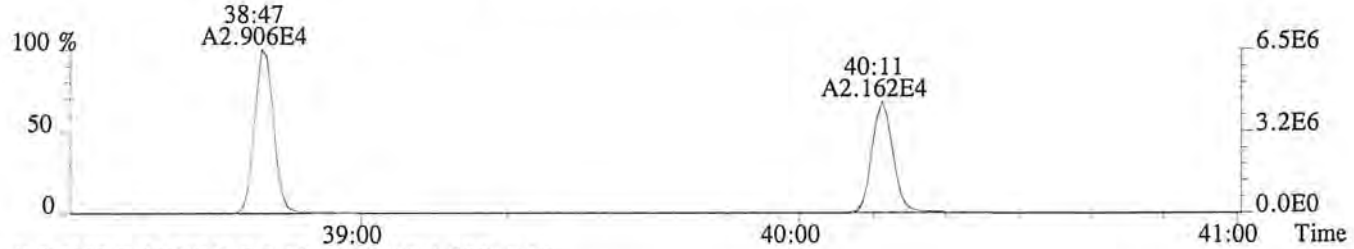
File:P301075 #1-241 Acq:28-AUG-2015 12:51:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-014
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.50%,F,T)

409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.50%,F,T)

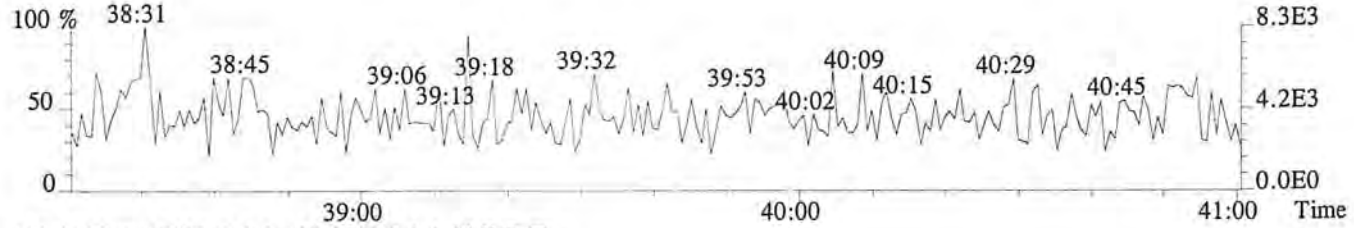
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3452.0,0.50%,F,T)



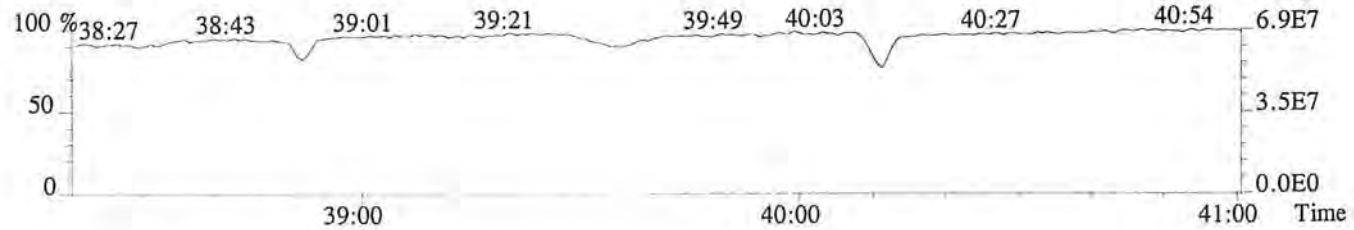
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1172.0,0.50%,F,T)



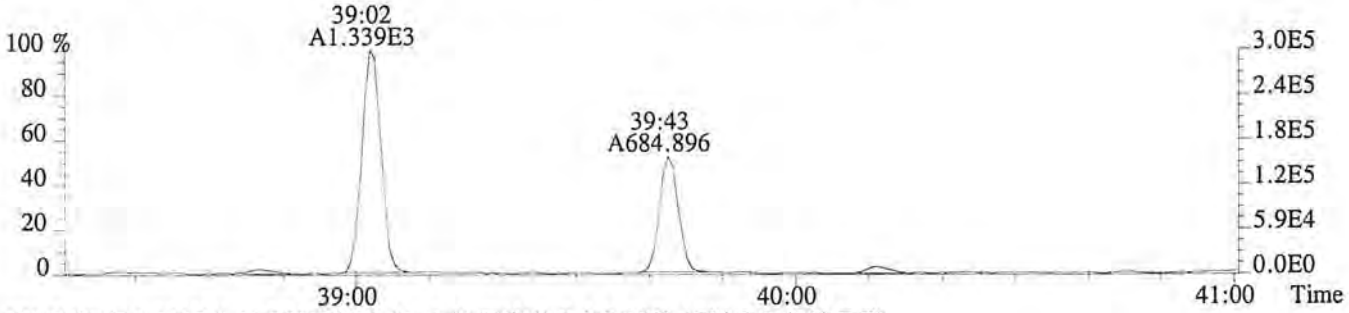
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



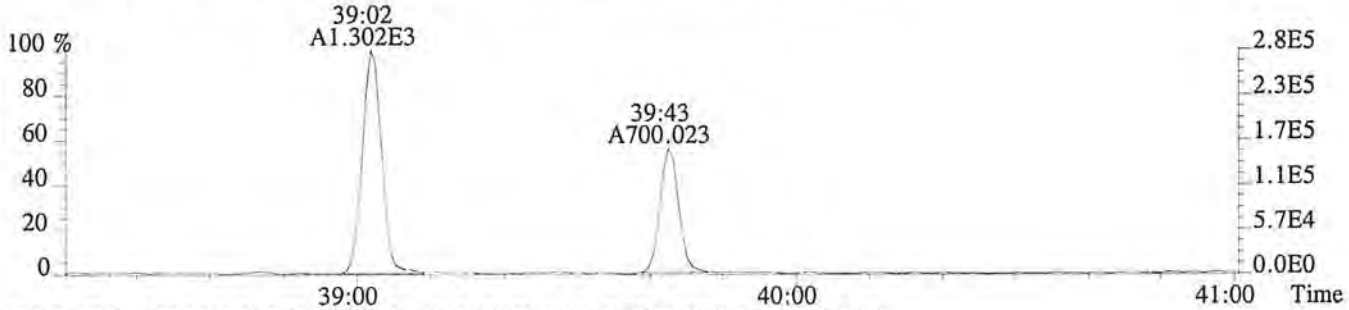
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



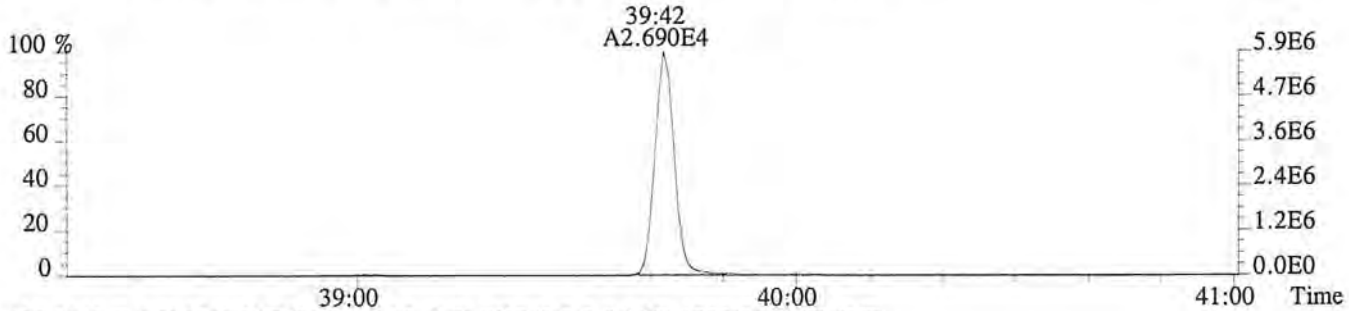
File:P301075 #1-241 Acq:28-AUG-2015 12:51:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-014
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2024.0,0.40%,F,T)



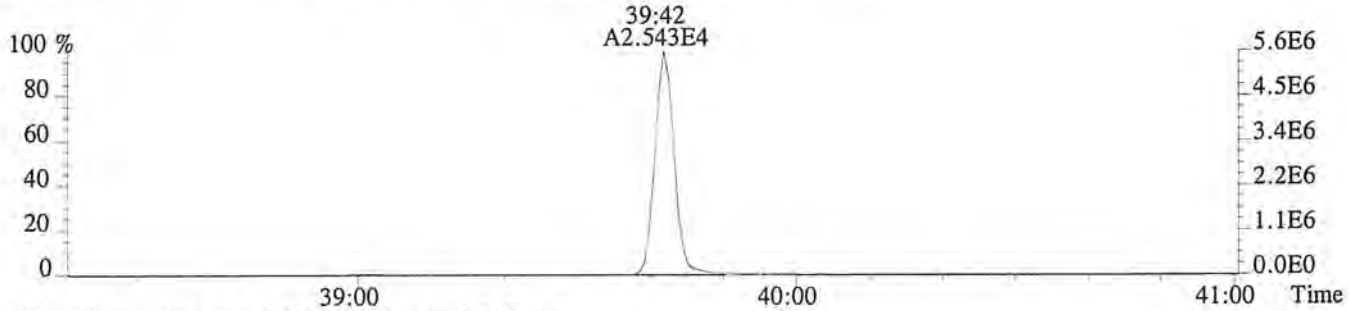
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1724.0,0.40%,F,T)



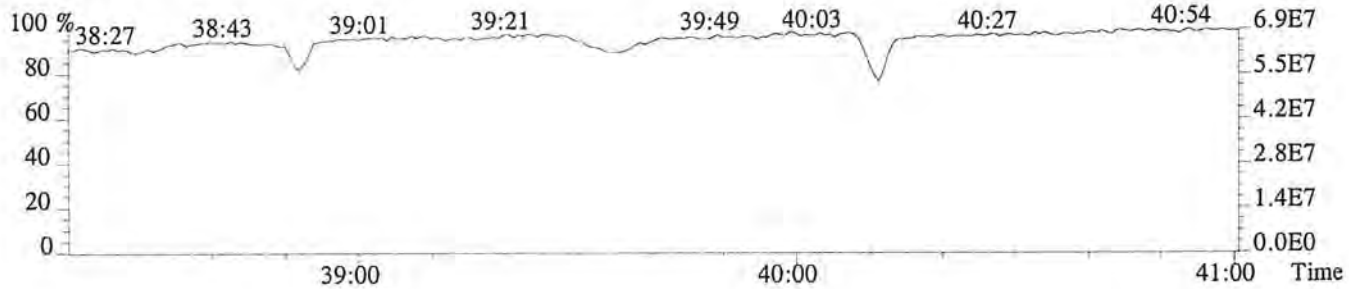
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2388.0,0.40%,F,T)



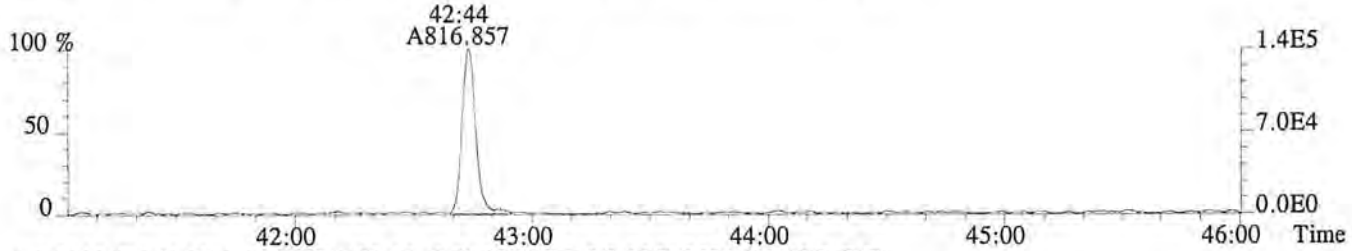
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.40%,F,T)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

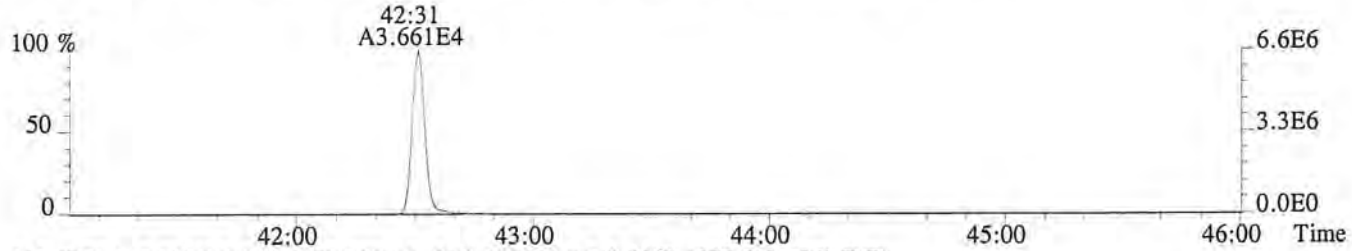


File:P301075 #1-447 Acq:28-AUG-2015 12:51:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-014
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1292.0,0.40%,F,T)

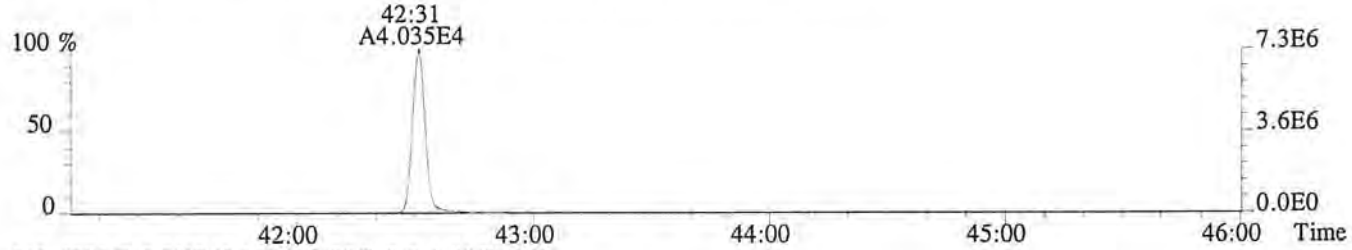


443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2584.0,0.40%,F,T)

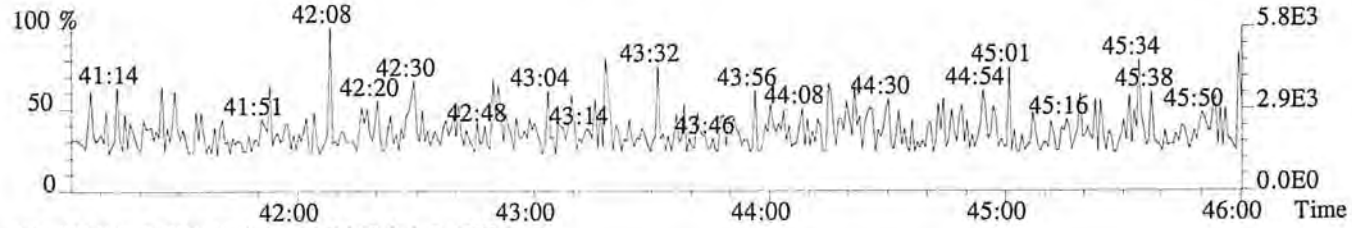
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



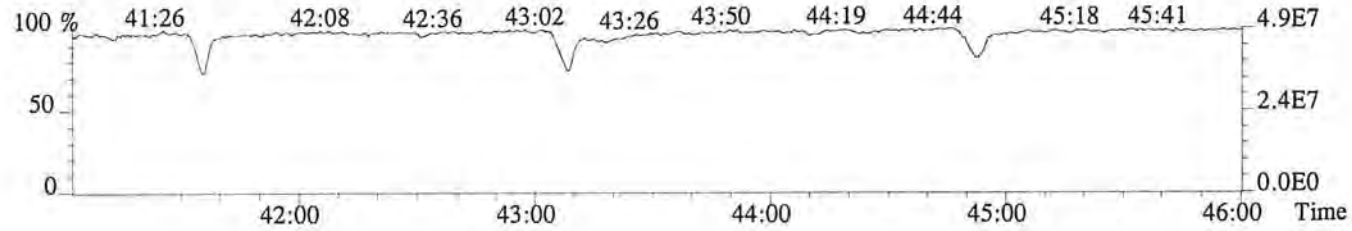
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1008.0,0.40%,F,T)



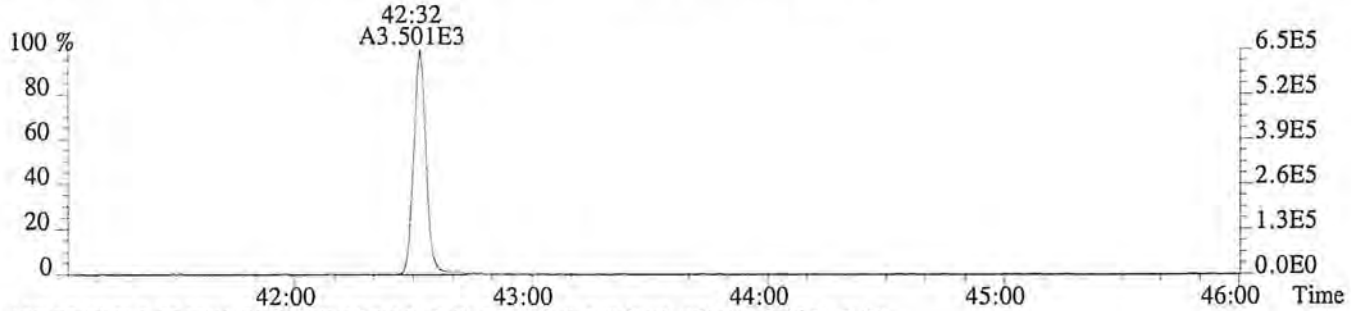
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



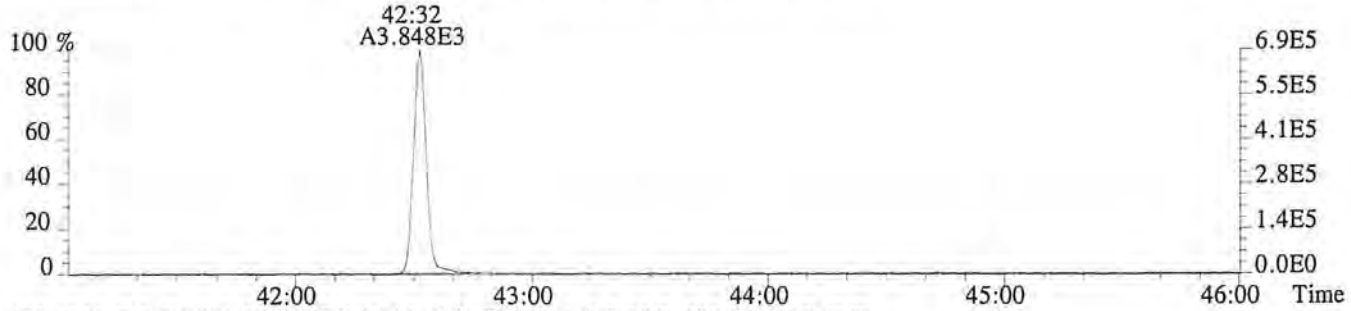
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



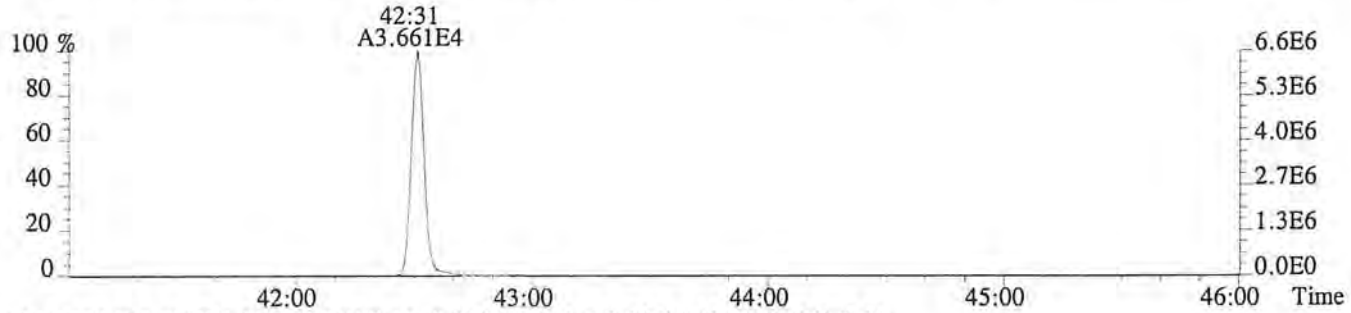
File:P301075 #1-447 Acq:28-AUG-2015 12:51:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-014
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



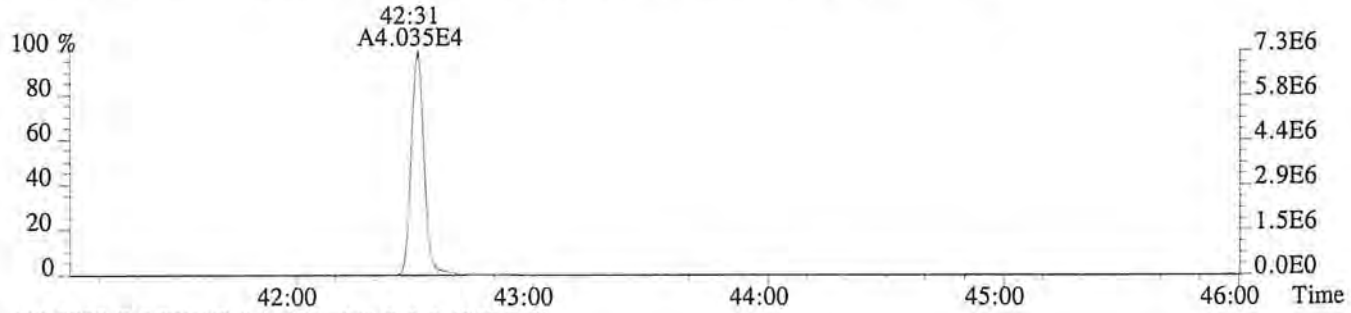
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1280.0,0.40%,F,T)



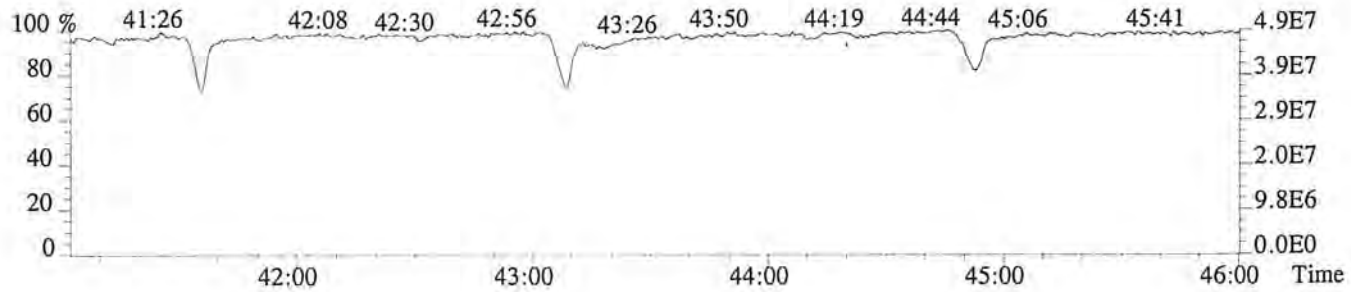
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1008.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-09-15 MT7

Run #17 Filename P301076 Samp: 1 Inj: 1 Acquired: 28-AUG-15 13:49:05
Processed: 28-AUG-15 16:51:54 Sample ID: E1500743-015

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	6.966e+02	8.803e+02	0.79	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:18	2.367e+01	1.450e+01	1.63	no	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:47	2.730e+02	2.777e+02	0.98	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	40:11	1.820e+01	1.811e+01	1.00	yes	no	1.245
10	Unk	OCDF	42:44	8.024e+02	9.198e+02	0.87	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:22	3.533e+02	4.822e+02	0.73	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:56	9.224e+00	1.597e+01	0.58	no	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:01	5.748e+01	4.822e+01	1.19	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:16	1.740e+01	1.917e+01	0.91	no	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:42	7.664e+02	7.637e+02	1.00	yes	no	0.949
17	Unk	OCDD	42:31	4.669e+03	5.240e+03	0.89	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:36	3.100e+04	3.901e+04	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	5.136e+04	3.268e+04	1.57	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:33	4.968e+04	3.151e+04	1.58	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:11	2.139e+04	4.174e+04	0.51	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	2.468e+04	4.753e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:47	2.334e+04	4.528e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:32	2.857e+04	5.494e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	1.403e+04	3.221e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:11	1.195e+04	2.789e+04	0.43	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:21	2.489e+04	3.230e+04	0.77	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:50	3.859e+04	2.425e+04	1.59	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:55	3.173e+04	2.481e+04	1.28	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:00	3.068e+04	2.423e+04	1.27	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:41	2.656e+04	2.503e+04	1.06	yes	no	0.850
32	IS	13C-OCDD	42:30	3.484e+04	3.898e+04	0.89	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:48	3.334e+04	4.313e+04	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:14	4.766e+04	3.763e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	2.409e+04				no	1.001

$$\text{OCDD} = \frac{(4.669e+03 + 5.240e+03) \times 4000 \text{ pg} \times 1}{(3.484e+04 + 3.898e+04) \times 10.006 \text{ g} \times 100 / 100 \times 1.061} = 50.6 \text{ ng/kg}$$

UM 08/31/15

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-09-15 MT7/MT

Run #17 Filename P301076 Samp: 1 Inj: 1 Acquired: 28-AUG-15 13:49:05
Processed: 28-AUG-15 16:51:54 LAB. ID: E1500743-015

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.34e+05	1.12e+03	1.2e+02	1.71e+05	2.35e+03	7.3e+01
2	1,2,3,7,8-PeCDF	*	1.02e+03	*	*	2.54e+03	*
3	2,3,4,7,8-PeCDF	*	1.02e+03	*	*	2.54e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.44e+03	*	*	5.76e+02	*
5	1,2,3,6,7,8-HxCDF	4.46e+03	1.44e+03	3.1e+00	3.26e+03	5.76e+02	5.7e+00
6	2,3,4,6,7,8-HxCDF	*	1.44e+03	*	*	5.76e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.44e+03	*	*	5.76e+02	*
8	1,2,3,4,6,7,8-HpCDF	5.89e+04	1.07e+03	5.5e+01	5.84e+04	1.29e+03	4.5e+01
9	1,2,3,4,7,8,9-HpCDF	3.93e+03	1.07e+03	3.7e+00	3.56e+03	1.29e+03	2.8e+00
10	OCDF	1.43e+05	1.54e+03	9.3e+01	1.65e+05	2.45e+03	6.7e+01
11	2,3,7,8-TCDD	7.21e+04	1.57e+03	4.6e+01	1.07e+05	1.26e+03	8.5e+01
12	1,2,3,7,8-PeCDD	*	2.53e+03	*	*	7.36e+02	*
13	1,2,3,4,7,8-HxCDD	2.45e+03	5.56e+02	4.4e+00	3.96e+03	1.38e+03	2.9e+00
14	1,2,3,6,7,8-HxCDD	1.32e+04	5.56e+02	2.4e+01	9.79e+03	1.38e+03	7.1e+00
15	1,2,3,7,8,9-HxCDD	3.87e+03	5.56e+02	7.0e+00	3.82e+03	1.38e+03	2.8e+00
16	1,2,3,4,6,7,8-HpCDD	1.67e+05	2.06e+03	8.1e+01	1.70e+05	1.24e+03	1.4e+02
17	OCDD	8.28e+05	8.20e+02	1.0e+03	9.54e+05	1.01e+03	9.4e+02
18	13C-2,3,7,8-TCDF	6.07e+06	1.34e+03	4.5e+03	7.72e+06	2.03e+03	3.8e+03
19	13C-1,2,3,7,8-PeCDF	1.03e+07	6.44e+02	1.6e+04	6.48e+06	1.32e+03	4.9e+03
20	13C-2,3,4,7,8-PeCDF	1.04e+07	6.44e+02	1.6e+04	6.69e+06	1.32e+03	5.1e+03
21	13C-1,2,3,4,7,8-HxCDF	4.86e+06	1.30e+03	3.8e+03	9.50e+06	2.10e+03	4.5e+03
22	13C-1,2,3,6,7,8-HxCDF	5.56e+06	1.30e+03	4.3e+03	1.05e+07	2.10e+03	5.0e+03
23	13C-2,3,4,6,7,8-HxCDF	5.16e+06	1.30e+03	4.0e+03	1.01e+07	2.10e+03	4.8e+03
24	13C-1,2,3,7,8,9-HxCDF	6.28e+06	1.30e+03	4.8e+03	1.19e+07	2.10e+03	5.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.22e+06	3.04e+03	1.1e+03	7.35e+06	3.62e+03	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.39e+06	3.04e+03	7.9e+02	5.63e+06	3.62e+03	1.6e+03
27	13C-2,3,7,8-TCDD	5.13e+06	6.39e+03	8.0e+02	6.60e+06	2.96e+03	2.2e+03
28	13C-1,2,3,7,8-PeCDD	8.22e+06	1.95e+03	4.2e+03	5.13e+06	1.49e+03	3.5e+03
29	13C-1,2,3,4,7,8-HxCDD	7.36e+06	1.94e+03	3.8e+03	5.73e+06	1.84e+03	3.1e+03
30	13C-1,2,3,6,7,8-HxCDD	6.78e+06	1.94e+03	3.5e+03	5.39e+06	1.84e+03	2.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.78e+06	1.79e+03	3.2e+03	5.49e+06	1.20e+03	4.6e+03
32	13C-OCDD	6.22e+06	8.72e+02	7.1e+03	6.93e+06	8.56e+02	8.1e+03
33	13C-1,2,3,4-TCDD	6.85e+06	6.39e+03	1.1e+03	8.82e+06	2.96e+03	3.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.07e+07	1.94e+03	5.5e+03	8.46e+06	1.84e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	5.12e+06	9.24e+02	5.5e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-09-15 MT7/MT7

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P301076 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 13:49:05 Processed: 28-AUG-15 16:51:54

Mass: 303.9020 305.8990 Tot Response: 1.66e+03 RRF: 0.8496

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:37	6.97e+02	8.80e+02	0.79	yes	1.58e+03	2,3,7,8-TCDF	n	n
2	29:51	3.88e+01	4.66e+01	0.83	yes	8.54e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-09-15 MT7/MT

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 17 File: P301076 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 13:49:05 Processed: 28-AUG-15 16:51:54

Mass: 319.8970 321.8940 Tot Response: 8.36e+02 RRF: 0.9567

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:22	3.53e+02	4.82e+02	0.73	yes	8.36e+02	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-09-15 MT7/MT

Entry: 38 Totals Name: Total Penta-Furans1

Run: 17 File: P301076 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 13:49:05 Processed: 28-AUG-15 16:51:54

Mass: 339.8600 341.8570 Tot Response: 5.85e+01 RRF: 0.9042

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:20	3.43e+01	2.42e+01	1.42	yes	5.85e+01	n	n

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Peak List Summary

CLIENT ID.

PLY-09-15 MT7/MT7

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P301076 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 13:49:05 Processed: 28-AUG-15 16:51:54

Mass: 389.8160 391.8130 Tot Response: 4.40e+02 RRF: 0.9904

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:36	1.53e+02	1.18e+02	1.30	yes	2.71e+02		n	n
2	36:27	2.42e+01	1.83e+01	1.32	yes	4.25e+01		n	n
3	37:01	5.75e+01	4.82e+01	1.19	yes	1.06e+02	1,2,3,6,7,8-HxCDD	n	n
4	37:10	1.12e+01	1.00e+01	1.12	yes	2.13e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-09-15 MT7/MT7

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P301076 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 13:49:05 Processed: 28-AUG-15 16:51:54

Mass: 407.7820 409.7790 Tot Response: 2.61e+03 RRF: 1.284

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:47	2.73e+02	2.78e+02	0.98	yes	5.51e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:11	1.03e+03	9.91e+02	1.04	yes	2.02e+03		n	n
3	40:11	1.82e+01	1.81e+01	1.00	yes	3.63e+01	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-09-15 MT7/MT7

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P301076 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 13:49:05 Processed: 28-AUG-15 16:51:54

Mass: 423.7770 425.7740 Tot Response: 4.17e+03 RRF: 0.9492

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:01	1.32e+03	1.32e+03	1.00	yes	2.64e+03		n	n
2	39:42	7.66e+02	7.64e+02	1.00	yes	1.53e+03	1,2,3,4,6,7,8-HpCDD	n	n

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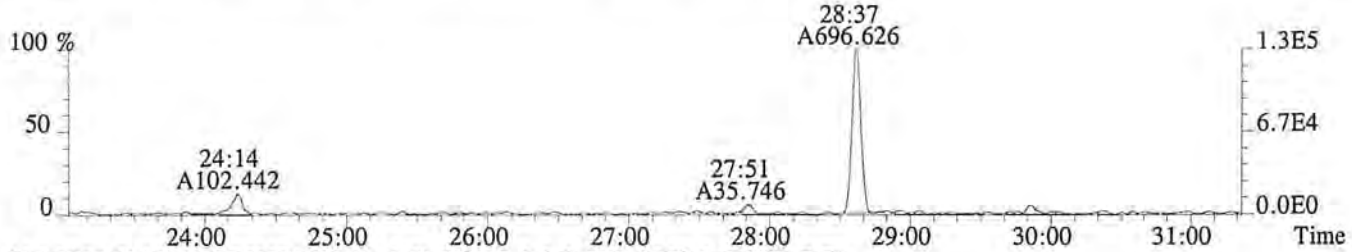
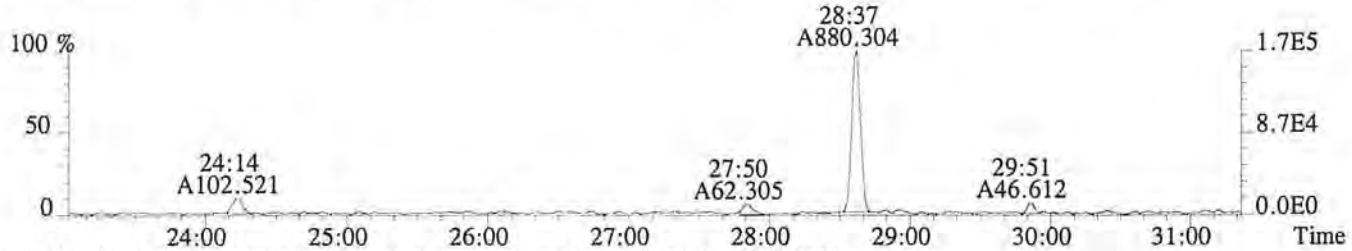
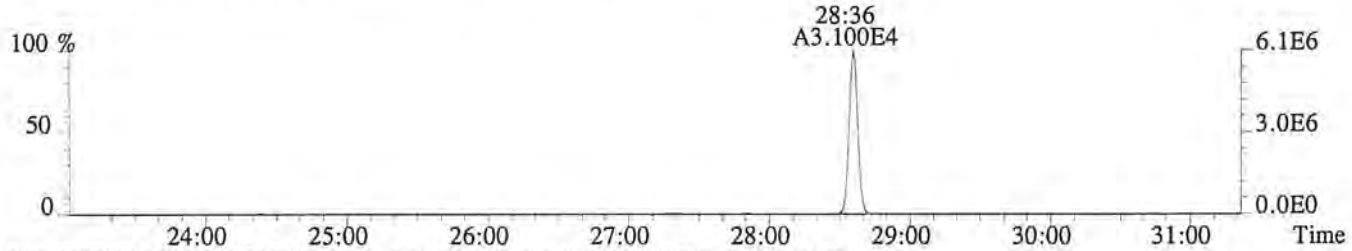
File:P301076 #1-591 Acq:28-AUG-2015 13:49:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-015
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



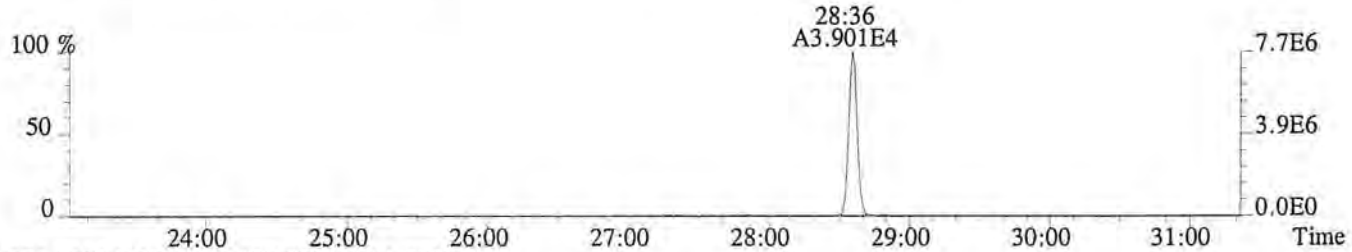
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2352.0,1.00%,F,T)



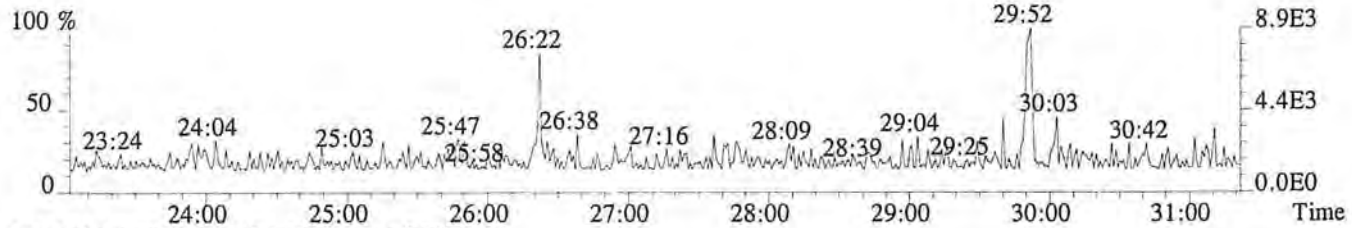
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1340.0,1.00%,F,T)



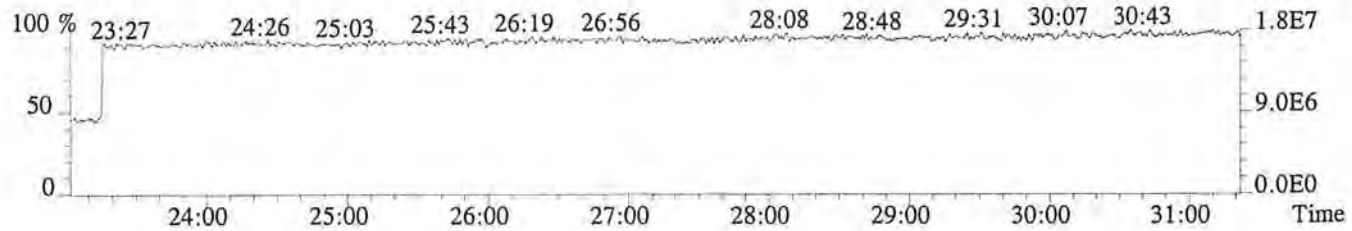
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2032.0,1.00%,F,T)



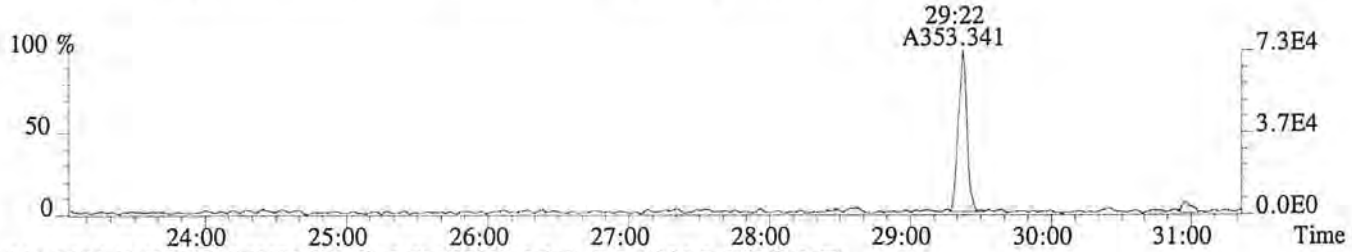
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



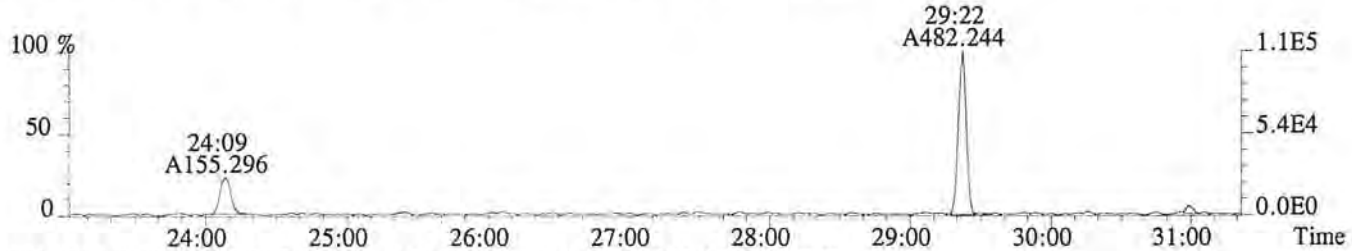
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



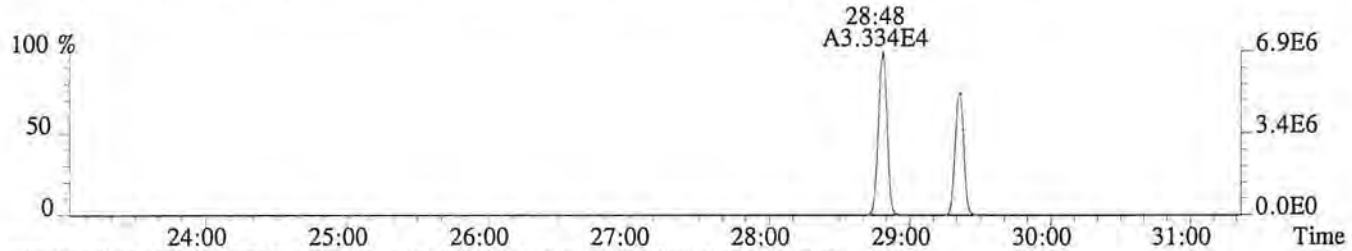
File:P301076 #1-591 Acq:28-AUG-2015 13:49:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-015
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1572.0,1.00%,F,T)



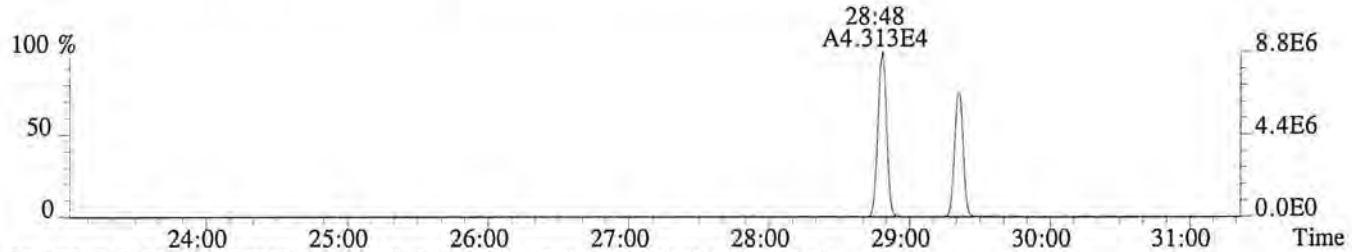
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



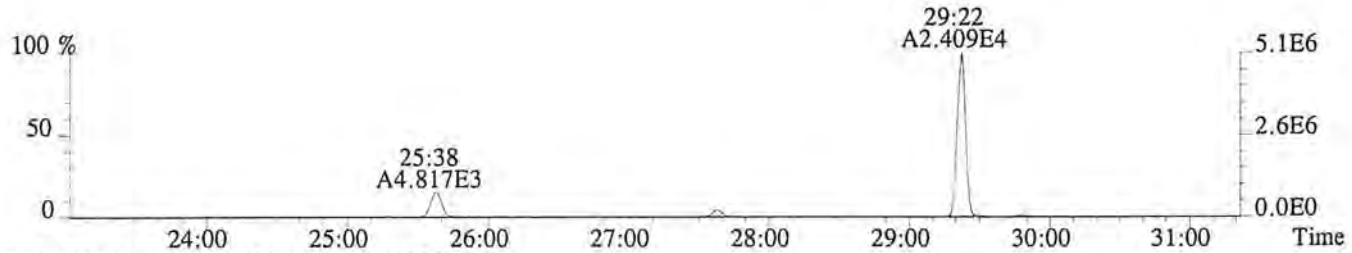
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6392.0,1.00%,F,T)



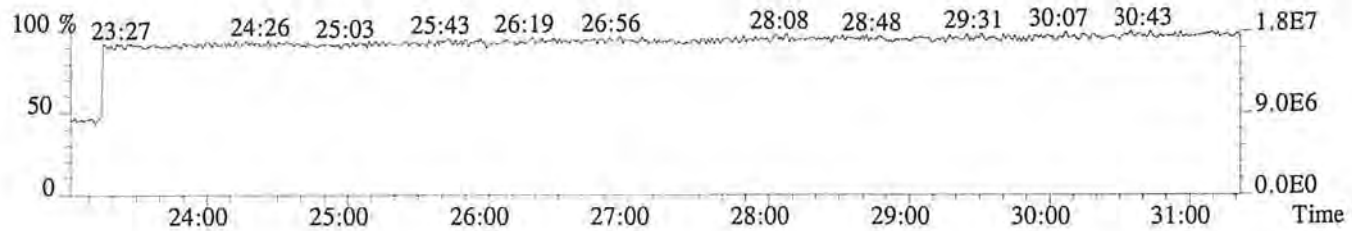
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2956.0,1.00%,F,T)



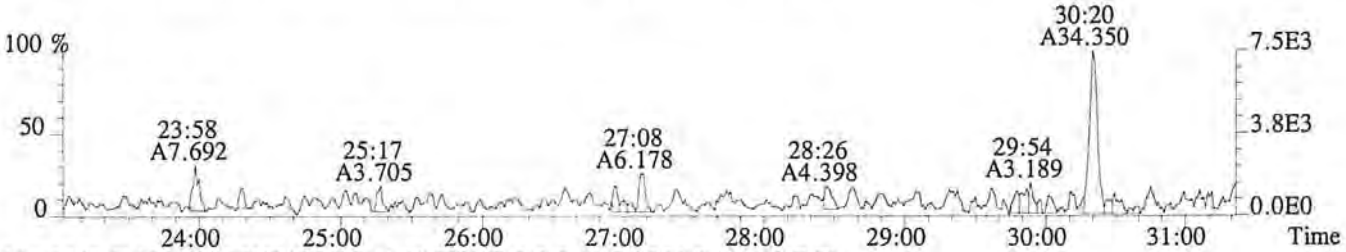
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



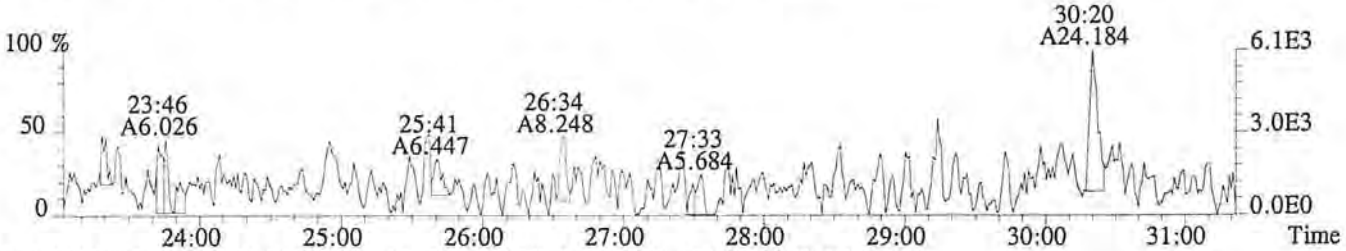
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



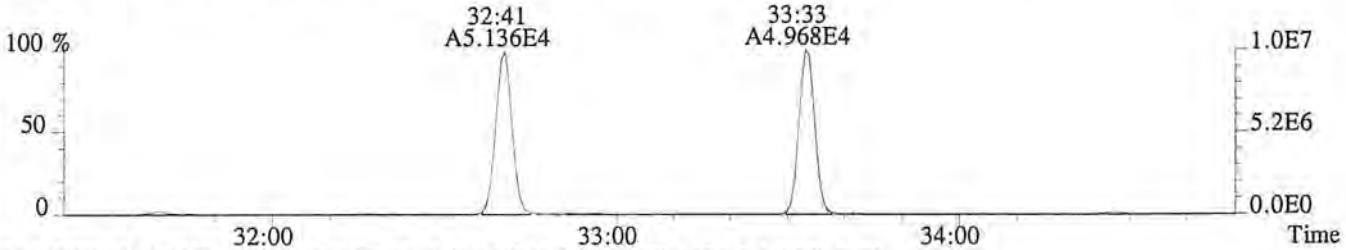
File:P301076 #1-591 Acq:28-AUG-2015 13:49:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-015
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



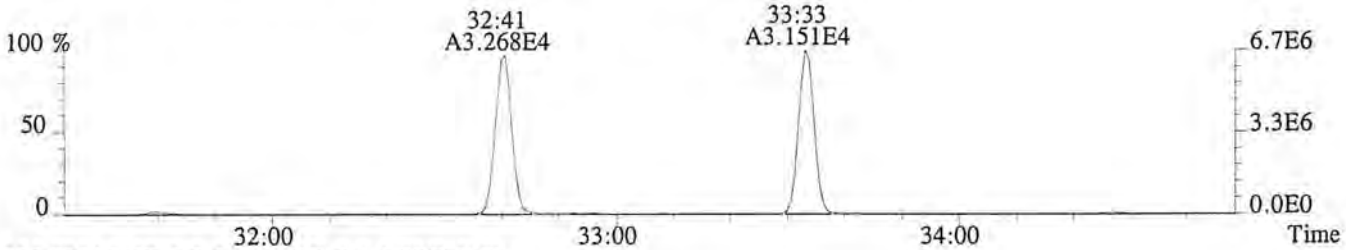
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1364.0,1.00%,F,T)



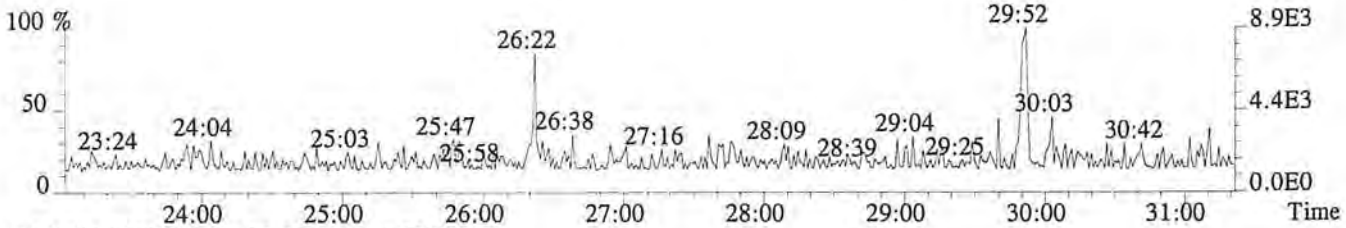
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



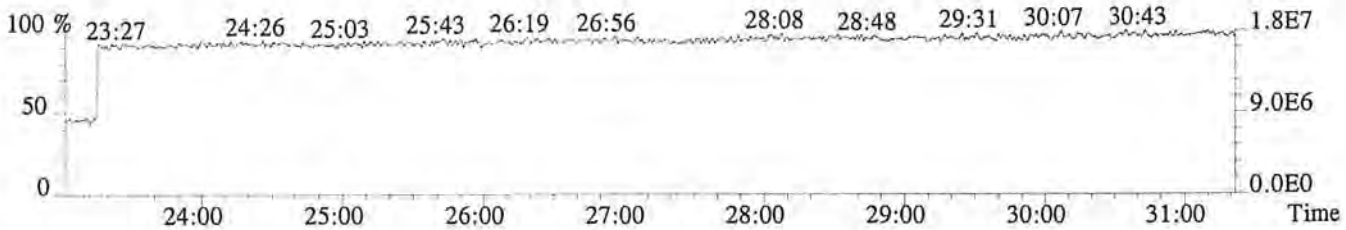
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1320.0,1.00%,F,T)



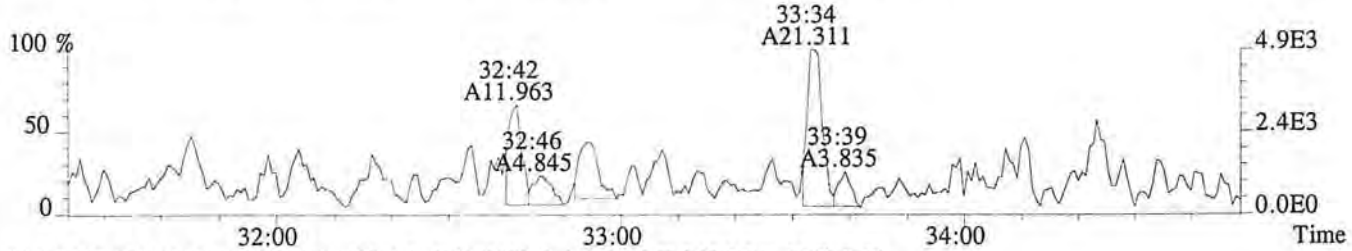
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



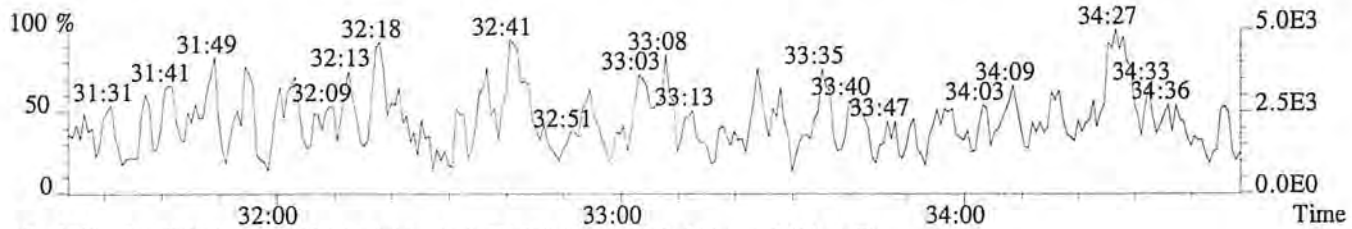
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



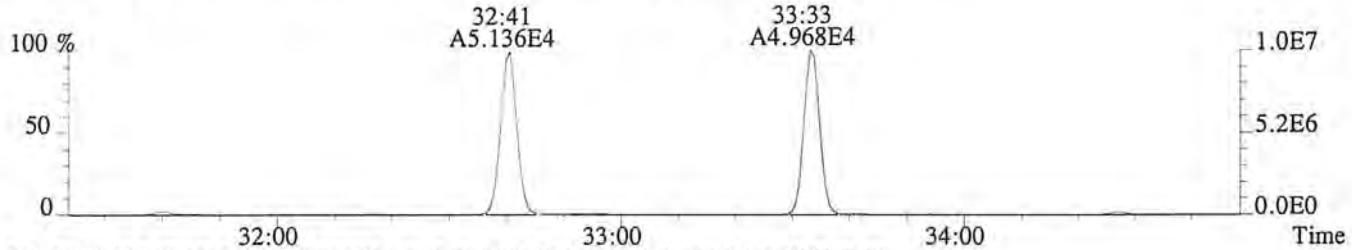
File:P301076 #1-308 Acq:28-AUG-2015 13:49:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-015
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



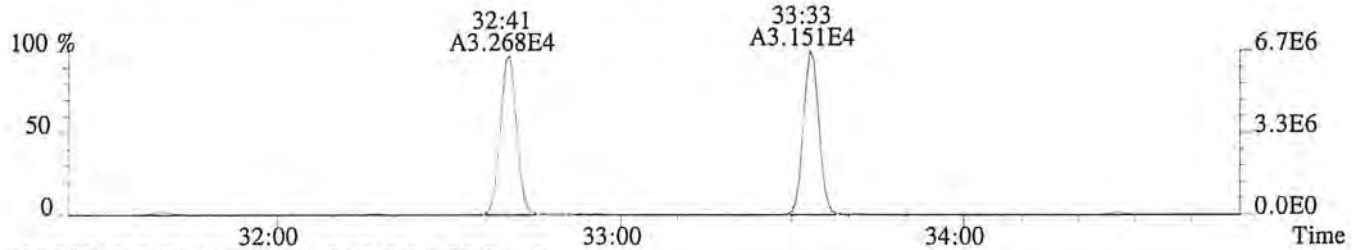
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2536.0,1.00%,F,T)



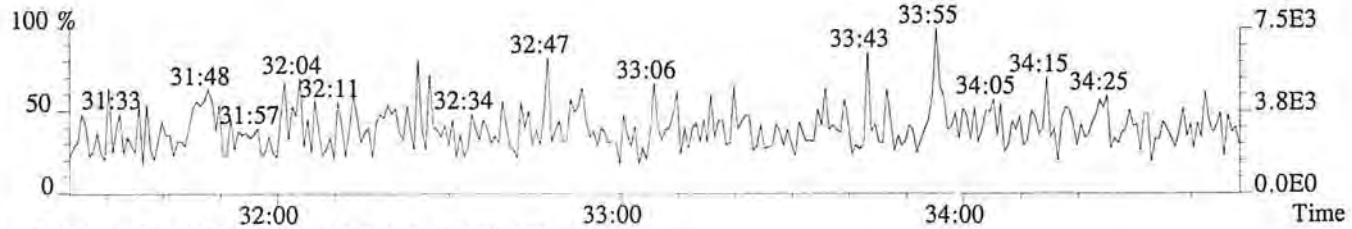
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



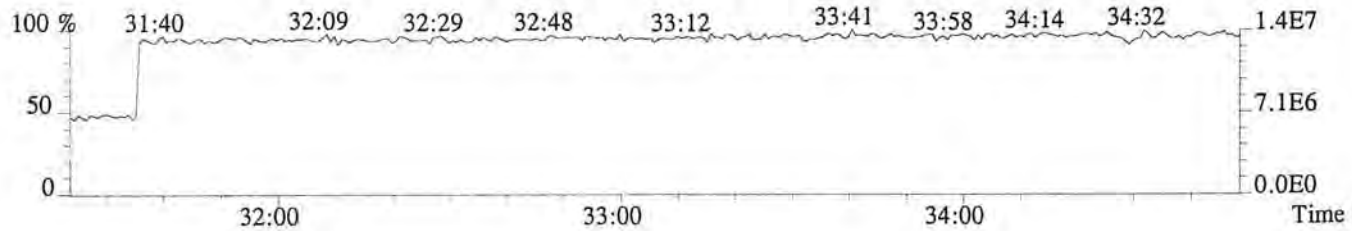
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1320.0,1.00%,F,T)



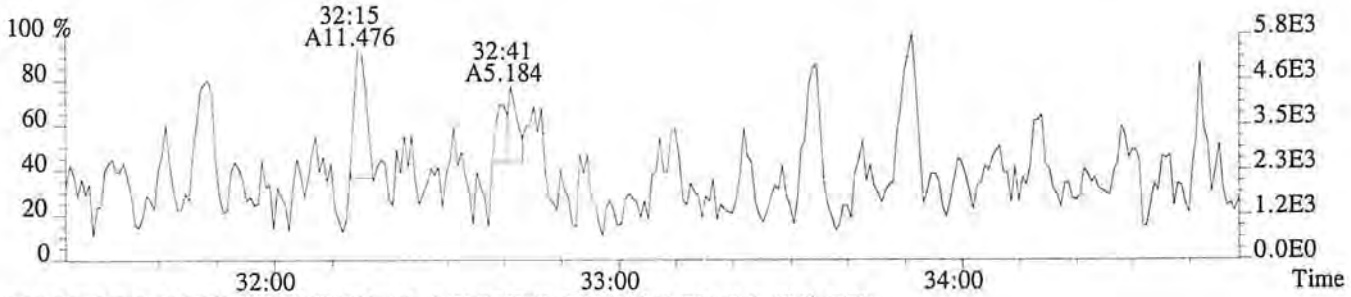
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



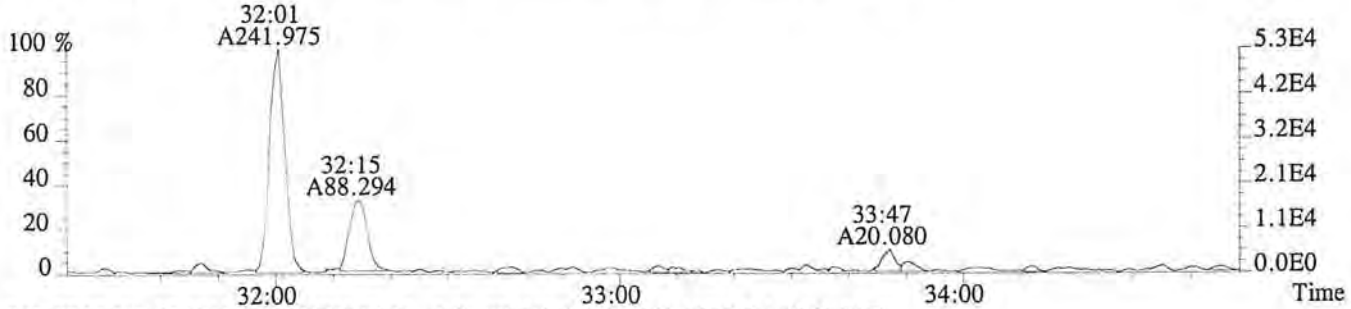
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



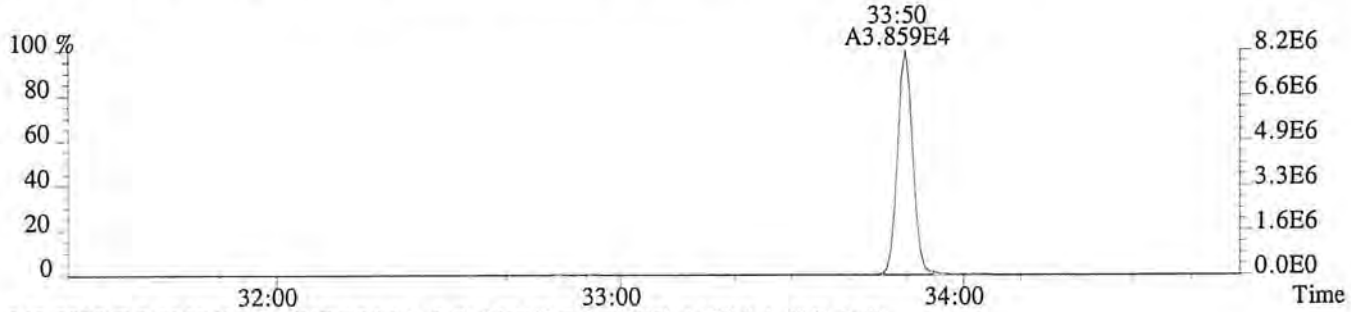
File:P301076 #1-308 Acq:28-AUG-2015 13:49:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-015
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2528.0,1.00%,F,T)



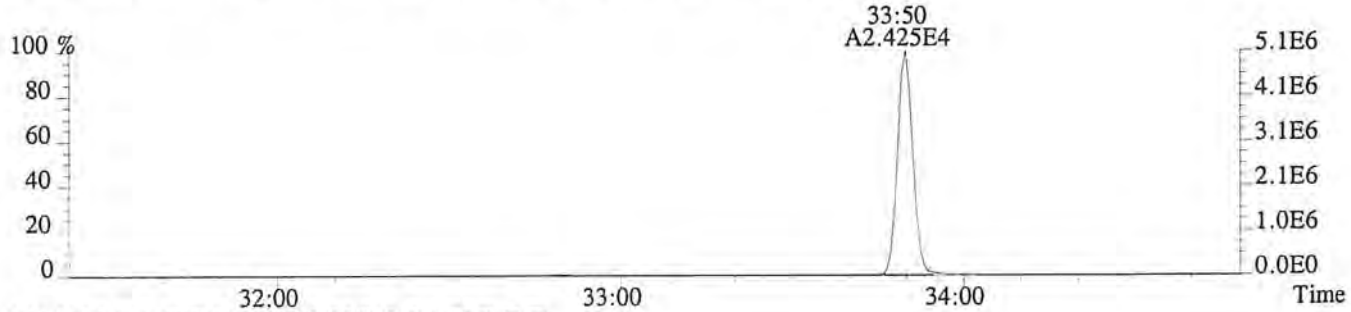
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



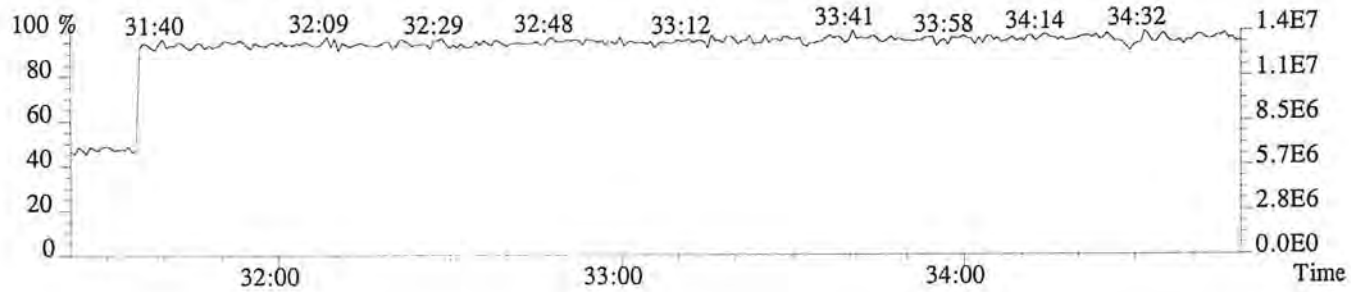
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1952.0,1.00%,F,T)



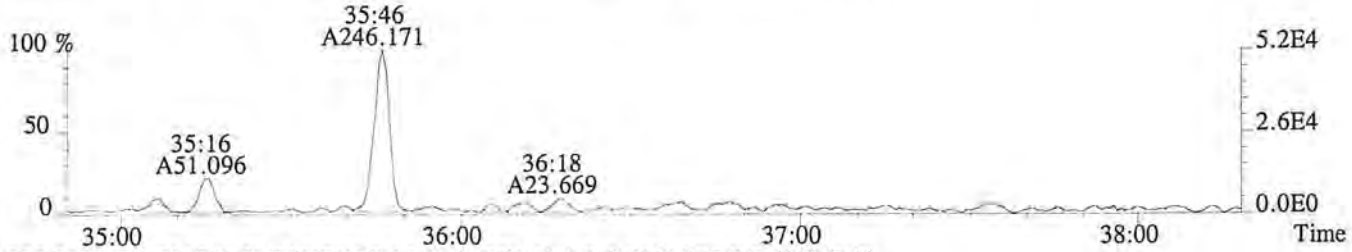
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1488.0,1.00%,F,T)



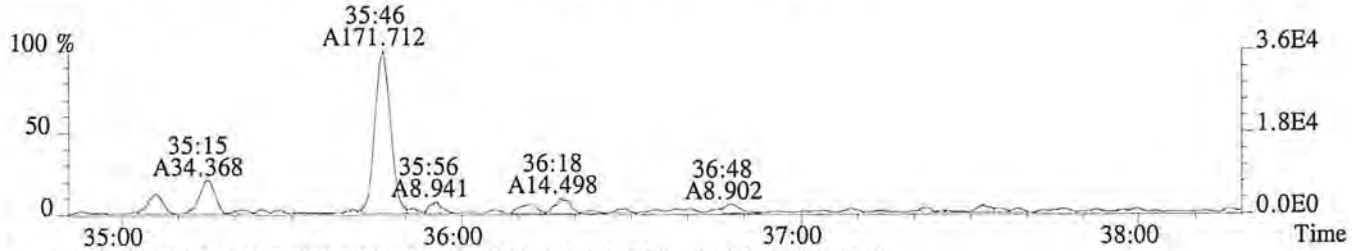
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



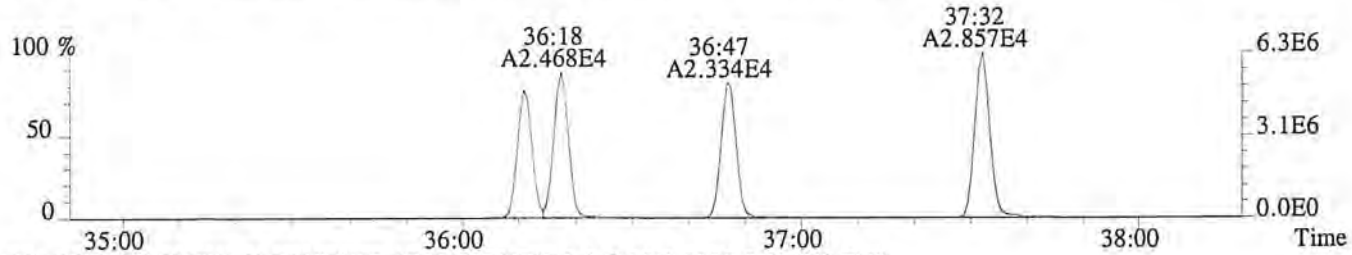
File:P301076 #1-312 Acq:28-AUG-2015 13:49:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-015
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1444.0,0.40%,F,T)



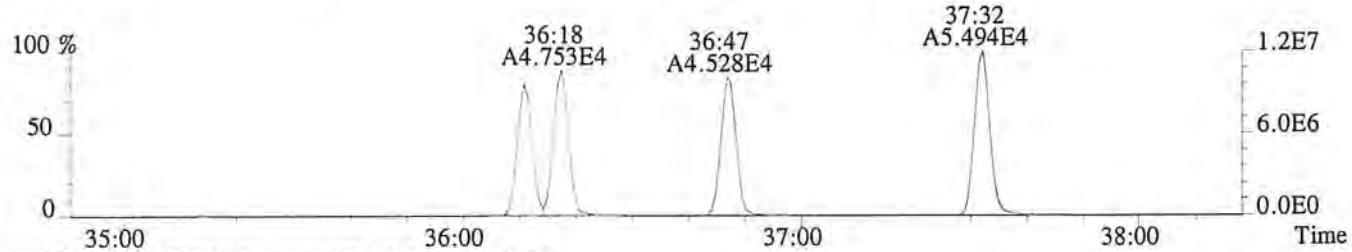
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



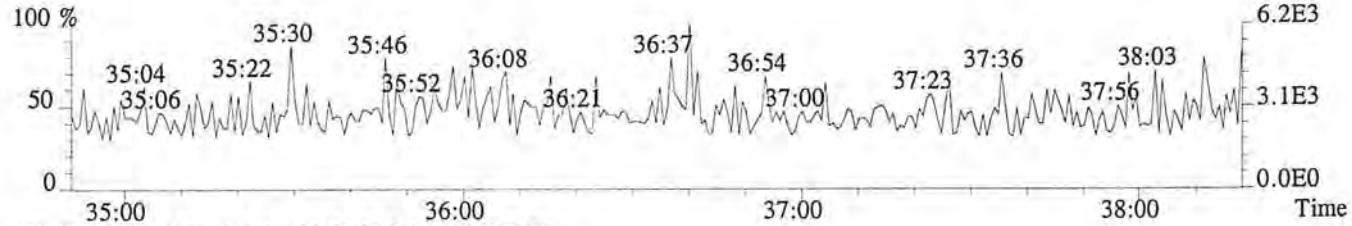
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)



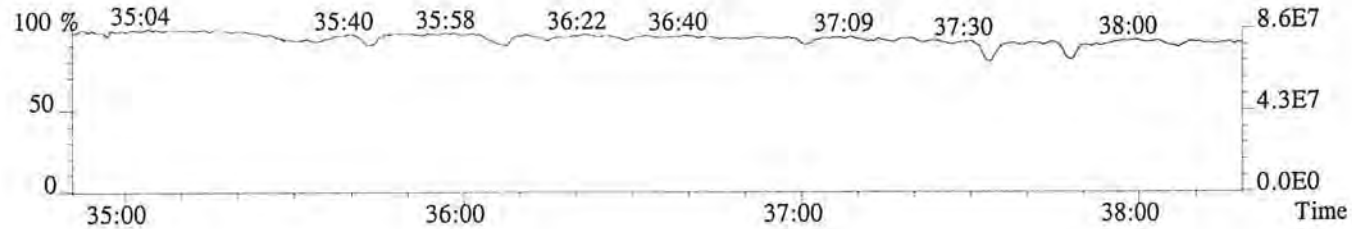
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2100.0,0.40%,F,T)



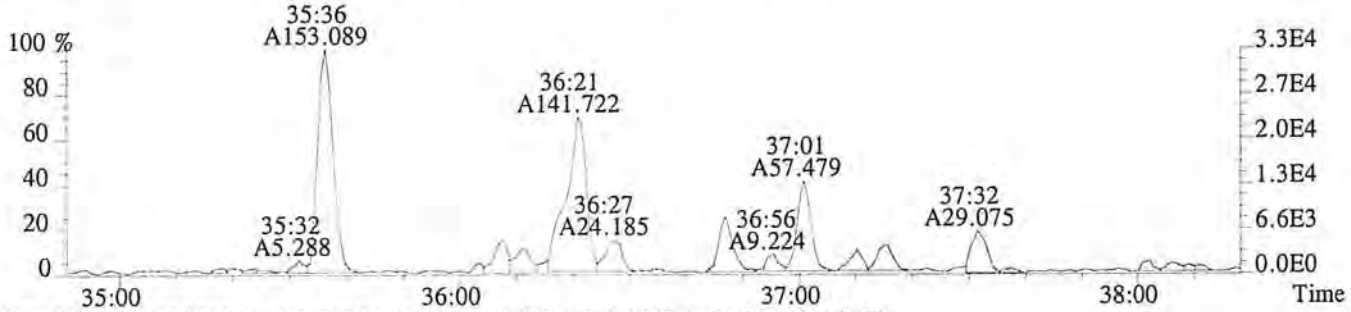
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



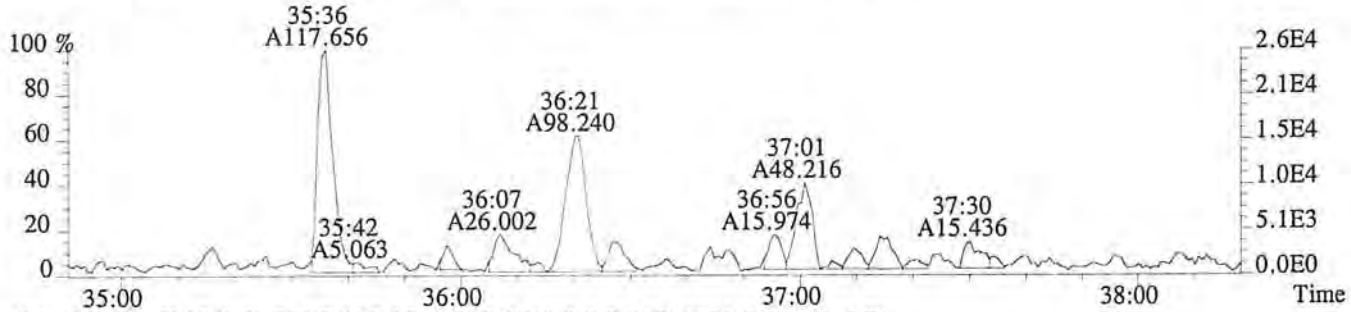
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



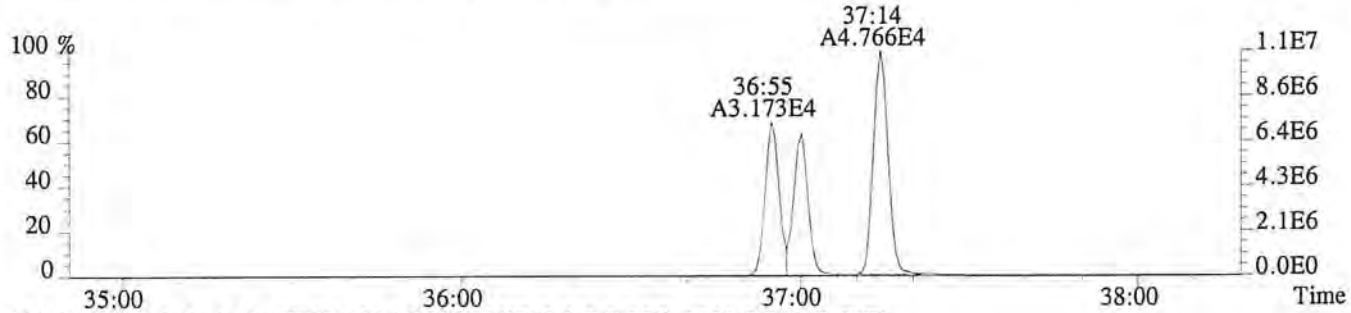
File:P301076 #1-312 Acq:28-AUG-2015 13:49:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-015
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



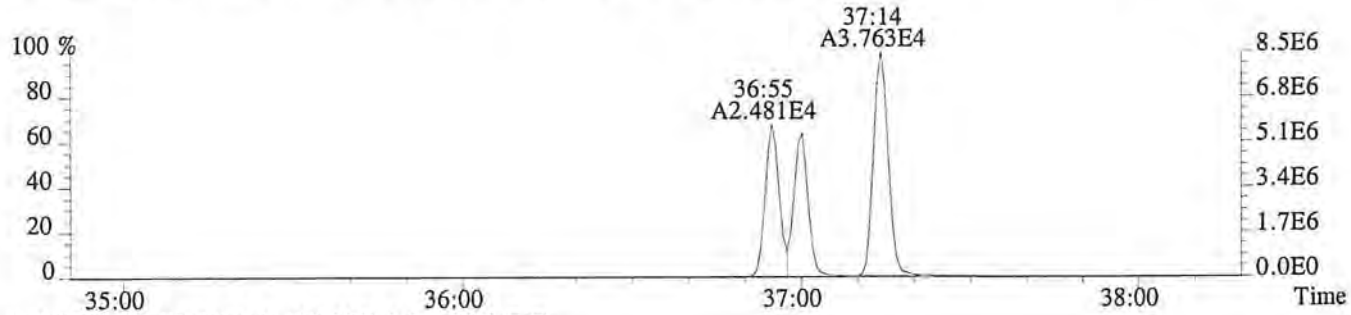
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1376.0,0.40%,F,T)



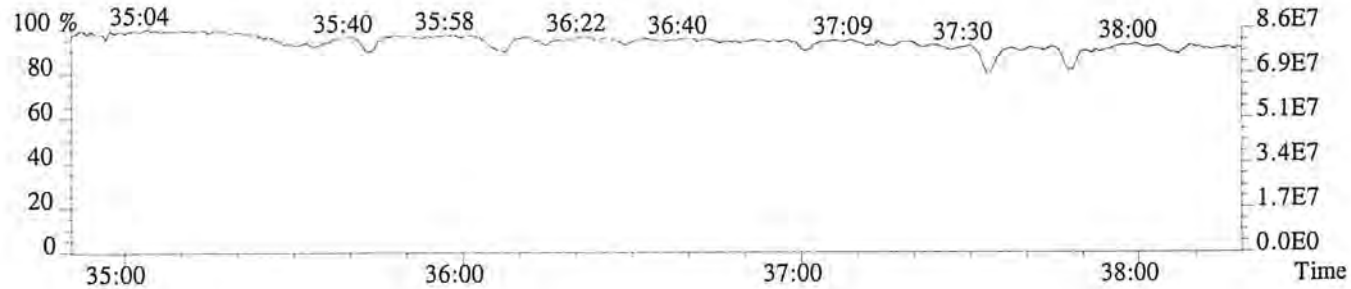
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1936.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



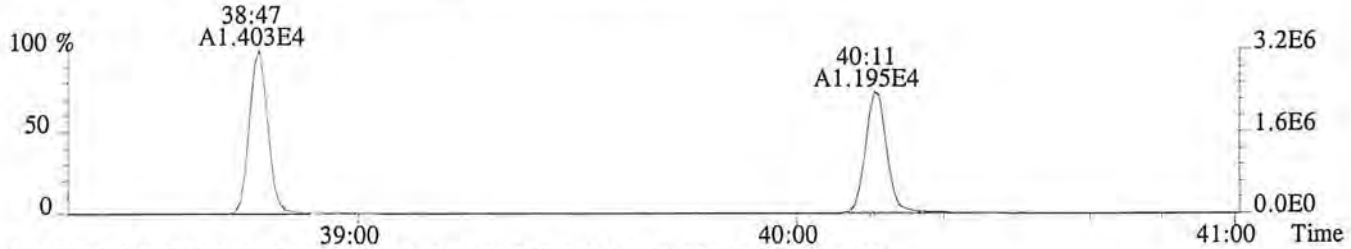
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



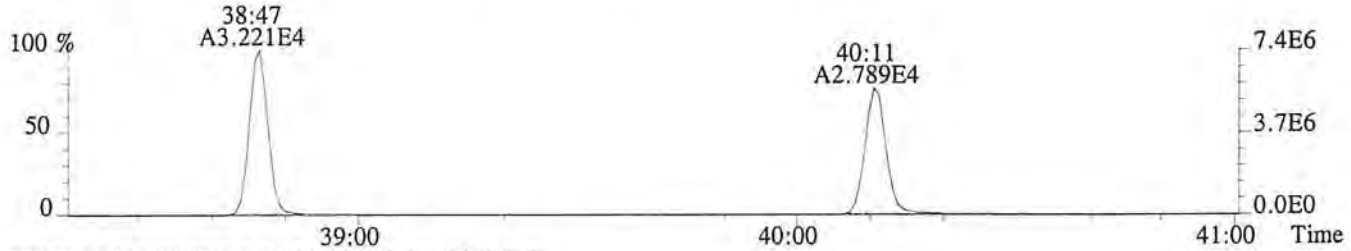
File:P301076 #1-241 Acq:28-AUG-2015 13:49:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-015
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1072.0,0.50%,F,T)

409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1288.0,0.50%,F,T)

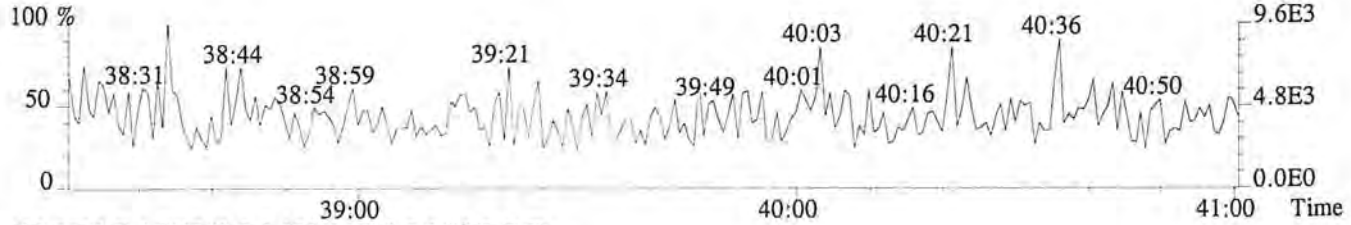
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3044.0,0.50%,F,T)



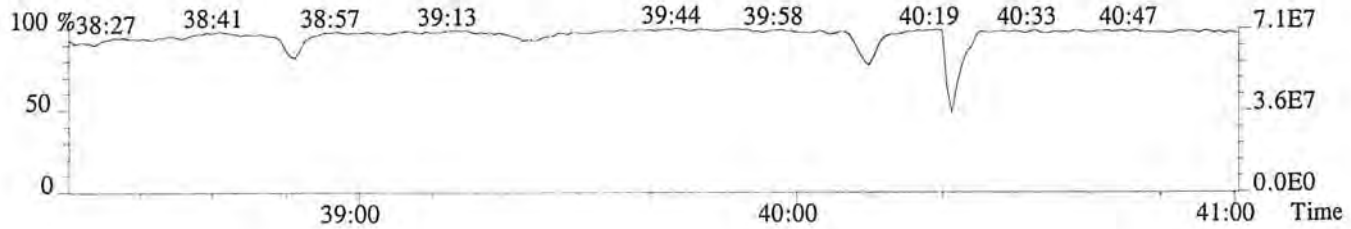
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3624.0,0.50%,F,T)



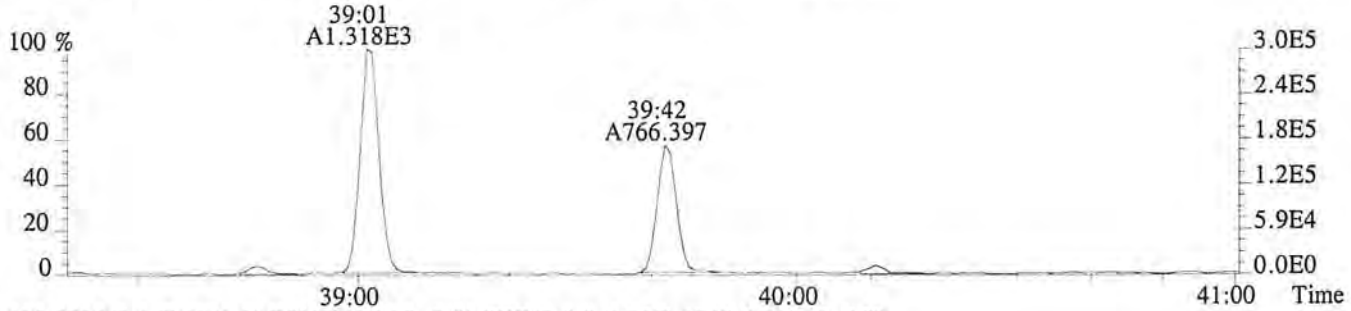
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



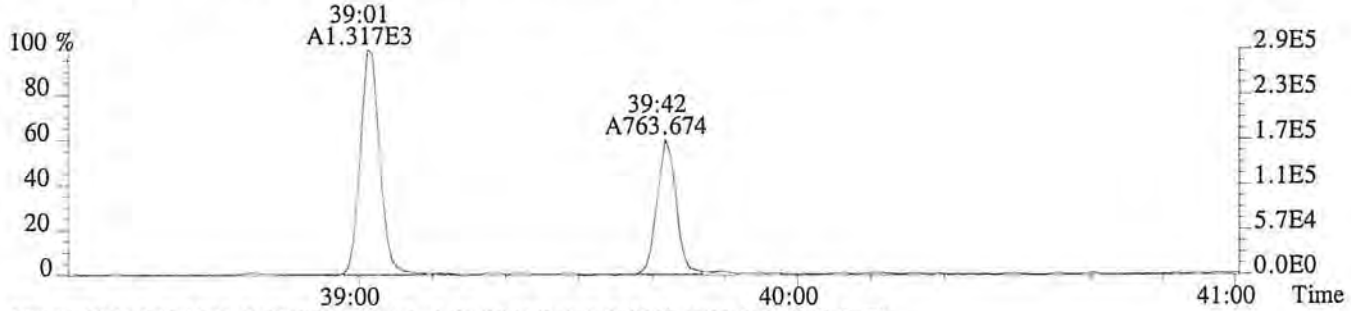
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



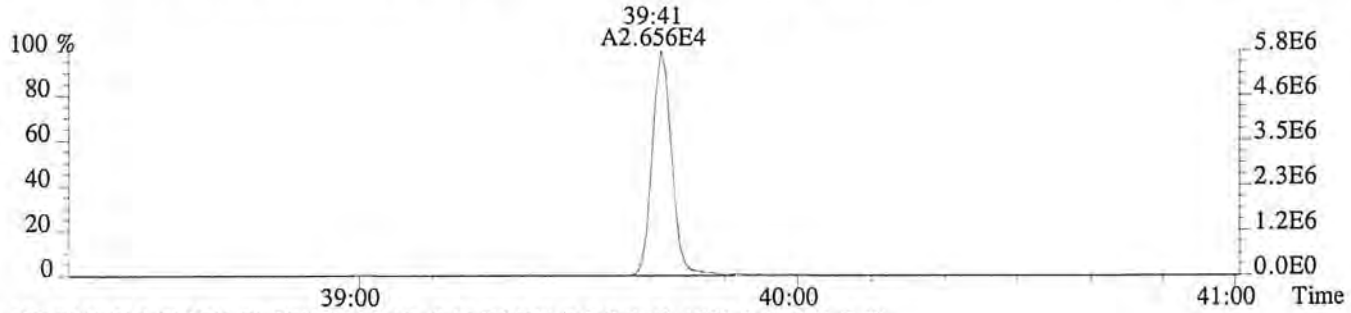
File:P301076 #1-241 Acq:28-AUG-2015 13:49:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-015
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2060.0,0.40%,F,T)



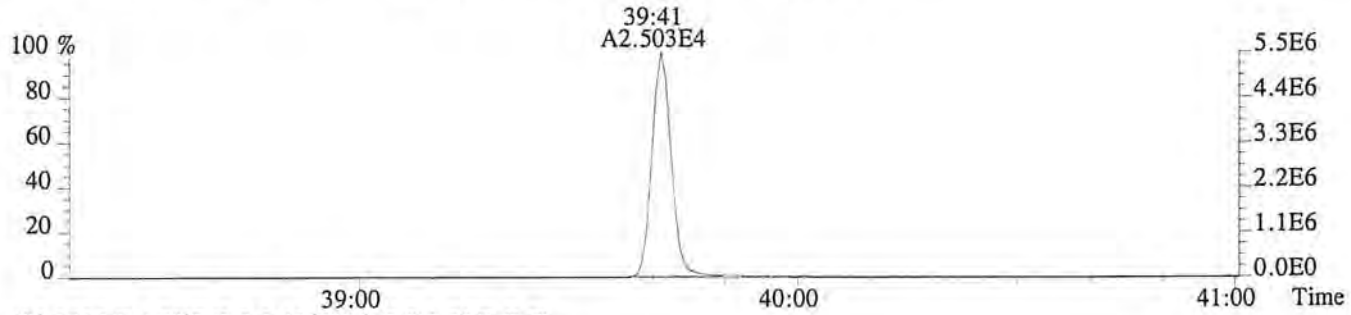
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1240.0,0.40%,F,T)



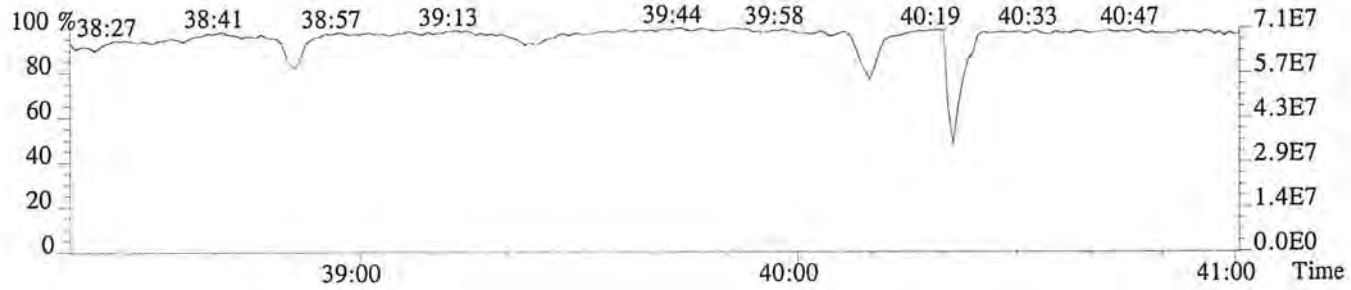
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1792.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



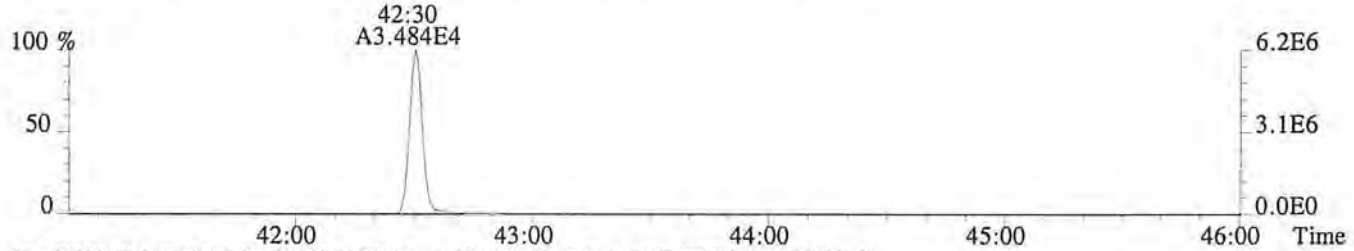
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



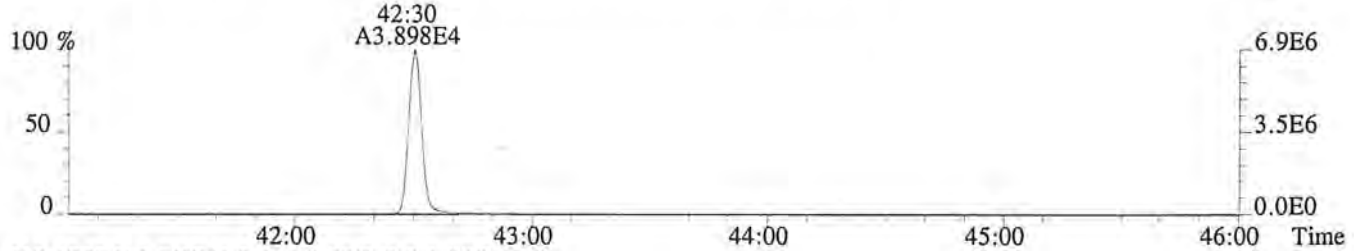
File:P301076 #1-447 Acq:28-AUG-2015 13:49:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-015
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1540.0,0.40%,F,T)

443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2448.0,0.40%,F,T)

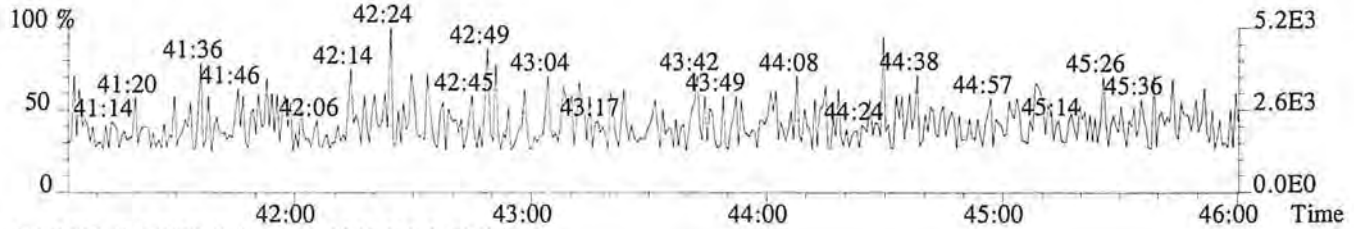
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,872.0,0.40%,F,T)



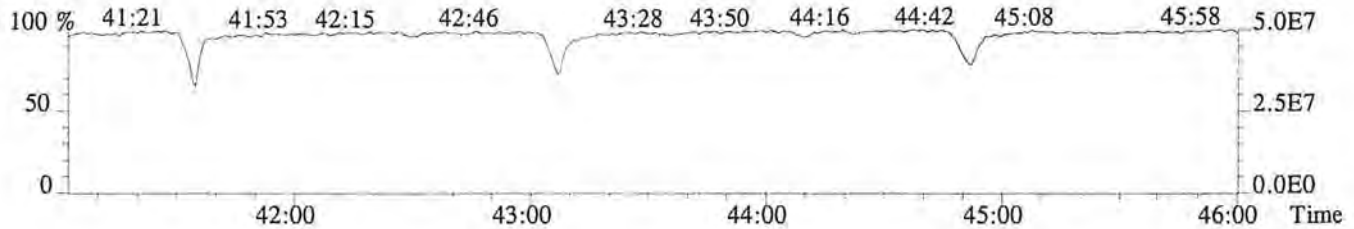
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,856.0,0.40%,F,T)



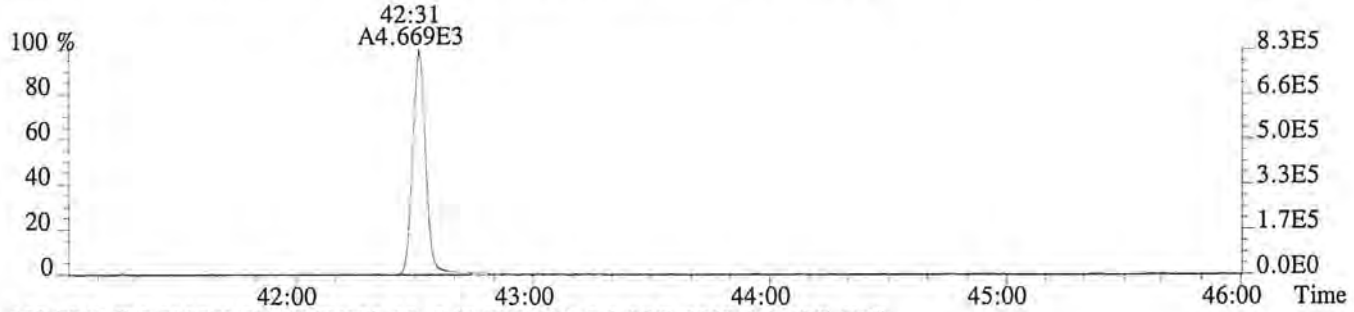
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



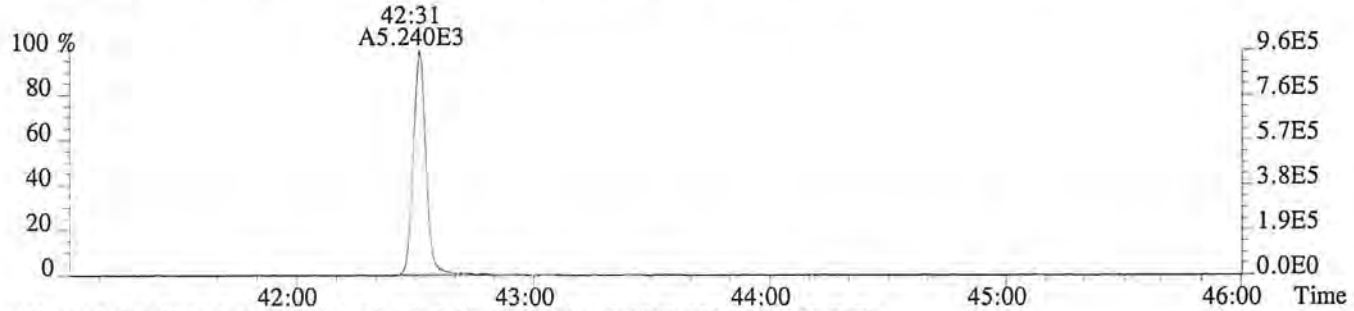
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



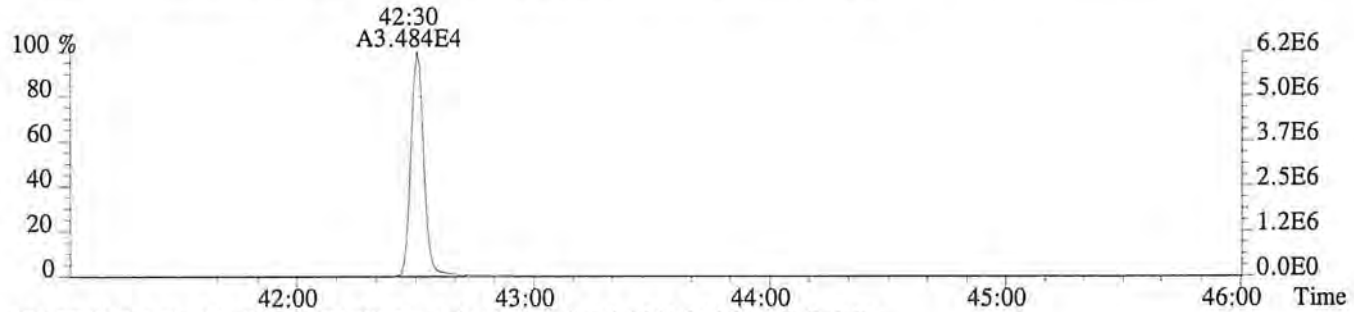
File:P301076 #1-447 Acq:28-AUG-2015 13:49:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-015
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



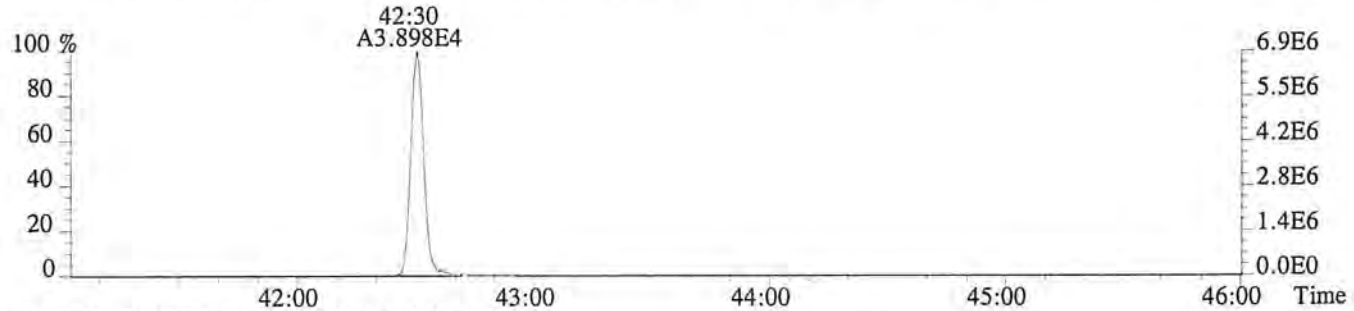
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1012.0,0.40%,F,T)



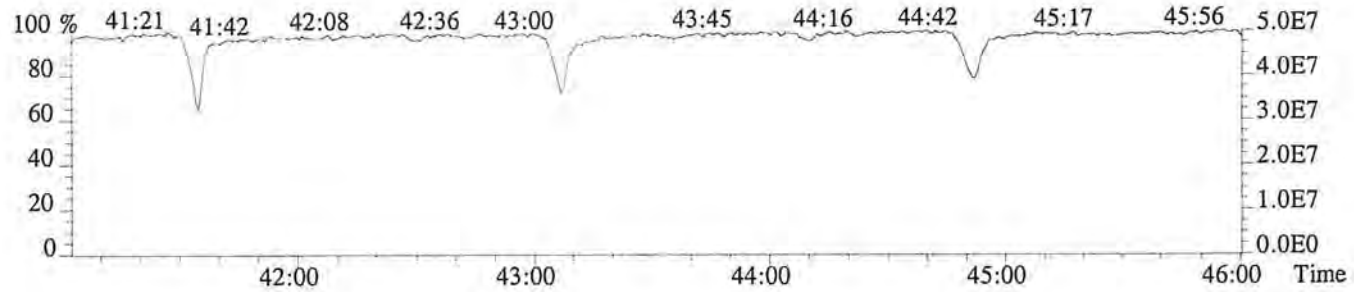
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,872.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,856.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-09-15 MT7

Run #18 Filename P301077 Samp: 1 Inj: 1 Acquired: 28-AUG-15 14:36:35
Processed: 28-AUG-15 16:51:55 Sample ID: E1500743-016

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	8.989e+01	1.046e+02	0.86	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:47	2.517e+02	2.714e+02	0.93	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.245
10	Unk	OCDF	42:44	7.459e+02	8.829e+02	0.84	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:22	5.143e+01	7.104e+01	0.72	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.887
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:01	4.418e+01	4.937e+01	0.89	no	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	9.838e+02	8.863e+02	1.11	yes	no	0.949
17	Unk	OCDD	42:32	4.676e+03	5.353e+03	0.87	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:36	3.050e+04	3.835e+04	0.80	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	4.994e+04	3.188e+04	1.57	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:34	4.899e+04	3.109e+04	1.58	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:11	2.065e+04	4.041e+04	0.51	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	2.375e+04	4.620e+04	0.51	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	2.273e+04	4.405e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:32	2.767e+04	5.399e+04	0.51	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	1.353e+04	3.056e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:11	1.082e+04	2.474e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:21	2.433e+04	3.148e+04	0.77	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:50	3.779e+04	2.417e+04	1.56	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:55	3.111e+04	2.450e+04	1.27	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:00	3.093e+04	2.432e+04	1.27	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:42	2.648e+04	2.536e+04	1.04	yes	no	0.850
32	IS	13C-OCDD	42:31	3.529e+04	3.915e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:48	3.165e+04	4.060e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:14	4.696e+04	3.747e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	2.382e+04				no	1.001

$$\text{OCDD} = \frac{(4.676e+03 + 5.353e+03) \times 4000 \text{ pg} \times 1}{(3.529e+04 + 3.915e+04) \times 10.157 \text{ g} \times 100 \;/\; 100 \times 1.061} = 50.0 \text{ ng/kg}$$

MM 08/31/15

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-09-15 MT7/MT

Run #18 Filename P301077 Samp: 1 Inj: 1 Acquired: 28-AUG-15 14:36:35
Processed: 28-AUG-15 16:51:55 LAB. ID: E1500743-016

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.91e+04	1.46e+03	1.3e+01	2.22e+04	2.41e+03	9.2e+00
2	1,2,3,7,8-PeCDF	*	1.05e+03	*	*	2.91e+03	*
3	2,3,4,7,8-PeCDF	*	1.05e+03	*	*	2.91e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.87e+03	*	*	5.76e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.87e+03	*	*	5.76e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.87e+03	*	*	5.76e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.87e+03	*	*	5.76e+02	*
8	1,2,3,4,6,7,8-HpCDF	5.63e+04	8.12e+02	6.9e+01	6.44e+04	1.30e+03	5.0e+01
9	1,2,3,4,7,8,9-HpCDF	*	8.12e+02	*	*	1.30e+03	*
10	OCDF	1.38e+05	1.53e+03	9.1e+01	1.56e+05	1.99e+03	7.8e+01
11	2,3,7,8-TCDD	1.31e+04	1.61e+03	8.1e+00	1.44e+04	1.28e+03	1.1e+01
12	1,2,3,7,8-PeCDD	*	2.12e+03	*	*	8.28e+02	*
13	1,2,3,4,7,8-HxCDD	*	8.56e+02	*	*	1.60e+03	*
14	1,2,3,6,7,8-HxCDD	9.81e+03	8.56e+02	1.1e+01	8.92e+03	1.60e+03	5.6e+00
15	1,2,3,7,8,9-HxCDD	*	8.56e+02	*	*	1.60e+03	*
16	1,2,3,4,6,7,8-HpCDD	2.07e+05	1.93e+03	1.1e+02	1.89e+05	1.10e+03	1.7e+02
17	OCDD	8.07e+05	6.48e+02	1.2e+03	9.48e+05	1.60e+03	5.9e+02
18	13C-2,3,7,8-TCDF	6.01e+06	1.64e+03	3.7e+03	7.56e+06	1.98e+03	3.8e+03
19	13C-1,2,3,7,8-PeCDF	1.01e+07	5.52e+02	1.8e+04	6.53e+06	8.04e+02	8.1e+03
20	13C-2,3,4,7,8-PeCDF	1.00e+07	5.52e+02	1.8e+04	6.34e+06	8.04e+02	7.9e+03
21	13C-1,2,3,4,7,8-HxCDF	4.61e+06	1.20e+03	3.8e+03	9.14e+06	1.45e+03	6.3e+03
22	13C-1,2,3,6,7,8-HxCDF	5.37e+06	1.20e+03	4.5e+03	1.04e+07	1.45e+03	7.1e+03
23	13C-2,3,4,6,7,8-HxCDF	5.10e+06	1.20e+03	4.2e+03	9.70e+06	1.45e+03	6.7e+03
24	13C-1,2,3,7,8,9-HxCDF	6.22e+06	1.20e+03	5.2e+03	1.21e+07	1.45e+03	8.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.14e+06	3.57e+03	8.8e+02	7.05e+06	2.49e+03	2.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.16e+06	3.57e+03	6.0e+02	4.95e+06	2.49e+03	2.0e+03
27	13C-2,3,7,8-TCDD	5.14e+06	6.26e+03	8.2e+02	6.58e+06	3.26e+03	2.0e+03
28	13C-1,2,3,7,8-PeCDD	8.03e+06	1.98e+03	4.0e+03	5.19e+06	1.04e+03	5.0e+03
29	13C-1,2,3,4,7,8-HxCDD	7.19e+06	2.06e+03	3.5e+03	5.70e+06	1.80e+03	3.2e+03
30	13C-1,2,3,6,7,8-HxCDD	6.87e+06	2.06e+03	3.3e+03	5.39e+06	1.80e+03	3.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.79e+06	2.72e+03	2.1e+03	5.44e+06	1.41e+03	3.9e+03
32	13C-OCDD	6.09e+06	9.24e+02	6.6e+03	6.80e+06	1.14e+03	6.0e+03
33	13C-1,2,3,4-TCDD	6.46e+06	6.26e+03	1.0e+03	8.28e+06	3.26e+03	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.06e+07	2.06e+03	5.2e+03	8.55e+06	1.80e+03	4.8e+03
35	37Cl-2,3,7,8-TCDD	5.08e+06	9.88e+02	5.1e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-09-15 MT7/MT

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P301077 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 14:36:35 Processed: 28-AUG-15 16:51:55

Mass: 303.9020 305.8990 Tot Response: 5.94e+02 RRF: 0.8496

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:14	1.73e+02	2.26e+02	0.77	yes	3.99e+02		n	n
2	28:37	8.99e+01	1.05e+02	0.86	yes	1.95e+02	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-09-15 MT7/MT7

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P301077 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 14:36:35 Processed: 28-AUG-15 16:51:55

Mass: 319.8970 321.8940 Tot Response: 1.22e+02 RRF: 0.9567

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:22	5.14e+01	7.10e+01	0.72	yes	1.22e+02	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-09-15 MT7/MT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P301077 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 14:36:35 Processed: 28-AUG-15 16:51:55

Mass: 373.8210 375.8180 Tot Response: 4.78e+02 RRF: 1.094

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:16	4.36e+01	3.83e+01	1.14	yes	8.19e+01	n	n
2	35:46	2.17e+02	1.79e+02	1.22	yes	3.96e+02	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-09-15 MT7/MT7

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P301077 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 14:36:35 Processed: 28-AUG-15 16:51:55

Mass: 389.8160 391.8130 Tot Response: 2.27e+02 RRF: 0.9904

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:36	1.21e+02	1.06e+02	1.14	yes	2.27e+02	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-09-15 MT7/MT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 18 File: P301077 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 14:36:35 Processed: 28-AUG-15 16:51:55

Mass: 407.7820 409.7790 Tot Response: 2.38e+03 RRF: 1.284

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:47	2.52e+02	2.71e+02	0.93	yes	5.23e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:11	9.31e+02	9.23e+02	1.01	yes	1.85e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-09-15 MT7/MT7

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P301077 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 14:36:35 Processed: 28-AUG-15 16:51:55

Mass: 423.7770 425.7740 Tot Response: 4.79e+03 RRF: 0.9492

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:02	1.47e+03	1.44e+03	1.02	yes	2.92e+03		n	n
2	39:43	9.84e+02	8.86e+02	1.11	yes	1.87e+03	1,2,3,4,6,7,8-HpCDD	n	n

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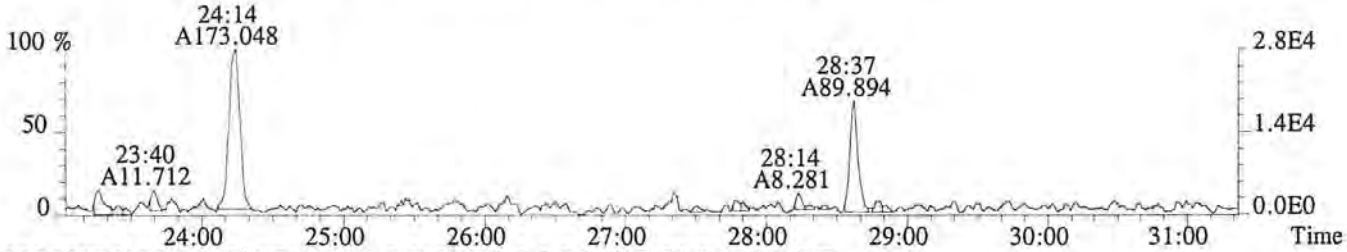
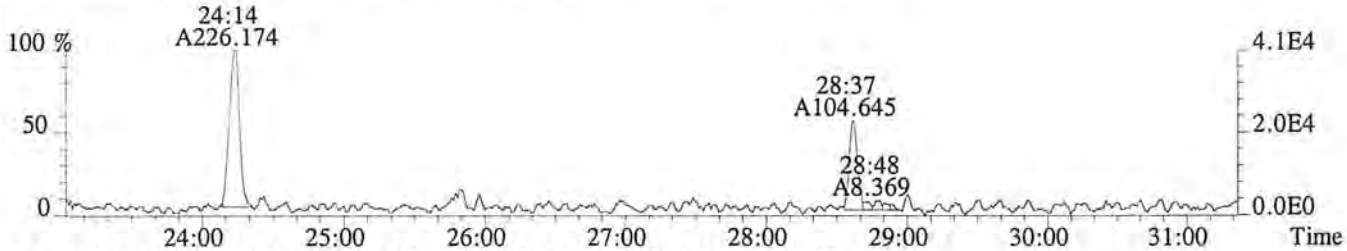
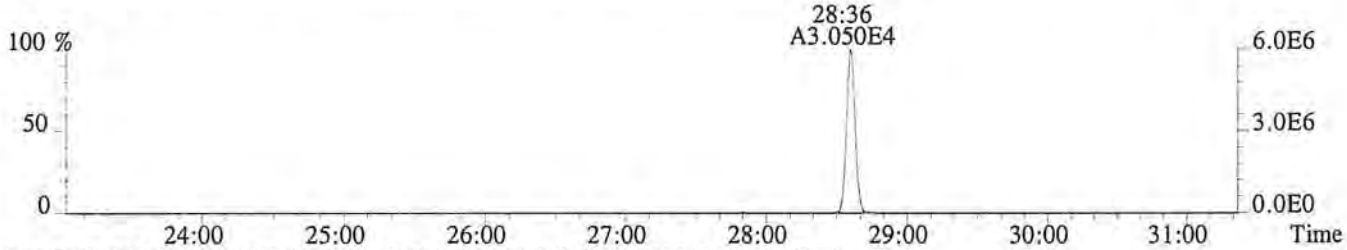
File:P301077 #1-591 Acq:28-AUG-2015 14:36:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-016
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



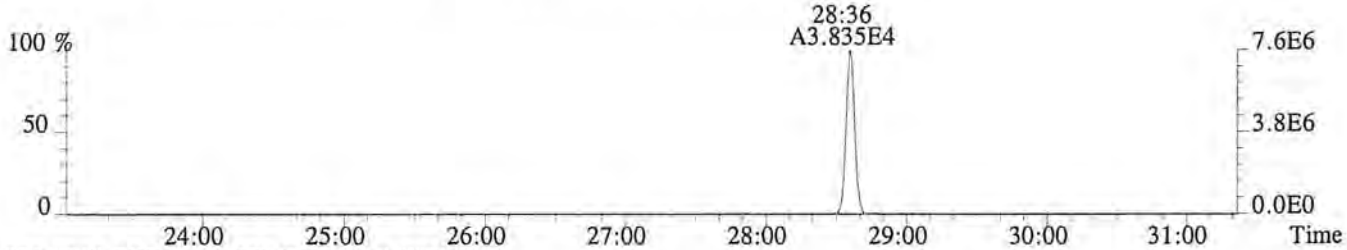
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2408.0,1.00%,F,T)



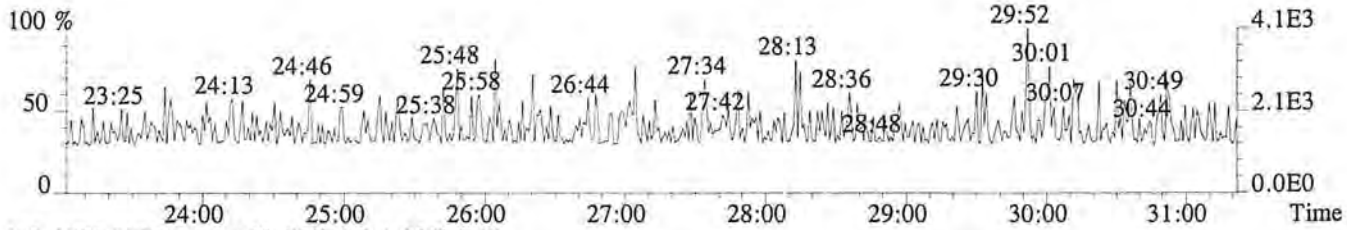
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)



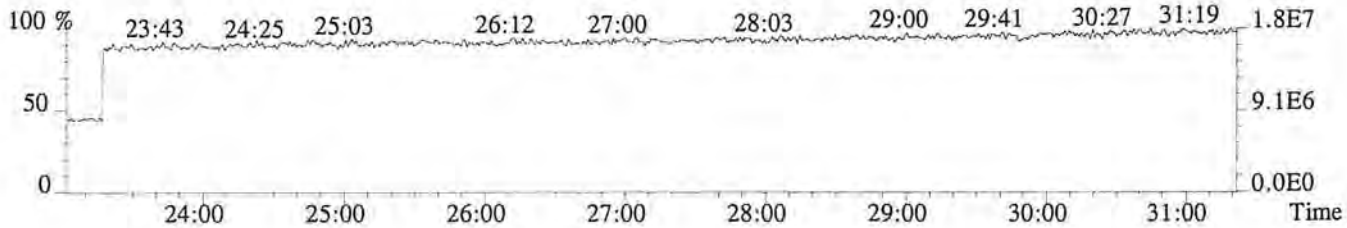
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



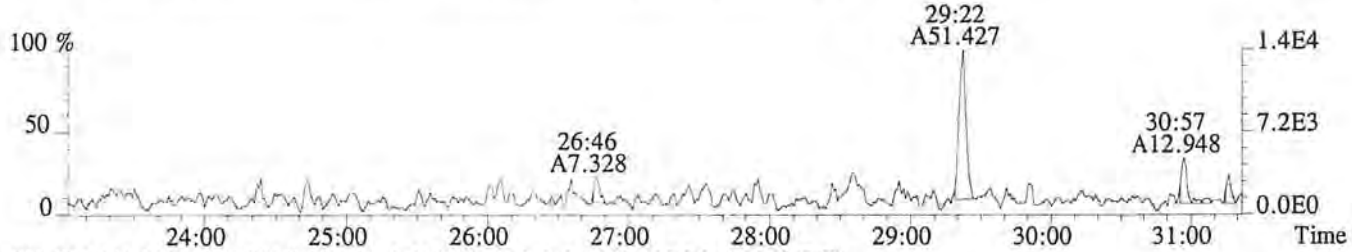
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



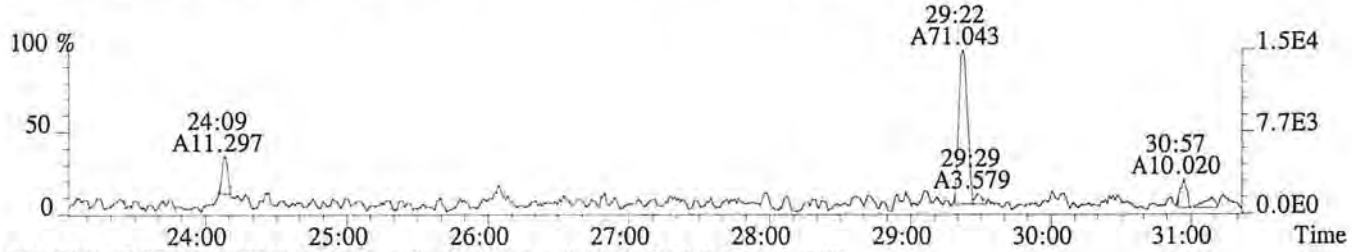
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



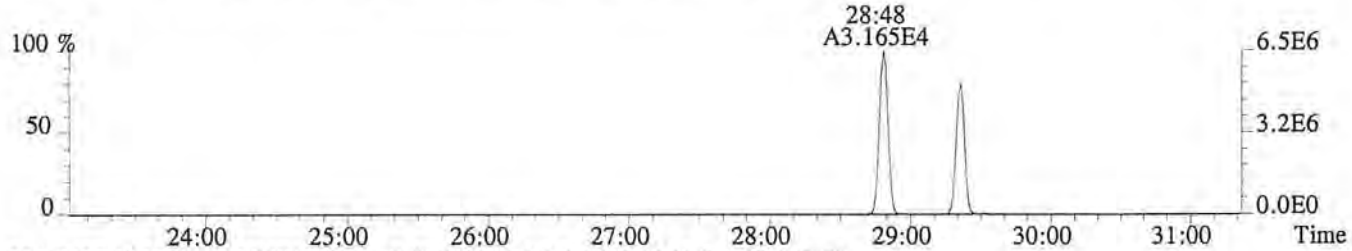
File:P301077 #1-591 Acq:28-AUG-2015 14:36:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-016
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



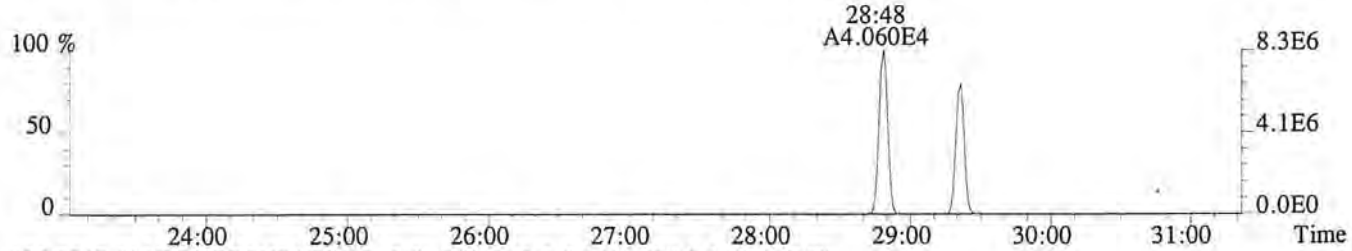
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1276.0,1.00%,F,T)



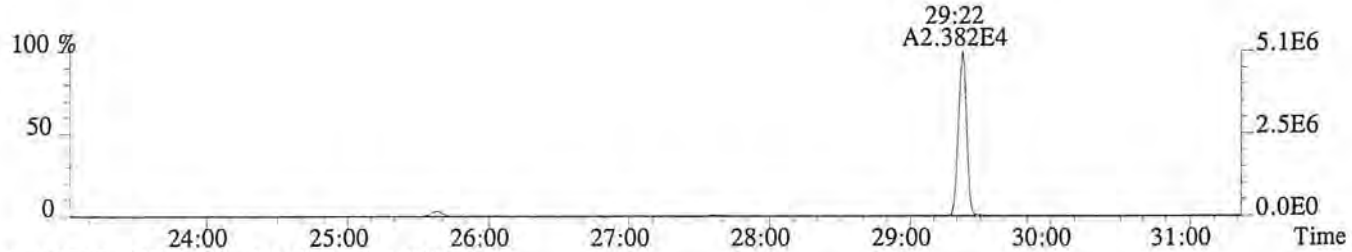
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6256.0,1.00%,F,T)



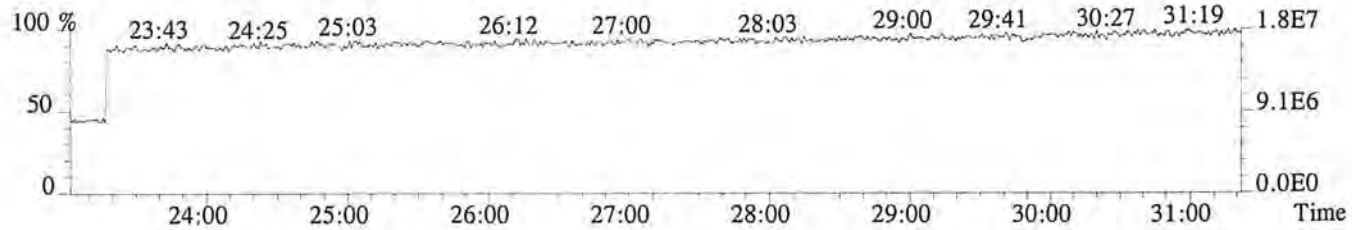
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



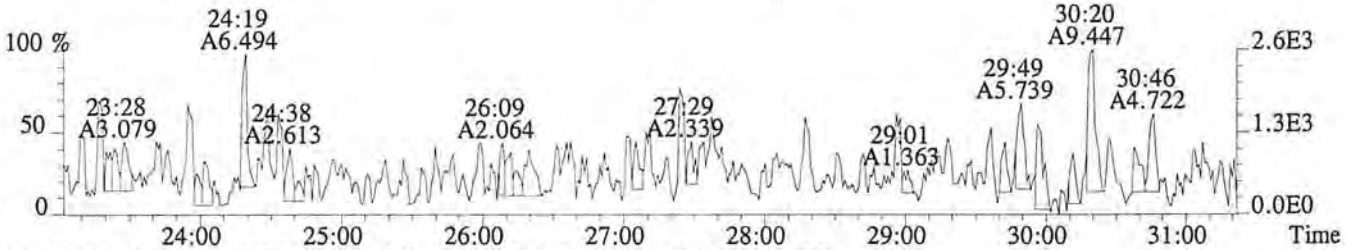
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



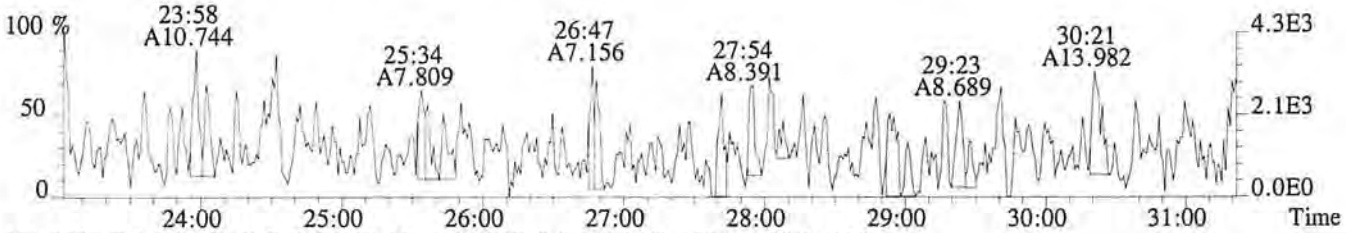
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



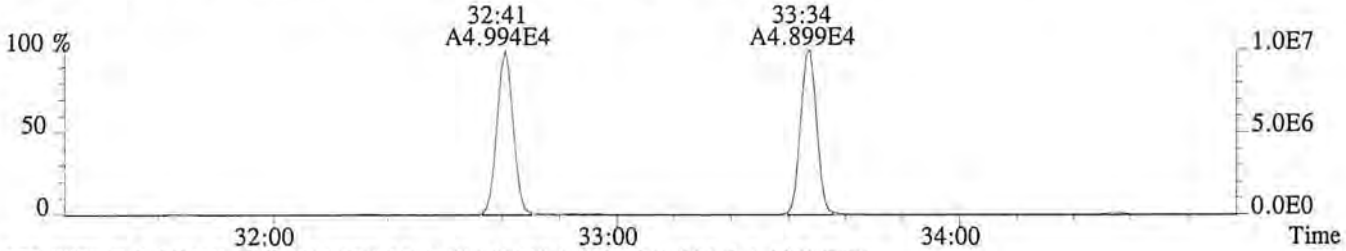
File:P301077 #1-591 Acq:28-AUG-2015 14:36:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-016
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



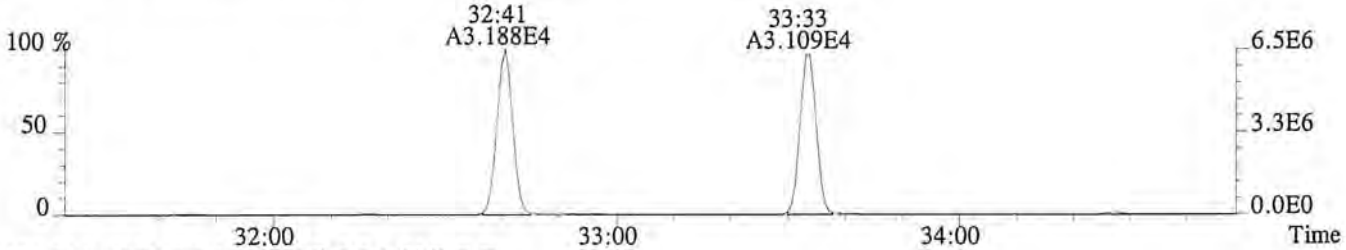
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)



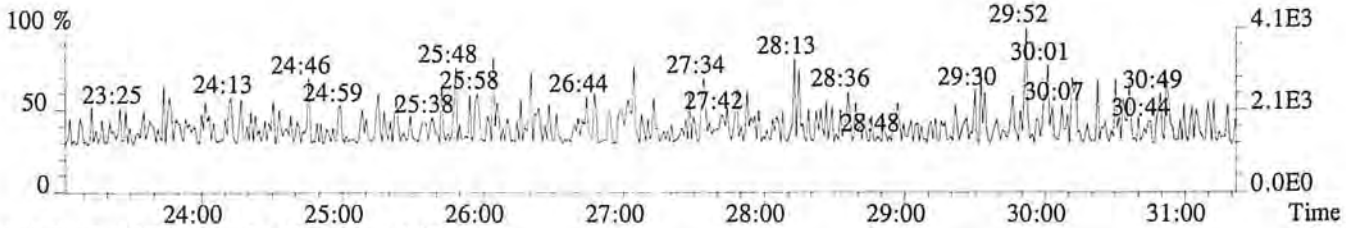
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



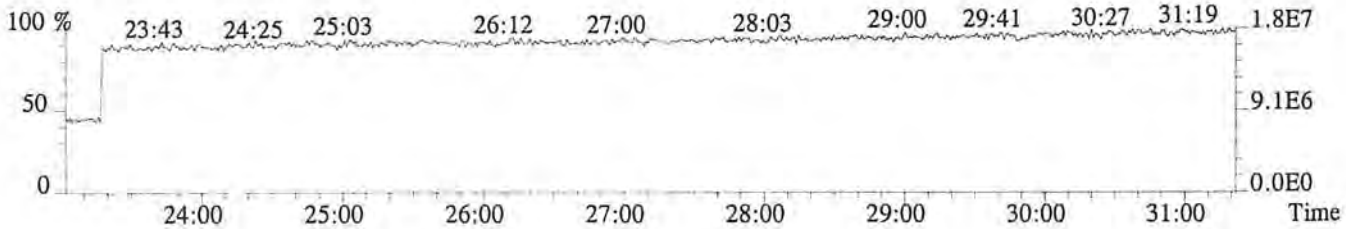
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



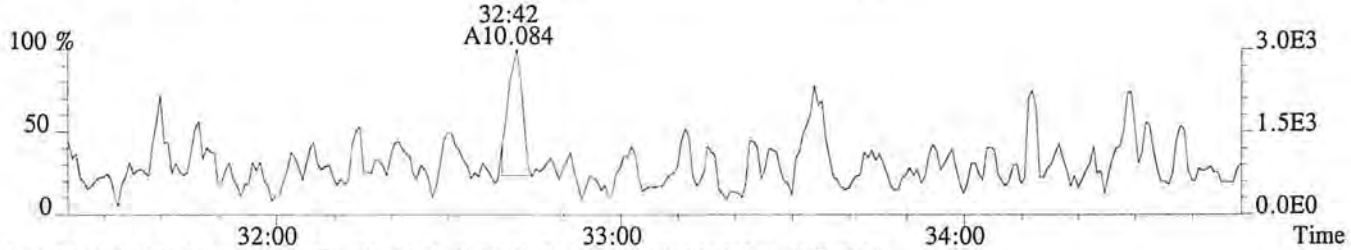
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



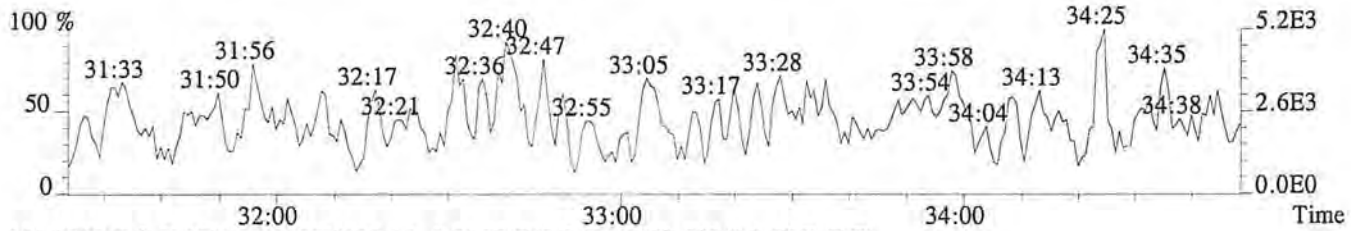
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



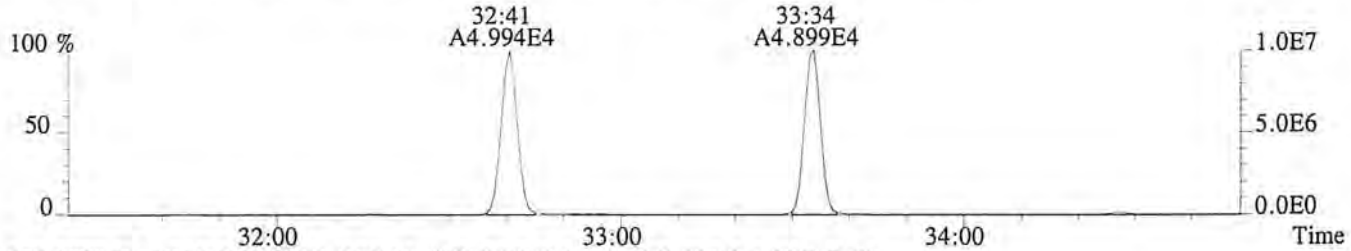
File:P301077 #1-308 Acq:28-AUG-2015 14:36:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-016
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



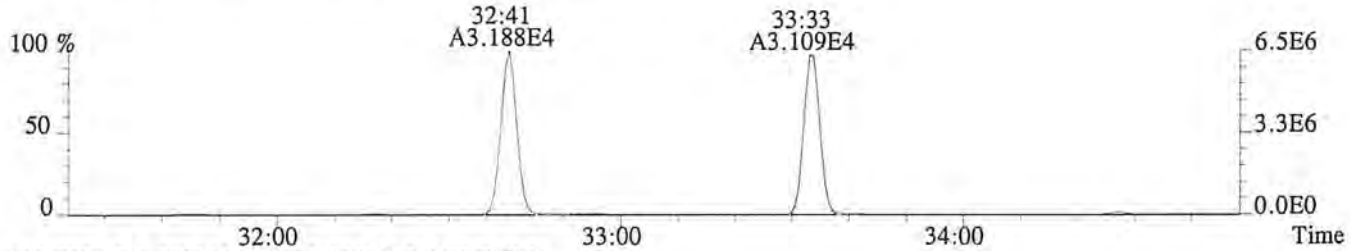
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2912.0,1.00%,F,T)



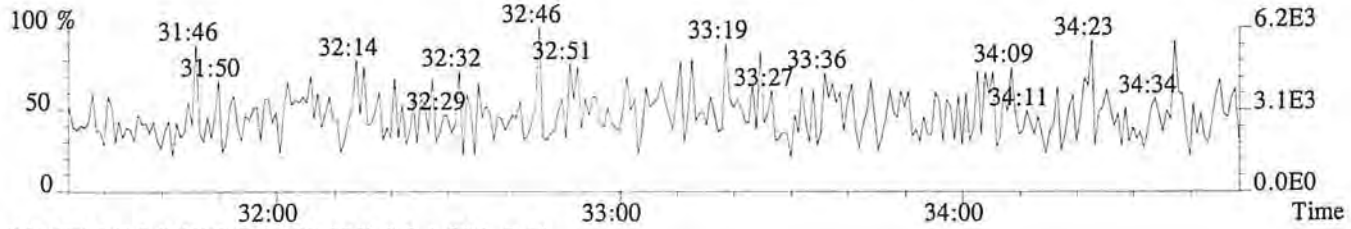
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



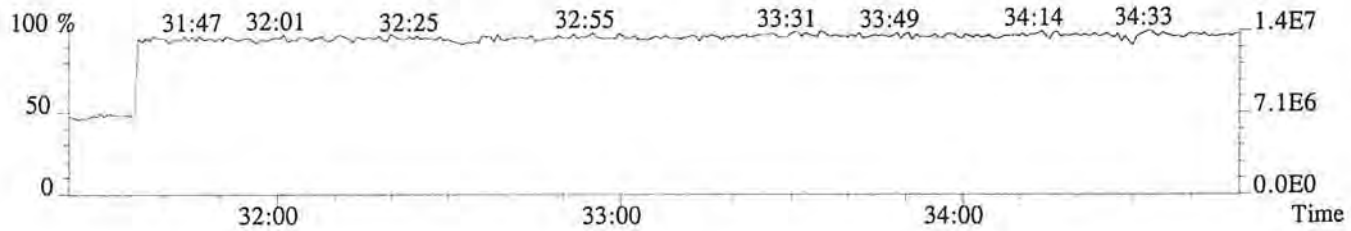
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



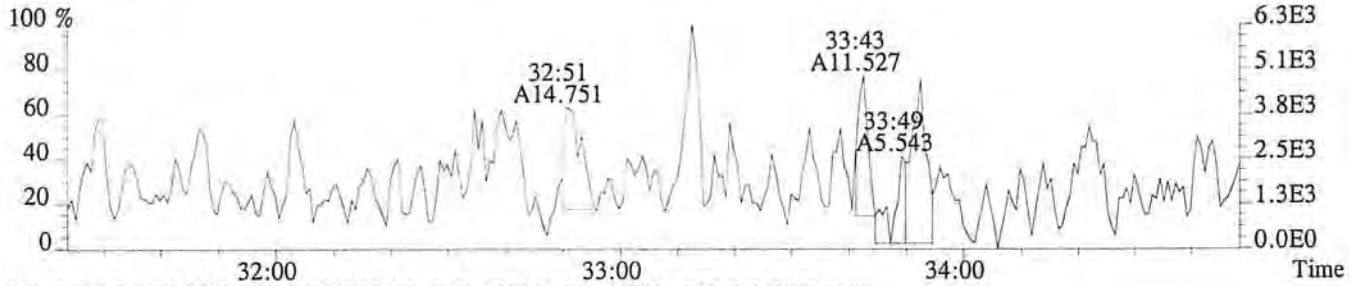
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



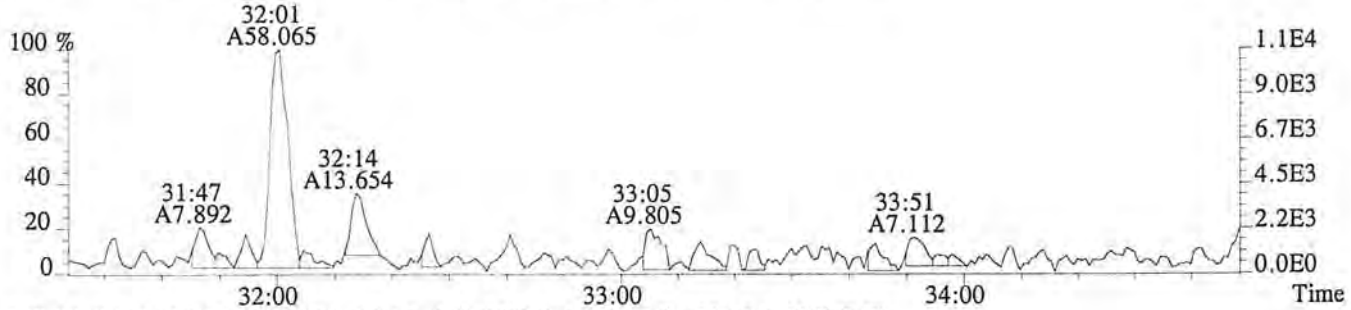
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



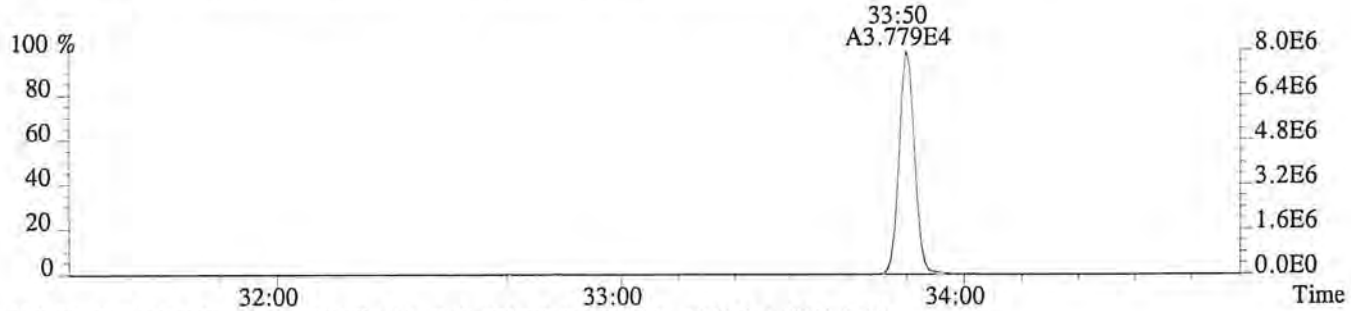
File:P301077 #1-308 Acq:28-AUG-2015 14:36:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-016
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



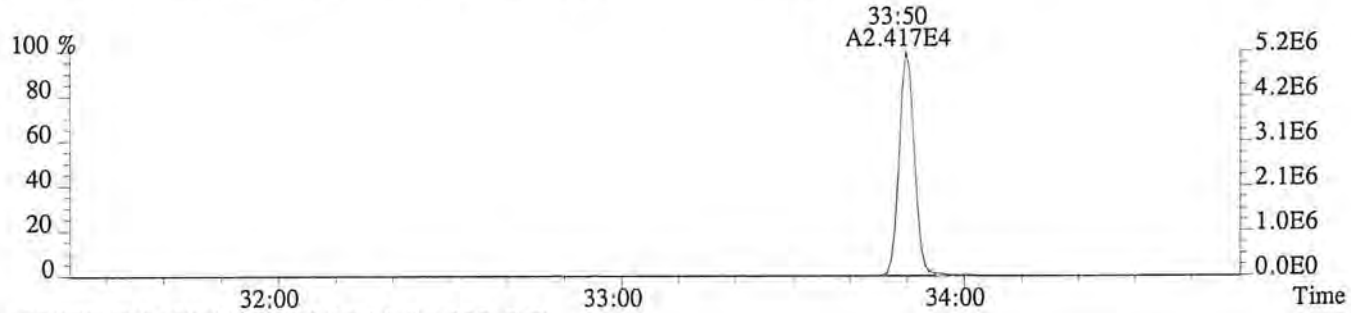
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



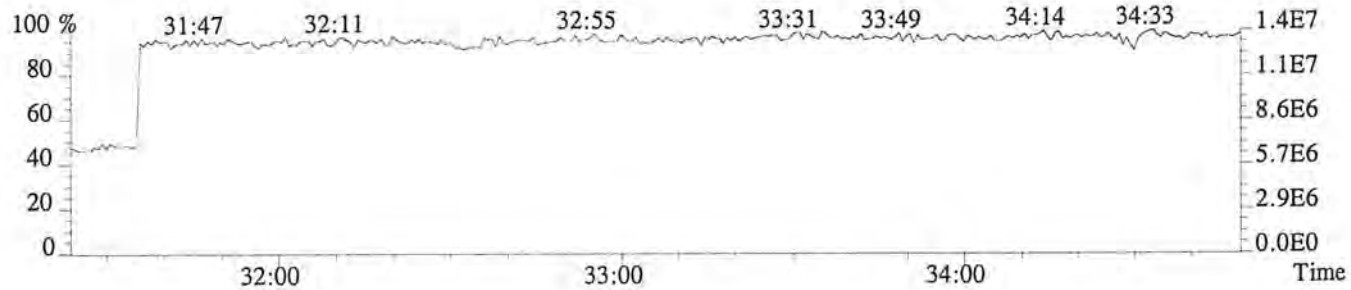
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1984.0,1.00%,F,T)



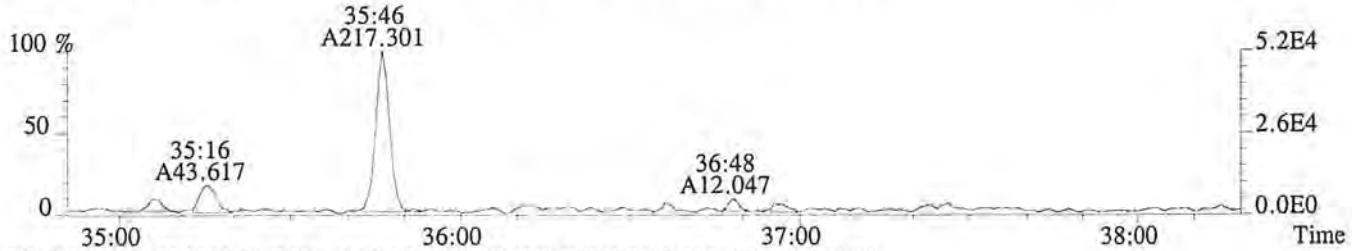
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

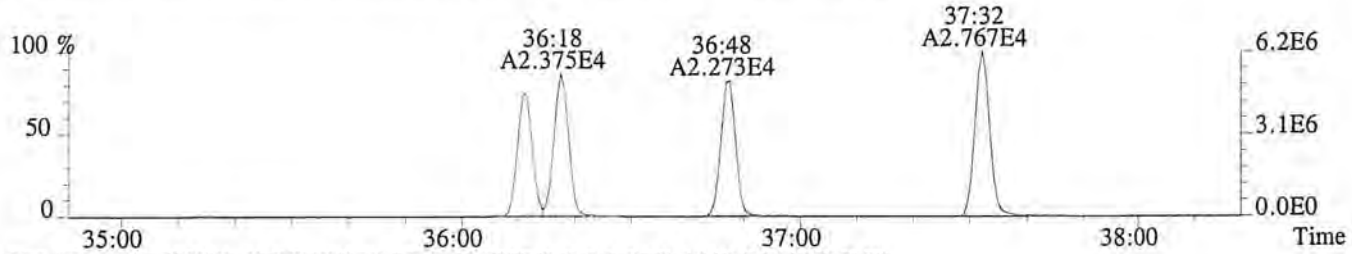


File:P301077 #1-312 Acq:28-AUG-2015 14:36:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-016
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1868.0,0.40%,F,T)

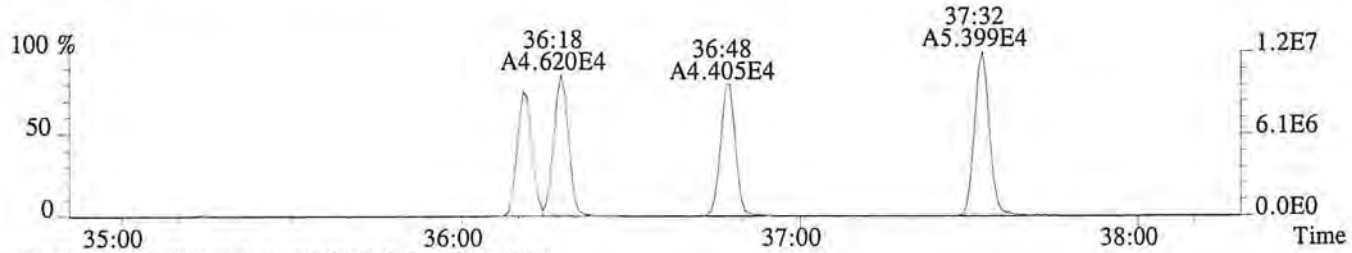


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)

383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)

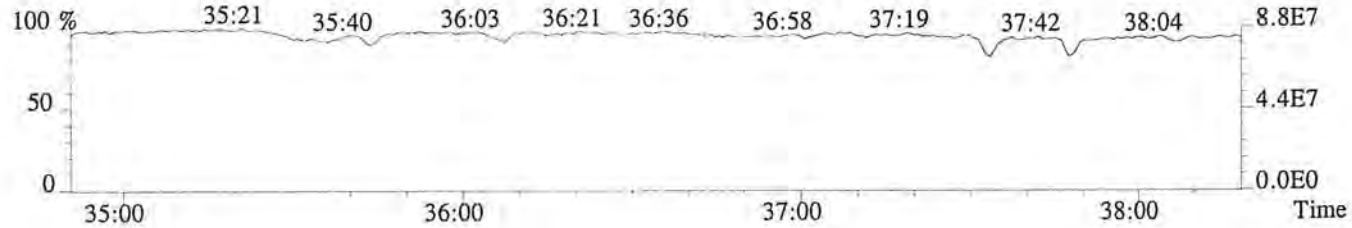


385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1448.0,0.40%,F,T)

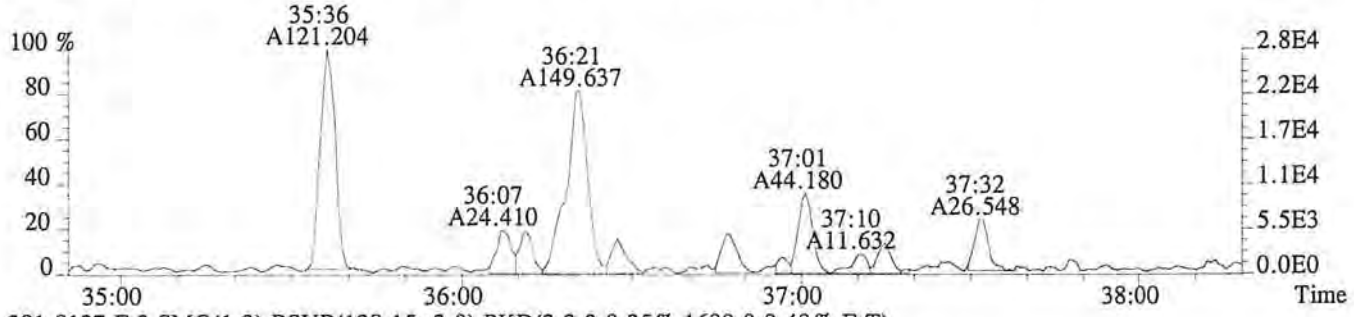


445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

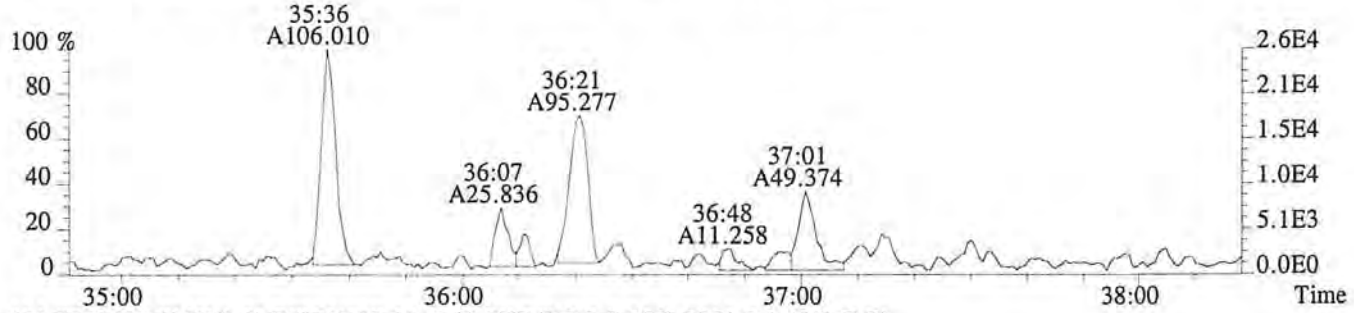
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



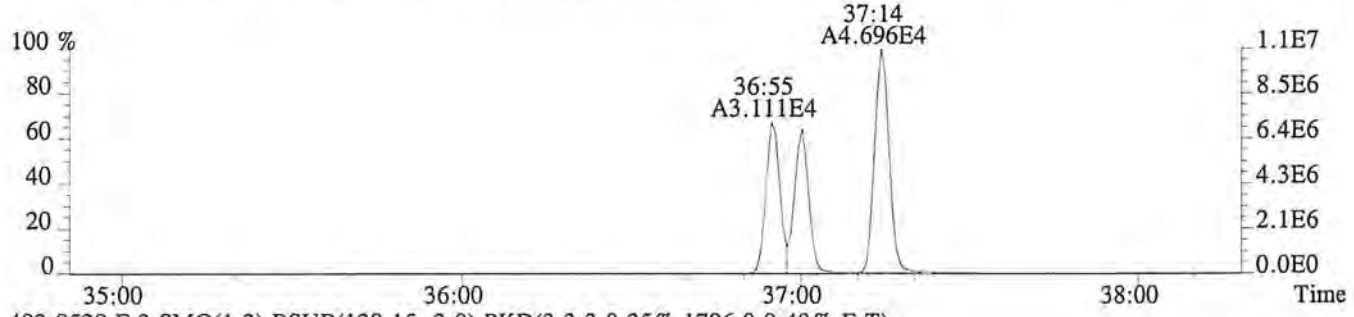
File:P301077 #1-312 Acq:28-AUG-2015 14:36:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-016
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



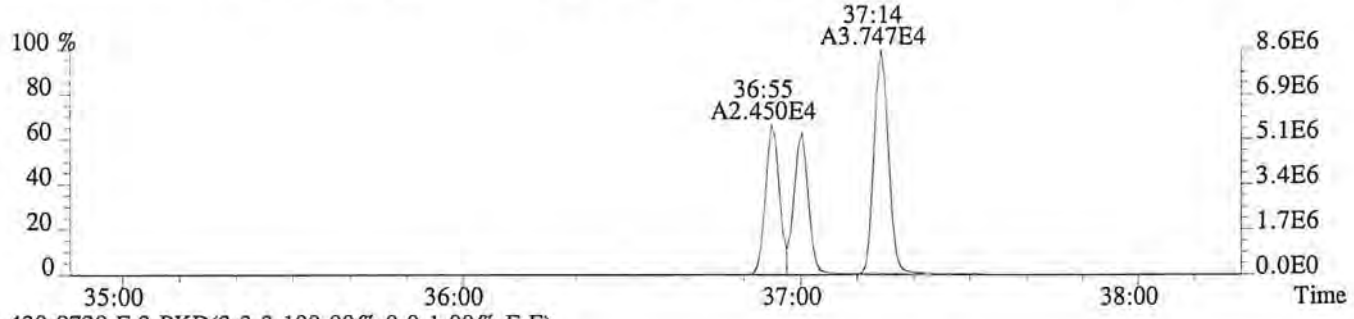
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



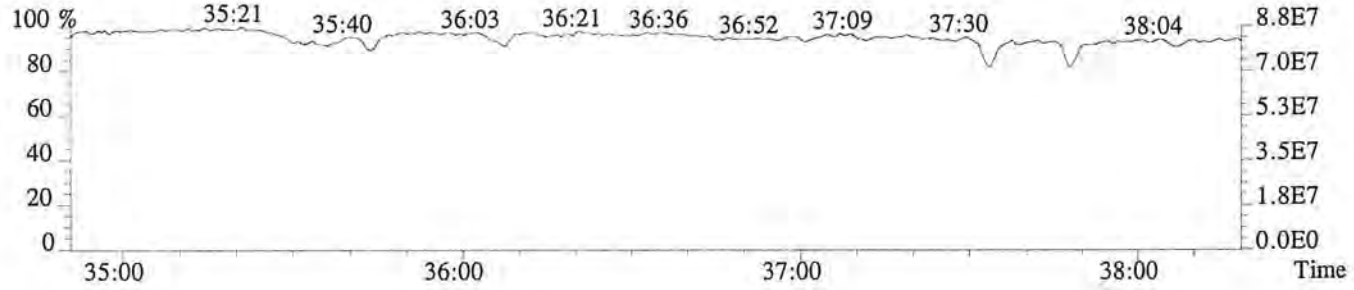
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2064.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1796.0,0.40%,F,T)



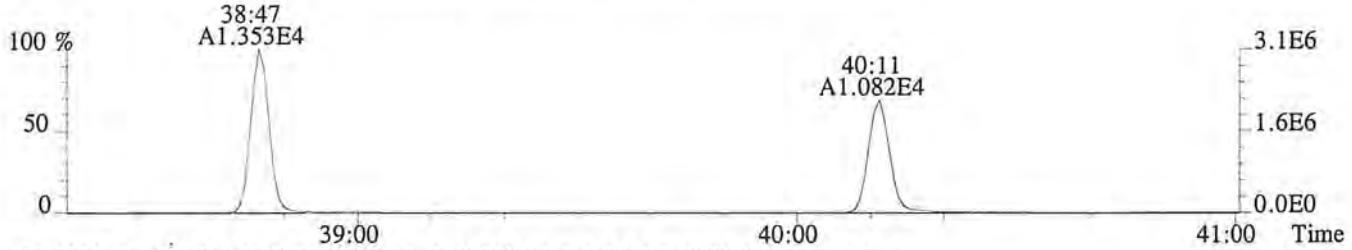
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



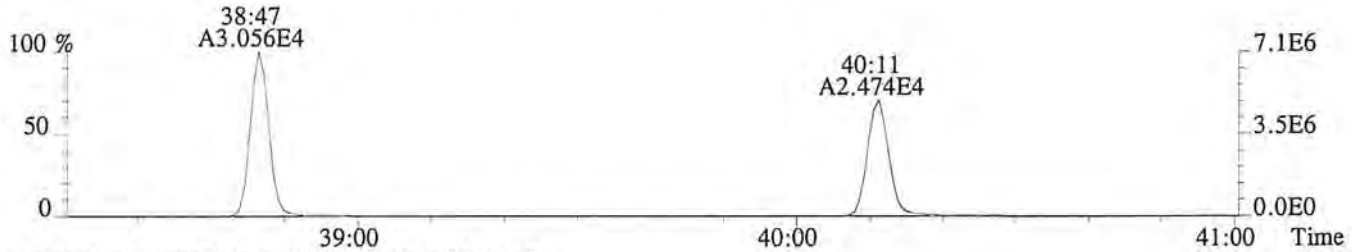
File:P301077 #1-241 Acq:28-AUG-2015 14:36:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-016
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,812.0,0.50%,F,T)

409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.50%,F,T)

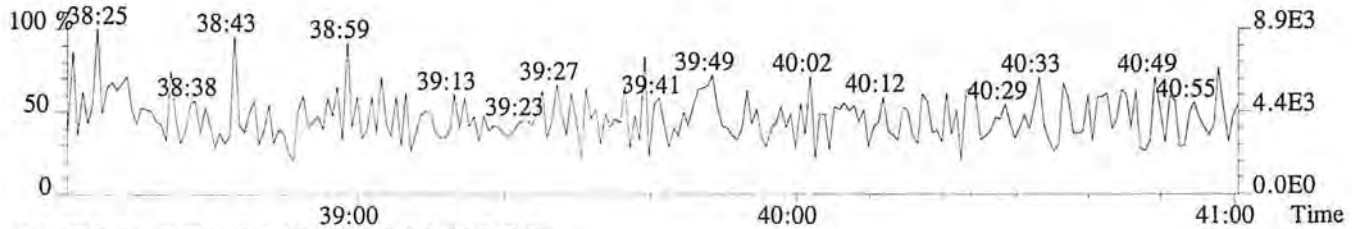
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3572.0,0.50%,F,T)



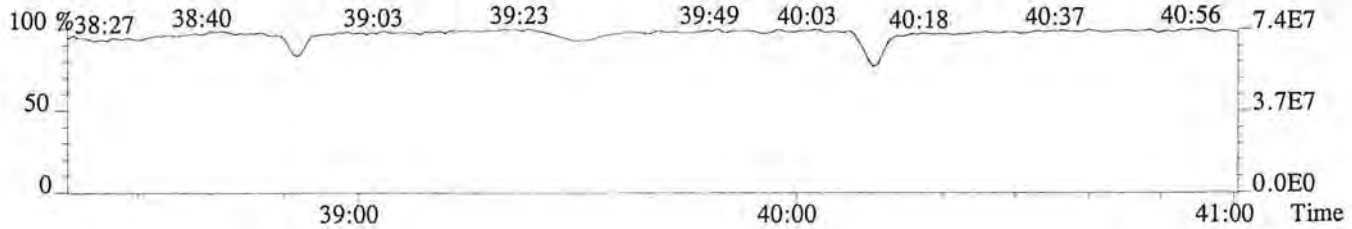
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2488.0,0.50%,F,T)



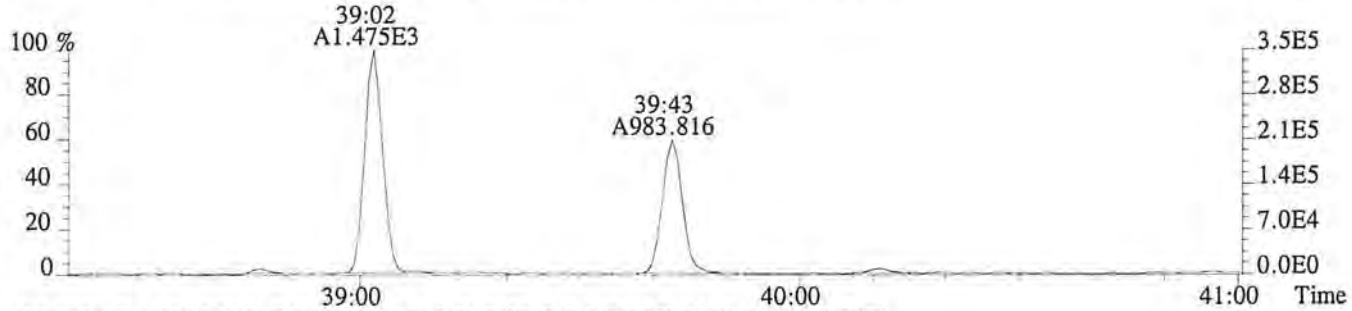
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



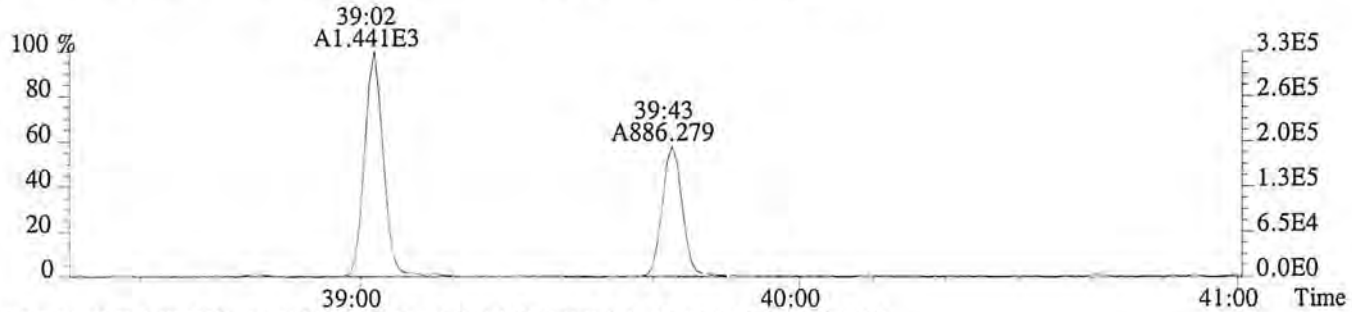
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



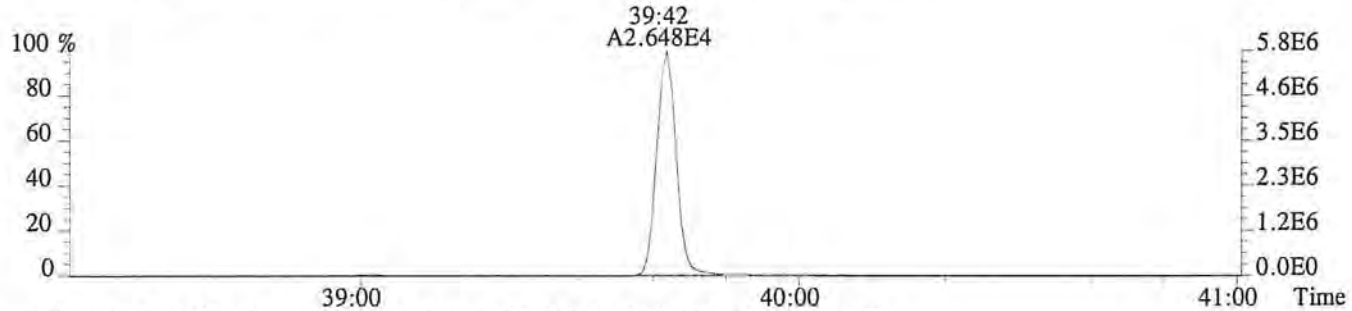
File:P301077 #1-241 Acq:28-AUG-2015 14:36:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-016
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1928.0,0.40%,F,T)



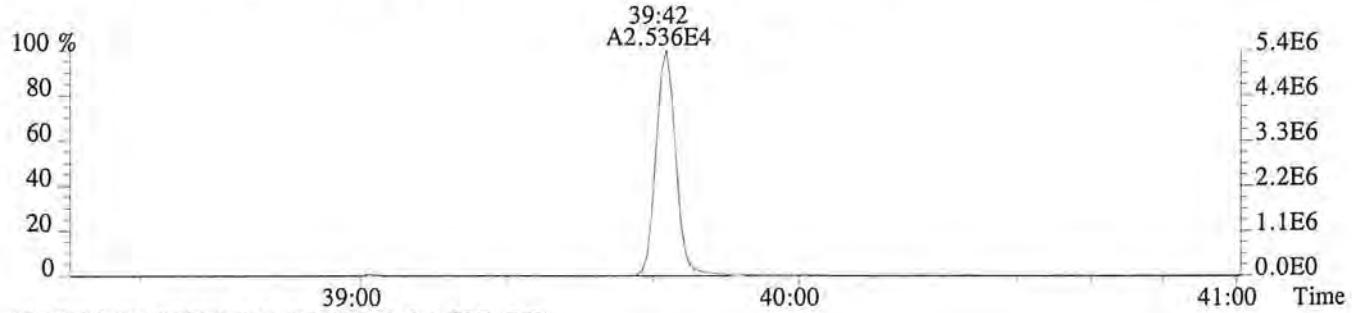
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1104.0,0.40%,F,T)



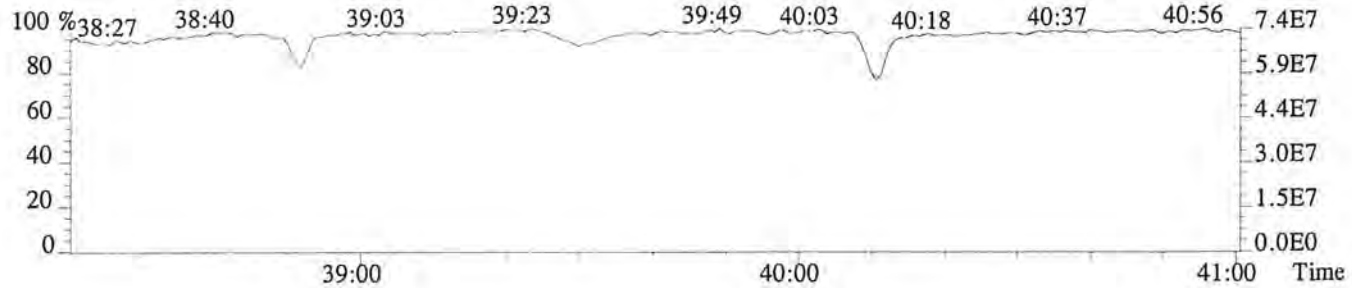
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2724.0,0.40%,F,T)



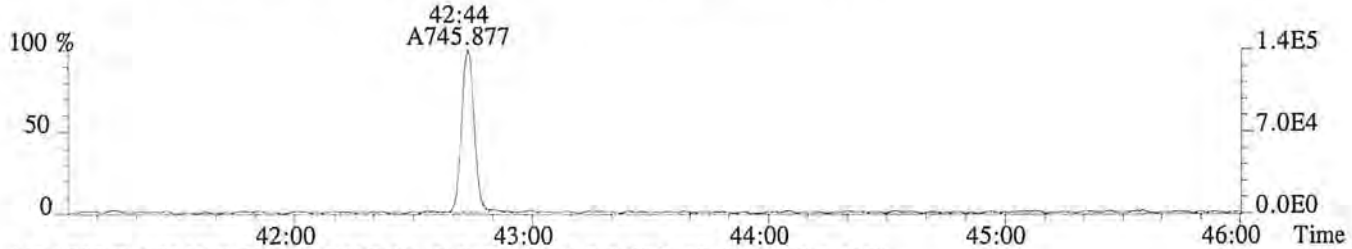
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1408.0,0.40%,F,T)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

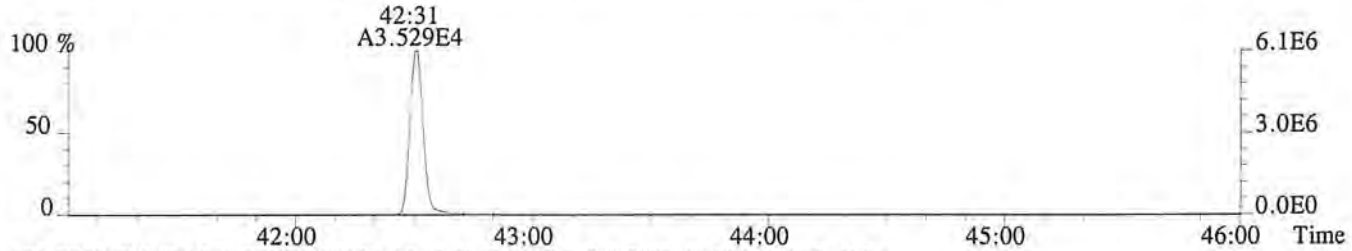


File:P301077 #1-447 Acq:28-AUG-2015 14:36:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-016
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1528.0,0.40%,F,T)

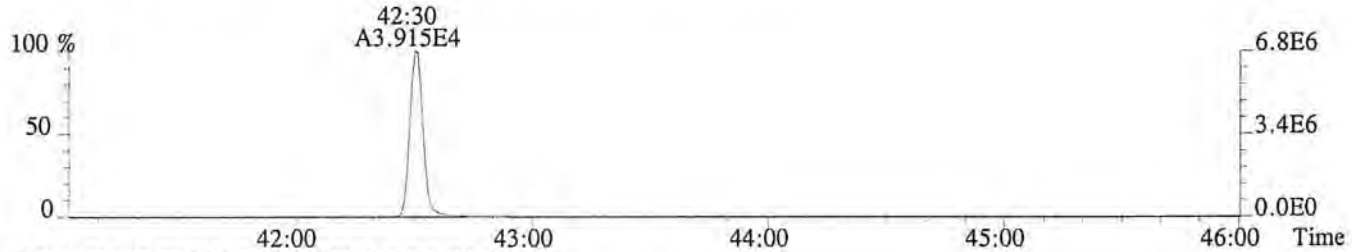


443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1988.0,0.40%,F,T)

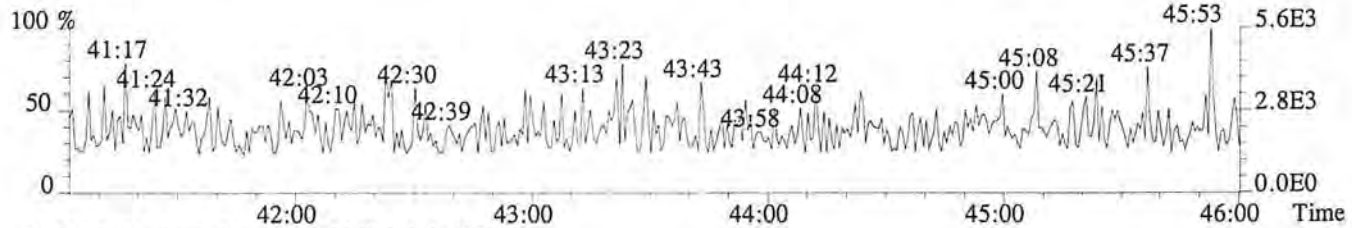
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,924.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1140.0,0.40%,F,T)

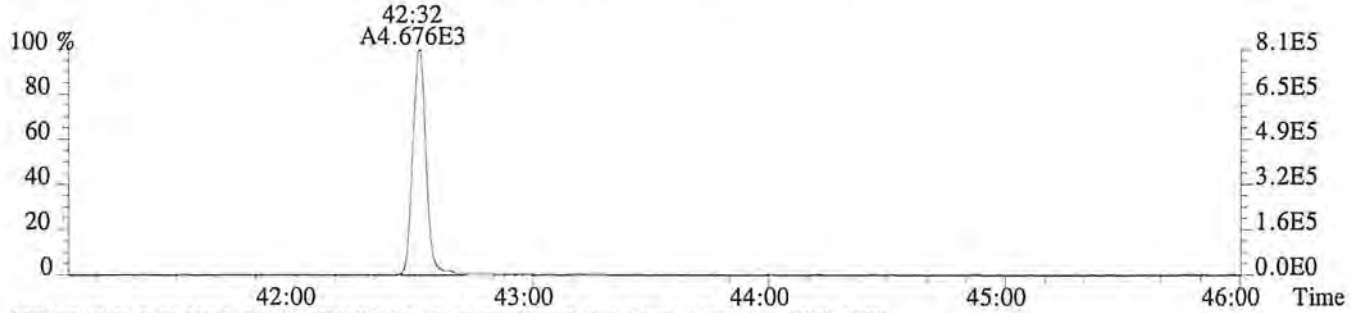


513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

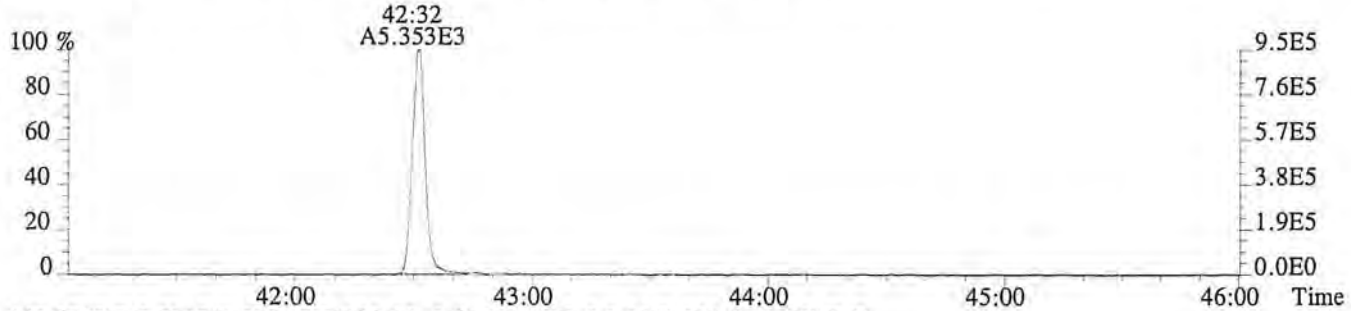


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

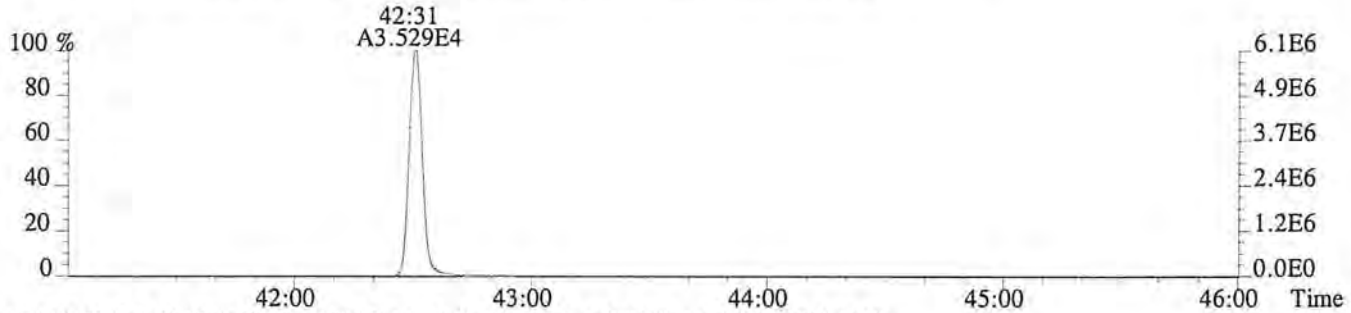
File:P301077 #1-447 Acq:28-AUG-2015 14:36:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-016
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



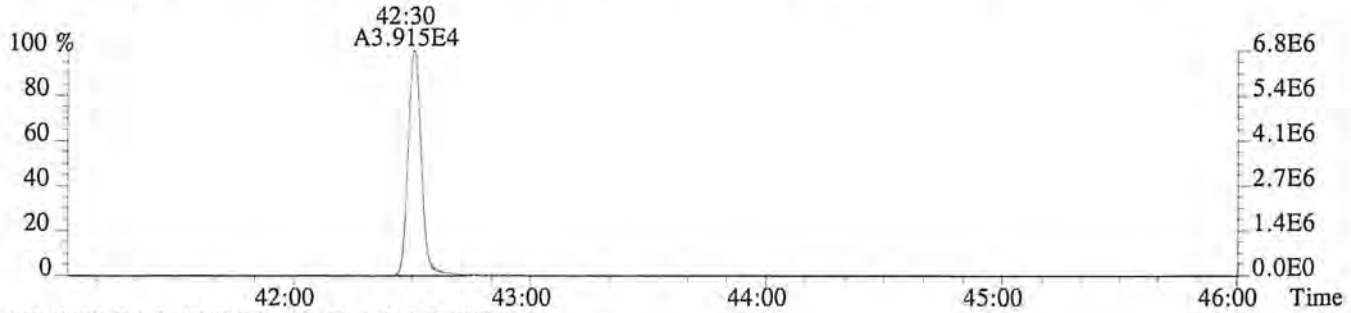
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1596.0,0.40%,F,T)



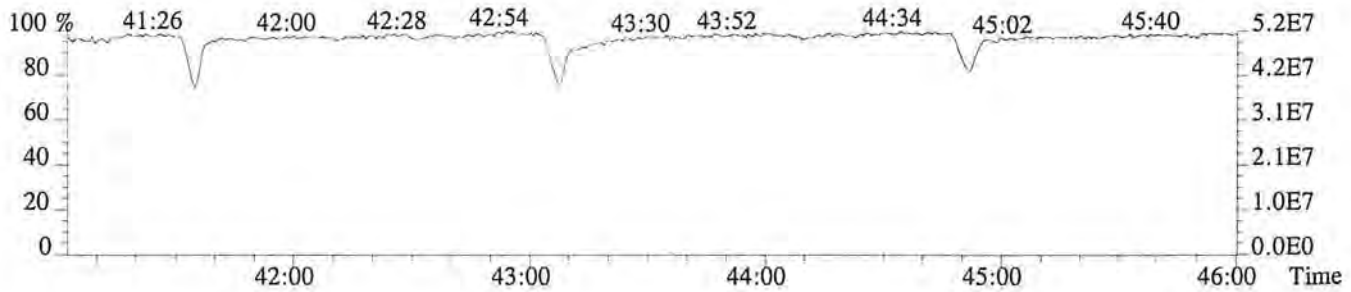
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,924.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1140.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-10-15 MT7

Run #9 Filename P301081 Samp: 1 Inj: 1 Acquired: 28-AUG-15 19:24:29
Processed: 31-AUG-15 15:03:39 Sample ID: E1500743-017

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	2.626e+02	3.275e+02	0.80	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:47	1.635e+02	1.746e+02	0.94	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.245
10	Unk	OCDF	42:43	4.670e+02	5.678e+02	0.82	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:22	2.759e+02	3.751e+02	0.74	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	0.887
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:01	2.741e+01	2.173e+01	1.26	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:42	4.224e+02	4.269e+02	0.99	yes	no	0.949
17	Unk	OCDD	42:30	2.398e+03	2.654e+03	0.90	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:37	1.096e+04	1.402e+04	0.78	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	2.000e+04	1.274e+04	1.57	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:34	2.014e+04	1.264e+04	1.59	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:11	9.462e+03	1.870e+04	0.51	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	1.115e+04	2.165e+04	0.51	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	1.064e+04	2.037e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:32	1.357e+04	2.670e+04	0.51	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:46	7.063e+03	1.632e+04	0.43	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:11	6.477e+03	1.481e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:21	8.929e+03	1.182e+04	0.76	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:50	1.548e+04	9.807e+03	1.58	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:55	1.434e+04	1.120e+04	1.28	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:00	1.452e+04	1.151e+04	1.26	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:41	1.313e+04	1.260e+04	1.04	yes	no	0.850
32	IS	13C-OCDD	42:30	1.923e+04	2.139e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:48	1.252e+04	1.591e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:14	2.179e+04	1.744e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	8.646e+03				no	1.001

$$\text{OCDD} = \frac{(2.398e+03 + 2.654e+03) \times 4000 \text{ pg} \times 1}{(1.923e+04 + 2.139e+04) \times 10.028 \text{ g} \times \quad / 100 \times 1.061} = 46.8 \text{ ng/kg}$$

8/31/15

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-10-15 MT7/MT

Run #9 Filename P301081 Samp: 1 Inj: 1 Acquired: 28-AUG-15 19:24:29
Processed: 31-AUG-15 15:03:39 LAB. ID: E1500743-017

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.81e+04	1.83e+03	2.6e+01	6.47e+04	2.73e+03	2.4e+01
2	1,2,3,7,8-PeCDF	*	9.16e+02	*	*	2.20e+03	*
3	2,3,4,7,8-PeCDF	*	9.16e+02	*	*	2.20e+03	*
4	1,2,3,4,7,8-HxCDF	*	2.34e+03	*	*	9.24e+02	*
5	1,2,3,6,7,8-HxCDF	*	2.34e+03	*	*	9.24e+02	*
6	2,3,4,6,7,8-HxCDF	*	2.34e+03	*	*	9.24e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.34e+03	*	*	9.24e+02	*
8	1,2,3,4,6,7,8-HpCDF	3.61e+04	1.63e+03	2.2e+01	3.26e+04	1.04e+03	3.1e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.63e+03	*	*	1.04e+03	*
10	OCDF	8.19e+04	1.90e+03	4.3e+01	9.80e+04	2.03e+03	4.8e+01
11	2,3,7,8-TCDD	5.50e+04	1.36e+03	4.0e+01	7.99e+04	8.44e+02	9.5e+01
12	1,2,3,7,8-PeCDD	*	2.16e+03	*	*	5.92e+02	*
13	1,2,3,4,7,8-HxCDD	*	6.64e+02	*	*	1.03e+03	*
14	1,2,3,6,7,8-HxCDD	5.94e+03	6.64e+02	8.9e+00	5.53e+03	1.03e+03	5.4e+00
15	1,2,3,7,8,9-HxCDD	*	6.64e+02	*	*	1.03e+03	*
16	1,2,3,4,6,7,8-HpCDD	8.76e+04	1.70e+03	5.2e+01	8.91e+04	1.13e+03	7.9e+01
17	OCDD	4.44e+05	1.06e+03	4.2e+02	4.73e+05	1.61e+03	2.9e+02
18	13C-2,3,7,8-TCDF	2.12e+06	1.24e+03	1.7e+03	2.68e+06	1.96e+03	1.4e+03
19	13C-1,2,3,7,8-PeCDF	4.07e+06	9.40e+02	4.3e+03	2.60e+06	1.14e+03	2.3e+03
20	13C-2,3,4,7,8-PeCDF	4.13e+06	9.40e+02	4.4e+03	2.61e+06	1.14e+03	2.3e+03
21	13C-1,2,3,4,7,8-HxCDF	2.14e+06	1.48e+03	1.4e+03	4.25e+06	1.45e+03	2.9e+03
22	13C-1,2,3,6,7,8-HxCDF	2.41e+06	1.48e+03	1.6e+03	4.77e+06	1.45e+03	3.3e+03
23	13C-2,3,4,6,7,8-HxCDF	2.37e+06	1.48e+03	1.6e+03	4.53e+06	1.45e+03	3.1e+03
24	13C-1,2,3,7,8,9-HxCDF	3.01e+06	1.48e+03	2.0e+03	5.85e+06	1.45e+03	4.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.54e+06	3.05e+03	5.0e+02	3.61e+06	2.00e+03	1.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.29e+06	3.05e+03	4.2e+02	3.05e+06	2.00e+03	1.5e+03
27	13C-2,3,7,8-TCDD	1.89e+06	7.80e+03	2.4e+02	2.51e+06	4.10e+03	6.1e+02
28	13C-1,2,3,7,8-PeCDD	3.26e+06	1.50e+03	2.2e+03	2.06e+06	1.53e+03	1.3e+03
29	13C-1,2,3,4,7,8-HxCDD	3.31e+06	1.66e+03	2.0e+03	2.60e+06	1.70e+03	1.5e+03
30	13C-1,2,3,6,7,8-HxCDD	3.27e+06	1.66e+03	2.0e+03	2.59e+06	1.70e+03	1.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.82e+06	2.15e+03	1.3e+03	2.68e+06	1.02e+03	2.6e+03
32	13C-OCDD	3.35e+06	9.52e+02	3.5e+03	3.79e+06	1.06e+03	3.6e+03
33	13C-1,2,3,4-TCDD	2.50e+06	7.80e+03	3.2e+02	3.21e+06	4.10e+03	7.8e+02
34	13C-1,2,3,7,8,9-HxCDD	4.90e+06	1.66e+03	2.9e+03	3.95e+06	1.70e+03	2.3e+03
35	37Cl-2,3,7,8-TCDD	1.81e+06	1.42e+03	1.3e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-10-15 MT7/MT

Entry: 36 Totals Name: Total Tetra-Furans

Run: 9 File: P301081 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 19:24:29 Processed: 31-AUG-15 15:03:39

Mass: 303.9020 305.8990 Tot Response: 5.90e+02 RRF: 0.8496

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:37	2.63e+02	3.27e+02	0.80	yes	5.90e+02	2,3,7,8-TCDF	n	n

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Peak List Summary

CLIENT ID.

PLY-10-15 MT7/MT

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 9 File: P301081 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 19:24:29 Processed: 31-AUG-15 15:03:39

Mass: 319.8970 321.8940 Tot Response: 6.51e+02 RRF: 0.9567

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:22	2.76e+02	3.75e+02	0.74	yes	6.51e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.

PLY-10-15 MT7/MT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 9 File: P301081 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 19:24:29 Processed: 31-AUG-15 15:03:39

Mass: 373.8210 375.8180 Tot Response: 2.48e+02 RRF: 1.094

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:16	2.45e+01	2.10e+01	1.17	yes	4.55e+01	n	n
2	35:46	1.09e+02	9.31e+01	1.17	yes	2.02e+02	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-10-15 MT7/MT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 9 File: P301081 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 19:24:29 Processed: 31-AUG-15 15:03:39

Mass: 389.8160 391.8130 Tot Response: 1.74e+02 RRF: 0.9904

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:22	6.91e+01	5.61e+01	1.23	yes	1.25e+02	y	y
2	37:01	2.74e+01	2.17e+01	1.26	yes	4.91e+01 1,2,3,6,7,8-HxCDD	n	n

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Peak List Summary

CLIENT ID.

PLY-10-15 MT7/MT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 9 File: P301081 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 19:24:29 Processed: 31-AUG-15 15:03:39

Mass: 407.7820 409.7790 Tot Response: 1.34e+03 RRF: 1.284

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:47	1.64e+02	1.75e+02	0.94	yes	3.38e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:11	5.23e+02	4.80e+02	1.09	yes	1.00e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-10-15 MT7/MT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 9 File: P301081 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 19:24:29 Processed: 31-AUG-15 15:03:39

Mass: 423.7770 425.7740 Tot Response: 2.25e+03 RRF: 0.9492

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:02	7.00e+02	7.04e+02	0.99	yes	1.40e+03	n	n
2	39:42	4.22e+02	4.27e+02	0.99	yes	8.49e+02	1,2,3,4,6,7,8-HpCDD	n	n

ALS ENVIRONMENTAL
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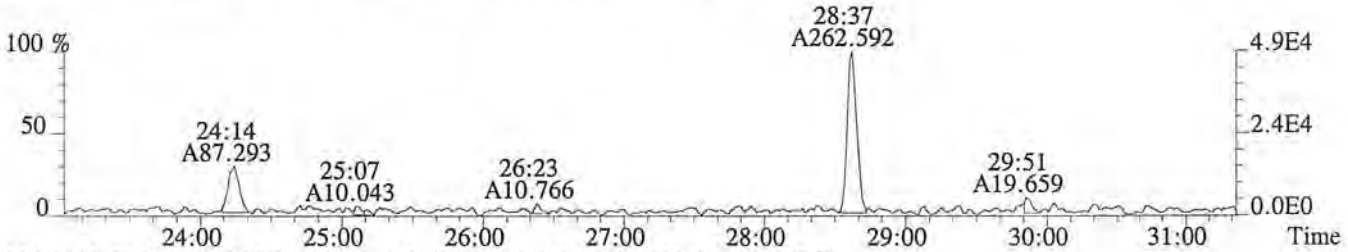
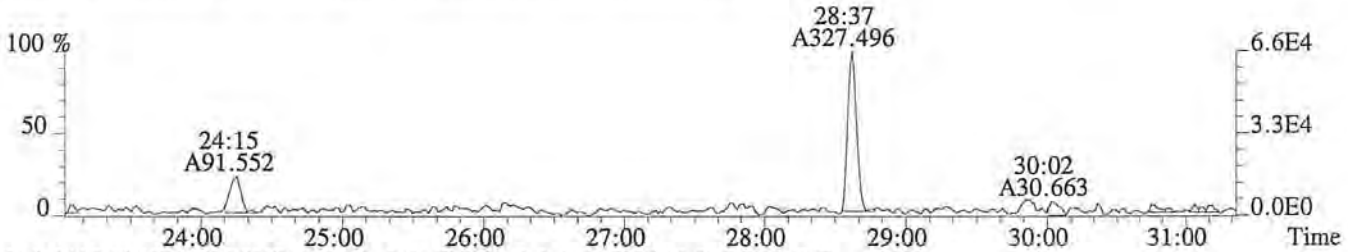
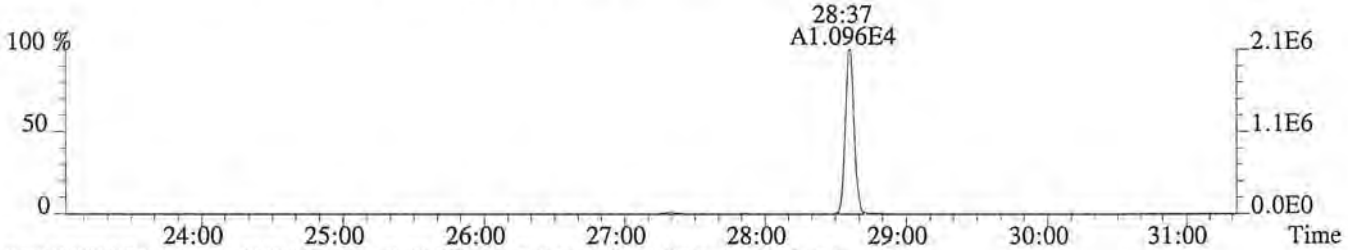
File:P301081 #1-591 Acq:28-AUG-2015 19:24:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-017
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)



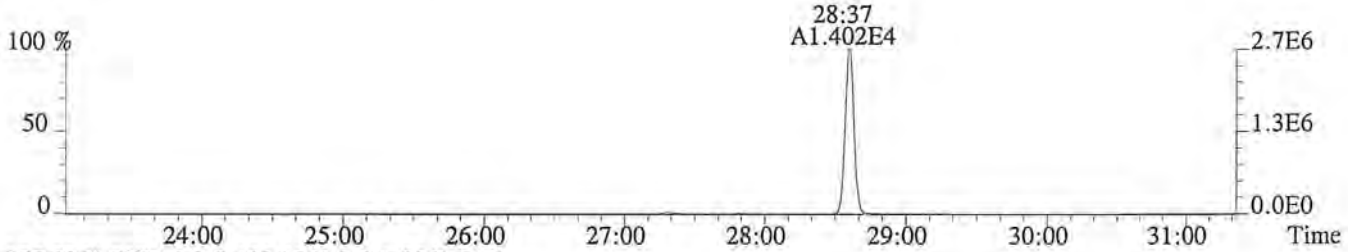
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2732.0,1.00%,F,T)



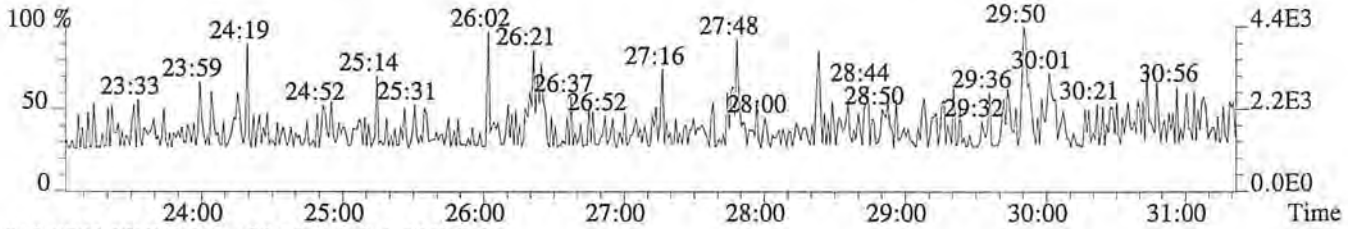
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



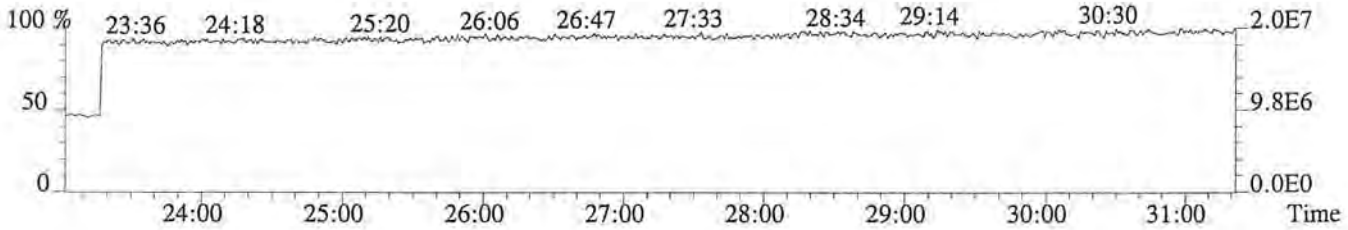
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1960.0,1.00%,F,T)



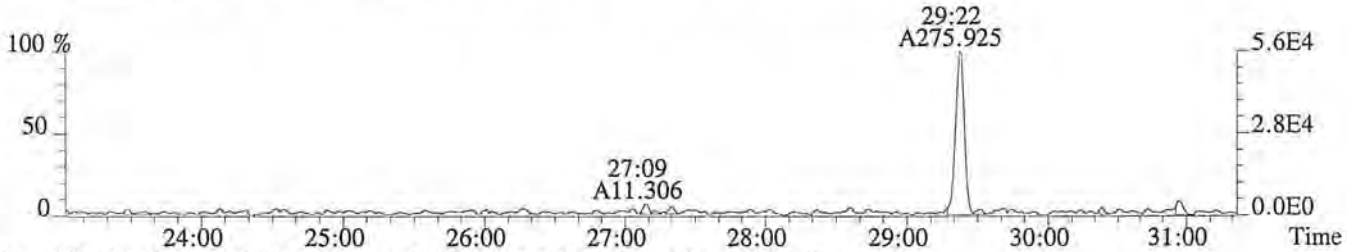
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



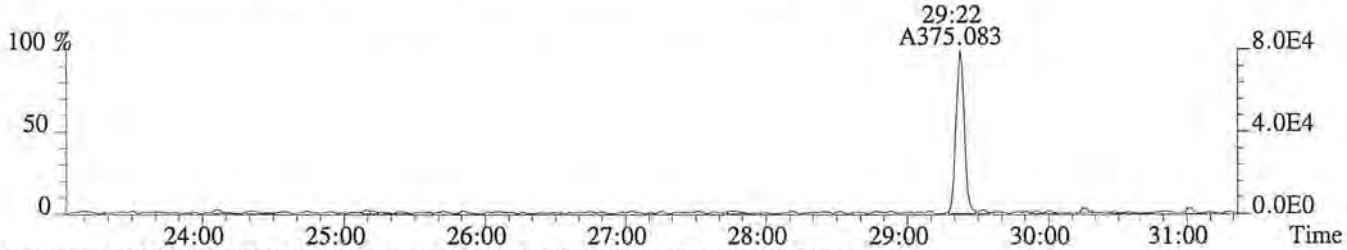
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



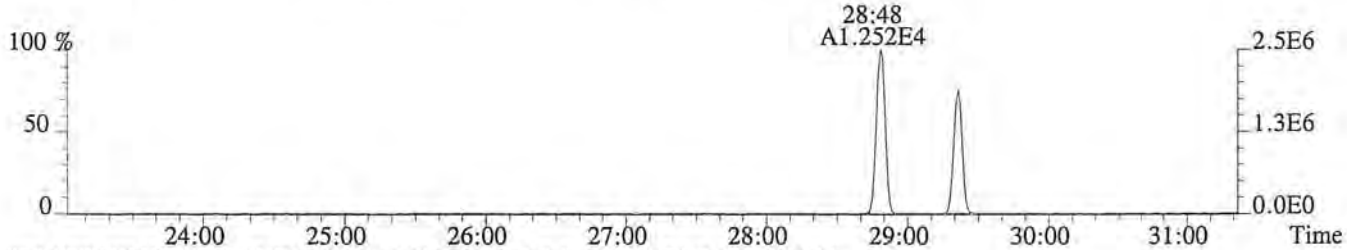
File:P301081 #1-591 Acq:28-AUG-2015 19:24:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-017
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1364.0,1.00%,F,T)



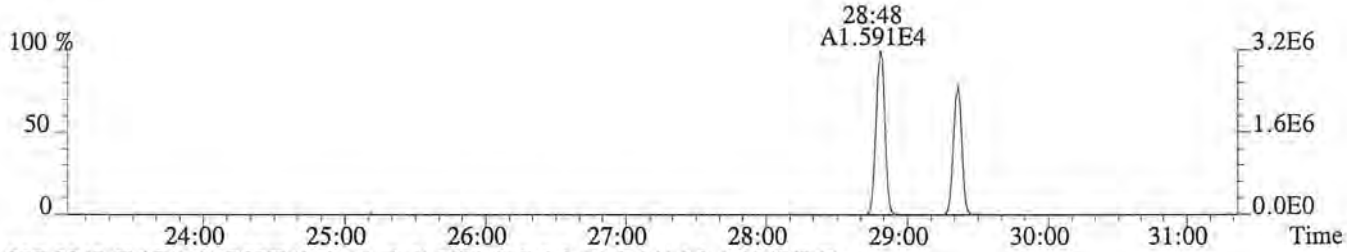
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



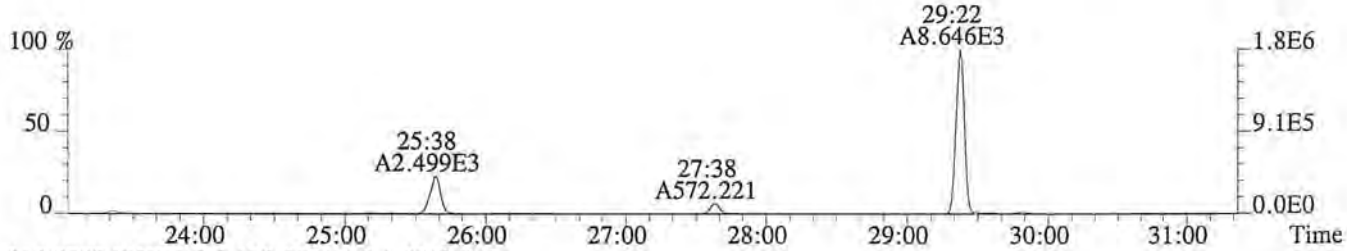
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7800.0,1.00%,F,T)



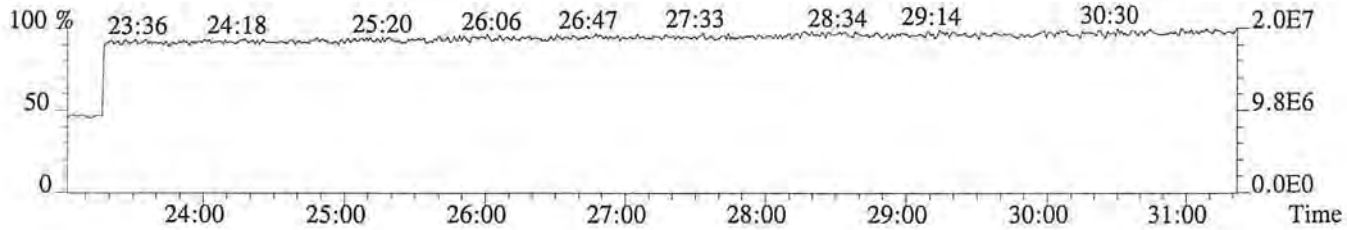
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4104.0,1.00%,F,T)



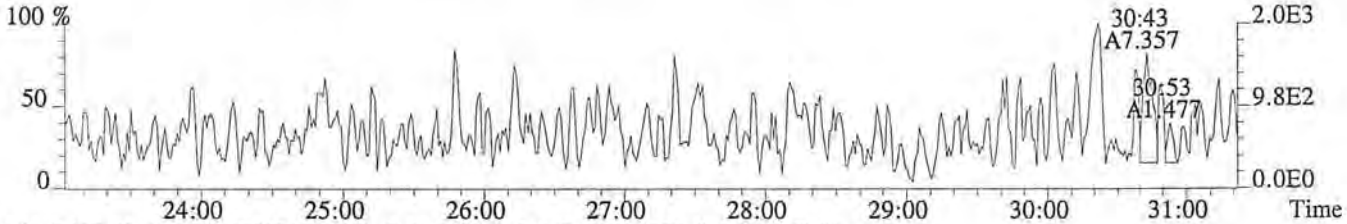
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)



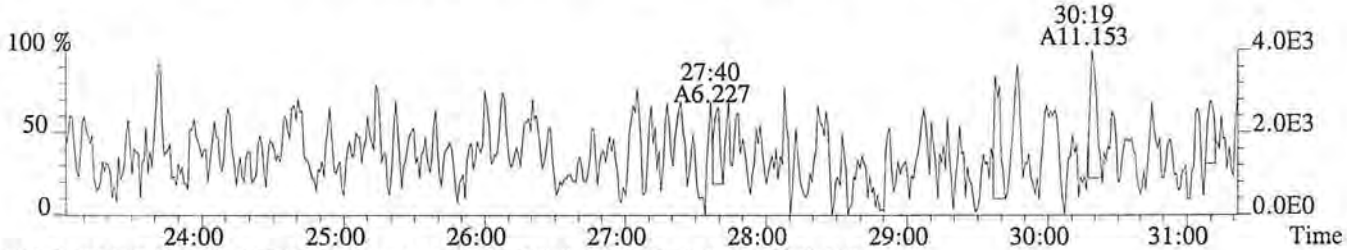
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



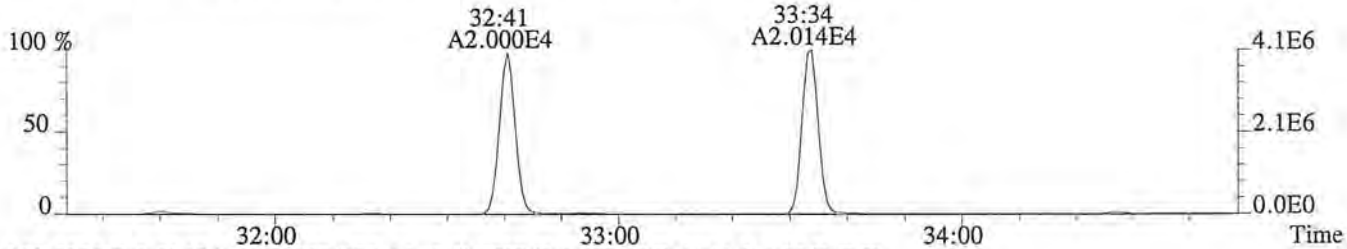
File:P301081 #1-591 Acq:28-AUG-2015 19:24:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-017
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



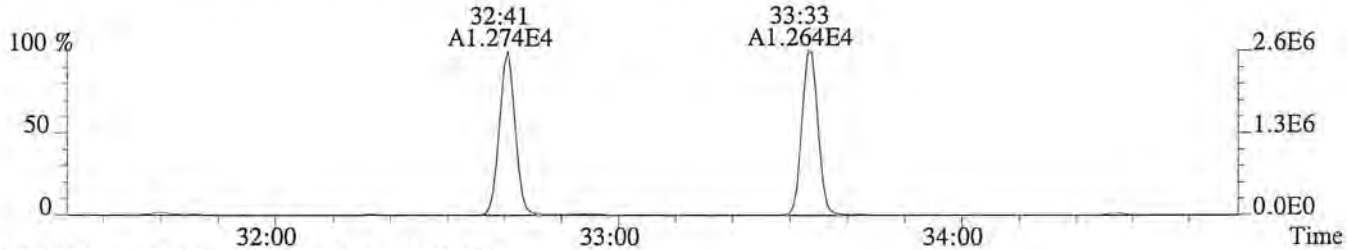
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1728.0,1.00%,F,T)



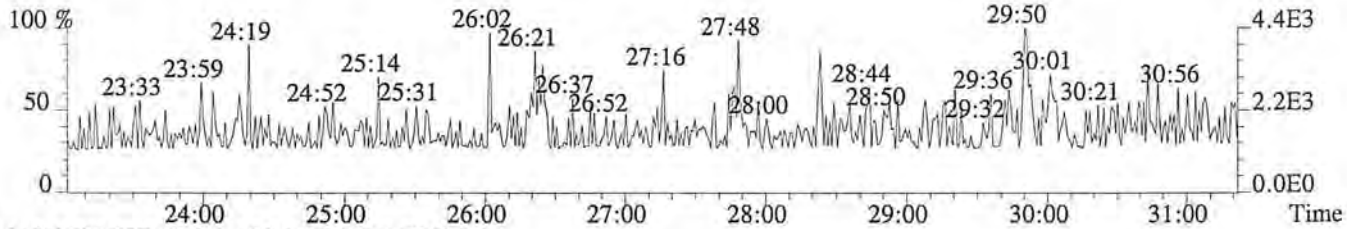
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



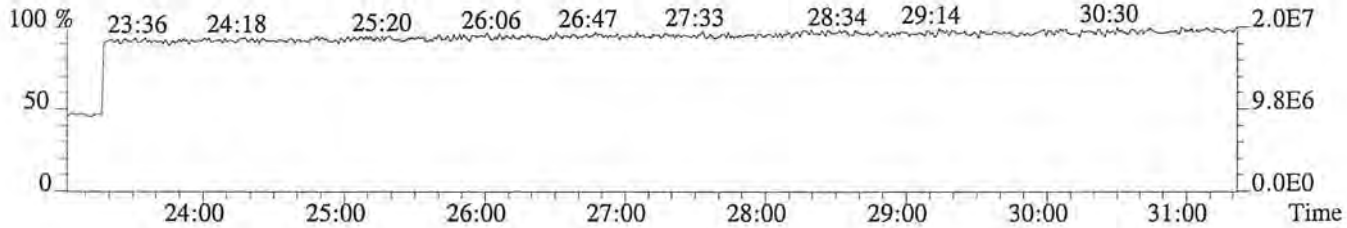
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



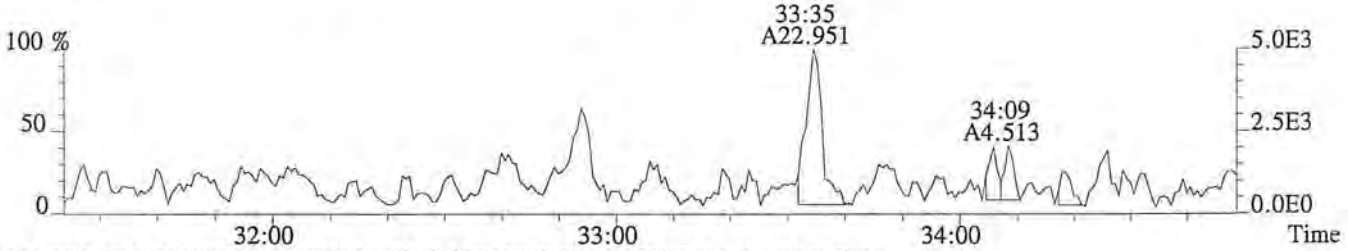
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



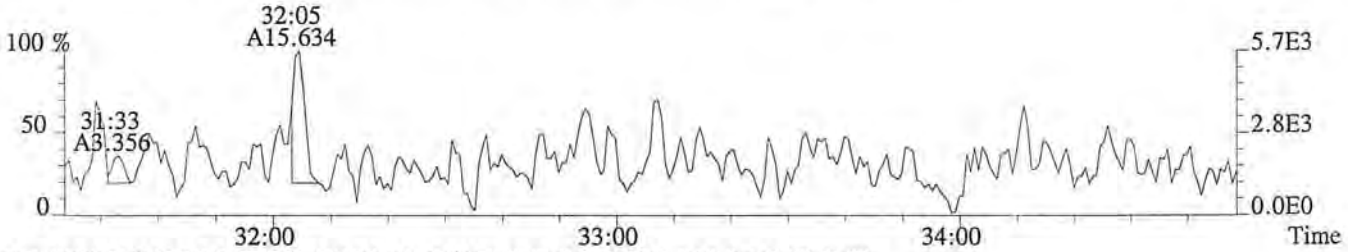
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



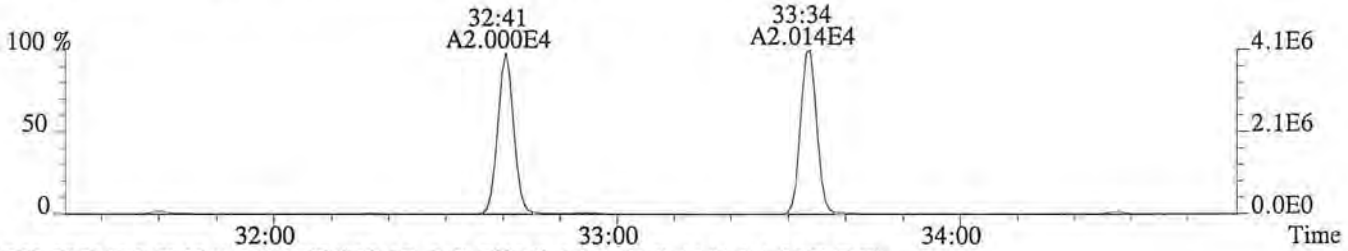
File:P301081 #1-308 Acq:28-AUG-2015 19:24:29 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1500743-017
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



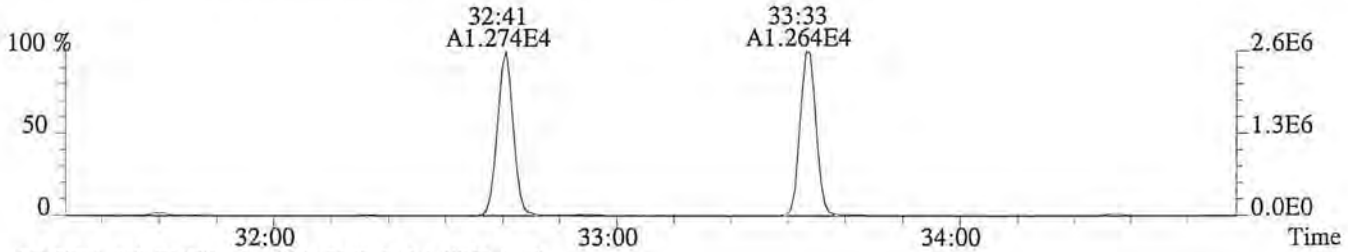
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2196.0,1.00%,F,T)



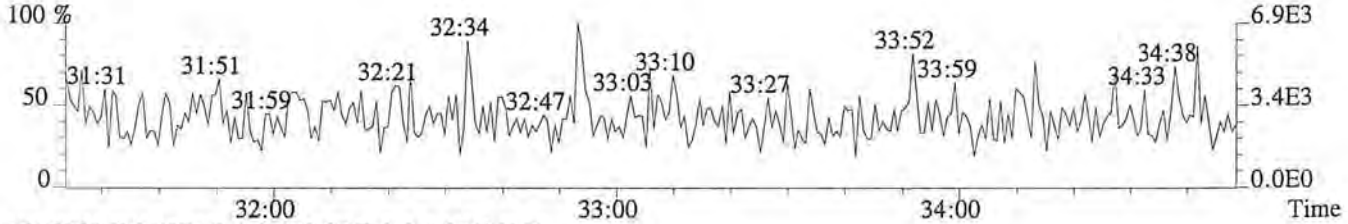
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



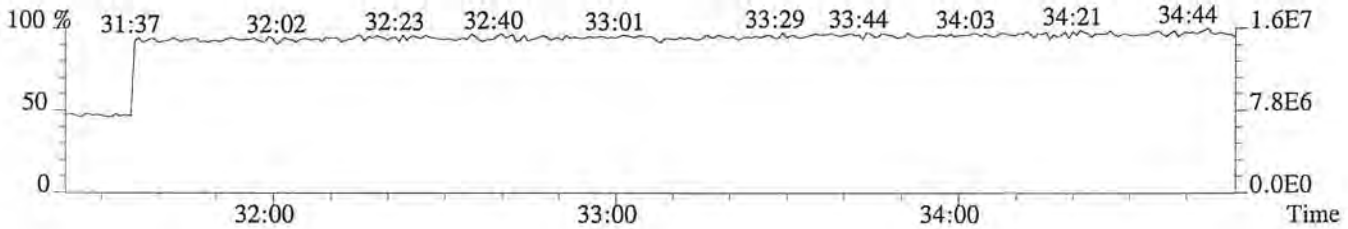
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



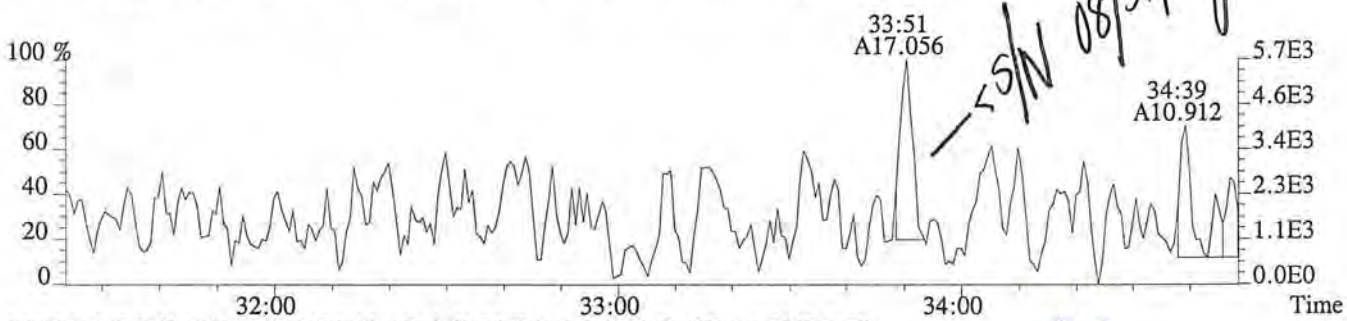
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



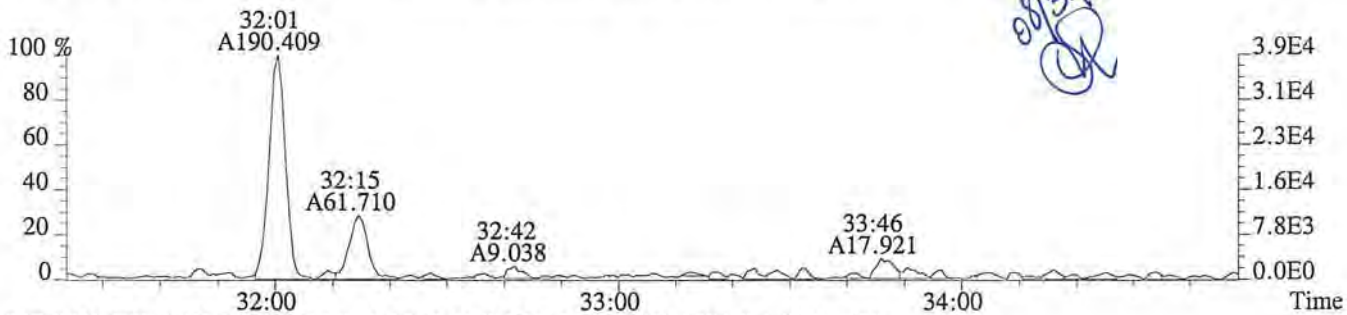
File:P301081 #1-308 Acq:28-AUG-2015 19:24:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-017
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2160.0,1.00%,F,T)



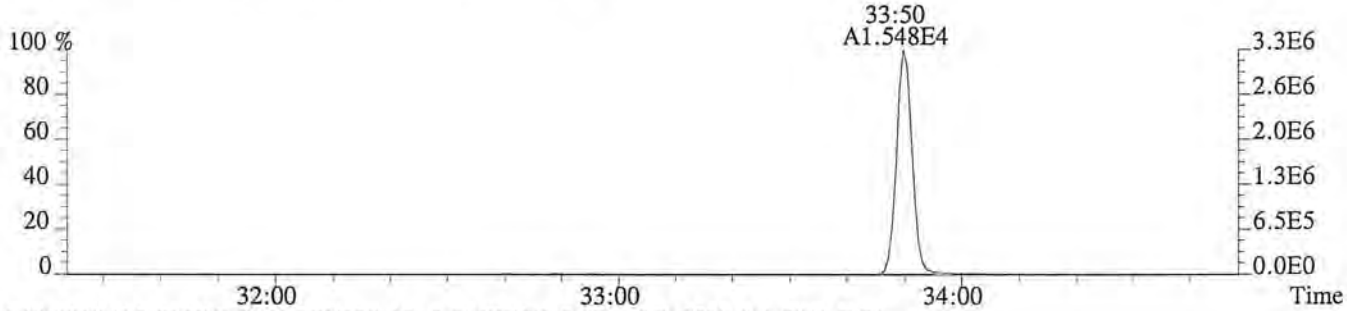
<S/N 08/31/15

357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)

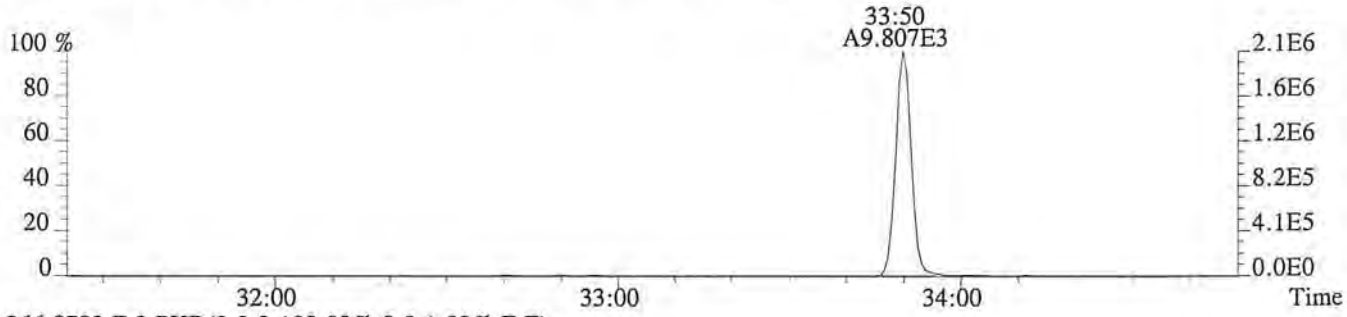
08/31/15



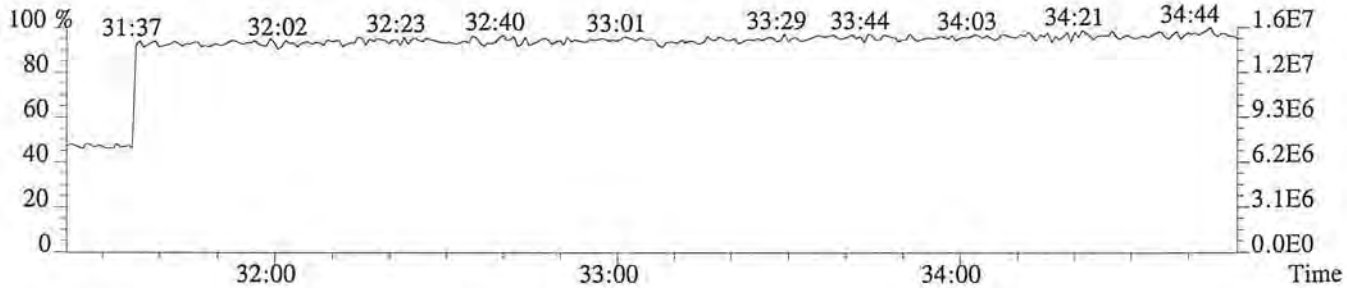
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



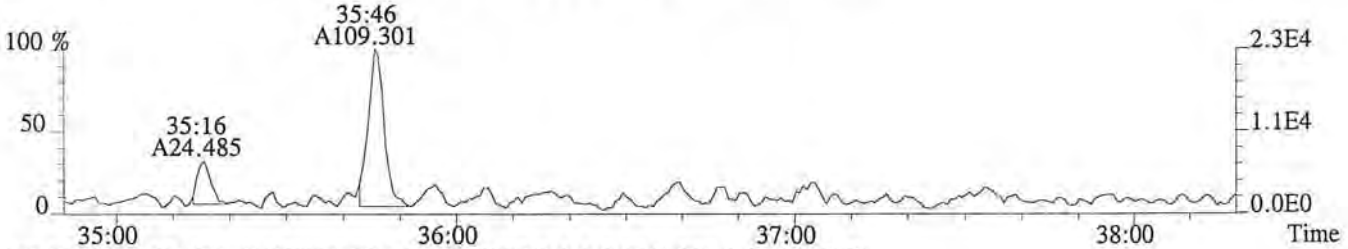
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1528.0,1.00%,F,T)



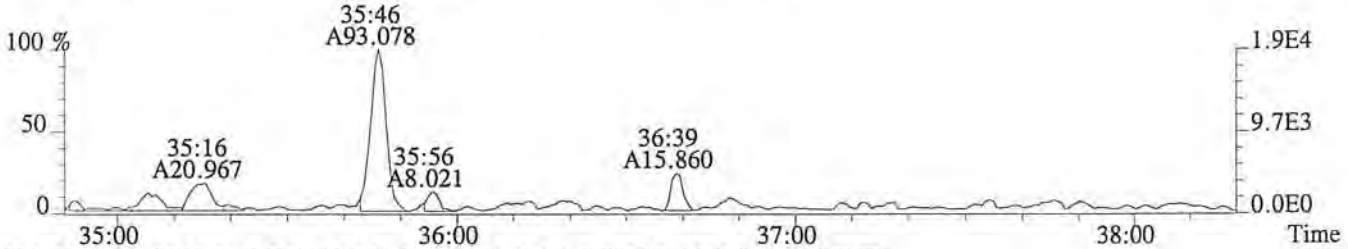
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



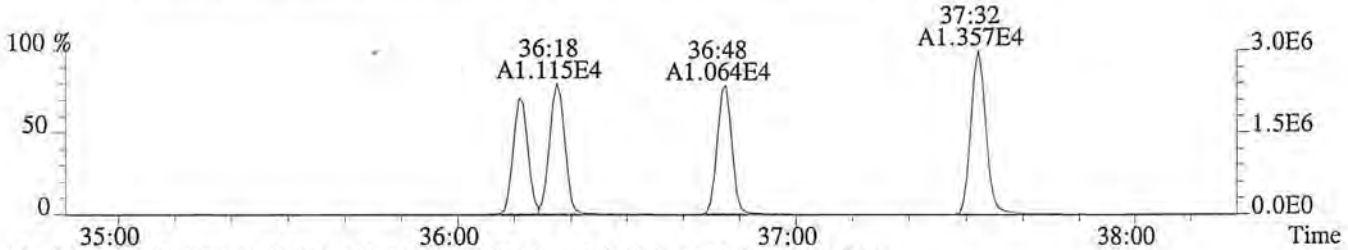
File:P301081 #1-312 Acq:28-AUG-2015 19:24:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-017
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2336.0,0.40%,F,T)



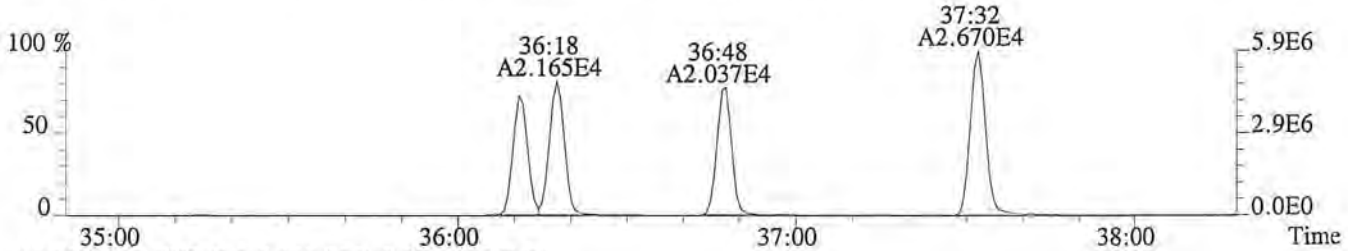
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)



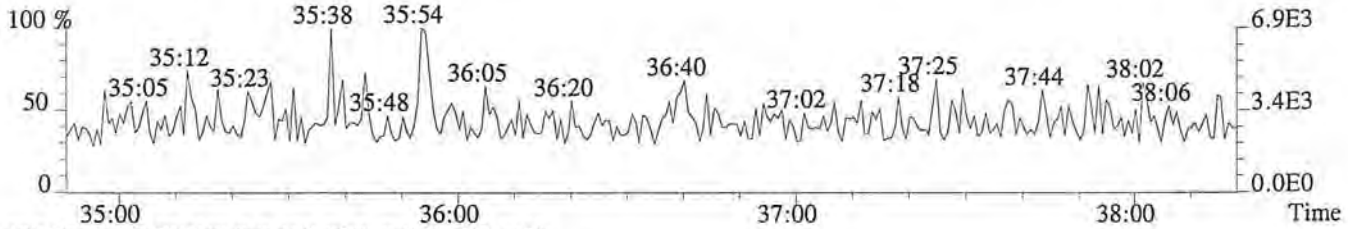
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1484.0,0.40%,F,T)



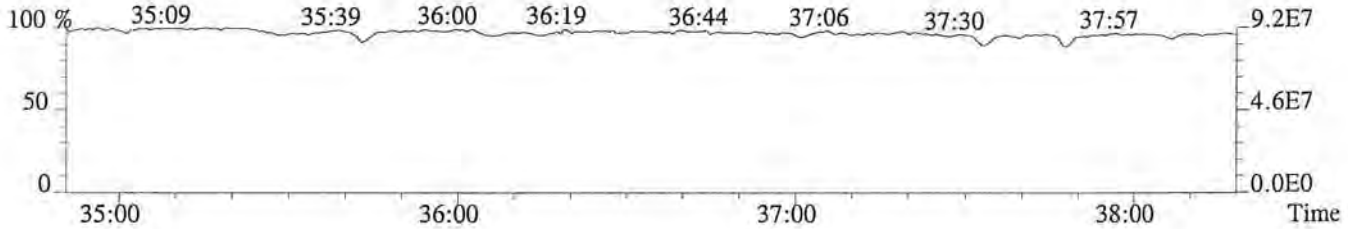
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1452.0,0.40%,F,T)



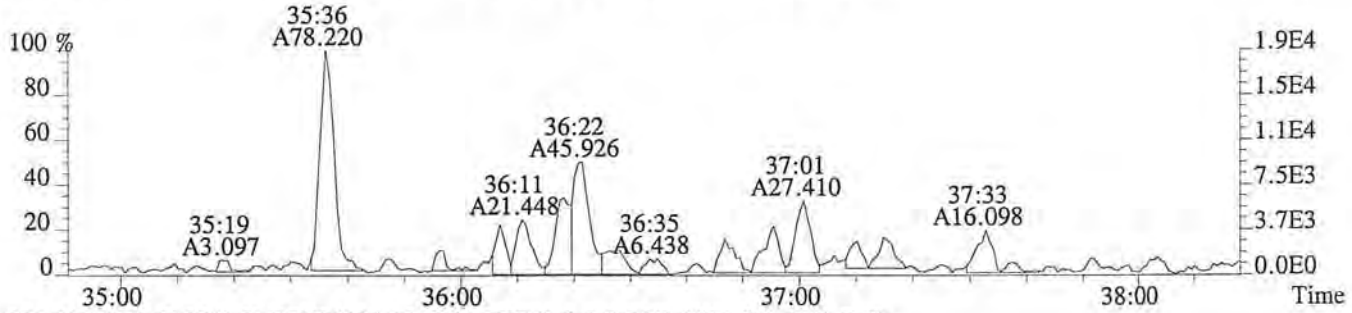
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



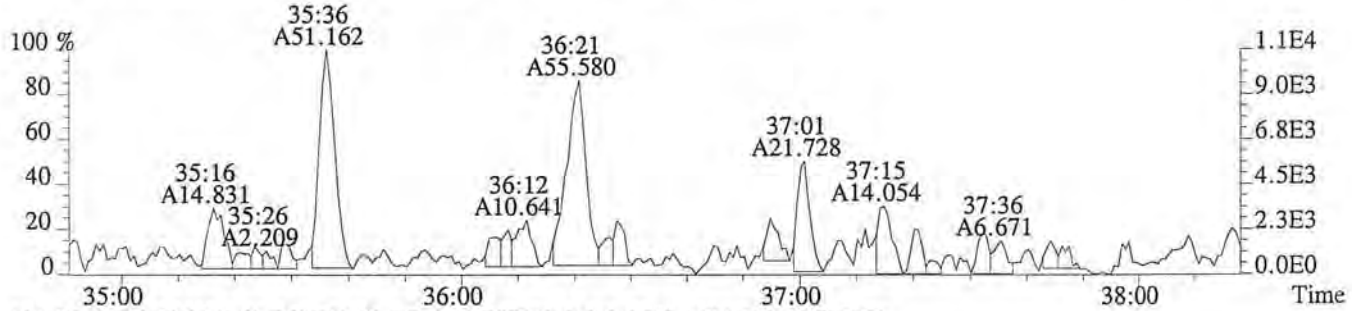
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



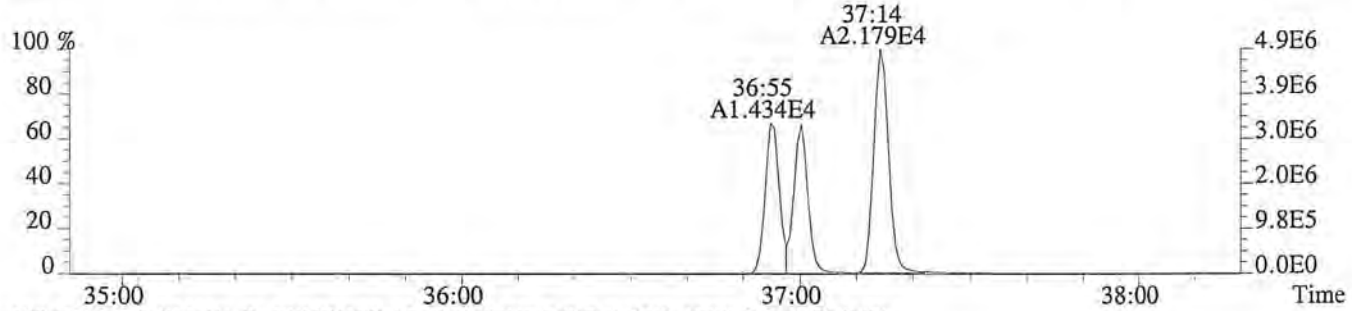
File:P301081 #1-312 Acq:28-AUG-2015 19:24:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-017
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



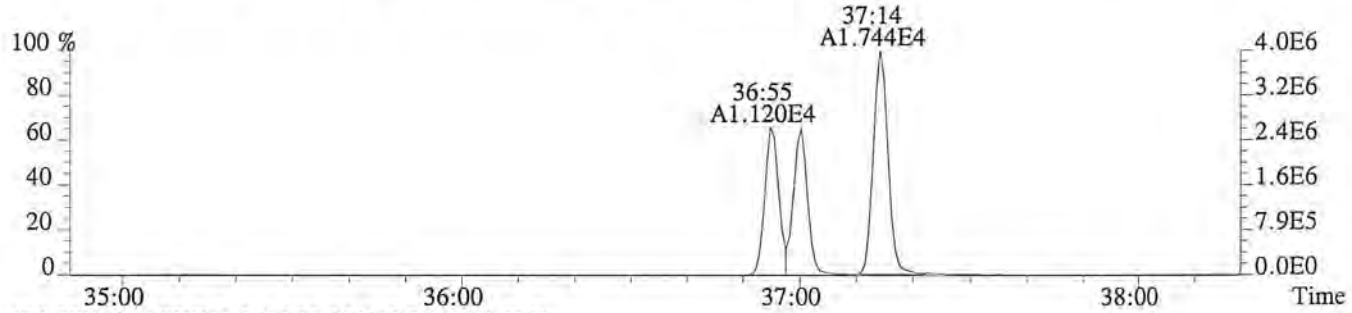
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1028.0,0.40%,F,T)



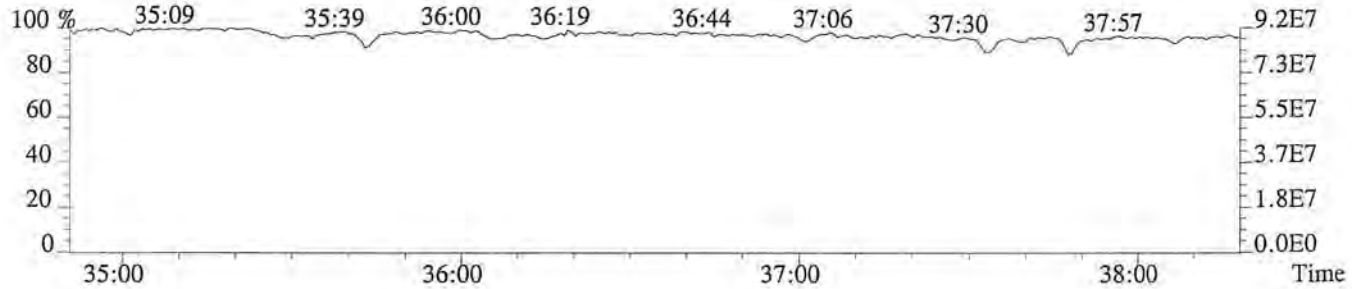
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



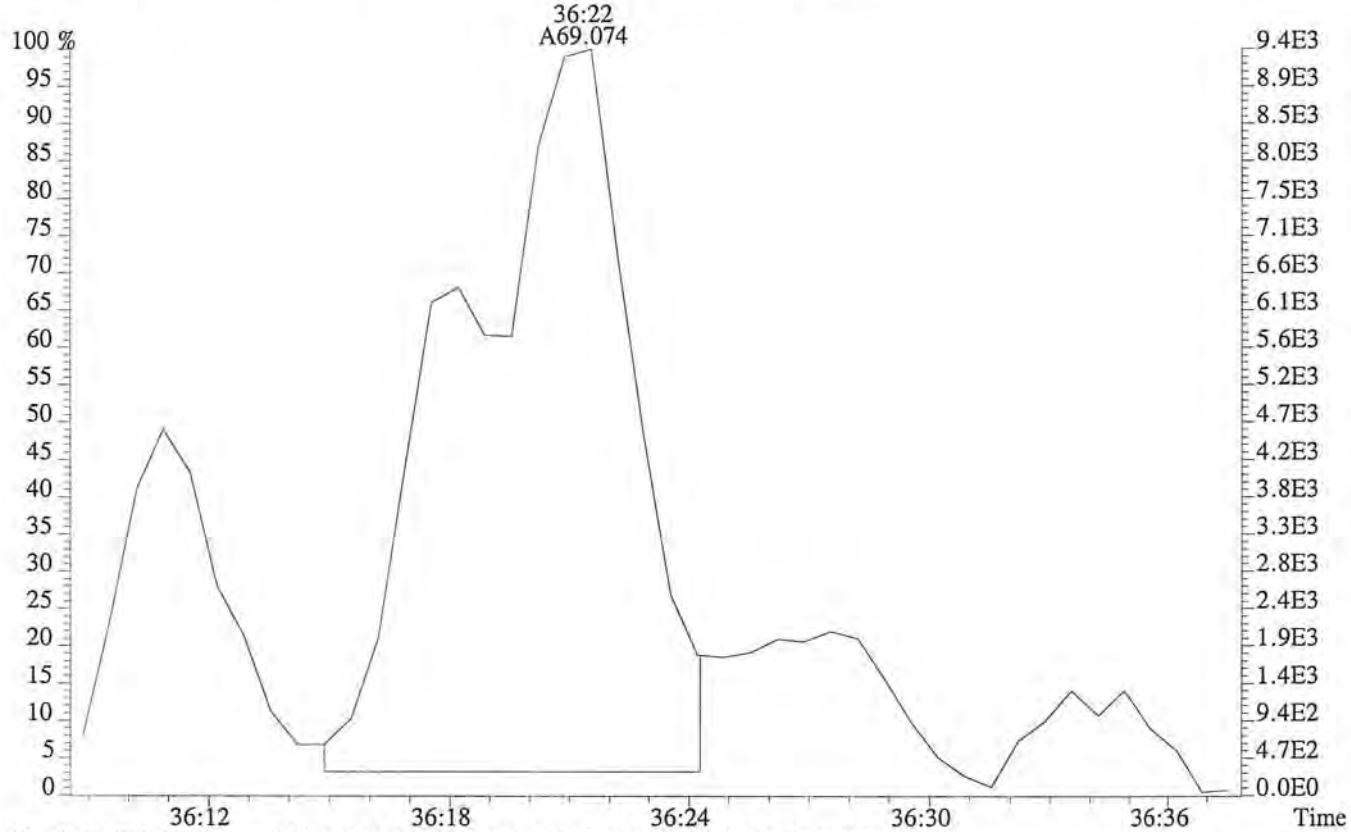
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1700.0,0.40%,F,T)



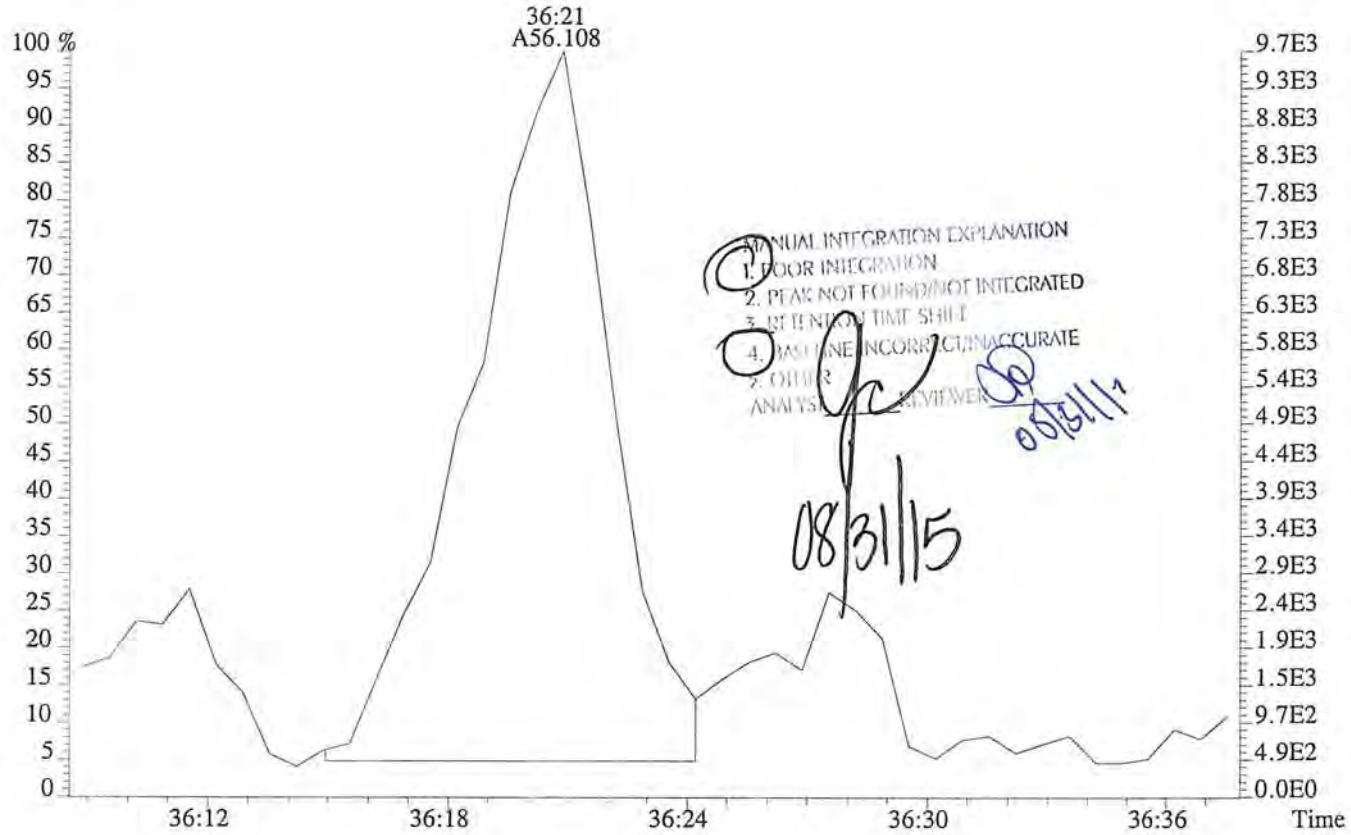
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



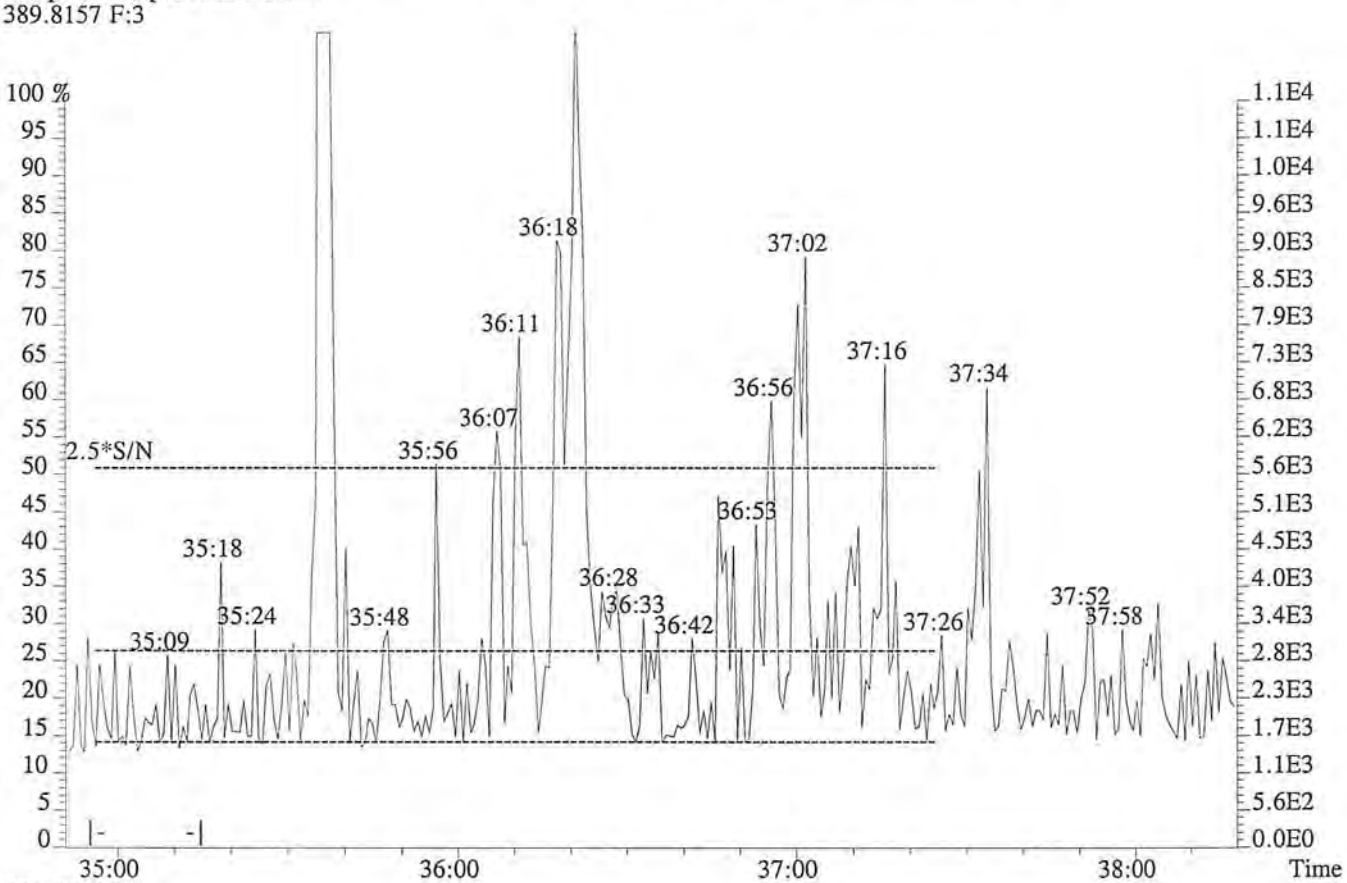
File:P301081 #1-312 Acq:28-AUG-2015 19:24:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-017
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



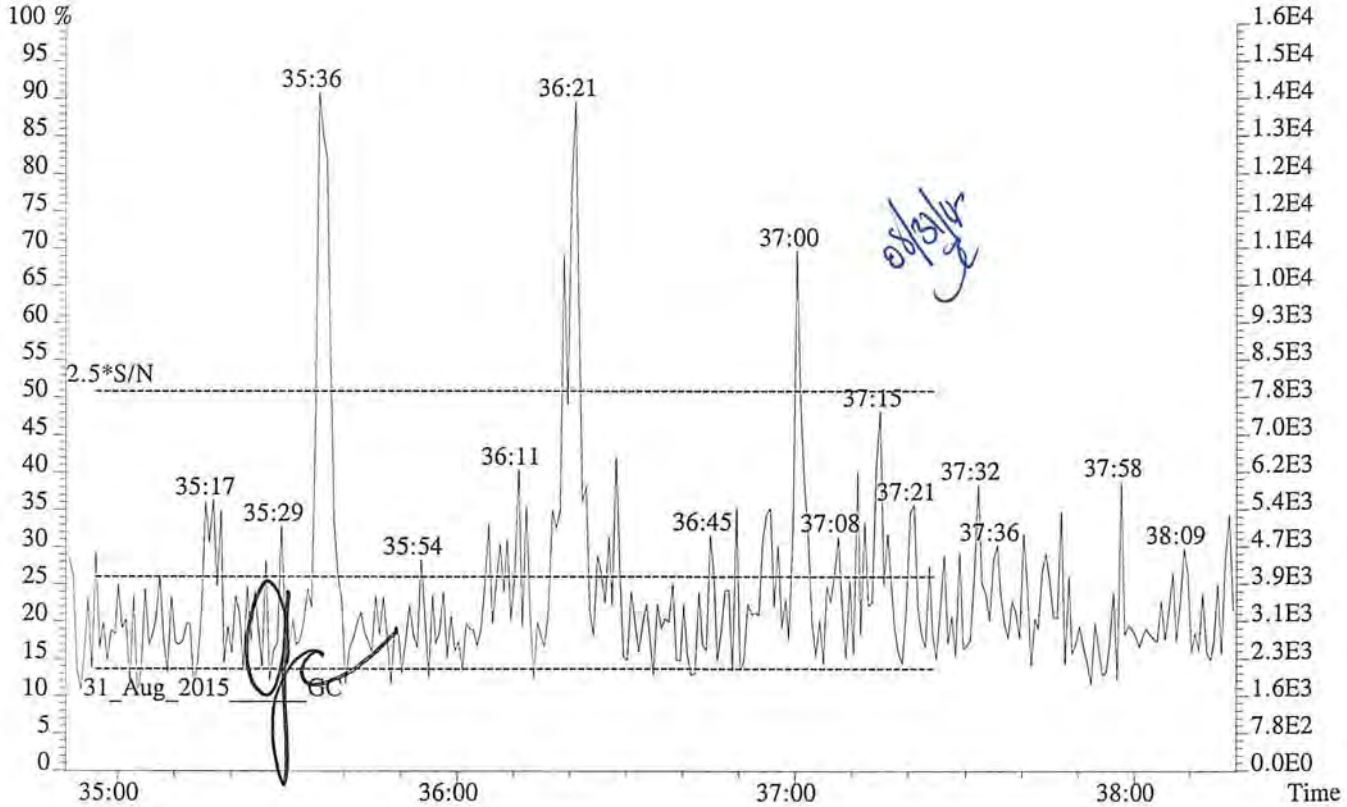
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1028.0,0.40%,F,T)



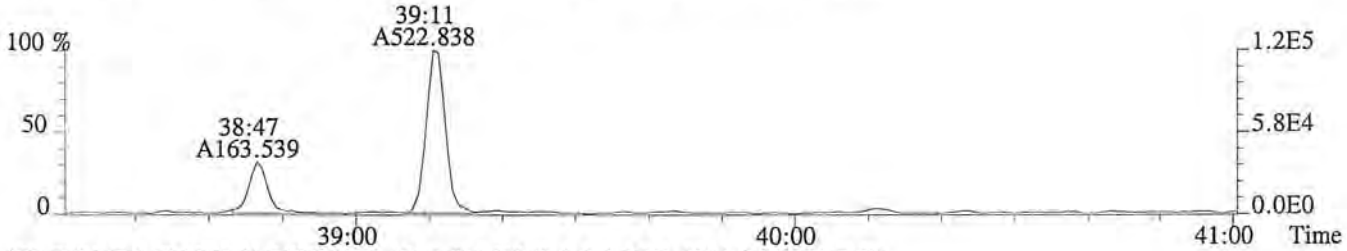
File:P301081 #1-312 Acq:28-AUG-2015 19:24:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-017
389.8157 F:3



391.8127 F:3

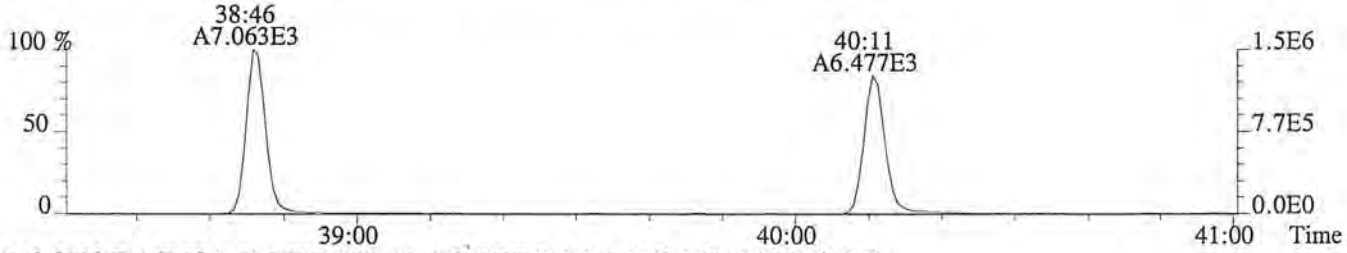


File:P301081 #1-241 Acq:28-AUG-2015 19:24:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-017
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1632.0,0.50%,F,T)

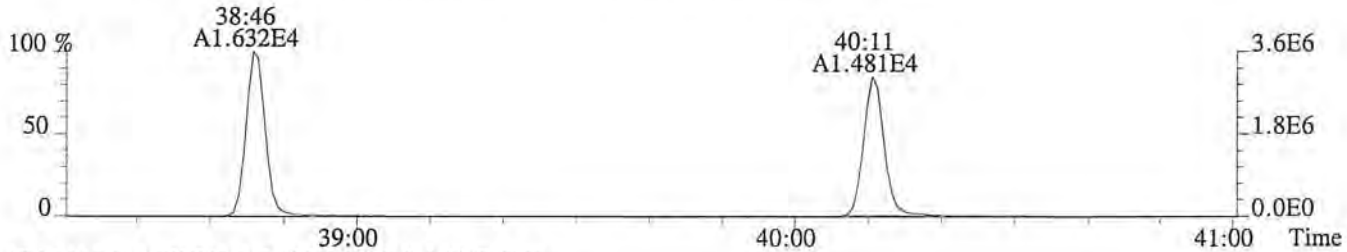


409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.50%,F,T)

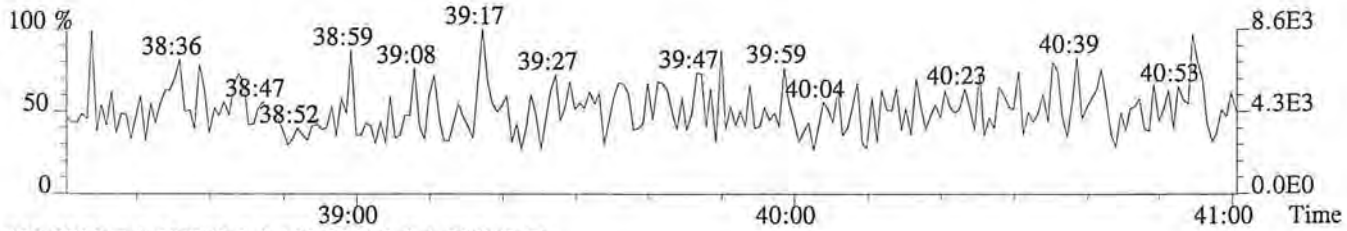
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3052.0,0.50%,F,T)



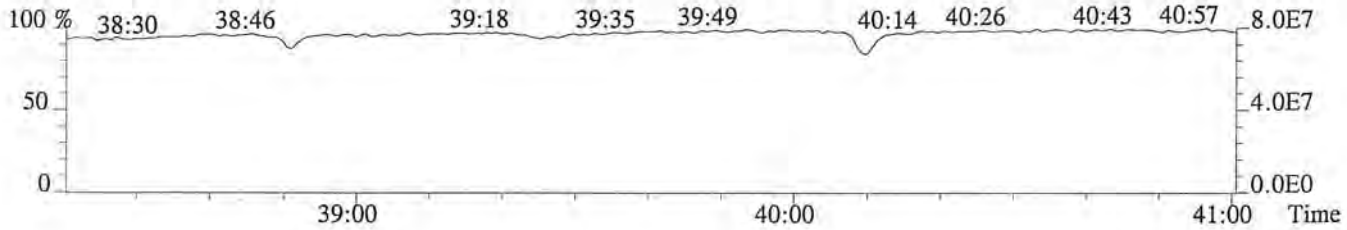
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.50%,F,T)



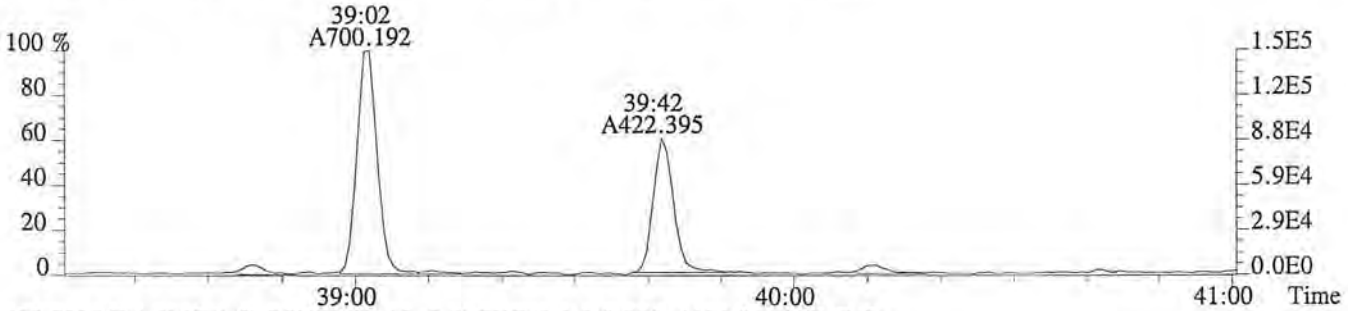
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



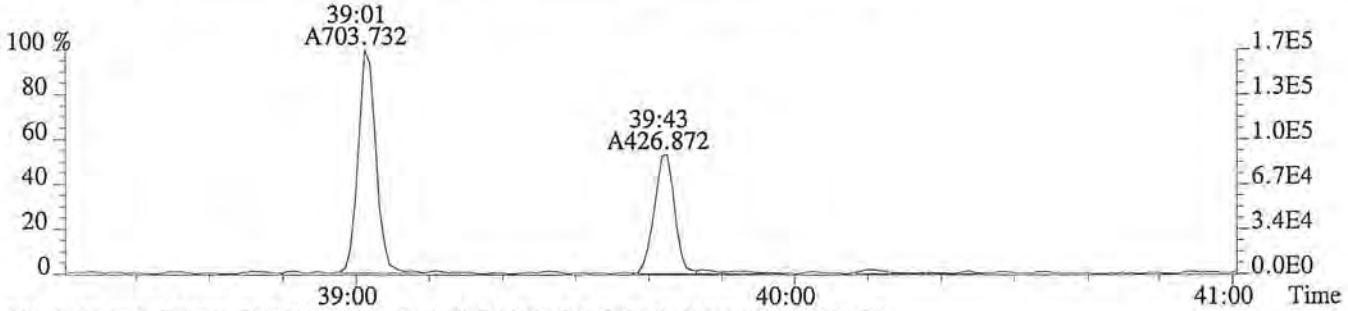
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



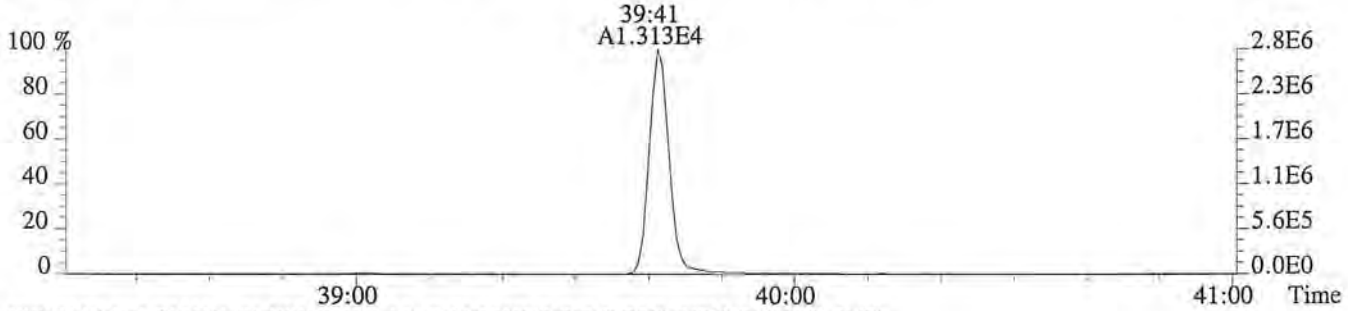
File:P301081 #1-241 Acq:28-AUG-2015 19:24:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-017
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1700.0,0.40%,F,T)



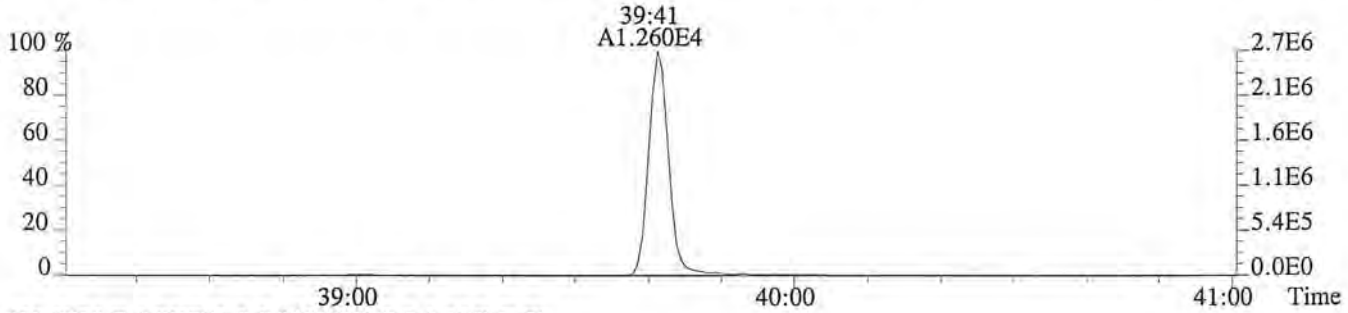
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1132.0,0.40%,F,T)



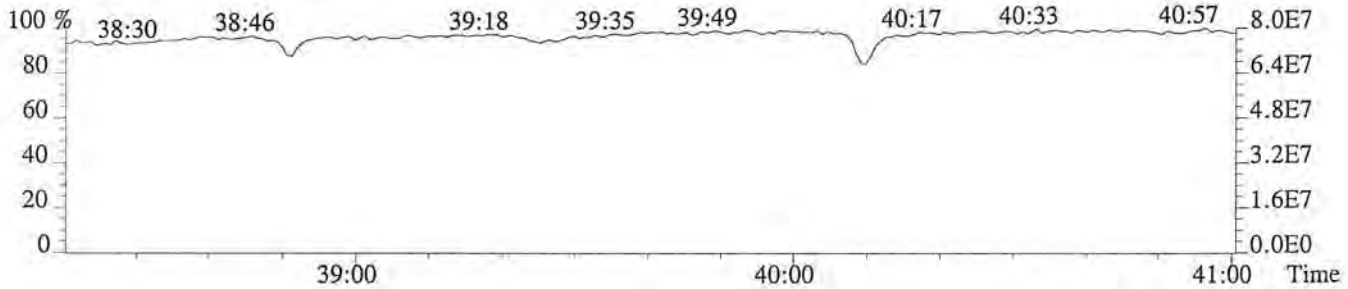
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2152.0,0.40%,F,T)



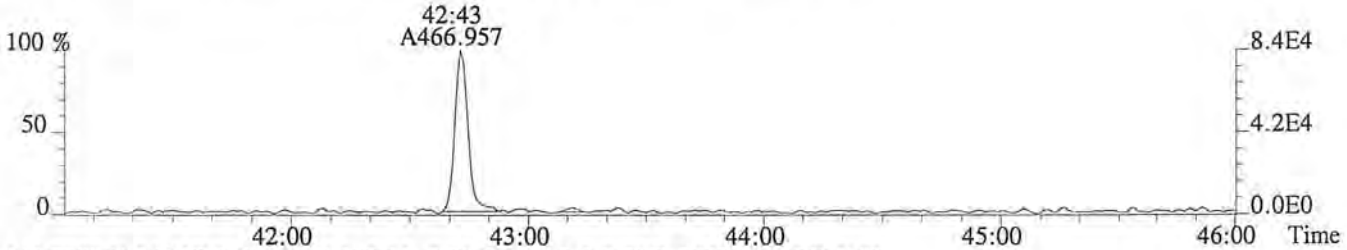
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1024.0,0.40%,F,T)



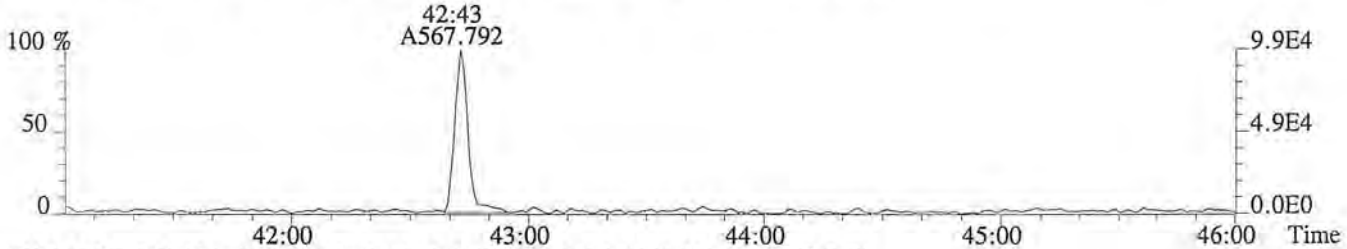
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



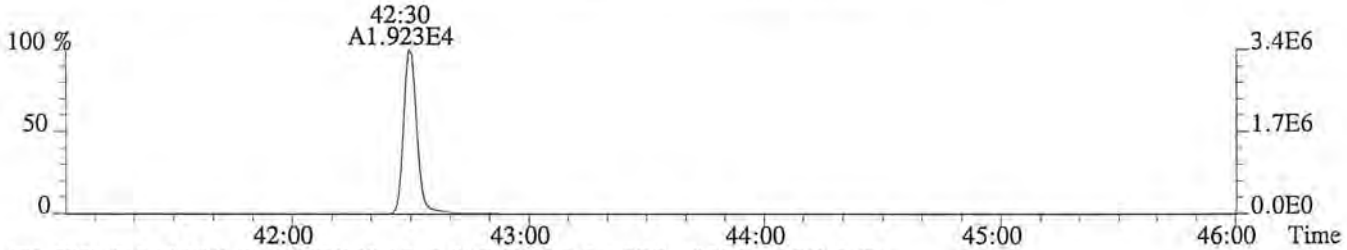
File:P301081 #1-447 Acq:28-AUG-2015 19:24:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-017
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1896.0,0.40%,F,T)



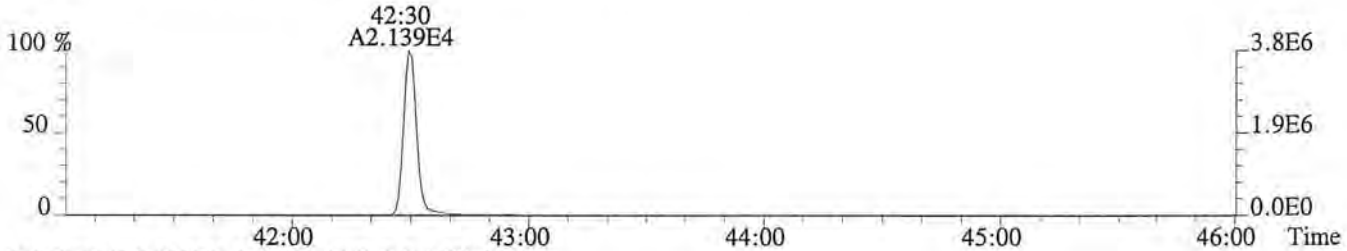
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2028.0,0.40%,F,T)



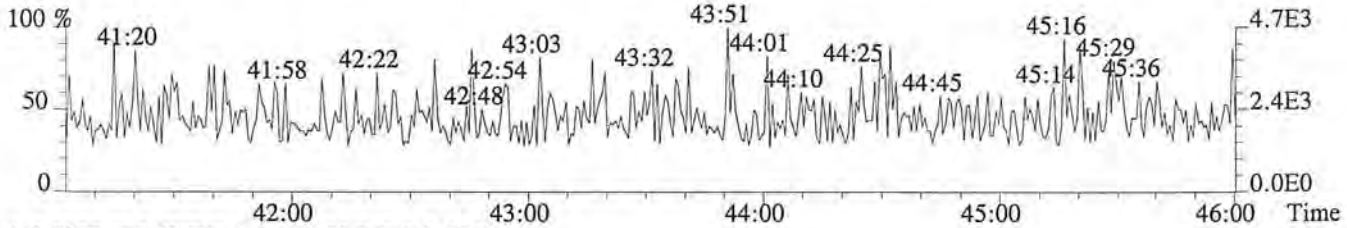
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,952.0,0.40%,F,T)



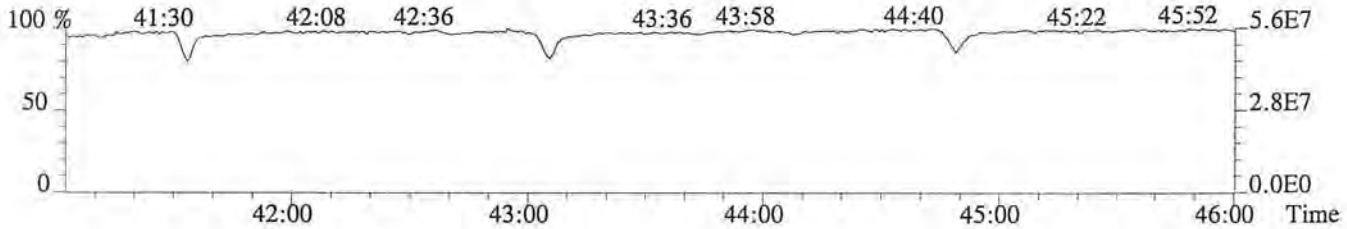
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1056.0,0.40%,F,T)



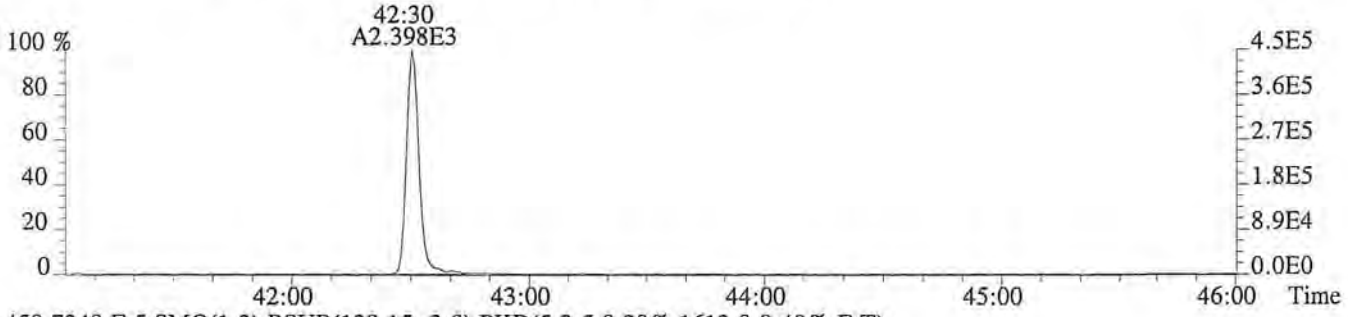
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



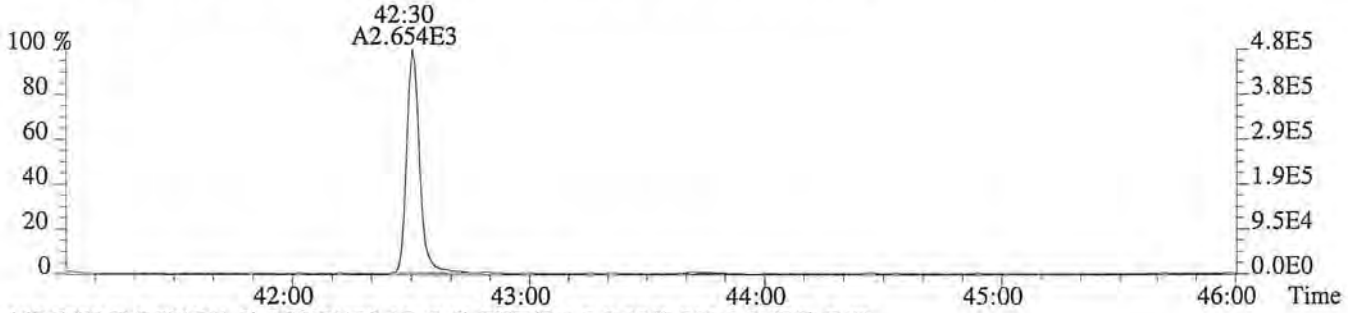
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



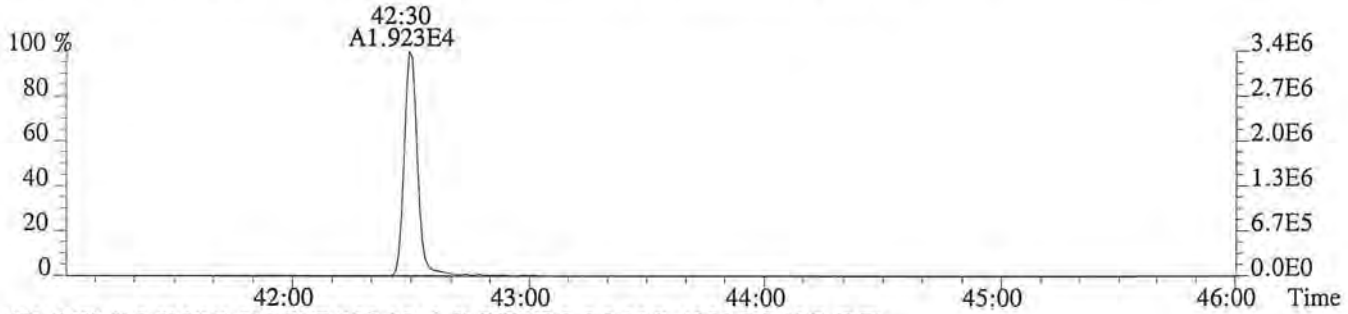
File:P301081 #1-447 Acq:28-AUG-2015 19:24:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-017
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1056.0,0.40%,F,T)



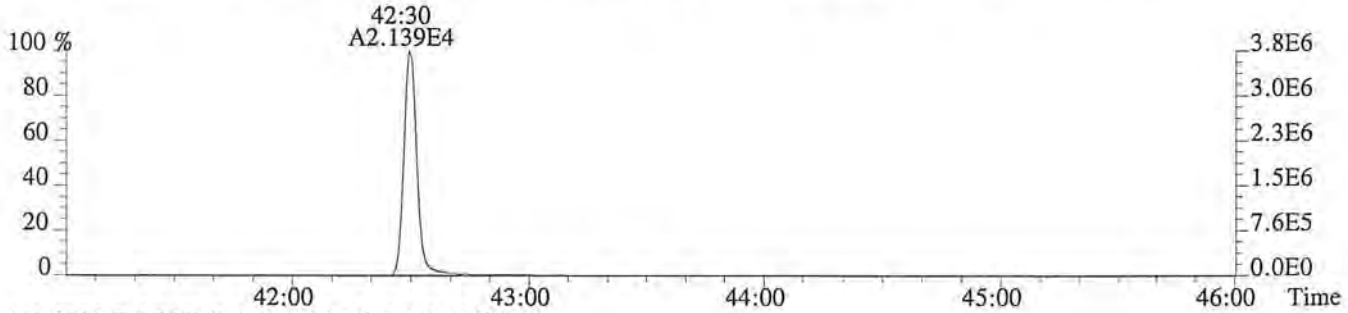
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



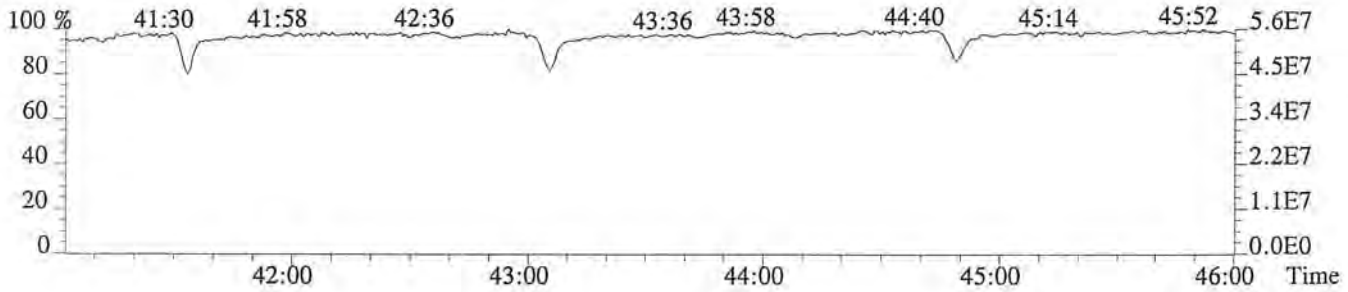
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,952.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1056.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-10-15 MT7

Run #10 Filename P301082 Samp: 1 Inj: 1 Acquired: 28-AUG-15 20:13:11
Processed: 31-AUG-15 15:03:39 Sample ID: E1500743-018

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	7.209e+01	9.080e+01	0.79	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.082
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:47	2.506e+02	2.754e+02	0.91	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.245
10	Unk	OCDF	42:44	8.288e+02	9.842e+02	0.84	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:21	8.202e+01	1.244e+02	0.66	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:01	4.623e+01	3.623e+01	1.28	yes	yes	0.967
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	7.417e+02	7.555e+02	0.98	yes	no	0.949
17	Unk	OCDD	42:31	3.564e+03	4.031e+03	0.88	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:36	3.623e+04	4.585e+04	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	5.814e+04	3.698e+04	1.57	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:34	5.611e+04	3.537e+04	1.59	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	2.259e+04	4.369e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	2.662e+04	5.158e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	2.467e+04	4.736e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:32	2.931e+04	5.604e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	1.398e+04	3.165e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:11	1.002e+04	2.325e+04	0.43	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:21	2.853e+04	3.720e+04	0.77	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:50	4.228e+04	2.722e+04	1.55	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:56	3.500e+04	2.733e+04	1.28	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:00	3.343e+04	2.635e+04	1.27	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:42	2.874e+04	2.753e+04	1.04	yes	no	0.850
32	IS	13C-OCDD	42:30	3.872e+04	4.323e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:48	3.624e+04	4.635e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:15	4.982e+04	3.990e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	2.851e+04				no	1.001

$$\text{OCDD} = \frac{(3.564e{+}03 + 4.031e{+}03) \times 4000 \text{ pg} \times 1}{(3.872e{+}04 + 4.323e{+}04) \times 10.431 \text{ g} \times \quad / 100 \times 1.061} = 335$$

NS 08/31/15

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Telephone: (713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-10-15 MT7/MT

Run #10 Filename P301082 Samp: 1 Inj: 1 Acquired: 28-AUG-15 20:13:11
Processed: 31-AUG-15 15:03:39 LAB. ID: E1500743-018

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.65e+04	1.61e+03	1.0e+01	1.84e+04	2.92e+03	6.3e+00
2	1,2,3,7,8-PeCDF	*	1.02e+03	*	*	2.07e+03	*
3	2,3,4,7,8-PeCDF	*	1.02e+03	*	*	2.07e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.56e+03	*	*	8.80e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.56e+03	*	*	8.80e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.56e+03	*	*	8.80e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.56e+03	*	*	8.80e+02	*
8	1,2,3,4,6,7,8-HpCDF	5.33e+04	1.34e+03	4.0e+01	5.78e+04	1.38e+03	4.2e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.34e+03	*	*	1.38e+03	*
10	OCDF	1.41e+05	1.27e+03	1.1e+02	1.70e+05	2.54e+03	6.7e+01
11	2,3,7,8-TCDD	1.43e+04	1.54e+03	9.3e+00	2.45e+04	1.28e+03	1.9e+01
12	1,2,3,7,8-PeCDD	*	2.12e+03	*	*	8.08e+02	*
13	1,2,3,4,7,8-HxCDD	*	4.88e+02	*	*	2.04e+03	*
14	1,2,3,6,7,8-HxCDD	9.59e+03	4.88e+02	2.0e+01	7.96e+03	2.04e+03	3.9e+00
15	1,2,3,7,8,9-HxCDD	*	4.88e+02	*	*	2.04e+03	*
16	1,2,3,4,6,7,8-HpCDD	1.59e+05	1.12e+03	1.4e+02	1.67e+05	8.36e+02	2.0e+02
17	OCDD	6.42e+05	5.92e+02	1.1e+03	7.26e+05	9.88e+02	7.3e+02
18	13C-2,3,7,8-TCDF	7.23e+06	1.60e+03	4.5e+03	9.15e+06	1.72e+03	5.3e+03
19	13C-1,2,3,7,8-PeCDF	1.17e+07	8.04e+02	1.5e+04	7.46e+06	1.37e+03	5.4e+03
20	13C-2,3,4,7,8-PeCDF	1.18e+07	8.04e+02	1.5e+04	7.38e+06	1.37e+03	5.4e+03
21	13C-1,2,3,4,7,8-HxCDF	5.10e+06	1.18e+03	4.3e+03	9.80e+06	2.11e+03	4.6e+03
22	13C-1,2,3,6,7,8-HxCDF	5.77e+06	1.18e+03	4.9e+03	1.10e+07	2.11e+03	5.2e+03
23	13C-2,3,4,6,7,8-HxCDF	5.62e+06	1.18e+03	4.8e+03	1.08e+07	2.11e+03	5.1e+03
24	13C-1,2,3,7,8,9-HxCDF	6.24e+06	1.18e+03	5.3e+03	1.20e+07	2.11e+03	5.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.22e+06	2.46e+03	1.3e+03	7.20e+06	1.64e+03	4.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.93e+06	2.46e+03	7.9e+02	4.46e+06	1.64e+03	2.7e+03
27	13C-2,3,7,8-TCDD	5.82e+06	8.02e+03	7.3e+02	7.57e+06	4.10e+03	1.8e+03
28	13C-1,2,3,7,8-PeCDD	8.75e+06	1.64e+03	5.3e+03	5.69e+06	1.02e+03	5.6e+03
29	13C-1,2,3,4,7,8-HxCDD	7.96e+06	1.52e+03	5.2e+03	6.19e+06	1.66e+03	3.7e+03
30	13C-1,2,3,6,7,8-HxCDD	7.39e+06	1.52e+03	4.9e+03	5.90e+06	1.66e+03	3.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.14e+06	3.12e+03	2.0e+03	5.84e+06	1.32e+03	4.4e+03
32	13C-OCDD	6.90e+06	8.24e+02	8.4e+03	7.71e+06	1.50e+03	5.2e+03
33	13C-1,2,3,4-TCDD	7.36e+06	8.02e+03	9.2e+02	9.34e+06	4.10e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.10e+07	1.52e+03	7.3e+03	8.79e+06	1.66e+03	5.3e+03
35	37Cl-2,3,7,8-TCDD	5.94e+06	1.13e+03	5.3e+03			

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Peak List Summary

CLIENT ID.

PLY-10-15 MT7/MT

Entry: 36 Totals Name: Total Tetra-Furans

Run: 10 File: P301082 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 20:13:11 Processed: 31-AUG-15 15:03:39

Mass: 303.9020 305.8990 Tot Response: 6.30e+02 RRF: 0.8496

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:13	2.04e+02	2.63e+02	0.78	yes	4.67e+02	n	n
2	28:37	7.21e+01	9.08e+01	0.79	yes	1.63e+02 2,3,7,8-TCDF	n	n

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Peak List Summary

CLIENT ID.

PLY-10-15 MT7/MT

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 10 File: P301082 Sample:1 Injection:1 Function:1

Acquired: 28-AUG-15 20:13:11 Processed: 31-AUG-15 15:03:39

Mass: 319.8970 321.8940 Tot Response: 2.06e+02 RRF: 0.9567

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:21	8.20e+01	1.24e+02	0.66	yes	2.06e+02	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.

PLY-10-15 MT7/MT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P301082 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 20:13:11 Processed: 31-AUG-15 15:03:39

Mass: 373.8210 375.8180 Tot Response: 4.87e+02 RRF: 1.094

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:16	4.14e+01	3.51e+01	1.18	yes	7.65e+01	n	n
2	35:46	2.32e+02	1.78e+02	1.30	yes	4.11e+02	n	n

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Peak List Summary

CLIENT ID.

PLY-10-15 MT7/MT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P301082 Sample:1 Injection:1 Function:3

Acquired: 28-AUG-15 20:13:11 Processed: 31-AUG-15 15:03:39

Mass: 389.8160 391.8130 Tot Response: 5.39e+02 RRF: 0.9904

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:37	1.31e+02	1.04e+02	1.26	yes	2.35e+02		n	n
2	36:21	1.26e+02	9.55e+01	1.32	yes	2.22e+02		n	y
3	37:01	4.62e+01	3.62e+01	1.28	yes	8.25e+01	1,2,3,6,7,8-HxCDD	n	y

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Peak List Summary

CLIENT ID.

PLY-10-15 MT7/MT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 10 File: P301082 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 20:13:11 Processed: 31-AUG-15 15:03:39

Mass: 407.7820 409.7790 Tot Response: 2.59e+03 RRF: 1.284

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:47	2.51e+02	2.75e+02	0.91	yes	5.26e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:11	1.06e+03	1.00e+03	1.06	yes	2.06e+03		n	n

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Peak List Summary

CLIENT ID.

PLY-10-15 MT7/MT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P301082 Sample:1 Injection:1 Function:4

Acquired: 28-AUG-15 20:13:11 Processed: 31-AUG-15 15:03:39

Mass: 423.7770 425.7740 Tot Response: 4.06e+03 RRF: 0.9492

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:02	1.32e+03	1.25e+03	1.05	yes	2.57e+03	n	n
2	39:43	7.42e+02	7.55e+02	0.98	yes	1.50e+03	1,2,3,4,6,7,8-HpCDD	n	n

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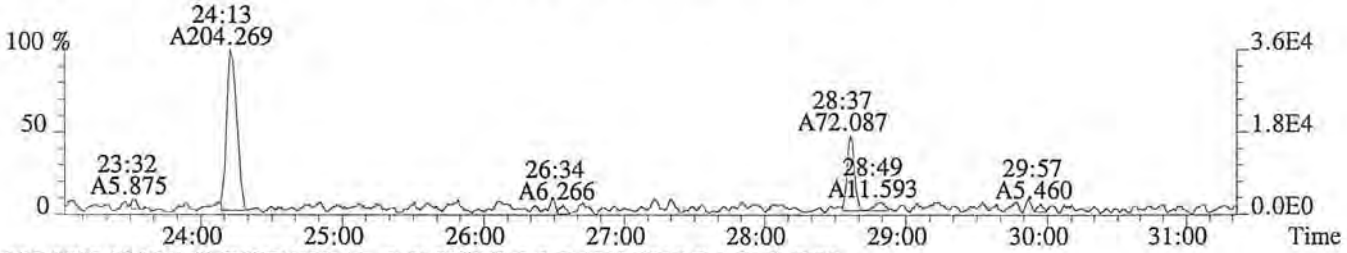
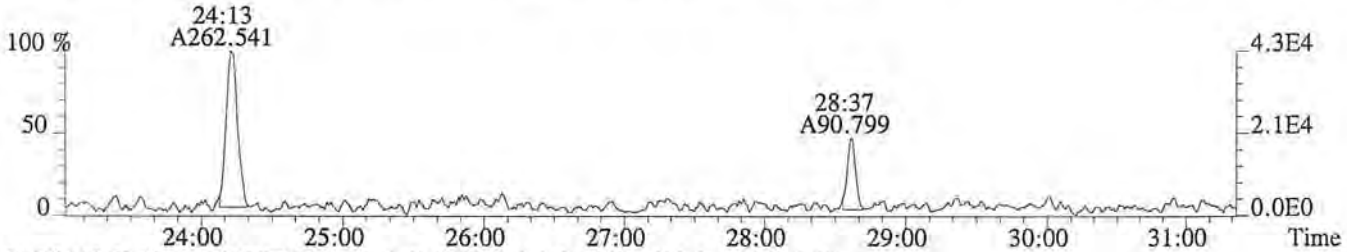
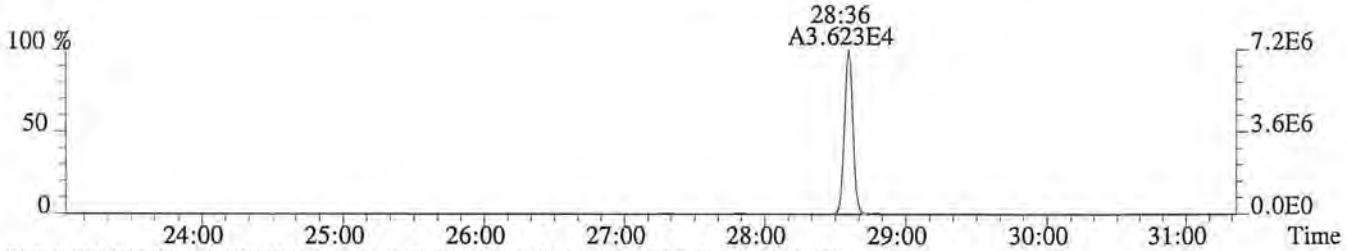
File:P301082 #1-591 Acq:28-AUG-2015 20:13:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-018
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



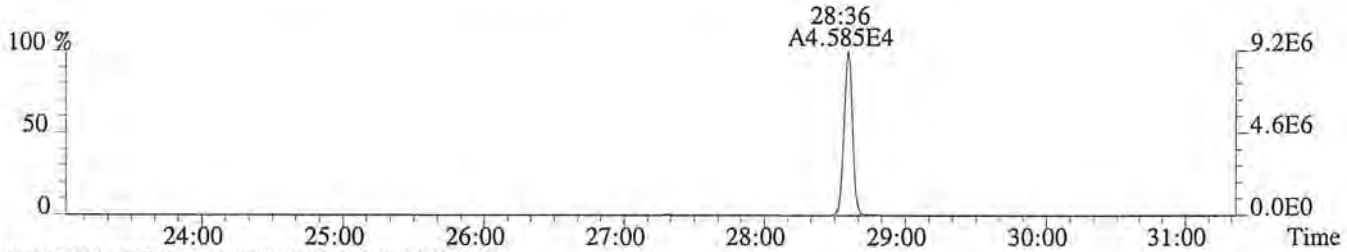
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2916.0,1.00%,F,T)



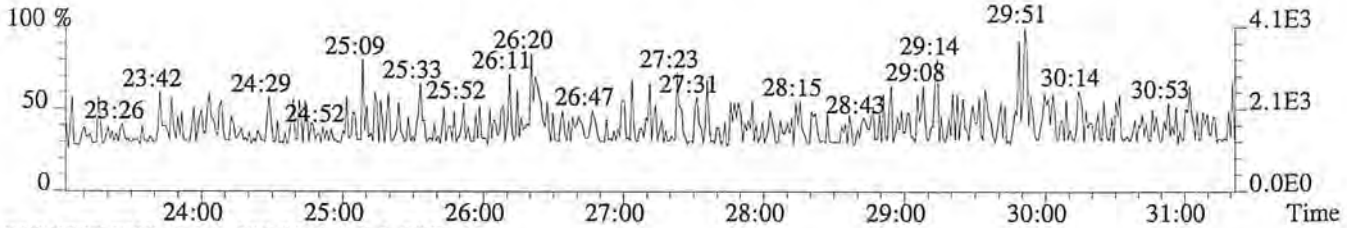
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1600.0,1.00%,F,T)



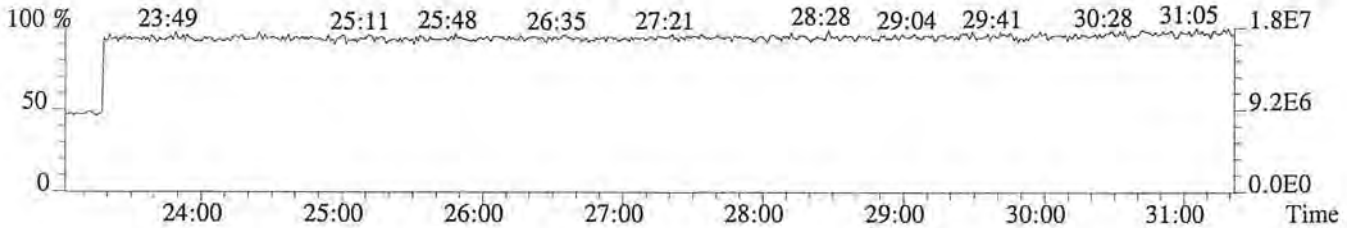
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1716.0,1.00%,F,T)



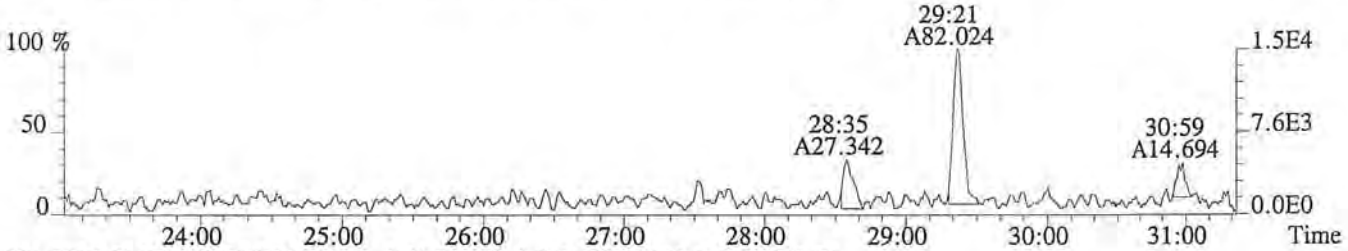
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



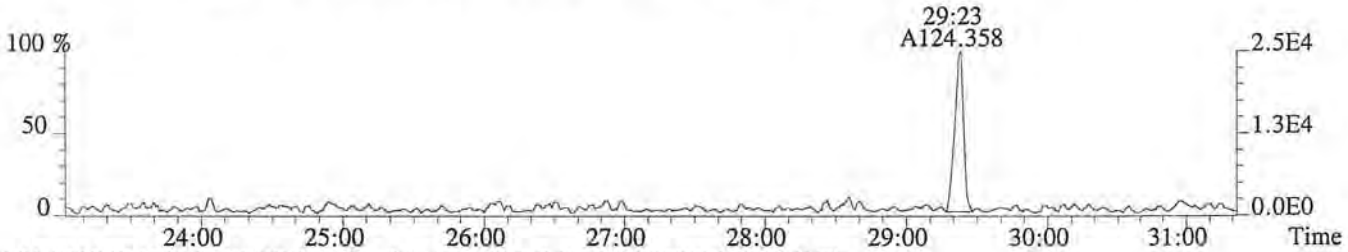
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



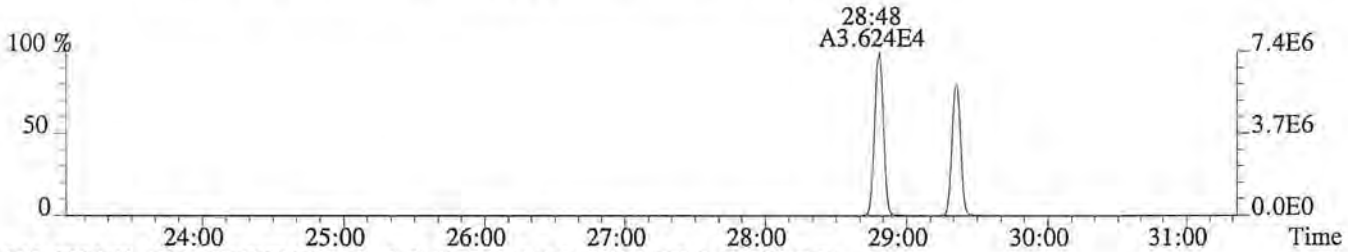
File:P301082 #1-591 Acq:28-AUG-2015 20:13:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-018
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1536.0,1.00%,F,T)



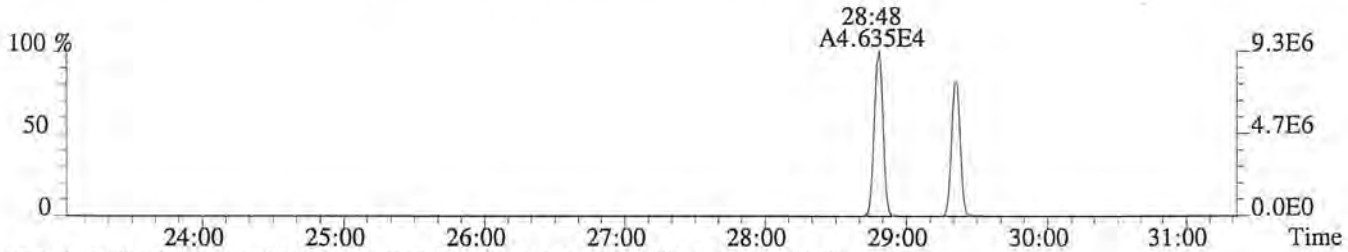
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



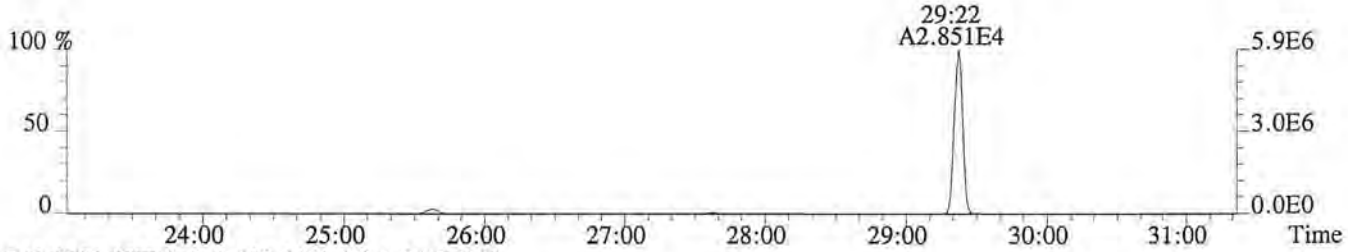
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8020.0,1.00%,F,T)



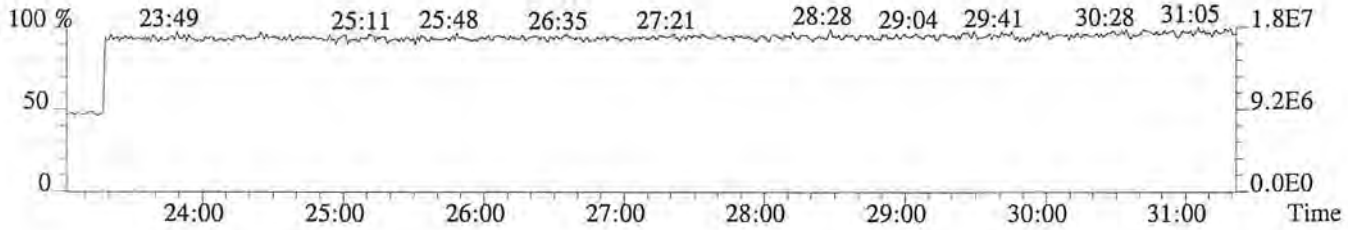
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4100.0,1.00%,F,T)



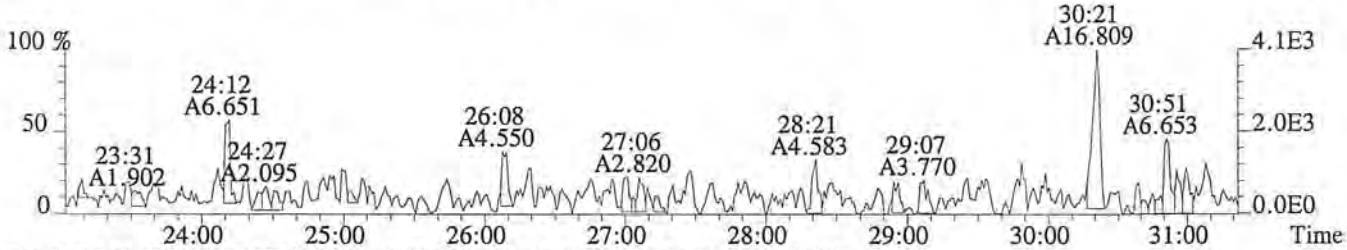
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



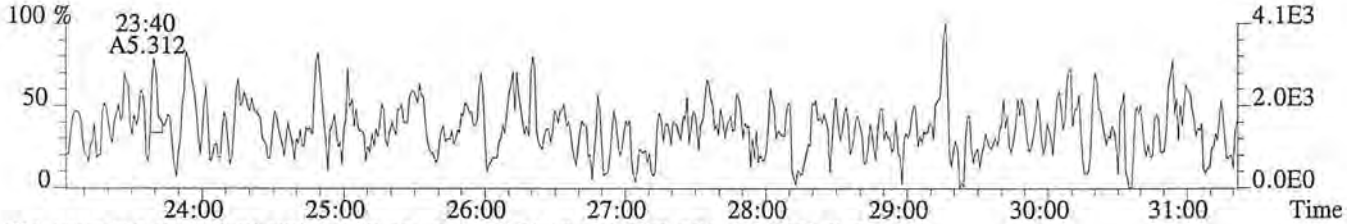
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



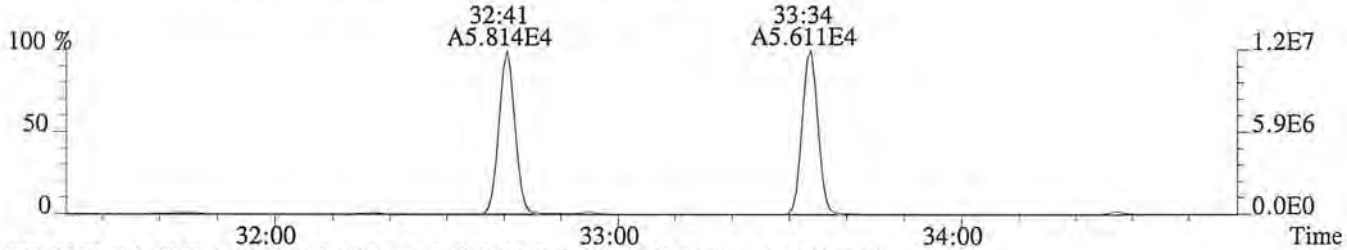
File:P301082 #1-591 Acq:28-AUG-2015 20:13:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-018
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



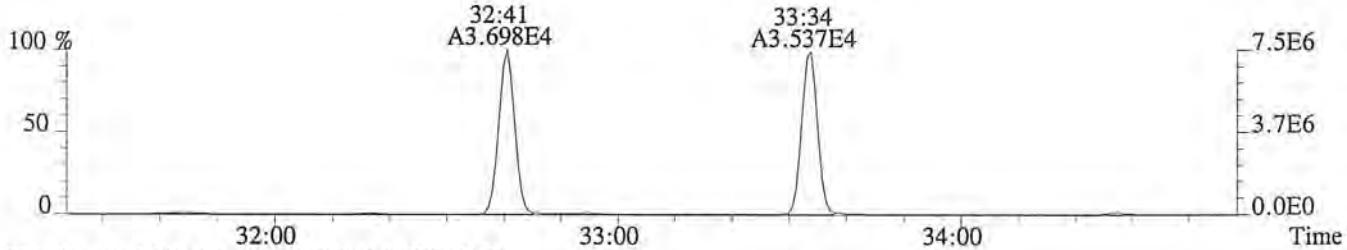
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



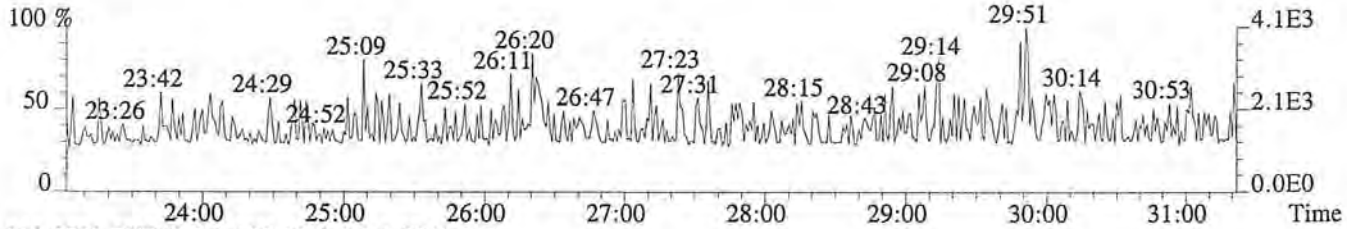
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



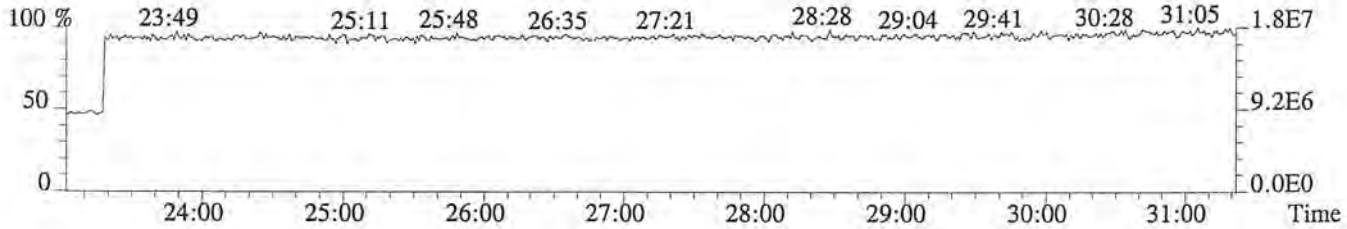
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



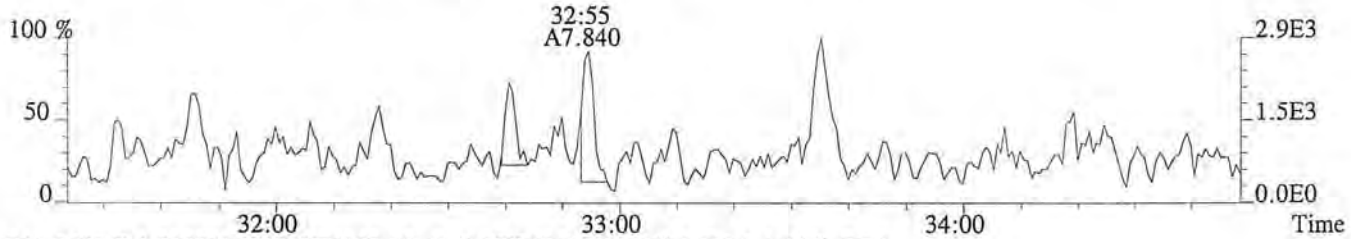
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



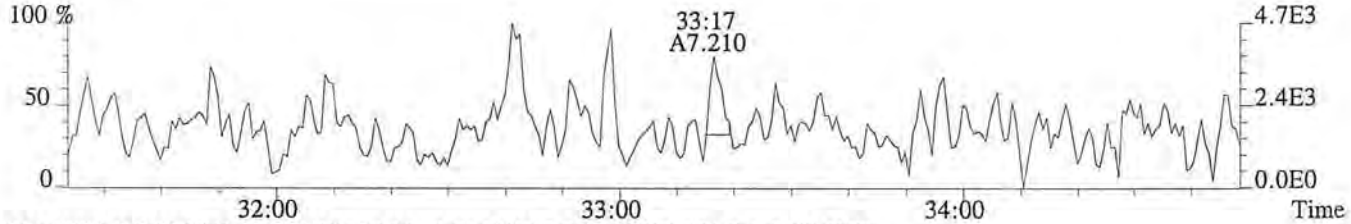
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



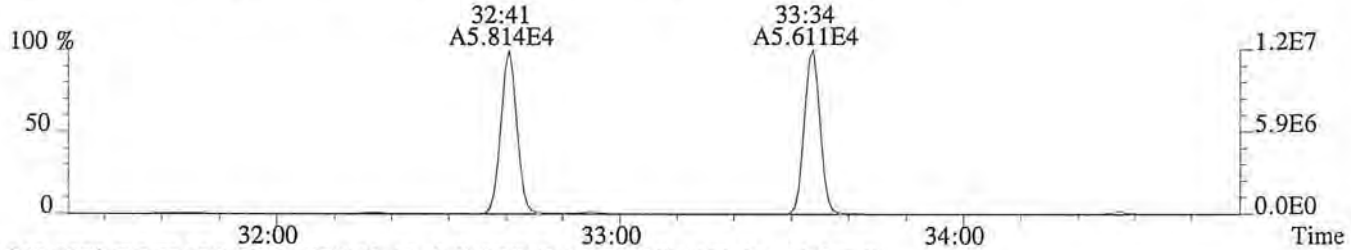
File:P301082 #1-308 Acq:28-AUG-2015 20:13:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-018
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



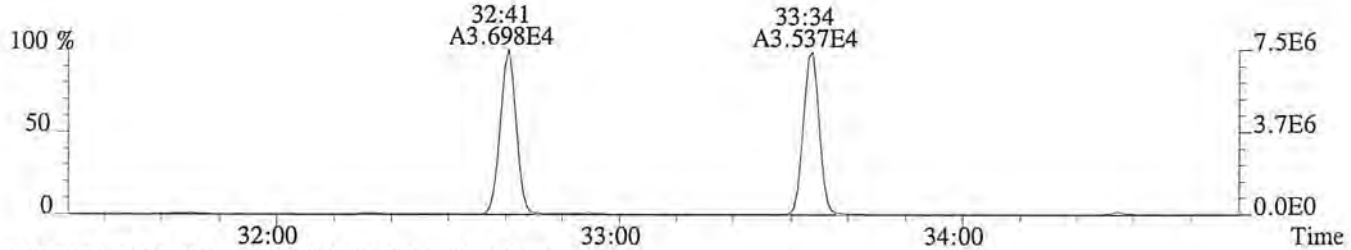
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2068.0,1.00%,F,T)



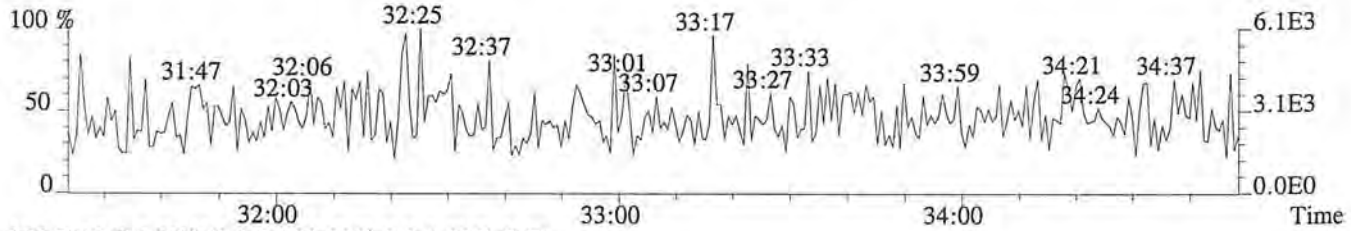
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



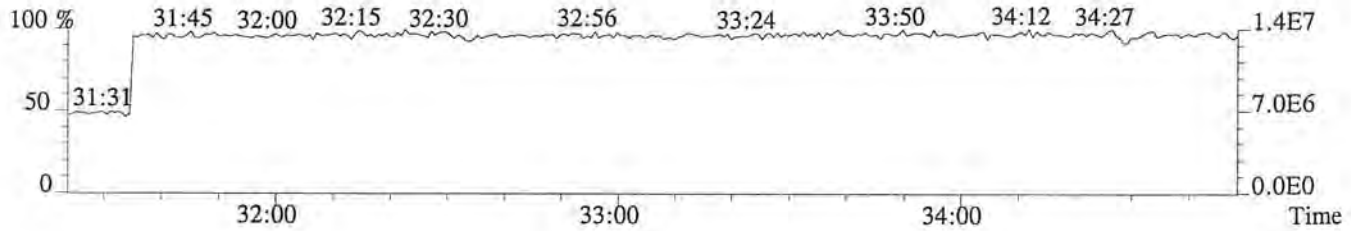
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



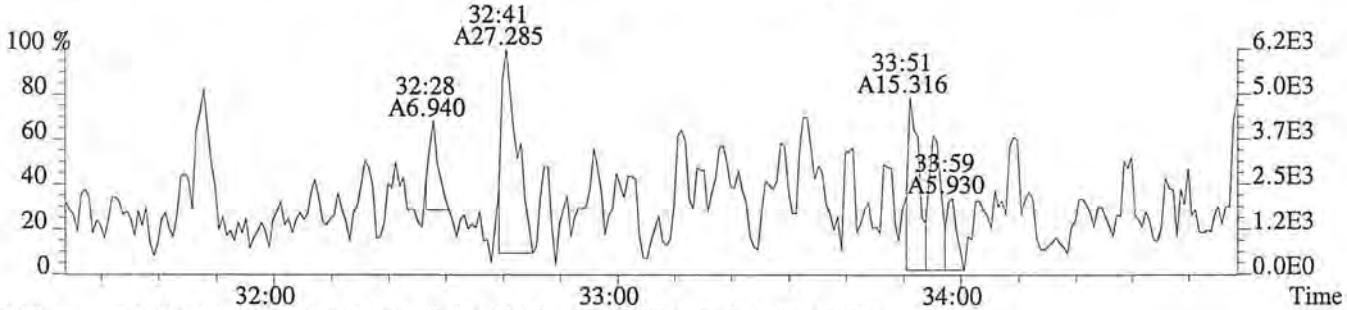
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



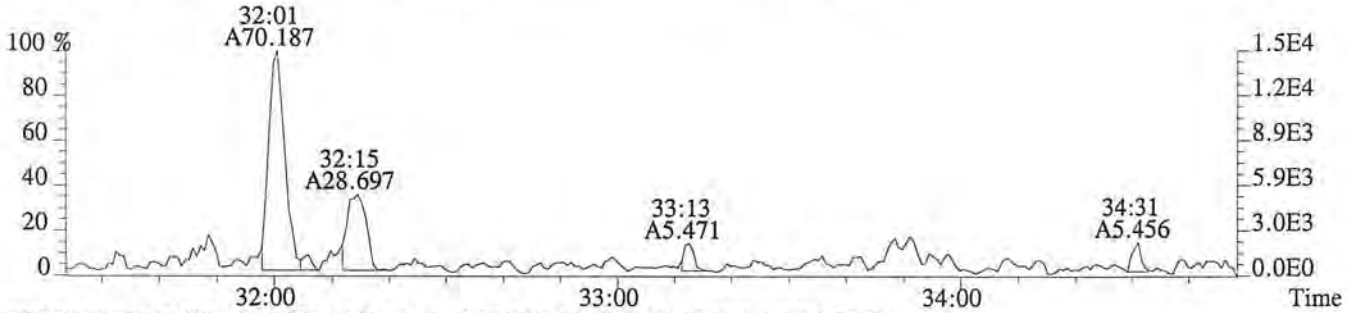
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



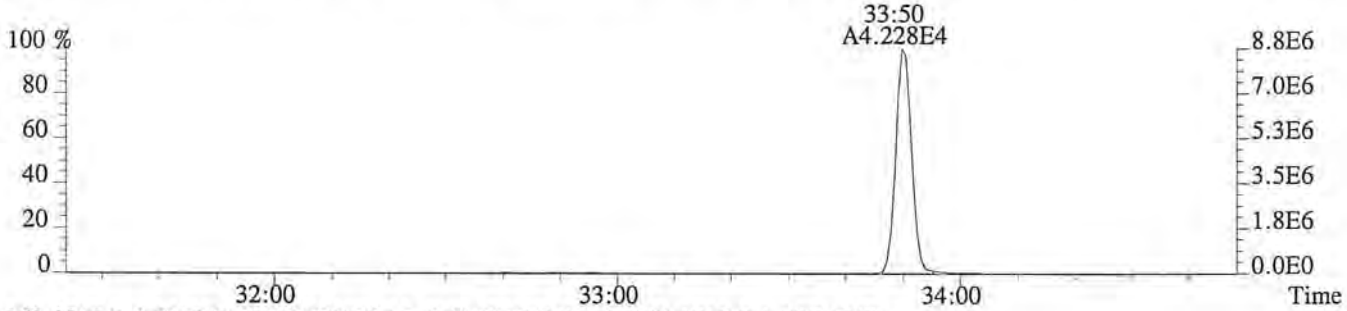
File:P301082 #1-308 Acq:28-AUG-2015 20:13:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-018
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



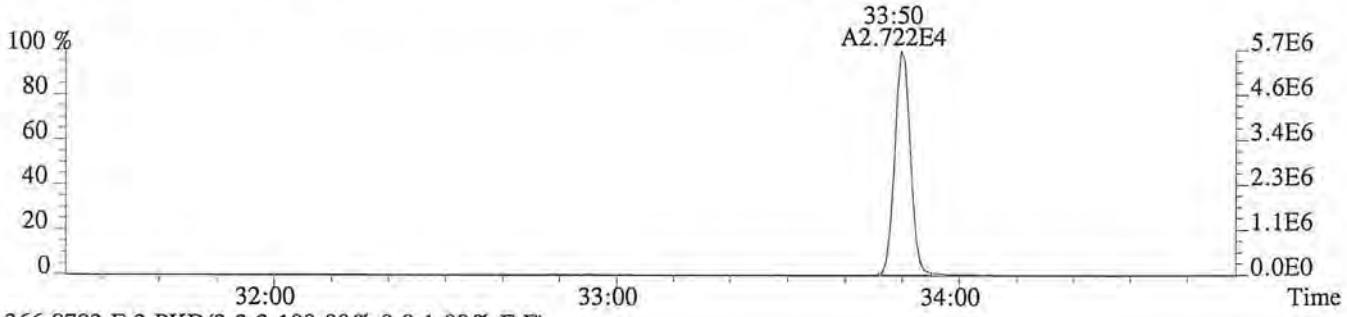
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



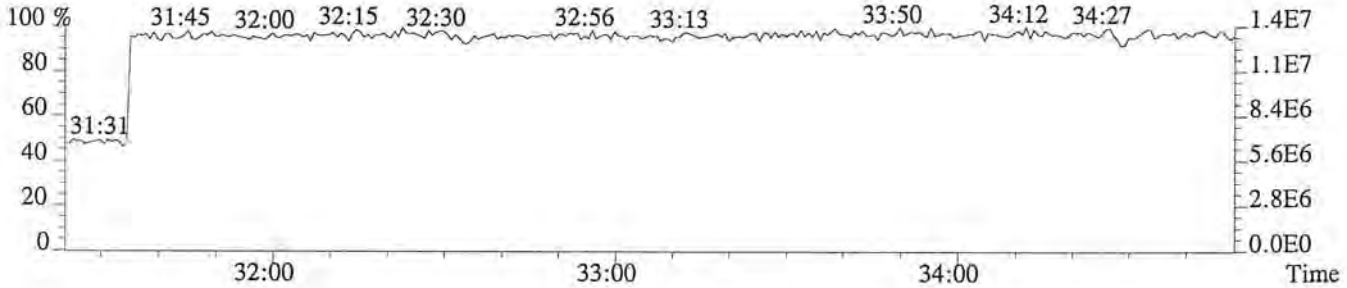
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1644.0,1.00%,F,T)



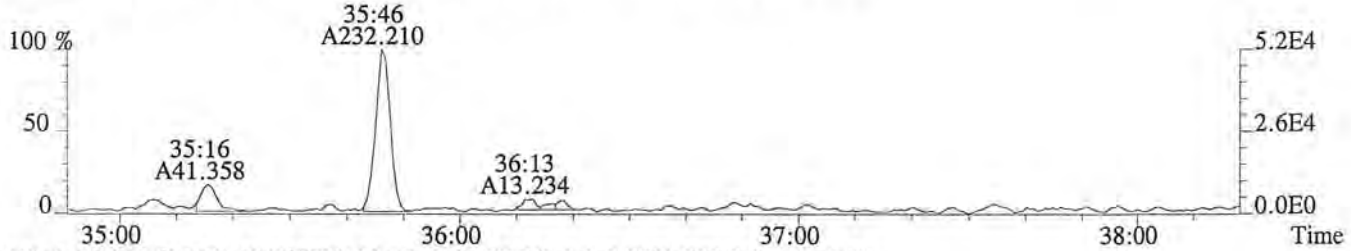
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

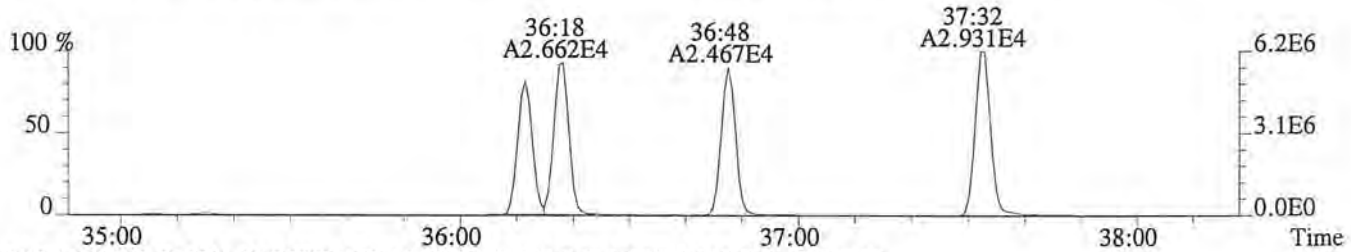


File:P301082 #1-312 Acq:28-AUG-2015 20:13:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-018
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1564.0,0.40%,F,T)

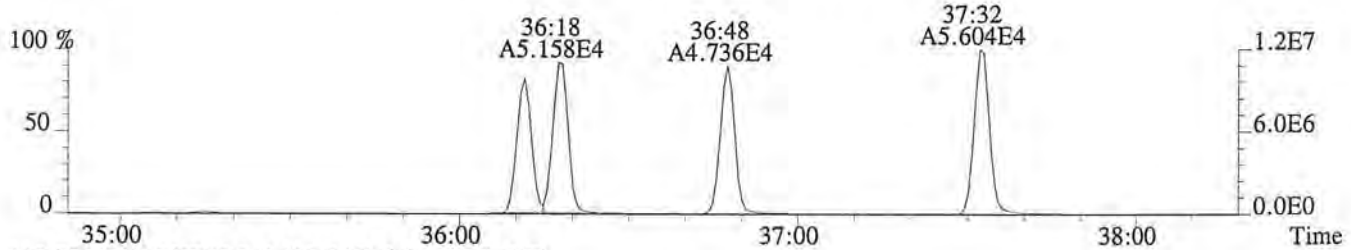


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)

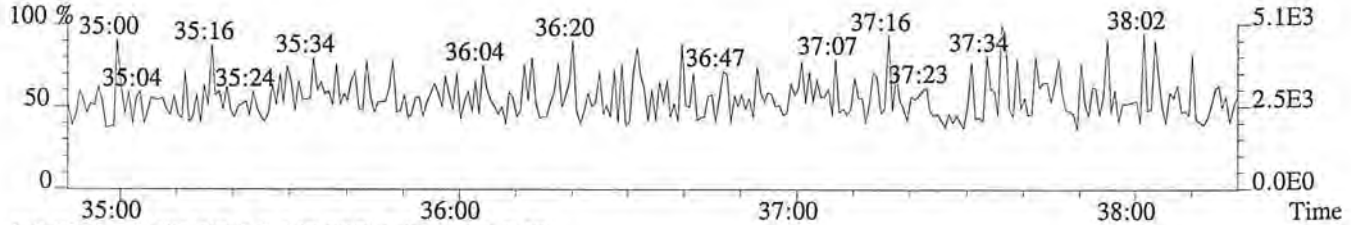
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1184.0,0.40%,F,T)



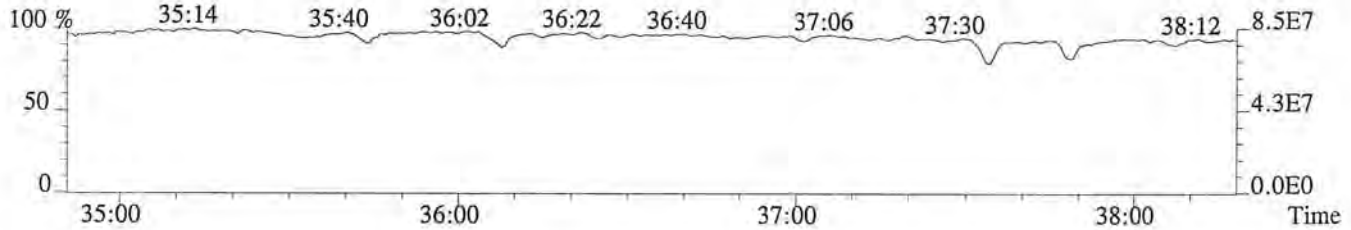
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2108.0,0.40%,F,T)



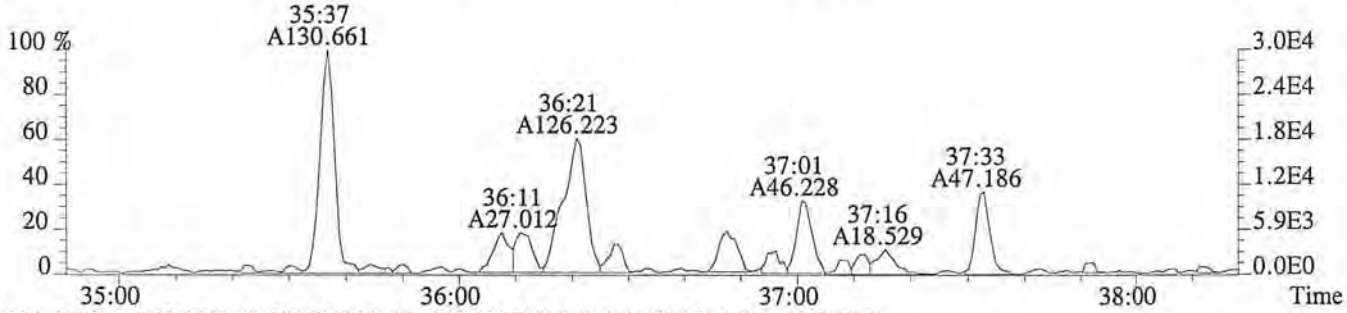
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



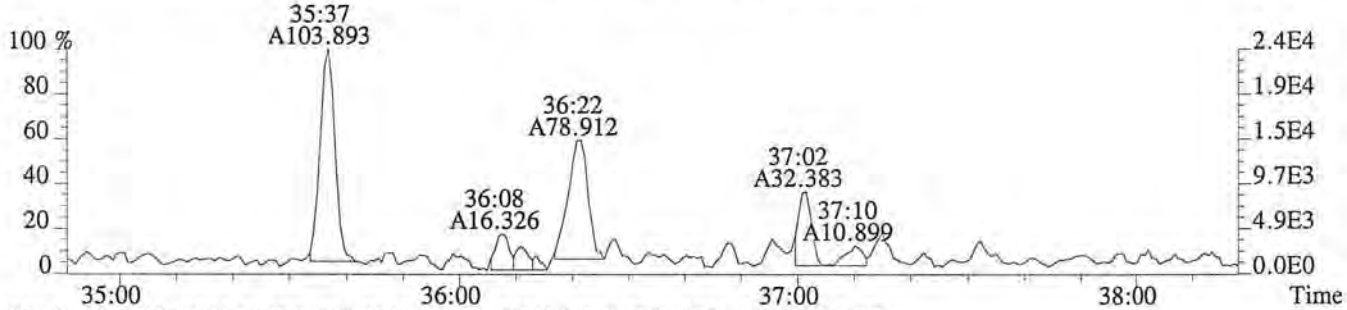
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



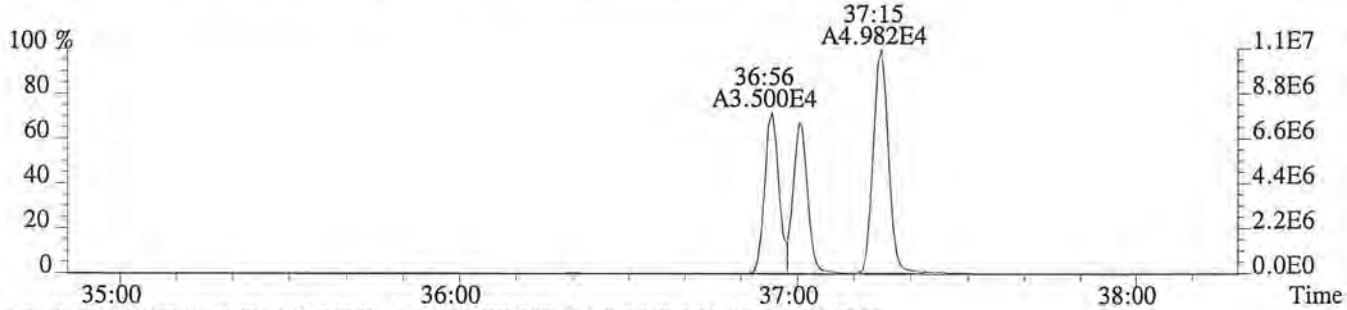
File:P301082 #1-312 Acq:28-AUG-2015 20:13:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-018
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



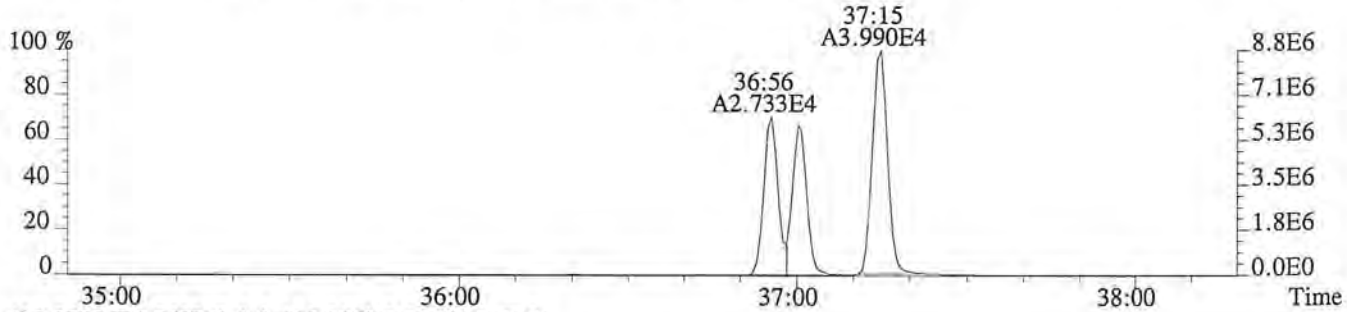
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2044.0,0.40%,F,T)



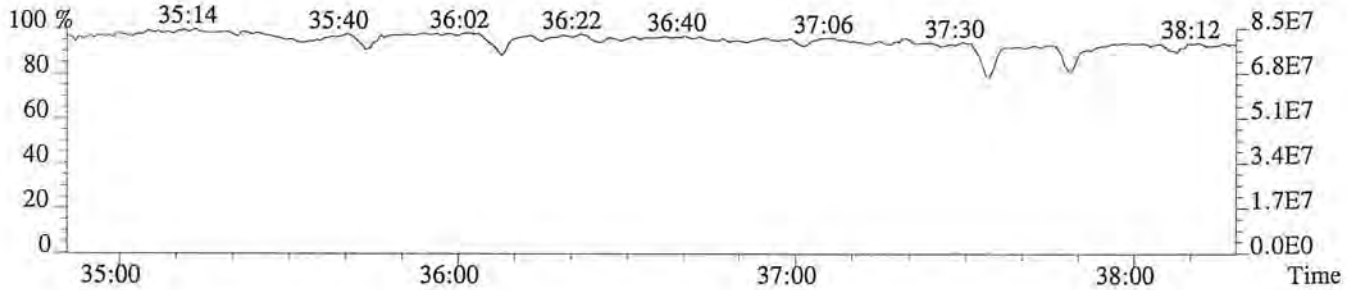
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.40%,F,T)



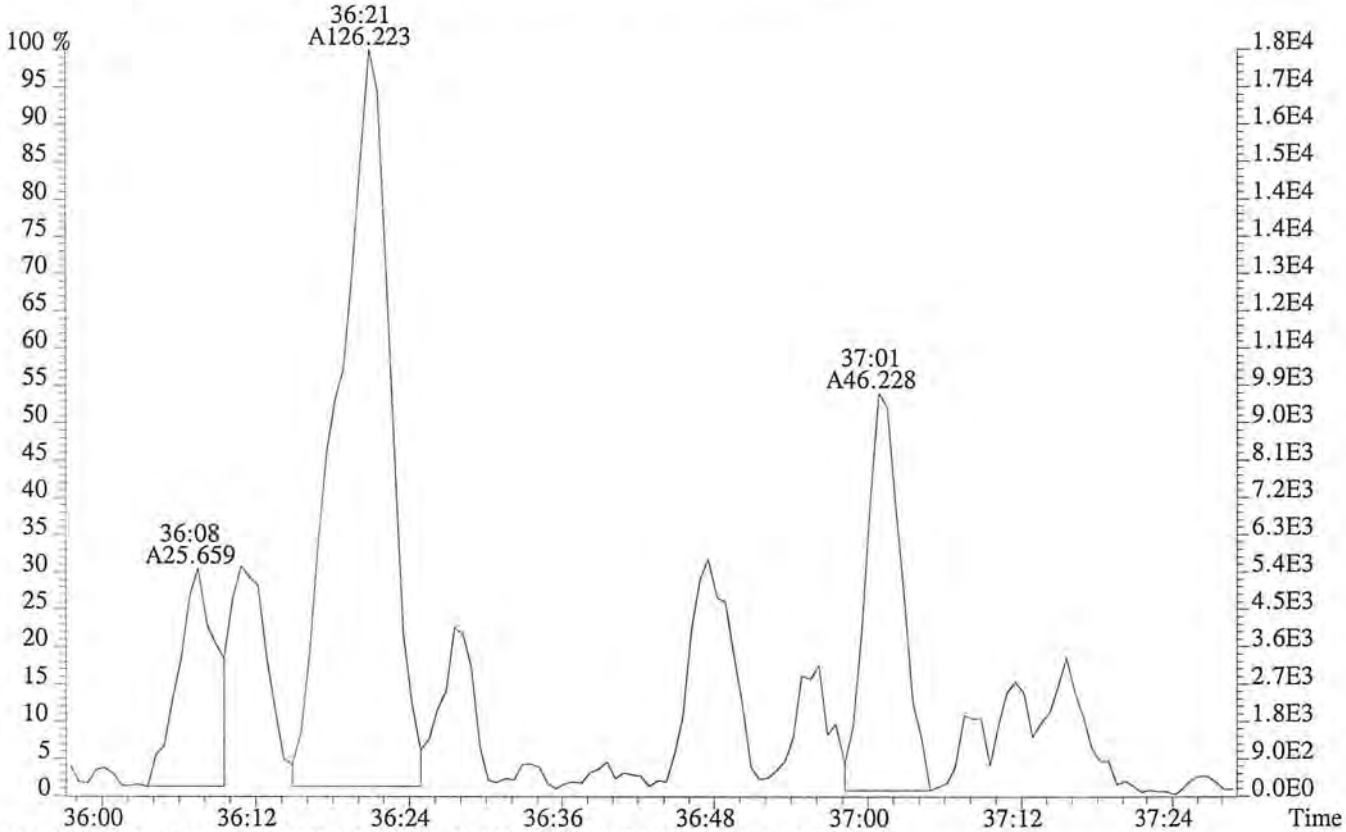
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



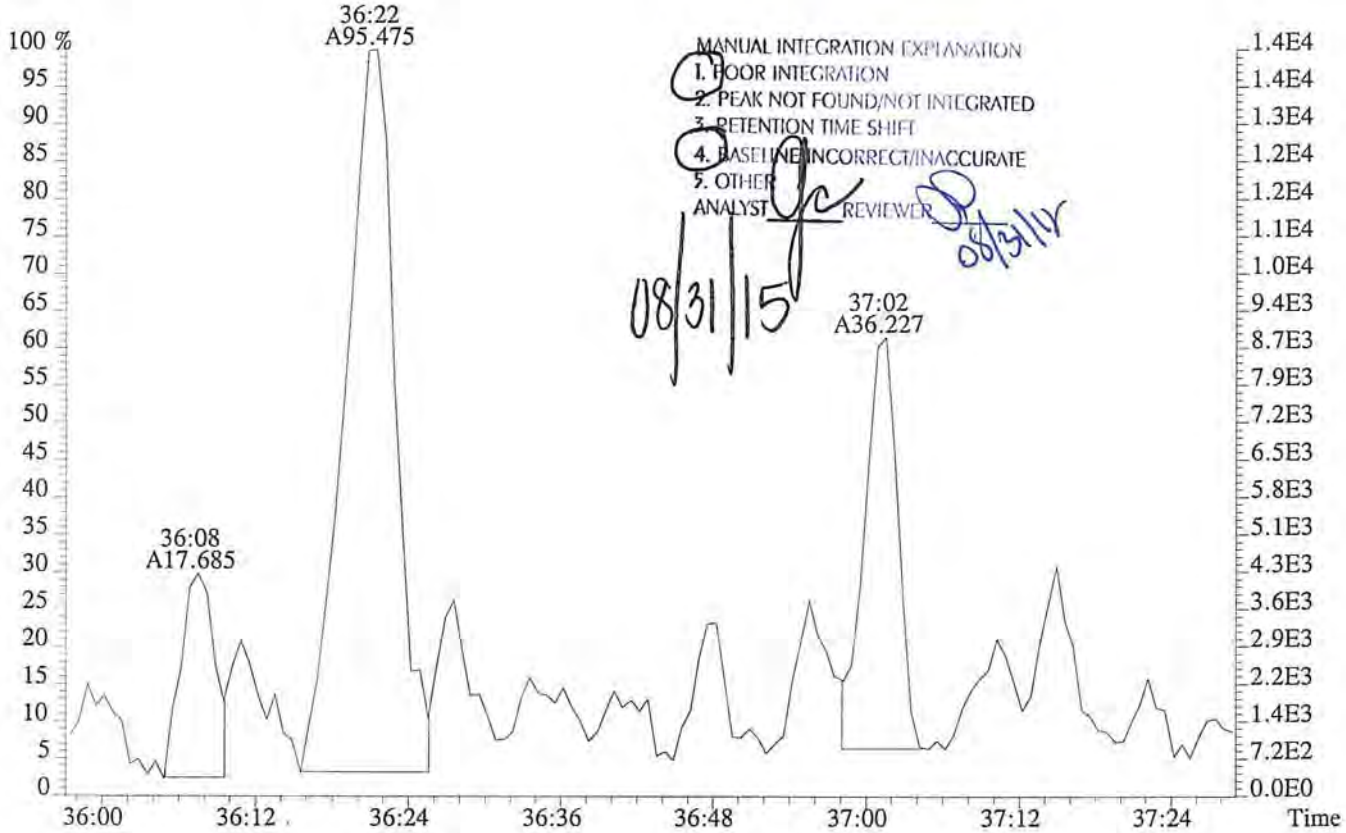
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P301082 #1-312 Acq:28-AUG-2015 20:13:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-018
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)

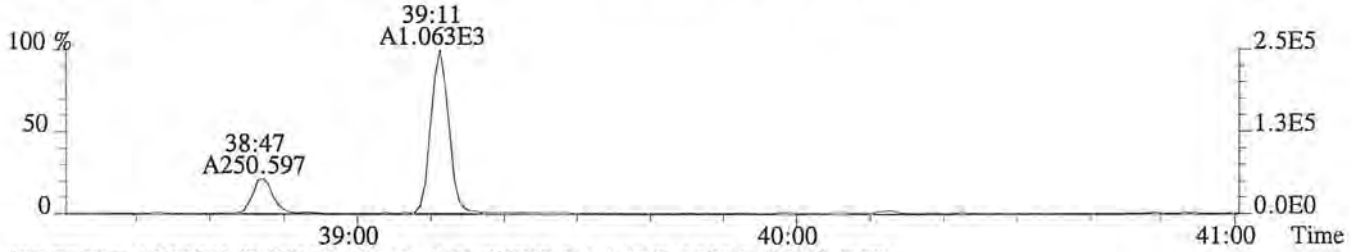


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2044.0,0.40%,F,T)

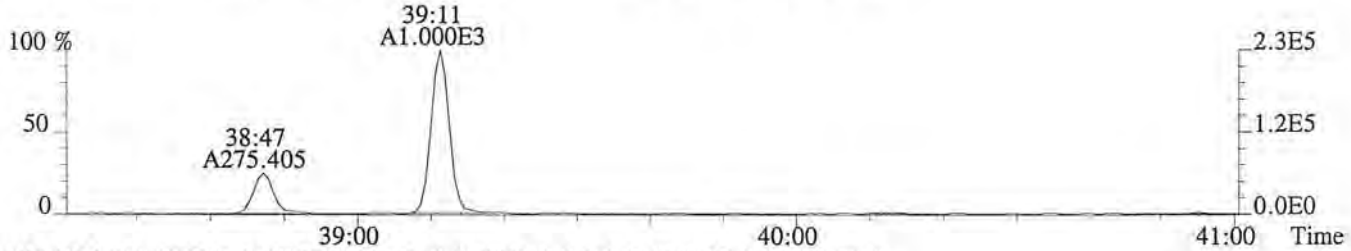


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER
08/31/15
08/31/15

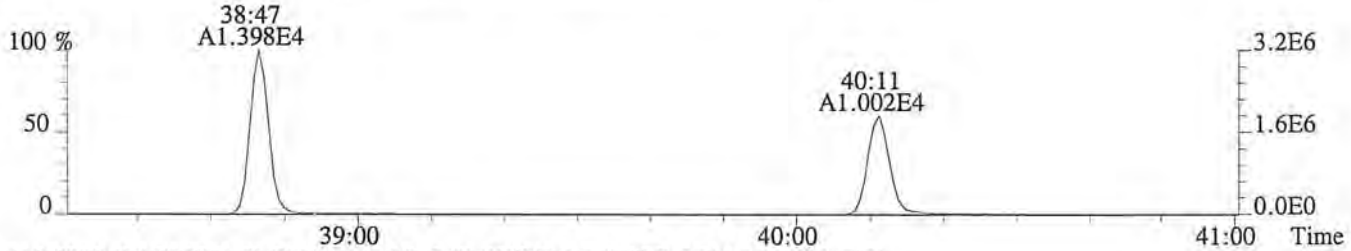
File:P301082 #1-241 Acq:28-AUG-2015 20:13:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-018
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1344.0,0.50%,F,T)



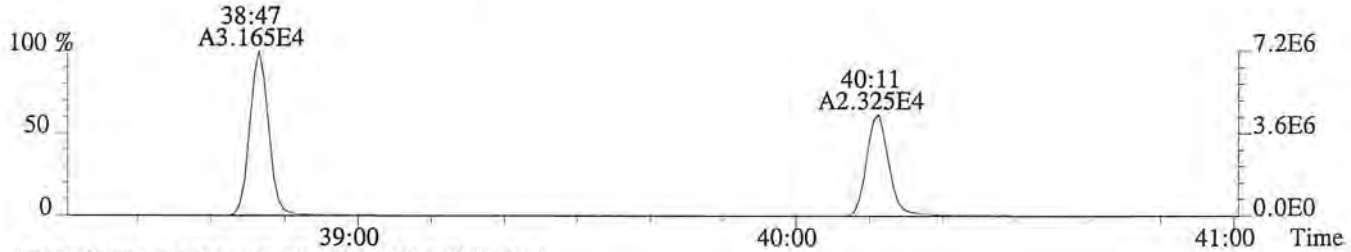
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1380.0,0.50%,F,T)



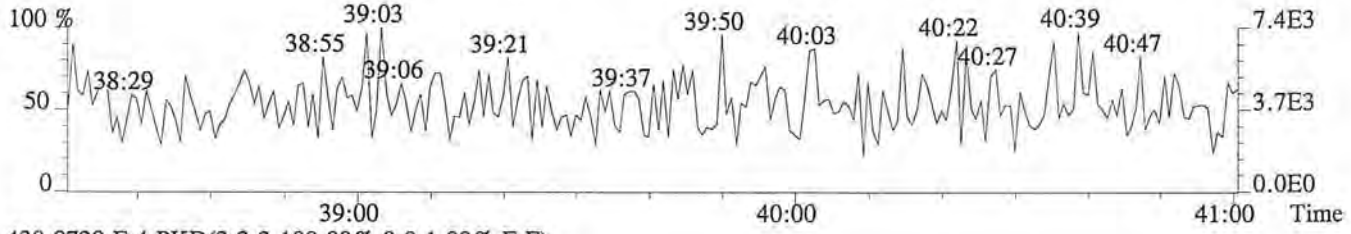
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.50%,F,T)



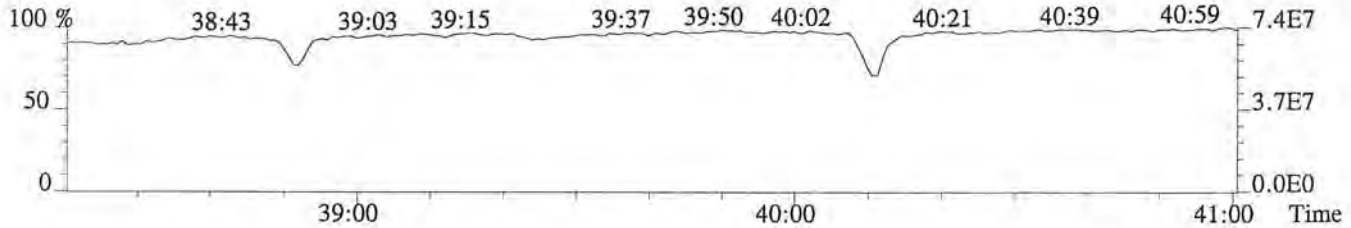
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.50%,F,T)



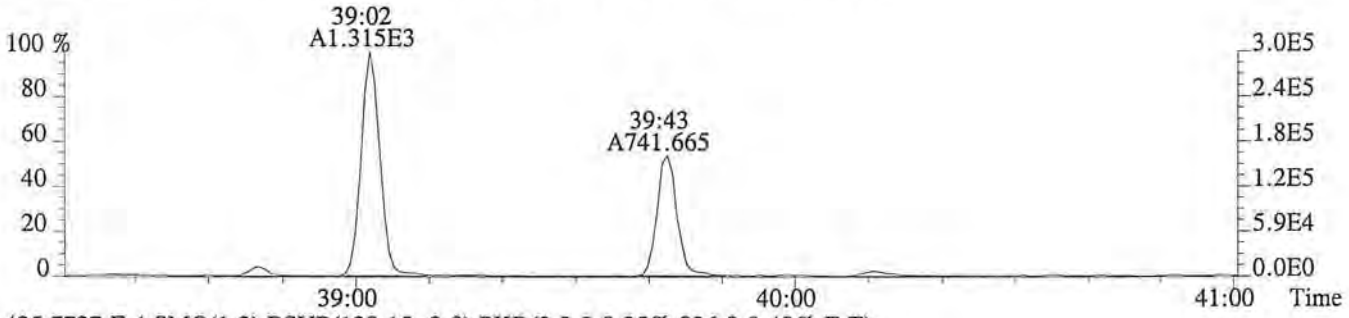
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



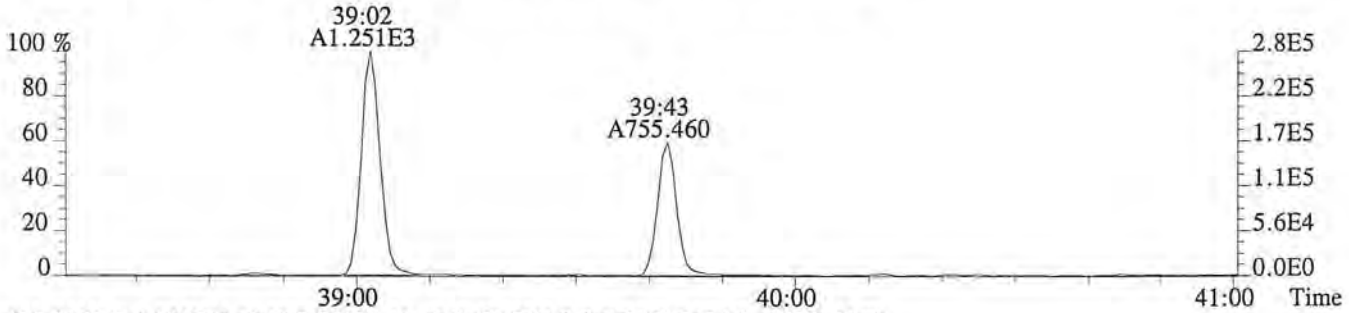
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



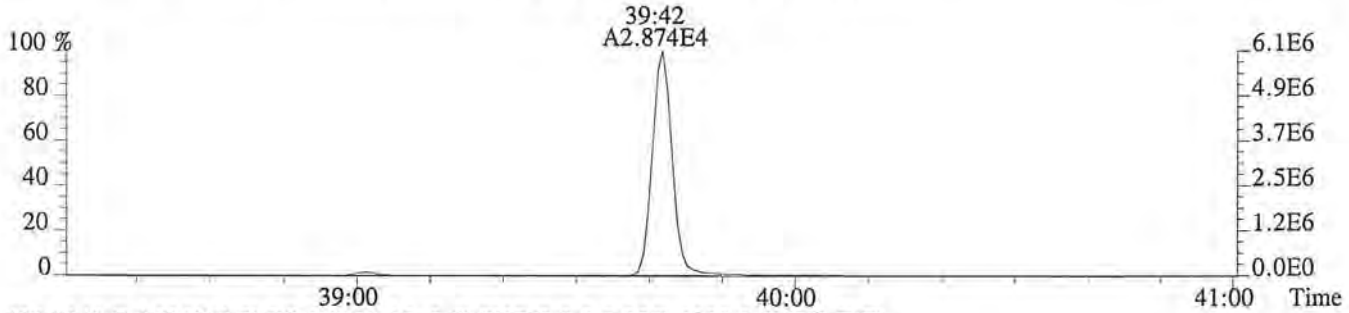
File:P301082 #1-241 Acq:28-AUG-2015 20:13:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-018
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



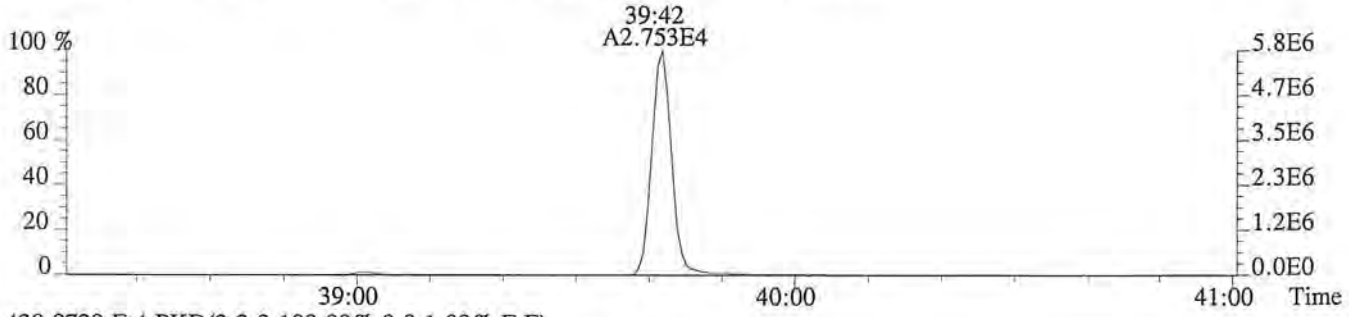
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



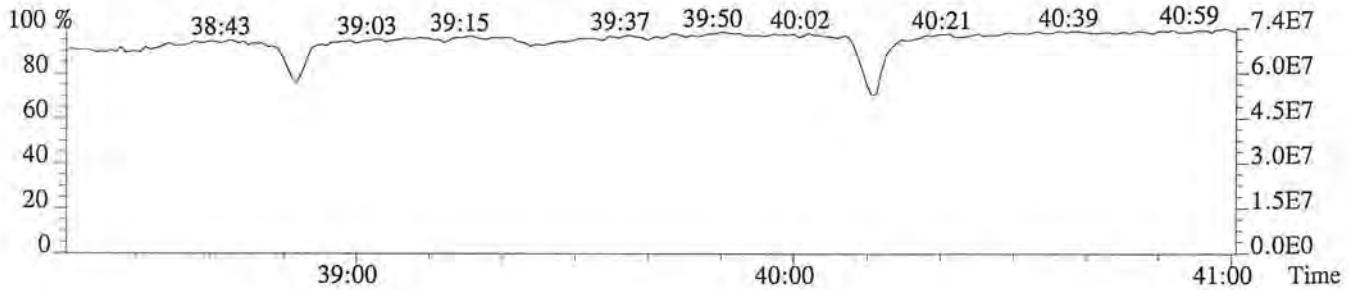
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3124.0,0.40%,F,T)



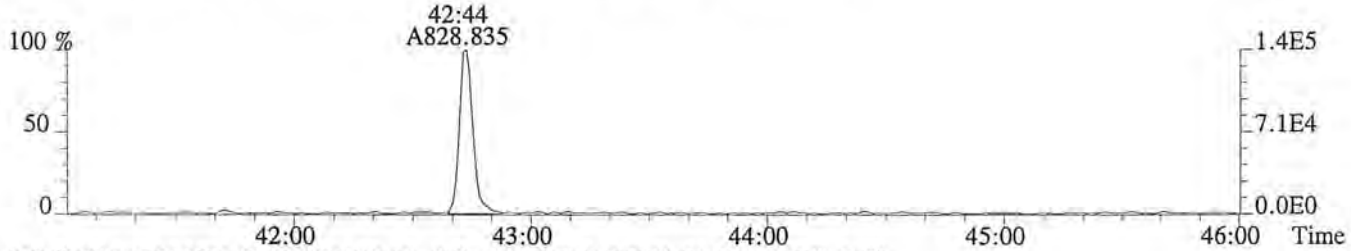
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)



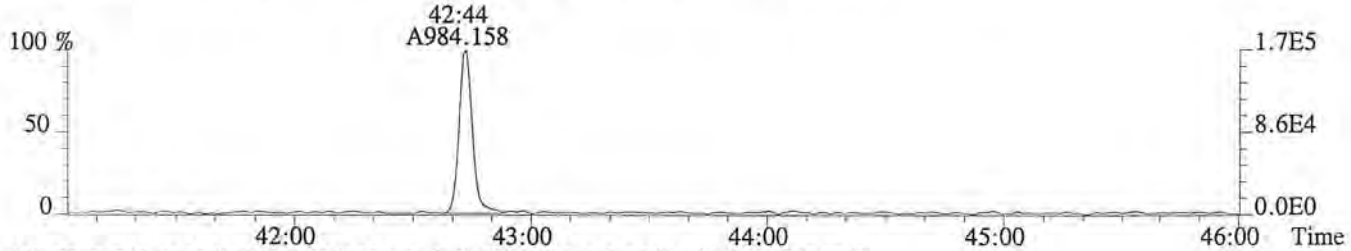
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



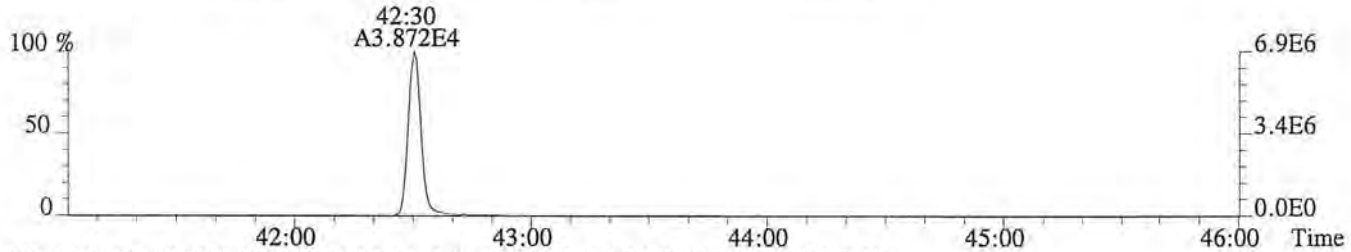
File:P301082 #1-447 Acq:28-AUG-2015 20:13:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-018
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1272.0,0.40%,F,T)



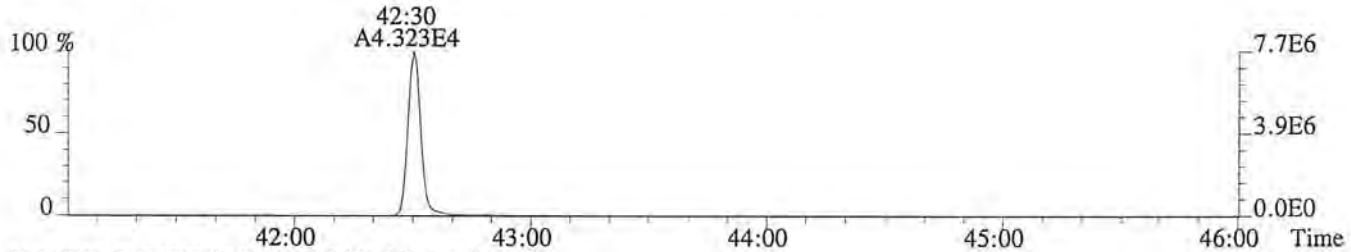
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2540.0,0.40%,F,T)



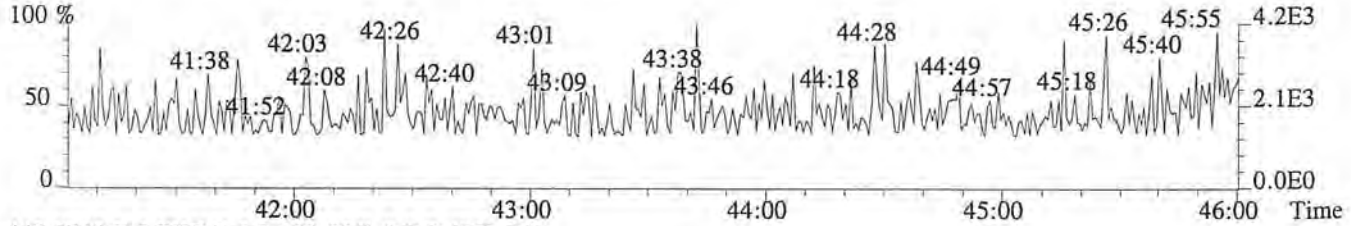
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



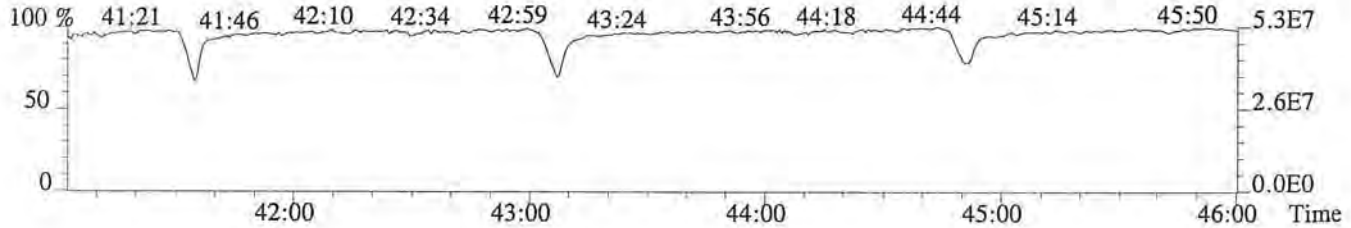
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1496.0,0.40%,F,T)



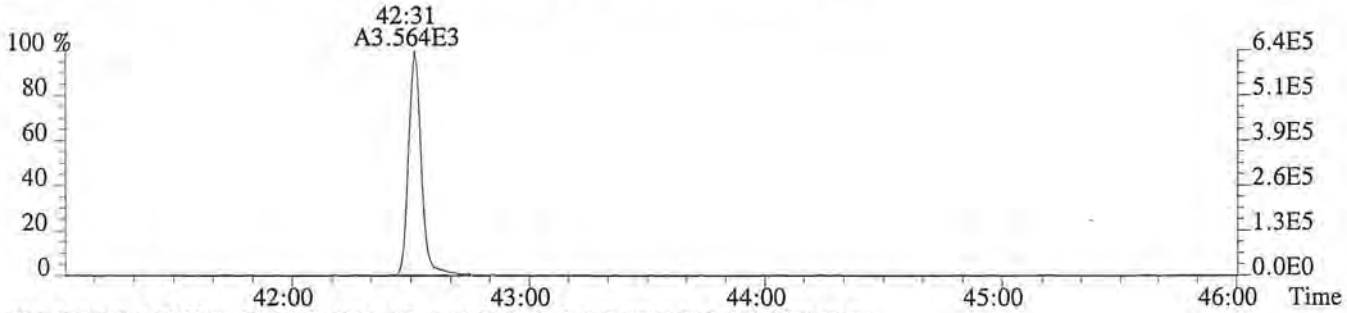
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



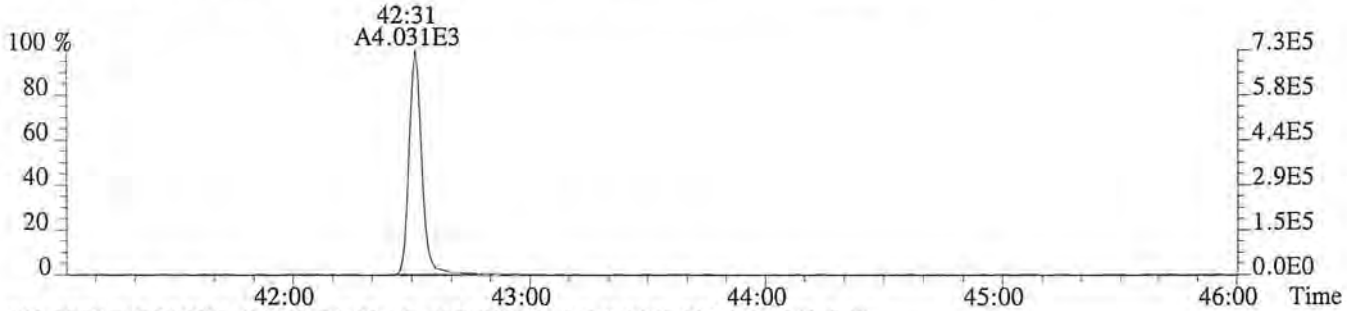
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



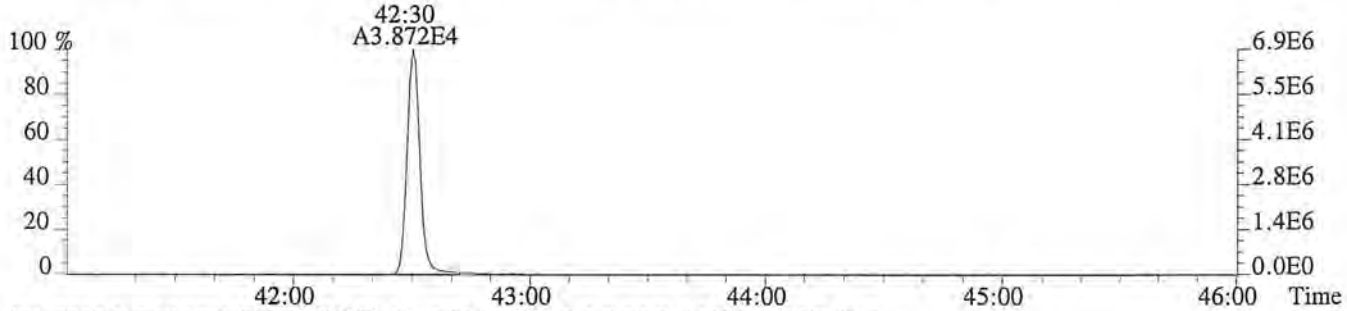
File:P301082 #1-447 Acq:28-AUG-2015 20:13:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-018
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



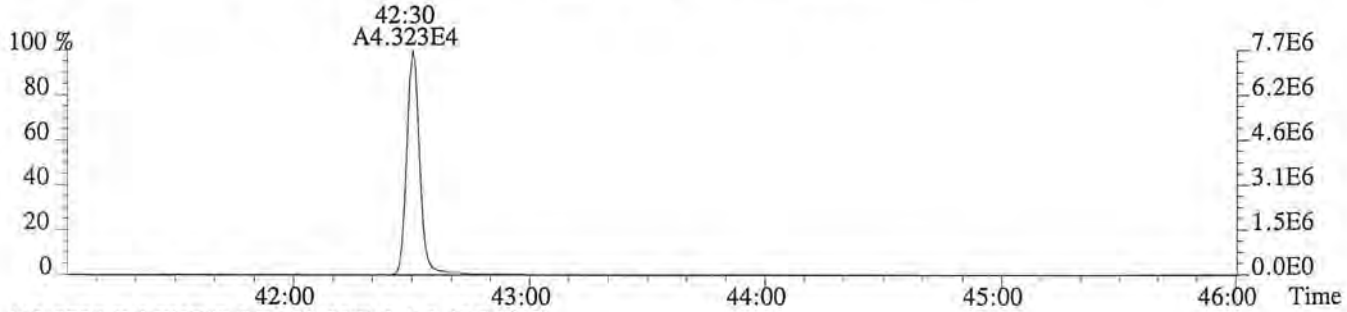
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,988.0,0.40%,F,T)



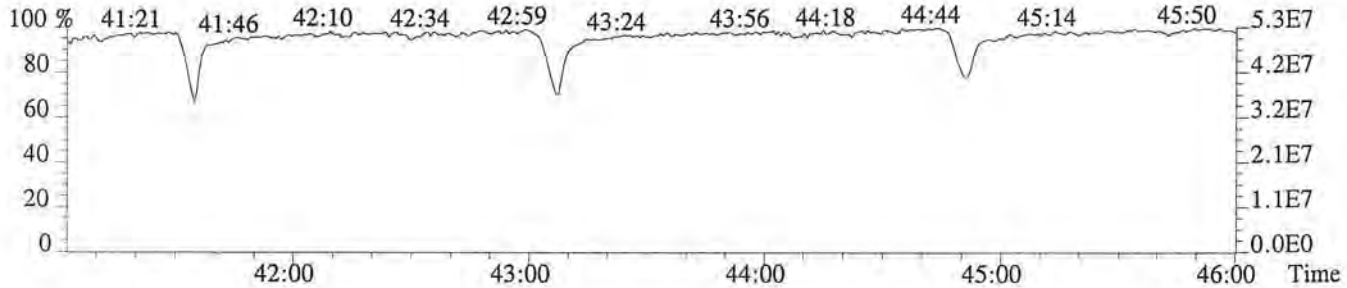
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1496.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-11-15 MT7

Run #16 Filename p600126 Samp: 1 Inj: 1 Acquired: 25-AUG-15 09:31:53
Processed: 26-AUG-15 09:47:38 Sample ID: E1500743-019

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:09	1.734e+03	2.261e+03	0.77	yes	no	0.941
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.987
3	Unk	2,3,4,7,8-PeCDF	33:59	1.647e+02	6.643e+01	2.48	no	no	0.934
4	Unk	1,2,3,4,7,8-HxCDF	36:33	8.670e+01	7.800e+01	1.11	yes	no	1.189
5	Unk	1,2,3,6,7,8-HxCDF	36:39	7.701e+01	6.967e+01	1.11	yes	no	1.126
6	Unk	2,3,4,6,7,8-HxCDF	37:09	7.242e+01	7.808e+01	0.93	no	no	1.116
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:07	1.581e+03	1.549e+03	1.02	yes	no	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:33	1.612e+02	1.883e+02	0.86	no	no	1.287
10	Unk	OCDF	43:08	6.679e+03	7.672e+03	0.87	yes	no	1.257
11	Unk	2,3,7,8-TCDD	29:52	5.542e+02	8.117e+02	0.68	yes	no	1.010
12	Unk	1,2,3,7,8-PeCDD	34:15	1.194e+02	6.944e+01	1.72	yes	no	0.932
13	Unk	1,2,3,4,7,8-HxCDD	37:16	9.958e+01	8.081e+01	1.23	yes	no	1.026
14	Unk	1,2,3,6,7,8-HxCDD	37:21	3.857e+02	3.133e+02	1.23	yes	no	1.021
15	Unk	1,2,3,7,8,9-HxCDD	37:35	1.303e+02	1.022e+02	1.28	yes	no	1.133
16	Unk	1,2,3,4,6,7,8-HpCDD	40:03	8.345e+03	7.975e+03	1.05	yes	no	1.034
17	Unk	OCDD	42:55	3.686e+04	4.123e+04	0.89	yes	no	1.111
18	IS	13C-2,3,7,8-TCDF	29:08	2.506e+05	3.149e+05	0.80	yes	no	1.379
19	IS	13C-1,2,3,7,8-PeCDF	33:05	3.939e+05	2.501e+05	1.58	yes	no	1.456
20	IS	13C-2,3,4,7,8-PeCDF	33:58	3.841e+05	2.434e+05	1.58	yes	no	1.465
21	IS	13C-1,2,3,4,7,8-HxCDF	36:32	1.645e+05	3.096e+05	0.53	yes	no	1.075
22	IS	13C-1,2,3,6,7,8-HxCDF	36:38	1.853e+05	3.549e+05	0.52	yes	no	1.158
23	IS	13C-2,3,4,6,7,8-HxCDF	37:08	1.724e+05	3.293e+05	0.52	yes	no	1.133
24	IS	13C-1,2,3,7,8,9-HxCDF	37:52	2.362e+05	4.483e+05	0.53	yes	no	1.024
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:06	6.270e+04	1.393e+05	0.45	yes	no	0.880
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:32	1.028e+05	2.290e+05	0.45	yes	no	0.914
27	IS	13C-2,3,7,8-TCDD	29:51	1.843e+05	2.340e+05	0.79	yes	no	1.193
28	IS	13C-1,2,3,7,8-PeCDD	34:13	2.872e+05	1.832e+05	1.57	yes	no	1.094
29	IS	13C-1,2,3,4,7,8-HxCDD	37:16	2.202e+05	1.729e+05	1.27	yes	no	0.906
30	IS	13C-1,2,3,6,7,8-HxCDD	37:20	2.102e+05	1.671e+05	1.26	yes	no	0.860
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:02	1.772e+05	1.690e+05	1.05	yes	no	0.892
32	IS	13C-OCDD	42:54	2.207e+05	2.459e+05	0.90	yes	no	0.642
33	RS/RT	13C-1,2,3,4-TCDD	29:19	2.333e+05	2.925e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:34	3.469e+05	2.764e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:52	1.858e+05				no	1.263

$$\text{OCDD} = \frac{(3.686e+04 + 4.123e+04) \times 4000 \text{ pg} \times 1}{(2.207e+05 + 2.459e+05) \times 10.227 \text{ g} \times \frac{18.1}{100} / 100 \times 1.111} = 58.9 \text{ ng/kg}$$

LM 08/27/15

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-11-15 MT7/MT

Run #16 Filename p600126 Samp: 1 Inj: 1 Acquired: 25-AUG-15 09:31:53
Processed: 26-AUG-15 09:47:38 LAB. ID: E1500743-019

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.59e+05	1.73e+03	2.1e+02	4.57e+05	3.40e+03	1.3e+02
2	1,2,3,7,8-PeCDF	*	3.20e+03	*	*	5.57e+03	*
3	2,3,4,7,8-PeCDF	3.42e+04	3.20e+03	1.1e+01	1.66e+04	5.57e+03	3.0e+00
4	1,2,3,4,7,8-HxCDF	2.31e+04	4.64e+03	5.0e+00	1.69e+04	8.96e+02	1.9e+01
5	1,2,3,6,7,8-HxCDF	1.67e+04	4.64e+03	3.6e+00	1.61e+04	8.96e+02	1.8e+01
6	2,3,4,6,7,8-HxCDF	1.94e+04	4.64e+03	4.2e+00	1.53e+04	8.96e+02	1.7e+01
7	1,2,3,7,8,9-HxCDF	*	4.64e+03	*	*	8.96e+02	*
8	1,2,3,4,6,7,8-HpCDF	3.66e+05	2.84e+03	1.3e+02	3.45e+05	1.76e+03	2.0e+02
9	1,2,3,4,7,8,9-HpCDF	3.59e+04	2.84e+03	1.3e+01	3.81e+04	1.76e+03	2.2e+01
10	OCDF	1.26e+06	3.46e+03	3.7e+02	1.46e+06	6.22e+03	2.4e+02
11	2,3,7,8-TCDD	1.20e+05	2.32e+03	5.2e+01	1.68e+05	2.12e+03	7.9e+01
12	1,2,3,7,8-PeCDD	2.69e+04	6.04e+03	4.4e+00	1.16e+04	2.62e+03	4.5e+00
13	1,2,3,4,7,8-HxCDD	1.97e+04	1.95e+03	1.0e+01	1.93e+04	1.88e+03	1.0e+01
14	1,2,3,6,7,8-HxCDD	8.82e+04	1.95e+03	4.5e+01	7.37e+04	1.88e+03	3.9e+01
15	1,2,3,7,8,9-HxCDD	2.95e+04	1.95e+03	1.5e+01	2.59e+04	1.88e+03	1.4e+01
16	1,2,3,4,6,7,8-HpCDD	1.83e+06	3.46e+03	5.3e+02	1.77e+06	5.92e+03	3.0e+02
17	OCDD	7.27e+06	2.28e+03	3.2e+03	8.15e+06	2.87e+03	2.8e+03
18	13C-2,3,7,8-TCDF	5.13e+07	6.18e+03	8.3e+03	6.43e+07	3.96e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	8.00e+07	2.25e+03	3.6e+04	5.06e+07	4.18e+03	1.2e+04
20	13C-2,3,4,7,8-PeCDF	8.26e+07	2.25e+03	3.7e+04	5.25e+07	4.18e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	3.81e+07	3.20e+03	1.2e+04	7.20e+07	3.58e+03	2.0e+04
22	13C-1,2,3,6,7,8-HxCDF	4.29e+07	3.20e+03	1.3e+04	8.22e+07	3.58e+03	2.3e+04
23	13C-2,3,4,6,7,8-HxCDF	4.07e+07	3.20e+03	1.3e+04	7.78e+07	3.58e+03	2.2e+04
24	13C-1,2,3,7,8,9-HxCDF	5.50e+07	3.20e+03	1.7e+04	1.03e+08	3.58e+03	2.9e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.46e+07	4.62e+03	3.2e+03	3.23e+07	2.27e+03	1.4e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.27e+07	4.62e+03	4.9e+03	5.03e+07	2.27e+03	2.2e+04
27	13C-2,3,7,8-TCDD	3.88e+07	1.16e+04	3.4e+03	4.94e+07	5.51e+03	9.0e+03
28	13C-1,2,3,7,8-PeCDD	6.32e+07	4.20e+03	1.5e+04	4.05e+07	2.56e+03	1.6e+04
29	13C-1,2,3,4,7,8-HxCDD	5.12e+07	7.25e+03	7.1e+03	4.02e+07	3.69e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	4.94e+07	7.25e+03	6.8e+03	3.94e+07	3.69e+03	1.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.94e+07	3.32e+03	1.2e+04	3.77e+07	2.68e+03	1.4e+04
32	13C-OCDD	4.32e+07	1.88e+03	2.3e+04	4.81e+07	2.87e+03	1.7e+04
33	13C-1,2,3,4-TCDD	4.82e+07	1.16e+04	4.2e+03	6.02e+07	5.51e+03	1.1e+04
34	13C-1,2,3,7,8,9-HxCDD	8.22e+07	7.25e+03	1.1e+04	6.59e+07	3.69e+03	1.8e+04
35	37Cl-2,3,7,8-TCDD	4.02e+07	2.72e+03	1.5e+04			

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Peak List Summary

CLIENT ID.

PLY-11-15 MT7/MT

Entry: 36 Totals Name: Total Tetra-Furans

Run: 16 File: p600126 Sample:1 Injection:1 Function:1

Acquired: 25-AUG-15 09:31:53 Processed: 26-AUG-15 09:47:38

Mass: 303.9020 305.8990 Tot Response: 7.79e+03 RRF: 0.9406

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:52	1.46e+03	2.03e+03	0.72	yes	3.49e+03		n	n
2	26:26	7.89e+01	1.10e+02	0.71	yes	1.89e+02		n	n
3	29:09	1.73e+03	2.26e+03	0.77	yes	3.99e+03	2,3,7,8-TCDF	n	n
4	30:19	4.70e+01	6.87e+01	0.68	yes	1.16e+02		n	n

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Peak List Summary

CLIENT ID.

PLY-11-15 MT7/MT

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 16 File: p600126 Sample:1 Injection:1 Function:1

Acquired: 25-AUG-15 09:31:53 Processed: 26-AUG-15 09:47:38

Mass: 319.8970 321.8940 Tot Response: 1.37e+03 RRF: 1.010

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:52	5.54e+02	8.12e+02	0.68	yes	1.37e+03	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.

PLY-11-15 MT7/MT

Entry: 38 Totals Name: Total Penta-Furans1

Run: 16 File: p600126 Sample:1 Injection:1 Function:1

Acquired: 25-AUG-15 09:31:53 Processed: 26-AUG-15 09:47:38

Mass: 339.8600 341.8570 Tot Response: 1.75e+02 RRF: 0.9605

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:48	1.11e+02	6.39e+01	1.73	yes	1.75e+02	n	n

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Peak List Summary

CLIENT ID.

PLY-11-15 MT7/MT7

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 16 File: p600126 Sample:1 Injection:1 Function:2

Acquired: 25-AUG-15 09:31:53 Processed: 26-AUG-15 09:47:38

Mass: 355.8550 357.8520 Tot Response: 4.69e+02 RRF: 0.9324

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:13	1.09e+02	6.77e+01	1.61	yes	1.77e+02		n	n
2	33:06	6.32e+01	4.01e+01	1.58	yes	1.03e+02		n	n
3	34:15	1.19e+02	6.94e+01	1.72	yes	1.89e+02	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.

PLY-11-15 MT7/MT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 16 File: p600126 Sample:1 Injection:1 Function:3

Acquired: 25-AUG-15 09:31:53 Processed: 26-AUG-15 09:47:38

Mass: 373.8210 375.8180 Tot Response: 5.05e+03 RRF: 1.146

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:28	1.49e+02	1.41e+02	1.06	yes	2.90e+02		n	n
2	35:37	3.87e+02	3.10e+02	1.25	yes	6.97e+02		n	n
3	36:08	2.07e+03	1.68e+03	1.23	yes	3.75e+03		n	n
4	36:33	8.67e+01	7.80e+01	1.11	yes	1.65e+02	1,2,3,4,7,8-HxCDF	n	n
5	36:39	7.70e+01	6.97e+01	1.11	yes	1.47e+02	1,2,3,6,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.

PLY-11-15 MT7/MT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 16 File: p600126 Sample:1 Injection:1 Function:3

Acquired: 25-AUG-15 09:31:53 Processed: 26-AUG-15 09:47:38

Mass: 389.8160 391.8130 Tot Response: 7.02e+03 RRF: 1.060

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:58	1.59e+03	1.29e+03	1.23	yes	2.88e+03		n	n
2	36:28	2.84e+02	2.22e+02	1.28	yes	5.06e+02		n	n
3	36:42	1.20e+03	8.88e+02	1.35	yes	2.09e+03		n	n
4	36:49	2.36e+02	2.00e+02	1.18	yes	4.37e+02		n	n
5	37:16	9.96e+01	8.08e+01	1.23	yes	1.80e+02	1,2,3,4,7,8-HxCDD	n	n
6	37:21	3.86e+02	3.13e+02	1.23	yes	6.99e+02	1,2,3,6,7,8-HxCDD	n	n
7	37:35	1.30e+02	1.02e+02	1.28	yes	2.32e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.

PLY-11-15 MT7/MT7

Entry: 43 Totals Name: Total Hepta-Furans

Run: 16 File: p600126 Sample:1 Injection:1 Function:4

Acquired: 25-AUG-15 09:31:53 Processed: 26-AUG-15 09:47:38

Mass: 407.7820 409.7790 Tot Response: 2.05e+04 RRF: 1.329

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:07	1.58e+03	1.55e+03	1.02	yes	3.13e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	39:31	8.74e+03	8.67e+03	1.01	yes	1.74e+04		n	n

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Peak List Summary

CLIENT ID.

PLY-11-15 MT7/MT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: p600126 Sample:1 Injection:1 Function:4

Acquired: 25-AUG-15 09:31:53 Processed: 26-AUG-15 09:47:38

Mass: 423.7770 425.7740 Tot Response: 5.11e+04 RRF: 1.034

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:21	1.78e+04	1.69e+04	1.05	yes	3.48e+04	n	n
2	40:03	8.35e+03	7.98e+03	1.05	yes	1.63e+04	1,2,3,4,6,7,8-HpCDD	n	n

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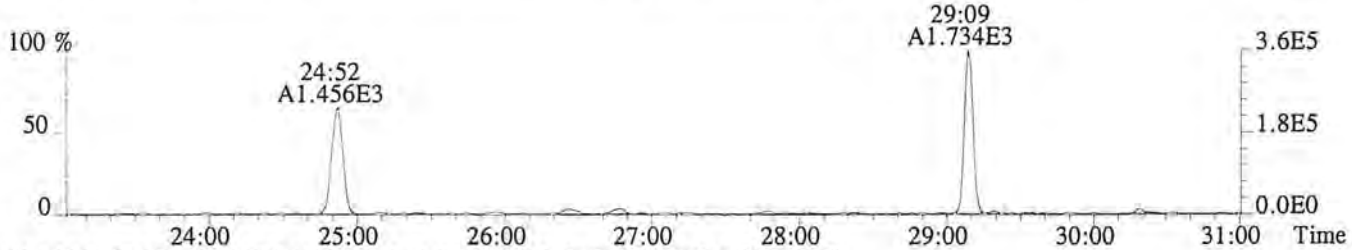
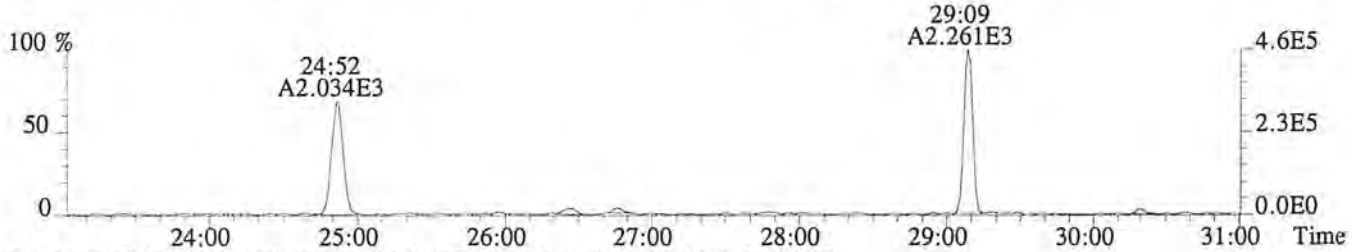
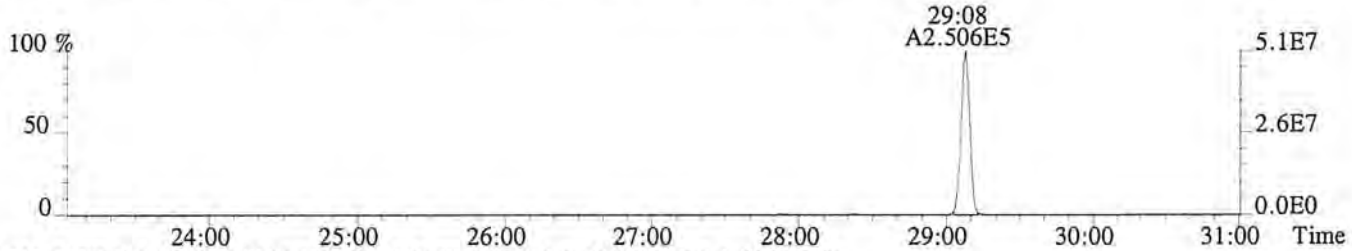
File:P600126 #1-566 Acq:25-AUG-2015 09:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-019
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1728.0,1.00%,F,T)



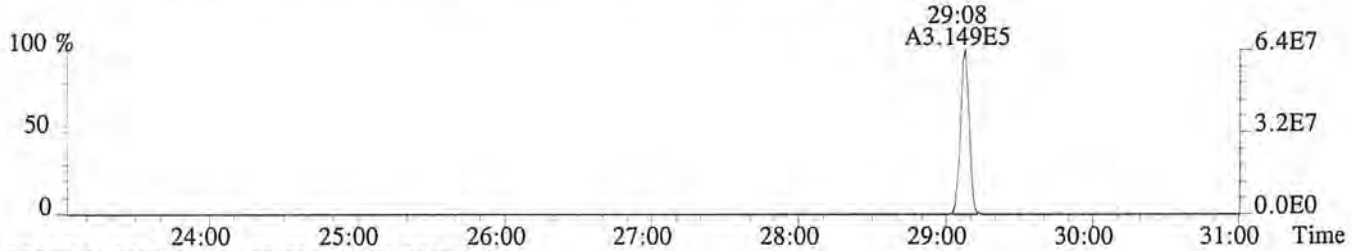
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3404.0,1.00%,F,T)



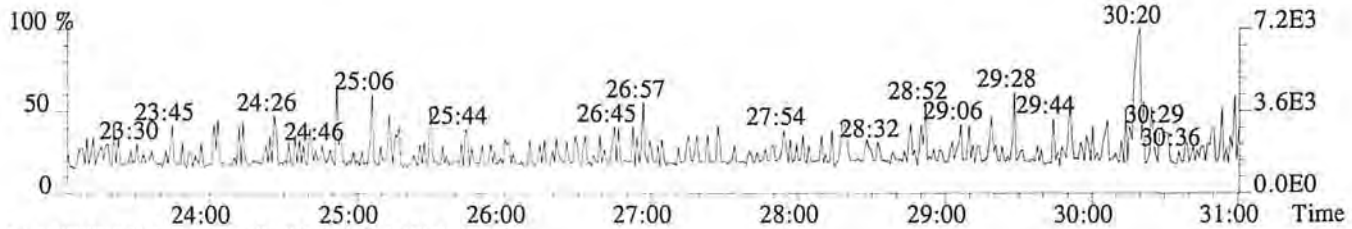
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6176.0,1.00%,F,T)



317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3956.0,1.00%,F,T)

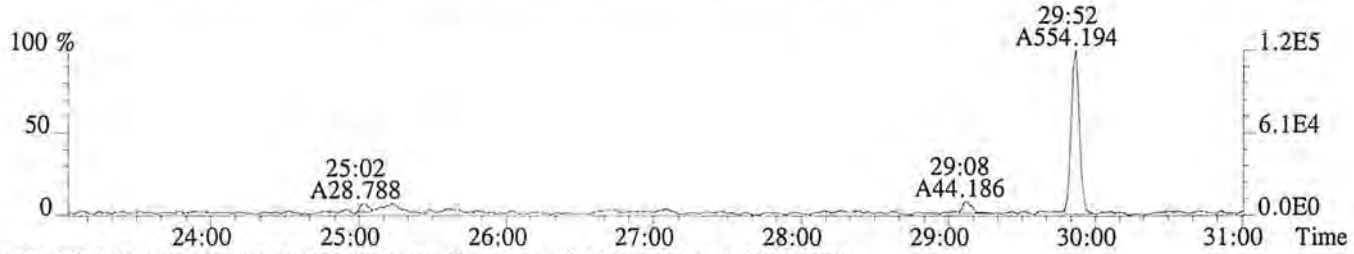


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



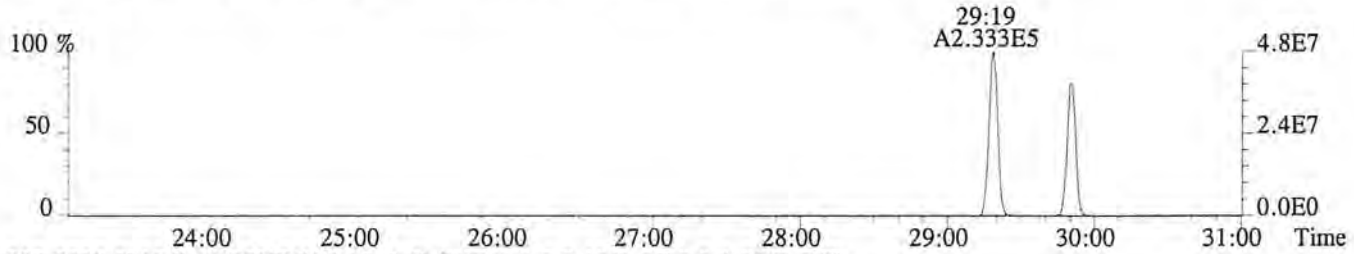
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

File:P600126 #1-566 Acq:25-AUG-2015 09:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-019
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2324.0,1.00%,F,T)

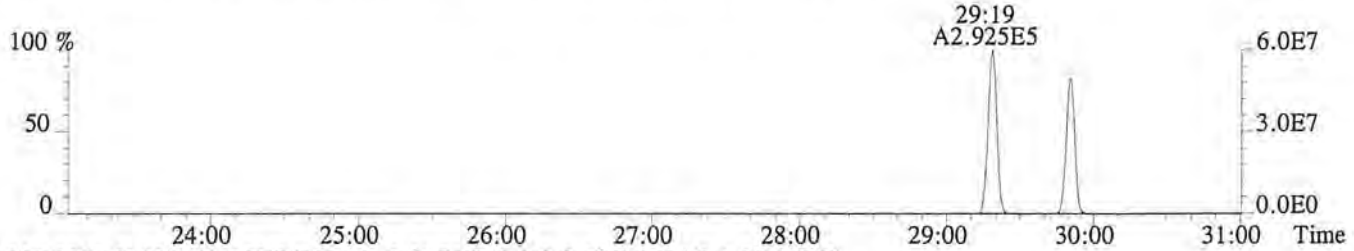


321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2120.0,1.00%,F,T)

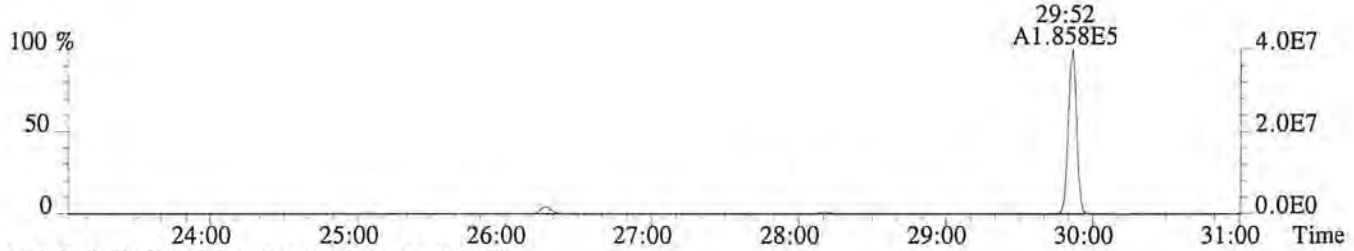
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11584.0,1.00%,F,T)



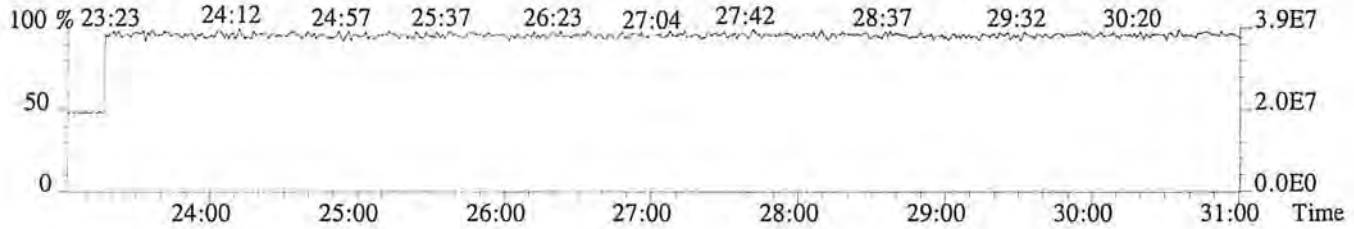
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5508.0,1.00%,F,T)



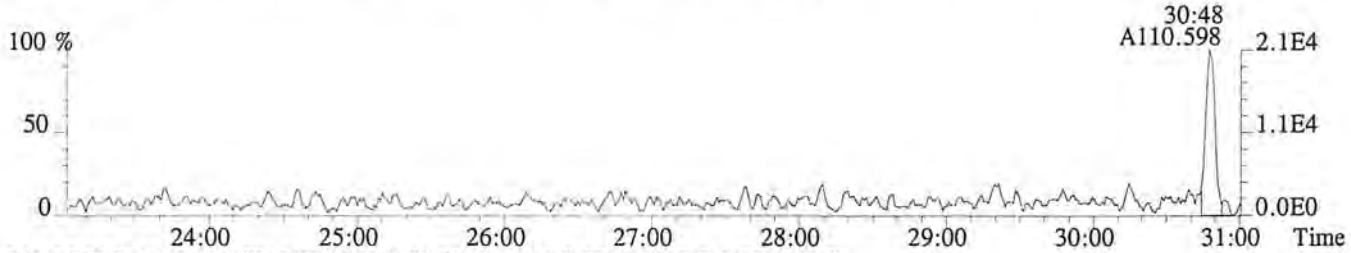
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2724.0,1.00%,F,T)



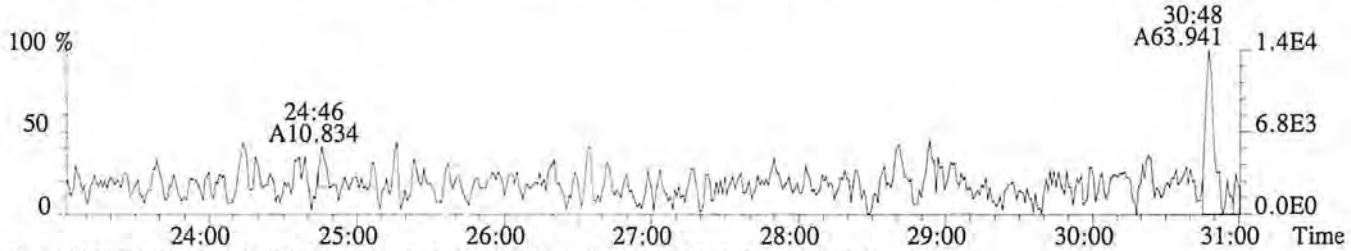
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



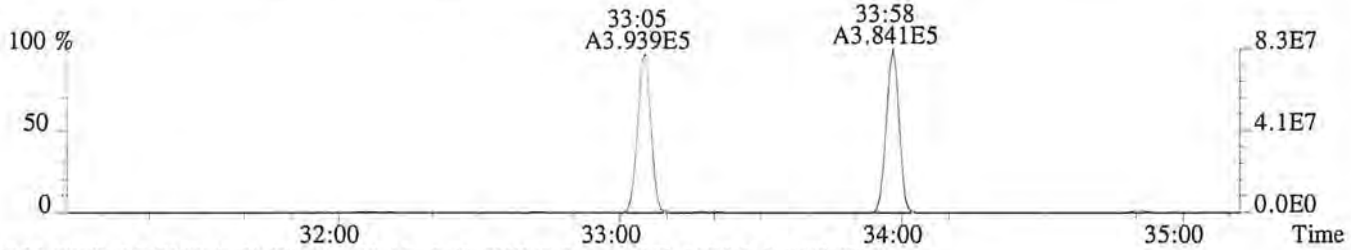
File:P600126 #1-566 Acq:25-AUG-2015 09:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-019
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2088.0,1.00%,F,T)



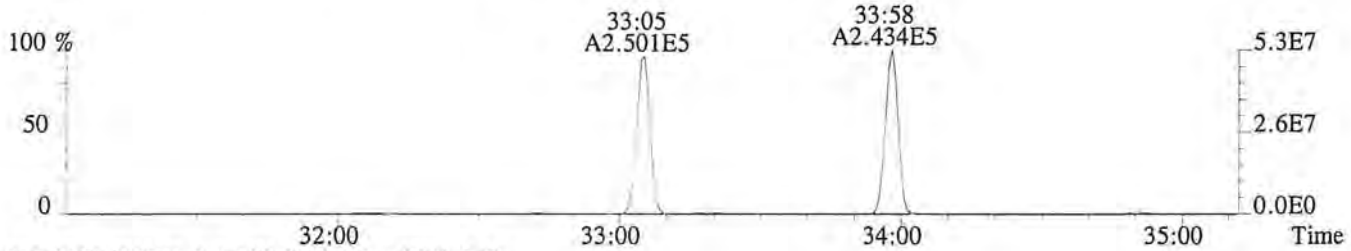
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3100.0,1.00%,F,T)



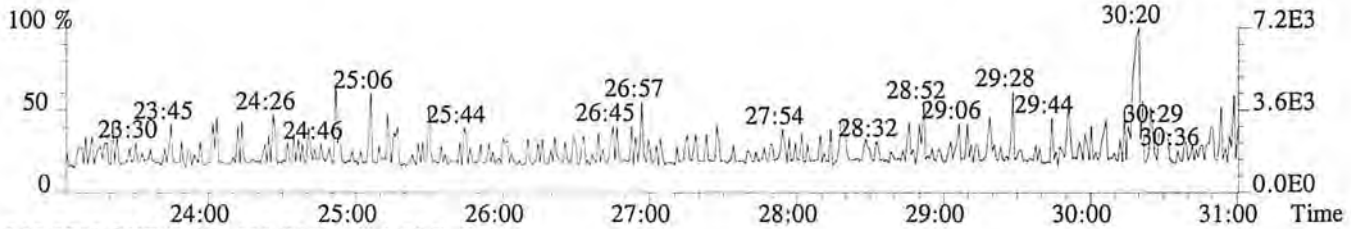
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2252.0,1.00%,F,T)



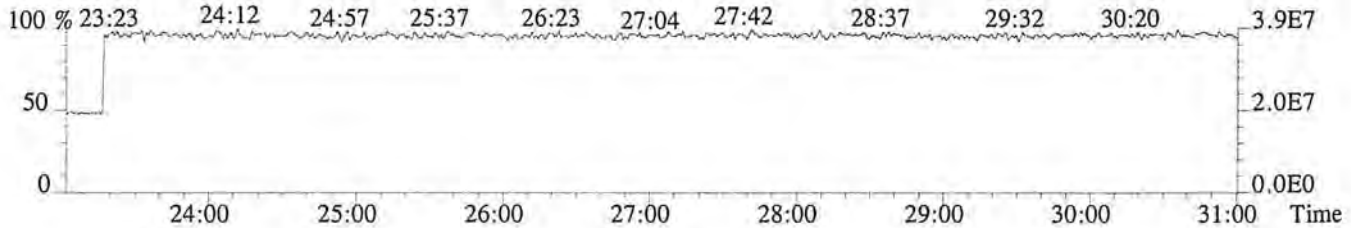
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4184.0,1.00%,F,T)



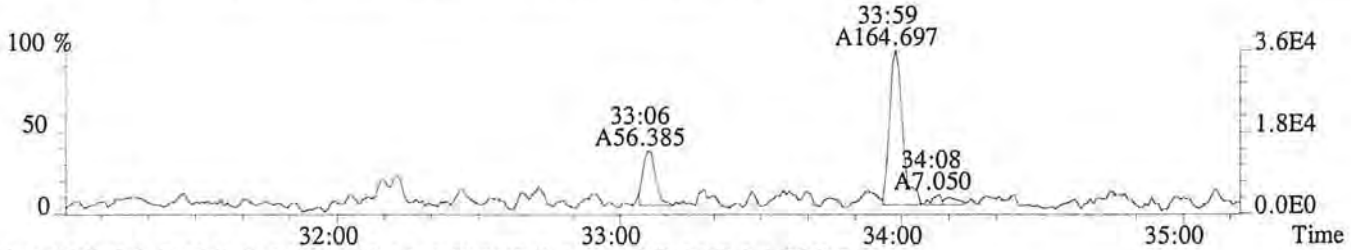
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



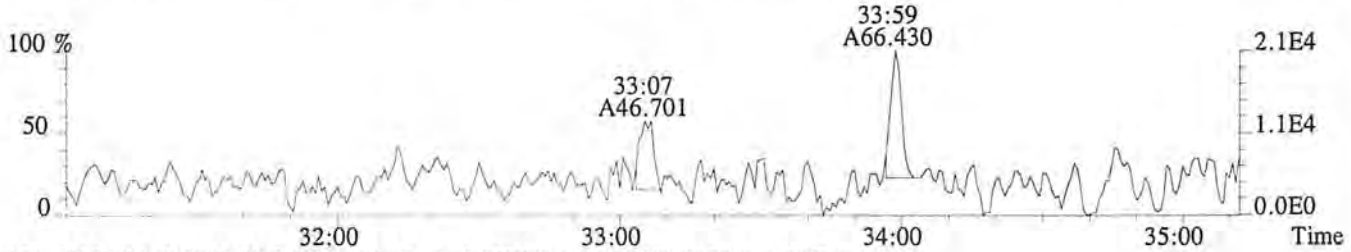
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



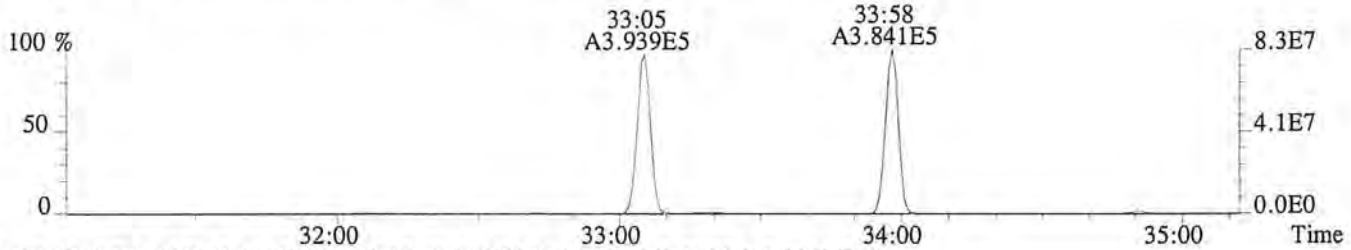
File:P600126 #1-375 Acq:25-AUG-2015 09:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-019
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3200.0,1.00%,F,T)



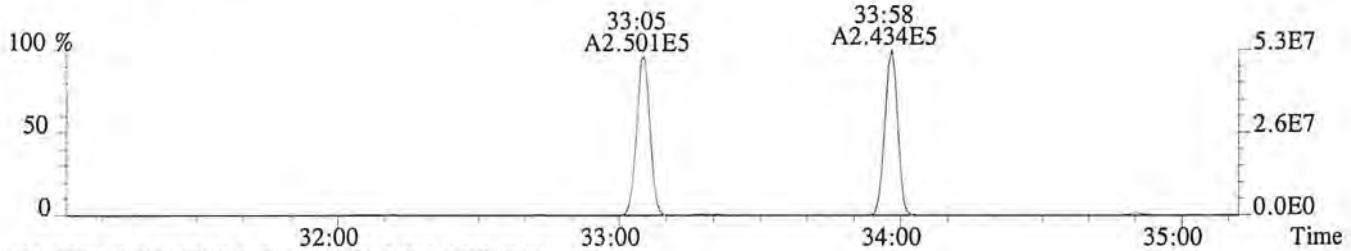
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5572.0,1.00%,F,T)



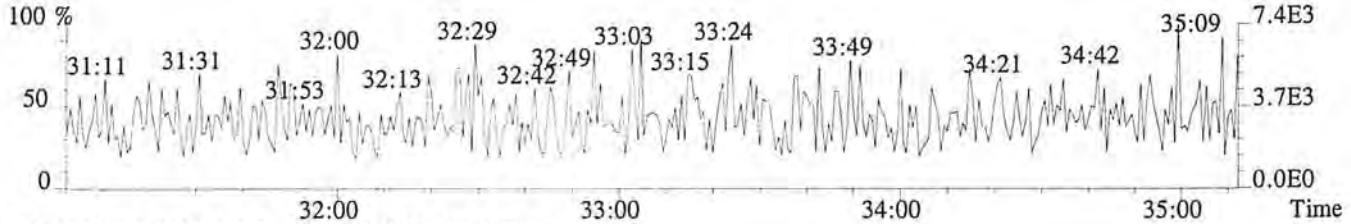
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2252.0,1.00%,F,T)



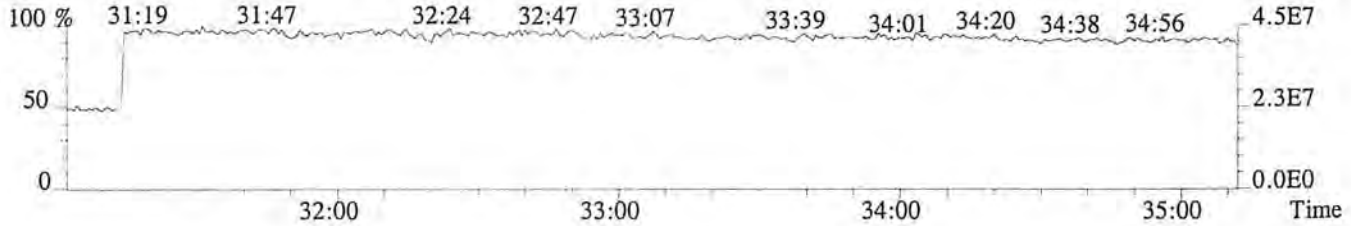
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4184.0,1.00%,F,T)



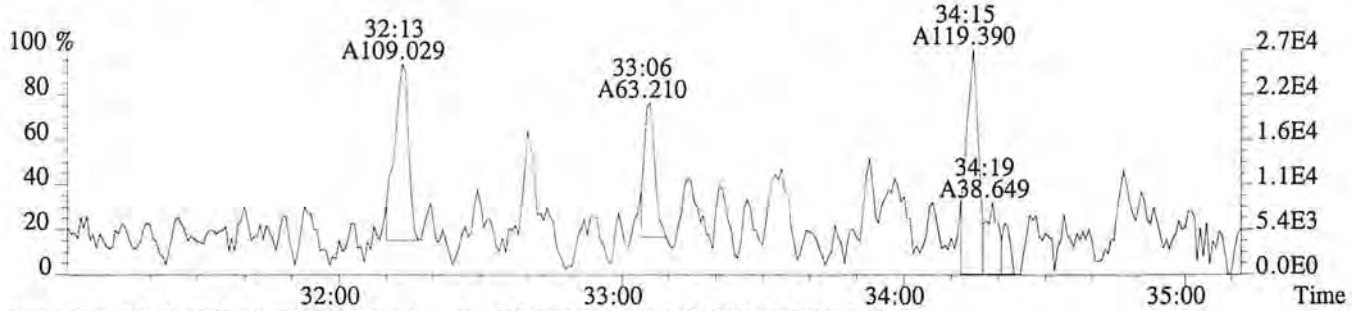
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



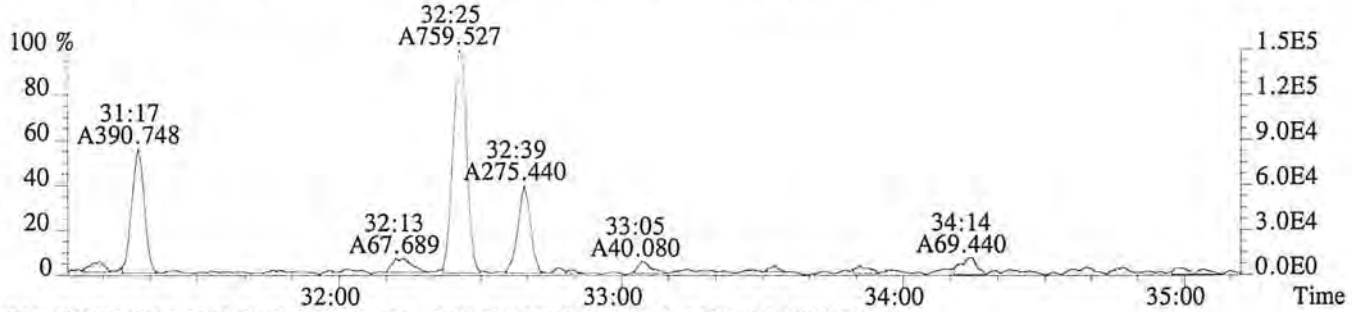
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



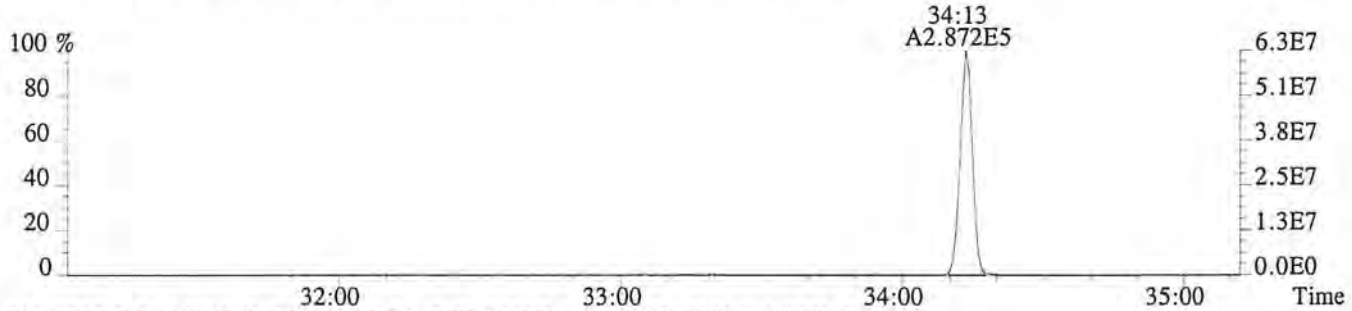
File:P600126 #1-375 Acq:25-AUG-2015 09:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-019
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6044.0,1.00%,F,T)



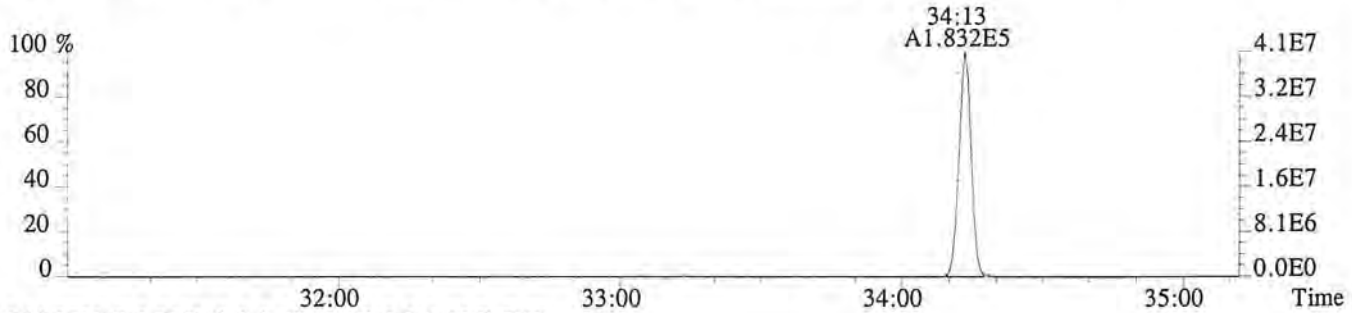
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2616.0,1.00%,F,T)



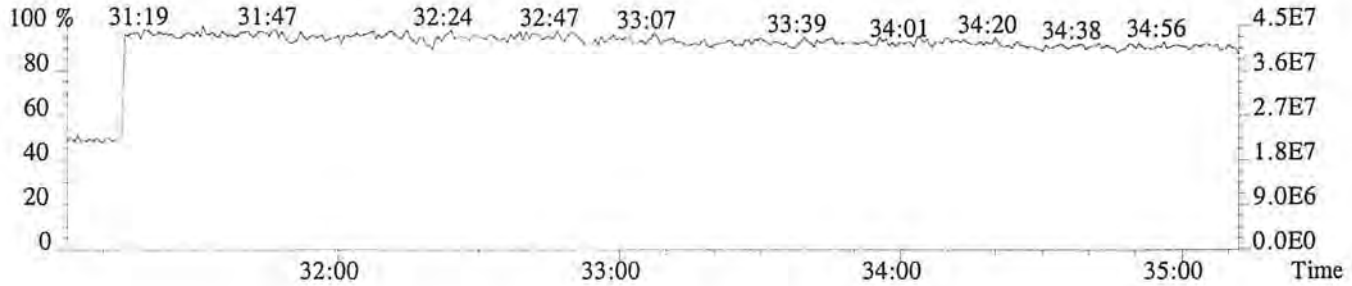
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4196.0,1.00%,F,T)



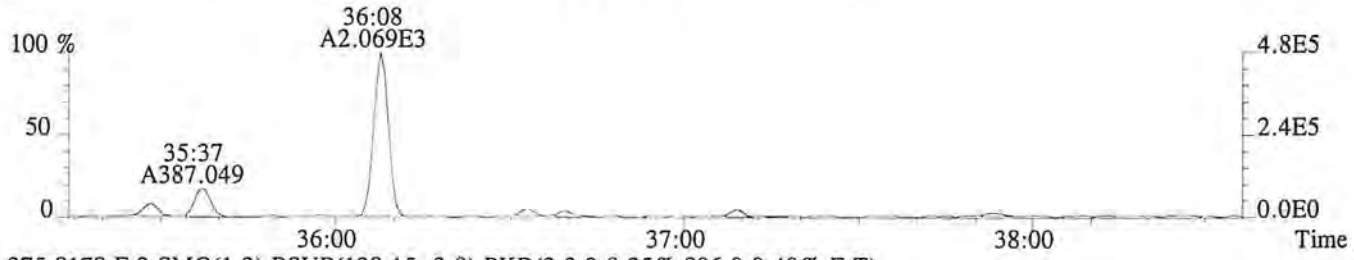
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2564.0,1.00%,F,T)



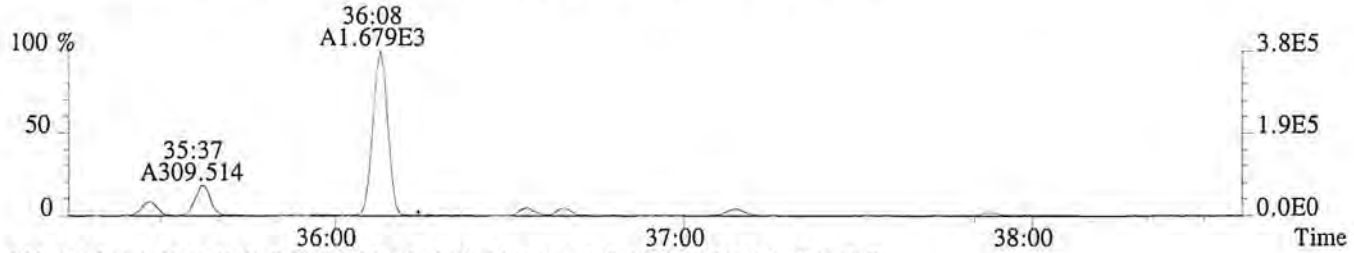
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



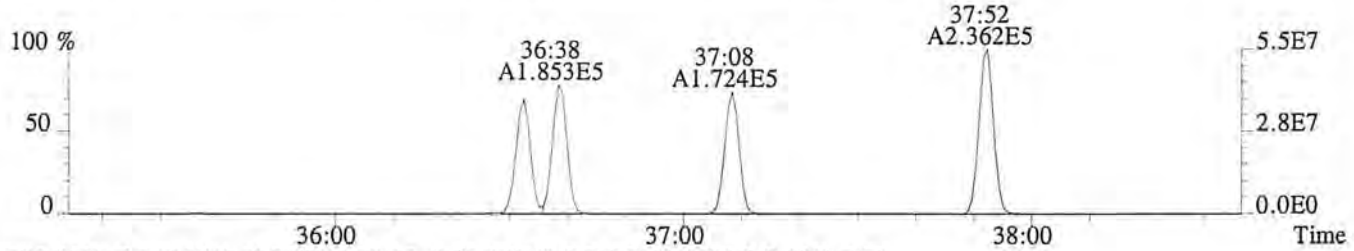
File:P600126 #1-304 Acq:25-AUG-2015 09:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-019
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4636.0,0.40%,F,T)



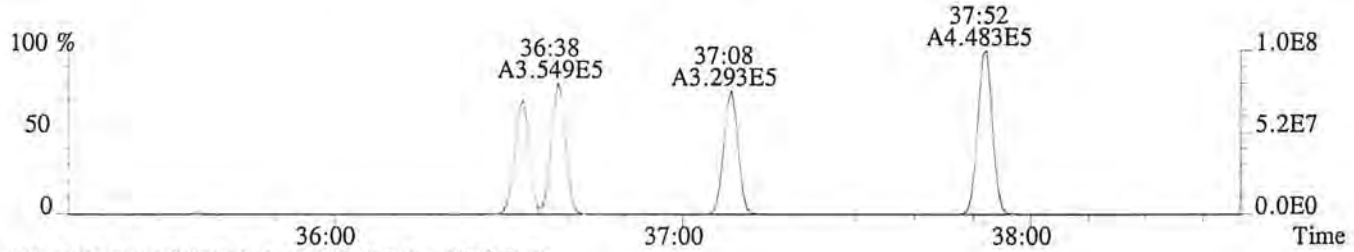
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.40%,F,T)



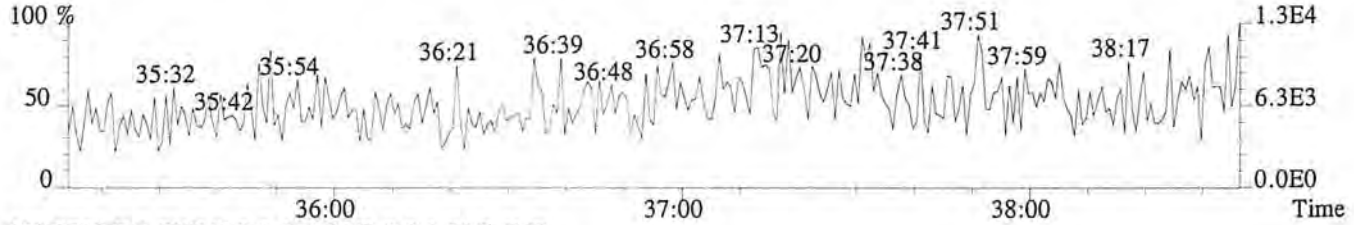
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3200.0,0.40%,F,T)



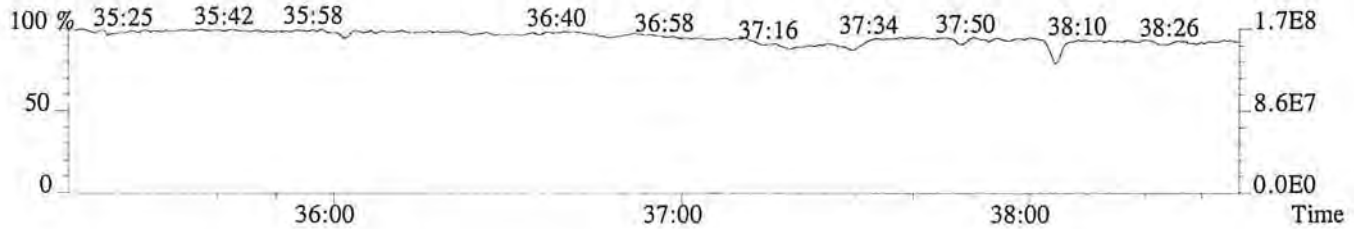
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3584.0,0.40%,F,T)



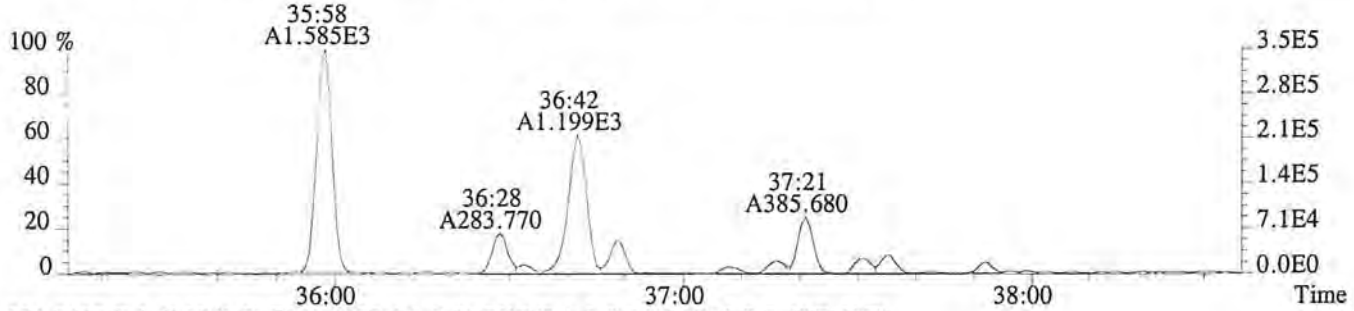
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



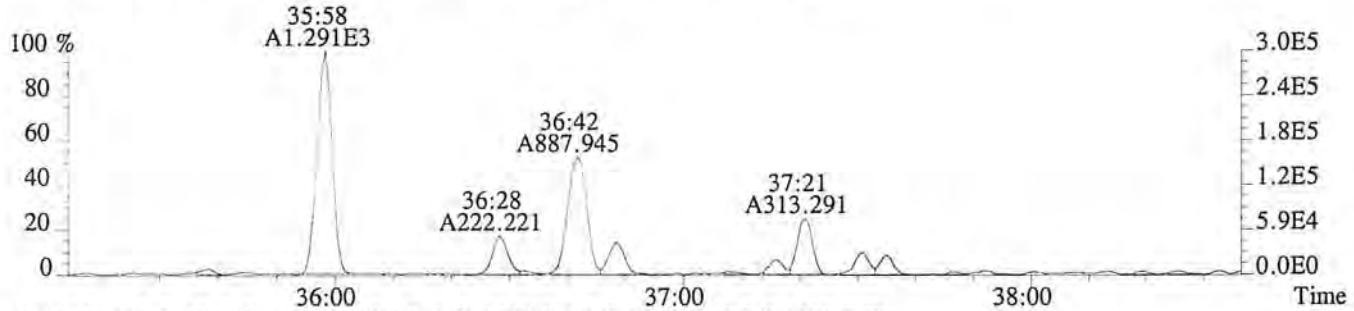
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



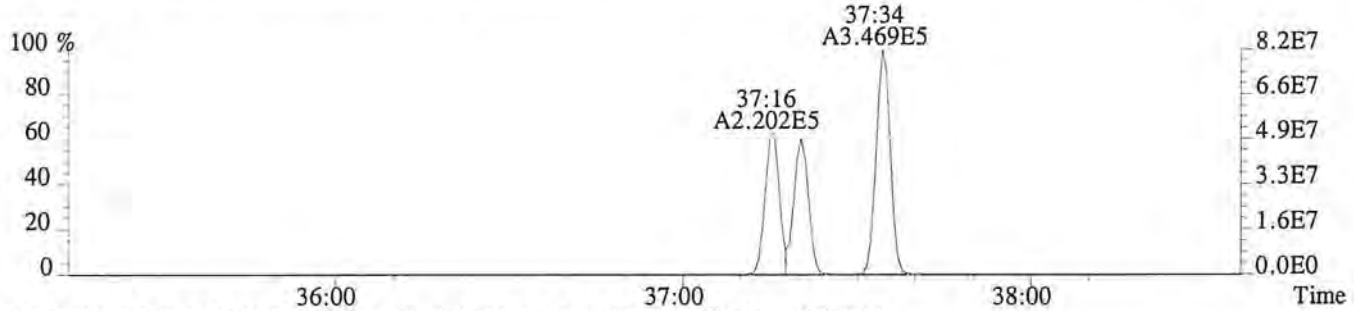
File:P600126 #1-304 Acq:25-AUG-2015 09:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-019
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1948.0,0.40%,F,T)



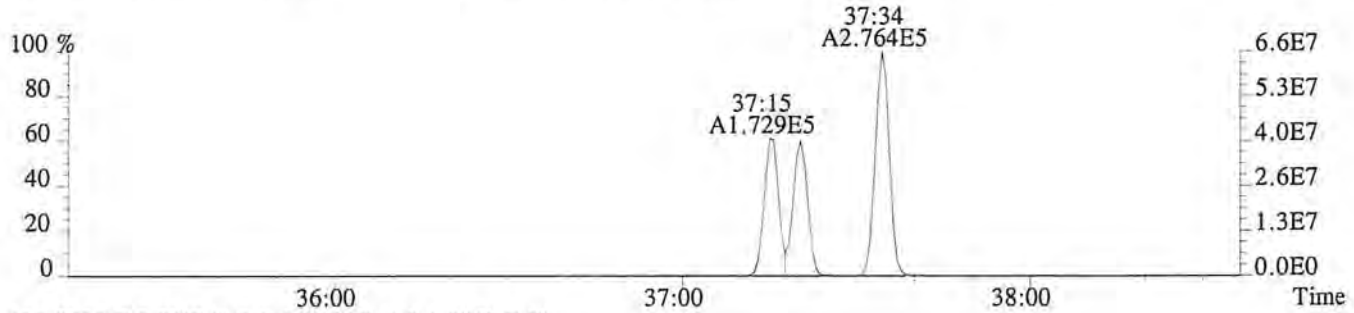
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)



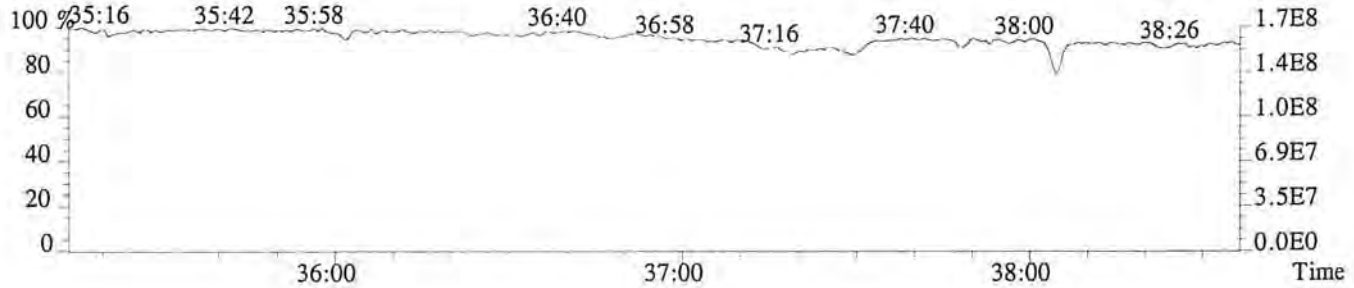
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7248.0,0.40%,F,T)



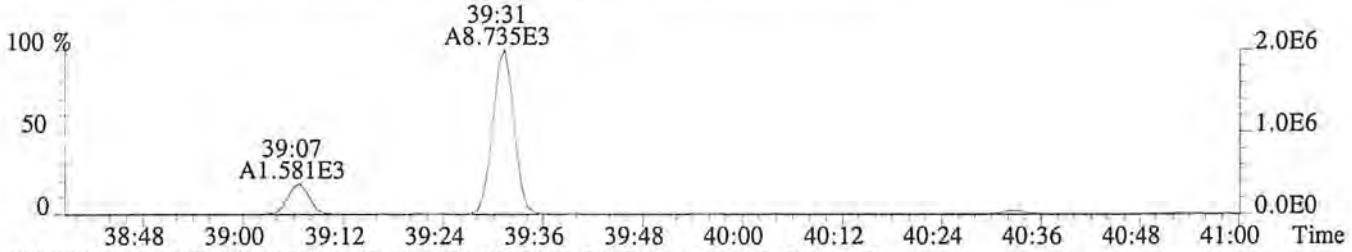
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3692.0,0.40%,F,T)



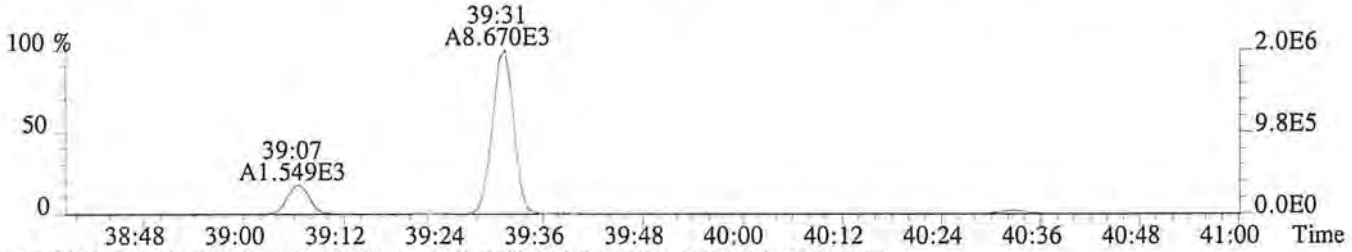
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



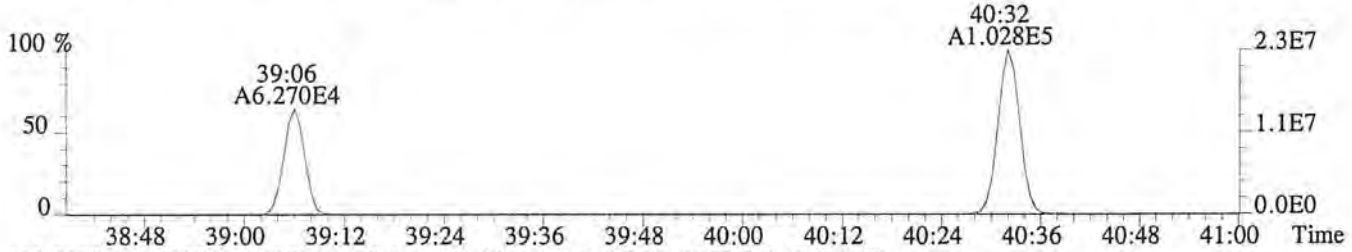
File:P600126 #1-213 Acq:25-AUG-2015 09:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-019
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2840.0,0.50%,F,T)



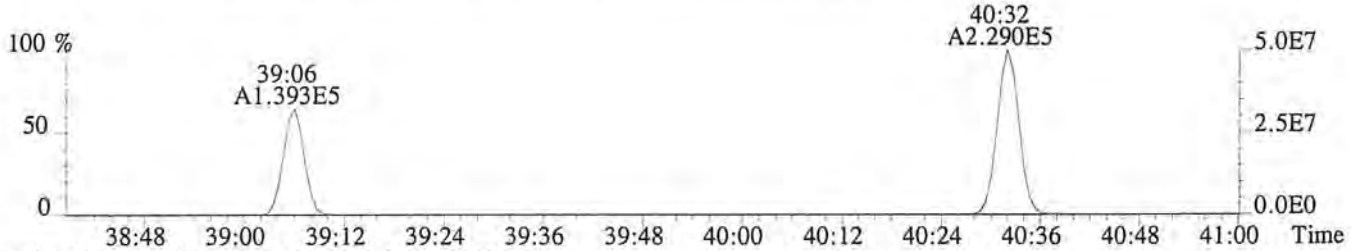
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1756.0,0.50%,F,T)



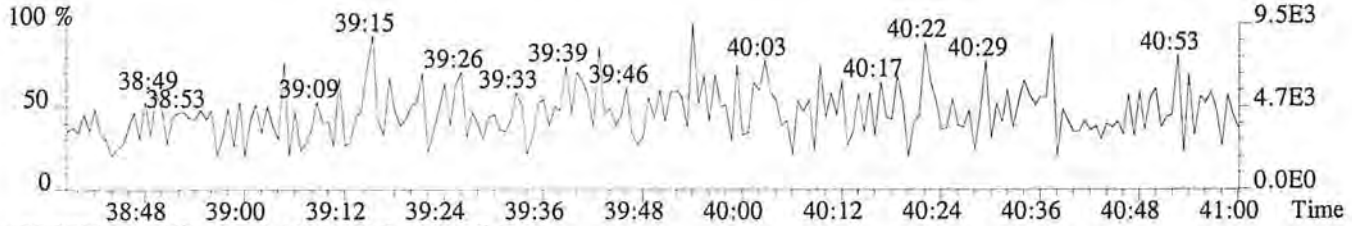
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4624.0,0.50%,F,T)



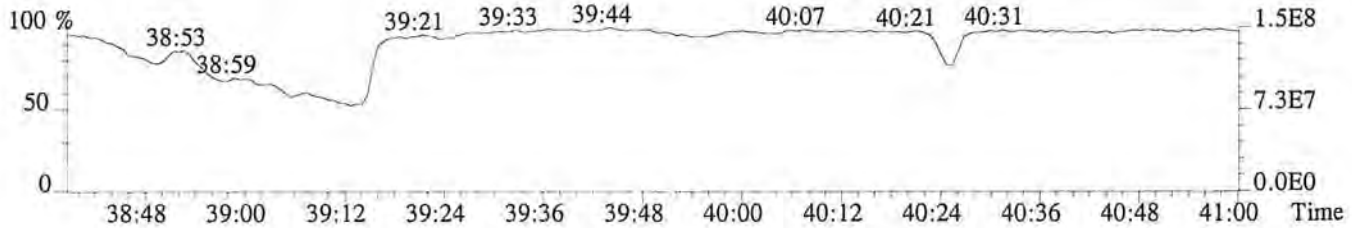
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2268.0,0.50%,F,T)



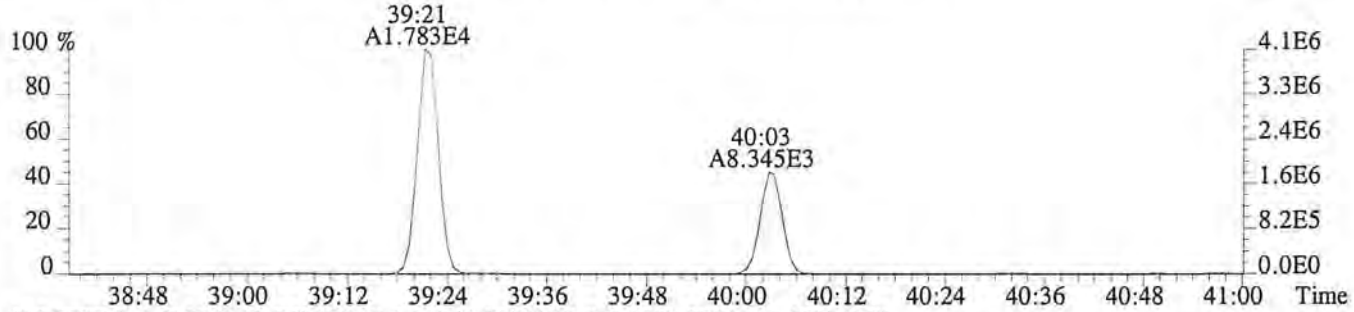
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



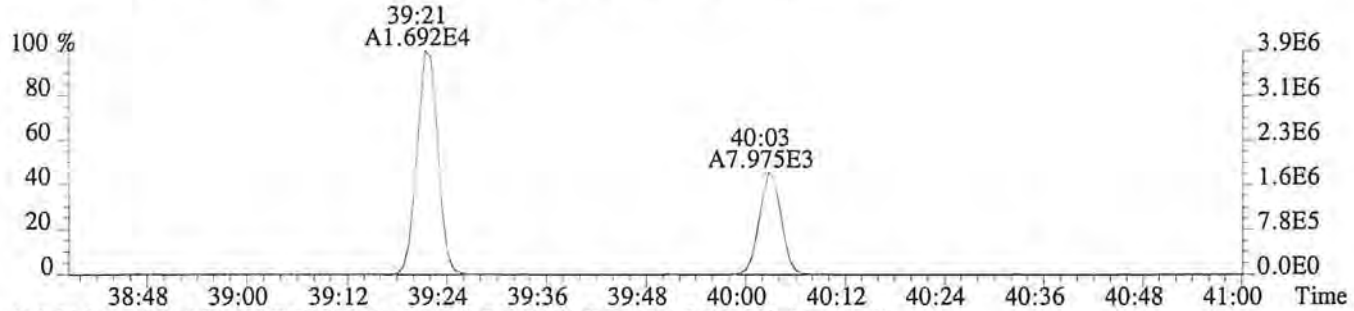
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



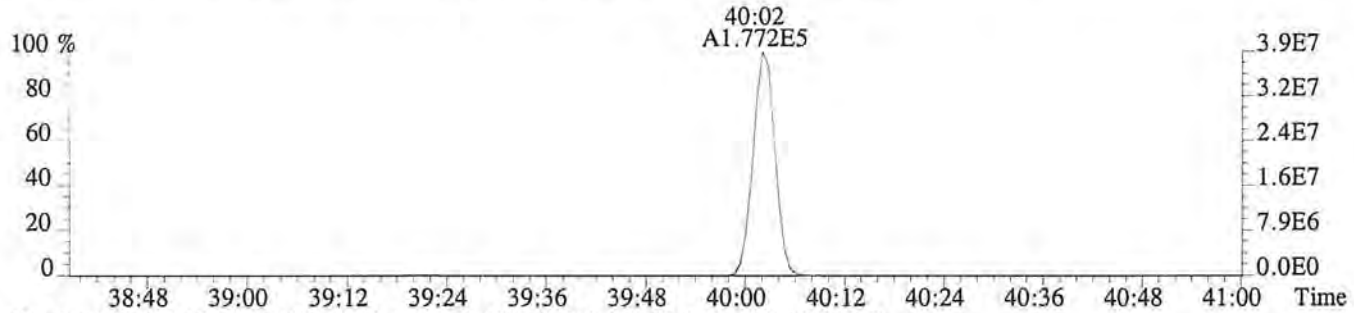
File:P600126 #1-213 Acq:25-AUG-2015 09:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-019
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3464.0,0.40%,F,T)



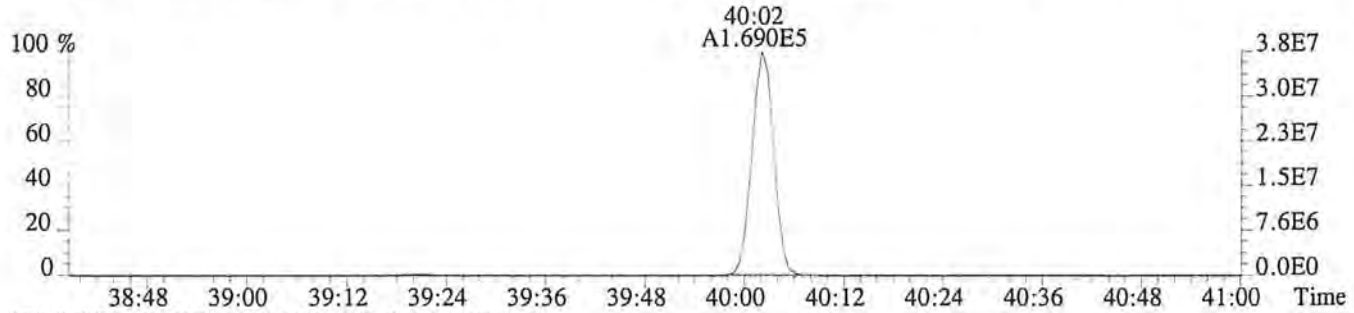
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5924.0,0.40%,F,T)



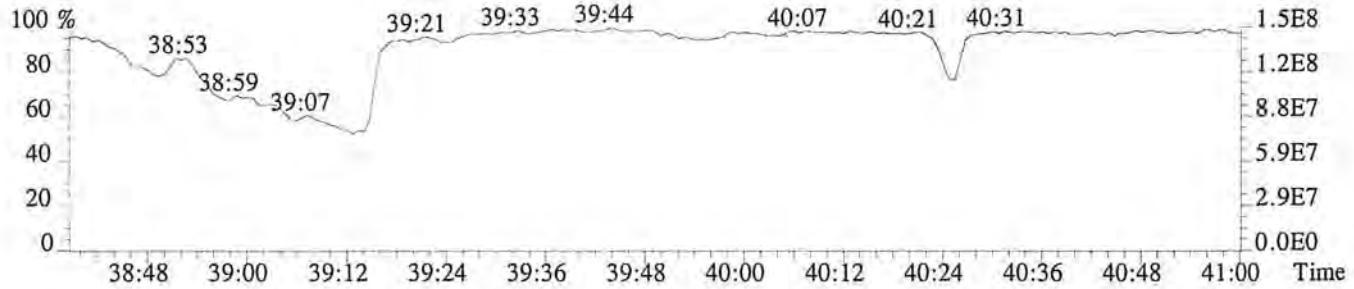
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3320.0,0.40%,F,T)



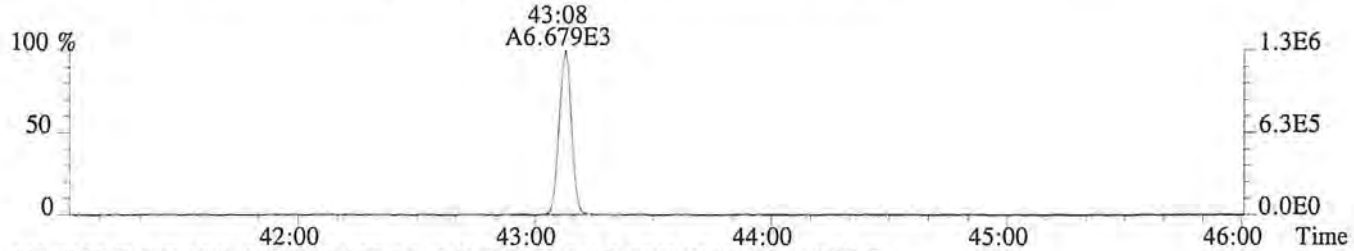
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2684.0,0.40%,F,T)



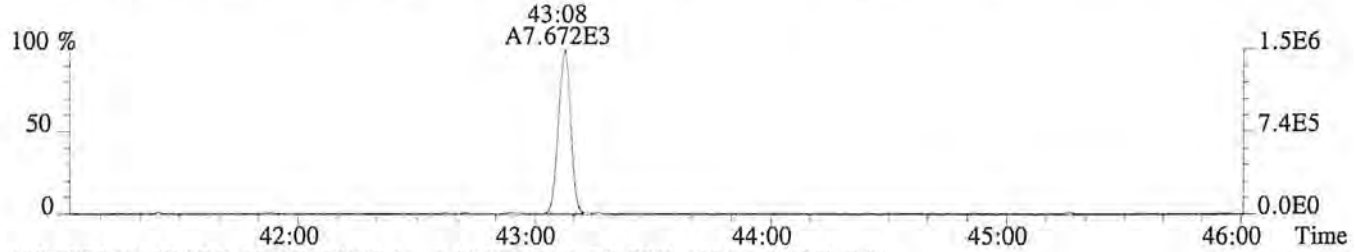
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



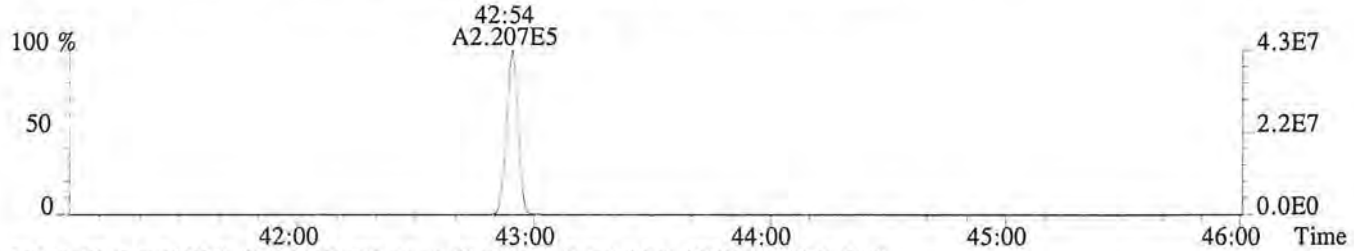
File:P600126 #1-448 Acq:25-AUG-2015 09:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-019
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3456.0,0.40%,F,T)



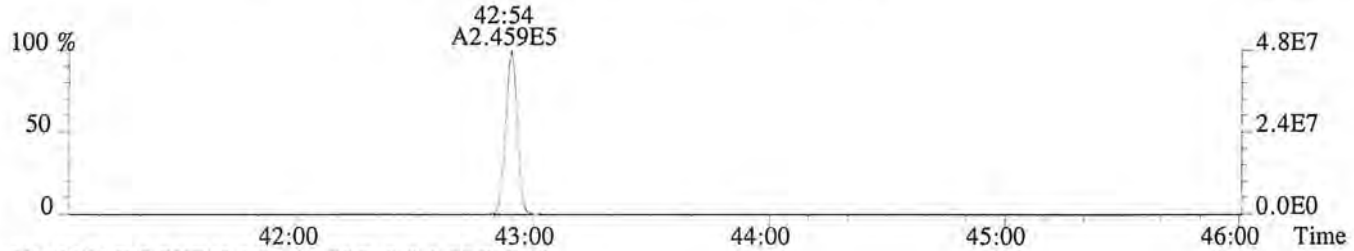
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,6220.0,0.40%,F,T)



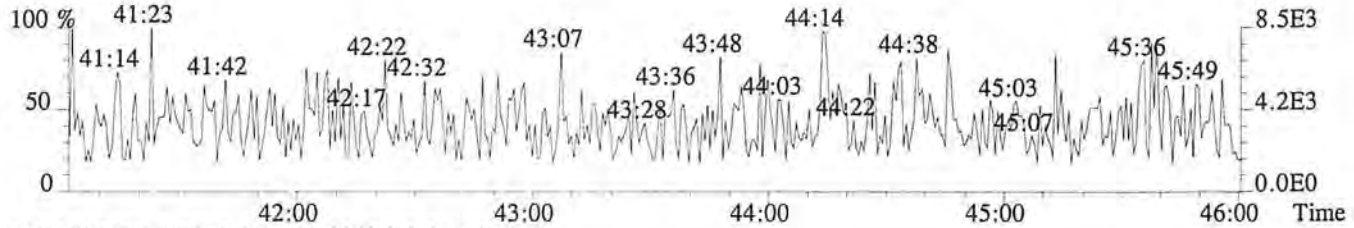
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1884.0,0.40%,F,T)



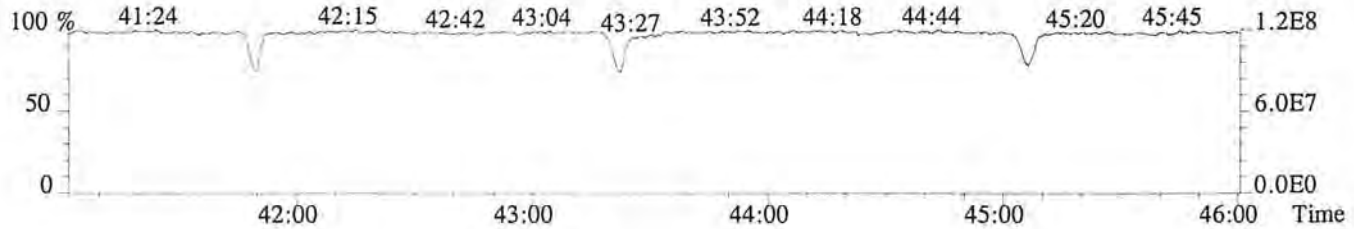
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2868.0,0.40%,F,T)



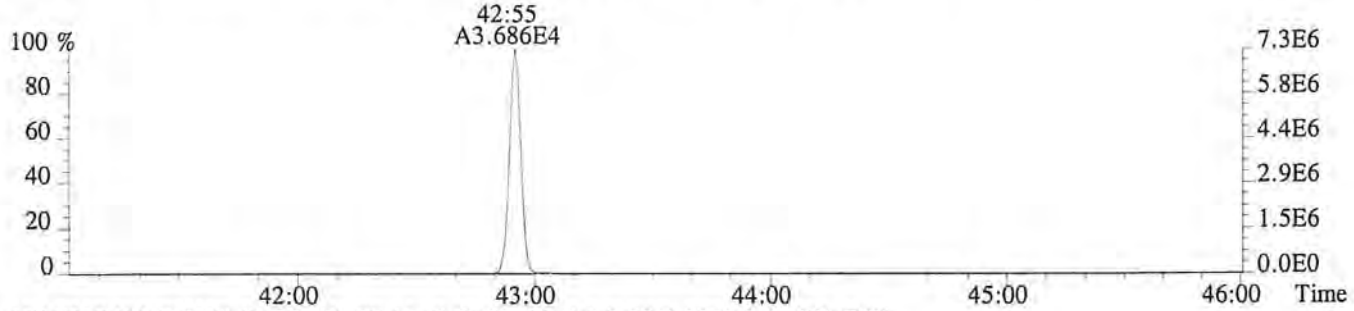
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



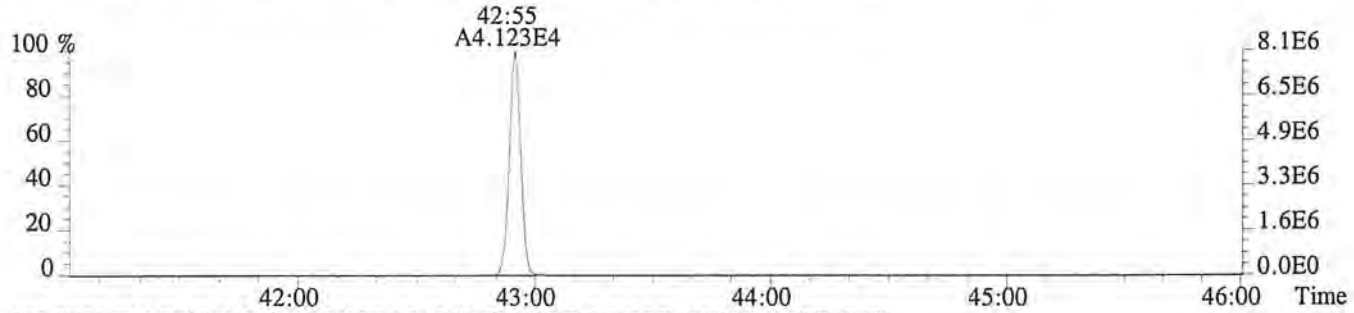
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



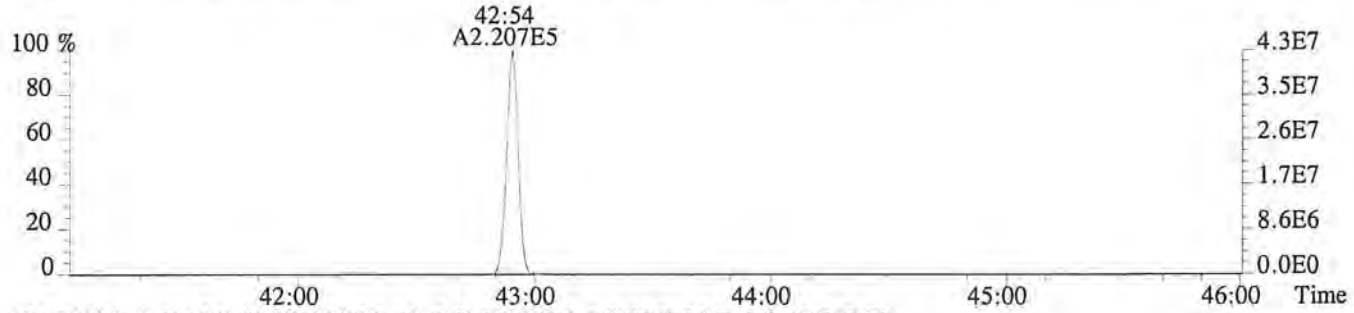
File:P600126 #1-448 Acq:25-AUG-2015 09:31:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-019
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2284.0,0.40%,F,T)



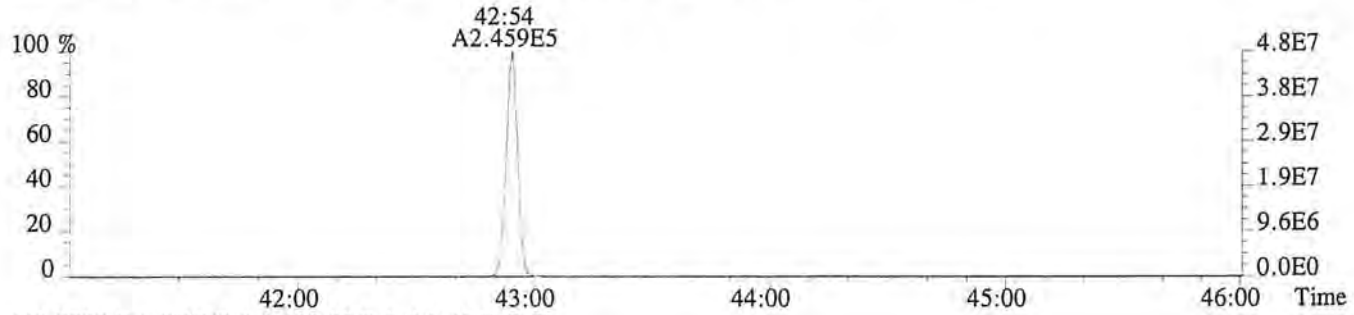
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2872.0,0.40%,F,T)



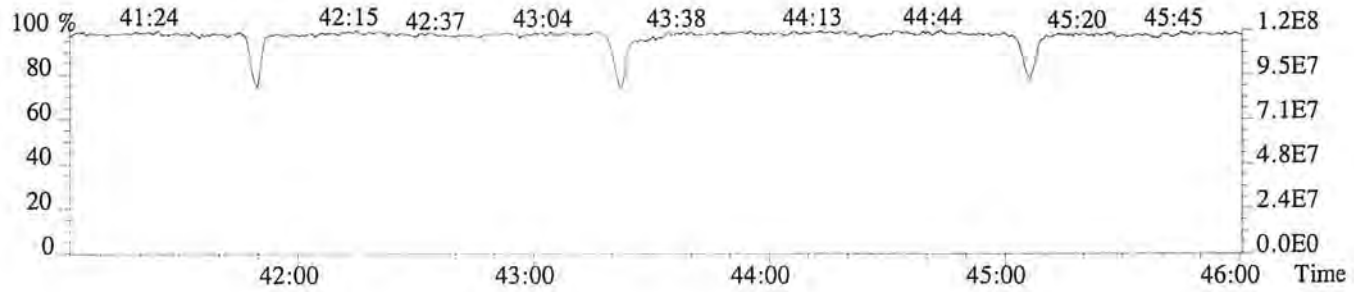
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1884.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2868.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-11-15 MT8

Run #17 Filename p600127 Samp: 1 Inj: 1 Acquired: 25-AUG-15 10:20:57
Processed: 26-AUG-15 09:52:45 Sample ID: E1500743-020

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:08	4.964e+03	6.570e+03	0.76	yes	no	0.941
2	Unk	1,2,3,7,8-PeCDF	33:05	1.106e+02	8.178e+01	1.35	yes	no	0.987
3	Unk	2,3,4,7,8-PeCDF	33:58	1.631e+02	6.328e+01	2.58	no	no	0.934
4	Unk	1,2,3,4,7,8-HxCDF	36:32	1.472e+02	9.242e+01	1.59	no	no	1.189
5	Unk	1,2,3,6,7,8-HxCDF	36:38	9.052e+01	7.194e+01	1.26	yes	no	1.126
6	Unk	2,3,4,6,7,8-HxCDF	37:08	8.616e+01	7.393e+01	1.17	yes	no	1.116
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:06	2.271e+03	2.242e+03	1.01	yes	no	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:33	1.073e+02	1.078e+02	1.00	yes	no	1.287
10	Unk	OCDF	43:07	6.050e+03	6.650e+03	0.91	yes	no	1.257
11	Unk	2,3,7,8-TCDD	29:51	2.285e+03	3.166e+03	0.72	yes	no	1.010
12	Unk	1,2,3,7,8-PeCDD	34:14	1.153e+02	1.179e+02	0.98	no	no	0.932
13	Unk	1,2,3,4,7,8-HxCDD	37:16	1.196e+02	7.949e+01	1.50	no	no	1.026
14	Unk	1,2,3,6,7,8-HxCDD	37:20	4.089e+02	3.202e+02	1.28	yes	no	1.021
15	Unk	1,2,3,7,8,9-HxCDD	37:35	1.728e+02	1.268e+02	1.36	yes	no	1.133
16	Unk	1,2,3,4,6,7,8-HpCDD	40:02	6.642e+03	6.214e+03	1.07	yes	no	1.034
17	Unk	OCDD	42:54	2.672e+04	3.013e+04	0.89	yes	no	1.111
18	IS	13C-2,3,7,8-TCDF	29:06	3.755e+05	4.746e+05	0.79	yes	no	1.379
19	IS	13C-1,2,3,7,8-PeCDF	33:04	5.401e+05	3.395e+05	1.59	yes	no	1.456
20	IS	13C-2,3,4,7,8-PeCDF	33:57	5.237e+05	3.312e+05	1.58	yes	no	1.465
21	IS	13C-1,2,3,4,7,8-HxCDF	36:32	1.982e+05	3.770e+05	0.53	yes	no	1.075
22	IS	13C-1,2,3,6,7,8-HxCDF	36:38	2.332e+05	4.432e+05	0.53	yes	no	1.158
23	IS	13C-2,3,4,6,7,8-HxCDF	37:08	2.098e+05	3.991e+05	0.53	yes	no	1.133
24	IS	13C-1,2,3,7,8,9-HxCDF	37:52	2.772e+05	5.280e+05	0.53	yes	no	1.024
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:05	1.127e+05	2.508e+05	0.45	yes	no	0.880
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:31	1.212e+05	2.691e+05	0.45	yes	no	0.914
27	IS	13C-2,3,7,8-TCDD	29:49	2.791e+05	3.526e+05	0.79	yes	no	1.193
28	IS	13C-1,2,3,7,8-PeCDD	34:13	3.889e+05	2.463e+05	1.58	yes	no	1.094
29	IS	13C-1,2,3,4,7,8-HxCDD	37:15	2.752e+05	2.089e+05	1.32	yes	no	0.906
30	IS	13C-1,2,3,6,7,8-HxCDD	37:20	2.439e+05	2.014e+05	1.21	yes	no	0.860
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:01	2.115e+05	1.993e+05	1.06	yes	no	0.892
32	IS	13C-OCDD	42:54	2.535e+05	2.823e+05	0.90	yes	no	0.642
33	RS/RT	13C-1,2,3,4-TCDD	29:17	3.423e+05	4.345e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:34	4.167e+05	3.297e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:51	2.916e+05				no	1.263

$$\text{OCDD} = \frac{(2.672e+04 + 3.013e+04) \times 4000 \text{ pg} \times 1}{(2.535e+05 + 2.823e+05) \times 10.552 \text{ g} \times \frac{24.6}{100} / 100 \times 1.111} = 36.2 \text{ ng/kg}$$

LIK 08/27/15

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-11-15 MT8/GT

Run #17 Filename p600127 Samp: 1 Inj: 1 Acquired: 25-AUG-15 10:20:57
Processed: 26-AUG-15 09:52:45 LAB. ID: E1500743-020

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.86e+05	1.89e+03	5.2e+02	1.32e+06	3.50e+03	3.8e+02
2	1,2,3,7,8-PeCDF	1.99e+04	2.00e+03	9.9e+00	1.56e+04	4.96e+03	3.1e+00
3	2,3,4,7,8-PeCDF	3.05e+04	2.00e+03	1.5e+01	1.47e+04	4.96e+03	3.0e+00
4	1,2,3,4,7,8-HxCDF	3.71e+04	7.46e+03	5.0e+00	1.78e+04	1.82e+03	9.8e+00
5	1,2,3,6,7,8-HxCDF	2.01e+04	7.46e+03	2.7e+00	1.66e+04	1.82e+03	9.1e+00
6	2,3,4,6,7,8-HxCDF	2.27e+04	7.46e+03	3.0e+00	1.47e+04	1.82e+03	8.1e+00
7	1,2,3,7,8,9-HxCDF	*	7.46e+03	*	*	1.82e+03	*
8	1,2,3,4,6,7,8-HpCDF	5.02e+05	2.30e+03	2.2e+02	4.93e+05	2.11e+03	2.3e+02
9	1,2,3,4,7,8,9-HpCDF	2.16e+04	2.30e+03	9.4e+00	2.61e+04	2.11e+03	1.2e+01
10	OCDF	1.13e+06	2.90e+03	3.9e+02	1.28e+06	6.88e+03	1.9e+02
11	2,3,7,8-TCDD	4.77e+05	2.34e+03	2.0e+02	6.56e+05	2.57e+03	2.6e+02
12	1,2,3,7,8-PeCDD	2.58e+04	6.42e+03	4.0e+00	1.88e+04	3.46e+03	5.4e+00
13	1,2,3,4,7,8-HxCDD	2.82e+04	2.33e+03	1.2e+01	1.97e+04	2.44e+03	8.1e+00
14	1,2,3,6,7,8-HxCDD	9.29e+04	2.33e+03	4.0e+01	7.72e+04	2.44e+03	3.2e+01
15	1,2,3,7,8,9-HxCDD	3.58e+04	2.33e+03	1.5e+01	3.14e+04	2.44e+03	1.3e+01
16	1,2,3,4,6,7,8-HpCDD	1.47e+06	2.54e+03	5.8e+02	1.41e+06	3.46e+03	4.1e+02
17	OCDD	5.09e+06	1.98e+03	2.6e+03	5.77e+06	2.50e+03	2.3e+03
18	13C-2,3,7,8-TCDF	7.41e+07	8.83e+03	8.4e+03	9.41e+07	3.35e+03	2.8e+04
19	13C-1,2,3,7,8-PeCDF	1.10e+08	2.24e+03	4.9e+04	6.95e+07	3.52e+03	2.0e+04
20	13C-2,3,4,7,8-PeCDF	1.09e+08	2.24e+03	4.8e+04	6.92e+07	3.52e+03	2.0e+04
21	13C-1,2,3,4,7,8-HxCDF	4.54e+07	3.63e+03	1.3e+04	8.55e+07	3.52e+03	2.4e+04
22	13C-1,2,3,6,7,8-HxCDF	5.30e+07	3.63e+03	1.5e+04	1.01e+08	3.52e+03	2.9e+04
23	13C-2,3,4,6,7,8-HxCDF	4.94e+07	3.63e+03	1.4e+04	9.39e+07	3.52e+03	2.7e+04
24	13C-1,2,3,7,8,9-HxCDF	6.48e+07	3.63e+03	1.8e+04	1.24e+08	3.52e+03	3.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.53e+07	7.64e+03	3.3e+03	5.67e+07	4.38e+03	1.3e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.66e+07	7.64e+03	3.5e+03	5.93e+07	4.38e+03	1.4e+04
27	13C-2,3,7,8-TCDD	5.92e+07	1.30e+04	4.6e+03	7.52e+07	5.13e+03	1.5e+04
28	13C-1,2,3,7,8-PeCDD	8.35e+07	3.22e+03	2.6e+04	5.28e+07	3.48e+03	1.5e+04
29	13C-1,2,3,4,7,8-HxCDD	6.46e+07	8.99e+03	7.2e+03	5.07e+07	4.03e+03	1.3e+04
30	13C-1,2,3,6,7,8-HxCDD	5.87e+07	8.99e+03	6.5e+03	4.68e+07	4.03e+03	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.77e+07	2.98e+03	1.6e+04	4.51e+07	3.02e+03	1.5e+04
32	13C-OCDD	4.90e+07	2.54e+03	1.9e+04	5.42e+07	2.24e+03	2.4e+04
33	13C-1,2,3,4-TCDD	6.94e+07	1.30e+04	5.3e+03	8.85e+07	5.13e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	9.52e+07	8.99e+03	1.1e+04	7.52e+07	4.03e+03	1.9e+04
35	37Cl-2,3,7,8-TCDD	6.01e+07	2.19e+03	2.7e+04			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-11-15 MT8/GT

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: p600127 Sample:1 Injection:1 Function:1

Acquired: 25-AUG-15 10:20:57 Processed: 26-AUG-15 09:52:45

Mass: 303.9020 305.8990 Tot Response: 2.21e+04 RRF: 0.9406

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:51	3.38e+03	4.38e+03	0.77	yes	7.76e+03		n	n
2	25:54	8.63e+01	1.12e+02	0.77	yes	1.98e+02		n	n
3	26:26	3.36e+02	4.64e+02	0.72	yes	8.00e+02		n	n
4	27:04	3.56e+01	4.59e+01	0.78	yes	8.15e+01		n	n
5	27:46	6.85e+01	9.47e+01	0.72	yes	1.63e+02		n	n
6	27:59	2.25e+01	3.14e+01	0.72	yes	5.39e+01		n	n
7	28:22	2.44e+02	3.43e+02	0.71	yes	5.87e+02		n	n
8	29:08	4.96e+03	6.57e+03	0.76	yes	1.15e+04	2,3,7,8-TCDF	n	n
9	29:18	2.99e+01	4.16e+01	0.72	yes	7.15e+01		n	n
10	29:26	1.21e+02	1.75e+02	0.69	yes	2.96e+02		n	n
11	30:19	2.25e+02	3.00e+02	0.75	yes	5.24e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-11-15 MT8/GT

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 17 File: p600127 Sample:1 Injection:1 Function:1

Acquired: 25-AUG-15 10:20:57 Processed: 26-AUG-15 09:52:45

Mass: 319.8970 321.8940 Tot Response: 5.52e+03 RRF: 1.010

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:05	3.24e+01	3.75e+01	0.86	yes	7.00e+01		n	n
2	29:51	2.28e+03	3.17e+03	0.72	yes	5.45e+03	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.

PLY-11-15 MT8/GT

Entry: 38 Totals Name: Total Penta-Furans1

Run: 17 File: p600127 Sample:1 Injection:1 Function:1

Acquired: 25-AUG-15 10:20:57 Processed: 26-AUG-15 09:52:45

Mass: 339.8600 341.8570 Tot Response: 3.73e+02 RRF: 0.9605

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:47	2.18e+02	1.55e+02	1.41	yes	3.73e+02	n	n

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Peak List Summary

CLIENT ID.

PLY-11-15 MT8/GT

Entry: 39 Totals Name: Total Penta-Furans2

Run: 17 File: p600127 Sample:1 Injection:1 Function:2

Acquired: 25-AUG-15 10:20:57 Processed: 26-AUG-15 09:52:45

Mass: 339.8600 341.8570 Tot Response: 5.38e+02 RRF: 0.9605

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:05	1.11e+02	8.18e+01	1.35	yes	1.92e+02	1,2,3,7,8-PeCDF	n	n
2	33:16	1.31e+02	7.78e+01	1.69	yes	2.09e+02		n	n
3	34:45	8.52e+01	5.12e+01	1.66	yes	1.36e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-11-15 MT8/GT

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 17 File: p600127 Sample:1 Injection:1 Function:2

Acquired: 25-AUG-15 10:20:57 Processed: 26-AUG-15 09:52:45

Mass: 355.8550 357.8520 Tot Response: 3.86e+02 RRF: 0.9324

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:12	2.29e+02	1.58e+02	1.45	yes	3.86e+02	n	n

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Peak List Summary

CLIENT ID.

PLY-11-15 MT8/GT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: p600127 Sample:1 Injection:1 Function:3

Acquired: 25-AUG-15 10:20:57 Processed: 26-AUG-15 09:52:45

Mass: 373.8210 375.8180 Tot Response: 5.75e+03 RRF: 1.146

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:27	1.99e+02	1.60e+02	1.25	yes	3.59e+02		n	n
2	35:36	4.18e+02	3.18e+02	1.32	yes	7.36e+02		n	n
3	36:07	2.28e+03	1.84e+03	1.24	yes	4.12e+03		n	n
4	36:14	1.16e+02	9.43e+01	1.23	yes	2.10e+02		n	n
5	36:38	9.05e+01	7.19e+01	1.26	yes	1.62e+02	1,2,3,6,7,8-HxCDF	n	n
6	37:08	8.62e+01	7.39e+01	1.17	yes	1.60e+02	2,3,4,6,7,8-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-11-15 MT8/GT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: p600127 Sample:1 Injection:1 Function:3

Acquired: 25-AUG-15 10:20:57 Processed: 26-AUG-15 09:52:45

Mass: 389.8160 391.8130 Tot Response: 6.06e+03 RRF: 1.060

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:58	1.41e+03	1.20e+03	1.18	yes	2.61e+03		n	n
2	36:41	1.07e+03	8.68e+02	1.23	yes	1.93e+03		n	n
3	36:48	1.80e+02	1.64e+02	1.10	yes	3.44e+02		n	n
4	37:20	4.09e+02	3.20e+02	1.28	yes	7.29e+02	1,2,3,6,7,8-HxCDD	n	n
5	37:30	7.94e+01	6.38e+01	1.24	yes	1.43e+02		n	n
6	37:35	1.73e+02	1.27e+02	1.36	yes	3.00e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-11-15 MT8/GT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: p600127 Sample:1 Injection:1 Function:4

Acquired: 25-AUG-15 10:20:57 Processed: 26-AUG-15 09:52:45

Mass: 407.7820 409.7790 Tot Response: 2.16e+04 RRF: 1.329

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:06	2.27e+03	2.24e+03	1.01	yes	4.51e+03	1,2,3,4,6,7,8-HpCDF	n	n
2	39:31	8.49e+03	8.43e+03	1.01	yes	1.69e+04		n	n
3	40:33	1.07e+02	1.08e+02	1.00	yes	2.15e+02	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-11-15 MT8/GT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: p600127 Sample:1 Injection:1 Function:4

Acquired: 25-AUG-15 10:20:57 Processed: 26-AUG-15 09:52:45

Mass: 423.7770 425.7740 Tot Response: 3.48e+04 RRF: 1.034

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:21	1.12e+04	1.08e+04	1.03	yes	2.20e+04		n	n
2	40:02	6.64e+03	6.21e+03	1.07	yes	1.29e+04	1,2,3,4,6,7,8-HpCDD	n	n

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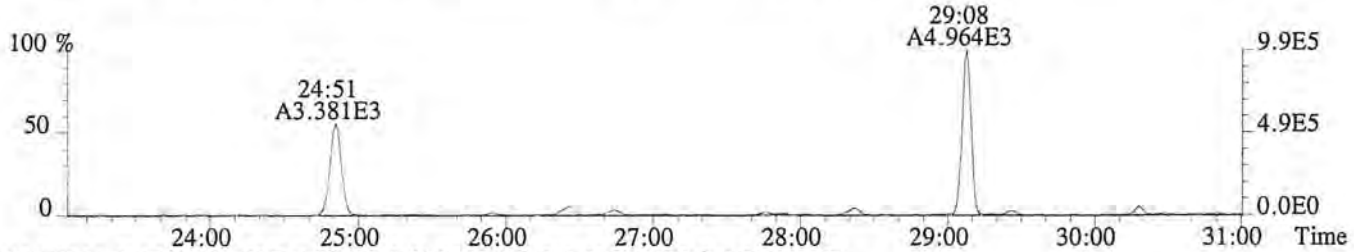
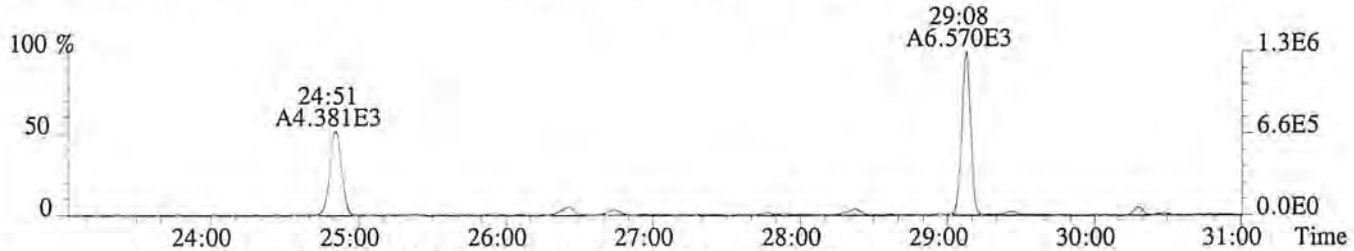
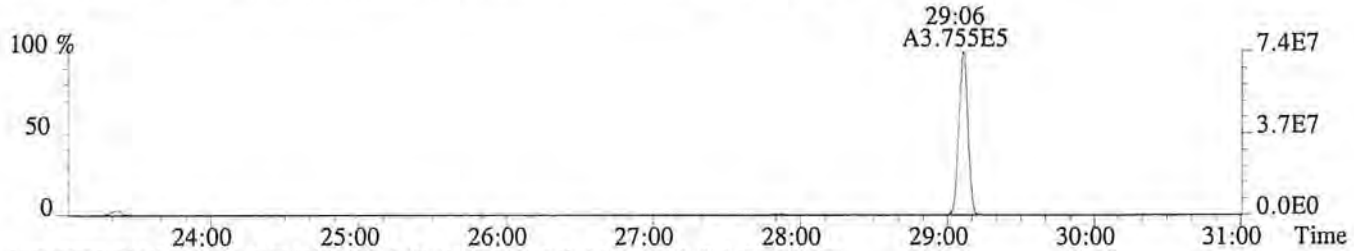
File:P600127 #1-566 Acq:25-AUG-2015 10:20:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-020
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1888.0,1.00%,F,T)



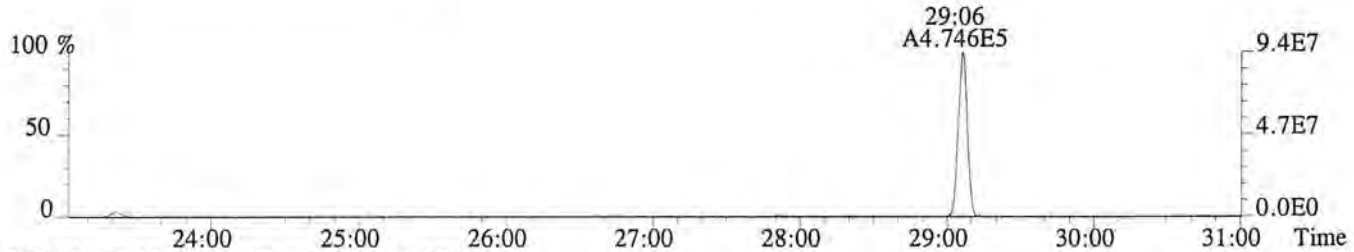
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3500.0,1.00%,F,T)



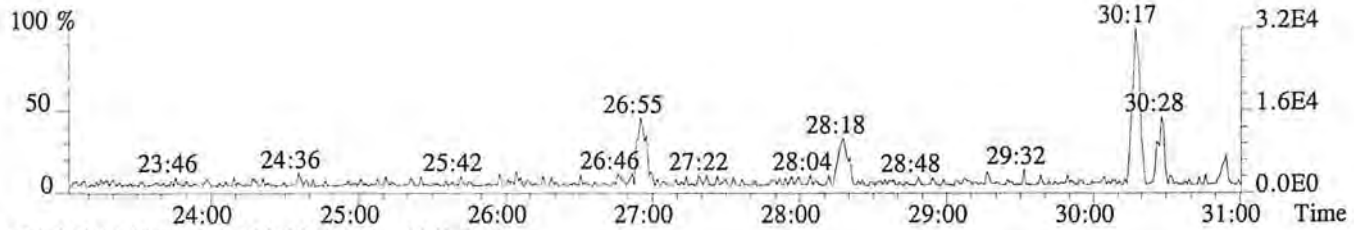
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8832.0,1.00%,F,T)



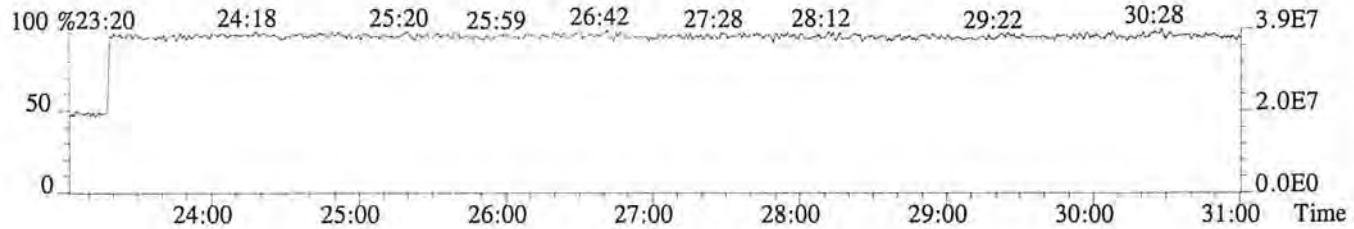
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3352.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

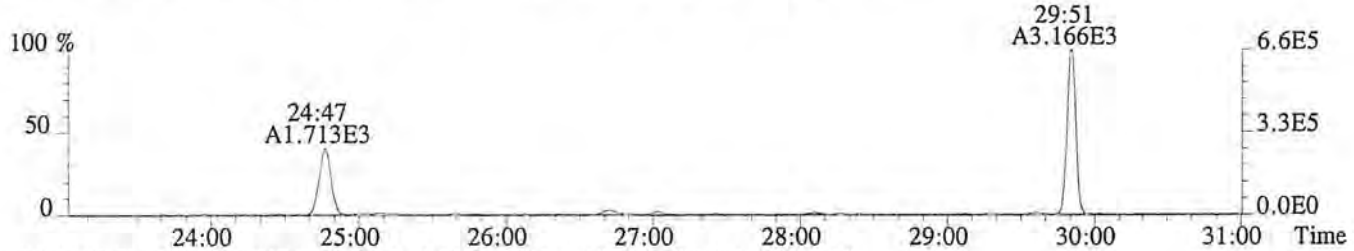


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

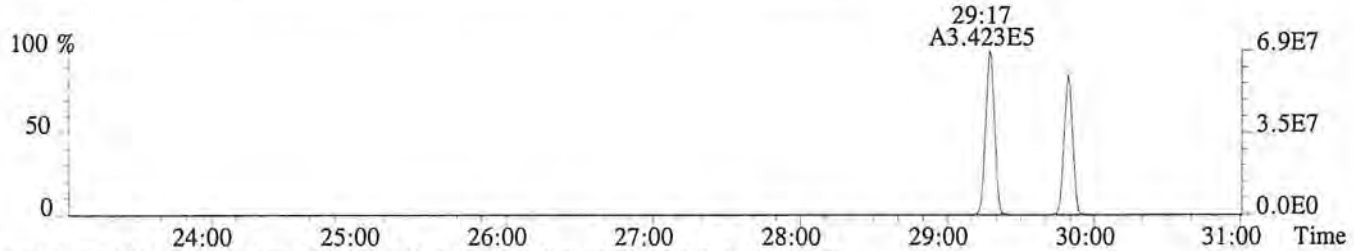


File:P600127 #1-566 Acq:25-AUG-2015 10:20:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-020
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2340.0,1.00%,F,T)

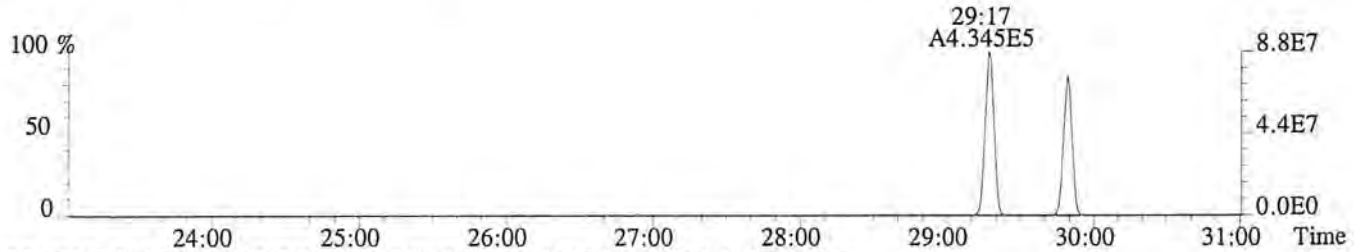
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2572.0,1.00%,F,T)



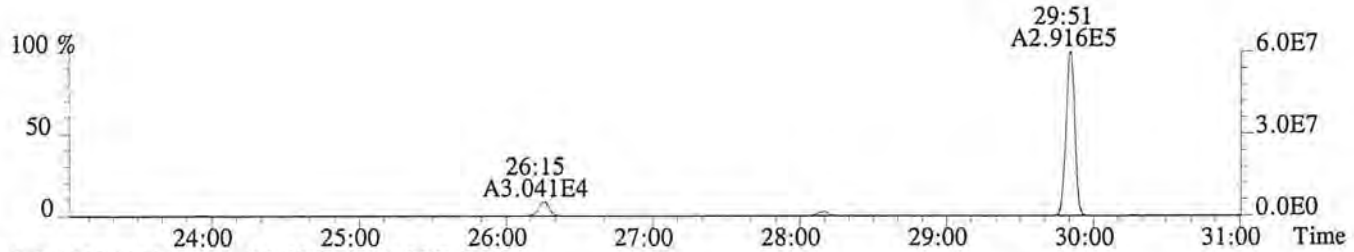
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12984.0,1.00%,F,T)



333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5128.0,1.00%,F,T)

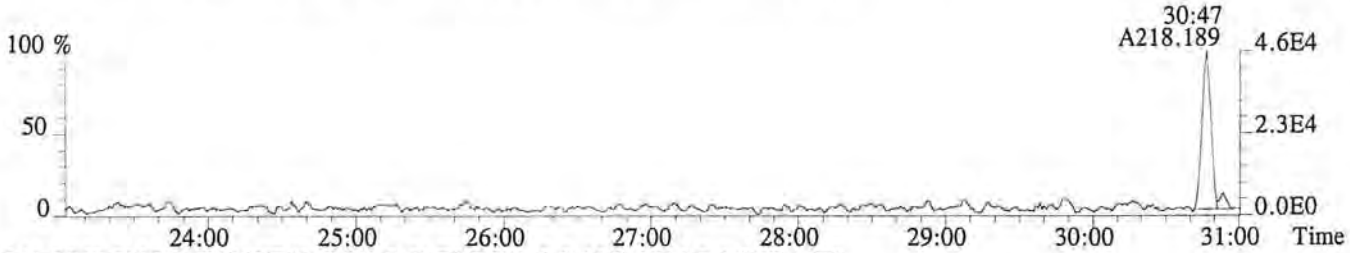


327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2192.0,1.00%,F,T)

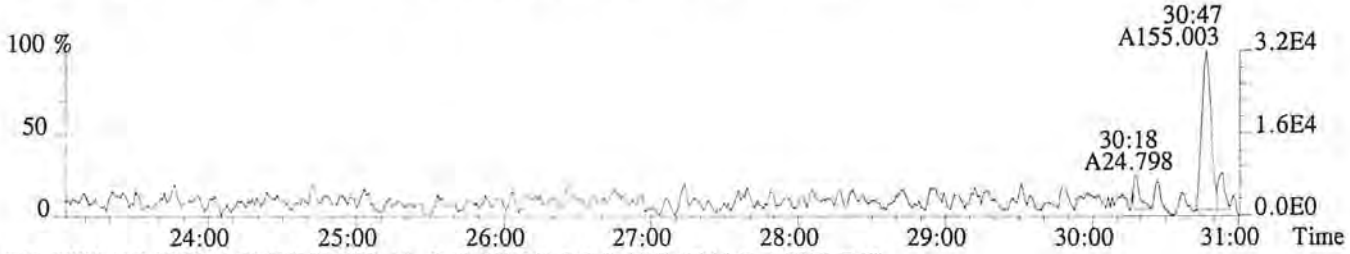


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

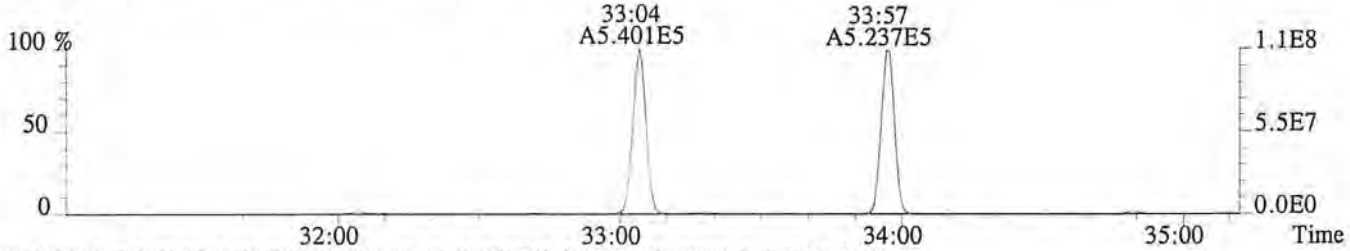
File:P600127 #1-566 Acq:25-AUG-2015 10:20:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-020
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2636.0,1.00%,F,T)



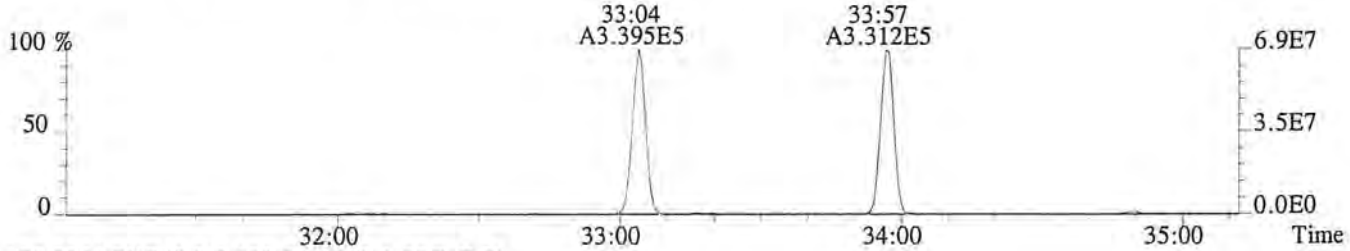
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3616.0,1.00%,F,T)



351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2244.0,1.00%,F,T)

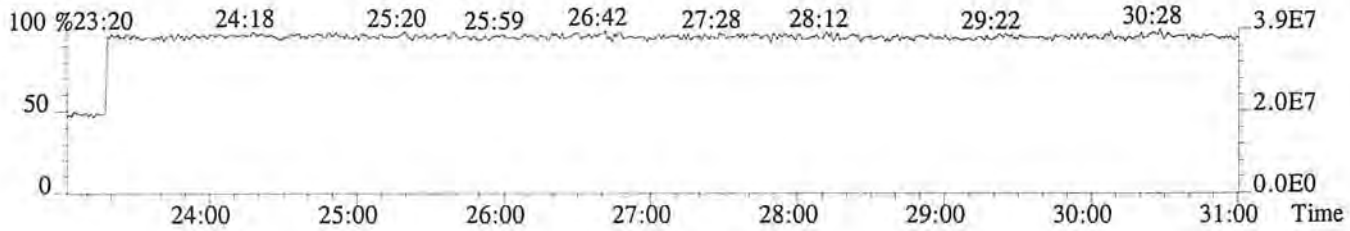


353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3520.0,1.00%,F,T)

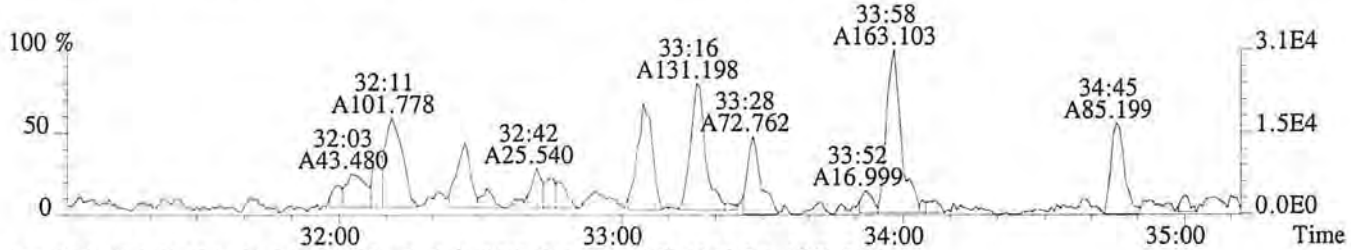


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

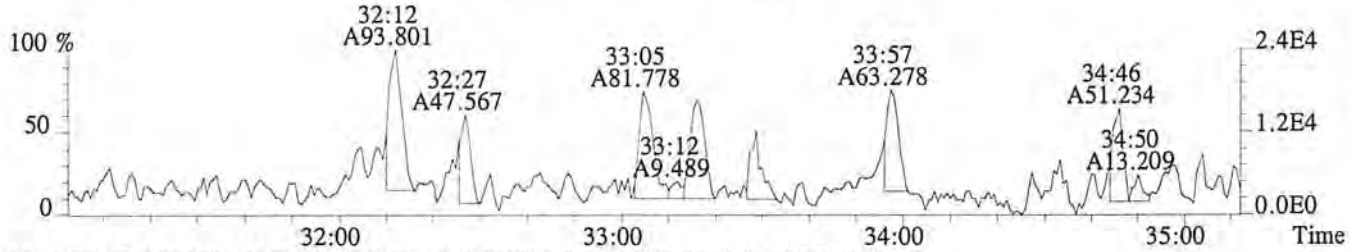
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



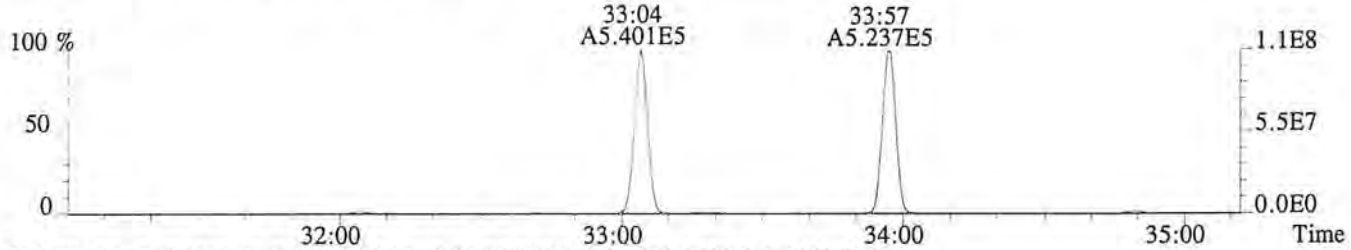
File:P600127 #1-375 Acq:25-AUG-2015 10:20:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-020
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1996.0,1.00%,F,T)



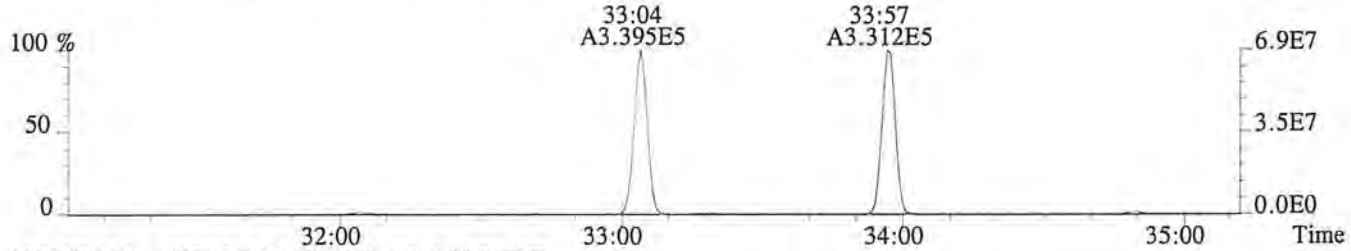
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4956.0,1.00%,F,T)



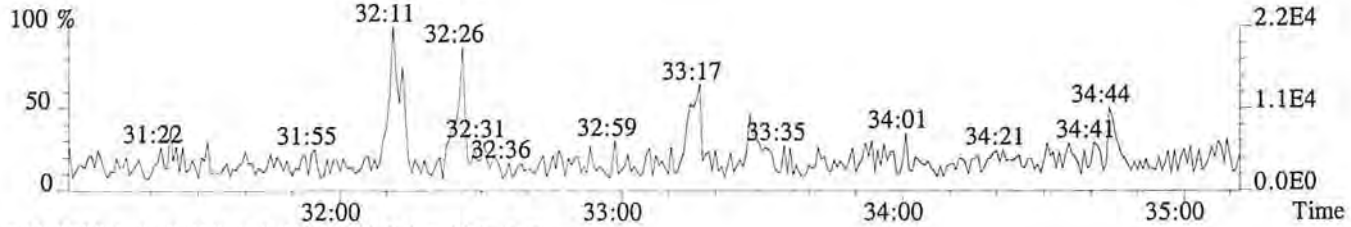
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2244.0,1.00%,F,T)



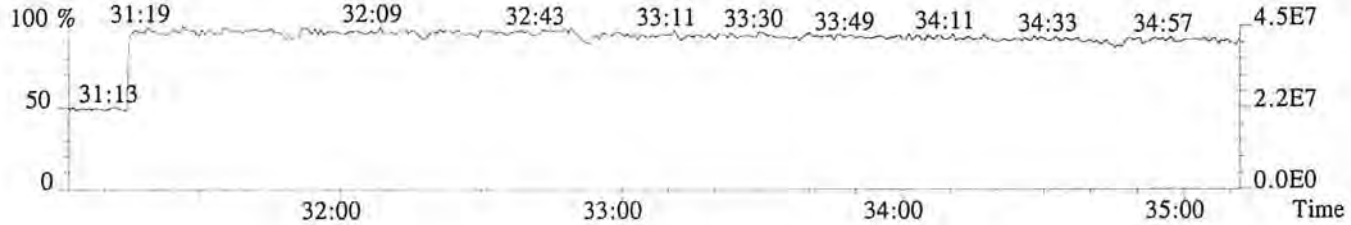
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3520.0,1.00%,F,T)



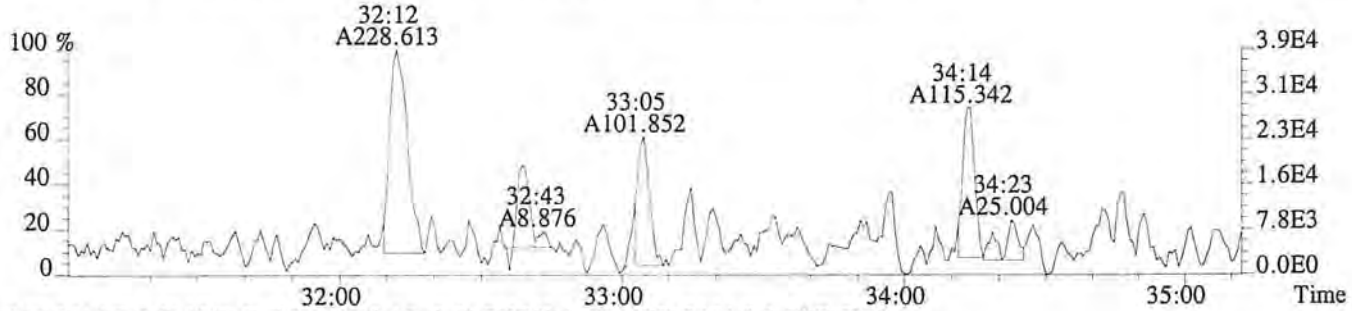
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



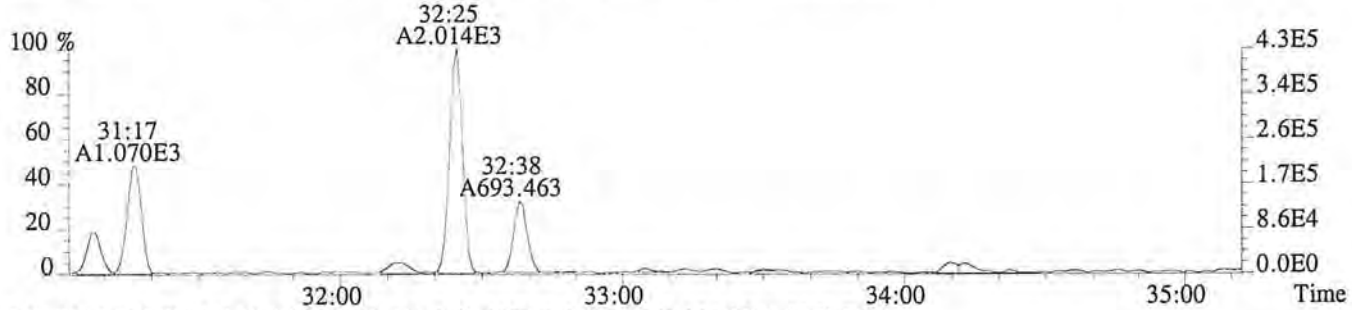
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



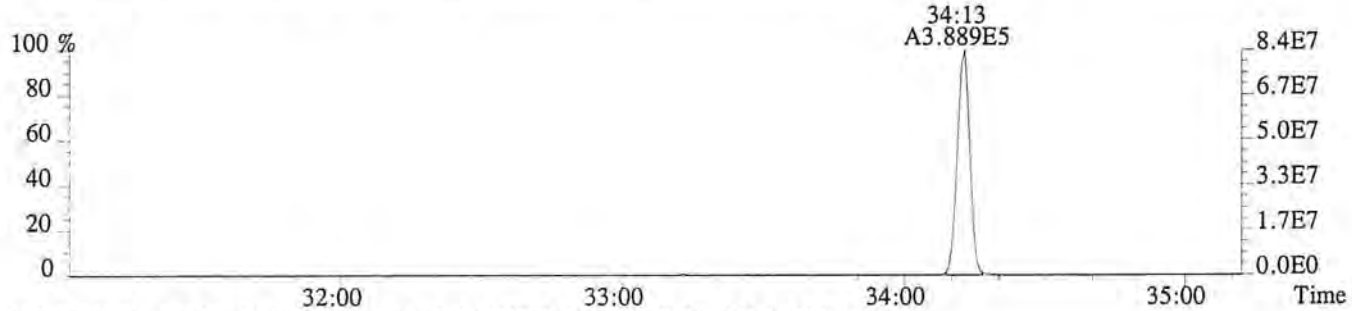
File:P600127 #1-375 Acq:25-AUG-2015 10:20:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-020
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6420.0,1.00%,F,T)



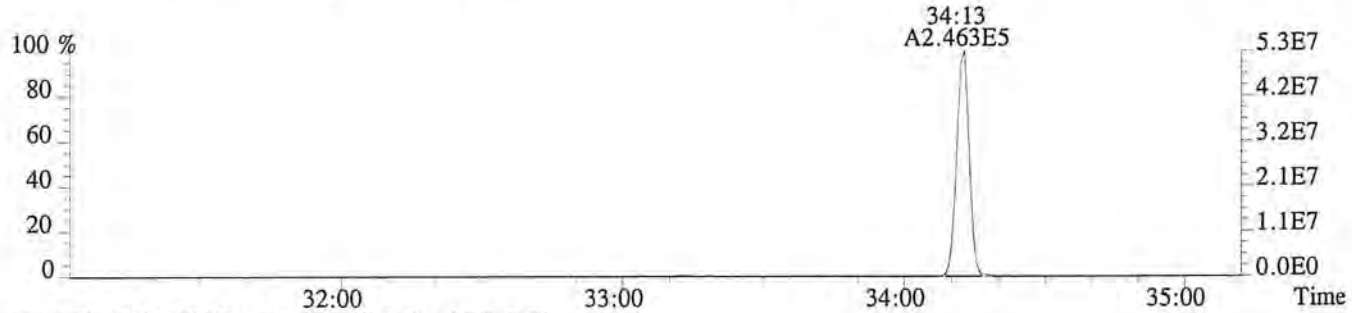
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3464.0,1.00%,F,T)



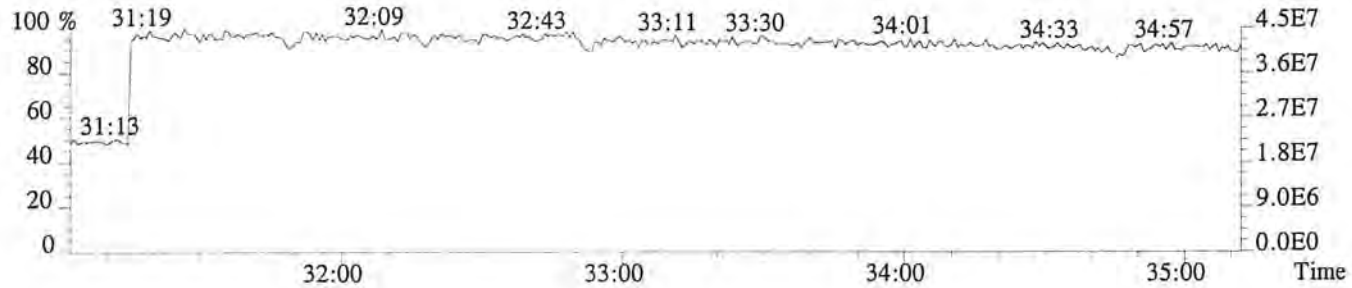
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3216.0,1.00%,F,T)



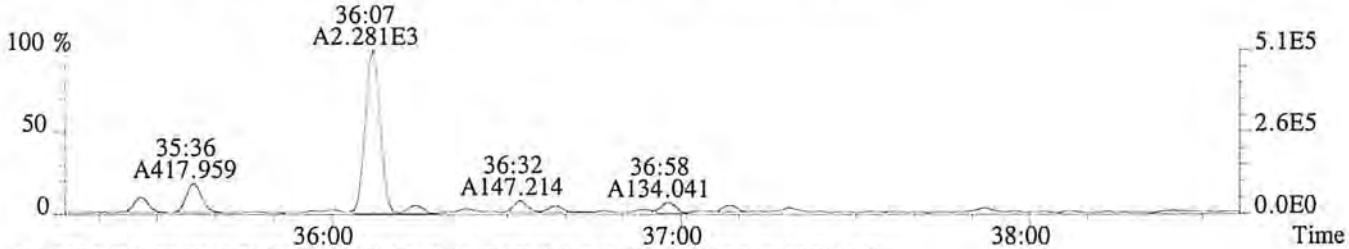
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3476.0,1.00%,F,T)



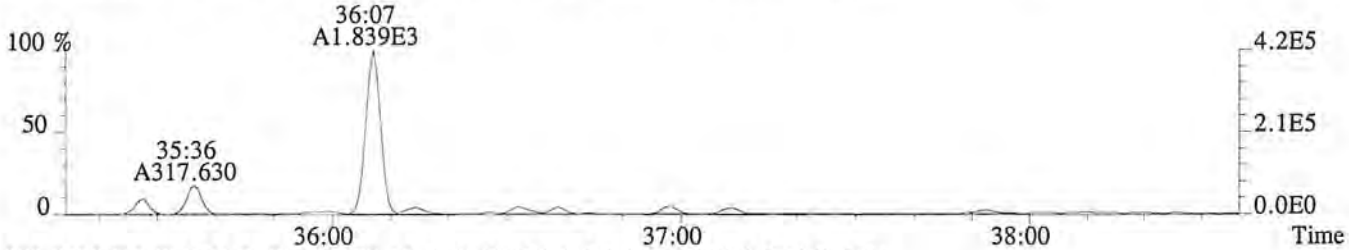
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



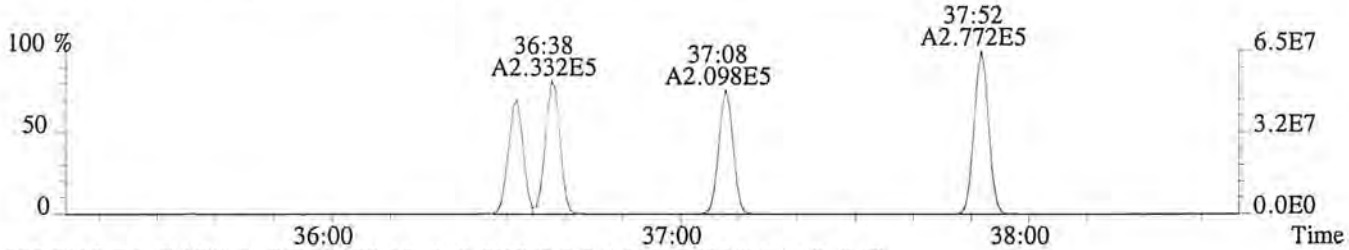
File:P600127 #1-304 Acq:25-AUG-2015 10:20:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-020
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7456.0,0.40%,F,T)



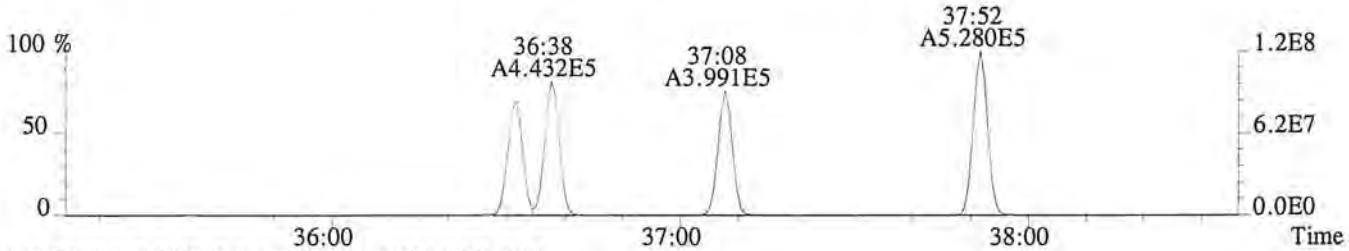
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1820.0,0.40%,F,T)



383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3628.0,0.40%,F,T)



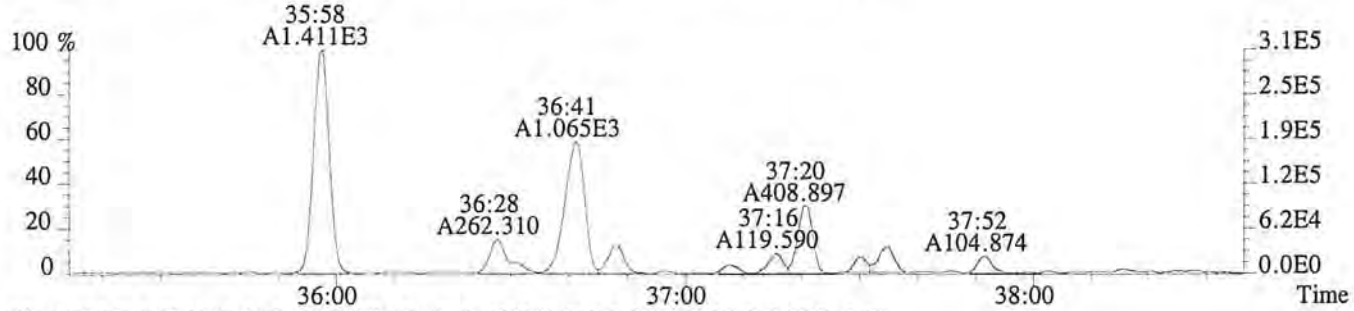
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3524.0,0.40%,F,T)



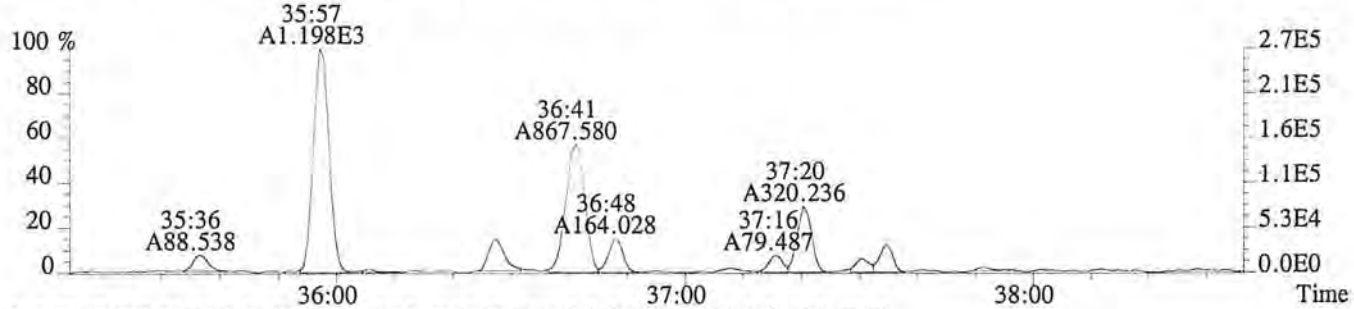
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

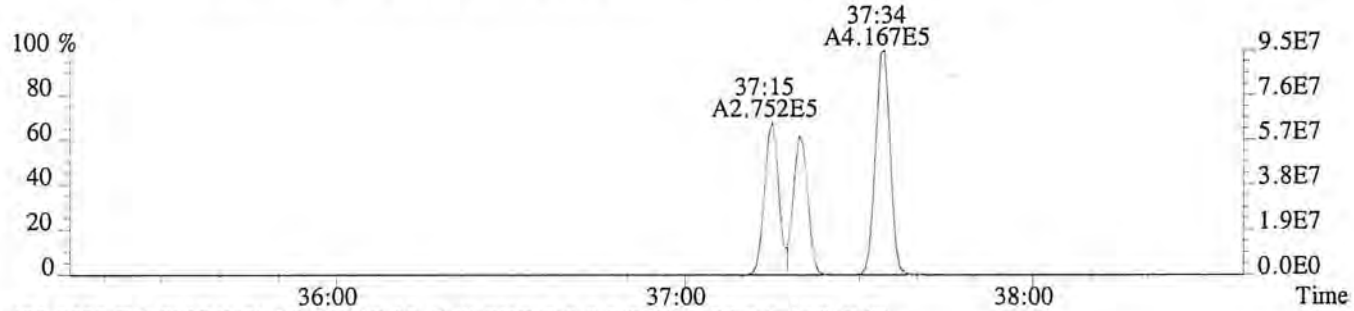
File:P600127 #1-304 Acq:25-AUG-2015 10:20:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-020
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2328.0,0.40%,F,T)



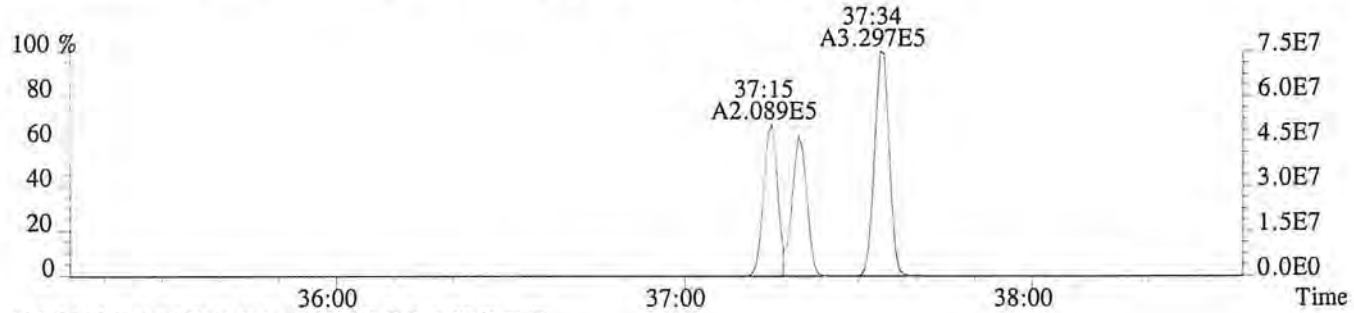
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2436.0,0.40%,F,T)



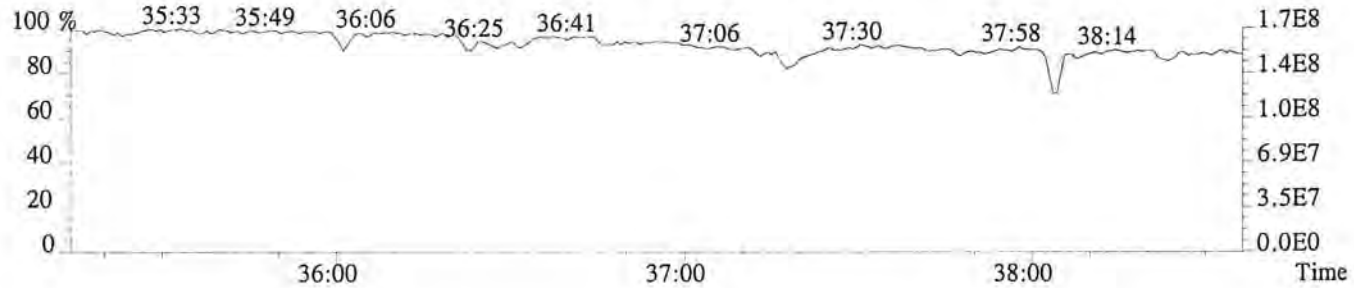
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8992.0,0.40%,F,T)



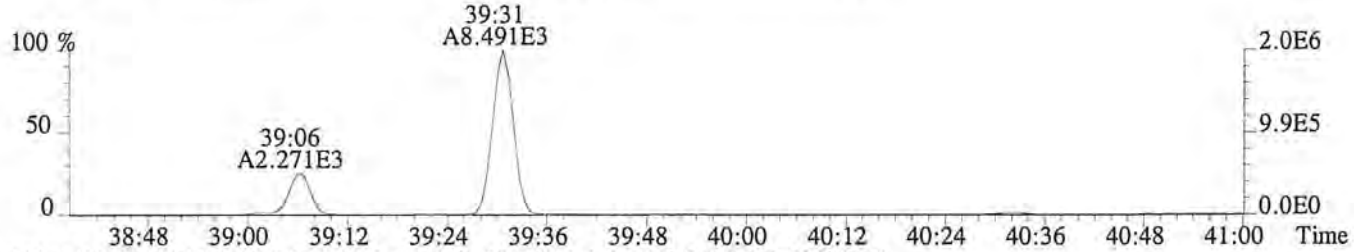
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4028.0,0.40%,F,T)



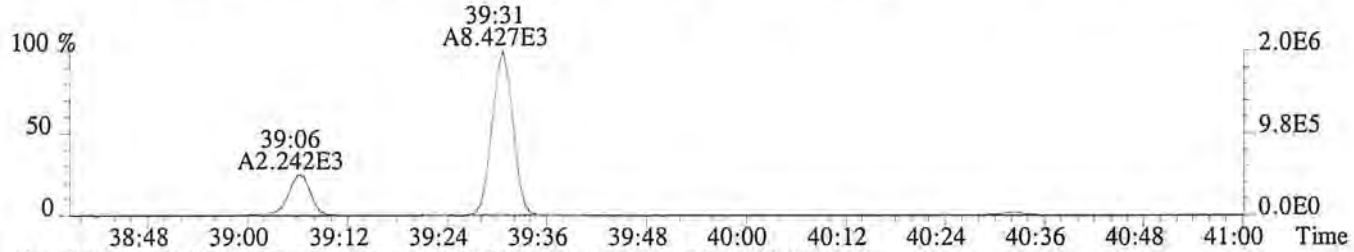
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



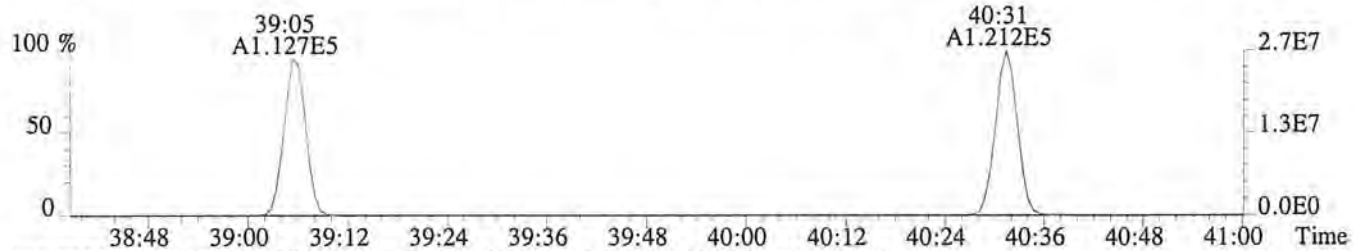
File:P600127 #1-213 Acq:25-AUG-2015 10:20:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-020
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2300.0,0.50%,F,T)



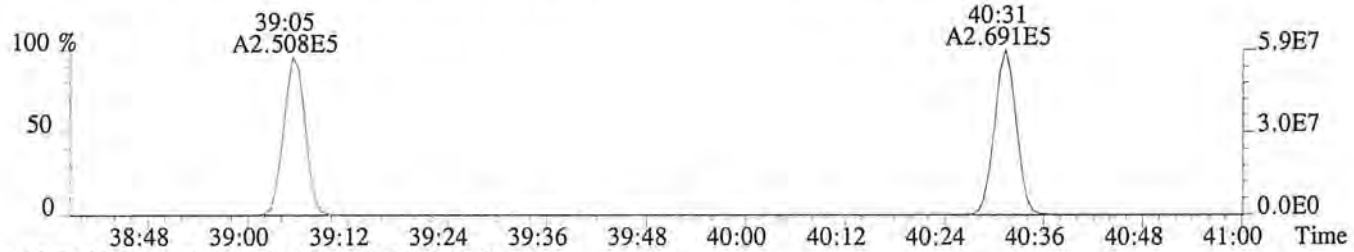
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2108.0,0.50%,F,T)



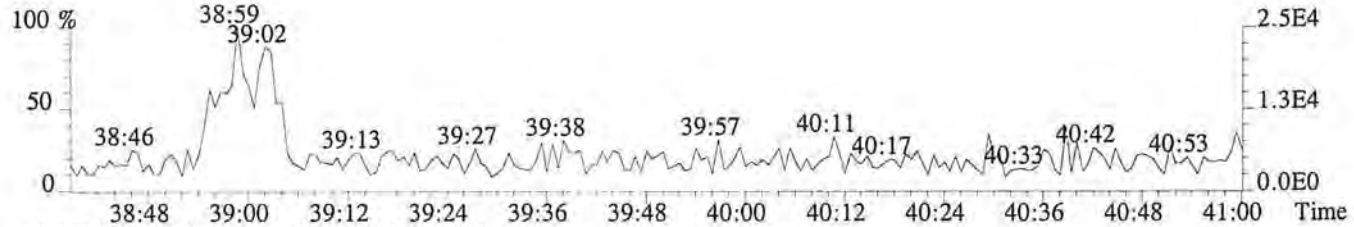
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7640.0,0.50%,F,T)



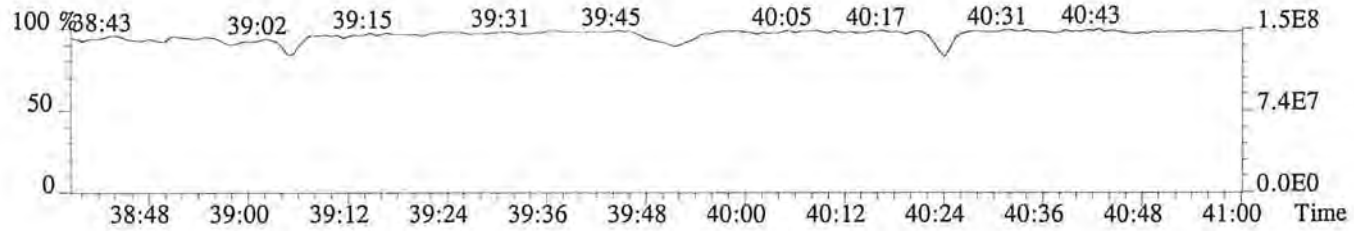
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4376.0,0.50%,F,T)



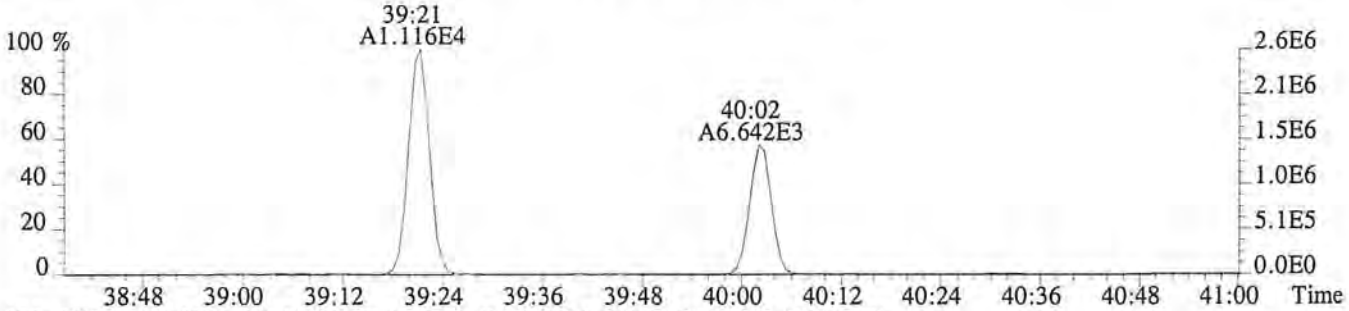
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



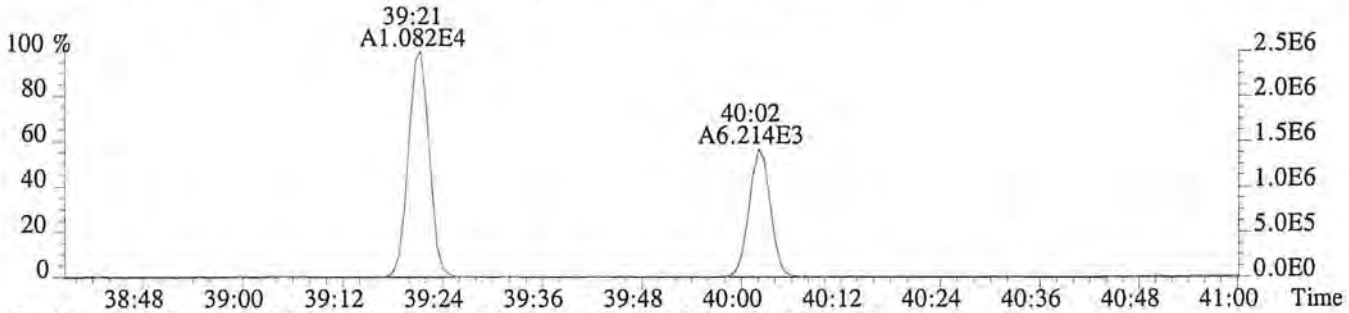
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



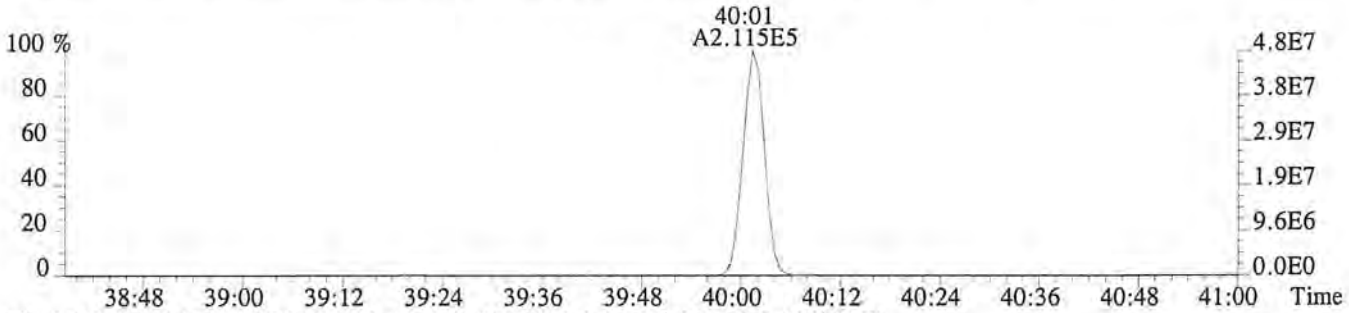
File:P600127 #1-213 Acq:25-AUG-2015 10:20:57 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1500743-020
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2536.0,0.40%,F,T)



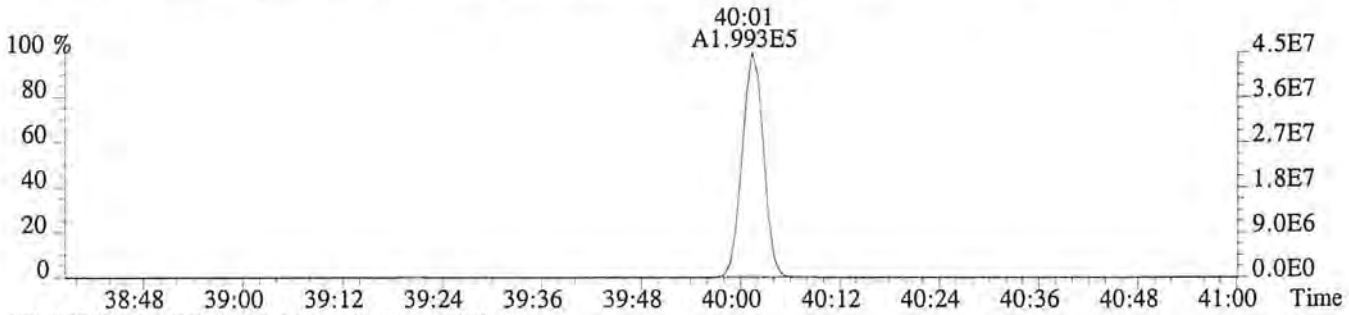
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3456.0,0.40%,F,T)



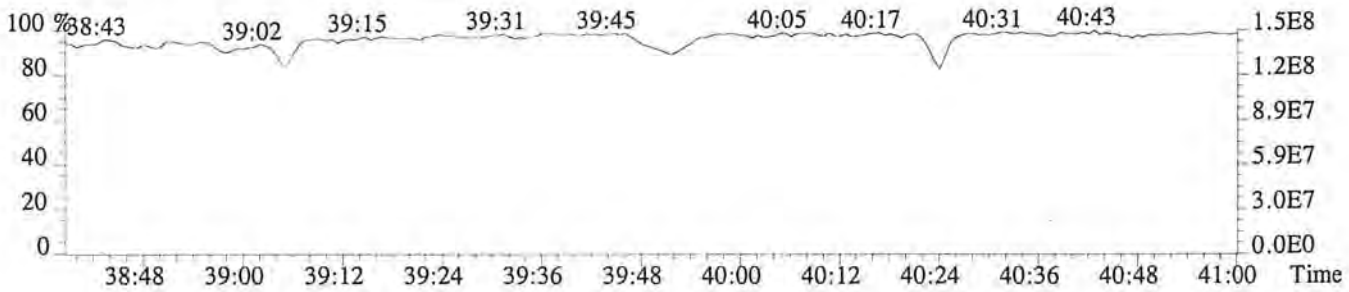
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.40%,F,T)



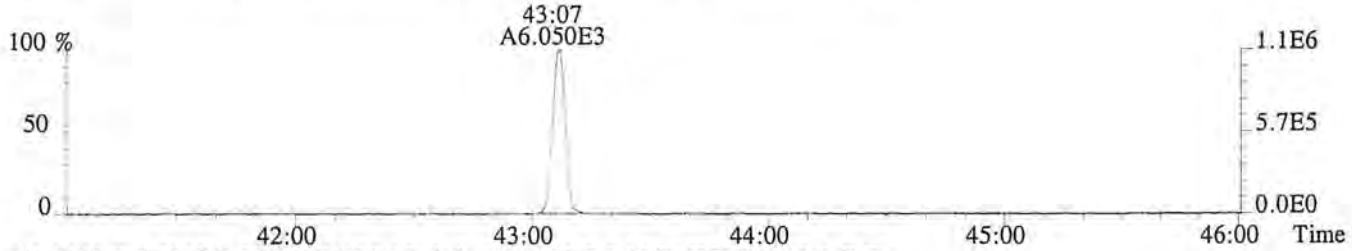
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3016.0,0.40%,F,T)



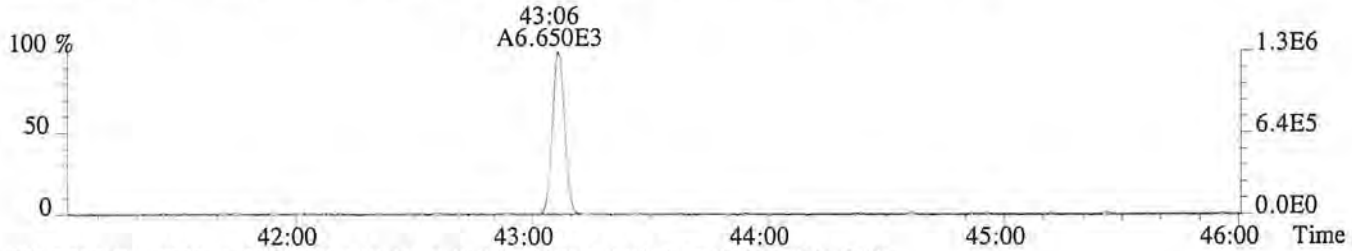
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



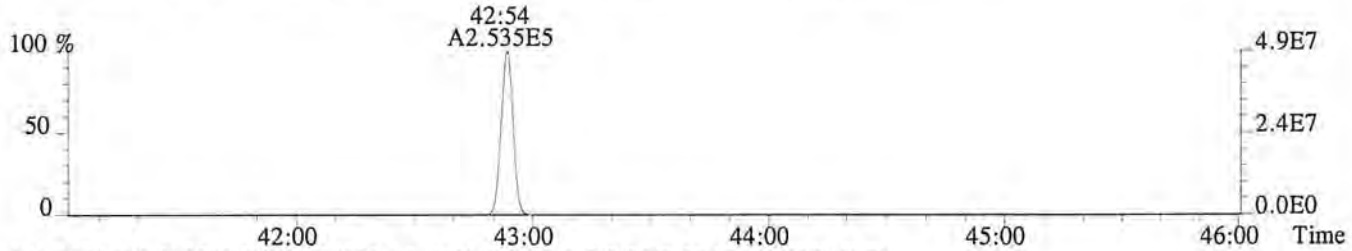
File:P600127 #1-448 Acq:25-AUG-2015 10:20:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-020
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2896.0,0.40%,F,T)



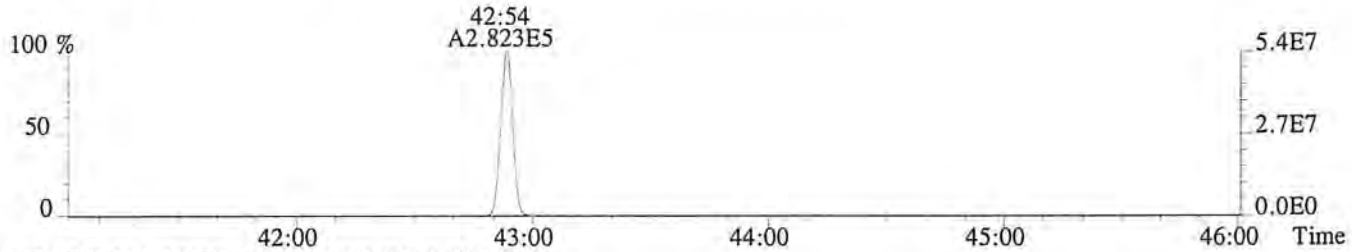
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,6880.0,0.40%,F,T)



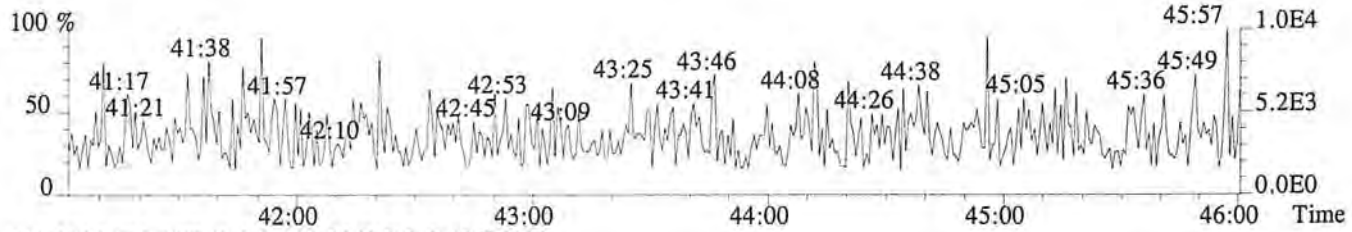
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2540.0,0.40%,F,T)



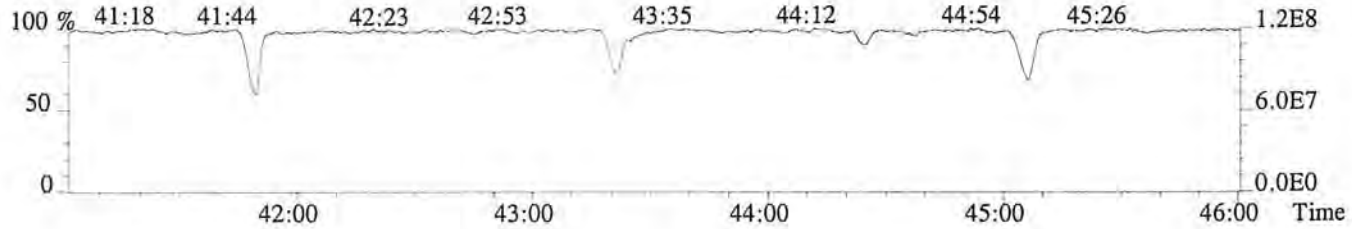
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2240.0,0.40%,F,T)



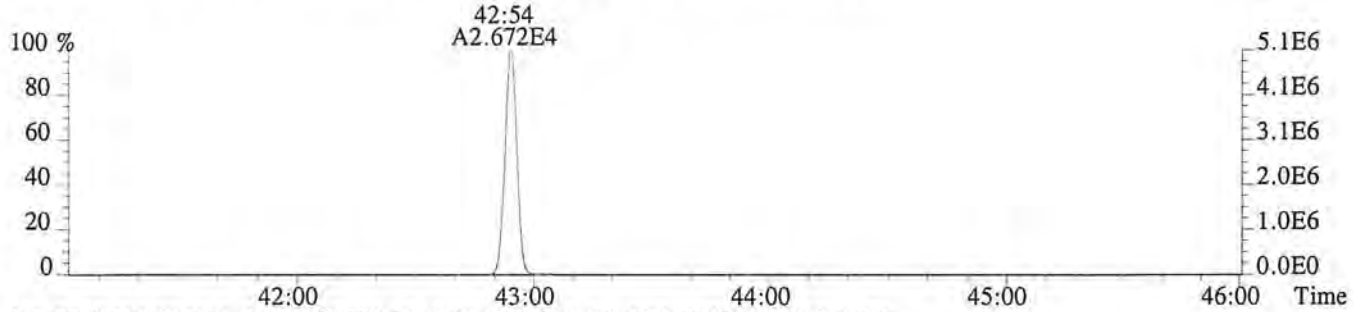
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



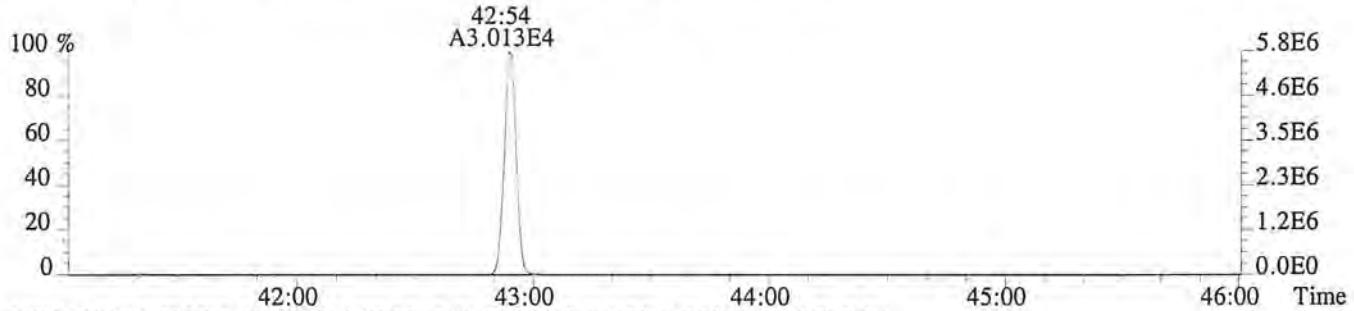
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



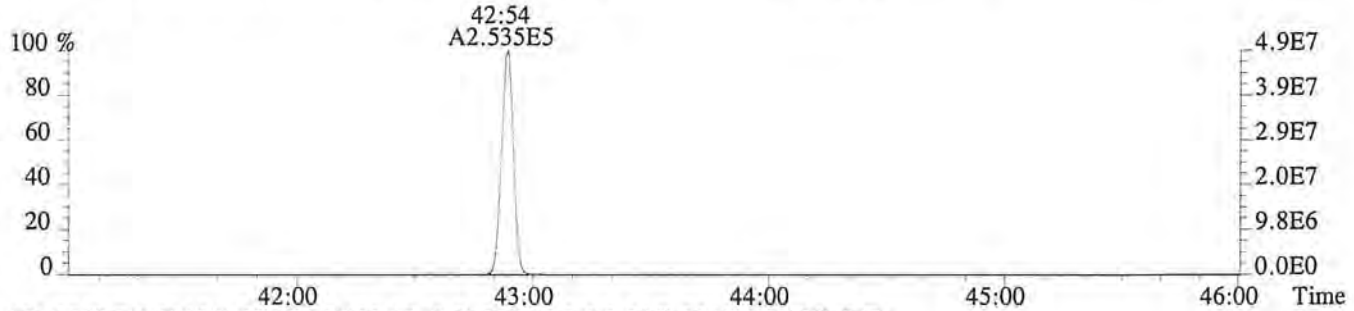
File:P600127 #1-448 Acq:25-AUG-2015 10:20:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-020
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1980.0,0.40%,F,T)



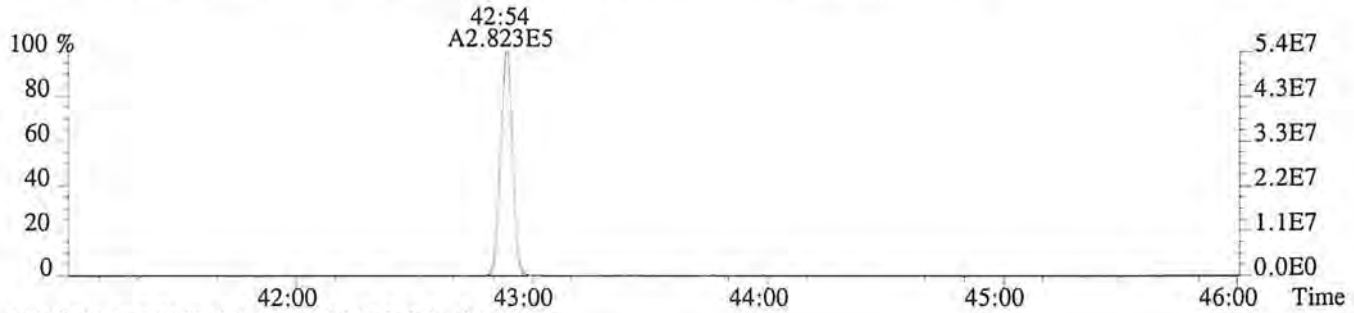
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2496.0,0.40%,F,T)



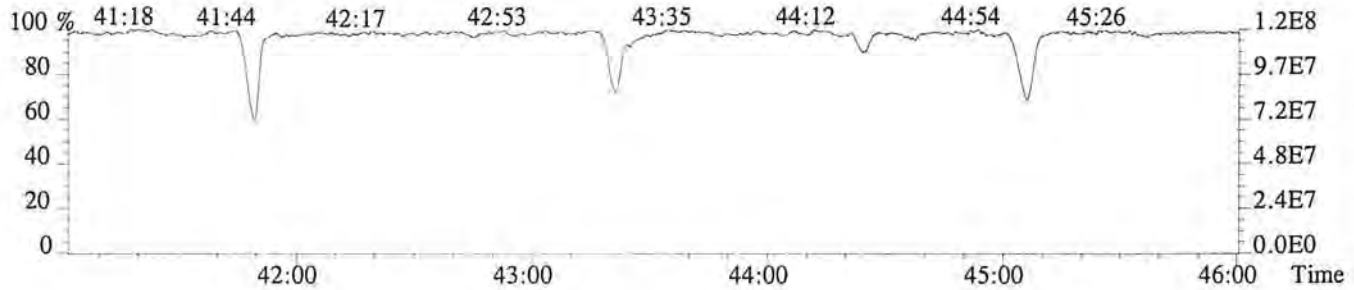
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2540.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2240.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-12-15 MT8

Run #10 Filename P301041 Samp: 1 Inj: 1 Acquired: 26-AUG-15 19:18:18
Processed: 27-AUG-15 15:09:13 Sample ID: E1500743-021

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:39	7.098e+01	1.003e+02	0.71	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	3.019e+02	3.333e+02	0.91	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.245
10	Unk	OCDF	42:44	8.590e+02	1.019e+03	0.84	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:26	7.906e+01	1.267e+02	0.62	no	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:53	4.644e+01	2.565e+01	1.81	no	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:57	3.582e+01	4.457e+01	0.80	no	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:02	6.625e+01	6.042e+01	1.10	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:16	3.379e+01	2.675e+01	1.26	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	8.113e+02	7.817e+02	1.04	yes	no	0.949
17	Unk	OCDD	42:33	3.666e+03	4.193e+03	0.87	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:39	3.957e+04	5.032e+04	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:43	6.559e+04	4.176e+04	1.57	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:36	6.384e+04	4.042e+04	1.58	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:13	2.611e+04	5.032e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:20	2.977e+04	5.756e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:49	2.815e+04	5.354e+04	0.53	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:34	3.538e+04	6.800e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	1.677e+04	3.858e+04	0.43	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:12	1.322e+04	2.988e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:24	3.195e+04	4.110e+04	0.78	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:52	4.911e+04	3.132e+04	1.57	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:57	3.663e+04	2.878e+04	1.27	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:02	3.805e+04	3.024e+04	1.26	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	3.121e+04	2.990e+04	1.04	yes	no	0.850
32	IS	13C-OCDD	42:32	4.441e+04	4.981e+04	0.89	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:51	4.208e+04	5.268e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:16	5.642e+04	4.497e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:25	3.203e+04				no	1.001

$$\text{OCDD} = \frac{(3.666e+03 + 4.193e+03) \times 4000 \text{ pg} \times 1}{(4.441e+04 + 4.981e+04) \times 10.082 \text{ g} \times 100 \;/\; 100 \times 1.061} = 31.19 \text{ ng/kg}$$

UM 08/28/15

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-12-15 MT8/GT

Run #10 Filename P301041 Samp: 1 Inj: 1 Acquired: 26-AUG-15 19:18:18
Processed: 27-AUG-15 15:09:13 LAB. ID: E1500743-021

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.39e+04	2.16e+03	6.4e+00	1.73e+04	3.65e+03	4.7e+00
2	1,2,3,7,8-PeCDF	*	1.18e+03	*	*	2.58e+03	*
3	2,3,4,7,8-PeCDF	*	1.18e+03	*	*	2.58e+03	*
4	1,2,3,4,7,8-HxCDF	*	2.40e+03	*	*	9.60e+02	*
5	1,2,3,6,7,8-HxCDF	*	2.40e+03	*	*	9.60e+02	*
6	2,3,4,6,7,8-HxCDF	*	2.40e+03	*	*	9.60e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.40e+03	*	*	9.60e+02	*
8	1,2,3,4,6,7,8-HpCDF	6.52e+04	1.52e+03	4.3e+01	7.15e+04	1.60e+03	4.5e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.52e+03	*	*	1.60e+03	*
10	OCDF	1.64e+05	1.89e+03	8.7e+01	1.89e+05	5.08e+03	3.7e+01
11	2,3,7,8-TCDD	1.72e+04	1.96e+03	8.8e+00	2.64e+04	1.12e+03	2.3e+01
12	1,2,3,7,8-PeCDD	1.10e+04	3.13e+03	3.5e+00	5.81e+03	8.04e+02	7.2e+00
13	1,2,3,4,7,8-HxCDD	6.87e+03	1.00e+03	6.9e+00	1.05e+04	1.84e+03	5.7e+00
14	1,2,3,6,7,8-HxCDD	1.47e+04	1.00e+03	1.5e+01	1.08e+04	1.84e+03	5.9e+00
15	1,2,3,7,8,9-HxCDD	6.16e+03	1.00e+03	6.2e+00	7.12e+03	1.84e+03	3.9e+00
16	1,2,3,4,6,7,8-HpCDD	1.72e+05	1.31e+03	1.3e+02	1.67e+05	8.20e+02	2.0e+02
17	OCDD	7.32e+05	1.95e+03	3.8e+02	8.44e+05	9.39e+03	9.0e+01
18	13C-2,3,7,8-TCDF	7.94e+06	2.37e+03	3.4e+03	1.01e+07	2.93e+03	3.4e+03
19	13C-1,2,3,7,8-PeCDF	1.33e+07	1.10e+03	1.2e+04	8.44e+06	1.83e+03	4.6e+03
20	13C-2,3,4,7,8-PeCDF	1.31e+07	1.10e+03	1.2e+04	8.28e+06	1.83e+03	4.5e+03
21	13C-1,2,3,4,7,8-HxCDF	5.97e+06	1.48e+03	4.0e+03	1.14e+07	2.85e+03	4.0e+03
22	13C-1,2,3,6,7,8-HxCDF	6.46e+06	1.48e+03	4.4e+03	1.26e+07	2.85e+03	4.4e+03
23	13C-2,3,4,6,7,8-HxCDF	6.46e+06	1.48e+03	4.4e+03	1.22e+07	2.85e+03	4.3e+03
24	13C-1,2,3,7,8,9-HxCDF	7.95e+06	1.48e+03	5.4e+03	1.52e+07	2.85e+03	5.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.81e+06	4.20e+03	9.1e+02	8.86e+06	1.76e+03	5.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.57e+06	4.20e+03	6.1e+02	5.81e+06	1.76e+03	3.3e+03
27	13C-2,3,7,8-TCDD	6.74e+06	6.80e+03	9.9e+02	8.69e+06	4.16e+03	2.1e+03
28	13C-1,2,3,7,8-PeCDD	1.04e+07	2.48e+03	4.2e+03	6.71e+06	1.29e+03	5.2e+03
29	13C-1,2,3,4,7,8-HxCDD	8.45e+06	1.86e+03	4.6e+03	6.60e+06	2.27e+03	2.9e+03
30	13C-1,2,3,6,7,8-HxCDD	8.43e+06	1.86e+03	4.5e+03	6.79e+06	2.27e+03	3.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.93e+06	1.98e+03	3.5e+03	6.49e+06	1.25e+03	5.2e+03
32	13C-OCDD	8.66e+06	2.20e+03	3.9e+03	9.68e+06	1.76e+03	5.5e+03
33	13C-1,2,3,4-TCDD	8.46e+06	6.80e+03	1.2e+03	1.06e+07	4.16e+03	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.26e+07	1.86e+03	6.8e+03	1.00e+07	2.27e+03	4.4e+03
35	37Cl-2,3,7,8-TCDD	6.67e+06	2.14e+03	3.1e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-12-15 MT8/GT

Entry: 36 Totals Name: Total Tetra-Furans

Run: 10 File: P301041 Sample:1 Injection:1 Function:1

Acquired: 26-AUG-15 19:18:18 Processed: 27-AUG-15 15:09:13

Mass: 303.9020 305.8990 Tot Response: 1.47e+03 RRF: 0.8496

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:17	5.52e+02	7.46e+02	0.74	yes	1.30e+03		n	n
2	28:39	7.10e+01	1.00e+02	0.71	yes	1.71e+02	2,3,7,8-TCDF	n	n

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Peak List Summary

CLIENT ID.

PLY-12-15 MT8/GT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P301041 Sample:1 Injection:1 Function:3

Acquired: 26-AUG-15 19:18:18 Processed: 27-AUG-15 15:09:13

Mass: 373.8210 375.8180 Tot Response: 5.64e+02 RRF: 1.094

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	4.38e+01	3.81e+01	1.15	yes	8.19e+01	y	n
2	35:48	2.62e+02	2.20e+02	1.19	yes	4.82e+02	y	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-12-15 MT8/GT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P301041 Sample:1 Injection:1 Function:3

Acquired: 26-AUG-15 19:18:18 Processed: 27-AUG-15 15:09:13

Mass: 389.8160 391.8130 Tot Response: 7.21e+02 RRF: 0.9904

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:38	1.43e+02	1.29e+02	1.11	yes	2.71e+02		n	n
2	36:23	1.50e+02	1.13e+02	1.33	yes	2.63e+02		n	n
3	37:02	6.62e+01	6.04e+01	1.10	yes	1.27e+02	1,2,3,6,7,8-HxCDD	n	n
4	37:16	3.38e+01	2.67e+01	1.26	yes	6.05e+01	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-12-15 MT8/GT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 10 File: P301041 Sample:1 Injection:1 Function:4

Acquired: 26-AUG-15 19:18:18 Processed: 27-AUG-15 15:09:13

Mass: 407.7820 409.7790 Tot Response: 2.90e+03 RRF: 1.284

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	3.02e+02	3.33e+02	0.91	yes	6.35e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:13	1.14e+03	1.13e+03	1.01	yes	2.27e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-12-15 MT8/GT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P301041 Sample:1 Injection:1 Function:4

Acquired: 26-AUG-15 19:18:18 Processed: 27-AUG-15 15:09:13

Mass: 423.7770 425.7740 Tot Response: 4.43e+03 RRF: 0.9492

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:03	1.44e+03	1.39e+03	1.04	yes	2.83e+03	n	n
2	39:43	8.11e+02	7.82e+02	1.04	yes	1.59e+03 1,2,3,4,6,7,8-HpCDD	n	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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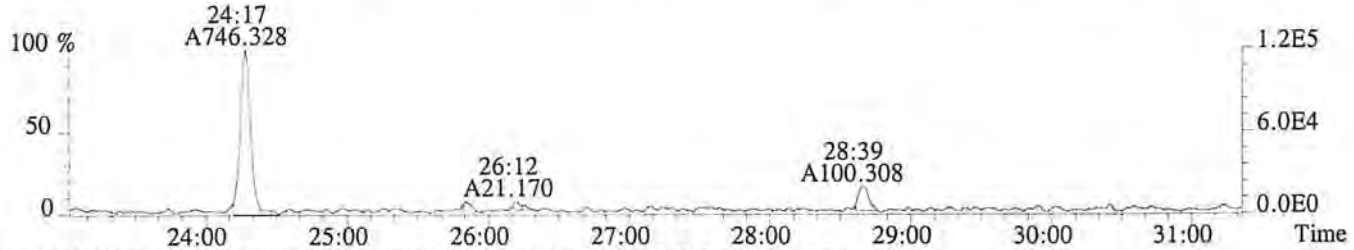
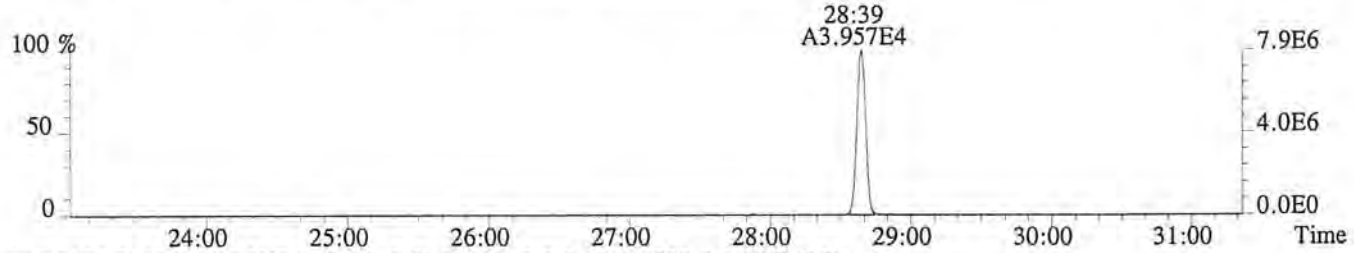
Office(281)530-5656. Fax(281)530-5887

File:P301041 #1-591 Acq:26-AUG-2015 19:18:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-021
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2156.0,1.00%,F,T)

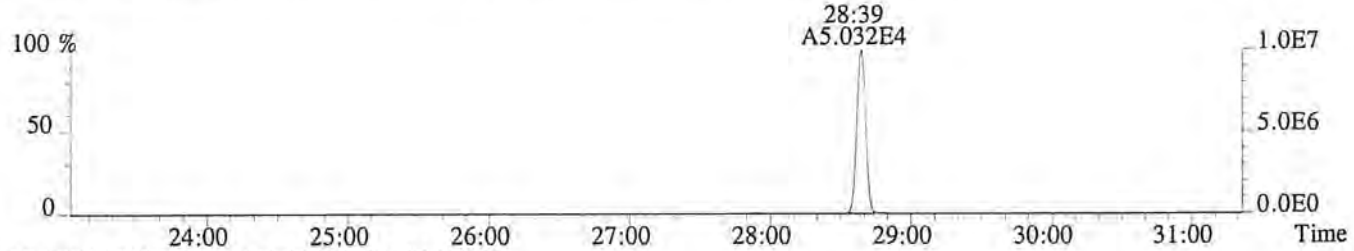
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3652.0,1.00%,F,T)



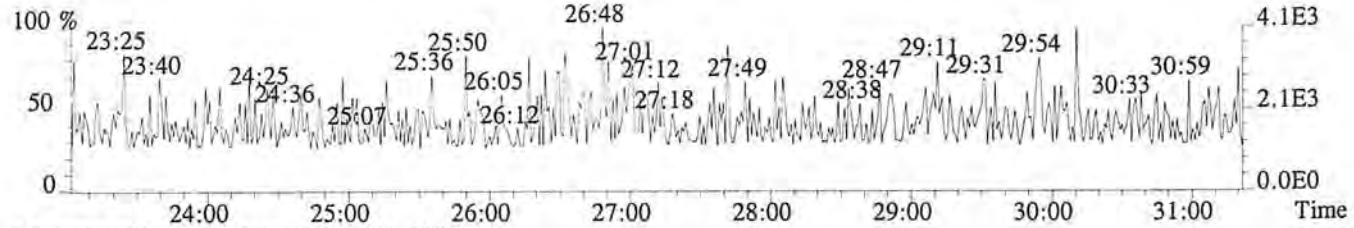
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2368.0,1.00%,F,T)



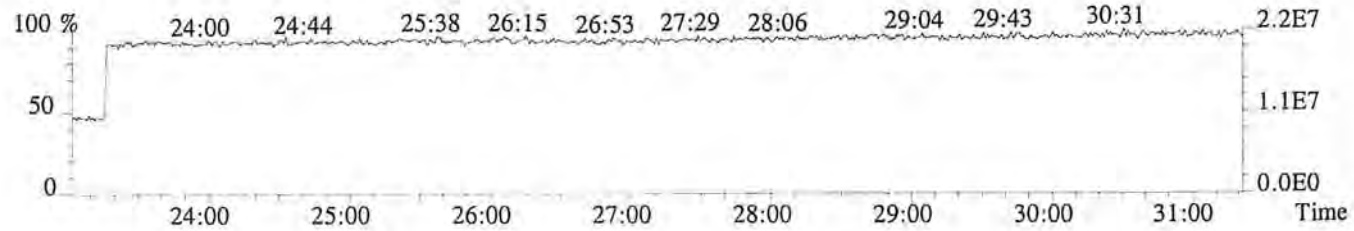
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2932.0,1.00%,F,T)



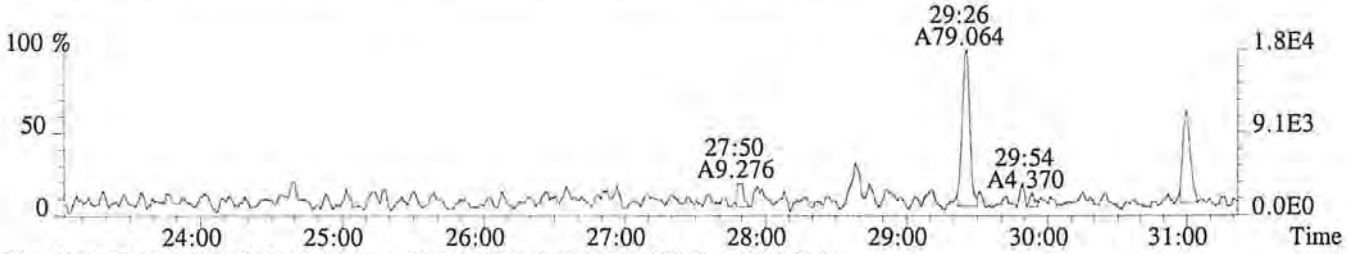
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



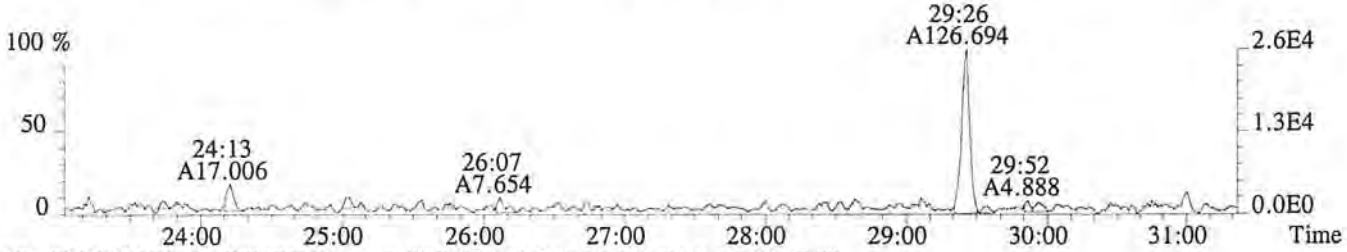
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



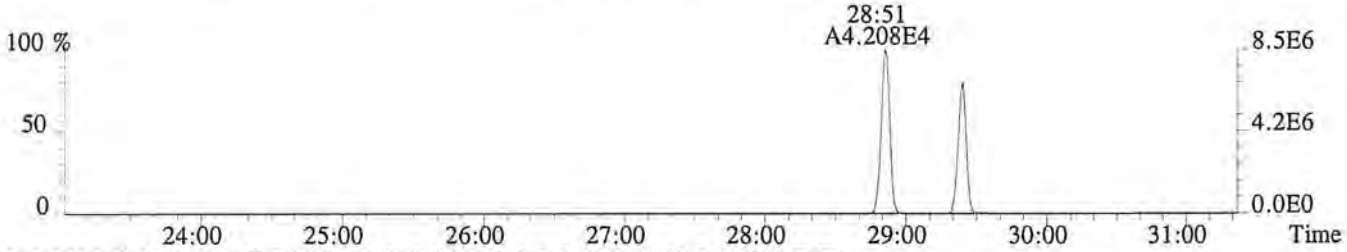
File:P301041 #1-591 Acq:26-AUG-2015 19:18:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-021
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1964.0,1.00%,F,T)



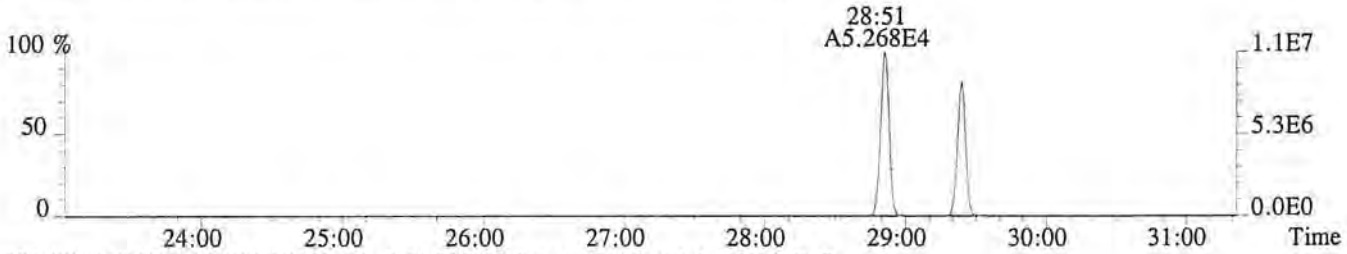
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



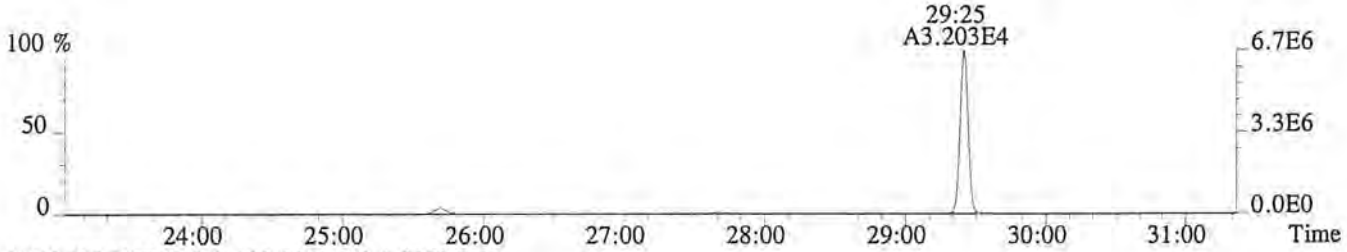
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6804.0,1.00%,F,T)



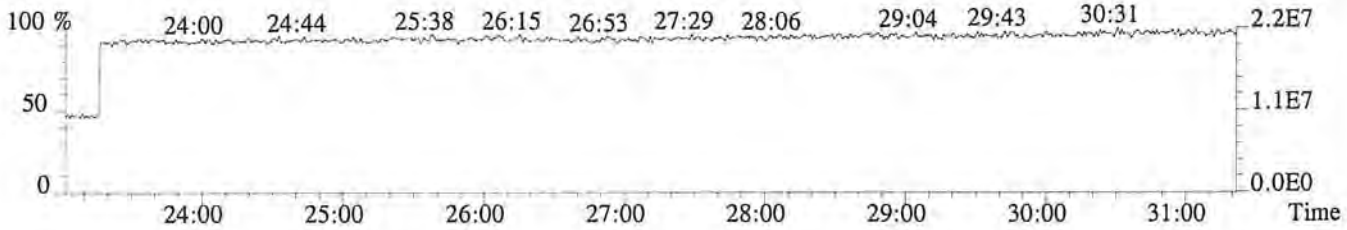
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4160.0,1.00%,F,T)



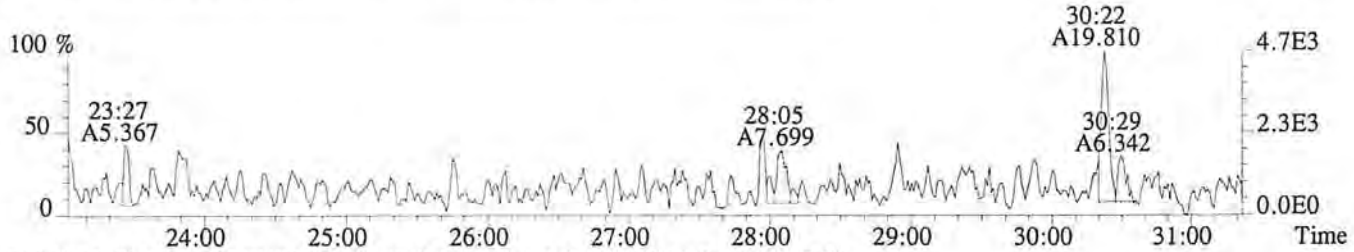
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2140.0,1.00%,F,T)



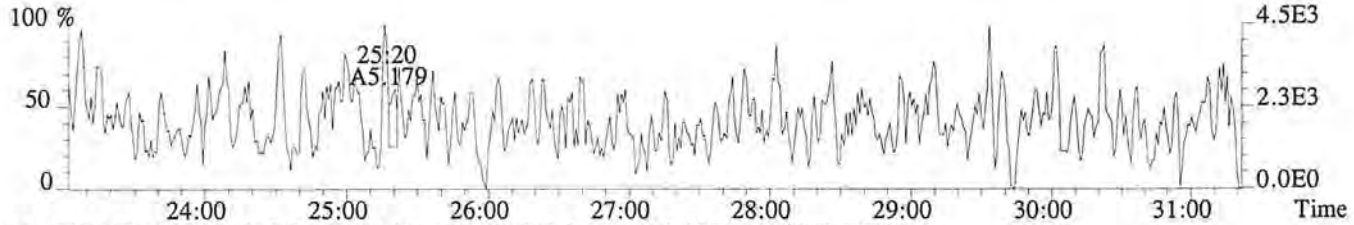
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



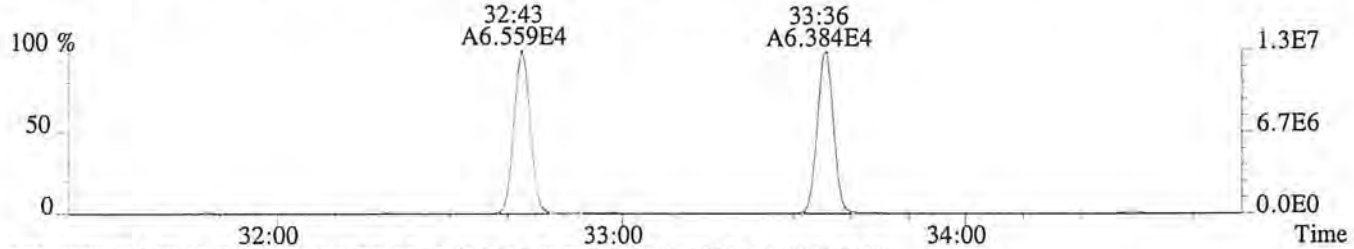
File:P301041 #1-591 Acq:26-AUG-2015 19:18:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-021
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



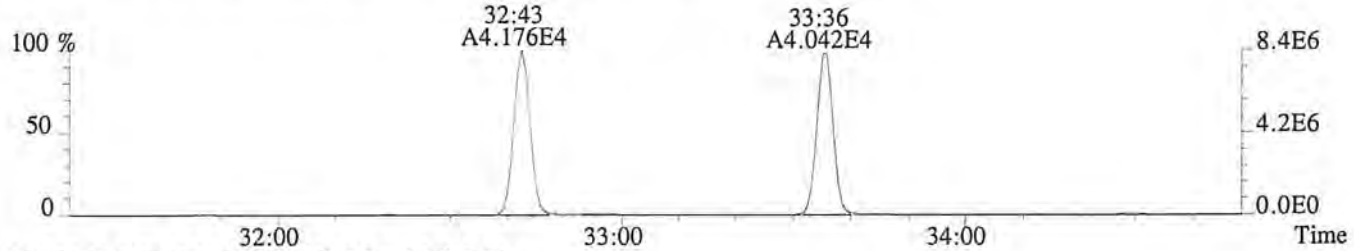
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2372.0,1.00%,F,T)



351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)

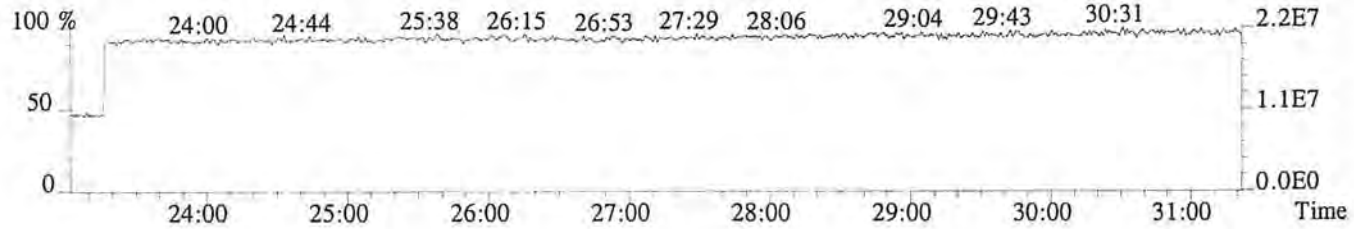


353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)

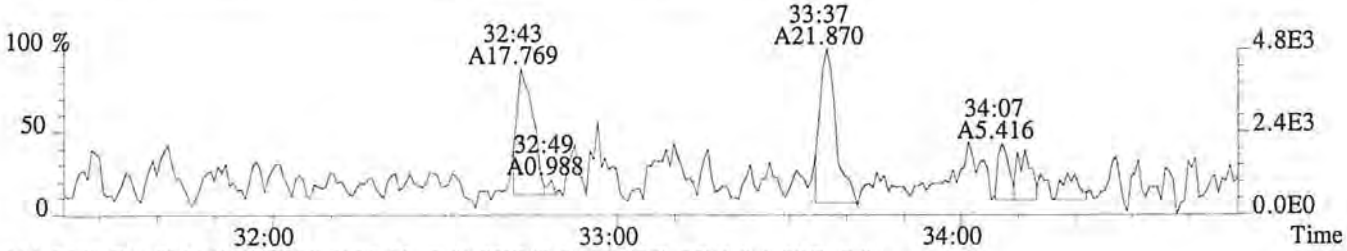


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

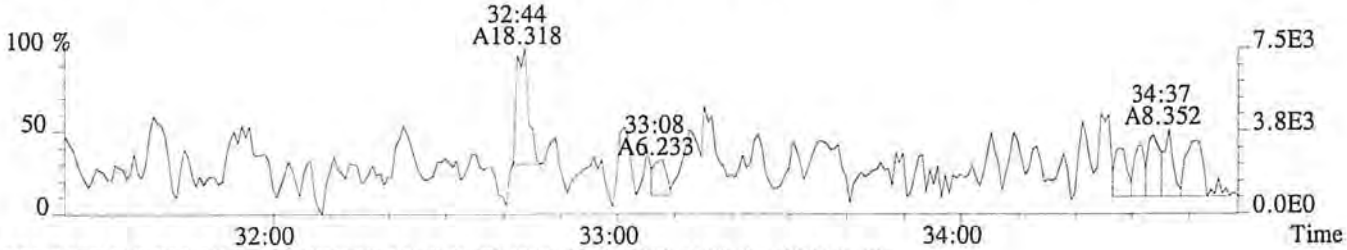
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



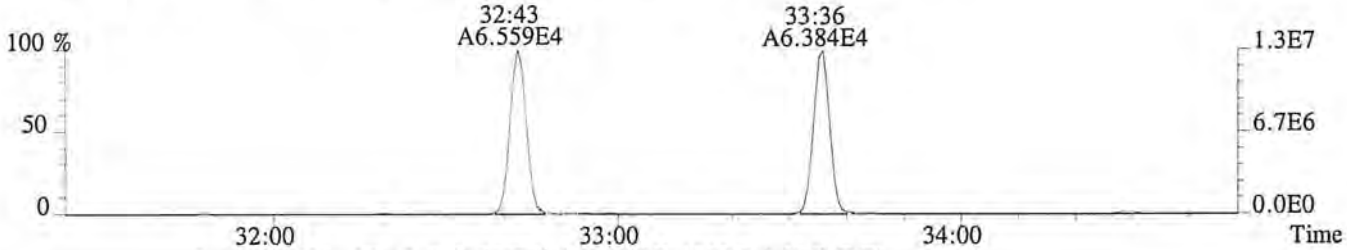
File:P301041 #1-308 Acq:26-AUG-2015 19:18:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-021
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



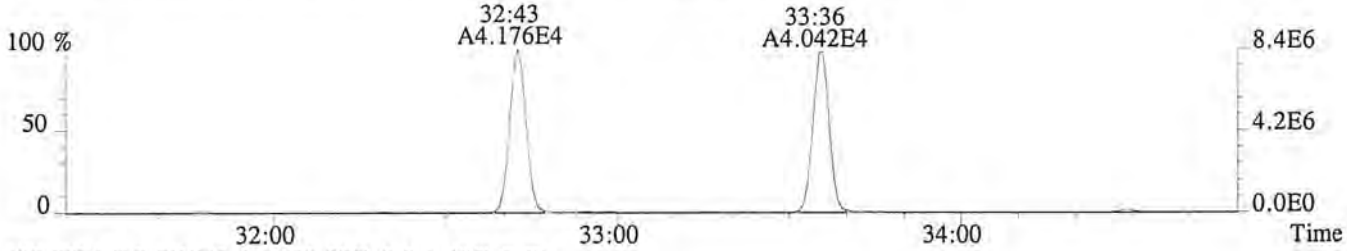
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2576.0,1.00%,F,T)



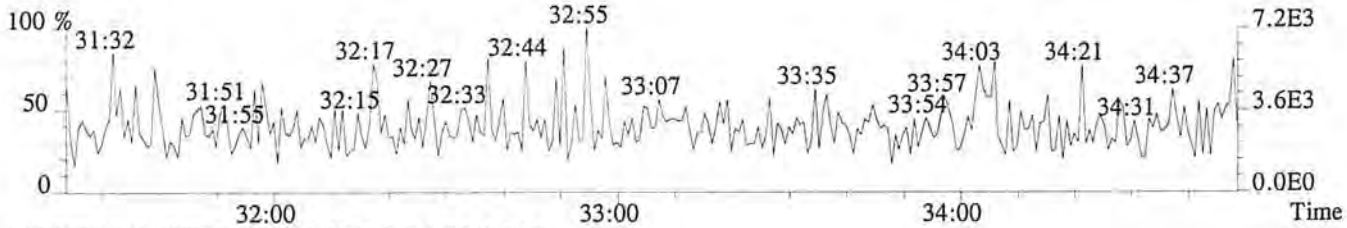
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)



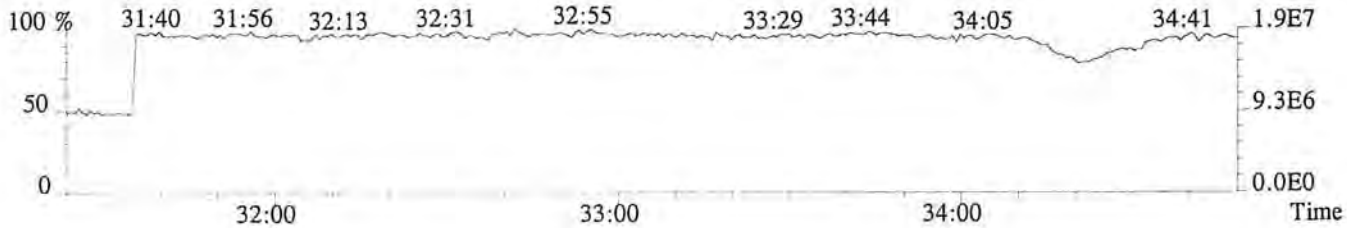
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1828.0,1.00%,F,T)



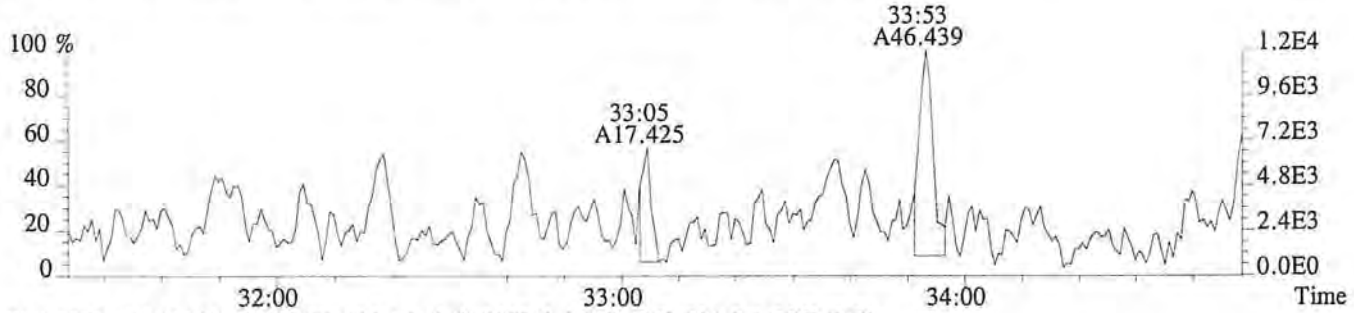
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



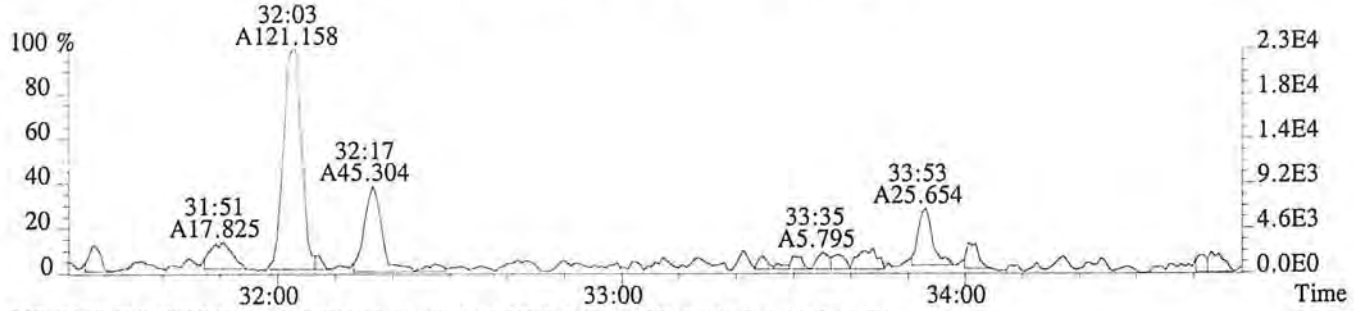
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



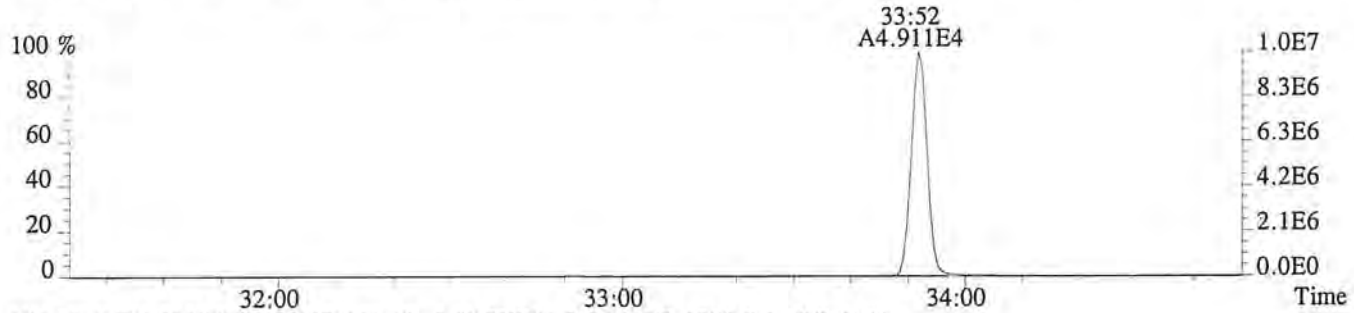
File:P301041 #1-308 Acq:26-AUG-2015 19:18:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-021
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3132.0,1.00%,F,T)



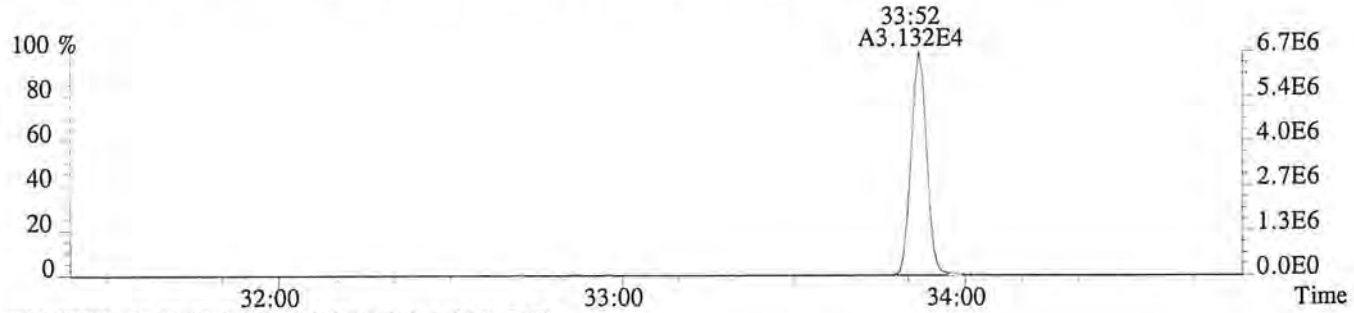
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



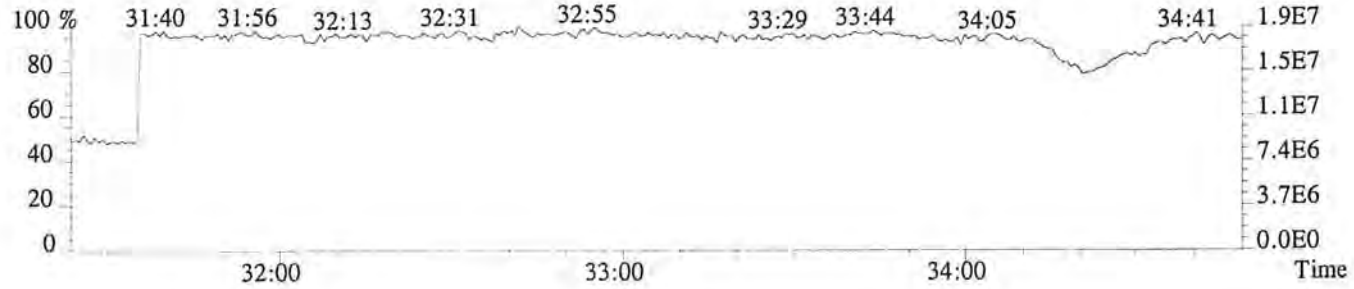
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2484.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)

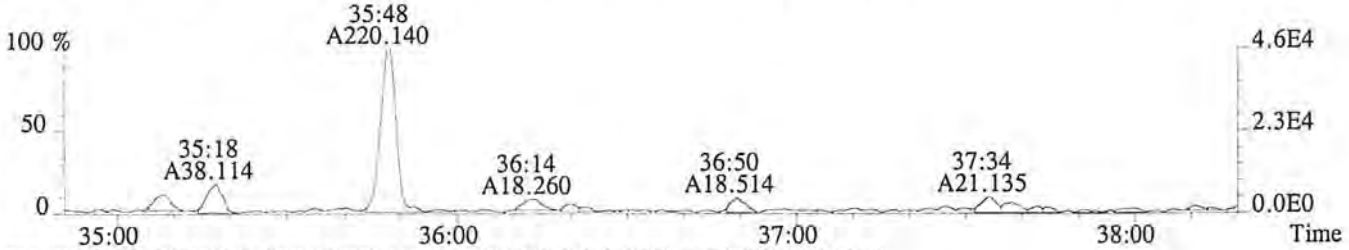


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

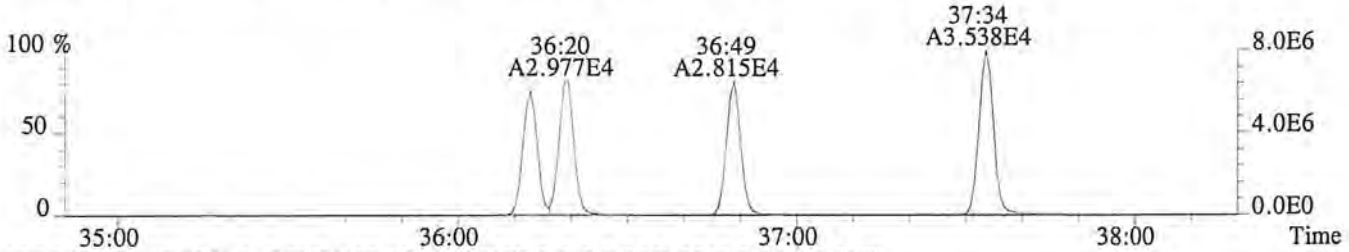


File:P301041 #1-312 Acq:26-AUG-2015 19:18:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-021
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2404.0,0.40%,F,T)

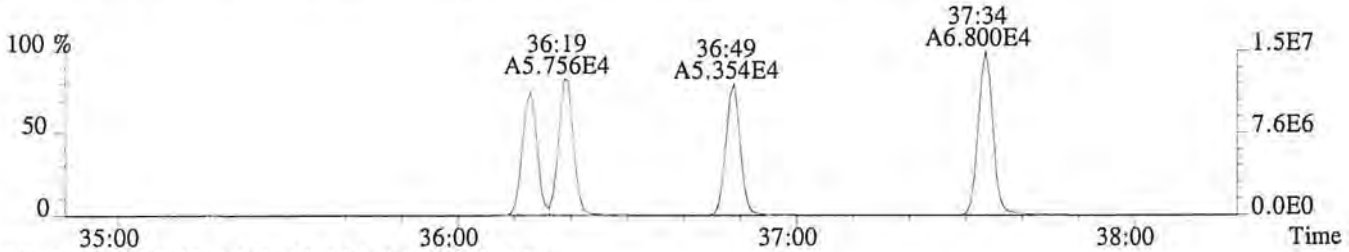
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



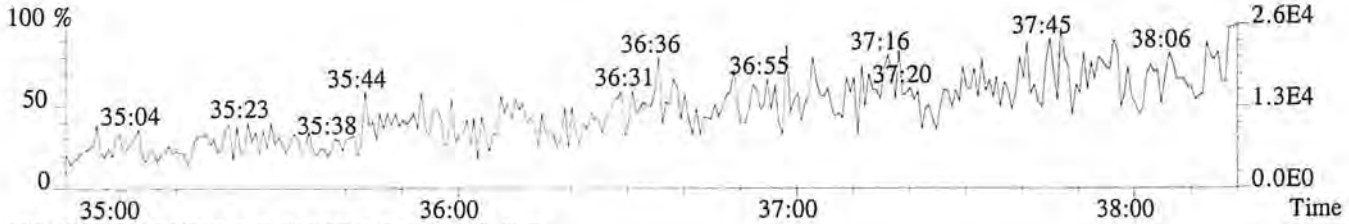
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1476.0,0.40%,F,T)



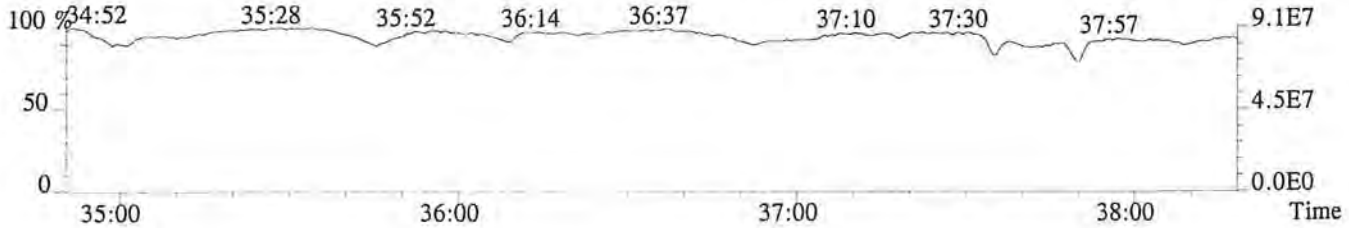
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2848.0,0.40%,F,T)



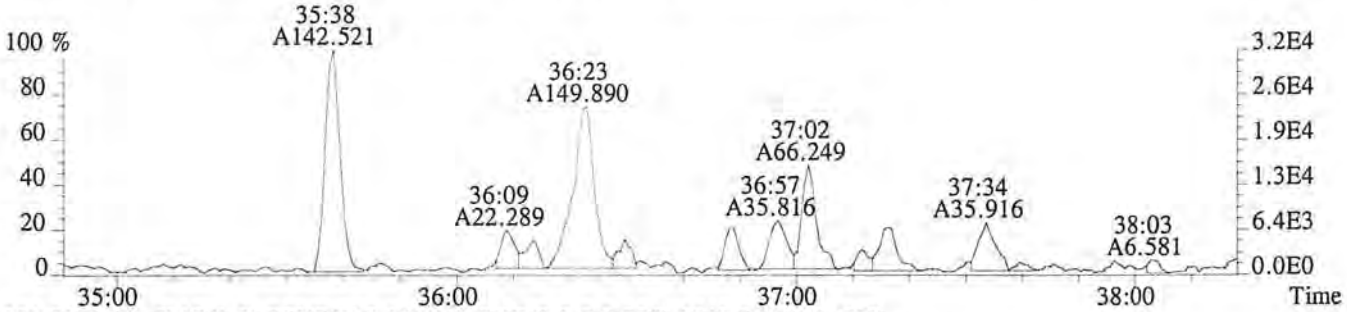
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



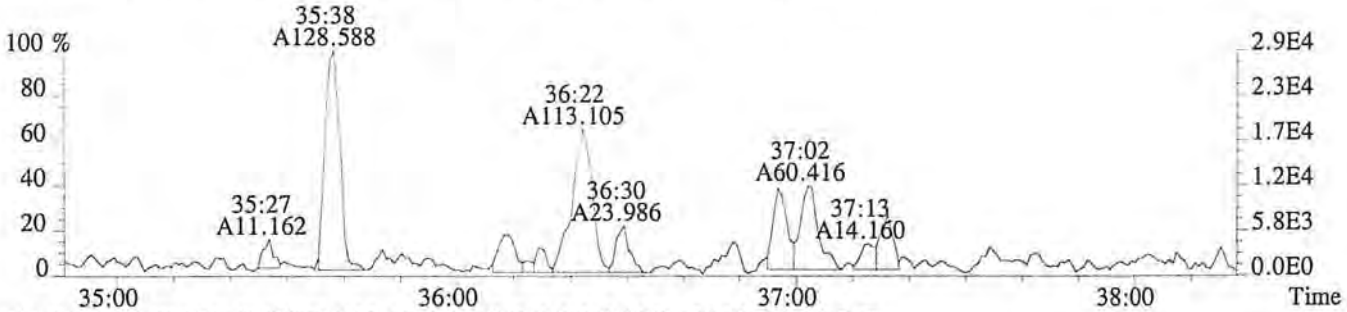
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



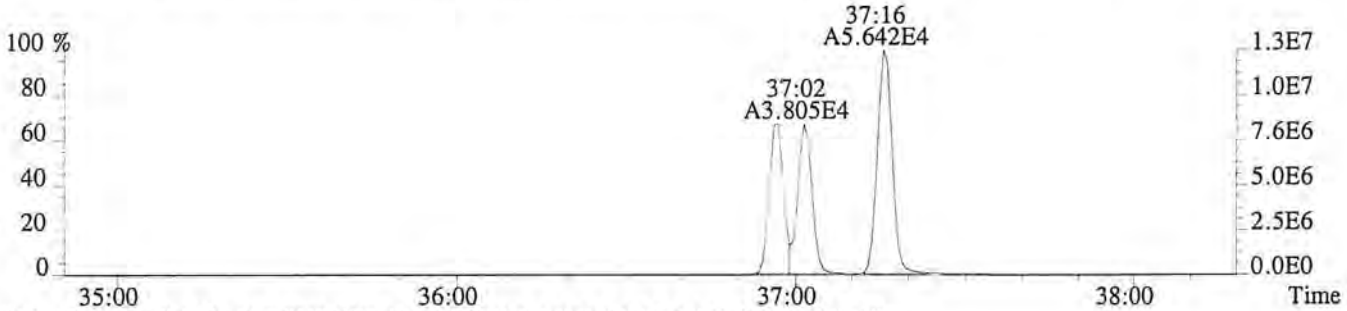
File:P301041 #1-312 Acq:26-AUG-2015 19:18:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-021
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1000.0,0.40%,F,T)



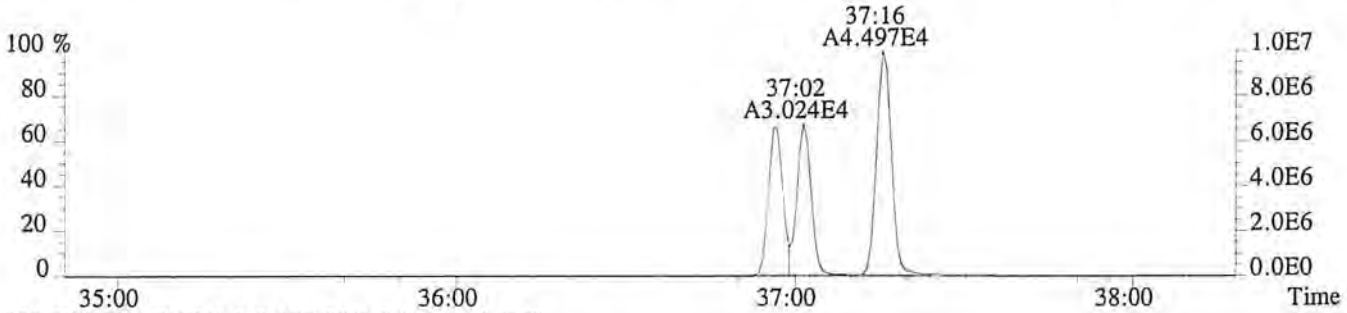
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



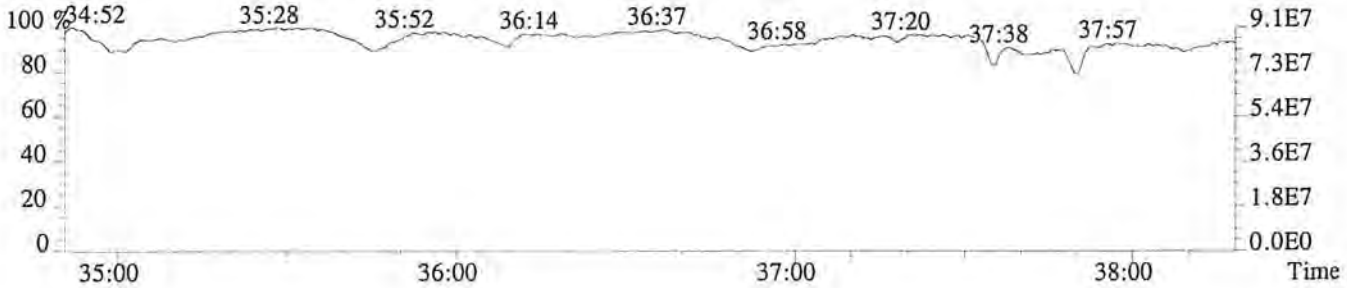
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1856.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2268.0,0.40%,F,T)



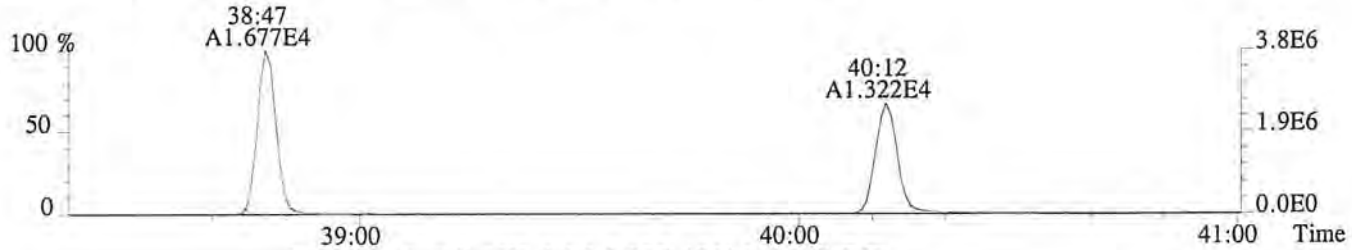
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



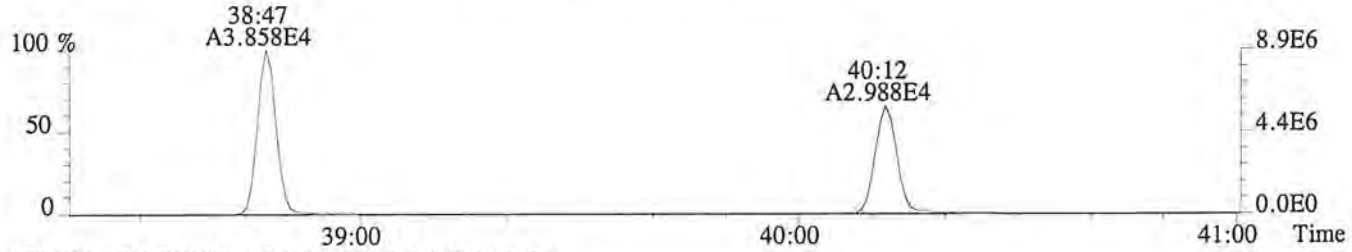
File:P301041 #1-241 Acq:26-AUG-2015 19:18:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-021
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1516.0,0.50%,F,T)

409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.50%,F,T)

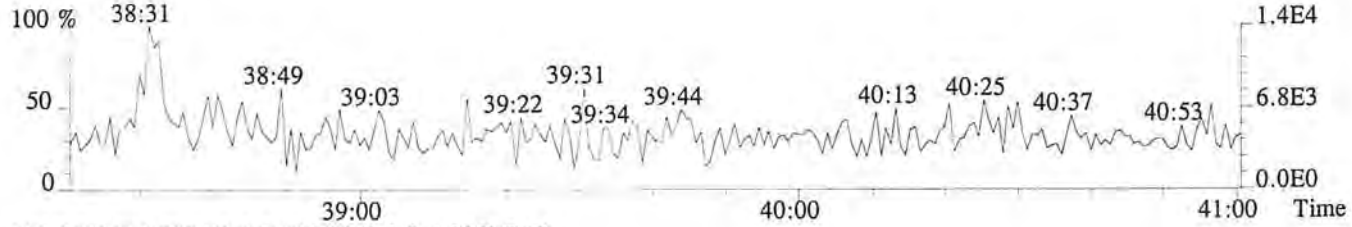
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4200.0,0.50%,F,T)



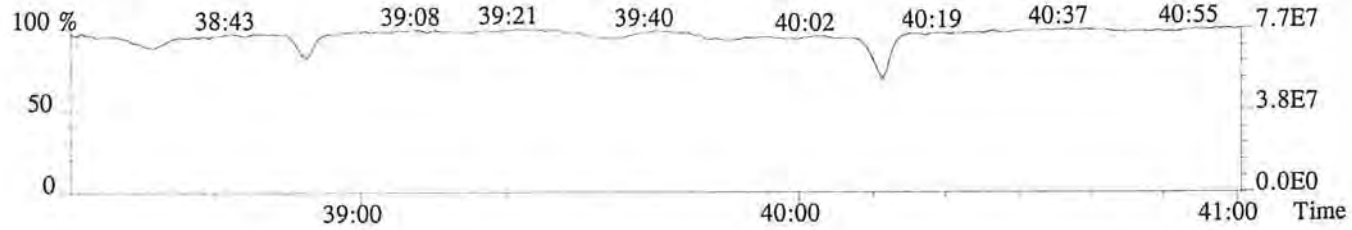
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1764.0,0.50%,F,T)



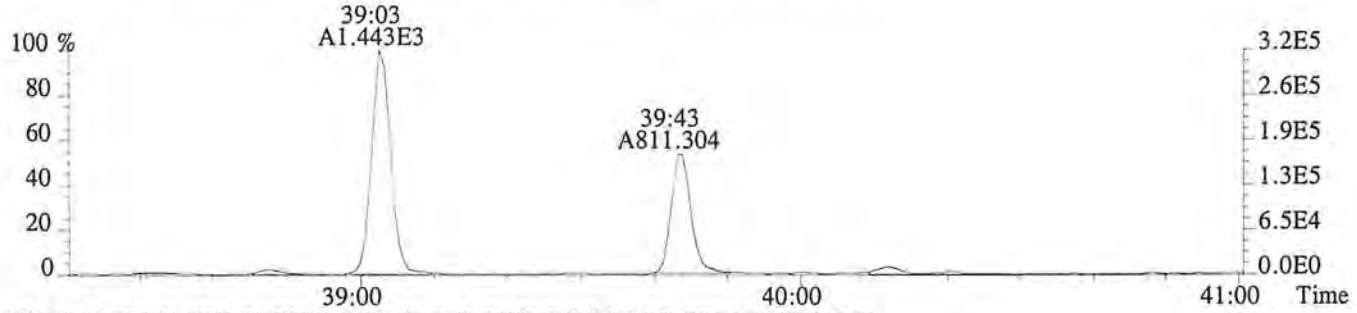
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



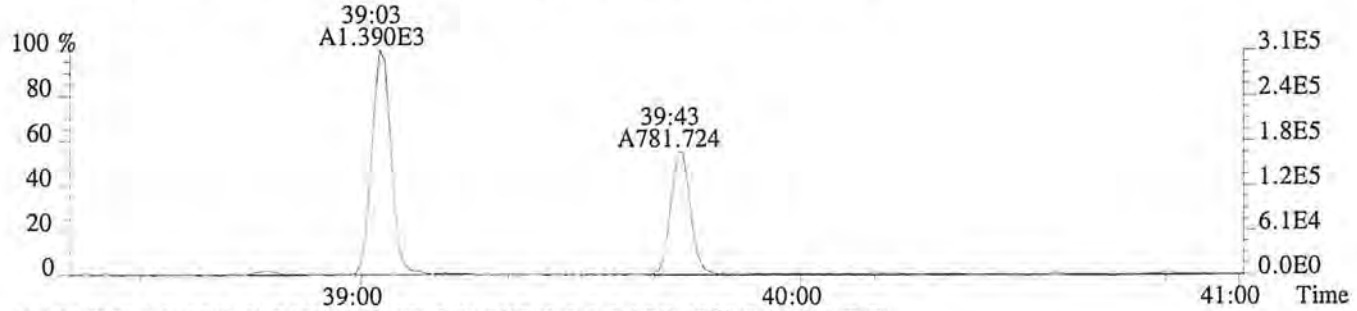
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



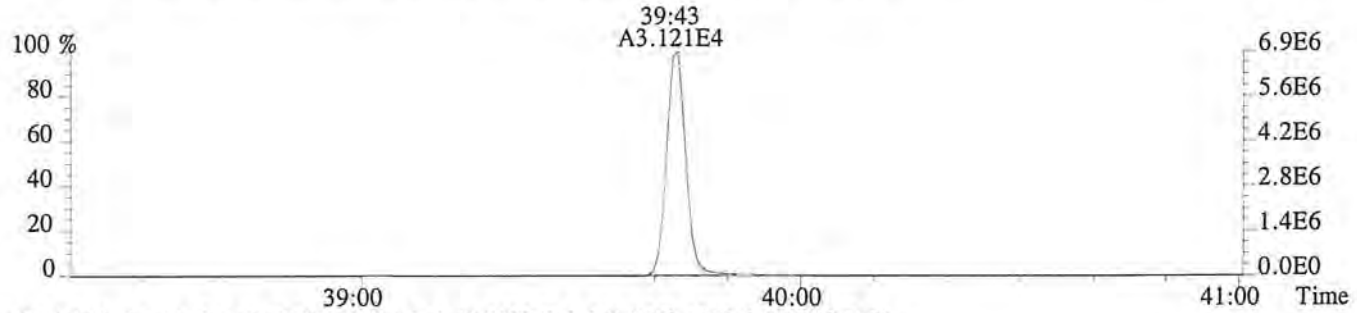
File:P301041 #1-241 Acq:26-AUG-2015 19:18:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-021
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1308.0,0.40%,F,T)



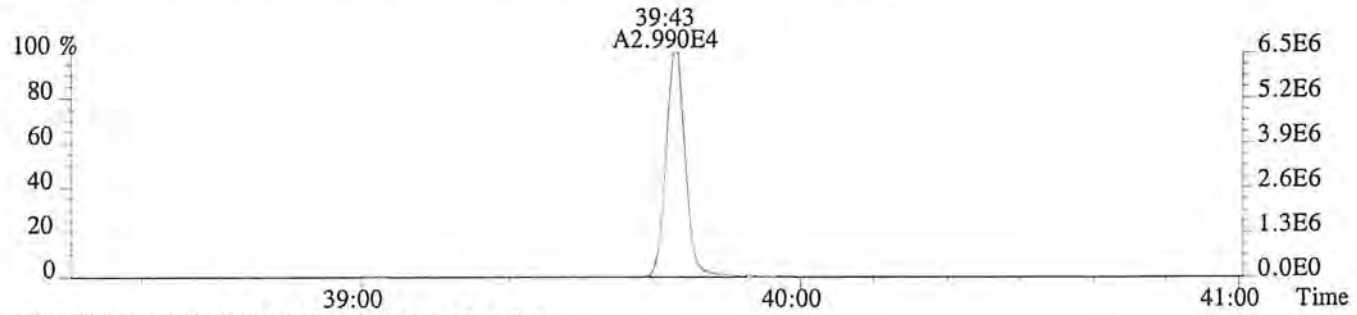
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



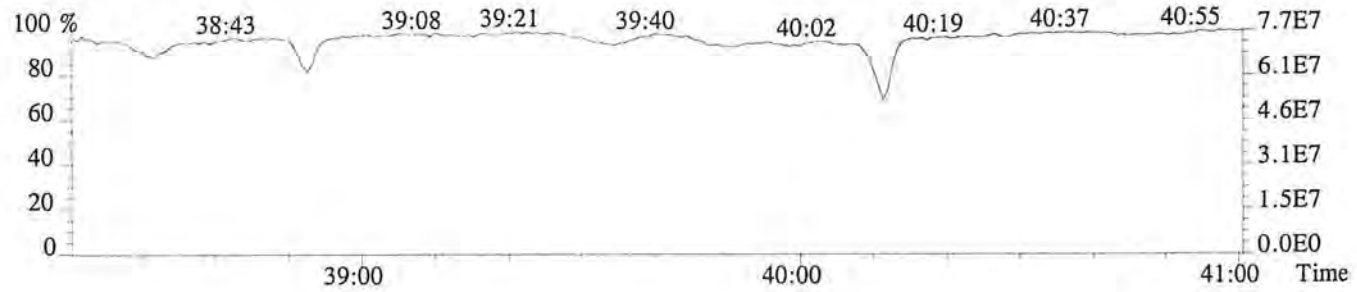
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1980.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.40%,F,T)



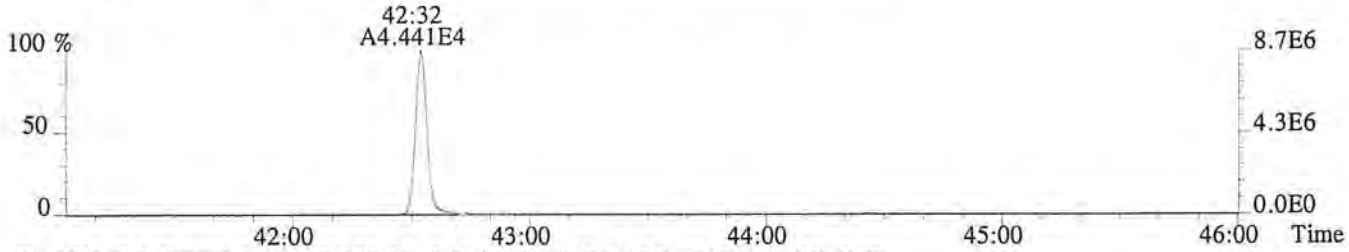
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



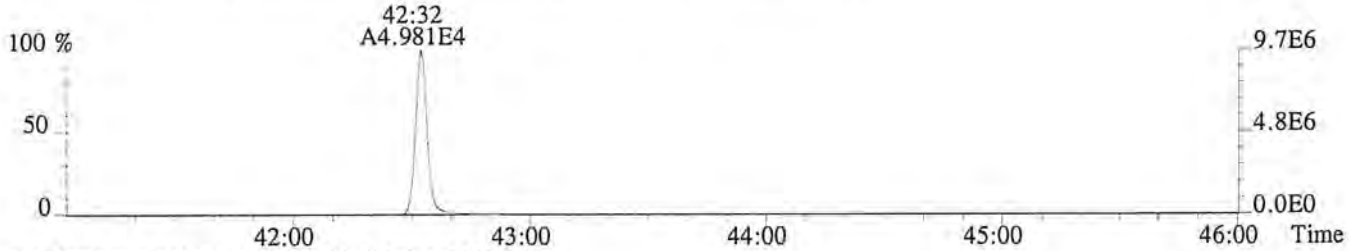
File:P301041 #1-447 Acq:26-AUG-2015 19:18:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-021
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1888.0,0.40%,F,T)

443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5080.0,0.40%,F,T)

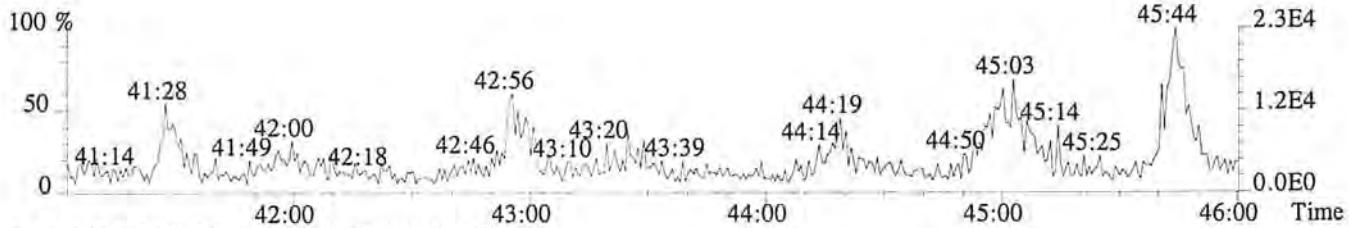
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2204.0,0.40%,F,T)



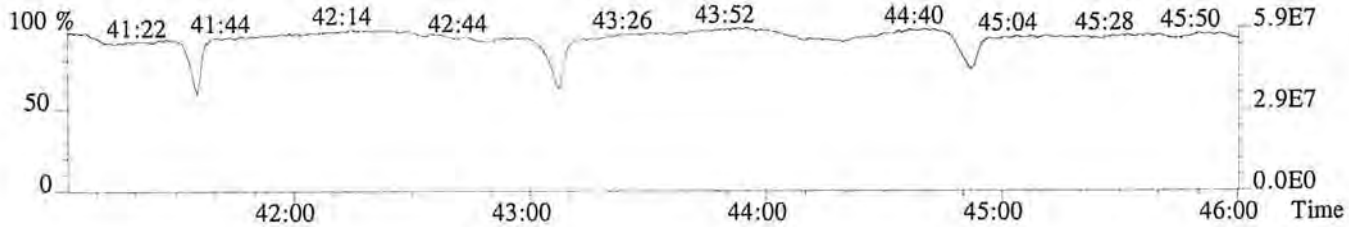
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



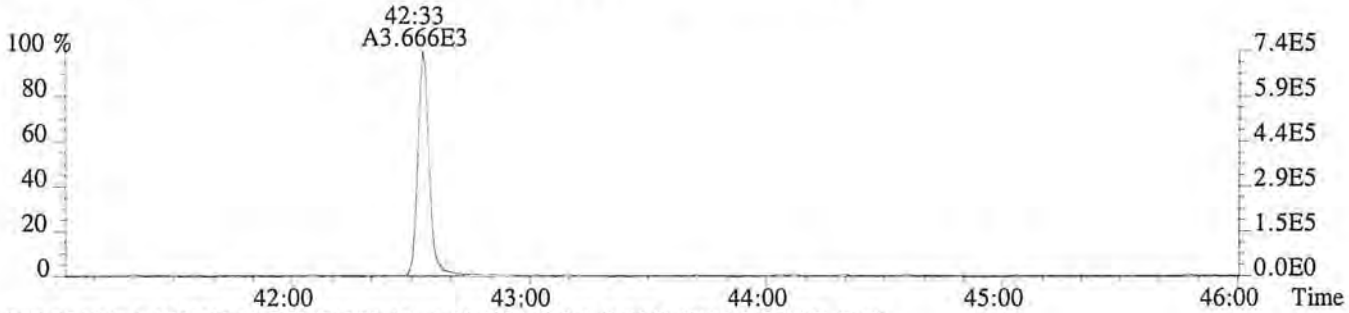
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



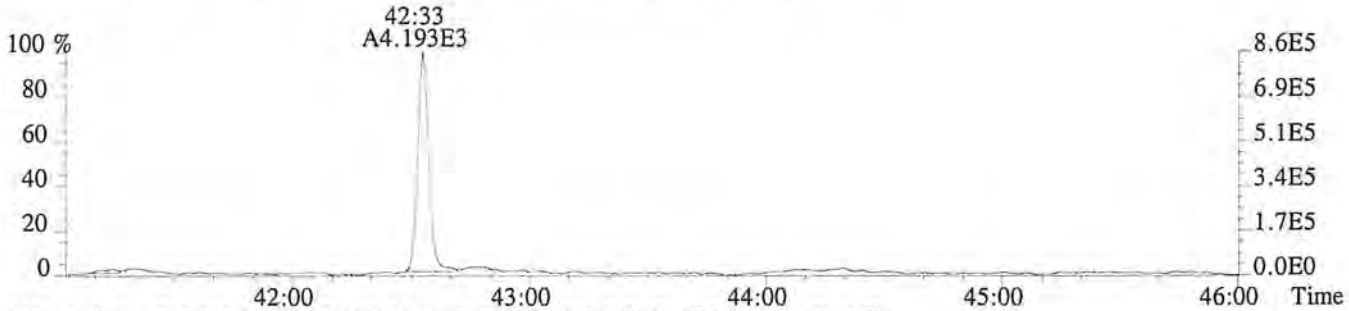
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



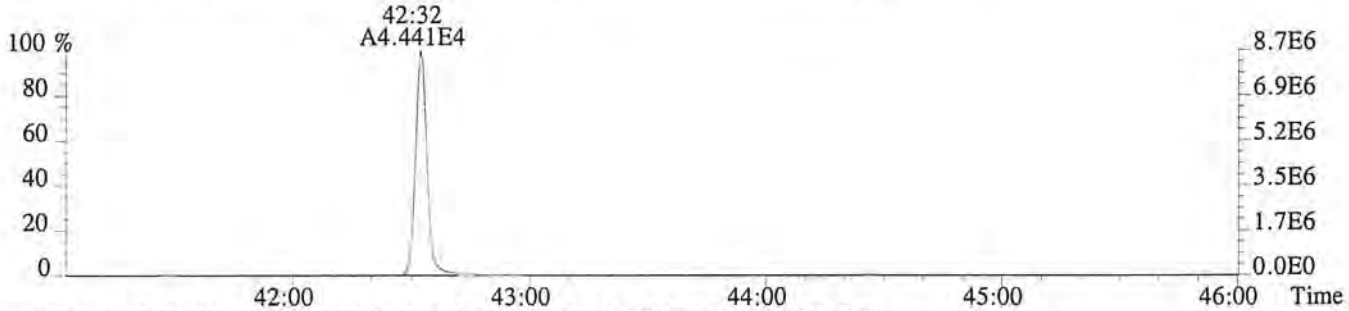
File:P301041 #1-447 Acq:26-AUG-2015 19:18:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-021
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1948.0,0.40%,F,T)



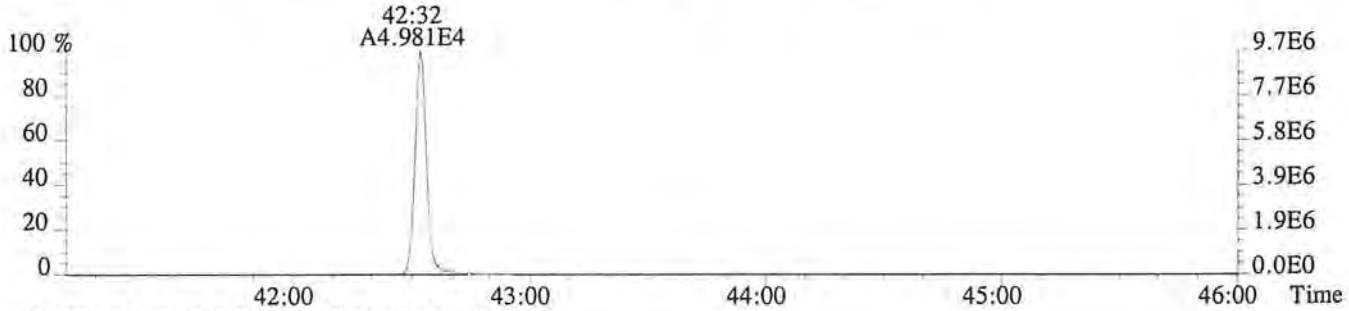
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,9388.0,0.40%,F,T)



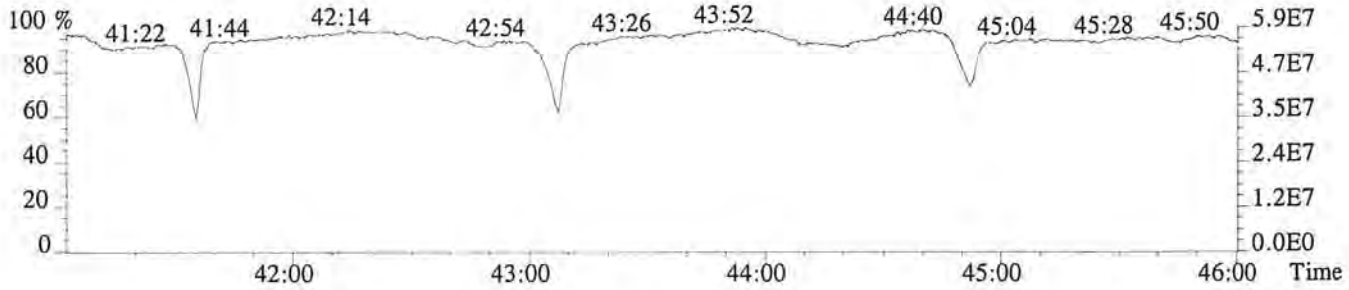
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2204.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1760.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-13-15 MT8

Run #11 Filename P301042 Samp: 1 Inj: 1 Acquired: 26-AUG-15 20:06:56
Processed: 27-AUG-15 15:16:00 Sample ID: E1500743-022

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:40	3.535e+02	4.655e+02	0.76	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:50	2.908e+01	1.609e+01	1.81	no	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	3.477e+02	3.881e+02	0.90	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.245
10	Unk	OCDF	42:44	1.058e+03	1.187e+03	0.89	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:25	4.918e+02	6.707e+02	0.73	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:53	4.735e+01	2.291e+01	2.07	no	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:58	2.933e+01	2.718e+01	1.08	yes	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:03	9.469e+01	9.066e+01	1.04	no	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:16	3.710e+01	3.062e+01	1.21	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	9.701e+02	9.972e+02	0.97	yes	no	0.949
17	Unk	OCDD	42:32	4.875e+03	5.419e+03	0.90	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:39	4.085e+04	5.217e+04	0.78	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:43	6.750e+04	4.320e+04	1.56	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:36	6.679e+04	4.220e+04	1.58	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:13	2.769e+04	5.310e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:20	3.150e+04	6.085e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:49	3.011e+04	5.792e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:34	3.960e+04	7.583e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.821e+04	4.116e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	1.576e+04	3.602e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:24	3.278e+04	4.201e+04	0.78	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:52	5.110e+04	3.234e+04	1.58	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:57	4.201e+04	3.287e+04	1.28	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:02	3.979e+04	3.168e+04	1.26	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	3.383e+04	3.196e+04	1.06	yes	no	0.850
32	IS	13C-OCDD	42:31	4.498e+04	5.055e+04	0.89	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:51	4.245e+04	5.457e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:16	6.306e+04	4.970e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:25	3.223e+04				no	1.001

$$\text{OCDD} = \frac{(4.875e{+}03 + 5.419e{+}03) \times 4000 \text{ pg} \times 1}{(4.498e{+}04 + 5.055e{+}04) \times 10.343 \text{ g} \times 100 \;/\; 100 \times 1.061} = 39.277 \text{ ng/kg}$$

LM 08/28/15

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-13-15 MT8/GT

Run #11 Filename P301042 Samp: 1 Inj: 1 Acquired: 26-AUG-15 20:06:56
Processed: 27-AUG-15 15:16:00 LAB. ID: E1500743-022

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.13e+04	2.10e+03	3.4e+01	9.60e+04	2.96e+03	3.2e+01
2	1,2,3,7,8-PeCDF	*	1.22e+03	*	*	3.44e+03	*
3	2,3,4,7,8-PeCDF	*	1.22e+03	*	*	3.44e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.90e+03	*	*	8.72e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.90e+03	*	*	8.72e+02	*
6	2,3,4,6,7,8-HxCDF	4.91e+03	1.90e+03	2.6e+00	4.15e+03	8.72e+02	4.8e+00
7	1,2,3,7,8,9-HxCDF	*	1.90e+03	*	*	8.72e+02	*
8	1,2,3,4,6,7,8-HpCDF	7.98e+04	1.94e+03	4.1e+01	7.70e+04	1.72e+03	4.5e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.94e+03	*	*	1.72e+03	*
10	OCDF	2.01e+05	1.92e+03	1.0e+02	2.12e+05	2.97e+03	7.2e+01
11	2,3,7,8-TCDD	9.85e+04	1.86e+03	5.3e+01	1.37e+05	1.38e+03	9.9e+01
12	1,2,3,7,8-PeCDD	1.14e+04	2.84e+03	4.0e+00	5.32e+03	1.29e+03	4.1e+00
13	1,2,3,4,7,8-HxCDD	7.10e+03	9.12e+02	7.8e+00	4.93e+03	1.17e+03	4.2e+00
14	1,2,3,6,7,8-HxCDD	2.21e+04	9.12e+02	2.4e+01	1.85e+04	1.17e+03	1.6e+01
15	1,2,3,7,8,9-HxCDD	8.29e+03	9.12e+02	9.1e+00	6.60e+03	1.17e+03	5.7e+00
16	1,2,3,4,6,7,8-HpCDD	2.10e+05	2.44e+03	8.6e+01	2.15e+05	9.56e+02	2.2e+02
17	OCDD	8.80e+05	1.12e+03	7.9e+02	1.01e+06	1.65e+03	6.1e+02
18	13C-2,3,7,8-TCDF	8.06e+06	2.05e+03	3.9e+03	1.03e+07	2.65e+03	3.9e+03
19	13C-1,2,3,7,8-PeCDF	1.36e+07	2.01e+03	6.8e+03	8.73e+06	1.86e+03	4.7e+03
20	13C-2,3,4,7,8-PeCDF	1.39e+07	2.01e+03	6.9e+03	8.79e+06	1.86e+03	4.7e+03
21	13C-1,2,3,4,7,8-HxCDF	6.32e+06	1.05e+03	6.0e+03	1.21e+07	2.49e+03	4.9e+03
22	13C-1,2,3,6,7,8-HxCDF	6.98e+06	1.05e+03	6.7e+03	1.34e+07	2.49e+03	5.4e+03
23	13C-2,3,4,6,7,8-HxCDF	6.82e+06	1.05e+03	6.5e+03	1.31e+07	2.49e+03	5.3e+03
24	13C-1,2,3,7,8,9-HxCDF	8.42e+06	1.05e+03	8.0e+03	1.63e+07	2.49e+03	6.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.06e+06	3.84e+03	1.1e+03	9.24e+06	4.04e+03	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.12e+06	3.84e+03	8.1e+02	7.06e+06	4.04e+03	1.7e+03
27	13C-2,3,7,8-TCDD	6.80e+06	5.63e+03	1.2e+03	8.68e+06	4.99e+03	1.7e+03
28	13C-1,2,3,7,8-PeCDD	1.08e+07	2.13e+03	5.1e+03	6.90e+06	1.71e+03	4.0e+03
29	13C-1,2,3,4,7,8-HxCDD	9.64e+06	2.00e+03	4.8e+03	7.50e+06	2.40e+03	3.1e+03
30	13C-1,2,3,6,7,8-HxCDD	8.80e+06	2.00e+03	4.4e+03	7.10e+06	2.40e+03	3.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.26e+06	2.13e+03	3.4e+03	6.95e+06	1.06e+03	6.5e+03
32	13C-OCDD	8.25e+06	1.57e+03	5.3e+03	9.17e+06	1.46e+03	6.3e+03
33	13C-1,2,3,4-TCDD	8.61e+06	5.63e+03	1.5e+03	1.10e+07	4.99e+03	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.42e+07	2.00e+03	7.1e+03	1.11e+07	2.40e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	6.71e+06	2.03e+03	3.3e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-13-15 MT8/GT

Entry: 36 Totals Name: Total Tetra-Furans

Run: 11 File: P301042 Sample:1 Injection:1 Function:1

Acquired: 26-AUG-15 20:06:56 Processed: 27-AUG-15 15:16:00

Mass: 303.9020 305.8990 Tot Response: 1.29e+03 RRF: 0.8496

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:18	1.48e+02	1.70e+02	0.87	yes	3.18e+02		n	n
2	28:40	3.53e+02	4.66e+02	0.76	yes	8.19e+02	2,3,7,8-TCDF	n	n
3	29:54	6.43e+01	8.83e+01	0.73	yes	1.53e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-13-15 MT8/GT

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 11 File: P301042 Sample:1 Injection:1 Function:1

Acquired: 26-AUG-15 20:06:56 Processed: 27-AUG-15 15:16:00

Mass: 319.8970 321.8940 Tot Response: 1.16e+03 RRF: 0.9567

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:25	4.92e+02	6.71e+02	0.73	yes	1.16e+03	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-13-15 MT8/GT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 11 File: P301042 Sample:1 Injection:1 Function:3

Acquired: 26-AUG-15 20:06:56 Processed: 27-AUG-15 15:16:00

Mass: 373.8210 375.8180 Tot Response: 5.30e+02 RRF: 1.094

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:48	2.99e+02	2.31e+02	1.30	yes	5.30e+02	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-13-15 MT8/GT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 11 File: P301042 Sample:1 Injection:1 Function:3

Acquired: 26-AUG-15 20:06:56 Processed: 27-AUG-15 15:16:00

Mass: 389.8160 391.8130 Tot Response: 7.75e+02 RRF: 0.9904

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:38	1.63e+02	1.41e+02	1.16	yes	3.04e+02		n	n
2	36:23	1.67e+02	1.21e+02	1.38	yes	2.88e+02		n	n
3	36:29	3.03e+01	2.82e+01	1.08	yes	5.86e+01		n	n
4	36:58	2.93e+01	2.72e+01	1.08	yes	5.65e+01	1,2,3,4,7,8-HxCDD	n	n
5	37:16	3.71e+01	3.06e+01	1.21	yes	6.77e+01	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-13-15 MT8/GT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 11 File: P301042 Sample:1 Injection:1 Function:4

Acquired: 26-AUG-15 20:06:56 Processed: 27-AUG-15 15:16:00

Mass: 407.7820 409.7790 Tot Response: 3.28e+03 RRF: 1.284

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:49	3.48e+02	3.88e+02	0.90	yes	7.36e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:13	1.31e+03	1.24e+03	1.05	yes	2.55e+03		n	n

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Houston, TX 77099
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Peak List Summary

CLIENT ID.

PLY-13-15 MT8/GT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 11 File: P301042 Sample:1 Injection:1 Function:4

Acquired: 26-AUG-15 20:06:56 Processed: 27-AUG-15 15:16:00

Mass: 423.7770 425.7740 Tot Response: 5.19e+03 RRF: 0.9492

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:04	1.64e+03	1.58e+03	1.04	yes	3.22e+03	n	n
2	39:43	9.70e+02	9.97e+02	0.97	yes	1.97e+03 1,2,3,4,6,7,8-HpCDD	n	n

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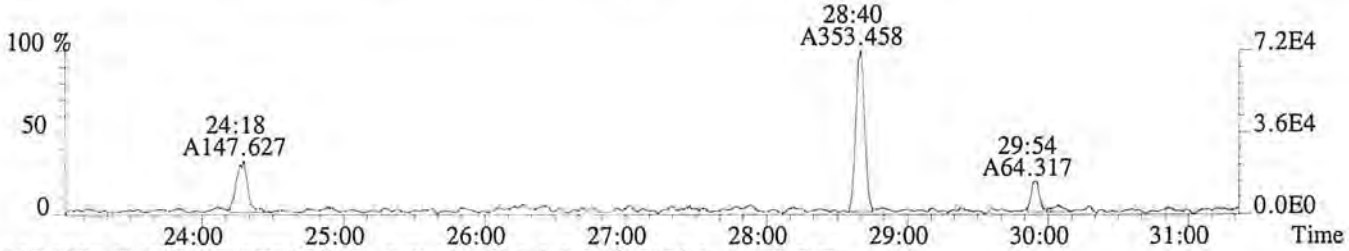
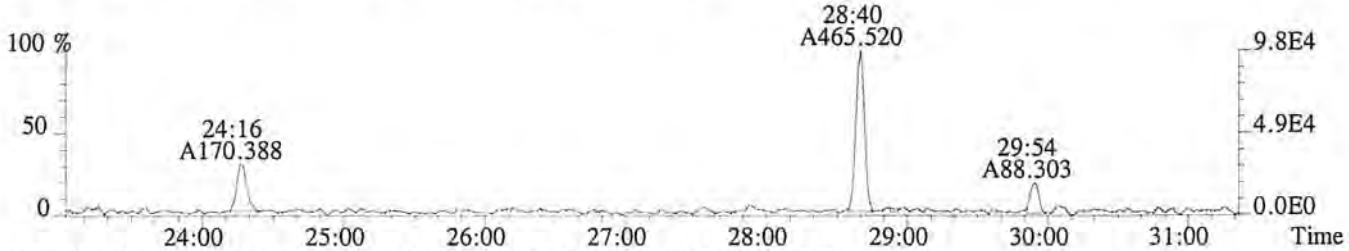
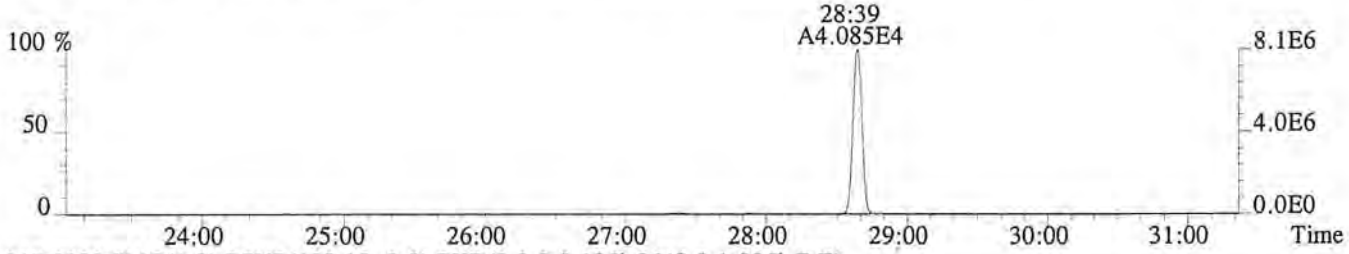
File:P301042 #1-591 Acq:26-AUG-2015 20:06:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-022
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)



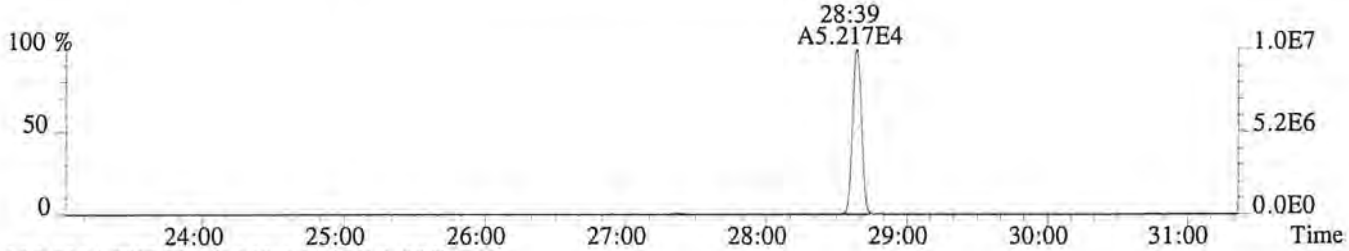
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2956.0,1.00%,F,T)



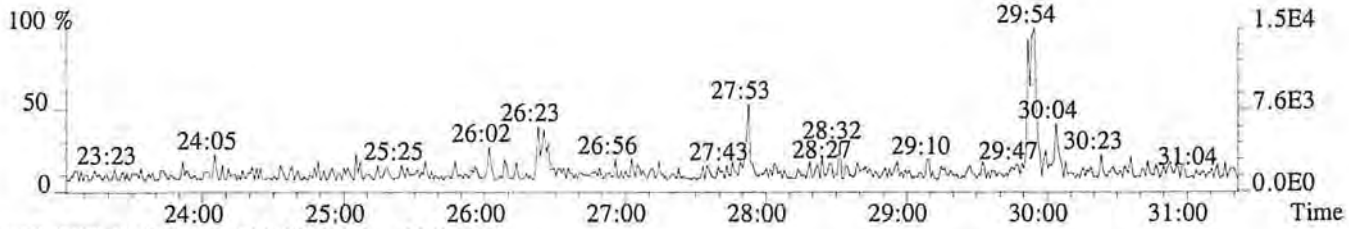
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2048.0,1.00%,F,T)



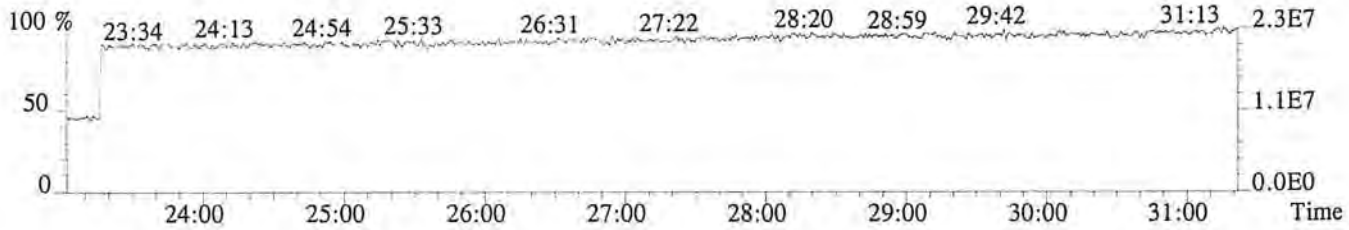
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2648.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

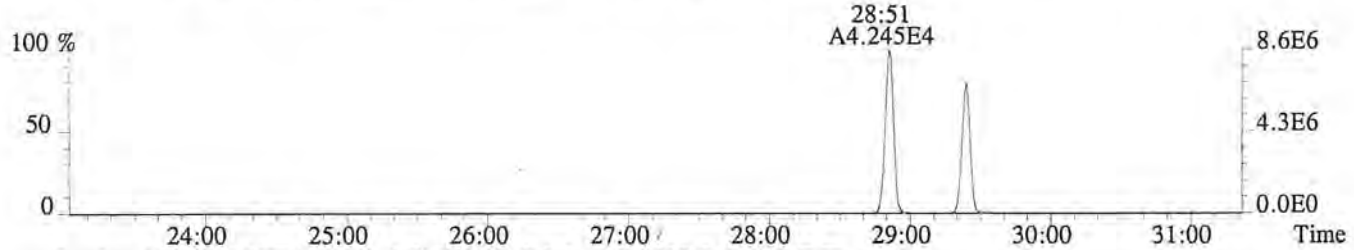


File:P301042 #1-591 Acq:26-AUG-2015 20:06:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-022

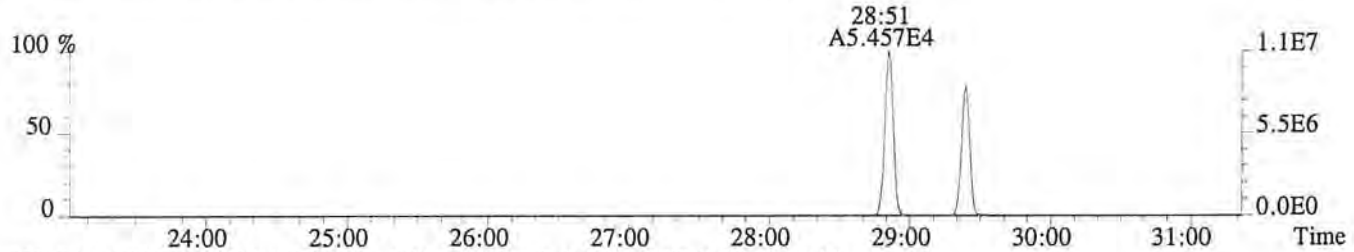
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1856.0,1.00%,F,T)

321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1384.0,1.00%,F,T)

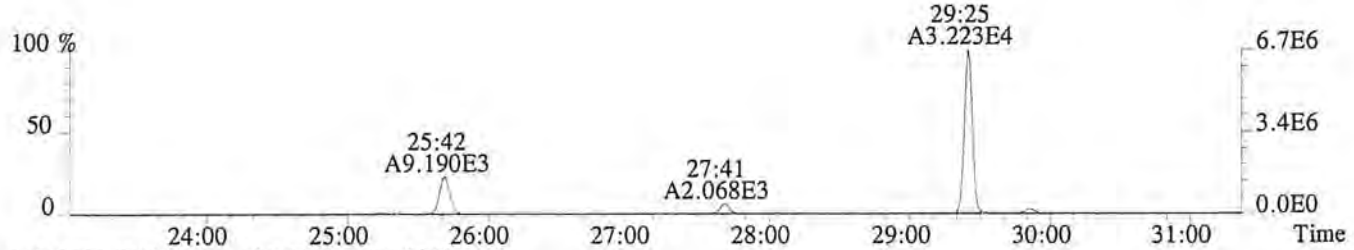
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5628.0,1.00%,F,T)



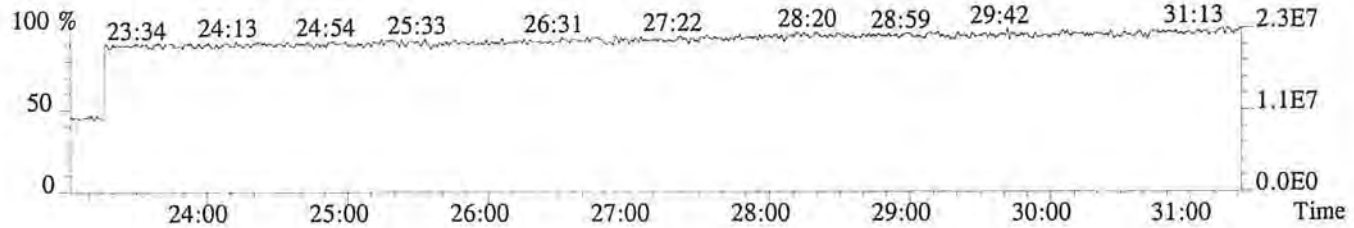
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4992.0,1.00%,F,T)



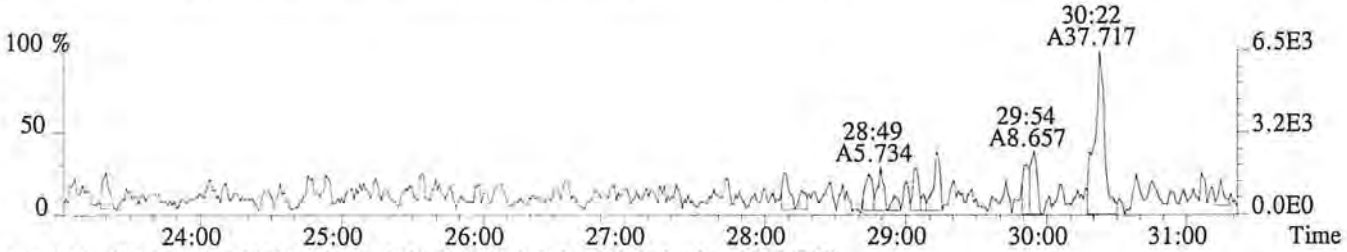
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2032.0,1.00%,F,T)



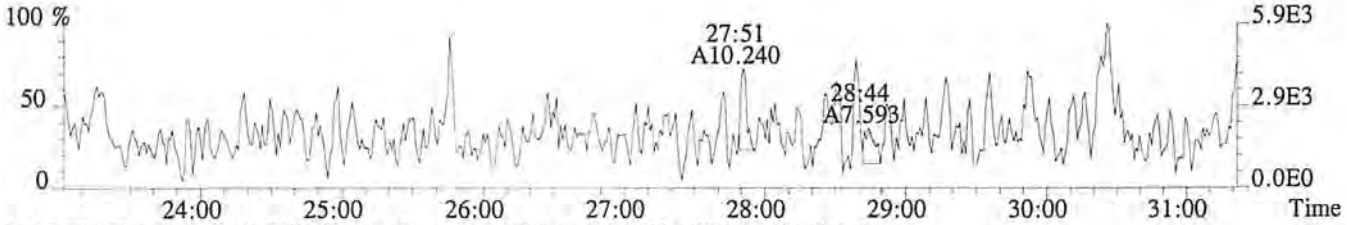
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



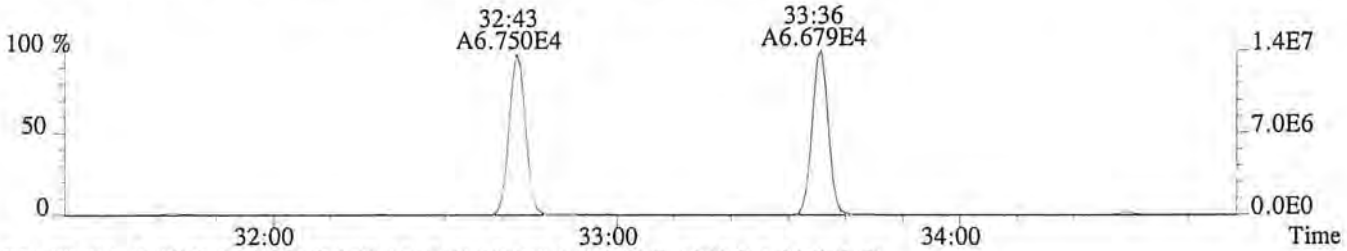
File:P301042 #1-591 Acq:26-AUG-2015 20:06:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-022
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



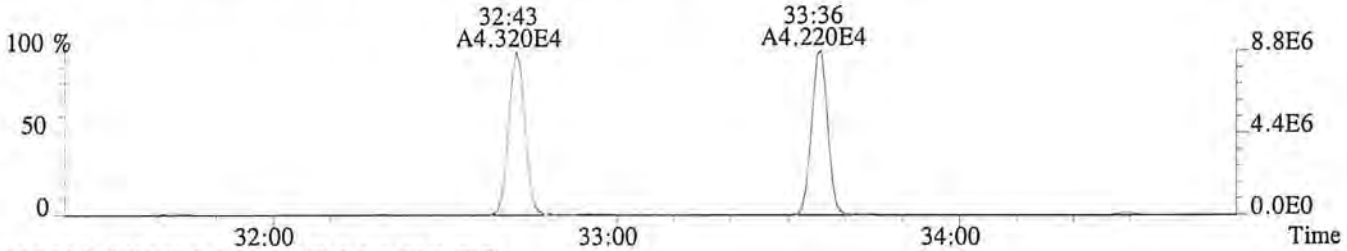
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2324.0,1.00%,F,T)



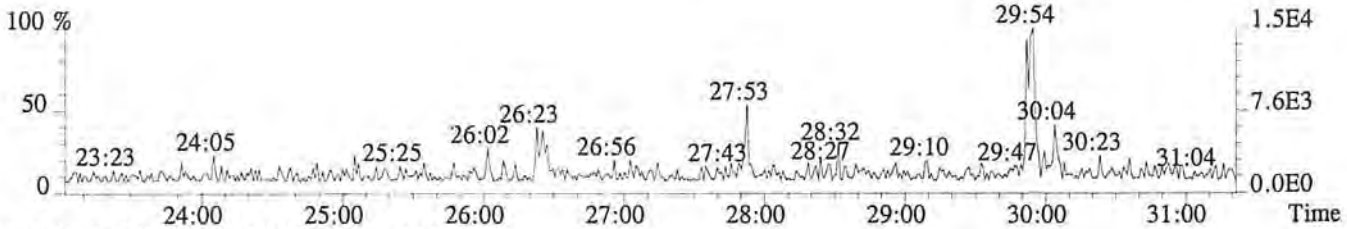
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2008.0,1.00%,F,T)



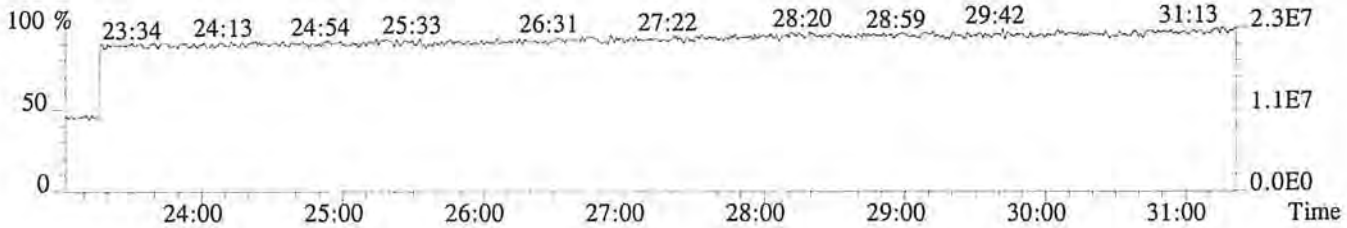
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1860.0,1.00%,F,T)



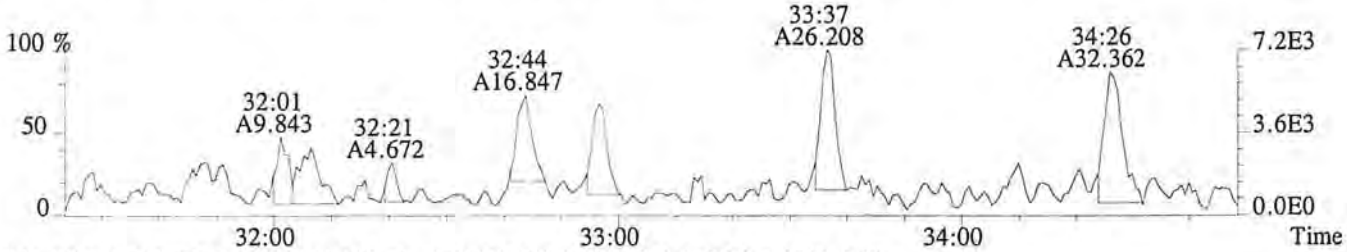
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



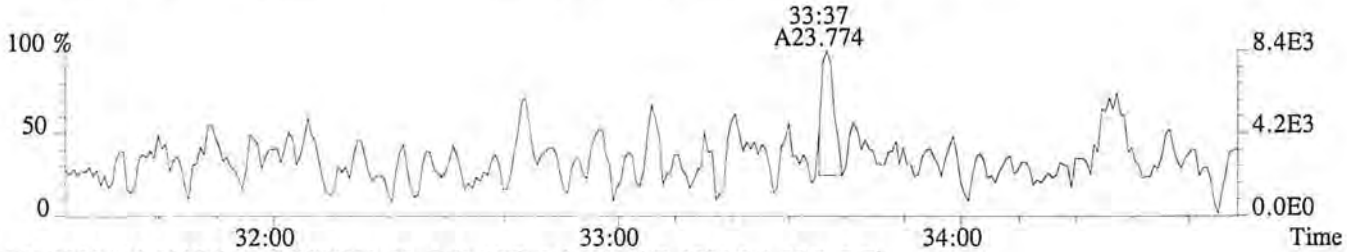
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



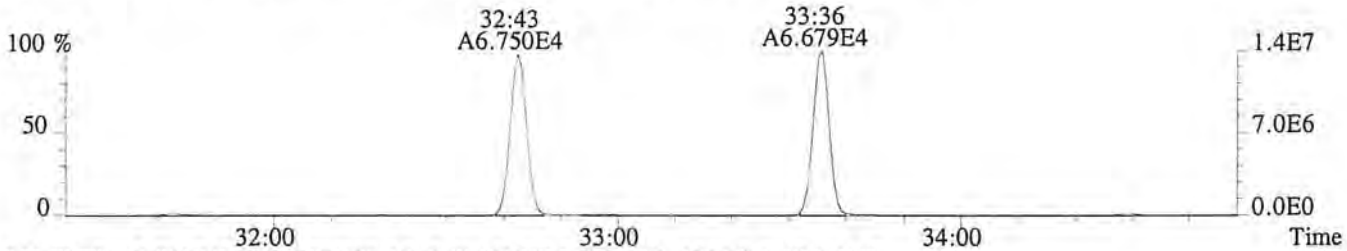
File:P301042 #1-308 Acq:26-AUG-2015 20:06:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-022
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1224.0,1.00%,F,T)



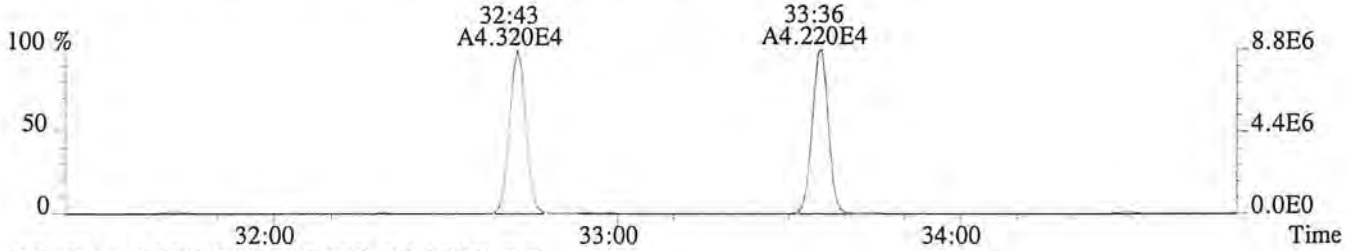
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



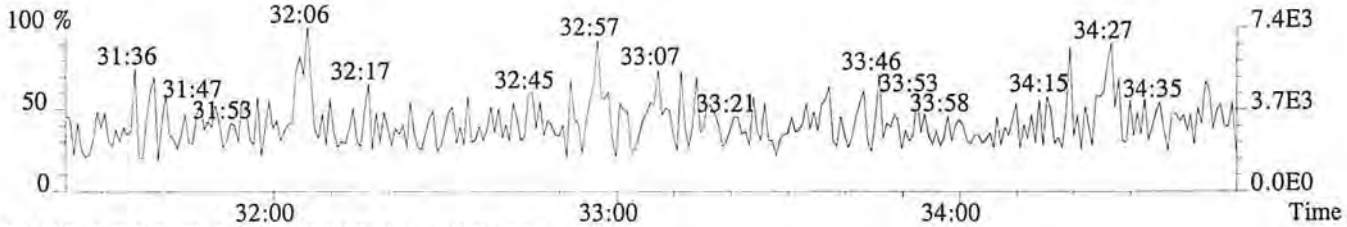
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2008.0,1.00%,F,T)



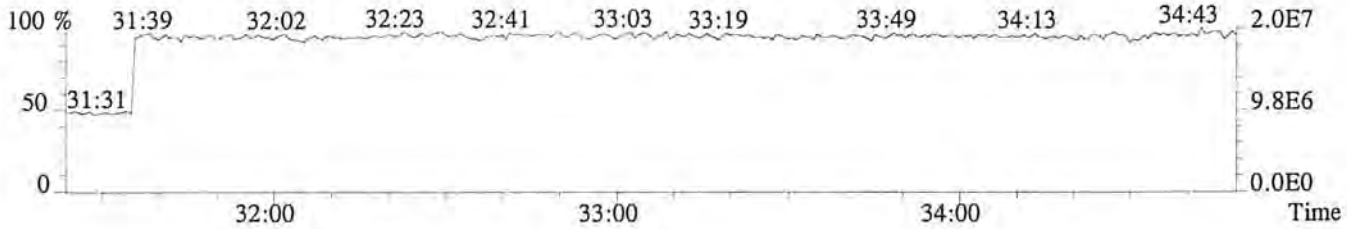
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1860.0,1.00%,F,T)



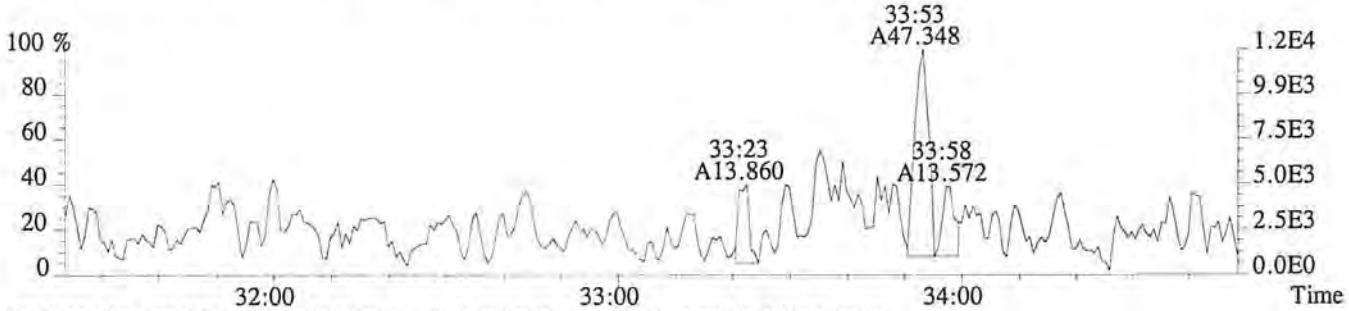
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

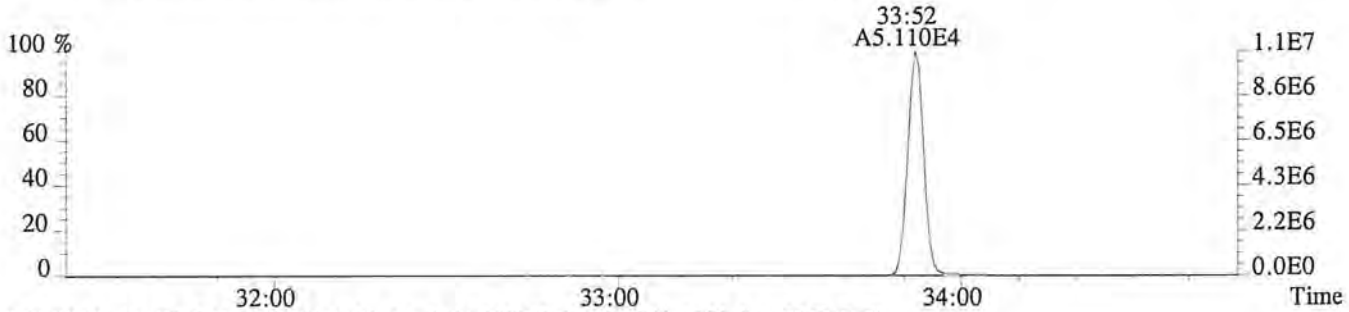


File:P301042 #1-308 Acq:26-AUG-2015 20:06:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-022
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2844.0,1.00%,F,T)

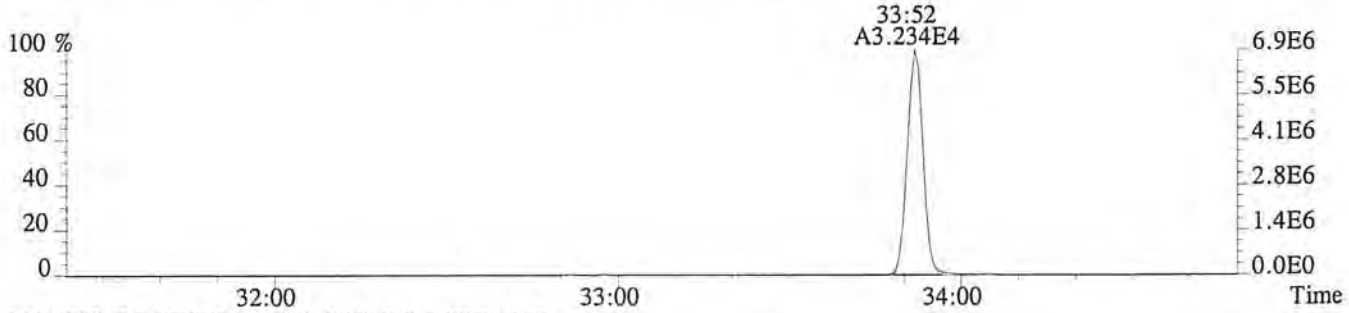


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)

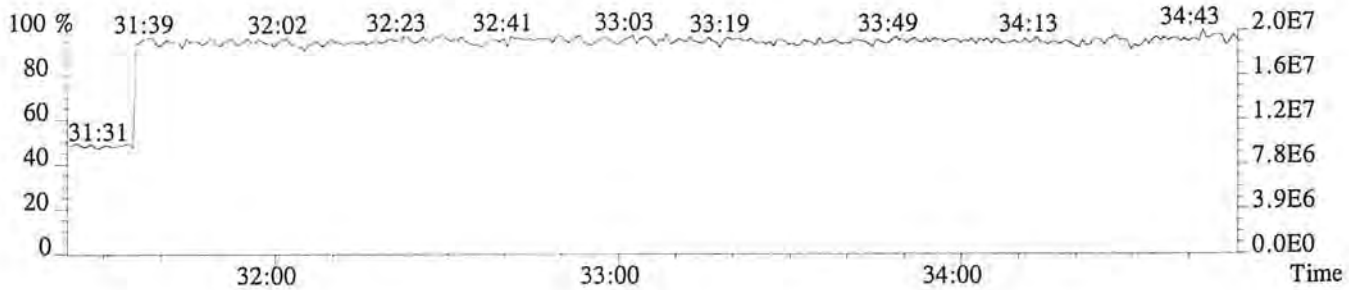
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2132.0,1.00%,F,T)



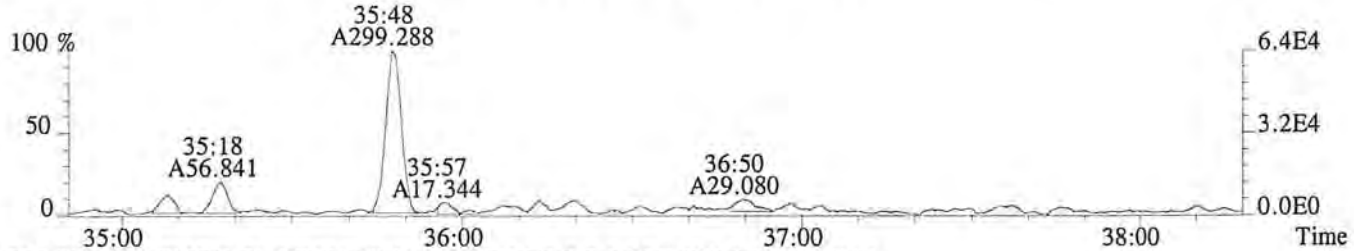
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1708.0,1.00%,F,T)



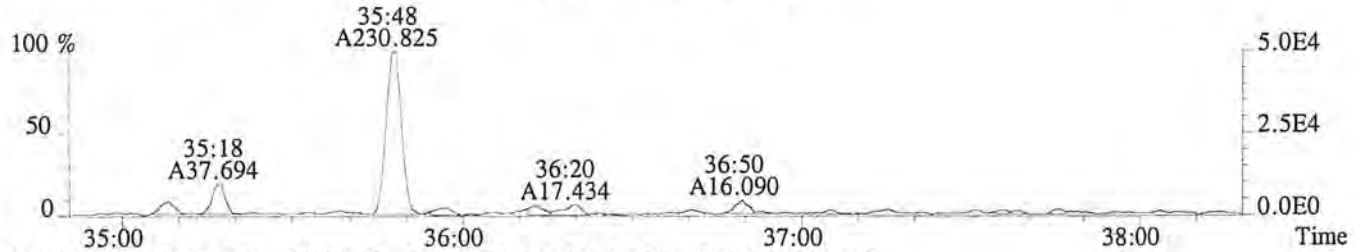
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



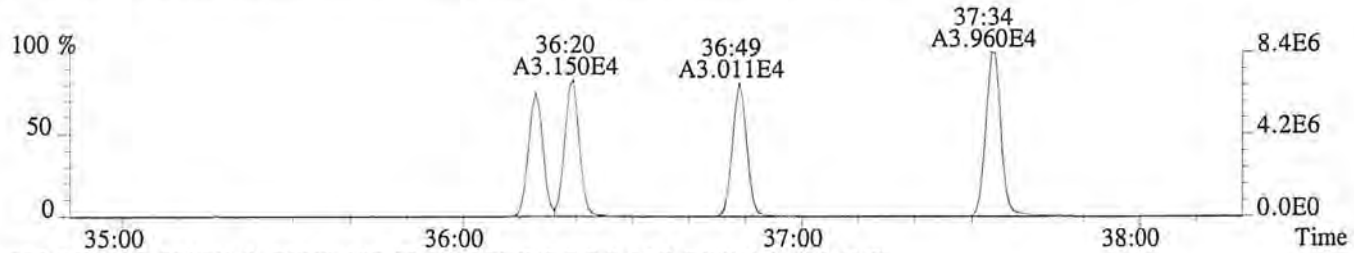
File:P301042 #1-312 Acq:26-AUG-2015 20:06:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-022
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1904.0,0.40%,F,T)



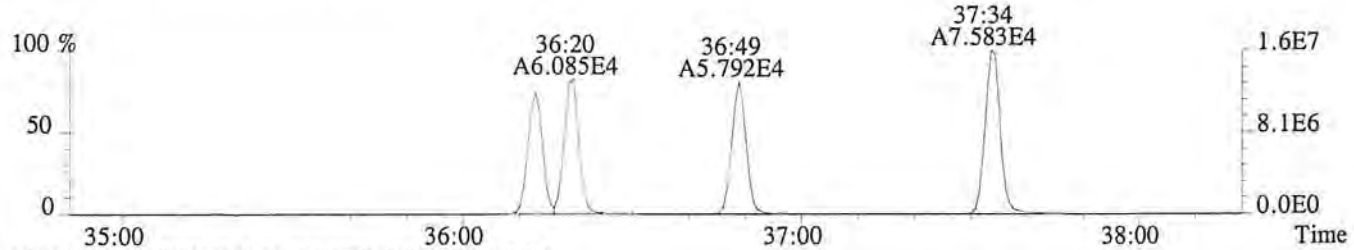
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



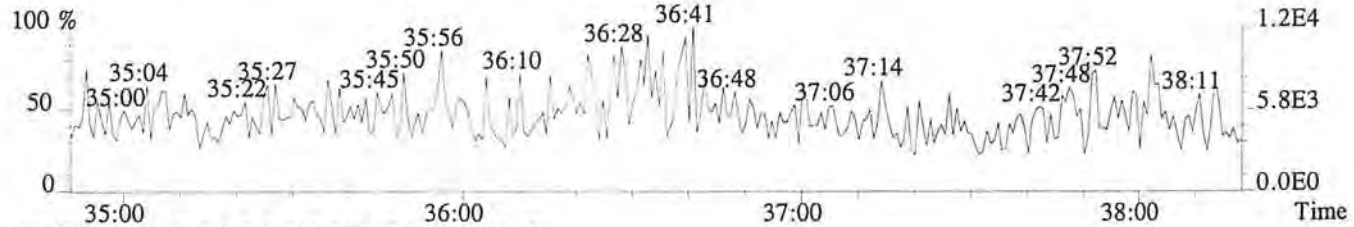
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)



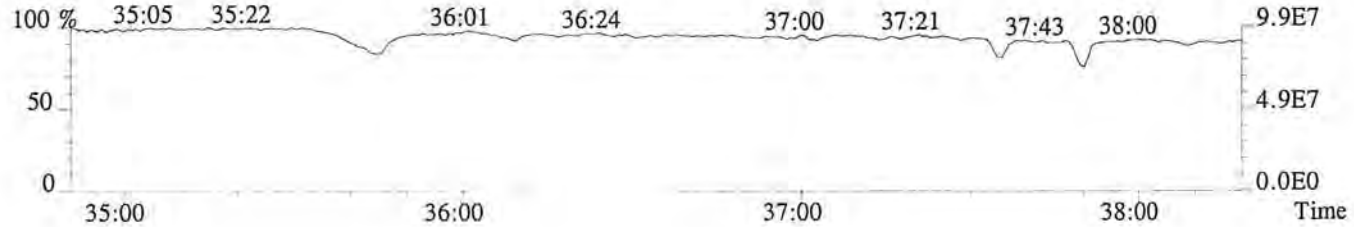
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2488.0,0.40%,F,T)



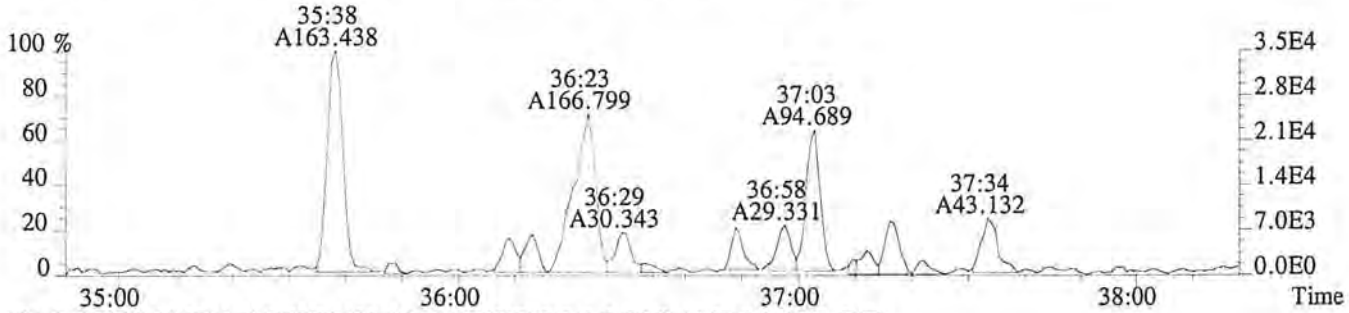
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



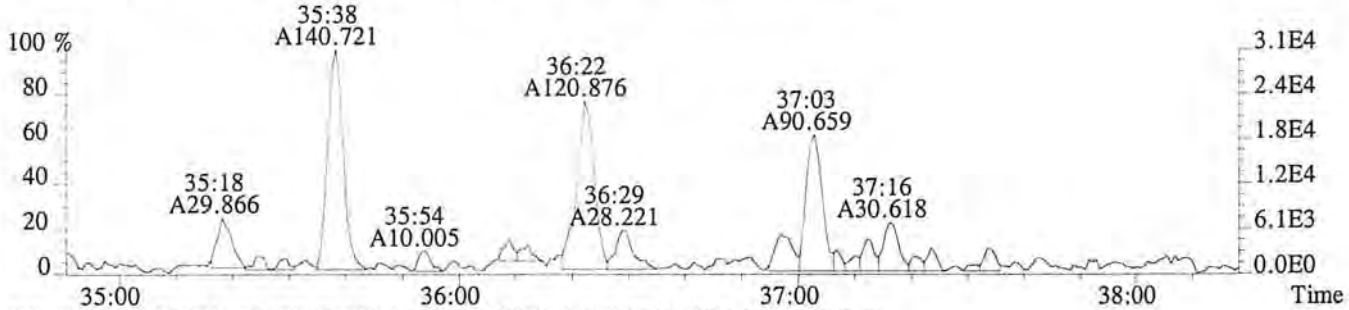
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



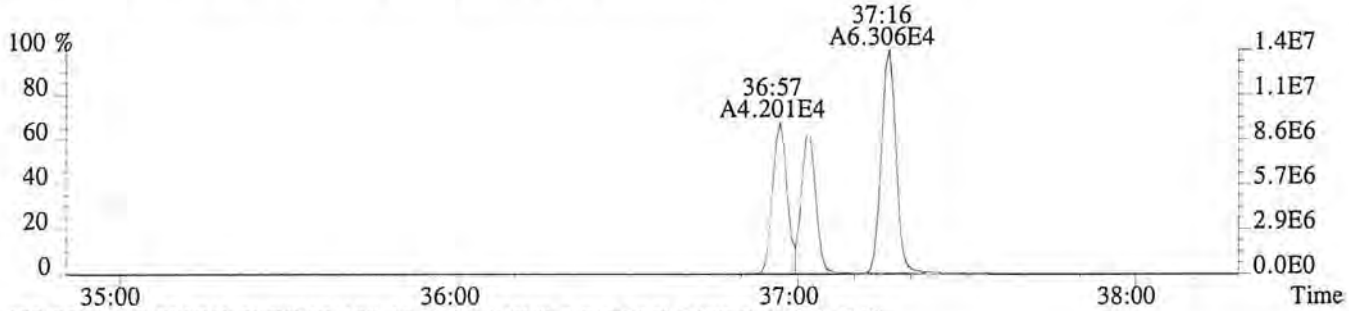
File:P301042 #1-312 Acq:26-AUG-2015 20:06:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-022
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.40%,F,T)



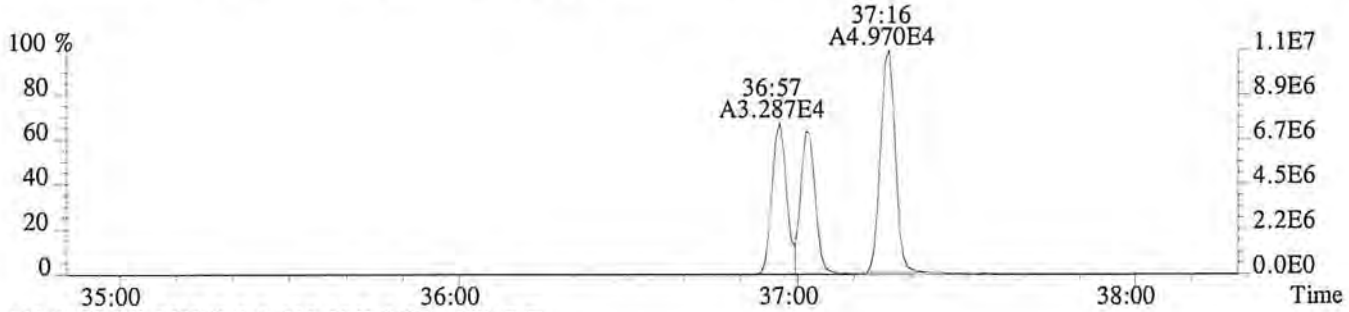
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



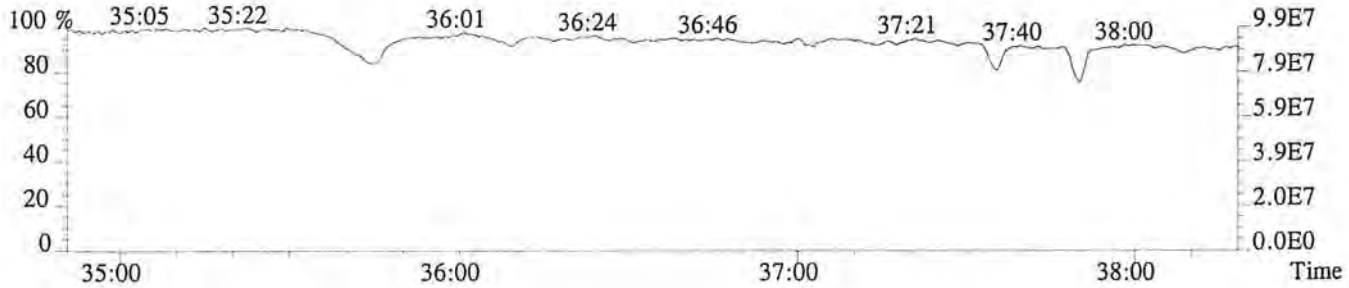
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1996.0,0.40%,F,T)



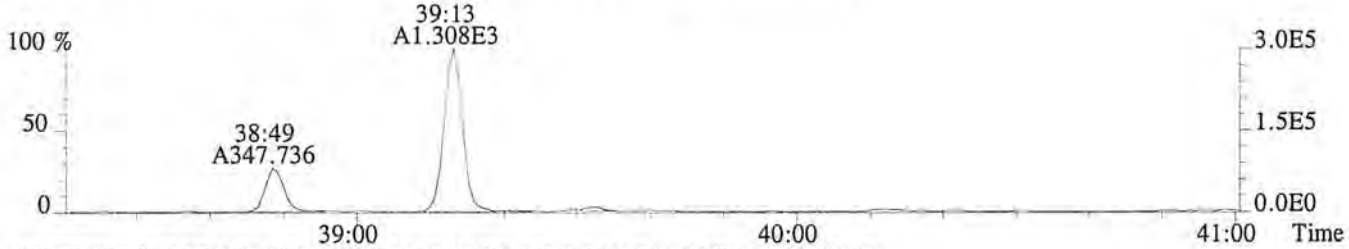
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

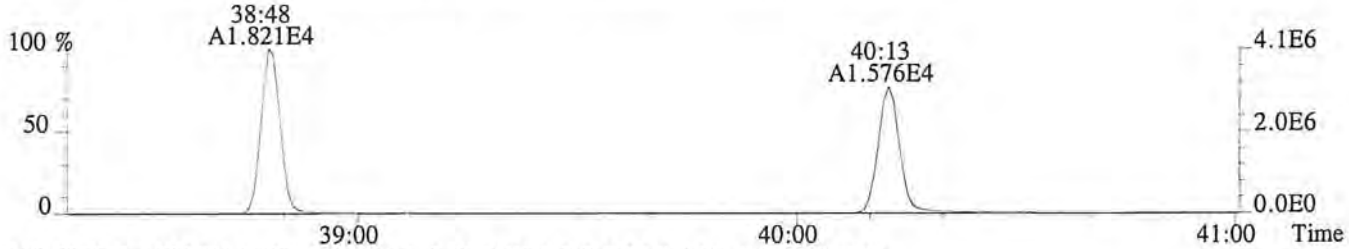


File:P301042 #1-241 Acq:26-AUG-2015 20:06:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-022
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1936.0,0.50%,F,T)

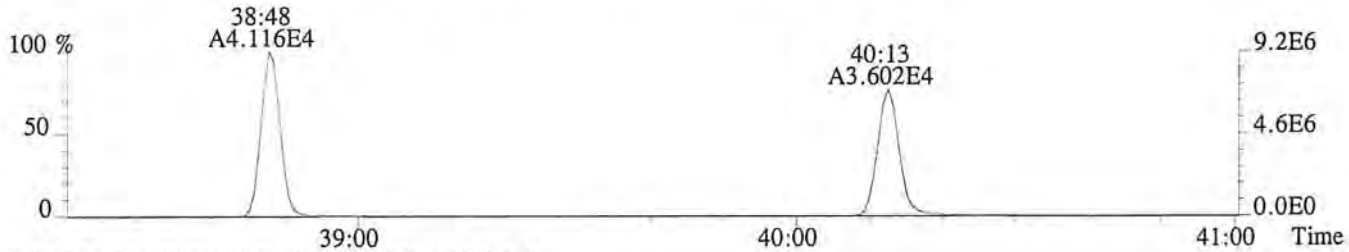


409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1720.0,0.50%,F,T)

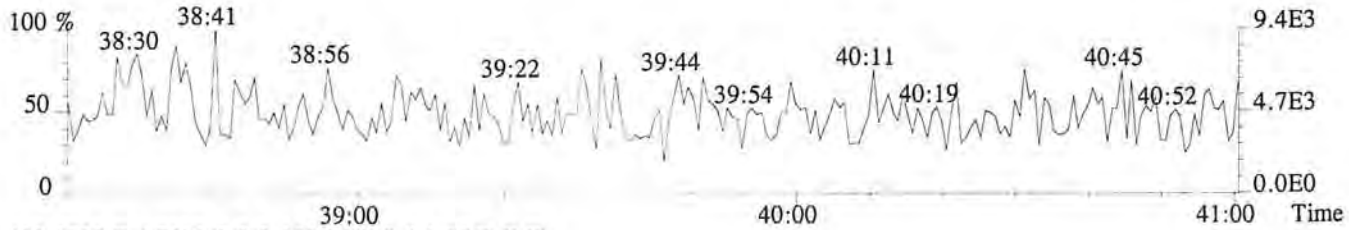
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3836.0,0.50%,F,T)



419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4044.0,0.50%,F,T)

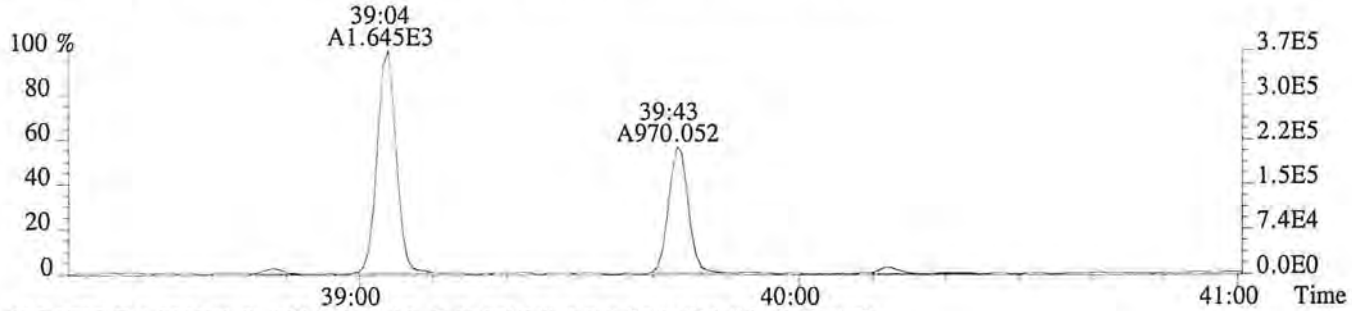


479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

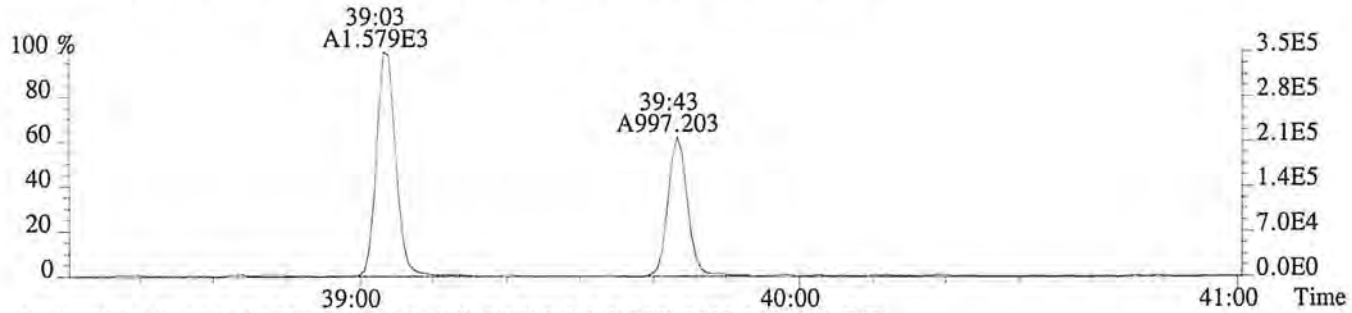


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

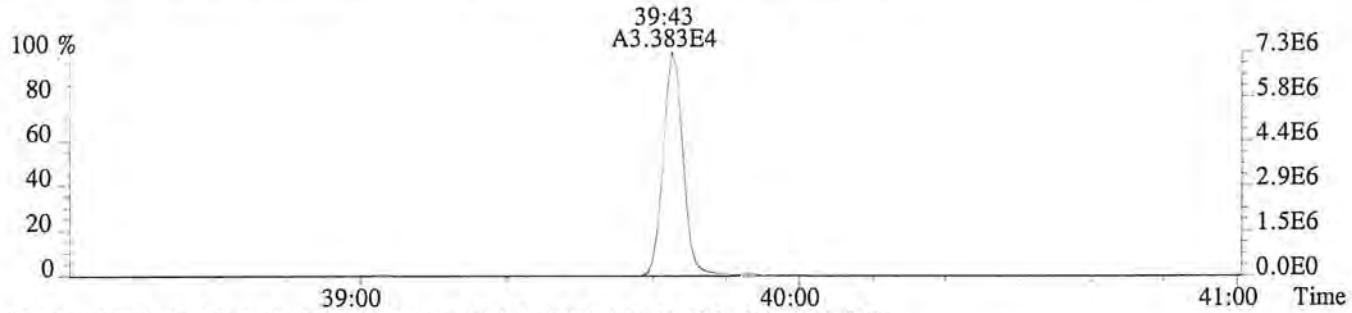
File:P301042 #1-241 Acq:26-AUG-2015 20:06:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-022
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2436.0,0.40%,F,T)



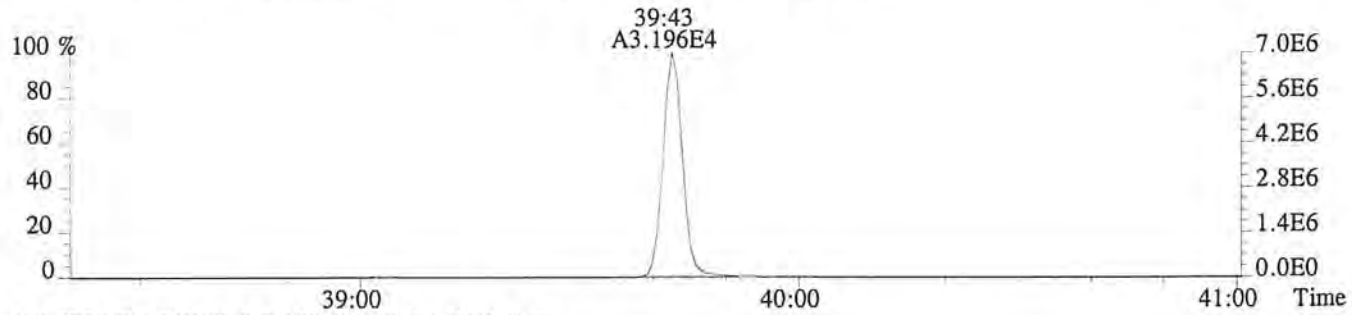
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



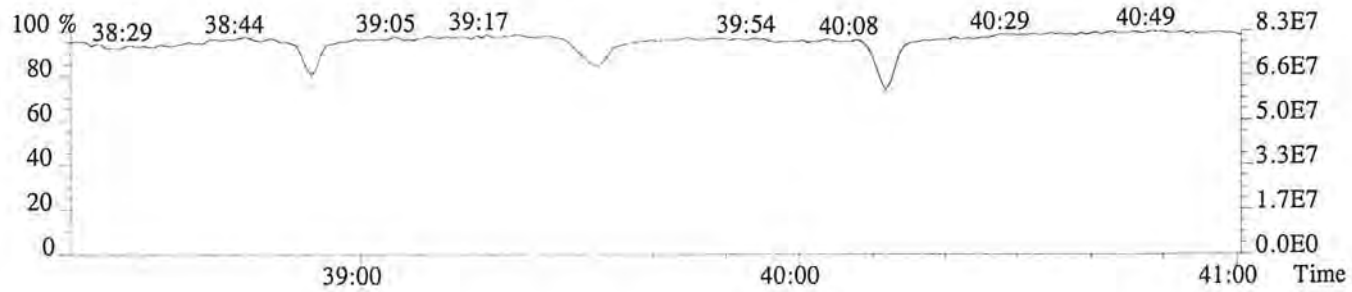
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2128.0,0.40%,F,T)



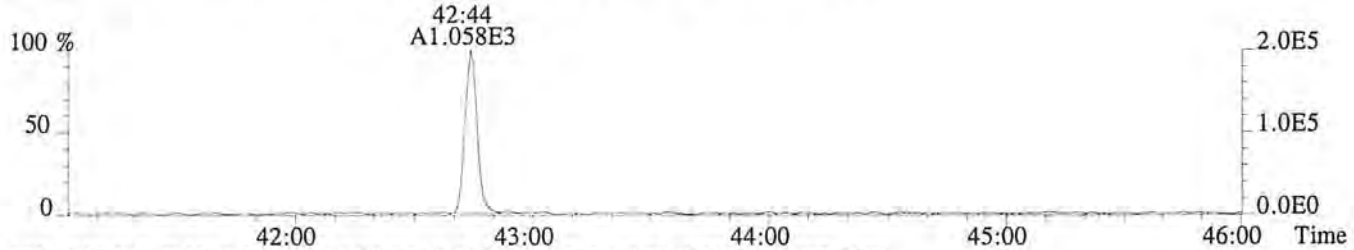
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1064.0,0.40%,F,T)



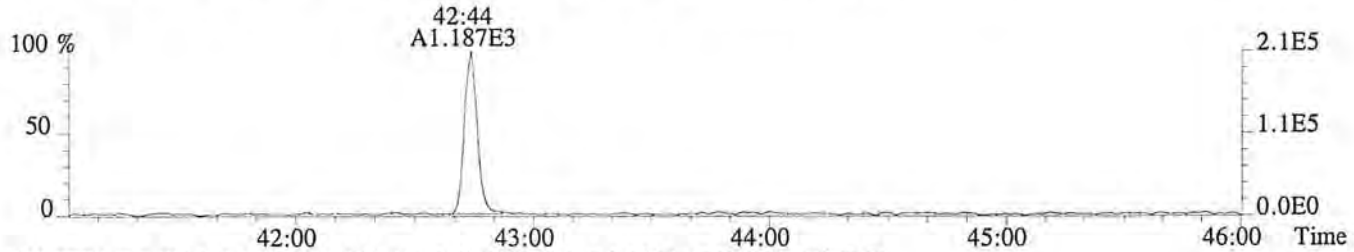
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



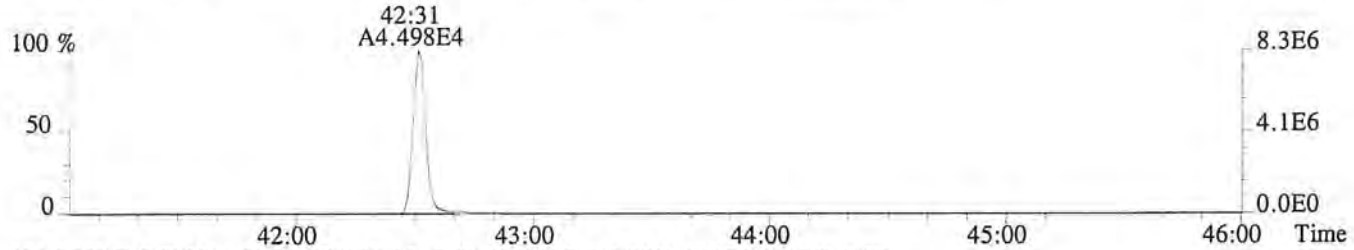
File:P301042 #1-447 Acq:26-AUG-2015 20:06:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-022
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1920.0,0.40%,F,T)



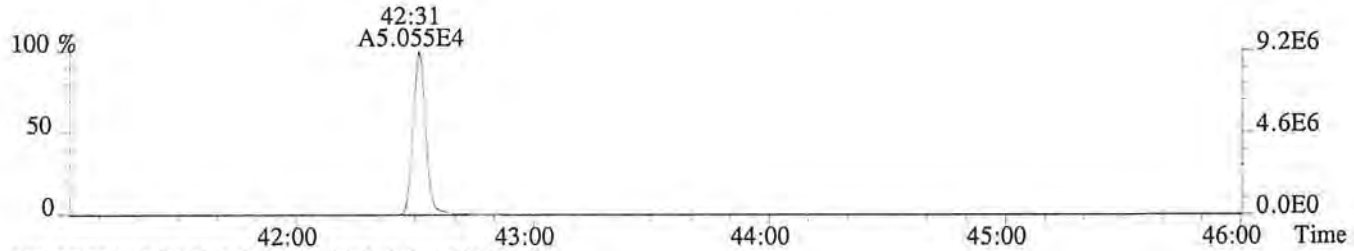
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2968.0,0.40%,F,T)



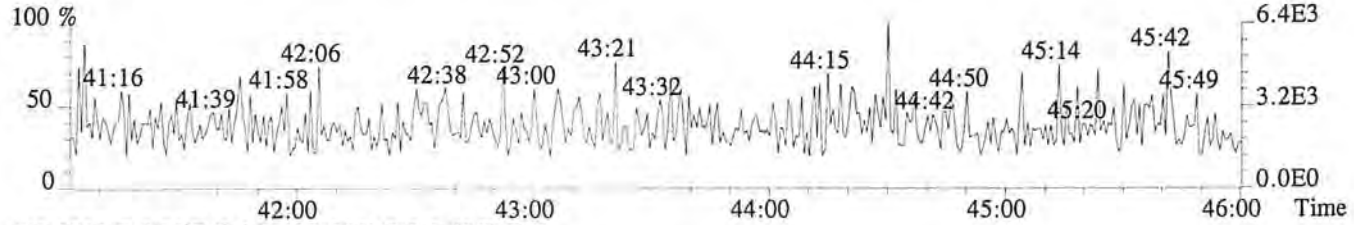
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1568.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1456.0,0.40%,F,T)

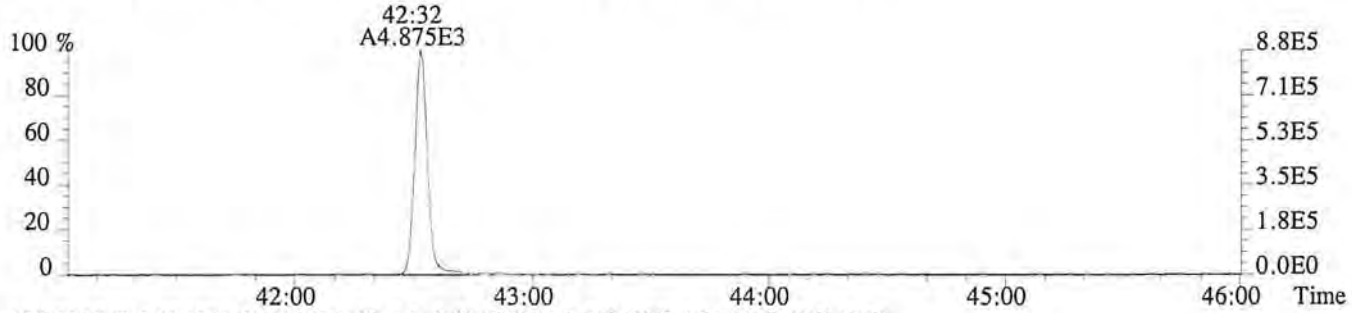


513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

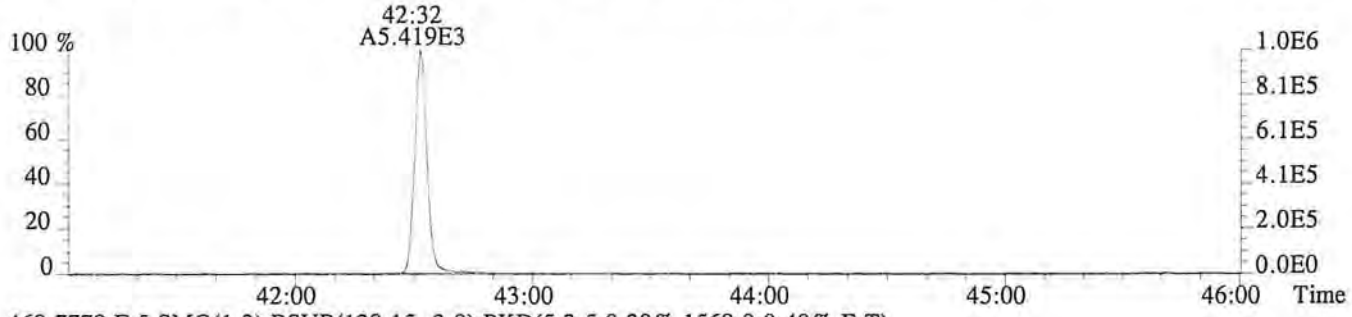


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

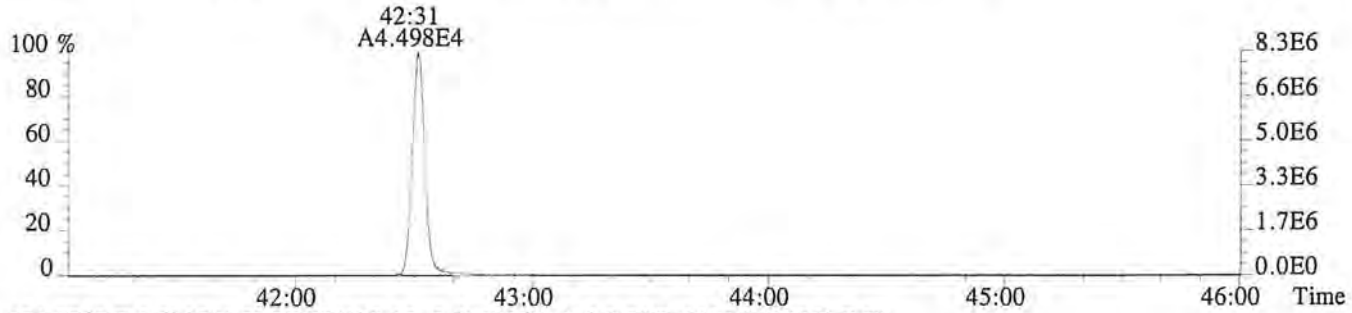
File:P301042 #1-447 Acq:26-AUG-2015 20:06:56 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-022
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1116.0,0.40%,F,T)



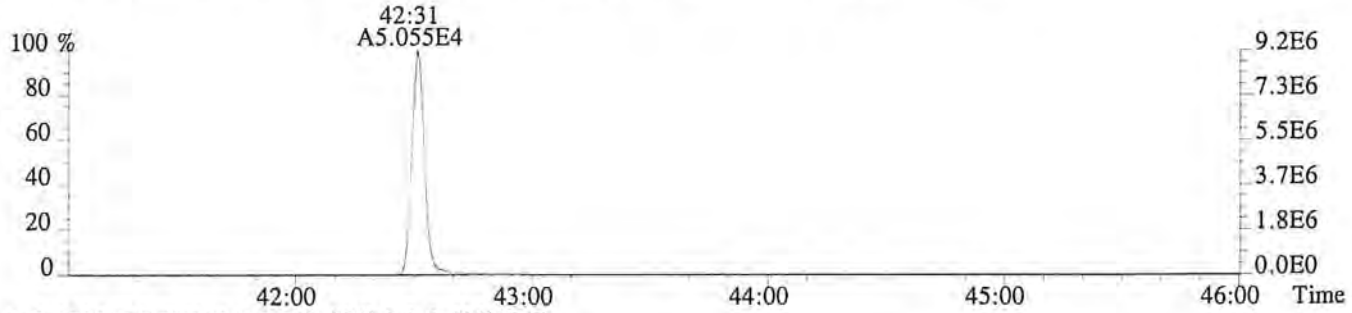
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1648.0,0.40%,F,T)



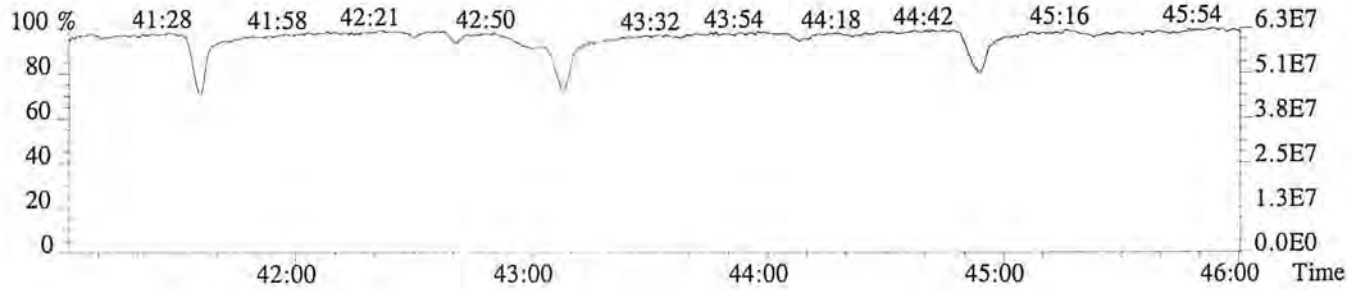
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1568.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1456.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-13-15 MT8

Run #12 Filename P301043 Samp: 1 Inj: 1 Acquired: 26-AUG-15 20:55:34
Processed: 27-AUG-15 15:24:38 Sample ID: E1500743-023

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:40	8.517e+01	8.546e+01	1.00	no	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.152
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.082
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	3.355e+02	3.553e+02	0.94	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.245
10	Unk	OCDF	42:46	1.046e+03	1.143e+03	0.91	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:25	1.342e+02	1.805e+02	0.74	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:02	6.300e+01	5.431e+01	1.16	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	8.847e+02	8.682e+02	1.02	yes	no	0.949
17	Unk	OCDD	42:34	4.271e+03	4.796e+03	0.89	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:38	4.016e+04	5.144e+04	0.78	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:43	6.727e+04	4.263e+04	1.58	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:35	6.534e+04	4.122e+04	1.58	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:13	2.703e+04	5.231e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:20	3.072e+04	5.933e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:49	2.926e+04	5.612e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:34	3.660e+04	7.028e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	1.705e+04	3.888e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:12	1.346e+04	3.067e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:24	3.236e+04	4.166e+04	0.78	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:52	4.969e+04	3.145e+04	1.58	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:57	4.098e+04	3.059e+04	1.34	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:02	3.884e+04	3.221e+04	1.21	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	3.335e+04	3.128e+04	1.07	yes	no	0.850
32	IS	13C-OCDD	42:33	4.334e+04	4.823e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:51	4.397e+04	5.581e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:16	6.312e+04	5.048e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:25	3.226e+04				no	1.001

$$\text{OCDD} = \frac{(4.271e{+}03 + 4.796e{+}03) \times 4000 \text{ pg} \times 1}{(4.334e{+}04 + 4.823e{+}04) \times 10.252 \text{ g} \times 100 \;/\; 100 \times 1.061} = 37.13 \text{ ng/kg}$$

LM 08/28/15

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-13-15 MT8/GT

Run #12 Filename P301043 Samp: 1 Inj: 1 Acquired: 26-AUG-15 20:55:34
Processed: 27-AUG-15 15:24:38 LAB. ID: E1500743-023

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.53e+04	2.34e+03	6.5e+00	1.59e+04	2.89e+03	5.5e+00
2	1,2,3,7,8-PeCDF	*	8.76e+02	*	*	3.02e+03	*
3	2,3,4,7,8-PeCDF	*	8.76e+02	*	*	3.02e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.83e+03	*	*	9.20e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.83e+03	*	*	9.20e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.83e+03	*	*	9.20e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.83e+03	*	*	9.20e+02	*
8	1,2,3,4,6,7,8-HpCDF	7.67e+04	1.23e+03	6.2e+01	7.89e+04	1.78e+03	4.4e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.23e+03	*	*	1.78e+03	*
10	OCDF	1.87e+05	2.37e+03	7.9e+01	2.09e+05	2.48e+03	8.4e+01
11	2,3,7,8-TCDD	2.64e+04	1.54e+03	1.7e+01	3.65e+04	1.26e+03	2.9e+01
12	1,2,3,7,8-PeCDD	*	3.11e+03	*	*	1.08e+03	*
13	1,2,3,4,7,8-HxCDD	*	1.04e+03	*	*	2.24e+03	*
14	1,2,3,6,7,8-HxCDD	1.48e+04	1.04e+03	1.4e+01	1.36e+04	2.24e+03	6.1e+00
15	1,2,3,7,8,9-HxCDD	*	1.04e+03	*	*	2.24e+03	*
16	1,2,3,4,6,7,8-HpCDD	1.95e+05	2.34e+03	8.3e+01	1.98e+05	1.08e+03	1.8e+02
17	OCDD	7.90e+05	9.00e+02	8.8e+02	8.71e+05	2.53e+03	3.4e+02
18	13C-2,3,7,8-TCDF	7.83e+06	2.27e+03	3.4e+03	1.01e+07	3.23e+03	3.1e+03
19	13C-1,2,3,7,8-PeCDF	1.35e+07	1.05e+03	1.3e+04	8.55e+06	1.56e+03	5.5e+03
20	13C-2,3,4,7,8-PeCDF	1.34e+07	1.05e+03	1.3e+04	8.55e+06	1.56e+03	5.5e+03
21	13C-1,2,3,4,7,8-HxCDF	6.18e+06	1.28e+03	4.8e+03	1.20e+07	3.38e+03	3.5e+03
22	13C-1,2,3,6,7,8-HxCDF	6.80e+06	1.28e+03	5.3e+03	1.30e+07	3.38e+03	3.8e+03
23	13C-2,3,4,6,7,8-HxCDF	6.77e+06	1.28e+03	5.3e+03	1.28e+07	3.38e+03	3.8e+03
24	13C-1,2,3,7,8,9-HxCDF	8.09e+06	1.28e+03	6.3e+03	1.56e+07	3.38e+03	4.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.83e+06	3.76e+03	1.0e+03	8.86e+06	2.26e+03	3.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.64e+06	3.76e+03	7.0e+02	6.00e+06	2.26e+03	2.7e+03
27	13C-2,3,7,8-TCDD	6.71e+06	7.43e+03	9.0e+02	8.59e+06	4.47e+03	1.9e+03
28	13C-1,2,3,7,8-PeCDD	1.05e+07	2.22e+03	4.7e+03	6.68e+06	1.35e+03	4.9e+03
29	13C-1,2,3,4,7,8-HxCDD	9.25e+06	1.84e+03	5.0e+03	7.17e+06	2.06e+03	3.5e+03
30	13C-1,2,3,6,7,8-HxCDD	9.00e+06	1.84e+03	4.9e+03	7.20e+06	2.06e+03	3.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.45e+06	2.75e+03	2.7e+03	7.05e+06	1.49e+03	4.7e+03
32	13C-OCDD	7.78e+06	1.34e+03	5.8e+03	8.60e+06	1.20e+03	7.2e+03
33	13C-1,2,3,4-TCDD	9.06e+06	7.43e+03	1.2e+03	1.15e+07	4.47e+03	2.6e+03
34	13C-1,2,3,7,8,9-HxCDD	1.37e+07	1.84e+03	7.4e+03	1.10e+07	2.06e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	6.85e+06	2.13e+03	3.2e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-13-15 MT8/GT

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 12 File: P301043 Sample:1 Injection:1 Function:1

Acquired: 26-AUG-15 20:55:34 Processed: 27-AUG-15 15:24:38

Mass: 319.8970 321.8940 Tot Response: 3.15e+02 RRF: 0.9567

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:25	1.34e+02	1.81e+02	0.74	yes	3.15e+02	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-13-15 MT8/GT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 12 File: P301043 Sample:1 Injection:1 Function:3

Acquired: 26-AUG-15 20:55:34 Processed: 27-AUG-15 15:24:38

Mass: 373.8210 375.8180 Tot Response: 6.04e+02 RRF: 1.094

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:17	5.61e+01	4.84e+01	1.16	yes	1.05e+02	n	n
2	35:48	2.71e+02	2.28e+02	1.18	yes	4.99e+02	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-13-15 MT8/GT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P301043 Sample:1 Injection:1 Function:3

Acquired: 26-AUG-15 20:55:34 Processed: 27-AUG-15 15:24:38

Mass: 389.8160 391.8130 Tot Response: 1.50e+02 RRF: 0.9904

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:09	1.88e+01	1.38e+01	1.36	yes	3.26e+01	n	n
2	37:02	6.30e+01	5.43e+01	1.16	yes	1.17e+02 1,2,3,6,7,8-HxCDD	n	n

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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-13-15 MT8/GT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P301043 Sample:1 Injection:1 Function:4

Acquired: 26-AUG-15 20:55:34 Processed: 27-AUG-15 15:24:38

Mass: 407.7820 409.7790 Tot Response: 3.26e+03 RRF: 1.284

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	3.36e+02	3.55e+02	0.94	yes	6.91e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:13	1.31e+03	1.27e+03	1.03	yes	2.57e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-13-15 MT8/GT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P301043 Sample:1 Injection:1 Function:4

Acquired: 26-AUG-15 20:55:34 Processed: 27-AUG-15 15:24:38

Mass: 423.7770 425.7740 Tot Response: 5.00e+03 RRF: 0.9492

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:03	1.62e+03	1.62e+03	1.00	yes	3.25e+03	n	n
2	39:43	8.85e+02	8.68e+02	1.02	yes	1.75e+03	1,2,3,4,6,7,8-HpCDD	n	n

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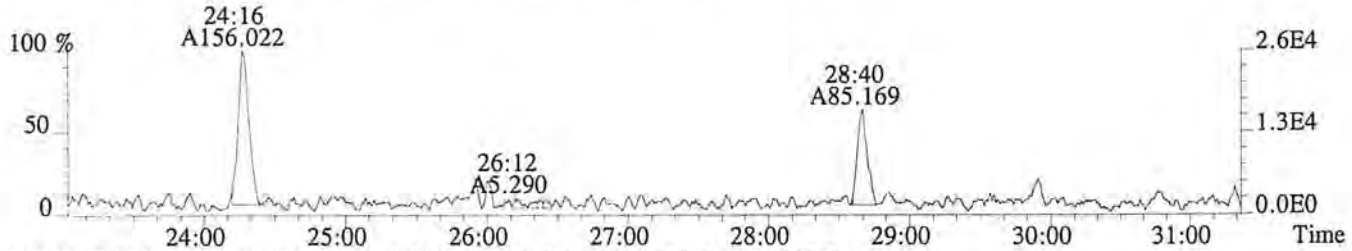
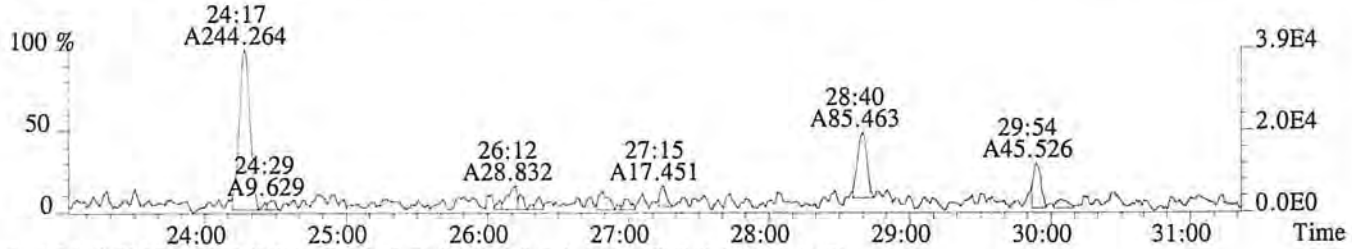
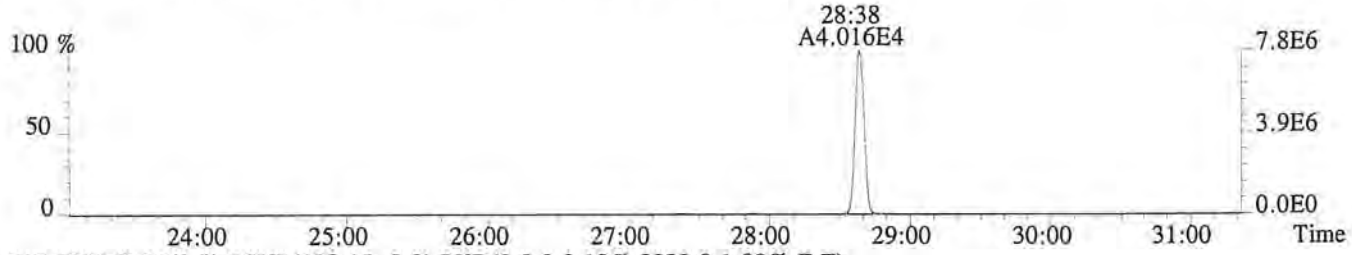
File:P301043 #1-591 Acq:26-AUG-2015 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-023
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2340.0,1.00%,F,T)



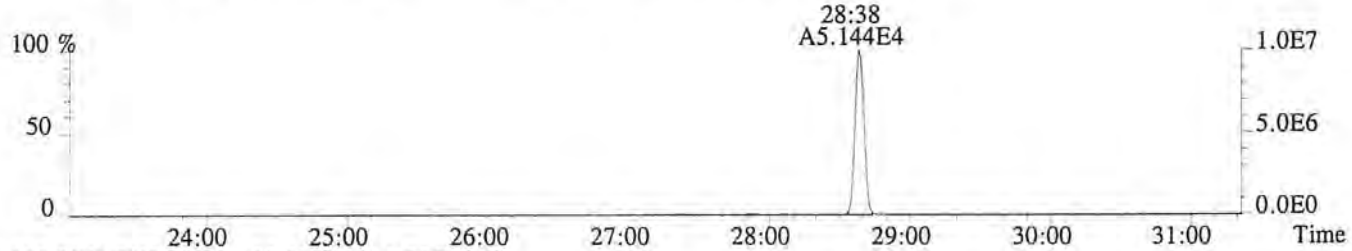
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2888.0,1.00%,F,T)



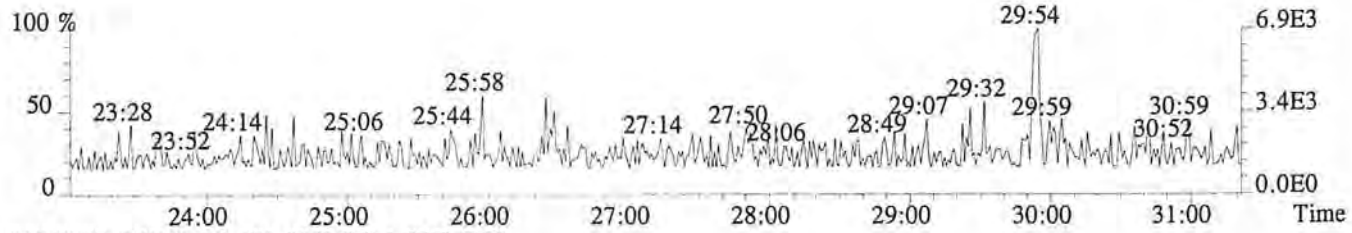
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2272.0,1.00%,F,T)



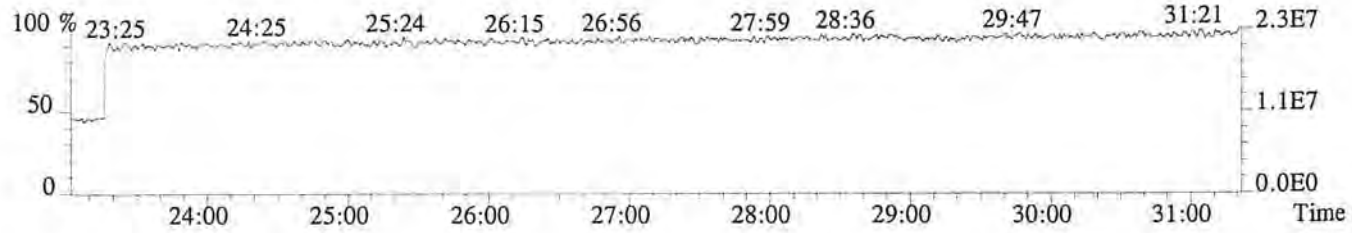
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3232.0,1.00%,F,T)



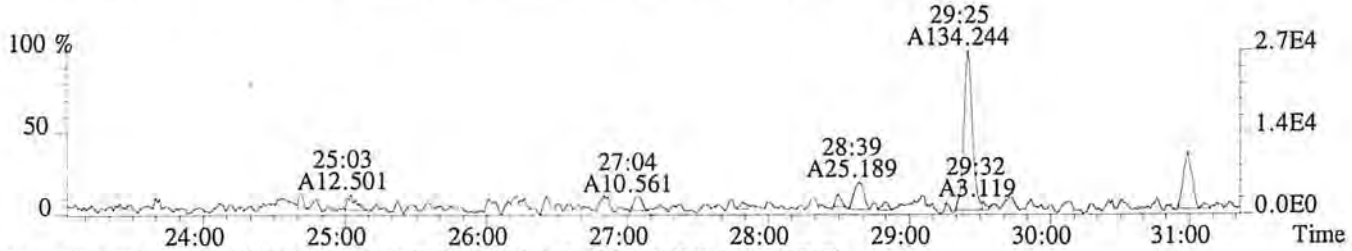
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



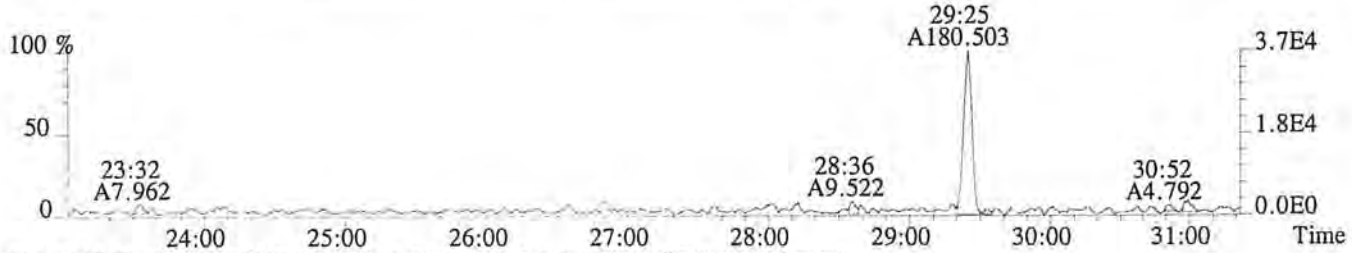
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



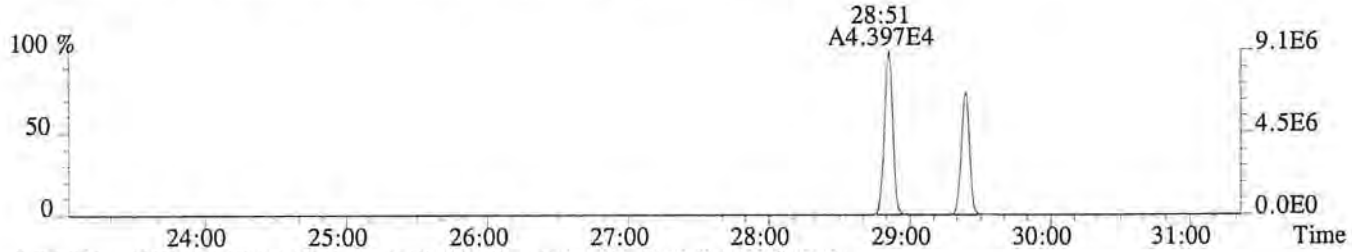
File:P301043 #1-591 Acq:26-AUG-2015 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-023
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1536.0,1.00%,F,T)



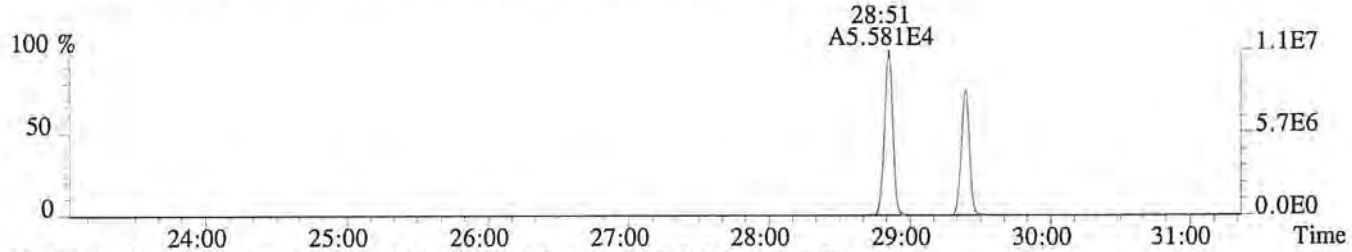
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



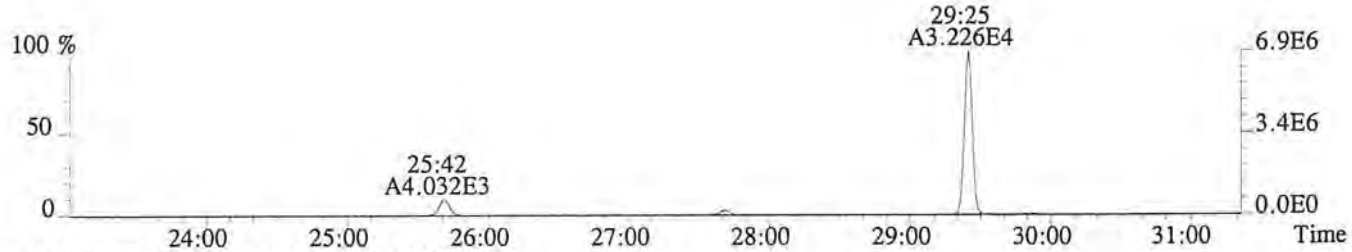
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7432.0,1.00%,F,T)



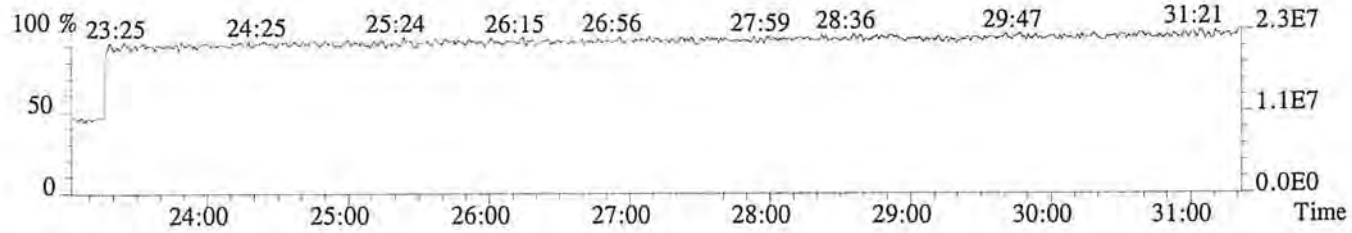
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4472.0,1.00%,F,T)



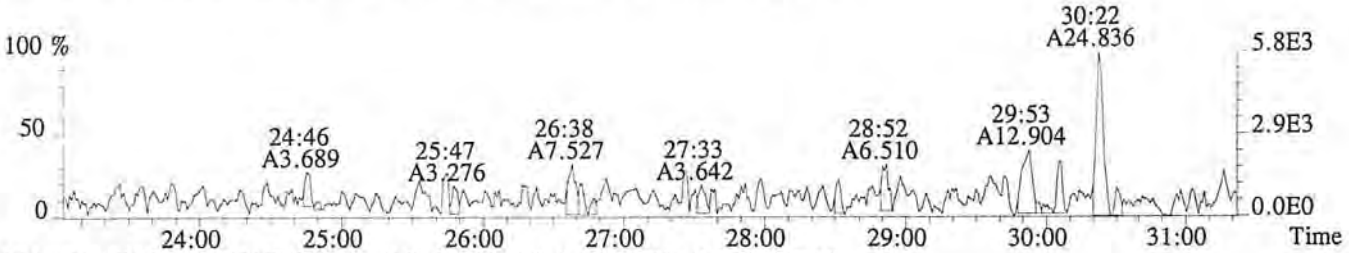
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2132.0,1.00%,F,T)



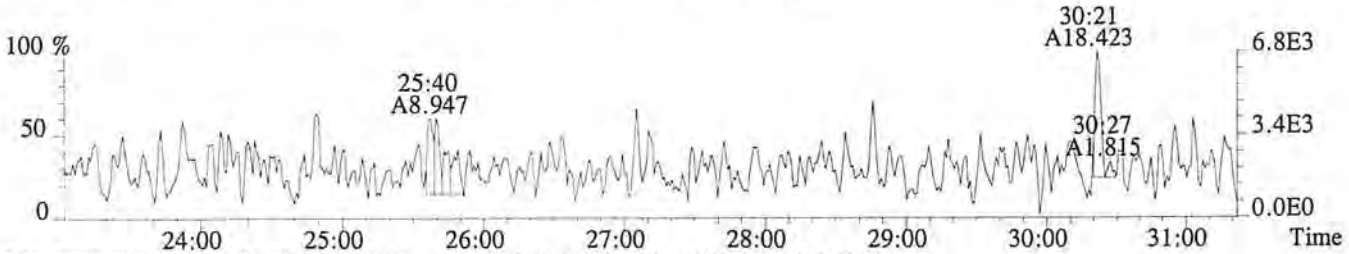
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



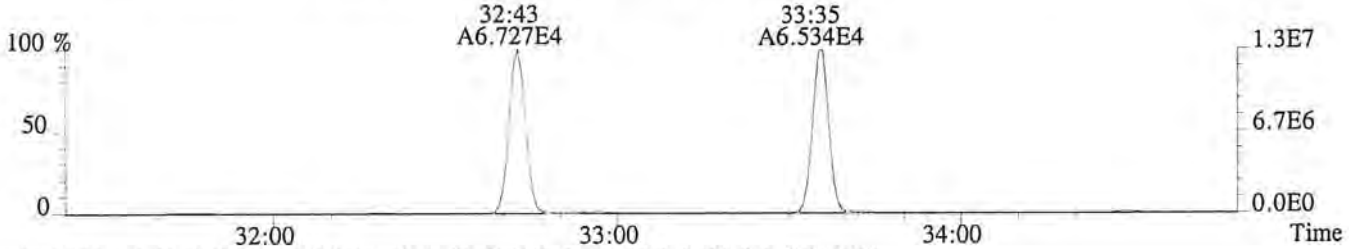
File:P301043 #1-591 Acq:26-AUG-2015 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-023
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



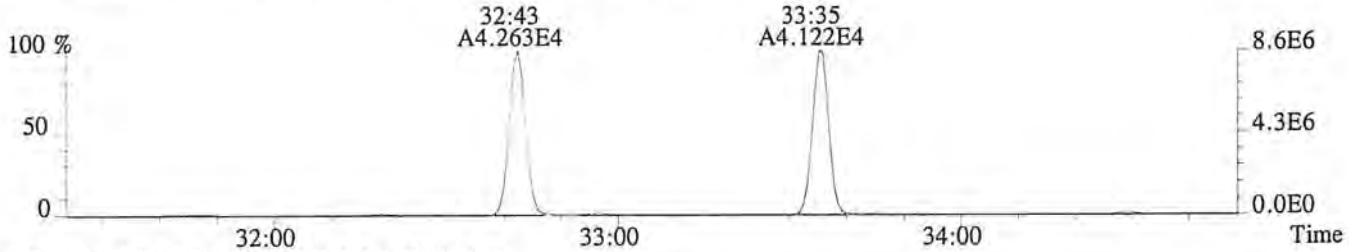
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2716.0,1.00%,F,T)



351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)

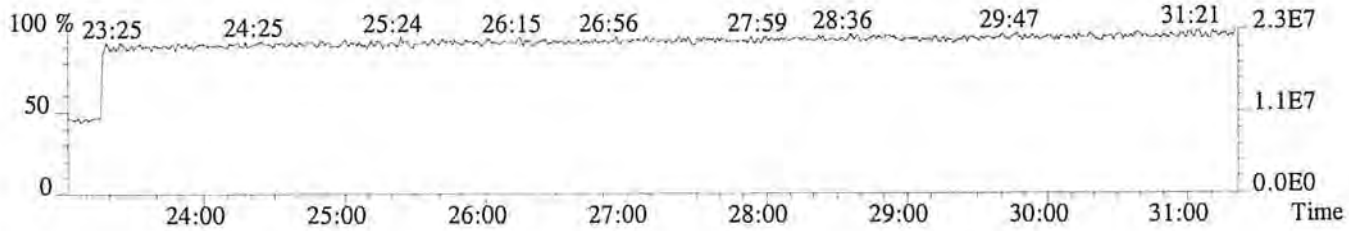


353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)

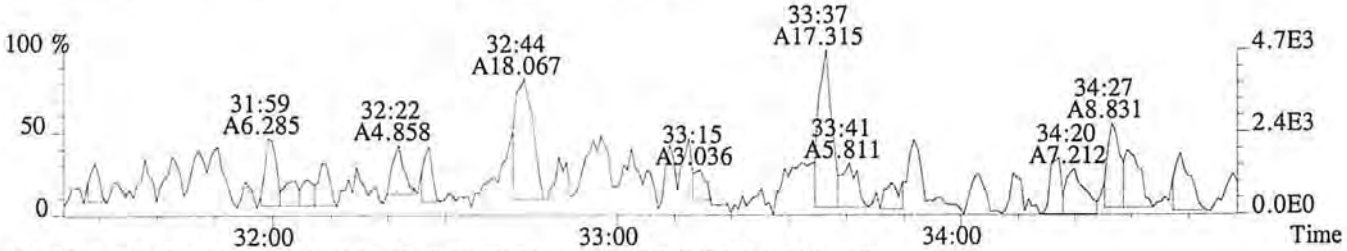


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

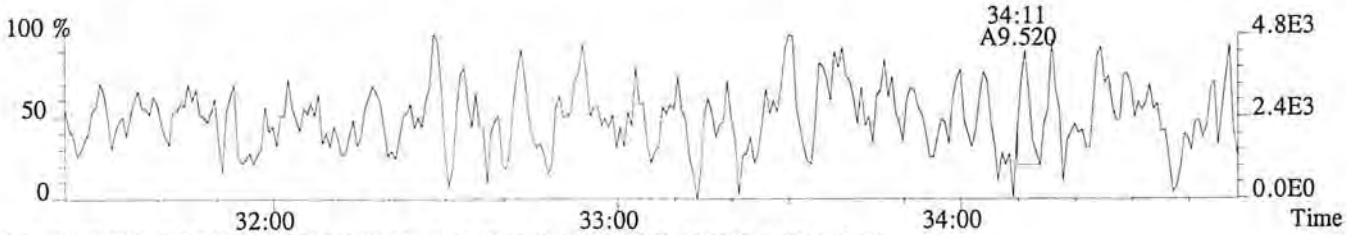
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



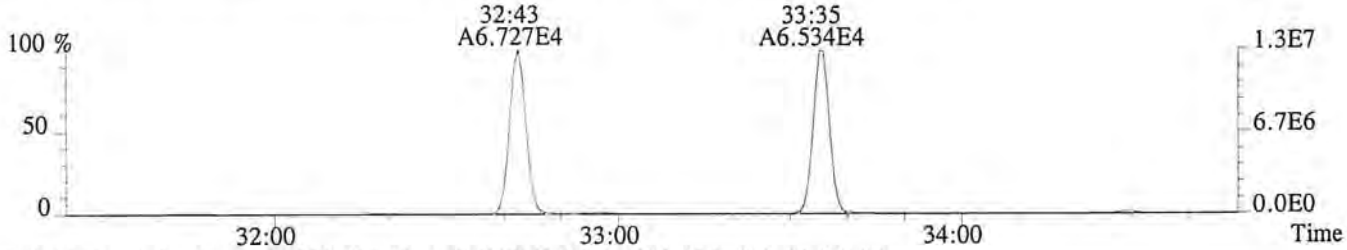
File:P301043 #1-308 Acq:26-AUG-2015 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-023
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,876.0,1.00%,F,T)



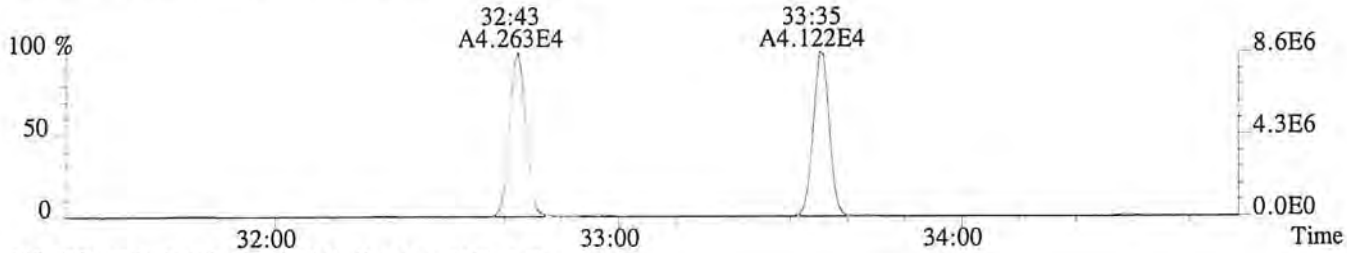
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3020.0,1.00%,F,T)



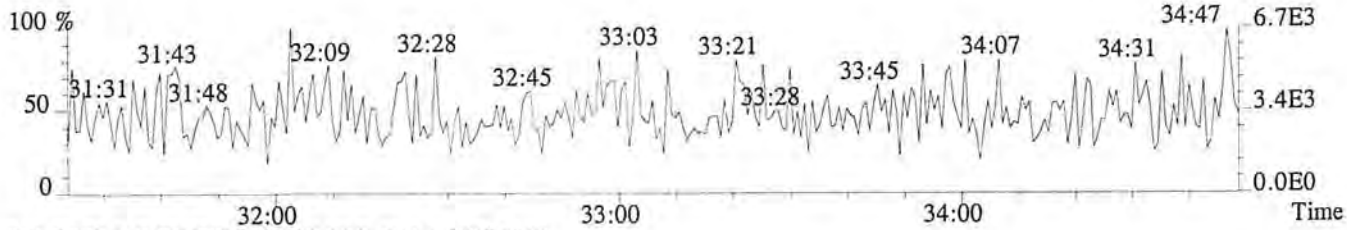
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



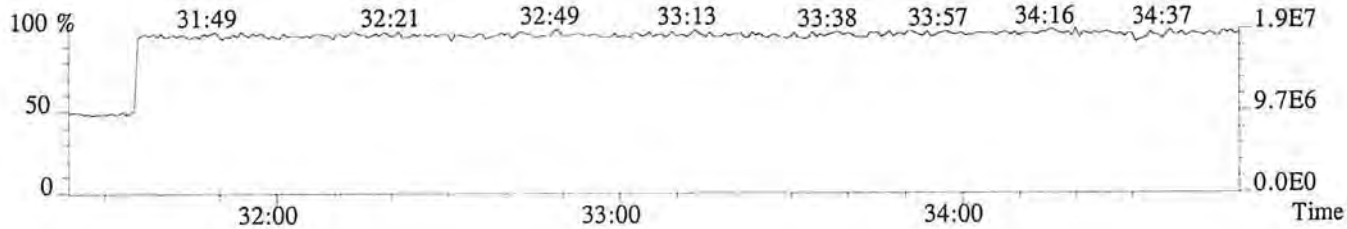
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



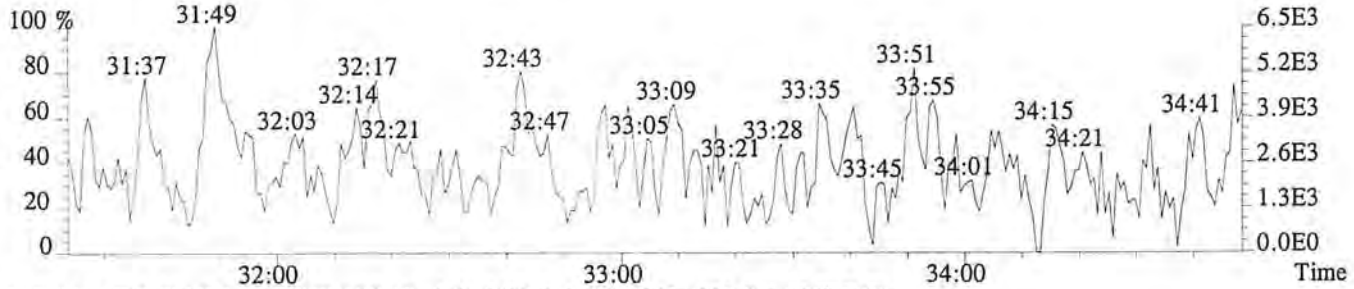
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

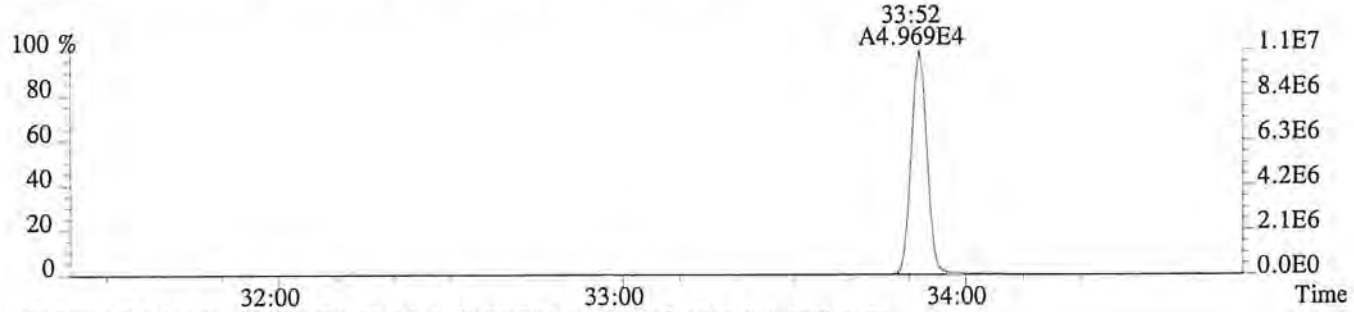


File:P301043 #1-308 Acq:26-AUG-2015 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-023
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3112.0,1.00%,F,T)

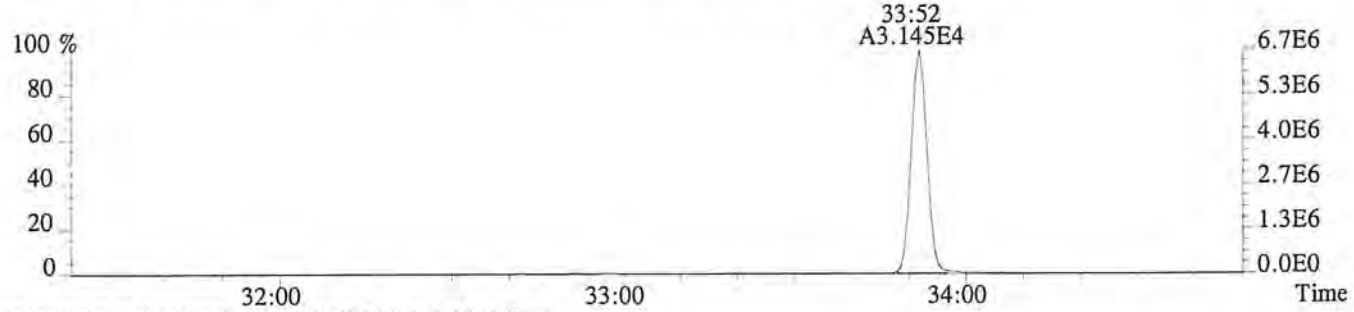


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)

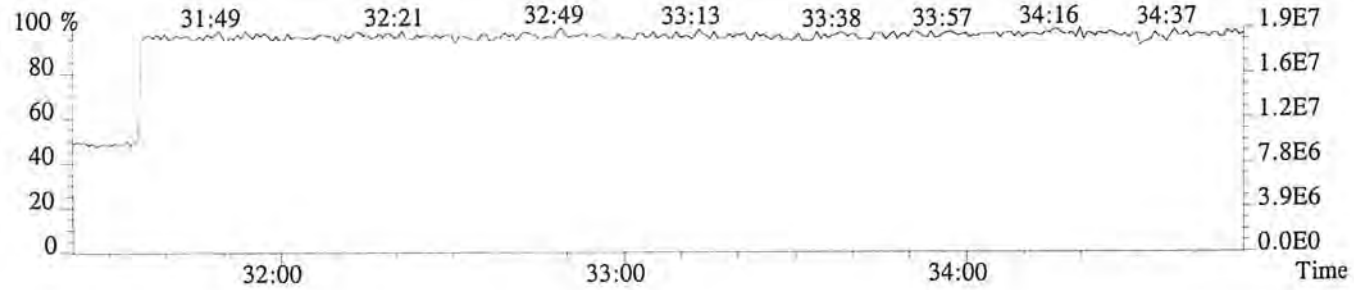
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2224.0,1.00%,F,T)



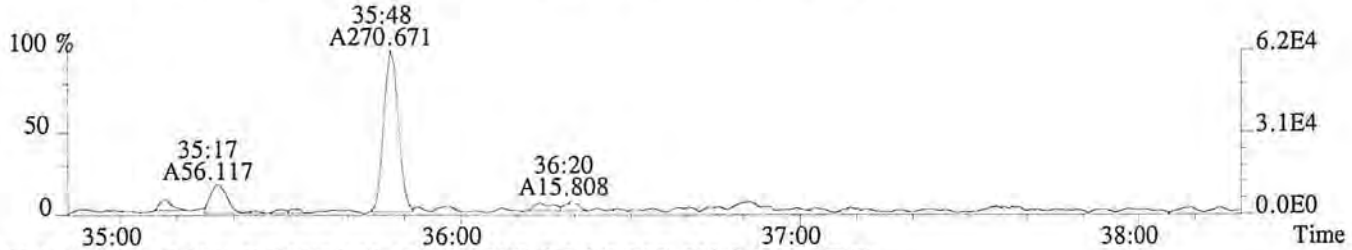
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1352.0,1.00%,F,T)



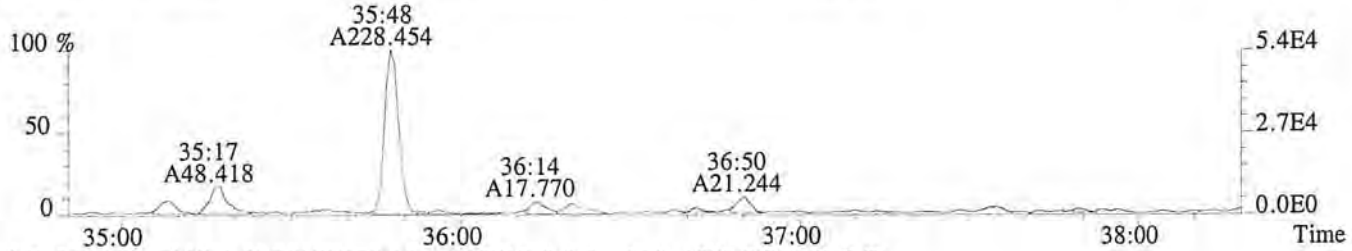
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



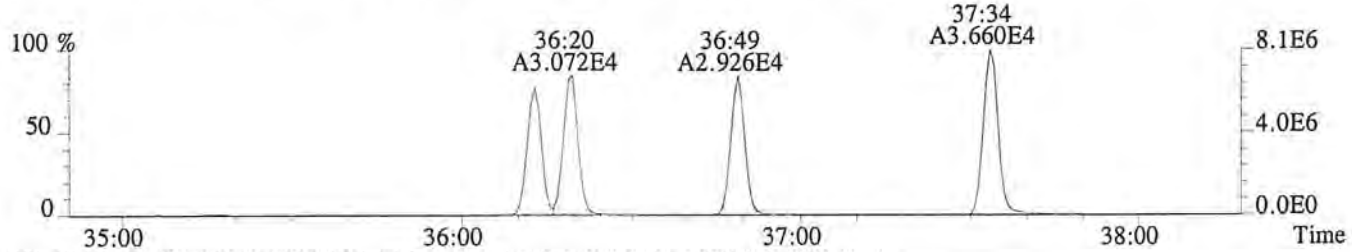
File:P301043 #1-312 Acq:26-AUG-2015 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-023
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1832.0,0.40%,F,T)



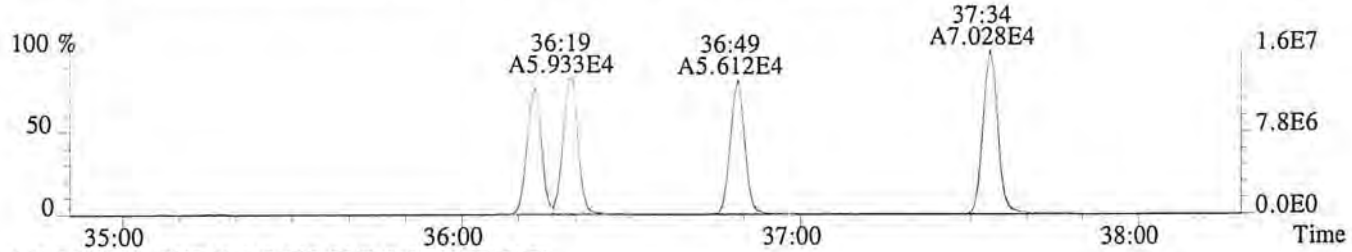
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



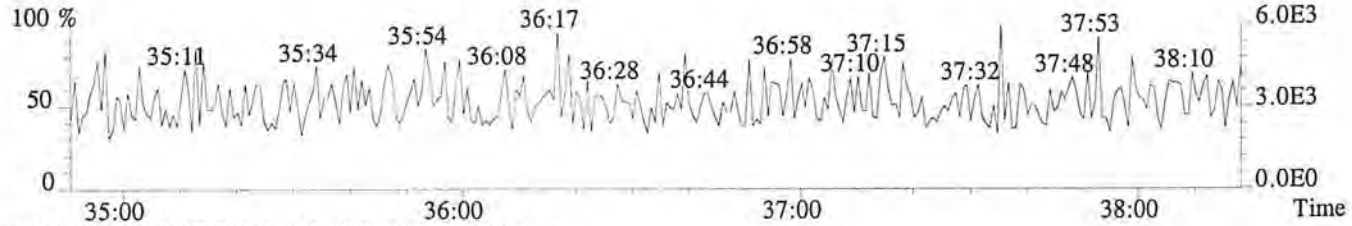
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1280.0,0.40%,F,T)



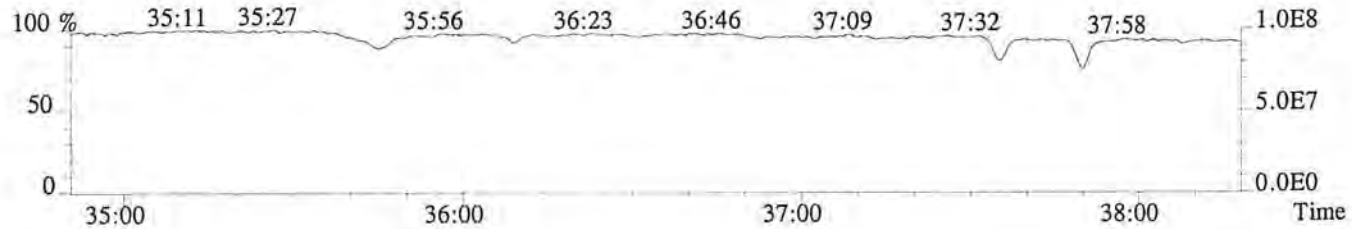
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3376.0,0.40%,F,T)



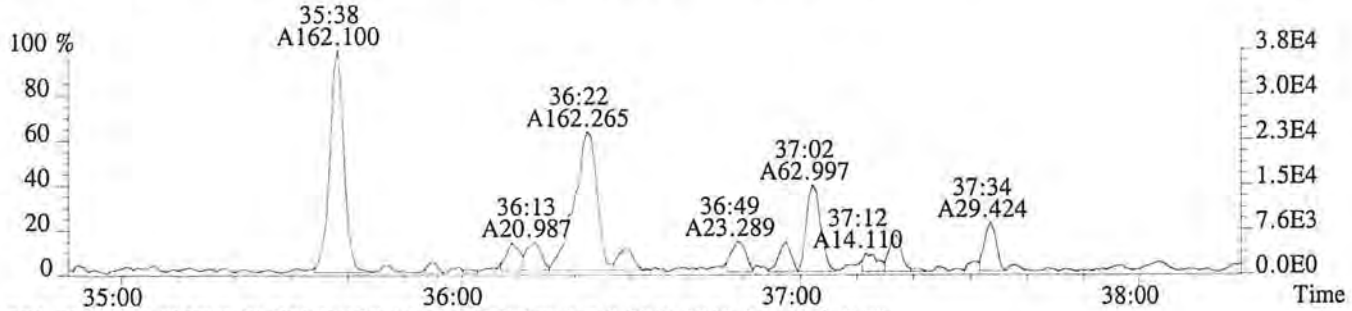
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



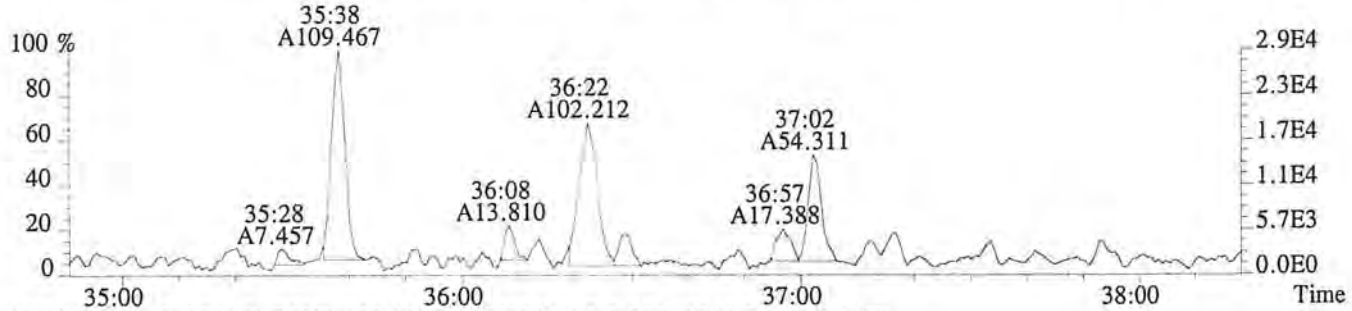
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



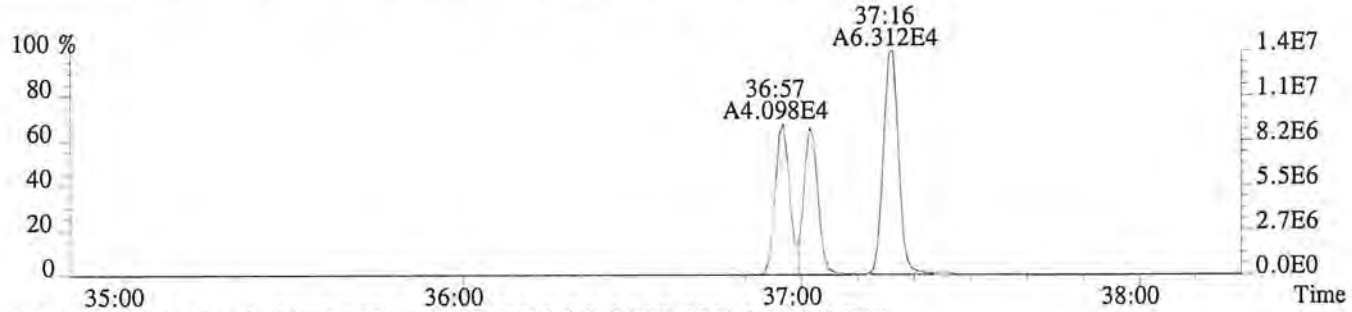
File:P301043 #1-312 Acq:26-AUG-2015 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-023
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



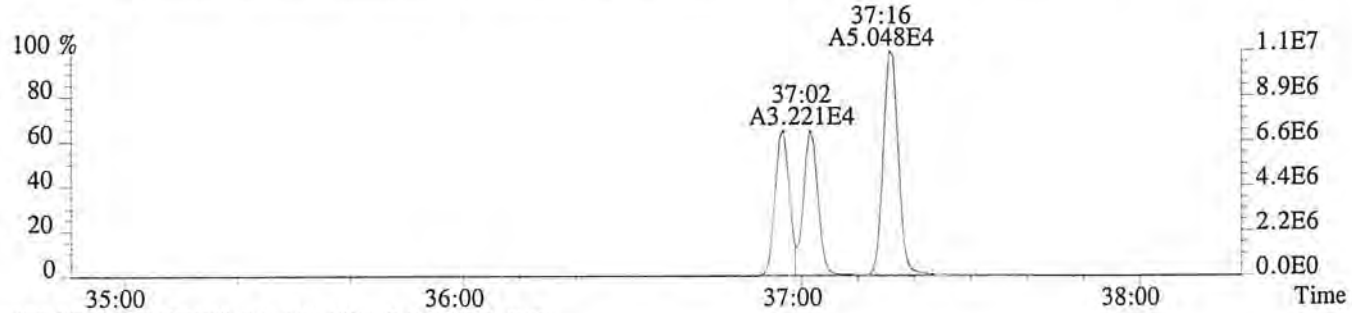
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2240.0,0.40%,F,T)



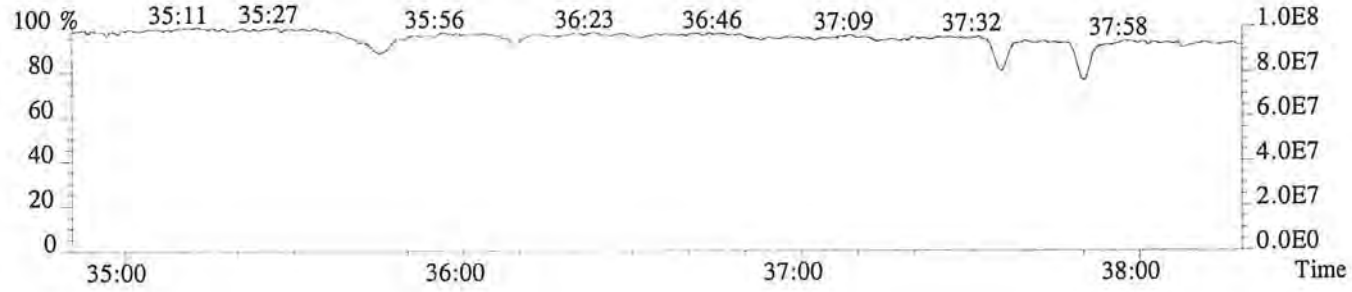
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1844.0,0.40%,F,T)



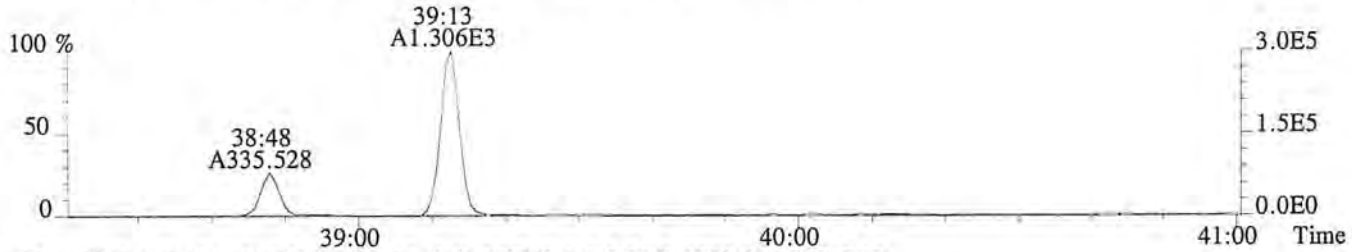
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2060.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

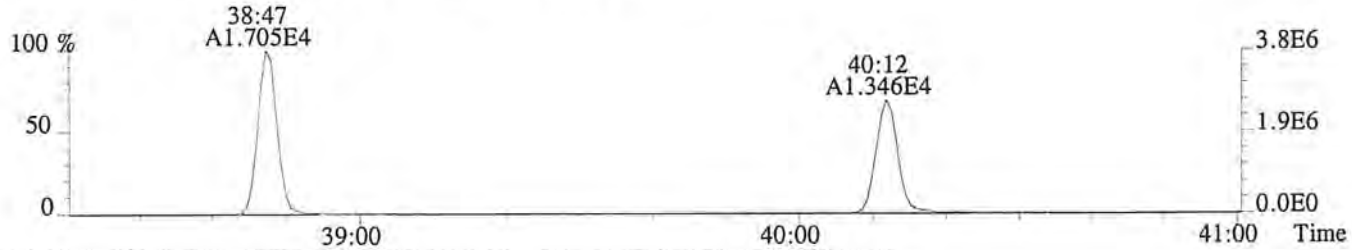


File:P301043 #1-241 Acq:26-AUG-2015 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-023
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.50%,F,T)

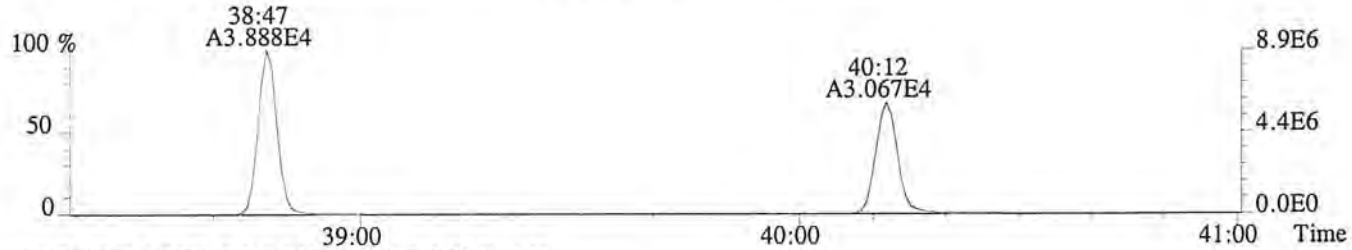


409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1780.0,0.50%,F,T)

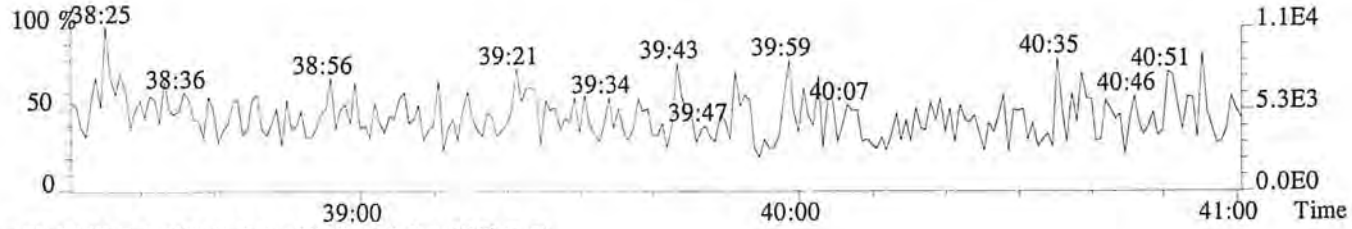
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3756.0,0.50%,F,T)



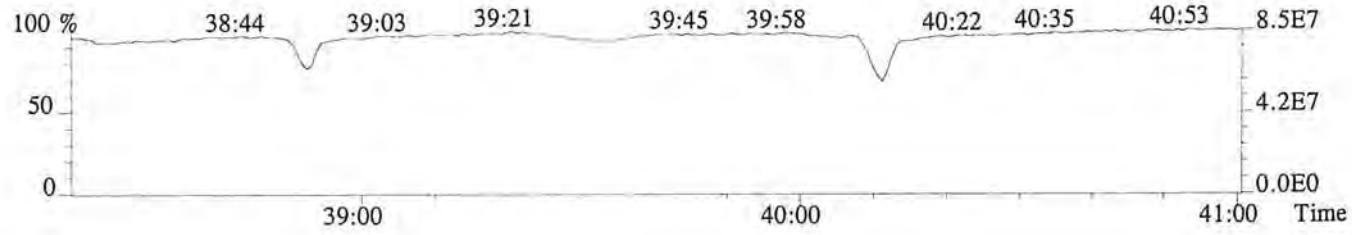
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2256.0,0.50%,F,T)



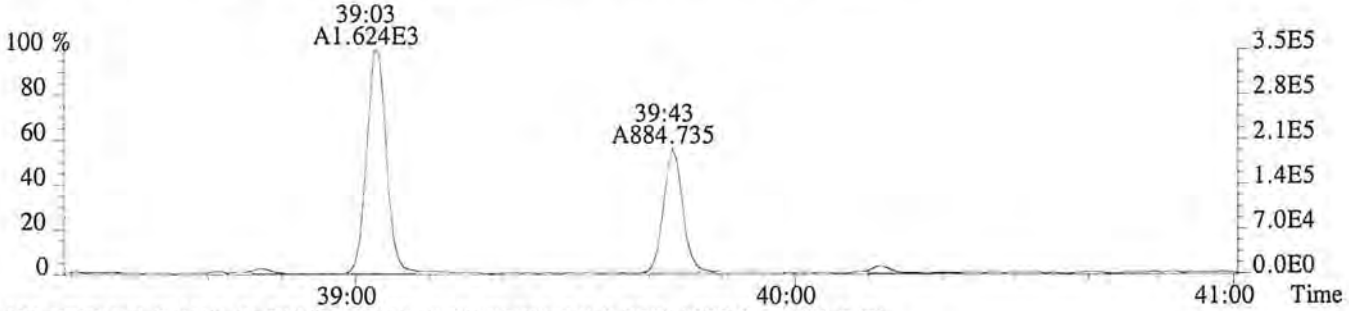
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



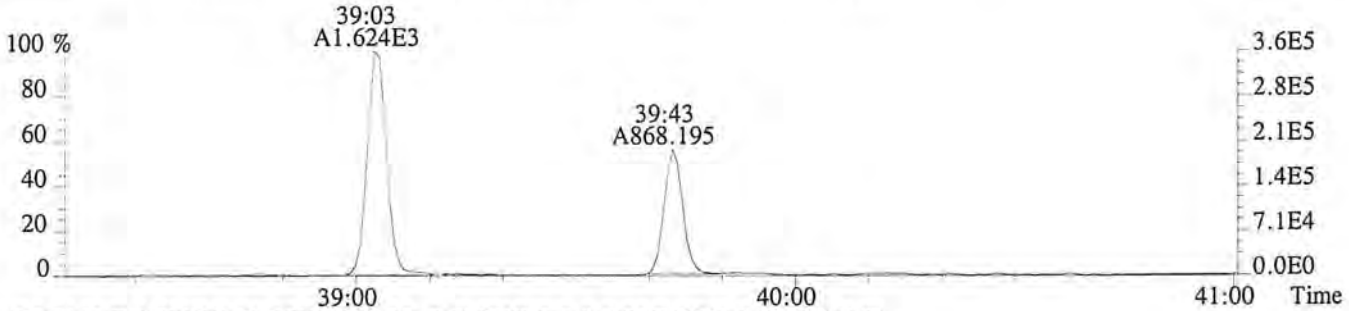
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



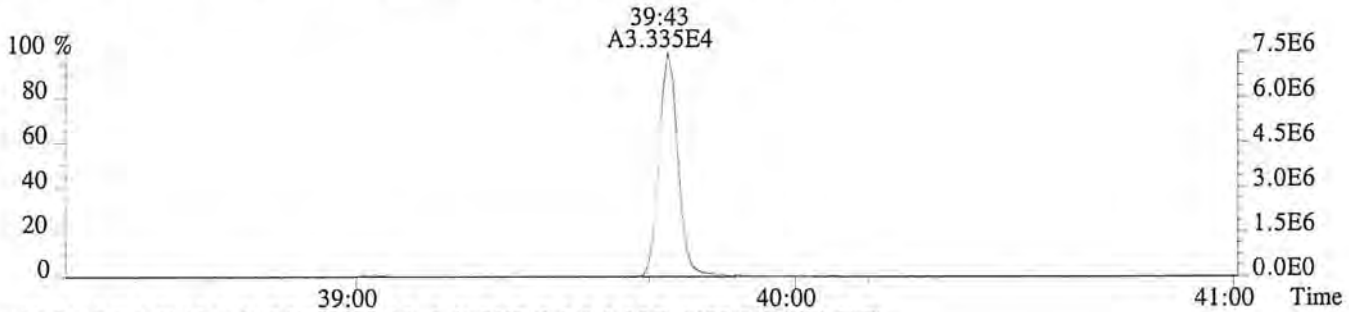
File:P301043 #1-241 Acq:26-AUG-2015 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-023
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2336.0,0.40%,F,T)



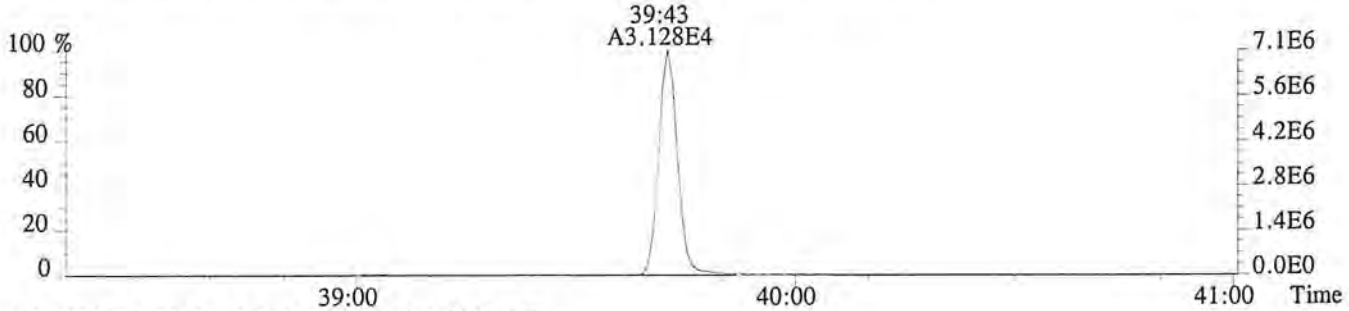
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1080.0,0.40%,F,T)



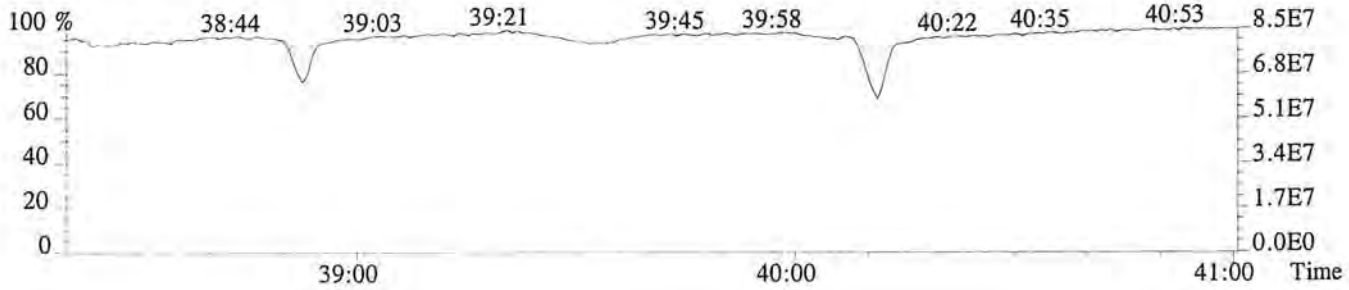
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2752.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1488.0,0.40%,F,T)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

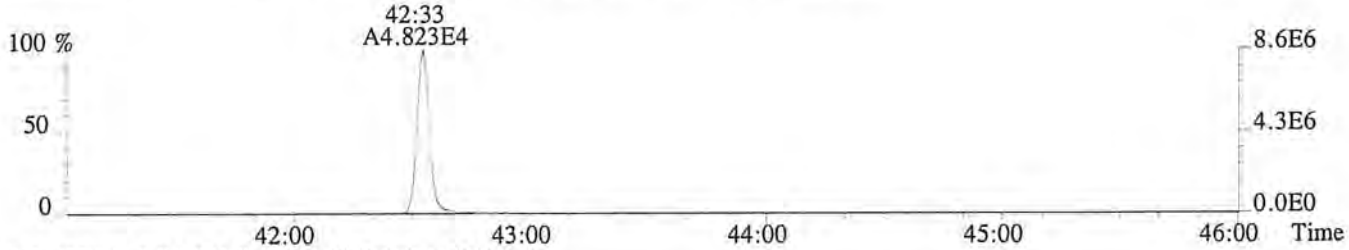


File:P301043 #1-447 Acq:26-AUG-2015 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-023
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2368.0,0.40%,F,T)

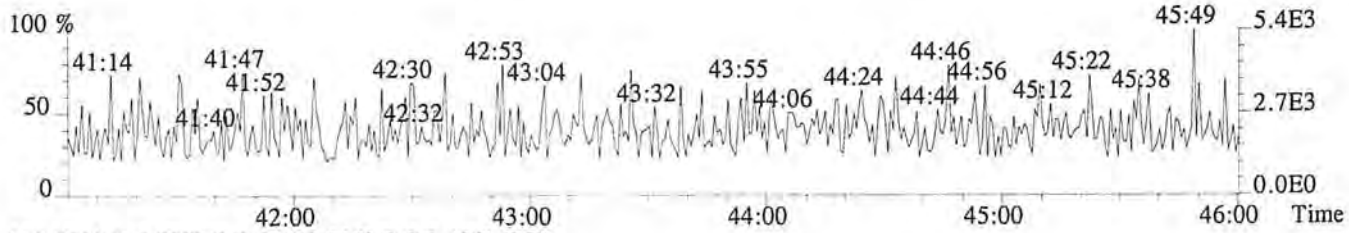
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2480.0,0.40%,F,T)

469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1344.0,0.40%,F,T)

471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1196.0,0.40%,F,T)

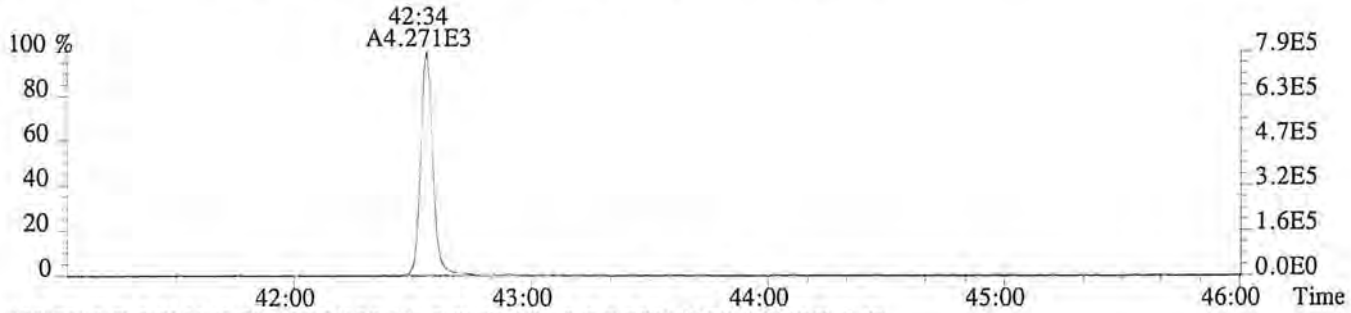


513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

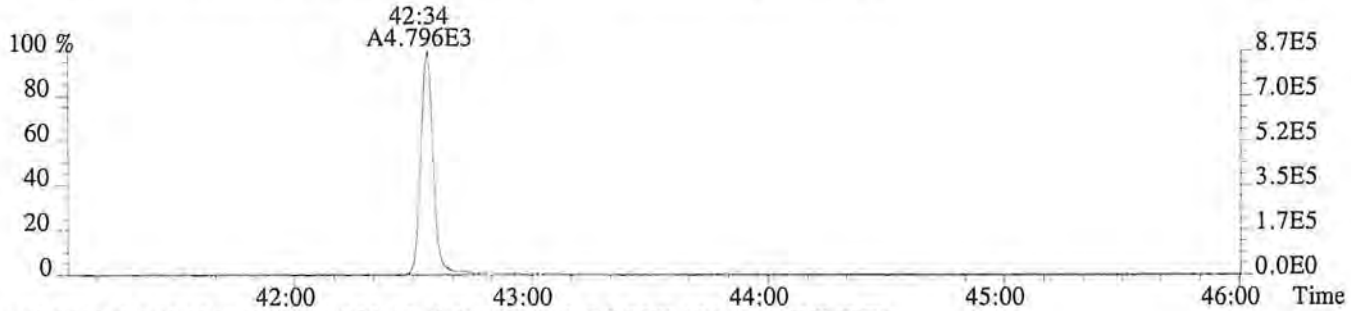


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

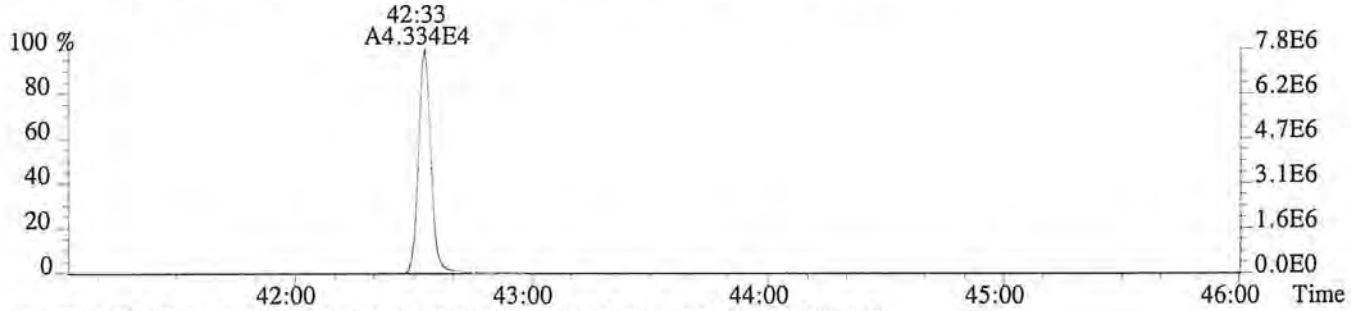
File:P301043 #1-447 Acq:26-AUG-2015 20:55:34 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-023
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,900.0,0.40%,F,T)



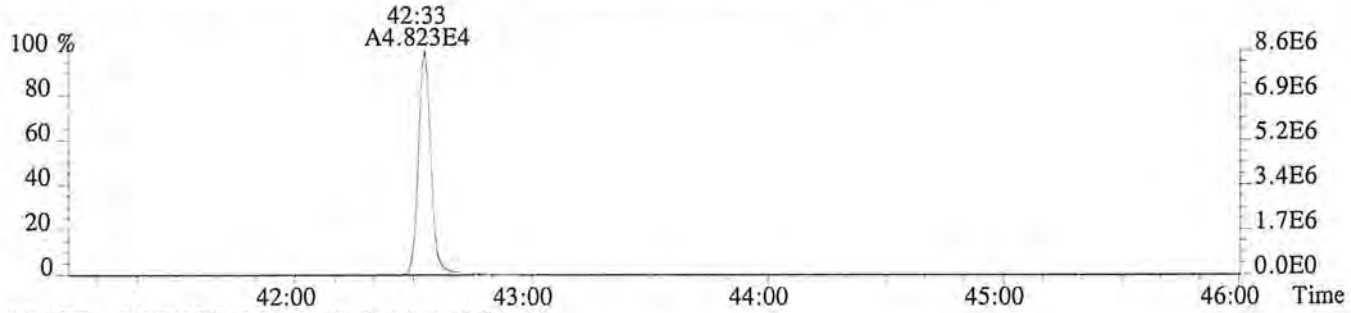
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2528.0,0.40%,F,T)



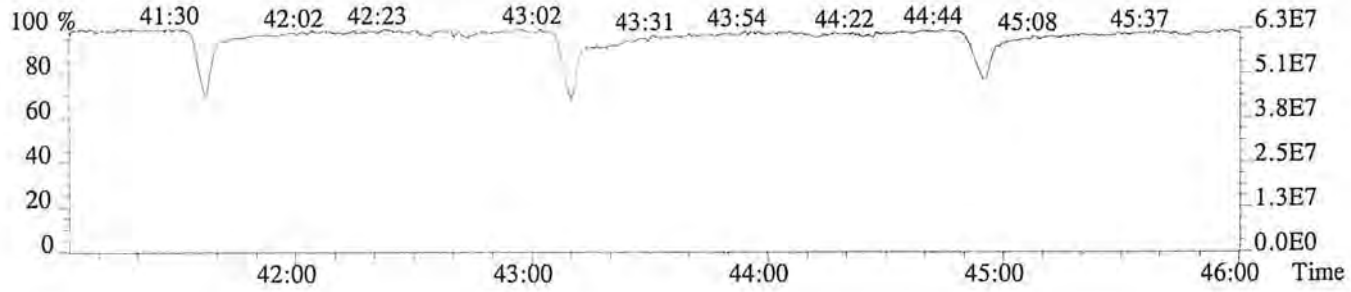
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1344.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1196.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
PLY-14-15 MT8

Run #13 Filename P301044 Samp: 1 Inj: 1 Acquired: 26-AUG-15 21:44:11
Processed: 27-AUG-15 15:34:29 Sample ID: E1500743-024

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:40	5.393e+02	6.930e+02	0.78	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.929
3	Unk	2,3,4,7,8-PeCDF	33:37	8.325e+01	7.028e+01	1.18	no	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:20	3.416e+01	3.504e+01	0.97	no	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:50	5.190e+01	3.862e+01	1.34	yes	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	4.108e+02	4.077e+02	1.01	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.245
10	Unk	OCDF	42:46	9.198e+02	1.131e+03	0.81	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:25	2.822e+02	3.465e+02	0.81	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:53	1.532e+02	9.825e+01	1.56	yes	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:58	2.248e+02	2.126e+02	1.06	yes	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:02	4.852e+02	4.226e+02	1.15	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:16	4.717e+02	4.229e+02	1.12	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	7.432e+03	7.063e+03	1.05	yes	no	0.949
17	Unk	OCDD	42:34	1.474e+04	1.695e+04	0.87	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:39	2.892e+04	3.604e+04	0.80	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:43	5.707e+04	3.629e+04	1.57	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:36	4.483e+04	2.828e+04	1.59	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:13	1.676e+04	3.232e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:20	1.968e+04	3.821e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:49	1.577e+04	3.047e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:34	1.473e+04	2.847e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	5.833e+03	1.368e+04	0.43	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	2.664e+03	6.125e+03	0.43	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:24	2.261e+04	2.923e+04	0.77	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:52	3.574e+04	2.248e+04	1.59	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:57	2.300e+04	1.736e+04	1.32	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:02	2.239e+04	1.843e+04	1.22	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	1.638e+04	1.544e+04	1.06	yes	no	0.850
32	IS	13C-OCDD	42:33	9.070e+03	1.002e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:51	4.271e+04	5.482e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:16	6.321e+04	5.020e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:25	3.095e+04				no	1.001

$$\text{OCDD} = \frac{(1.474e+04 + 1.695e+04) \times 4000 \text{ pg} \times 1}{(9.070e+03 + 1.002e+04) \times 10.182 \text{ g} \times 100 \ / \ 100 \times 1.061} = 614.6 \text{ ng/kg}$$

UMO 8/28/15

ALS ENVIRONMENTAL -- HOUSTON HRMS
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
PLY-14-15 MT8/GT

Run #13 Filename P301044 Samp: 1 Inj: 1 Acquired: 26-AUG-15 21:44:11
Processed: 27-AUG-15 15:34:29 LAB. ID: E1500743-024

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.06e+05	2.37e+03	4.5e+01	1.40e+05	3.06e+03	4.6e+01
2	1,2,3,7,8-PeCDF	*	1.78e+03	*	*	2.58e+03	*
3	2,3,4,7,8-PeCDF	1.33e+04	1.78e+03	7.5e+00	1.25e+04	2.58e+03	4.8e+00
4	1,2,3,4,7,8-HxCDF	*	2.46e+03	*	*	1.13e+03	*
5	1,2,3,6,7,8-HxCDF	8.15e+03	2.46e+03	3.3e+00	7.81e+03	1.13e+03	6.9e+00
6	2,3,4,6,7,8-HxCDF	1.22e+04	2.46e+03	5.0e+00	7.86e+03	1.13e+03	6.9e+00
7	1,2,3,7,8,9-HxCDF	*	2.46e+03	*	*	1.13e+03	*
8	1,2,3,4,6,7,8-HpCDF	8.79e+04	3.14e+03	2.8e+01	9.24e+04	1.68e+03	5.5e+01
9	1,2,3,4,7,8,9-HpCDF	*	3.14e+03	*	*	1.68e+03	*
10	OCDF	1.74e+05	1.96e+03	8.9e+01	1.96e+05	3.04e+03	6.5e+01
11	2,3,7,8-TCDD	5.70e+04	2.01e+03	2.8e+01	6.49e+04	1.67e+03	3.9e+01
12	1,2,3,7,8-PeCDD	2.80e+04	2.38e+03	1.2e+01	2.31e+04	1.30e+03	1.8e+01
13	1,2,3,4,7,8-HxCDD	5.55e+04	9.96e+02	5.6e+01	4.81e+04	2.61e+03	1.8e+01
14	1,2,3,6,7,8-HxCDD	1.10e+05	9.96e+02	1.1e+02	9.48e+04	2.61e+03	3.6e+01
15	1,2,3,7,8,9-HxCDD	1.06e+05	9.96e+02	1.1e+02	9.31e+04	2.61e+03	3.6e+01
16	1,2,3,4,6,7,8-HpCDD	1.59e+06	3.17e+03	5.0e+02	1.54e+06	4.25e+03	3.6e+02
17	OCDD	2.67e+06	1.10e+03	2.4e+03	3.05e+06	1.41e+03	2.2e+03
18	13C-2,3,7,8-TCDF	5.72e+06	2.63e+03	2.2e+03	7.09e+06	3.16e+03	2.2e+03
19	13C-1,2,3,7,8-PeCDF	1.15e+07	1.08e+03	1.1e+04	7.39e+06	1.84e+03	4.0e+03
20	13C-2,3,4,7,8-PeCDF	9.10e+06	1.08e+03	8.4e+03	5.72e+06	1.84e+03	3.1e+03
21	13C-1,2,3,4,7,8-HxCDF	3.85e+06	2.20e+03	1.7e+03	7.36e+06	2.25e+03	3.3e+03
22	13C-1,2,3,6,7,8-HxCDF	4.42e+06	2.20e+03	2.0e+03	8.43e+06	2.25e+03	3.8e+03
23	13C-2,3,4,6,7,8-HxCDF	3.66e+06	2.20e+03	1.7e+03	6.99e+06	2.25e+03	3.1e+03
24	13C-1,2,3,7,8,9-HxCDF	3.27e+06	2.20e+03	1.5e+03	6.33e+06	2.25e+03	2.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.31e+06	3.14e+03	4.2e+02	3.04e+06	2.93e+03	1.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.23e+05	3.14e+03	1.7e+02	1.22e+06	2.93e+03	4.2e+02
27	13C-2,3,7,8-TCDD	4.80e+06	7.50e+03	6.4e+02	6.19e+06	4.59e+03	1.3e+03
28	13C-1,2,3,7,8-PeCDD	7.47e+06	1.57e+03	4.8e+03	4.72e+06	1.48e+03	3.2e+03
29	13C-1,2,3,4,7,8-HxCDD	5.20e+06	2.06e+03	2.5e+03	4.10e+06	2.39e+03	1.7e+03
30	13C-1,2,3,6,7,8-HxCDD	5.25e+06	2.06e+03	2.5e+03	4.17e+06	2.39e+03	1.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.49e+06	3.65e+03	9.6e+02	3.33e+06	1.54e+03	2.2e+03
32	13C-OCDD	1.63e+06	9.32e+02	1.7e+03	1.81e+06	1.10e+03	1.6e+03
33	13C-1,2,3,4-TCDD	8.68e+06	7.50e+03	1.2e+03	1.11e+07	4.59e+03	2.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.39e+07	2.06e+03	6.7e+03	1.12e+07	2.39e+03	4.7e+03
35	37Cl-2,3,7,8-TCDD	6.44e+06	1.12e+03	5.7e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-14-15 MT8/GT

Entry: 36 Totals Name: Total Tetra-Furans

Run: 13 File: P301044 Sample:1 Injection:1 Function:1

Acquired: 26-AUG-15 21:44:11 Processed: 27-AUG-15 15:34:29

Mass: 303.9020 305.8990 Tot Response: 1.80e+03 RRF: 0.8496

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:17	1.39e+02	1.64e+02	0.85	yes	3.03e+02		n	n
2	28:40	5.39e+02	6.93e+02	0.78	yes	1.23e+03	2,3,7,8-TCDF	n	n
3	29:54	1.16e+02	1.46e+02	0.79	yes	2.61e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

PLY-14-15 MT8/GT

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 13 File: P301044 Sample:1 Injection:1 Function:1

Acquired: 26-AUG-15 21:44:11 Processed: 27-AUG-15 15:34:29

Mass: 319.8970 321.8940 Tot Response: 6.68e+02 RRF: 0.9567

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:31	1.73e+01	2.18e+01	0.79	yes	3.91e+01	n	n
2	29:25	2.82e+02	3.46e+02	0.81	yes	6.29e+02 2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.

PLY-14-15 MT8/GT

Entry: 38 Totals Name: Total Penta-Furans1

Run: 13 File: P301044 Sample:1 Injection:1 Function:1

Acquired: 26-AUG-15 21:44:11 Processed: 27-AUG-15 15:34:29

Mass: 339.8600 341.8570 Tot Response: 2.89e+02 RRF: 0.9042

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:22	1.69e+02	1.19e+02	1.42	yes	2.89e+02	n	n

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Peak List Summary

CLIENT ID.

PLY-14-15 MT8/GT

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 13 File: P301044 Sample:1 Injection:1 Function:2

Acquired: 26-AUG-15 21:44:11 Processed: 27-AUG-15 15:34:29

Mass: 355.8550 357.8520 Tot Response: 2.43e+03 RRF: 0.8868

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:50	5.43e+02	3.48e+02	1.56	yes	8.91e+02		n	n
2	32:43	2.03e+02	1.25e+02	1.62	yes	3.28e+02		n	n
3	33:10	5.03e+02	3.37e+02	1.49	yes	8.39e+02		n	n
4	33:53	1.53e+02	9.82e+01	1.56	yes	2.51e+02	1,2,3,7,8-PeCDD	n	n
5	34:15	7.28e+01	4.86e+01	1.50	yes	1.21e+02		n	n

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Peak List Summary

CLIENT ID.

PLY-14-15 MT8/GT

Entry: 41 Totals Name: Total Hexa-Furans

Run: 13 File: P301044 Sample:1 Injection:1 Function:3

Acquired: 26-AUG-15 21:44:11 Processed: 27-AUG-15 15:34:29

Mass: 373.8210 375.8180 Tot Response: 1.23e+03 RRF: 1.094

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:18	2.40e+02	1.78e+02	1.34	yes	4.18e+02	n	n
2	35:48	3.97e+02	3.04e+02	1.31	yes	7.01e+02	n	n
3	36:08	1.41e+01	1.03e+01	1.38	yes	2.44e+01	y	n
4	36:50	5.19e+01	3.86e+01	1.34	yes	9.05e+01	2,3,4,6,7,8-HxCDF	y	n

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Peak List Summary

CLIENT ID.

PLY-14-15 MT8/GT

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P301044 Sample:1 Injection:1 Function:3

Acquired: 26-AUG-15 21:44:11 Processed: 27-AUG-15 15:34:29

Mass: 389.8160 391.8130 Tot Response: 2.44e+04 RRF: 0.9904

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:38	7.11e+03	5.83e+03	1.22	yes	1.29e+04		n	n
2	36:09	4.56e+02	3.34e+02	1.36	yes	7.90e+02		n	n
3	36:22	4.04e+03	3.20e+03	1.26	yes	7.24e+03		n	n
4	36:29	3.06e+02	2.78e+02	1.10	yes	5.84e+02		n	n
5	36:58	2.25e+02	2.13e+02	1.06	yes	4.37e+02	1,2,3,4,7,8-HxCDD	n	n
6	37:02	4.85e+02	4.23e+02	1.15	yes	9.08e+02	1,2,3,6,7,8-HxCDD	n	n
7	37:12	3.12e+02	2.59e+02	1.20	yes	5.70e+02		n	n
8	37:16	4.72e+02	4.23e+02	1.12	yes	8.95e+02	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.

PLY-14-15 MT8/GT

Entry: 43 Totals Name: Total Hepta-Furans

Run: 13 File: P301044 Sample:1 Injection:1 Function:4

Acquired: 26-AUG-15 21:44:11 Processed: 27-AUG-15 15:34:29

Mass: 407.7820 409.7790 Tot Response: 3.48e+03 RRF: 1.284

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:48	4.11e+02	4.08e+02	1.01	yes	8.19e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:04	2.84e+01	2.60e+01	1.09	yes	5.44e+01		n	n
3	39:13	1.31e+03	1.30e+03	1.01	yes	2.61e+03		n	n

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Peak List Summary

CLIENT ID.

PLY-14-15 MT8/GT

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P301044 Sample:1 Injection:1 Function:4

Acquired: 26-AUG-15 21:44:11 Processed: 27-AUG-15 15:34:29

Mass: 423.7770 425.7740 Tot Response: 4.65e+04 RRF: 0.9492

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:03	1.64e+04	1.56e+04	1.05	yes	3.20e+04	n	n
2	39:44	7.43e+03	7.06e+03	1.05	yes	1.45e+04	1,2,3,4,6,7,8-HpCDD	n	n

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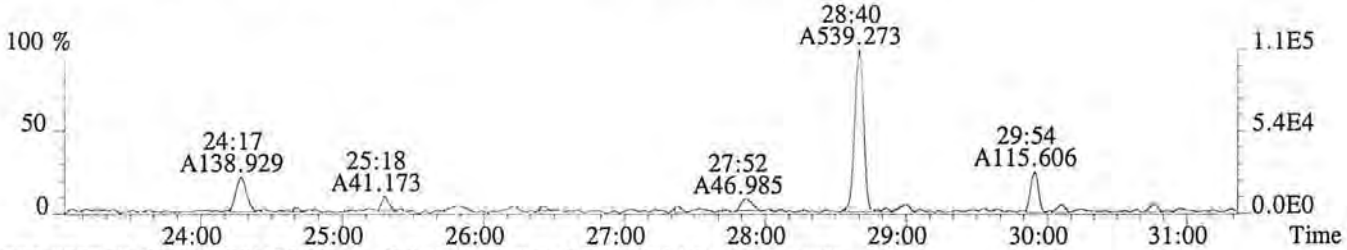
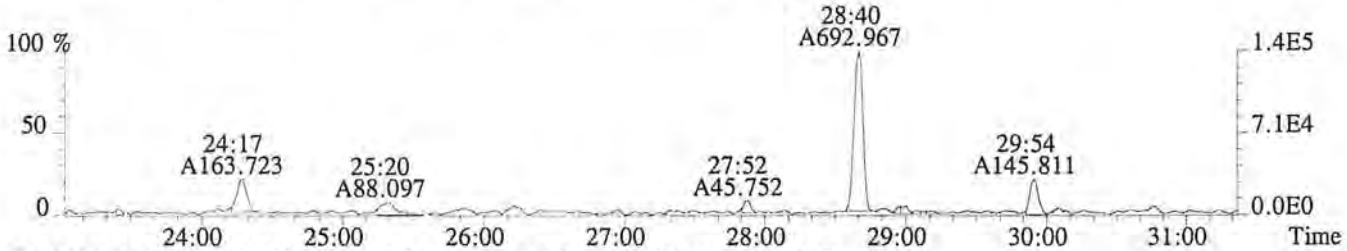
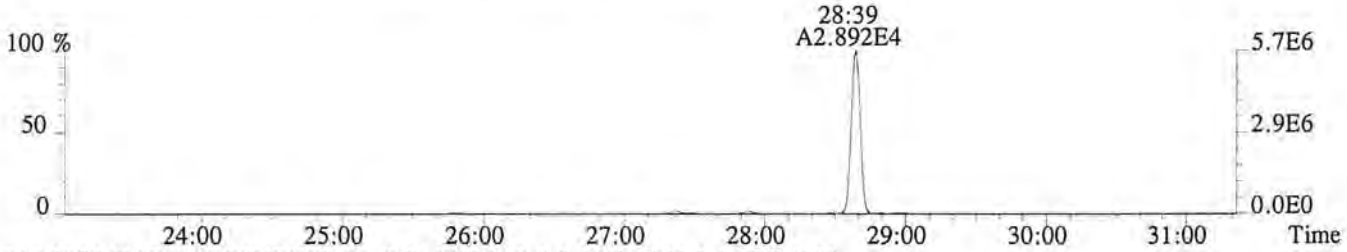
File:P301044 #1-591 Acq:26-AUG-2015 21:44:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-024
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2372.0,1.00%,F,T)



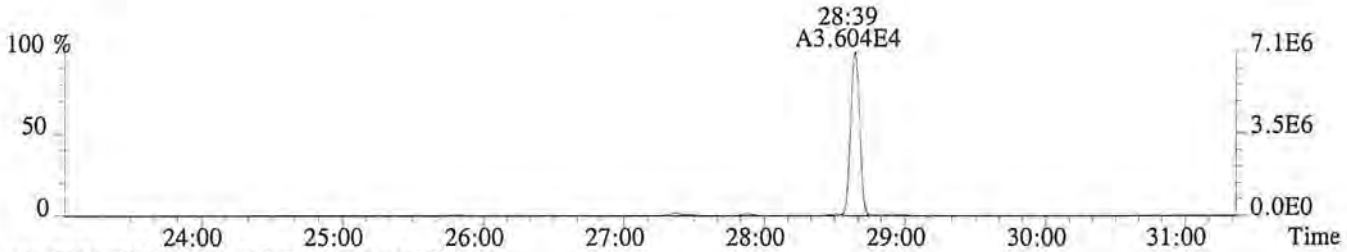
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3064.0,1.00%,F,T)



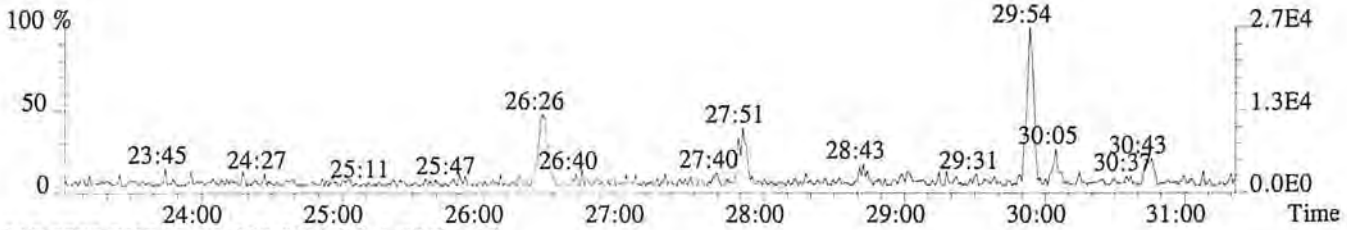
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2632.0,1.00%,F,T)



317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3164.0,1.00%,F,T)

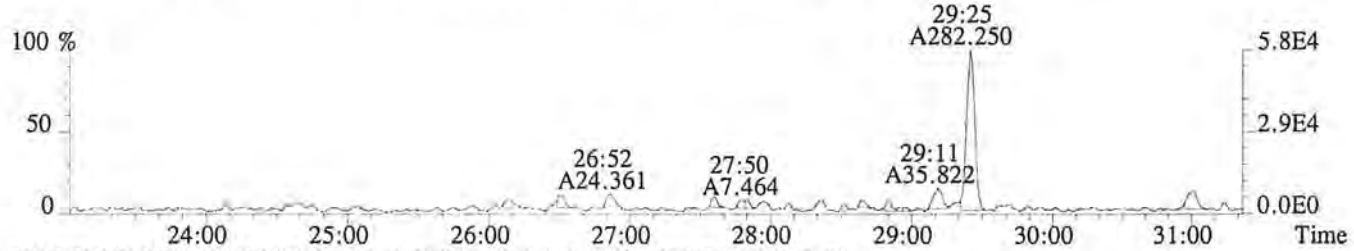


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



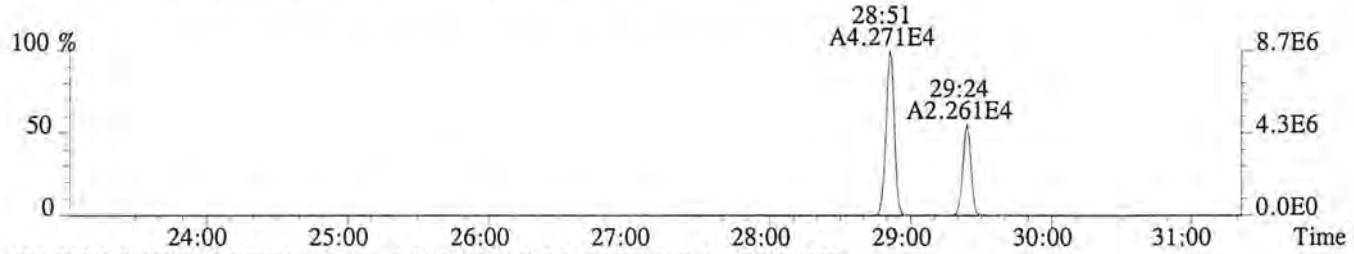
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

File:P301044 #1-591 Acq:26-AUG-2015 21:44:11 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1500743-024
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2008.0,1.00%,F,T)

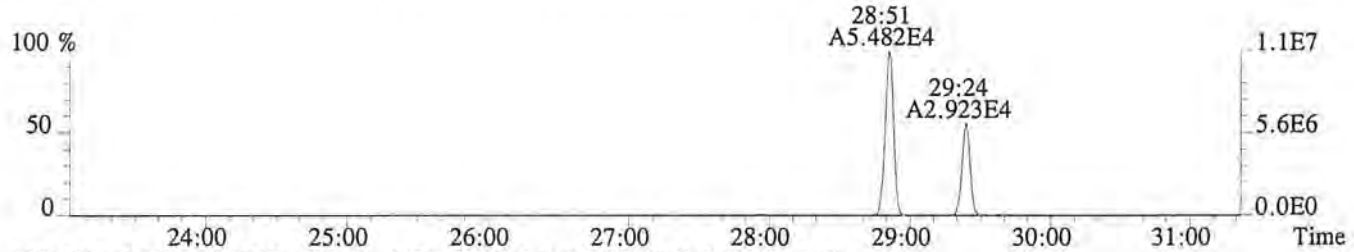


321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1672.0,1.00%,F,T)

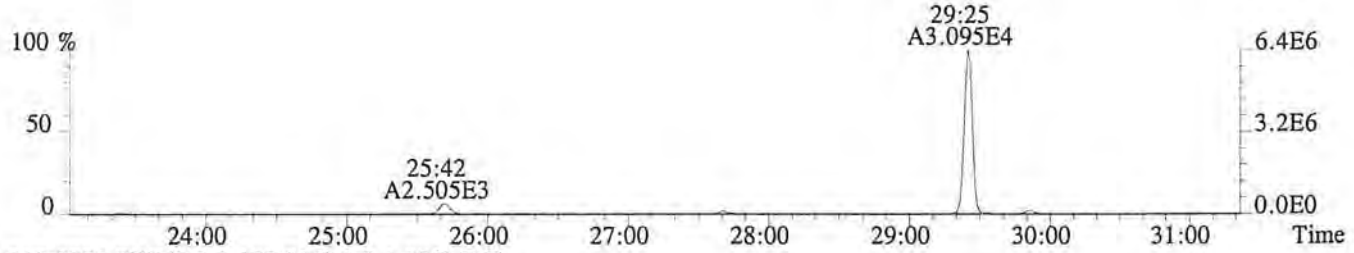
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7500.0,1.00%,F,T)



333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4588.0,1.00%,F,T)

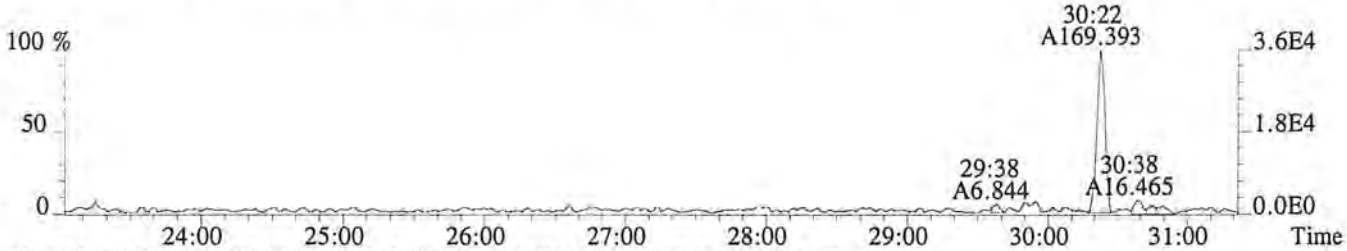


327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)

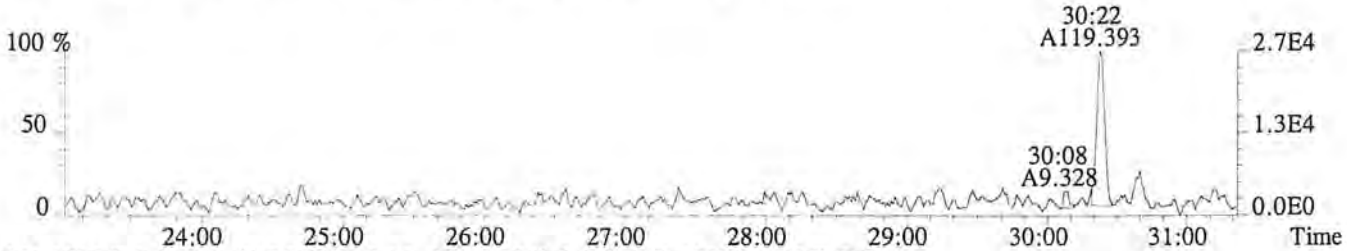


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

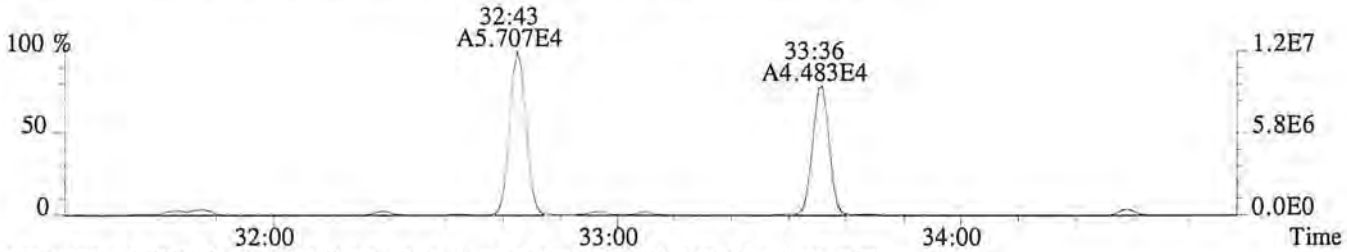
File:P301044 #1-591 Acq:26-AUG-2015 21:44:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-024
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



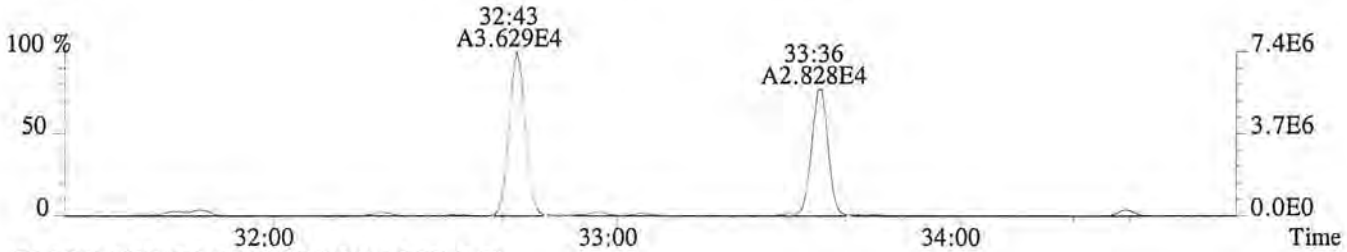
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2612.0,1.00%,F,T)



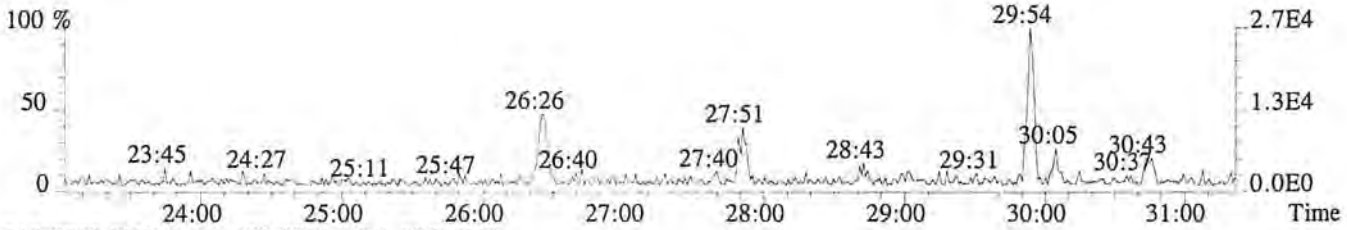
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)



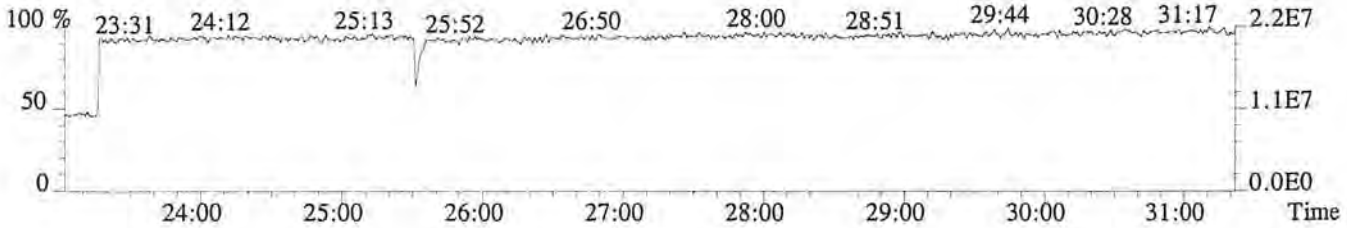
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1836.0,1.00%,F,T)



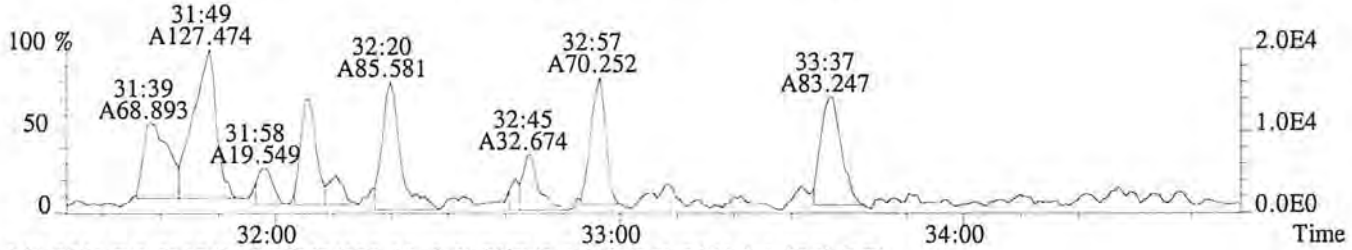
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



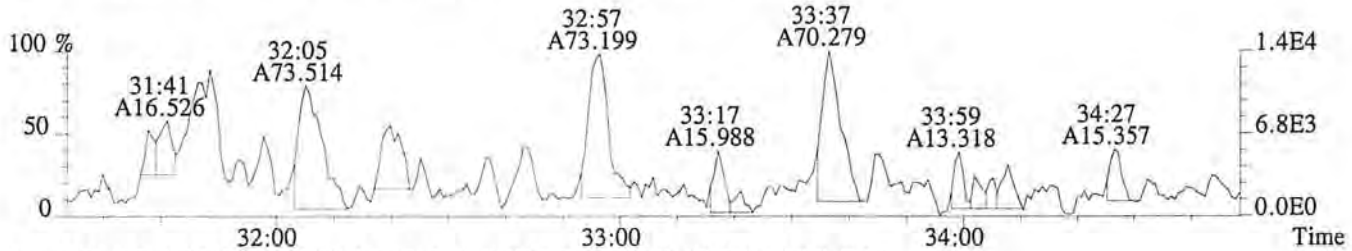
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



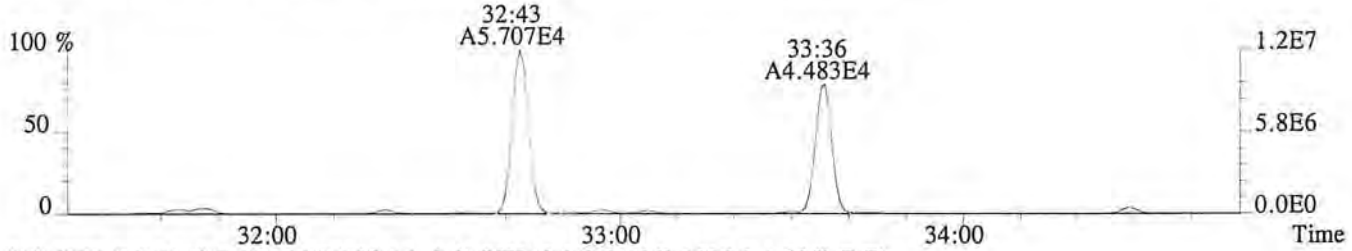
File:P301044 #1-308 Acq:26-AUG-2015 21:44:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-024
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1784.0,1.00%,F,T)



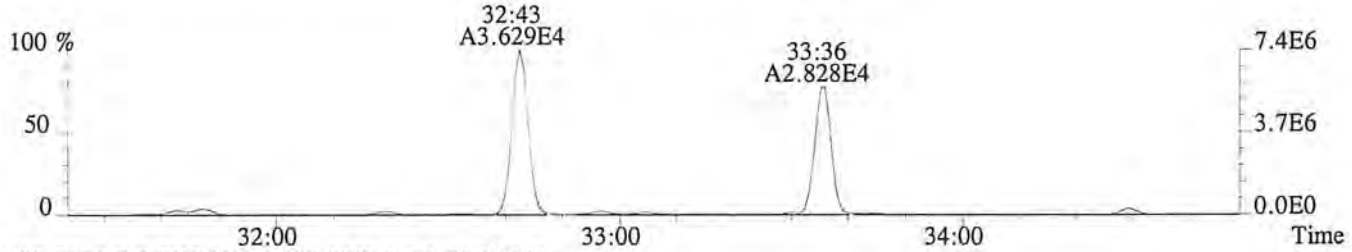
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2584.0,1.00%,F,T)



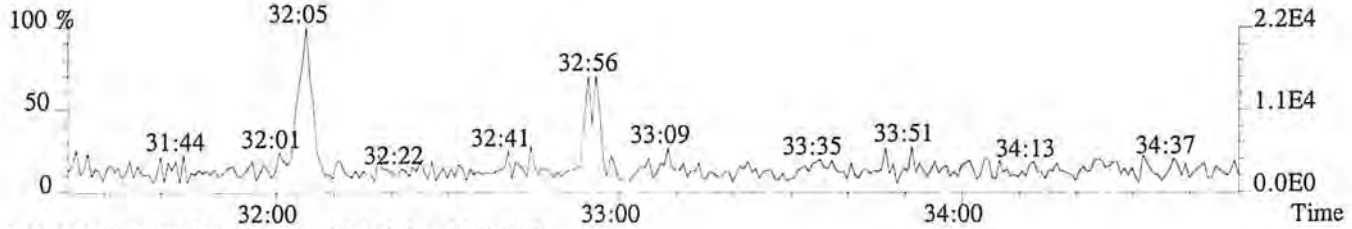
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)



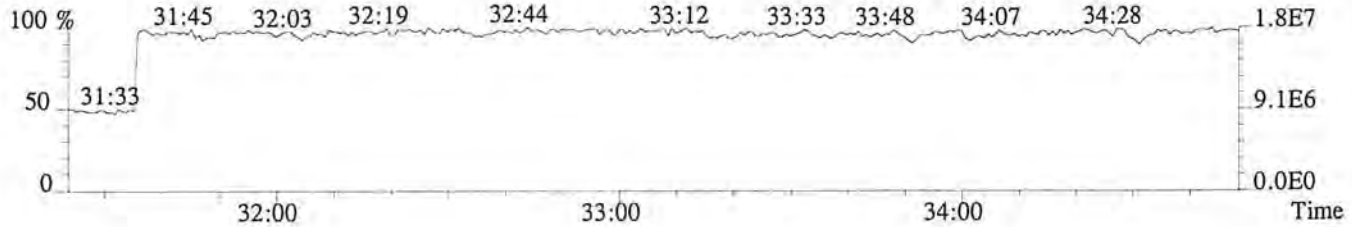
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1836.0,1.00%,F,T)



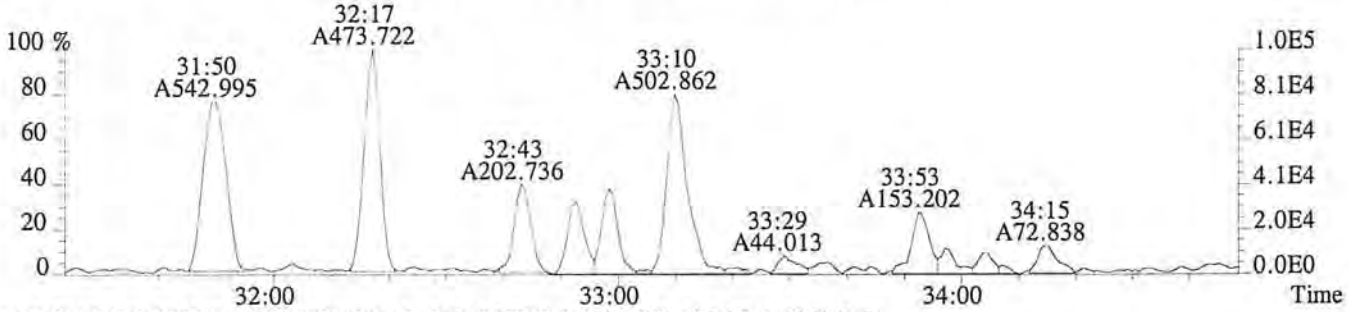
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



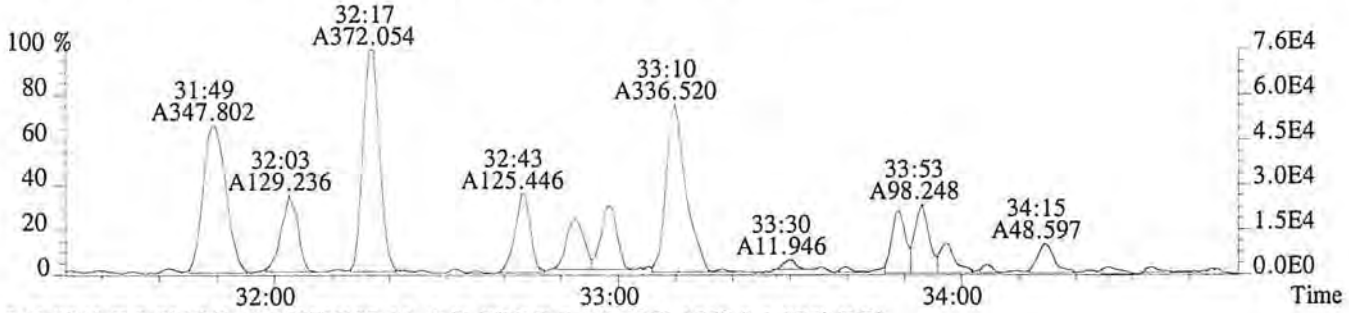
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



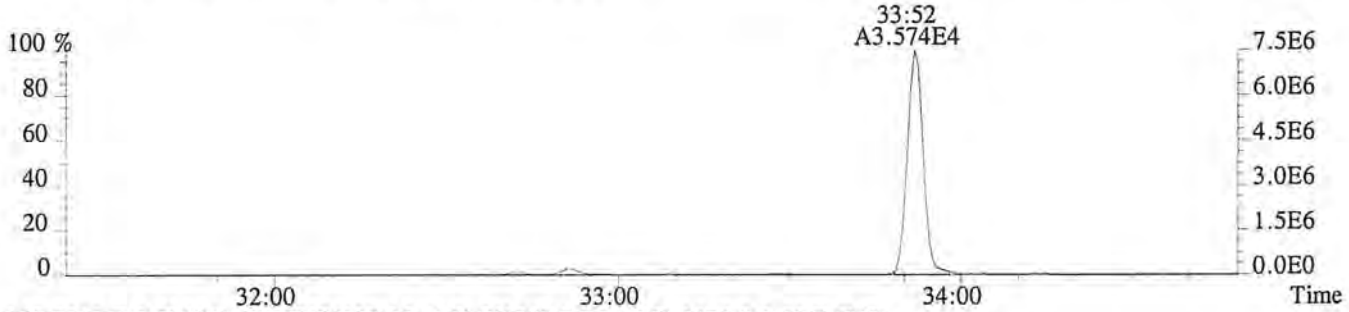
File:P301044 #1-308 Acq:26-AUG-2015 21:44:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-024
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2380.0,1.00%,F,T)



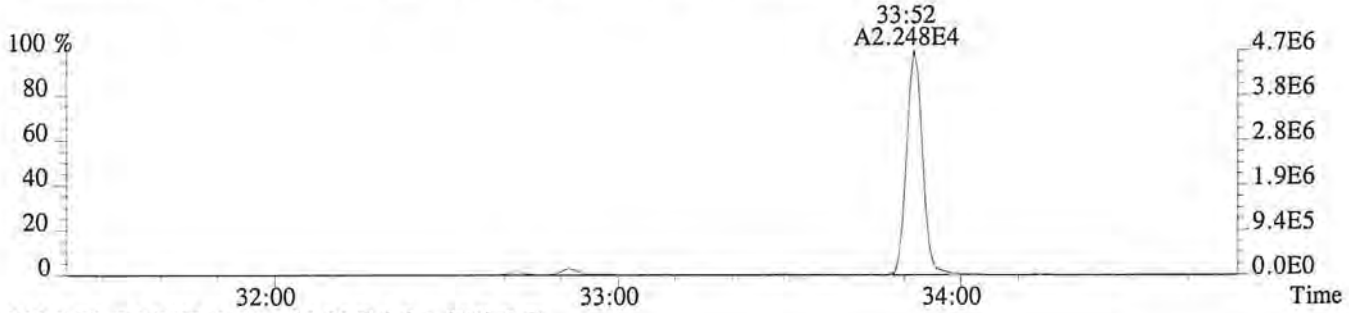
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)

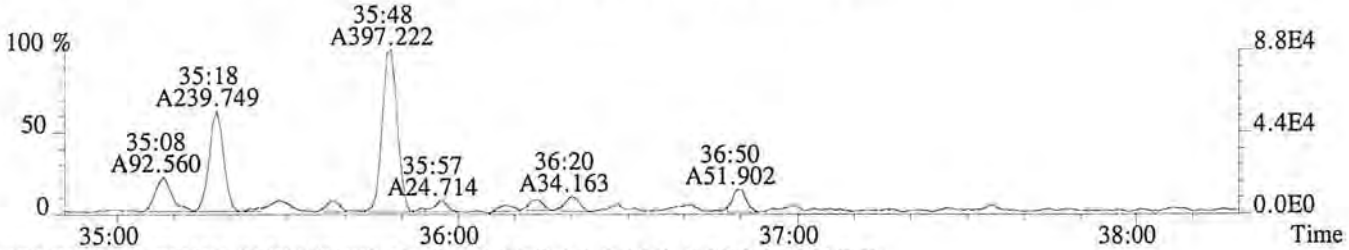


369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)

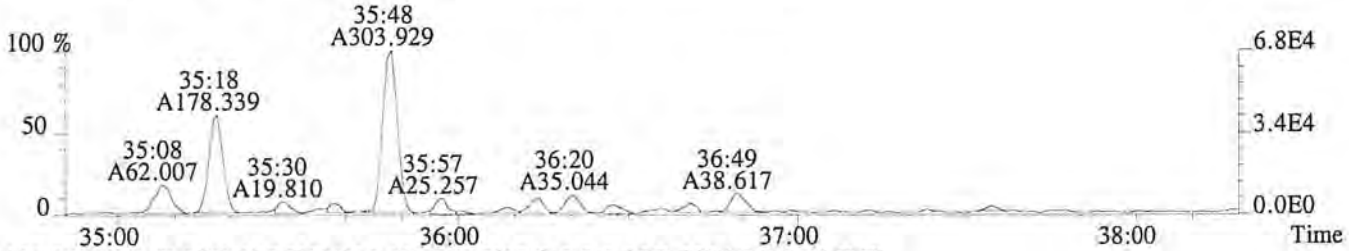


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

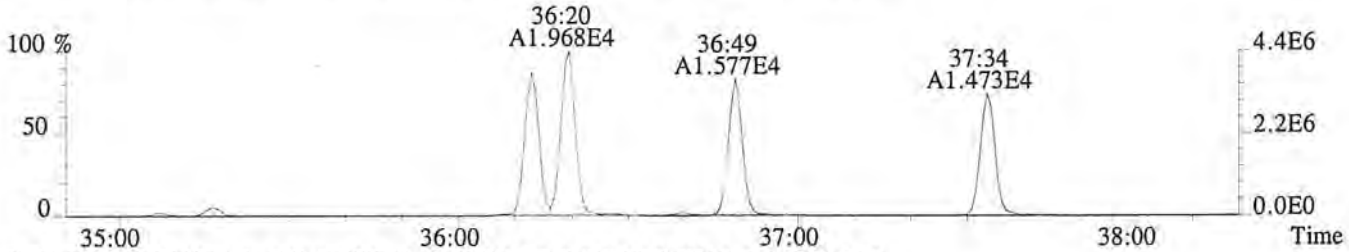
File:P301044 #1-312 Acq:26-AUG-2015 21:44:11 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1500743-024
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2464.0,0.40%,F,T)



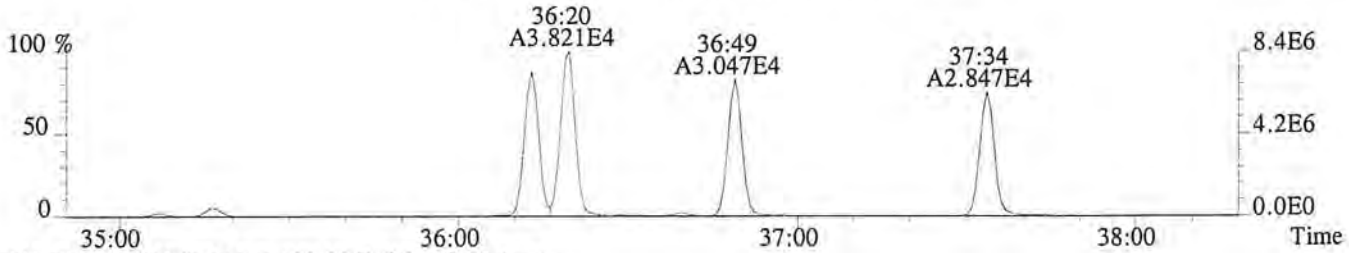
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1132.0,0.40%,F,T)



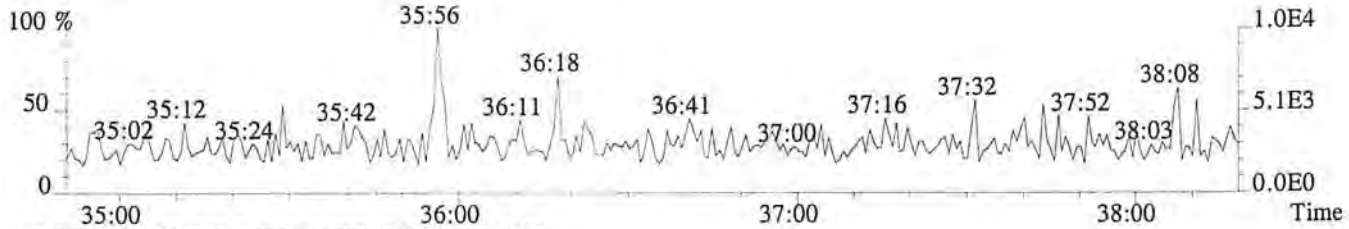
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2204.0,0.40%,F,T)



385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2248.0,0.40%,F,T)

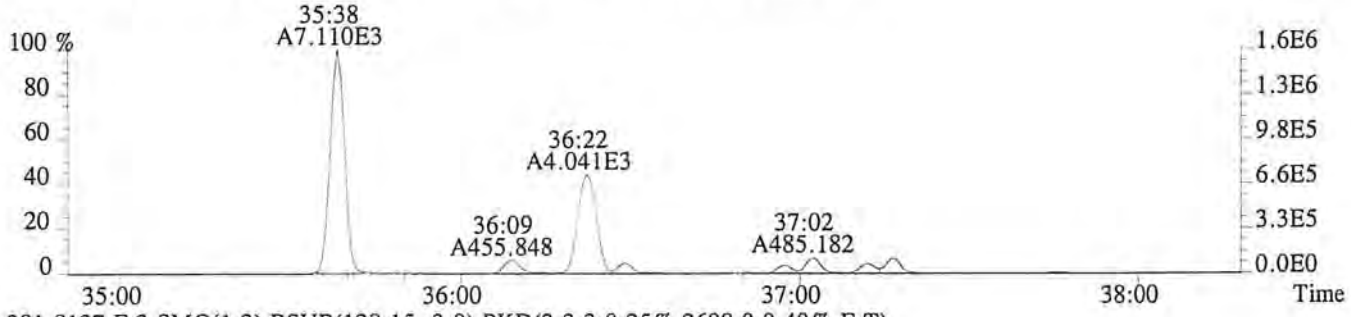


445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

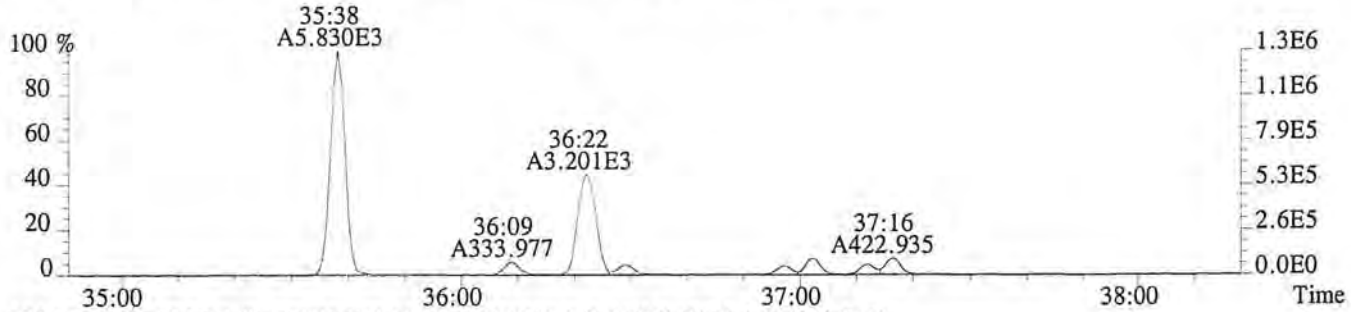


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

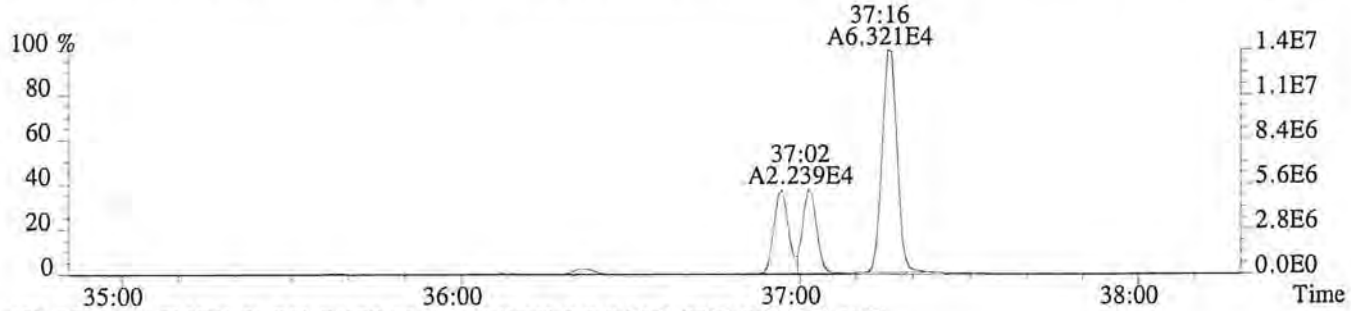
File:P301044 #1-312 Acq:26-AUG-2015 21:44:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-024
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.40%,F,T)



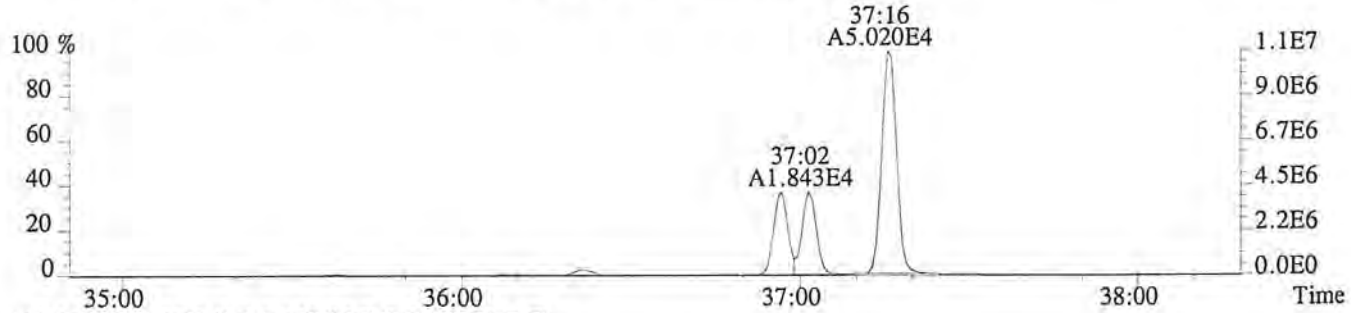
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2608.0,0.40%,F,T)



401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2064.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2392.0,0.40%,F,T)

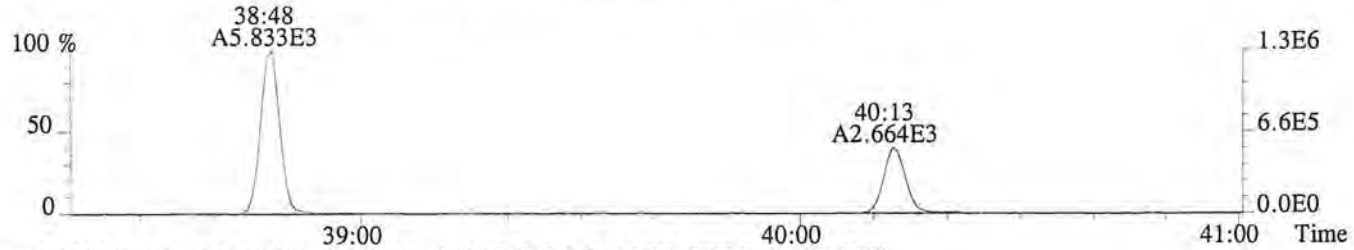


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

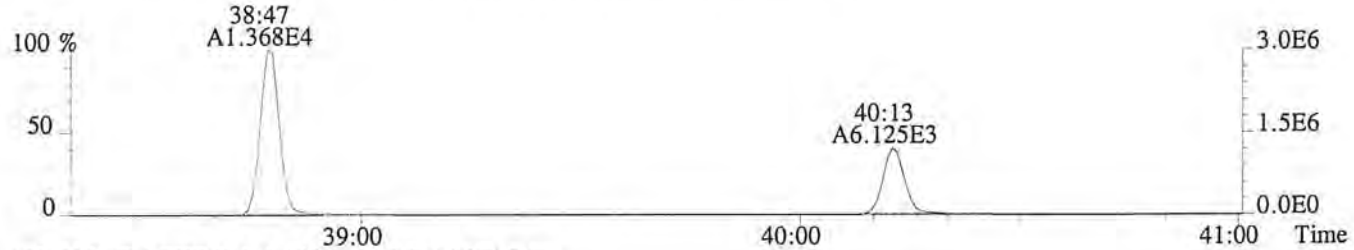
File:P301044 #1-241 Acq:26-AUG-2015 21:44:11 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:E1500743-024
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3140.0,0.50%,F,T)

409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1684.0,0.50%,F,T)

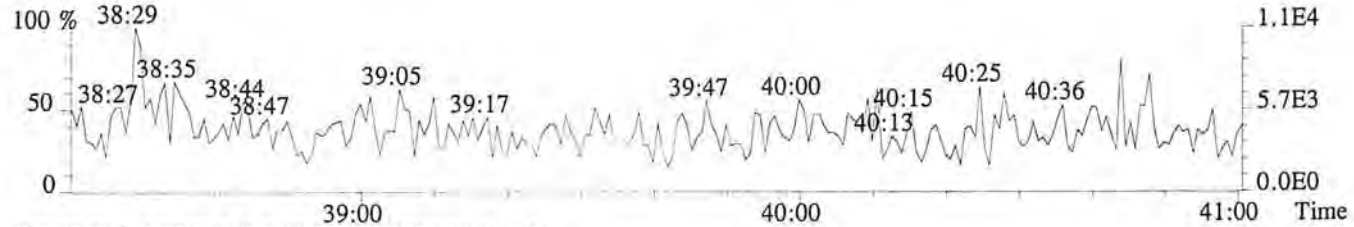
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3136.0,0.50%,F,T)



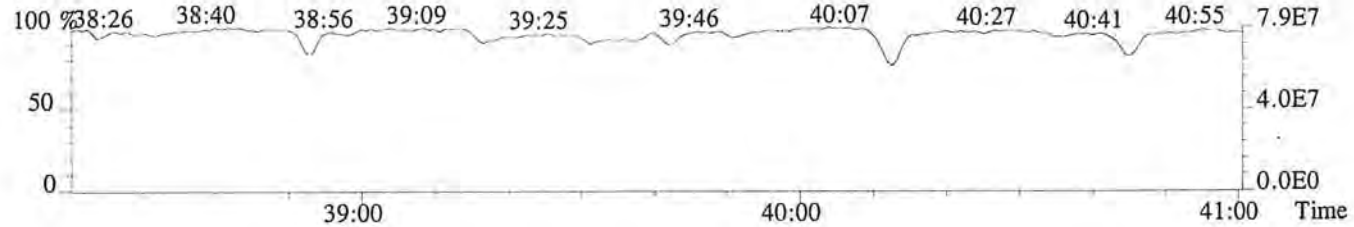
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.50%,F,T)



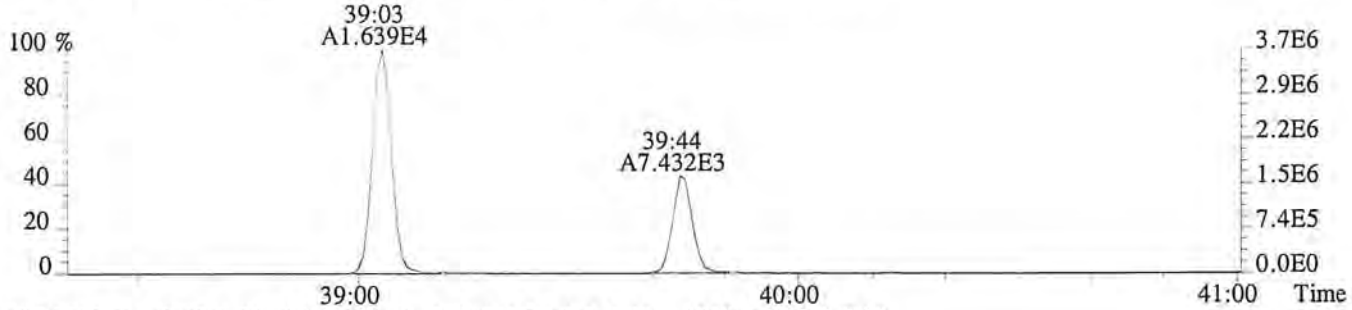
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



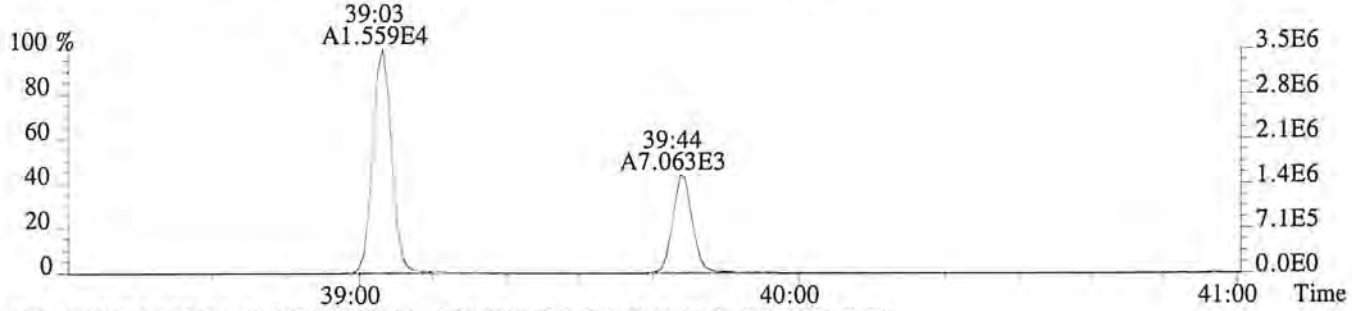
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



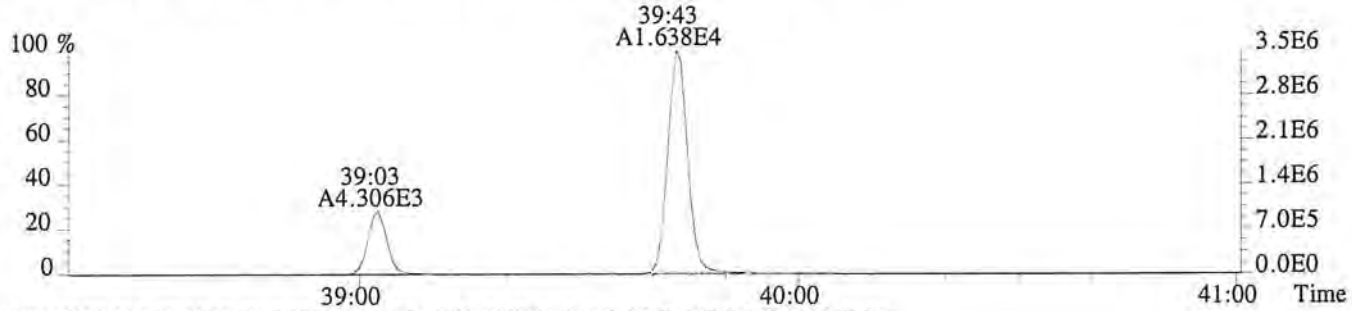
File:P301044 #1-241 Acq:26-AUG-2015 21:44:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-024
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3168.0,0.40%,F,T)



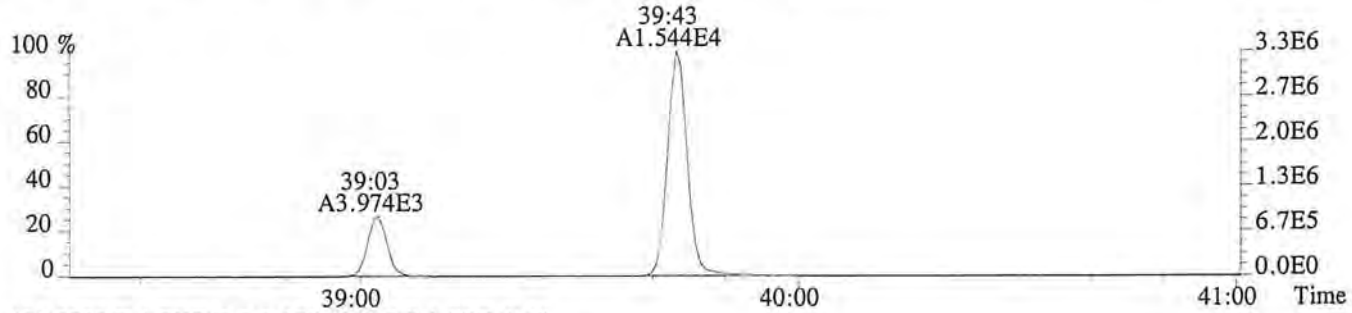
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4252.0,0.40%,F,T)



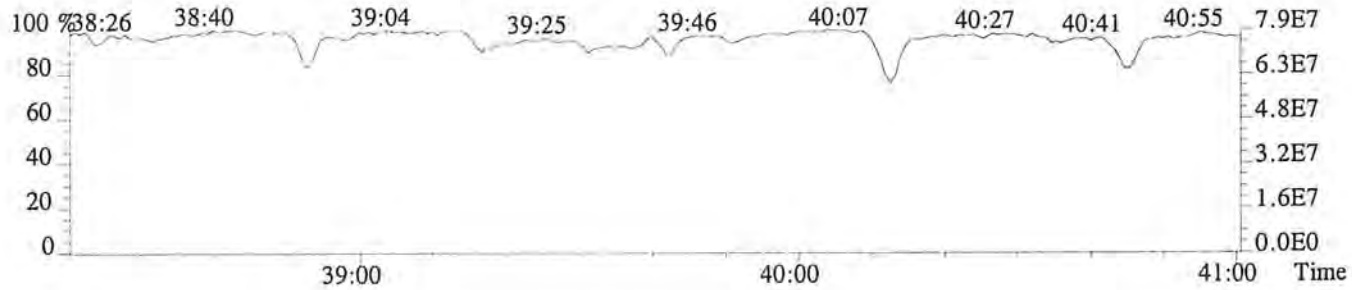
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3652.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

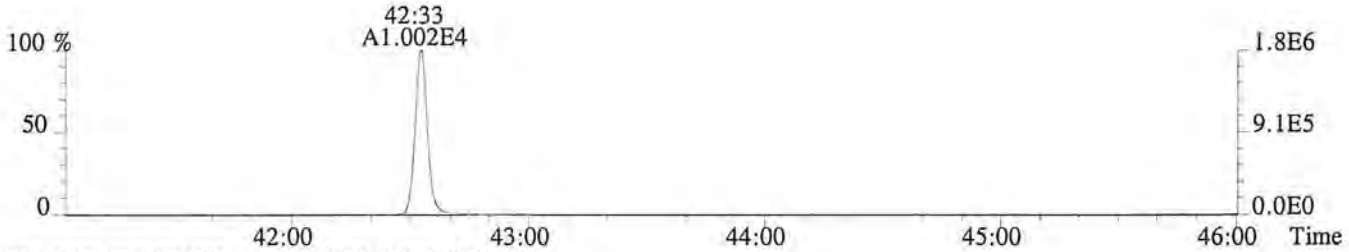


File:P301044 #1-447 Acq:26-AUG-2015 21:44:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-024
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1956.0,0.40%,F,T)

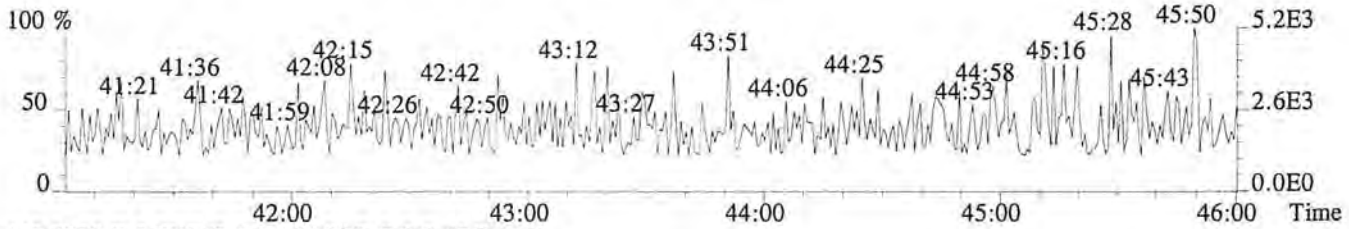
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3040.0,0.40%,F,T)

469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,932.0,0.40%,F,T)

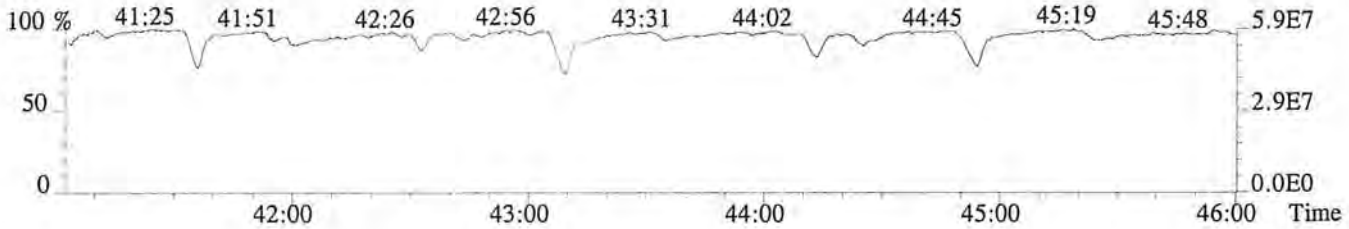
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1100.0,0.40%,F,T)



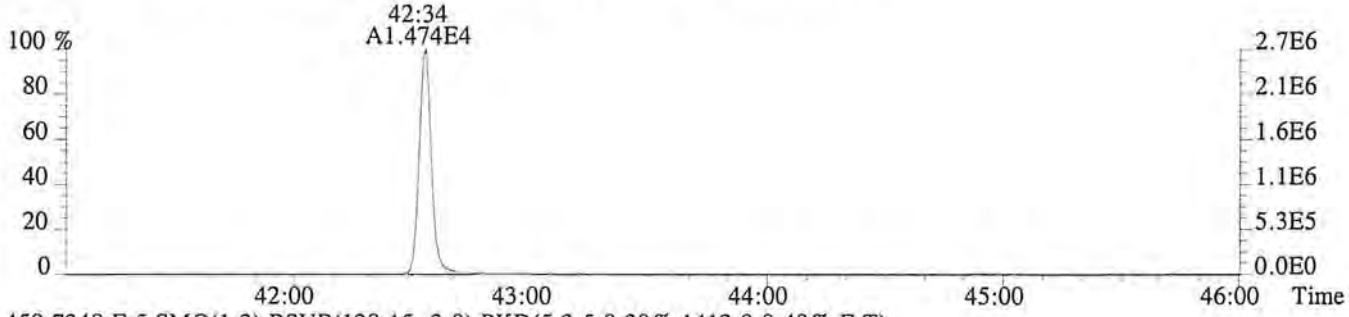
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



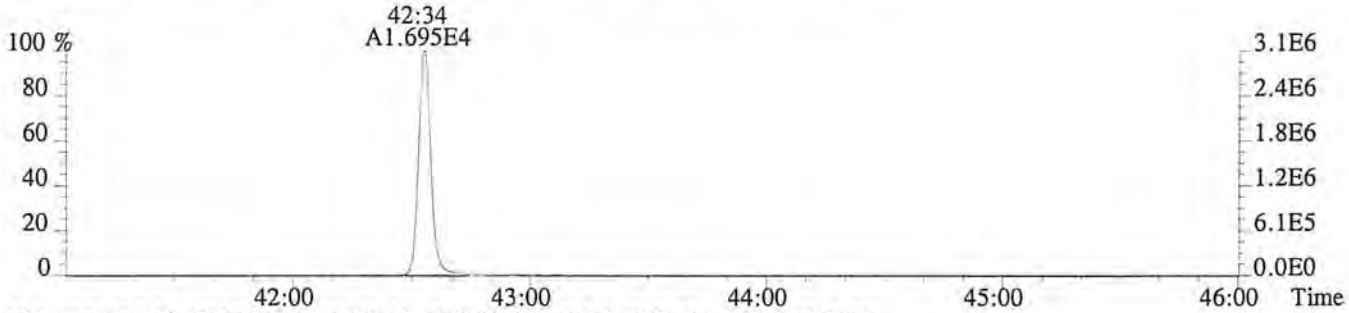
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



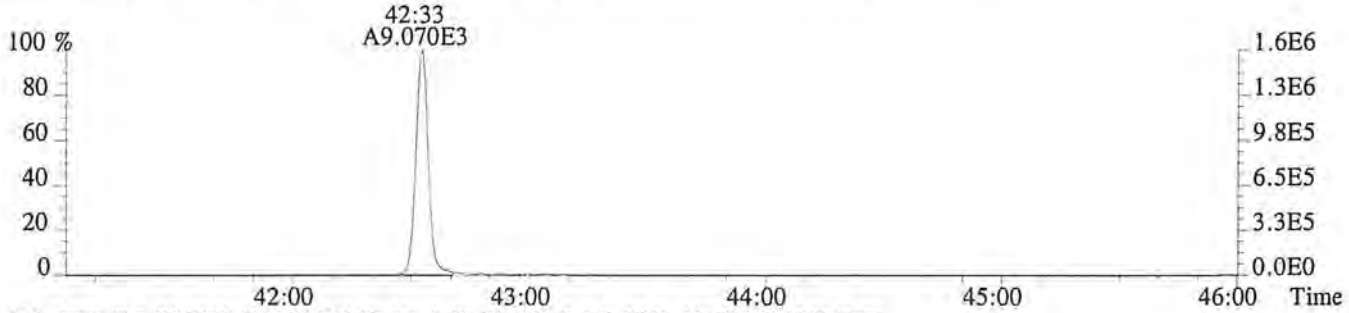
File:P301044 #1-447 Acq:26-AUG-2015 21:44:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1500743-024
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1104.0,0.40%,F,T)



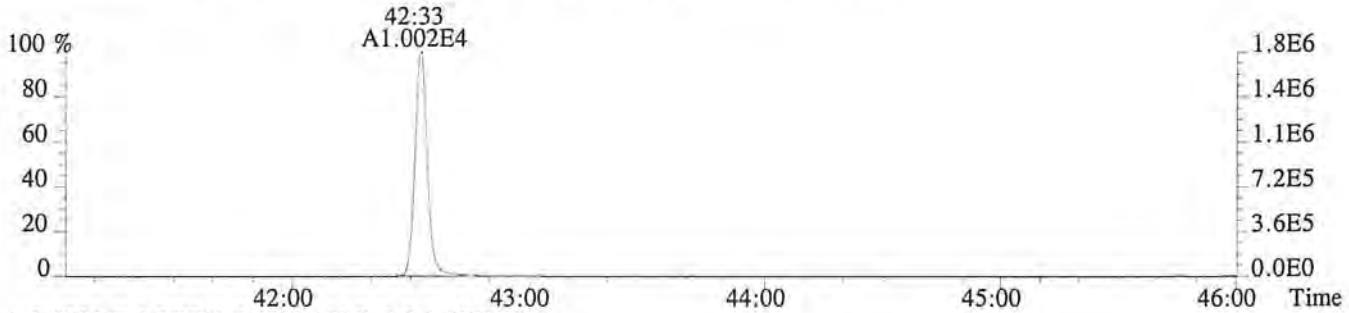
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1412.0,0.40%,F,T)



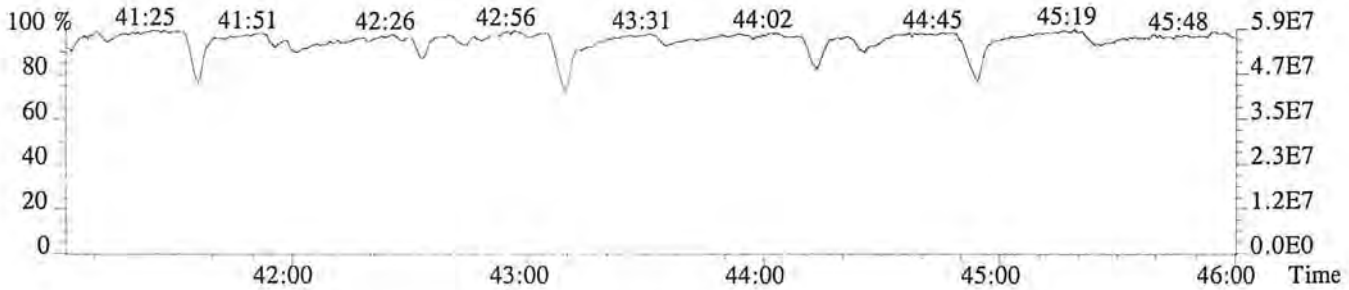
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,932.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1100.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #8 Filename p600058 Samp: 1 Inj: 1 Acquired: 22-AUG-15 09:06:17
Processed: 24-AUG-15 09:56:16 Sample ID: EQ1500471-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.941
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.987
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.934
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.189
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.126
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.116
7	Unk	1,2,3,7,8,9-HxCDF	37:53	1.817e+01	1.835e+01	0.99	no	yes	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:06	2.091e+01	4.462e+01	0.47	no	no	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:33	1.884e+01	1.501e+01	1.26	no	no	1.287
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.257
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	yes	1.010
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.932
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.026
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.021
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.133
16	Unk	1,2,3,4,6,7,8-HpCDD	40:03	1.589e+02	1.408e+02	1.13	yes	no	1.034
17	Unk	OCDD	42:54	2.175e+02	2.627e+02	0.83	yes	no	1.111
18	IS	13C-2,3,7,8-TCDF	29:07	7.972e+04	1.009e+05	0.79	yes	no	1.379
19	IS	13C-1,2,3,7,8-PeCDF	33:05	1.236e+05	7.893e+04	1.57	yes	no	1.456
20	IS	13C-2,3,4,7,8-PeCDF	33:57	1.150e+05	7.246e+04	1.59	yes	no	1.465
21	IS	13C-1,2,3,4,7,8-HxCDF	36:32	4.890e+04	9.543e+04	0.51	yes	no	1.075
22	IS	13C-1,2,3,6,7,8-HxCDF	36:38	5.598e+04	1.066e+05	0.53	yes	no	1.158
23	IS	13C-2,3,4,6,7,8-HxCDF	37:08	5.165e+04	9.894e+04	0.52	yes	no	1.133
24	IS	13C-1,2,3,7,8,9-HxCDF	37:52	5.429e+04	1.042e+05	0.52	yes	no	1.024
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:05	2.870e+04	6.500e+04	0.44	yes	no	0.880
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:31	2.177e+04	4.982e+04	0.44	yes	no	0.914
27	IS	13C-2,3,7,8-TCDD	29:50	5.662e+04	7.160e+04	0.79	yes	no	1.193
28	IS	13C-1,2,3,7,8-PeCDD	34:13	8.340e+04	5.321e+04	1.57	yes	no	1.094
29	IS	13C-1,2,3,4,7,8-HxCDD	37:15	6.815e+04	5.403e+04	1.26	yes	no	0.906
30	IS	13C-1,2,3,6,7,8-HxCDD	37:20	6.309e+04	4.993e+04	1.26	yes	no	0.860
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:01	5.192e+04	4.958e+04	1.05	yes	no	0.892
32	IS	13C-OCDD	42:54	5.680e+04	6.345e+04	0.90	yes	no	0.642
33	RS/RT	13C-1,2,3,4-TCDD	29:19	8.253e+04	1.033e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:34	1.220e+05	9.702e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:52	6.532e+04				no	1.263

$$\text{OCDD} = \frac{(2.175e{+}02 + 2.627e{+}02)\ \times\ 4000\ \text{pg}\ \times\ 1}{(5.680e{+}04 + 6.345e{+}04)\ \times\ \text{g}\ \times\ /\ 100\ \times\ 1.111} =$$

ALS ENVIRONMENTAL -- HOUSTON HRMS
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Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #8 Filename p600058 Samp: 1 Inj: 1 Acquired: 22-AUG-15 09:06:17
Processed: 24-AUG-15 09:56:16 LAB. ID: EQ1500471-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	7.92e+02	*	*	1.72e+03	*
2	1,2,3,7,8-PeCDF	*	1.68e+03	*	*	3.15e+03	*
3	2,3,4,7,8-PeCDF	*	1.68e+03	*	*	3.15e+03	*
4	1,2,3,4,7,8-HxCDF	*	1.08e+03	*	*	4.28e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.08e+03	*	*	4.28e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.08e+03	*	*	4.28e+02	*
7	1,2,3,7,8,9-HxCDF	5.19e+03	1.08e+03	4.8e+00	4.79e+03	4.28e+02	1.1e+01
8	1,2,3,4,6,7,8-HpCDF	5.20e+03	1.40e+03	3.7e+00	8.85e+03	7.28e+02	1.2e+01
9	1,2,3,4,7,8,9-HpCDF	5.39e+03	1.40e+03	3.8e+00	4.19e+03	7.28e+02	5.8e+00
10	OCDF	*	1.41e+03	*	*	3.99e+03	*
11	2,3,7,8-TCDD	*	1.32e+03	*	*	1.16e+03	*
12	1,2,3,7,8-PeCDD	*	2.76e+03	*	*	1.24e+03	*
13	1,2,3,4,7,8-HxCDD	*	6.64e+02	*	*	1.40e+03	*
14	1,2,3,6,7,8-HxCDD	*	6.64e+02	*	*	1.40e+03	*
15	1,2,3,7,8,9-HxCDD	*	6.64e+02	*	*	1.40e+03	*
16	1,2,3,4,6,7,8-HpCDD	3.35e+04	5.60e+02	6.0e+01	3.07e+04	1.26e+03	2.4e+01
17	OCDD	4.14e+04	1.01e+03	4.1e+01	5.07e+04	1.28e+03	3.9e+01
18	13C-2,3,7,8-TCDF	1.61e+07	4.42e+03	3.6e+03	2.04e+07	1.99e+03	1.0e+04
19	13C-1,2,3,7,8-PeCDF	2.58e+07	5.20e+02	5.0e+04	1.66e+07	1.83e+03	9.1e+03
20	13C-2,3,4,7,8-PeCDF	2.42e+07	5.20e+02	4.6e+04	1.51e+07	1.83e+03	8.2e+03
21	13C-1,2,3,4,7,8-HxCDF	1.11e+07	1.02e+03	1.1e+04	2.13e+07	2.17e+03	9.8e+03
22	13C-1,2,3,6,7,8-HxCDF	1.30e+07	1.02e+03	1.3e+04	2.46e+07	2.17e+03	1.1e+04
23	13C-2,3,4,6,7,8-HxCDF	1.22e+07	1.02e+03	1.2e+04	2.30e+07	2.17e+03	1.1e+04
24	13C-1,2,3,7,8,9-HxCDF	1.23e+07	1.02e+03	1.2e+04	2.34e+07	2.17e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	6.84e+06	3.72e+03	1.8e+03	1.55e+07	1.38e+03	1.1e+04
26	13C-1,2,3,4,7,8,9-HpCDF	4.87e+06	3.72e+03	1.3e+03	1.11e+07	1.38e+03	8.0e+03
27	13C-2,3,7,8-TCDD	1.21e+07	6.34e+03	1.9e+03	1.55e+07	3.77e+03	4.1e+03
28	13C-1,2,3,7,8-PeCDD	1.84e+07	2.26e+03	8.1e+03	1.16e+07	1.74e+03	6.7e+03
29	13C-1,2,3,4,7,8-HxCDD	1.63e+07	5.24e+03	3.1e+03	1.27e+07	2.14e+03	5.9e+03
30	13C-1,2,3,6,7,8-HxCDD	1.52e+07	5.24e+03	2.9e+03	1.21e+07	2.14e+03	5.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.15e+07	9.60e+02	1.2e+04	1.11e+07	6.76e+02	1.6e+04
32	13C-OCDD	1.11e+07	1.06e+03	1.0e+04	1.26e+07	1.08e+03	1.2e+04
33	13C-1,2,3,4-TCDD	1.68e+07	6.34e+03	2.7e+03	2.09e+07	3.77e+03	5.5e+03
34	13C-1,2,3,7,8,9-HxCDD	2.87e+07	5.24e+03	5.5e+03	2.29e+07	2.14e+03	1.1e+04
35	37Cl-2,3,7,8-TCDD	1.39e+07	1.24e+03	1.1e+04			

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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Office:(713)266-1599. Fax:(713)266-0130

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 36 Totals Name: Total Tetra-Furans

Run: 8 File: p600058 Sample:1 Injection:1 Function:1

Acquired: 22-AUG-15 09:06:17 Processed: 24-AUG-15 09:56:16

Mass: 303.9020 305.8990 Tot Response: 2.56e+03 RRF: 0.9406

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:52	2.98e+02	3.97e+02	0.75	yes	6.95e+02		n	n
2	25:55	7.95e+02	1.00e+03	0.79	yes	1.80e+03		n	n
3	27:05	2.78e+01	3.38e+01	0.82	yes	6.16e+01		n	n

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Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 8 File: p600058 Sample:1 Injection:1 Function:1

Acquired: 22-AUG-15 09:06:17 Processed: 24-AUG-15 09:56:16

Mass: 319.8970 321.8940 Tot Response: 8.44e+02 RRF: 1.010

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:27	3.60e+01	4.14e+01	0.87	yes	7.74e+01		n	n
2	29:38	3.24e+02	4.42e+02	0.73	yes	7.66e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 38 Totals Name: Total Penta-Furans1

Run: 8 File: p600058 Sample:1 Injection:1 Function:1

Acquired: 22-AUG-15 09:06:17 Processed: 24-AUG-15 09:56:16

Mass: 339.8600 341.8570 Tot Response: 8.56e+02 RRF: 0.9605

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:48	5.37e+02	3.19e+02	1.68	yes	8.56e+02	n	n

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Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 41 Totals Name: Total Hexa-Furans

Run: 8 File: p600058 Sample:1 Injection:1 Function:3

Acquired: 22-AUG-15 09:06:17 Processed: 24-AUG-15 09:56:16

Mass: 373.8210 375.8180 Tot Response: 5.75e+01 RRF: 1.146

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:08	3.32e+01	2.43e+01	1.37	yes	5.75e+01	y	n

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Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 8 File: p600058 Sample:1 Injection:1 Function:4

Acquired: 22-AUG-15 09:06:17 Processed: 24-AUG-15 09:56:16

Mass: 423.7770 425.7740 Tot Response: 5.35e+02 RRF: 1.034

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:21	1.19e+02	1.16e+02	1.02	yes	2.35e+02	n	n
2	40:03	1.59e+02	1.41e+02	1.13	yes	3.00e+02	1,2,3,4,6,7,8-HpCDD	n	n

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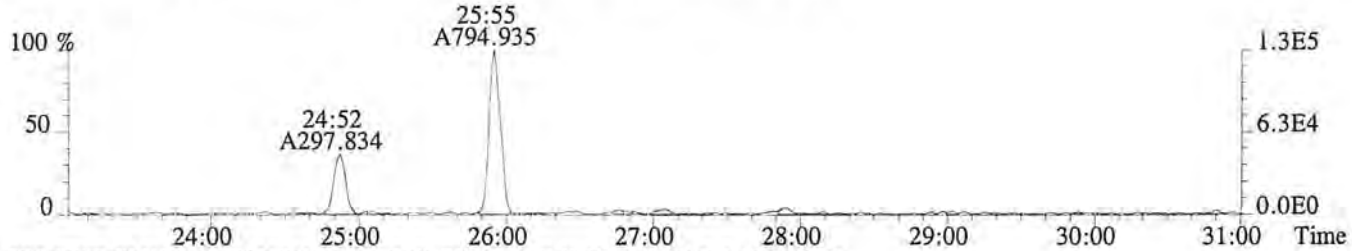
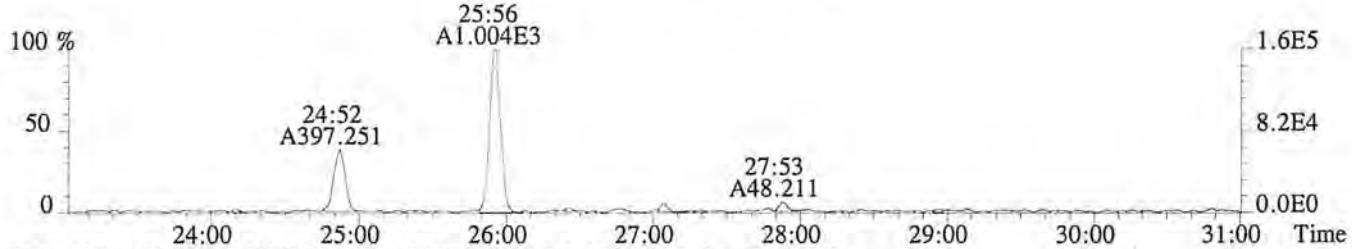
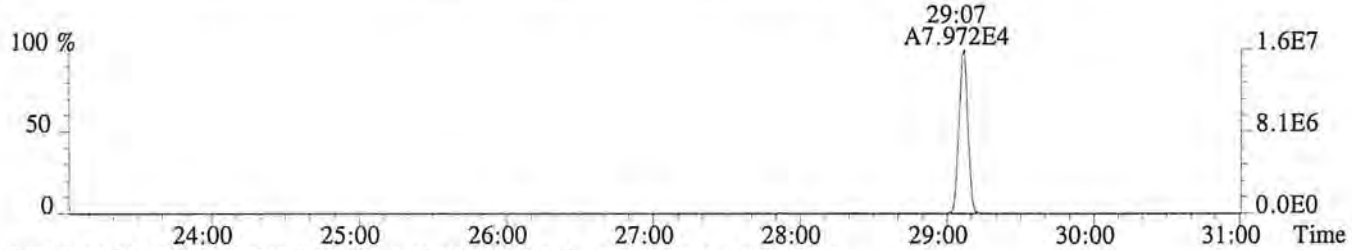
File:P600058 #1-566 Acq:22-AUG-2015 09:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



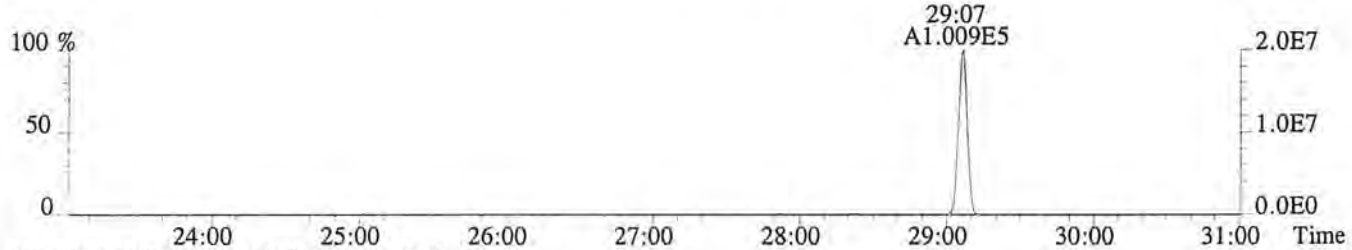
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1720.0,1.00%,F,T)



315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4416.0,1.00%,F,T)

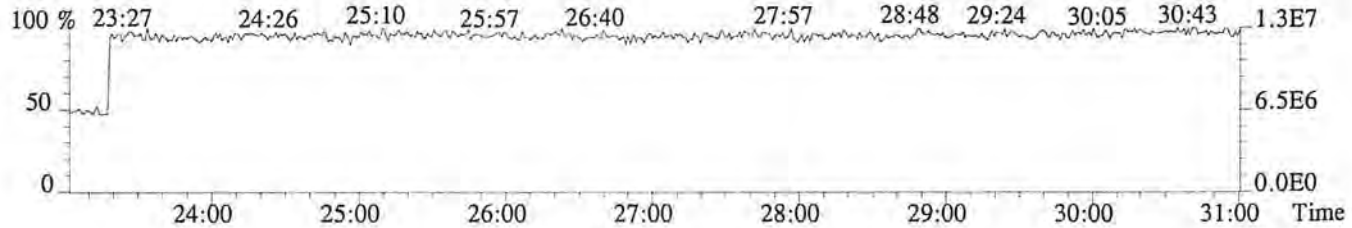


317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1992.0,1.00%,F,T)

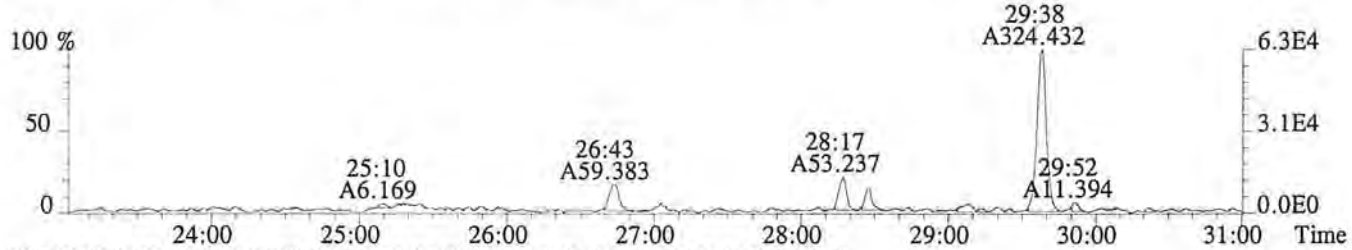


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

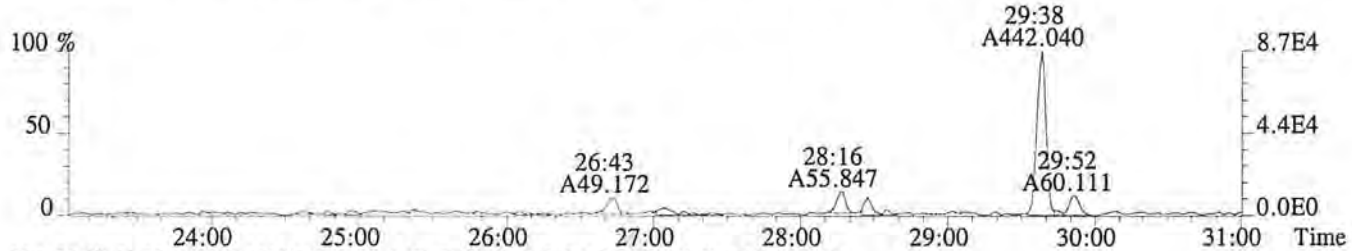
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



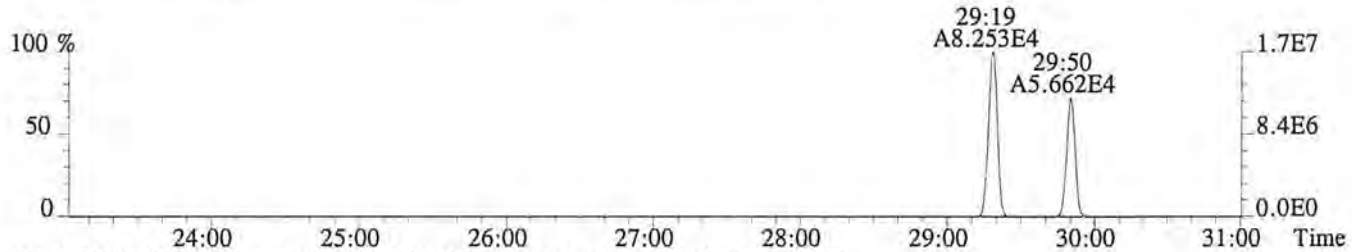
File:P600058 #1-566 Acq:22-AUG-2015 09:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1320.0,1.00%,F,T)



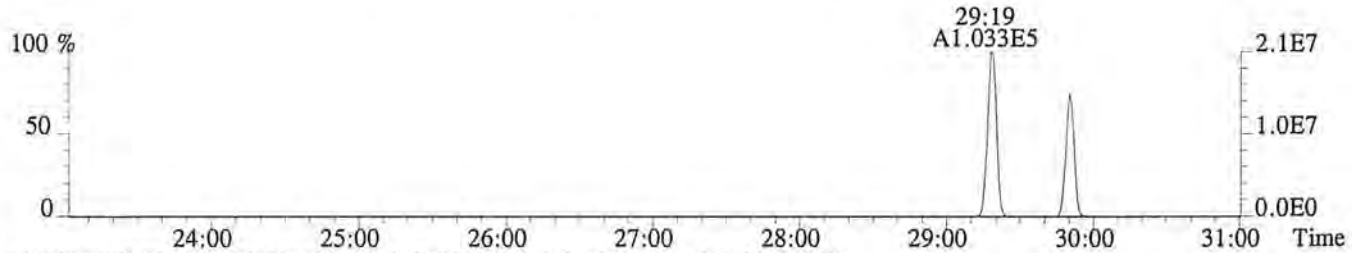
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1164.0,1.00%,F,T)



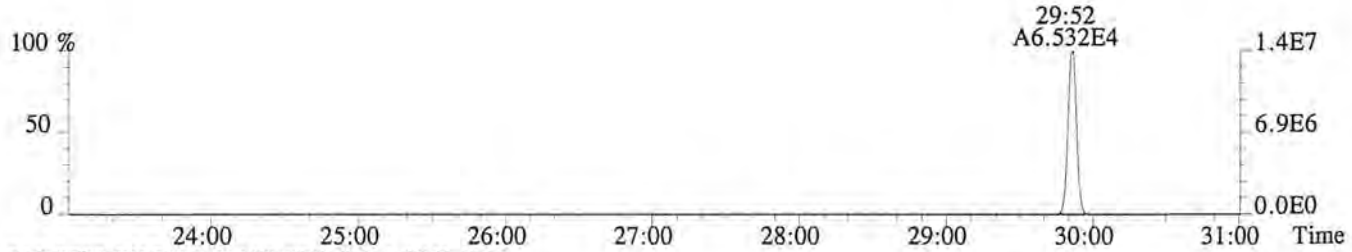
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6336.0,1.00%,F,T)



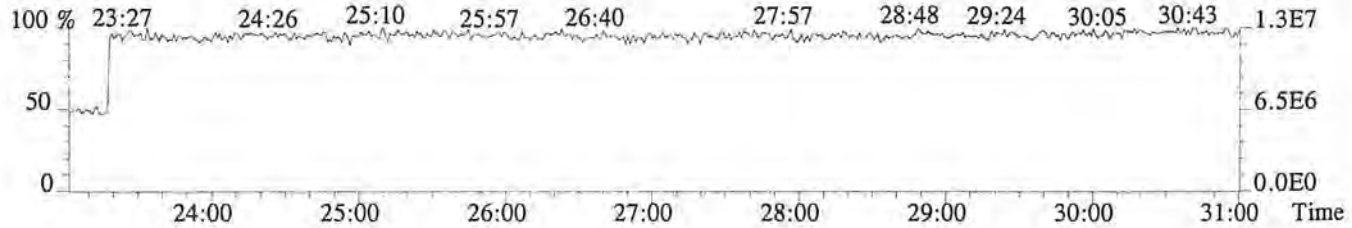
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3772.0,1.00%,F,T)



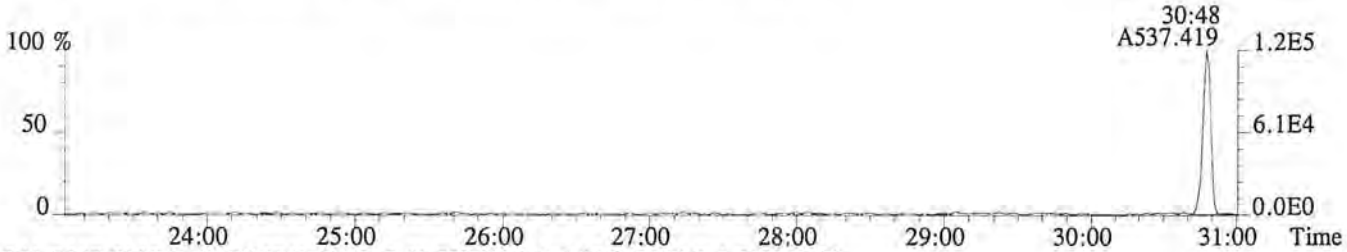
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



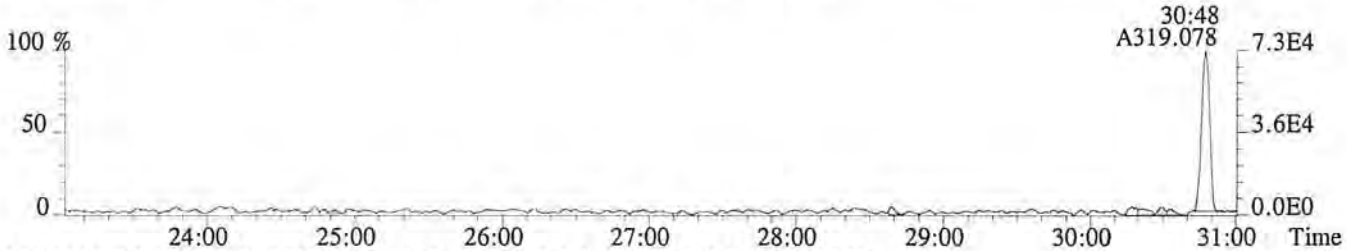
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



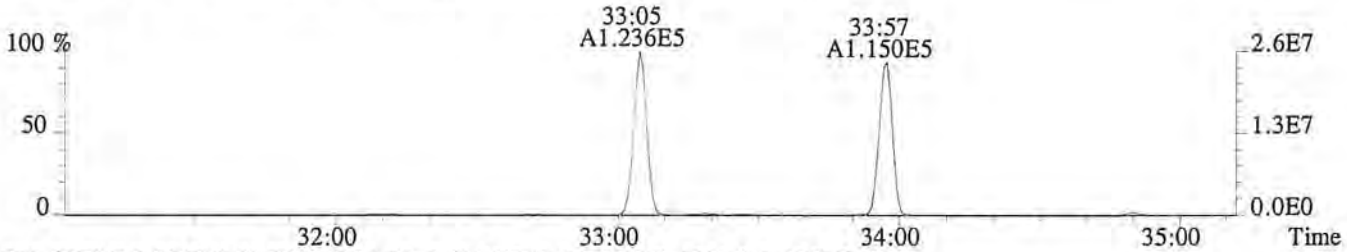
File:P600058 #1-566 Acq:22-AUG-2015 09:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



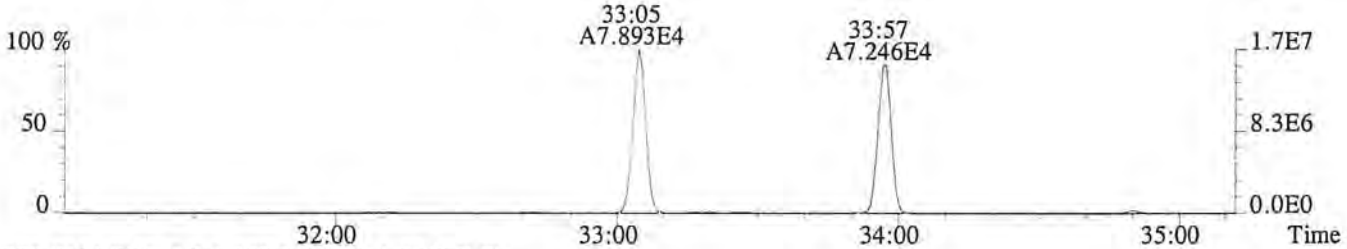
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2044.0,1.00%,F,T)



351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)

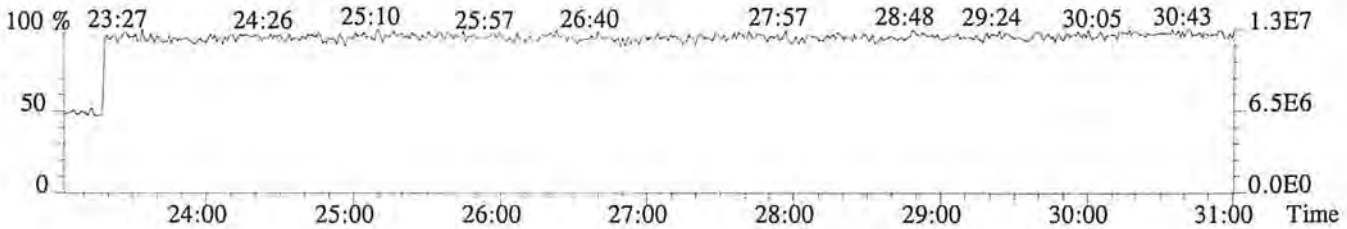


353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)

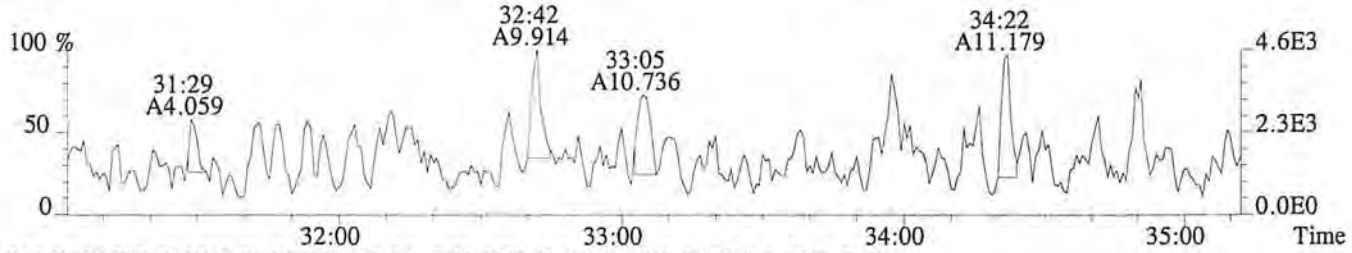


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

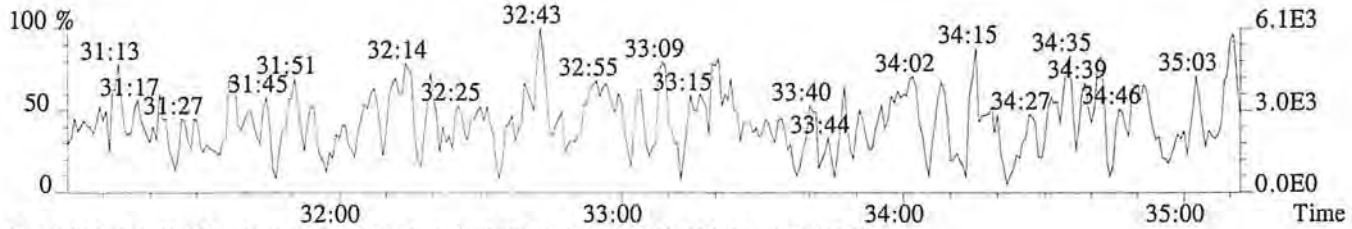
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



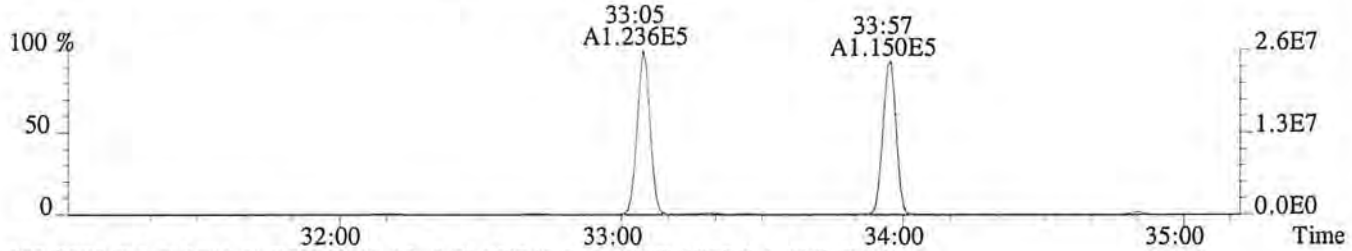
File:P600058 #1-375 Acq:22-AUG-2015 09:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1680.0,1.00%,F,T)



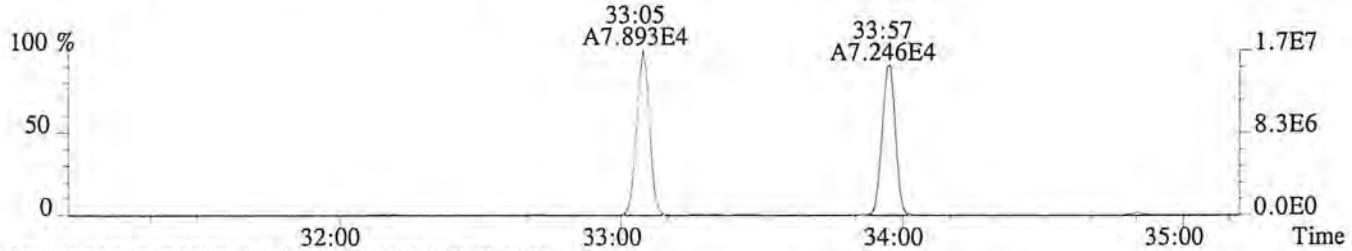
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3152.0,1.00%,F,T)



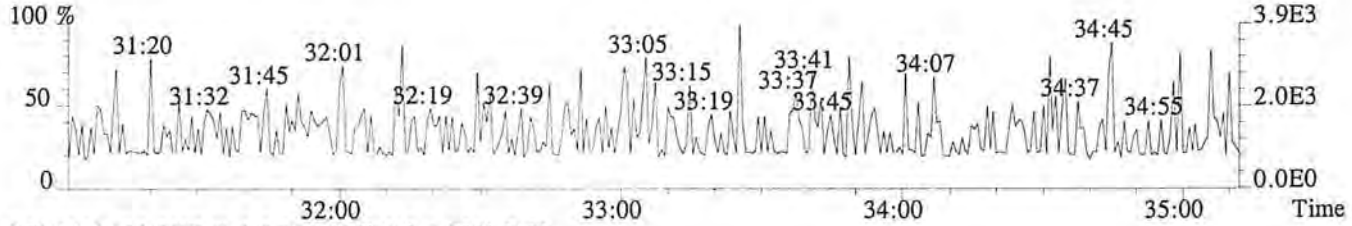
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



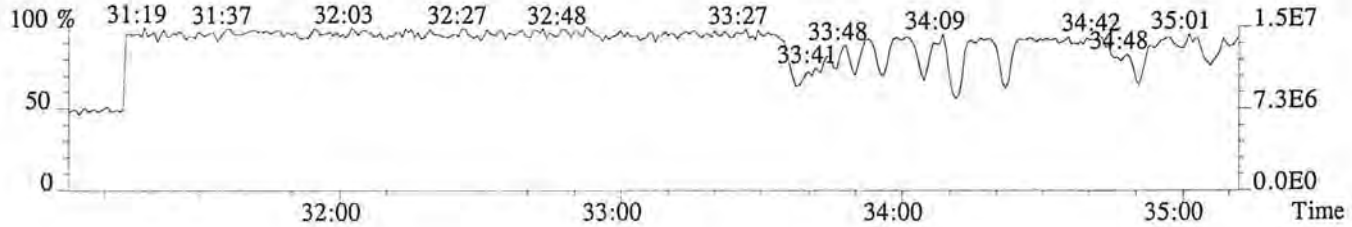
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)



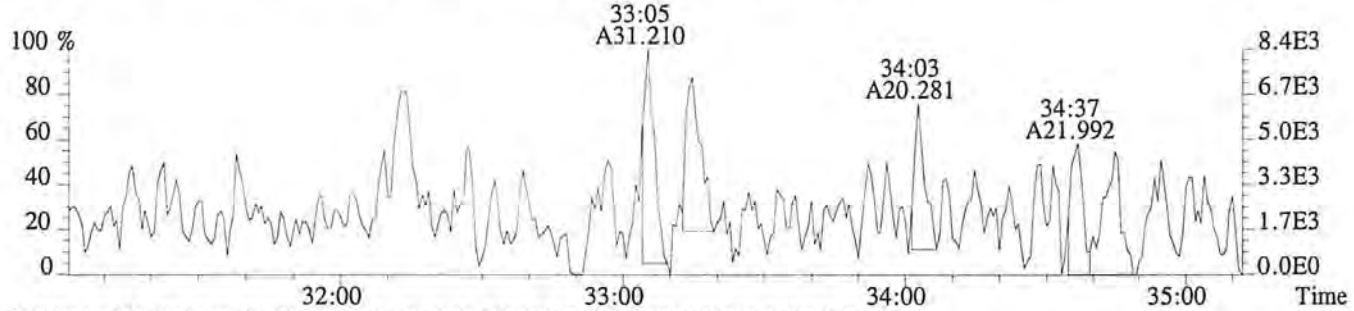
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



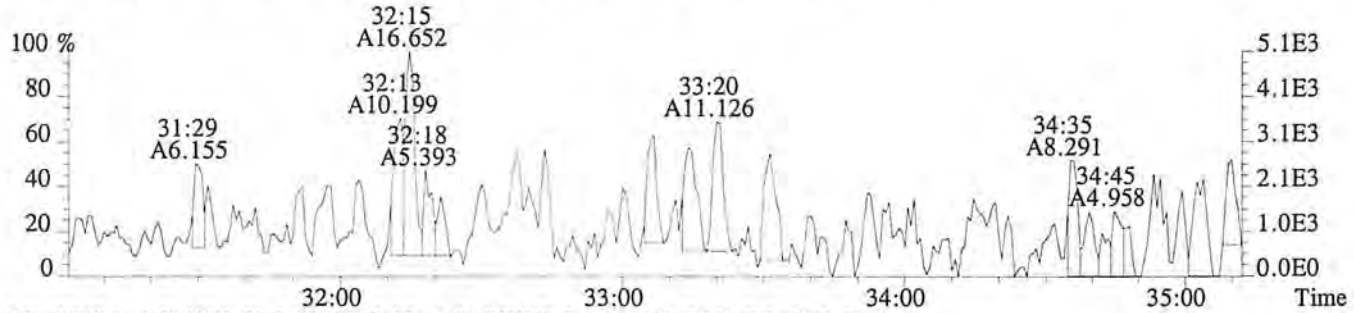
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



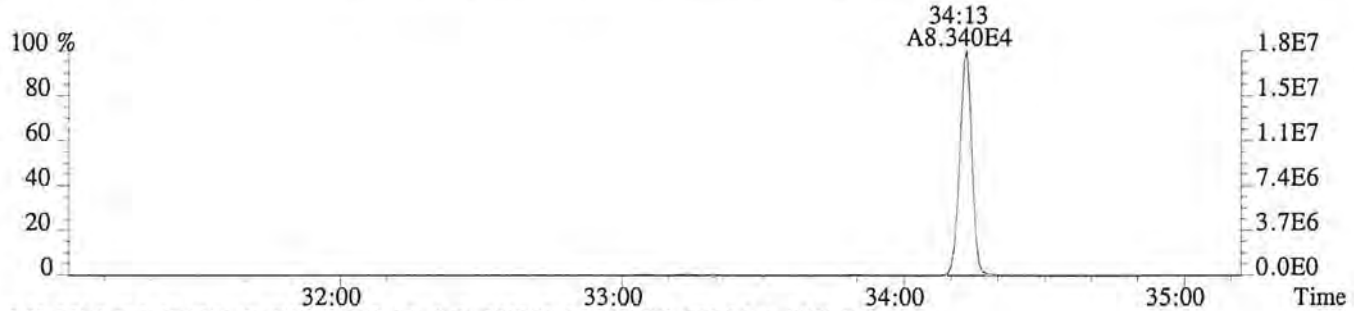
File:P600058 #1-375 Acq:22-AUG-2015 09:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2760.0,1.00%,F,T)



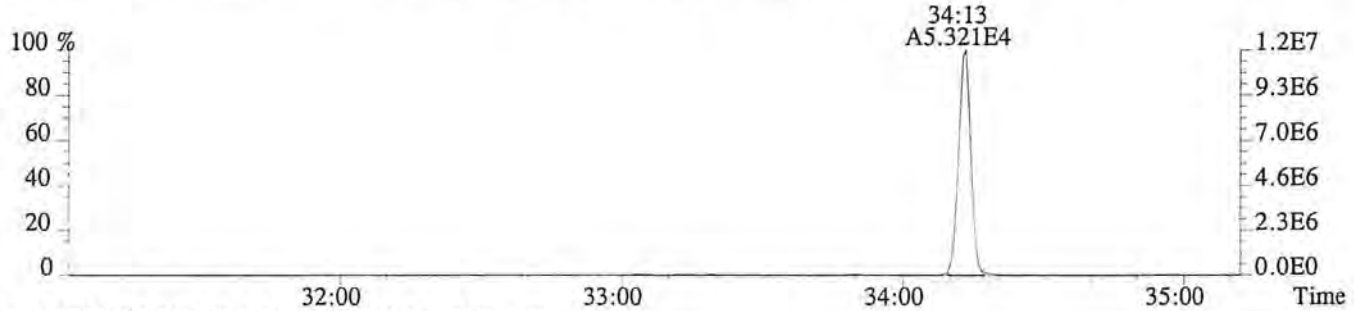
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



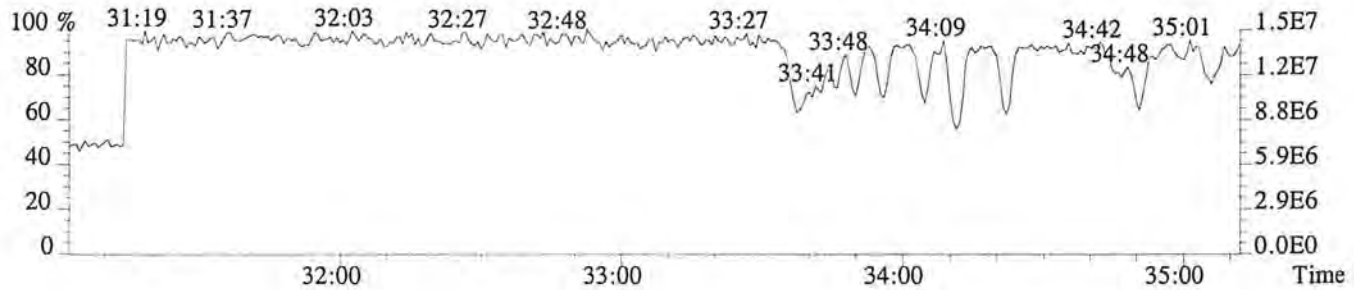
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2260.0,1.00%,F,T)



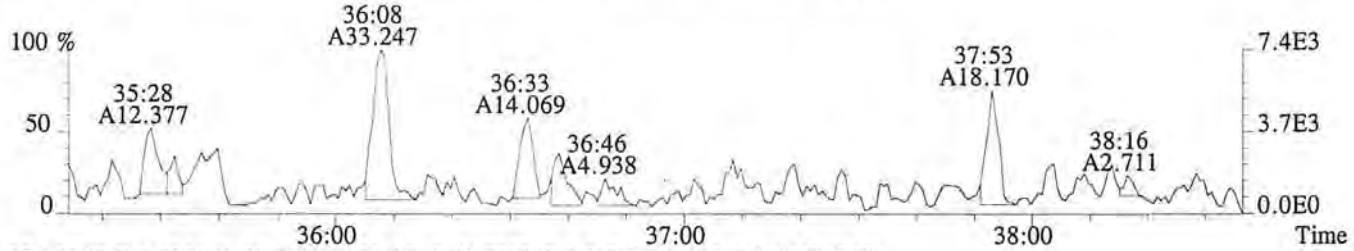
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1736.0,1.00%,F,T)



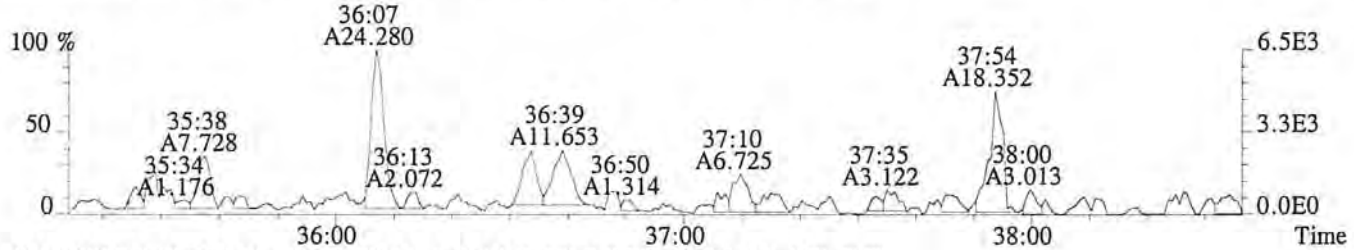
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



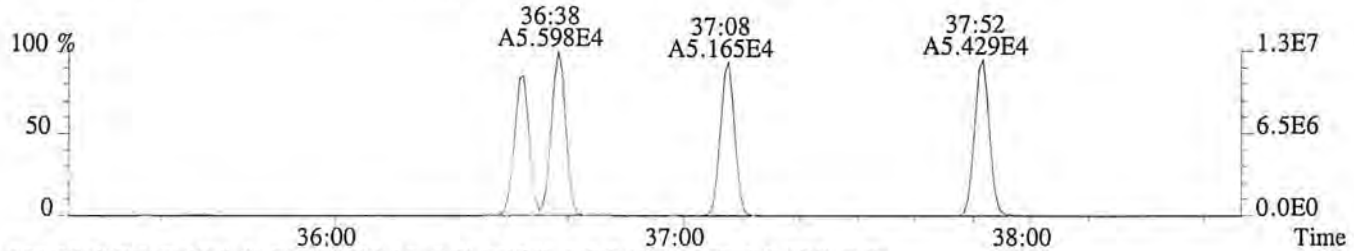
File:P600058 #1-304 Acq:22-AUG-2015 09:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



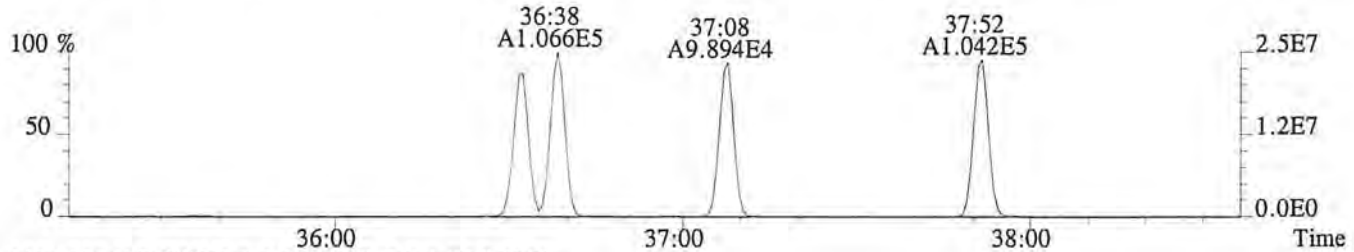
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



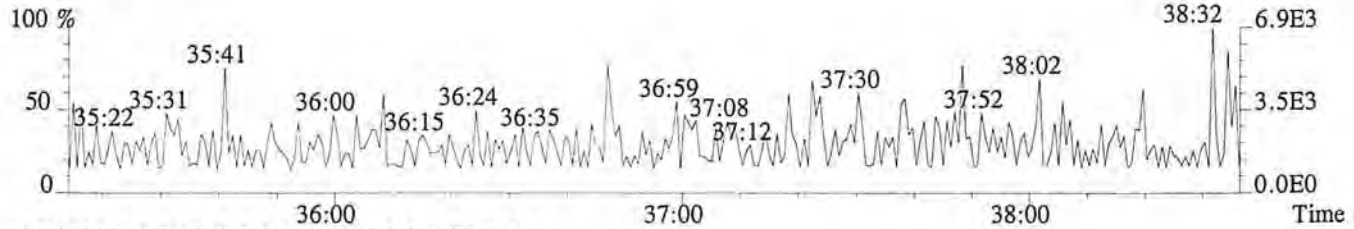
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1024.0,0.40%,F,T)



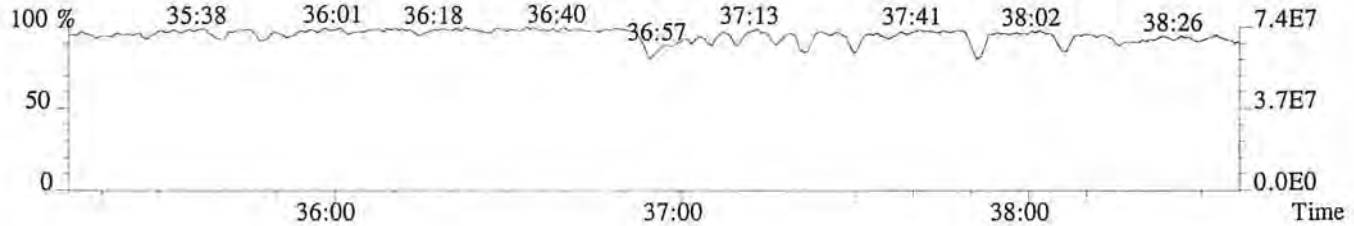
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2172.0,0.40%,F,T)



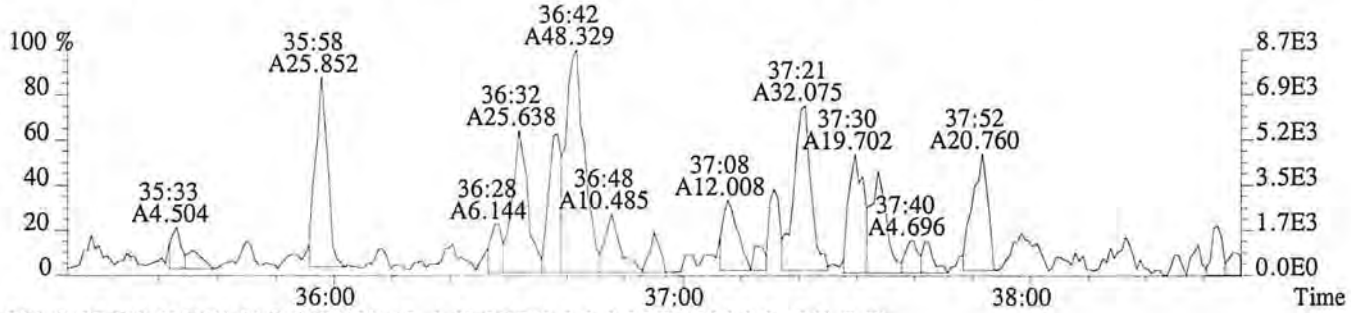
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



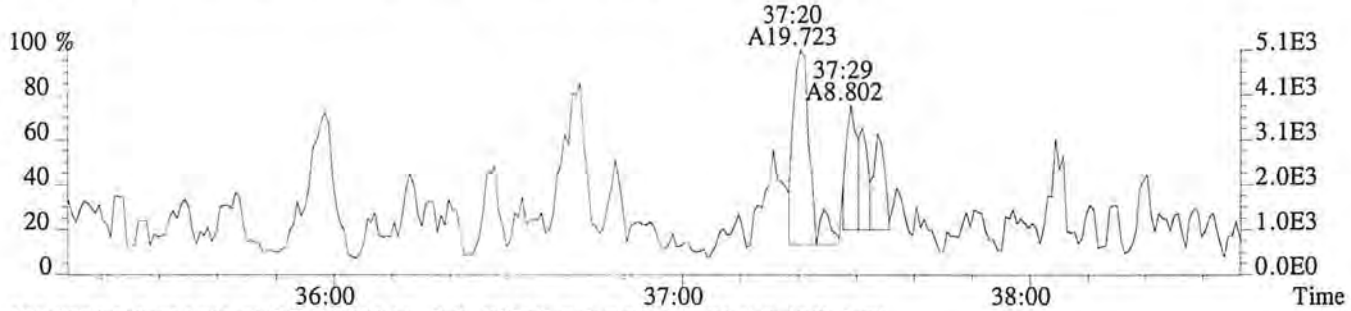
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



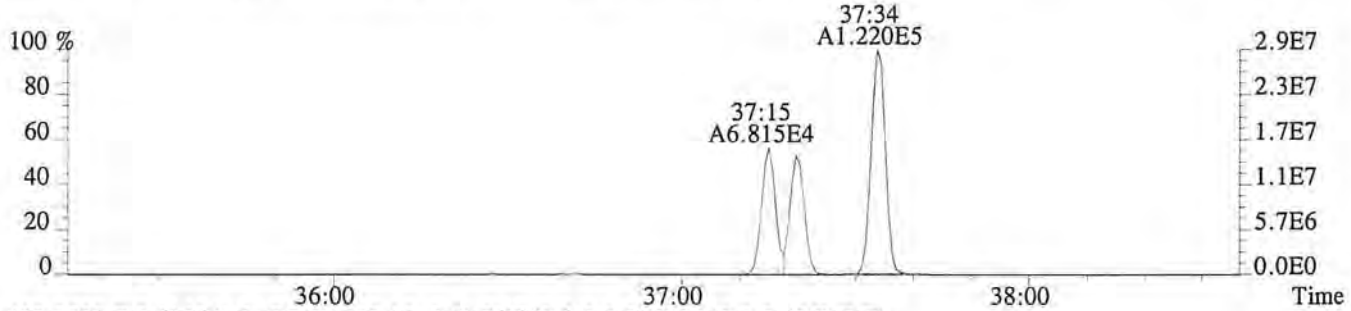
File:P600058 #1-304 Acq:22-AUG-2015 09:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



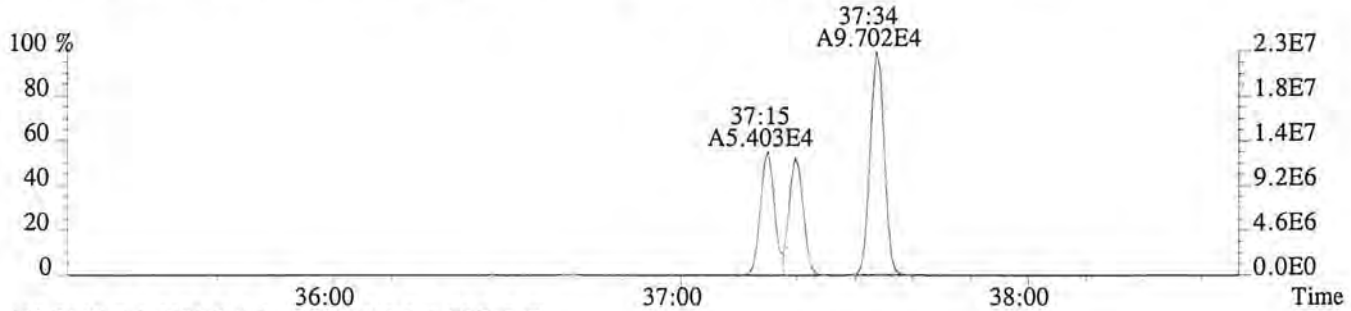
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)



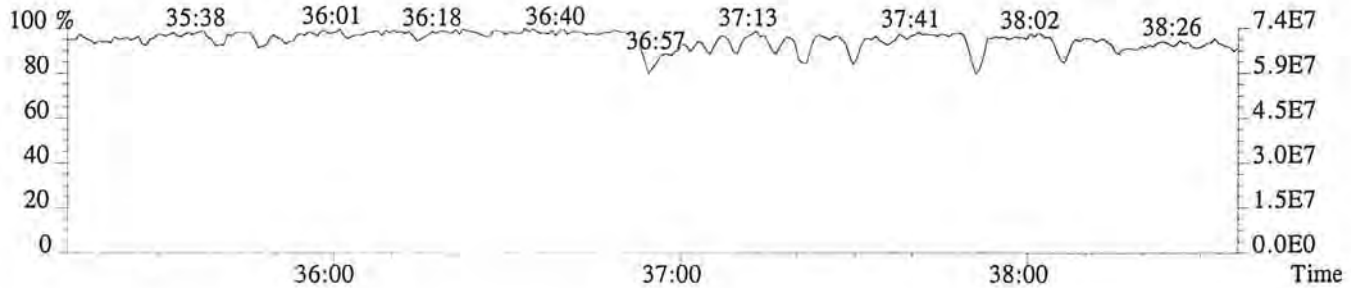
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5236.0,0.40%,F,T)



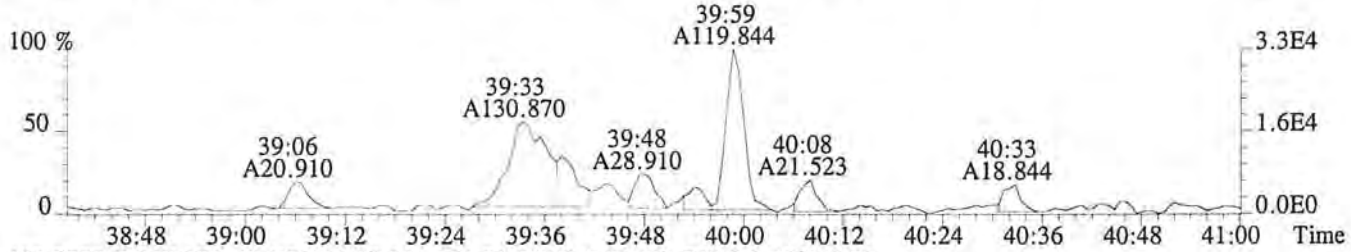
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2140.0,0.40%,F,T)



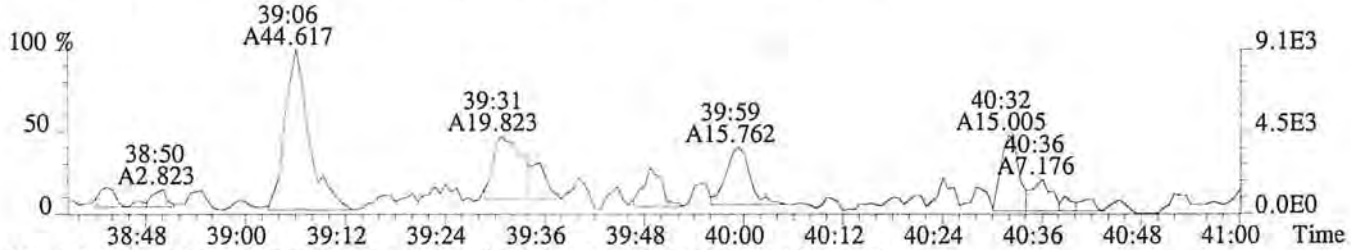
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



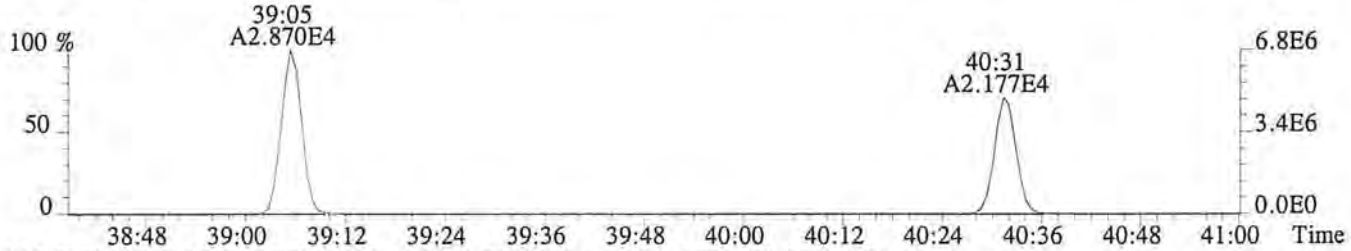
File:P600058 #1-213 Acq:22-AUG-2015 09:06:17 Probe EI+ Magnet SIR VG BioTech Mass spectÉ
Sample#1 Exp:EQ1500471-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1404.0,0.50%,F,T)



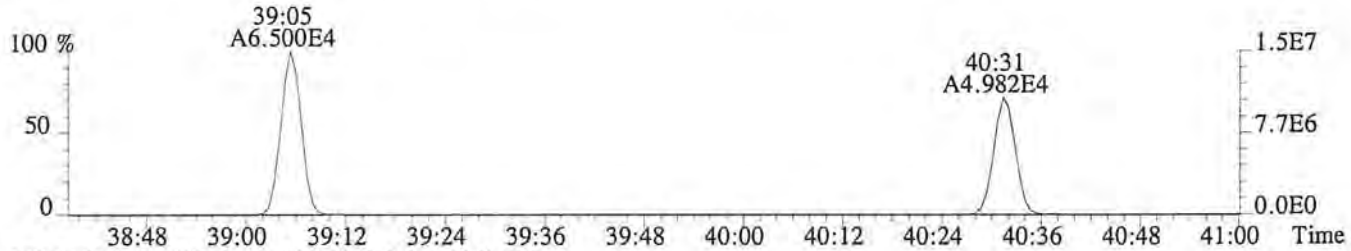
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.50%,F,T)



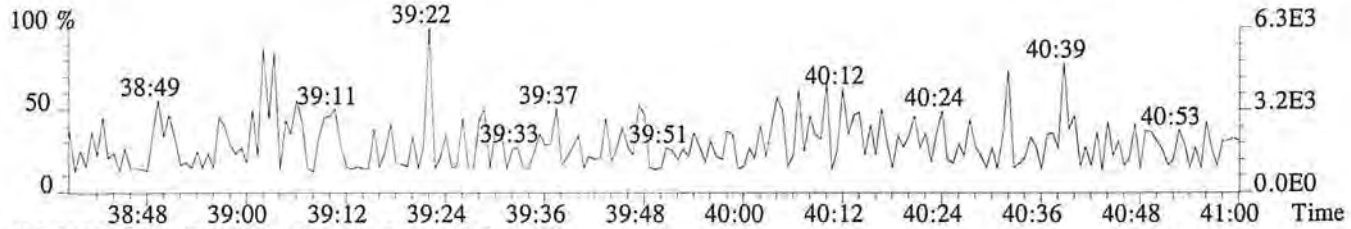
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3716.0,0.50%,F,T)



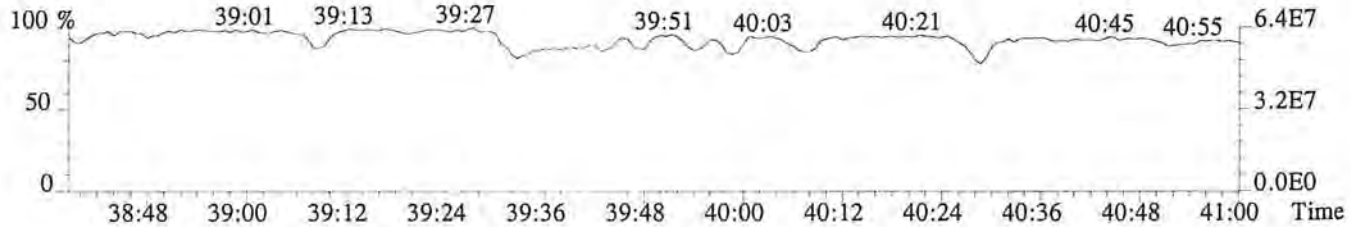
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1376.0,0.50%,F,T)



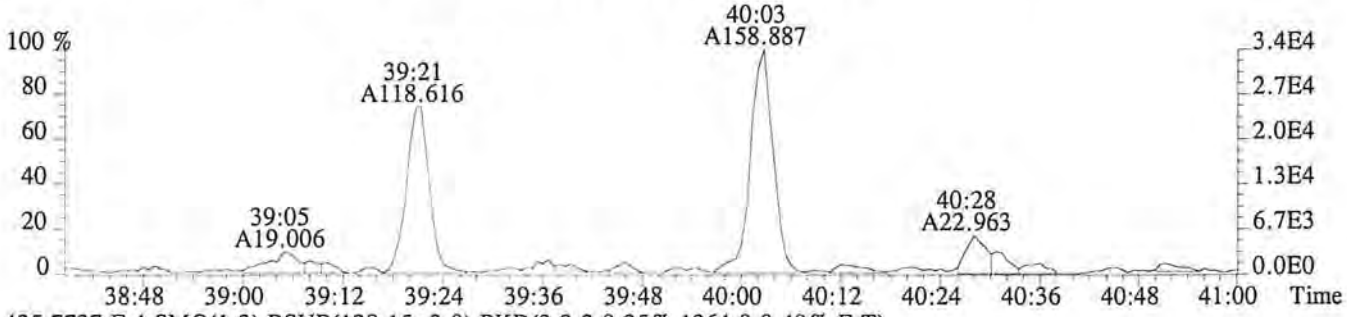
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



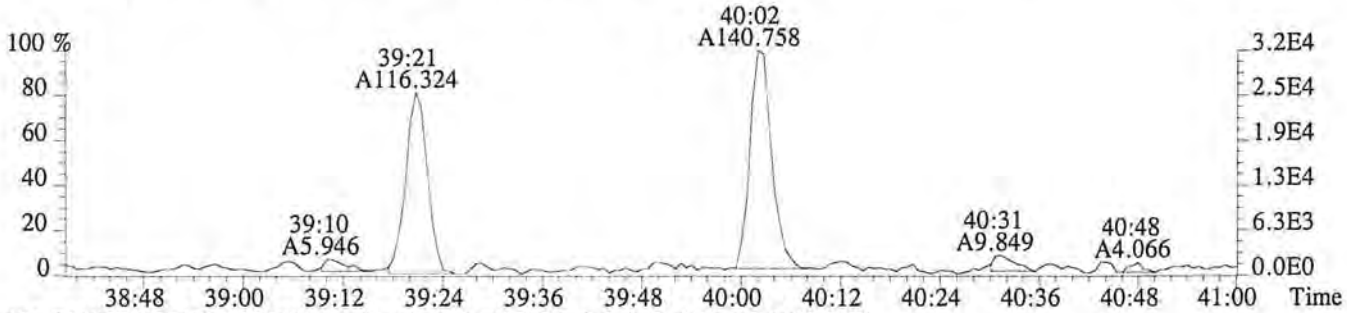
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



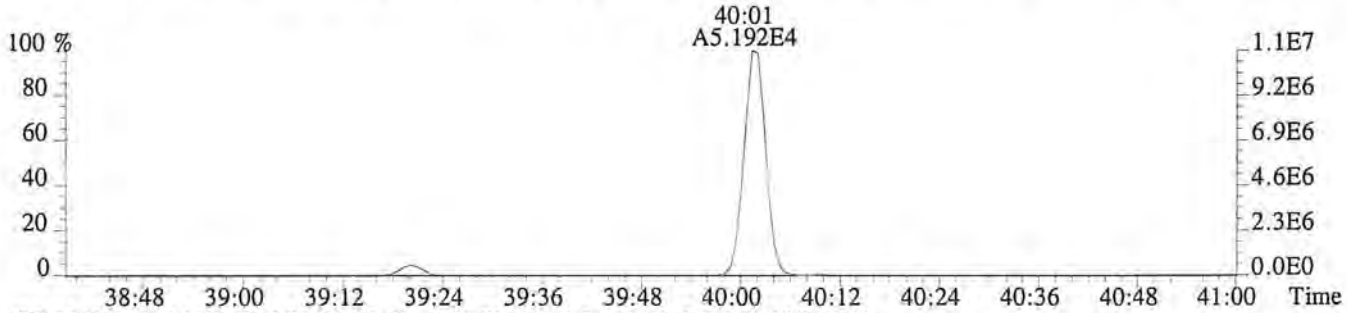
File:P600058 #1-213 Acq:22-AUG-2015 09:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



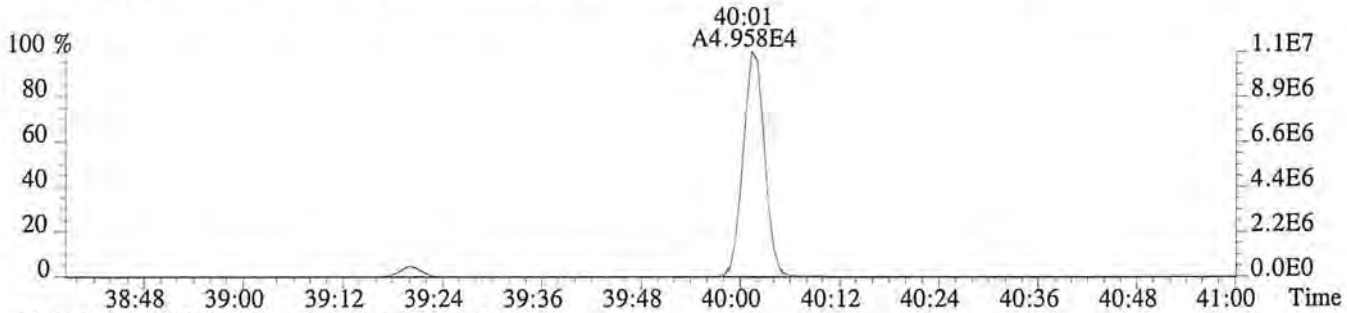
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1264.0,0.40%,F,T)



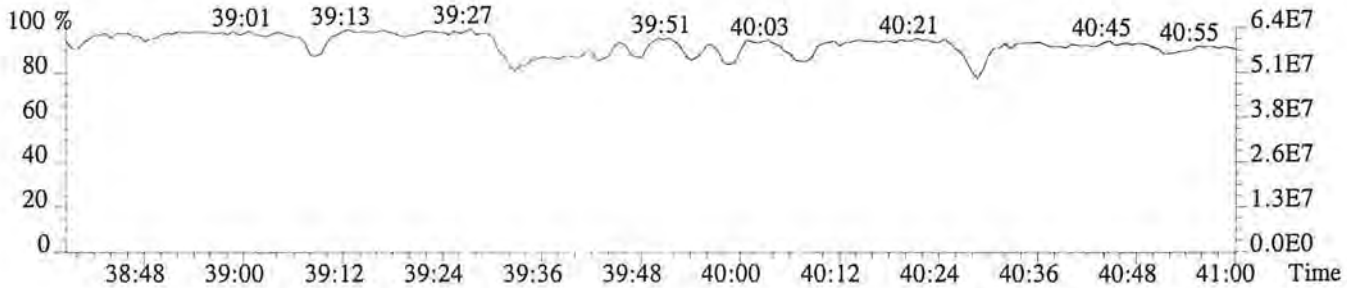
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



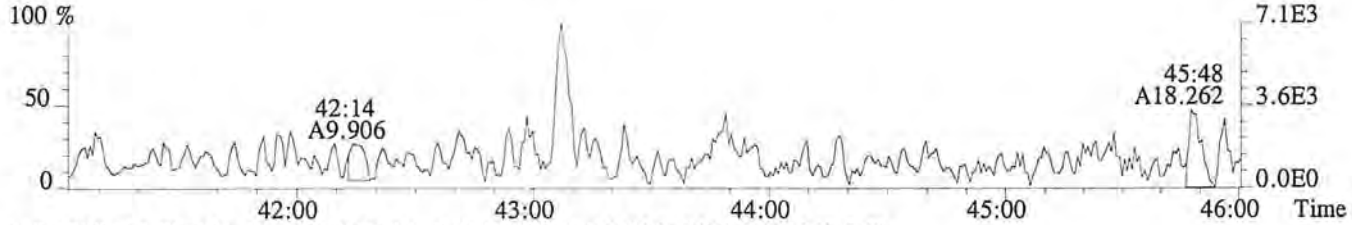
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



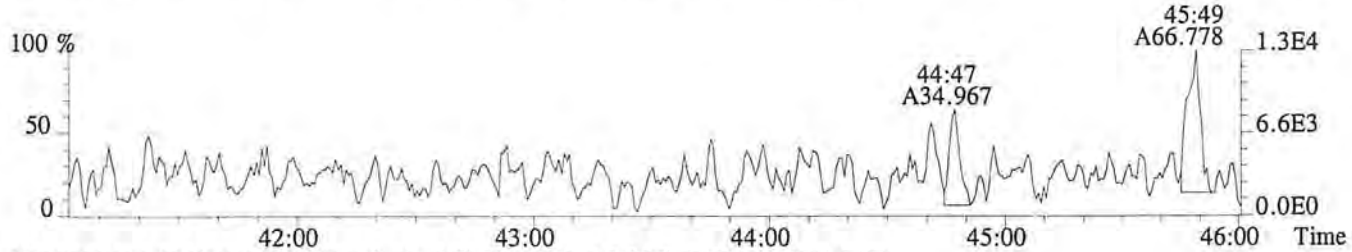
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



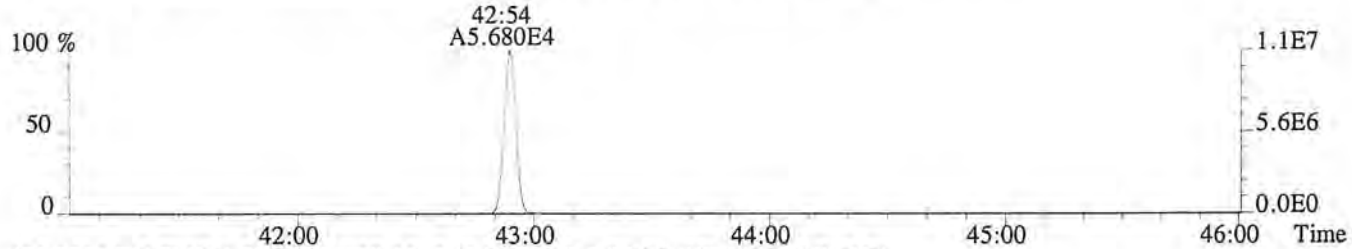
File:P600058 #1-448 Acq:22-AUG-2015 09:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1408.0,0.40%,F,T)



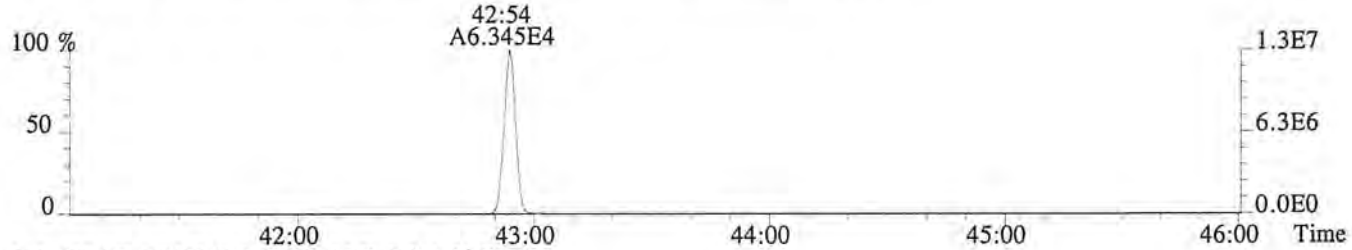
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3992.0,0.40%,F,T)



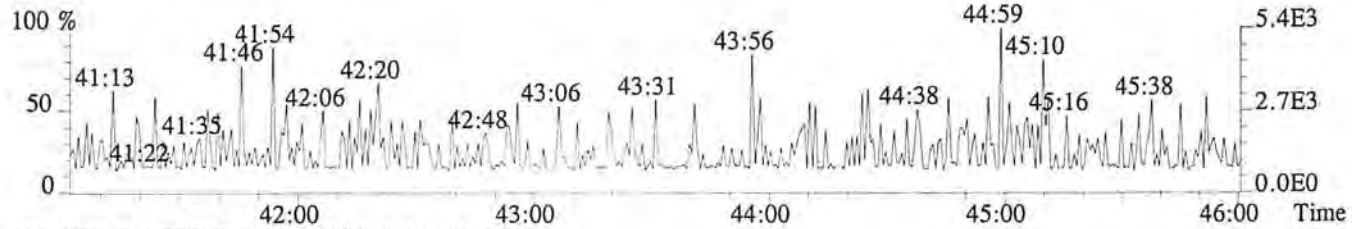
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1064.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1080.0,0.40%,F,T)

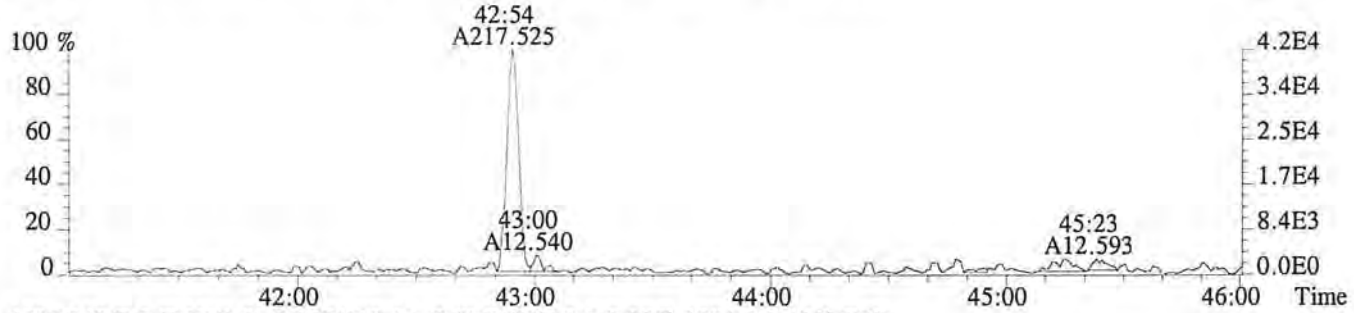


513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

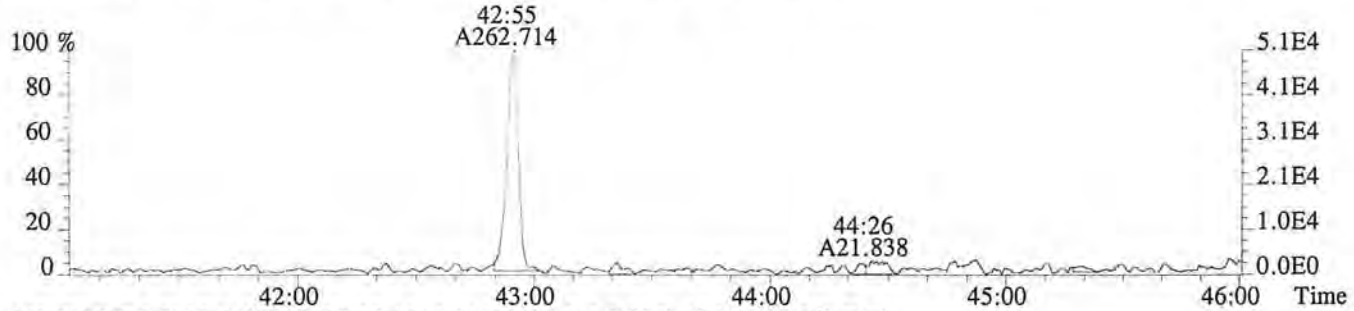


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

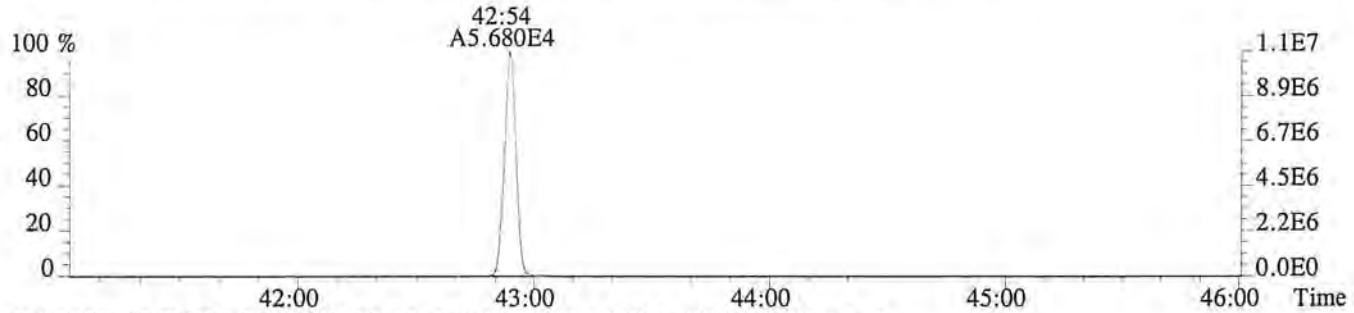
File:P600058 #1-448 Acq:22-AUG-2015 09:06:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1012.0,0.40%,F,T)



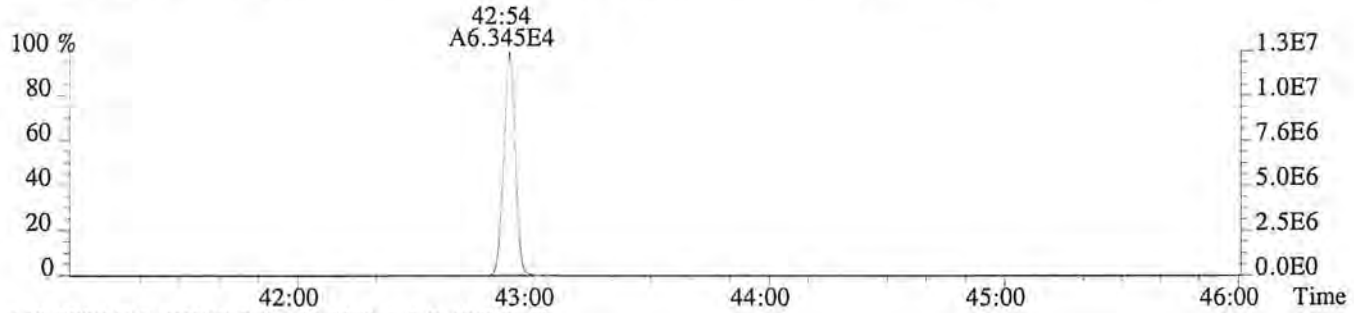
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1284.0,0.40%,F,T)



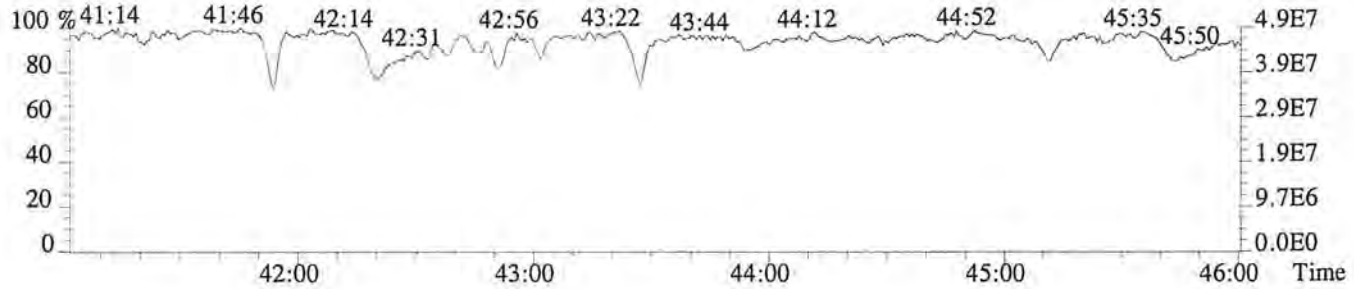
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1064.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1080.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #9 Filename P301095 Samp: 1 Inj: 1 Acquired: 29-AUG-15 06:45:14
Processed: 31-AUG-15 09:34:11 Sample ID: EQ1500471-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:36	2.538e+03	3.347e+03	0.76	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	32:41	2.163e+04	1.395e+04	1.55	yes	no	0.929
3	Unk	2,3,4,7,8-PeCDF	33:33	1.852e+04	1.177e+04	1.57	yes	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	36:12	1.831e+04	1.505e+04	1.22	yes	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:18	1.930e+04	1.576e+04	1.22	yes	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:48	1.818e+04	1.457e+04	1.25	yes	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	37:32	1.510e+04	1.195e+04	1.26	yes	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:47	1.492e+04	1.411e+04	1.06	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	40:11	1.039e+04	9.947e+03	1.04	yes	no	1.245
10	Unk	OCDF	42:44	1.437e+04	1.595e+04	0.90	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:21	2.079e+03	2.721e+03	0.76	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:51	1.465e+04	9.358e+03	1.57	yes	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:56	1.365e+04	1.086e+04	1.26	yes	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:00	1.393e+04	1.102e+04	1.26	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:14	1.516e+04	1.222e+04	1.24	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:42	1.100e+04	1.037e+04	1.06	yes	no	0.949
17	Unk	OCDD	42:31	1.573e+04	1.755e+04	0.90	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:35	2.655e+04	3.381e+04	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:40	4.251e+04	2.657e+04	1.60	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:33	3.600e+04	2.276e+04	1.58	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:11	1.691e+04	3.322e+04	0.51	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	1.973e+04	3.838e+04	0.51	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:47	1.821e+04	3.526e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:32	2.332e+04	4.447e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:46	1.076e+04	2.492e+04	0.43	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:11	8.516e+03	1.970e+04	0.43	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:20	2.139e+04	2.775e+04	0.77	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:49	2.660e+04	1.659e+04	1.60	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:55	2.410e+04	1.910e+04	1.26	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	36:60	2.498e+04	1.975e+04	1.26	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:41	1.920e+04	1.850e+04	1.04	yes	no	0.850
32	IS	13C-OCDD	42:30	2.374e+04	2.641e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:48	3.326e+04	4.252e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:14	4.680e+04	3.713e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:21	2.208e+04				no	1.001

$$\text{OCDD} = \frac{(1.573e+04 + 1.755e+04) \times 4000 \text{ pg} \times 1}{(2.374e+04 + 2.641e+04) \times \quad \text{g} \times \quad / 100 \times 1.061} =$$

ALS ENVIRONMENTAL -- HOUSTON HRMS
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(281)530-5656. Fax(281)530-5887

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #9 Filename P301095 Samp: 1 Inj: 1 Acquired: 29-AUG-15 06:45:14
Processed: 31-AUG-15 09:34:11 LAB. ID: EQ1500471-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.14e+05	1.76e+03	2.9e+02	6.76e+05	2.42e+03	2.8e+02
2	1,2,3,7,8-PeCDF	4.38e+06	8.80e+02	5.0e+03	2.82e+06	2.25e+03	1.3e+03
3	2,3,4,7,8-PeCDF	3.68e+06	8.80e+02	4.2e+03	2.39e+06	2.25e+03	1.1e+03
4	1,2,3,4,7,8-HxCDF	4.20e+06	9.80e+02	4.3e+03	3.44e+06	5.40e+02	6.4e+03
5	1,2,3,6,7,8-HxCDF	4.20e+06	9.80e+02	4.3e+03	3.40e+06	5.40e+02	6.3e+03
6	2,3,4,6,7,8-HxCDF	4.20e+06	9.80e+02	4.3e+03	3.37e+06	5.40e+02	6.2e+03
7	1,2,3,7,8,9-HxCDF	3.29e+06	9.80e+02	3.4e+03	2.62e+06	5.40e+02	4.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.34e+06	1.45e+03	2.3e+03	3.12e+06	2.90e+03	1.1e+03
9	1,2,3,4,7,8,9-HpCDF	2.04e+06	1.45e+03	1.4e+03	1.99e+06	2.90e+03	6.8e+02
10	OCDF	2.50e+06	1.44e+03	1.7e+03	2.76e+06	2.49e+03	1.1e+03
11	2,3,7,8-TCDD	4.32e+05	1.43e+03	3.0e+02	5.55e+05	1.10e+03	5.0e+02
12	1,2,3,7,8-PeCDD	3.10e+06	2.24e+03	1.4e+03	1.96e+06	4.44e+02	4.4e+03
13	1,2,3,4,7,8-HxCDD	3.16e+06	9.04e+02	3.5e+03	2.54e+06	1.31e+03	1.9e+03
14	1,2,3,6,7,8-HxCDD	3.14e+06	9.04e+02	3.5e+03	2.53e+06	1.31e+03	1.9e+03
15	1,2,3,7,8,9-HxCDD	3.34e+06	9.04e+02	3.7e+03	2.72e+06	1.31e+03	2.1e+03
16	1,2,3,4,6,7,8-HpCDD	2.33e+06	1.20e+03	1.9e+03	2.20e+06	5.16e+02	4.3e+03
17	OCDD	2.76e+06	4.32e+02	6.4e+03	3.06e+06	1.72e+03	1.8e+03
18	13C-2,3,7,8-TCDF	5.27e+06	1.51e+03	3.5e+03	6.69e+06	1.51e+03	4.4e+03
19	13C-1,2,3,7,8-PeCDF	8.28e+06	6.52e+02	1.3e+04	5.19e+06	1.12e+03	4.6e+03
20	13C-2,3,4,7,8-PeCDF	7.35e+06	6.52e+02	1.1e+04	4.64e+06	1.12e+03	4.2e+03
21	13C-1,2,3,4,7,8-HxCDF	3.86e+06	8.16e+02	4.7e+03	7.47e+06	2.09e+03	3.6e+03
22	13C-1,2,3,6,7,8-HxCDF	4.28e+06	8.16e+02	5.2e+03	8.23e+06	2.09e+03	3.9e+03
23	13C-2,3,4,6,7,8-HxCDF	4.14e+06	8.16e+02	5.1e+03	8.06e+06	2.09e+03	3.9e+03
24	13C-1,2,3,7,8,9-HxCDF	5.13e+06	8.16e+02	6.3e+03	9.78e+06	2.09e+03	4.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.42e+06	4.22e+03	5.7e+02	5.52e+06	2.76e+03	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.66e+06	4.22e+03	3.9e+02	3.82e+06	2.76e+03	1.4e+03
27	13C-2,3,7,8-TCDD	4.39e+06	5.84e+03	7.5e+02	5.69e+06	3.46e+03	1.6e+03
28	13C-1,2,3,7,8-PeCDD	5.38e+06	1.14e+03	4.7e+03	3.36e+06	1.18e+03	2.8e+03
29	13C-1,2,3,4,7,8-HxCDD	5.60e+06	1.67e+03	3.4e+03	4.39e+06	1.61e+03	2.7e+03
30	13C-1,2,3,6,7,8-HxCDD	5.75e+06	1.67e+03	3.4e+03	4.51e+06	1.61e+03	2.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.00e+06	2.29e+03	1.7e+03	3.85e+06	5.00e+02	7.7e+03
32	13C-OCDD	4.17e+06	1.18e+03	3.5e+03	4.60e+06	1.01e+03	4.5e+03
33	13C-1,2,3,4-TCDD	6.64e+06	5.84e+03	1.1e+03	8.37e+06	3.46e+03	2.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.04e+07	1.67e+03	6.2e+03	8.34e+06	1.61e+03	5.2e+03
35	37Cl-2,3,7,8-TCDD	4.63e+06	6.48e+02	7.1e+03			

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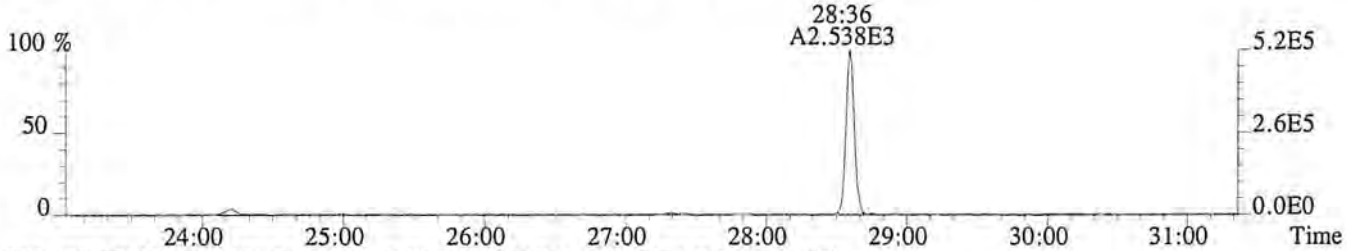
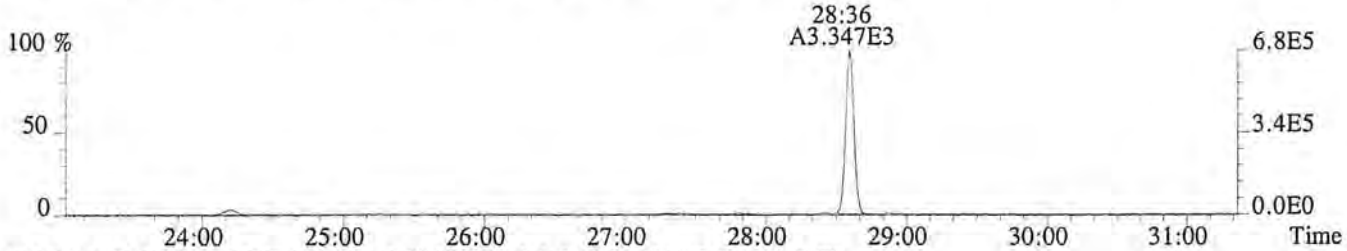
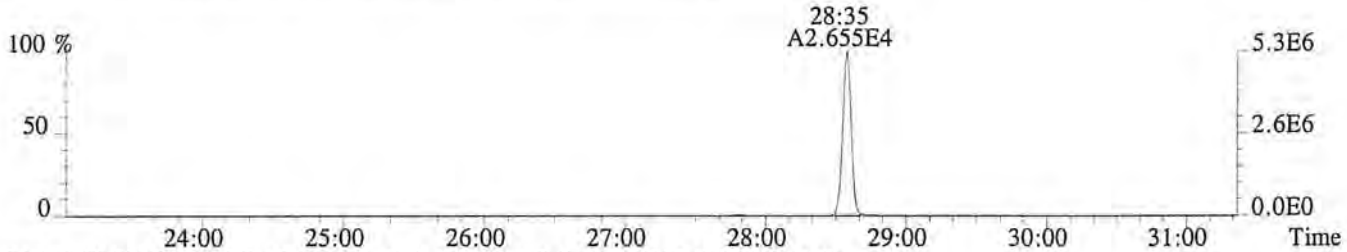
File:P301095 #1-591 Acq:29-AUG-2015 06:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1756.0,1.00%,F,T)



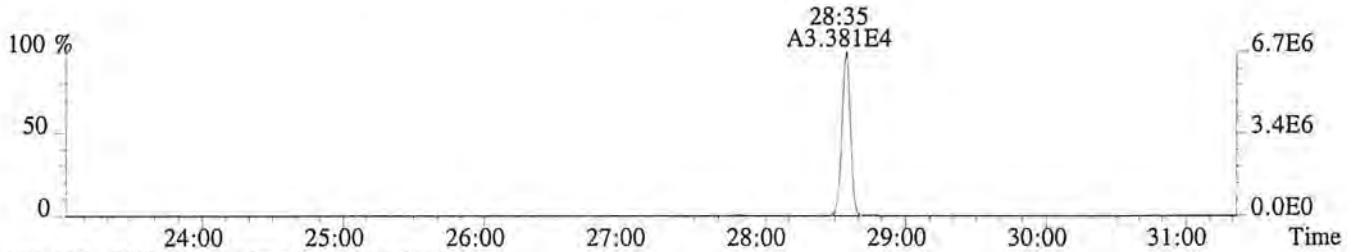
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2416.0,1.00%,F,T)



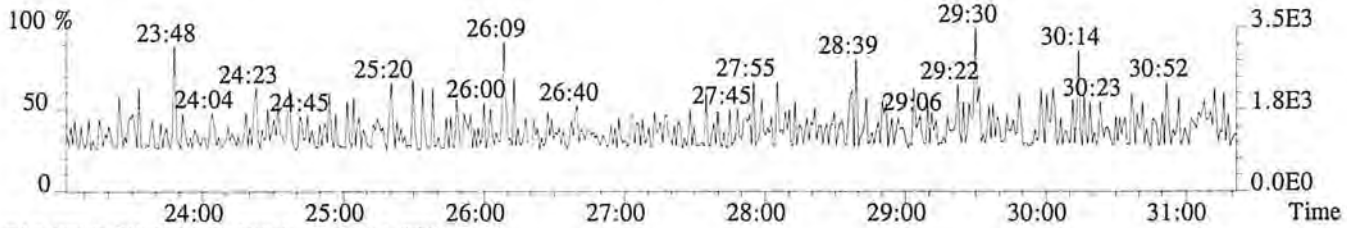
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1512.0,1.00%,F,T)



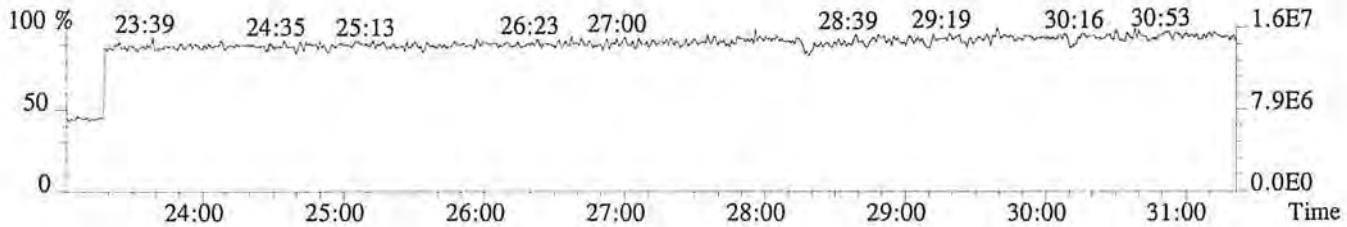
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1512.0,1.00%,F,T)



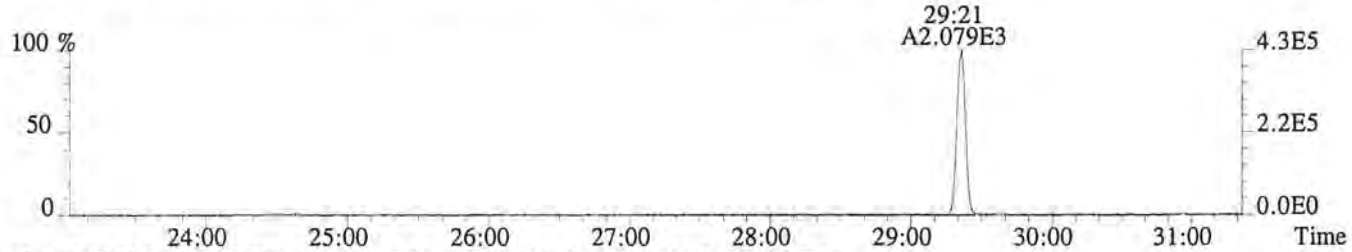
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



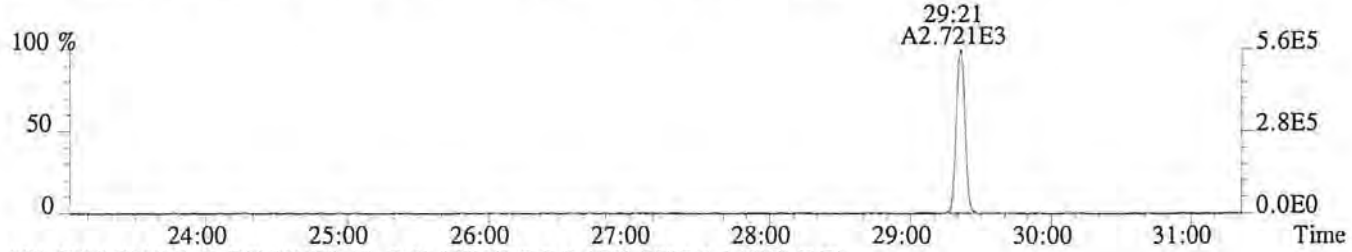
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



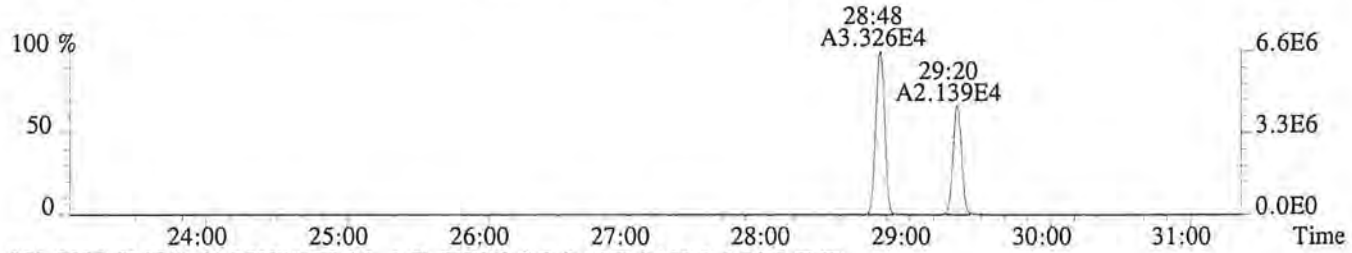
File:P301095 #1-591 Acq:29-AUG-2015 06:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



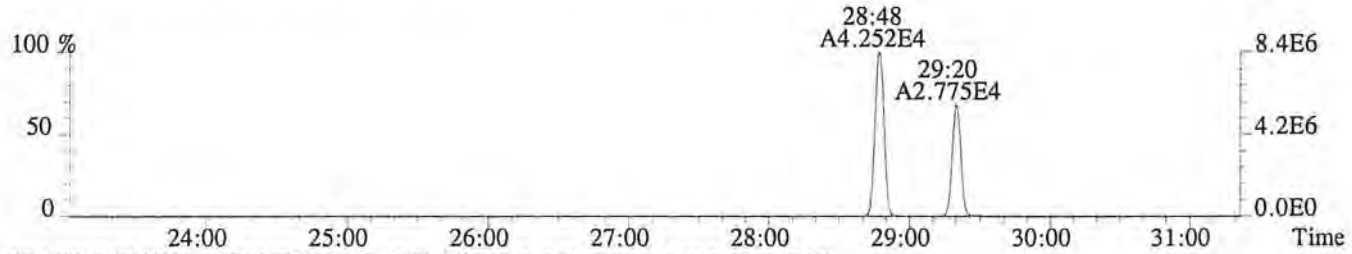
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)



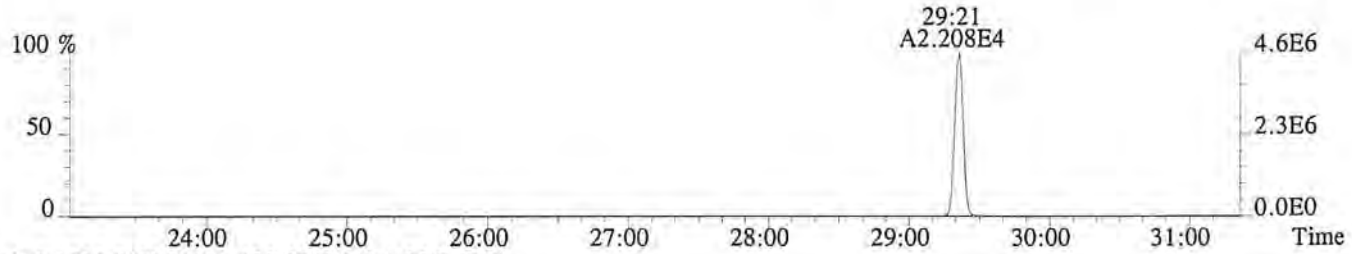
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5836.0,1.00%,F,T)



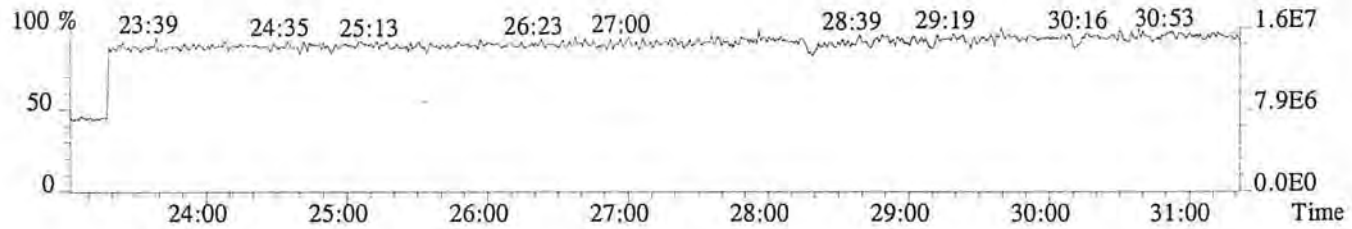
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3460.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)

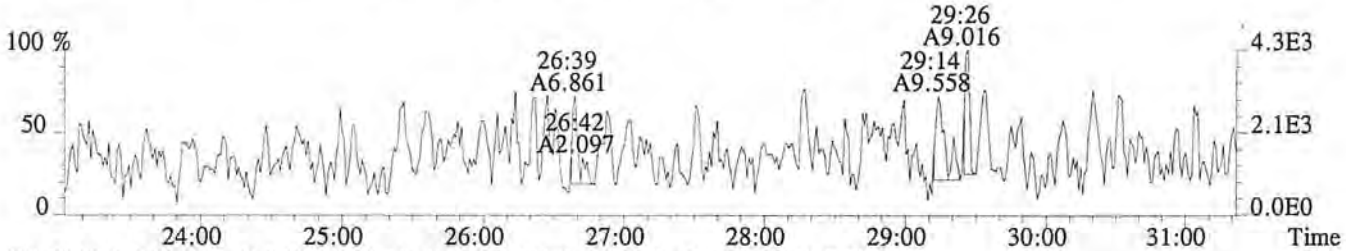


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

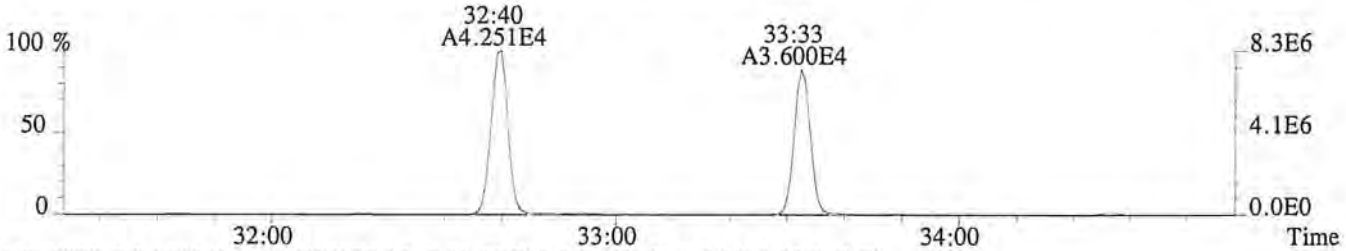


File:P301095 #1-591 Acq:29-AUG-2015 06:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)

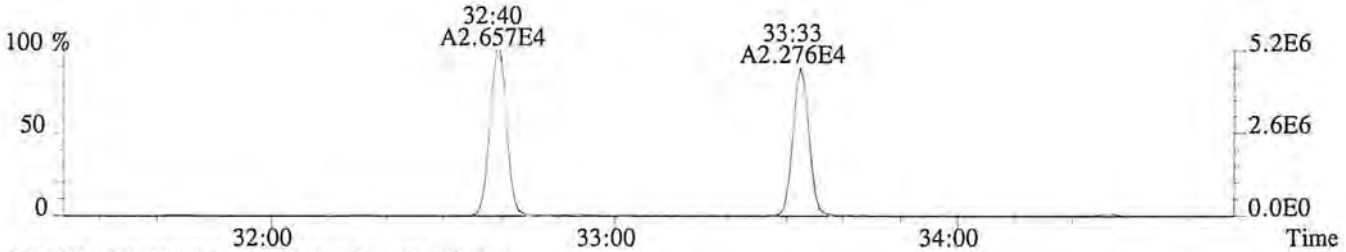
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



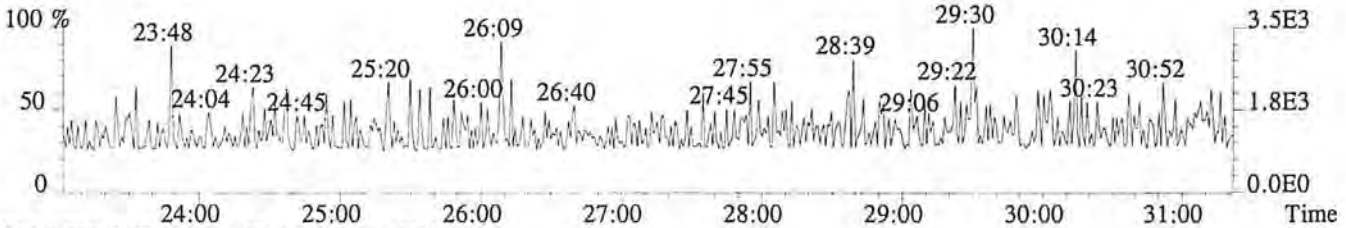
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



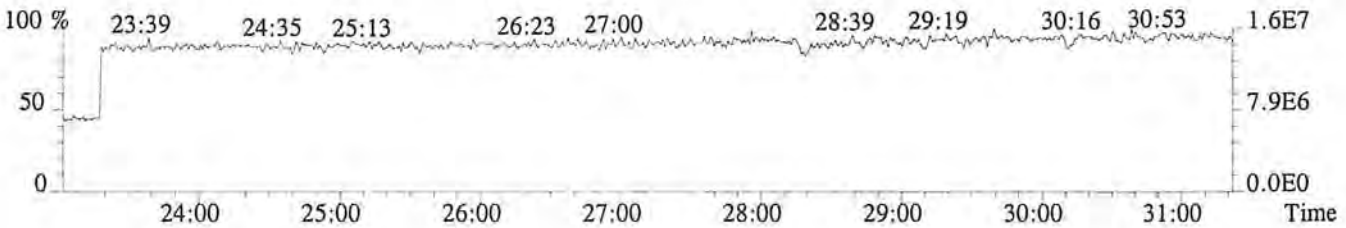
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



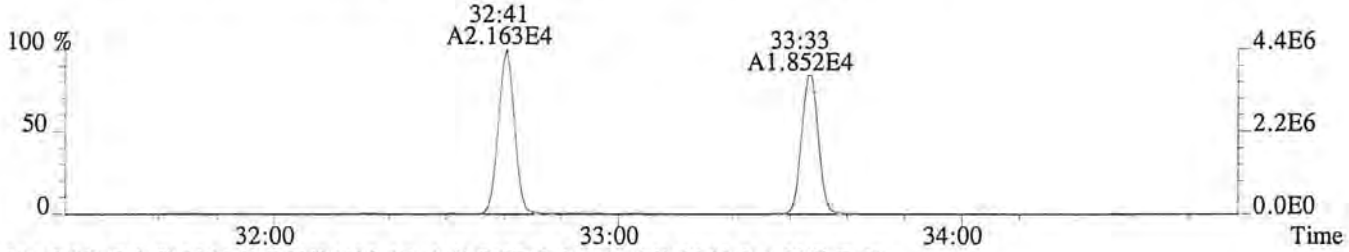
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



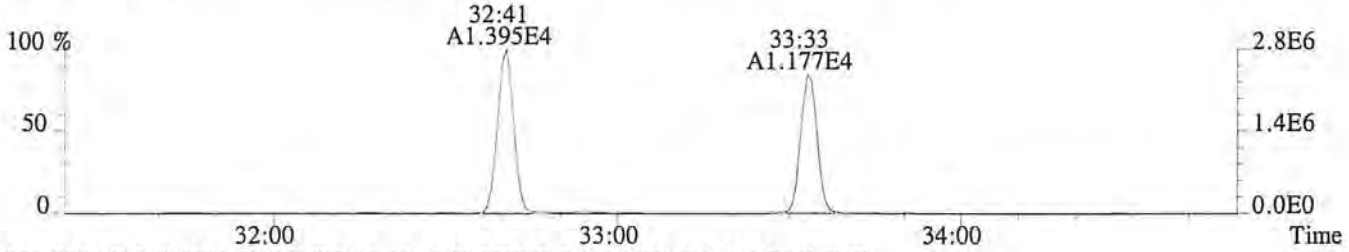
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



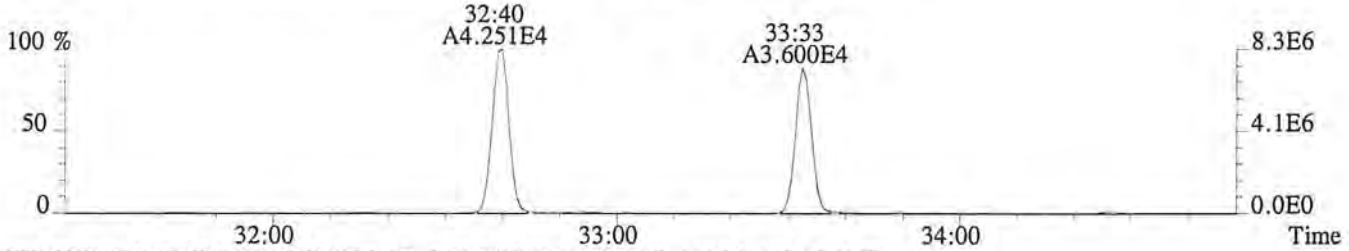
File:P301095 #1-308 Acq:29-AUG-2015 06:45:14 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:EQ1500471-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



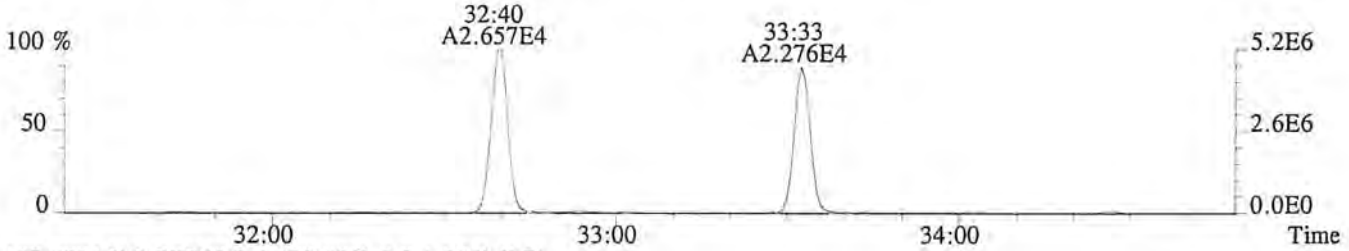
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2248.0,1.00%,F,T)



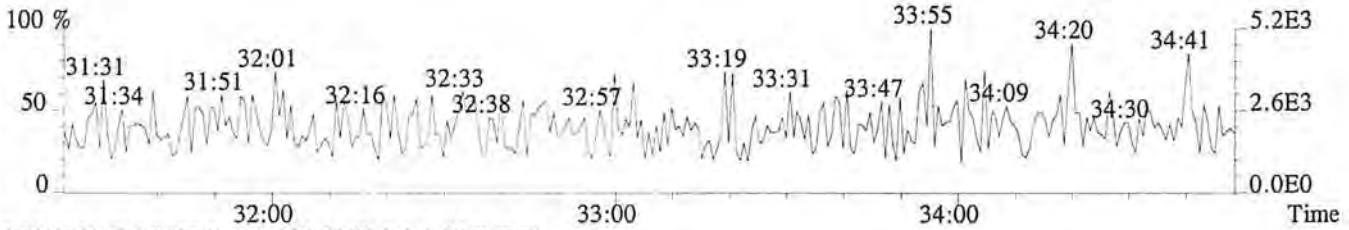
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)

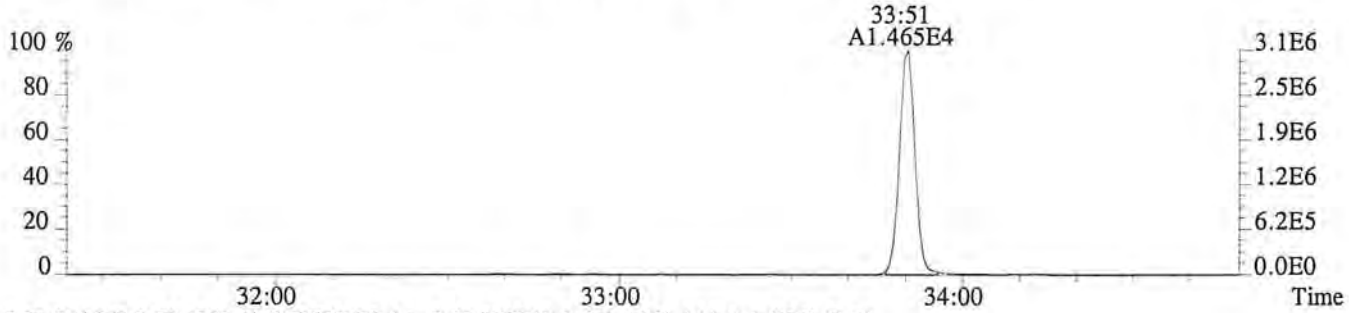


409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

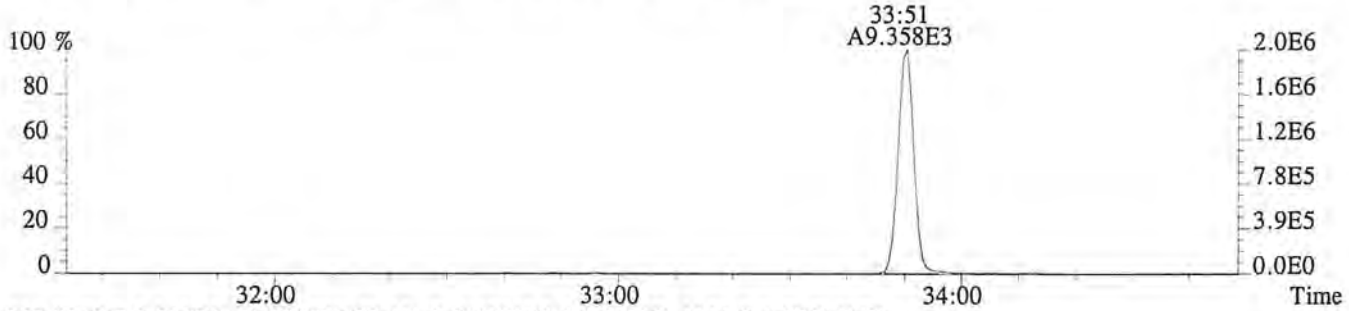


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

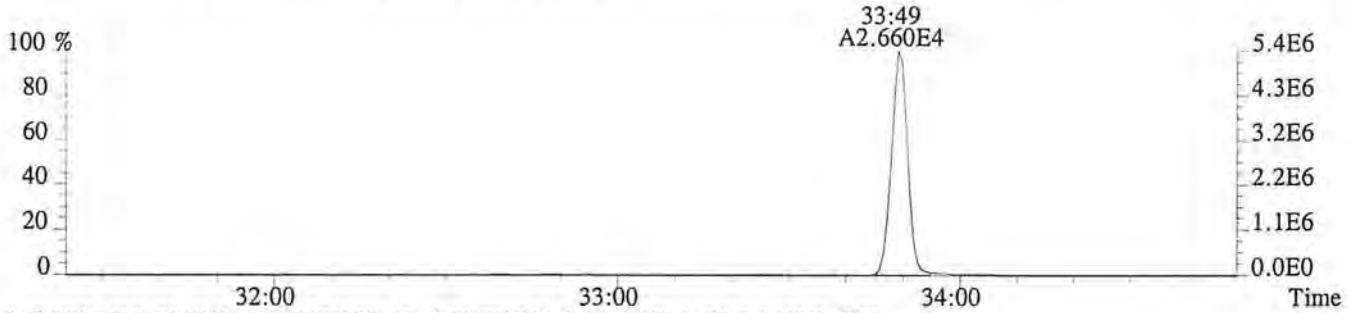
File:P301095 #1-308 Acq:29-AUG-2015 06:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2236.0,1.00%,F,T)



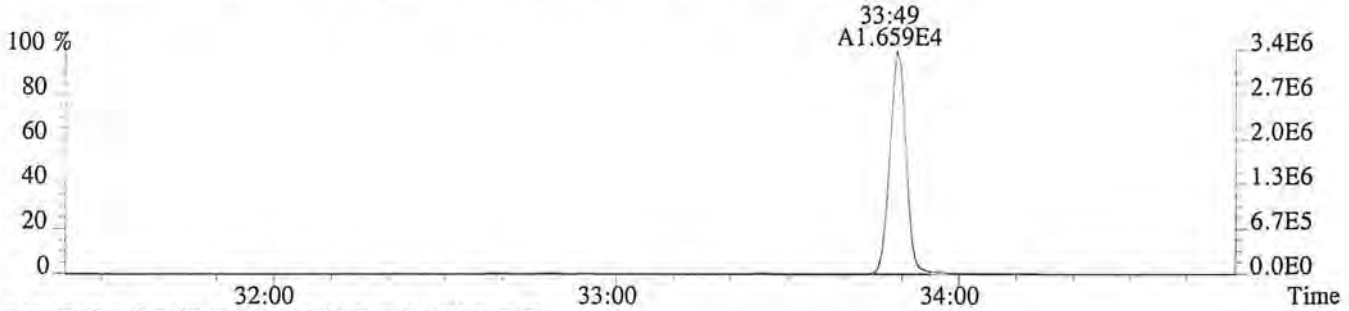
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



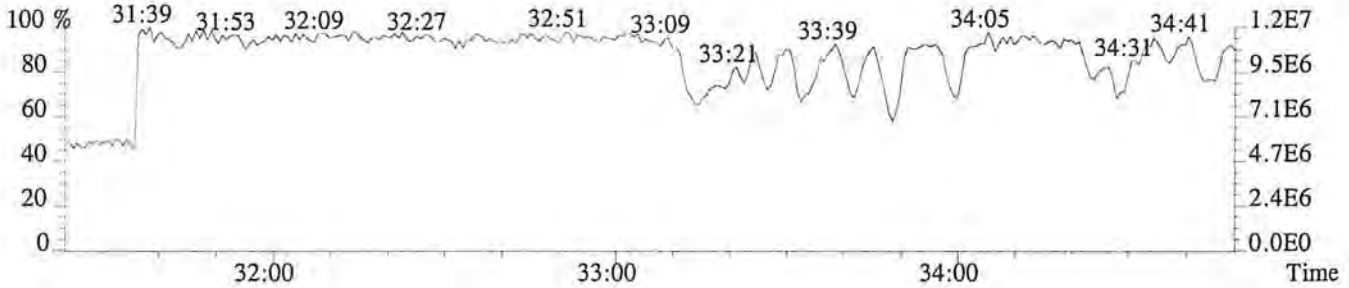
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



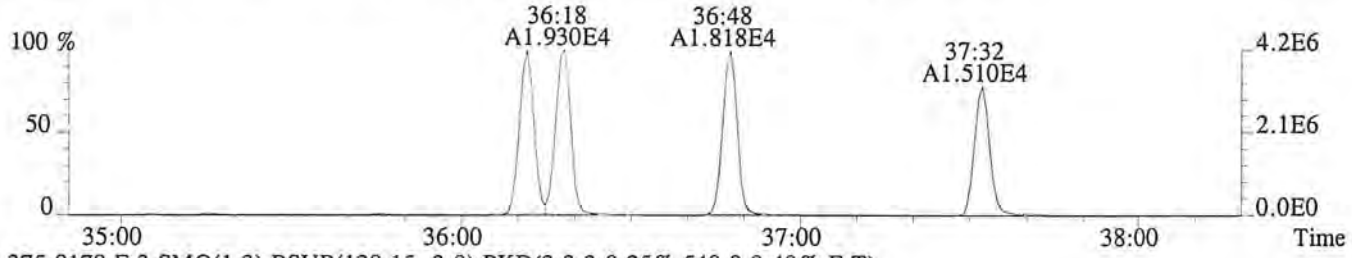
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



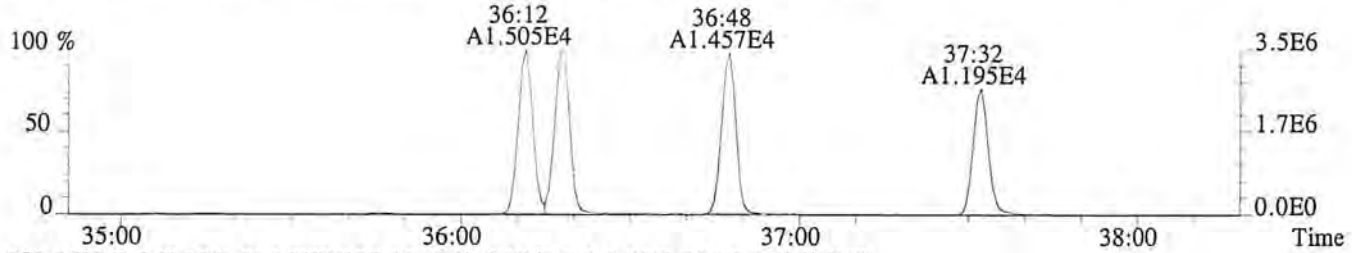
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



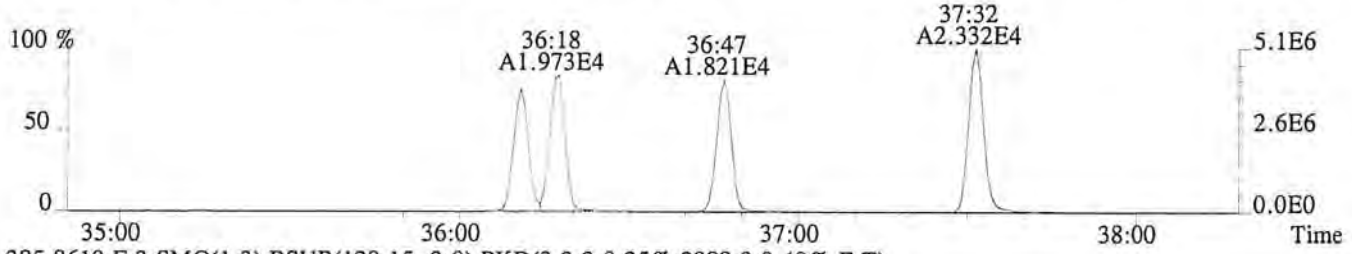
File:P301095 #1-312 Acq:29-AUG-2015 06:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



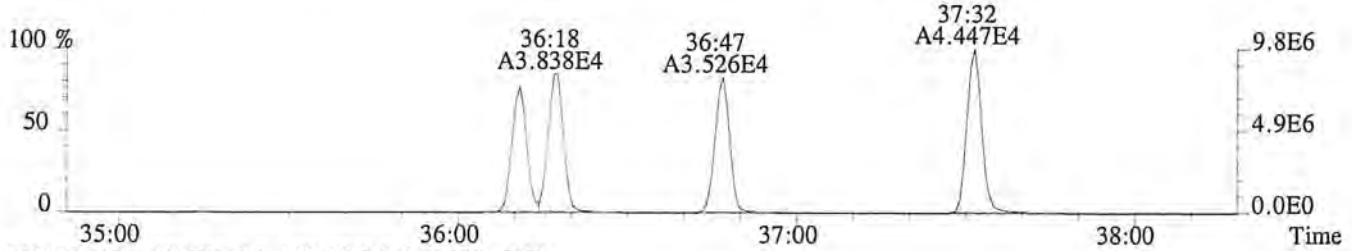
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



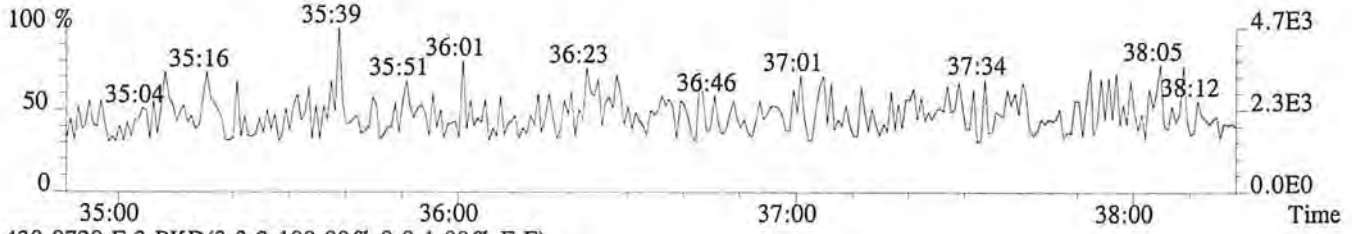
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



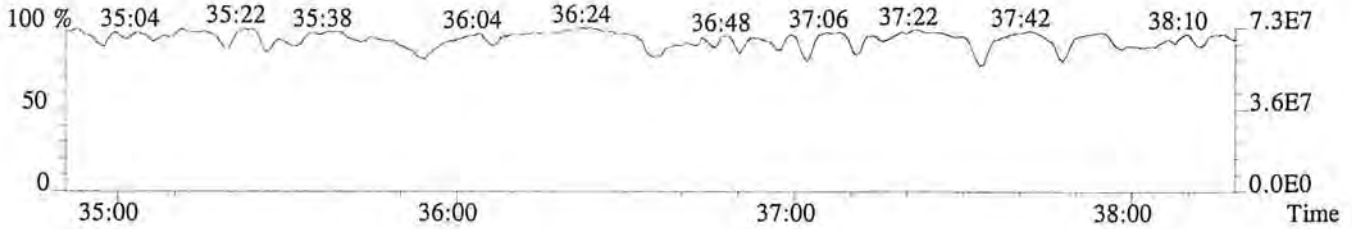
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2088.0,0.40%,F,T)



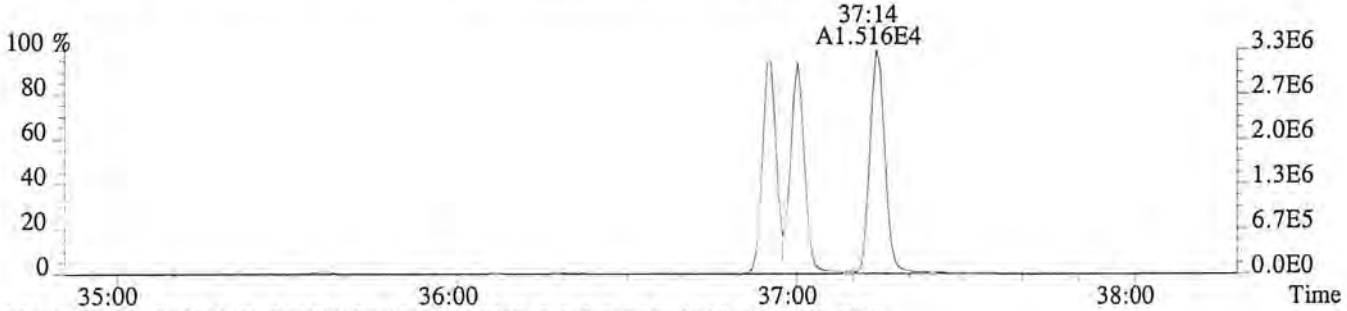
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



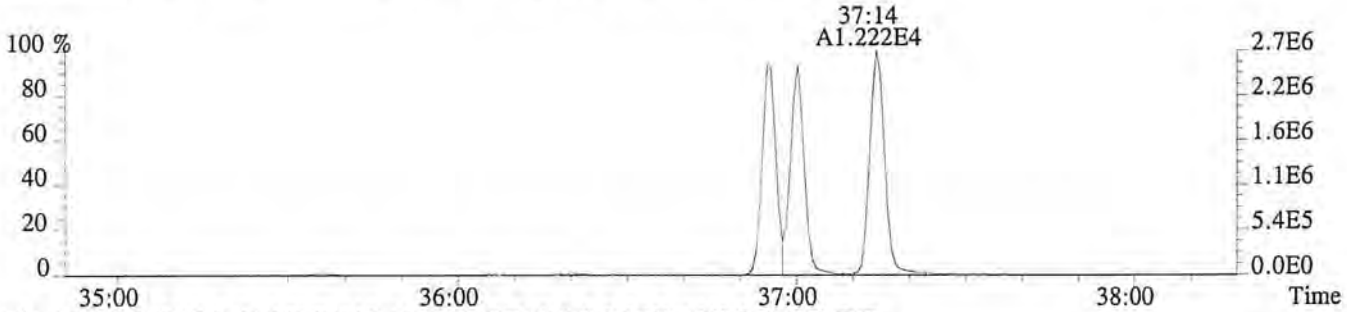
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



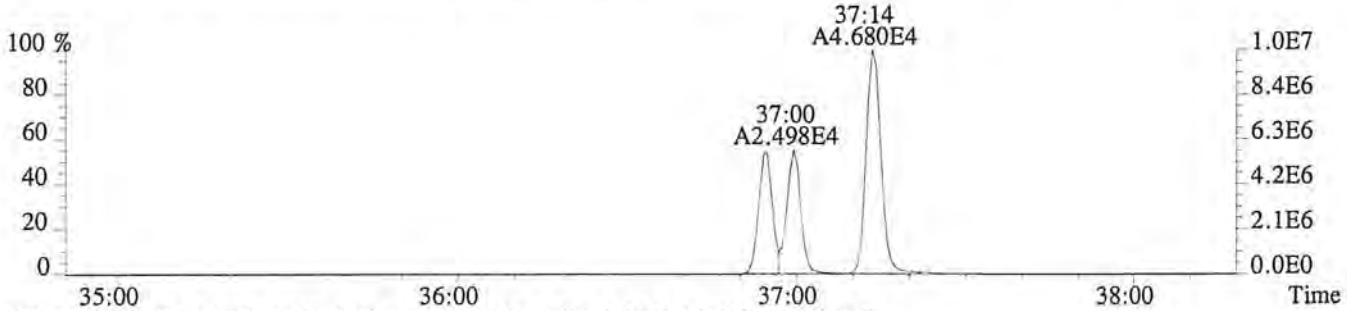
File:P301095 #1-312 Acq:29-AUG-2015 06:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



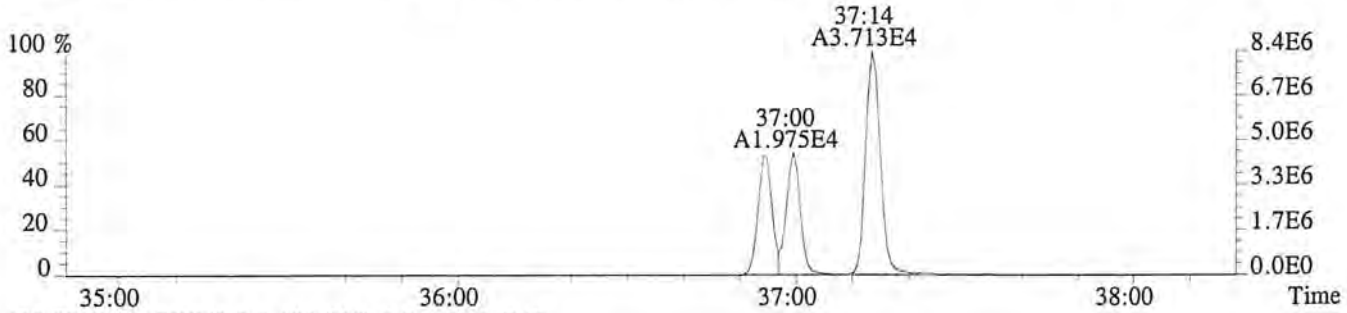
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1312.0,0.40%,F,T)



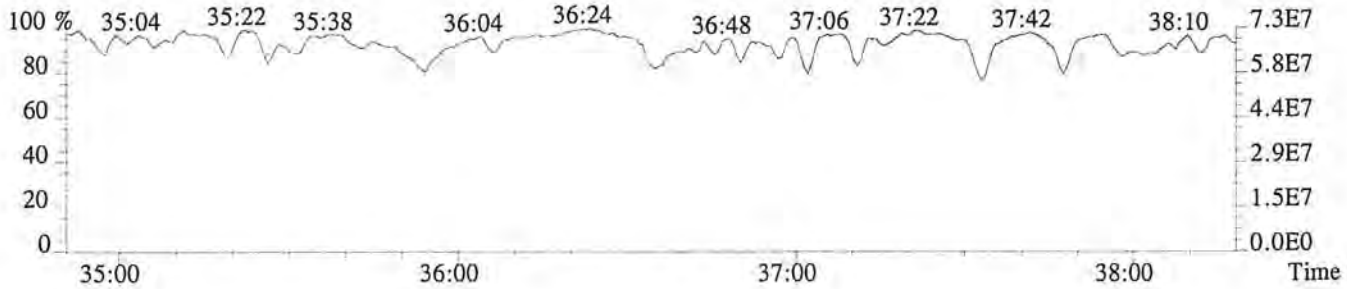
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1668.0,0.40%,F,T)



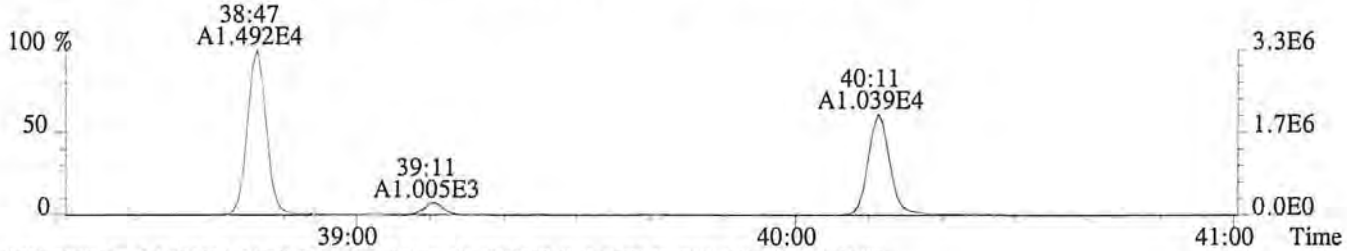
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1612.0,0.40%,F,T)



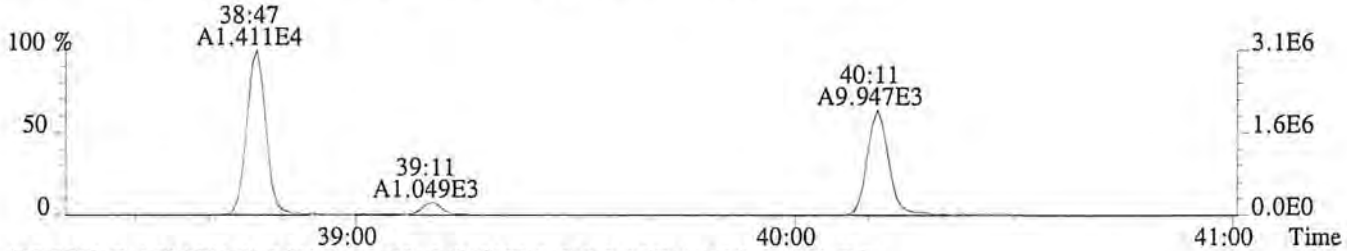
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



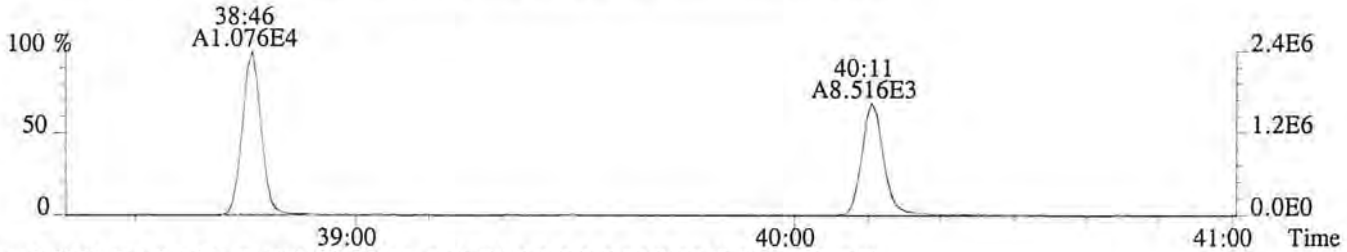
File:P301095 #1-241 Acq:29-AUG-2015 06:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1448.0,0.50%,F,T)



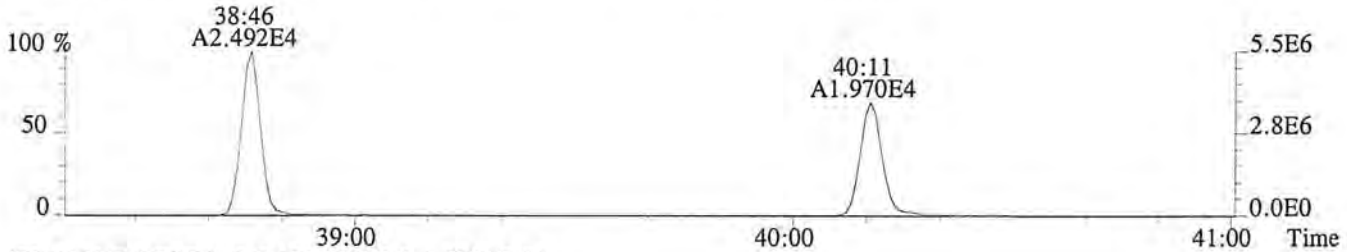
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2904.0,0.50%,F,T)



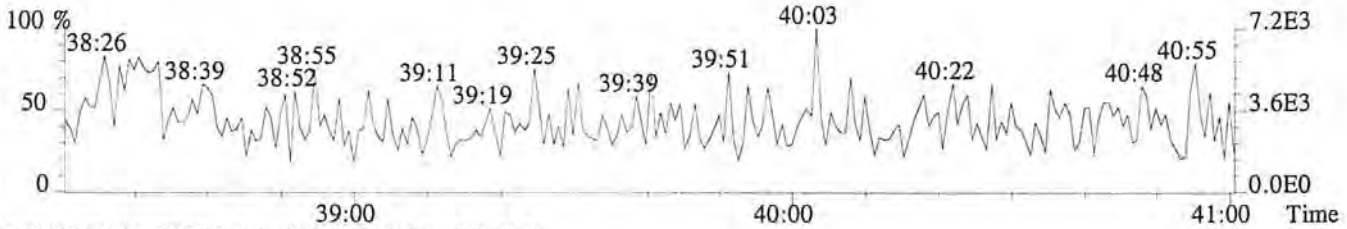
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4216.0,0.50%,F,T)



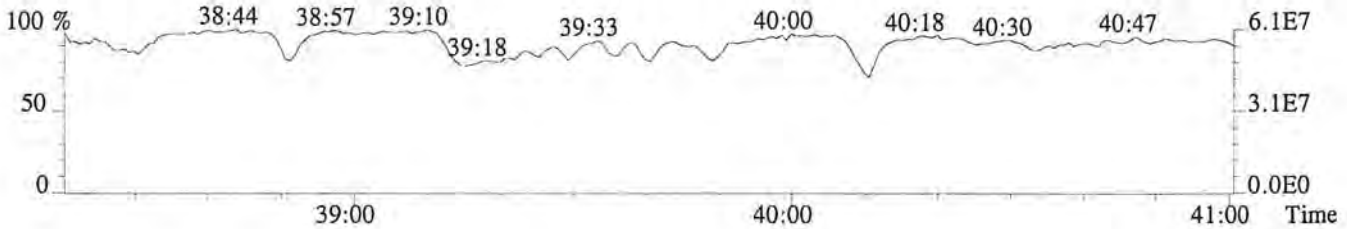
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2760.0,0.50%,F,T)



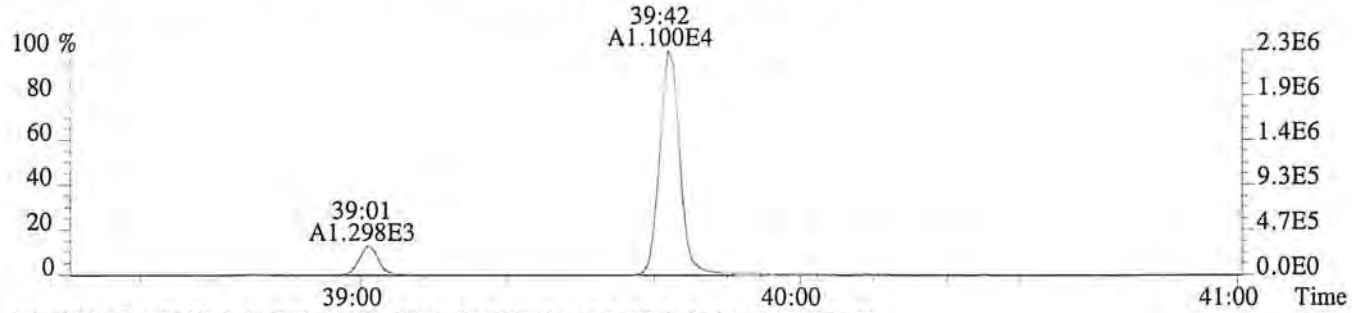
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



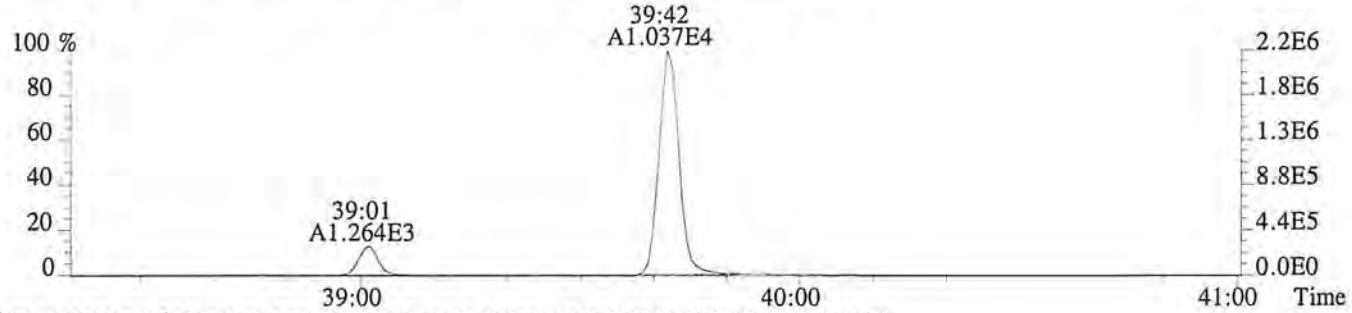
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



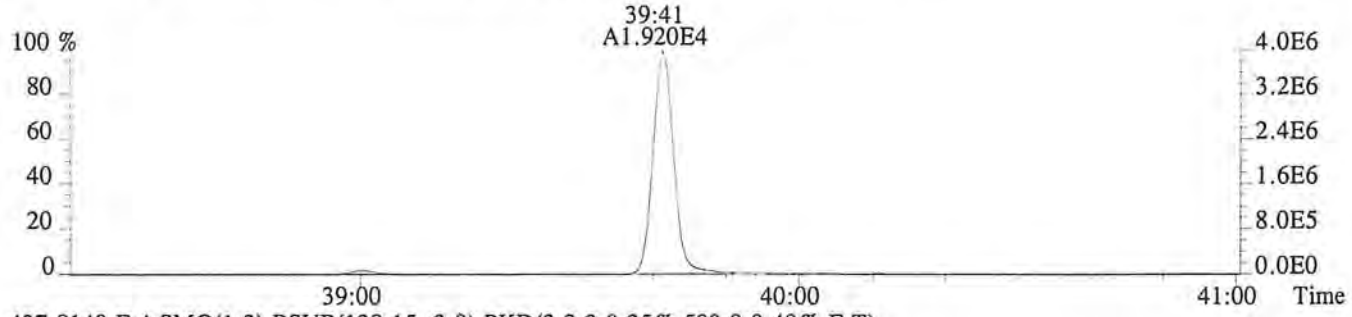
File:P301095 #1-241 Acq:29-AUG-2015 06:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1200.0,0.40%,F,T)



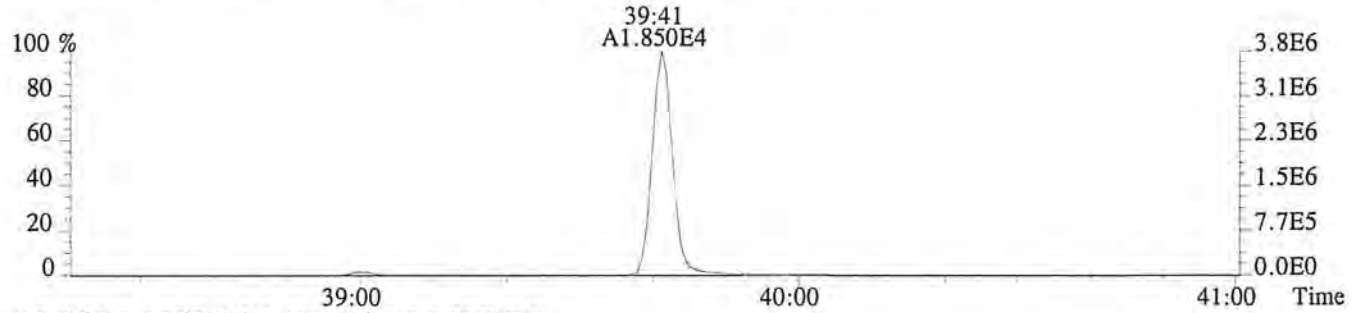
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



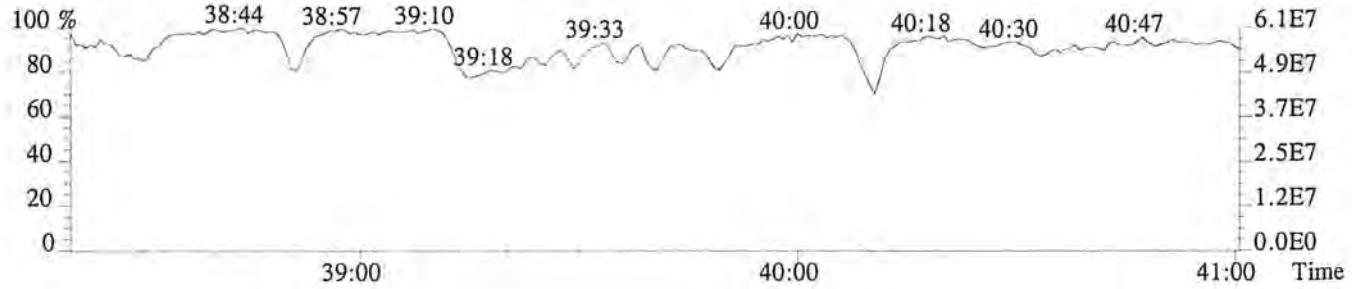
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2292.0,0.40%,F,T)



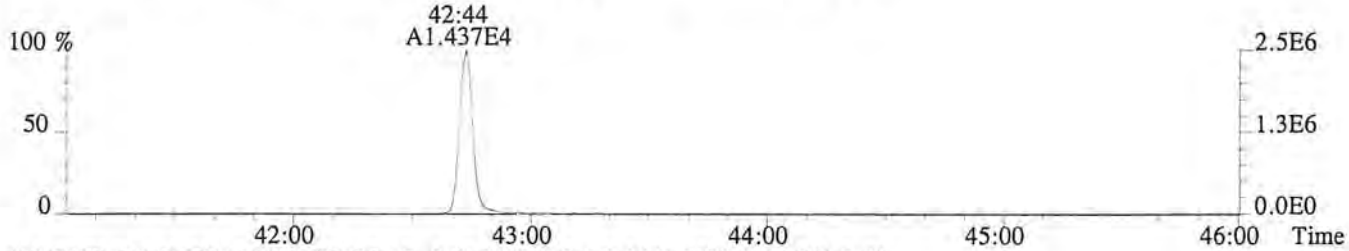
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

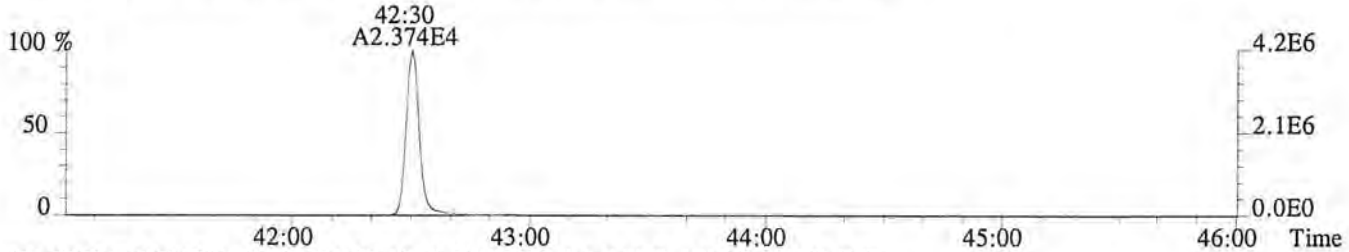


File:P301095 #1-447 Acq:29-AUG-2015 06:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1444.0,0.40%,F,T)

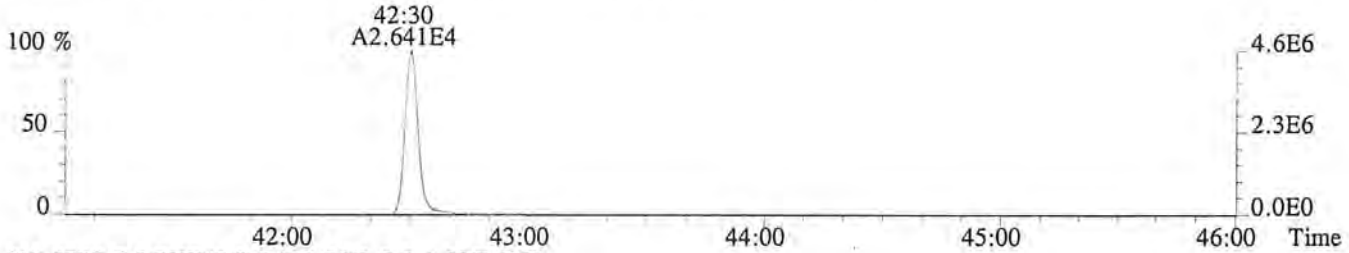


443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2488.0,0.40%,F,T)

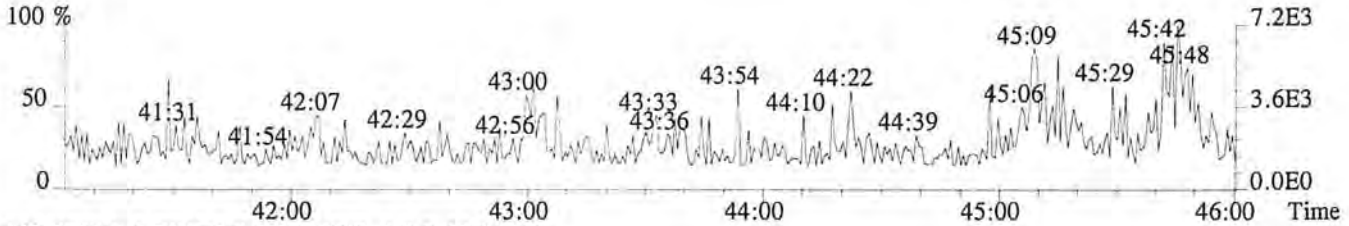
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1176.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1012.0,0.40%,F,T)

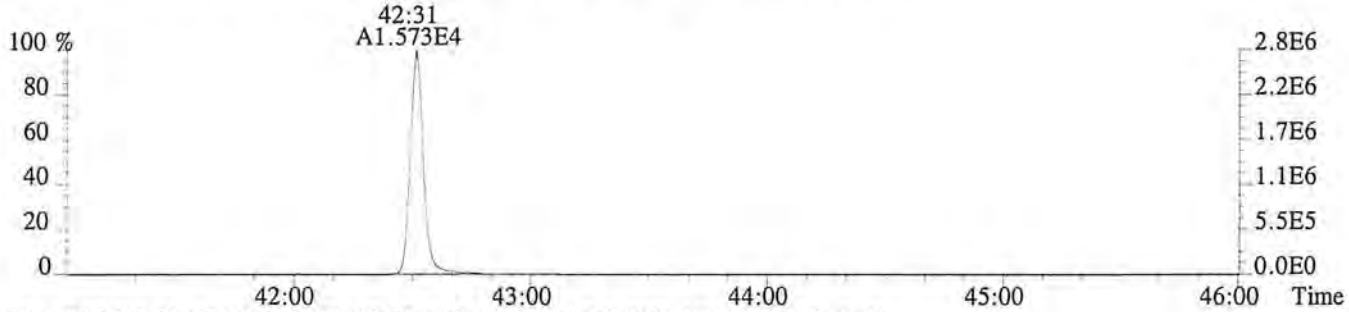


513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

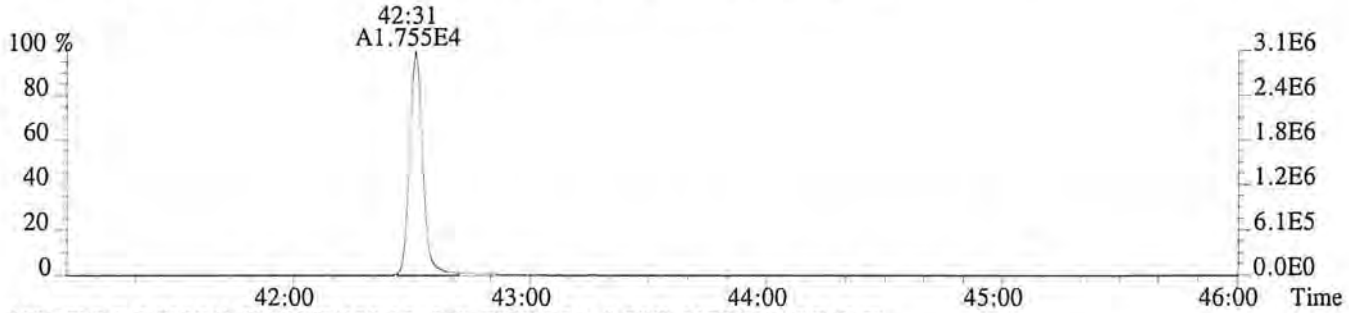


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

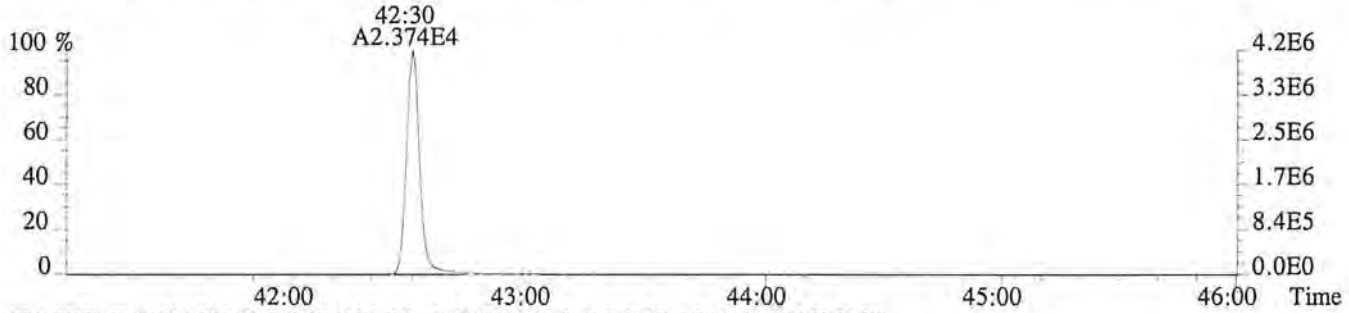
File:P301095 #1-447 Acq:29-AUG-2015 06:45:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



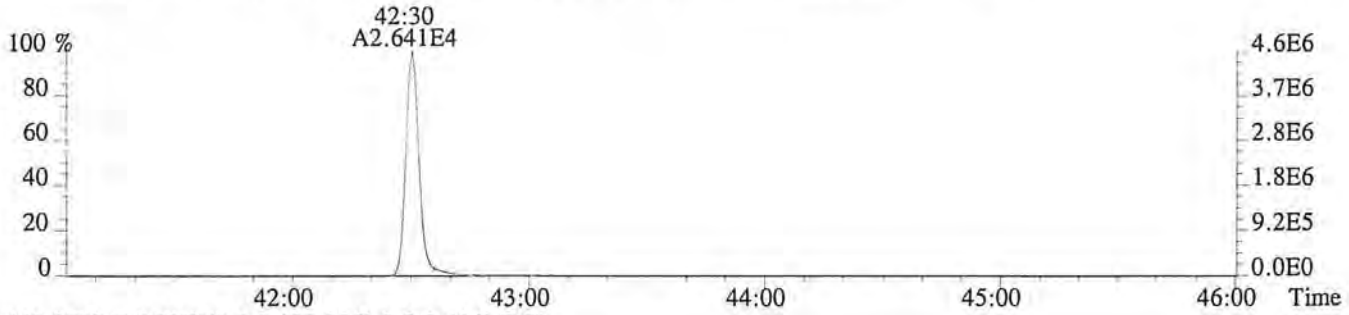
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1724.0,0.40%,F,T)



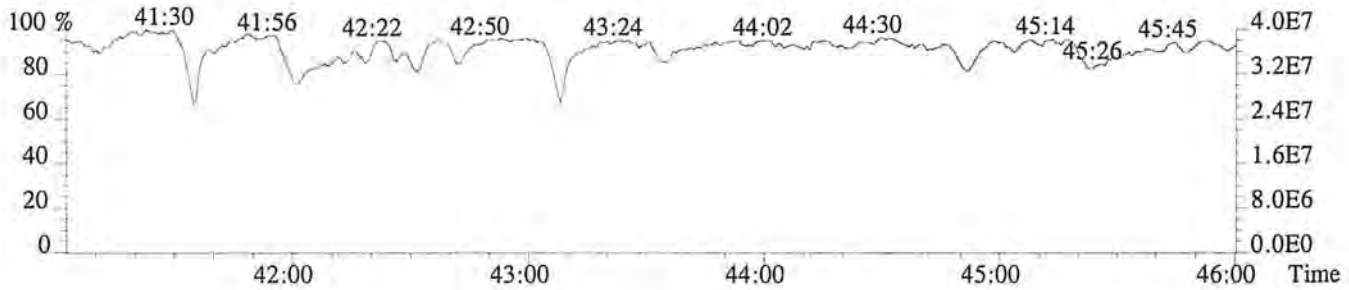
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1176.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1012.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #10 Filename P301096 Samp: 1 Inj: 1 Acquired: 29-AUG-15 07:33:52
Processed: 31-AUG-15 09:35:48 Sample ID: EQ1500471-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	2.451e+03	3.247e+03	0.75	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	32:42	2.195e+04	1.399e+04	1.57	yes	no	0.929
3	Unk	2,3,4,7,8-PeCDF	33:35	1.929e+04	1.228e+04	1.57	yes	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	36:13	1.905e+04	1.526e+04	1.25	yes	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:19	2.018e+04	1.600e+04	1.26	yes	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:49	1.659e+04	1.331e+04	1.25	yes	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	37:34	1.405e+04	1.114e+04	1.26	yes	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:47	1.468e+04	1.411e+04	1.04	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	40:13	9.285e+03	8.965e+03	1.04	yes	no	1.245
10	Unk	OCDF	42:46	1.055e+04	1.189e+04	0.89	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:23	2.041e+03	2.729e+03	0.75	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:52	1.530e+04	9.770e+03	1.57	yes	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:56	1.252e+04	9.851e+03	1.27	yes	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:02	1.276e+04	1.009e+04	1.27	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:16	1.445e+04	1.172e+04	1.23	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	1.109e+04	1.040e+04	1.07	yes	no	0.949
17	Unk	OCDD	42:33	1.407e+04	1.585e+04	0.89	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:37	2.599e+04	3.278e+04	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	4.356e+04	2.746e+04	1.59	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:34	3.674e+04	2.343e+04	1.57	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	1.746e+04	3.380e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	2.043e+04	3.893e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	1.688e+04	3.218e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:33	2.169e+04	4.186e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	1.013e+04	2.331e+04	0.43	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:12	7.717e+03	1.805e+04	0.43	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:21	2.149e+04	2.777e+04	0.77	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:51	2.747e+04	1.729e+04	1.59	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:56	2.241e+04	1.748e+04	1.28	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:01	2.293e+04	1.793e+04	1.28	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	1.936e+04	1.830e+04	1.06	yes	no	0.850
32	IS	13C-OCDD	42:32	2.015e+04	2.215e+04	0.91	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:49	3.690e+04	4.702e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:15	4.873e+04	3.901e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	2.479e+04				no	1.001

$$\text{OCDD} = \frac{(1.407e+04 + 1.585e+04)\ \times\ 4000\ \text{pg}\ \times\ 1}{(2.015e+04 + 2.215e+04)\ \times\ \text{g}\ \times\ /\ 100\ \times\ 1.061} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #10 Filename P301096 Samp: 1 Inj: 1 Acquired: 29-AUG-15 07:33:52
Processed: 31-AUG-15 09:35:48 LAB. ID: EQ1500471-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.89e+05	1.11e+03	4.4e+02	6.47e+05	2.28e+03	2.8e+02
2	1,2,3,7,8-PeCDF	4.46e+06	7.72e+02	5.8e+03	2.84e+06	1.88e+03	1.5e+03
3	2,3,4,7,8-PeCDF	4.00e+06	7.72e+02	5.2e+03	2.55e+06	1.88e+03	1.4e+03
4	1,2,3,4,7,8-HxCDF	4.30e+06	9.24e+02	4.7e+03	3.41e+06	8.48e+02	4.0e+03
5	1,2,3,6,7,8-HxCDF	4.38e+06	9.24e+02	4.7e+03	3.51e+06	8.48e+02	4.1e+03
6	2,3,4,6,7,8-HxCDF	3.80e+06	9.24e+02	4.1e+03	2.98e+06	8.48e+02	3.5e+03
7	1,2,3,7,8,9-HxCDF	3.11e+06	9.24e+02	3.4e+03	2.44e+06	8.48e+02	2.9e+03
8	1,2,3,4,6,7,8-HpCDF	3.37e+06	1.01e+03	3.3e+03	3.24e+06	1.89e+03	1.7e+03
9	1,2,3,4,7,8,9-HpCDF	1.88e+06	1.01e+03	1.9e+03	1.80e+06	1.89e+03	9.5e+02
10	OCDF	1.89e+06	1.52e+03	1.2e+03	2.07e+06	2.78e+03	7.5e+02
11	2,3,7,8-TCDD	4.34e+05	1.48e+03	2.9e+02	5.85e+05	9.76e+02	6.0e+02
12	1,2,3,7,8-PeCDD	3.32e+06	2.18e+03	1.5e+03	2.11e+06	9.56e+02	2.2e+03
13	1,2,3,4,7,8-HxCDD	2.93e+06	7.96e+02	3.7e+03	2.29e+06	1.40e+03	1.6e+03
14	1,2,3,6,7,8-HxCDD	2.93e+06	7.96e+02	3.7e+03	2.31e+06	1.40e+03	1.7e+03
15	1,2,3,7,8,9-HxCDD	3.28e+06	7.96e+02	4.1e+03	2.66e+06	1.40e+03	1.9e+03
16	1,2,3,4,6,7,8-HpCDD	2.38e+06	1.16e+03	2.1e+03	2.24e+06	1.11e+03	2.0e+03
17	OCDD	2.45e+06	1.07e+03	2.3e+03	2.79e+06	1.62e+03	1.7e+03
18	13C-2,3,7,8-TCDF	5.14e+06	1.54e+03	3.3e+03	6.44e+06	1.94e+03	3.3e+03
19	13C-1,2,3,7,8-PeCDF	8.73e+06	6.12e+02	1.4e+04	5.48e+06	8.24e+02	6.6e+03
20	13C-2,3,4,7,8-PeCDF	7.20e+06	6.12e+02	1.2e+04	4.62e+06	8.24e+02	5.6e+03
21	13C-1,2,3,4,7,8-HxCDF	3.92e+06	1.49e+03	2.6e+03	7.52e+06	1.54e+03	4.9e+03
22	13C-1,2,3,6,7,8-HxCDF	4.47e+06	1.49e+03	3.0e+03	8.60e+06	1.54e+03	5.6e+03
23	13C-2,3,4,6,7,8-HxCDF	3.76e+06	1.49e+03	2.5e+03	7.09e+06	1.54e+03	4.6e+03
24	13C-1,2,3,7,8,9-HxCDF	4.85e+06	1.49e+03	3.3e+03	9.22e+06	1.54e+03	6.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.30e+06	3.13e+03	7.3e+02	5.33e+06	1.98e+03	2.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.56e+06	3.13e+03	5.0e+02	3.62e+06	1.98e+03	1.8e+03
27	13C-2,3,7,8-TCDD	4.48e+06	4.95e+03	9.0e+02	5.82e+06	3.82e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	5.65e+06	1.78e+03	3.2e+03	3.53e+06	1.10e+03	3.2e+03
29	13C-1,2,3,4,7,8-HxCDD	5.27e+06	2.08e+03	2.5e+03	4.14e+06	1.92e+03	2.2e+03
30	13C-1,2,3,6,7,8-HxCDD	5.31e+06	2.08e+03	2.5e+03	4.17e+06	1.92e+03	2.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.10e+06	1.00e+03	4.1e+03	3.86e+06	6.16e+02	6.3e+03
32	13C-OCDD	3.58e+06	1.29e+03	2.8e+03	3.93e+06	1.49e+03	2.6e+03
33	13C-1,2,3,4-TCDD	7.27e+06	4.95e+03	1.5e+03	9.21e+06	3.82e+03	2.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.11e+07	2.08e+03	5.3e+03	8.90e+06	1.92e+03	4.6e+03
35	37Cl-2,3,7,8-TCDD	5.15e+06	1.02e+03	5.1e+03			

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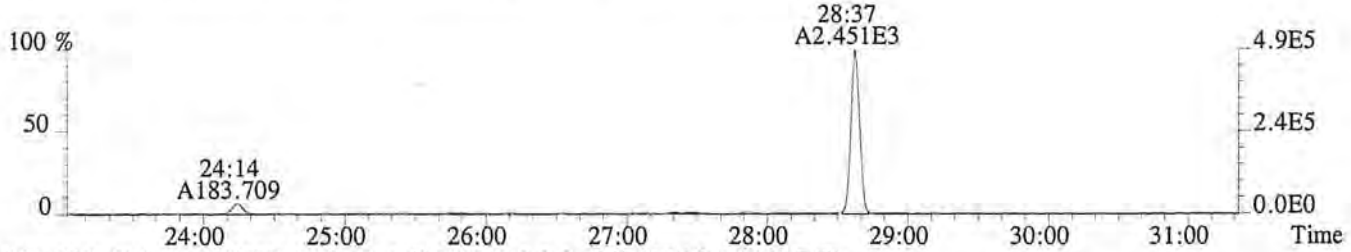
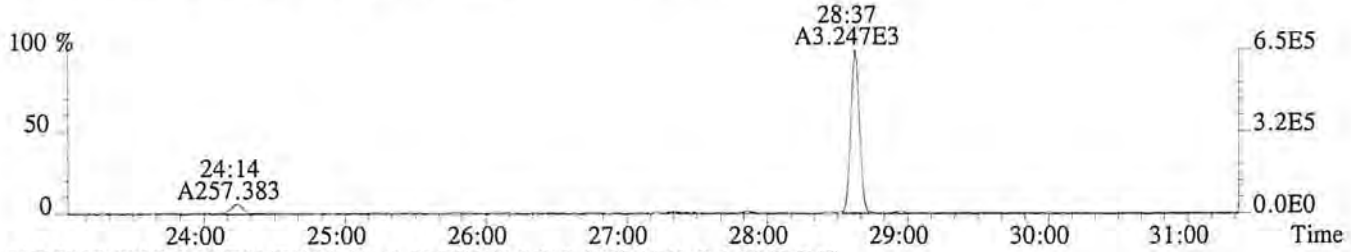
Office:(713)266-1599. Fax:(713)266-0130

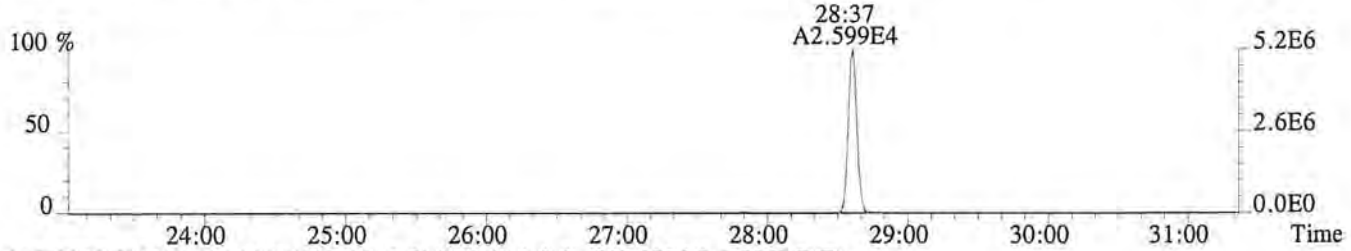
File:P301096 #1-591 Acq:29-AUG-2015 07:33:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1108.0,1.00%,F,T)



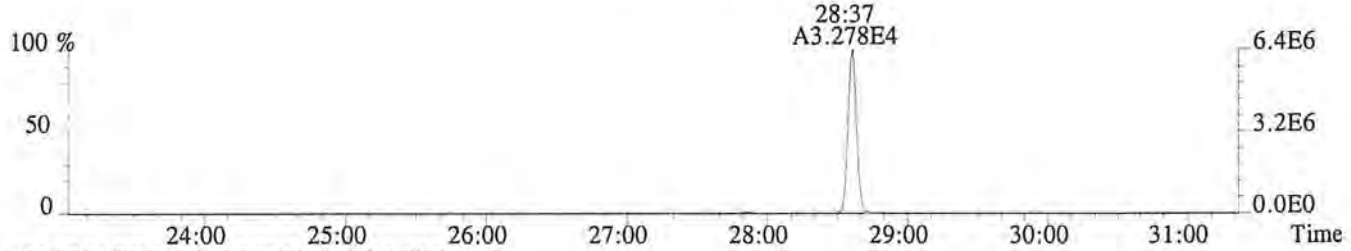
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2276.0,1.00%,F,T)



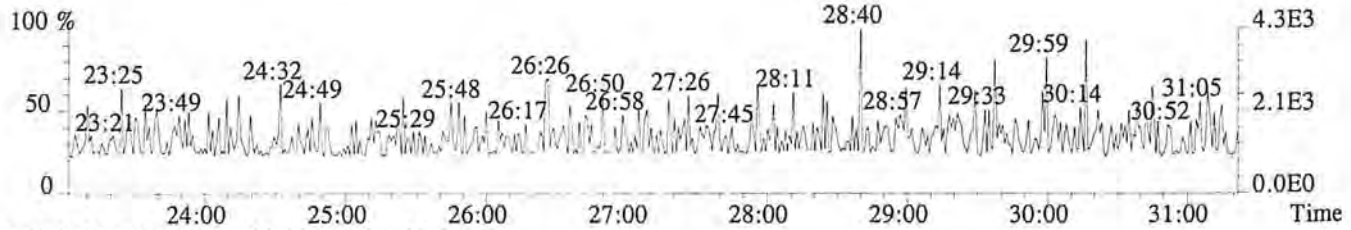
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1540.0,1.00%,F,T)



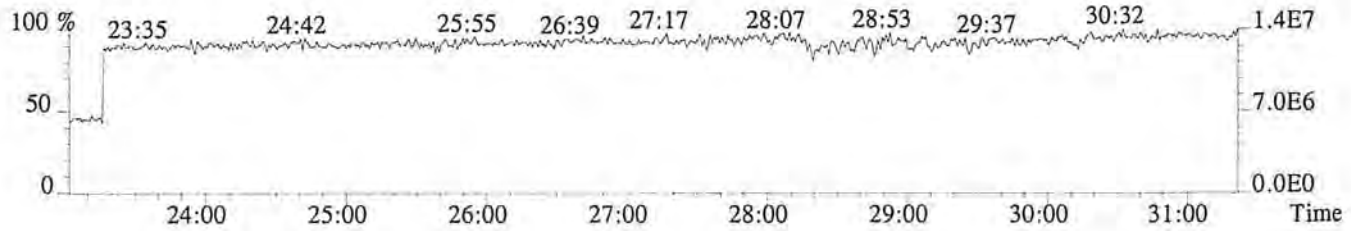
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1936.0,1.00%,F,T)



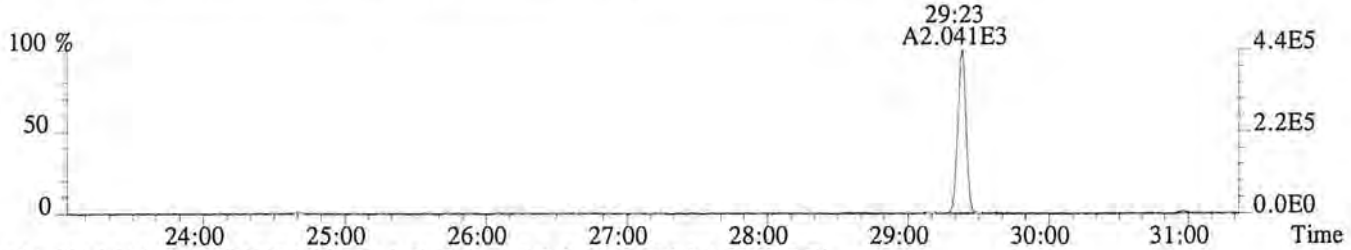
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



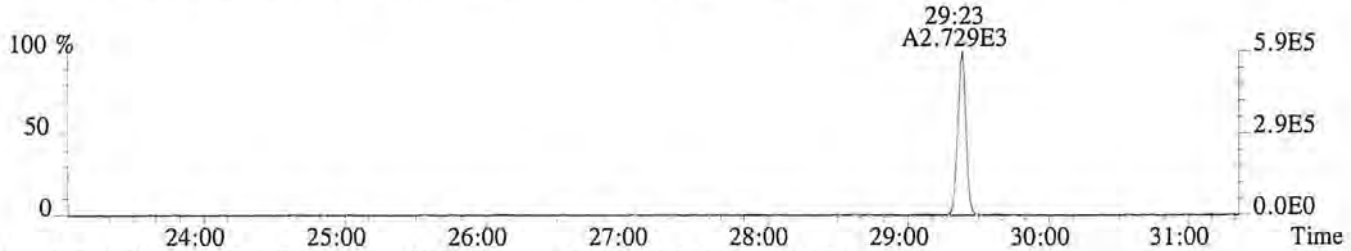
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



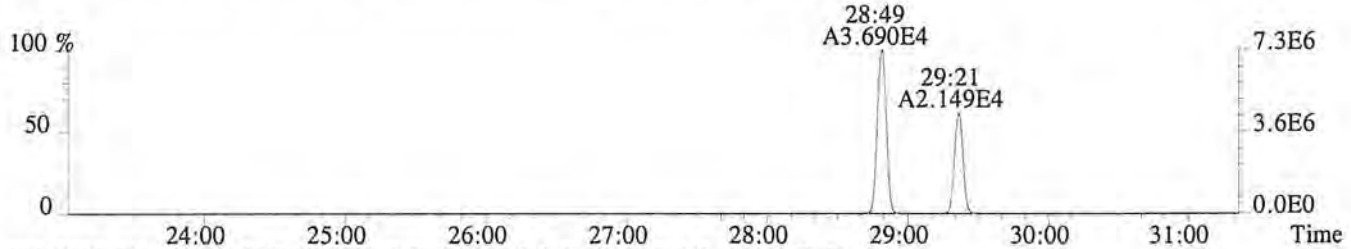
File:P301096 #1-591 Acq:29-AUG-2015 07:33:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



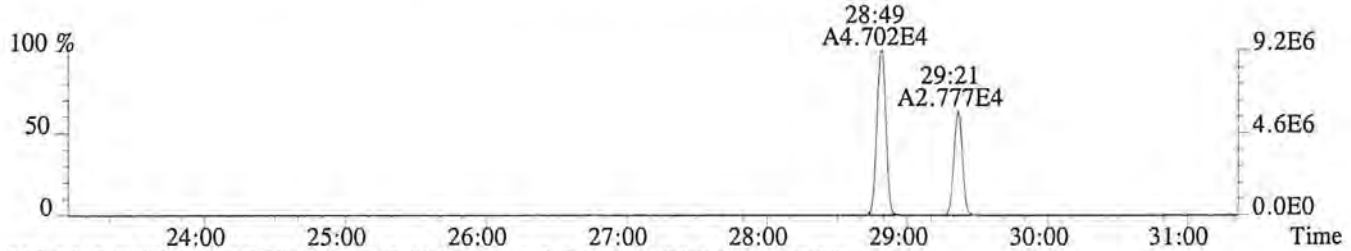
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



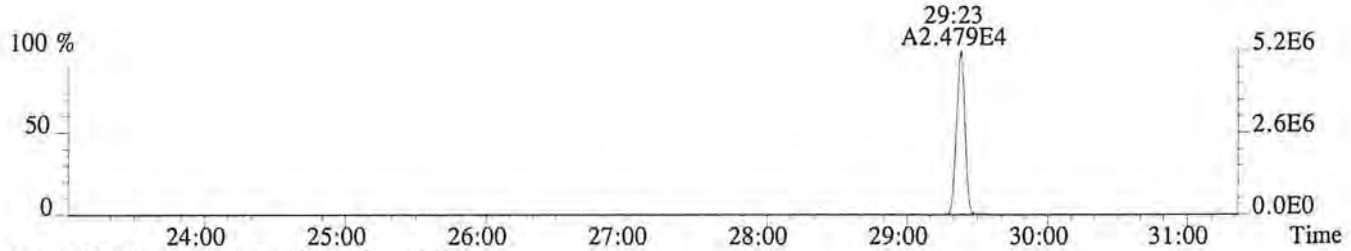
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4952.0,1.00%,F,T)



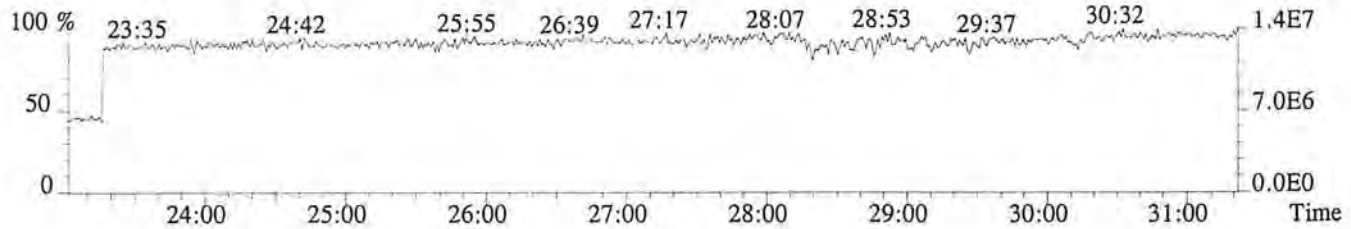
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3816.0,1.00%,F,T)



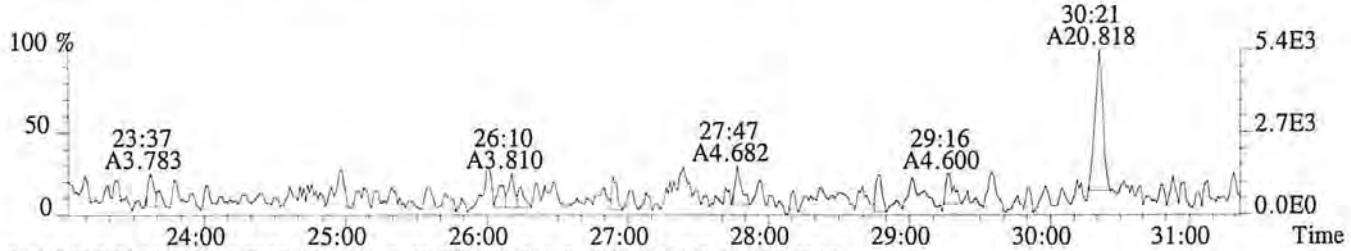
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)



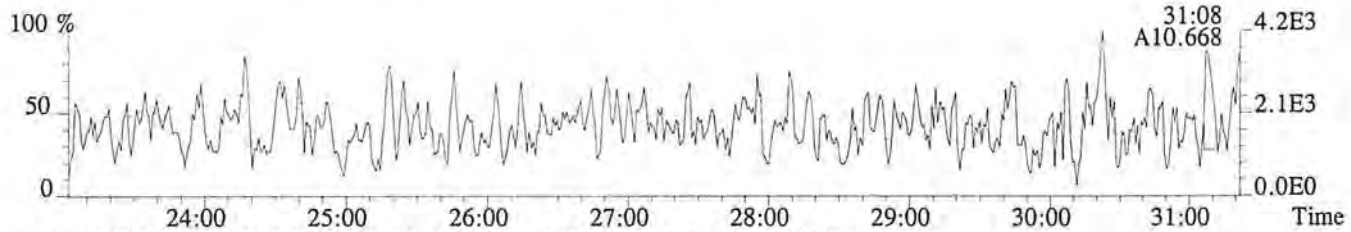
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



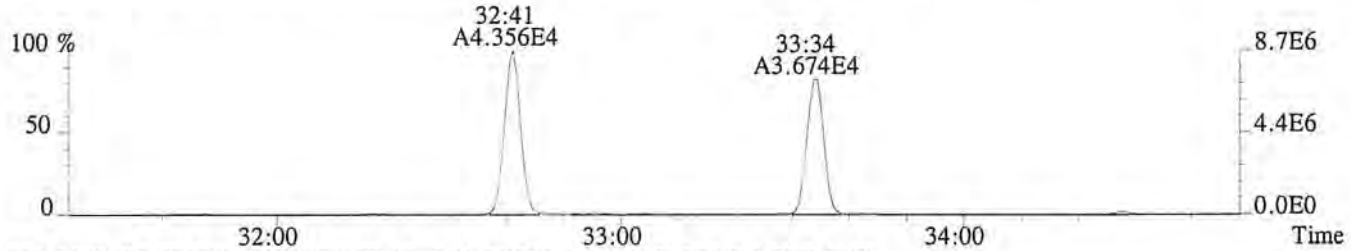
File:P301096 #1-591 Acq:29-AUG-2015 07:33:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



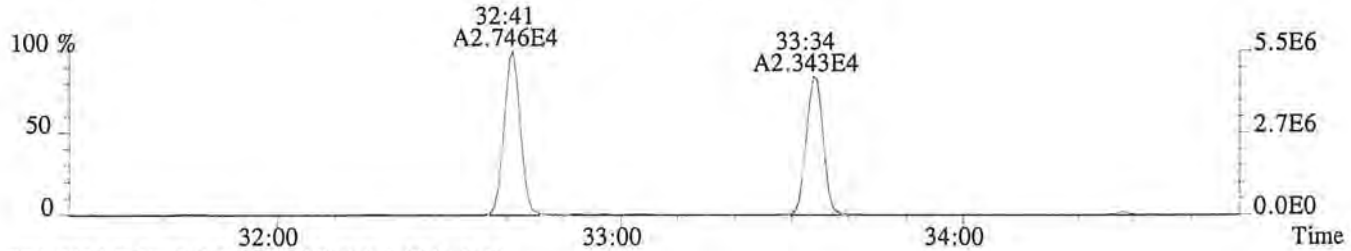
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2336.0,1.00%,F,T)



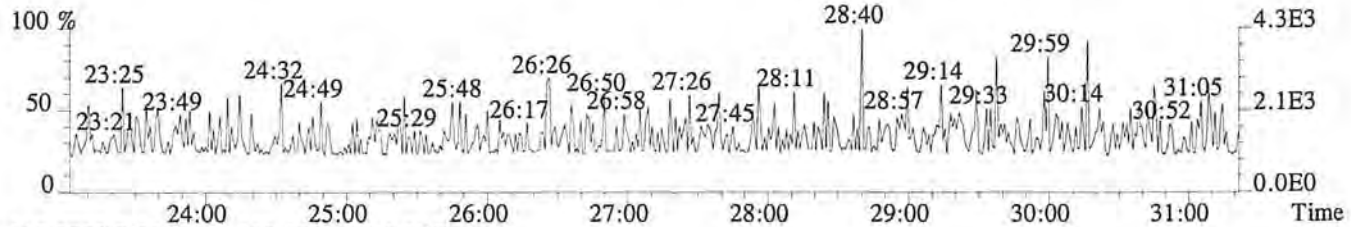
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



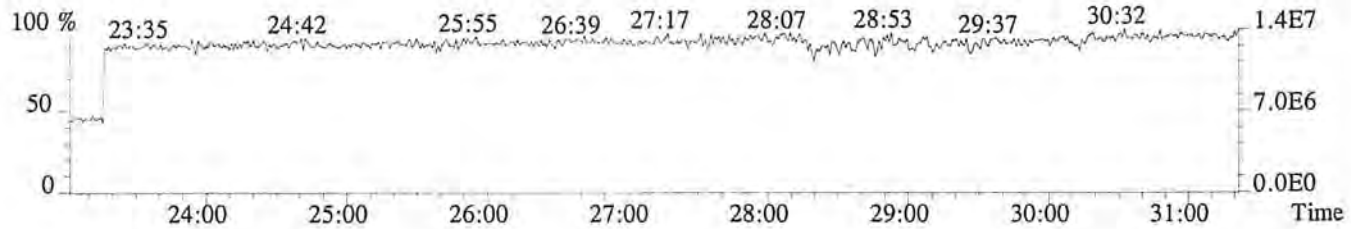
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



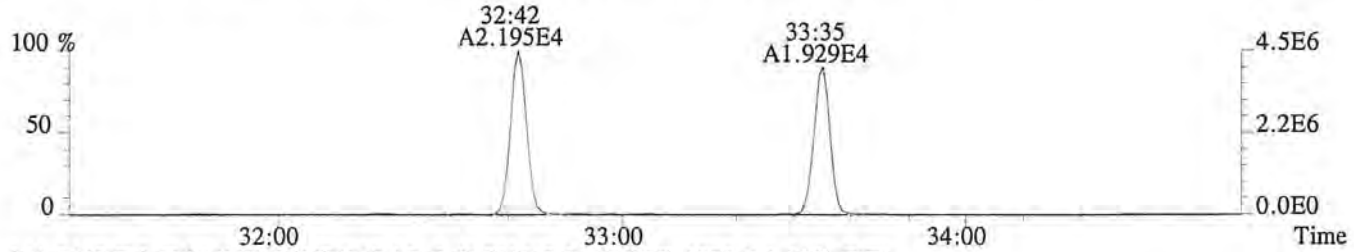
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



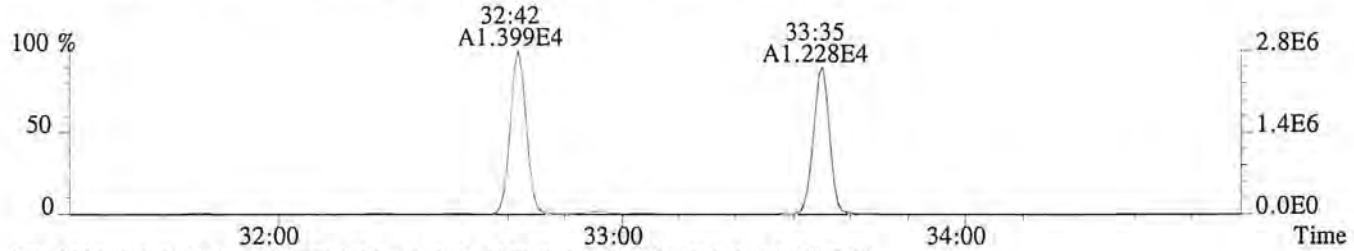
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



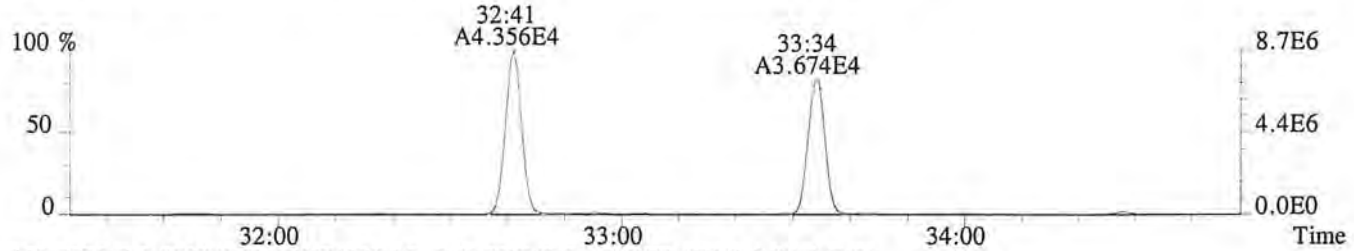
File:P301096 #1-308 Acq:29-AUG-2015 07:33:52 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:EQ1500471-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



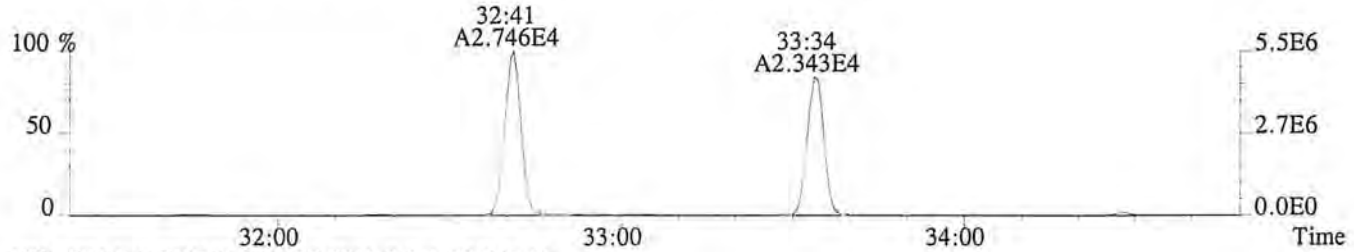
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1880.0,1.00%,F,T)



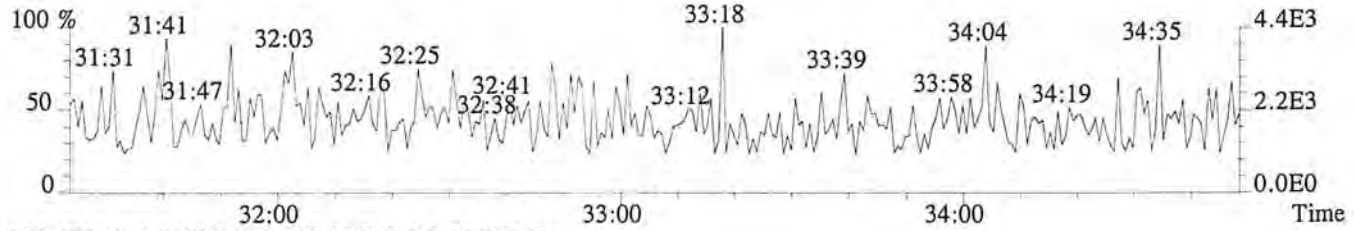
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



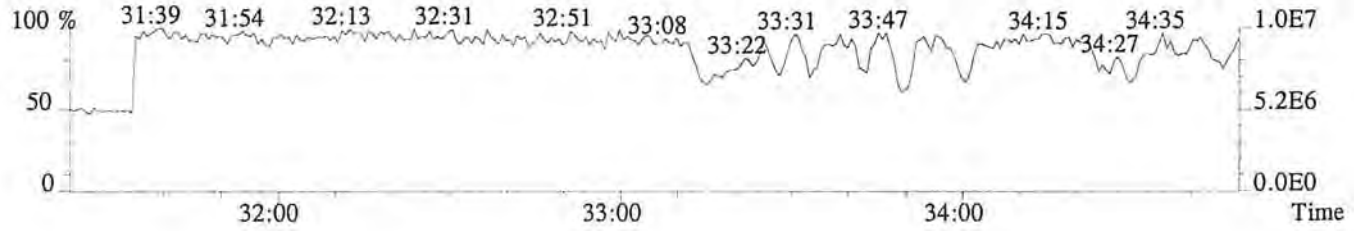
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



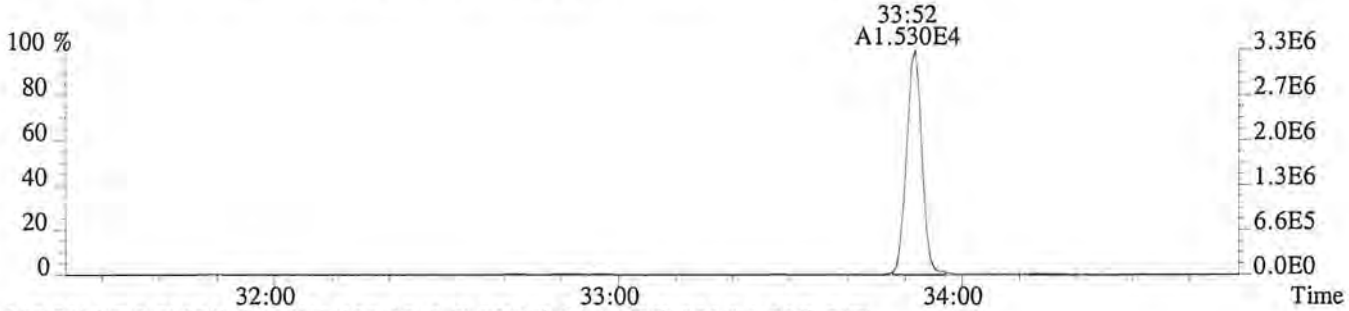
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



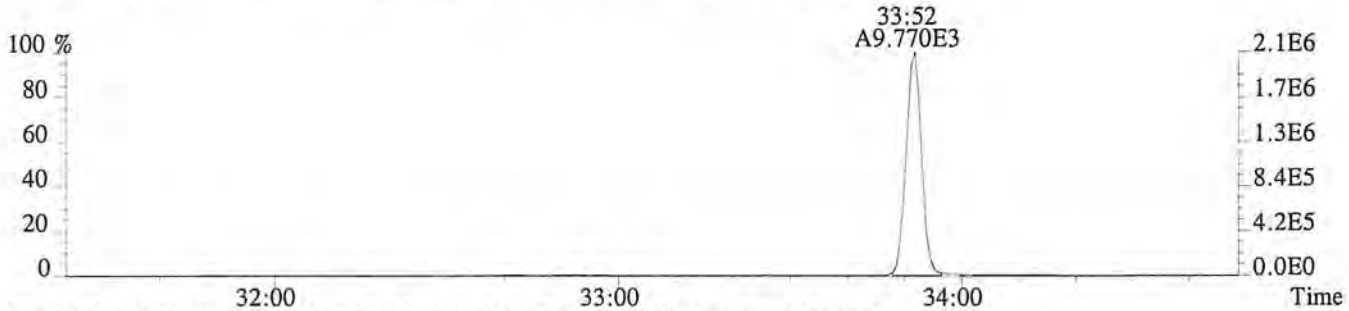
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



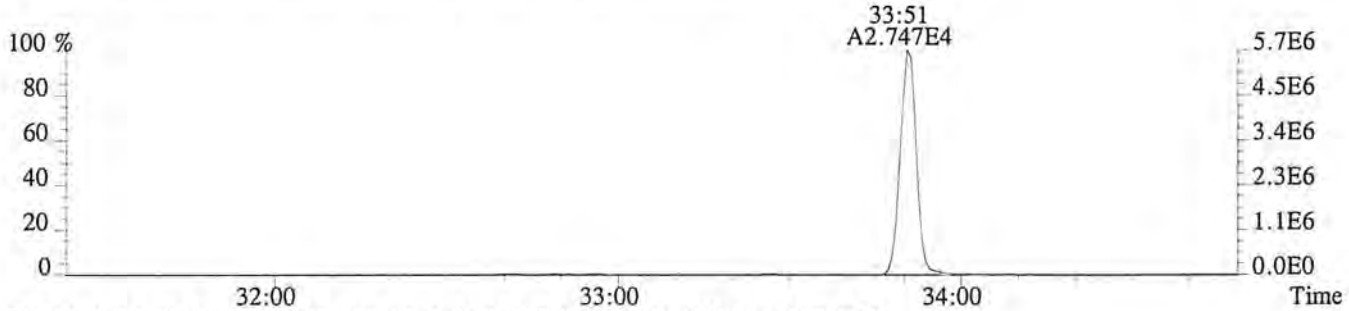
File:P301096 #1-308 Acq:29-AUG-2015 07:33:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2184.0,1.00%,F,T)



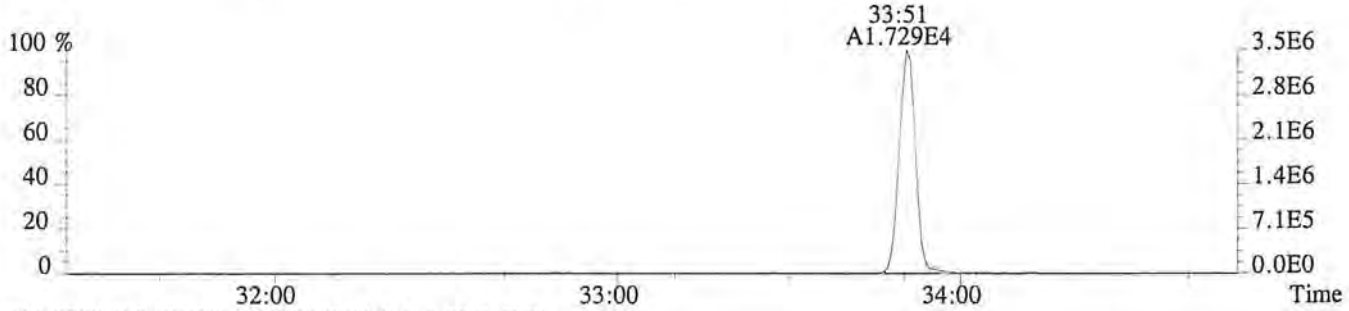
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



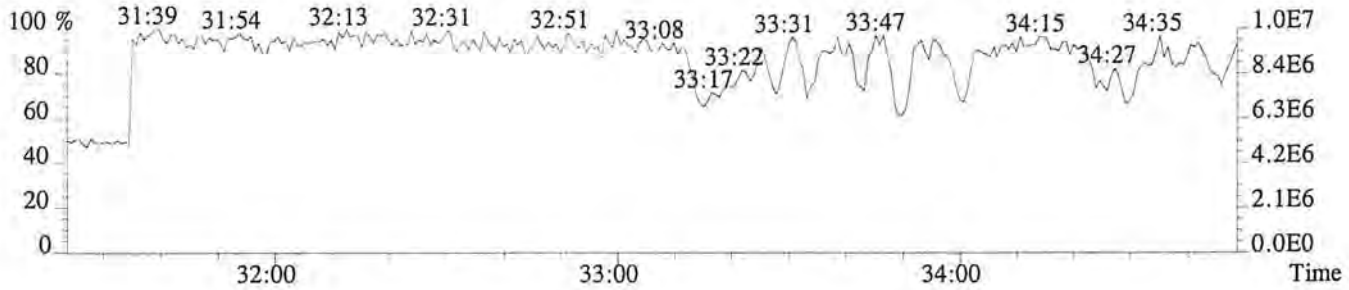
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



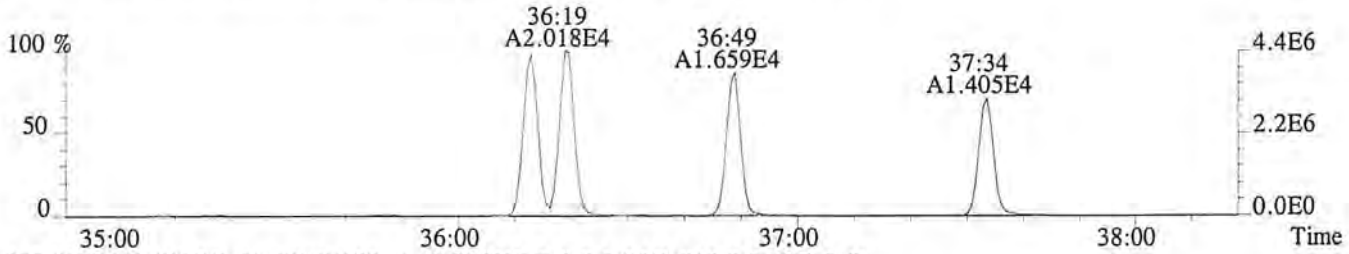
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)



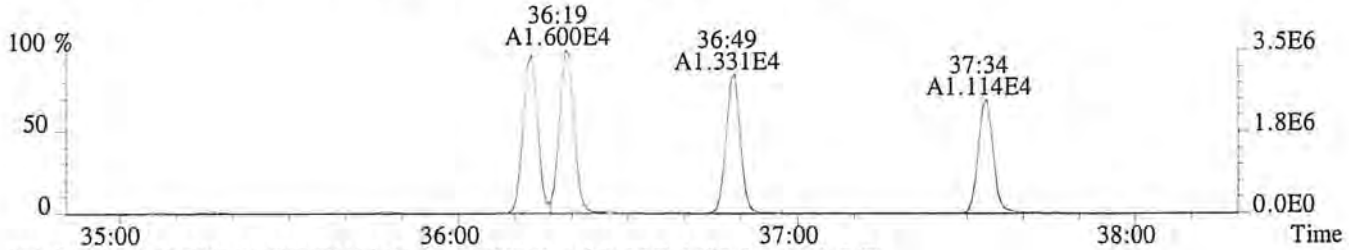
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



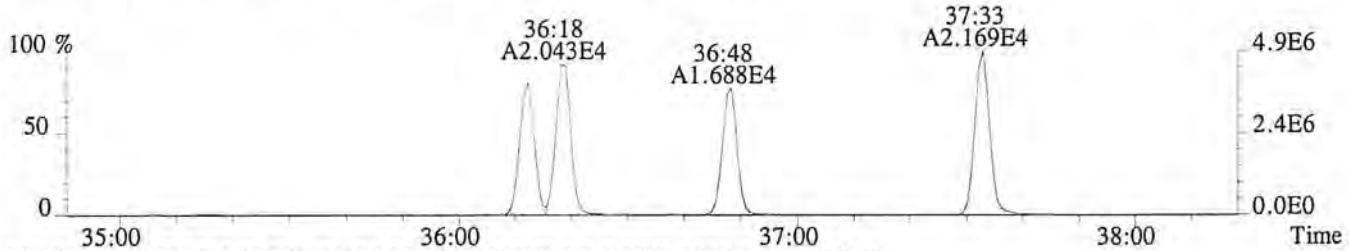
File:P301096 #1-312 Acq:29-AUG-2015 07:33:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-03
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)



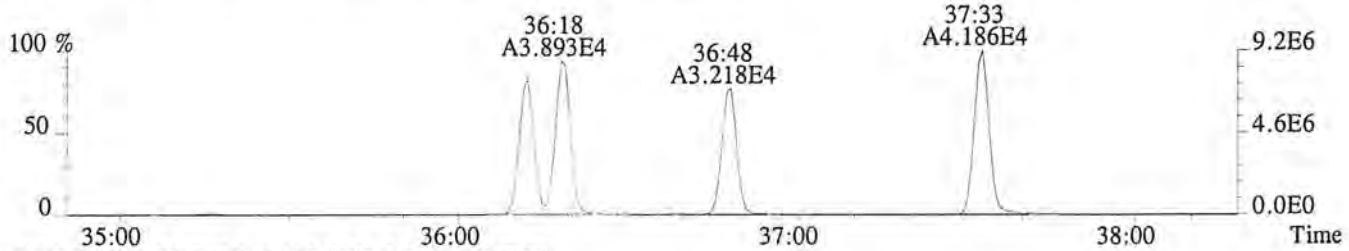
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



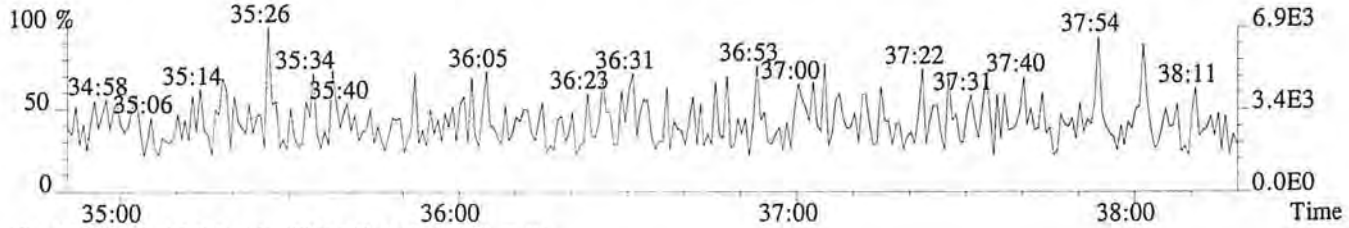
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1488.0,0.40%,F,T)



385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)

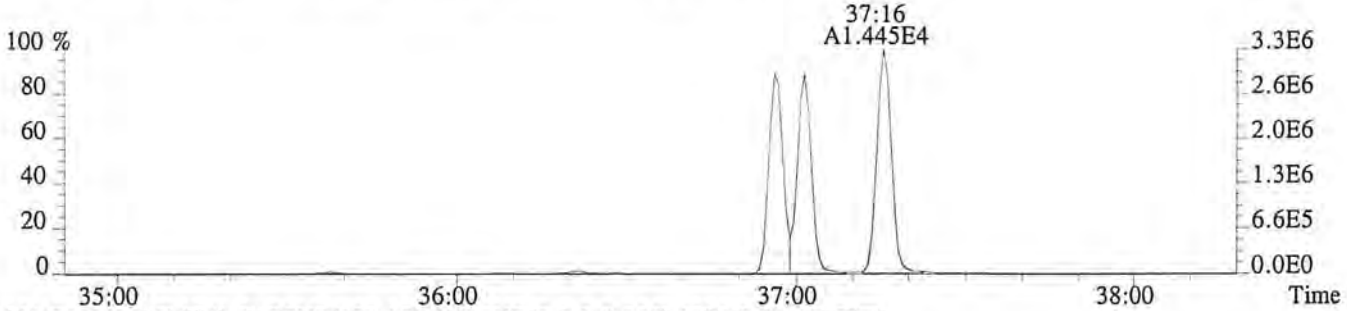


445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

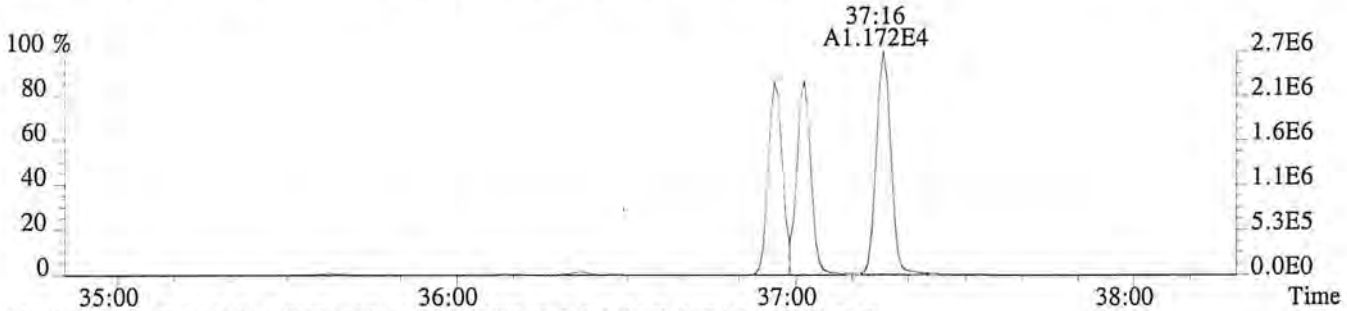


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

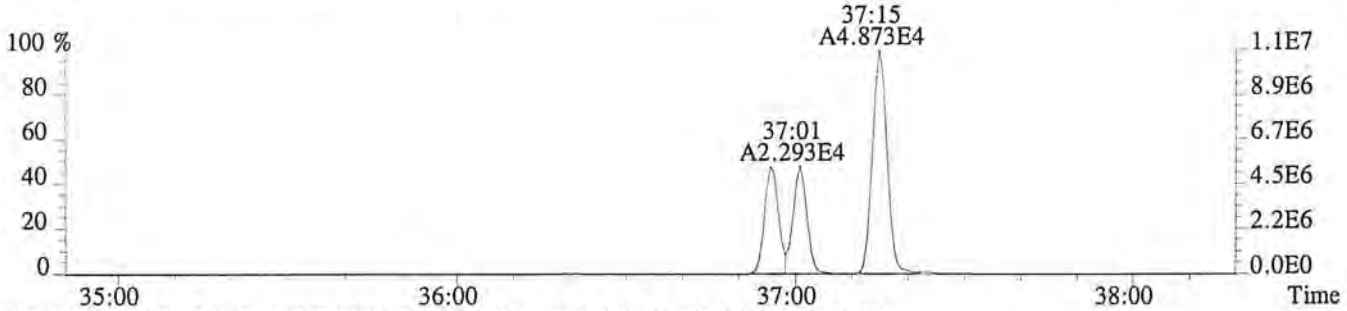
File:P301096 #1-312 Acq:29-AUG-2015 07:33:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



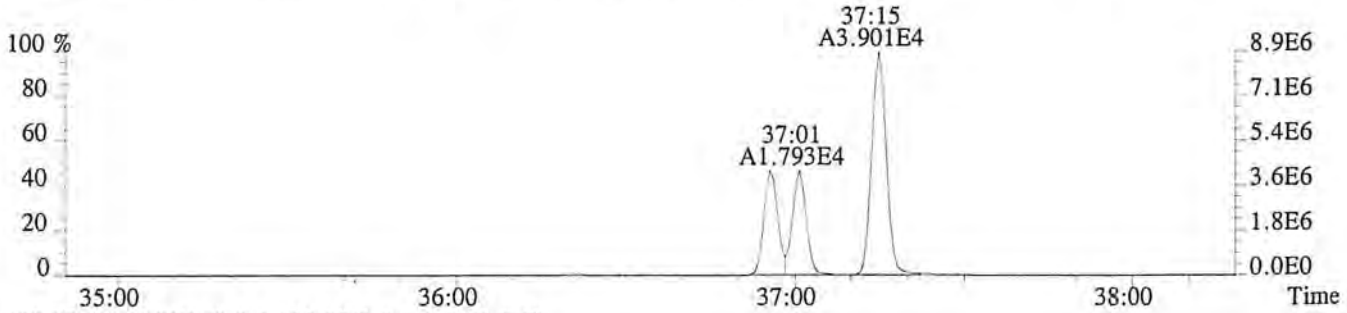
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)



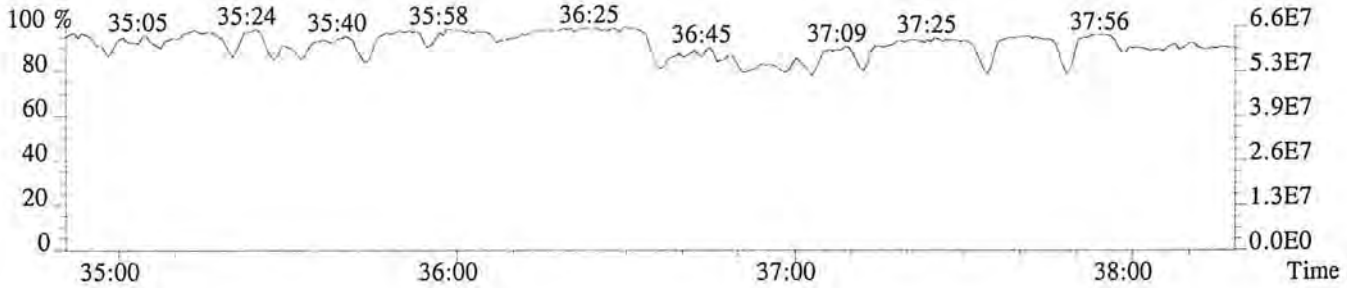
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2084.0,0.40%,F,T)



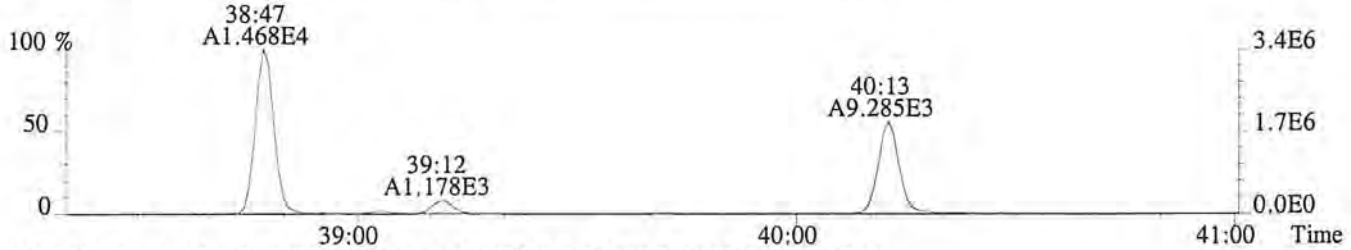
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1916.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

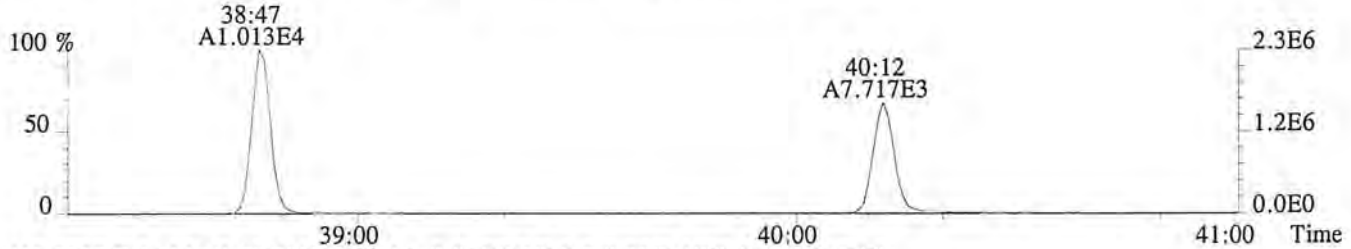


File:P301096 #1-241 Acq:29-AUG-2015 07:33:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1012.0,0.50%,F,T)

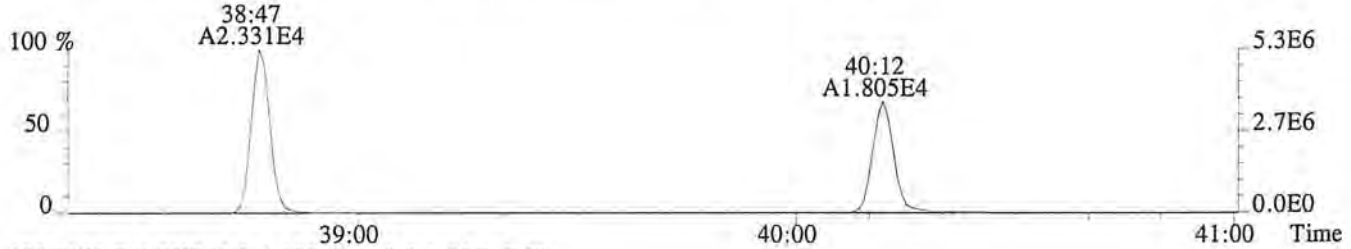


409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1892.0,0.50%,F,T)

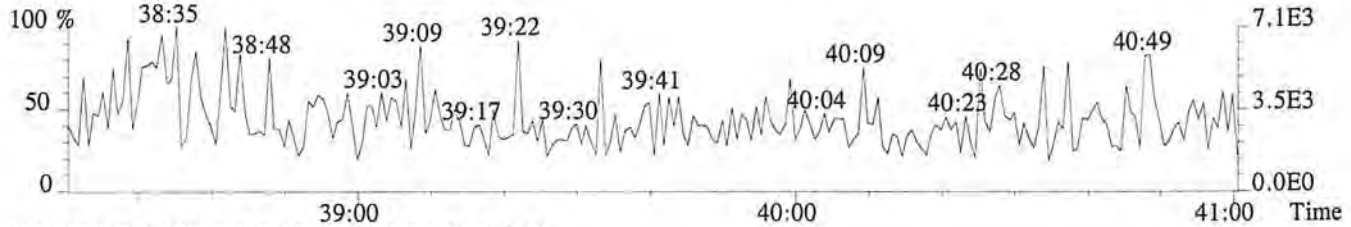
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3132.0,0.50%,F,T)



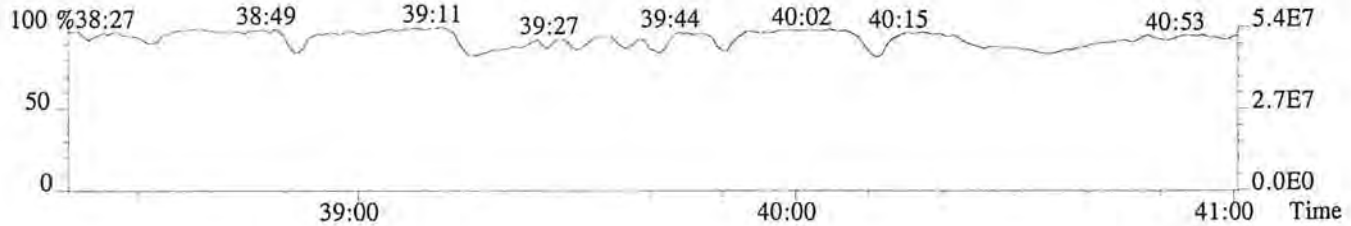
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1980.0,0.50%,F,T)



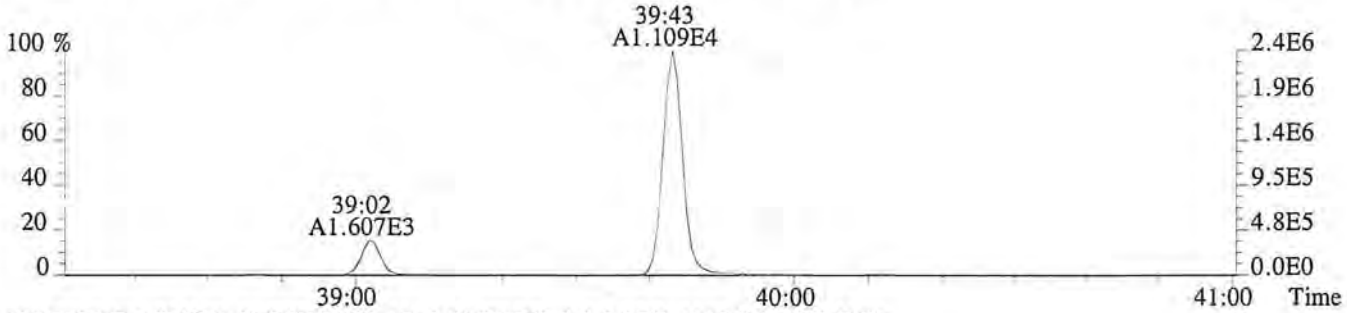
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



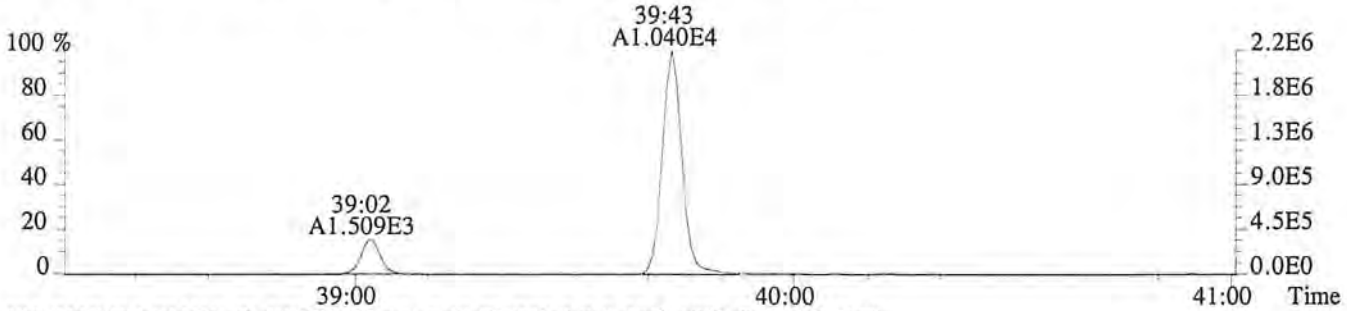
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



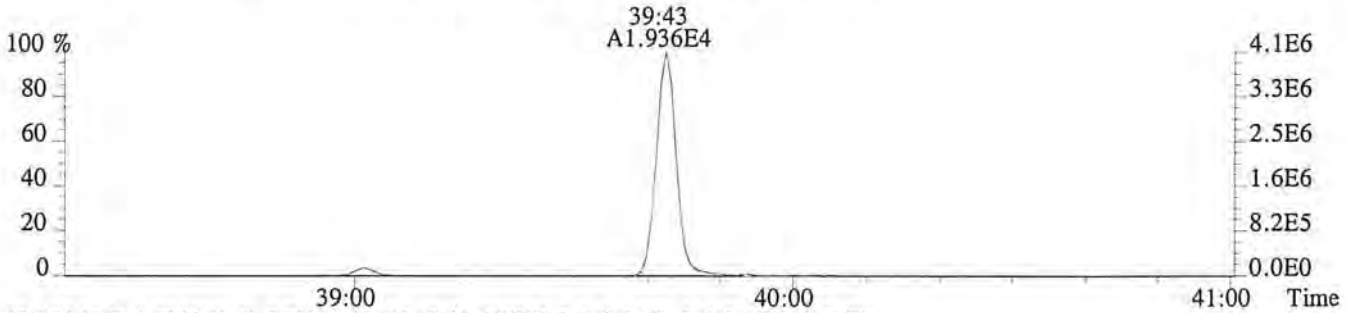
File:P301096 #1-241 Acq:29-AUG-2015 07:33:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



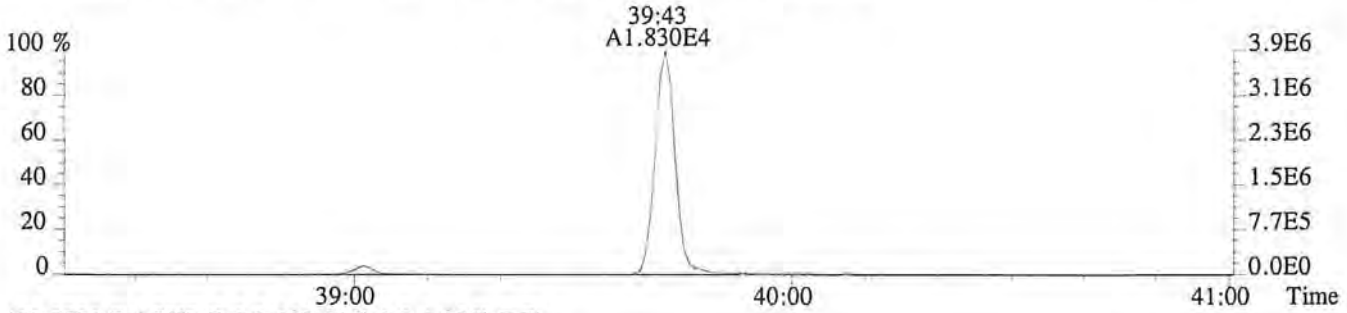
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1112.0,0.40%,F,T)



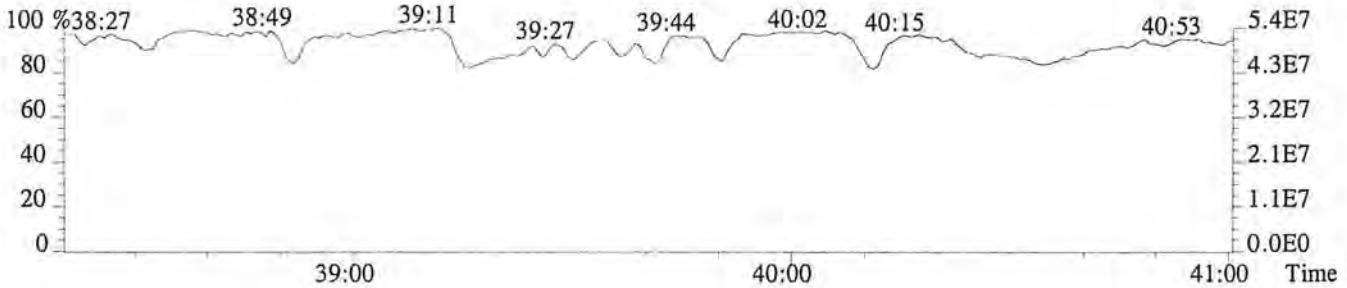
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.40%,F,T)



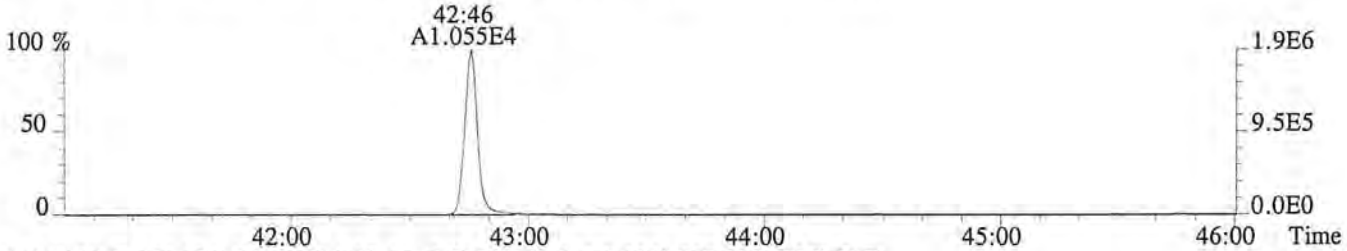
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



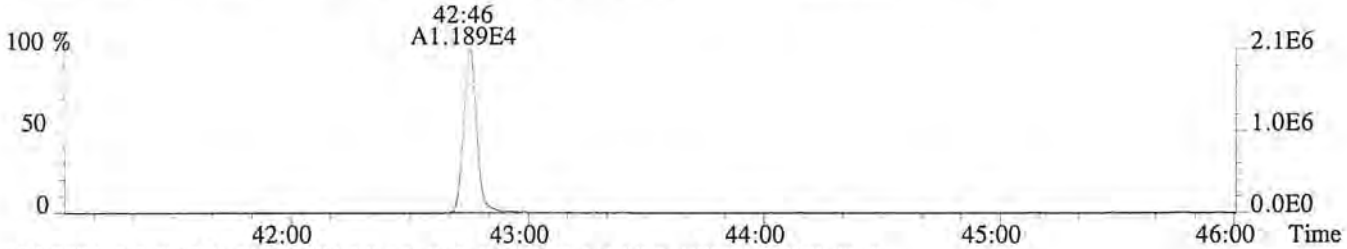
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



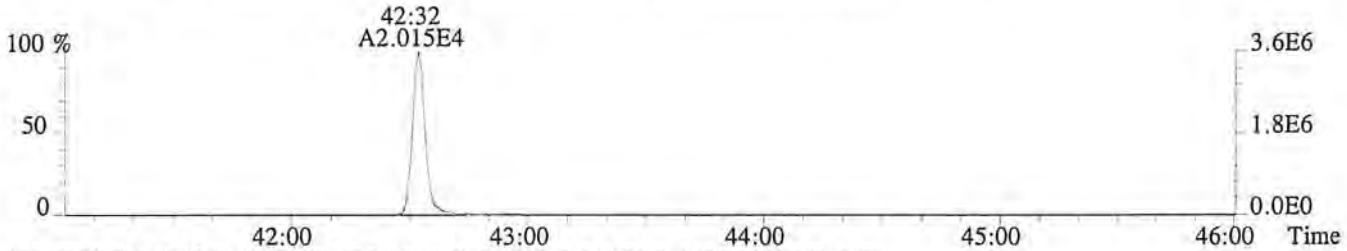
File:P301096 #1-447 Acq:29-AUG-2015 07:33:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1516.0,0.40%,F,T)



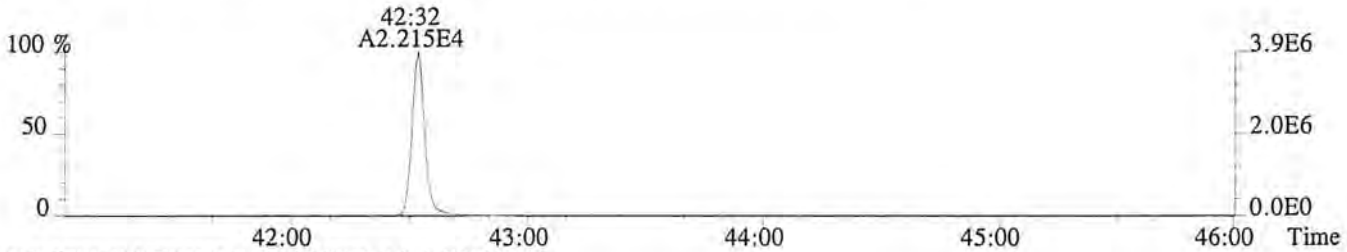
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2776.0,0.40%,F,T)



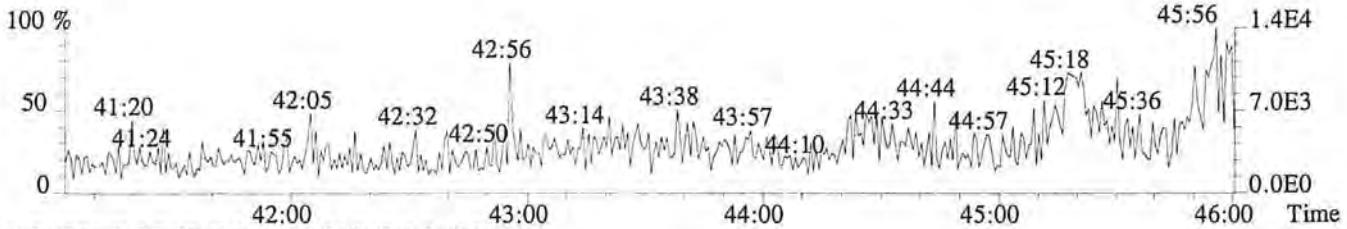
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1288.0,0.40%,F,T)



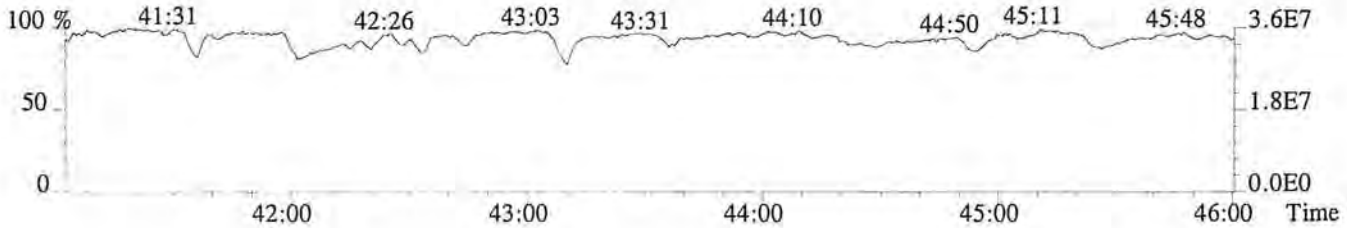
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1492.0,0.40%,F,T)



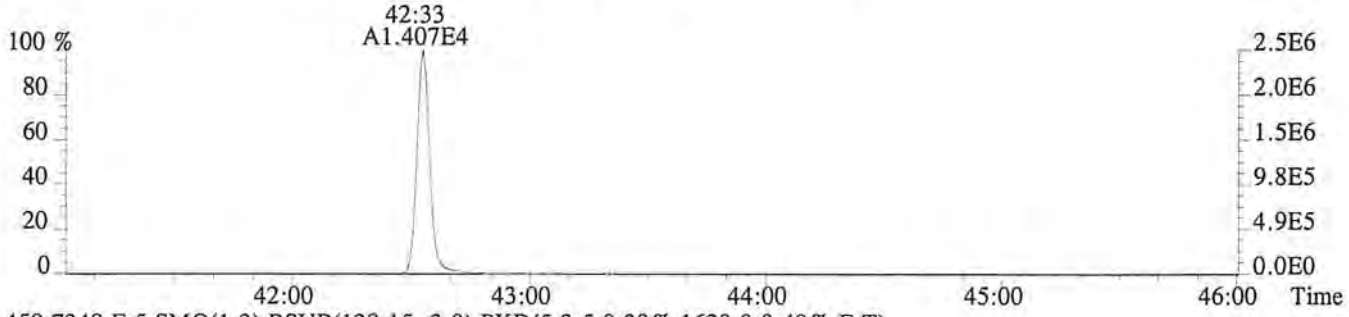
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



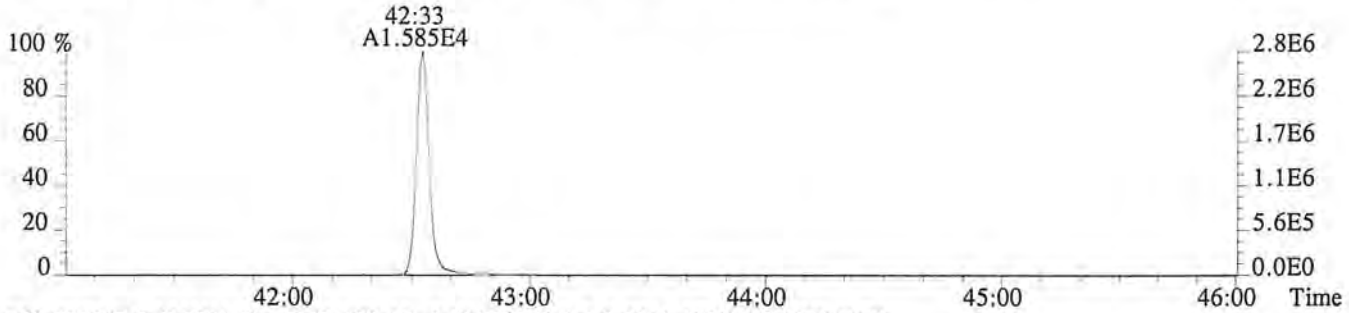
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



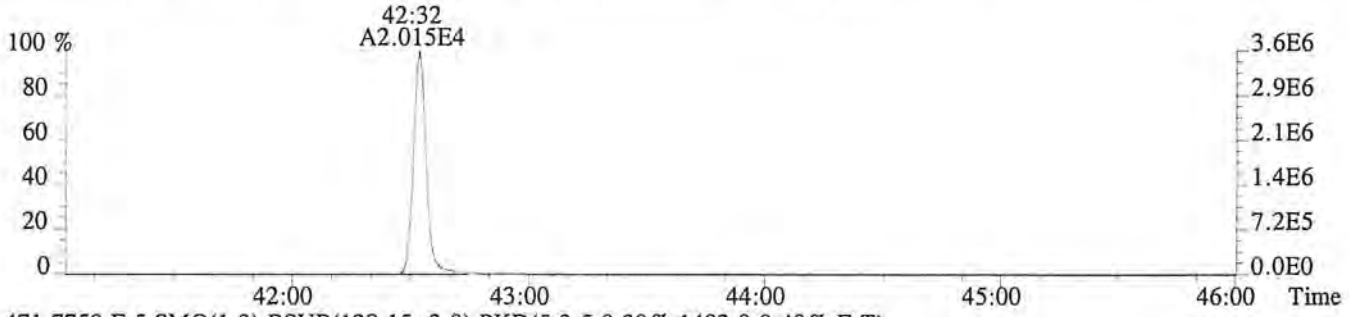
File:P301096 #1-447 Acq:29-AUG-2015 07:33:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500471-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



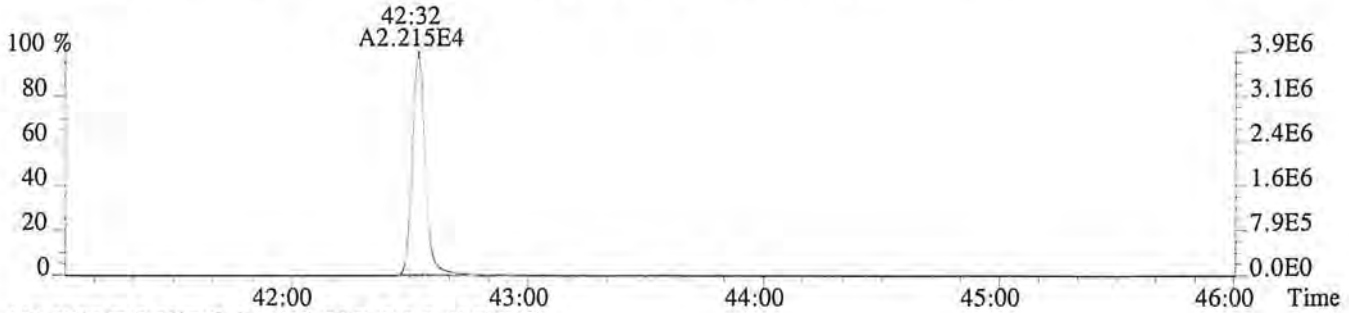
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1620.0,0.40%,F,T)



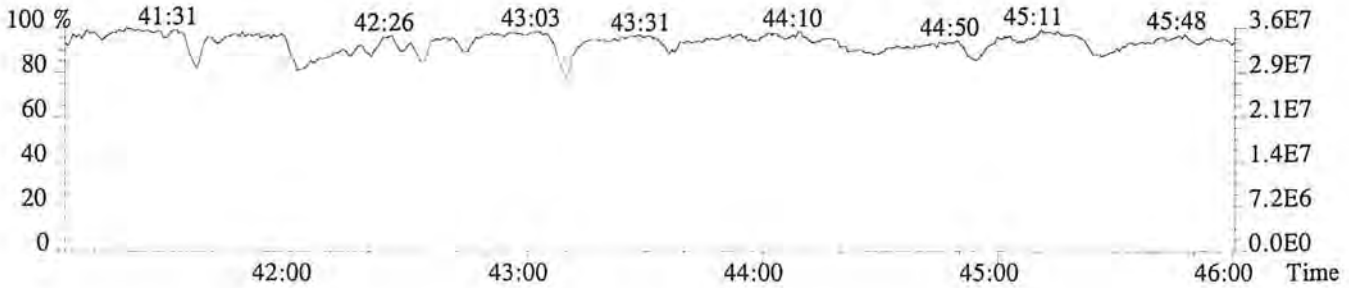
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1288.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1492.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #8 Filename p600104 Samp: 1 Inj: 1 Acquired: 24-AUG-15 14:46:35
Processed: 26-AUG-15 13:53:48 Sample ID: EQ1500484-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.941
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.987
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.934
4	Unk	1,2,3,4,7,8-HxCDF	36:31	2.522e+01	1.899e+01	1.33	yes	no	1.189
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.126
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.116
7	Unk	1,2,3,7,8,9-HxCDF	37:51	2.572e+01	2.086e+01	1.23	yes	yes	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:05	1.770e+01	1.462e+01	1.21	no	no	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:31	2.370e+01	2.833e+01	0.84	no	no	1.287
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.257
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.010
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.932
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.026
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.021
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.133
16	Unk	1,2,3,4,6,7,8-HpCDD	40:01	4.865e+01	3.266e+01	1.49	no	no	1.034
17	Unk	OCDD	42:53	1.030e+02	1.143e+02	0.90	yes	no	1.111
18	IS	13C-2,3,7,8-TCDF	29:05	1.129e+05	1.420e+05	0.79	yes	no	1.379
19	IS	13C-1,2,3,7,8-PeCDF	33:03	1.859e+05	1.190e+05	1.56	yes	no	1.456
20	IS	13C-2,3,4,7,8-PeCDF	33:56	1.748e+05	1.097e+05	1.59	yes	no	1.465
21	IS	13C-1,2,3,4,7,8-HxCDF	36:30	7.768e+04	1.489e+05	0.52	yes	no	1.075
22	IS	13C-1,2,3,6,7,8-HxCDF	36:37	8.923e+04	1.700e+05	0.52	yes	no	1.158
23	IS	13C-2,3,4,6,7,8-HxCDF	37:06	8.686e+04	1.641e+05	0.53	yes	no	1.133
24	IS	13C-1,2,3,7,8,9-HxCDF	37:50	1.165e+05	2.220e+05	0.52	yes	no	1.024
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:04	5.267e+04	1.182e+05	0.45	yes	no	0.880
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:31	4.805e+04	1.092e+05	0.44	yes	no	0.914
27	IS	13C-2,3,7,8-TCDD	29:48	8.485e+04	1.070e+05	0.79	yes	no	1.193
28	IS	13C-1,2,3,7,8-PeCDD	34:11	1.299e+05	8.302e+04	1.56	yes	no	1.094
29	IS	13C-1,2,3,4,7,8-HxCDD	37:14	1.137e+05	8.911e+04	1.28	yes	no	0.906
30	IS	13C-1,2,3,6,7,8-HxCDD	37:18	1.051e+05	8.296e+04	1.27	yes	no	0.860
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:01	8.851e+04	8.367e+04	1.06	yes	no	0.892
32	IS	13C-OCDD	42:52	1.173e+05	1.306e+05	0.90	yes	no	0.642
33	RS/RT	13C-1,2,3,4-TCDD	29:16	1.153e+05	1.460e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:32	1.851e+05	1.461e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:49	9.733e+04				no	1.263

$$\text{OCDD} = \frac{(1.030e+02 + 1.143e+02) \times 4000 \text{ pg} \times 1}{(1.173e+05 + 1.306e+05) \times \text{g} \times / 100 \times 1.111} =$$

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #8 Filename p600104 Samp: 1 Inj: 1 Acquired: 24-AUG-15 14:46:35
Processed: 26-AUG-15 13:53:48 LAB. ID: EQ1500484-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.47e+03	*	*	2.61e+03	*
2	1,2,3,7,8-PeCDF	*	1.68e+03	*	*	4.08e+03	*
3	2,3,4,7,8-PeCDF	*	1.68e+03	*	*	4.08e+03	*
4	1,2,3,4,7,8-HxCDF	7.55e+03	1.64e+03	4.6e+00	4.57e+03	9.84e+02	4.6e+00
5	1,2,3,6,7,8-HxCDF	*	1.64e+03	*	*	9.84e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.64e+03	*	*	9.84e+02	*
7	1,2,3,7,8,9-HxCDF	6.25e+03	1.64e+03	3.8e+00	3.82e+03	9.84e+02	3.9e+00
8	1,2,3,4,6,7,8-HpCDF	4.67e+03	1.19e+03	3.9e+00	4.18e+03	1.29e+03	3.2e+00
9	1,2,3,4,7,8,9-HpCDF	6.40e+03	1.19e+03	5.4e+00	5.07e+03	1.29e+03	3.9e+00
10	OCDF	*	2.06e+03	*	*	4.65e+03	*
11	2,3,7,8-TCDD	*	2.13e+03	*	*	2.12e+03	*
12	1,2,3,7,8-PeCDD	*	4.70e+03	*	*	1.79e+03	*
13	1,2,3,4,7,8-HxCDD	*	1.55e+03	*	*	1.51e+03	*
14	1,2,3,6,7,8-HxCDD	*	1.55e+03	*	*	1.51e+03	*
15	1,2,3,7,8,9-HxCDD	*	1.55e+03	*	*	1.51e+03	*
16	1,2,3,4,6,7,8-HpCDD	9.94e+03	1.75e+03	5.7e+00	7.90e+03	1.90e+03	4.2e+00
17	OCDD	2.03e+04	1.30e+03	1.6e+01	2.17e+04	2.17e+03	1.0e+01
18	13C-2,3,7,8-TCDF	2.33e+07	5.14e+03	4.5e+03	2.92e+07	3.16e+03	9.2e+03
19	13C-1,2,3,7,8-PeCDF	3.84e+07	1.63e+03	2.4e+04	2.46e+07	2.07e+03	1.2e+04
20	13C-2,3,4,7,8-PeCDF	3.77e+07	1.63e+03	2.3e+04	2.38e+07	2.07e+03	1.2e+04
21	13C-1,2,3,4,7,8-HxCDF	1.79e+07	1.98e+03	9.0e+03	3.46e+07	2.78e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.07e+07	1.98e+03	1.0e+04	3.92e+07	2.78e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	2.05e+07	1.98e+03	1.0e+04	3.88e+07	2.78e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	2.77e+07	1.98e+03	1.4e+04	5.25e+07	2.78e+03	1.9e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.24e+07	4.95e+03	2.5e+03	2.79e+07	2.78e+03	1.0e+04
26	13C-1,2,3,4,7,8,9-HpCDF	1.01e+07	4.95e+03	2.0e+03	2.28e+07	2.78e+03	8.2e+03
27	13C-2,3,7,8-TCDD	1.83e+07	7.11e+03	2.6e+03	2.31e+07	5.75e+03	4.0e+03
28	13C-1,2,3,7,8-PeCDD	2.72e+07	2.07e+03	1.3e+04	1.76e+07	1.74e+03	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	2.69e+07	5.30e+03	5.1e+03	2.09e+07	3.36e+03	6.2e+03
30	13C-1,2,3,6,7,8-HxCDD	2.50e+07	5.30e+03	4.7e+03	1.99e+07	3.36e+03	5.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.98e+07	1.24e+03	1.6e+04	1.86e+07	1.32e+03	1.4e+04
32	13C-OCDD	2.28e+07	1.33e+03	1.7e+04	2.54e+07	1.65e+03	1.5e+04
33	13C-1,2,3,4-TCDD	2.38e+07	7.11e+03	3.3e+03	3.02e+07	5.75e+03	5.2e+03
34	13C-1,2,3,7,8,9-HxCDD	4.25e+07	5.30e+03	8.0e+03	3.39e+07	3.36e+03	1.0e+04
35	37Cl-2,3,7,8-TCDD	2.03e+07	1.48e+03	1.4e+04			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 36 Totals Name: Total Tetra-Furans

Run: 8 File: p600104 Sample:1 Injection:1 Function:1

Acquired: 24-AUG-15 14:46:35 Processed: 26-AUG-15 13:53:48

Mass: 303.9020 305.8990 Tot Response: 1.25e+03 RRF: 0.9406

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:49	5.44e+02	6.73e+02	0.81	yes	1.22e+03	n	n
2	27:47	1.55e+01	2.22e+01	0.70	yes	3.77e+01	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 41 Totals Name: Total Hexa-Furans

Run: 8 File: p600104 Sample:1 Injection:1 Function:3

Acquired: 24-AUG-15 14:46:35 Processed: 26-AUG-15 13:53:48

Mass: 373.8210 375.8180 Tot Response: 9.08e+01 RRF: 1.146

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:31	2.52e+01	1.90e+01	1.33	yes	4.42e+01	1,2,3,4,7,8-HxCDF	n	n
2	37:51	2.57e+01	2.09e+01	1.23	yes	4.66e+01	1,2,3,7,8,9-HxCDF	y	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 8 File: p600104 Sample:1 Injection:1 Function:4

Acquired: 24-AUG-15 14:46:35 Processed: 26-AUG-15 13:53:48

Mass: 423.7770 425.7740 Tot Response: 1.13e+02 RRF: 1.034

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:19	5.94e+01	5.32e+01	1.12	yes	1.13e+02	n	n

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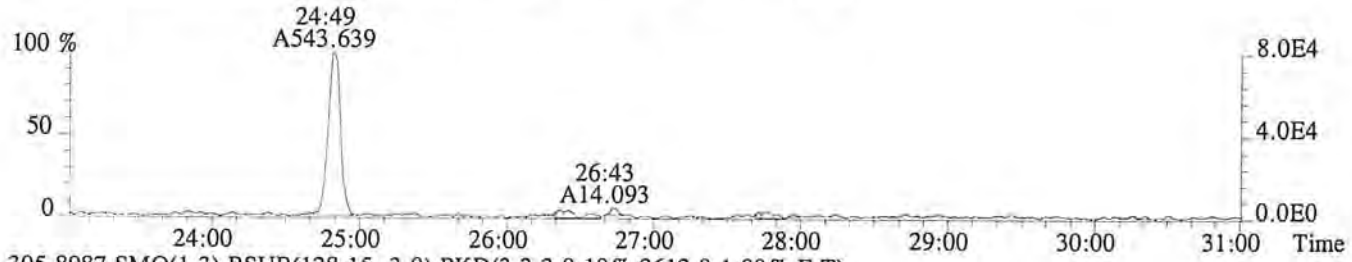
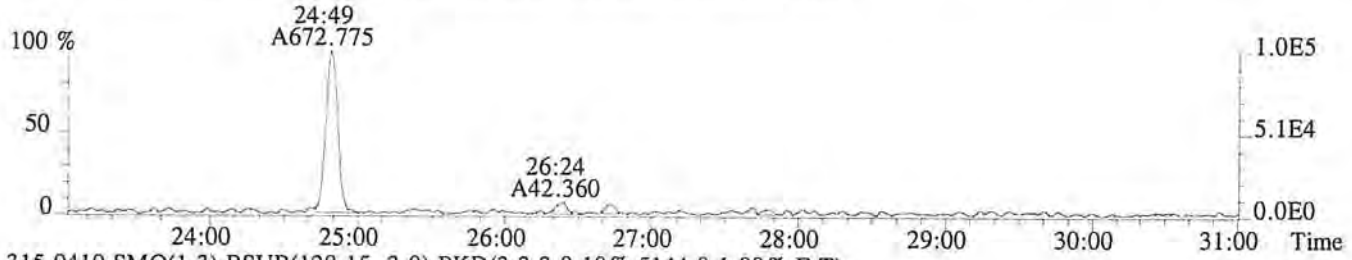
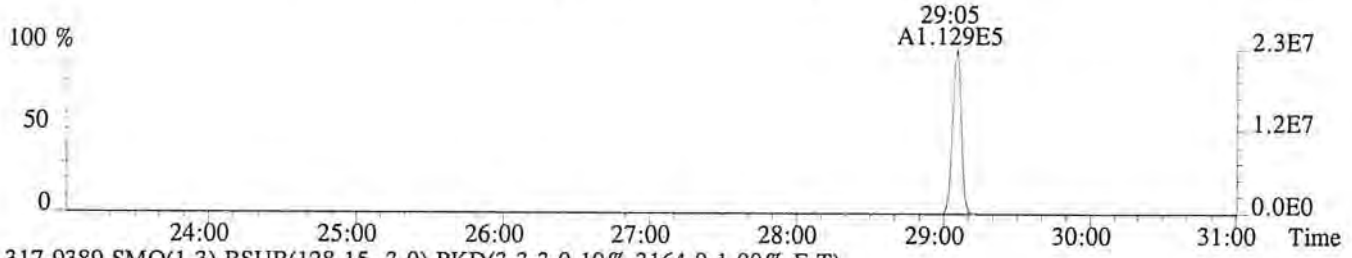
File:P600104 #1-566 Acq:24-AUG-2015 14:46:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1468.0,1.00%,F,T)



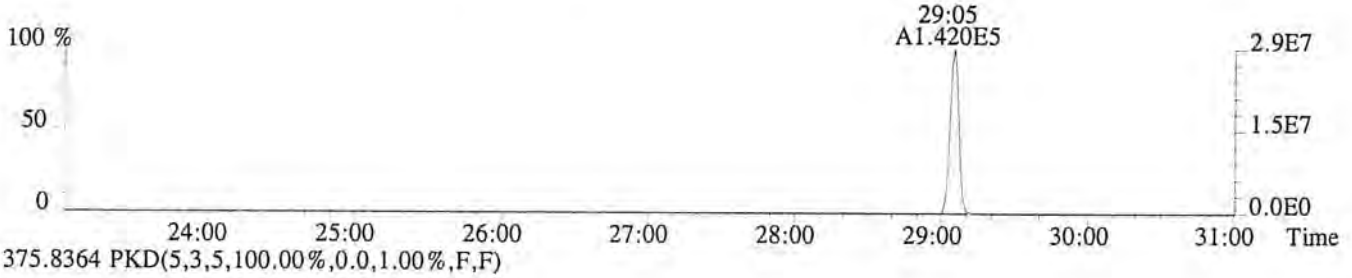
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2612.0,1.00%,F,T)



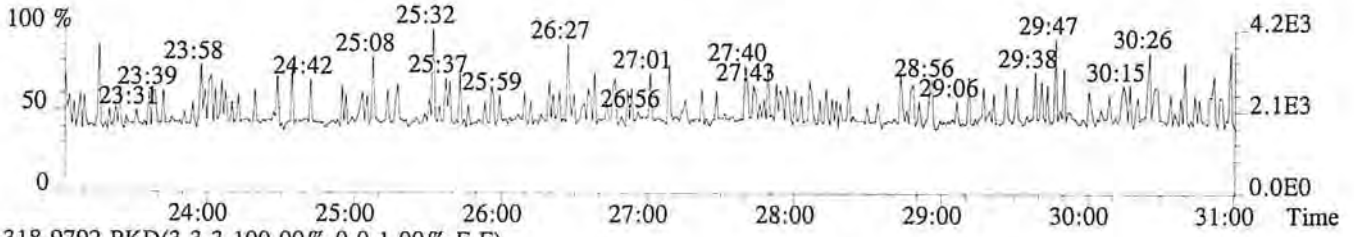
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5144.0,1.00%,F,T)



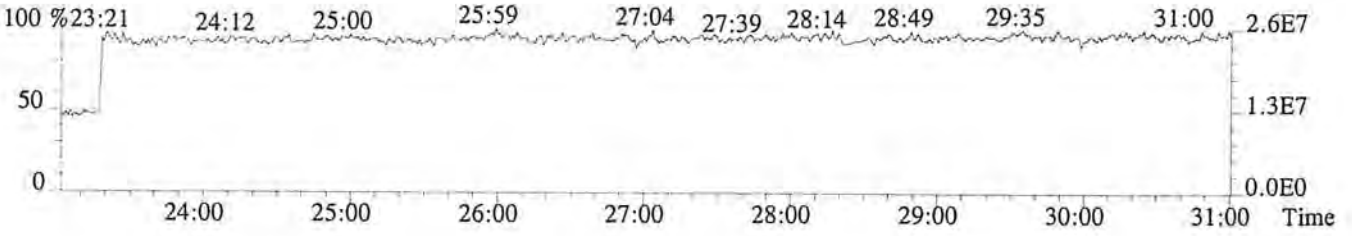
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3164.0,1.00%,F,T)



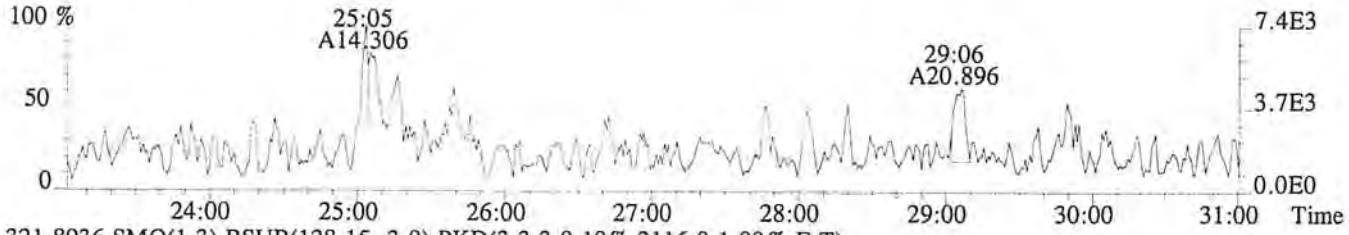
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



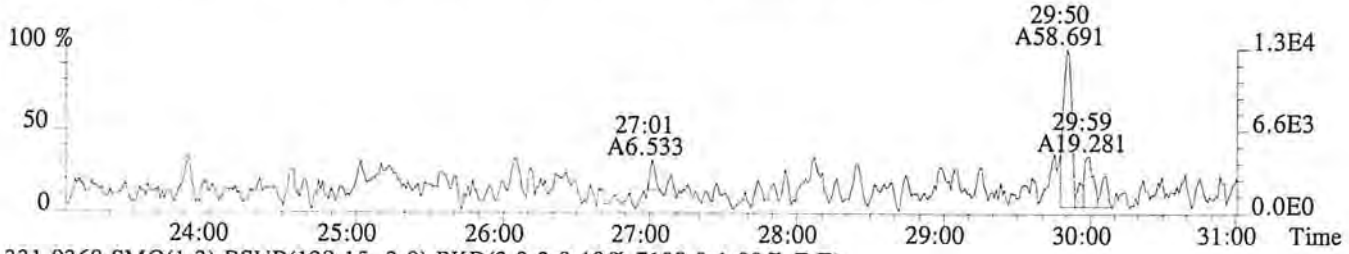
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



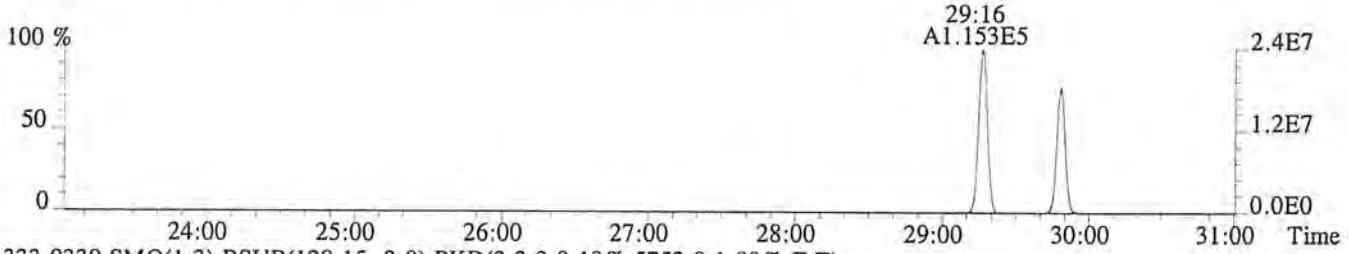
File:P600104 #1-566 Acq:24-AUG-2015 14:46:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2132.0,1.00%,F,T)



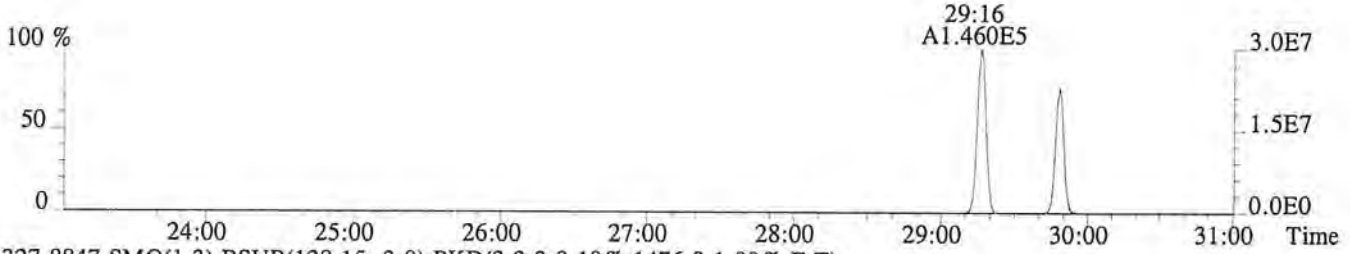
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



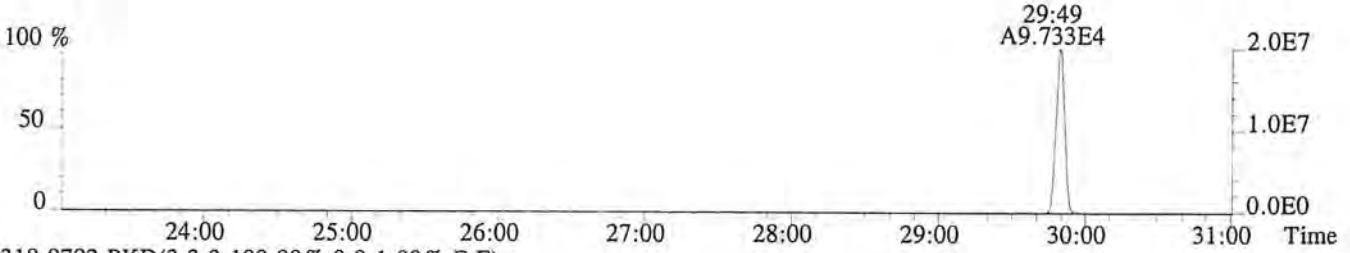
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7108.0,1.00%,F,T)



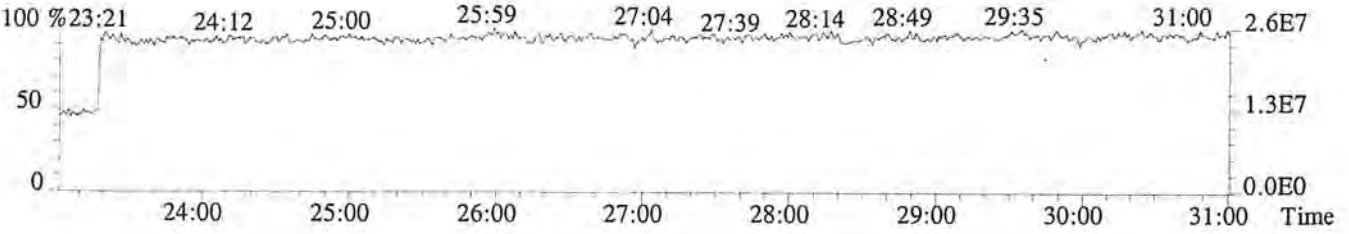
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5752.0,1.00%,F,T)



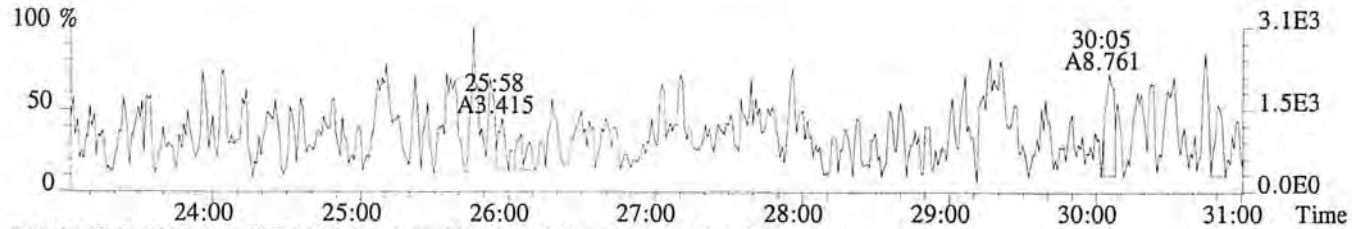
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



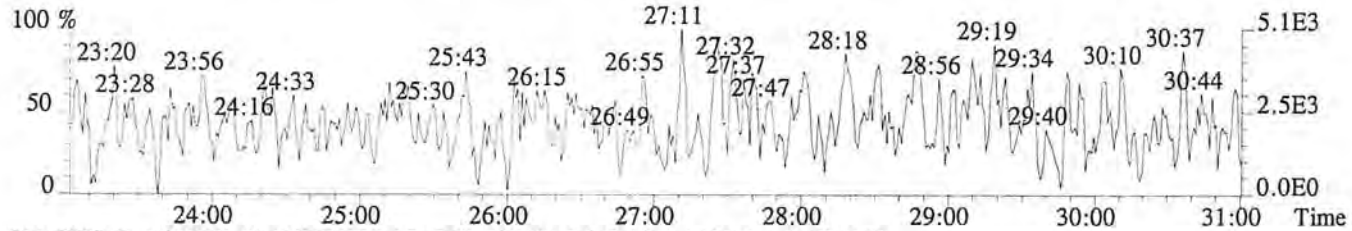
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



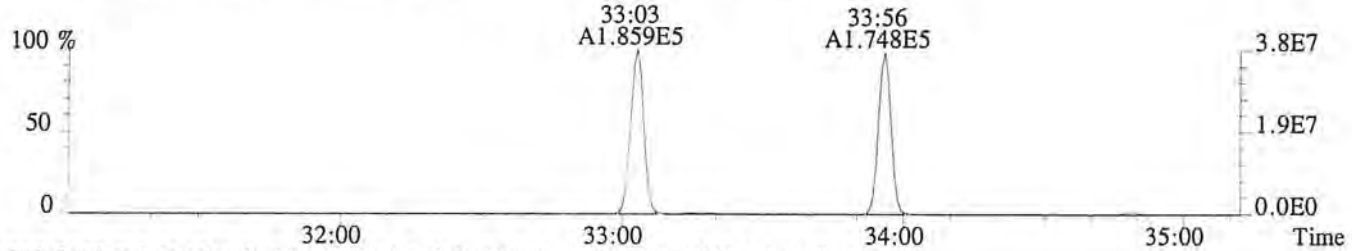
File:P600104 #1-566 Acq:24-AUG-2015 14:46:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



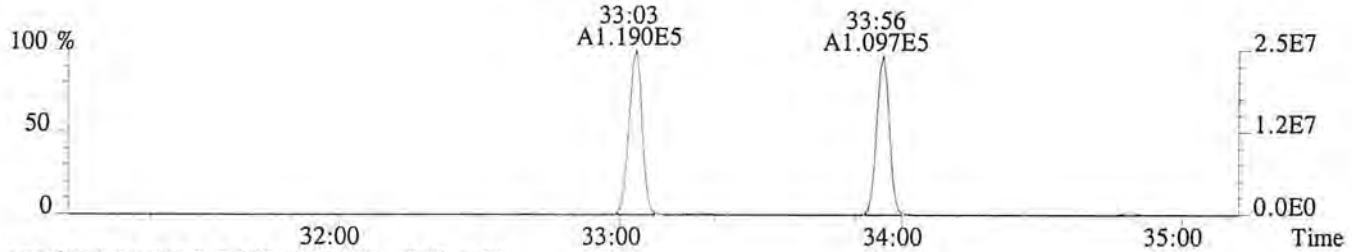
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2788.0,1.00%,F,T)



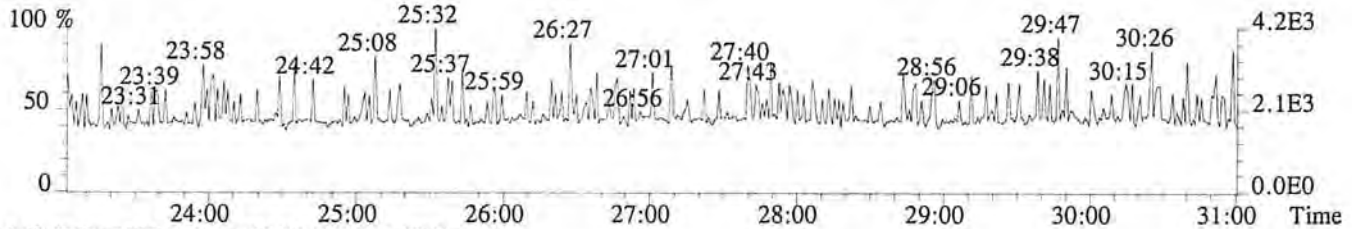
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1632.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2068.0,1.00%,F,T)



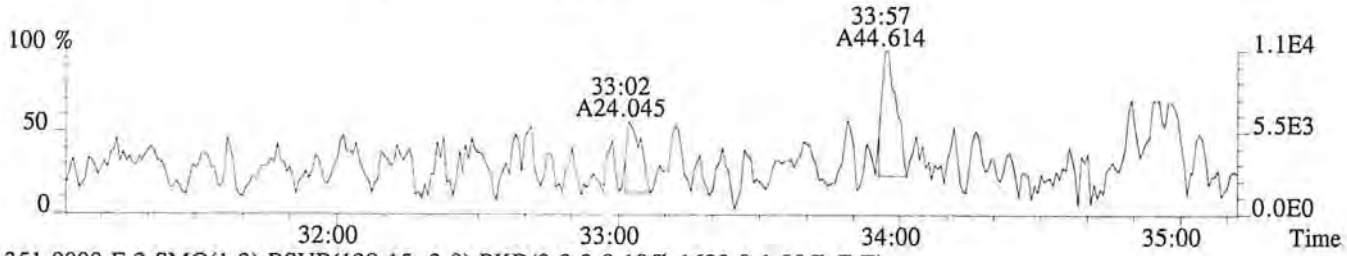
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



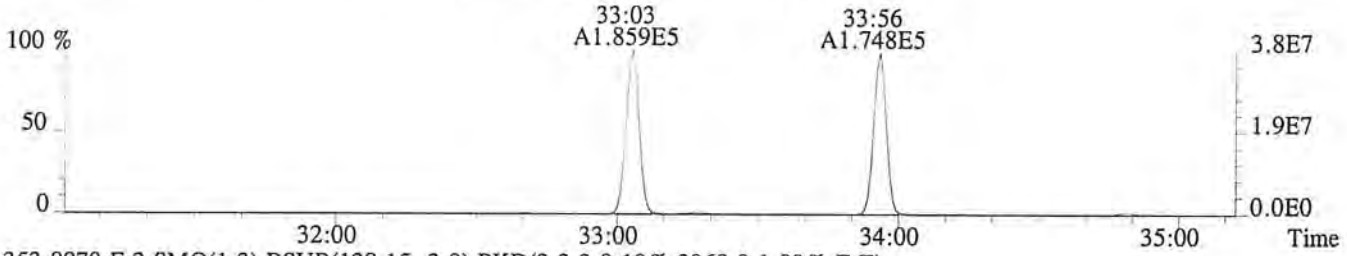
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

File:P600104 #1-375 Acq:24-AUG-2015 14:46:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)

341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4084.0,1.00%,F,T)

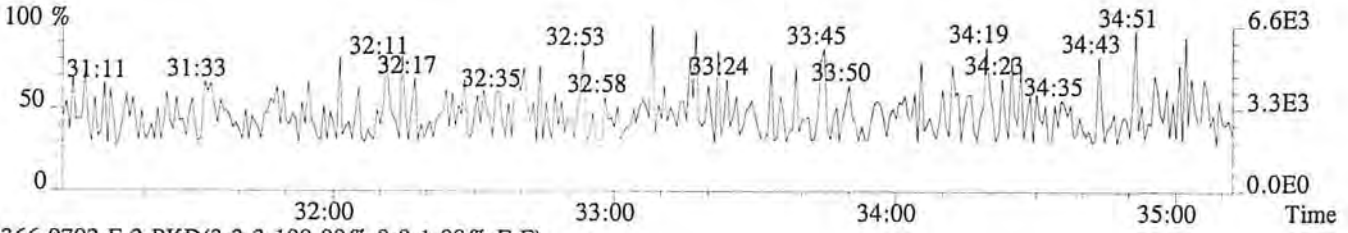


351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1632.0,1.00%,F,T)

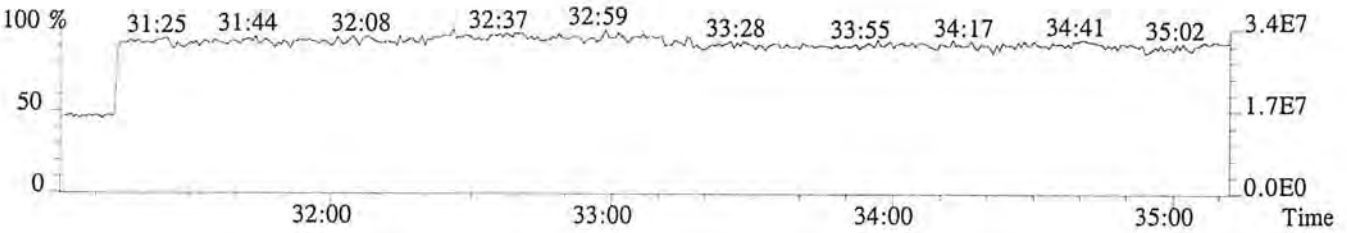


353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2068.0,1.00%,F,T)

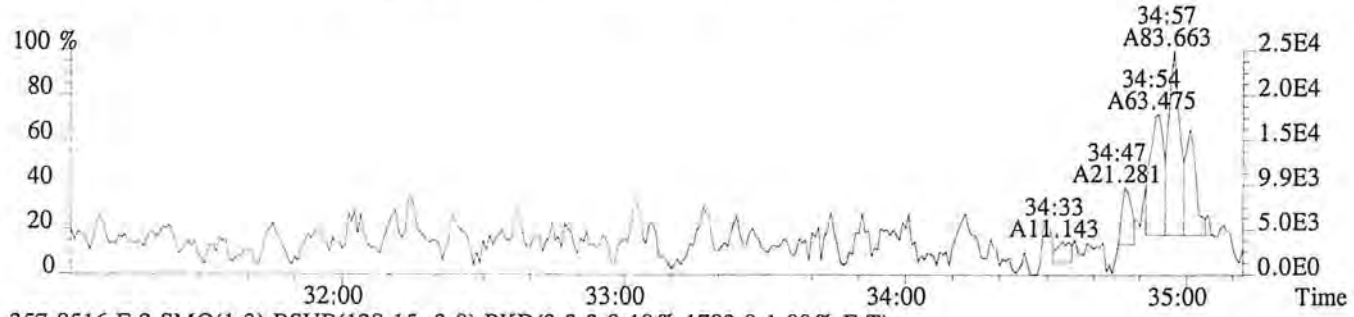
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



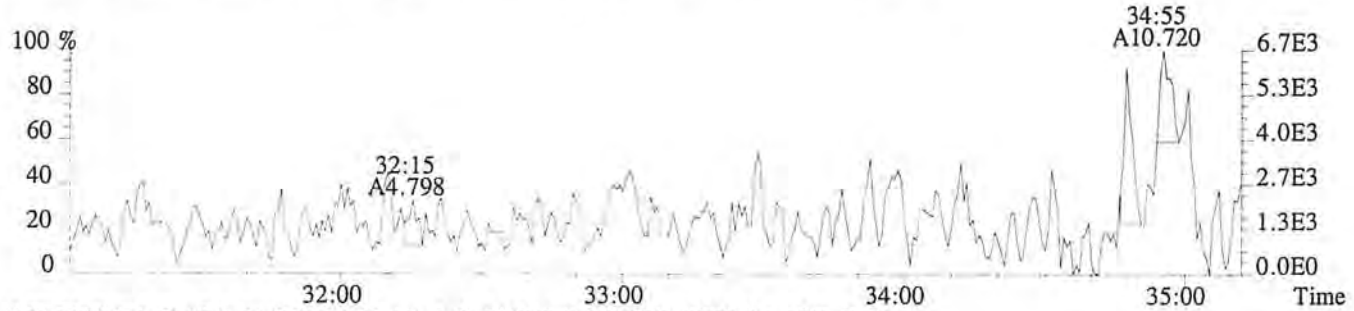
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



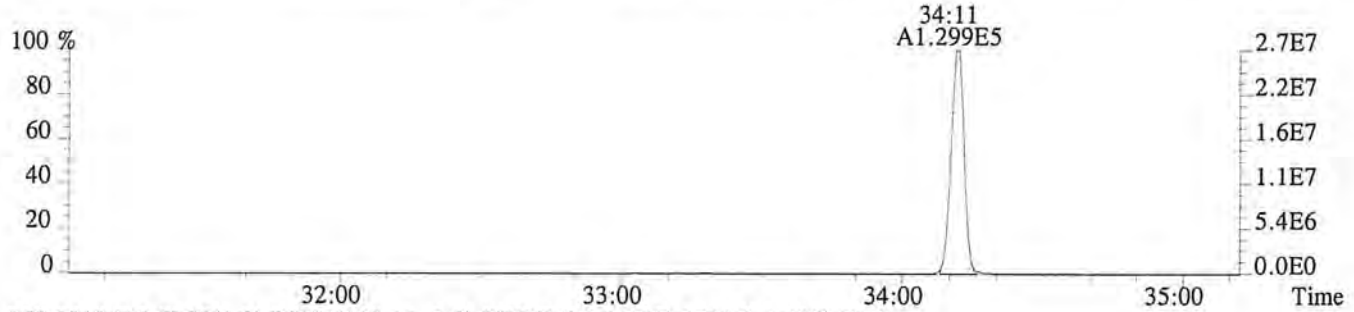
File:P600104 #1-375 Acq:24-AUG-2015 14:46:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4704.0,1.00%,F,T)



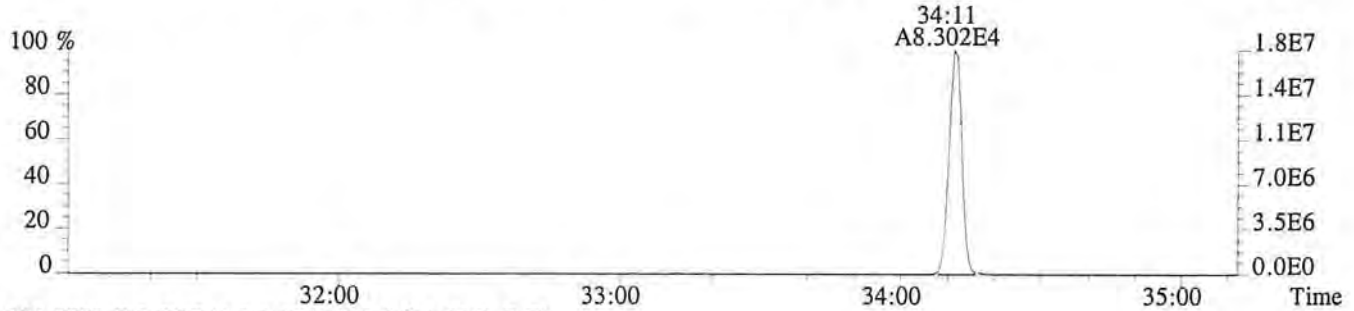
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1792.0,1.00%,F,T)



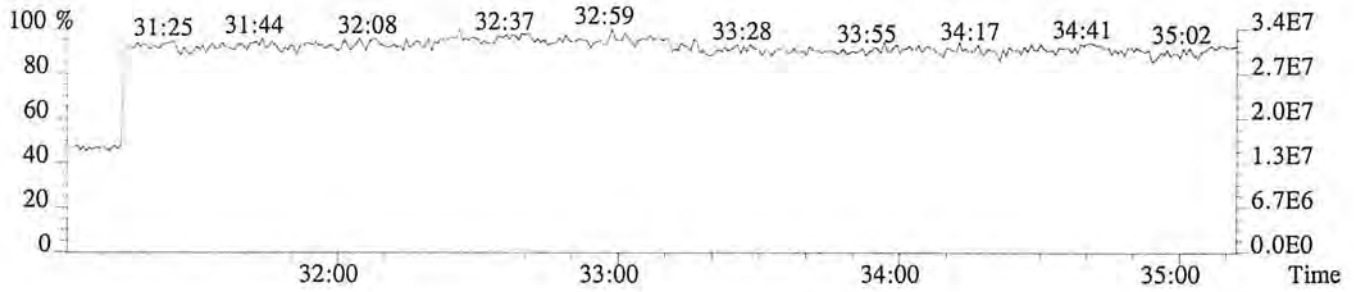
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2072.0,1.00%,F,T)



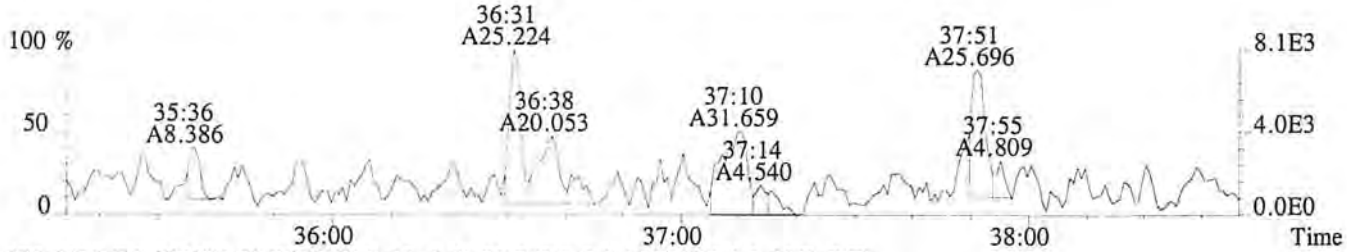
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1744.0,1.00%,F,T)



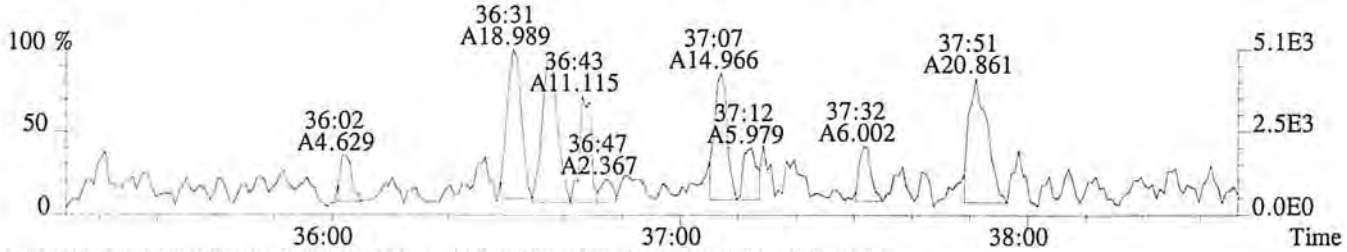
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



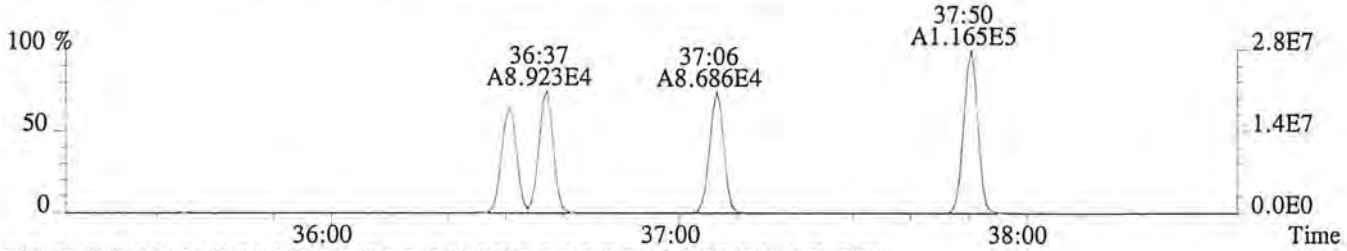
File:P600104 #1-304 Acq:24-AUG-2015 14:46:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-01
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1644.0,0.40%,F,T)



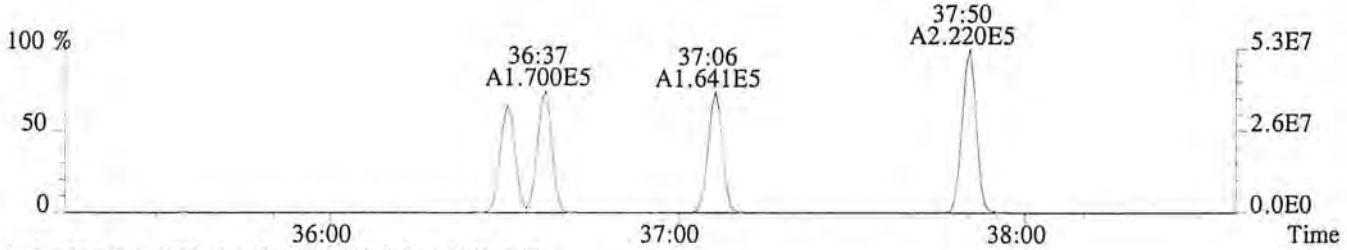
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,984.0,0.40%,F,T)



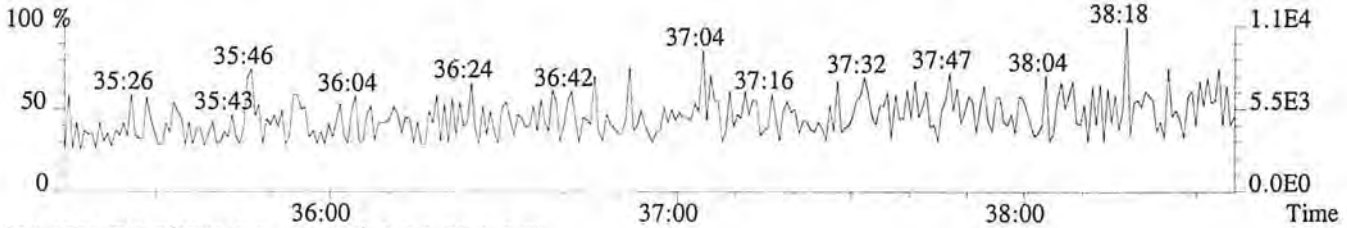
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1976.0,0.40%,F,T)



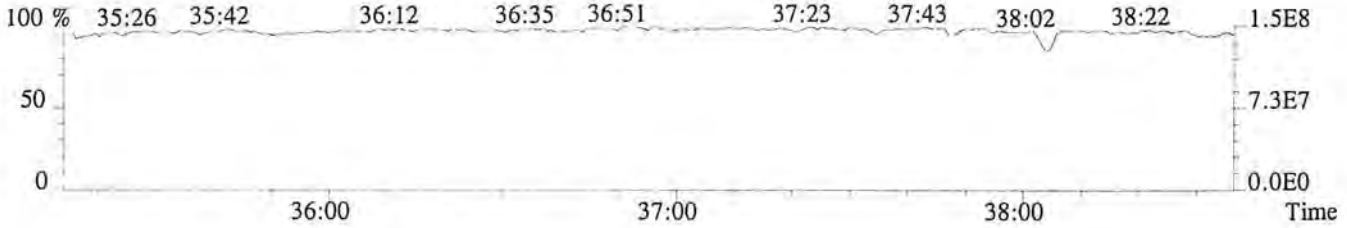
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2780.0,0.40%,F,T)



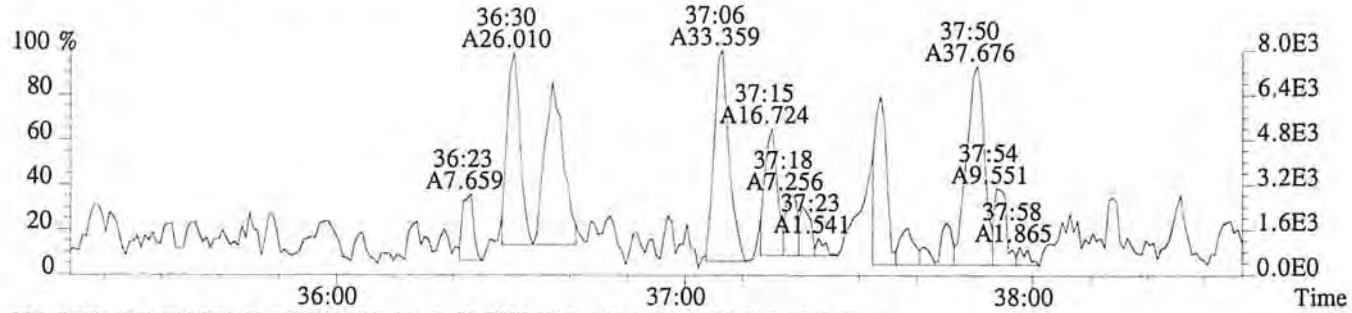
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



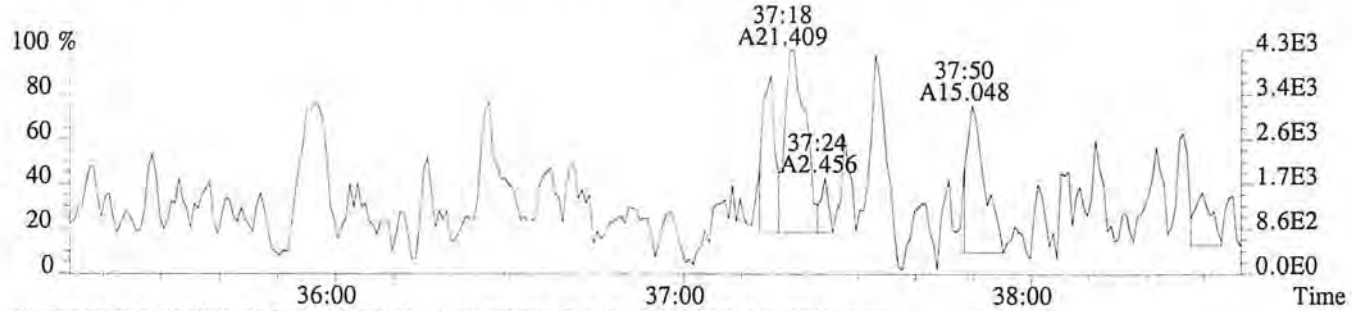
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



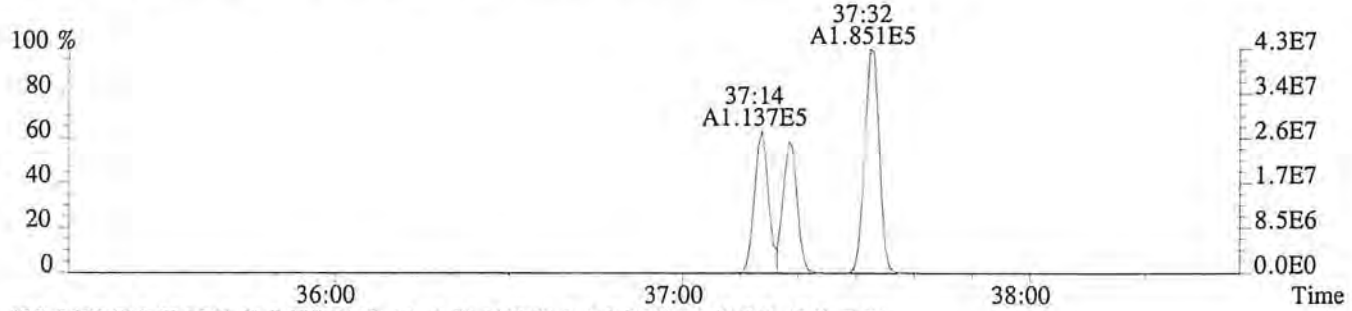
File:P600104 #1-304 Acq:24-AUG-2015 14:46:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1548.0,0.40%,F,T)



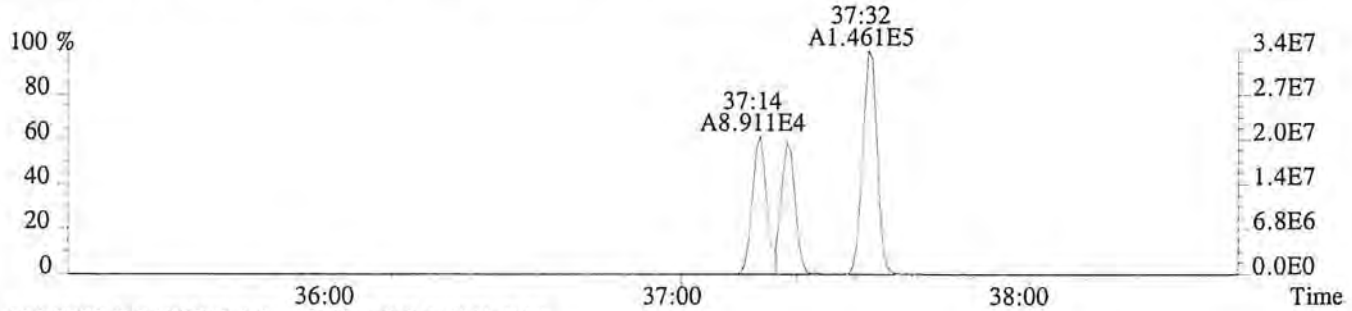
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1508.0,0.40%,F,T)



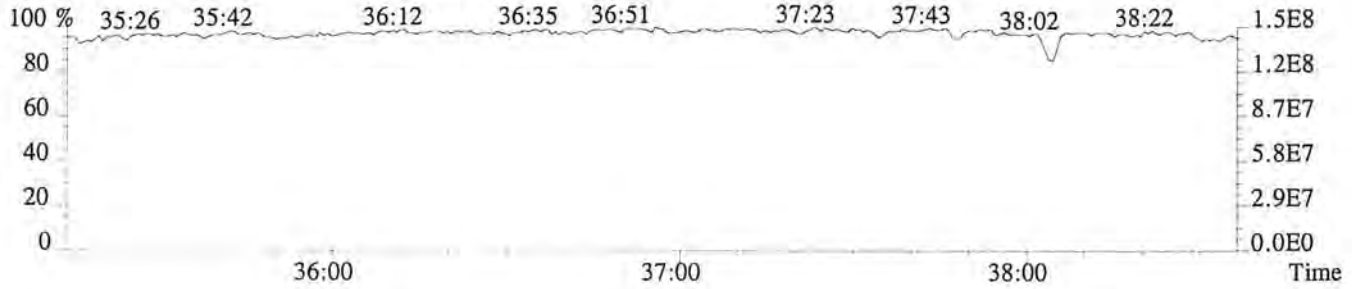
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5296.0,0.40%,F,T)



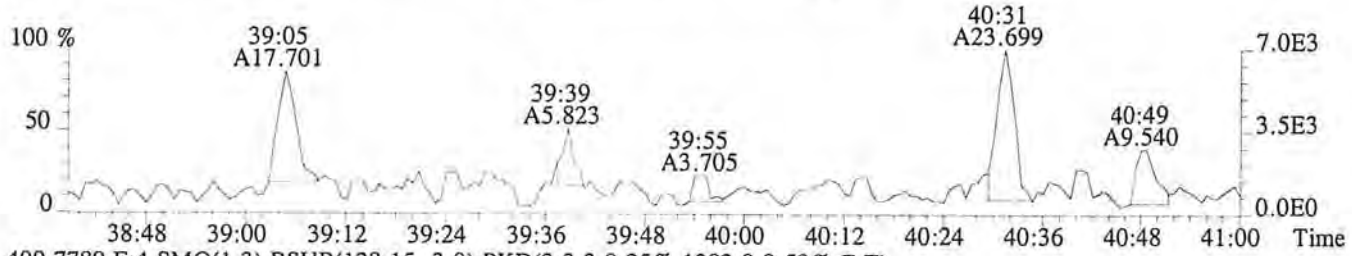
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3360.0,0.40%,F,T)



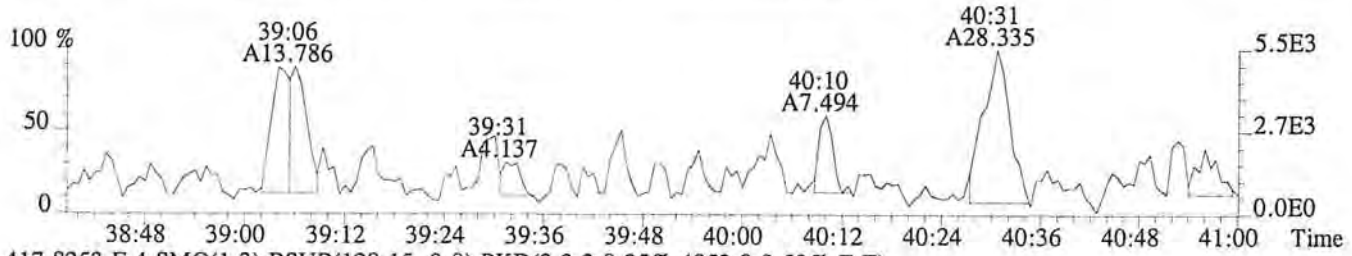
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



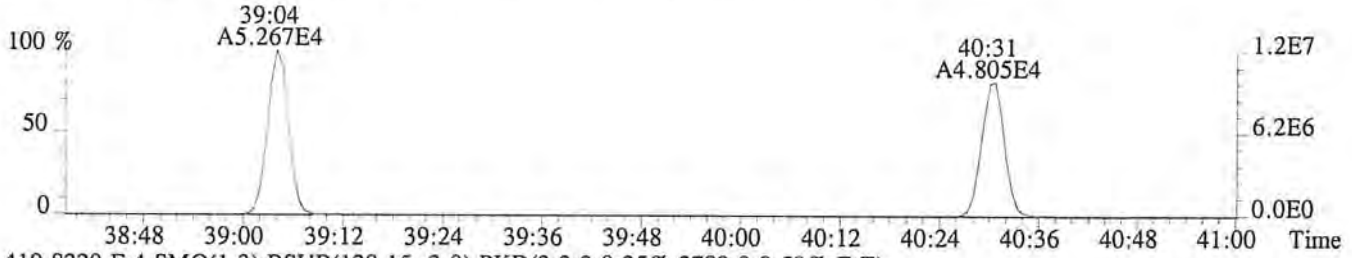
File:P600104 #1-213 Acq:24-AUG-2015 14:46:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-01
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1192.0,0.50%,F,T)



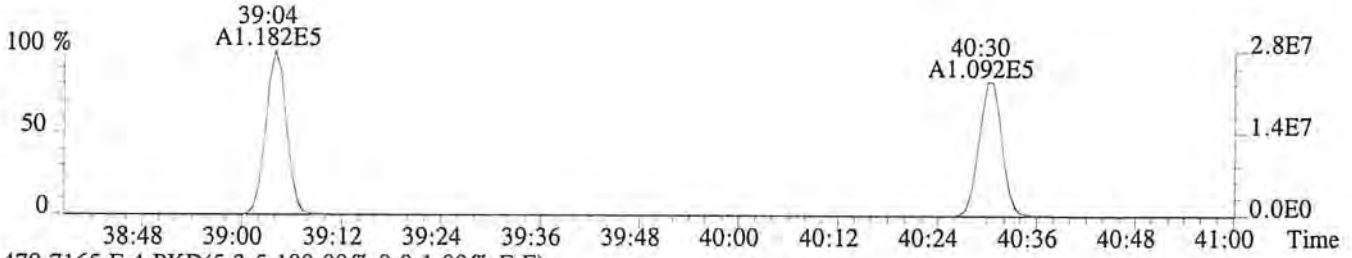
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.50%,F,T)



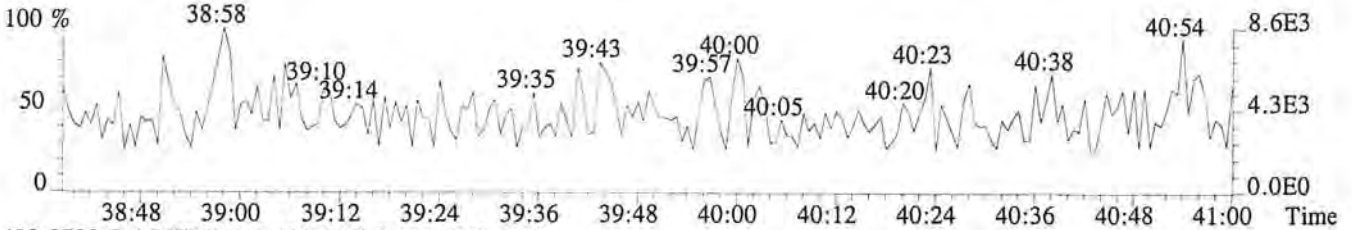
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4952.0,0.50%,F,T)



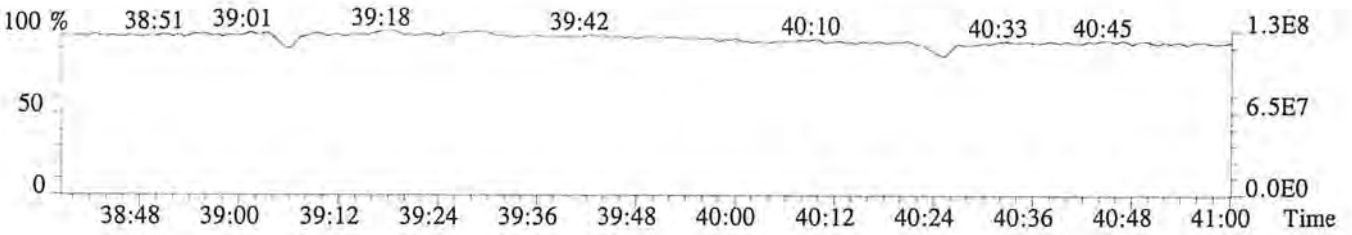
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2780.0,0.50%,F,T)



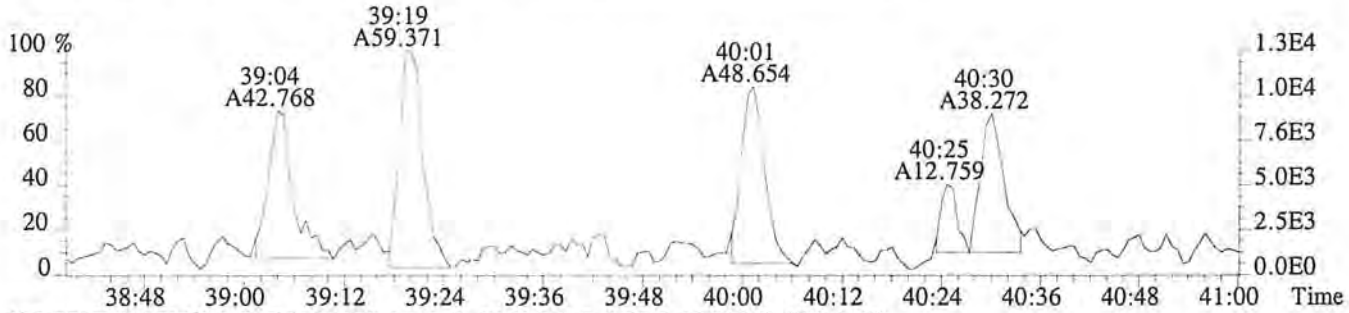
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



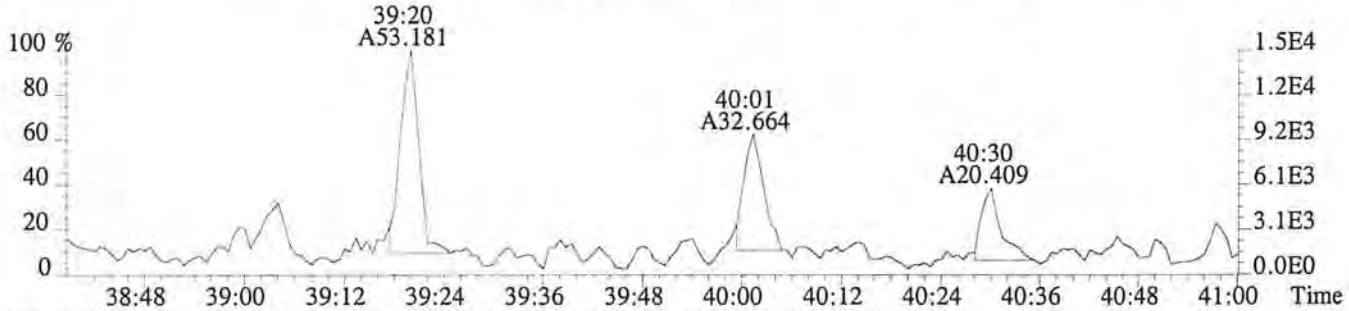
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



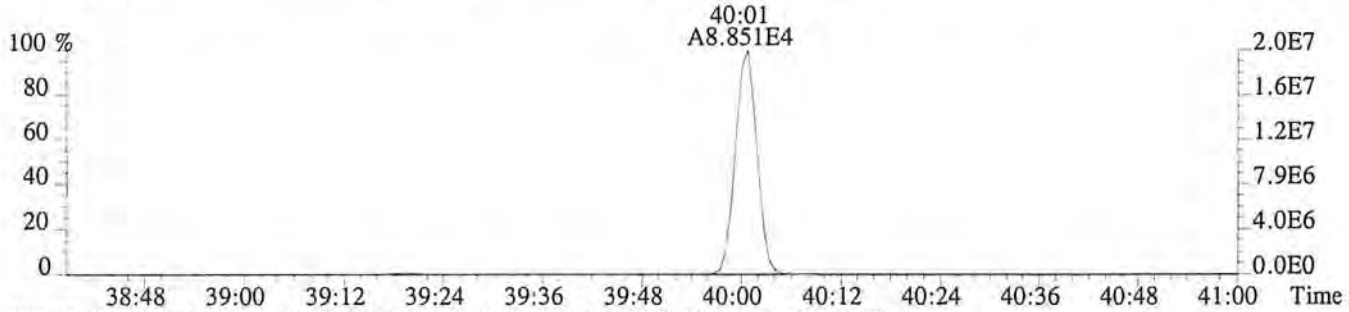
File:P600104 #1-213 Acq:24-AUG-2015 14:46:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1748.0,0.40%,F,T)



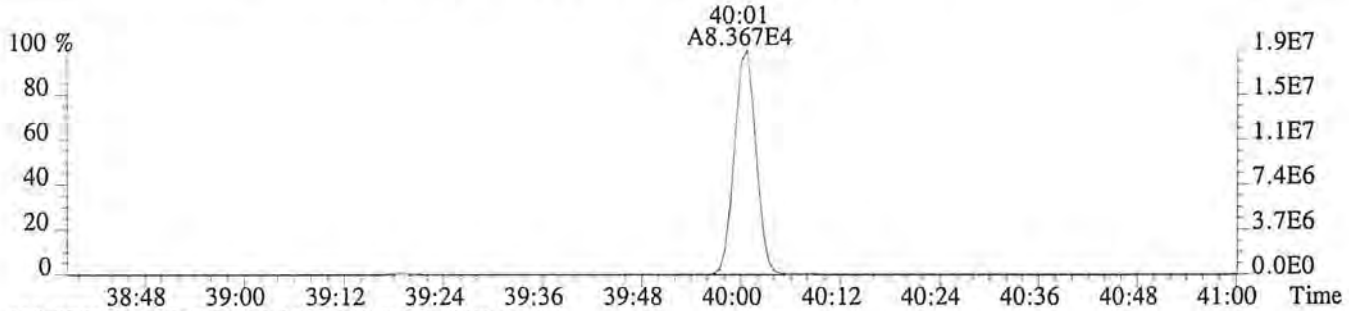
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1896.0,0.40%,F,T)



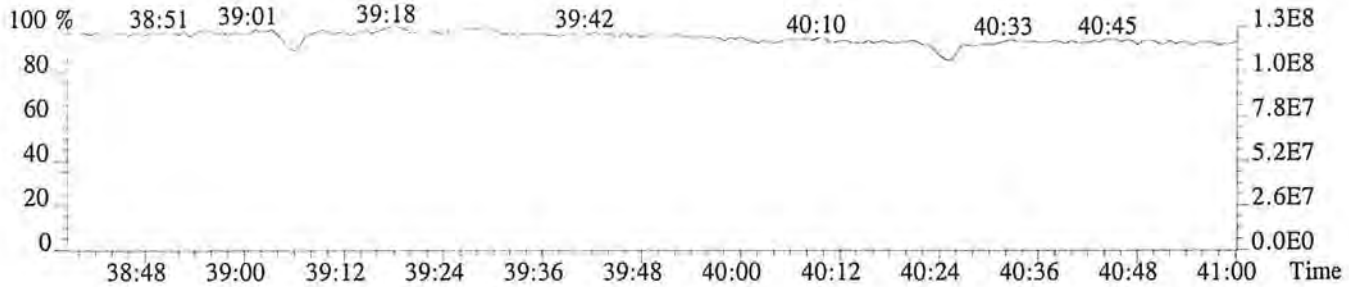
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1240.0,0.40%,F,T)



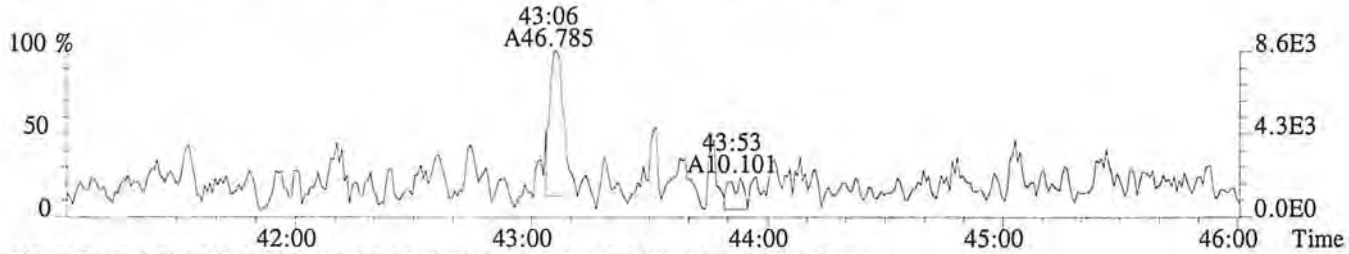
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



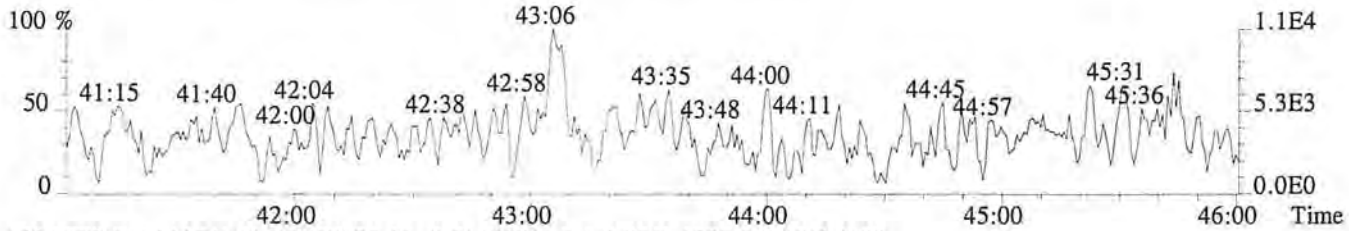
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



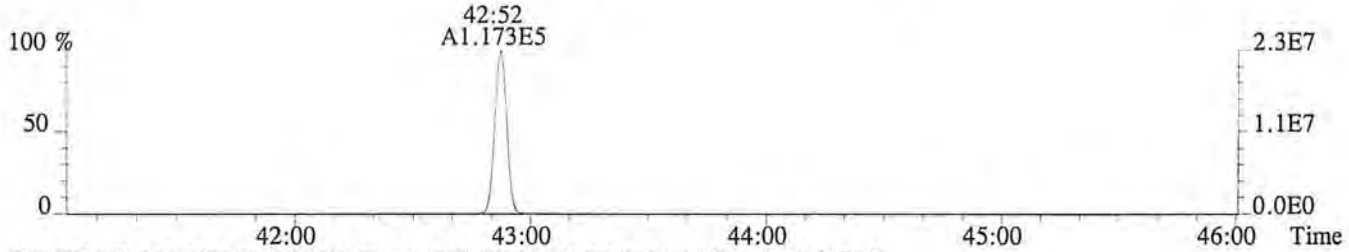
File:P600104 #1-448 Acq:24-AUG-2015 14:46:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2060.0,0.40%,F,T)



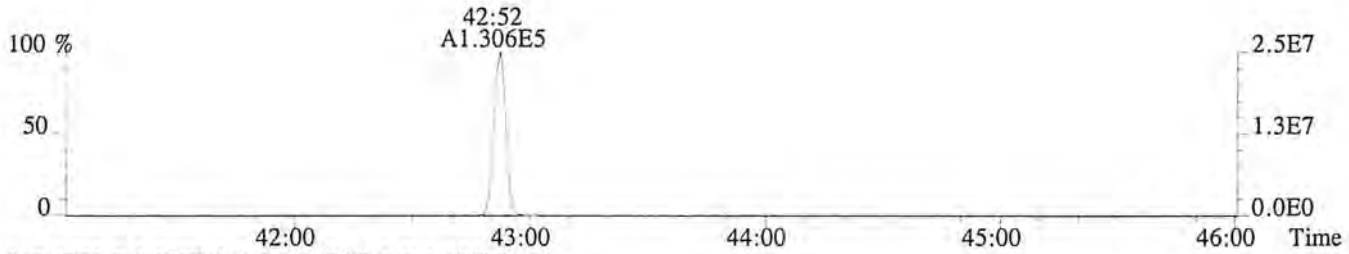
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4648.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1328.0,0.40%,F,T)



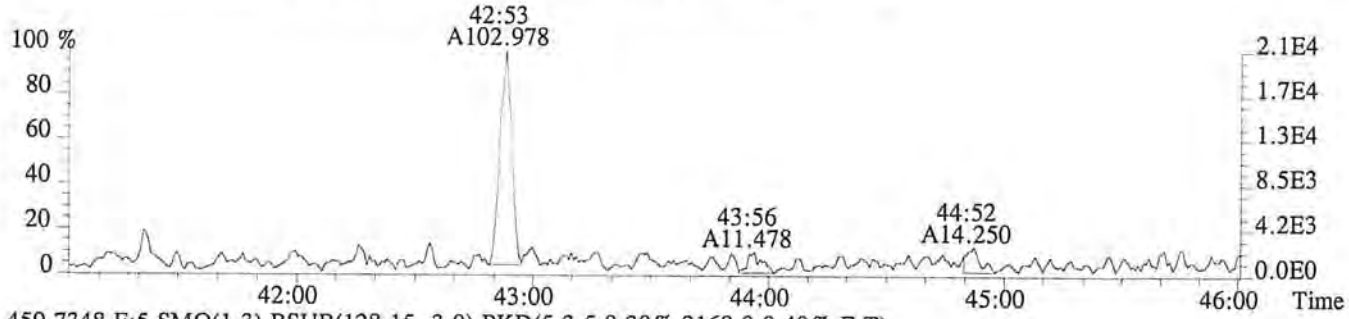
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1648.0,0.40%,F,T)



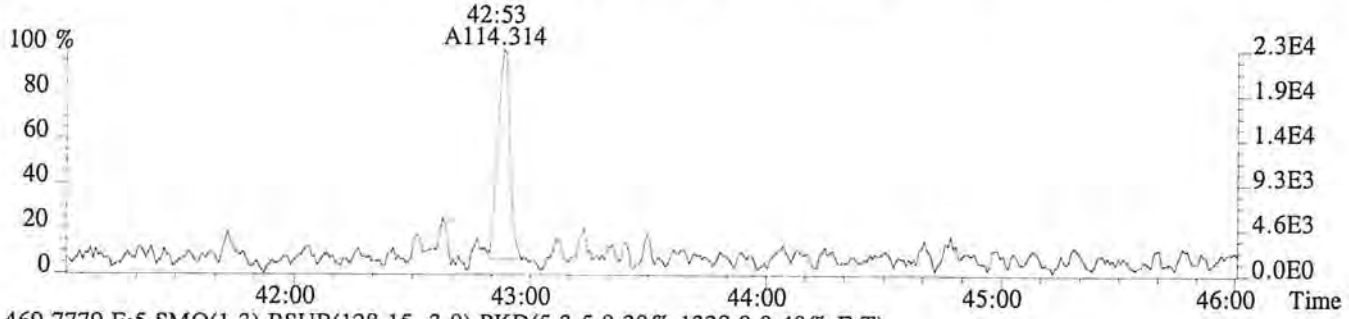
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

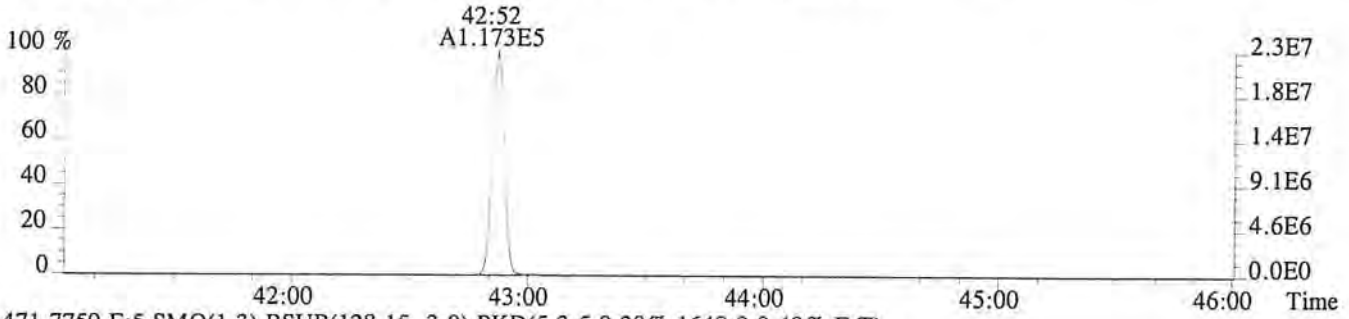
File:P600104 #1-448 Acq:24-AUG-2015 14:46:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1300.0,0.40%,F,T)



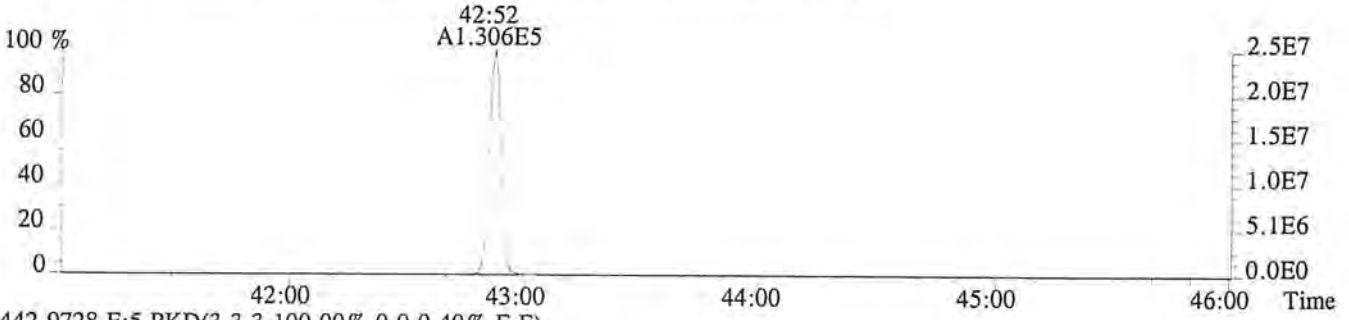
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2168.0,0.40%,F,T)



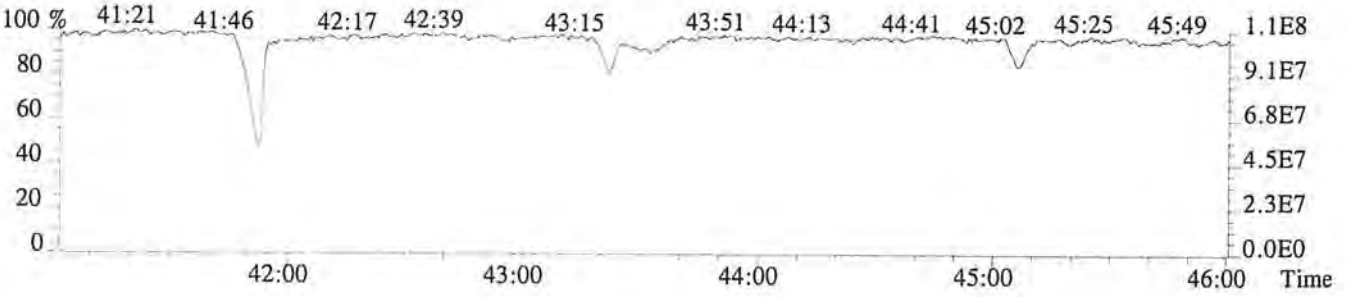
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1328.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1648.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
LCS

Run #16 Filename P301088 Samp: 1 Inj: 1 Acquired: 29-AUG-15 01:04:54
Processed: 31-AUG-15 15:03:40 Sample ID: EQ1500484-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:36	3.374e+03	4.410e+03	0.77	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	32:41	2.904e+04	1.852e+04	1.57	yes	no	0.929
3	Unk	2,3,4,7,8-PeCDF	33:34	2.848e+04	1.827e+04	1.56	yes	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	36:12	2.623e+04	2.110e+04	1.24	yes	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:18	2.703e+04	2.172e+04	1.24	yes	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:48	2.547e+04	2.055e+04	1.24	yes	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	37:32	2.267e+04	1.804e+04	1.26	yes	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:47	2.114e+04	2.064e+04	1.02	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	40:11	1.641e+04	1.586e+04	1.03	yes	no	1.245
10	Unk	OCDF	42:44	2.818e+04	3.147e+04	0.90	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:21	2.785e+03	3.611e+03	0.77	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:51	2.236e+04	1.421e+04	1.57	yes	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:56	1.972e+04	1.566e+04	1.26	yes	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:00	1.966e+04	1.589e+04	1.24	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:14	2.067e+04	1.641e+04	1.26	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:42	1.682e+04	1.594e+04	1.06	yes	no	0.949
17	Unk	OCDD	42:31	2.678e+04	3.015e+04	0.89	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:35	3.450e+04	4.393e+04	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:40	5.445e+04	3.507e+04	1.55	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:33	5.386e+04	3.421e+04	1.57	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:11	2.335e+04	4.536e+04	0.51	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:17	2.623e+04	5.085e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:47	2.555e+04	4.898e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:32	3.310e+04	6.324e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:46	1.600e+04	3.643e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:11	1.315e+04	3.040e+04	0.43	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:21	2.825e+04	3.576e+04	0.79	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:49	4.154e+04	2.629e+04	1.58	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:55	3.413e+04	2.687e+04	1.27	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:00	3.482e+04	2.714e+04	1.28	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:41	2.921e+04	2.764e+04	1.06	yes	no	0.850
32	IS	13C-OCDD	42:30	4.116e+04	4.542e+04	0.91	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:48	3.596e+04	4.634e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:14	5.190e+04	4.092e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:21	2.713e+04				no	1.001

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Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #16 Filename P301088 Samp: 1 Inj: 1 Acquired: 29-AUG-15 01:04:54
Processed: 31-AUG-15 15:03:40 LAB. ID: EQ1500484-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.75e+05	1.39e+03	4.8e+02	8.77e+05	2.14e+03	4.1e+02
2	1,2,3,7,8-PeCDF	5.91e+06	1.14e+03	5.2e+03	3.82e+06	2.36e+03	1.6e+03
3	2,3,4,7,8-PeCDF	6.05e+06	1.14e+03	5.3e+03	3.85e+06	2.36e+03	1.6e+03
4	1,2,3,4,7,8-HxCDF	5.99e+06	1.31e+03	4.6e+03	4.76e+06	7.00e+02	6.8e+03
5	1,2,3,6,7,8-HxCDF	5.86e+06	1.31e+03	4.5e+03	4.71e+06	7.00e+02	6.7e+03
6	2,3,4,6,7,8-HxCDF	5.85e+06	1.31e+03	4.5e+03	4.72e+06	7.00e+02	6.7e+03
7	1,2,3,7,8,9-HxCDF	5.06e+06	1.31e+03	3.9e+03	4.01e+06	7.00e+02	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	4.83e+06	2.90e+03	1.7e+03	4.72e+06	3.23e+03	1.5e+03
9	1,2,3,4,7,8,9-HpCDF	3.19e+06	2.90e+03	1.1e+03	3.11e+06	3.23e+03	9.6e+02
10	OCDF	5.00e+06	8.80e+02	5.7e+03	5.57e+06	2.27e+03	2.5e+03
11	2,3,7,8-TCDD	5.95e+05	1.94e+03	3.1e+02	7.67e+05	1.01e+03	7.6e+02
12	1,2,3,7,8-PeCDD	4.76e+06	2.36e+03	2.0e+03	3.05e+06	7.64e+02	4.0e+03
13	1,2,3,4,7,8-HxCDD	4.59e+06	4.00e+02	1.1e+04	3.58e+06	1.44e+03	2.5e+03
14	1,2,3,6,7,8-HxCDD	4.33e+06	4.00e+02	1.1e+04	3.51e+06	1.44e+03	2.4e+03
15	1,2,3,7,8,9-HxCDD	4.61e+06	4.00e+02	1.2e+04	3.66e+06	1.44e+03	2.5e+03
16	1,2,3,4,6,7,8-HpCDD	3.70e+06	1.59e+03	2.3e+03	3.49e+06	8.48e+02	4.1e+03
17	OCDD	4.84e+06	1.04e+03	4.7e+03	5.42e+06	1.31e+03	4.1e+03
18	13C-2,3,7,8-TCDF	6.86e+06	1.31e+03	5.2e+03	8.77e+06	1.86e+03	4.7e+03
19	13C-1,2,3,7,8-PeCDF	1.10e+07	9.20e+02	1.2e+04	7.14e+06	1.97e+03	3.6e+03
20	13C-2,3,4,7,8-PeCDF	1.13e+07	9.20e+02	1.2e+04	7.13e+06	1.97e+03	3.6e+03
21	13C-1,2,3,4,7,8-HxCDF	5.32e+06	1.22e+03	4.3e+03	1.02e+07	1.73e+03	5.9e+03
22	13C-1,2,3,6,7,8-HxCDF	5.64e+06	1.22e+03	4.6e+03	1.10e+07	1.73e+03	6.3e+03
23	13C-2,3,4,6,7,8-HxCDF	5.82e+06	1.22e+03	4.8e+03	1.11e+07	1.73e+03	6.4e+03
24	13C-1,2,3,7,8,9-HxCDF	7.31e+06	1.22e+03	6.0e+03	1.40e+07	1.73e+03	8.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.62e+06	2.65e+03	1.4e+03	8.28e+06	1.44e+03	5.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.58e+06	2.65e+03	9.7e+02	5.94e+06	1.44e+03	4.1e+03
27	13C-2,3,7,8-TCDD	5.83e+06	5.69e+03	1.0e+03	7.30e+06	4.14e+03	1.8e+03
28	13C-1,2,3,7,8-PeCDD	8.70e+06	1.66e+03	5.2e+03	5.57e+06	1.00e+03	5.6e+03
29	13C-1,2,3,4,7,8-HxCDD	7.90e+06	1.38e+03	5.7e+03	6.19e+06	1.80e+03	3.4e+03
30	13C-1,2,3,6,7,8-HxCDD	7.63e+06	1.38e+03	5.5e+03	5.98e+06	1.80e+03	3.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.36e+06	1.33e+03	4.8e+03	6.04e+06	1.23e+03	4.9e+03
32	13C-OCDD	7.36e+06	1.02e+03	7.2e+03	8.17e+06	1.06e+03	7.7e+03
33	13C-1,2,3,4-TCDD	7.38e+06	5.69e+03	1.3e+03	9.45e+06	4.14e+03	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.12e+07	1.38e+03	8.1e+03	8.99e+06	1.80e+03	5.0e+03
35	37Cl-2,3,7,8-TCDD	5.73e+06	8.12e+02	7.1e+03			

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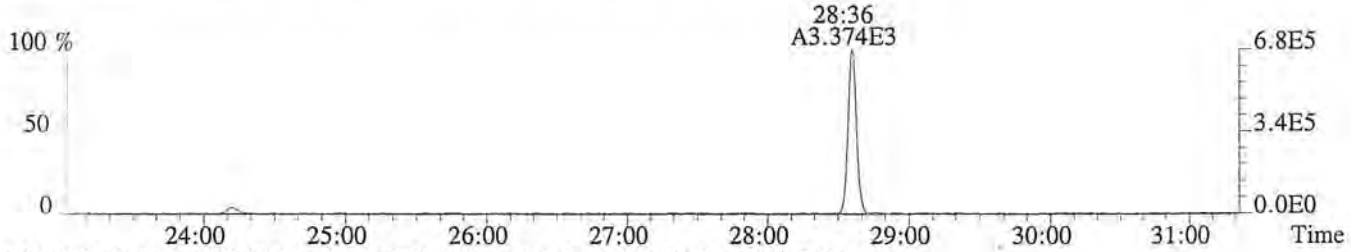
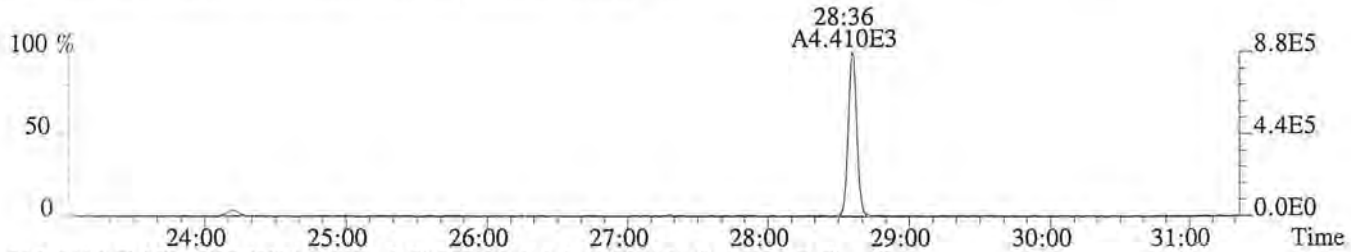
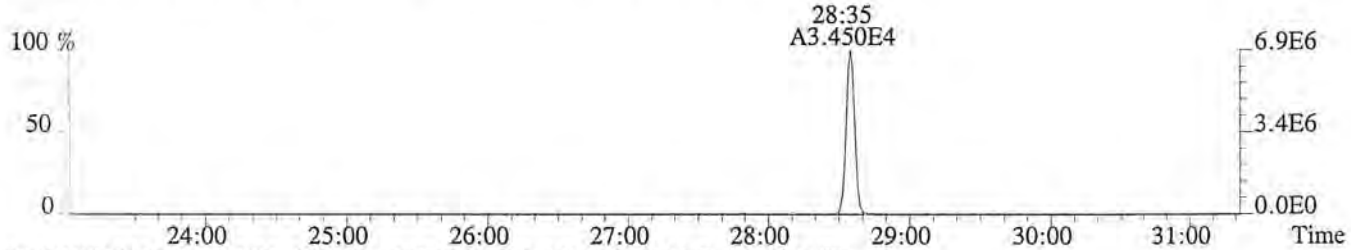
File:P301088 #1-591 Acq:29-AUG-2015 01:04:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1392.0,1.00%,F,T)



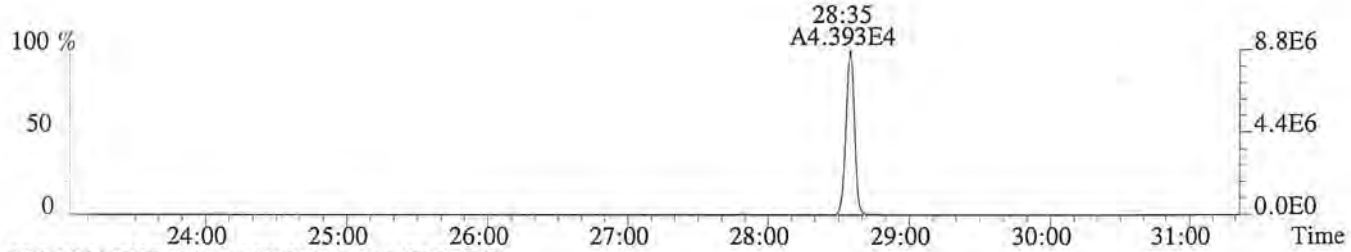
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2144.0,1.00%,F,T)



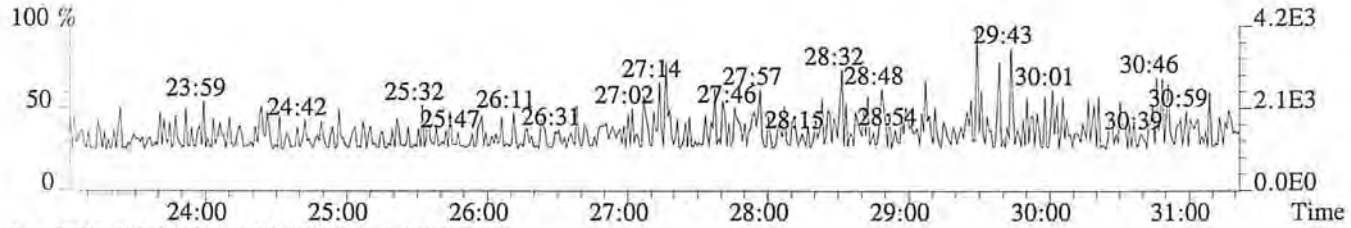
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1308.0,1.00%,F,T)



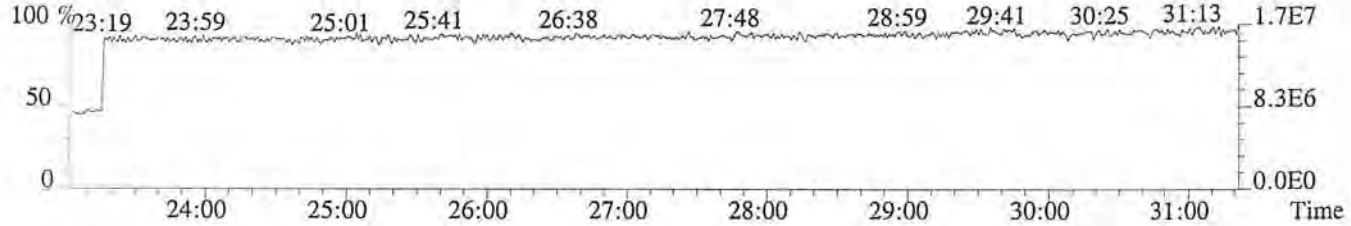
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1856.0,1.00%,F,T)



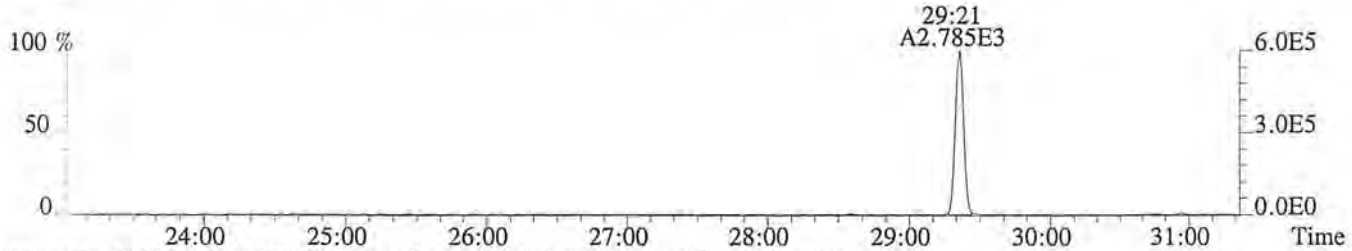
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



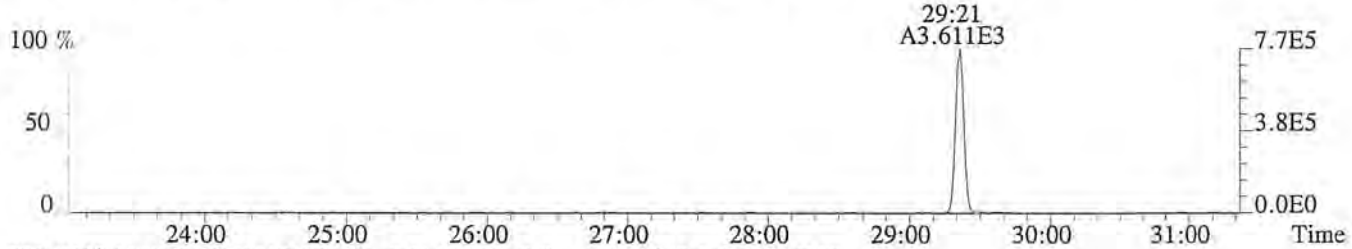
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



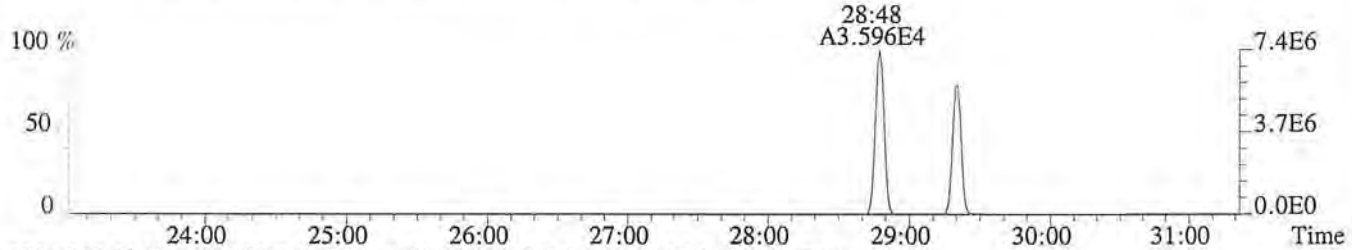
File:P301088 #1-591 Acq:29-AUG-2015 01:04:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-02
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1940.0,1.00%,F,T)



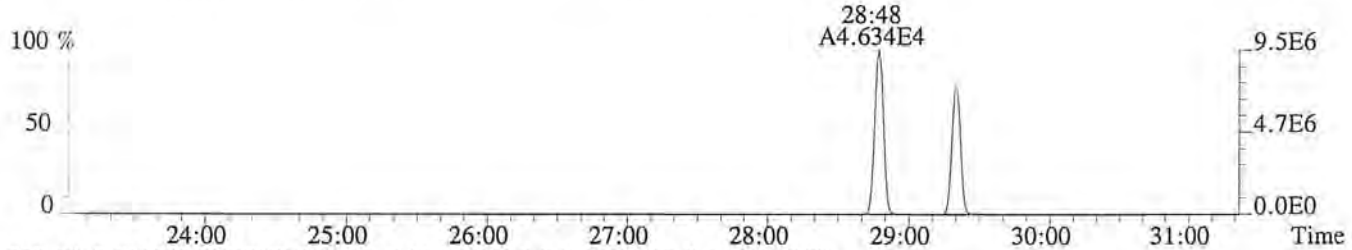
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



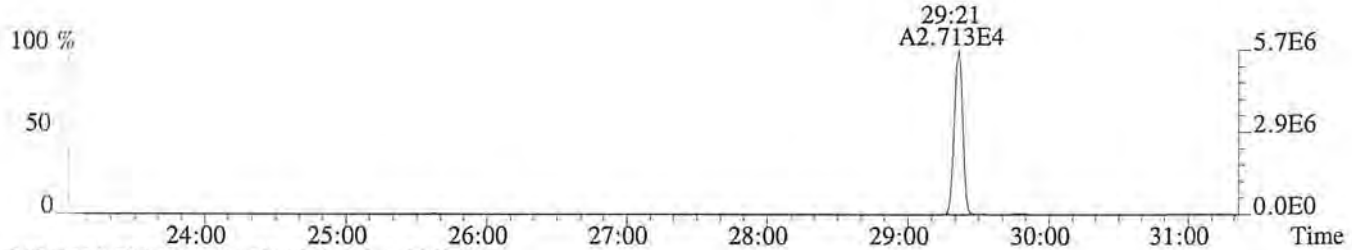
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5692.0,1.00%,F,T)



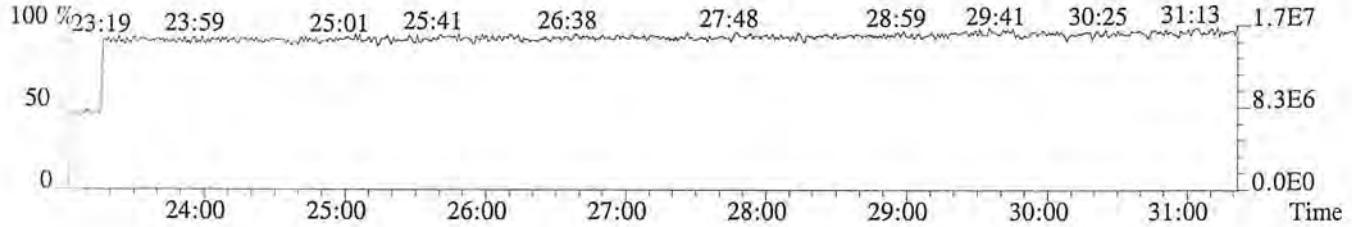
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4136.0,1.00%,F,T)



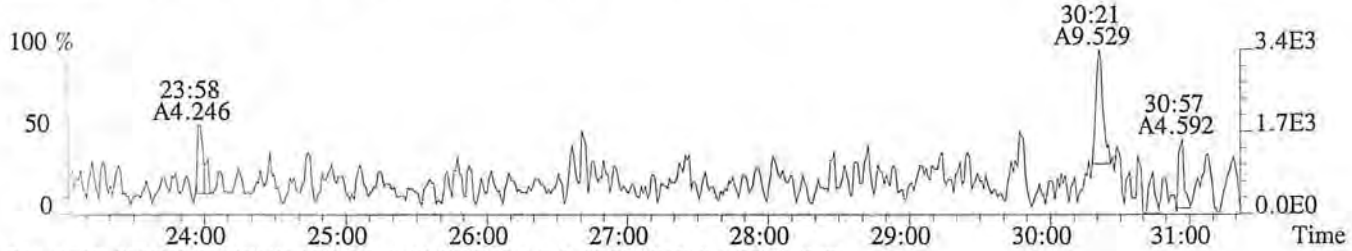
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



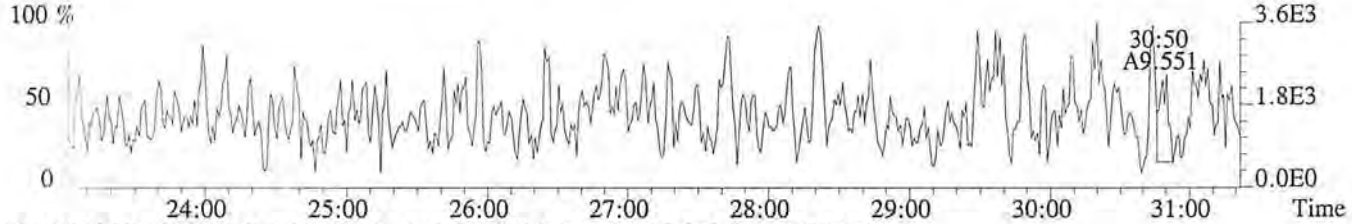
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



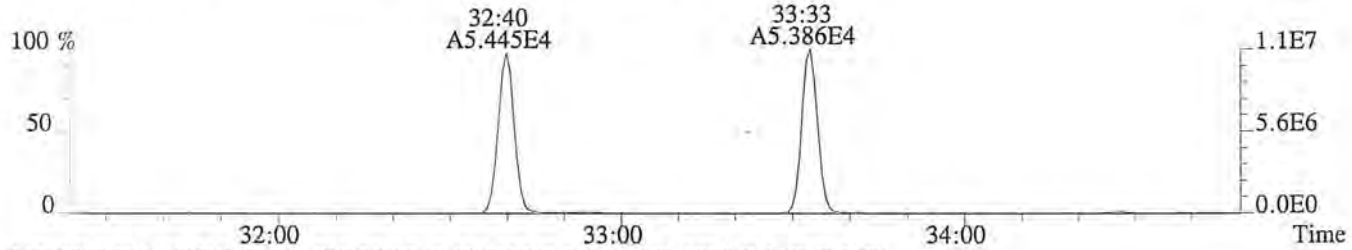
File:P301088 #1-591 Acq:29-AUG-2015 01:04:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



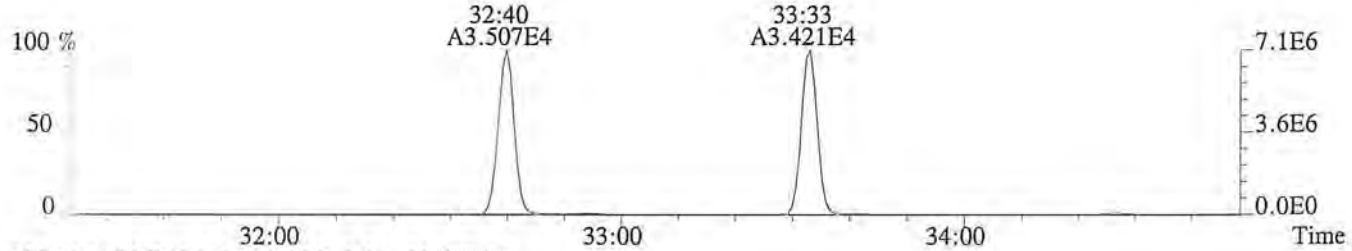
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1960.0,1.00%,F,T)



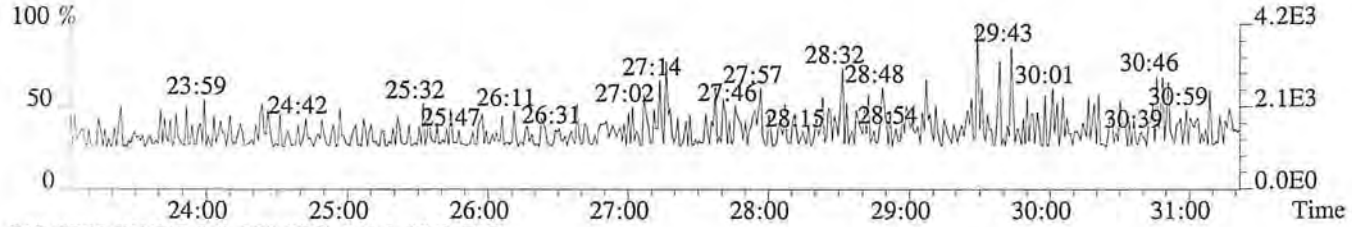
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



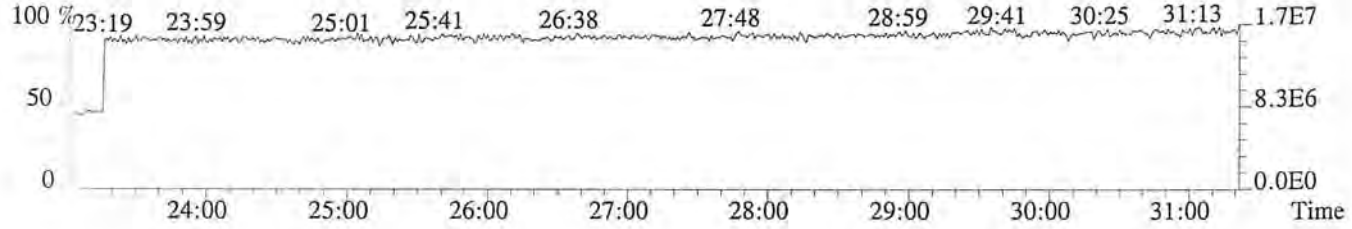
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)



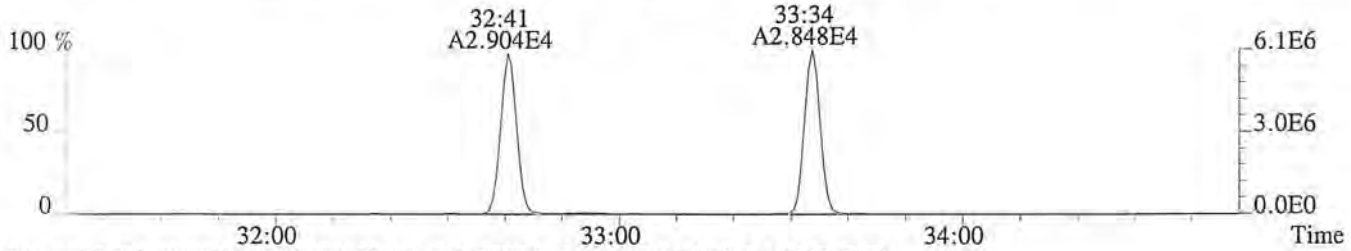
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



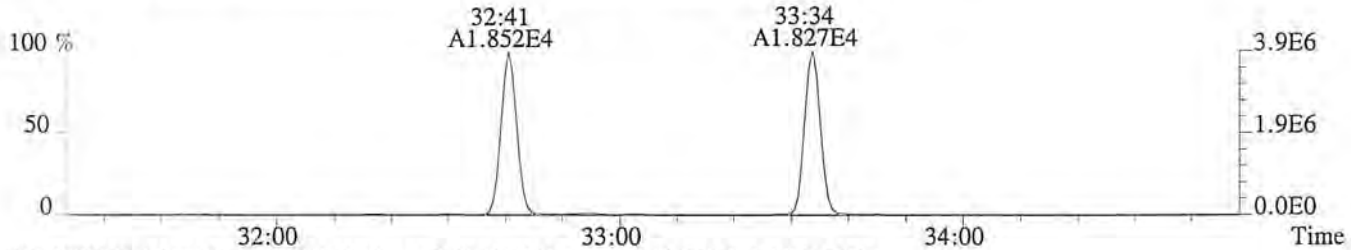
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



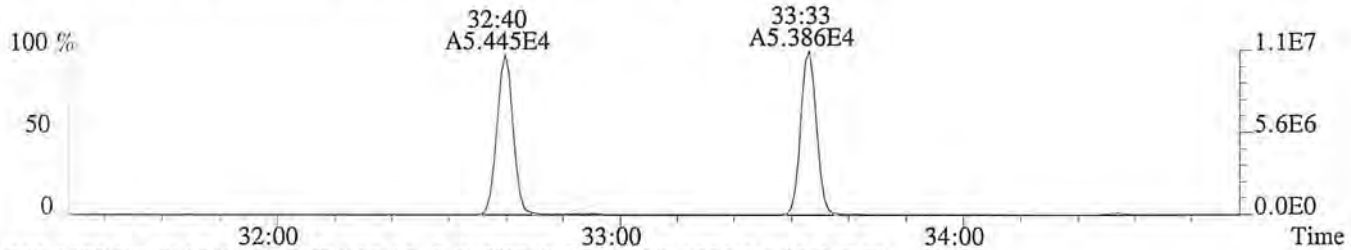
File:P301088 #1-308 Acq:29-AUG-2015 01:04:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-02
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



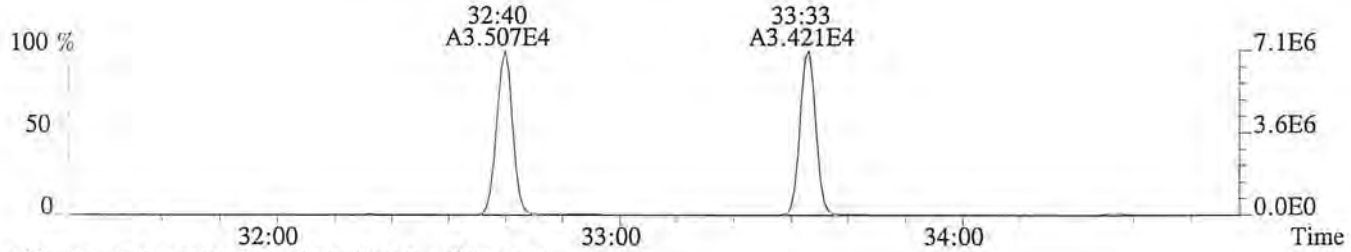
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2364.0,1.00%,F,T)



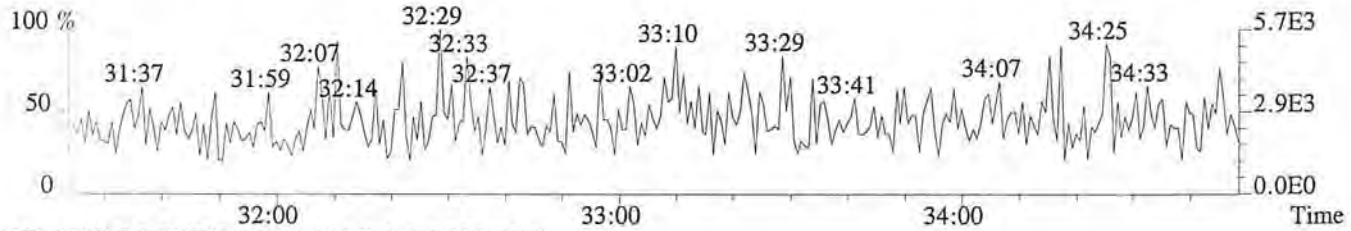
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1972.0,1.00%,F,T)

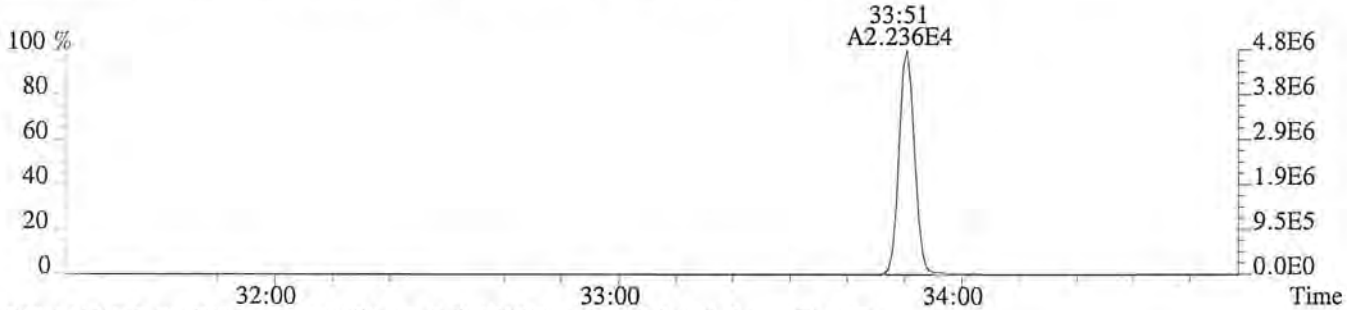


409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

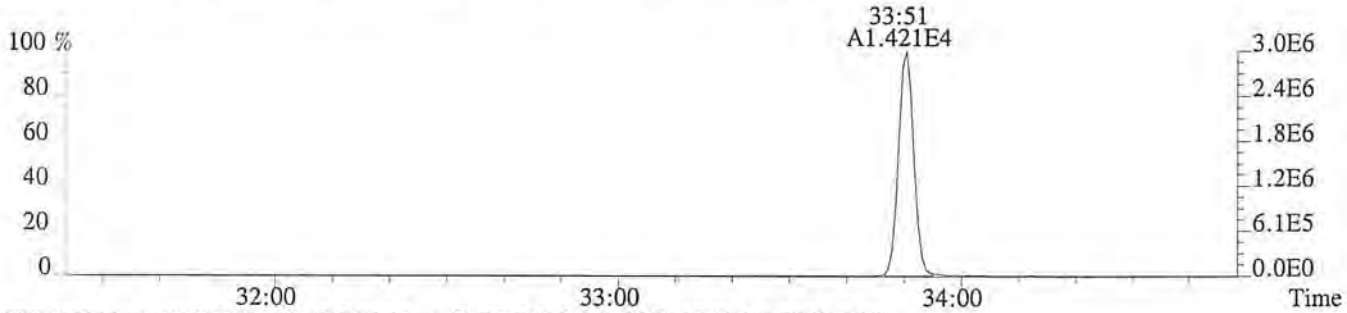


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

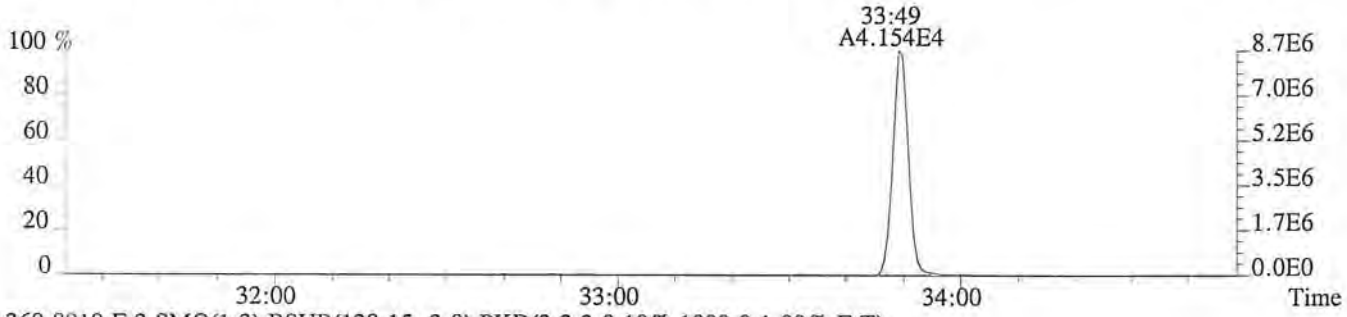
File:P301088 #1-308 Acq:29-AUG-2015 01:04:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-02
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



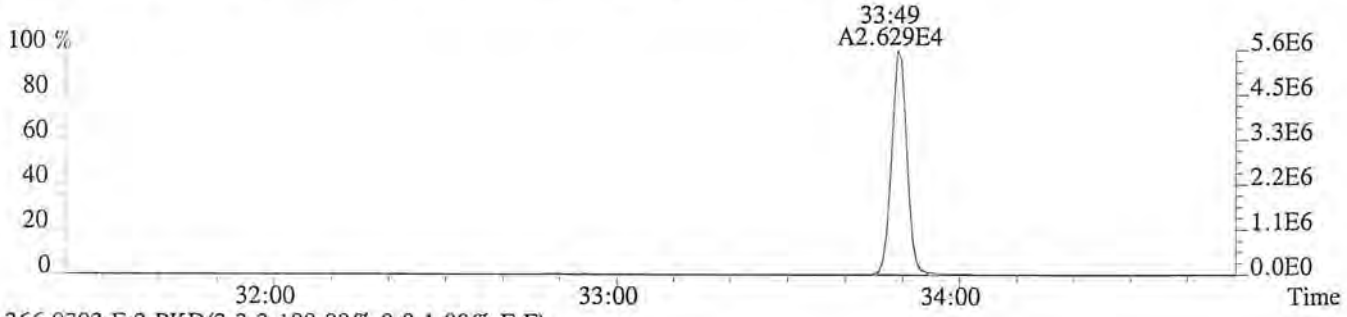
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



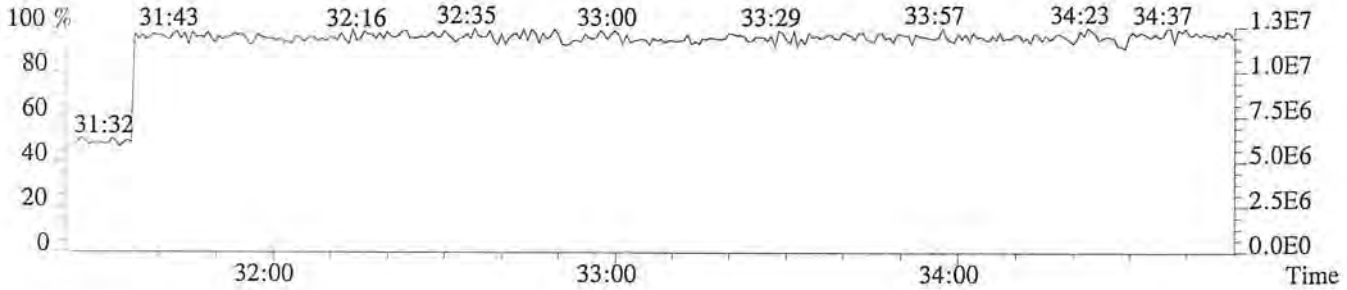
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)



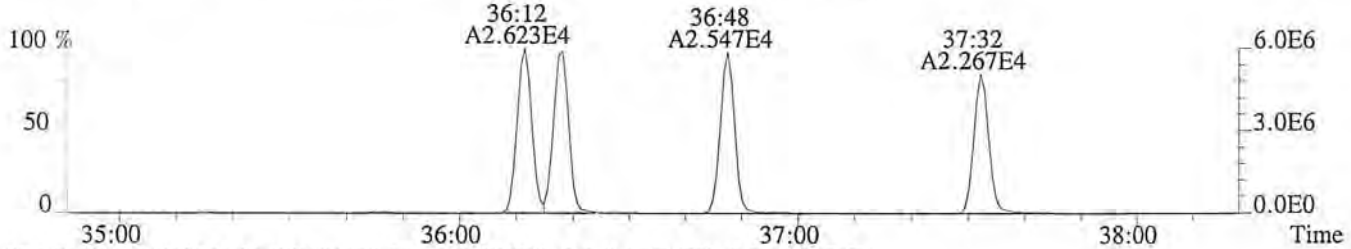
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



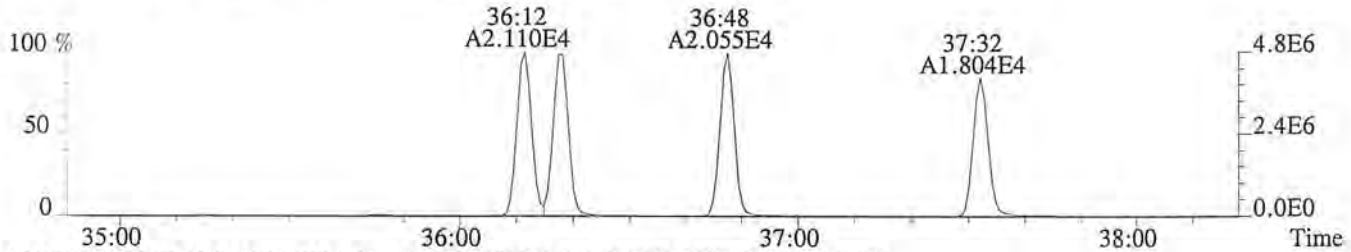
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



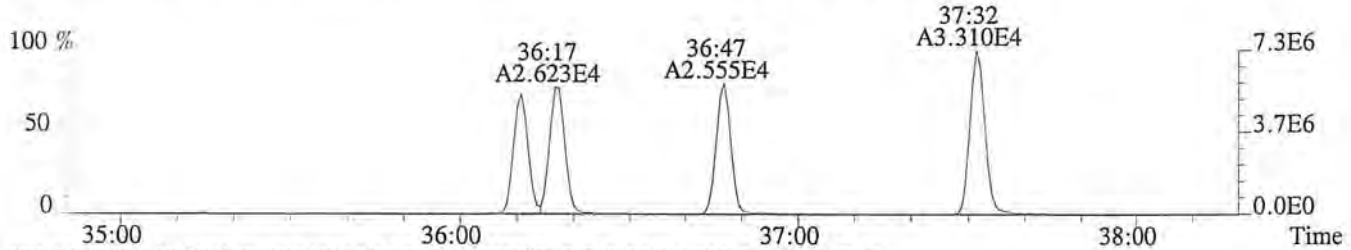
File:P301088 #1-312 Acq:29-AUG-2015 01:04:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-02
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1308.0,0.40%,F,T)



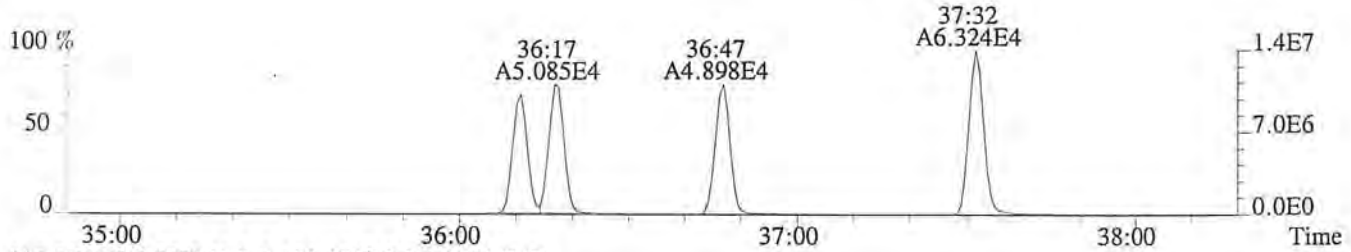
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



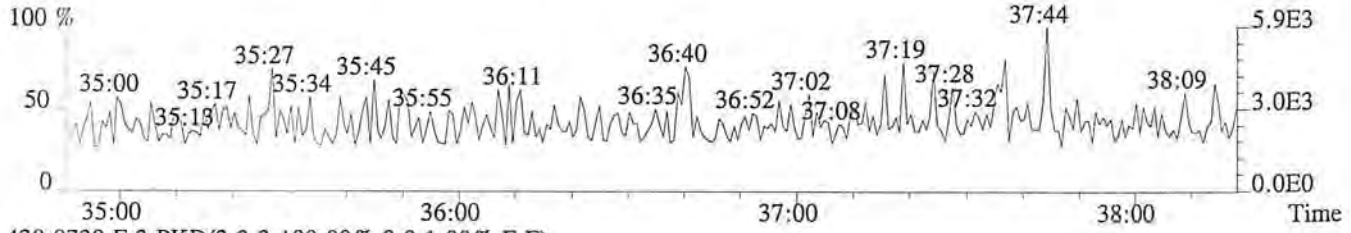
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



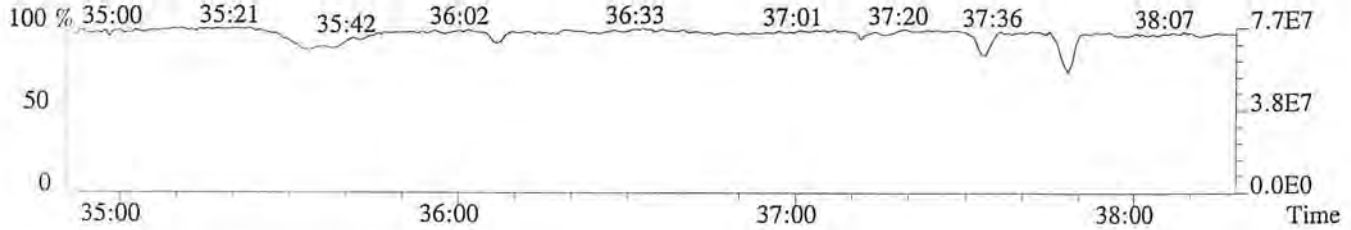
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1732.0,0.40%,F,T)



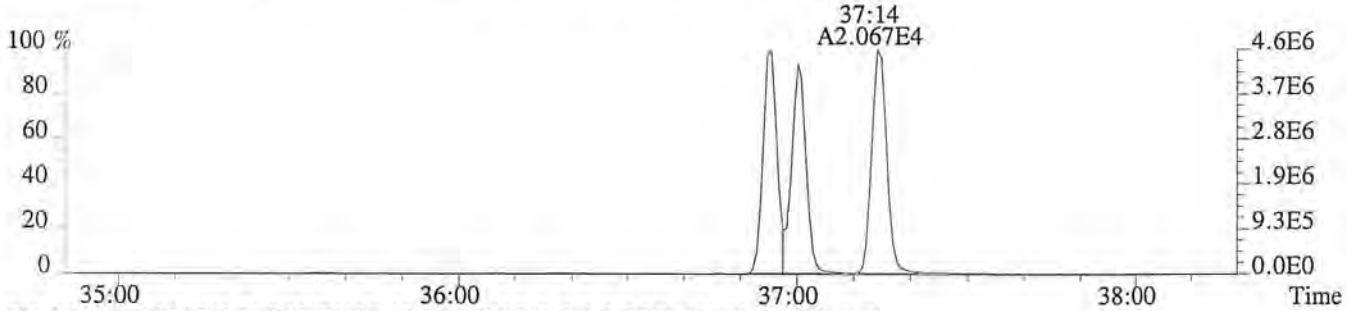
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



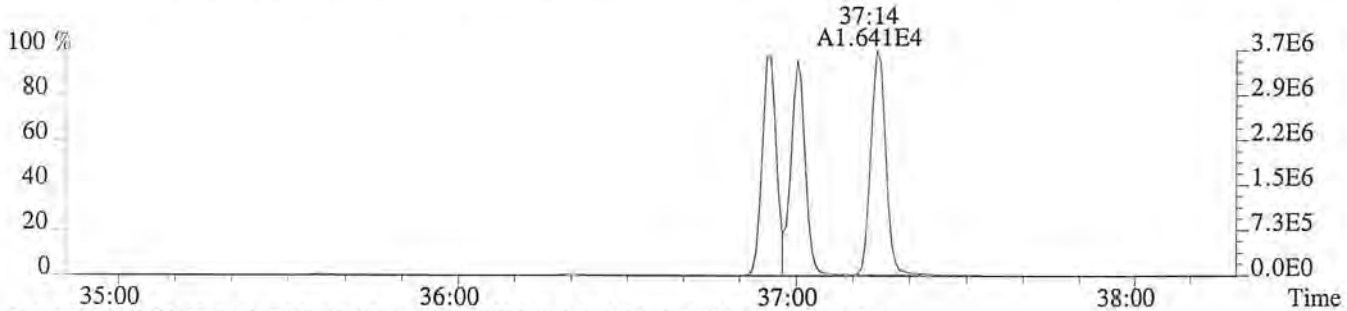
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



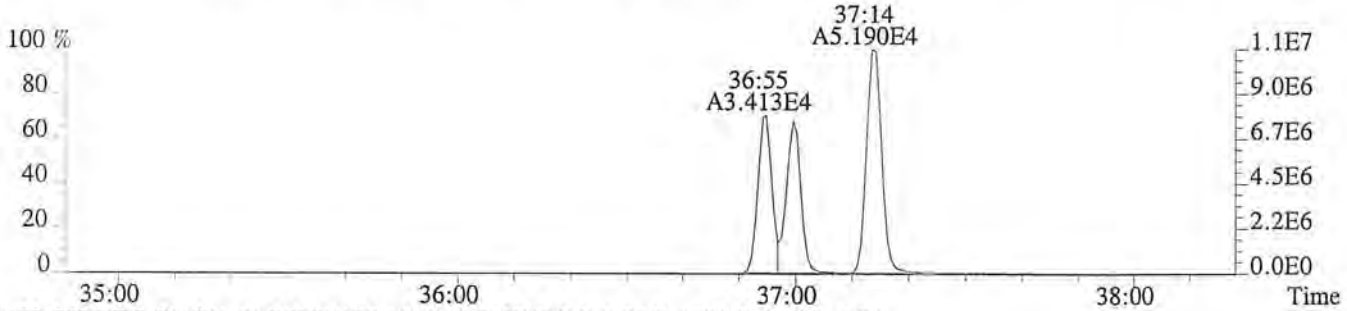
File:P301088 #1-312 Acq:29-AUG-2015 01:04:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



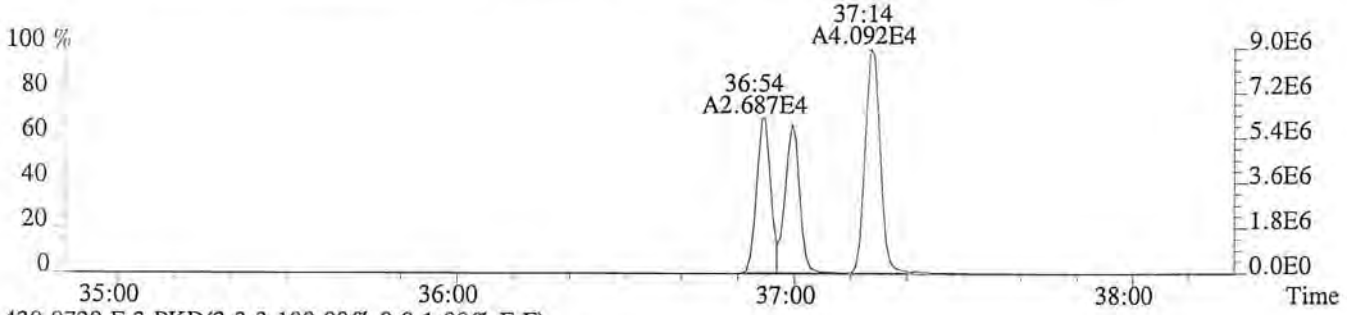
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1444.0,0.40%,F,T)



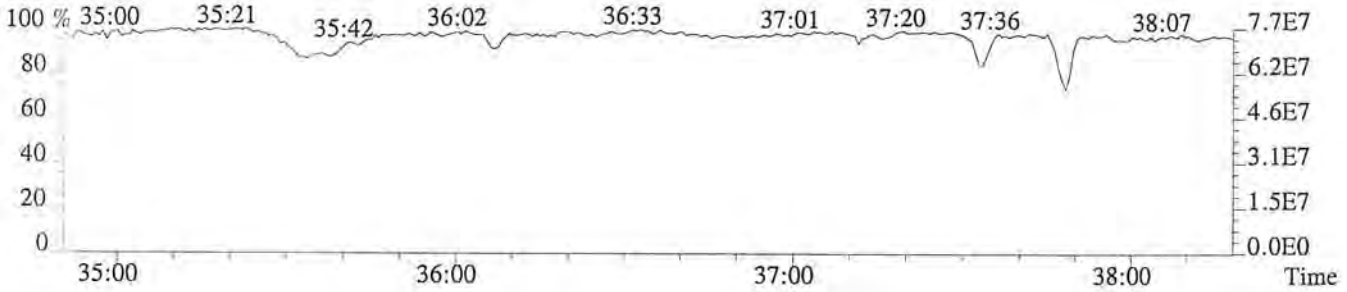
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1380.0,0.40%,F,T)



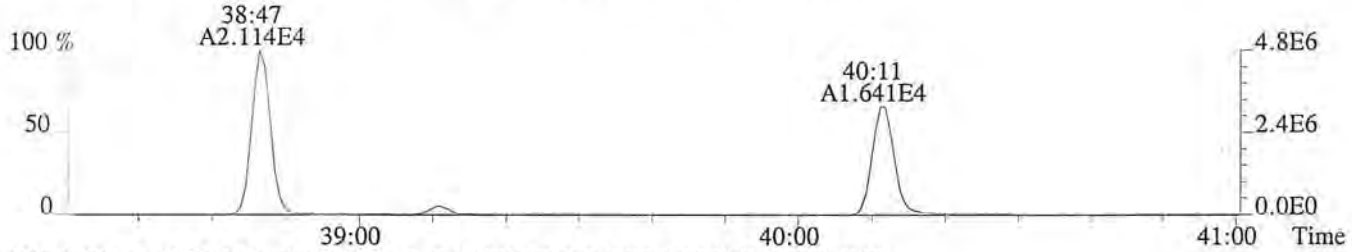
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1796.0,0.40%,F,T)



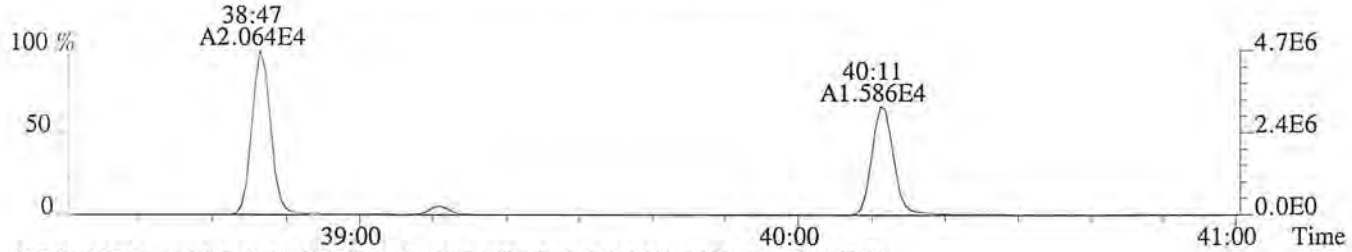
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



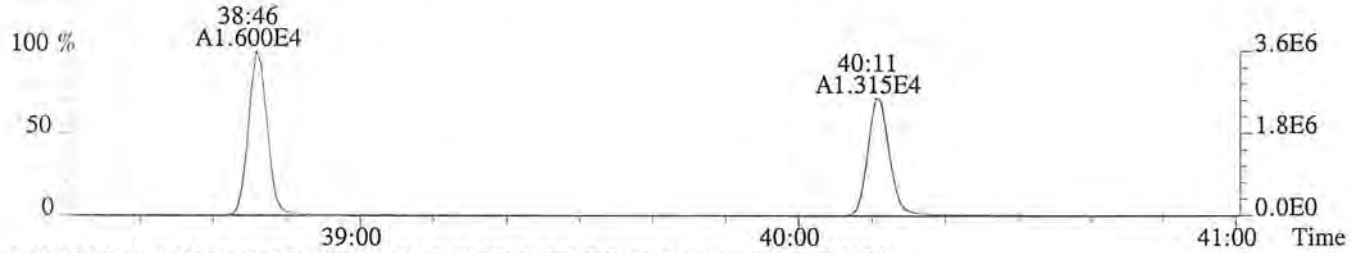
File:P301088 #1-241 Acq:29-AUG-2015 01:04:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2904.0,0.50%,F,T)



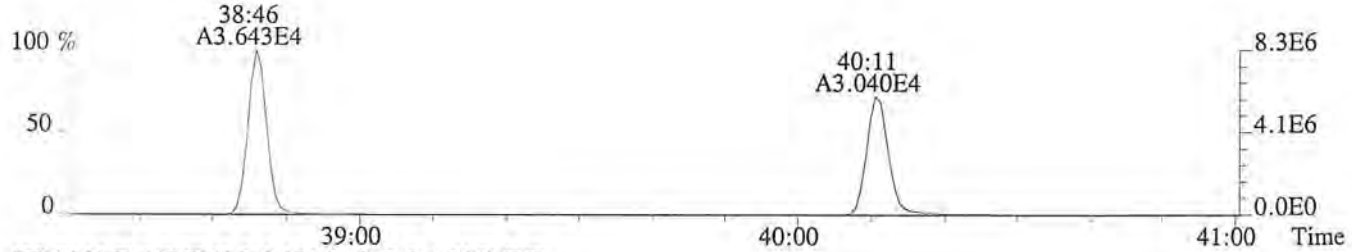
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3228.0,0.50%,F,T)



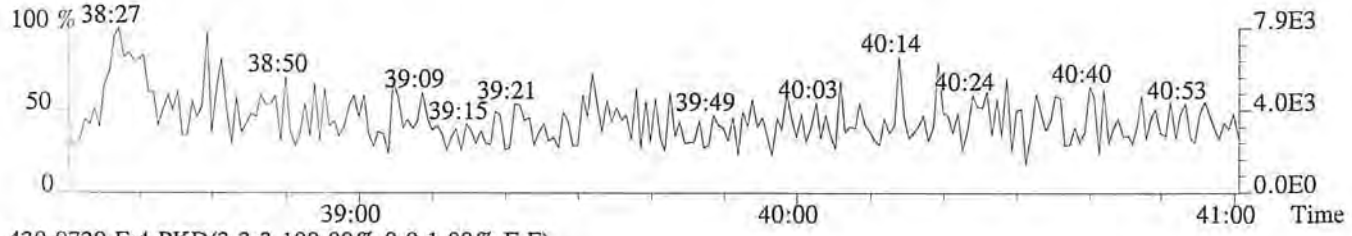
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2652.0,0.50%,F,T)



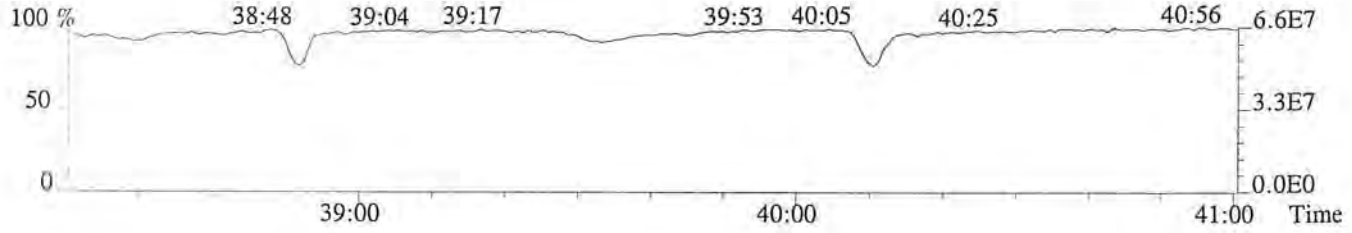
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1444.0,0.50%,F,T)



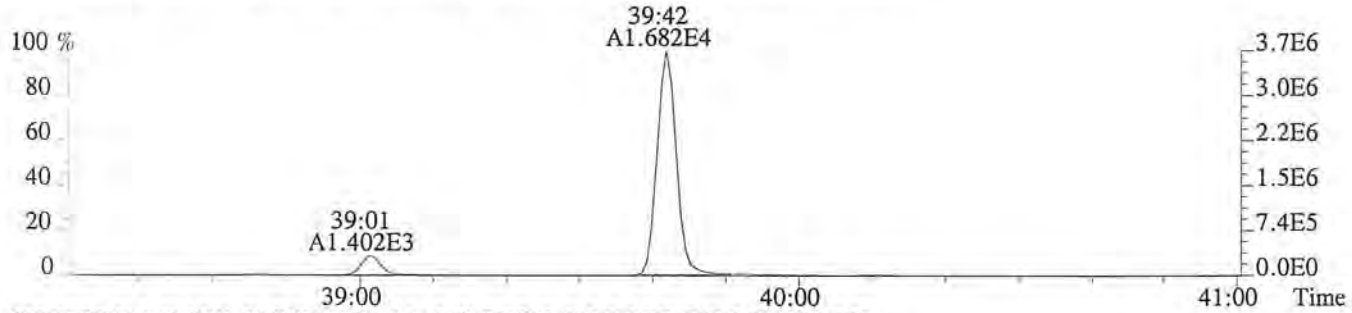
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



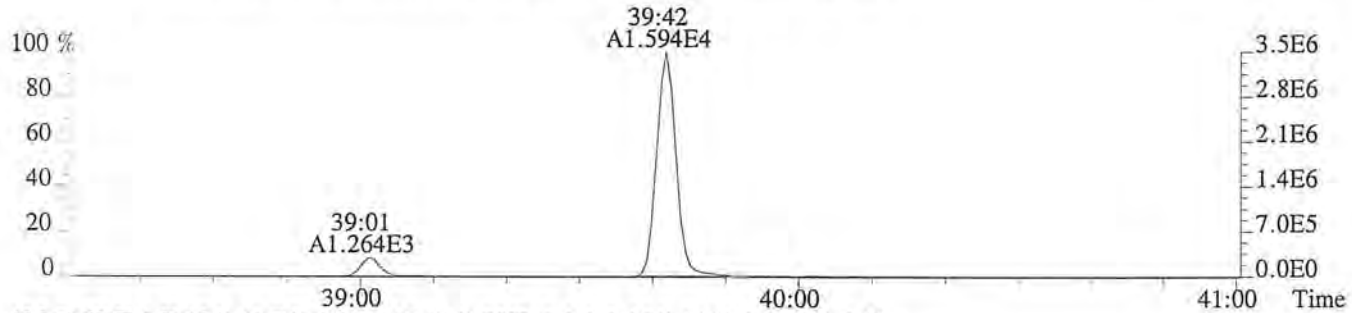
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



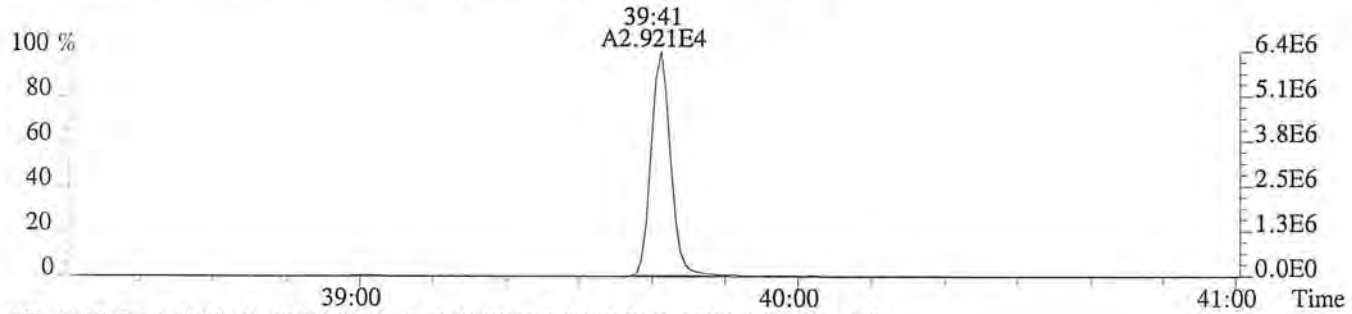
File:P301088 #1-241 Acq:29-AUG-2015 01:04:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1592.0,0.40%,F,T)



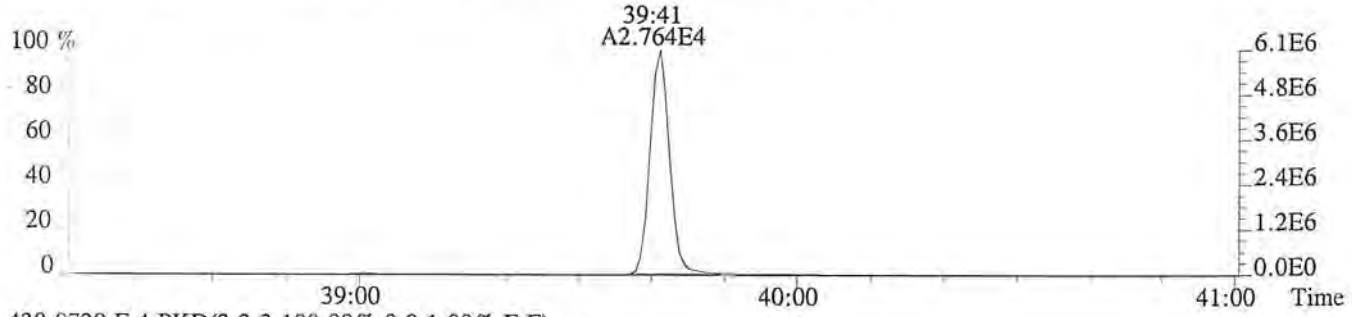
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



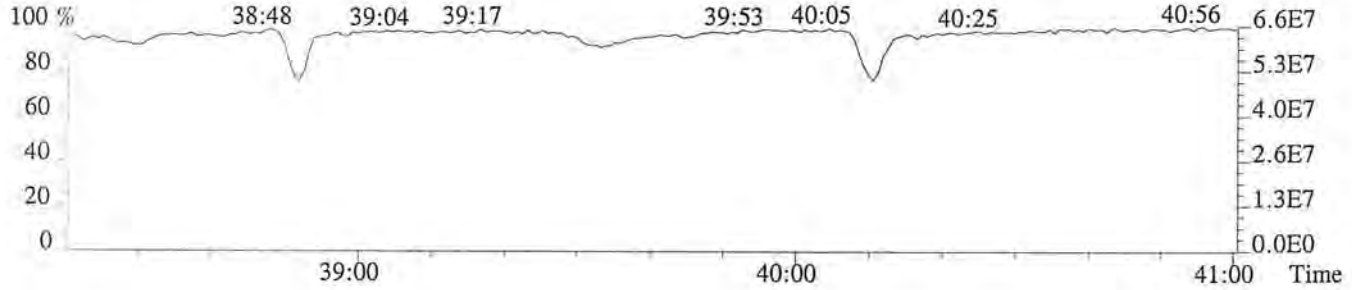
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)



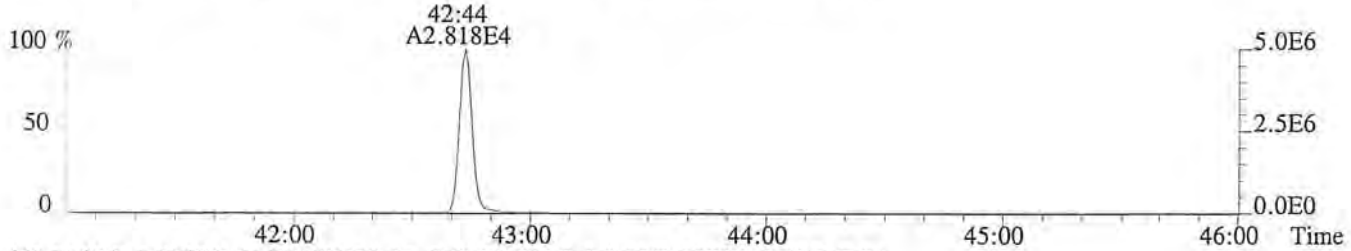
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



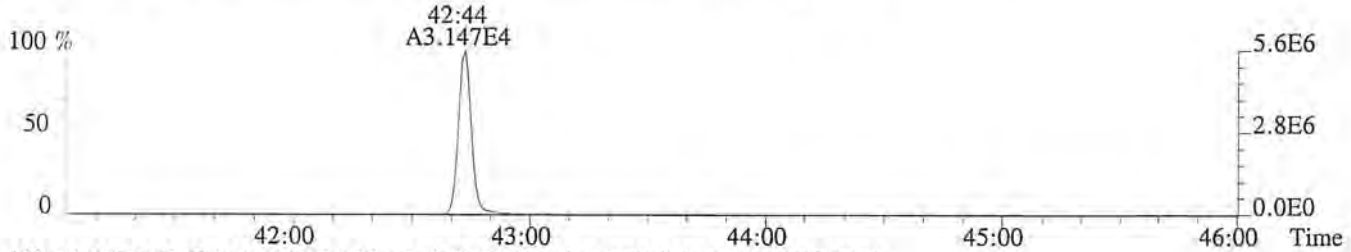
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



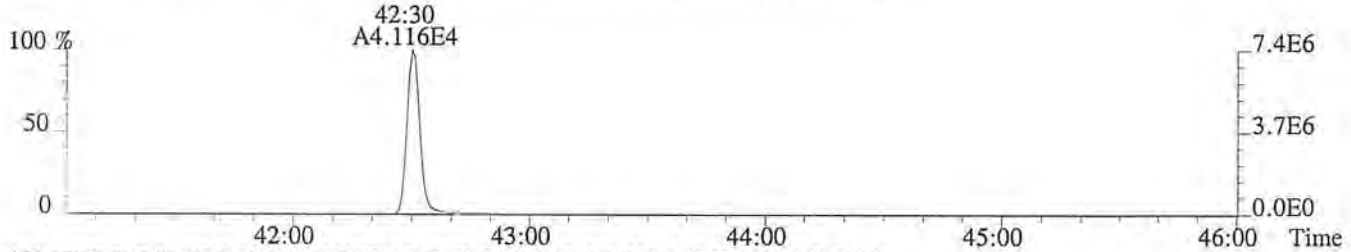
File:P301088 #1-447 Acq:29-AUG-2015 01:04:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,880.0,0.40%,F,T)



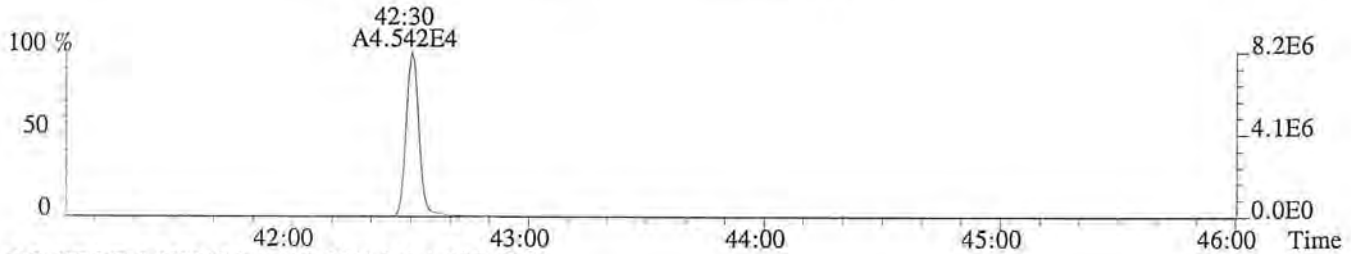
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2272.0,0.40%,F,T)



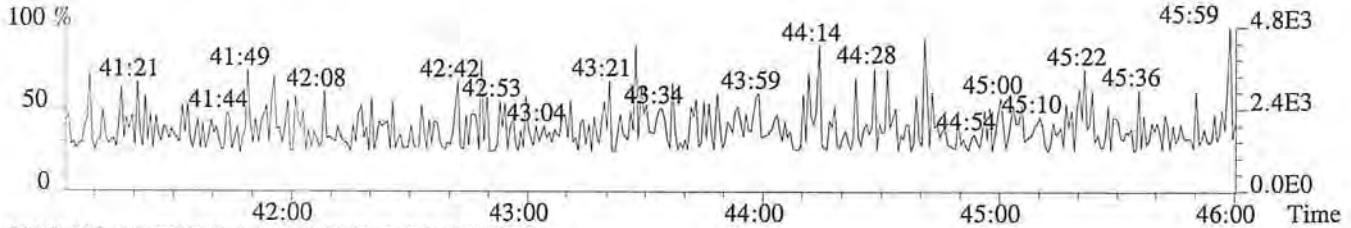
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1016.0,0.40%,F,T)



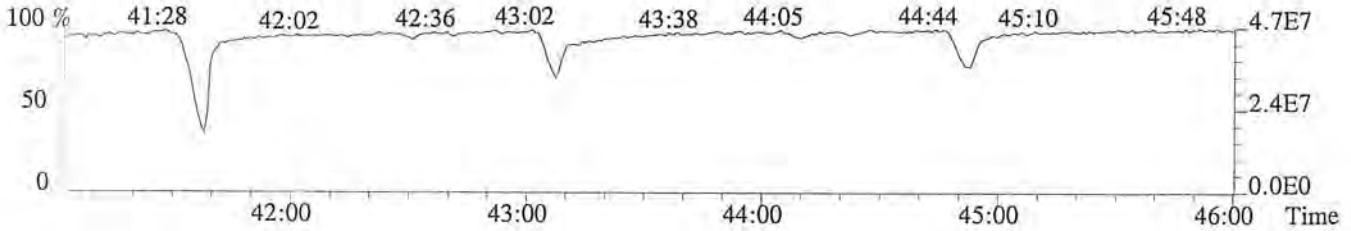
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1060.0,0.40%,F,T)



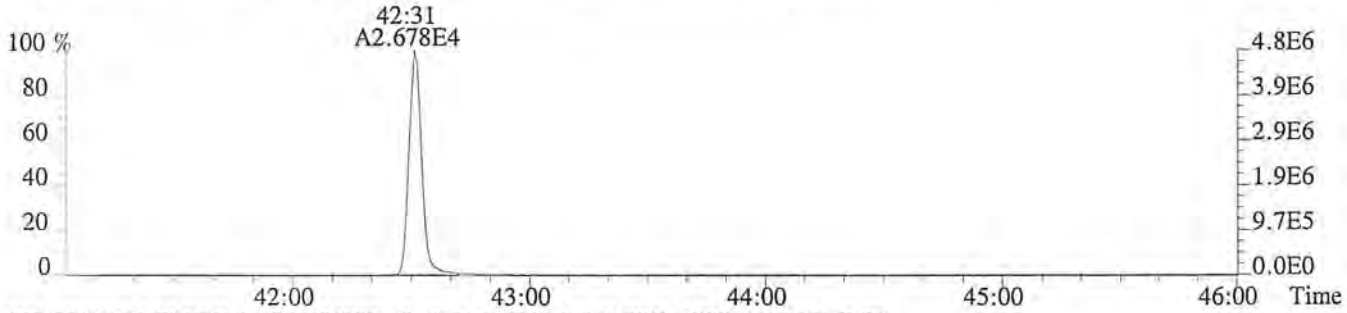
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



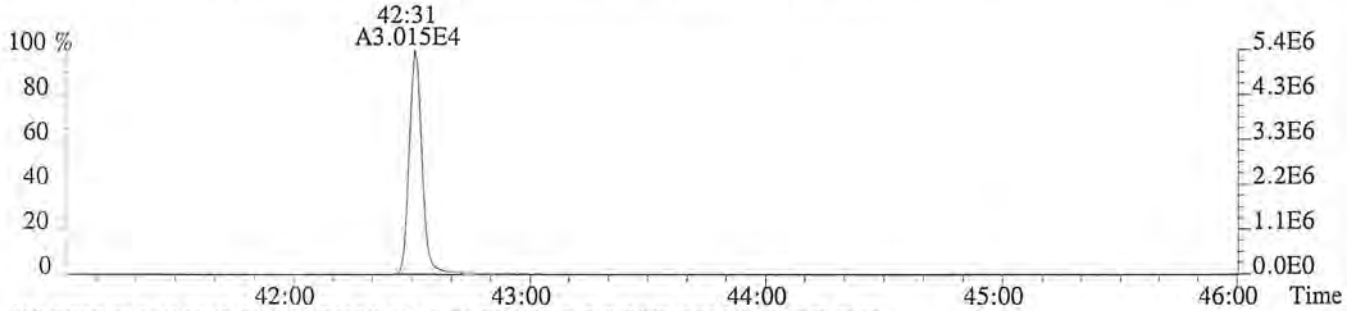
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



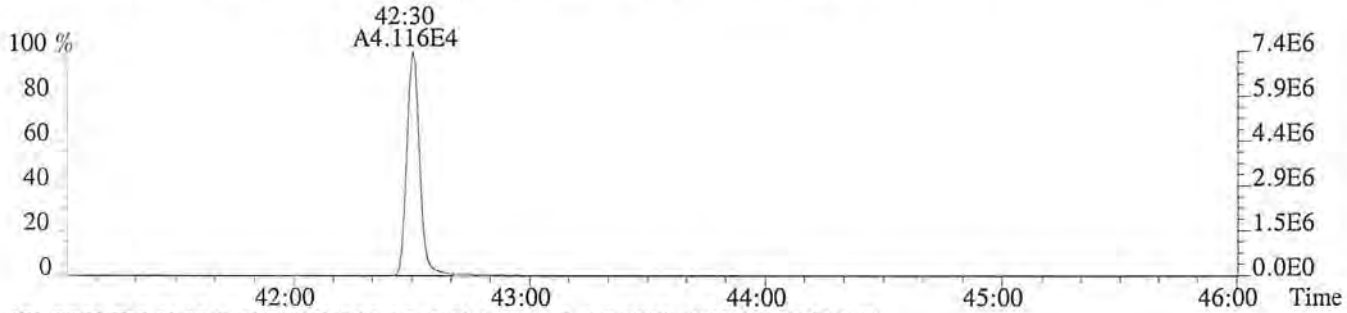
File:P301088 #1-447 Acq:29-AUG-2015 01:04:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1036.0,0.40%,F,T)



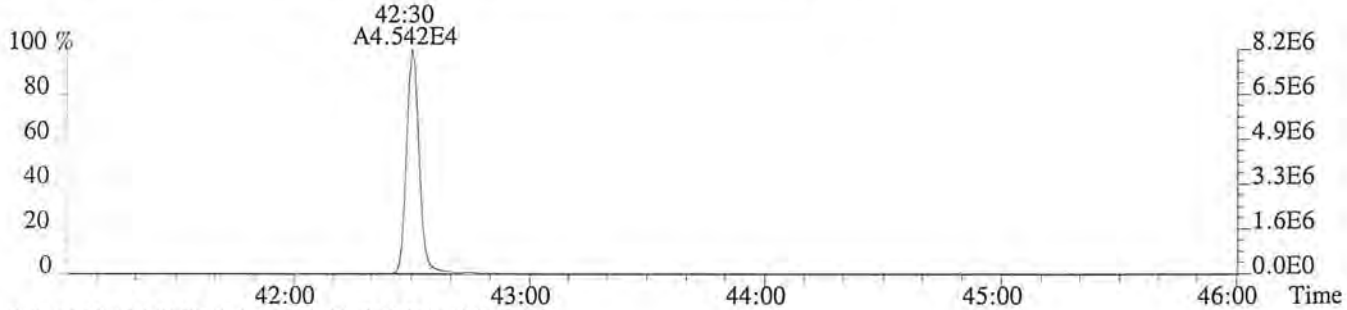
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1308.0,0.40%,F,T)



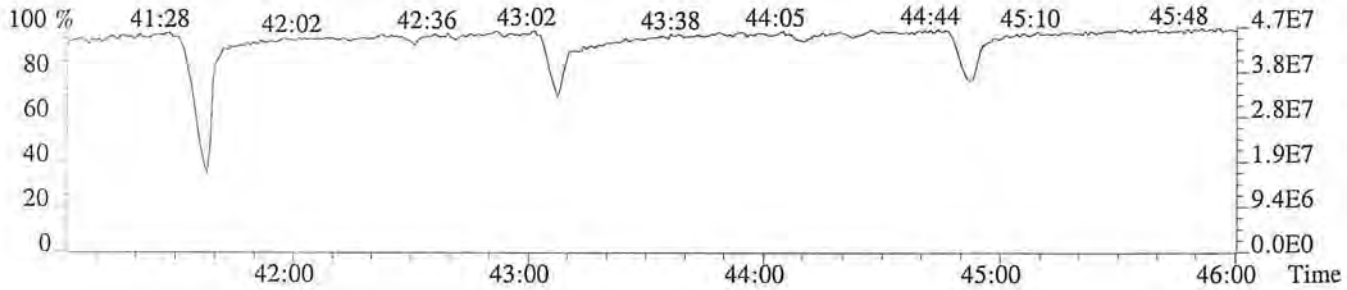
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1016.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1060.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
DLCS

Run #17 Filename P301089 Samp: 1 Inj: 1 Acquired: 29-AUG-15 01:53:31
Processed: 31-AUG-15 15:03:40 Sample ID: EQ1500484-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:36	2.737e+03	3.506e+03	0.78	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	32:41	2.356e+04	1.512e+04	1.56	yes	no	0.929
3	Unk	2,3,4,7,8-PeCDF	33:33	2.339e+04	1.509e+04	1.55	yes	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	36:12	2.190e+04	1.720e+04	1.27	yes	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:18	2.258e+04	1.802e+04	1.25	yes	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:48	2.102e+04	1.675e+04	1.26	yes	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	37:32	1.860e+04	1.496e+04	1.24	yes	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:47	1.582e+04	1.540e+04	1.03	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	40:11	1.290e+04	1.265e+04	1.02	yes	no	1.245
10	Unk	OCDF	42:44	1.993e+04	2.221e+04	0.90	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:21	2.266e+03	2.893e+03	0.78	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:50	1.838e+04	1.155e+04	1.59	yes	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:55	1.625e+04	1.308e+04	1.24	yes	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:00	1.622e+04	1.251e+04	1.30	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:14	1.709e+04	1.373e+04	1.24	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	1.271e+04	1.220e+04	1.04	yes	no	0.949
17	Unk	OCDD	42:31	1.844e+04	2.113e+04	0.87	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:35	2.697e+04	3.408e+04	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:40	4.459e+04	2.823e+04	1.58	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:33	4.339e+04	2.779e+04	1.56	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:10	1.886e+04	3.646e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:17	2.184e+04	4.144e+04	0.53	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:47	2.035e+04	4.001e+04	0.51	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:32	2.706e+04	5.243e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:46	1.180e+04	2.714e+04	0.43	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:11	1.050e+04	2.385e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:20	2.188e+04	2.861e+04	0.76	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:49	3.338e+04	2.140e+04	1.56	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:54	2.812e+04	2.198e+04	1.28	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:00	2.765e+04	2.196e+04	1.26	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:41	2.188e+04	2.056e+04	1.06	yes	no	0.850
32	IS	13C-OCDD	42:30	2.640e+04	2.932e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:48	3.429e+04	4.446e+04	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:14	4.899e+04	3.889e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:21	2.329e+04				no	1.001

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Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #17 Filename P301089 Samp: 1 Inj: 1 Acquired: 29-AUG-15 01:53:31
Processed: 31-AUG-15 15:03:40 LAB. ID: EQ1500484-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.47e+05	1.51e+03	3.6e+02	7.12e+05	2.06e+03	3.5e+02
2	1,2,3,7,8-PeCDF	4.76e+06	8.88e+02	5.4e+03	3.06e+06	3.57e+03	8.6e+02
3	2,3,4,7,8-PeCDF	4.80e+06	8.88e+02	5.4e+03	3.15e+06	3.57e+03	8.8e+02
4	1,2,3,4,7,8-HxCDF	4.88e+06	1.08e+03	4.5e+03	3.84e+06	4.80e+02	8.0e+03
5	1,2,3,6,7,8-HxCDF	4.92e+06	1.08e+03	4.6e+03	3.99e+06	4.80e+02	8.3e+03
6	2,3,4,6,7,8-HxCDF	4.75e+06	1.08e+03	4.4e+03	3.72e+06	4.80e+02	7.8e+03
7	1,2,3,7,8,9-HxCDF	4.06e+06	1.08e+03	3.8e+03	3.28e+06	4.80e+02	6.8e+03
8	1,2,3,4,6,7,8-HpCDF	3.64e+06	2.24e+03	1.6e+03	3.50e+06	1.92e+03	1.8e+03
9	1,2,3,4,7,8,9-HpCDF	2.53e+06	2.24e+03	1.1e+03	2.47e+06	1.92e+03	1.3e+03
10	OCDF	3.46e+06	9.92e+02	3.5e+03	3.79e+06	2.07e+03	1.8e+03
11	2,3,7,8-TCDD	4.81e+05	1.79e+03	2.7e+02	5.93e+05	1.05e+03	5.7e+02
12	1,2,3,7,8-PeCDD	3.79e+06	2.71e+03	1.4e+03	2.41e+06	9.44e+02	2.6e+03
13	1,2,3,4,7,8-HxCDD	3.83e+06	5.52e+02	6.9e+03	3.05e+06	1.45e+03	2.1e+03
14	1,2,3,6,7,8-HxCDD	3.66e+06	5.52e+02	6.6e+03	2.83e+06	1.45e+03	2.0e+03
15	1,2,3,7,8,9-HxCDD	3.93e+06	5.52e+02	7.1e+03	3.15e+06	1.45e+03	2.2e+03
16	1,2,3,4,6,7,8-HpCDD	2.64e+06	1.26e+03	2.1e+03	2.54e+06	8.48e+02	3.0e+03
17	OCDD	3.24e+06	8.92e+02	3.6e+03	3.72e+06	1.40e+03	2.7e+03
18	13C-2,3,7,8-TCDF	5.34e+06	1.29e+03	4.1e+03	6.75e+06	2.14e+03	3.1e+03
19	13C-1,2,3,7,8-PeCDF	8.79e+06	1.18e+03	7.5e+03	5.50e+06	1.38e+03	4.0e+03
20	13C-2,3,4,7,8-PeCDF	9.08e+06	1.18e+03	7.7e+03	5.91e+06	1.38e+03	4.3e+03
21	13C-1,2,3,4,7,8-HxCDF	4.23e+06	9.84e+02	4.3e+03	8.18e+06	1.49e+03	5.5e+03
22	13C-1,2,3,6,7,8-HxCDF	4.77e+06	9.84e+02	4.9e+03	9.18e+06	1.49e+03	6.2e+03
23	13C-2,3,4,6,7,8-HxCDF	4.61e+06	9.84e+02	4.7e+03	8.84e+06	1.49e+03	5.9e+03
24	13C-1,2,3,7,8,9-HxCDF	6.00e+06	9.84e+02	6.1e+03	1.16e+07	1.49e+03	7.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.69e+06	2.76e+03	9.7e+02	6.15e+06	2.30e+03	2.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.01e+06	2.76e+03	7.3e+02	4.63e+06	2.30e+03	2.0e+03
27	13C-2,3,7,8-TCDD	4.57e+06	6.16e+03	7.4e+02	5.93e+06	3.40e+03	1.7e+03
28	13C-1,2,3,7,8-PeCDD	7.03e+06	1.88e+03	3.7e+03	4.56e+06	1.08e+03	4.2e+03
29	13C-1,2,3,4,7,8-HxCDD	6.60e+06	1.28e+03	5.2e+03	5.18e+06	1.58e+03	3.3e+03
30	13C-1,2,3,6,7,8-HxCDD	6.19e+06	1.28e+03	4.8e+03	4.88e+06	1.58e+03	3.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.53e+06	1.58e+03	2.9e+03	4.29e+06	6.92e+02	6.2e+03
32	13C-OCDD	4.64e+06	7.44e+02	6.2e+03	5.16e+06	8.28e+02	6.2e+03
33	13C-1,2,3,4-TCDD	6.86e+06	6.16e+03	1.1e+03	8.86e+06	3.40e+03	2.6e+03
34	13C-1,2,3,7,8,9-HxCDD	1.11e+07	1.28e+03	8.7e+03	8.87e+06	1.58e+03	5.6e+03
35	37Cl-2,3,7,8-TCDD	4.87e+06	9.92e+02	4.9e+03			

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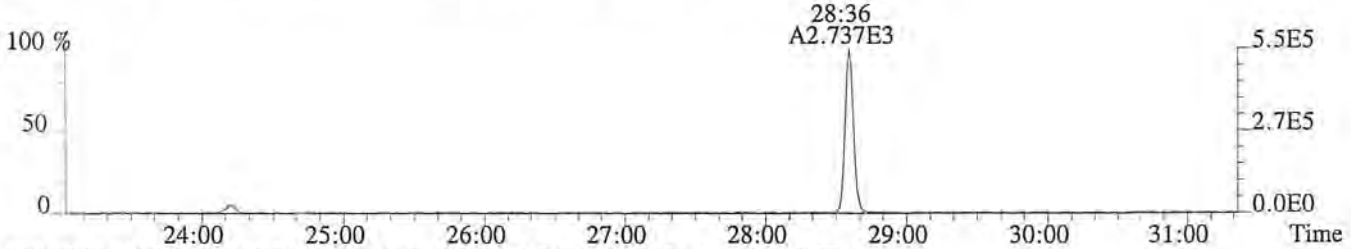
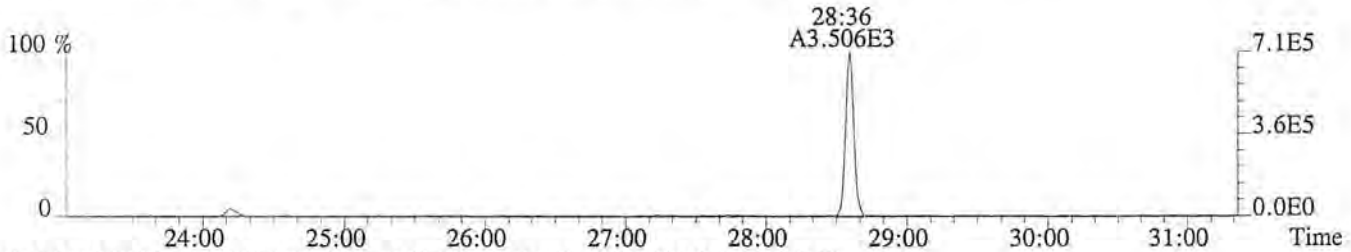
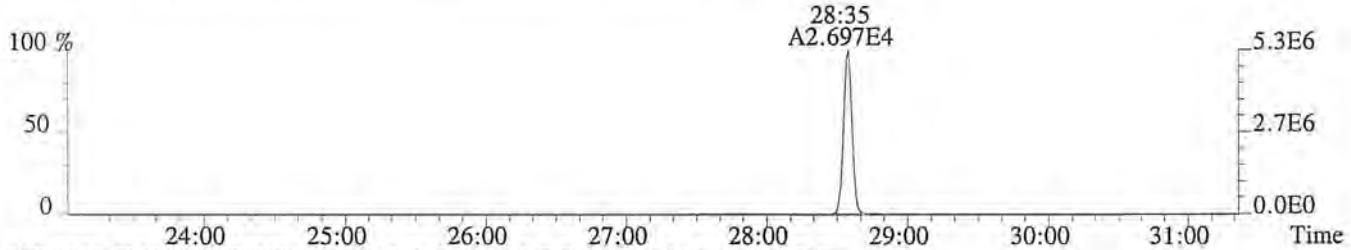
File:P301089 #1-591 Acq:29-AUG-2015 01:53:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1508.0,1.00%,F,T)



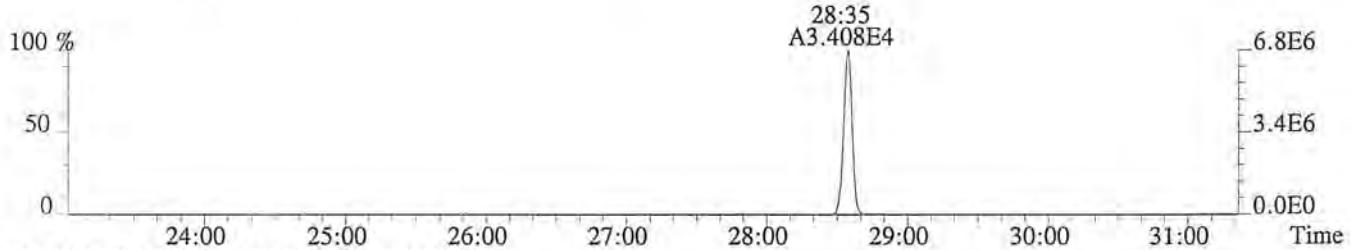
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



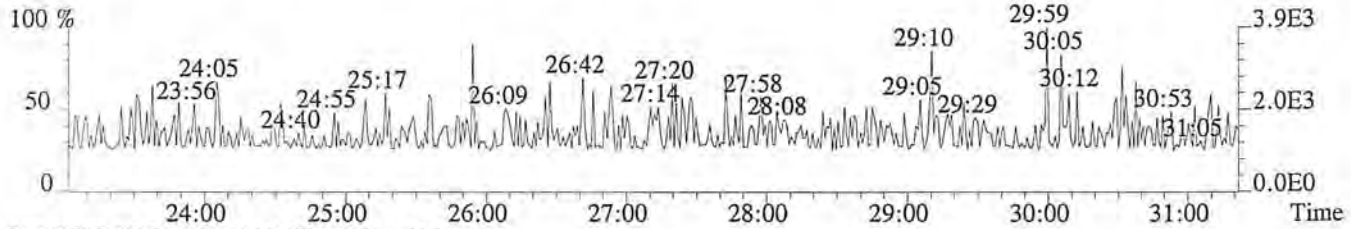
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)



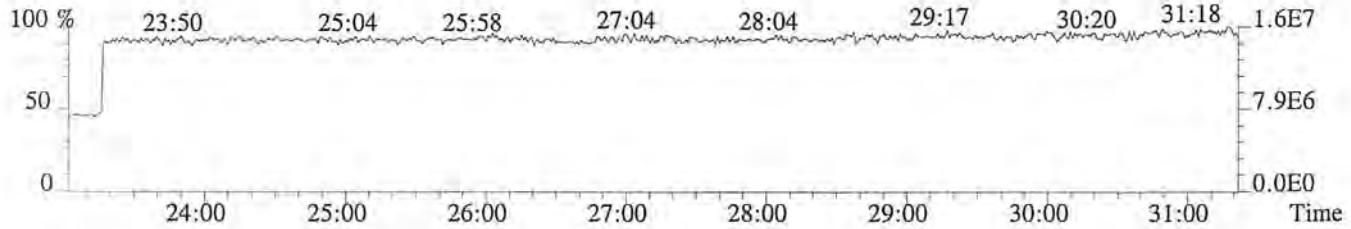
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2144.0,1.00%,F,T)



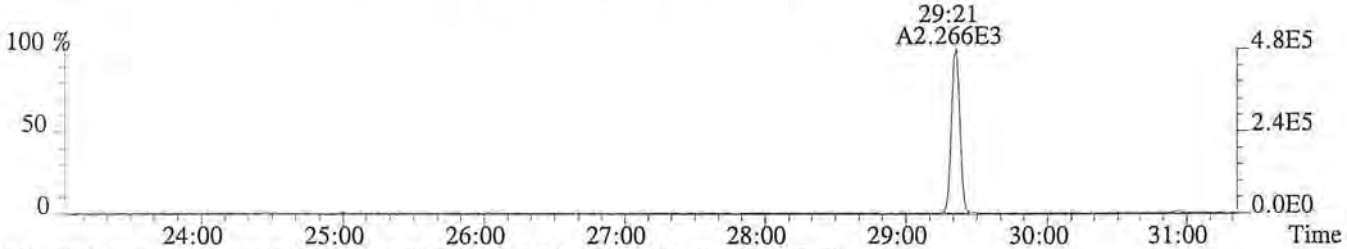
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



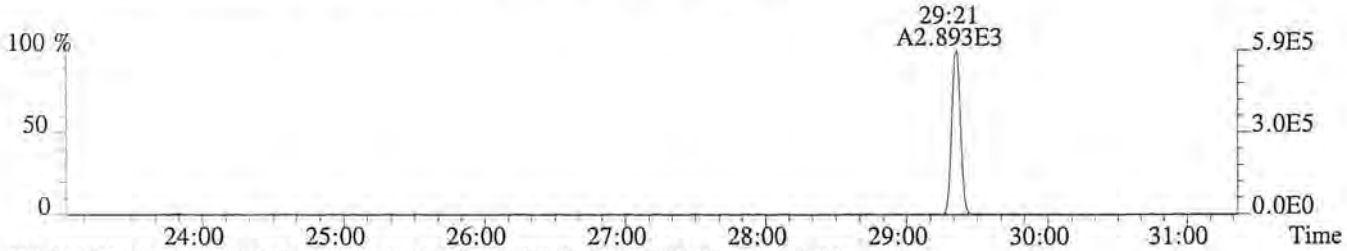
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



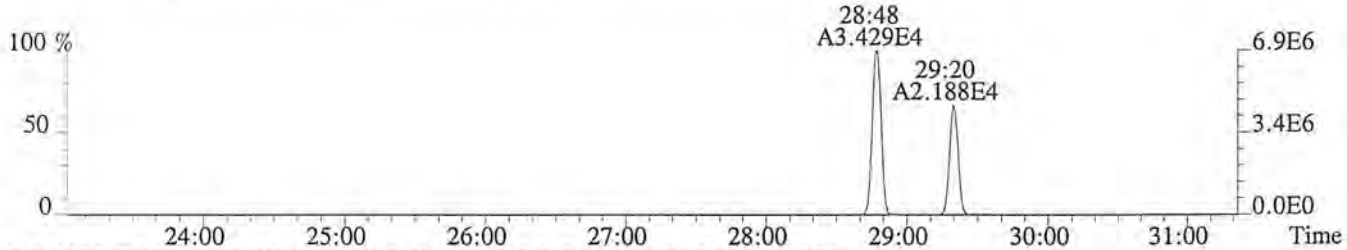
File:P301089 #1-591 Acq:29-AUG-2015 01:53:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



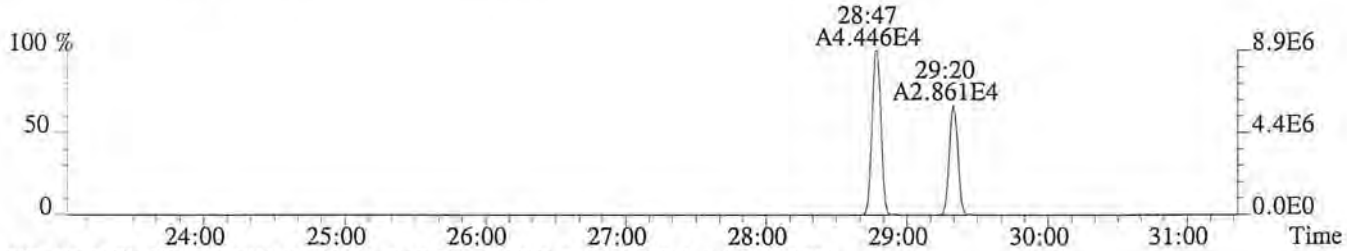
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



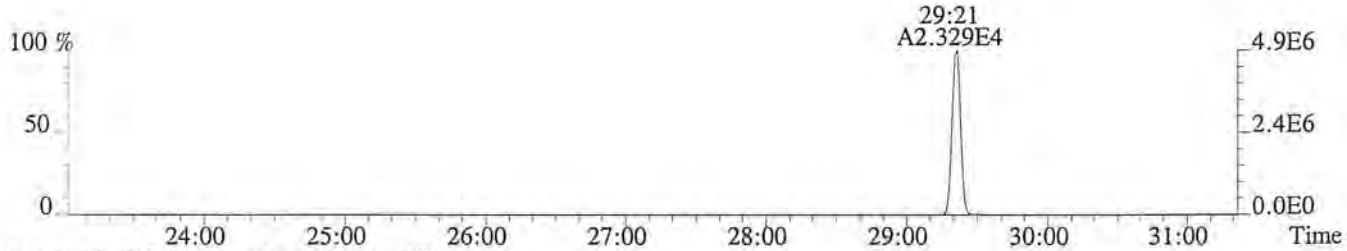
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6156.0,1.00%,F,T)



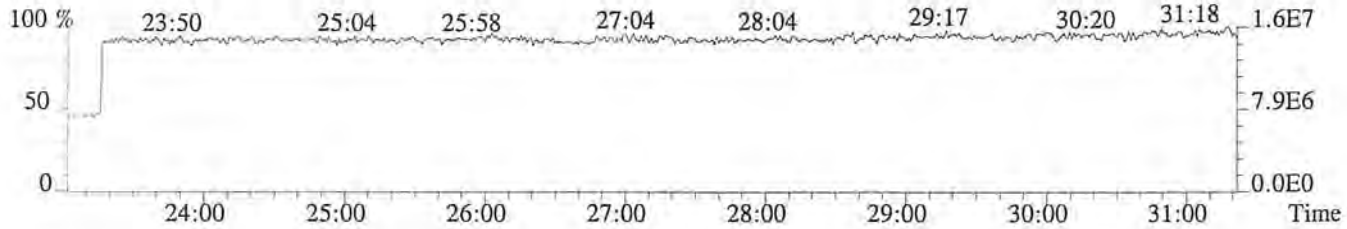
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3404.0,1.00%,F,T)



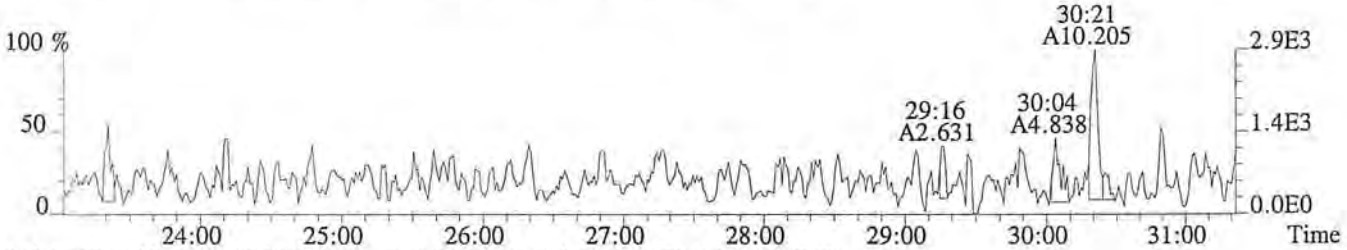
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



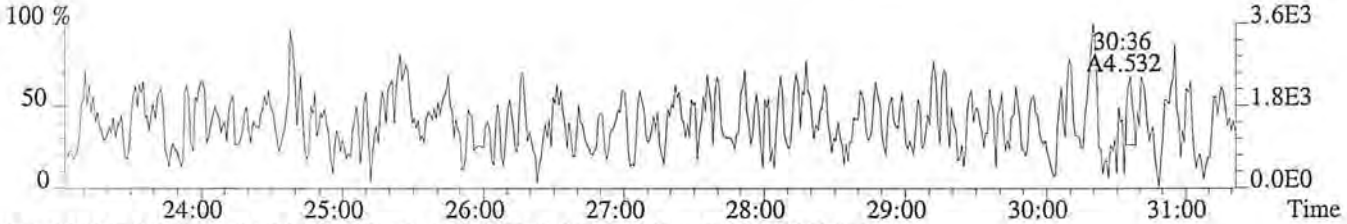
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



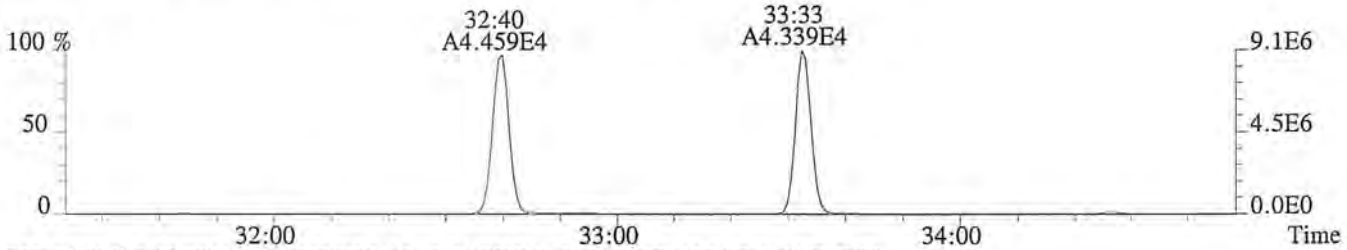
File:P301089 #1-591 Acq:29-AUG-2015 01:53:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



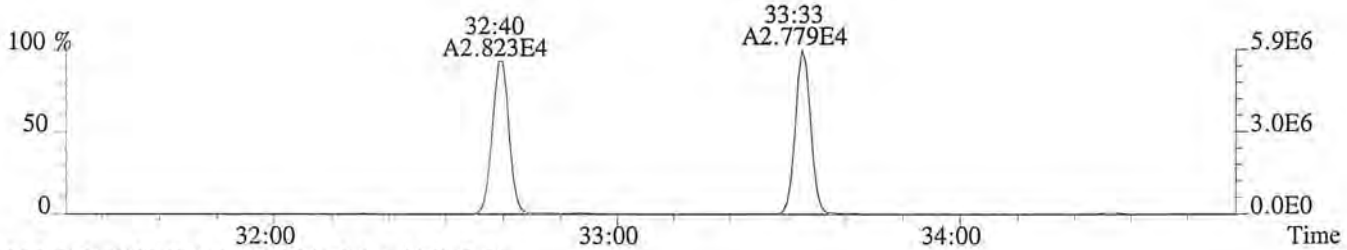
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



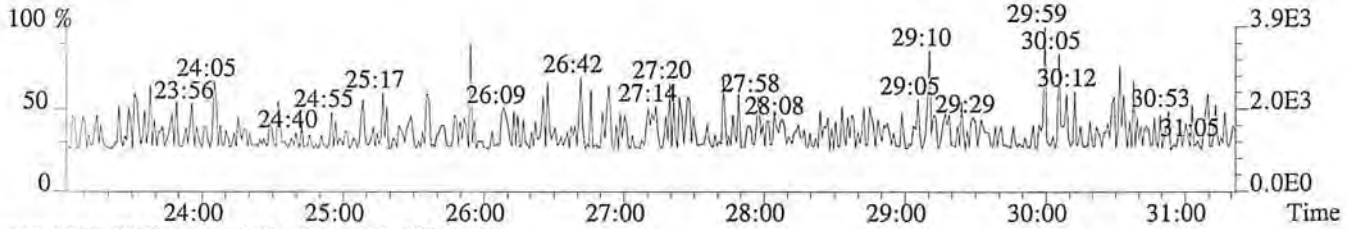
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



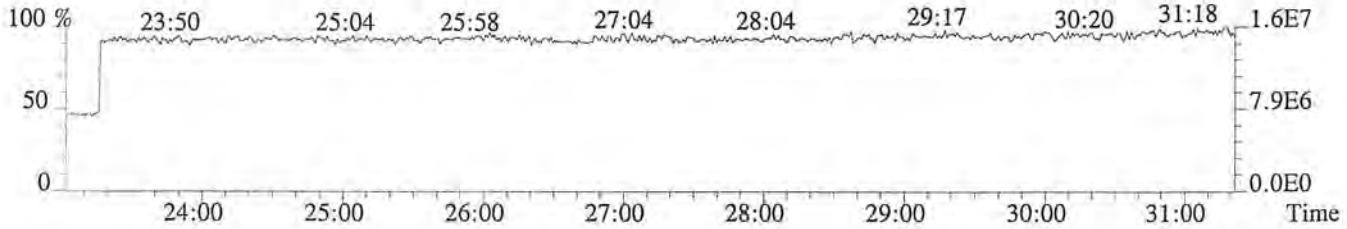
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



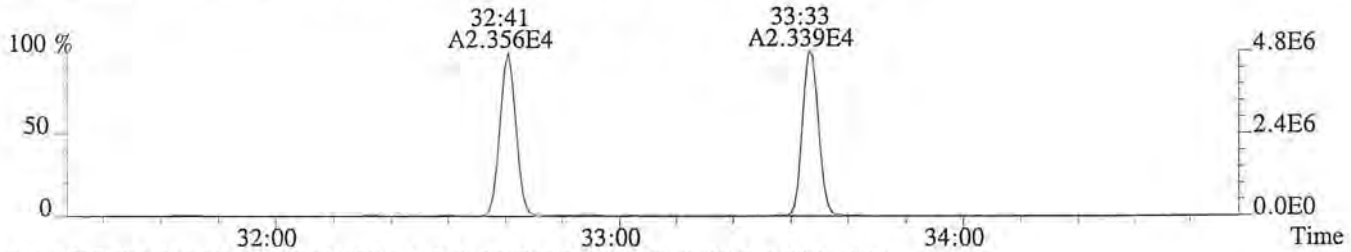
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



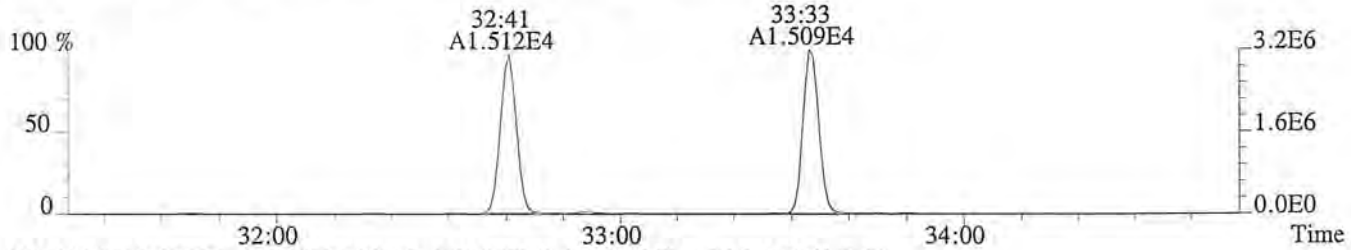
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



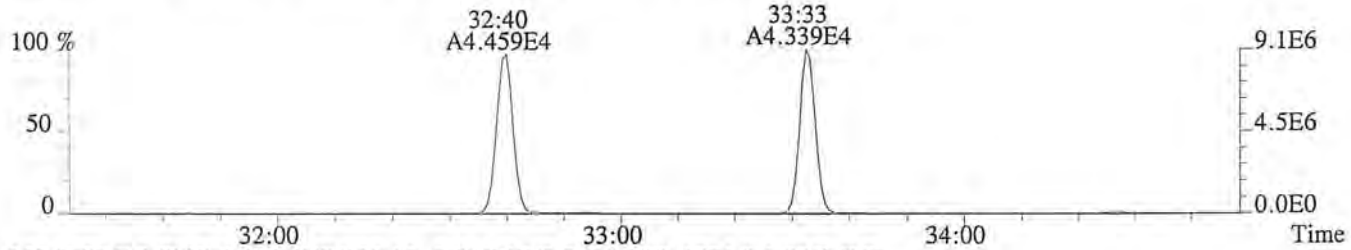
File:P301089 #1-308 Acq:29-AUG-2015 01:53:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-03
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



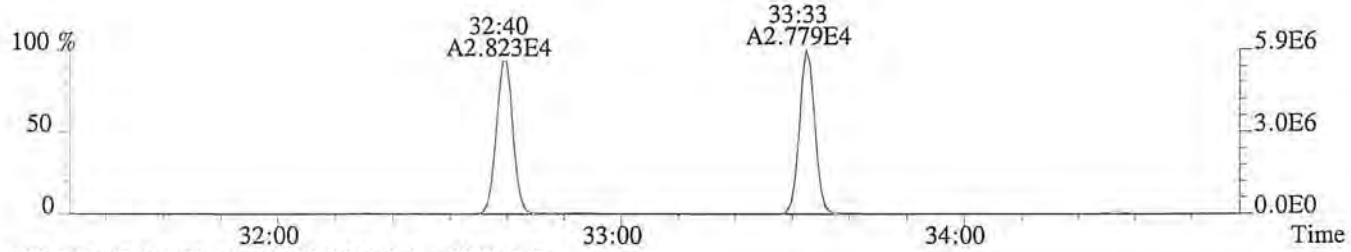
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3568.0,1.00%,F,T)



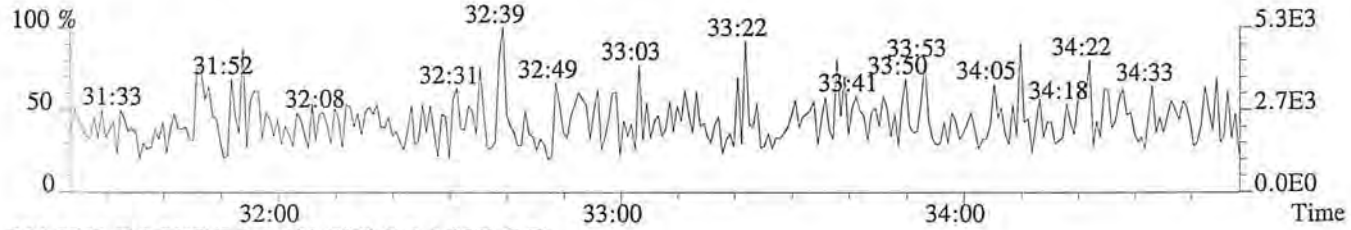
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



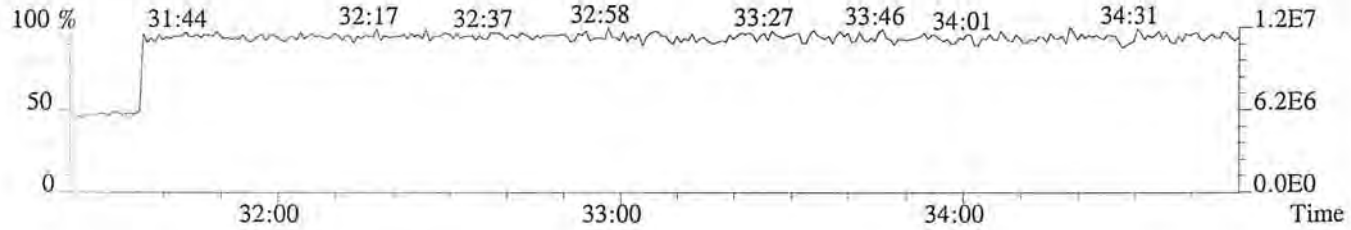
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



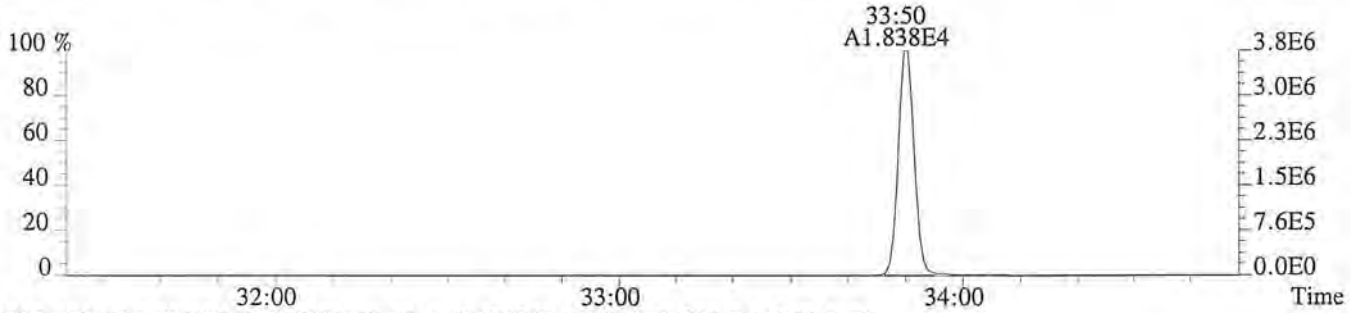
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



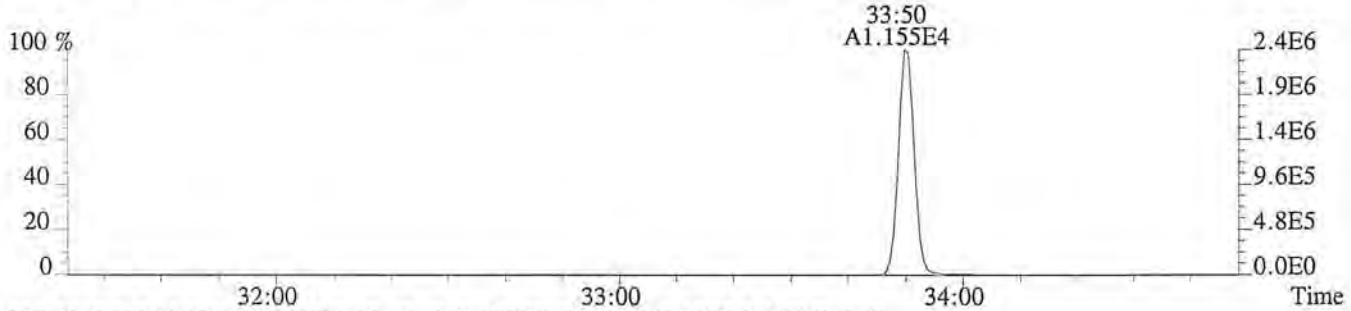
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



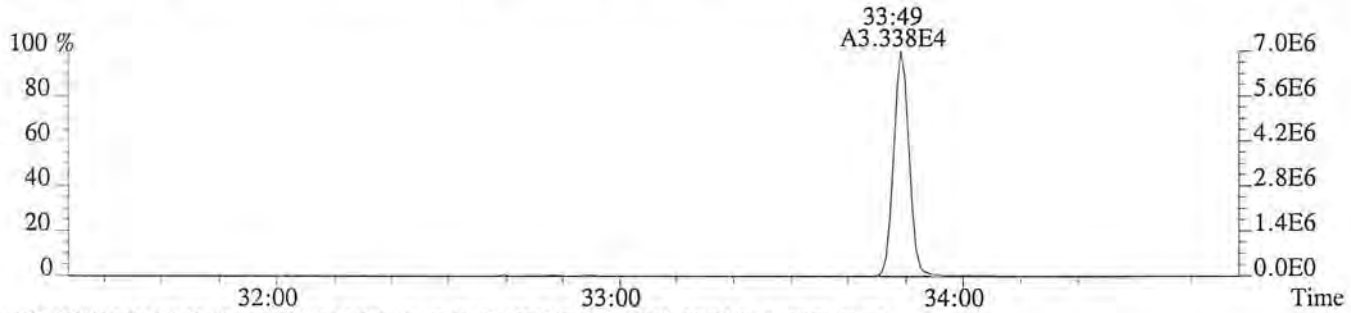
File:P301089 #1-308 Acq:29-AUG-2015 01:53:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2708.0,1.00%,F,T)



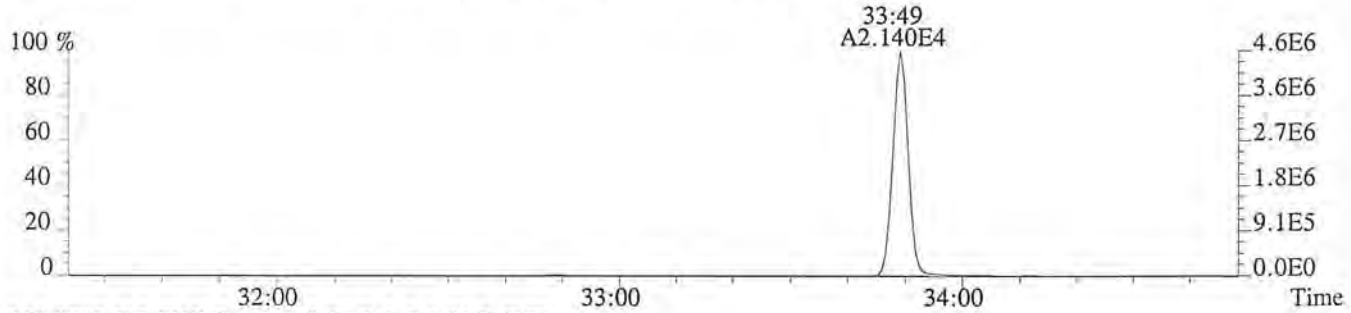
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



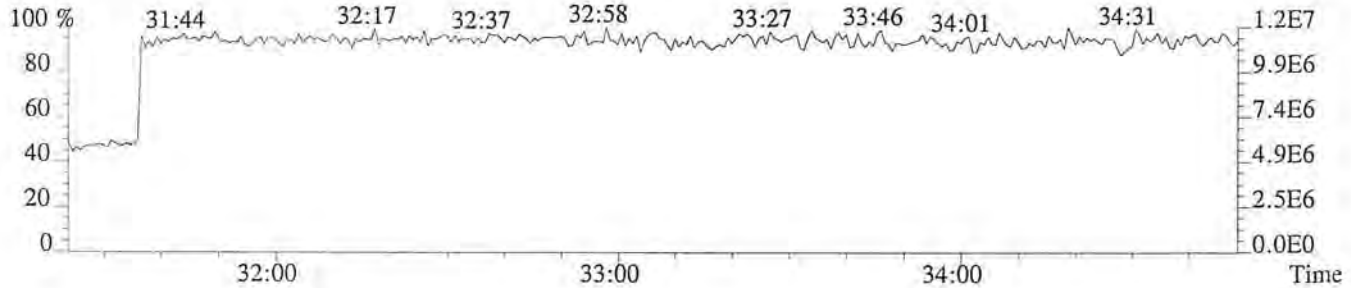
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1876.0,1.00%,F,T)



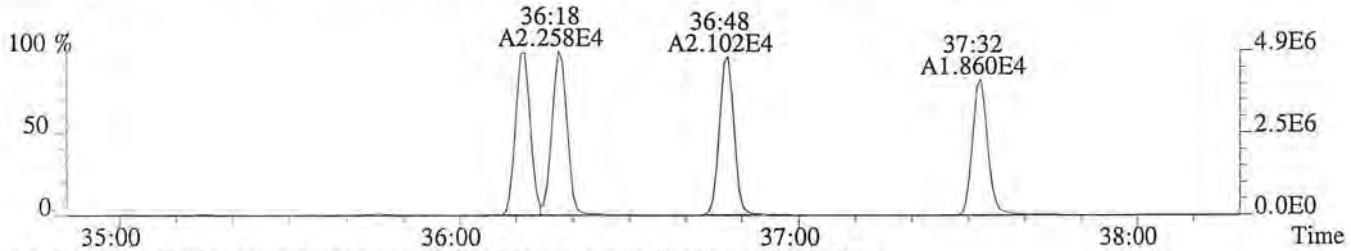
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



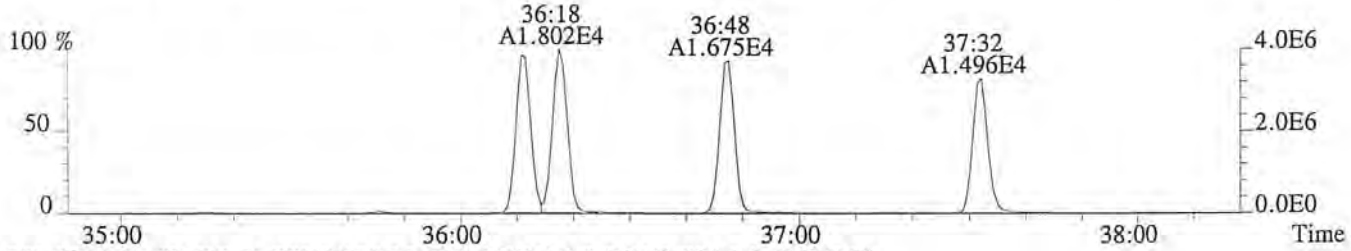
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



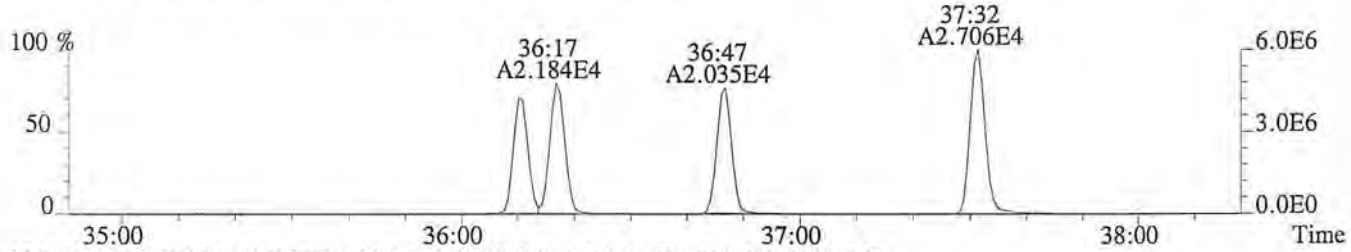
File:P301089 #1-312 Acq:29-AUG-2015 01:53:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-03
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



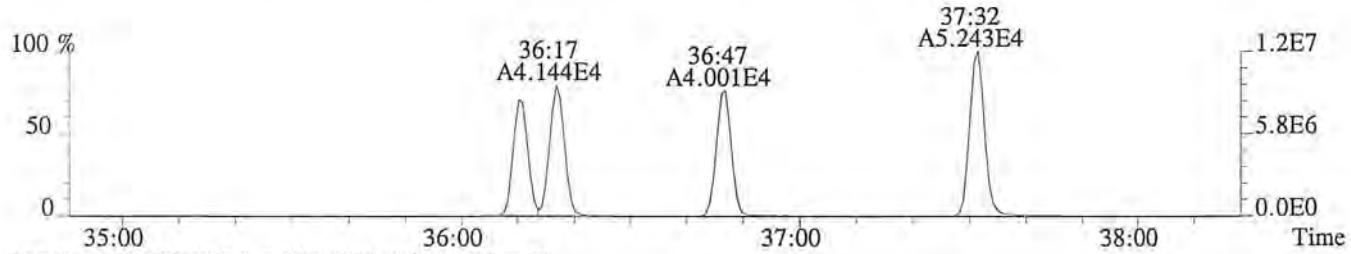
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



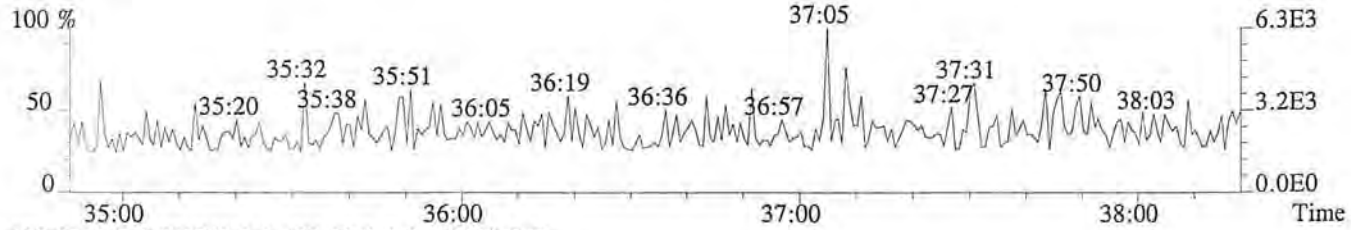
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,984.0,0.40%,F,T)



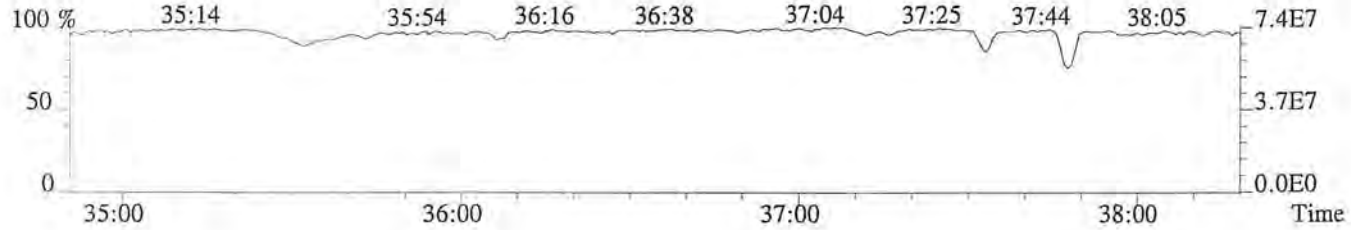
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1488.0,0.40%,F,T)



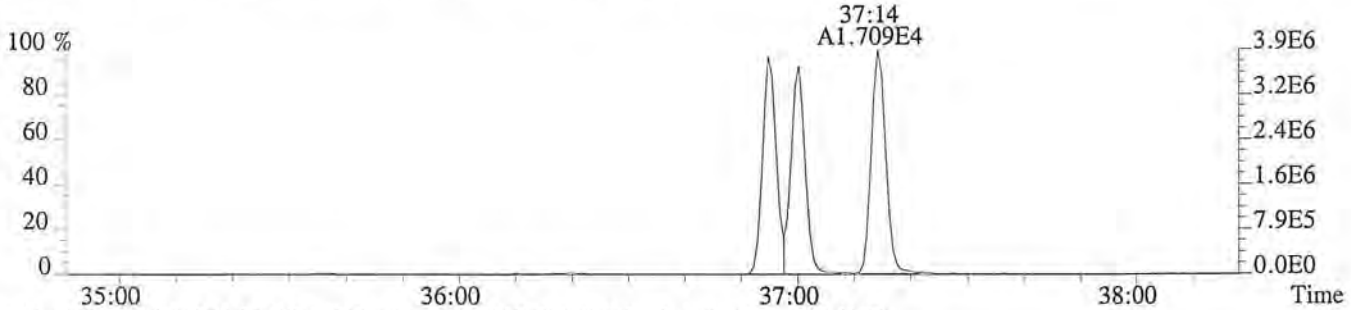
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



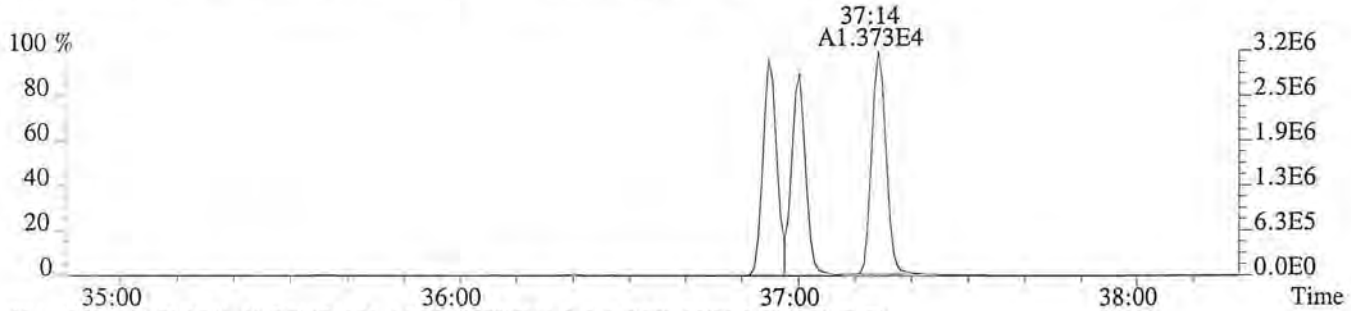
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



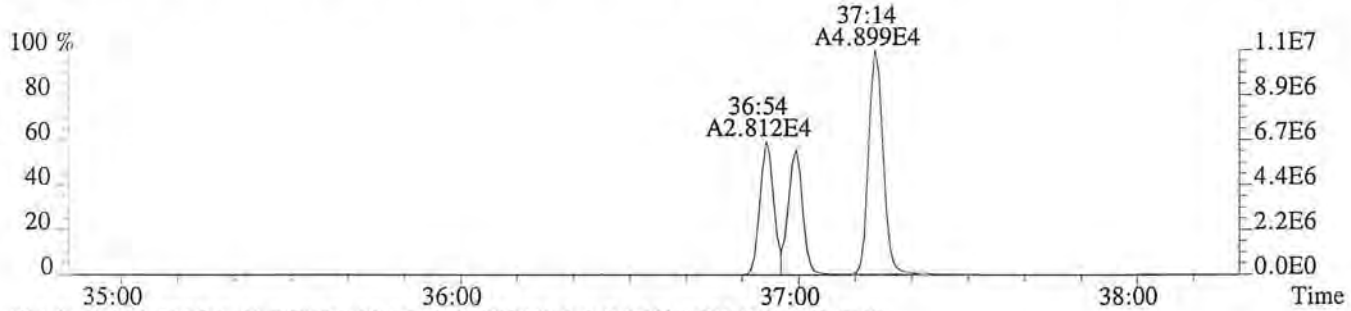
File:P301089 #1-312 Acq:29-AUG-2015 01:53:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



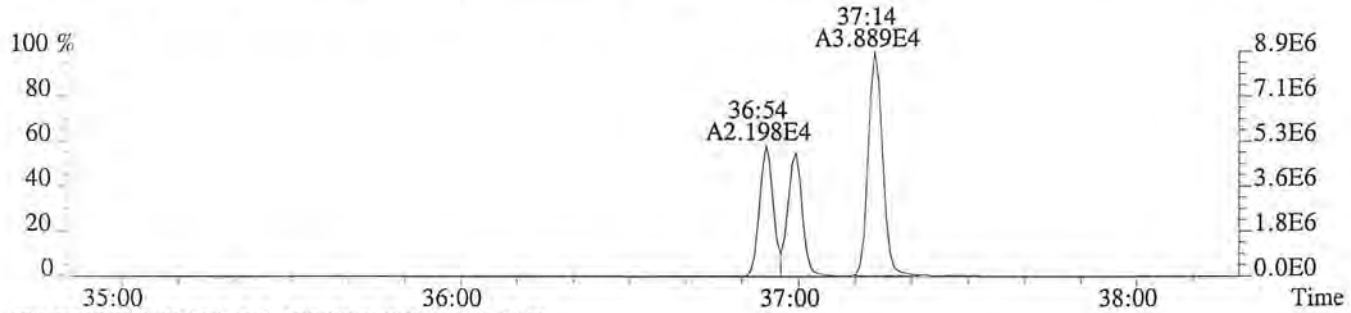
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1448.0,0.40%,F,T)



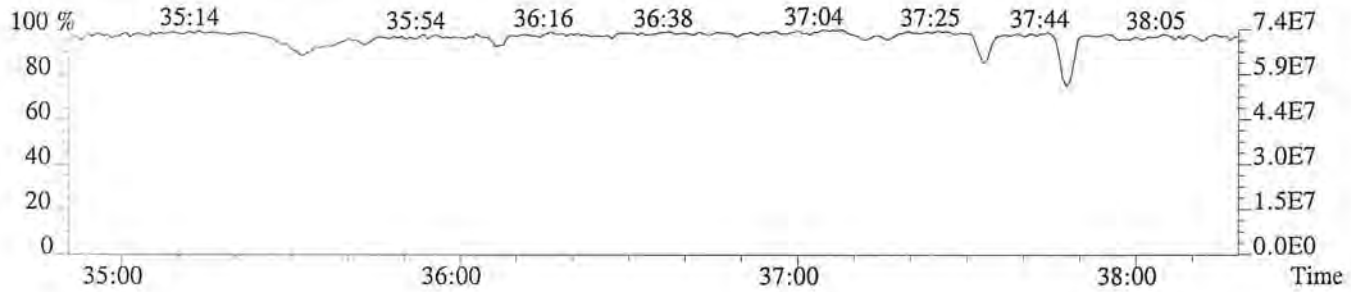
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1276.0,0.40%,F,T)



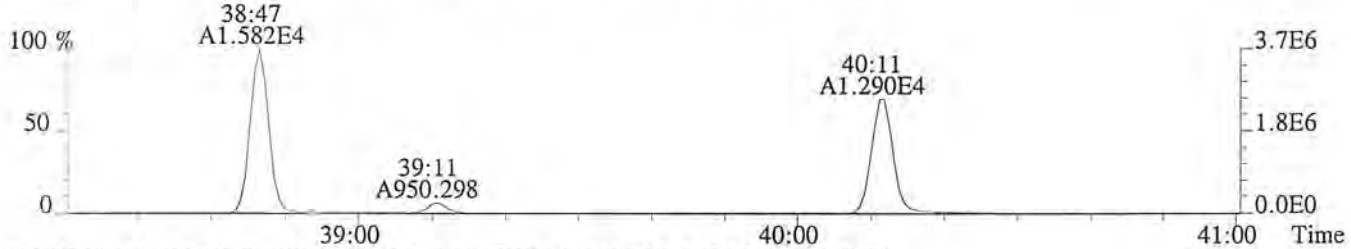
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1584.0,0.40%,F,T)



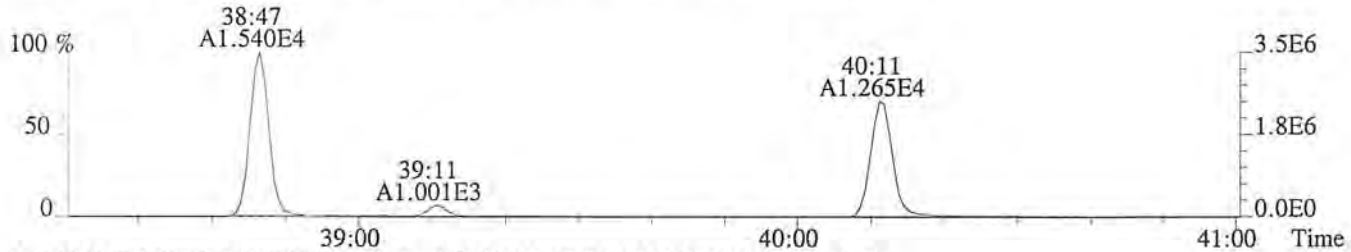
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



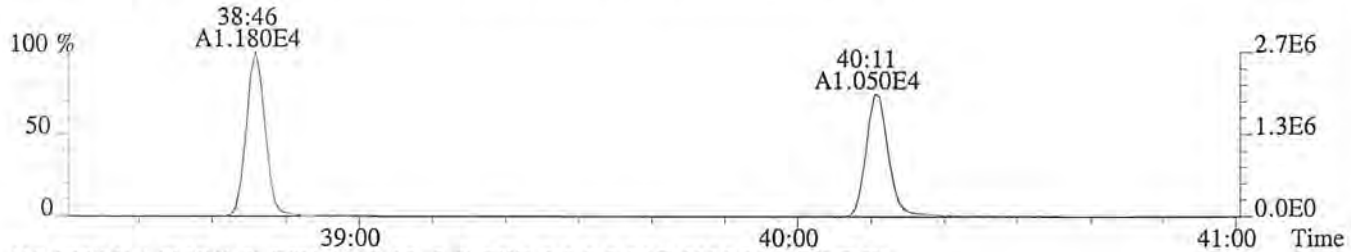
File:P301089 #1-241 Acq:29-AUG-2015 01:53:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-03
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2236.0,0.50%,F,T)



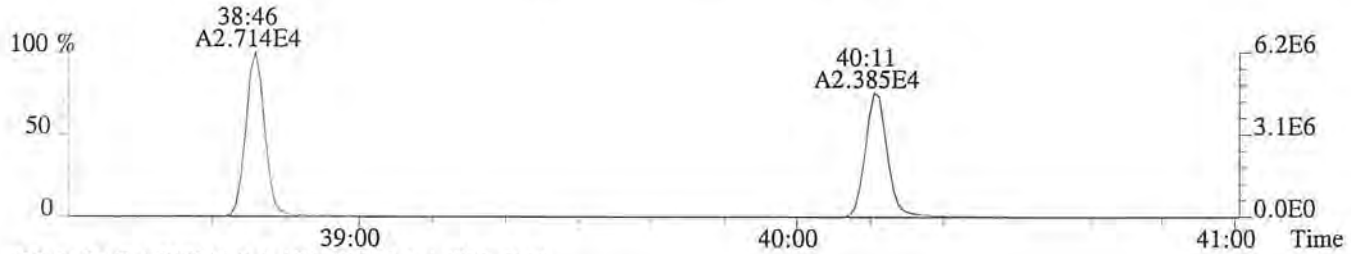
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1920.0,0.50%,F,T)



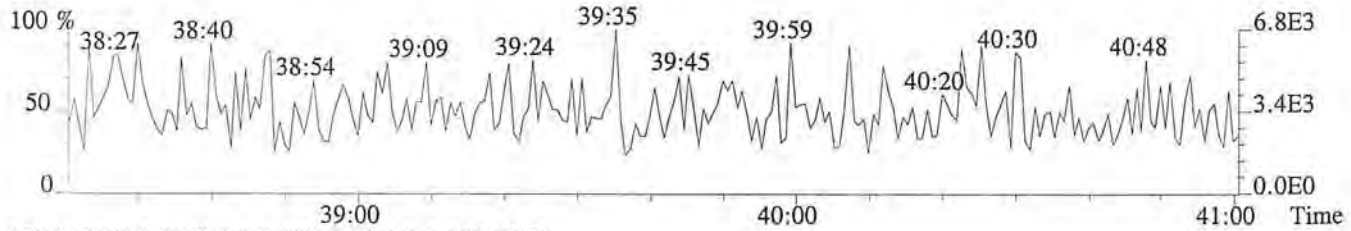
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2760.0,0.50%,F,T)



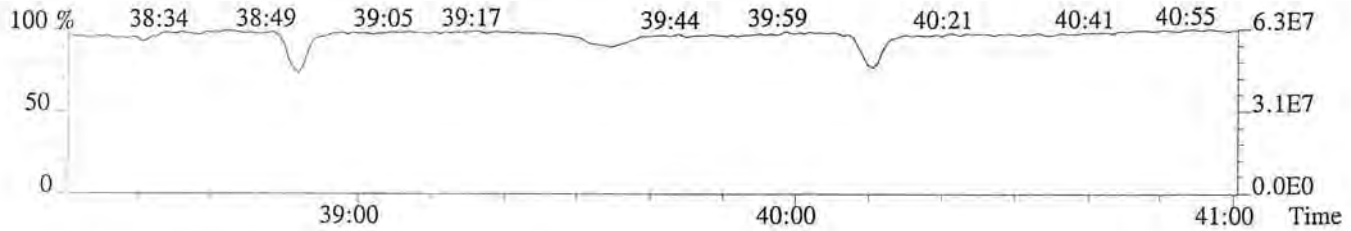
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2296.0,0.50%,F,T)



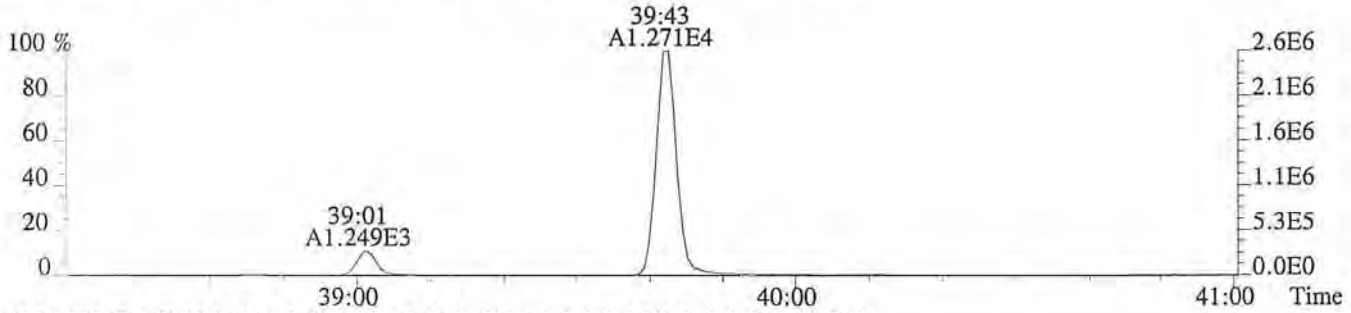
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



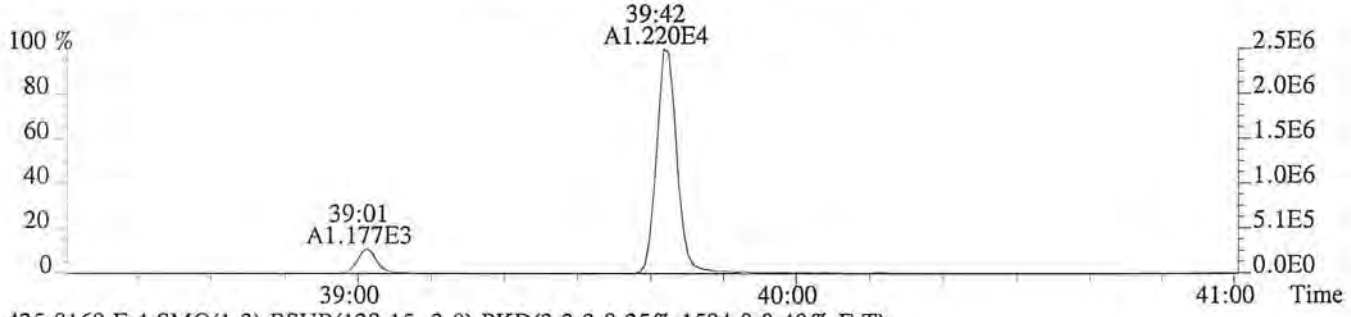
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



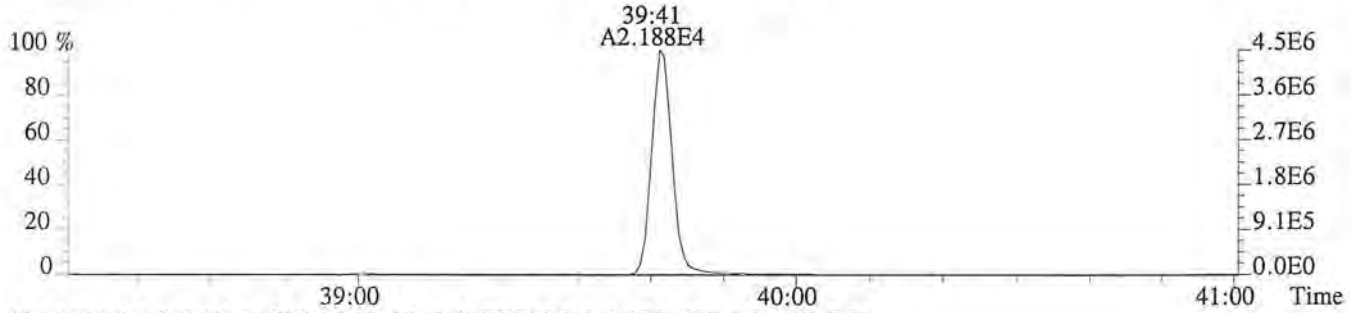
File:P301089 #1-241 Acq:29-AUG-2015 01:53:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1256.0,0.40%,F,T)



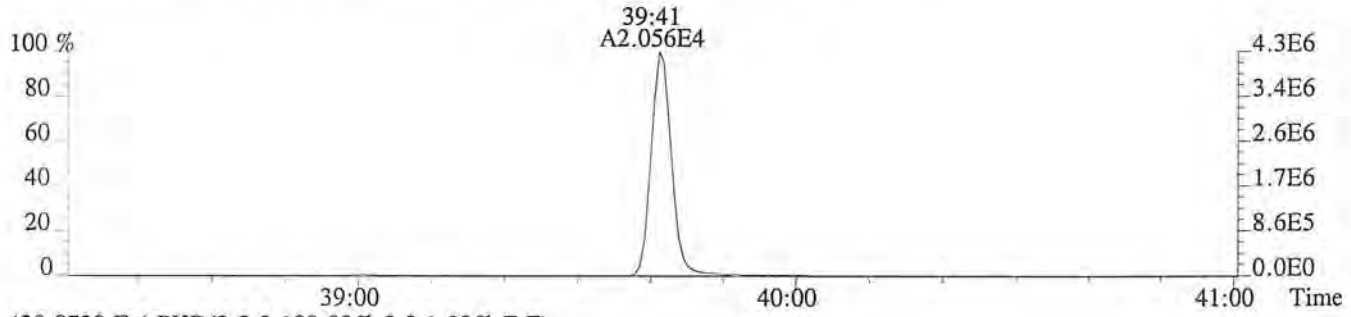
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



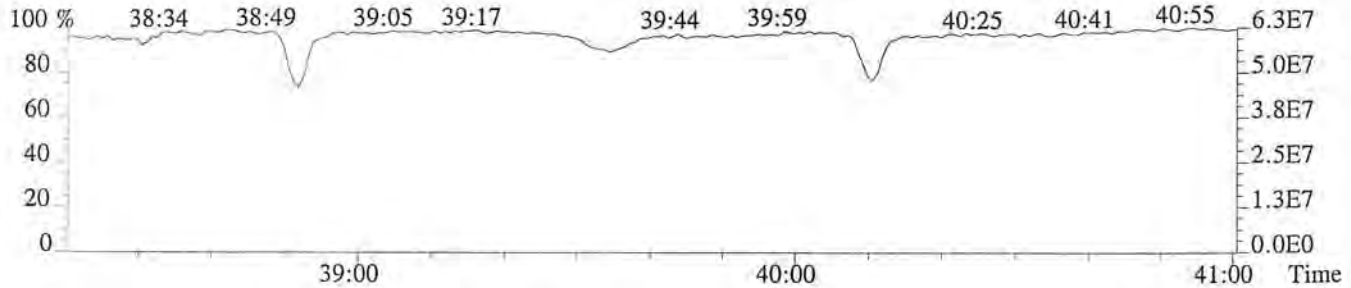
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1584.0,0.40%,F,T)



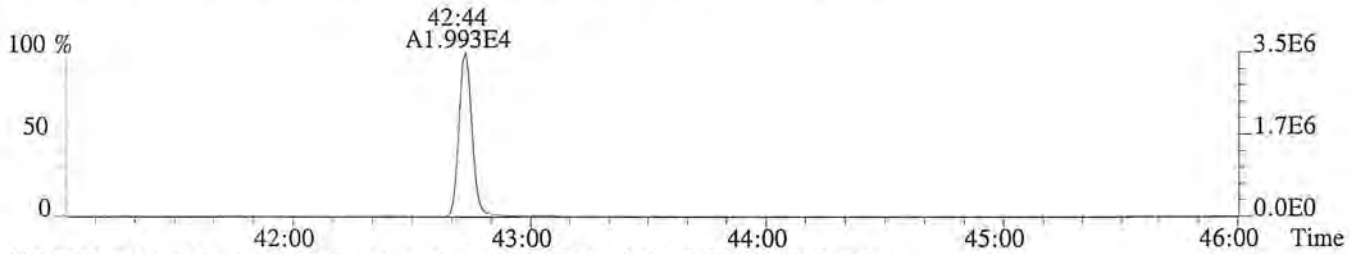
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



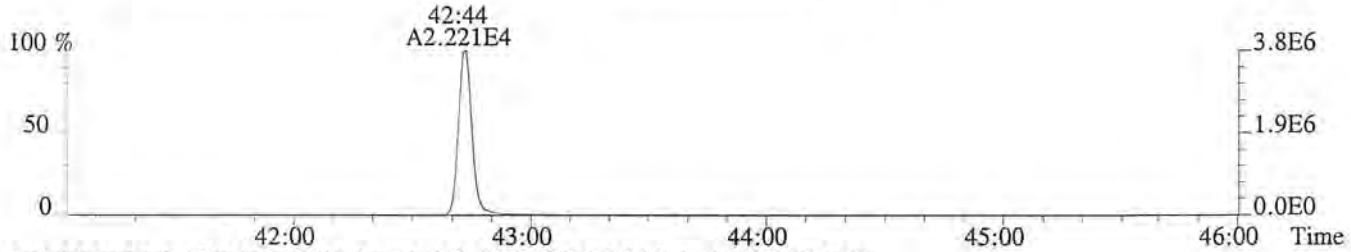
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



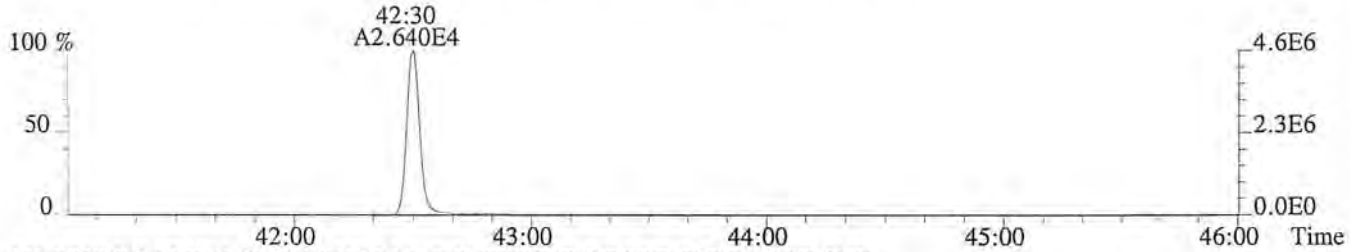
File:P301089 #1-447 Acq:29-AUG-2015 01:53:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,992.0,0.40%,F,T)



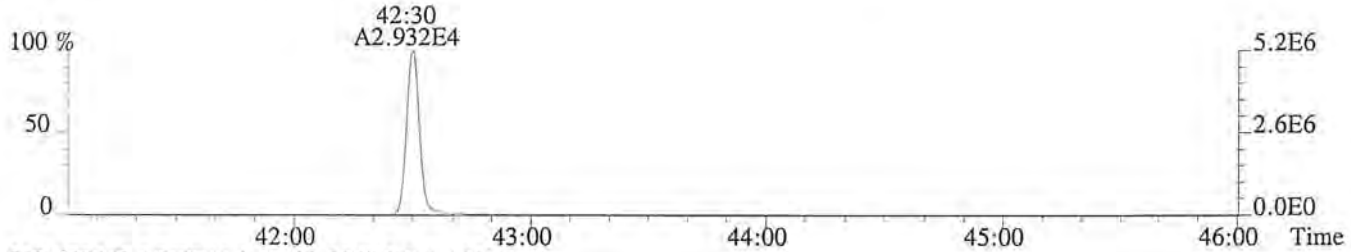
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2072.0,0.40%,F,T)



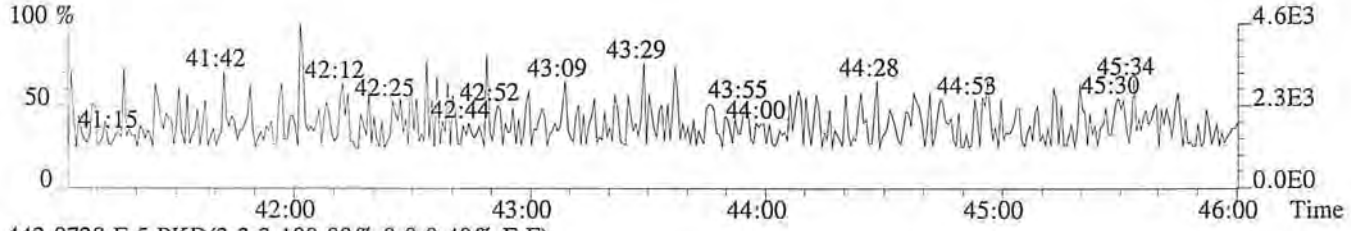
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,744.0,0.40%,F,T)



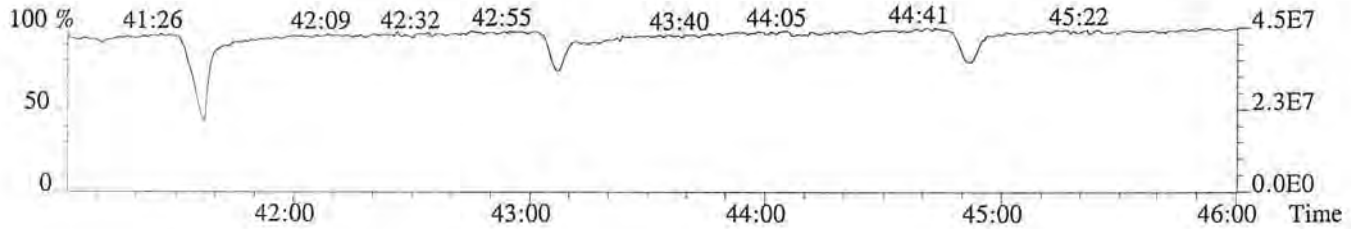
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,828.0,0.40%,F,T)



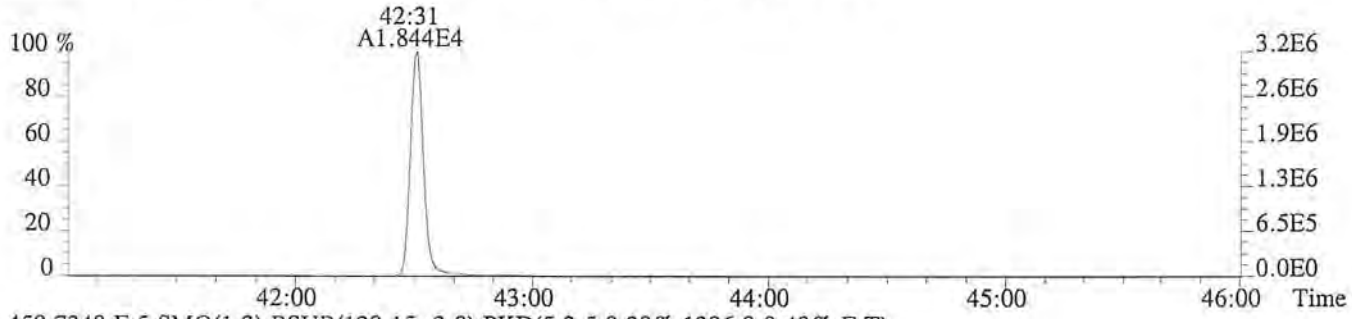
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



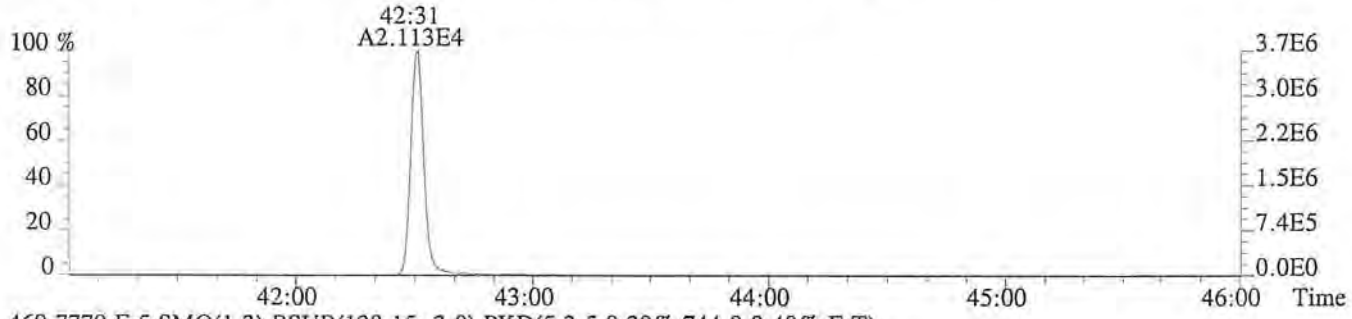
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



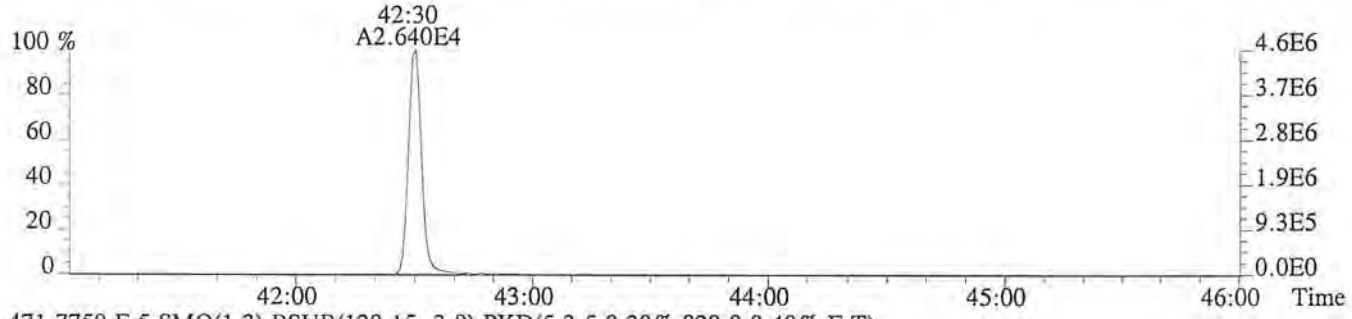
File:P301089 #1-447 Acq:29-AUG-2015 01:53:31 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1500484-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,892.0,0.40%,F,T)



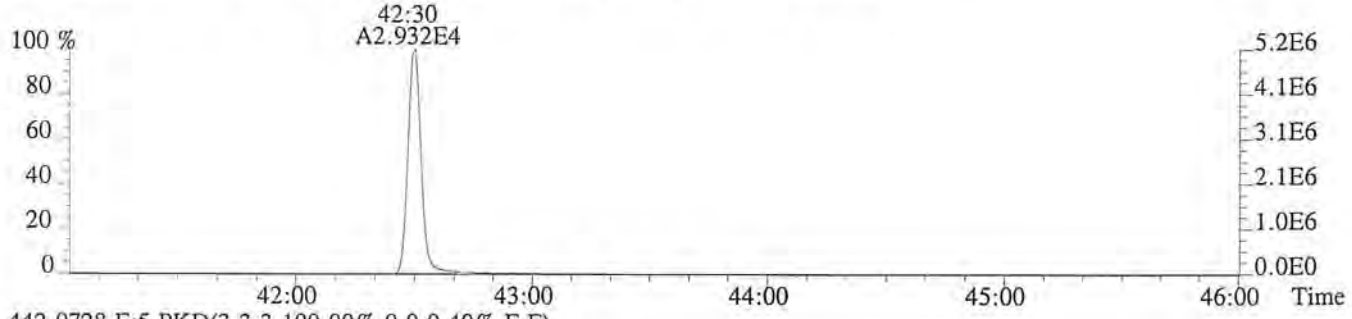
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1396.0,0.40%,F,T)



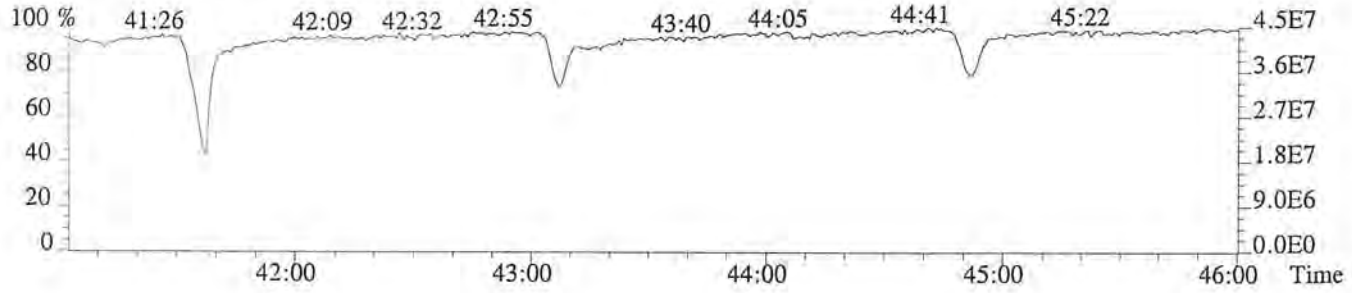
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,744.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,828.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P301038

Circle one: Beginning / Ending

Date: 08/26/15

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DBC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: ALS-TX Case No.: SDG No.:

GC column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-05

Init. Calib. Date: 08/21/15

Init. Calib.Times: 09:55

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
74489	WINDOW DEFINE	P301037	26-AUG-15	14:14:57
79857	CS3	P301038	26-AUG-15	15:16:43
METHOD BLANK	EQ1500488-01	P301039	26-AUG-15	17:42:13
SPE016TIS-10G DIOX	E1500740-002	P301040	26-AUG-15	18:29:40
PLY-12-15 MT8/GT19	E1500743-021	P301041	26-AUG-15	19:18:18
PLY-13-15 MT8/GT19	E1500743-022	P301042	26-AUG-15	20:06:56
PLY-13-15 MT8/GT19	E1500743-023	P301043	26-AUG-15	20:55:34
PLY-14-15 MT8/GT19	E1500743-024	P301044	26-AUG-15	21:44:11
PLY-01-15 SITE 1 B	E1500745-001	P301045	26-AUG-15	22:32:49
PLY-01-15 SITE 1 B	E1500745-002	P301046	26-AUG-15	23:21:25
LCS	EQ1500475-02	P301047	27-AUG-15	00:10:03
LCS	EQ1500499-02	P301048	27-AUG-15	00:58:40
DLCS	EQ1500499-03	P301049	27-AUG-15	01:47:25

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS05.PRO\SampleDB\20150826.SPL
Last Modified: Thursday, August 27, 2015 09:31:25 Eastern Daylight Time
Printed: Thursday, August 27, 2015 09:31:35 Eastern Daylight Time

Page Position (1, 1)

OPUS-2 : P301038RES

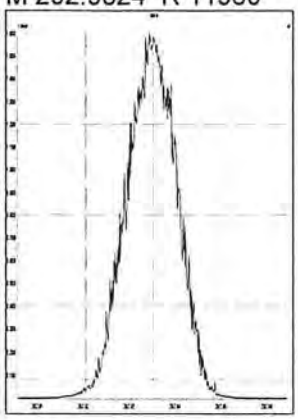
	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	08/26/15	09:14	P301035	74489	WINDOW DEFINE	Tray1:1	EPA1613_ALS	Dioxin_ALS	LL	HRMS check 09:10
2		10:02	P301036	79857	CS3	Tray1:2	EPA1613_ALS	Dioxin_ALS		
3		14:14	P301037	74489	WINDOW DEFINE	Tray1:3	EPA1613_ALS	Dioxin_ALS		HRMS check 13:51
4		15:16	P301038	79857	CS3	Tray1:4	EPA1613_ALS	Dioxin_ALS		
5		17:42	P301039	EQ1500488-01	MB	Tray1:5	EPA1613_ALS	Dioxin_ALS		HRMS check 17:37
6		18:29	P301040	E1500740-002	E1500740-002	Tray1:6	EPA1613_ALS	Dioxin_ALS		
7		19:18	P301041	E1500743-021	E1500743-021	Tray1:7	EPA1613_ALS	Dioxin_ALS		
8		20:06	P301042	E1500743-022	E1500743-022	Tray1:8	EPA1613_ALS	Dioxin_ALS		
9		20:55	P301043	E1500743-023	E1500743-023	Tray1:9	EPA1613_ALS	Dioxin_ALS		
10		21:44	P301044	E1500743-024	E1500743-024	Tray1:10	EPA1613_ALS	Dioxin_ALS		
11		22:32	P301045	E1500745-001	E1500745-001	Tray1:11	EPA1613_ALS	Dioxin_ALS		
12		23:21	P301046	E1500745-002	E1500745-002	Tray1:12	EPA1613_ALS	Dioxin_ALS		
13	08/27/15	00:10	P301047	EQ1500475-02	EQ1500475-02	Tray1:13	EPA1613_ALS	Dioxin_ALS		
14		00:58	P301048	EQ1500499-02	EQ1500499-02	Tray1:14	EPA1613_ALS	Dioxin_ALS		
15		01:47	P301049	EQ1500499-03	EQ1500499-03	Tray1:15	EPA1613_ALS	Dioxin_ALS		HRMS check 14:17
16			---	---	---	Tray1:16	EPA1613_ALS	Dioxin_ALS		---
17			---	---	---	Tray1:17	EPA1613_ALS	Dioxin_ALS		
18			---	---	---	Tray1:18	EPA1613_ALS	Dioxin_ALS		---
19			---	---	---	Tray1:19	EPA1613_ALS	Dioxin_ALS		
20	---	---	---	---	---	Tray1:20	EPA1613_ALS	Dioxin_ALS	---	---
21	---	---	---	---	---	Tray1:21	EPA1613_ALS	Dioxin_ALS	---	---
22	---	---	---	---	---	Tray1:22	EPA1613_ALS	Dioxin_ALS	---	---
23	---	---	---	---	---	Tray1:23	EPA1613_ALS	Dioxin_ALS	---	---
24	---	---	---	---	---	Tray1:24	EPA1613_ALS	Dioxin_ALS	---	---
25	---	---	---	---	---	Tray1:25	EPA1613_ALS	Dioxin_ALS	---	---
26	---	---	---	---	---	Tray1:26	EPA1613_ALS	Dioxin_ALS	---	---
27	---	---	---	---	---	Tray1:27	EPA1613_ALS	Dioxin_ALS	---	---
28	---	---	---	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
29	---	---	---	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
30	---	---	---	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
31	---	---	---	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
32	---	---	---	---	---	Tray1:32	EPA1613_ALS	Dioxin_ALS	---	---
33	---	---	---	---	---	Tray1:33	EPA1613_ALS	Dioxin_ALS	---	---
34	---	---	---	---	---	Tray1:34	EPA1613_ALS	Dioxin_ALS	---	---
35	---	---	---	---	---	Tray1:35	EPA1613_ALS	Dioxin_ALS	---	---
36	---	---	---	---	TC 08/27/15	Tray1:36	EPA1613_ALS	Dioxin_ALS	---	---
37	---	---	---	---	---	Tray1:37	EPA1613_ALS	Dioxin_ALS	---	---
38	---	---	---	---	---	Tray1:38	EPA1613_ALS	Dioxin_ALS	---	---
39	---	---	---	---	---	Tray1:39	EPA1613_ALS	Dioxin_ALS	---	---

083

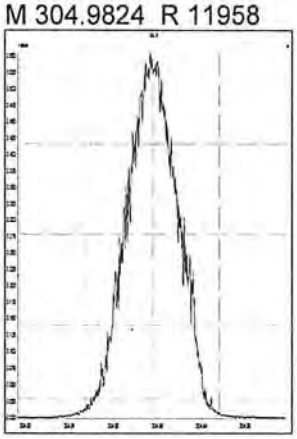
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, August 26, 2015 09:10:12 Central Daylight Time

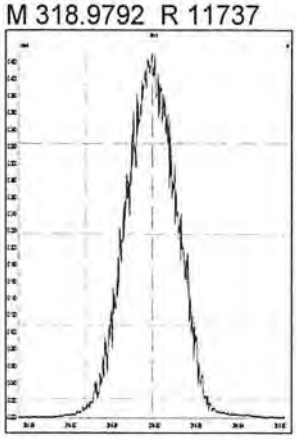
M 292.9824 R 11960



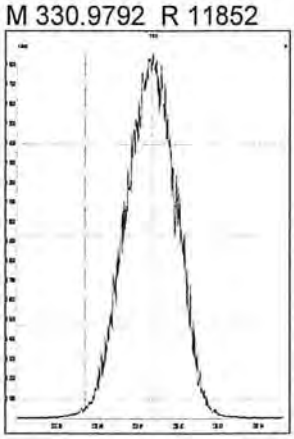
M 304.9824 R 11958



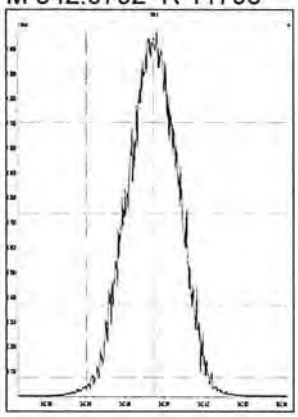
M 318.9792 R 11737



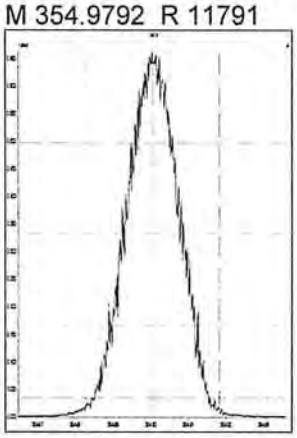
M 330.9792 R 11852



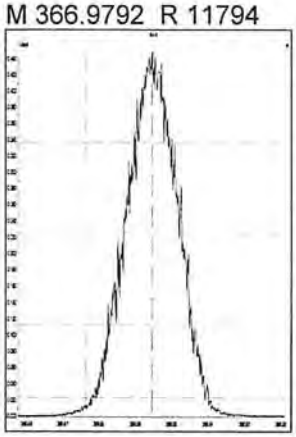
M 342.9792 R 11793



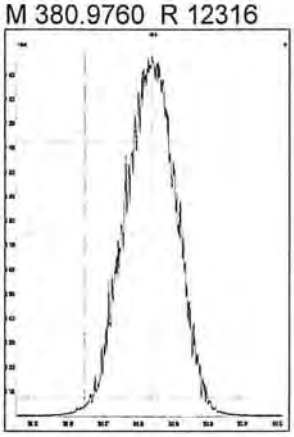
M 354.9792 R 11791



M 366.9792 R 11794



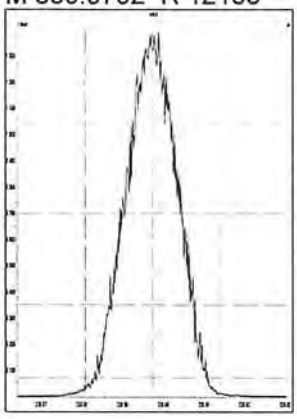
M 380.9760 R 12316



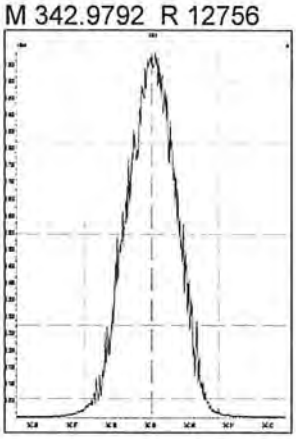
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, August 26, 2015 09:11:04 Central Daylight Time

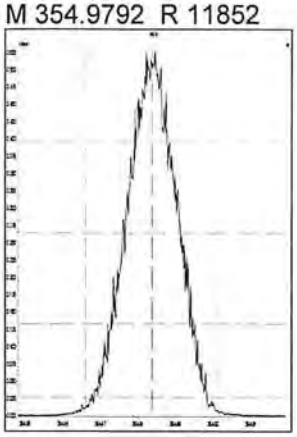
M 330.9792 R 12133



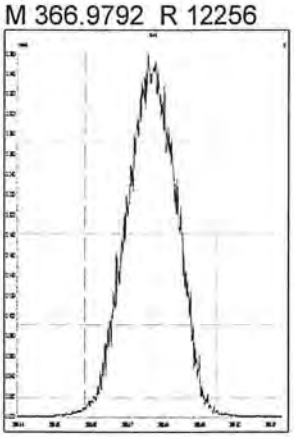
M 342.9792 R 12756



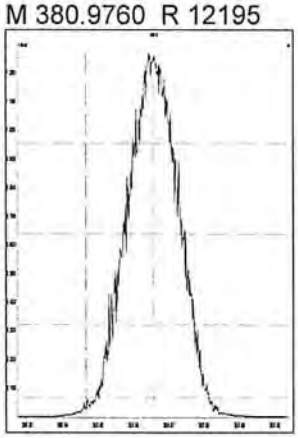
M 354.9792 R 11852



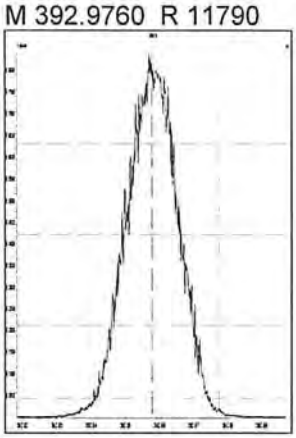
M 366.9792 R 12256



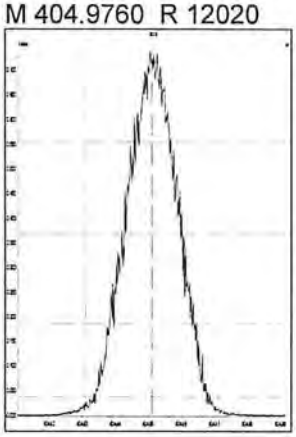
M 380.9760 R 12195



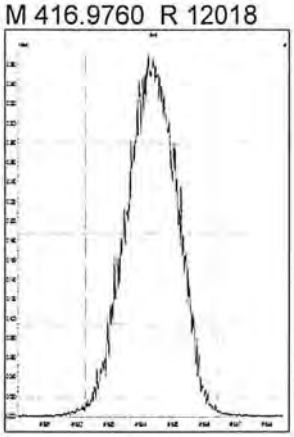
M 392.9760 R 11790



M 404.9760 R 12020



M 416.9760 R 12018

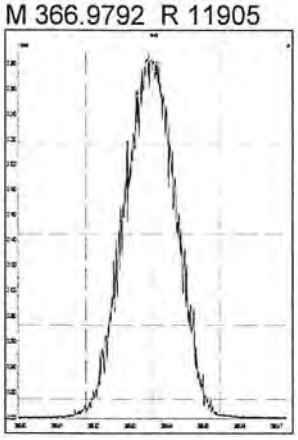


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

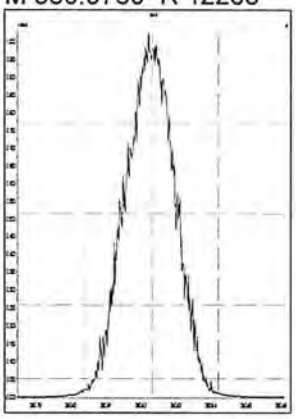
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, August 26, 2015 09:12:09 Central Daylight Time

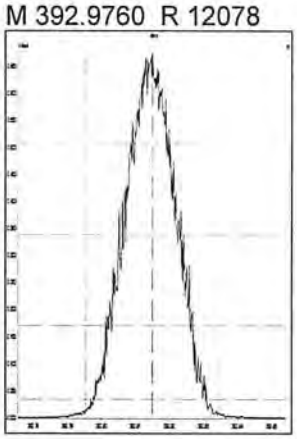
M 366.9792 R 11905



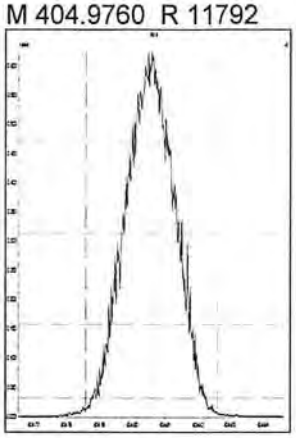
M 380.9760 R 12253



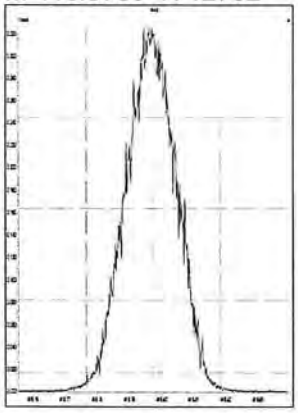
M 392.9760 R 12078



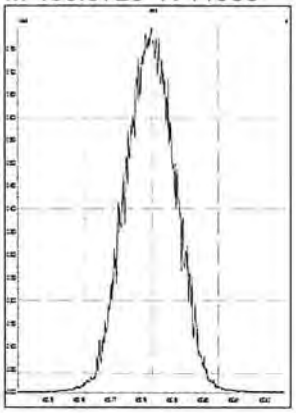
M 404.9760 R 11792



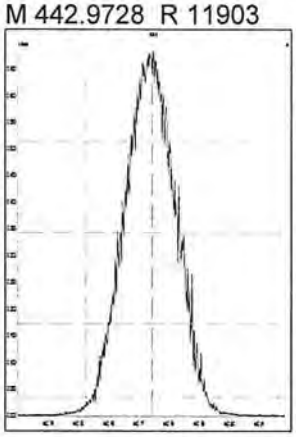
M 416.9760 R 12752



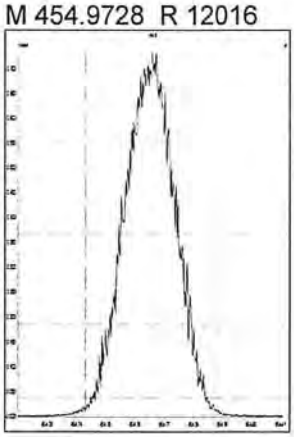
M 430.9728 R 11958



M 442.9728 R 11903



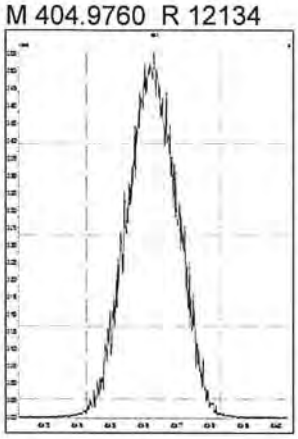
M 454.9728 R 12016



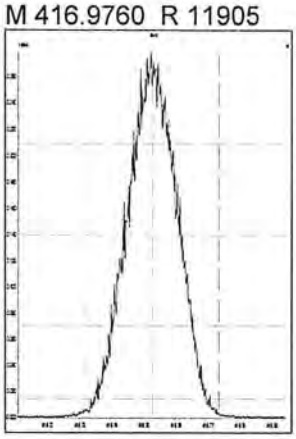
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, August 26, 2015 09:12:45 Central Daylight Time

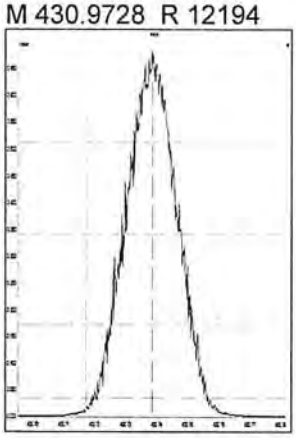
M 404.9760 R 12134



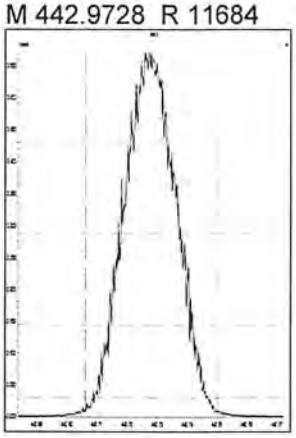
M 416.9760 R 11905



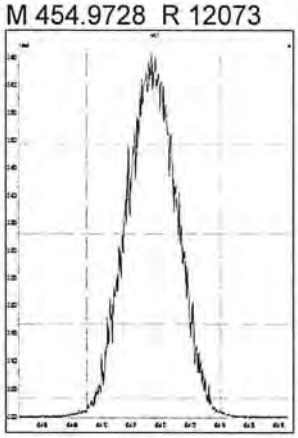
M 430.9728 R 12194



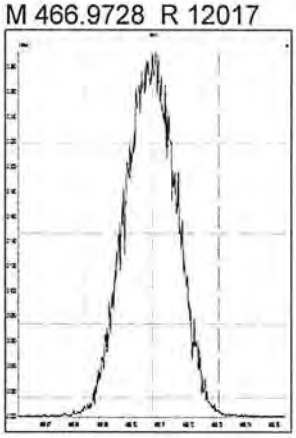
M 442.9728 R 11684



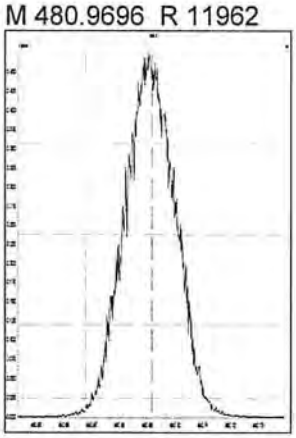
M 454.9728 R 12073



M 466.9728 R 12017



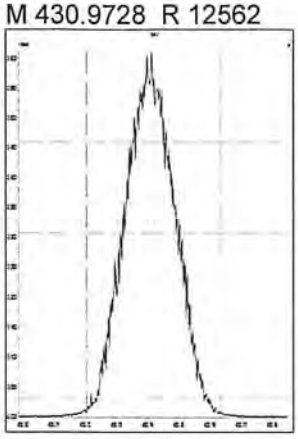
M 480.9696 R 11962



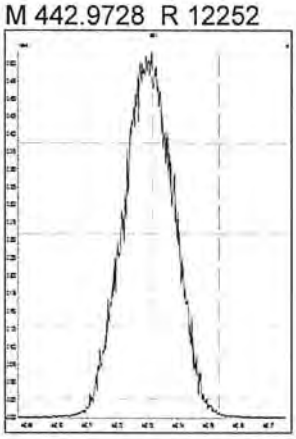
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, August 26, 2015 09:13:23 Central Daylight Time

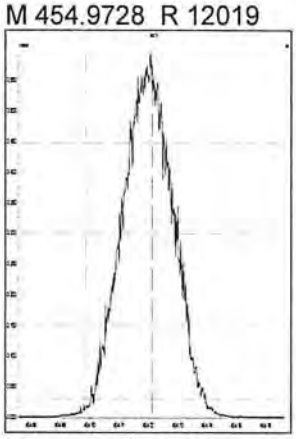
M 430.9728 R 12562



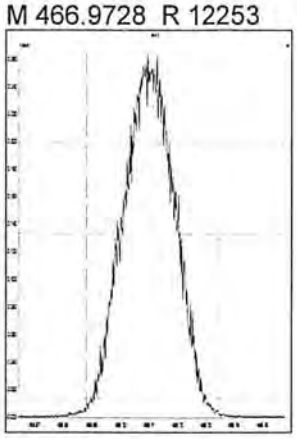
M 442.9728 R 12252



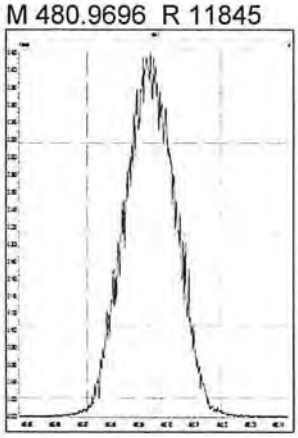
M 454.9728 R 12019



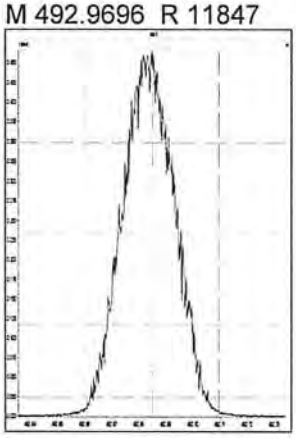
M 466.9728 R 12253



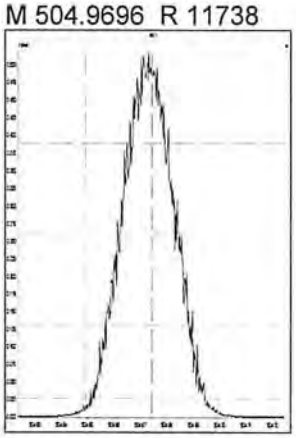
M 480.9696 R 11845



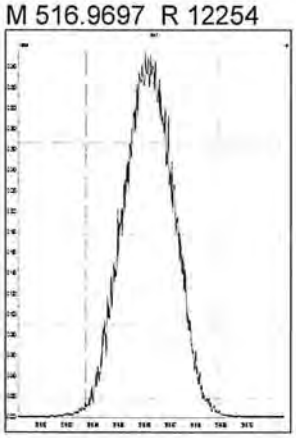
M 492.9696 R 11847



M 504.9696 R 11738



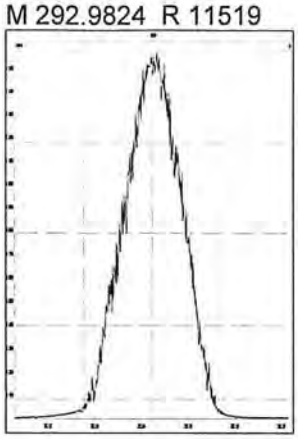
M 516.9697 R 12254



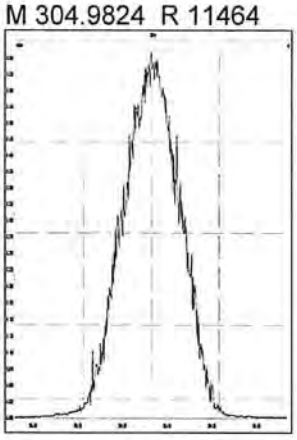
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, August 26, 2015 13:51:33 Eastern Daylight Time

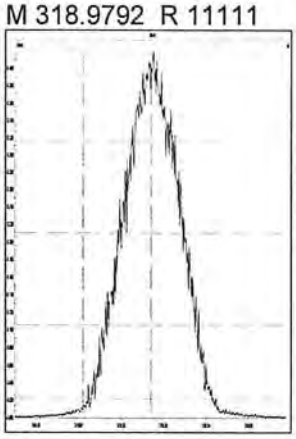
M 292.9824 R 11519



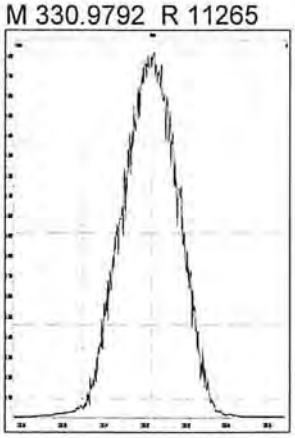
M 304.9824 R 11464



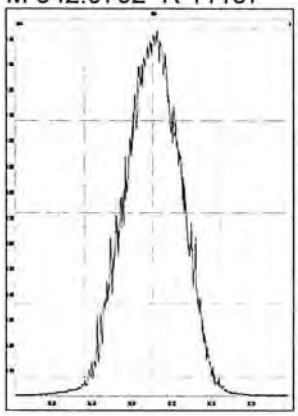
M 318.9792 R 11111



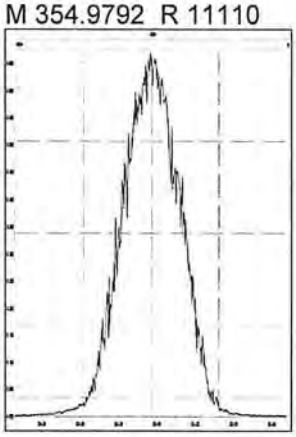
M 330.9792 R 11265



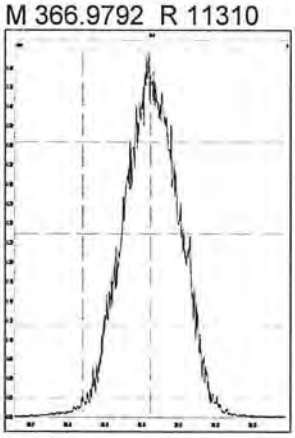
M 342.9792 R 11157



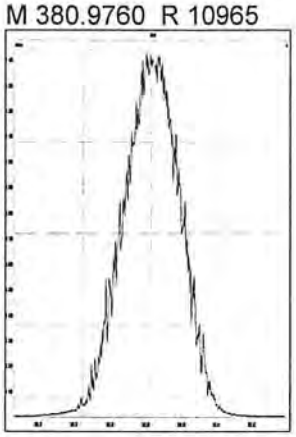
M 354.9792 R 11110



M 366.9792 R 11310



M 380.9760 R 10965

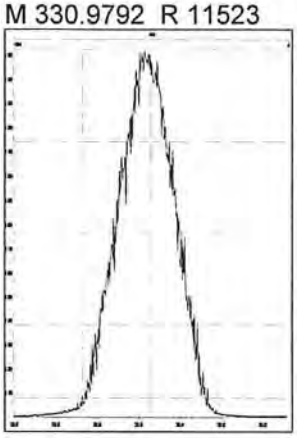


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

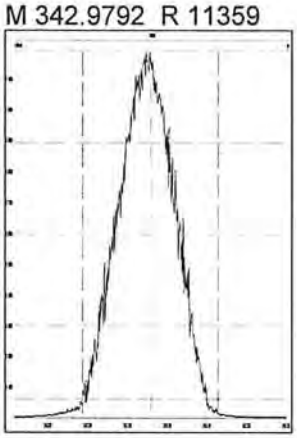
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, August 26, 2015 13:52:04 Eastern Daylight Time

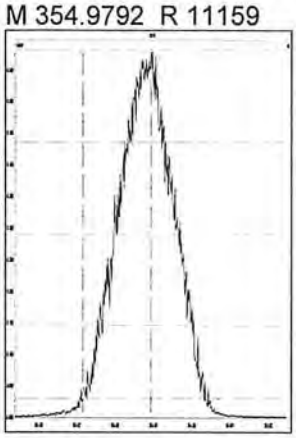
M 330.9792 R 11523



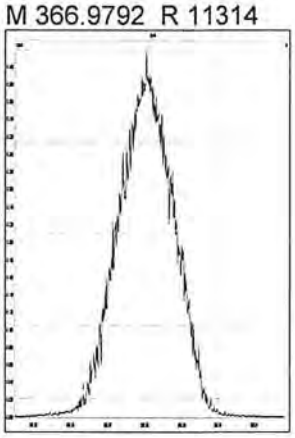
M 342.9792 R 11359



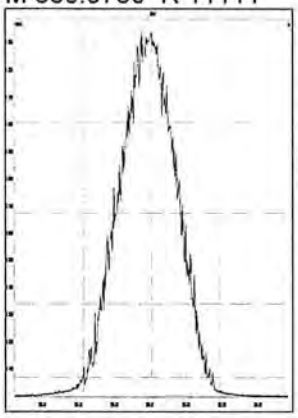
M 354.9792 R 11159



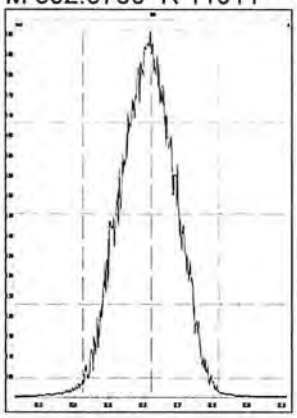
M 366.9792 R 11314



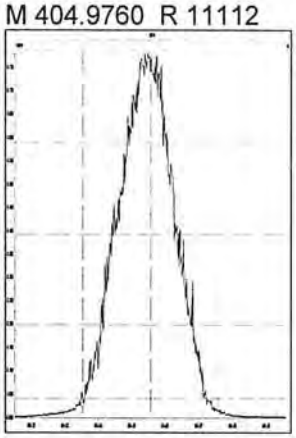
M 380.9760 R 11111



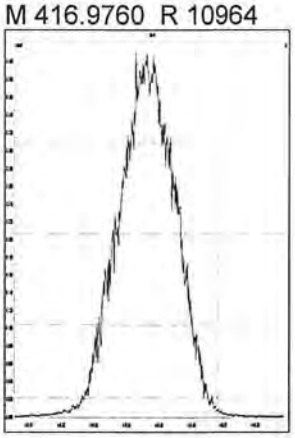
M 392.9760 R 11011



M 404.9760 R 11112



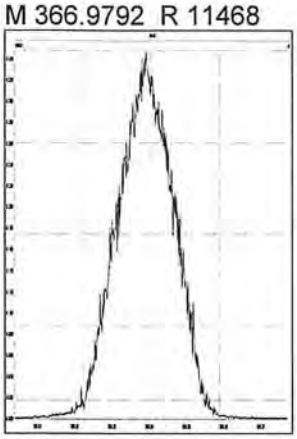
M 416.9760 R 10964



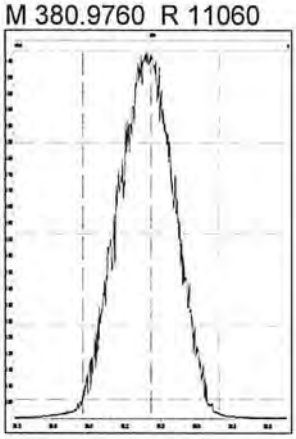
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, August 26, 2015 13:52:27 Eastern Daylight Time

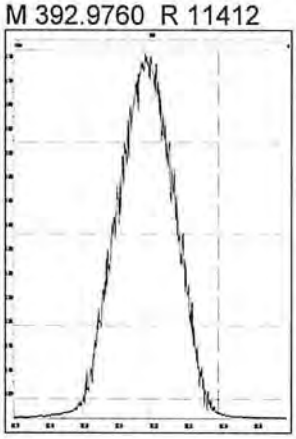
M 366.9792 R 11468



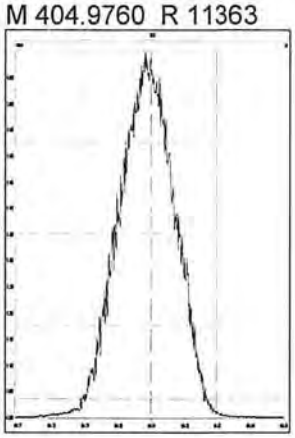
M 380.9760 R 11060



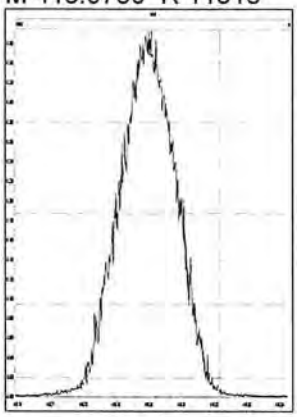
M 392.9760 R 11412



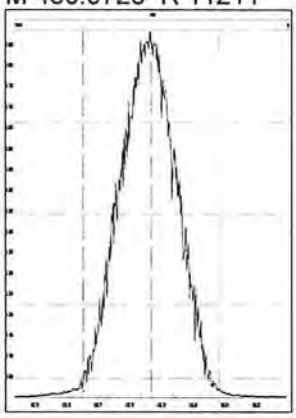
M 404.9760 R 11363



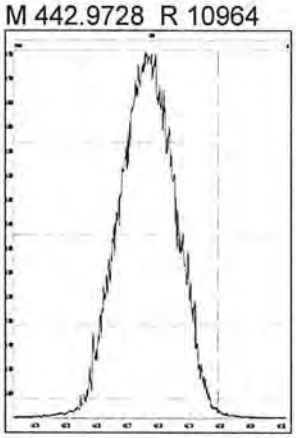
M 416.9760 R 11518



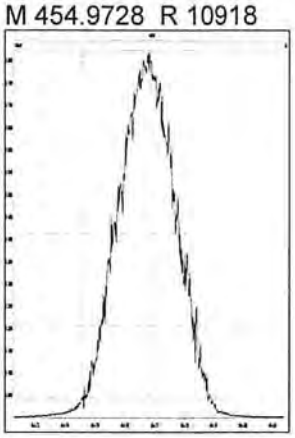
M 430.9728 R 11211



M 442.9728 R 10964



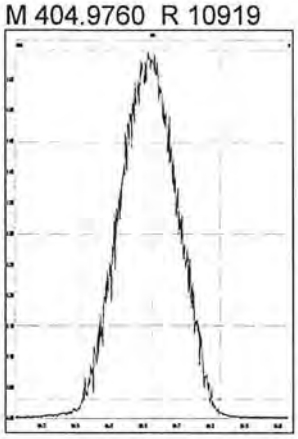
M 454.9728 R 10918



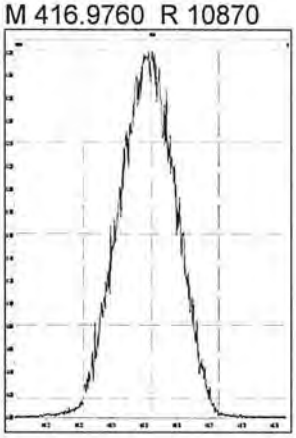
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, August 26, 2015 13:54:01 Eastern Daylight Time

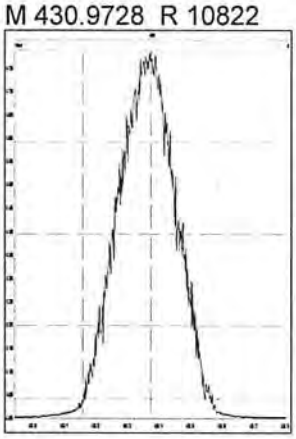
M 404.9760 R 10919



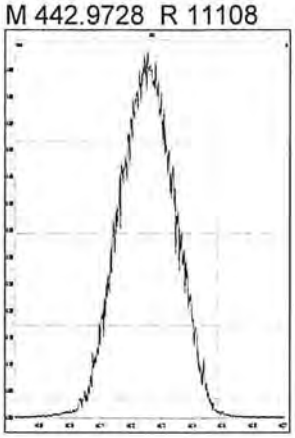
M 416.9760 R 10870



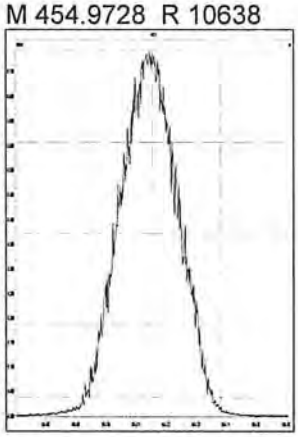
M 430.9728 R 10822



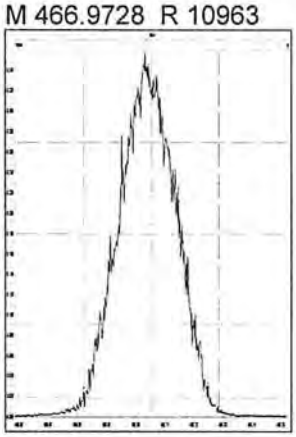
M 442.9728 R 11108



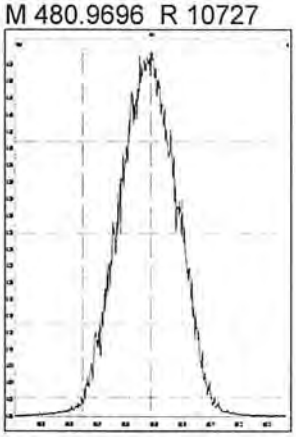
M 454.9728 R 10638



M 466.9728 R 10963



M 480.9696 R 10727

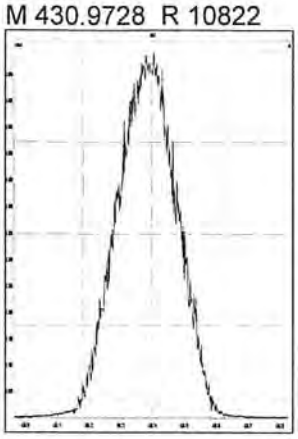


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

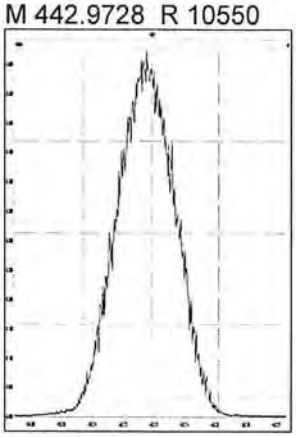
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, August 26, 2015 13:54:27 Eastern Daylight Time

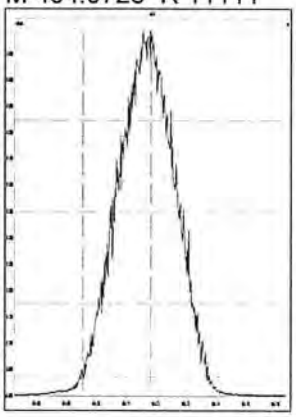
M 430.9728 R 10822



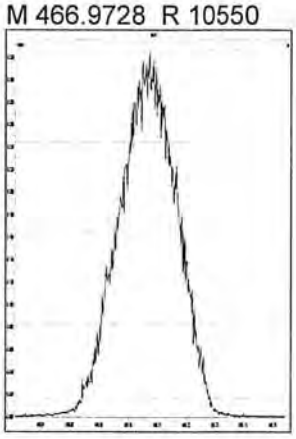
M 442.9728 R 10550



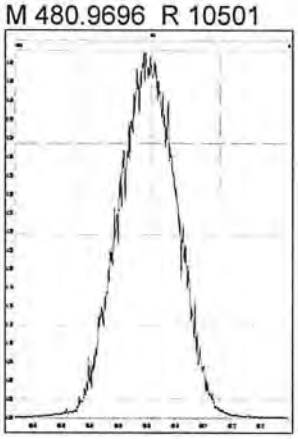
M 454.9728 R 11111



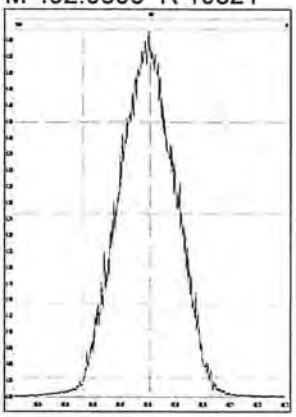
M 466.9728 R 10550



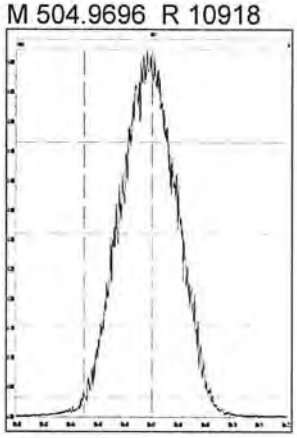
M 480.9696 R 10501



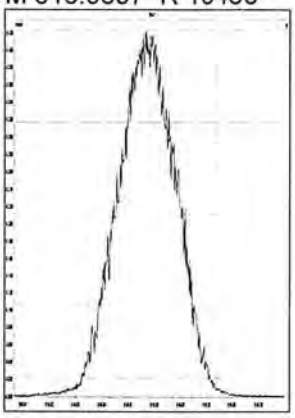
M 492.9696 R 10821



M 504.9696 R 10918



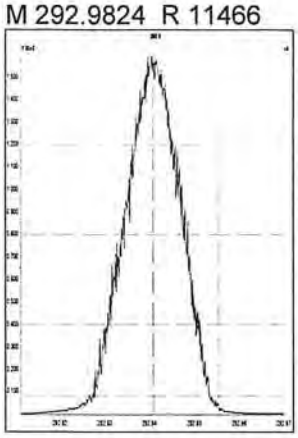
M 516.9697 R 10460



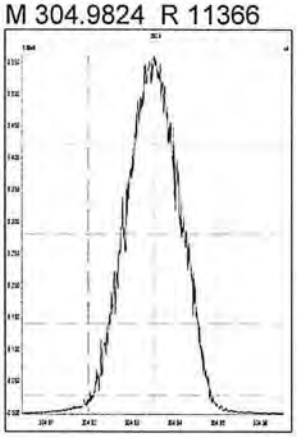
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, August 26, 2015 17:37:28 Eastern Daylight Time

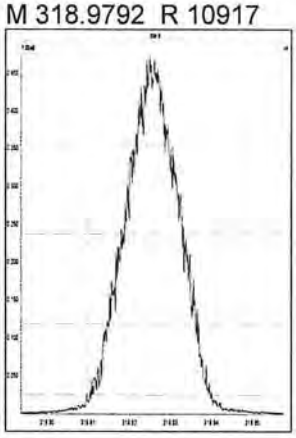
M 292.9824 R 11466



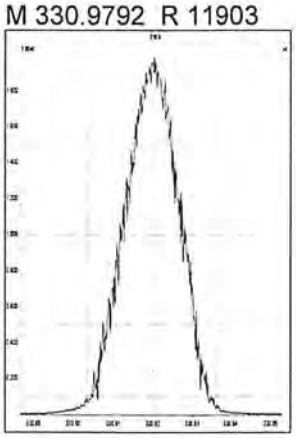
M 304.9824 R 11366



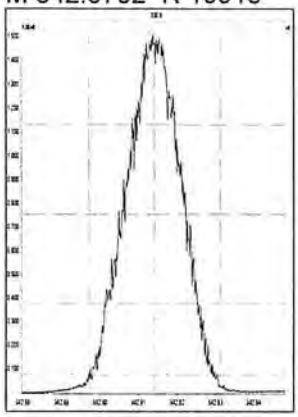
M 318.9792 R 10917



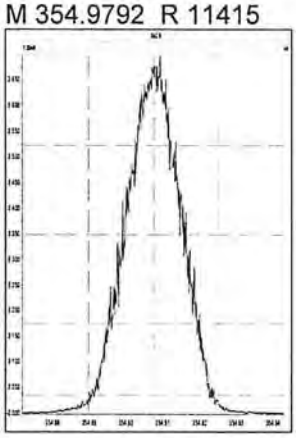
M 330.9792 R 11903



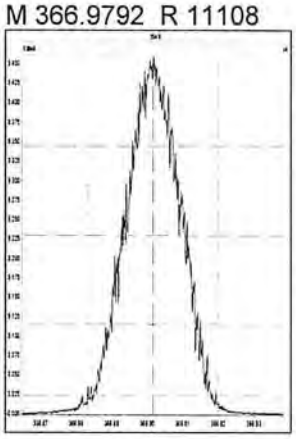
M 342.9792 R 10918



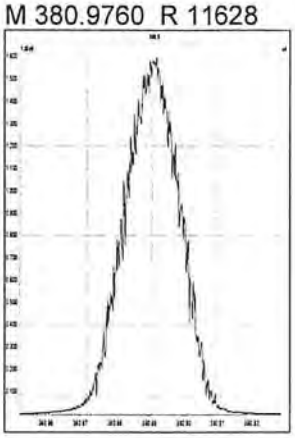
M 354.9792 R 11415



M 366.9792 R 11108



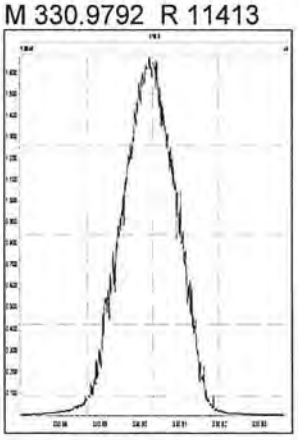
M 380.9760 R 11628



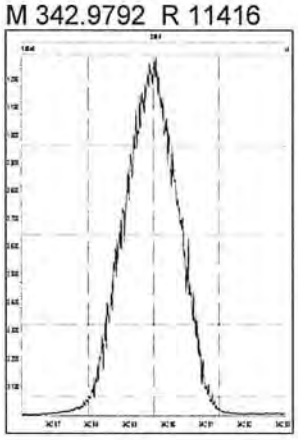
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, August 26, 2015 17:38:12 Eastern Daylight Time

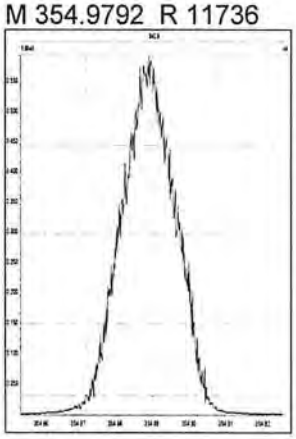
M 330.9792 R 11413



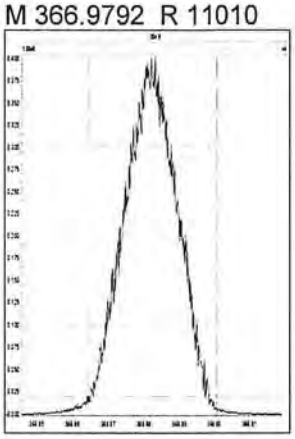
M 342.9792 R 11416



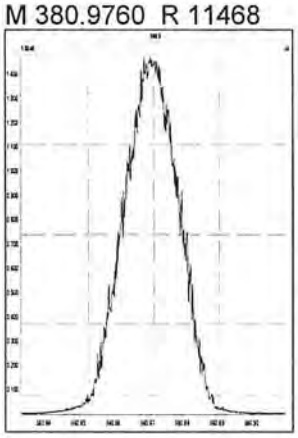
M 354.9792 R 11736



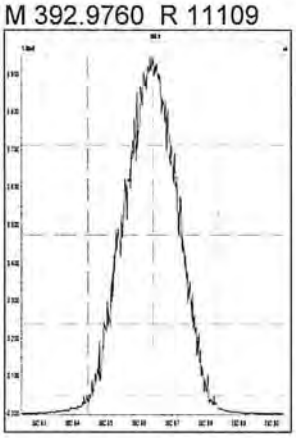
M 366.9792 R 11010



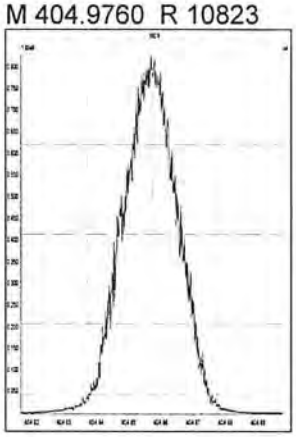
M 380.9760 R 11468



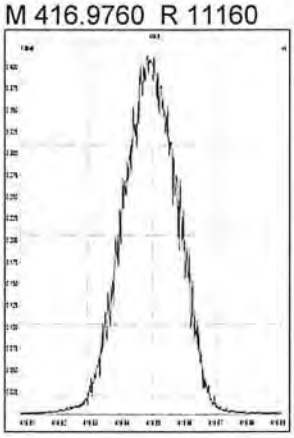
M 392.9760 R 11109



M 404.9760 R 10823



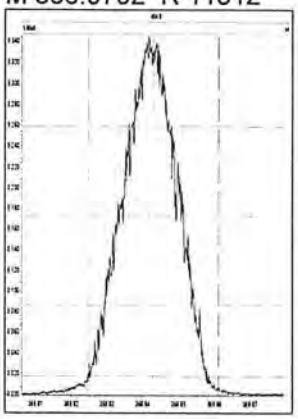
M 416.9760 R 11160



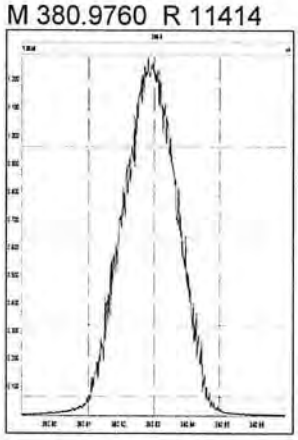
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, August 26, 2015 17:38:47 Eastern Daylight Time

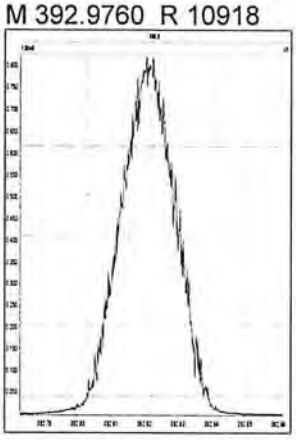
M 366.9792 R 11312



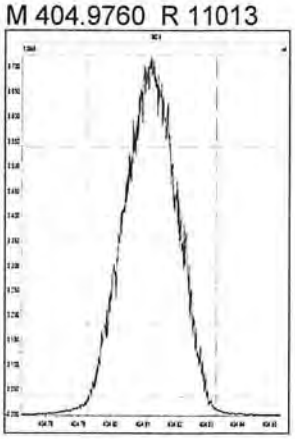
M 380.9760 R 11414



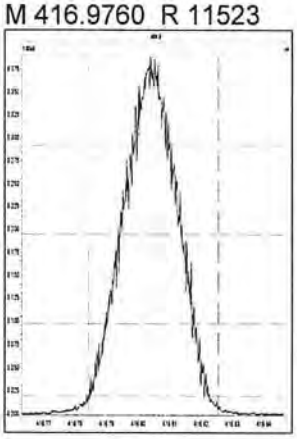
M 392.9760 R 10918



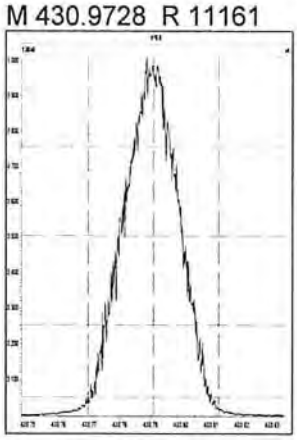
M 404.9760 R 11013



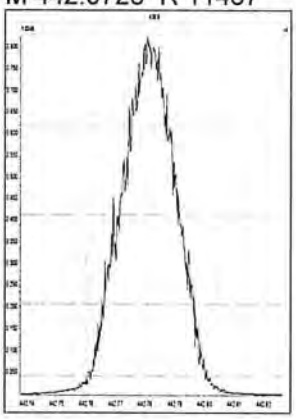
M 416.9760 R 11523



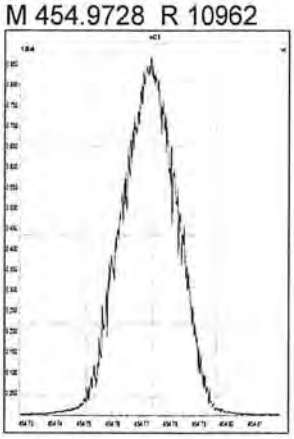
M 430.9728 R 11161



M 442.9728 R 11467



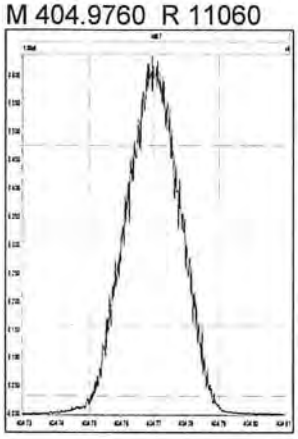
M 454.9728 R 10962



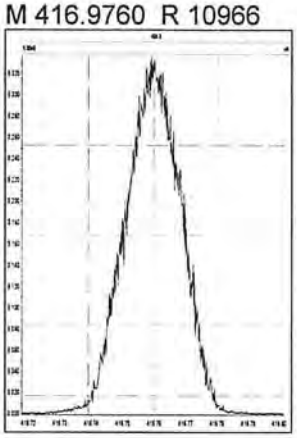
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, August 26, 2015 17:39:46 Eastern Daylight Time

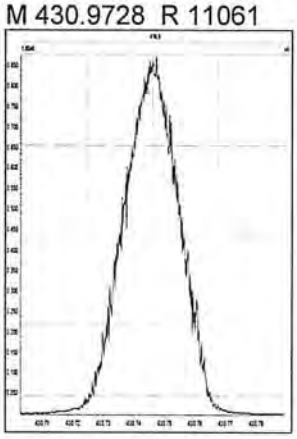
M 404.9760 R 11060



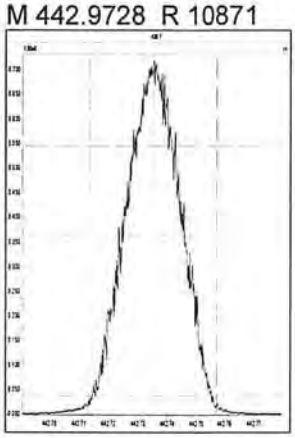
M 416.9760 R 10966



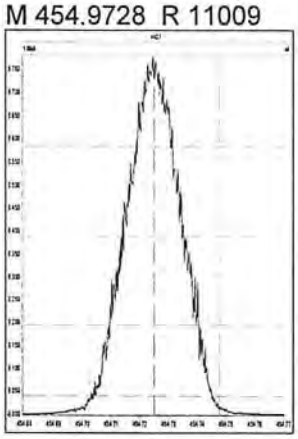
M 430.9728 R 11061



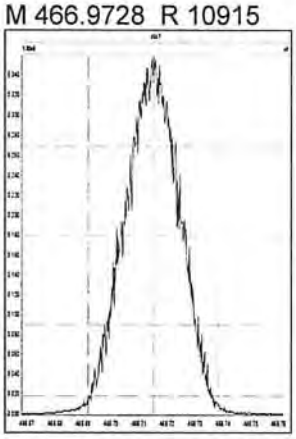
M 442.9728 R 10871



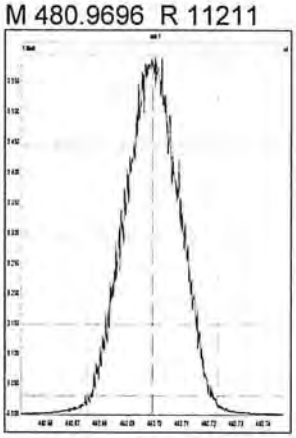
M 454.9728 R 11009



M 466.9728 R 10915



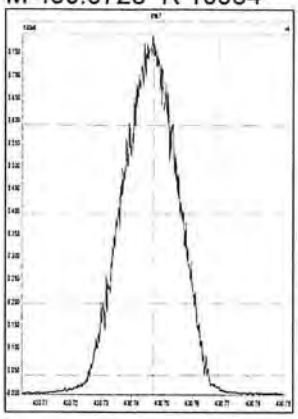
M 480.9696 R 11211



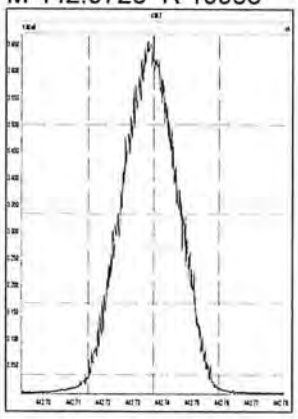
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, August 26, 2015 17:40:28 Eastern Daylight Time

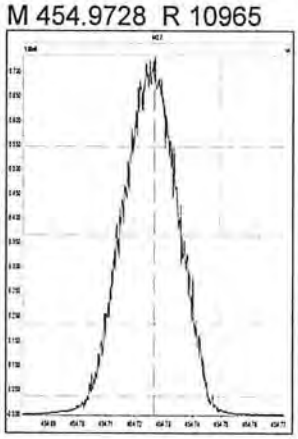
M 430.9728 R 10964



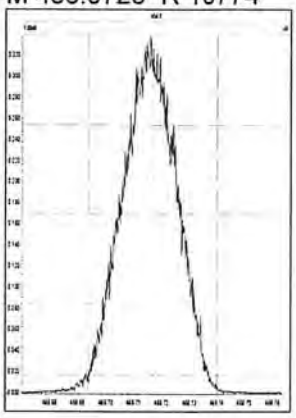
M 442.9728 R 10963



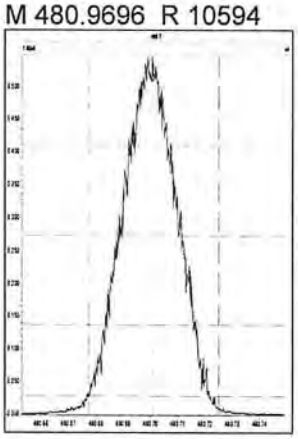
M 454.9728 R 10965



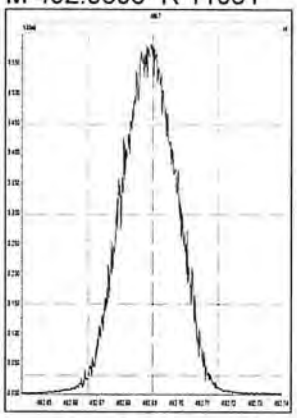
M 466.9728 R 10774



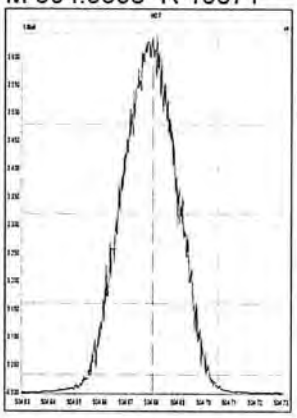
M 480.9696 R 10594



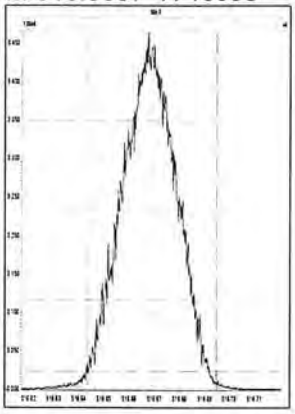
M 492.9696 R 11061



M 504.9696 R 10871



M 516.9697 R 10593

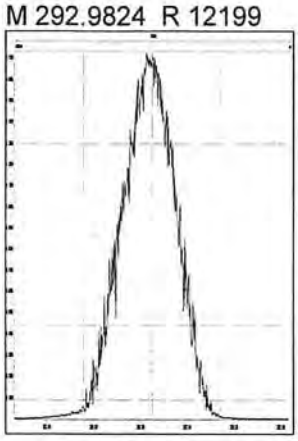


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

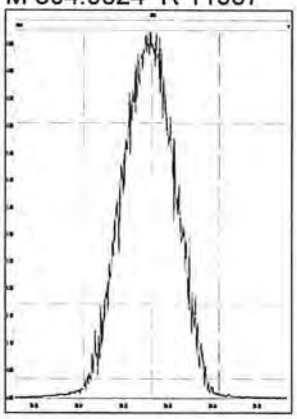
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, August 27, 2015 14:17:55 Eastern Daylight Time

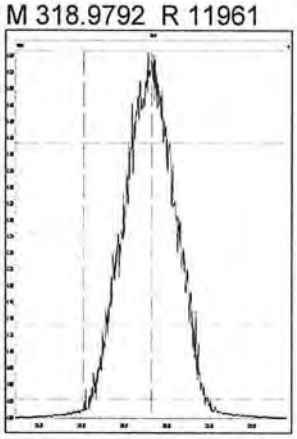
M 292.9824 R 12199



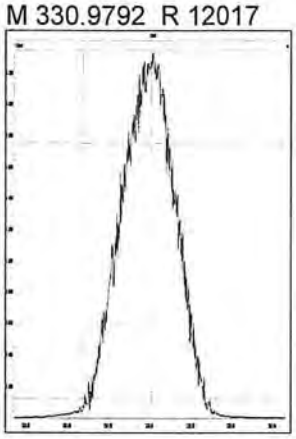
M 304.9824 R 11957



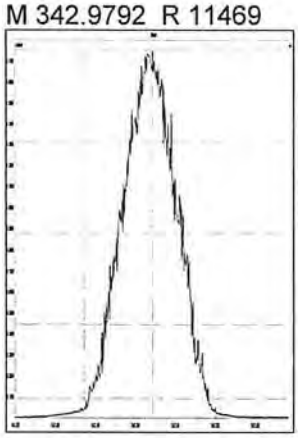
M 318.9792 R 11961



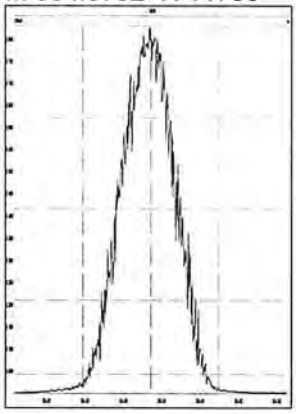
M 330.9792 R 12017



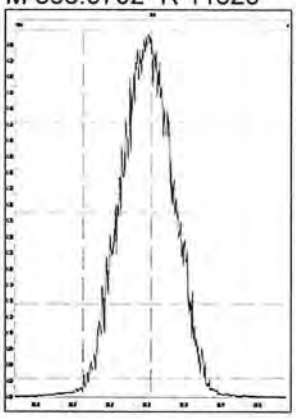
M 342.9792 R 11469



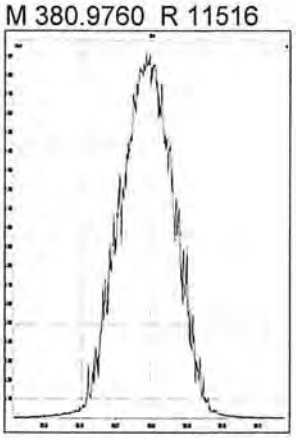
M 354.9792 R 11736



M 366.9792 R 11625



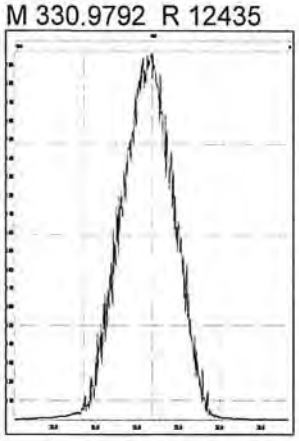
M 380.9760 R 11516



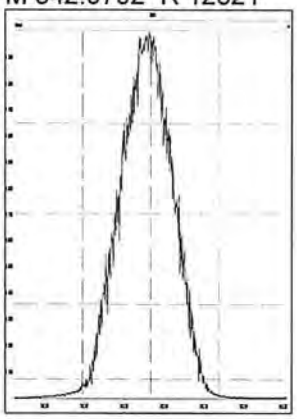
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, August 27, 2015 14:18:22 Eastern Daylight Time

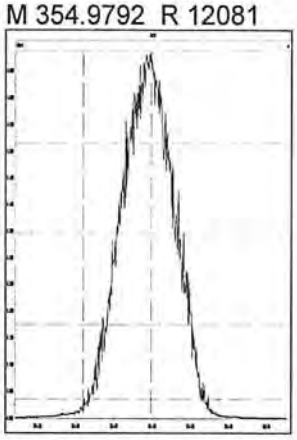
M 330.9792 R 12435



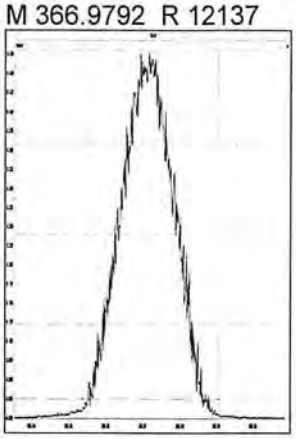
M 342.9792 R 12821



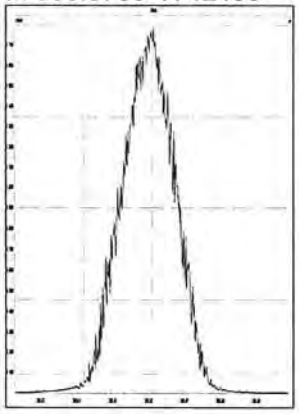
M 354.9792 R 12081



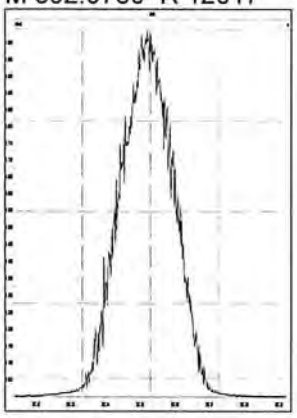
M 366.9792 R 12137



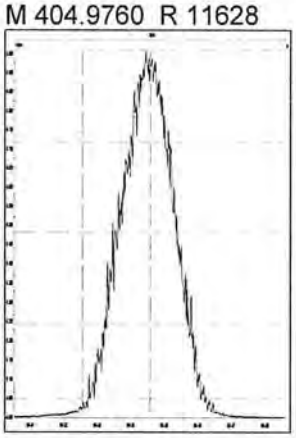
M 380.9760 R 12195



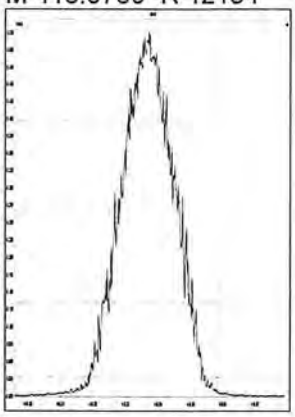
M 392.9760 R 12017



M 404.9760 R 11628



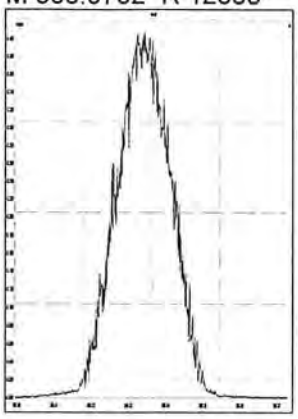
M 416.9760 R 12134



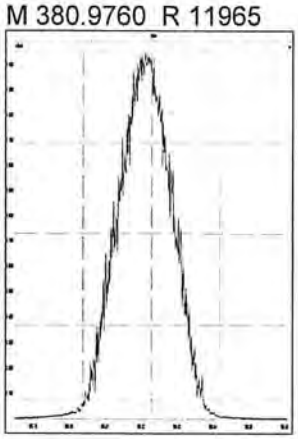
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, August 27, 2015 14:18:41 Eastern Daylight Time

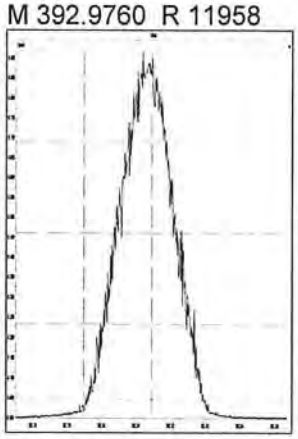
M 366.9792 R 12563



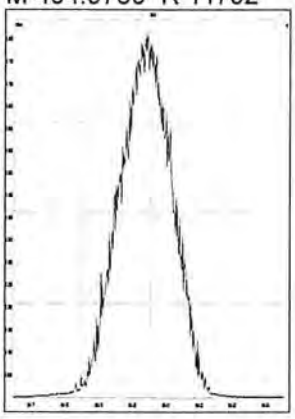
M 380.9760 R 11965



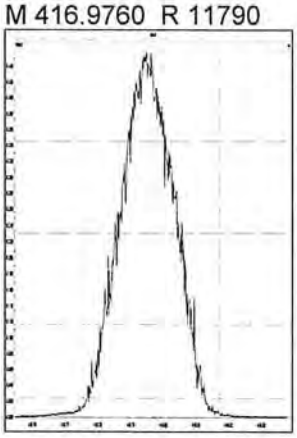
M 392.9760 R 11958



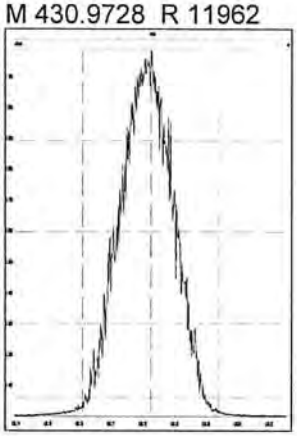
M 404.9760 R 11792



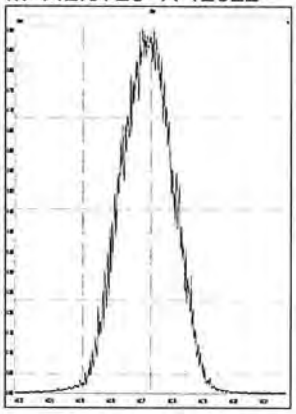
M 416.9760 R 11790



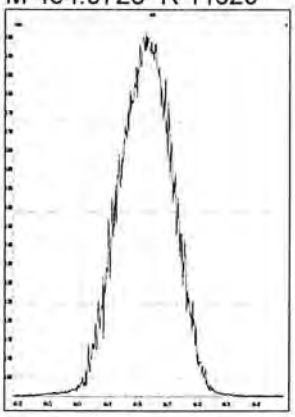
M 430.9728 R 11962



M 442.9728 R 12022



M 454.9728 R 11629

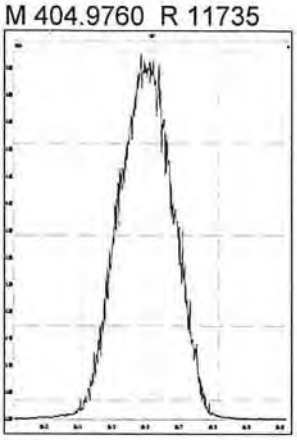


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

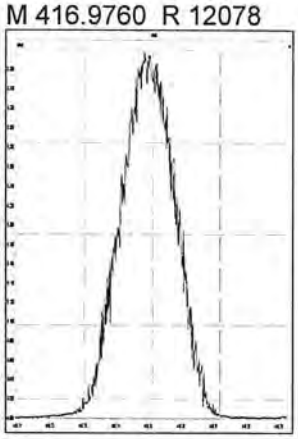
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, August 27, 2015 14:19:14 Eastern Daylight Time

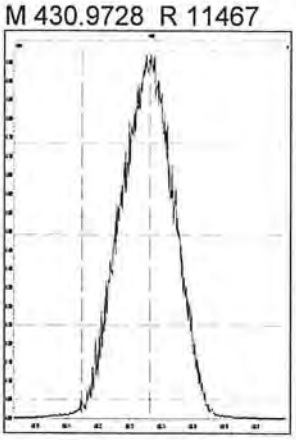
M 404.9760 R 11735



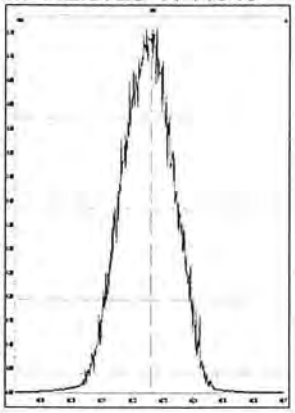
M 416.9760 R 12078



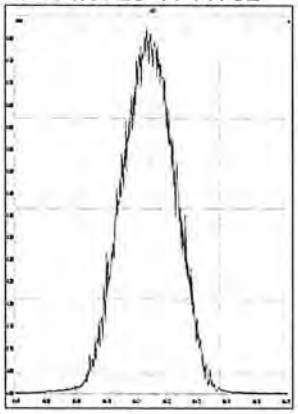
M 430.9728 R 11467



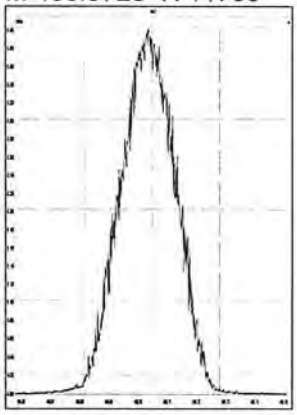
M 442.9728 R 11846



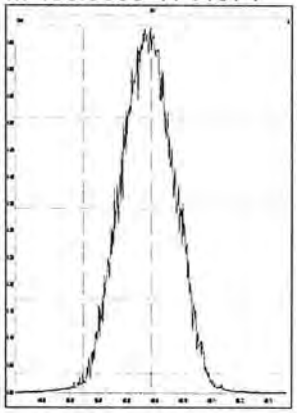
M 454.9728 R 11792



M 466.9728 R 11735



M 480.9696 R 11574

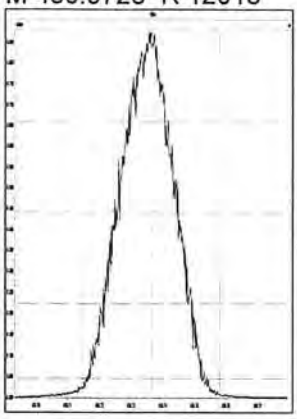


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

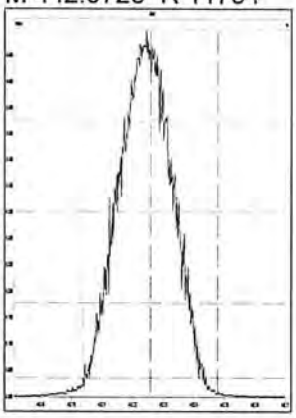
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, August 27, 2015 14:19:47 Eastern Daylight Time

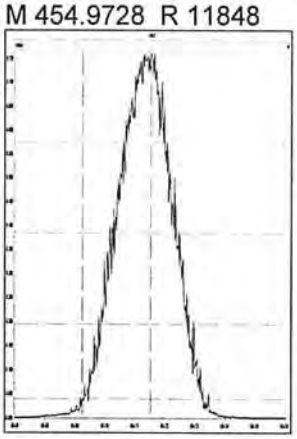
M 430.9728 R 12018



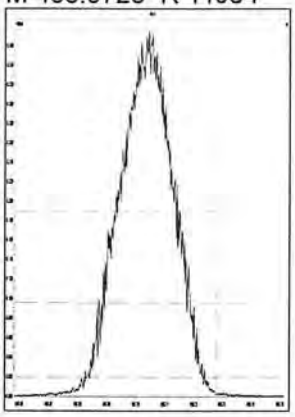
M 442.9728 R 11734



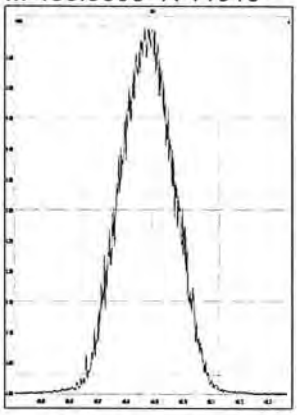
M 454.9728 R 11848



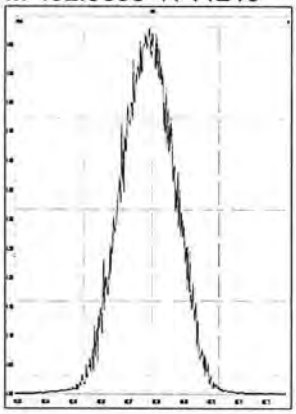
M 466.9728 R 11964



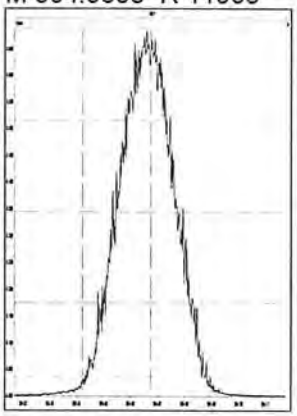
M 480.9696 R 11313



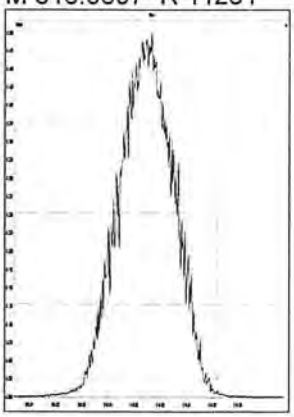
M 492.9696 R 11210



M 504.9696 R 11906



M 516.9697 R 11261



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

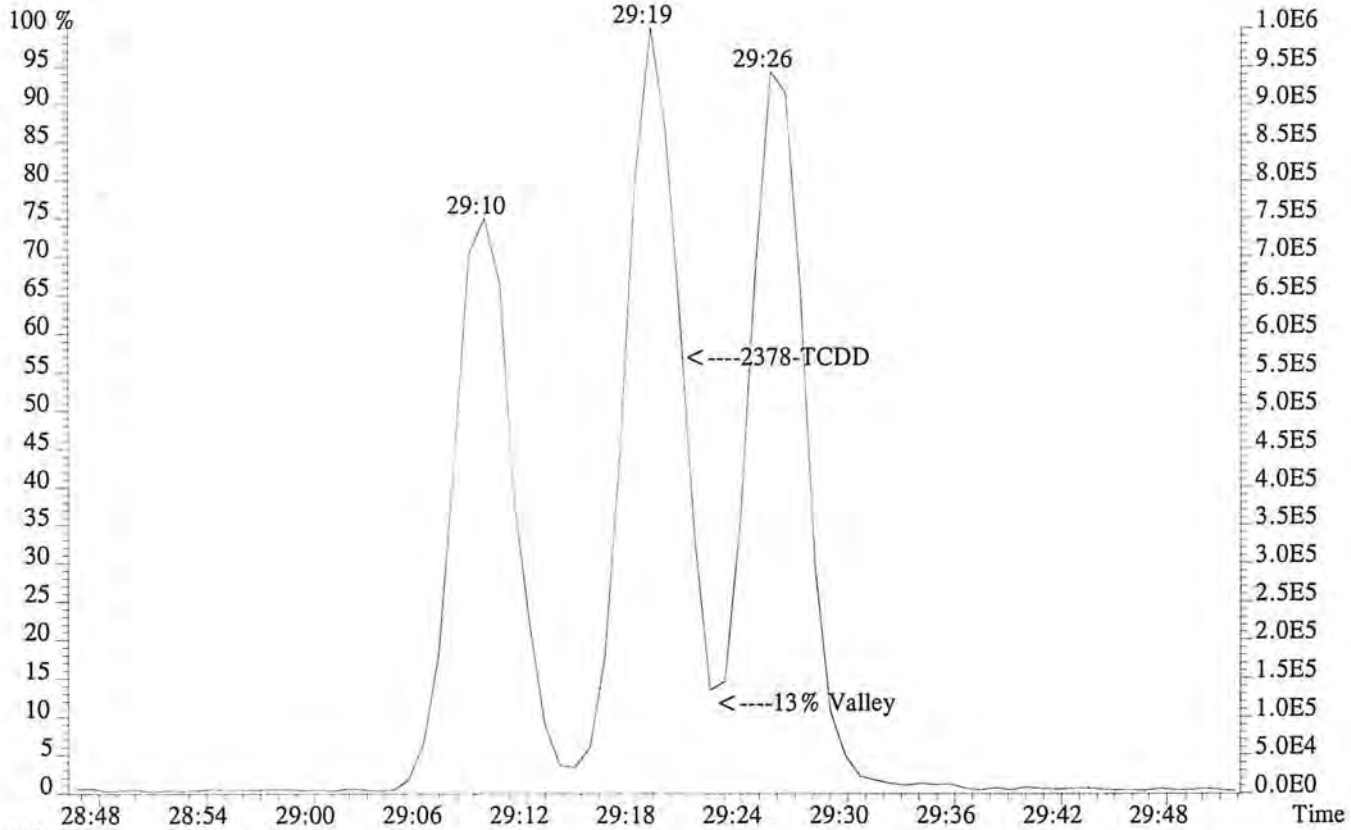
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P301037
Date Analyzed: 26-AUG-2015
Time Analyzed: 14:14:57

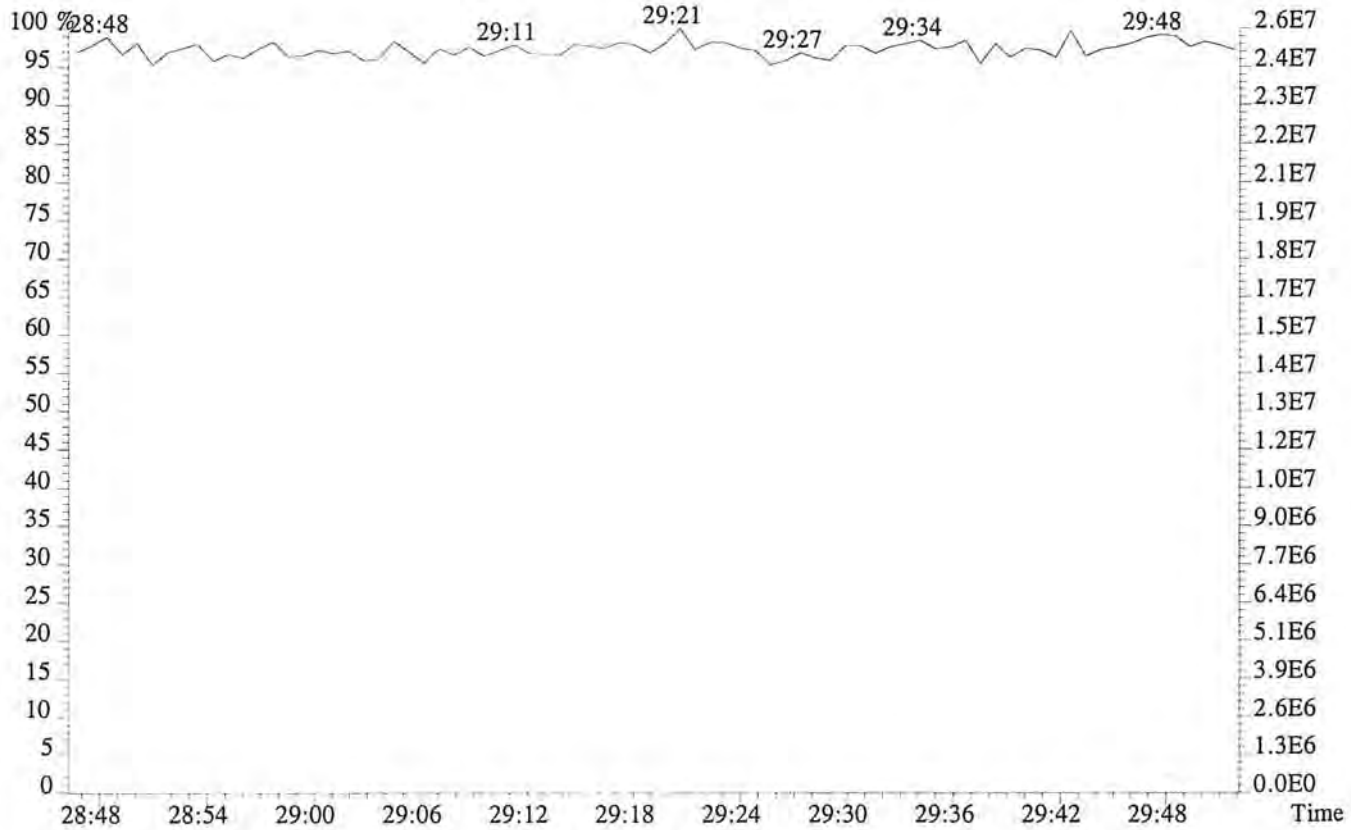
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:14	30:27
TCDD	26:10	30:16
PeCDF	30:22	34:30
PeCDD	31:52	34:16
HxCDF	35:08	37:36
HxCDD	35:39	37:12
HpCDF	38:48	40:13
HpCDD	39:03	39:44

% Valley 2378-TCDD: 13

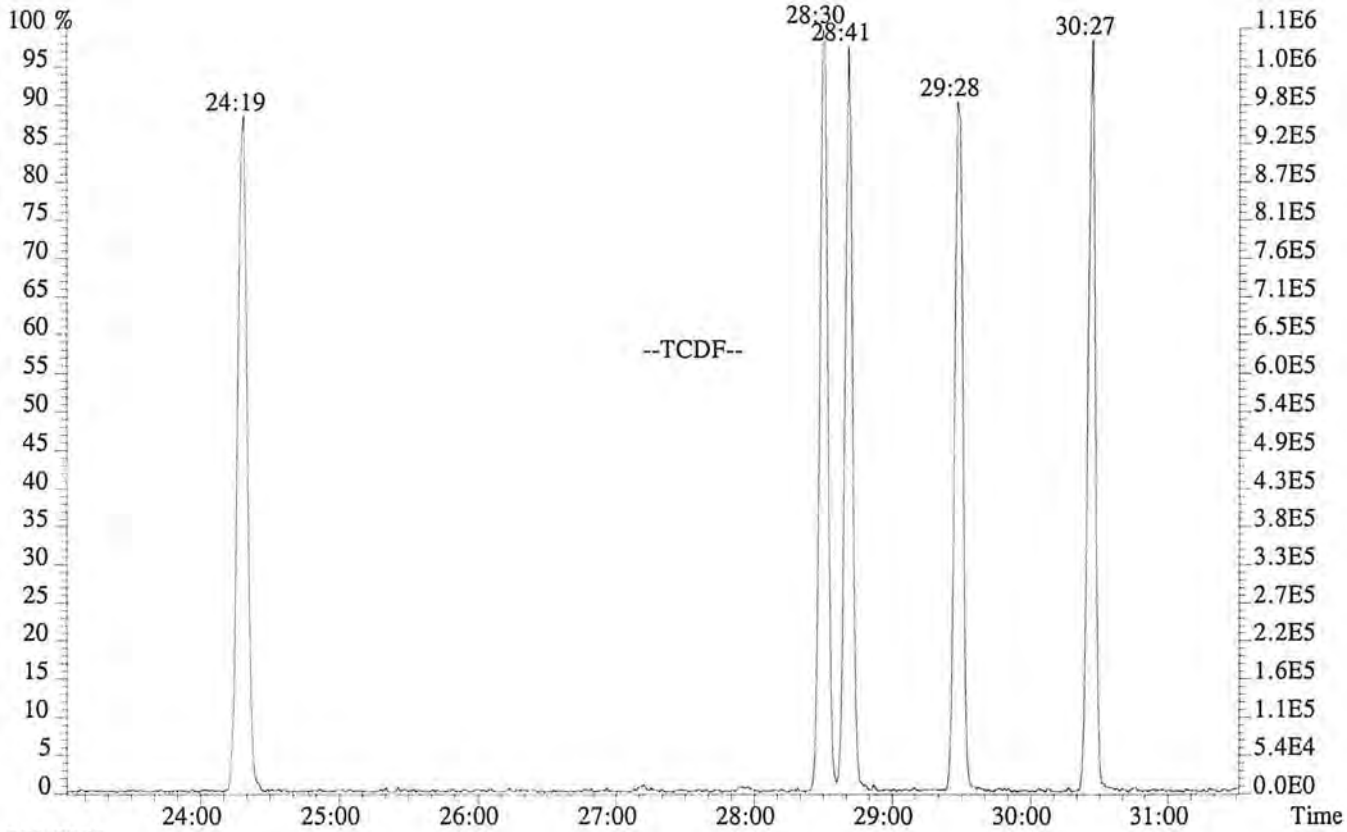
File:P301037 #1-602 Acq:26-AUG-2015 14:14:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



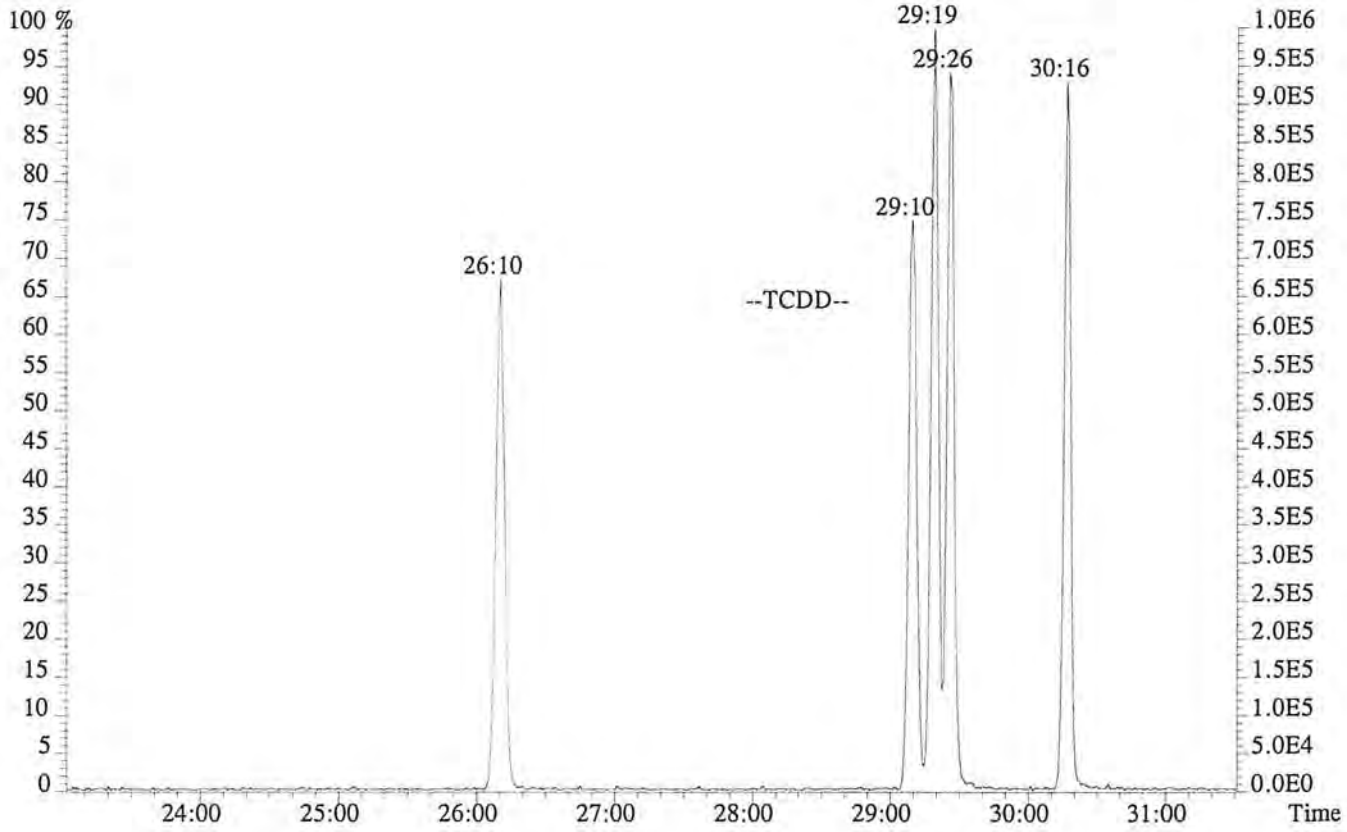
318.9792



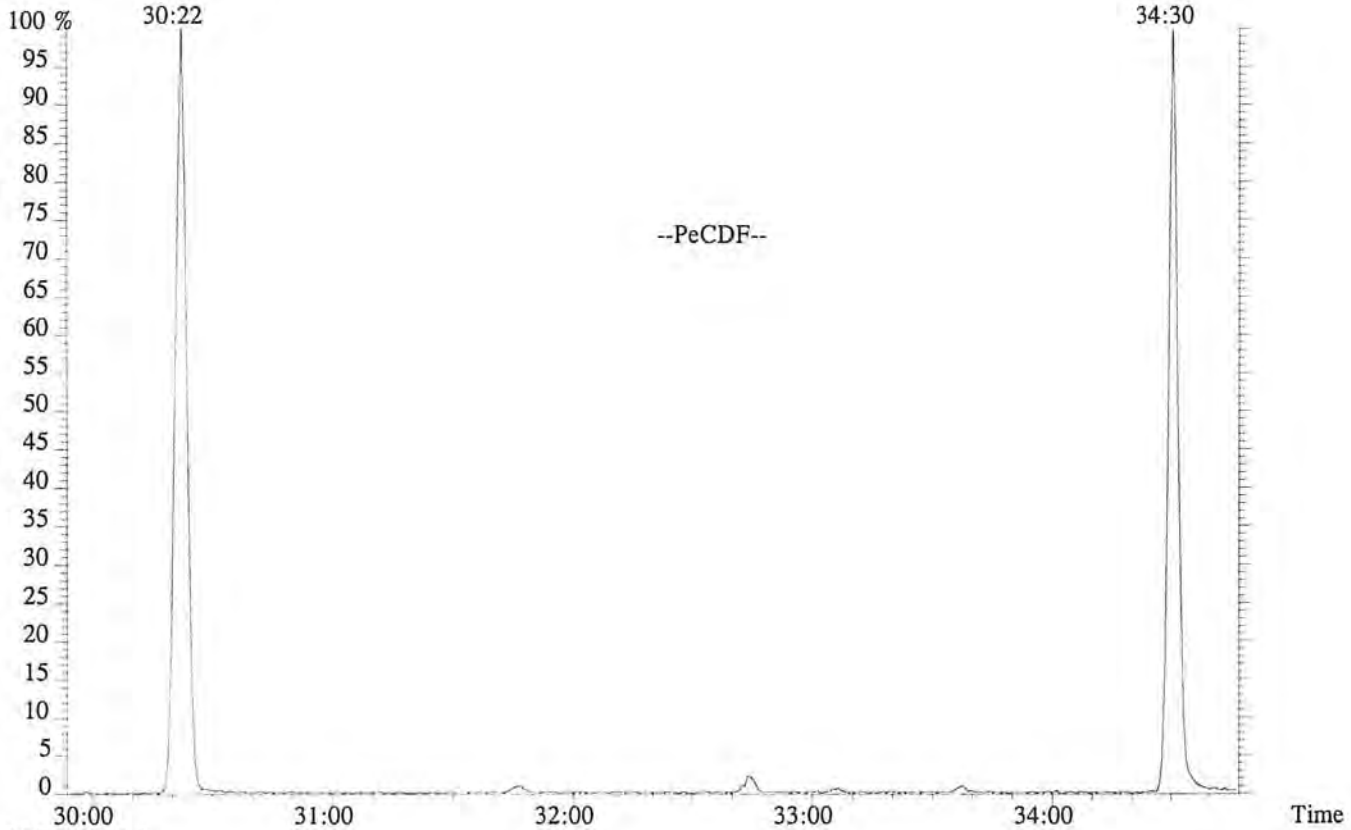
File:P301037 #1-602 Acq:26-AUG-2015 14:14:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



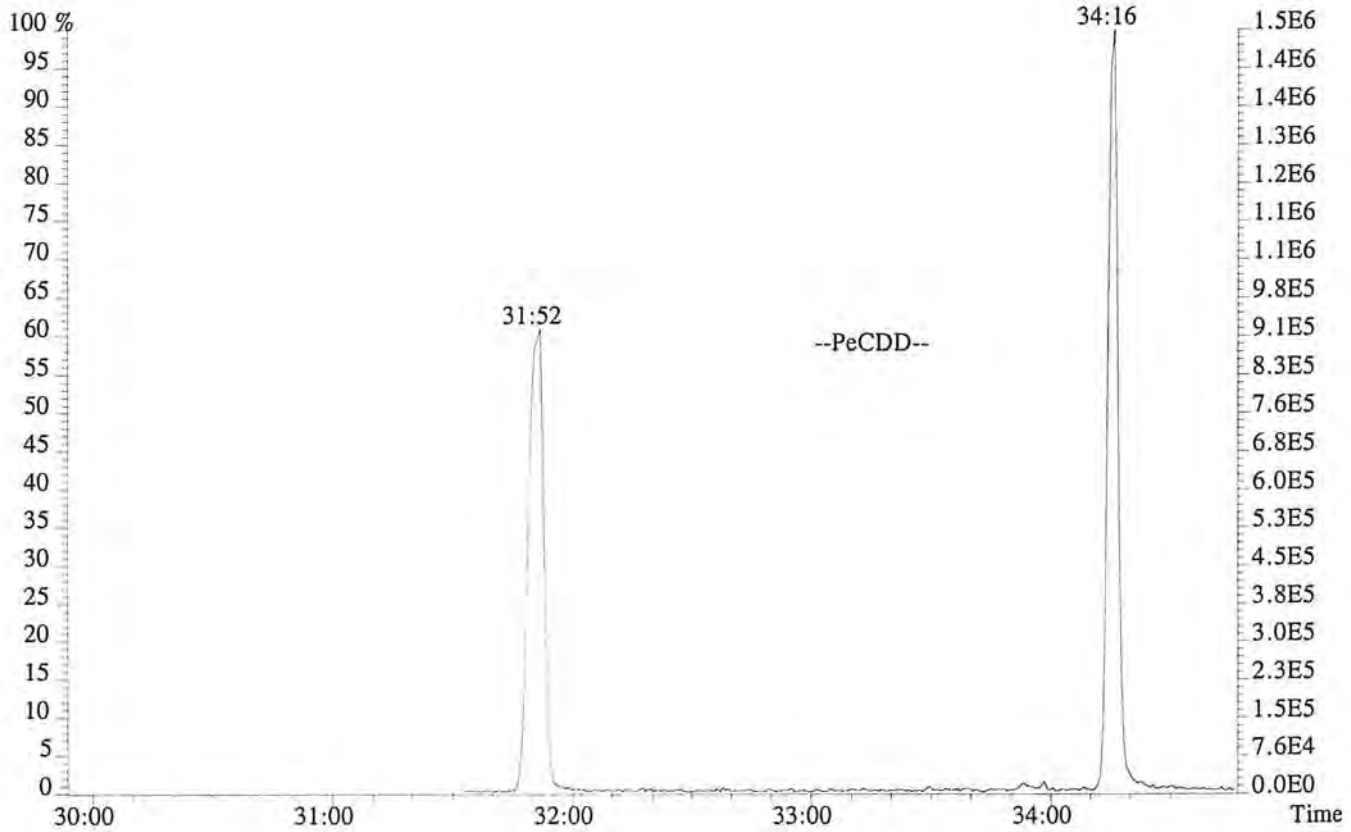
319.8965



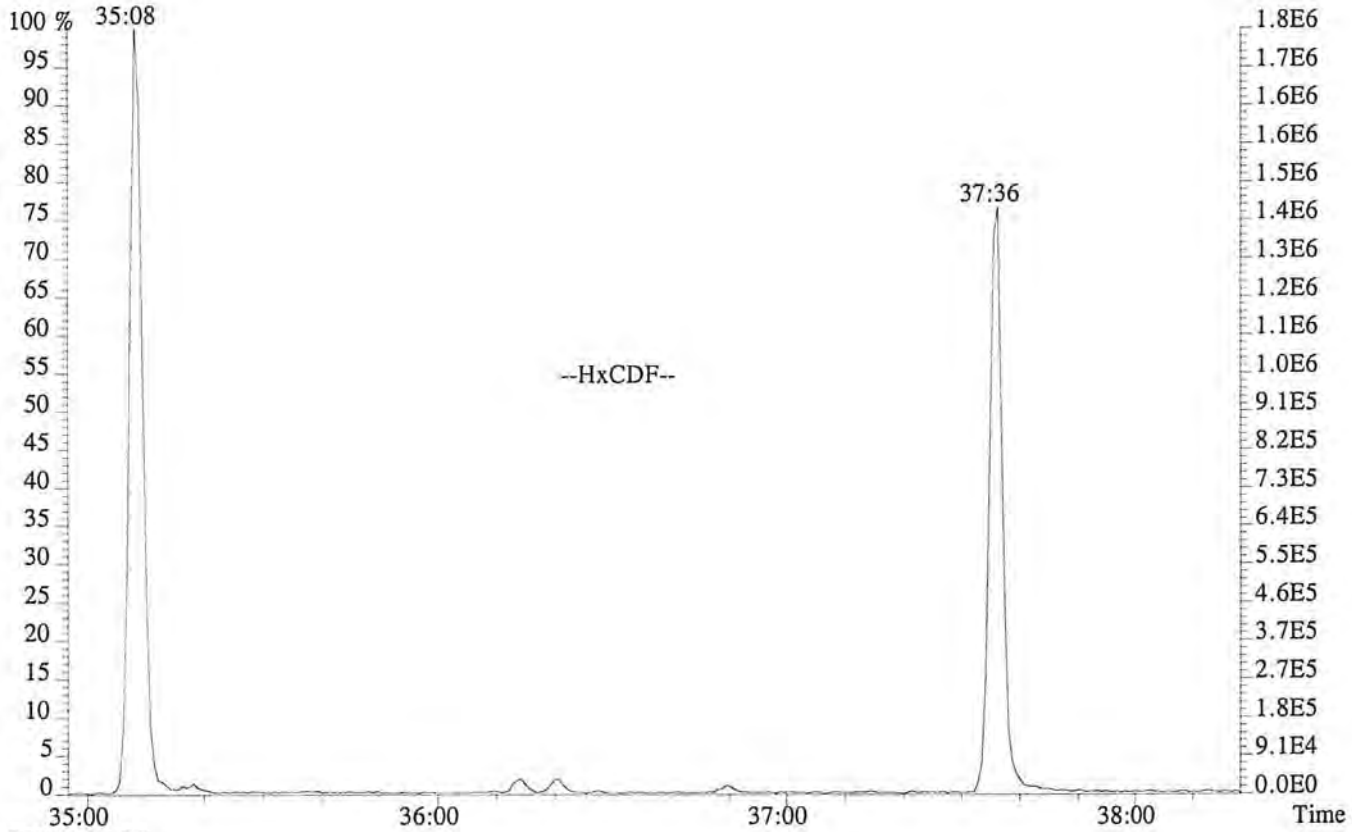
File:P301037 #1-602 Acq:26-AUG-2015 14:14:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



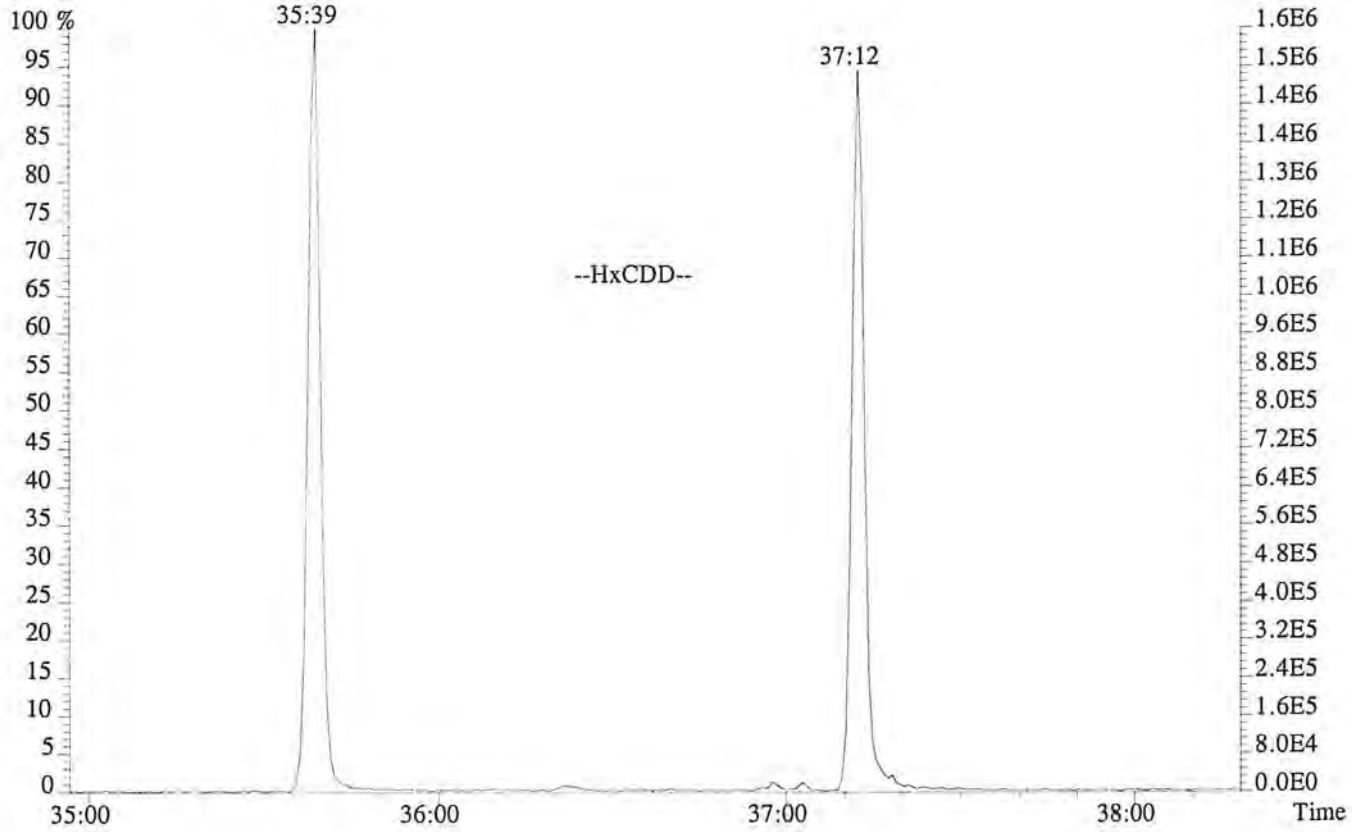
355.8546 F:2



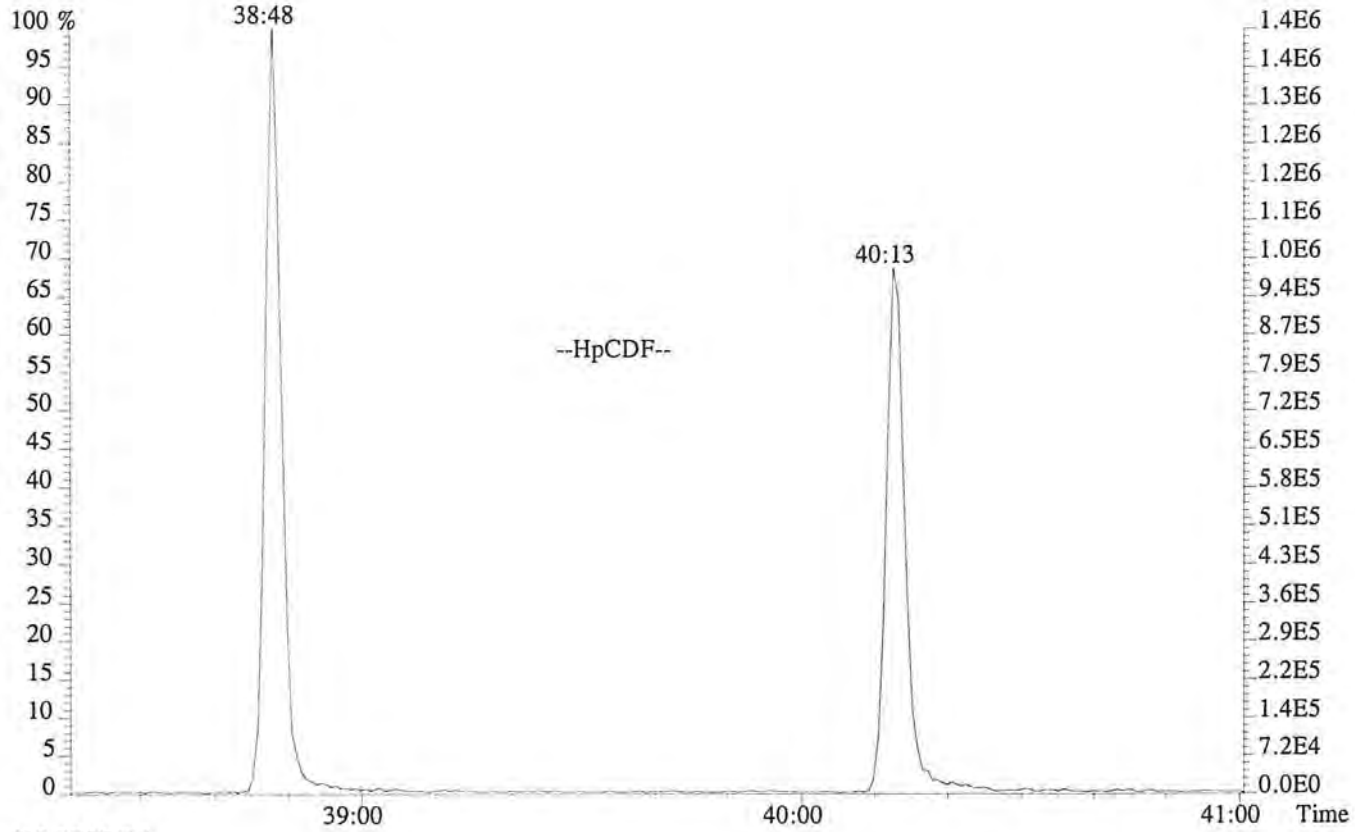
File:P301037 #1-303 Acq:26-AUG-2015 14:14:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



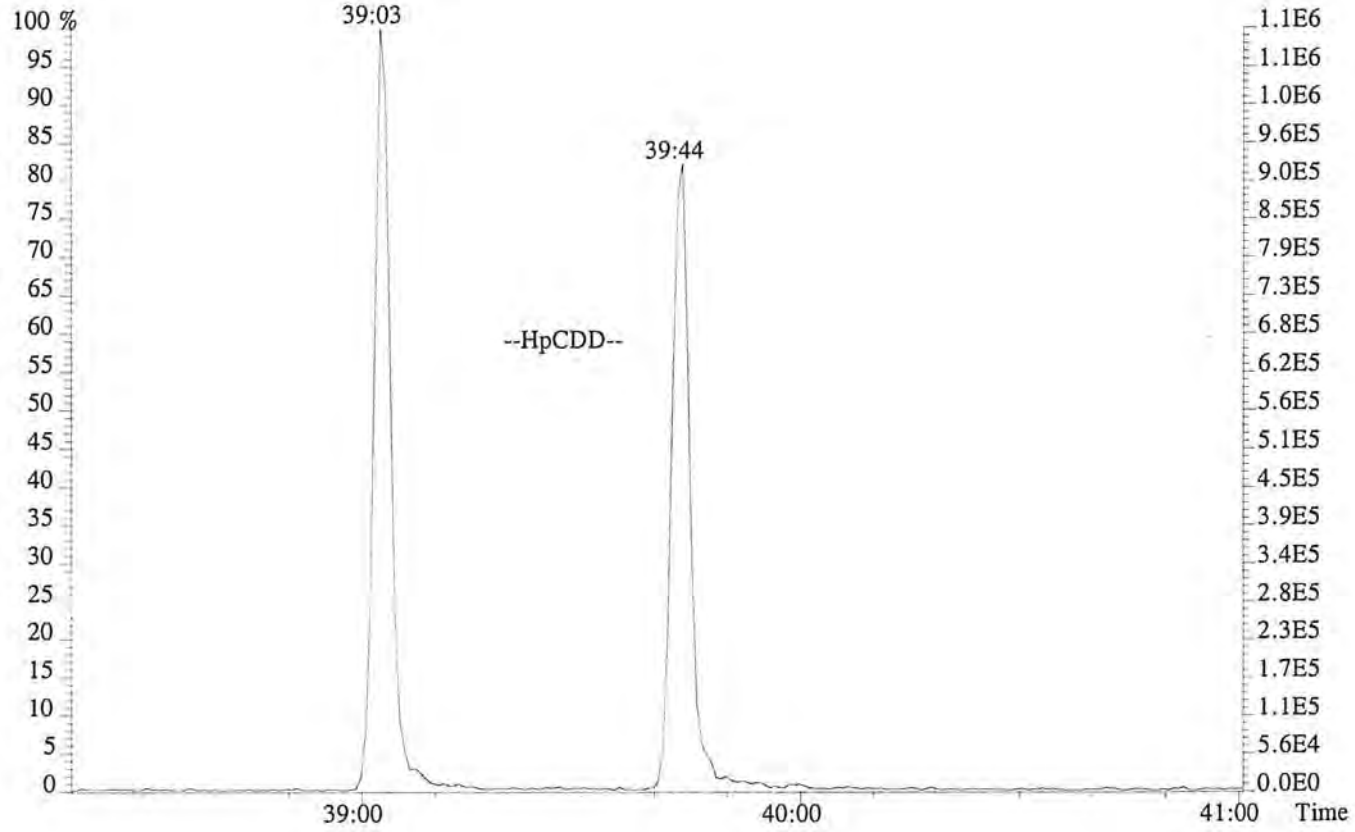
389.8157 F:3



File:P301037 #1-241 Acq:26-AUG-2015 14:14:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/21/15

Instrument ID: E-HRMS-05 GC Column ID: DB-5MSUI

VER Data Filename: P301038 Analysis Date: 26-AUG-15 Time: 15:16:43

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.6	7.8 - 12.9	-4.3
1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	52	39 - 65	4.6
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	52	39 - 64	3.3
1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	53	39 - 64	6.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	53	41 - 61	5.1
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	52	43 - 58	4.3
OCDD	M+2/M+4	0.88	0.76-1.02	103	79 - 126	3.1
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	10.4	8.4 - 12.0	3.5
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	52	41 - 60	4.0
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	52	41 - 61	4.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	51	44 - 57	2.3
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	52	45 - 56	4.1
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	51	44 - 57	1.8
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	52	45 - 55	4.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	51	43 - 58	1.3
OCDF	M+2/M+4	0.90	0.76-1.02	103	63 - 159	3.3

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/21/15

Instrument ID: E-HRMS-05 GC Column ID: DB-5MSUI

VER Data Filename: P301038 Analysis Date: 26-AUG-15 Time: 15:16:43

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	104	82 - 121	3.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	109	62 - 160	8.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	100	85 - 117	-0.3
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	96	85 - 118	-4.1
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	104	72 - 138	4.3
13C-OCDD	M+2/M+4	0.90	0.76-1.02	214	96 - 415	6.8
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	98	71 - 140	-2.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	106	76 - 130	6.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	110	77 - 130	9.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	76 - 131	-6.2
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	70 - 143	-4.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	103	74 - 135	2.9
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	99	73 - 137	-1.3
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	102	78 - 129	1.9
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	106	77 - 129	6.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.8	7.8 - 12.7	-2.4

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
79857

Run #7 Filename P301038 Samp: 1 Inj: 1 Acquired: 26-AUG-15 15:16:43
Processed: 27-AUG-15 14:47:49 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:41	4.545e+03	6.077e+03	0.75	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	32:44	4.071e+04	2.619e+04	1.55	yes	no	0.929
3	Unk	2,3,4,7,8-PeCDF	33:37	3.817e+04	2.478e+04	1.54	yes	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	36:14	3.405e+04	2.768e+04	1.23	yes	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:20	3.627e+04	2.920e+04	1.24	yes	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:50	3.374e+04	2.725e+04	1.24	yes	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	37:34	3.196e+04	2.569e+04	1.24	yes	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:48	3.082e+04	2.937e+04	1.05	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	40:13	2.591e+04	2.494e+04	1.04	yes	no	1.245
10	Unk	OCDF	42:44	4.166e+04	4.647e+04	0.90	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:26	3.739e+03	4.904e+03	0.76	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:53	2.926e+04	1.856e+04	1.58	yes	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:58	2.606e+04	2.098e+04	1.24	yes	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:02	2.623e+04	2.114e+04	1.24	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:17	2.777e+04	2.230e+04	1.24	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	2.310e+04	2.192e+04	1.05	yes	no	0.949
17	Unk	OCDD	42:32	3.682e+04	4.190e+04	0.88	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:39	5.335e+04	6.743e+04	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:43	8.464e+04	5.371e+04	1.58	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:36	8.382e+04	5.311e+04	1.58	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:13	3.565e+04	6.865e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:20	4.053e+04	7.770e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:49	3.831e+04	7.388e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:34	3.523e+04	6.780e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	2.697e+04	6.053e+04	0.45	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:12	2.456e+04	5.603e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:24	4.143e+04	5.297e+04	0.78	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:53	6.287e+04	4.021e+04	1.56	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:57	5.200e+04	4.132e+04	1.26	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:02	5.126e+04	4.069e+04	1.26	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	4.653e+04	4.437e+04	1.05	yes	no	0.850
32	IS	13C-OCDD	42:31	6.833e+04	7.553e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:52	4.109e+04	5.245e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:16	5.730e+04	4.519e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:26	9.143e+03				no	1.001

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Signal/Noise Height Ratio Summary

CLIENT ID.
79857

Run #7 Filename P301038 Samp: 1 Inj: 1 Acquired: 26-AUG-15 15:16:43
Processed: 27-AUG-15 14:47:49 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.15e+05	2.51e+03	3.7e+02	1.18e+06	2.77e+03	4.3e+02
2	1,2,3,7,8-PeCDF	8.08e+06	1.17e+03	6.9e+03	5.21e+06	2.92e+03	1.8e+03
3	2,3,4,7,8-PeCDF	7.91e+06	1.17e+03	6.8e+03	5.19e+06	2.92e+03	1.8e+03
4	1,2,3,4,7,8-HxCDF	7.56e+06	1.57e+03	4.8e+03	6.16e+06	6.24e+02	9.9e+03
5	1,2,3,6,7,8-HxCDF	7.90e+06	1.57e+03	5.0e+03	6.36e+06	6.24e+02	1.0e+04
6	2,3,4,6,7,8-HxCDF	7.37e+06	1.57e+03	4.7e+03	6.02e+06	6.24e+02	9.6e+03
7	1,2,3,7,8,9-HxCDF	6.81e+06	1.57e+03	4.3e+03	5.47e+06	6.24e+02	8.8e+03
8	1,2,3,4,6,7,8-HpCDF	6.88e+06	2.10e+03	3.3e+03	6.54e+06	2.88e+03	2.3e+03
9	1,2,3,4,7,8,9-HpCDF	5.16e+06	2.10e+03	2.5e+03	5.00e+06	2.88e+03	1.7e+03
10	OCDF	7.16e+06	1.98e+03	3.6e+03	7.95e+06	3.28e+03	2.4e+03
11	2,3,7,8-TCDD	7.83e+05	1.61e+03	4.9e+02	1.04e+06	1.18e+03	8.8e+02
12	1,2,3,7,8-PeCDD	6.13e+06	3.20e+03	1.9e+03	3.90e+06	1.38e+03	2.8e+03
13	1,2,3,4,7,8-HxCDD	5.95e+06	7.40e+02	8.0e+03	4.77e+06	2.19e+03	2.2e+03
14	1,2,3,6,7,8-HxCDD	5.66e+06	7.40e+02	7.7e+03	4.67e+06	2.19e+03	2.1e+03
15	1,2,3,7,8,9-HxCDD	6.11e+06	7.40e+02	8.3e+03	4.80e+06	2.19e+03	2.2e+03
16	1,2,3,4,6,7,8-HpCDD	4.70e+06	1.45e+03	3.2e+03	4.52e+06	8.08e+02	5.6e+03
17	OCDD	6.52e+06	1.24e+03	5.2e+03	7.49e+06	1.60e+03	4.7e+03
18	13C-2,3,7,8-TCDF	1.07e+07	2.19e+03	4.9e+03	1.34e+07	3.03e+03	4.4e+03
19	13C-1,2,3,7,8-PeCDF	1.65e+07	1.10e+03	1.5e+04	1.05e+07	2.22e+03	4.7e+03
20	13C-2,3,4,7,8-PeCDF	1.76e+07	1.10e+03	1.6e+04	1.12e+07	2.22e+03	5.0e+03
21	13C-1,2,3,4,7,8-HxCDF	7.92e+06	1.81e+03	4.4e+03	1.53e+07	2.28e+03	6.7e+03
22	13C-1,2,3,6,7,8-HxCDF	8.92e+06	1.81e+03	4.9e+03	1.71e+07	2.28e+03	7.5e+03
23	13C-2,3,4,6,7,8-HxCDF	8.51e+06	1.81e+03	4.7e+03	1.65e+07	2.28e+03	7.2e+03
24	13C-1,2,3,7,8,9-HxCDF	7.47e+06	1.81e+03	4.1e+03	1.46e+07	2.28e+03	6.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.00e+06	4.18e+03	1.4e+03	1.34e+07	3.89e+03	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.88e+06	4.18e+03	1.2e+03	1.10e+07	3.89e+03	2.8e+03
27	13C-2,3,7,8-TCDD	8.57e+06	7.40e+03	1.2e+03	1.10e+07	4.48e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	1.30e+07	1.60e+03	8.1e+03	8.20e+06	1.34e+03	6.1e+03
29	13C-1,2,3,4,7,8-HxCDD	1.19e+07	2.50e+03	4.8e+03	9.40e+06	2.18e+03	4.3e+03
30	13C-1,2,3,6,7,8-HxCDD	1.11e+07	2.50e+03	4.5e+03	8.93e+06	2.18e+03	4.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.60e+06	1.85e+03	5.2e+03	9.13e+06	8.44e+02	1.1e+04
32	13C-OCDD	1.21e+07	1.12e+03	1.1e+04	1.34e+07	1.86e+03	7.2e+03
33	13C-1,2,3,4-TCDD	8.32e+06	7.40e+03	1.1e+03	1.06e+07	4.48e+03	2.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.24e+07	2.50e+03	5.0e+03	9.82e+06	2.18e+03	4.5e+03
35	37Cl-2,3,7,8-TCDD	1.92e+06	1.59e+03	1.2e+03			

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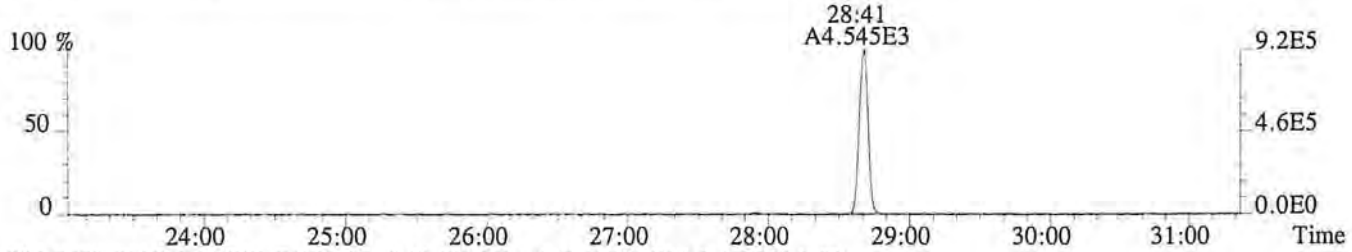
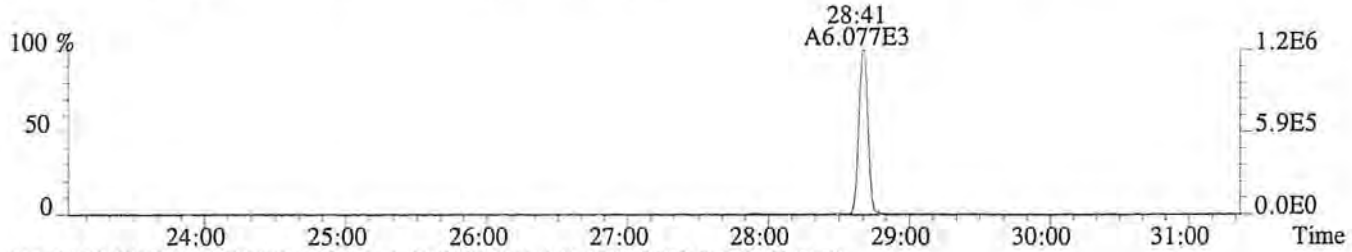
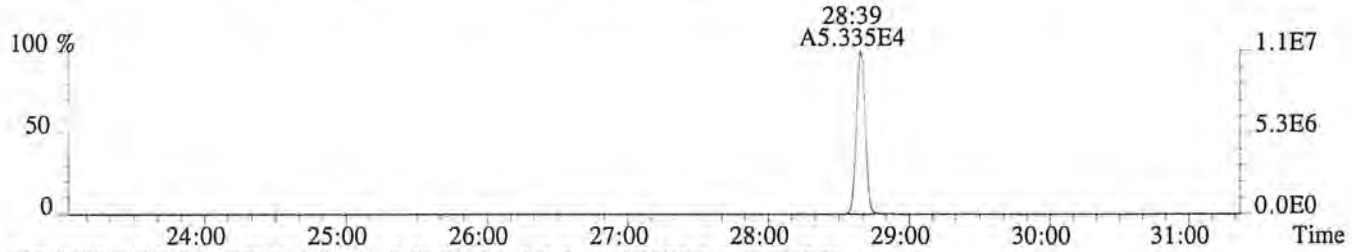
File:P301038 #1-591 Acq:26-AUG-2015 15:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2508.0,1.00%,F,T)



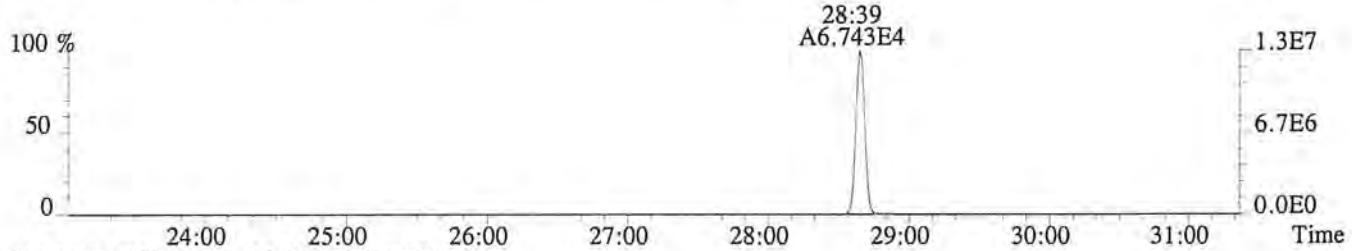
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2768.0,1.00%,F,T)



315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2192.0,1.00%,F,T)



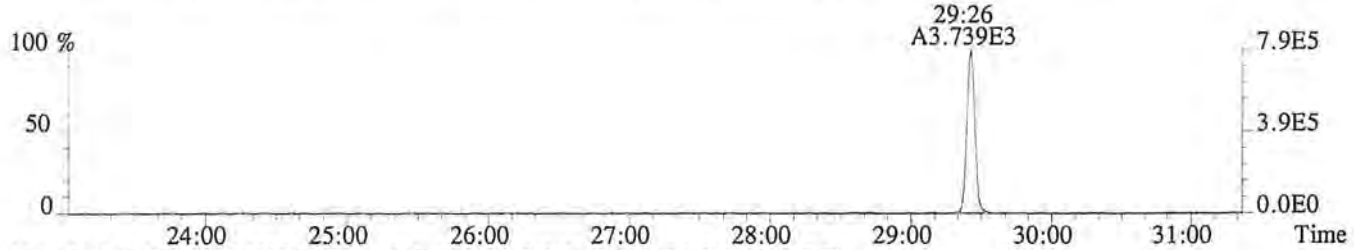
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3032.0,1.00%,F,T)



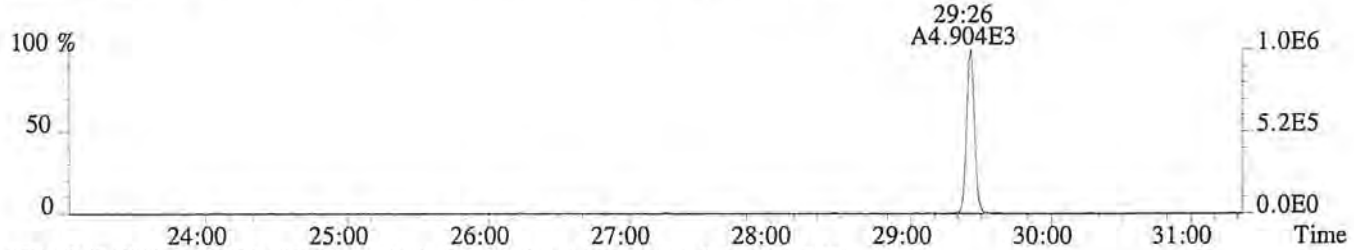
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

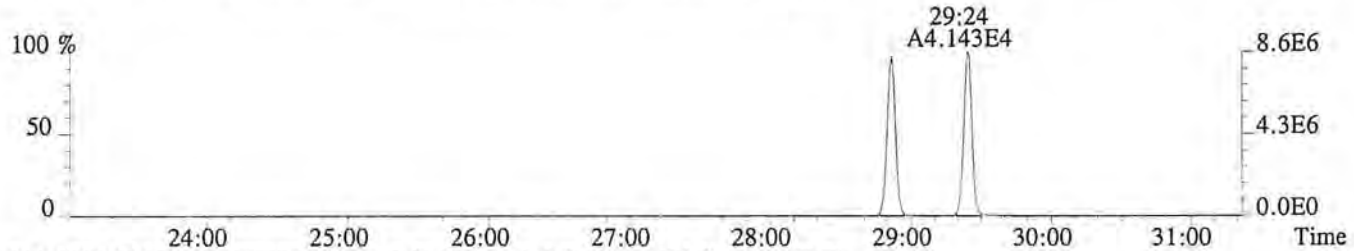
File:P301038 #1-591 Acq:26-AUG-2015 15:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



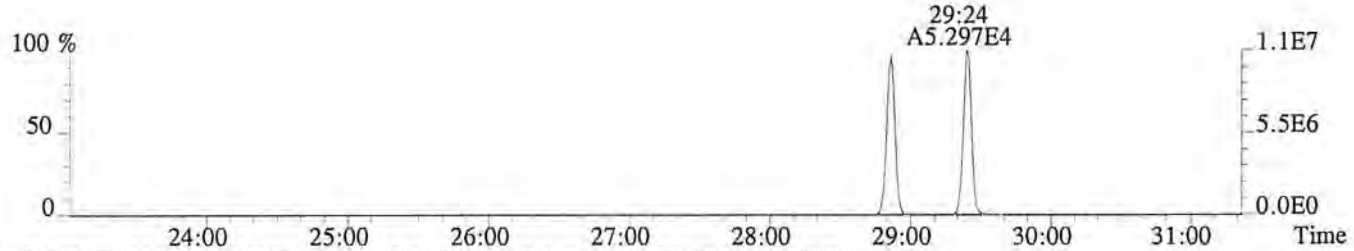
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



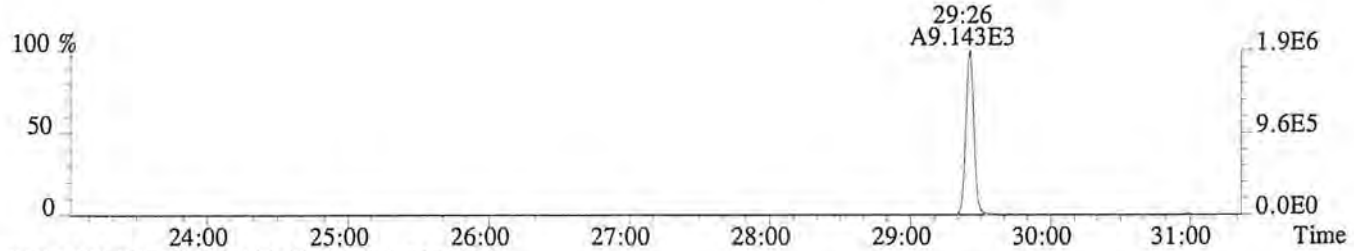
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7404.0,1.00%,F,T)



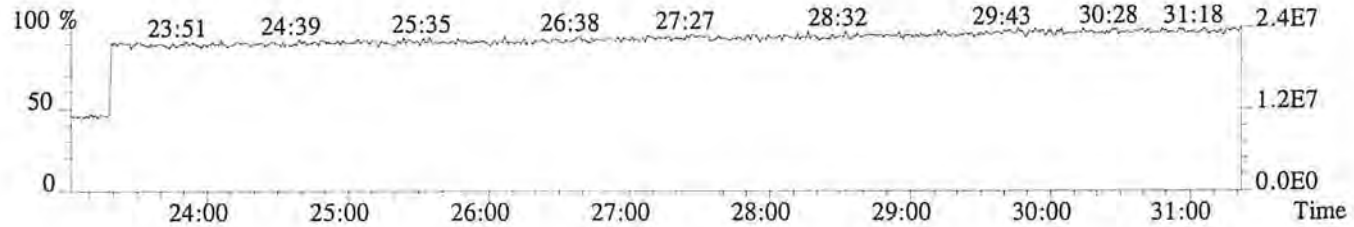
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4484.0,1.00%,F,T)



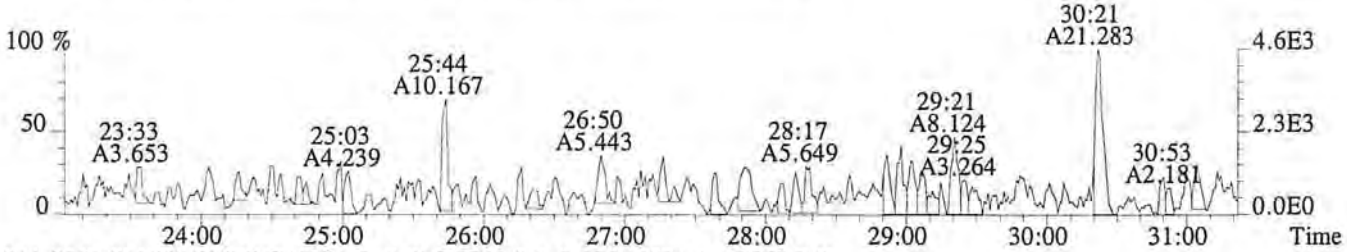
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1588.0,1.00%,F,T)



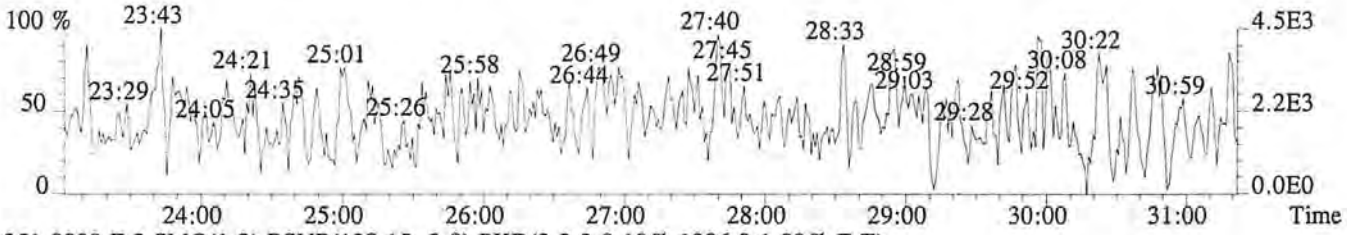
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



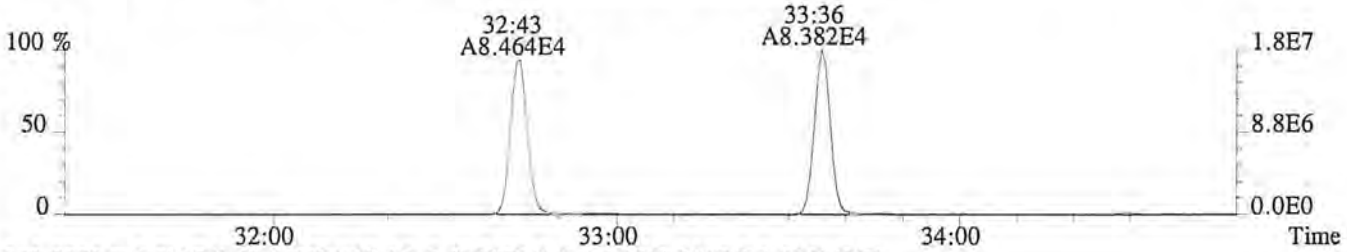
File:P301038 #1-591 Acq:26-AUG-2015 15:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



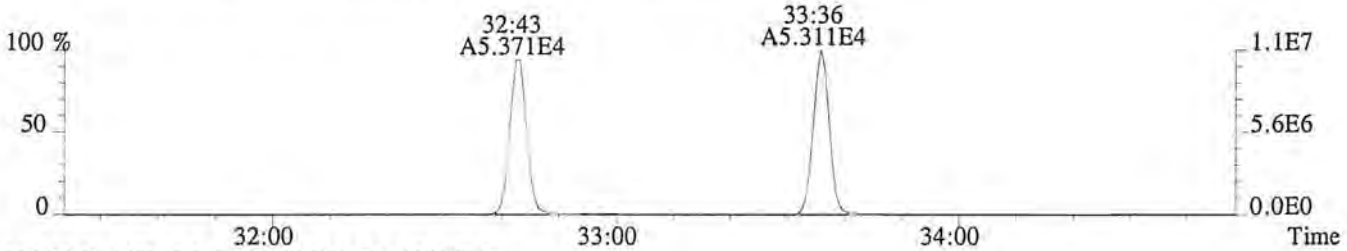
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2524.0,1.00%,F,T)



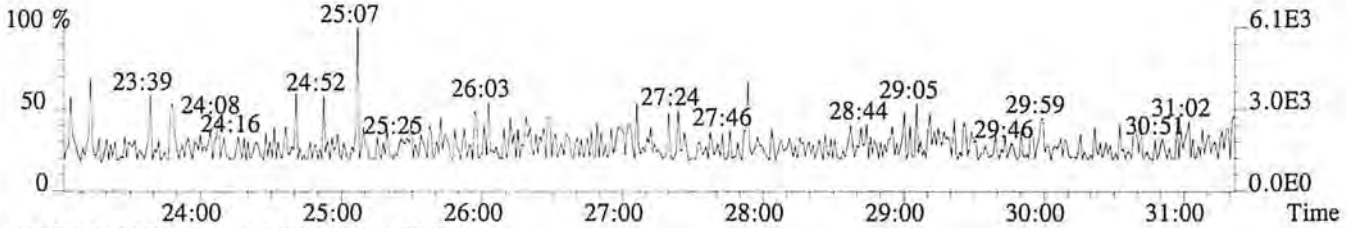
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)



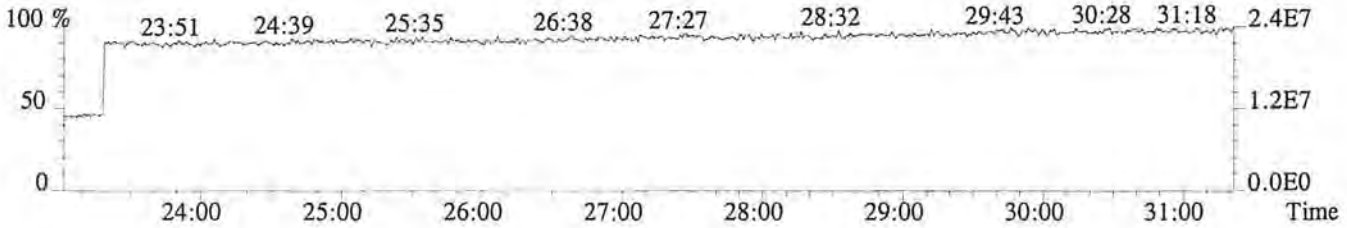
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2216.0,1.00%,F,T)



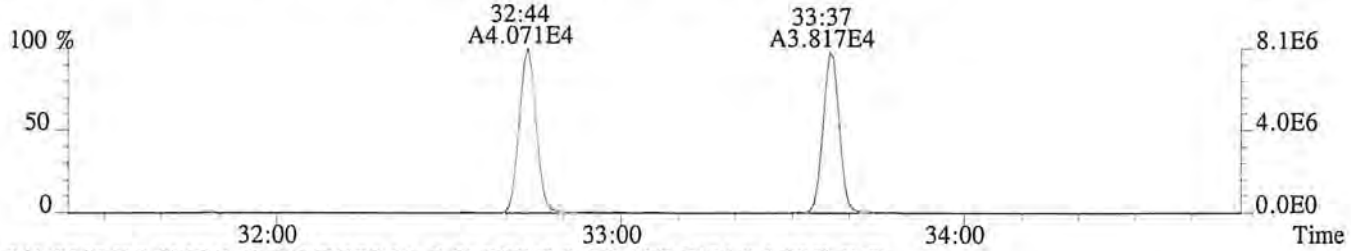
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



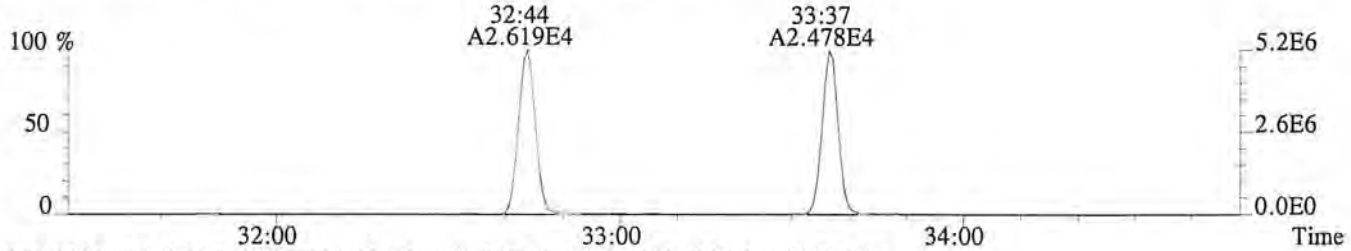
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



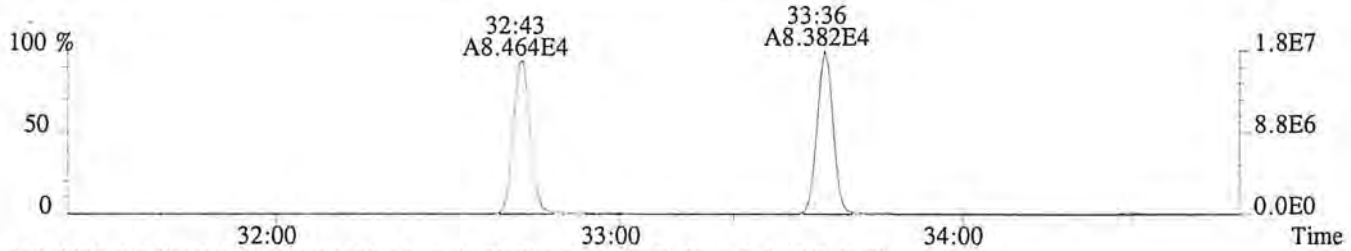
File:P301038 #1-308 Acq:26-AUG-2015 15:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



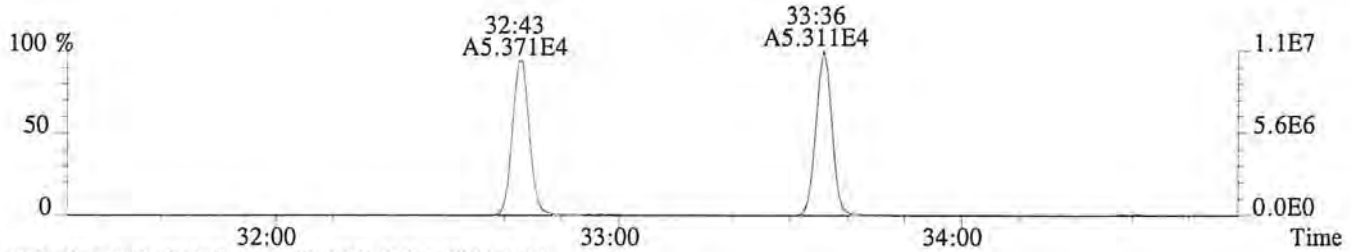
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2924.0,1.00%,F,T)



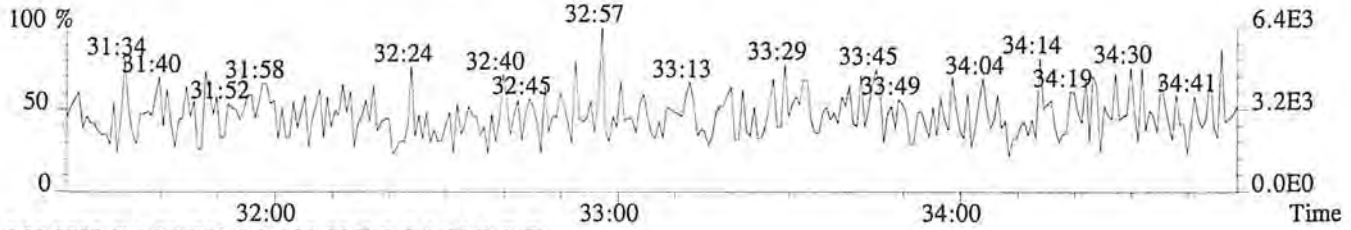
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)



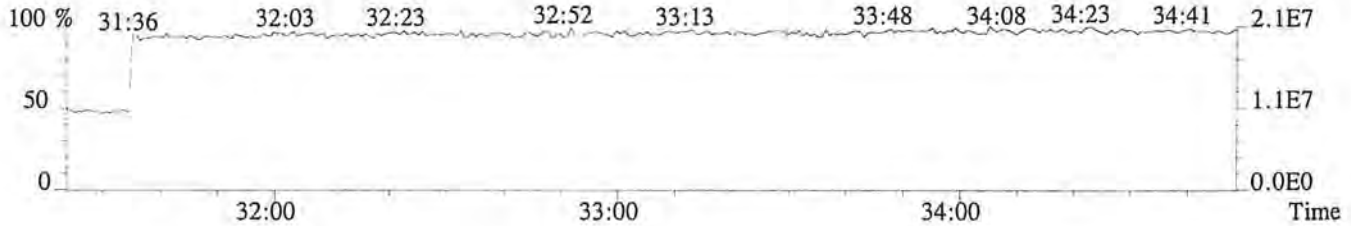
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2216.0,1.00%,F,T)



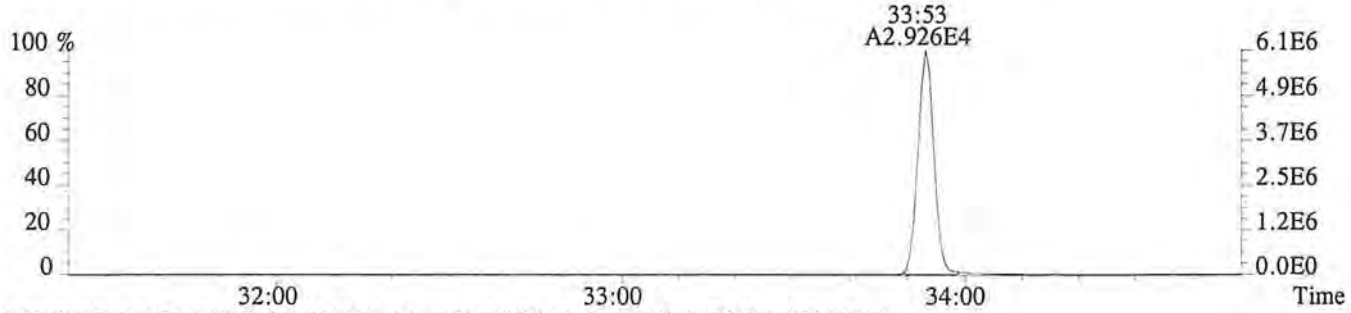
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



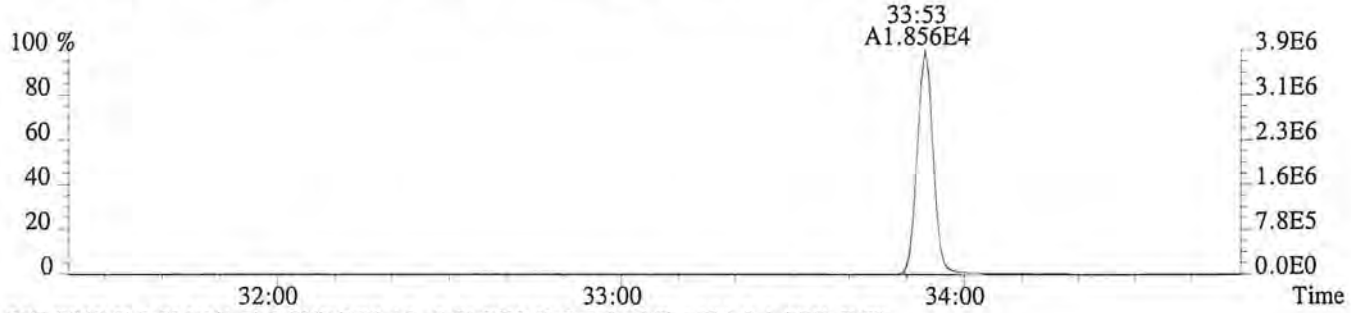
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



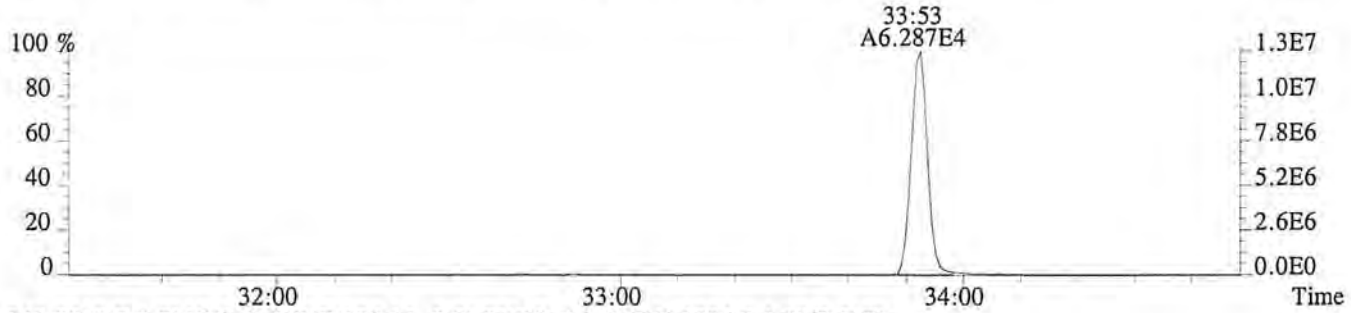
File:P301038 #1-308 Acq:26-AUG-2015 15:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3200.0,1.00%,F,T)



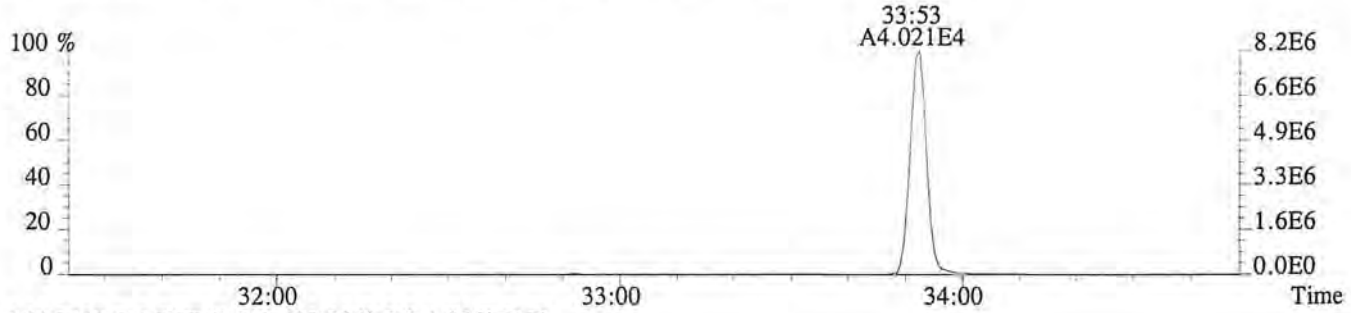
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1376.0,1.00%,F,T)



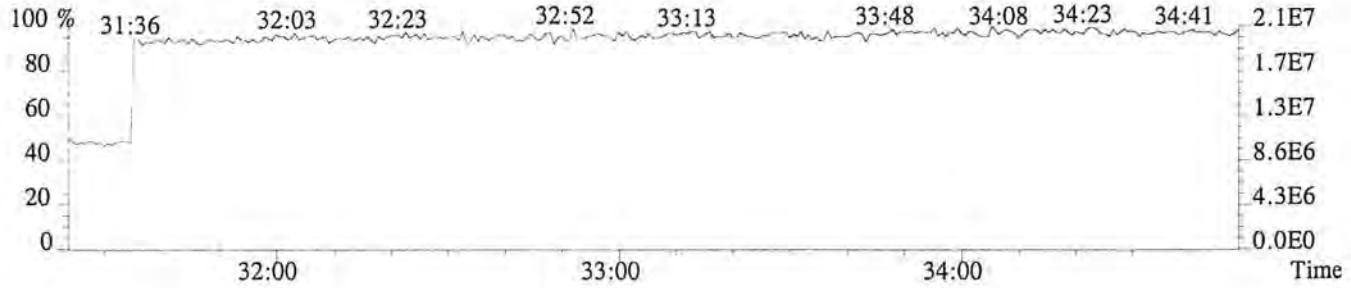
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1604.0,1.00%,F,T)



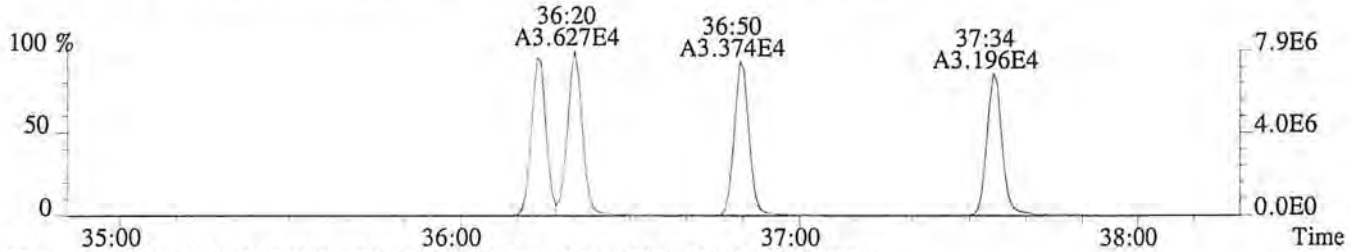
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



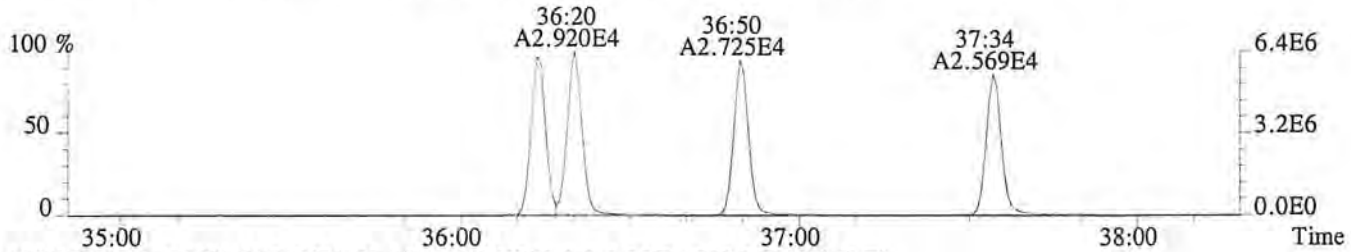
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



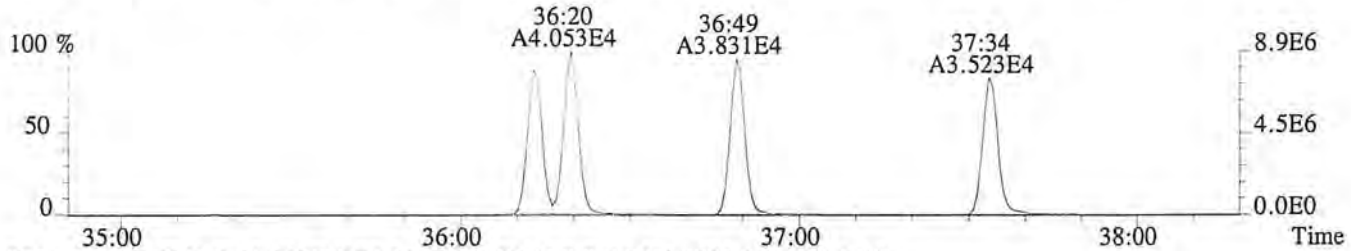
File:P301038 #1-312 Acq:26-AUG-2015 15:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1572.0,0.40%,F,T)



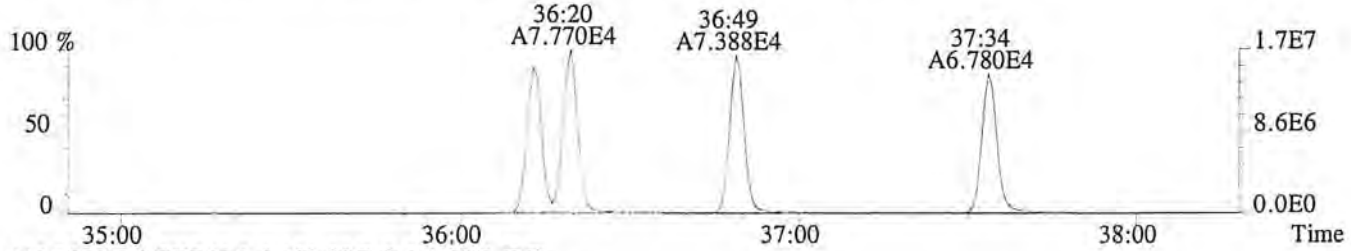
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



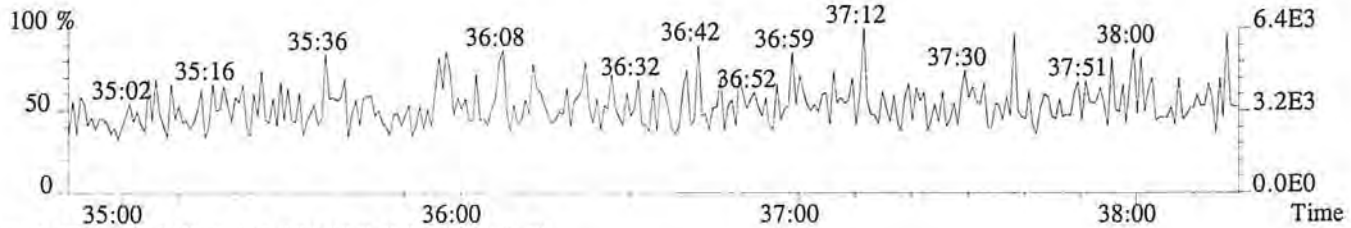
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1812.0,0.40%,F,T)



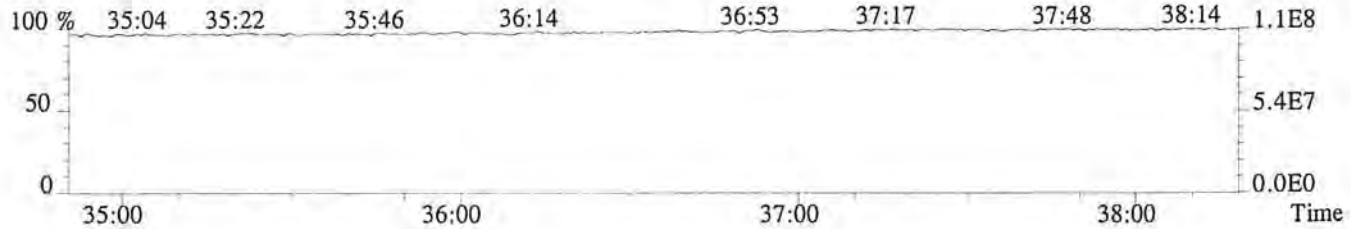
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2284.0,0.40%,F,T)



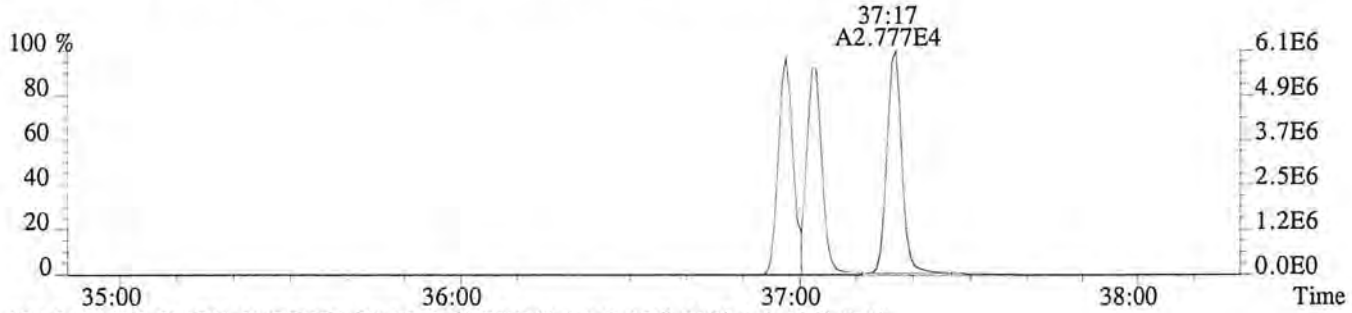
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



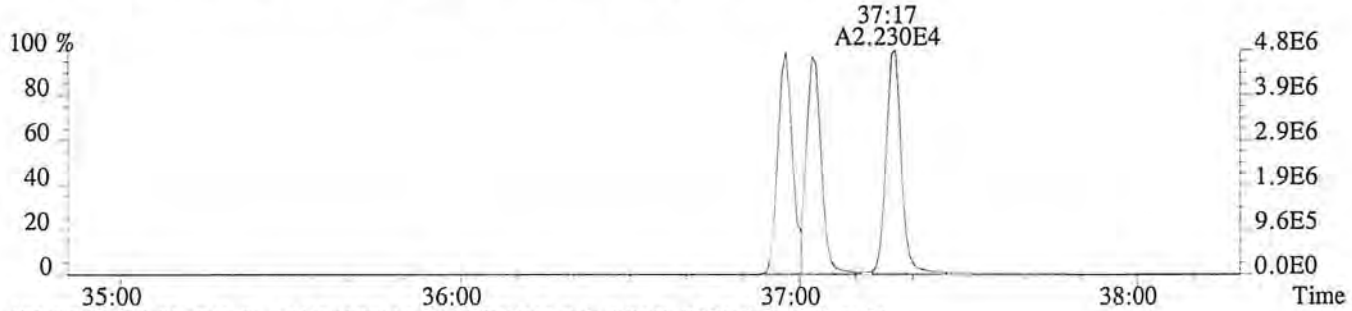
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



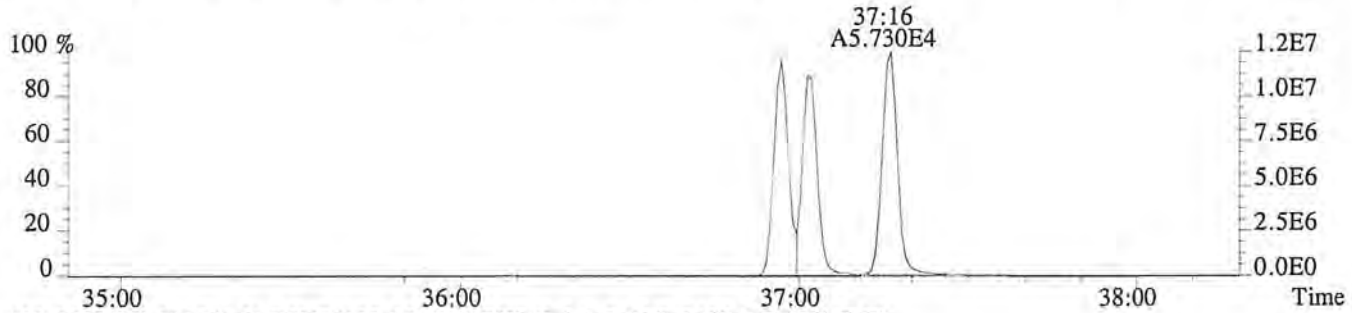
File:P301038 #1-312 Acq:26-AUG-2015 15:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



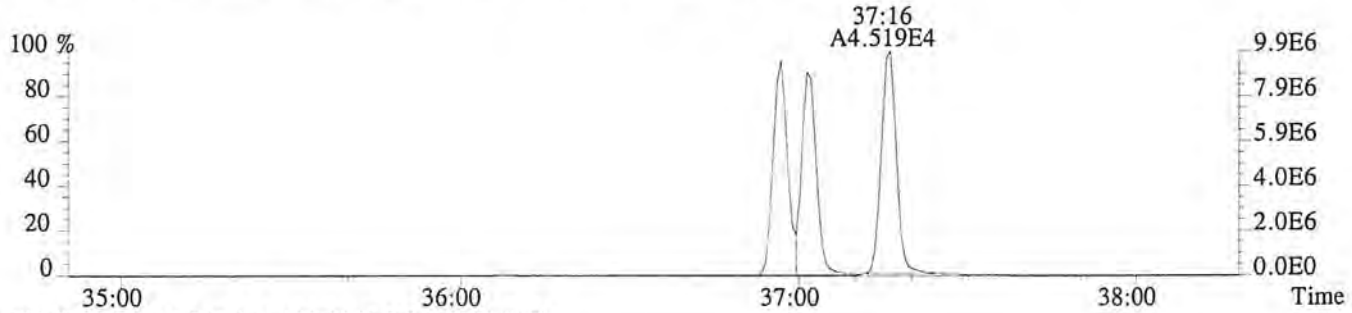
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2188.0,0.40%,F,T)



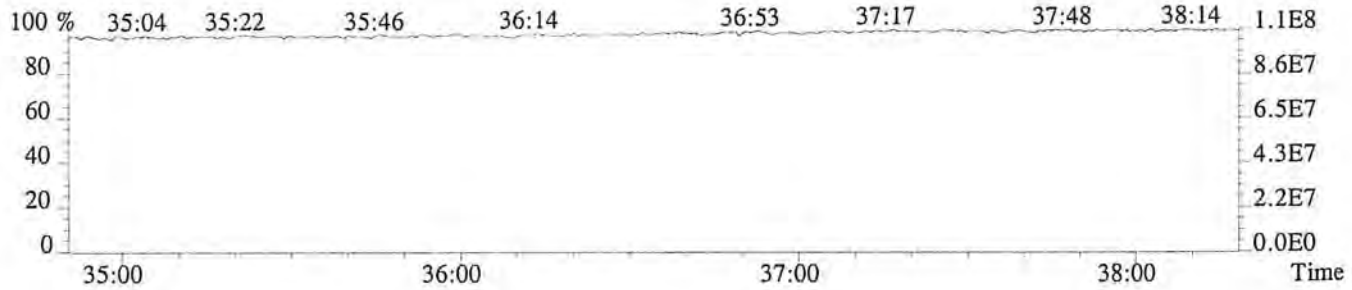
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2496.0,0.40%,F,T)



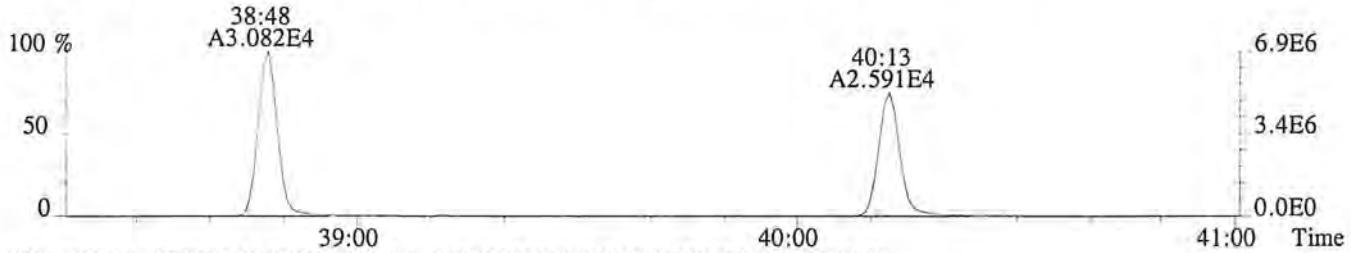
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2180.0,0.40%,F,T)



430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P301038 #1-241 Acq:26-AUG-2015 15:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2100.0,0.50%,F,T)

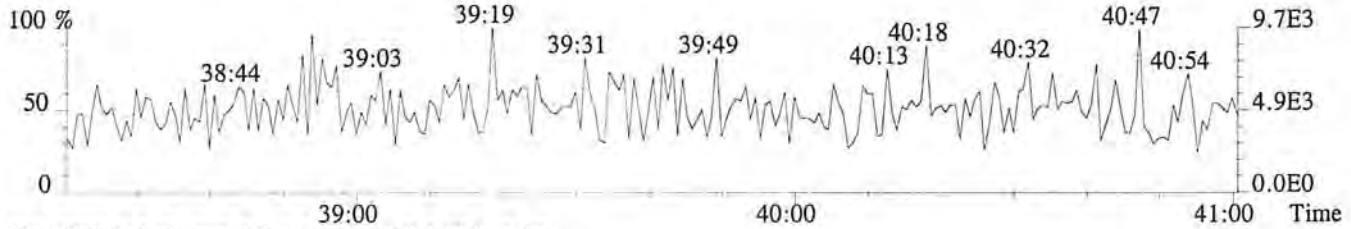


409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2876.0,0.50%,F,T)

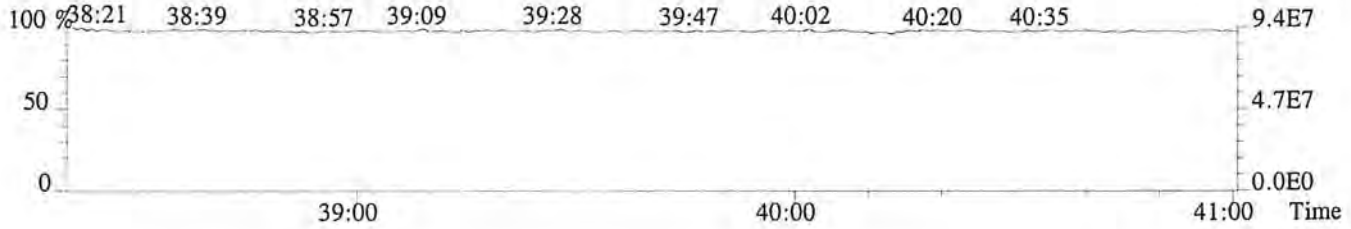
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4180.0,0.50%,F,T)

419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3888.0,0.50%,F,T)

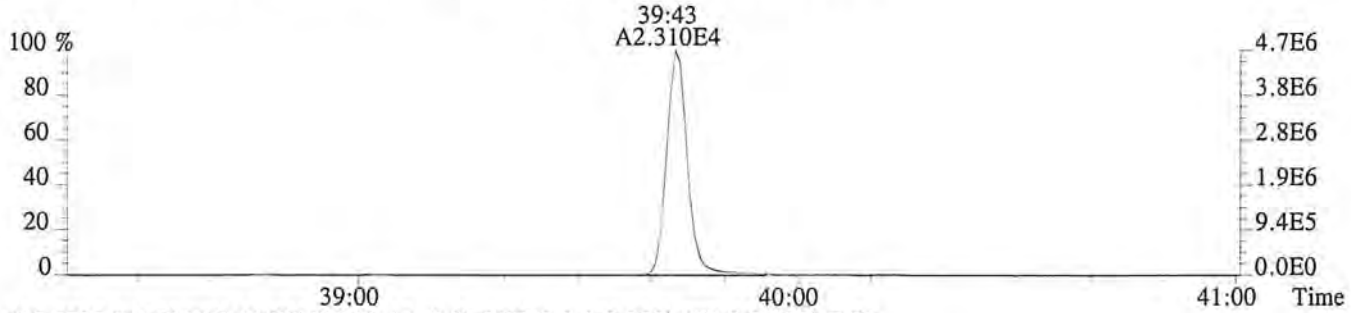
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



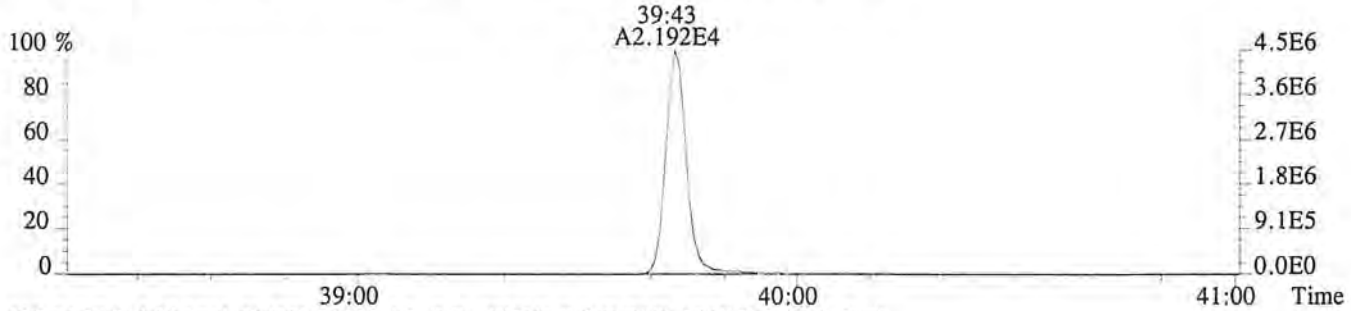
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



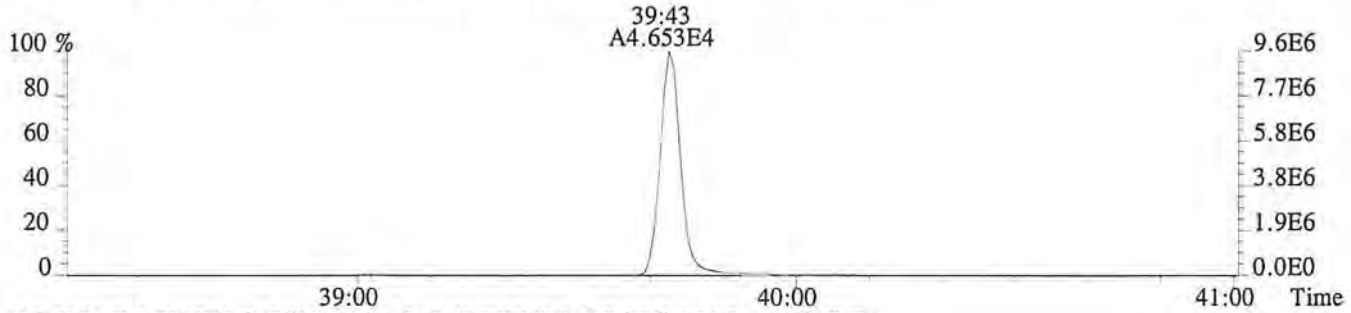
File:P301038 #1-241 Acq:26-AUG-2015 15:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1448.0,0.40%,F,T)



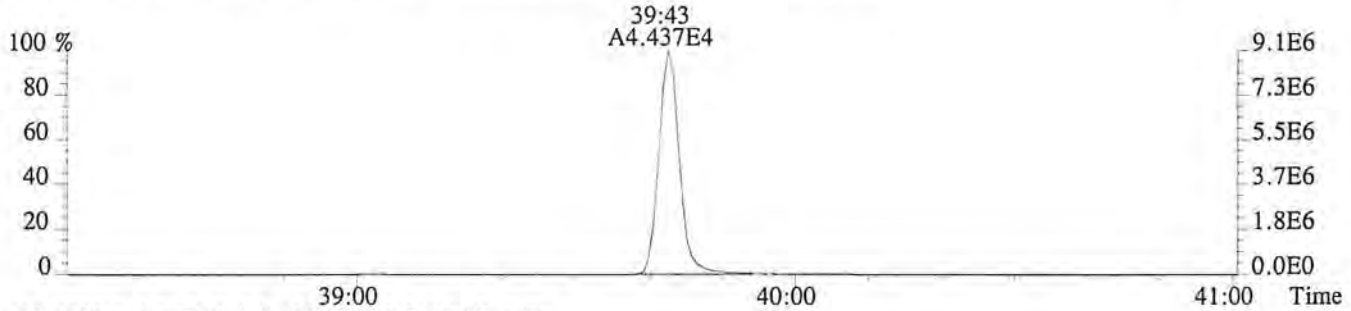
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



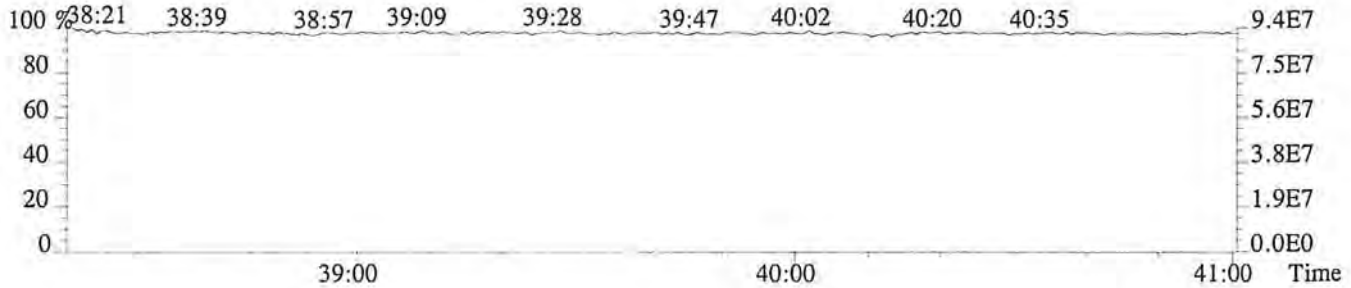
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



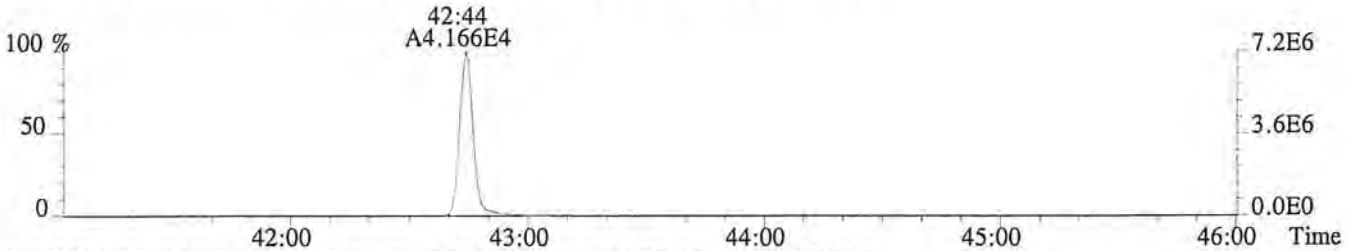
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



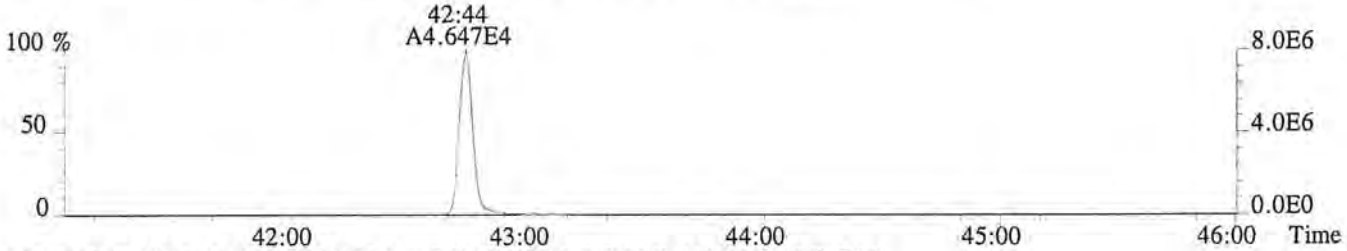
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



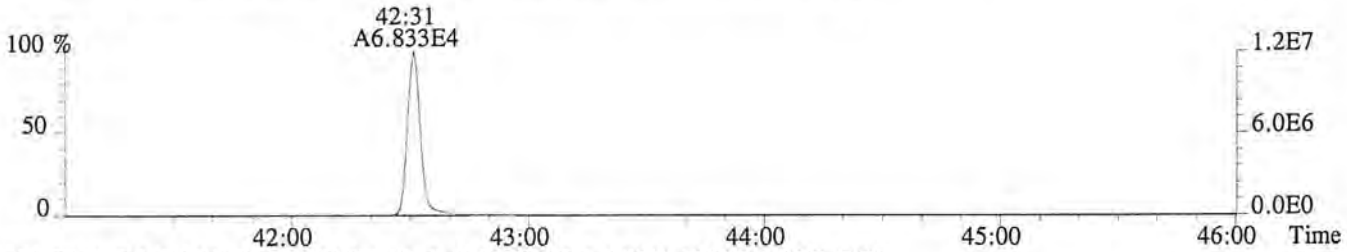
File:P301038 #1-447 Acq:26-AUG-2015 15:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1976.0,0.40%,F,T)



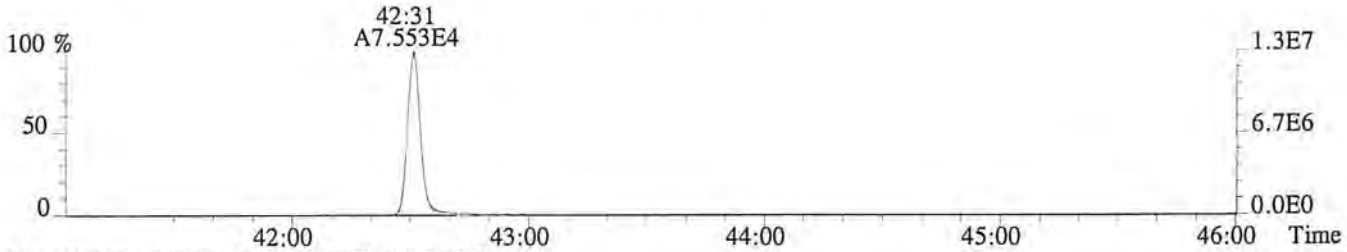
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3280.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1116.0,0.40%,F,T)

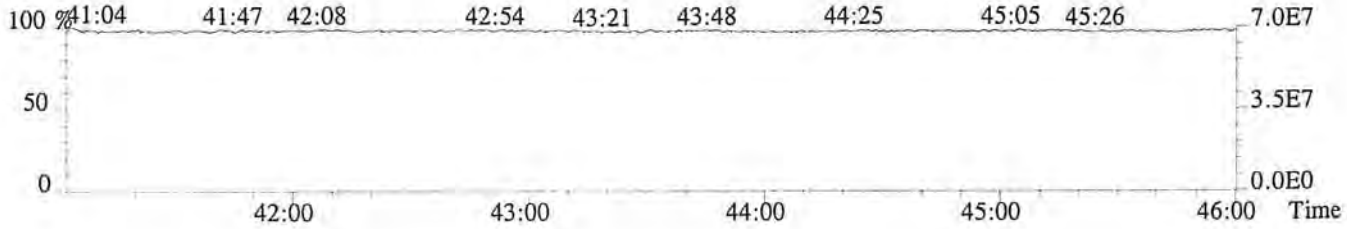


471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)

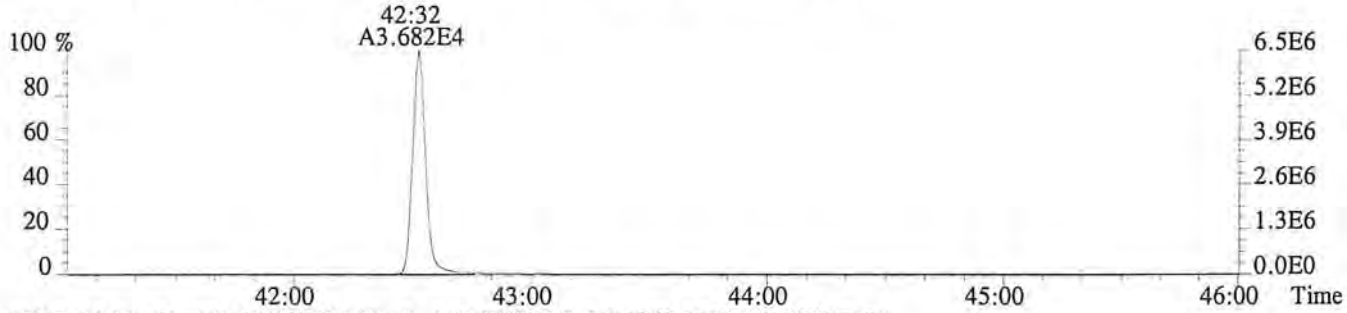


513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

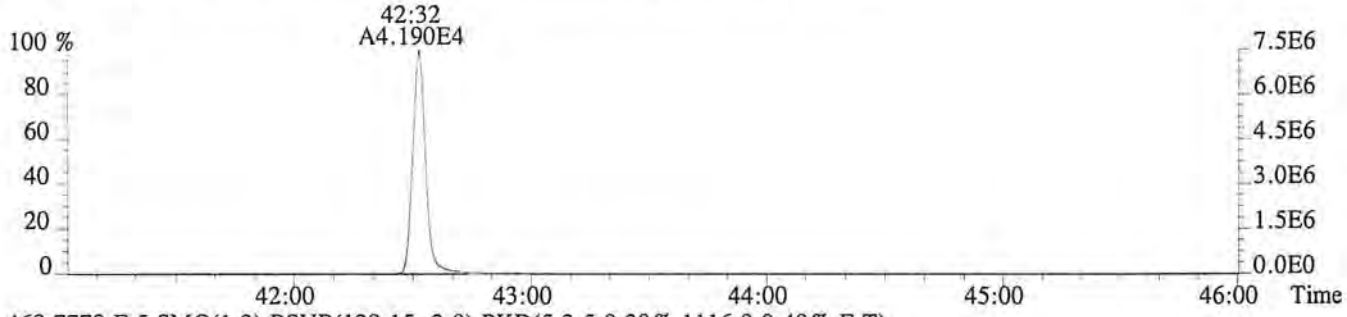
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



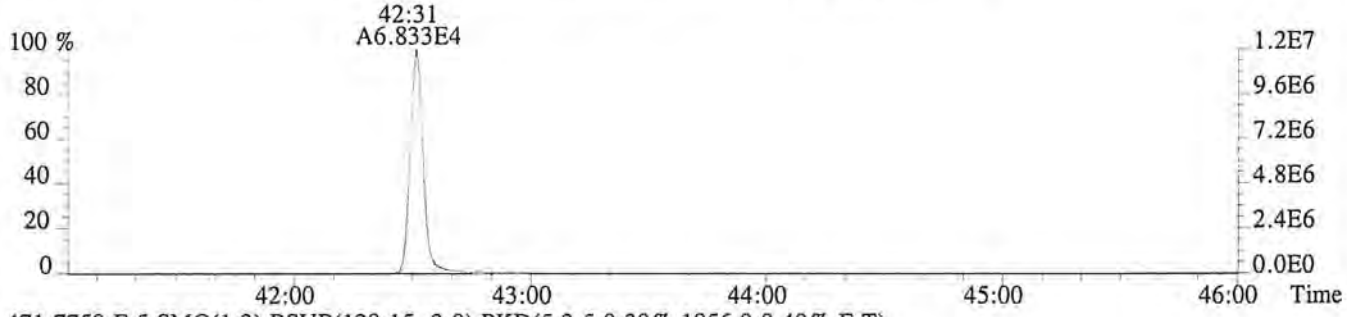
File:P301038 #1-447 Acq:26-AUG-2015 15:16:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1244.0,0.40%,F,T)



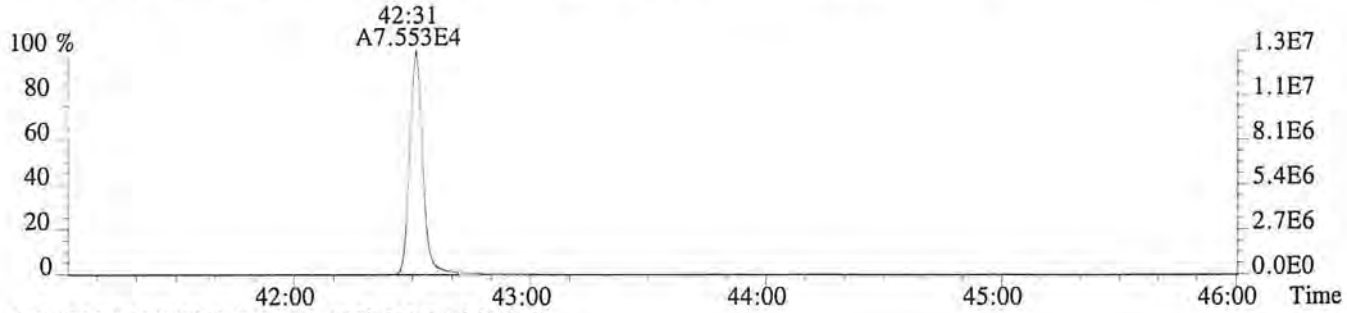
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1596.0,0.40%,F,T)



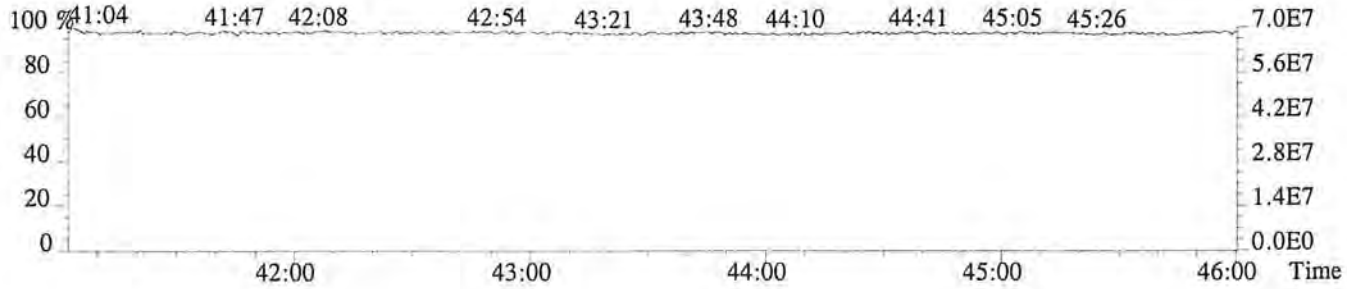
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1116.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P30105 1

Date: 08/27/15-08/28/15 Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: _____ Second QC: _____

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 08/21/15

Init. Calib.Times: 09:55

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE	WINDOW DEFINE	P301050	27-AUG-15	14:46:21
CS3	CS3	P301051	27-AUG-15	16:11:03
METHOD BLANK	EQ1500495-01	P301052	27-AUG-15	18:14:48
2087602 001	E1500795-001	P301053	27-AUG-15	19:02:15
PLY-02-15 SITE 1 B	E1500745-003	P301054	27-AUG-15	19:50:51
PLY-02-15 SITE 1 B	E1500745-004	P301055	27-AUG-15	20:39:28
PLY-03-15 SITE LB-	E1500745-005	P301056	27-AUG-15	21:28:06
PLY-01-15 MTI/MT2	E1500743-001	P301057	27-AUG-15	22:16:43
PLY-01-15 MTI/MT2	E1500743-002	P301058	27-AUG-15	23:05:20
PLY-02-15 MTI/MT2	E1500743-003	P301059	27-AUG-15	23:53:57
PLY-02-15 MTI/MT2	E1500743-004	P301060	28-AUG-15	00:42:36
PLY-03-15 MTI/MT2	E1500743-005	P301061	28-AUG-15	01:31:12
PLY-04-15 MT3/MT6	E1500743-006	P301062	28-AUG-15	02:19:49

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS05.PRO\SampleDB\20150827.SPL
Last Modified: Friday, August 28, 2015 08:49:23 Eastern Daylight Time
Printed: Friday, August 28, 2015 08:49:38 Eastern Daylight Time

Page Position (1, 1)

e: P301051.res 1613

	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	08/27/15	14:46	P301050	WINDOW DEFINE	WINDOW DEFINE	Tray1:1	EPA1613_ALS	Dioxin_ALS	LL	HRMS check 14:17
2		16:11	P301051	CS3	CS3	Tray1:2	EPA1613_ALS	Dioxin_ALS		
3		18:14	P301052	EQ1500495-01	MB	Tray1:3	EPA1613_ALS	Dioxin_ALS		HRMS Check 18:09
4		19:02	P301053	E1500795-001	E1500795-001	Tray1:4	EPA1613_ALS	Dioxin_ALS		
5		19:50	P301054	E1500745-003	E1500745-003	Tray1:5	EPA1613_ALS	Dioxin_ALS		
6		20:39	P301055	E1500745-004	E1500745-004	Tray1:6	EPA1613_ALS	Dioxin_ALS		
7		21:28	P301056	E1500745-005	E1500745-005	Tray1:7	EPA1613_ALS	Dioxin_ALS		
8		22:16	P301057	E1500743-001	E1500743-001	Tray1:8	EPA1613_ALS	Dioxin_ALS		
9		23:05	P301058	E1500743-002	E1500743-002	Tray1:9	EPA1613_ALS	Dioxin_ALS		
10		23:53	P301059	E1500743-003	E1500743-003	Tray1:10	EPA1613_ALS	Dioxin_ALS		
11	08/28/15	00:42	P301060	E1500743-004	E1500743-004	Tray1:11	EPA1613_ALS	Dioxin_ALS		
12		01:31	P301061	E1500743-005	E1500743-005	Tray1:12	EPA1613_ALS	Dioxin_ALS		
13		02:19	P301062	E1500743-006	E1500743-006	Tray1:13	EPA1613_ALS	Dioxin_ALS		
14		03:08	P301063	CS3	CS3	Tray1:14	EPA1613_ALS	Dioxin_ALS		HRMS Check 13:48
15			---	---	---	Tray1:15	EPA1613_ALS	Dioxin_ALS		
16	---	---	---	---	---	Tray1:16	EPA1613_ALS	Dioxin_ALS	---	---
17			---	---	---	Tray1:17	EPA1613_ALS	Dioxin_ALS		
18	---	---	---	---	---	Tray1:18	EPA1613_ALS	Dioxin_ALS	---	---
19			---	---	---	Tray1:19	EPA1613_ALS	Dioxin_ALS		
20	---	---	---	---	---	Tray1:20	EPA1613_ALS	Dioxin_ALS	---	---
21	---	---	---	---	---	Tray1:21	EPA1613_ALS	Dioxin_ALS	---	---
22	---	---	---	---	---	Tray1:22	EPA1613_ALS	Dioxin_ALS	---	---
23	---	---	---	---	---	Tray1:23	EPA1613_ALS	Dioxin_ALS	---	---
24	---	---	---	---	---	Tray1:24	EPA1613_ALS	Dioxin_ALS	---	---
25	---	---	---	---	---	Tray1:25	EPA1613_ALS	Dioxin_ALS	---	---
26	---	---	---	---	---	Tray1:26	EPA1613_ALS	Dioxin_ALS	---	---
27	---	---	---	---	---	Tray1:27	EPA1613_ALS	Dioxin_ALS	---	---
28	---	---	---	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
29	---	---	---	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
30	---	---	---	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
31	---	---	---	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
32	---	---	---	---	---	Tray1:32	EPA1613_ALS	Dioxin_ALS	---	---
33	---	---	---	---	---	Tray1:33	EPA1613_ALS	Dioxin_ALS	---	---
34	---	---	---	---	---	Tray1:34	EPA1613_ALS	Dioxin_ALS	---	---
35	---	---	---	---	---	Tray1:35	EPA1613_ALS	Dioxin_ALS	---	---
36	---	---	---	---	---	Tray1:36	EPA1613_ALS	Dioxin_ALS	---	---
37	---	---	---	---	---	Tray1:37	EPA1613_ALS	Dioxin_ALS	---	---
38	---	---	---	---	---	Tray1:38	EPA1613_ALS	Dioxin_ALS	---	---
39	---	---	---	---	---	Tray1:39	EPA1613_ALS	Dioxin_ALS	---	---

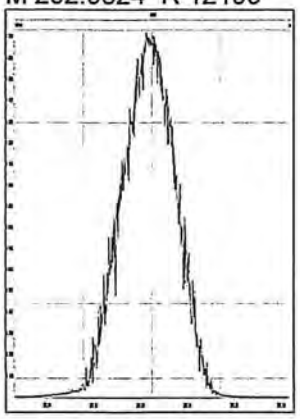
JC 08/28/15

084

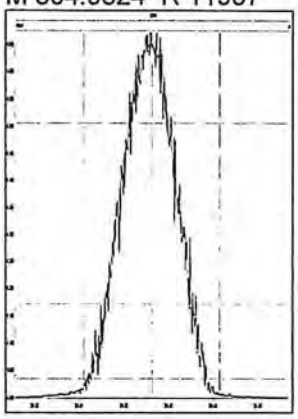
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, August 27, 2015 14:17:55 Eastern Daylight Time

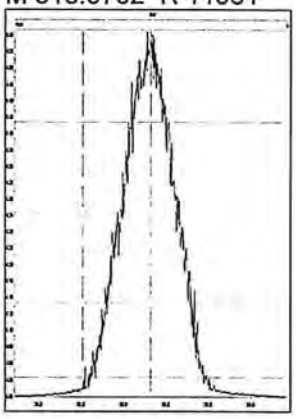
M 292.9824 R 12199



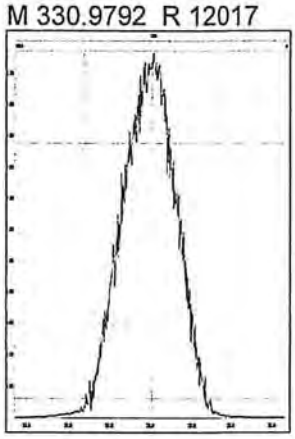
M 304.9824 R 11957



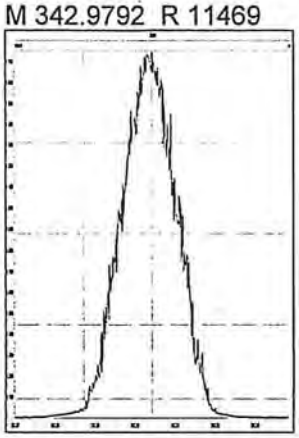
M 318.9792 R 11961



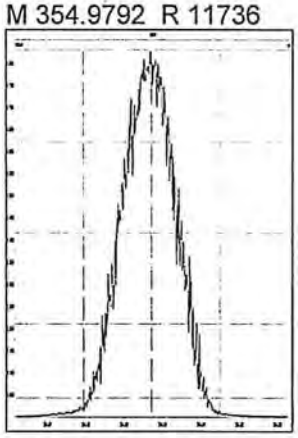
M 330.9792 R 12017



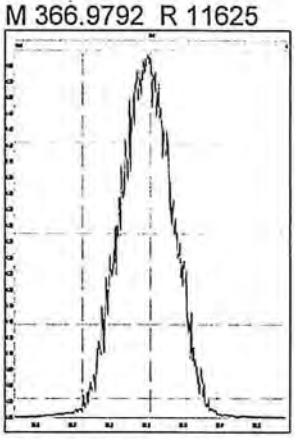
M 342.9792 R 11469



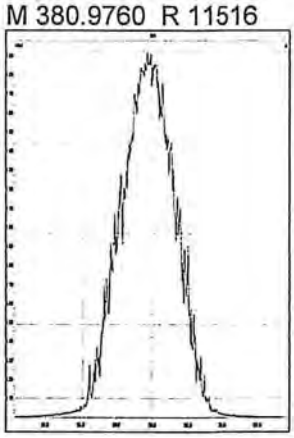
M 354.9792 R 11736



M 366.9792 R 11625



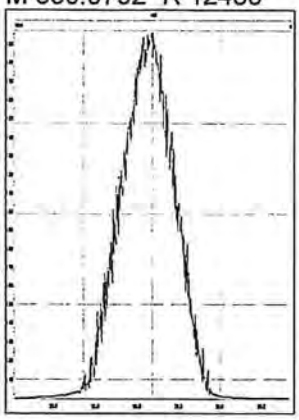
M 380.9760 R 11516



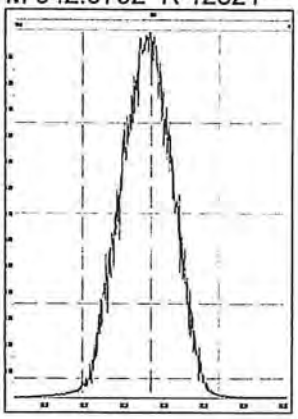
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, August 27, 2015 14:18:22 Eastern Daylight Time

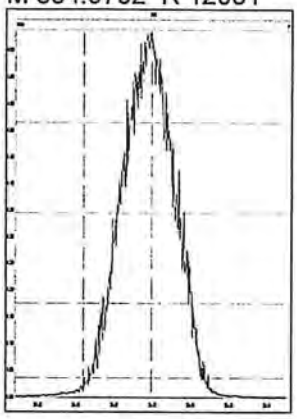
M 330.9792 R 12435



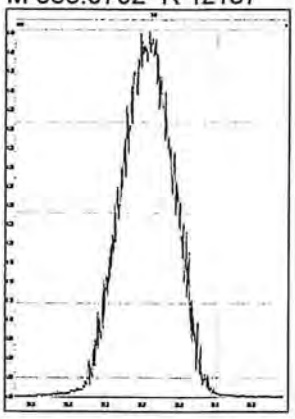
M 342.9792 R 12821



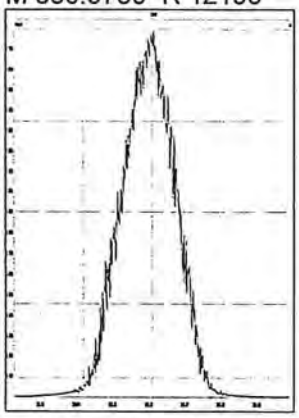
M 354.9792 R 12081



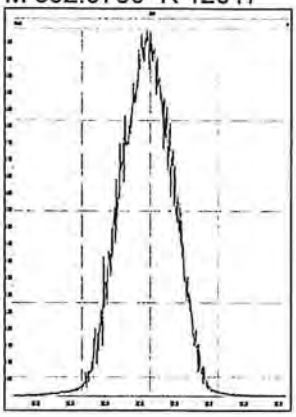
M 366.9792 R 12137



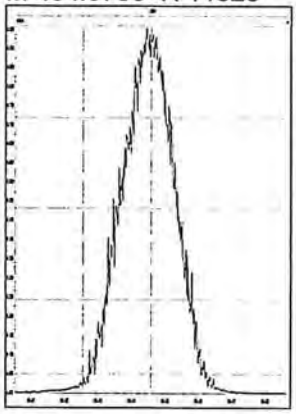
M 380.9760 R 12195



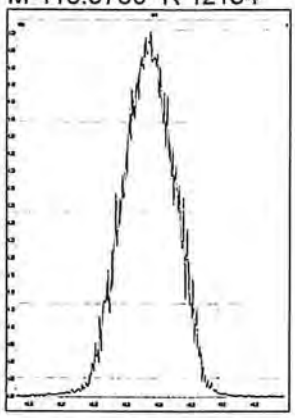
M 392.9760 R 12017



M 404.9760 R 11628



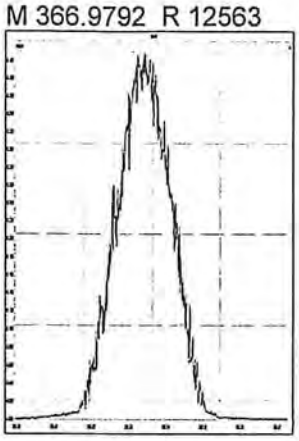
M 416.9760 R 12134



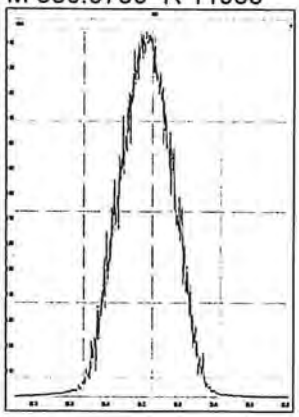
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, August 27, 2015 14:18:41 Eastern Daylight Time

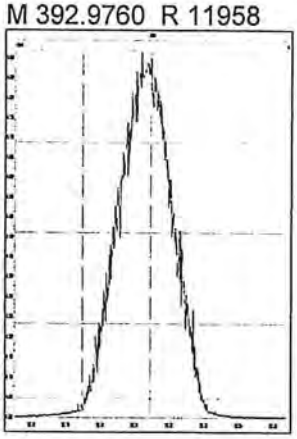
M 366.9792 R 12563



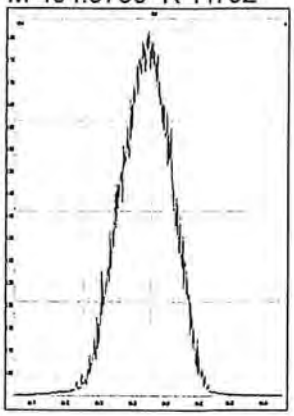
M 380.9760 R 11965



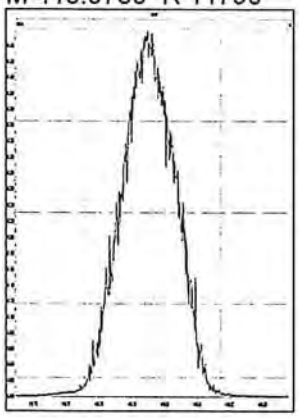
M 392.9760 R 11958



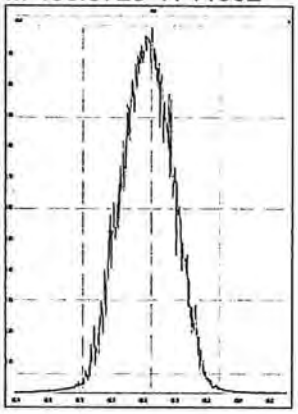
M 404.9760 R 11792



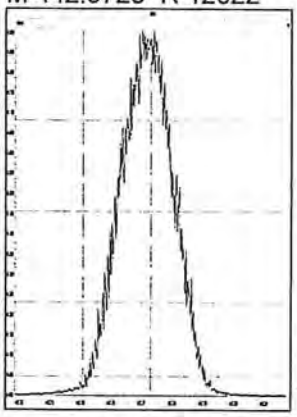
M 416.9760 R 11790



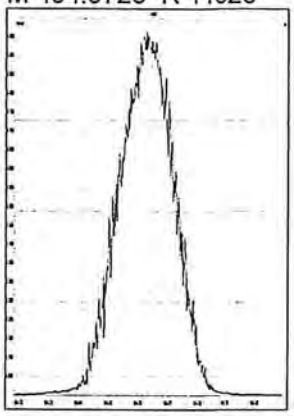
M 430.9728 R 11962



M 442.9728 R 12022



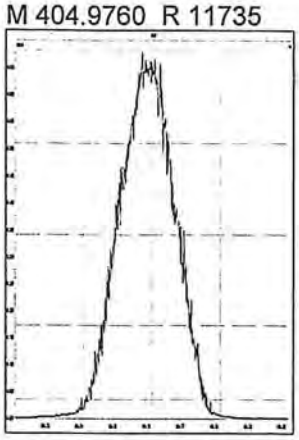
M 454.9728 R 11629



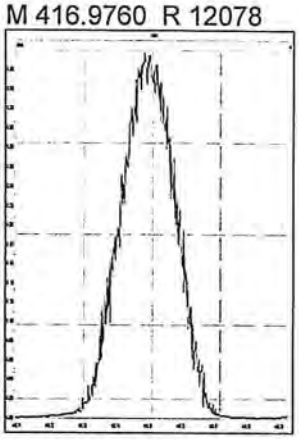
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, August 27, 2015 14:19:14 Eastern Daylight Time

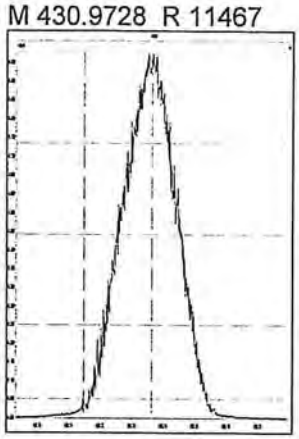
M 404.9760 R 11735



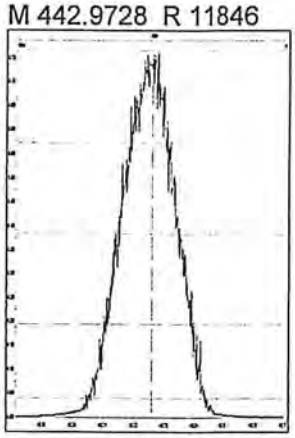
M 416.9760 R 12078



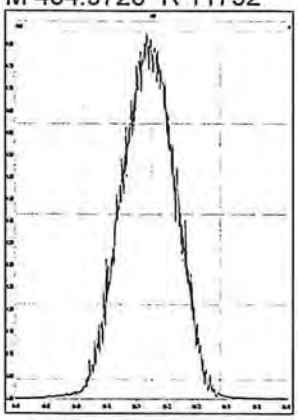
M 430.9728 R 11467



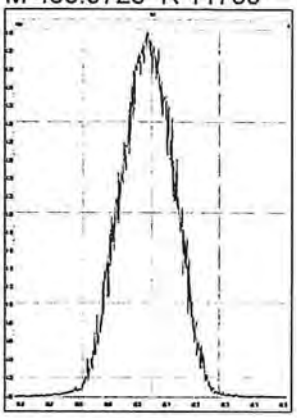
M 442.9728 R 11846



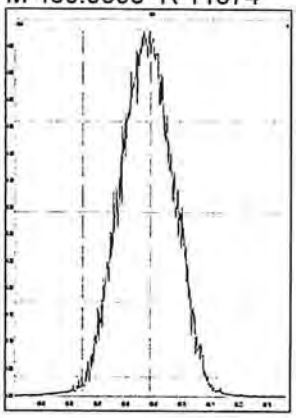
M 454.9728 R 11792



M 466.9728 R 11735



M 480.9696 R 11574

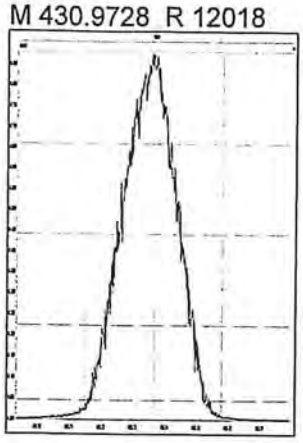


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

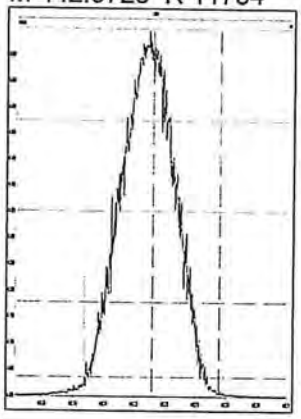
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, August 27, 2015 14:19:47 Eastern Daylight Time

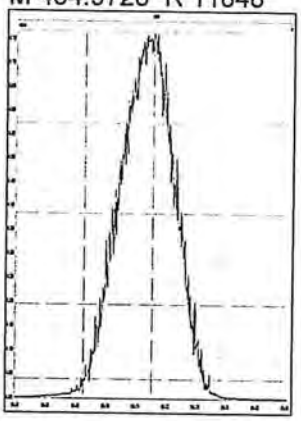
M 430.9728 R 12018



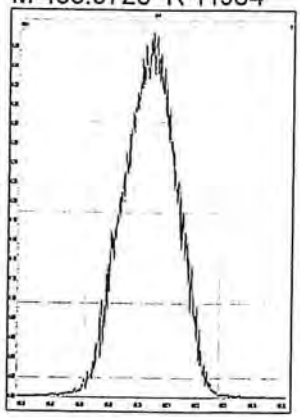
M 442.9728 R 11734



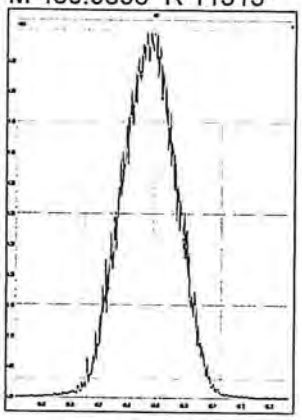
M 454.9728 R 11848



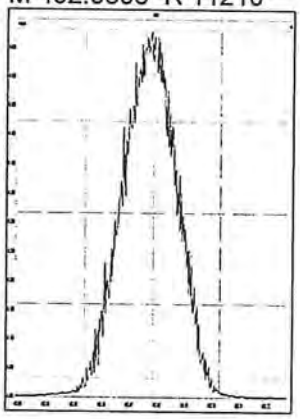
M 466.9728 R 11964



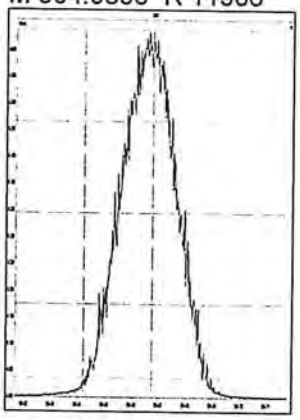
M 480.9696 R 11313



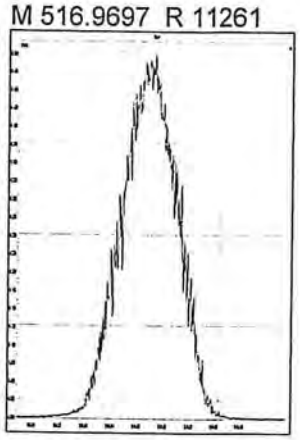
M 492.9696 R 11210



M 504.9696 R 11906



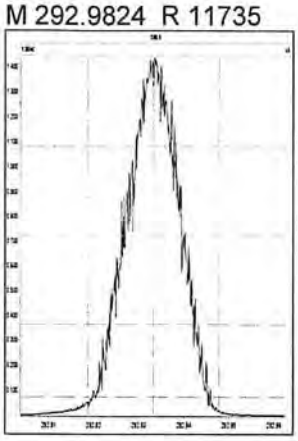
M 516.9697 R 11261



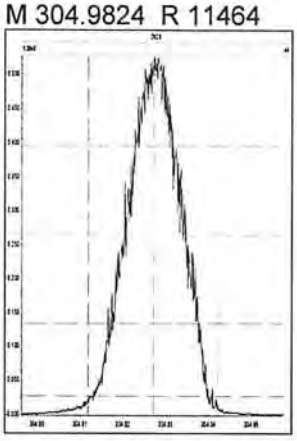
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, August 27, 2015 18:09:48 Eastern Daylight Time

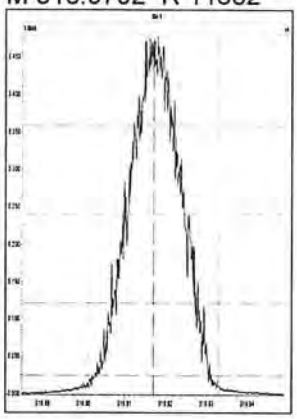
M 292.9824 R 11735



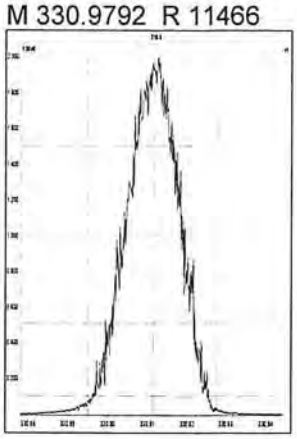
M 304.9824 R 11464



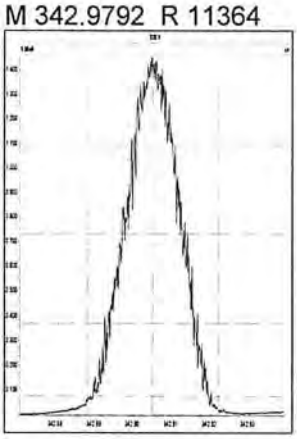
M 318.9792 R 11682



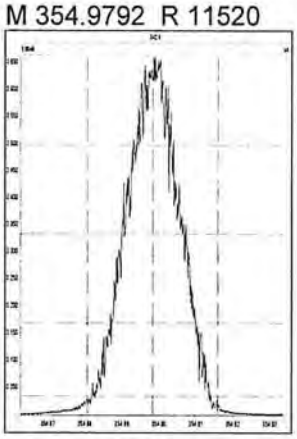
M 330.9792 R 11466



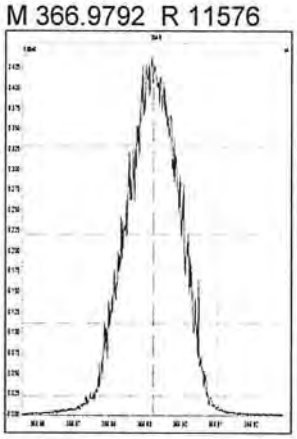
M 342.9792 R 11364



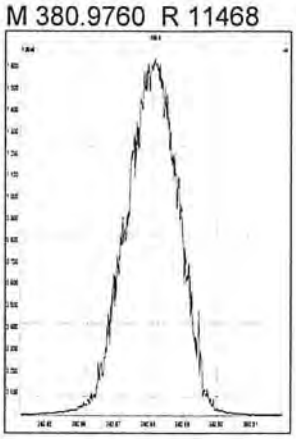
M 354.9792 R 11520



M 366.9792 R 11576



M 380.9760 R 11468

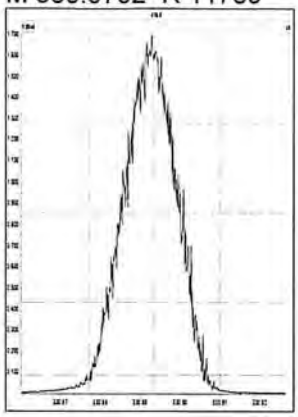


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

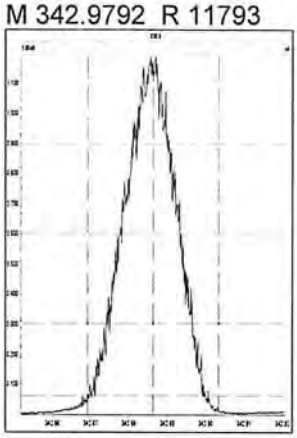
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, August 27, 2015 18:10:27 Eastern Daylight Time

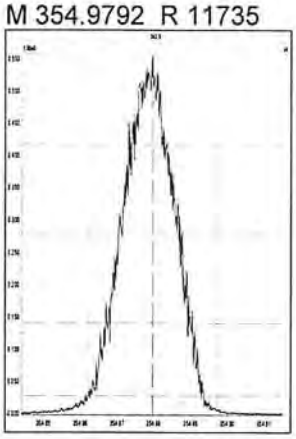
M 330.9792 R 11789



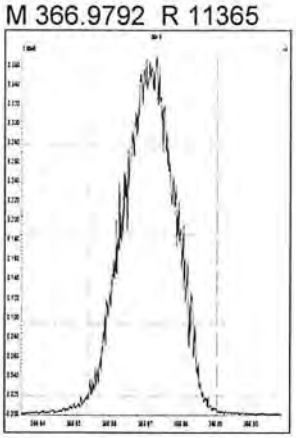
M 342.9792 R 11793



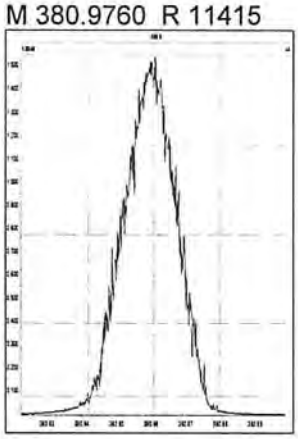
M 354.9792 R 11735



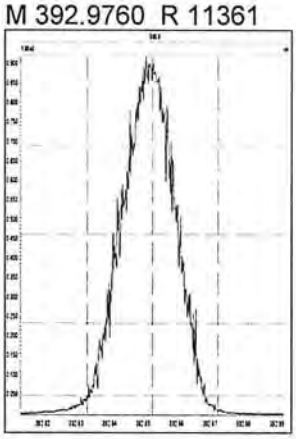
M 366.9792 R 11365



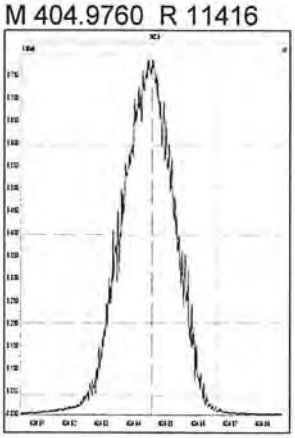
M 380.9760 R 11415



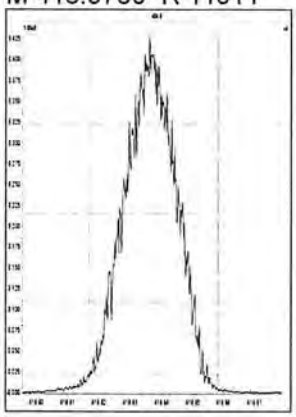
M 392.9760 R 11361



M 404.9760 R 11416



M 416.9760 R 11311

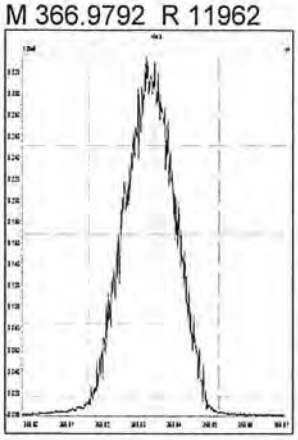


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

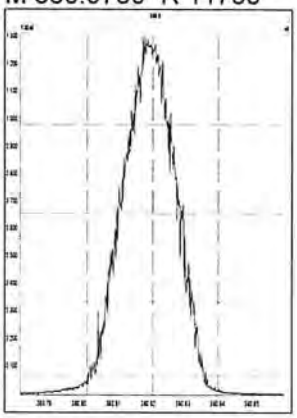
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, August 27, 2015 18:11:02 Eastern Daylight Time

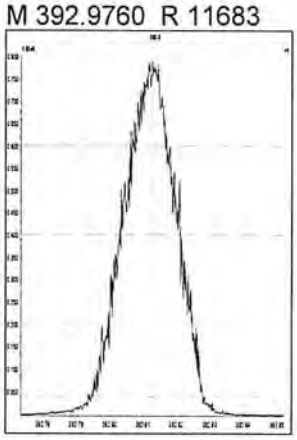
M 366.9792 R 11962



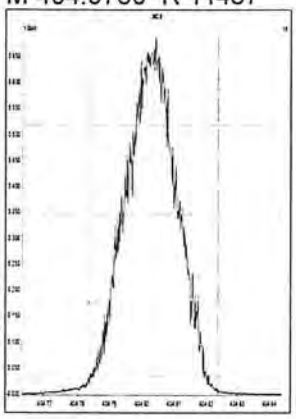
M 380.9760 R 11735



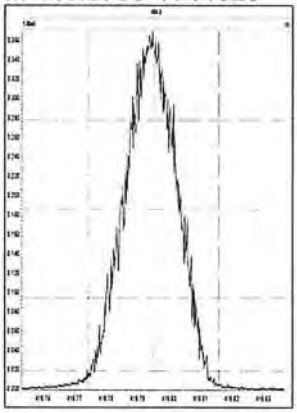
M 392.9760 R 11683



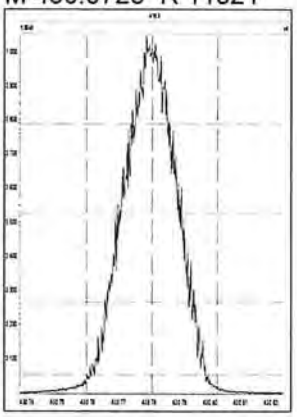
M 404.9760 R 11467



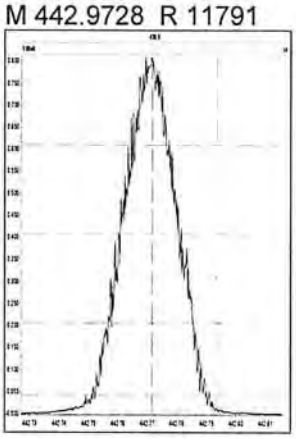
M 416.9760 R 11625



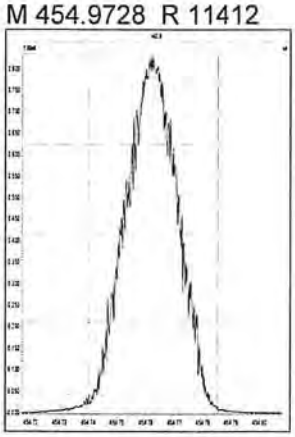
M 430.9728 R 11521



M 442.9728 R 11791



M 454.9728 R 11412

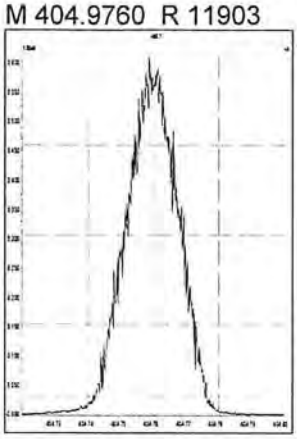


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

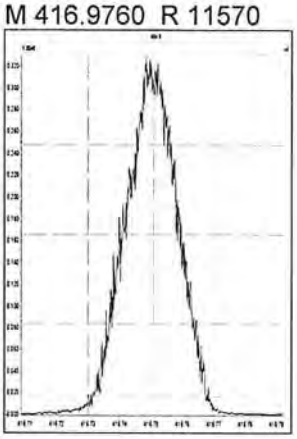
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, August 27, 2015 18:11:39 Eastern Daylight Time

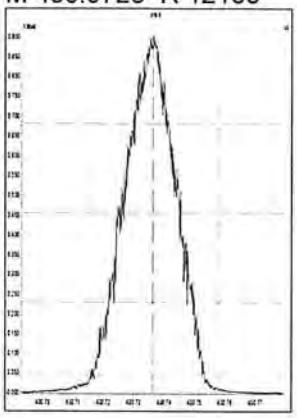
M 404.9760 R 11903



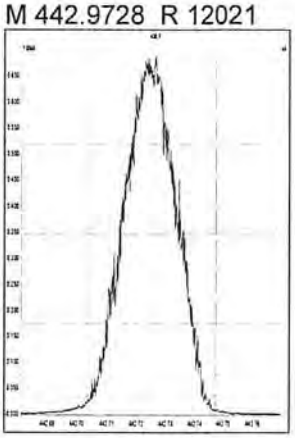
M 416.9760 R 11570



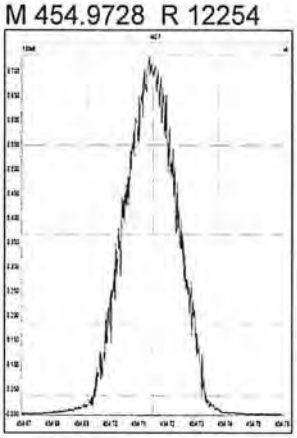
M 430.9728 R 12135



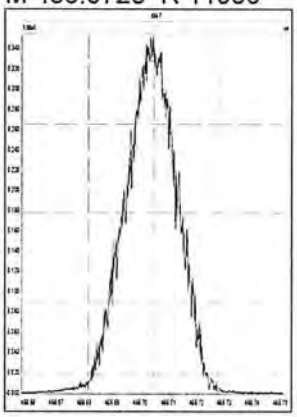
M 442.9728 R 12021



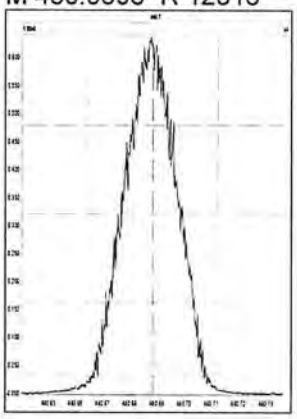
M 454.9728 R 12254



M 466.9728 R 11960



M 480.9696 R 12316

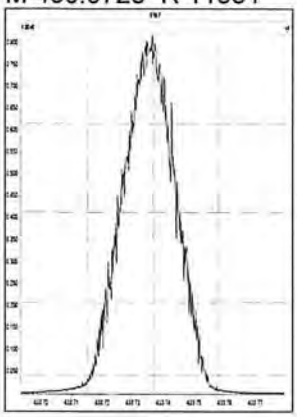


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

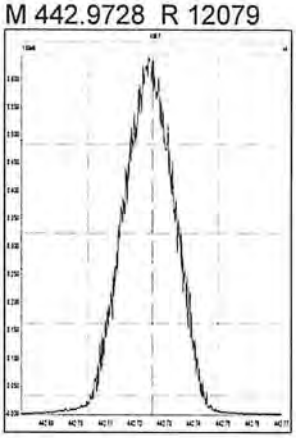
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, August 27, 2015 18:12:20 Eastern Daylight Time

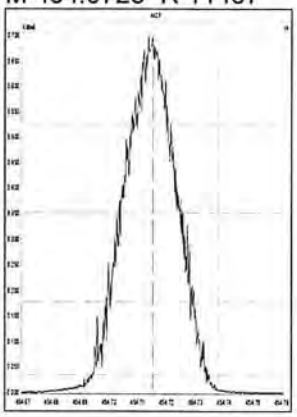
M 430.9728 R 11631



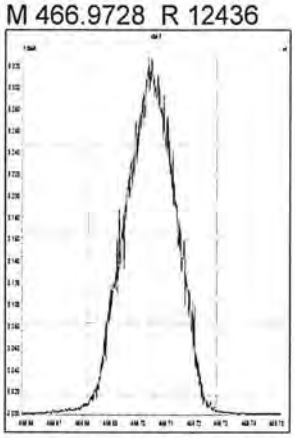
M 442.9728 R 12079



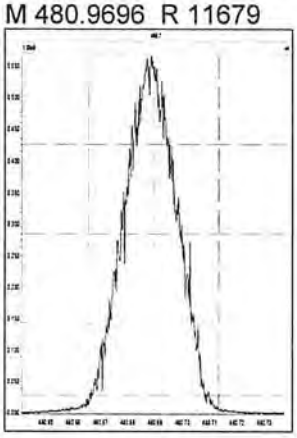
M 454.9728 R 11467



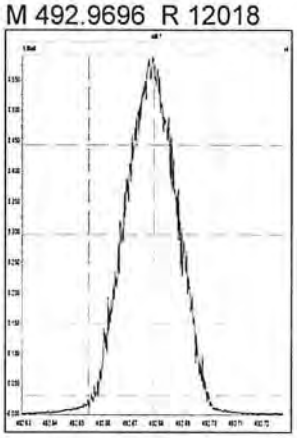
M 466.9728 R 12436



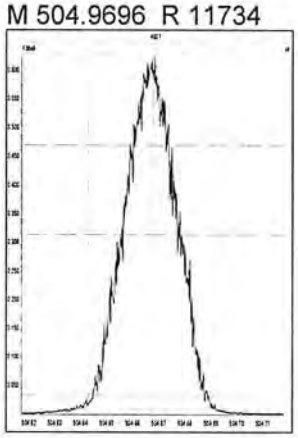
M 480.9696 R 11679



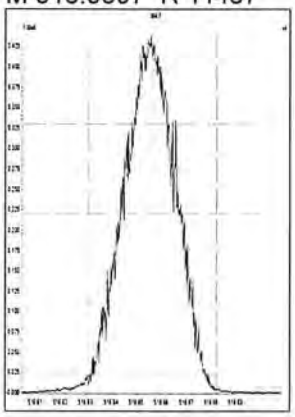
M 492.9696 R 12018



M 504.9696 R 11734

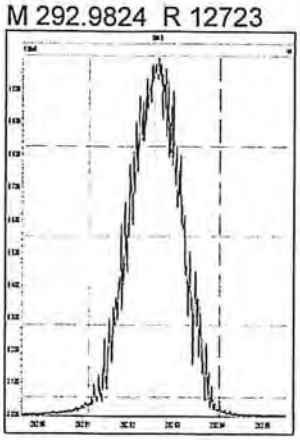


M 516.9697 R 11467



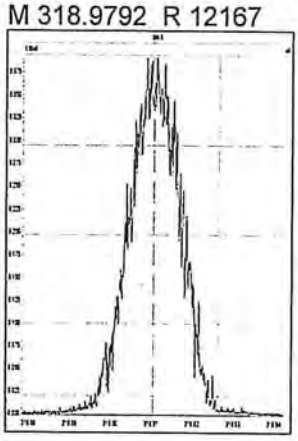
Printed: Friday, August 28, 2015 13:48:43 Eastern Daylight Time

M 292.9824 R 12723

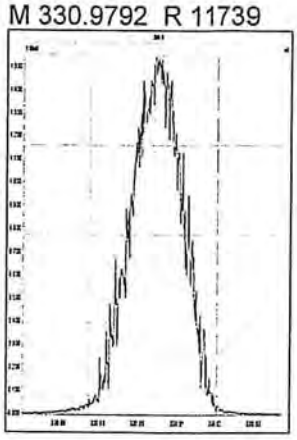


M 304.9824 R 12319

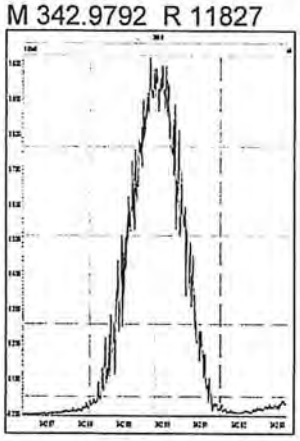
M 318.9792 R 12167



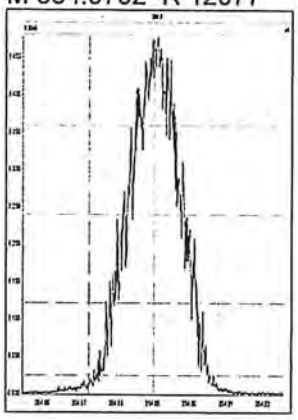
M 330.9792 R 11739



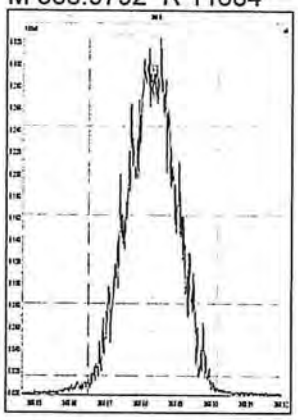
M 342.9792 R 11827



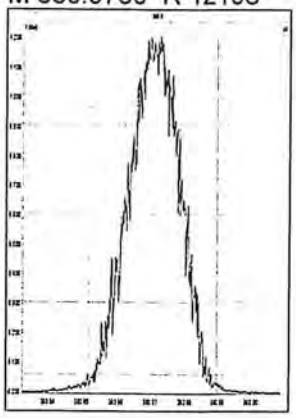
M 354.9792 R 12077



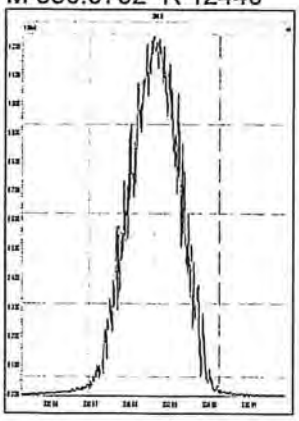
M 366.9792 R 11684



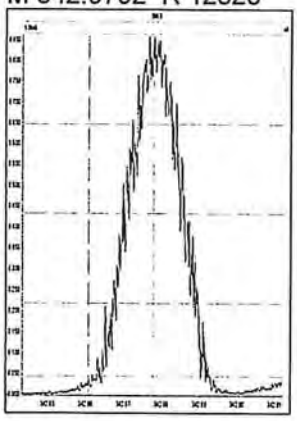
M 380.9760 R 12106



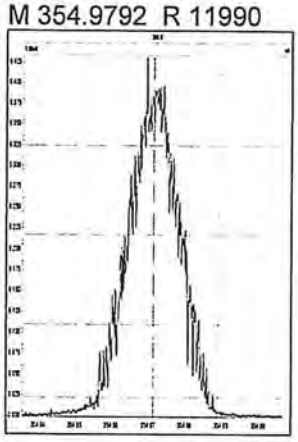
M 330.9792 R 12440



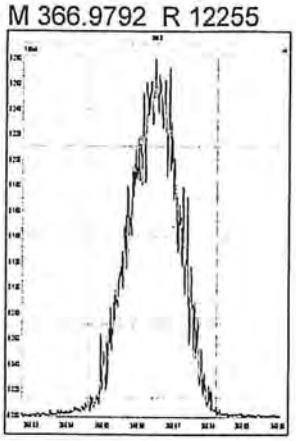
M 342.9792 R 12828



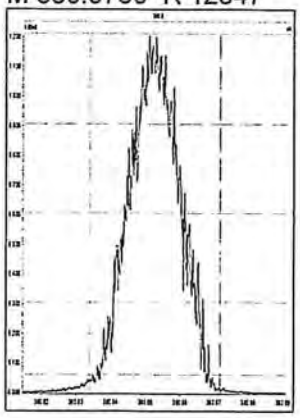
M 354.9792 R 11990



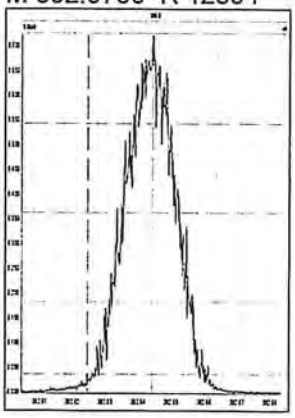
M 366.9792 R 12255



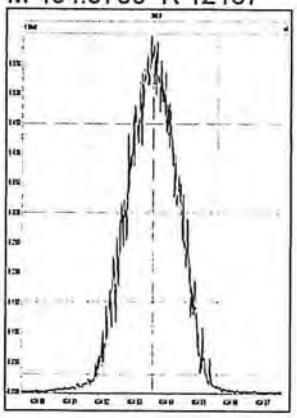
M 380.9760 R 12347



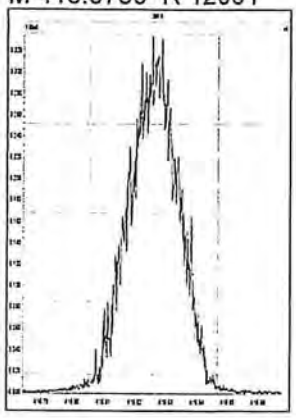
M 392.9760 R 12594



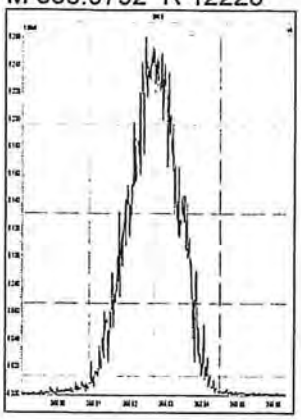
M 404.9760 R 12167



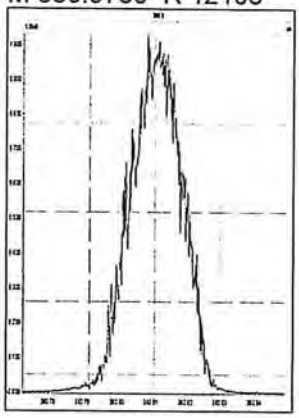
M 416.9760 R 12001



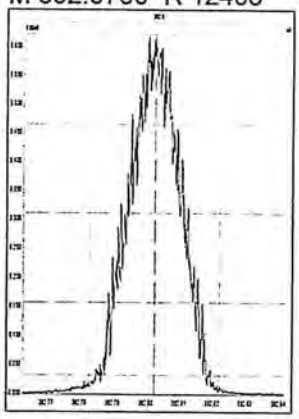
M 366.9792 R 12228



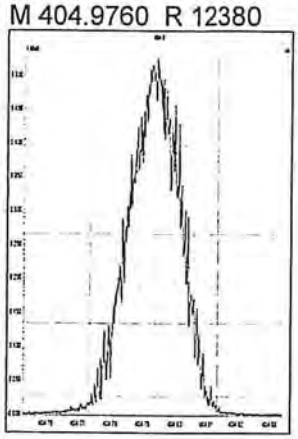
M 380.9760 R 12106



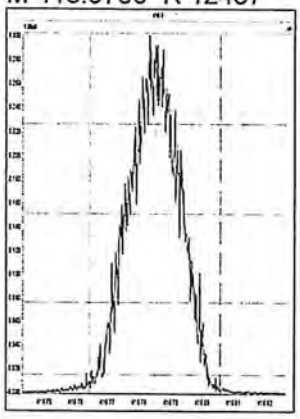
M 392.9760 R 12406



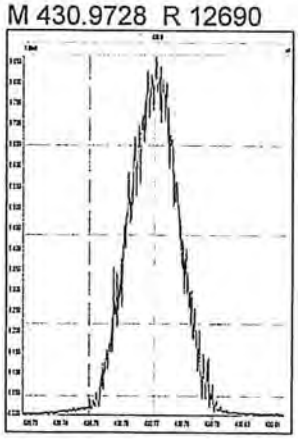
M 404.9760 R 12380



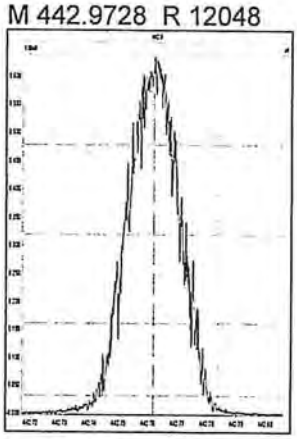
M 416.9760 R 12437



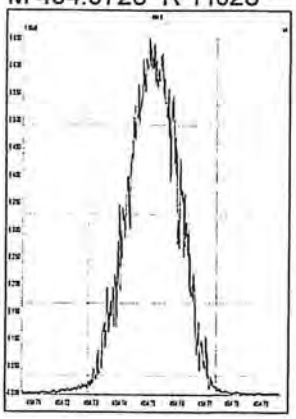
M 430.9728 R 12690



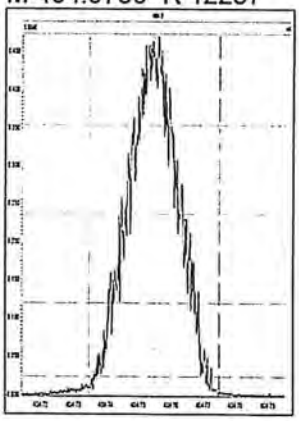
M 442.9728 R 12048



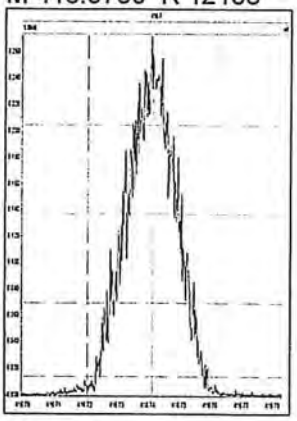
M 454.9728 R 11628



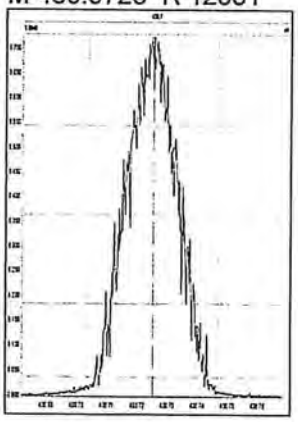
M 404.9760 R 12257



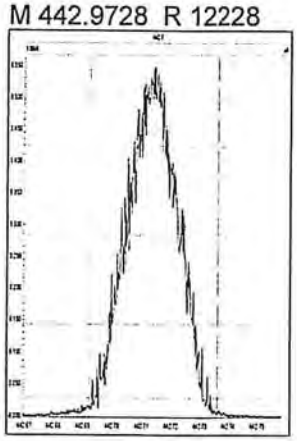
M 416.9760 R 12138



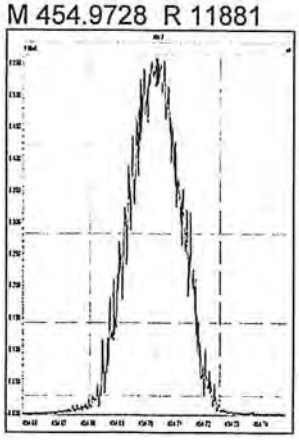
M 430.9728 R 12531



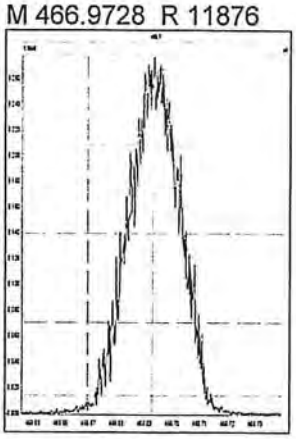
M 442.9728 R 12228



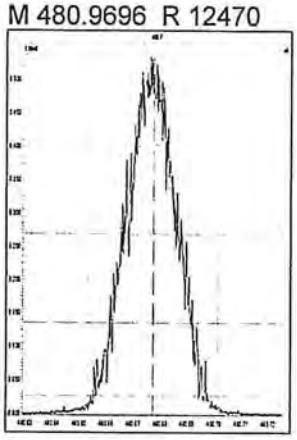
M 454.9728 R 11881



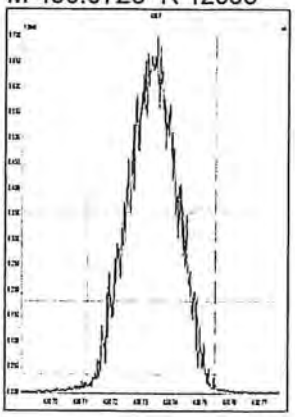
M 466.9728 R 11876



M 480.9696 R 12470

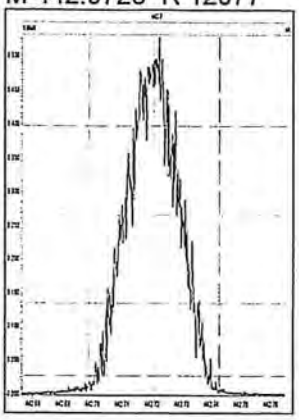


M 430.9728 R 12358

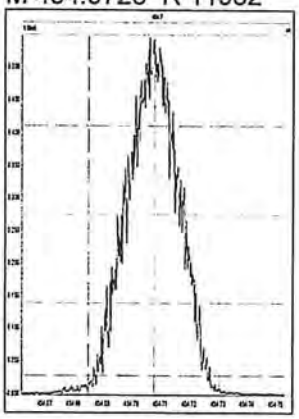


Printed: Friday, August 28, 2015 13:48:43 Eastern Daylight Time

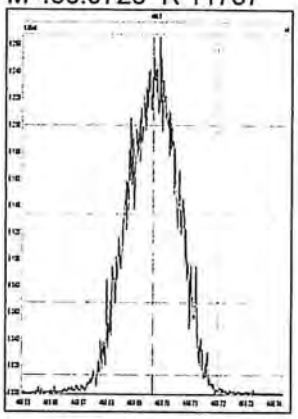
M 442.9728 R 12077



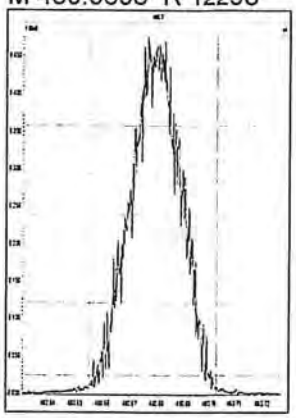
M 454.9728 R 11962



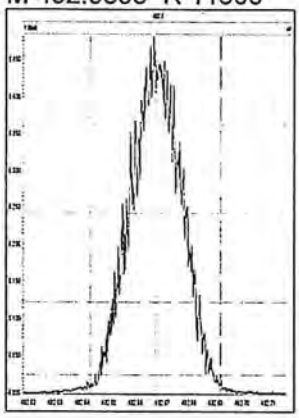
M 466.9728 R 11737



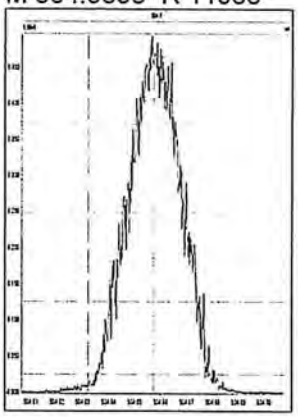
M 480.9696 R 12293



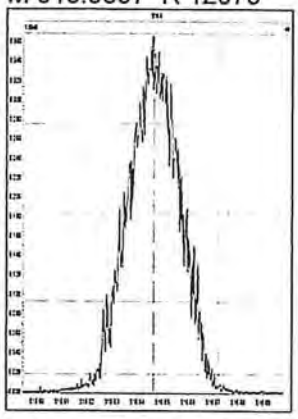
M 492.9696 R 11605



M 504.9696 R 11968



M 516.9697 R 12079



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

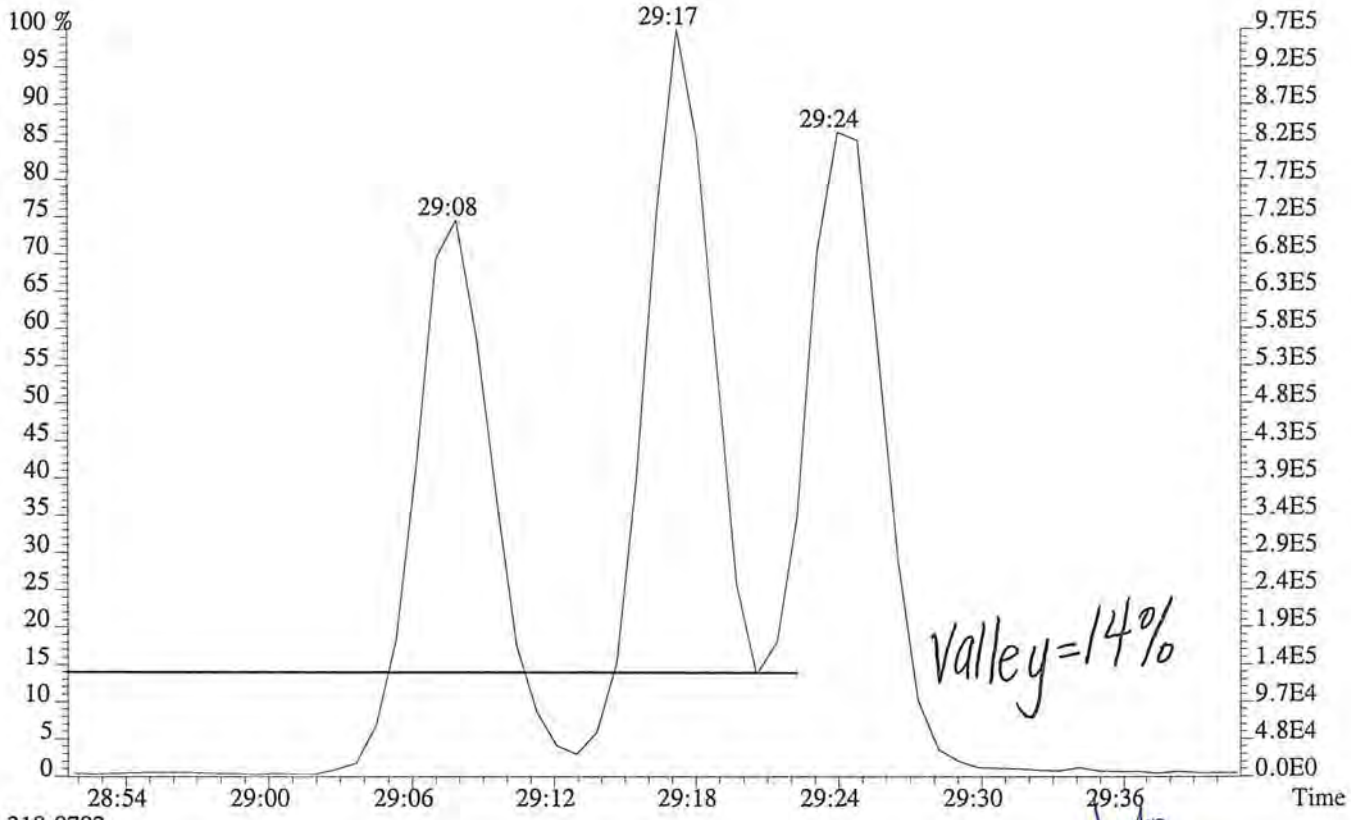
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P301050
Date Analyzed: 27-AUG-2015
Time Analyzed: 14:46:21

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:15	30:25
TCDD	26:08	30:15
PeCDF	30:21	34:29
PeCDD	31:50	34:15
HxCDF	35:08	37:36
HxCDD	35:38	37:12
HpCDF	38:48	40:13
HpCDD	39:03	39:44

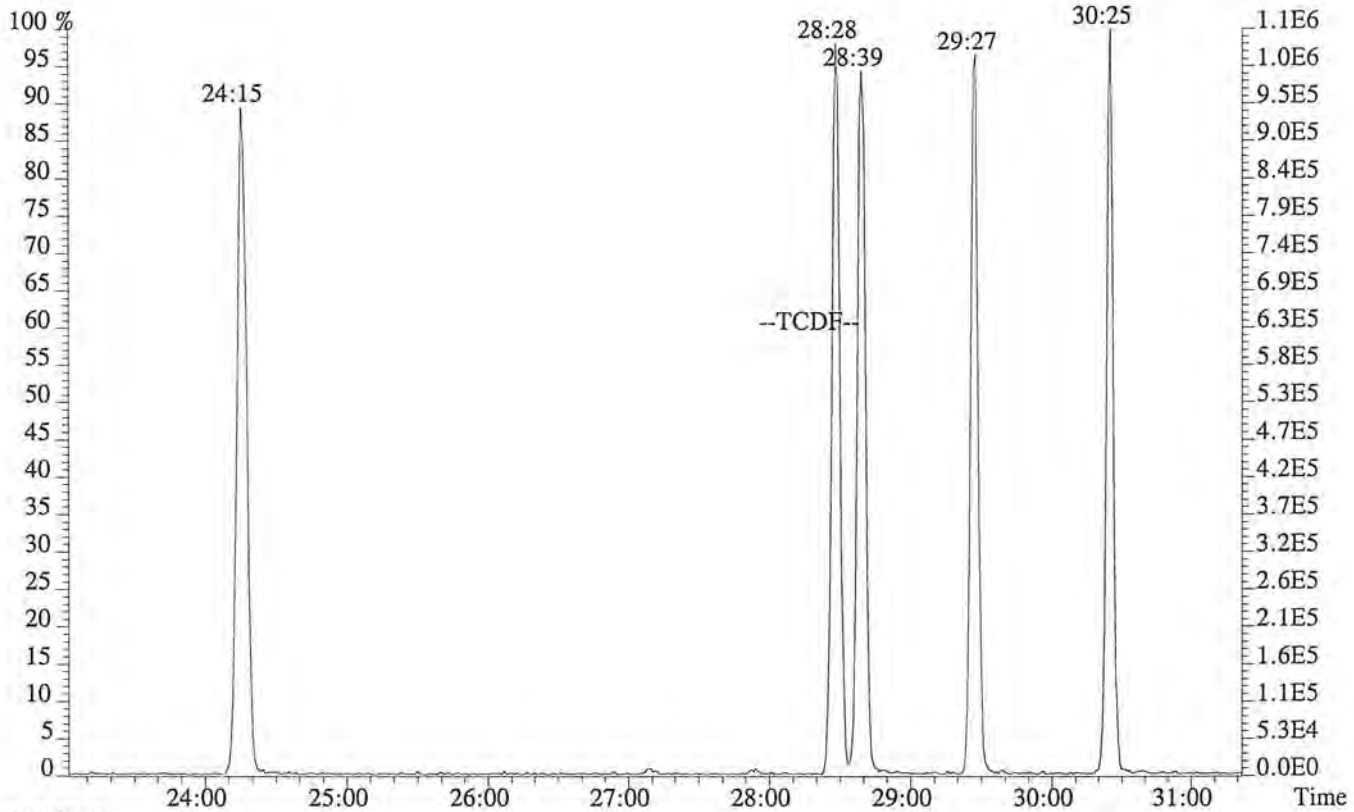
% Valley 2378-TCDD: 14 %

File:P301050 #1-591 Acq:27-AUG-2015 14:46:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965

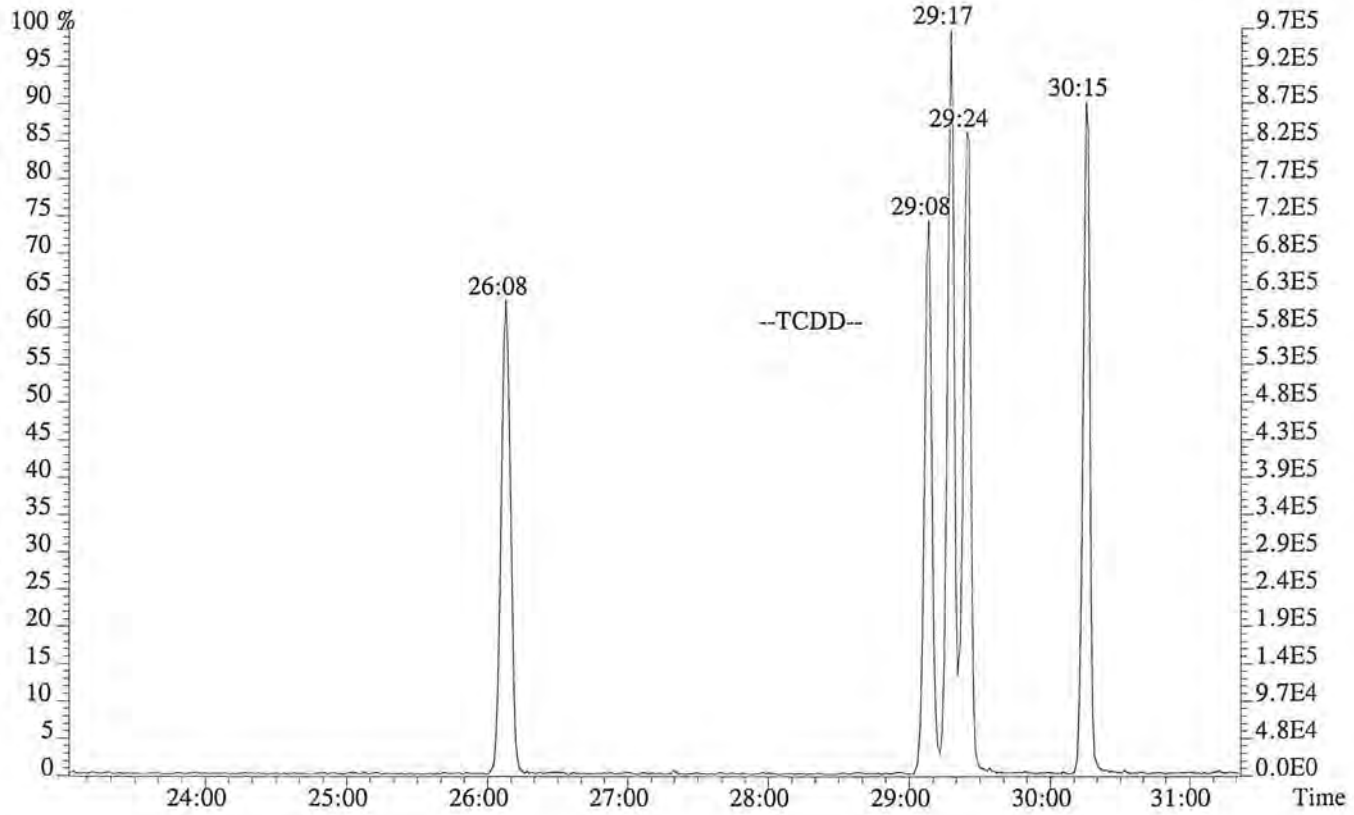


318.9792

File:P301050 #1-591 Acq:27-AUG-2015 14:46:21 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:WINDOW DEFINE
303.9016



319.8965



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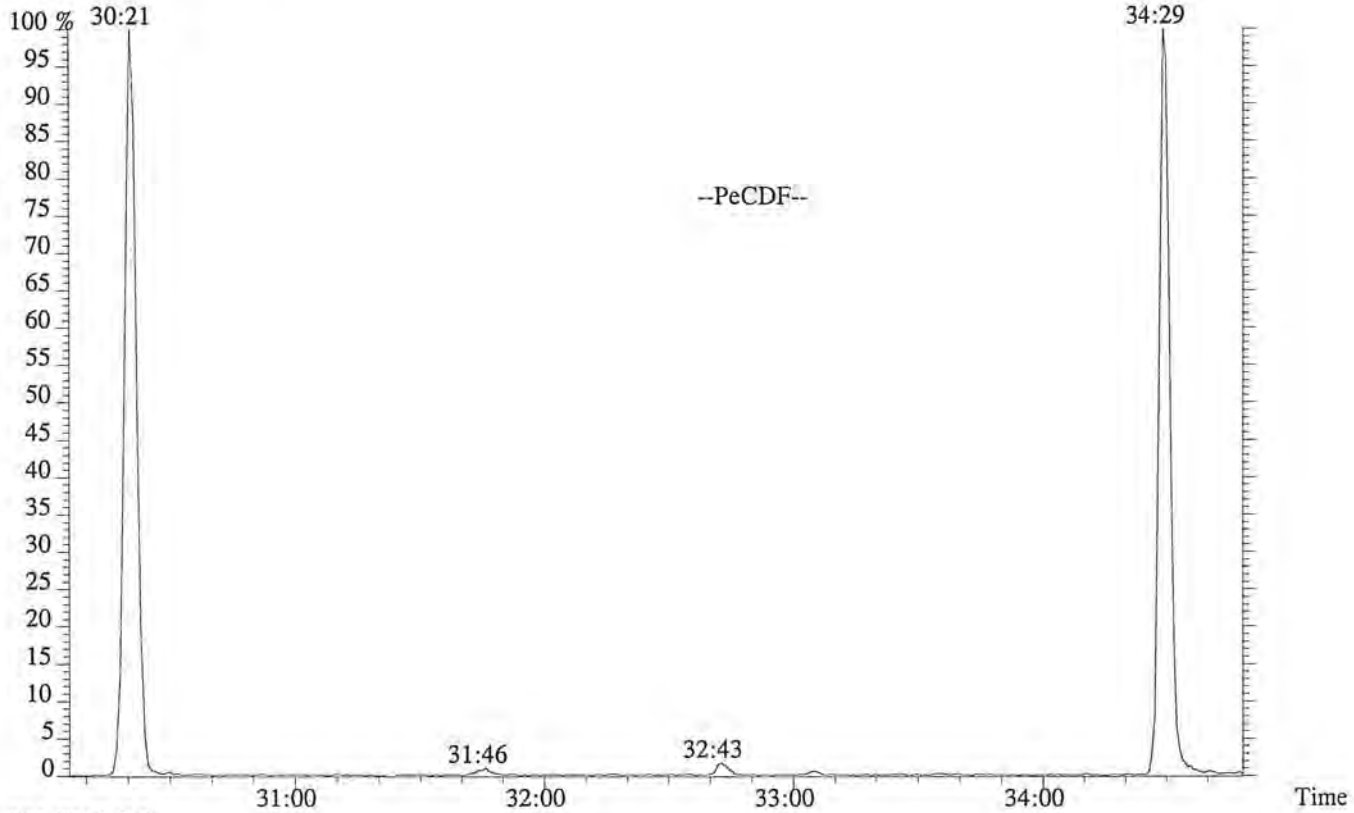
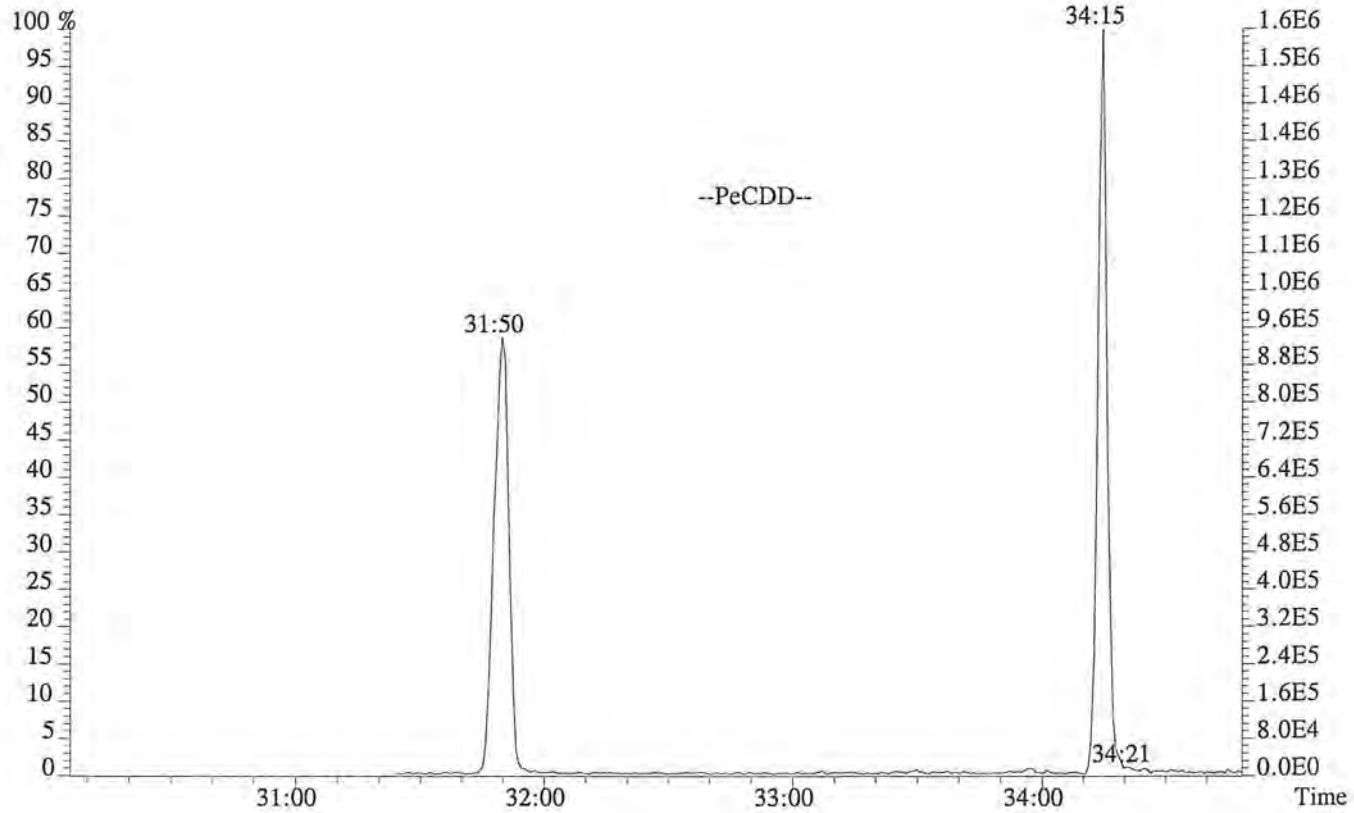
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



355.8546 F:2



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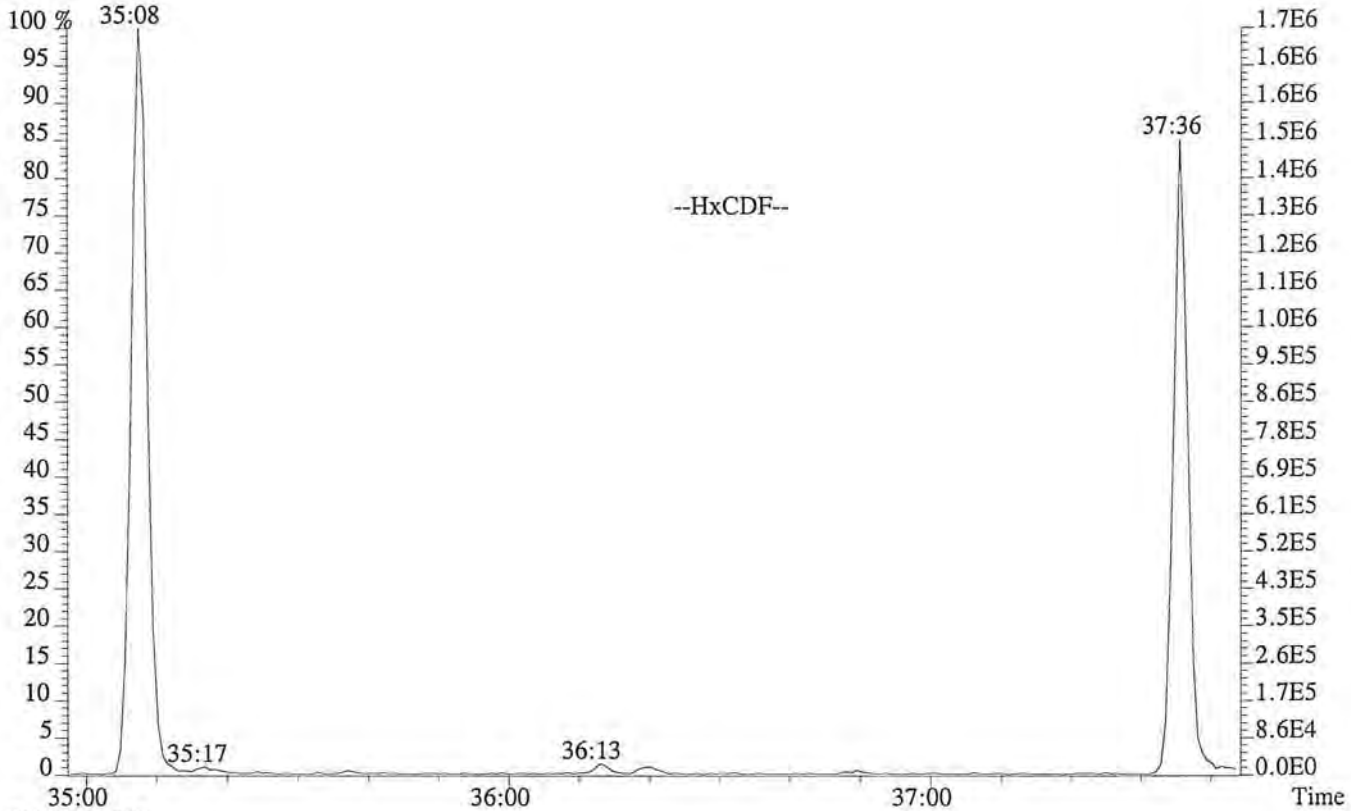
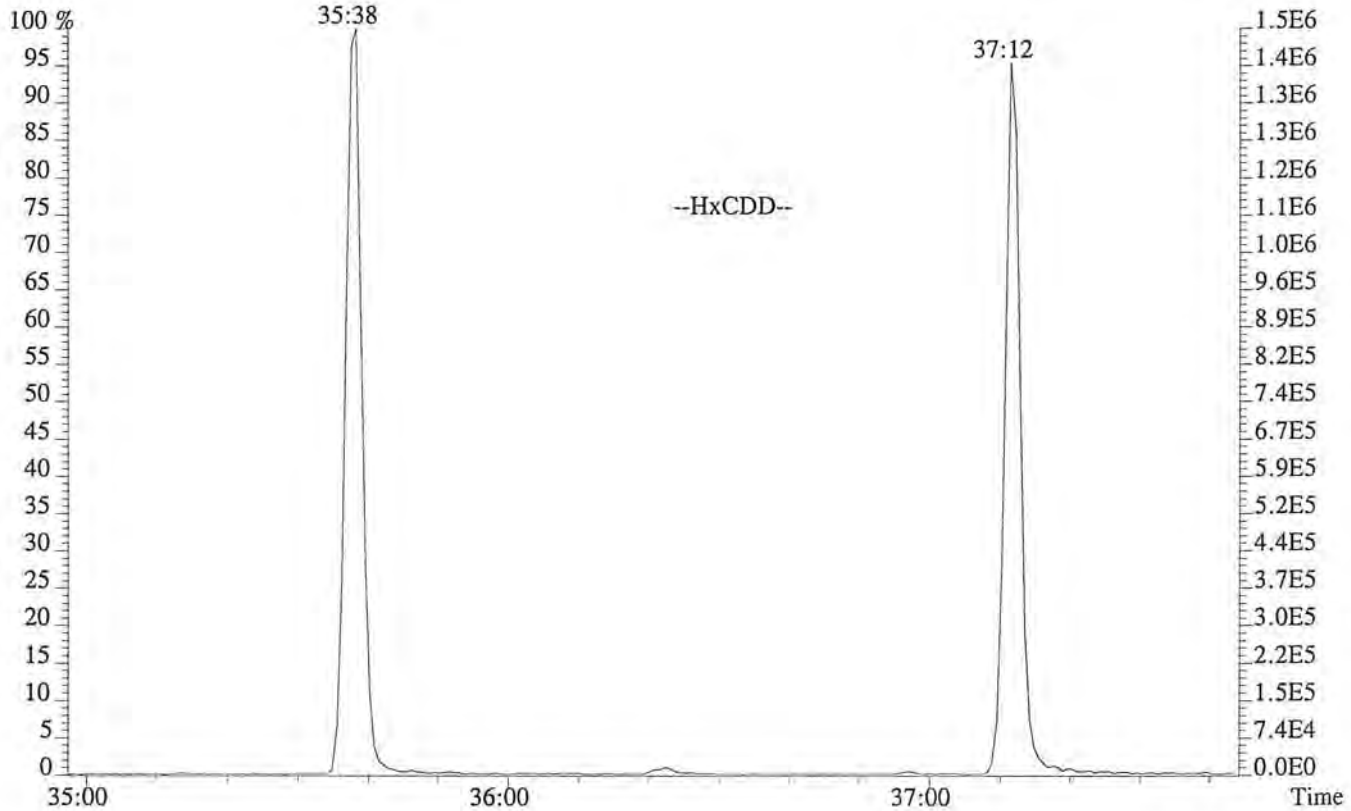
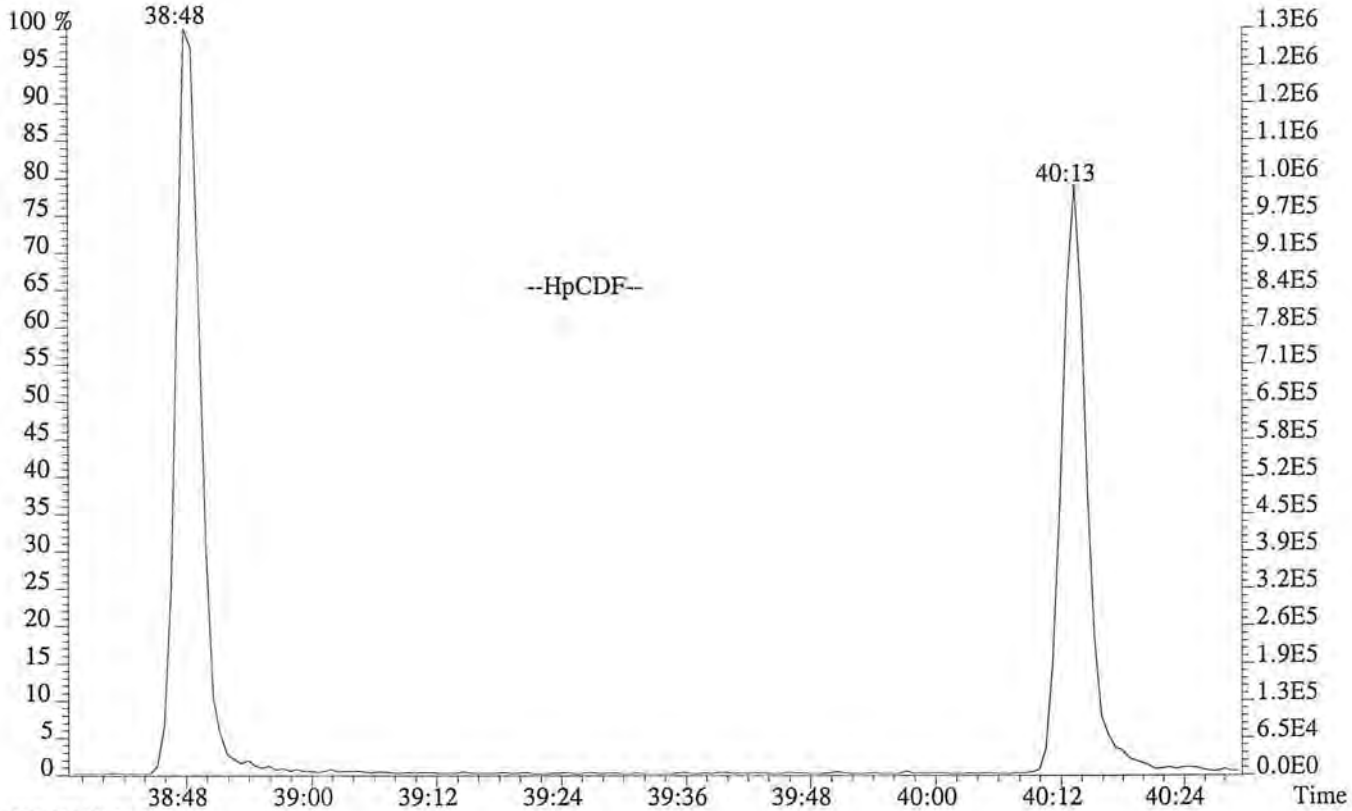
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



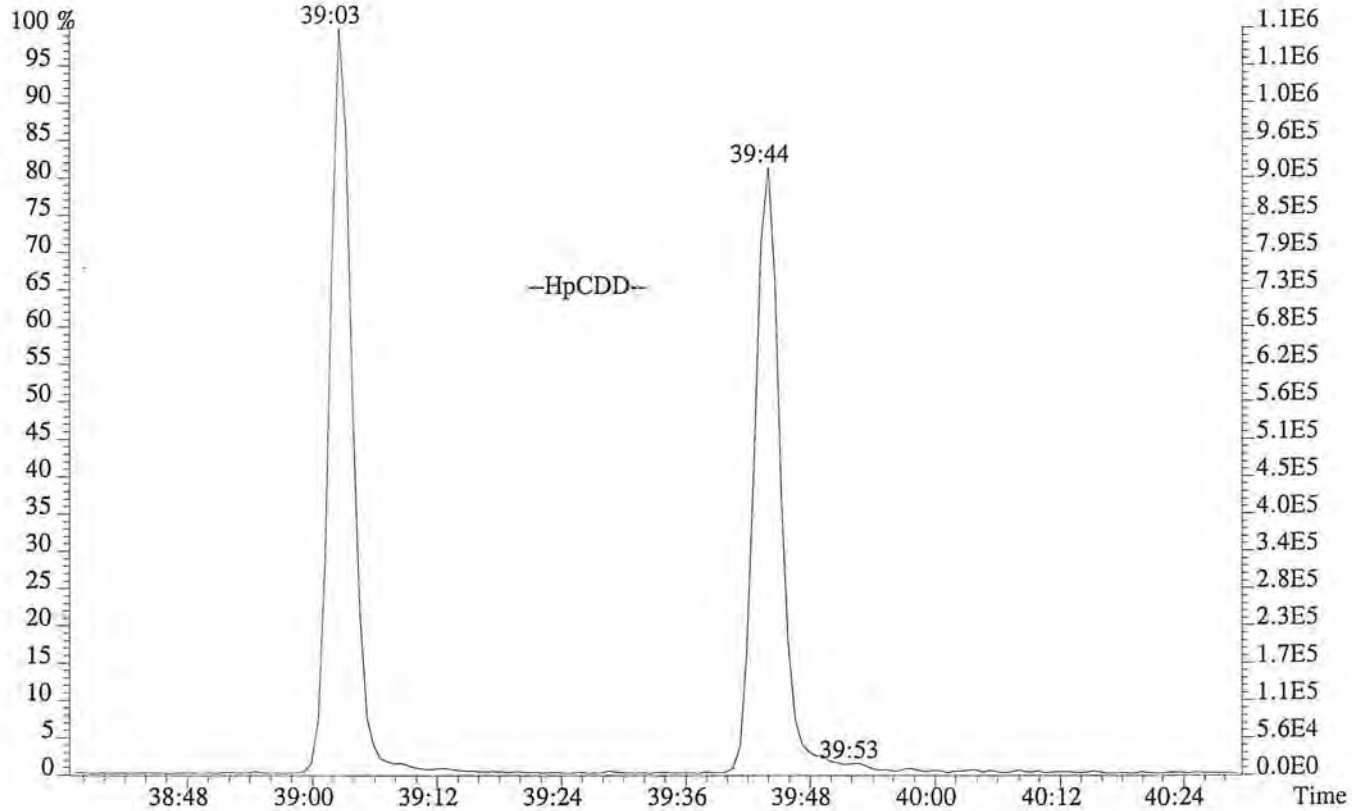
389.8157 F:3



File:P301050 #1-241 Acq:27-AUG-2015 14:46:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/21/15

Instrument ID: E-HRMS-05 GC Column ID: DB-5MSUI

VER Data Filename: P301051 Analysis Date: 27-AUG-15 Time: 16:11:03

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.75	0.65-0.89	9.8	7.8 - 12.9	-1.9
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	52	39 - 65	4.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	52	39 - 64	3.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	53	39 - 64	6.9
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	52	41 - 61	4.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	52	43 - 58	4.0
OCDD	M+2/M+4	0.89	0.76-1.02	103	79 - 126	2.9
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	10.2	8.4 - 12.0	2.0
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	52	41 - 60	4.2
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	52	41 - 61	3.3
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	52	45 - 56	3.3
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	51	44 - 57	2.7
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	52	45 - 56	4.8
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	51	44 - 57	2.5
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	52	45 - 55	4.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	51	43 - 58	2.2
OCDF	M+2/M+4	0.90	0.76-1.02	102	63 - 159	2.2

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/21/15

Instrument ID: E-HRMS-05 GC Column ID: DB-5MSUI

VER Data Filename: P301051 Analysis Date: 27-AUG-15 Time: 16:11:03

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	102	82 - 121	2.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	108	62 - 160	7.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	100	85 - 117	0.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	96	85 - 118	-3.9
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	104	72 - 138	3.8
13C-OCDD	M+2/M+4	0.90	0.76-1.02	211	96 - 415	5.6
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	98	71 - 140	-1.6
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	106	76 - 130	6.2
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	110	77 - 130	9.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	76 - 131	-4.2
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	70 - 143	-2.5
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	103	74 - 135	2.7
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	101	73 - 137	0.6
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	101	78 - 129	1.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	103	77 - 129	3.5
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.6	7.8 - 12.7	-3.6

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
CS3

Run #7 Filename P301051 Samp: 1 Inj: 1 Acquired: 27-AUG-15 16:11:03
Processed: 28-AUG-15 11:53:14 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:38	5.001e+03	6.522e+03	0.77	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	32:42	4.460e+04	2.859e+04	1.56	yes	no	0.929
3	Unk	2,3,4,7,8-PeCDF	33:35	4.136e+04	2.670e+04	1.55	yes	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	36:12	3.788e+04	3.049e+04	1.24	yes	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:19	4.023e+04	3.237e+04	1.24	yes	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:48	3.739e+04	3.019e+04	1.24	yes	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	37:33	3.475e+04	2.776e+04	1.25	yes	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:47	3.295e+04	3.162e+04	1.04	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	40:12	2.741e+04	2.657e+04	1.03	yes	no	1.245
10	Unk	OCDF	42:44	4.394e+04	4.904e+04	0.90	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:23	4.097e+03	5.474e+03	0.75	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:52	3.152e+04	2.028e+04	1.55	yes	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:56	2.849e+04	2.265e+04	1.26	yes	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:02	2.875e+04	2.260e+04	1.27	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:16	2.991e+04	2.419e+04	1.24	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	2.453e+04	2.363e+04	1.04	yes	no	0.949
17	Unk	OCDD	42:32	3.937e+04	4.442e+04	0.89	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:37	5.894e+04	7.401e+04	0.80	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	9.265e+04	5.848e+04	1.58	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:35	9.150e+04	5.856e+04	1.56	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	3.906e+04	7.580e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	4.489e+04	8.568e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	4.201e+04	8.142e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:32	3.776e+04	7.320e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	2.859e+04	6.515e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:11	2.587e+04	5.901e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:22	4.457e+04	5.736e+04	0.78	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:51	6.833e+04	4.345e+04	1.57	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:56	5.670e+04	4.438e+04	1.28	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:01	5.545e+04	4.395e+04	1.26	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	5.023e+04	4.737e+04	1.06	yes	no	0.850
32	IS	13C-OCDD	42:31	7.273e+04	8.074e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:49	4.498e+04	5.740e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:15	6.251e+04	4.807e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	9.882e+03				no	1.001

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www.alsglobal.com

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
CS3

Run #7 Filename P301051 Samp: 1 Inj: 1 Acquired: 27-AUG-15 16:11:03
Processed: 28-AUG-15 11:53:14 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.02e+06	1.43e+03	7.1e+02	1.32e+06	3.08e+03	4.3e+02
2	1,2,3,7,8-PeCDF	8.77e+06	8.24e+02	1.1e+04	5.65e+06	2.19e+03	2.6e+03
3	2,3,4,7,8-PeCDF	8.72e+06	8.24e+02	1.1e+04	5.63e+06	2.19e+03	2.6e+03
4	1,2,3,4,7,8-HxCDF	8.39e+06	1.06e+03	7.9e+03	6.79e+06	3.20e+02	2.1e+04
5	1,2,3,6,7,8-HxCDF	8.86e+06	1.06e+03	8.4e+03	7.10e+06	3.20e+02	2.2e+04
6	2,3,4,6,7,8-HxCDF	8.34e+06	1.06e+03	7.9e+03	6.85e+06	3.20e+02	2.1e+04
7	1,2,3,7,8,9-HxCDF	7.25e+06	1.06e+03	6.9e+03	5.91e+06	3.20e+02	1.8e+04
8	1,2,3,4,6,7,8-HpCDF	7.34e+06	1.95e+03	3.8e+03	7.05e+06	2.80e+03	2.5e+03
9	1,2,3,4,7,8,9-HpCDF	5.33e+06	1.95e+03	2.7e+03	5.18e+06	2.80e+03	1.8e+03
10	OCDF	7.48e+06	2.15e+03	3.5e+03	8.43e+06	3.01e+03	2.8e+03
11	2,3,7,8-TCDD	8.33e+05	1.74e+03	4.8e+02	1.14e+06	1.08e+03	1.1e+03
12	1,2,3,7,8-PeCDD	6.71e+06	3.14e+03	2.1e+03	4.30e+06	1.10e+03	3.9e+03
13	1,2,3,4,7,8-HxCDD	6.62e+06	8.24e+02	8.0e+03	5.29e+06	1.93e+03	2.7e+03
14	1,2,3,6,7,8-HxCDD	6.31e+06	8.24e+02	7.7e+03	4.96e+06	1.93e+03	2.6e+03
15	1,2,3,7,8,9-HxCDD	6.67e+06	8.24e+02	8.1e+03	5.30e+06	1.93e+03	2.7e+03
16	1,2,3,4,6,7,8-HpCDD	5.03e+06	1.24e+03	4.1e+03	4.80e+06	8.68e+02	5.5e+03
17	OCDD	7.05e+06	7.32e+02	9.6e+03	7.91e+06	1.40e+03	5.7e+03
18	13C-2,3,7,8-TCDF	1.15e+07	1.72e+03	6.7e+03	1.44e+07	2.28e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.86e+07	9.72e+02	1.9e+04	1.18e+07	1.95e+03	6.0e+03
20	13C-2,3,4,7,8-PeCDF	1.92e+07	9.72e+02	2.0e+04	1.23e+07	1.95e+03	6.3e+03
21	13C-1,2,3,4,7,8-HxCDF	8.63e+06	1.40e+03	6.2e+03	1.69e+07	1.90e+03	8.9e+03
22	13C-1,2,3,6,7,8-HxCDF	9.84e+06	1.40e+03	7.0e+03	1.87e+07	1.90e+03	9.9e+03
23	13C-2,3,4,6,7,8-HxCDF	9.35e+06	1.40e+03	6.7e+03	1.82e+07	1.90e+03	9.6e+03
24	13C-1,2,3,7,8,9-HxCDF	7.97e+06	1.40e+03	5.7e+03	1.54e+07	1.90e+03	8.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.39e+06	3.14e+03	2.0e+03	1.44e+07	3.87e+03	3.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.94e+06	3.14e+03	1.6e+03	1.13e+07	3.87e+03	2.9e+03
27	13C-2,3,7,8-TCDD	9.20e+06	6.29e+03	1.5e+03	1.18e+07	4.30e+03	2.8e+03
28	13C-1,2,3,7,8-PeCDD	1.40e+07	2.87e+03	4.9e+03	9.03e+06	9.24e+02	9.8e+03
29	13C-1,2,3,4,7,8-HxCDD	1.31e+07	2.19e+03	6.0e+03	1.03e+07	1.20e+03	8.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.20e+07	2.19e+03	5.5e+03	9.53e+06	1.20e+03	7.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.01e+07	2.48e+03	4.1e+03	9.51e+06	1.03e+03	9.2e+03
32	13C-OCDD	1.30e+07	1.12e+03	1.2e+04	1.42e+07	1.31e+03	1.1e+04
33	13C-1,2,3,4-TCDD	8.98e+06	6.29e+03	1.4e+03	1.15e+07	4.30e+03	2.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.36e+07	2.19e+03	6.2e+03	1.06e+07	1.20e+03	8.8e+03
35	37Cl-2,3,7,8-TCDD	2.06e+06	1.27e+03	1.6e+03			

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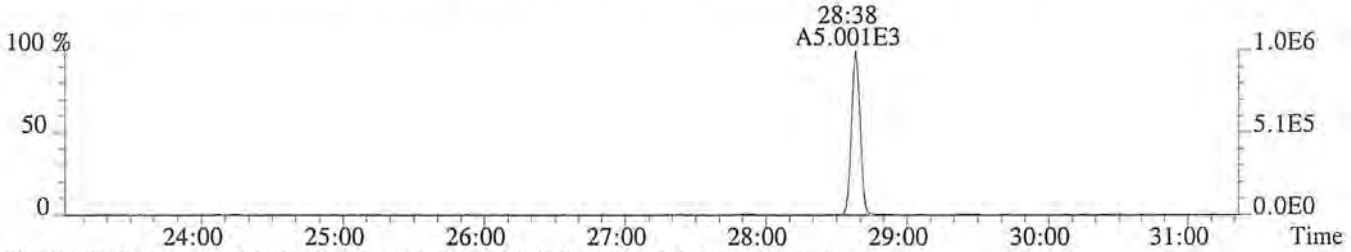
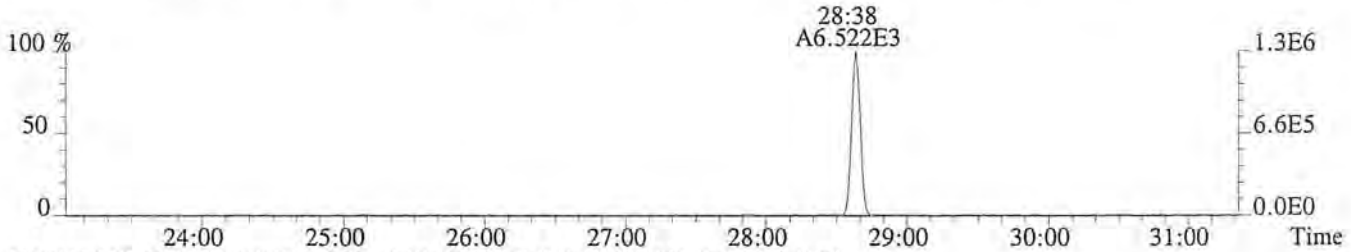
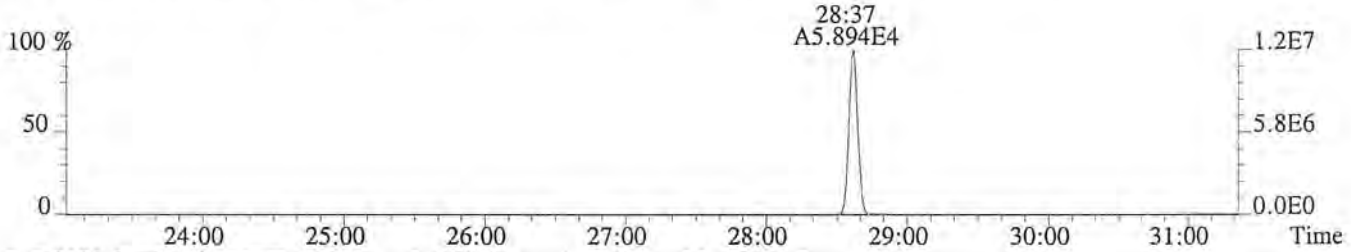
File:P301051 #1-591 Acq:27-AUG-2015 16:11:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



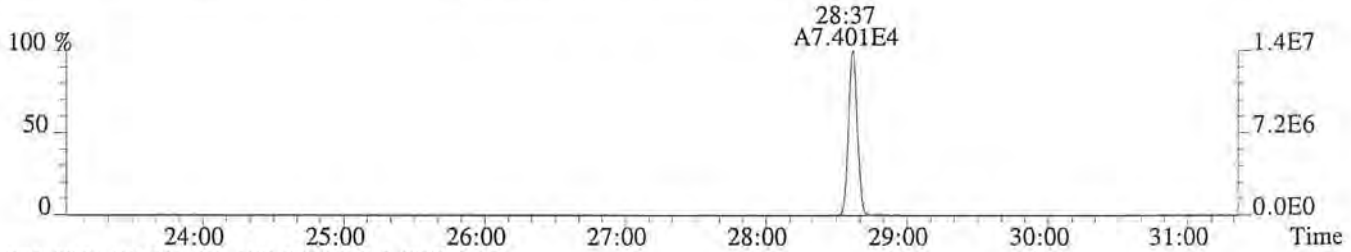
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3076.0,1.00%,F,T)



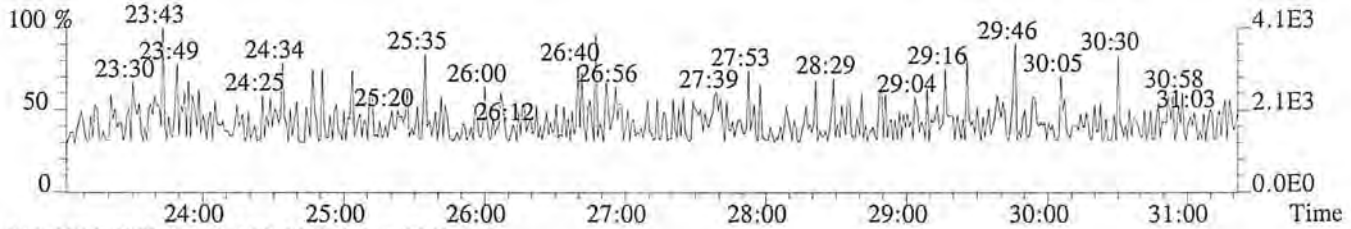
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



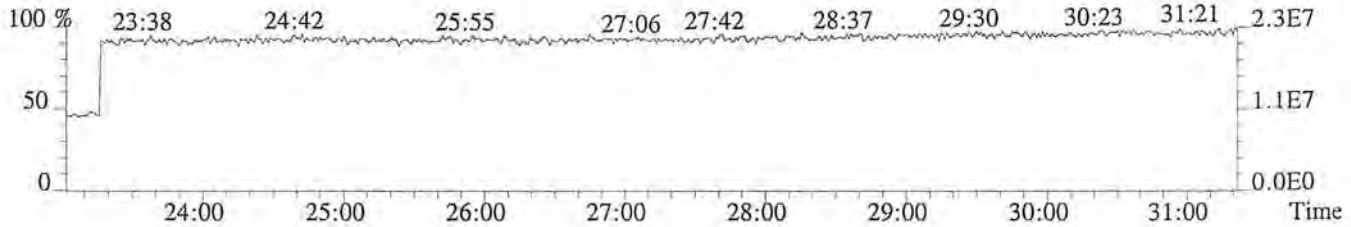
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2276.0,1.00%,F,T)



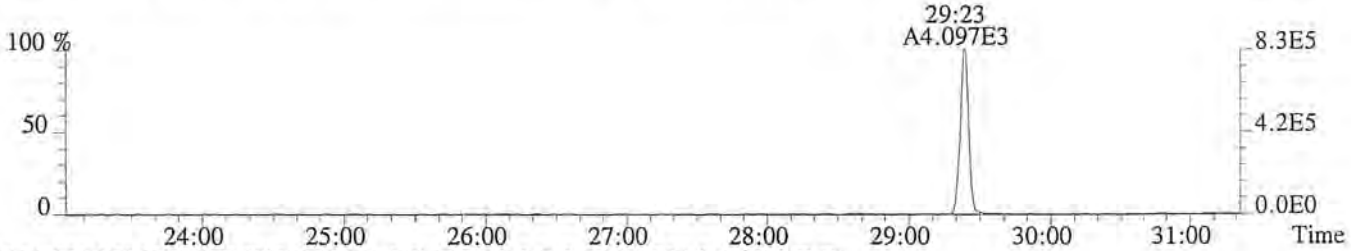
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



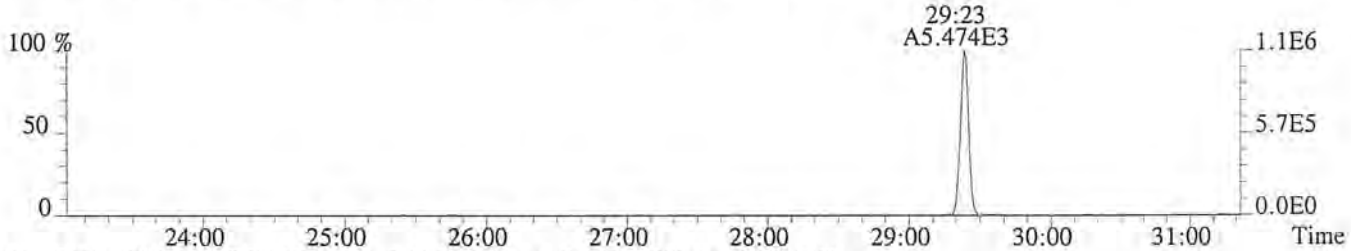
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



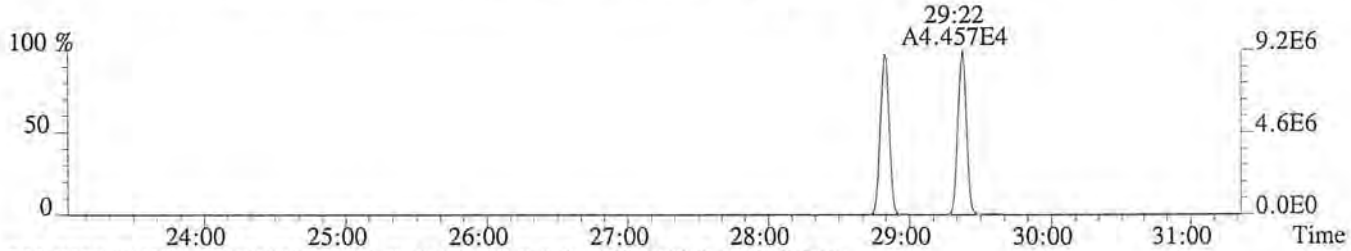
File:P301051 #1-591 Acq:27-AUG-2015 16:11:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1740.0,1.00%,F,T)



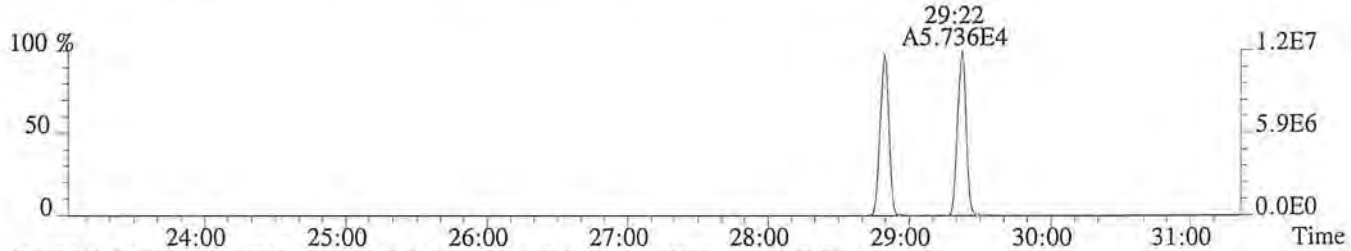
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



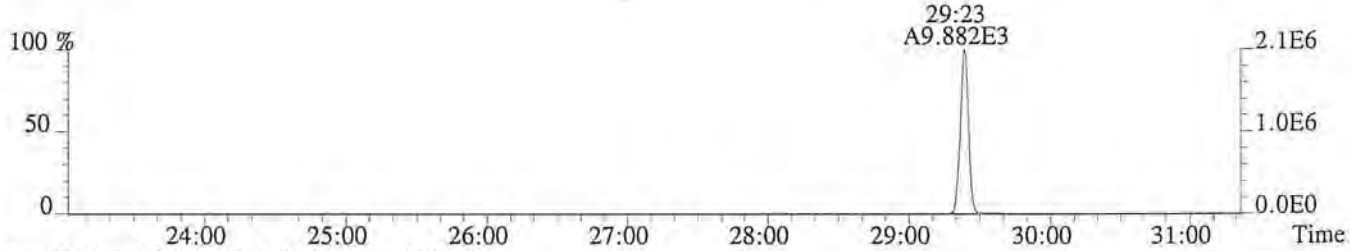
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6288.0,1.00%,F,T)



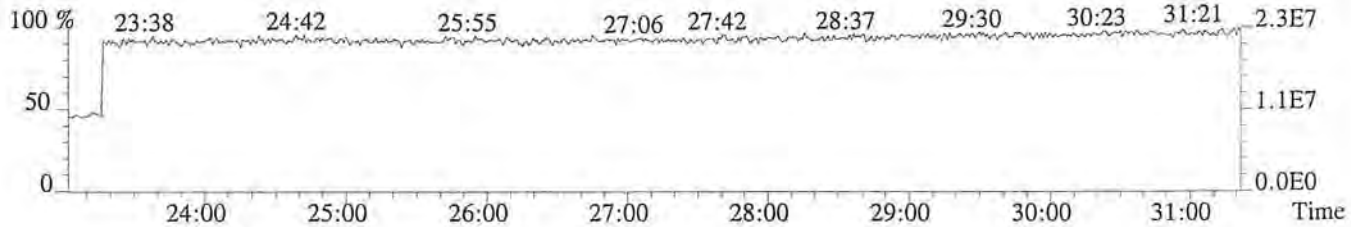
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4300.0,1.00%,F,T)



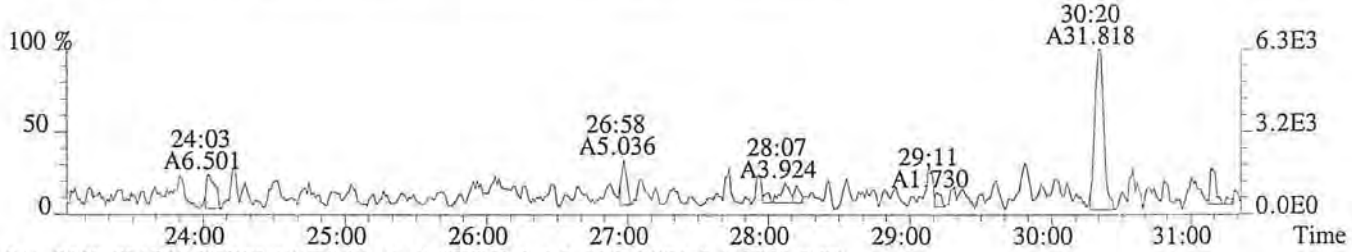
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



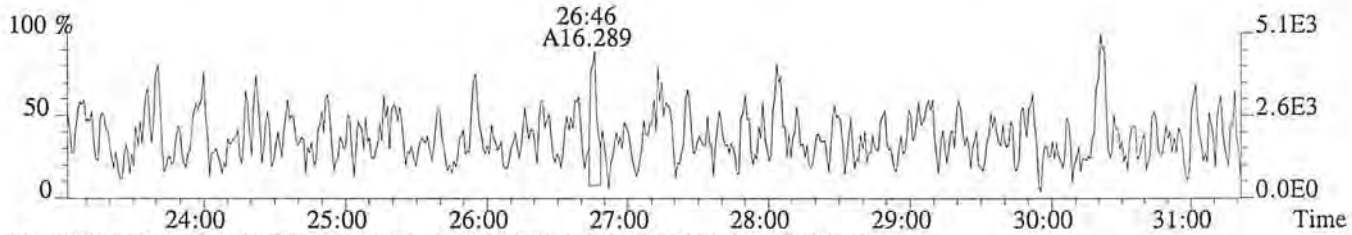
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



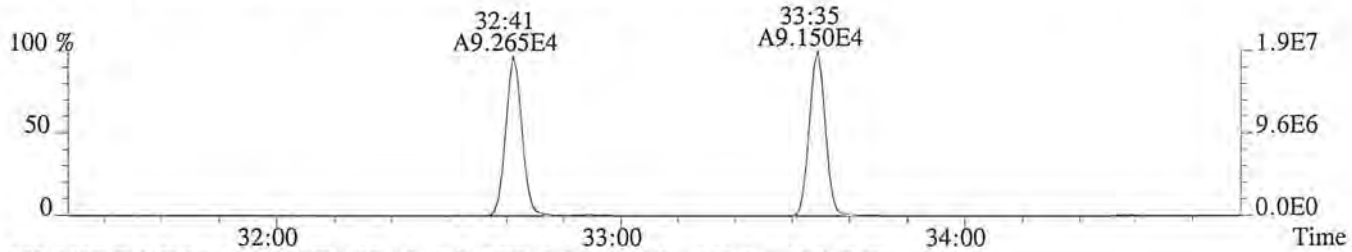
File:P301051 #1-591 Acq:27-AUG-2015 16:11:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



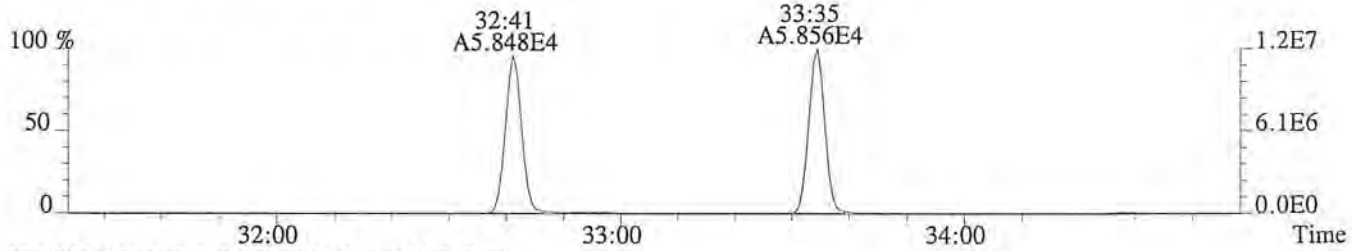
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2236.0,1.00%,F,T)



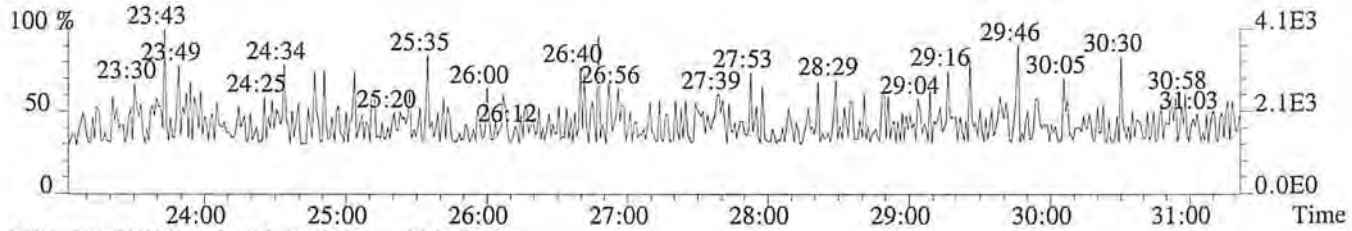
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



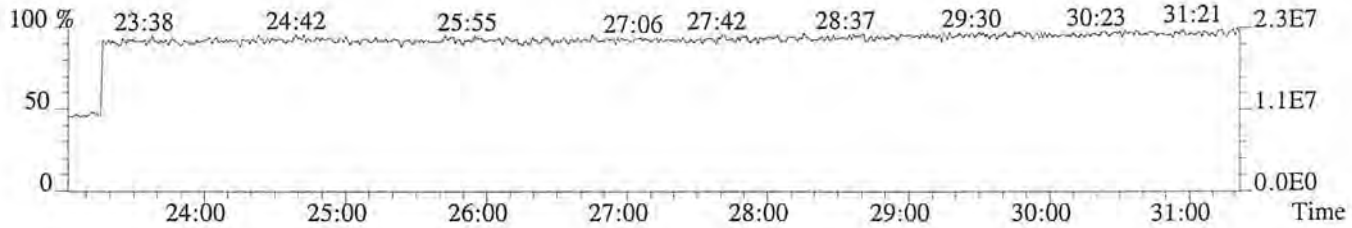
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1952.0,1.00%,F,T)



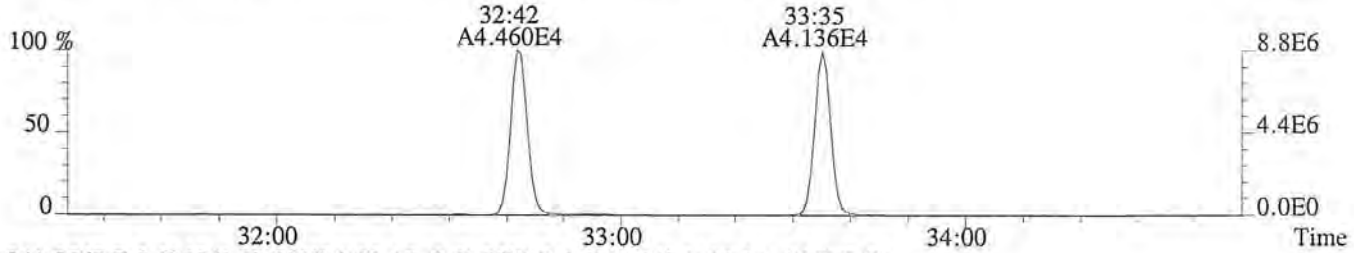
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



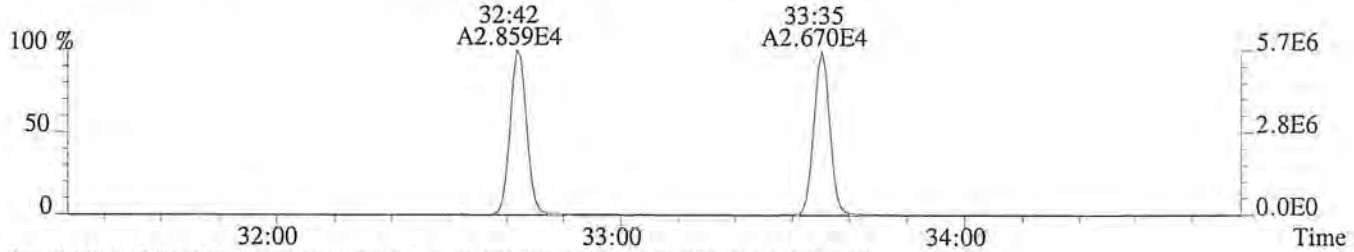
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



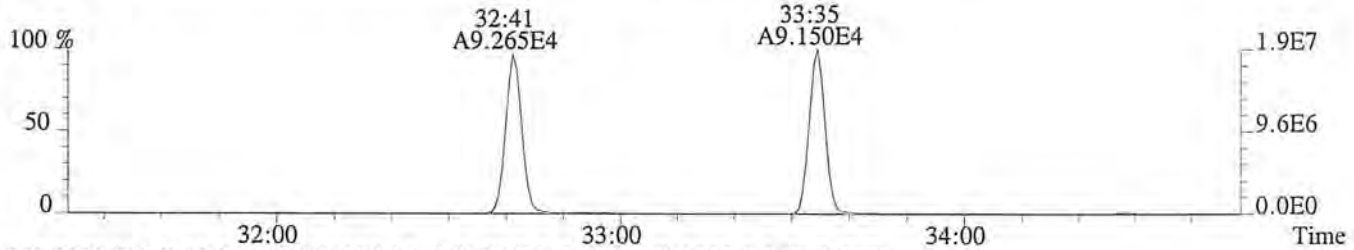
File:P301051 #1-308 Acq:27-AUG-2015 16:11:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



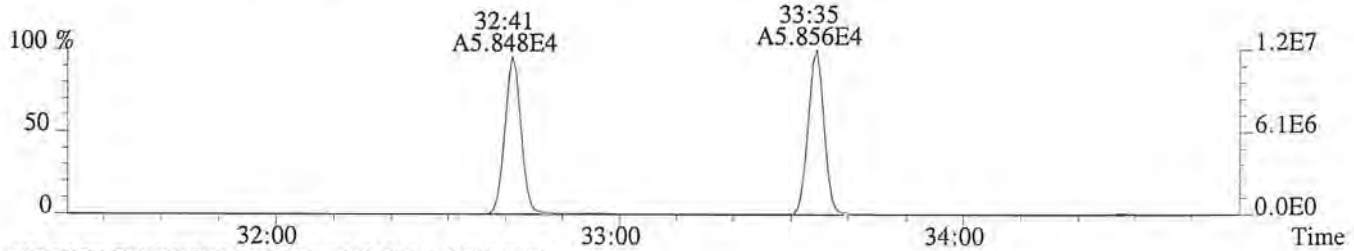
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2188.0,1.00%,F,T)



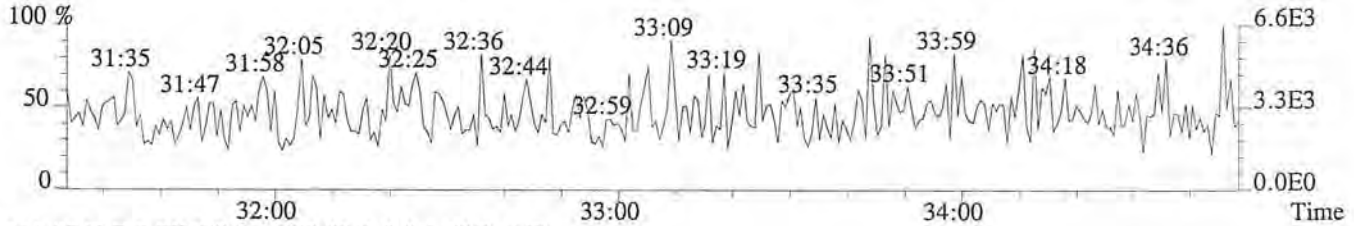
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



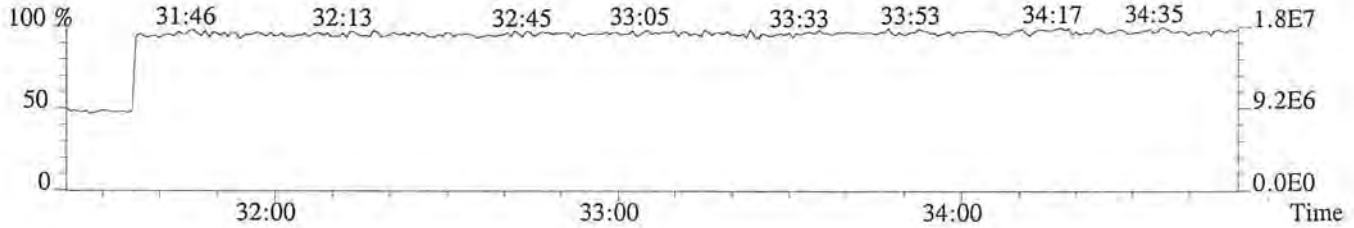
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1952.0,1.00%,F,T)



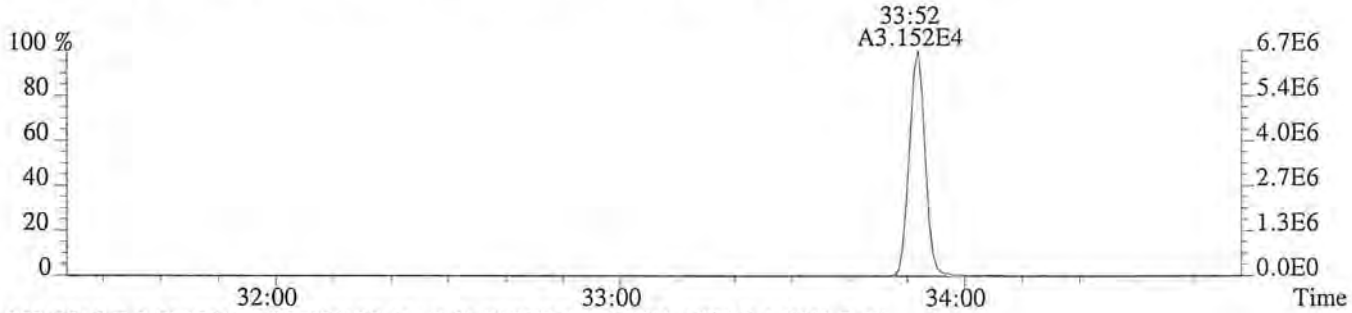
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



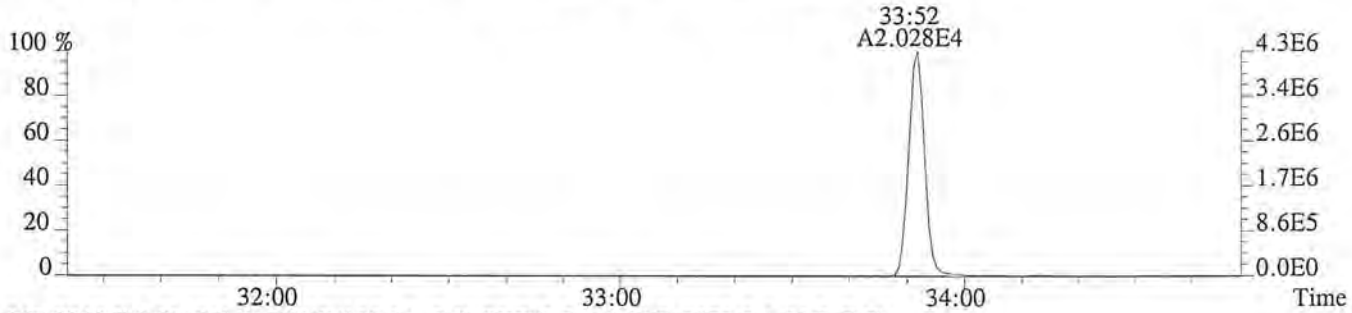
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



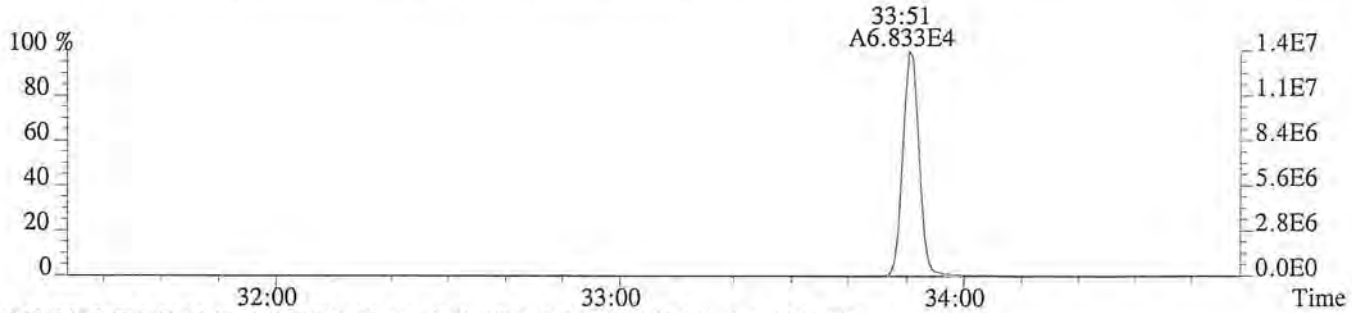
File:P301051 #1-308 Acq:27-AUG-2015 16:11:03 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3140.0,1.00%,F,T)



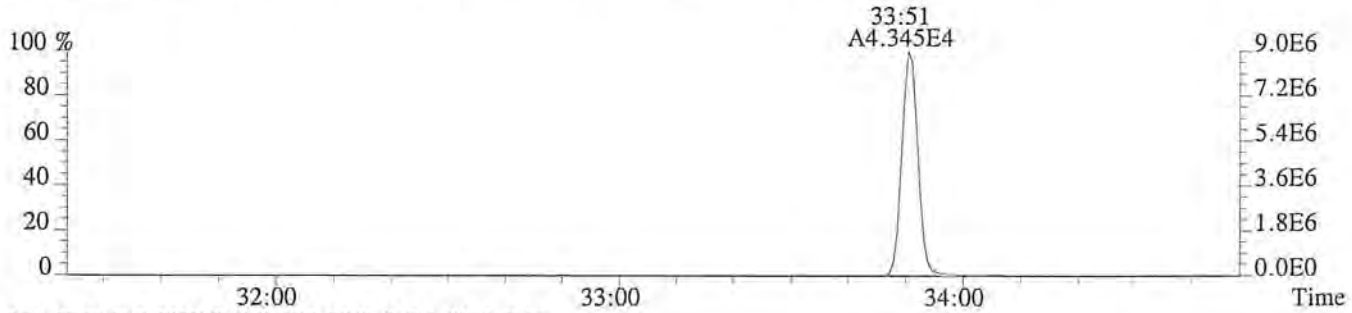
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)



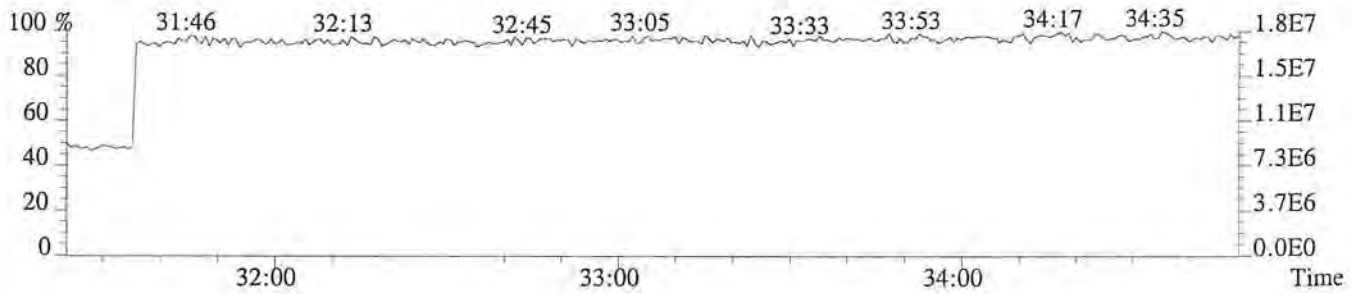
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2872.0,1.00%,F,T)



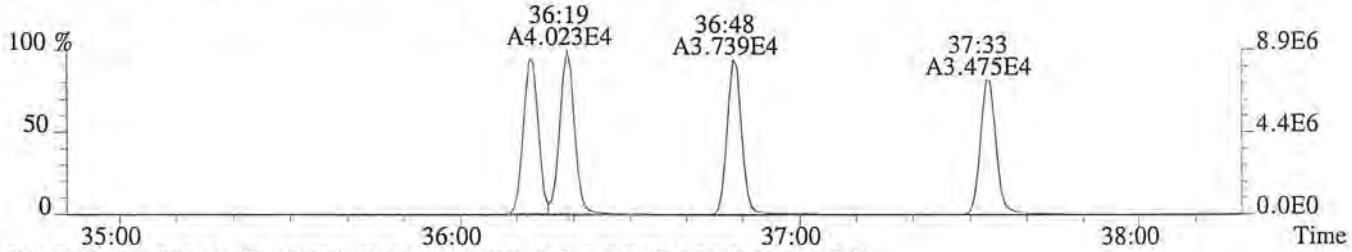
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



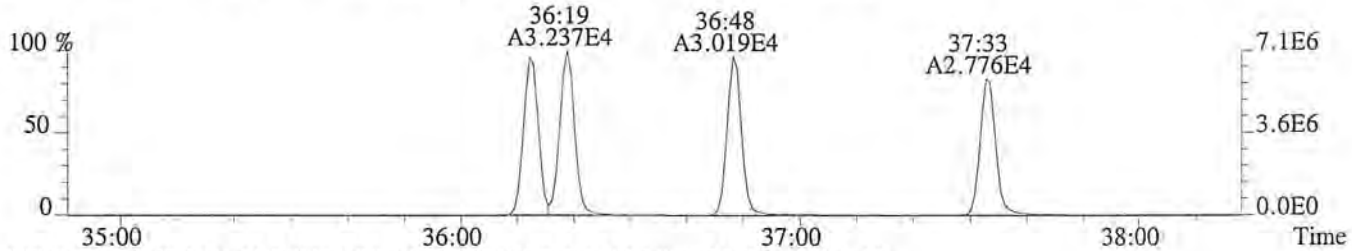
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



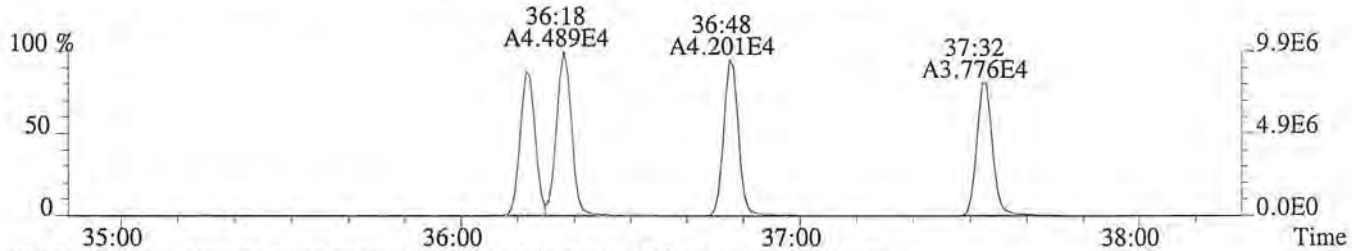
File:P301051 #1-312 Acq:27-AUG-2015 16:11:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)



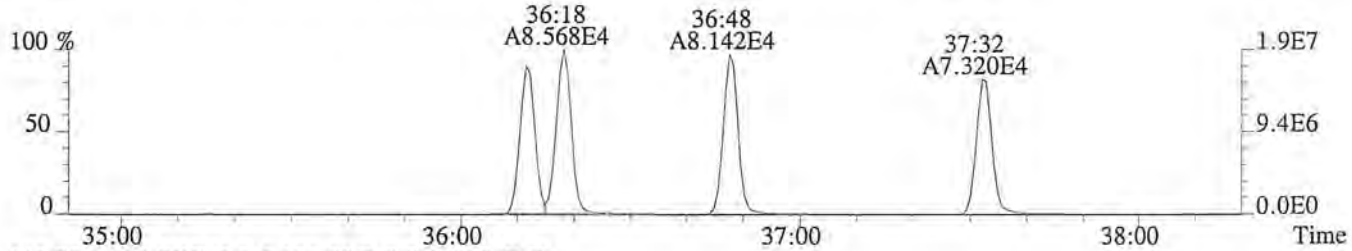
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



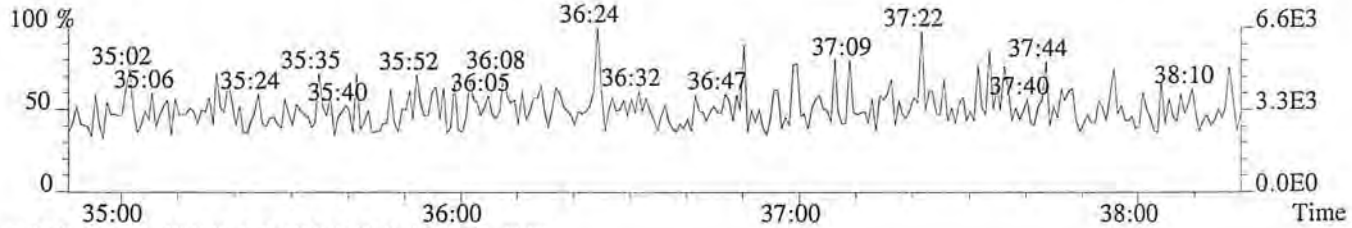
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)



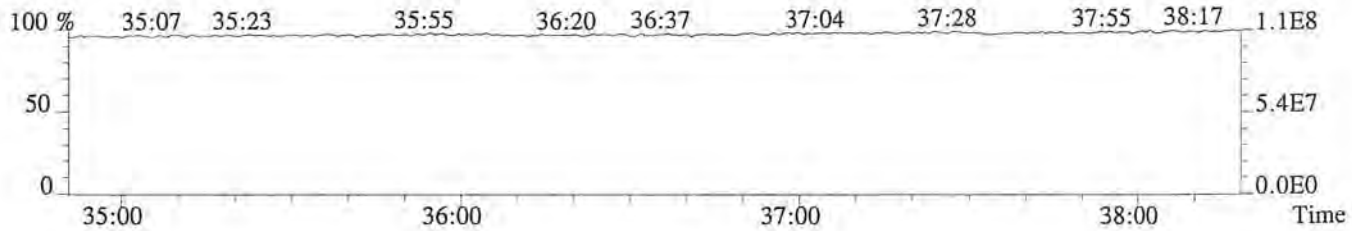
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1896.0,0.40%,F,T)



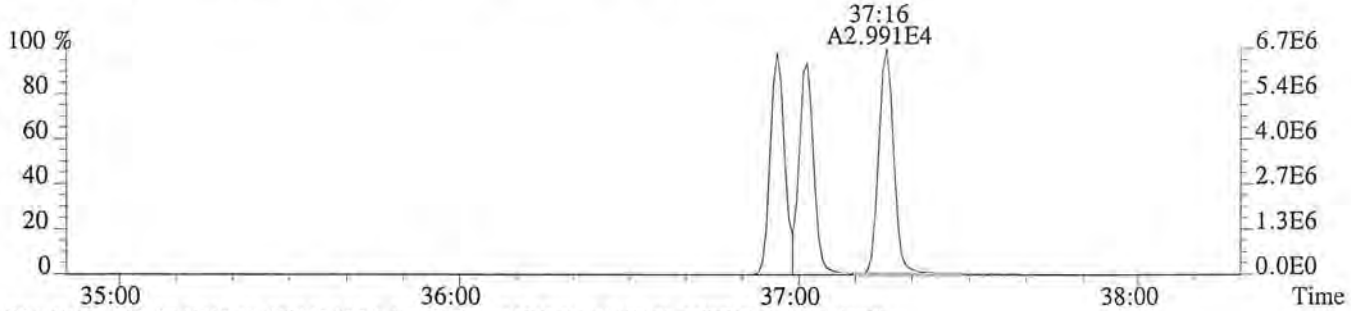
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



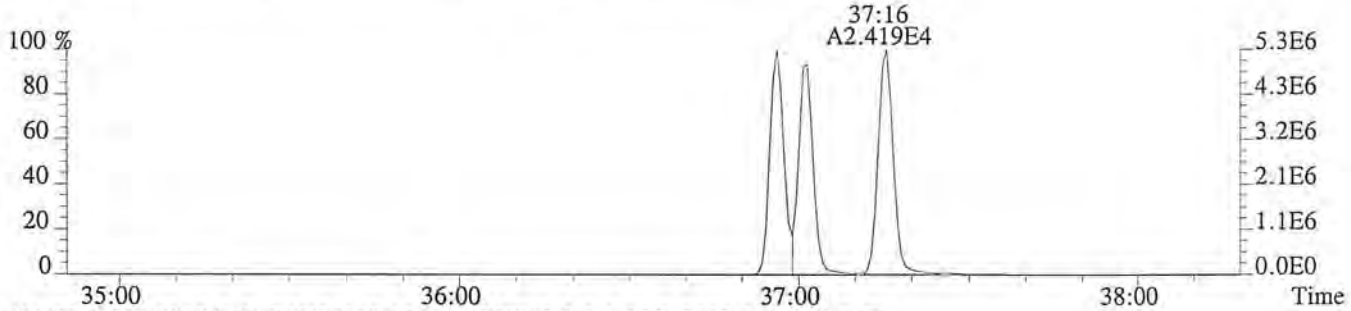
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



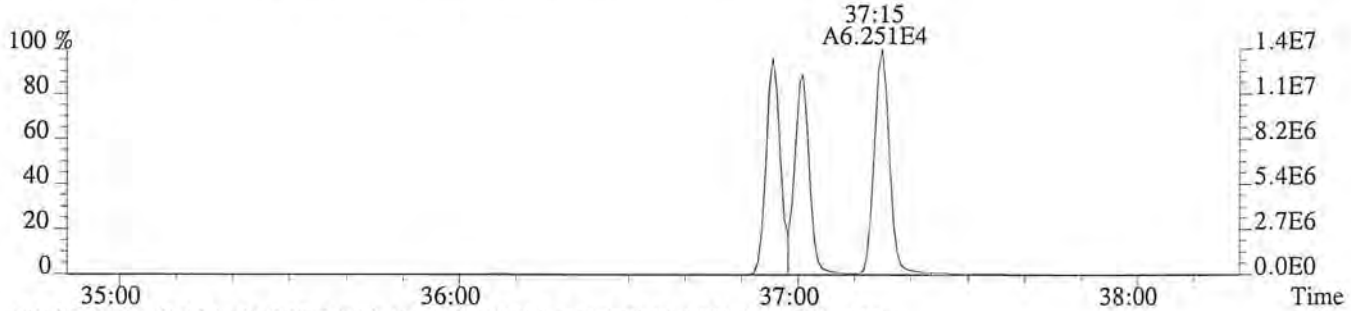
File:P301051 #1-312 Acq:27-AUG-2015 16:11:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



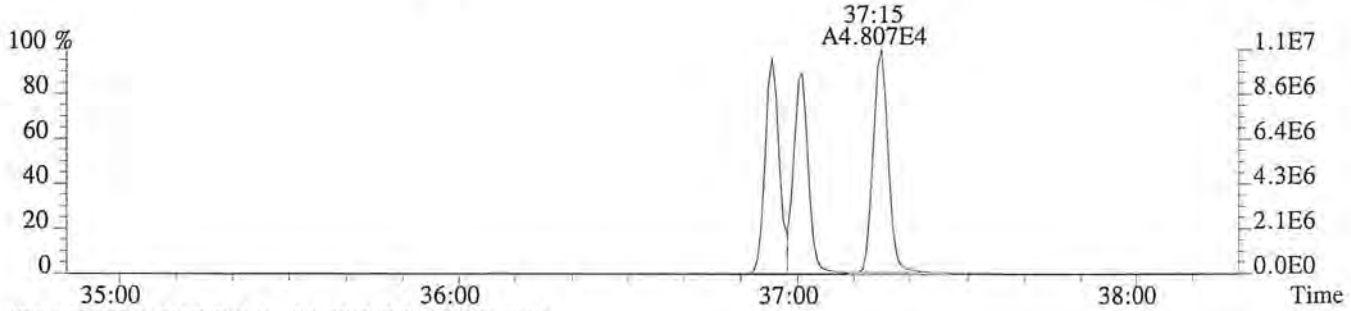
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1932.0,0.40%,F,T)



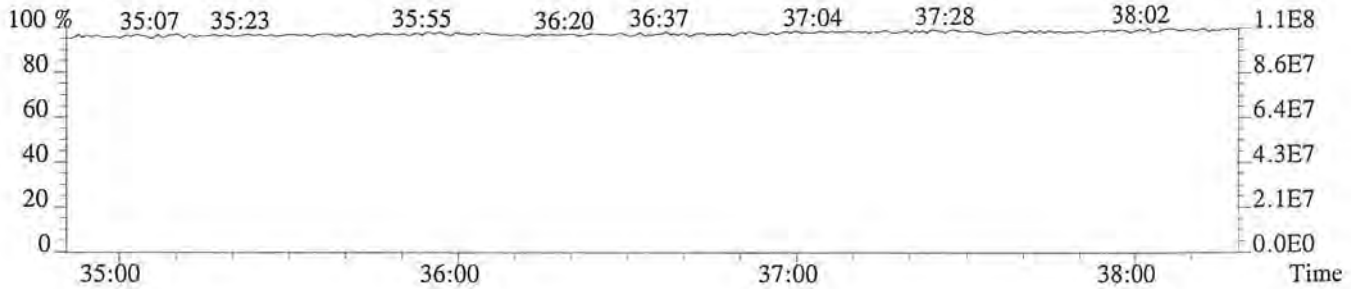
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2188.0,0.40%,F,T)



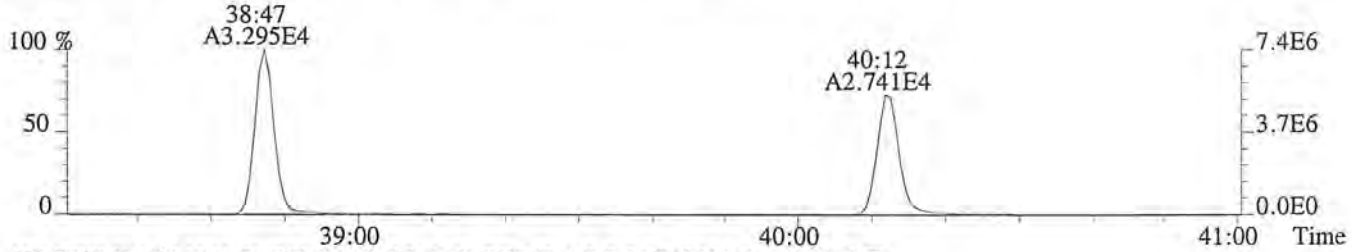
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



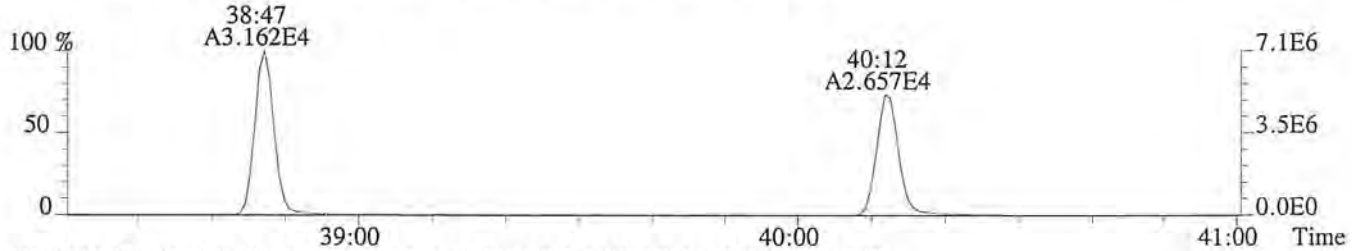
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



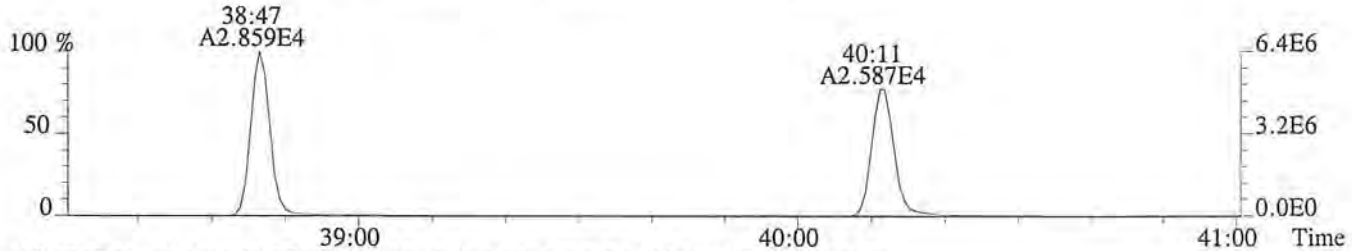
File:P301051 #1-241 Acq:27-AUG-2015 16:11:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1948.0,0.50%,F,T)



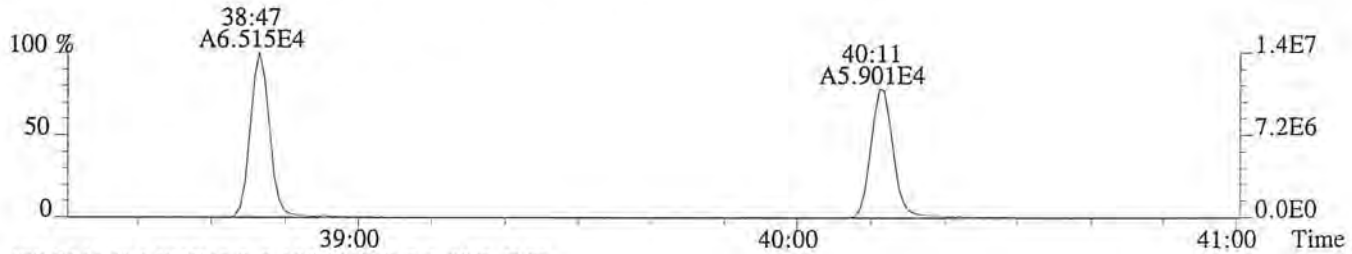
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2804.0,0.50%,F,T)



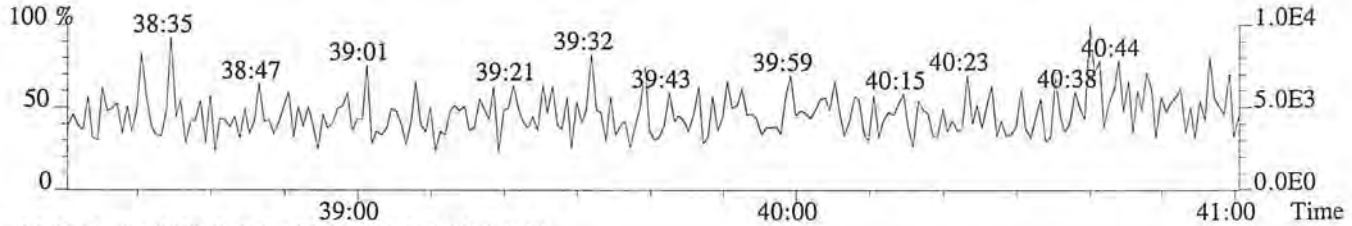
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3140.0,0.50%,F,T)



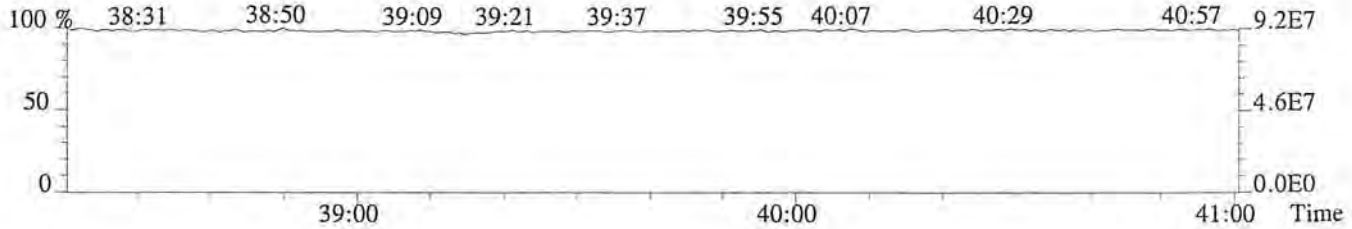
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3872.0,0.50%,F,T)



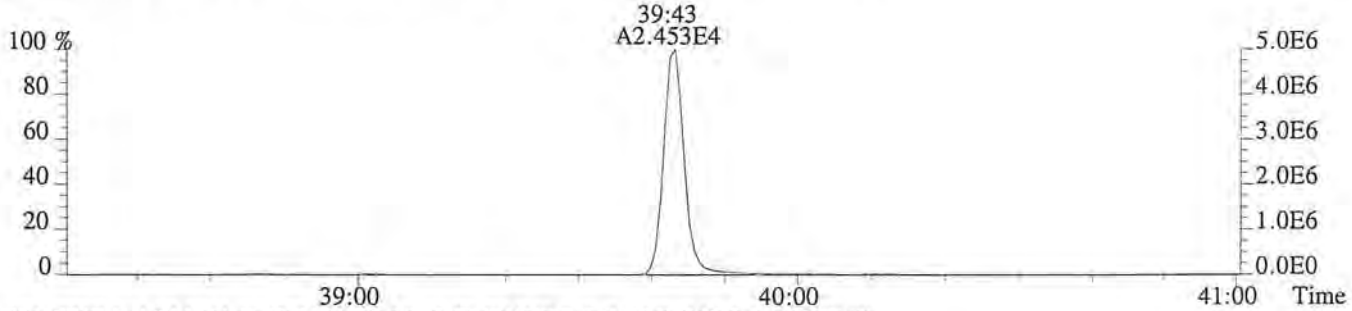
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



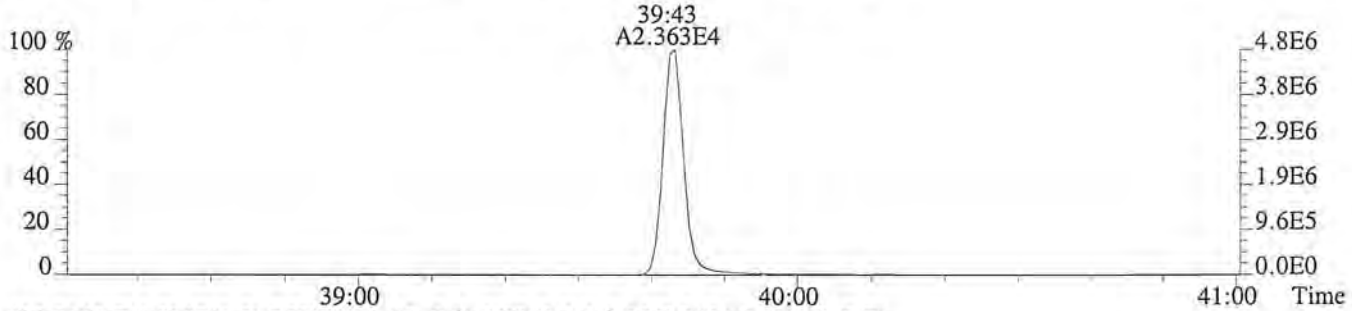
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



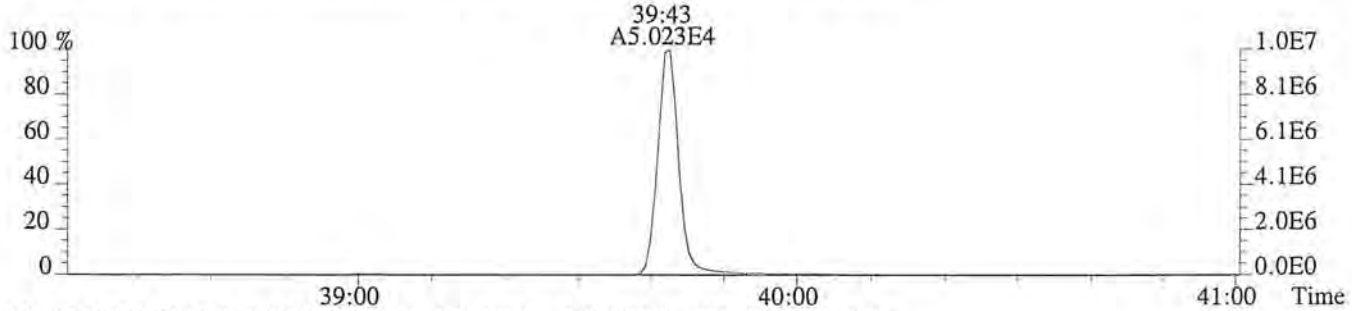
File:P301051 #1-241 Acq:27-AUG-2015 16:11:03 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1240.0,0.40%,F,T)



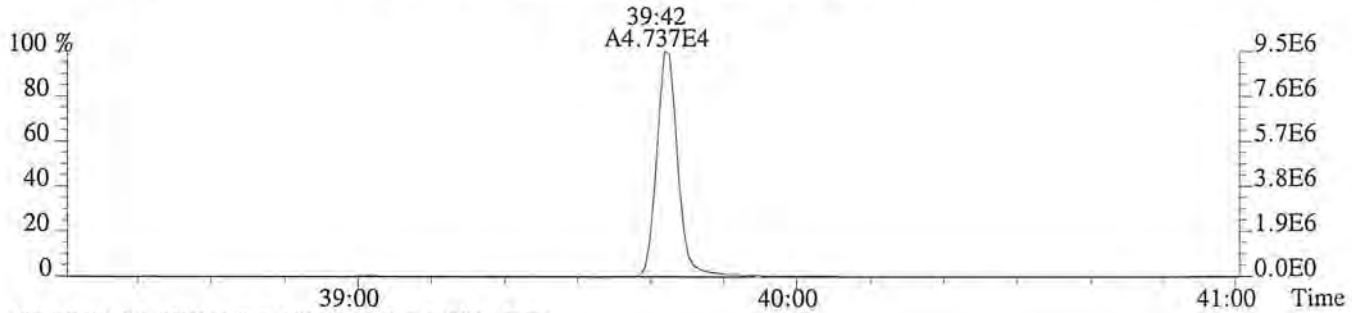
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)



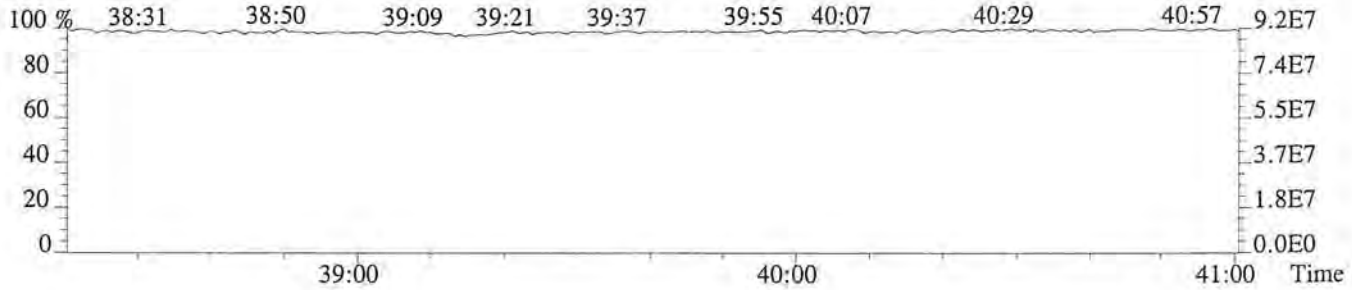
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2484.0,0.40%,F,T)



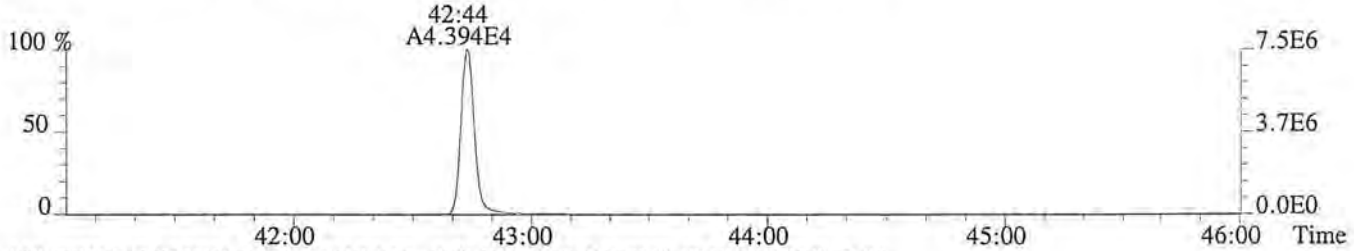
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



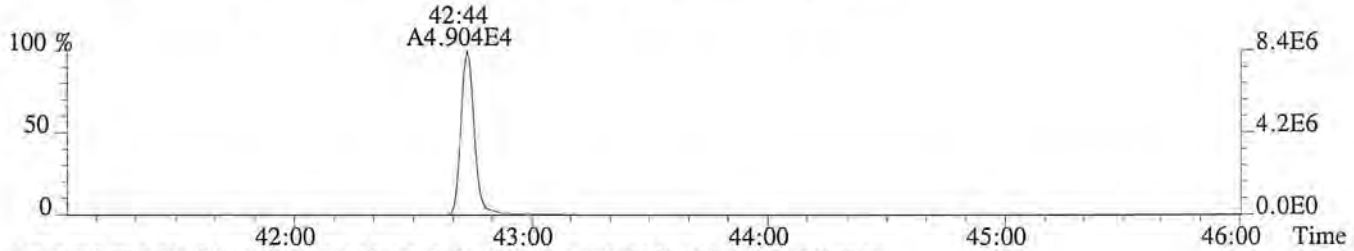
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



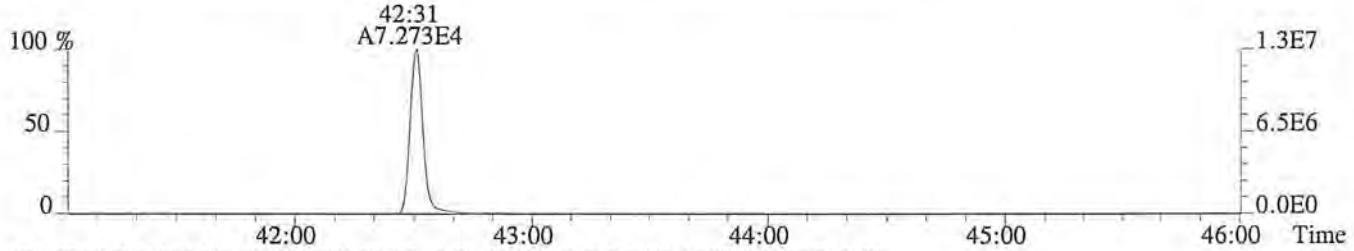
File:P301051 #1-447 Acq:27-AUG-2015 16:11:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2152.0,0.40%,F,T)



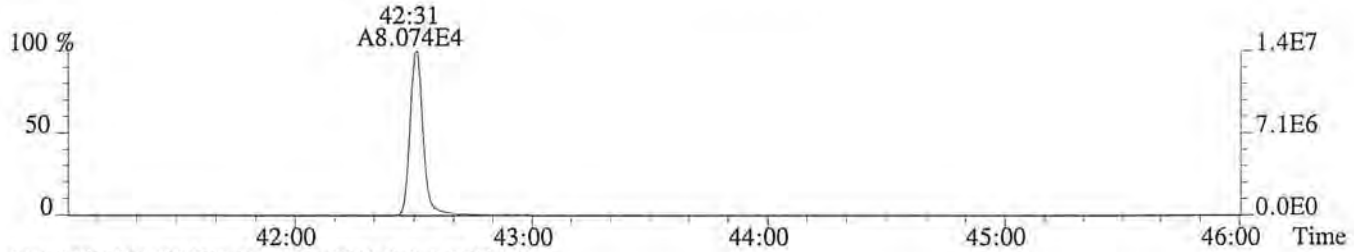
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3012.0,0.40%,F,T)



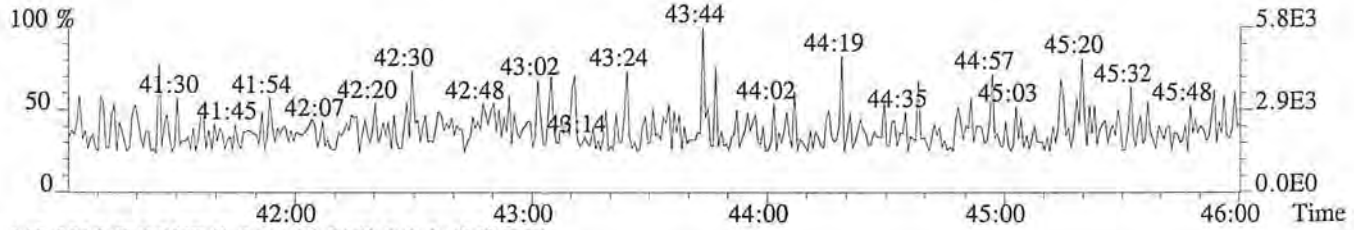
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1120.0,0.40%,F,T)



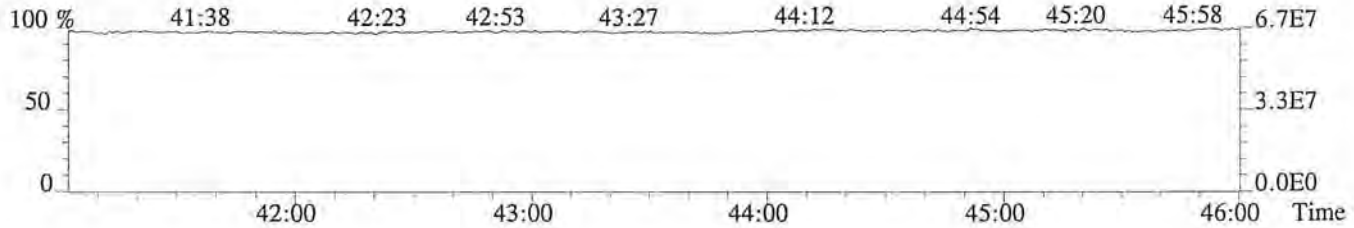
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1308.0,0.40%,F,T)



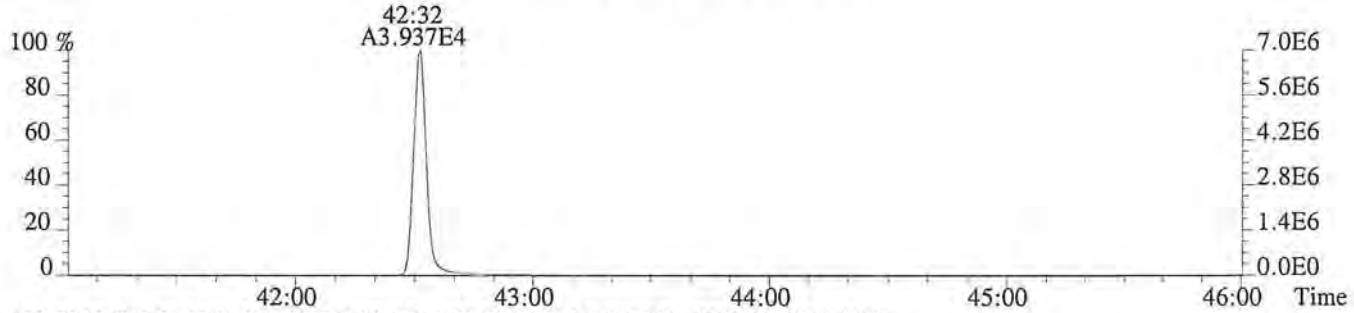
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



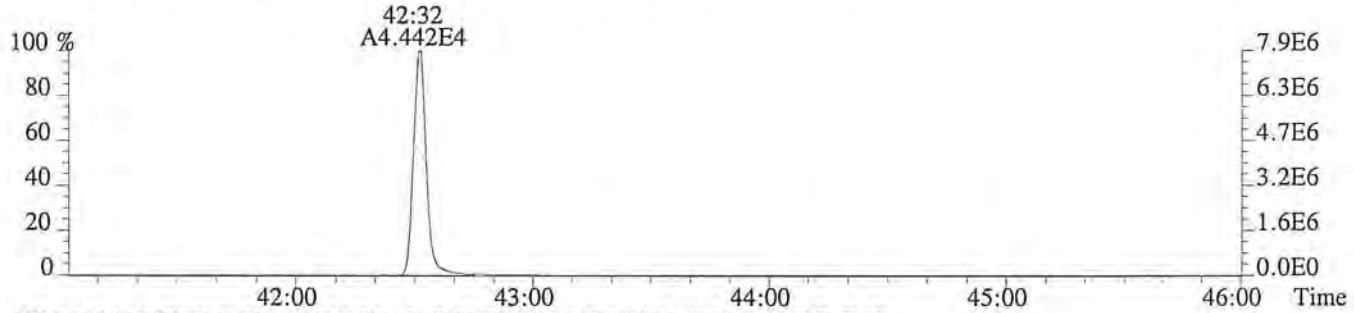
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



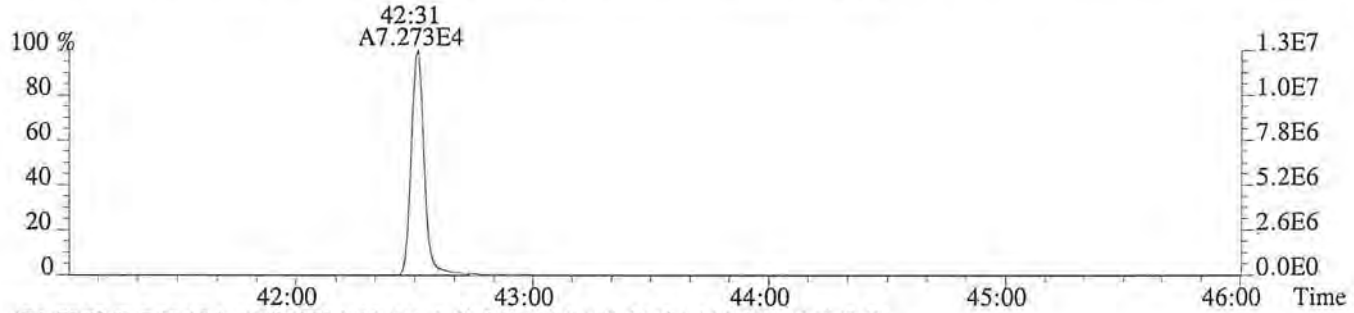
File:P301051 #1-447 Acq:27-AUG-2015 16:11:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,732.0,0.40%,F,T)



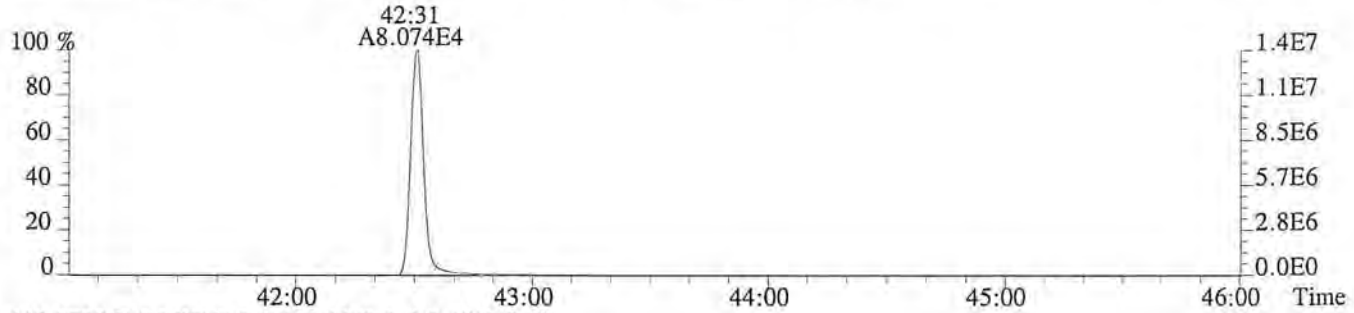
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1400.0,0.40%,F,T)



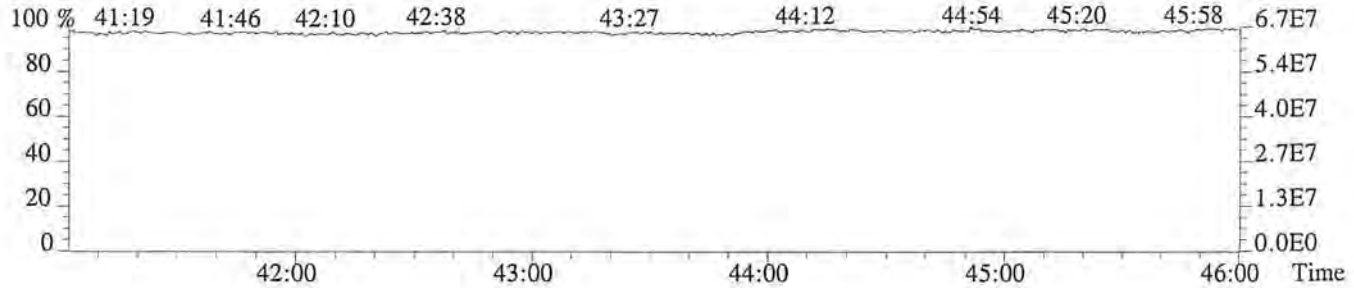
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1120.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1308.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P301064

Date: 08/28/15

Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: TC

Second QC: LKL

ccalqc.xls 07/17/12

5DBC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: ALS-TX Case No.: SDG No.:

GC column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-05

Init. Calib. Date: 08/21/15

Init. Calib.Times: 09:55

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
74489	WINDOW DEFINE	P301066	28-AUG-15	05:34:18
79857	CS3	P301064	28-AUG-15	03:57:04
METHOD BLANK	EQ1500484-01	P301067	28-AUG-15	06:22:56
PLY-04-15 MT3/MT6 ╗	E1500743-007	P301068	28-AUG-15	07:11:32
PLY-05-15 MT3/MT6 ╗	E1500743-008	P301069	28-AUG-15	08:00:09
PLY-04-15 MT3/MT6 ╗	E1500743-009	P301070	28-AUG-15	08:48:46
PLY-06-15 MT3/MT6 ╗	E1500743-010	P301071	28-AUG-15	09:37:24
PLY-06-15 MT3/MT6 ╗	E1500743-011	P301072	28-AUG-15	10:26:01
PLY-07-15 MT3/MT6 ╗	E1500743-012	P301073	28-AUG-15	11:14:39
PLY-08-15 MT7/MT8 ╗	E1500743-013	P301074	28-AUG-15	12:03:16
PLY-08-15 MT7/MT8 ╗	E1500743-014	P301075	28-AUG-15	12:51:54
PLY-09-15 MT7/MT8 ╗	E1500743-015	P301076	28-AUG-15	13:49:05
PLY-09-15 MT7/MT8 ╗	E1500743-016	P301077	28-AUG-15	14:36:35

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS05.PRO\SampleDB\20150827B.SPL
Last Modified: Friday, August 28, 2015 15:29:50 Eastern Daylight Time
Printed: Friday, August 28, 2015 16:11:16 Eastern Daylight Time Page Position (1, 1)

ORUS-2: P301064-RES

	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	08/28/15	03:57	P301064	CS3	CS3	Tray1:1	EPA1613_ALS	Dioxin_ALS	[illegible]	HRMS Check 18:09
2		04:45	P301065	WINDOW DEFINE	WINDOW DEFINE	Tray1:2	EPA1613_ALS	Dioxin_ALS		DO NOT USE
3		05:34	P301066	WINDOW DEFINE	WINDOW DEFINE	Tray1:3	EPA1613_ALS	Dioxin_ALS		
4		06:22	P301067	EQ1500484-01	MB	Tray1:4	EPA1613_ALS	Dioxin_ALS		
5		07:11	P301068	E1500743-007	E1500743-007	Tray1:5	EPA1613_ALS	Dioxin_ALS		
6		08:00	P301069	E1500743-008	E1500743-008	Tray1:6	EPA1613_ALS	Dioxin_ALS		
7		08:48	P301070	E1500743-009	E1500743-009	Tray1:7	EPA1613_ALS	Dioxin_ALS		
8		09:37	P301071	E1500743-010	E1500743-010	Tray1:8	EPA1613_ALS	Dioxin_ALS		
9		10:26	P301072	E1500743-011	E1500743-011	Tray1:9	EPA1613_ALS	Dioxin_ALS		
10		11:14	P301073	E1500743-012	E1500743-012	Tray1:10	EPA1613_ALS	Dioxin_ALS		
11		12:03	P301074	E1500743-013	E1500743-013	Tray1:11	EPA1613_ALS	Dioxin_ALS		
12		12:51	P301075	E1500743-014	E1500743-014	Tray1:12	EPA1613_ALS	Dioxin_ALS		
13		13:40	P301076	E1500743-015	E1500743-015	Tray1:13	EPA1613_ALS	Dioxin_ALS		
14		14:36	P301077	E1500743-016	E1500743-016	Tray1:14	EPA1613_ALS	Dioxin_ALS		HRMS Check 13:48
15			---	---	---	Tray1:15	EPA1613_ALS	Dioxin_ALS		HRMS Check 15:26
16	---	---	---	---	---	Tray1:16	EPA1613_ALS	Dioxin_ALS	---	---
17			---	---	---	Tray1:17	EPA1613_ALS	Dioxin_ALS		
18	---	---	---	---	---	Tray1:18	EPA1613_ALS	Dioxin_ALS	---	---
19			---	---	---	Tray1:19	EPA1613_ALS	Dioxin_ALS		
20	---	---	---	---	---	Tray1:20	EPA1613_ALS	Dioxin_ALS	---	---
21	---	---	---	---	---	Tray1:21	EPA1613_ALS	Dioxin_ALS	---	---
22	---	---	---	---	---	Tray1:22	EPA1613_ALS	Dioxin_ALS	---	---
23	---	---	---	---	---	Tray1:23	EPA1613_ALS	Dioxin_ALS	---	---
24	---	---	---	---	---	Tray1:24	EPA1613_ALS	Dioxin_ALS	---	---
25	---	---	---	---	---	Tray1:25	EPA1613_ALS	Dioxin_ALS	---	---
26	---	---	---	---	---	Tray1:26	EPA1613_ALS	Dioxin_ALS	---	---
27	---	---	---	---	---	Tray1:27	EPA1613_ALS	Dioxin_ALS	---	---
28	---	---	---	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
29	---	---	---	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
30	---	---	---	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
31	---	---	---	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
32	---	---	---	---	---	Tray1:32	EPA1613_ALS	Dioxin_ALS	---	---
33	---	---	---	---	---	Tray1:33	EPA1613_ALS	Dioxin_ALS	---	---
34	---	---	---	---	---	Tray1:34	EPA1613_ALS	Dioxin_ALS	---	---
35	---	---	---	---	---	Tray1:35	EPA1613_ALS	Dioxin_ALS	---	---
36	---	---	---	---	---	Tray1:36	EPA1613_ALS	Dioxin_ALS	---	---
37	---	---	---	---	---	Tray1:37	EPA1613_ALS	Dioxin_ALS	---	---
38	---	---	---	---	---	Tray1:38	EPA1613_ALS	Dioxin_ALS	---	---
39	---	---	---	---	---	Tray1:39	EPA1613_ALS	Dioxin_ALS	---	---

TC 08/28/15

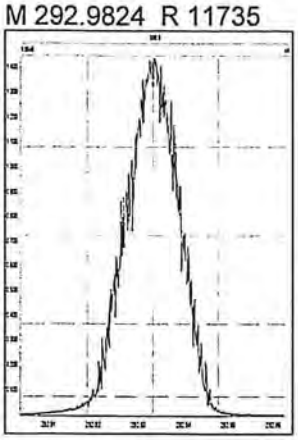
085

Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

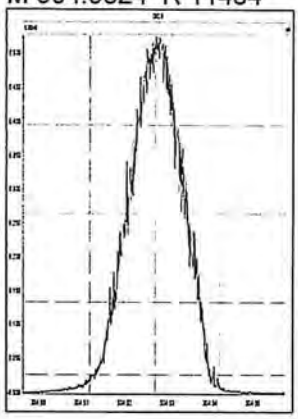
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, August 27, 2015 18:09:48 Eastern Daylight Time

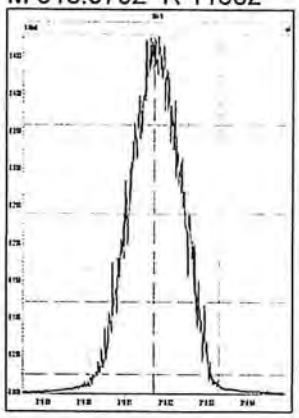
M 292.9824 R 11735



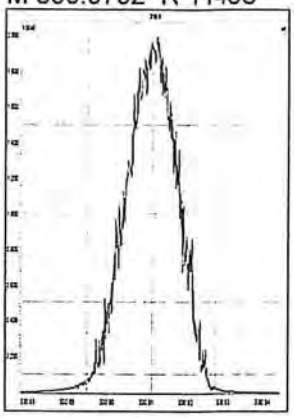
M 304.9824 R 11464



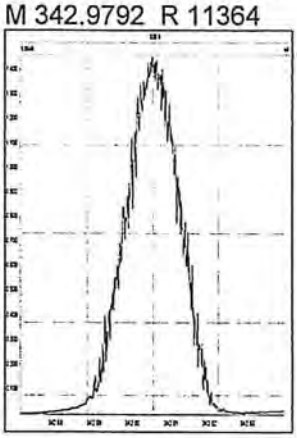
M 318.9792 R 11682



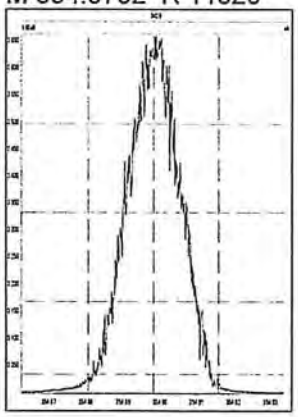
M 330.9792 R 11466



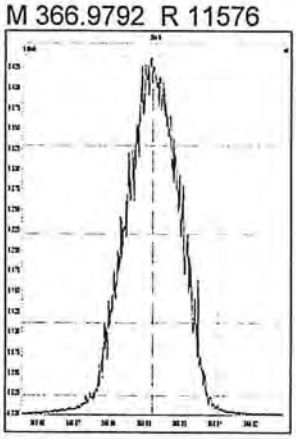
M 342.9792 R 11364



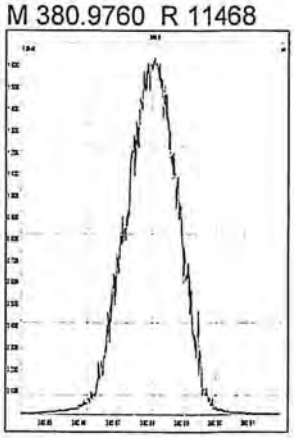
M 354.9792 R 11520



M 366.9792 R 11576



M 380.9760 R 11468

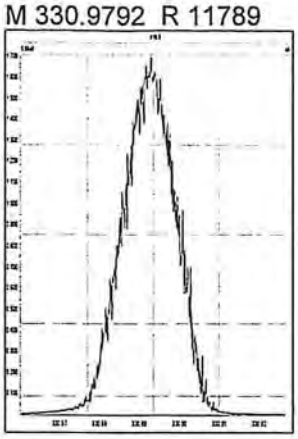


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

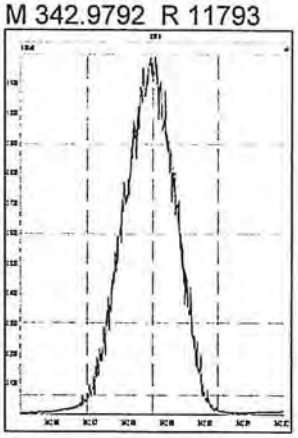
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, August 27, 2015 18:10:27 Eastern Daylight Time

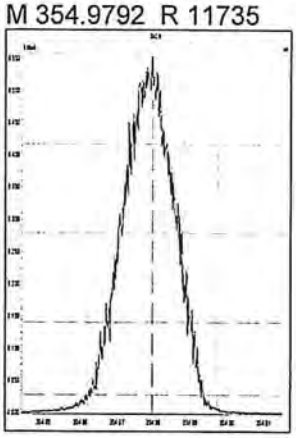
M 330.9792 R 11789



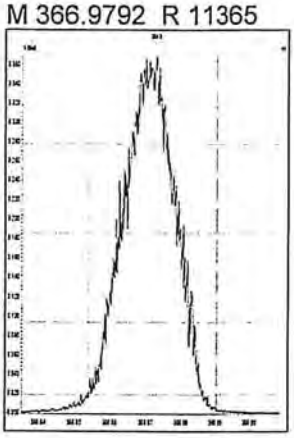
M 342.9792 R 11793



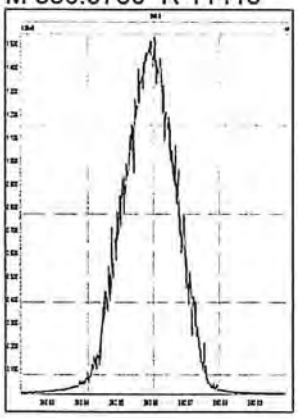
M 354.9792 R 11735



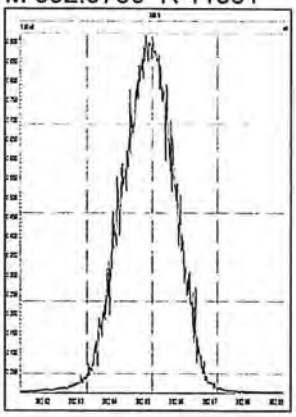
M 366.9792 R 11365



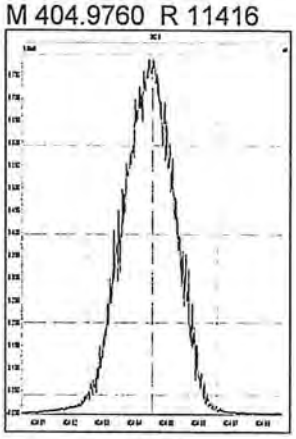
M 380.9760 R 11415



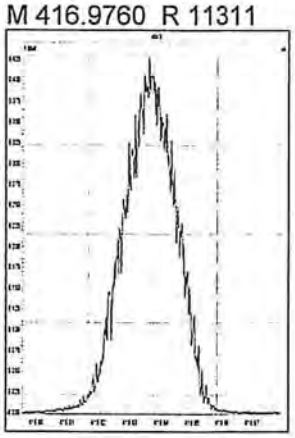
M 392.9760 R 11361



M 404.9760 R 11416



M 416.9760 R 11311

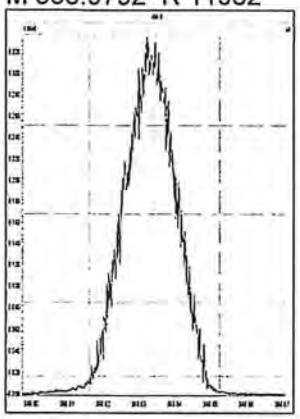


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

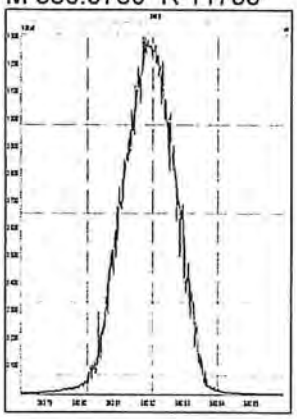
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, August 27, 2015 18:11:02 Eastern Daylight Time

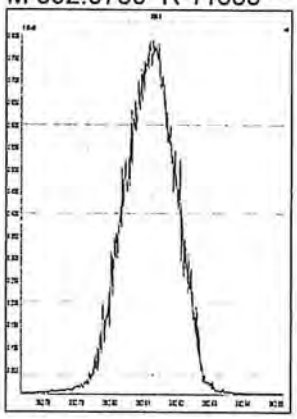
M 366.9792 R 11962



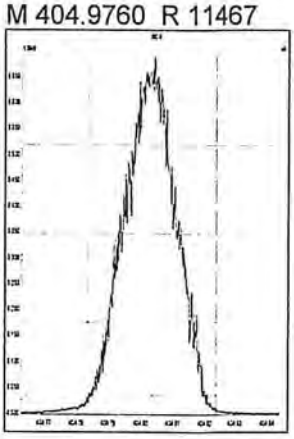
M 380.9760 R 11735



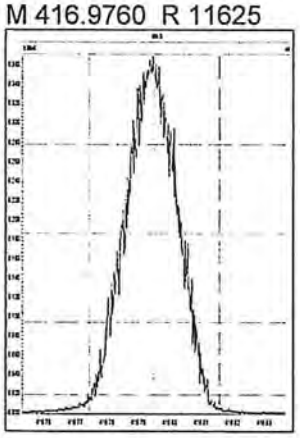
M 392.9760 R 11683



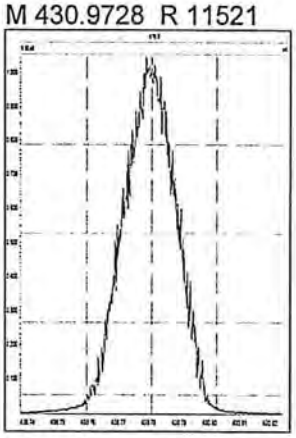
M 404.9760 R 11467



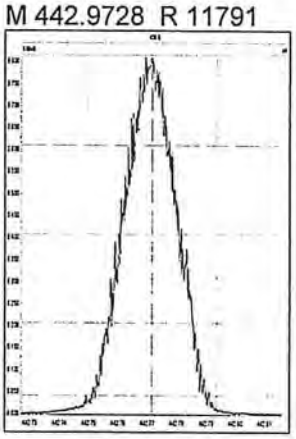
M 416.9760 R 11625



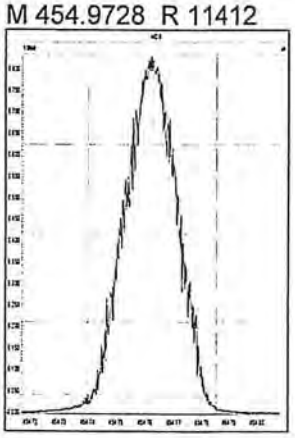
M 430.9728 R 11521



M 442.9728 R 11791



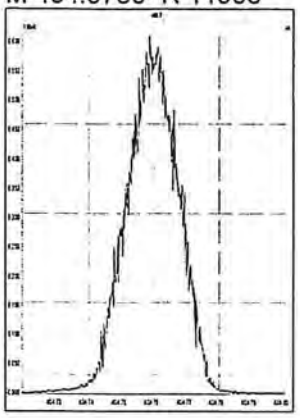
M 454.9728 R 11412



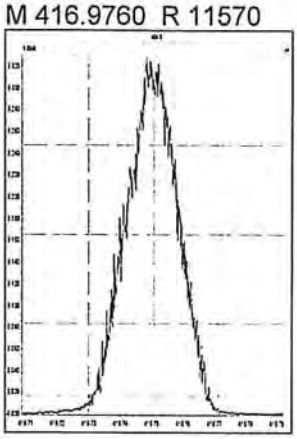
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, August 27, 2015 18:11:39 Eastern Daylight Time

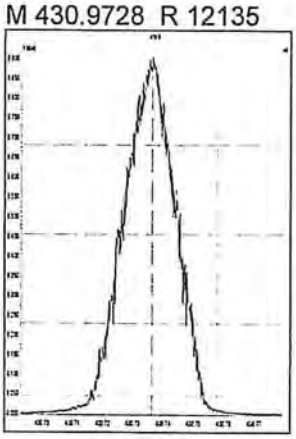
M 404.9760 R 11903



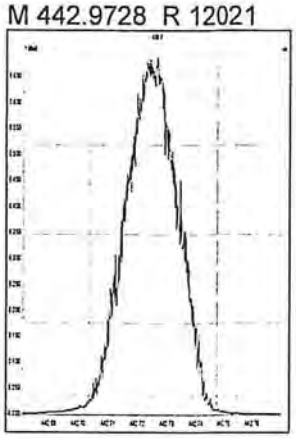
M 416.9760 R 11570



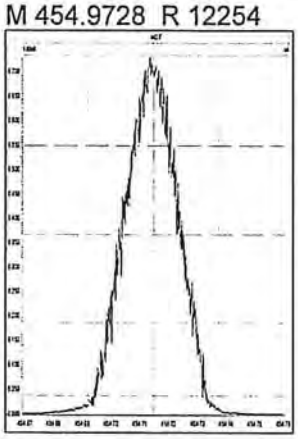
M 430.9728 R 12135



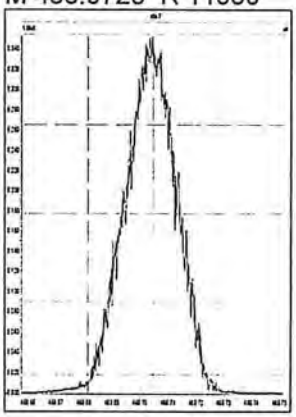
M 442.9728 R 12021



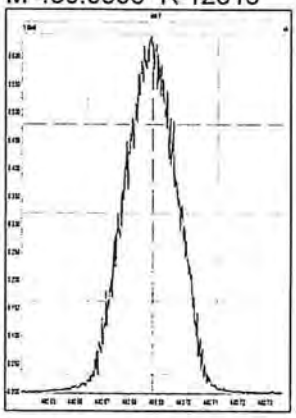
M 454.9728 R 12254



M 466.9728 R 11960



M 480.9696 R 12316

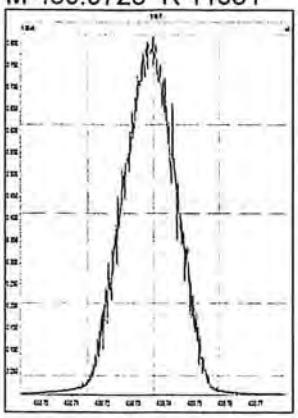


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

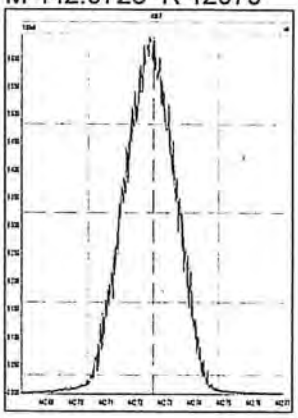
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, August 27, 2015 18:12:20 Eastern Daylight Time

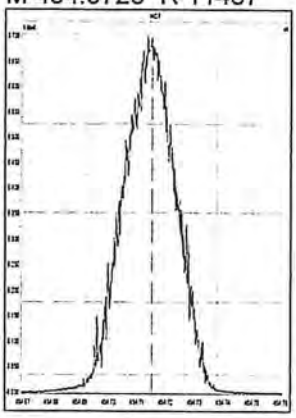
M 430.9728 R 11631



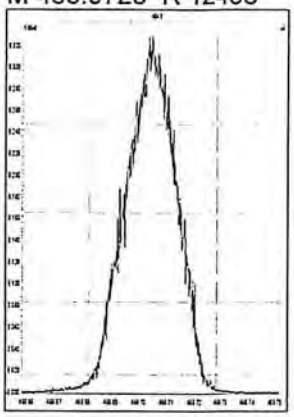
M 442.9728 R 12079



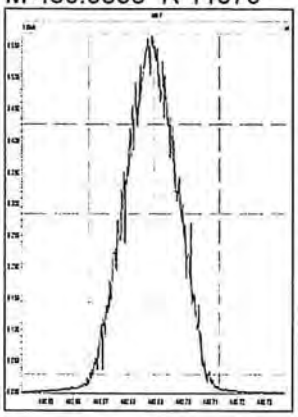
M 454.9728 R 11467



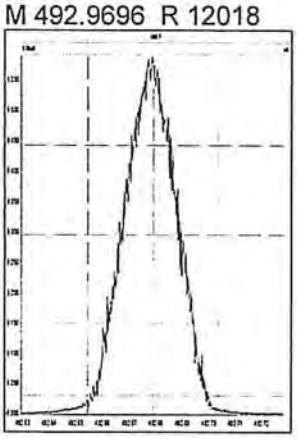
M 466.9728 R 12436



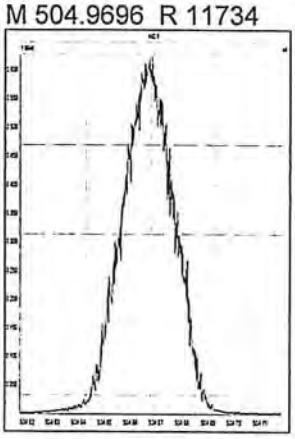
M 480.9696 R 11679



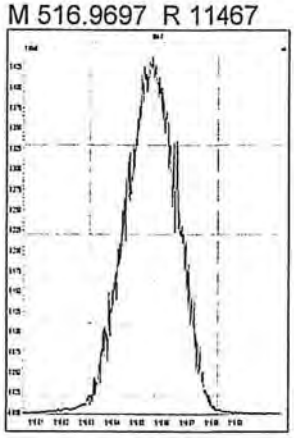
M 492.9696 R 12018



M 504.9696 R 11734

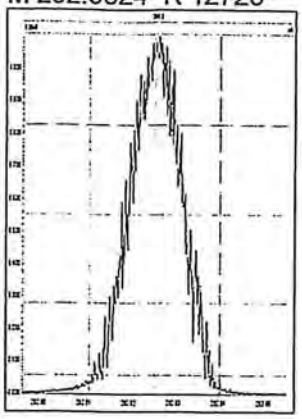


M 516.9697 R 11467



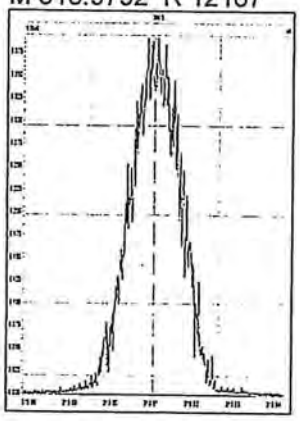
Printed: Friday, August 28, 2015 13:48:43 Eastern Daylight Time

M 292.9824 R 12723

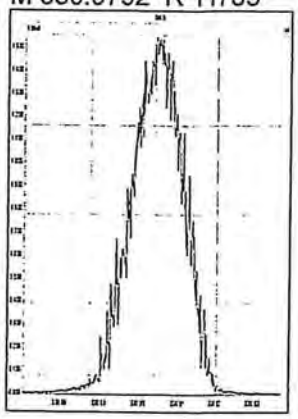


M 304.9824 R 12319

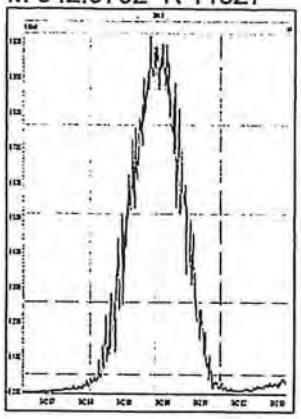
M 318.9792 R 12167



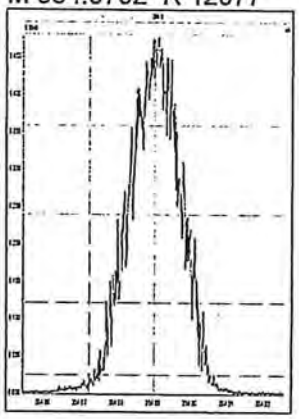
M 330.9792 R 11739



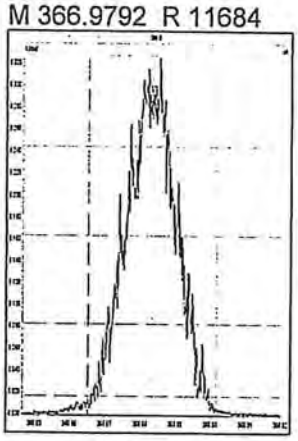
M 342.9792 R 11827



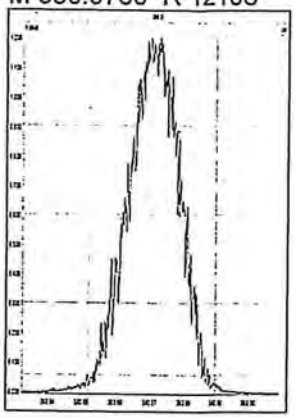
M 354.9792 R 12077



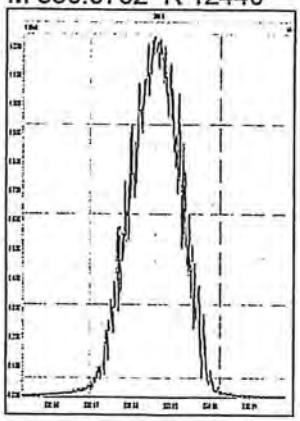
M 366.9792 R 11684



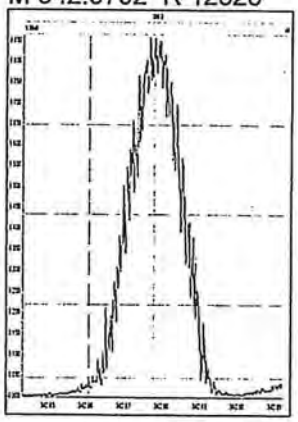
M 380.9760 R 12106



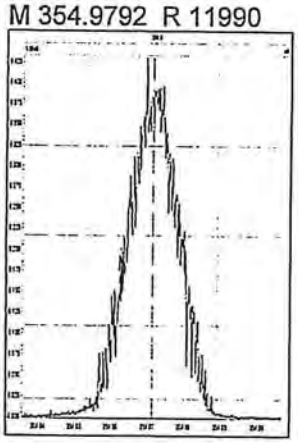
M 330.9792 R 12440



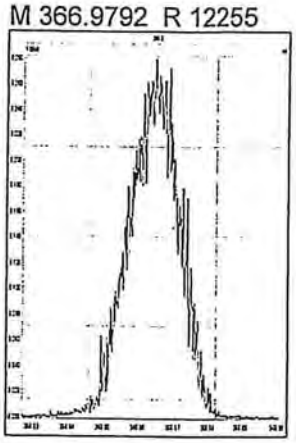
M 342.9792 R 12828



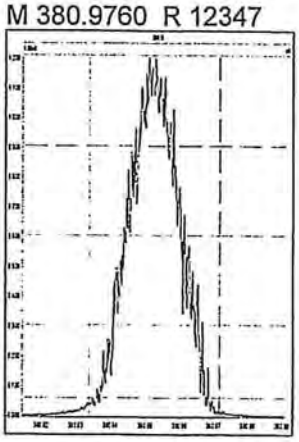
M 354.9792 R 11990



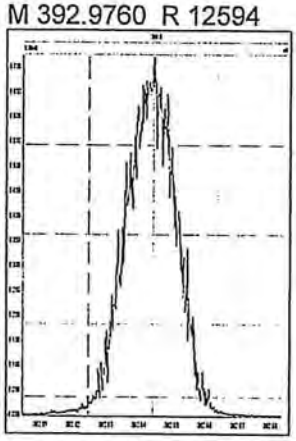
M 366.9792 R 12255



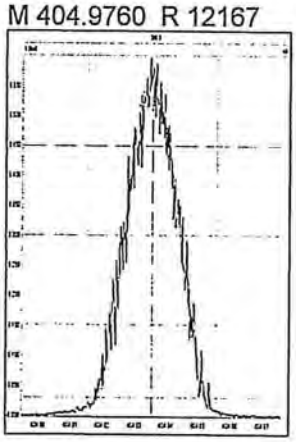
M 380.9760 R 12347



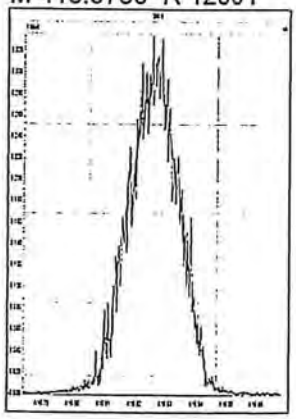
M 392.9760 R 12594



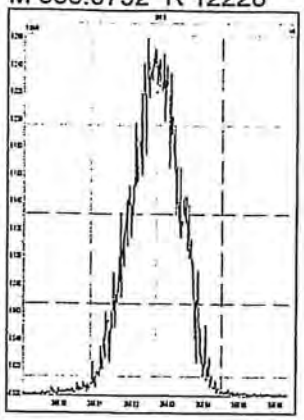
M 404.9760 R 12167



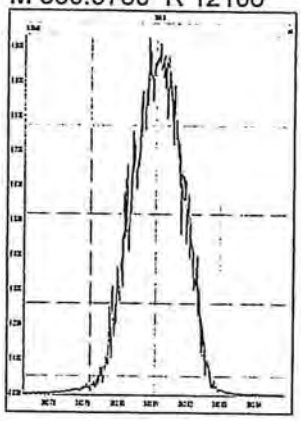
M 416.9760 R 12001



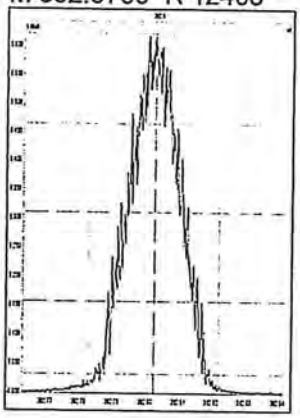
M 366.9792 R 12228



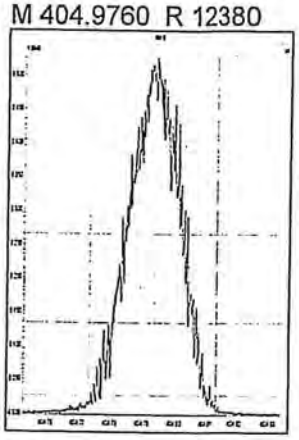
M 380.9760 R 12106



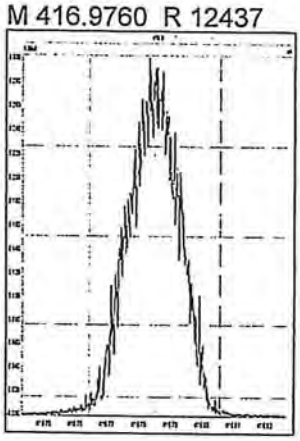
M 392.9760 R 12406



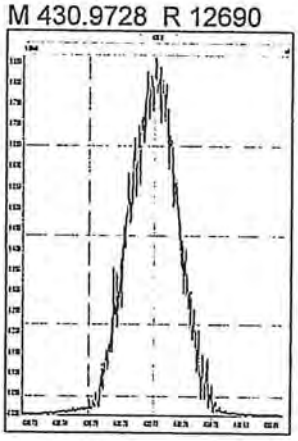
M 404.9760 R 12380



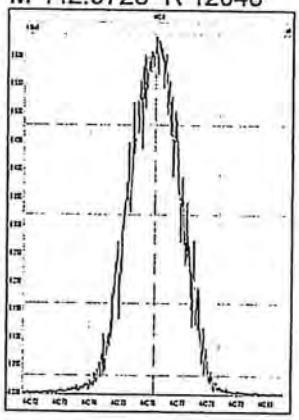
M 416.9760 R 12437



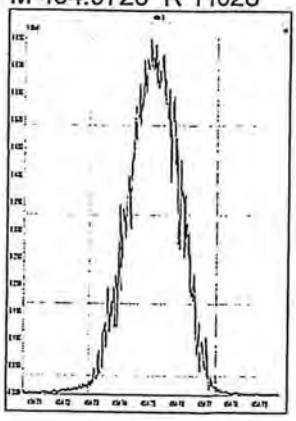
M 430.9728 R 12690



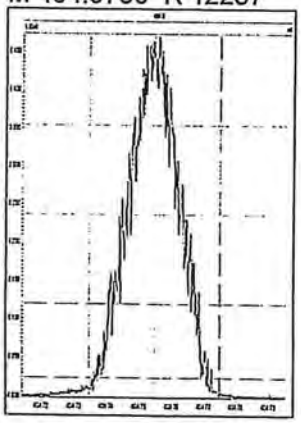
M 442.9728 R 12048



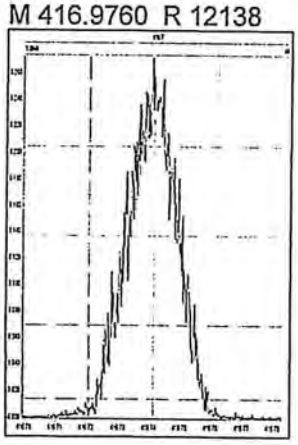
M 454.9728 R 11628



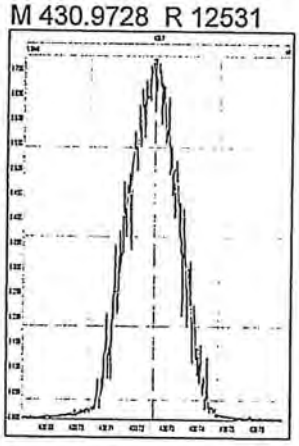
M 404.9760 R 12257



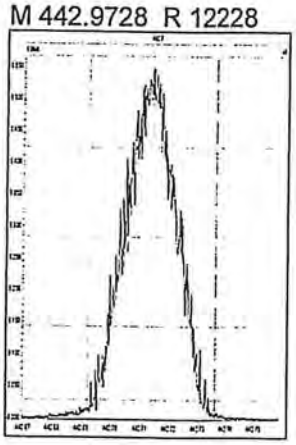
M 416.9760 R 12138



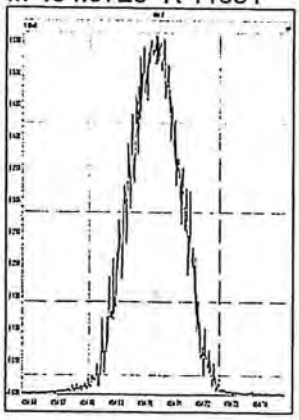
M 430.9728 R 12531



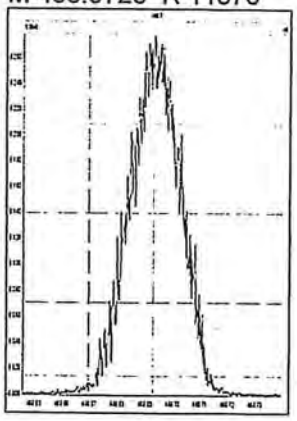
M 442.9728 R 12228



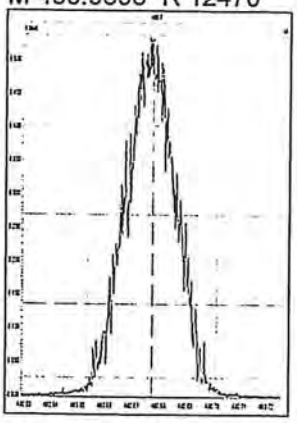
M 454.9728 R 11881



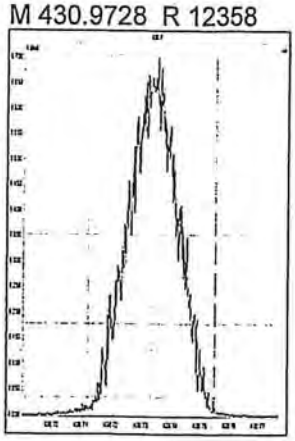
M 466.9728 R 11876



M 480.9696 R 12470

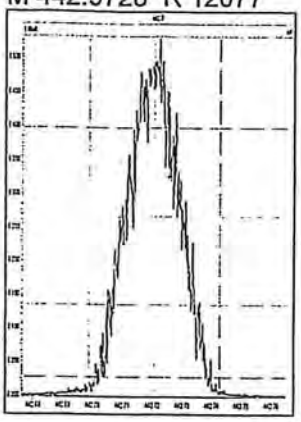


M 430.9728 R 12358

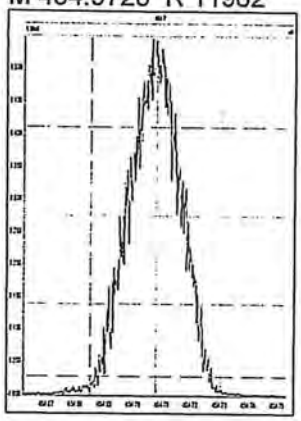


Printed: Friday, August 28, 2015 13:48:43 Eastern Daylight Time

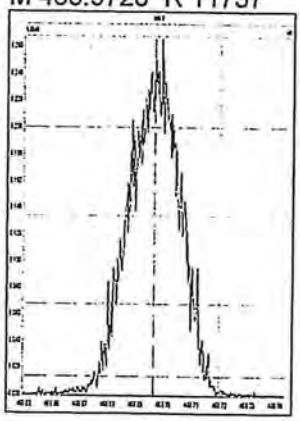
M 442.9728 R 12077



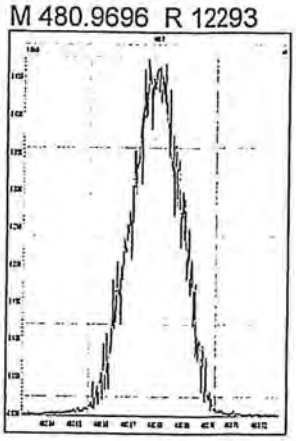
M 454.9728 R 11962



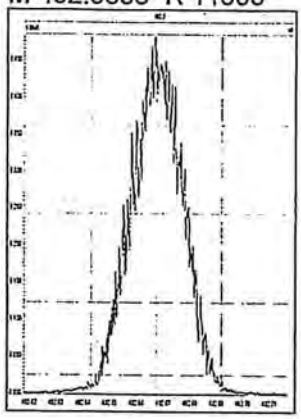
M 466.9728 R 11737



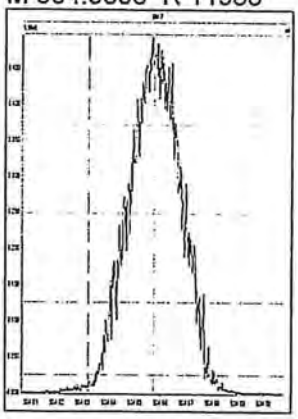
M 480.9696 R 12293



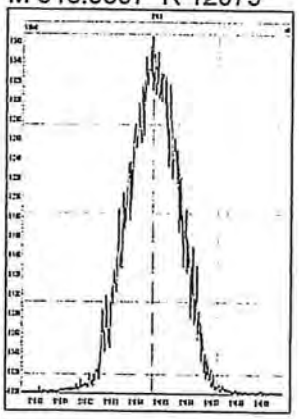
M 492.9696 R 11605



M 504.9696 R 11968



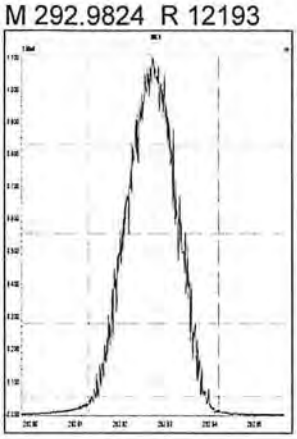
M 516.9697 R 12079



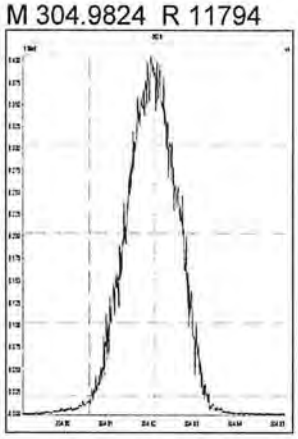
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, August 28, 2015 15:26:39 Eastern Daylight Time

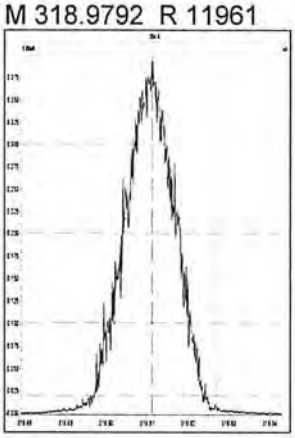
M 292.9824 R 12193



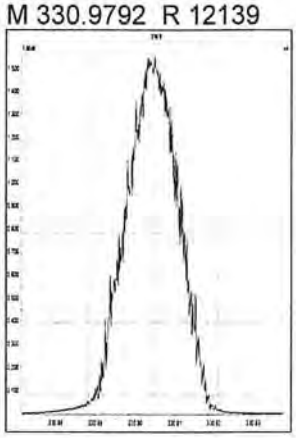
M 304.9824 R 11794



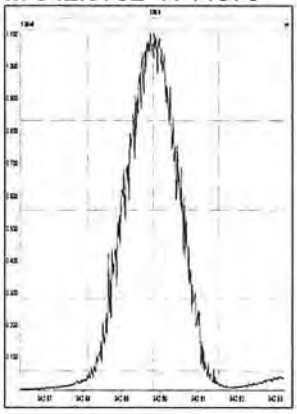
M 318.9792 R 11961



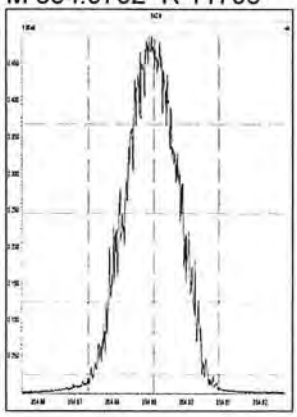
M 330.9792 R 12139



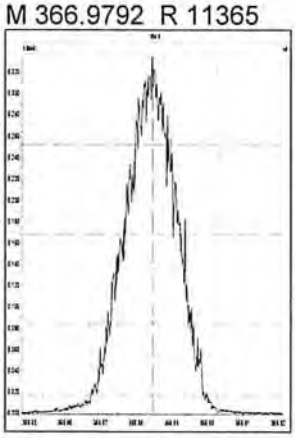
M 342.9792 R 11575



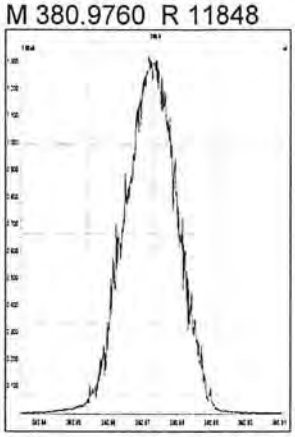
M 354.9792 R 11796



M 366.9792 R 11365



M 380.9760 R 11848

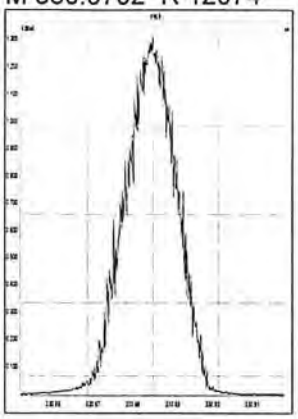


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

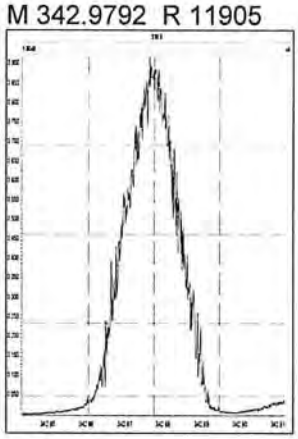
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, August 28, 2015 15:27:15 Eastern Daylight Time

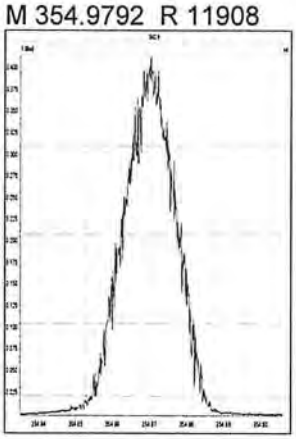
M 330.9792 R 12074



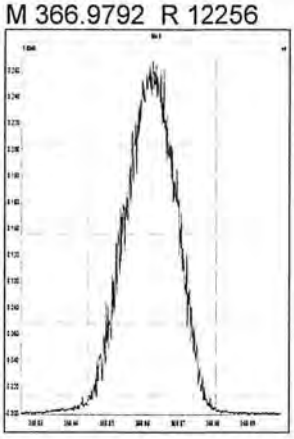
M 342.9792 R 11905



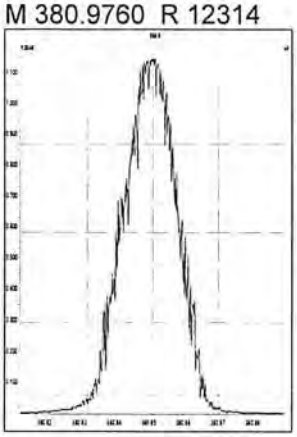
M 354.9792 R 11908



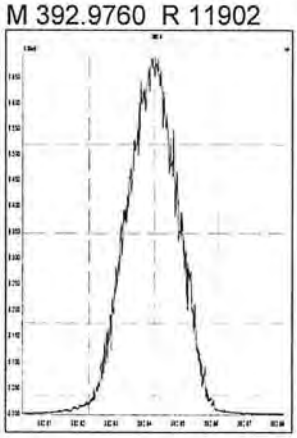
M 366.9792 R 12256



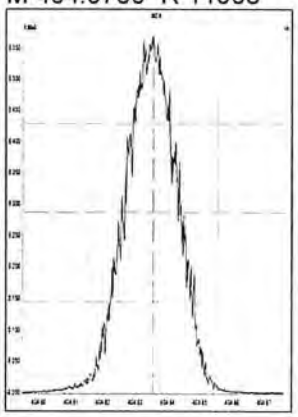
M 380.9760 R 12314



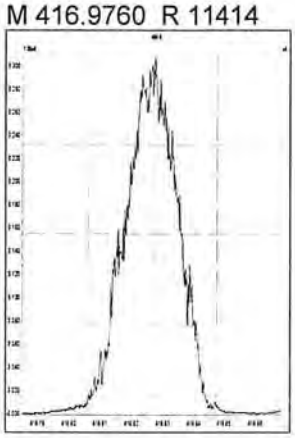
M 392.9760 R 11902



M 404.9760 R 11905



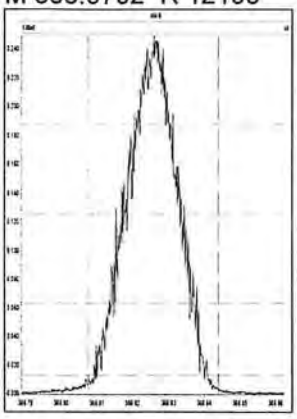
M 416.9760 R 11414



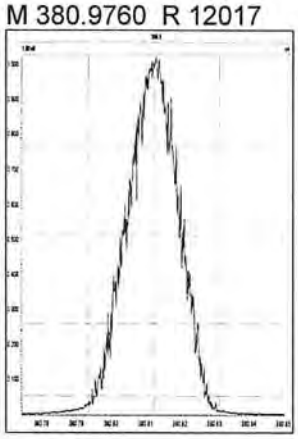
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, August 28, 2015 15:27:58 Eastern Daylight Time

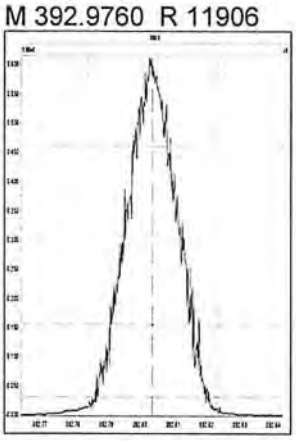
M 366.9792 R 12195



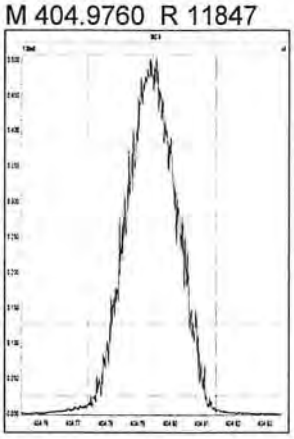
M 380.9760 R 12017



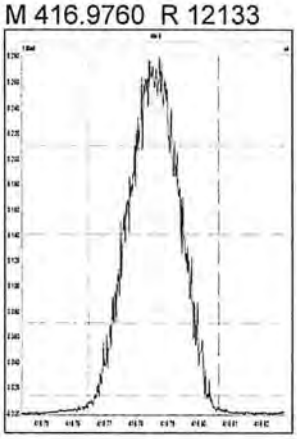
M 392.9760 R 11906



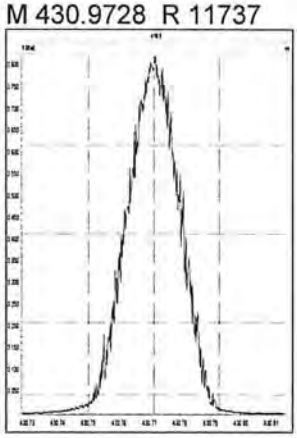
M 404.9760 R 11847



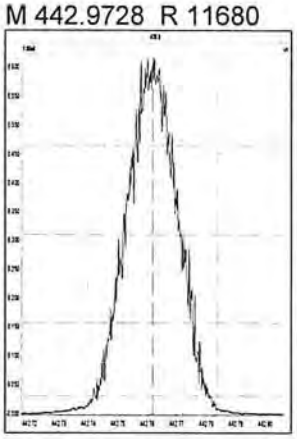
M 416.9760 R 12133



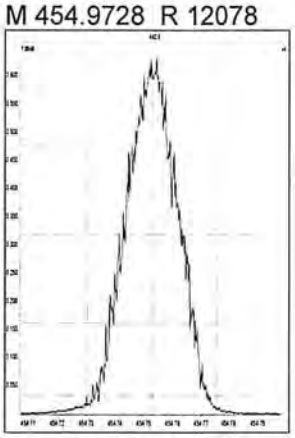
M 430.9728 R 11737



M 442.9728 R 11680



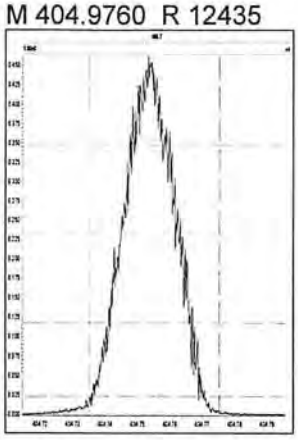
M 454.9728 R 12078



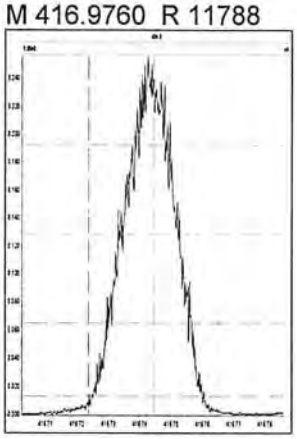
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, August 28, 2015 15:28:32 Eastern Daylight Time

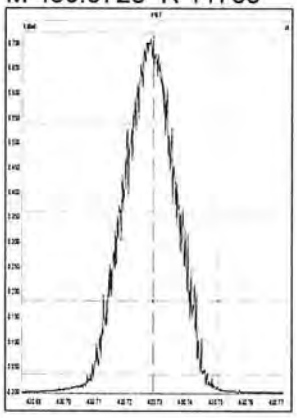
M 404.9760 R 12435



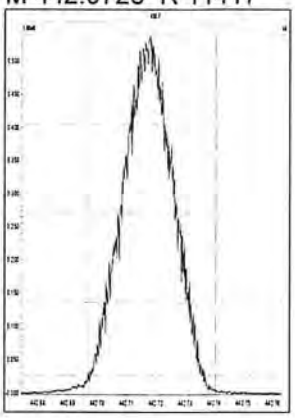
M 416.9760 R 11788



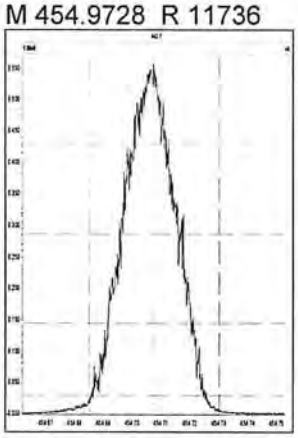
M 430.9728 R 11736



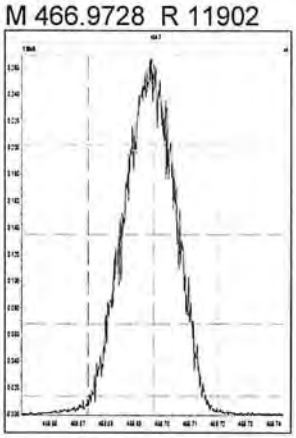
M 442.9728 R 11417



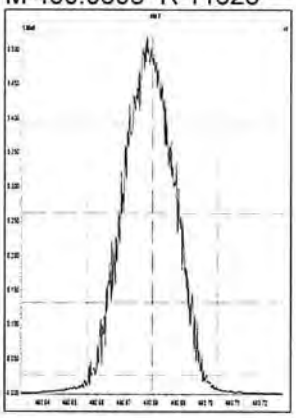
M 454.9728 R 11736



M 466.9728 R 11902



M 480.9696 R 11628

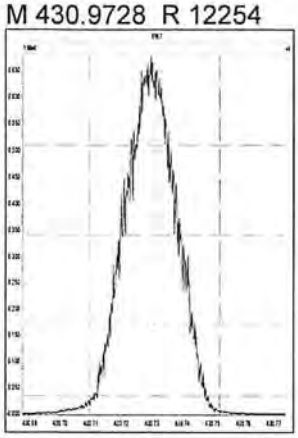


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

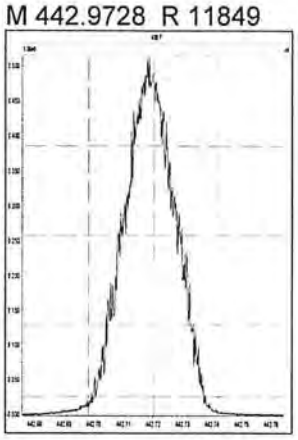
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, August 28, 2015 15:29:05 Eastern Daylight Time

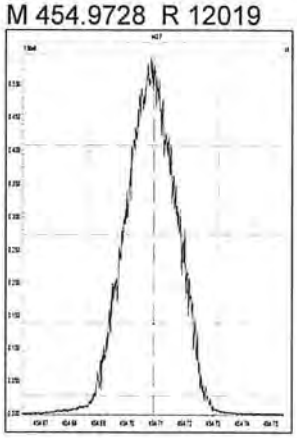
M 430.9728 R 12254



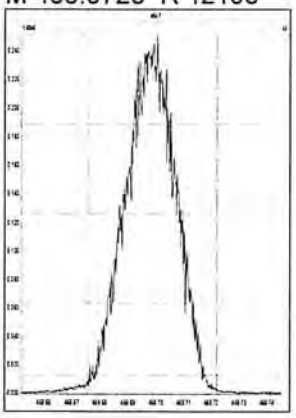
M 442.9728 R 11849



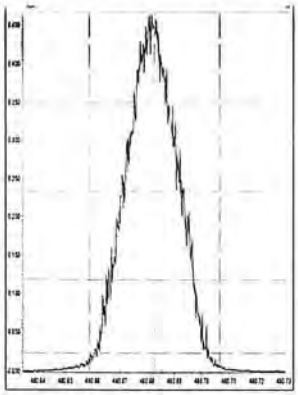
M 454.9728 R 12019



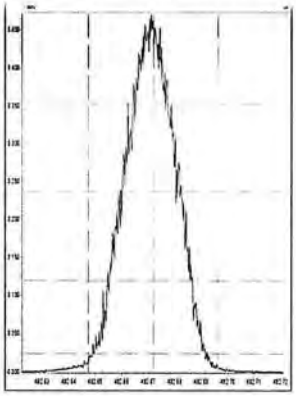
M 466.9728 R 12193



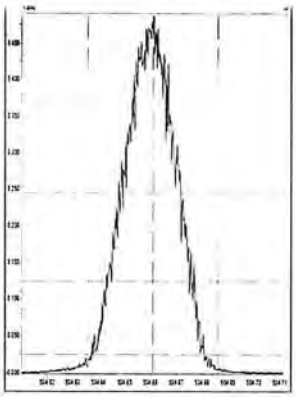
M 480.9696 R 11905



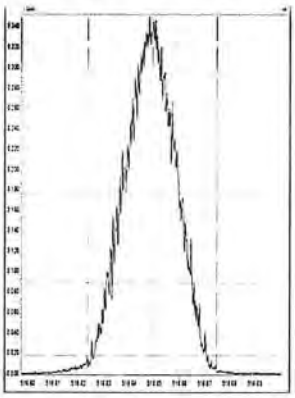
M 492.9696 R 11795



M 504.9696 R 11571



M 516.9697 R 11580



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

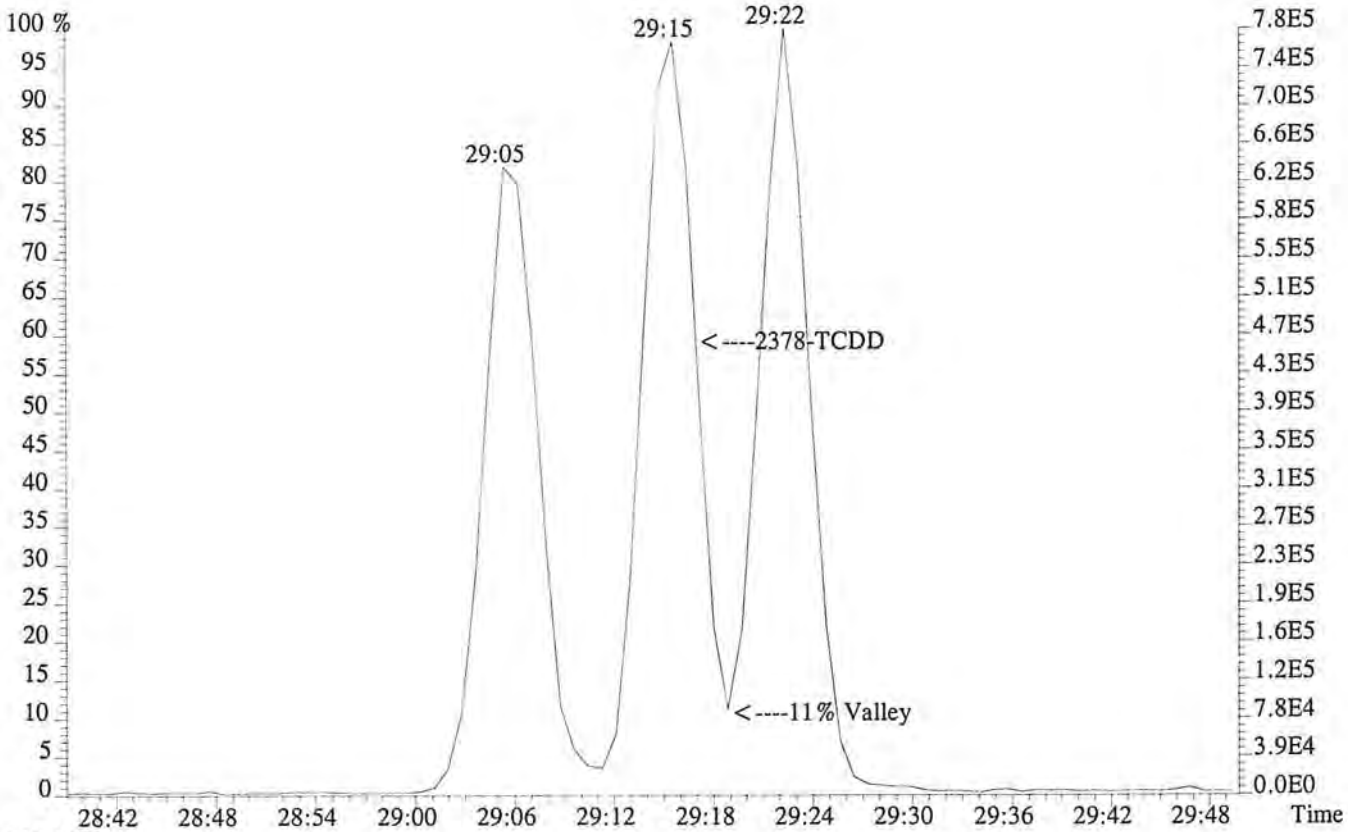
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P301066
Date Analyzed: 28-AUG-2015
Time Analyzed: 05:34:18

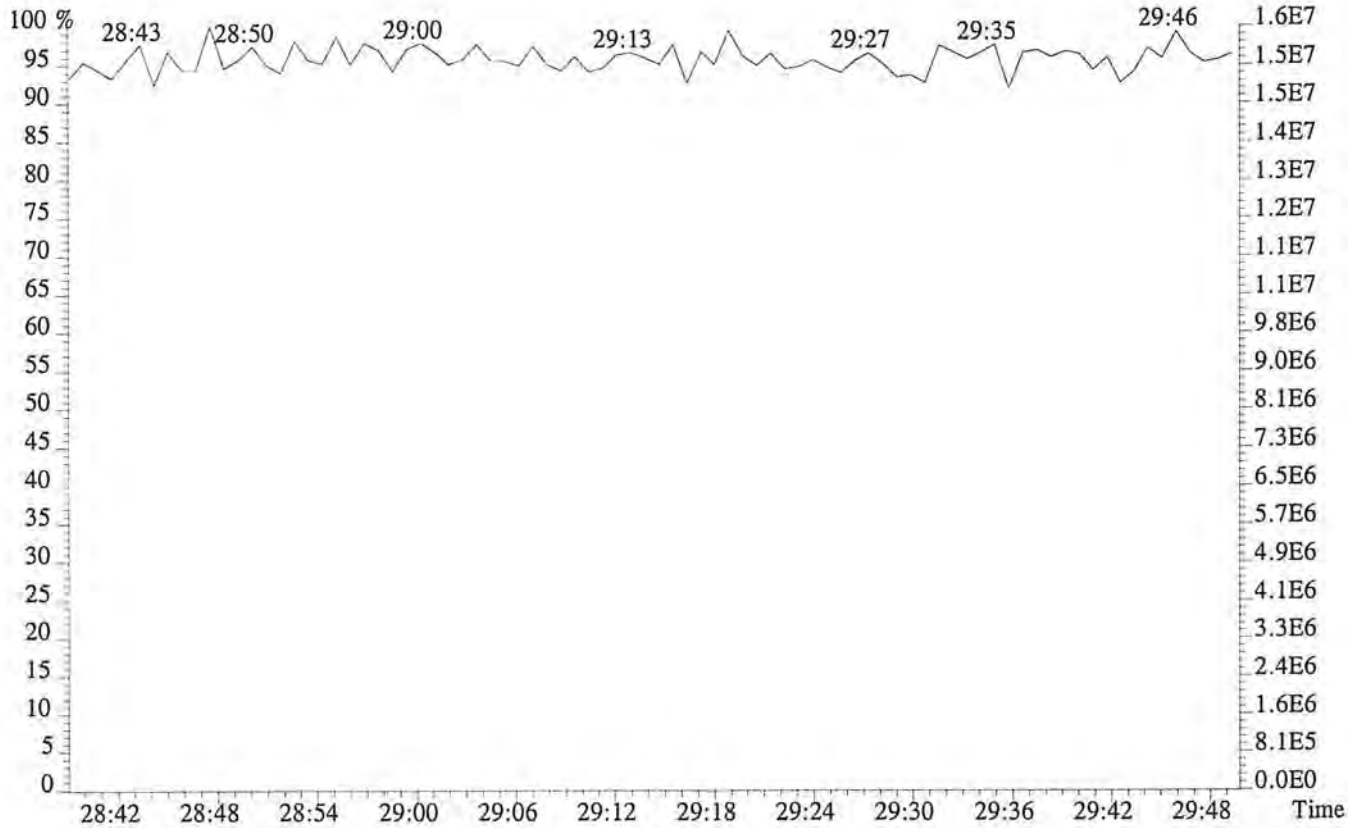
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:14	30:22
TCDD	26:05	30:13
PeCDF	30:19	34:28
PeCDD	31:49	34:13
HxCDF	35:06	37:34
HxCDD	35:36	37:10
HpCDF	38:47	40:11
HpCDD	39:01	39:42

% Valley 2378-TCDD: 11

File:P301066 #1-591 Acq:28-AUG-2015 05:34:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



318.9792



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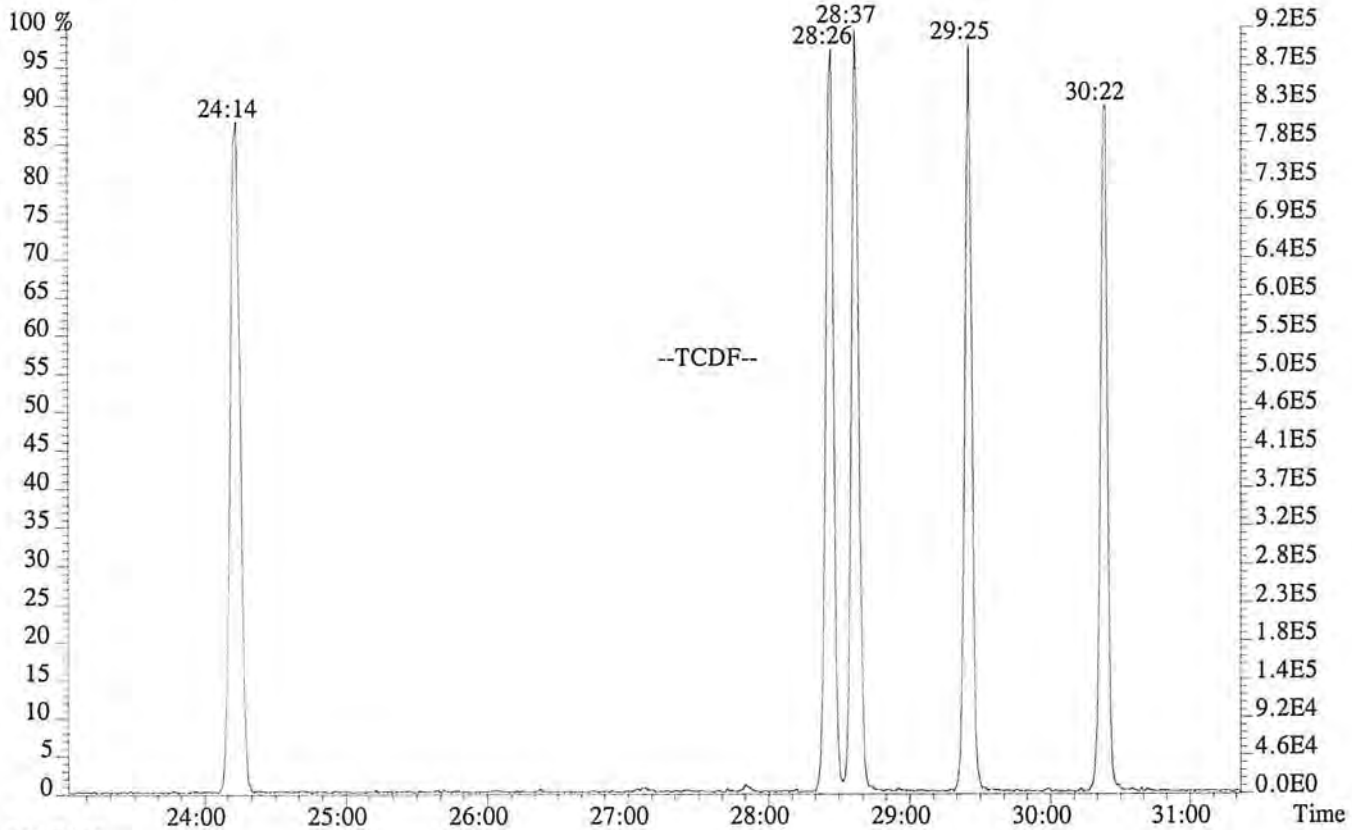
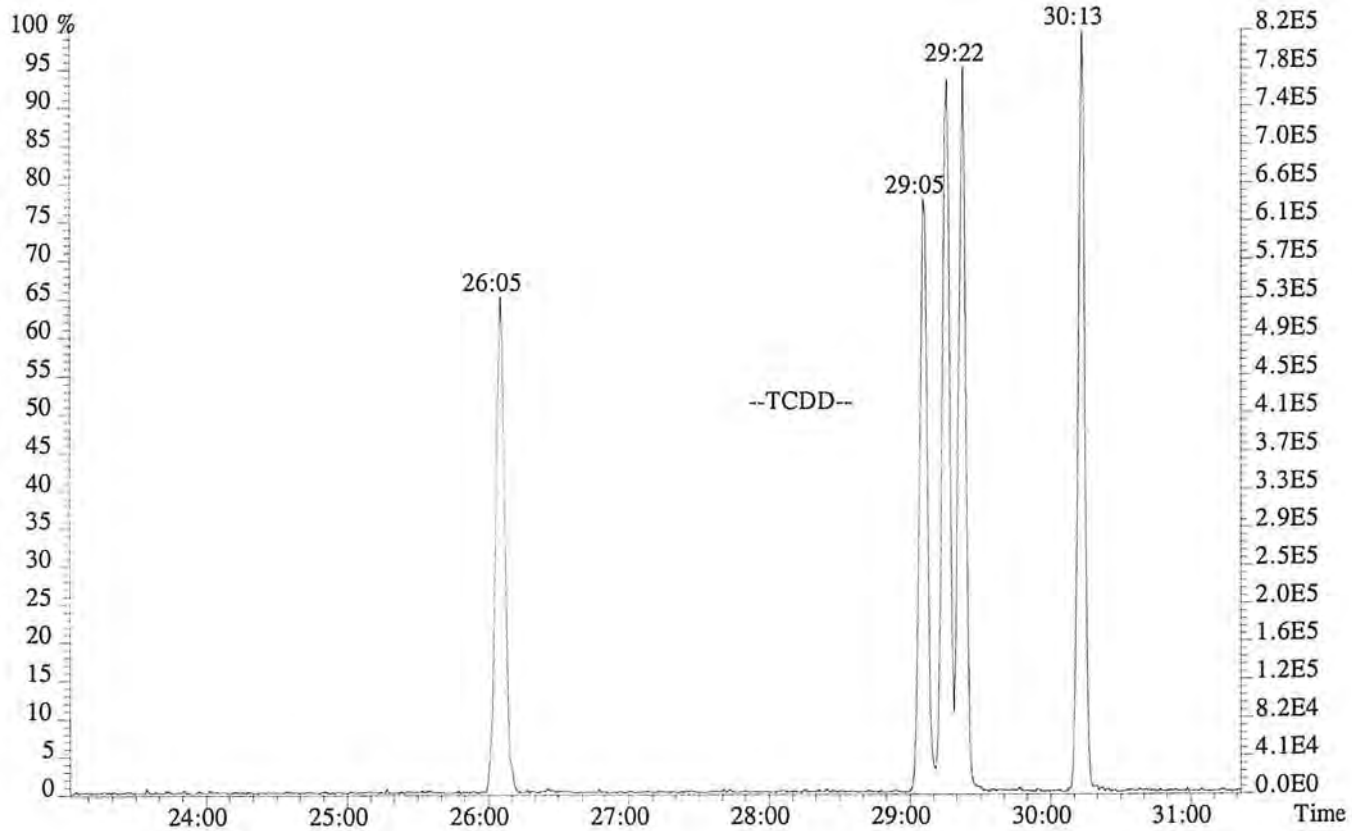
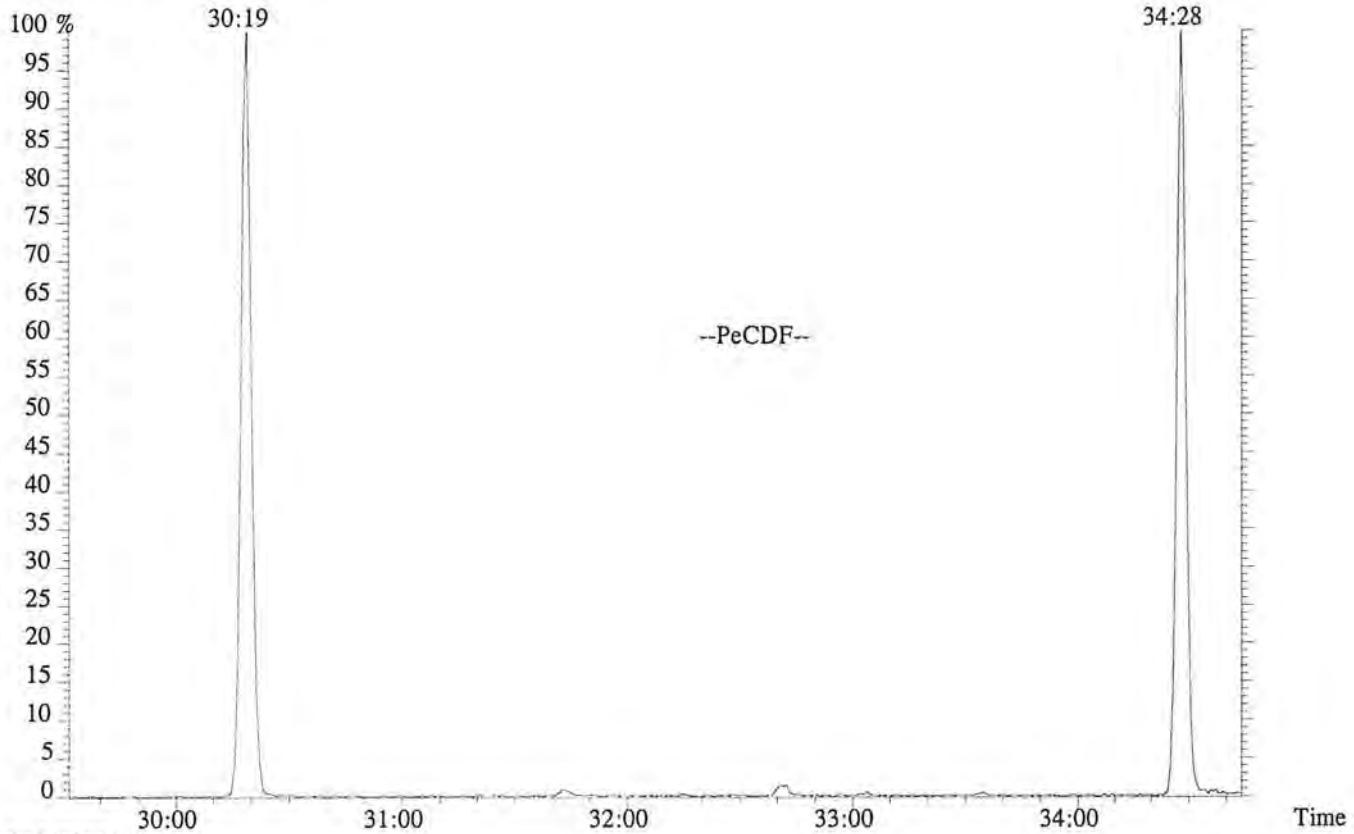
Sample#1 Exp:WINDOW DEFINE
303.9016



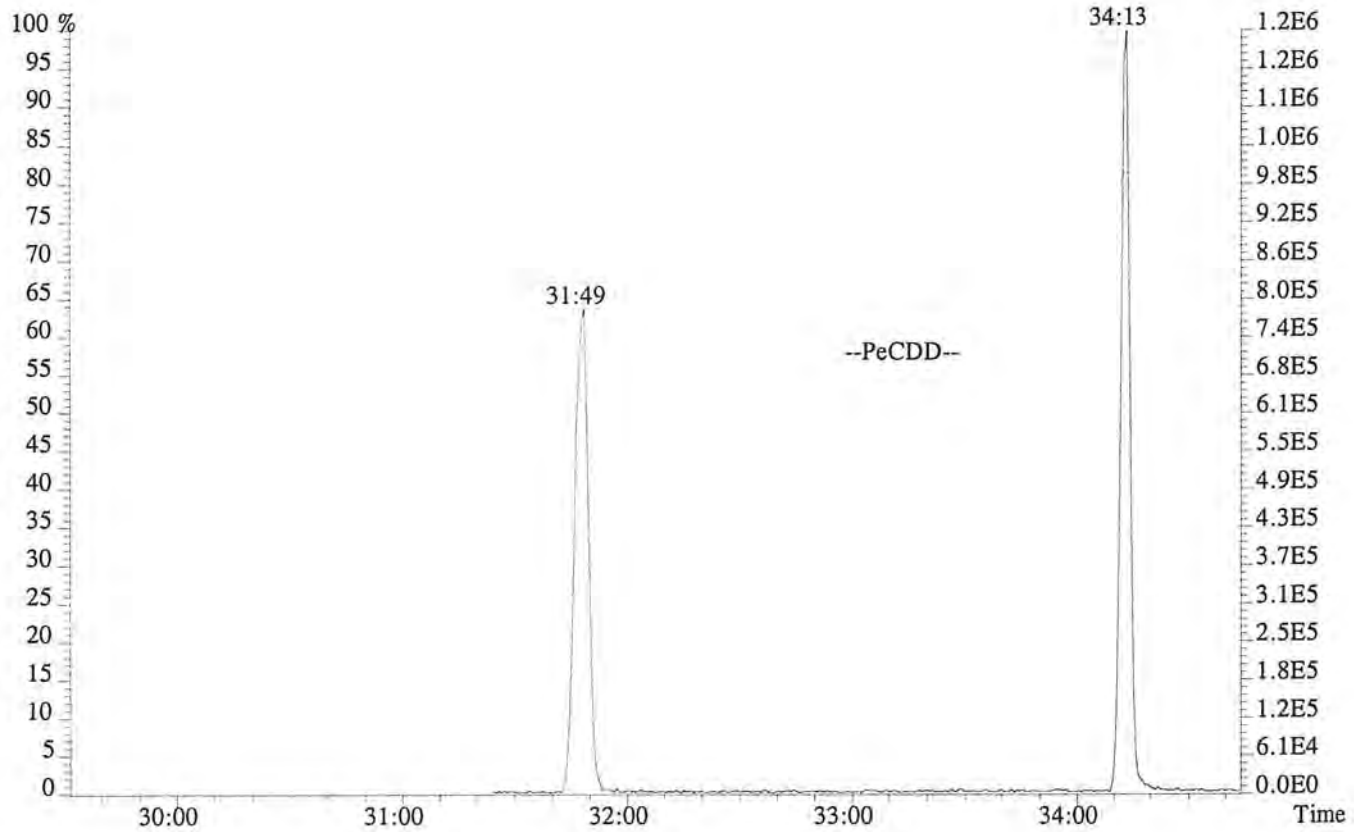
319.8965



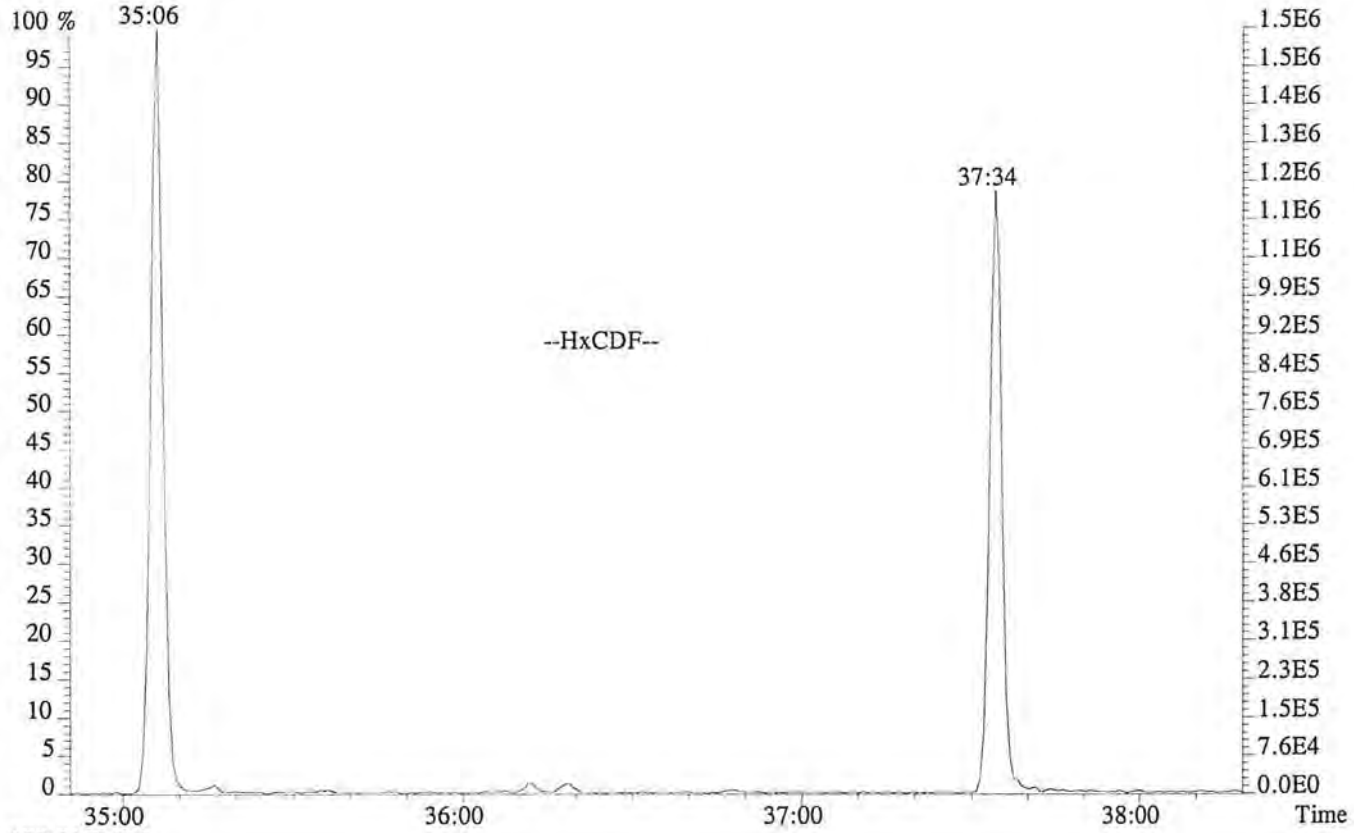
File:P301066 #1-591 Acq:28-AUG-2015 05:34:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



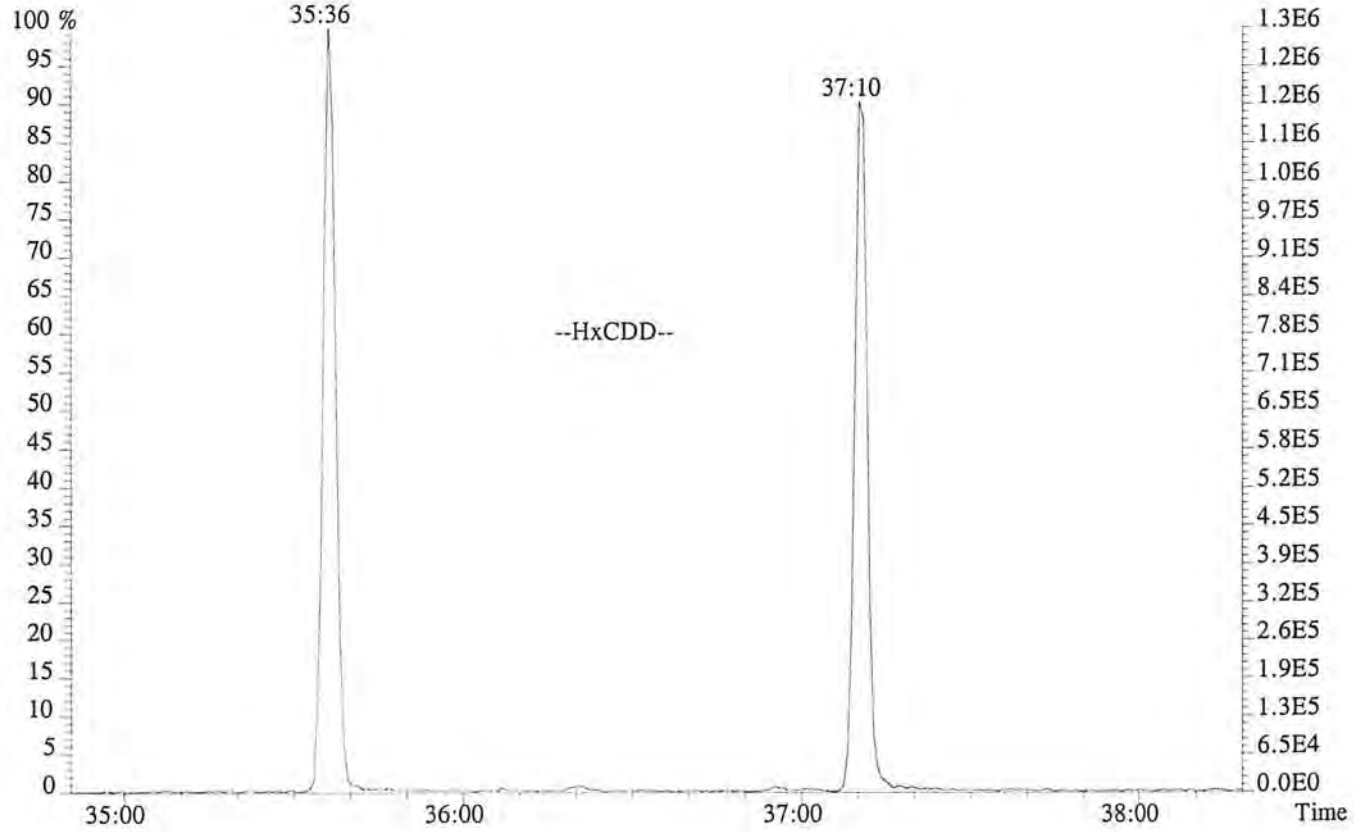
355.8546 F:2



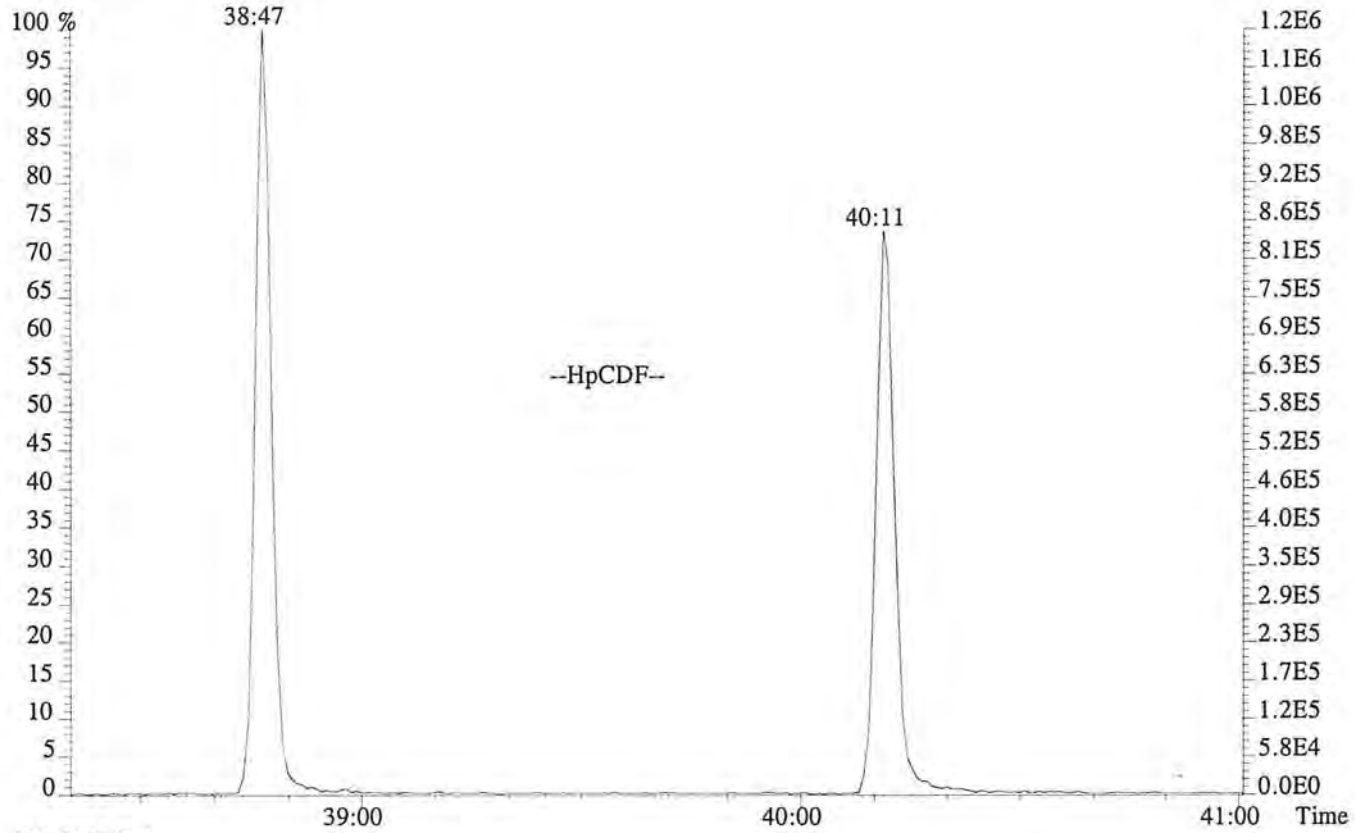
File:P301066 #1-312 Acq:28-AUG-2015 05:34:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



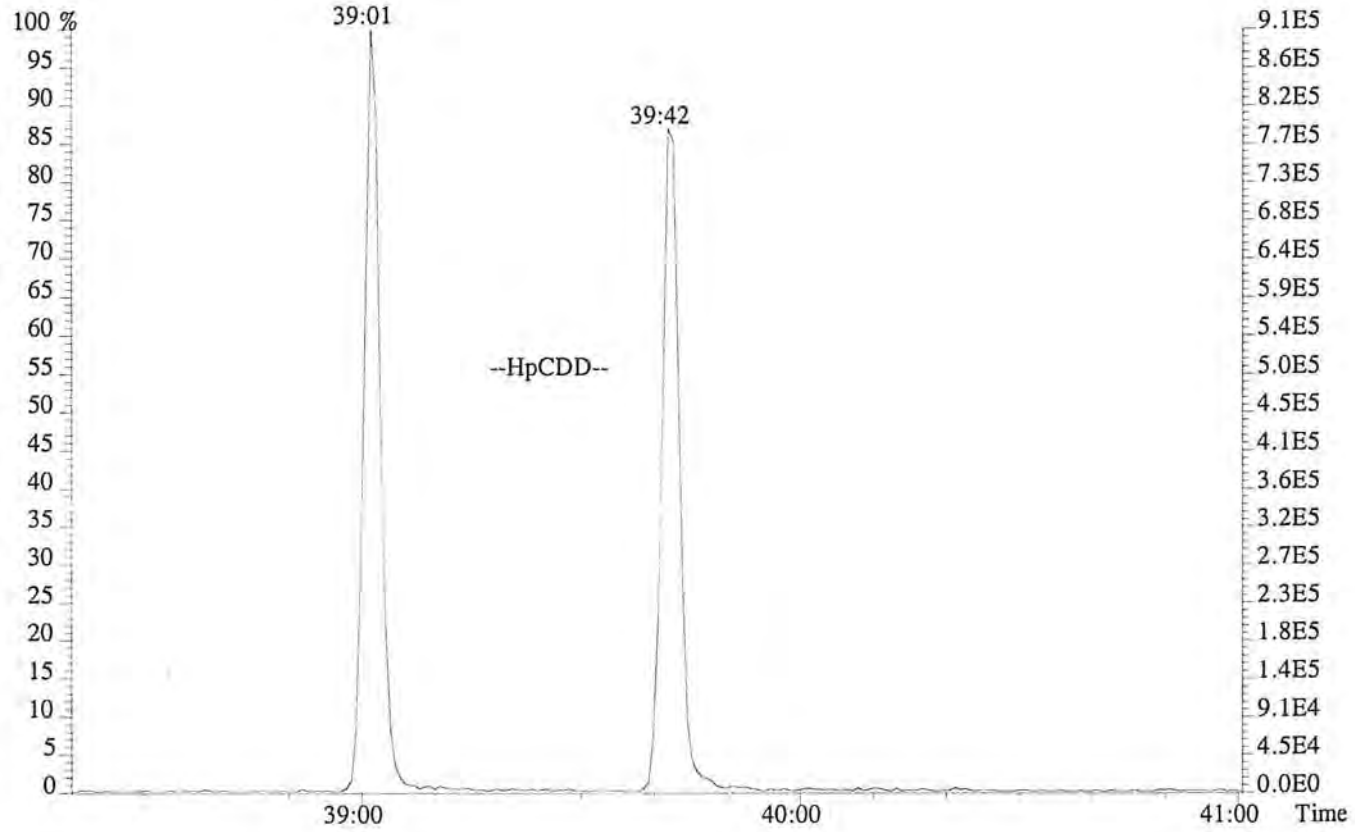
389.8157 F:3



File:P301066 #1-241 Acq:28-AUG-2015 05:34:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/21/15

Instrument ID: E-HRMS-05 GC Column ID: DB-5MSUI

VER Data Filename: P301064 Analysis Date: 28-AUG-15 Time: 03:57:04

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.5	7.8 - 12.9	-5.2
1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	52	39 - 65	4.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	52	39 - 64	4.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	52	39 - 64	4.5
1,2,3,7,8,9-HxCDD	M+2/M+4	1.23	1.05-1.43	52	41 - 61	4.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	52	43 - 58	4.6
OCDD	M+2/M+4	0.89	0.76-1.02	104	79 - 126	4.0
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	10.1	8.4 - 12.0	0.6
1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	52	41 - 60	3.9
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	52	41 - 61	3.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	51	45 - 56	2.1
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	51	44 - 57	1.6
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	52	45 - 56	3.6
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	52	44 - 57	3.1
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	52	45 - 55	4.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	51	43 - 58	1.6
OCDF	M+2/M+4	0.90	0.76-1.02	103	63 - 159	2.7

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/21/15

Instrument ID: E-HRMS-05 GC Column ID: DB-5MSUI

VER Data Filename: P301064 Analysis Date: 28-AUG-15 Time: 03:57:04

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	101	82 - 121	0.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	105	62 - 160	4.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	99	85 - 117	-1.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	99	85 - 118	-1.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	105	72 - 138	4.6
13C-OCDD	M+2/M+4	0.90	0.76-1.02	217	96 - 415	8.4
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	99	71 - 140	-1.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	102	76 - 130	2.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	104	77 - 130	4.2
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	98	76 - 131	-2.1
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	70 - 143	-4.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	102	74 - 135	1.8
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	99	73 - 137	-1.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	101	78 - 129	1.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	104	77 - 129	3.9
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.6	7.8 - 12.7	-3.6

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
79857

Run #7 Filename P301064 Samp: 1 Inj: 1 Acquired: 28-AUG-15 03:57:04
Processed: 28-AUG-15 16:35:05 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	4.131e+03	5.370e+03	0.77	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	32:42	3.581e+04	2.261e+04	1.58	yes	no	0.929
3	Unk	2,3,4,7,8-PeCDF	33:35	3.281e+04	2.105e+04	1.56	yes	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	36:12	3.107e+04	2.498e+04	1.24	yes	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:19	3.187e+04	2.550e+04	1.25	yes	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:48	2.998e+04	2.408e+04	1.25	yes	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	37:33	2.760e+04	2.209e+04	1.25	yes	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:47	2.656e+04	2.553e+04	1.04	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	40:12	2.227e+04	2.150e+04	1.04	yes	no	1.245
10	Unk	OCDF	42:44	3.677e+04	4.107e+04	0.90	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:22	3.289e+03	4.309e+03	0.76	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:51	2.555e+04	1.613e+04	1.58	yes	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:56	2.284e+04	1.828e+04	1.25	yes	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:01	2.333e+04	1.861e+04	1.25	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:15	2.433e+04	1.980e+04	1.23	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	2.013e+04	1.948e+04	1.03	yes	no	0.949
17	Unk	OCDD	42:32	3.326e+04	3.727e+04	0.89	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:37	4.901e+04	6.215e+04	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	7.385e+04	4.713e+04	1.57	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:34	7.266e+04	4.601e+04	1.58	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	3.251e+04	6.279e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	3.580e+04	6.850e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	3.352e+04	6.463e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:32	3.042e+04	5.887e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	2.320e+04	5.273e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:11	2.111e+04	4.806e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:21	3.651e+04	4.729e+04	0.77	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:51	5.540e+04	3.485e+04	1.59	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:56	4.517e+04	3.592e+04	1.26	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:00	4.629e+04	3.680e+04	1.26	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:42	4.093e+04	3.890e+04	1.05	yes	no	0.850
32	IS	13C-OCDD	42:32	6.049e+04	6.734e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:48	3.732e+04	4.789e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:14	4.956e+04	4.019e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	8.221e+03				no	1.001

ALS ENVIRONMENTAL
10450 Stancliff Rd, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
79857

Run #7 Filename P301064 Samp: 1 Inj: 1 Acquired: 28-AUG-15 03:57:04
Processed: 28-AUG-15 16:35:05 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.56e+05	1.42e+03	6.0e+02	1.12e+06	2.30e+03	4.9e+02
2	1,2,3,7,8-PeCDF	7.15e+06	8.96e+02	8.0e+03	4.55e+06	2.59e+03	1.8e+03
3	2,3,4,7,8-PeCDF	6.84e+06	8.96e+02	7.6e+03	4.43e+06	2.59e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	7.11e+06	1.05e+03	6.8e+03	5.69e+06	6.28e+02	9.1e+03
5	1,2,3,6,7,8-HxCDF	6.99e+06	1.05e+03	6.7e+03	5.52e+06	6.28e+02	8.8e+03
6	2,3,4,6,7,8-HxCDF	7.01e+06	1.05e+03	6.7e+03	5.57e+06	6.28e+02	8.9e+03
7	1,2,3,7,8,9-HxCDF	6.05e+06	1.05e+03	5.8e+03	4.88e+06	6.28e+02	7.8e+03
8	1,2,3,4,6,7,8-HpCDF	6.00e+06	2.59e+03	2.3e+03	5.70e+06	2.03e+03	2.8e+03
9	1,2,3,4,7,8,9-HpCDF	4.51e+06	2.59e+03	1.7e+03	4.46e+06	2.03e+03	2.2e+03
10	OCDF	6.46e+06	1.53e+03	4.2e+03	7.32e+06	2.24e+03	3.3e+03
11	2,3,7,8-TCDD	6.71e+05	1.22e+03	5.5e+02	8.85e+05	6.80e+02	1.3e+03
12	1,2,3,7,8-PeCDD	5.48e+06	2.26e+03	2.4e+03	3.48e+06	6.08e+02	5.7e+03
13	1,2,3,4,7,8-HxCDD	5.29e+06	6.48e+02	8.2e+03	4.18e+06	1.11e+03	3.8e+03
14	1,2,3,6,7,8-HxCDD	5.12e+06	6.48e+02	7.9e+03	4.11e+06	1.11e+03	3.7e+03
15	1,2,3,7,8,9-HxCDD	5.44e+06	6.48e+02	8.4e+03	4.38e+06	1.11e+03	4.0e+03
16	1,2,3,4,6,7,8-HpCDD	4.21e+06	1.04e+03	4.1e+03	4.13e+06	6.56e+02	6.3e+03
17	OCDD	5.98e+06	9.92e+02	6.0e+03	6.67e+06	1.53e+03	4.4e+03
18	13C-2,3,7,8-TCDF	9.75e+06	1.46e+03	6.7e+03	1.22e+07	2.78e+03	4.4e+03
19	13C-1,2,3,7,8-PeCDF	1.45e+07	1.01e+03	1.4e+04	9.40e+06	1.21e+03	7.8e+03
20	13C-2,3,4,7,8-PeCDF	1.52e+07	1.01e+03	1.5e+04	9.75e+06	1.21e+03	8.0e+03
21	13C-1,2,3,4,7,8-HxCDF	7.44e+06	1.22e+03	6.1e+03	1.42e+07	1.78e+03	8.0e+03
22	13C-1,2,3,6,7,8-HxCDF	7.83e+06	1.22e+03	6.4e+03	1.49e+07	1.78e+03	8.4e+03
23	13C-2,3,4,6,7,8-HxCDF	7.75e+06	1.22e+03	6.3e+03	1.49e+07	1.78e+03	8.4e+03
24	13C-1,2,3,7,8,9-HxCDF	6.69e+06	1.22e+03	5.5e+03	1.29e+07	1.78e+03	7.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.33e+06	1.94e+03	2.7e+03	1.20e+07	1.93e+03	6.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.20e+06	1.94e+03	2.2e+03	9.68e+06	1.93e+03	5.0e+03
27	13C-2,3,7,8-TCDD	7.63e+06	6.32e+03	1.2e+03	9.83e+06	3.18e+03	3.1e+03
28	13C-1,2,3,7,8-PeCDD	1.17e+07	1.88e+03	6.3e+03	7.37e+06	7.52e+02	9.8e+03
29	13C-1,2,3,4,7,8-HxCDD	1.04e+07	1.67e+03	6.2e+03	8.14e+06	1.52e+03	5.3e+03
30	13C-1,2,3,6,7,8-HxCDD	1.02e+07	1.67e+03	6.1e+03	8.11e+06	1.52e+03	5.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.62e+06	1.51e+03	5.7e+03	8.26e+06	6.48e+02	1.3e+04
32	13C-OCDD	1.08e+07	8.24e+02	1.3e+04	1.19e+07	8.64e+02	1.4e+04
33	13C-1,2,3,4-TCDD	7.53e+06	6.32e+03	1.2e+03	9.63e+06	3.18e+03	3.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.09e+07	1.67e+03	6.5e+03	8.80e+06	1.52e+03	5.8e+03
35	37Cl-2,3,7,8-TCDD	1.69e+06	1.21e+03	1.4e+03			

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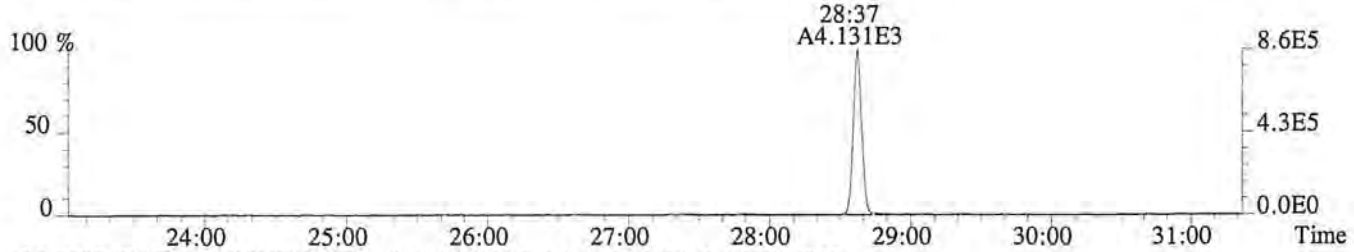
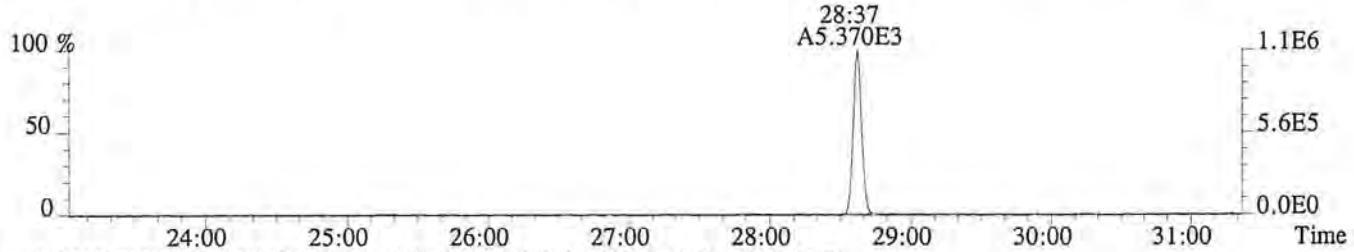
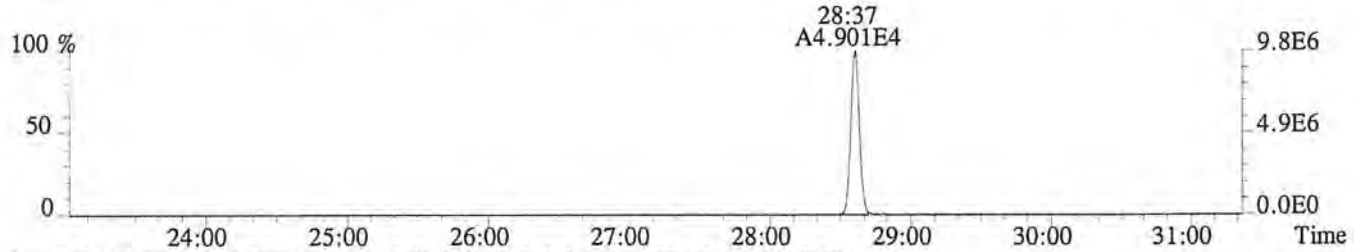
File:P301064 #1-591 Acq:28-AUG-2015 03:57:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



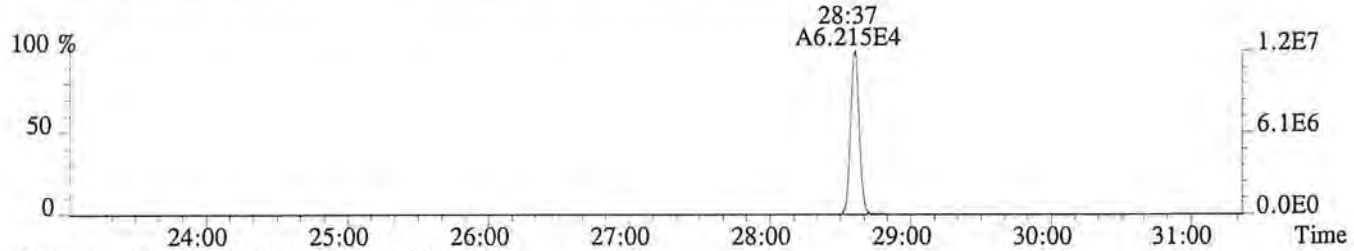
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2296.0,1.00%,F,T)



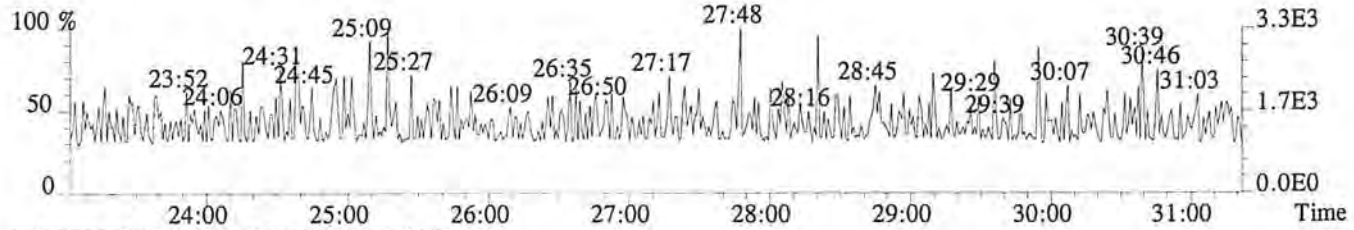
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



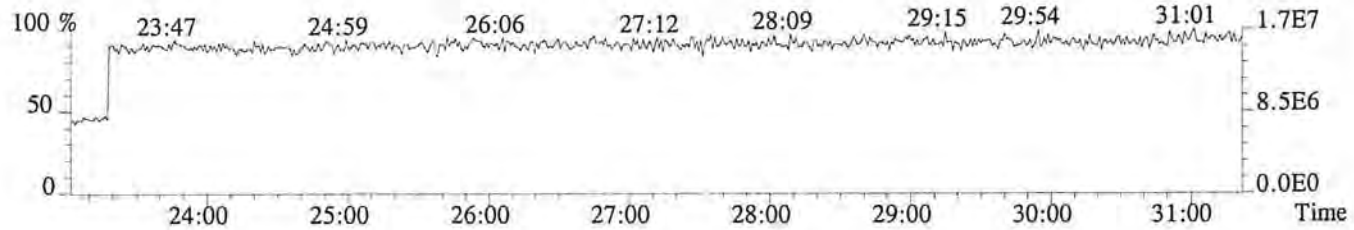
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2784.0,1.00%,F,T)



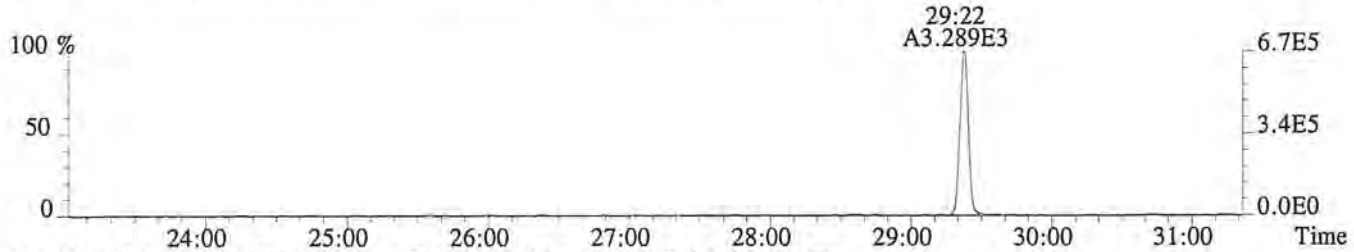
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



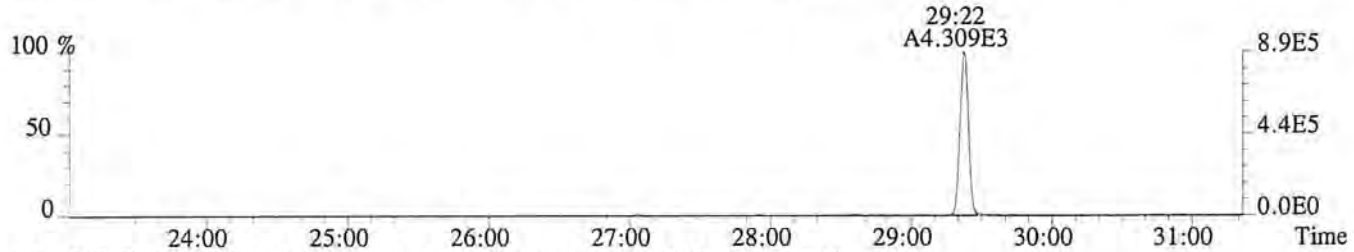
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



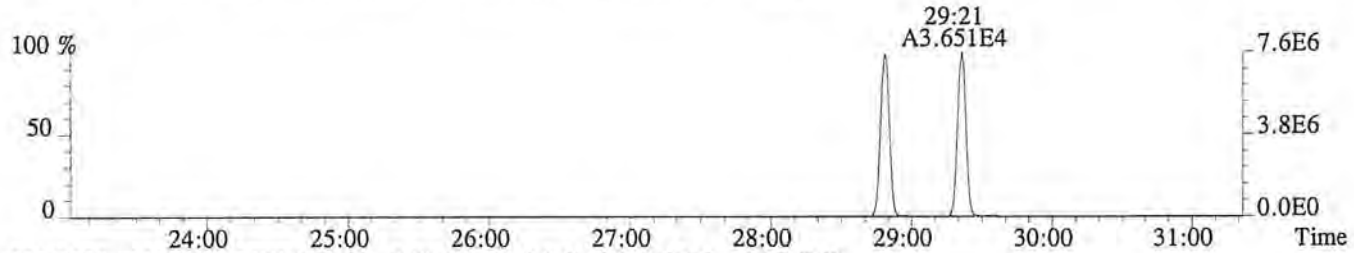
File:P301064 #1-591 Acq:28-AUG-2015 03:57:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1224.0,1.00%,F,T)



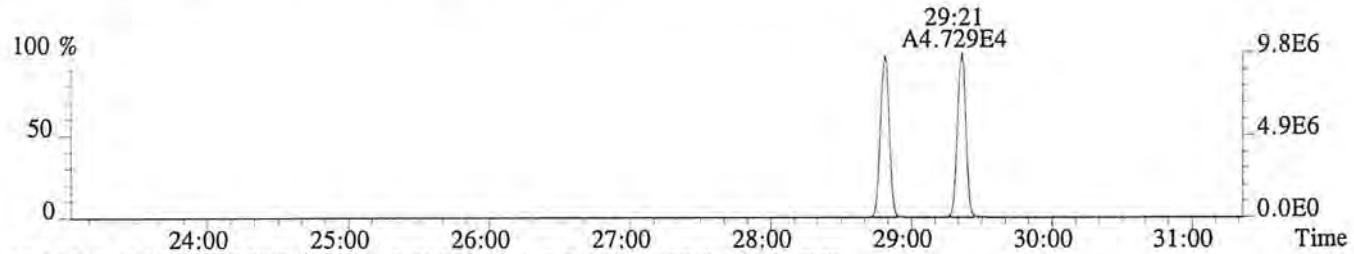
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



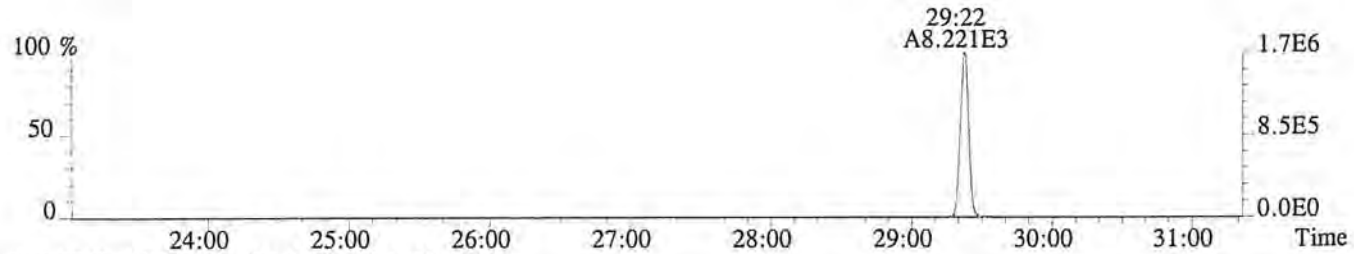
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6324.0,1.00%,F,T)



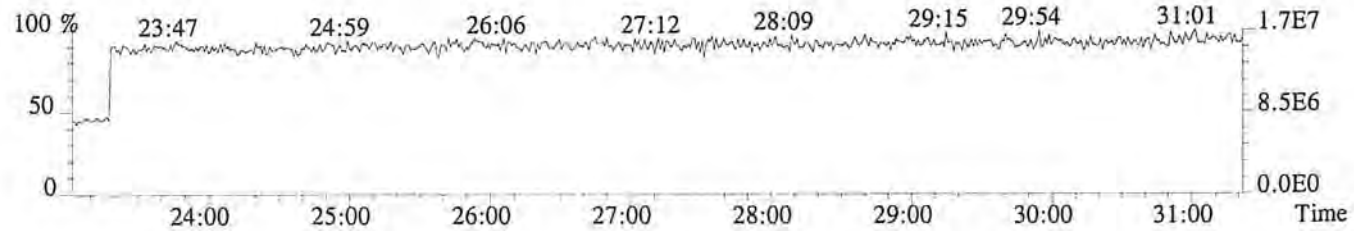
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3184.0,1.00%,F,T)



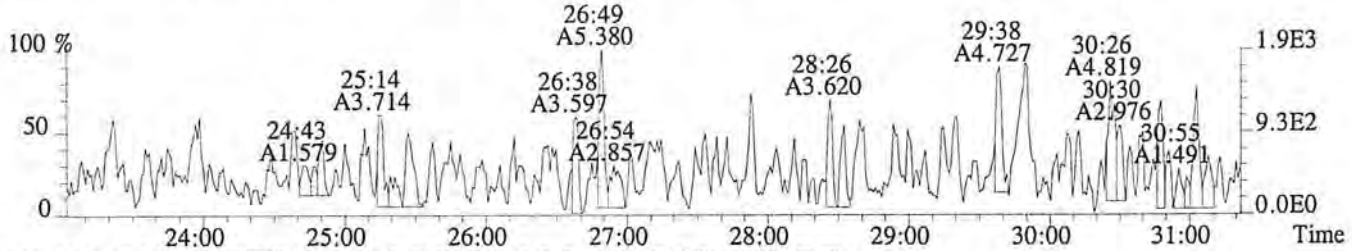
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1208.0,1.00%,F,T)



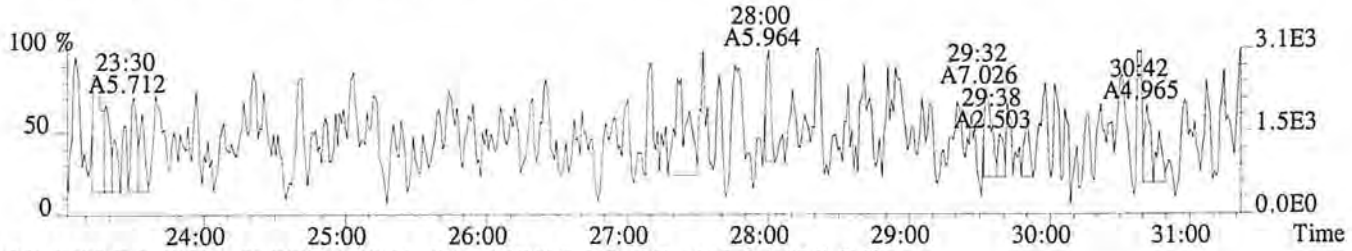
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



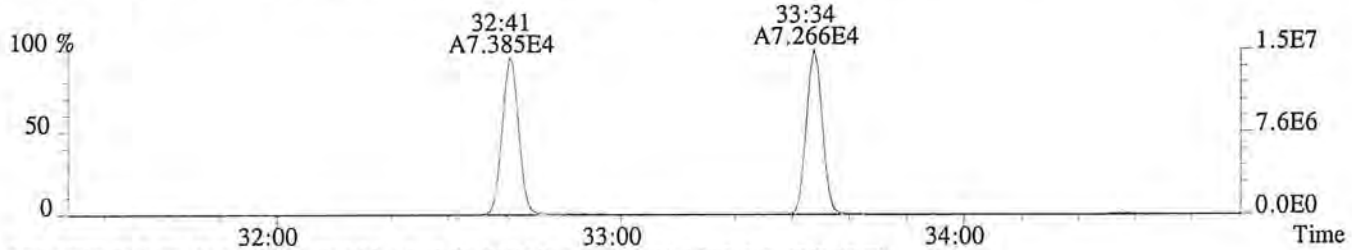
File:P301064 #1-591 Acq:28-AUG-2015 03:57:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



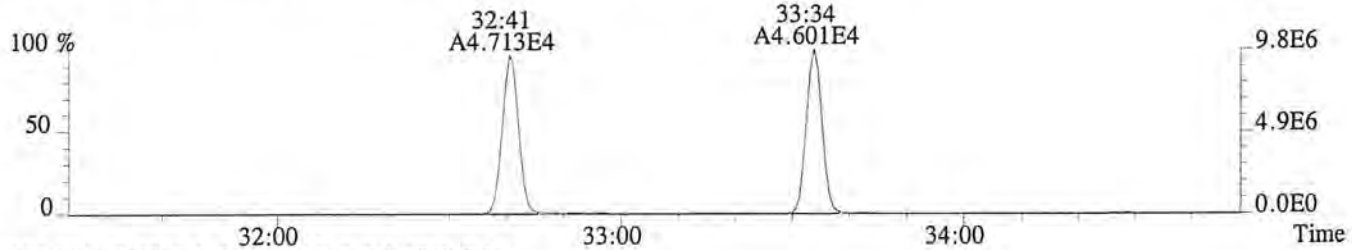
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1756.0,1.00%,F,T)



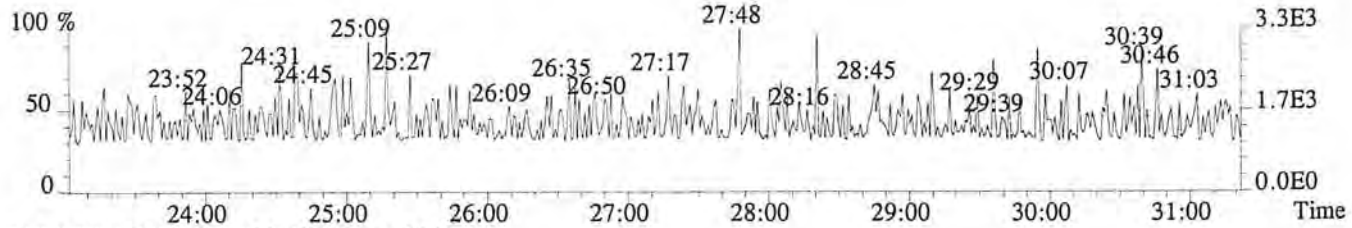
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



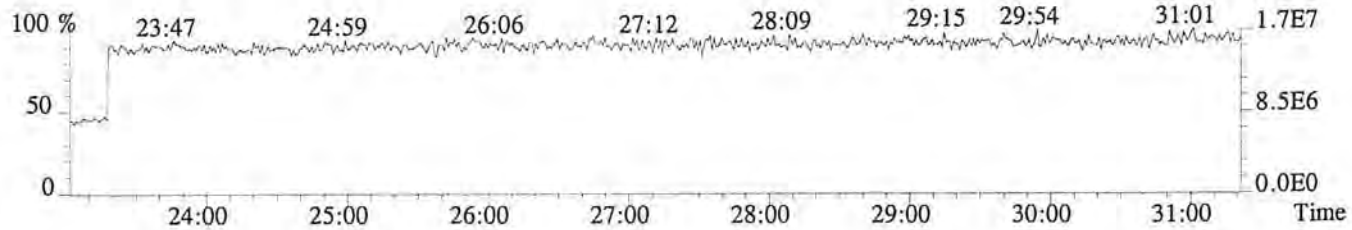
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1212.0,1.00%,F,T)



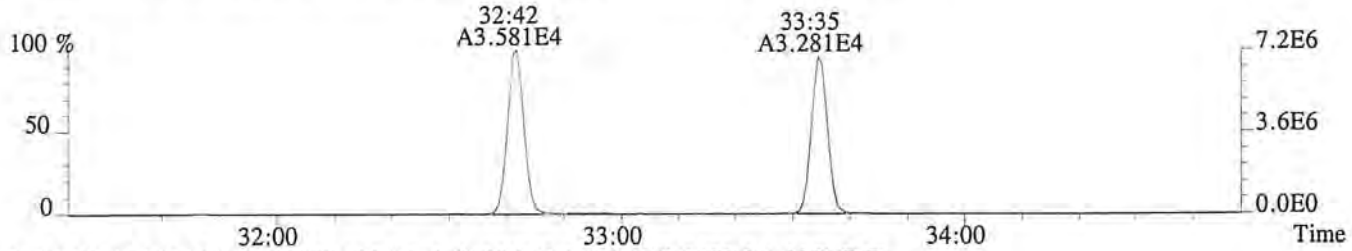
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



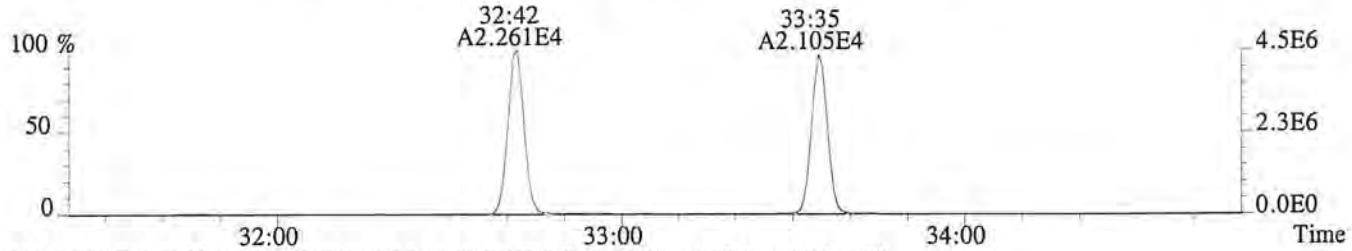
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



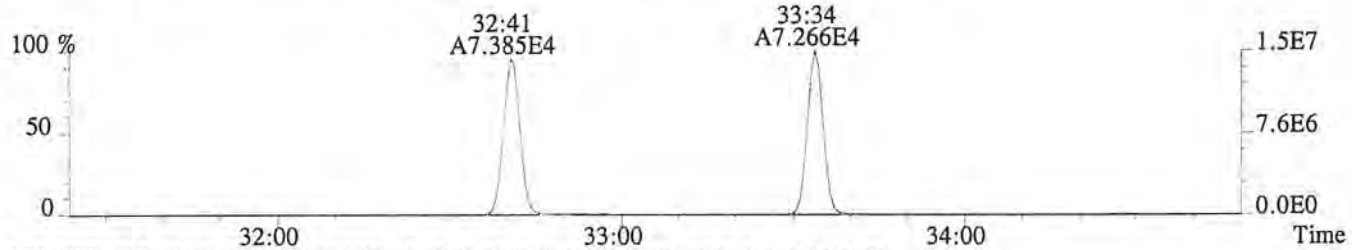
File:P301064 #1-308 Acq:28-AUG-2015 03:57:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



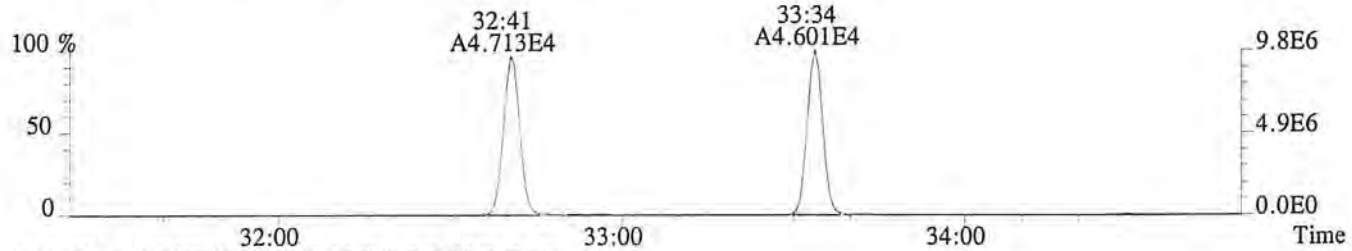
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2588.0,1.00%,F,T)



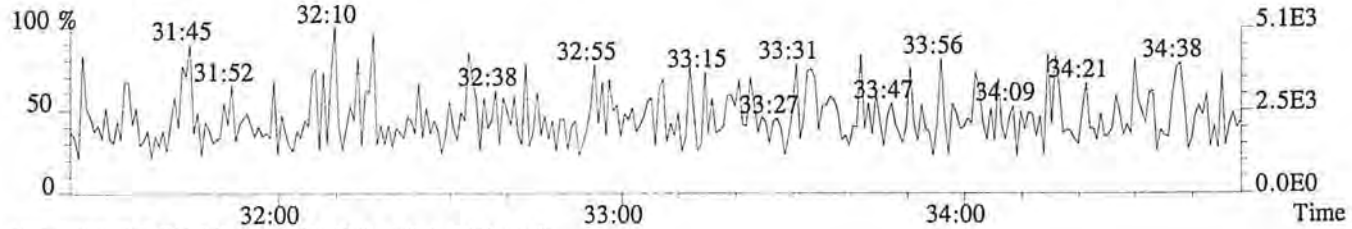
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



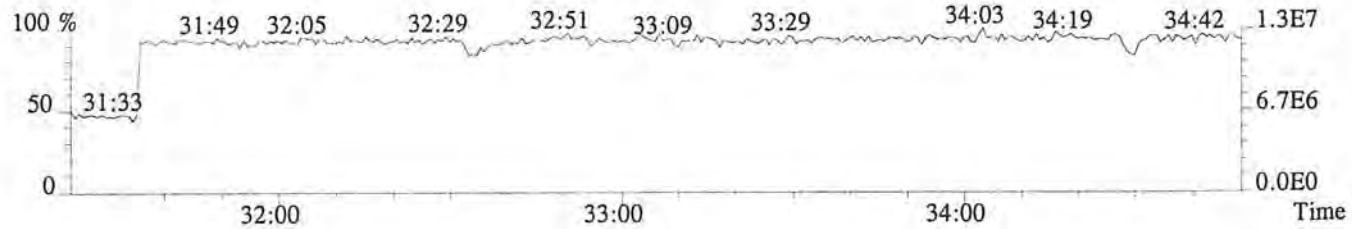
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1212.0,1.00%,F,T)



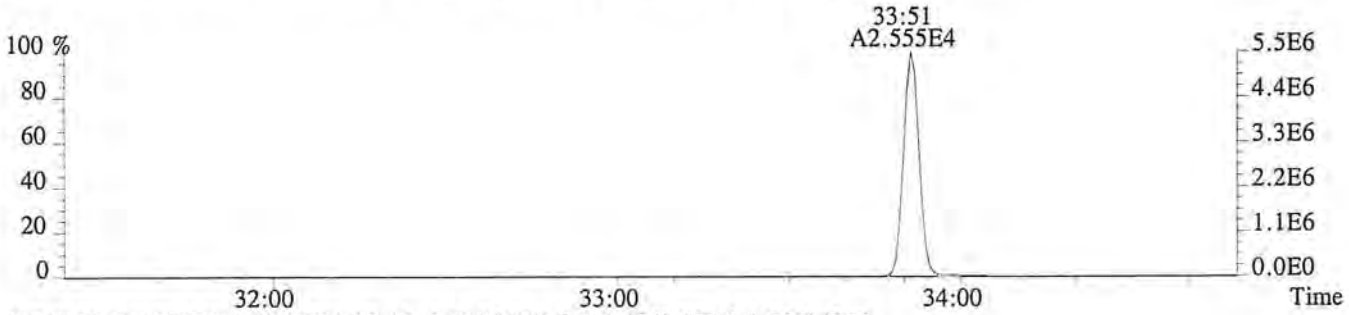
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



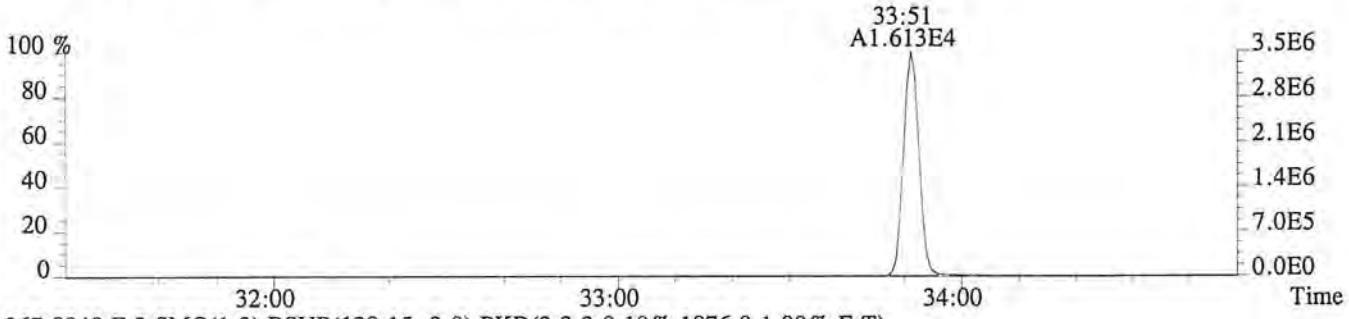
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



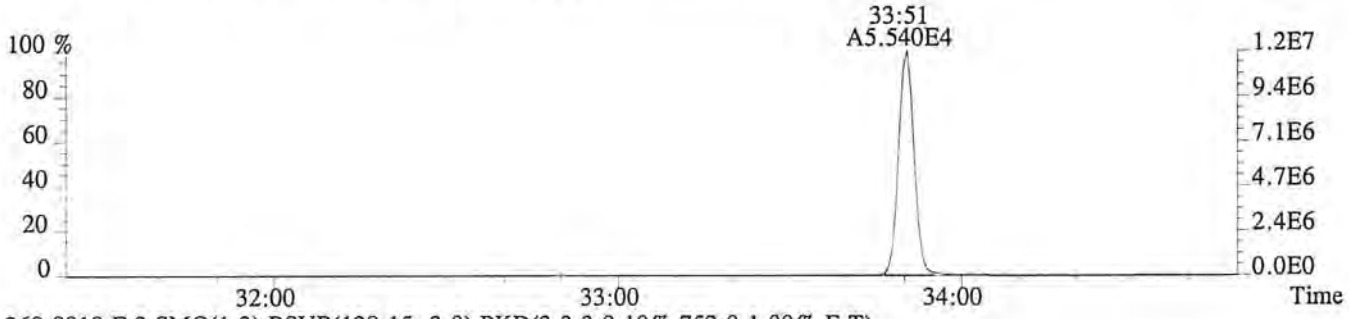
File:P301064 #1-308 Acq:28-AUG-2015 03:57:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2256.0,1.00%,F,T)



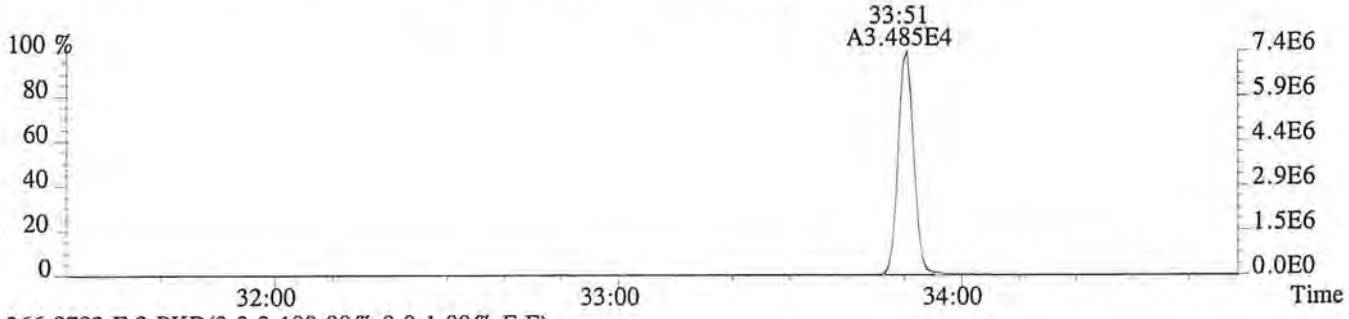
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



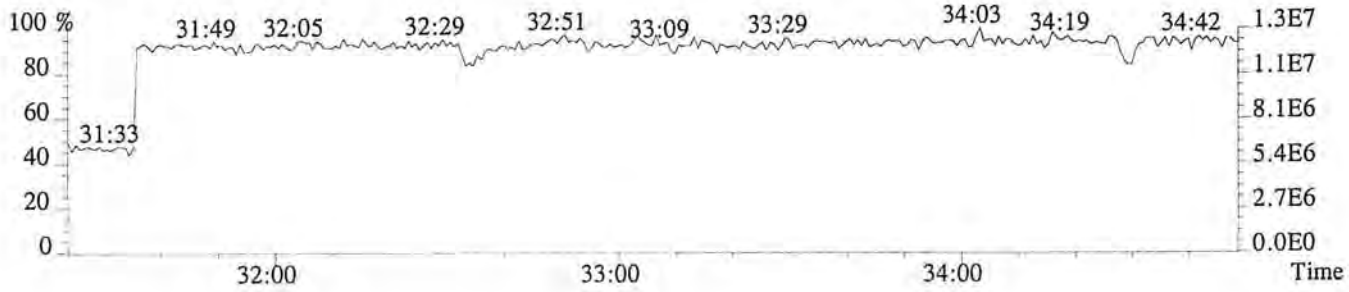
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1876.0,1.00%,F,T)



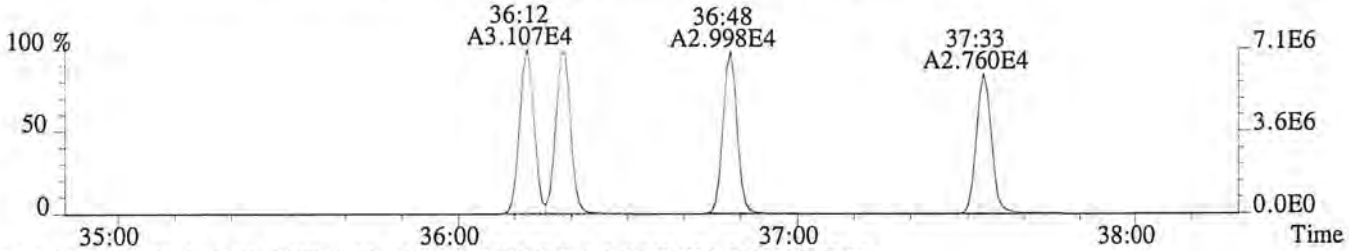
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



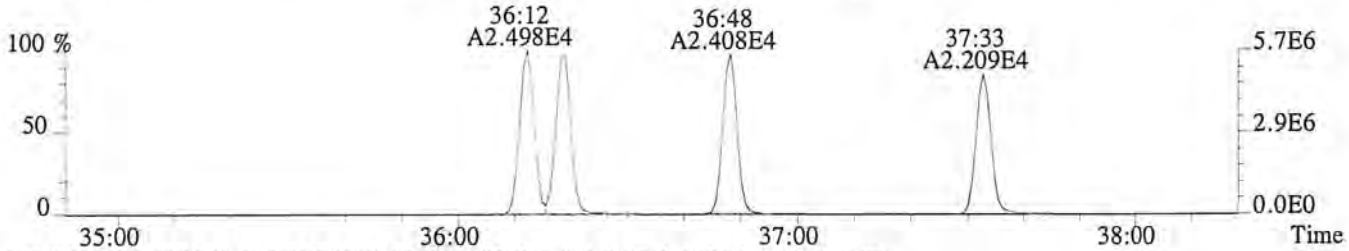
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



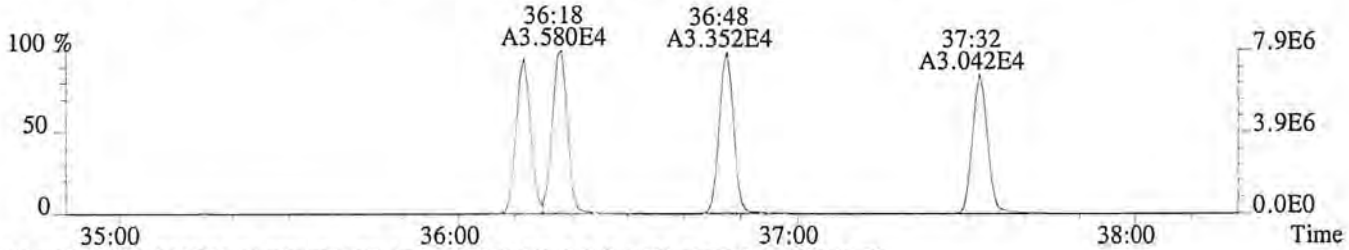
File:P301064 #1-312 Acq:28-AUG-2015 03:57:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)



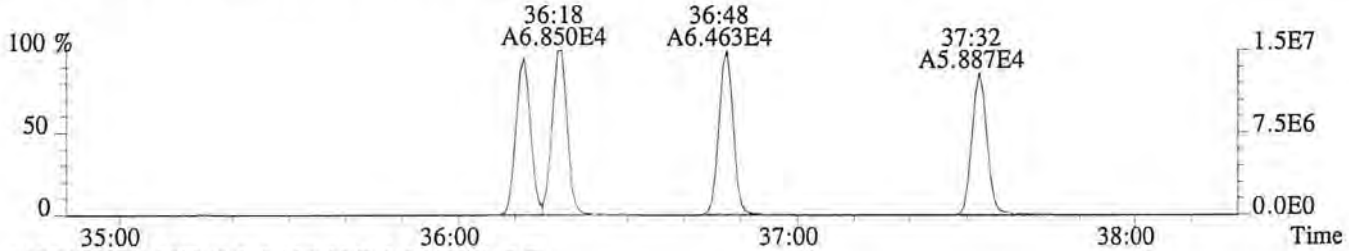
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



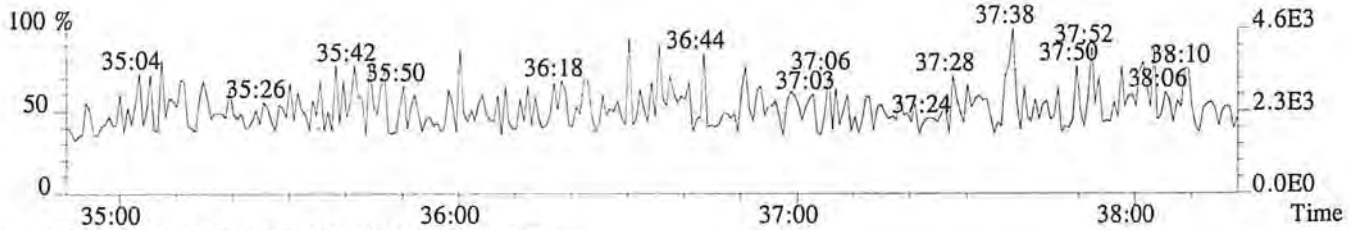
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



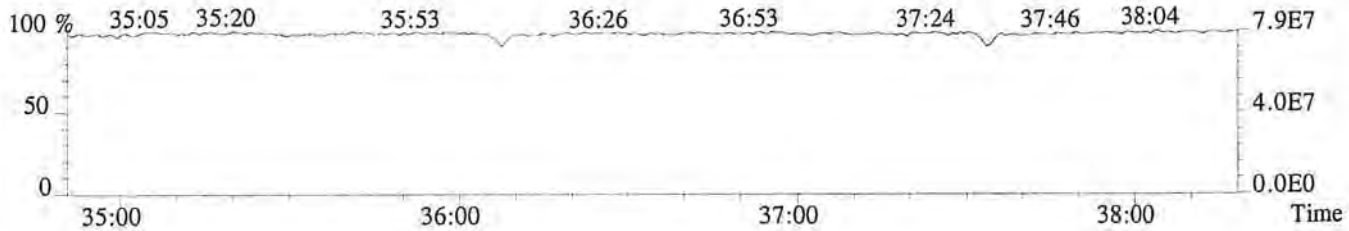
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1776.0,0.40%,F,T)



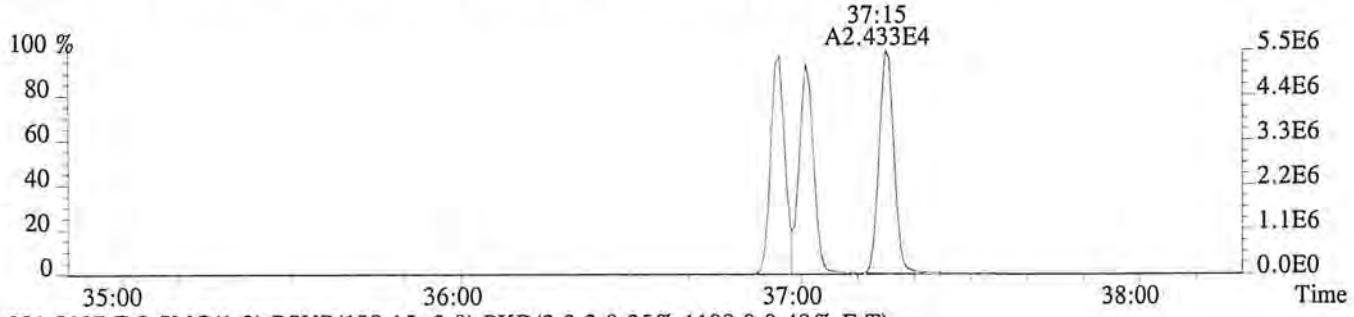
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



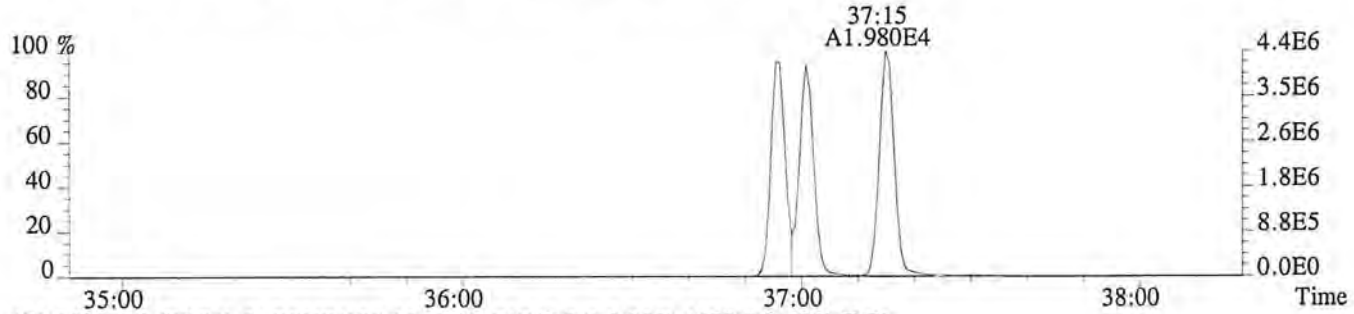
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



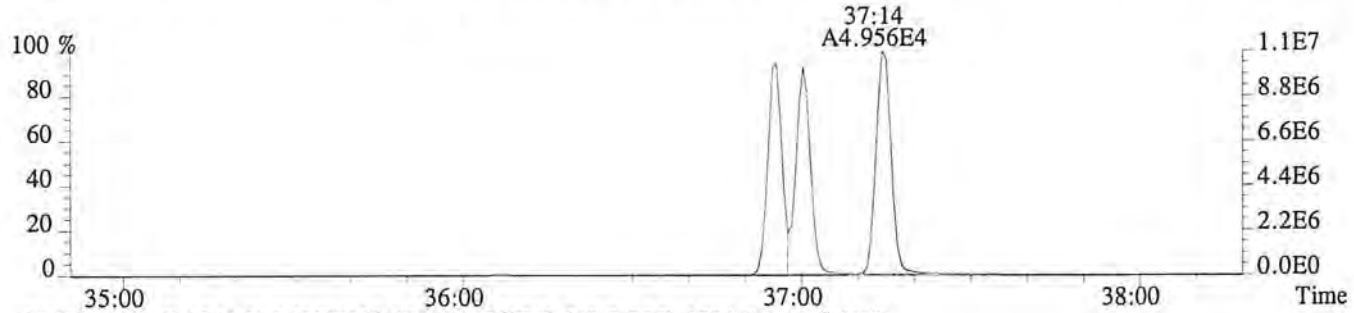
File:P301064 #1-312 Acq:28-AUG-2015 03:57:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



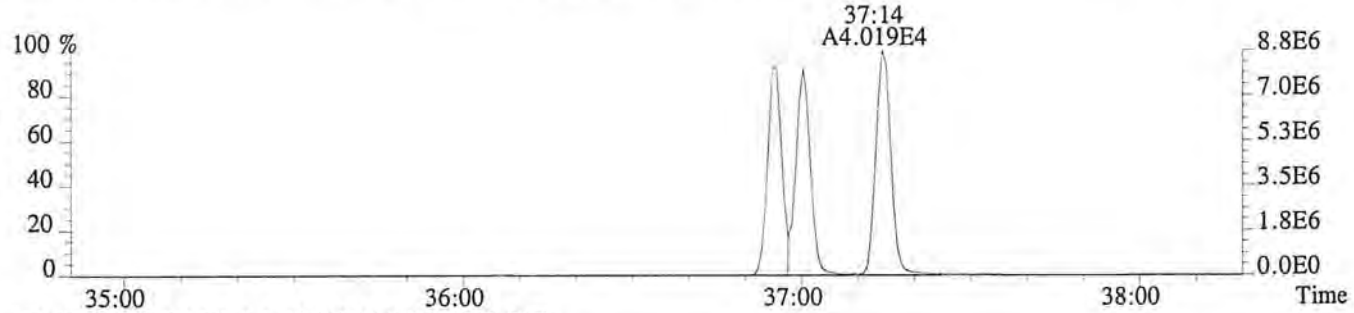
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1108.0,0.40%,F,T)



401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1672.0,0.40%,F,T)

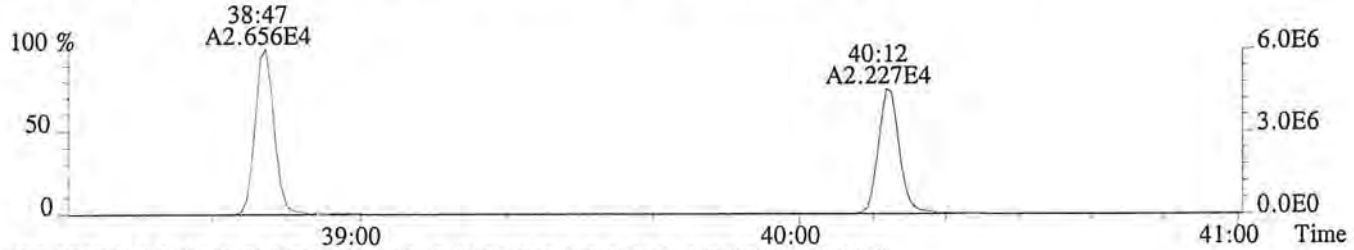


403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1524.0,0.40%,F,T)

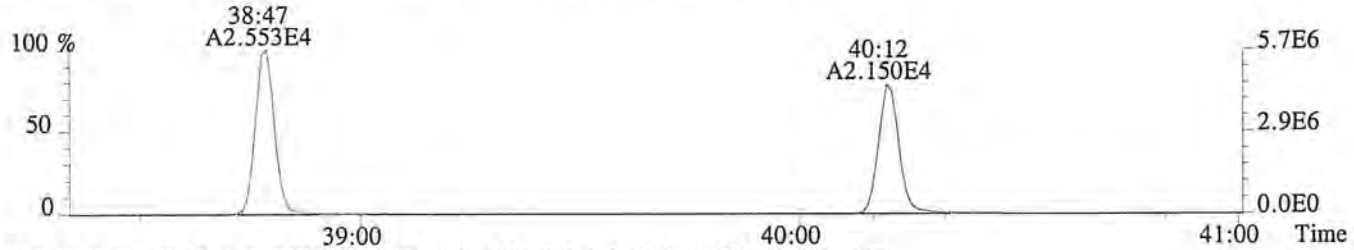


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

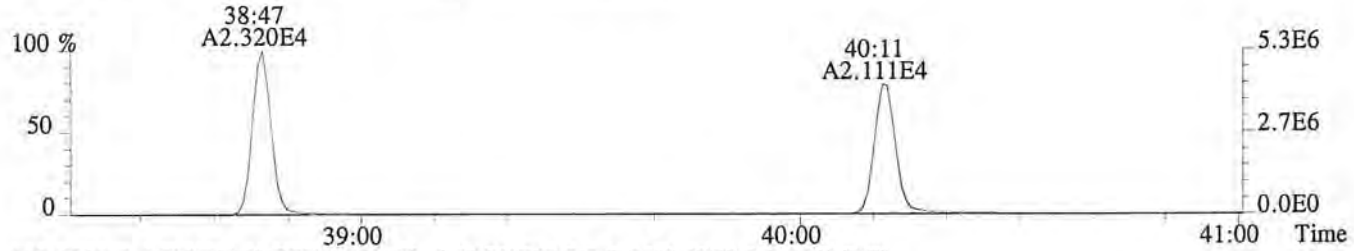
File:P301064 #1-241 Acq:28-AUG-2015 03:57:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2592.0,0.50%,F,T)



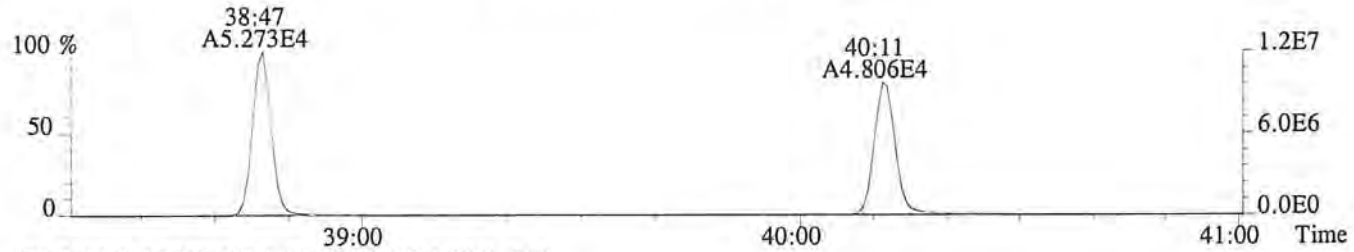
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2028.0,0.50%,F,T)



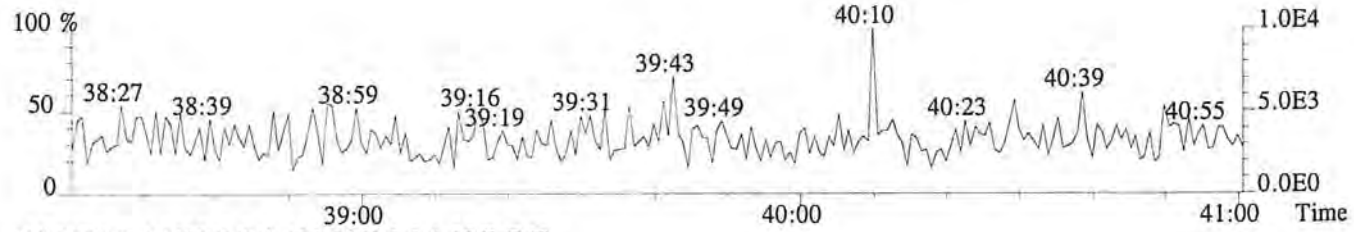
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1940.0,0.50%,F,T)



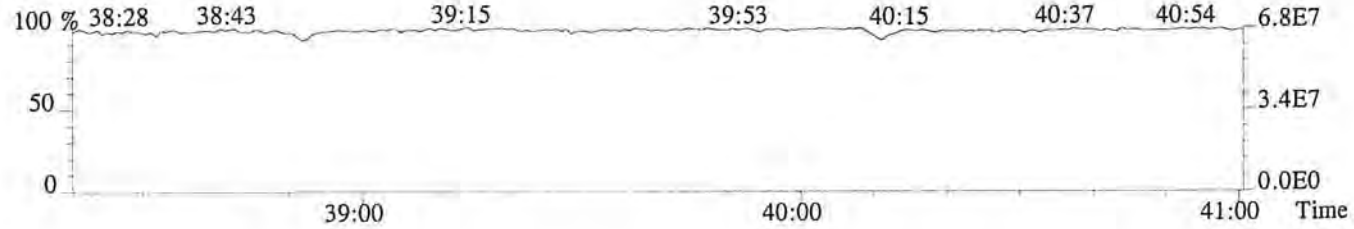
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1928.0,0.50%,F,T)



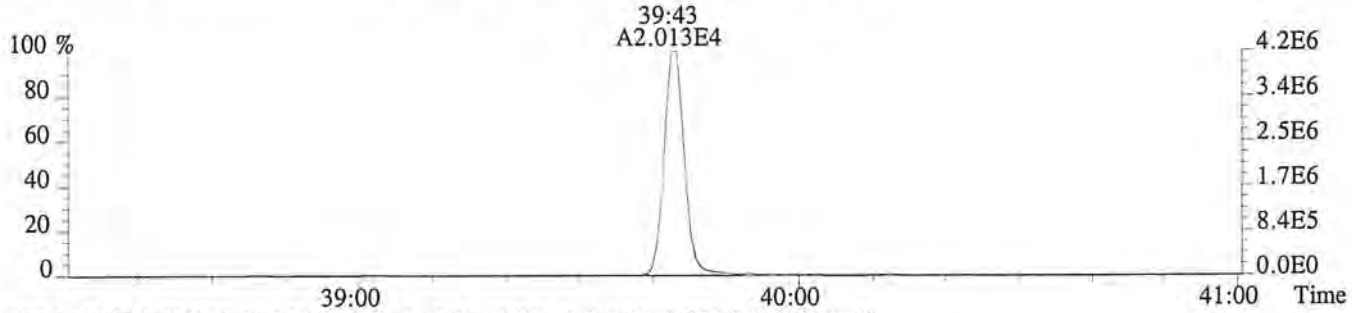
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



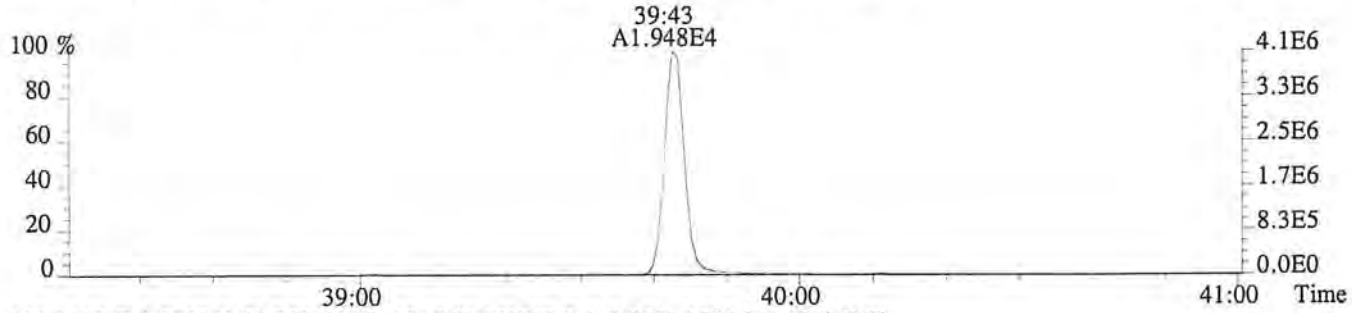
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



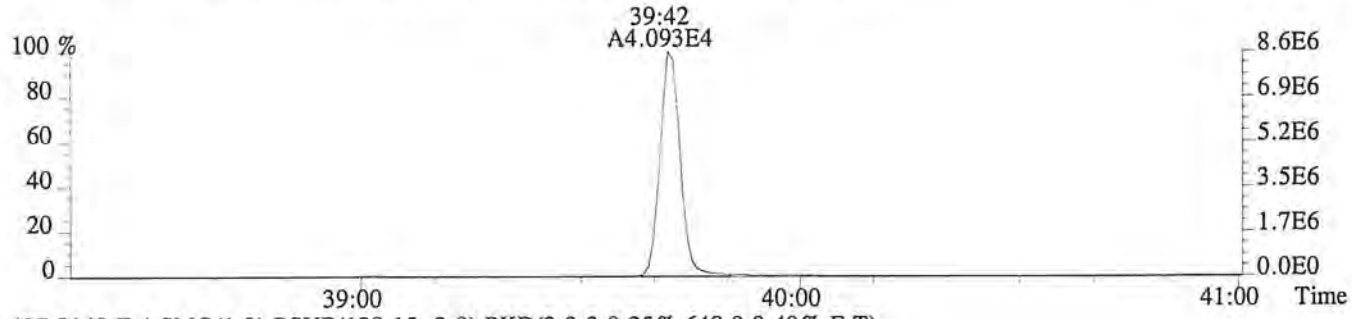
File:P301064 #1-241 Acq:28-AUG-2015 03:57:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.40%,F,T)



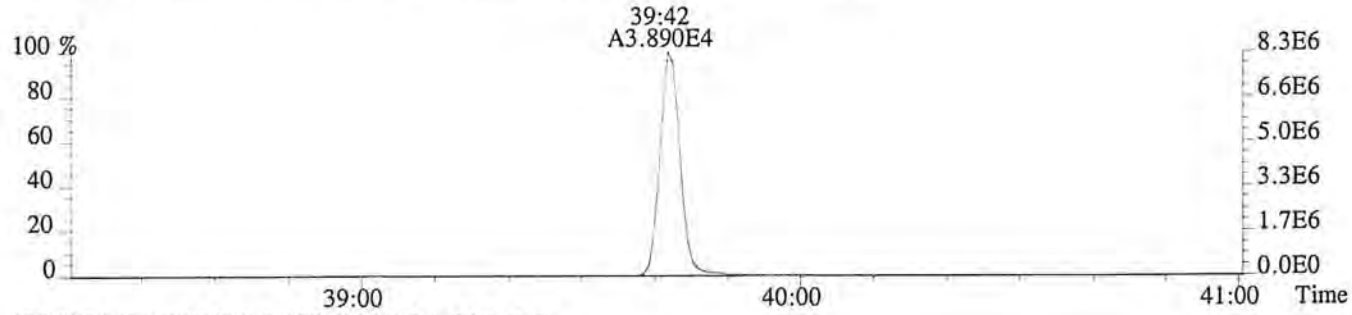
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



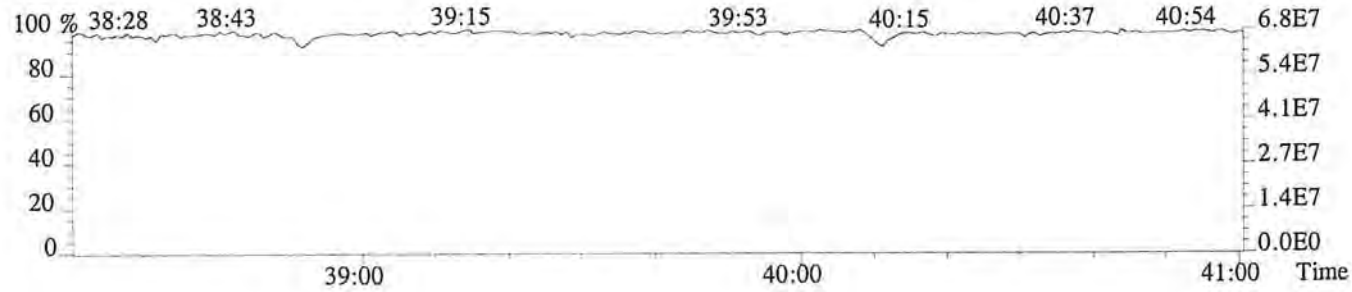
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1508.0,0.40%,F,T)



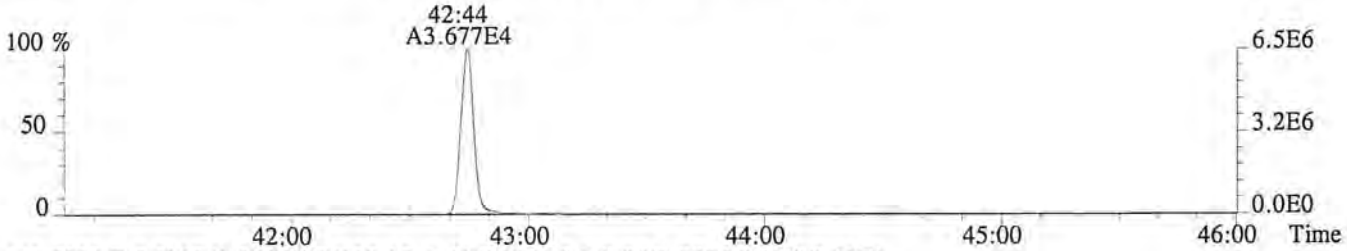
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



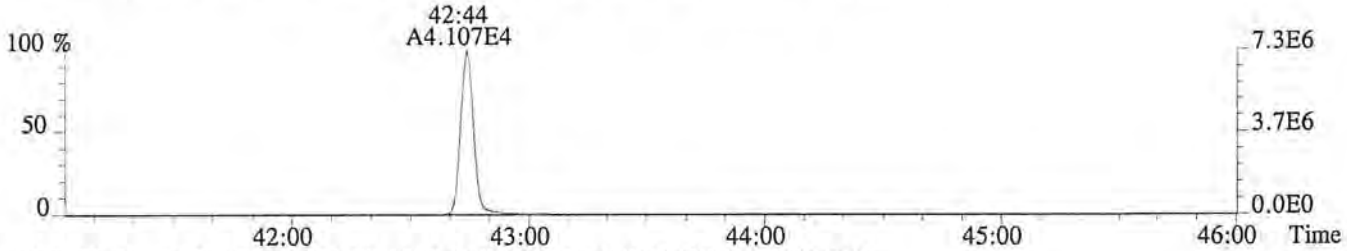
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



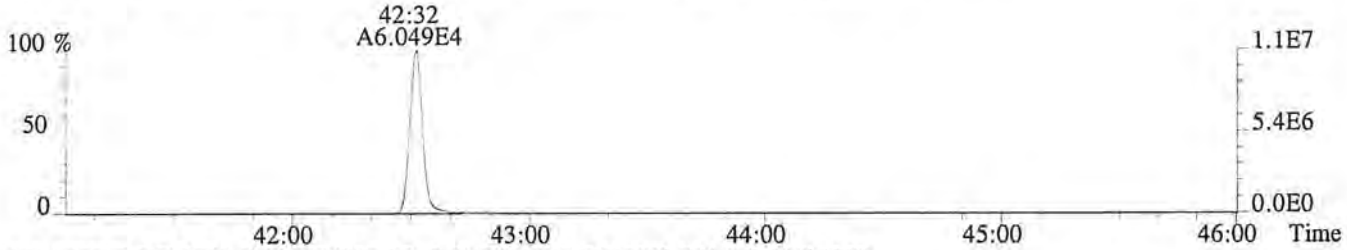
File:P301064 #1-447 Acq:28-AUG-2015 03:57:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1532.0,0.40%,F,T)



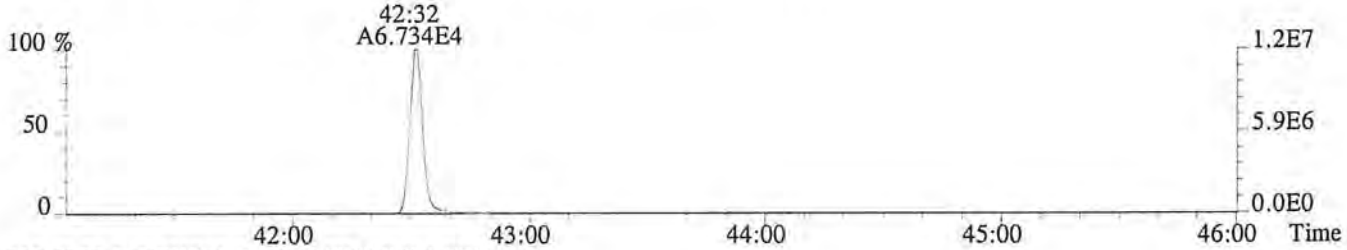
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2236.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)

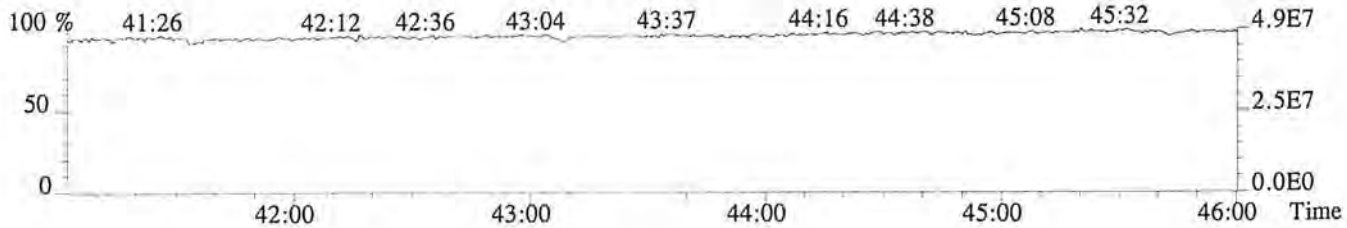


471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,864.0,0.40%,F,T)

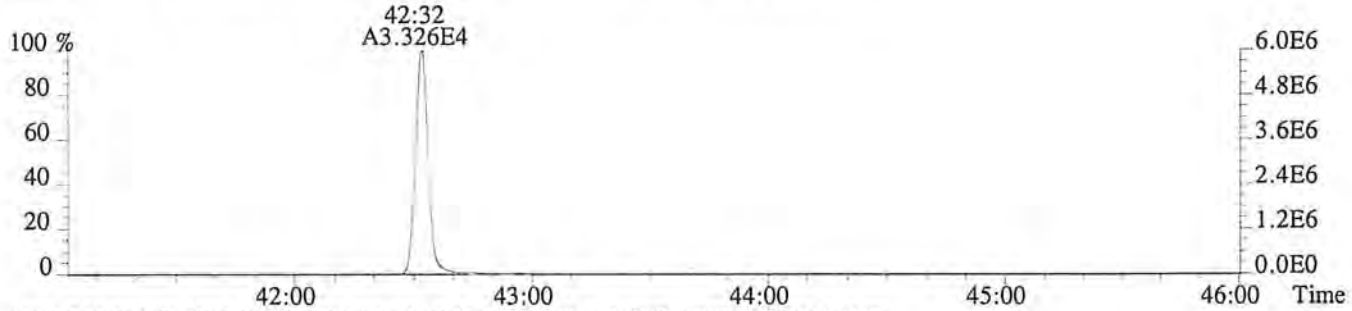


513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

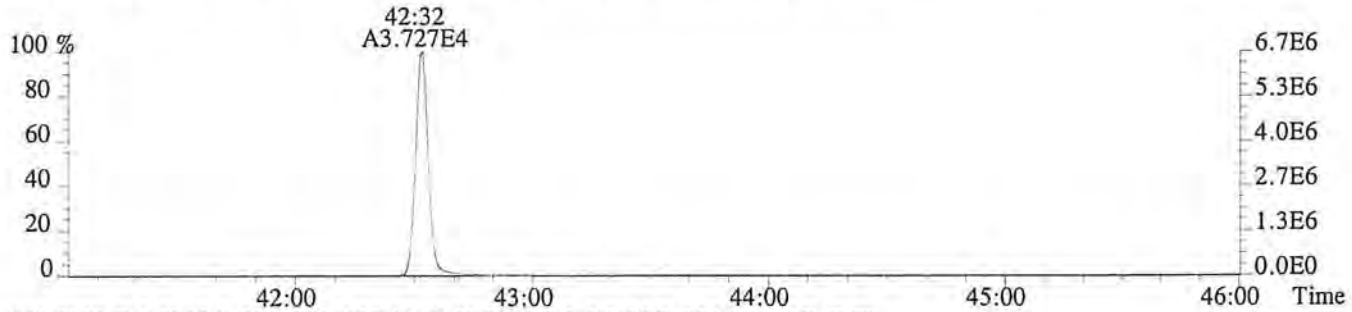
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



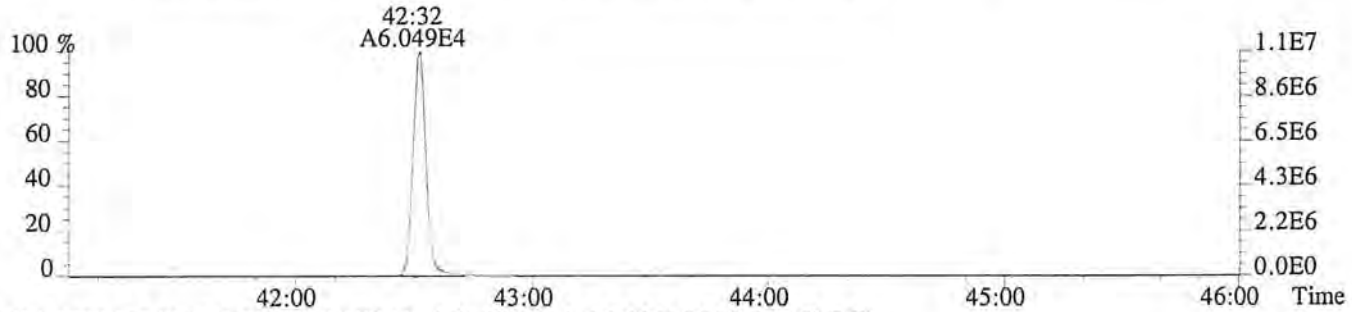
File:P301064 #1-447 Acq:28-AUG-2015 03:57:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,992.0,0.40%,F,T)



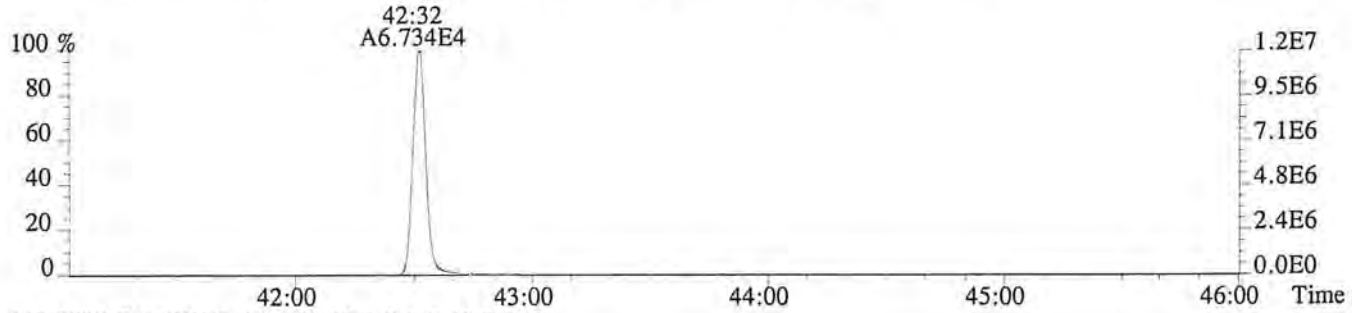
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1532.0,0.40%,F,T)



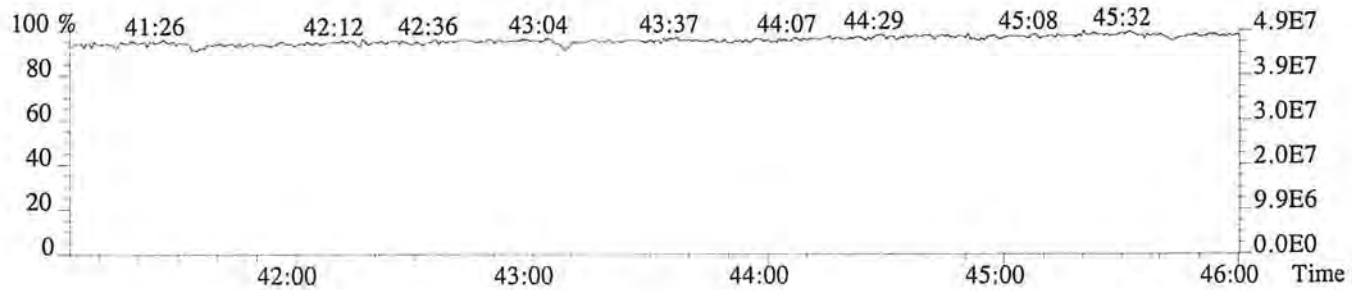
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,864.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P301078

Date: 08/28/15 – 08/29/15 Circle one: Beginning / Ending

Method: (1613) / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: JW

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 08/21/15

Init. Calib.Times: 09:55

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE	WINDOW DEFINE	P301079	28-AUG-15	16:32:49
CS3	CS3	P301078	28-AUG-15	15:30:45
METHOD BLANK	EQ1500514-01	P301080	28-AUG-15	18:37:03
PLY-10-15 MT7/MT8 ╗	E1500743-017	P301081	28-AUG-15	19:24:29
PLY-10-15 MT7/MT8 ╗	E1500743-018	P301082	28-AUG-15	20:13:11
BLEACH PLANT(006)	J1506447-001	P301083	28-AUG-15	21:01:47
2014-NR-MI-07-LI	K1507705-005	P301084	28-AUG-15	21:50:24
2014-NR-MI-08-LI	K1507705-006	P301085	28-AUG-15	22:39:02
2014-NR-MI-09-LI	K1507705-007	P301086	28-AUG-15	23:27:40
2015-NR-MI-12-LI	K1507705-008	P301087	29-AUG-15	00:16:16
LCS	EQ1500484-02	P301088	29-AUG-15	01:04:54
DLCS	EQ1500484-03	P301089	29-AUG-15	01:53:31

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS05.PRO\SampleDB\20150828.SPL
Last Modified: Saturday, August 29, 2015 13:09:19 Eastern Daylight Time
Printed: Saturday, August 29, 2015 13:10:51 Eastern Daylight Time

Page Position (1, 1)

e: P301078res

	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	08/28/15	15:30	P301078	CS3	CS3	Tray1:1	EPA1613_ALS	Dioxin_ALS	JC	HRMS check 15:26
2		16:32	P301079	WINDOW DEFINE	WINDOW DEFINE	Tray1:2	EPA1613_ALS	Dioxin_ALS		
3		18:37	P301080	EQ1500514-01	MB	Tray1:3	EPA1613_ALS	Dioxin_ALS		
4		19:24	P301081	E1500743-017	E1500743-017	Tray1:4	EPA1613_ALS	Dioxin_ALS		
5		20:13	P301082	E1500743-018	E1500743-018	Tray1:5	EPA1613_ALS	Dioxin_ALS		
6		21:01	P301083	J1506447-001	J1506447-001	Tray1:6	EPA1613_ALS	Dioxin_ALS		
7		21:50	P301084	K1507705-005	K1507705-005	Tray1:7	EPA1613_ALS	Dioxin_ALS		HRMS check 18:34
8		22:39	P301085	K1507705-006	K1507705-006	Tray1:8	EPA1613_ALS	Dioxin_ALS		
9		23:27	P301086	K1507705-007	K1507705-007	Tray1:9	EPA1613_ALS	Dioxin_ALS		
10	08/29/15	00:16	P301087	K1507705-008	K1507705-008	Tray1:10	EPA1613_ALS	Dioxin_ALS		
11		01:04	P301088	EQ1500484-02	EQ1500484-02	Tray1:11	EPA1613_ALS	Dioxin_ALS		
12		01:53	P301089	EQ1500484-03	EQ1500484-03	Tray1:12	EPA1613_ALS	Dioxin_ALS		
13		02:42	P301090	CS3	CS3	Tray1:13	EPA1613_ALS	Dioxin_ALS		HRMS check 11:45
14			---	---	---	Tray1:14	EPA1613_ALS	Dioxin_ALS		
15			---	---	---	Tray1:15	EPA1613_ALS	Dioxin_ALS		
16	---	---	---	---	---	Tray1:16	EPA1613_ALS	Dioxin_ALS	---	---
17			---	---	---	Tray1:17	EPA1613_ALS	Dioxin_ALS		
18	---	---	---	---	---	Tray1:18	EPA1613_ALS	Dioxin_ALS	---	---
19			---	---	---	Tray1:19	EPA1613_ALS	Dioxin_ALS		
20	---	---	---	---	---	Tray1:20	EPA1613_ALS	Dioxin_ALS	---	---
21	---	---	---	---	---	Tray1:21	EPA1613_ALS	Dioxin_ALS	---	---
22	---	---	---	---	---	Tray1:22	EPA1613_ALS	Dioxin_ALS	---	---
23	---	---	---	---	---	Tray1:23	EPA1613_ALS	Dioxin_ALS	---	---
24	---	---	---	---	---	Tray1:24	EPA1613_ALS	Dioxin_ALS	---	---
25	---	---	---	---	---	Tray1:25	EPA1613_ALS	Dioxin_ALS	---	---
26	---	---	---	---	---	Tray1:26	EPA1613_ALS	Dioxin_ALS	---	---
27	---	---	---	---	---	Tray1:27	EPA1613_ALS	Dioxin_ALS	---	---
28	---	---	---	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
29	---	---	---	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
30	---	---	---	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
31	---	---	---	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
32	---	---	---	---	---	Tray1:32	EPA1613_ALS	Dioxin_ALS	---	---
33	---	---	---	---	---	Tray1:33	EPA1613_ALS	Dioxin_ALS	---	---
34	---	---	---	---	---	Tray1:34	EPA1613_ALS	Dioxin_ALS	---	---
35	---	---	---	---	---	Tray1:35	EPA1613_ALS	Dioxin_ALS	---	---
36	---	---	---	---	---	Tray1:36	EPA1613_ALS	Dioxin_ALS	---	---
37	---	---	---	---	---	Tray1:37	EPA1613_ALS	Dioxin_ALS	---	---
38	---	---	---	---	---	Tray1:38	EPA1613_ALS	Dioxin_ALS	---	---
39	---	---	---	---	---	Tray1:39	EPA1613_ALS	Dioxin_ALS	---	---

gc 08/31/15

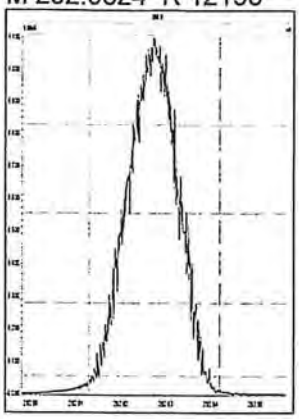
086

Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

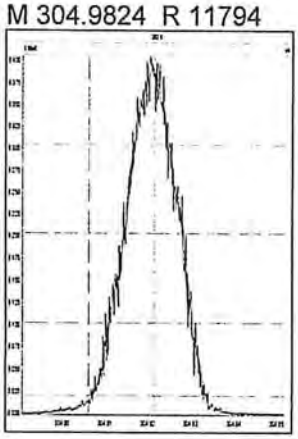
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, August 28, 2015 15:26:39 Eastern Daylight Time

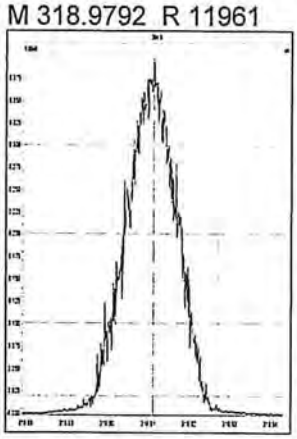
M 292.9824 R 12193



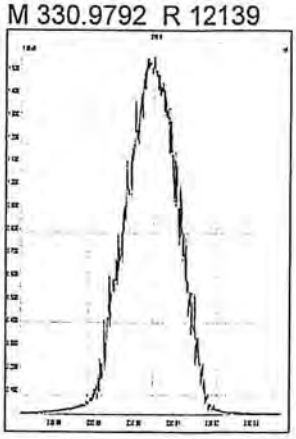
M 304.9824 R 11794



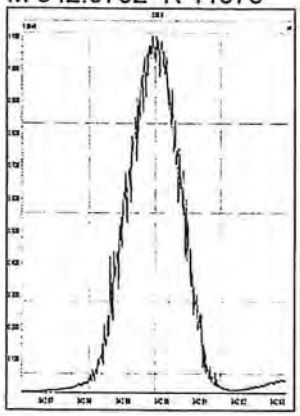
M 318.9792 R 11961



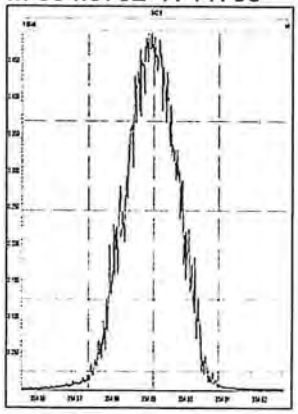
M 330.9792 R 12139



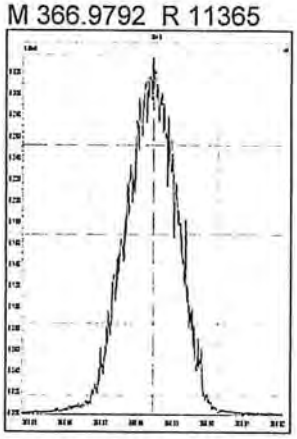
M 342.9792 R 11575



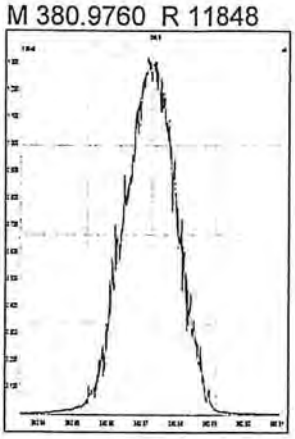
M 354.9792 R 11796



M 366.9792 R 11365



M 380.9760 R 11848

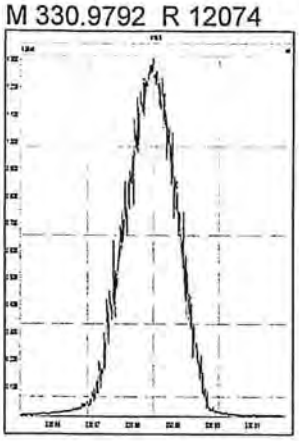


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

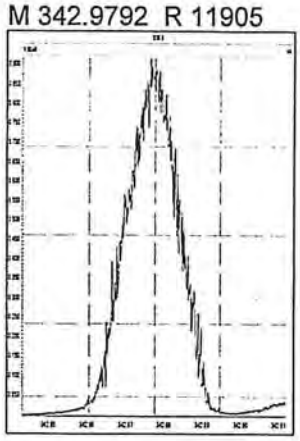
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, August 28, 2015 15:27:15 Eastern Daylight Time

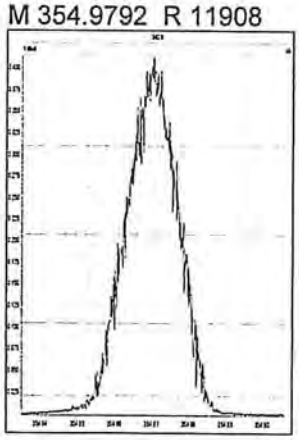
M 330.9792 R 12074



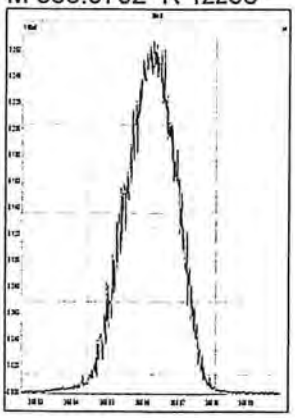
M 342.9792 R 11905



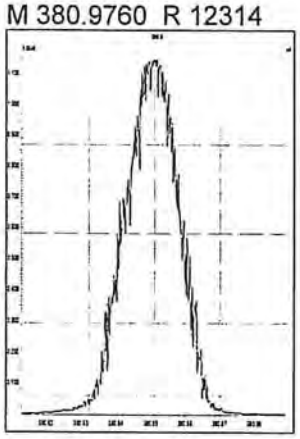
M 354.9792 R 11908



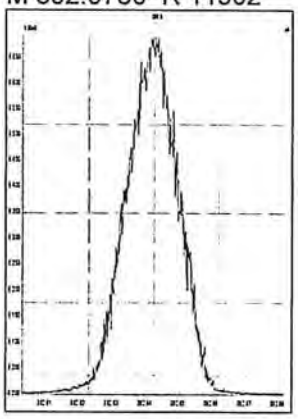
M 366.9792 R 12256



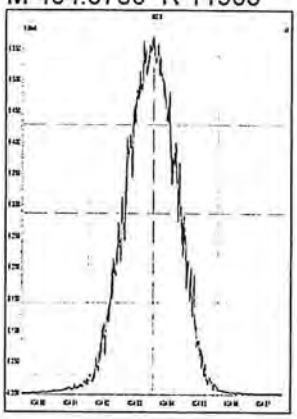
M 380.9760 R 12314



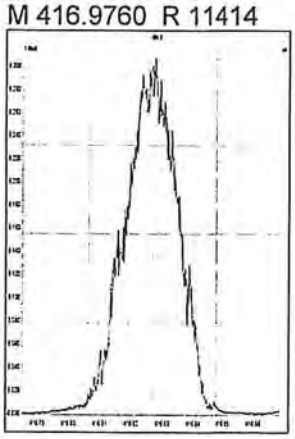
M 392.9760 R 11902



M 404.9760 R 11905



M 416.9760 R 11414

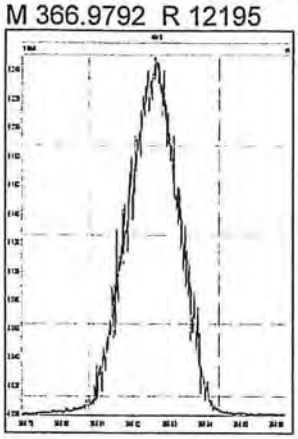


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

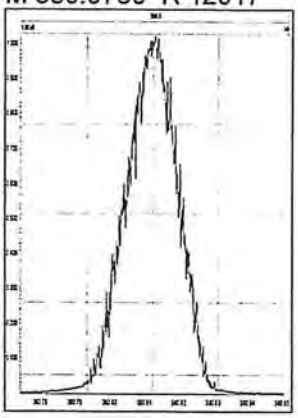
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, August 28, 2015 15:27:58 Eastern Daylight Time

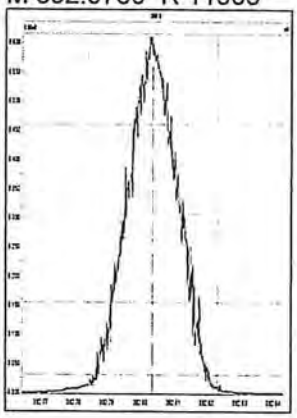
M 366.9792 R 12195



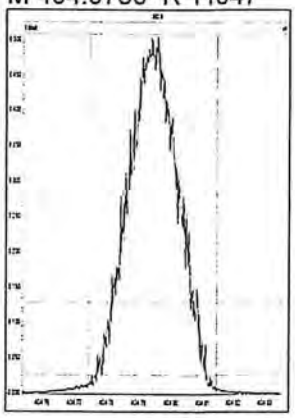
M 380.9760 R 12017



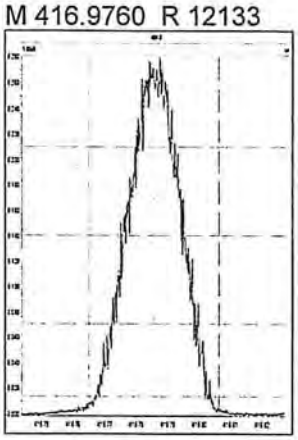
M 392.9760 R 11906



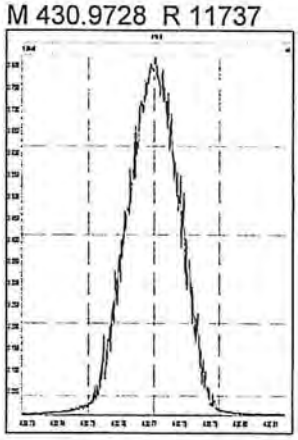
M 404.9760 R 11847



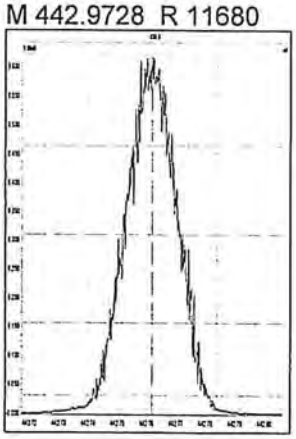
M 416.9760 R 12133



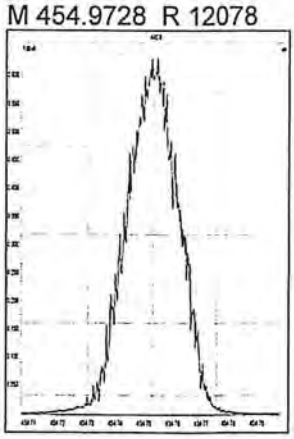
M 430.9728 R 11737



M 442.9728 R 11680



M 454.9728 R 12078

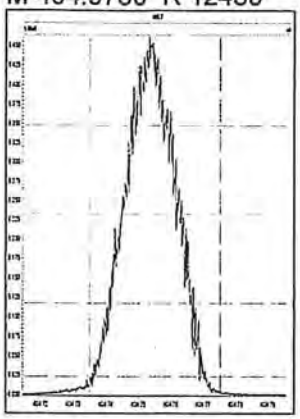


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

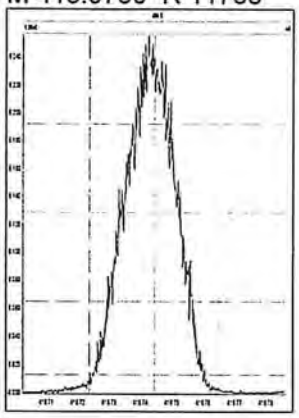
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, August 28, 2015 15:28:32 Eastern Daylight Time

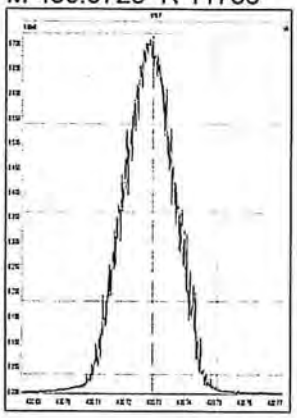
M 404.9760 R 12435



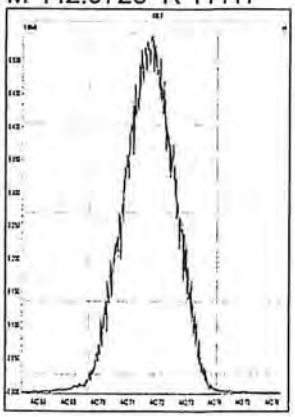
M 416.9760 R 11788



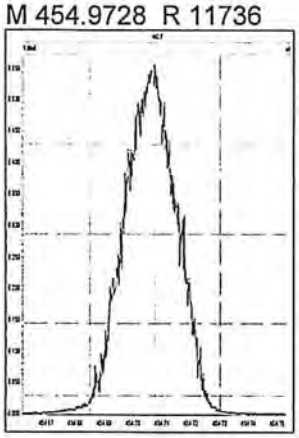
M 430.9728 R 11736



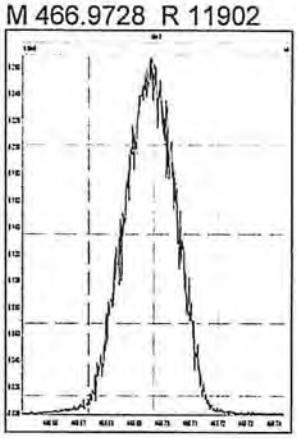
M 442.9728 R 11417



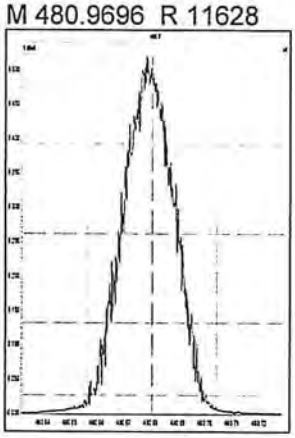
M 454.9728 R 11736



M 466.9728 R 11902



M 480.9696 R 11628

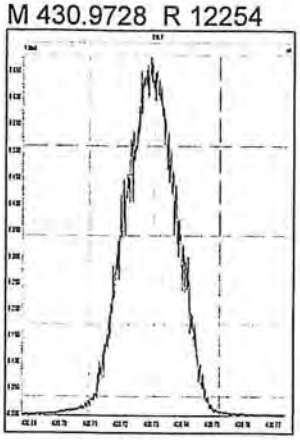


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

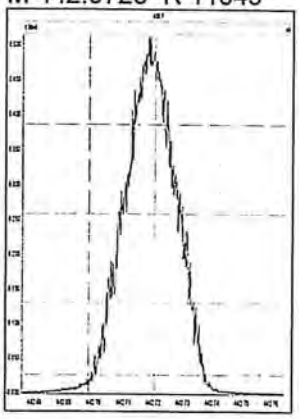
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, August 28, 2015 15:29:05 Eastern Daylight Time

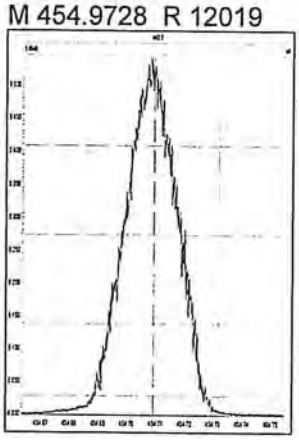
M 430.9728 R 12254



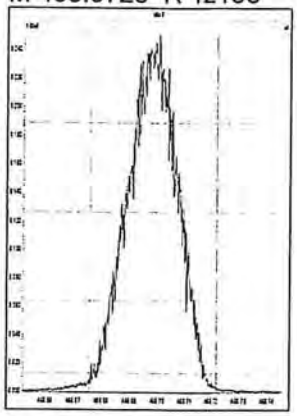
M 442.9728 R 11849



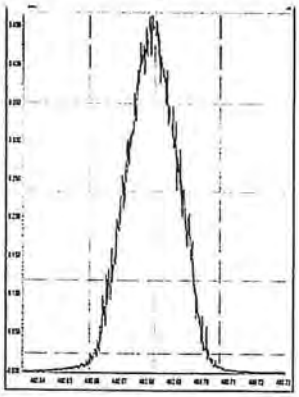
M 454.9728 R 12019



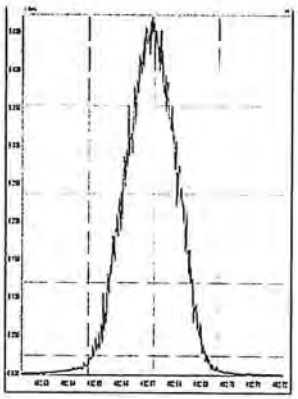
M 466.9728 R 12193



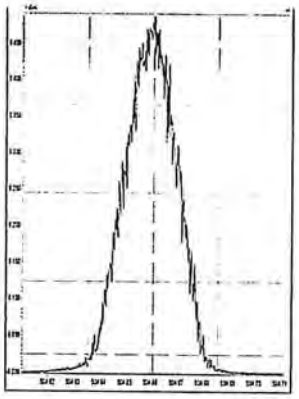
M 480.9696 R 11905



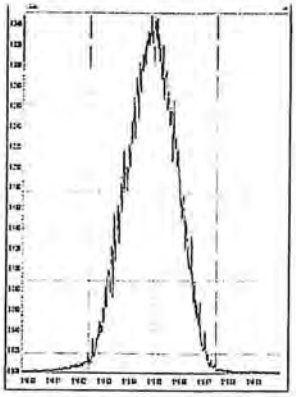
M 492.9696 R 11795



M 504.9696 R 11571



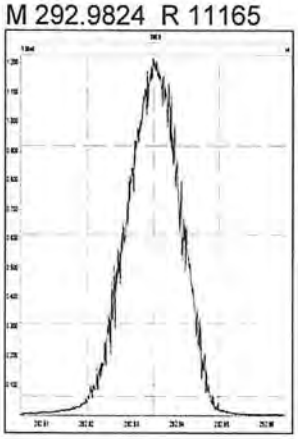
M 516.9697 R 11580



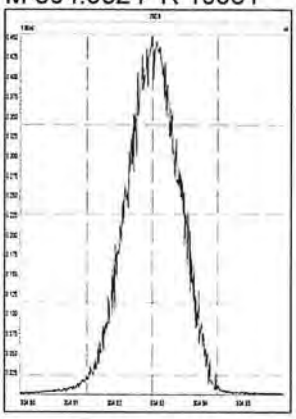
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, August 28, 2015 18:34:11 Eastern Daylight Time

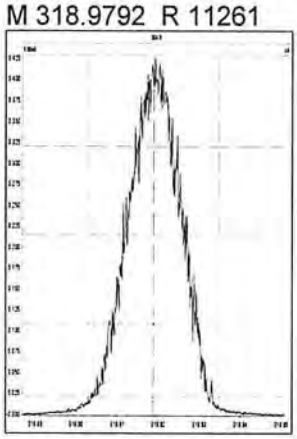
M 292.9824 R 11165



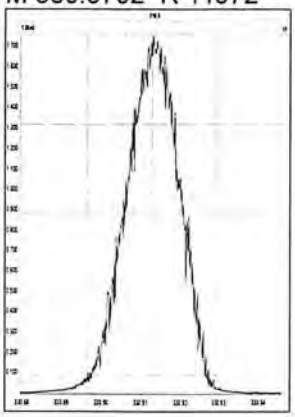
M 304.9824 R 10961



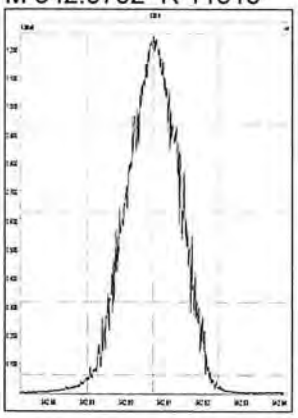
M 318.9792 R 11261



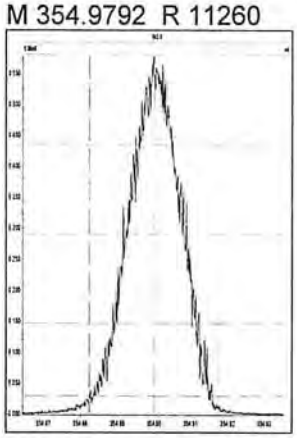
M 330.9792 R 11572



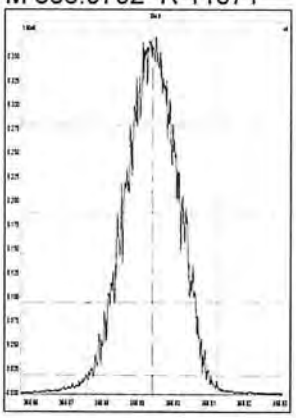
M 342.9792 R 11313



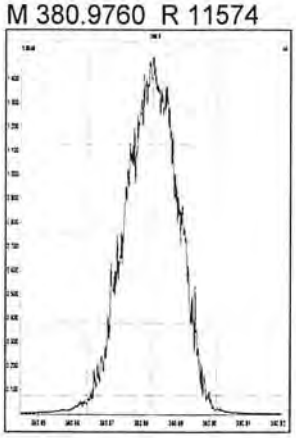
M 354.9792 R 11260



M 366.9792 R 11571



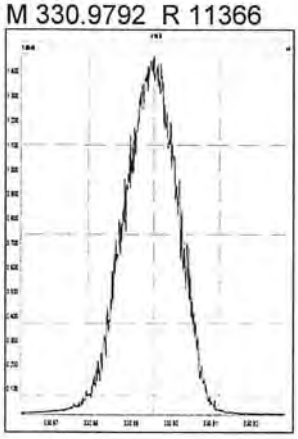
M 380.9760 R 11574



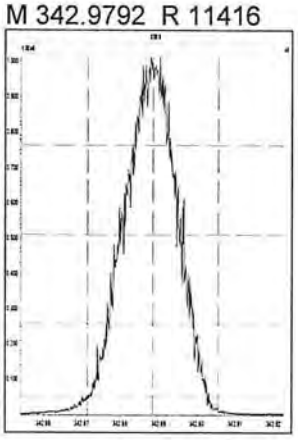
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, August 28, 2015 18:34:46 Eastern Daylight Time

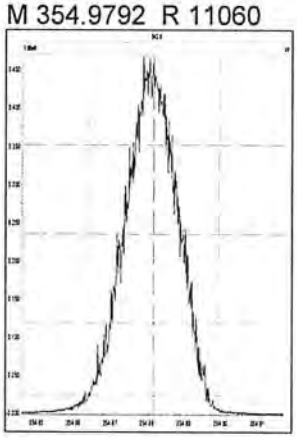
M 330.9792 R 11366



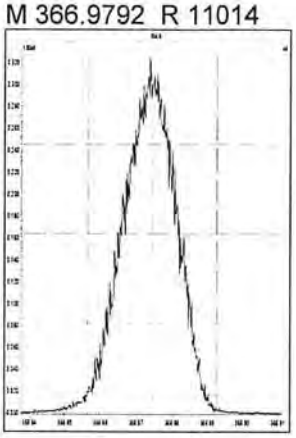
M 342.9792 R 11416



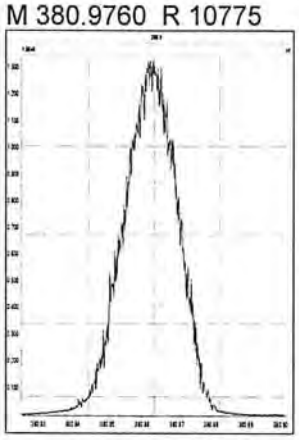
M 354.9792 R 11060



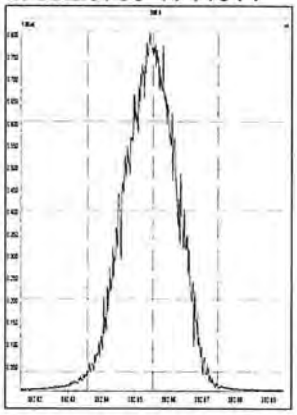
M 366.9792 R 11014



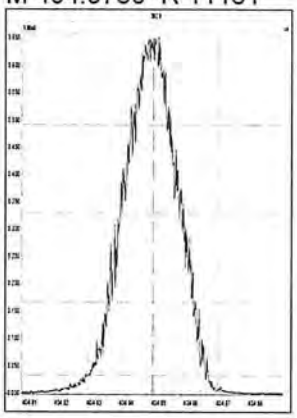
M 380.9760 R 10775



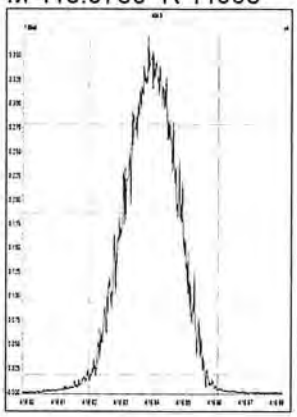
M 392.9760 R 11314



M 404.9760 R 11161



M 416.9760 R 11908

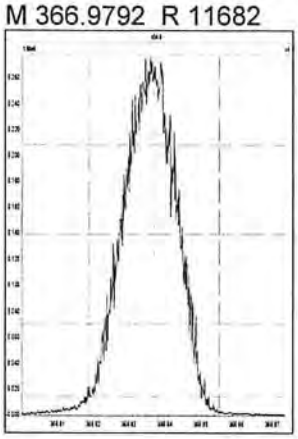


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

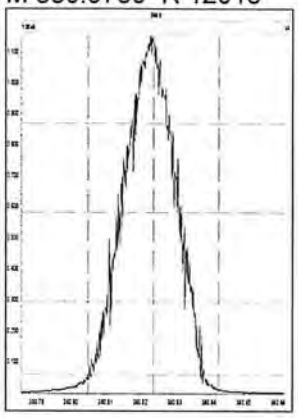
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, August 28, 2015 18:35:21 Eastern Daylight Time

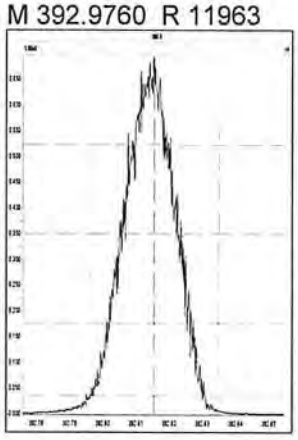
M 366.9792 R 11682



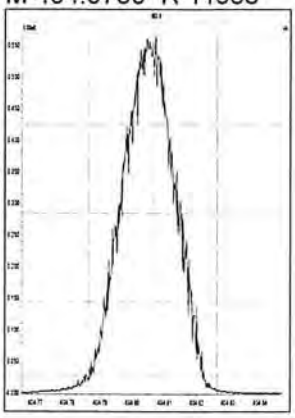
M 380.9760 R 12018



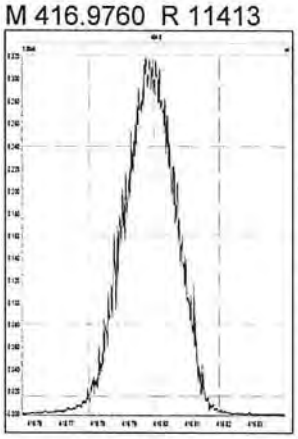
M 392.9760 R 11963



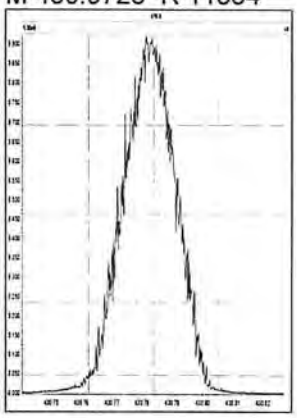
M 404.9760 R 11686



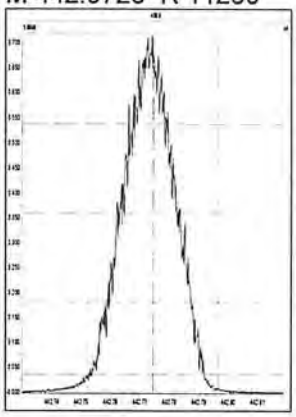
M 416.9760 R 11413



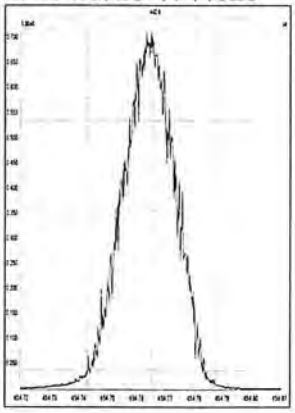
M 430.9728 R 11364



M 442.9728 R 11260



M 454.9728 R 11629

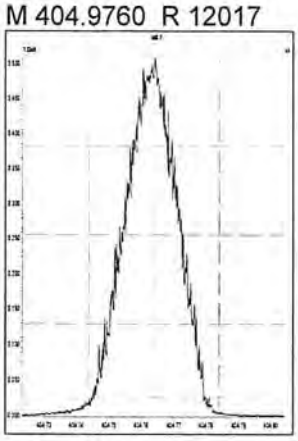


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

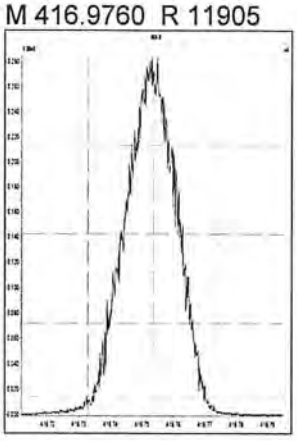
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, August 28, 2015 18:35:54 Eastern Daylight Time

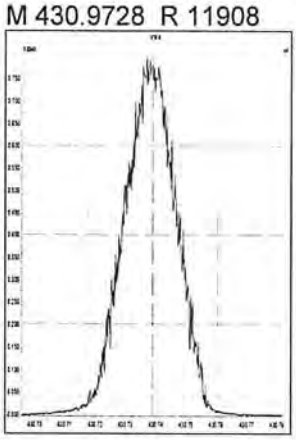
M 404.9760 R 12017



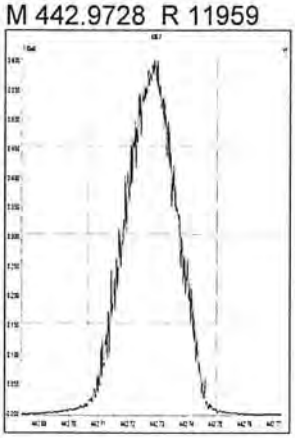
M 416.9760 R 11905



M 430.9728 R 11908



M 442.9728 R 11959



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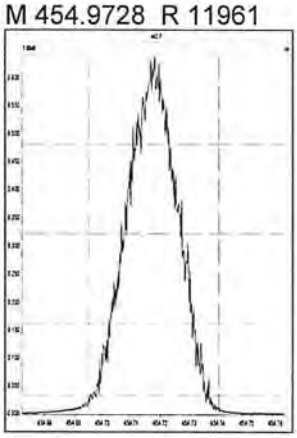
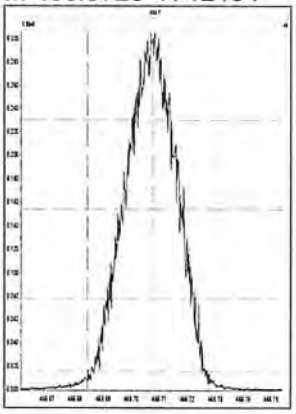
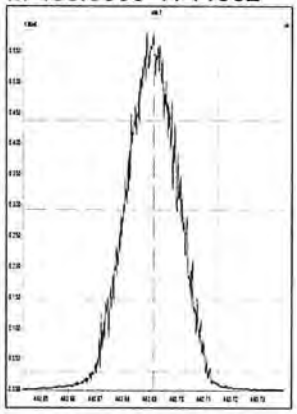


M 466.9728 R 12134



M 480.9696 R 11962



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

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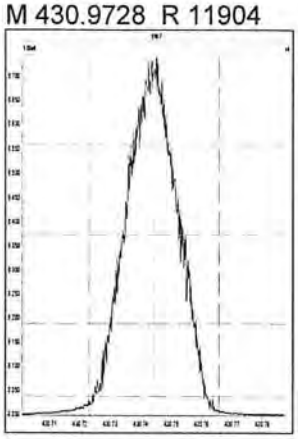
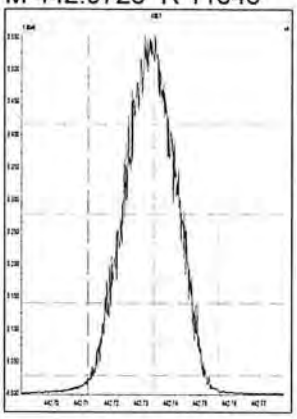
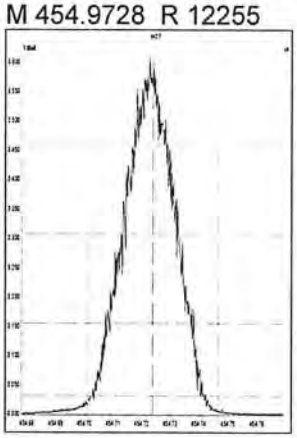
M 430.9728 R 11904



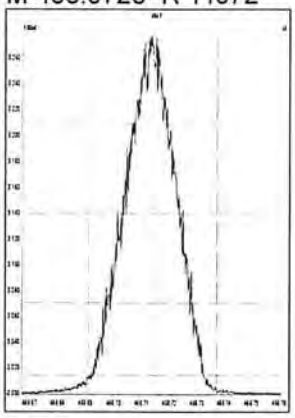
M 442.9728 R 11846



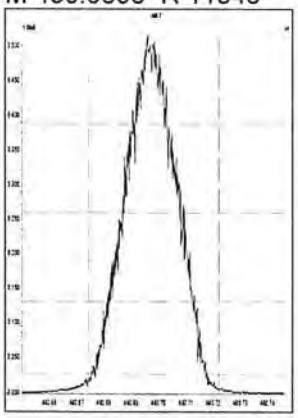
M 454.9728 R 12255



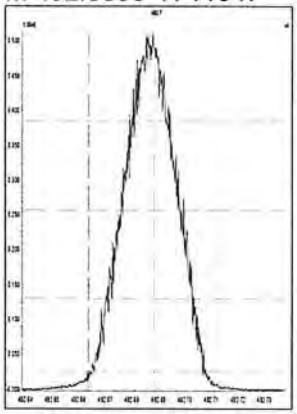
M 466.9728 R 11572



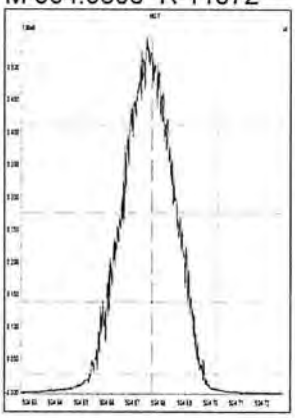
M 480.9696 R 11845



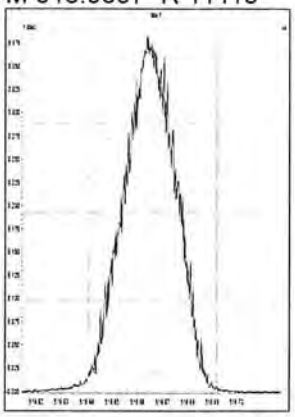
M 492.9696 R 11847



M 504.9696 R 11572



M 516.9697 R 11415



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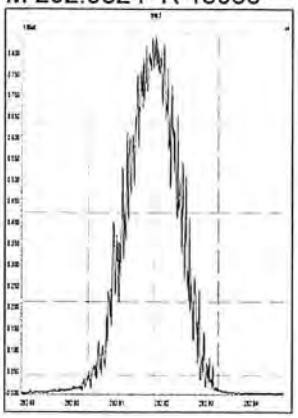
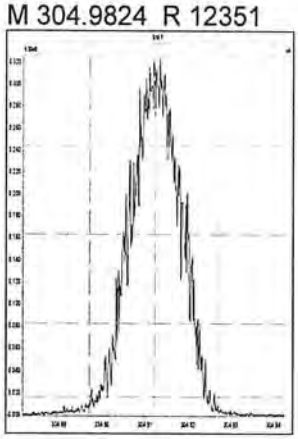


M 304.9824 R 12351



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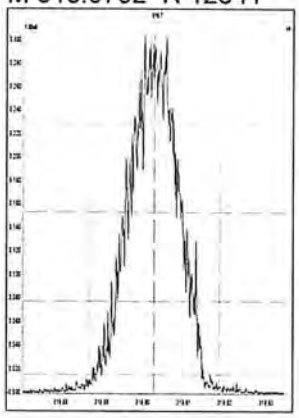

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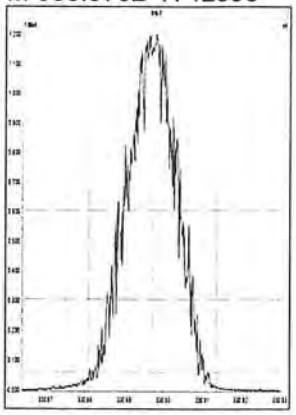

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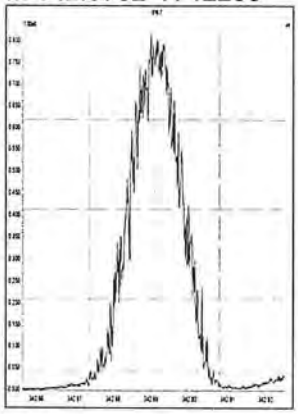

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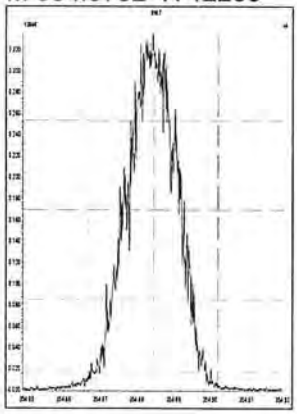
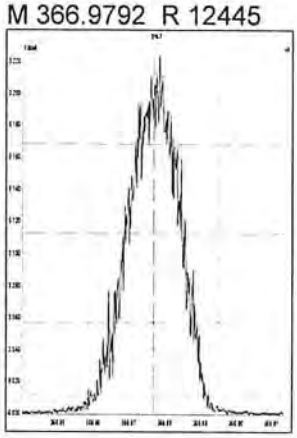
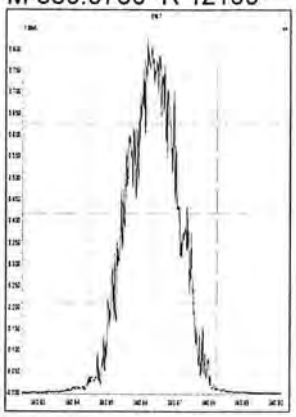


M 366.9792 R 12445



M 380.9760 R 12109



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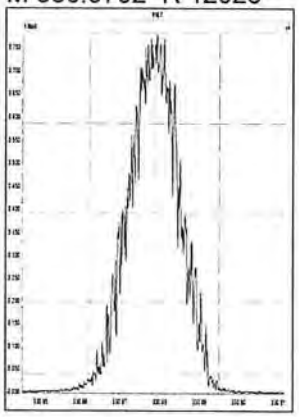
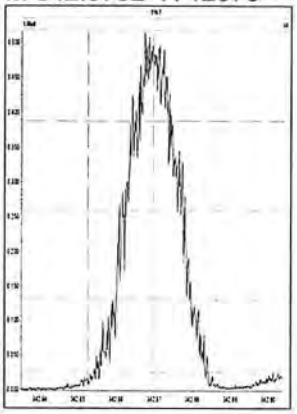
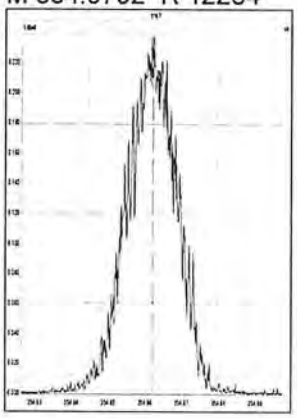


M 342.9792 R 12376



M 354.9792 R 12284



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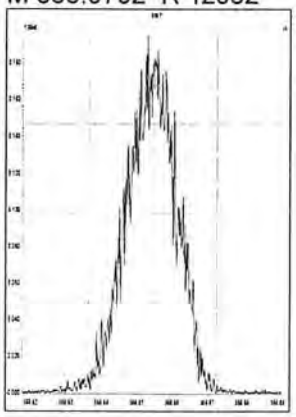
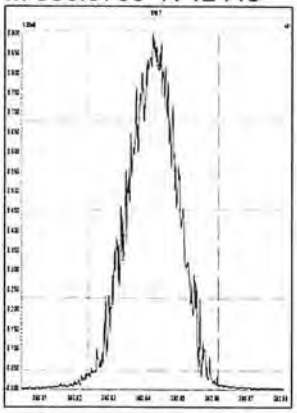
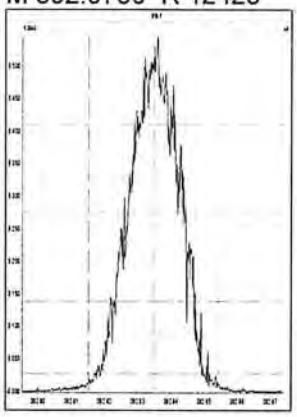


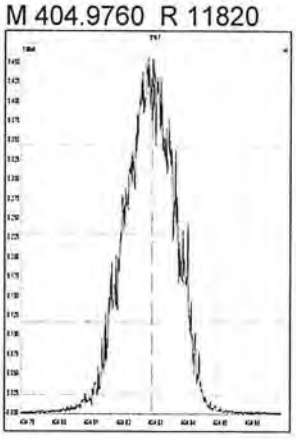
M 380.9760 R 12448



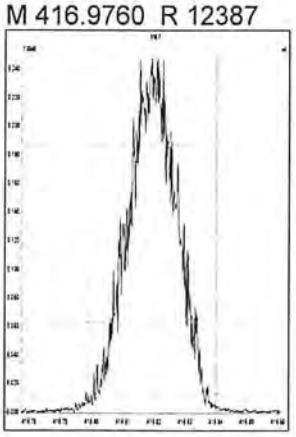
M 392.9760 R 12423



M 404.9760 R 11820



M 416.9760 R 12387



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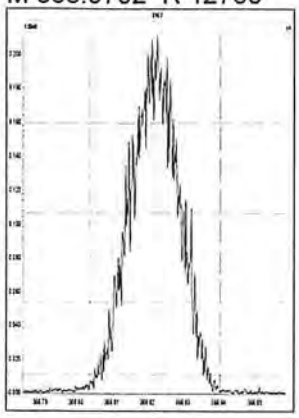
M 366.9792 R 12759



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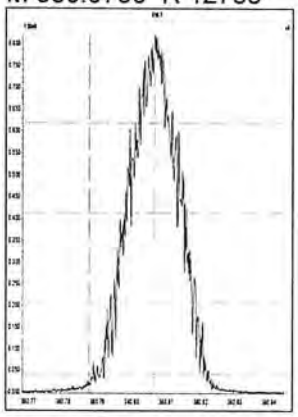

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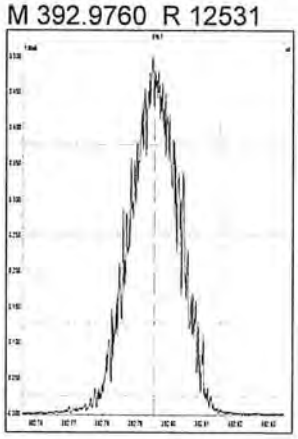

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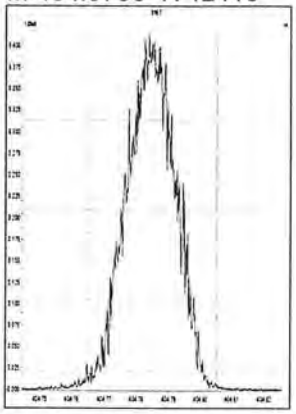
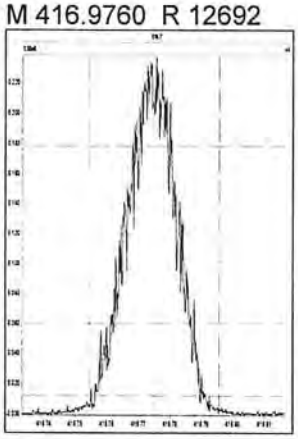
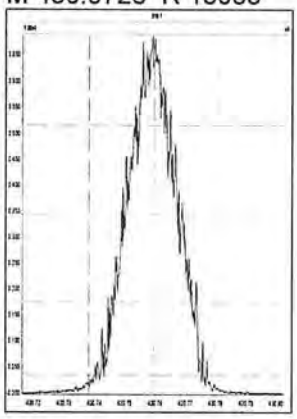


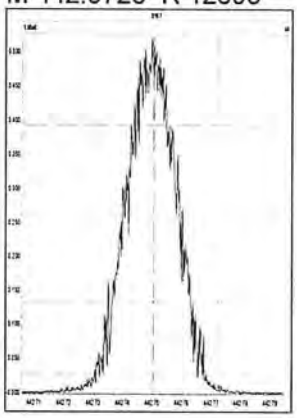
M 416.9760 R 12692



M 430.9728 R 13033



M 442.9728 R 12693



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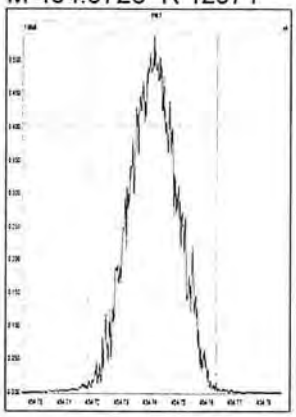

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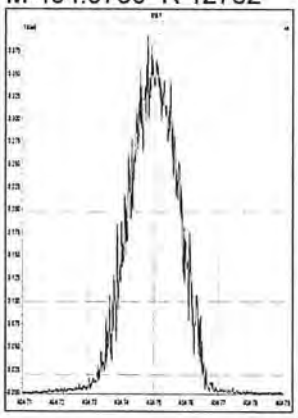

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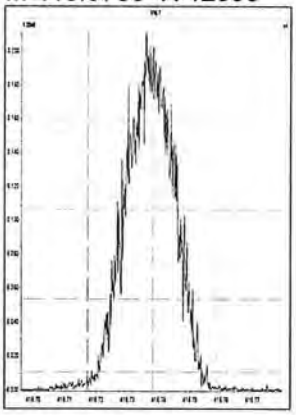

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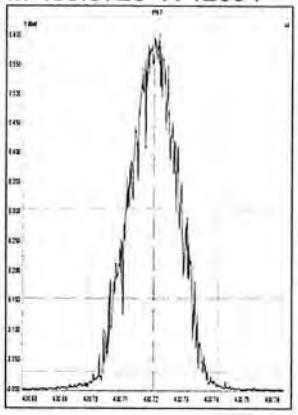

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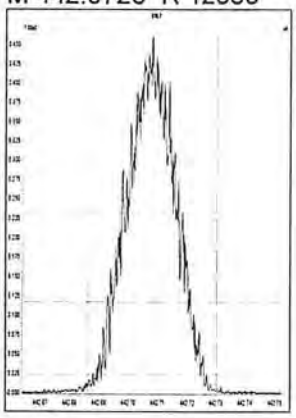

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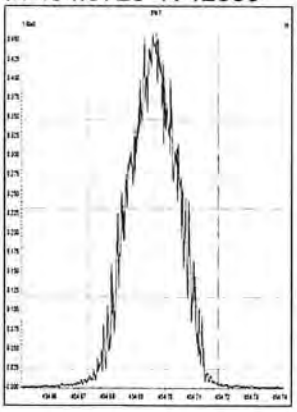

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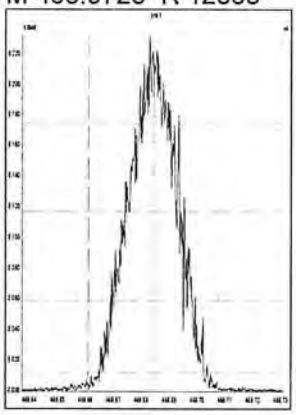

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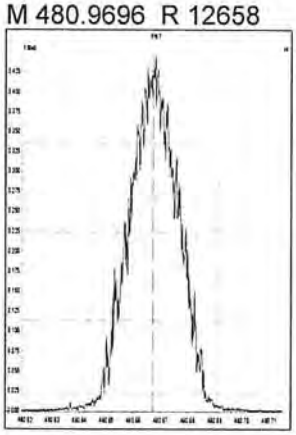

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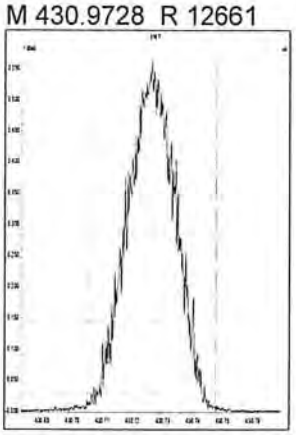

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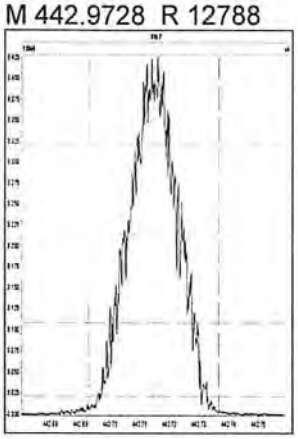
M 442.9728 R 12788



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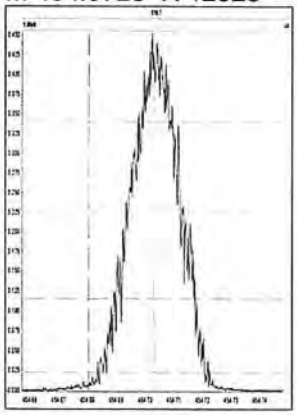

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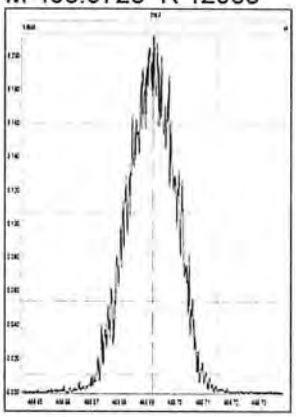
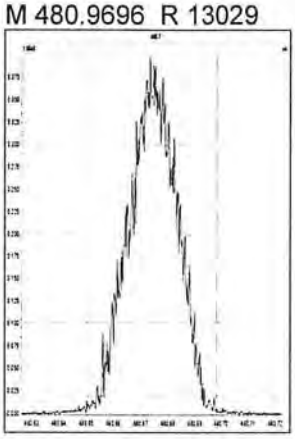


M 480.9696 R 13029



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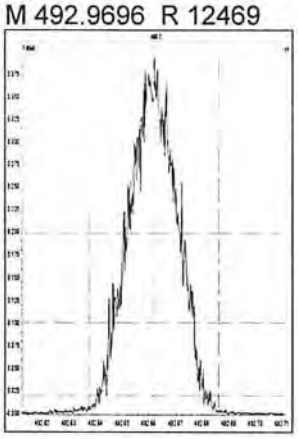

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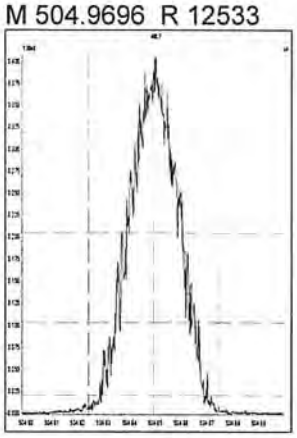

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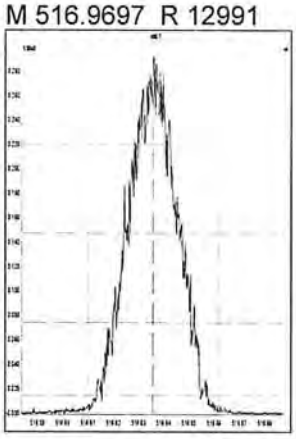


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

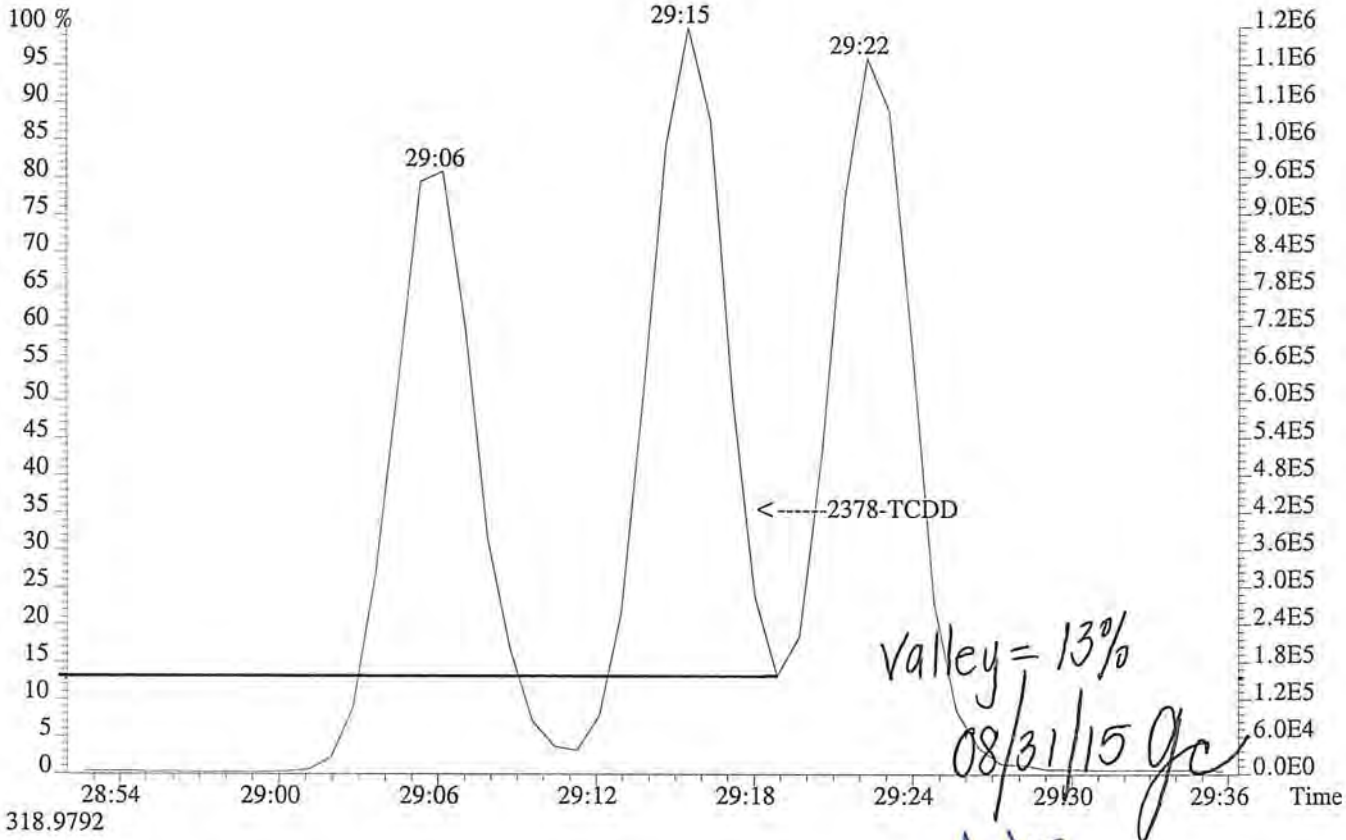
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P301079
Date Analyzed: 28-AUG-2015
Time Analyzed: 16:32:49

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:14	30:23
TCDD	26:05	30:13
PeCDF	30:19	34:28
PeCDD	31:49	34:13
HxCDF	35:06	37:34
HxCDD	35:36	37:10
HpCDF	38:47	40:11
HpCDD	39:01	39:43

% Valley 2378-TCDD: 13 %

File:P301079 #1-591 Acq:28-AUG-2015 16:32:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



318.9792

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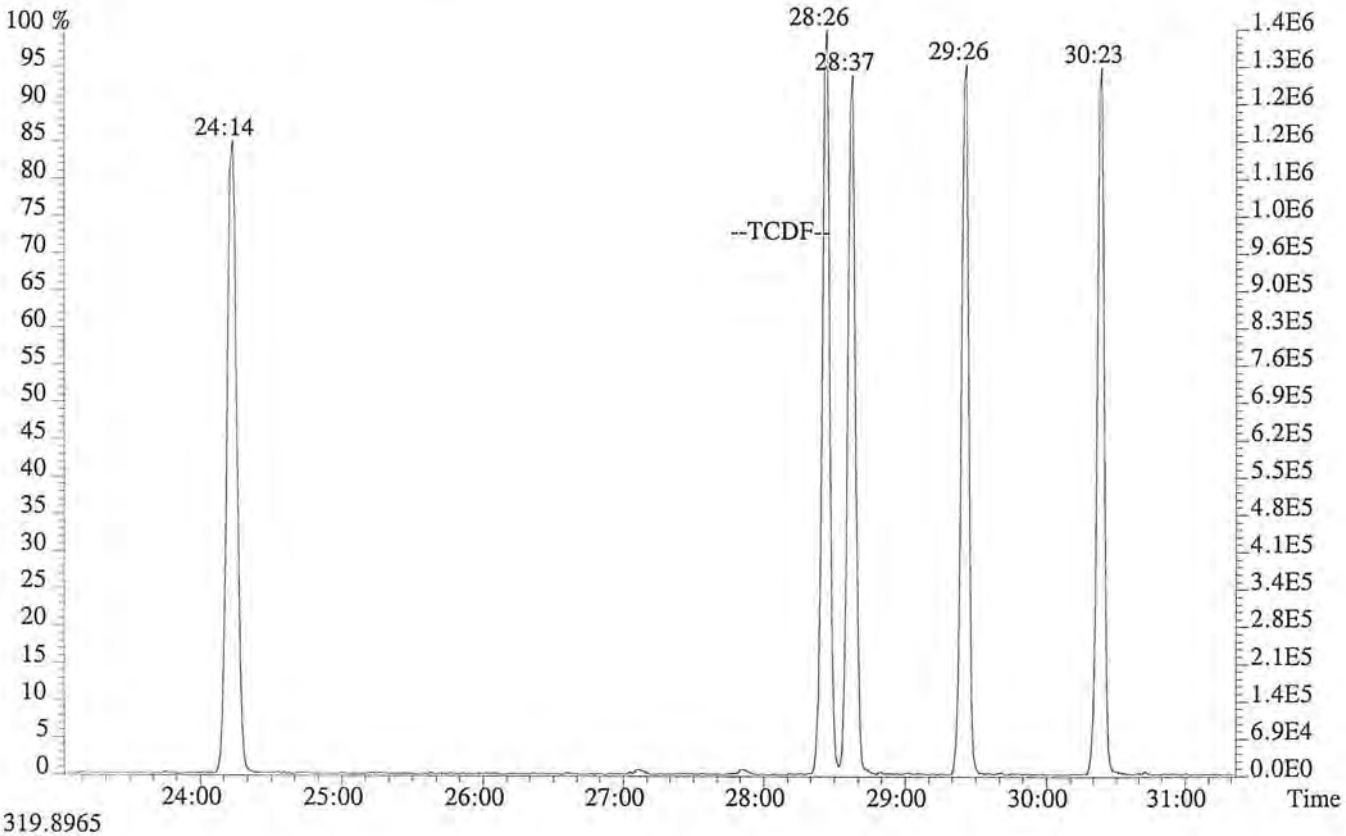
Sample#1 Exp:WINDOW DEFINE
303.9016



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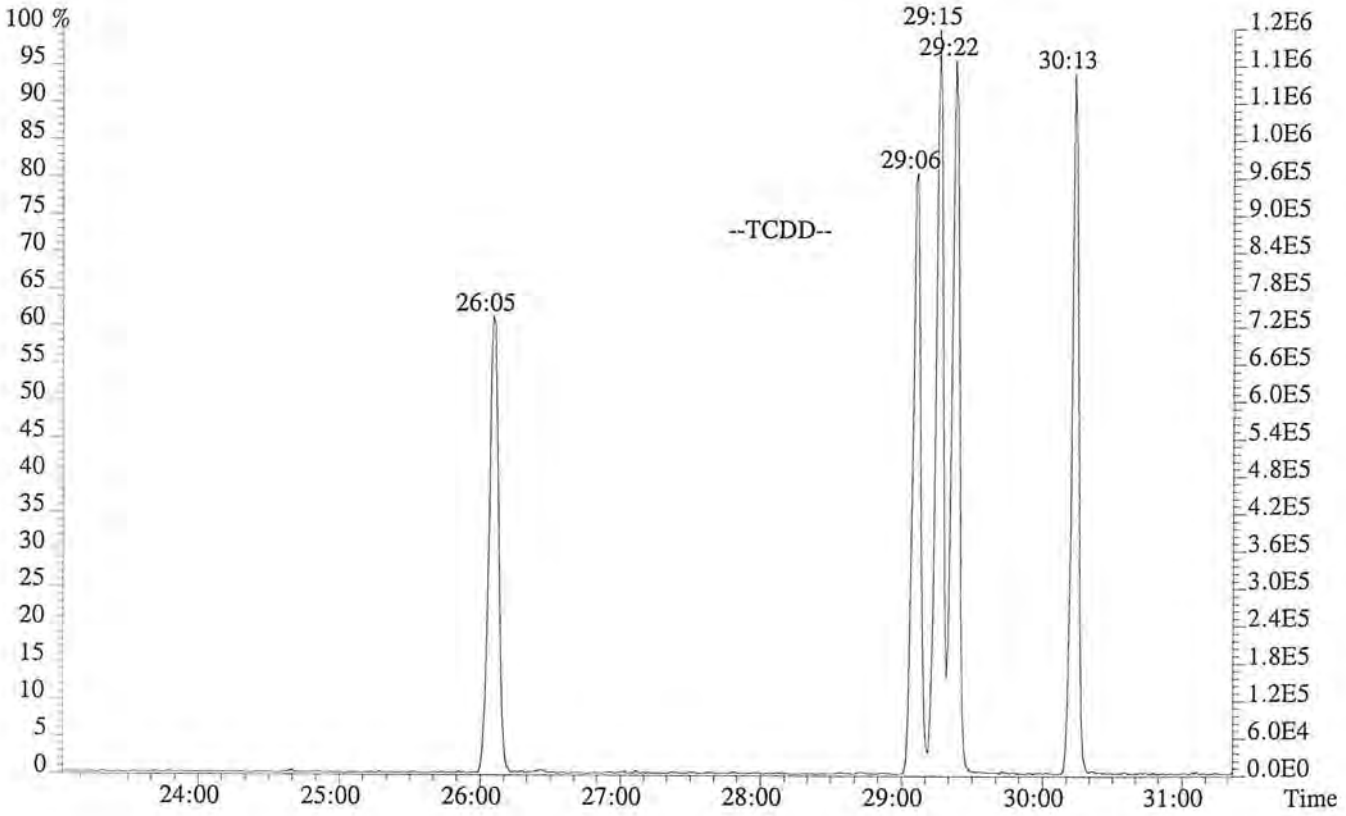

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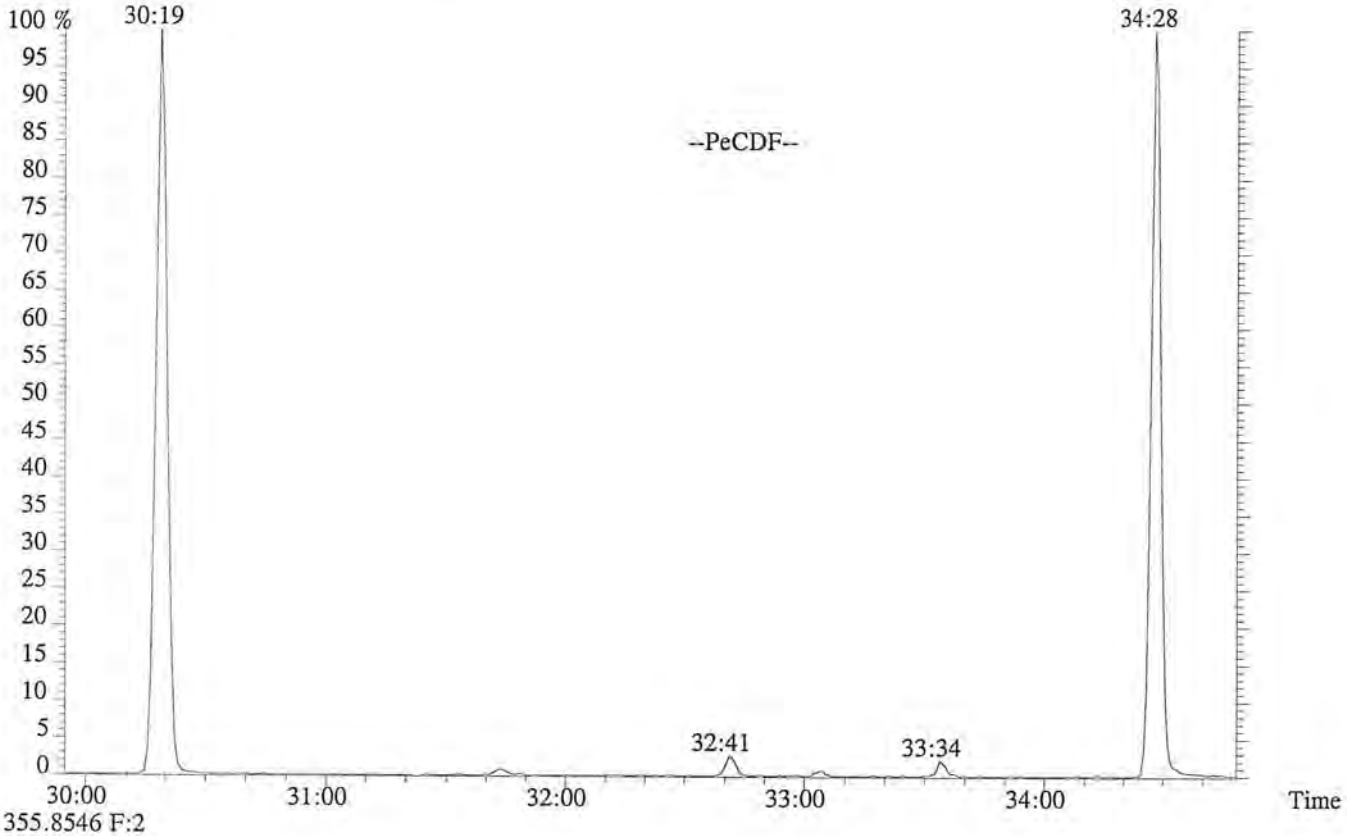
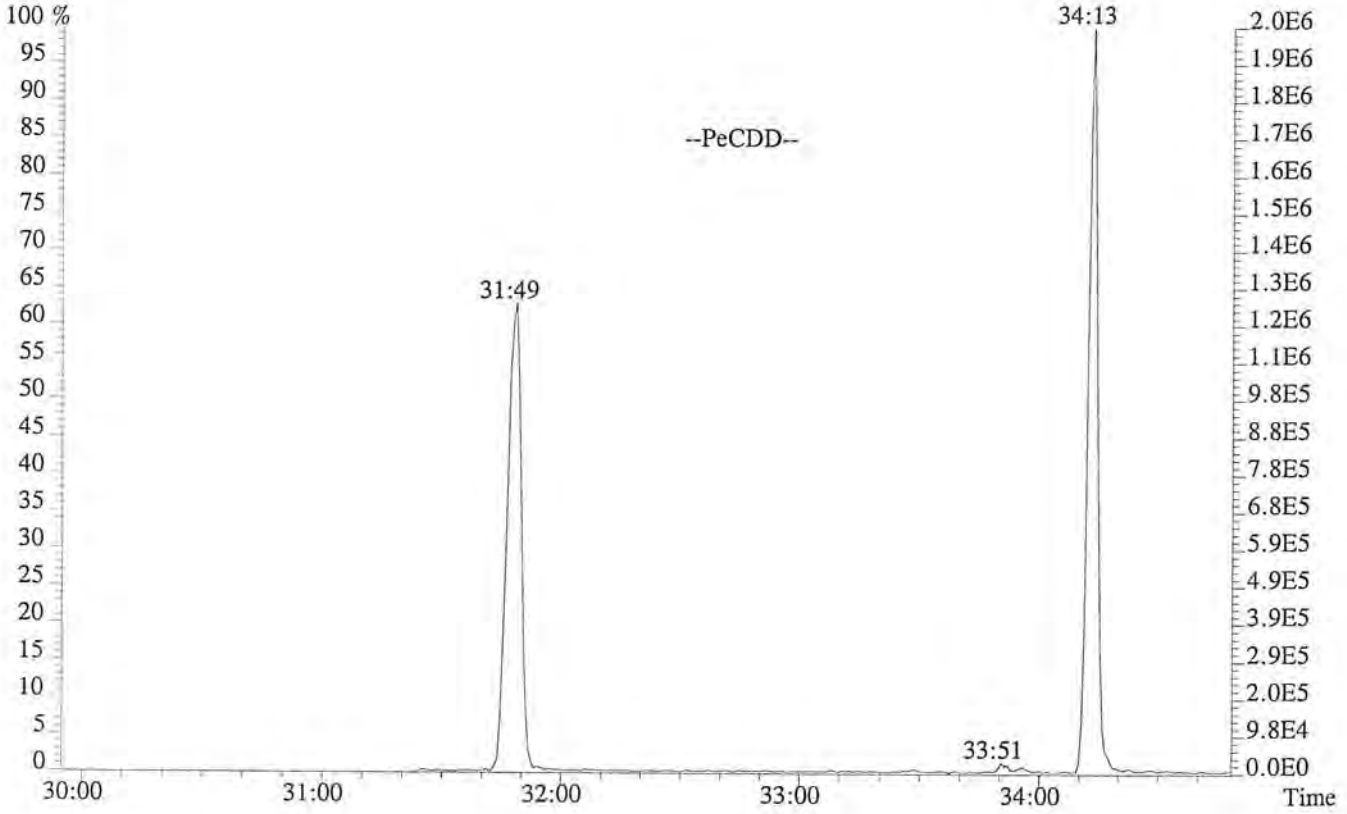
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



355.8546 F:2



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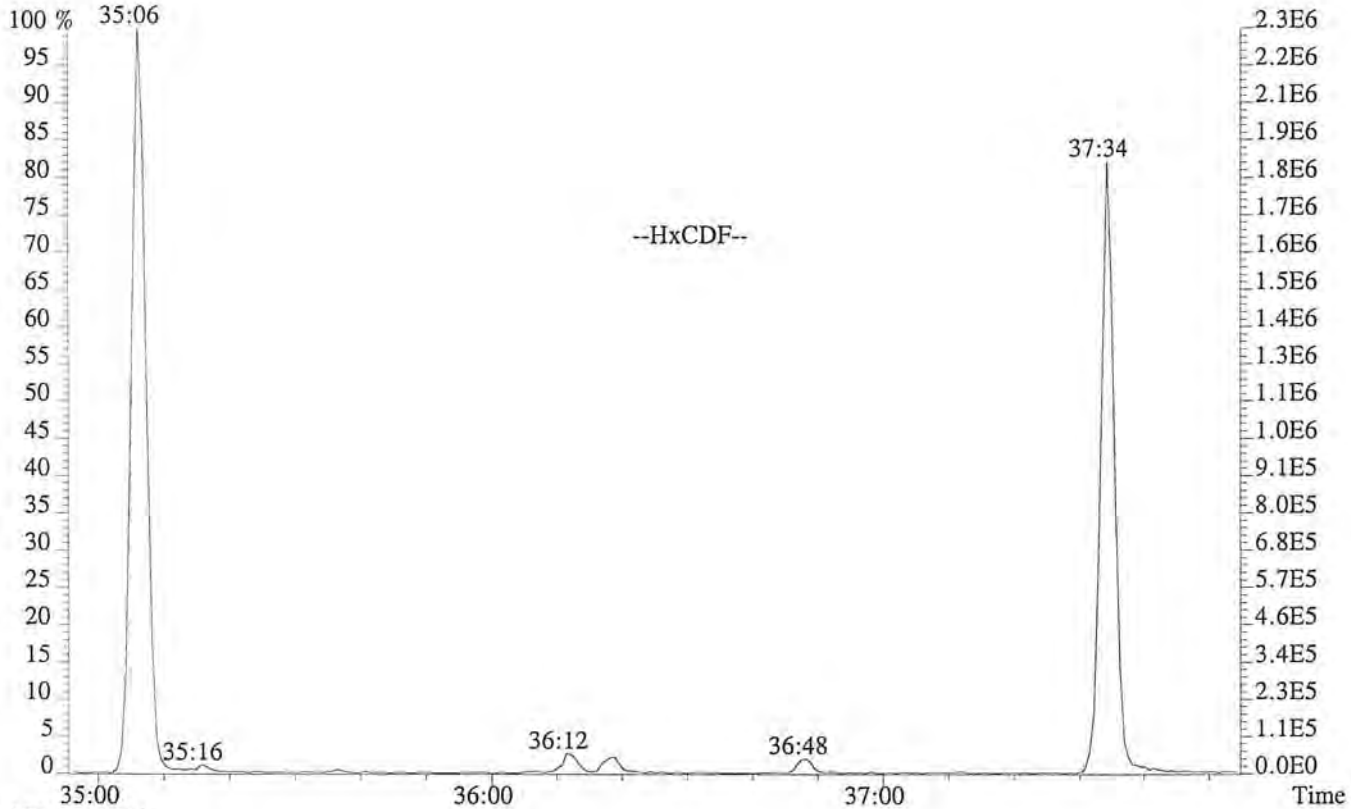
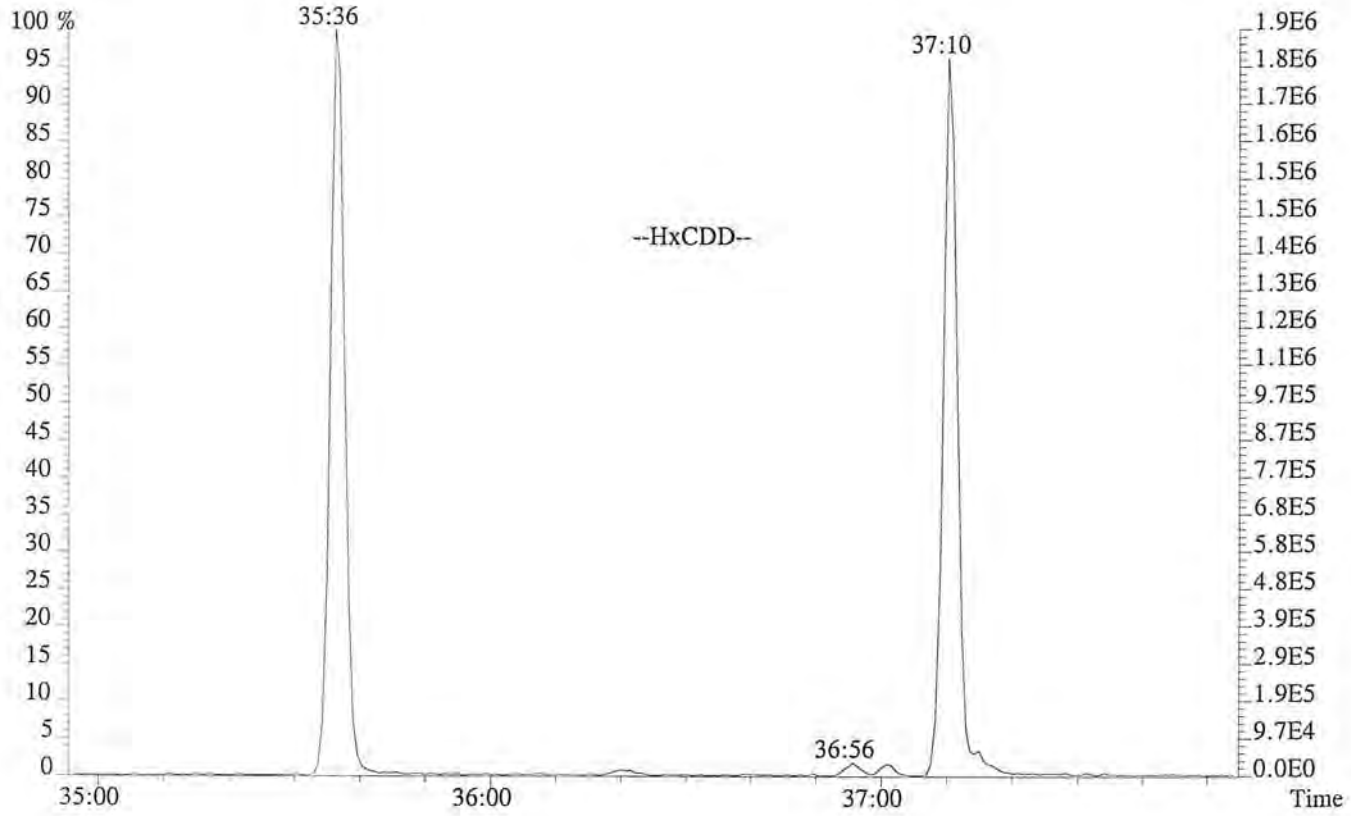
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



389.8157 F:3



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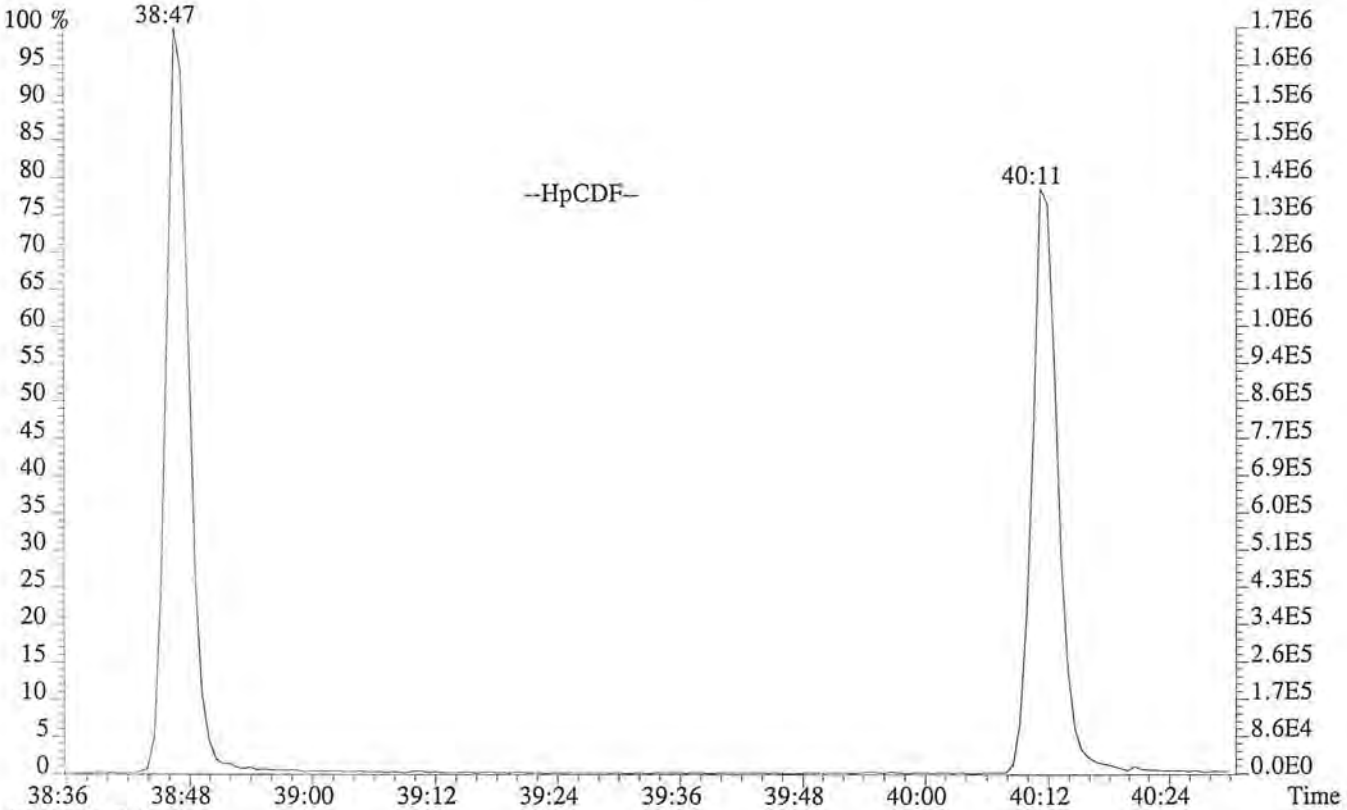
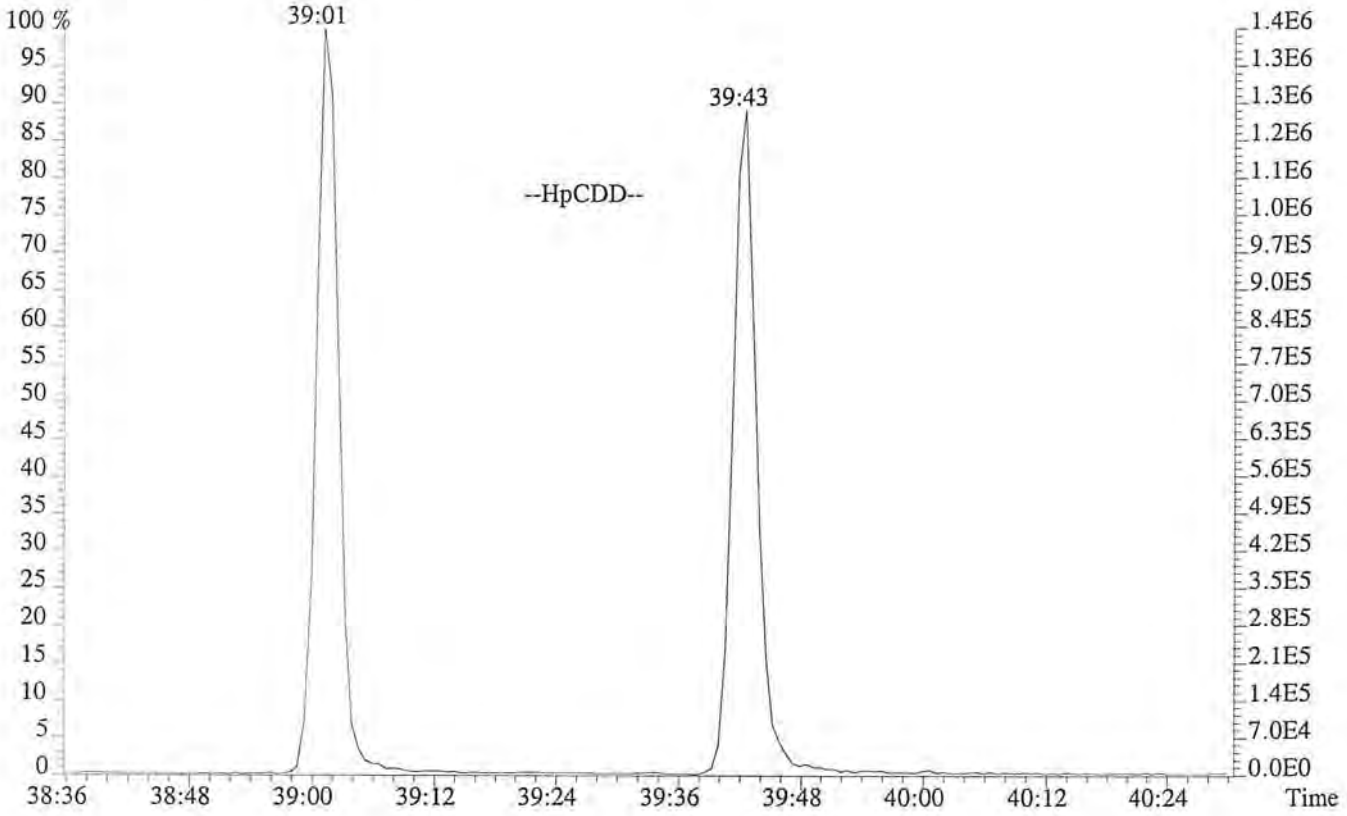
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/21/15

Instrument ID: E-HRMS-05 GC Column ID: DB-5MSUI

VER Data Filename: P301078 Analysis Date: 28-AUG-15 Time: 15:30:45

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.5	7.8 - 12.9	-4.7
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	52	39 - 65	3.9
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	52	39 - 64	4.4
1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	53	39 - 64	5.7
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	52	41 - 61	4.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	52	43 - 58	4.0
OCDD	M+2/M+4	0.89	0.76-1.02	103	79 - 126	2.8
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	10.2	8.4 - 12.0	1.9
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	53	41 - 60	5.5
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	52	41 - 61	4.5
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	53	45 - 56	5.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	1.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.26	1.05-1.43	52	45 - 56	4.8
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	52	44 - 57	3.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	52	45 - 55	4.1
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	51	43 - 58	1.5
OCDF	M+2/M+4	0.90	0.76-1.02	102	63 - 159	2.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/21/15

Instrument ID: E-HRMS-05 GC Column ID: DB-5MSUI

VER Data Filename: P301078 Analysis Date: 28-AUG-15 Time: 15:30:45

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	101	82 - 121	0.8
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	109	62 - 160	8.7
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	102	85 - 117	1.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	98	85 - 118	-1.8
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	104	72 - 138	4.4
13C-OCDD	M+2/M+4	0.89	0.76-1.02	213	96 - 415	6.6
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	95	71 - 140	-5.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	104	76 - 130	4.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	110	77 - 130	9.5
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	76 - 131	-4.7
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	70 - 143	-3.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	103	74 - 135	2.8
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	100	73 - 137	0.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	103	78 - 129	3.4
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	105	77 - 129	4.9
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.5	7.8 - 12.7	-5.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
CS3

Run #7 Filename P301078 Samp: 1 Inj: 1 Acquired: 28-AUG-15 15:30:45
Processed: 31-AUG-15 15:03:38 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	5.274e+03	6.988e+03	0.75	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	32:41	4.904e+04	3.143e+04	1.56	yes	no	0.929
3	Unk	2,3,4,7,8-PeCDF	33:35	4.596e+04	2.993e+04	1.54	yes	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	36:12	4.335e+04	3.484e+04	1.24	yes	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:18	4.387e+04	3.582e+04	1.22	yes	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:48	4.210e+04	3.432e+04	1.23	yes	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	37:33	3.916e+04	3.109e+04	1.26	yes	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:47	3.751e+04	3.639e+04	1.03	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	40:11	3.113e+04	2.998e+04	1.04	yes	no	1.245
10	Unk	OCDF	42:44	5.001e+04	5.564e+04	0.90	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:22	4.436e+03	5.691e+03	0.78	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:51	3.505e+04	2.226e+04	1.57	yes	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:56	3.255e+04	2.613e+04	1.25	yes	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:01	3.232e+04	2.597e+04	1.24	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:15	3.404e+04	2.742e+04	1.24	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:43	2.784e+04	2.659e+04	1.05	yes	no	0.949
17	Unk	OCDD	42:31	4.474e+04	5.019e+04	0.89	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:36	6.236e+04	7.930e+04	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:41	1.003e+05	6.379e+04	1.57	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:34	1.011e+05	6.434e+04	1.57	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:12	4.375e+04	8.470e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:18	5.019e+04	9.562e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:48	4.699e+04	9.110e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:32	4.261e+04	8.218e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:47	3.295e+04	7.469e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:11	2.952e+04	6.719e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:21	4.832e+04	6.274e+04	0.77	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:50	7.604e+04	4.836e+04	1.57	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:55	6.425e+04	5.094e+04	1.26	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:00	6.344e+04	5.067e+04	1.25	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:42	5.646e+04	5.384e+04	1.05	yes	no	0.850
32	IS	13C-OCDD	42:30	8.216e+04	9.186e+04	0.89	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:48	4.961e+04	6.340e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:14	6.931e+04	5.497e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	1.073e+04				no	1.001

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
CS3

Run #7 Filename P301078 Samp: 1 Inj: 1 Acquired: 28-AUG-15 15:30:45
Processed: 31-AUG-15 15:03:38 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.05e+06	1.82e+03	5.8e+02	1.37e+06	2.54e+03	5.4e+02
2	1,2,3,7,8-PeCDF	9.88e+06	6.24e+02	1.6e+04	6.39e+06	2.58e+03	2.5e+03
3	2,3,4,7,8-PeCDF	9.76e+06	6.24e+02	1.6e+04	6.37e+06	2.58e+03	2.5e+03
4	1,2,3,4,7,8-HxCDF	9.64e+06	9.76e+02	9.9e+03	7.73e+06	4.72e+02	1.6e+04
5	1,2,3,6,7,8-HxCDF	9.81e+06	9.76e+02	1.0e+04	7.93e+06	4.72e+02	1.7e+04
6	2,3,4,6,7,8-HxCDF	9.52e+06	9.76e+02	9.8e+03	7.66e+06	4.72e+02	1.6e+04
7	1,2,3,7,8,9-HxCDF	8.61e+06	9.76e+02	8.8e+03	6.81e+06	4.72e+02	1.4e+04
8	1,2,3,4,6,7,8-HpCDF	8.18e+06	2.18e+03	3.7e+03	8.03e+06	2.93e+03	2.7e+03
9	1,2,3,4,7,8,9-HpCDF	6.24e+06	2.18e+03	2.9e+03	6.02e+06	2.93e+03	2.1e+03
10	OCDF	8.87e+06	1.26e+03	7.0e+03	9.88e+06	2.14e+03	4.6e+03
11	2,3,7,8-TCDD	9.15e+05	1.30e+03	7.1e+02	1.21e+06	7.68e+02	1.6e+03
12	1,2,3,7,8-PeCDD	7.39e+06	2.72e+03	2.7e+03	4.68e+06	8.88e+02	5.3e+03
13	1,2,3,4,7,8-HxCDD	7.56e+06	3.44e+02	2.2e+04	6.10e+06	1.72e+03	3.5e+03
14	1,2,3,6,7,8-HxCDD	7.26e+06	3.44e+02	2.1e+04	5.82e+06	1.72e+03	3.4e+03
15	1,2,3,7,8,9-HxCDD	7.79e+06	3.44e+02	2.3e+04	6.21e+06	1.72e+03	3.6e+03
16	1,2,3,4,6,7,8-HpCDD	5.87e+06	1.34e+03	4.4e+03	5.54e+06	7.00e+02	7.9e+03
17	OCDD	8.18e+06	9.96e+02	8.2e+03	9.26e+06	1.43e+03	6.5e+03
18	13C-2,3,7,8-TCDF	1.24e+07	1.82e+03	6.8e+03	1.57e+07	2.70e+03	5.8e+03
19	13C-1,2,3,7,8-PeCDF	2.01e+07	5.60e+02	3.6e+04	1.28e+07	1.31e+03	9.8e+03
20	13C-2,3,4,7,8-PeCDF	2.11e+07	5.60e+02	3.8e+04	1.34e+07	1.31e+03	1.0e+04
21	13C-1,2,3,4,7,8-HxCDF	9.86e+06	1.07e+03	9.2e+03	1.89e+07	2.00e+03	9.4e+03
22	13C-1,2,3,6,7,8-HxCDF	1.12e+07	1.07e+03	1.0e+04	2.14e+07	2.00e+03	1.1e+04
23	13C-2,3,4,6,7,8-HxCDF	1.05e+07	1.07e+03	9.8e+03	2.01e+07	2.00e+03	1.0e+04
24	13C-1,2,3,7,8,9-HxCDF	9.45e+06	1.07e+03	8.8e+03	1.81e+07	2.00e+03	9.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.28e+06	3.96e+03	1.8e+03	1.63e+07	3.17e+03	5.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.92e+06	3.96e+03	1.5e+03	1.34e+07	3.17e+03	4.2e+03
27	13C-2,3,7,8-TCDD	1.01e+07	7.99e+03	1.3e+03	1.31e+07	3.56e+03	3.7e+03
28	13C-1,2,3,7,8-PeCDD	1.58e+07	2.04e+03	7.8e+03	1.02e+07	1.10e+03	9.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.49e+07	1.50e+03	9.9e+03	1.19e+07	1.65e+03	7.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.42e+07	1.50e+03	9.5e+03	1.13e+07	1.65e+03	6.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.16e+07	1.33e+03	8.8e+03	1.11e+07	8.16e+02	1.4e+04
32	13C-OCDD	1.49e+07	9.24e+02	1.6e+04	1.67e+07	1.25e+03	1.3e+04
33	13C-1,2,3,4-TCDD	1.01e+07	7.99e+03	1.3e+03	1.29e+07	3.56e+03	3.6e+03
34	13C-1,2,3,7,8,9-HxCDD	1.57e+07	1.50e+03	1.0e+04	1.25e+07	1.65e+03	7.6e+03
35	37Cl-2,3,7,8-TCDD	2.26e+06	1.11e+03	2.0e+03			

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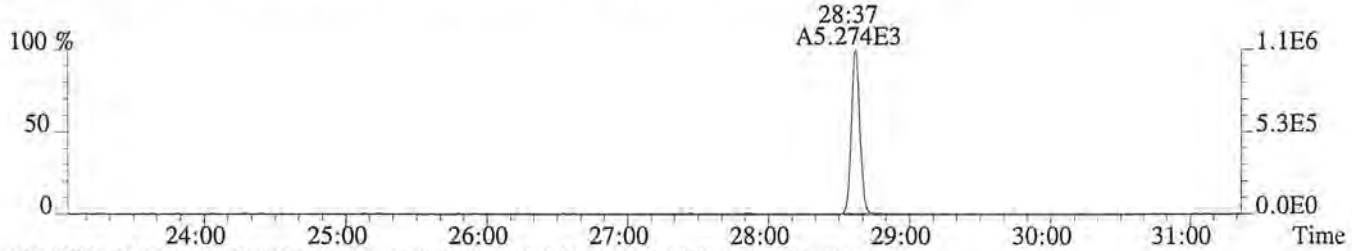
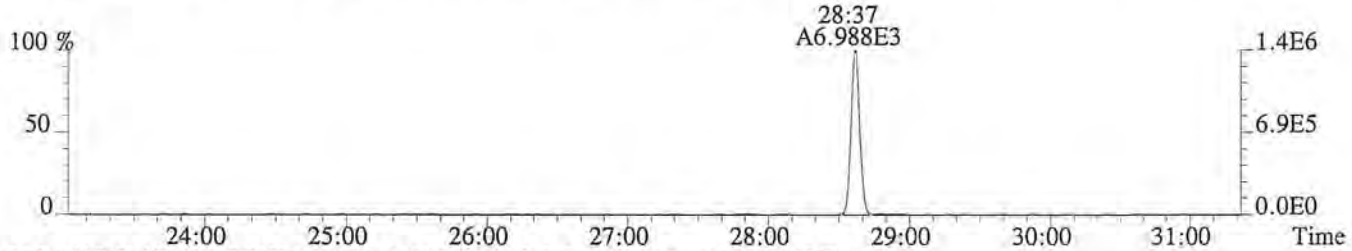
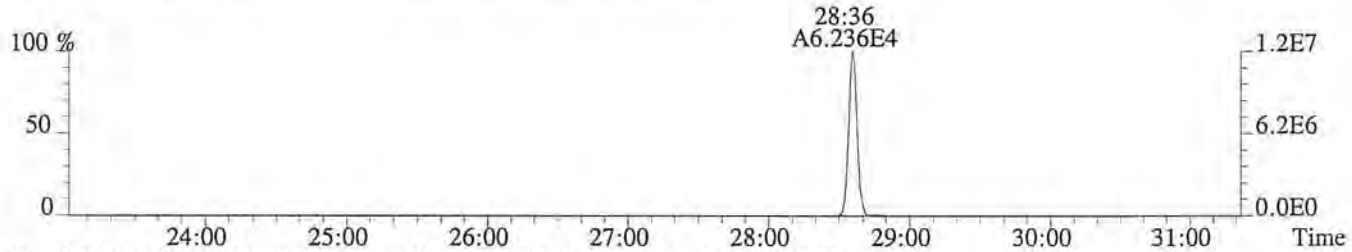
File:P301078 #1-591 Acq:28-AUG-2015 15:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1824.0,1.00%,F,T)



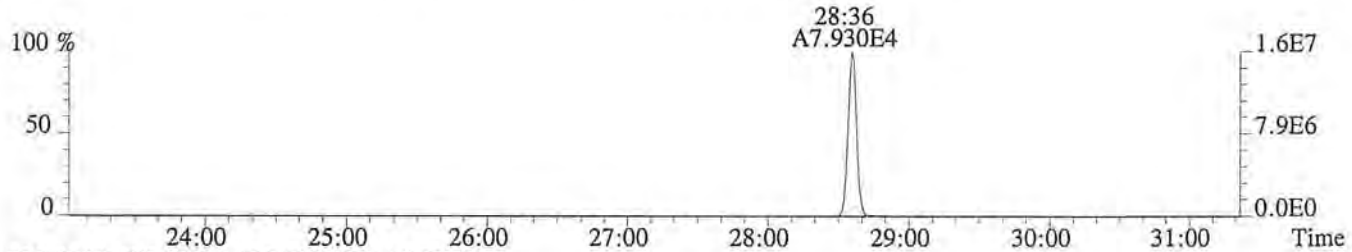
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2544.0,1.00%,F,T)



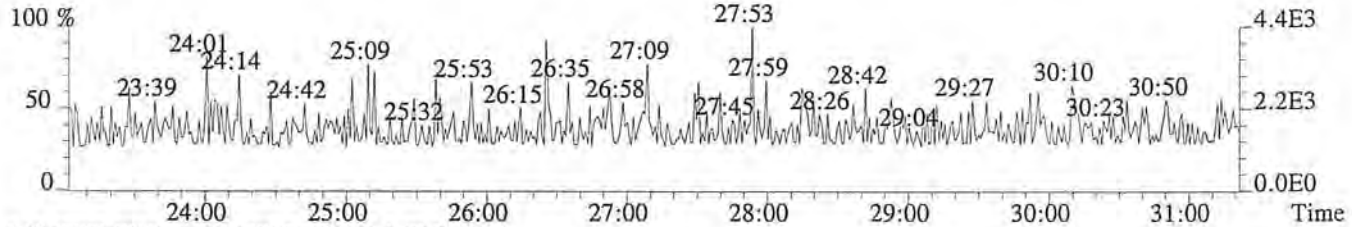
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



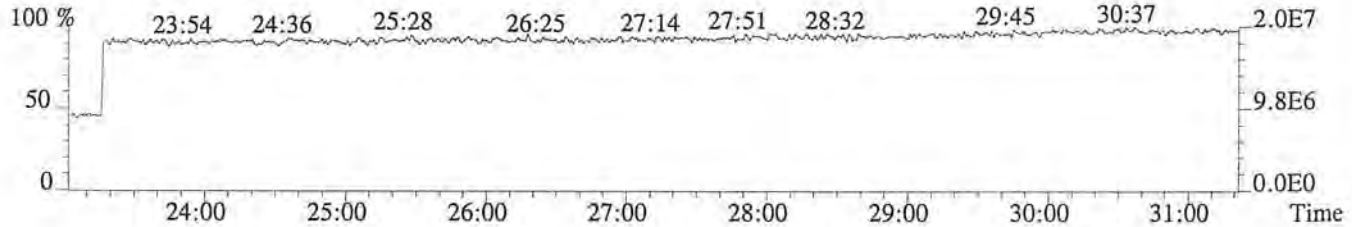
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2704.0,1.00%,F,T)



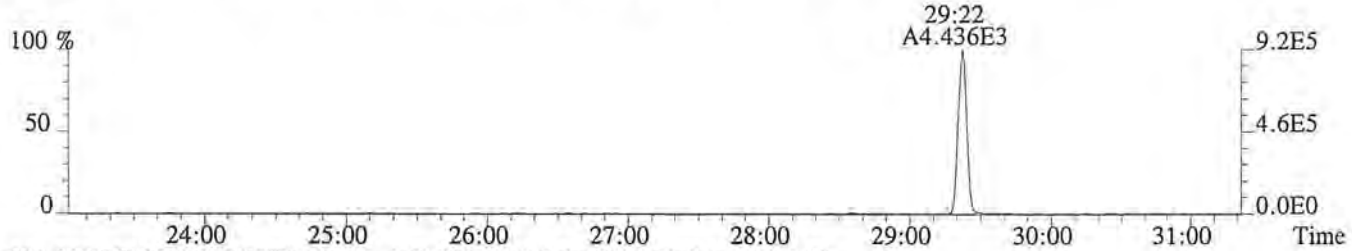
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



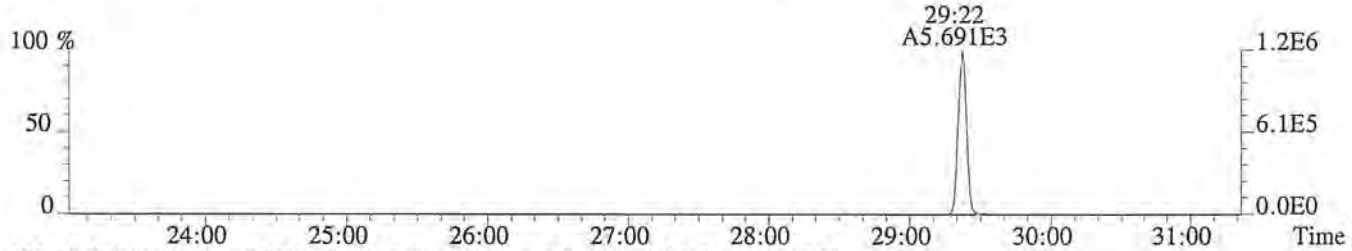
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



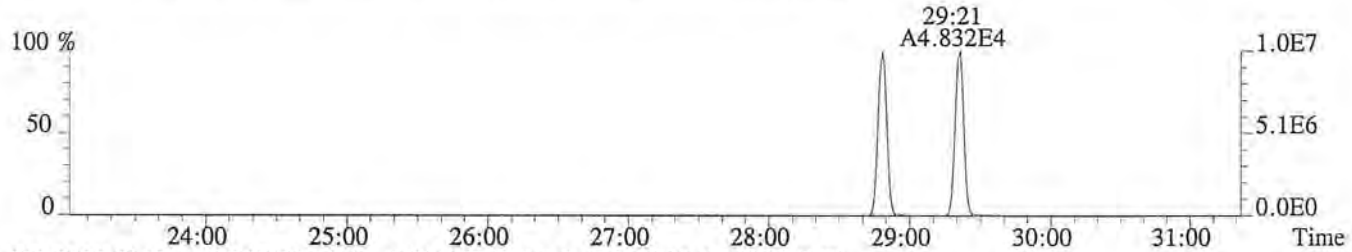
File:P301078 #1-591 Acq:28-AUG-2015 15:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1296.0,1.00%,F,T)



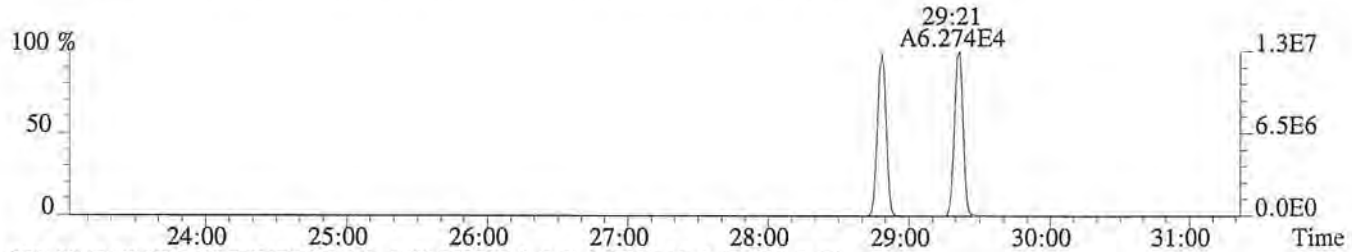
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



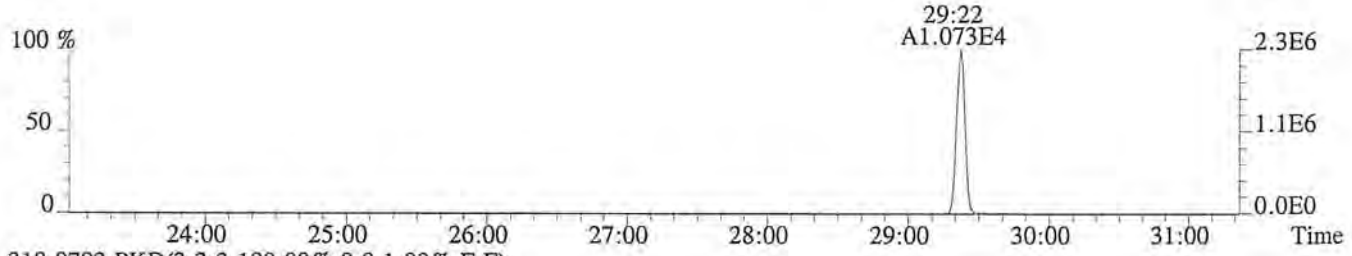
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7992.0,1.00%,F,T)



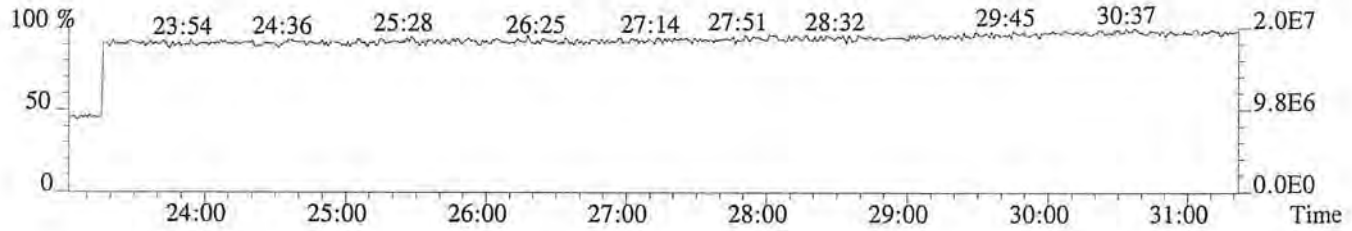
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3560.0,1.00%,F,T)



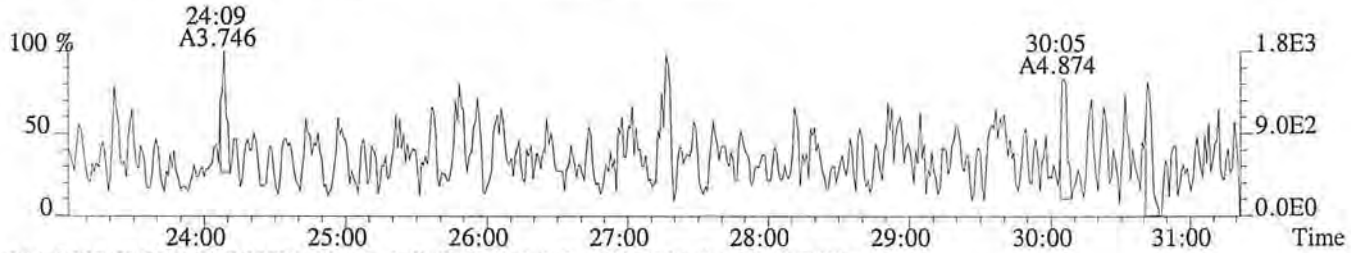
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)



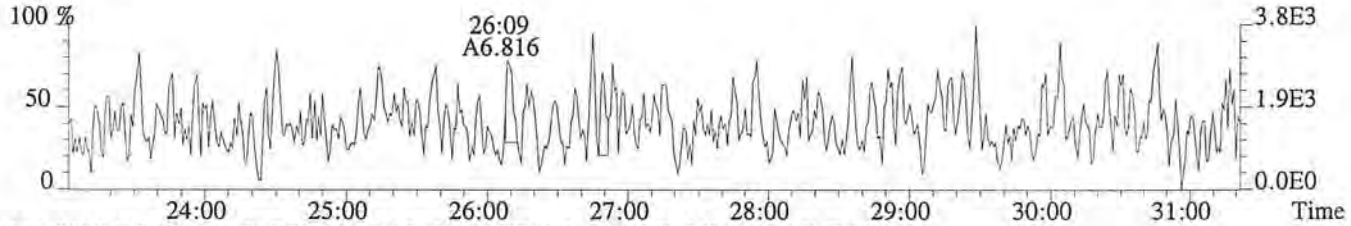
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



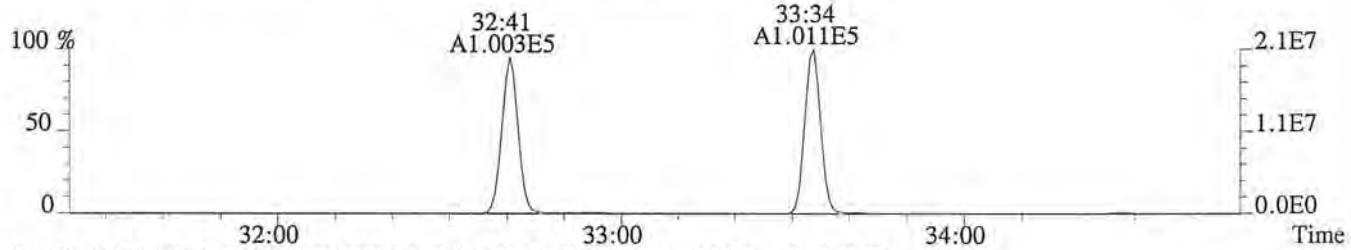
File:P301078 #1-591 Acq:28-AUG-2015 15:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



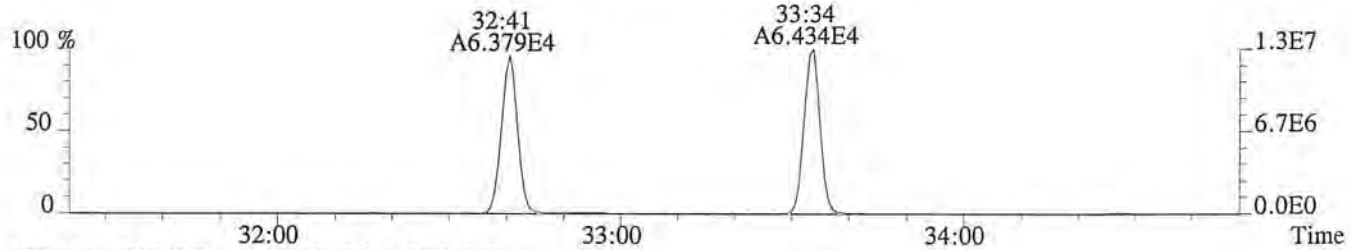
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1784.0,1.00%,F,T)



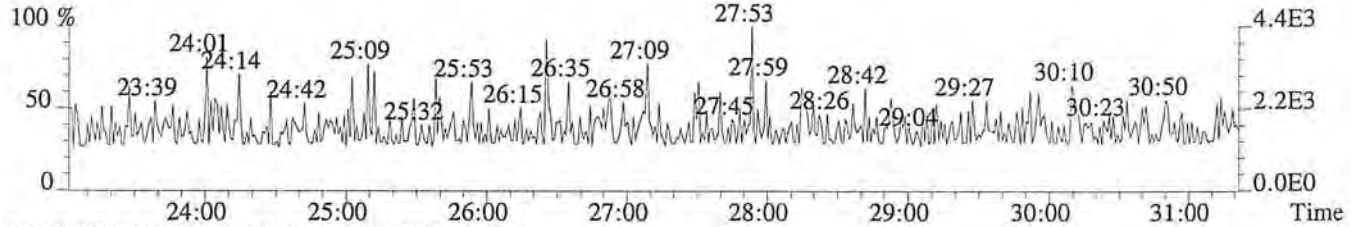
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



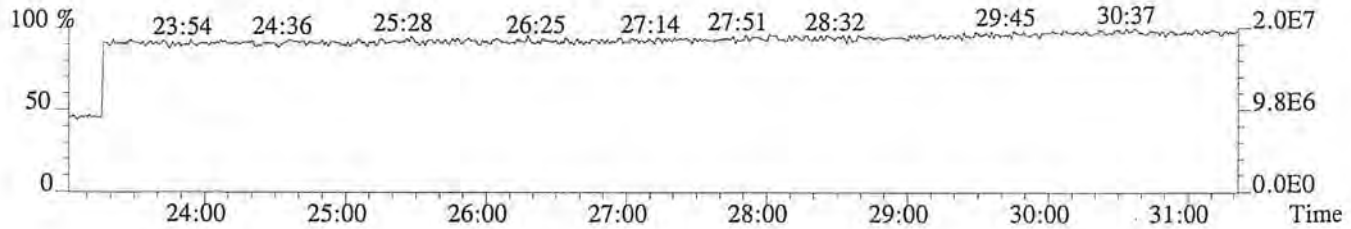
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1308.0,1.00%,F,T)



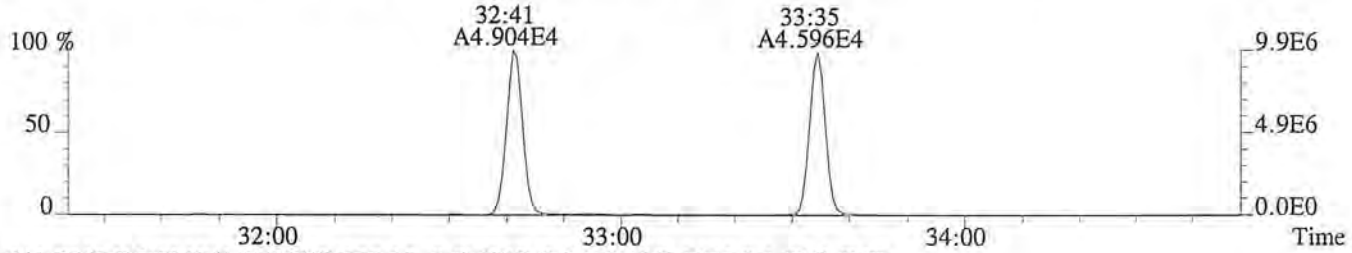
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



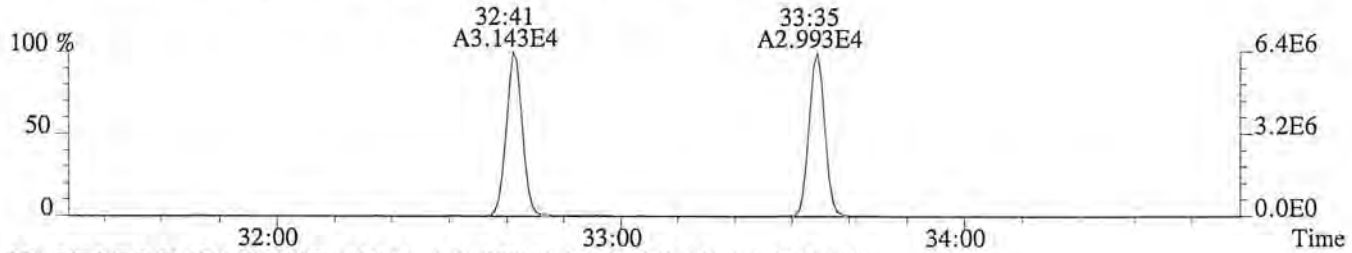
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



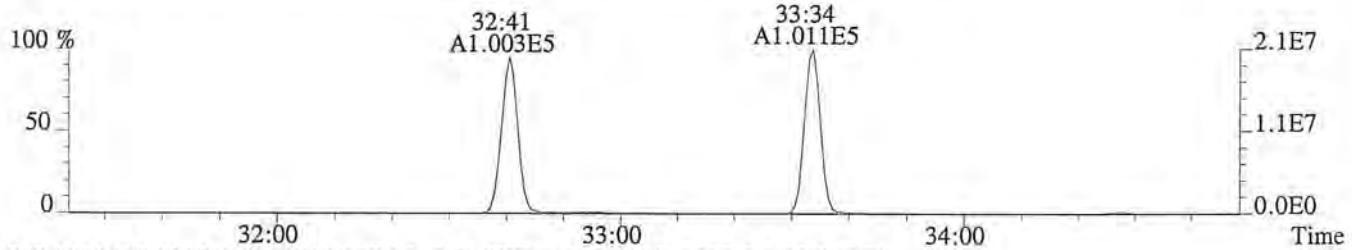
File:P301078 #1-308 Acq:28-AUG-2015 15:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



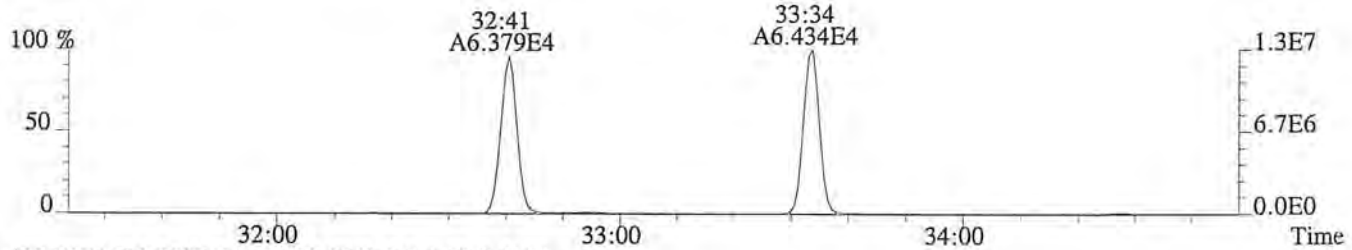
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2576.0,1.00%,F,T)



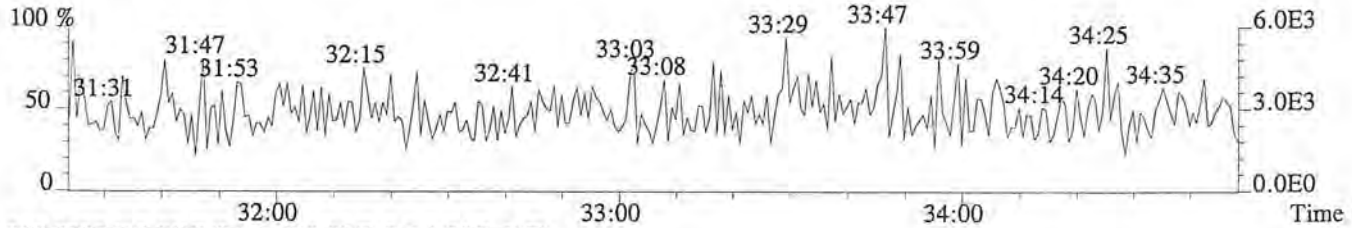
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



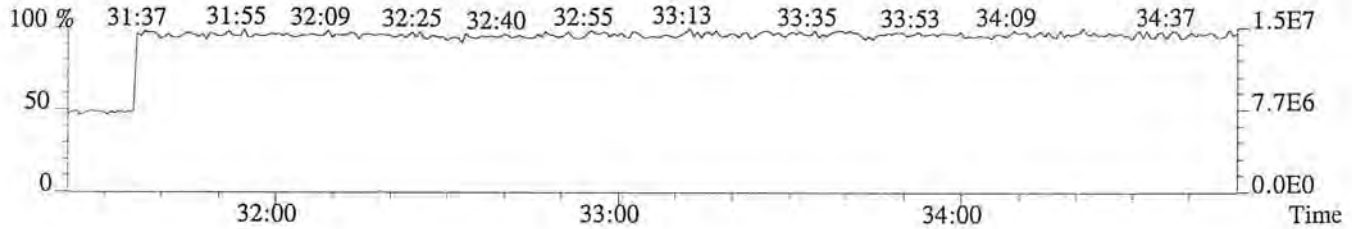
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1308.0,1.00%,F,T)



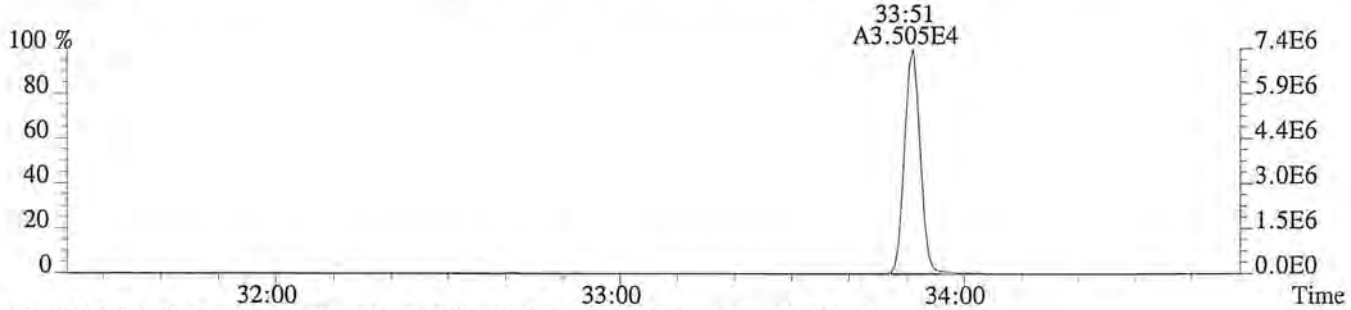
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



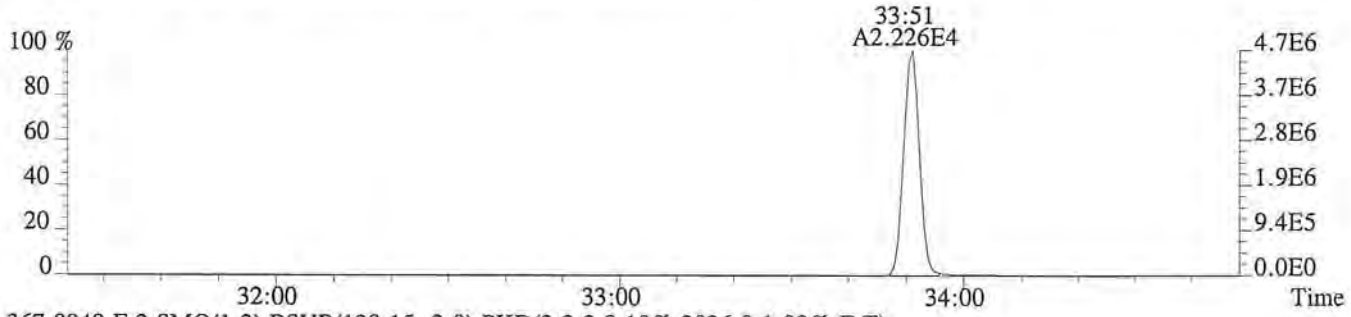
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



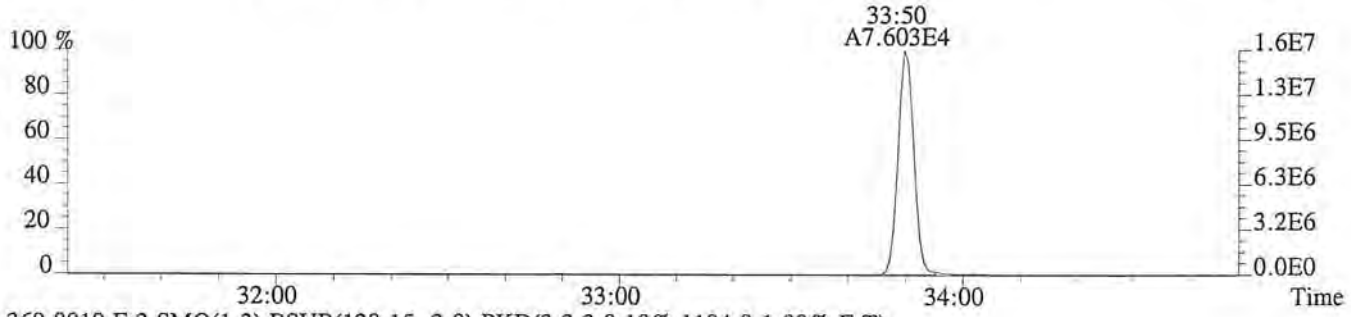
File:P301078 #1-308 Acq:28-AUG-2015 15:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2724.0,1.00%,F,T)



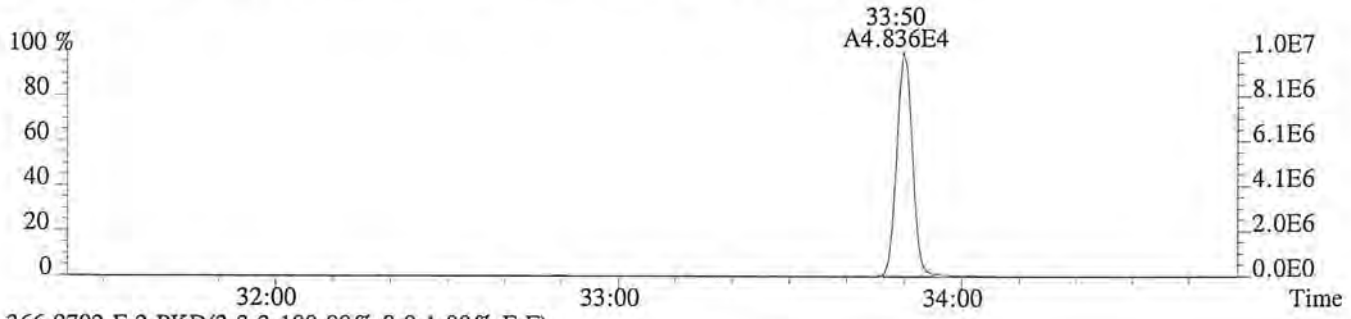
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



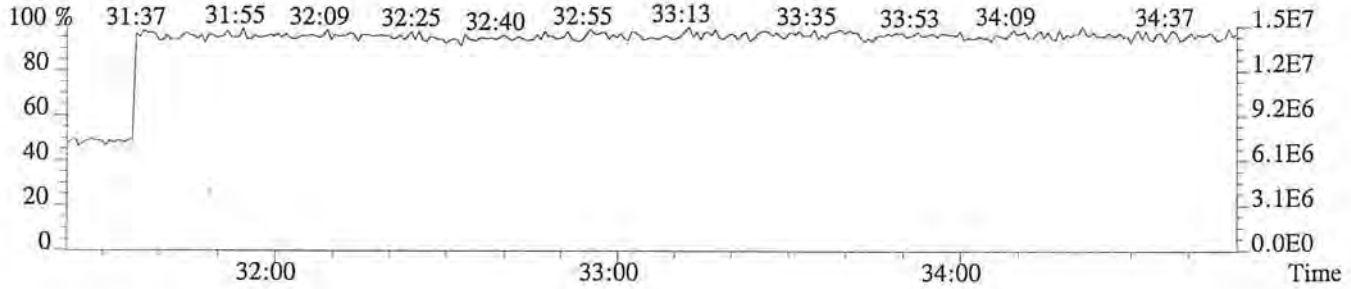
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)



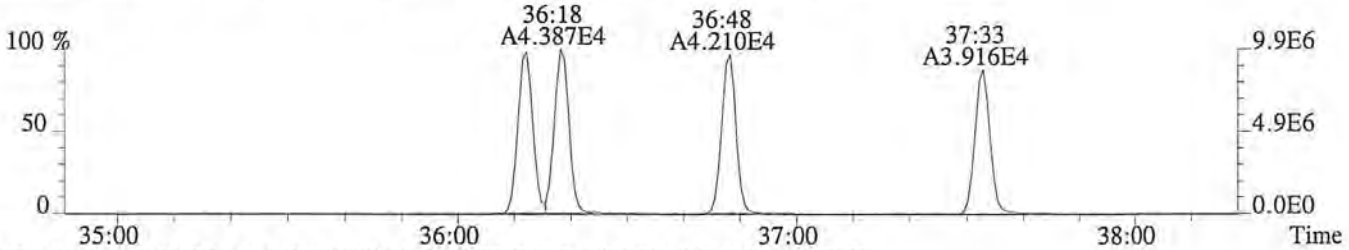
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)



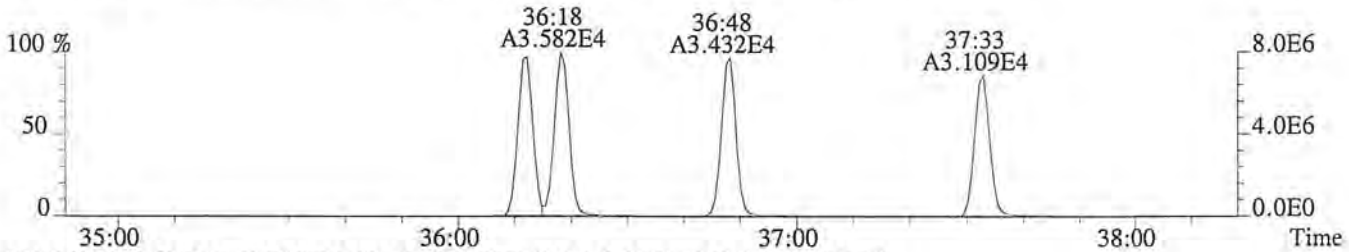
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



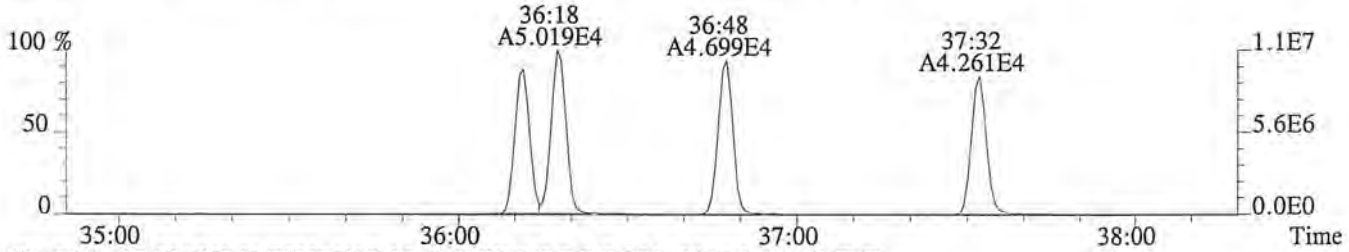
File:P301078 #1-312 Acq:28-AUG-2015 15:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)



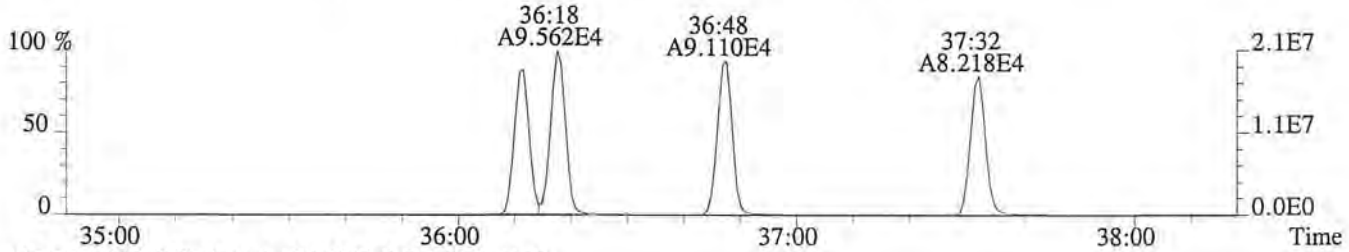
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



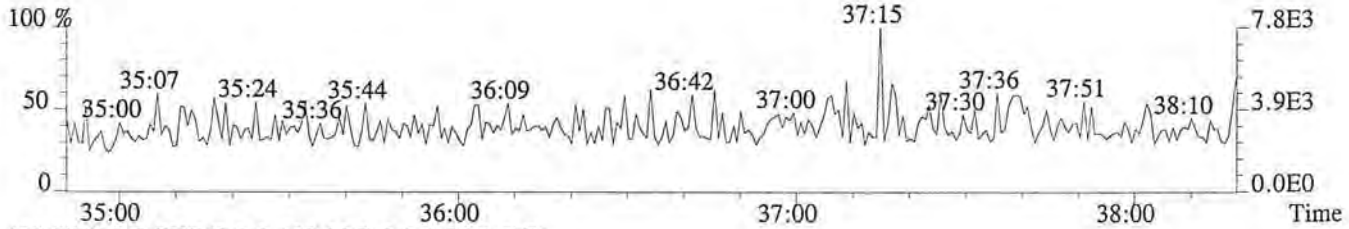
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1068.0,0.40%,F,T)



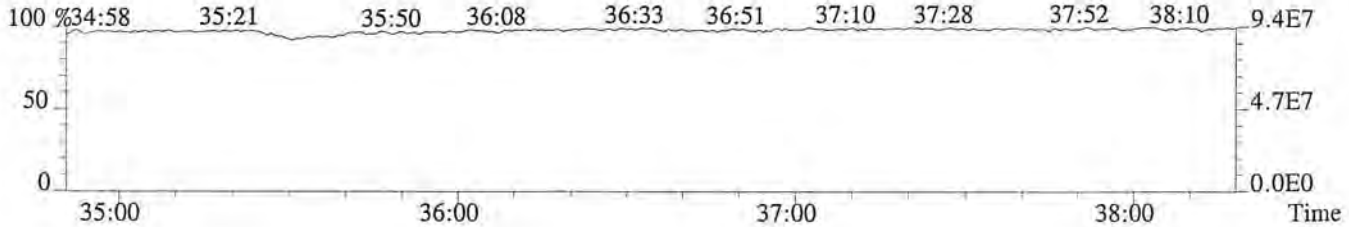
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



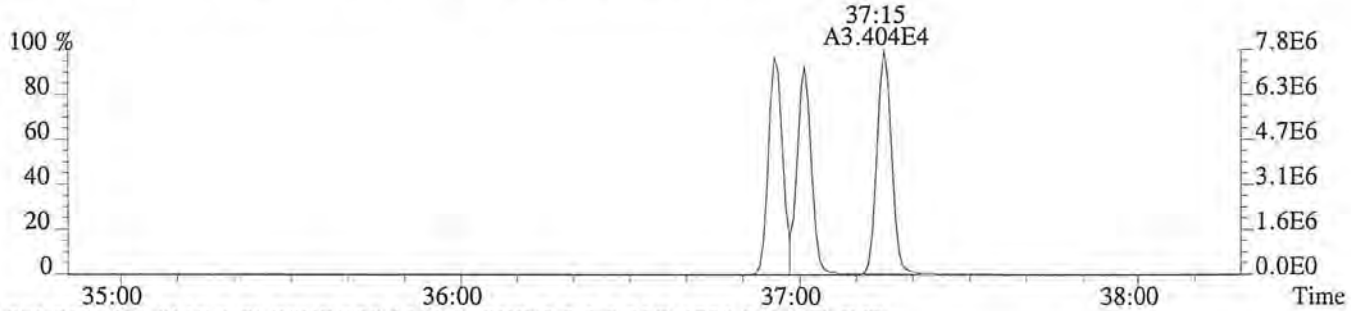
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



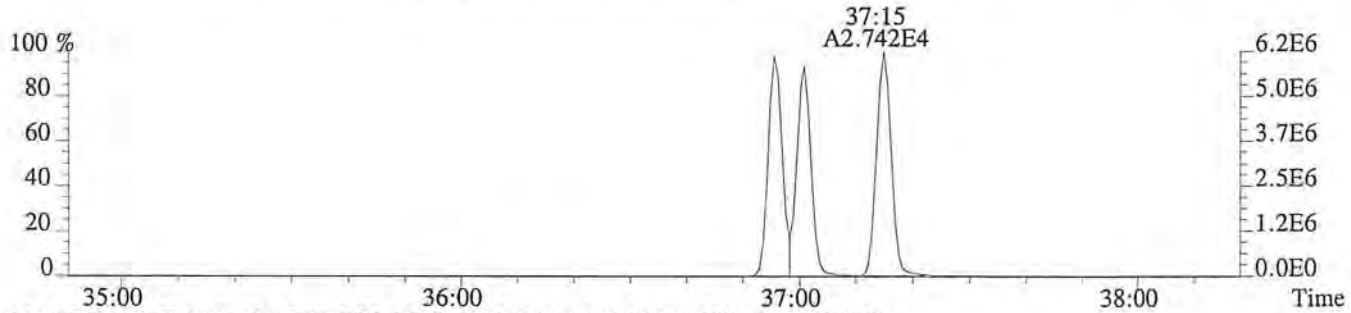
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



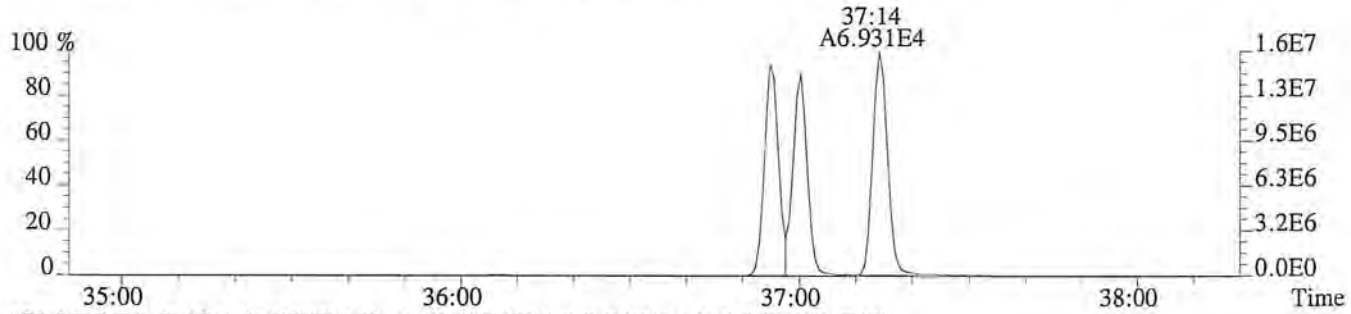
File:P301078 #1-312 Acq:28-AUG-2015 15:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,344.0,0.40%,F,T)



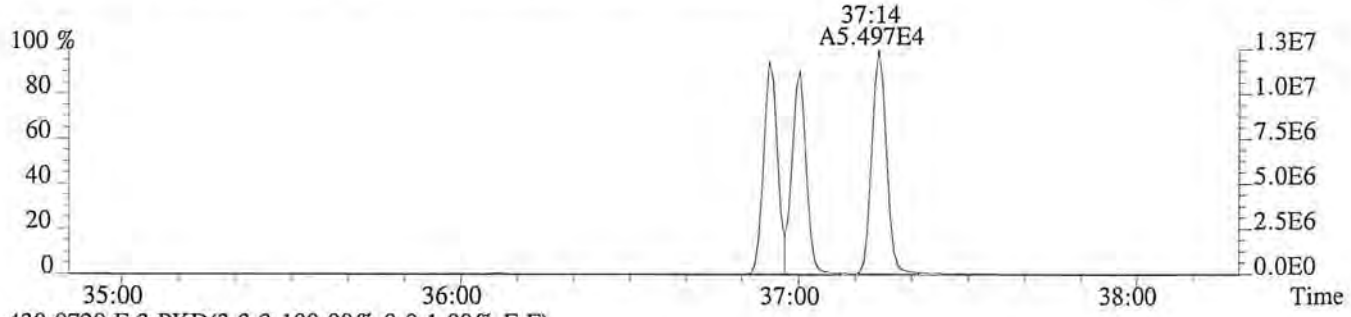
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1720.0,0.40%,F,T)



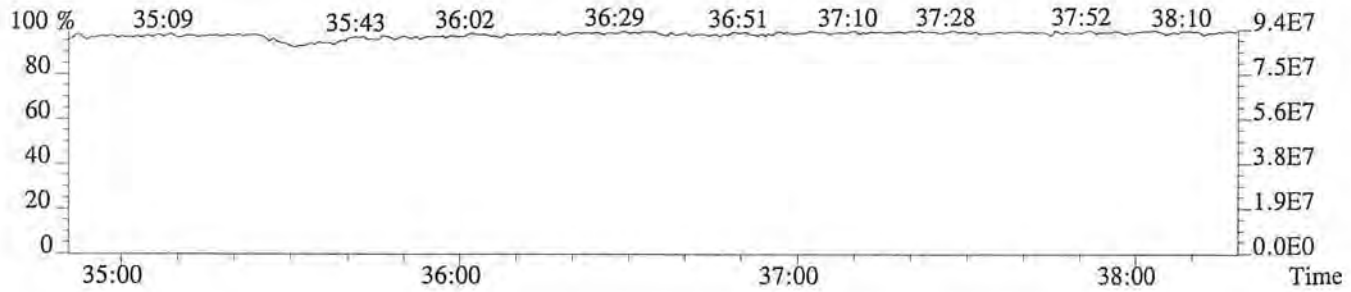
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)



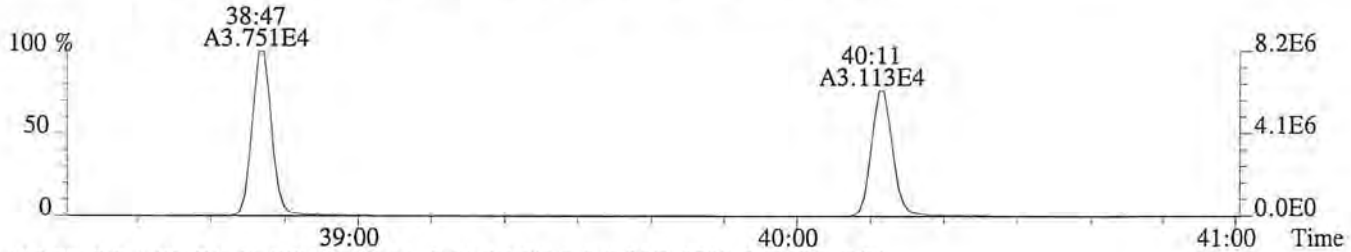
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1652.0,0.40%,F,T)



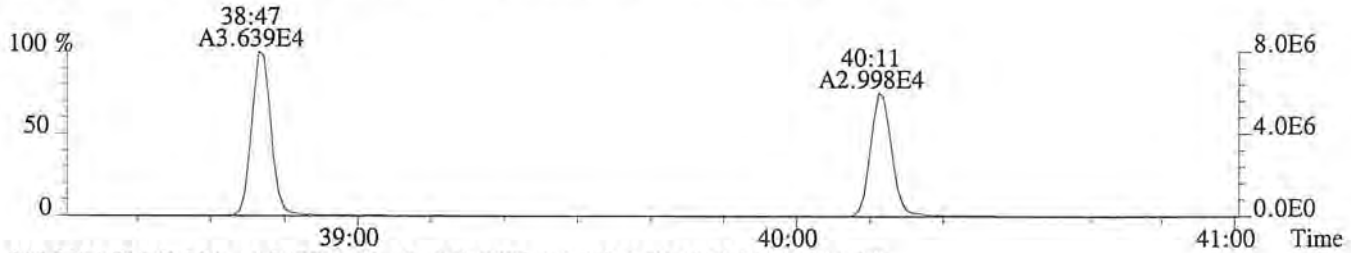
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



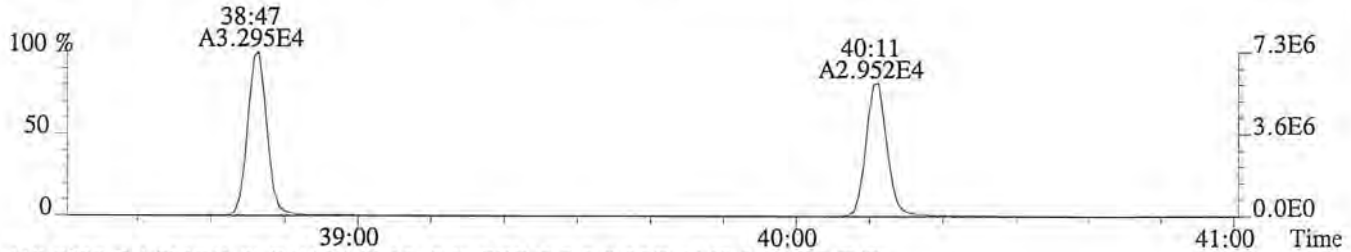
File:P301078 #1-241 Acq:28-AUG-2015 15:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2184.0,0.50%,F,T)



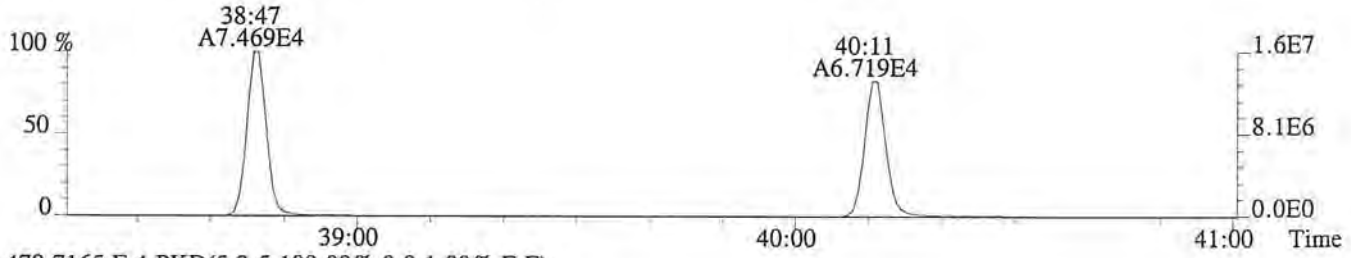
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2928.0,0.50%,F,T)



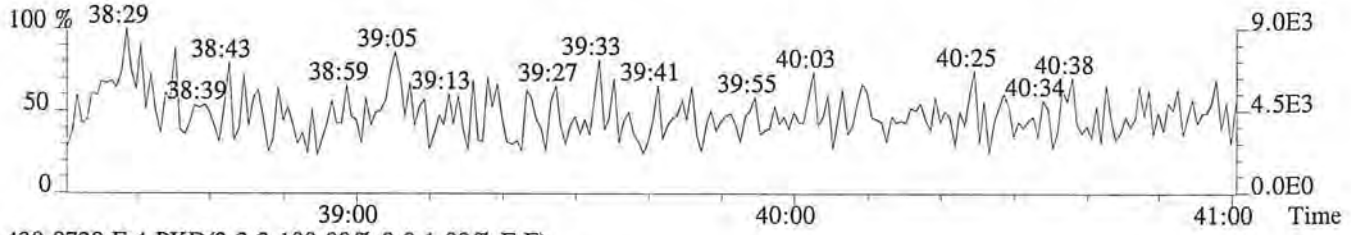
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3964.0,0.50%,F,T)



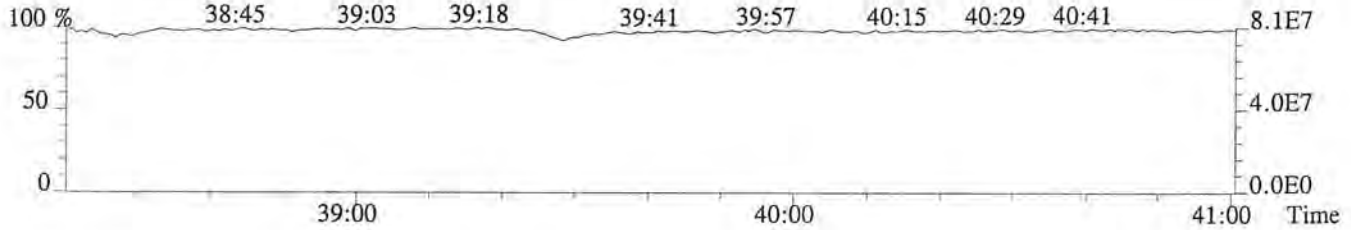
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3168.0,0.50%,F,T)



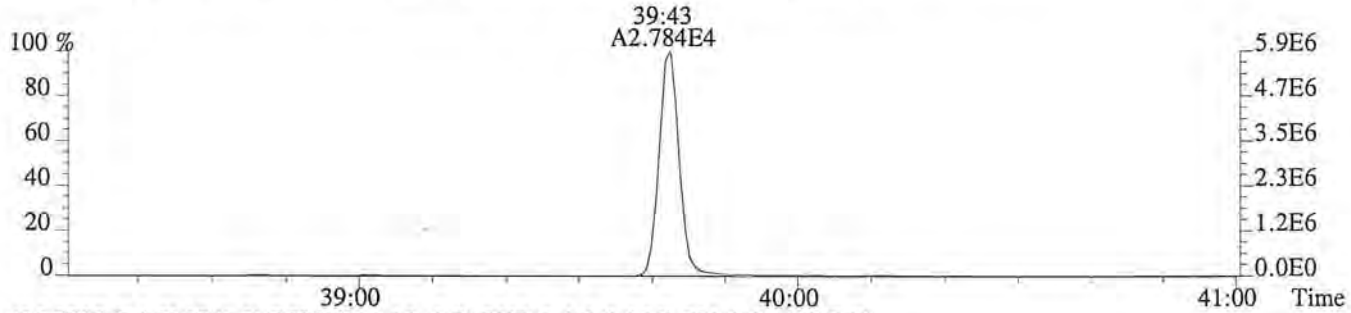
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



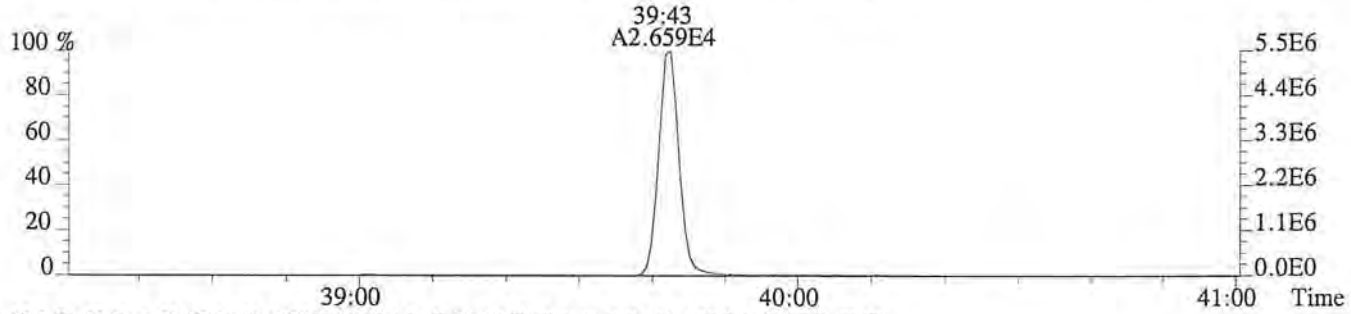
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



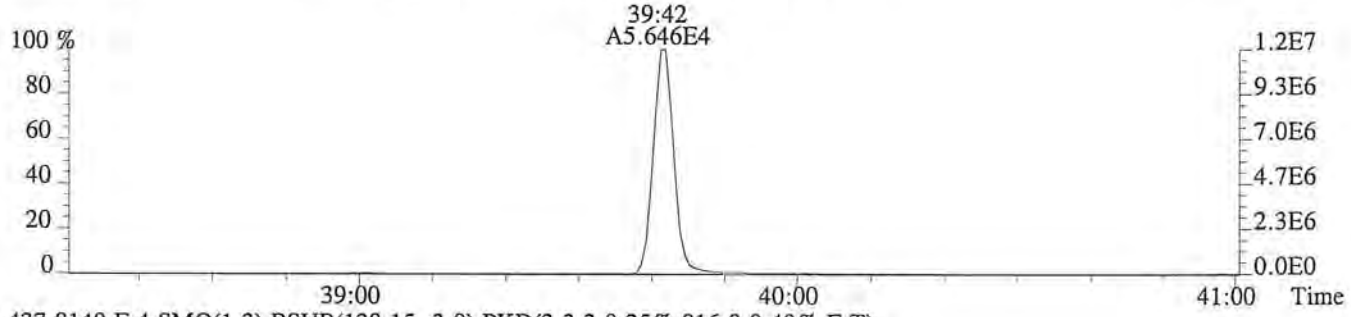
File:P301078 #1-241 Acq:28-AUG-2015 15:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1340.0,0.40%,F,T)



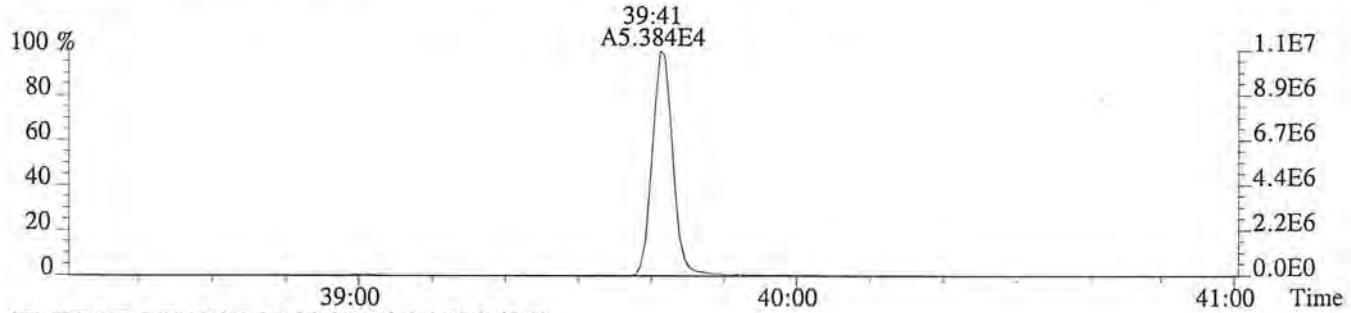
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



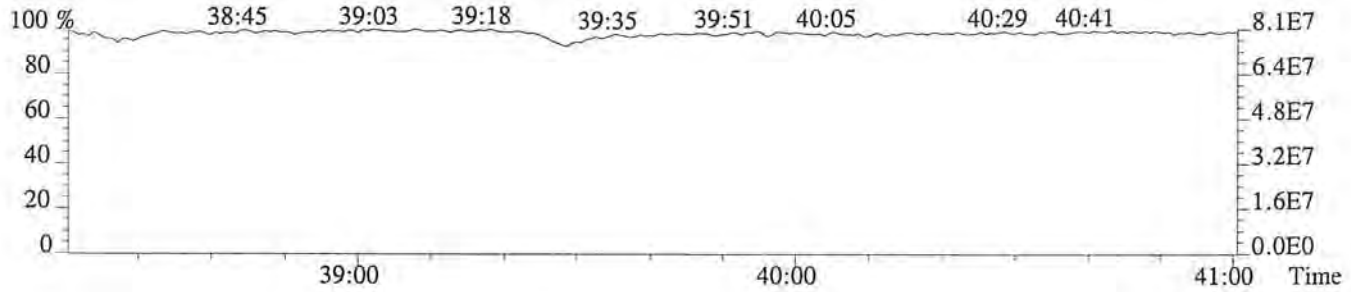
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



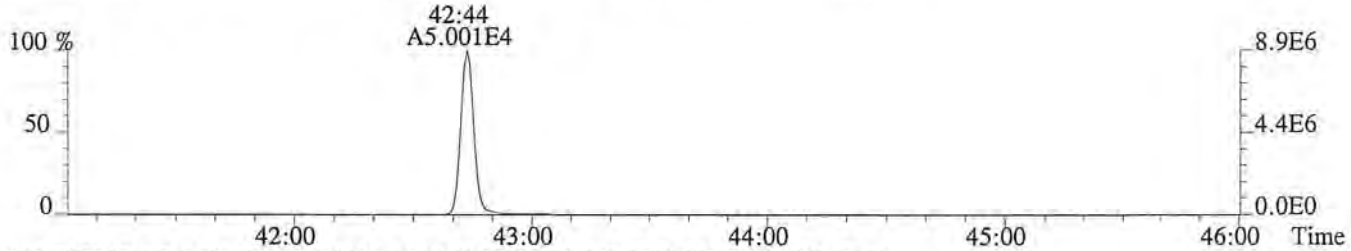
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



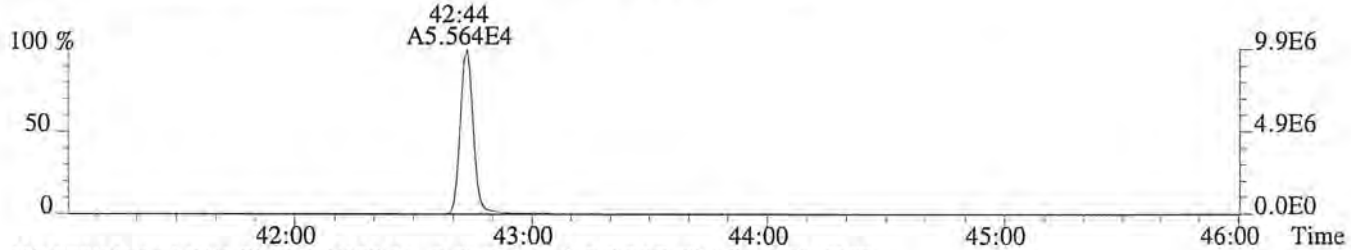
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



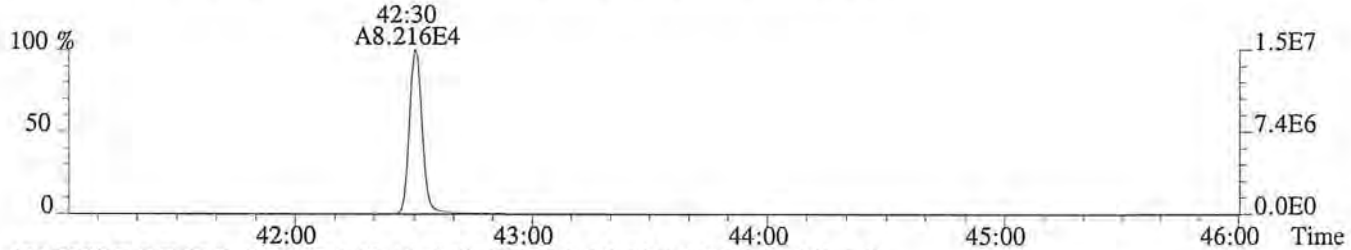
File:P301078 #1-447 Acq:28-AUG-2015 15:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1260.0,0.40%,F,T)



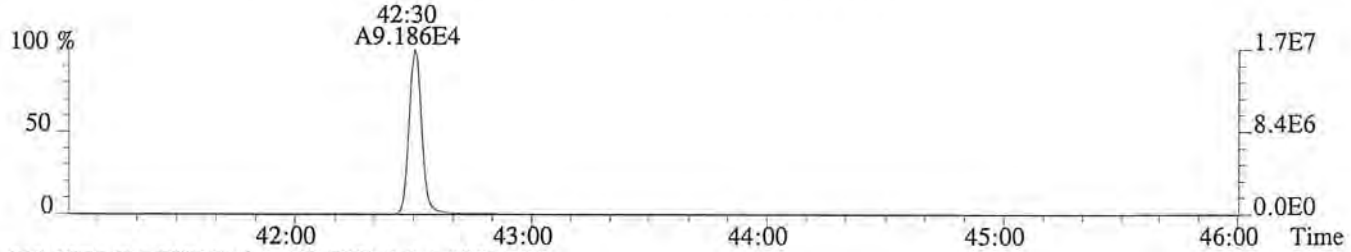
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2136.0,0.40%,F,T)



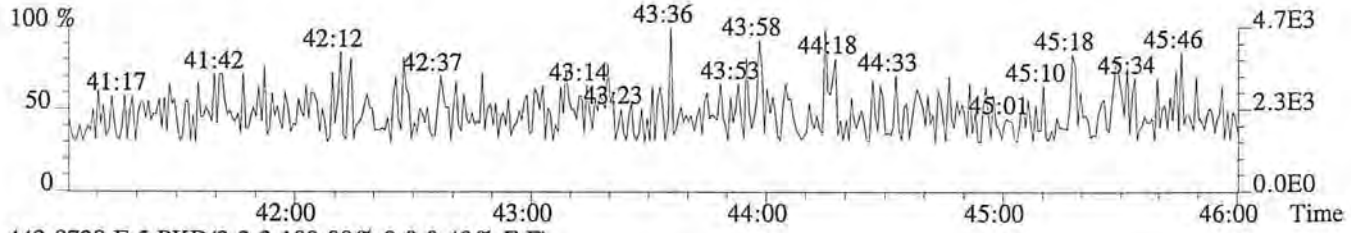
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,924.0,0.40%,F,T)



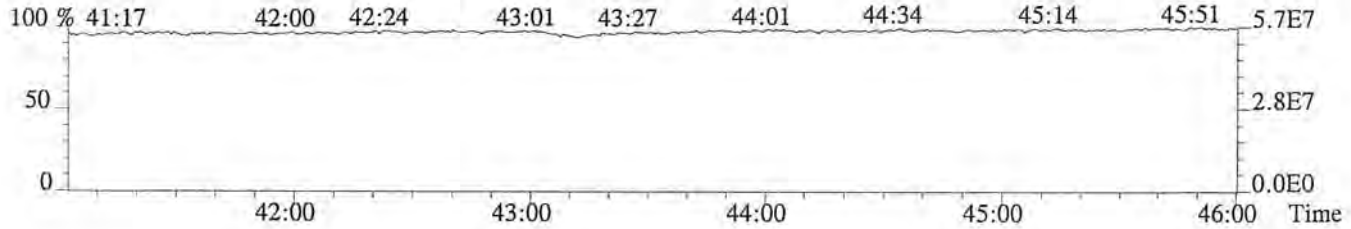
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1248.0,0.40%,F,T)



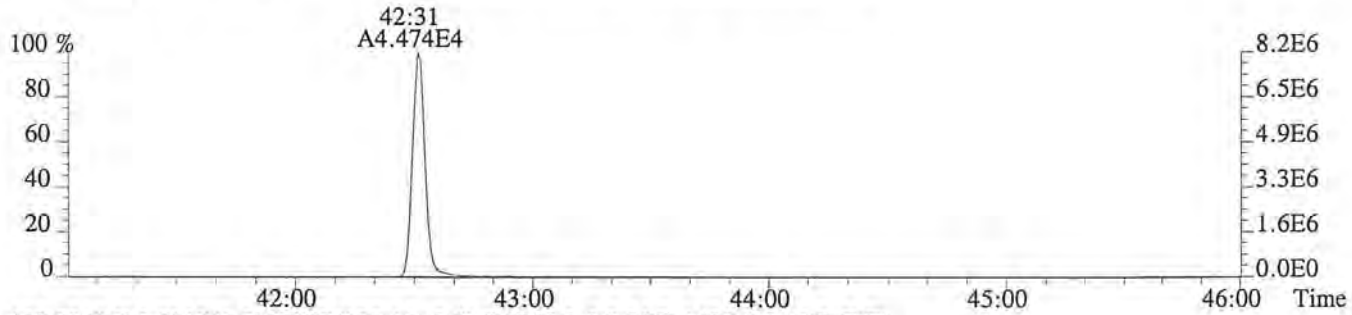
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



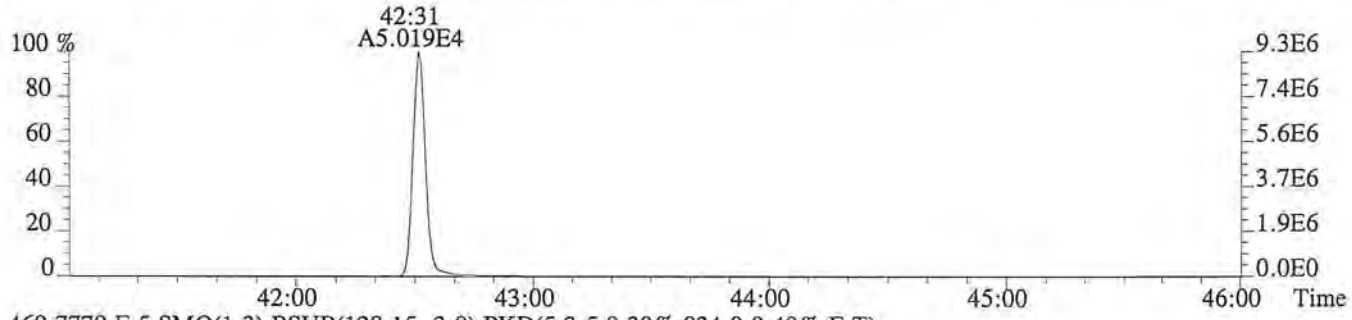
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



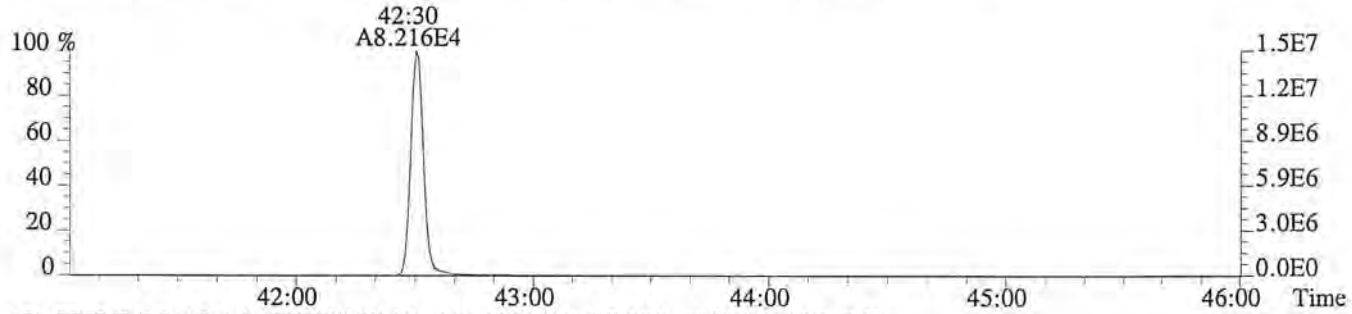
File:P301078 #1-447 Acq:28-AUG-2015 15:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,996.0,0.40%,F,T)



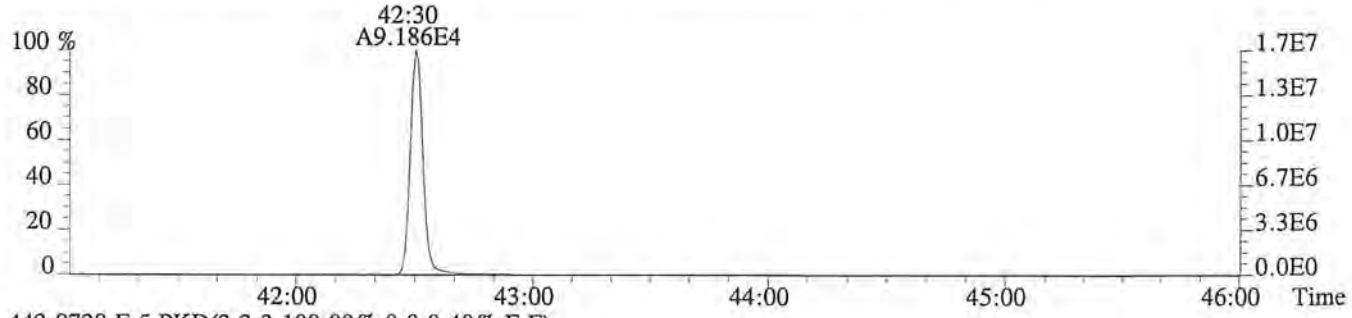
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1428.0,0.40%,F,T)



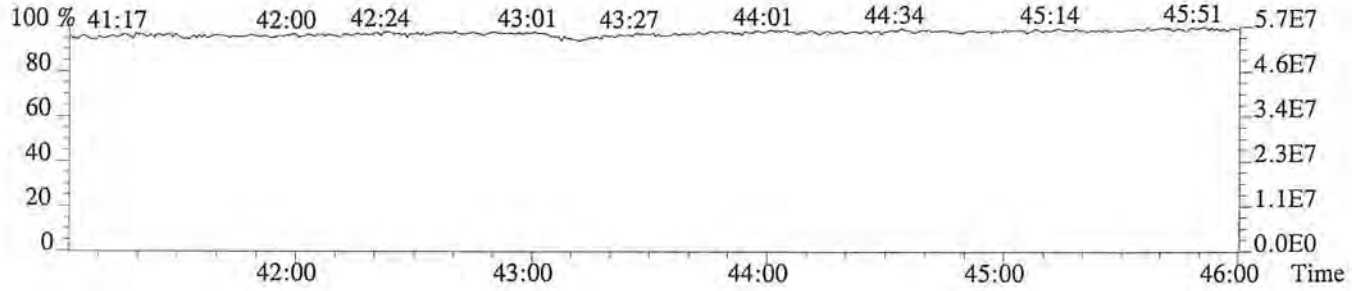
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,924.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1248.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P301091

Circle one: Beginning / Ending

Date: 08/29/15

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DBC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: ALS-TX Case No.: SDG No.:

GC column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-05

Init. Calib. Date: 08/21/15

Init. Calib.Times: 09:55

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
74489	WINDOW DEFINE	P301093	29-AUG-15	05:08:00
79857	CS3	P301091	29-AUG-15	03:30:46
METHOD BLANK	EQ1500499-01	P301094	29-AUG-15	05:56:37
LCS	EQ1500471-02	P301095	29-AUG-15	06:45:14
DLCS	EQ1500471-03	P301096	29-AUG-15	07:33:52
LCS	EQ1500495-02	P301097	29-AUG-15	08:22:29
DLCS	EQ1500495-03	P301098	29-AUG-15	09:11:05
LCS	EQ1500514-02	P301099	29-AUG-15	09:59:43
DLCS	EQ1500514-03	P301100	29-AUG-15	10:48:21

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS05.PRO\SampleDB\20150828B.SPL
Last Modified: Saturday, August 29, 2015 13:12:16 Eastern Daylight Time
Printed: Saturday, August 29, 2015 13:12:29 Eastern Daylight Time

Page Position (1, 1)

OPUS-2 : P301091RES

	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	08/29/15	03:30	P301091	CS3	CS3	Tray1:14	EPA1613_ALS	Dioxin_ALS	TC	HRMS check 15:26
2		04:19	P301092	WINDOW DEFINE	WINDOW DEFINE	Tray1:15	EPA1613_ALS	Dioxin_ALS		
3		05:08	P301093	WINDOW DEFINE	WINDOW DEFINE	Tray1:16	EPA1613_ALS	Dioxin_ALS		
4		05:56	P301094	EQ1500499-01	MB	Tray1:17	EPA1613_ALS	Dioxin_ALS		HRMS check 18:34
5		06:45	P301095	EQ1500471-02	EQ1500471-02	Tray1:18	EPA1613_ALS	Dioxin_ALS		
6		07:33	P301096	EQ1500471-03	EQ1500471-03	Tray1:19	EPA1613_ALS	Dioxin_ALS		
7		08:22	P301097	EQ1500495-02	EQ1500495-02	Tray1:20	EPA1613_ALS	Dioxin_ALS		
8		09:11	P301098	EQ1500495-03	EQ1500495-03	Tray1:21	EPA1613_ALS	Dioxin_ALS		
9		09:59	P301099	EQ1500514-02	EQ1500514-02	Tray1:22	EPA1613_ALS	Dioxin_ALS		
10		10:48	P301100	EQ1500514-03	EQ1500514-03	Tray1:23	EPA1613_ALS	Dioxin_ALS		HRMS check 11:45
11			---	---	---	Tray1:11	EPA1613_ALS	Dioxin_ALS		
12			---	---	---	Tray1:12	EPA1613_ALS	Dioxin_ALS		
13			---	---	---	Tray1:13	EPA1613_ALS	Dioxin_ALS		
14			---	---	---	Tray1:14	EPA1613_ALS	Dioxin_ALS		
15			---	---	---	Tray1:15	EPA1613_ALS	Dioxin_ALS		
16	---	---	---	---	---	Tray1:16	EPA1613_ALS	Dioxin_ALS	---	---
17			---	---	---	Tray1:17	EPA1613_ALS	Dioxin_ALS		
18	---	---	---	---	---	Tray1:18	EPA1613_ALS	Dioxin_ALS	---	---
19			---	---	---	Tray1:19	EPA1613_ALS	Dioxin_ALS		
20	---	---	---	---	---	Tray1:20	EPA1613_ALS	Dioxin_ALS	---	---
21	---	---	---	---	---	Tray1:21	EPA1613_ALS	Dioxin_ALS	---	---
22	---	---	---	---	---	Tray1:22	EPA1613_ALS	Dioxin_ALS	---	---
23	---	---	---	---	---	Tray1:23	EPA1613_ALS	Dioxin_ALS	---	---
24	---	---	---	---	---	Tray1:24	EPA1613_ALS	Dioxin_ALS	---	---
25	---	---	---	---	---	Tray1:25	EPA1613_ALS	Dioxin_ALS	---	---
26	---	---	---	---	---	Tray1:26	EPA1613_ALS	Dioxin_ALS	---	---
27	---	---	---	---	---	Tray1:27	EPA1613_ALS	Dioxin_ALS	---	---
28	---	---	---	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
29	---	---	---	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
30	---	---	---	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
31	---	---	---	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
32	---	---	---	---	---	Tray1:32	EPA1613_ALS	Dioxin_ALS	---	---
33	---	---	---	---	---	Tray1:33	EPA1613_ALS	Dioxin_ALS	---	---
34	---	---	---	---	---	Tray1:34	EPA1613_ALS	Dioxin_ALS	---	---
35	---	---	---	---	---	Tray1:35	EPA1613_ALS	Dioxin_ALS	---	---
36	---	---	---	---	---	Tray1:36	EPA1613_ALS	Dioxin_ALS	---	---
37	---	---	---	---	---	Tray1:37	EPA1613_ALS	Dioxin_ALS	---	---
38	---	---	---	---	---	Tray1:38	EPA1613_ALS	Dioxin_ALS	---	---
39	---	---	---	---	---	Tray1:39	EPA1613_ALS	Dioxin_ALS	---	---

TC 08/31/15

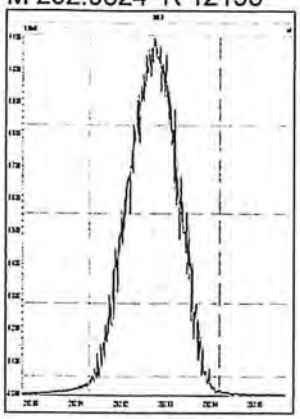
987

Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

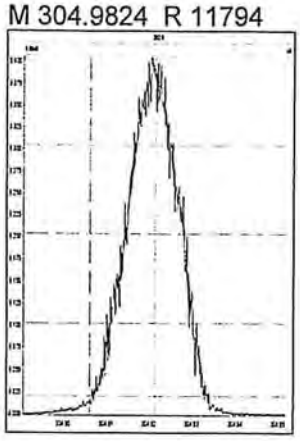
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, August 28, 2015 15:26:39 Eastern Daylight Time

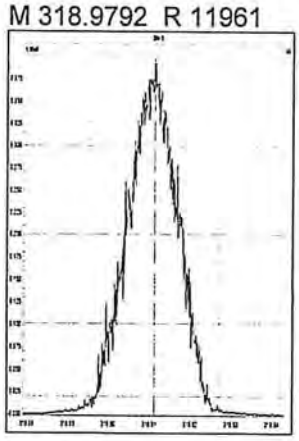
M 292.9824 R 12193



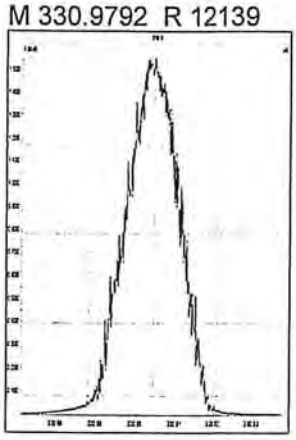
M 304.9824 R 11794



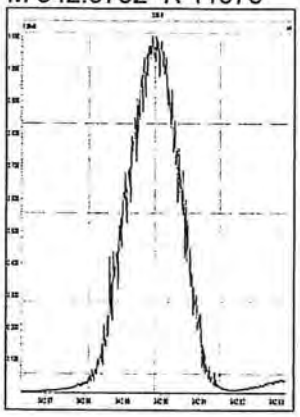
M 318.9792 R 11961



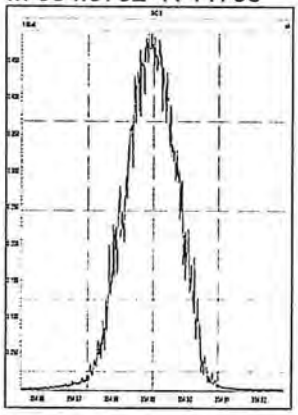
M 330.9792 R 12139



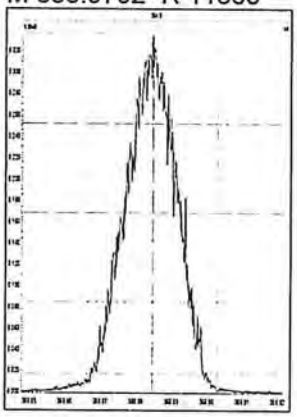
M 342.9792 R 11575



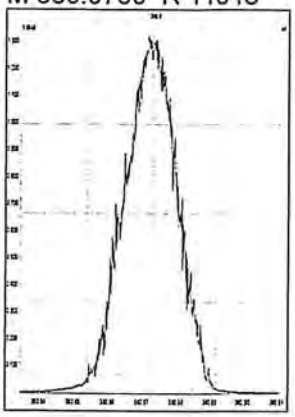
M 354.9792 R 11796



M 366.9792 R 11365



M 380.9760 R 11848

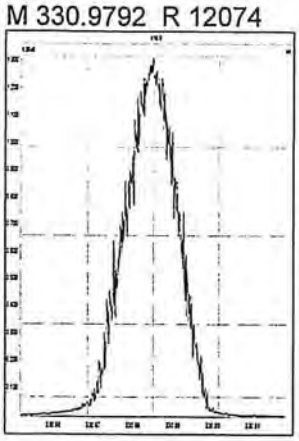


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

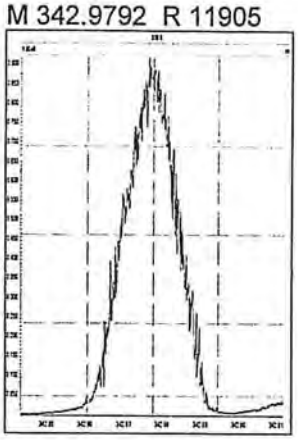
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, August 28, 2015 15:27:15 Eastern Daylight Time

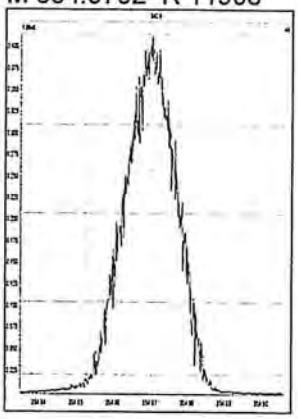
M 330.9792 R 12074



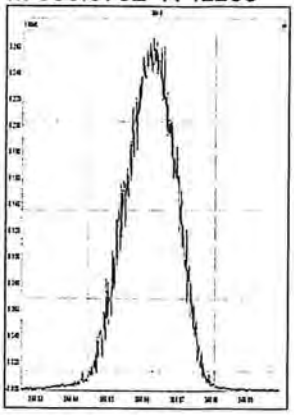
M 342.9792 R 11905



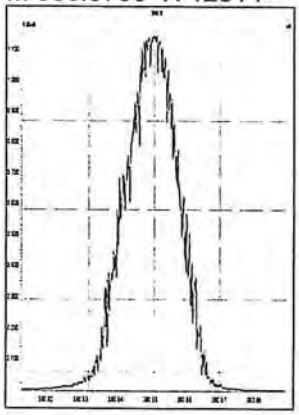
M 354.9792 R 11908



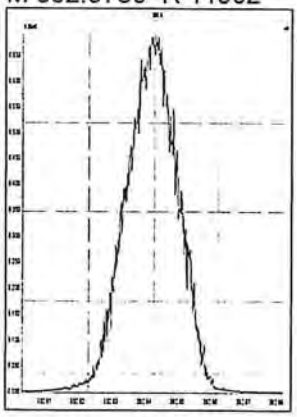
M 366.9792 R 12256



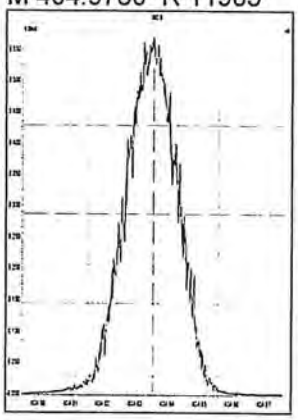
M 380.9760 R 12314



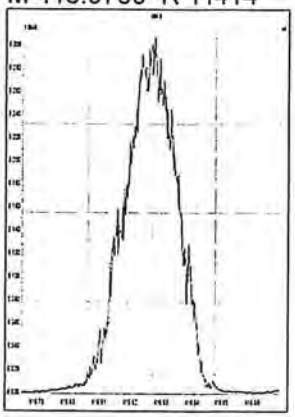
M 392.9760 R 11902



M 404.9760 R 11905



M 416.9760 R 11414

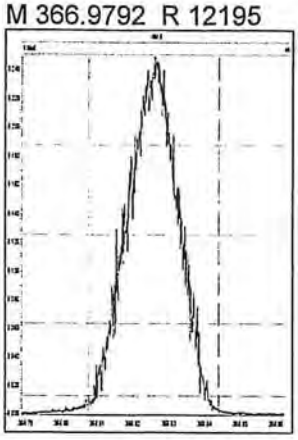


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

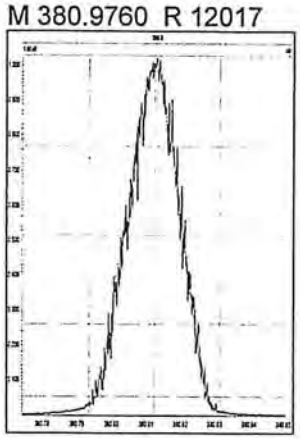
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, August 28, 2015 15:27:58 Eastern Daylight Time

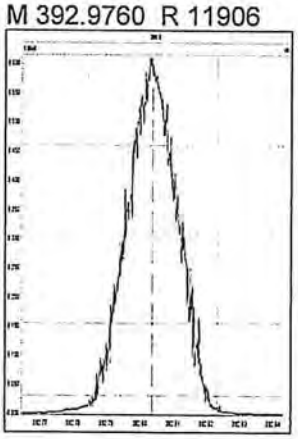
M 366.9792 R 12195



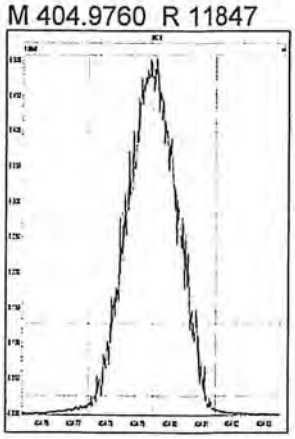
M 380.9760 R 12017



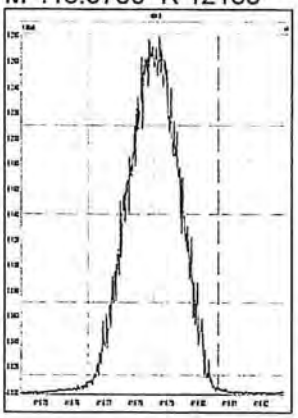
M 392.9760 R 11906



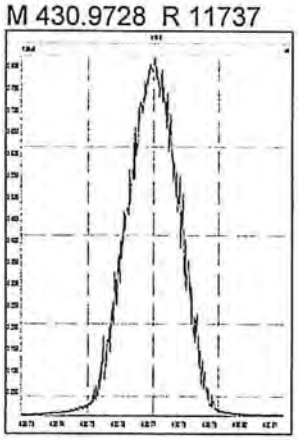
M 404.9760 R 11847



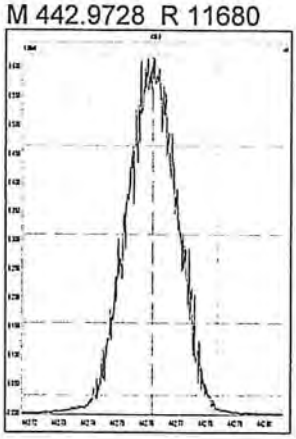
M 416.9760 R 12133



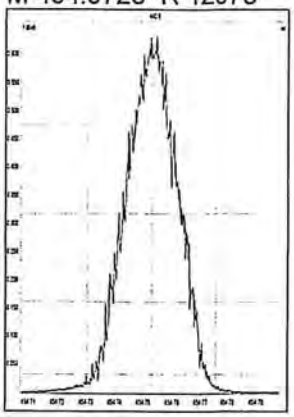
M 430.9728 R 11737



M 442.9728 R 11680



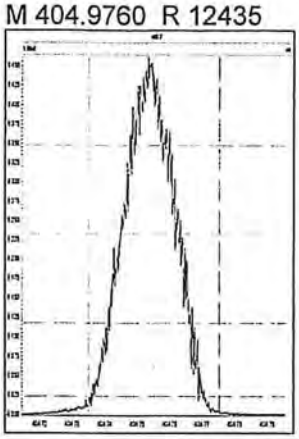
M 454.9728 R 12078



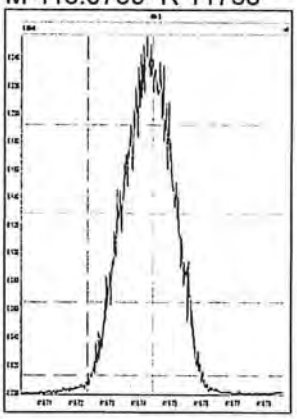
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, August 28, 2015 15:28:32 Eastern Daylight Time

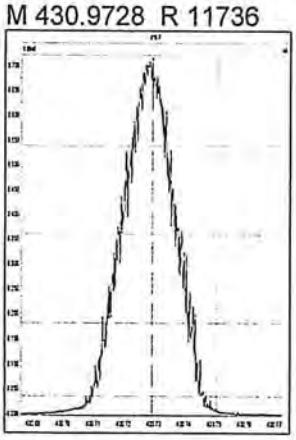
M 404.9760 R 12435



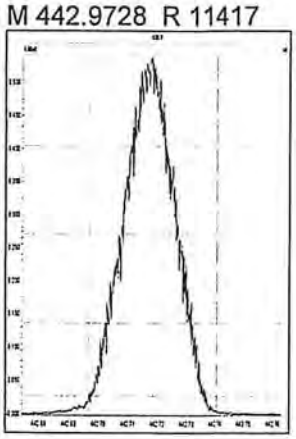
M 416.9760 R 11788



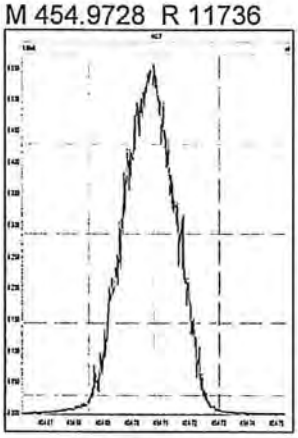
M 430.9728 R 11736



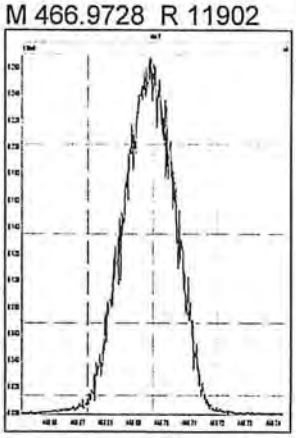
M 442.9728 R 11417



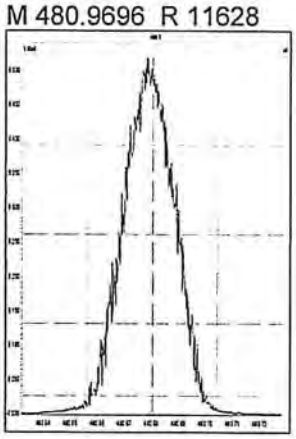
M 454.9728 R 11736



M 466.9728 R 11902



M 480.9696 R 11628

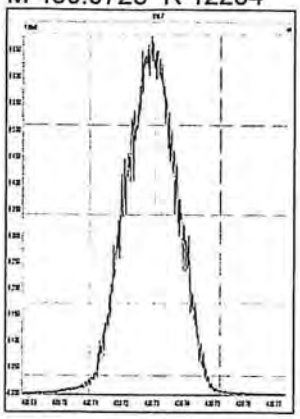


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

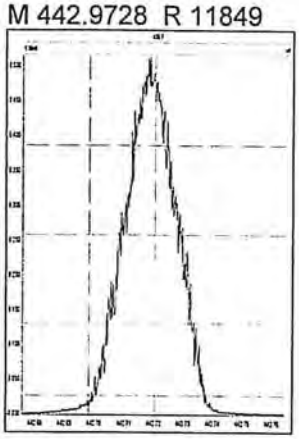
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, August 28, 2015 15:29:05 Eastern Daylight Time

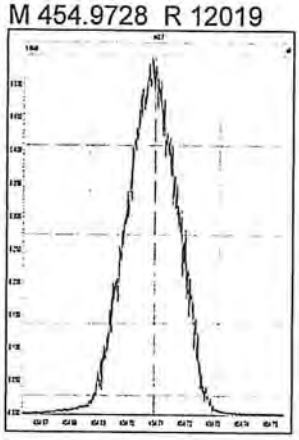
M 430.9728 R 12254



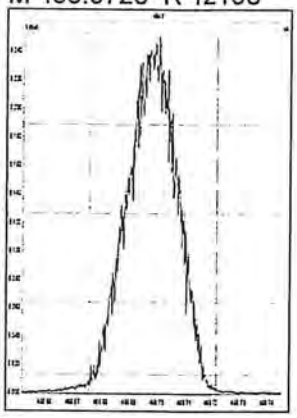
M 442.9728 R 11849



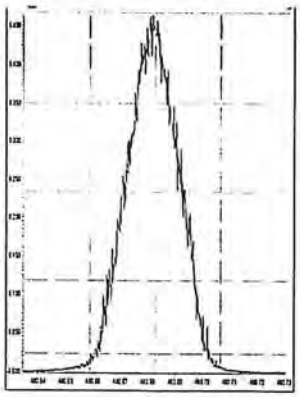
M 454.9728 R 12019



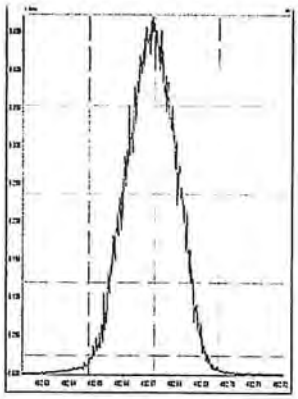
M 466.9728 R 12193



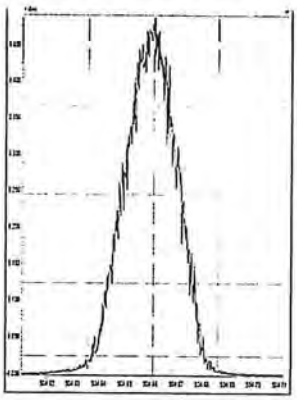
M 480.9696 R 11905



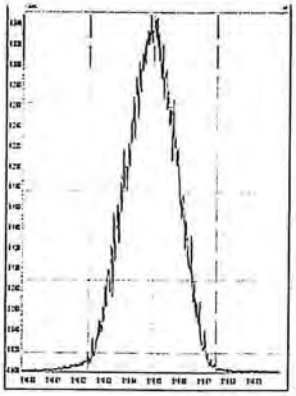
M 492.9696 R 11795



M 504.9696 R 11571



M 516.9697 R 11580

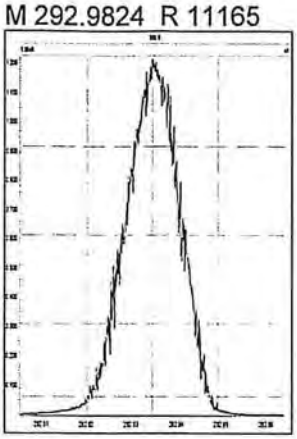


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

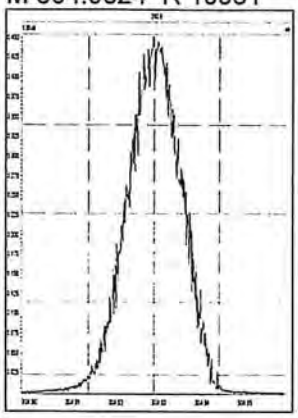
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, August 28, 2015 18:34:11 Eastern Daylight Time

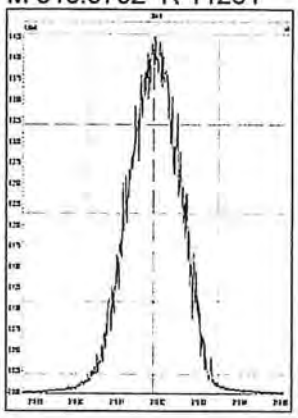
M 292.9824 R 11165



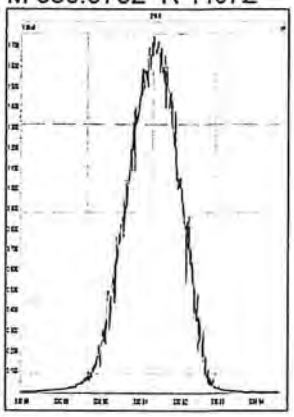
M 304.9824 R 10961



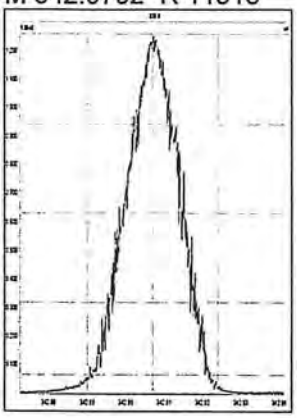
M 318.9792 R 11261



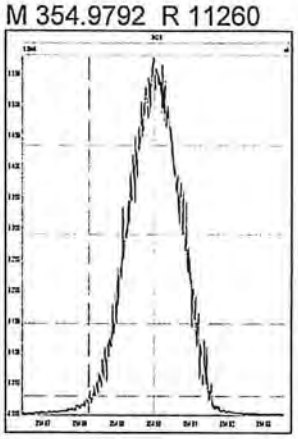
M 330.9792 R 11572



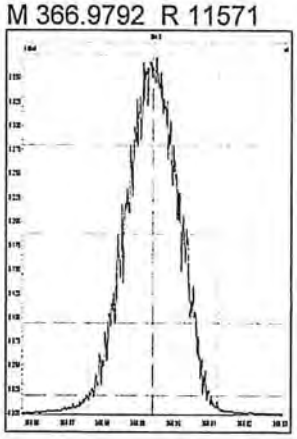
M 342.9792 R 11313



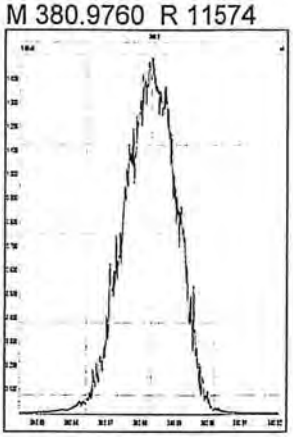
M 354.9792 R 11260



M 366.9792 R 11571



M 380.9760 R 11574

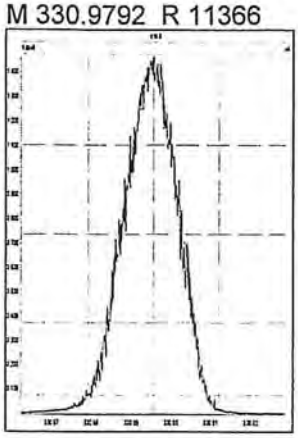


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

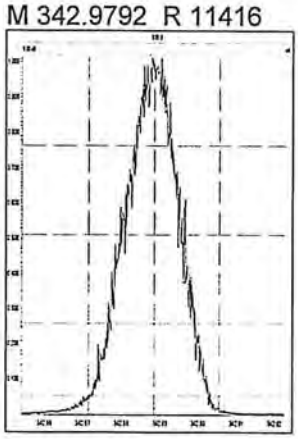
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, August 28, 2015 18:34:46 Eastern Daylight Time

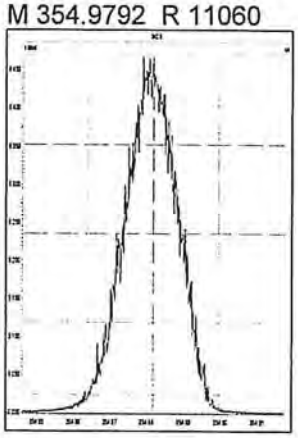
M 330.9792 R 11366



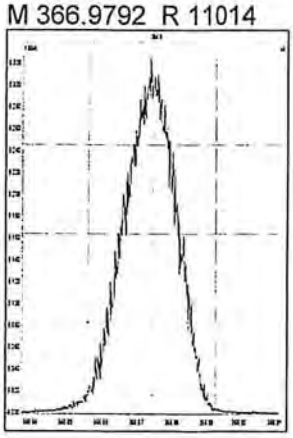
M 342.9792 R 11416



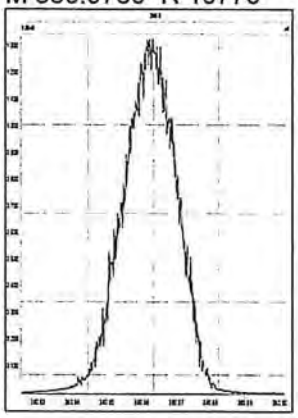
M 354.9792 R 11060



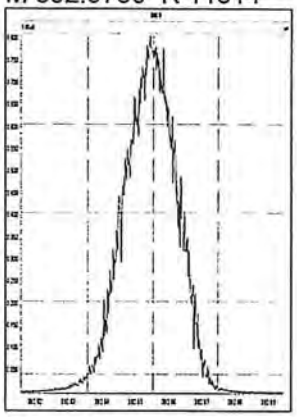
M 366.9792 R 11014



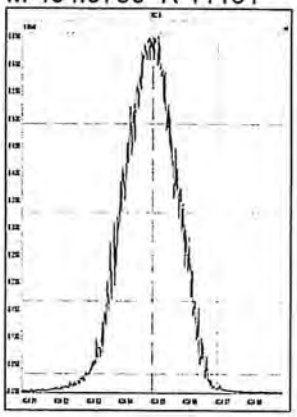
M 380.9760 R 10775



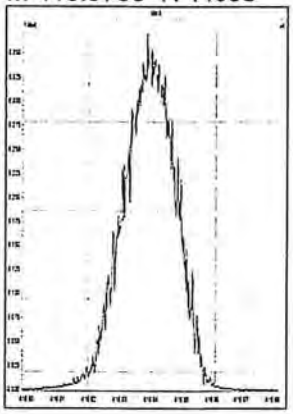
M 392.9760 R 11314



M 404.9760 R 11161



M 416.9760 R 11908

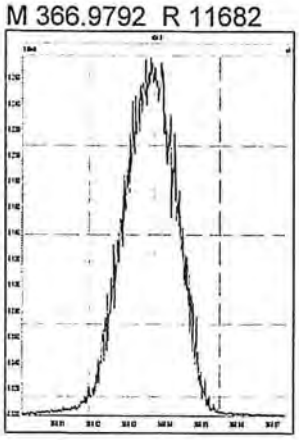


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

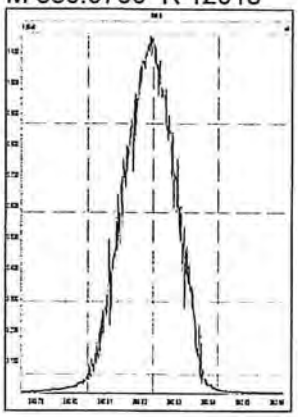
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, August 28, 2015 18:35:21 Eastern Daylight Time

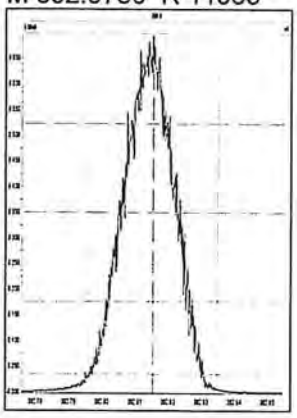
M 366.9792 R 11682



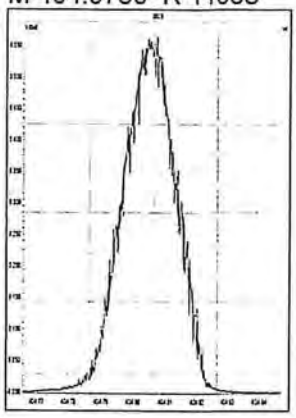
M 380.9760 R 12018



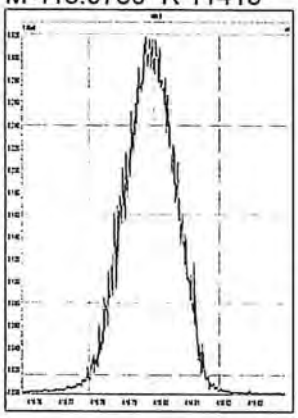
M 392.9760 R 11963



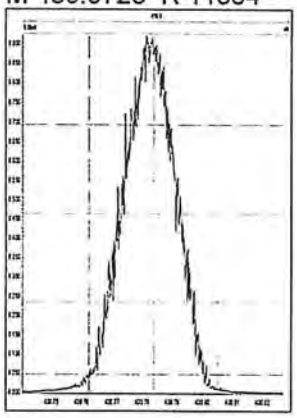
M 404.9760 R 11686



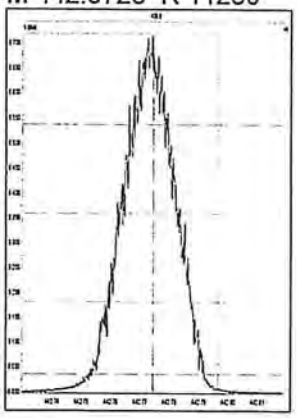
M 416.9760 R 11413



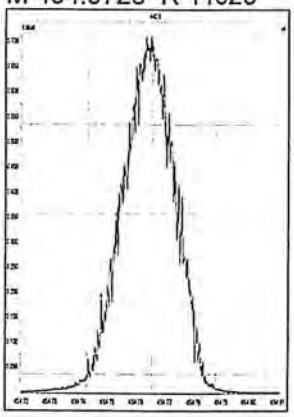
M 430.9728 R 11364



M 442.9728 R 11260



M 454.9728 R 11629

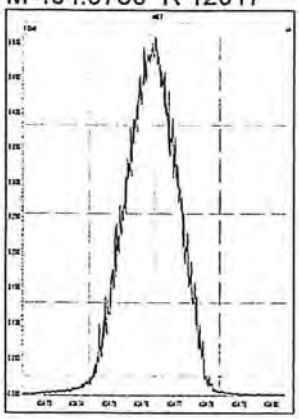


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

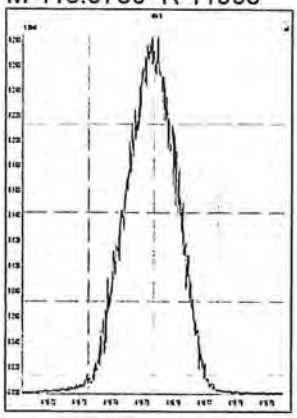
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, August 28, 2015 18:35:54 Eastern Daylight Time

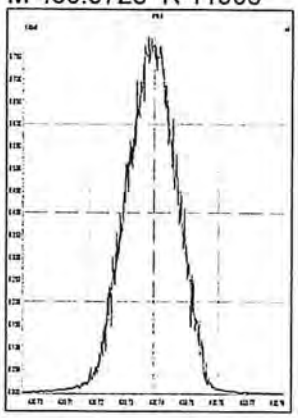
M 404.9760 R 12017



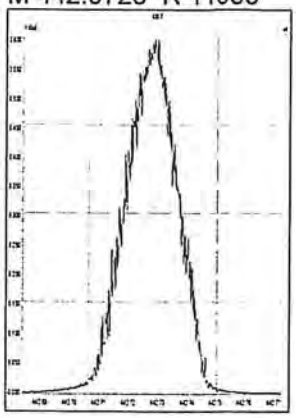
M 416.9760 R 11905



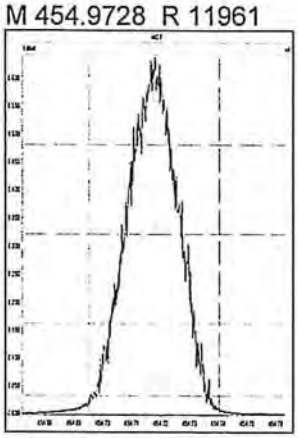
M 430.9728 R 11908



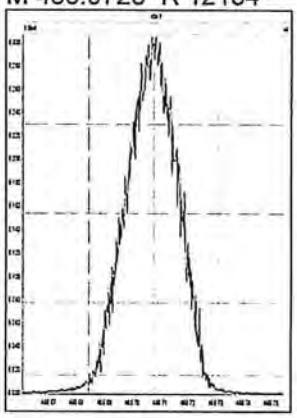
M 442.9728 R 11959



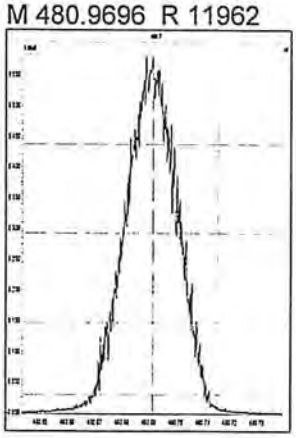
M 454.9728 R 11961



M 466.9728 R 12134



M 480.9696 R 11962

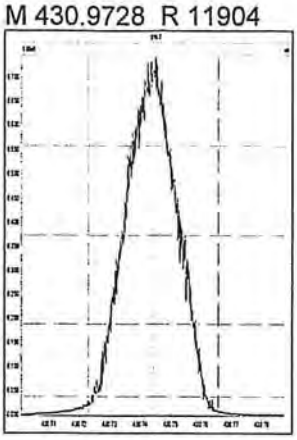


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

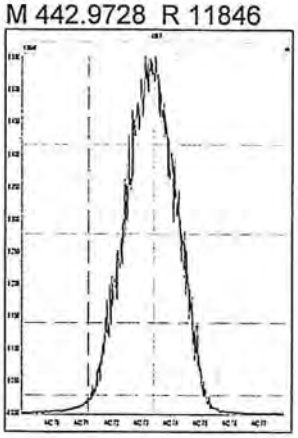
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, August 28, 2015 18:36:27 Eastern Daylight Time

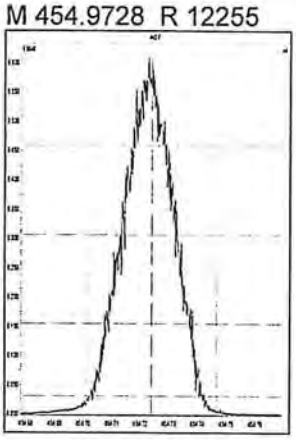
M 430.9728 R 11904



M 442.9728 R 11846



M 454.9728 R 12255



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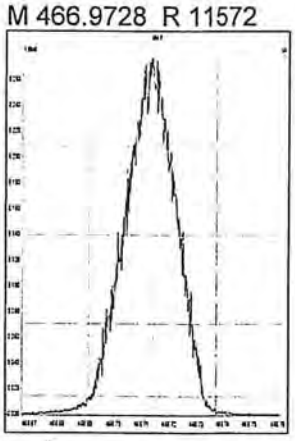

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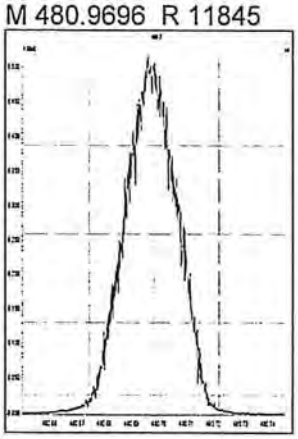

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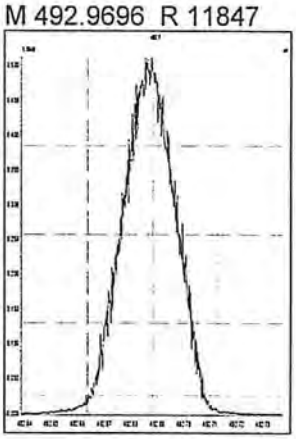

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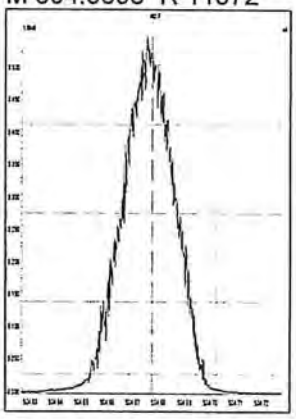
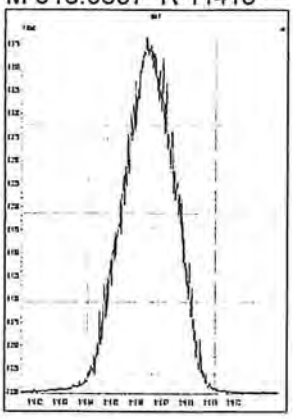


M 516.9697 R 11415



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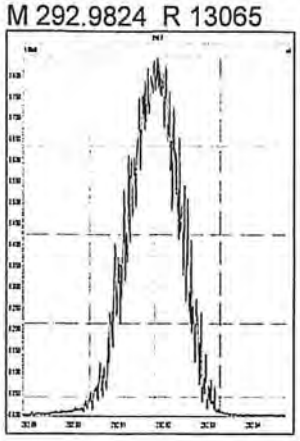
M 292.9824 R 13065



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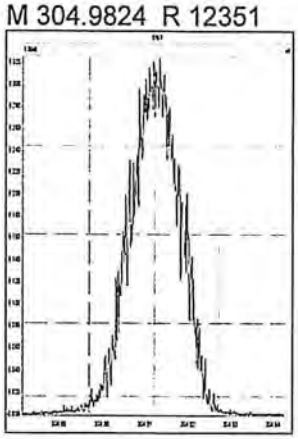

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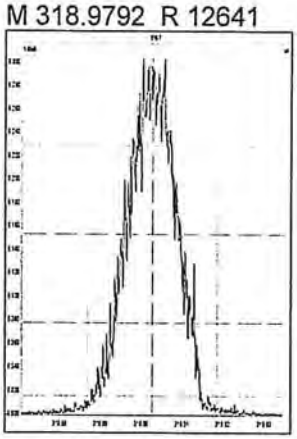

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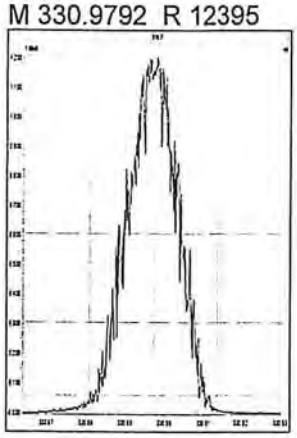

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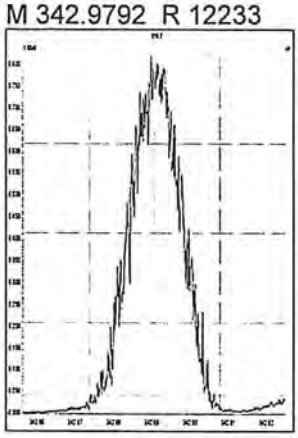

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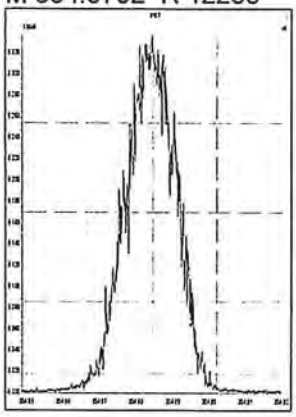
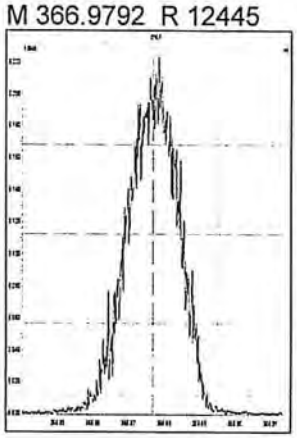


M 366.9792 R 12445



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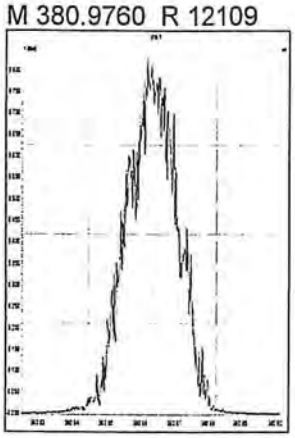

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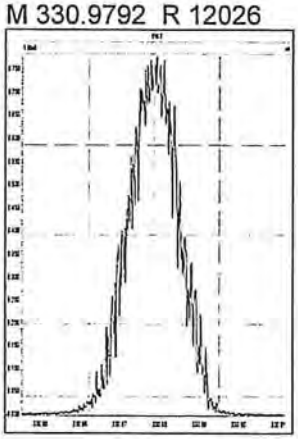

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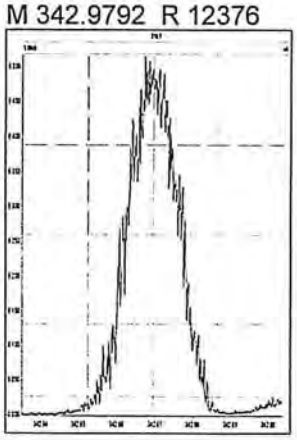

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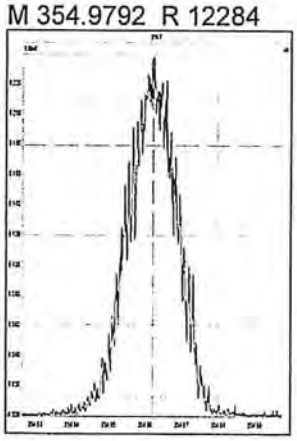

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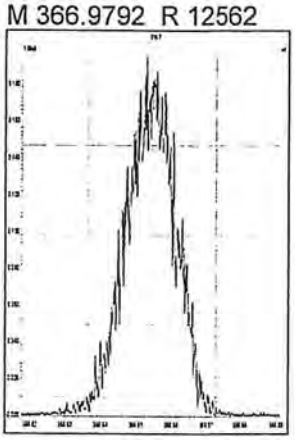
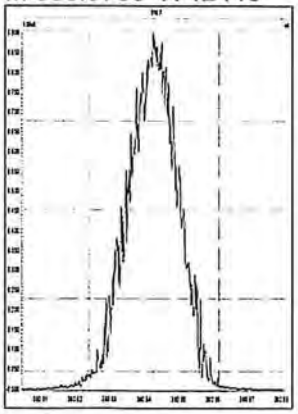


M 380.9760 R 12448



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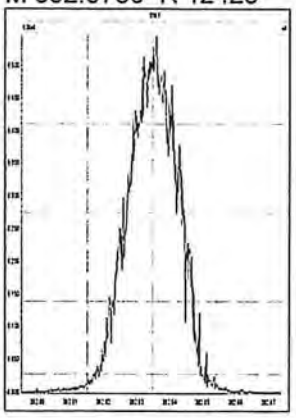
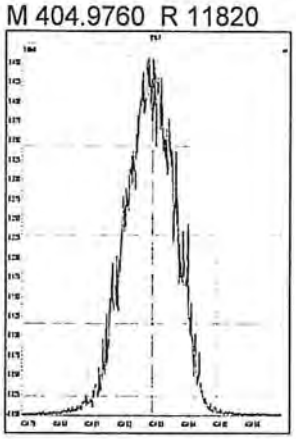
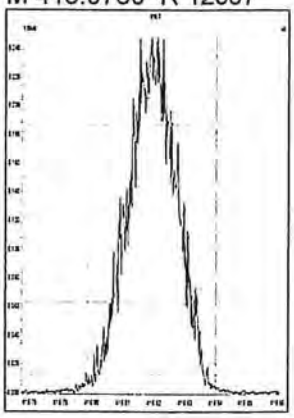


M 404.9760 R 11820



M 416.9760 R 12387



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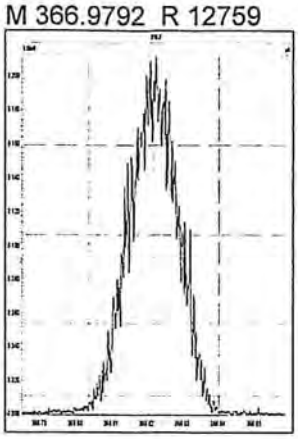

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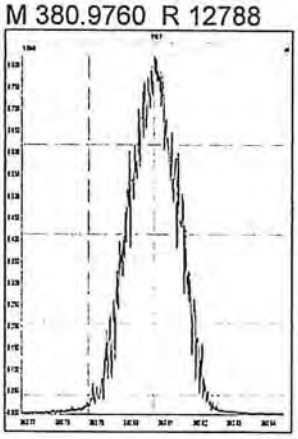

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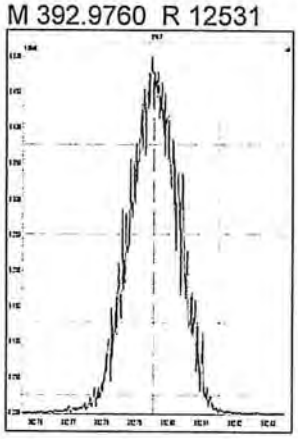

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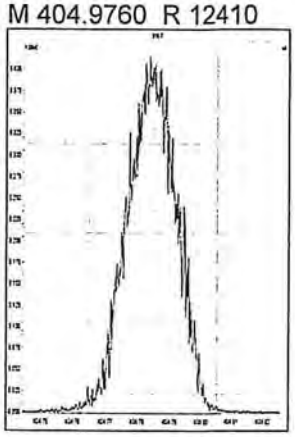

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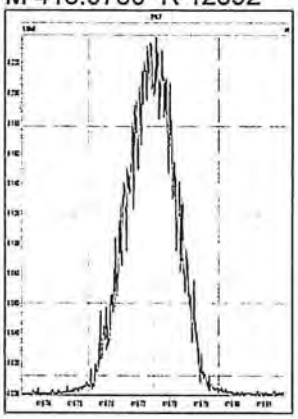

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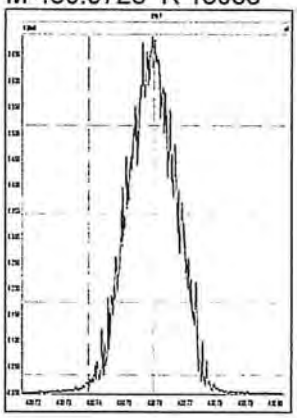
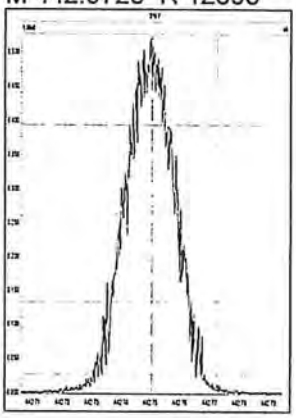


M 442.9728 R 12693



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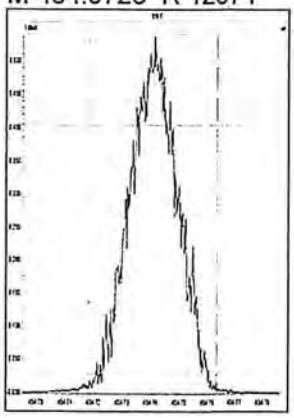

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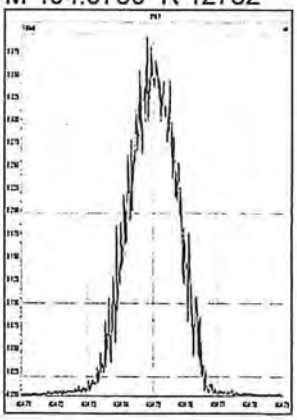

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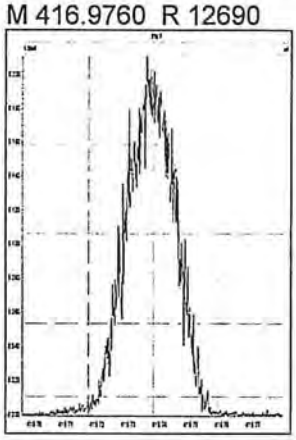

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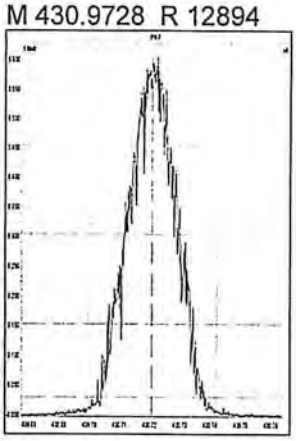

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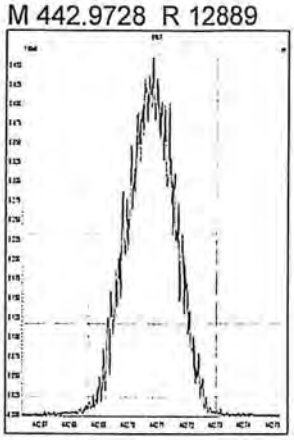

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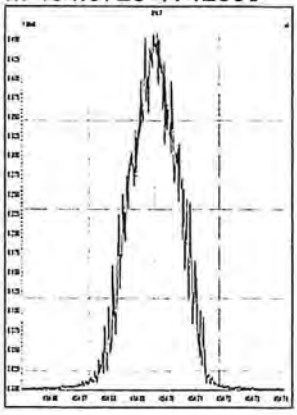

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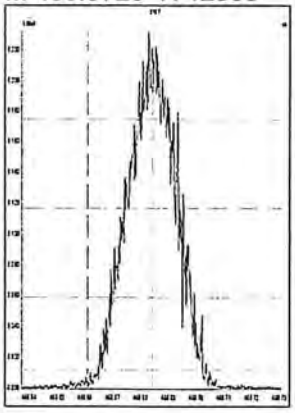

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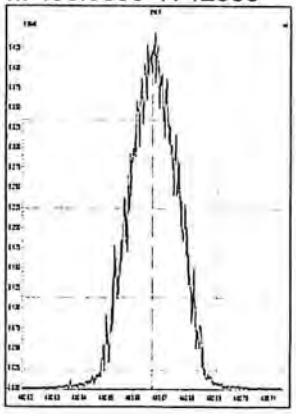

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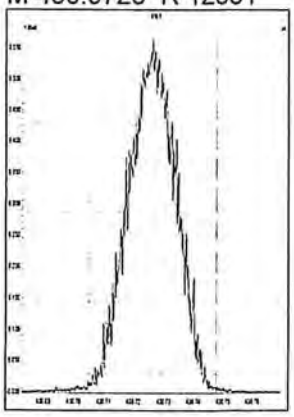

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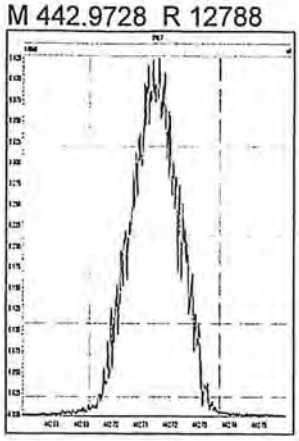

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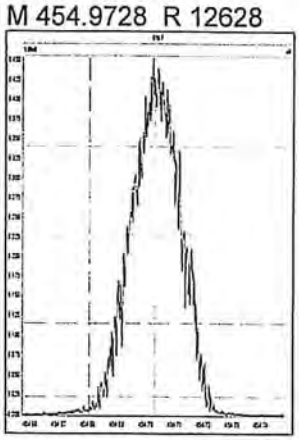

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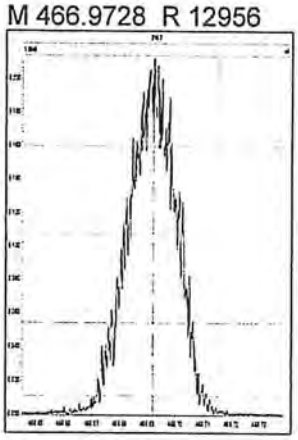

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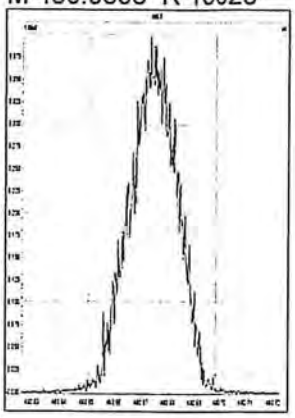

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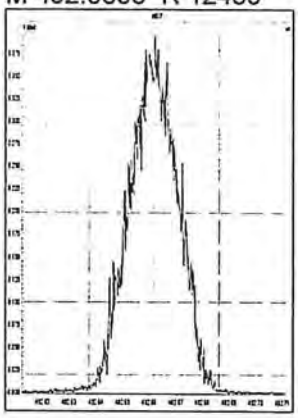

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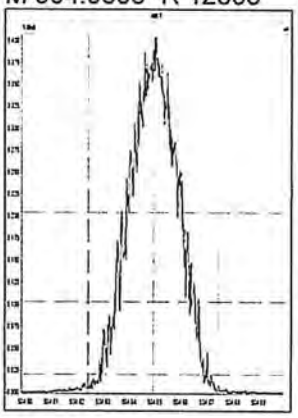

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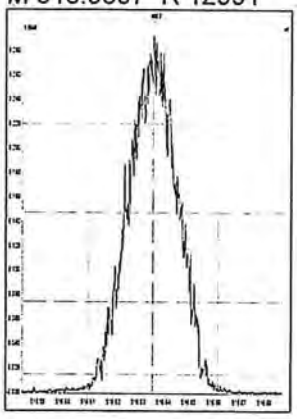


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

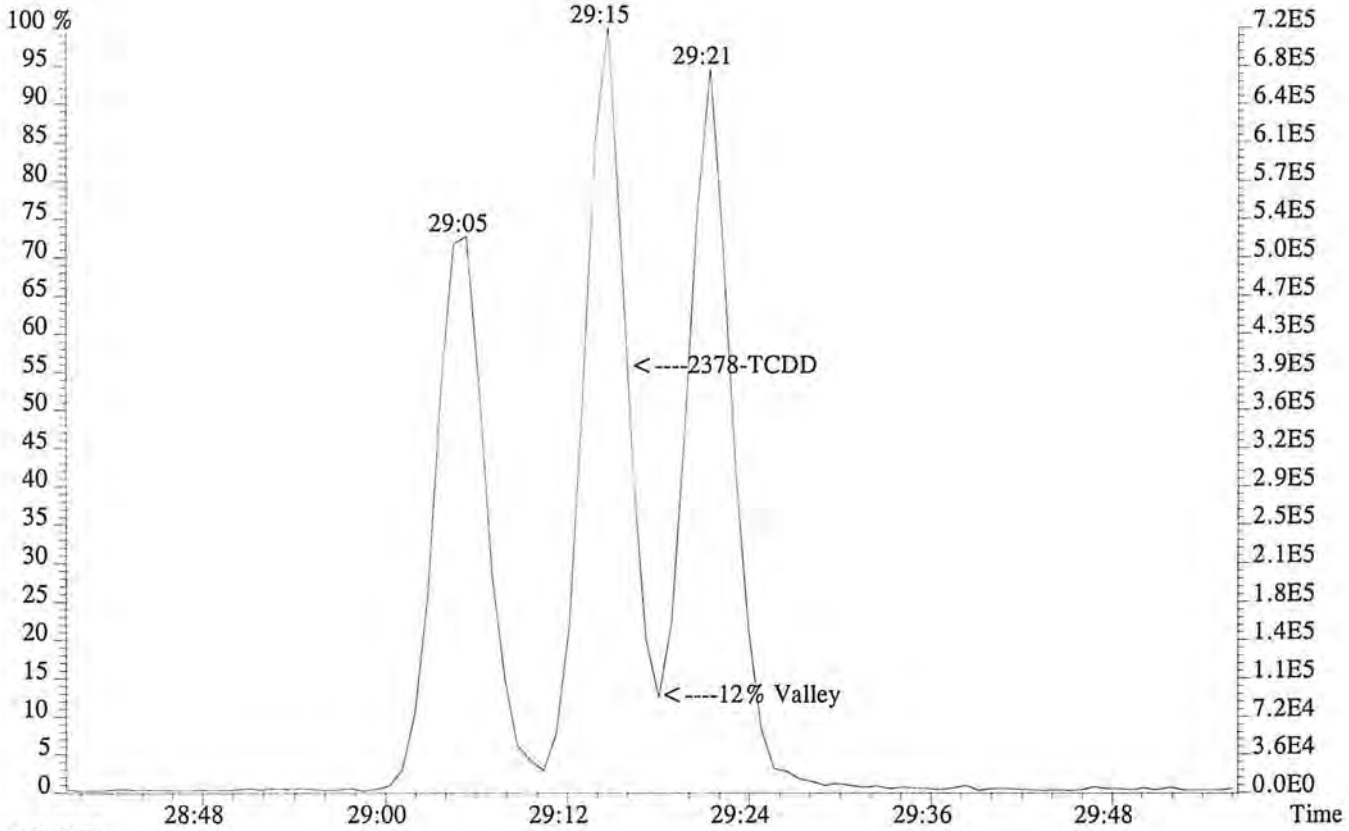
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P301093
Date Analyzed: 29-AUG-2015
Time Analyzed: 05:08:00

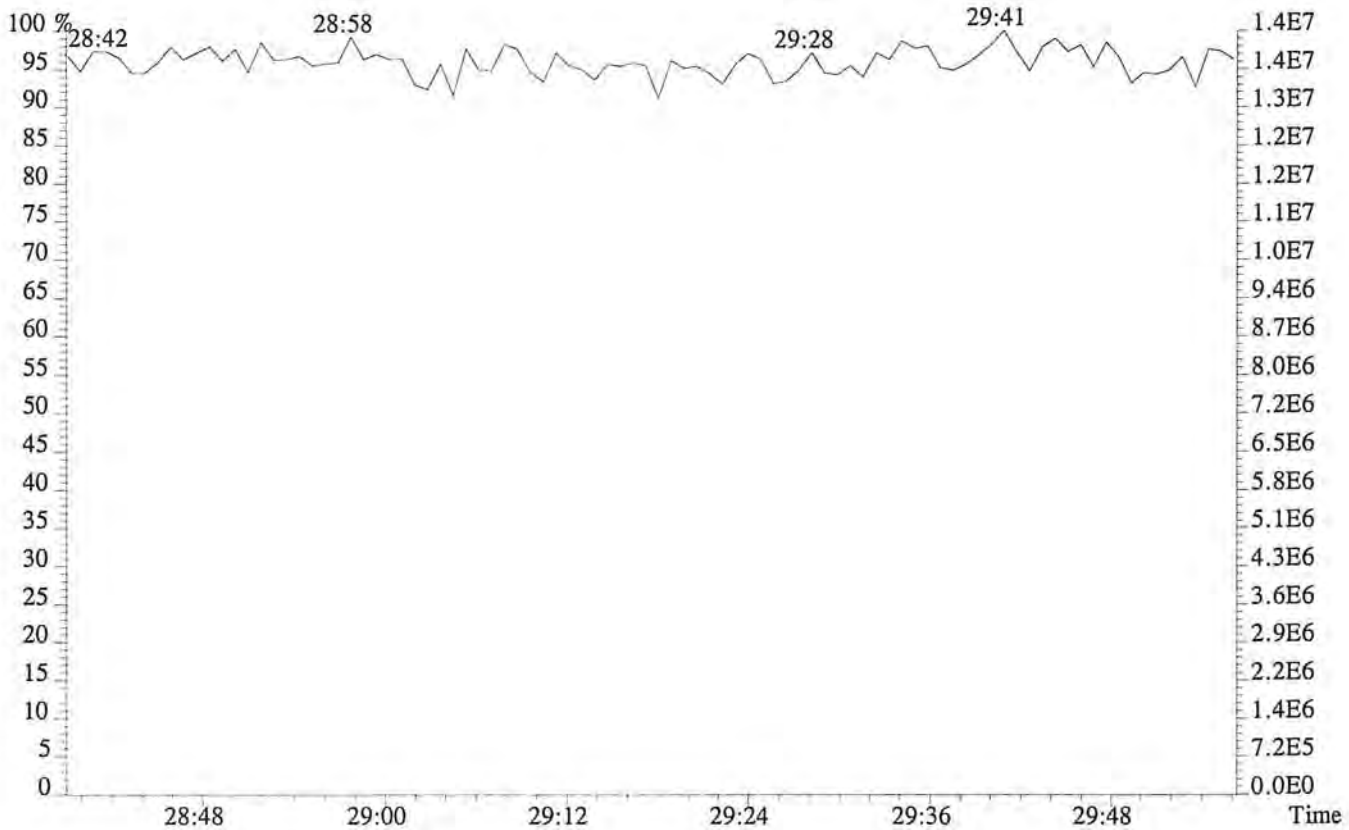
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:13	30:22
TCDD	26:04	30:12
PeCDF	30:18	34:27
PeCDD	31:47	34:12
HxCDF	35:06	37:34
HxCDD	35:36	37:10
HpCDF	38:46	40:11
HpCDD	39:01	39:42

% Valley 2378-TCDD: 12

File:P301093 #1-591 Acq:29-AUG-2015 05:08:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



318.9792



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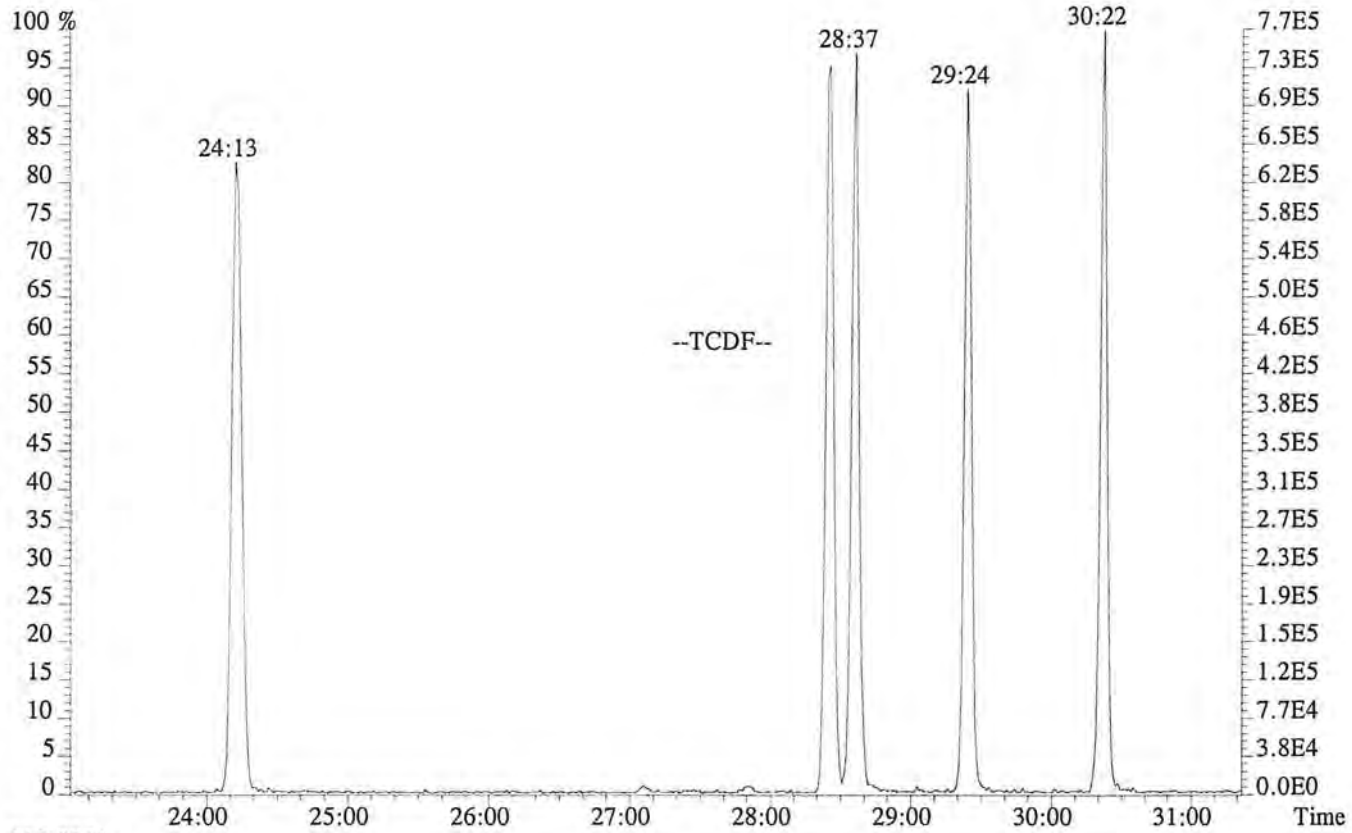
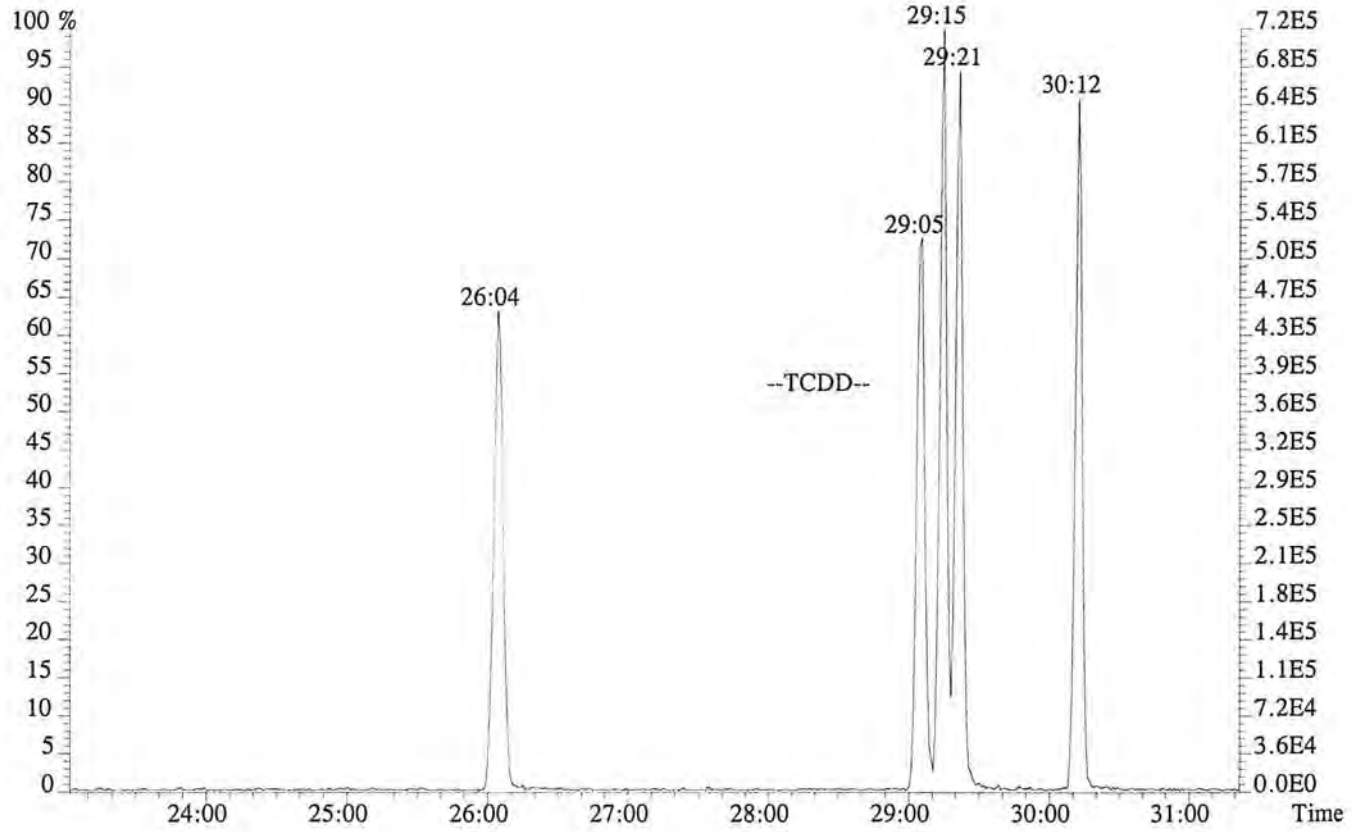
Sample#1 Exp:WINDOW DEFINE
303.9016



319.8965



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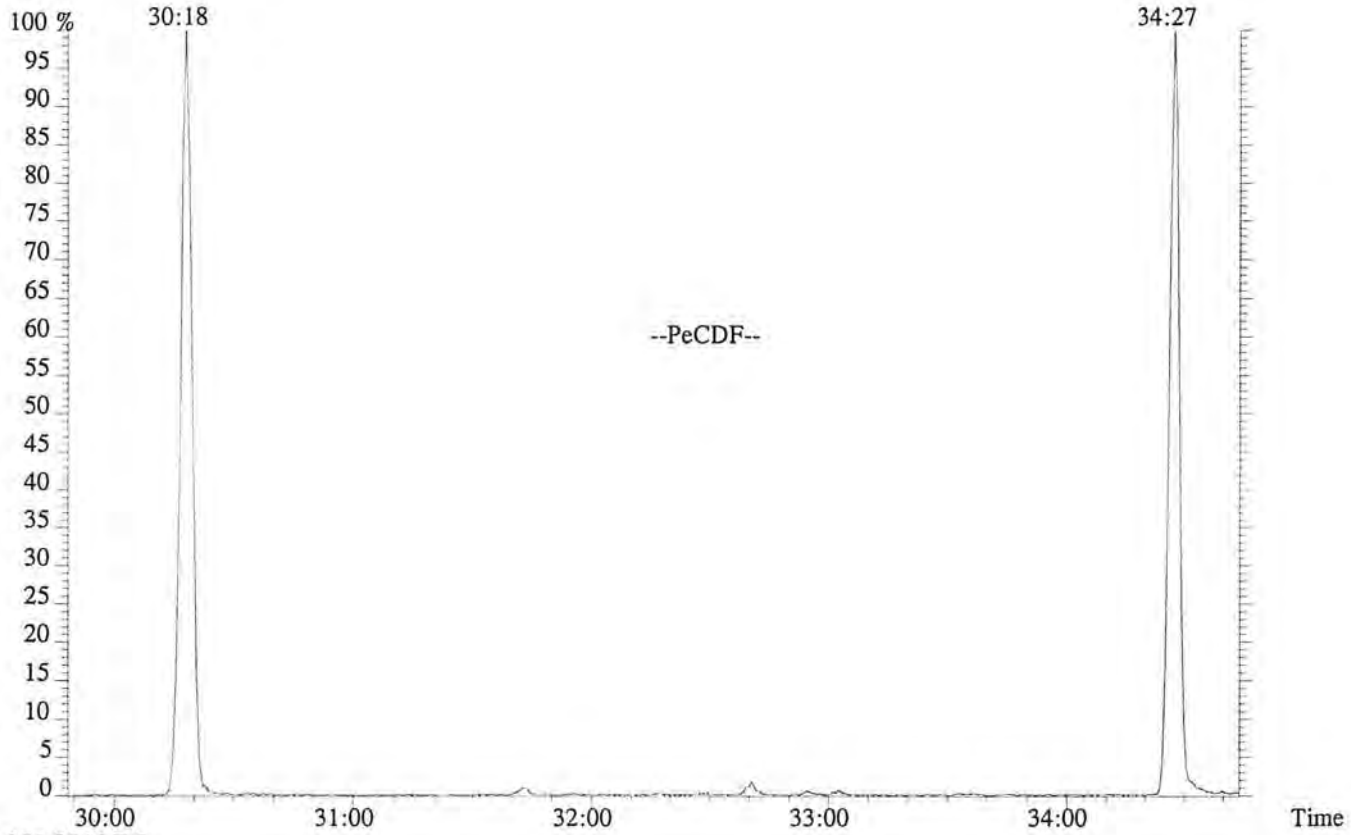
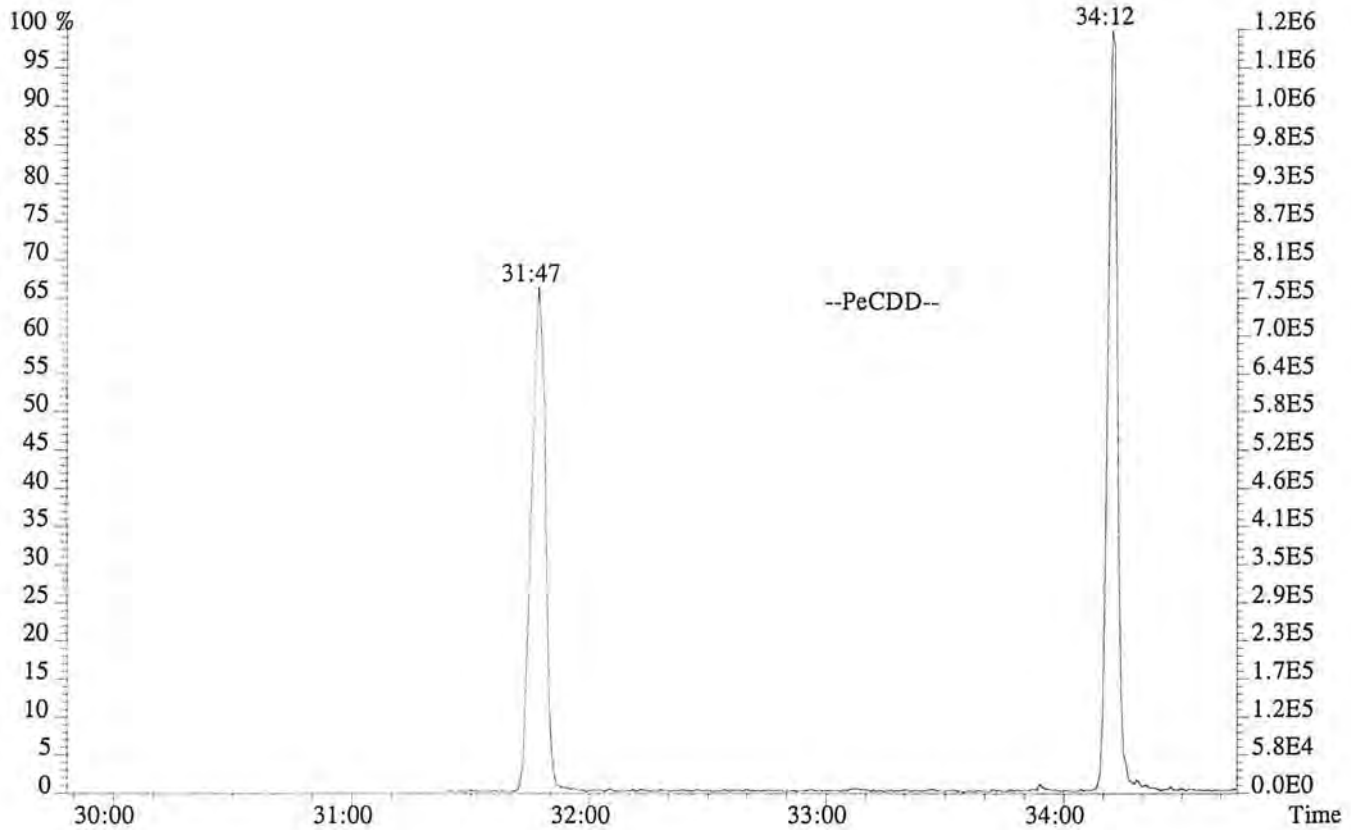
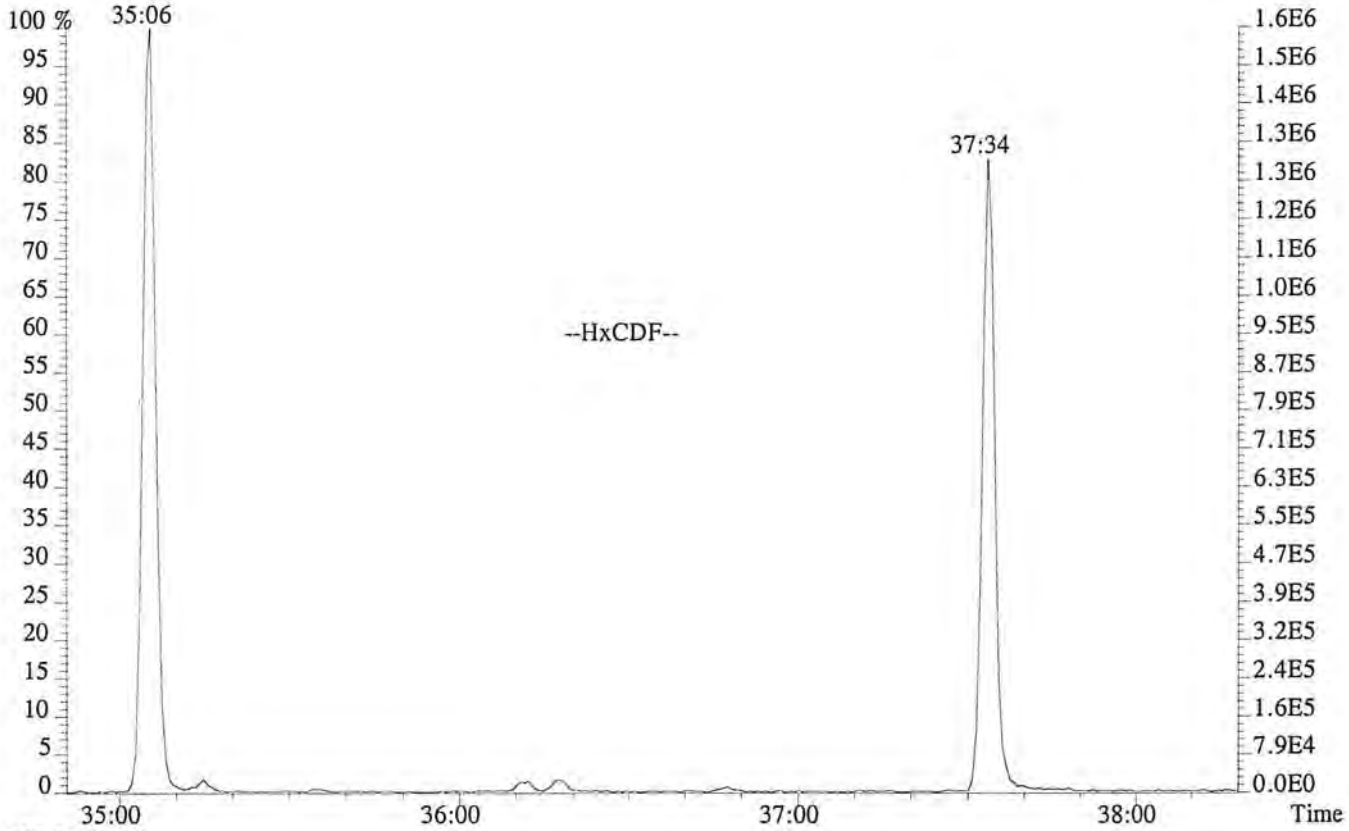
339.8597,339.8597 F:2



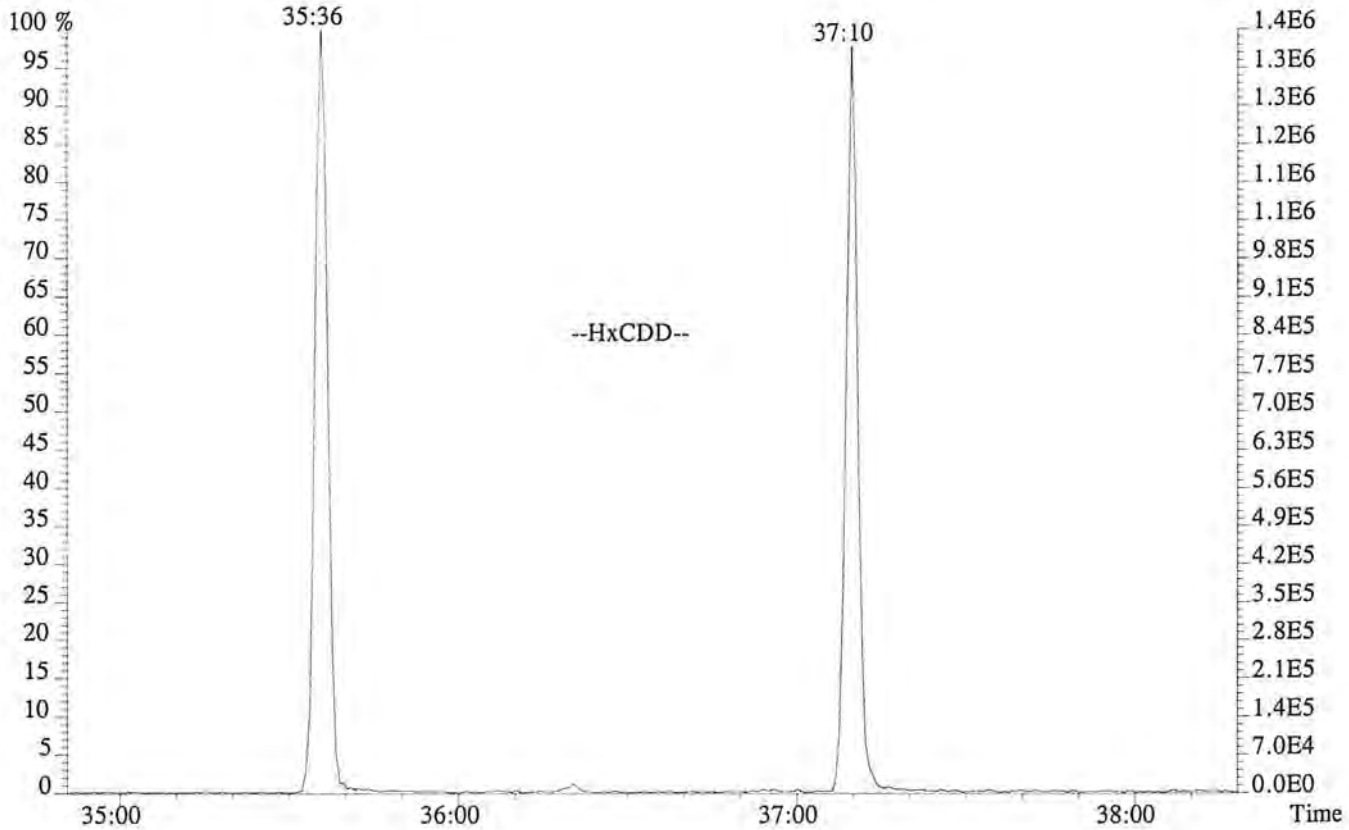
355.8546 F:2



File:P301093 #1-312 Acq:29-AUG-2015 05:08:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



389.8157 F:3



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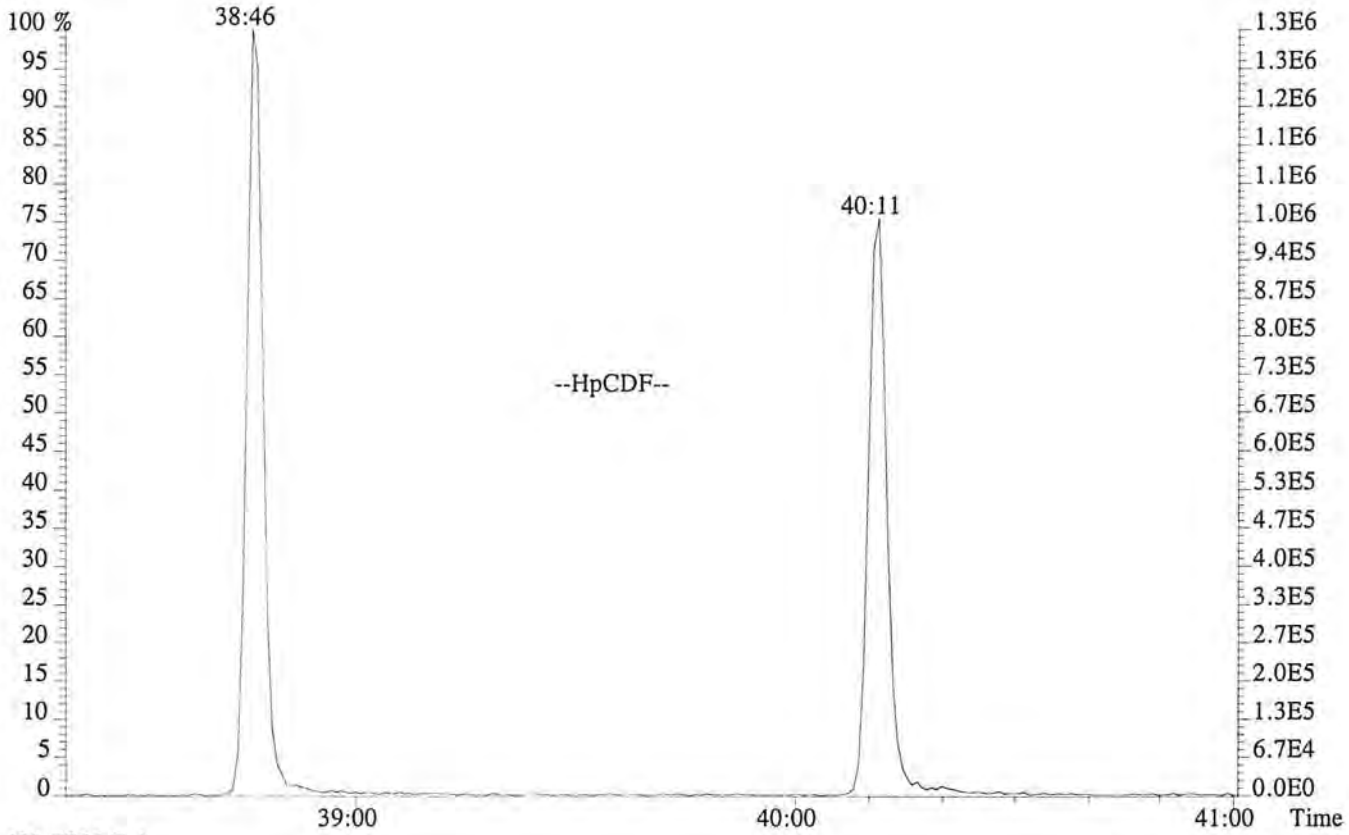
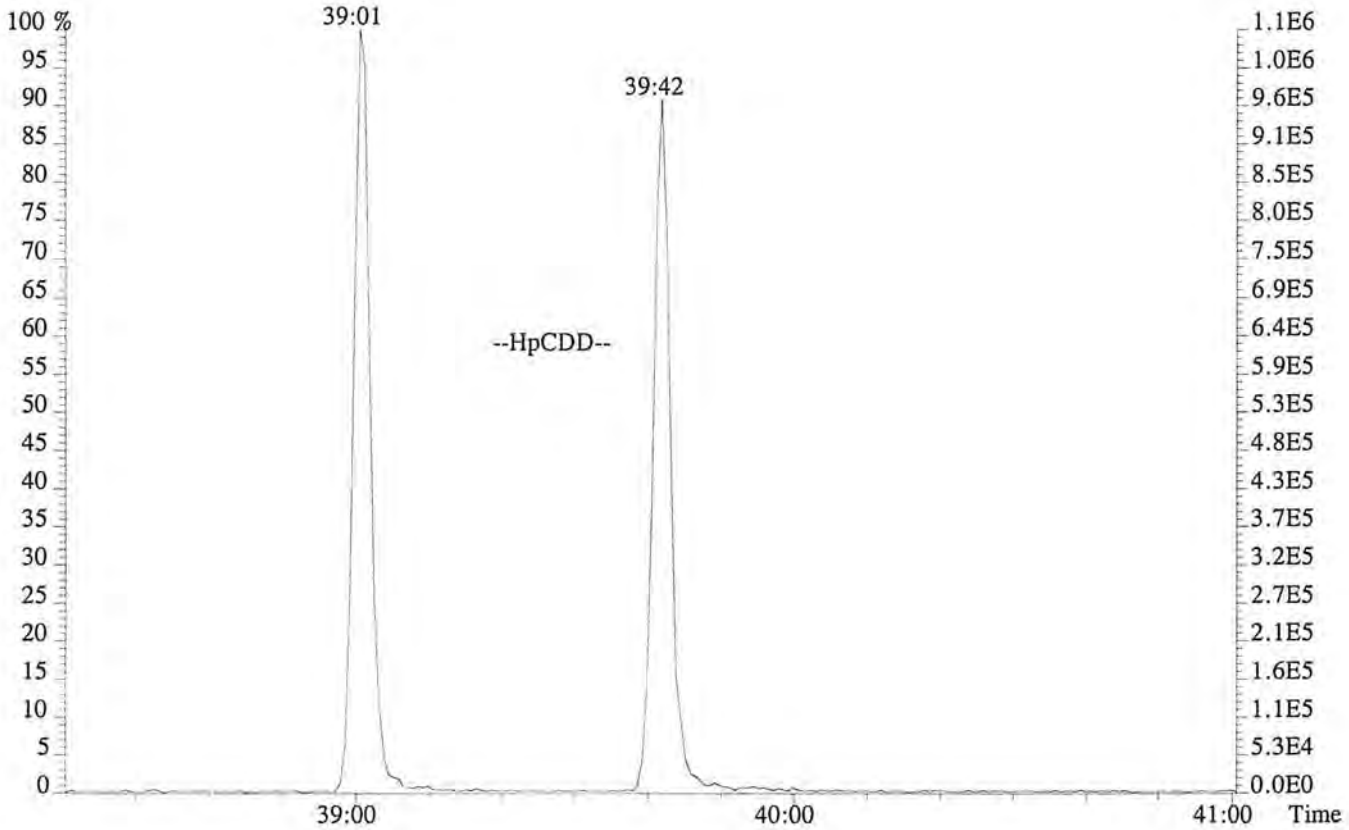
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/21/15

Instrument ID: E-HRMS-05 GC Column ID: DB-5MSUI

VER Data Filename: P301091 Analysis Date: 29-AUG-15 Time: 03:30:46

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	9.1	7.8 - 12.9	-8.7
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	52	39 - 65	3.3
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	51	39 - 64	2.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	52	39 - 64	4.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	52	41 - 61	3.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	52	43 - 58	4.1
OCDD	M+2/M+4	0.89	0.76-1.02	103	79 - 126	3.1
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.9	8.4 - 12.0	-0.7
1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	52	41 - 60	3.8
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	52	41 - 61	4.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	51	45 - 56	2.5
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	51	44 - 57	2.7
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	53	45 - 56	5.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	51	44 - 57	2.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	52	45 - 55	4.1
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	52	43 - 58	3.6
OCDF	M+2/M+4	0.89	0.76-1.02	103	63 - 159	3.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/21/15

Instrument ID: E-HRMS-05 GC Column ID: DB-5MSUI

VER Data Filename: P301091 Analysis Date: 29-AUG-15 Time: 03:30:46

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	96	82 - 121	-3.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	113	62 - 160	12.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	101	85 - 117	0.9
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	97	85 - 118	-3.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	114	72 - 138	14.3
13C-OCDD	M+2/M+4	0.90	0.76-1.02	250	96 - 415	24.9
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	91	71 - 140	-9.1
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	106	76 - 130	6.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	113	77 - 130	13.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	76 - 131	-4.2
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	70 - 143	-3.9
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	103	74 - 135	2.7
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	100	73 - 137	0.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	112	78 - 129	11.6
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	116	77 - 129	15.5
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.1	7.8 - 12.7	-9.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
79857

Run #7 Filename P301091 Samp: 1 Inj: 1 Acquired: 29-AUG-15 03:30:46
Processed: 31-AUG-15 09:18:36 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	2.513e+03	3.289e+03	0.76	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	32:41	2.496e+04	1.583e+04	1.58	yes	no	0.929
3	Unk	2,3,4,7,8-PeCDF	33:34	2.414e+04	1.556e+04	1.55	yes	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	36:12	2.462e+04	2.008e+04	1.23	yes	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:18	2.607e+04	2.104e+04	1.24	yes	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:48	2.467e+04	1.978e+04	1.25	yes	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	37:32	2.294e+04	1.838e+04	1.25	yes	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:46	2.373e+04	2.299e+04	1.03	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	40:11	2.037e+04	1.987e+04	1.03	yes	no	1.245
10	Unk	OCDF	42:43	3.446e+04	3.860e+04	0.89	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:21	2.103e+03	2.605e+03	0.81	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:51	1.819e+04	1.173e+04	1.55	yes	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:55	1.891e+04	1.477e+04	1.28	yes	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:00	1.831e+04	1.488e+04	1.23	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:14	1.967e+04	1.574e+04	1.25	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:42	1.777e+04	1.722e+04	1.03	yes	no	0.949
17	Unk	OCDD	42:30	3.085e+04	3.453e+04	0.89	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:35	3.001e+04	3.876e+04	0.77	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:40	5.184e+04	3.269e+04	1.59	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:33	5.306e+04	3.372e+04	1.57	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:10	2.573e+04	4.993e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:17	2.887e+04	5.590e+04	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:47	2.774e+04	5.335e+04	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:32	2.506e+04	4.799e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:45	2.068e+04	4.740e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:11	1.917e+04	4.323e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:21	2.344e+04	3.044e+04	0.77	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:49	3.987e+04	2.547e+04	1.57	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:54	3.755e+04	2.954e+04	1.27	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	36:60	3.664e+04	2.940e+04	1.25	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:41	3.650e+04	3.431e+04	1.06	yes	no	0.850
32	IS	13C-OCDD	42:30	5.668e+04	6.286e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:48	2.504e+04	3.226e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:14	4.067e+04	3.216e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:21	5.216e+03				no	1.001

ALS ENVIRONMENTAL
10450 Stancliff Rd, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
79857

Run #7 Filename P301091 Samp: 1 Inj: 1 Acquired: 29-AUG-15 03:30:46
Processed: 31-AUG-15 09:18:36 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.93e+05	1.32e+03	3.7e+02	6.46e+05	1.96e+03	3.3e+02
2	1,2,3,7,8-PeCDF	5.09e+06	5.24e+02	9.7e+03	3.24e+06	1.63e+03	2.0e+03
3	2,3,4,7,8-PeCDF	5.10e+06	5.24e+02	9.7e+03	3.25e+06	1.63e+03	2.0e+03
4	1,2,3,4,7,8-HxCDF	5.43e+06	8.72e+02	6.2e+03	4.45e+06	2.88e+02	1.5e+04
5	1,2,3,6,7,8-HxCDF	5.69e+06	8.72e+02	6.5e+03	4.69e+06	2.88e+02	1.6e+04
6	2,3,4,6,7,8-HxCDF	5.42e+06	8.72e+02	6.2e+03	4.31e+06	2.88e+02	1.5e+04
7	1,2,3,7,8,9-HxCDF	4.93e+06	8.72e+02	5.7e+03	3.97e+06	2.88e+02	1.4e+04
8	1,2,3,4,6,7,8-HpCDF	5.28e+06	2.22e+03	2.4e+03	5.15e+06	2.55e+03	2.0e+03
9	1,2,3,4,7,8,9-HpCDF	4.13e+06	2.22e+03	1.9e+03	4.01e+06	2.55e+03	1.6e+03
10	OCDF	5.93e+06	1.22e+03	4.9e+03	6.70e+06	1.66e+03	4.0e+03
11	2,3,7,8-TCDD	4.43e+05	1.27e+03	3.5e+02	5.49e+05	7.12e+02	7.7e+02
12	1,2,3,7,8-PeCDD	3.81e+06	2.32e+03	1.6e+03	2.45e+06	6.12e+02	4.0e+03
13	1,2,3,4,7,8-HxCDD	4.47e+06	5.80e+02	7.7e+03	3.49e+06	1.54e+03	2.3e+03
14	1,2,3,6,7,8-HxCDD	4.03e+06	5.80e+02	7.0e+03	3.24e+06	1.54e+03	2.1e+03
15	1,2,3,7,8,9-HxCDD	4.38e+06	5.80e+02	7.6e+03	3.50e+06	1.54e+03	2.3e+03
16	1,2,3,4,6,7,8-HpCDD	3.77e+06	8.36e+02	4.5e+03	3.65e+06	6.92e+02	5.3e+03
17	OCDD	5.57e+06	6.08e+02	9.2e+03	6.23e+06	1.05e+03	5.9e+03
18	13C-2,3,7,8-TCDF	5.86e+06	1.47e+03	4.0e+03	7.60e+06	1.80e+03	4.2e+03
19	13C-1,2,3,7,8-PeCDF	1.04e+07	4.84e+02	2.1e+04	6.56e+06	1.68e+03	3.9e+03
20	13C-2,3,4,7,8-PeCDF	1.08e+07	4.84e+02	2.2e+04	6.91e+06	1.68e+03	4.1e+03
21	13C-1,2,3,4,7,8-HxCDF	5.70e+06	6.88e+02	8.3e+03	1.11e+07	1.95e+03	5.7e+03
22	13C-1,2,3,6,7,8-HxCDF	6.38e+06	6.88e+02	9.3e+03	1.23e+07	1.95e+03	6.3e+03
23	13C-2,3,4,6,7,8-HxCDF	6.11e+06	6.88e+02	8.9e+03	1.15e+07	1.95e+03	5.9e+03
24	13C-1,2,3,7,8,9-HxCDF	5.45e+06	6.88e+02	7.9e+03	1.03e+07	1.95e+03	5.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.56e+06	3.24e+03	1.4e+03	1.06e+07	1.17e+03	9.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.85e+06	3.24e+03	1.2e+03	8.61e+06	1.17e+03	7.4e+03
27	13C-2,3,7,8-TCDD	4.82e+06	4.70e+03	1.0e+03	6.25e+06	2.56e+03	2.4e+03
28	13C-1,2,3,7,8-PeCDD	8.34e+06	1.43e+03	5.8e+03	5.37e+06	9.20e+02	5.8e+03
29	13C-1,2,3,4,7,8-HxCDD	8.78e+06	1.53e+03	5.7e+03	6.95e+06	1.53e+03	4.5e+03
30	13C-1,2,3,6,7,8-HxCDD	8.03e+06	1.53e+03	5.3e+03	6.46e+06	1.53e+03	4.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.71e+06	2.30e+03	3.4e+03	7.28e+06	7.36e+02	9.9e+03
32	13C-OCDD	1.00e+07	5.96e+02	1.7e+04	1.13e+07	1.02e+03	1.1e+04
33	13C-1,2,3,4-TCDD	5.15e+06	4.70e+03	1.1e+03	6.60e+06	2.56e+03	2.6e+03
34	13C-1,2,3,7,8,9-HxCDD	8.96e+06	1.53e+03	5.9e+03	7.16e+06	1.53e+03	4.7e+03
35	37Cl-2,3,7,8-TCDD	1.11e+06	1.18e+03	9.4e+02			

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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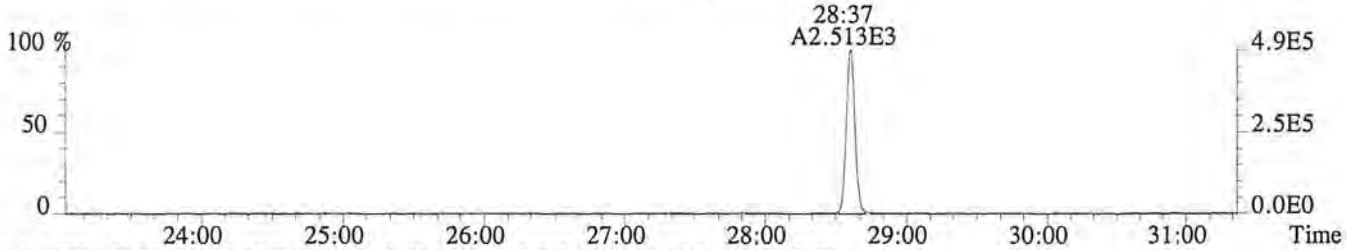
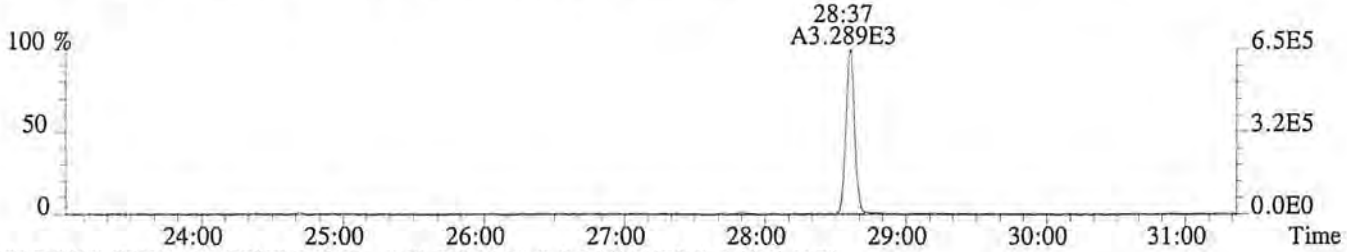
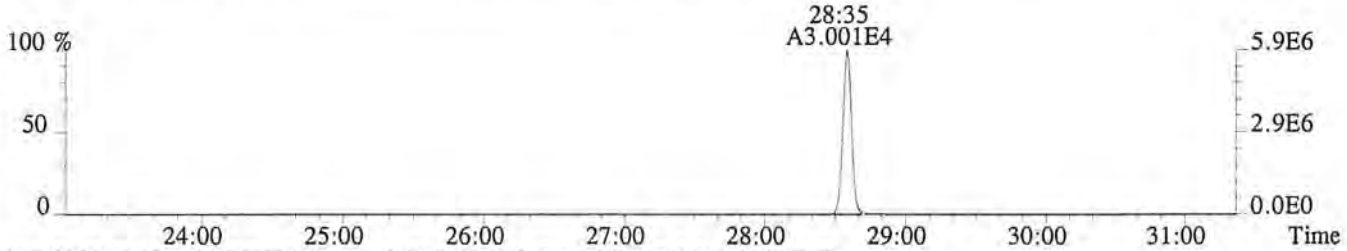
File:P301091 #1-591 Acq:29-AUG-2015 03:30:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1324.0,1.00%,F,T)



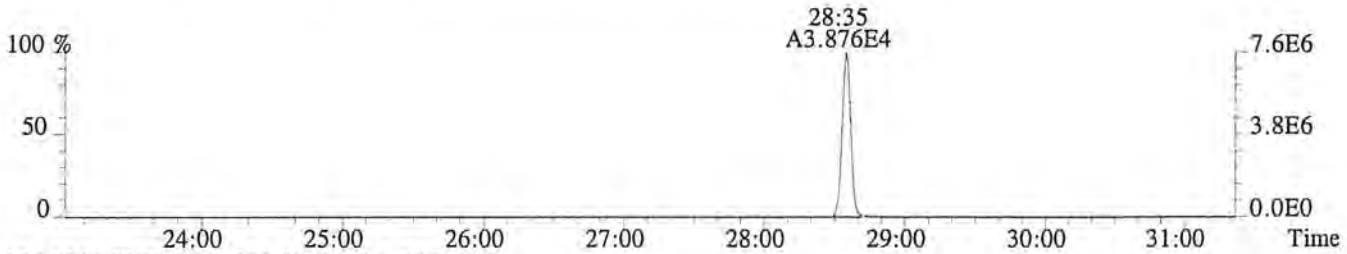
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1964.0,1.00%,F,T)



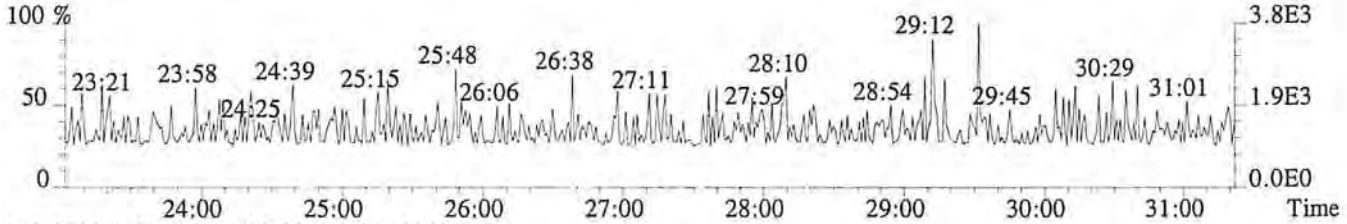
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



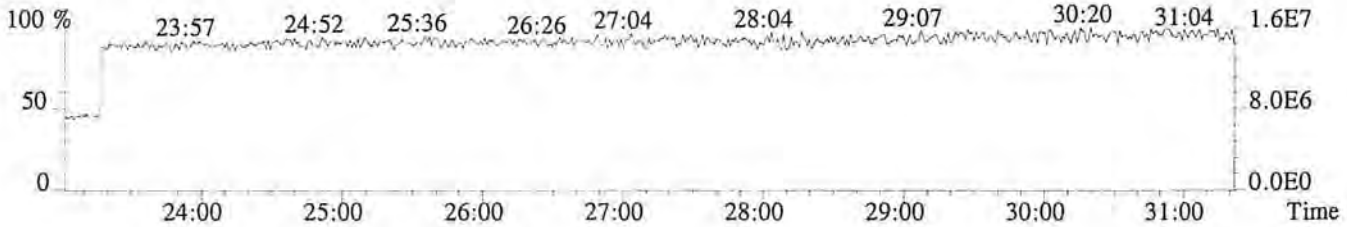
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1804.0,1.00%,F,T)



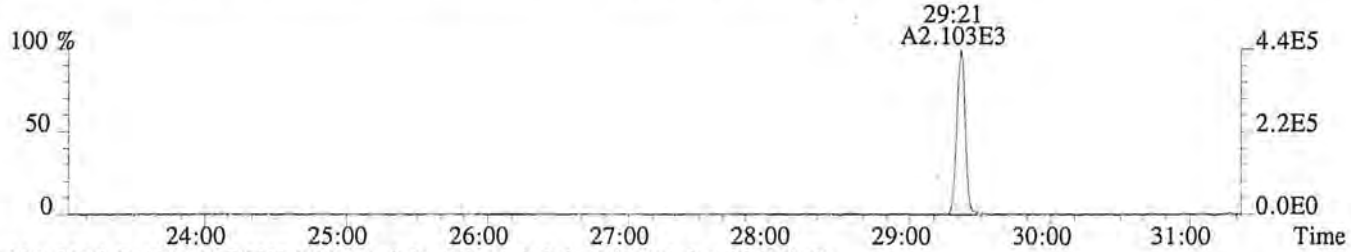
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



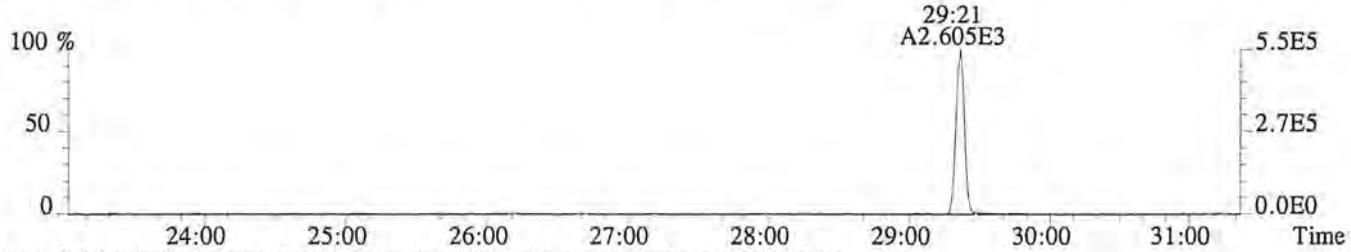
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



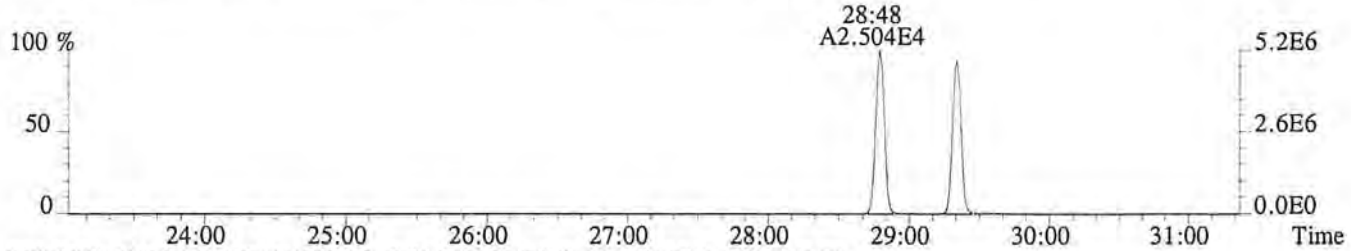
File:P301091 #1-591 Acq:29-AUG-2015 03:30:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1272.0,1.00%,F,T)



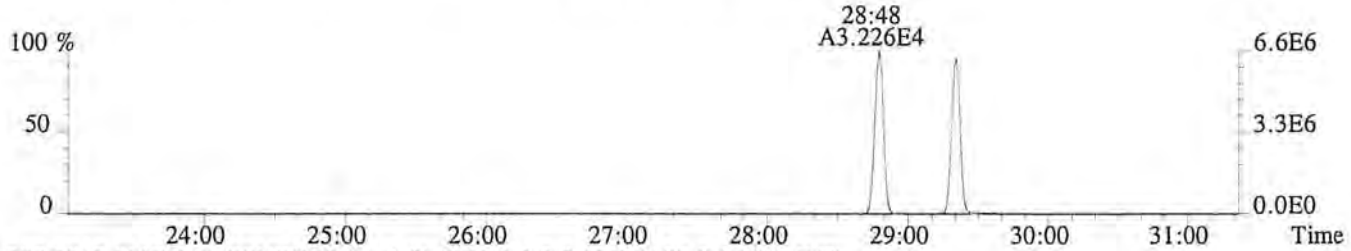
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



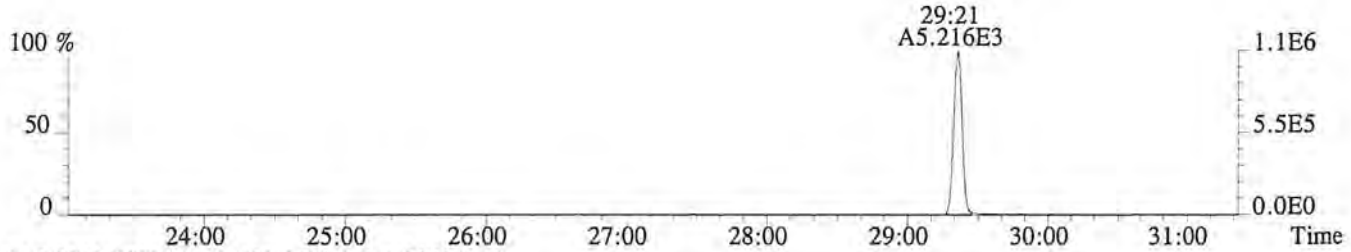
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4696.0,1.00%,F,T)



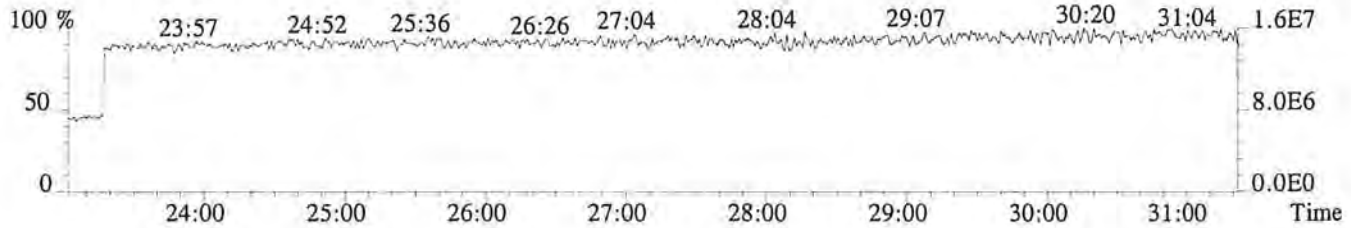
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2556.0,1.00%,F,T)



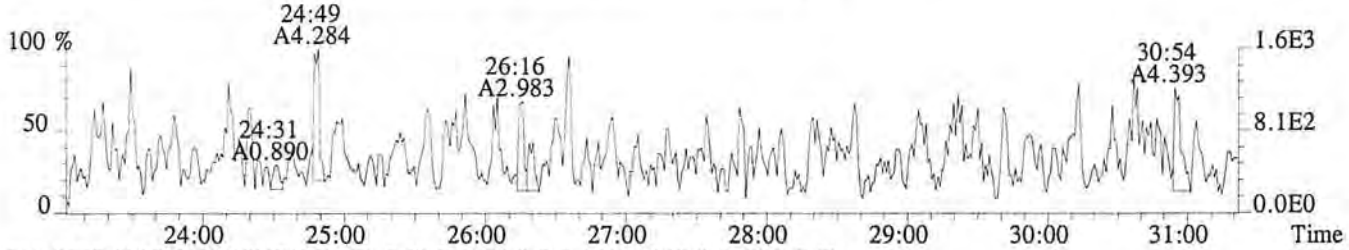
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1180.0,1.00%,F,T)



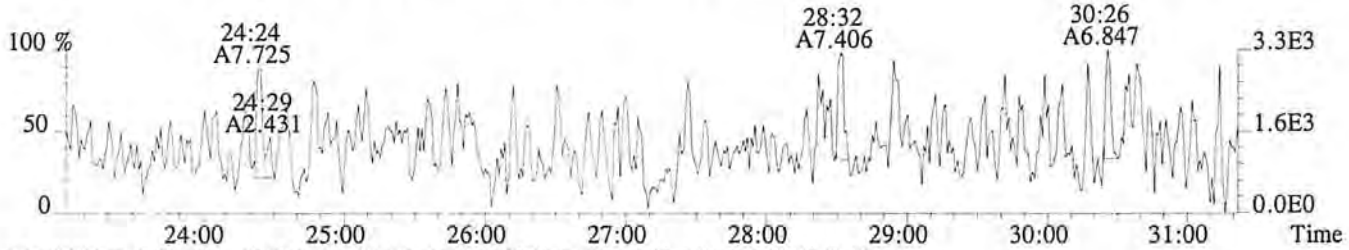
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



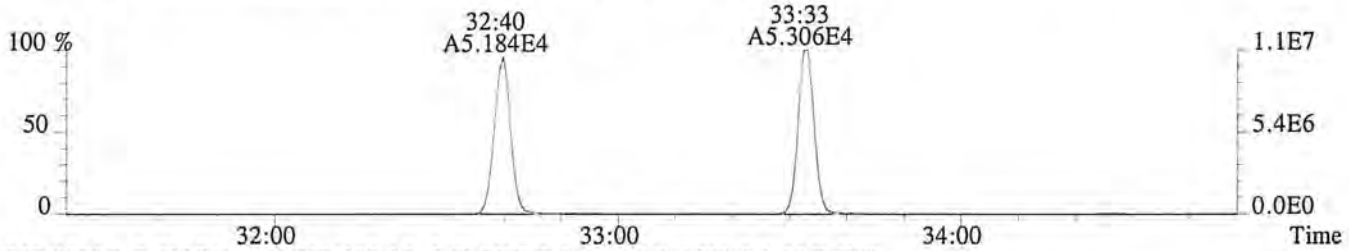
File:P301091 #1-591 Acq:29-AUG-2015 03:30:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



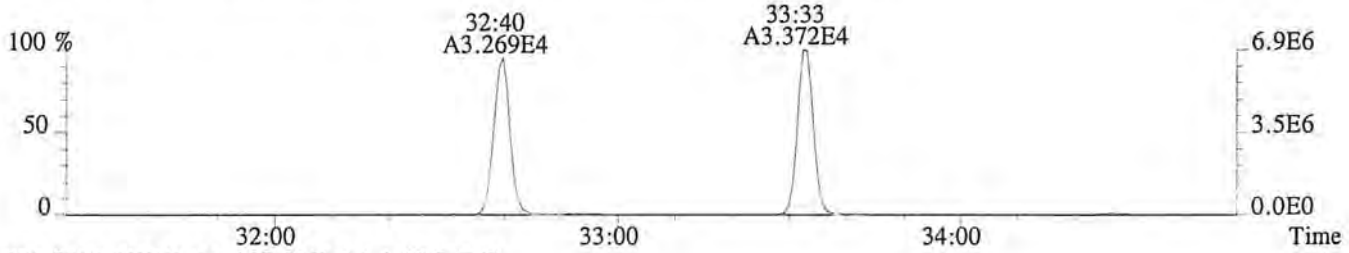
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1648.0,1.00%,F,T)



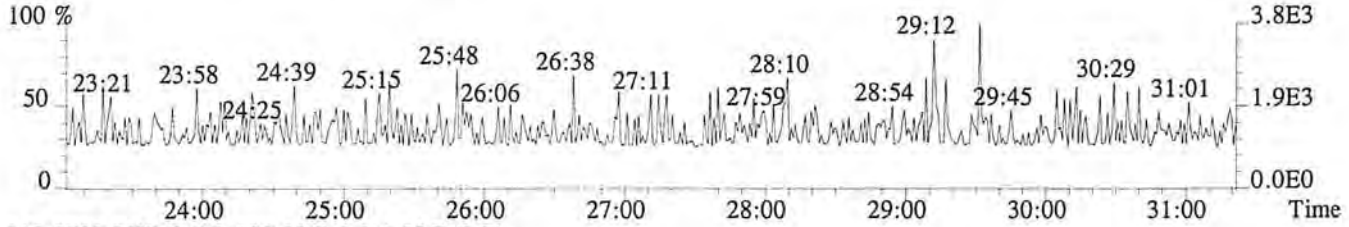
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



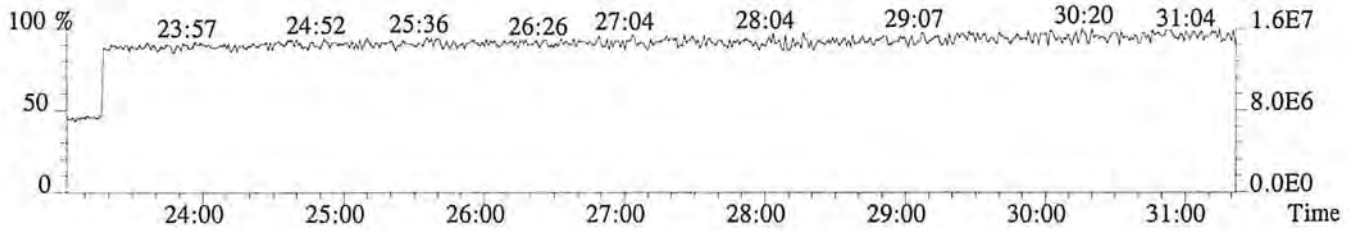
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1680.0,1.00%,F,T)



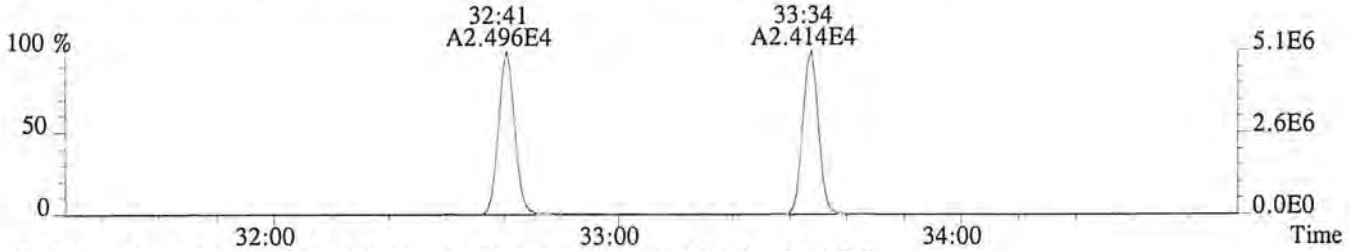
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



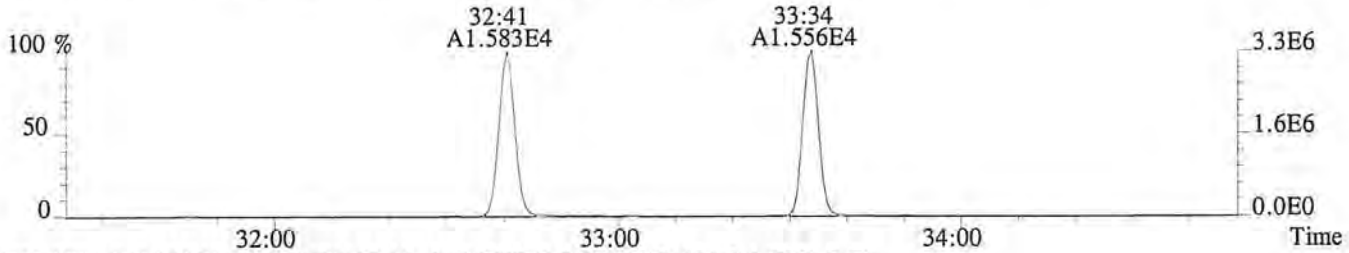
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



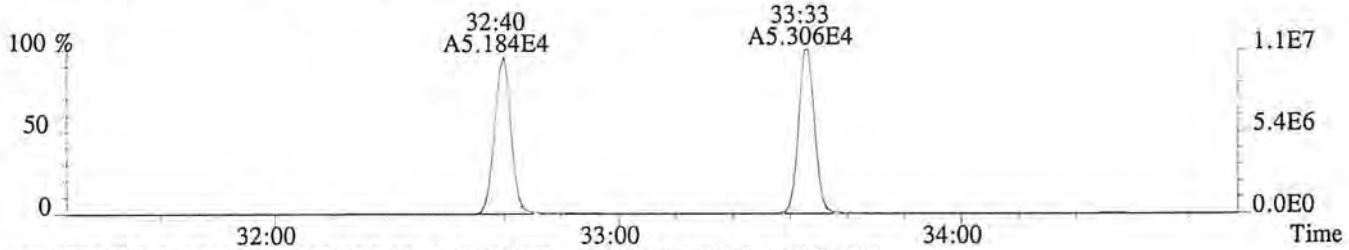
File:P301091 #1-308 Acq:29-AUG-2015 03:30:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1628.0,1.00%,F,T)

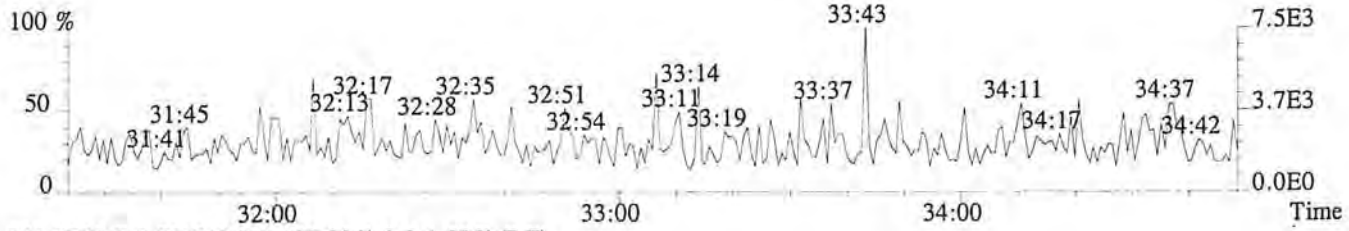


351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1680.0,1.00%,F,T)

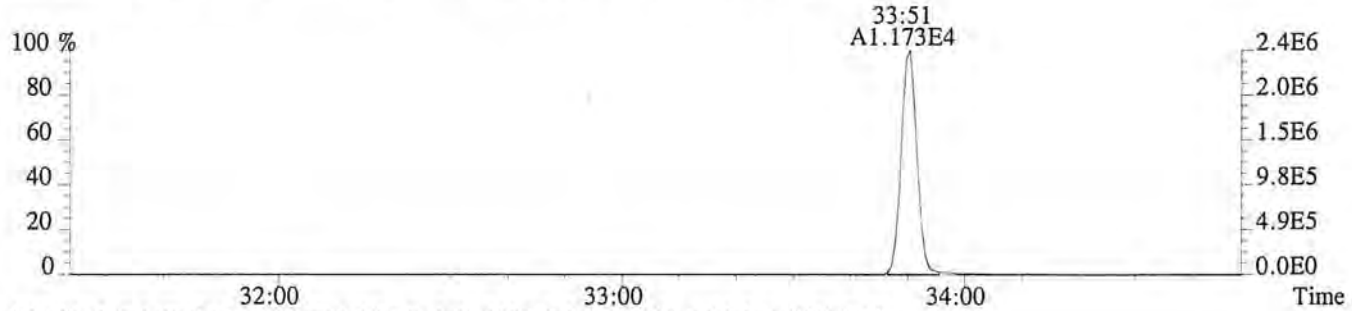
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



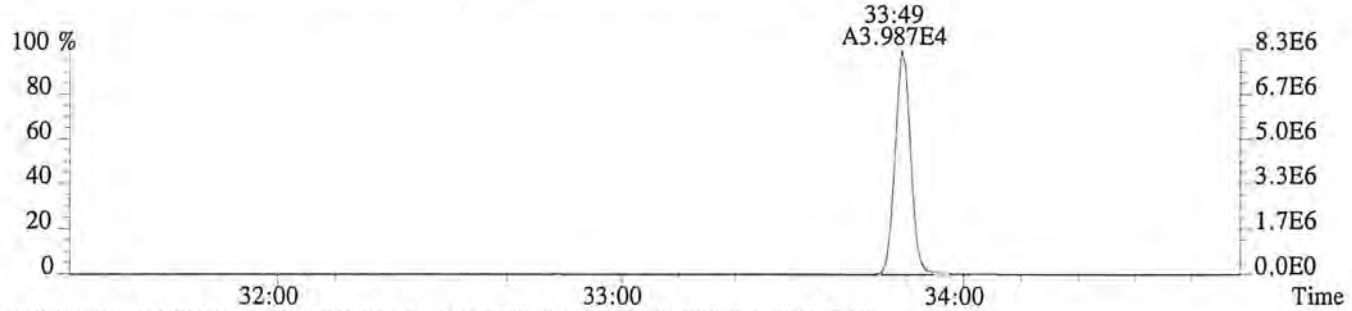
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

File:P301091 #1-308 Acq:29-AUG-2015 03:30:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2320.0,1.00%,F,T)

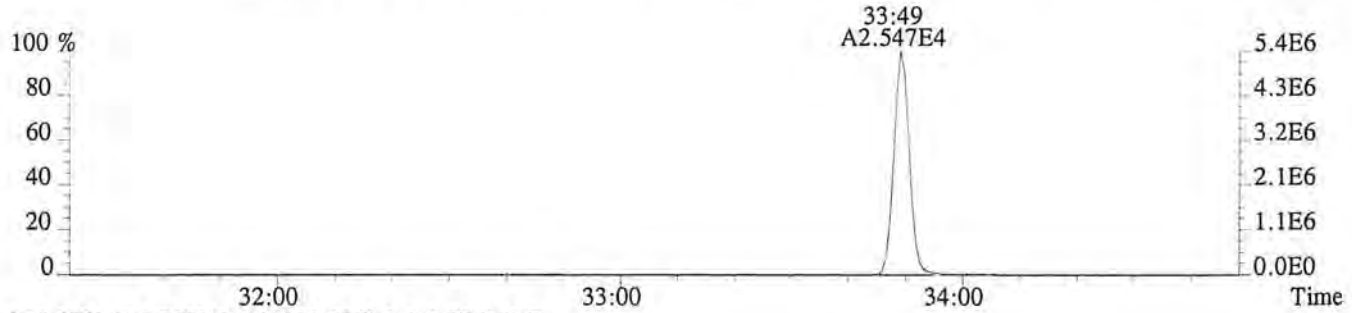
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



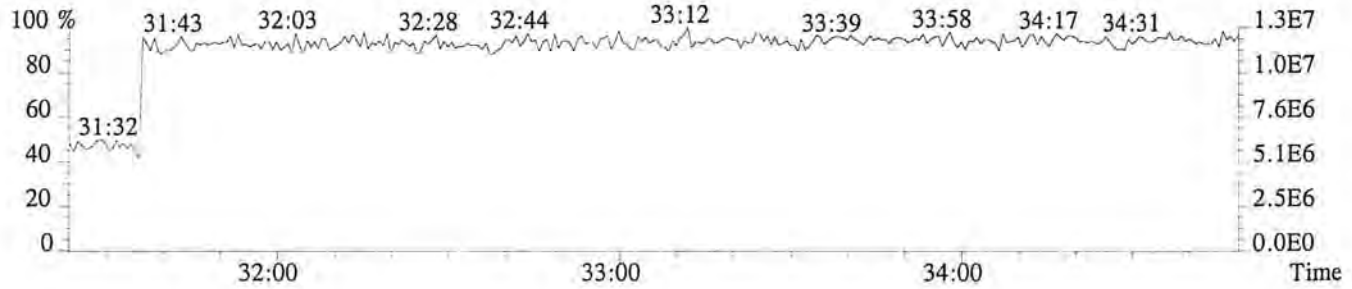
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



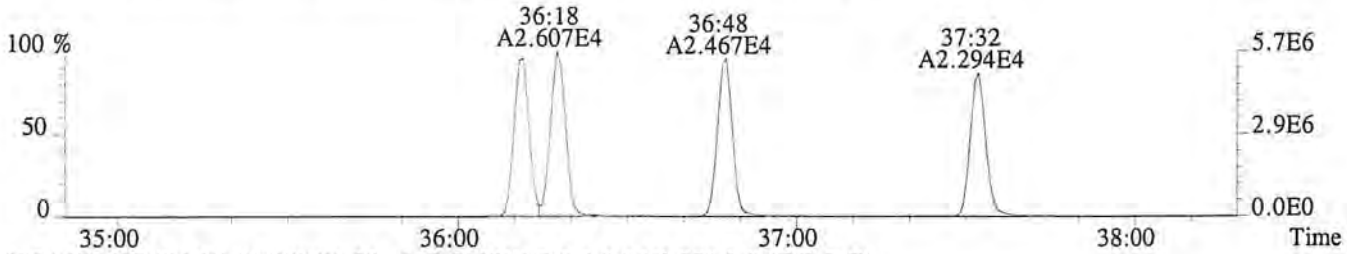
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



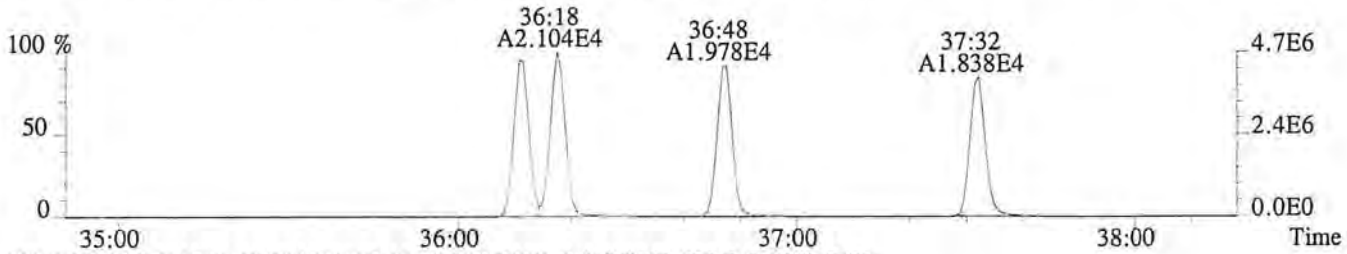
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



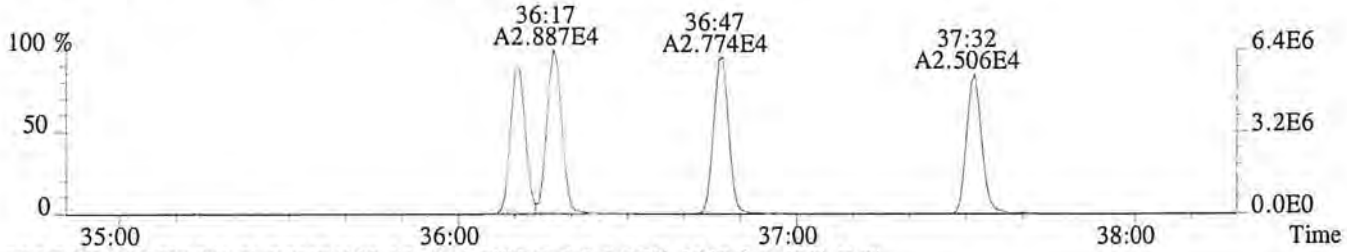
File:P301091 #1-312 Acq:29-AUG-2015 03:30:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



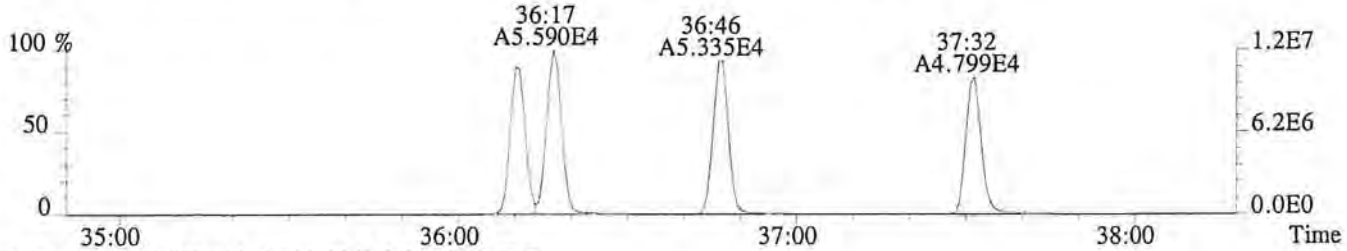
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,288.0,0.40%,F,T)



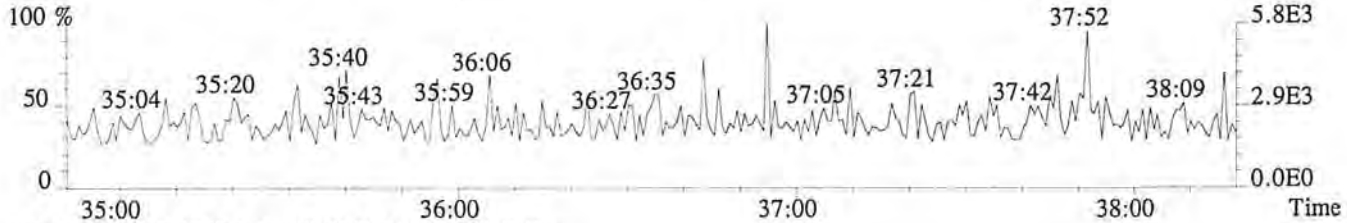
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



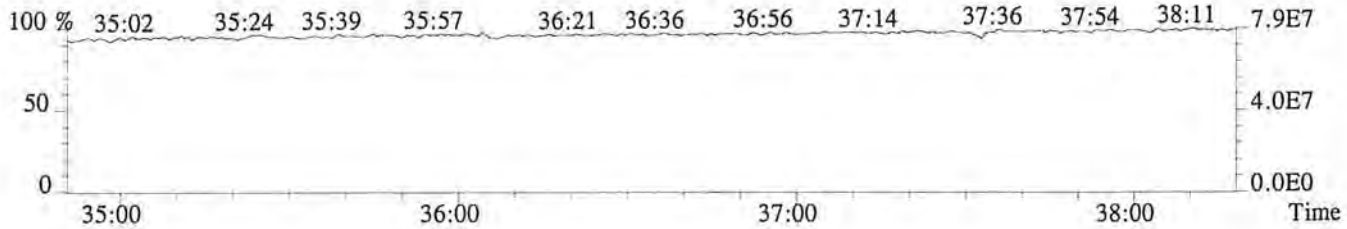
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1948.0,0.40%,F,T)



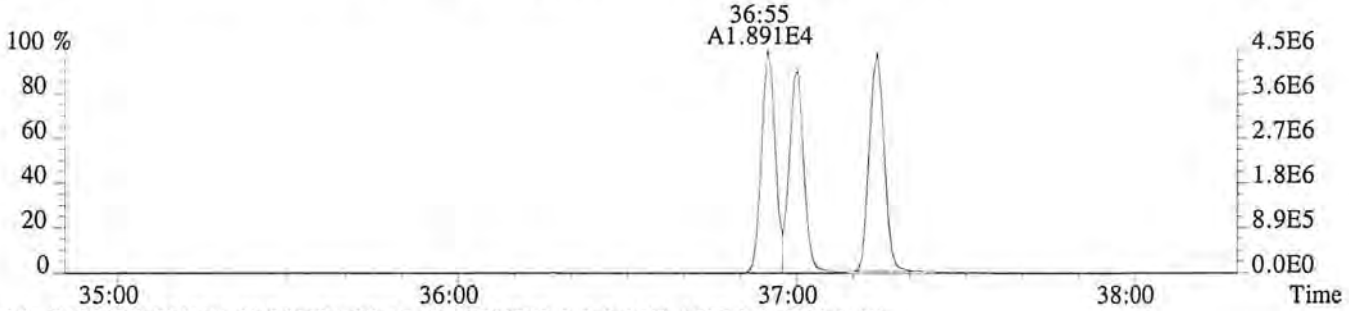
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



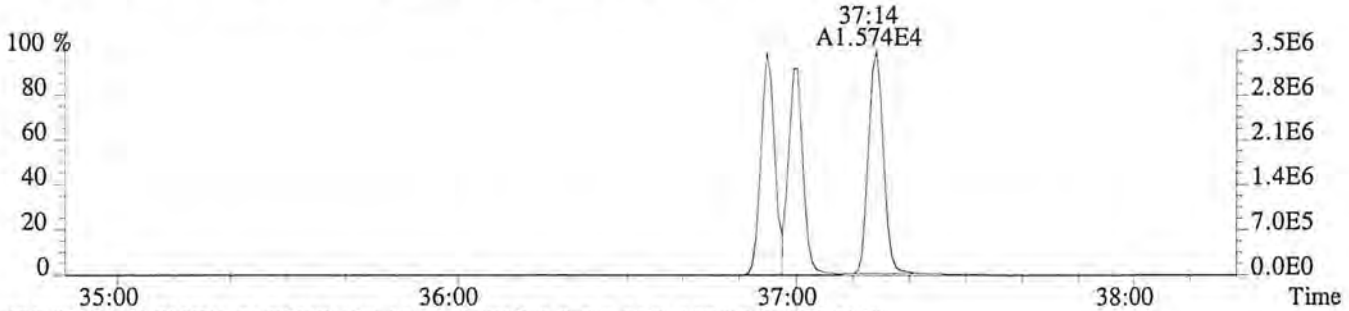
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



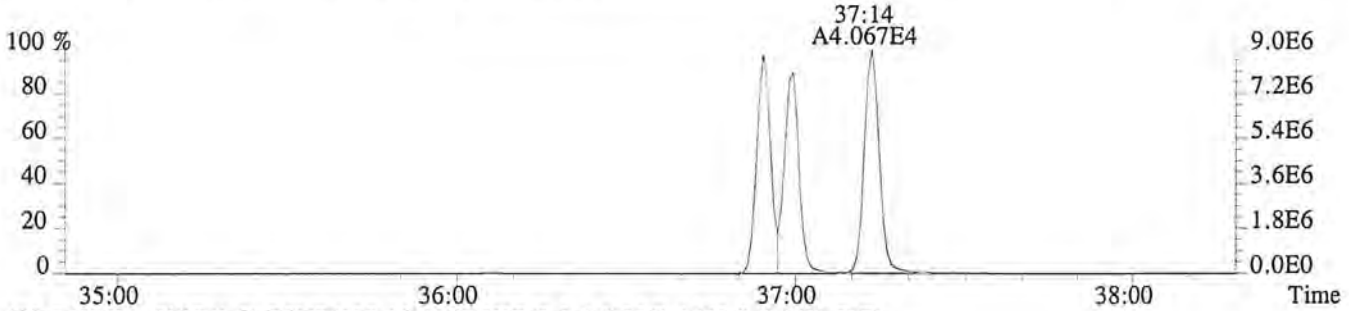
File:P301091 #1-312 Acq:29-AUG-2015 03:30:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



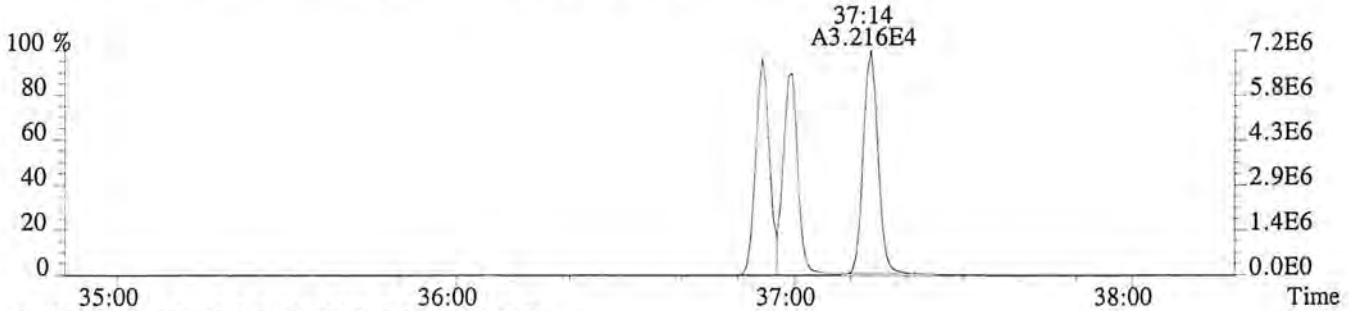
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1536.0,0.40%,F,T)



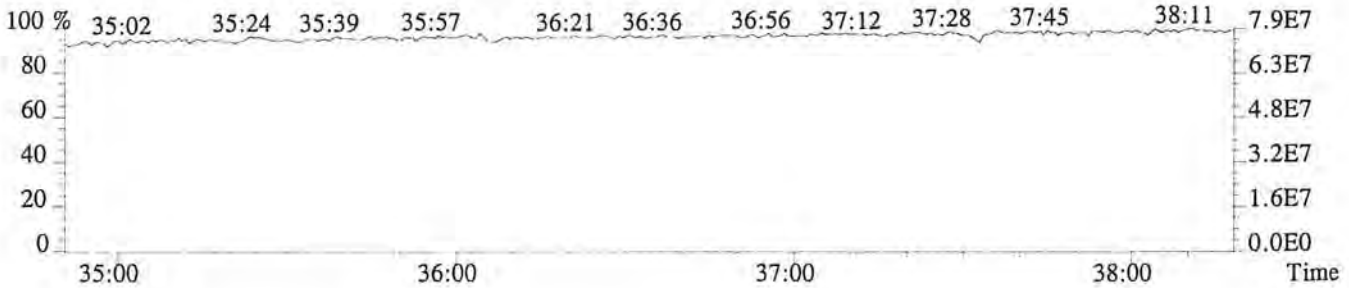
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



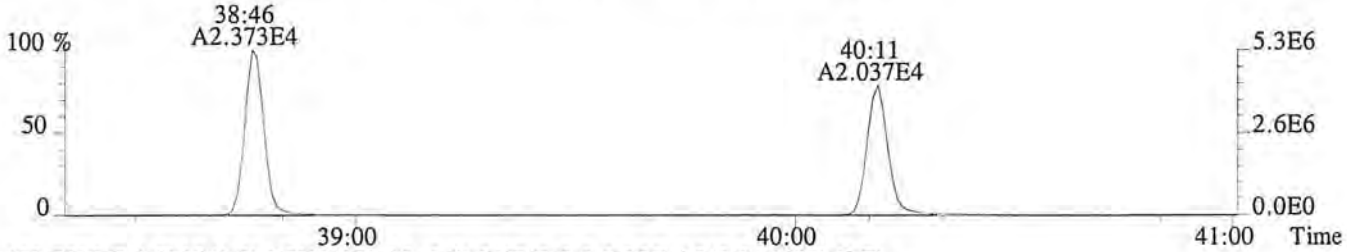
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1532.0,0.40%,F,T)



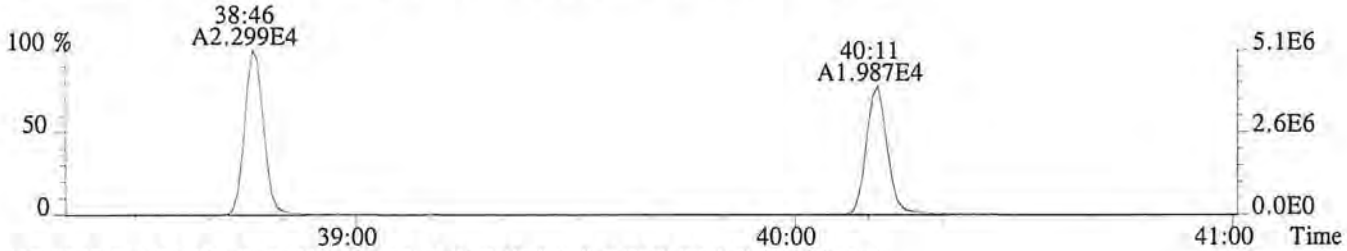
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



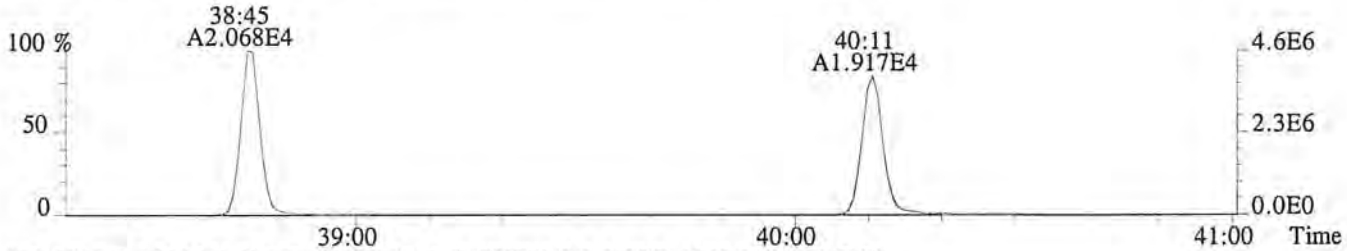
File:P301091 #1-241 Acq:29-AUG-2015 03:30:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2220.0,0.50%,F,T)



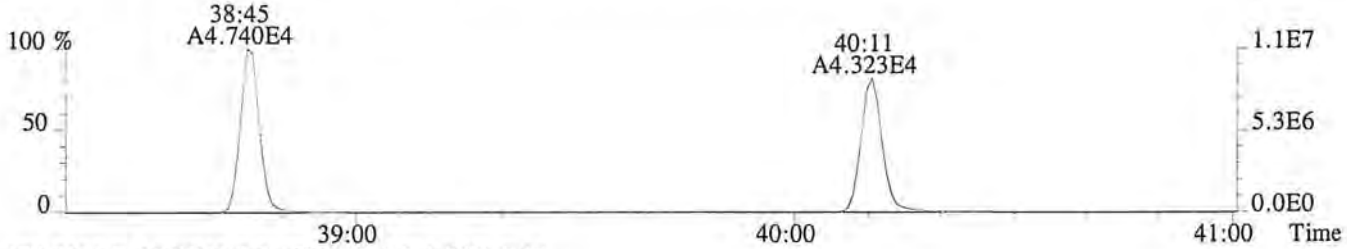
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2552.0,0.50%,F,T)



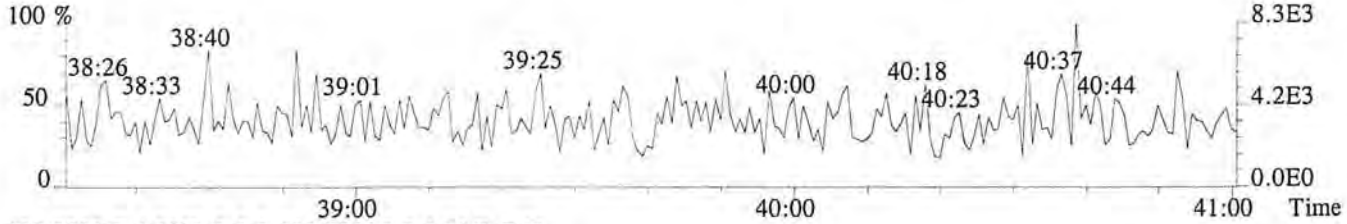
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3240.0,0.50%,F,T)



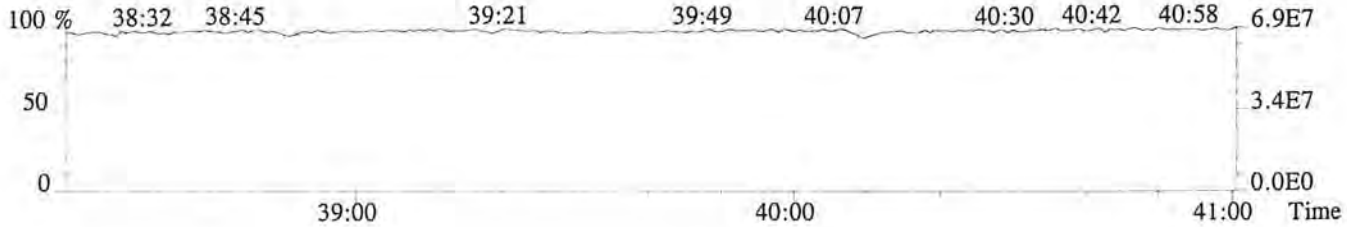
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.50%,F,T)



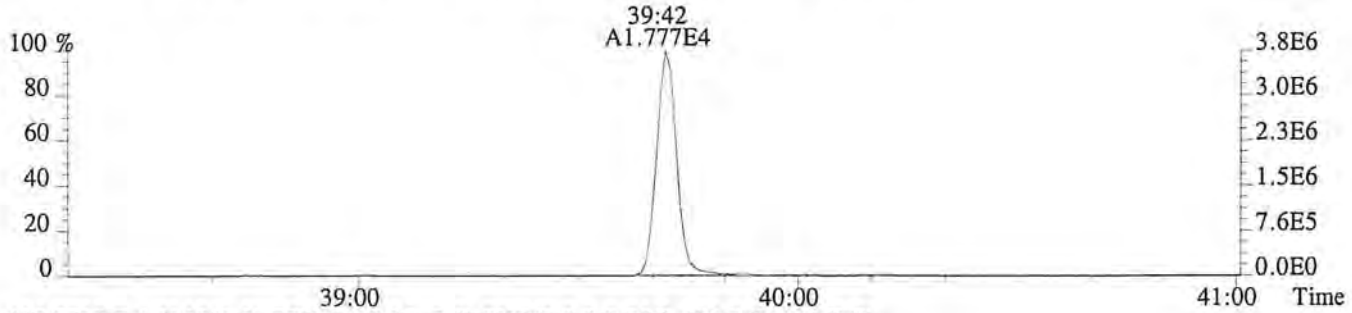
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



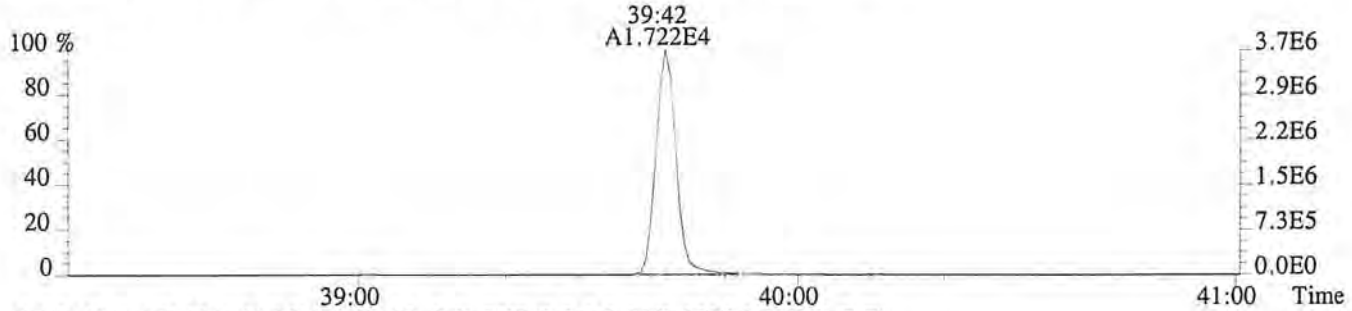
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



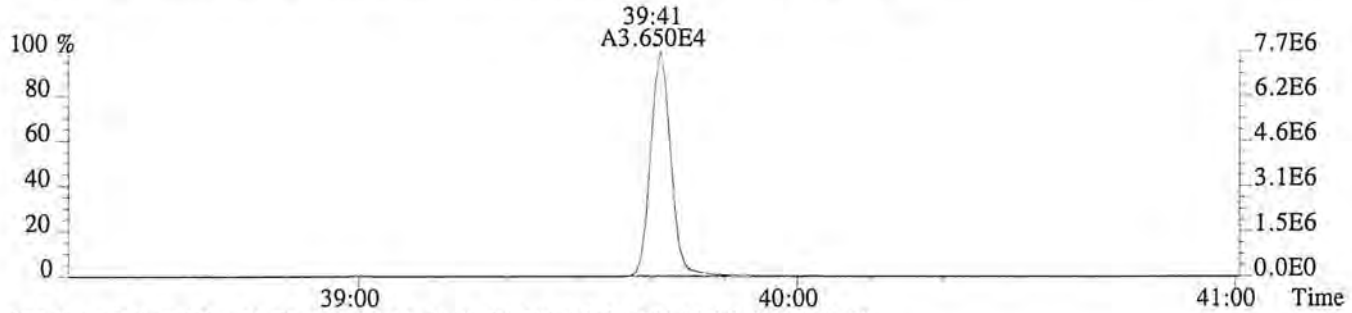
File:P301091 #1-241 Acq:29-AUG-2015 03:30:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



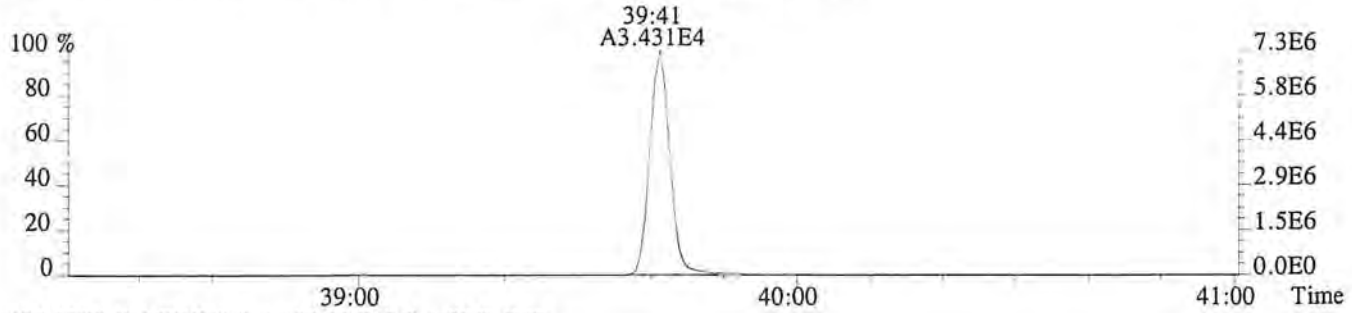
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



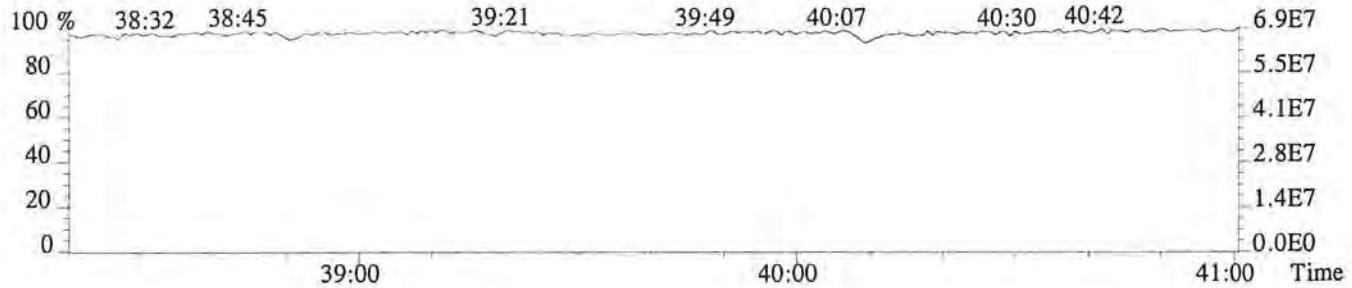
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2296.0,0.40%,F,T)



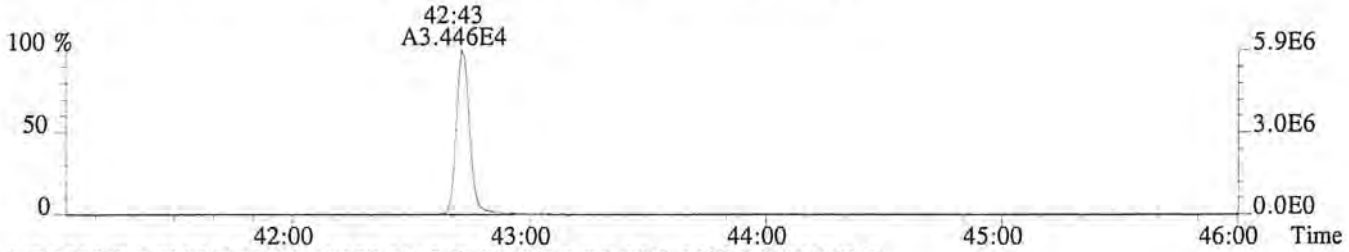
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



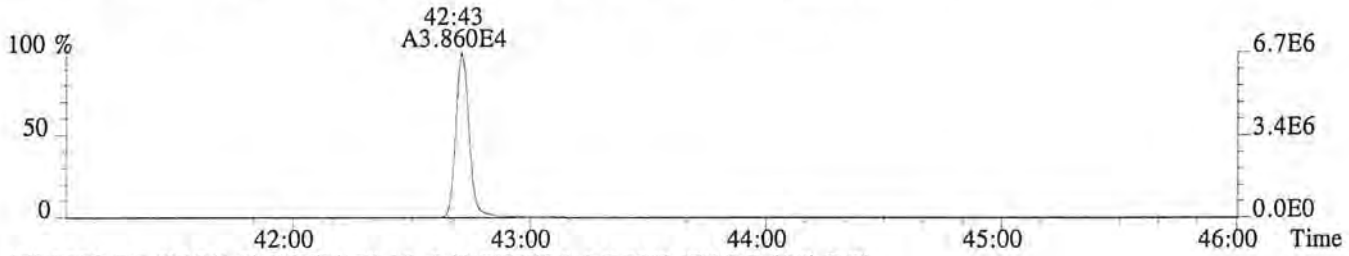
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



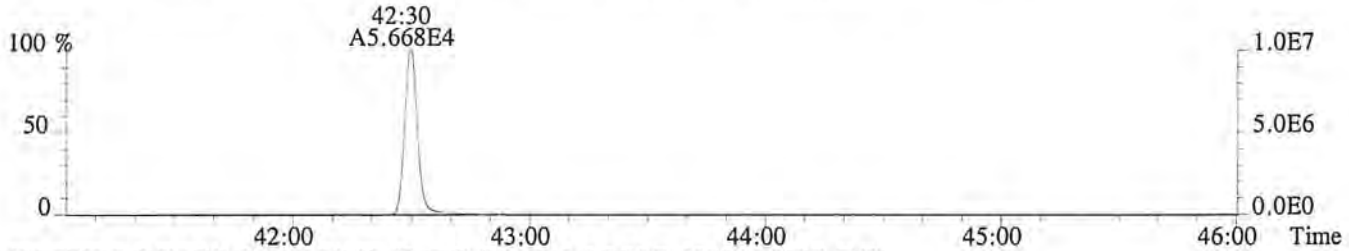
File:P301091 #1-447 Acq:29-AUG-2015 03:30:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



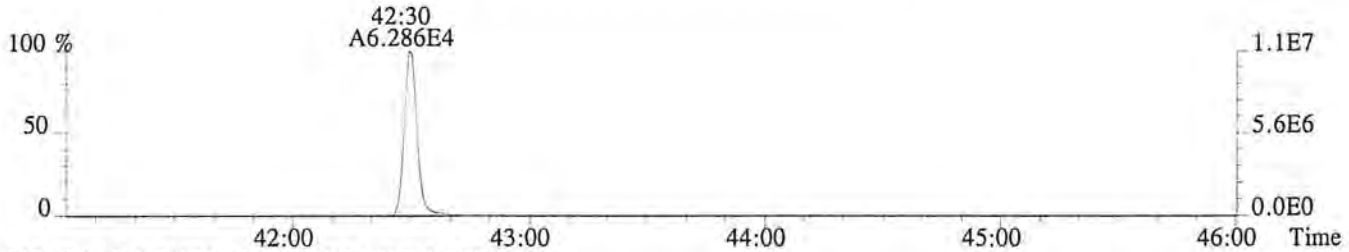
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1660.0,0.40%,F,T)



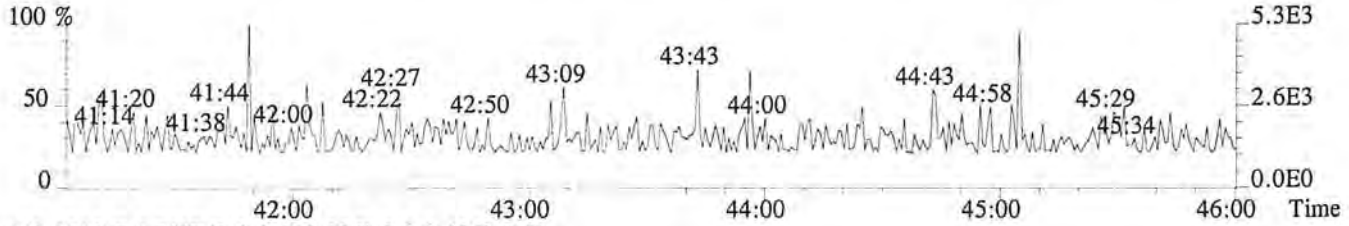
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



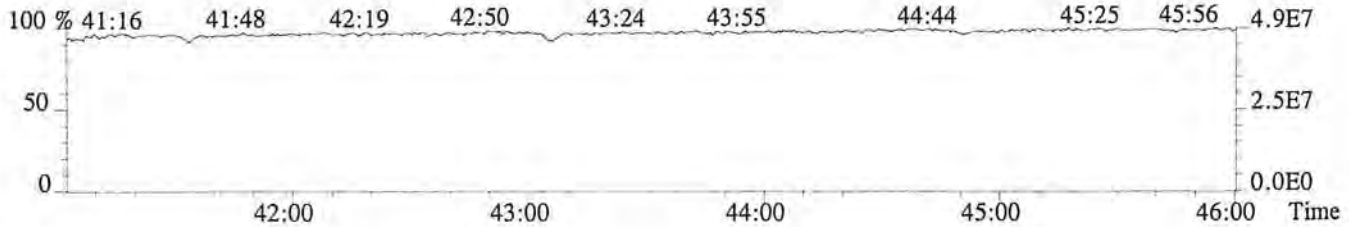
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1024.0,0.40%,F,T)



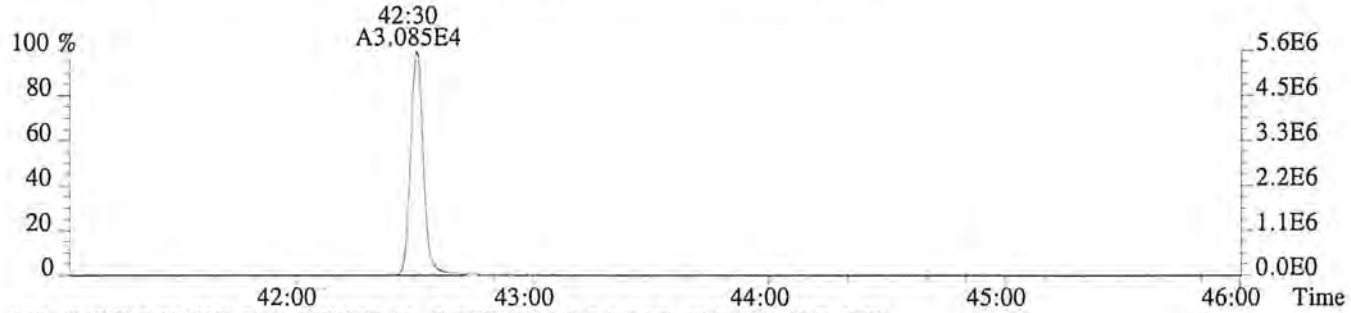
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



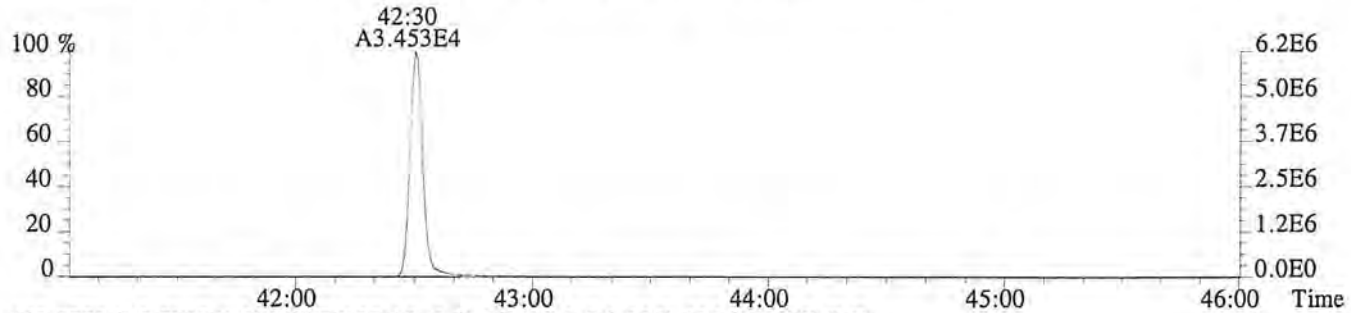
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



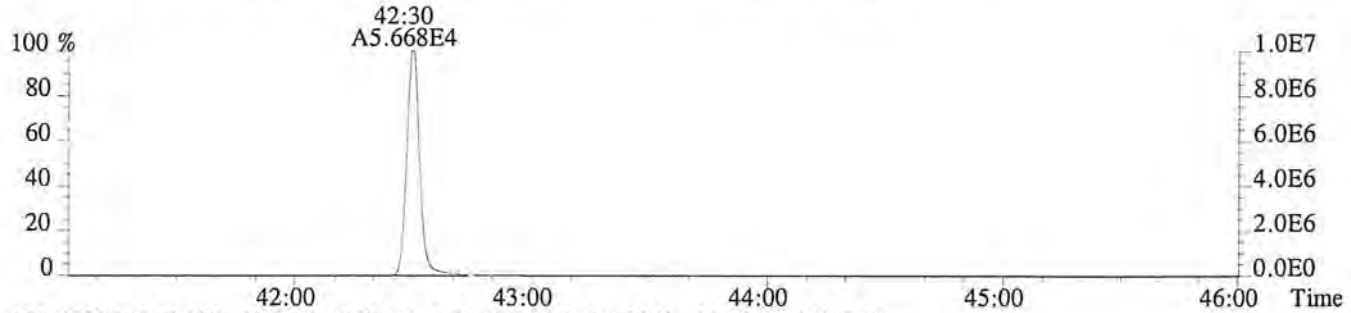
File:P301091 #1-447 Acq:29-AUG-2015 03:30:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



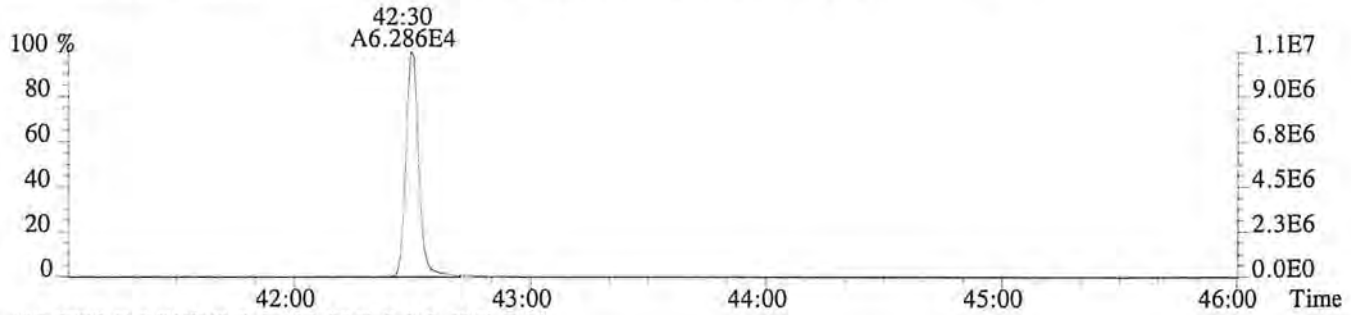
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1048.0,0.40%,F,T)



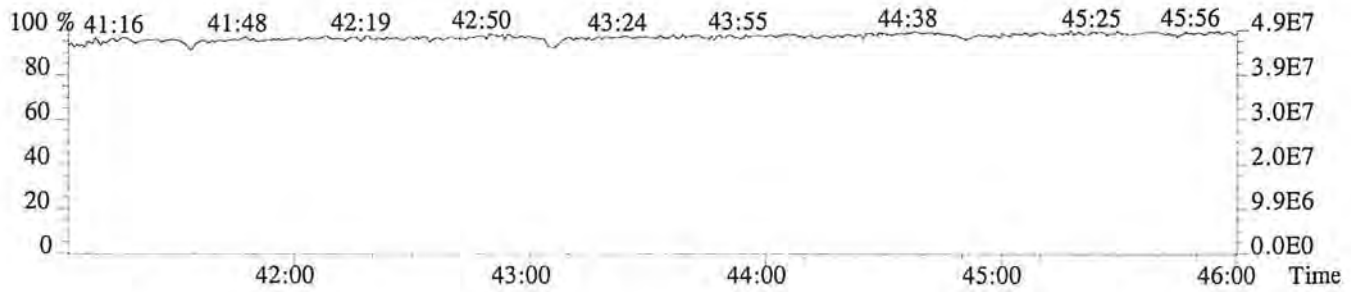
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1024.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P600055

Circle one: Beginning / Ending

Date: 08/22/15

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	NA	N/A
Ending Calibration injected prior to end of 12 hour clock	NA	N/A

Analyst: TC

Second QC: LKL

ccalqc.xls 07/17/12

5DBC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: ALS-TX Case No.: SDG No.:

GC column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 08/19/15

Init. Calib.Times: 10:52

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
74489	WINDOW DEFINE	P600057	22-AUG-15	07:09:43
79857	CS3	p600055	22-AUG-15	05:31:38
METHOD BLANK	EQ1500471-01	p600058	22-AUG-15	09:06:17
S513033429	E1500774-011	p600059	22-AUG-15	09:58:08
S396521639	E1500774-012	p600060	22-AUG-15	10:45:55
S968424506	E1500774-013	p600061	22-AUG-15	11:34:59
S888618423	E1500774-014	p600062	22-AUG-15	12:42:54
S059089981	E1500774-015	p600063	22-AUG-15	13:30:42
S711575004	E1500774-016	p600064	22-AUG-15	14:19:45
S797484206	E1500774-017	p600065	22-AUG-15	15:08:50
S289211331	E1500774-018	p600066	22-AUG-15	15:57:54
S370639389	E1500774-019	p600067	22-AUG-15	16:46:57

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20150822.SPL
Last Modified: Monday, August 24, 2015 08:08:26 Central Daylight Time
Printed: Monday, August 24, 2015 08:08:37 Central Daylight Time

Page Position (1, 1)

OPUS-2 : P600055 TEST

	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	08/22/15	05:31	P600055	79857	CS3	Tray1:1	EPA1613_ALS	Dioxin_ALS	LKC	HRMS Check 08:11
2		06:20	P600056	74489	WD	Tray1:2	EPA1613_ALS	Dioxin_ALS		DO NOT USE
3		07:09	P600057	74489	WD	Tray1:3	EPA1613_ALS	Dioxin_ALS		
4		09:06	P600058	MB	EQ1500471-01	Tray1:4	EPA1613_ALS	Dioxin_ALS		
5		09:58	P600059	E1500774-011	E1500774-011	Tray1:5	EPA1613_ALS	Dioxin_ALS		
6		10:45	P600060	E1500774-012	E1500774-012	Tray1:6	EPA1613_ALS	Dioxin_ALS		
7		11:34	P600061	E1500774-013	E1500774-013	Tray1:7	EPA1613_ALS	Dioxin_ALS		
8		12:22	P600062	E1500774-014	E1500774-014	Tray1:8	EPA1613_ALS	Dioxin_ALS		HRMS Check 12:33
9		13:30	P600063	E1500774-015	E1500774-015	Tray1:9	EPA1613_ALS	Dioxin_ALS		
10		14:19	P600064	E1500774-016	E1500774-016	Tray1:10	EPA1613_ALS	Dioxin_ALS		
11		15:08	P600065	E1500774-017	E1500774-017	Tray1:11	EPA1613_ALS	Dioxin_ALS		
12		15:57	P600066	E1500774-018	E1500774-018	Tray1:12	EPA1613_ALS	Dioxin_ALS		
13		16:46	P600067	E1500774-019	E1500774-019	Tray1:13	EPA1613_ALS	Dioxin_ALS		
14		17:36	P600068	TEST	TEST	Tray1:14	EPA1613_ALS	Dioxin_ALS		
15		18:25	P600069	79857	CS3	Tray1:15	EPA1613_ALS	Dioxin_ALS		HRMS Check 07:35
16	---	---	---	---	---	Tray1:16	EPA1613_ALS	Dioxin_ALS	---	---
17	---	---	---	---	---	Tray1:17	EPA1613_ALS	Dioxin_ALS	---	---
18	---	---	---	---	---	Tray1:18	EPA1613_ALS	Dioxin_ALS	---	---
19	---	---	---	---	---	Tray1:19	EPA1613_ALS	Dioxin_ALS	---	---
20	---	---	---	---	---	Tray1:20	EPA1613_ALS	Dioxin_ALS	---	---
21	---	---	---	---	---	Tray1:21	EPA1613_ALS	Dioxin_ALS	---	---
22	---	---	---	---	---	Tray1:22	EPA1613_ALS	Dioxin_ALS	---	---
23	---	---	---	---	---	Tray1:23	EPA1613_ALS	Dioxin_ALS	---	---
24	---	---	---	---	---	Tray1:24	EPA1613_ALS	Dioxin_ALS	---	---
25	---	---	---	---	---	Tray1:25	EPA1613_ALS	Dioxin_ALS	---	---
26	---	---	---	---	---	Tray1:26	EPA1613_ALS	Dioxin_ALS	---	---
27	---	---	---	---	---	Tray1:27	EPA1613_ALS	Dioxin_ALS	---	---
28	---	---	---	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
29	---	---	---	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
30	---	---	---	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
31	---	---	---	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
32	---	---	---	---	---	Tray1:32	EPA1613_ALS	Dioxin_ALS	---	---
33	---	---	---	---	---	Tray1:33	EPA1613_ALS	Dioxin_ALS	---	---
34	---	---	---	---	---	Tray1:34	EPA1613_ALS	Dioxin_ALS	---	---
35	---	---	---	---	---	Tray1:35	EPA1613_ALS	Dioxin_ALS	---	---
36	---	---	---	---	---	Tray1:36	EPA1613_ALS	Dioxin_ALS	---	---
37	---	---	---	---	---	Tray1:37	EPA1613_ALS	Dioxin_ALS	---	---
38	---	---	---	---	---	Tray1:38	EPA1613_ALS	Dioxin_ALS	---	---
39	---	---	---	---	---	Tray1:39	EPA1613_ALS	Dioxin_ALS	---	---

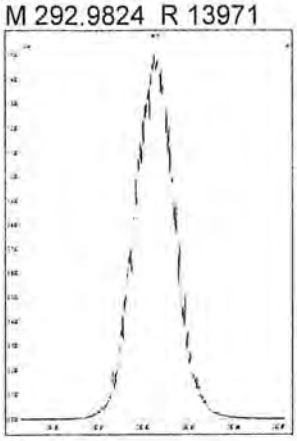
TC 08/24/15

Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

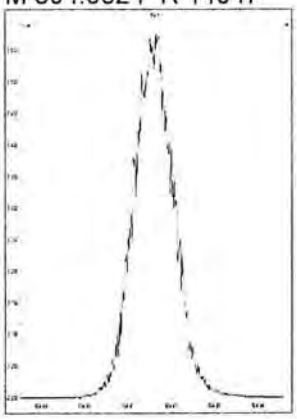
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, August 22, 2015 08:11:23 Central Daylight Time

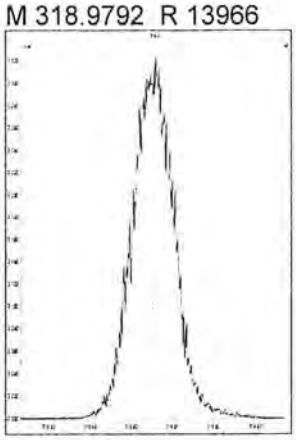
M 292.9824 R 13971



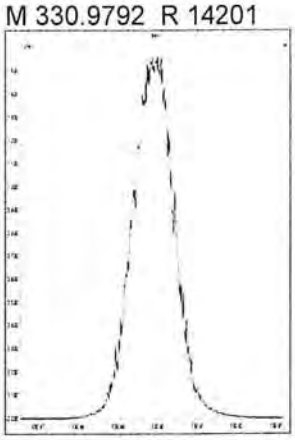
M 304.9824 R 14047



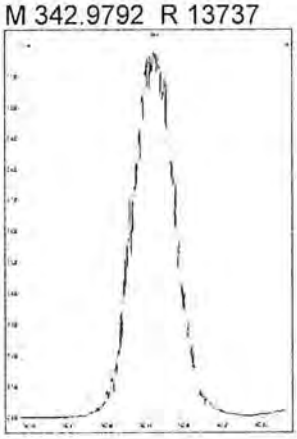
M 318.9792 R 13966



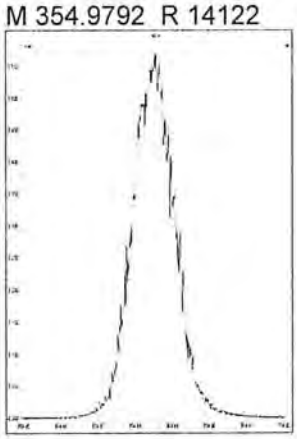
M 330.9792 R 14201



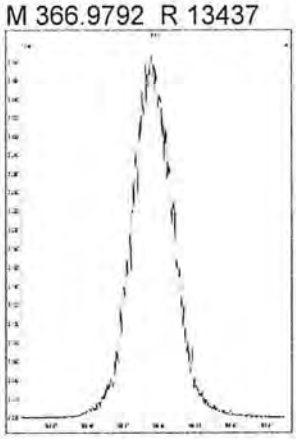
M 342.9792 R 13737



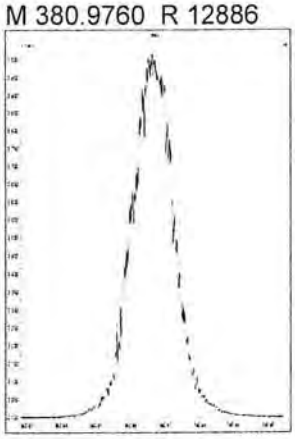
M 354.9792 R 14122



M 366.9792 R 13437



M 380.9760 R 12886

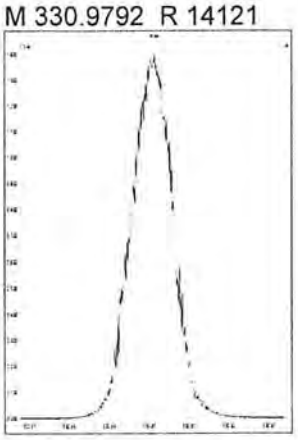


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

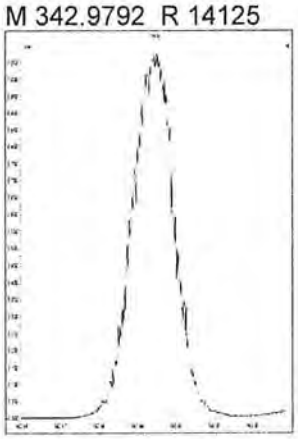
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, August 22, 2015 08:12:11 Central Daylight Time

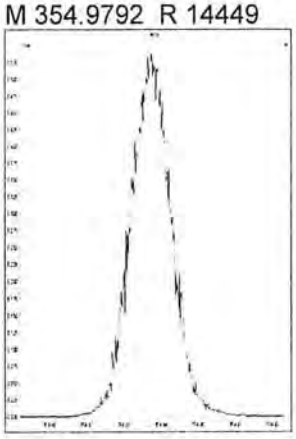
M 330.9792 R 14121



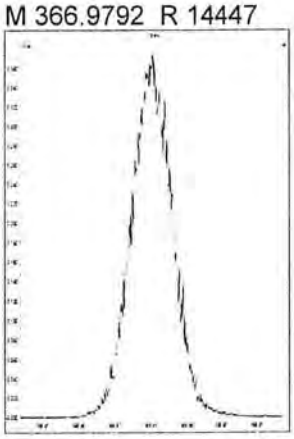
M 342.9792 R 14125



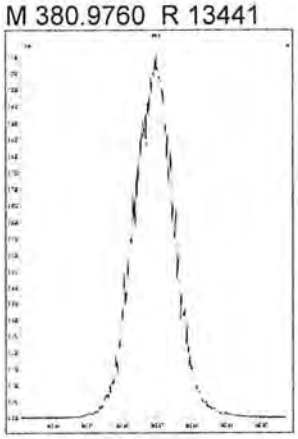
M 354.9792 R 14449



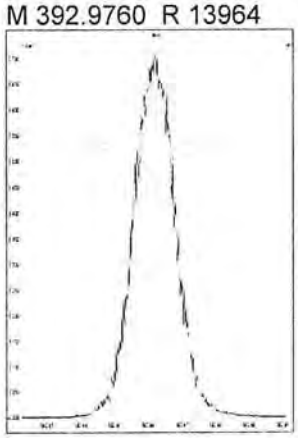
M 366.9792 R 14447



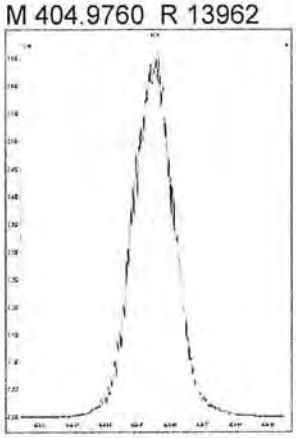
M 380.9760 R 13441



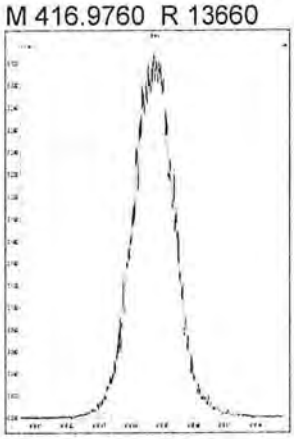
M 392.9760 R 13964



M 404.9760 R 13962



M 416.9760 R 13660

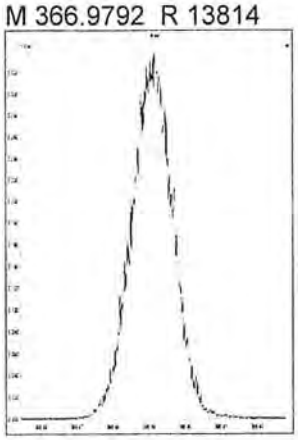


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

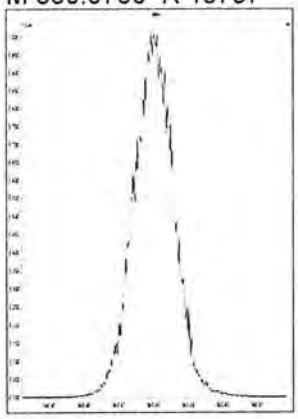
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, August 22, 2015 08:12:42 Central Daylight Time

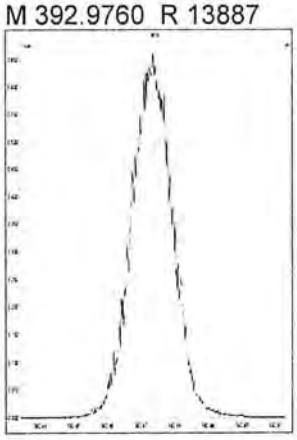
M 366.9792 R 13814



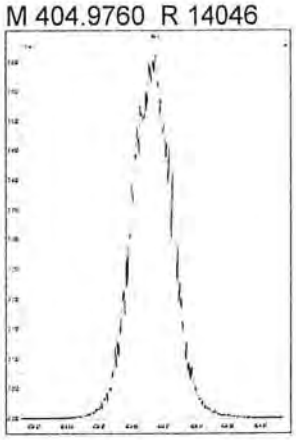
M 380.9760 R 13737



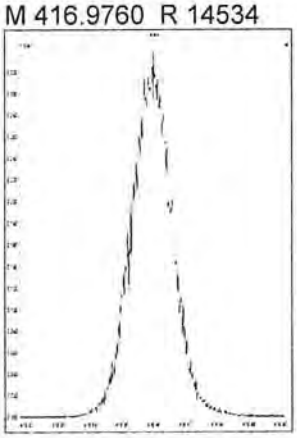
M 392.9760 R 13887



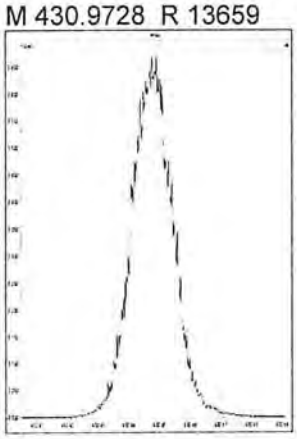
M 404.9760 R 14046



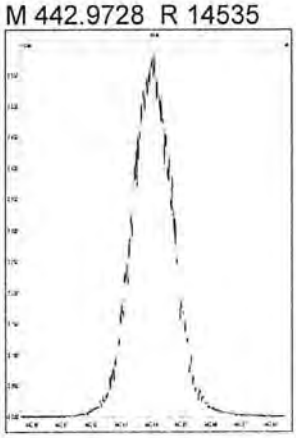
M 416.9760 R 14534



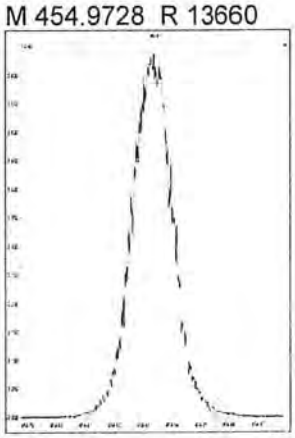
M 430.9728 R 13659



M 442.9728 R 14535



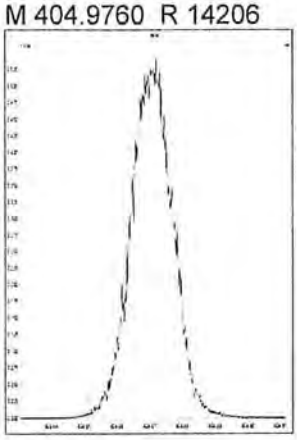
M 454.9728 R 13660



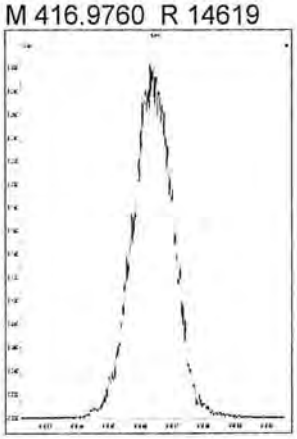
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, August 22, 2015 08:13:39 Central Daylight Time

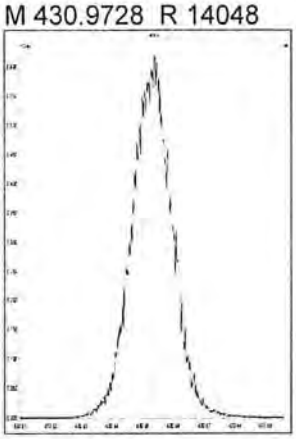
M 404.9760 R 14206



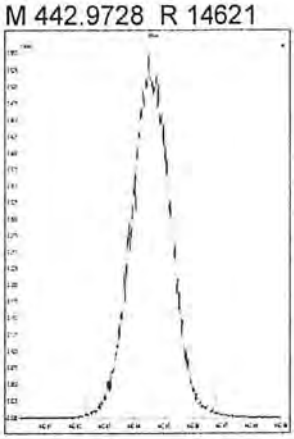
M 416.9760 R 14619



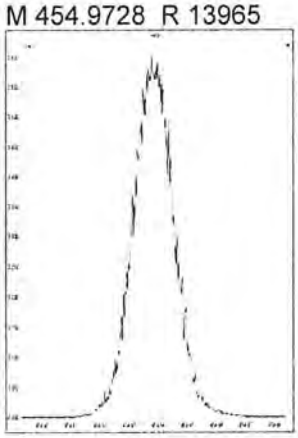
M 430.9728 R 14048



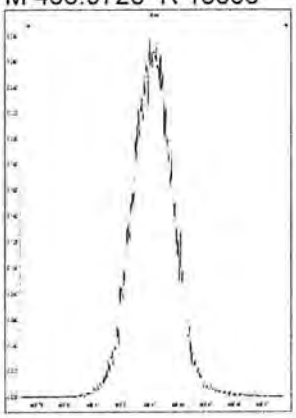
M 442.9728 R 14621



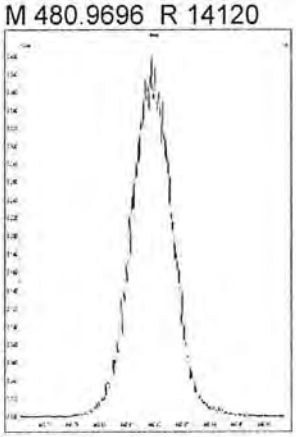
M 454.9728 R 13965



M 466.9728 R 13366



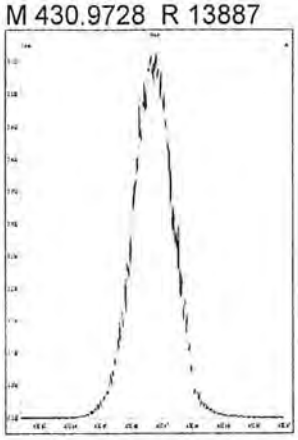
M 480.9696 R 14120



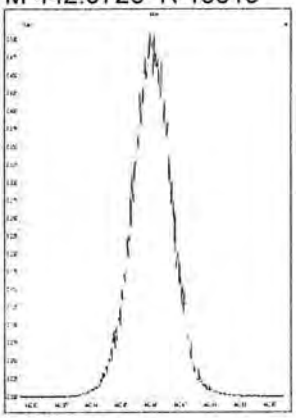
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, August 22, 2015 08:14:18 Central Daylight Time

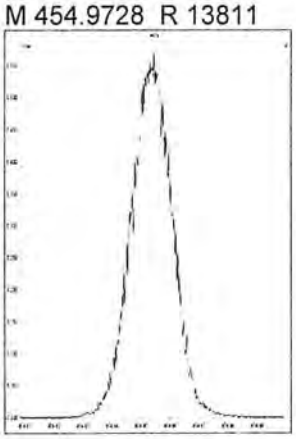
M 430.9728 R 13887



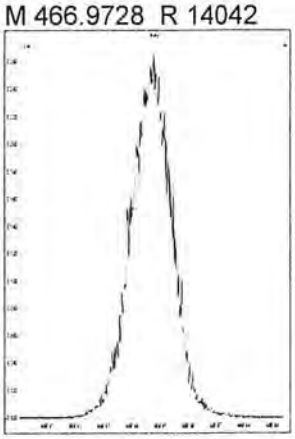
M 442.9728 R 13813



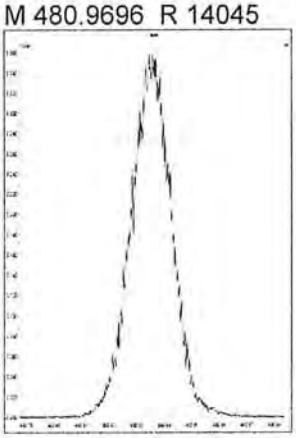
M 454.9728 R 13811



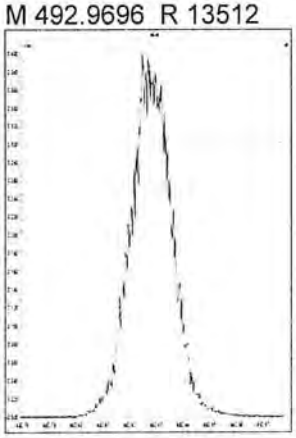
M 466.9728 R 14042



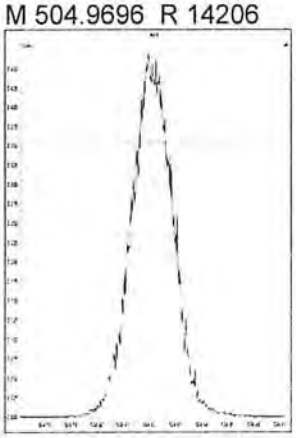
M 480.9696 R 14045



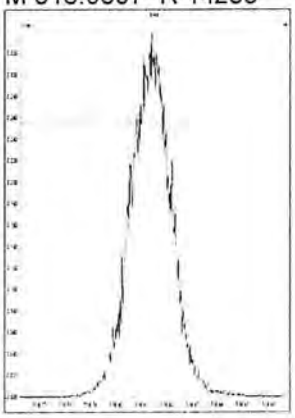
M 492.9696 R 13512



M 504.9696 R 14206



M 516.9697 R 14289

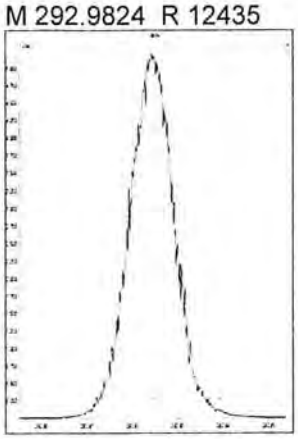


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

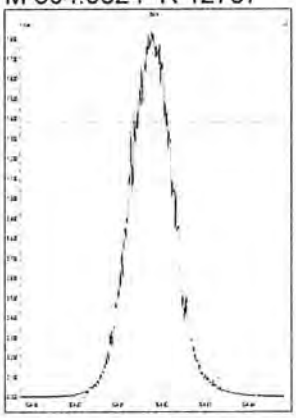
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, August 22, 2015 12:33:15 Central Daylight Time

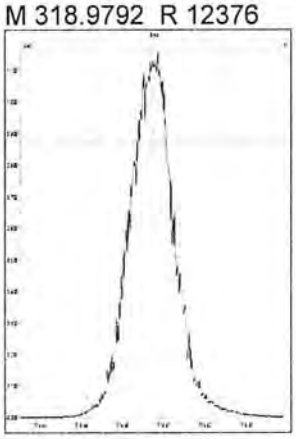
M 292.9824 R 12435



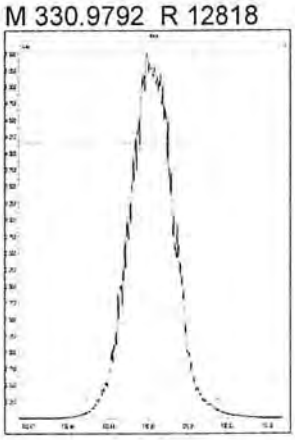
M 304.9824 R 12757



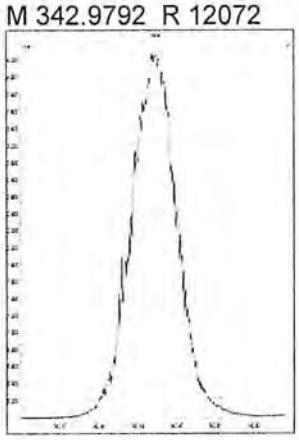
M 318.9792 R 12376



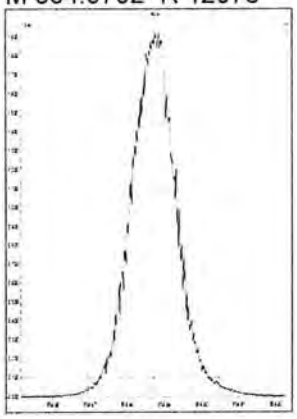
M 330.9792 R 12818



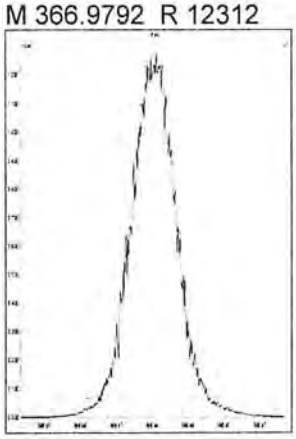
M 342.9792 R 12072



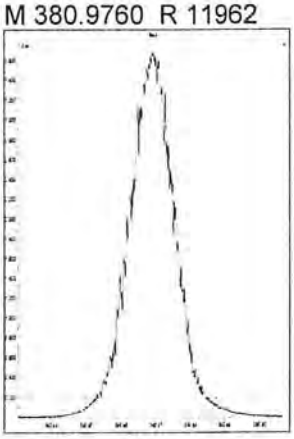
M 354.9792 R 12076



M 366.9792 R 12312



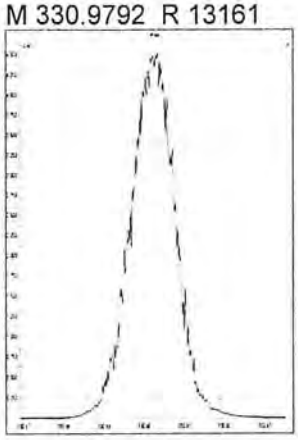
M 380.9760 R 11962



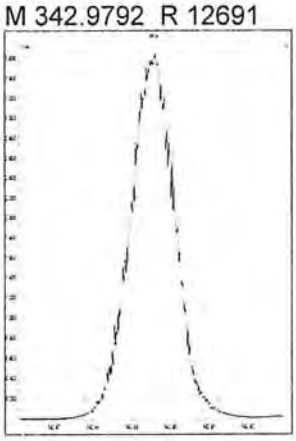
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, August 22, 2015 12:34:24 Central Daylight Time

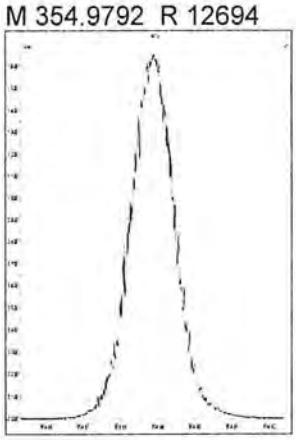
M 330.9792 R 13161



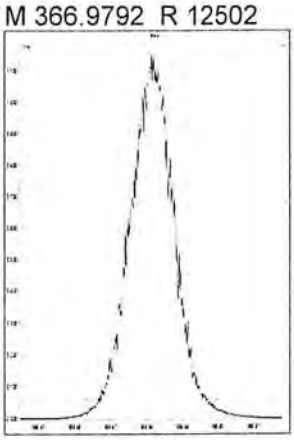
M 342.9792 R 12691



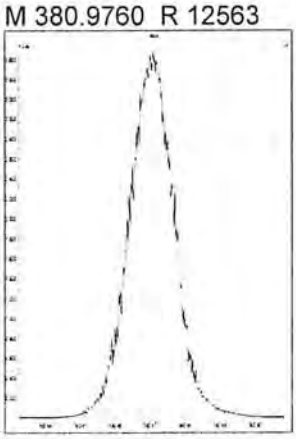
M 354.9792 R 12694



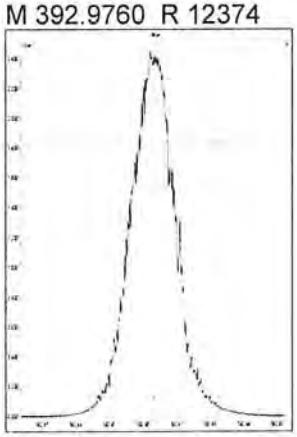
M 366.9792 R 12502



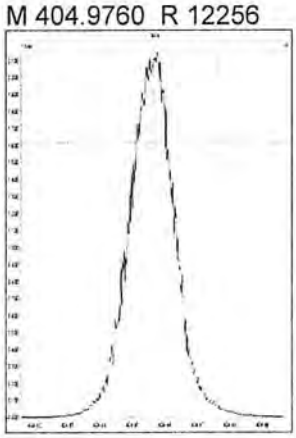
M 380.9760 R 12563



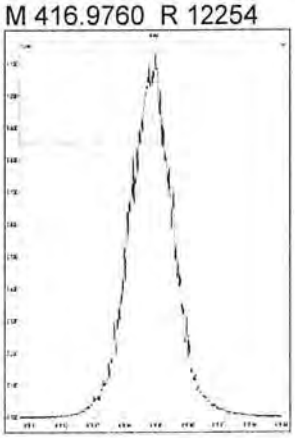
M 392.9760 R 12374



M 404.9760 R 12256



M 416.9760 R 12254

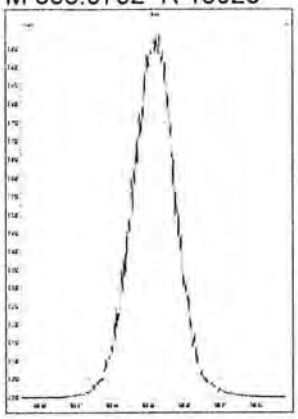


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

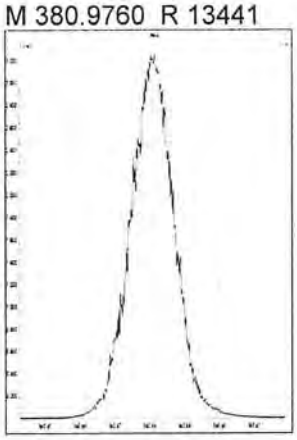
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, August 22, 2015 12:35:33 Central Daylight Time

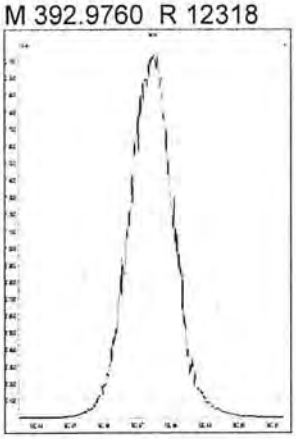
M 366.9792 R 13023



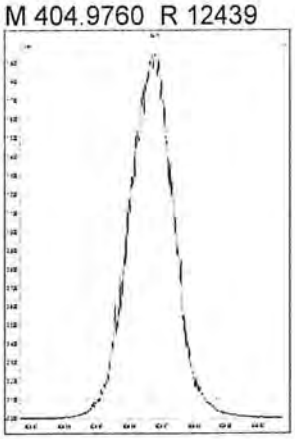
M 380.9760 R 13441



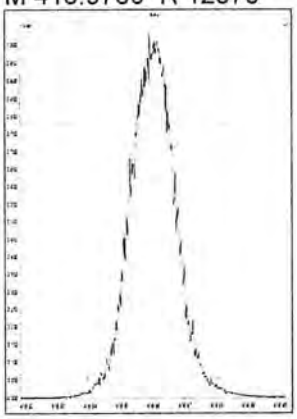
M 392.9760 R 12318



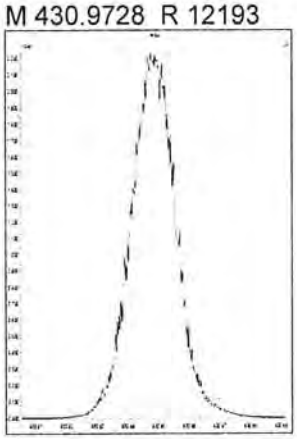
M 404.9760 R 12439



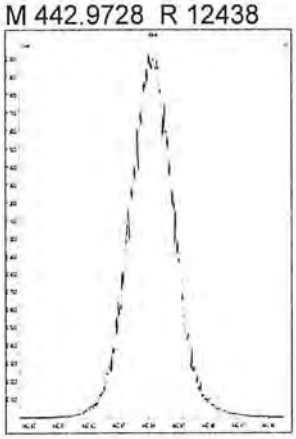
M 416.9760 R 12375



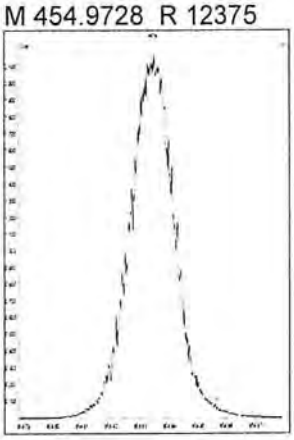
M 430.9728 R 12193



M 442.9728 R 12438



M 454.9728 R 12375

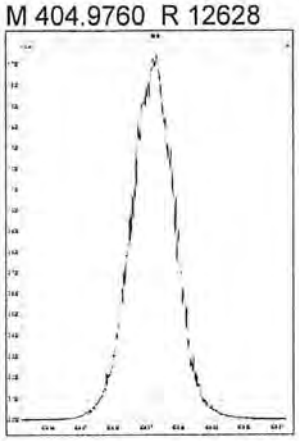


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

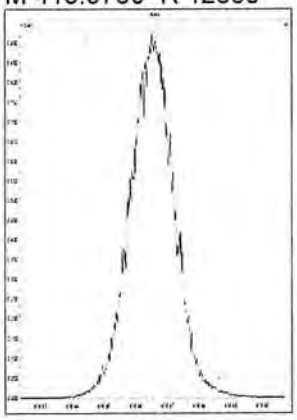
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, August 22, 2015 12:36:50 Central Daylight Time

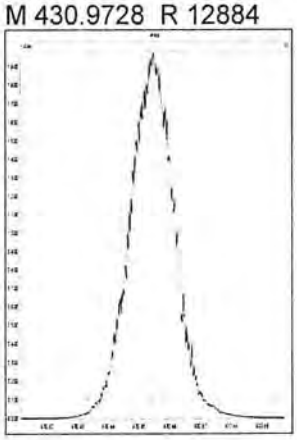
M 404.9760 R 12628



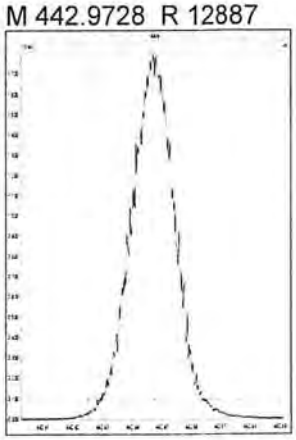
M 416.9760 R 12886



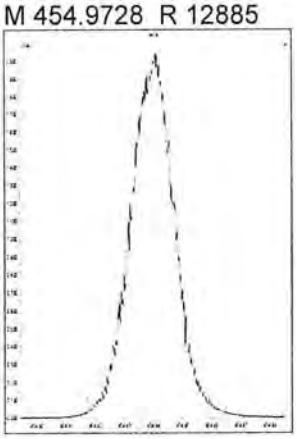
M 430.9728 R 12884



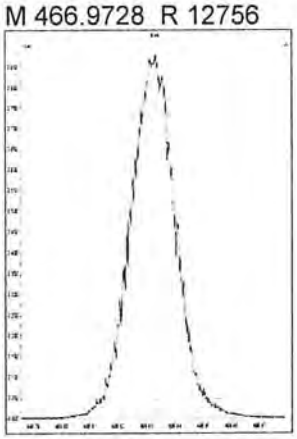
M 442.9728 R 12887



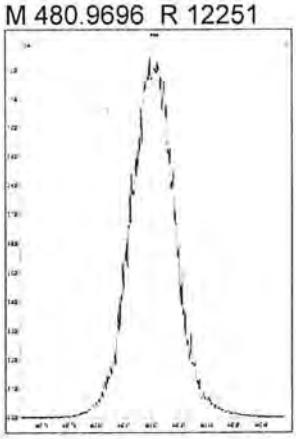
M 454.9728 R 12885



M 466.9728 R 12756



M 480.9696 R 12251

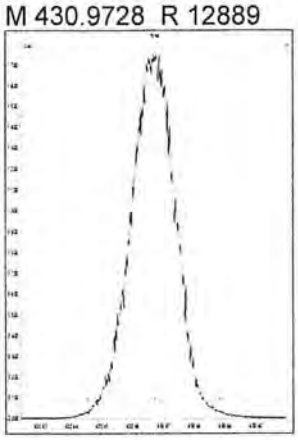


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

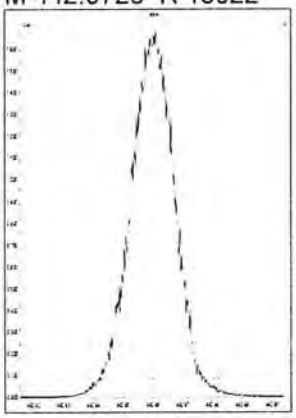
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, August 22, 2015 12:37:57 Central Daylight Time

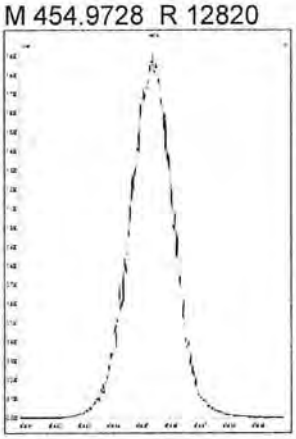
M 430.9728 R 12889



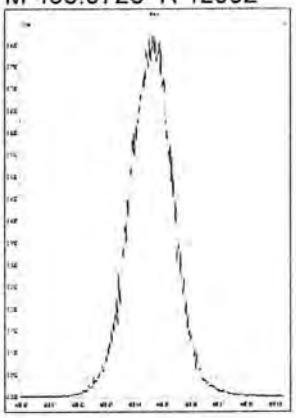
M 442.9728 R 13022



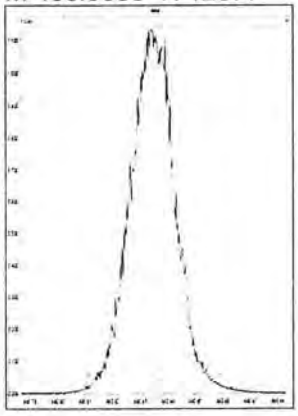
M 454.9728 R 12820



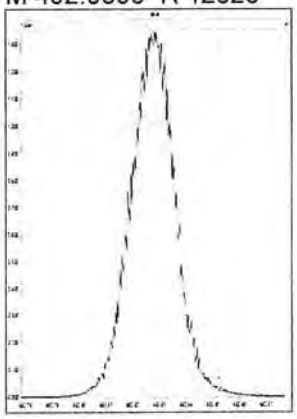
M 466.9728 R 12502



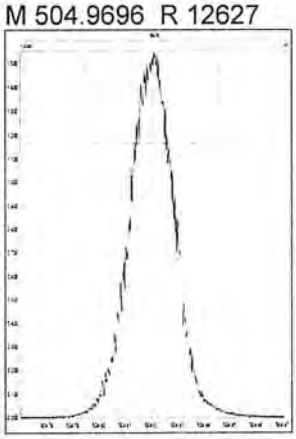
M 480.9696 R 12377



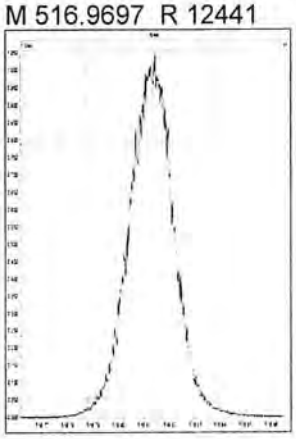
M 492.9696 R 12625



M 504.9696 R 12627



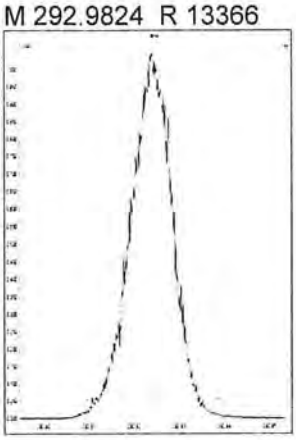
M 516.9697 R 12441



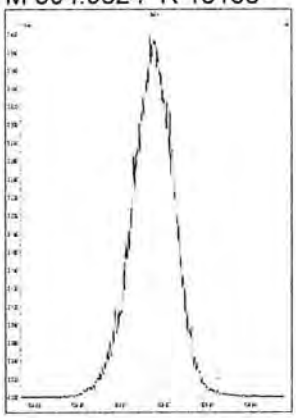
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, August 24, 2015 07:35:16 Central Daylight Time

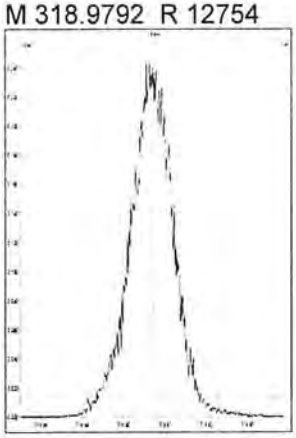
M 292.9824 R 13366



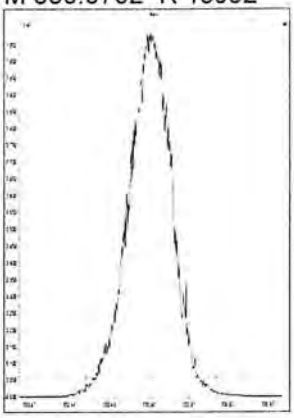
M 304.9824 R 13153



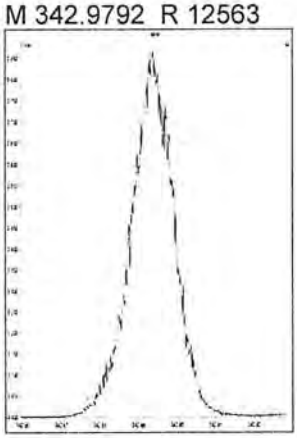
M 318.9792 R 12754



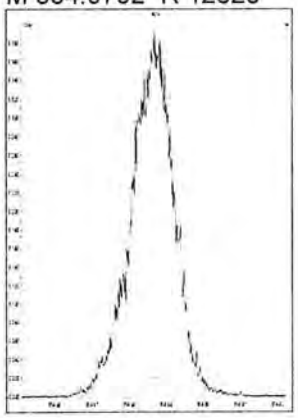
M 330.9792 R 13092



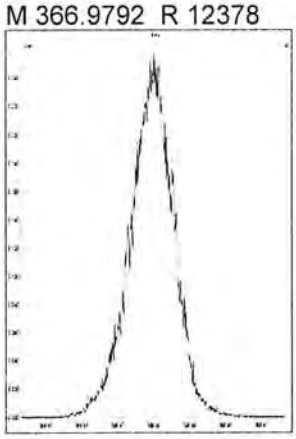
M 342.9792 R 12563



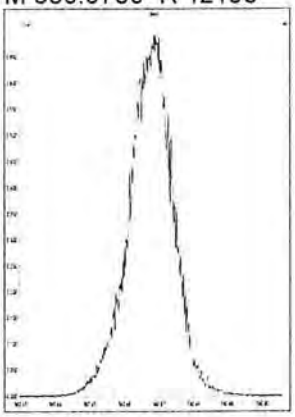
M 354.9792 R 12625



M 366.9792 R 12378



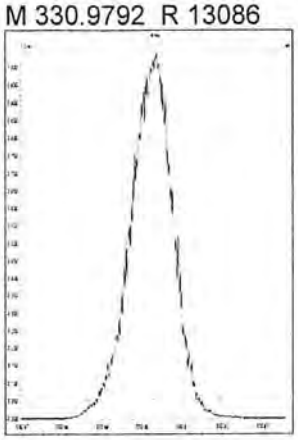
M 380.9760 R 12195



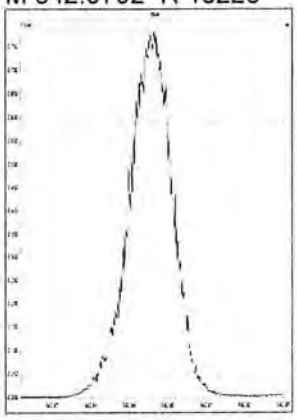
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Monday, August 24, 2015 07:36:00 Central Daylight Time

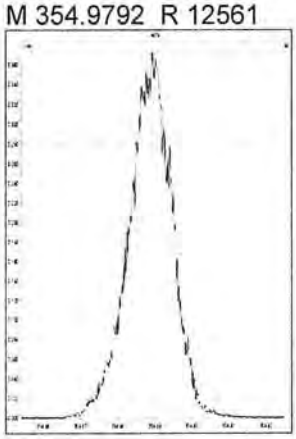
M 330.9792 R 13086



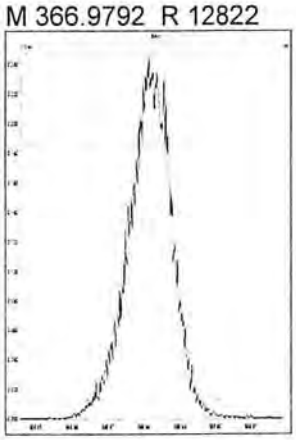
M 342.9792 R 13228



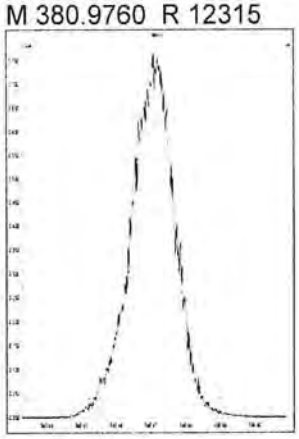
M 354.9792 R 12561



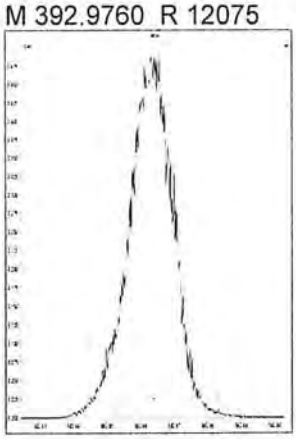
M 366.9792 R 12822



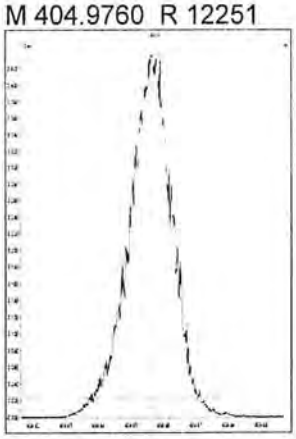
M 380.9760 R 12315



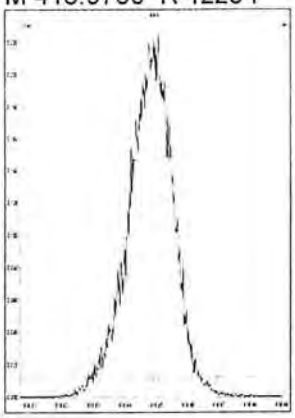
M 392.9760 R 12075



M 404.9760 R 12251



M 416.9760 R 12254

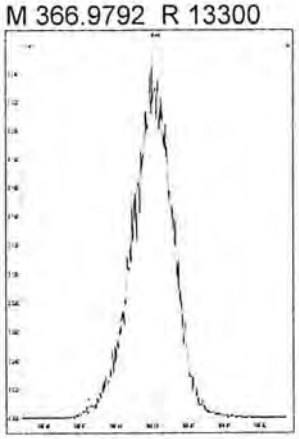


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

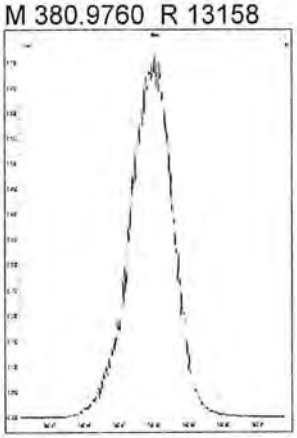
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Monday, August 24, 2015 07:36:52 Central Daylight Time

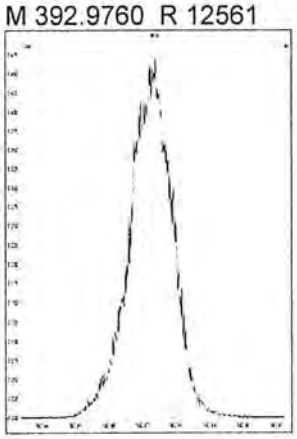
M 366.9792 R 13300



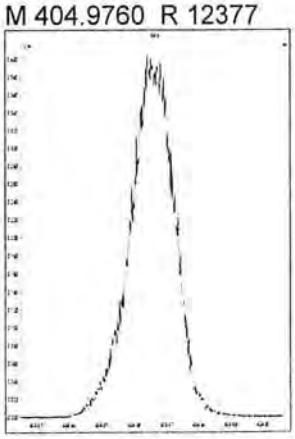
M 380.9760 R 13158



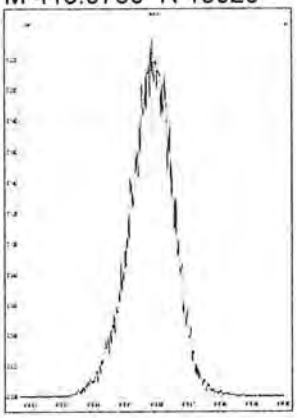
M 392.9760 R 12561



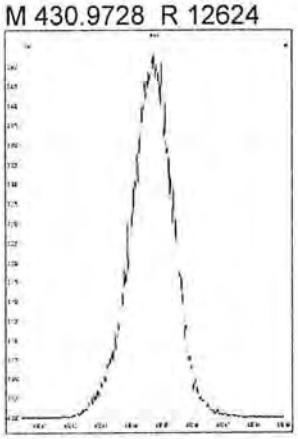
M 404.9760 R 12377



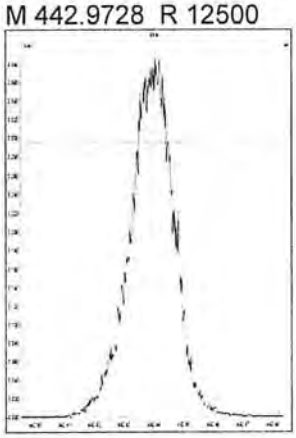
M 416.9760 R 13020



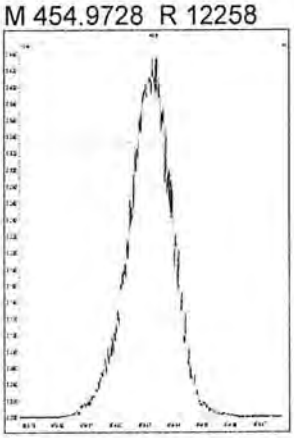
M 430.9728 R 12624



M 442.9728 R 12500



M 454.9728 R 12258

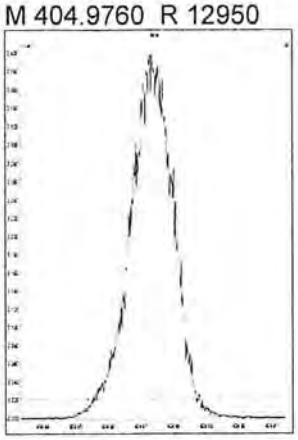


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

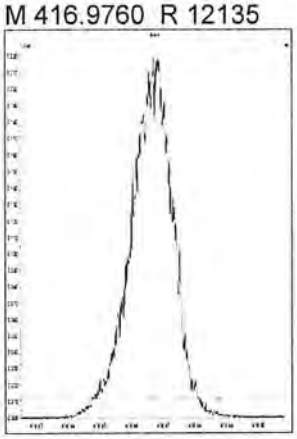
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, August 24, 2015 07:37:36 Central Daylight Time

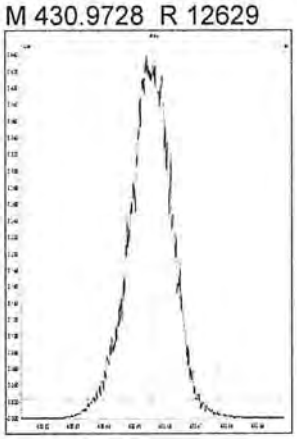
M 404.9760 R 12950



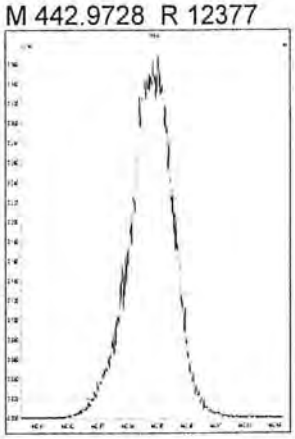
M 416.9760 R 12135



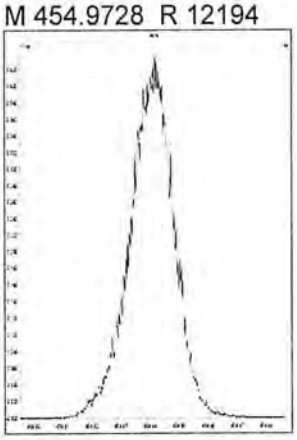
M 430.9728 R 12629



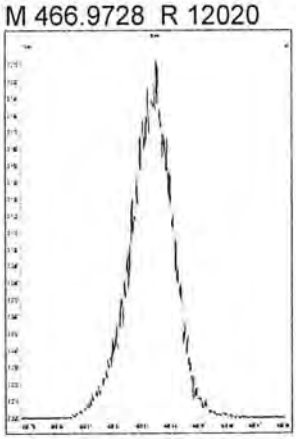
M 442.9728 R 12377



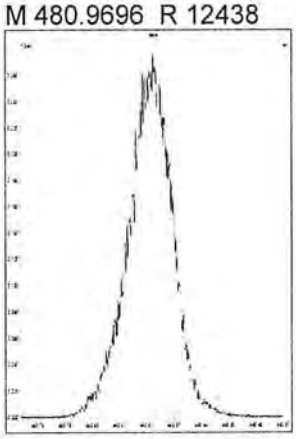
M 454.9728 R 12194



M 466.9728 R 12020



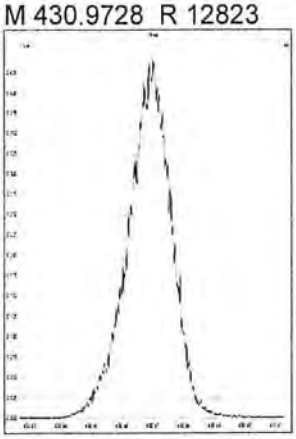
M 480.9696 R 12438



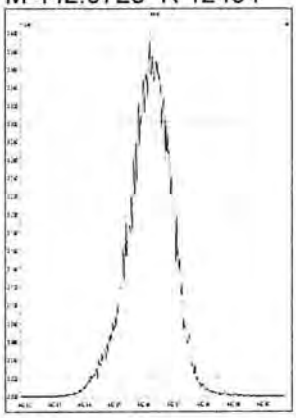
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Monday, August 24, 2015 07:38:13 Central Daylight Time

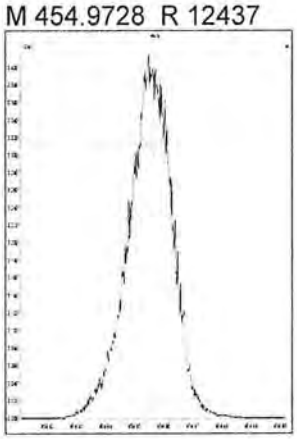
M 430.9728 R 12823



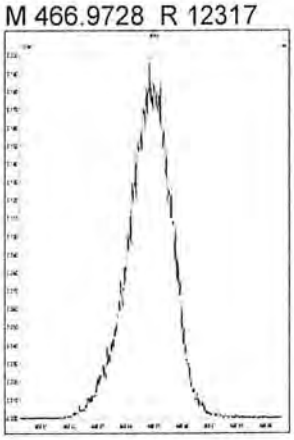
M 442.9728 R 12434



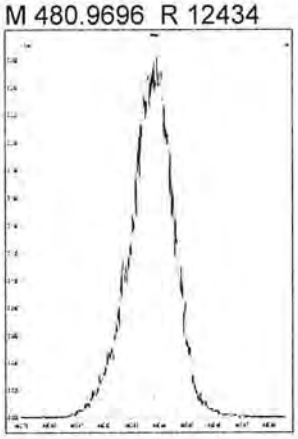
M 454.9728 R 12437



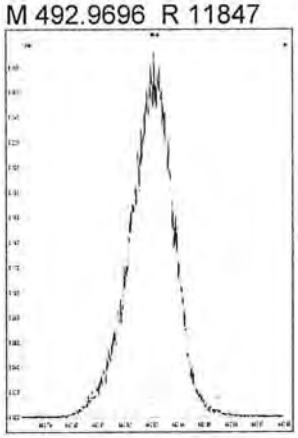
M 466.9728 R 12317



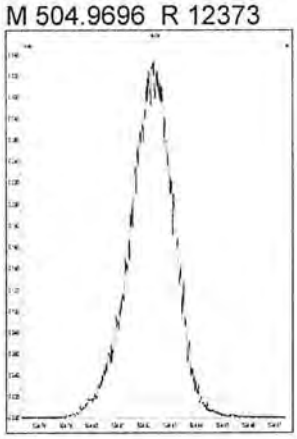
M 480.9696 R 12434



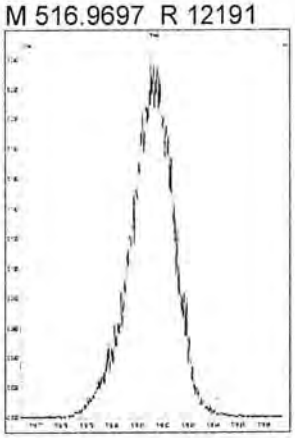
M 492.9696 R 11847



M 504.9696 R 12373



M 516.9697 R 12191



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

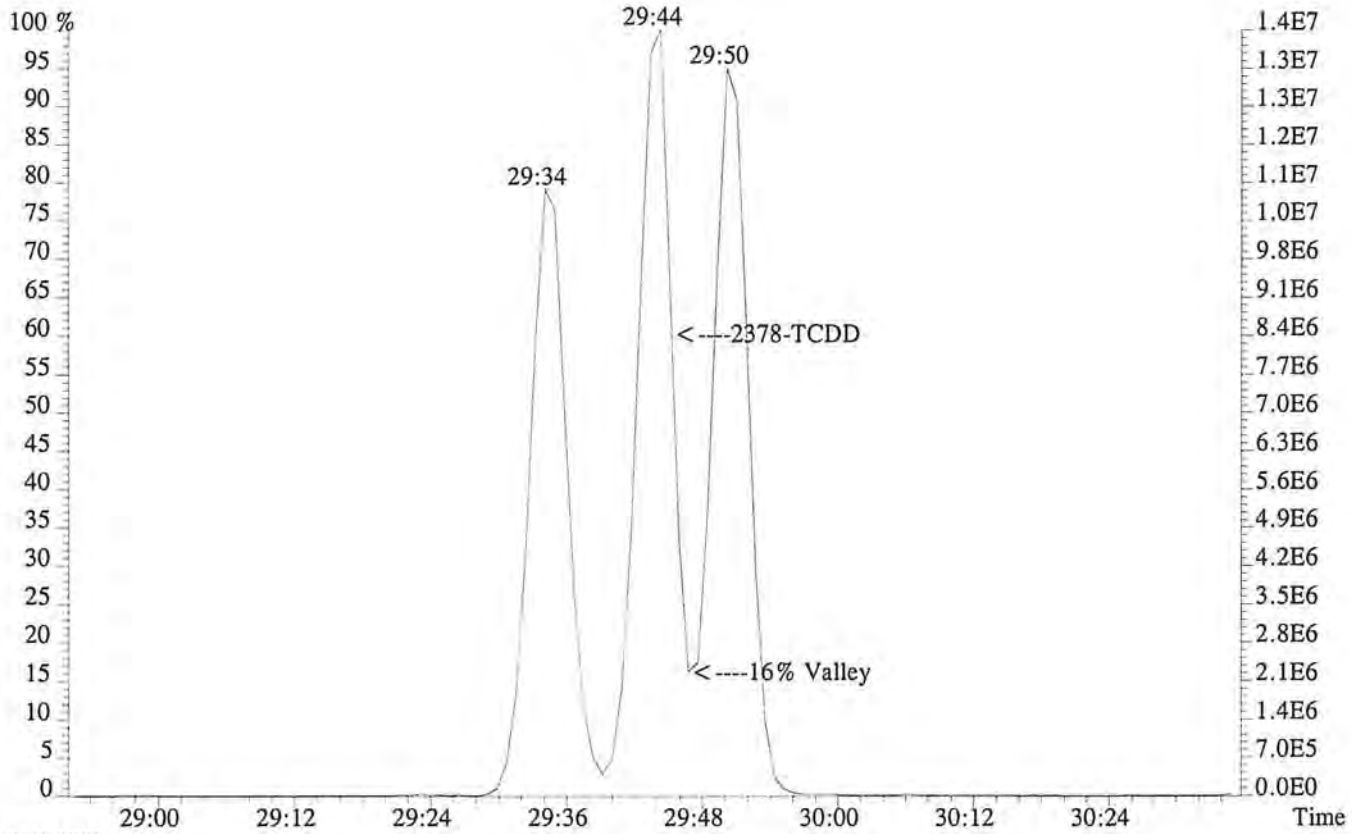
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P600057
Date Analyzed: 22-AUG-2015
Time Analyzed: 07:09:43

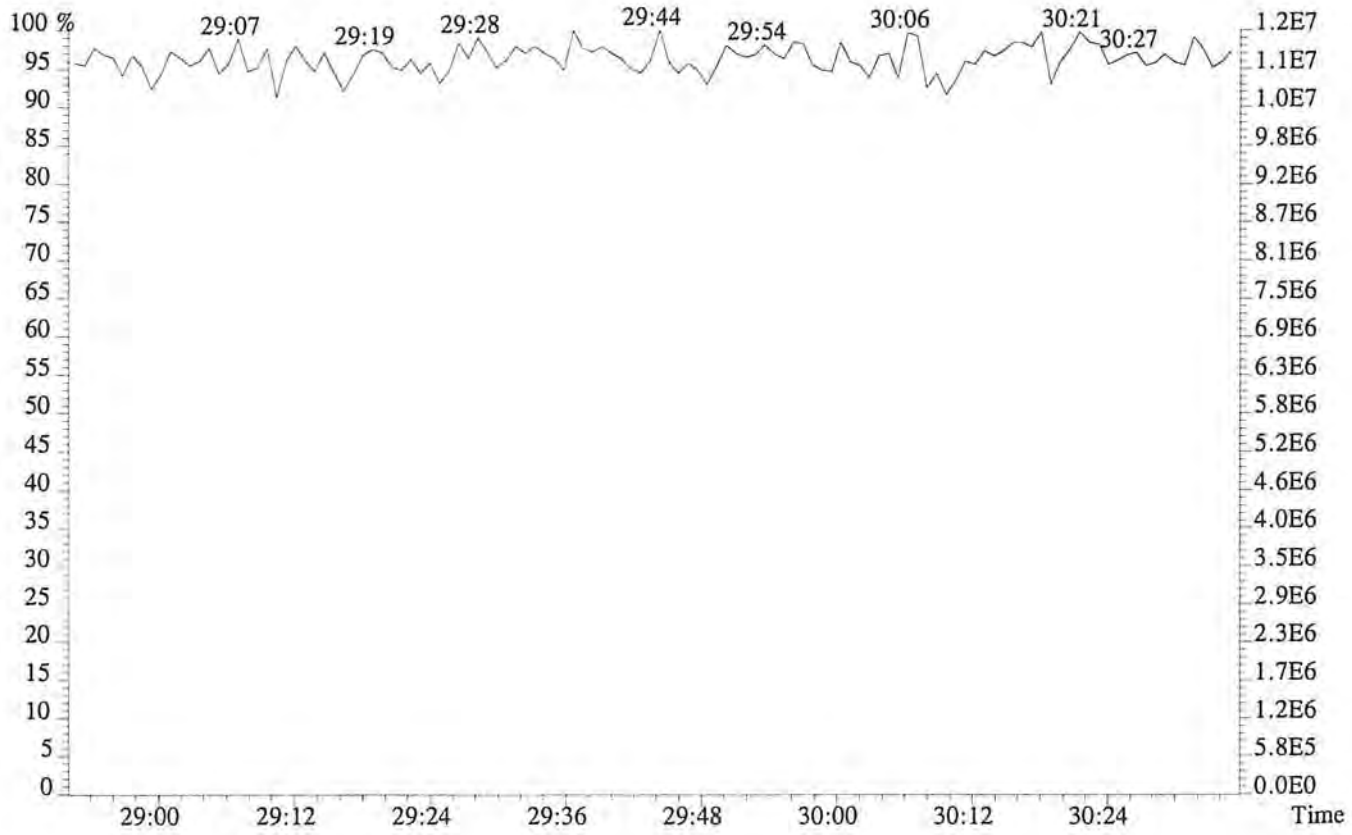
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:51	31:00
TCDD	26:42	30:40
PeCDF	30:45	34:50
PeCDD	32:13	34:35
HxCDF	35:27	37:53
HxCDD	35:57	37:30
HpCDF	39:05	40:31
HpCDD	39:20	40:02

% Valley 2378-TCDD: 16 %

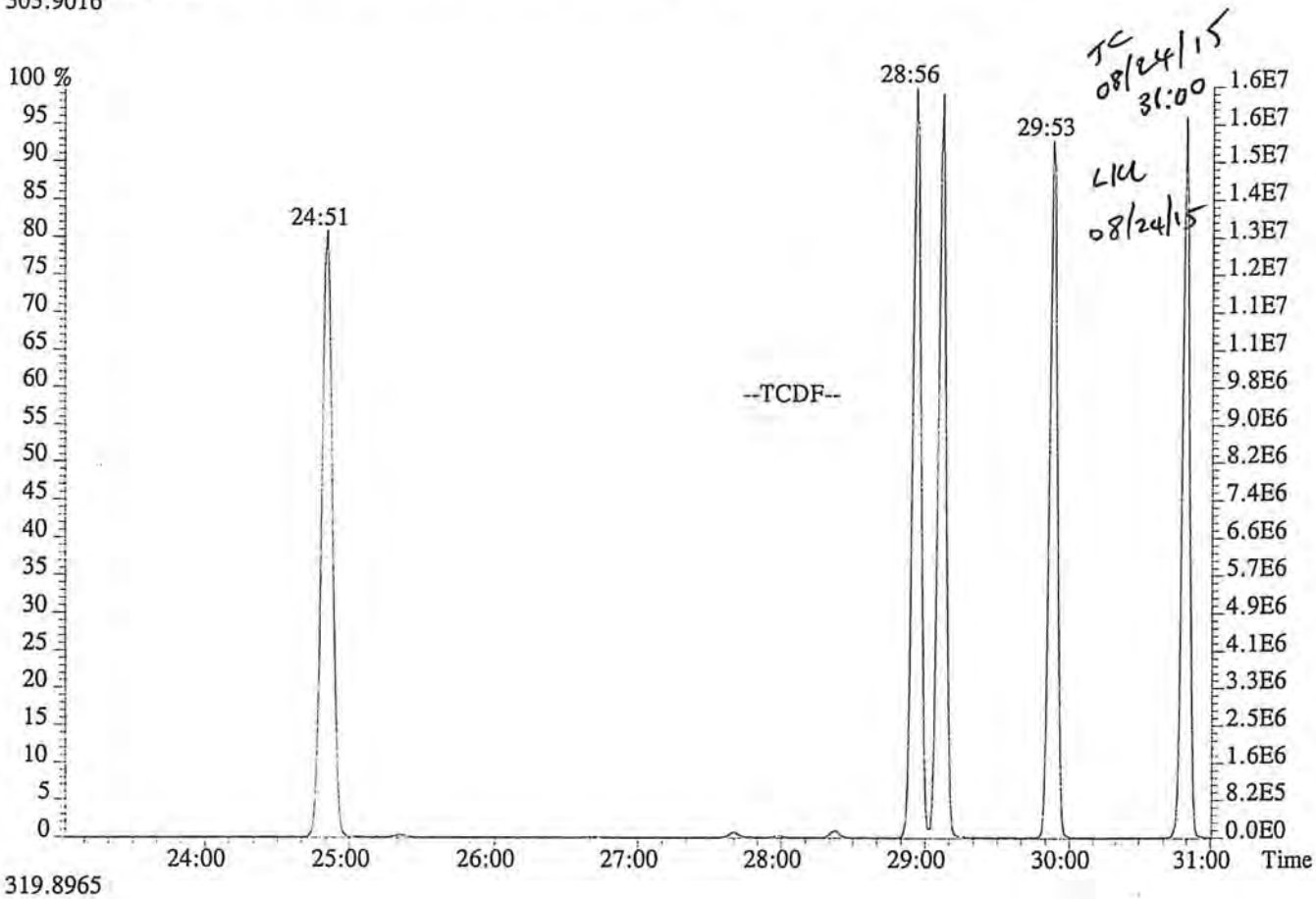
File:P600057 #1-566 Acq:22-AUG-2015 07:09:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WD
319.8965



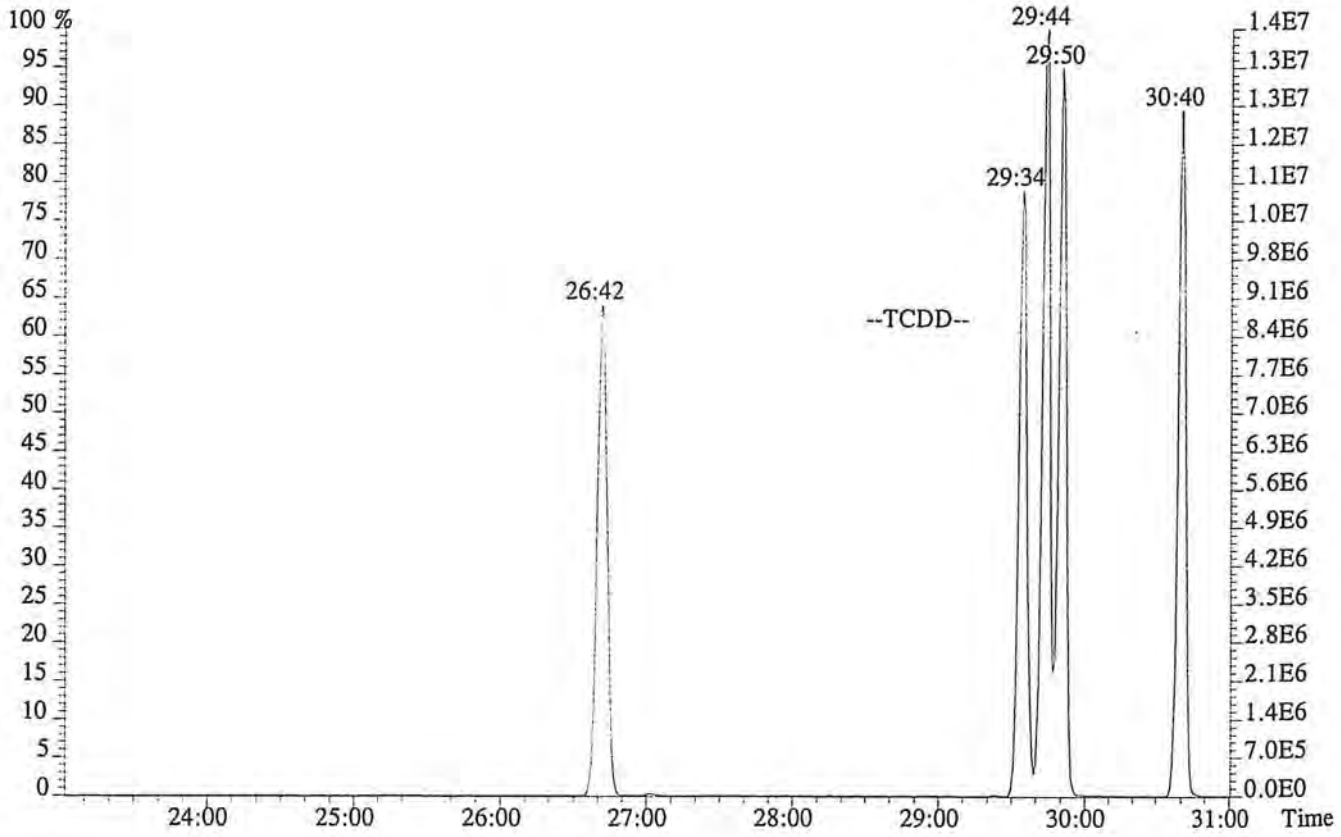
318.9792



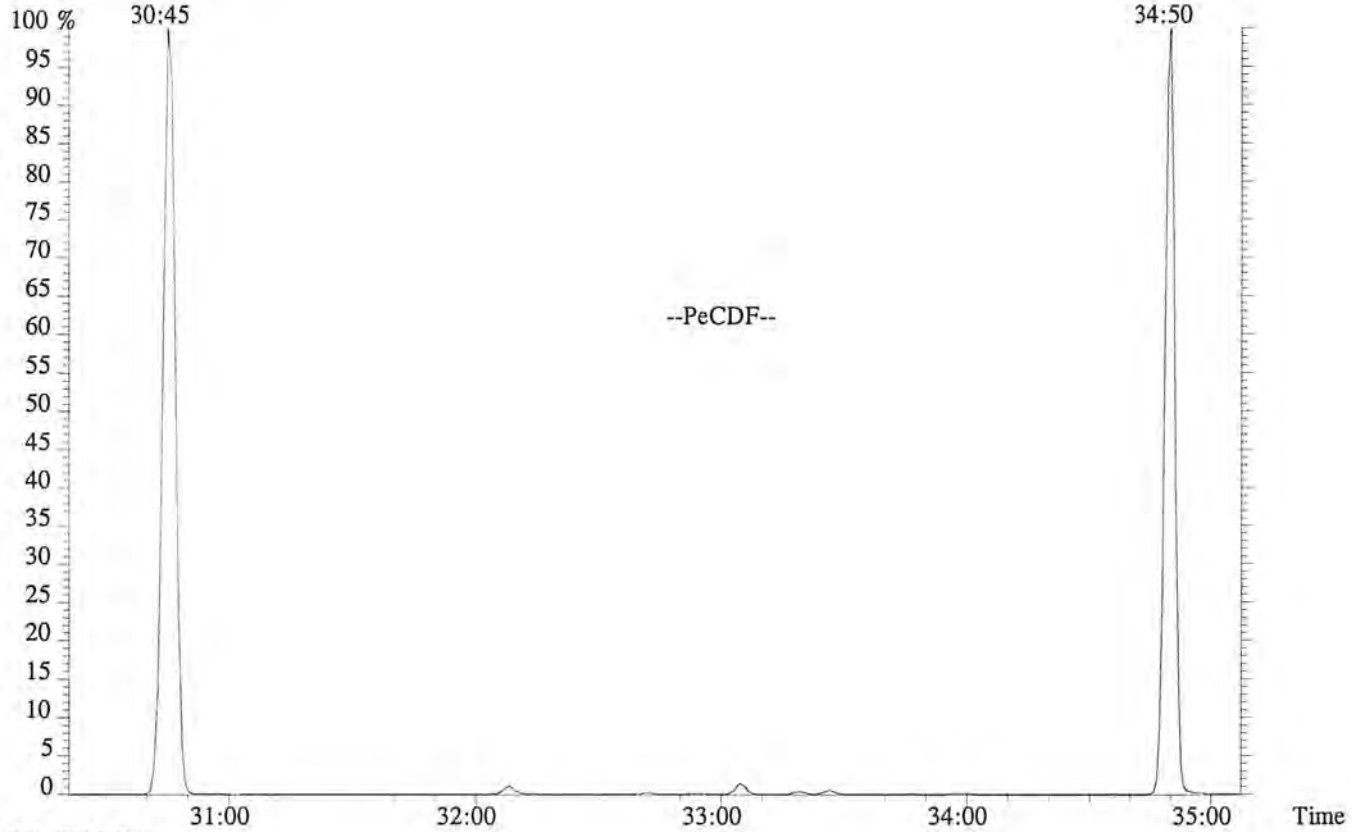
File:P600057 #1-566 Acq:22-AUG-2015 07:09:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WD
303.9016



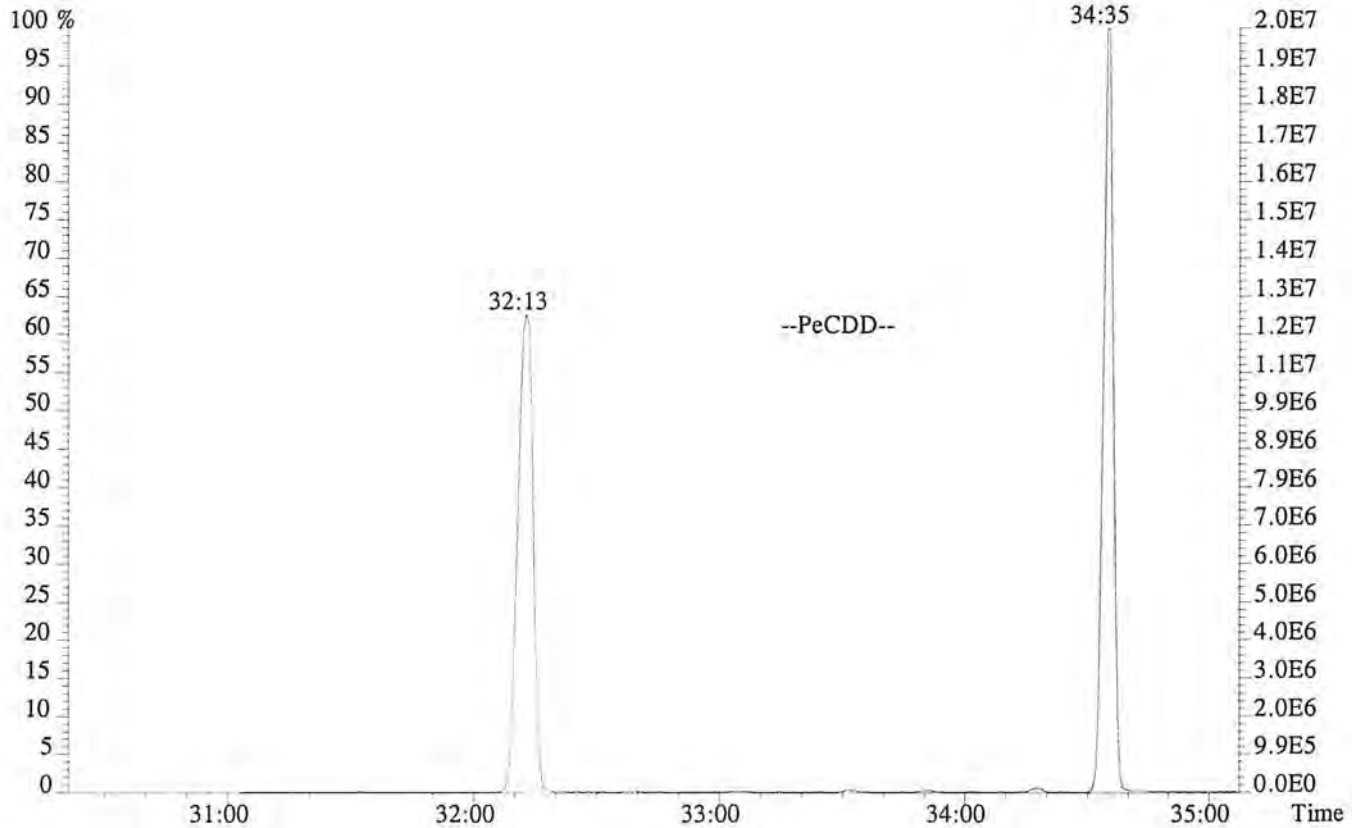
319.8965



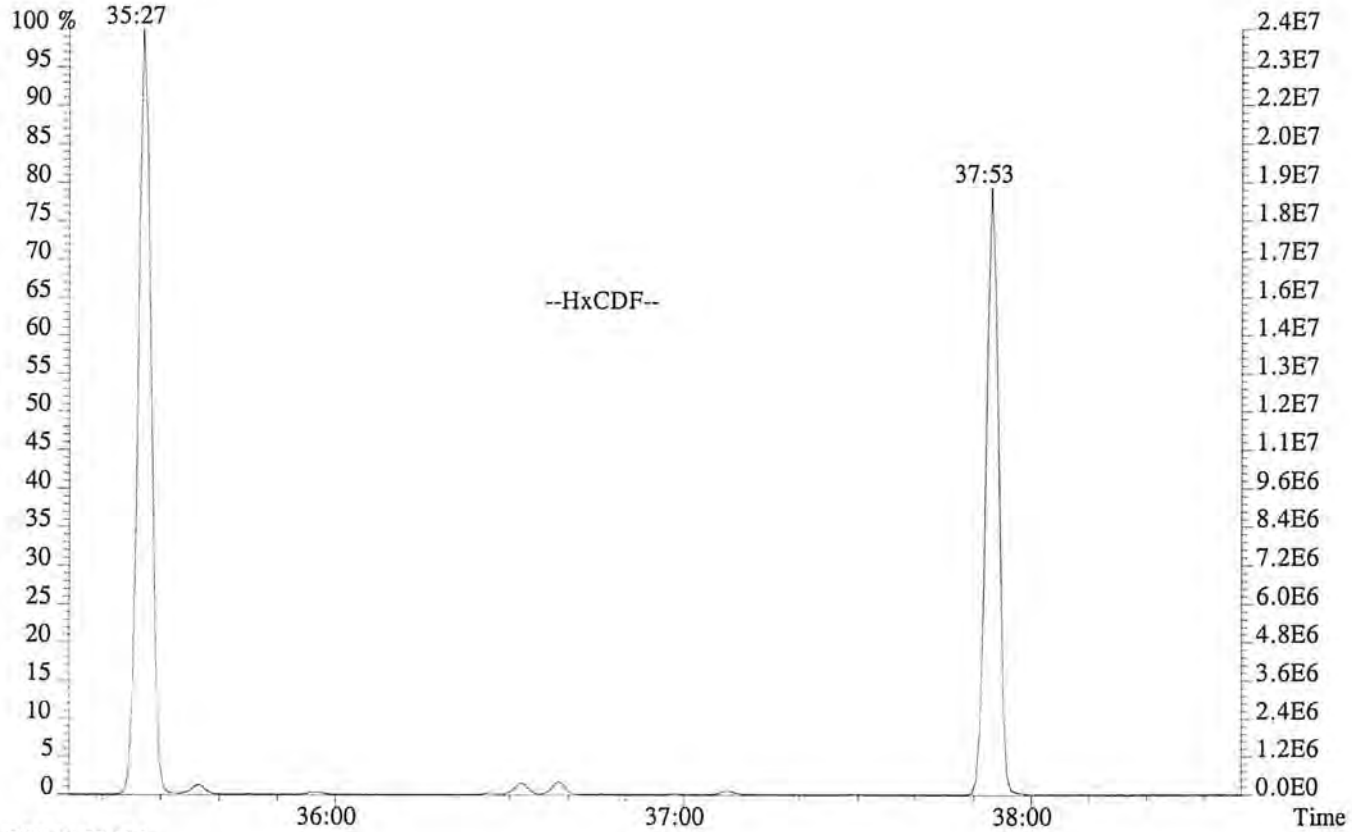
File:P600057 #1-566 Acq:22-AUG-2015 07:09:43 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:WD
339.8597,339.8597 F:2



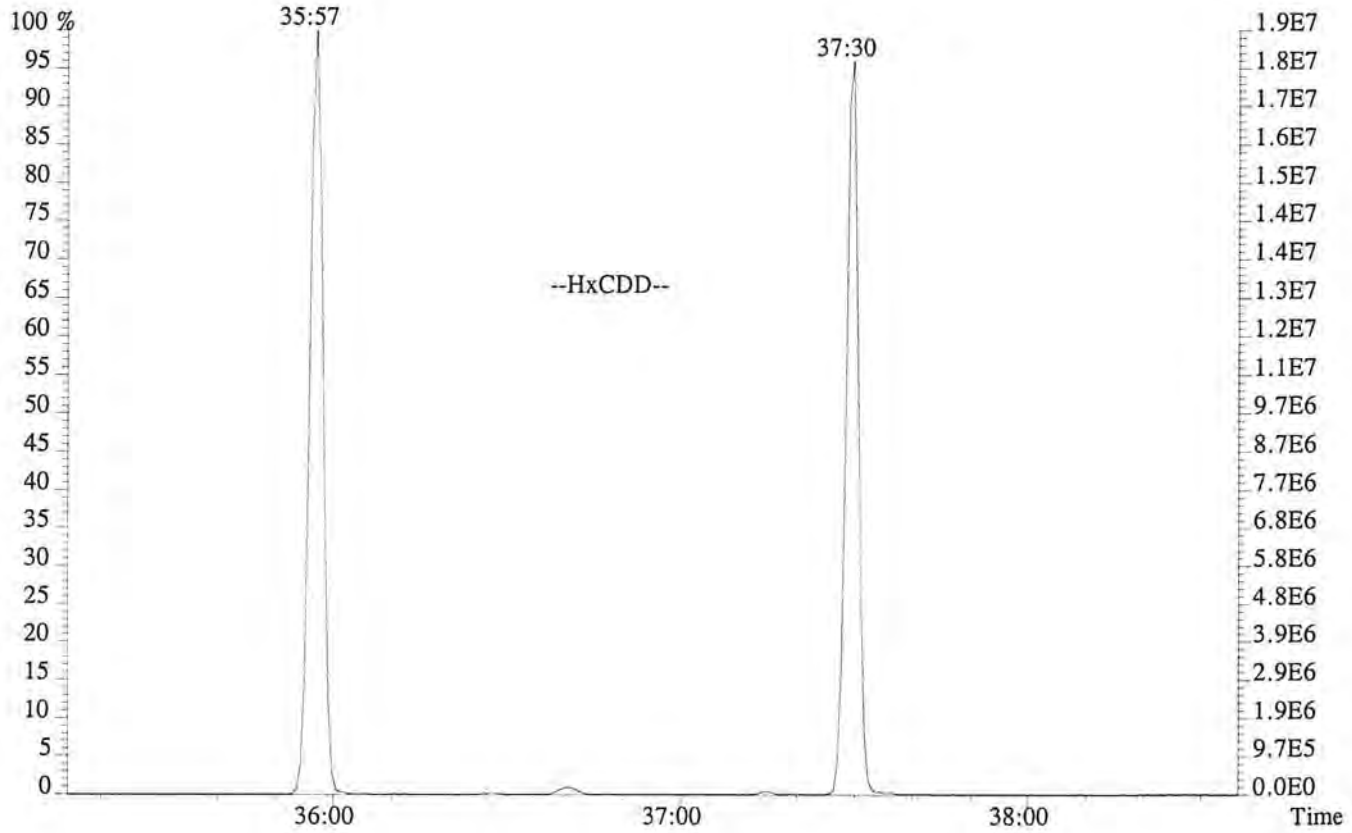
355.8546 F:2



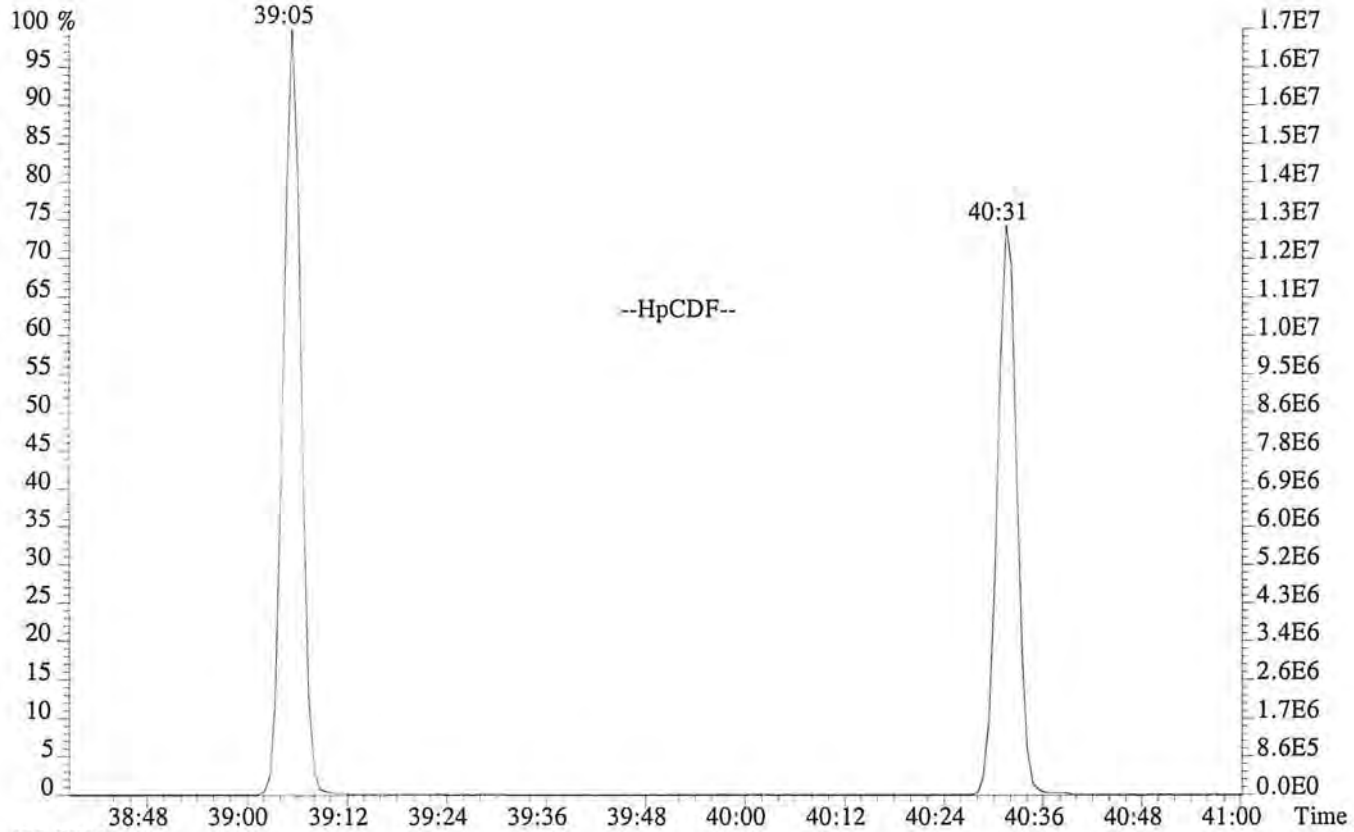
File:P600057 #1-304 Acq:22-AUG-2015 07:09:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WD
373.8208 F:3



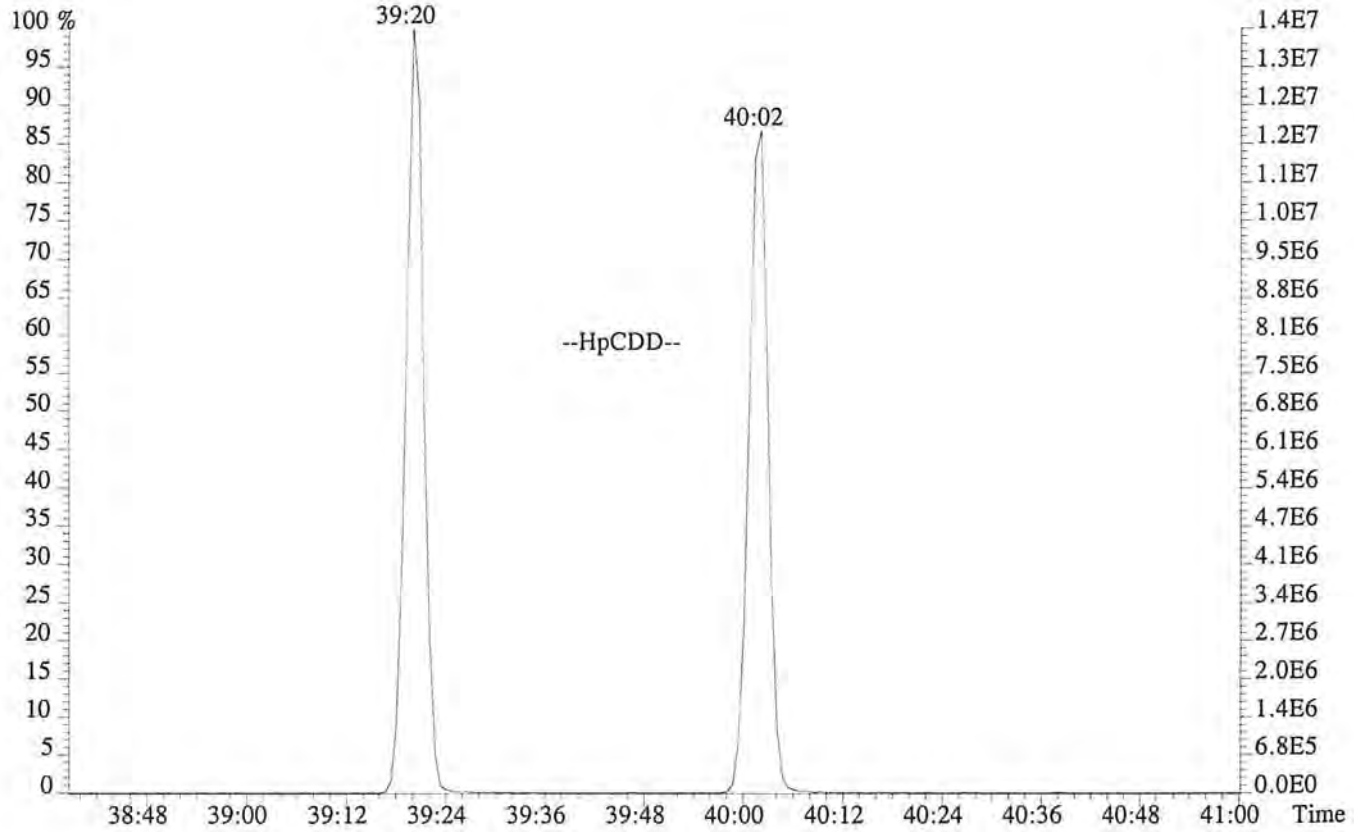
389.8157 F:3



File:P600057 #1-213 Acq:22-AUG-2015 07:09:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WD
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/19/15

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: p600055 Analysis Date: 22-AUG-15 Time: 05:31:38

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.9	7.8 - 12.9	-1.0
1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	49	39 - 65	-1.3
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	50	39 - 64	-0.4
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	51	39 - 64	1.4
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	46	41 - 61	-8.1
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	49	43 - 58	-1.3
OCDD	M+2/M+4	0.89	0.76-1.02	100	79 - 126	-0.2
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	10.0	8.4 - 12.0	-0.3
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	52	41 - 60	3.8
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	52	41 - 61	3.9
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	51	45 - 56	1.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	50	44 - 57	0.6
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	48	45 - 56	-3.1
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	51	44 - 57	1.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	49	45 - 55	-1.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	49	43 - 58	-1.6
OCDF	M+2/M+4	0.90	0.76-1.02	104	63 - 159	4.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/19/15

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: p600055 Analysis Date: 22-AUG-15 Time: 05:31:38

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	86	82 - 121	-14.3
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	99	62 - 160	-1.2
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	110	85 - 117	9.9
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	106	85 - 118	5.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	104	72 - 138	3.5
13C-OCDD	M+2/M+4	0.90	0.76-1.02	209	96 - 415	4.5
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	101	71 - 140	0.9
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	98	76 - 130	-2.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	98	77 - 130	-2.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	116	76 - 131	16.3
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	119	70 - 143	19.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	91	74 - 135	-8.9
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	107	73 - 137	6.7
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	106	78 - 129	6.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	91	77 - 129	-8.8
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				8.5	7.8 - 12.7	-15.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
79857

Run #7 Filename p600055 Samp: 1 Inj: 1 Acquired: 22-AUG-15 05:31:38
Processed: 24-AUG-15 09:27:34 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:08	3.029e+04	3.897e+04	0.78	yes	no	0.941
2	Unk	1,2,3,7,8-PeCDF	33:06	2.365e+05	1.515e+05	1.56	yes	no	0.987
3	Unk	2,3,4,7,8-PeCDF	33:58	2.232e+05	1.447e+05	1.54	yes	no	0.934
4	Unk	1,2,3,4,7,8-HxCDF	36:33	1.871e+05	1.503e+05	1.24	yes	no	1.189
5	Unk	1,2,3,6,7,8-HxCDF	36:39	1.929e+05	1.553e+05	1.24	yes	no	1.126
6	Unk	2,3,4,6,7,8-HxCDF	37:08	1.683e+05	1.355e+05	1.24	yes	no	1.116
7	Unk	1,2,3,7,8,9-HxCDF	37:52	1.291e+05	1.042e+05	1.24	yes	no	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:06	1.422e+05	1.394e+05	1.02	yes	no	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:33	1.194e+05	1.159e+05	1.03	yes	no	1.287
10	Unk	OCDF	43:07	1.856e+05	2.052e+05	0.90	yes	no	1.257
11	Unk	2,3,7,8-TCDD	29:52	2.385e+04	3.043e+04	0.78	yes	no	1.010
12	Unk	1,2,3,7,8-PeCDD	34:14	1.615e+05	1.025e+05	1.58	yes	no	0.932
13	Unk	1,2,3,4,7,8-HxCDD	37:16	1.254e+05	1.014e+05	1.24	yes	no	1.026
14	Unk	1,2,3,6,7,8-HxCDD	37:20	1.168e+05	9.297e+04	1.26	yes	no	1.021
15	Unk	1,2,3,7,8,9-HxCDD	37:34	1.224e+05	9.872e+04	1.24	yes	no	1.133
16	Unk	1,2,3,4,6,7,8-HpCDD	40:03	1.074e+05	1.027e+05	1.05	yes	no	1.034
17	Unk	OCDD	42:54	1.563e+05	1.751e+05	0.89	yes	no	1.111
18	IS	13C-2,3,7,8-TCDF	29:07	3.258e+05	4.126e+05	0.79	yes	no	1.379
19	IS	13C-1,2,3,7,8-PeCDF	33:05	4.632e+05	2.939e+05	1.58	yes	no	1.456
20	IS	13C-2,3,4,7,8-PeCDF	33:57	4.631e+05	2.954e+05	1.57	yes	no	1.465
21	IS	13C-1,2,3,4,7,8-HxCDF	36:32	1.907e+05	3.664e+05	0.52	yes	no	1.075
22	IS	13C-1,2,3,6,7,8-HxCDF	36:38	2.106e+05	4.041e+05	0.52	yes	no	1.158
23	IS	13C-2,3,4,6,7,8-HxCDF	37:08	1.851e+05	3.540e+05	0.52	yes	no	1.133
24	IS	13C-1,2,3,7,8,9-HxCDF	37:52	1.432e+05	2.725e+05	0.53	yes	no	1.024
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:05	1.299e+05	2.868e+05	0.45	yes	no	0.880
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:32	1.151e+05	2.567e+05	0.45	yes	no	0.914
27	IS	13C-2,3,7,8-TCDD	29:50	2.374e+05	3.051e+05	0.78	yes	no	1.193
28	IS	13C-1,2,3,7,8-PeCDD	34:13	3.504e+05	2.233e+05	1.57	yes	no	1.094
29	IS	13C-1,2,3,4,7,8-HxCDD	37:15	2.469e+05	1.969e+05	1.25	yes	no	0.906
30	IS	13C-1,2,3,6,7,8-HxCDD	37:20	2.264e+05	1.789e+05	1.27	yes	no	0.860
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:02	2.112e+05	2.007e+05	1.05	yes	no	0.892
32	IS	13C-OCDD	42:54	2.830e+05	3.150e+05	0.90	yes	no	0.642
33	RS/RT	13C-1,2,3,4-TCDD	29:19	2.342e+05	2.966e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:34	2.479e+05	1.980e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:51	5.685e+04				no	1.263

ALS ENVIRONMENTAL
10450 Stancliff Rd, Suite 115
Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
79857

Run #7 Filename p600055 Samp: 1 Inj: 1 Acquired: 22-AUG-15 05:31:38
Processed: 24-AUG-15 09:27:34 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.04e+06	9.24e+02	6.5e+03	7.76e+06	1.53e+03	5.1e+03
2	1,2,3,7,8-PeCDF	4.72e+07	1.45e+03	3.3e+04	3.01e+07	2.92e+03	1.0e+04
3	2,3,4,7,8-PeCDF	4.76e+07	1.45e+03	3.3e+04	3.09e+07	2.92e+03	1.1e+04
4	1,2,3,4,7,8-HxCDF	4.13e+07	9.92e+02	4.2e+04	3.34e+07	5.56e+02	6.0e+04
5	1,2,3,6,7,8-HxCDF	4.45e+07	9.92e+02	4.5e+04	3.59e+07	5.56e+02	6.5e+04
6	2,3,4,6,7,8-HxCDF	3.95e+07	9.92e+02	4.0e+04	3.15e+07	5.56e+02	5.7e+04
7	1,2,3,7,8,9-HxCDF	3.00e+07	9.92e+02	3.0e+04	2.40e+07	5.56e+02	4.3e+04
8	1,2,3,4,6,7,8-HpCDF	3.33e+07	1.40e+03	2.4e+04	3.27e+07	1.10e+03	3.0e+04
9	1,2,3,4,7,8,9-HpCDF	2.52e+07	1.40e+03	1.8e+04	2.45e+07	1.10e+03	2.2e+04
10	OCDF	3.48e+07	1.22e+03	2.9e+04	3.92e+07	4.66e+03	8.4e+03
11	2,3,7,8-TCDD	4.96e+06	9.88e+02	5.0e+03	6.31e+06	1.21e+03	5.2e+03
12	1,2,3,7,8-PeCDD	3.47e+07	2.93e+03	1.2e+04	2.21e+07	1.02e+03	2.2e+04
13	1,2,3,4,7,8-HxCDD	2.95e+07	8.36e+02	3.5e+04	2.37e+07	1.10e+03	2.2e+04
14	1,2,3,6,7,8-HxCDD	2.75e+07	8.36e+02	3.3e+04	2.21e+07	1.10e+03	2.0e+04
15	1,2,3,7,8,9-HxCDD	2.83e+07	8.36e+02	3.4e+04	2.31e+07	1.10e+03	2.1e+04
16	1,2,3,4,6,7,8-HpCDD	2.41e+07	1.06e+03	2.3e+04	2.28e+07	1.43e+03	1.6e+04
17	OCDD	3.07e+07	1.15e+03	2.7e+04	3.44e+07	1.58e+03	2.2e+04
18	13C-2,3,7,8-TCDF	6.41e+07	4.12e+03	1.6e+04	8.08e+07	2.08e+03	3.9e+04
19	13C-1,2,3,7,8-PeCDF	9.29e+07	6.96e+02	1.3e+05	5.90e+07	3.08e+03	1.9e+04
20	13C-2,3,4,7,8-PeCDF	9.73e+07	6.96e+02	1.4e+05	6.22e+07	3.08e+03	2.0e+04
21	13C-1,2,3,4,7,8-HxCDF	4.21e+07	1.56e+03	2.7e+04	8.13e+07	1.51e+03	5.4e+04
22	13C-1,2,3,6,7,8-HxCDF	4.87e+07	1.56e+03	3.1e+04	9.32e+07	1.51e+03	6.2e+04
23	13C-2,3,4,6,7,8-HxCDF	4.35e+07	1.56e+03	2.8e+04	8.21e+07	1.51e+03	5.4e+04
24	13C-1,2,3,7,8,9-HxCDF	3.37e+07	1.56e+03	2.2e+04	6.38e+07	1.51e+03	4.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.03e+07	4.62e+03	6.6e+03	6.68e+07	2.82e+03	2.4e+04
26	13C-1,2,3,4,7,8,9-HpCDF	2.42e+07	4.62e+03	5.2e+03	5.43e+07	2.82e+03	1.9e+04
27	13C-2,3,7,8-TCDD	5.04e+07	6.10e+03	8.3e+03	6.50e+07	3.40e+03	1.9e+04
28	13C-1,2,3,7,8-PeCDD	7.50e+07	3.14e+03	2.4e+04	4.77e+07	2.44e+03	2.0e+04
29	13C-1,2,3,4,7,8-HxCDD	5.77e+07	4.71e+03	1.2e+04	4.59e+07	2.81e+03	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	5.27e+07	4.71e+03	1.1e+04	4.24e+07	2.81e+03	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.68e+07	1.14e+03	4.1e+04	4.40e+07	6.04e+02	7.3e+04
32	13C-OCDD	5.54e+07	1.10e+03	5.0e+04	6.15e+07	1.48e+03	4.1e+04
33	13C-1,2,3,4-TCDD	4.69e+07	6.10e+03	7.7e+03	5.96e+07	3.40e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	5.71e+07	4.71e+03	1.2e+04	4.62e+07	2.81e+03	1.6e+04
35	37Cl-2,3,7,8-TCDD	1.18e+07	1.04e+03	1.1e+04			

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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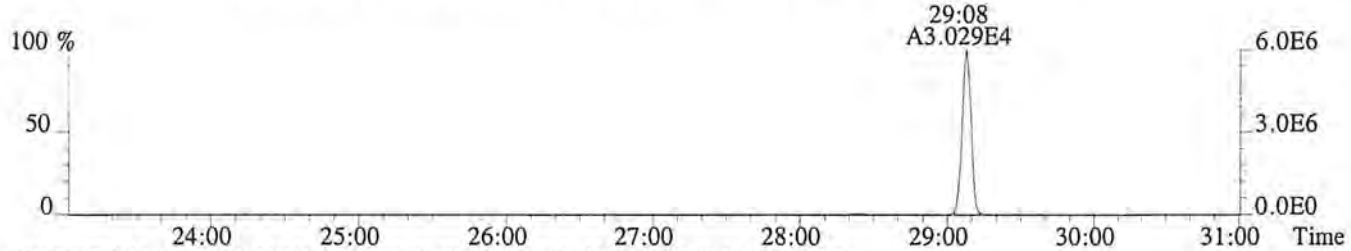
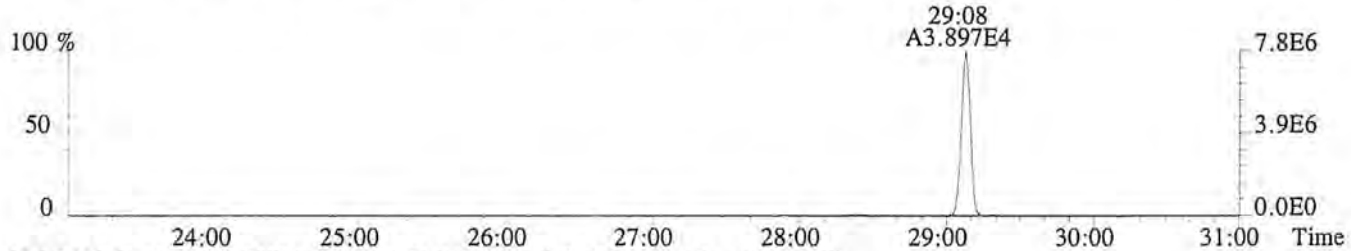
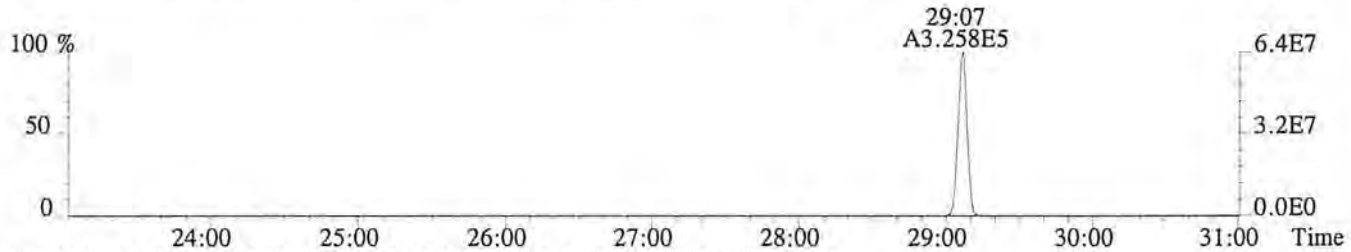
File:P600055 #1-566 Acq:22-AUG-2015 05:31:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



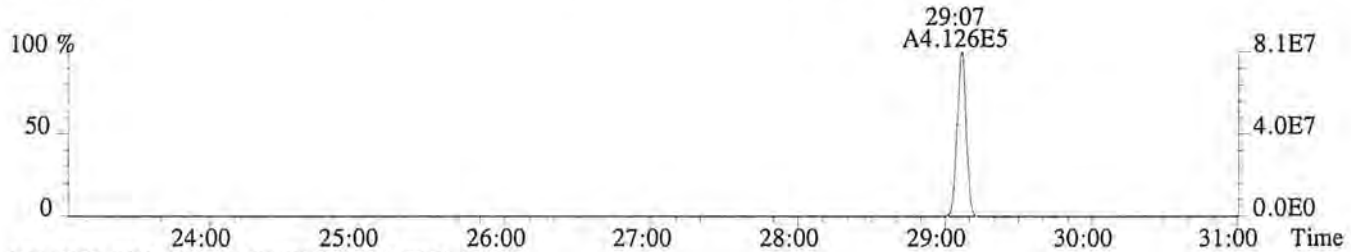
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1532.0,1.00%,F,T)



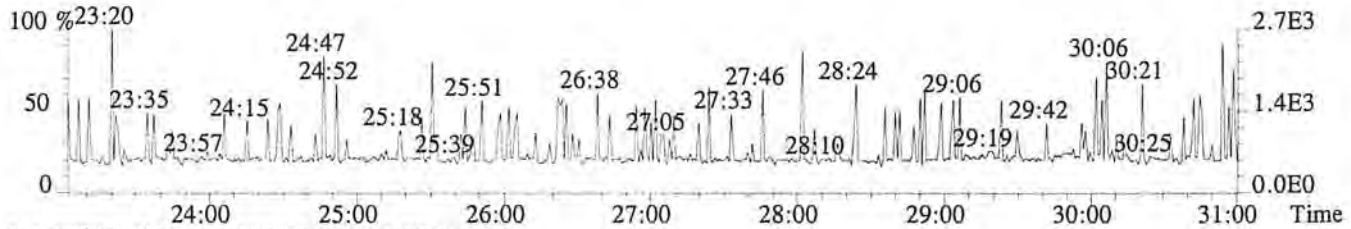
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4124.0,1.00%,F,T)



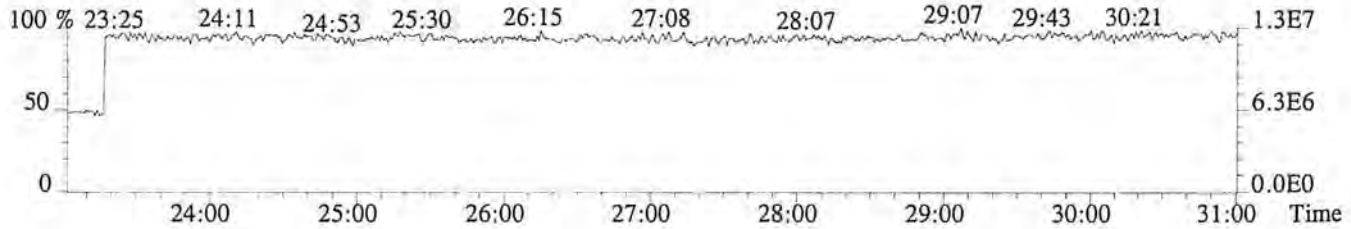
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2080.0,1.00%,F,T)



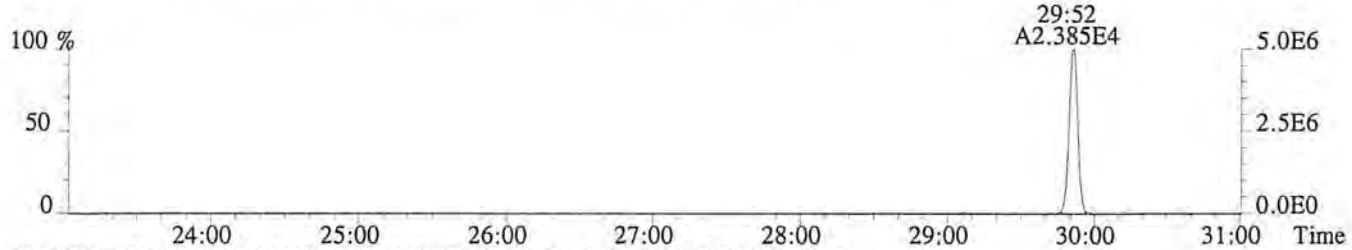
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



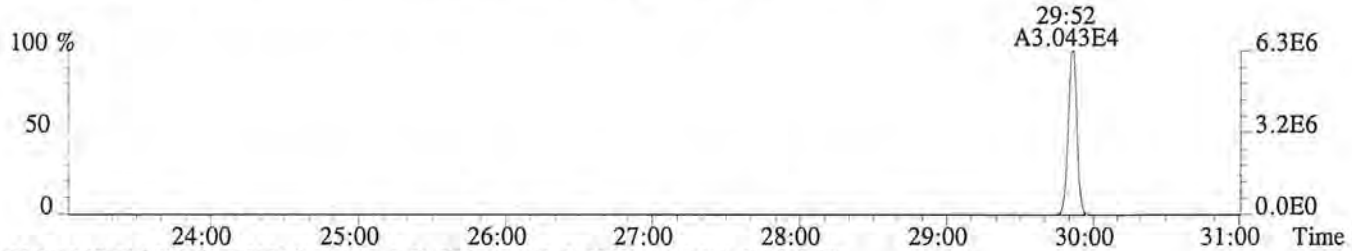
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



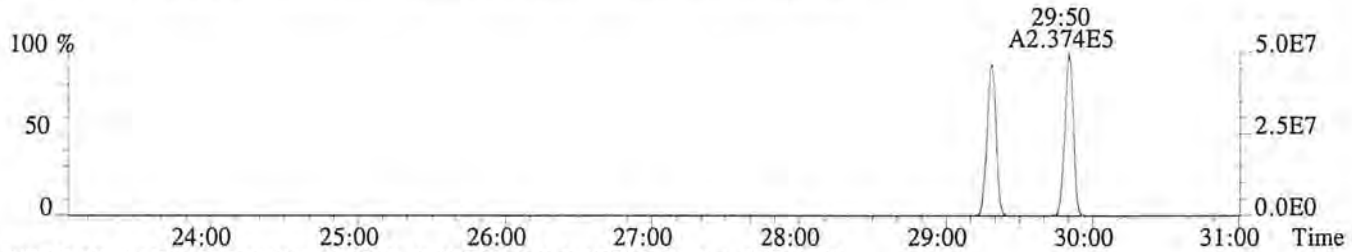
File:P600055 #1-566 Acq:22-AUG-2015 05:31:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



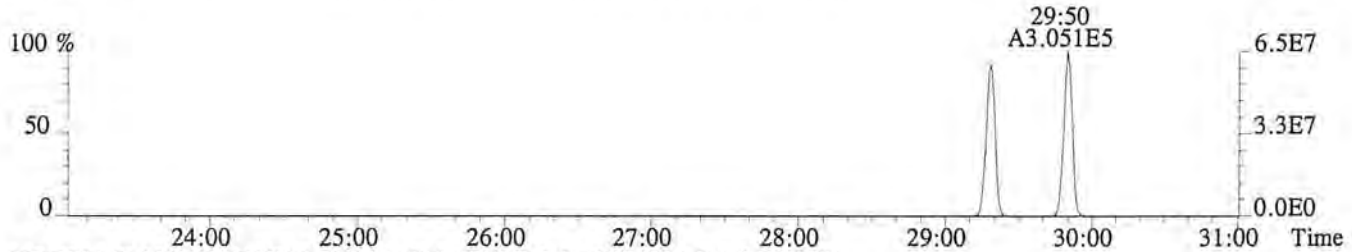
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1208.0,1.00%,F,T)



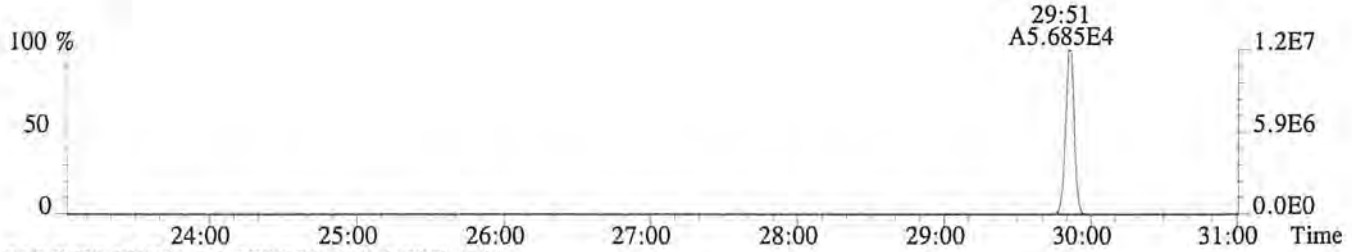
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6096.0,1.00%,F,T)



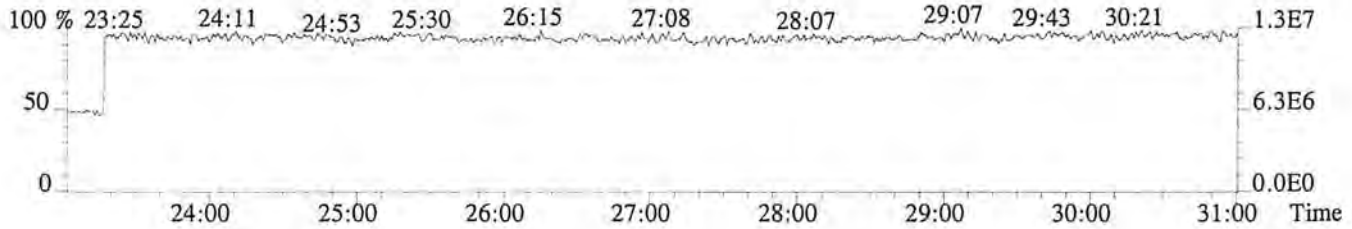
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3404.0,1.00%,F,T)



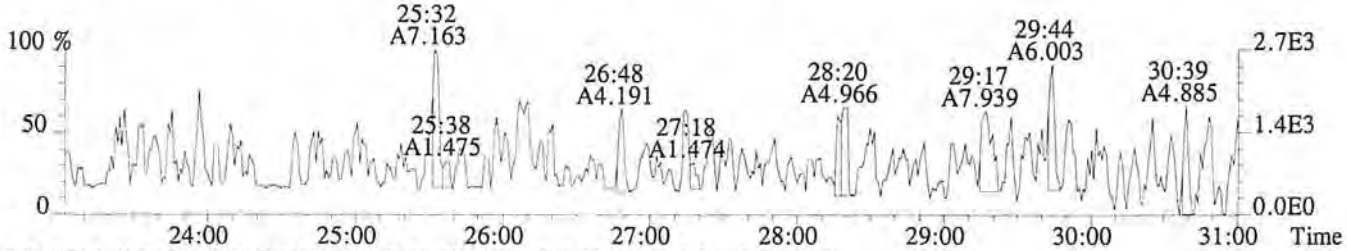
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



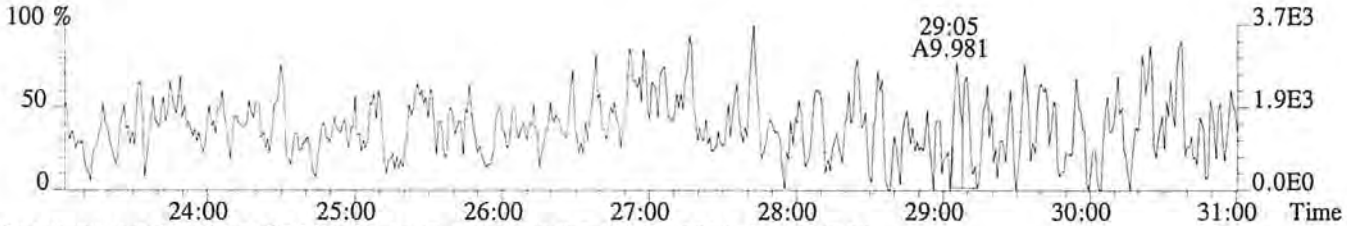
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



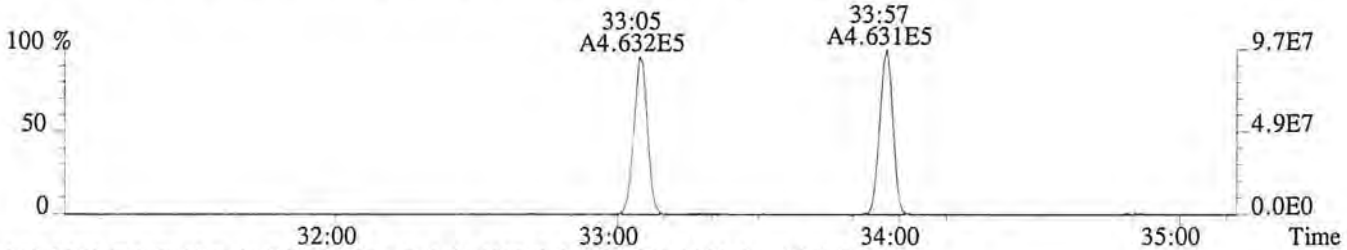
File:P600055 #1-566 Acq:22-AUG-2015 05:31:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



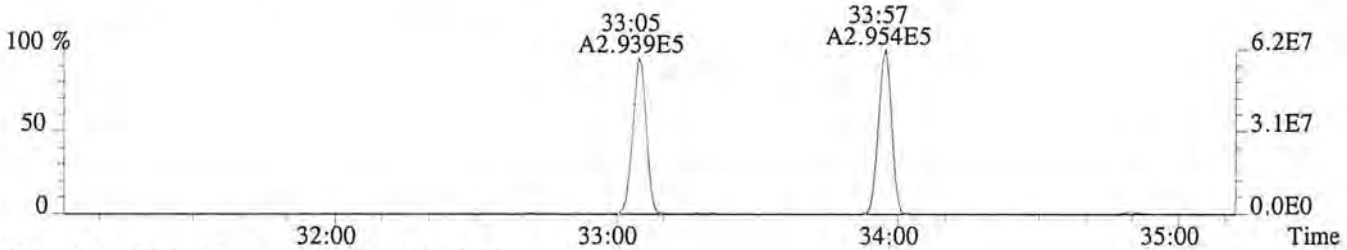
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1764.0,1.00%,F,T)



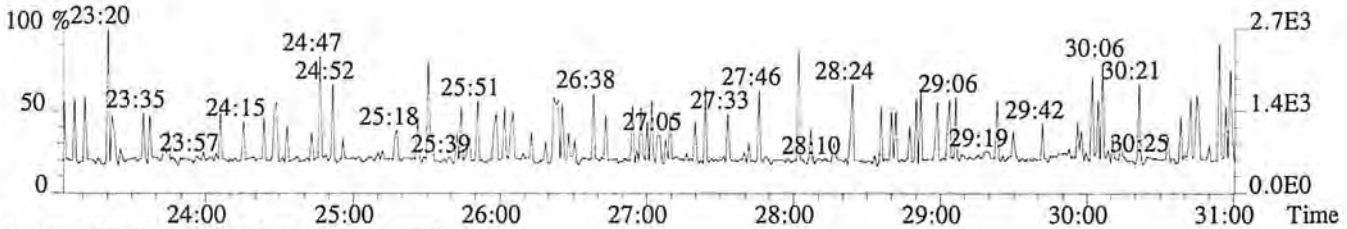
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



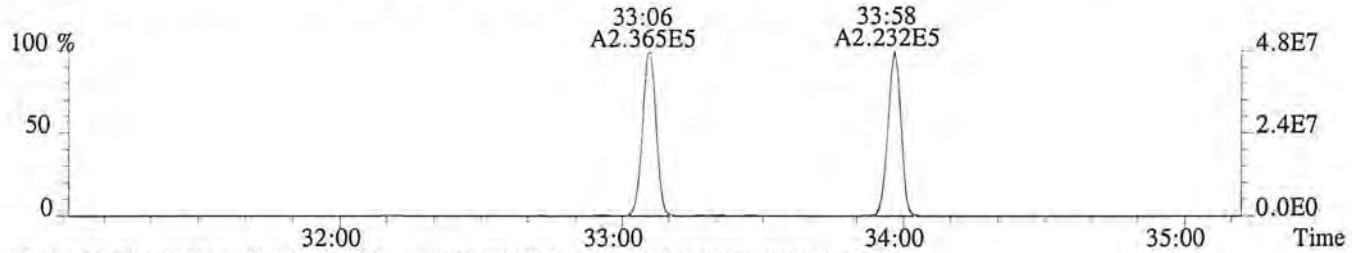
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



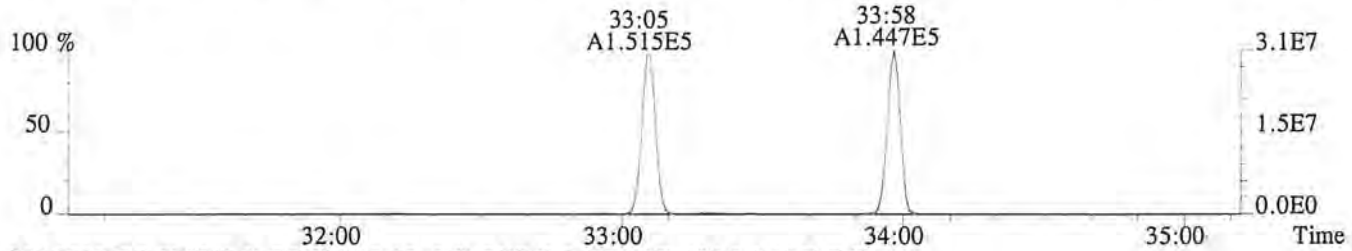
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

File:P600055 #1-375 Acq:22-AUG-2015 05:31:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

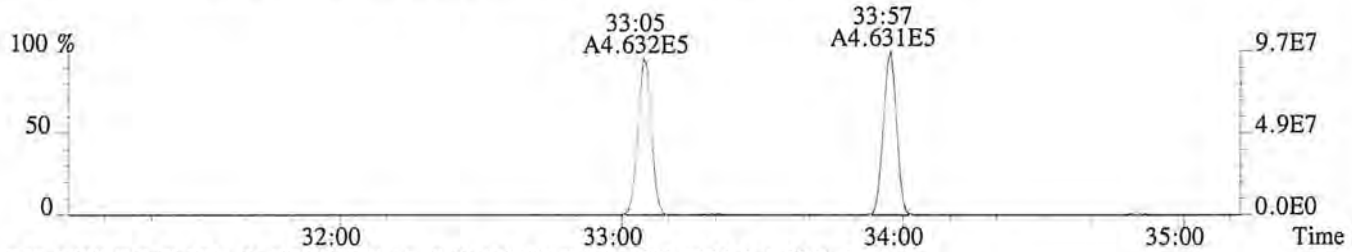
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



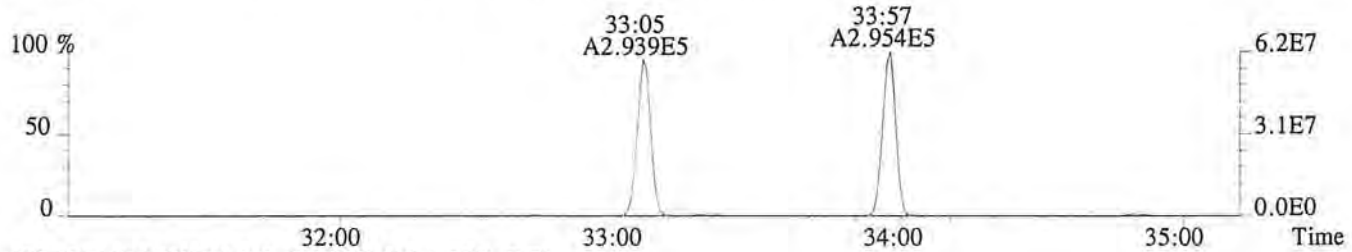
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2920.0,1.00%,F,T)



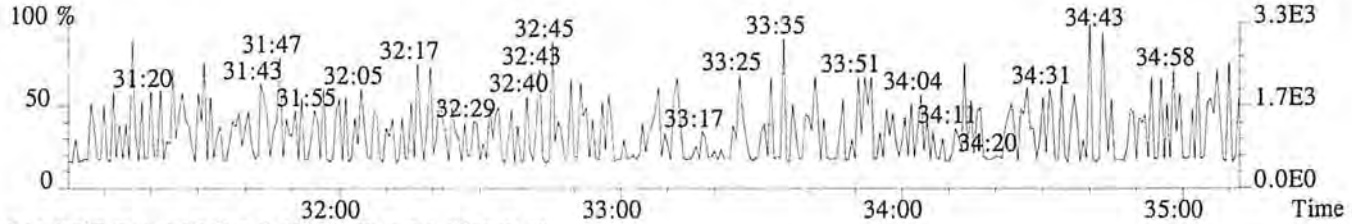
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



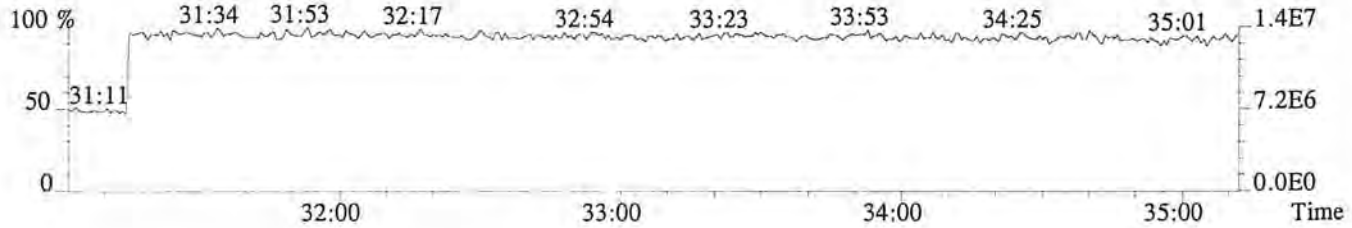
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



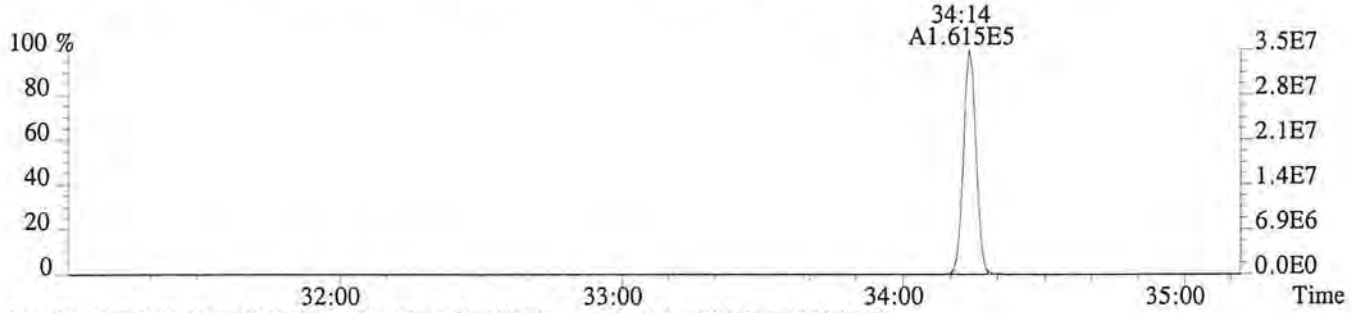
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



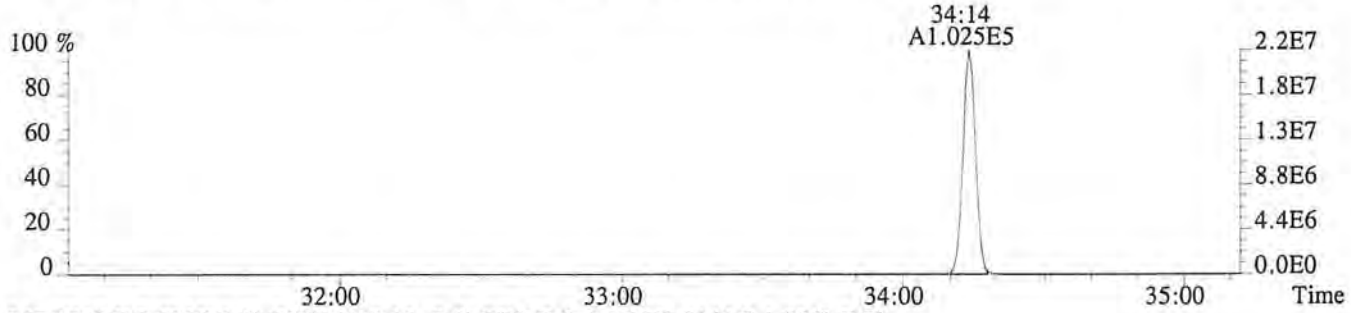
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



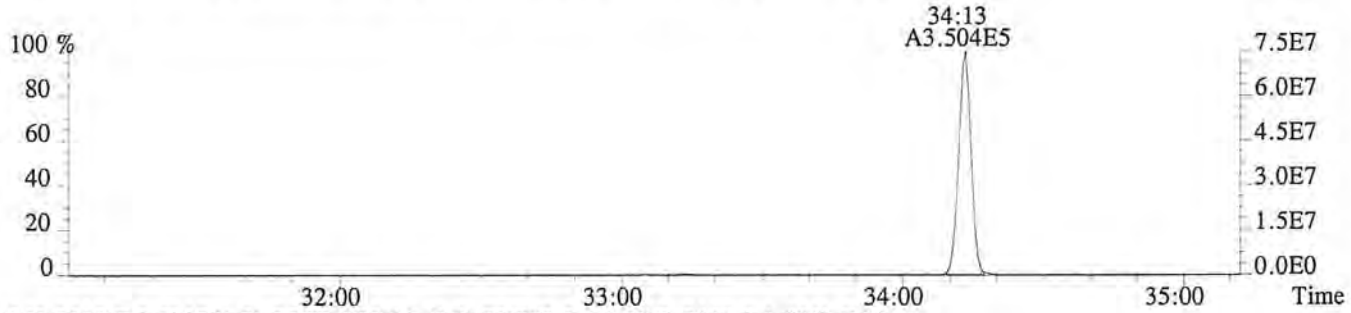
File:P600055 #1-375 Acq:22-AUG-2015 05:31:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2932.0,1.00%,F,T)



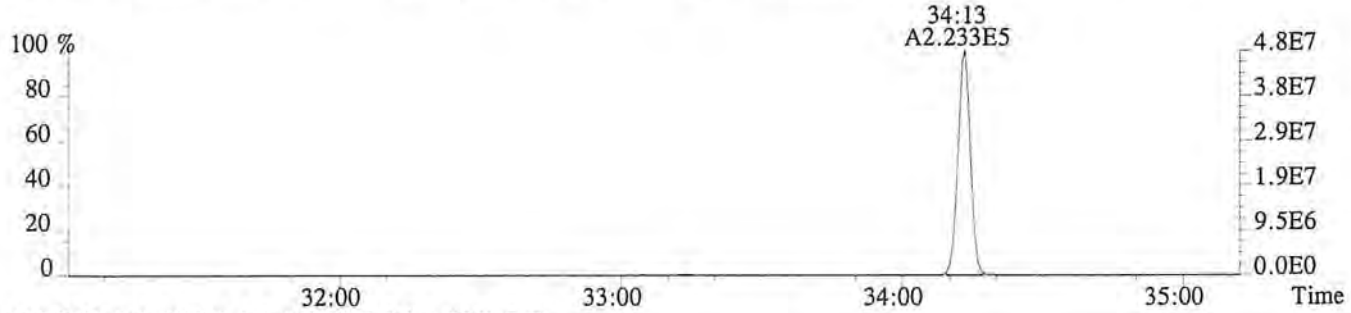
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



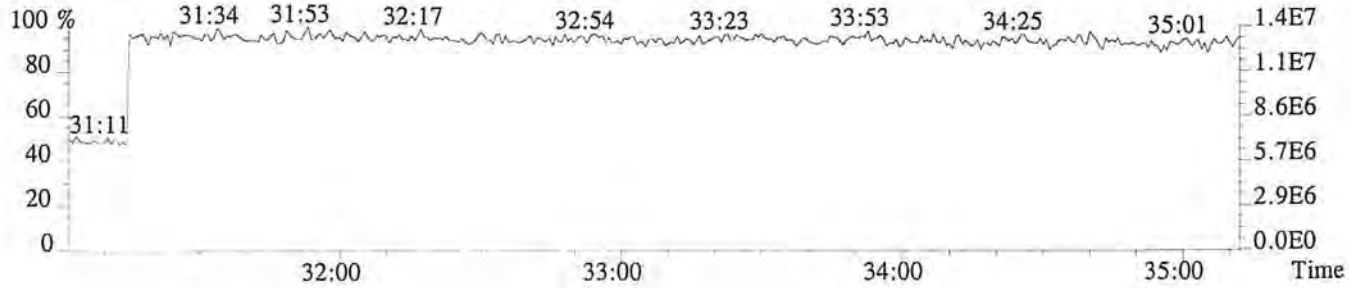
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3144.0,1.00%,F,T)



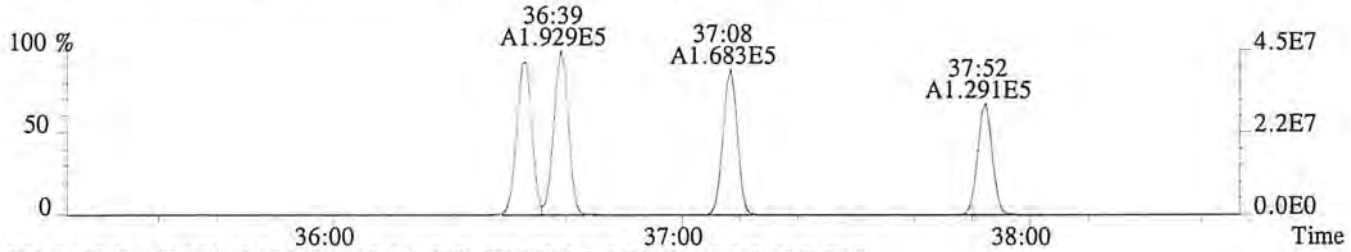
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2440.0,1.00%,F,T)



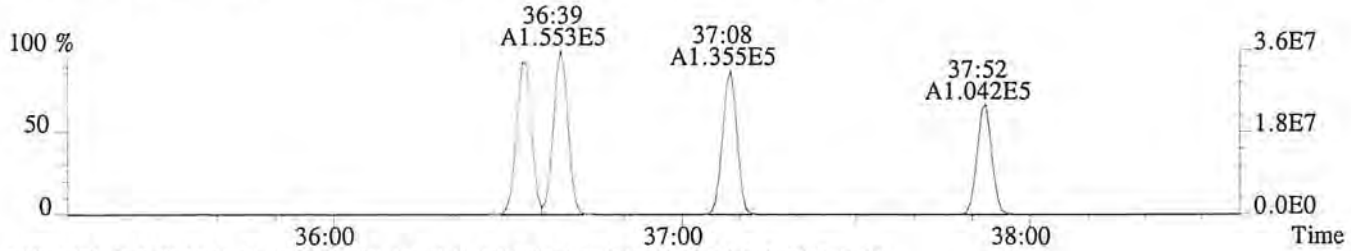
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



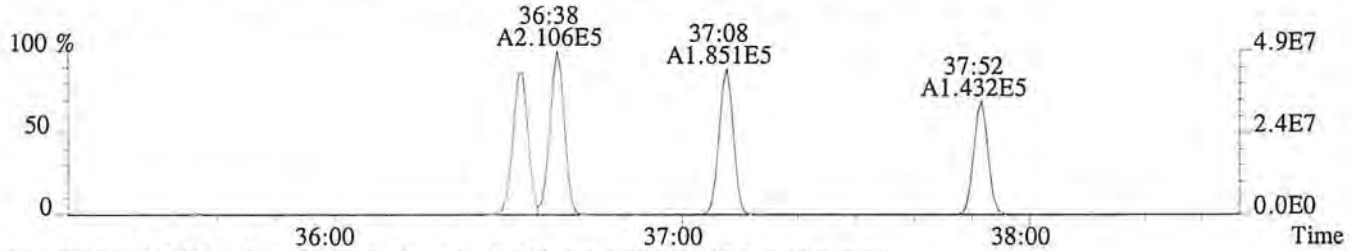
File:P600055 #1-304 Acq:22-AUG-2015 05:31:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



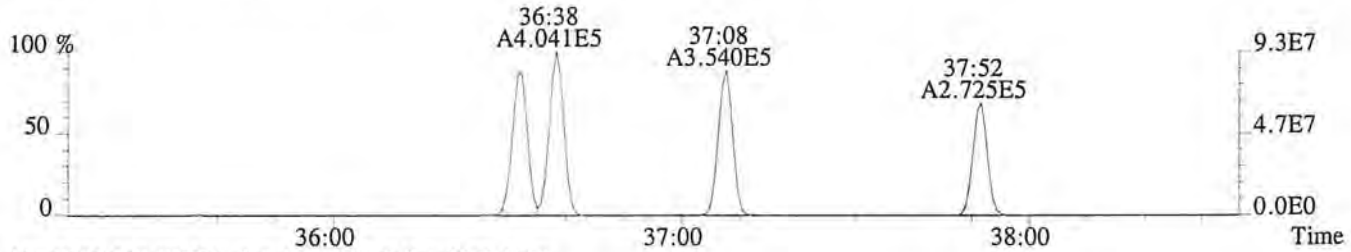
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



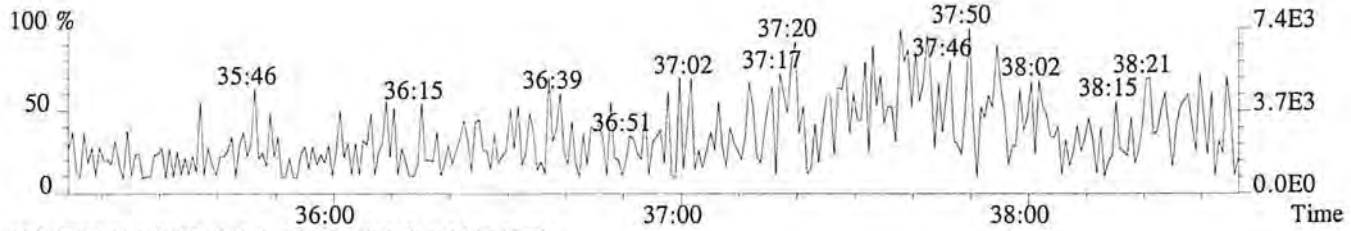
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.40%,F,T)



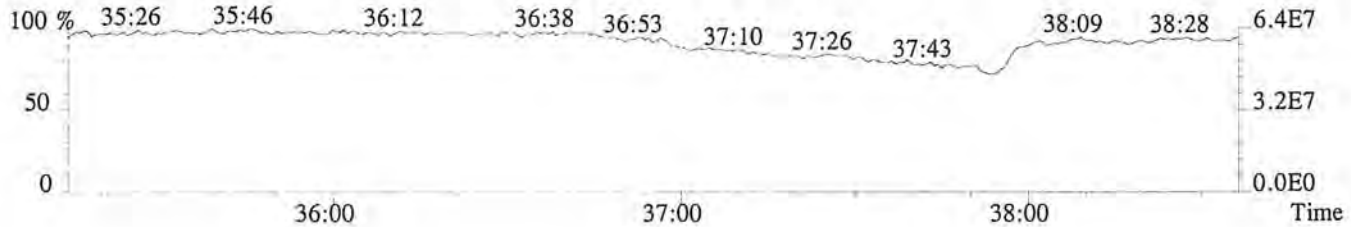
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1508.0,0.40%,F,T)



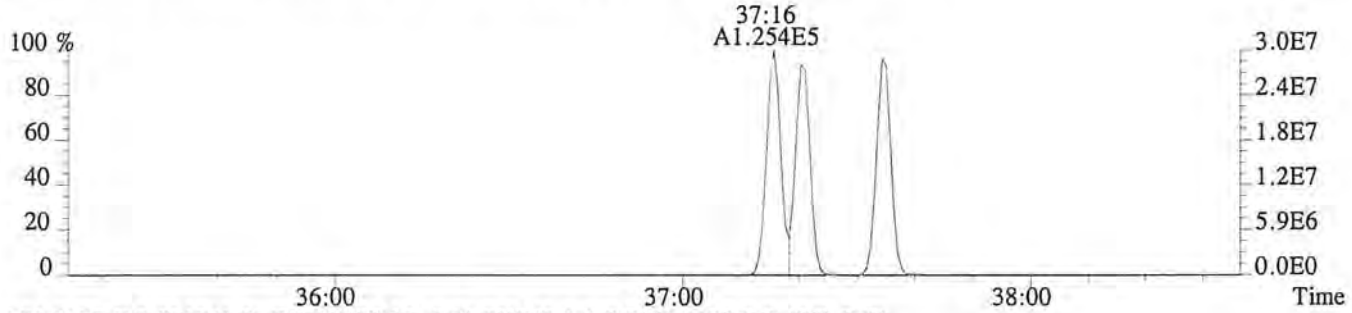
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



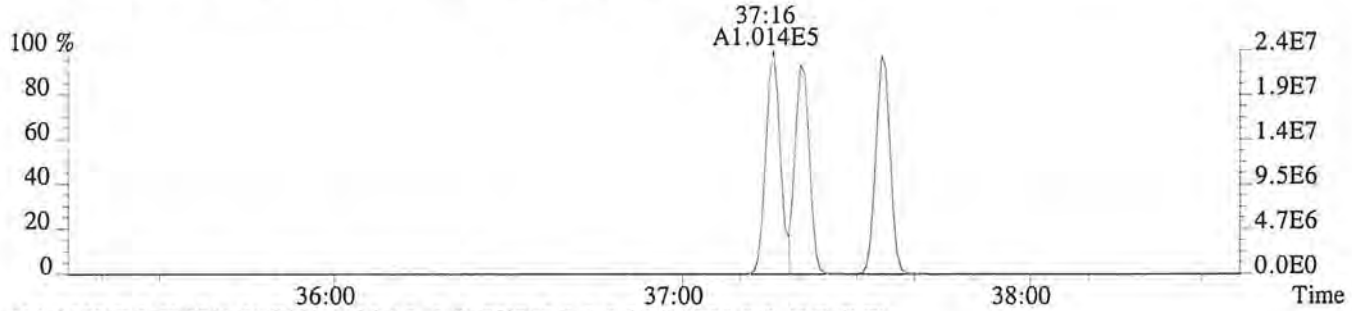
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



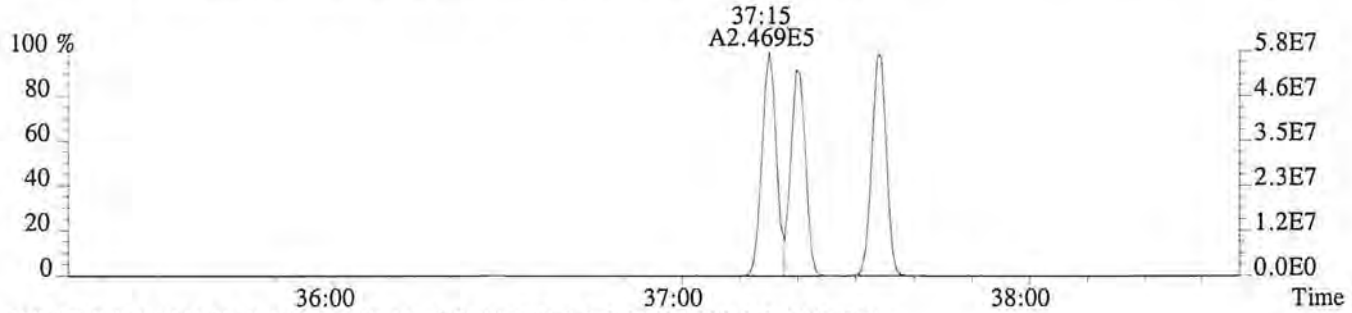
File:P600055 #1-304 Acq:22-AUG-2015 05:31:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



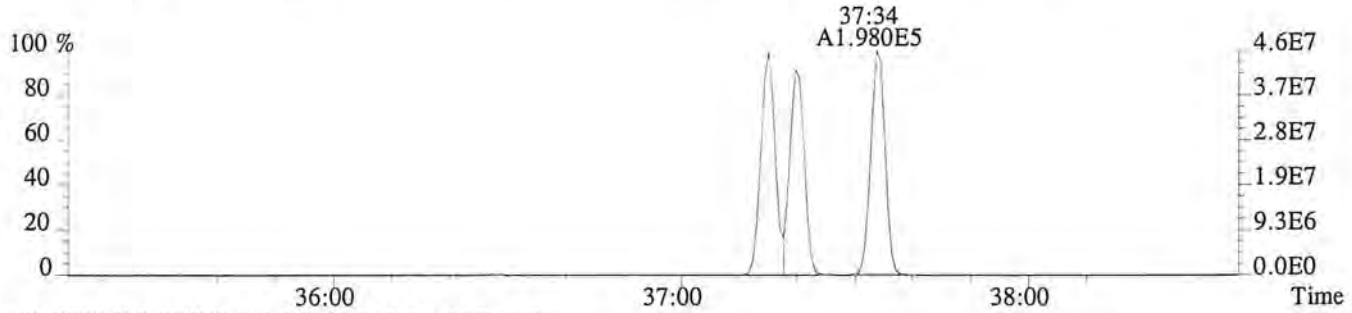
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4708.0,0.40%,F,T)

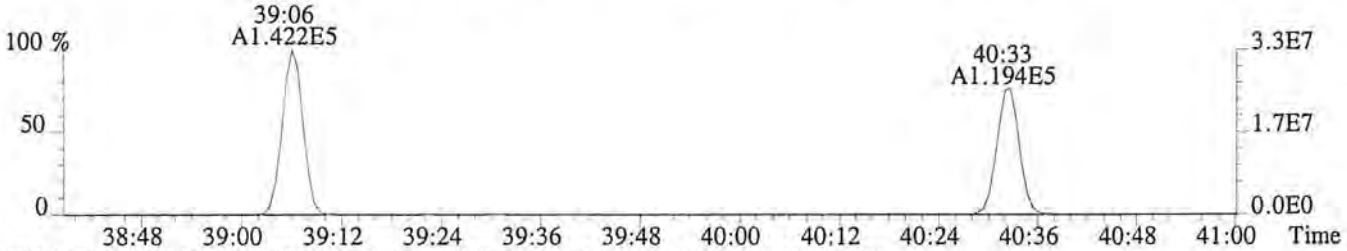


403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2808.0,0.40%,F,T)

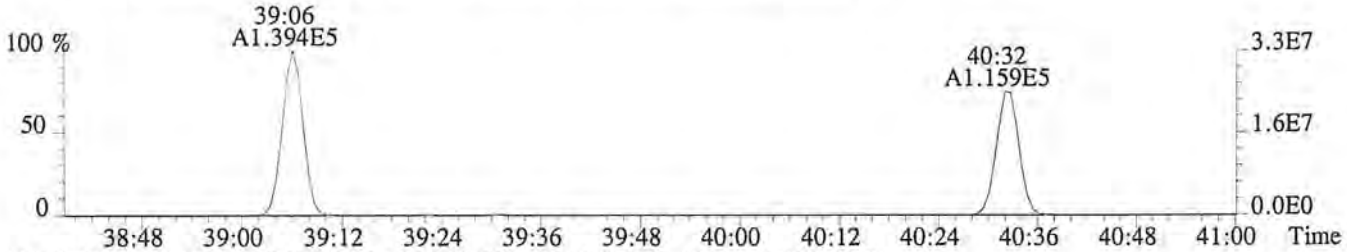


430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

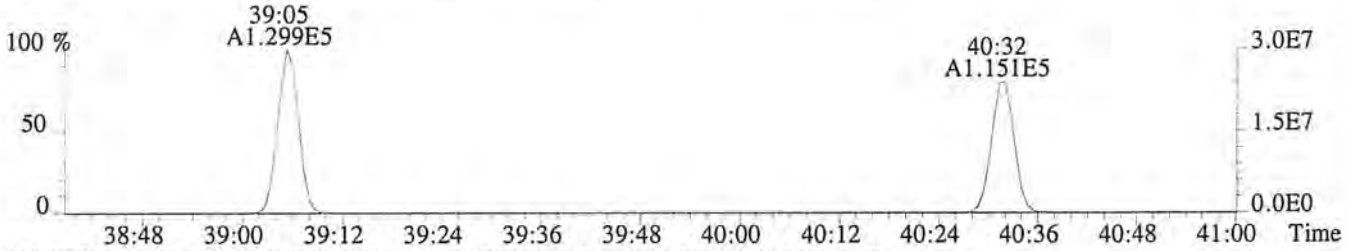
File:P600055 #1-213 Acq:22-AUG-2015 05:31:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1404.0,0.50%,F,T)



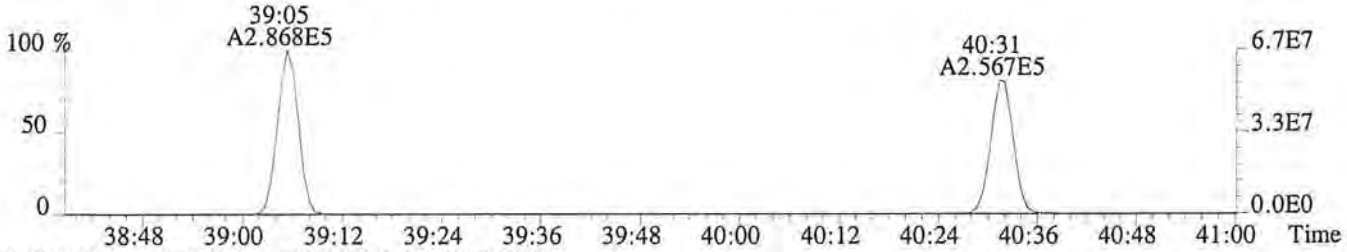
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.50%,F,T)



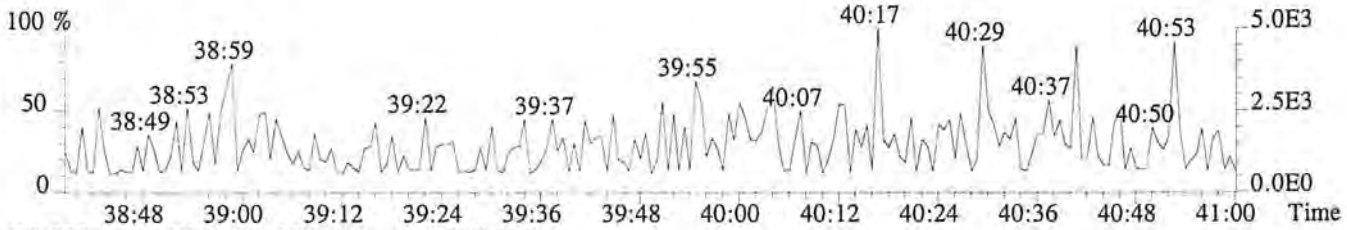
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4616.0,0.50%,F,T)



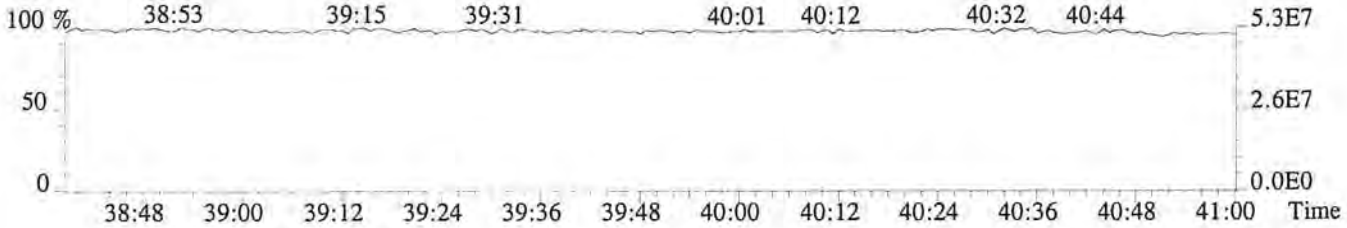
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2824.0,0.50%,F,T)



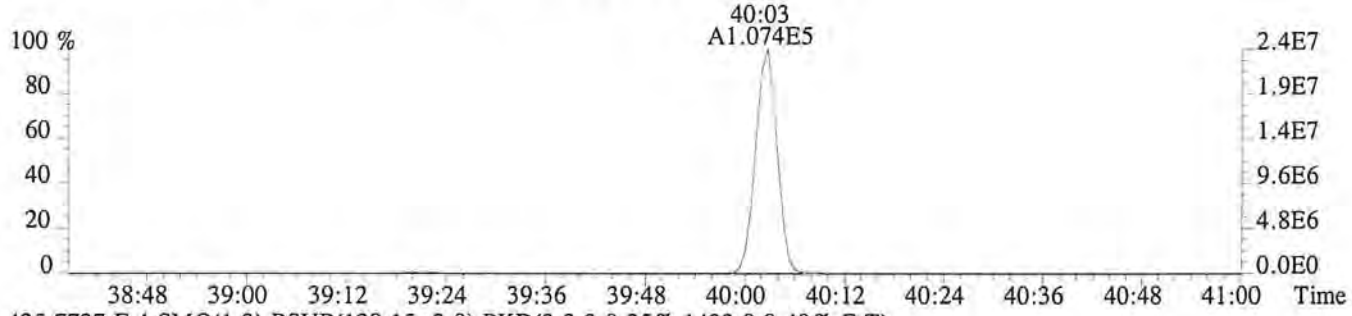
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



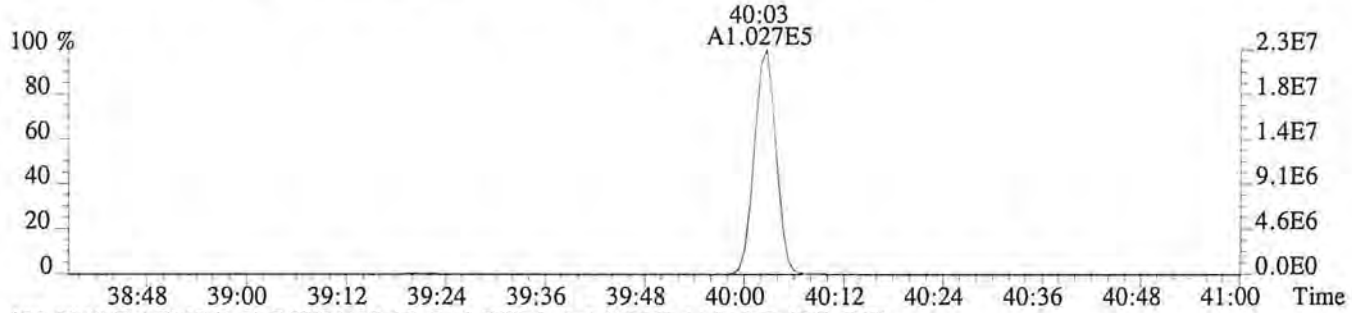
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



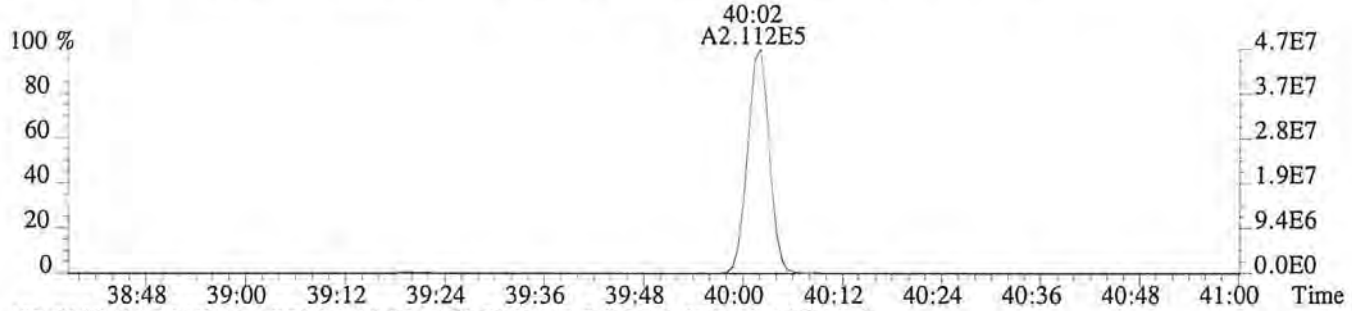
File:P600055 #1-213 Acq:22-AUG-2015 05:31:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1064.0,0.40%,F,T)



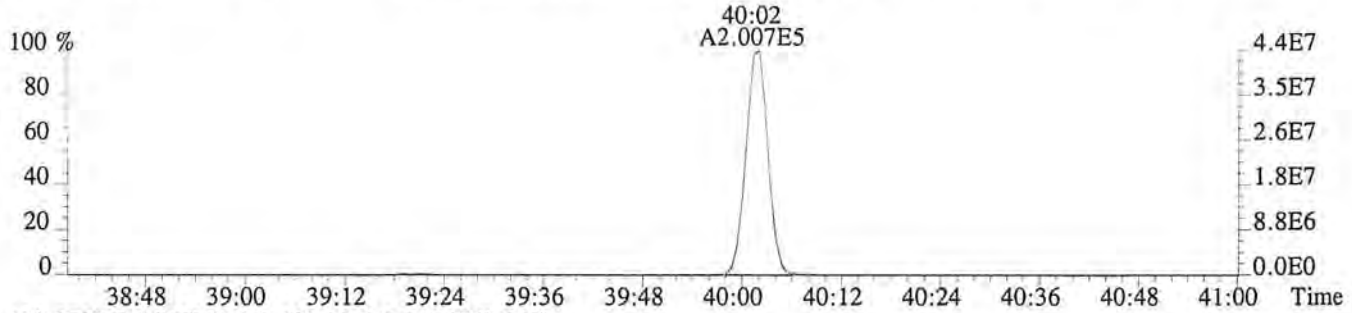
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1432.0,0.40%,F,T)



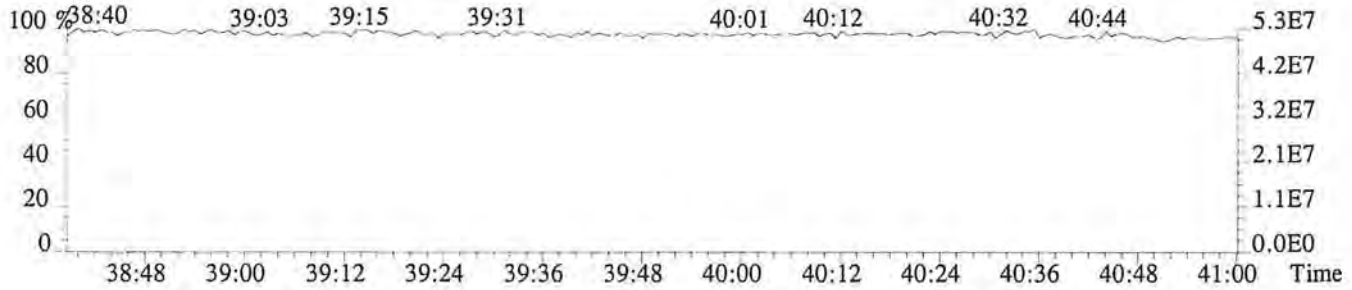
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



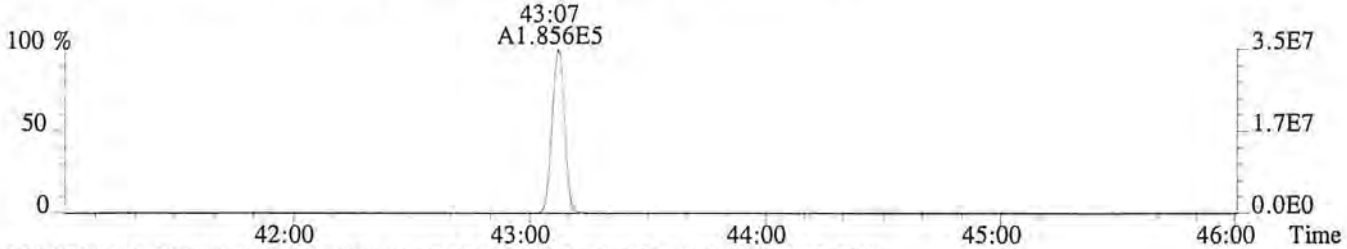
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,604.0,0.40%,F,T)



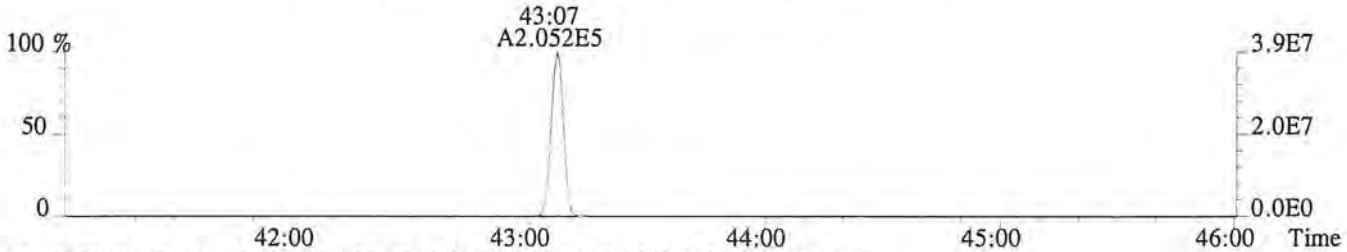
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



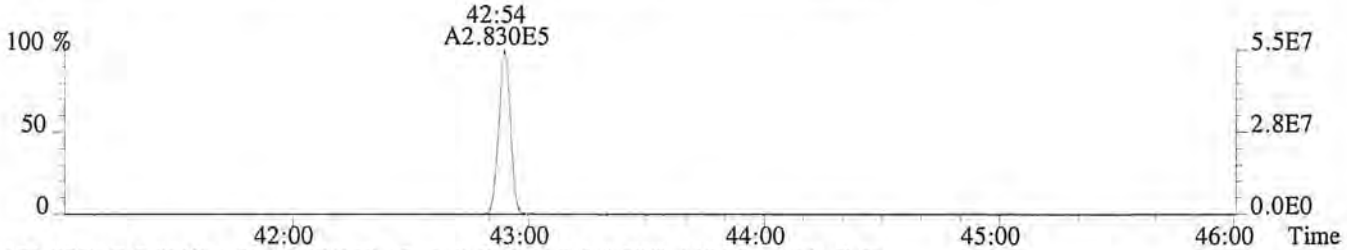
File:P600055 #1-448 Acq:22-AUG-2015 05:31:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



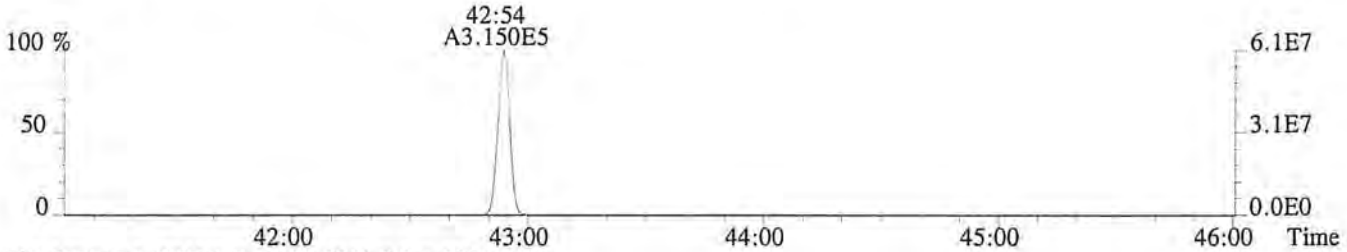
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4660.0,0.40%,F,T)



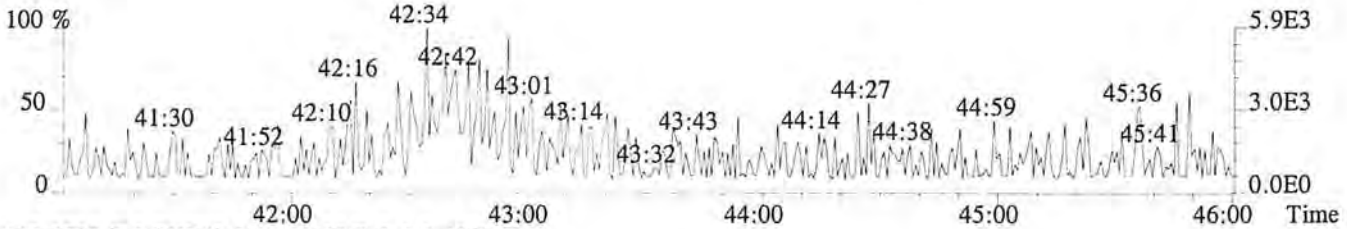
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1100.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1484.0,0.40%,F,T)

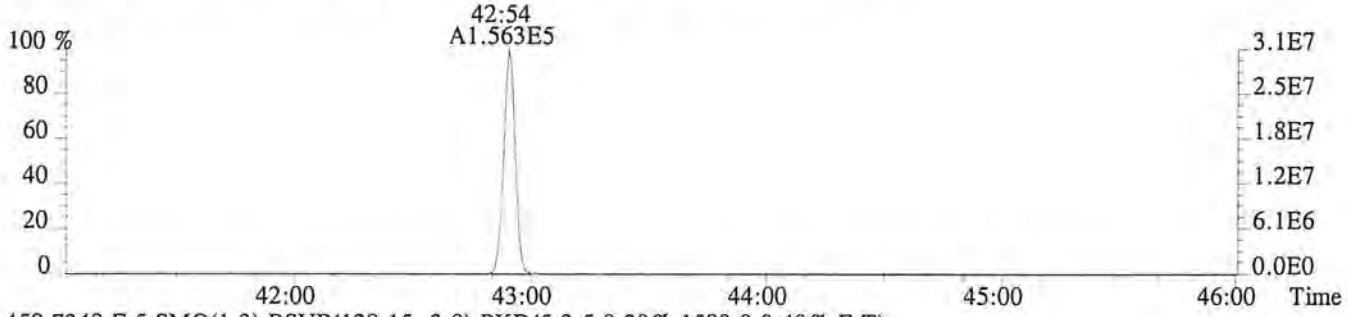


513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

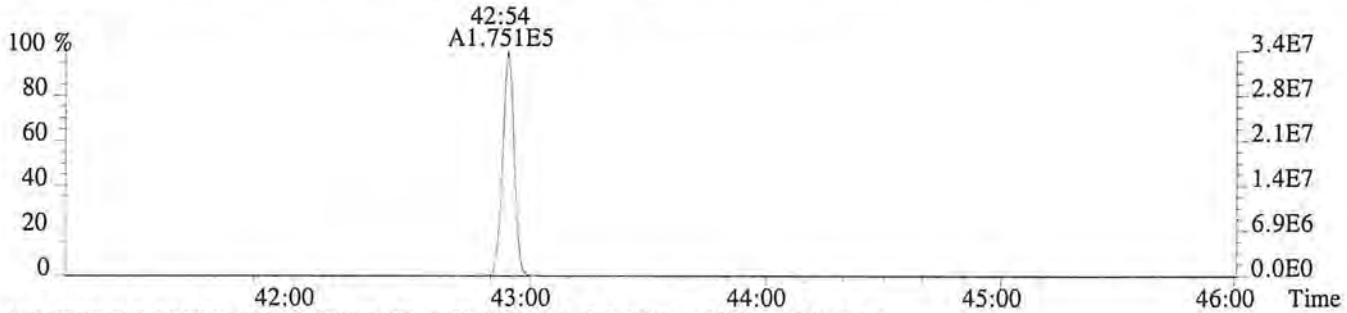


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

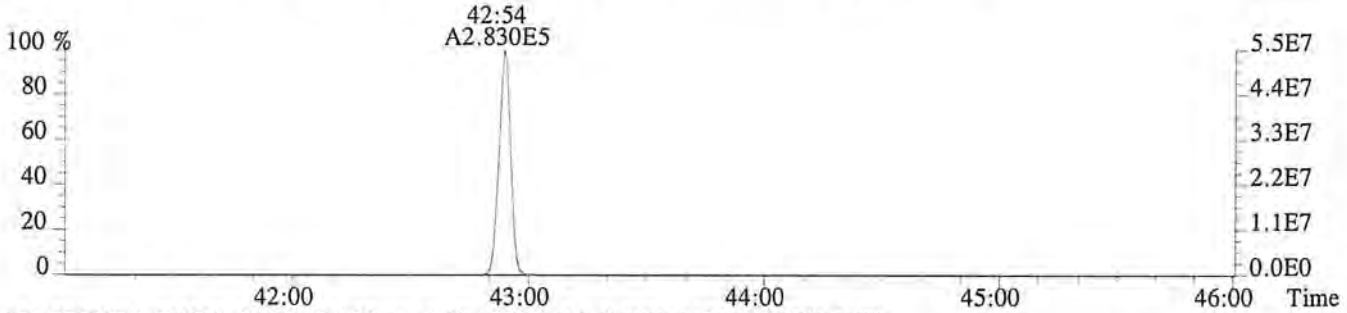
File:P600055 #1-448 Acq:22-AUG-2015 05:31:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1148.0,0.40%,F,T)



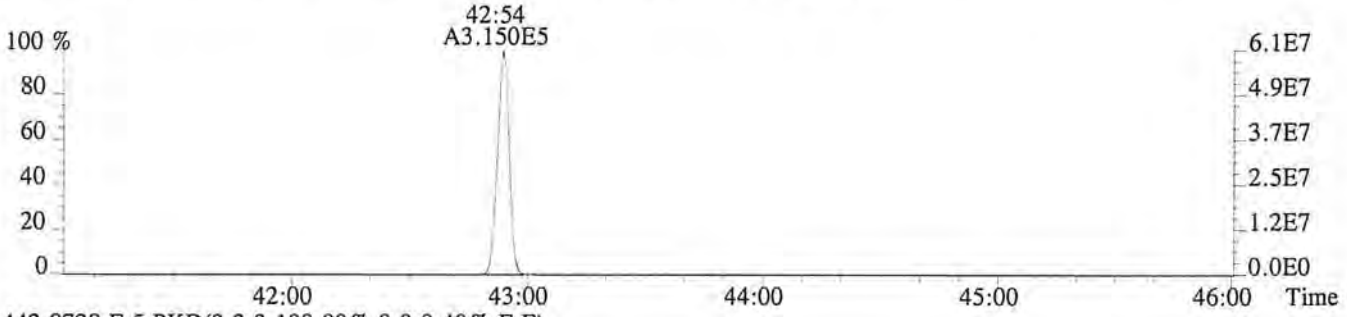
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1580.0,0.40%,F,T)



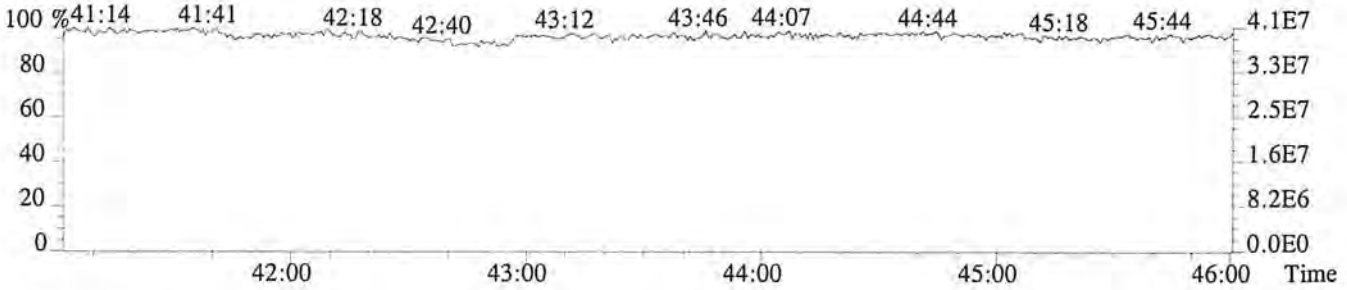
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1100.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1484.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P600103

Circle one: Beginning / Ending

Date: 08/24/15

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	NA	NA
Ending Calibration injected prior to end of 12 hour clock	NA	NA

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DBC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: ALS-TX Case No.: SDG No.:

GC column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 08/19/15

Init. Calib.Times: 10:52

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
74489	WINDOW DEFINE	p600102	24-AUG-15	10:36:12
79857	CS3	p600103	24-AUG-15	12:38:03
METHOD BLANK	EQ1500484-01	p600104	24-AUG-15	14:46:35
BLANK 4	E1500775-007	p600105	24-AUG-15	15:34:22
SPIKE 4	E1500775-008	p600106	24-AUG-15	17:11:57
S219176022	E1500775-009	p600107	24-AUG-15	17:59:45
S381414345	E1500775-010	p600108	24-AUG-15	18:48:49
S165187805	E1500775-011	p600109	24-AUG-15	19:37:52
S942329900	E1500775-012	p600110	24-AUG-15	20:26:56
S230485748	E1500775-013	p600111	24-AUG-15	21:16:00
S979657513	DO NOT USE	p600112	24-AUG-15	22:05:03

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20150824.SPL
Last Modified: Tuesday, August 25, 2015 09:00:11 Central Daylight Time
Printed: Tuesday, August 25, 2015 09:00:26 Central Daylight Time

Page Position (1, 1)

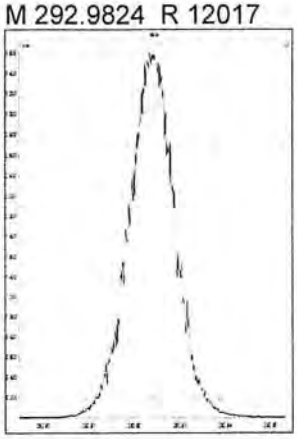
ORUS-2 : P600103RE5

	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	08/24/15	10:36	P600102	WD	WD	Tray1:1	EPA1613_ALS	Dioxin_ALS	LL	HRMS check 10:30
2		12:38	P600103	CS3	CS3	Tray1:2	EPA1613_ALS	Dioxin_ALS		
3		14:46	P600104	MB	EQ1500484-01	Tray1:3	EPA1613_ALS	Dioxin_ALS		
4		15:34	P600105	E1500775-007	E1500775-007	Tray1:4	EPA1613_ALS	Dioxin_ALS		
5		17:11	P600106	E1500775-008	E1500775-008	Tray1:5	EPA1613_ALS	Dioxin_ALS		HRMS Check 17:07
6		17:59	P600107	E1500775-009	E1500775-009	Tray1:6	EPA1613_ALS	Dioxin_ALS		
7		18:48	P600108	E1500775-010	E1500775-010	Tray1:7	EPA1613_ALS	Dioxin_ALS		
8		19:37	P600109	E1500775-011	E1500775-011	Tray1:8	EPA1613_ALS	Dioxin_ALS		
9		20:26	P600110	E1500775-012	E1500775-012	Tray1:9	EPA1613_ALS	Dioxin_ALS		
10		21:15	P600111	E1500775-013	E1500775-013	Tray1:10	EPA1613_ALS	Dioxin_ALS		
11		22:05	P600112	E1500775-014	E1500775-014	Tray1:11	EPA1613_ALS	Dioxin_ALS		
12		22:54	P600113	E1500775-015	E1500775-015	Tray1:12	EPA1613_ALS	Dioxin_ALS		
13		23:43	P600114	E1500775-016	E1500775-016	Tray1:13	EPA1613_ALS	Dioxin_ALS		
14	08/25/15	00:32	P600115	TEST	TEST	Tray1:14	EPA1613_ALS	Dioxin_ALS		HRMS Check 13:45
15	---	---	---	---	---	Tray1:15	EPA1613_ALS	Dioxin_ALS	---	---
16	---	---	---	---	---	Tray1:16	EPA1613_ALS	Dioxin_ALS	---	---
17	---	---	---	---	---	Tray1:17	EPA1613_ALS	Dioxin_ALS	---	---
18	---	---	---	---	---	Tray1:18	EPA1613_ALS	Dioxin_ALS	---	---
19	---	---	---	---	---	Tray1:19	EPA1613_ALS	Dioxin_ALS	---	---
20	---	---	---	---	---	Tray1:20	EPA1613_ALS	Dioxin_ALS	---	---
21	---	---	---	---	---	Tray1:21	EPA1613_ALS	Dioxin_ALS	---	---
22	---	---	---	---	---	Tray1:22	EPA1613_ALS	Dioxin_ALS	---	---
23	---	---	---	---	---	Tray1:23	EPA1613_ALS	Dioxin_ALS	---	---
24	---	---	---	---	---	Tray1:24	EPA1613_ALS	Dioxin_ALS	---	---
25	---	---	---	---	---	Tray1:25	EPA1613_ALS	Dioxin_ALS	---	---
26	---	---	---	---	---	Tray1:26	EPA1613_ALS	Dioxin_ALS	---	---
27	---	---	---	---	---	Tray1:27	EPA1613_ALS	Dioxin_ALS	---	---
28	---	---	---	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
29	---	---	---	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
30	---	---	---	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
31	---	---	---	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
32	---	---	---	---	---	Tray1:32	EPA1613_ALS	Dioxin_ALS	---	---
33	---	---	---	TL 08/26/15	---	Tray1:33	EPA1613_ALS	Dioxin_ALS	---	---
34	---	---	---	---	---	Tray1:34	EPA1613_ALS	Dioxin_ALS	---	---
35	---	---	---	---	---	Tray1:35	EPA1613_ALS	Dioxin_ALS	---	---
36	---	---	---	---	---	Tray1:36	EPA1613_ALS	Dioxin_ALS	---	---
37	---	---	---	---	---	Tray1:37	EPA1613_ALS	Dioxin_ALS	---	---
38	---	---	---	---	---	Tray1:38	EPA1613_ALS	Dioxin_ALS	---	---
39	---	---	---	---	---	Tray1:39	EPA1613_ALS	Dioxin_ALS	---	---

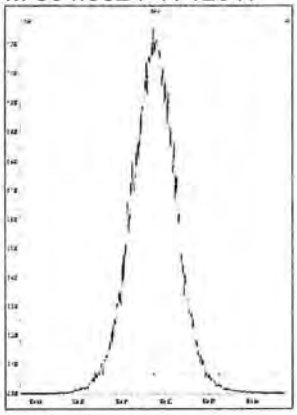
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, August 24, 2015 10:30:44 Central Daylight Time

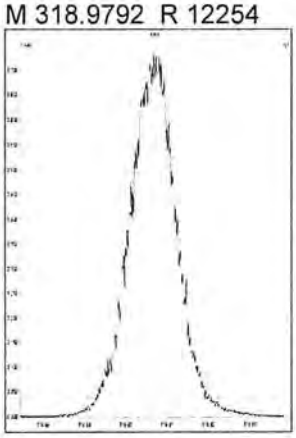
M 292.9824 R 12017



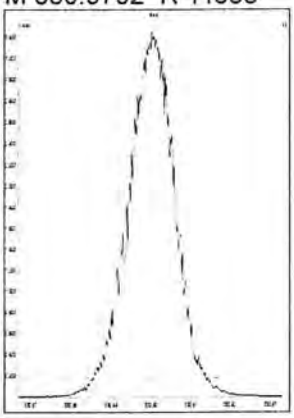
M 304.9824 R 12317



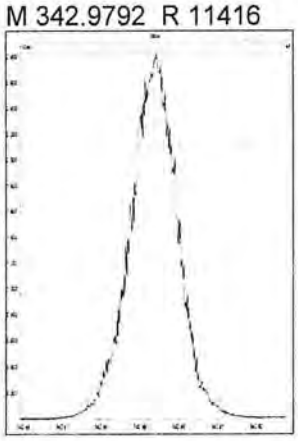
M 318.9792 R 12254



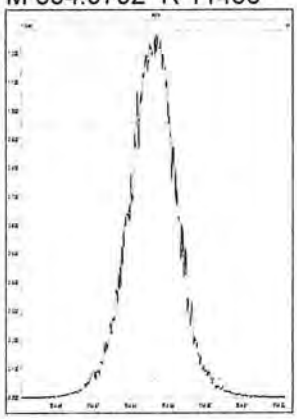
M 330.9792 R 11685



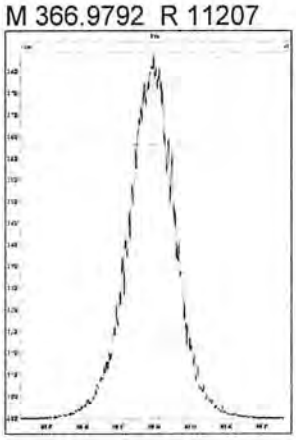
M 342.9792 R 11416



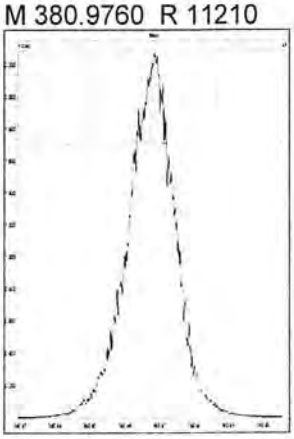
M 354.9792 R 11466



M 366.9792 R 11207



M 380.9760 R 11210

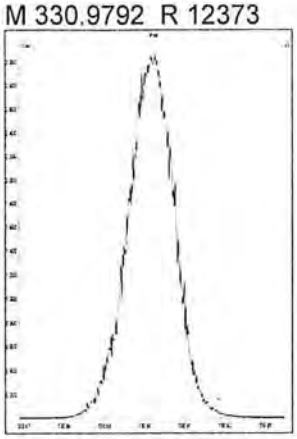


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

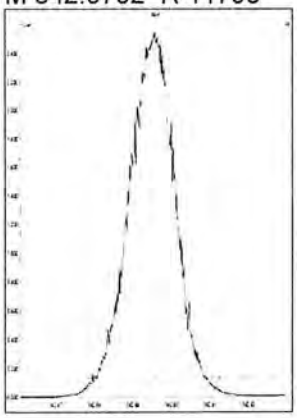
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Monday, August 24, 2015 10:32:18 Central Daylight Time

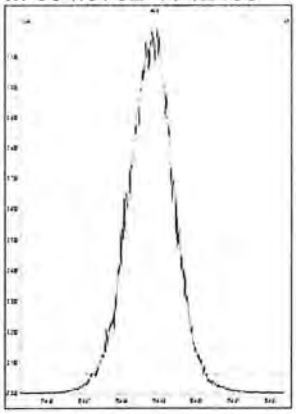
M 330.9792 R 12373



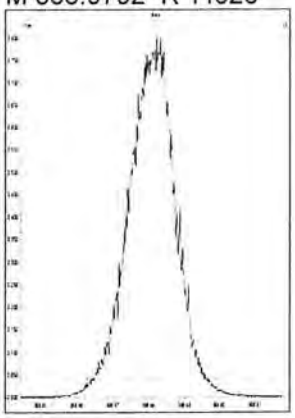
M 342.9792 R 11793



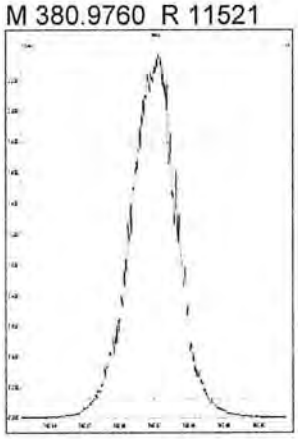
M 354.9792 R 12436



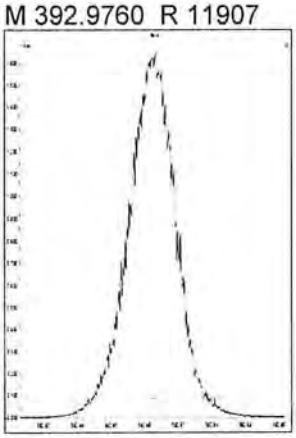
M 366.9792 R 11629



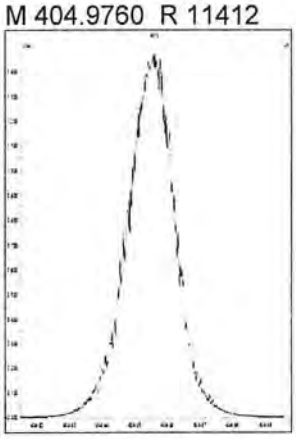
M 380.9760 R 11521



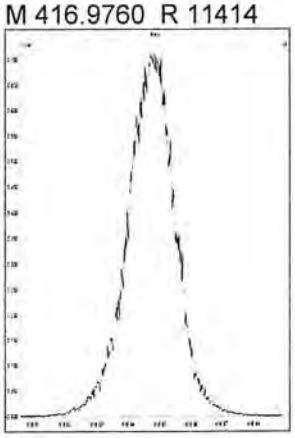
M 392.9760 R 11907



M 404.9760 R 11412



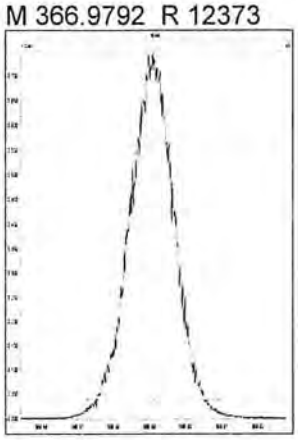
M 416.9760 R 11414



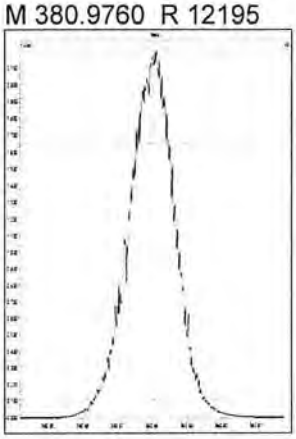
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Monday, August 24, 2015 10:33:35 Central Daylight Time

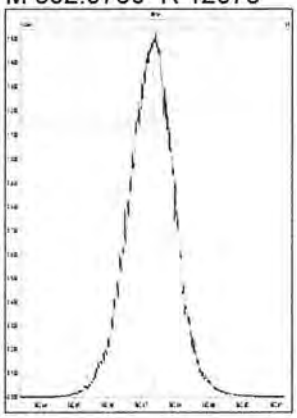
M 366.9792 R 12373



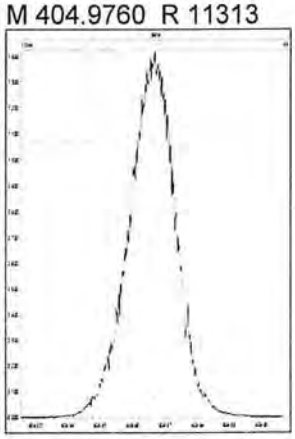
M 380.9760 R 12195



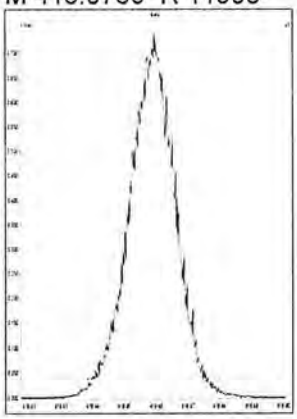
M 392.9760 R 12076



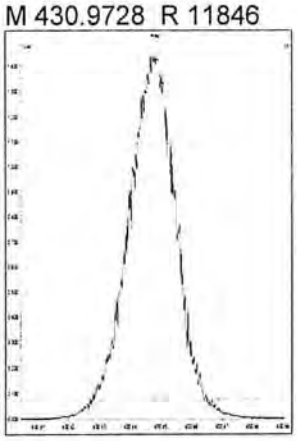
M 404.9760 R 11313



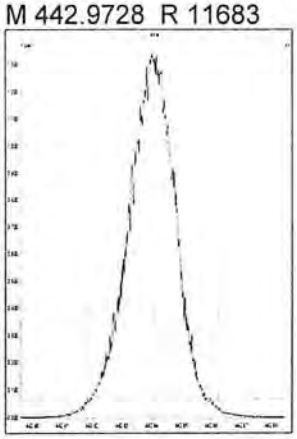
M 416.9760 R 11908



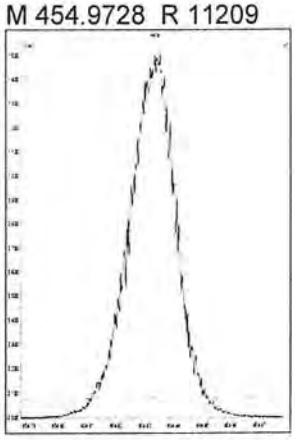
M 430.9728 R 11846



M 442.9728 R 11683



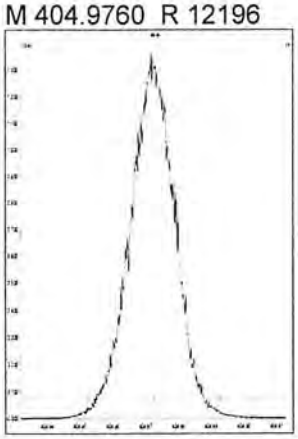
M 454.9728 R 11209



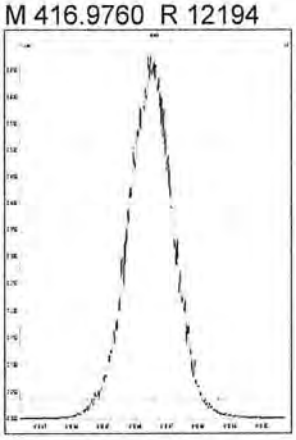
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, August 24, 2015 10:34:24 Central Daylight Time

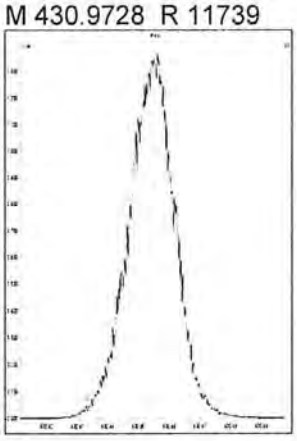
M 404.9760 R 12196



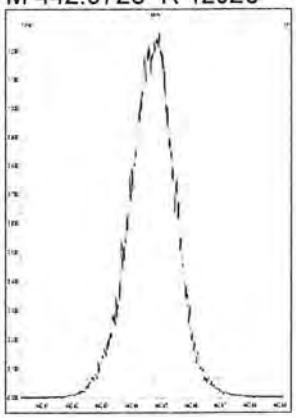
M 416.9760 R 12194



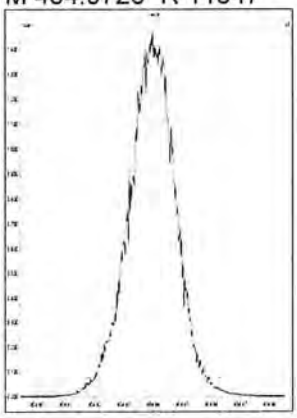
M 430.9728 R 11739



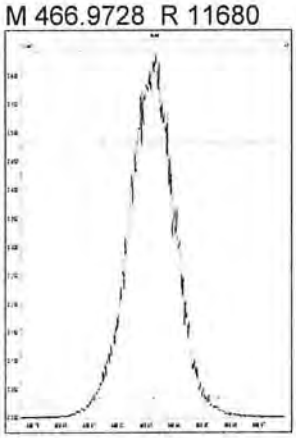
M 442.9728 R 12020



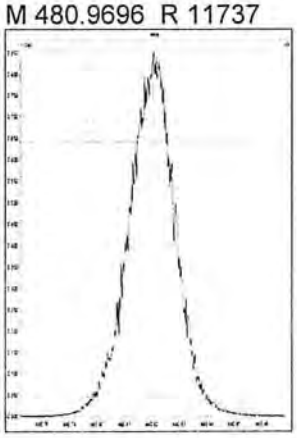
M 454.9728 R 11847



M 466.9728 R 11680



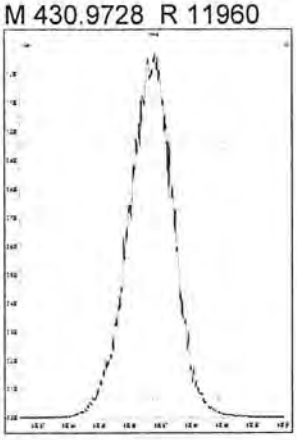
M 480.9696 R 11737



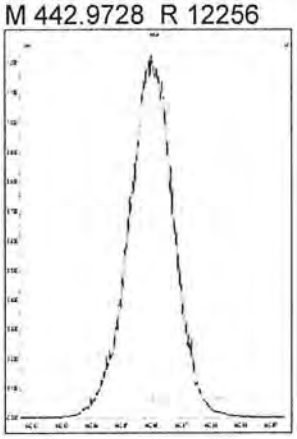
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Monday, August 24, 2015 10:35:13 Central Daylight Time

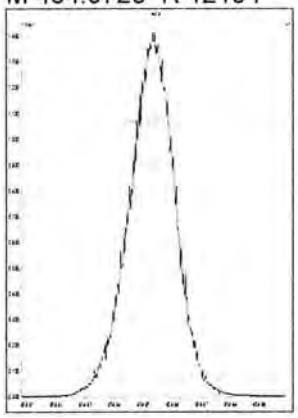
M 430.9728 R 11960



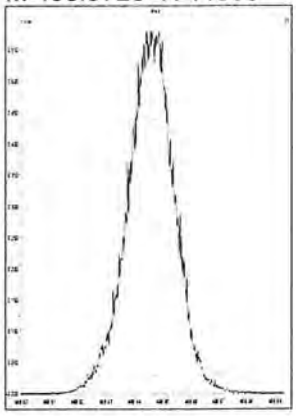
M 442.9728 R 12256



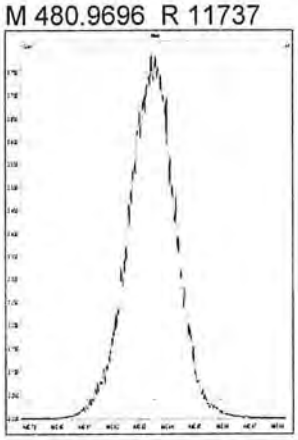
M 454.9728 R 12194



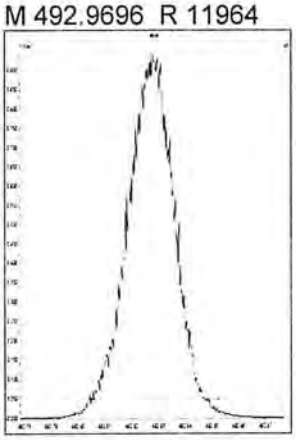
M 466.9728 R 11850



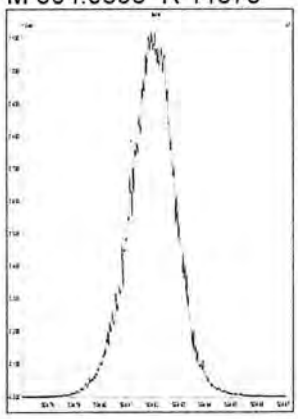
M 480.9696 R 11737



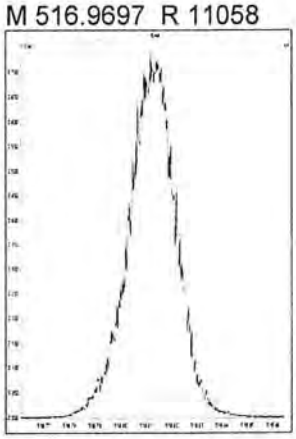
M 492.9696 R 11964



M 504.9696 R 11575



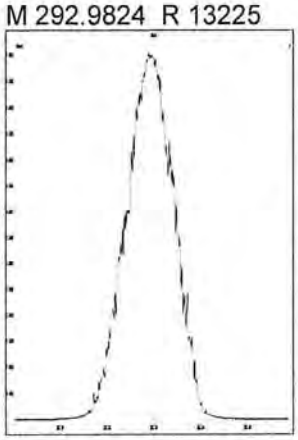
M 516.9697 R 11058



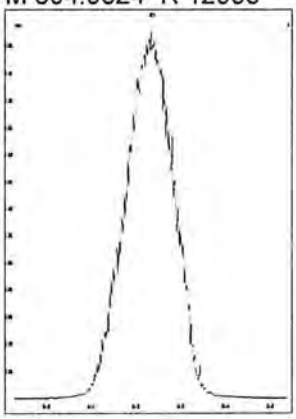
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, August 24, 2015 17:07:58 Central Daylight Time

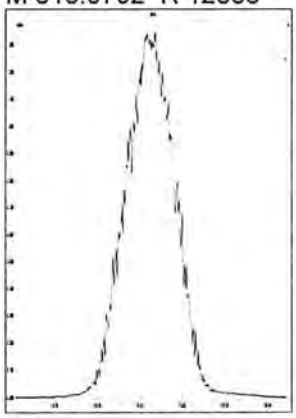
M 292.9824 R 13225



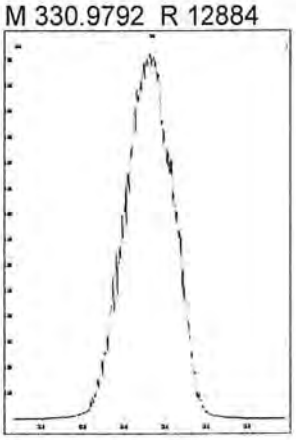
M 304.9824 R 12955



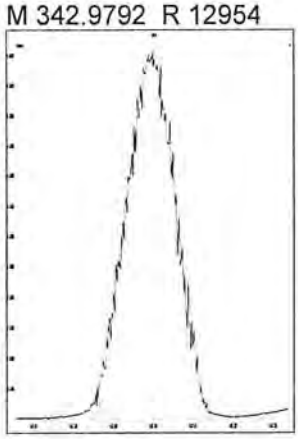
M 318.9792 R 12886



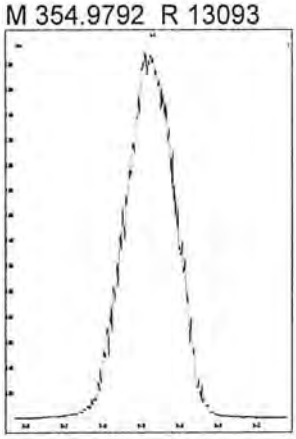
M 330.9792 R 12884



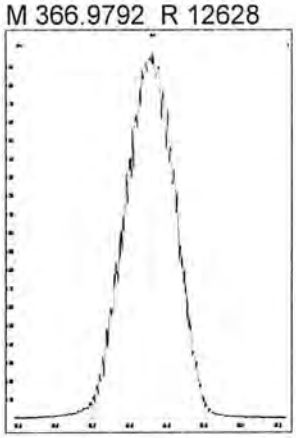
M 342.9792 R 12954



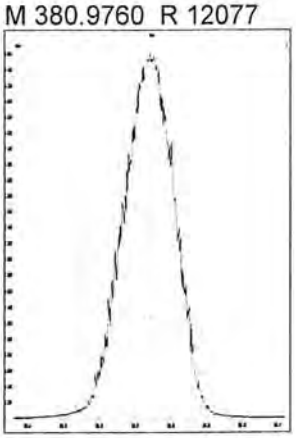
M 354.9792 R 13093



M 366.9792 R 12628



M 380.9760 R 12077

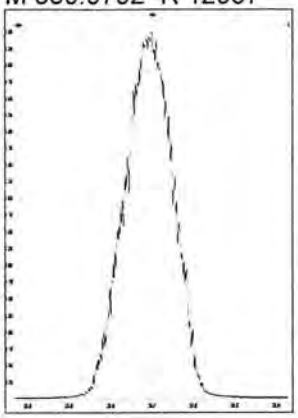


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

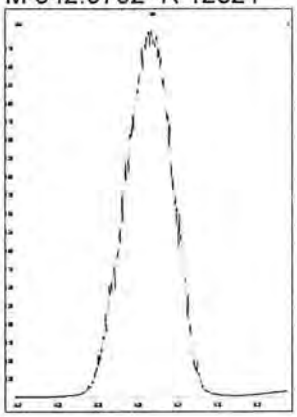
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Monday, August 24, 2015 17:08:29 Central Daylight Time

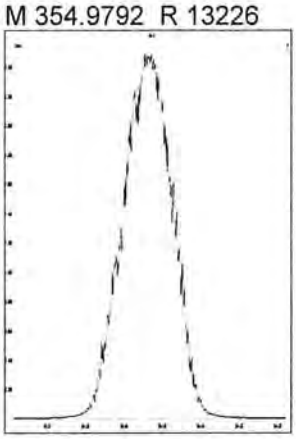
M 330.9792 R 12957



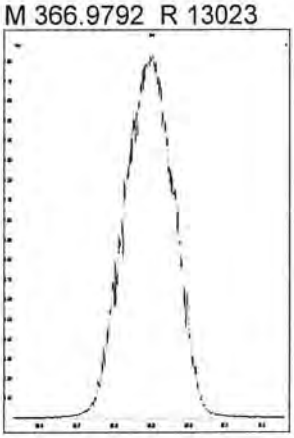
M 342.9792 R 12821



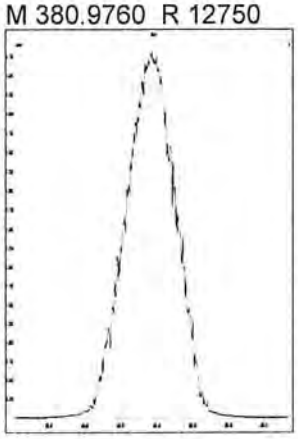
M 354.9792 R 13226



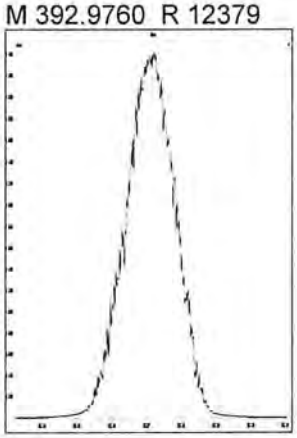
M 366.9792 R 13023



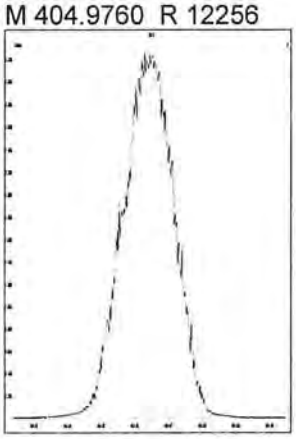
M 380.9760 R 12750



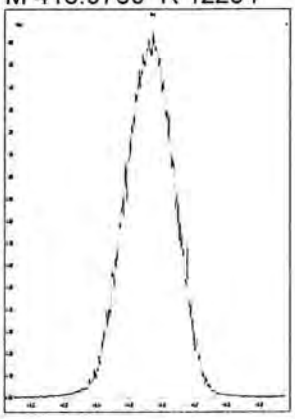
M 392.9760 R 12379



M 404.9760 R 12256



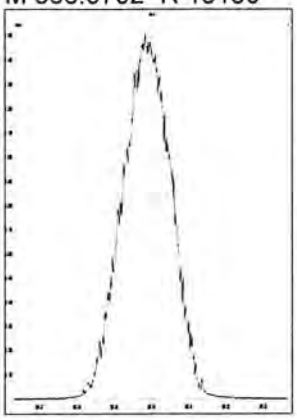
M 416.9760 R 12254



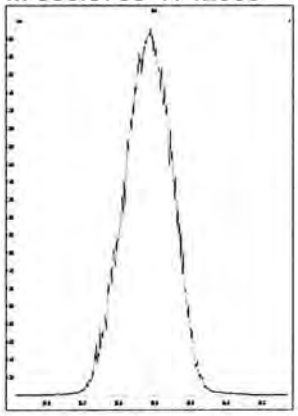
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Monday, August 24, 2015 17:09:04 Central Daylight Time

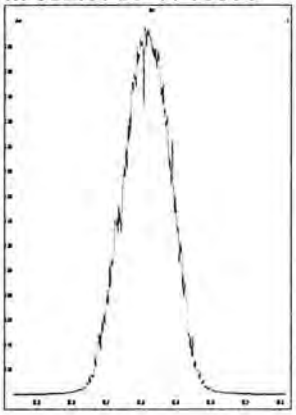
M 366.9792 R 13160



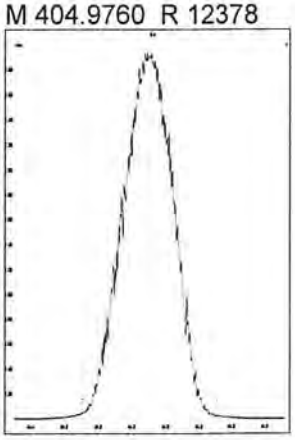
M 380.9760 R 12686



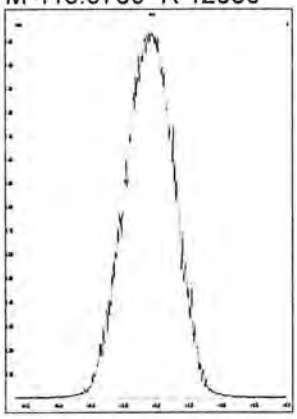
M 392.9760 R 13093



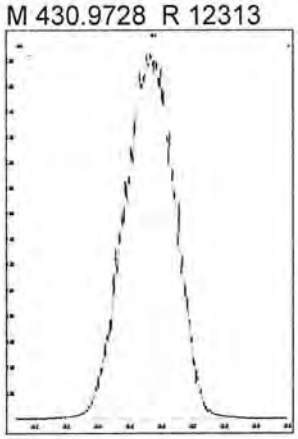
M 404.9760 R 12378



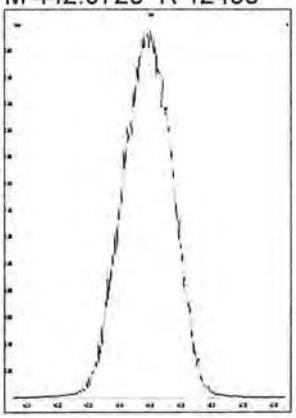
M 416.9760 R 12630



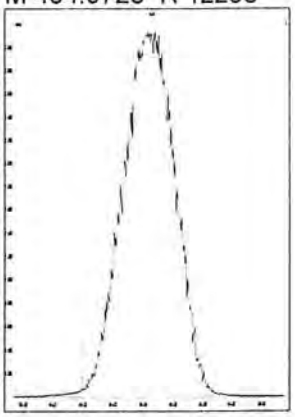
M 430.9728 R 12313



M 442.9728 R 12438



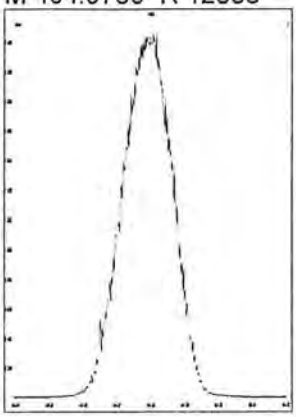
M 454.9728 R 12258



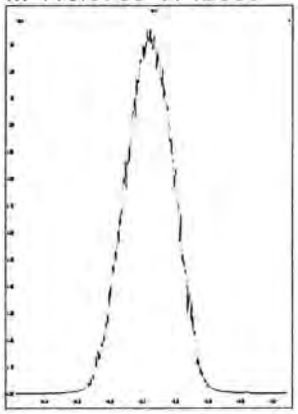
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, August 24, 2015 17:09:41 Central Daylight Time

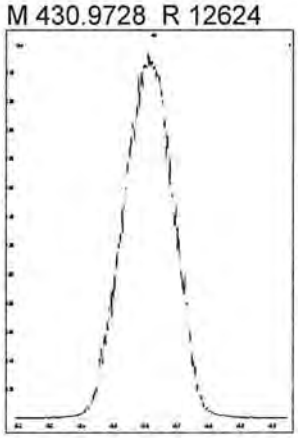
M 404.9760 R 12888



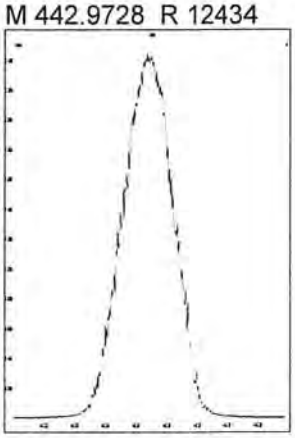
M 416.9760 R 12886



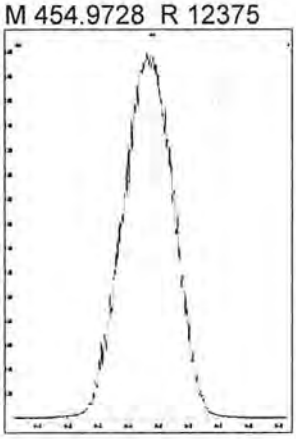
M 430.9728 R 12624



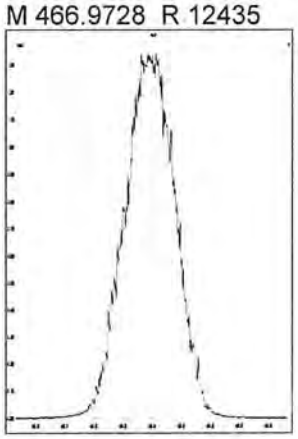
M 442.9728 R 12434



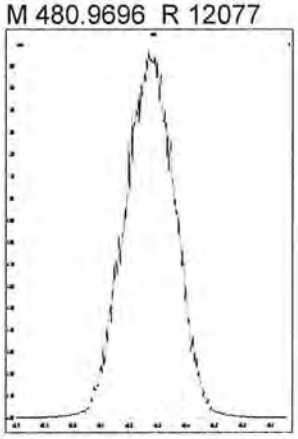
M 454.9728 R 12375



M 466.9728 R 12435



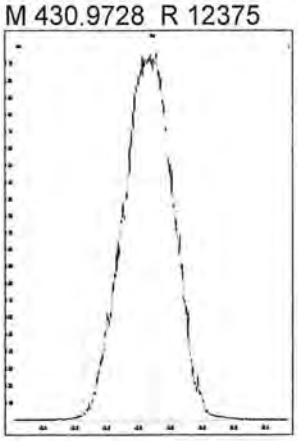
M 480.9696 R 12077



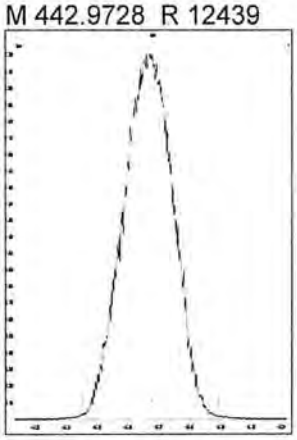
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Monday, August 24, 2015 17:10:15 Central Daylight Time

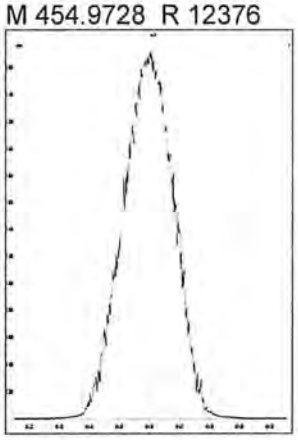
M 430.9728 R 12375



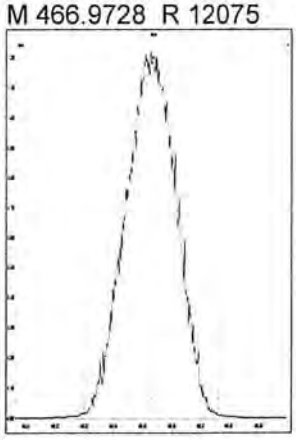
M 442.9728 R 12439



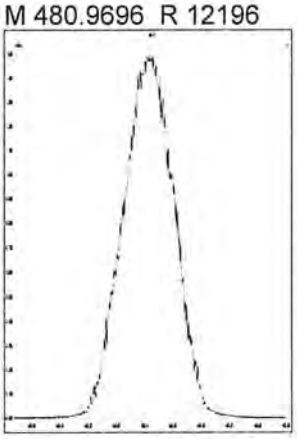
M 454.9728 R 12376



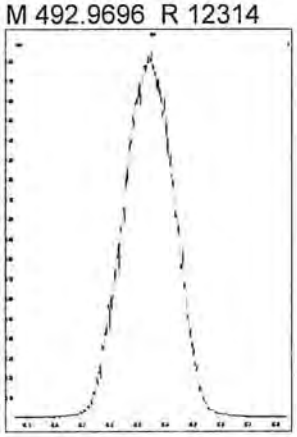
M 466.9728 R 12075



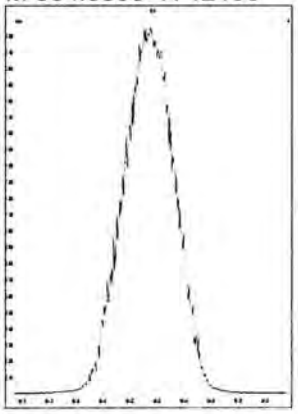
M 480.9696 R 12196



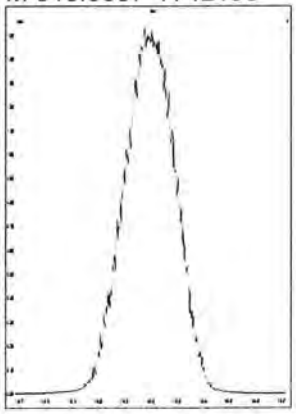
M 492.9696 R 12314



M 504.9696 R 12193

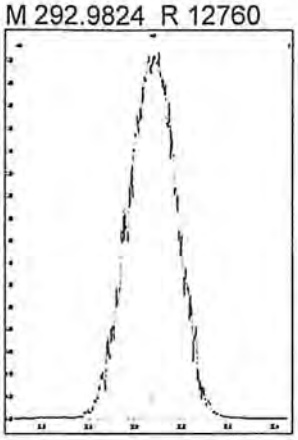


M 516.9697 R 12198

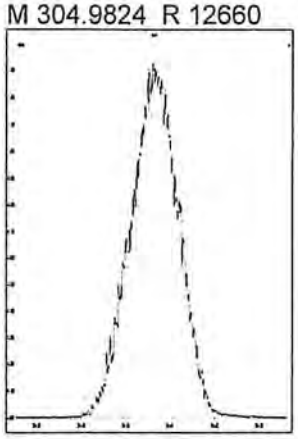


Printed: Tuesday, August 25, 2015 13:45:23 Central Daylight Time

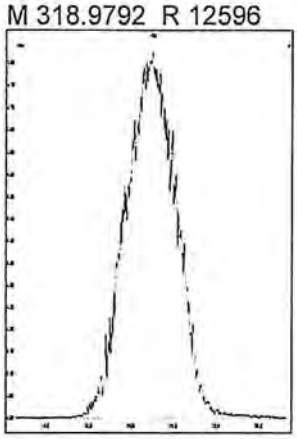
M 292.9824 R 12760



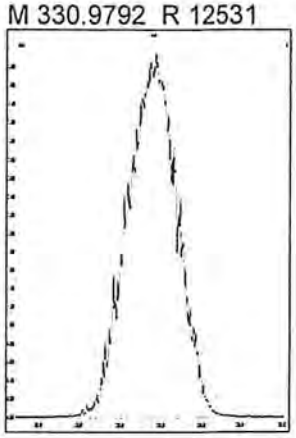
M 304.9824 R 12660



M 318.9792 R 12596



M 330.9792 R 12531



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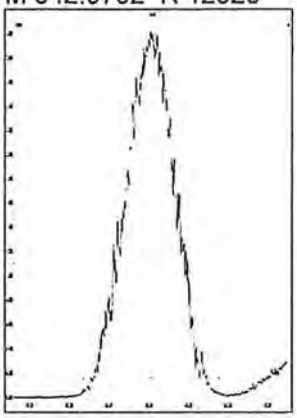

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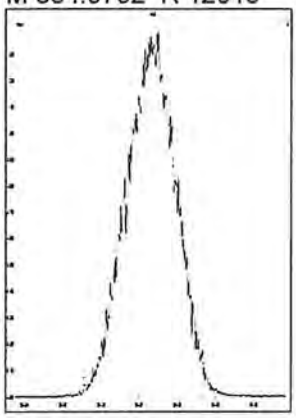

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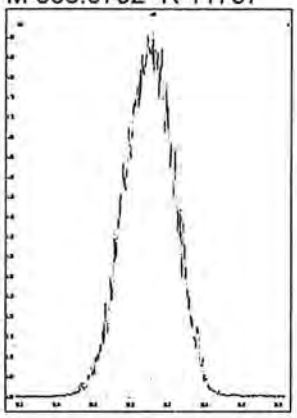

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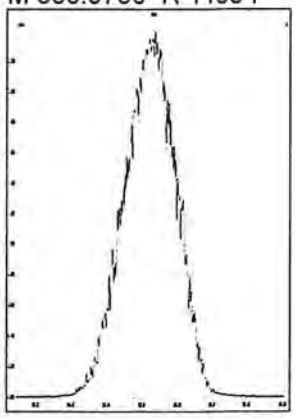

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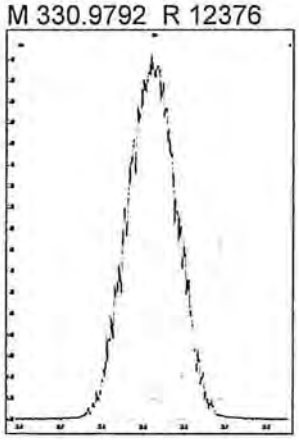

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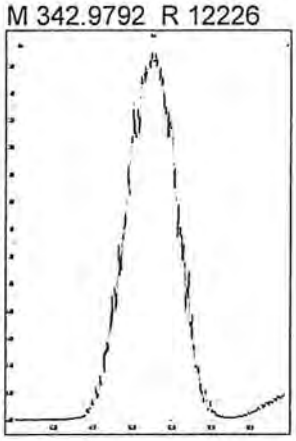

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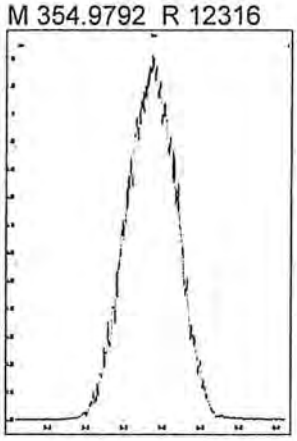

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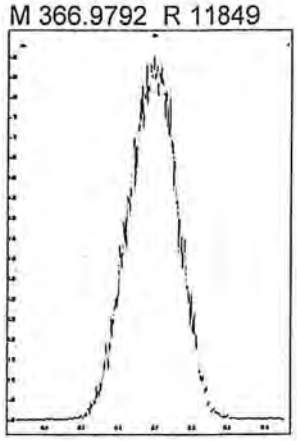

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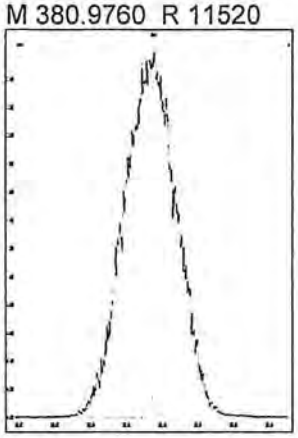

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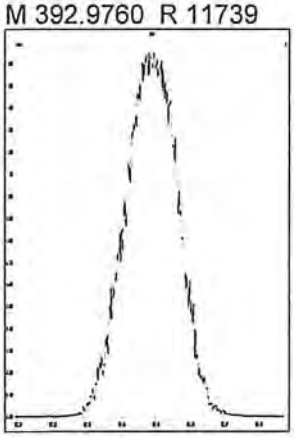

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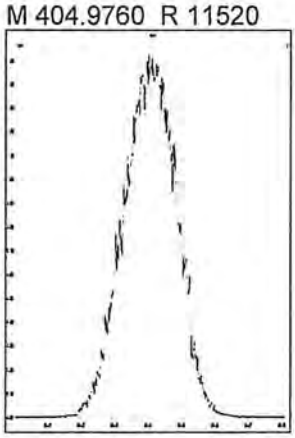

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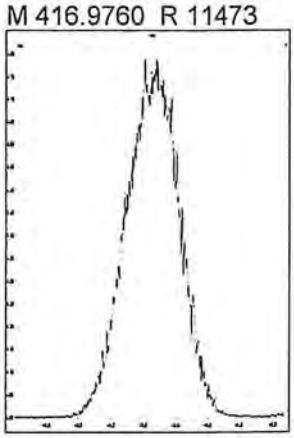

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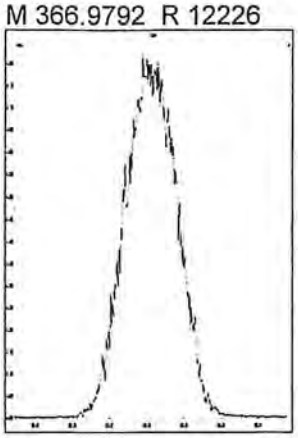
M 366.9792 R 12226



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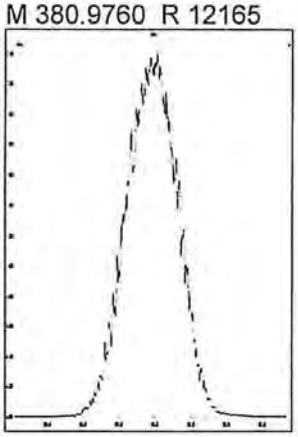

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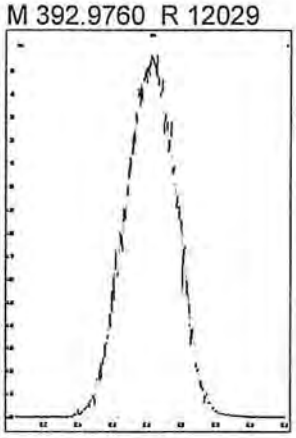

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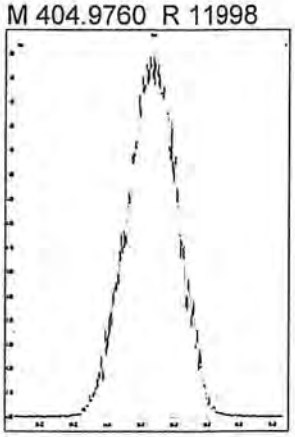

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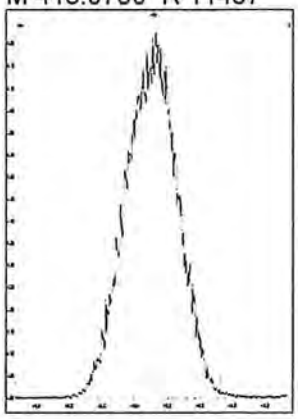

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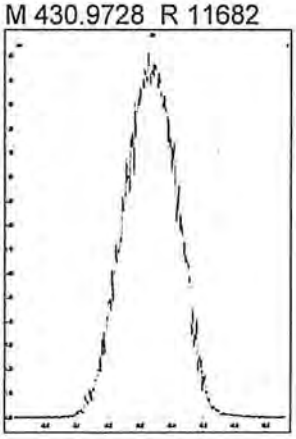

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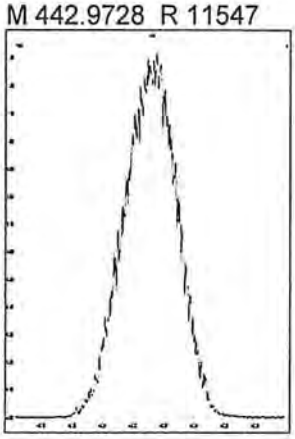

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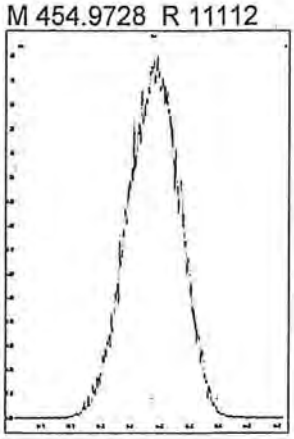

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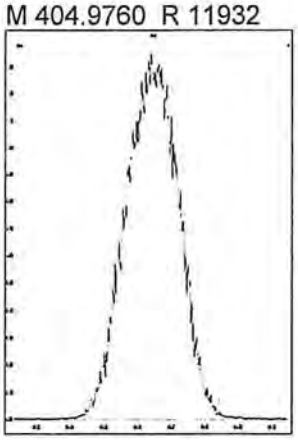

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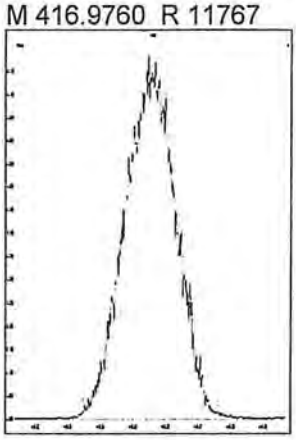

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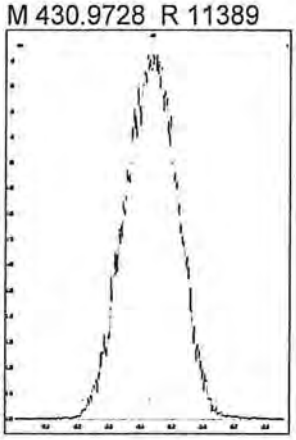

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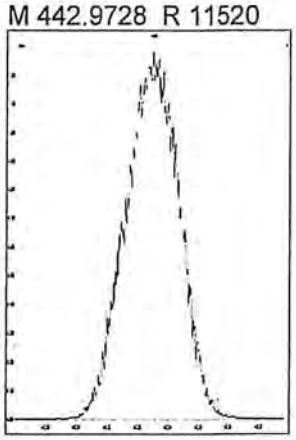

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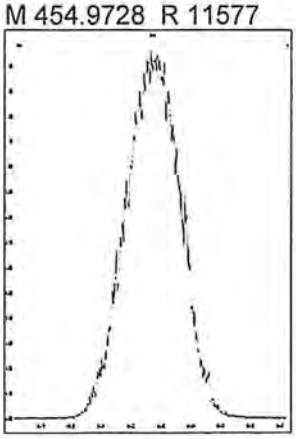

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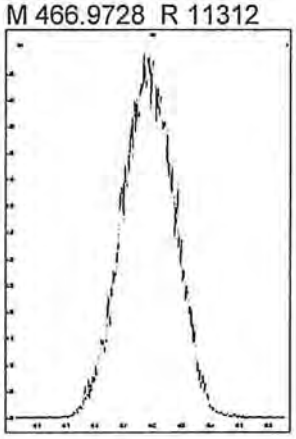

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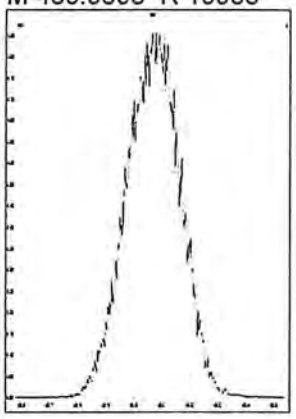

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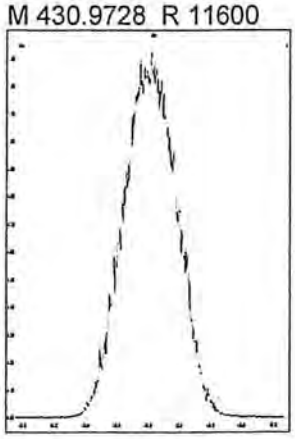

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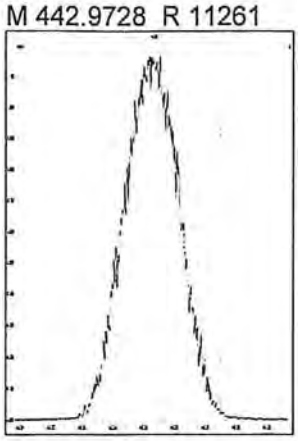

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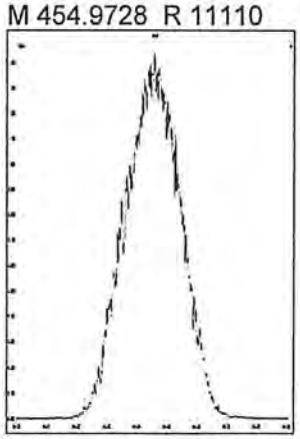

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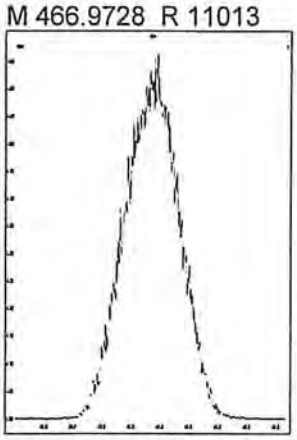

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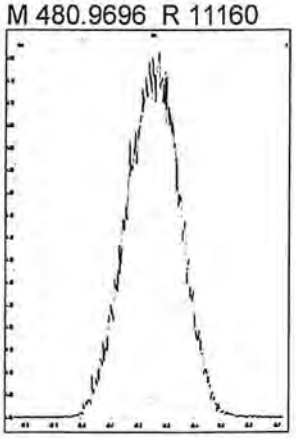

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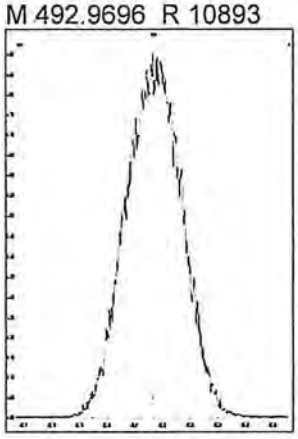

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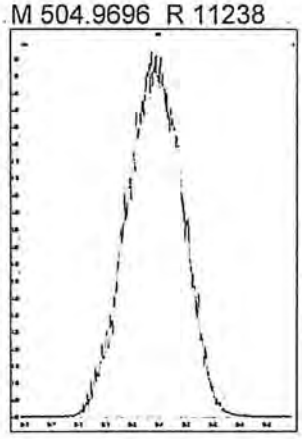

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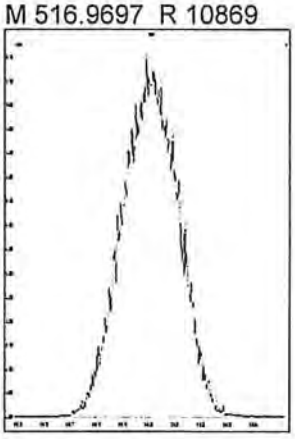


WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

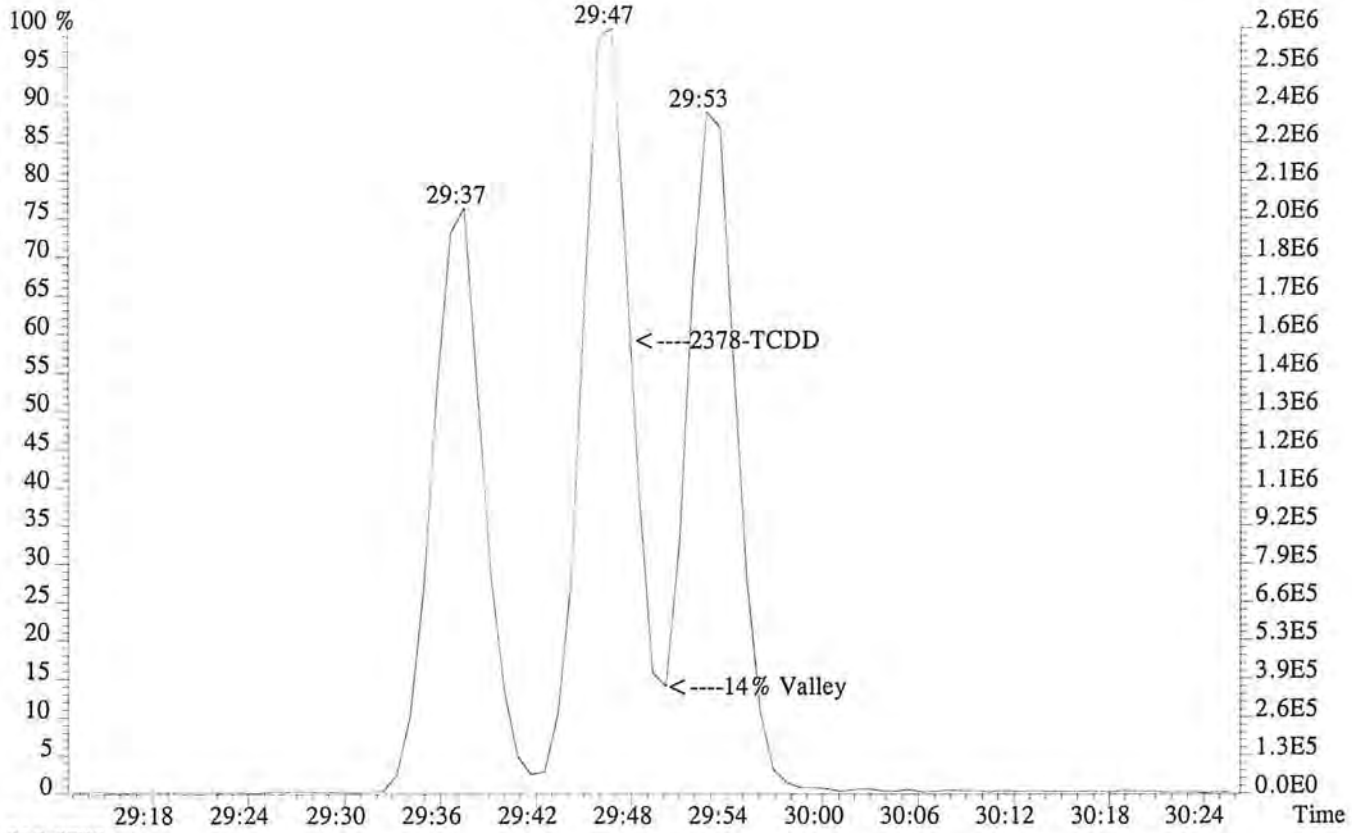
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P600102
Date Analyzed: 24-AUG-2015
Time Analyzed: 10:36:12

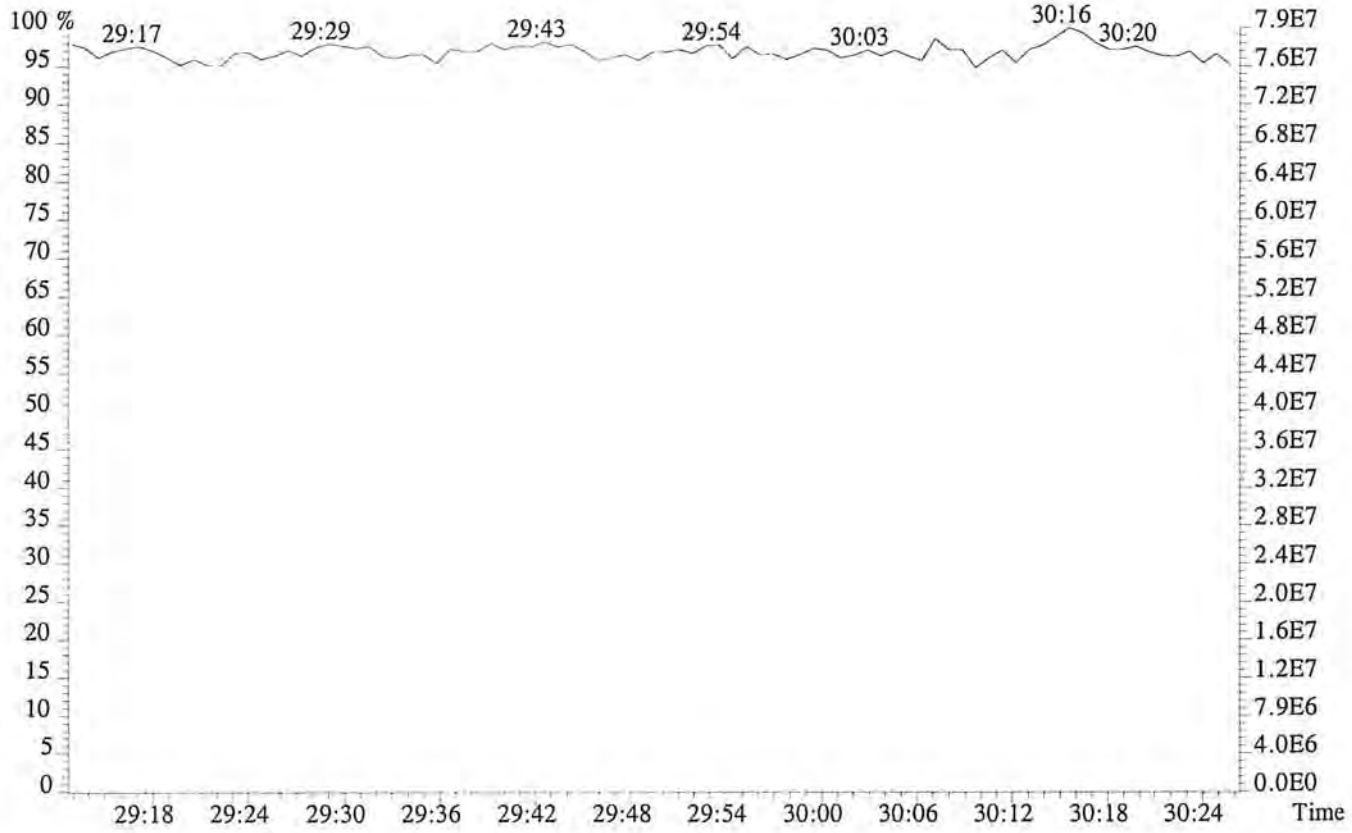
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:54	30:52
TCDD	26:45	30:43
PeCDF	30:48	34:52
PeCDD	32:15	34:37
HxCDF	35:29	37:55
HxCDD	35:59	37:31
HpCDF	39:07	40:33
HpCDD	39:22	40:03

% Valley 2378-TCDD: 14 %

File:P600102 #1-566 Acq:24-AUG-2015 10:36:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WD
319.8965



318.9792



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Sample#1 Exp:WD
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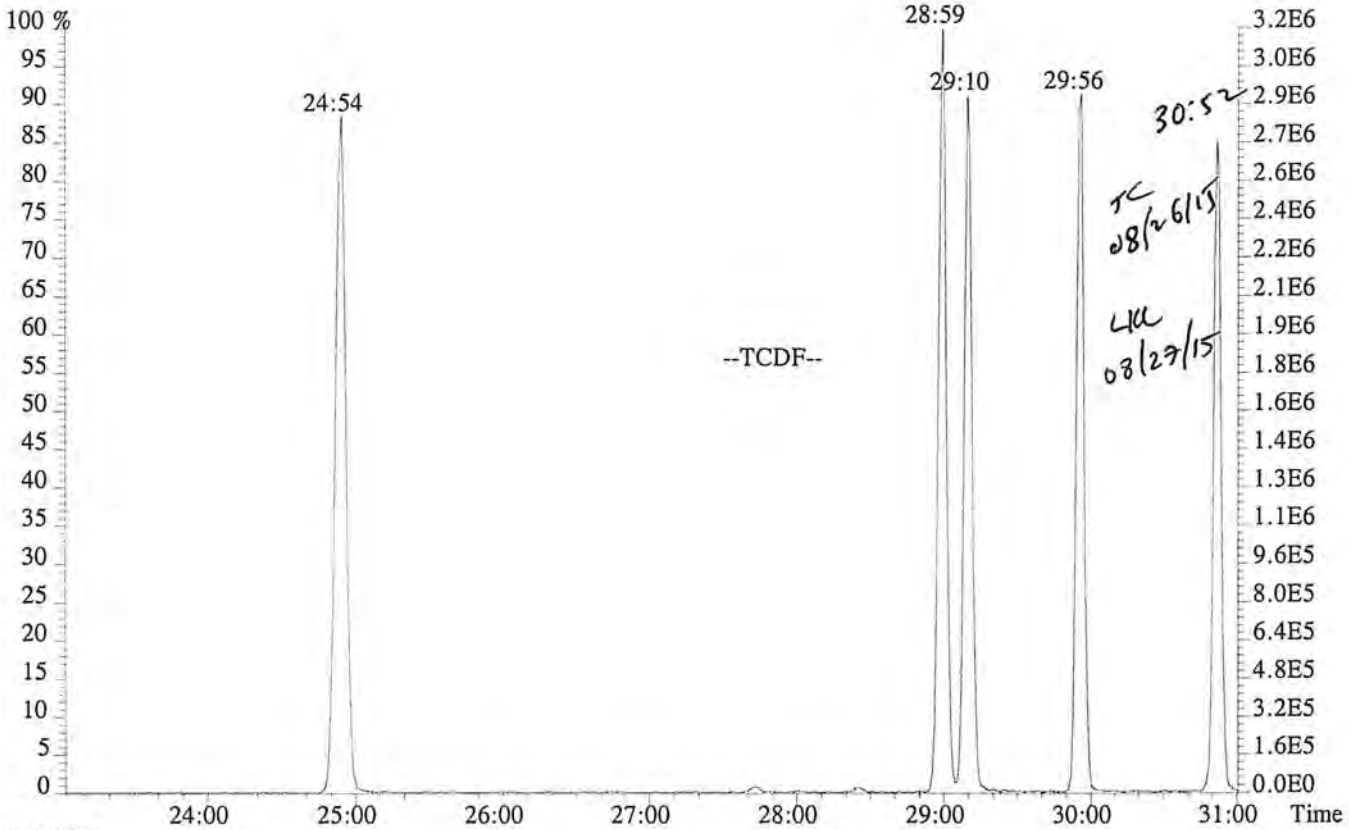

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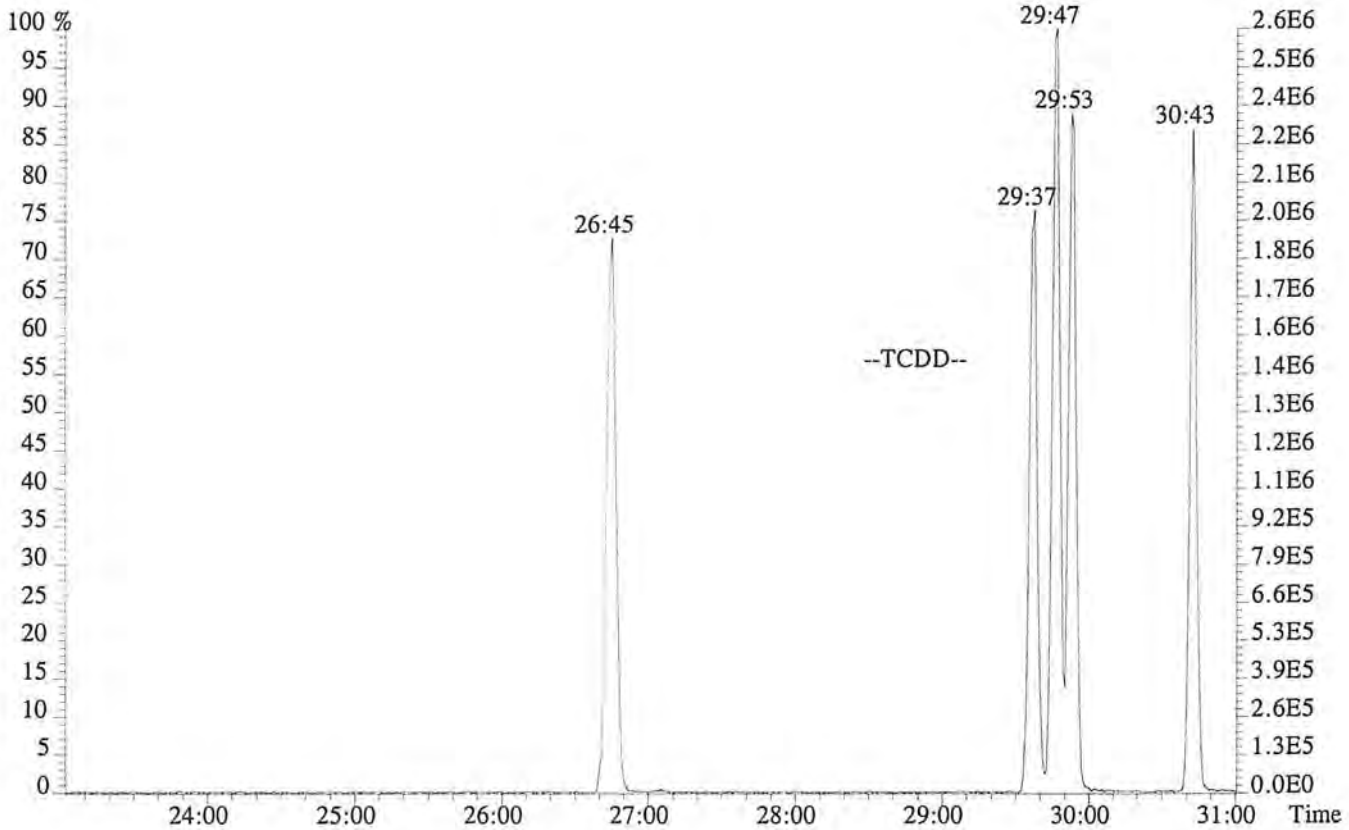

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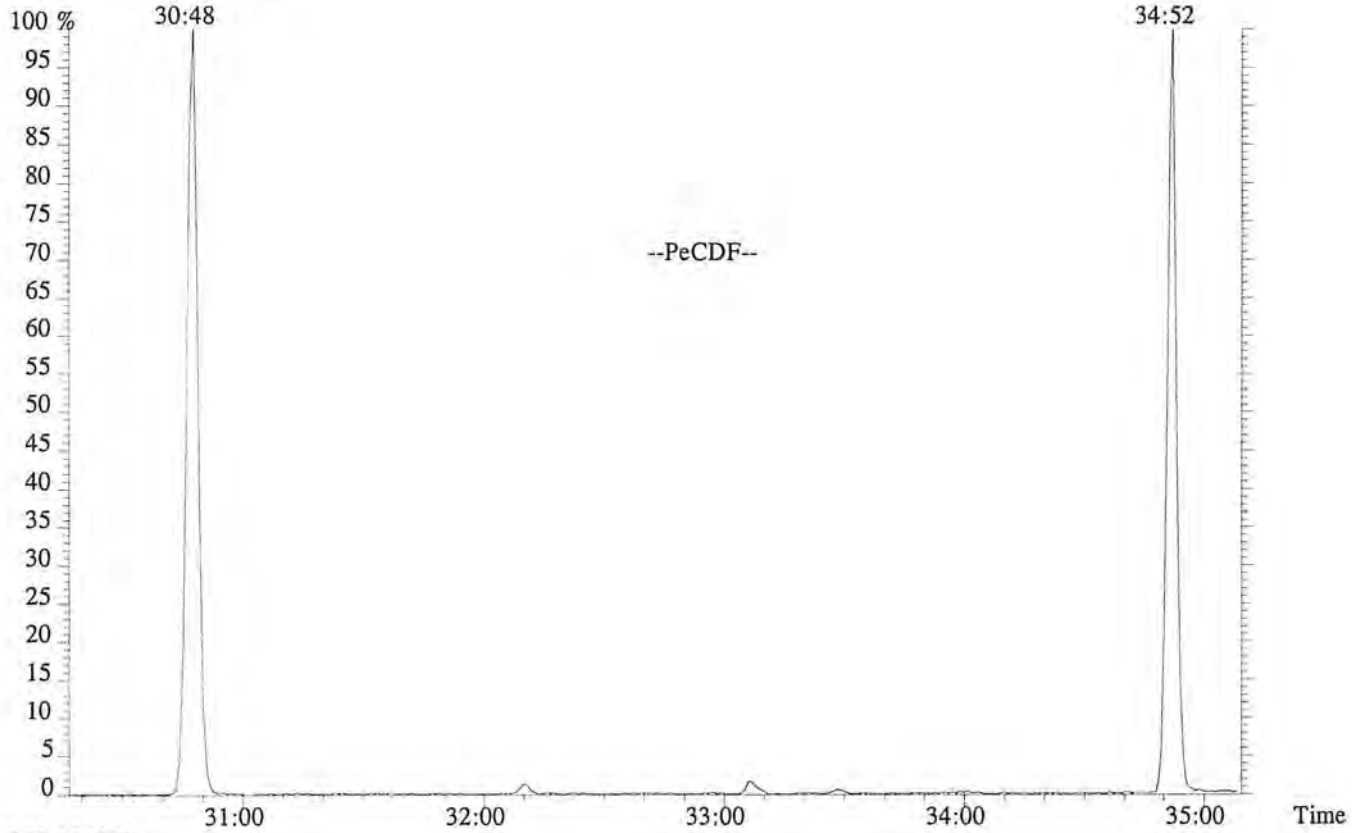
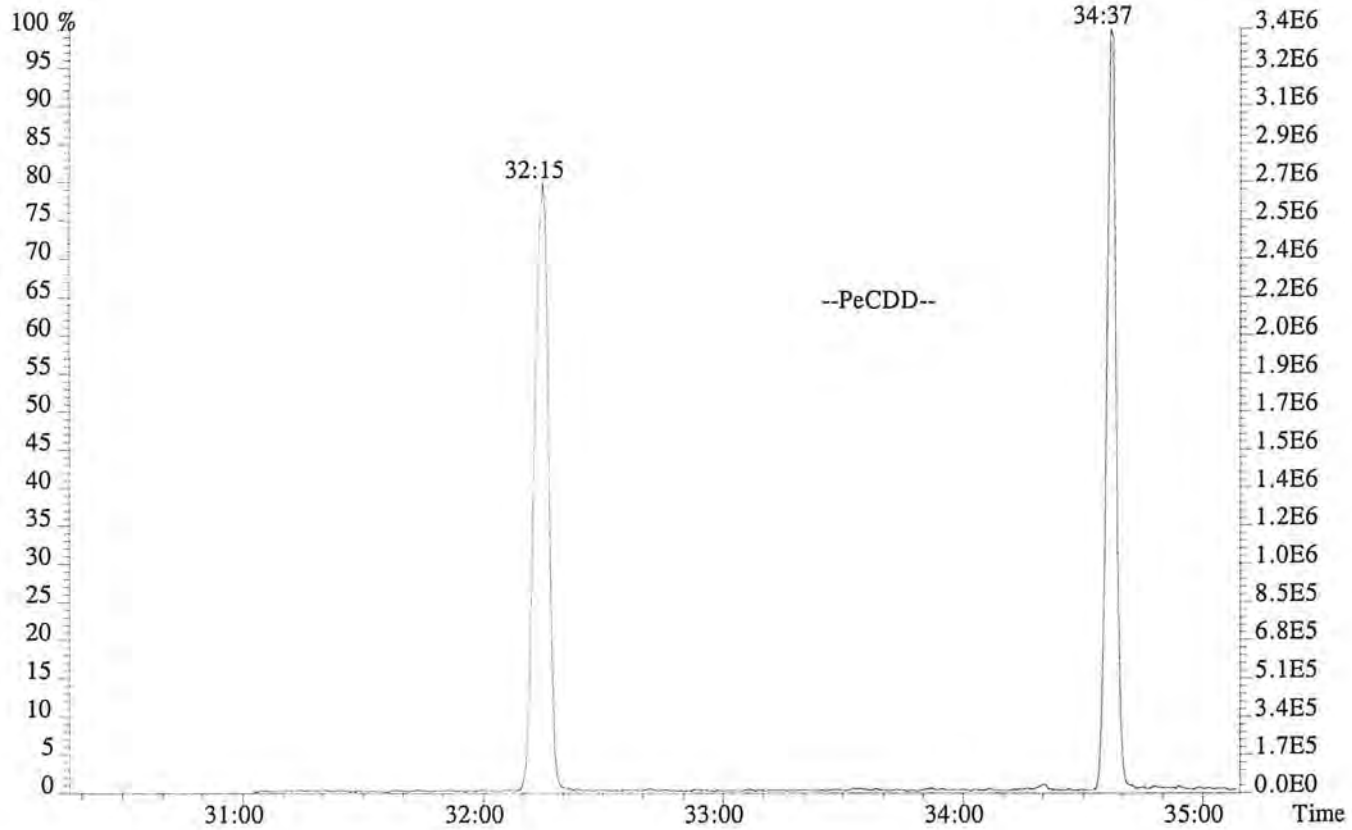
Sample#1 Exp:WD
339.8597,339.8597 F:2



355.8546 F:2



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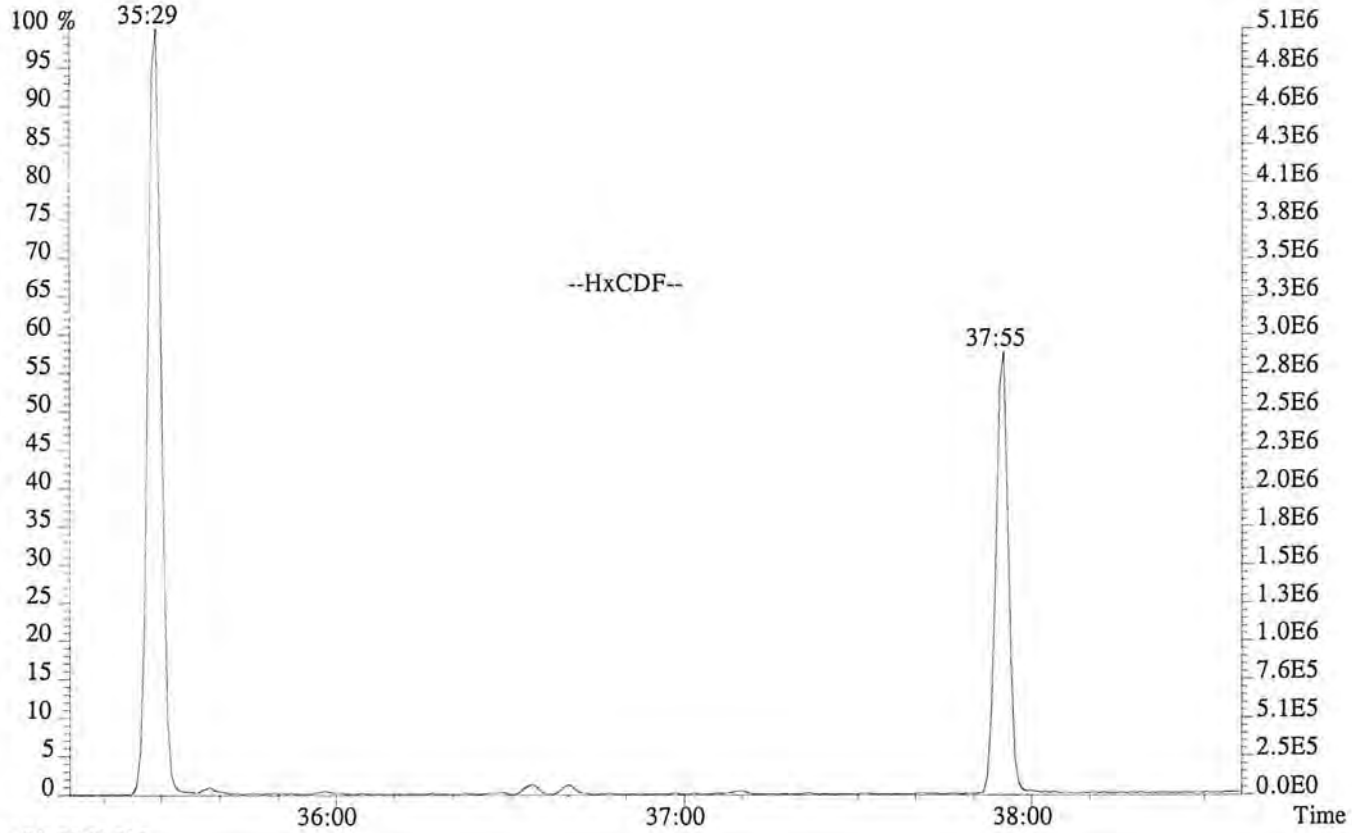
Sample#1 Exp:WD
373.8208 F:3



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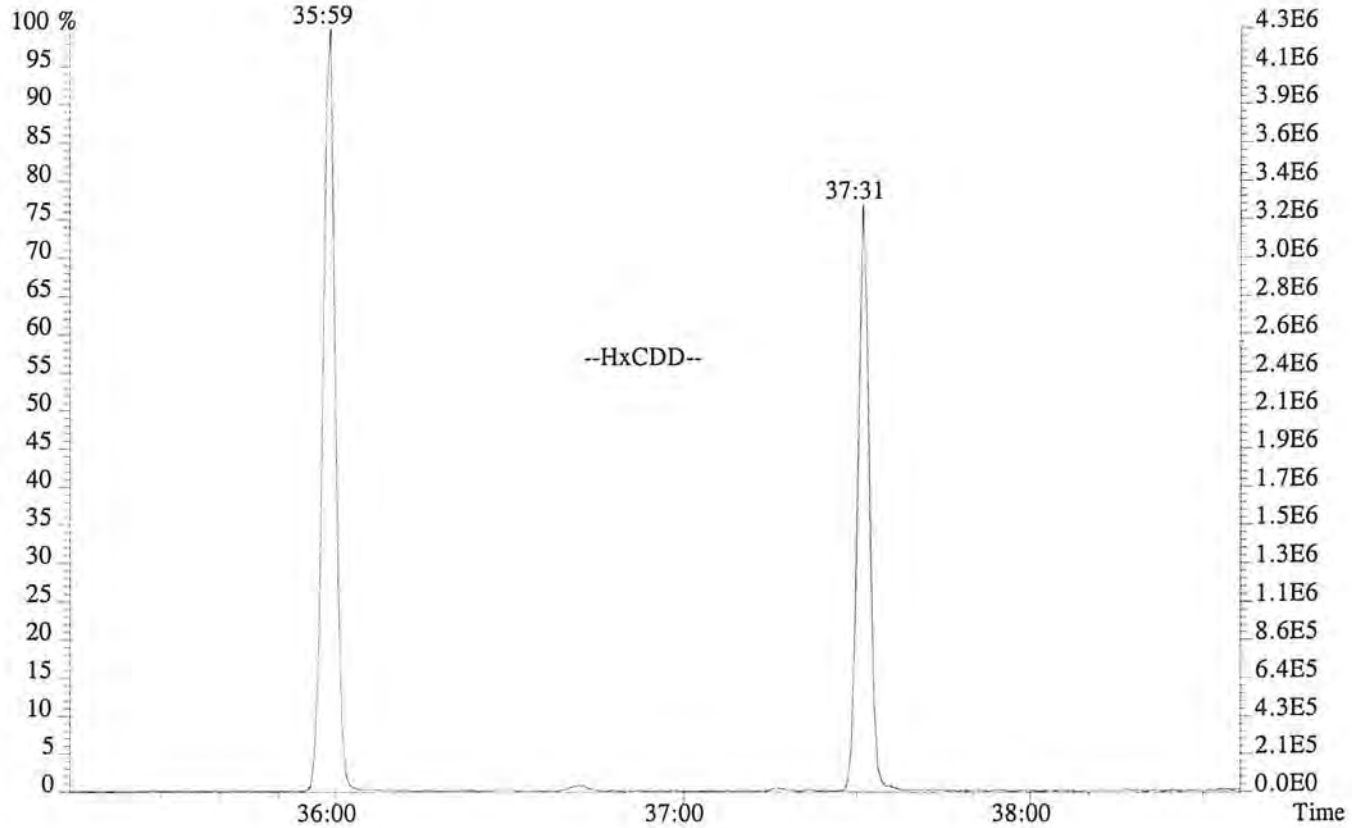

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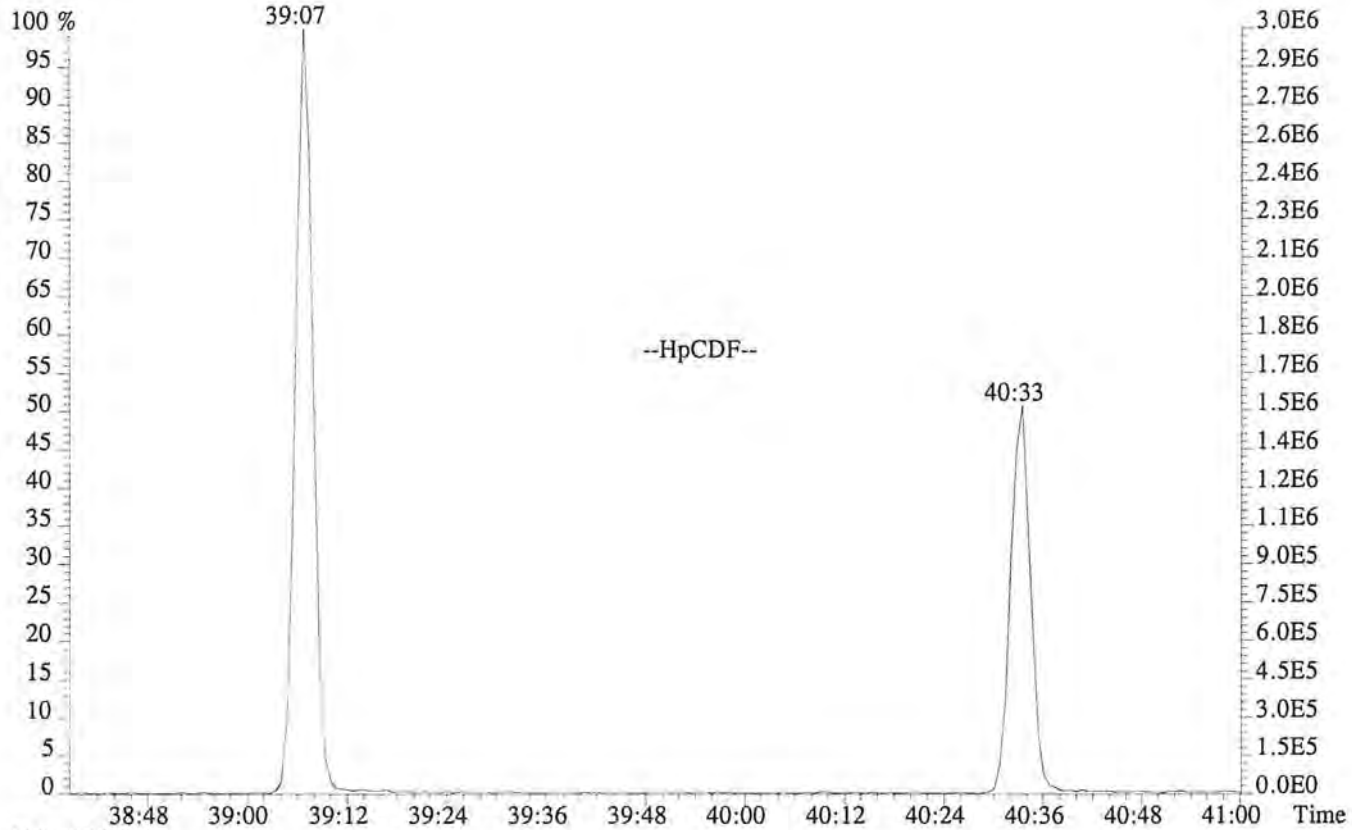
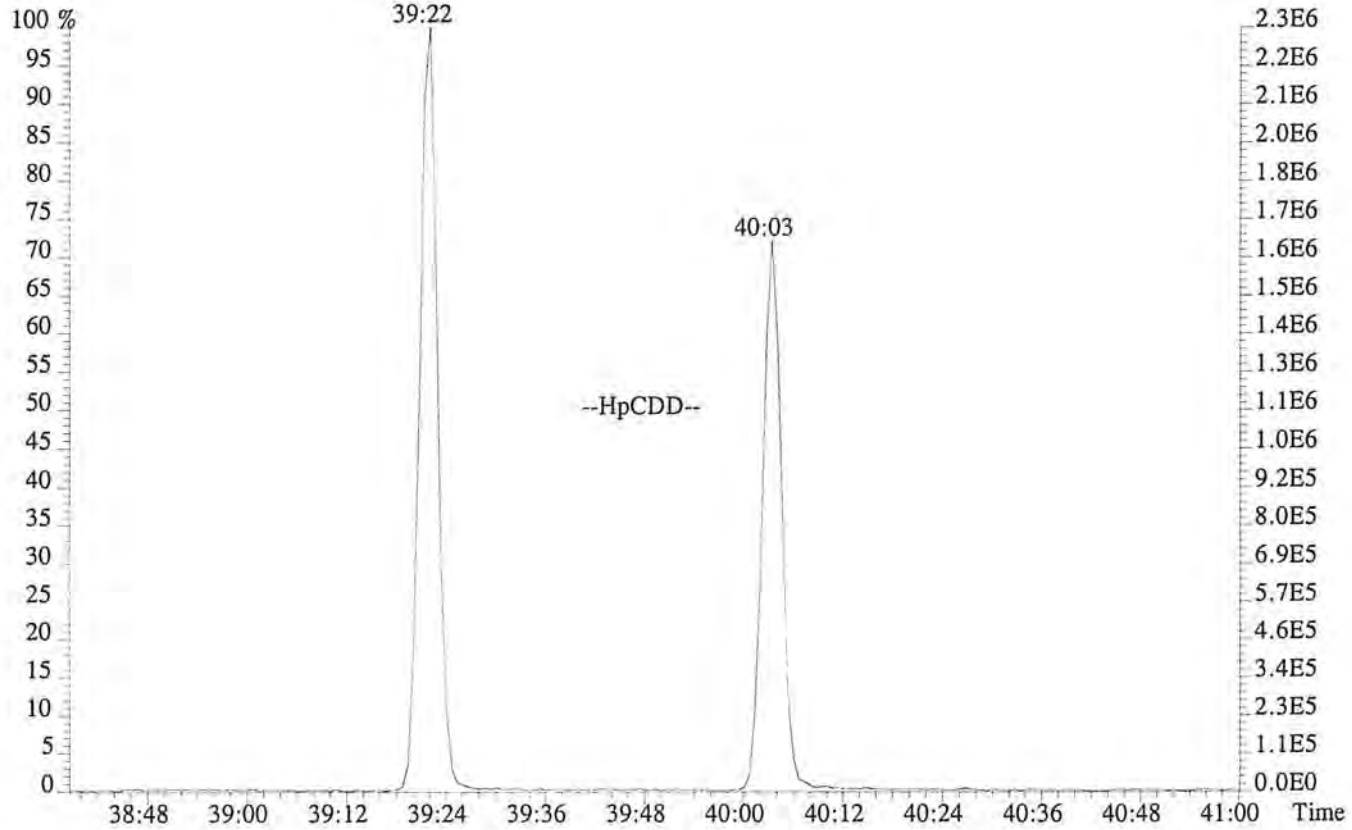
Sample#1 Exp:WD
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/19/15

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: p600103 Analysis Date: 24-AUG-15 Time: 12:38:03

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.9	7.8 - 12.9	-0.7
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	51	39 - 65	1.4
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	51	39 - 64	1.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	51	39 - 64	2.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	51	41 - 61	1.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	50	43 - 58	-0.6
OCDD	M+2/M+4	0.90	0.76-1.02	100	79 - 126	0.0
2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	10.2	8.4 - 12.0	1.7
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	53	41 - 60	5.1
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	52	41 - 61	4.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	52	45 - 56	4.4
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	52	44 - 57	3.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	51	45 - 56	1.8
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	52	44 - 57	4.1
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	51	45 - 55	3.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	51	43 - 58	1.6
OCDF	M+2/M+4	0.91	0.76-1.02	105	63 - 159	5.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/19/15

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: p600103 Analysis Date: 24-AUG-15 Time: 12:38:03

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	89	82 - 121	-11.3
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	107	62 - 160	7.4
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	98	85 - 117	-2.3
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	103	85 - 118	3.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	88	72 - 138	-12.2
13C-OCDD	M+2/M+4	0.90	0.76-1.02	159	96 - 415	-20.5
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	104	71 - 140	3.9
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	109	76 - 130	9.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	110	77 - 130	9.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	100	76 - 131	0.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	102	70 - 143	1.8
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	101	74 - 135	1.3
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	100	73 - 137	0.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	93	78 - 129	-7.5
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	77	77 - 129	-22.9
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				8.9	7.8 - 12.7	-11.3

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
79857

Run #7 Filename p600103 Samp: 1 Inj: 1 Acquired: 24-AUG-15 12:38:03
Processed: 26-AUG-15 13:42:12 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:08	1.888e+04	2.397e+04	0.79	yes	no	0.941
2	Unk	1,2,3,7,8-PeCDF	33:05	1.564e+05	1.008e+05	1.55	yes	no	0.987
3	Unk	2,3,4,7,8-PeCDF	33:58	1.490e+05	9.566e+04	1.56	yes	no	0.934
4	Unk	1,2,3,4,7,8-HxCDF	36:32	1.373e+05	1.102e+05	1.25	yes	no	1.189
5	Unk	1,2,3,6,7,8-HxCDF	36:39	1.410e+05	1.126e+05	1.25	yes	no	1.126
6	Unk	2,3,4,6,7,8-HxCDF	37:08	1.356e+05	1.090e+05	1.24	yes	no	1.116
7	Unk	1,2,3,7,8,9-HxCDF	37:52	1.262e+05	1.006e+05	1.25	yes	no	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:06	1.081e+05	1.053e+05	1.03	yes	no	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:32	8.744e+04	8.343e+04	1.05	yes	no	1.287
10	Unk	OCDF	43:07	1.193e+05	1.313e+05	0.91	yes	no	1.257
11	Unk	2,3,7,8-TCDD	29:52	1.452e+04	1.869e+04	0.78	yes	no	1.010
12	Unk	1,2,3,7,8-PeCDD	34:14	1.059e+05	6.772e+04	1.56	yes	no	0.932
13	Unk	1,2,3,4,7,8-HxCDD	37:16	9.537e+04	7.614e+04	1.25	yes	no	1.026
14	Unk	1,2,3,6,7,8-HxCDD	37:20	9.613e+04	7.578e+04	1.27	yes	no	1.021
15	Unk	1,2,3,7,8,9-HxCDD	37:34	1.051e+05	8.360e+04	1.26	yes	no	1.133
16	Unk	1,2,3,4,6,7,8-HpCDD	40:02	7.676e+04	7.238e+04	1.06	yes	no	1.034
17	Unk	OCDD	42:54	9.934e+04	1.108e+05	0.90	yes	no	1.111
18	IS	13C-2,3,7,8-TCDF	29:07	1.980e+05	2.501e+05	0.79	yes	no	1.379
19	IS	13C-1,2,3,7,8-PeCDF	33:05	3.043e+05	1.917e+05	1.59	yes	no	1.456
20	IS	13C-2,3,4,7,8-PeCDF	33:57	3.088e+05	1.933e+05	1.60	yes	no	1.465
21	IS	13C-1,2,3,4,7,8-HxCDF	36:32	1.375e+05	2.611e+05	0.53	yes	no	1.075
22	IS	13C-1,2,3,6,7,8-HxCDF	36:38	1.508e+05	2.861e+05	0.53	yes	no	1.158
23	IS	13C-2,3,4,6,7,8-HxCDF	37:08	1.446e+05	2.765e+05	0.52	yes	no	1.133
24	IS	13C-1,2,3,7,8,9-HxCDF	37:52	1.326e+05	2.518e+05	0.53	yes	no	1.024
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:05	9.325e+04	2.085e+05	0.45	yes	no	0.880
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:31	8.045e+04	1.809e+05	0.44	yes	no	0.914
27	IS	13C-2,3,7,8-TCDD	29:50	1.468e+05	1.841e+05	0.80	yes	no	1.193
28	IS	13C-1,2,3,7,8-PeCDD	34:13	2.245e+05	1.428e+05	1.57	yes	no	1.094
29	IS	13C-1,2,3,4,7,8-HxCDD	37:15	1.830e+05	1.453e+05	1.26	yes	no	0.906
30	IS	13C-1,2,3,6,7,8-HxCDD	37:20	1.831e+05	1.452e+05	1.26	yes	no	0.860
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:01	1.488e+05	1.416e+05	1.05	yes	no	0.892
32	IS	13C-OCDD	42:54	1.793e+05	1.991e+05	0.90	yes	no	0.642
33	RS/RT	13C-1,2,3,4-TCDD	29:18	1.392e+05	1.735e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:34	2.070e+05	1.638e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:52	3.505e+04				no	1.263

ALS ENVIRONMENTAL
10450 Stancliff Rd, Suite 115
Houston, TX 77099
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
79857

Run #7 Filename p600103 Samp: 1 Inj: 1 Acquired: 24-AUG-15 12:38:03
Processed: 26-AUG-15 13:42:12 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.81e+06	1.05e+03	3.6e+03	4.87e+06	2.16e+03	2.3e+03
2	1,2,3,7,8-PeCDF	3.22e+07	2.17e+03	1.5e+04	2.10e+07	3.56e+03	5.9e+03
3	2,3,4,7,8-PeCDF	3.23e+07	2.17e+03	1.5e+04	2.08e+07	3.56e+03	5.8e+03
4	1,2,3,4,7,8-HxCDF	3.17e+07	2.02e+03	1.6e+04	2.55e+07	9.64e+02	2.6e+04
5	1,2,3,6,7,8-HxCDF	3.22e+07	2.02e+03	1.6e+04	2.56e+07	9.64e+02	2.7e+04
6	2,3,4,6,7,8-HxCDF	3.23e+07	2.02e+03	1.6e+04	2.59e+07	9.64e+02	2.7e+04
7	1,2,3,7,8,9-HxCDF	2.93e+07	2.02e+03	1.5e+04	2.31e+07	9.64e+02	2.4e+04
8	1,2,3,4,6,7,8-HpCDF	2.52e+07	2.19e+03	1.1e+04	2.42e+07	2.26e+03	1.1e+04
9	1,2,3,4,7,8,9-HpCDF	1.88e+07	2.19e+03	8.6e+03	1.80e+07	2.26e+03	8.0e+03
10	OCDF	2.26e+07	1.81e+03	1.3e+04	2.41e+07	4.53e+03	5.3e+03
11	2,3,7,8-TCDD	3.10e+06	1.38e+03	2.2e+03	3.94e+06	2.33e+03	1.7e+03
12	1,2,3,7,8-PeCDD	2.31e+07	4.22e+03	5.5e+03	1.48e+07	1.96e+03	7.6e+03
13	1,2,3,4,7,8-HxCDD	2.31e+07	1.38e+03	1.7e+04	1.83e+07	1.60e+03	1.1e+04
14	1,2,3,6,7,8-HxCDD	2.24e+07	1.38e+03	1.6e+04	1.78e+07	1.60e+03	1.1e+04
15	1,2,3,7,8,9-HxCDD	2.45e+07	1.38e+03	1.8e+04	1.96e+07	1.60e+03	1.2e+04
16	1,2,3,4,6,7,8-HpCDD	1.66e+07	1.76e+03	9.4e+03	1.58e+07	1.62e+03	9.8e+03
17	OCDD	1.90e+07	1.24e+03	1.5e+04	2.12e+07	1.94e+03	1.1e+04
18	13C-2,3,7,8-TCDF	4.05e+07	4.48e+03	9.1e+03	5.13e+07	2.04e+03	2.5e+04
19	13C-1,2,3,7,8-PeCDF	6.31e+07	1.40e+03	4.5e+04	3.97e+07	2.66e+03	1.5e+04
20	13C-2,3,4,7,8-PeCDF	6.69e+07	1.40e+03	4.8e+04	4.19e+07	2.66e+03	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	3.19e+07	2.53e+03	1.3e+04	6.04e+07	3.28e+03	1.8e+04
22	13C-1,2,3,6,7,8-HxCDF	3.43e+07	2.53e+03	1.4e+04	6.42e+07	3.28e+03	2.0e+04
23	13C-2,3,4,6,7,8-HxCDF	3.43e+07	2.53e+03	1.4e+04	6.52e+07	3.28e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	3.10e+07	2.53e+03	1.2e+04	5.83e+07	3.28e+03	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.18e+07	6.12e+03	3.6e+03	4.86e+07	4.38e+03	1.1e+04
26	13C-1,2,3,4,7,8,9-HpCDF	1.75e+07	6.12e+03	2.9e+03	3.92e+07	4.38e+03	8.9e+03
27	13C-2,3,7,8-TCDD	3.16e+07	8.78e+03	3.6e+03	3.97e+07	4.84e+03	8.2e+03
28	13C-1,2,3,7,8-PeCDD	4.74e+07	1.87e+03	2.5e+04	3.02e+07	2.14e+03	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	4.44e+07	5.28e+03	8.4e+03	3.50e+07	2.31e+03	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	4.20e+07	5.28e+03	8.0e+03	3.36e+07	2.31e+03	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.29e+07	2.75e+03	1.2e+04	3.15e+07	8.04e+02	3.9e+04
32	13C-OCDD	3.42e+07	1.68e+03	2.0e+04	3.80e+07	1.60e+03	2.4e+04
33	13C-1,2,3,4-TCDD	2.82e+07	8.78e+03	3.2e+03	3.54e+07	4.84e+03	7.3e+03
34	13C-1,2,3,7,8,9-HxCDD	4.79e+07	5.28e+03	9.1e+03	3.83e+07	2.31e+03	1.7e+04
35	37Cl-2,3,7,8-TCDD	7.39e+06	1.55e+03	4.8e+03			

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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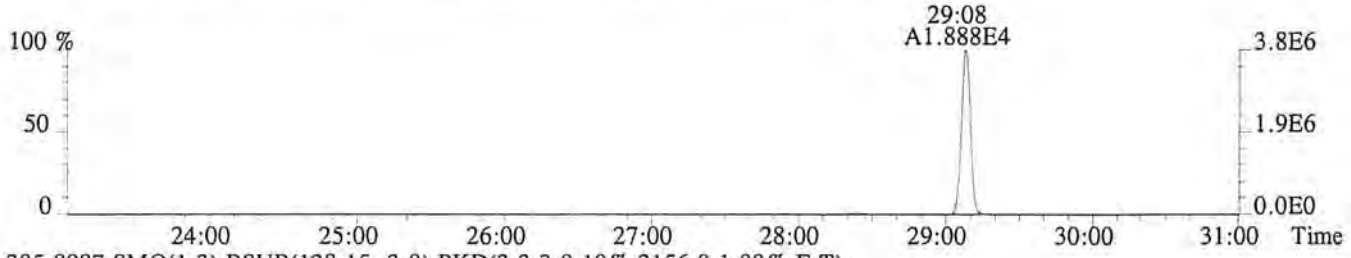
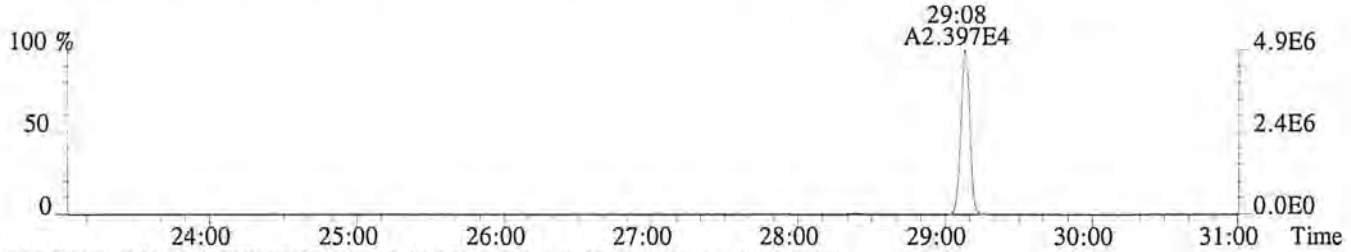
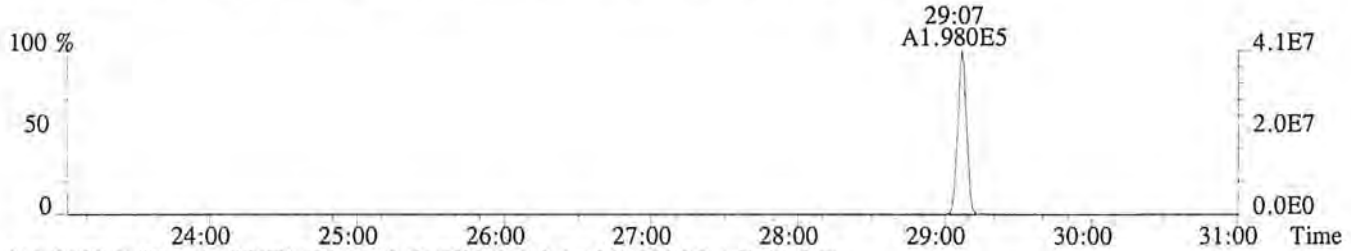
File:P600103 #1-566 Acq:24-AUG-2015 12:38:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



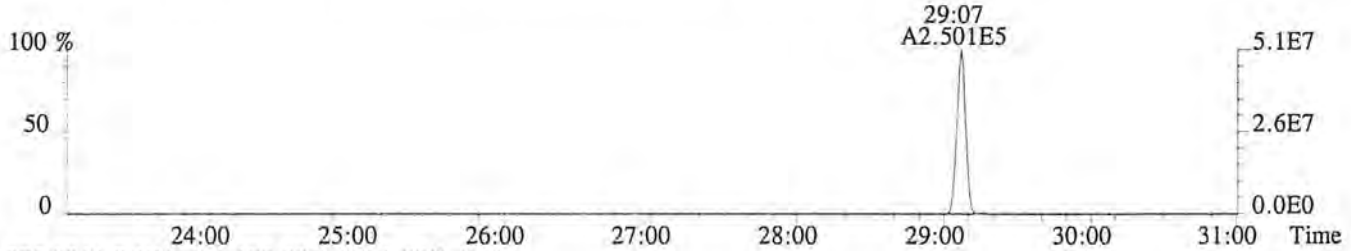
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2156.0,1.00%,F,T)



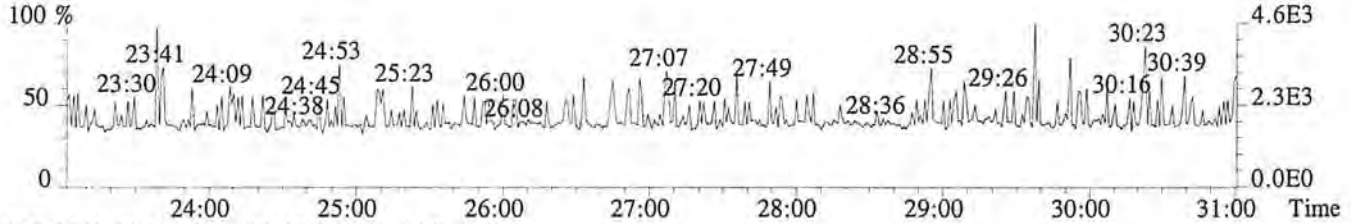
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4476.0,1.00%,F,T)



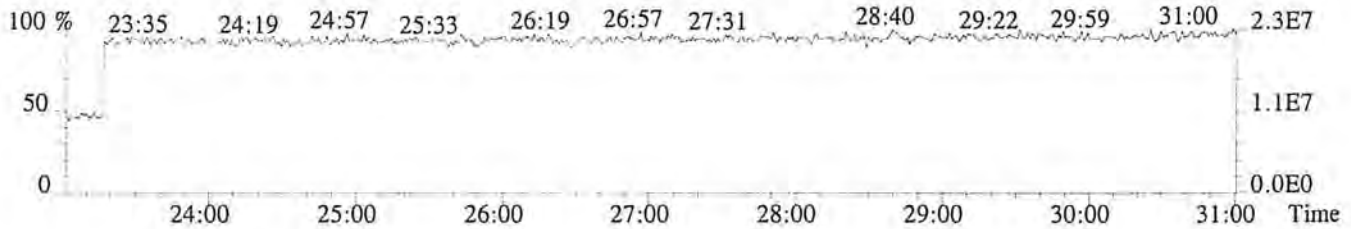
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)



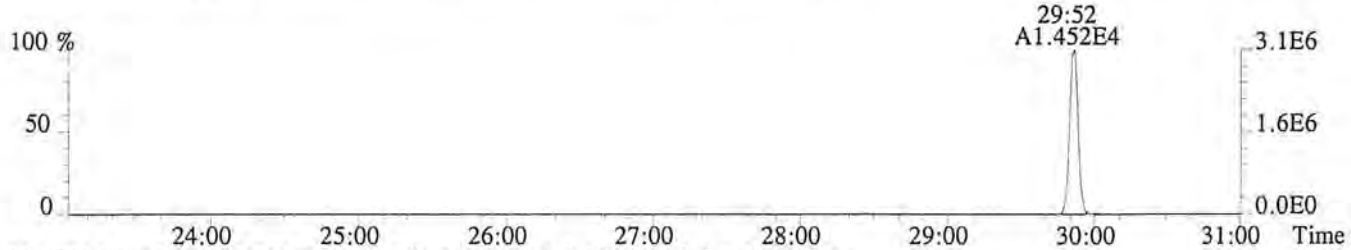
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



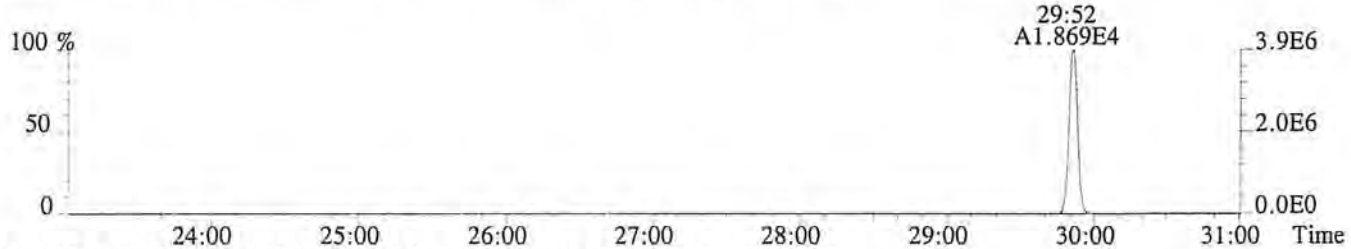
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



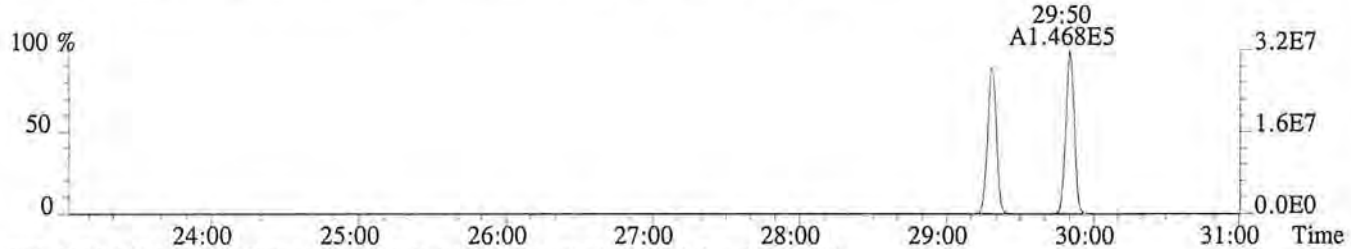
File:P600103 #1-566 Acq:24-AUG-2015 12:38:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1384.0,1.00%,F,T)



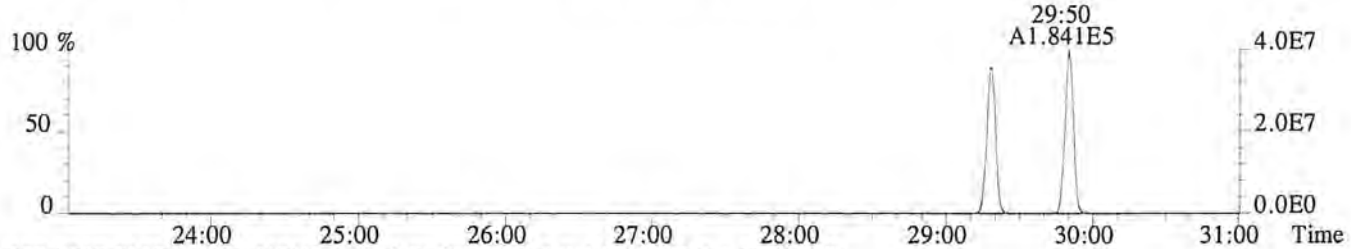
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2328.0,1.00%,F,T)



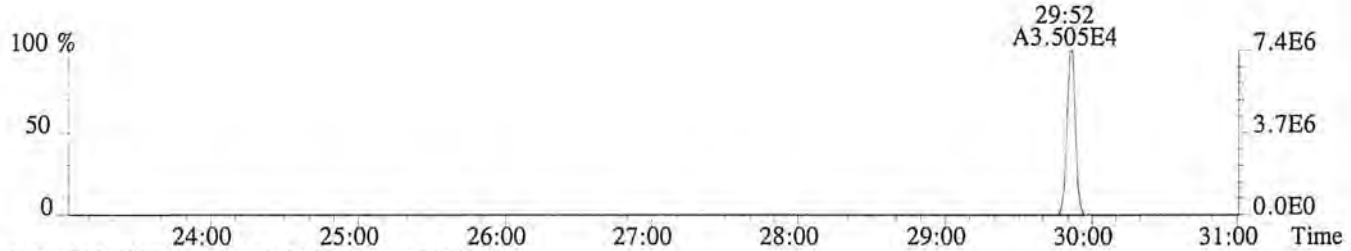
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8780.0,1.00%,F,T)



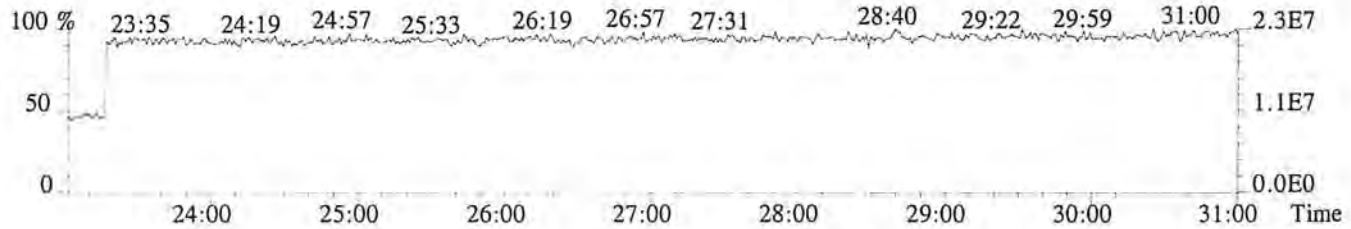
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4840.0,1.00%,F,T)



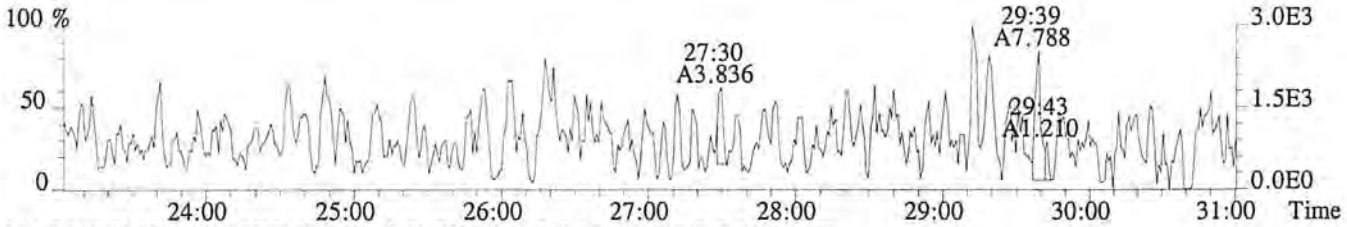
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1552.0,1.00%,F,T)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

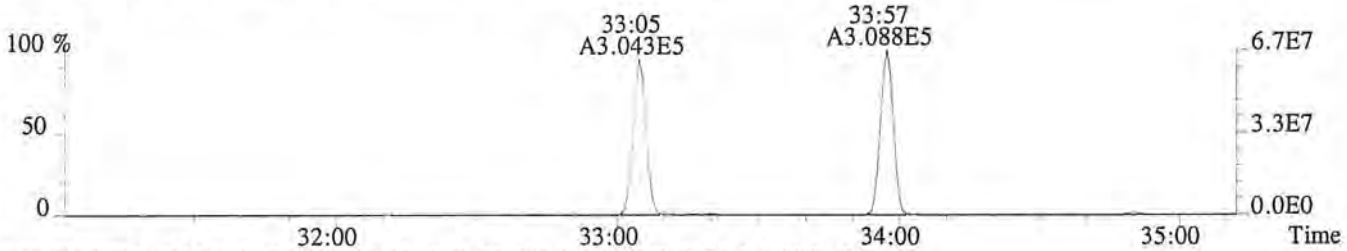


File:P600103 #1-566 Acq:24-AUG-2015 12:38:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)

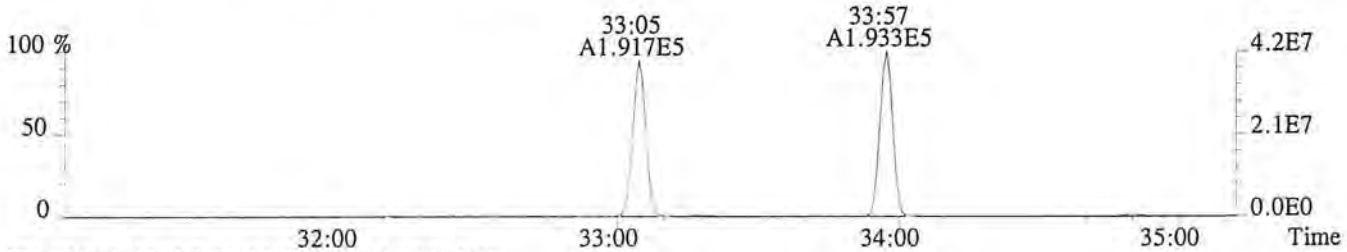


341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2608.0,1.00%,F,T)

351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)

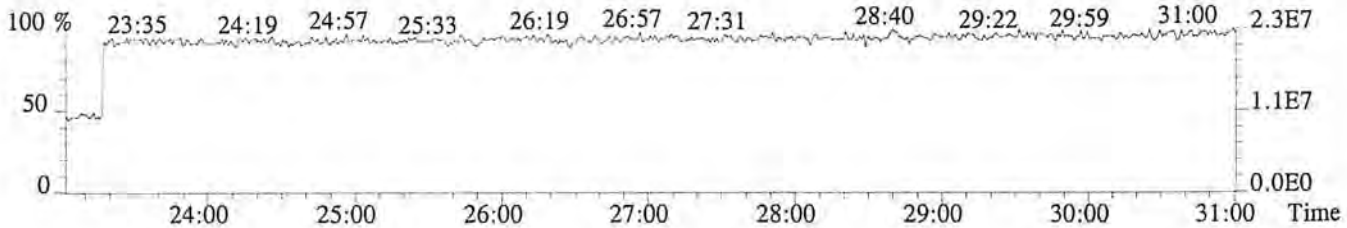


353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2664.0,1.00%,F,T)

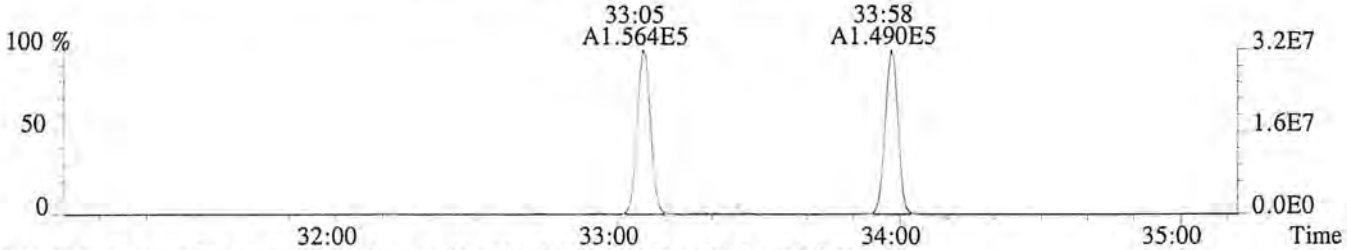


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

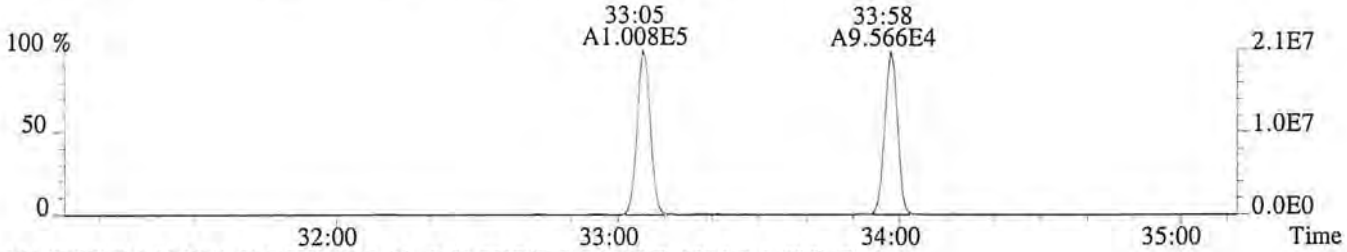
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



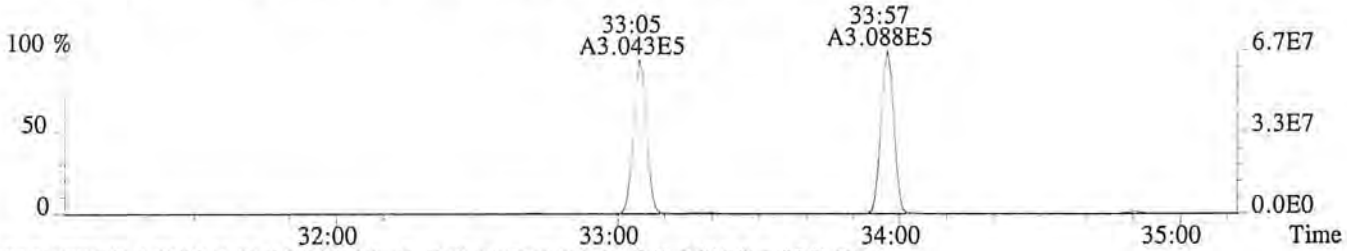
File:P600103 #1-375 Acq:24-AUG-2015 12:38:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2168.0,1.00%,F,T)



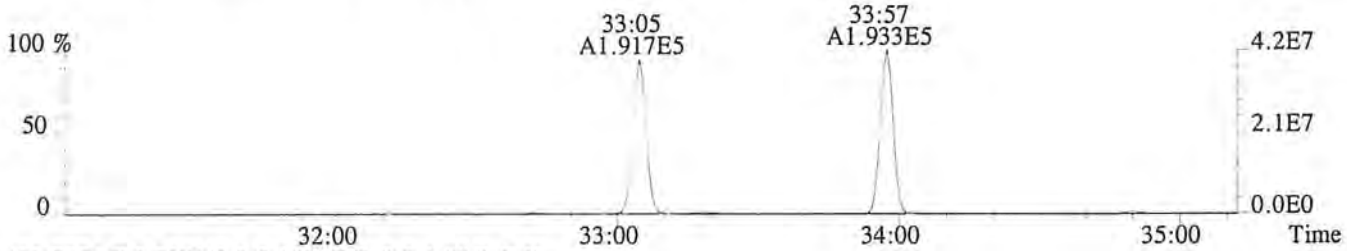
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3564.0,1.00%,F,T)



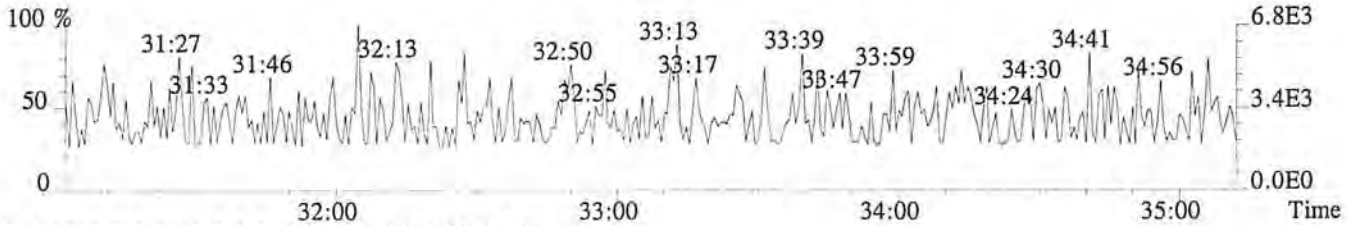
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)



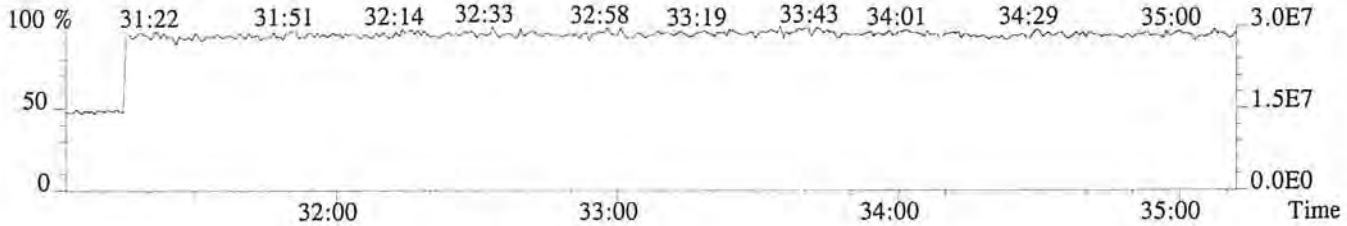
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2664.0,1.00%,F,T)



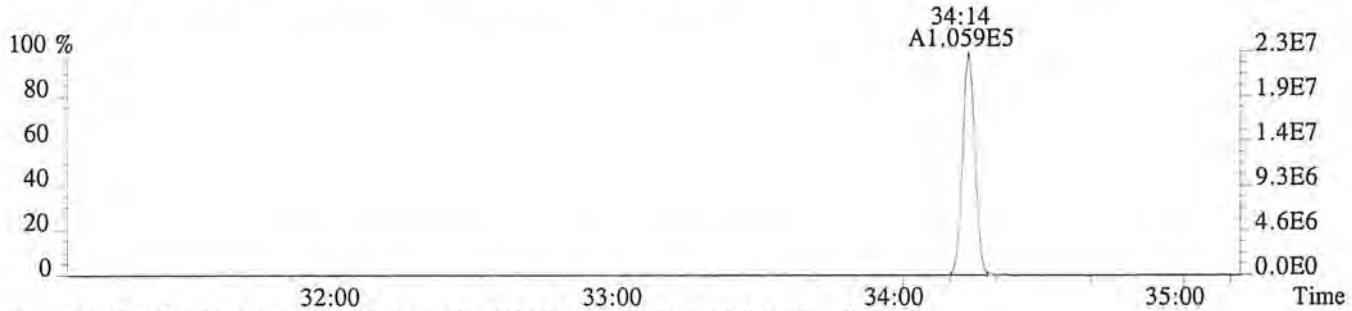
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



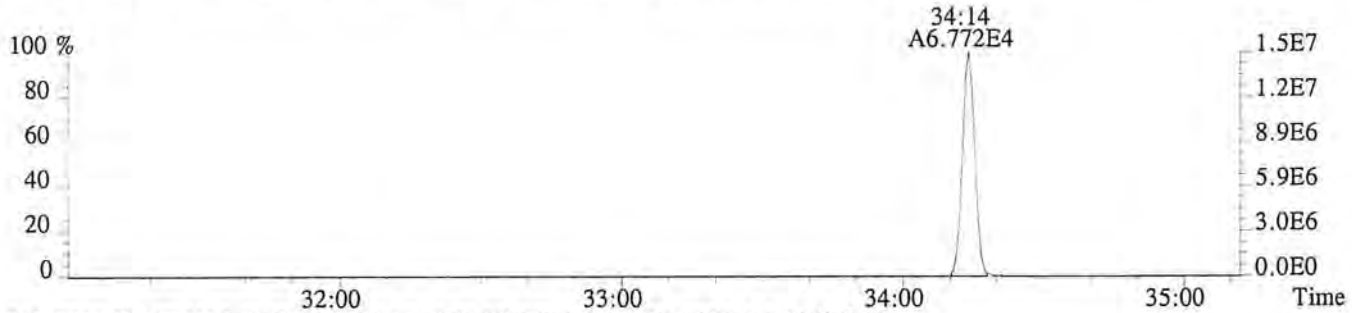
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



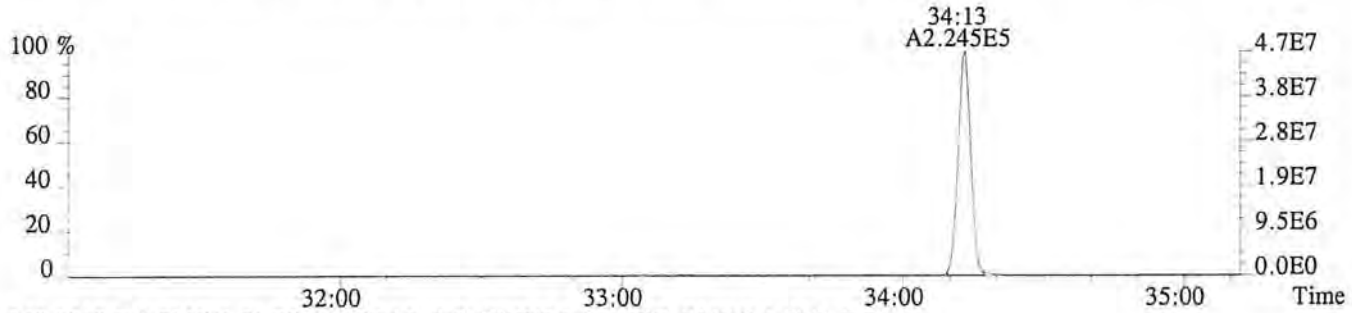
File:P600103 #1-375 Acq:24-AUG-2015 12:38:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4224.0,1.00%,F,T)



357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1964.0,1.00%,F,T)

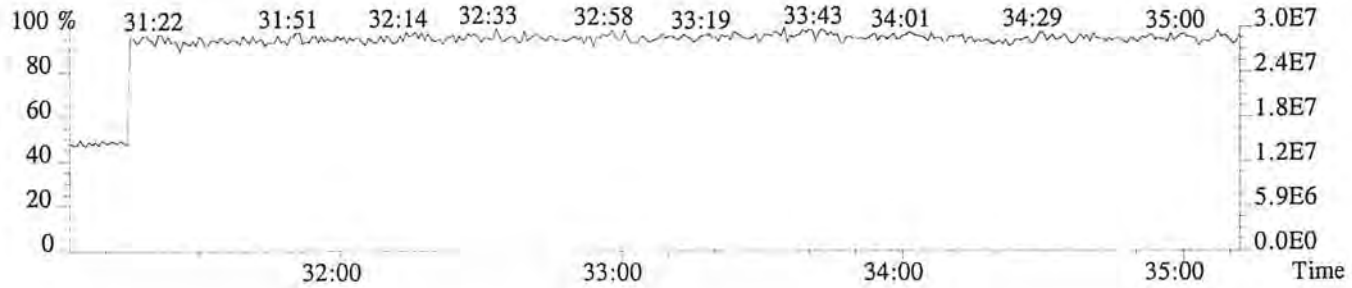


367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1868.0,1.00%,F,T)

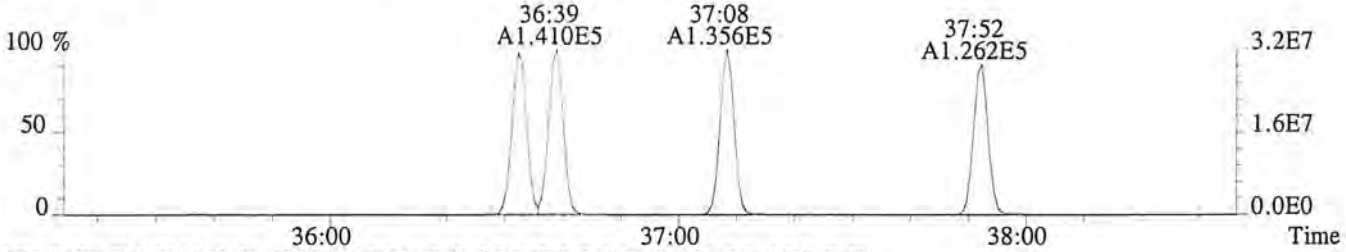


369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2140.0,1.00%,F,T)

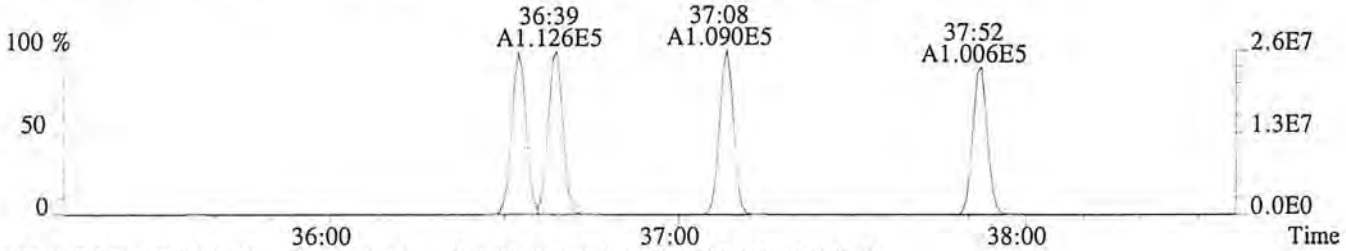
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



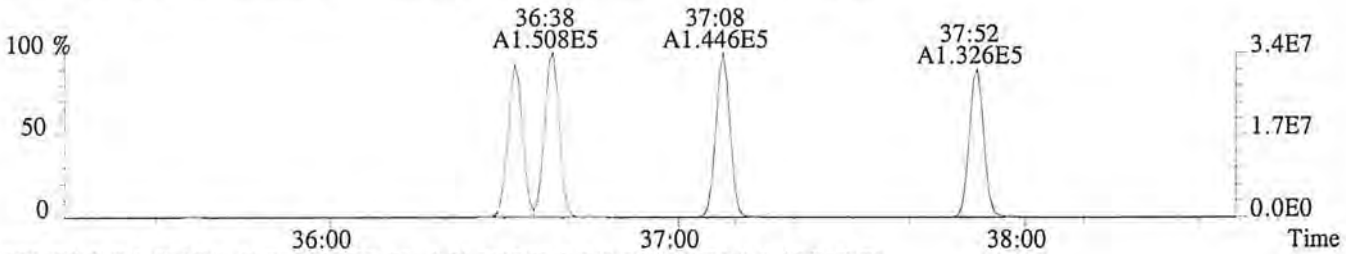
File:P600103 #1-304 Acq:24-AUG-2015 12:38:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2020.0,0.40%,F,T)



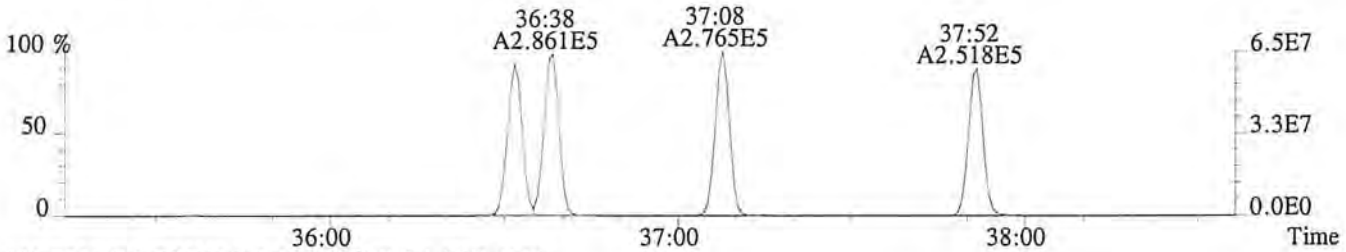
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,964.0,0.40%,F,T)



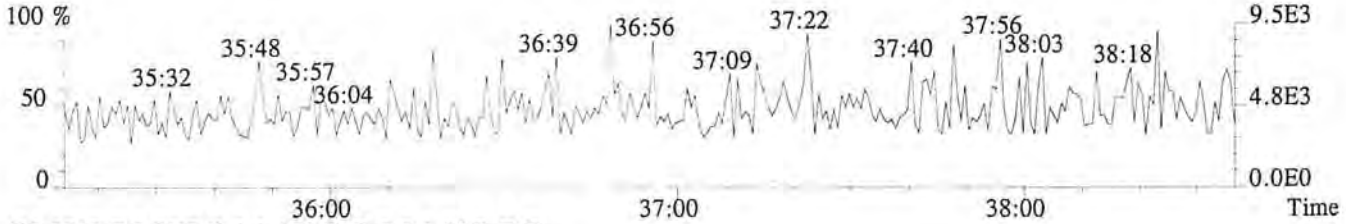
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2528.0,0.40%,F,T)



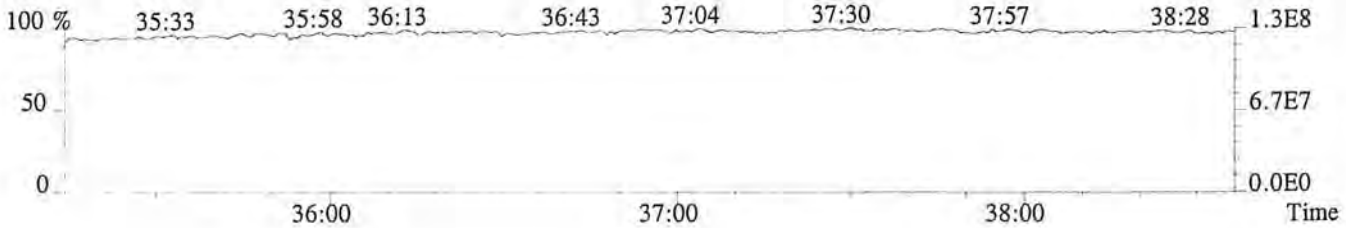
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3276.0,0.40%,F,T)



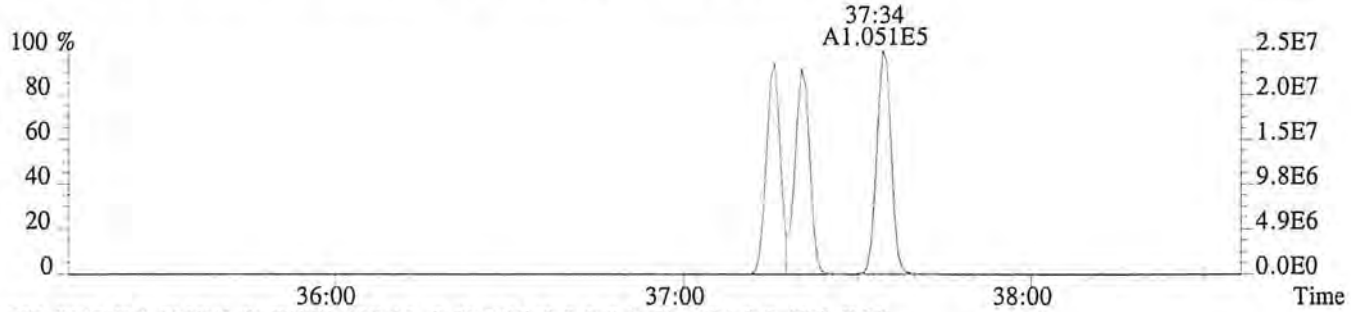
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



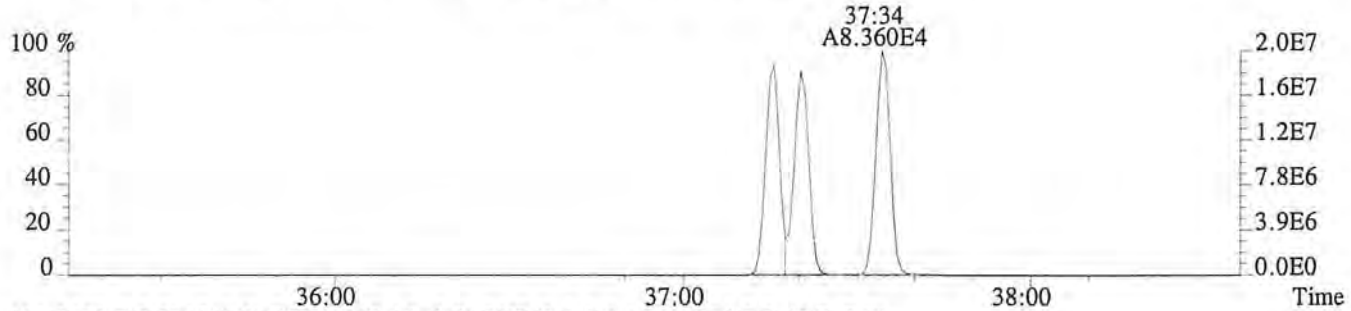
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



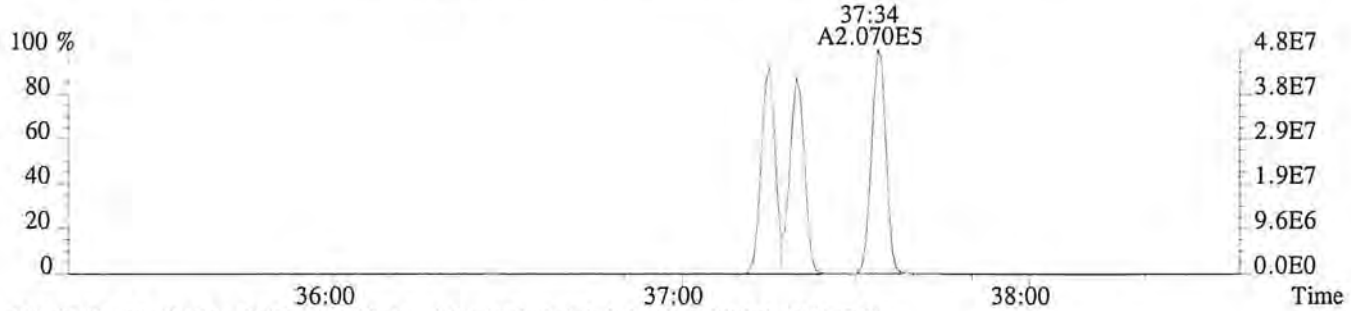
File:P600103 #1-304 Acq:24-AUG-2015 12:38:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1384.0,0.40%,F,T)



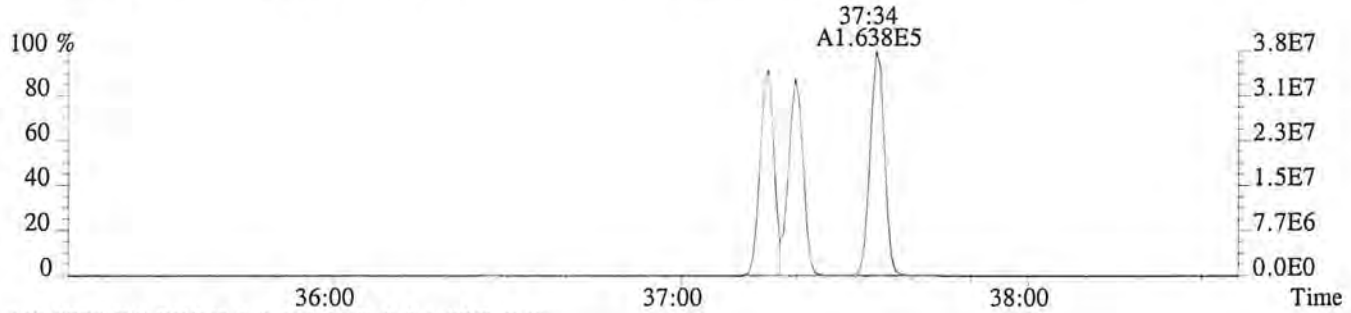
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.40%,F,T)



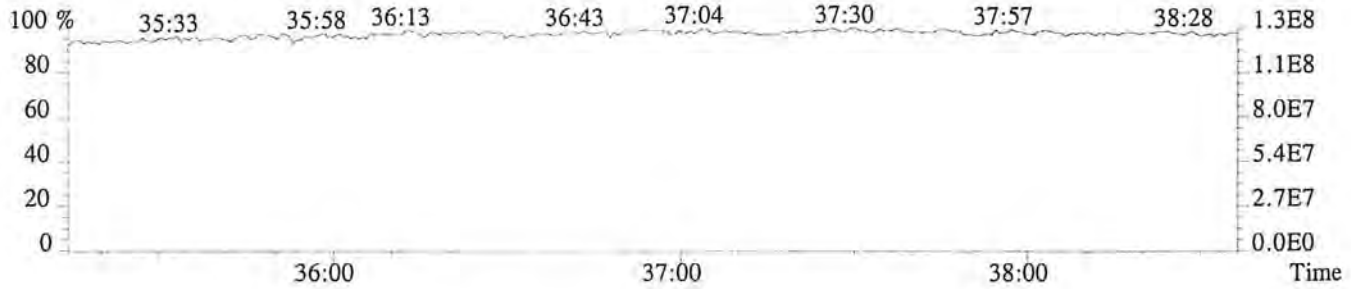
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5276.0,0.40%,F,T)



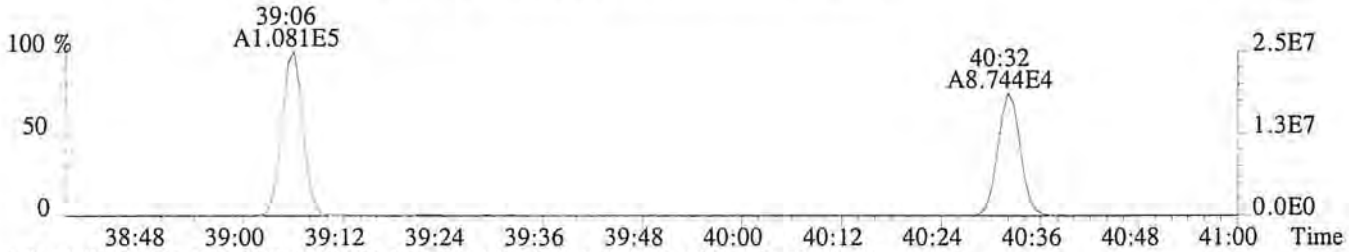
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2308.0,0.40%,F,T)



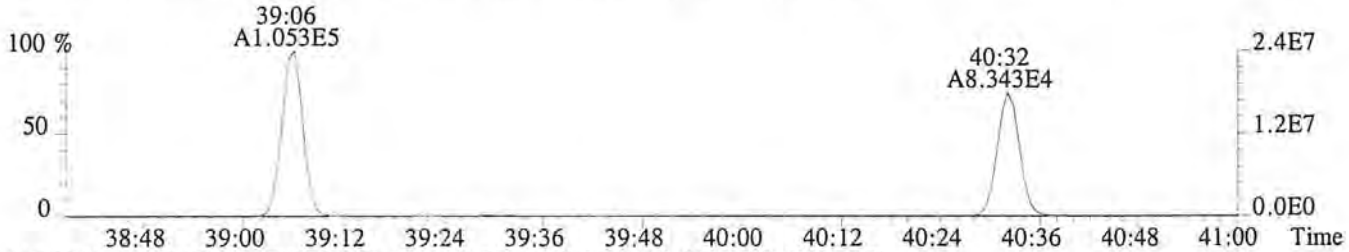
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



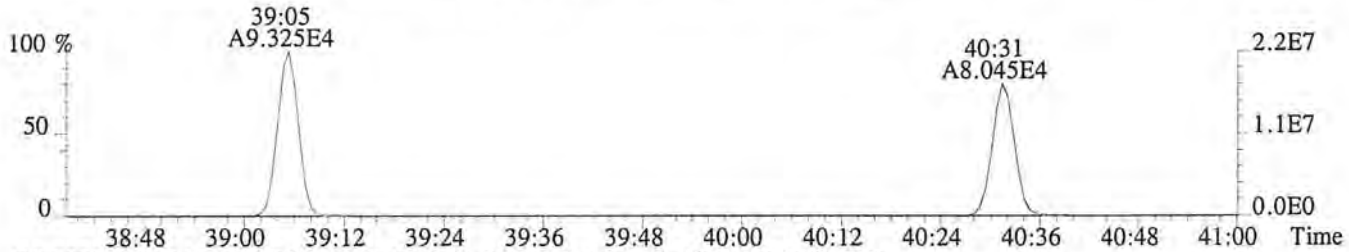
File:P600103 #1-213 Acq:24-AUG-2015 12:38:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2192.0,0.50%,F,T)



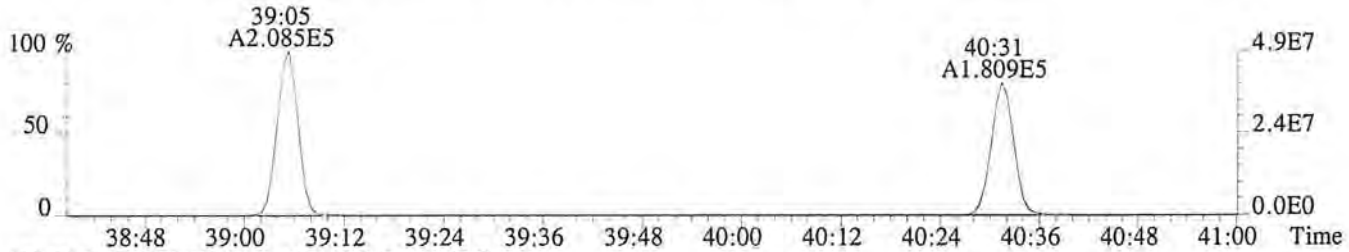
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2260.0,0.50%,F,T)



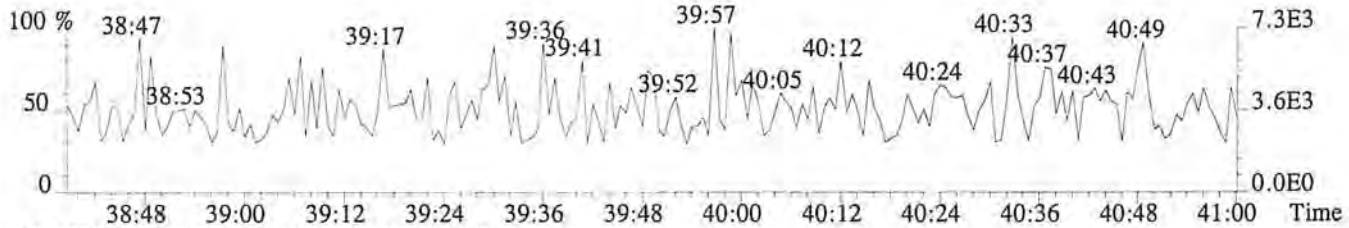
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6120.0,0.50%,F,T)



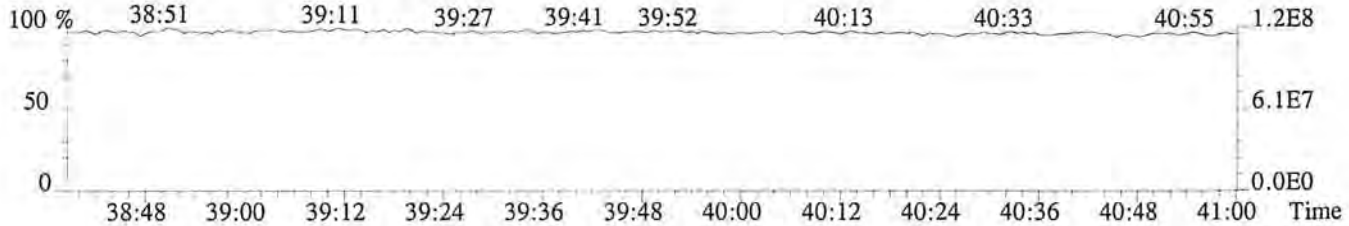
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4384.0,0.50%,F,T)



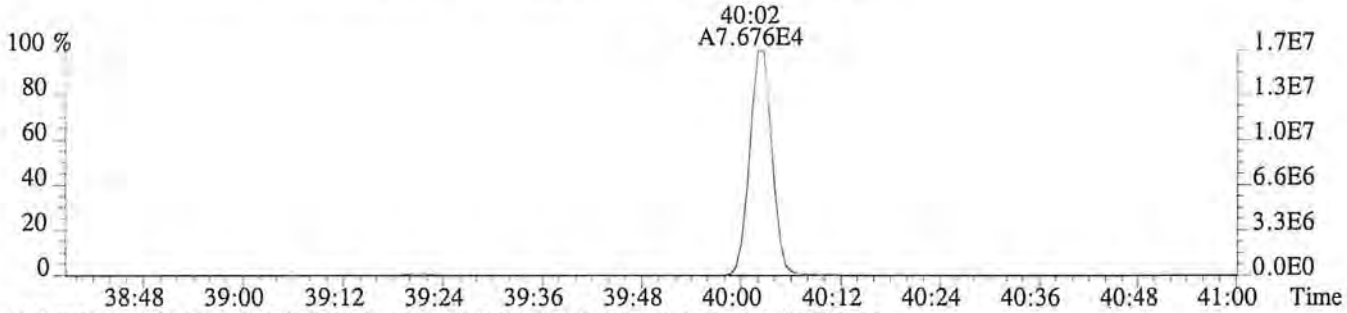
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



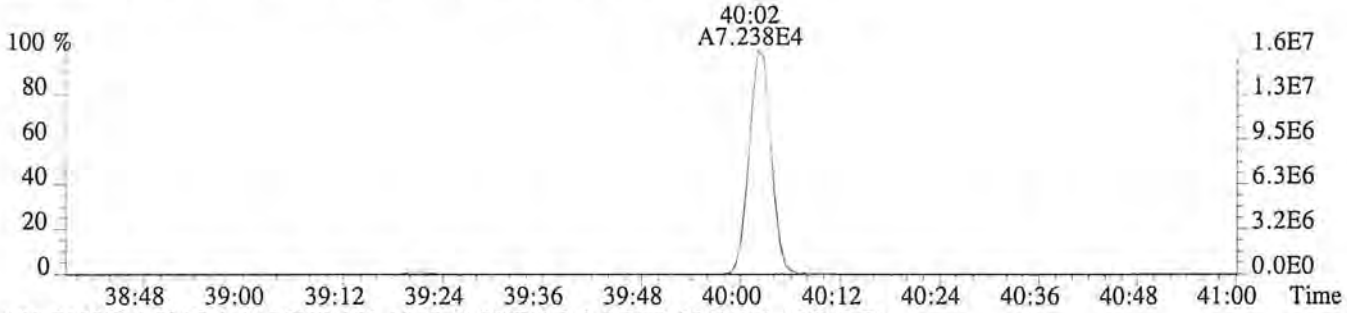
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



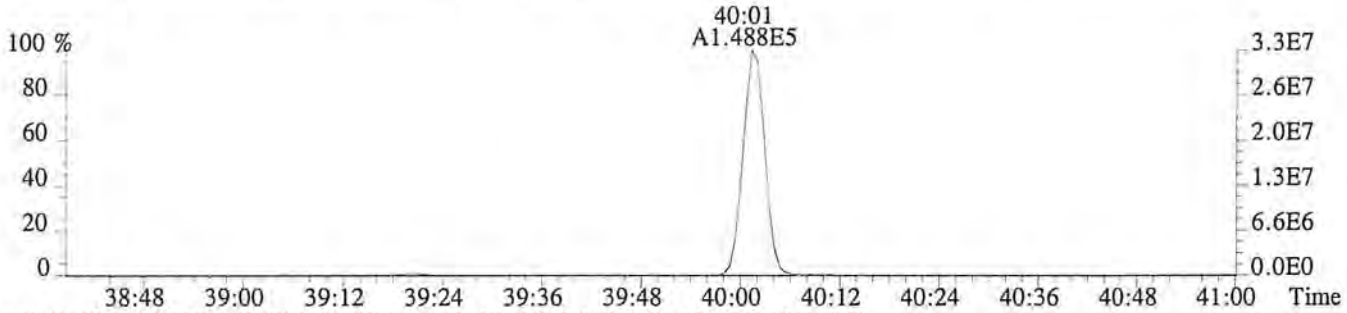
File:P600103 #1-213 Acq:24-AUG-2015 12:38:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



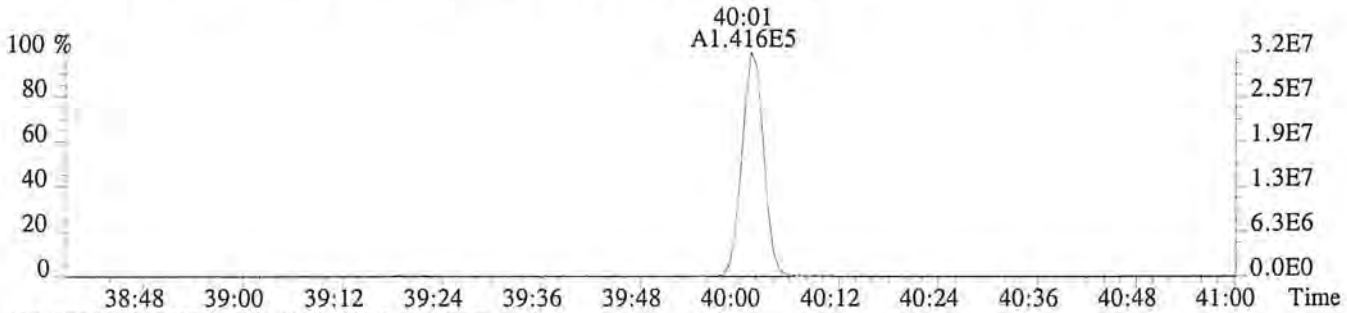
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1620.0,0.40%,F,T)



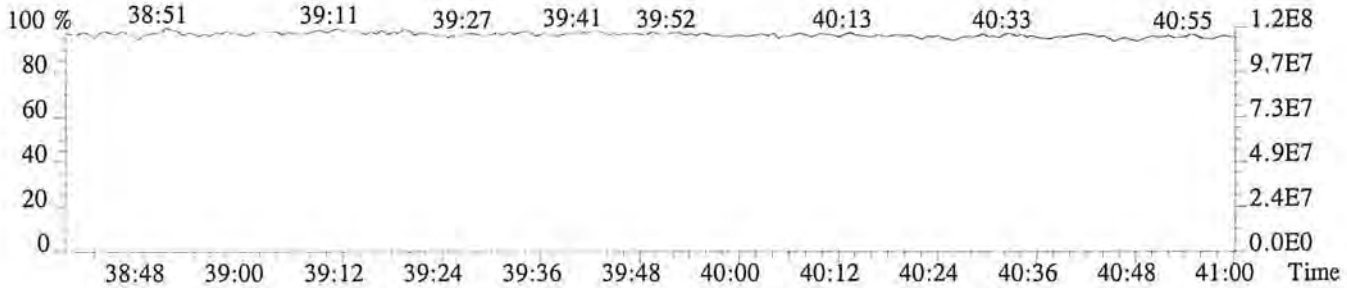
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2748.0,0.40%,F,T)



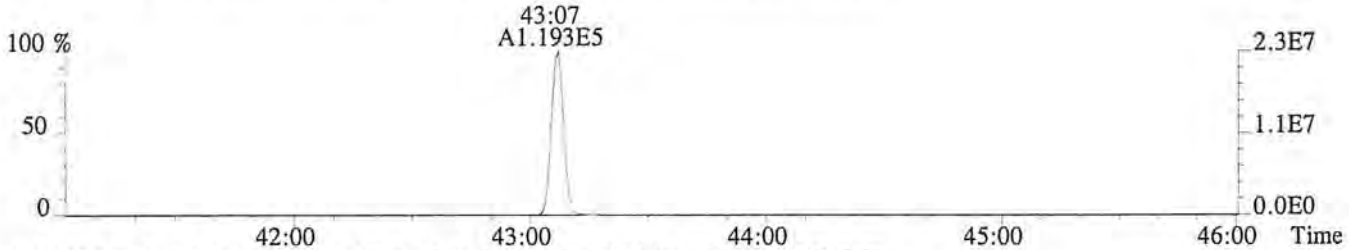
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



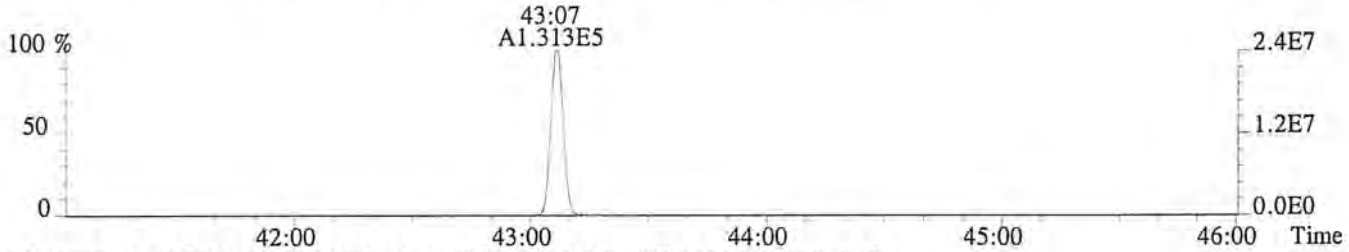
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



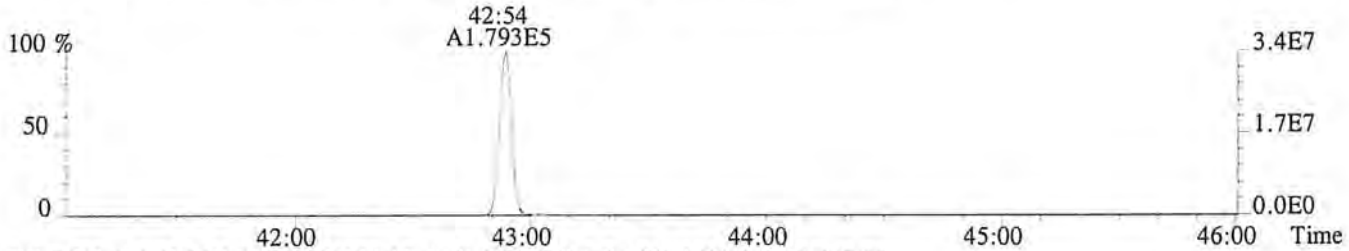
File:P600103 #1-448 Acq:24-AUG-2015 12:38:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1808.0,0.40%,F,T)



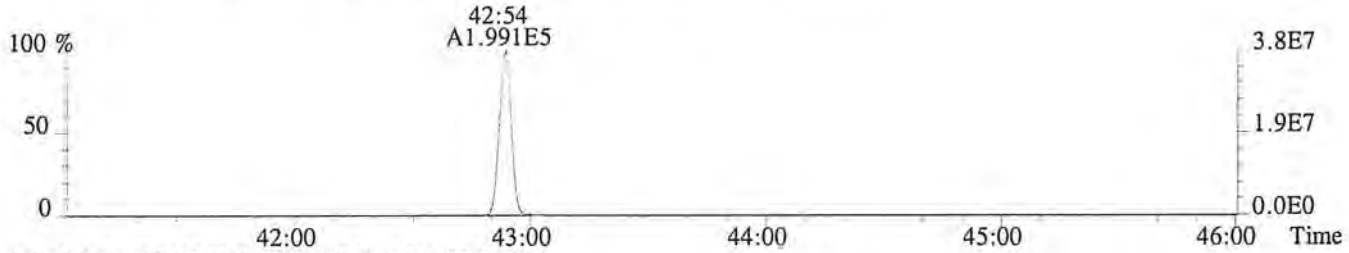
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4528.0,0.40%,F,T)



469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1676.0,0.40%,F,T)



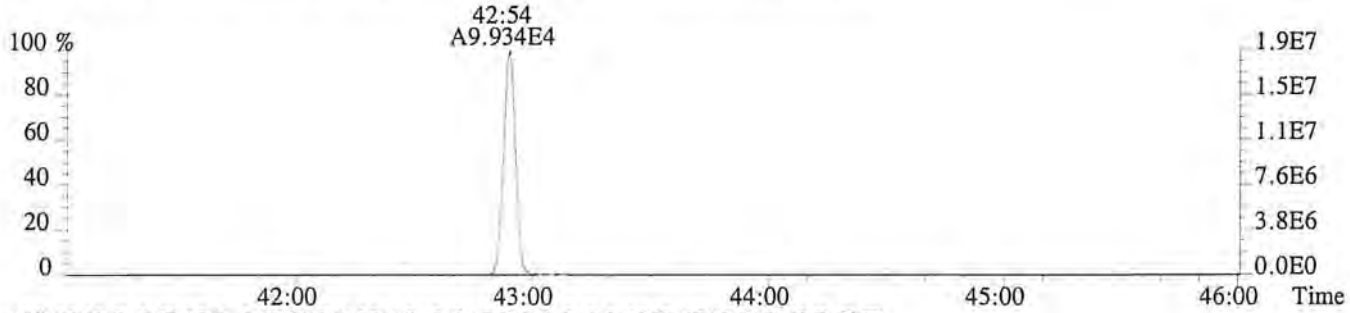
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1600.0,0.40%,F,T)



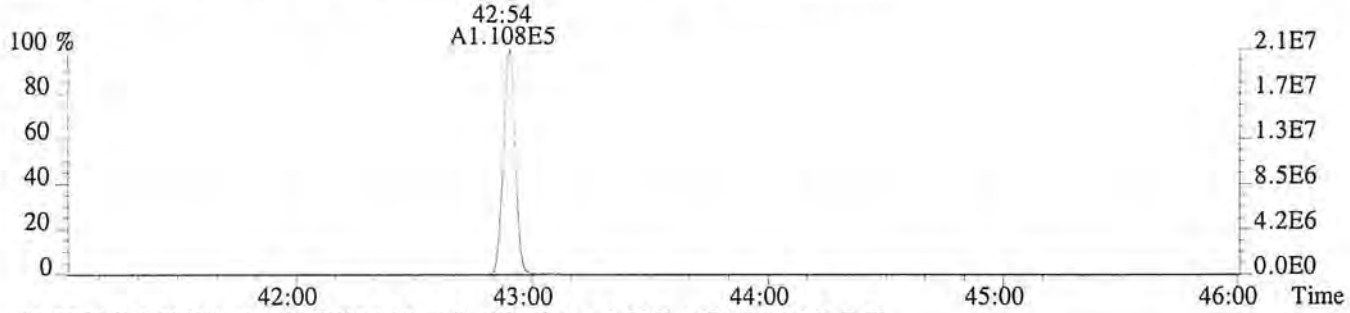
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

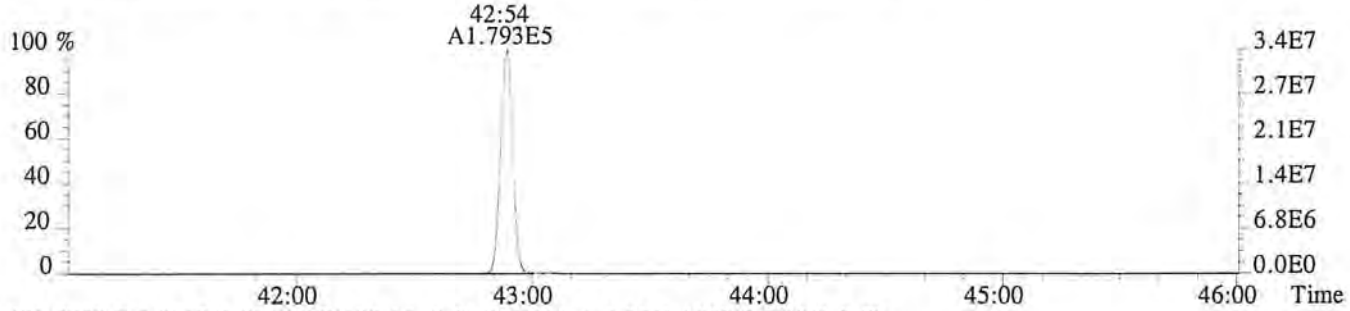
File:P600103 #1-448 Acq:24-AUG-2015 12:38:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1240.0,0.40%,F,T)



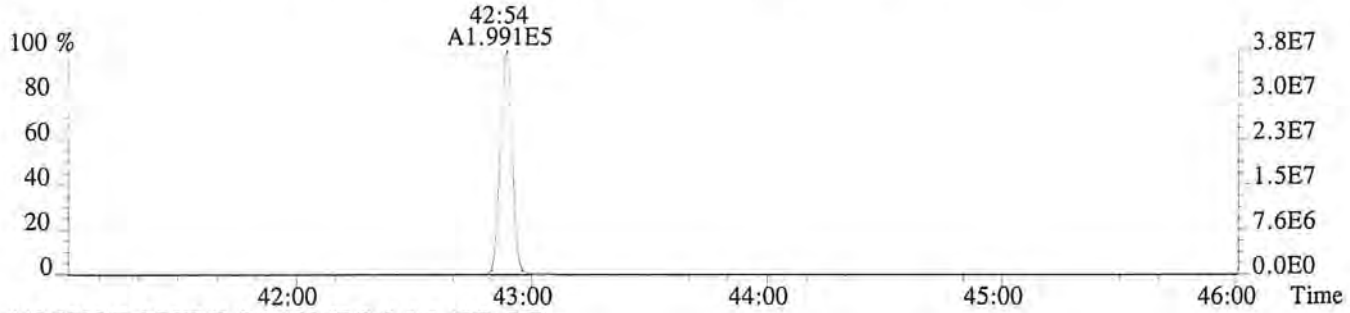
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1940.0,0.40%,F,T)



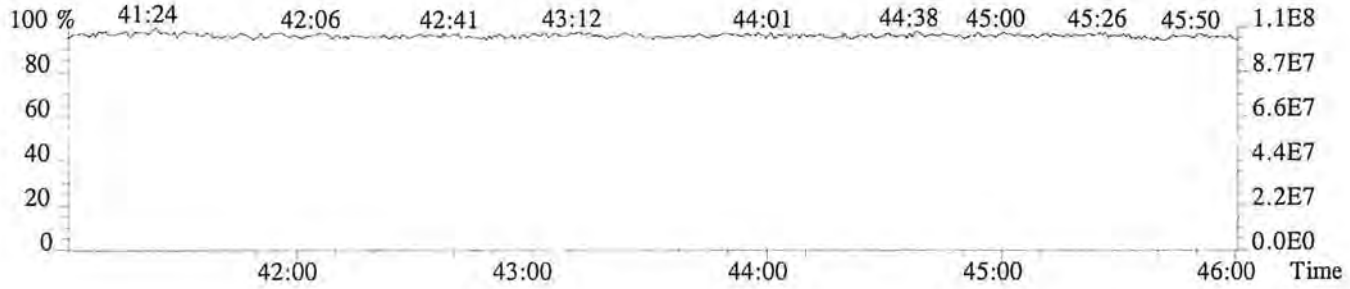
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1676.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1600.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P600116

Circle one: Beginning / Ending

Date: 08/25/15

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	NA	N/A
Ending Calibration injected prior to end of 12 hour clock	NA	N/A

Analyst: JC

Second QC: LKL

ccalqc.xls 07/17/12

5DBC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: ALS-TX Case No.: SDG No.:

GC column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 08/19/15

Init. Calib.Times: 10:52

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
74489	WINDOW DEFINE	p600117	25-AUG-15	02:10:20
79857	CS3	p600116	25-AUG-15	01:21:17
METHOD BLANK	EQ1500484-01	p600118	25-AUG-15	02:59:24
HS15080003-01 / CO╗	E1500755-001	p600119	25-AUG-15	03:48:27
HS15080003-02 / CO╗	E1500755-002	p600120	25-AUG-15	04:37:29
15-06575	E1500761-001	p600121	25-AUG-15	05:26:33
S750036995	E1500775-017	p600122	25-AUG-15	06:15:37
S977717788	E1500775-018	p600123	25-AUG-15	07:04:40
S724143327	E1500775-019	p600124	25-AUG-15	07:53:44
S507023228	E1500775-020	p600125	25-AUG-15	08:42:48
PLY-11-15 MT7/MT8 ╗	E1500743-019	p600126	25-AUG-15	09:31:53
PLY-11-15 MT8/GT19╗	E1500743-020	p600127	25-AUG-15	10:20:57
LCS	EQ1500488-02	p600128	25-AUG-15	11:10:01
DLCS	EQ1500488-03	p600129	25-AUG-15	11:59:04

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20150824B.SPL
Last Modified: Tuesday, August 25, 2015 14:05:55 Central Daylight Time
Printed: Tuesday, August 25, 2015 14:06:07 Central Daylight Time

Page Position (1, 1)

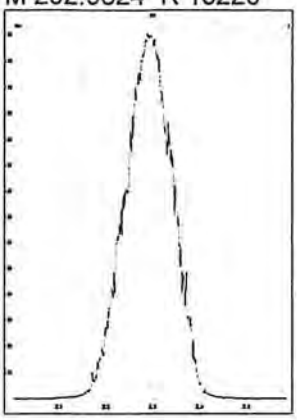
OPUS-2 : P600116RES

	Date	Time	File Name	Lab Sample ID	Client File Text	Bottle	MS File	Inlet File	Analyst	Comments
1	08/25/15	01:21	P600116	CS3	CS3	Tray1:15	EPA1613_ALS	Dioxin_ALS	LL	HRMS check 17:07
2		02:10	P600117	WD	WD	Tray1:16	EPA1613_ALS	Dioxin_ALS		
3		02:59	P600118	MB	EQ1500484-01	Tray1:17	EPA1613_ALS	Dioxin_ALS		
4		03:48	P600119	E1500755-001	E1500755-001	Tray1:18	EPA1613_ALS	Dioxin_ALS		
5		04:37	P600120	E1500755-002	E1500755-002	Tray1:19	EPA1613_ALS	Dioxin_ALS		
6		05:26	P600121	E1500761-001	E1500761-001	Tray1:20	EPA1613_ALS	Dioxin_ALS		
7		06:15	P600122	E1500775-017	E1500775-017	Tray1:21	EPA1613_ALS	Dioxin_ALS		
8		07:04	P600123	E1500775-018	E1500775-018	Tray1:22	EPA1613_ALS	Dioxin_ALS		
9		07:53	P600124	E1500775-019	E1500775-019	Tray1:23	EPA1613_ALS	Dioxin_ALS		
10		08:42	P600125	E1500775-020	E1500775-020	Tray1:24	EPA1613_ALS	Dioxin_ALS		
11		09:31	P600126	E1500743-019	E1500743-019	Tray1:25	EPA1613_ALS	Dioxin_ALS		
12		10:20	P600127	E1500743-020	E1500743-020	Tray1:26	EPA1613_ALS	Dioxin_ALS		
13		11:10	P600128	EQ1500488-02	EQ1500488-02	Tray1:27	EPA1613_ALS	Dioxin_ALS		
14		12:59	P600129	EQ1500488-03	EQ1500488-03	Tray1:28	EPA1613_ALS	Dioxin_ALS		
15	---	12:48	P600130	CS3	CS3	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	HRMS check 13:45
16	---	---	---	---	---	Tray1:16	EPA1613_ALS	Dioxin_ALS	---	---
17	---	---	---	---	---	Tray1:17	EPA1613_ALS	Dioxin_ALS	---	---
18	---	---	---	---	---	Tray1:18	EPA1613_ALS	Dioxin_ALS	---	---
19	---	---	---	---	---	Tray1:19	EPA1613_ALS	Dioxin_ALS	---	---
20	---	---	---	---	---	Tray1:20	EPA1613_ALS	Dioxin_ALS	---	---
21	---	---	---	---	---	Tray1:21	EPA1613_ALS	Dioxin_ALS	---	---
22	---	---	---	---	---	Tray1:22	EPA1613_ALS	Dioxin_ALS	---	---
23	---	---	---	---	---	Tray1:23	EPA1613_ALS	Dioxin_ALS	---	---
24	---	---	---	---	---	Tray1:24	EPA1613_ALS	Dioxin_ALS	---	---
25	---	---	---	---	---	Tray1:25	EPA1613_ALS	Dioxin_ALS	---	---
26	---	---	---	---	---	Tray1:26	EPA1613_ALS	Dioxin_ALS	---	---
27	---	---	---	---	---	Tray1:27	EPA1613_ALS	Dioxin_ALS	---	---
28	---	---	---	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
29	---	---	---	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
30	---	---	---	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
31	---	---	---	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
32	---	---	---	---	---	Tray1:32	EPA1613_ALS	Dioxin_ALS	---	---
33	---	---	---	---	---	Tray1:33	EPA1613_ALS	Dioxin_ALS	---	---
34	---	---	---	---	---	Tray1:34	EPA1613_ALS	Dioxin_ALS	---	---
35	---	---	---	JC	08/26/15	Tray1:35	EPA1613_ALS	Dioxin_ALS	---	---
36	---	---	---	---	---	Tray1:36	EPA1613_ALS	Dioxin_ALS	---	---
37	---	---	---	---	---	Tray1:37	EPA1613_ALS	Dioxin_ALS	---	---
38	---	---	---	---	---	Tray1:38	EPA1613_ALS	Dioxin_ALS	---	---
39	---	---	---	---	---	Tray1:39	EPA1613_ALS	Dioxin_ALS	---	---

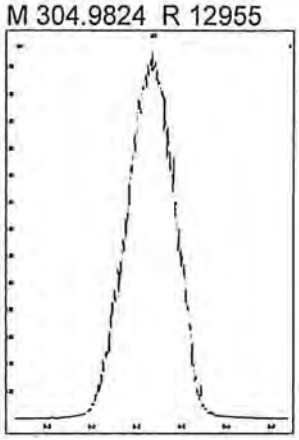
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, August 24, 2015 17:07:58 Central Daylight Time

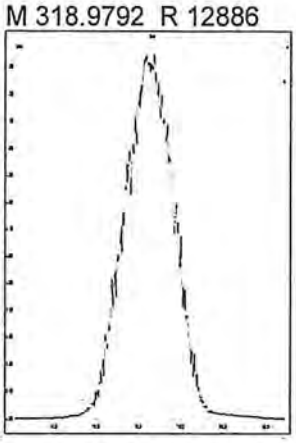
M 292.9824 R 13225



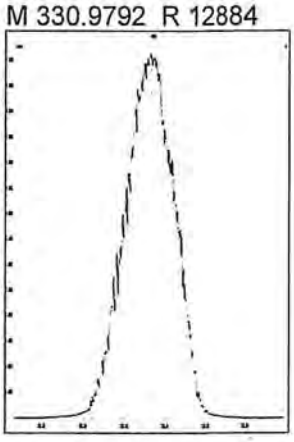
M 304.9824 R 12955



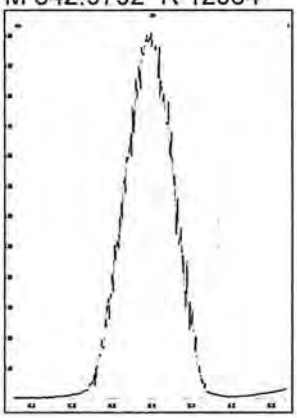
M 318.9792 R 12886



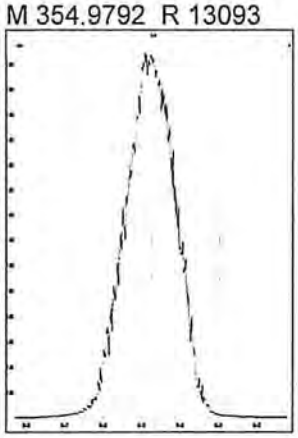
M 330.9792 R 12884



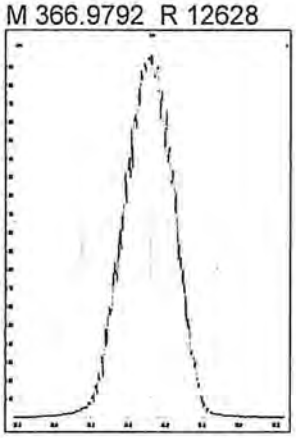
M 342.9792 R 12954



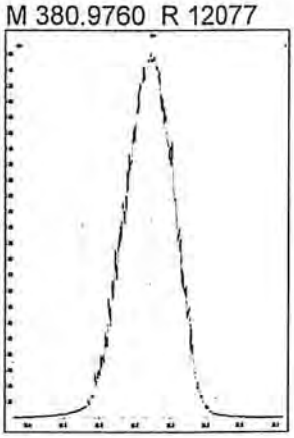
M 354.9792 R 13093



M 366.9792 R 12628



M 380.9760 R 12077



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

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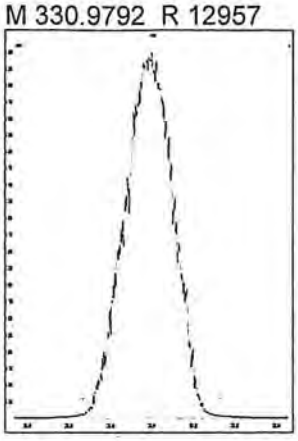
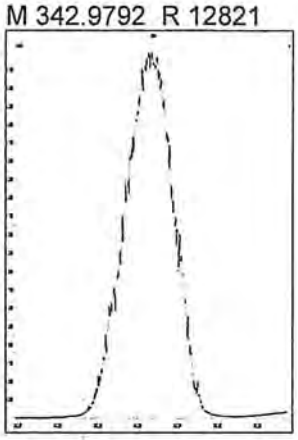
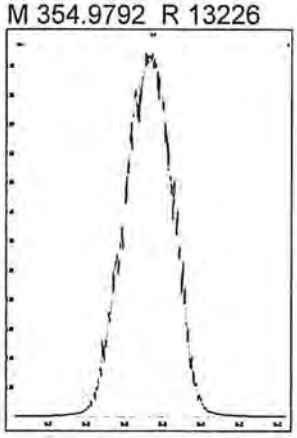
M 330.9792 R 12957



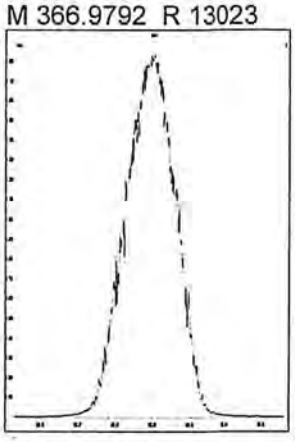
M 342.9792 R 12821



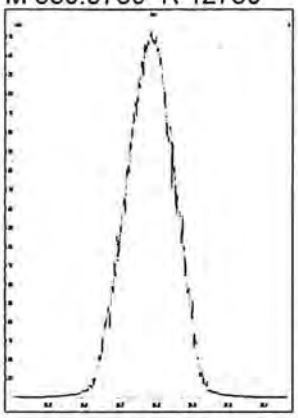
M 354.9792 R 13226



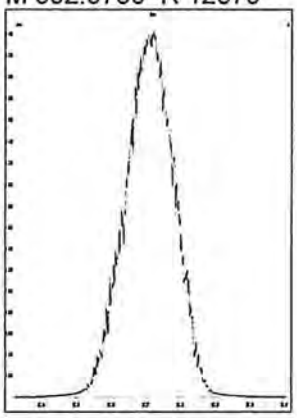
M 366.9792 R 13023



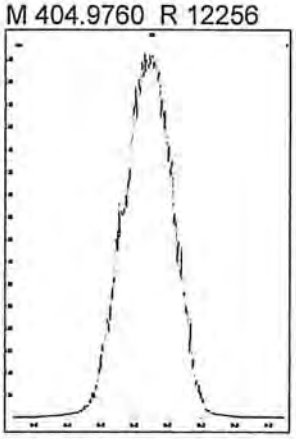
M 380.9760 R 12750



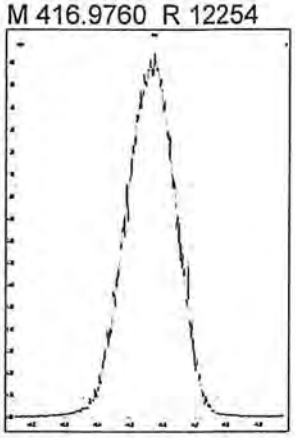
M 392.9760 R 12379



M 404.9760 R 12256



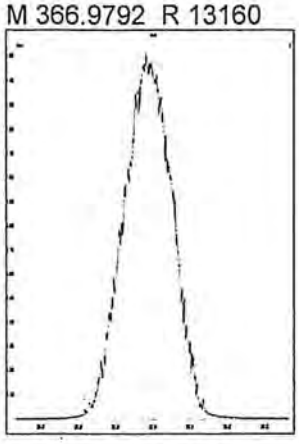
M 416.9760 R 12254



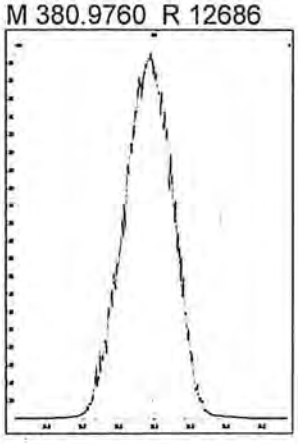
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Monday, August 24, 2015 17:09:04 Central Daylight Time

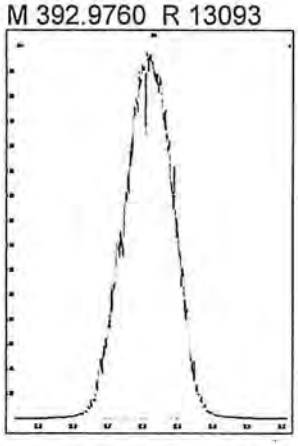
M 366.9792 R 13160



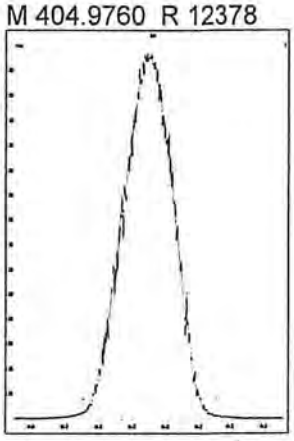
M 380.9760 R 12686



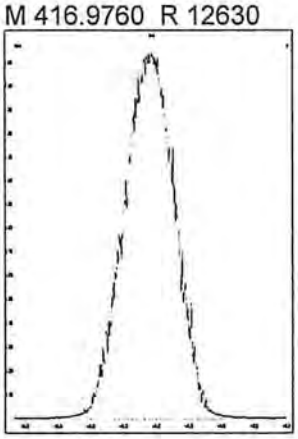
M 392.9760 R 13093



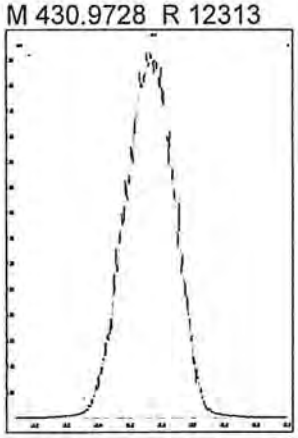
M 404.9760 R 12378



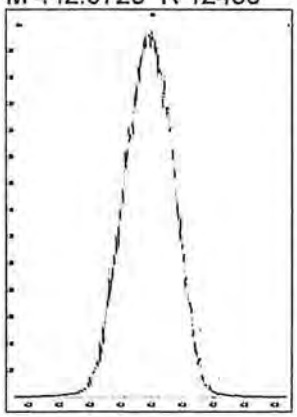
M 416.9760 R 12630



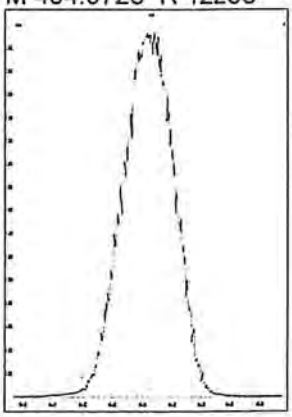
M 430.9728 R 12313



M 442.9728 R 12438



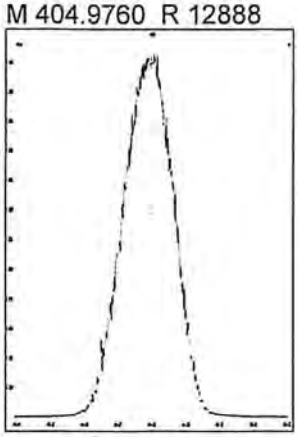
M 454.9728 R 12258



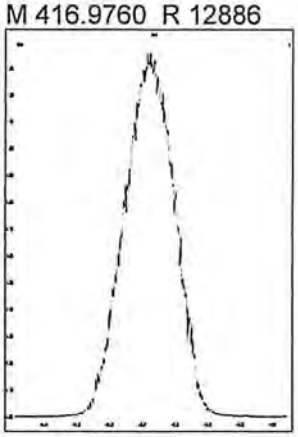
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, August 24, 2015 17:09:41 Central Daylight Time

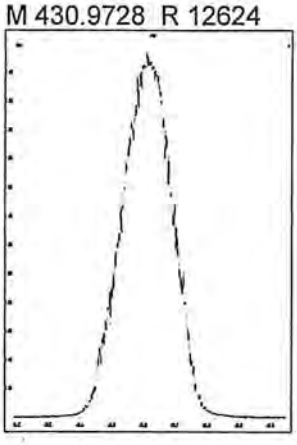
M 404.9760 R 12888



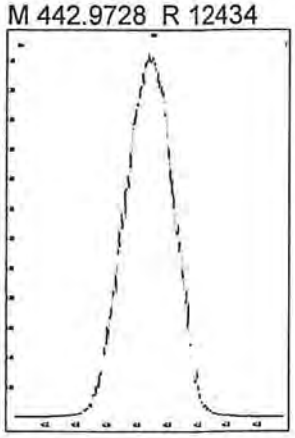
M 416.9760 R 12886



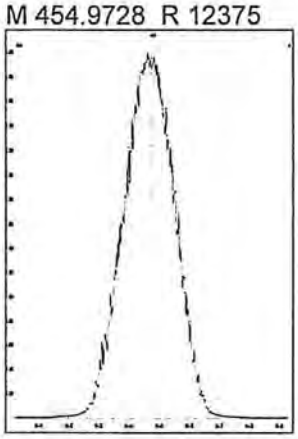
M 430.9728 R 12624



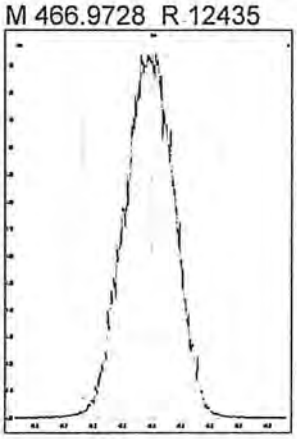
M 442.9728 R 12434



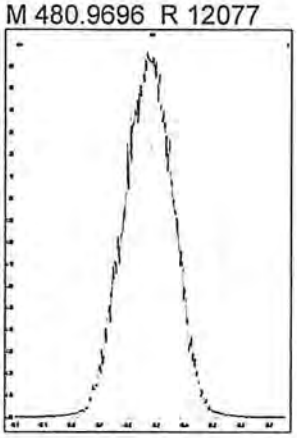
M 454.9728 R 12375



M 466.9728 R 12435



M 480.9696 R 12077



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

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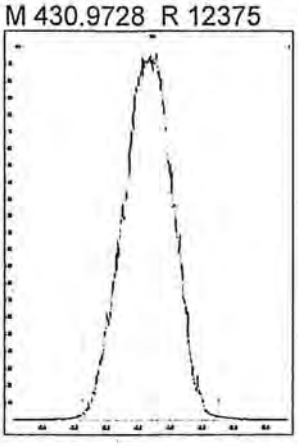
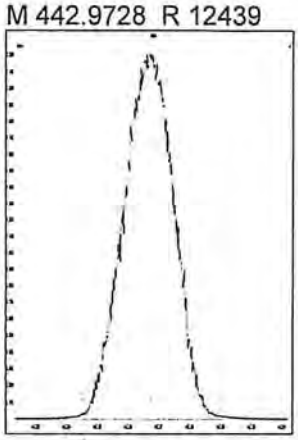
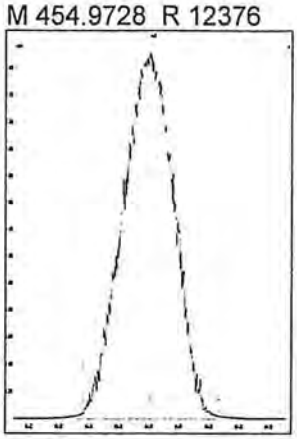
M 430.9728 R 12375



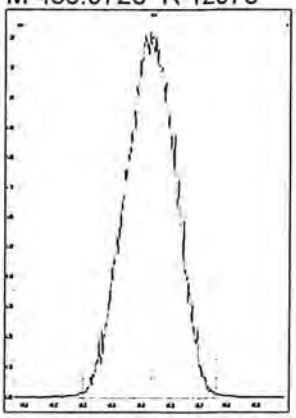
M 442.9728 R 12439



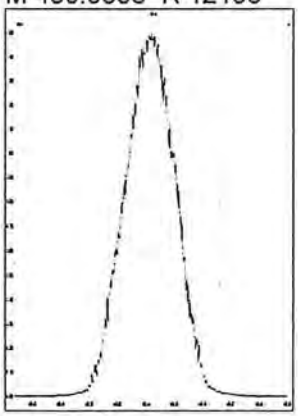
M 454.9728 R 12376



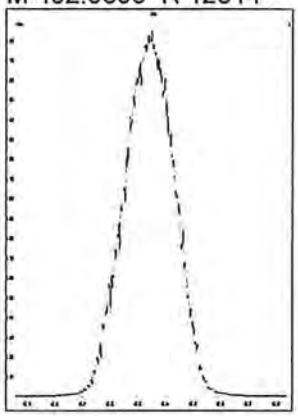
M 466.9728 R 12075



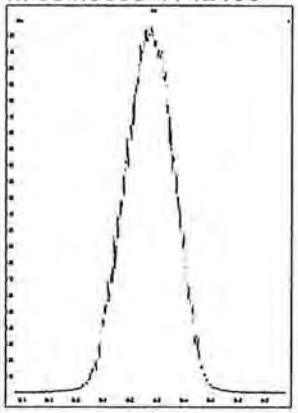
M 480.9696 R 12196



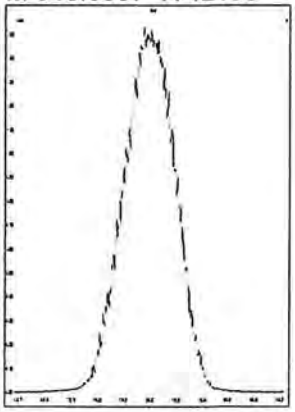
M 492.9696 R 12314



M 504.9696 R 12193



M 516.9697 R 12198



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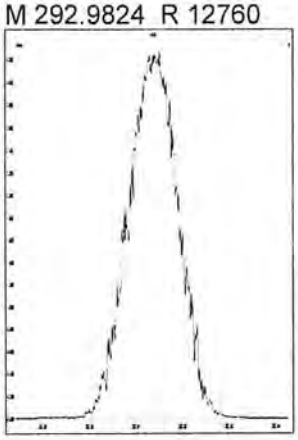
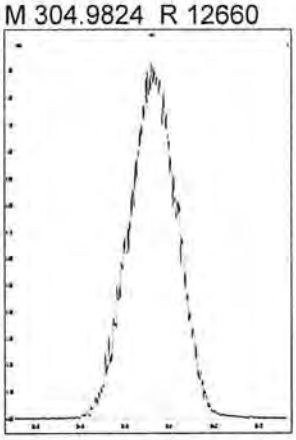
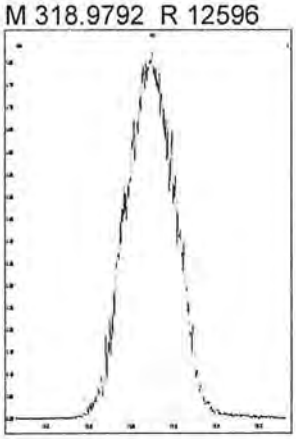
M 292.9824 R 12760



M 304.9824 R 12660



M 318.9792 R 12596



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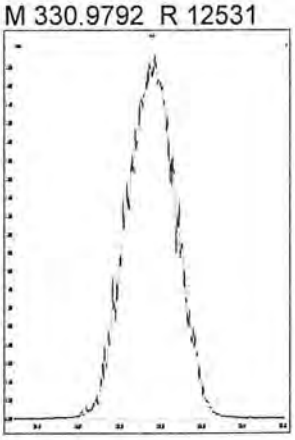

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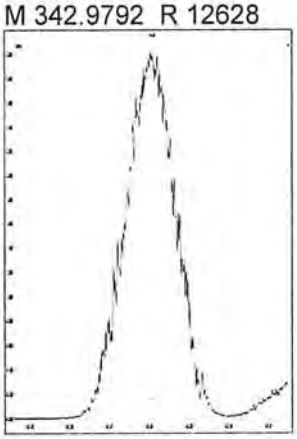
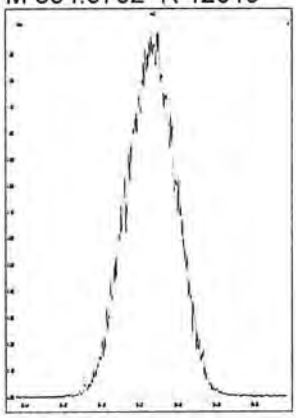


M 354.9792 R 12019



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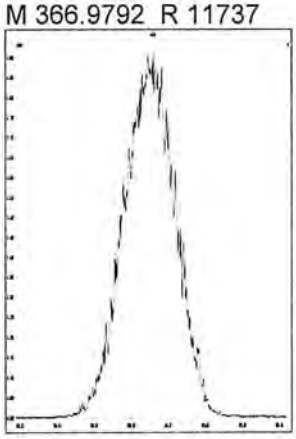
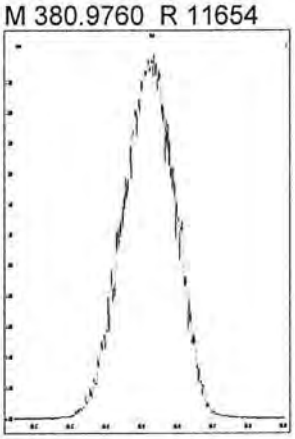


M 380.9760 R 11654



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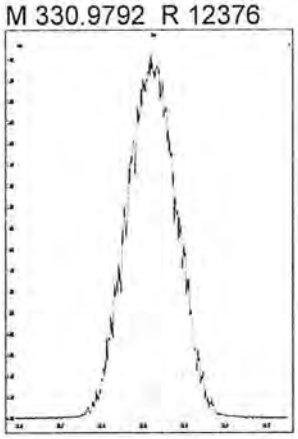
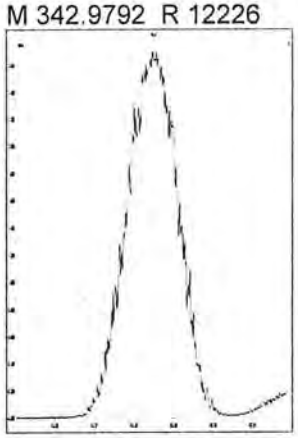


M 342.9792 R 12226



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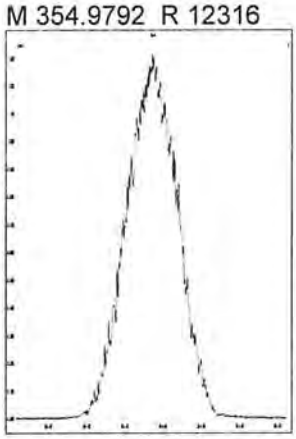
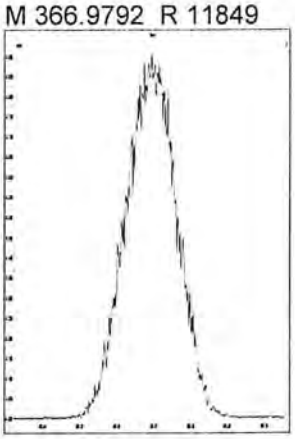
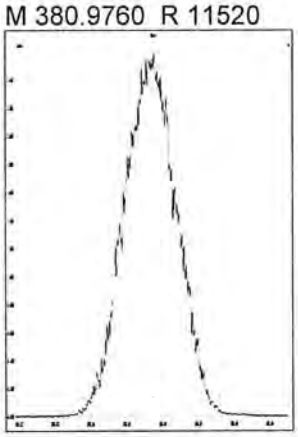


M 366.9792 R 11849



M 380.9760 R 11520



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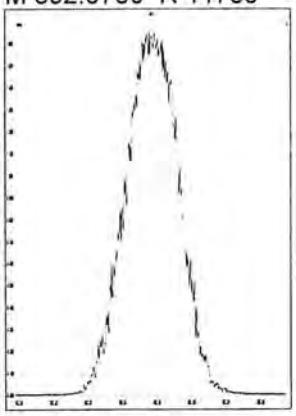

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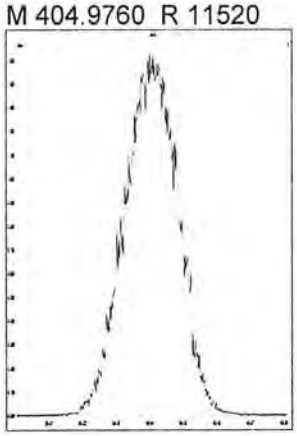

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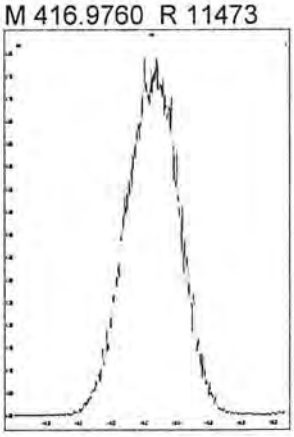

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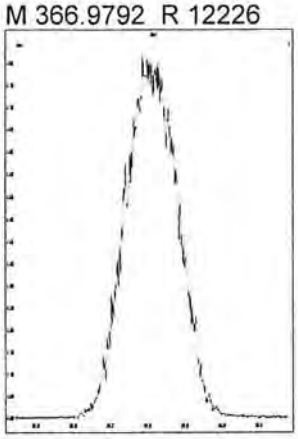
M 366.9792 R 12226



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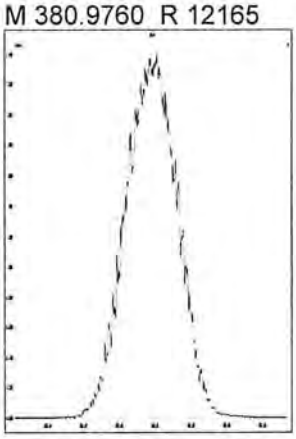

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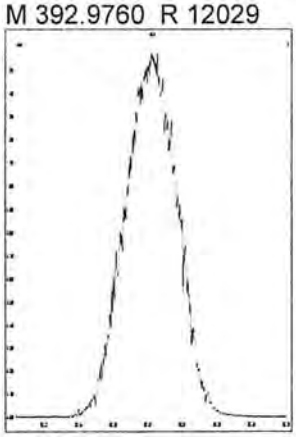

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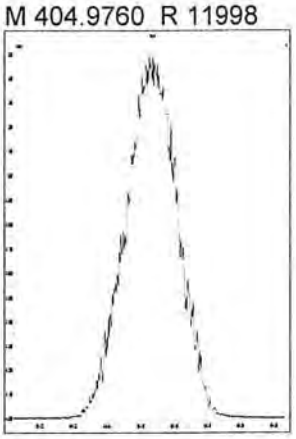

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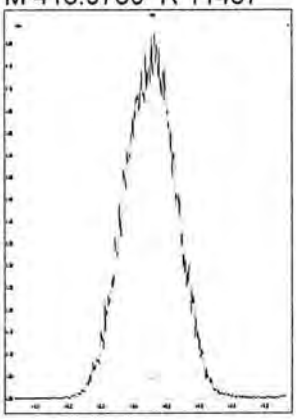

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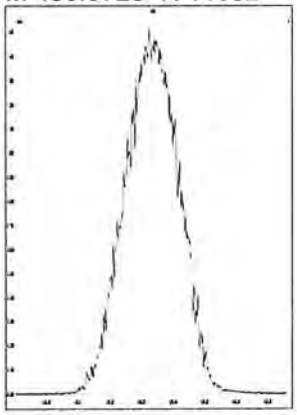
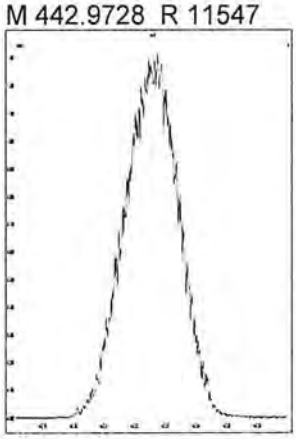


M 442.9728 R 11547



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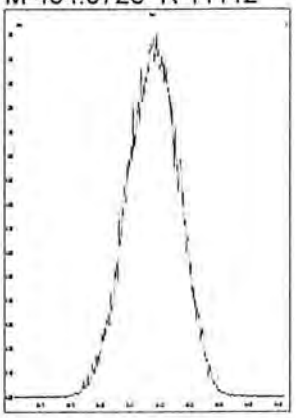

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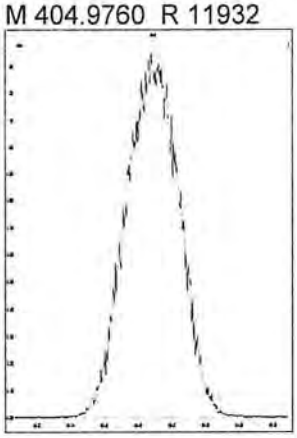
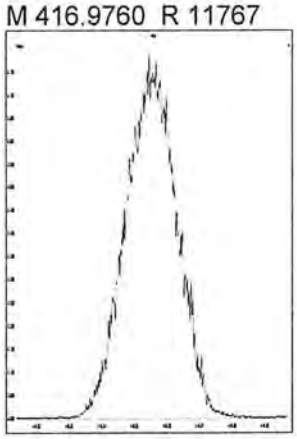
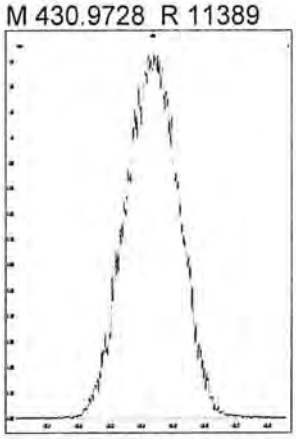


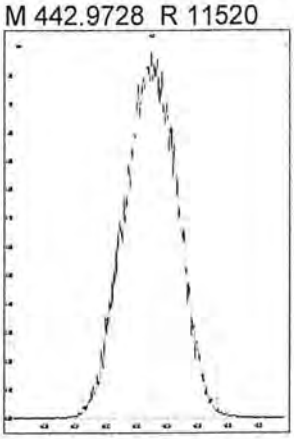
M 416.9760 R 11767



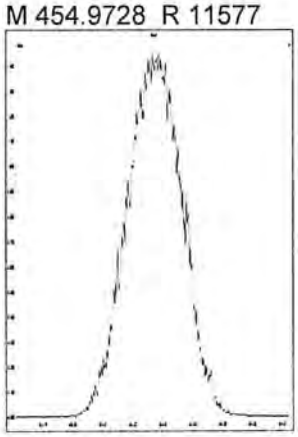
M 430.9728 R 11389



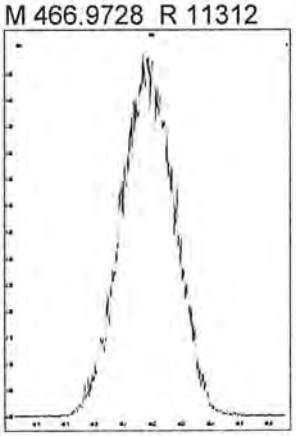
M 442.9728 R 11520



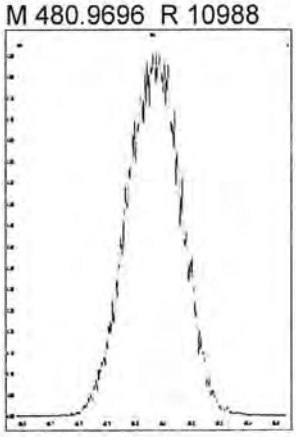
M 454.9728 R 11577



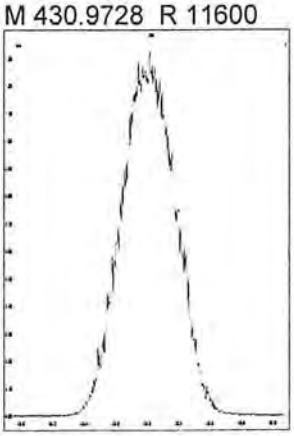
M 466.9728 R 11312



M 480.9696 R 10988



M 430.9728 R 11600



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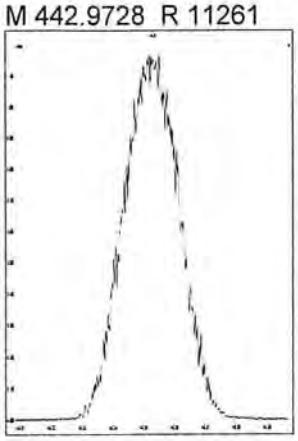
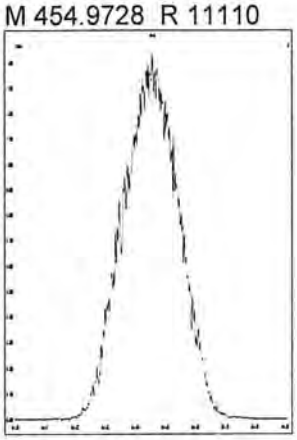
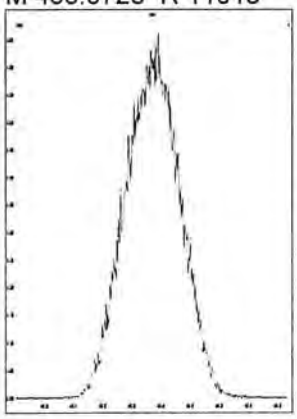


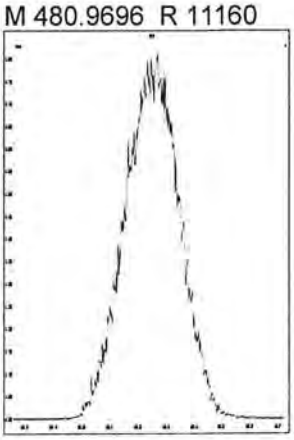
M 454.9728 R 11110



M 466.9728 R 11013



M 480.9696 R 11160



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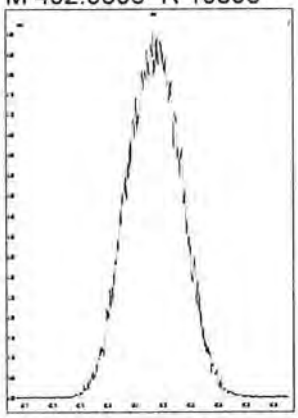
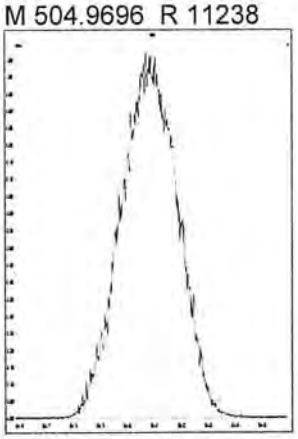
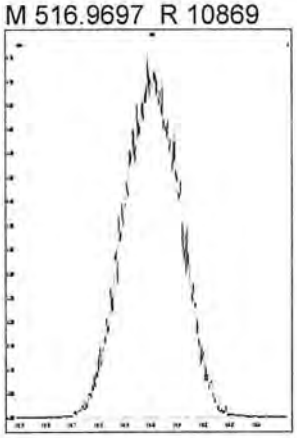


M 504.9696 R 11238



M 516.9697 R 10869



WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

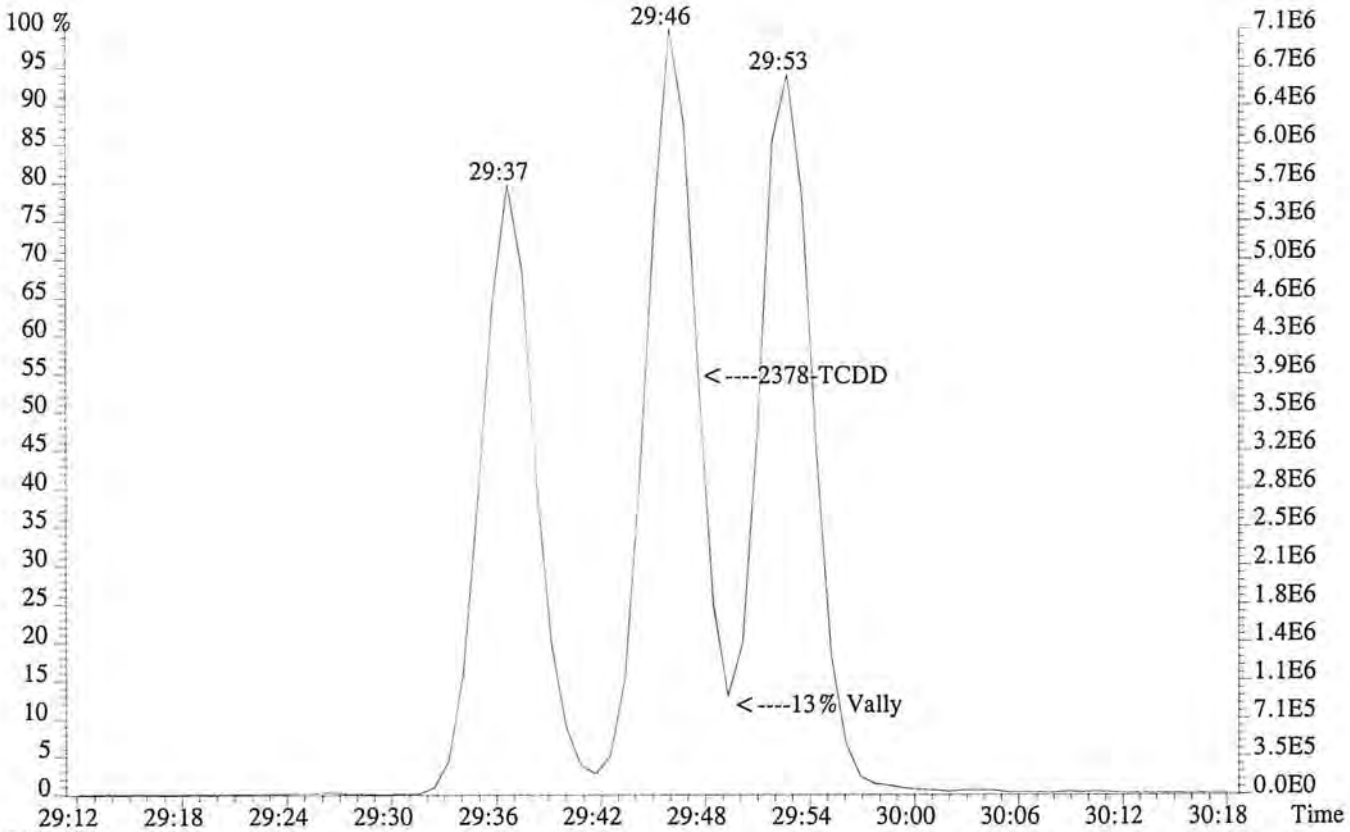
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P600117
Date Analyzed: 25-AUG-2015
Time Analyzed: 02:10:20

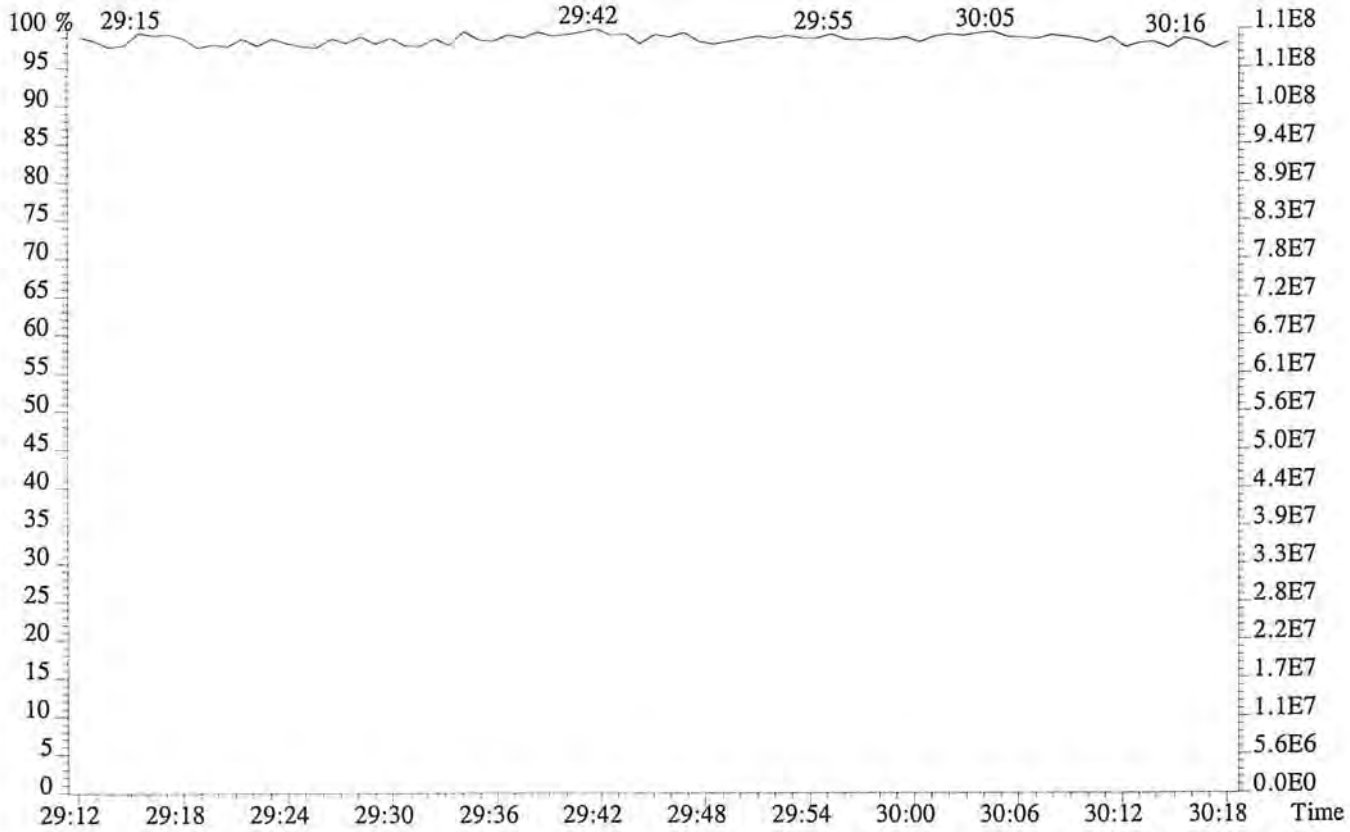
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:52	30:52
TCDD	26:44	30:43
PeCDF	30:47	34:52
PeCDD	32:15	34:37
HxCDF	35:29	37:55
HxCDD	35:59	37:32
HpCDF	39:07	40:33
HpCDD	39:22	40:03

% Valley 2378-TCDD: 13 %

File:P600117 #1-566 Acq:25-AUG-2015 02:10:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WD
319.8965



318.9792



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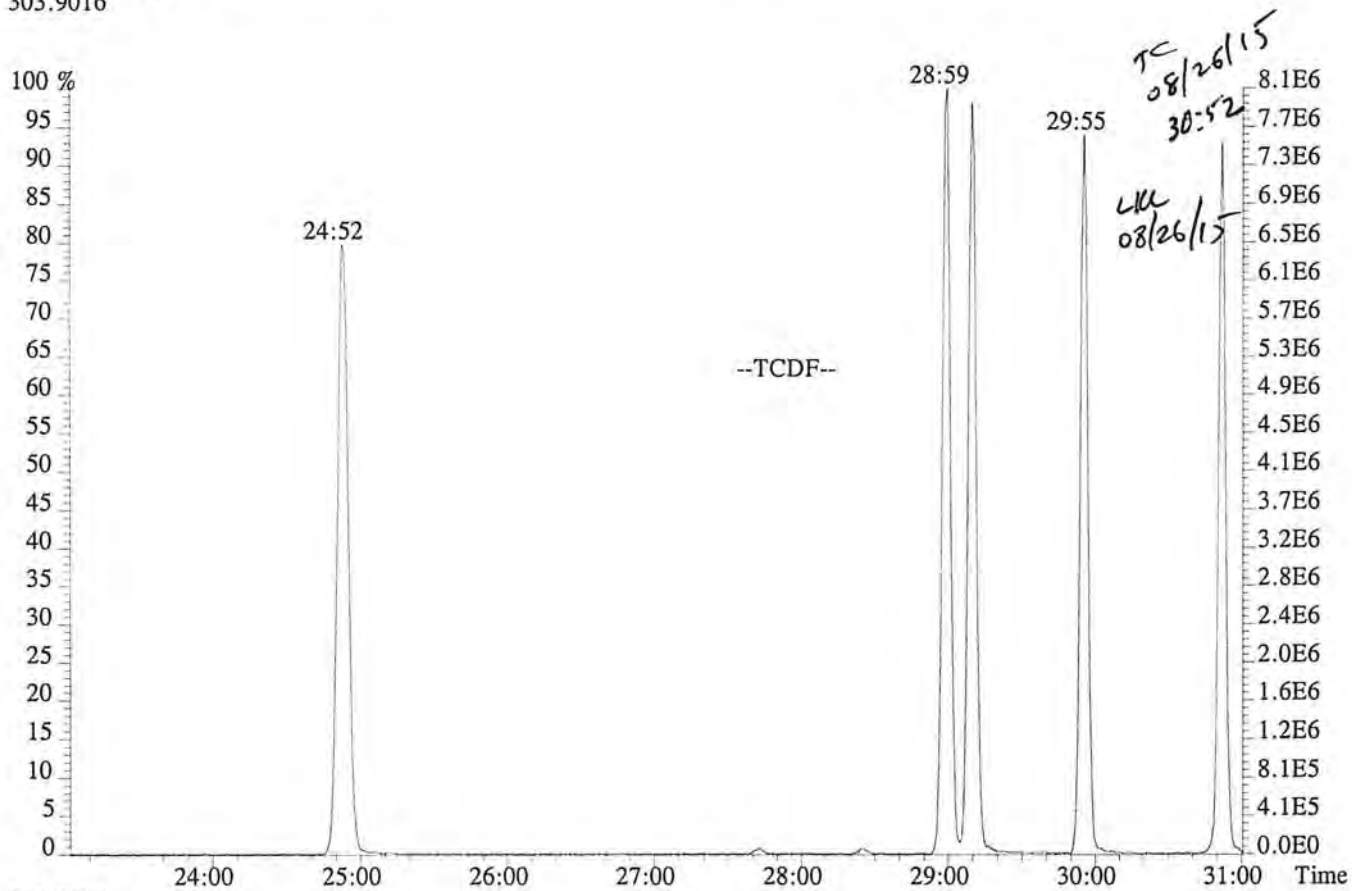
Sample#1 Exp:WD
303.9016



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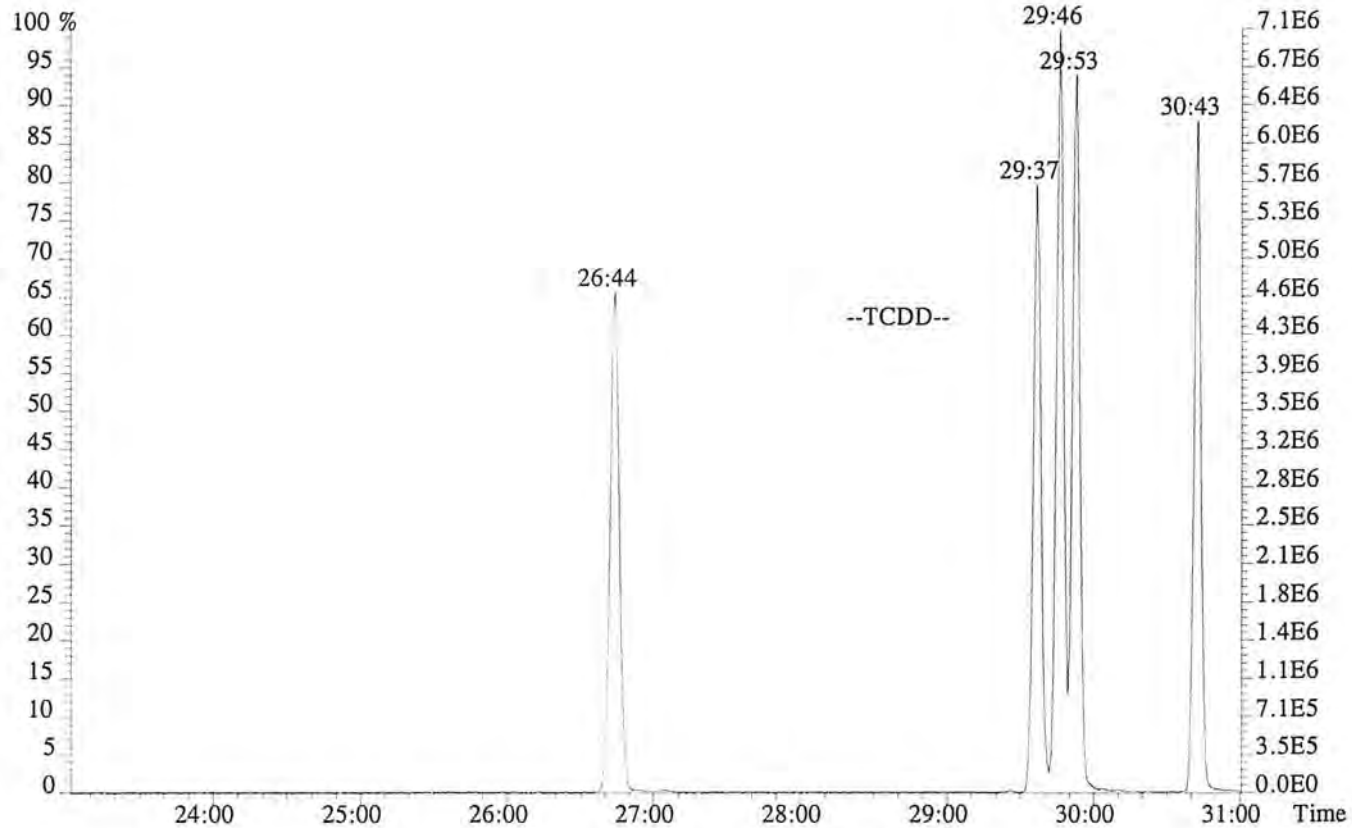
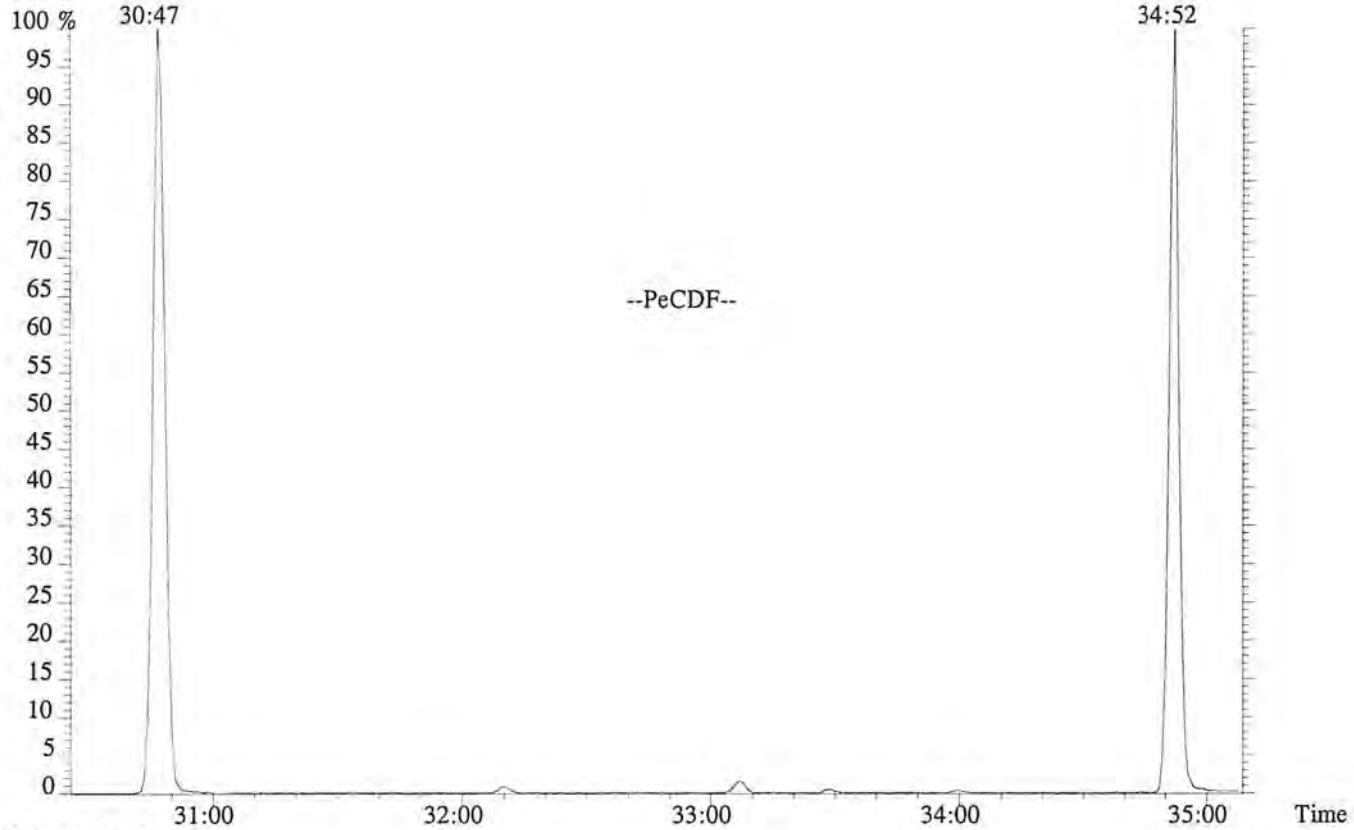
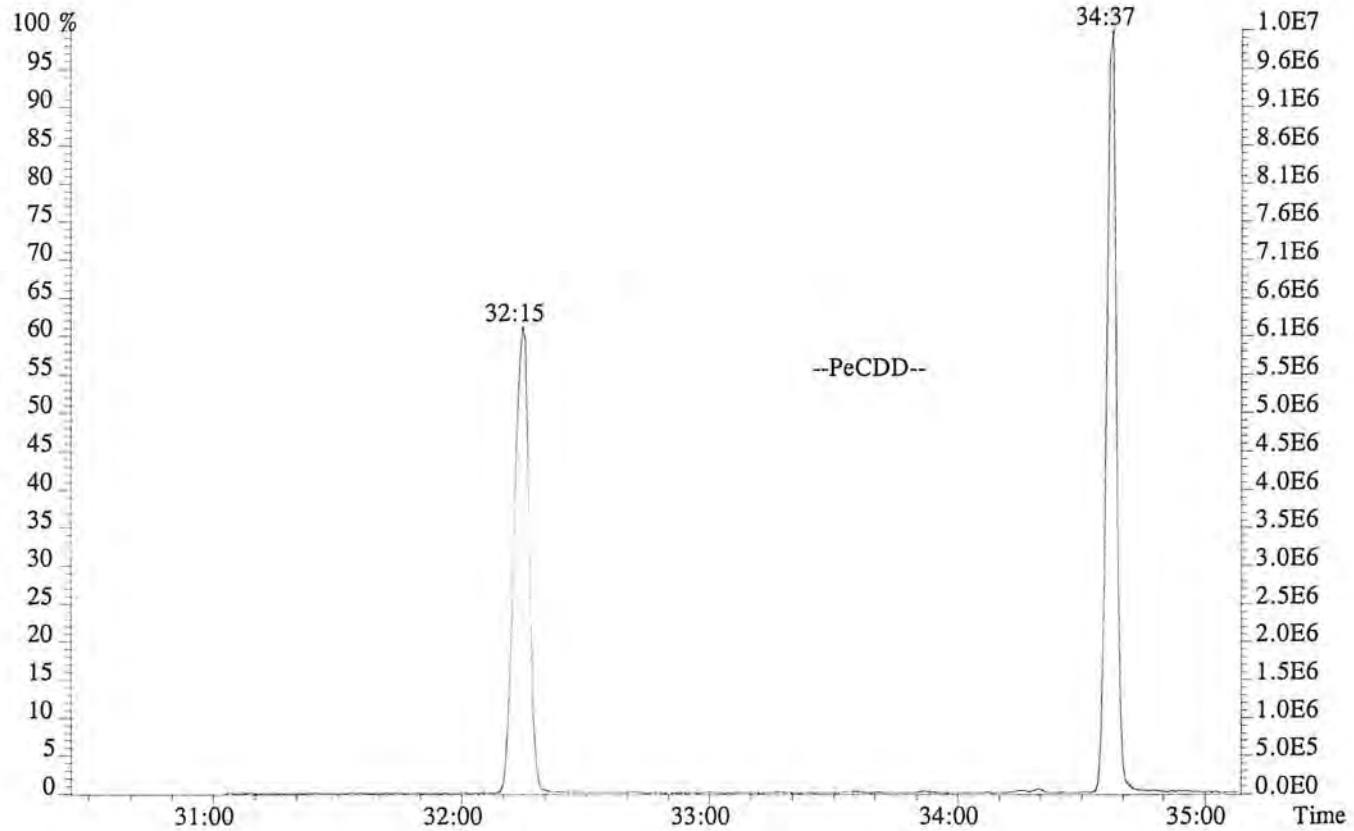


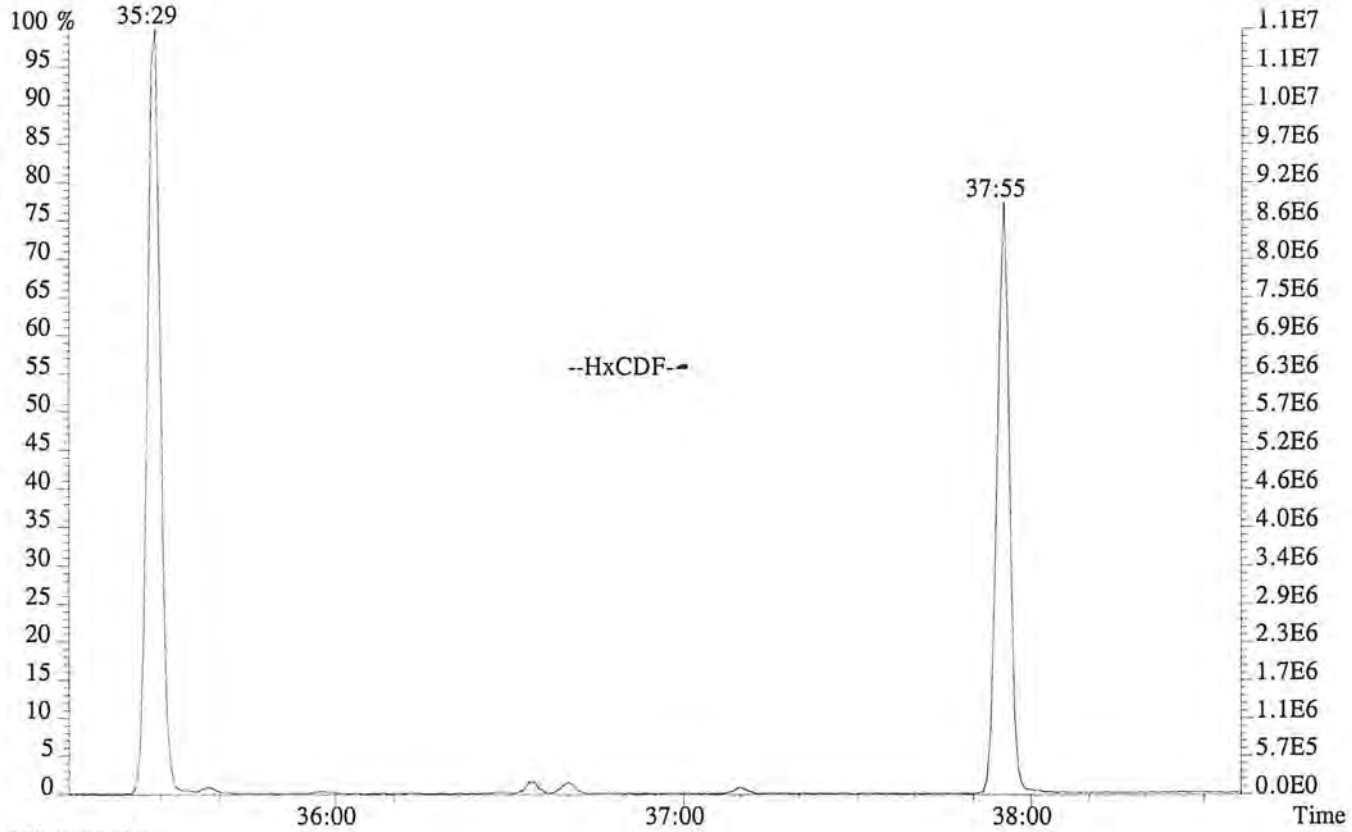
File:P600117 #1-566 Acq:25-AUG-2015 02:10:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WD
339.8597,339.8597 F:2



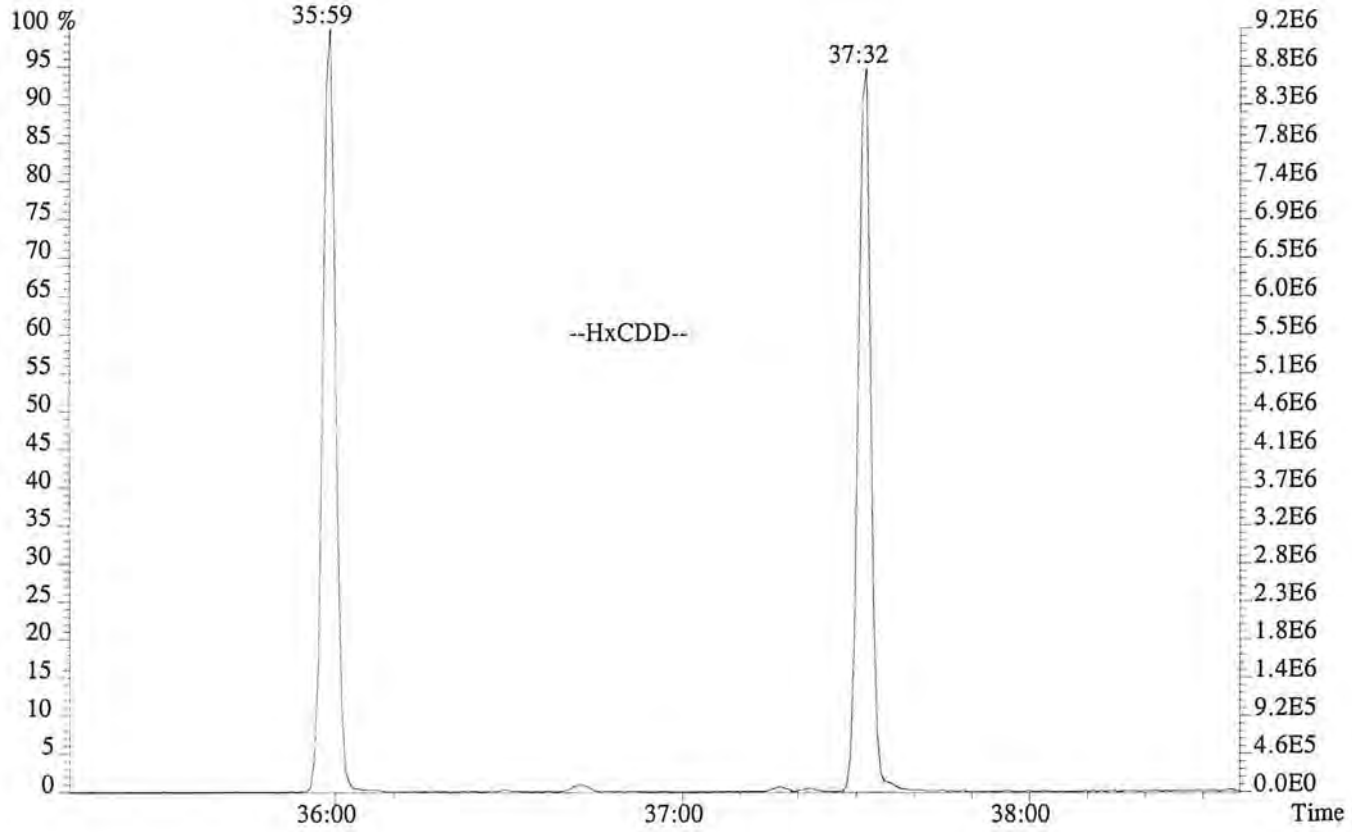
355.8546 F:2



File:P600117 #1-304 Acq:25-AUG-2015 02:10:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WD
373.8208 F:3



389.8157 F:3



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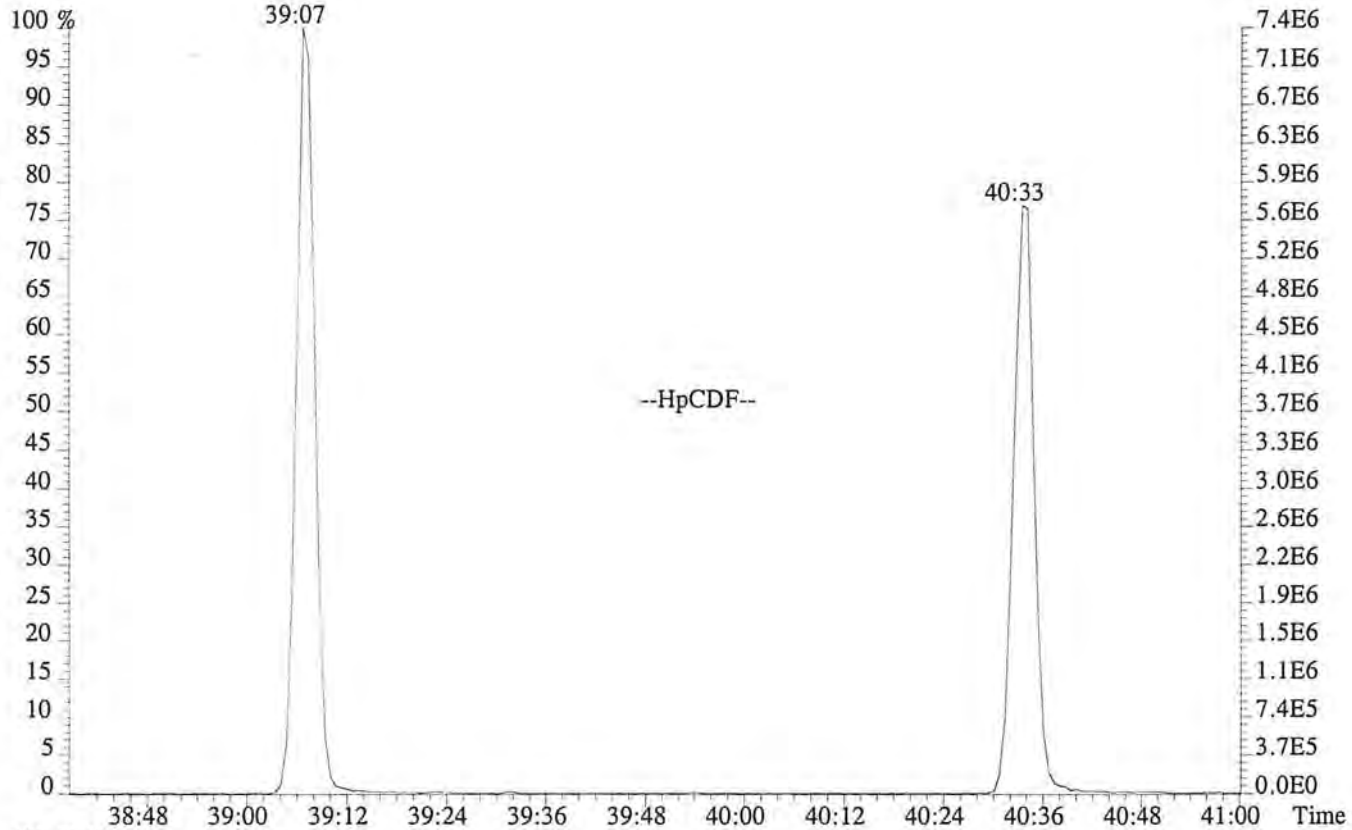
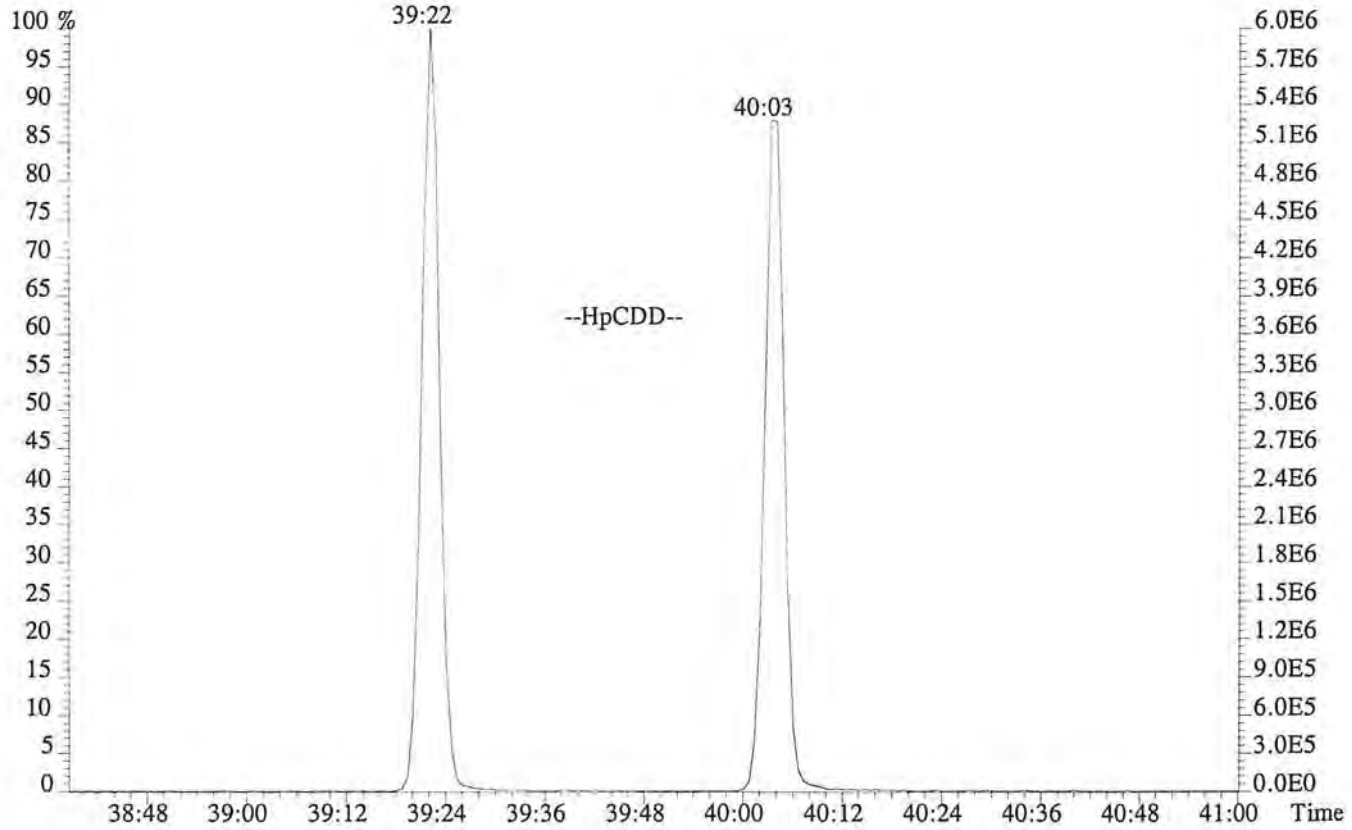
Sample#1 Exp:WD
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/19/15

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: p600116 Analysis Date: 25-AUG-15 Time: 01:21:17

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	10.0	7.8 - 12.9	-0.4
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	50	39 - 65	0.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	49	39 - 64	-2.3
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	52	39 - 64	4.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	47	41 - 61	-5.6
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	49	43 - 58	-2.4
OCDD	M+2/M+4	0.89	0.76-1.02	99	79 - 126	-1.1
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.8	8.4 - 12.0	-2.4
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	51	41 - 60	2.3
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	51	41 - 61	2.3
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	45 - 56	2.5
1,2,3,6,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	50	44 - 57	1.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	50	45 - 56	-0.6
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	51	44 - 57	1.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	50	45 - 55	-0.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	50	43 - 58	-1.0
OCDF	M+2/M+4	0.91	0.76-1.02	102	63 - 159	2.4

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/19/15

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: p600116 Analysis Date: 25-AUG-15 Time: 01:21:17

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	86	82 - 121	-13.8
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	100	62 - 160	-0.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.32	1.05-1.43	108	85 - 117	8.1
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.21	1.05-1.43	105	85 - 118	4.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	90	72 - 138	-10.2
13C-OCDD	M+2/M+4	0.90	0.76-1.02	166	96 - 415	-17.0
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	102	71 - 140	2.5
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	102	76 - 130	1.7
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	100	77 - 130	0.2
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	109	76 - 131	9.2
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	110	70 - 143	9.9
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	89	74 - 135	-10.9
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	107	73 - 137	7.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	90	78 - 129	-10.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	80	77 - 129	-19.9
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				8.5	7.8 - 12.7	-15.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
79857

Run #7 Filename p600116 Samp: 1 Inj: 1 Acquired: 25-AUG-15 01:21:17
Processed: 26-AUG-15 08:42:19 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:10	4.324e+04	5.656e+04	0.76	yes	no	0.941
2	Unk	1,2,3,7,8-PeCDF	33:06	3.503e+05	2.245e+05	1.56	yes	no	0.987
3	Unk	2,3,4,7,8-PeCDF	33:59	3.283e+05	2.109e+05	1.56	yes	no	0.934
4	Unk	1,2,3,4,7,8-HxCDF	36:33	2.749e+05	2.245e+05	1.22	yes	no	1.189
5	Unk	1,2,3,6,7,8-HxCDF	36:40	2.814e+05	2.237e+05	1.26	yes	no	1.126
6	Unk	2,3,4,6,7,8-HxCDF	37:09	2.657e+05	2.140e+05	1.24	yes	no	1.116
7	Unk	1,2,3,7,8,9-HxCDF	37:53	2.026e+05	1.643e+05	1.23	yes	no	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:07	1.917e+05	1.850e+05	1.04	yes	no	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:33	1.652e+05	1.607e+05	1.03	yes	no	1.287
10	Unk	OCDF	43:08	2.274e+05	2.512e+05	0.91	yes	no	1.257
11	Unk	2,3,7,8-TCDD	29:52	3.500e+04	4.459e+04	0.78	yes	no	1.010
12	Unk	1,2,3,7,8-PeCDD	34:15	2.394e+05	1.537e+05	1.56	yes	no	0.932
13	Unk	1,2,3,4,7,8-HxCDD	37:16	1.903e+05	1.525e+05	1.25	yes	no	1.026
14	Unk	1,2,3,6,7,8-HxCDD	37:21	1.872e+05	1.491e+05	1.25	yes	no	1.021
15	Unk	1,2,3,7,8,9-HxCDD	37:35	1.945e+05	1.565e+05	1.24	yes	no	1.133
16	Unk	1,2,3,4,6,7,8-HpCDD	40:03	1.445e+05	1.377e+05	1.05	yes	no	1.034
17	Unk	OCDD	42:56	1.923e+05	2.162e+05	0.89	yes	no	1.111
18	IS	13C-2,3,7,8-TCDF	29:08	4.793e+05	6.078e+05	0.79	yes	no	1.379
19	IS	13C-1,2,3,7,8-PeCDF	33:05	6.969e+05	4.415e+05	1.58	yes	no	1.456
20	IS	13C-2,3,4,7,8-PeCDF	33:59	6.909e+05	4.381e+05	1.58	yes	no	1.465
21	IS	13C-1,2,3,4,7,8-HxCDF	36:32	2.809e+05	5.389e+05	0.52	yes	no	1.075
22	IS	13C-1,2,3,6,7,8-HxCDF	36:39	3.046e+05	5.839e+05	0.52	yes	no	1.158
23	IS	13C-2,3,4,6,7,8-HxCDF	37:08	2.915e+05	5.552e+05	0.52	yes	no	1.133
24	IS	13C-1,2,3,7,8,9-HxCDF	37:52	2.195e+05	4.178e+05	0.53	yes	no	1.024
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:06	1.702e+05	3.816e+05	0.45	yes	no	0.880
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:33	1.586e+05	3.531e+05	0.45	yes	no	0.914
27	IS	13C-2,3,7,8-TCDD	29:51	3.472e+05	4.438e+05	0.78	yes	no	1.193
28	IS	13C-1,2,3,7,8-PeCDD	34:14	5.121e+05	3.267e+05	1.57	yes	no	1.094
29	IS	13C-1,2,3,4,7,8-HxCDD	37:16	3.890e+05	2.951e+05	1.32	yes	no	0.906
30	IS	13C-1,2,3,6,7,8-HxCDD	37:20	3.437e+05	2.851e+05	1.21	yes	no	0.860
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:03	2.876e+05	2.718e+05	1.06	yes	no	0.892
32	IS	13C-OCDD	42:55	3.520e+05	3.917e+05	0.90	yes	no	0.642
33	RS/RT	13C-1,2,3,4-TCDD	29:19	3.387e+05	4.307e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:34	3.895e+05	3.090e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:52	8.263e+04				no	1.263

ALS ENVIRONMENTAL
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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
79857

Run #7 Filename p600116 Samp: 1 Inj: 1 Acquired: 25-AUG-15 01:21:17
Processed: 26-AUG-15 08:42:19 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.56e+06	1.85e+03	4.6e+03	1.12e+07	4.04e+03	2.8e+03
2	1,2,3,7,8-PeCDF	7.03e+07	2.29e+03	3.1e+04	4.51e+07	5.64e+03	8.0e+03
3	2,3,4,7,8-PeCDF	6.90e+07	2.29e+03	3.0e+04	4.41e+07	5.64e+03	7.8e+03
4	1,2,3,4,7,8-HxCDF	6.31e+07	3.58e+03	1.8e+04	5.17e+07	1.90e+03	2.7e+04
5	1,2,3,6,7,8-HxCDF	6.35e+07	3.58e+03	1.8e+04	5.00e+07	1.90e+03	2.6e+04
6	2,3,4,6,7,8-HxCDF	6.19e+07	3.58e+03	1.7e+04	5.02e+07	1.90e+03	2.6e+04
7	1,2,3,7,8,9-HxCDF	4.70e+07	3.58e+03	1.3e+04	3.80e+07	1.90e+03	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	4.33e+07	5.67e+03	7.6e+03	4.16e+07	5.77e+03	7.2e+03
9	1,2,3,4,7,8,9-HpCDF	3.46e+07	5.67e+03	6.1e+03	3.34e+07	5.77e+03	5.8e+03
10	OCDF	4.26e+07	2.45e+03	1.7e+04	4.64e+07	6.64e+03	7.0e+03
11	2,3,7,8-TCDD	7.30e+06	2.42e+03	3.0e+03	9.37e+06	2.75e+03	3.4e+03
12	1,2,3,7,8-PeCDD	5.13e+07	7.52e+03	6.8e+03	3.30e+07	2.15e+03	1.5e+04
13	1,2,3,4,7,8-HxCDD	4.56e+07	1.90e+03	2.4e+04	3.61e+07	2.63e+03	1.4e+04
14	1,2,3,6,7,8-HxCDD	4.32e+07	1.90e+03	2.3e+04	3.46e+07	2.63e+03	1.3e+04
15	1,2,3,7,8,9-HxCDD	4.50e+07	1.90e+03	2.4e+04	3.66e+07	2.63e+03	1.4e+04
16	1,2,3,4,6,7,8-HpCDD	3.24e+07	1.96e+03	1.7e+04	3.08e+07	3.55e+03	8.7e+03
17	OCDD	3.68e+07	1.56e+03	2.4e+04	4.11e+07	2.87e+03	1.4e+04
18	13C-2,3,7,8-TCDF	9.58e+07	8.56e+03	1.1e+04	1.22e+08	3.94e+03	3.1e+04
19	13C-1,2,3,7,8-PeCDF	1.41e+08	2.19e+03	6.4e+04	8.98e+07	5.71e+03	1.6e+04
20	13C-2,3,4,7,8-PeCDF	1.41e+08	2.19e+03	6.4e+04	8.89e+07	5.71e+03	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	6.48e+07	3.63e+03	1.8e+04	1.24e+08	6.00e+03	2.1e+04
22	13C-1,2,3,6,7,8-HxCDF	6.83e+07	3.63e+03	1.9e+04	1.30e+08	6.00e+03	2.2e+04
23	13C-2,3,4,6,7,8-HxCDF	6.74e+07	3.63e+03	1.9e+04	1.30e+08	6.00e+03	2.2e+04
24	13C-1,2,3,7,8,9-HxCDF	5.10e+07	3.63e+03	1.4e+04	9.66e+07	6.00e+03	1.6e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.90e+07	7.80e+03	5.0e+03	8.68e+07	7.95e+03	1.1e+04
26	13C-1,2,3,4,7,8,9-HpCDF	3.37e+07	7.80e+03	4.3e+03	7.43e+07	7.95e+03	9.3e+03
27	13C-2,3,7,8-TCDD	7.29e+07	1.22e+04	6.0e+03	9.29e+07	6.50e+03	1.4e+04
28	13C-1,2,3,7,8-PeCDD	1.07e+08	4.68e+03	2.3e+04	6.73e+07	3.56e+03	1.9e+04
29	13C-1,2,3,4,7,8-HxCDD	8.92e+07	1.18e+04	7.5e+03	6.99e+07	4.84e+03	1.4e+04
30	13C-1,2,3,6,7,8-HxCDD	8.28e+07	1.18e+04	7.0e+03	6.61e+07	4.84e+03	1.4e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.41e+07	4.02e+03	1.6e+04	6.02e+07	2.18e+03	2.8e+04
32	13C-OCDD	6.78e+07	2.78e+03	2.4e+04	7.52e+07	2.78e+03	2.7e+04
33	13C-1,2,3,4-TCDD	6.87e+07	1.22e+04	5.6e+03	8.74e+07	6.50e+03	1.3e+04
34	13C-1,2,3,7,8,9-HxCDD	8.98e+07	1.18e+04	7.6e+03	7.20e+07	4.84e+03	1.5e+04
35	37Cl-2,3,7,8-TCDD	1.72e+07	2.10e+03	8.2e+03			

ALS ENVIRONMENTAL
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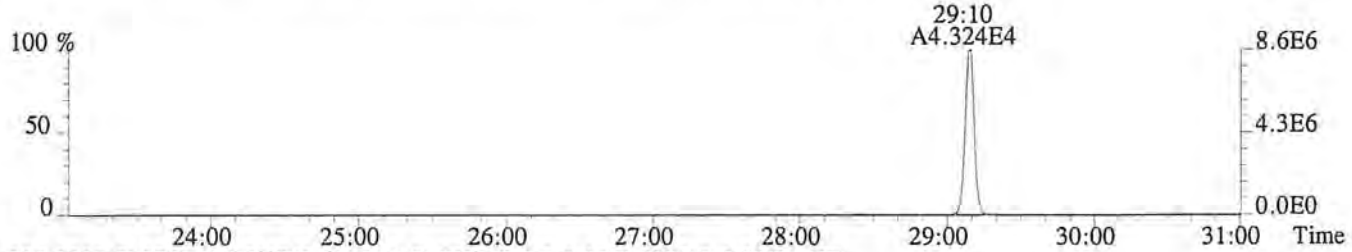
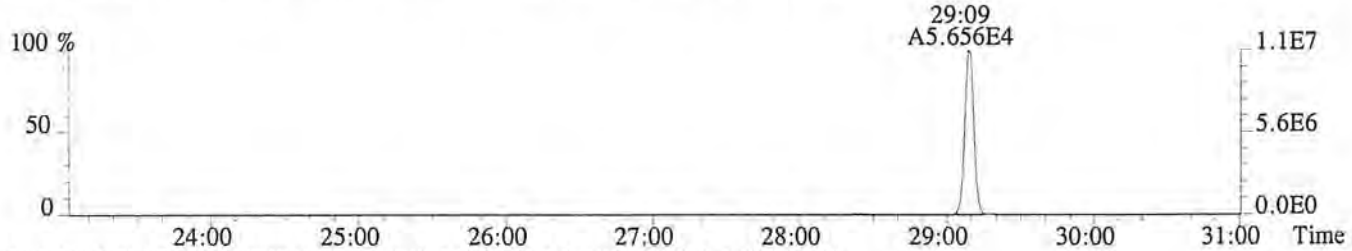
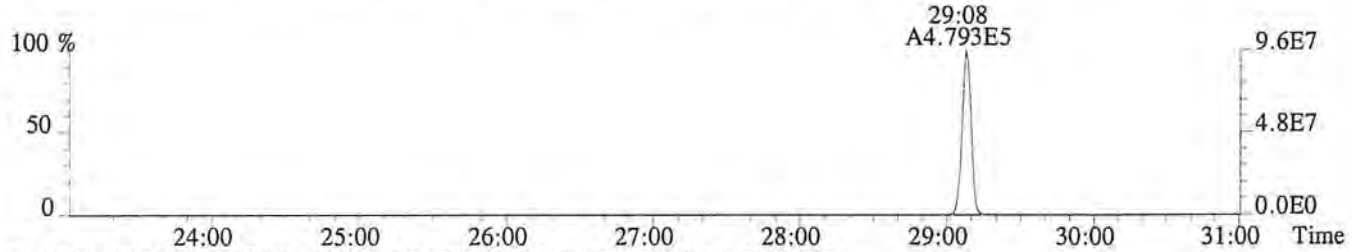
File:P600116 #1-566 Acq:25-AUG-2015 01:21:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1852.0,1.00%,F,T)



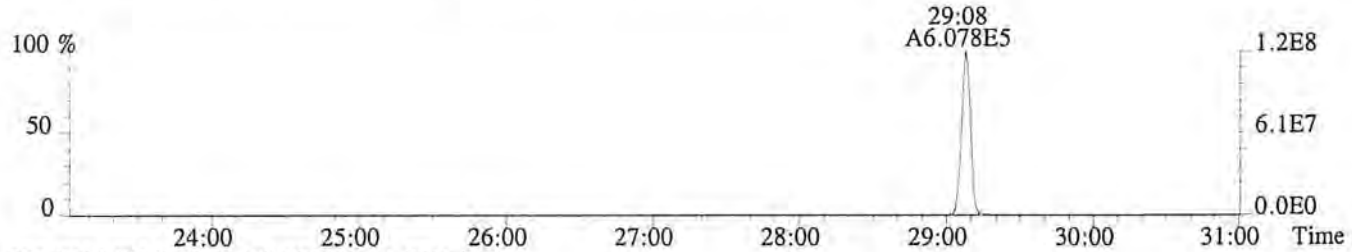
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4040.0,1.00%,F,T)



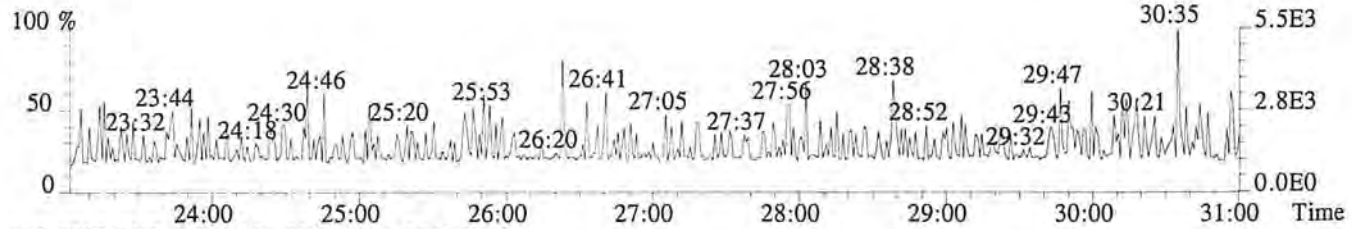
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8560.0,1.00%,F,T)



317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3936.0,1.00%,F,T)

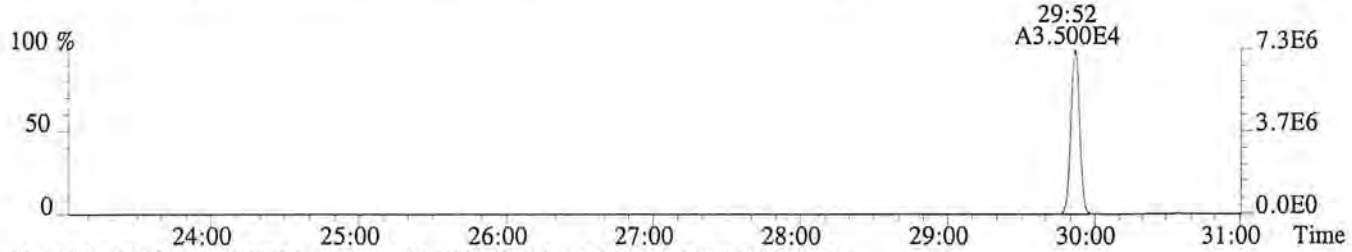


375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

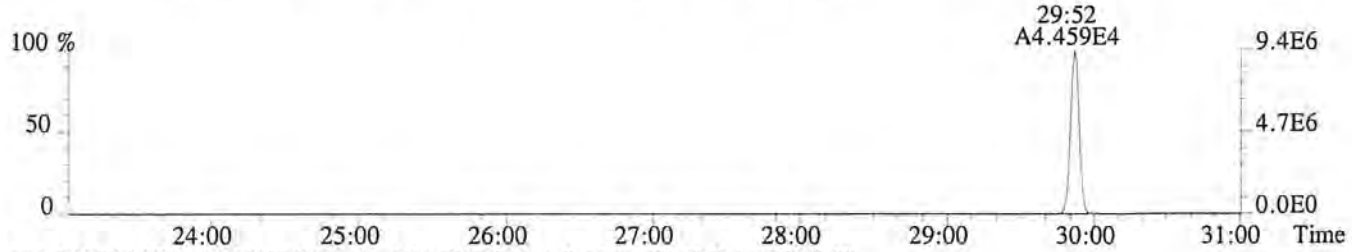


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

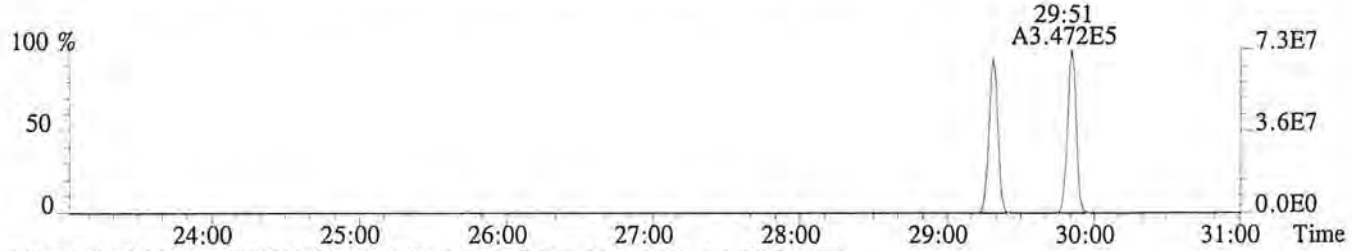
File:P600116 #1-566 Acq:25-AUG-2015 01:21:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2420.0,1.00%,F,T)



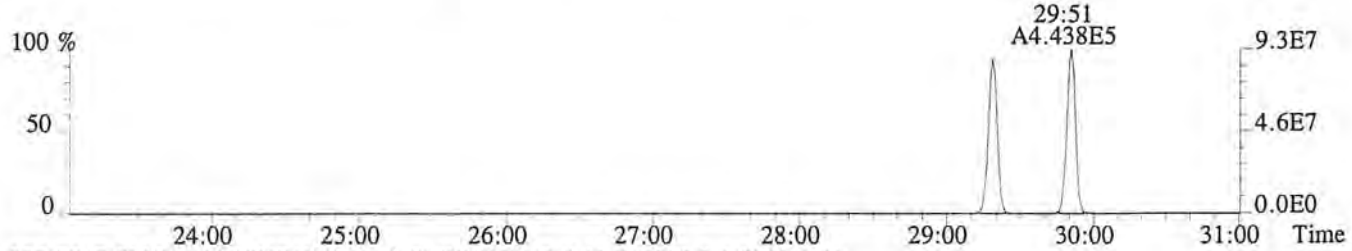
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2752.0,1.00%,F,T)



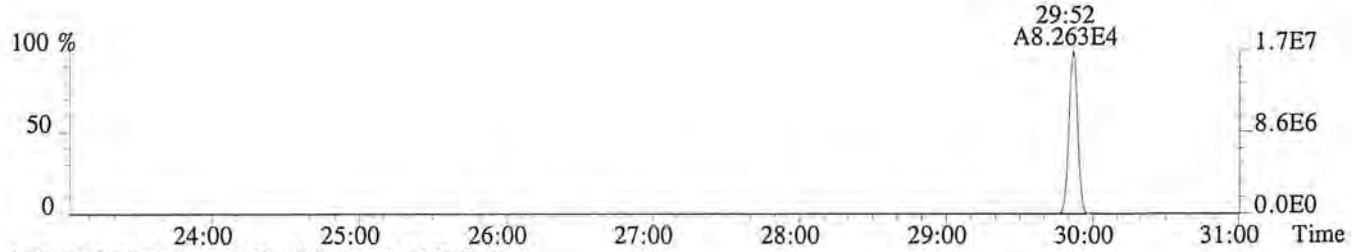
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,12168.0,1.00%,F,T)



333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6504.0,1.00%,F,T)

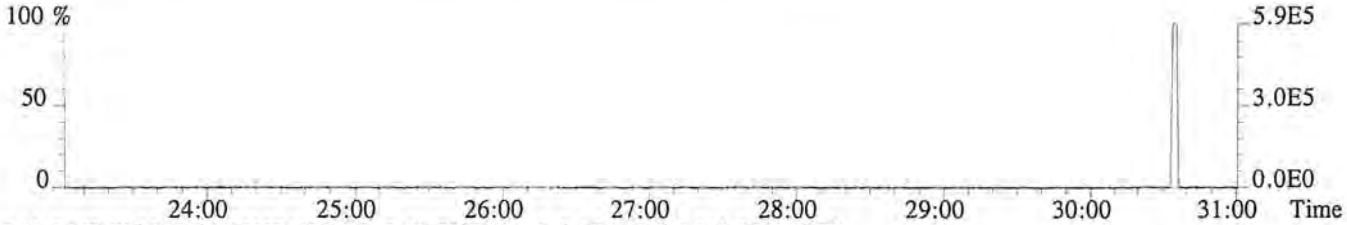


327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2096.0,1.00%,F,T)

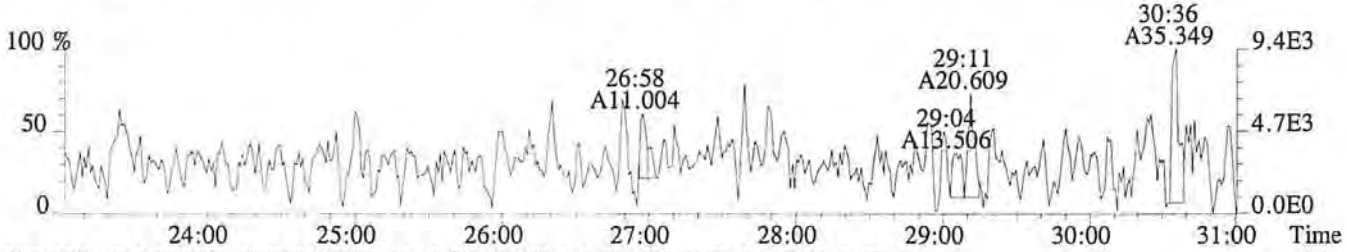


318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

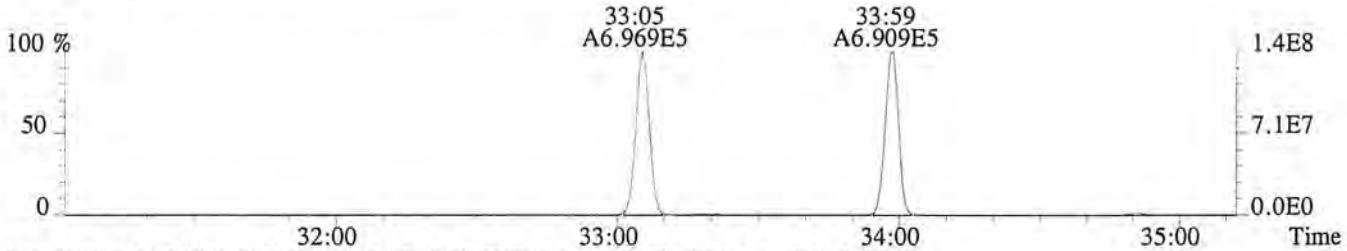
File:P600116 #1-566 Acq:25-AUG-2015 01:21:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1736.0,1.00%,F,T)



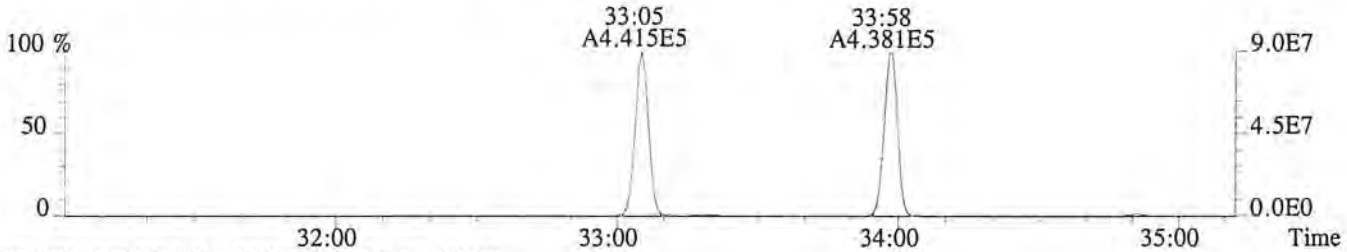
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3676.0,1.00%,F,T)



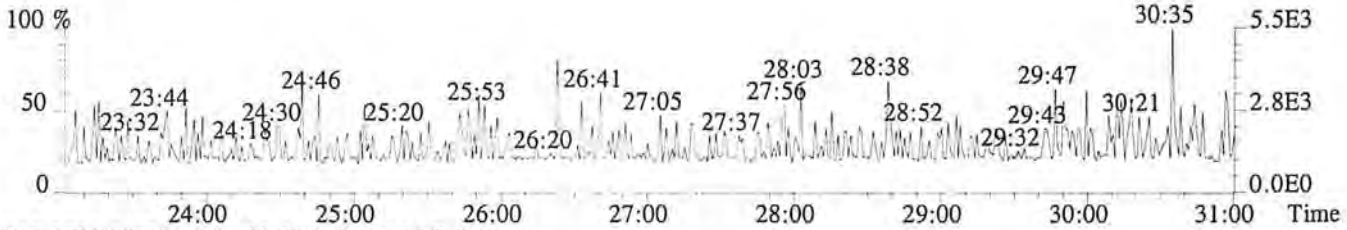
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2192.0,1.00%,F,T)



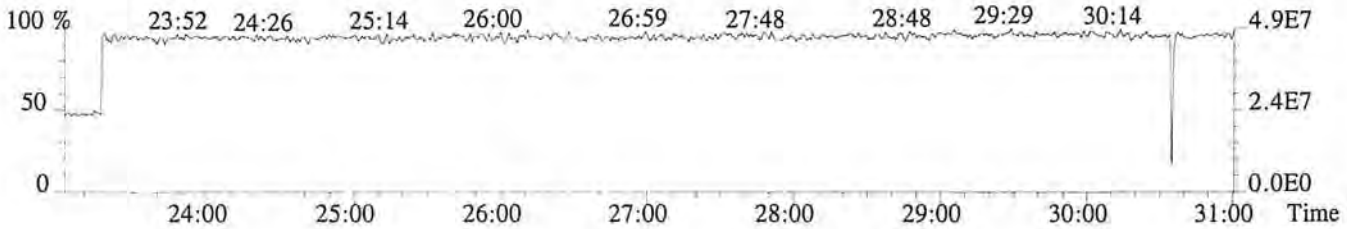
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5708.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

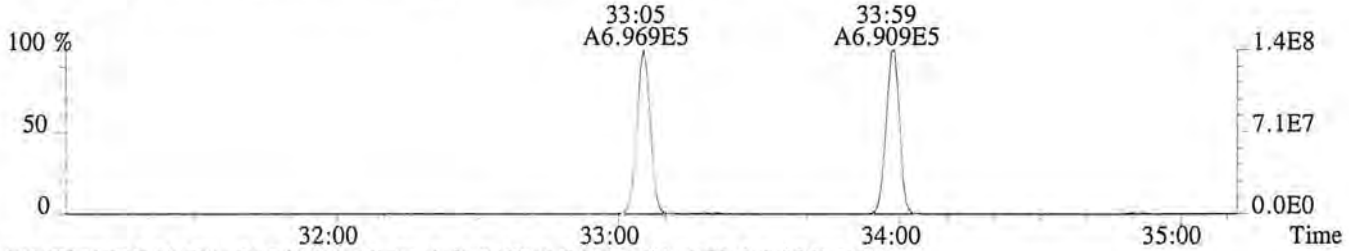


File:P600116 #1-375 Acq:25-AUG-2015 01:21:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3

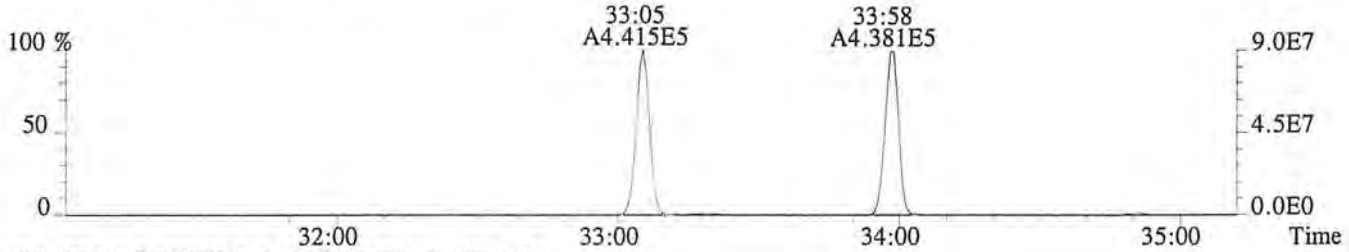
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2292.0,1.00%,F,T)

341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5644.0,1.00%,F,T)

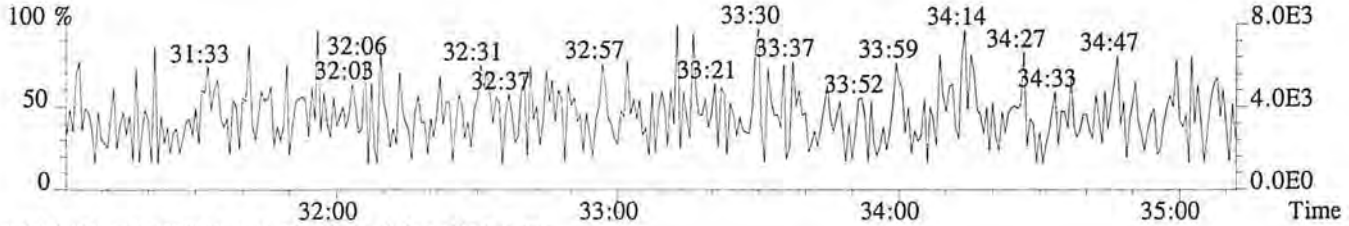
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2192.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5708.0,1.00%,F,T)



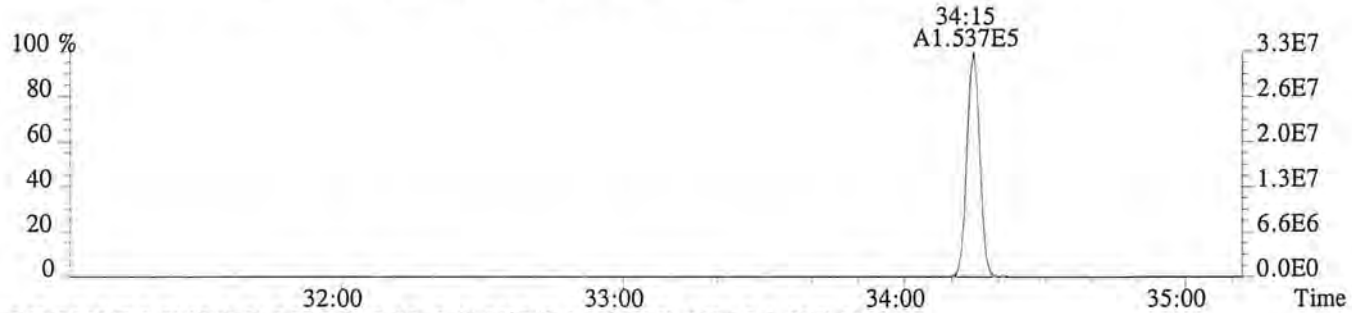
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



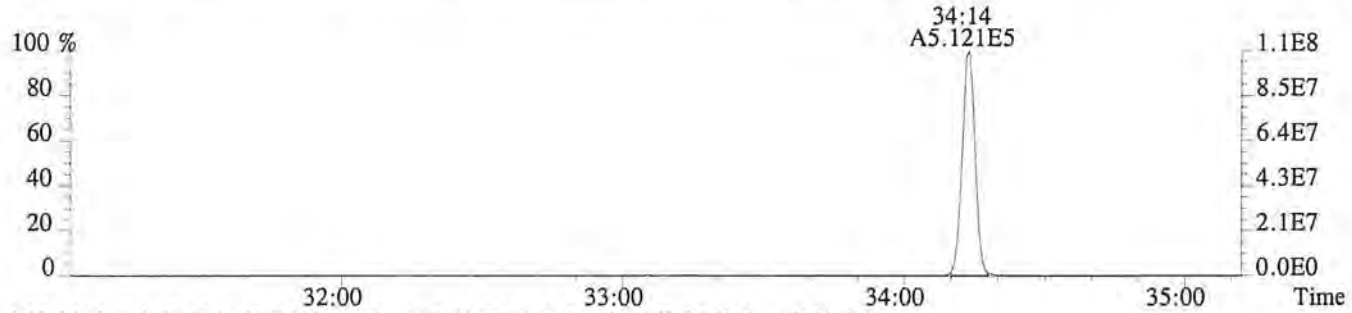
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

File:P600116 #1-375 Acq:25-AUG-2015 01:21:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7520.0,1.00%,F,T)

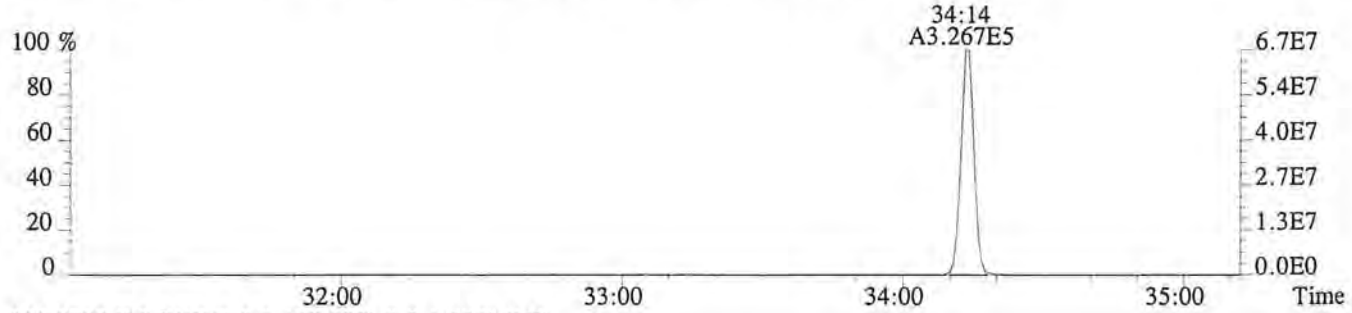
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2152.0,1.00%,F,T)



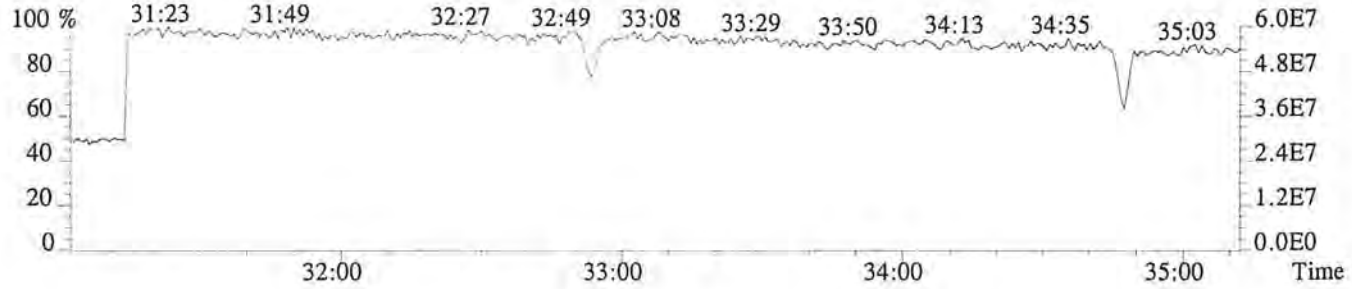
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4684.0,1.00%,F,T)



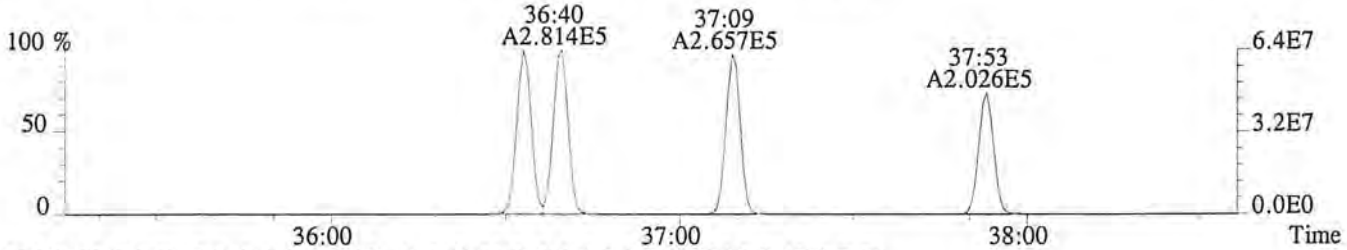
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3560.0,1.00%,F,T)



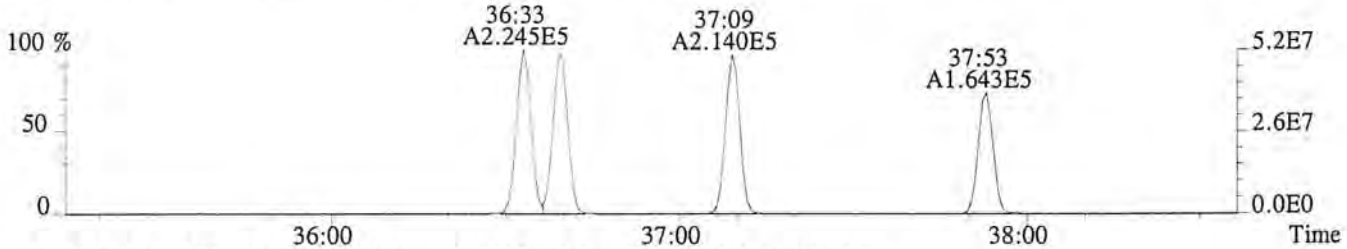
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



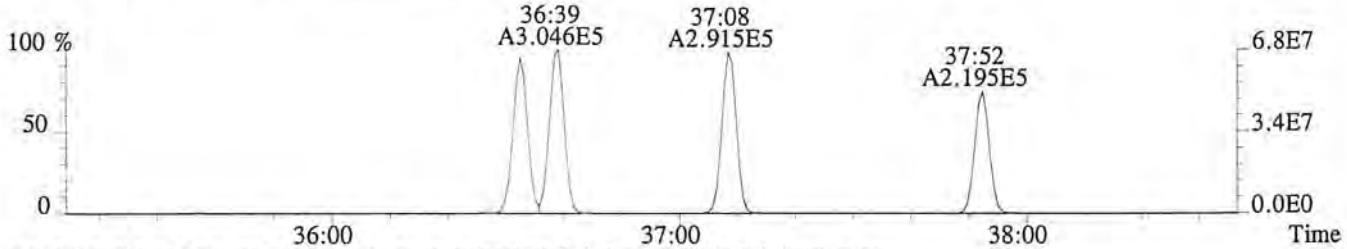
File:P600116 #1-304 Acq:25-AUG-2015 01:21:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3580.0,0.40%,F,T)



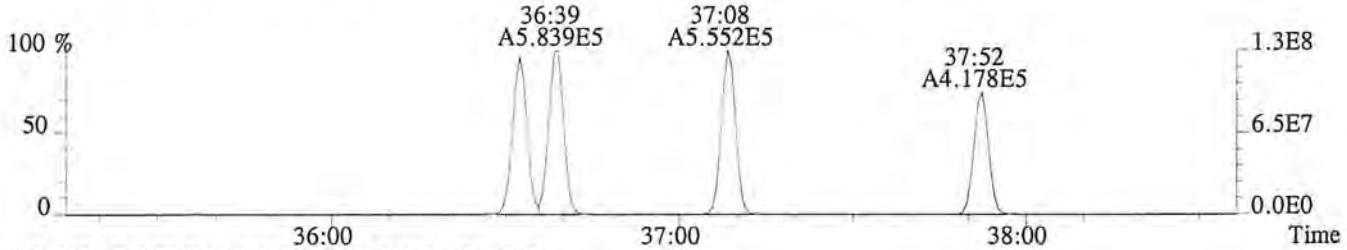
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1896.0,0.40%,F,T)



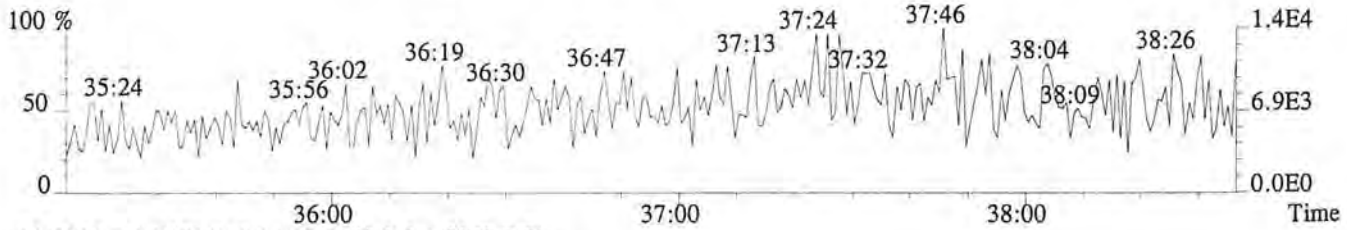
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3632.0,0.40%,F,T)



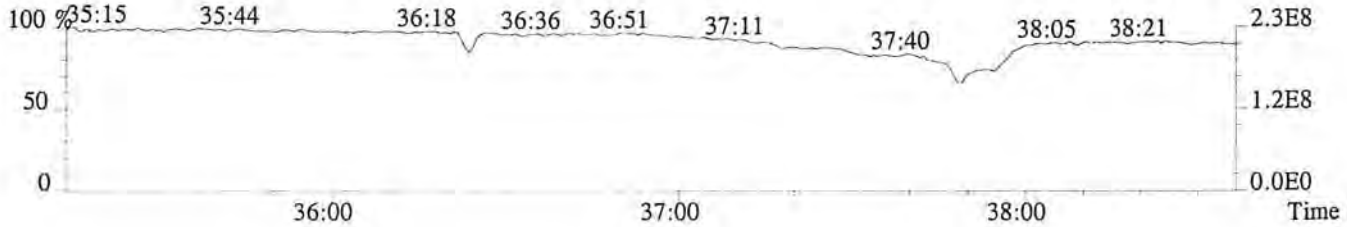
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5996.0,0.40%,F,T)



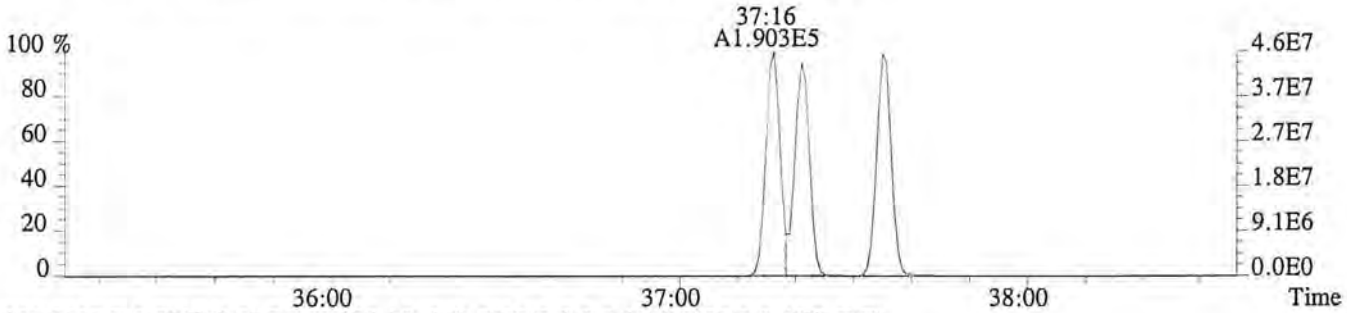
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



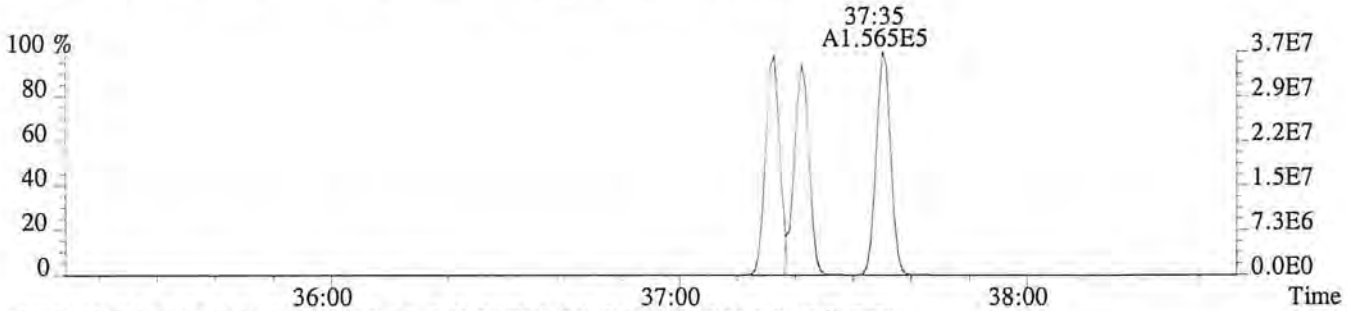
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



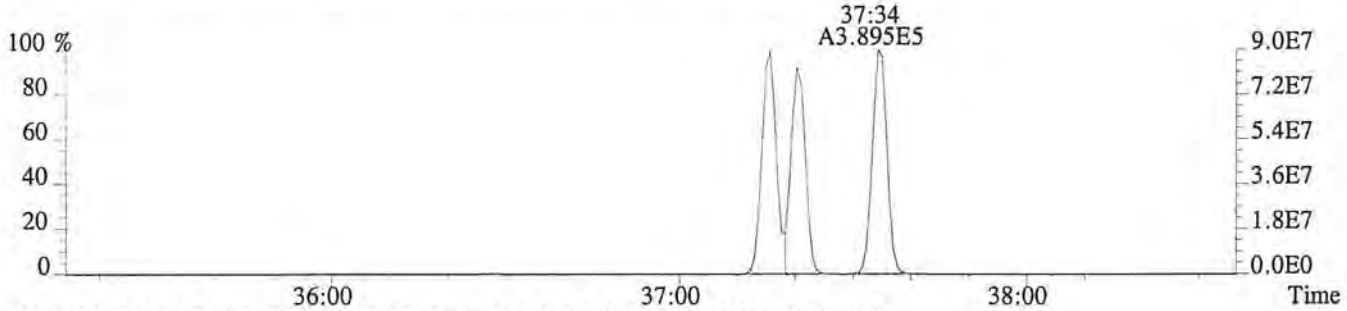
File:P600116 #1-304 Acq:25-AUG-2015 01:21:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1896.0,0.40%,F,T)



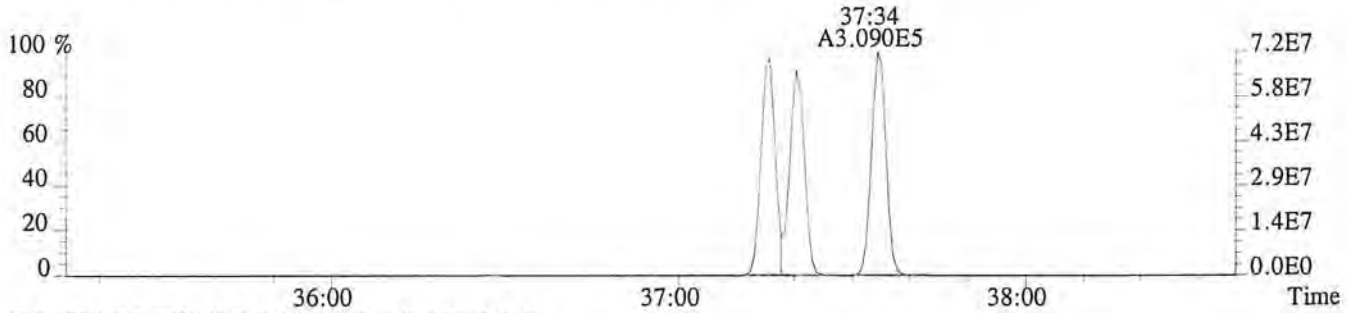
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2628.0,0.40%,F,T)



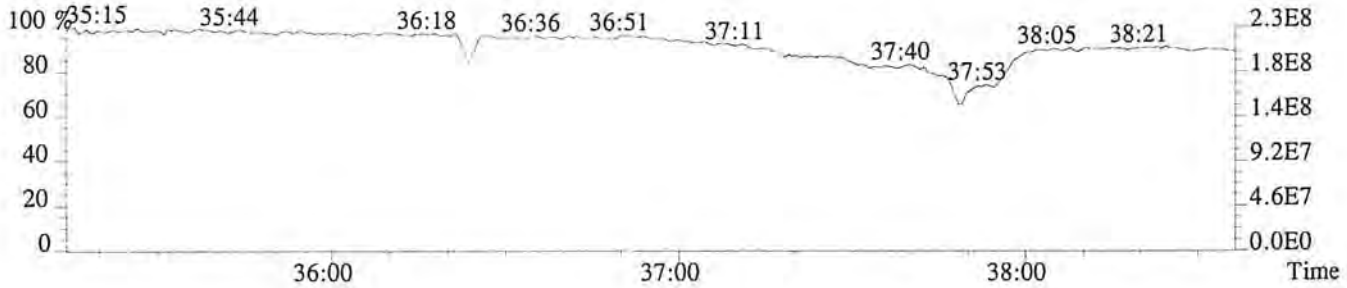
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11844.0,0.40%,F,T)



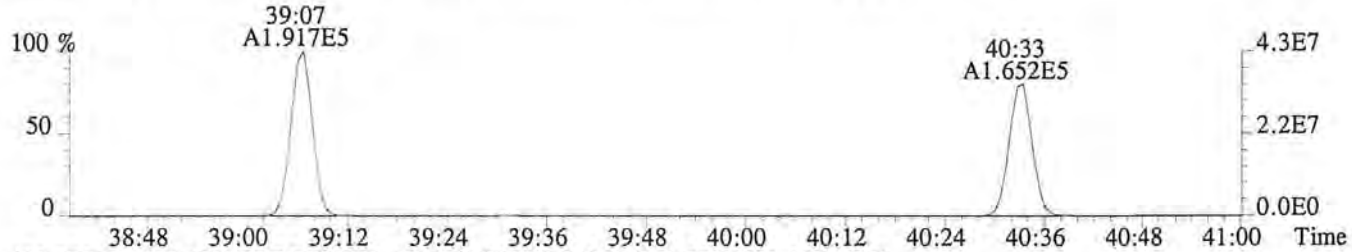
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4840.0,0.40%,F,T)



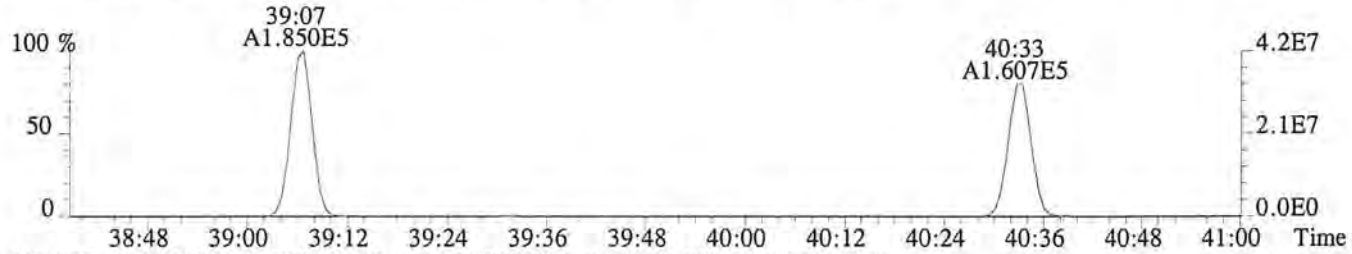
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



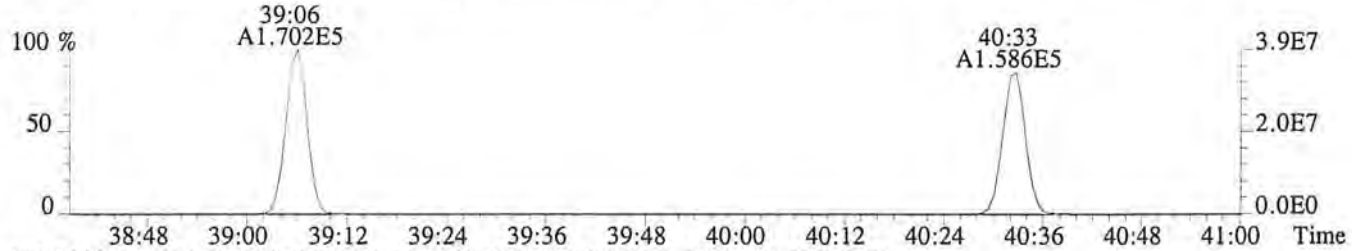
File:P600116 #1-213 Acq:25-AUG-2015 01:21:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5672.0,0.50%,F,T)



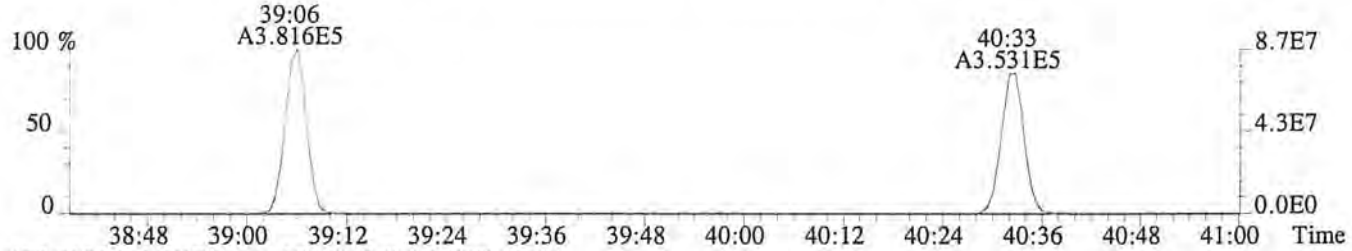
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5772.0,0.50%,F,T)



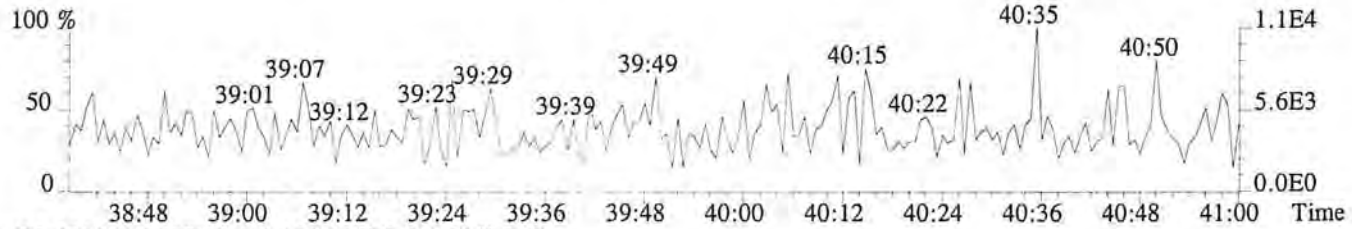
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7804.0,0.50%,F,T)



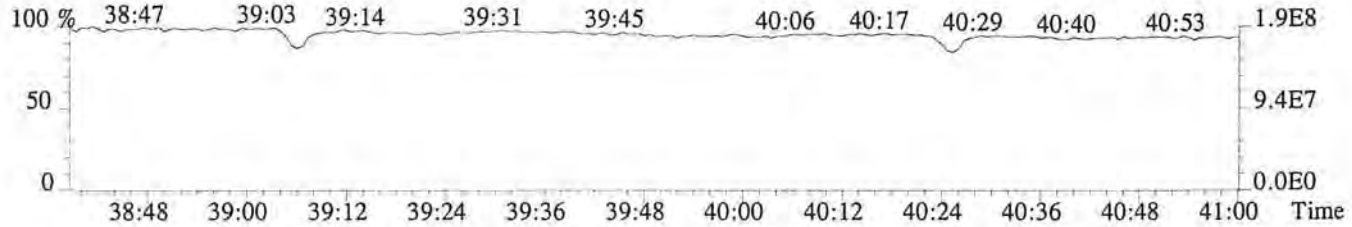
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7952.0,0.50%,F,T)



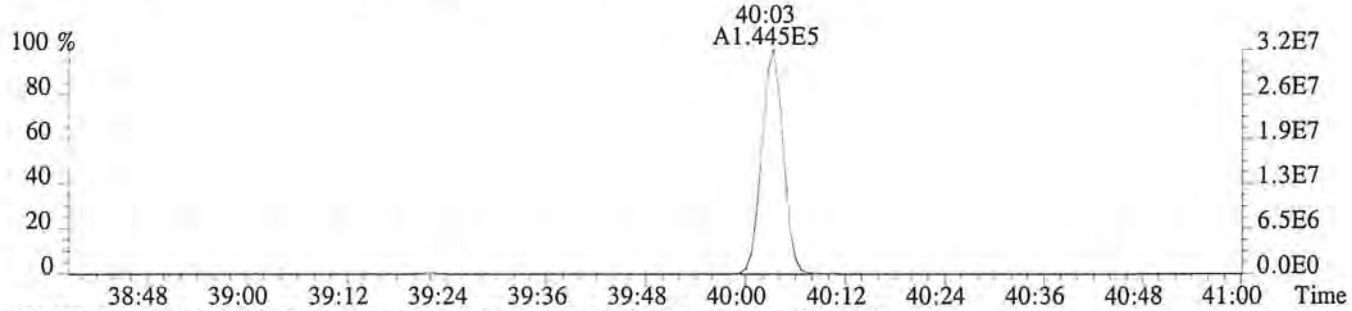
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



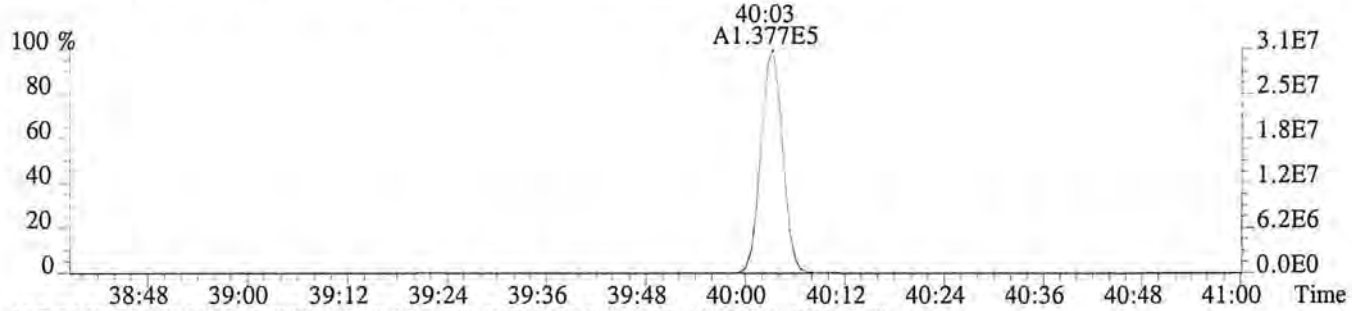
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



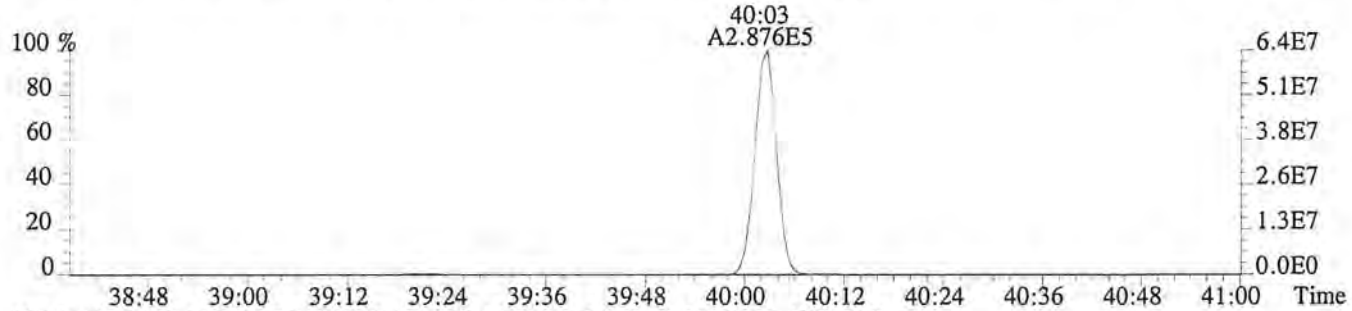
File:P600116 #1-213 Acq:25-AUG-2015 01:21:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1964.0,0.40%,F,T)



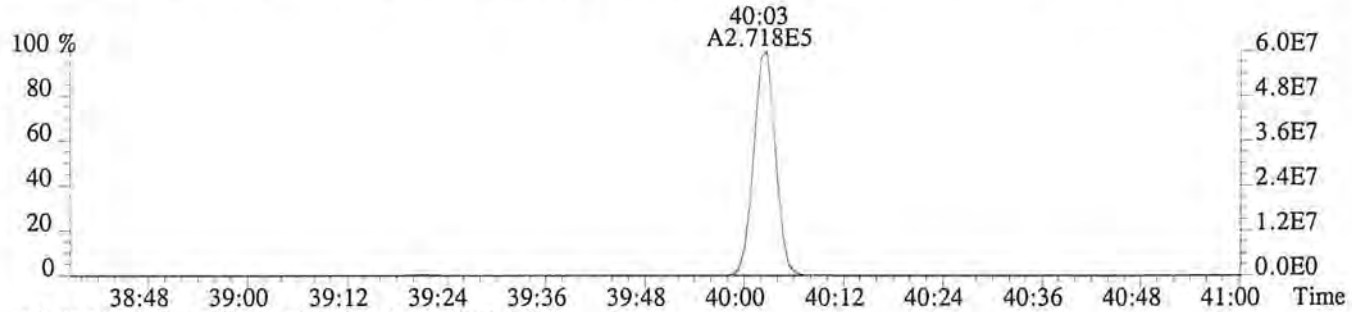
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3548.0,0.40%,F,T)



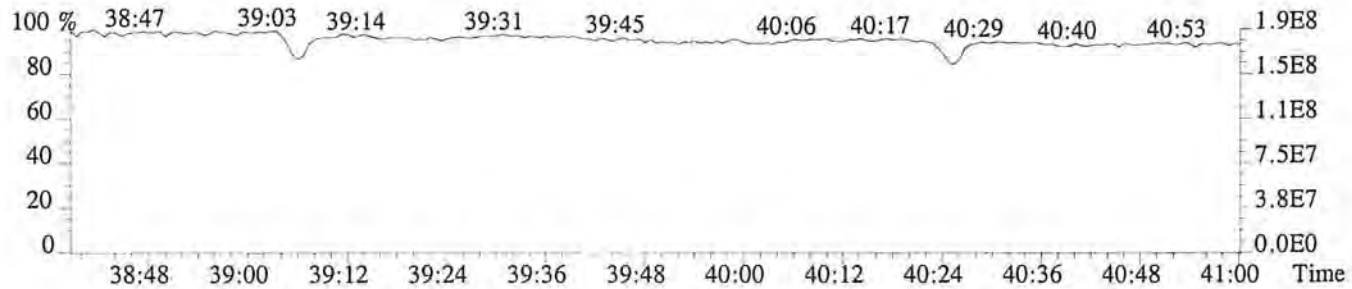
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4016.0,0.40%,F,T)



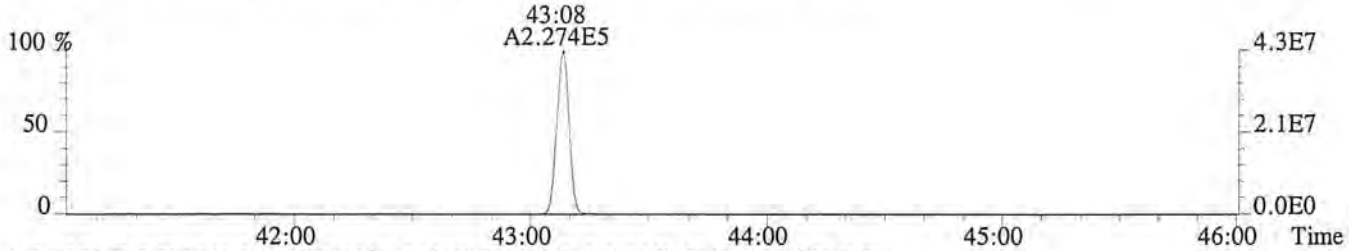
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2176.0,0.40%,F,T)



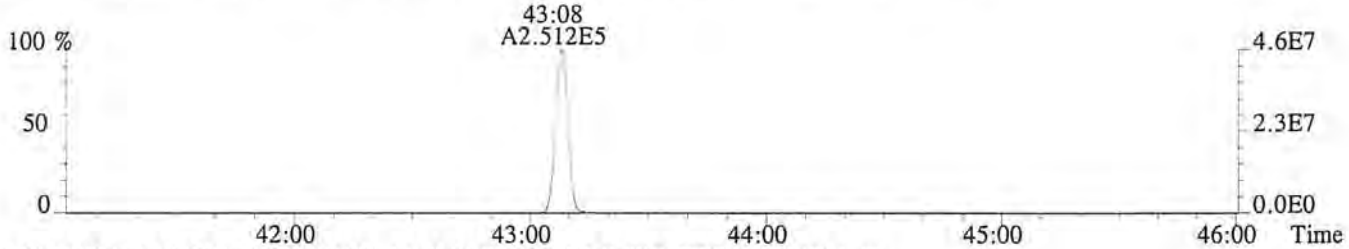
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



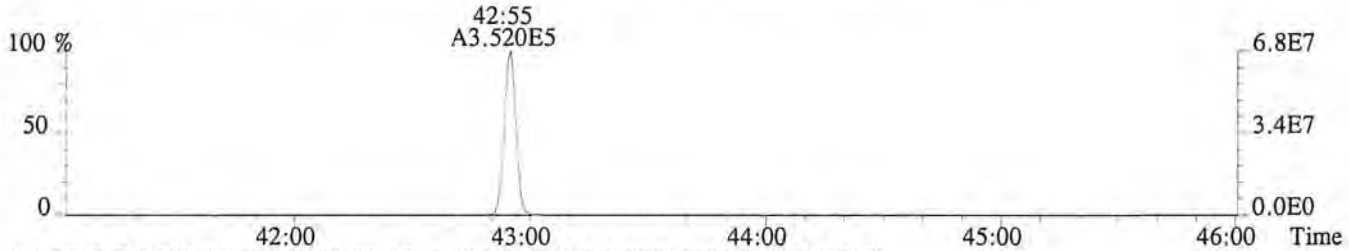
File:P600116 #1-448 Acq:25-AUG-2015 01:21:17 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2452.0,0.40%,F,T)



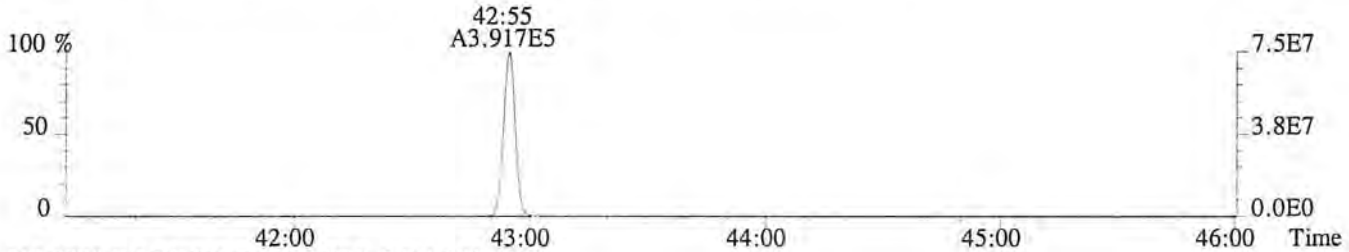
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,6640.0,0.40%,F,T)



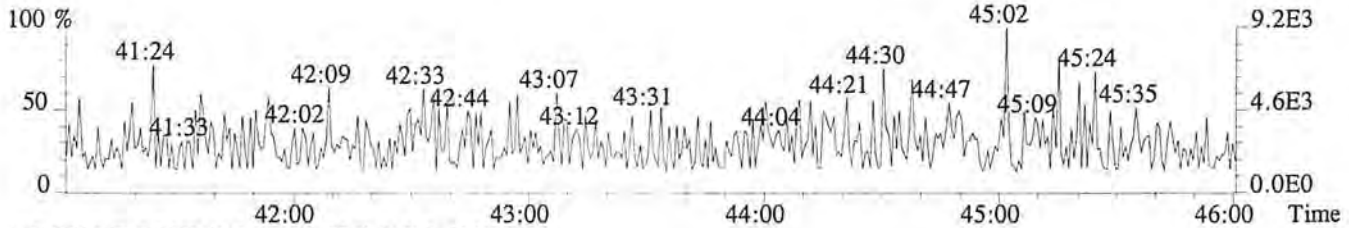
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2780.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2776.0,0.40%,F,T)

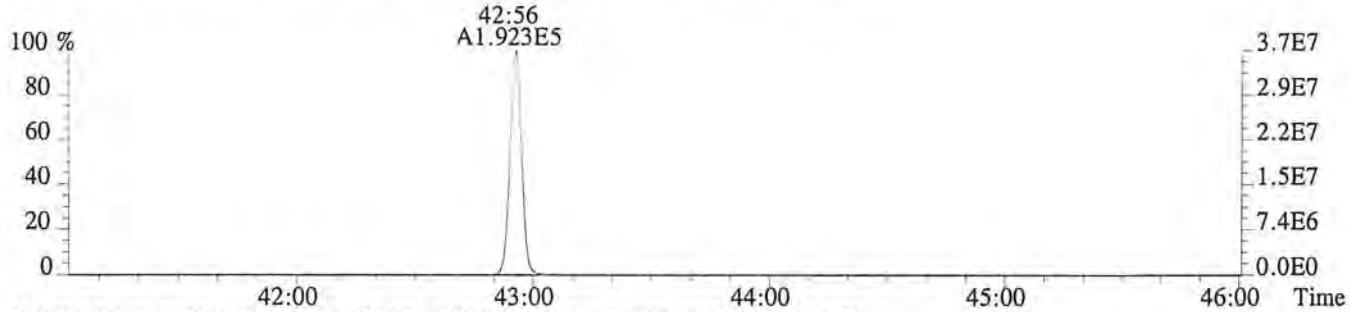


513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

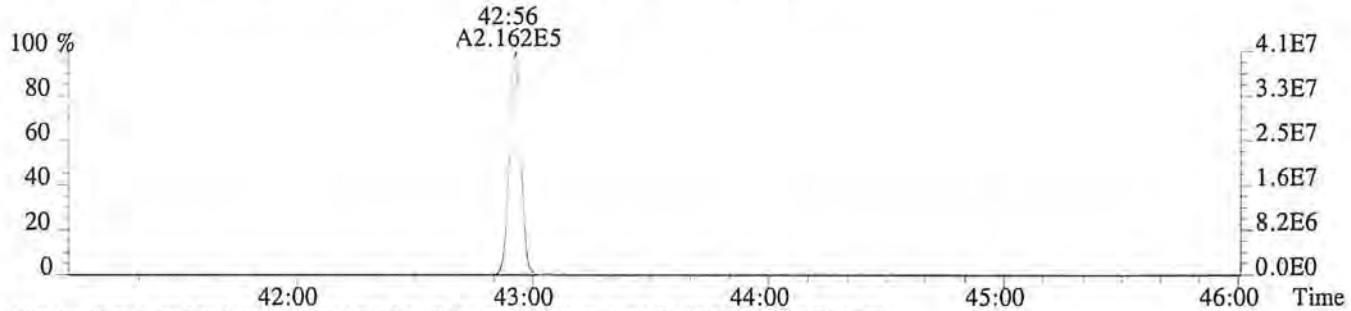


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

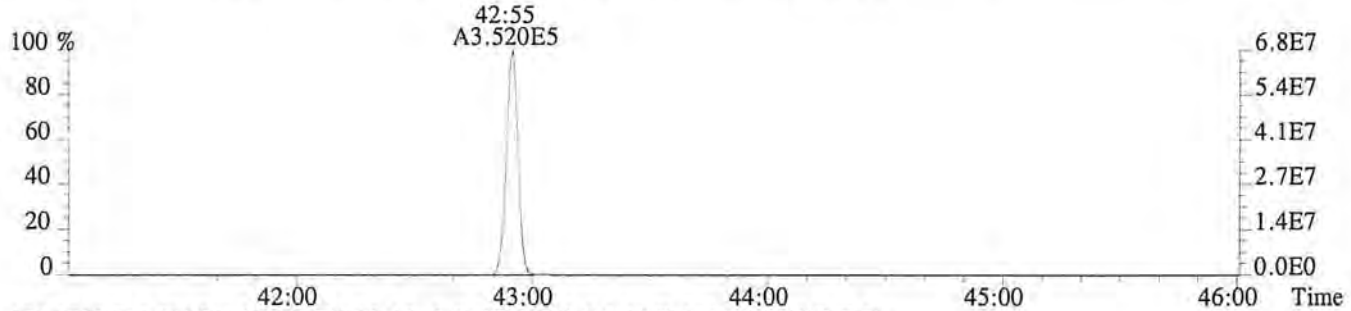
File:P600116 #1-448 Acq:25-AUG-2015 01:21:17 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1564.0,0.40%,F,T)



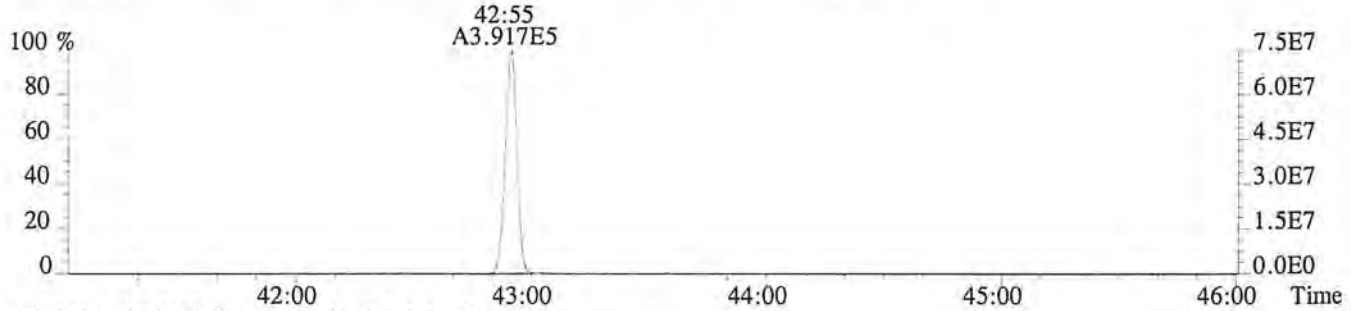
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2868.0,0.40%,F,T)



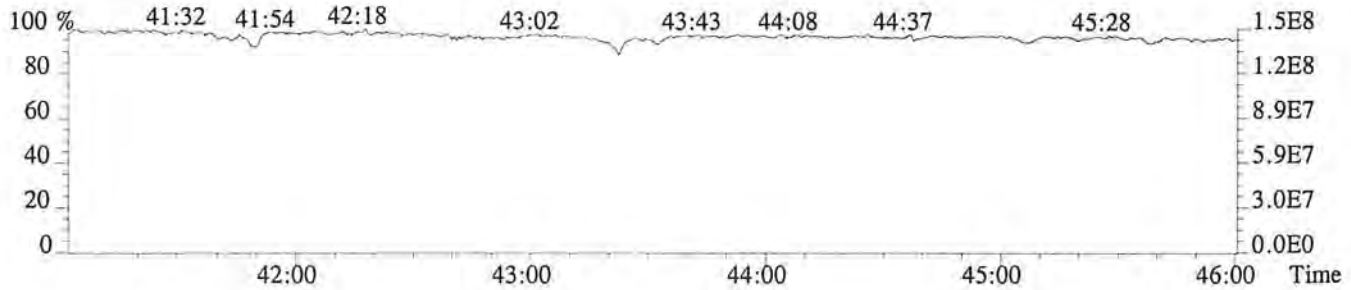
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2780.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2776.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 8/24/2015
Instrument Name: E-HRMS-05	Calibration File Name: P3-1508211613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Lan Le	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		
Are all sample response summaries, S/N height summaries, and SICPs	√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 8/24/2015
Instrument Name: E-HRMS-05	Calibration File Name: P3-1508211613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Lan Le	

Description	Yes	No	NA	NR	ER#
included (and legible) for the entire sequence?					
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?			√		
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration	
Method: 1613/8290	Process Date: 08/24/2015
Instrument Name: E-HRMS-05	Calibration File Name: P3-1508211613I
Processor Name: Gisela Cruz	Reviewer Name: Loan Luong
Supervisor: Lan Le	

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-05

Init. Calib. Date: 08/21/15

Init. Calib.Times: 09:55

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
74489	WINDOW DEFINE	P300978	21-AUG-15	09:55:47
76554	CS0.5	P300980	21-AUG-15	13:51:55
76555	CS1	P300981	21-AUG-15	14:45:28
76556	CS2	P300982	21-AUG-15	15:37:10
76557	CS3	P300983	21-AUG-15	16:29:49
76558	CS4	P300984	21-AUG-15	17:25:39
76956	CS5	P300985	21-AUG-15	18:19:58
54819	CS3 2ND SOURCE	P300987	21-AUG-15	20:11:35

opus 4 = (e)

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS05.PRO\SampleDB\20150821.SPL
Last Modified: Monday, August 24, 2015 09:18:31 Central Daylight Time
Printed: Monday, August 24, 2015 09:18:34 Central Daylight Time

Page Position (1, 1)

e: P3-1508211613I e: P300987res

	Date	Time	File Name	Lab Sample ID	Client File Text	Sample Type	Bottle	MS File	Inlet File	Analyst	Comments
1	08/21/15	09:00	P300977	CS3	CS3	---	Tray1:1	EPA1613_ALS	Dioxin_ALS	LL	HRMS check 08:56
2		09:55	P300978	74489	WINDOW DEFINE	Standard	Tray1:2	EPA1613_ALS	Dioxin_ALS		
3		10:47	P300979	NONANE	NONANE	---	Tray1:3	EPA1613_ALS	Dioxin_ALS		
4		13:51	P300980	CS0.5	76554	Standard	Tray1:4	EPA1613_ALS	Dioxin_ALS		
5		14:45	P300981	CS1	76555	Standard	Tray1:5	EPA1613_ALS	Dioxin_ALS		
6		15:37	P300982	CS2	76556	Standard	Tray1:6	EPA1613_ALS	Dioxin_ALS		
7		16:29	P300983	CS3	76557	Standard	Tray1:7	EPA1613_ALS	Dioxin_ALS		
8		17:25	P300984	CS4	76558	Standard	Tray1:8	EPA1613_ALS	Dioxin_ALS		
9		18:19	P300985	CS5	76956	Standard	Tray1:9	EPA1613_ALS	Dioxin_ALS		HRMS check 19:13
10		19:24	P300986	NONANE	NONANE	---	Tray1:10	EPA1613_ALS	Dioxin_ALS		
11		20:11	P300987	CS3 2ND SOURCE	54819	---	Tray1:11	EPA1613_ALS	Dioxin_ALS		
12		21:00	P300988	TEST	TEST	---	Tray1:12	EPA1613_ALS	Dioxin_ALS		
13		21:48	P300989	TEST	TEST	---	Tray1:13	EPA1613_ALS	Dioxin_ALS		HRMS check 10:38
14	---	---	---	---	---	---	Tray1:14	EPA1613_ALS	Dioxin_ALS		
15	---	---	---	---	---	---	Tray1:15	EPA1613_ALS	Dioxin_ALS		
16	---	---	---	---	---	---	Tray1:16	EPA1613_ALS	Dioxin_ALS	---	---
17	---	---	---	---	---	---	Tray1:17	EPA1613_ALS	Dioxin_ALS		
18	---	---	---	---	---	---	Tray1:18	EPA1613_ALS	Dioxin_ALS	---	---
19	---	---	---	---	---	---	Tray1:19	EPA1613_ALS	Dioxin_ALS		
20	---	---	---	---	---	---	Tray1:20	EPA1613_ALS	Dioxin_ALS	---	---
21	---	---	---	---	---	---	Tray1:21	EPA1613_ALS	Dioxin_ALS	---	---
22	---	---	---	---	---	---	Tray1:22	EPA1613_ALS	Dioxin_ALS	---	---
23	---	---	---	---	---	---	Tray1:23	EPA1613_ALS	Dioxin_ALS	---	---
24	---	---	---	---	---	---	Tray1:24	EPA1613_ALS	Dioxin_ALS	---	---
25	---	---	---	---	---	---	Tray1:25	EPA1613_ALS	Dioxin_ALS	---	---
26	---	---	---	---	---	---	Tray1:26	EPA1613_ALS	Dioxin_ALS	---	---
27	---	---	---	---	---	---	Tray1:27	EPA1613_ALS	Dioxin_ALS	---	---
28	---	---	---	---	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
29	---	---	---	---	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
30	---	---	---	---	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
31	---	---	---	---	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
32	---	---	---	---	---	---	Tray1:28	EPA1613_ALS	Dioxin_ALS	---	---
33	---	---	---	---	---	---	Tray1:29	EPA1613_ALS	Dioxin_ALS	---	---
34	---	---	---	---	---	---	Tray1:30	EPA1613_ALS	Dioxin_ALS	---	---
35	---	---	---	---	---	---	Tray1:31	EPA1613_ALS	Dioxin_ALS	---	---
36	---	---	---	---	---	---	Tray1:32	EPA1613_ALS	Dioxin_ALS	---	---
37	---	---	---	---	---	---	Tray1:33	EPA1613_ALS	Dioxin_ALS	---	---
38	---	---	---	---	---	---	Tray1:34	EPA1613_ALS	Dioxin_ALS	---	---
39	---	---	---	---	---	---	Tray1:35	EPA1613_ALS	Dioxin_ALS	---	---

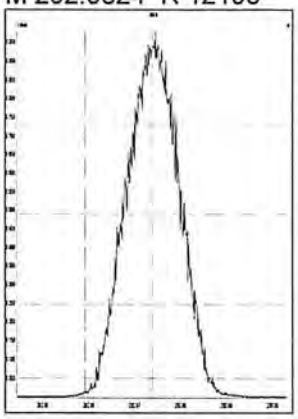
JC 08/24/15

077

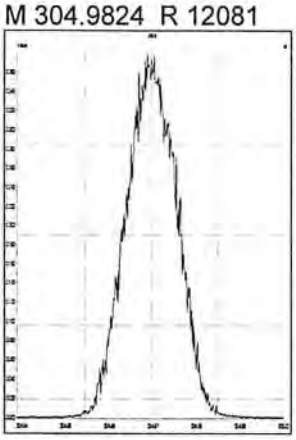
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, August 21, 2015 08:56:16 Central Daylight Time

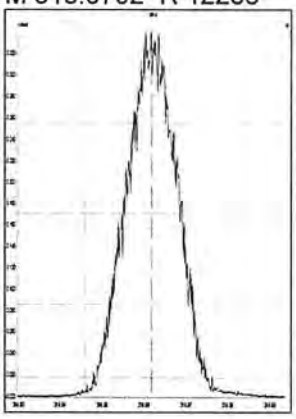
M 292.9824 R 12195



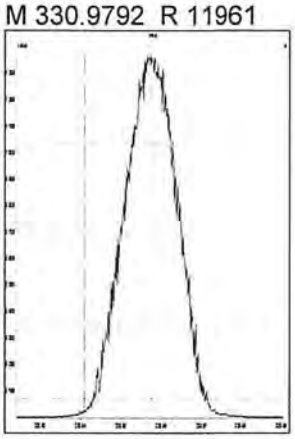
M 304.9824 R 12081



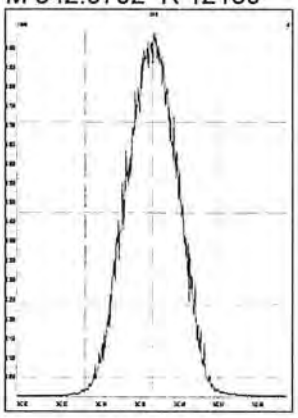
M 318.9792 R 12256



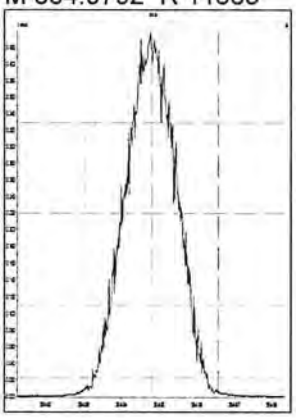
M 330.9792 R 11961



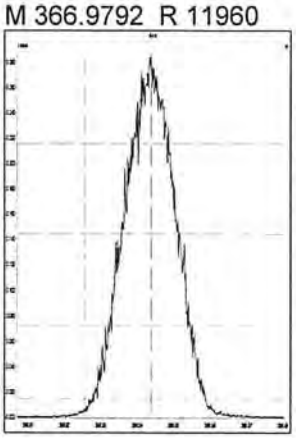
M 342.9792 R 12139



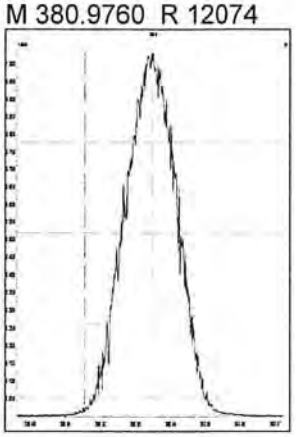
M 354.9792 R 11683



M 366.9792 R 11960



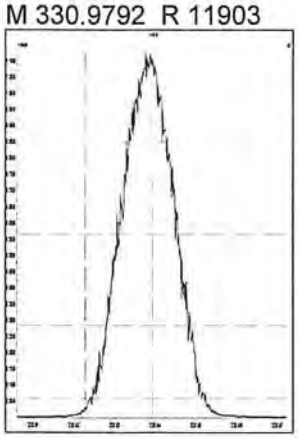
M 380.9760 R 12074



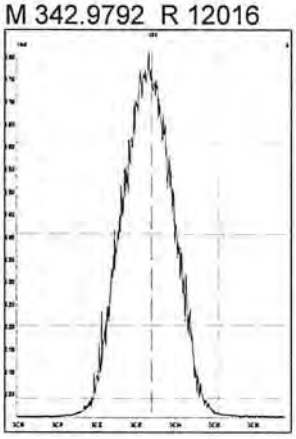
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, August 21, 2015 08:57:00 Central Daylight Time

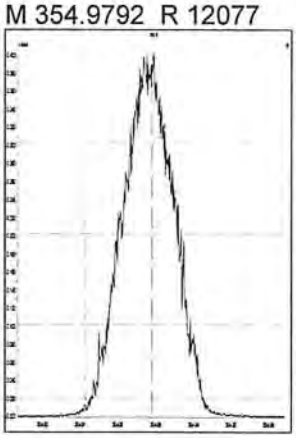
M 330.9792 R 11903



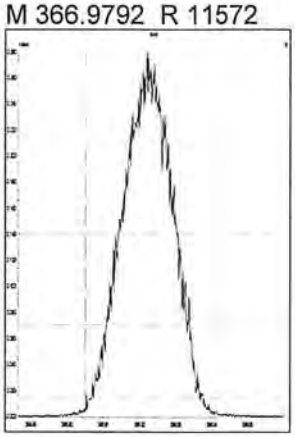
M 342.9792 R 12016



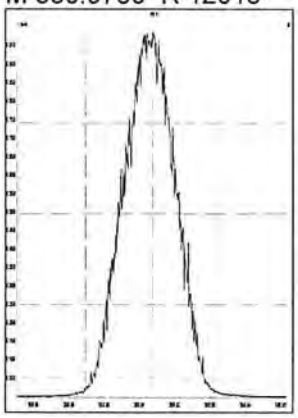
M 354.9792 R 12077



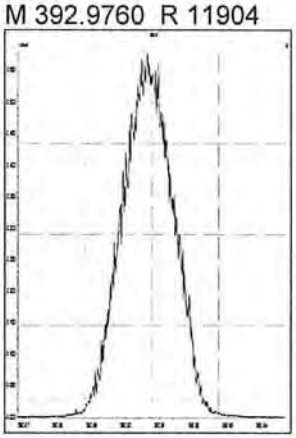
M 366.9792 R 11572



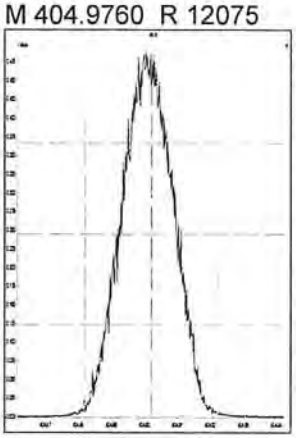
M 380.9760 R 12016



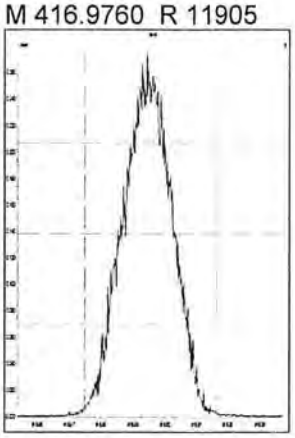
M 392.9760 R 11904



M 404.9760 R 12075



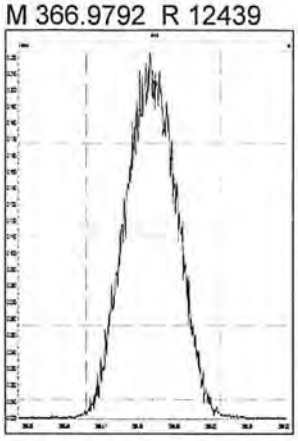
M 416.9760 R 11905



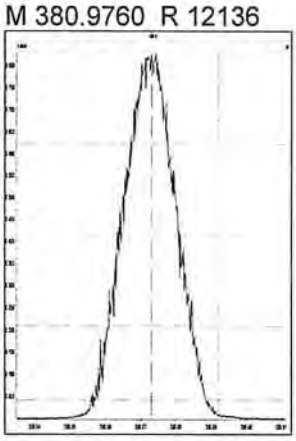
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, August 21, 2015 08:57:43 Central Daylight Time

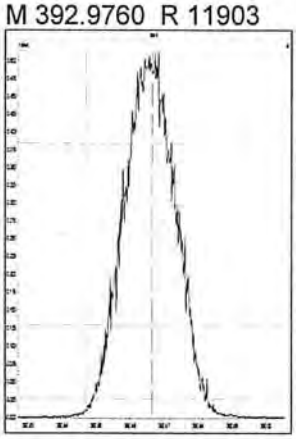
M 366.9792 R 12439



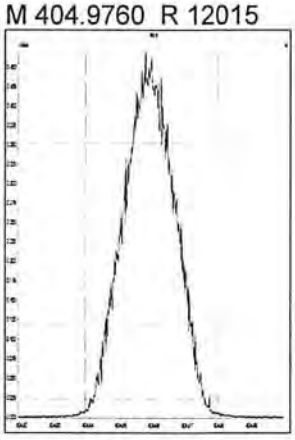
M 380.9760 R 12136



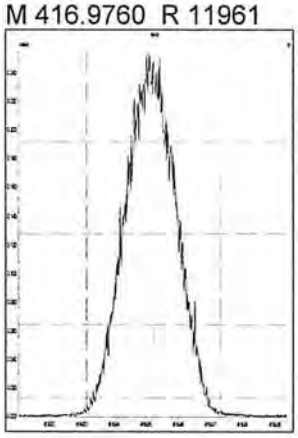
M 392.9760 R 11903



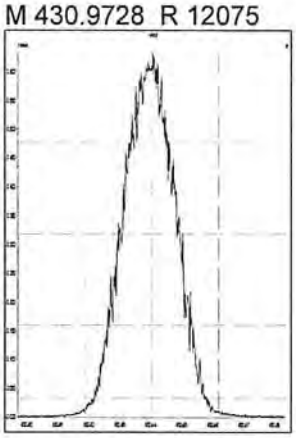
M 404.9760 R 12015



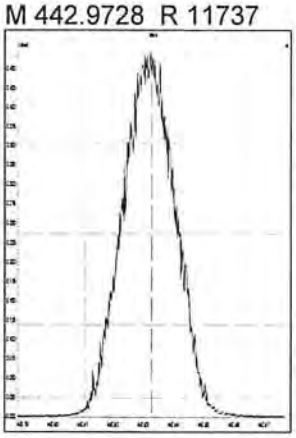
M 416.9760 R 11961



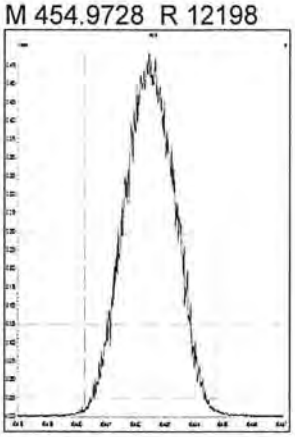
M 430.9728 R 12075



M 442.9728 R 11737



M 454.9728 R 12198

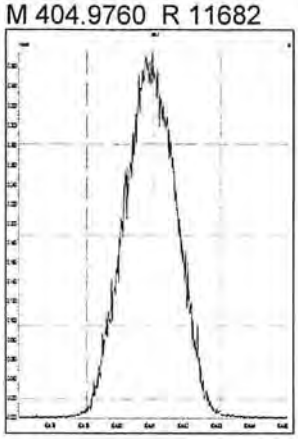


Experiment Calibration Report **MassLynx 4.1 SCN815 SCN795**

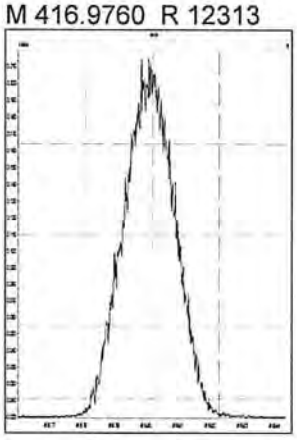
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, August 21, 2015 08:58:24 Central Daylight Time

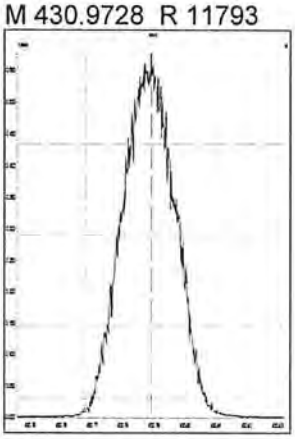
M 404.9760 R 11682



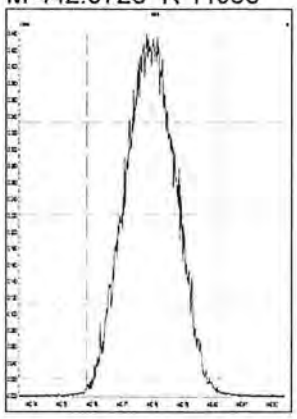
M 416.9760 R 12313



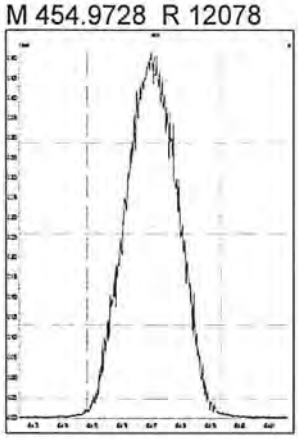
M 430.9728 R 11793



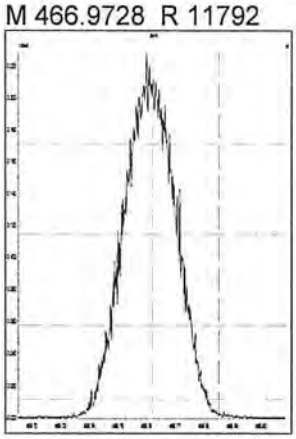
M 442.9728 R 11965



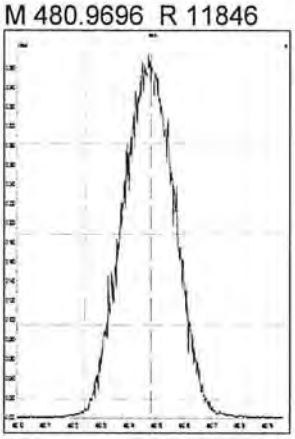
M 454.9728 R 12078



M 466.9728 R 11792



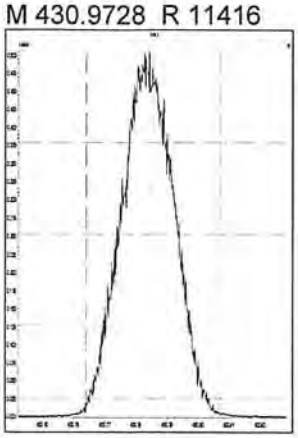
M 480.9696 R 11846



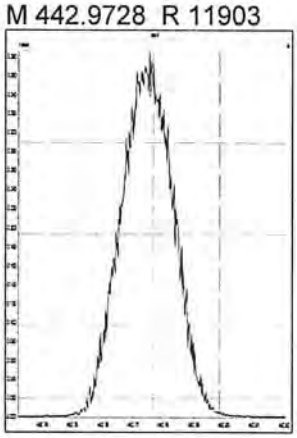
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, August 21, 2015 08:58:57 Central Daylight Time

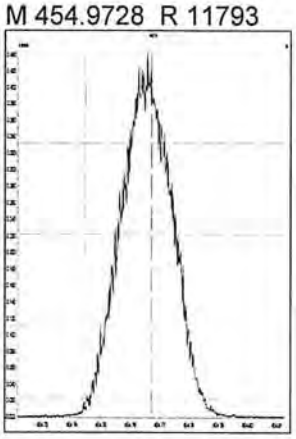
M 430.9728 R 11416



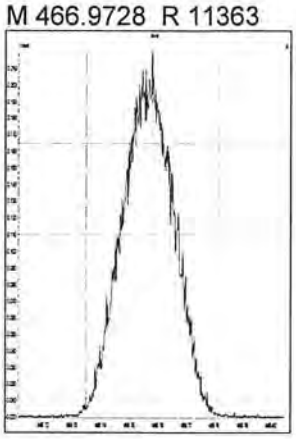
M 442.9728 R 11903



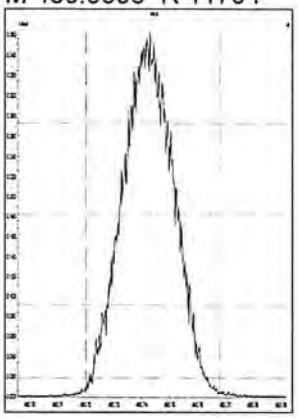
M 454.9728 R 11793



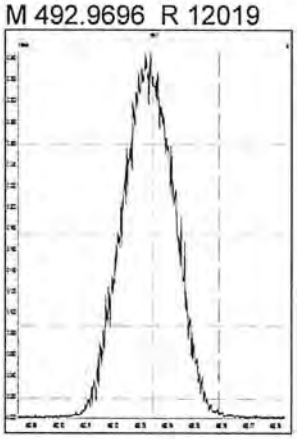
M 466.9728 R 11363



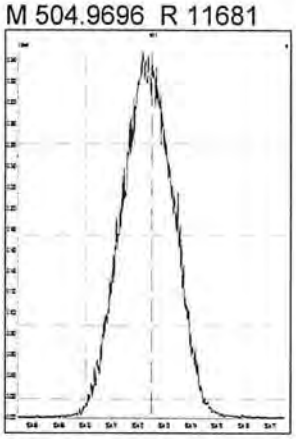
M 480.9696 R 11794



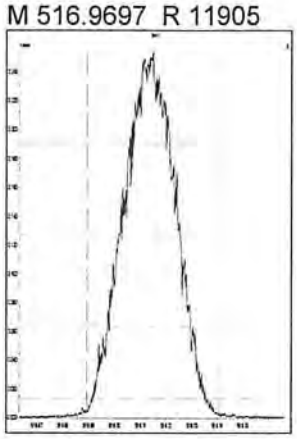
M 492.9696 R 12019



M 504.9696 R 11681



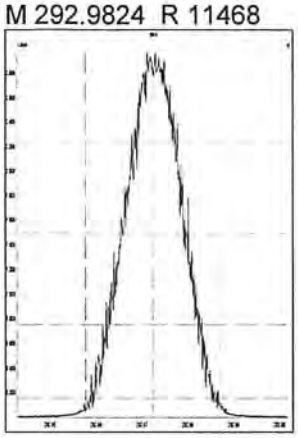
M 516.9697 R 11905



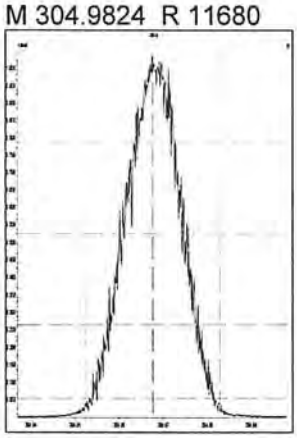
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, August 21, 2015 19:13:46 Central Daylight Time

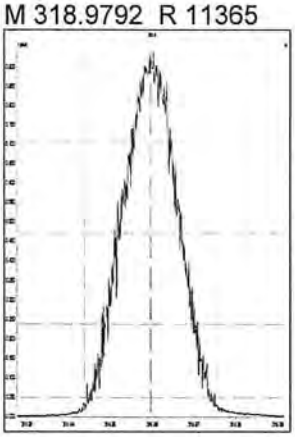
M 292.9824 R 11468



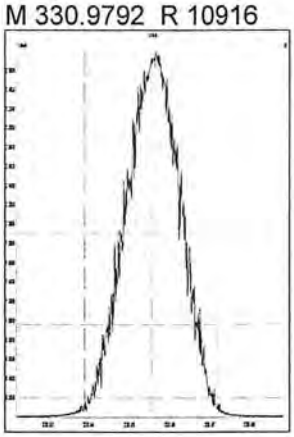
M 304.9824 R 11680



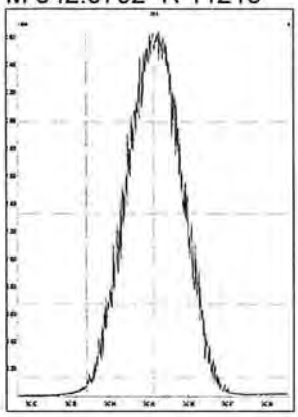
M 318.9792 R 11365



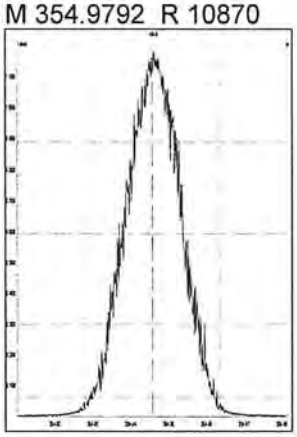
M 330.9792 R 10916



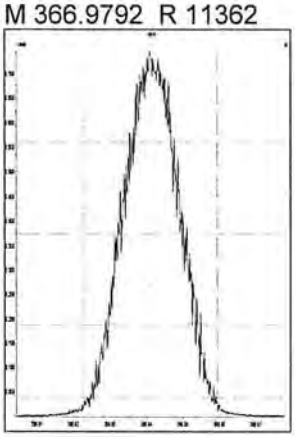
M 342.9792 R 11213



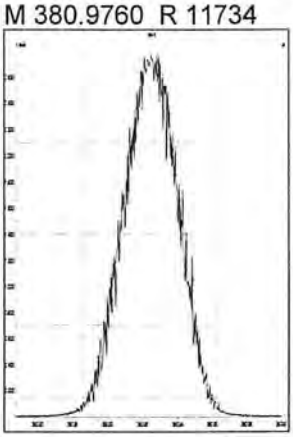
M 354.9792 R 10870



M 366.9792 R 11362



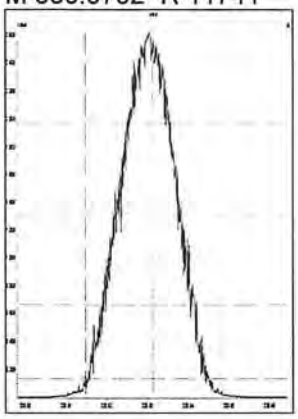
M 380.9760 R 11734



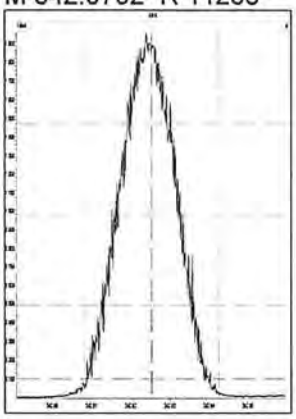
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Friday, August 21, 2015 19:14:30 Central Daylight Time

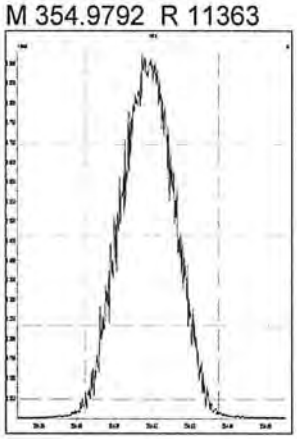
M 330.9792 R 11741



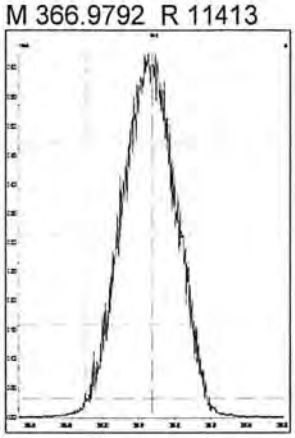
M 342.9792 R 11258



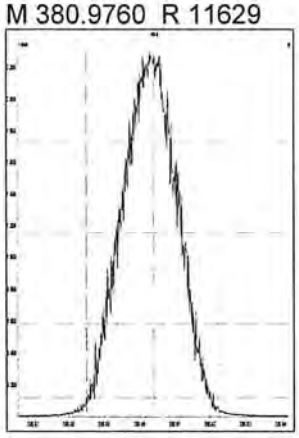
M 354.9792 R 11363



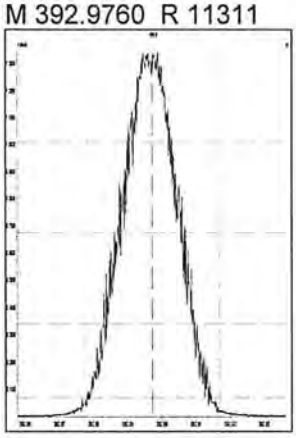
M 366.9792 R 11413



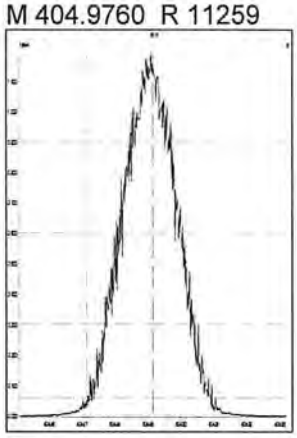
M 380.9760 R 11629



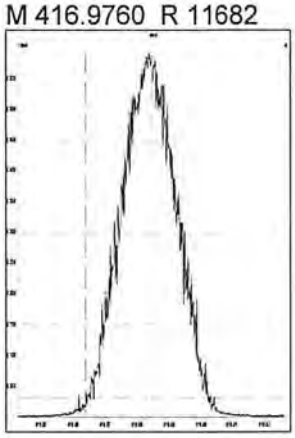
M 392.9760 R 11311



M 404.9760 R 11259



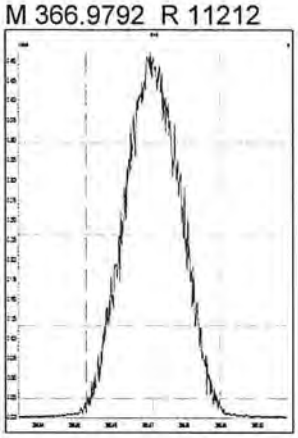
M 416.9760 R 11682



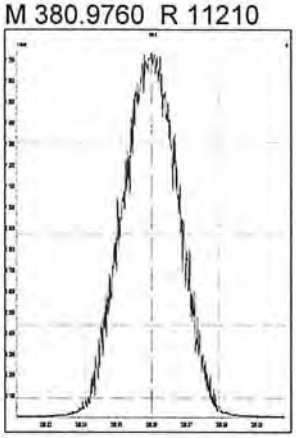
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Friday, August 21, 2015 19:15:22 Central Daylight Time

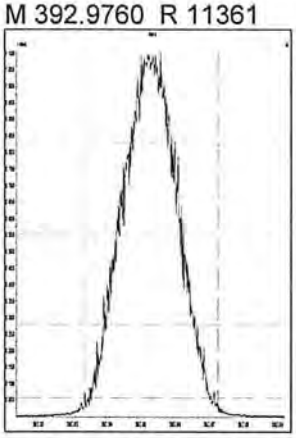
M 366.9792 R 11212



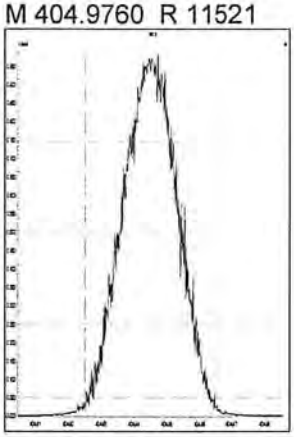
M 380.9760 R 11210



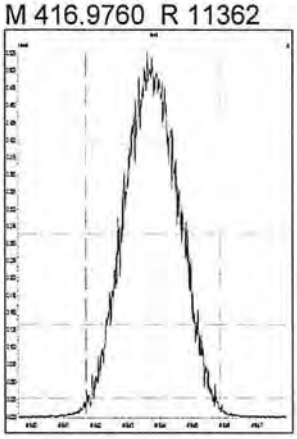
M 392.9760 R 11361



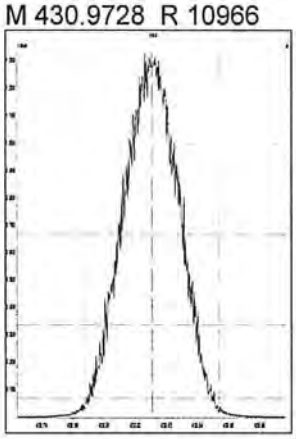
M 404.9760 R 11521



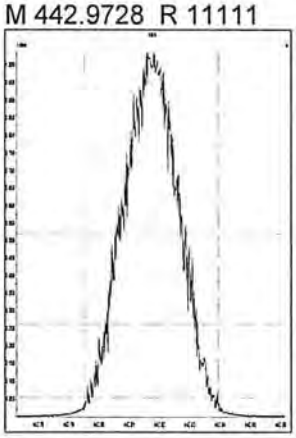
M 416.9760 R 11362



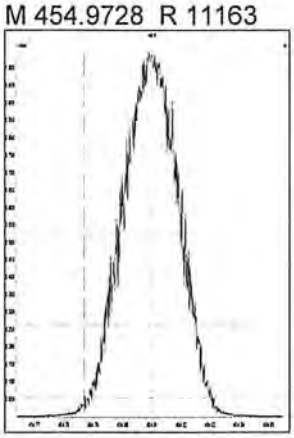
M 430.9728 R 10966



M 442.9728 R 11111



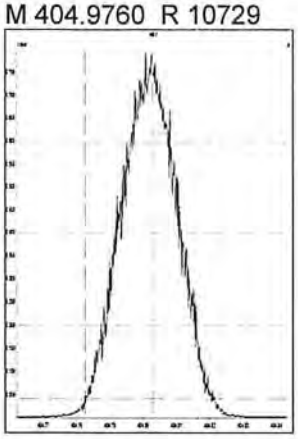
M 454.9728 R 11163



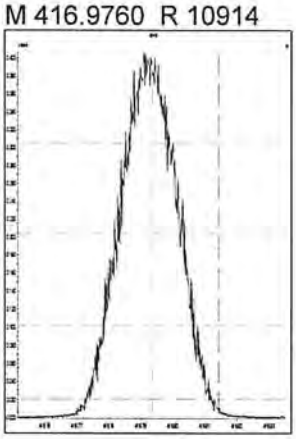
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Friday, August 21, 2015 19:16:07 Central Daylight Time

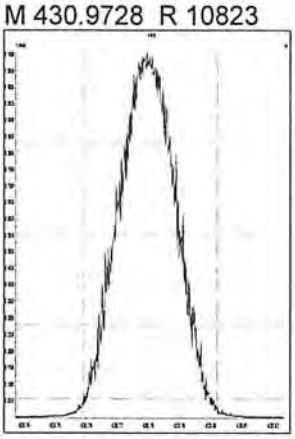
M 404.9760 R 10729



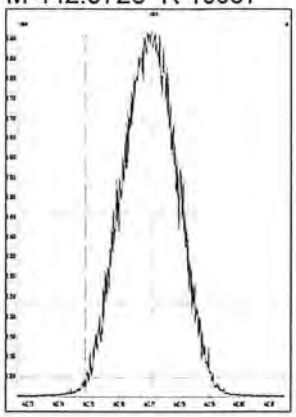
M 416.9760 R 10914



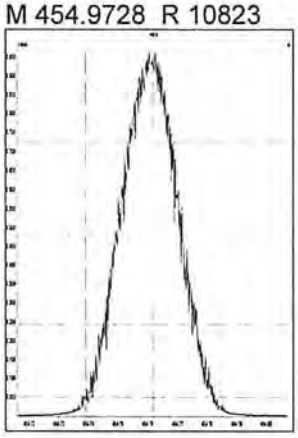
M 430.9728 R 10823



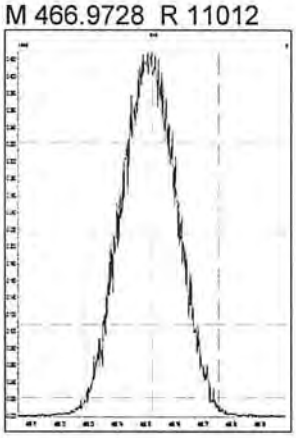
M 442.9728 R 10967



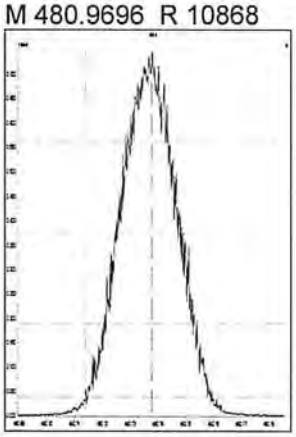
M 454.9728 R 10823



M 466.9728 R 11012



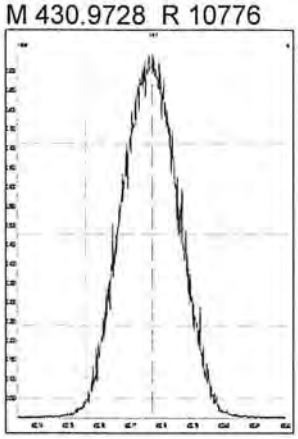
M 480.9696 R 10868



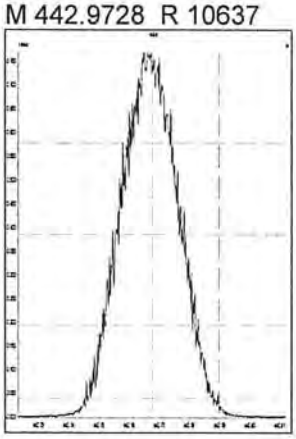
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Friday, August 21, 2015 19:16:52 Central Daylight Time

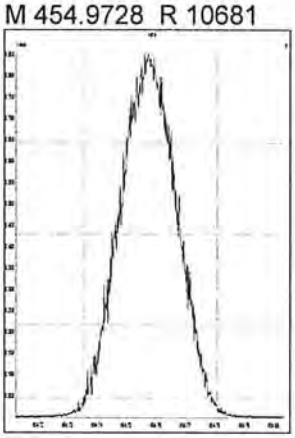
M 430.9728 R 10776



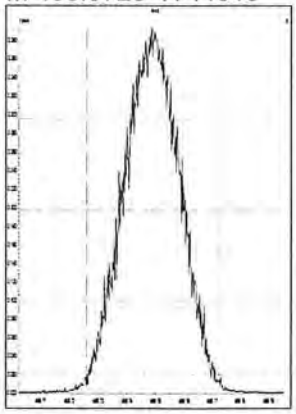
M 442.9728 R 10637



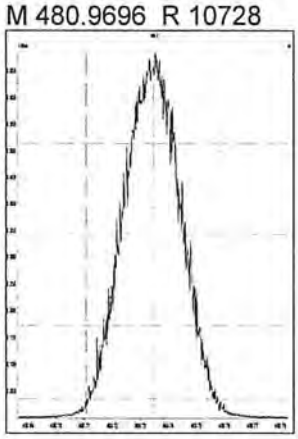
M 454.9728 R 10681



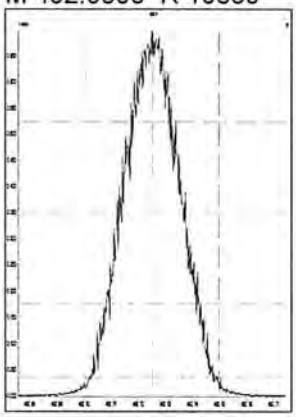
M 466.9728 R 11016



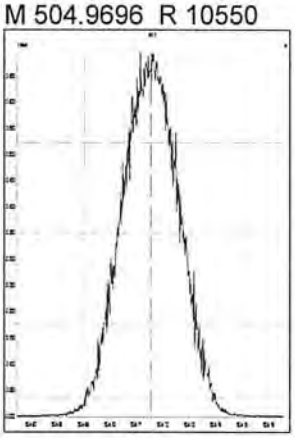
M 480.9696 R 10728



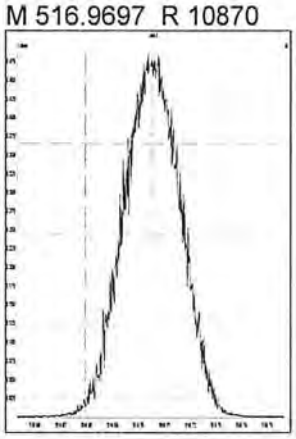
M 492.9696 R 10869



M 504.9696 R 10550



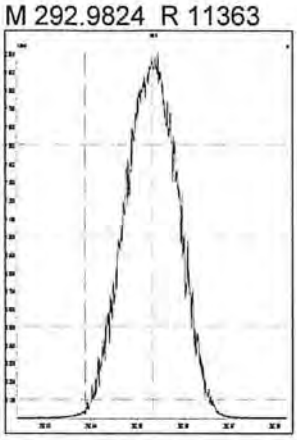
M 516.9697 R 10870



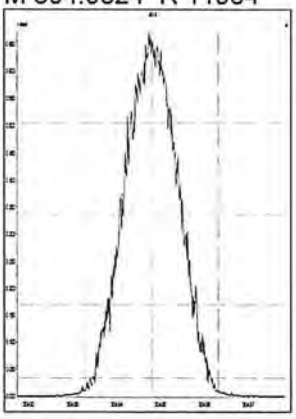
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, August 22, 2015 10:38:42 Central Daylight Time

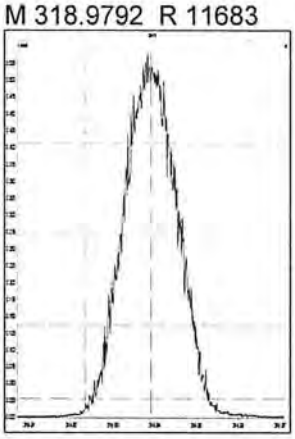
M 292.9824 R 11363



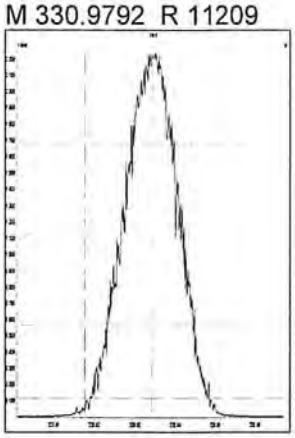
M 304.9824 R 11964



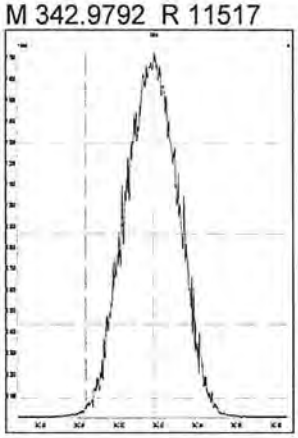
M 318.9792 R 11683



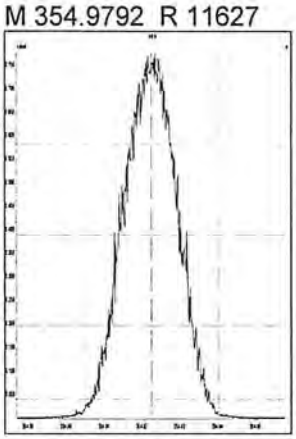
M 330.9792 R 11209



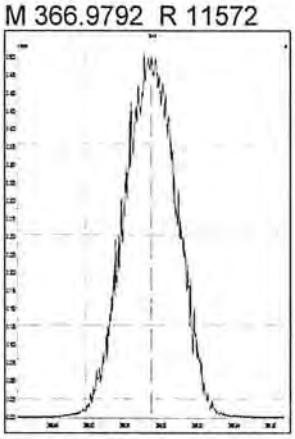
M 342.9792 R 11517



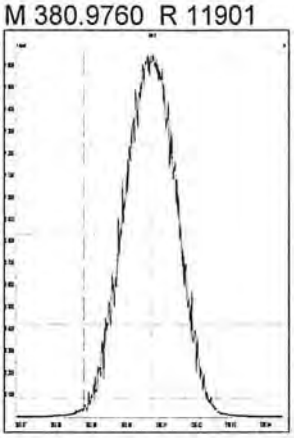
M 354.9792 R 11627



M 366.9792 R 11572



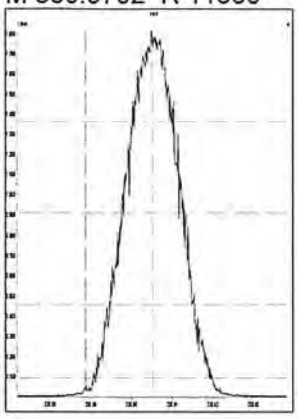
M 380.9760 R 11901



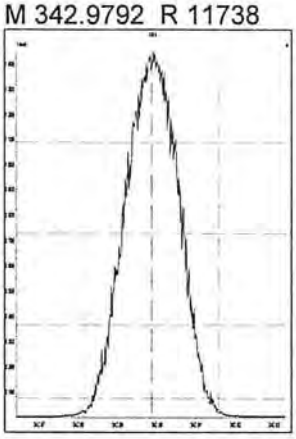
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, August 22, 2015 10:40:03 Central Daylight Time

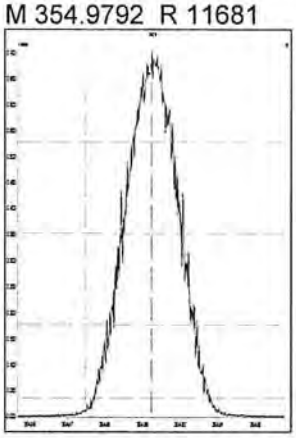
M 330.9792 R 11680



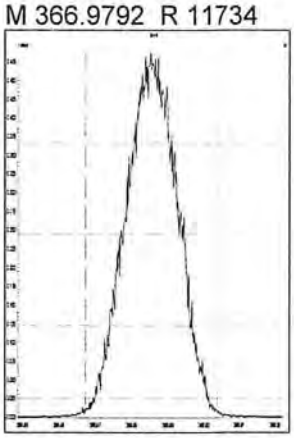
M 342.9792 R 11738



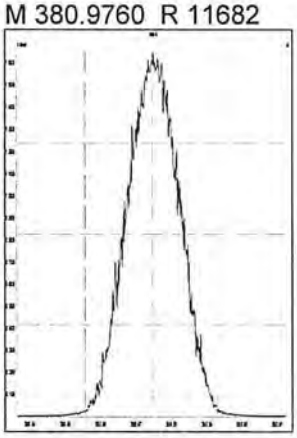
M 354.9792 R 11681



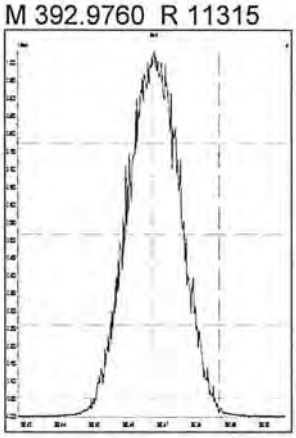
M 366.9792 R 11734



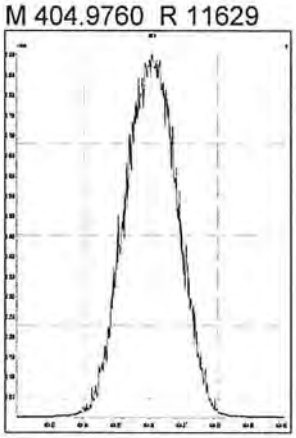
M 380.9760 R 11682



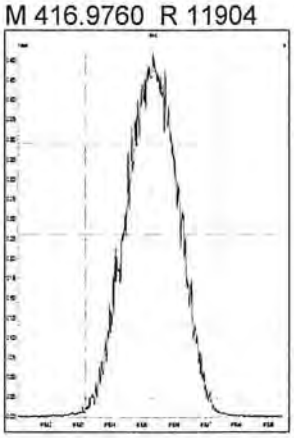
M 392.9760 R 11315



M 404.9760 R 11629



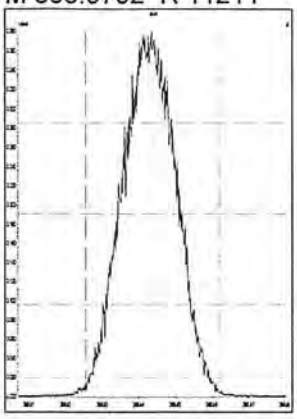
M 416.9760 R 11904



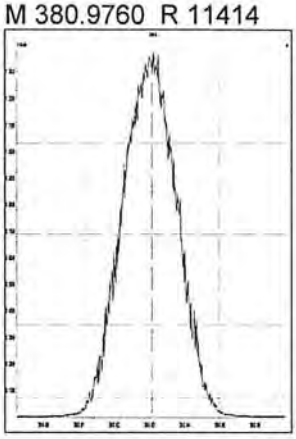
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, August 22, 2015 10:41:25 Central Daylight Time

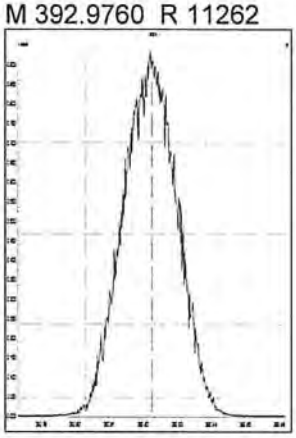
M 366.9792 R 11211



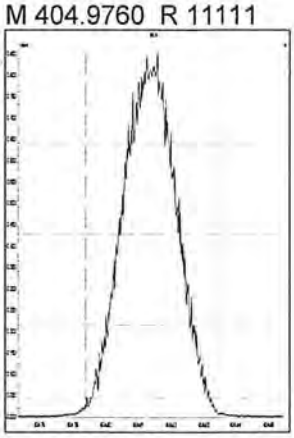
M 380.9760 R 11414



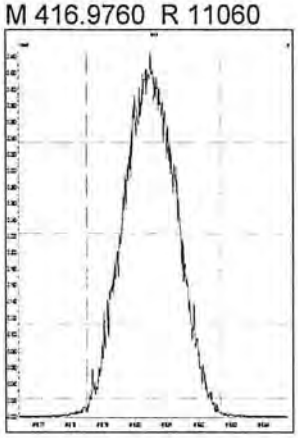
M 392.9760 R 11262



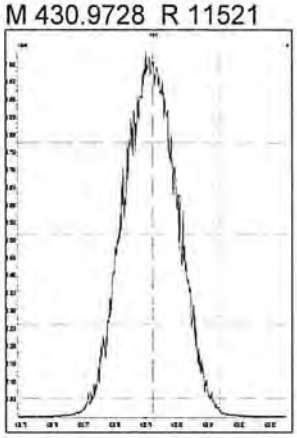
M 404.9760 R 11111



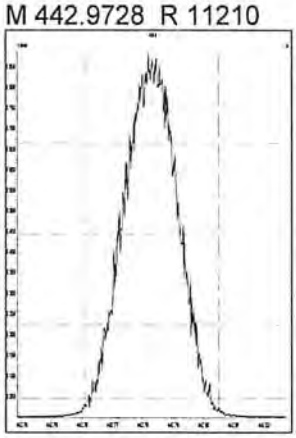
M 416.9760 R 11060



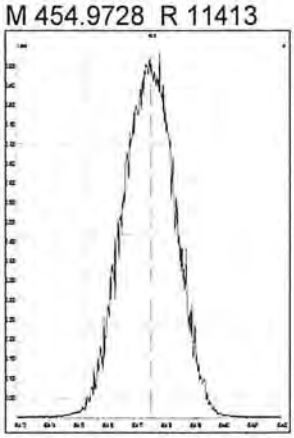
M 430.9728 R 11521



M 442.9728 R 11210



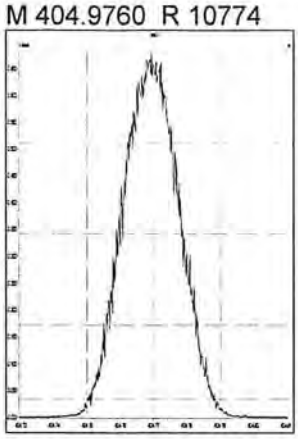
M 454.9728 R 11413



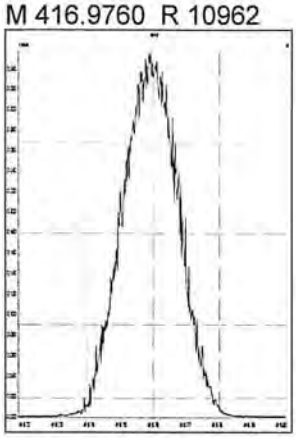
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, August 22, 2015 10:42:42 Central Daylight Time

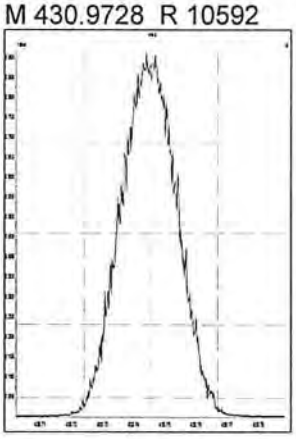
M 404.9760 R 10774



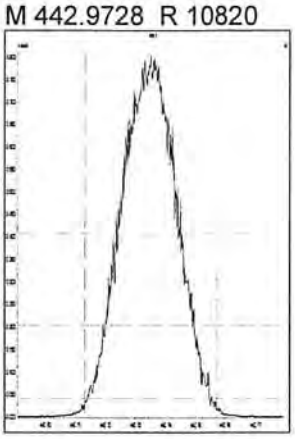
M 416.9760 R 10962



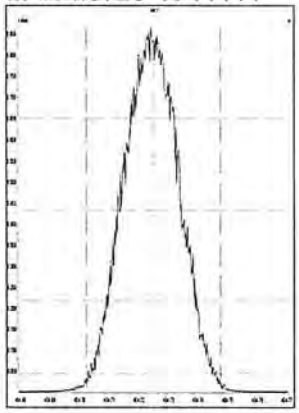
M 430.9728 R 10592



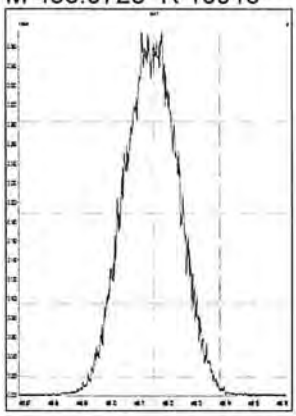
M 442.9728 R 10820



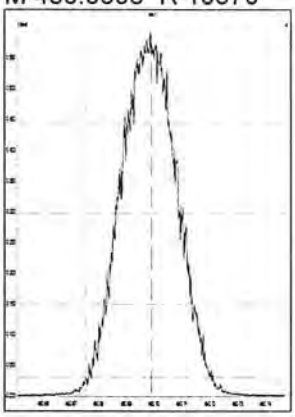
M 454.9728 R 11111



M 466.9728 R 10915



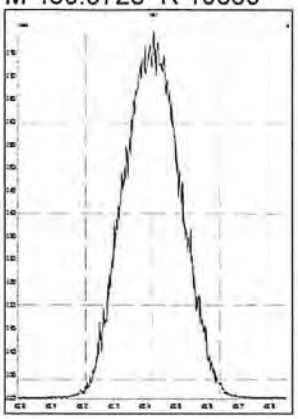
M 480.9696 R 10870



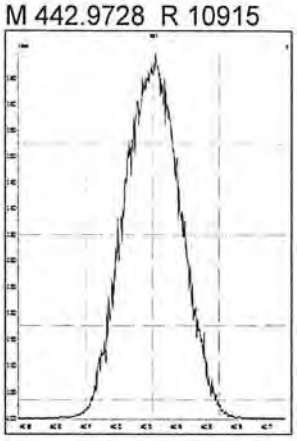
File: Experiment: EPA1613_ALS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, August 22, 2015 10:43:53 Central Daylight Time

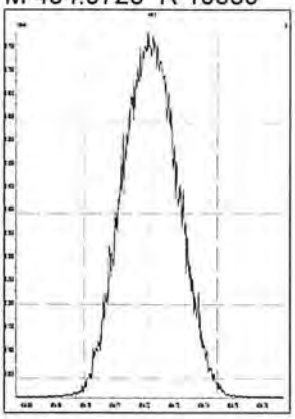
M 430.9728 R 10869



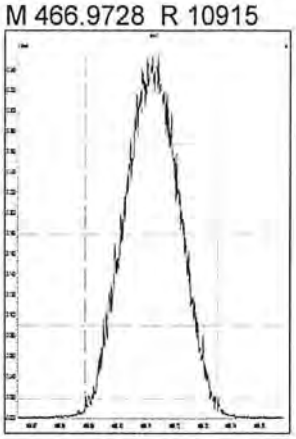
M 442.9728 R 10915



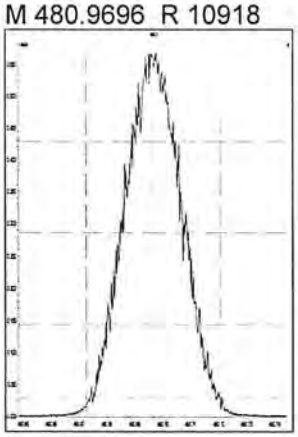
M 454.9728 R 10589



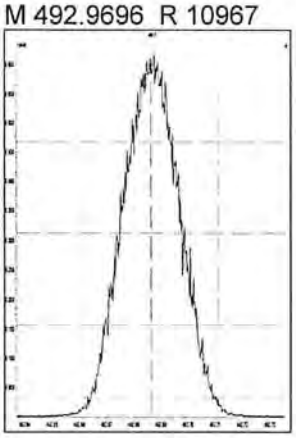
M 466.9728 R 10915



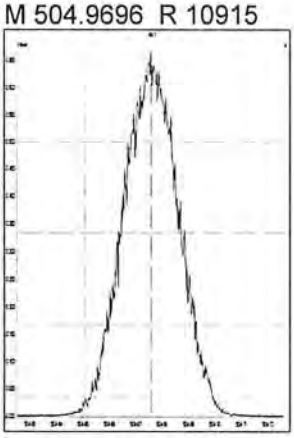
M 480.9696 R 10918



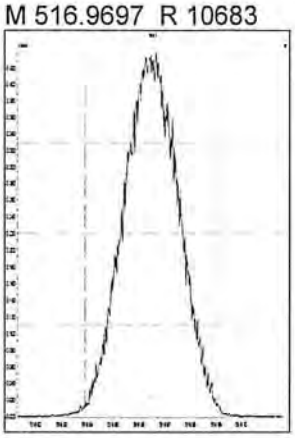
M 492.9696 R 10967



M 504.9696 R 10915



M 516.9697 R 10683



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

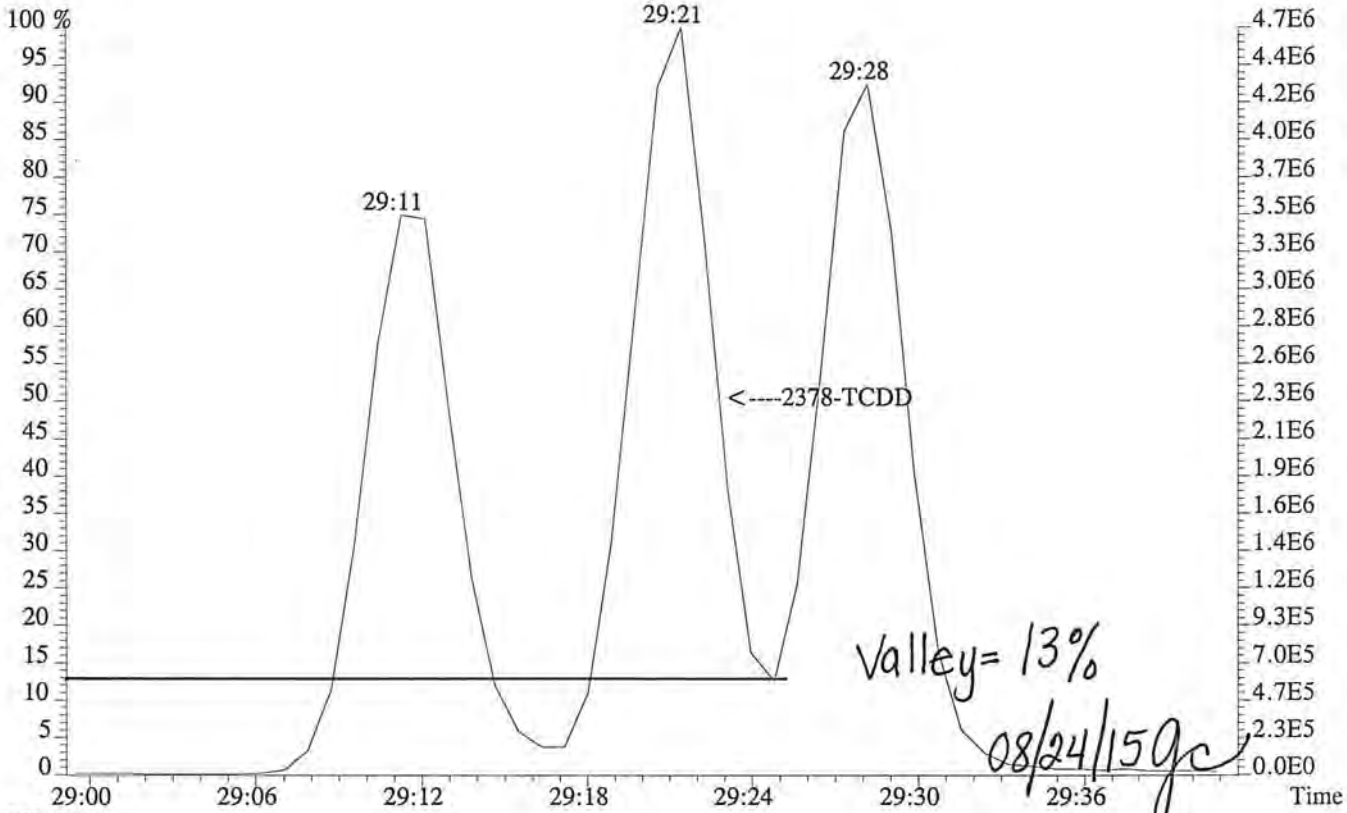
Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P300978
Date Analyzed: 21-AUG-2015
Time Analyzed: 09:55:47

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:21	30:28
TCDD	26:13	30:18
PeCDF	30:24	34:32
PeCDD	31:52	34:17
HxCDF	35:10	37:38
HxCDD	35:40	37:14
HpCDF	38:51	40:15
HpCDD	39:05	39:45

% Valley 2378-TCDD: 13 %

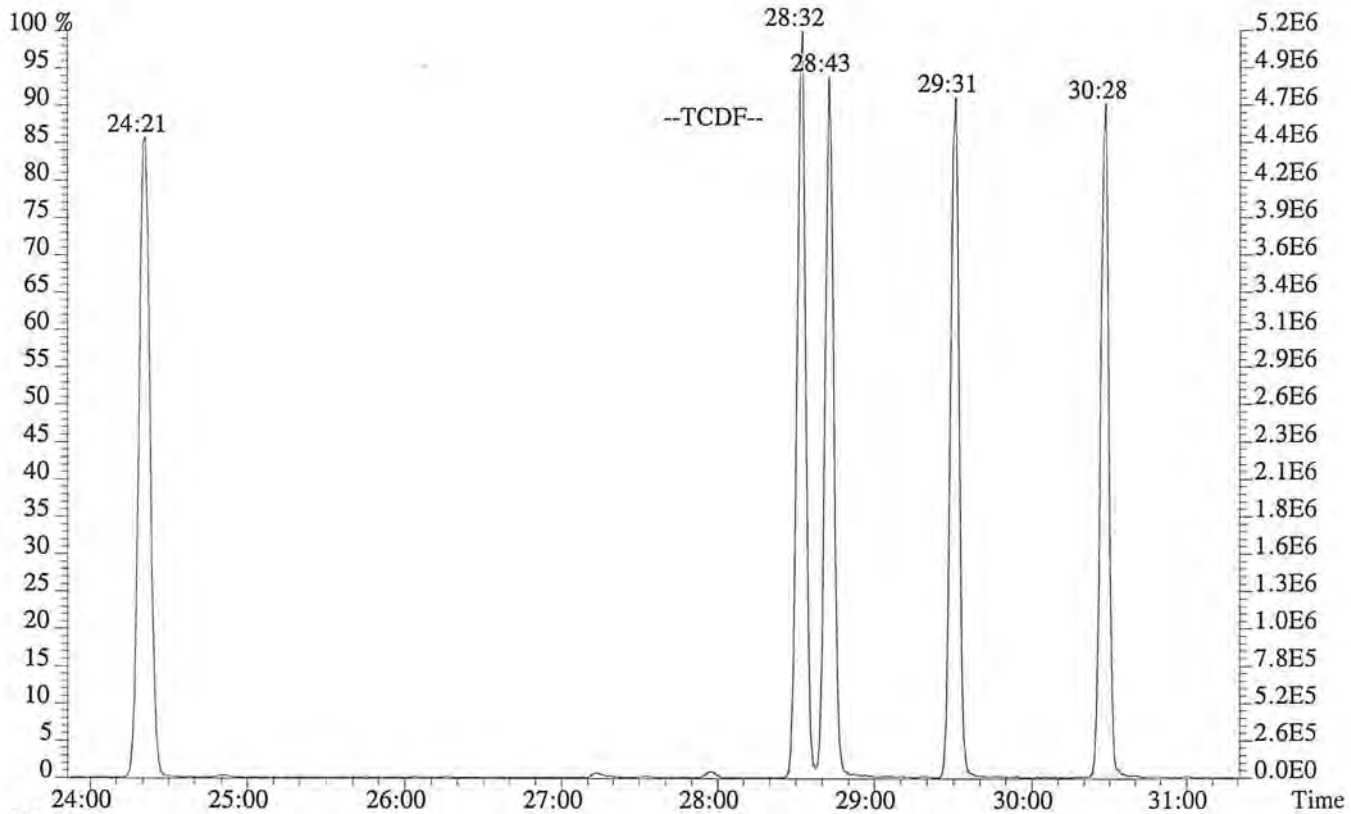
File:P300978 #1-602 Acq:21-AUG-2015 09:55:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



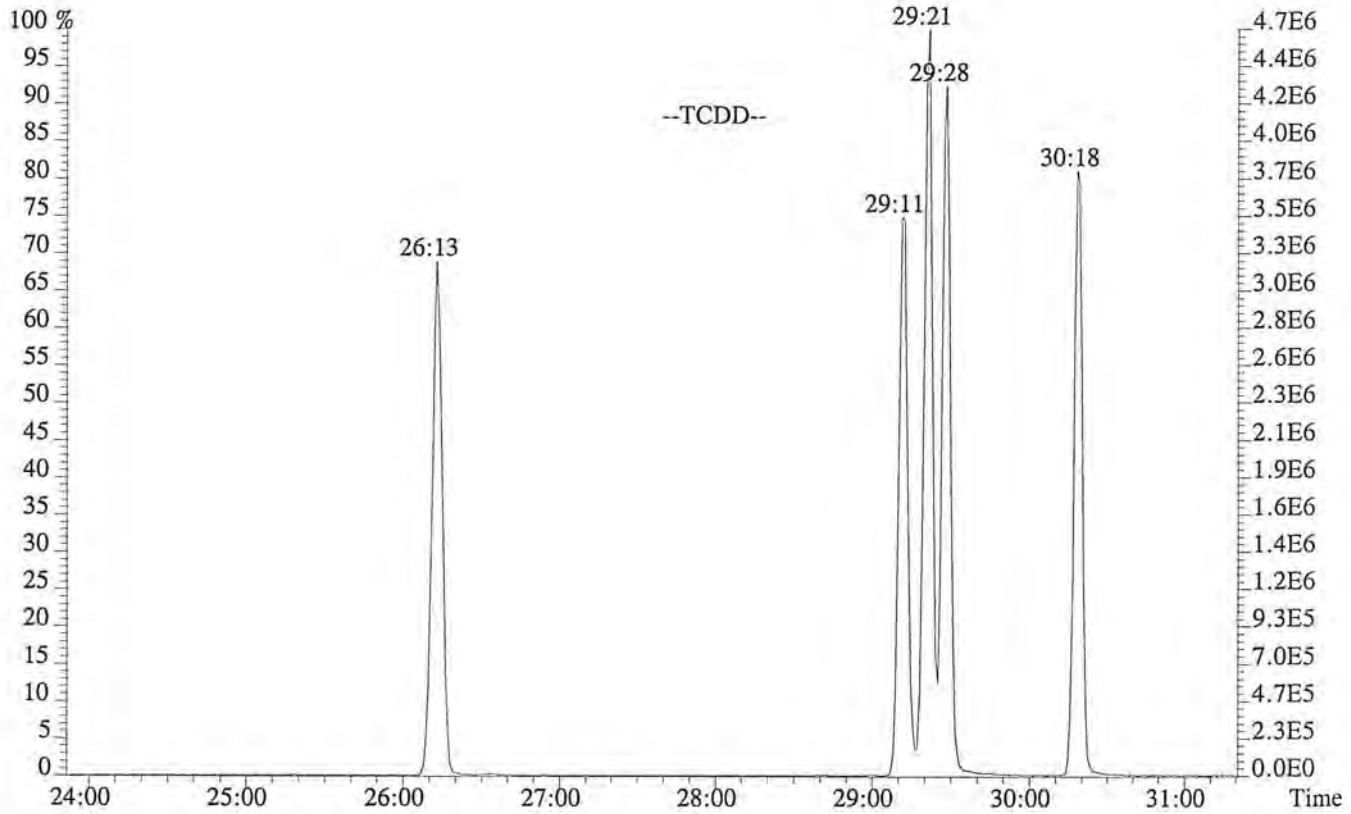
318.9792

LKL 08/24/15

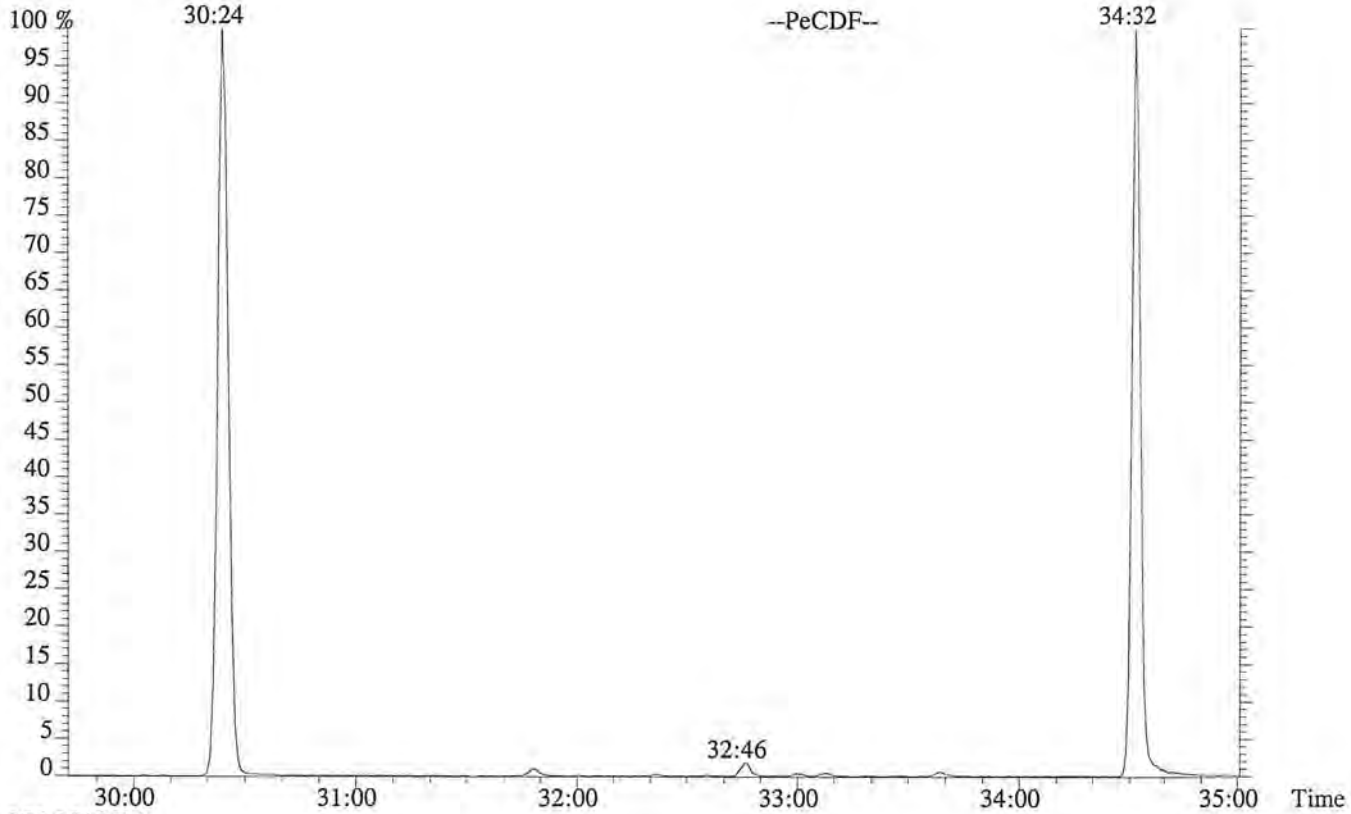
File:P300978 #1-602 Acq:21-AUG-2015 09:55:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



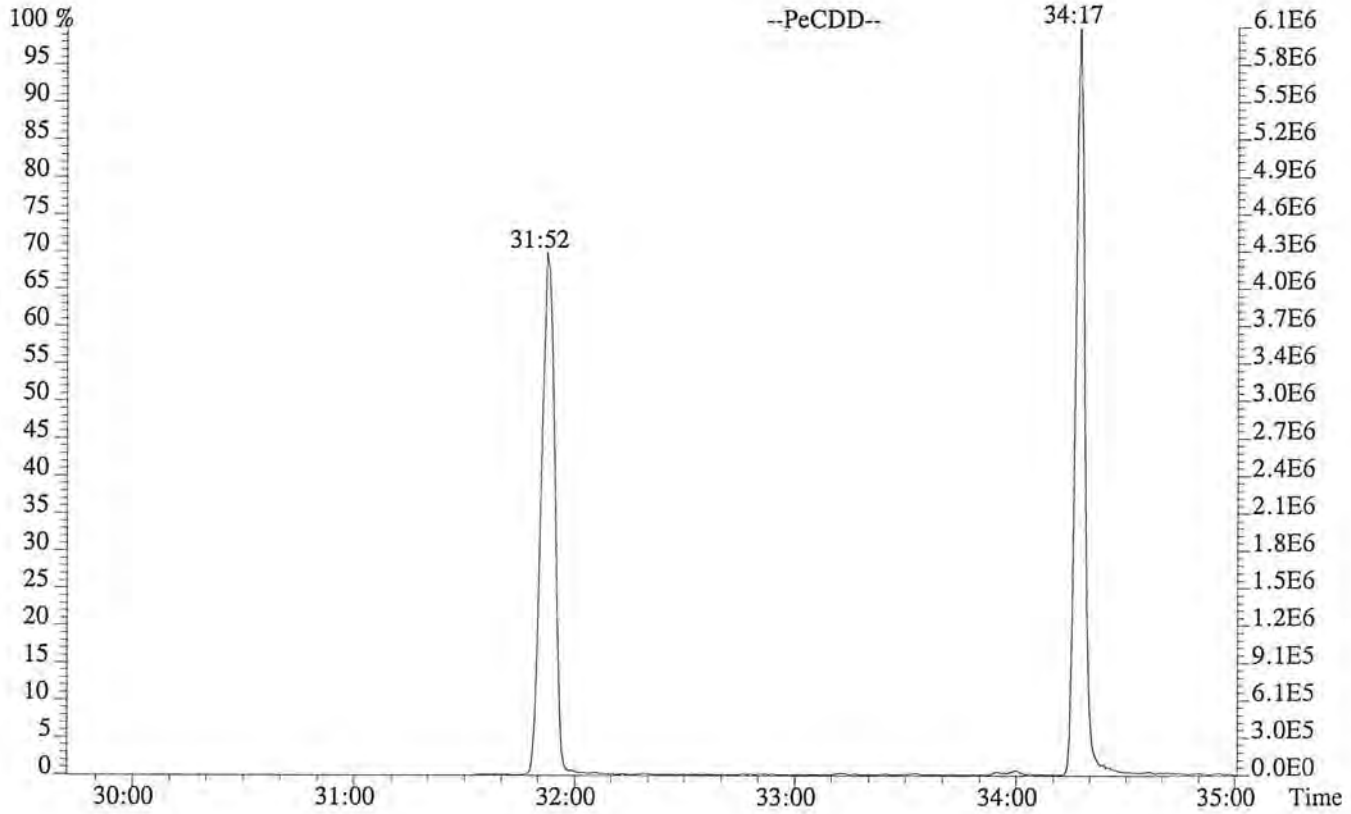
319.8965



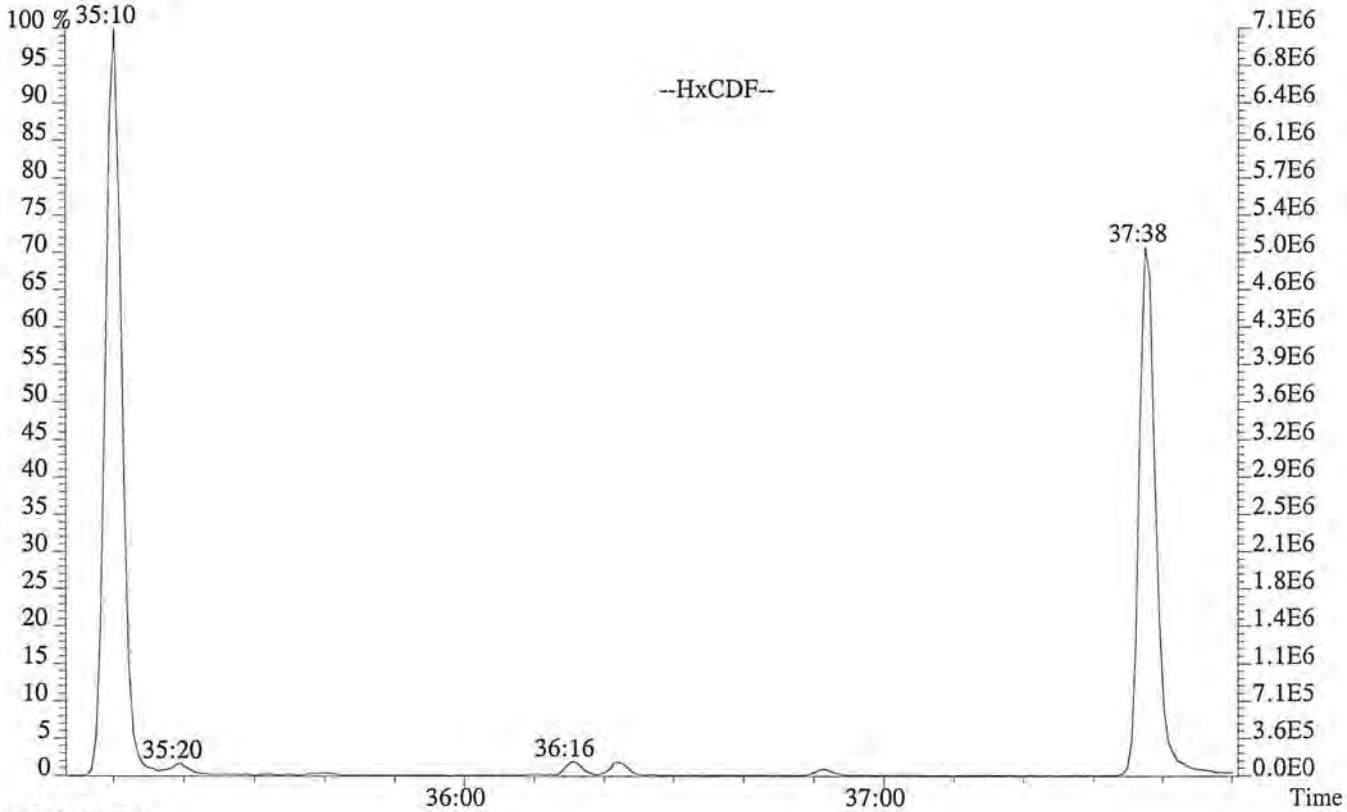
File:P300978 #1-602 Acq:21-AUG-2015 09:55:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



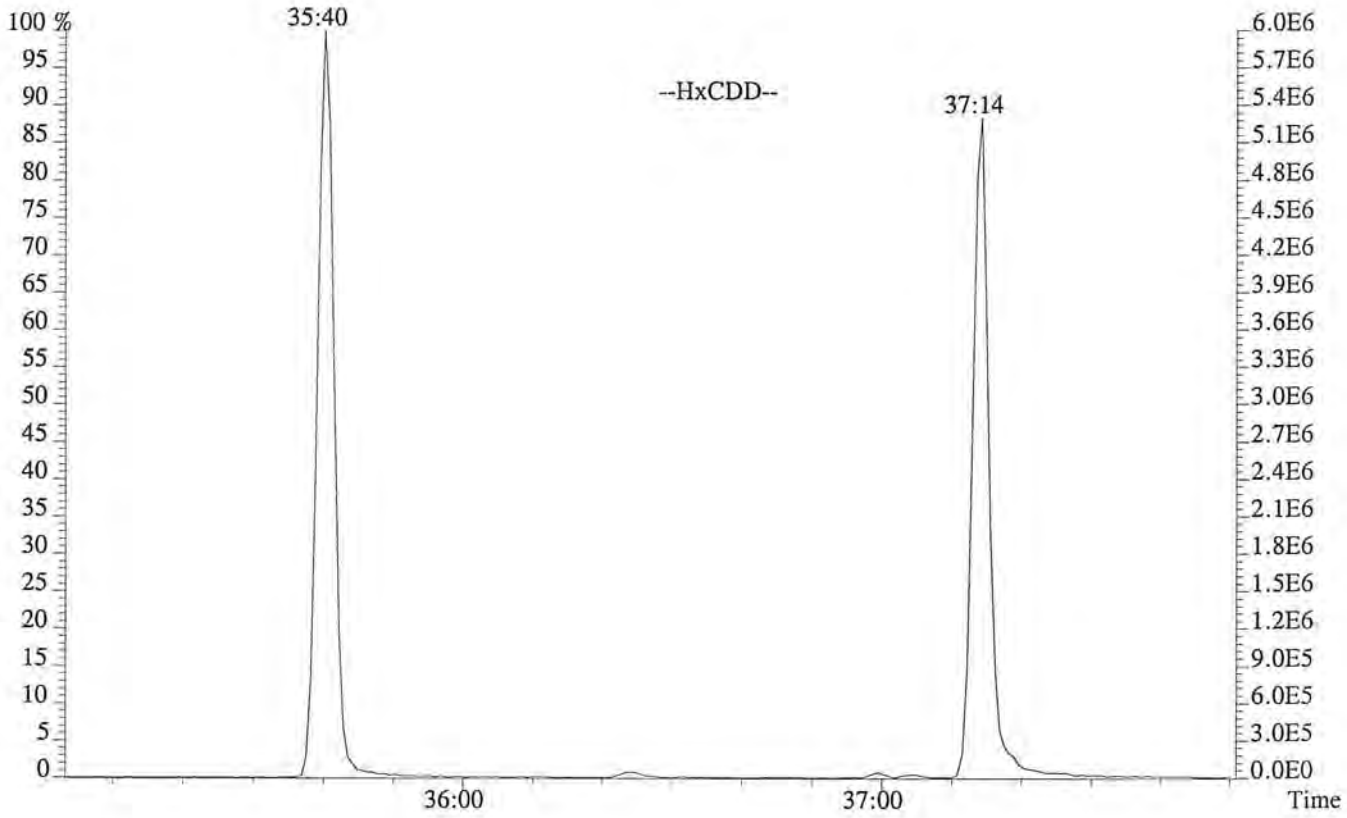
355.8546 F:2



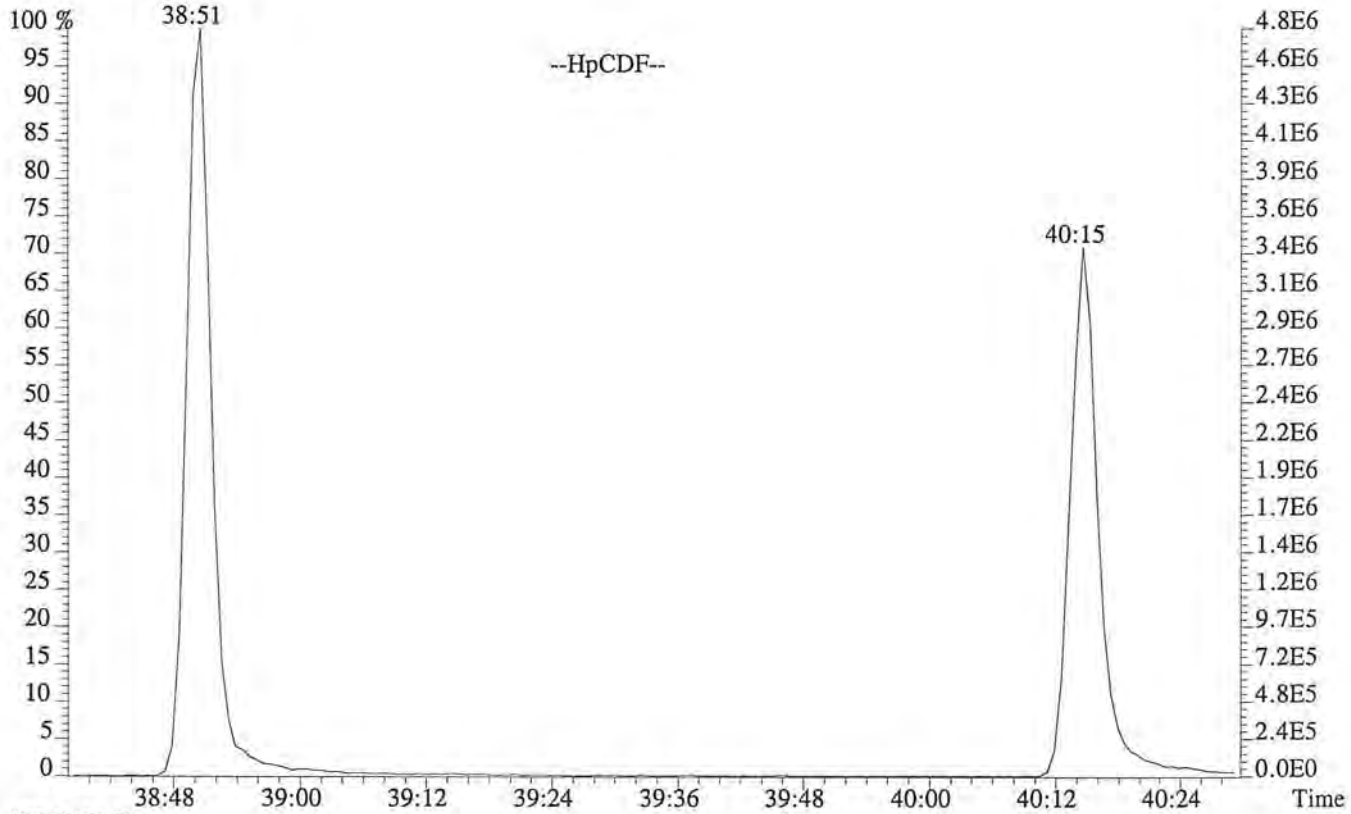
File:P300978 #1-294 Acq:21-AUG-2015 09:55:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



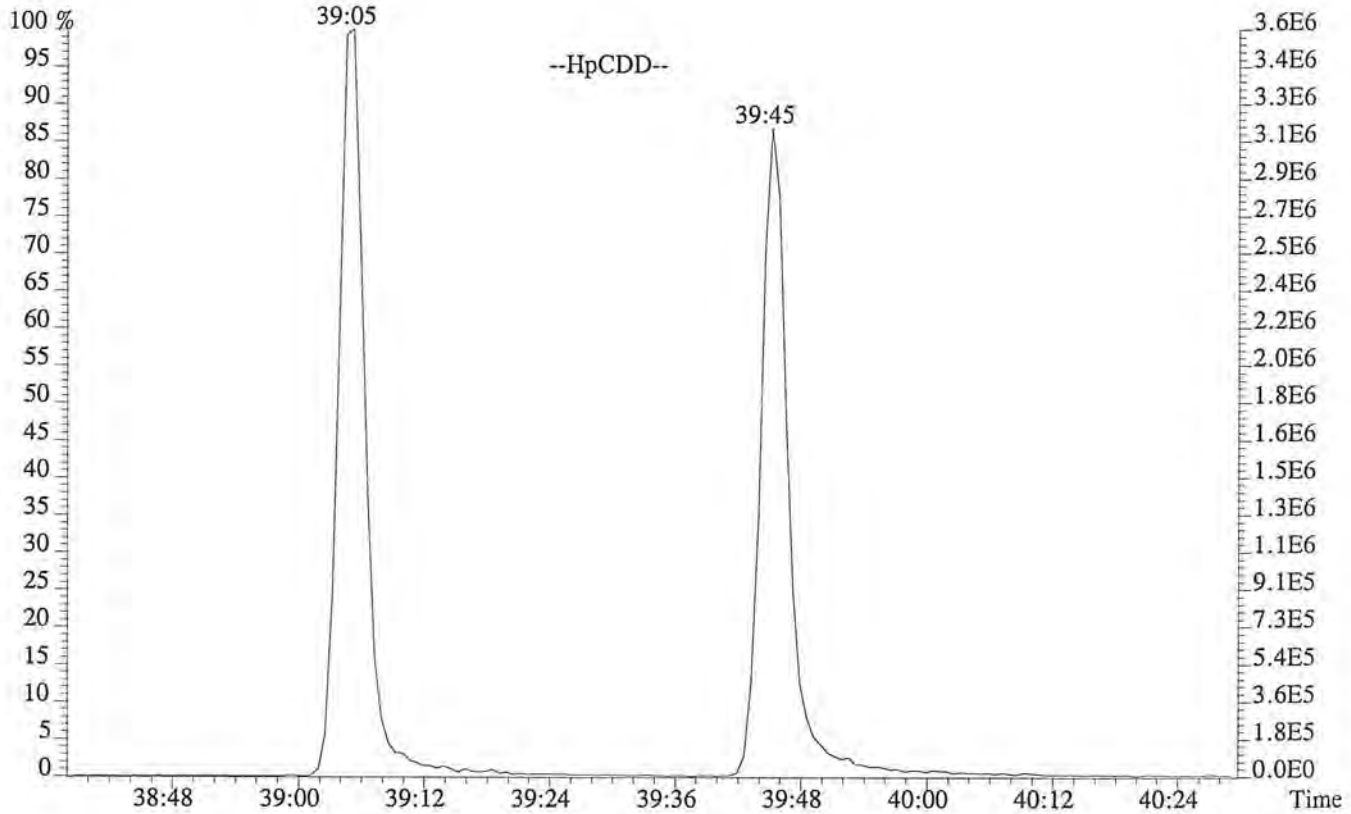
389.8157 F:3



File:P300978 #1-241 Acq:21-AUG-2015 09:55:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-05
Init. Calib. Date(s).: 08/21/15 Method 1613/8290
Init. Calib. Time.: 09:55

	RR/RRF							MEAN	
Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	0.88	0.96	0.90	0.97	1.01	1.02	0.96	5.98	+/-20%
2,3,7,8-TCDF	0.78	0.83	0.82	0.87	0.89	0.90	0.85	5.45	+/-20%
1,2,3,7,8-PeCDF	0.85	0.93	0.91	0.95	0.97	0.97	0.93	5.05	+/-20%
1,2,3,7,8-PeCDD	0.82	0.87	0.87	0.91	0.92	0.92	0.89	4.64	+/-20%
2,3,4,7,8-PeCDF	0.79	0.90	0.85	0.91	0.91	0.92	0.88	5.83	+/-20%
1,2,3,4,7,8-HxCDF	1.05	1.17	1.15	1.17	1.18	1.19	1.15	4.57	+/-20%
1,2,3,6,7,8-HxCDF	1.03	1.09	1.05	1.09	1.12	1.11	1.08	3.10	+/-20%
1,2,3,4,7,8-HxCDD	0.91	0.96	0.95	1.00	1.01	1.01	0.98	4.18	+/-20%
1,2,3,6,7,8-HxCDD	0.89	0.96	0.93	1.00	1.01	1.01	0.97	4.93	+/-20%
1,2,3,7,8,9-HxCDD	0.93	1.05	1.01	1.06	1.06	1.06	1.03	5.09	+/-20%
2,3,4,6,7,8-HxCDF	0.99	1.08	1.04	1.10	1.10	1.11	1.07	4.02	+/-20%
1,2,3,7,8,9-HxCDF	1.00	1.04	1.06	1.10	1.12	1.12	1.07	4.55	+/-20%
1,2,3,4,6,7,8-HpCDF	1.25	1.32	1.28	1.34	1.35	1.37	1.32	3.38	+/-20%
1,2,3,4,6,7,8-HpCDD	0.85	0.97	0.94	0.97	0.99	0.99	0.95	5.50	+/-20%
1,2,3,4,7,8,9-HpCDF	1.17	1.25	1.19	1.27	1.31	1.29	1.25	4.34	+/-20%
OCDD	1.01	1.06	1.04	1.07	1.09	1.10	1.06	3.08	+/-20%
OCDF	1.09	1.19	1.16	1.21	1.23	1.25	1.19	4.91	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.99	0.96	0.95	0.99	0.97	0.98	0.97	1.92	+/-35%
13C-1,2,3,7,8-PeCDD	1.00	1.02	1.00	1.01	1.00	1.04	1.01	1.54	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.91	0.88	0.94	0.91	0.91	0.93	0.91	2.26	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.94	0.95	0.94	0.93	0.94	0.91	0.94	1.44	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.84	0.85	0.88	0.84	0.86	0.84	0.85	2.04	+/-35%
13C-OCDD	0.65	0.65	0.69	0.65	0.67	0.64	0.66	2.43	+/-35%
13C-2,3,7,8-TCDF	1.36	1.32	1.28	1.34	1.32	1.31	1.32	1.89	+/-35%
13C-1,2,3,7,8-PeCDF	1.38	1.42	1.38	1.38	1.39	1.39	1.39	1.03	+/-35%
13C-2,3,4,7,8-PeCDF	1.35	1.30	1.34	1.33	1.33	1.36	1.34	1.53	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.09	1.04	1.13	1.06	1.13	1.06	1.08	3.52	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.20	1.21	1.25	1.19	1.21	1.19	1.21	1.70	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.12	1.08	1.13	1.10	1.12	1.09	1.11	1.90	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.00	0.96	0.95	0.99	1.00	0.96	0.98	2.06	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.83	0.82	0.88	0.83	0.84	0.82	0.84	2.91	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.76	0.74	0.76	0.74	0.74	0.72	0.74	2.08	+/-35%
37Cl-2,3,7,8-TCDD	1.01	0.97	0.91	1.02	1.03	1.06	1.00	5.07	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

FORM VI-HR CDD-1 DLM02.2

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-05
Init. Calib. Date(s).: 08/21/15 Method 1613/8290
Init. Calib. Time.: 09:55

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.77	0.74	0.77	0.76	0.76	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.70	0.75	0.77	0.77	0.77	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.56	1.54	1.56	1.53	1.55	1.54		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.54	1.54	1.57	1.53	1.53	1.53		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.52	1.58	1.59	1.55	1.55	1.55		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.17	1.26	1.27	1.24	1.23	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.20	1.23	1.22	1.23	1.24	1.23		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.18	1.31	1.26	1.22	1.23	1.24		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.28	1.30	1.24	1.25	1.26	1.27		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.22	1.22	1.25	1.25	1.25	1.24		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.22	1.33	1.22	1.25	1.25	1.24		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.21	1.26	1.20	1.25	1.24	1.23		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.01	1.02	1.02	1.02	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.05	1.07	1.03	1.02	1.04	1.01		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	1.04	0.99	1.04	1.03	1.03	1.04		0.88-1.20
OCDF	442/444	0.91	0.88	0.91	0.89	0.89	0.90		0.76-1.02
OCDD	458/460	0.84	0.88	0.89	0.88	0.88	0.88		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.79	0.79	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.56	1.57	1.58	1.56	1.59	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.26	1.26	1.27	1.27	1.26	1.27		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.26	1.25	1.26	1.26	1.26	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.05	1.05	1.05	1.04	1.06	1.04		0.88-1.20
13C-OCDD	470/472	0.90	0.90	0.90	0.90	0.90	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.78	0.78	0.79	0.80	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.56	1.57	1.58	1.57	1.57		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.57	1.57	1.55	1.56	1.57	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.51	0.51	0.52	0.52	0.52	0.52		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.52	0.52	0.51	0.52	0.52	0.52		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.51	0.51	0.52	0.52	0.51		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.51	0.52	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.44	0.45	0.44	0.44	0.45	0.44		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.44	0.44	0.44	0.44	0.44	0.45		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.80	0.79	0.81	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.23	1.25	1.26	1.30	1.26	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

FORM VI-HR CDD-2 DLM02.2

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P300980 Samp: 1 Inj: 1 Acquired: 21-AUG-15 13:51:55
Processed: 24-AUG-15 11:01:11 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:43	2.184e+02	2.849e+02	0.77	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	32:46	1.688e+03	1.081e+03	1.56	yes	no	0.929
3	Unk	2,3,4,7,8-PeCDF	33:38	1.518e+03	9.861e+02	1.54	yes	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	36:16	1.302e+03	1.108e+03	1.17	yes	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:22	1.432e+03	1.196e+03	1.20	yes	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:51	1.279e+03	1.085e+03	1.18	yes	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	37:36	1.187e+03	9.251e+02	1.28	yes	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.108e+03	1.100e+03	1.01	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	40:15	9.571e+02	9.156e+02	1.05	yes	no	1.245
10	Unk	OCDF	42:46	1.416e+03	1.549e+03	0.91	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:28	1.699e+02	2.434e+02	0.70	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:55	1.171e+03	7.721e+02	1.52	yes	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:59	9.659e+02	7.920e+02	1.22	yes	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:04	9.796e+02	8.019e+02	1.22	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:18	9.954e+02	8.236e+02	1.21	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	7.735e+02	7.404e+02	1.04	yes	no	0.949
17	Unk	OCDD	42:34	1.259e+03	1.499e+03	0.84	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:42	1.124e+05	1.444e+05	0.78	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:44	1.603e+05	1.013e+05	1.58	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:37	1.557e+05	9.908e+04	1.57	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	6.200e+04	1.219e+05	0.51	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	6.976e+04	1.339e+05	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:50	6.477e+04	1.253e+05	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	5.759e+04	1.111e+05	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	4.342e+04	9.760e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	3.888e+04	8.917e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:26	8.319e+04	1.049e+05	0.79	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:54	1.158e+05	7.404e+04	1.56	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:58	8.607e+04	6.814e+04	1.26	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	8.887e+04	7.038e+04	1.26	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	7.310e+04	6.961e+04	1.05	yes	no	0.850
32	IS	13C-OCDD	42:33	1.034e+05	1.149e+05	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:54	8.415e+04	1.053e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	9.318e+04	7.596e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	4.801e+02				no	1.001

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P300980 Samp: 1 Inj: 1 Acquired: 21-AUG-15 13:51:55
Processed: 24-AUG-15 11:01:11 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.27e+04	3.41e+03	1.3e+01	5.38e+04	3.84e+03	1.4e+01
2	1,2,3,7,8-PeCDF	3.38e+05	2.43e+03	1.4e+02	2.09e+05	5.46e+03	3.8e+01
3	2,3,4,7,8-PeCDF	3.18e+05	2.43e+03	1.3e+02	2.02e+05	5.46e+03	3.7e+01
4	1,2,3,4,7,8-HxCDF	2.81e+05	1.46e+03	1.9e+02	2.41e+05	9.80e+02	2.5e+02
5	1,2,3,6,7,8-HxCDF	3.01e+05	1.46e+03	2.1e+02	2.54e+05	9.80e+02	2.6e+02
6	2,3,4,6,7,8-HxCDF	2.74e+05	1.46e+03	1.9e+02	2.35e+05	9.80e+02	2.4e+02
7	1,2,3,7,8,9-HxCDF	2.38e+05	1.46e+03	1.6e+02	1.93e+05	9.80e+02	2.0e+02
8	1,2,3,4,6,7,8-HpCDF	2.50e+05	1.49e+03	1.7e+02	2.37e+05	1.81e+03	1.3e+02
9	1,2,3,4,7,8,9-HpCDF	1.85e+05	1.49e+03	1.2e+02	1.72e+05	1.81e+03	9.5e+01
10	OCDF	2.27e+05	1.79e+03	1.3e+02	2.57e+05	2.92e+03	8.8e+01
11	2,3,7,8-TCDD	3.49e+04	2.80e+03	1.2e+01	4.97e+04	2.57e+03	1.9e+01
12	1,2,3,7,8-PeCDD	2.50e+05	2.92e+03	8.6e+01	1.56e+05	1.94e+03	8.1e+01
13	1,2,3,4,7,8-HxCDD	2.30e+05	1.28e+03	1.8e+02	1.82e+05	2.56e+03	7.1e+01
14	1,2,3,6,7,8-HxCDD	2.07e+05	1.28e+03	1.6e+02	1.70e+05	2.56e+03	6.6e+01
15	1,2,3,7,8,9-HxCDD	2.09e+05	1.28e+03	1.6e+02	1.70e+05	2.56e+03	6.6e+01
16	1,2,3,4,6,7,8-HpCDD	1.59e+05	1.53e+03	1.0e+02	1.52e+05	1.36e+03	1.1e+02
17	OCDD	2.13e+05	1.04e+03	2.0e+02	2.50e+05	1.71e+03	1.5e+02
18	13C-2,3,7,8-TCDF	2.22e+07	2.97e+03	7.5e+03	2.85e+07	3.69e+03	7.7e+03
19	13C-1,2,3,7,8-PeCDF	3.15e+07	1.66e+03	1.9e+04	2.00e+07	2.39e+03	8.4e+03
20	13C-2,3,4,7,8-PeCDF	3.17e+07	1.66e+03	1.9e+04	2.03e+07	2.39e+03	8.5e+03
21	13C-1,2,3,4,7,8-HxCDF	1.38e+07	1.51e+03	9.1e+03	2.67e+07	3.62e+03	7.4e+03
22	13C-1,2,3,6,7,8-HxCDF	1.50e+07	1.51e+03	9.9e+03	2.88e+07	3.62e+03	7.9e+03
23	13C-2,3,4,6,7,8-HxCDF	1.38e+07	1.51e+03	9.2e+03	2.70e+07	3.62e+03	7.5e+03
24	13C-1,2,3,7,8,9-HxCDF	1.18e+07	1.51e+03	7.8e+03	2.25e+07	3.62e+03	6.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	9.24e+06	4.45e+03	2.1e+03	2.10e+07	5.35e+03	3.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.57e+06	4.45e+03	1.7e+03	1.69e+07	5.35e+03	3.2e+03
27	13C-2,3,7,8-TCDD	1.73e+07	1.08e+04	1.6e+03	2.18e+07	6.96e+03	3.1e+03
28	13C-1,2,3,7,8-PeCDD	2.39e+07	3.12e+03	7.7e+03	1.54e+07	1.80e+03	8.6e+03
29	13C-1,2,3,4,7,8-HxCDD	1.98e+07	4.11e+03	4.8e+03	1.58e+07	3.50e+03	4.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.89e+07	4.11e+03	4.6e+03	1.49e+07	3.50e+03	4.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.45e+07	2.32e+03	6.2e+03	1.37e+07	1.19e+03	1.2e+04
32	13C-OCDD	1.73e+07	2.07e+03	8.4e+03	1.92e+07	1.21e+03	1.6e+04
33	13C-1,2,3,4-TCDD	1.69e+07	1.08e+04	1.6e+03	2.10e+07	6.96e+03	3.0e+03
34	13C-1,2,3,7,8,9-HxCDD	2.02e+07	4.11e+03	4.9e+03	1.63e+07	3.50e+03	4.7e+03
35	37Cl-2,3,7,8-TCDD	1.01e+05	2.86e+03	3.5e+01			

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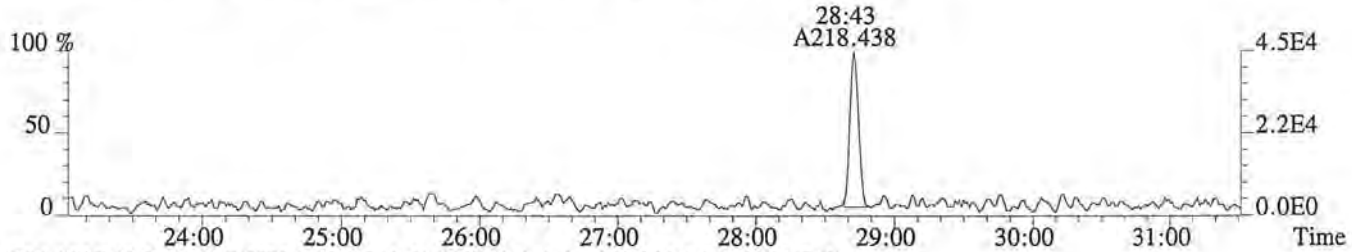
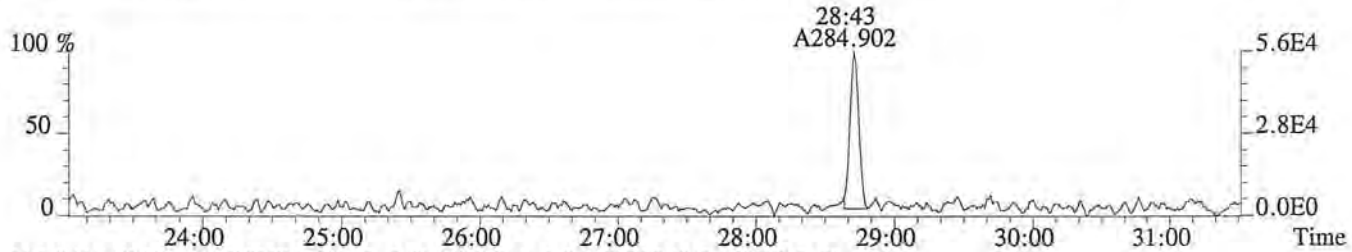
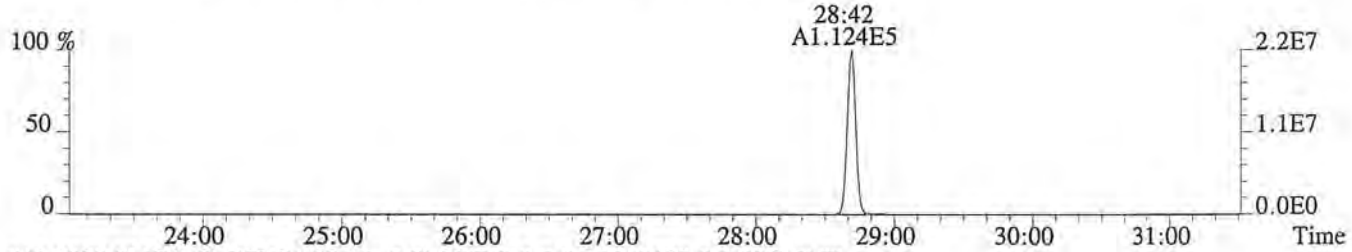
File:P300980 #1-602 Acq:21-AUG-2015 13:51:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3408.0,1.00%,F,T)



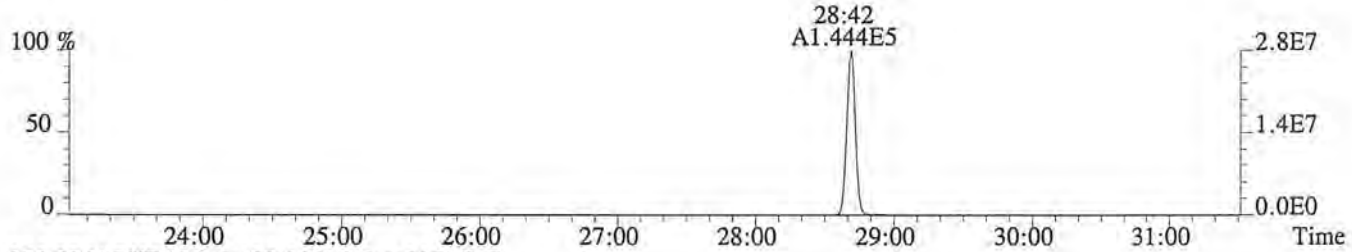
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3836.0,1.00%,F,T)



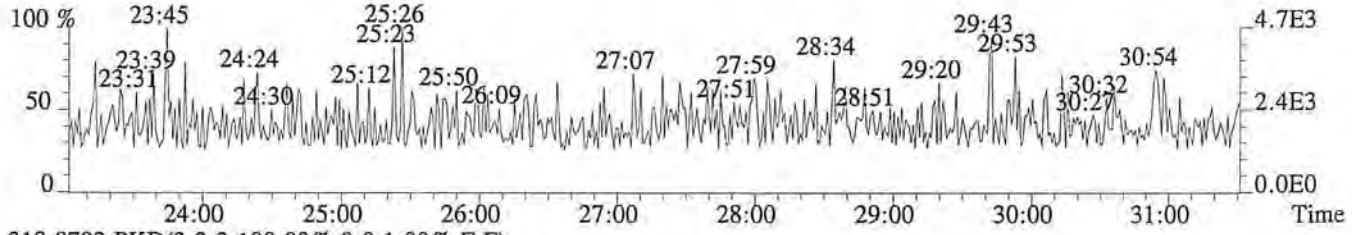
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2968.0,1.00%,F,T)



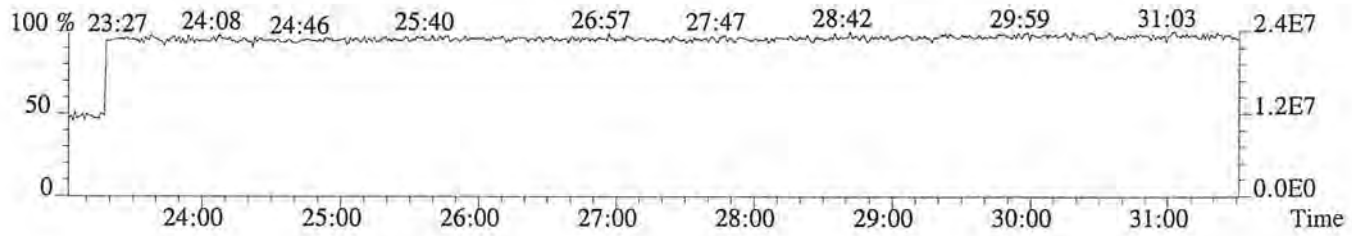
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3688.0,1.00%,F,T)



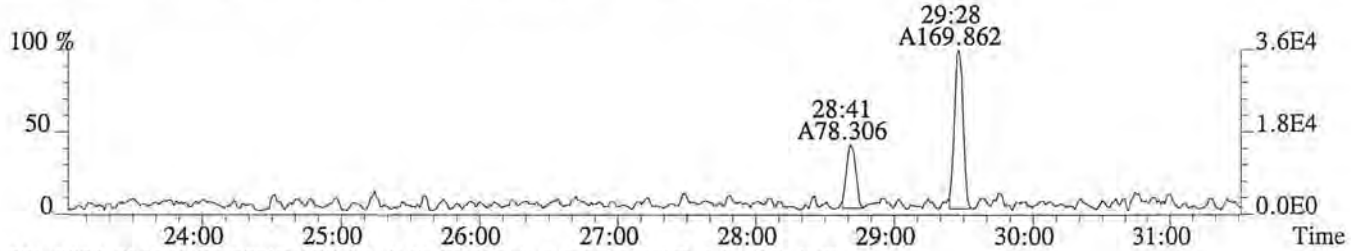
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



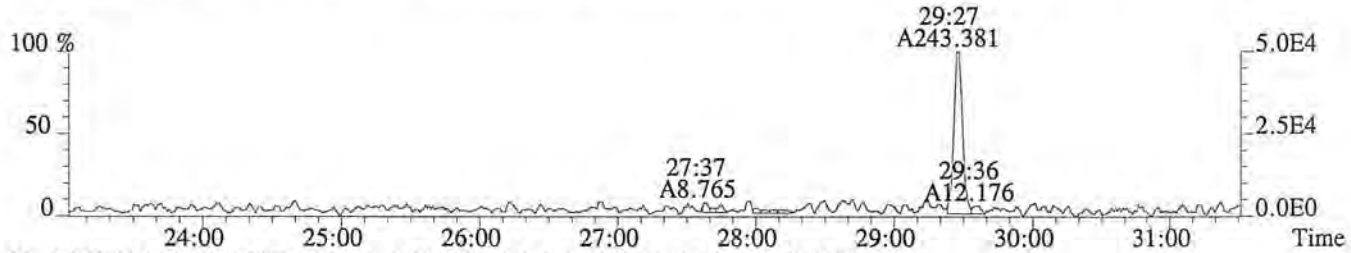
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



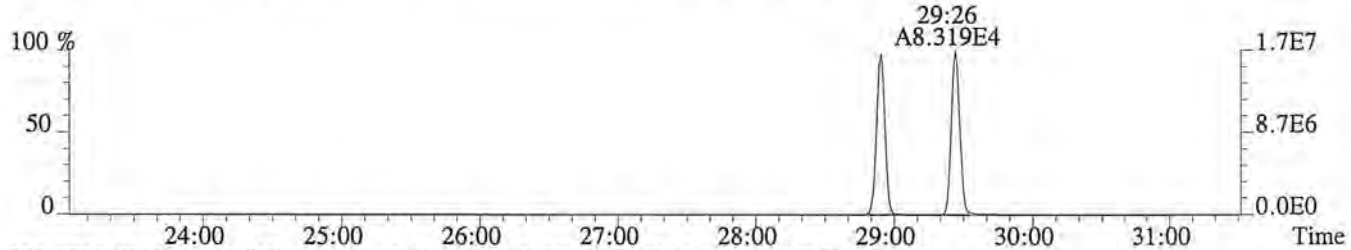
File:P300980 #1-602 Acq:21-AUG-2015 13:51:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2804.0,1.00%,F,T)



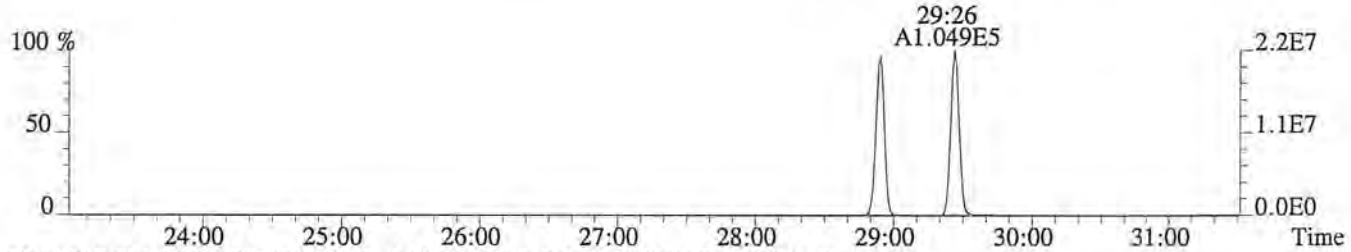
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2572.0,1.00%,F,T)



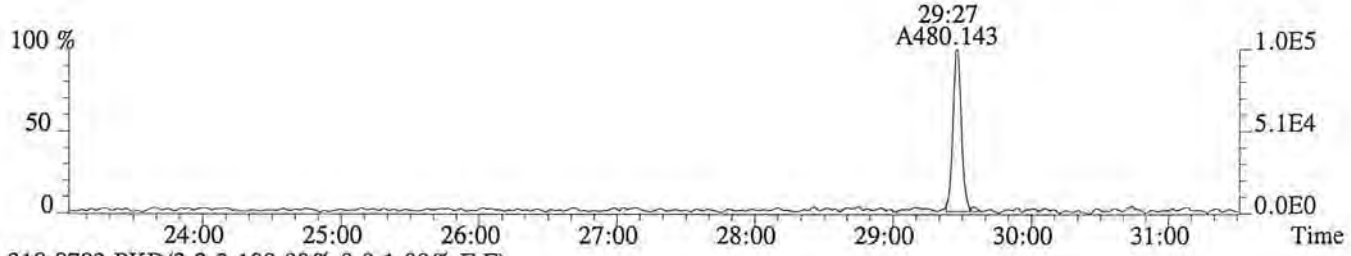
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10784.0,1.00%,F,T)



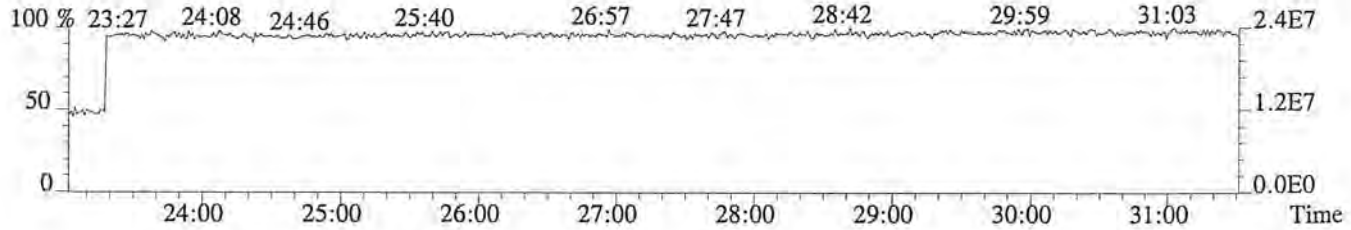
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6956.0,1.00%,F,T)



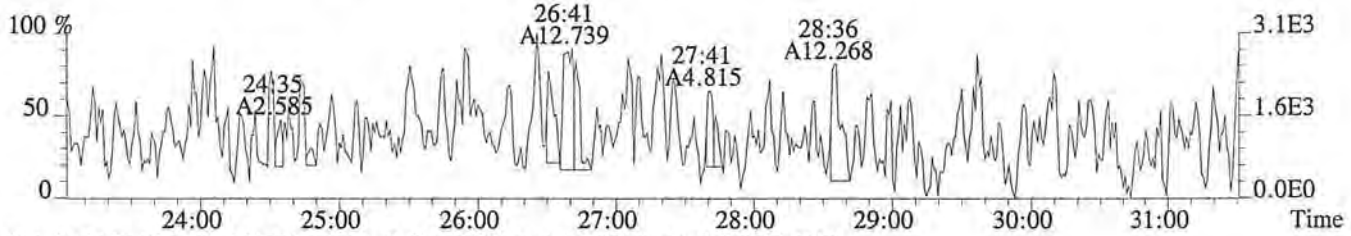
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2860.0,1.00%,F,T)



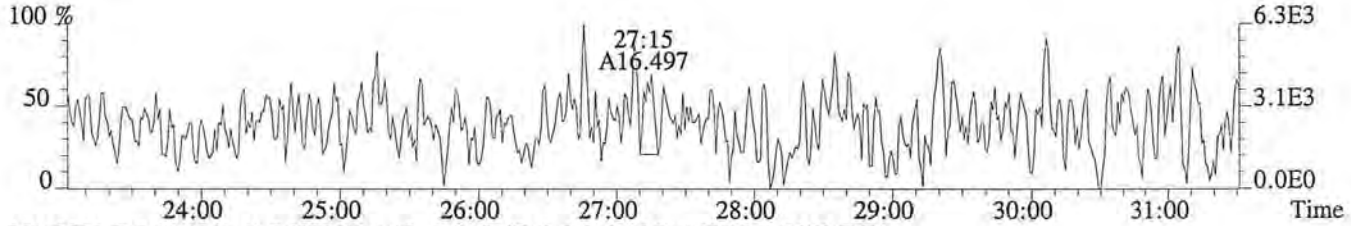
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



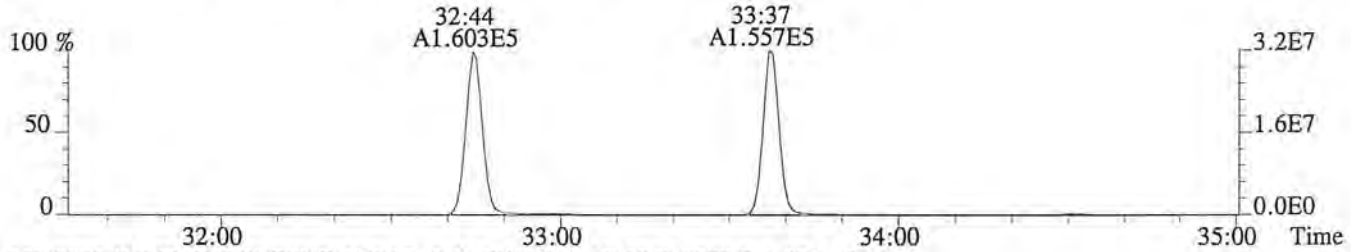
File:P300980 #1-602 Acq:21-AUG-2015 13:51:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



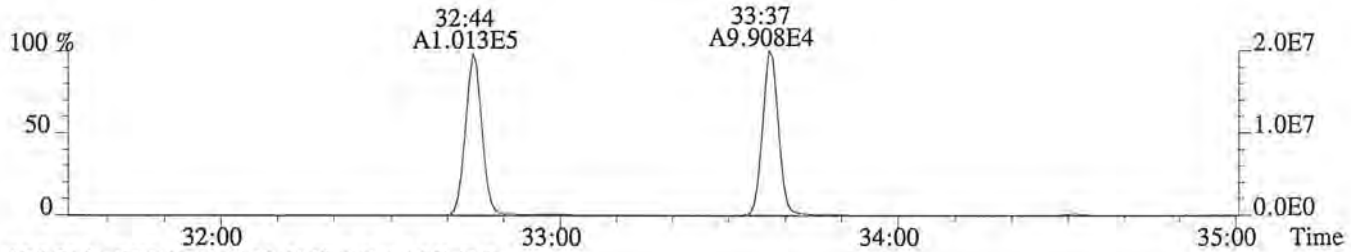
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3164.0,1.00%,F,T)



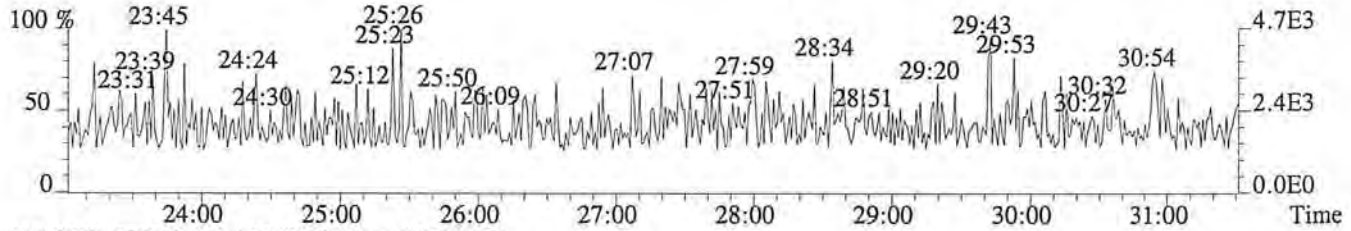
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



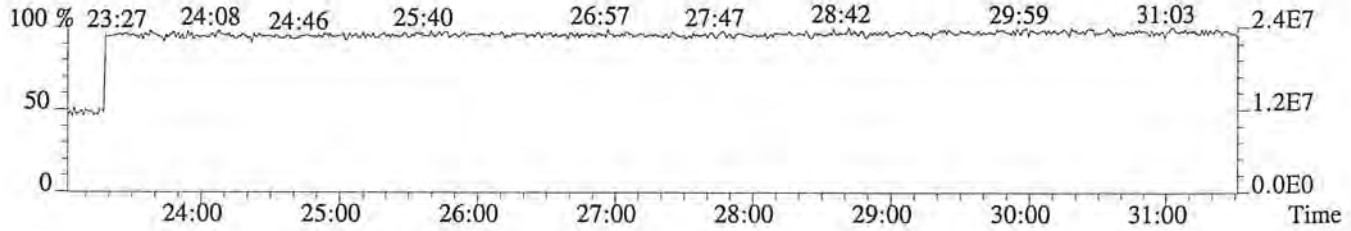
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



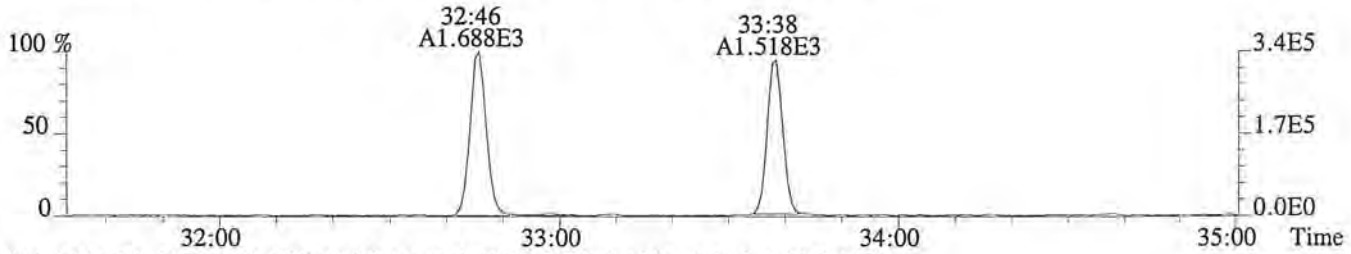
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



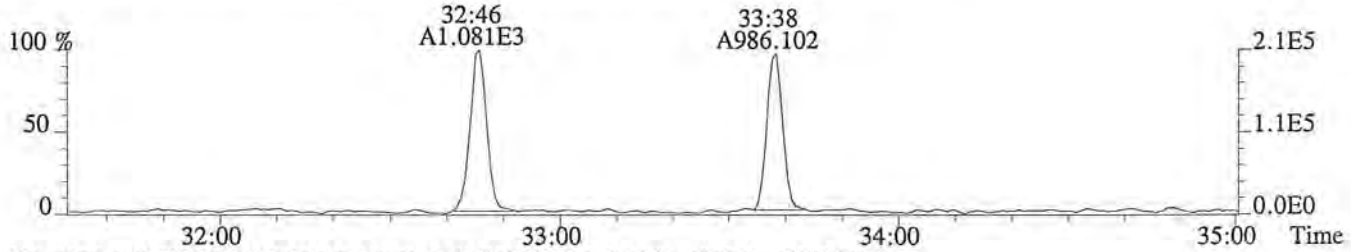
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



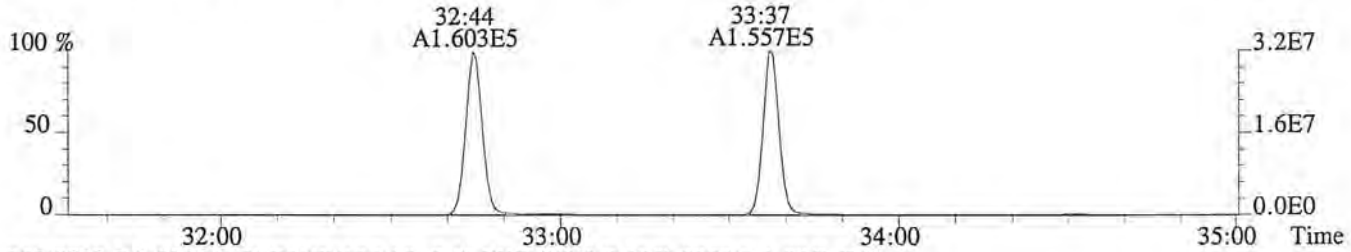
File:P300980 #1-312 Acq:21-AUG-2015 13:51:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2432.0,1.00%,F,T)



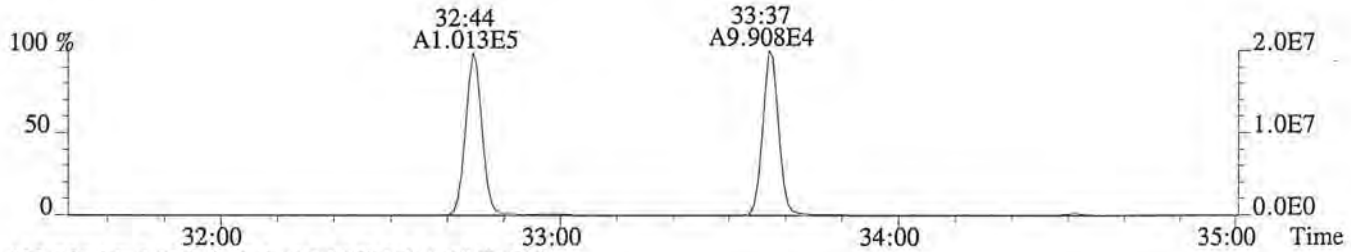
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5464.0,1.00%,F,T)



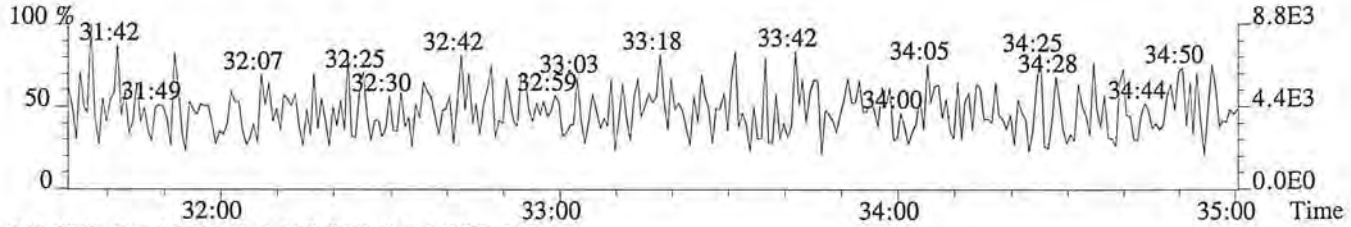
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



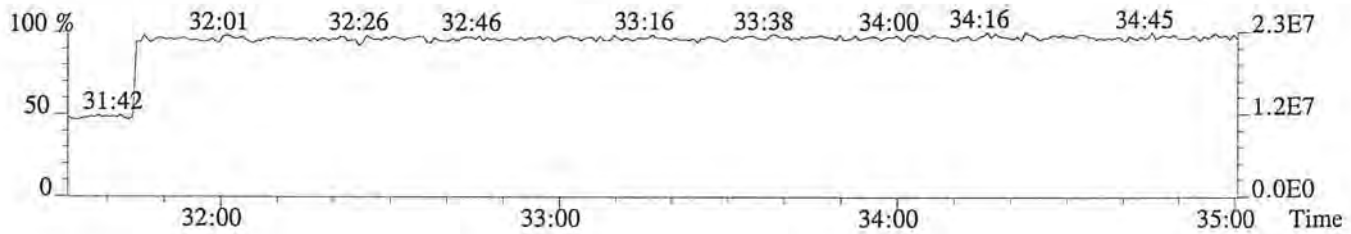
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



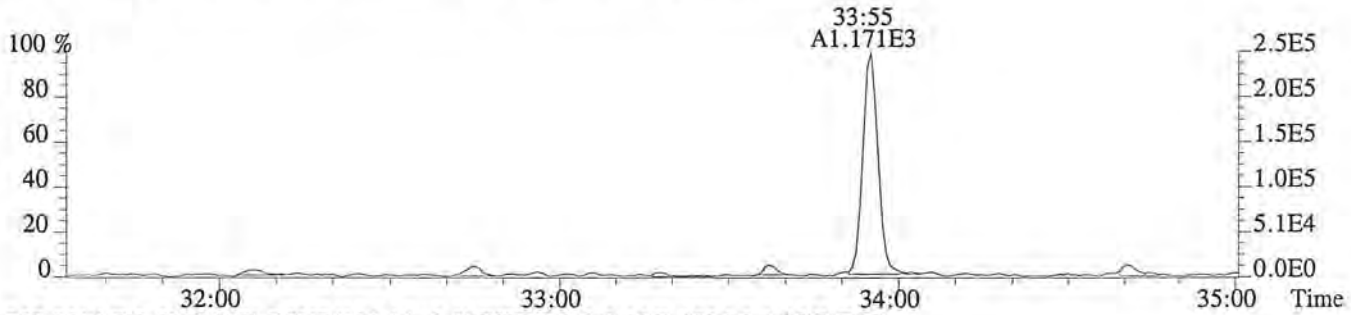
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



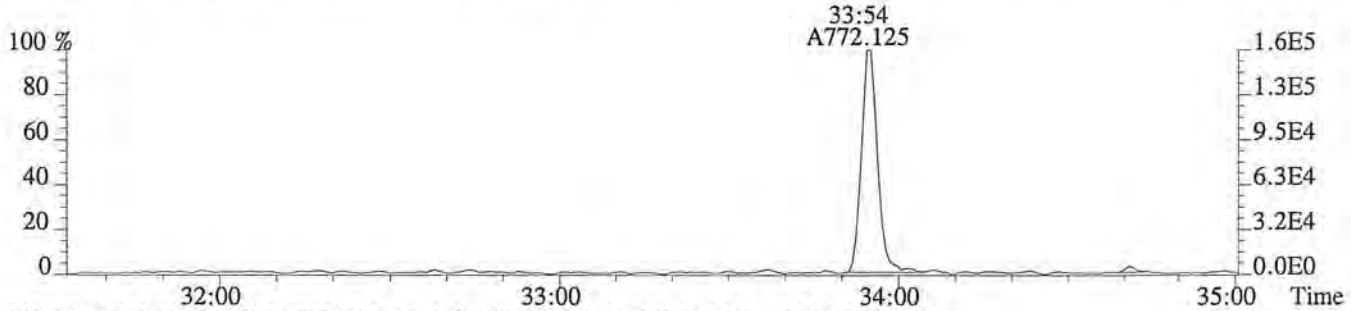
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



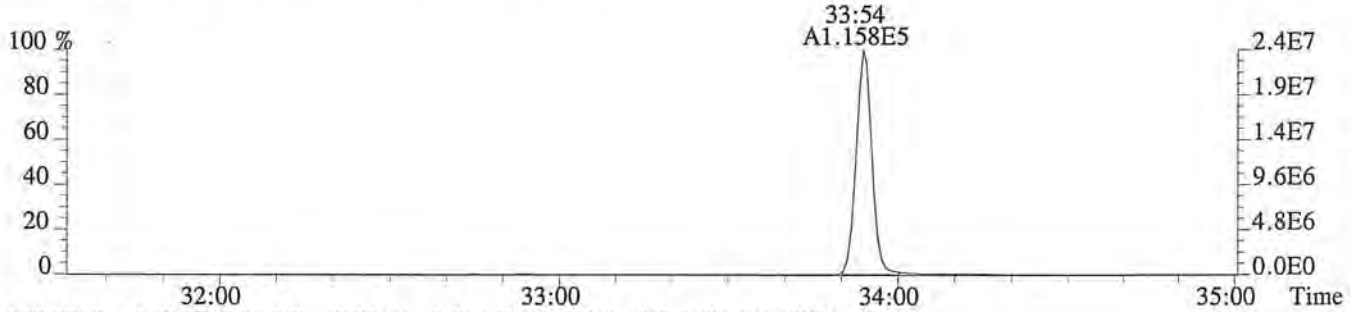
File:P300980 #1-312 Acq:21-AUG-2015 13:51:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2920.0,1.00%,F,T)



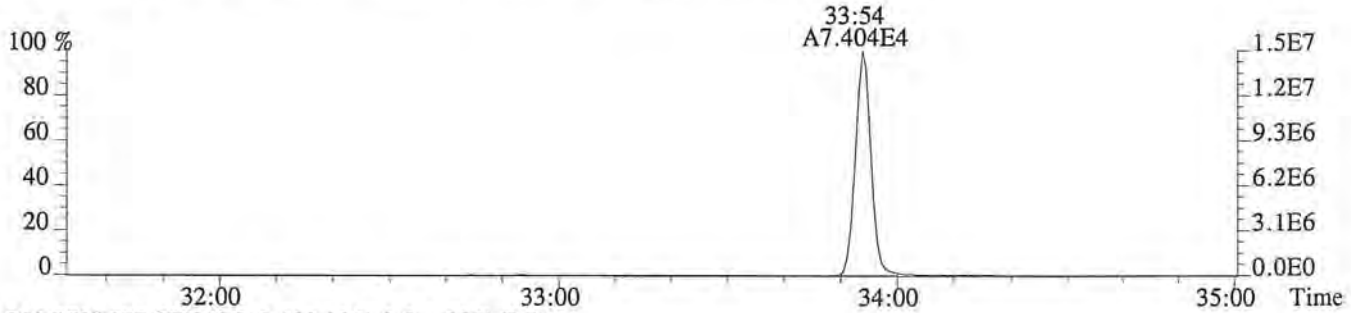
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1936.0,1.00%,F,T)



367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3116.0,1.00%,F,T)

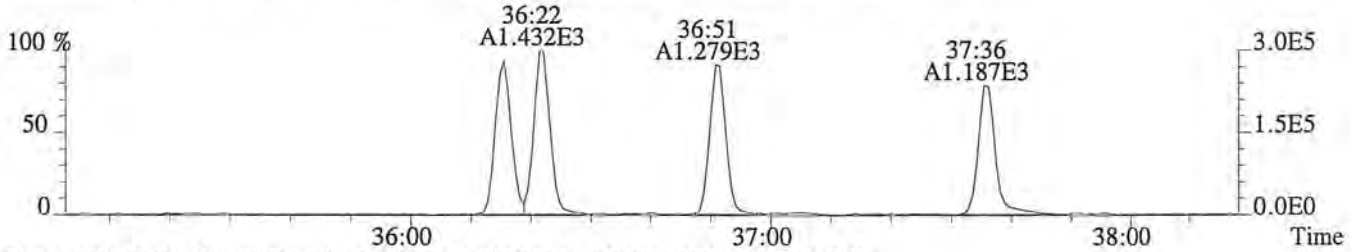


369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1804.0,1.00%,F,T)

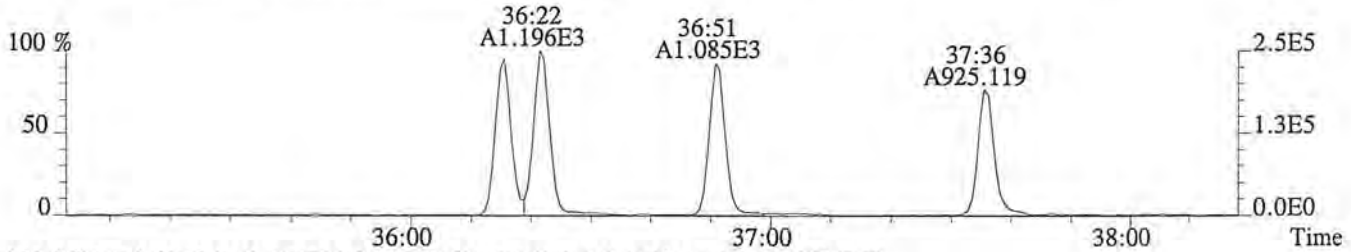


366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

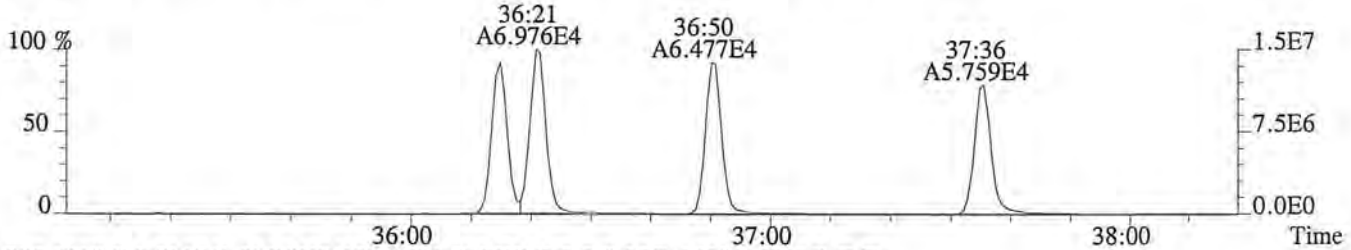
File:P300980 #1-294 Acq:21-AUG-2015 13:51:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1464.0,0.40%,F,T)



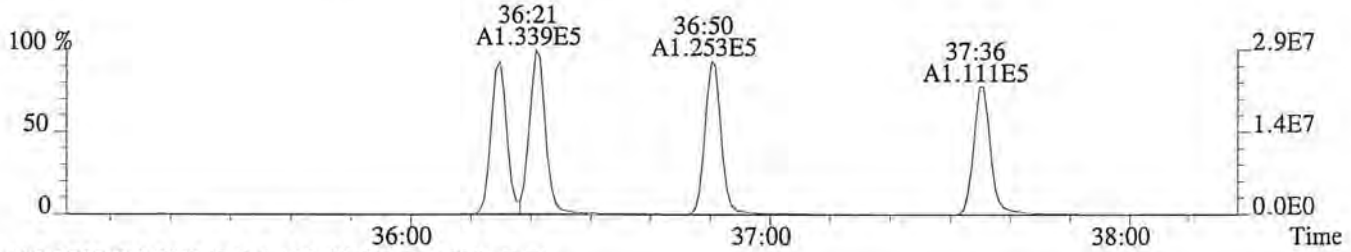
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



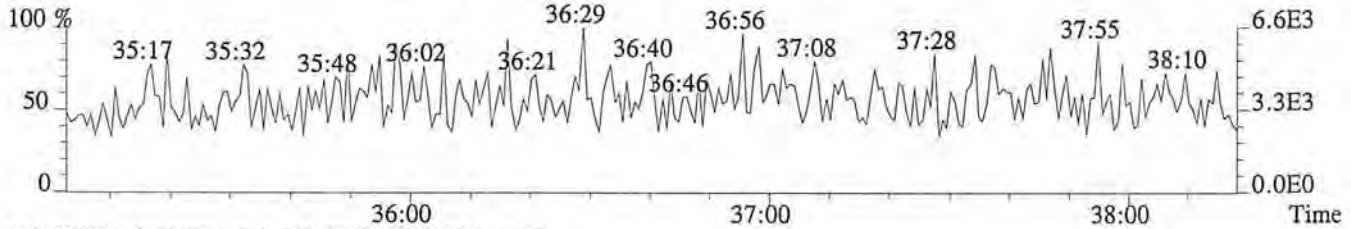
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1512.0,0.40%,F,T)



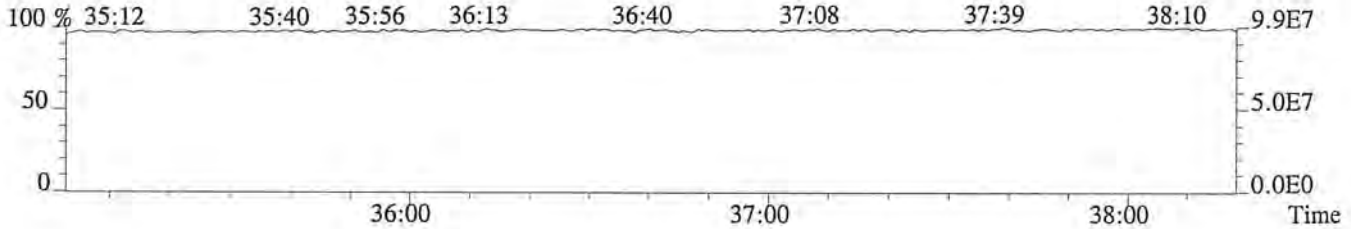
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3620.0,0.40%,F,T)



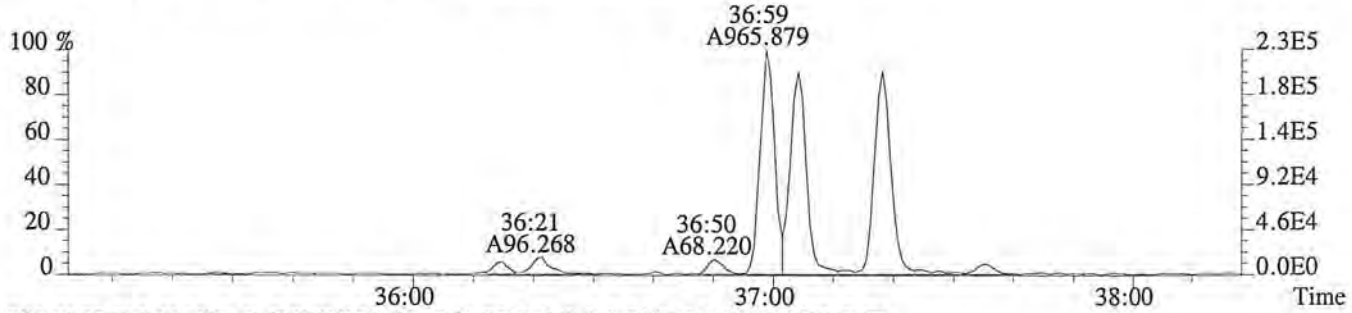
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



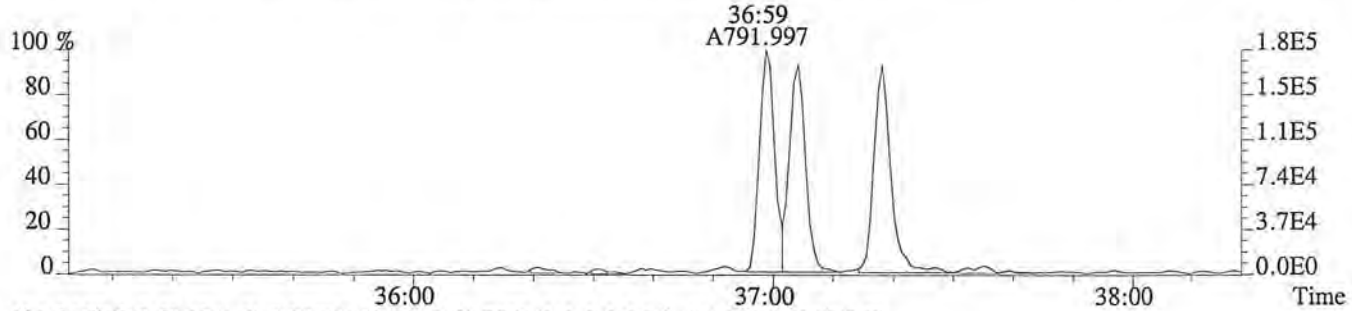
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



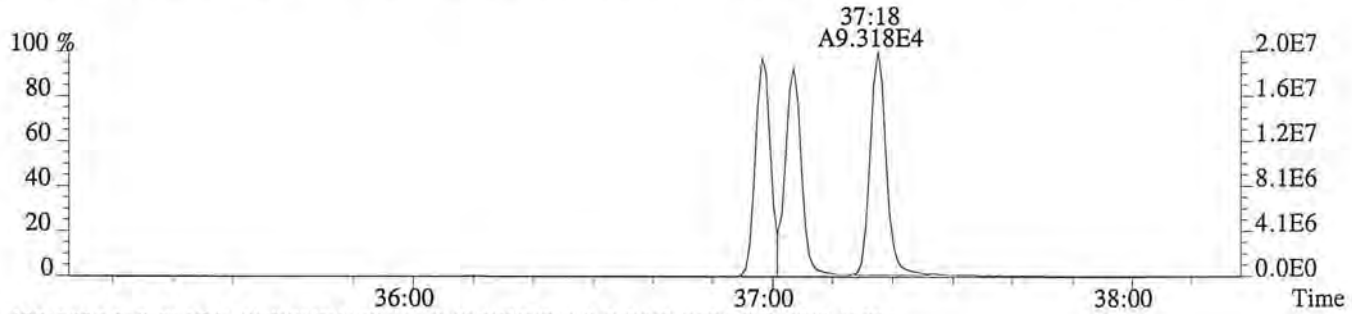
File:P300980 #1-294 Acq:21-AUG-2015 13:51:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1276.0,0.40%,F,T)



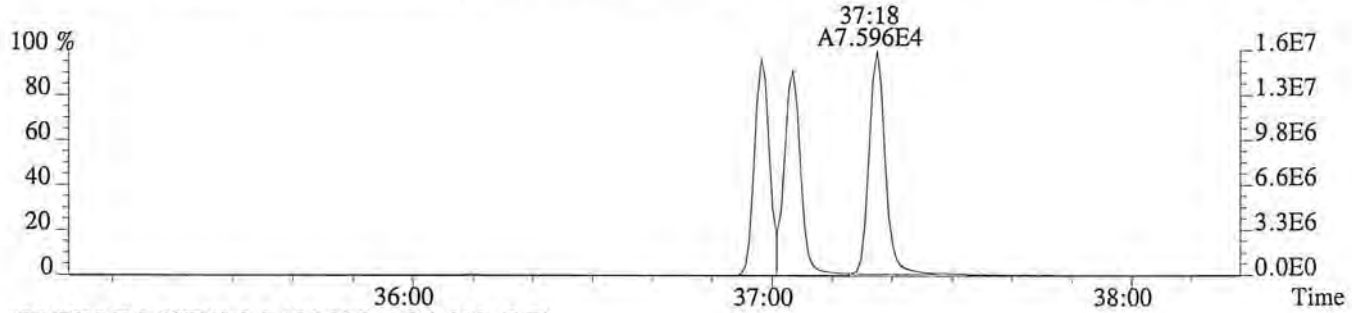
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2560.0,0.40%,F,T)



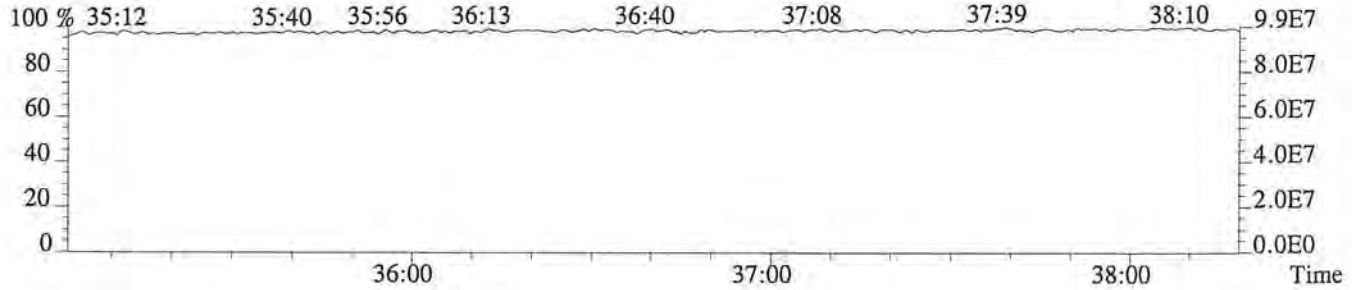
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4112.0,0.40%,F,T)



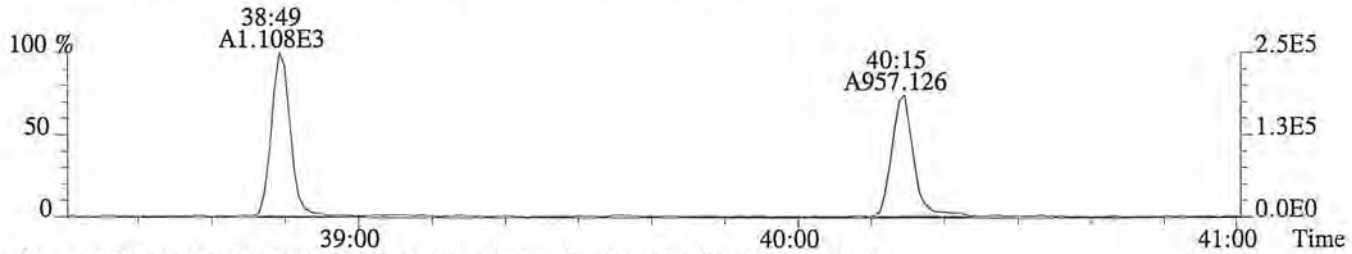
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3504.0,0.40%,F,T)



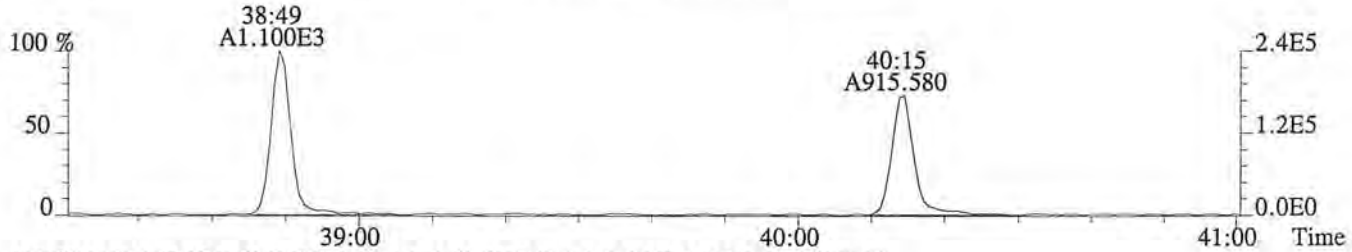
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



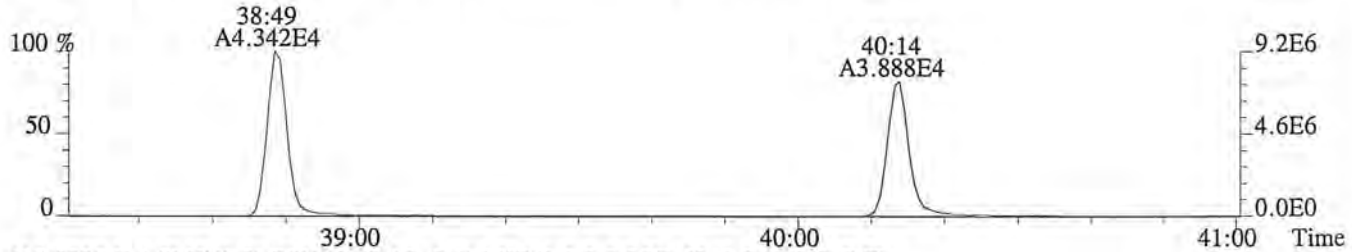
File:P300980 #1-241 Acq:21-AUG-2015 13:51:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1488.0,0.50%,F,T)



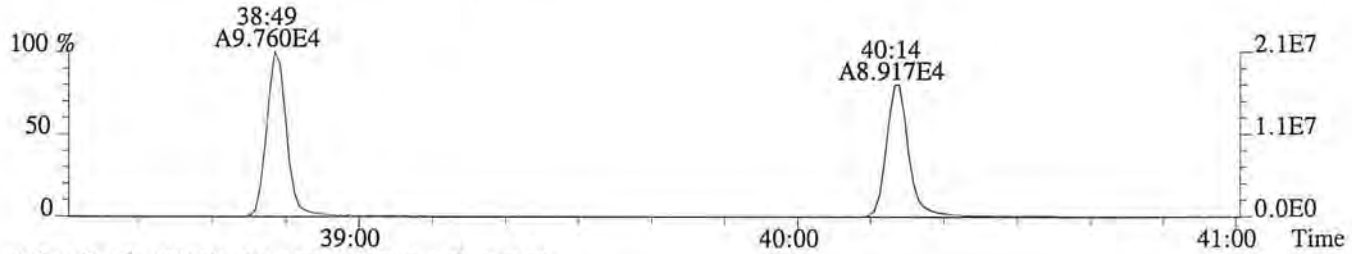
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1812.0,0.50%,F,T)



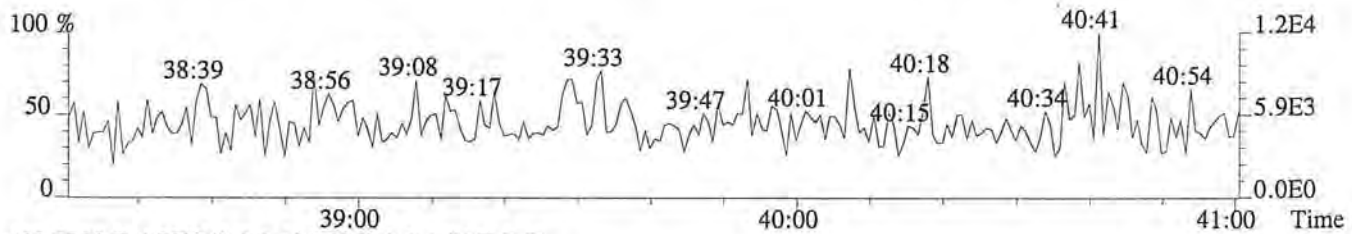
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4448.0,0.50%,F,T)



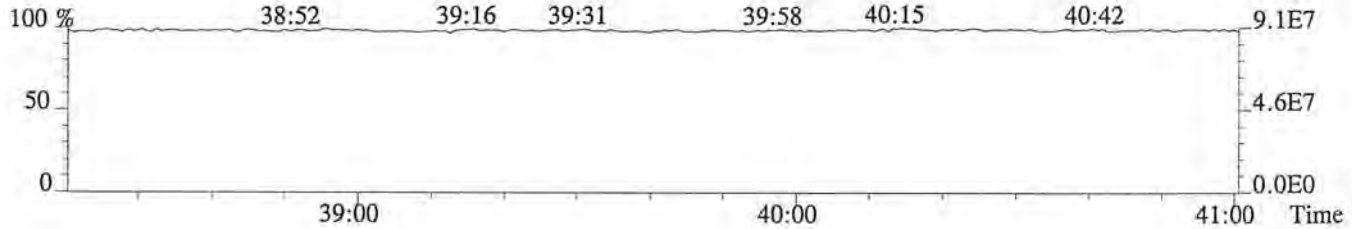
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5348.0,0.50%,F,T)



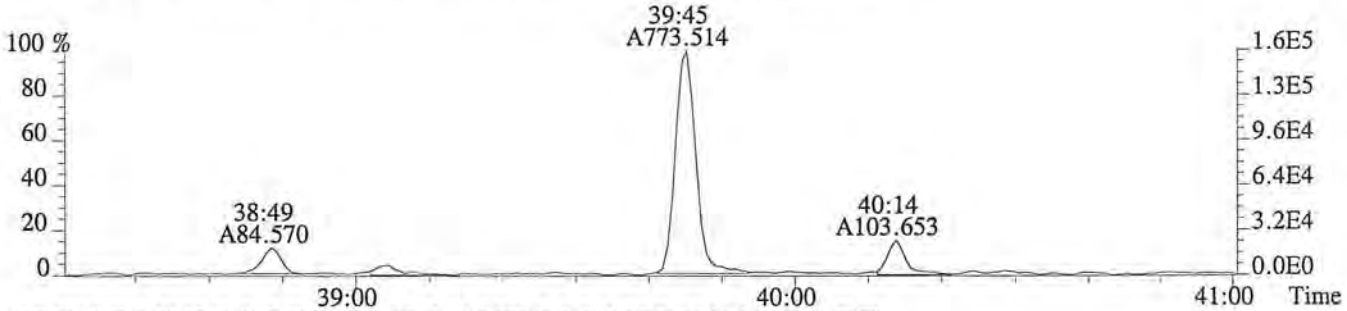
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



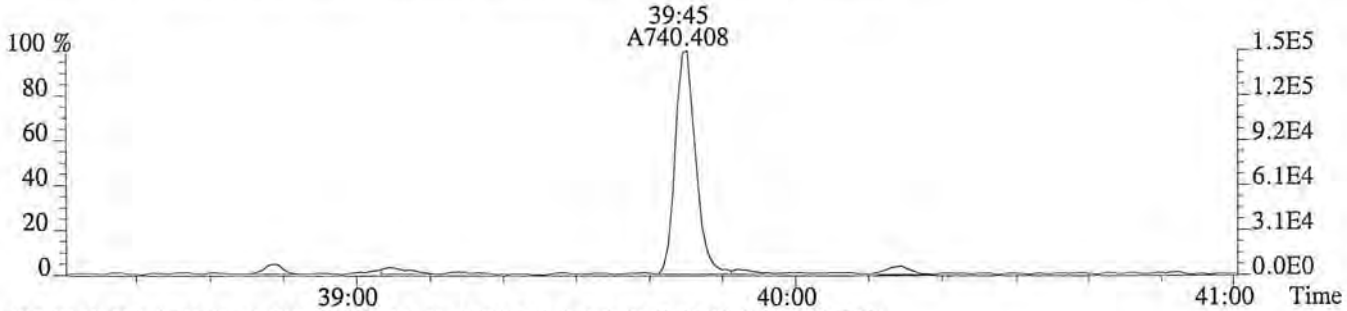
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



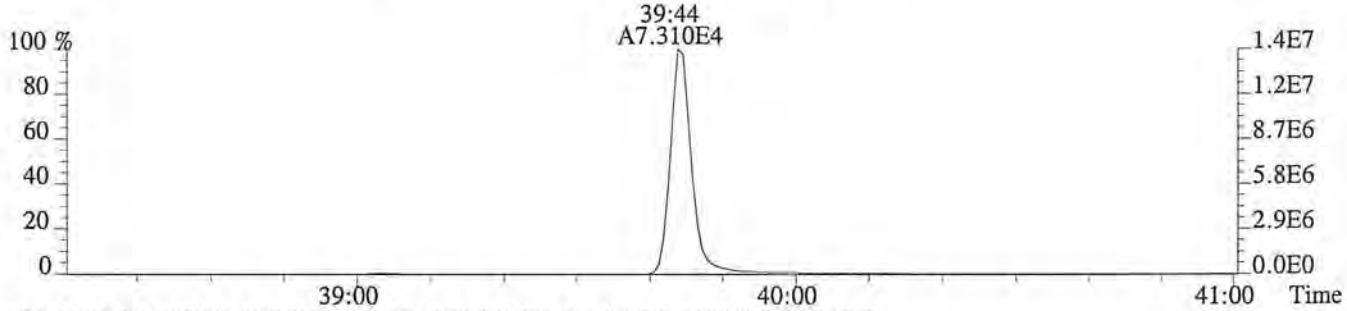
File:P300980 #1-241 Acq:21-AUG-2015 13:51:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



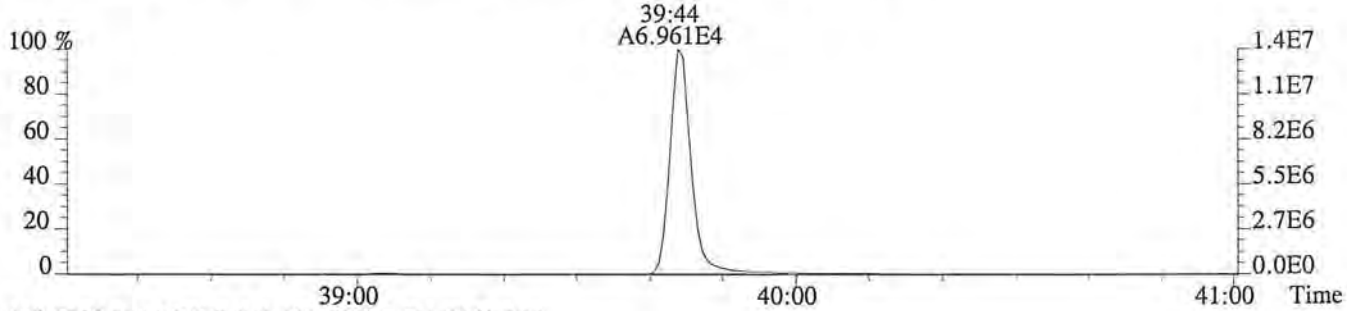
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



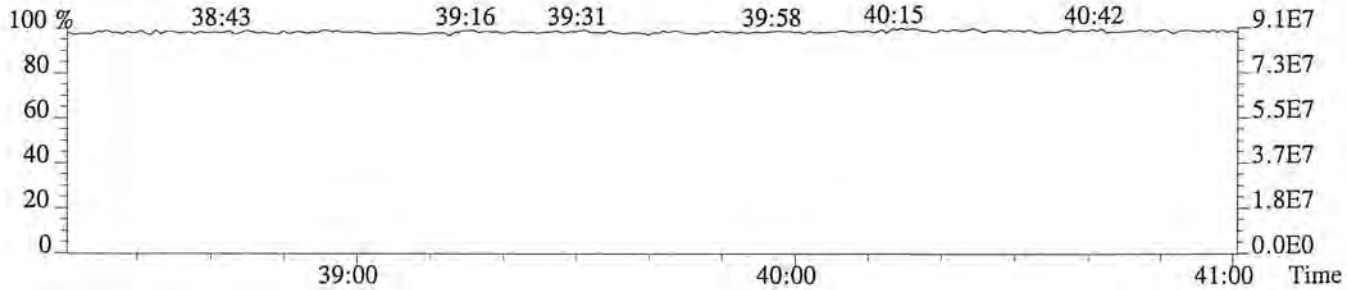
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2320.0,0.40%,F,T)



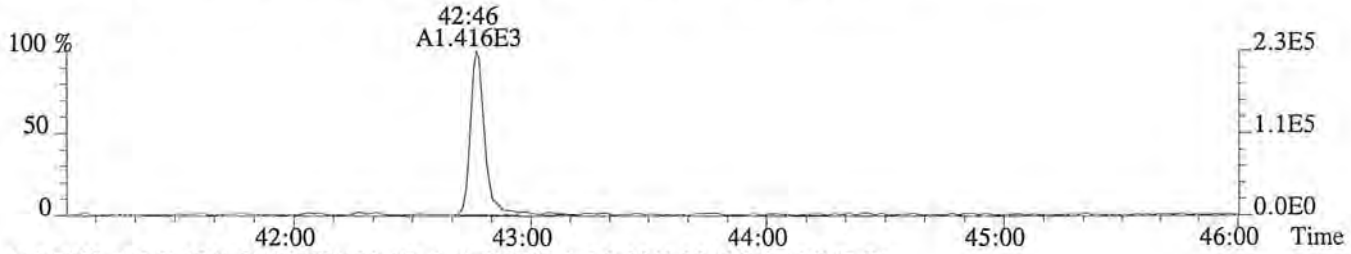
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1188.0,0.40%,F,T)



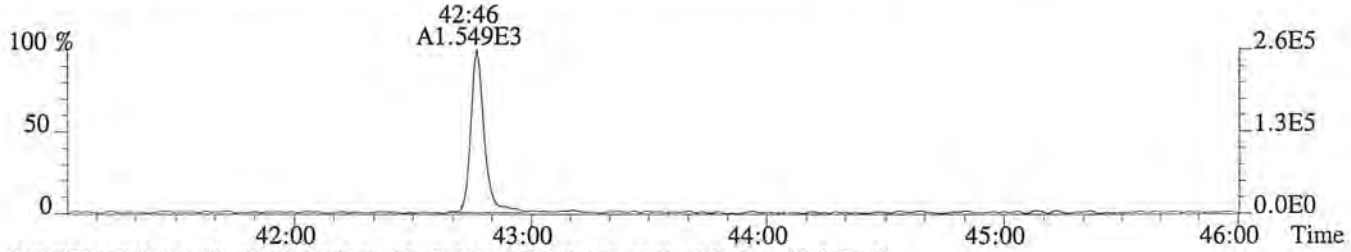
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



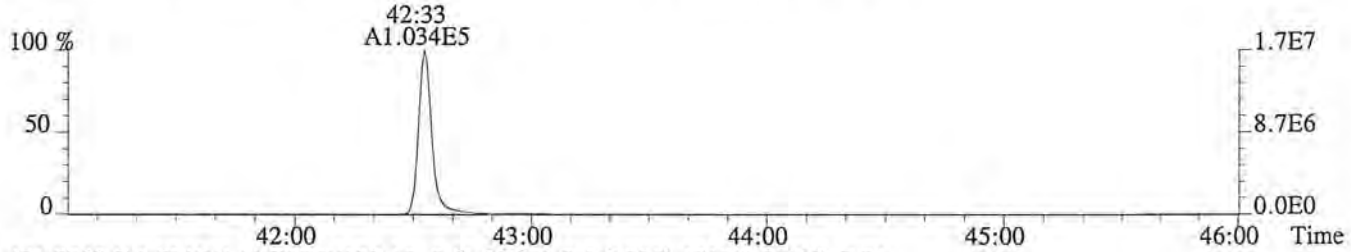
File:P300980 #1-447 Acq:21-AUG-2015 13:51:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1788.0,0.40%,F,T)



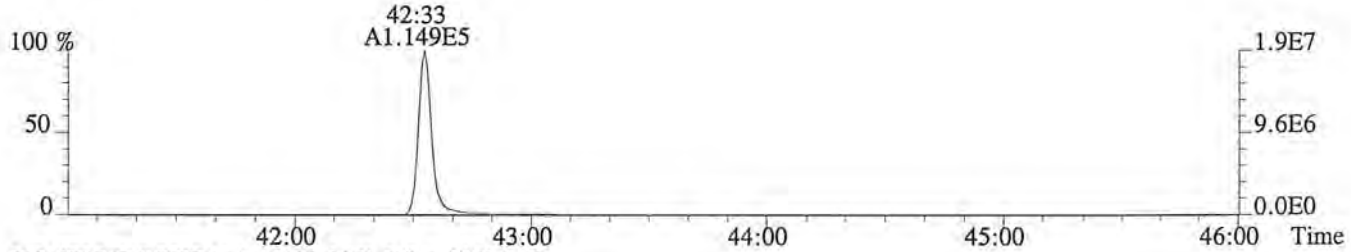
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2916.0,0.40%,F,T)



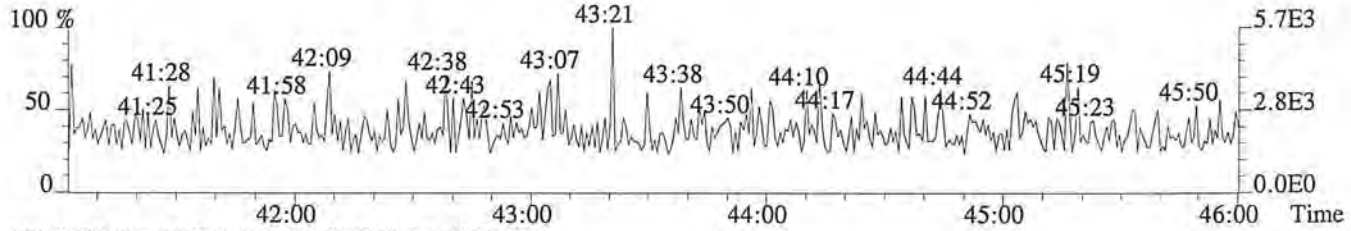
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2068.0,0.40%,F,T)



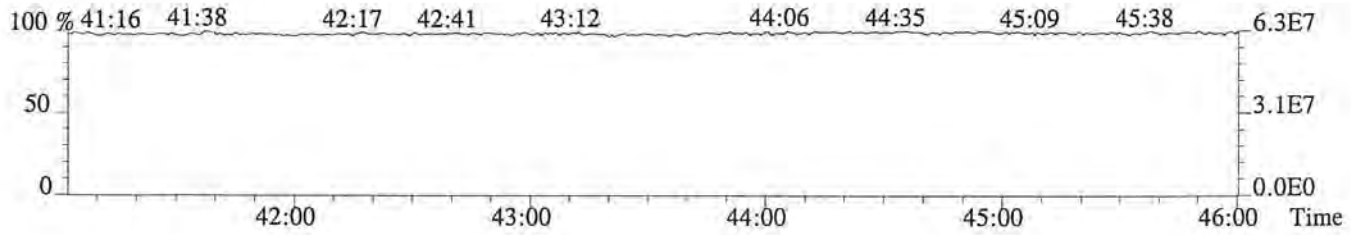
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1212.0,0.40%,F,T)



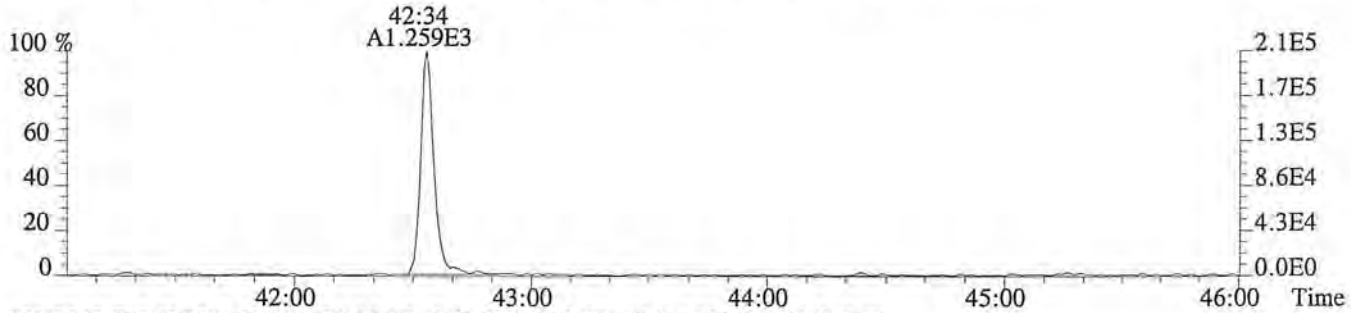
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



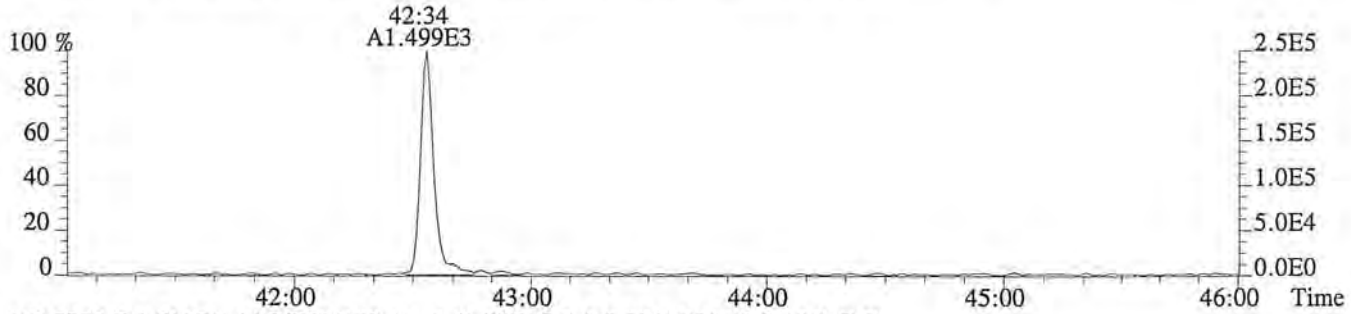
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



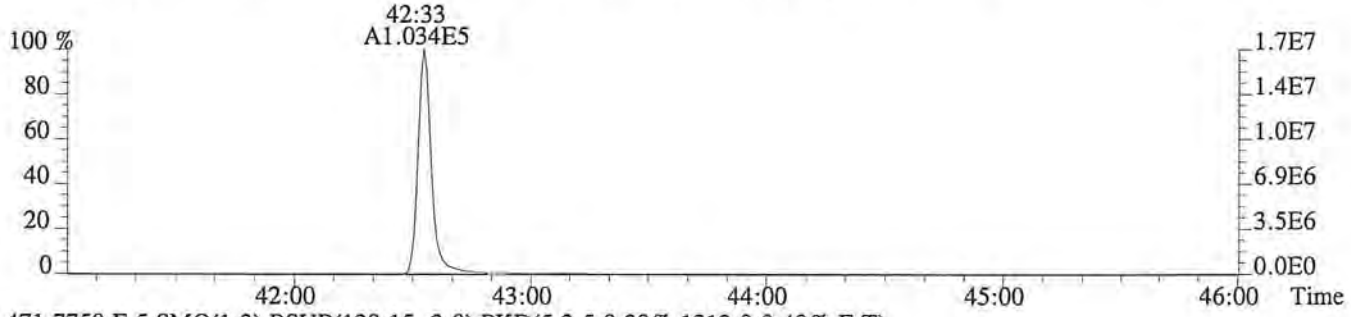
File:P300980 #1-447 Acq:21-AUG-2015 13:51:55 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1044.0,0.40%,F,T)



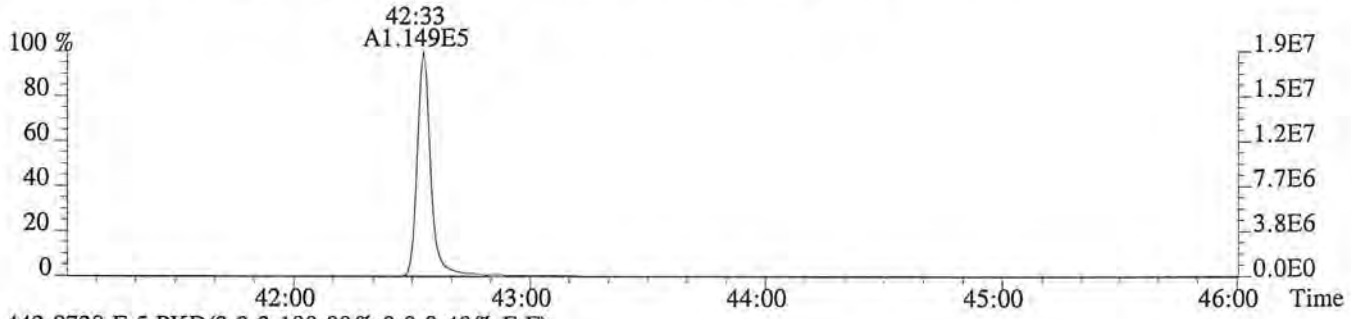
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1708.0,0.40%,F,T)



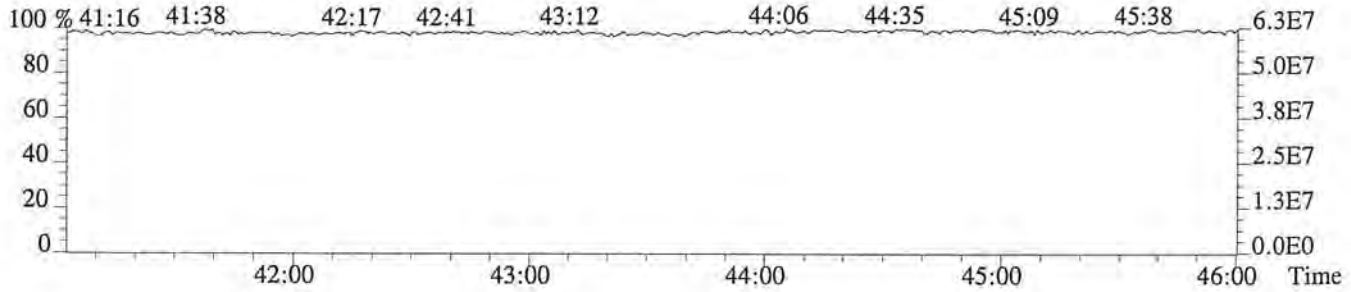
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2068.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1212.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P300981 Samp: 1 Inj: 1 Acquired: 21-AUG-15 14:45:28
Processed: 24-AUG-15 11:01:11 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:43	4.492e+02	6.068e+02	0.74	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	32:46	3.835e+03	2.486e+03	1.54	yes	no	0.929
3	Unk	2,3,4,7,8-PeCDF	33:38	3.404e+03	2.207e+03	1.54	yes	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	36:16	2.911e+03	2.308e+03	1.26	yes	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:22	3.155e+03	2.563e+03	1.23	yes	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:52	2.843e+03	2.170e+03	1.31	yes	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	37:36	2.437e+03	1.881e+03	1.30	yes	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:50	2.372e+03	2.324e+03	1.02	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	40:15	2.055e+03	1.918e+03	1.07	yes	no	1.245
10	Unk	OCDF	42:47	3.111e+03	3.544e+03	0.88	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:28	3.793e+02	5.025e+02	0.75	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:55	2.611e+03	1.656e+03	1.58	yes	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.014e+03	1.645e+03	1.22	yes	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:04	2.229e+03	1.678e+03	1.33	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:18	2.316e+03	1.835e+03	1.26	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	1.760e+03	1.778e+03	0.99	yes	no	0.949
17	Unk	OCDD	42:35	2.785e+03	3.153e+03	0.88	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:42	1.111e+05	1.423e+05	0.78	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:45	1.661e+05	1.065e+05	1.56	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:38	1.531e+05	9.750e+04	1.57	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	6.081e+04	1.182e+05	0.51	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	7.181e+04	1.377e+05	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	6.321e+04	1.228e+05	0.51	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:36	5.661e+04	1.093e+05	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	4.381e+04	9.828e+04	0.45	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	3.916e+04	8.849e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:26	8.127e+04	1.031e+05	0.79	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:54	1.201e+05	7.633e+04	1.57	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	8.467e+04	6.711e+04	1.26	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	9.085e+04	7.264e+04	1.25	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:45	7.513e+04	7.139e+04	1.05	yes	no	0.850
32	IS	13C-OCDD	42:34	1.059e+05	1.180e+05	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:54	8.500e+04	1.073e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	9.596e+04	7.668e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	9.370e+02				no	1.001

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P300981 Samp: 1 Inj: 1 Acquired: 21-AUG-15 14:45:28
Processed: 24-AUG-15 11:01:11 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.09e+04	2.87e+03	3.2e+01	1.20e+05	3.95e+03	3.0e+01
2	1,2,3,7,8-PeCDF	7.70e+05	2.04e+03	3.8e+02	5.08e+05	3.55e+03	1.4e+02
3	2,3,4,7,8-PeCDF	7.00e+05	2.04e+03	3.4e+02	4.72e+05	3.55e+03	1.3e+02
4	1,2,3,4,7,8-HxCDF	6.66e+05	1.72e+03	3.9e+02	5.16e+05	1.08e+03	4.8e+02
5	1,2,3,6,7,8-HxCDF	6.76e+05	1.72e+03	3.9e+02	5.34e+05	1.08e+03	5.0e+02
6	2,3,4,6,7,8-HxCDF	6.14e+05	1.72e+03	3.6e+02	4.65e+05	1.08e+03	4.3e+02
7	1,2,3,7,8,9-HxCDF	5.14e+05	1.72e+03	3.0e+02	4.08e+05	1.08e+03	3.8e+02
8	1,2,3,4,6,7,8-HpCDF	5.19e+05	1.46e+03	3.5e+02	5.11e+05	1.92e+03	2.7e+02
9	1,2,3,4,7,8,9-HpCDF	4.00e+05	1.46e+03	2.7e+02	3.71e+05	1.92e+03	1.9e+02
10	OCDF	5.53e+05	2.37e+03	2.3e+02	6.12e+05	2.96e+03	2.1e+02
11	2,3,7,8-TCDD	7.82e+04	2.35e+03	3.3e+01	1.04e+05	2.05e+03	5.1e+01
12	1,2,3,7,8-PeCDD	5.58e+05	4.88e+03	1.1e+02	3.60e+05	1.66e+03	2.2e+02
13	1,2,3,4,7,8-HxCDD	4.61e+05	1.74e+03	2.7e+02	3.73e+05	2.81e+03	1.3e+02
14	1,2,3,6,7,8-HxCDD	4.72e+05	1.74e+03	2.7e+02	3.59e+05	2.81e+03	1.3e+02
15	1,2,3,7,8,9-HxCDD	4.68e+05	1.74e+03	2.7e+02	3.93e+05	2.81e+03	1.4e+02
16	1,2,3,4,6,7,8-HpCDD	3.63e+05	1.37e+03	2.7e+02	3.63e+05	1.63e+03	2.2e+02
17	OCDD	4.64e+05	1.10e+03	4.2e+02	5.28e+05	2.10e+03	2.5e+02
18	13C-2,3,7,8-TCDF	2.20e+07	3.14e+03	7.0e+03	2.81e+07	3.82e+03	7.3e+03
19	13C-1,2,3,7,8-PeCDF	3.25e+07	1.99e+03	1.6e+04	2.10e+07	2.70e+03	7.8e+03
20	13C-2,3,4,7,8-PeCDF	3.19e+07	1.99e+03	1.6e+04	2.03e+07	2.70e+03	7.5e+03
21	13C-1,2,3,4,7,8-HxCDF	1.32e+07	1.53e+03	8.6e+03	2.58e+07	3.59e+03	7.2e+03
22	13C-1,2,3,6,7,8-HxCDF	1.53e+07	1.53e+03	1.0e+04	2.91e+07	3.59e+03	8.1e+03
23	13C-2,3,4,6,7,8-HxCDF	1.39e+07	1.53e+03	9.1e+03	2.65e+07	3.59e+03	7.4e+03
24	13C-1,2,3,7,8,9-HxCDF	1.20e+07	1.53e+03	7.8e+03	2.28e+07	3.59e+03	6.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	9.53e+06	5.16e+03	1.8e+03	2.13e+07	9.65e+03	2.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.70e+06	5.16e+03	1.5e+03	1.72e+07	9.65e+03	1.8e+03
27	13C-2,3,7,8-TCDD	1.68e+07	1.09e+04	1.5e+03	2.15e+07	7.08e+03	3.0e+03
28	13C-1,2,3,7,8-PeCDD	2.49e+07	2.70e+03	9.2e+03	1.58e+07	1.80e+03	8.7e+03
29	13C-1,2,3,4,7,8-HxCDD	1.91e+07	4.53e+03	4.2e+03	1.52e+07	2.51e+03	6.0e+03
30	13C-1,2,3,6,7,8-HxCDD	1.93e+07	4.53e+03	4.3e+03	1.55e+07	2.51e+03	6.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.51e+07	2.33e+03	6.5e+03	1.45e+07	9.88e+02	1.5e+04
32	13C-OCDD	1.72e+07	1.82e+03	9.5e+03	1.93e+07	1.68e+03	1.1e+04
33	13C-1,2,3,4-TCDD	1.73e+07	1.09e+04	1.6e+03	2.17e+07	7.08e+03	3.1e+03
34	13C-1,2,3,7,8,9-HxCDD	2.04e+07	4.53e+03	4.5e+03	1.64e+07	2.51e+03	6.5e+03
35	37Cl-2,3,7,8-TCDD	1.85e+05	1.90e+03	9.7e+01			

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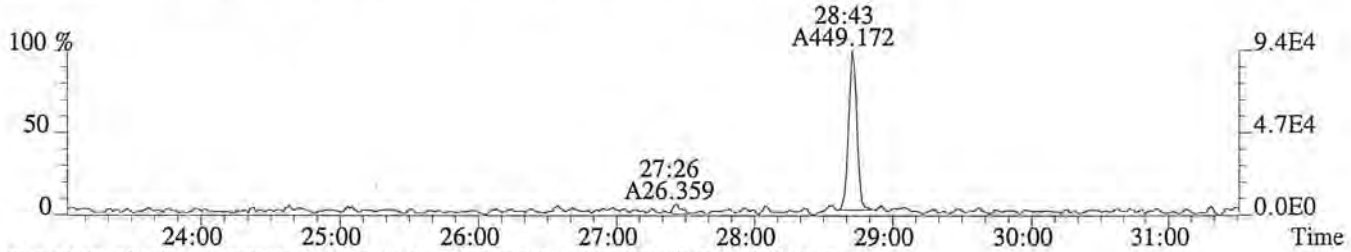
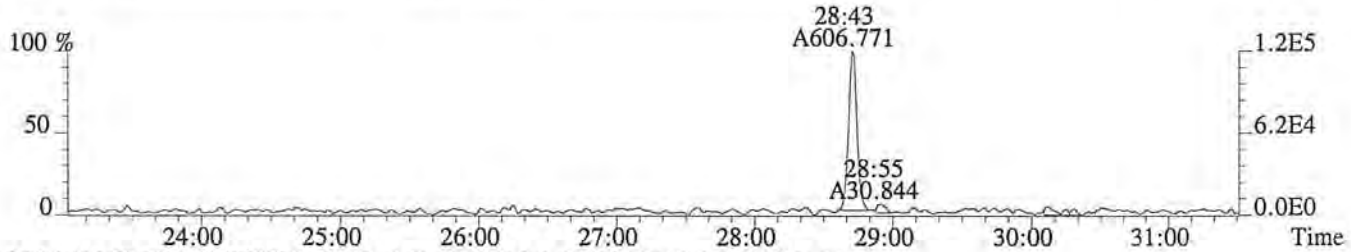
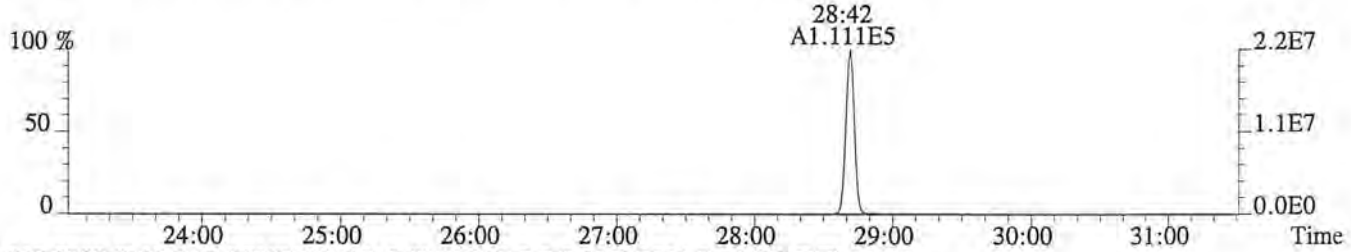
File:P300981 #1-602 Acq:21-AUG-2015 14:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2868.0,1.00%,F,T)



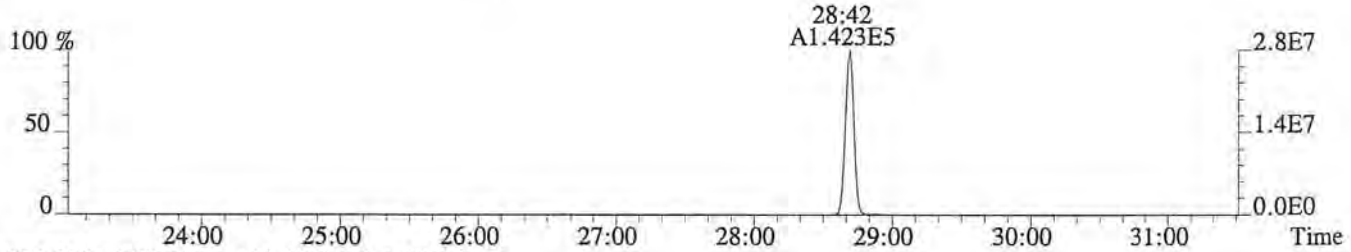
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3948.0,1.00%,F,T)



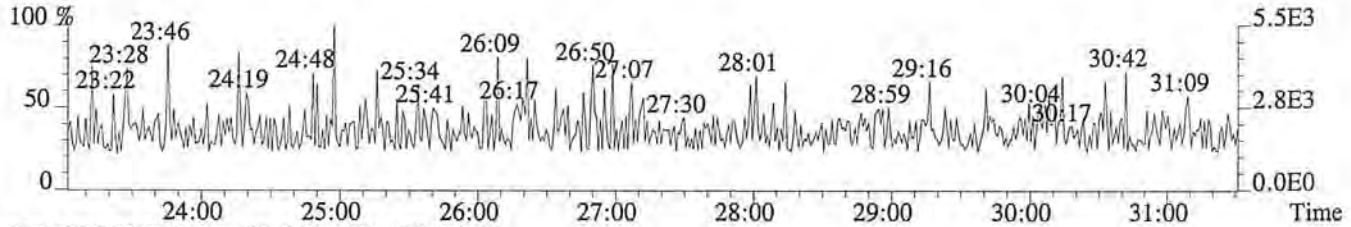
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3140.0,1.00%,F,T)



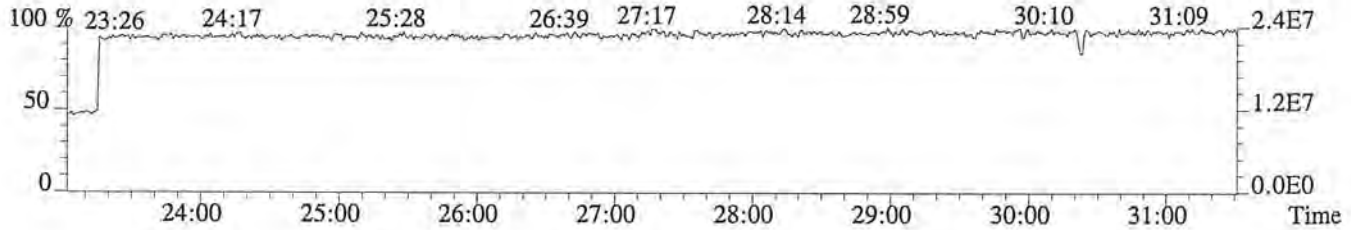
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3824.0,1.00%,F,T)



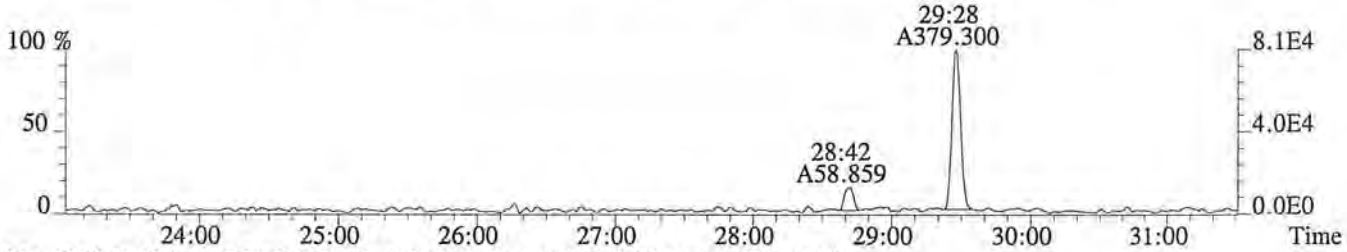
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



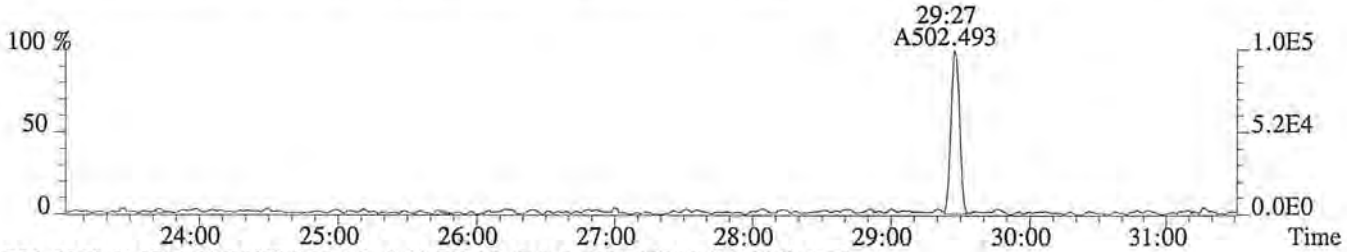
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



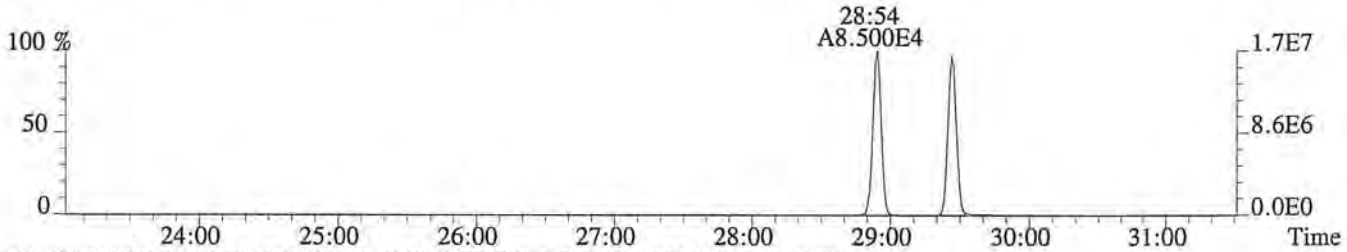
File:P300981 #1-602 Acq:21-AUG-2015 14:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2352.0,1.00%,F,T)



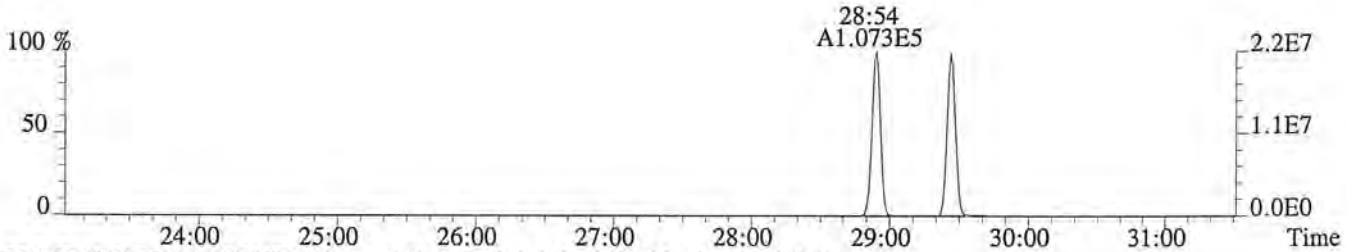
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2052.0,1.00%,F,T)



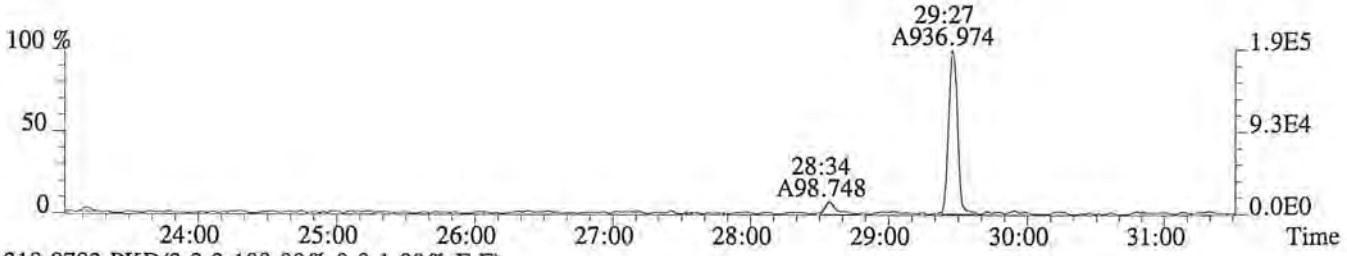
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10912.0,1.00%,F,T)



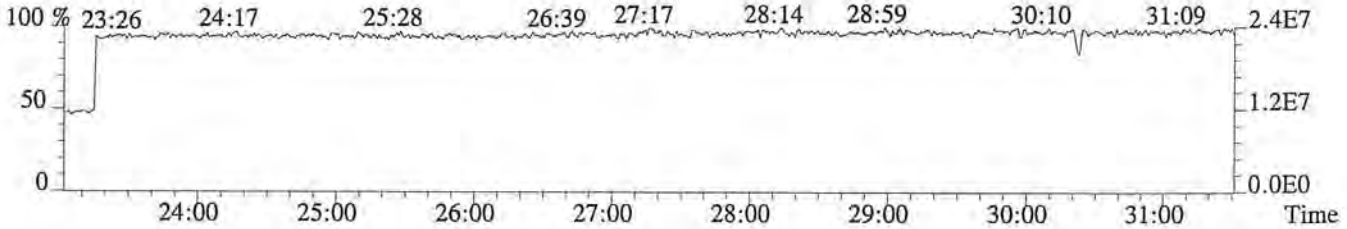
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7084.0,1.00%,F,T)



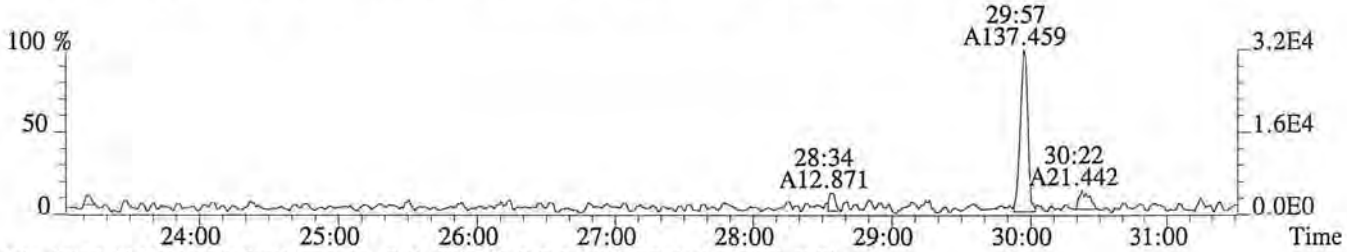
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1904.0,1.00%,F,T)



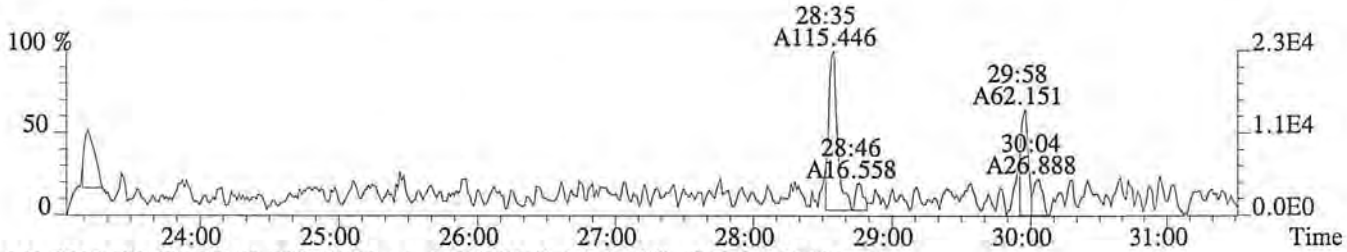
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



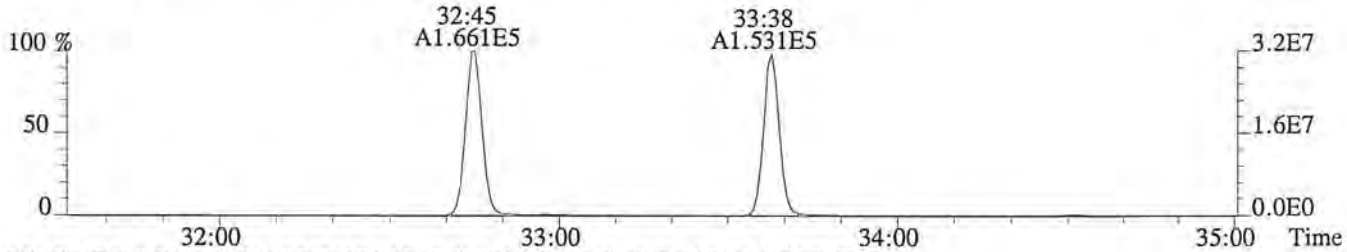
File:P300981 #1-602 Acq:21-AUG-2015 14:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1812.0,1.00%,F,T)



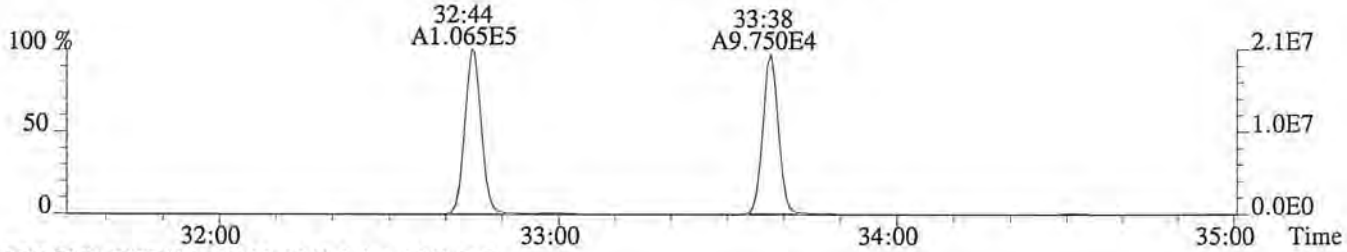
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3388.0,1.00%,F,T)



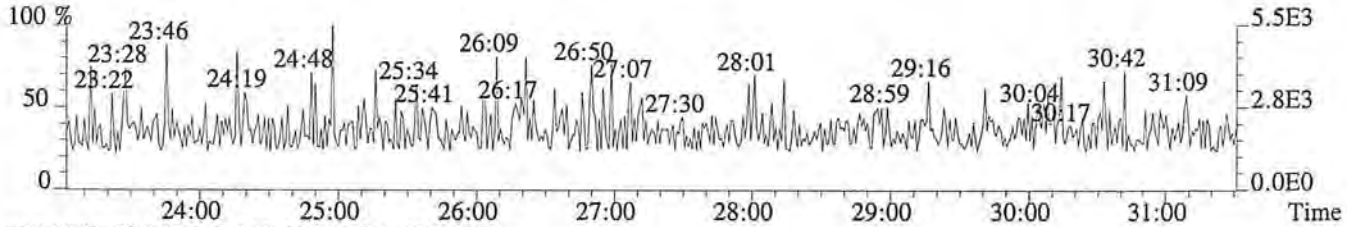
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1988.0,1.00%,F,T)



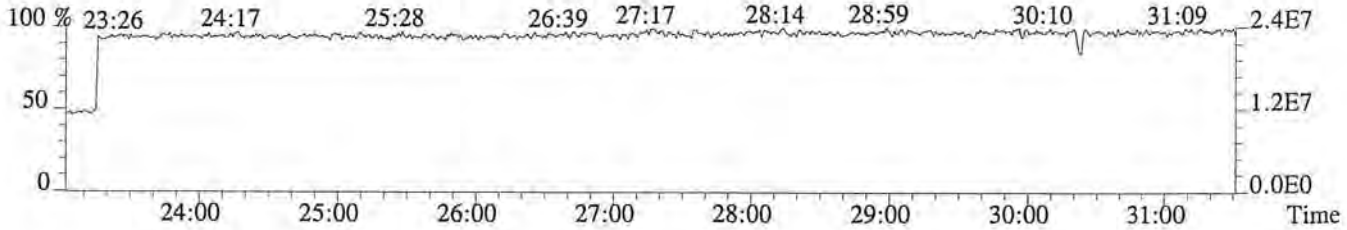
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2696.0,1.00%,F,T)



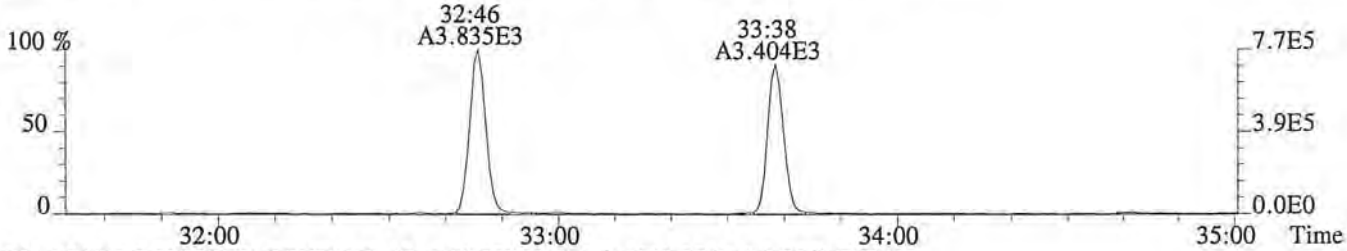
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



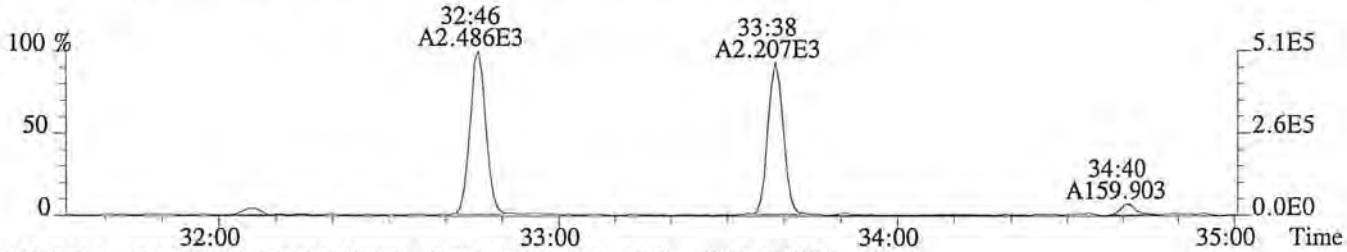
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



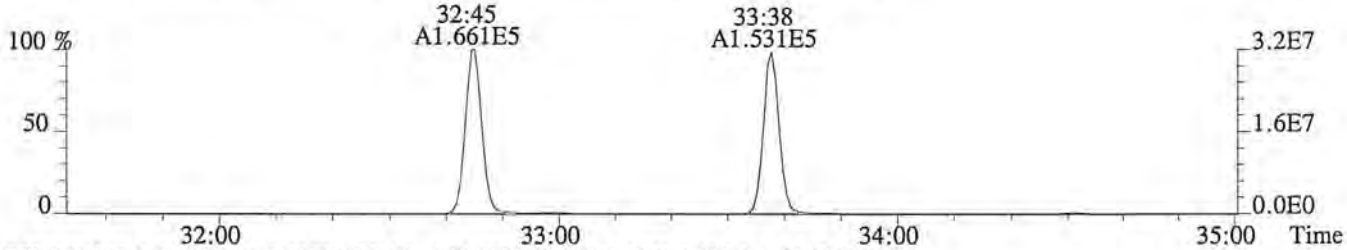
File:P300981 #1-312 Acq:21-AUG-2015 14:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2044.0,1.00%,F,T)



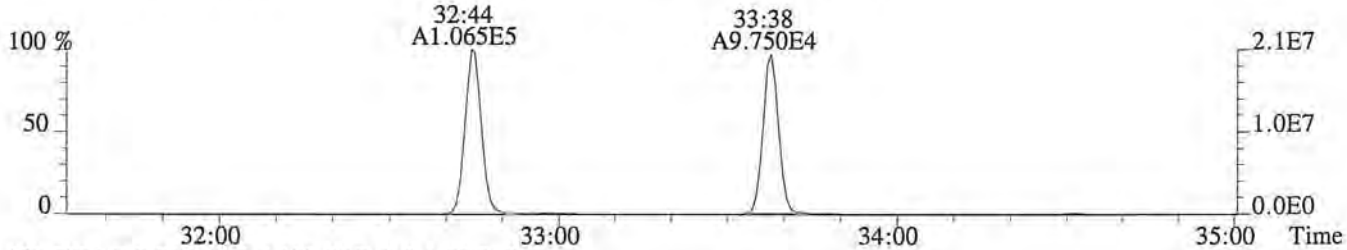
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3548.0,1.00%,F,T)



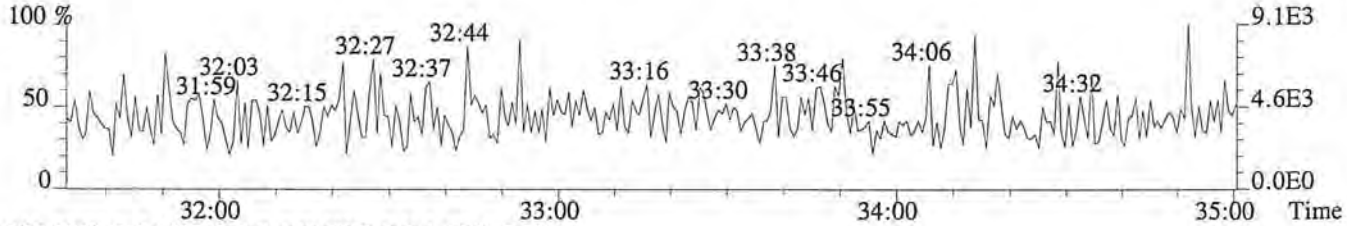
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1988.0,1.00%,F,T)



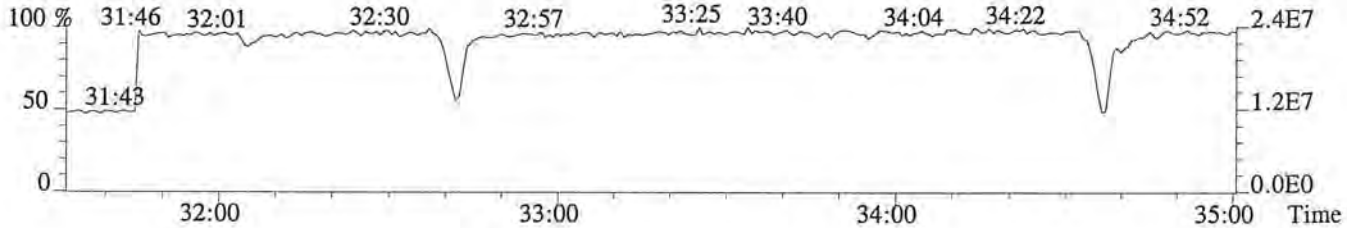
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2696.0,1.00%,F,T)



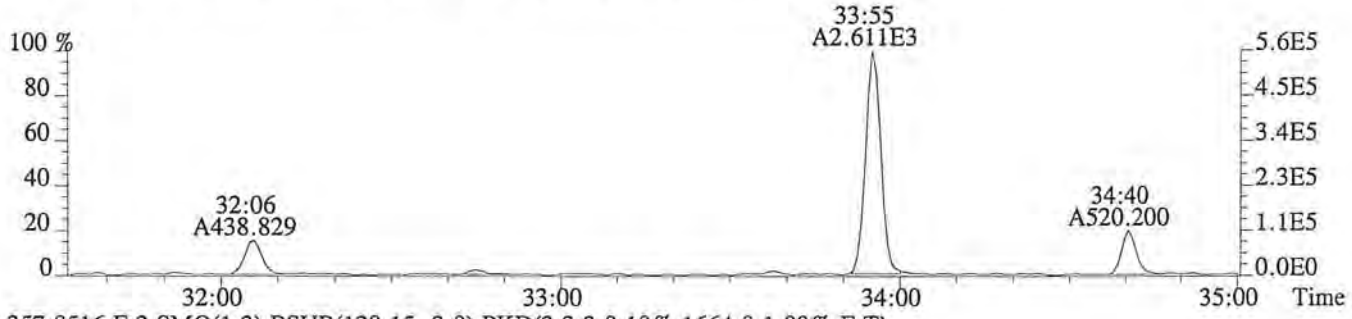
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



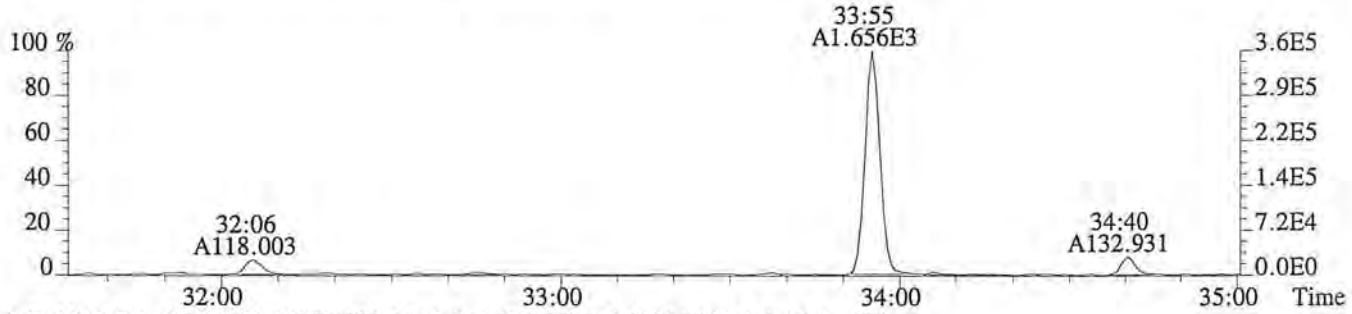
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P300981 #1-312 Acq:21-AUG-2015 14:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4880.0,1.00%,F,T)

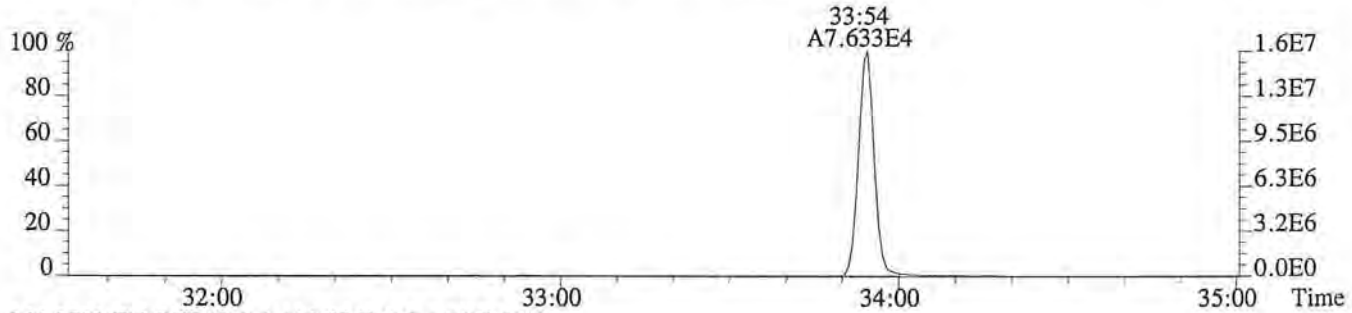


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)

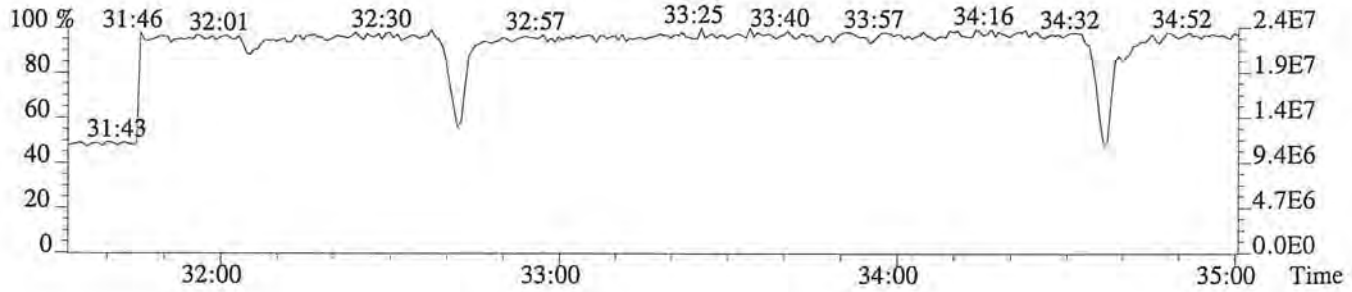


367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2700.0,1.00%,F,T)

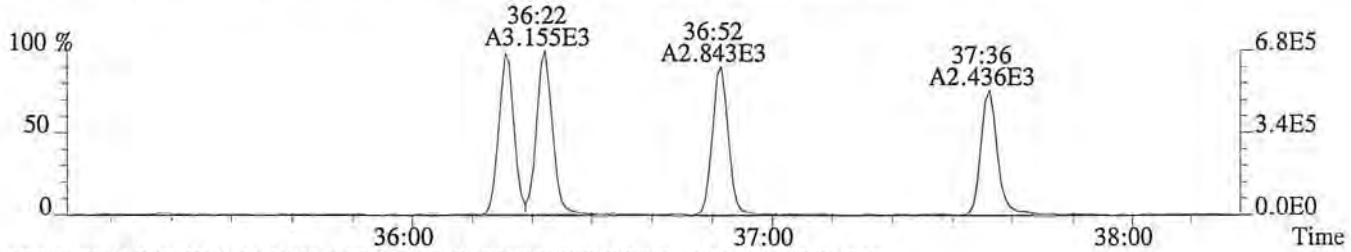
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1804.0,1.00%,F,T)



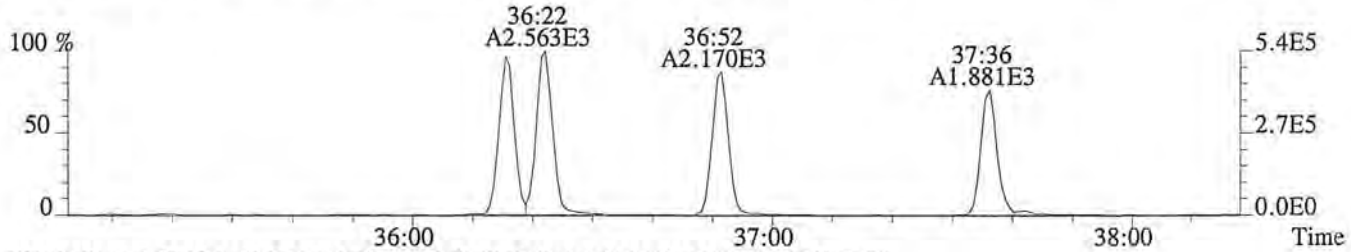
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



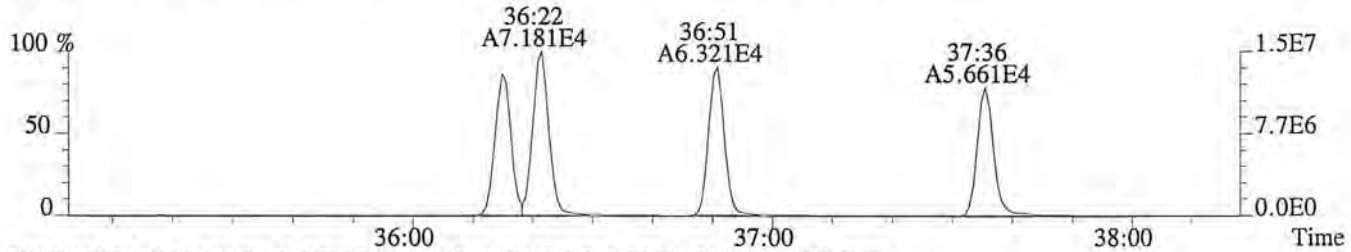
File:P300981 #1-294 Acq:21-AUG-2015 14:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1724.0,0.40%,F,T)



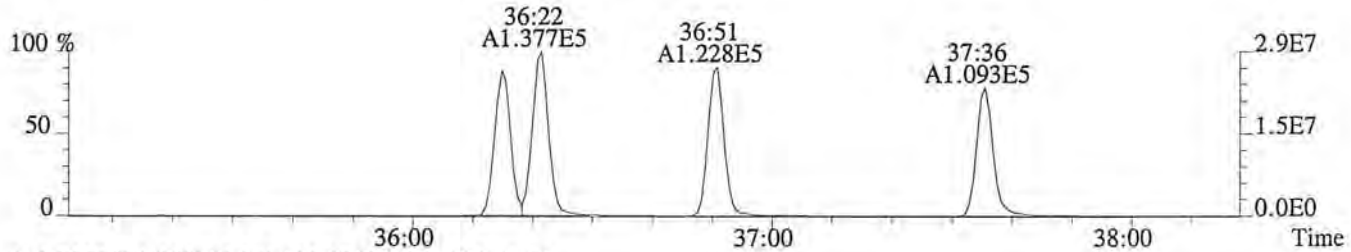
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



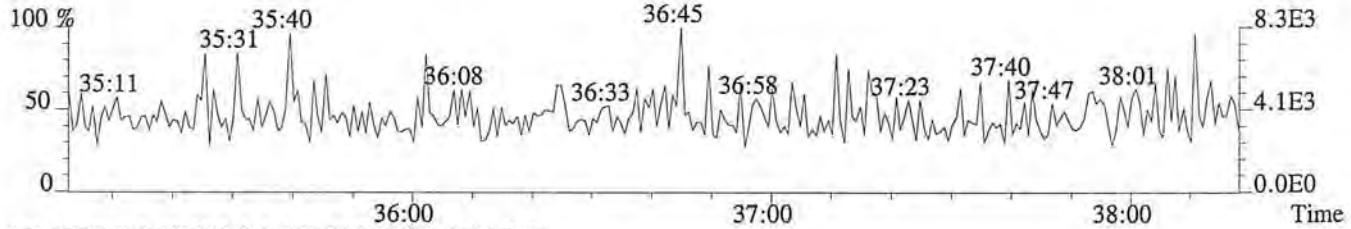
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1532.0,0.40%,F,T)



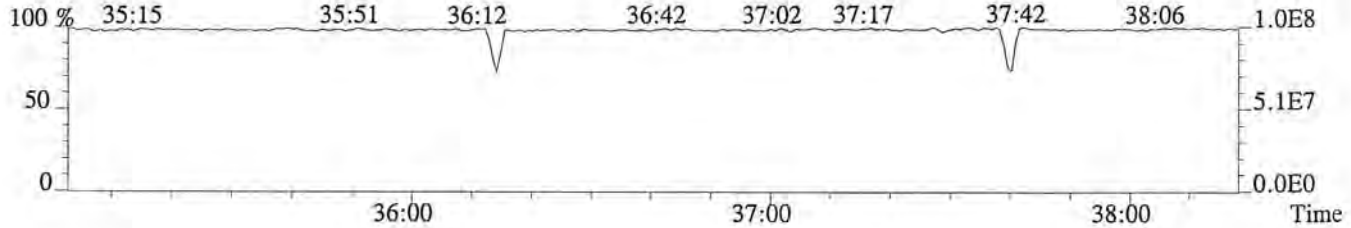
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3588.0,0.40%,F,T)



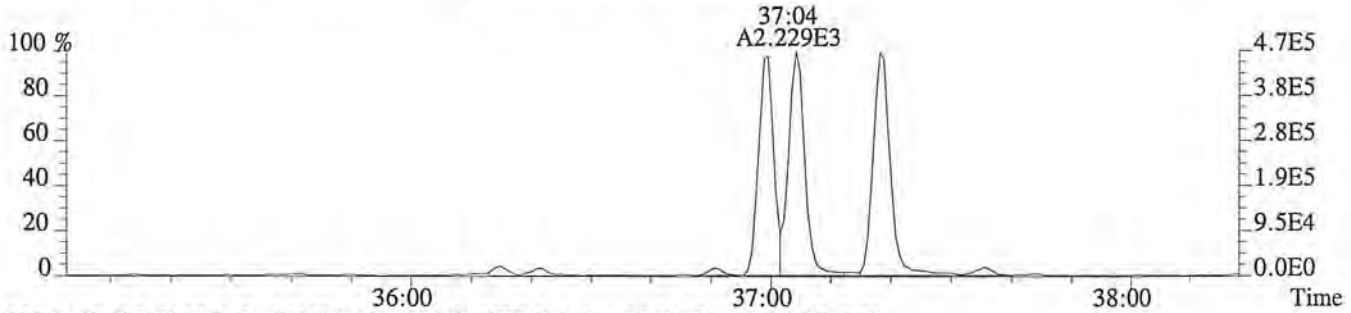
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



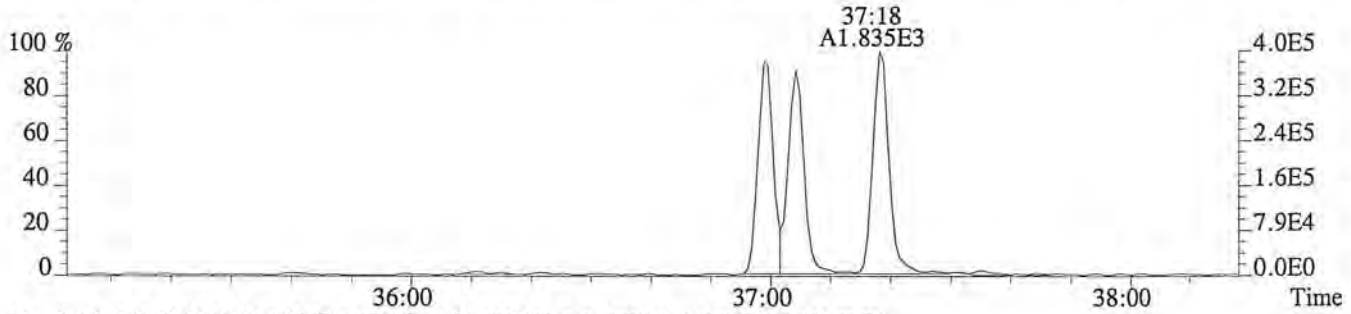
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



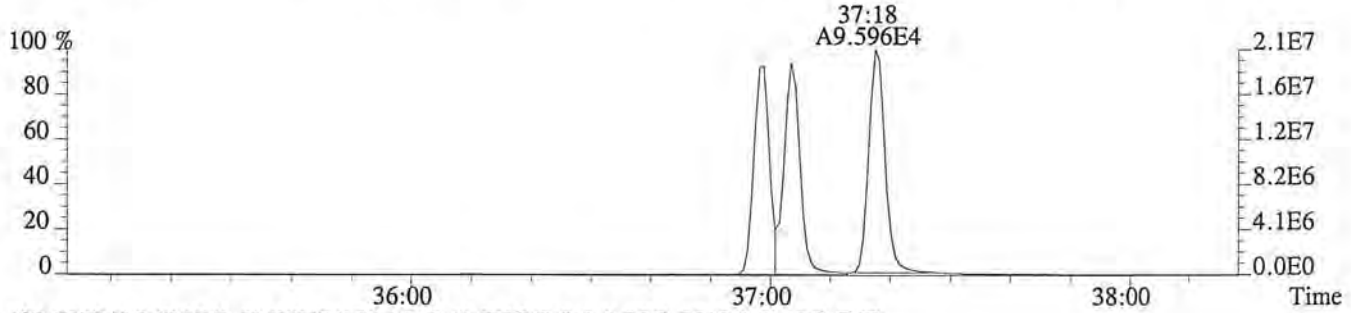
File:P300981 #1-294 Acq:21-AUG-2015 14:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1740.0,0.40%,F,T)



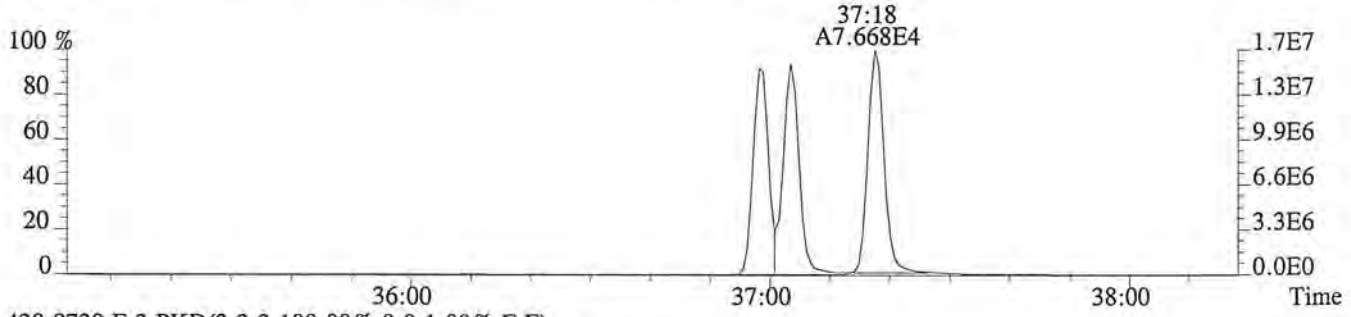
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2812.0,0.40%,F,T)



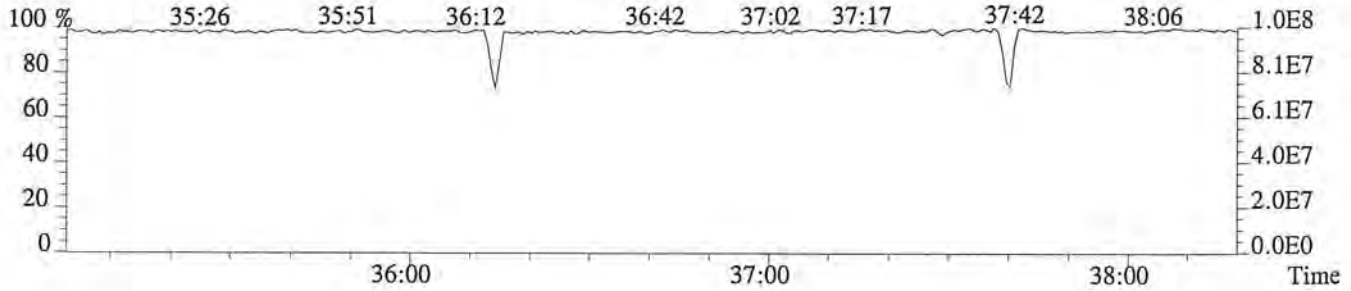
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4528.0,0.40%,F,T)



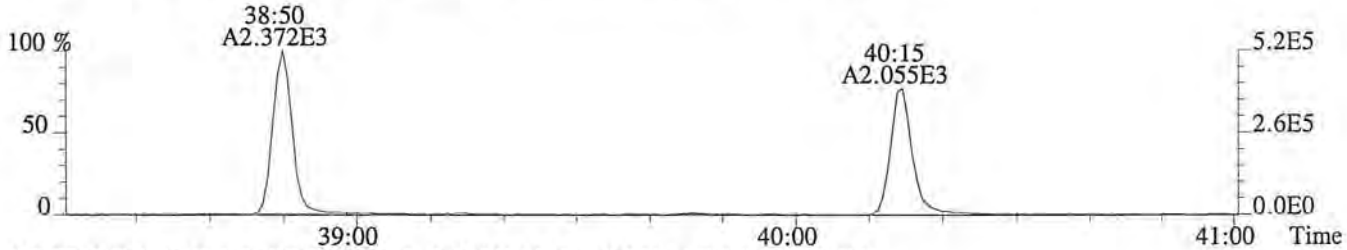
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2512.0,0.40%,F,T)



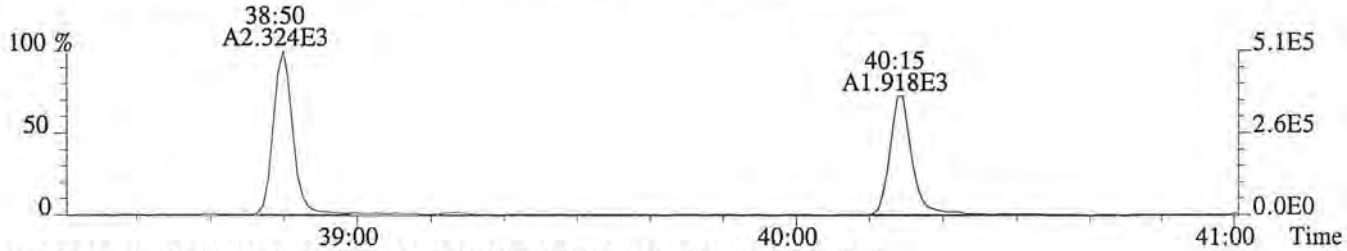
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



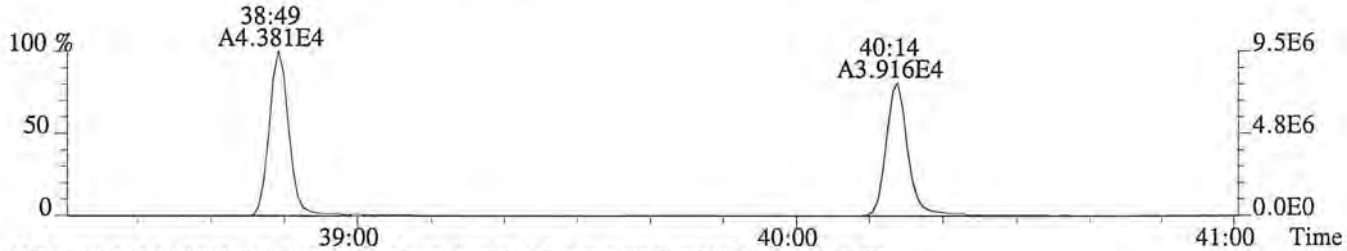
File:P300981 #1-241 Acq:21-AUG-2015 14:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1464.0,0.50%,F,T)



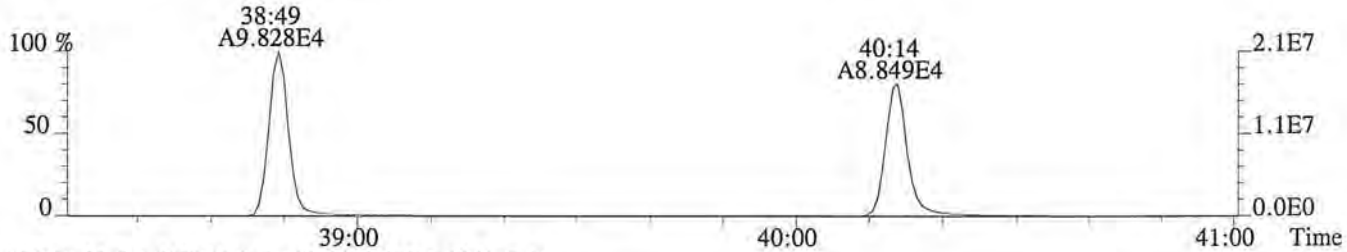
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1920.0,0.50%,F,T)



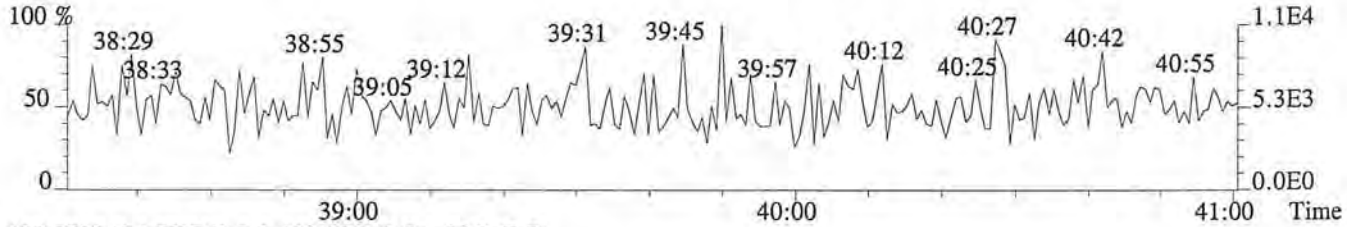
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5156.0,0.50%,F,T)



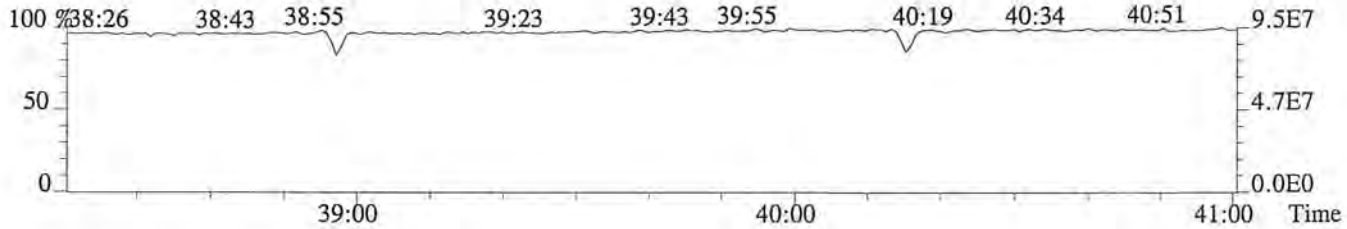
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9648.0,0.50%,F,T)



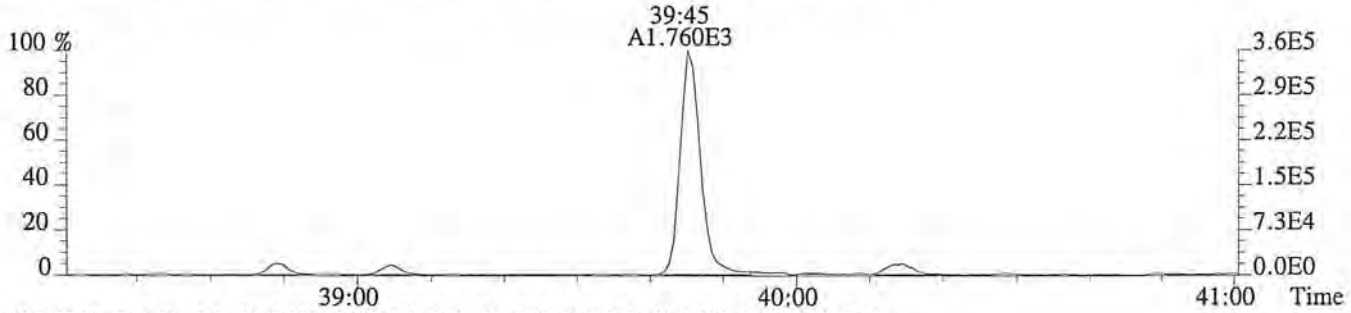
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



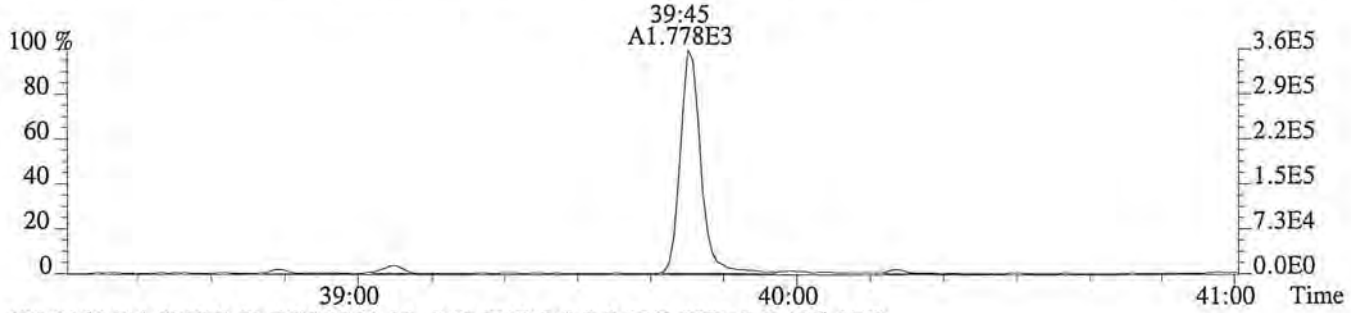
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



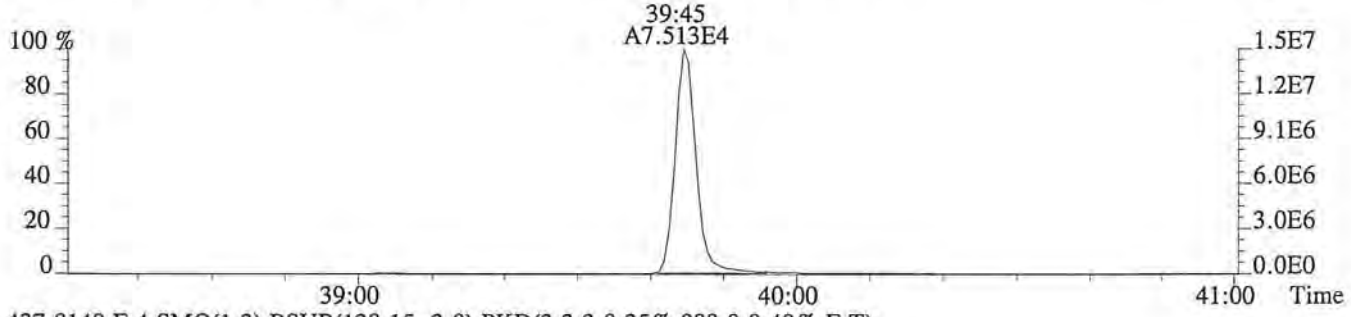
File:P300981 #1-241 Acq:21-AUG-2015 14:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1368.0,0.40%,F,T)



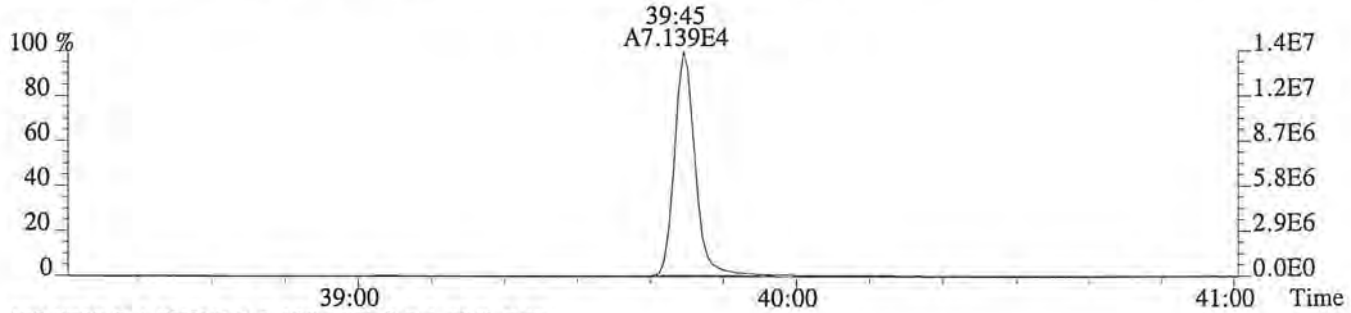
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1632.0,0.40%,F,T)



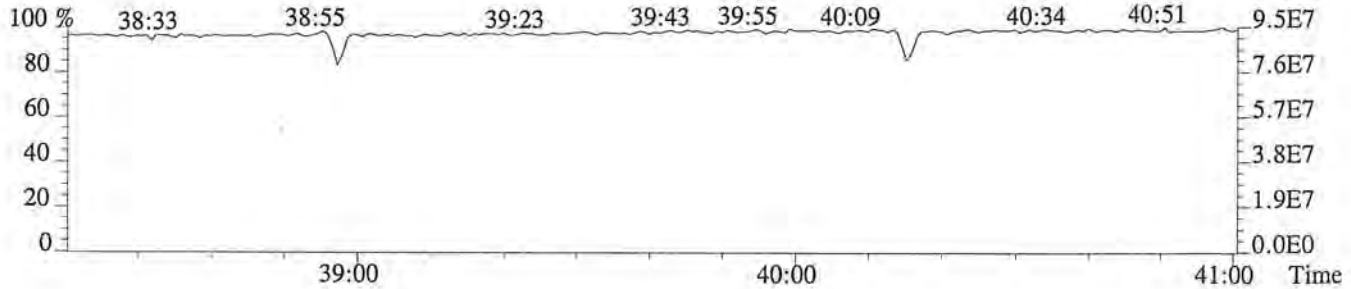
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2328.0,0.40%,F,T)



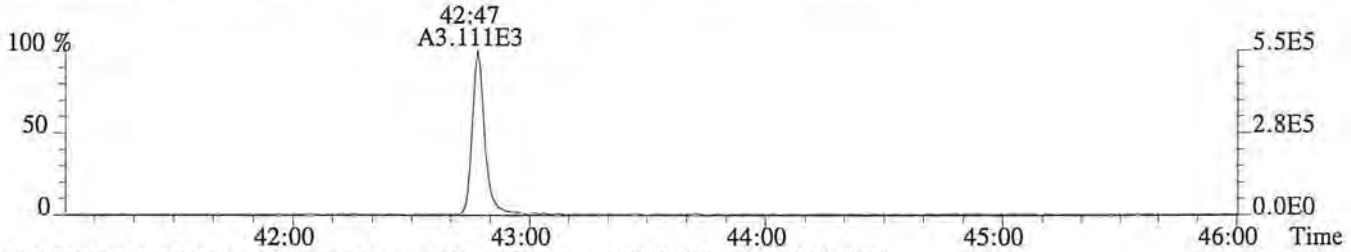
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



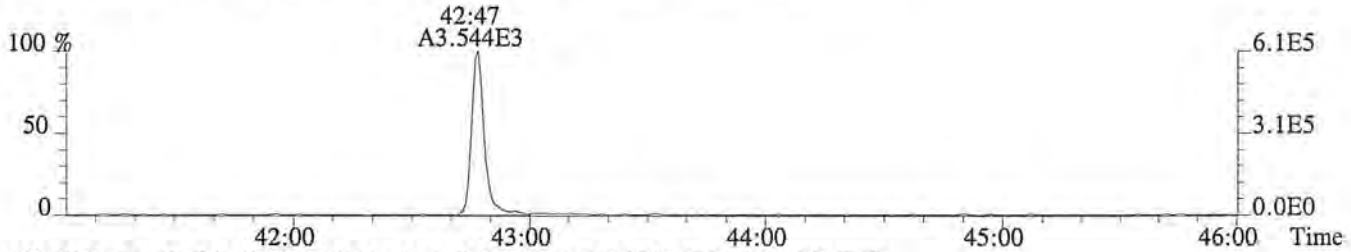
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



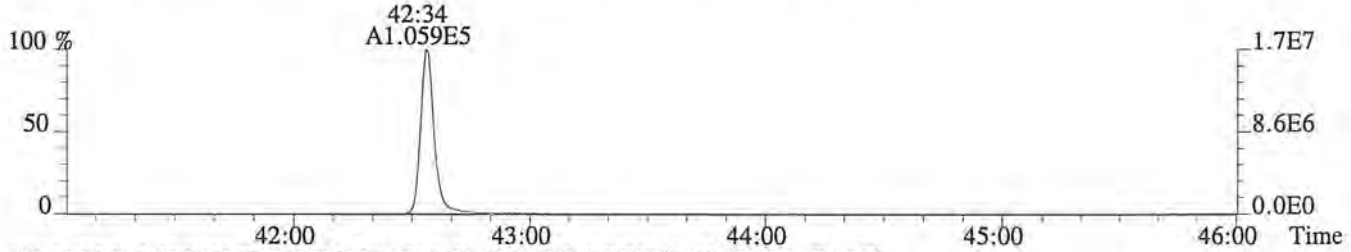
File:P300981 #1-447 Acq:21-AUG-2015 14:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2372.0,0.40%,F,T)



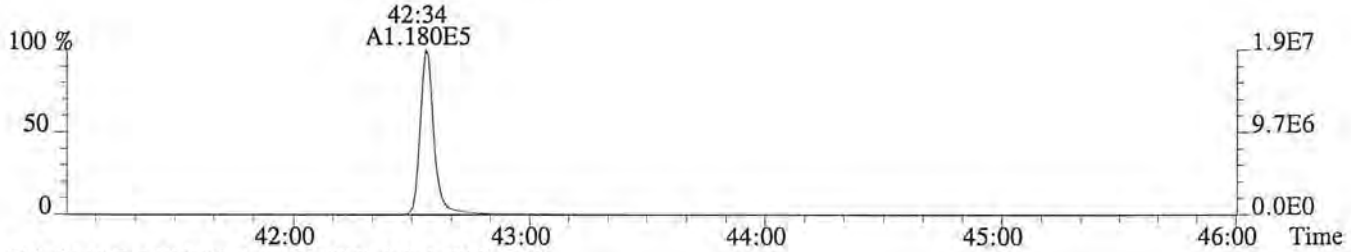
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2964.0,0.40%,F,T)



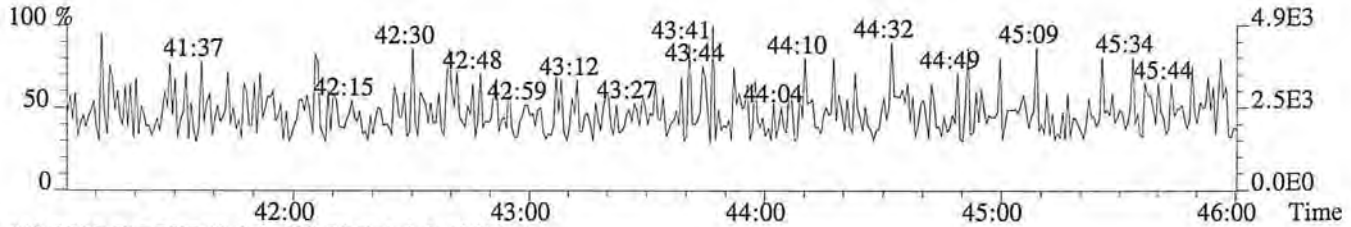
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



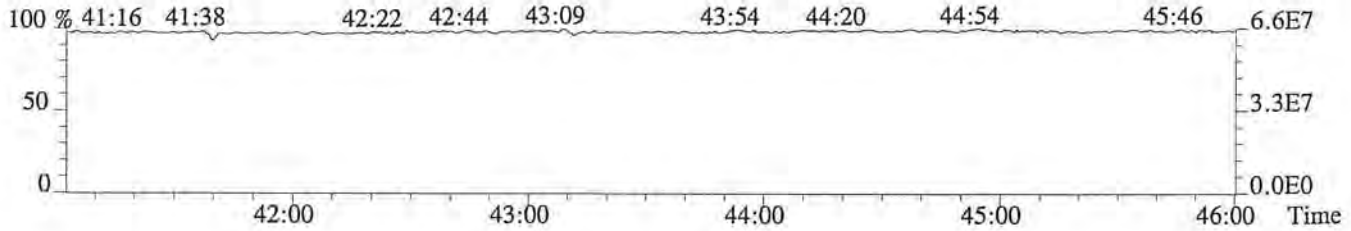
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1684.0,0.40%,F,T)



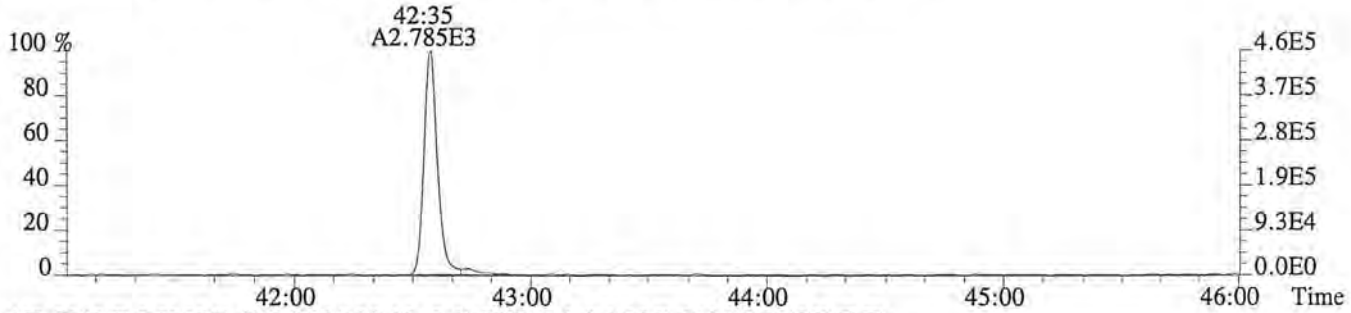
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



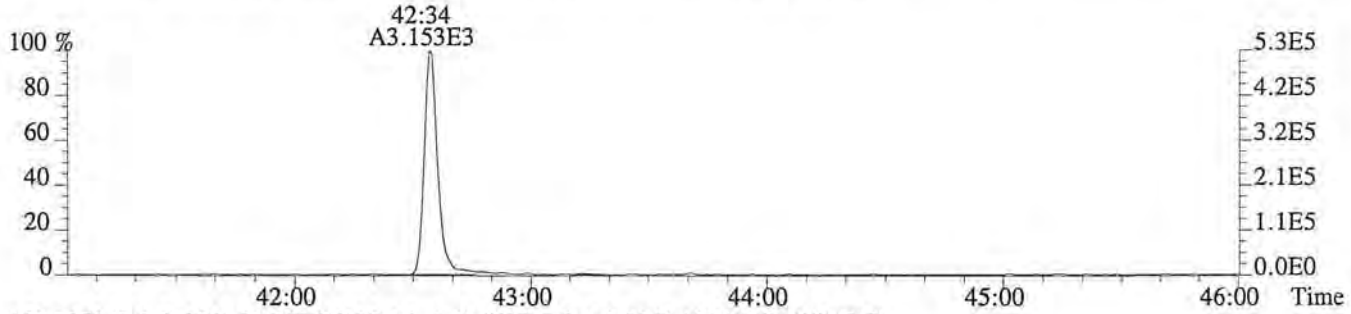
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



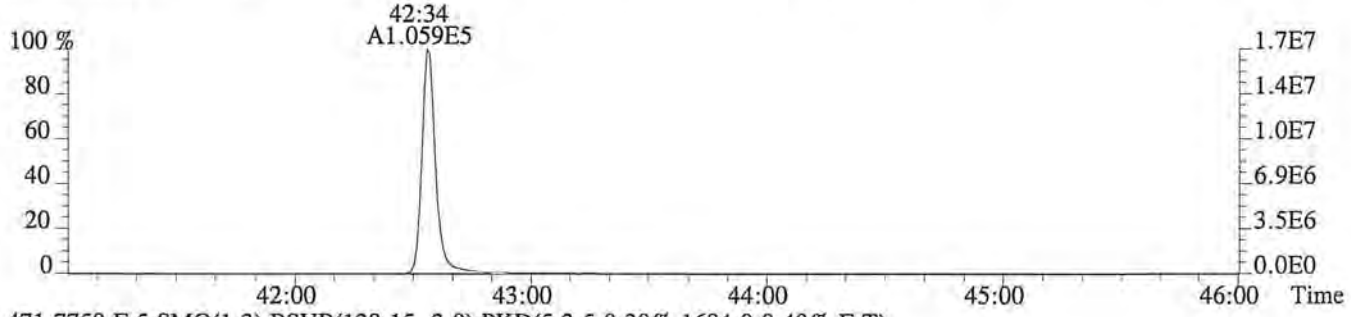
File:P300981 #1-447 Acq:21-AUG-2015 14:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1100.0,0.40%,F,T)



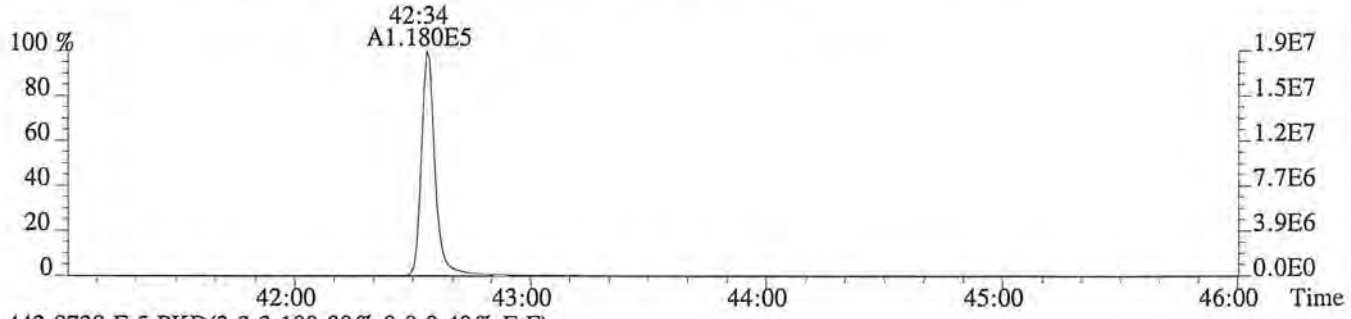
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2104.0,0.40%,F,T)



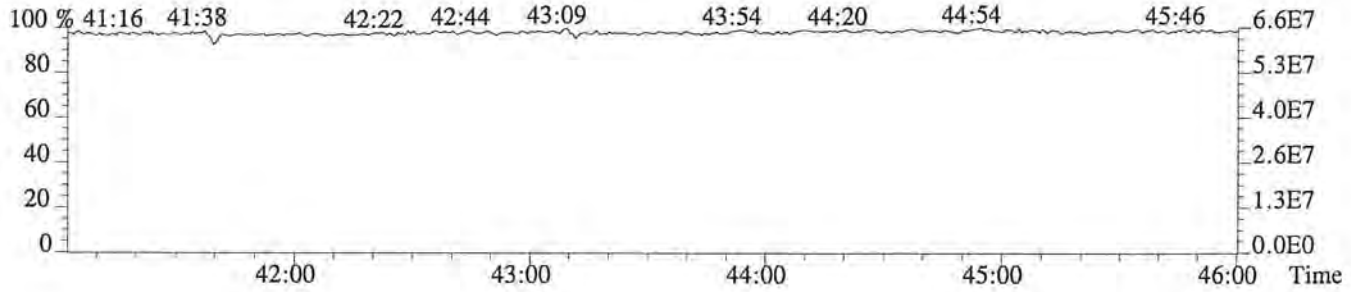
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1684.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P300982 Samp: 1 Inj: 1 Acquired: 21-AUG-15 15:37:10
Processed: 24-AUG-15 11:01:12 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	7.090e+02	9.215e+02	0.77	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	32:45	5.981e+03	3.846e+03	1.56	yes	no	0.929
3	Unk	2,3,4,7,8-PeCDF	33:38	5.432e+03	3.460e+03	1.57	yes	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	36:15	5.163e+03	4.063e+03	1.27	yes	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:21	5.129e+03	4.194e+03	1.22	yes	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:50	4.653e+03	3.690e+03	1.26	yes	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	37:35	3.962e+03	3.196e+03	1.24	yes	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	4.038e+03	3.970e+03	1.02	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	40:13	3.259e+03	3.169e+03	1.03	yes	no	1.245
10	Unk	OCDF	42:46	5.342e+03	5.870e+03	0.91	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:27	5.821e+02	7.524e+02	0.77	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:54	4.189e+03	2.637e+03	1.59	yes	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:58	3.500e+03	2.799e+03	1.25	yes	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:04	3.405e+03	2.792e+03	1.22	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:18	3.671e+03	3.071e+03	1.20	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:44	2.993e+03	2.877e+03	1.04	yes	no	0.949
17	Unk	OCDD	42:34	4.750e+03	5.327e+03	0.89	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:41	4.393e+04	5.593e+04	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:44	6.584e+04	4.204e+04	1.57	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:36	6.364e+04	4.106e+04	1.55	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:14	2.736e+04	5.268e+04	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:20	2.996e+04	5.851e+04	0.51	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:50	2.709e+04	5.323e+04	0.51	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:34	2.295e+04	4.463e+04	0.51	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:48	1.909e+04	4.355e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	1.649e+04	3.742e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:26	3.255e+04	4.128e+04	0.79	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:53	4.778e+04	3.030e+04	1.58	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:58	3.709e+04	2.922e+04	1.27	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	3.718e+04	2.942e+04	1.26	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:43	3.194e+04	3.052e+04	1.05	yes	no	0.850
32	IS	13C-OCDD	42:33	4.603e+04	5.100e+04	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:54	3.481e+04	4.311e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	3.952e+04	3.128e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	1.422e+03				no	1.001

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P300982 Samp: 1 Inj: 1 Acquired: 21-AUG-15 15:37:10
Processed: 24-AUG-15 11:01:12 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.41e+05	3.23e+03	4.4e+01	1.82e+05	4.92e+03	3.7e+01
2	1,2,3,7,8-PeCDF	1.17e+06	2.30e+03	5.1e+02	7.72e+05	5.92e+03	1.3e+02
3	2,3,4,7,8-PeCDF	1.12e+06	2.30e+03	4.9e+02	7.13e+05	5.92e+03	1.2e+02
4	1,2,3,4,7,8-HxCDF	1.11e+06	1.38e+03	8.1e+02	8.82e+05	9.60e+02	9.2e+02
5	1,2,3,6,7,8-HxCDF	1.10e+06	1.38e+03	8.0e+02	9.10e+05	9.60e+02	9.5e+02
6	2,3,4,6,7,8-HxCDF	1.03e+06	1.38e+03	7.5e+02	8.16e+05	9.60e+02	8.5e+02
7	1,2,3,7,8,9-HxCDF	8.54e+05	1.38e+03	6.2e+02	6.77e+05	9.60e+02	7.1e+02
8	1,2,3,4,6,7,8-HpCDF	8.80e+05	1.79e+03	4.9e+02	8.72e+05	2.64e+03	3.3e+02
9	1,2,3,4,7,8,9-HpCDF	6.53e+05	1.79e+03	3.6e+02	6.32e+05	2.64e+03	2.4e+02
10	OCDF	9.16e+05	2.70e+03	3.4e+02	1.02e+06	2.74e+03	3.7e+02
11	2,3,7,8-TCDD	1.19e+05	3.02e+03	3.9e+01	1.54e+05	3.16e+03	4.9e+01
12	1,2,3,7,8-PeCDD	8.55e+05	3.74e+03	2.3e+02	5.41e+05	1.58e+03	3.4e+02
13	1,2,3,4,7,8-HxCDD	8.07e+05	1.60e+03	5.0e+02	6.37e+05	1.58e+03	4.0e+02
14	1,2,3,6,7,8-HxCDD	7.39e+05	1.60e+03	4.6e+02	5.99e+05	1.58e+03	3.8e+02
15	1,2,3,7,8,9-HxCDD	7.91e+05	1.60e+03	4.9e+02	6.44e+05	1.58e+03	4.1e+02
16	1,2,3,4,6,7,8-HpCDD	5.90e+05	1.76e+03	3.4e+02	5.62e+05	1.46e+03	3.8e+02
17	OCDD	8.55e+05	1.61e+03	5.3e+02	9.64e+05	1.96e+03	4.9e+02
18	13C-2,3,7,8-TCDF	8.71e+06	3.56e+03	2.4e+03	1.11e+07	3.60e+03	3.1e+03
19	13C-1,2,3,7,8-PeCDF	1.30e+07	2.39e+03	5.5e+03	8.44e+06	3.07e+03	2.8e+03
20	13C-2,3,4,7,8-PeCDF	1.31e+07	2.39e+03	5.5e+03	8.47e+06	3.07e+03	2.8e+03
21	13C-1,2,3,4,7,8-HxCDF	6.03e+06	2.45e+03	2.5e+03	1.15e+07	2.91e+03	4.0e+03
22	13C-1,2,3,6,7,8-HxCDF	6.40e+06	2.45e+03	2.6e+03	1.25e+07	2.91e+03	4.3e+03
23	13C-2,3,4,6,7,8-HxCDF	6.01e+06	2.45e+03	2.5e+03	1.18e+07	2.91e+03	4.1e+03
24	13C-1,2,3,7,8,9-HxCDF	4.90e+06	2.45e+03	2.0e+03	9.46e+06	2.91e+03	3.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.11e+06	4.76e+03	8.6e+02	9.40e+06	3.71e+03	2.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.25e+06	4.76e+03	6.8e+02	7.37e+06	3.71e+03	2.0e+03
27	13C-2,3,7,8-TCDD	6.68e+06	1.39e+04	4.8e+02	8.54e+06	6.09e+03	1.4e+03
28	13C-1,2,3,7,8-PeCDD	9.92e+06	3.71e+03	2.7e+03	6.31e+06	1.65e+03	3.8e+03
29	13C-1,2,3,4,7,8-HxCDD	8.47e+06	4.20e+03	2.0e+03	6.75e+06	2.19e+03	3.1e+03
30	13C-1,2,3,6,7,8-HxCDD	7.97e+06	4.20e+03	1.9e+03	6.29e+06	2.19e+03	2.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.33e+06	2.87e+03	2.2e+03	6.16e+06	1.12e+03	5.5e+03
32	13C-OCDD	8.26e+06	1.91e+03	4.3e+03	9.05e+06	2.22e+03	4.1e+03
33	13C-1,2,3,4-TCDD	7.14e+06	1.39e+04	5.2e+02	8.82e+06	6.09e+03	1.4e+03
34	13C-1,2,3,7,8,9-HxCDD	8.49e+06	4.20e+03	2.0e+03	6.79e+06	2.19e+03	3.1e+03
35	37Cl-2,3,7,8-TCDD	2.91e+05	2.59e+03	1.1e+02			

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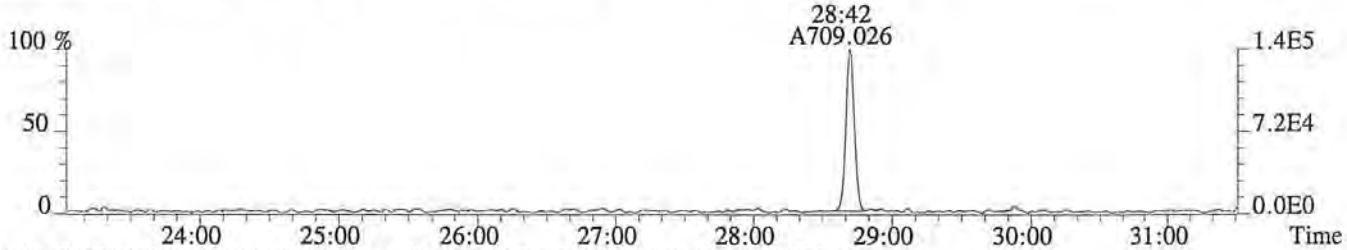
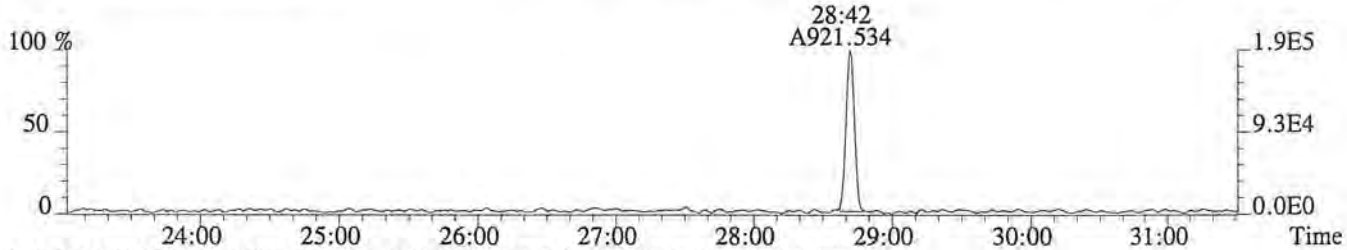
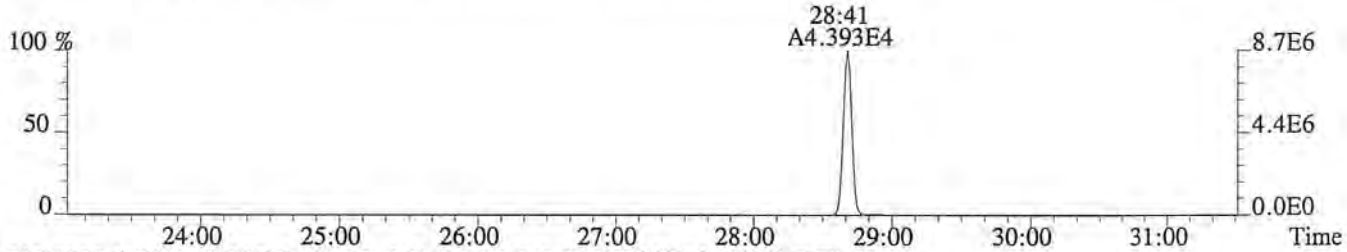
File:P300982 #1-602 Acq:21-AUG-2015 15:37:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3232.0,1.00%,F,T)



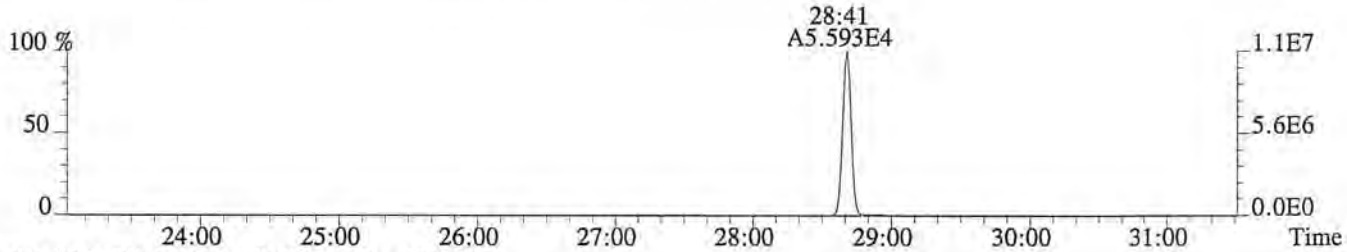
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4916.0,1.00%,F,T)



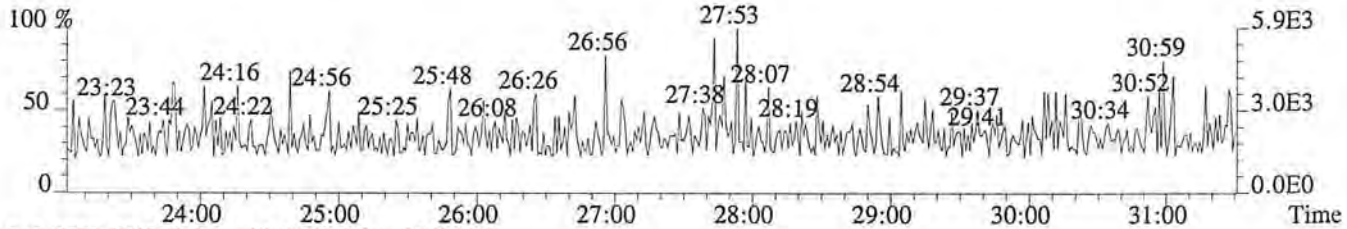
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3564.0,1.00%,F,T)



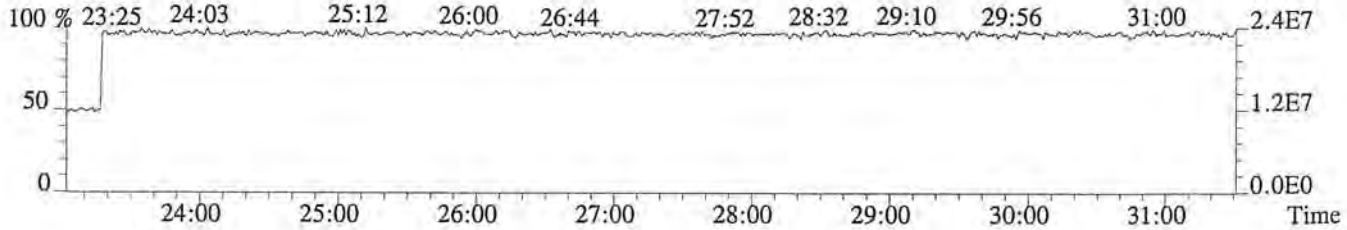
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3604.0,1.00%,F,T)



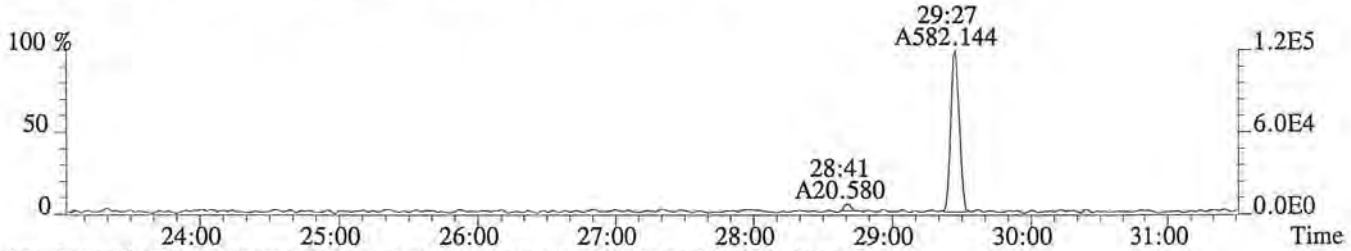
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



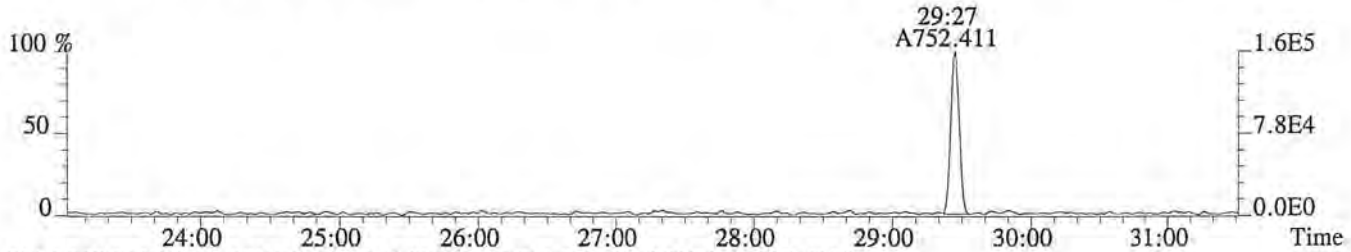
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



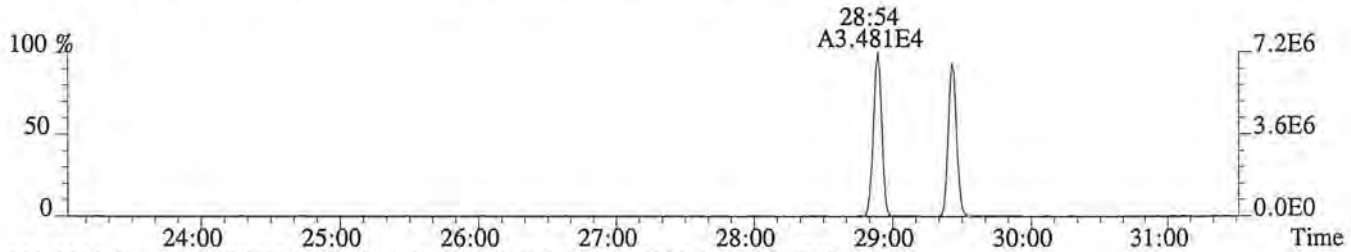
File:P300982 #1-602 Acq:21-AUG-2015 15:37:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3016.0,1.00%,F,T)



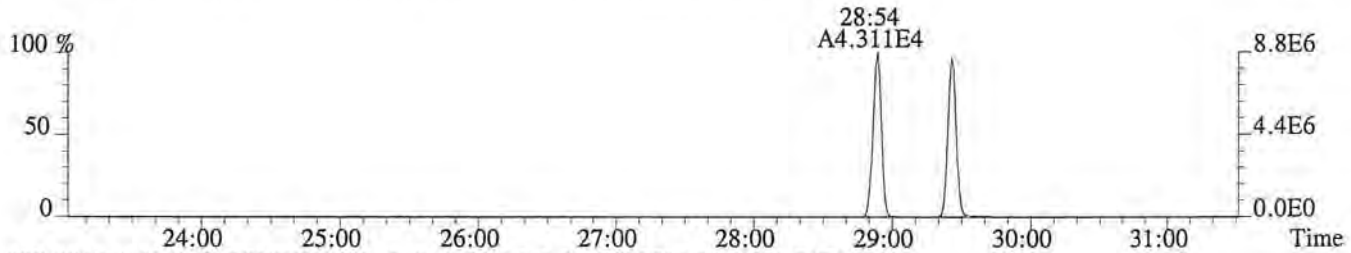
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3156.0,1.00%,F,T)



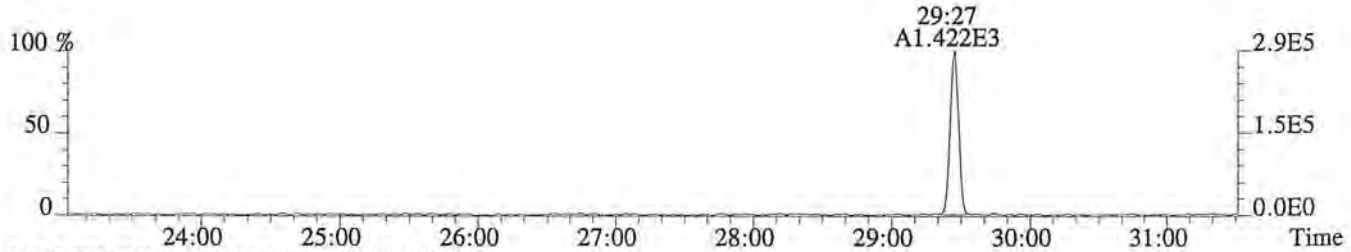
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,13860.0,1.00%,F,T)



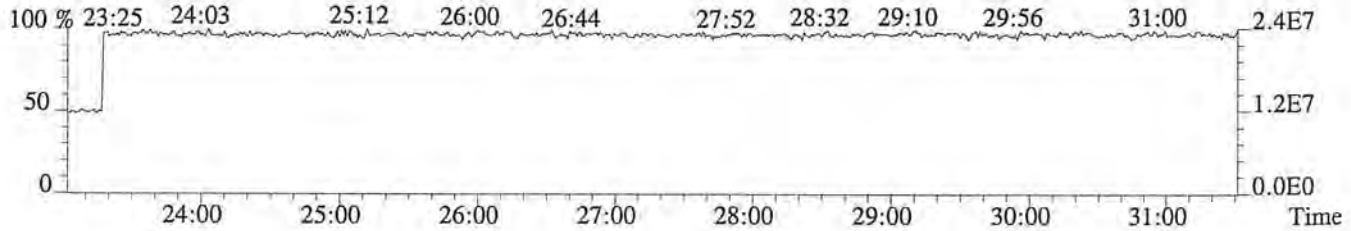
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6088.0,1.00%,F,T)



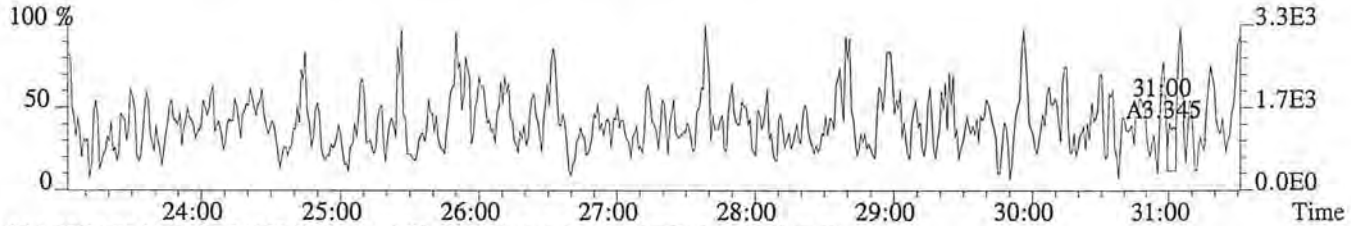
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2592.0,1.00%,F,T)



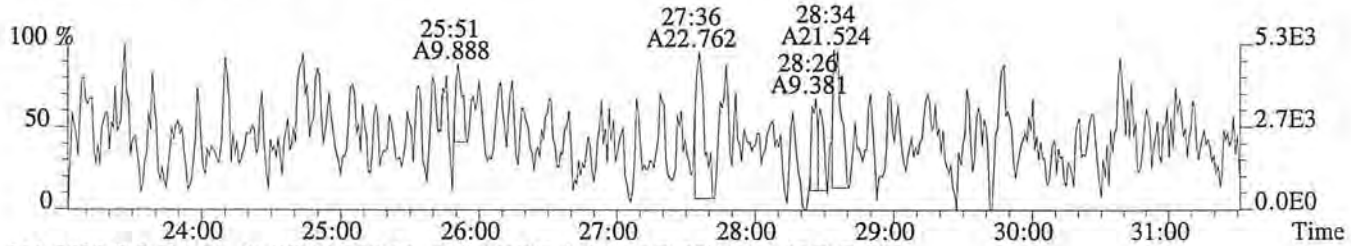
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



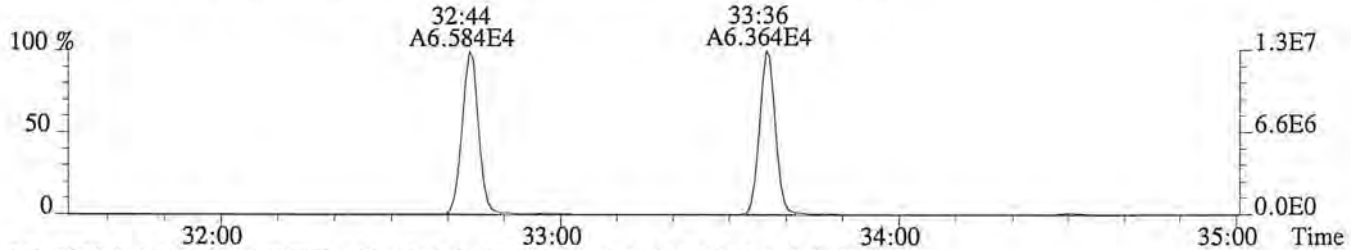
File:P300982 #1-602 Acq:21-AUG-2015 15:37:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1616.0,1.00%,F,T)



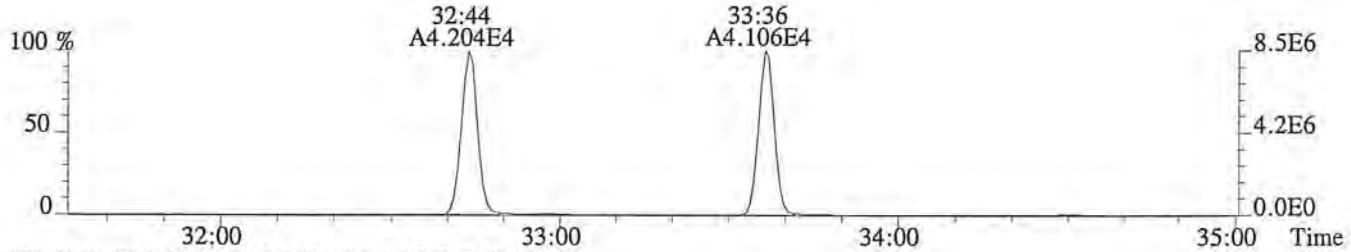
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2768.0,1.00%,F,T)



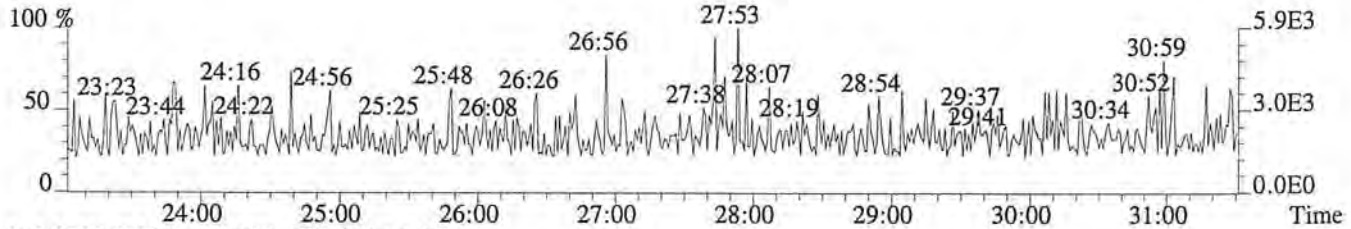
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



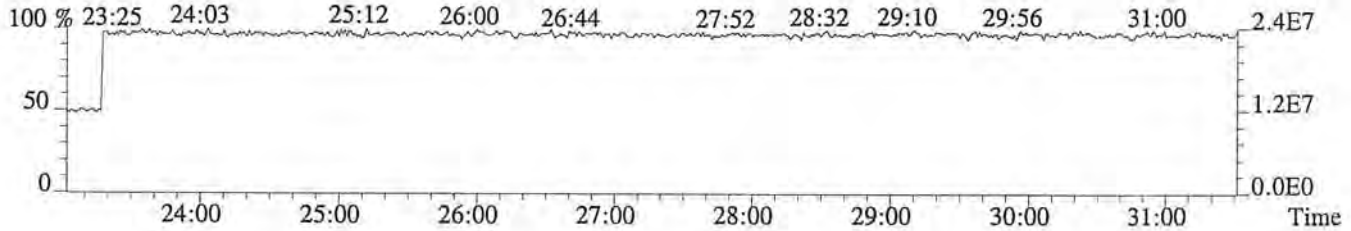
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3068.0,1.00%,F,T)



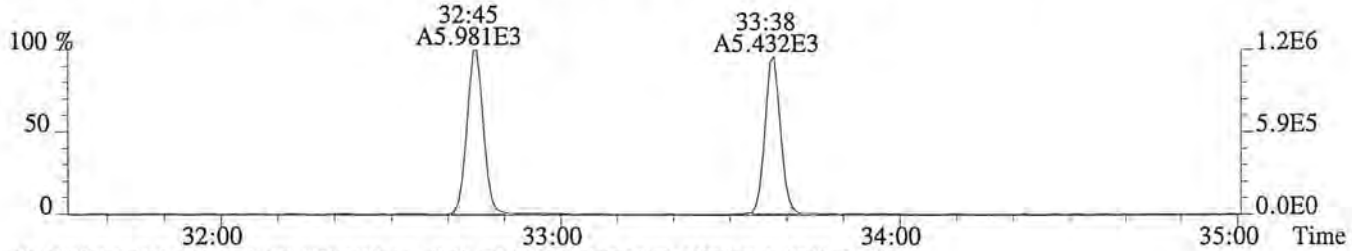
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



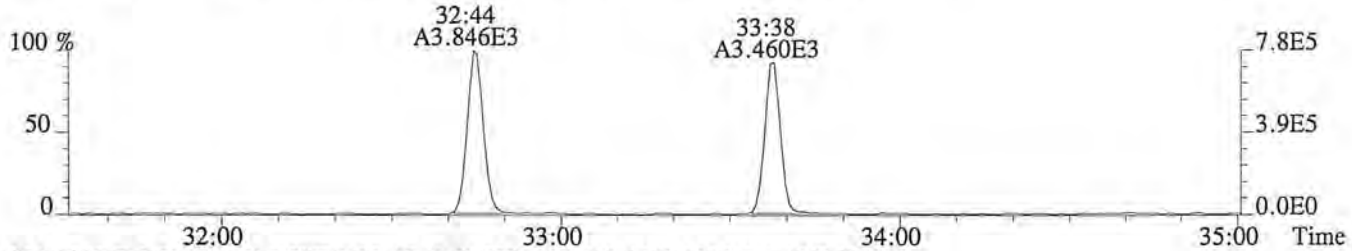
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



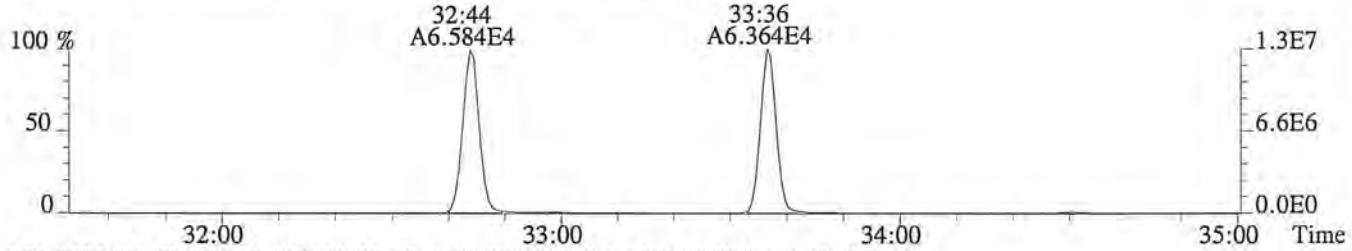
File:P300982 #1-312 Acq:21-AUG-2015 15:37:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2300.0,1.00%,F,T)



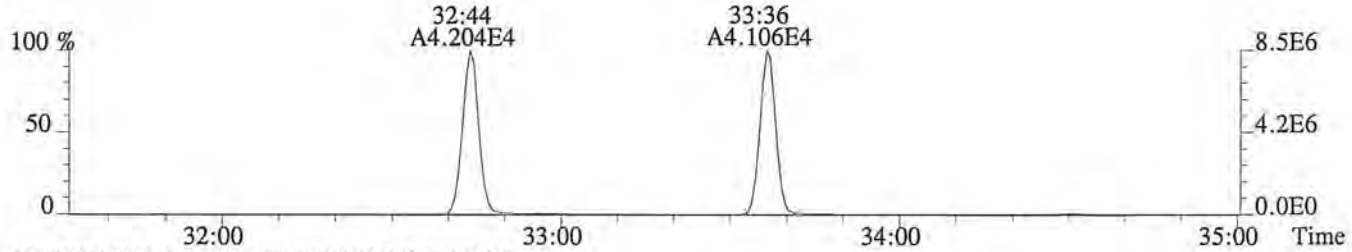
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5920.0,1.00%,F,T)



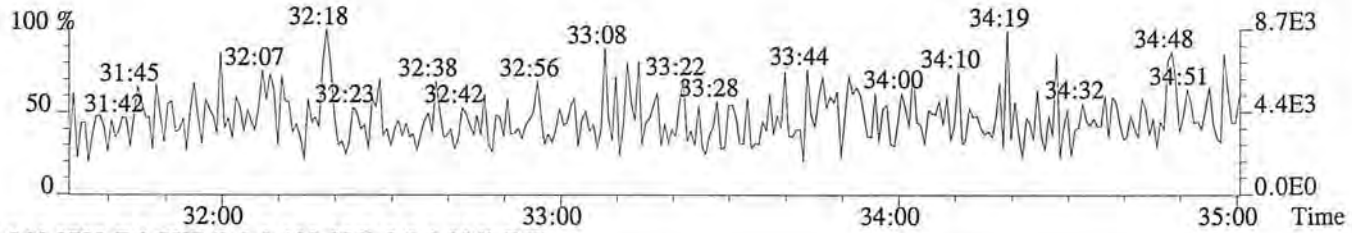
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



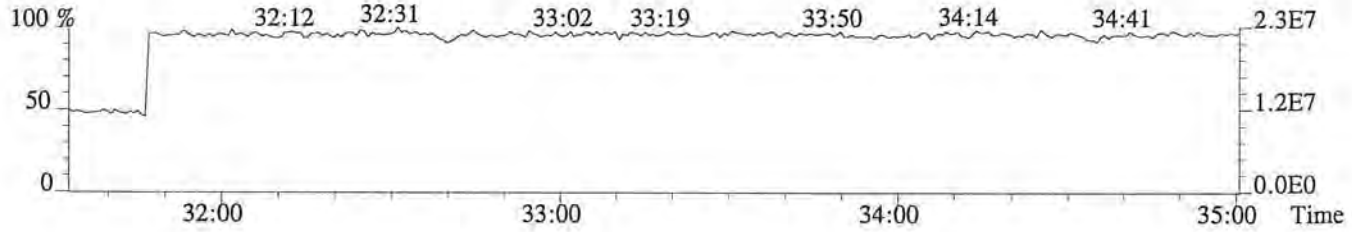
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3068.0,1.00%,F,T)



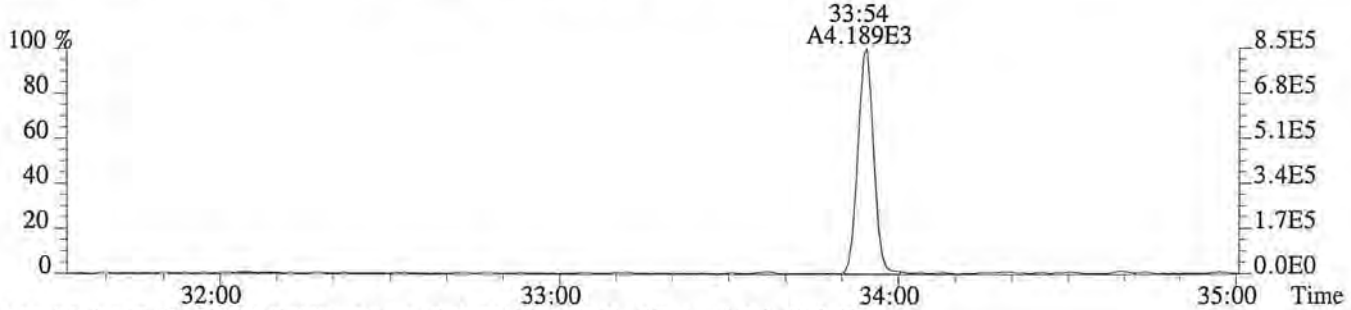
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



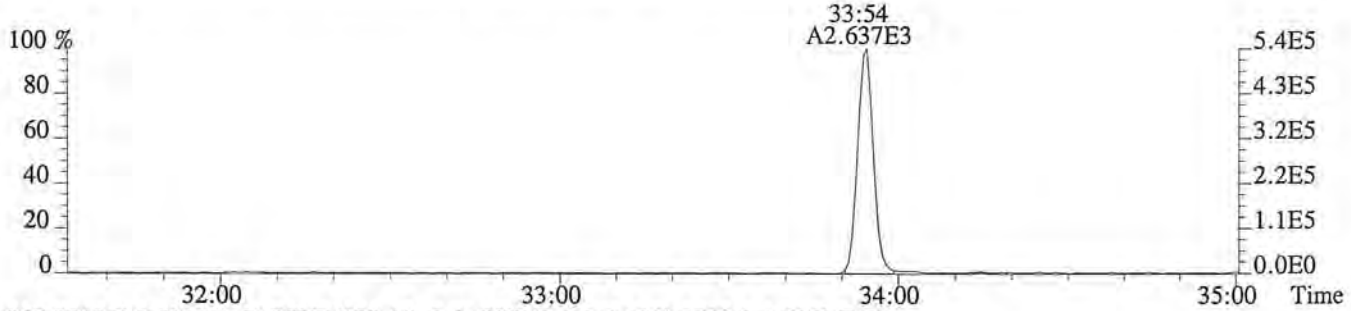
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



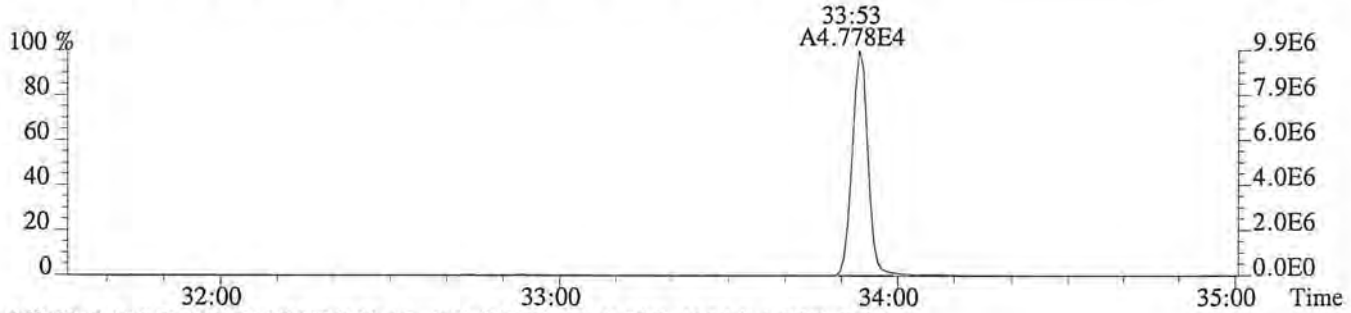
File:P300982 #1-312 Acq:21-AUG-2015 15:37:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3740.0,1.00%,F,T)



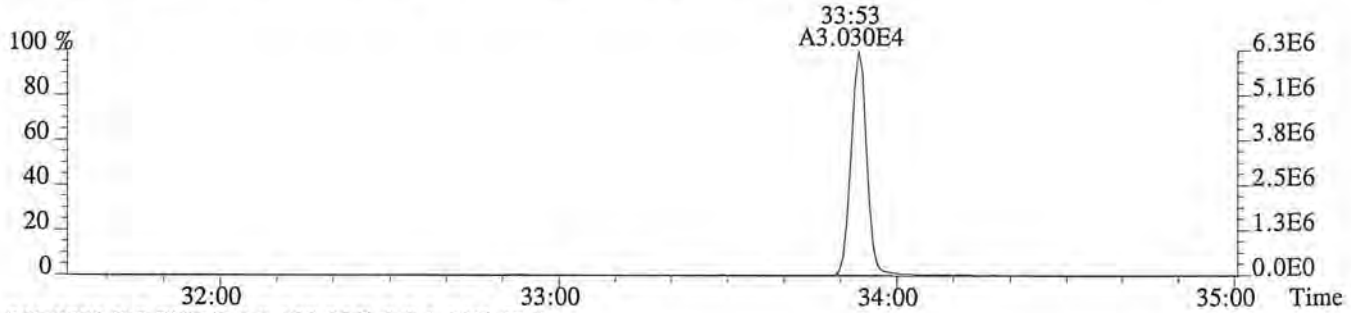
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1584.0,1.00%,F,T)



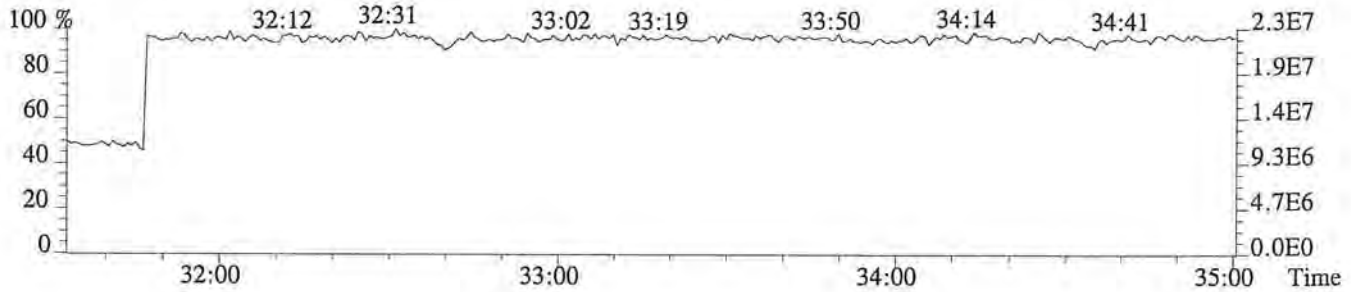
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3708.0,1.00%,F,T)



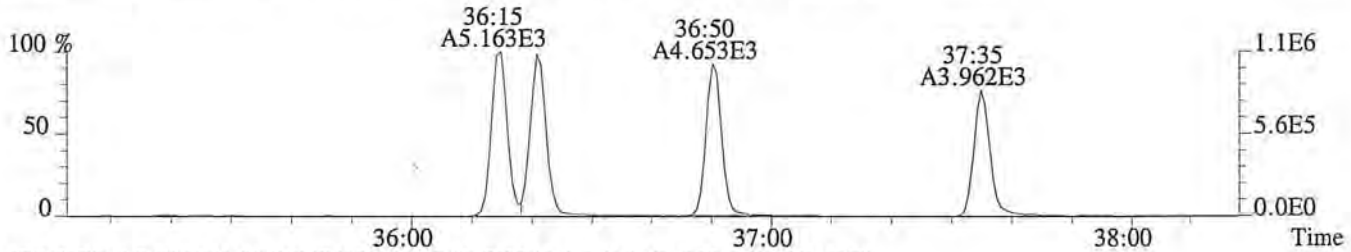
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1652.0,1.00%,F,T)



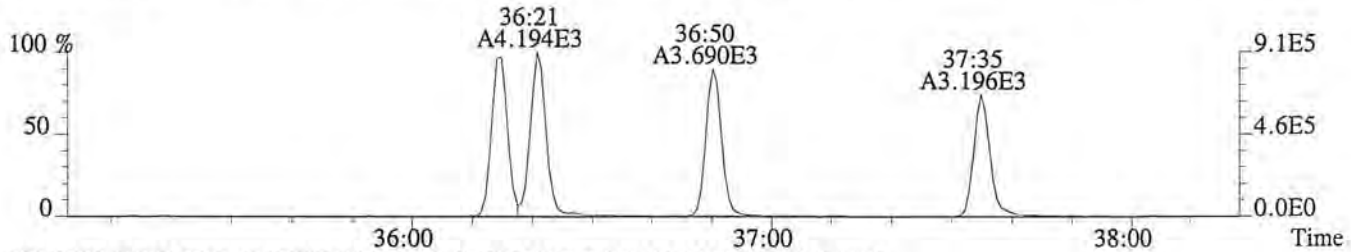
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



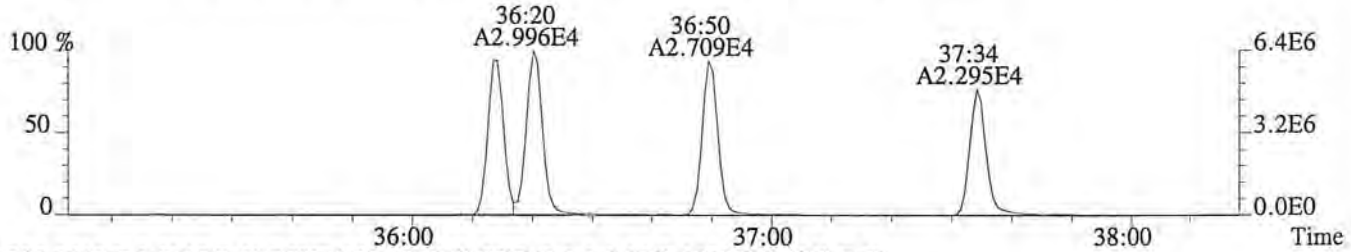
File:P300982 #1-294 Acq:21-AUG-2015 15:37:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1380.0,0.40%,F,T)



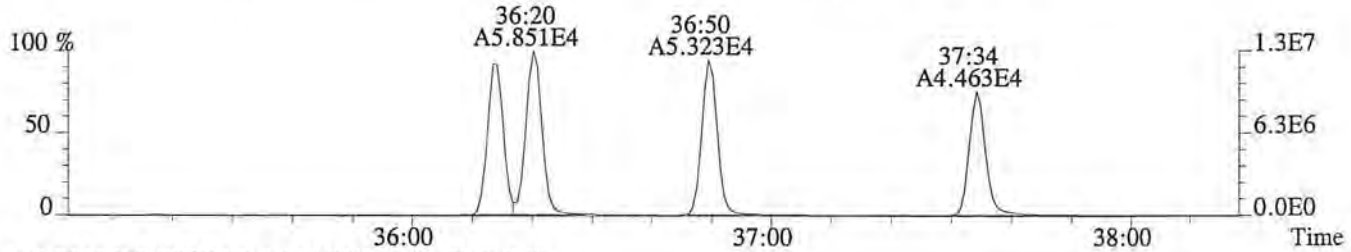
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



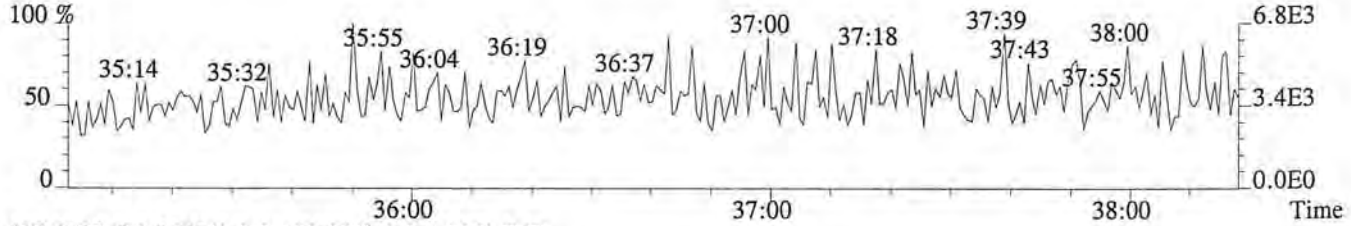
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2452.0,0.40%,F,T)



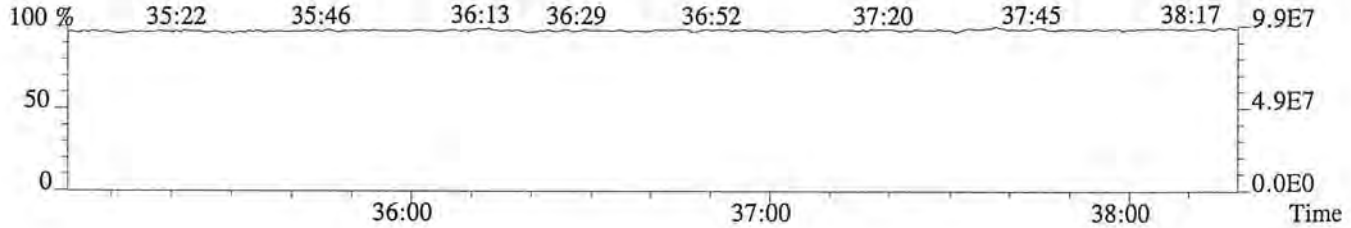
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2908.0,0.40%,F,T)



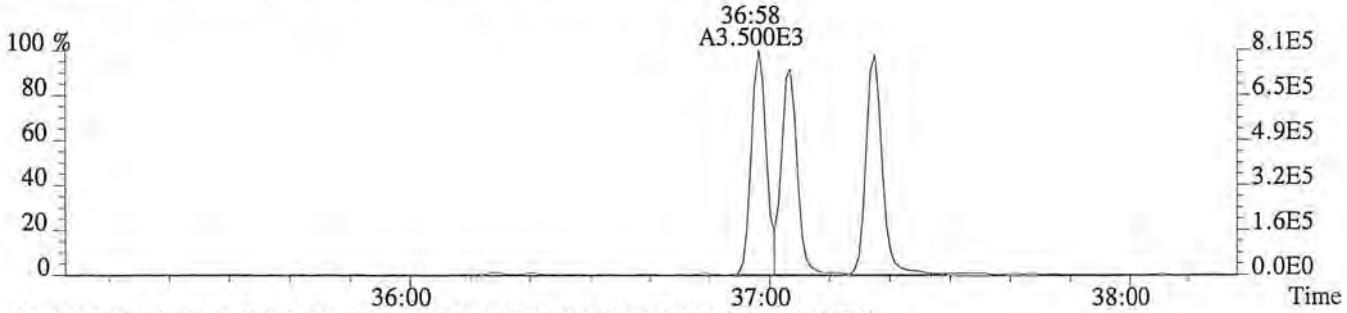
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



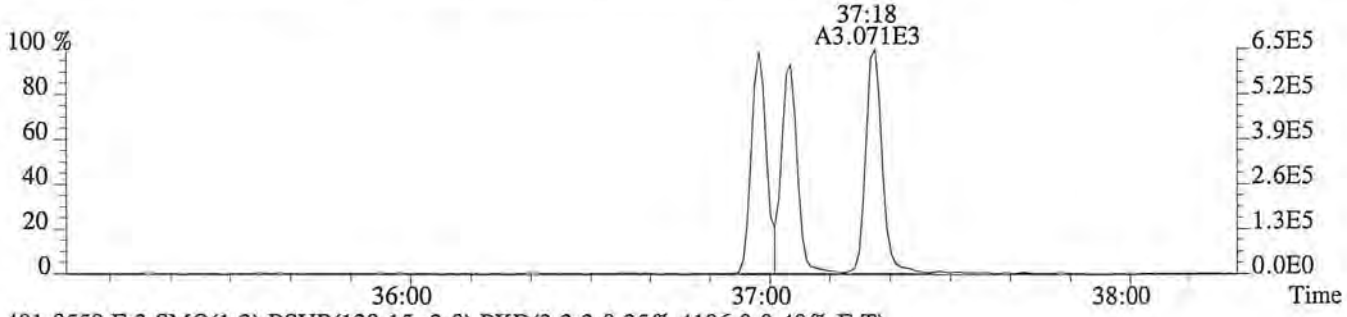
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



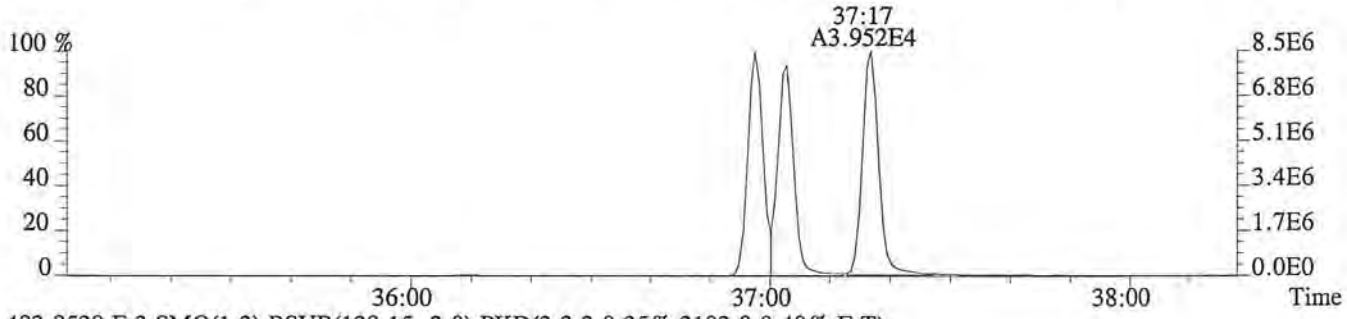
File:P300982 #1-294 Acq:21-AUG-2015 15:37:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.40%,F,T)



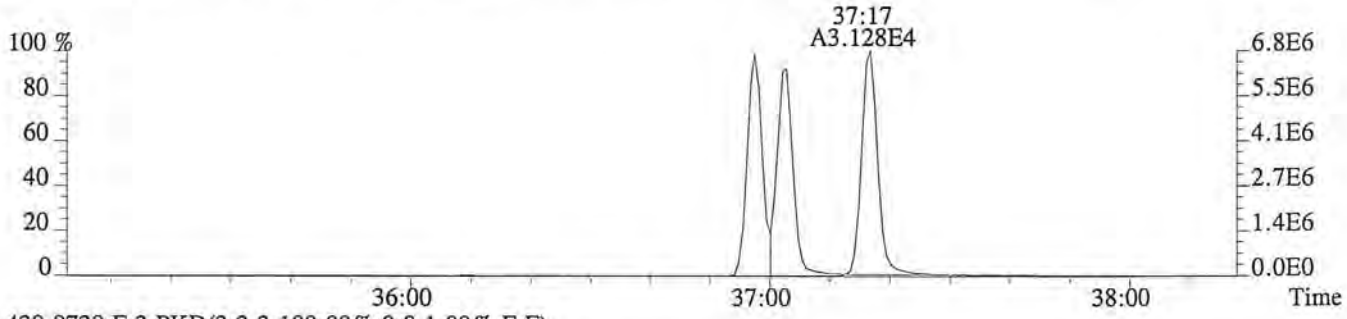
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.40%,F,T)



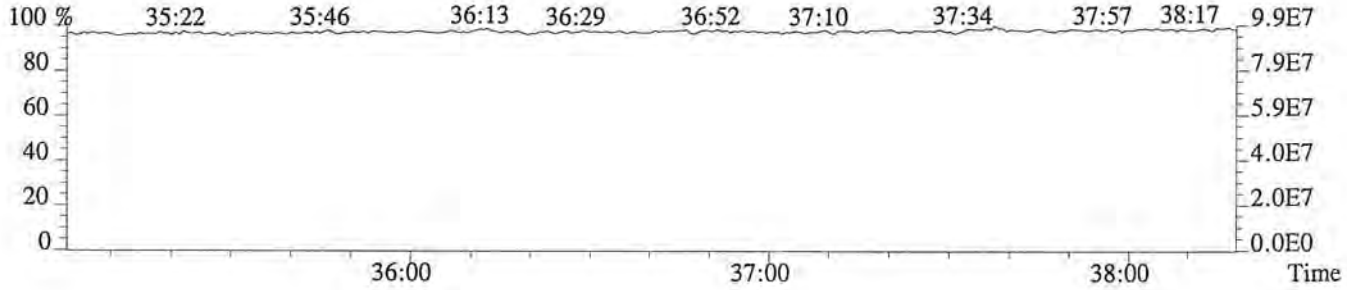
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4196.0,0.40%,F,T)



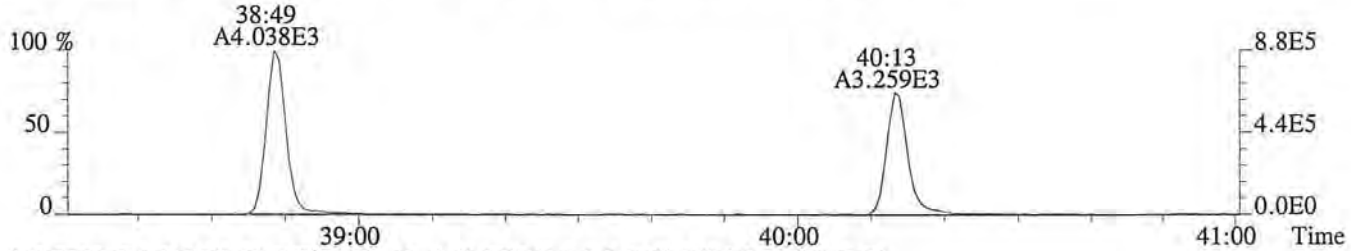
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2192.0,0.40%,F,T)



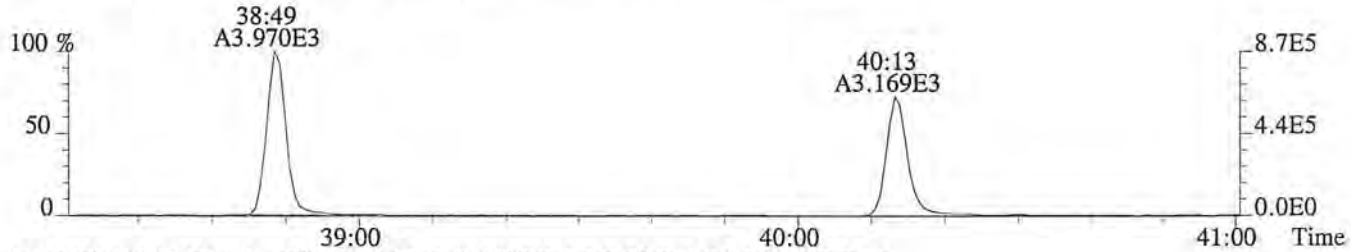
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



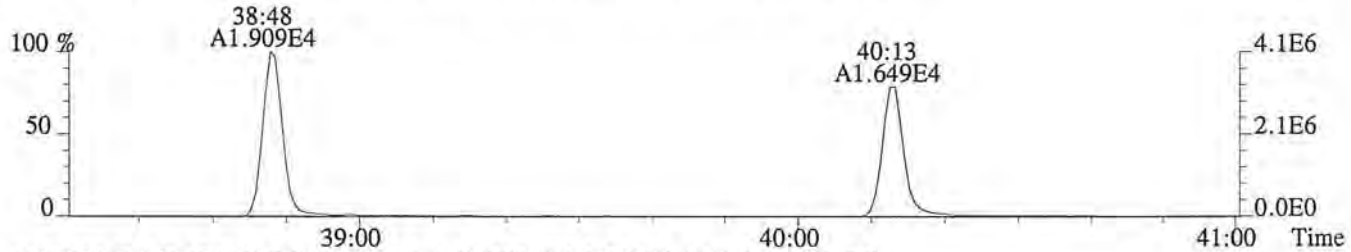
File:P300982 #1-241 Acq:21-AUG-2015 15:37:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1792.0,0.50%,F,T)



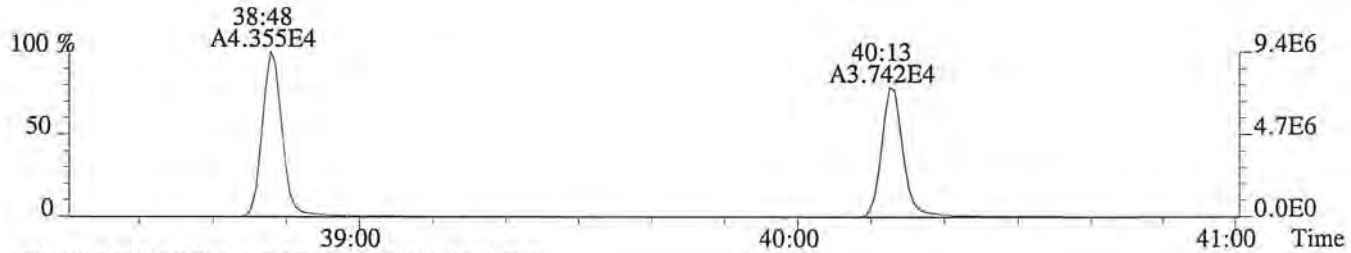
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2636.0,0.50%,F,T)



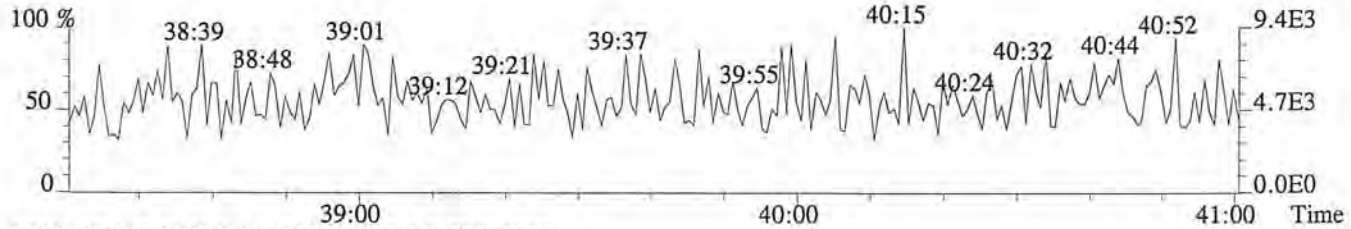
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4756.0,0.50%,F,T)



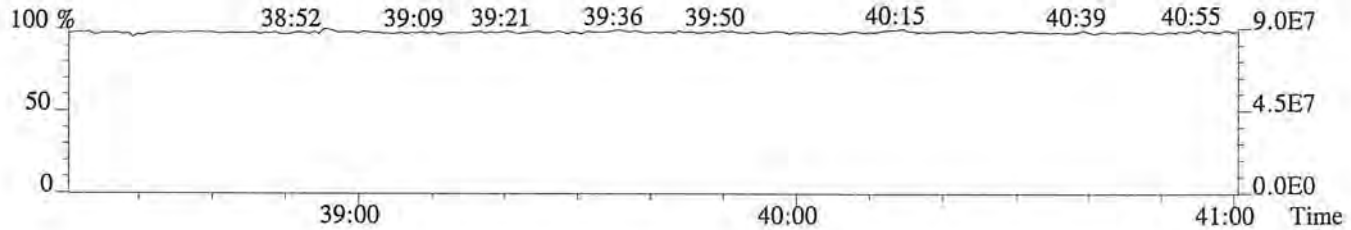
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3712.0,0.50%,F,T)



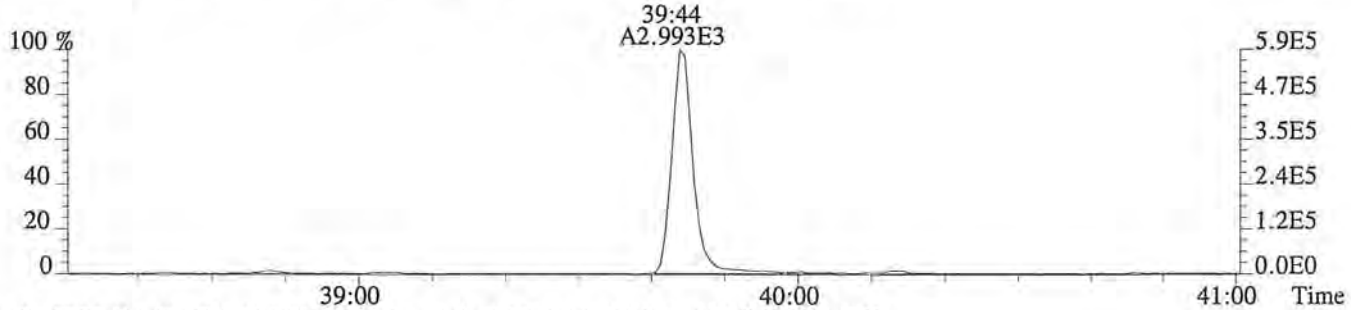
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



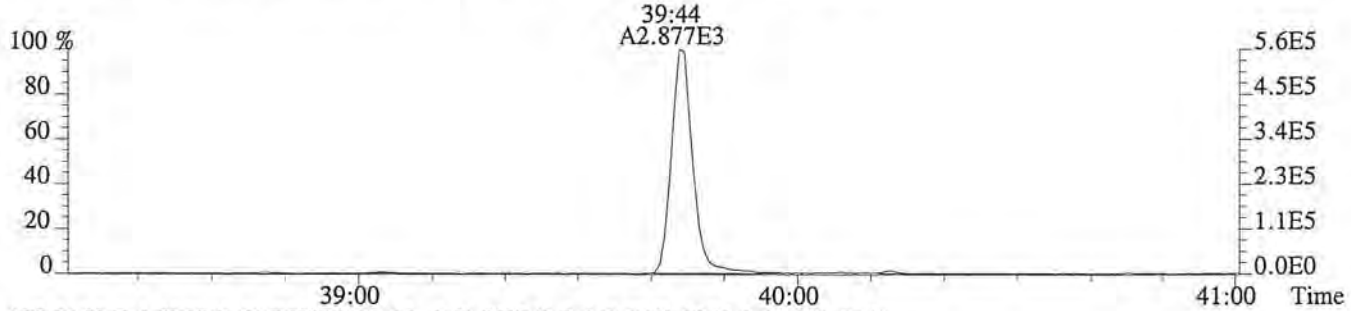
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



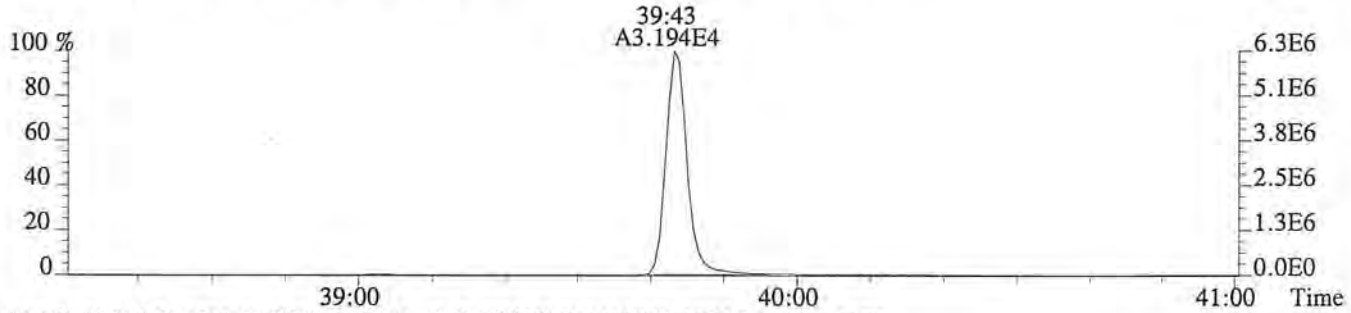
File:P300982 #1-241 Acq:21-AUG-2015 15:37:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



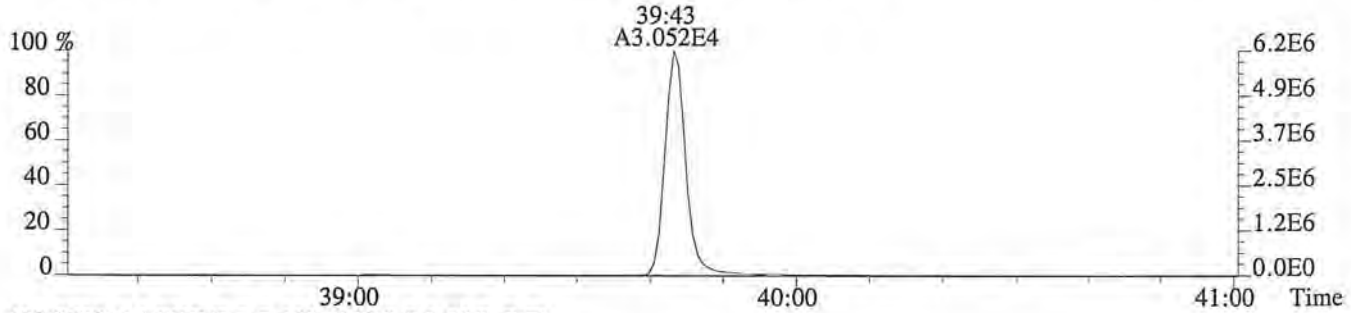
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1460.0,0.40%,F,T)



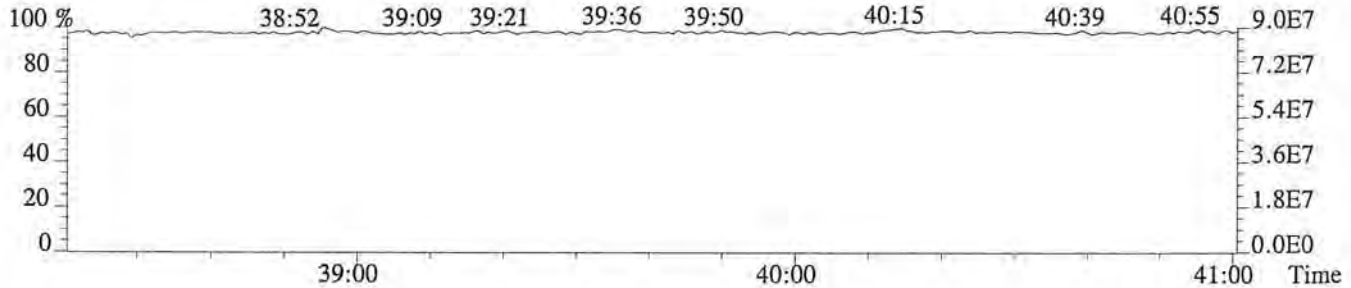
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2868.0,0.40%,F,T)



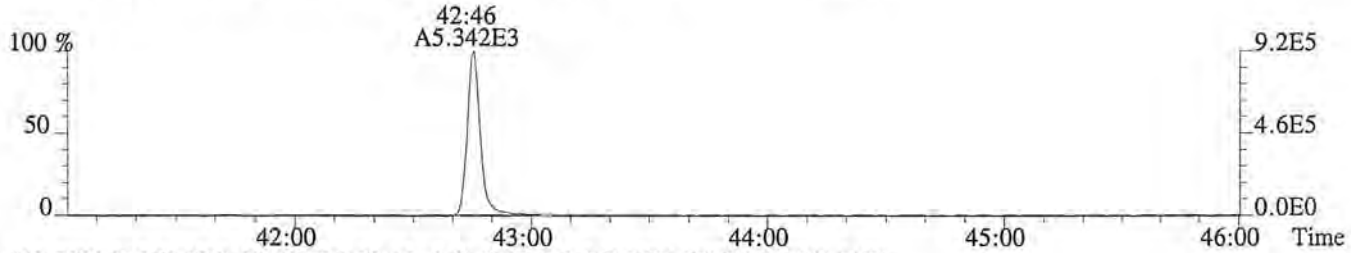
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1124.0,0.40%,F,T)



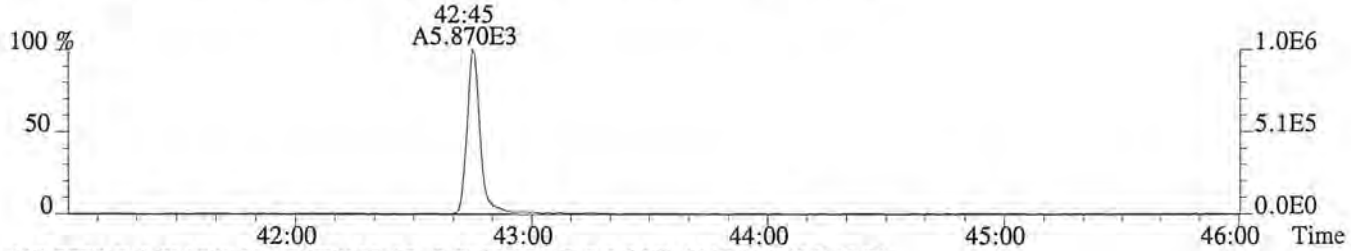
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



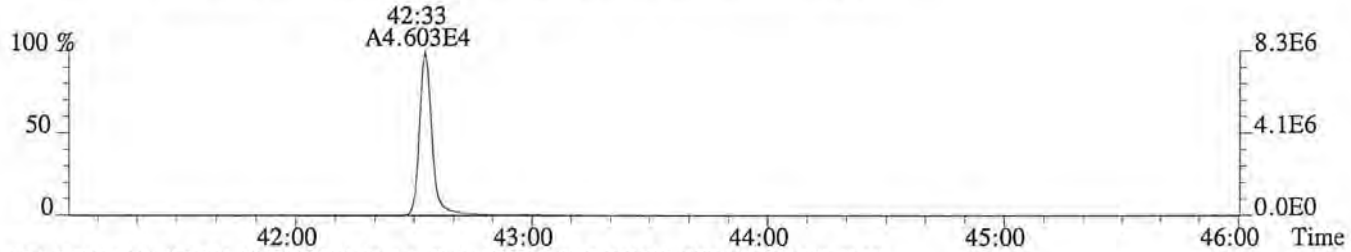
File:P300982 #1-447 Acq:21-AUG-2015 15:37:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2704.0,0.40%,F,T)



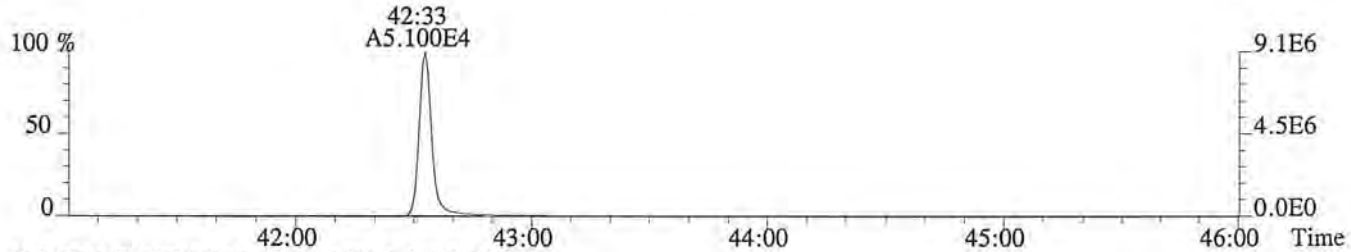
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2736.0,0.40%,F,T)



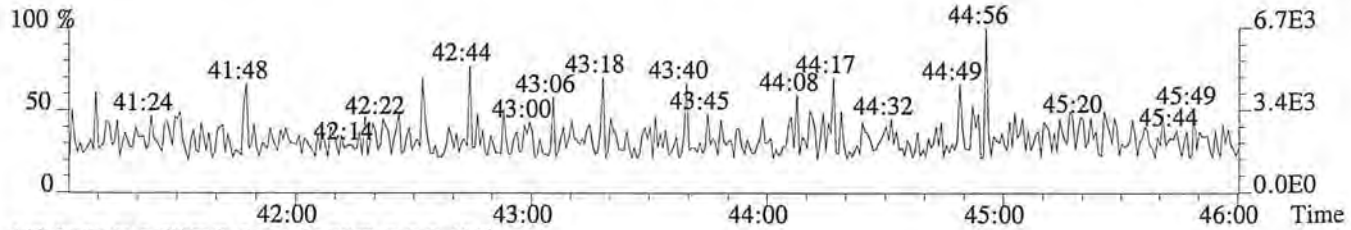
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1912.0,0.40%,F,T)



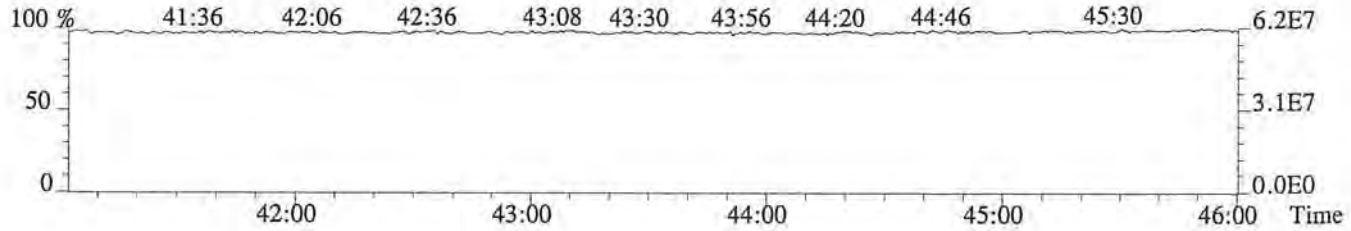
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2224.0,0.40%,F,T)



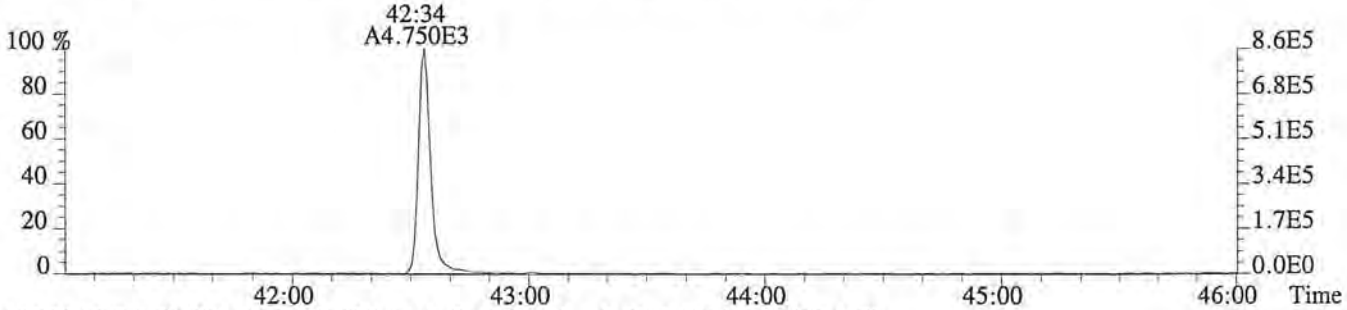
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



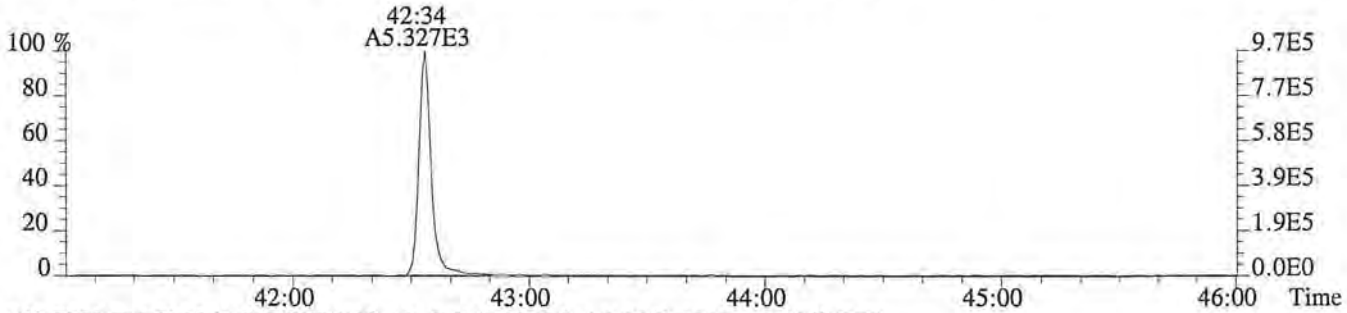
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



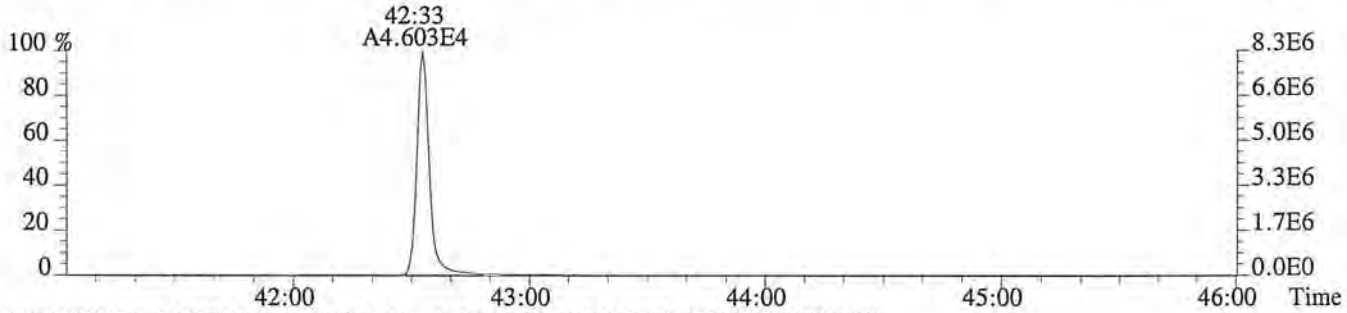
File:P300982 #1-447 Acq:21-AUG-2015 15:37:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1608.0,0.40%,F,T)



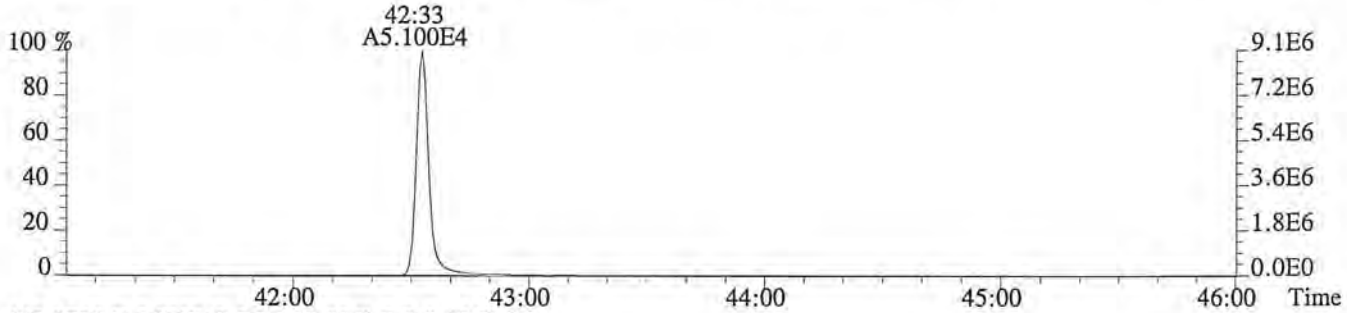
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1964.0,0.40%,F,T)



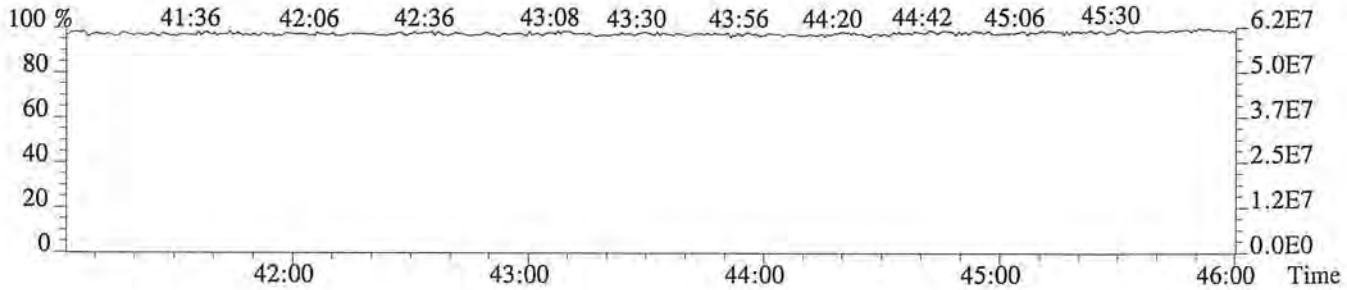
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1912.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2224.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P300983 Samp: 1 Inj: 1 Acquired: 21-AUG-15 16:29:49
Processed: 24-AUG-15 11:01:12 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	8.990e+03	1.189e+04	0.76	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	32:45	7.138e+04	4.672e+04	1.53	yes	no	0.929
3	Unk	2,3,4,7,8-PeCDF	33:38	6.558e+04	4.278e+04	1.53	yes	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	36:15	5.695e+04	4.600e+04	1.24	yes	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:21	5.899e+04	4.787e+04	1.23	yes	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:50	5.473e+04	4.470e+04	1.22	yes	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	37:35	4.990e+04	3.986e+04	1.25	yes	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	4.615e+04	4.508e+04	1.02	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	40:15	3.891e+04	3.807e+04	1.02	yes	no	1.245
10	Unk	OCDF	42:47	6.099e+04	6.850e+04	0.89	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:27	7.528e+03	9.783e+03	0.77	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:54	5.015e+04	3.236e+04	1.55	yes	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:58	4.151e+04	3.333e+04	1.25	yes	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.218e+04	3.378e+04	1.25	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:18	4.463e+04	3.561e+04	1.25	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	3.372e+04	3.272e+04	1.03	yes	no	0.949
17	Unk	OCDD	42:34	5.383e+04	6.093e+04	0.88	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:41	1.066e+05	1.340e+05	0.80	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:44	1.522e+05	9.606e+04	1.58	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:36	1.455e+05	9.350e+04	1.56	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:14	6.019e+04	1.151e+05	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:20	6.683e+04	1.298e+05	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:50	6.172e+04	1.198e+05	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:34	5.545e+04	1.073e+05	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	4.132e+04	9.453e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	3.714e+04	8.401e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:26	7.895e+04	1.001e+05	0.79	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:53	1.106e+05	7.088e+04	1.56	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:58	8.342e+04	6.589e+04	1.27	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	8.498e+04	6.746e+04	1.26	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	7.016e+04	6.727e+04	1.04	yes	no	0.850
32	IS	13C-OCDD	42:34	1.014e+05	1.130e+05	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:54	7.967e+04	1.005e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	9.314e+04	7.145e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	1.834e+04				no	1.001

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P300983 Samp: 1 Inj: 1 Acquired: 21-AUG-15 16:29:49
Processed: 24-AUG-15 11:01:12 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.85e+06	3.07e+03	6.0e+02	2.42e+06	4.75e+03	5.1e+02
2	1,2,3,7,8-PeCDF	1.40e+07	2.12e+03	6.6e+03	9.15e+06	6.04e+03	1.5e+03
3	2,3,4,7,8-PeCDF	1.36e+07	2.12e+03	6.4e+03	8.83e+06	6.04e+03	1.5e+03
4	1,2,3,4,7,8-HxCDF	1.25e+07	1.56e+03	8.0e+03	9.92e+06	1.21e+03	8.2e+03
5	1,2,3,6,7,8-HxCDF	1.27e+07	1.56e+03	8.1e+03	1.05e+07	1.21e+03	8.7e+03
6	2,3,4,6,7,8-HxCDF	1.20e+07	1.56e+03	7.7e+03	9.87e+06	1.21e+03	8.1e+03
7	1,2,3,7,8,9-HxCDF	1.03e+07	1.56e+03	6.6e+03	8.27e+06	1.21e+03	6.8e+03
8	1,2,3,4,6,7,8-HpCDF	9.66e+06	1.88e+03	5.1e+03	9.58e+06	2.34e+03	4.1e+03
9	1,2,3,4,7,8,9-HpCDF	7.48e+06	1.88e+03	4.0e+03	7.22e+06	2.34e+03	3.1e+03
10	OCDF	1.03e+07	1.59e+03	6.5e+03	1.15e+07	2.69e+03	4.3e+03
11	2,3,7,8-TCDD	1.55e+06	2.26e+03	6.8e+02	2.00e+06	2.06e+03	9.7e+02
12	1,2,3,7,8-PeCDD	1.03e+07	2.54e+03	4.1e+03	6.62e+06	1.04e+03	6.4e+03
13	1,2,3,4,7,8-HxCDD	9.56e+06	1.52e+03	6.3e+03	7.66e+06	1.98e+03	3.9e+03
14	1,2,3,6,7,8-HxCDD	9.00e+06	1.52e+03	5.9e+03	7.24e+06	1.98e+03	3.7e+03
15	1,2,3,7,8,9-HxCDD	9.61e+06	1.52e+03	6.3e+03	7.69e+06	1.98e+03	3.9e+03
16	1,2,3,4,6,7,8-HpCDD	6.88e+06	1.21e+03	5.7e+03	6.69e+06	1.18e+03	5.7e+03
17	OCDD	9.10e+06	1.71e+03	5.3e+03	1.03e+07	2.16e+03	4.8e+03
18	13C-2,3,7,8-TCDF	2.11e+07	3.80e+03	5.5e+03	2.63e+07	4.30e+03	6.1e+03
19	13C-1,2,3,7,8-PeCDF	3.02e+07	1.92e+03	1.6e+04	1.93e+07	3.22e+03	6.0e+03
20	13C-2,3,4,7,8-PeCDF	2.95e+07	1.92e+03	1.5e+04	1.90e+07	3.22e+03	5.9e+03
21	13C-1,2,3,4,7,8-HxCDF	1.32e+07	1.77e+03	7.5e+03	2.54e+07	4.14e+03	6.1e+03
22	13C-1,2,3,6,7,8-HxCDF	1.44e+07	1.77e+03	8.1e+03	2.77e+07	4.14e+03	6.7e+03
23	13C-2,3,4,6,7,8-HxCDF	1.35e+07	1.77e+03	7.6e+03	2.64e+07	4.14e+03	6.4e+03
24	13C-1,2,3,7,8,9-HxCDF	1.13e+07	1.77e+03	6.4e+03	2.20e+07	4.14e+03	5.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	8.74e+06	3.58e+03	2.4e+03	1.98e+07	8.92e+03	2.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.09e+06	3.58e+03	2.0e+03	1.58e+07	8.92e+03	1.8e+03
27	13C-2,3,7,8-TCDD	1.66e+07	1.03e+04	1.6e+03	2.11e+07	5.81e+03	3.6e+03
28	13C-1,2,3,7,8-PeCDD	2.33e+07	3.33e+03	7.0e+03	1.49e+07	1.98e+03	7.6e+03
29	13C-1,2,3,4,7,8-HxCDD	1.90e+07	4.38e+03	4.3e+03	1.50e+07	2.98e+03	5.0e+03
30	13C-1,2,3,6,7,8-HxCDD	1.81e+07	4.38e+03	4.1e+03	1.44e+07	2.98e+03	4.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.43e+07	2.47e+03	5.8e+03	1.35e+07	1.54e+03	8.8e+03
32	13C-OCDD	1.70e+07	1.73e+03	9.8e+03	1.90e+07	1.28e+03	1.5e+04
33	13C-1,2,3,4-TCDD	1.62e+07	1.03e+04	1.6e+03	2.04e+07	5.81e+03	3.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.97e+07	4.38e+03	4.5e+03	1.56e+07	2.98e+03	5.2e+03
35	37Cl-2,3,7,8-TCDD	3.72e+06	2.39e+03	1.6e+03			

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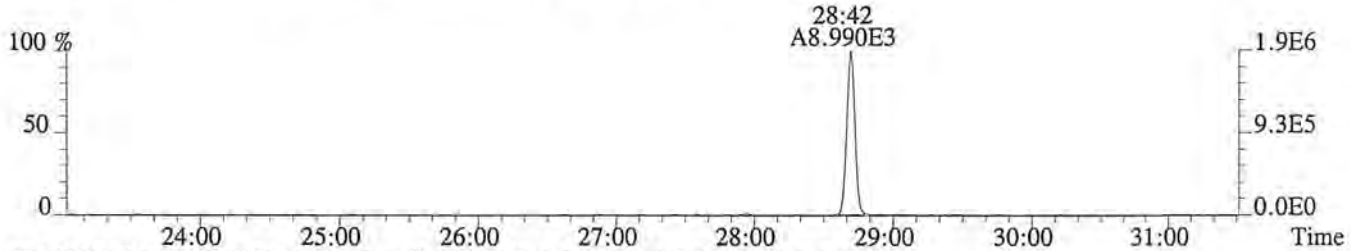
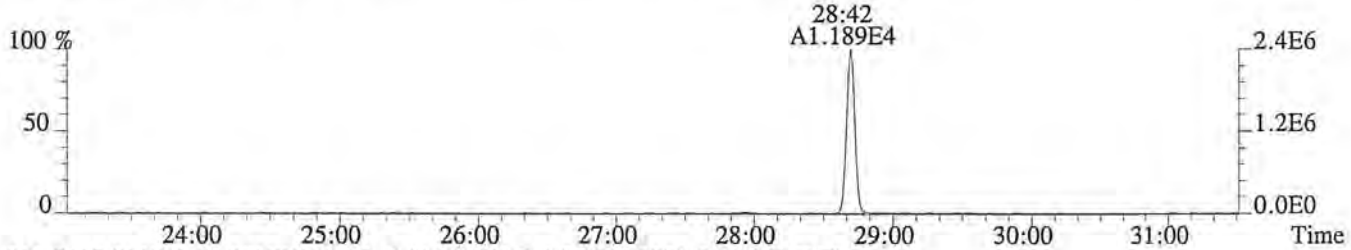
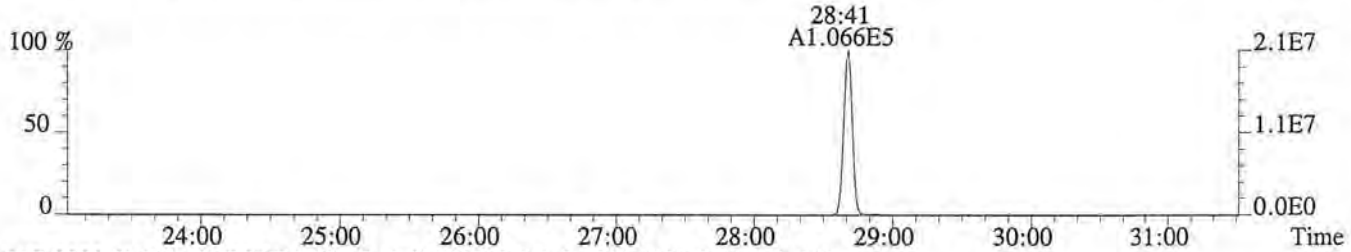
File:P300983 #1-602 Acq:21-AUG-2015 16:29:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3072.0,1.00%,F,T)



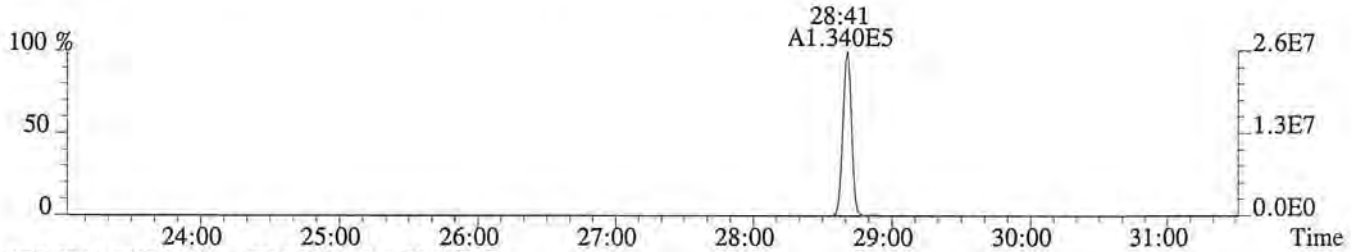
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4748.0,1.00%,F,T)



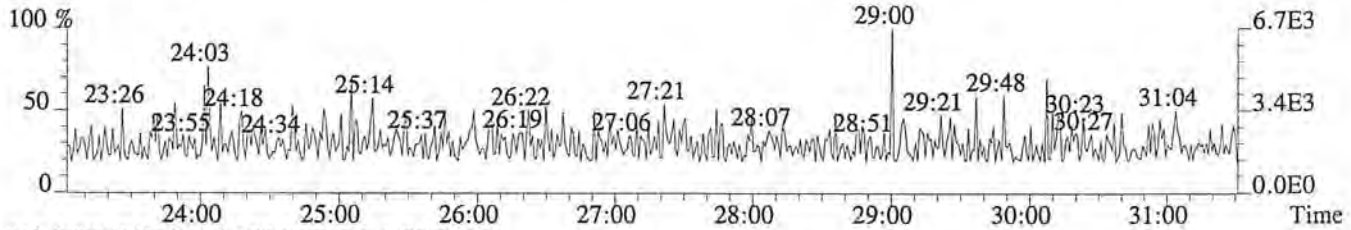
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3800.0,1.00%,F,T)



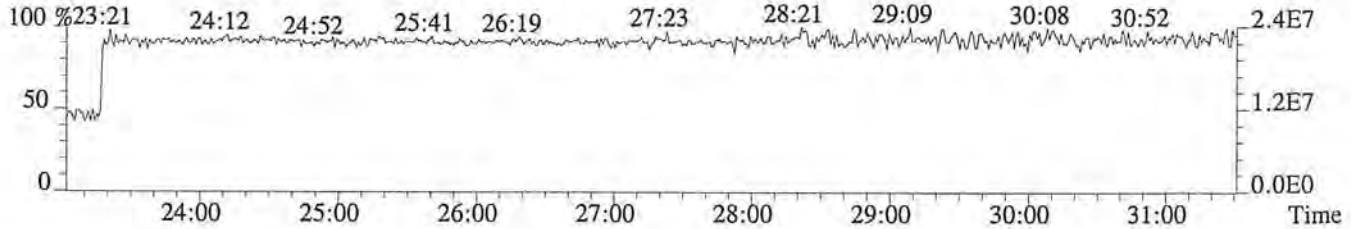
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4304.0,1.00%,F,T)



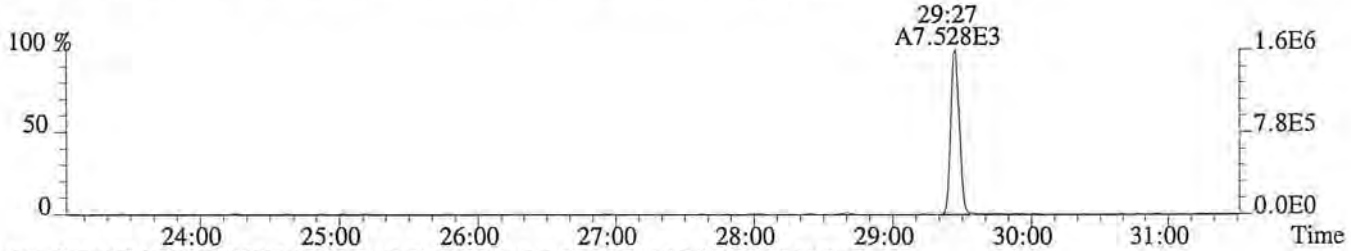
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



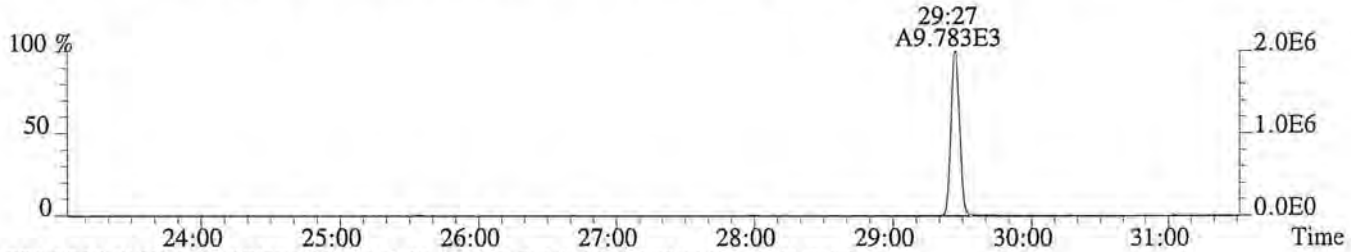
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



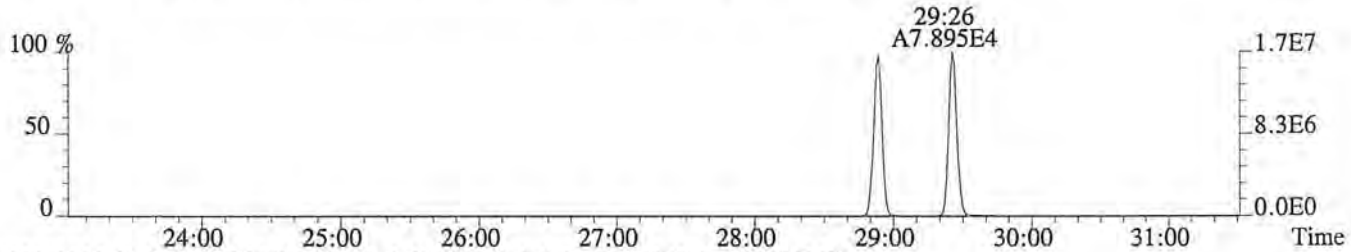
File:P300983 #1-602 Acq:21-AUG-2015 16:29:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2264.0,1.00%,F,T)



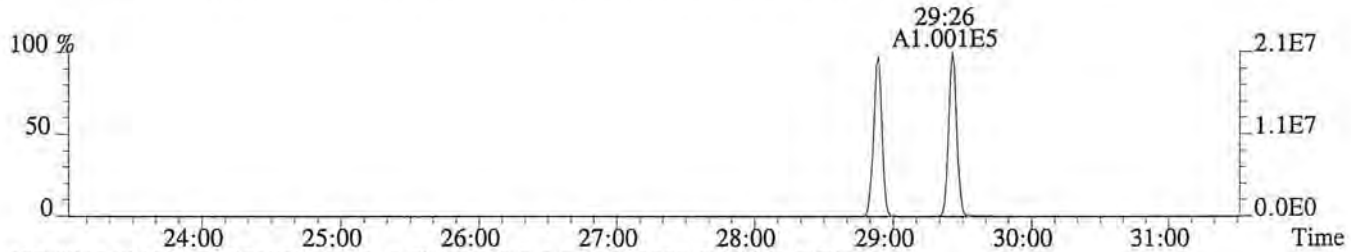
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2056.0,1.00%,F,T)



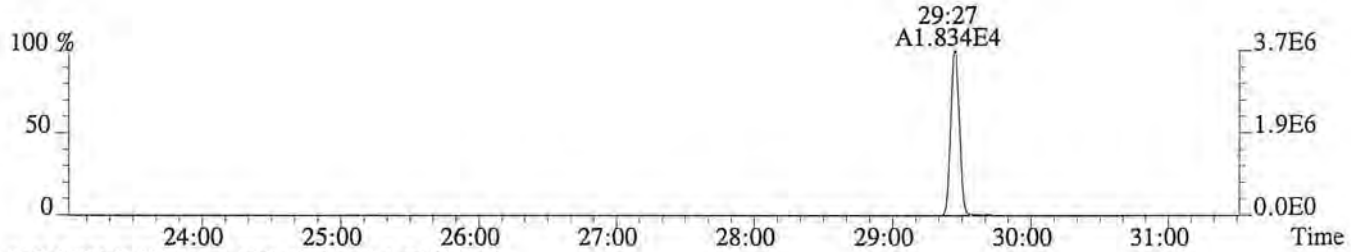
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10300.0,1.00%,F,T)



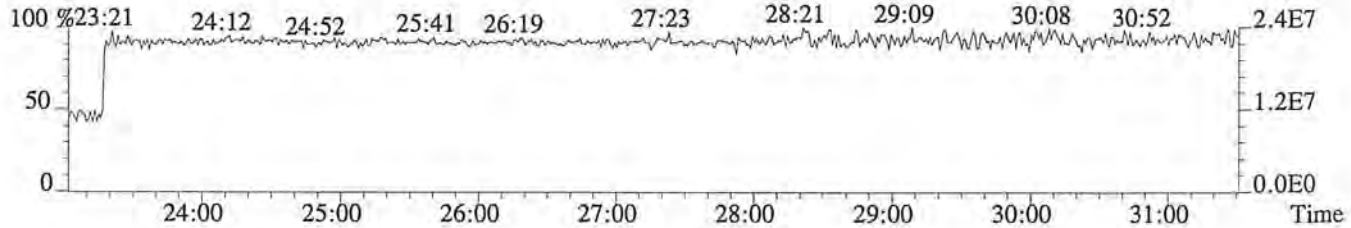
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5812.0,1.00%,F,T)



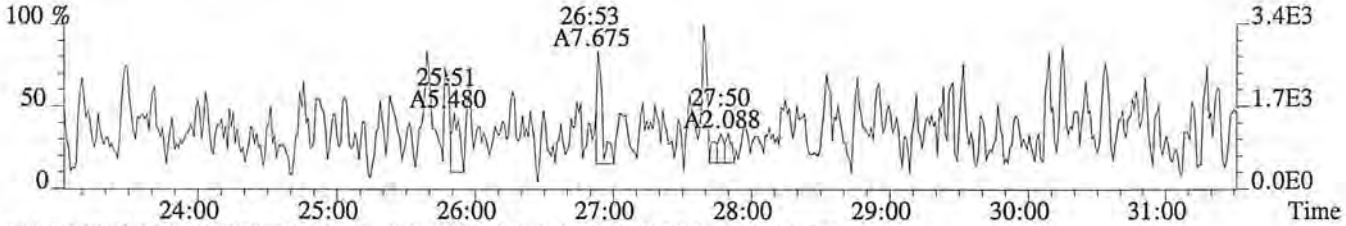
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2388.0,1.00%,F,T)



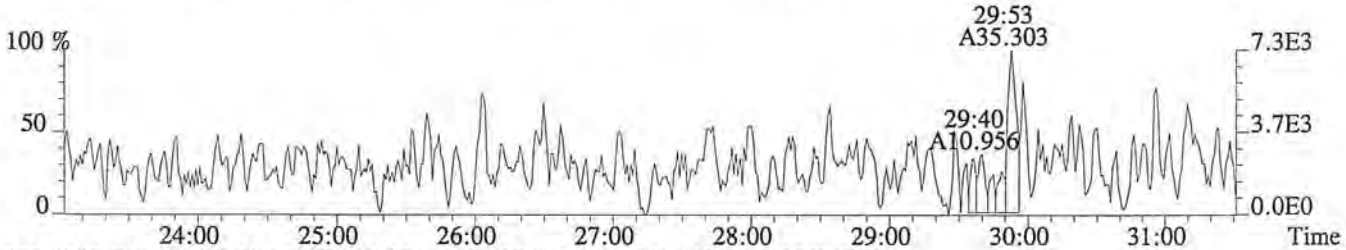
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



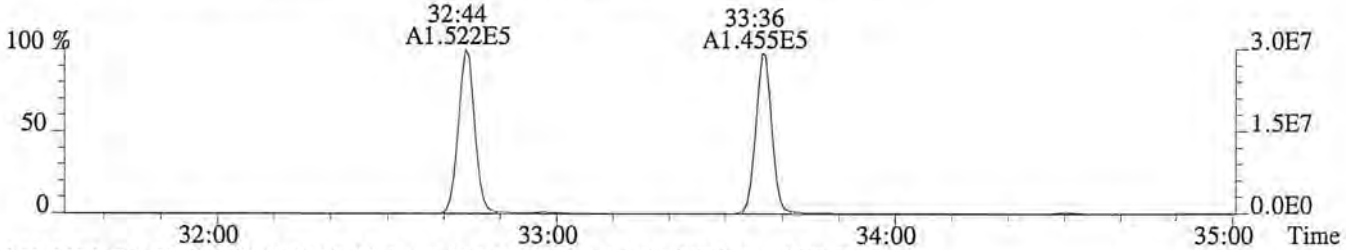
File:P300983 #1-602 Acq:21-AUG-2015 16:29:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1488.0,1.00%,F,T)



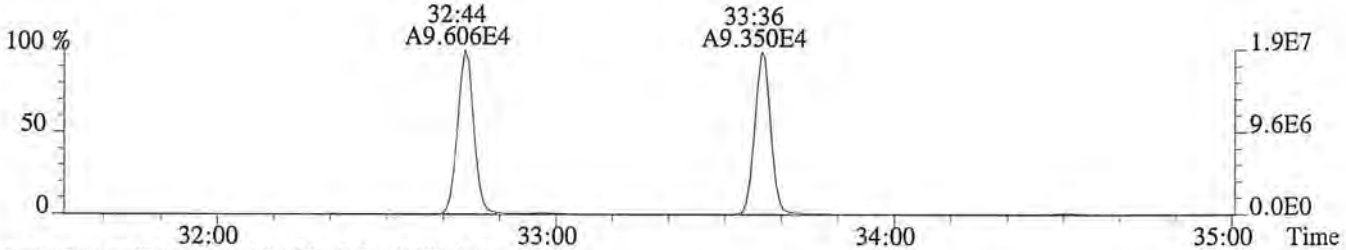
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2840.0,1.00%,F,T)



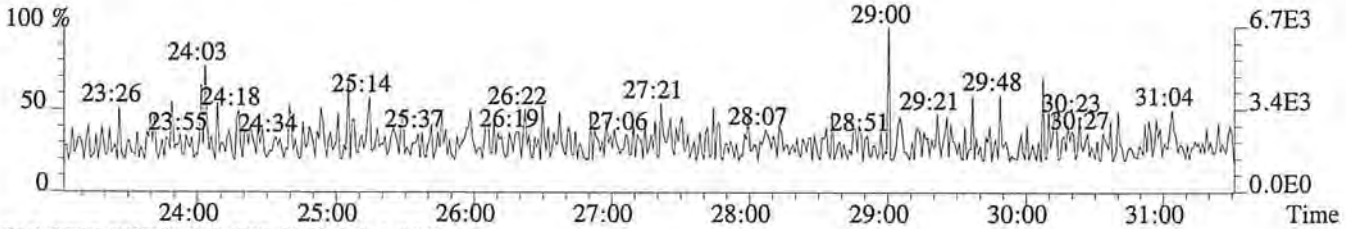
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1920.0,1.00%,F,T)



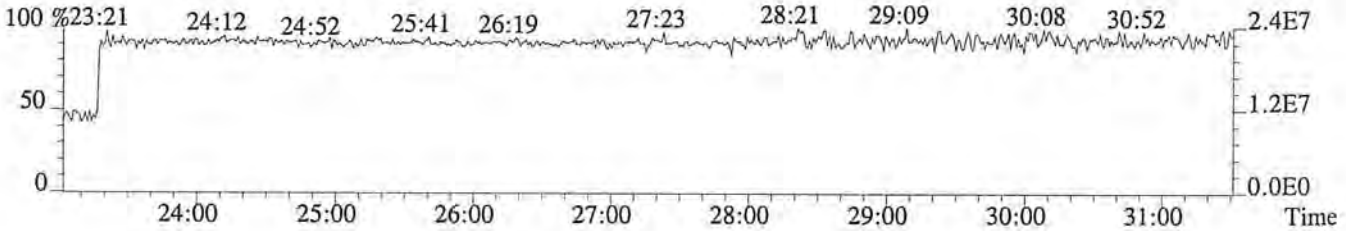
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3224.0,1.00%,F,T)



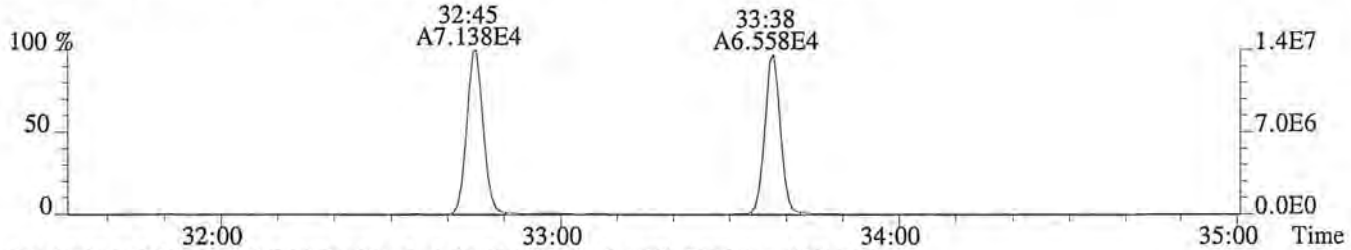
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



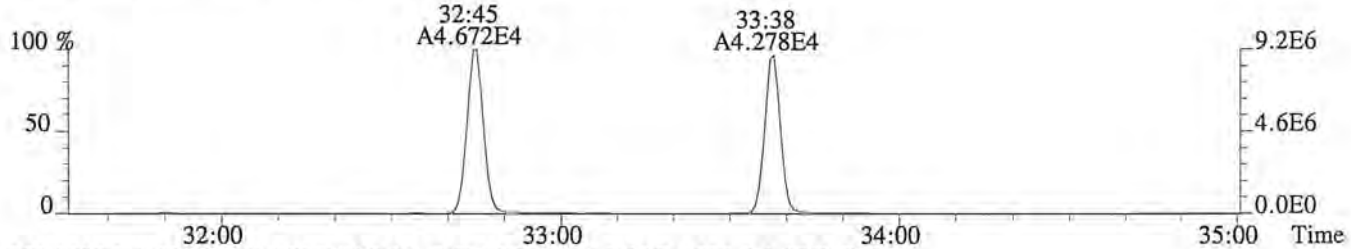
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



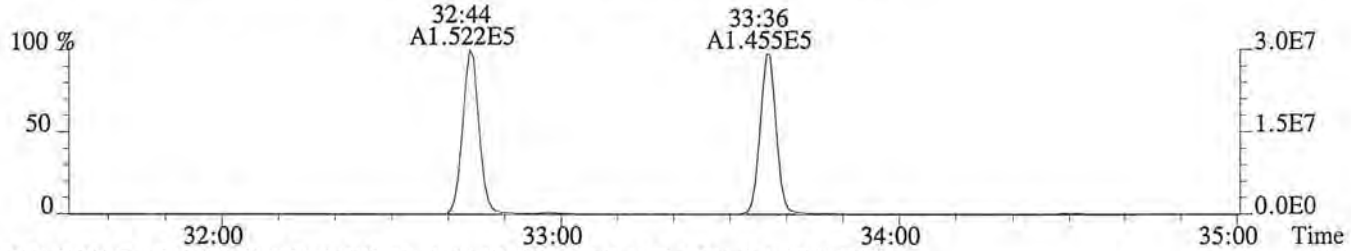
File:P300983 #1-312 Acq:21-AUG-2015 16:29:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



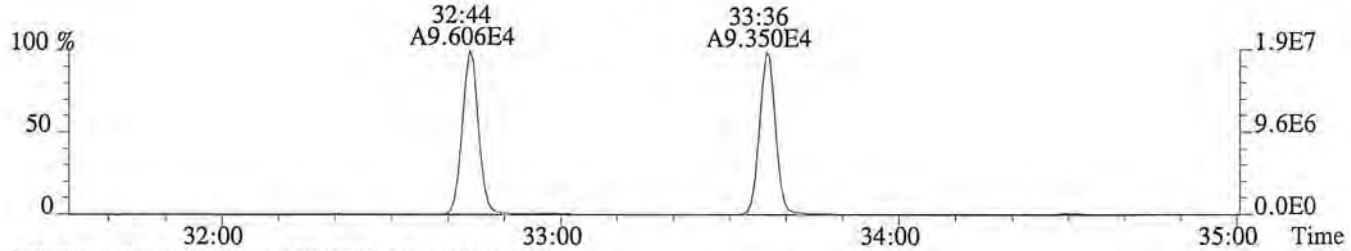
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6036.0,1.00%,F,T)



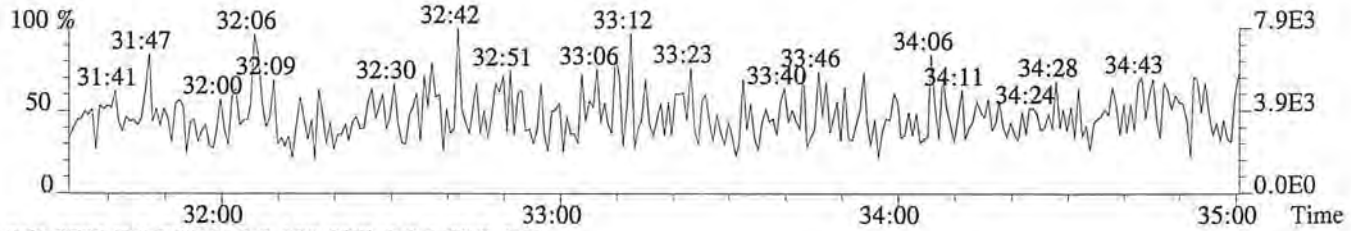
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1920.0,1.00%,F,T)



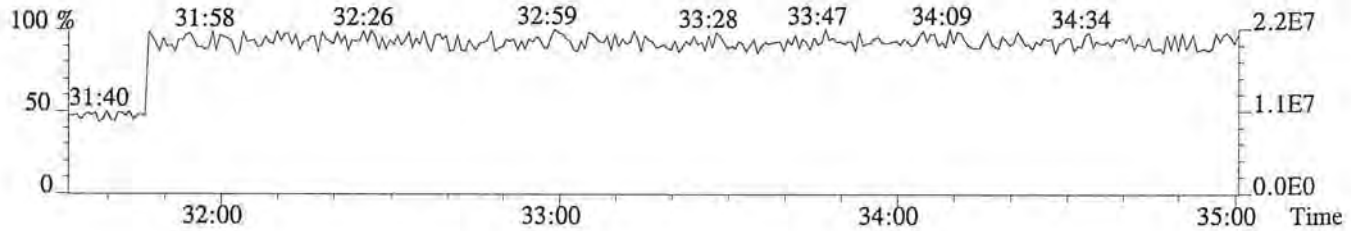
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3224.0,1.00%,F,T)



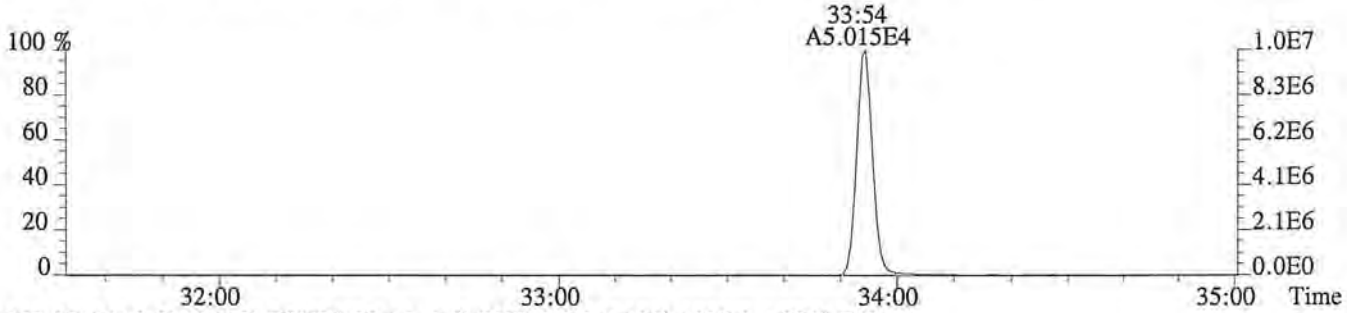
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



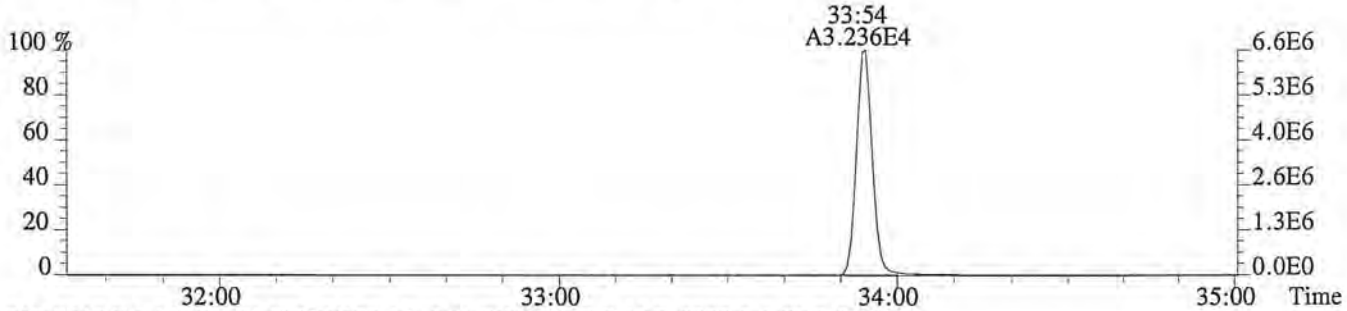
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



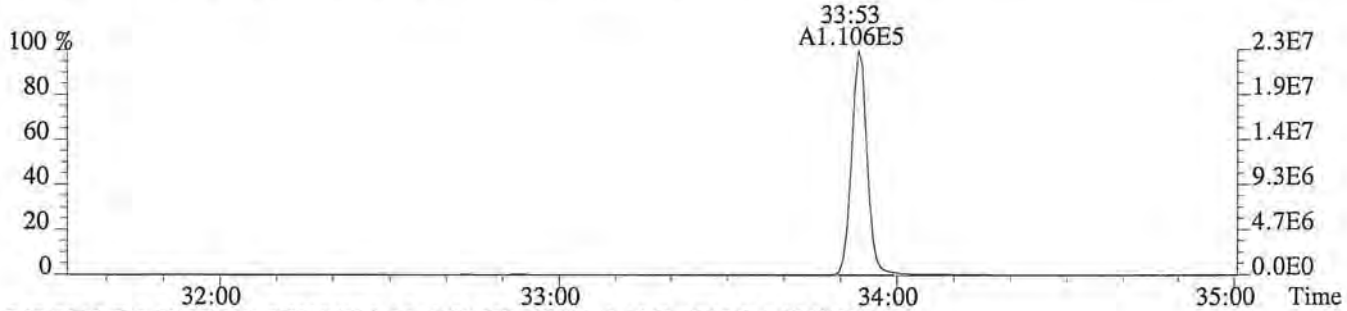
File:P300983 #1-312 Acq:21-AUG-2015 16:29:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2536.0,1.00%,F,T)



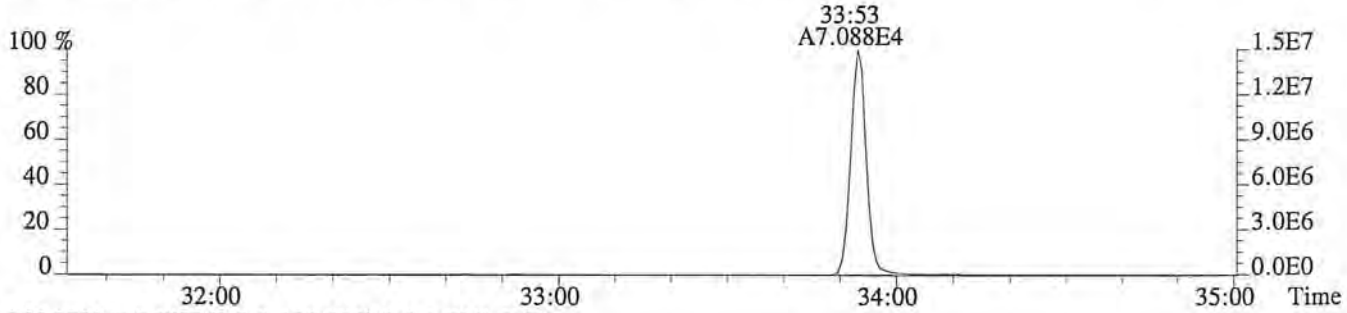
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



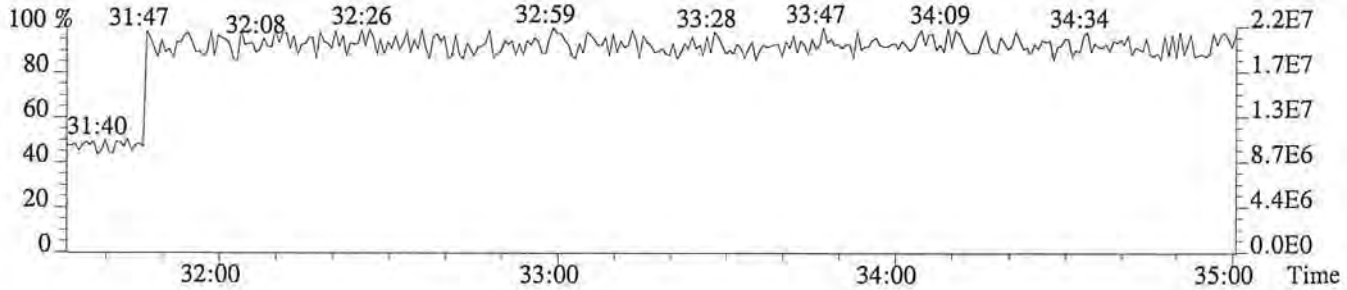
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3332.0,1.00%,F,T)



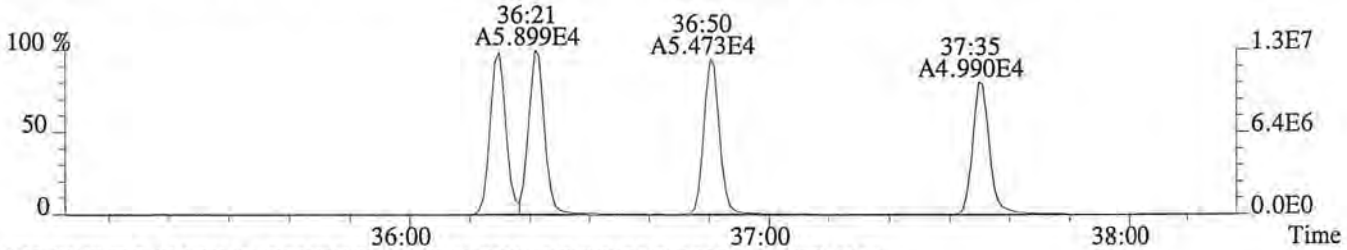
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1976.0,1.00%,F,T)



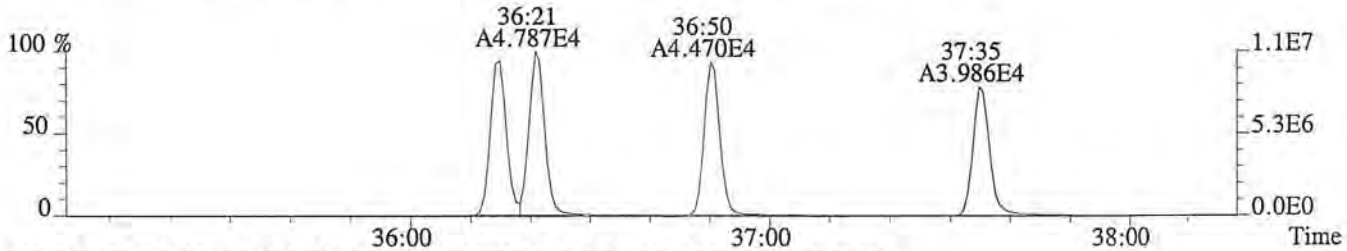
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



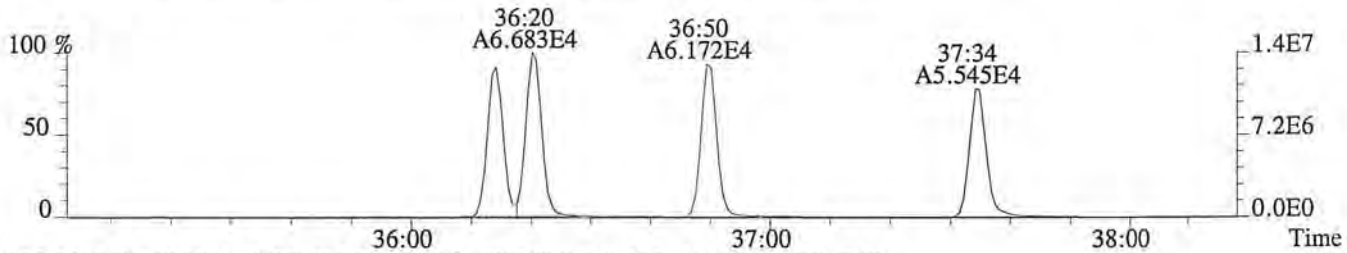
File:P300983 #1-294 Acq:21-AUG-2015 16:29:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1560.0,0.40%,F,T)



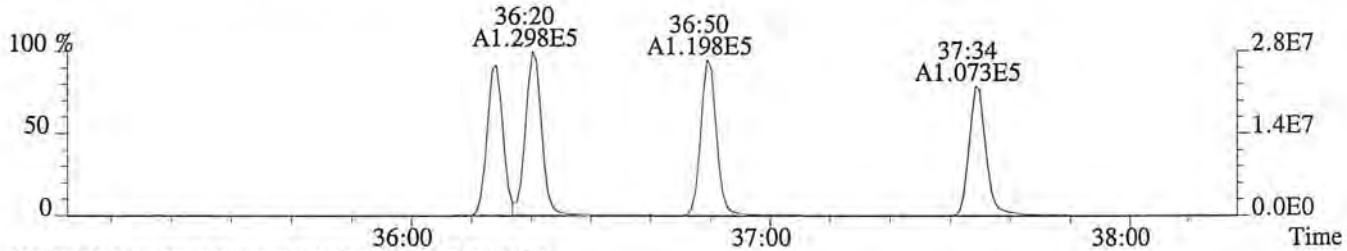
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1212.0,0.40%,F,T)



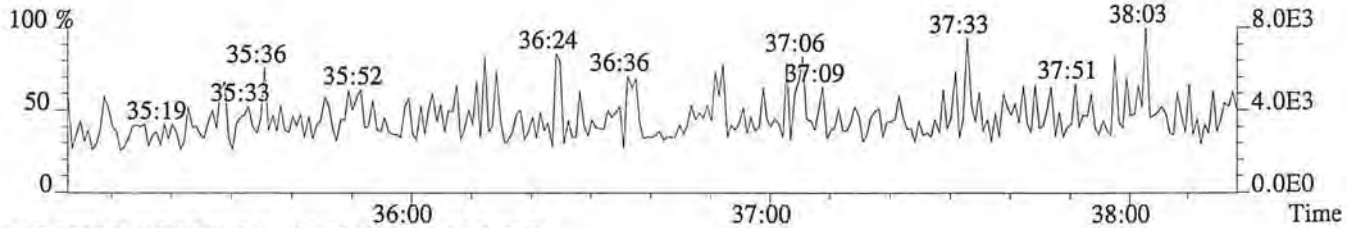
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1768.0,0.40%,F,T)



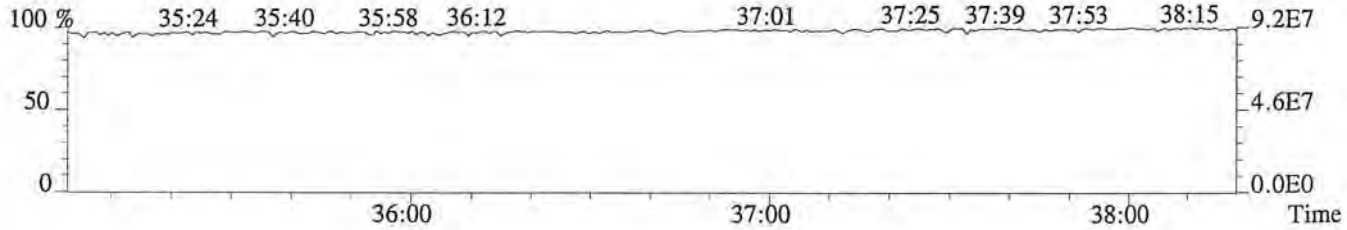
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4144.0,0.40%,F,T)



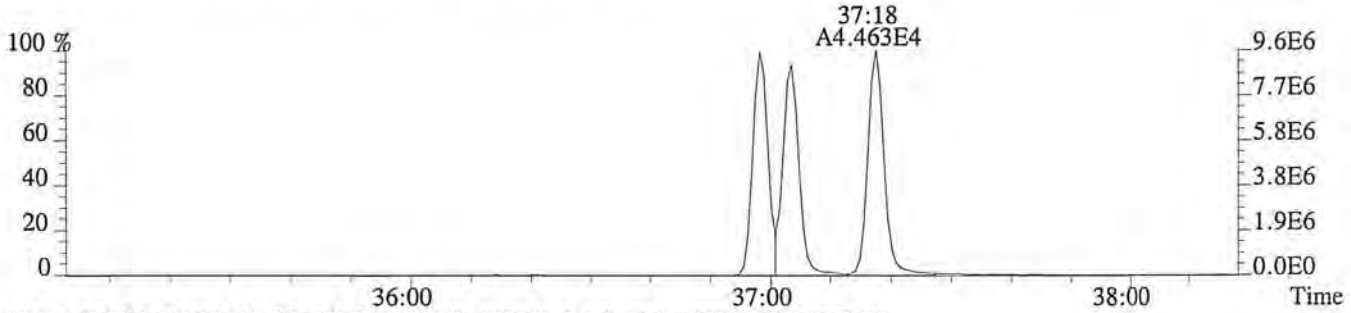
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



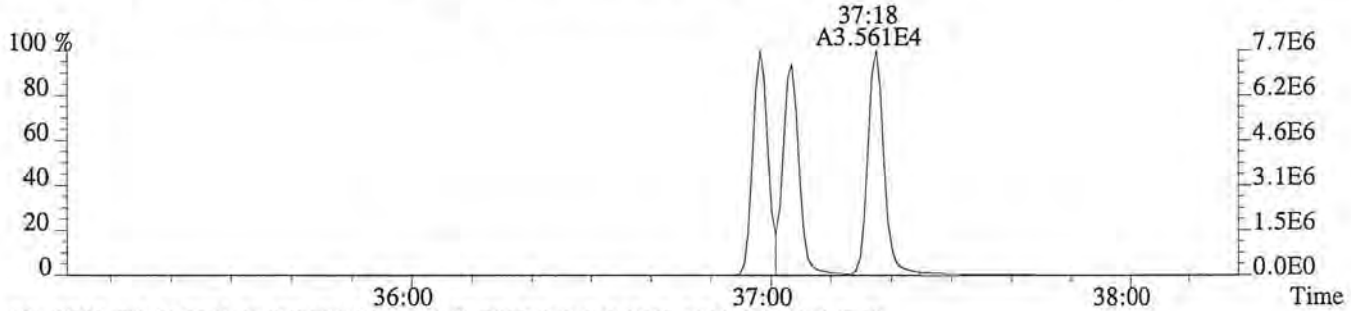
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



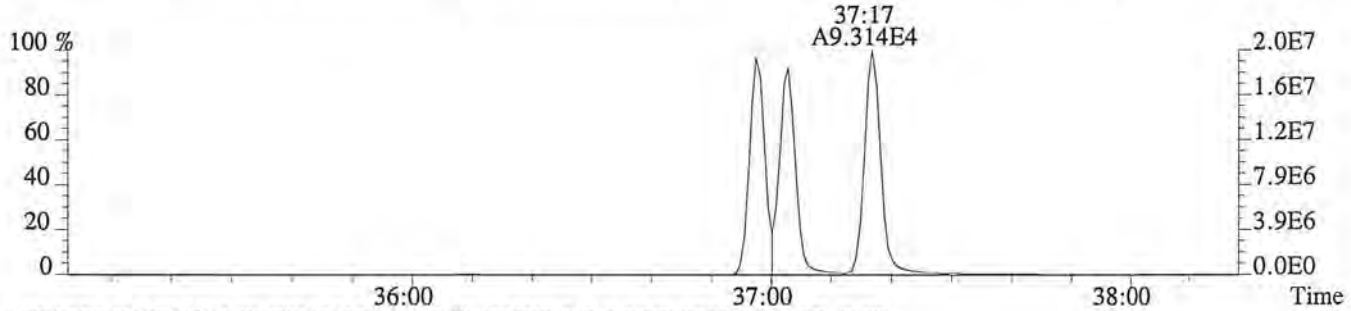
File:P300983 #1-294 Acq:21-AUG-2015 16:29:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1524.0,0.40%,F,T)



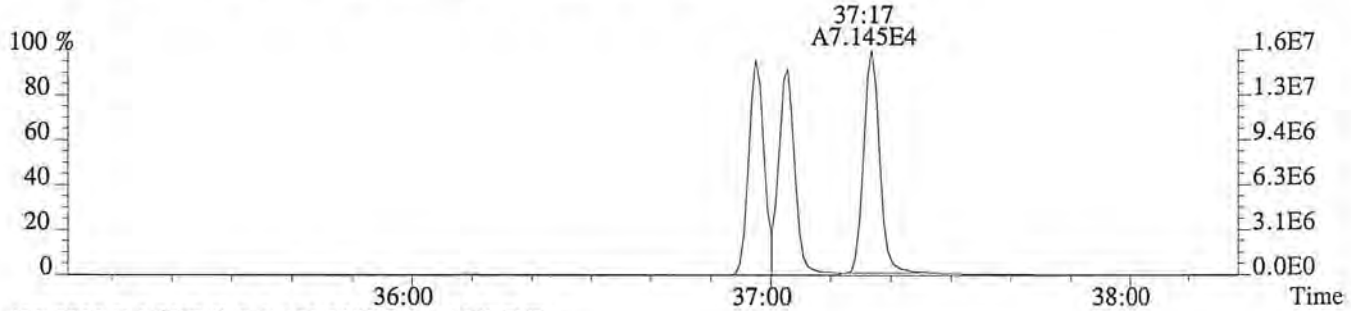
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1976.0,0.40%,F,T)



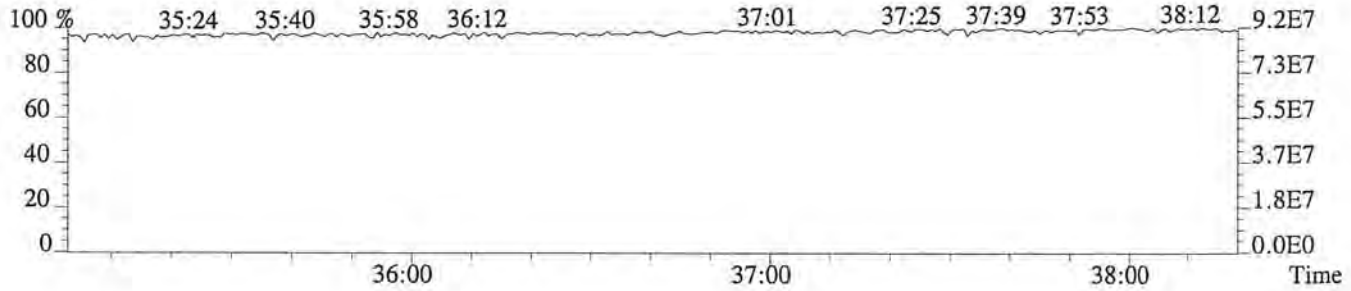
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4380.0,0.40%,F,T)



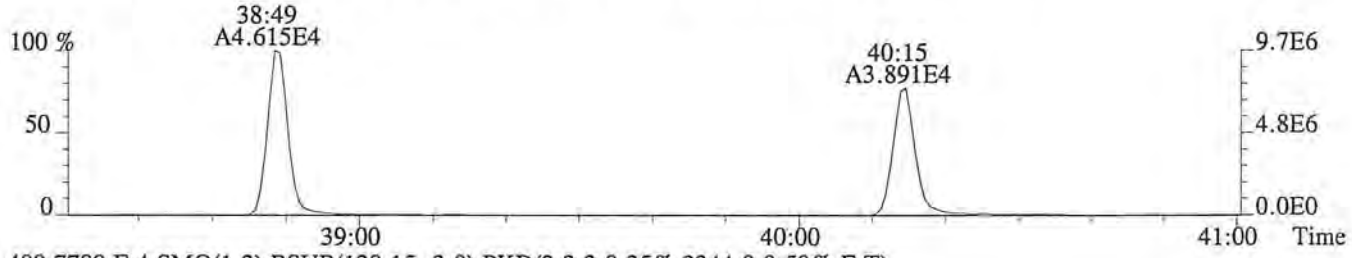
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2984.0,0.40%,F,T)



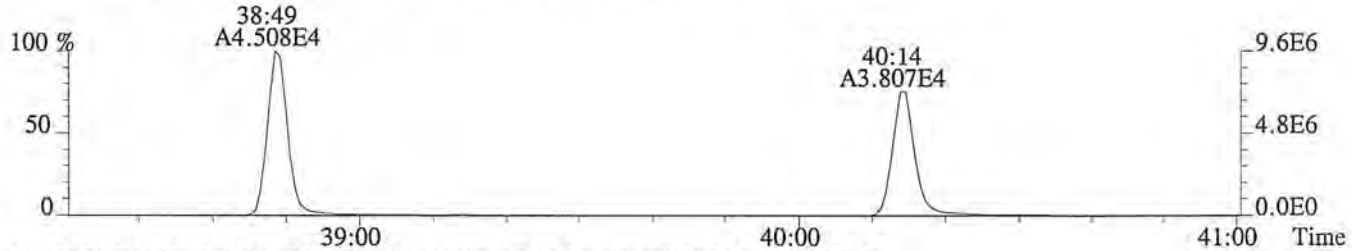
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



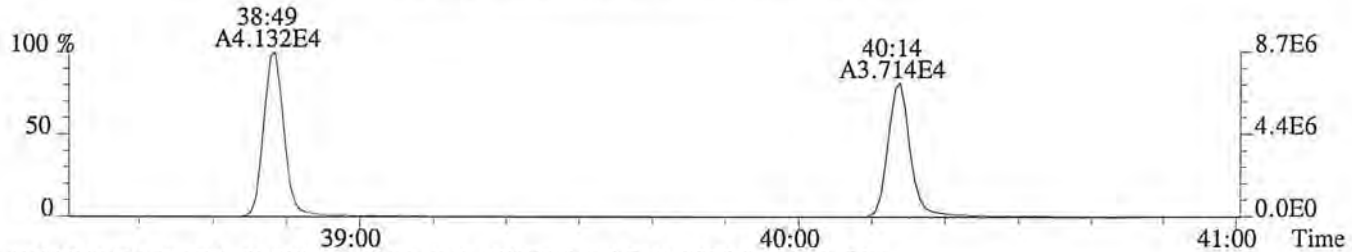
File:P300983 #1-241 Acq:21-AUG-2015 16:29:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1880.0,0.50%,F,T)



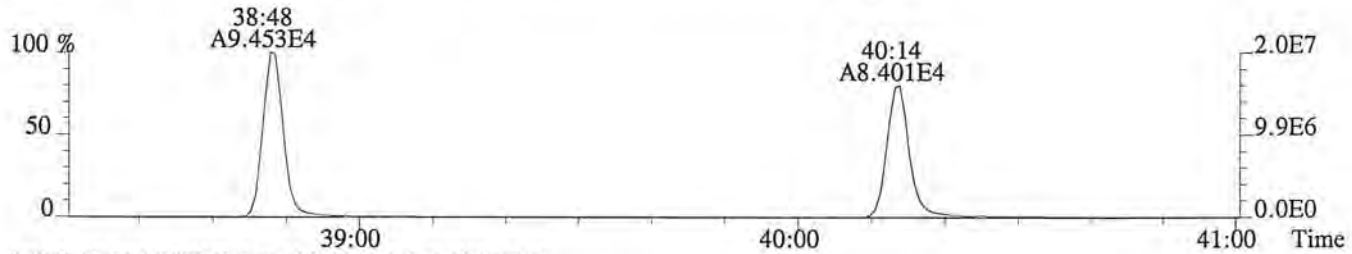
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2344.0,0.50%,F,T)



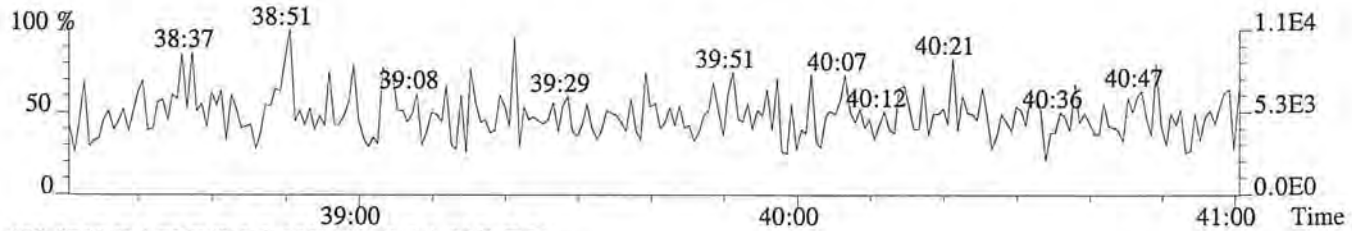
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3580.0,0.50%,F,T)



419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8920.0,0.50%,F,T)

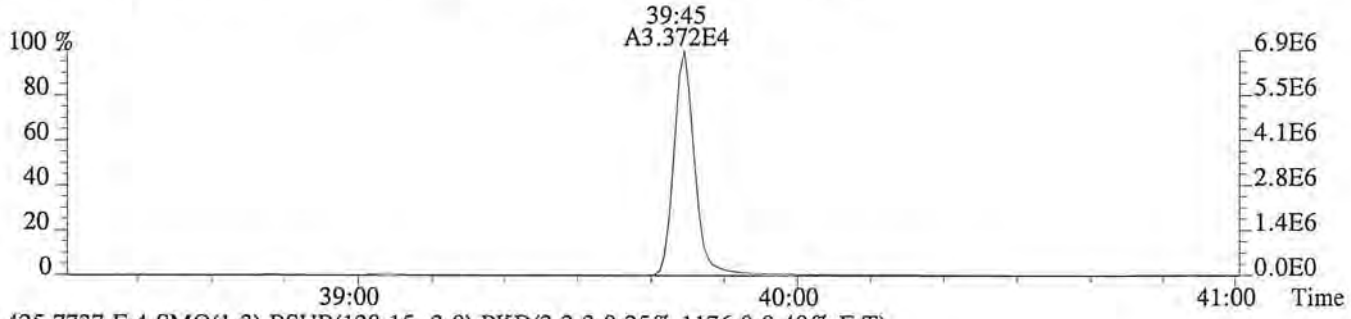


479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

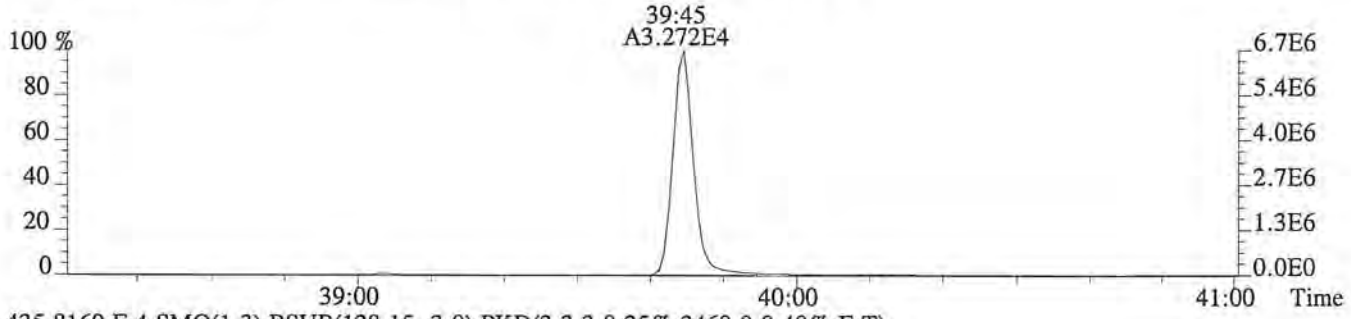


430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

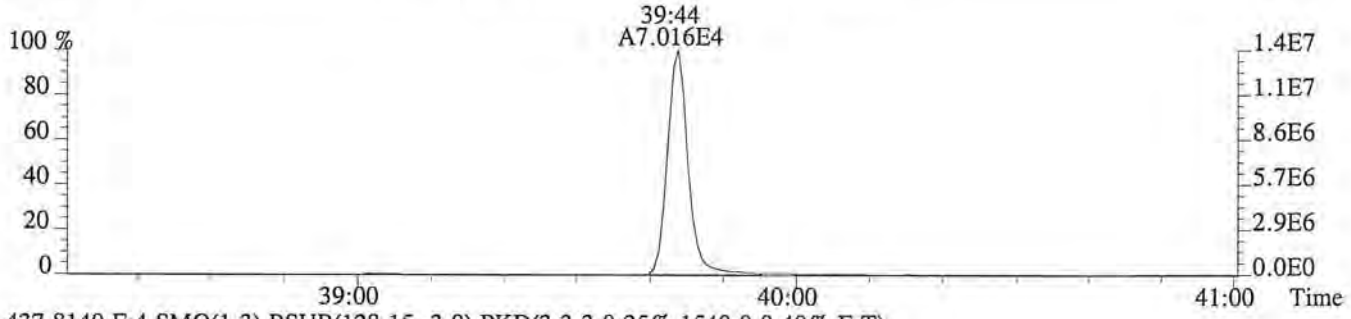
File:P300983 #1-241 Acq:21-AUG-2015 16:29:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1208.0,0.40%,F,T)



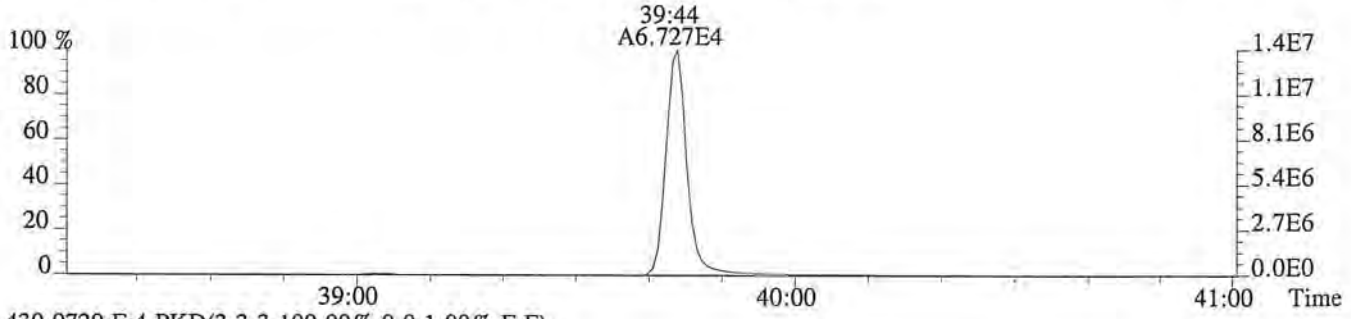
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



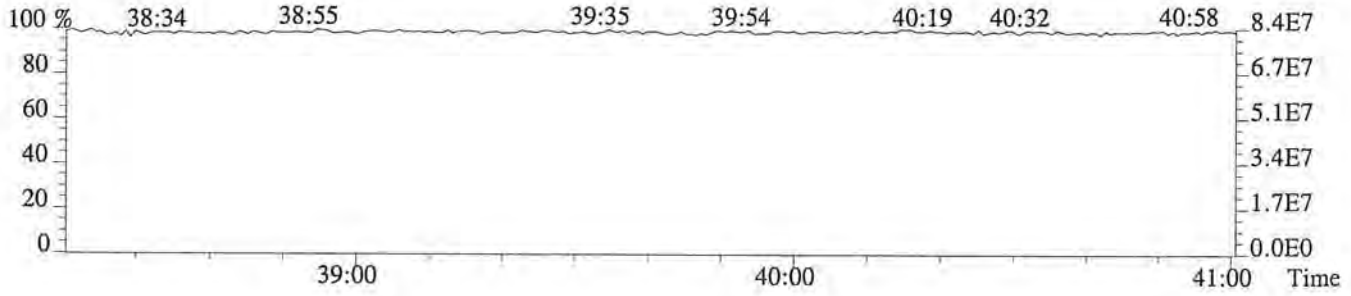
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2468.0,0.40%,F,T)



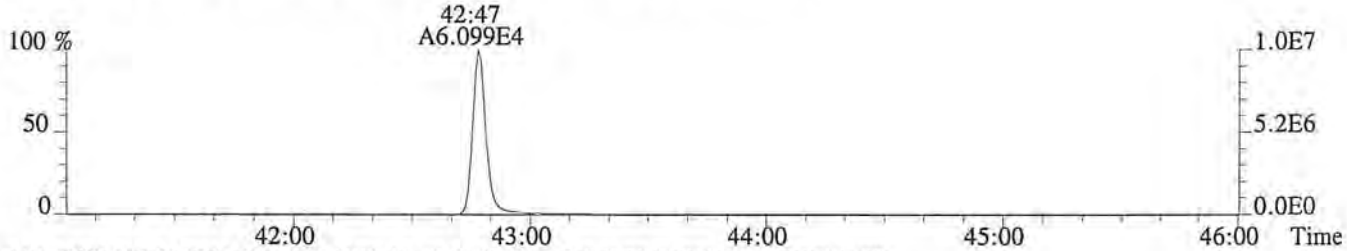
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1540.0,0.40%,F,T)



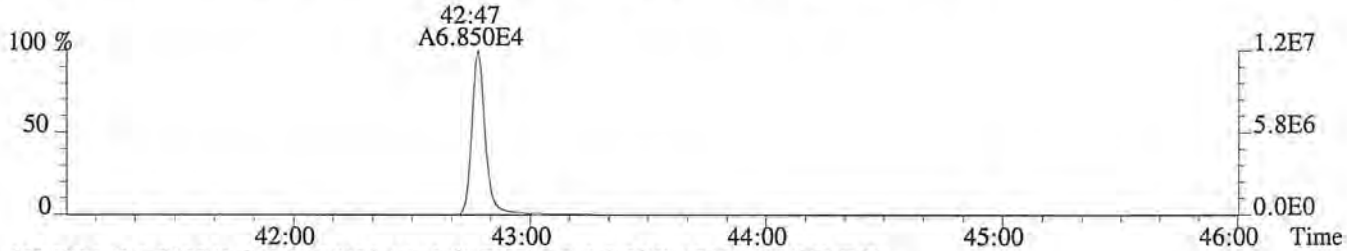
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



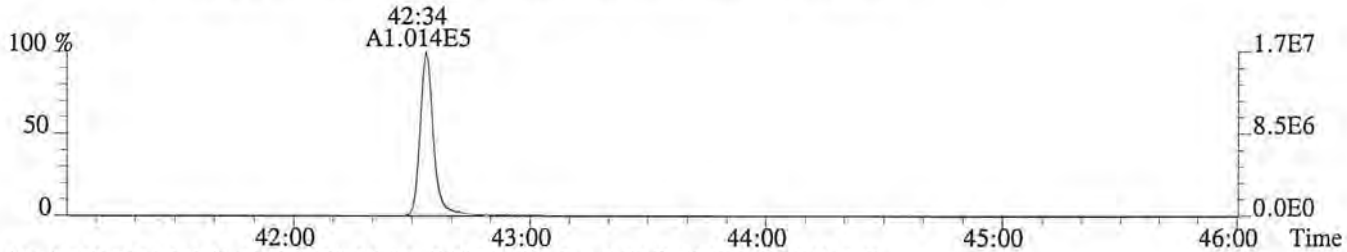
File:P300983 #1-447 Acq:21-AUG-2015 16:29:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1588.0,0.40%,F,T)



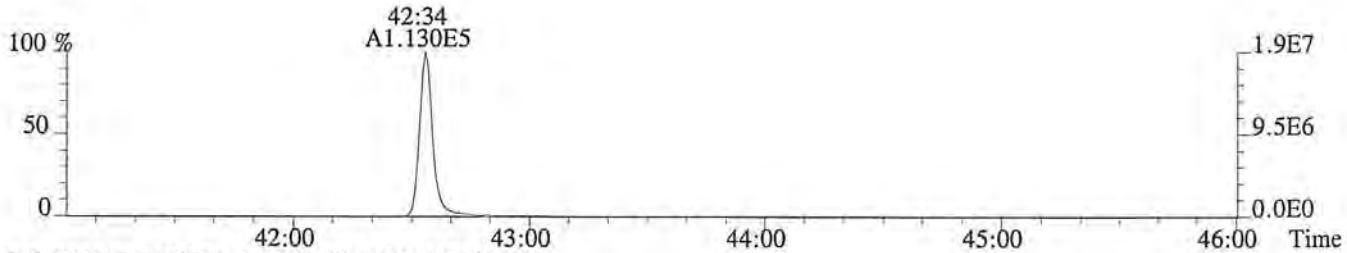
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2688.0,0.40%,F,T)



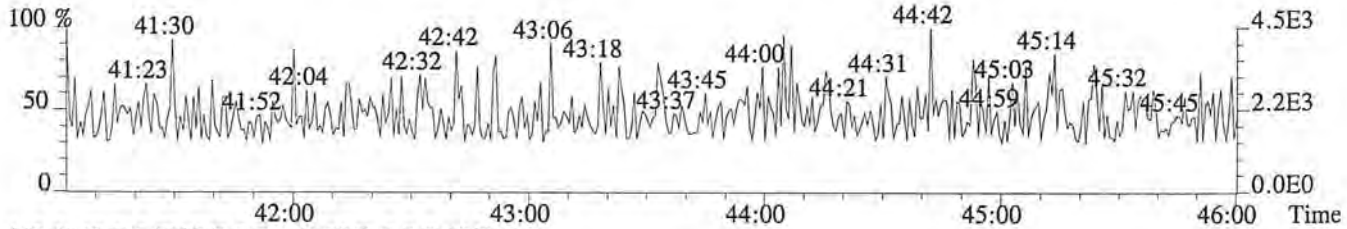
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1728.0,0.40%,F,T)



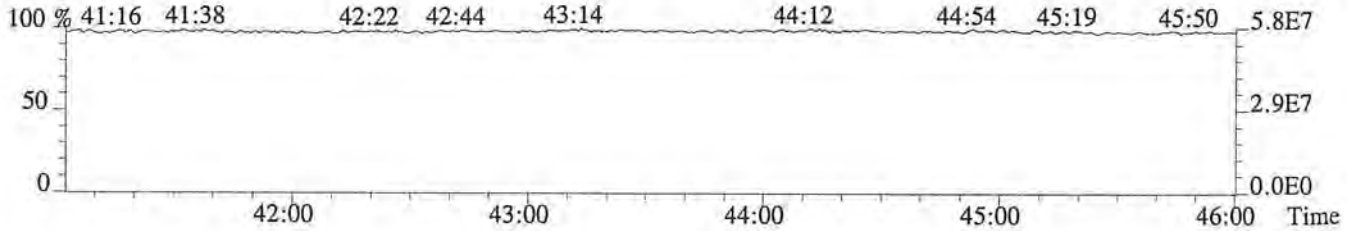
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1280.0,0.40%,F,T)



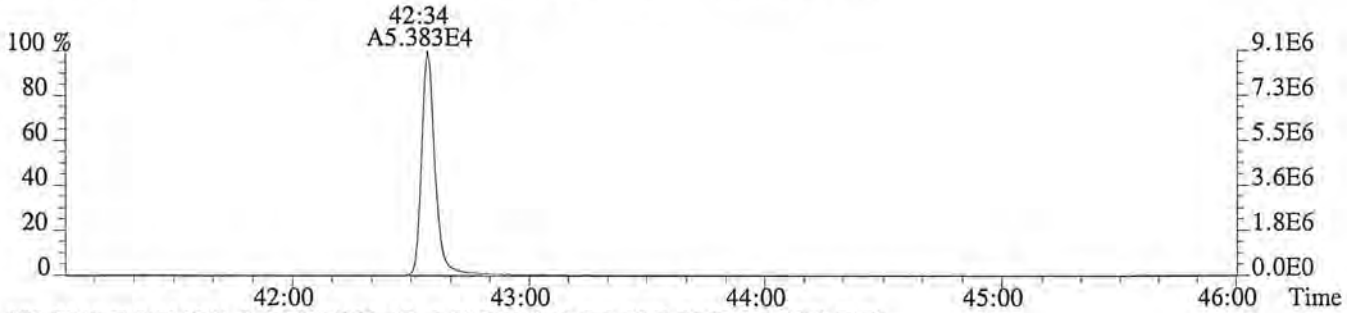
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



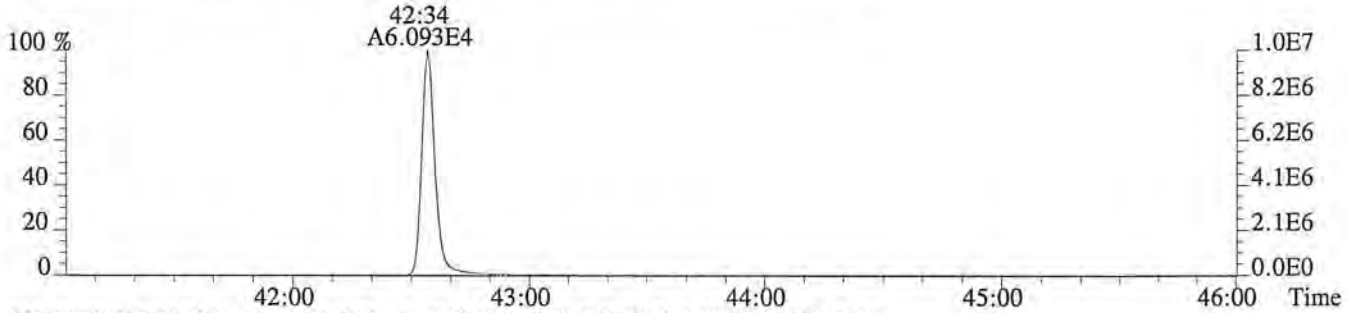
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



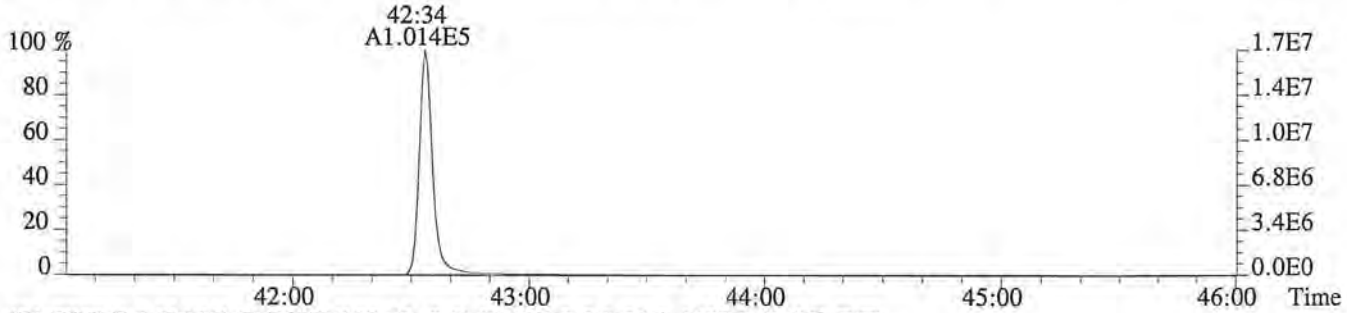
File:P300983 #1-447 Acq:21-AUG-2015 16:29:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1712.0,0.40%,F,T)



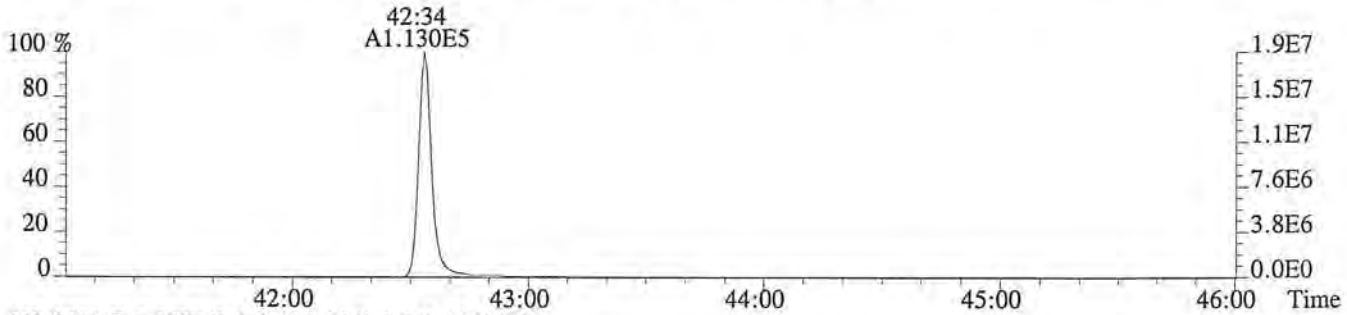
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2160.0,0.40%,F,T)



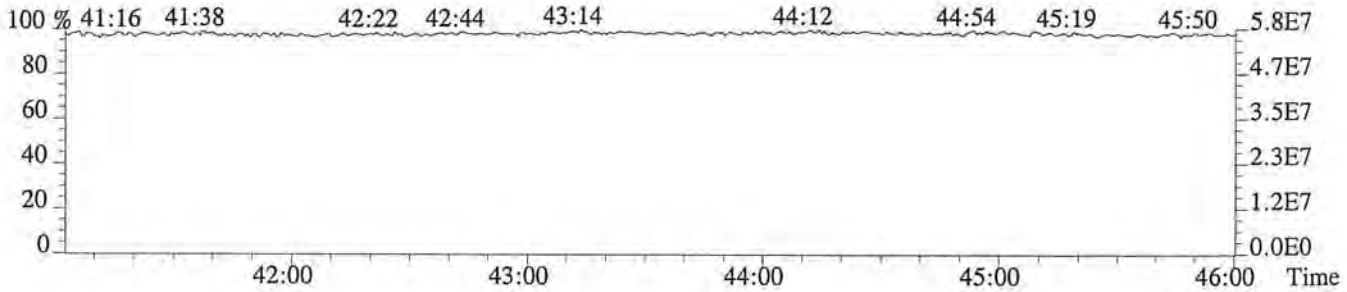
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1728.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1280.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P300984 Samp: 1 Inj: 1 Acquired: 21-AUG-15 17:25:39
Processed: 24-AUG-15 11:01:12 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	3.501e+04	4.581e+04	0.76	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	32:44	2.800e+05	1.811e+05	1.55	yes	no	0.929
3	Unk	2,3,4,7,8-PeCDF	33:37	2.531e+05	1.652e+05	1.53	yes	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	36:15	2.280e+05	1.852e+05	1.23	yes	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:21	2.326e+05	1.878e+05	1.24	yes	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:50	2.093e+05	1.707e+05	1.23	yes	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	37:35	1.928e+05	1.530e+05	1.26	yes	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	1.782e+05	1.735e+05	1.03	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	40:15	1.518e+05	1.463e+05	1.04	yes	no	1.245
10	Unk	OCDF	42:47	2.389e+05	2.681e+05	0.89	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:26	2.948e+04	3.805e+04	0.77	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:54	1.939e+05	1.248e+05	1.55	yes	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:58	1.584e+05	1.272e+05	1.25	yes	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:04	1.637e+05	1.314e+05	1.25	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:18	1.678e+05	1.355e+05	1.24	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	1.329e+05	1.285e+05	1.03	yes	no	0.949
17	Unk	OCDD	42:34	2.097e+05	2.381e+05	0.88	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:41	9.966e+04	1.269e+05	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:44	1.459e+05	9.268e+04	1.57	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:36	1.399e+05	8.921e+04	1.57	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:14	5.941e+04	1.152e+05	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:20	6.456e+04	1.231e+05	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:50	5.912e+04	1.143e+05	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:34	5.262e+04	1.020e+05	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	4.013e+04	8.988e+04	0.45	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:14	3.497e+04	7.913e+04	0.44	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:26	7.386e+04	9.333e+04	0.79	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:53	1.057e+05	6.666e+04	1.59	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:58	7.863e+04	6.234e+04	1.26	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	8.137e+04	6.476e+04	1.26	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:45	6.806e+04	6.434e+04	1.06	yes	no	0.850
32	IS	13C-OCDD	42:34	9.766e+04	1.087e+05	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:54	7.594e+04	9.583e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	8.626e+04	6.858e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:26	7.090e+04				no	1.001

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Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P300984 Samp: 1 Inj: 1 Acquired: 21-AUG-15 17:25:39
Processed: 24-AUG-15 11:01:12 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.95e+06	2.64e+03	2.6e+03	9.10e+06	5.16e+03	1.8e+03
2	1,2,3,7,8-PeCDF	5.52e+07	1.06e+03	5.2e+04	3.58e+07	3.99e+03	9.0e+03
3	2,3,4,7,8-PeCDF	5.17e+07	1.06e+03	4.9e+04	3.42e+07	3.99e+03	8.6e+03
4	1,2,3,4,7,8-HxCDF	5.00e+07	1.10e+03	4.5e+04	4.03e+07	1.47e+03	2.7e+04
5	1,2,3,6,7,8-HxCDF	4.86e+07	1.10e+03	4.4e+04	3.96e+07	1.47e+03	2.7e+04
6	2,3,4,6,7,8-HxCDF	4.50e+07	1.10e+03	4.1e+04	3.71e+07	1.47e+03	2.5e+04
7	1,2,3,7,8,9-HxCDF	3.92e+07	1.10e+03	3.5e+04	3.19e+07	1.47e+03	2.2e+04
8	1,2,3,4,6,7,8-HpCDF	3.84e+07	1.36e+04	2.8e+03	3.77e+07	9.67e+03	3.9e+03
9	1,2,3,4,7,8,9-HpCDF	2.89e+07	1.36e+04	2.1e+03	2.79e+07	9.67e+03	2.9e+03
10	OCDF	4.07e+07	2.11e+03	1.9e+04	4.59e+07	2.62e+03	1.8e+04
11	2,3,7,8-TCDD	6.02e+06	1.91e+03	3.1e+03	7.76e+06	3.09e+03	2.5e+03
12	1,2,3,7,8-PeCDD	3.98e+07	4.28e+03	9.3e+03	2.59e+07	2.08e+03	1.2e+04
13	1,2,3,4,7,8-HxCDD	3.59e+07	1.61e+03	2.2e+04	2.88e+07	3.26e+03	8.8e+03
14	1,2,3,6,7,8-HxCDD	3.53e+07	1.61e+03	2.2e+04	2.84e+07	3.26e+03	8.7e+03
15	1,2,3,7,8,9-HxCDD	3.73e+07	1.61e+03	2.3e+04	2.99e+07	3.26e+03	9.2e+03
16	1,2,3,4,6,7,8-HpCDD	2.70e+07	1.96e+03	1.4e+04	2.60e+07	1.40e+03	1.9e+04
17	OCDD	3.51e+07	1.46e+03	2.4e+04	3.99e+07	1.51e+03	2.6e+04
18	13C-2,3,7,8-TCDF	1.95e+07	3.62e+03	5.4e+03	2.48e+07	2.55e+03	9.7e+03
19	13C-1,2,3,7,8-PeCDF	2.92e+07	5.60e+02	5.2e+04	1.86e+07	1.37e+03	1.4e+04
20	13C-2,3,4,7,8-PeCDF	2.89e+07	5.60e+02	5.2e+04	1.86e+07	1.37e+03	1.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.31e+07	1.49e+03	8.8e+03	2.53e+07	3.45e+03	7.3e+03
22	13C-1,2,3,6,7,8-HxCDF	1.38e+07	1.49e+03	9.2e+03	2.65e+07	3.45e+03	7.7e+03
23	13C-2,3,4,6,7,8-HxCDF	1.27e+07	1.49e+03	8.5e+03	2.47e+07	3.45e+03	7.2e+03
24	13C-1,2,3,7,8,9-HxCDF	1.07e+07	1.49e+03	7.2e+03	2.08e+07	3.45e+03	6.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	8.65e+06	4.49e+03	1.9e+03	1.95e+07	1.08e+04	1.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.70e+06	4.49e+03	1.5e+03	1.50e+07	1.08e+04	1.4e+03
27	13C-2,3,7,8-TCDD	1.54e+07	1.03e+04	1.5e+03	1.94e+07	6.44e+03	3.0e+03
28	13C-1,2,3,7,8-PeCDD	2.20e+07	3.16e+03	7.0e+03	1.39e+07	1.46e+03	9.5e+03
29	13C-1,2,3,4,7,8-HxCDD	1.78e+07	2.78e+03	6.4e+03	1.41e+07	2.41e+03	5.9e+03
30	13C-1,2,3,6,7,8-HxCDD	1.76e+07	2.78e+03	6.3e+03	1.39e+07	2.41e+03	5.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.37e+07	1.96e+03	7.0e+03	1.29e+07	9.88e+02	1.3e+04
32	13C-OCDD	1.62e+07	1.64e+03	9.8e+03	1.82e+07	1.90e+03	9.6e+03
33	13C-1,2,3,4-TCDD	1.52e+07	1.03e+04	1.5e+03	1.90e+07	6.44e+03	3.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.91e+07	2.78e+03	6.9e+03	1.52e+07	2.41e+03	6.3e+03
35	37Cl-2,3,7,8-TCDD	1.45e+07	2.43e+03	6.0e+03			

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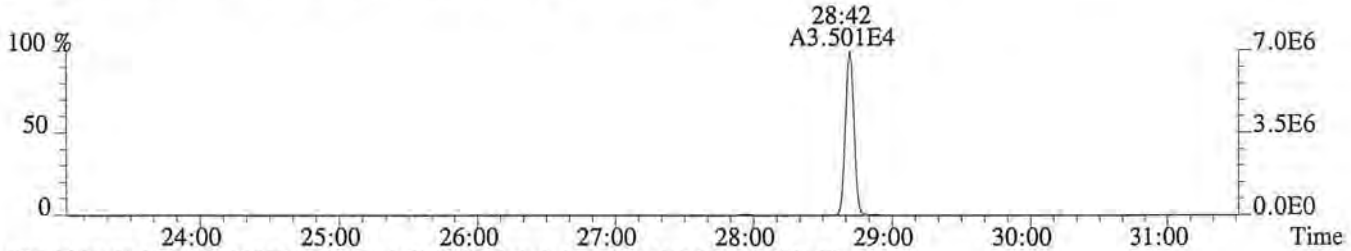
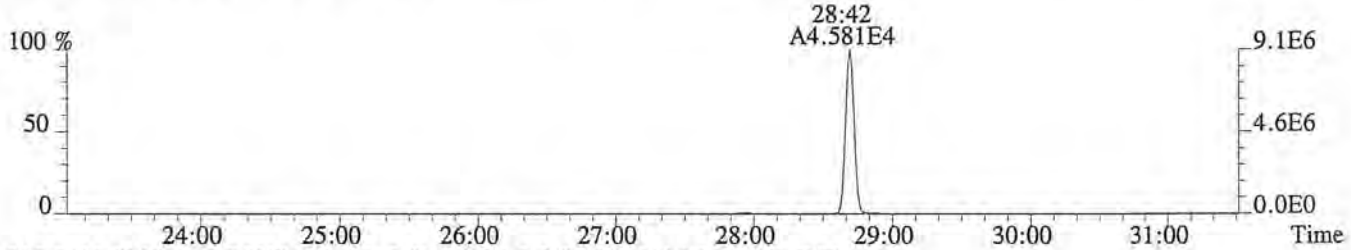
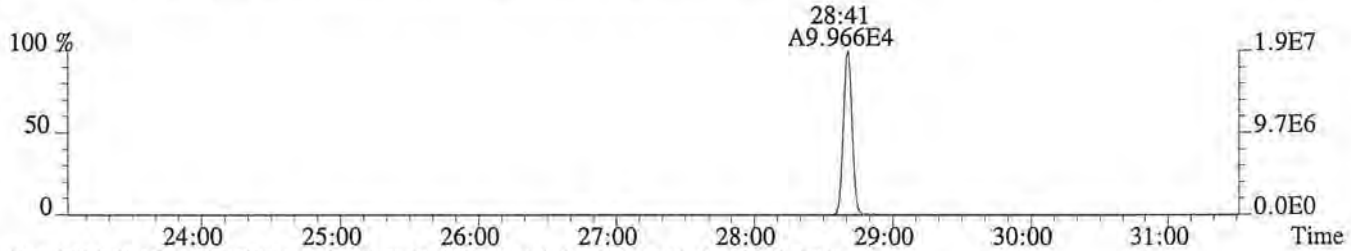
File:P300984 #1-602 Acq:21-AUG-2015 17:25:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2644.0,1.00%,F,T)



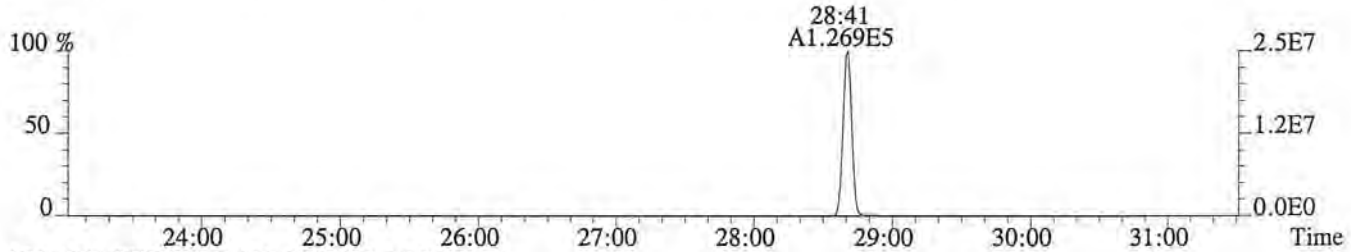
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5160.0,1.00%,F,T)



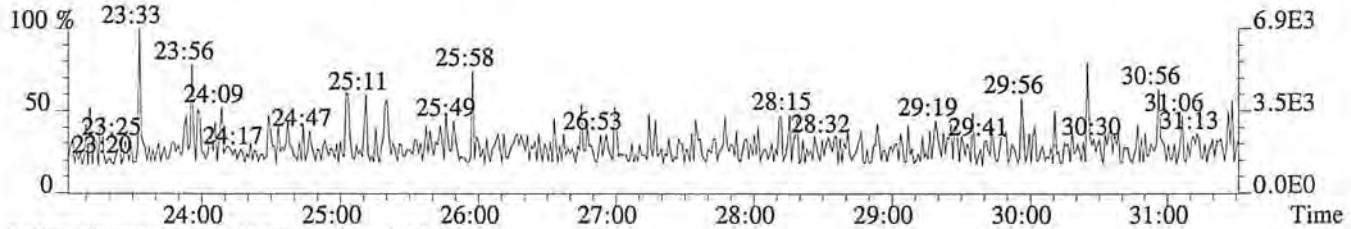
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3616.0,1.00%,F,T)



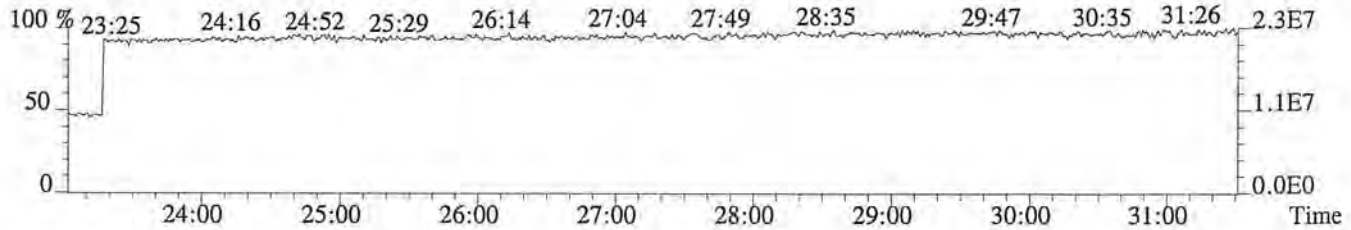
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2548.0,1.00%,F,T)



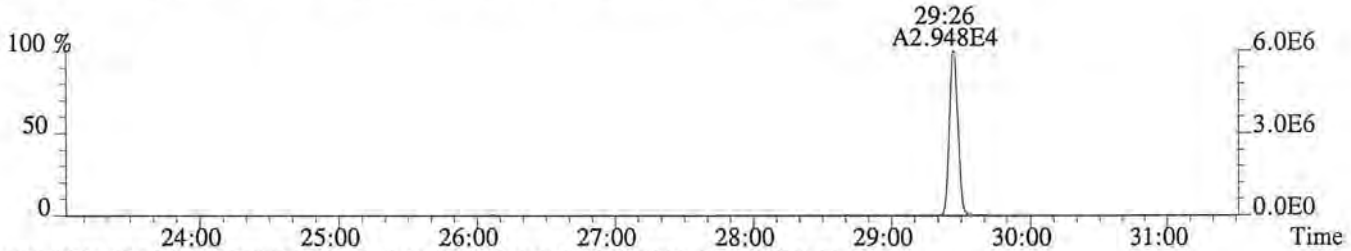
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



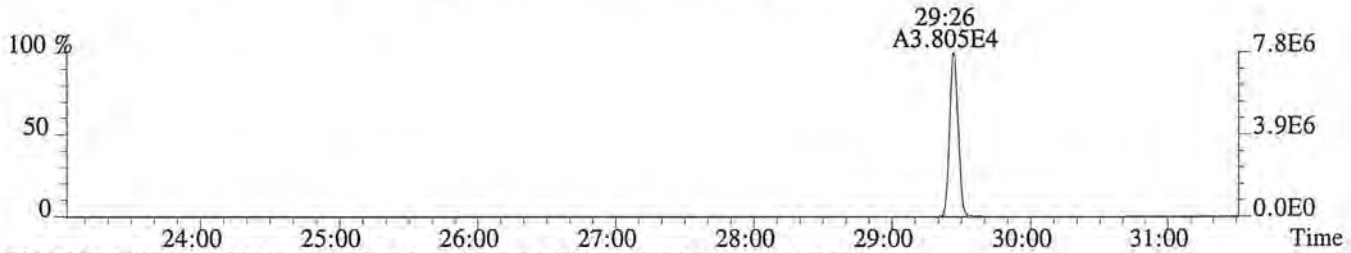
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



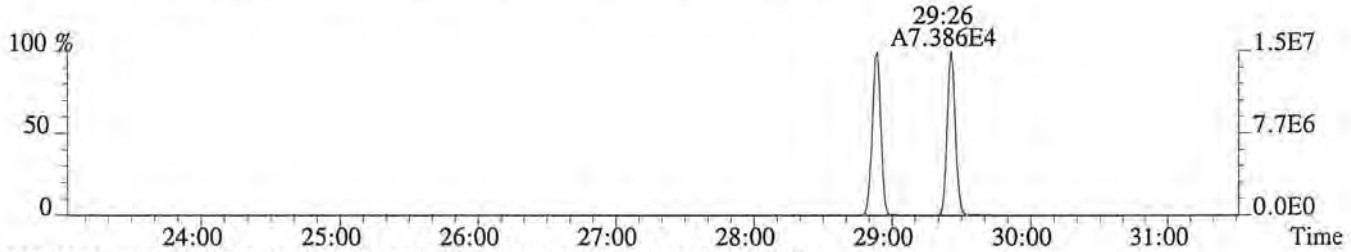
File:P300984 #1-602 Acq:21-AUG-2015 17:25:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



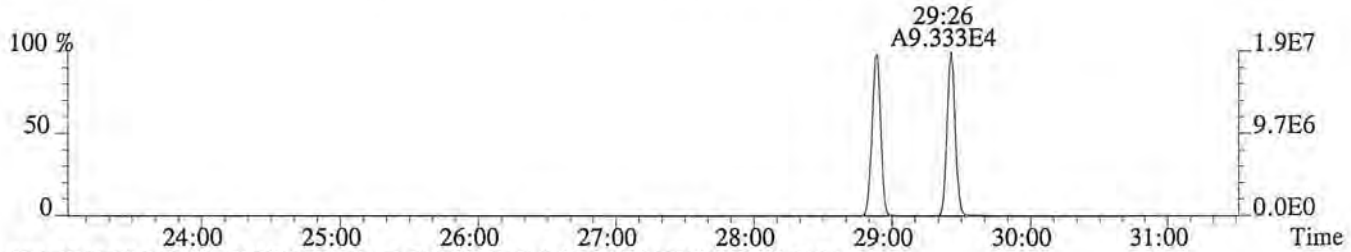
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3092.0,1.00%,F,T)



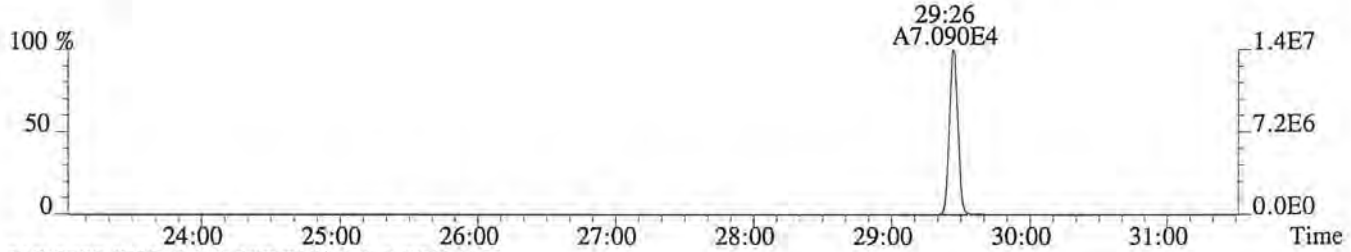
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10336.0,1.00%,F,T)



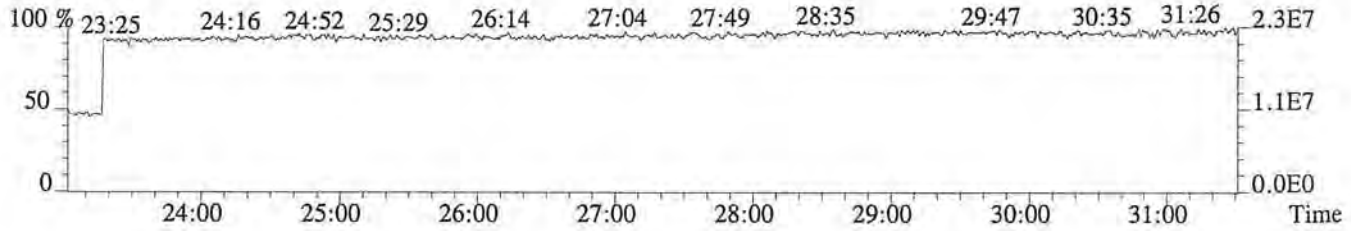
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6440.0,1.00%,F,T)



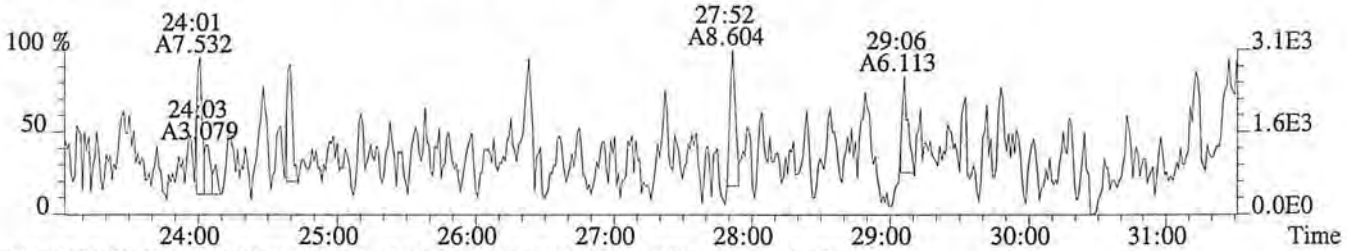
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2428.0,1.00%,F,T)



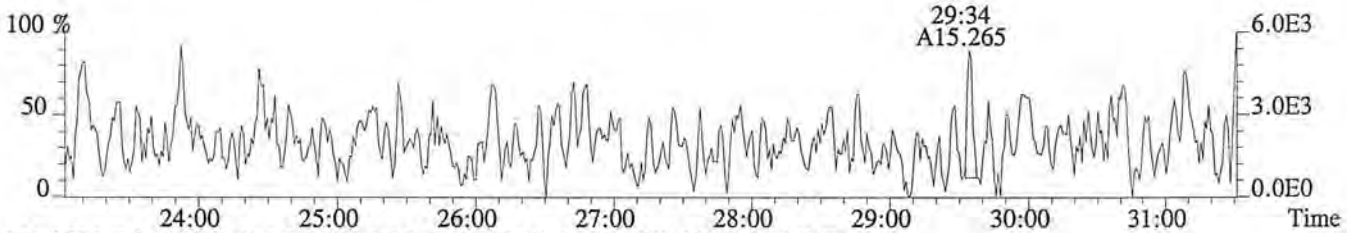
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



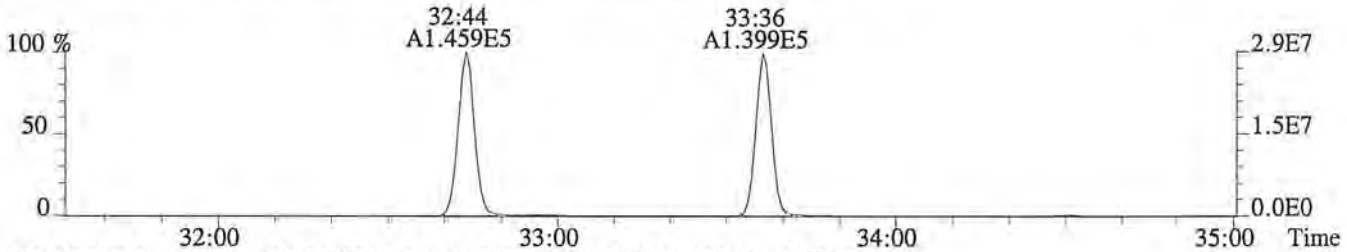
File:P300984 #1-602 Acq:21-AUG-2015 17:25:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



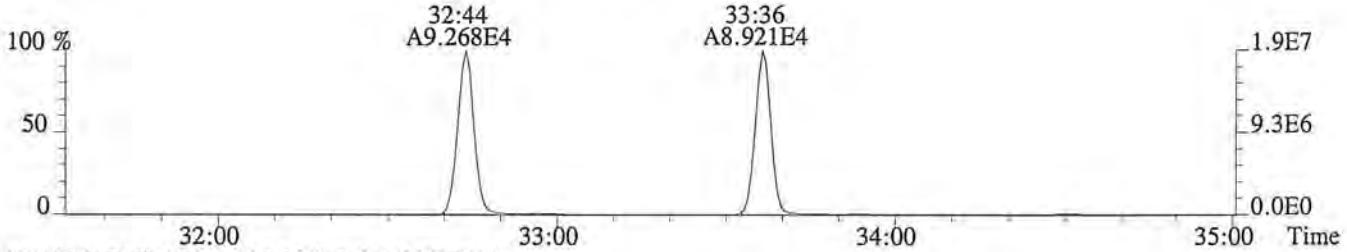
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2508.0,1.00%,F,T)



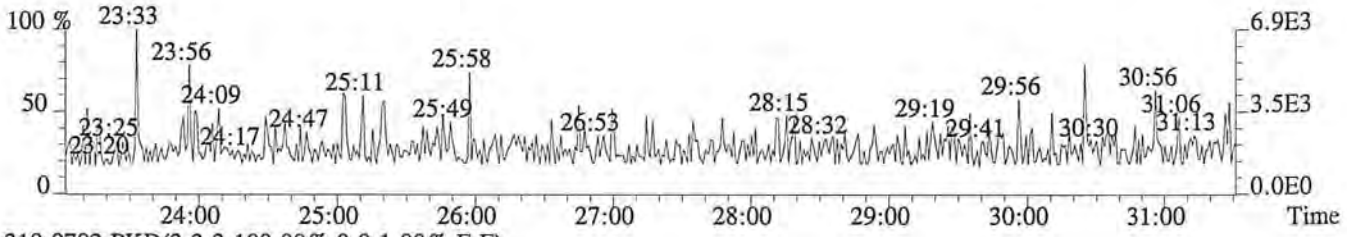
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



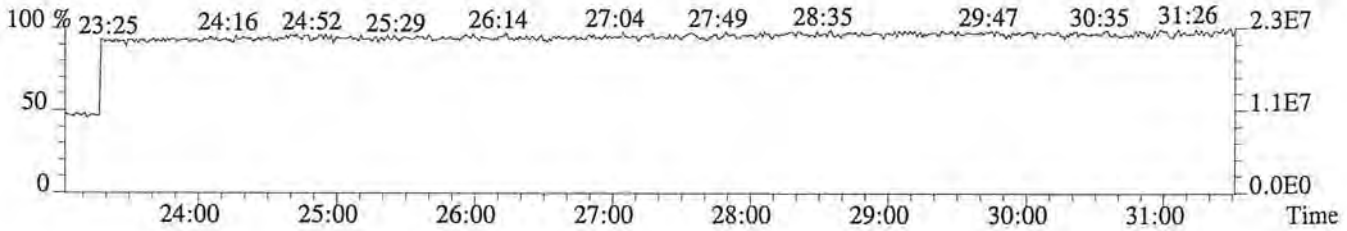
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



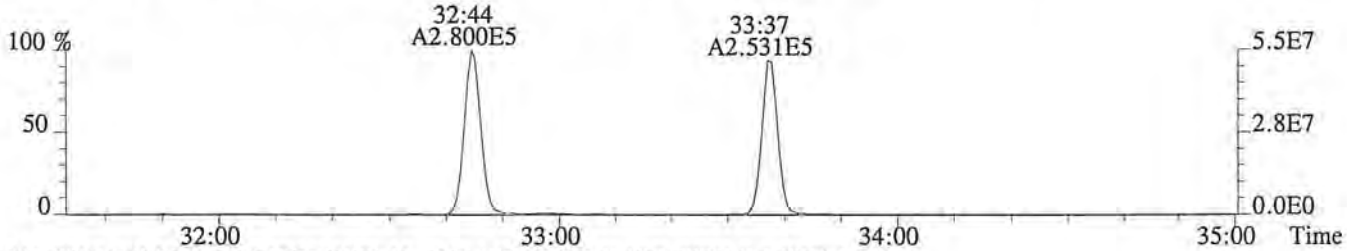
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



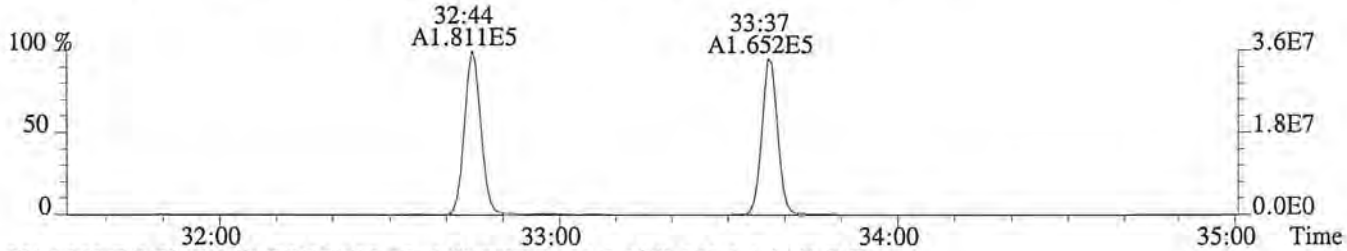
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



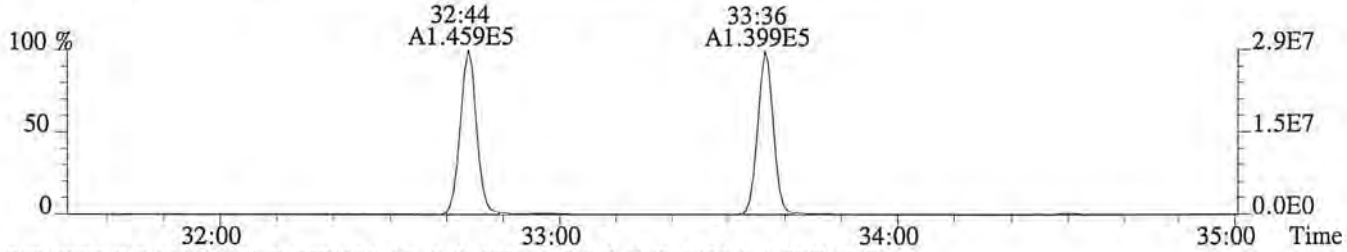
File:P300984 #1-312 Acq:21-AUG-2015 17:25:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



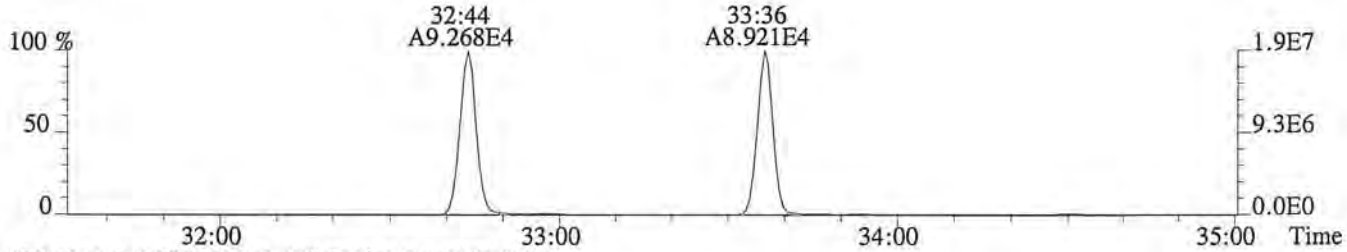
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3992.0,1.00%,F,T)



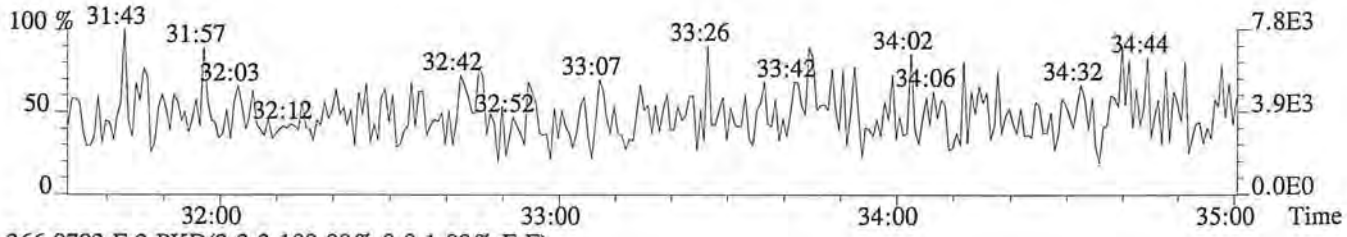
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



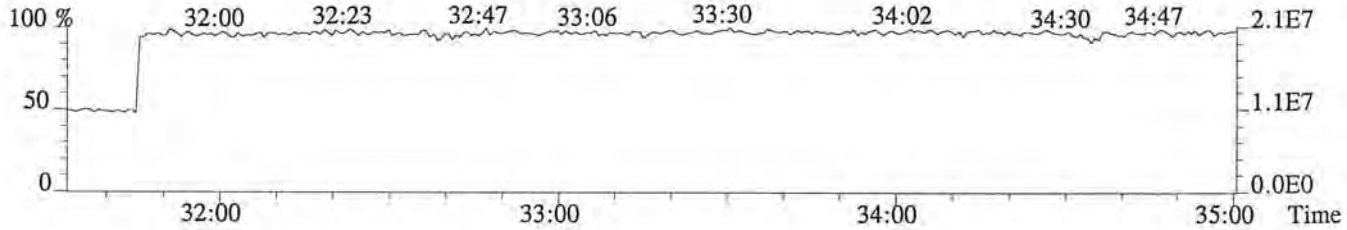
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



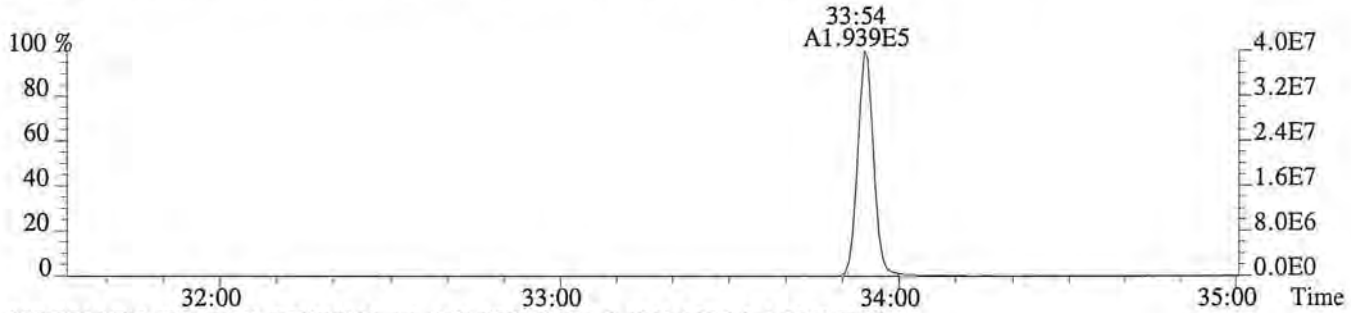
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



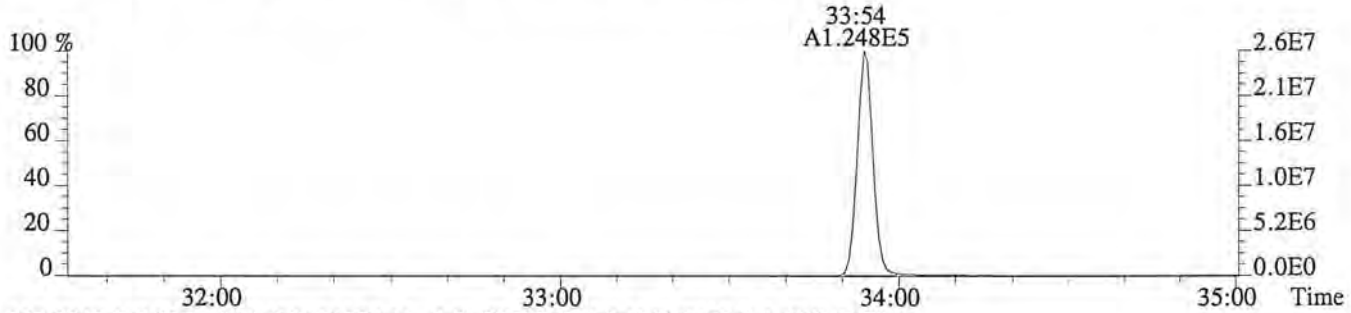
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



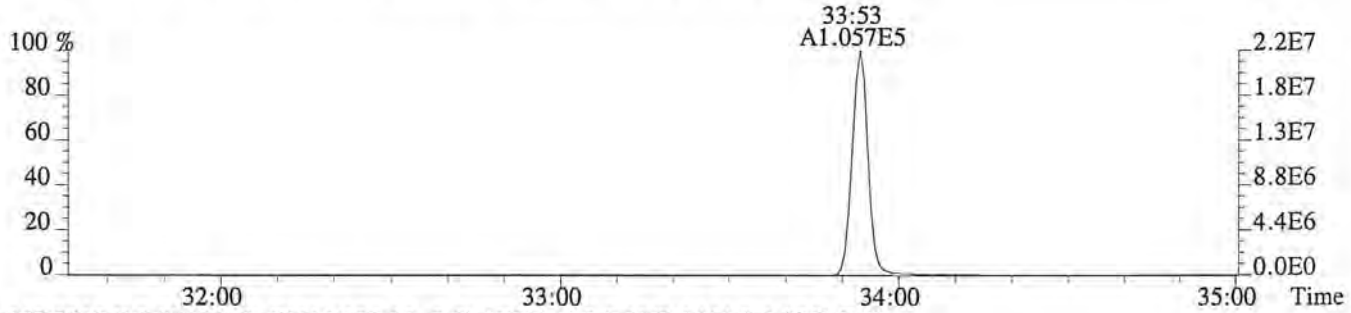
File:P300984 #1-312 Acq:21-AUG-2015 17:25:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4280.0,1.00%,F,T)



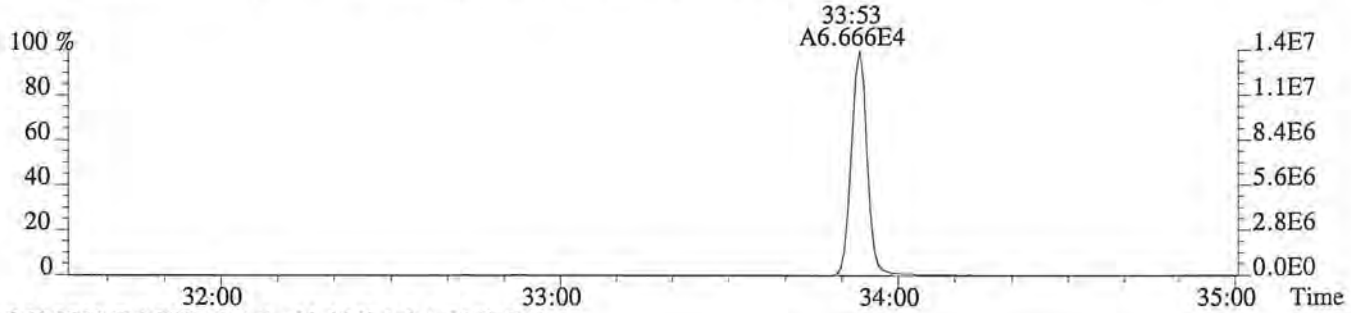
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2076.0,1.00%,F,T)



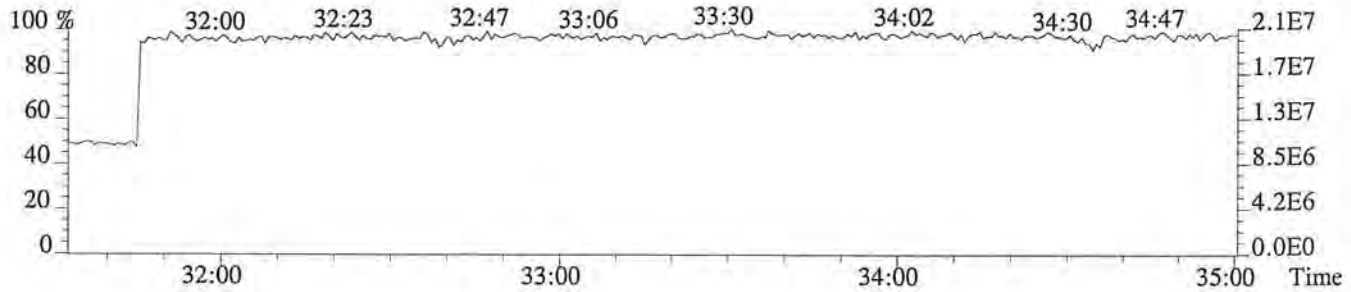
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3160.0,1.00%,F,T)



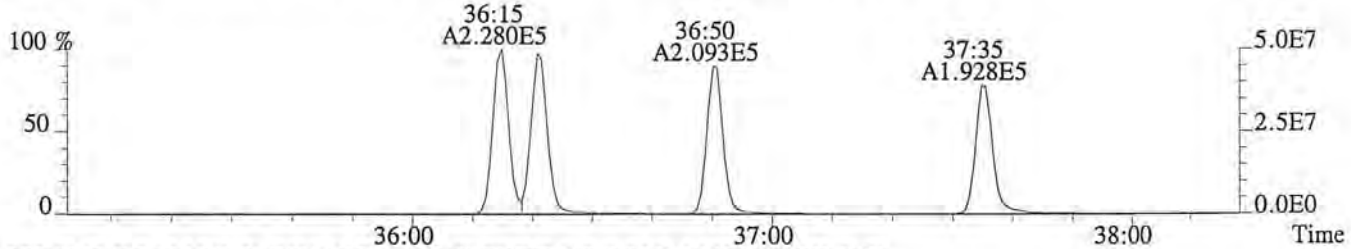
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1464.0,1.00%,F,T)



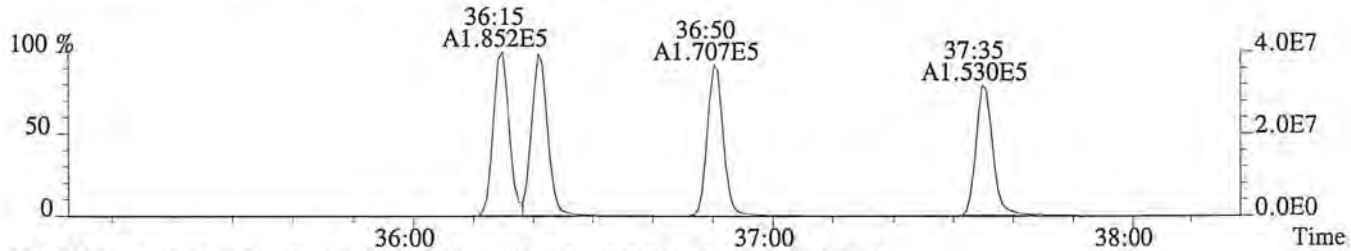
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



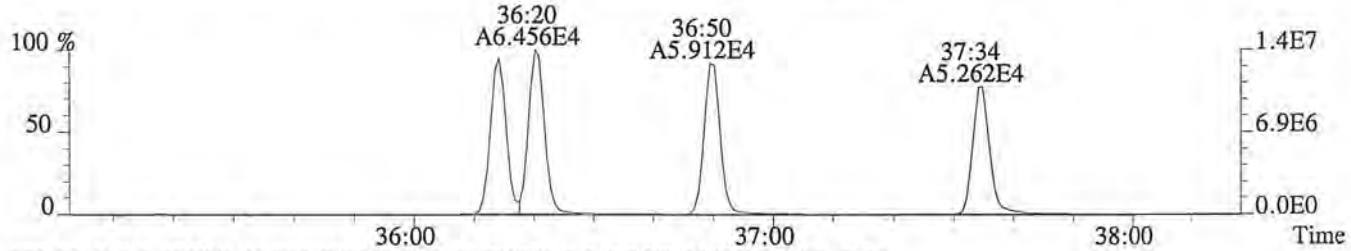
File:P300984 #1-294 Acq:21-AUG-2015 17:25:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1104.0,0.40%,F,T)



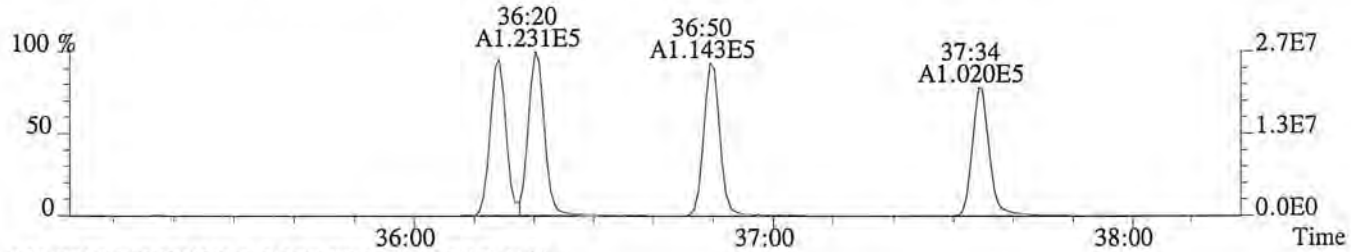
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1472.0,0.40%,F,T)



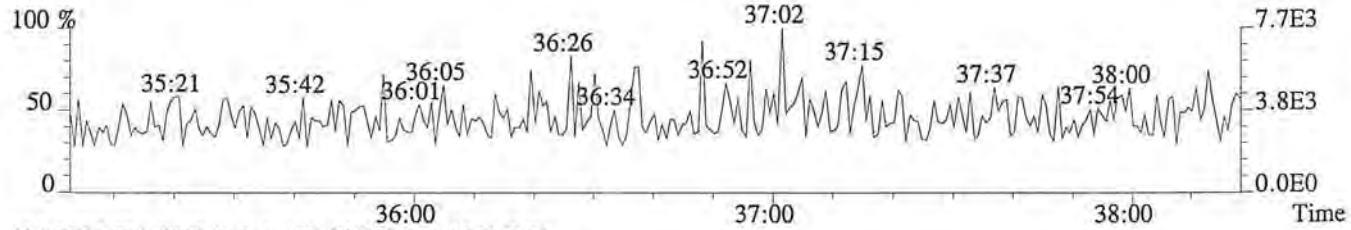
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1488.0,0.40%,F,T)



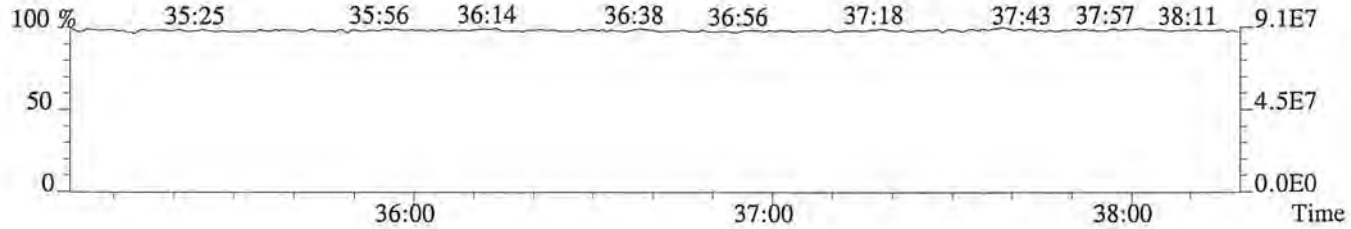
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3448.0,0.40%,F,T)



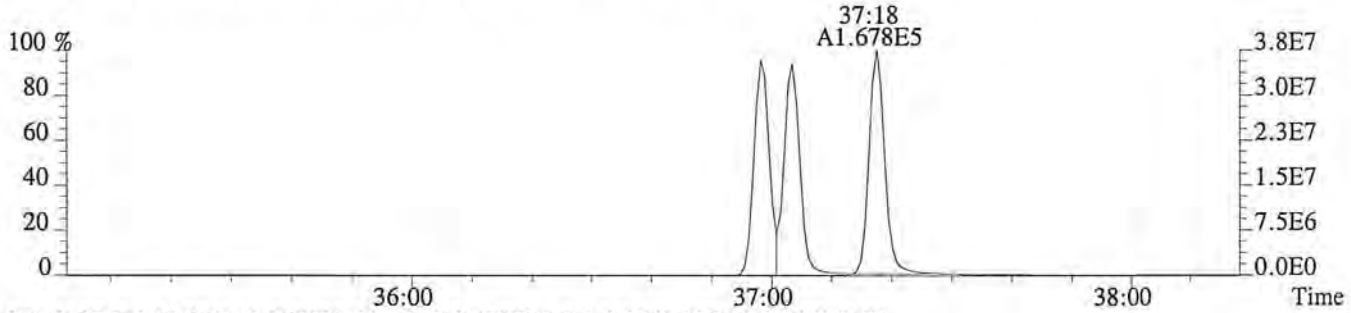
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



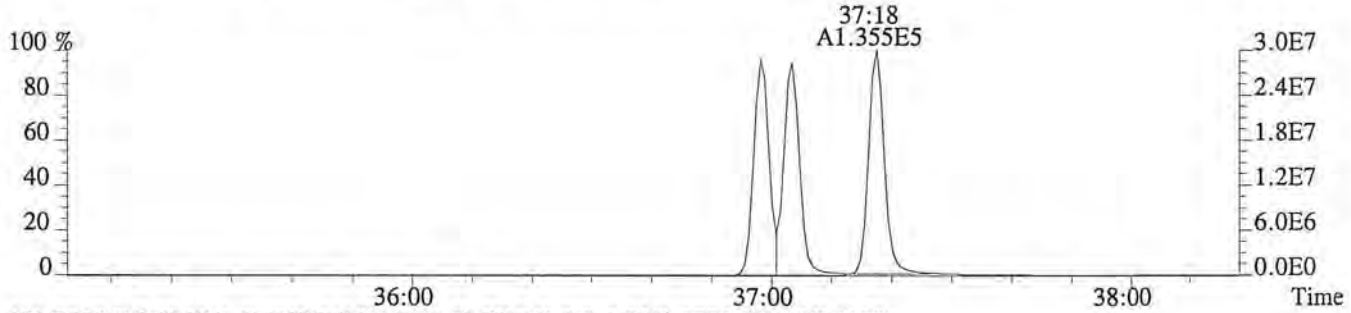
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



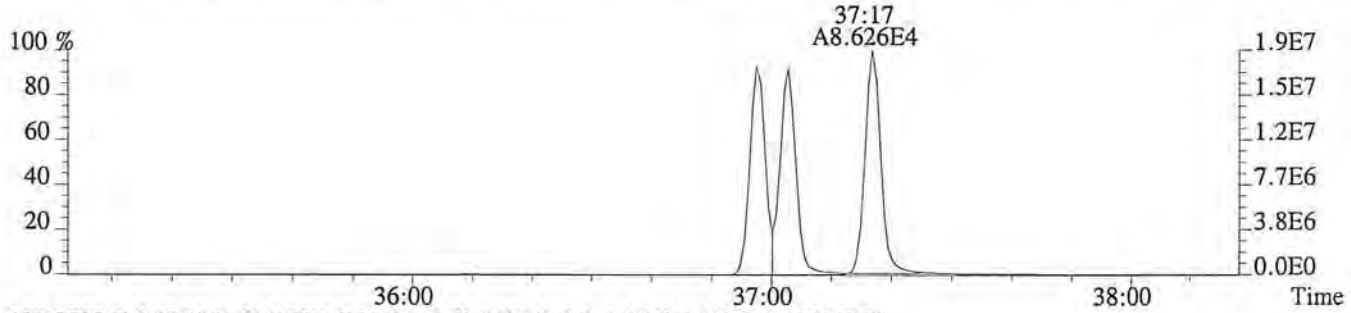
File:P300984 #1-294 Acq:21-AUG-2015 17:25:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1608.0,0.40%,F,T)



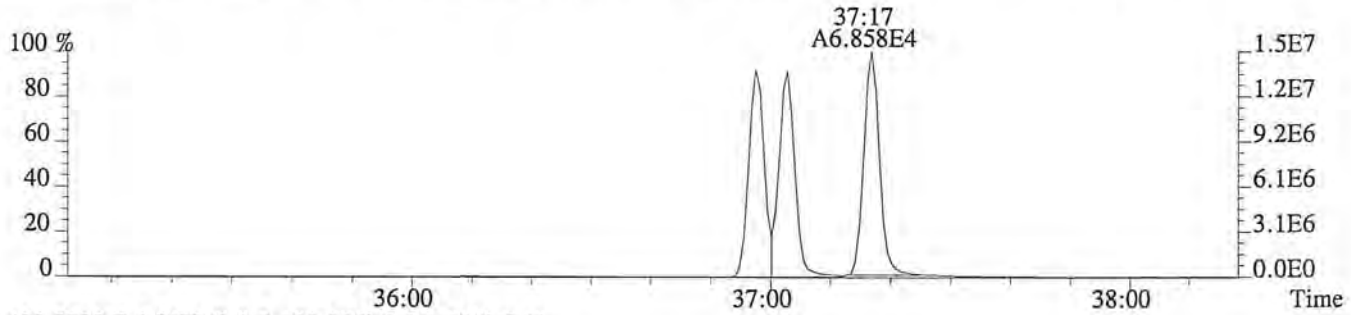
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3264.0,0.40%,F,T)



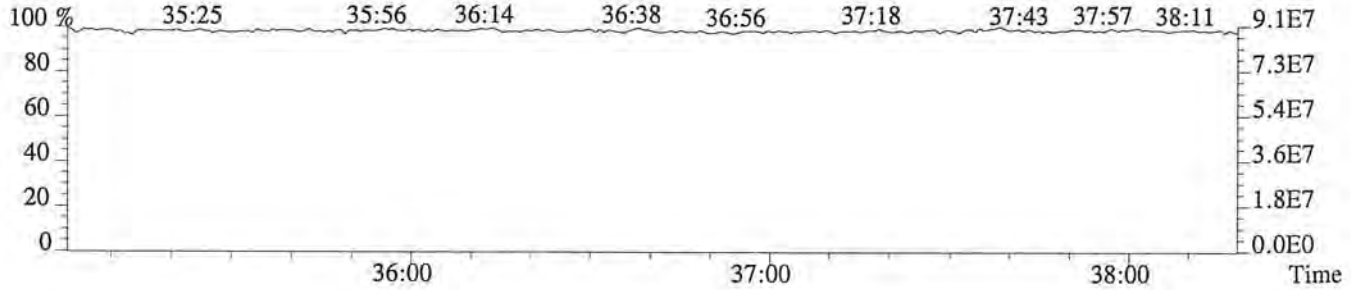
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2776.0,0.40%,F,T)



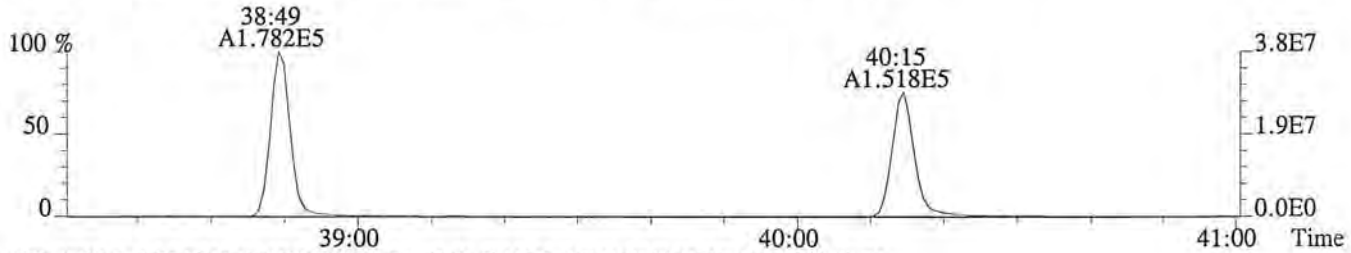
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2408.0,0.40%,F,T)



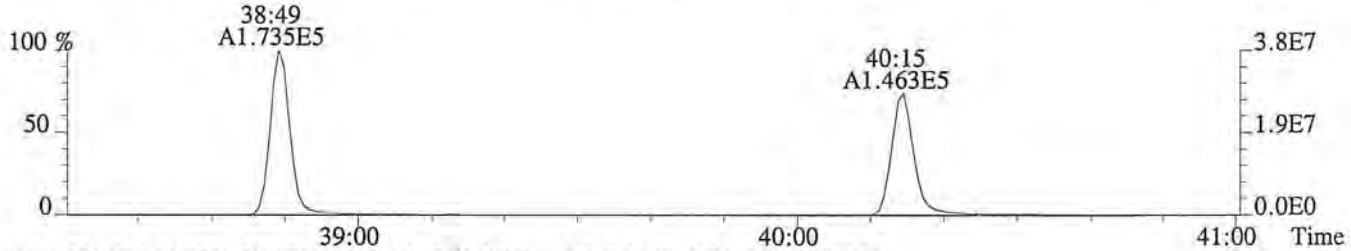
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



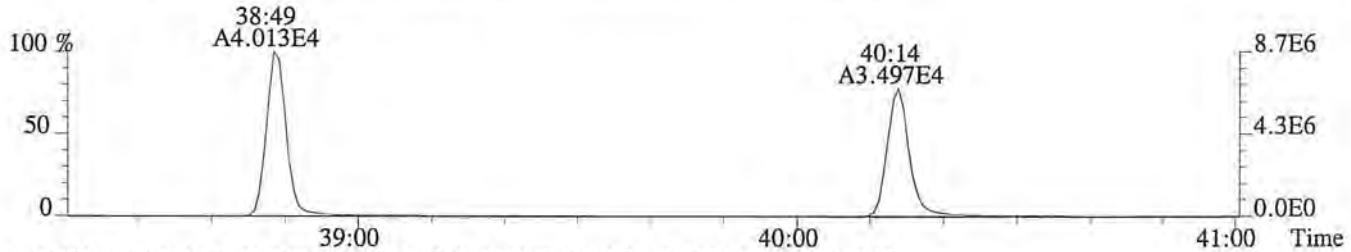
File:P300984 #1-241 Acq:21-AUG-2015 17:25:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13576.0,0.50%,F,T)



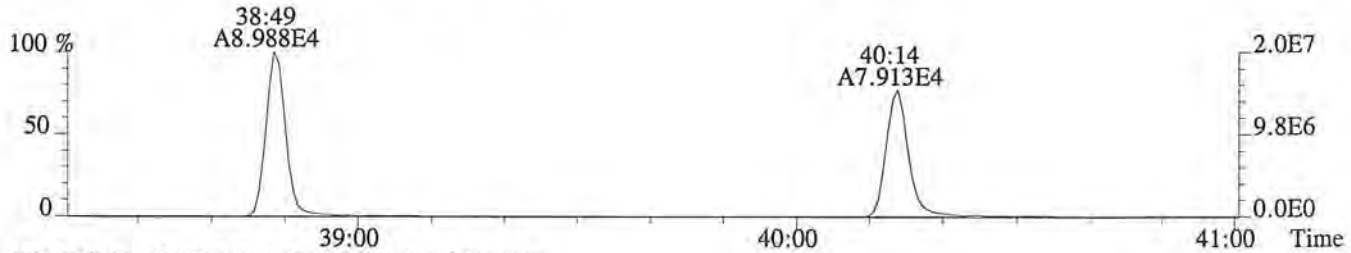
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9668.0,0.50%,F,T)



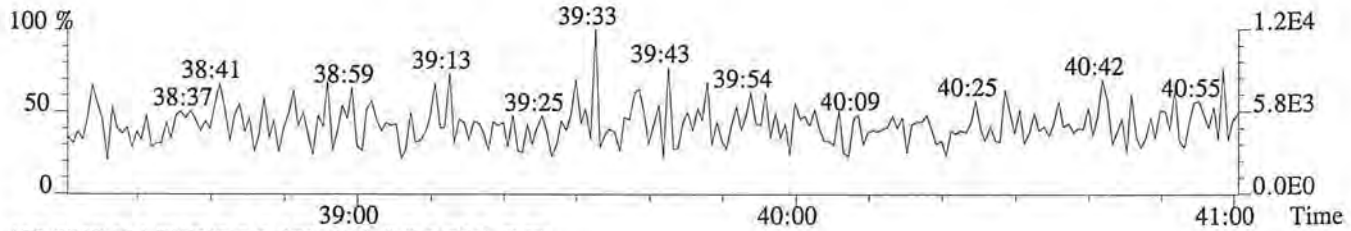
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4488.0,0.50%,F,T)



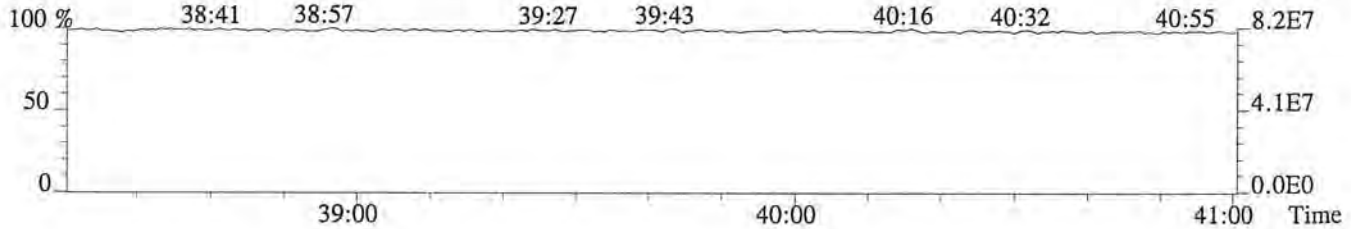
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10756.0,0.50%,F,T)



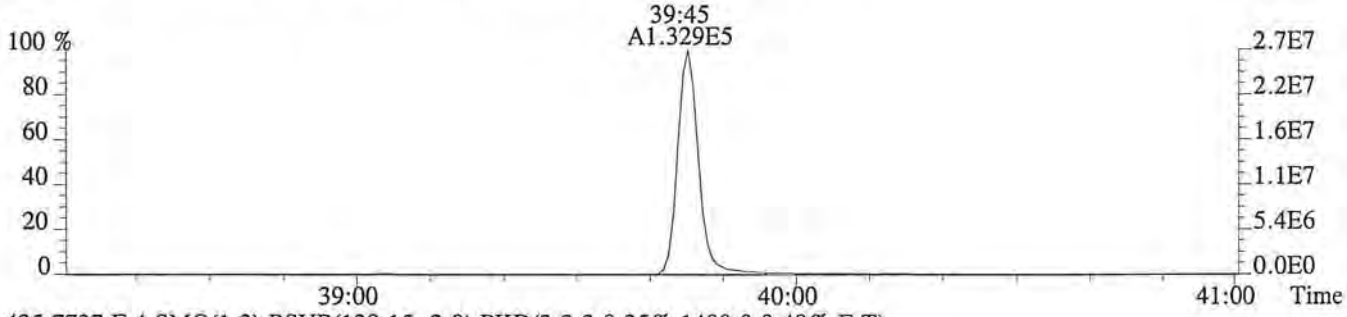
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



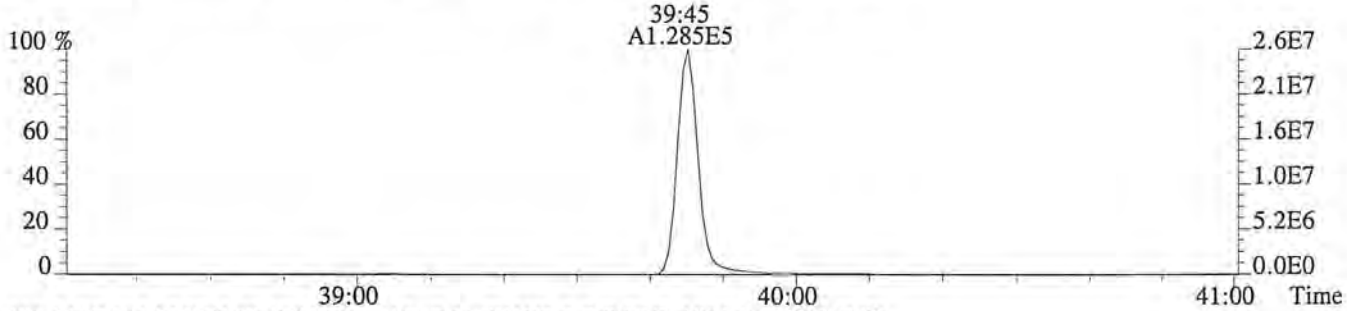
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



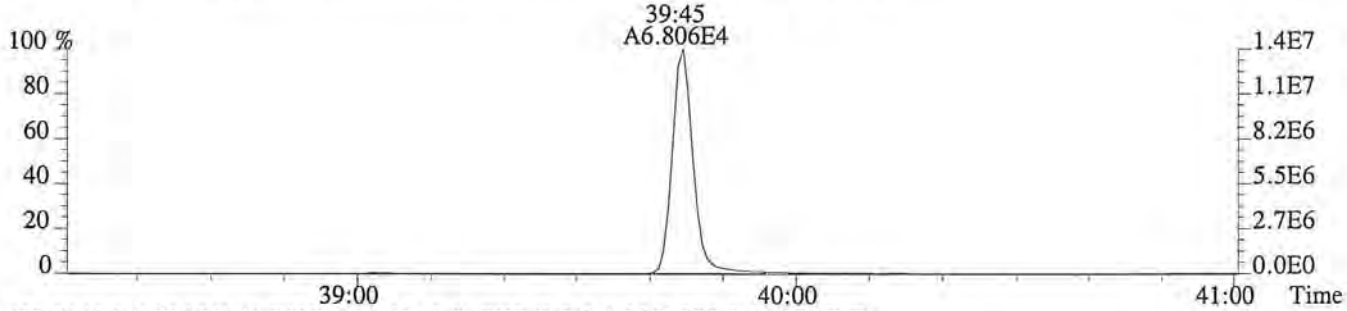
File:P300984 #1-241 Acq:21-AUG-2015 17:25:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1964.0,0.40%,F,T)



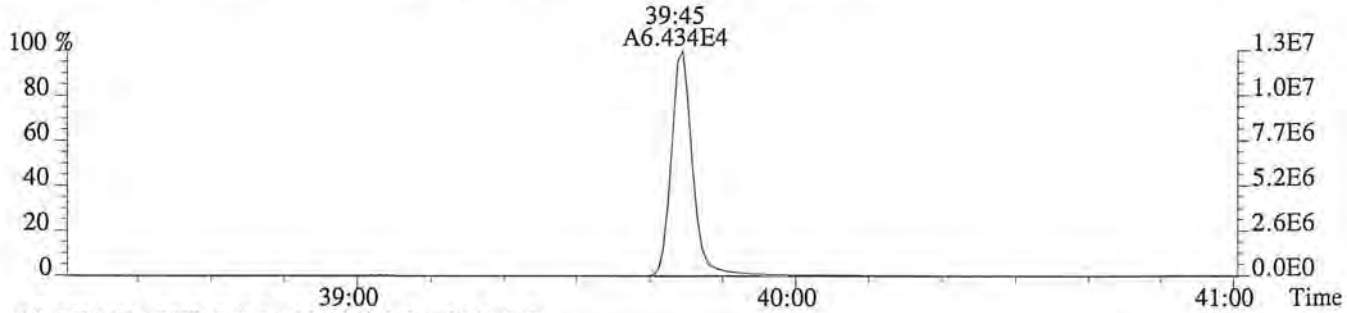
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)



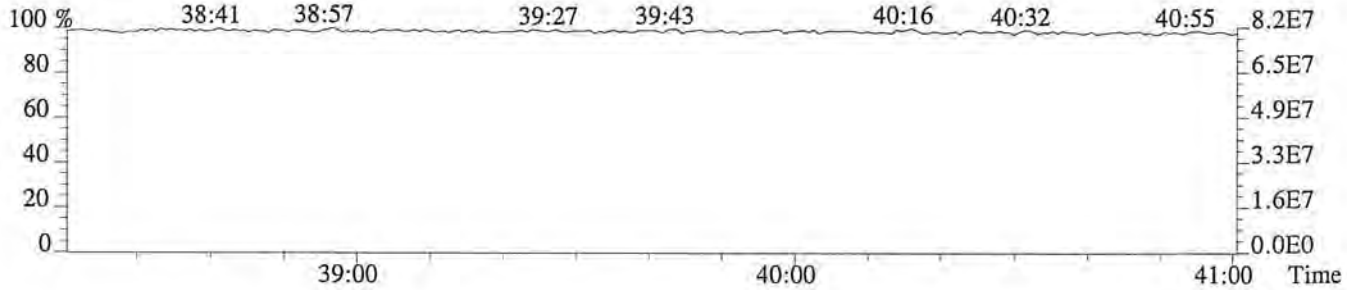
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1956.0,0.40%,F,T)



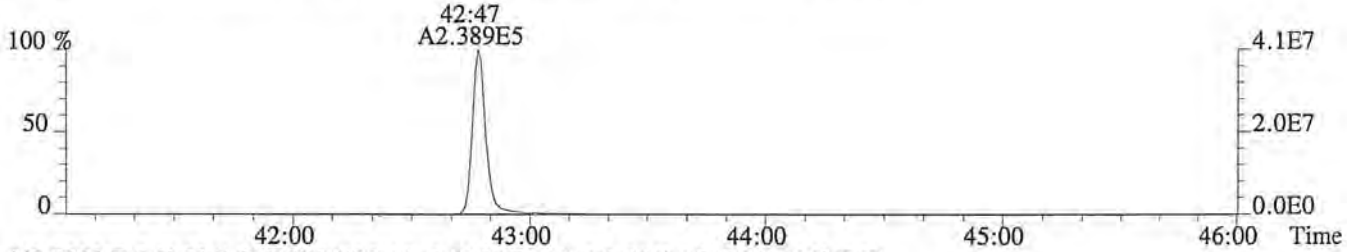
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



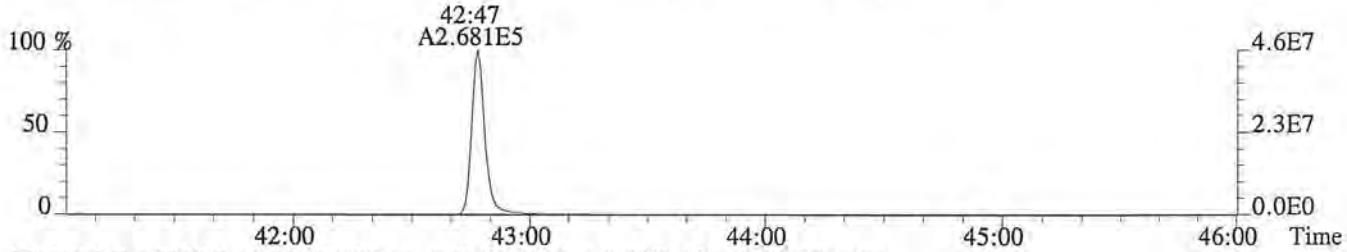
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



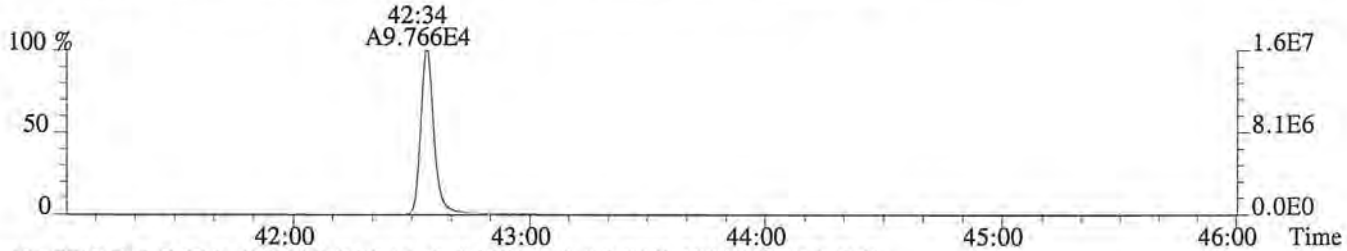
File:P300984 #1-447 Acq:21-AUG-2015 17:25:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2108.0,0.40%,F,T)



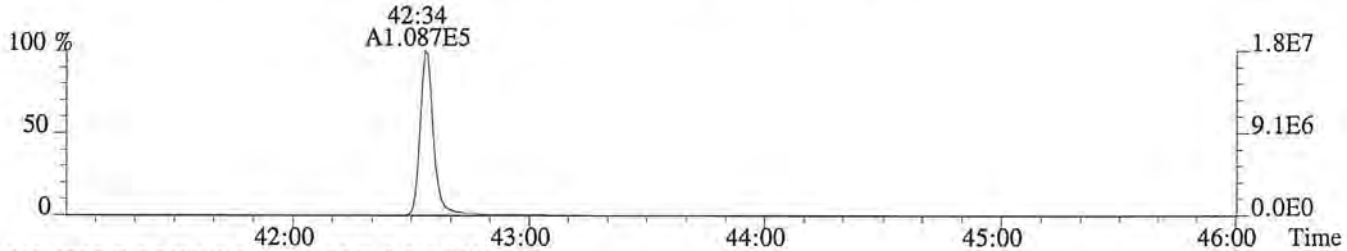
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2616.0,0.40%,F,T)



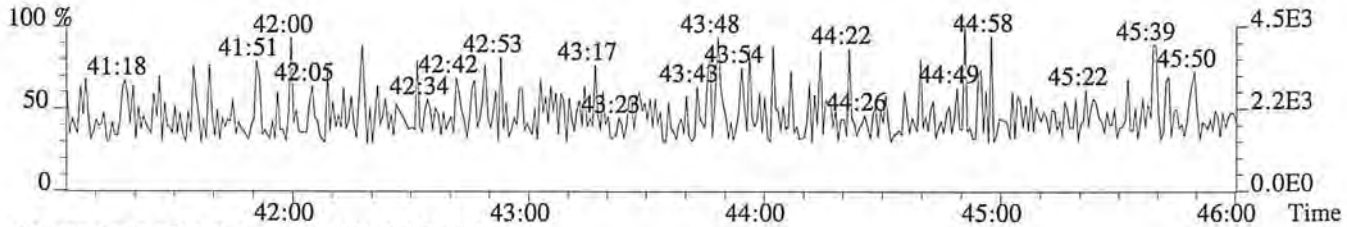
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1644.0,0.40%,F,T)



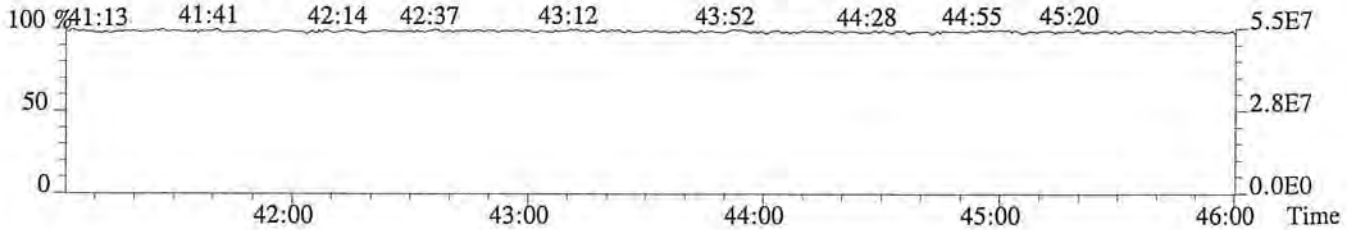
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1900.0,0.40%,F,T)



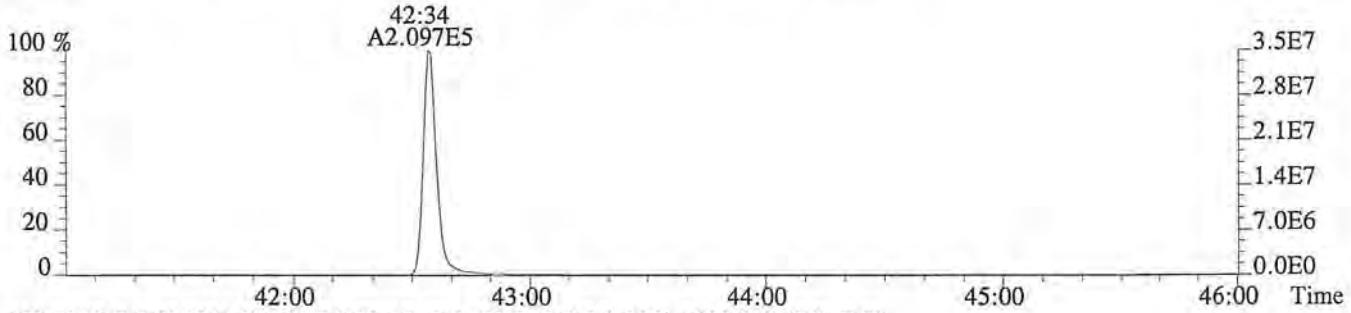
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



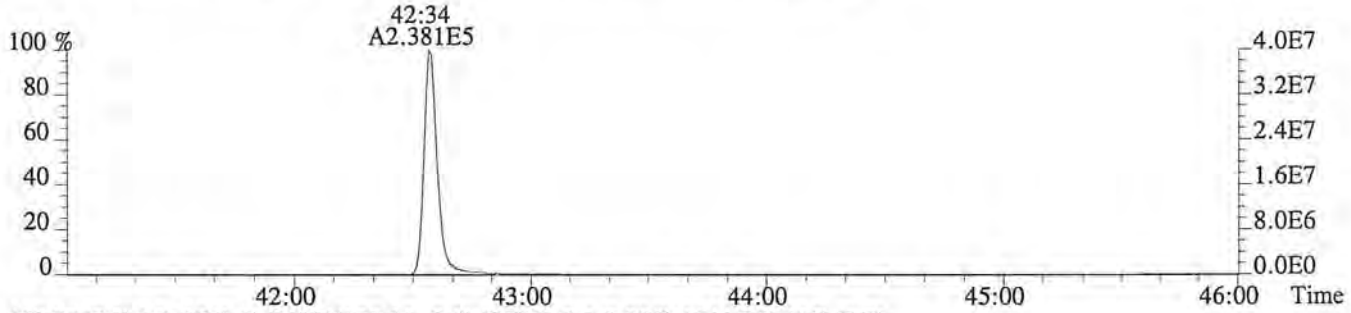
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



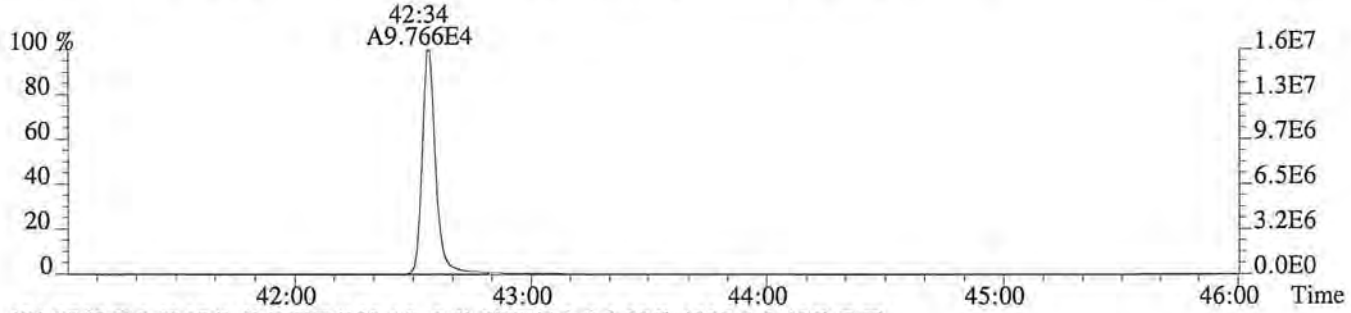
File:P300984 #1-447 Acq:21-AUG-2015 17:25:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1460.0,0.40%,F,T)



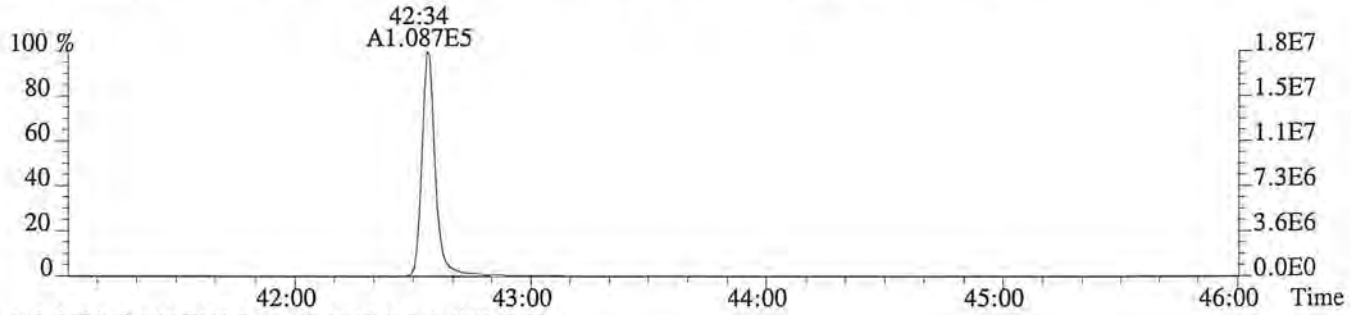
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1508.0,0.40%,F,T)



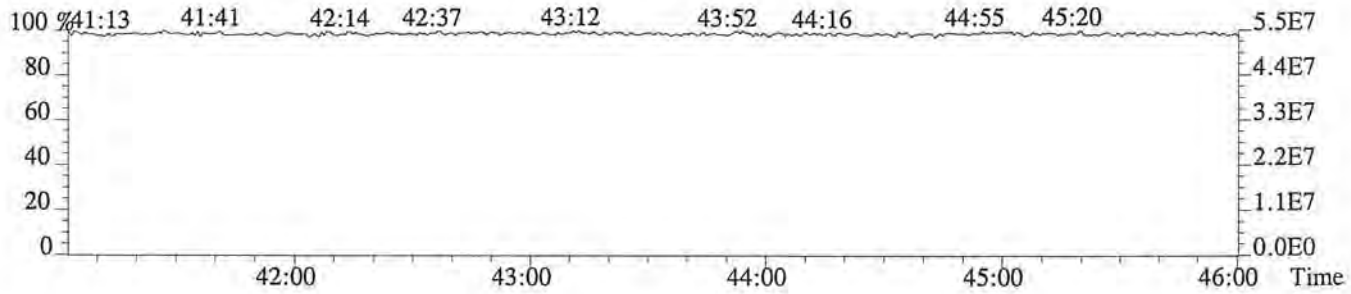
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1644.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1900.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76956

Run #6 Filename P300985 Samp: 1 Inj: 1 Acquired: 21-AUG-15 18:19:58
Processed: 24-AUG-15 11:01:12 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	1.583e+05	2.067e+05	0.77	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	32:45	1.267e+06	8.238e+05	1.54	yes	no	0.929
3	Unk	2,3,4,7,8-PeCDF	33:38	1.167e+06	7.610e+05	1.53	yes	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	36:15	1.005e+06	8.161e+05	1.23	yes	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:22	1.058e+06	8.581e+05	1.23	yes	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:51	9.665e+05	7.825e+05	1.24	yes	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	37:35	8.737e+05	6.884e+05	1.27	yes	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	8.219e+05	7.940e+05	1.04	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	6.736e+05	6.647e+05	1.01	yes	no	1.245
10	Unk	OCDF	42:48	1.099e+06	1.225e+06	0.90	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:27	1.362e+05	1.738e+05	0.78	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:54	9.030e+05	5.807e+05	1.55	yes	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:59	7.551e+05	6.090e+05	1.24	yes	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:04	7.391e+05	5.941e+05	1.24	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:18	7.782e+05	6.317e+05	1.23	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	6.078e+05	5.853e+05	1.04	yes	no	0.949
17	Unk	OCDD	42:34	9.629e+05	1.089e+06	0.88	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:41	8.904e+04	1.129e+05	0.79	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:44	1.312e+05	8.340e+04	1.57	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:37	1.286e+05	8.155e+04	1.58	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:14	5.229e+04	1.008e+05	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	5.936e+04	1.132e+05	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:50	5.376e+04	1.044e+05	0.51	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:35	4.762e+04	9.129e+04	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	3.600e+04	8.231e+04	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	3.207e+04	7.186e+04	0.45	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:26	6.689e+04	8.447e+04	0.79	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:54	9.827e+04	6.214e+04	1.58	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:58	7.533e+04	5.940e+04	1.27	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	7.358e+04	5.820e+04	1.26	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:45	6.163e+04	5.930e+04	1.04	yes	no	0.850
32	IS	13C-OCDD	42:34	8.763e+04	9.868e+04	0.89	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:54	6.806e+04	8.602e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	8.030e+04	6.419e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	3.253e+05				no	1.001

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Signal/Noise Height Ratio Summary

CLIENT ID.
76956

Run #6 Filename P300985 Samp: 1 Inj: 1 Acquired: 21-AUG-15 18:19:58
Processed: 24-AUG-15 11:01:12 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.11e+07	2.26e+03	1.4e+04	4.10e+07	3.02e+03	1.4e+04
2	1,2,3,7,8-PeCDF	2.52e+08	1.58e+03	1.6e+05	1.65e+08	4.69e+03	3.5e+04
3	2,3,4,7,8-PeCDF	2.44e+08	1.58e+03	1.5e+05	1.59e+08	4.69e+03	3.4e+04
4	1,2,3,4,7,8-HxCDF	2.24e+08	4.24e+03	5.3e+04	1.83e+08	4.84e+03	3.8e+04
5	1,2,3,6,7,8-HxCDF	2.31e+08	4.24e+03	5.4e+04	1.87e+08	4.84e+03	3.9e+04
6	2,3,4,6,7,8-HxCDF	2.18e+08	4.24e+03	5.1e+04	1.76e+08	4.84e+03	3.6e+04
7	1,2,3,7,8,9-HxCDF	1.84e+08	4.24e+03	4.3e+04	1.49e+08	4.84e+03	3.1e+04
8	1,2,3,4,6,7,8-HpCDF	1.84e+08	1.50e+04	1.2e+04	1.77e+08	5.14e+04	3.4e+03
9	1,2,3,4,7,8,9-HpCDF	1.32e+08	1.50e+04	8.8e+03	1.30e+08	5.14e+04	2.5e+03
10	OCDF	1.84e+08	1.84e+03	1.0e+05	2.06e+08	1.74e+03	1.2e+05
11	2,3,7,8-TCDD	2.88e+07	1.80e+03	1.6e+04	3.66e+07	1.44e+03	2.5e+04
12	1,2,3,7,8-PeCDD	1.88e+08	3.52e+03	5.3e+04	1.21e+08	7.76e+02	1.6e+05
13	1,2,3,4,7,8-HxCDD	1.72e+08	6.60e+02	2.6e+05	1.38e+08	2.03e+03	6.8e+04
14	1,2,3,6,7,8-HxCDD	1.62e+08	6.60e+02	2.4e+05	1.32e+08	2.03e+03	6.5e+04
15	1,2,3,7,8,9-HxCDD	1.69e+08	6.60e+02	2.6e+05	1.35e+08	2.03e+03	6.7e+04
16	1,2,3,4,6,7,8-HpCDD	1.31e+08	4.09e+03	3.2e+04	1.26e+08	2.05e+03	6.1e+04
17	OCDD	1.64e+08	1.30e+03	1.3e+05	1.86e+08	1.59e+03	1.2e+05
18	13C-2,3,7,8-TCDF	1.77e+07	2.22e+03	8.0e+03	2.24e+07	3.20e+03	7.0e+03
19	13C-1,2,3,7,8-PeCDF	2.58e+07	1.43e+03	1.8e+04	1.65e+07	1.63e+03	1.0e+04
20	13C-2,3,4,7,8-PeCDF	2.70e+07	1.43e+03	1.9e+04	1.72e+07	1.63e+03	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	1.16e+07	1.49e+03	7.8e+03	2.26e+07	2.94e+03	7.7e+03
22	13C-1,2,3,6,7,8-HxCDF	1.30e+07	1.49e+03	8.7e+03	2.47e+07	2.94e+03	8.4e+03
23	13C-2,3,4,6,7,8-HxCDF	1.21e+07	1.49e+03	8.1e+03	2.33e+07	2.94e+03	7.9e+03
24	13C-1,2,3,7,8,9-HxCDF	1.00e+07	1.49e+03	6.7e+03	1.91e+07	2.94e+03	6.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	8.10e+06	6.33e+03	1.3e+03	1.83e+07	4.62e+03	4.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.18e+06	6.33e+03	9.8e+02	1.39e+07	4.62e+03	3.0e+03
27	13C-2,3,7,8-TCDD	1.35e+07	9.75e+03	1.4e+03	1.72e+07	6.59e+03	2.6e+03
28	13C-1,2,3,7,8-PeCDD	2.03e+07	2.10e+03	9.7e+03	1.28e+07	1.48e+03	8.7e+03
29	13C-1,2,3,4,7,8-HxCDD	1.71e+07	3.28e+03	5.2e+03	1.33e+07	1.82e+03	7.3e+03
30	13C-1,2,3,6,7,8-HxCDD	1.59e+07	3.28e+03	4.8e+03	1.29e+07	1.82e+03	7.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.32e+07	1.93e+03	6.9e+03	1.24e+07	1.11e+03	1.1e+04
32	13C-OCDD	1.50e+07	1.42e+03	1.1e+04	1.68e+07	1.50e+03	1.1e+04
33	13C-1,2,3,4-TCDD	1.38e+07	9.75e+03	1.4e+03	1.74e+07	6.59e+03	2.6e+03
34	13C-1,2,3,7,8,9-HxCDD	1.76e+07	3.28e+03	5.4e+03	1.38e+07	1.82e+03	7.6e+03
35	37Cl-2,3,7,8-TCDD	6.84e+07	1.77e+03	3.9e+04			

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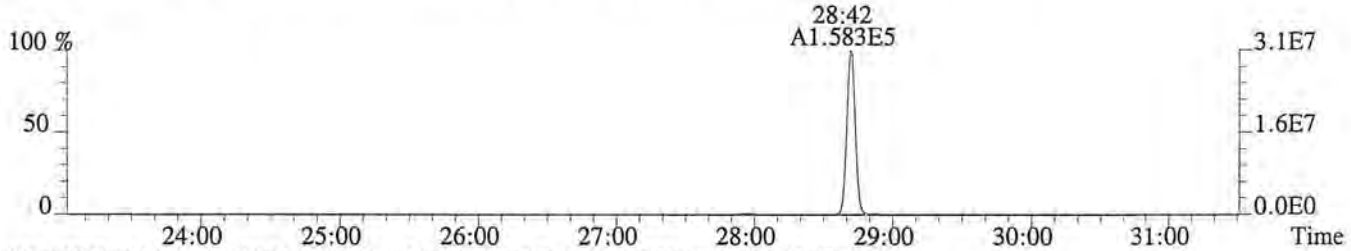
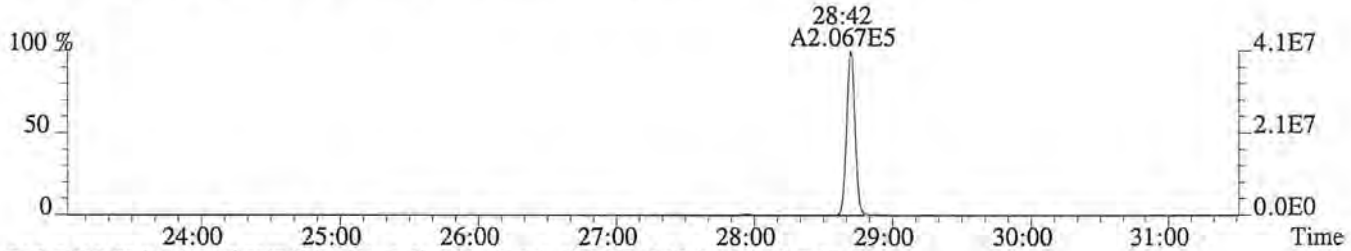
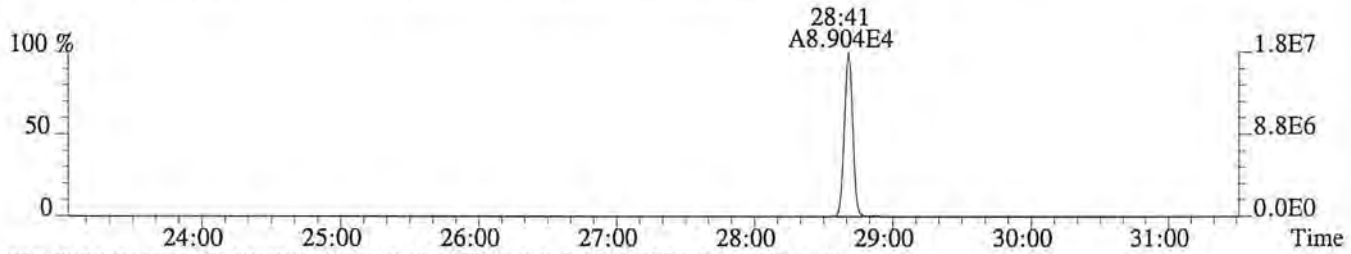
File:P300985 #1-602 Acq:21-AUG-2015 18:19:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2256.0,1.00%,F,T)



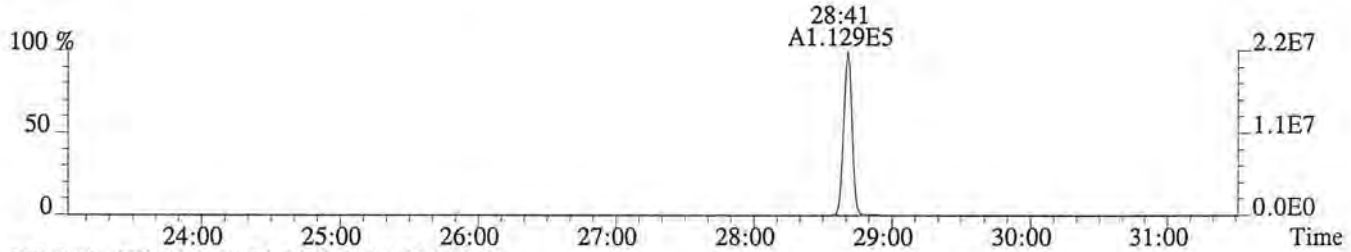
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3016.0,1.00%,F,T)



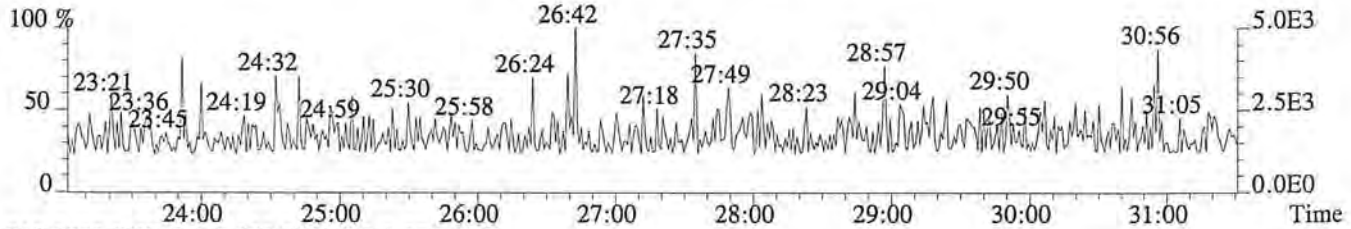
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2220.0,1.00%,F,T)



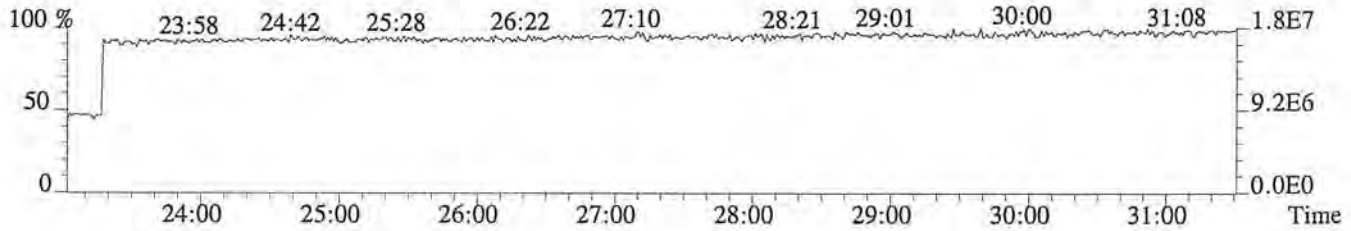
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3204.0,1.00%,F,T)



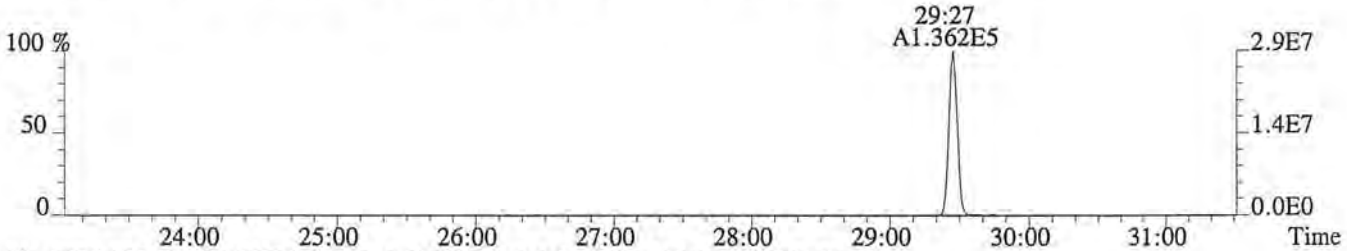
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



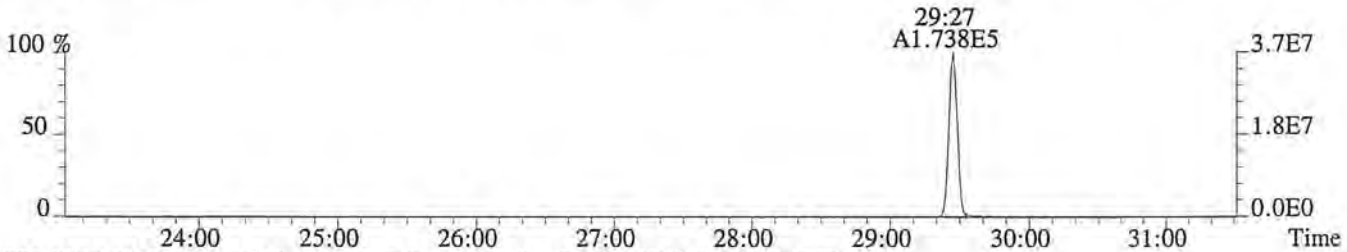
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



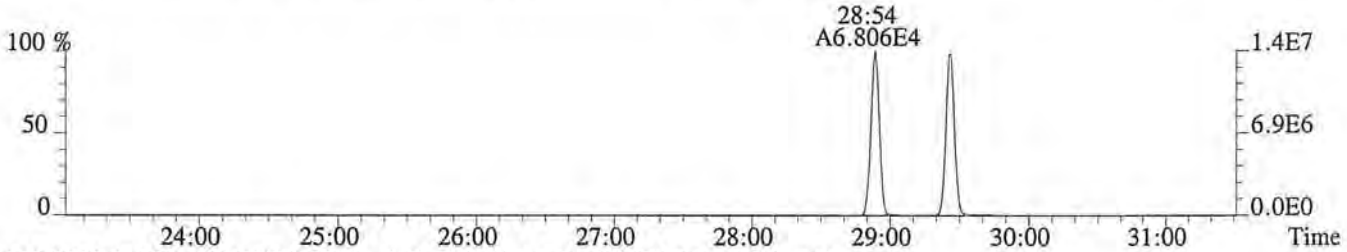
File:P300985 #1-602 Acq:21-AUG-2015 18:19:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1800.0,1.00%,F,T)



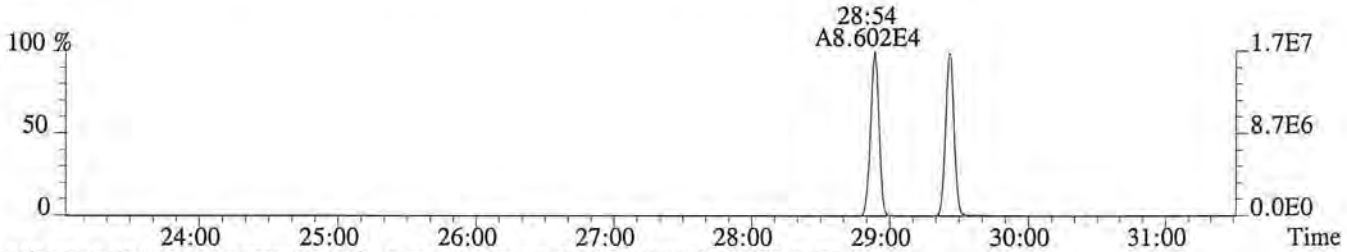
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1436.0,1.00%,F,T)



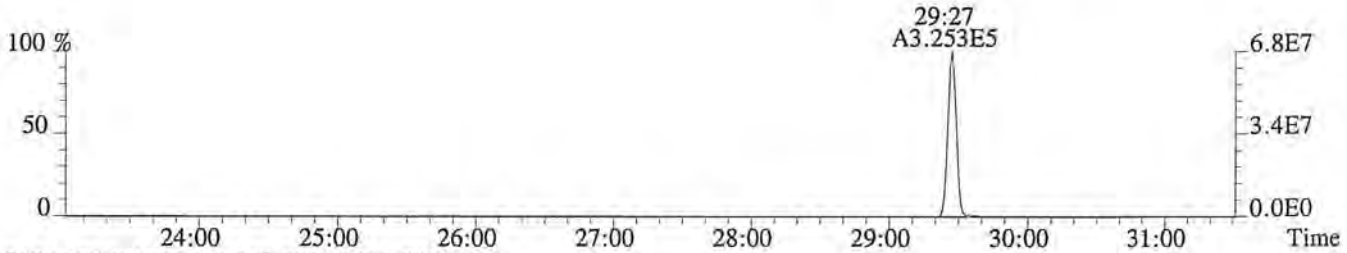
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9748.0,1.00%,F,T)



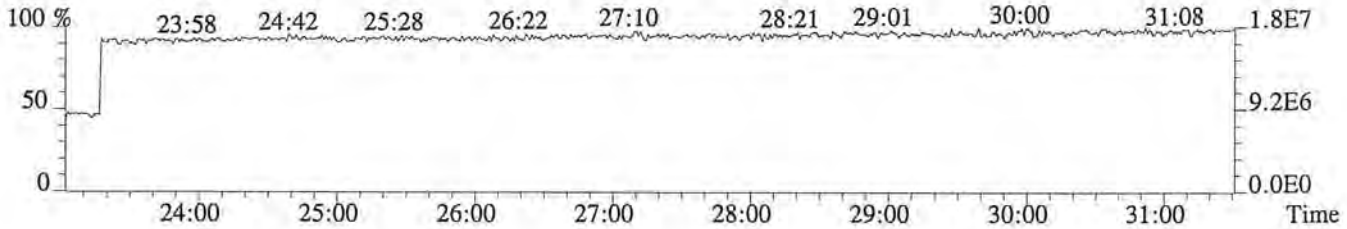
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6592.0,1.00%,F,T)



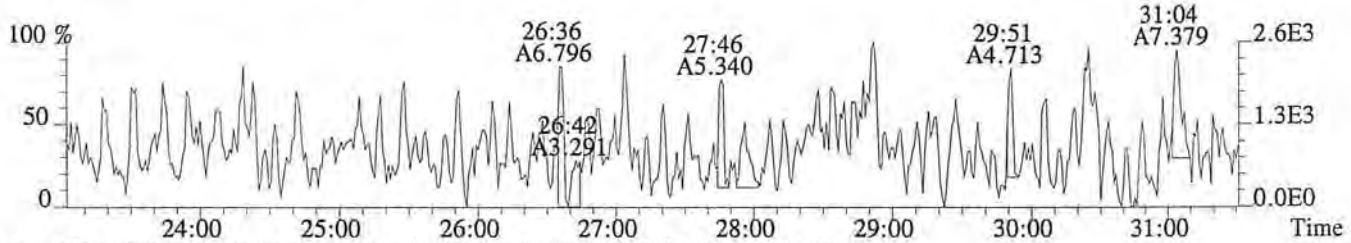
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1772.0,1.00%,F,T)



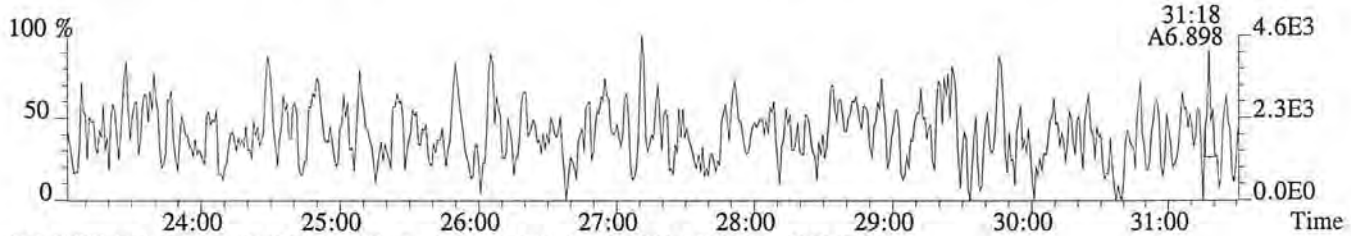
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



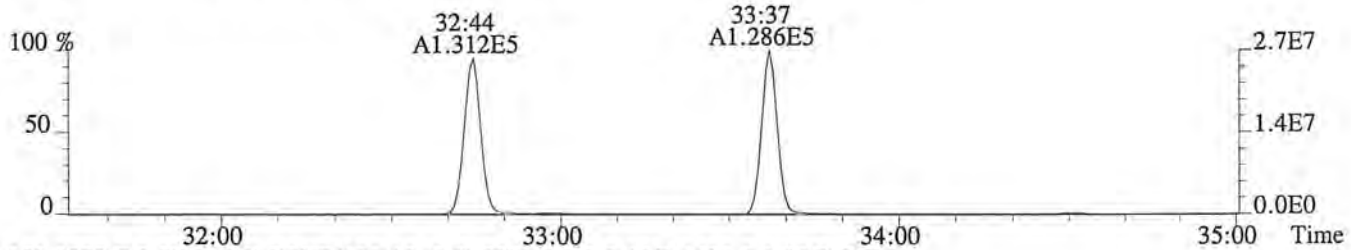
File:P300985 #1-602 Acq:21-AUG-2015 18:19:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)



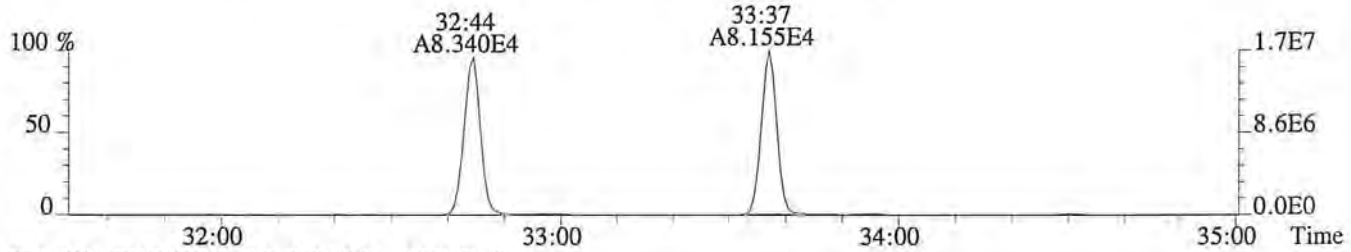
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2284.0,1.00%,F,T)



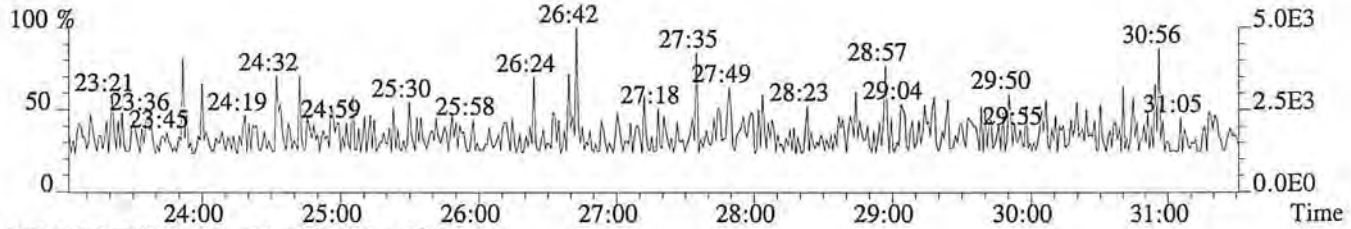
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)



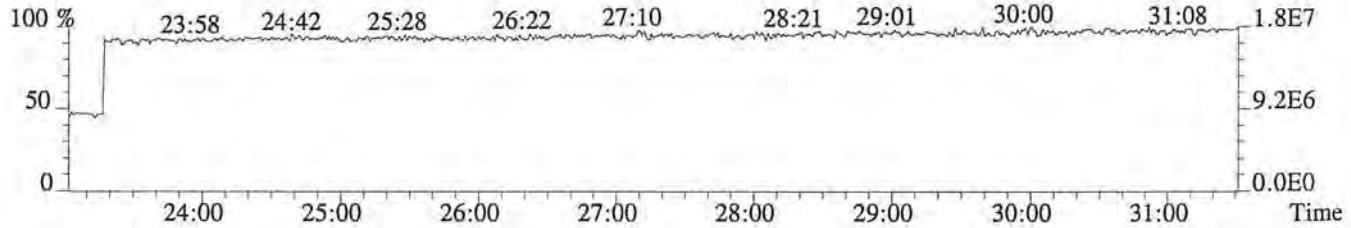
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1628.0,1.00%,F,T)



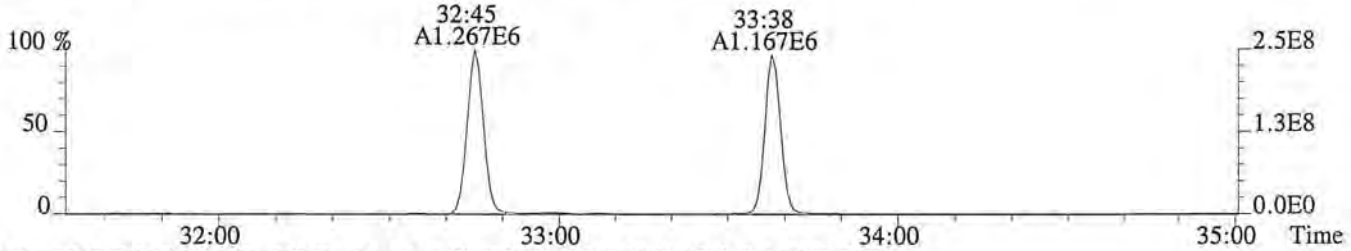
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



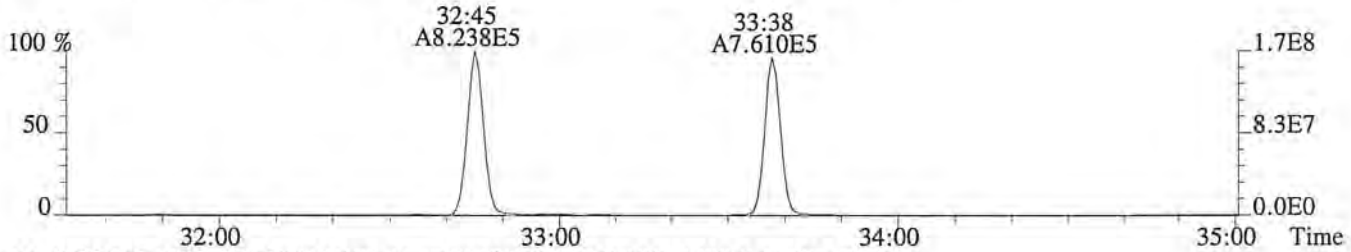
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



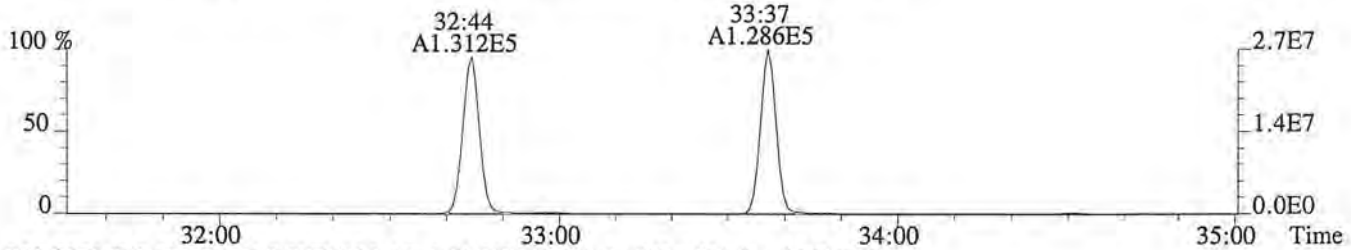
File:P300985 #1-312 Acq:21-AUG-2015 18:19:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)



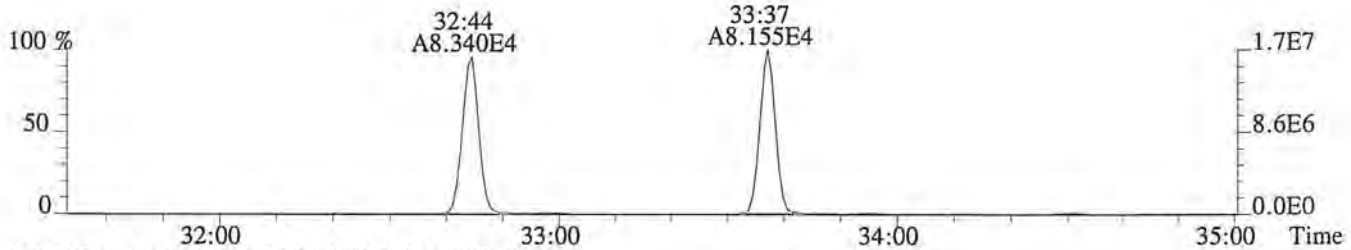
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4692.0,1.00%,F,T)



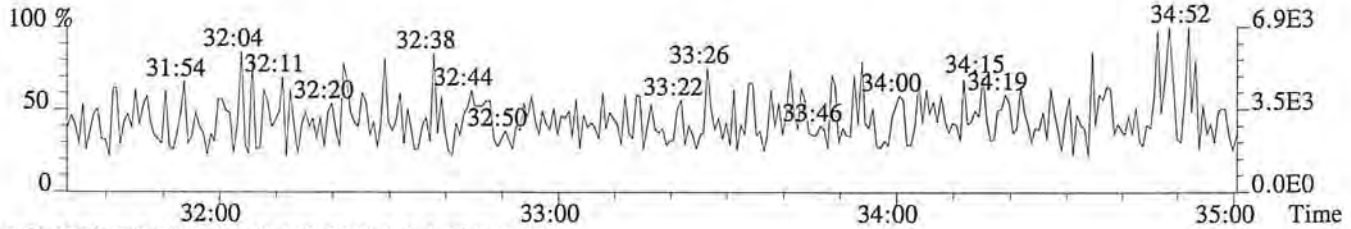
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)



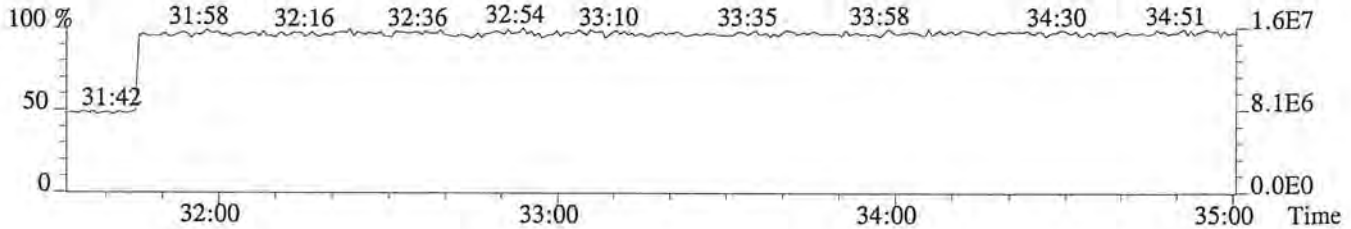
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1628.0,1.00%,F,T)



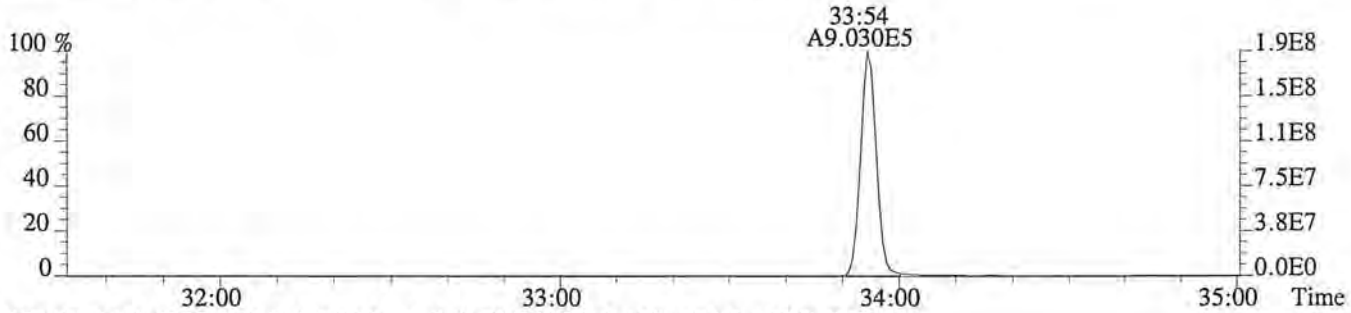
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



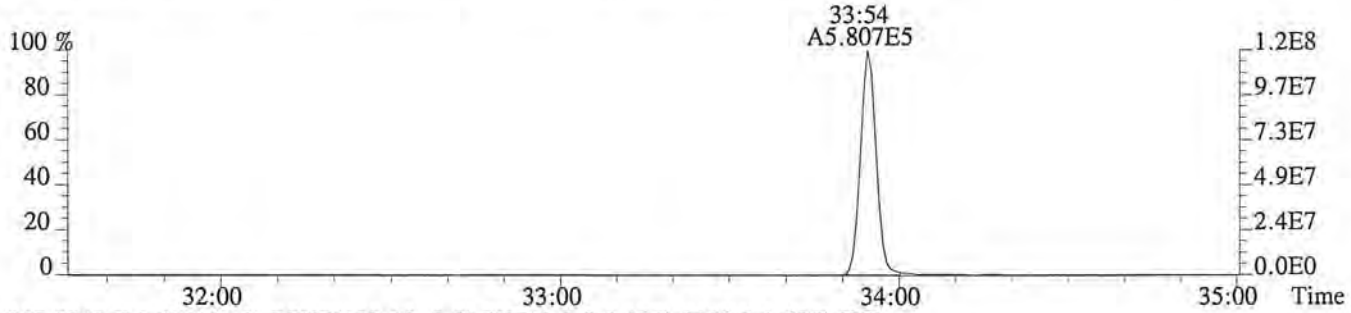
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P300985 #1-312 Acq:21-AUG-2015 18:19:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3520.0,1.00%,F,T)

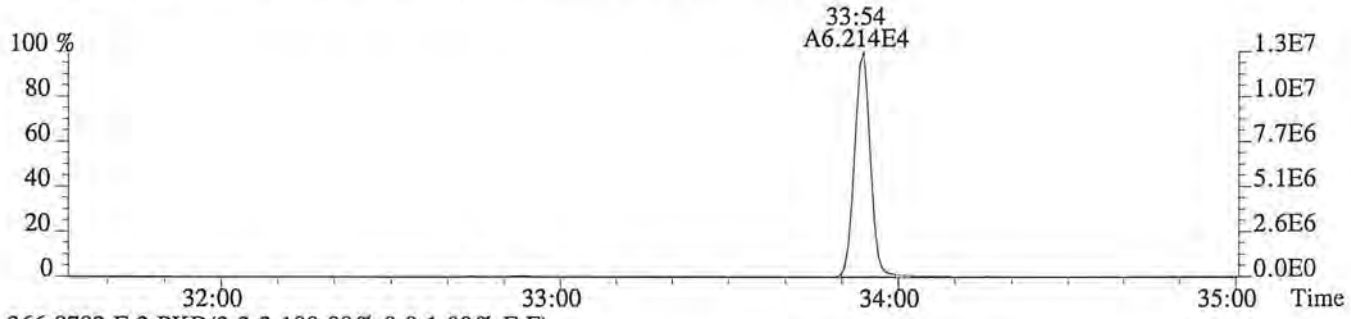


357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)

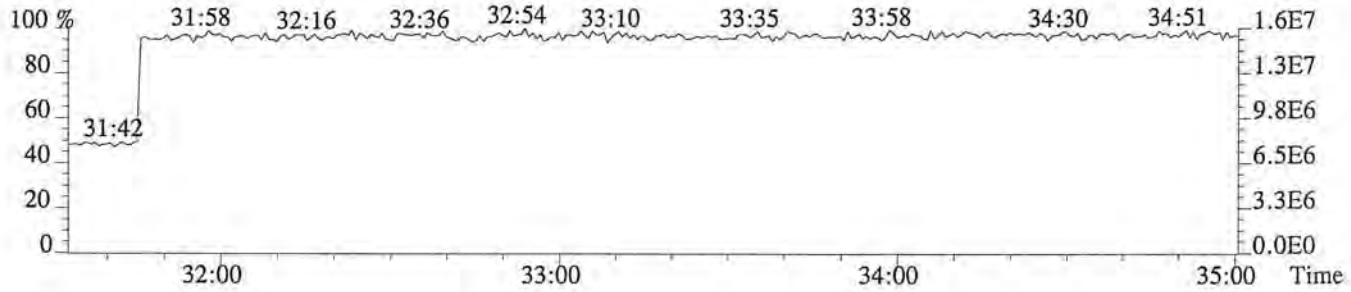


367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2100.0,1.00%,F,T)

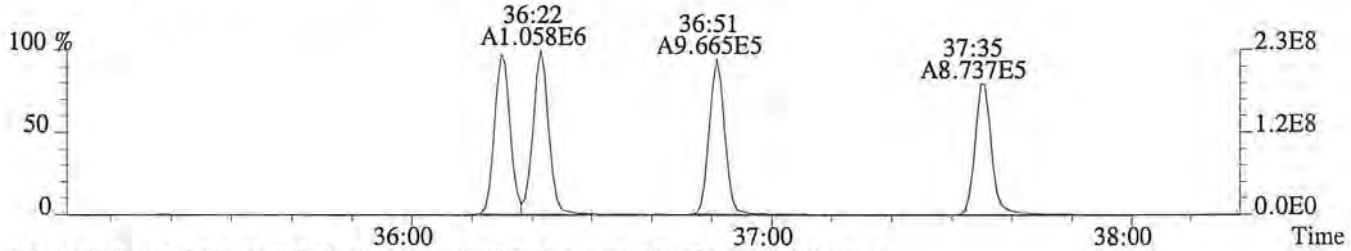
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



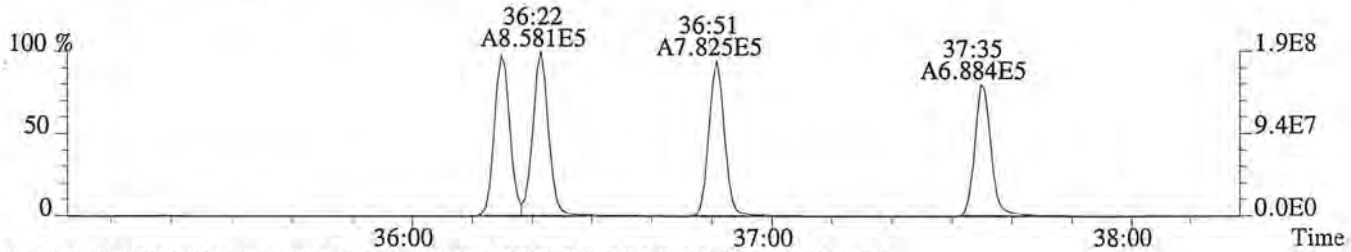
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



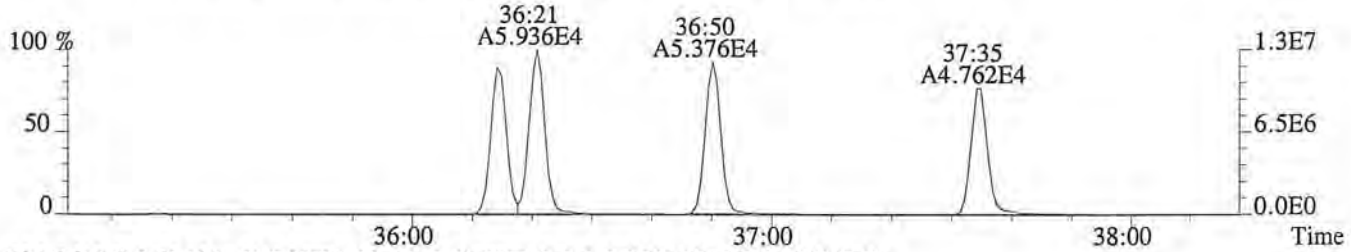
File:P300985 #1-294 Acq:21-AUG-2015 18:19:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4240.0,0.40%,F,T)



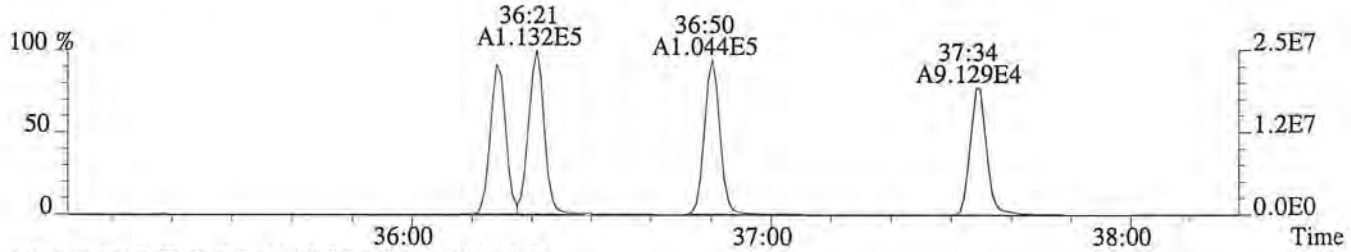
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4844.0,0.40%,F,T)



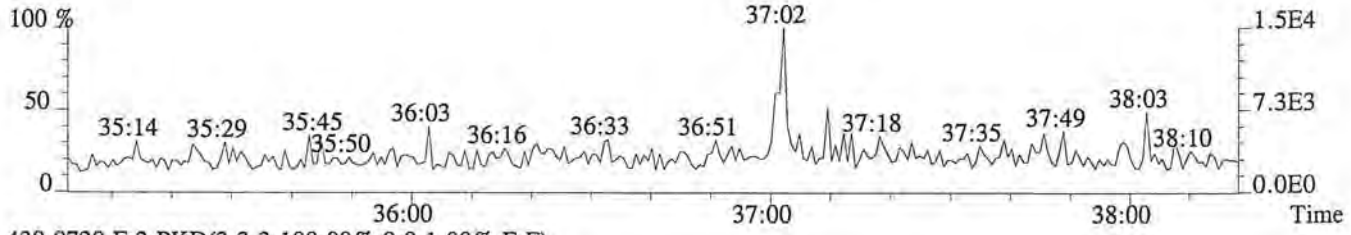
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1488.0,0.40%,F,T)



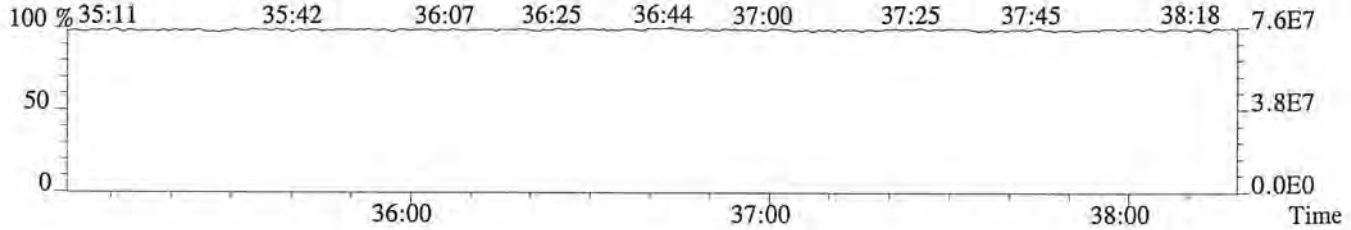
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2940.0,0.40%,F,T)



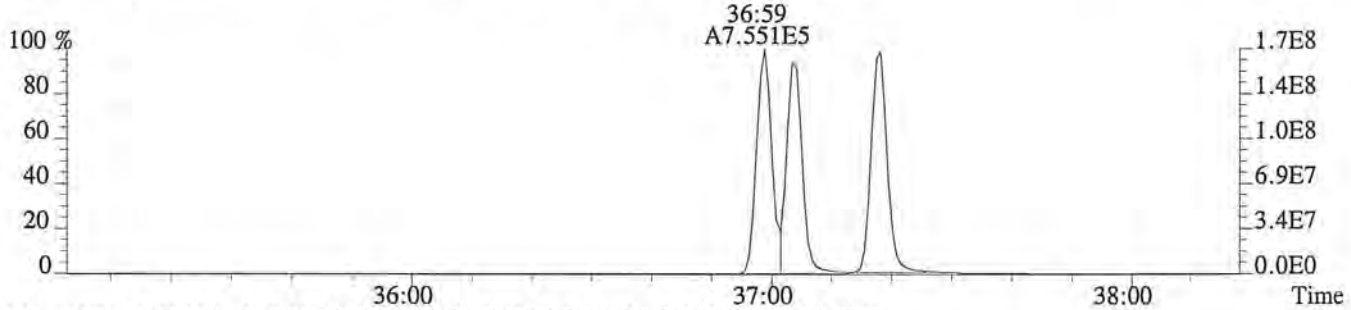
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



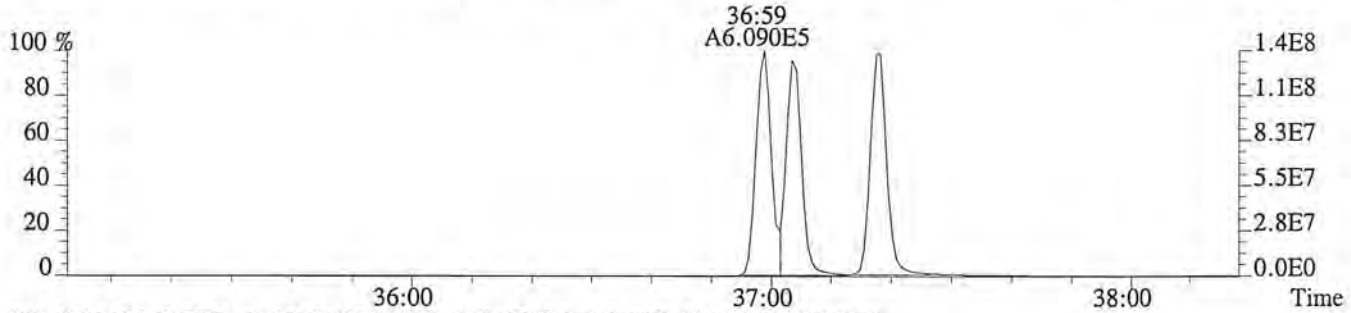
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



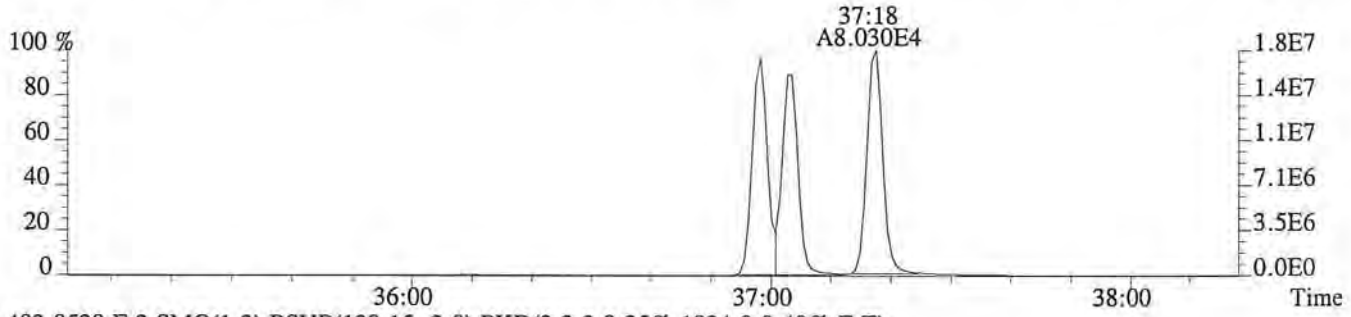
File:P300985 #1-294 Acq:21-AUG-2015 18:19:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



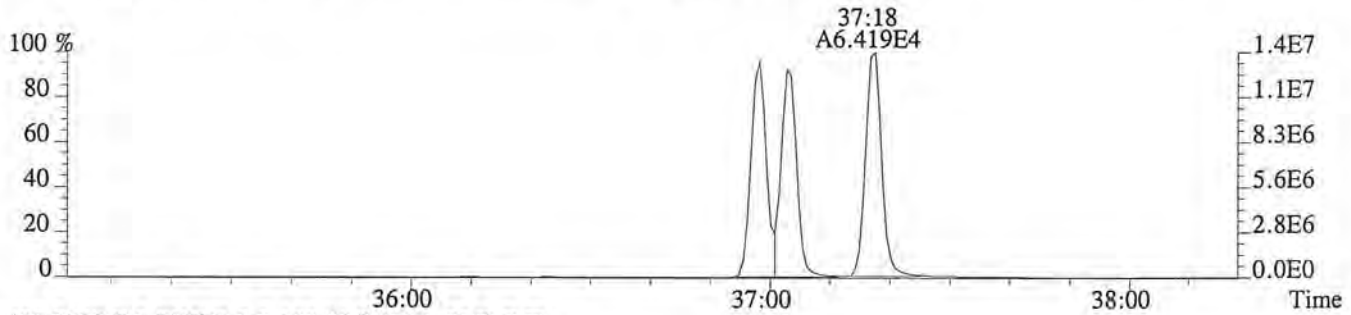
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2028.0,0.40%,F,T)



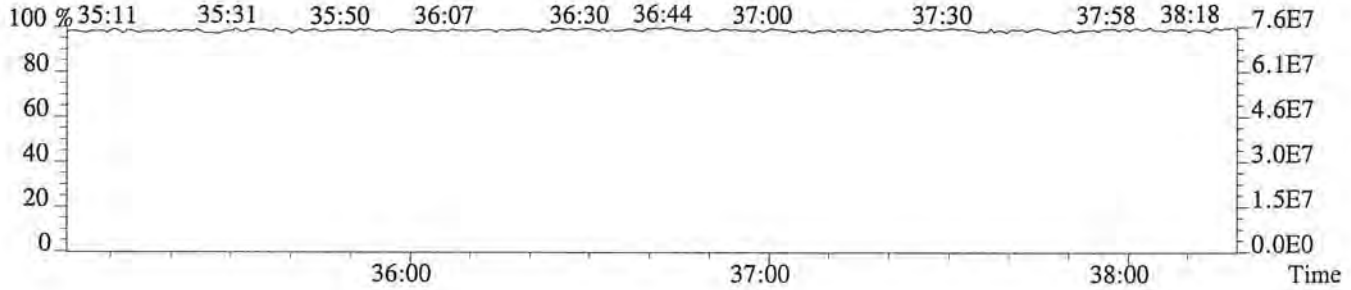
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3284.0,0.40%,F,T)



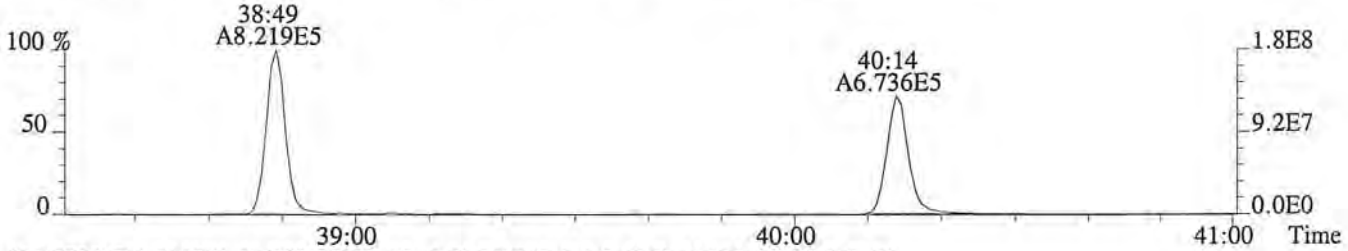
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1824.0,0.40%,F,T)



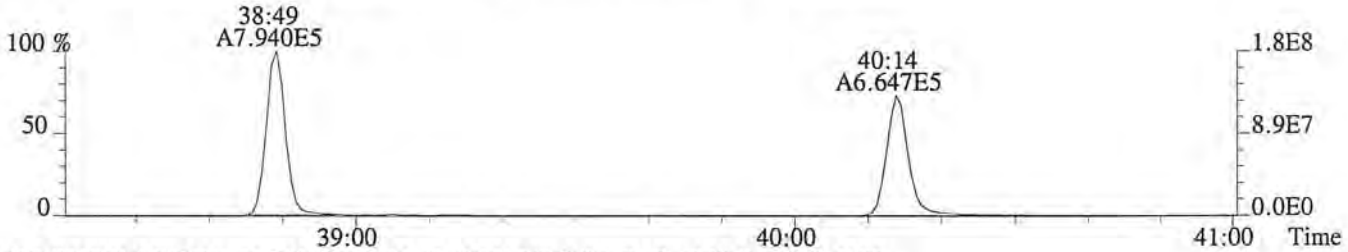
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



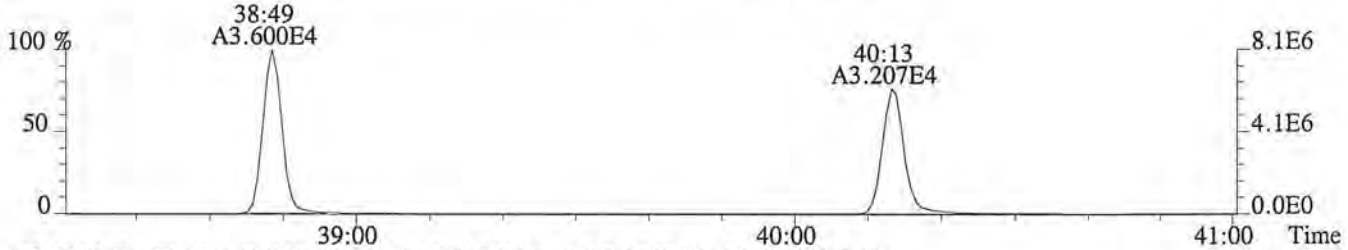
File:P300985 #1-241 Acq:21-AUG-2015 18:19:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,15028.0,0.50%,F,T)



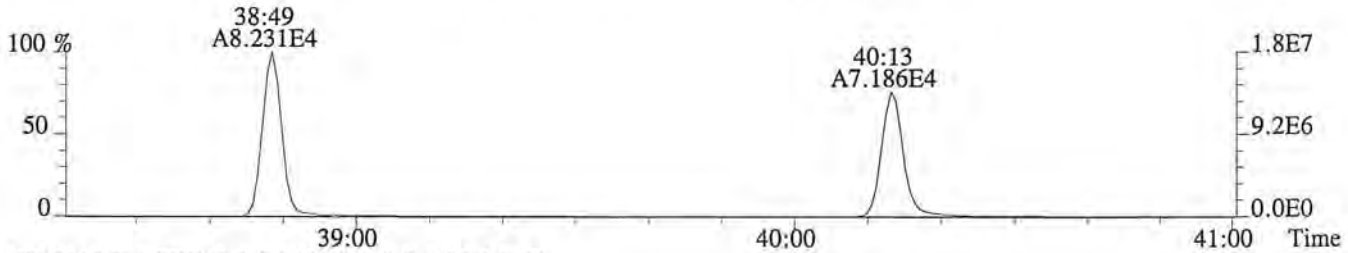
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,51424.0,0.50%,F,T)



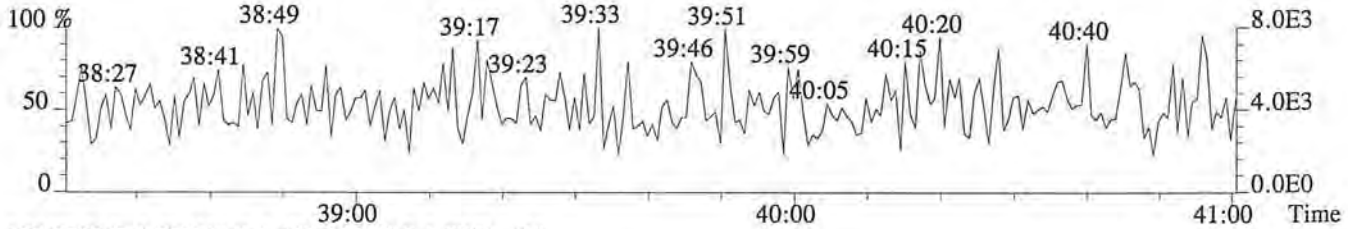
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6328.0,0.50%,F,T)



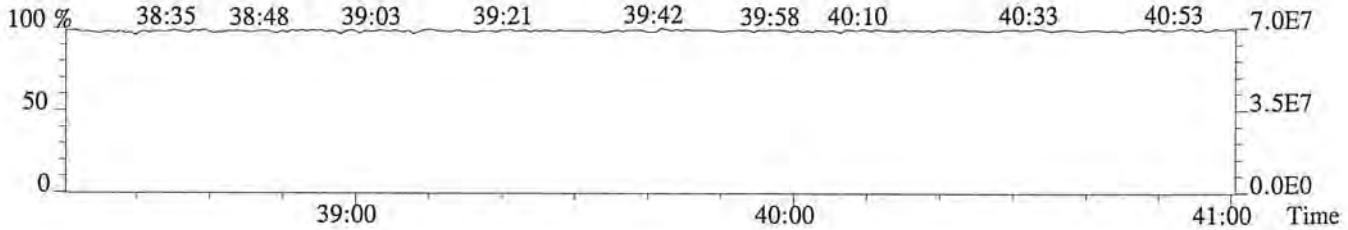
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4616.0,0.50%,F,T)



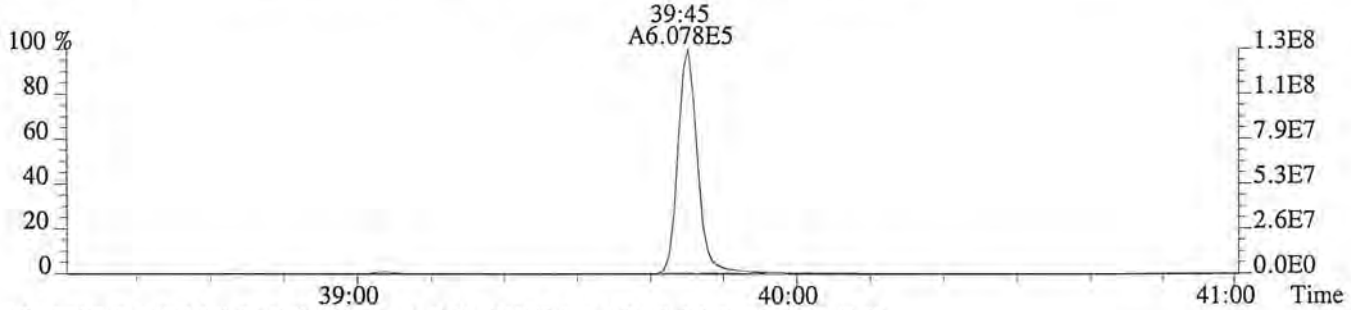
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



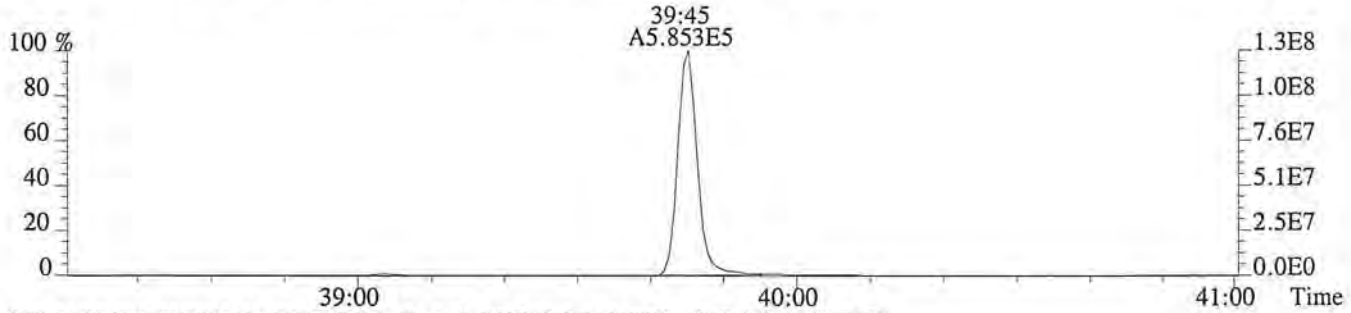
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



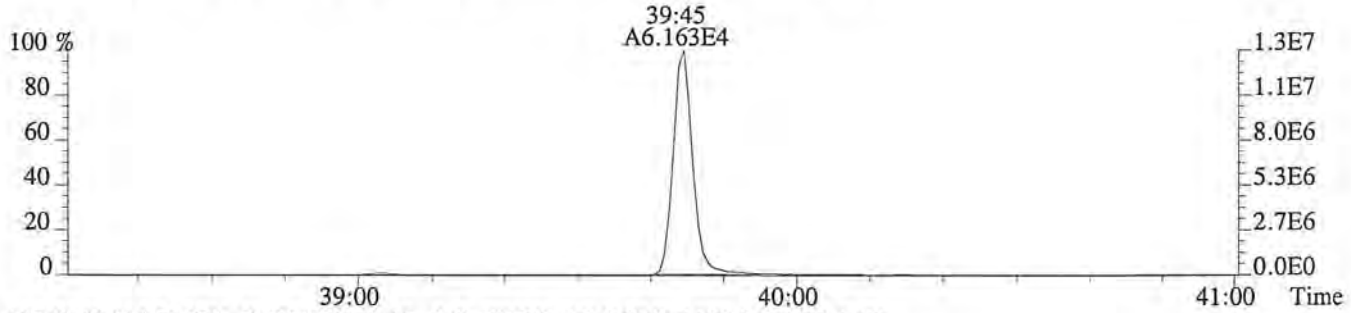
File:P300985 #1-241 Acq:21-AUG-2015 18:19:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4088.0,0.40%,F,T)



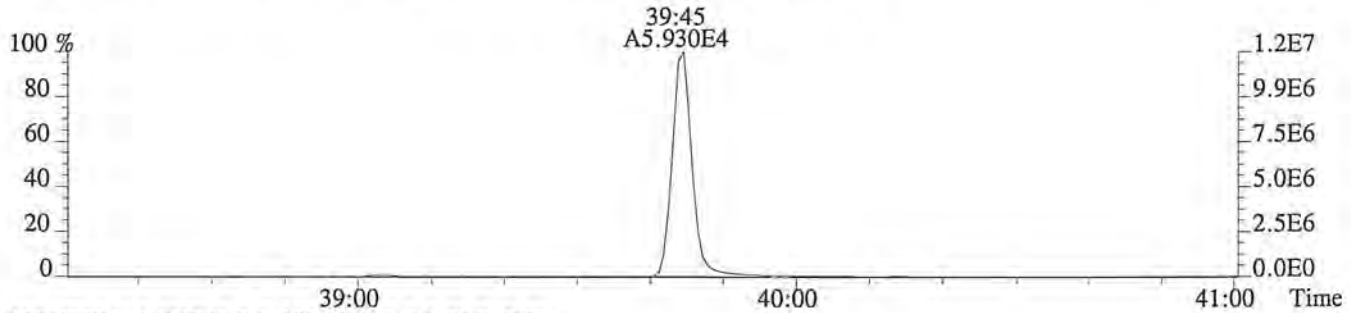
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2052.0,0.40%,F,T)



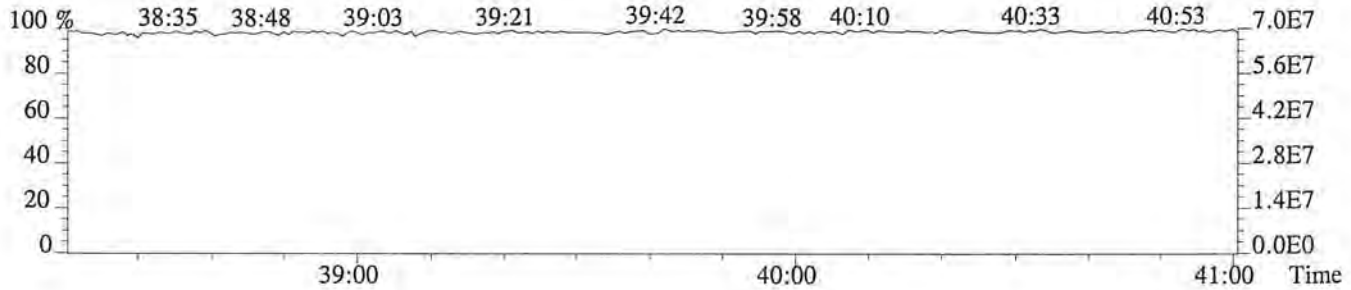
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1928.0,0.40%,F,T)



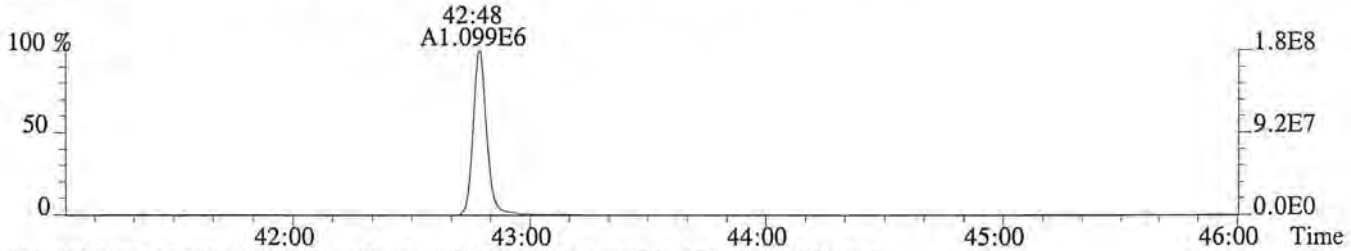
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1108.0,0.40%,F,T)



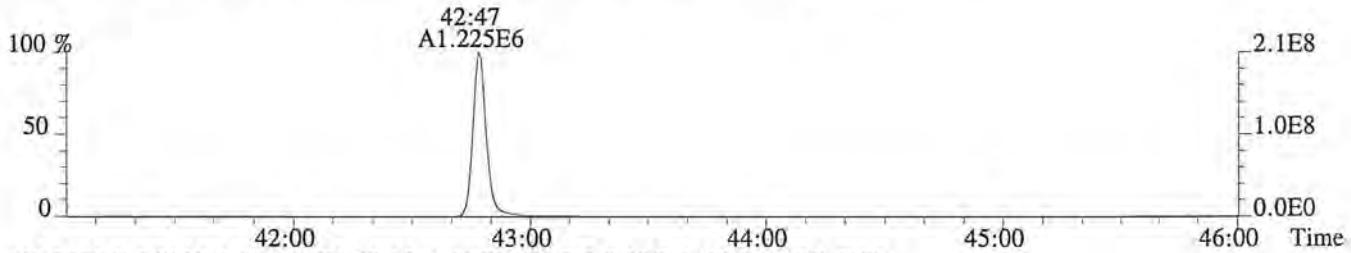
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



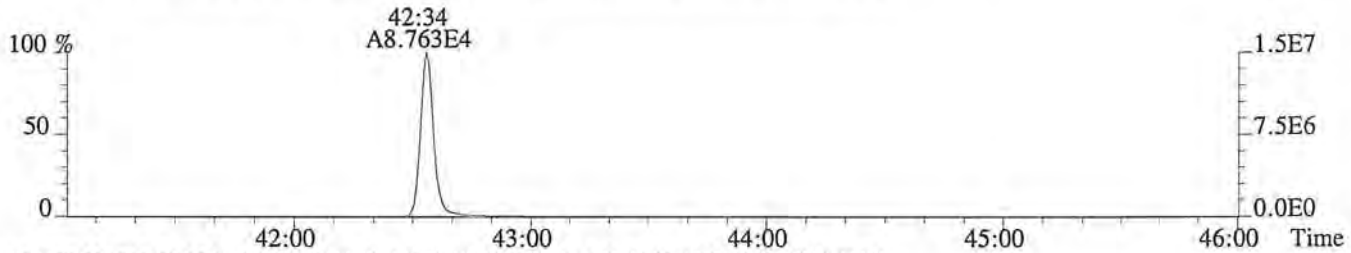
File:P300985 #1-447 Acq:21-AUG-2015 18:19:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1844.0,0.40%,F,T)



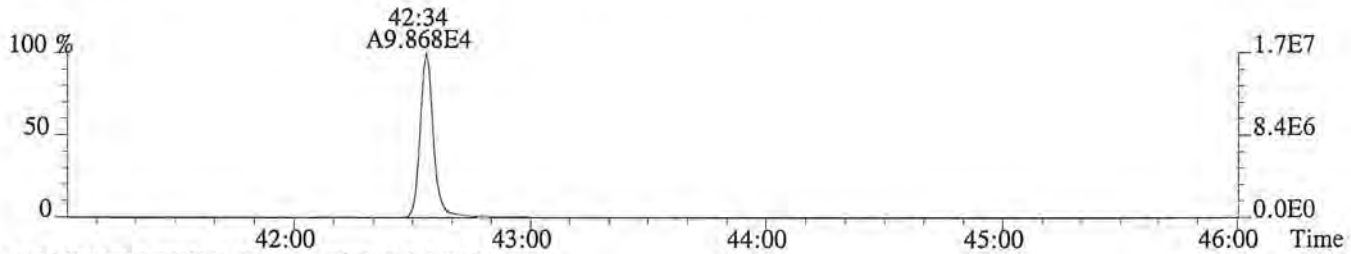
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1736.0,0.40%,F,T)



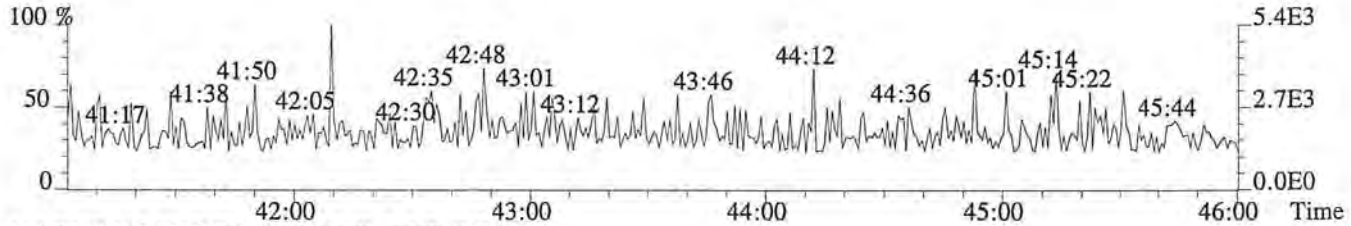
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



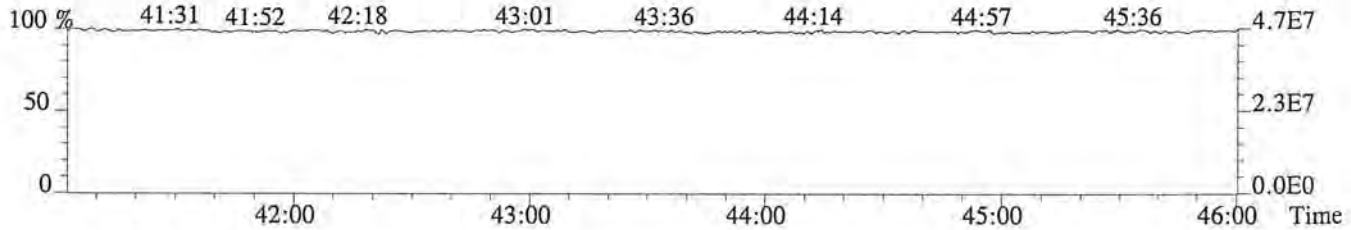
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1504.0,0.40%,F,T)



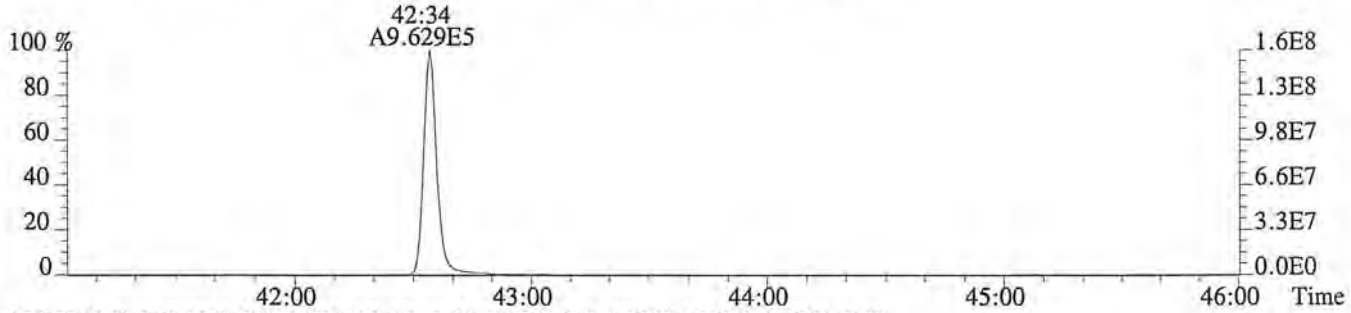
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



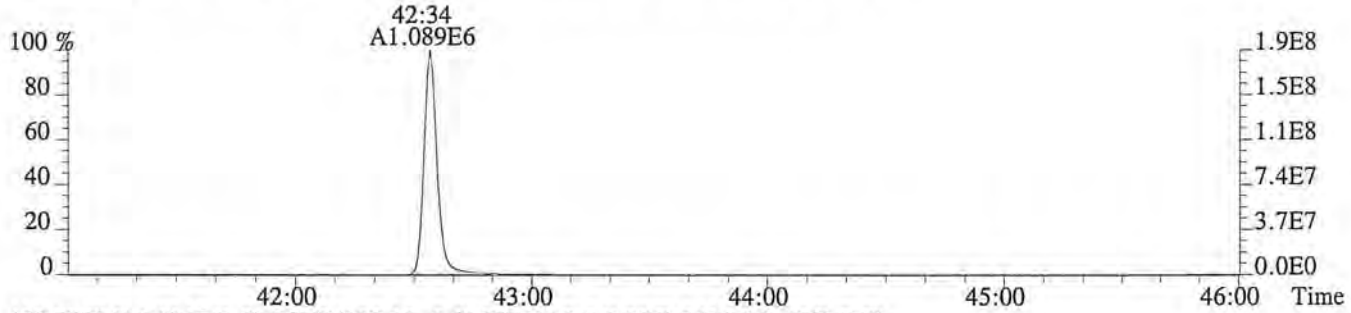
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



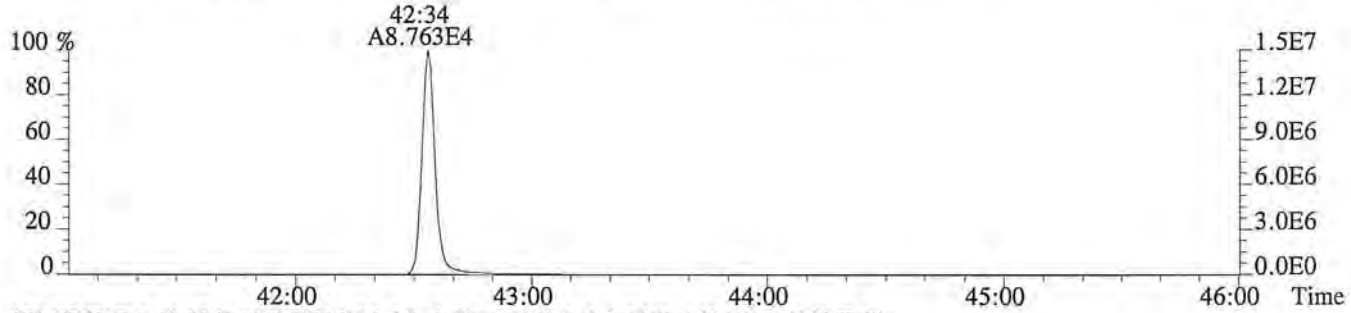
File:P300985 #1-447 Acq:21-AUG-2015 18:19:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1304.0,0.40%,F,T)



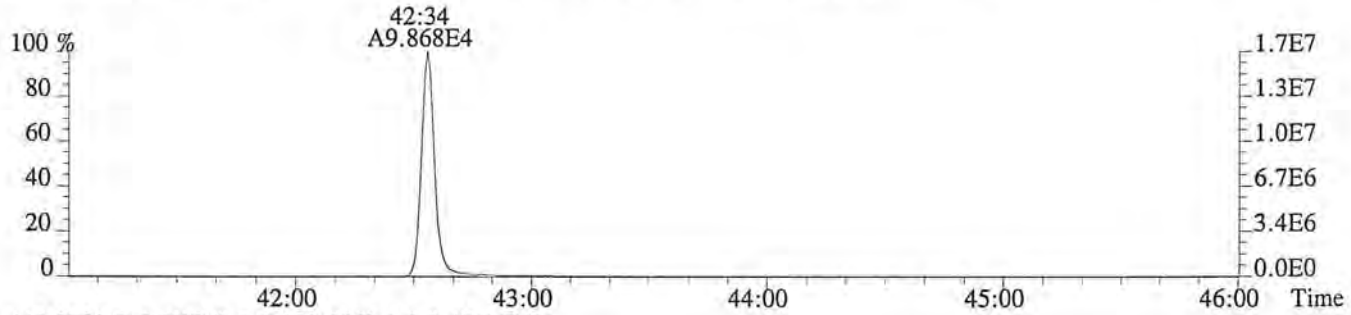
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1592.0,0.40%,F,T)



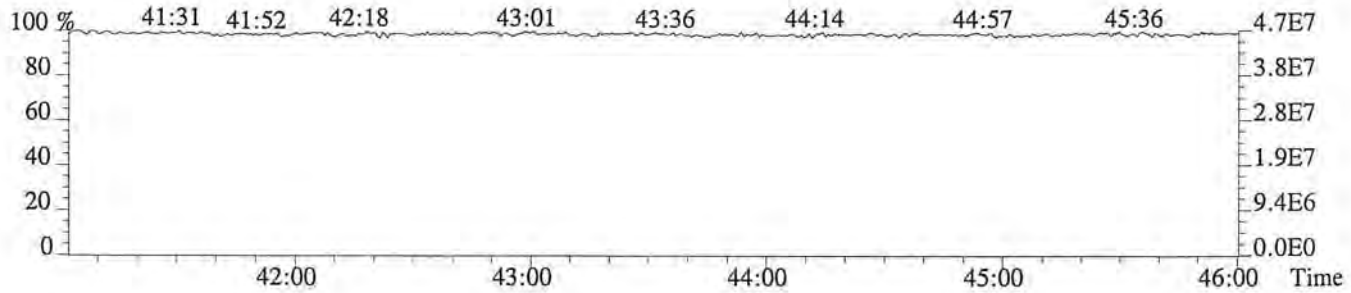
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1416.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1504.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/21/15

Instrument ID: E-HRMS-05 GC Column ID: DB-5MSUI

VER Data Filename: P300987 Analysis Date: 21-AUG-15 Time: 20:11:35

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.9	7.8 - 12.9	-1.4
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	52	39 - 65	3.1
1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	54	39 - 64	9.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	45	39 - 64	-9.5
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	50	41 - 61	-0.6
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	49	43 - 58	-2.2
OCDD	M+2/M+4	0.88	0.76-1.02	90	79 - 126	-9.5
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	10.1	8.4 - 12.0	0.7
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	47	41 - 60	-5.2
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	54	41 - 61	7.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	49	45 - 56	-2.2
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	44 - 57	2.7
1,2,3,7,8,9-HxCDF	M+2/M+4	1.28	1.05-1.43	50	45 - 56	0.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	44 - 57	0.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	49	45 - 55	-1.4
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	54	43 - 58	7.2
OCDF	M+2/M+4	0.90	0.76-1.02	89	63 - 159	-11.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/21/15

Instrument ID: E-HRMS-05 GC Column ID: DB-5MSUI

VER Data Filename: P300987 Analysis Date: 21-AUG-15 Time: 20:11:35

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	102	82 - 121	2.0
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	106	62 - 160	5.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	94	85 - 117	-5.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	113	85 - 118	12.8
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	105	72 - 138	5.0
13C-OCDD	M+2/M+4	0.90	0.76-1.02	235	96 - 415	17.4
13C-2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	99	71 - 140	-1.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	103	76 - 130	2.7
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	100	77 - 130	0.3
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	101	76 - 131	0.5
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	95	70 - 143	-4.9
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	103	74 - 135	2.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	98	73 - 137	-2.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	100	78 - 129	0.4
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	100	77 - 129	-0.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.2	7.8 - 12.7	2.0

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
54819

Run #7 Filename P300987 Samp: 1 Inj: 1 Acquired: 21-AUG-15 20:11:35
Processed: 24-AUG-15 11:20:56 Sample ID: CS3 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	1.273e+04	1.700e+04	0.75	yes	no	0.850
2	Unk	1,2,3,7,8-PeCDF	32:45	1.015e+05	6.575e+04	1.54	yes	no	0.929
3	Unk	2,3,4,7,8-PeCDF	33:38	1.012e+05	6.651e+04	1.52	yes	no	0.878
4	Unk	1,2,3,4,7,8-HxCDF	36:15	8.990e+04	7.317e+04	1.23	yes	no	1.152
5	Unk	1,2,3,6,7,8-HxCDF	36:22	9.344e+04	7.636e+04	1.22	yes	no	1.082
6	Unk	2,3,4,6,7,8-HxCDF	36:51	8.434e+04	6.899e+04	1.22	yes	no	1.068
7	Unk	1,2,3,7,8,9-HxCDF	37:35	8.079e+04	6.313e+04	1.28	yes	no	1.075
8	Unk	1,2,3,4,6,7,8-HpCDF	38:49	7.297e+04	7.202e+04	1.01	yes	no	1.319
9	Unk	1,2,3,4,7,8,9-HpCDF	40:14	6.676e+04	6.440e+04	1.04	yes	no	1.245
10	Unk	OCDF	42:46	1.020e+05	1.138e+05	0.90	yes	no	1.186
11	Unk	2,3,7,8-TCDD	29:26	1.096e+04	1.399e+04	0.78	yes	no	0.957
12	Unk	1,2,3,7,8-PeCDD	33:54	7.916e+04	5.092e+04	1.55	yes	no	0.887
13	Unk	1,2,3,4,7,8-HxCDD	36:59	6.714e+04	5.449e+04	1.23	yes	no	0.976
14	Unk	1,2,3,6,7,8-HxCDD	37:04	6.741e+04	5.495e+04	1.23	yes	no	0.967
15	Unk	1,2,3,7,8,9-HxCDD	37:18	7.267e+04	5.742e+04	1.27	yes	no	1.029
16	Unk	1,2,3,4,6,7,8-HpCDD	39:45	5.583e+04	5.405e+04	1.03	yes	no	0.949
17	Unk	OCDD	42:34	9.190e+04	1.044e+05	0.88	yes	no	1.061
18	IS	13C-2,3,7,8-TCDF	28:41	1.526e+05	1.949e+05	0.78	yes	no	1.320
19	IS	13C-1,2,3,7,8-PeCDF	32:44	2.318e+05	1.478e+05	1.57	yes	no	1.390
20	IS	13C-2,3,4,7,8-PeCDF	33:36	2.170e+05	1.395e+05	1.56	yes	no	1.336
21	IS	13C-1,2,3,4,7,8-HxCDF	36:14	9.906e+04	1.902e+05	0.52	yes	no	1.085
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.049e+05	2.007e+05	0.52	yes	no	1.211
23	IS	13C-2,3,4,6,7,8-HxCDF	36:50	9.865e+04	1.884e+05	0.52	yes	no	1.109
24	IS	13C-1,2,3,7,8,9-HxCDF	37:34	9.125e+04	1.746e+05	0.52	yes	no	0.977
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:49	6.854e+04	1.545e+05	0.44	yes	no	0.838
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:13	5.952e+04	1.370e+05	0.43	yes	no	0.742
27	IS	13C-2,3,7,8-TCDD	29:26	1.165e+05	1.480e+05	0.79	yes	no	0.975
28	IS	13C-1,2,3,7,8-PeCDD	33:53	1.741e+05	1.103e+05	1.58	yes	no	1.013
29	IS	13C-1,2,3,4,7,8-HxCDD	36:58	1.266e+05	1.022e+05	1.24	yes	no	0.913
30	IS	13C-1,2,3,6,7,8-HxCDD	37:03	1.553e+05	1.244e+05	1.25	yes	no	0.935
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:44	1.205e+05	1.162e+05	1.04	yes	no	0.850
32	IS	13C-OCDD	42:33	1.942e+05	2.148e+05	0.90	yes	no	0.657
33	RS/RT	13C-1,2,3,4-TCDD	28:54	1.180e+05	1.478e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:17	1.446e+05	1.206e+05	1.20	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:26	2.714e+04				no	1.001

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
54819

Run #7 Filename P300987 Samp: 1 Inj: 1 Acquired: 21-AUG-15 20:11:35
Processed: 24-AUG-15 11:20:56 LAB. ID: CS3 2ND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.58e+06	1.94e+03	1.3e+03	3.43e+06	3.43e+03	1.0e+03
2	1,2,3,7,8-PeCDF	1.99e+07	9.64e+02	2.1e+04	1.27e+07	2.51e+03	5.1e+03
3	2,3,4,7,8-PeCDF	2.09e+07	9.64e+02	2.2e+04	1.36e+07	2.51e+03	5.4e+03
4	1,2,3,4,7,8-HxCDF	1.99e+07	3.12e+03	6.4e+03	1.61e+07	1.48e+03	1.1e+04
5	1,2,3,6,7,8-HxCDF	1.97e+07	3.12e+03	6.3e+03	1.61e+07	1.48e+03	1.1e+04
6	2,3,4,6,7,8-HxCDF	1.88e+07	3.12e+03	6.0e+03	1.53e+07	1.48e+03	1.0e+04
7	1,2,3,7,8,9-HxCDF	1.67e+07	3.12e+03	5.4e+03	1.34e+07	1.48e+03	9.1e+03
8	1,2,3,4,6,7,8-HpCDF	1.57e+07	2.76e+03	5.7e+03	1.53e+07	6.76e+03	2.3e+03
9	1,2,3,4,7,8,9-HpCDF	1.29e+07	2.76e+03	4.7e+03	1.23e+07	6.76e+03	1.8e+03
10	OCDF	1.64e+07	1.99e+03	8.2e+03	1.87e+07	3.57e+03	5.2e+03
11	2,3,7,8-TCDD	2.22e+06	1.97e+03	1.1e+03	2.86e+06	1.96e+03	1.5e+03
12	1,2,3,7,8-PeCDD	1.62e+07	3.68e+03	4.4e+03	1.04e+07	1.53e+03	6.8e+03
13	1,2,3,4,7,8-HxCDD	1.56e+07	1.14e+03	1.4e+04	1.25e+07	2.48e+03	5.0e+03
14	1,2,3,6,7,8-HxCDD	1.39e+07	1.14e+03	1.2e+04	1.14e+07	2.48e+03	4.6e+03
15	1,2,3,7,8,9-HxCDD	1.52e+07	1.14e+03	1.3e+04	1.25e+07	2.48e+03	5.0e+03
16	1,2,3,4,6,7,8-HpCDD	1.13e+07	2.02e+03	5.6e+03	1.10e+07	1.35e+03	8.1e+03
17	OCDD	1.58e+07	1.22e+03	1.3e+04	1.77e+07	1.88e+03	9.4e+03
18	13C-2,3,7,8-TCDF	2.99e+07	2.18e+03	1.4e+04	3.79e+07	3.24e+03	1.2e+04
19	13C-1,2,3,7,8-PeCDF	4.50e+07	2.76e+03	1.6e+04	2.89e+07	2.58e+03	1.1e+04
20	13C-2,3,4,7,8-PeCDF	4.35e+07	2.76e+03	1.6e+04	2.83e+07	2.58e+03	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	2.21e+07	1.66e+03	1.3e+04	4.21e+07	3.39e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	2.22e+07	1.66e+03	1.3e+04	4.22e+07	3.39e+03	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	2.17e+07	1.66e+03	1.3e+04	4.14e+07	3.39e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	1.87e+07	1.66e+03	1.1e+04	3.58e+07	3.39e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.49e+07	4.81e+03	3.1e+03	3.32e+07	8.50e+03	3.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.13e+07	4.81e+03	2.4e+03	2.59e+07	8.50e+03	3.1e+03
27	13C-2,3,7,8-TCDD	2.41e+07	9.98e+03	2.4e+03	3.07e+07	4.03e+03	7.6e+03
28	13C-1,2,3,7,8-PeCDD	3.53e+07	2.71e+03	1.3e+04	2.26e+07	2.01e+03	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	2.93e+07	1.71e+03	1.7e+04	2.34e+07	2.78e+03	8.4e+03
30	13C-1,2,3,6,7,8-HxCDD	3.22e+07	1.71e+03	1.9e+04	2.58e+07	2.78e+03	9.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.43e+07	3.39e+03	7.2e+03	2.35e+07	2.52e+03	9.3e+03
32	13C-OCDD	3.32e+07	1.64e+03	2.0e+04	3.68e+07	1.16e+03	3.2e+04
33	13C-1,2,3,4-TCDD	2.33e+07	9.98e+03	2.3e+03	2.91e+07	4.03e+03	7.2e+03
34	13C-1,2,3,7,8,9-HxCDD	3.09e+07	1.71e+03	1.8e+04	2.51e+07	2.78e+03	9.0e+03
35	37Cl-2,3,7,8-TCDD	5.55e+06	2.40e+03	2.3e+03			

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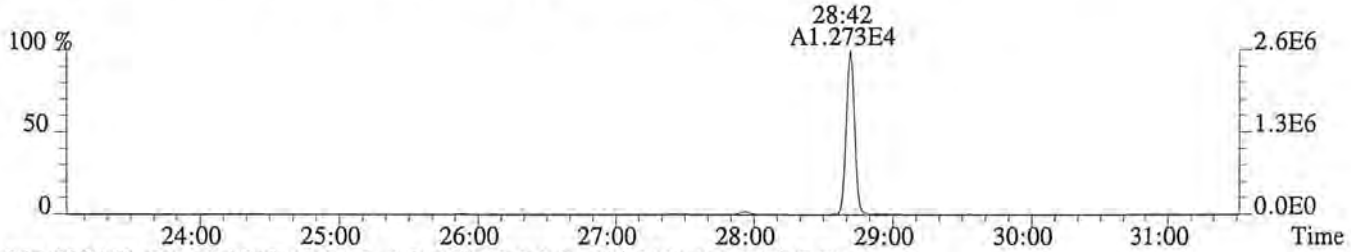
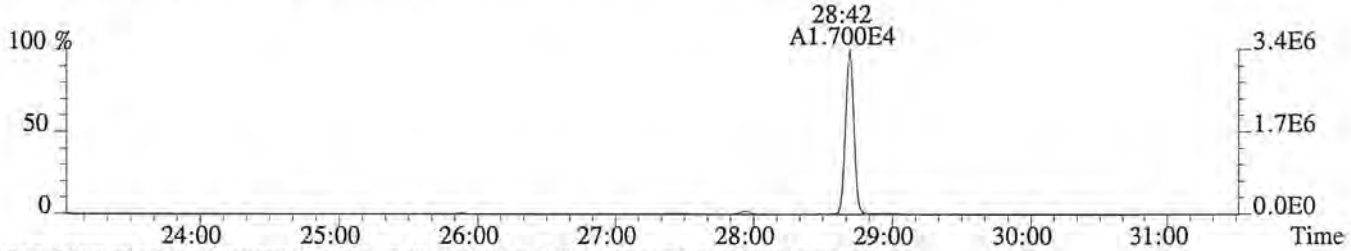
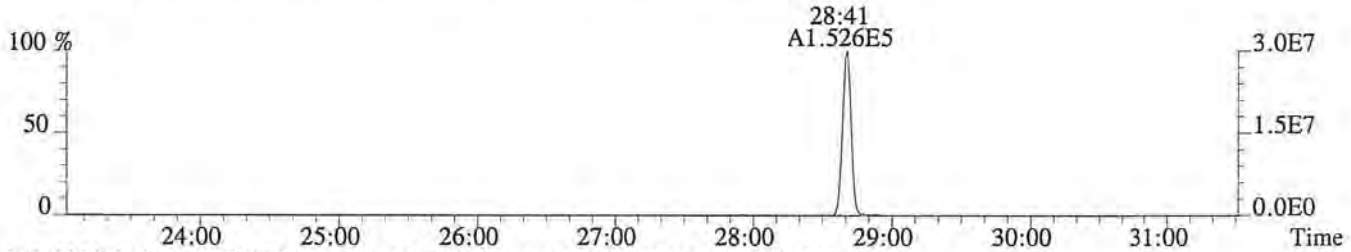
File:P300987 #1-602 Acq:21-AUG-2015 20:11:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1936.0,1.00%,F,T)



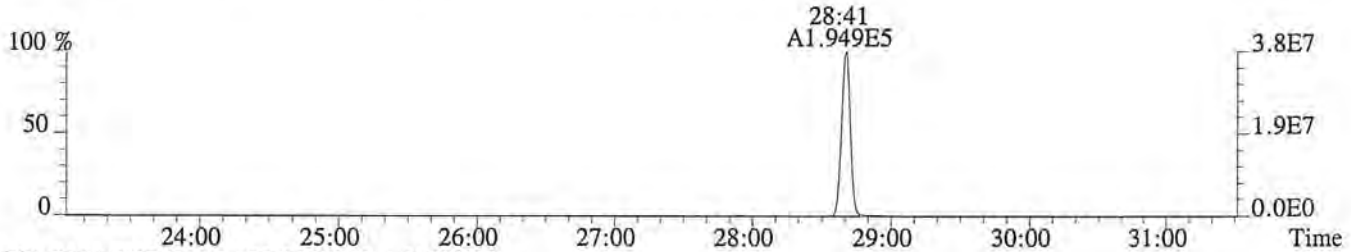
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3428.0,1.00%,F,T)



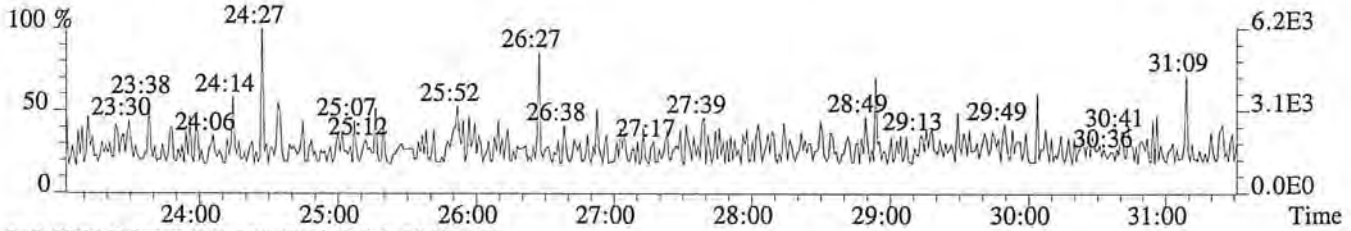
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



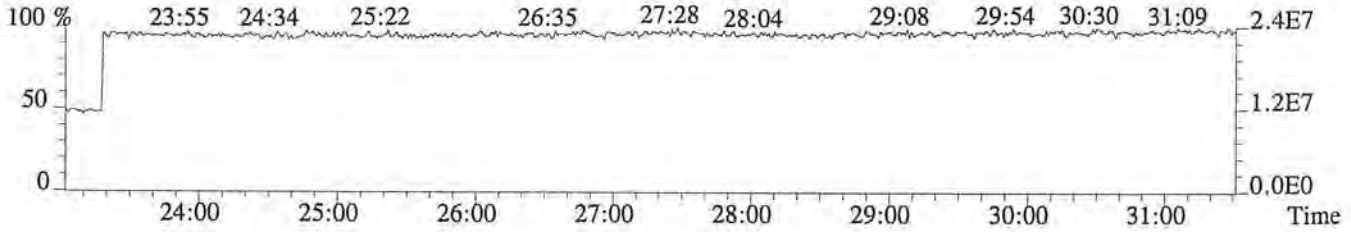
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3240.0,1.00%,F,T)



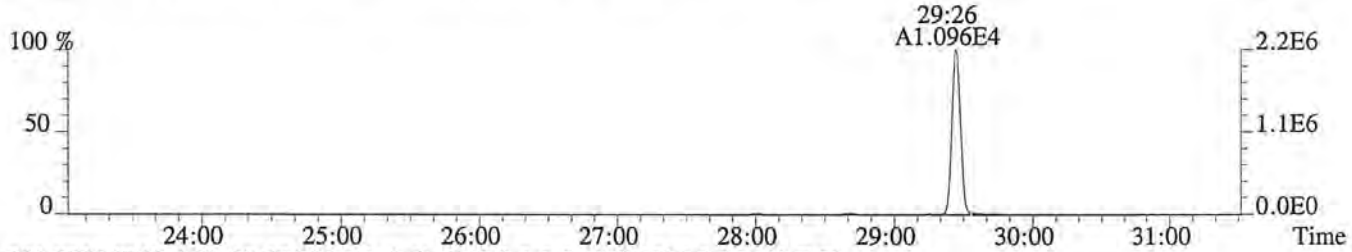
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



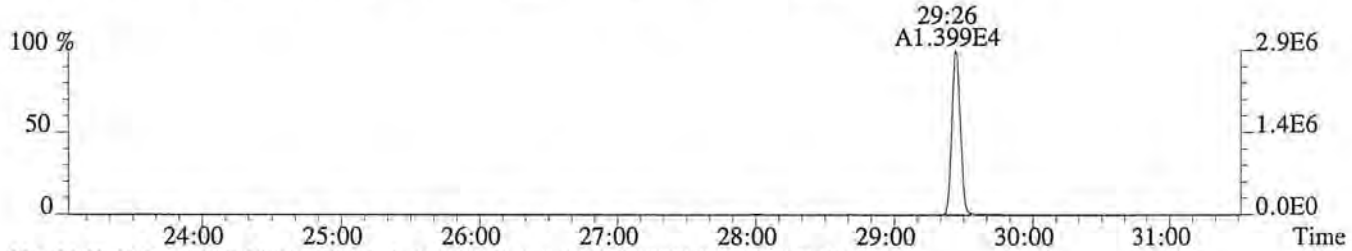
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



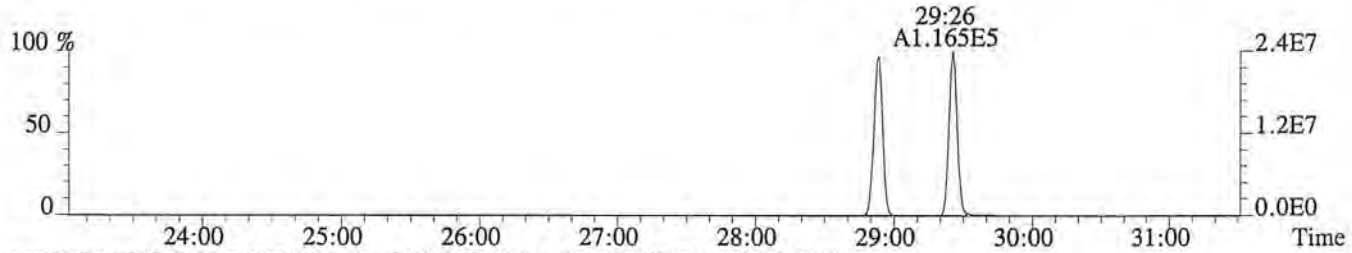
File:P300987 #1-602 Acq:21-AUG-2015 20:11:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1968.0,1.00%,F,T)



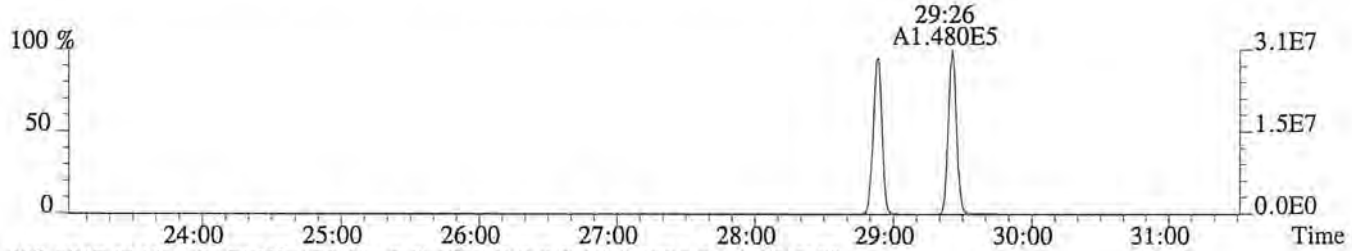
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1964.0,1.00%,F,T)



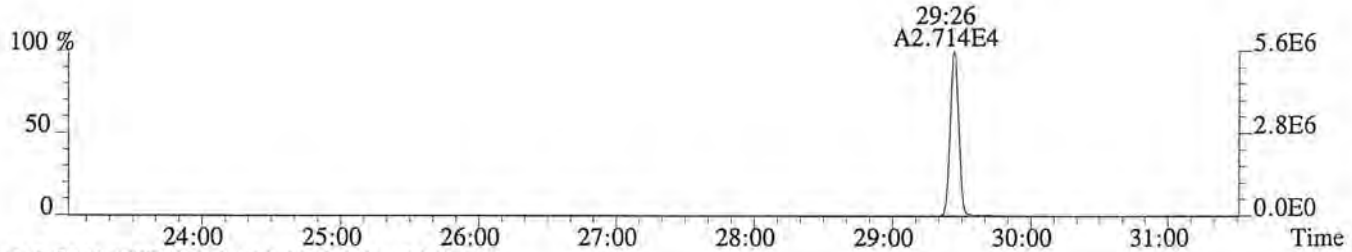
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9980.0,1.00%,F,T)



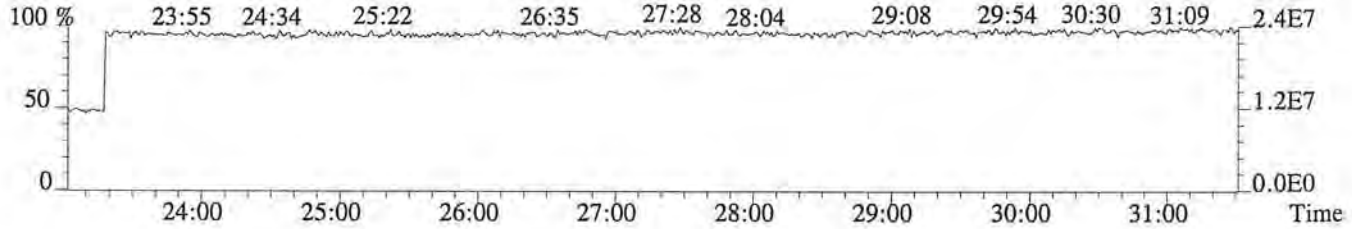
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4028.0,1.00%,F,T)



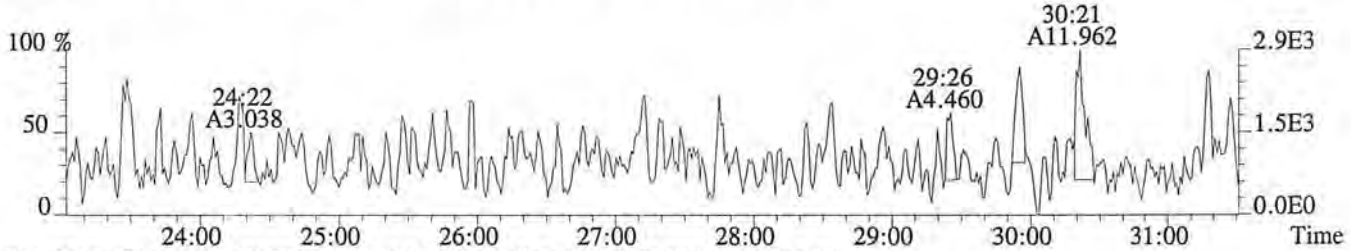
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2396.0,1.00%,F,T)



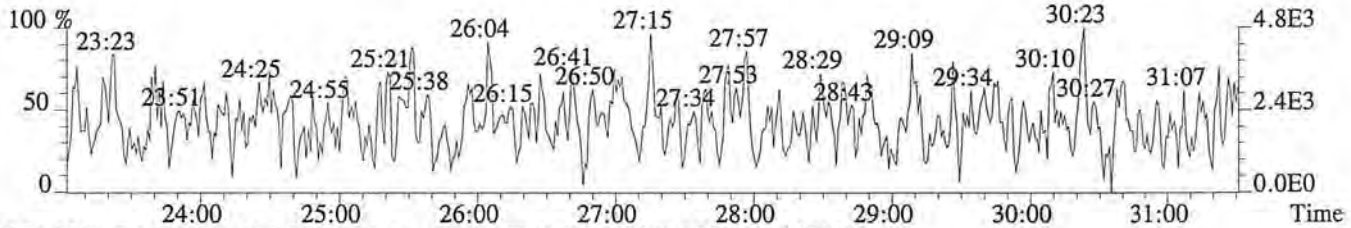
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



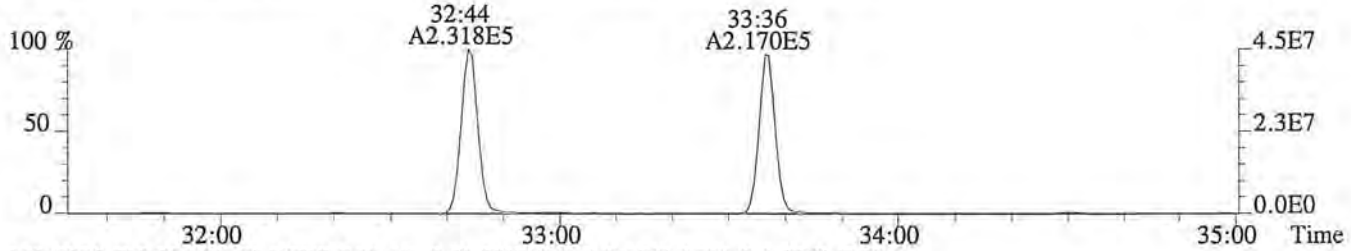
File:P300987 #1-602 Acq:21-AUG-2015 20:11:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



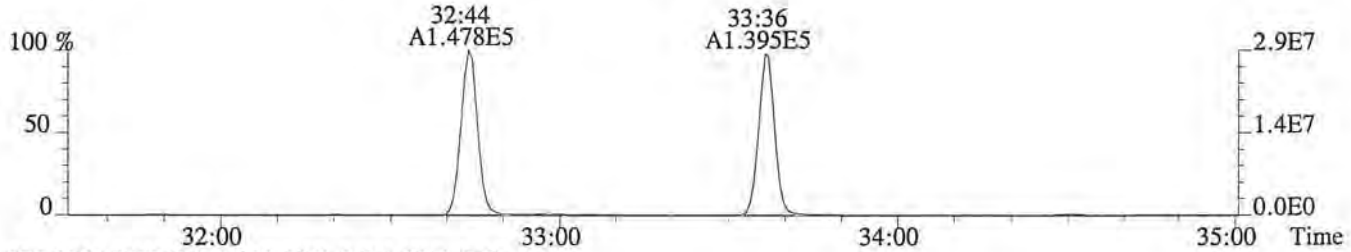
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2640.0,1.00%,F,T)



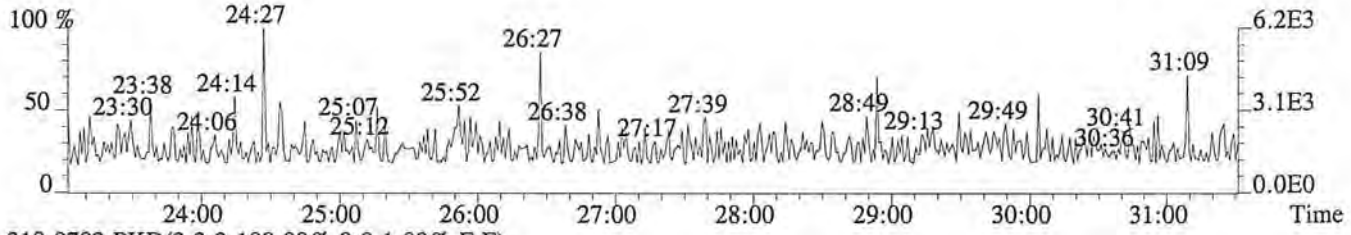
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2756.0,1.00%,F,T)



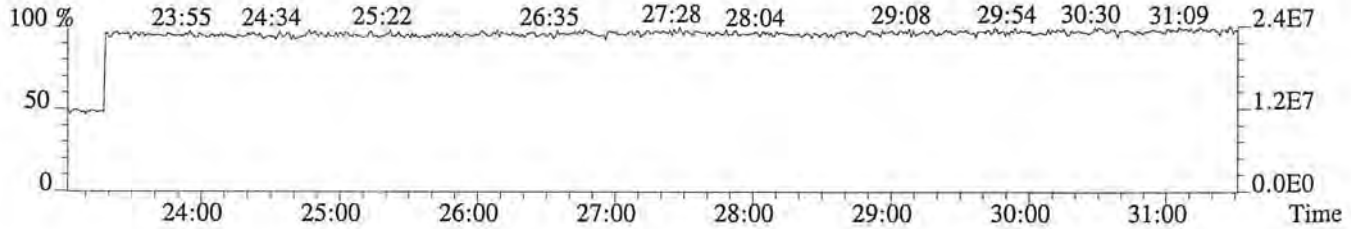
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2580.0,1.00%,F,T)



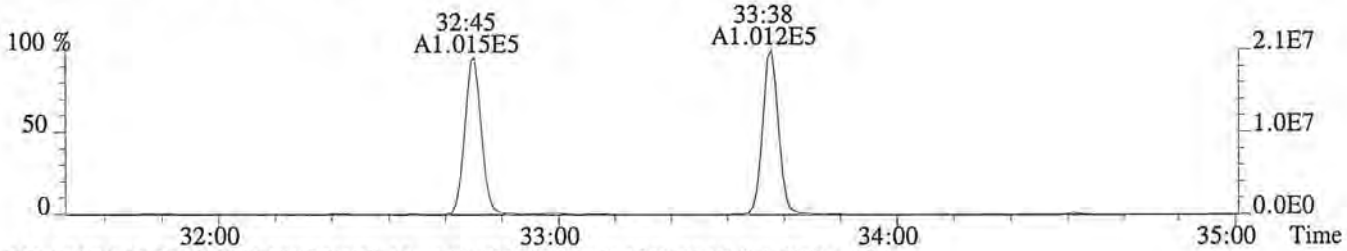
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



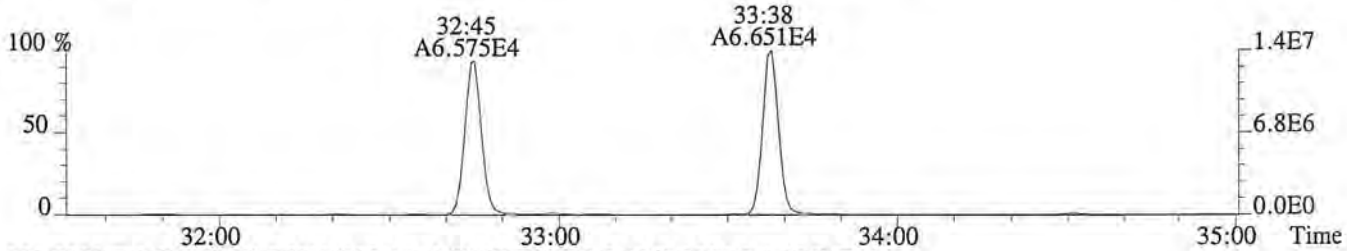
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



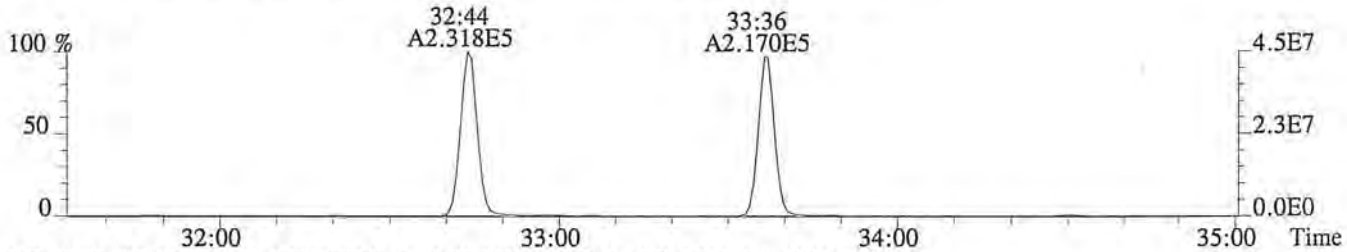
File:P300987 #1-312 Acq:21-AUG-2015 20:11:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



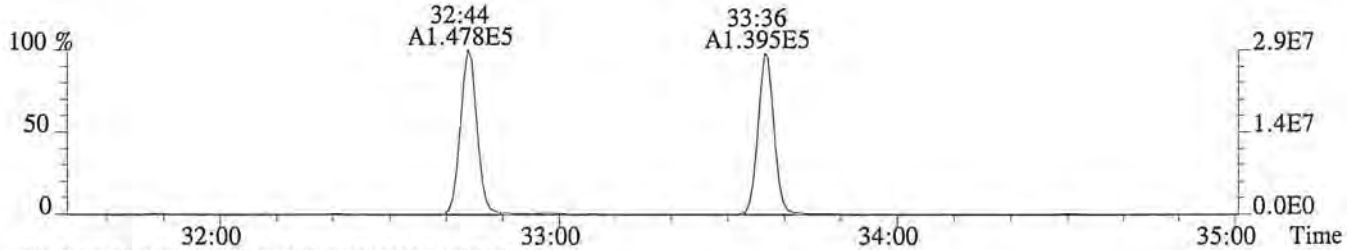
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2512.0,1.00%,F,T)



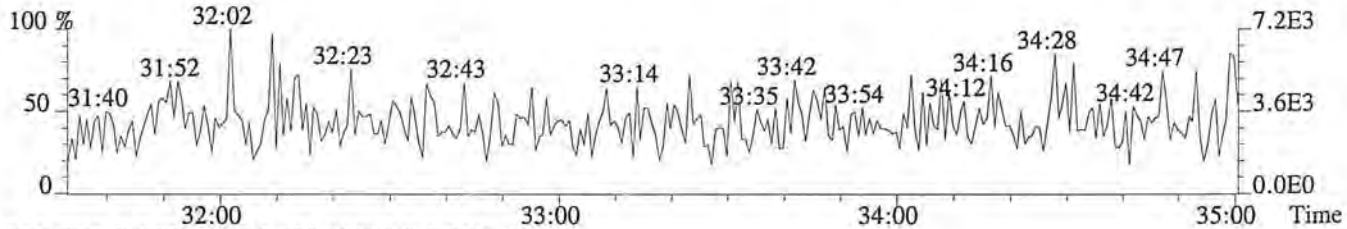
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2756.0,1.00%,F,T)



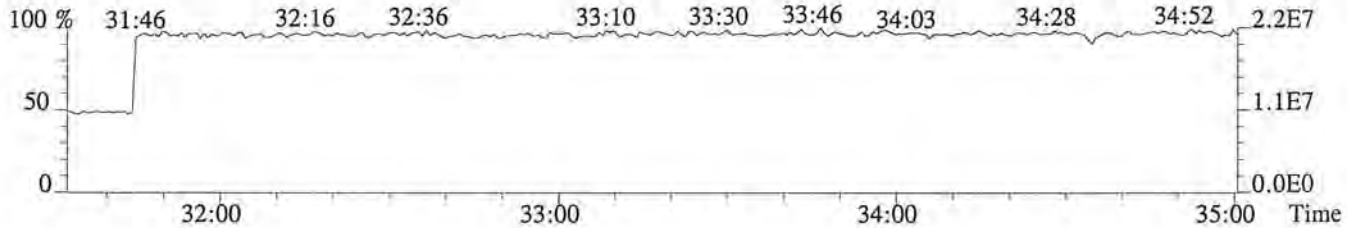
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2580.0,1.00%,F,T)



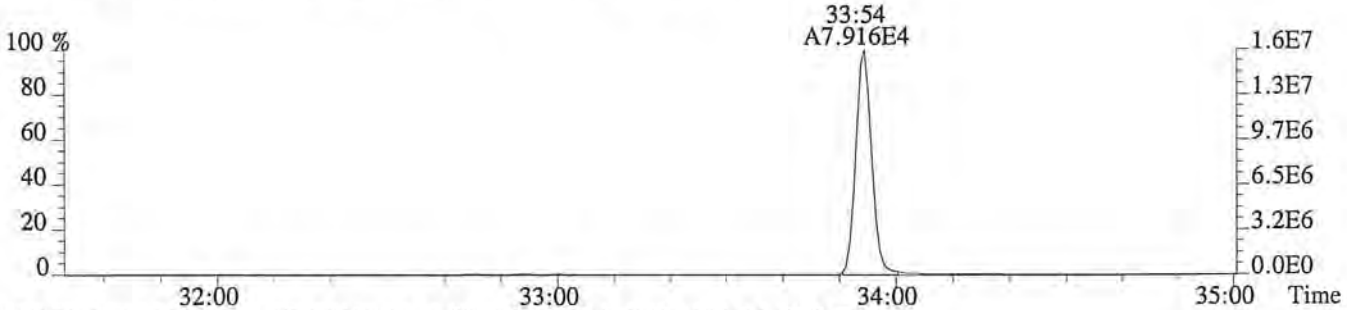
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



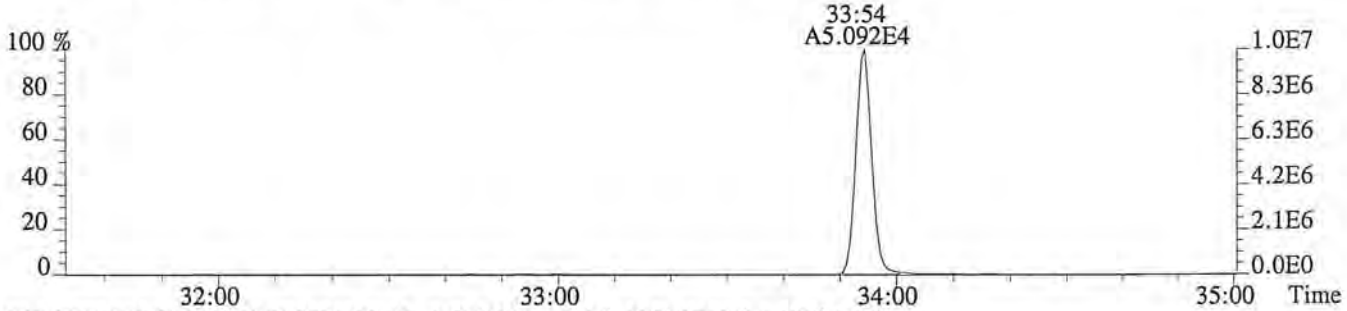
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



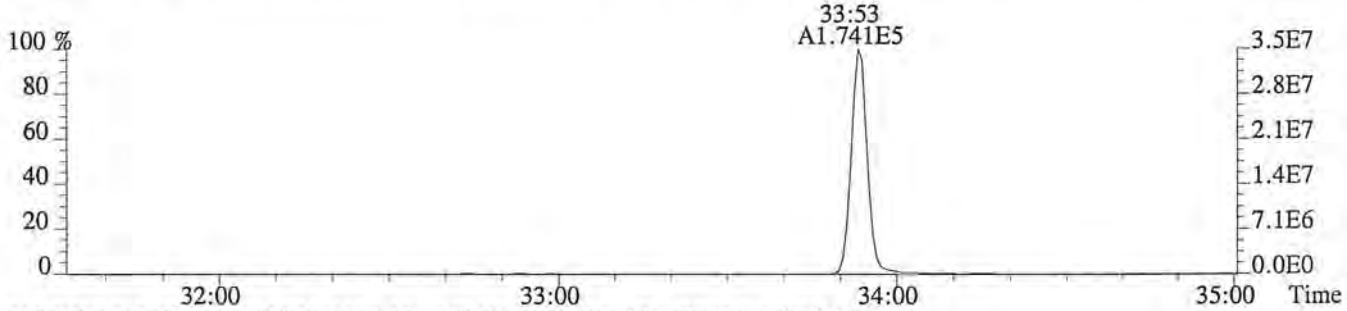
File:P300987 #1-312 Acq:21-AUG-2015 20:11:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3676.0,1.00%,F,T)



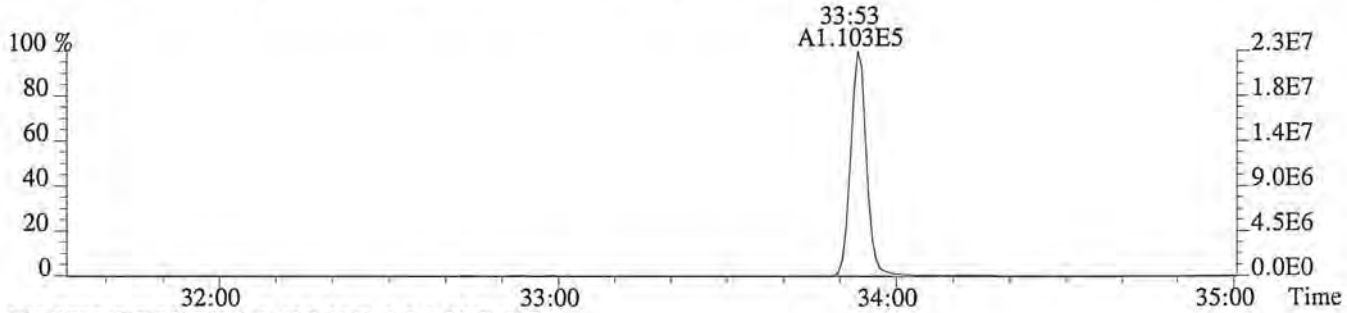
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1528.0,1.00%,F,T)



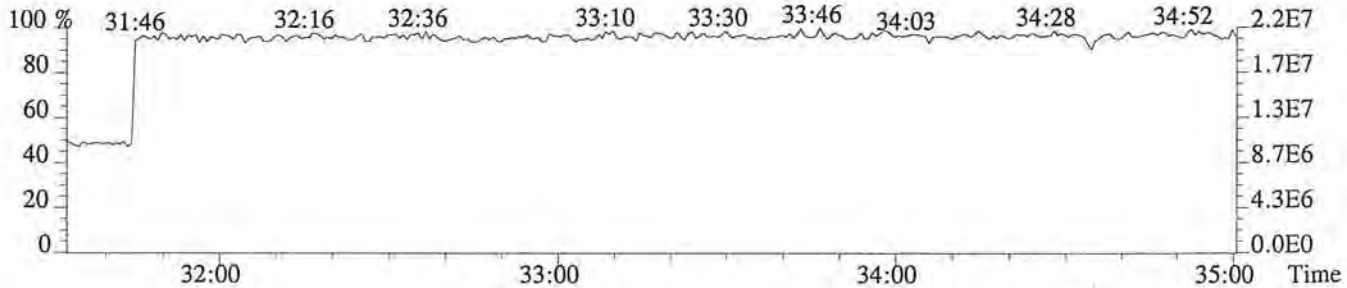
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2712.0,1.00%,F,T)



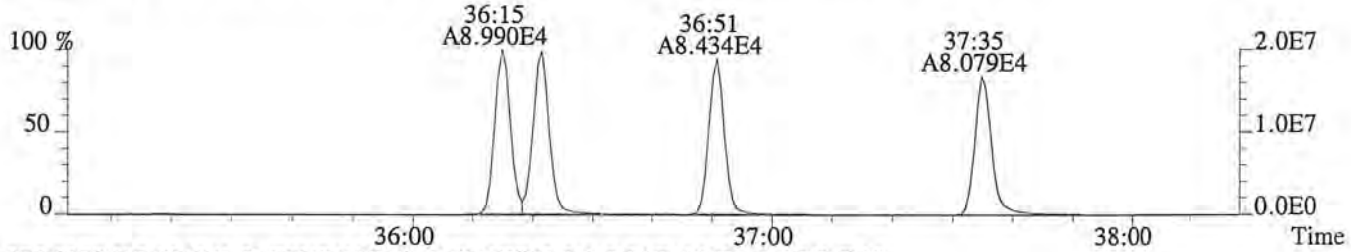
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2008.0,1.00%,F,T)



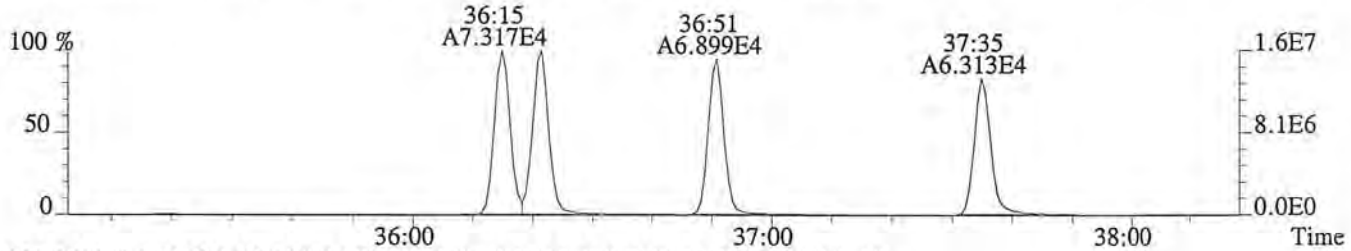
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



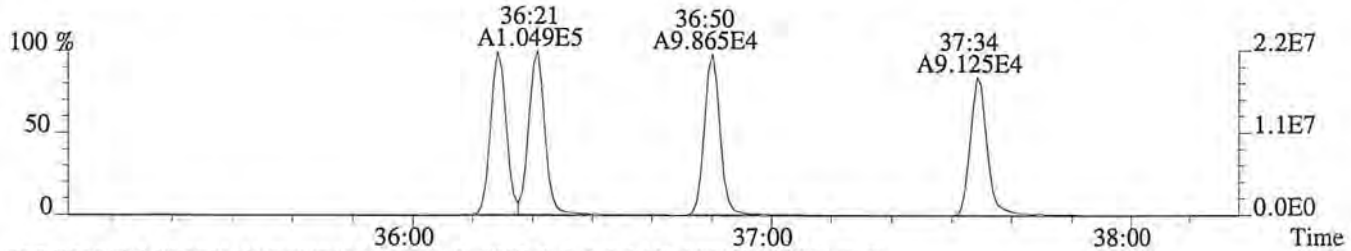
File:P300987 #1-294 Acq:21-AUG-2015 20:11:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3116.0,0.40%,F,T)



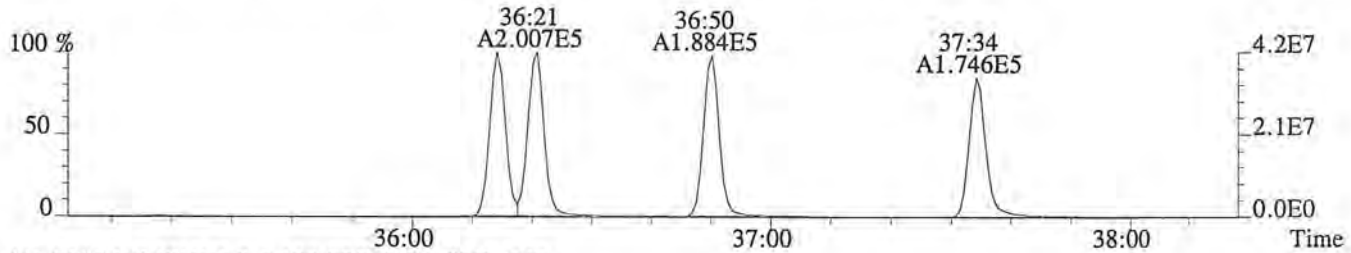
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1480.0,0.40%,F,T)



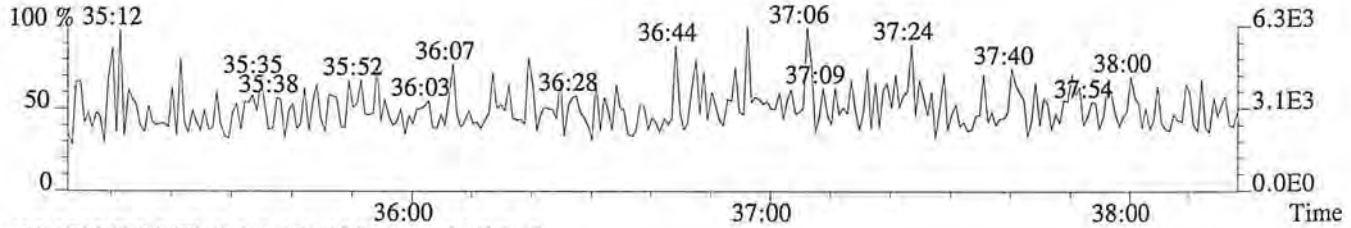
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1660.0,0.40%,F,T)



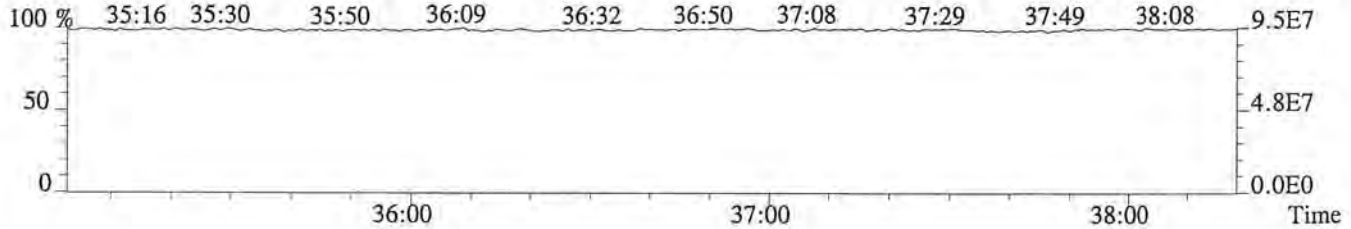
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3392.0,0.40%,F,T)



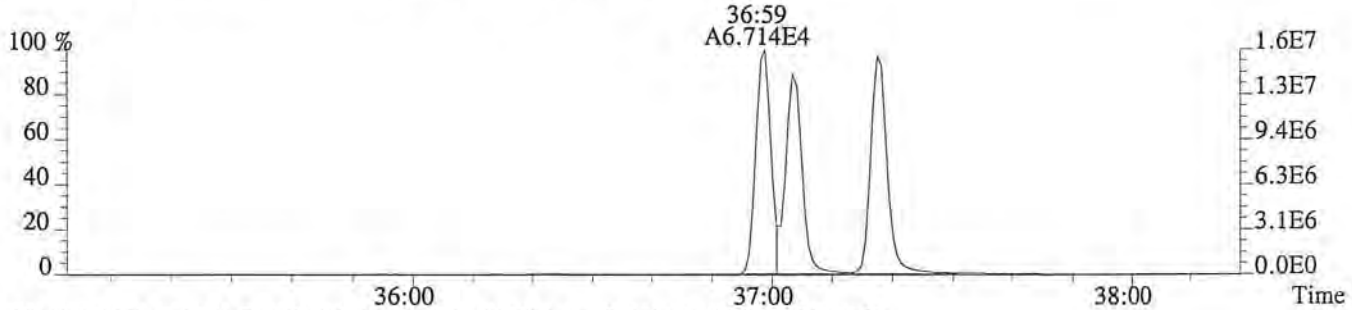
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



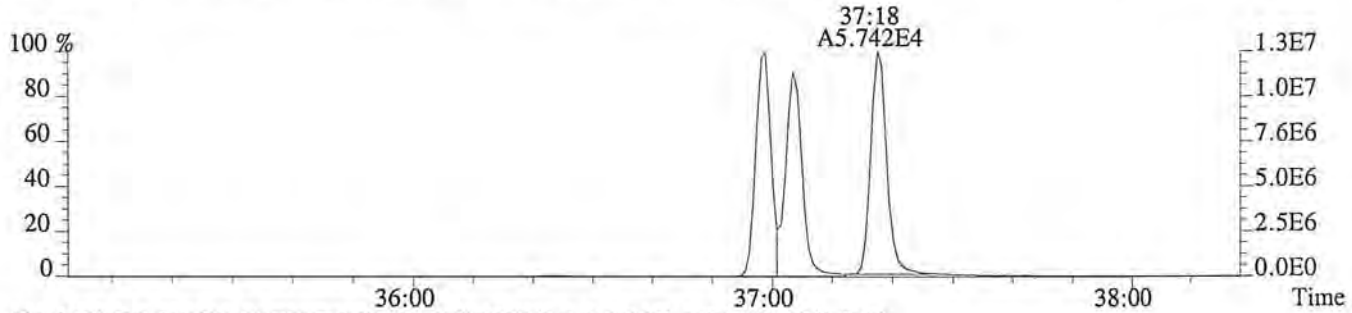
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



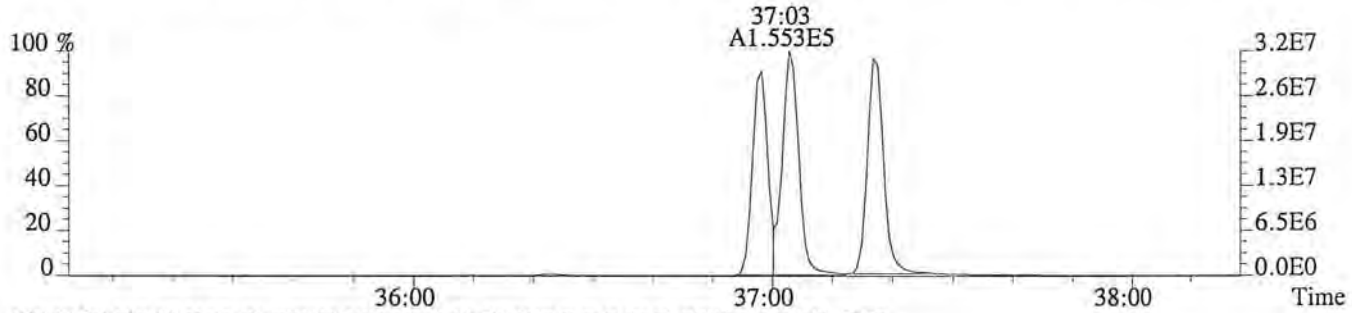
File:P300987 #1-294 Acq:21-AUG-2015 20:11:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1136.0,0.40%,F,T)



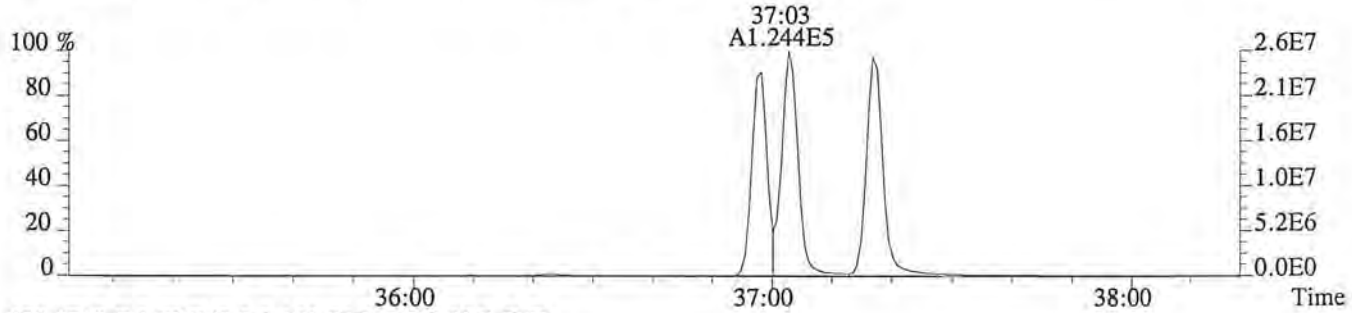
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2480.0,0.40%,F,T)



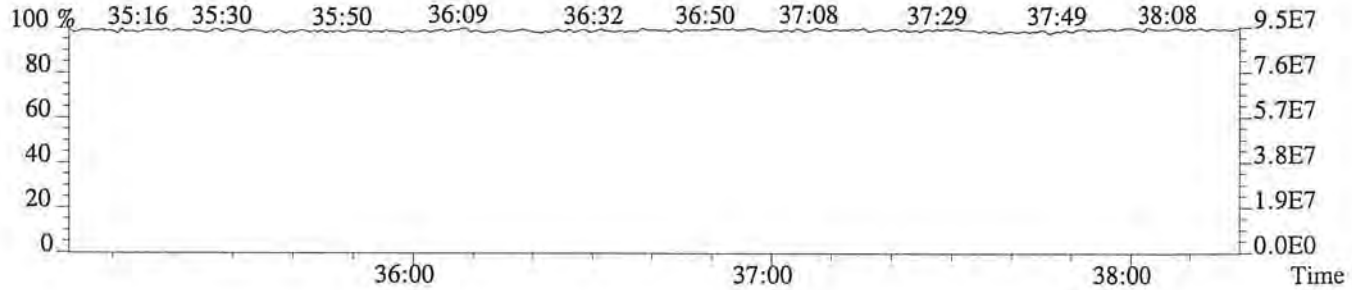
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1708.0,0.40%,F,T)



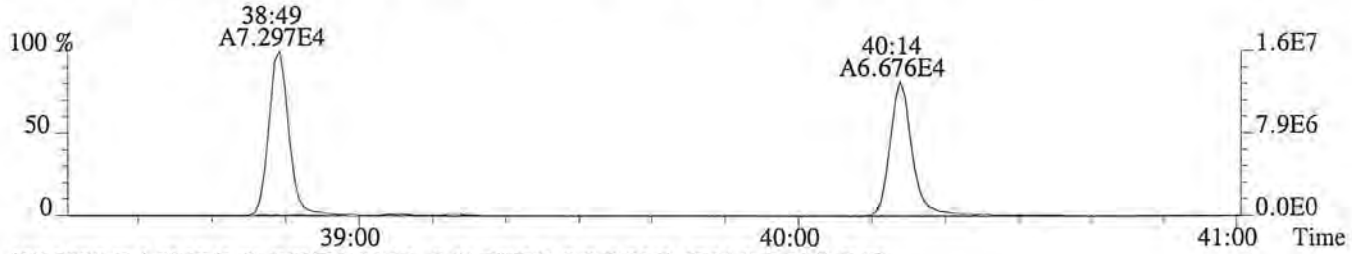
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2780.0,0.40%,F,T)



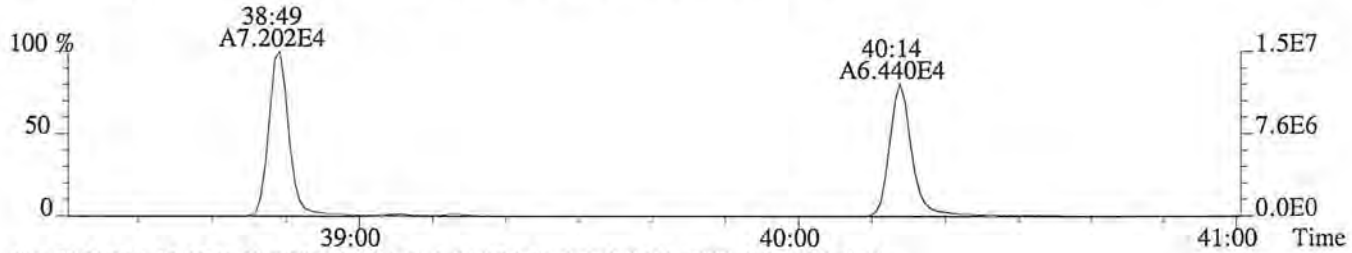
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



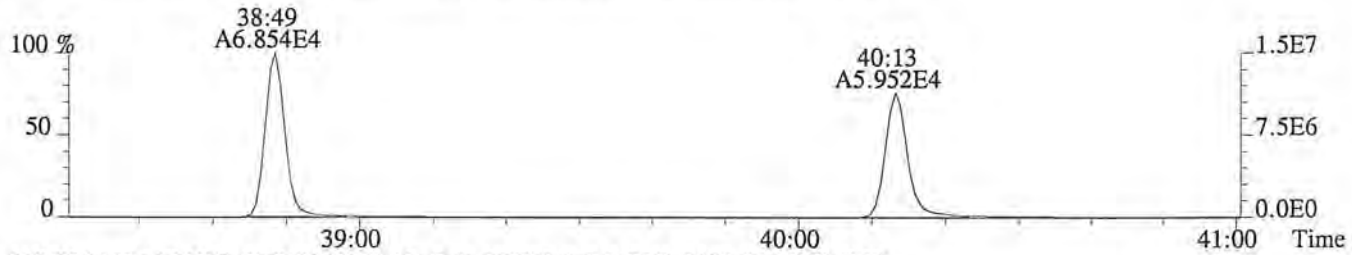
File:P300987 #1-241 Acq:21-AUG-2015 20:11:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2764.0,0.50%,F,T)



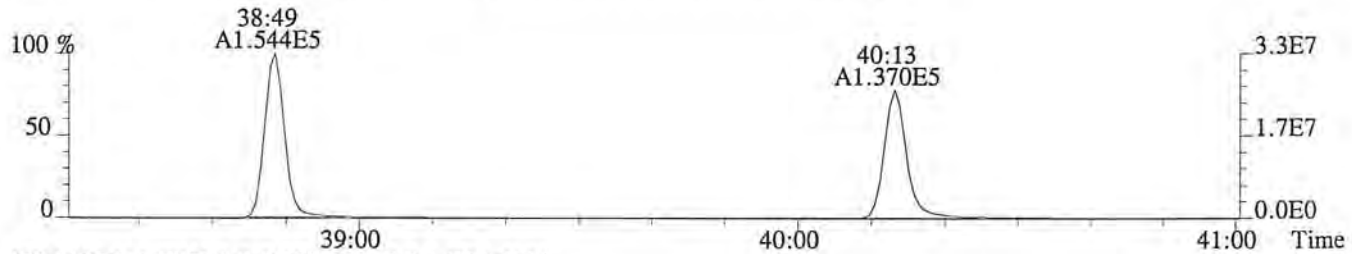
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6764.0,0.50%,F,T)



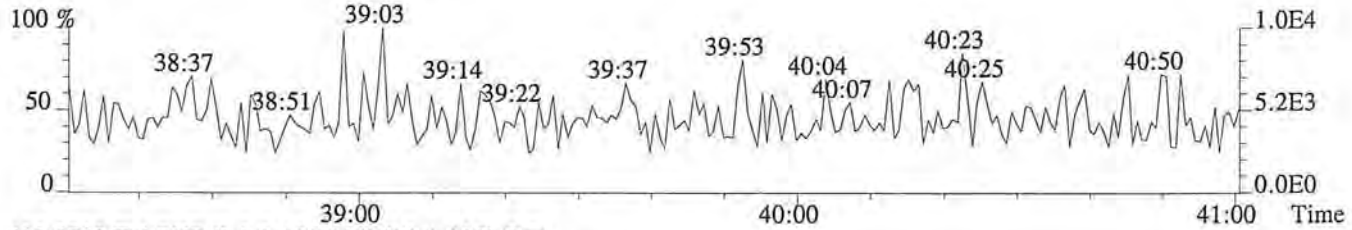
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4808.0,0.50%,F,T)



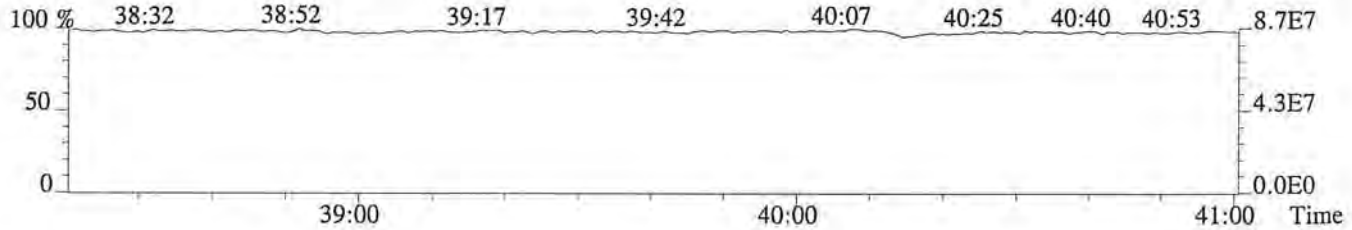
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8496.0,0.50%,F,T)



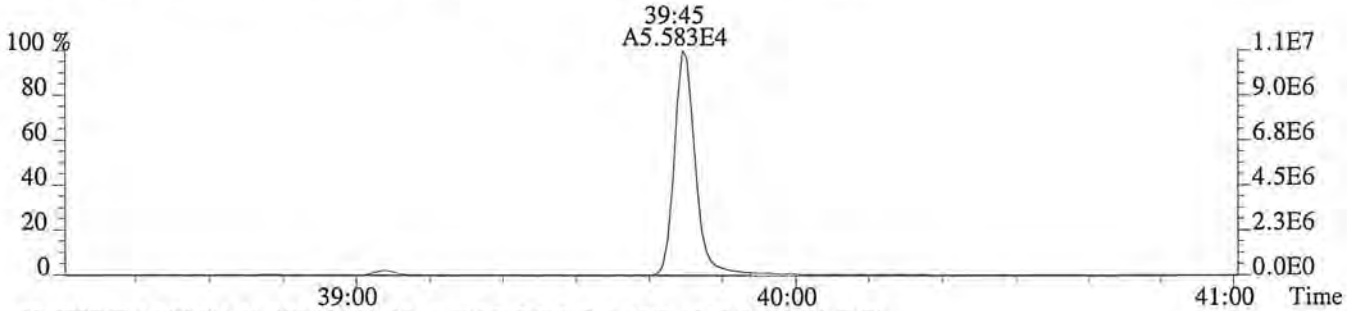
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



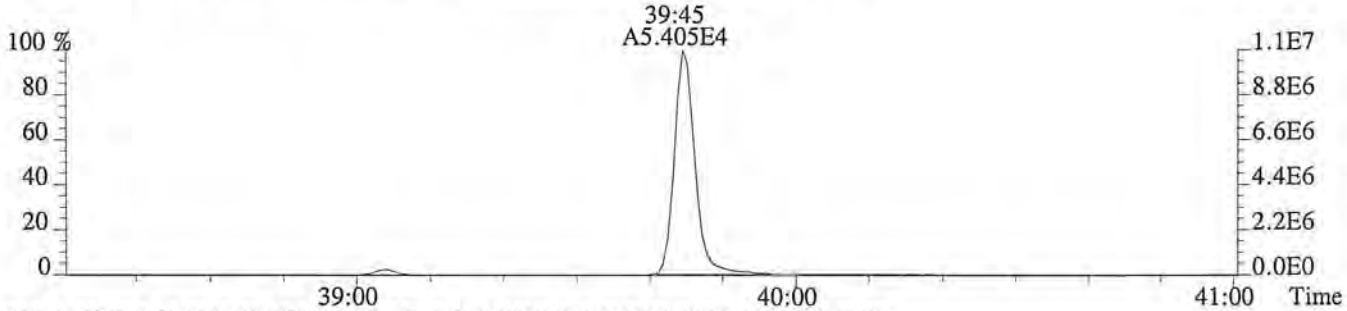
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



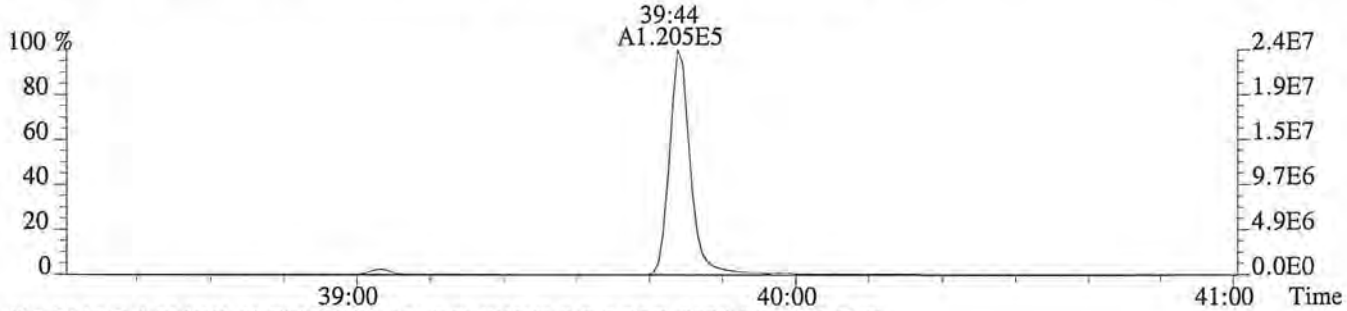
File:P300987 #1-241 Acq:21-AUG-2015 20:11:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2020.0,0.40%,F,T)



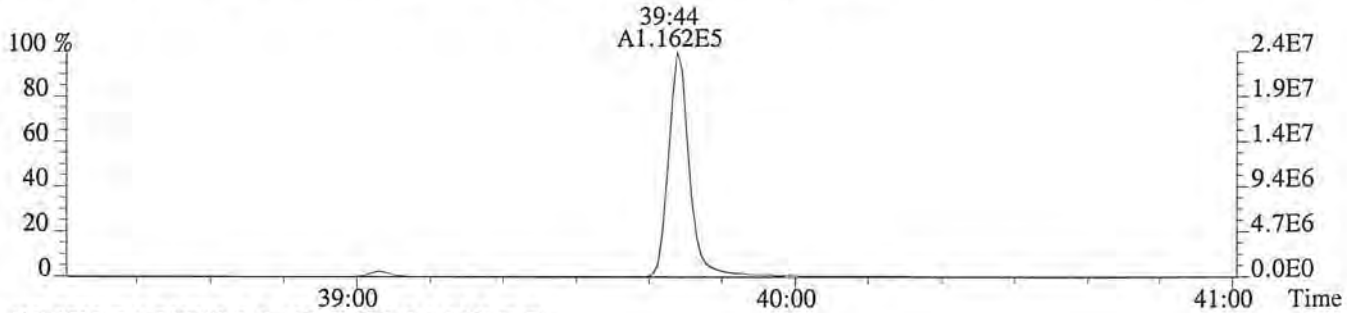
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1352.0,0.40%,F,T)



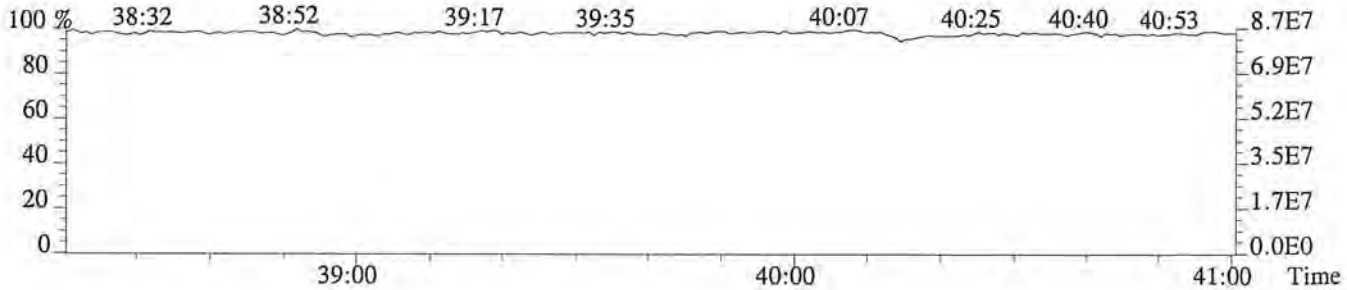
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3392.0,0.40%,F,T)



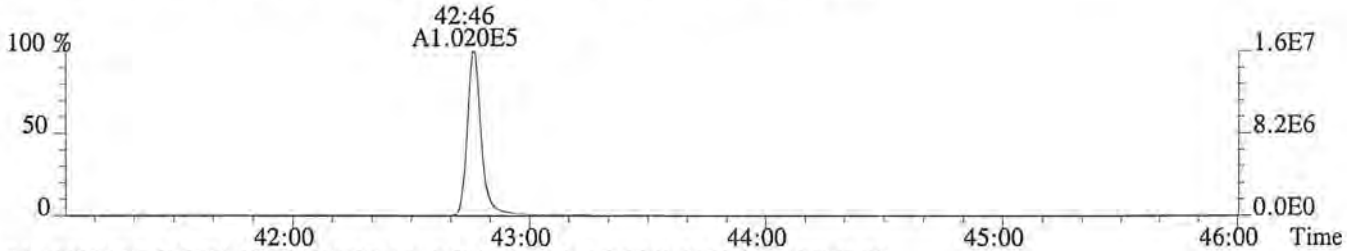
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2520.0,0.40%,F,T)



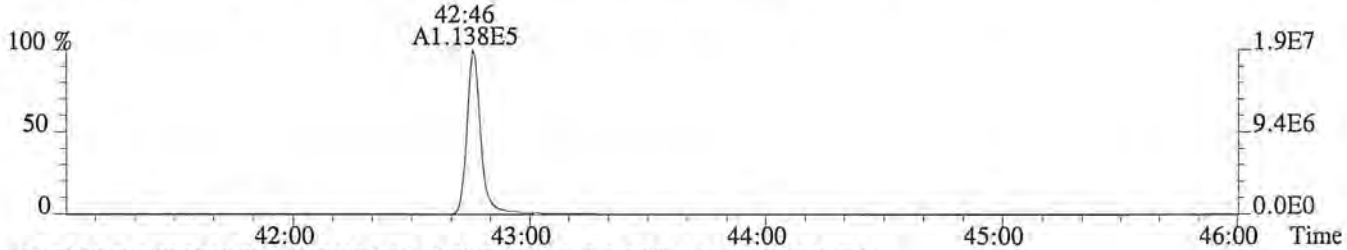
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



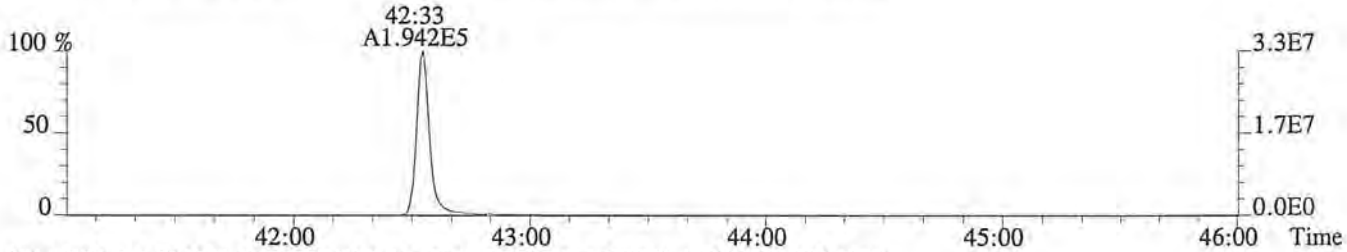
File:P300987 #1-447 Acq:21-AUG-2015 20:11:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1992.0,0.40%,F,T)



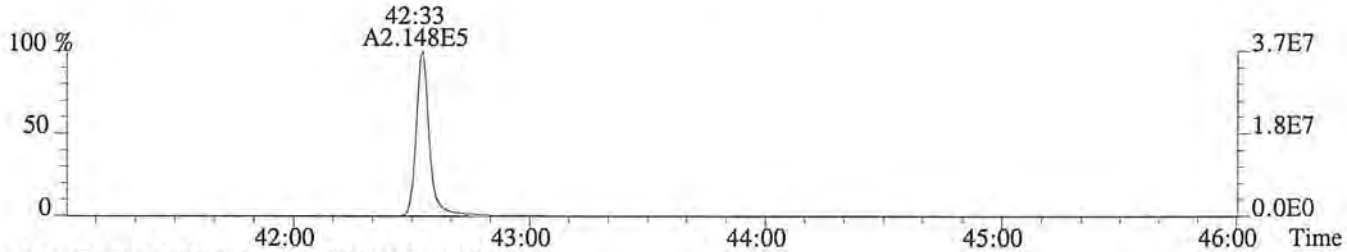
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3568.0,0.40%,F,T)



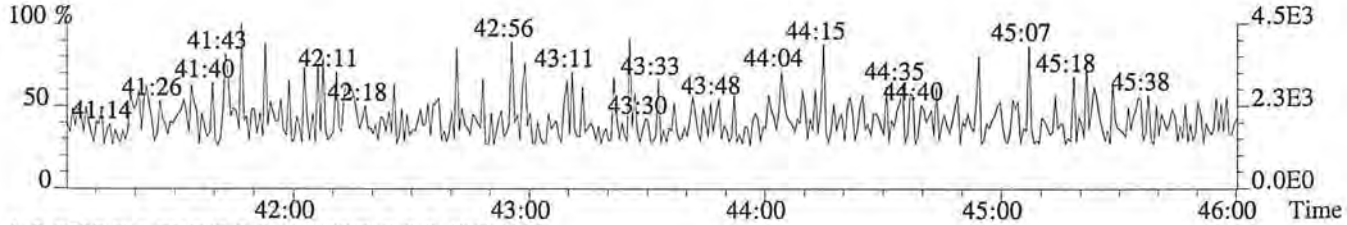
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1636.0,0.40%,F,T)



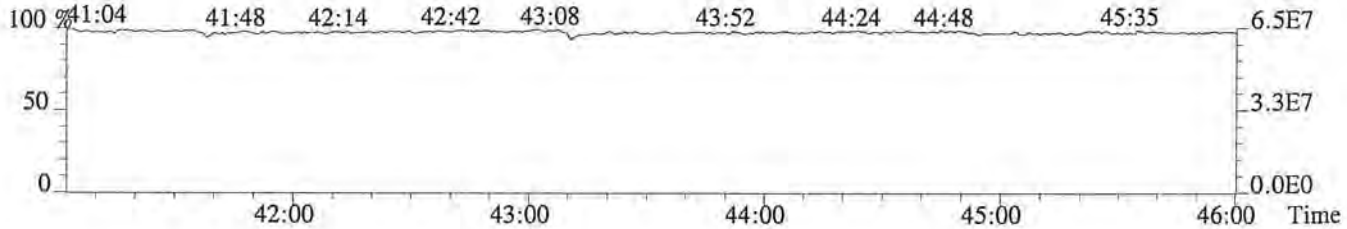
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1160.0,0.40%,F,T)



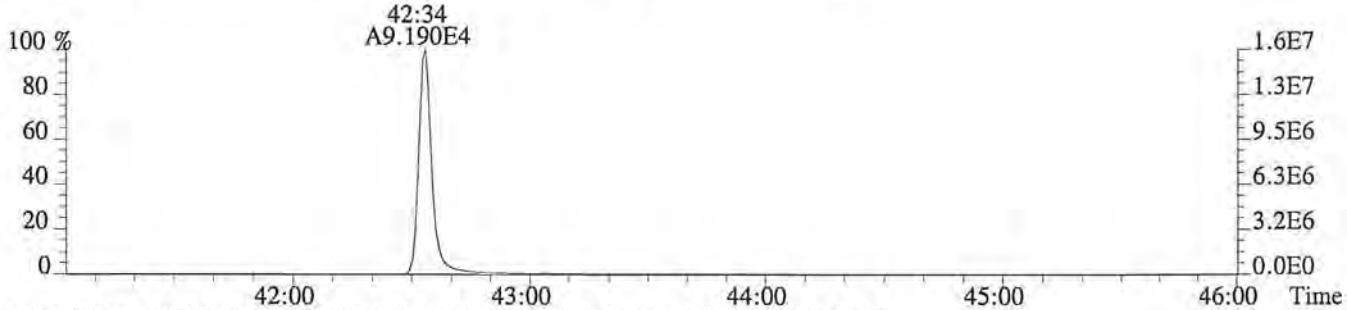
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



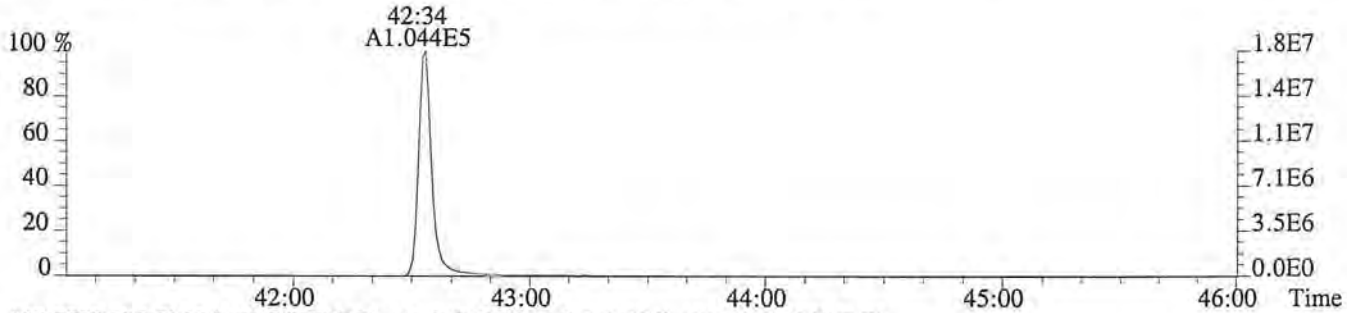
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



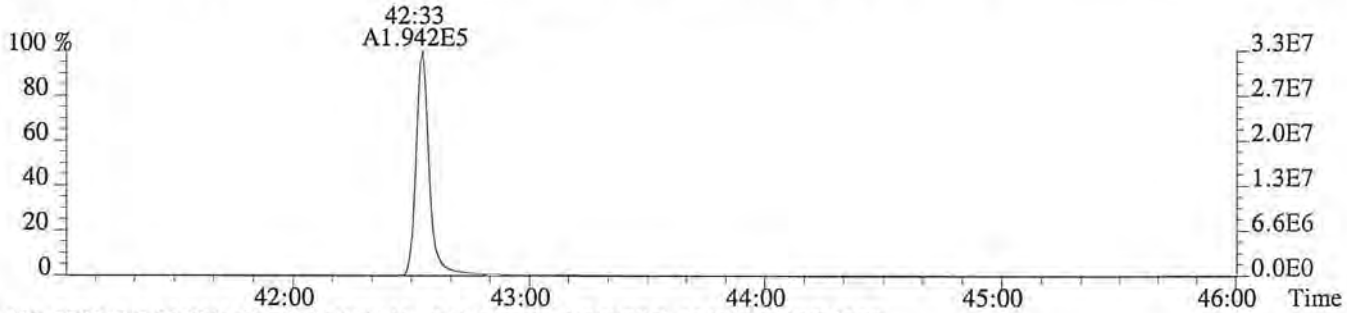
File:P300987 #1-447 Acq:21-AUG-2015 20:11:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



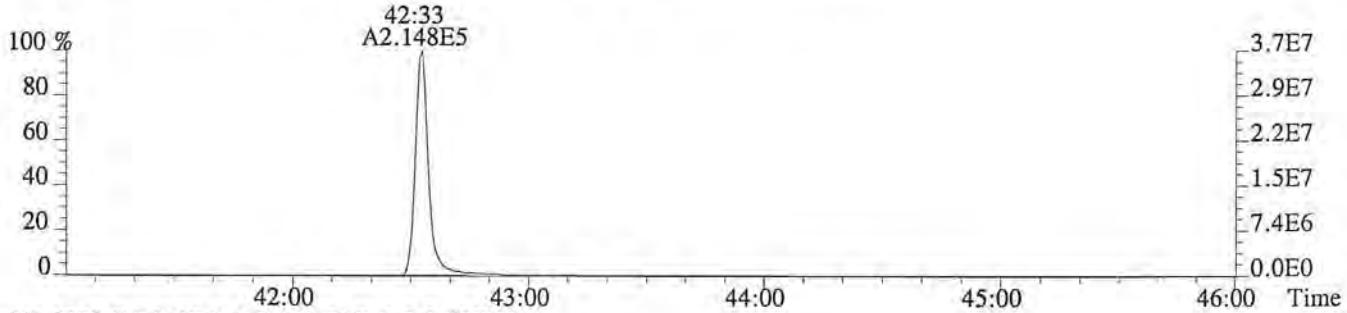
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1876.0,0.40%,F,T)



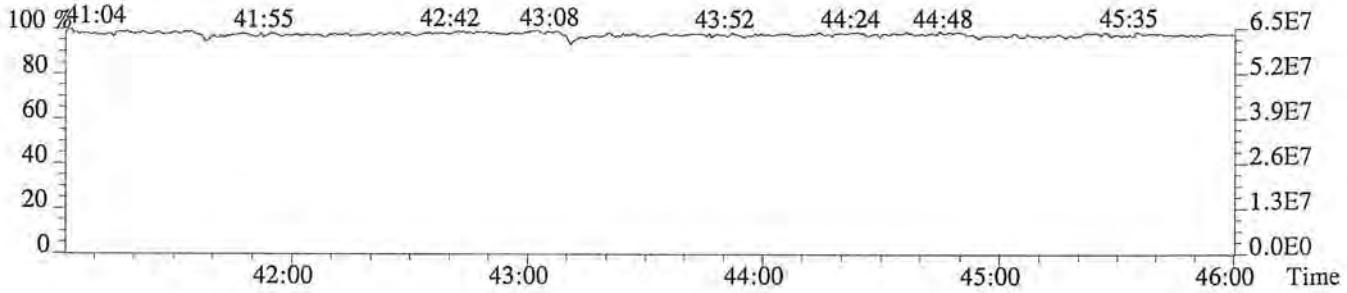
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1636.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1160.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 8/20/2015
Instrument Name: E-HRMS-08	Calibration File Name: P6-1508191613I
Processor Name: Gisela Cruz	Reviewer Name: Sameh Attalla
Supervisor: Lan Le	

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	√				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	√				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	√				
Were all calibration standards analyzed only once?	√				
Was the ICV analyzed after the ICAL, before analyzing samples?	√				
	√				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	√				
Were all target masses >10,000 resolving power at the beginning of the sequence?	√				
Were all target masses >10,000 resolving power at the end of the sequence?	√				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			√		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			√		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	√				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	√				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	√				
Were all first and last eluters adequately resolved in each function?	√				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			√		
Was the retention time of PCB 209 >55 min?			√		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			√		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			√		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	√				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			√		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	√				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 8/20/2015
Instrument Name: E-HRMS-08	Calibration File Name: P6-1508191613I
Processor Name: Gisela Cruz	Reviewer Name: Sameh Attalla
Supervisor: Lan Le	

Description	Yes	No	NA	NR	ER#
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	√				
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	√				
Were area counts for the highest calibration standard below levels of saturation?	√				
Were manual integrations technically justified to correct for poor software integration?			√		
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	√				
Were all calibration standards used in determining response factors?	√				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	√				
Did the RSD for RRFs for each native analyte meet method criteria?	√				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	√				
Were RFs for each labeled compound calculated for each calibration point?	√				
Did the RSD for RF for each labeled compound meet method criteria?	√				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	√				
Did all analytes meet method criteria for the ICV.	√				

Laboratory Review Checklist: Initial Calibration	
Method: 1613/8290	Process Date: 08/20/2015
Instrument Name: E-HRMS-08	Calibration File Name: P6-1508191613I
Processor Name: Gisela Cruz	Reviewer Name:

ER#[5]	Description

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-08

Init. Calib. Date: 08/19/15

Init. Calib.Times: 10:52

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE	WINDOW DEFINE	P600002	19-AUG-15	10:52:49
76554	CS0.5	P600004	19-AUG-15	12:31:21
76555	CS1	P600005	19-AUG-15	13:20:24
76556	CS2	P600006	19-AUG-15	14:09:28
76557	CS3	P600007	19-AUG-15	14:58:32
76558	CS4	P600008	19-AUG-15	15:47:35
76956	CS5	P600009	19-AUG-15	16:36:39
CS3 SECOND SOURCE	CS3 SECOND SOU	P600011	19-AUG-15	18:14:46

e=opus 4

Sample List Report MassLynx 4.1 SCN815 SCN795

Sample List: C:\MassLynx\EHRMS08.PRO\SampleDB\20150819.SPL
Last Modified: Friday, August 21, 2015 09:39:32 Central Daylight Time
Printed: Friday, August 21, 2015 09:39:49 Central Daylight Time

Page Position (1, 1)

e: P6-150819 1613I e: P6 00011res
e: P6-150819 m23I e: P6 00011resm23

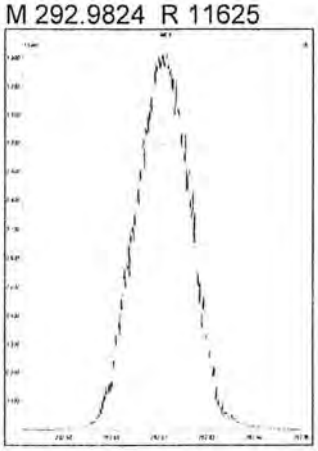
	Date	Time	File Name	Lab Sample ID	Client File Text	Sample Type	Bottle	MS File	Inlet File	Analyst	Comments
1	08/19/15	10:02	P600001	WD	WD	Standard	Tray1:1	EPA1613_ALS	Dioxin_ALS	LL	HRMS check 09:57
2		10:52	P600002	WD	WD	Standard	Tray1:1	EPA1613_ALS	Dioxin_ALS		
3		11:43	P600003	Nonane	Nonane	Blank	Tray1:2	EPA1613_ALS	Dioxin_ALS		
4		12:31	P600004	76554	CS0.5	Standard	Tray1:3	EPA1613_ALS	Dioxin_ALS		
5		13:20	P600005	76555	CS1	Standard	Tray1:4	EPA1613_ALS	Dioxin_ALS		
6		14:09	P600006	76556	CS2	Standard	Tray1:5	EPA1613_ALS	Dioxin_ALS		
7		14:58	P600007	76557	CS3	Standard	Tray1:6	EPA1613_ALS	Dioxin_ALS		
8		15:47	P600008	76558	CS4	Standard	Tray1:7	EPA1613_ALS	Dioxin_ALS		
9		16:36	P600009	76956	CS5	Standard	Tray1:8	EPA1613_ALS	Dioxin_ALS		
10		17:25	P600010	Nonane	Nonane	Blank	Tray1:2	EPA1613_ALS	Dioxin_ALS		
11		18:14	P600011	54819	CS3 Second Source	Standard	Tray1:9	EPA1613_ALS	Dioxin_ALS		HRMS check 19:12
12	---	---	---	---	---	Standard	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---

gc 08/20/15

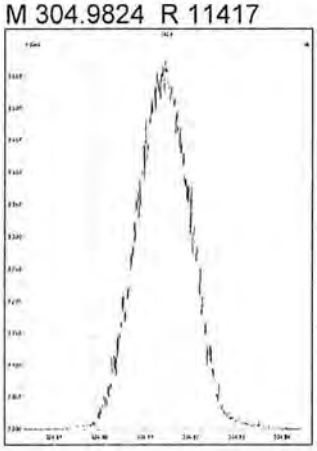
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, August 19, 2015 09:57:50 Central Daylight Time

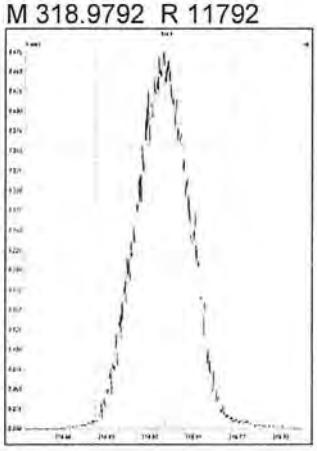
M 292.9824 R 11625



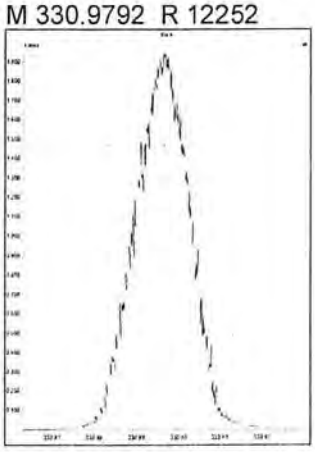
M 304.9824 R 11417



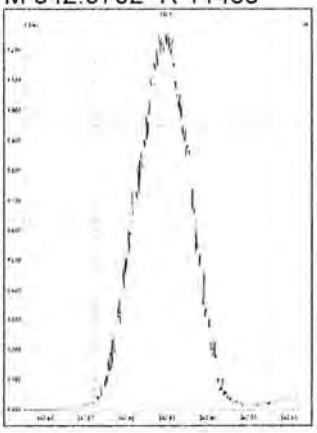
M 318.9792 R 11792



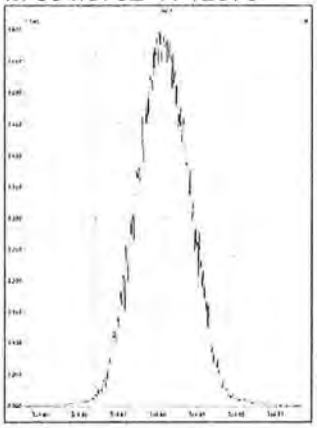
M 330.9792 R 12252



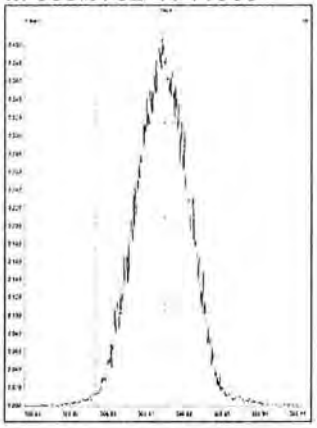
M 342.9792 R 11468



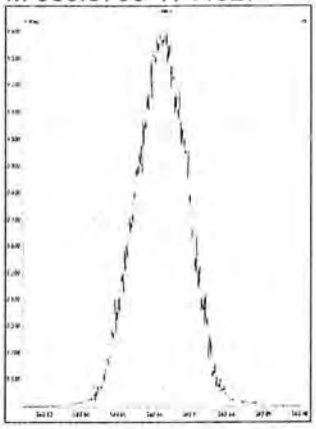
M 354.9792 R 12076



M 366.9792 R 11963



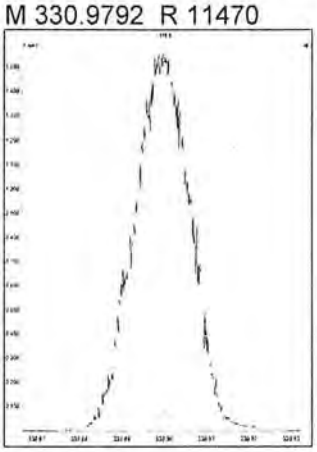
M 380.9760 R 11627



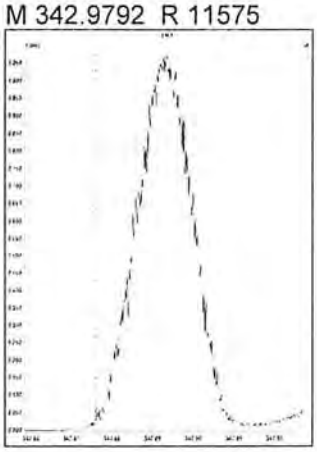
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, August 19, 2015 09:58:55 Central Daylight Time

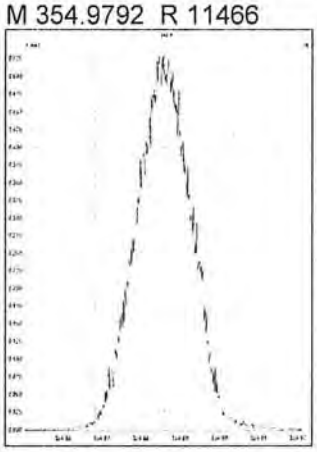
M 330.9792 R 11470



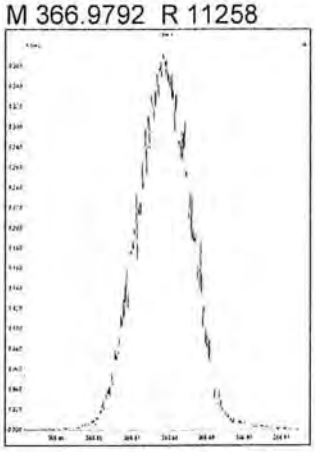
M 342.9792 R 11575



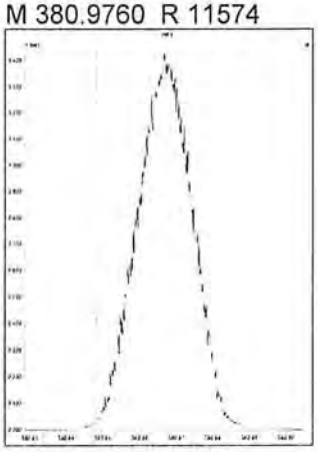
M 354.9792 R 11466



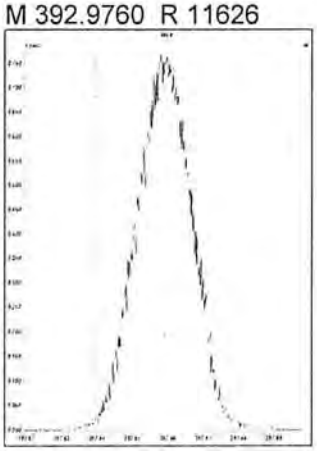
M 366.9792 R 11258



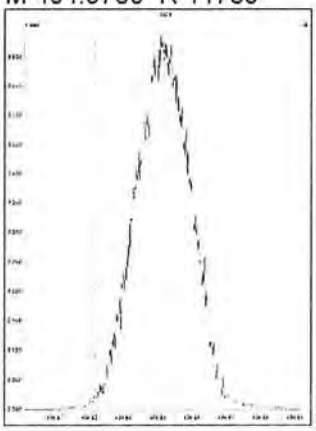
M 380.9760 R 11574



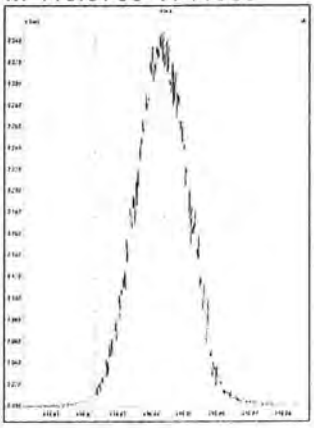
M 392.9760 R 11626



M 404.9760 R 11789



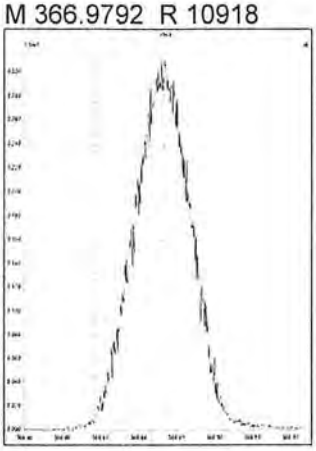
M 416.9760 R 11960



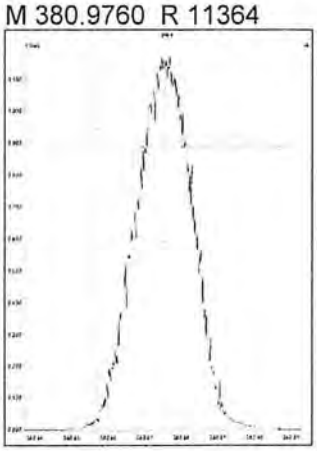
File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, August 19, 2015 09:59:39 Central Daylight Time

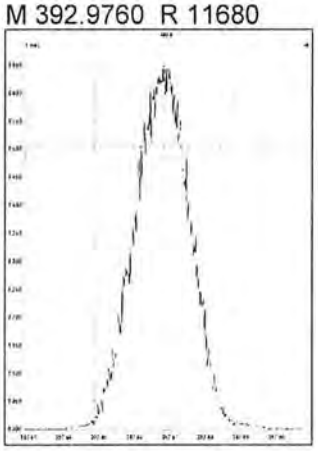
M 366.9792 R 10918



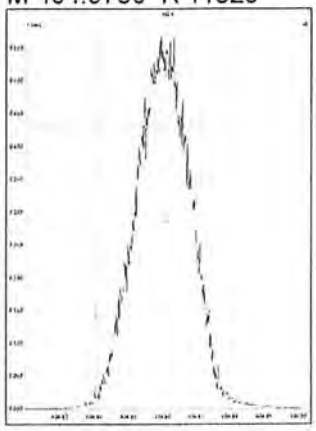
M 380.9760 R 11364



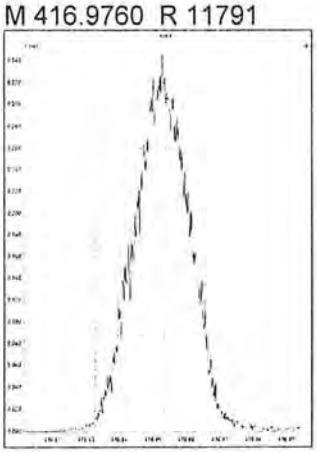
M 392.9760 R 11680



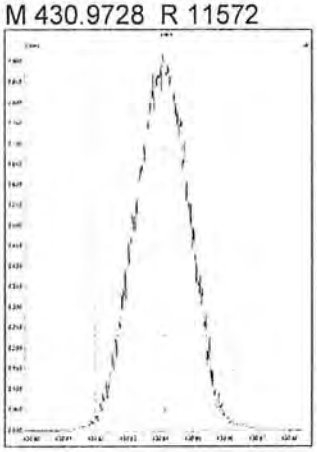
M 404.9760 R 11629



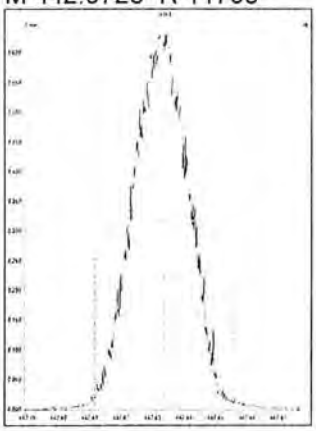
M 416.9760 R 11791



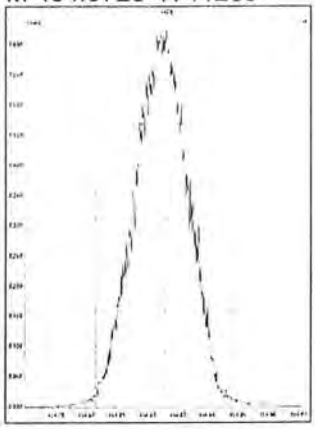
M 430.9728 R 11572



M 442.9728 R 11793



M 454.9728 R 11209



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

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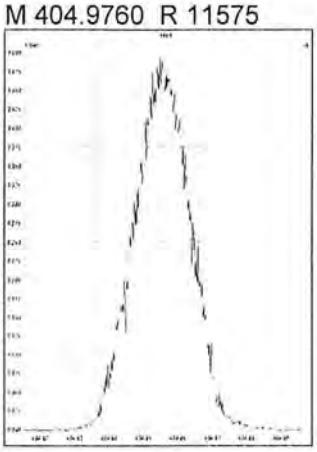
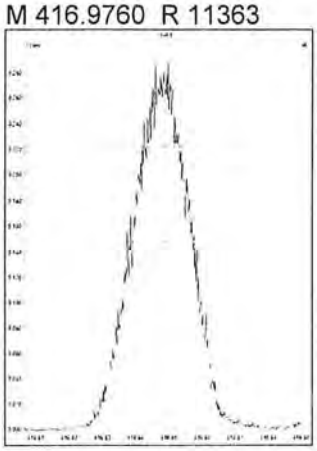
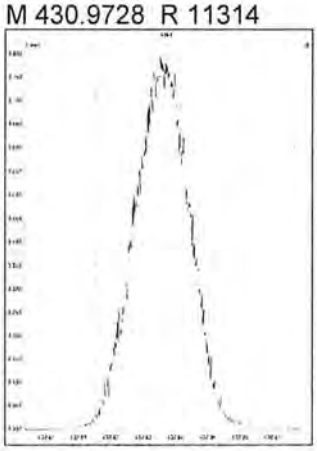
M 404.9760 R 11575



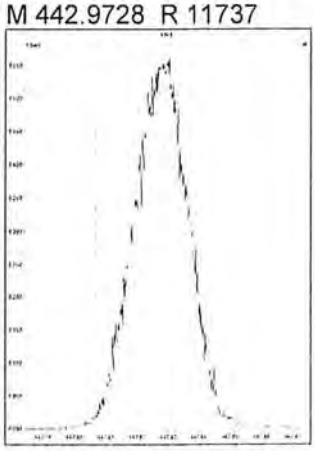
M 416.9760 R 11363



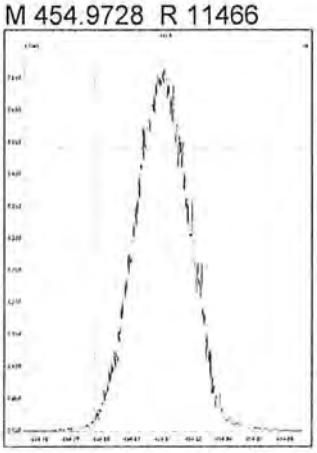
M 430.9728 R 11314



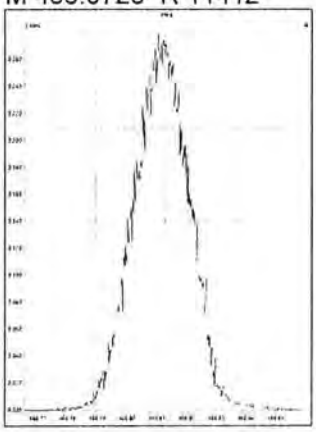
M 442.9728 R 11737



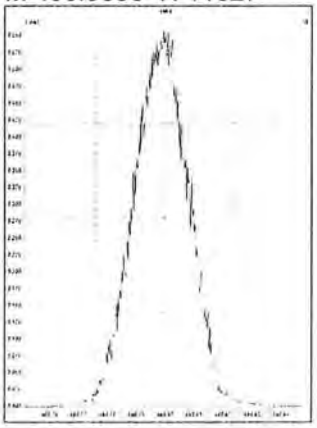
M 454.9728 R 11466



M 466.9728 R 11412



M 480.9696 R 11627



File: Experiment: EPA1613_ALS.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

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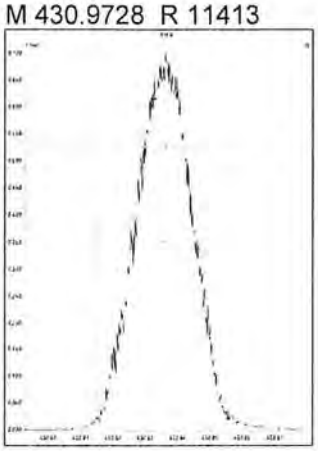
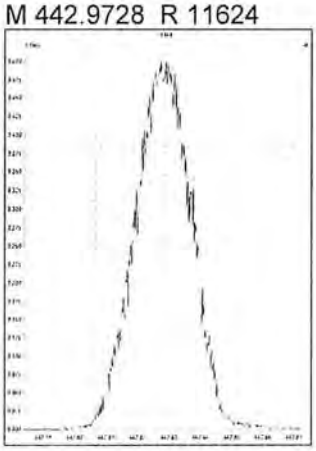
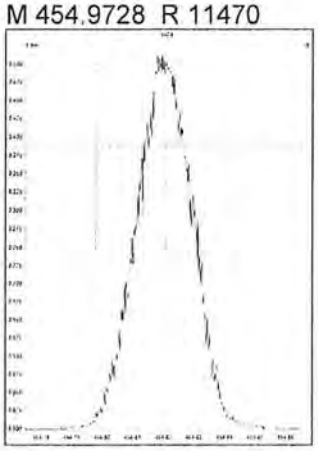
M 430.9728 R 11413



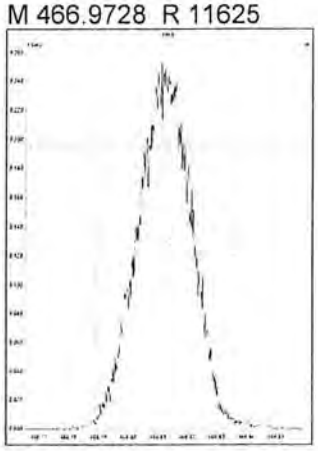
M 442.9728 R 11624



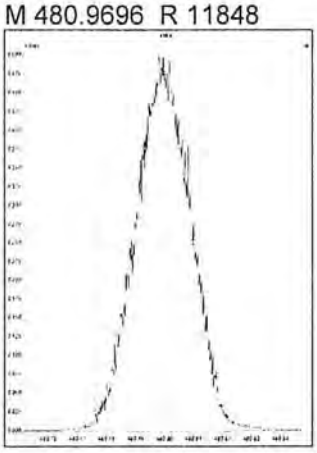
M 454.9728 R 11470



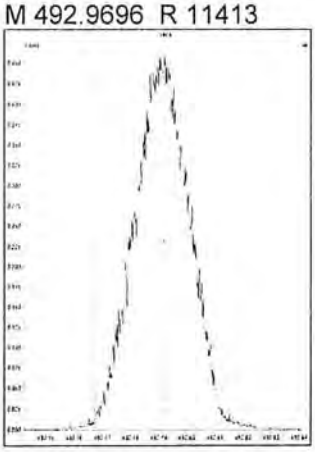
M 466.9728 R 11625



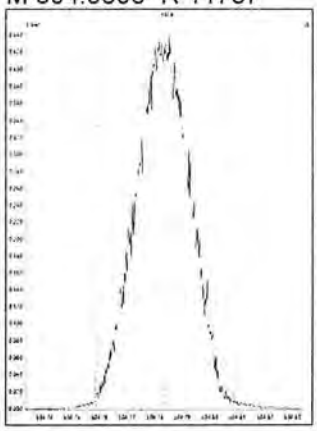
M 480.9696 R 11848



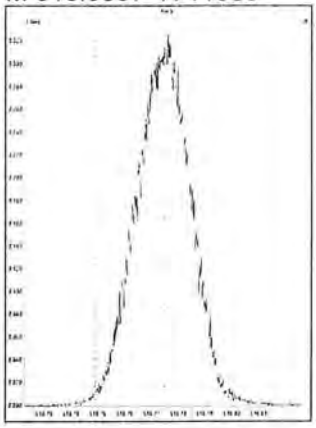
M 492.9696 R 11413



M 504.9696 R 11737



M 516.9697 R 11569



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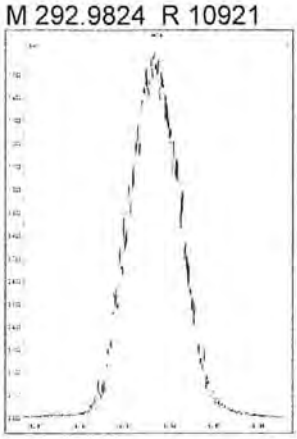
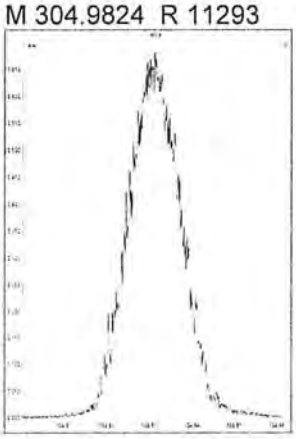
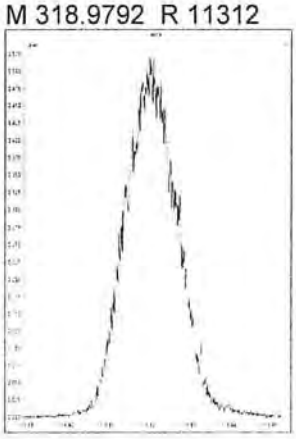
M 292.9824 R 10921



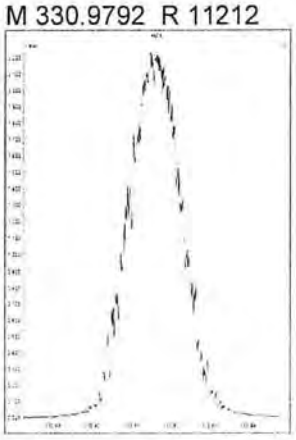
M 304.9824 R 11293



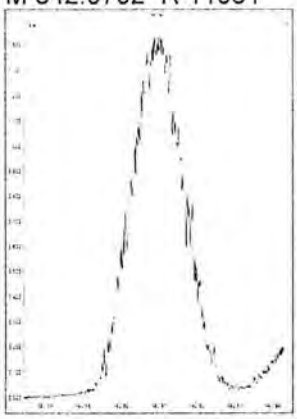
M 318.9792 R 11312



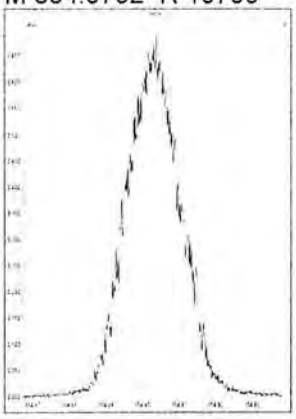
M 330.9792 R 11212



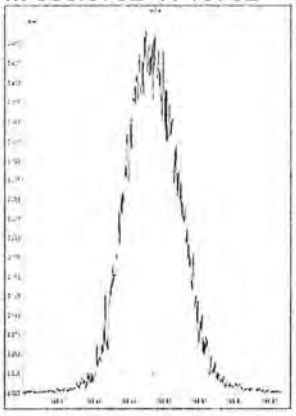
M 342.9792 R 11061



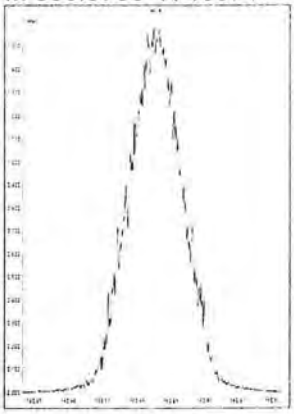
M 354.9792 R 10799



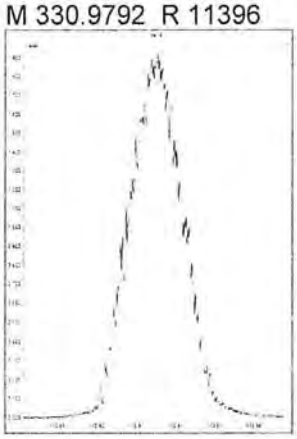
M 366.9792 R 10752



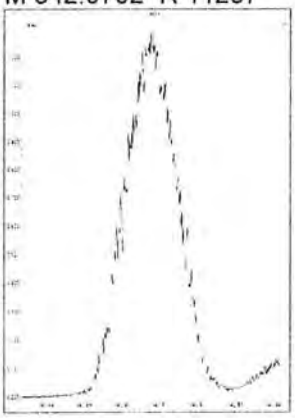
M 380.9760 R 10571



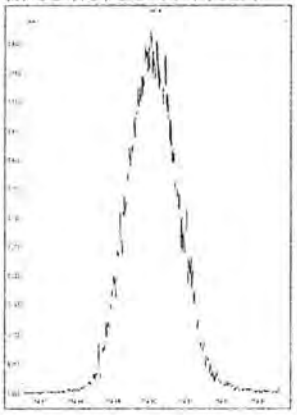
M 330.9792 R 11396



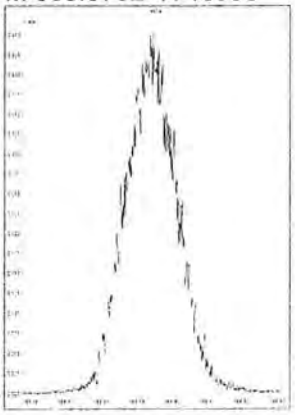
M 342.9792 R 11287



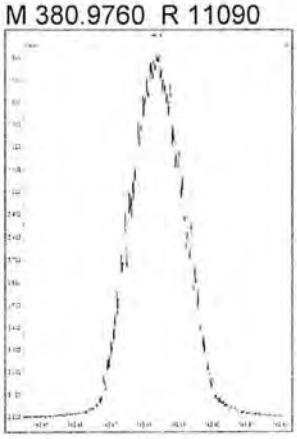
M 354.9792 R 11524



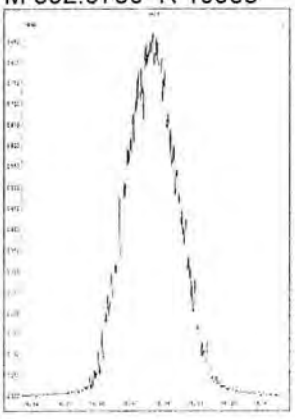
M 366.9792 R 10965



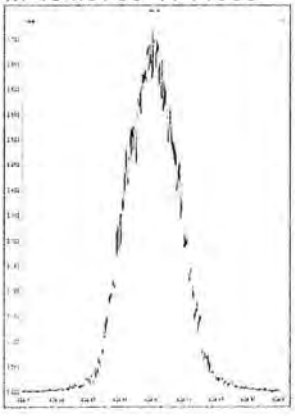
M 380.9760 R 11090



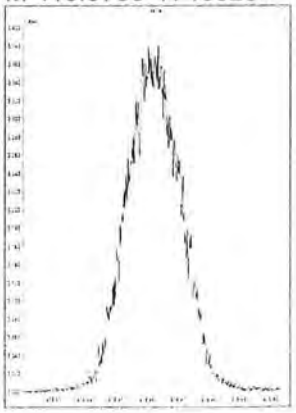
M 392.9760 R 10988



M 404.9760 R 11030



M 416.9760 R 10920



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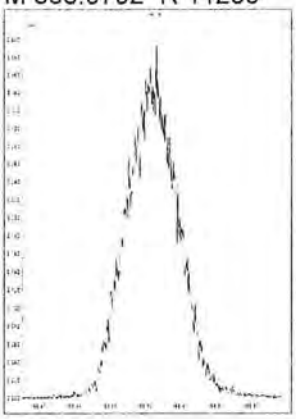
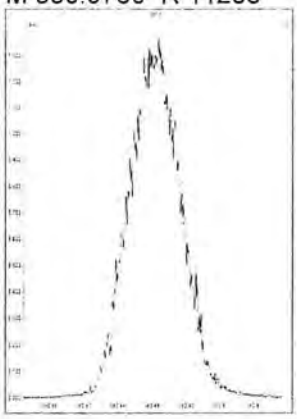
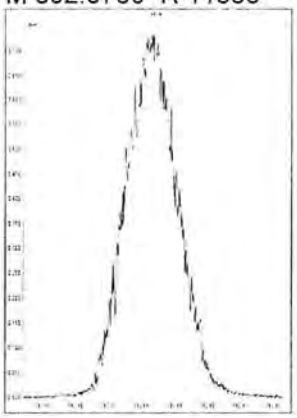
M 366.9792 R 11235



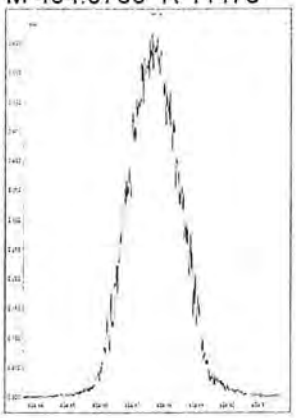
M 380.9760 R 11286



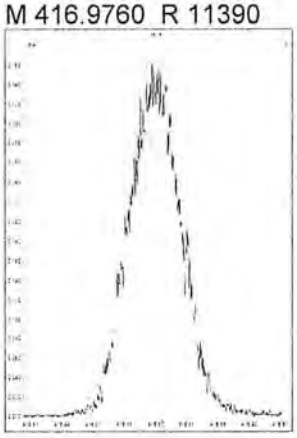
M 392.9760 R 11363



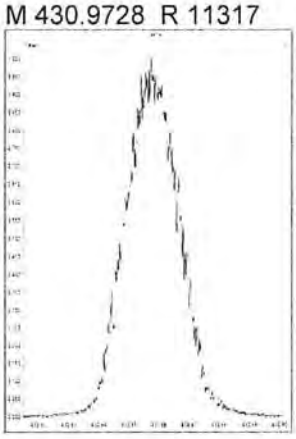
M 404.9760 R 11473



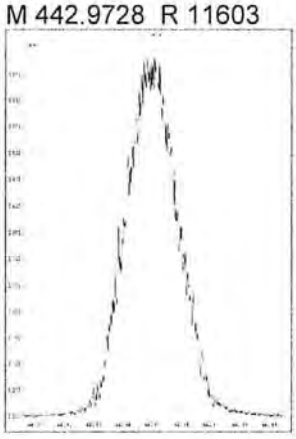
M 416.9760 R 11390



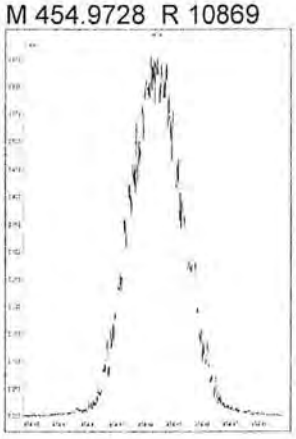
M 430.9728 R 11317



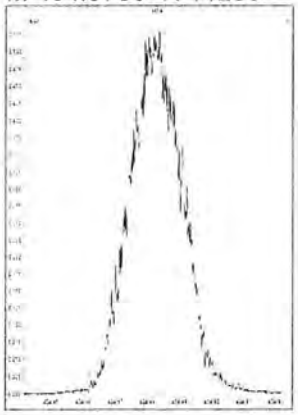
M 442.9728 R 11603



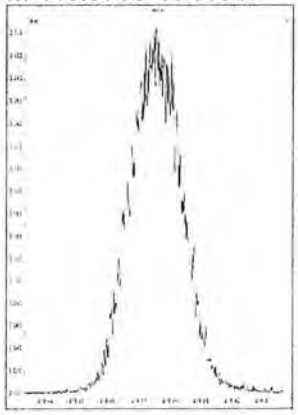
M 454.9728 R 10869



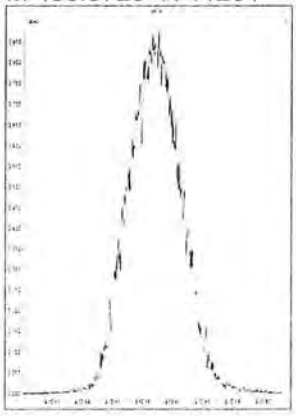
M 404.9760 R 11286



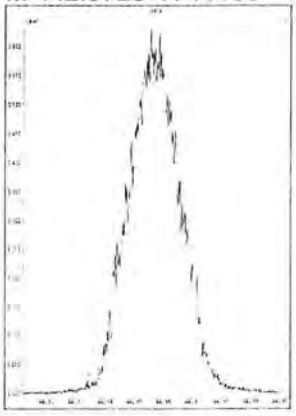
M 416.9760 R 11547



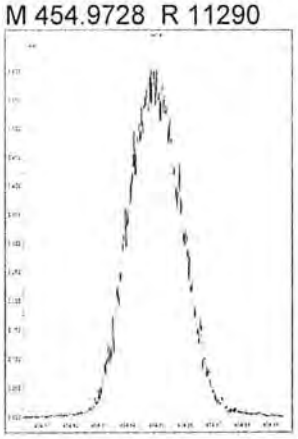
M 430.9728 R 11261



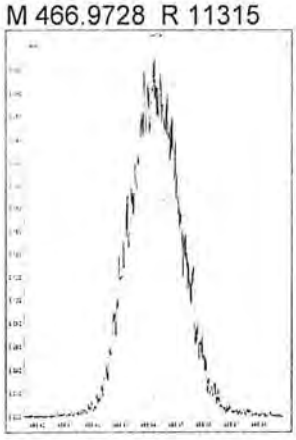
M 442.9728 R 11185



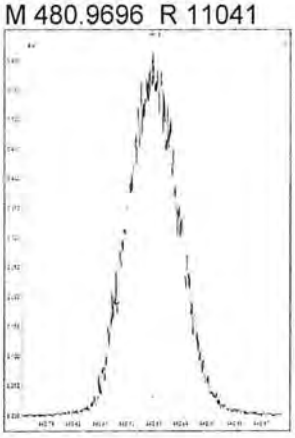
M 454.9728 R 11290



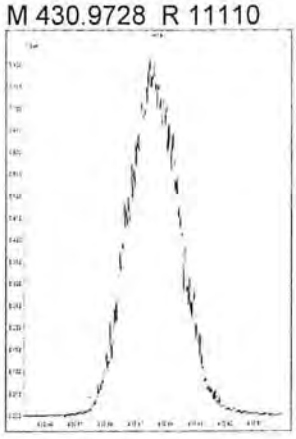
M 466.9728 R 11315



M 480.9696 R 11041



M 430.9728 R 11110



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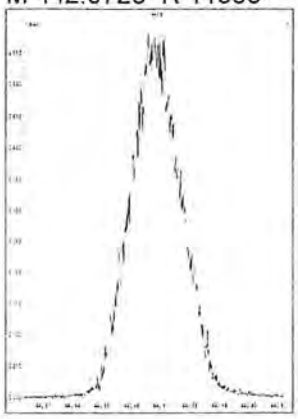
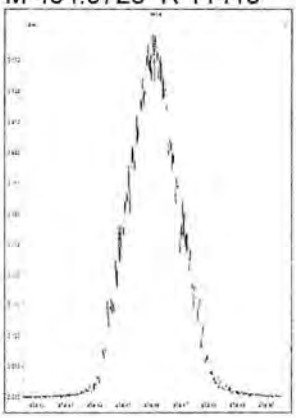
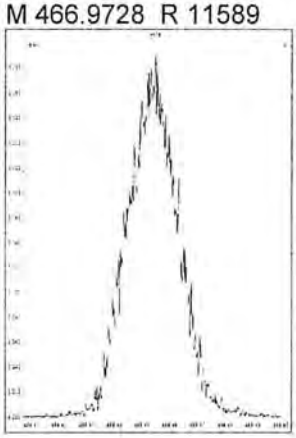
M 442.9728 R 11363



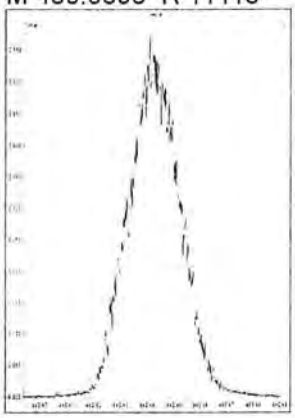
M 454.9728 R 11415



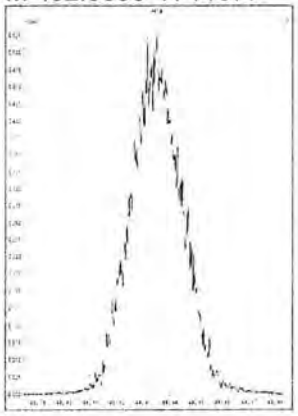
M 466.9728 R 11589



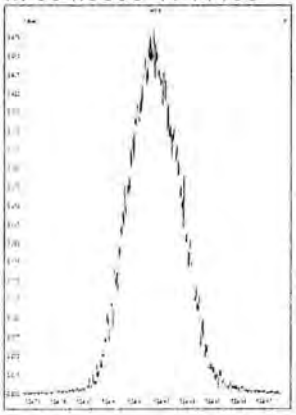
M 480.9696 R 11415



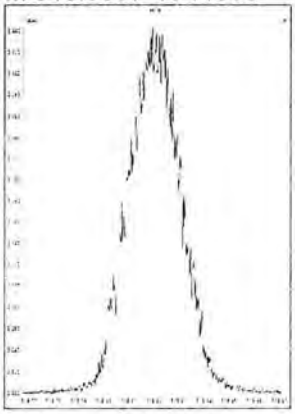
M 492.9696 R 11577



M 504.9696 R 11185



M 516.9697 R 11065



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS Environmental
Lab Code: ALSTX
GC Column: DB-5MSUI

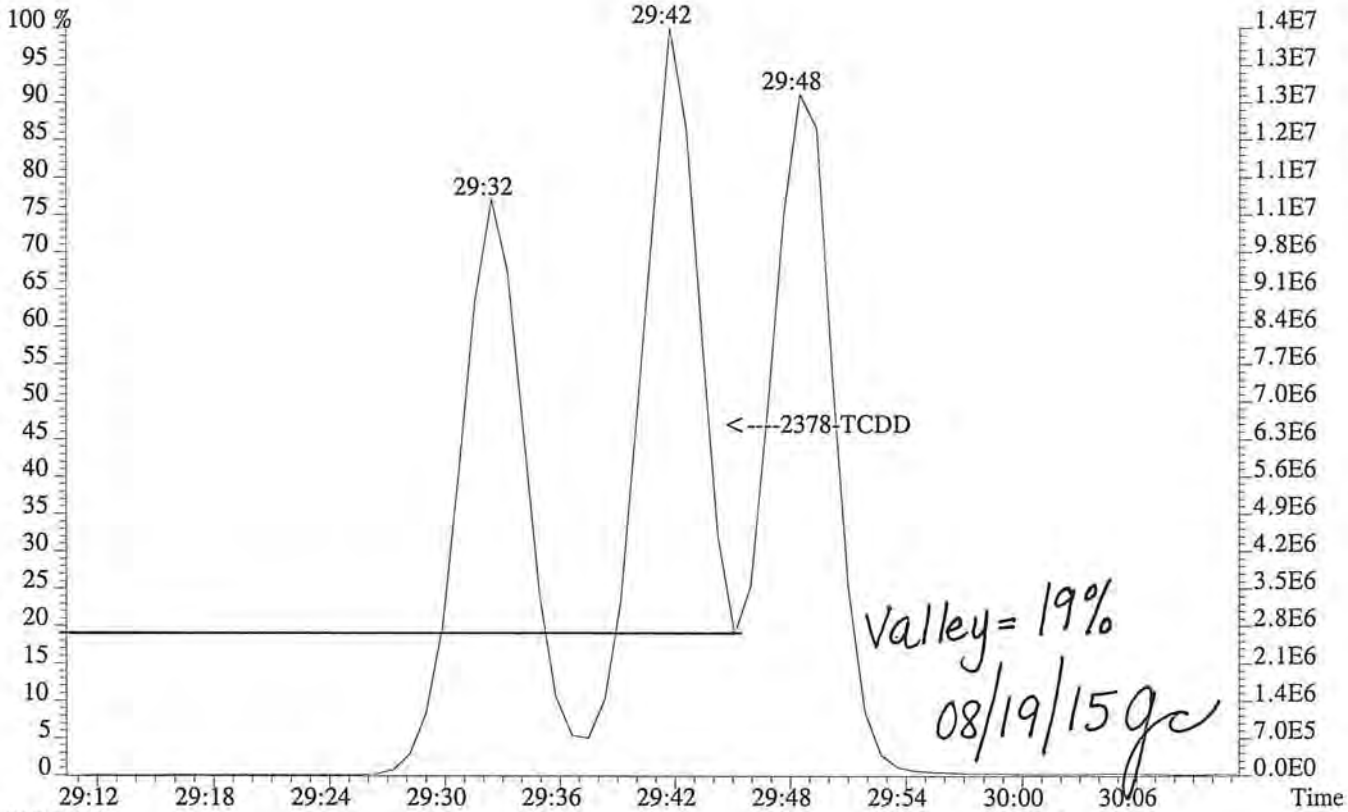
Case No.: _____ SDG No.:
ID: 0.25 (mm)

Lab File ID: P600002
Date Analyzed: 19-AUG-2015
Time Analyzed: 10:52:49

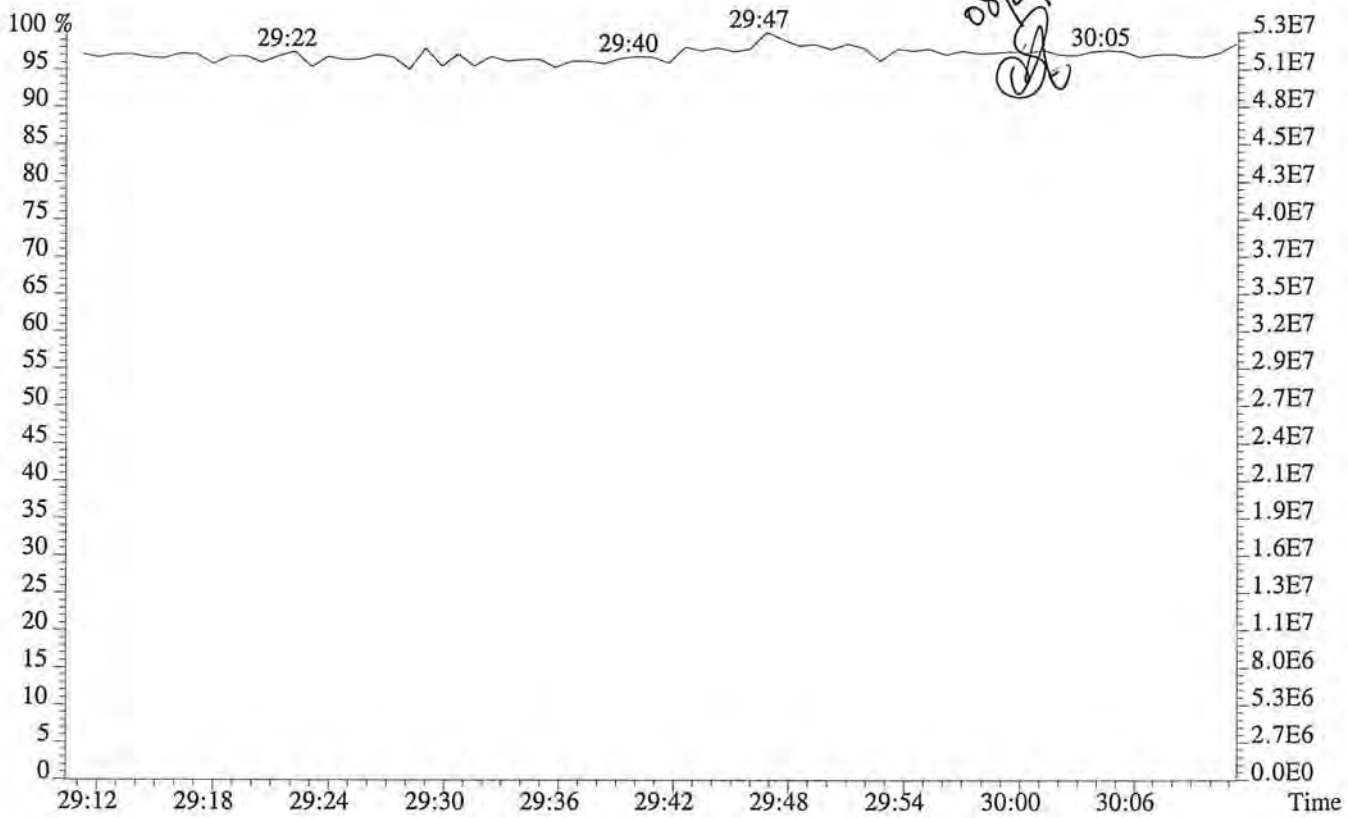
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:49	30:47
TCDD	26:40	30:38
PeCDF	30:43	34:48
PeCDD	32:11	34:33
HxCDF	35:26	37:52
HxCDD	35:56	37:28
HpCDF	39:04	40:30
HpCDD	39:19	40:00

% Valley 2378-TCDD: 19 %

File:P600002 #1-566 Acq:19-AUG-2015 10:52:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WD
319.8965



318.9792



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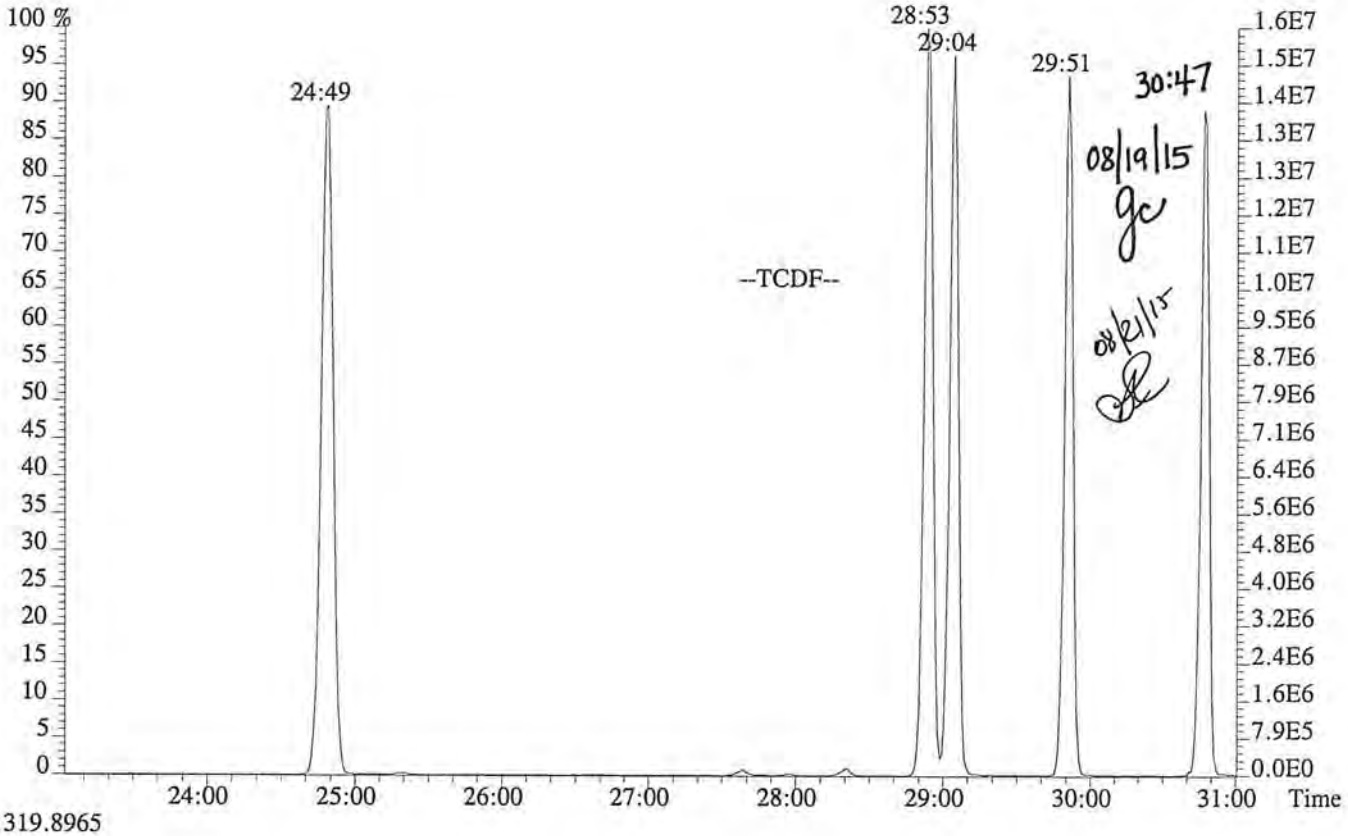
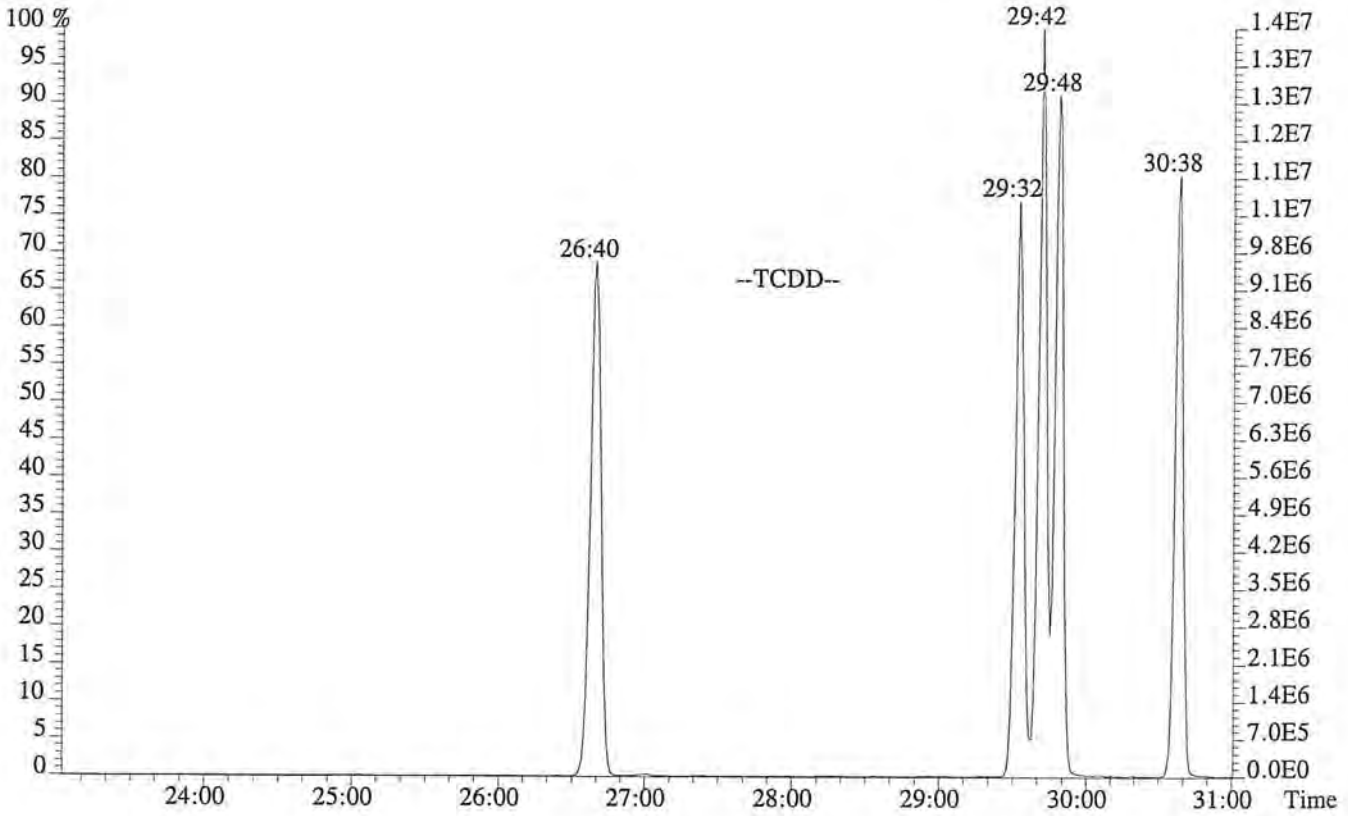
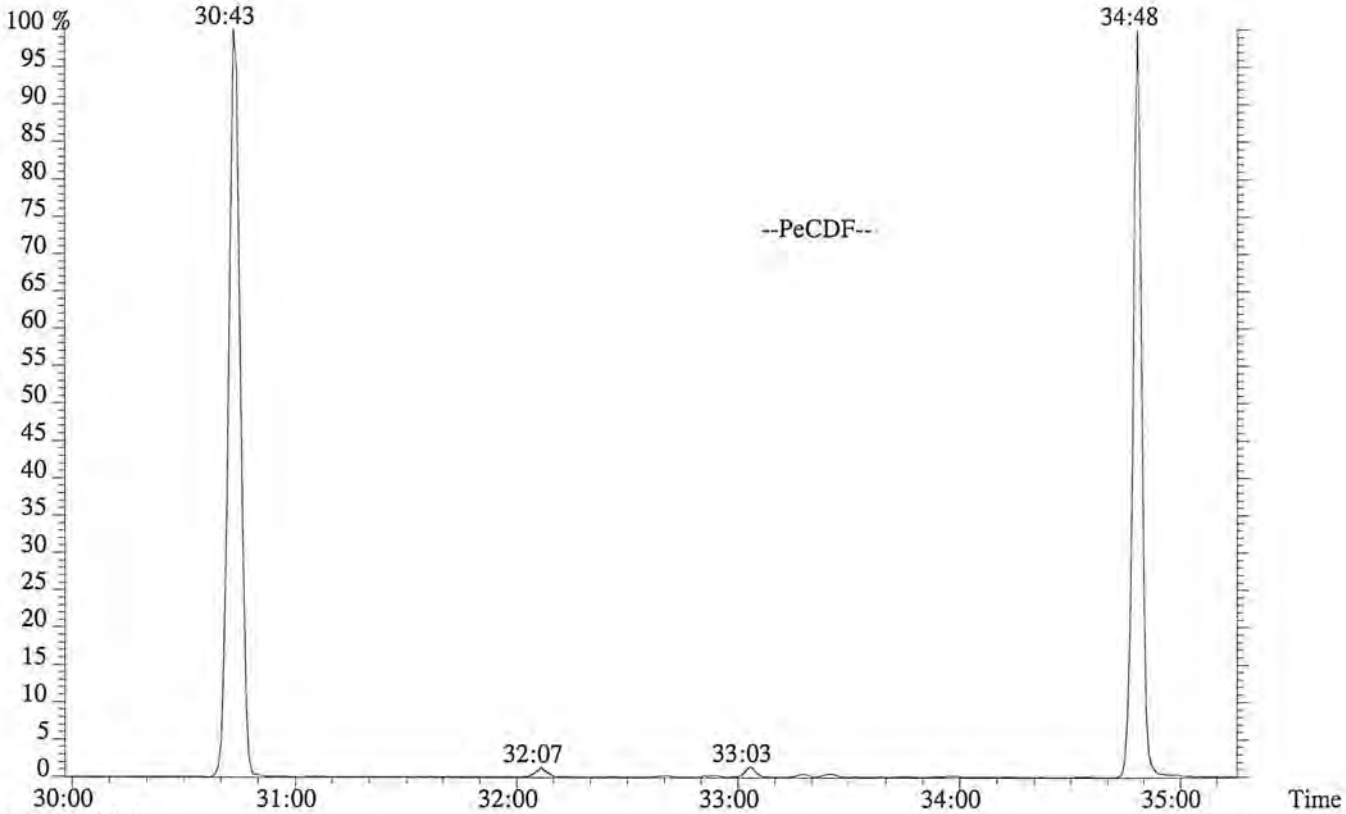
Sample#1 Exp:WD
303.9016



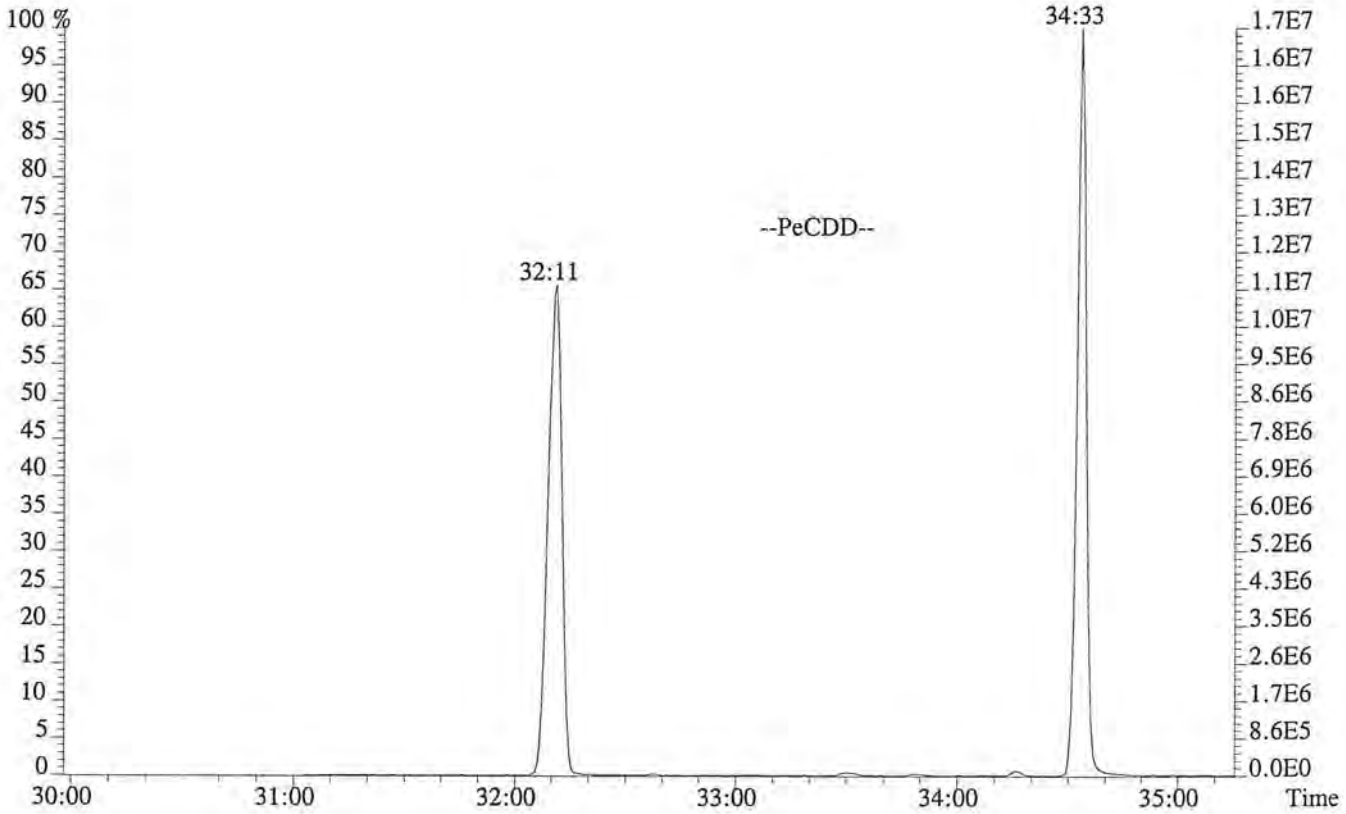
319.8965



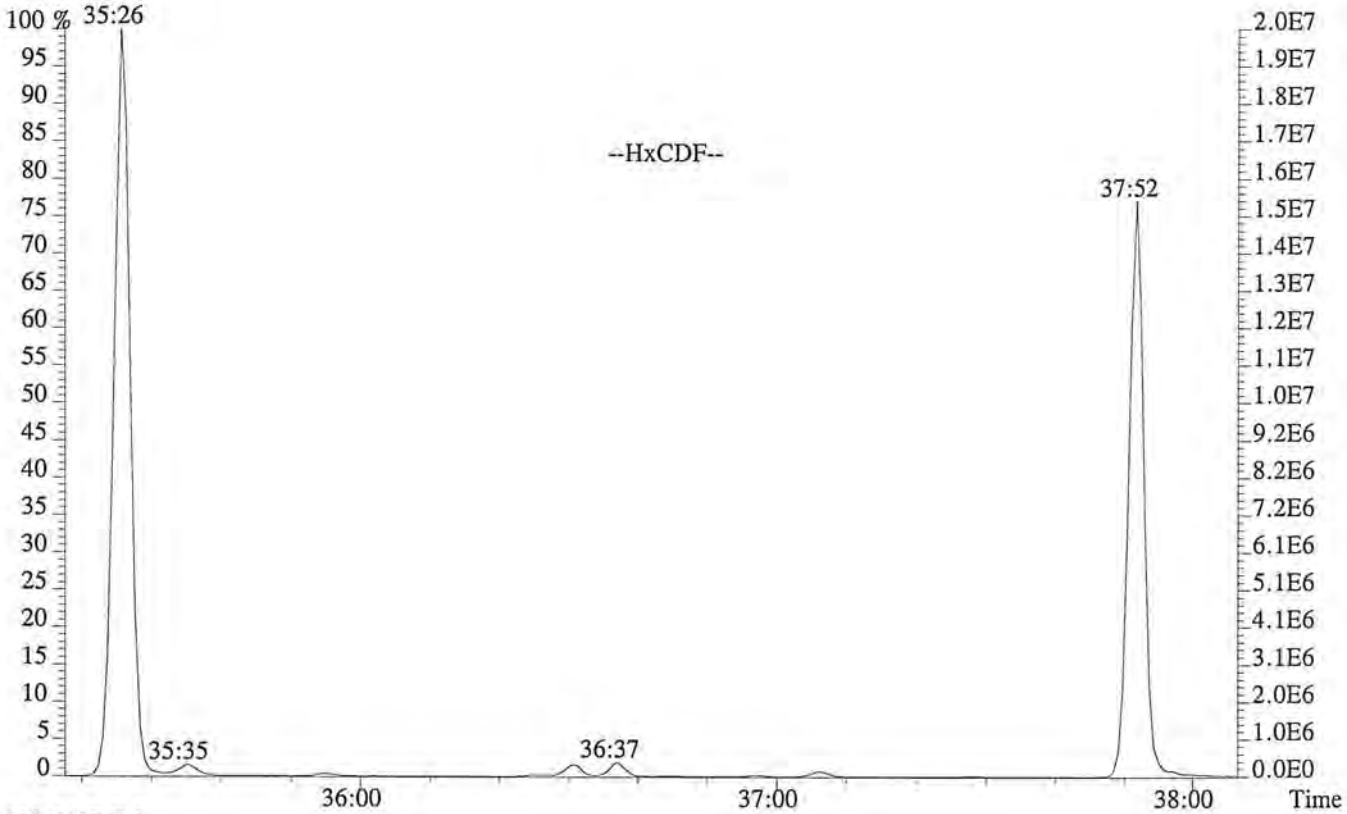
File:P600002 #1-566 Acq:19-AUG-2015 10:52:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WD
339.8597,339.8597 F:2



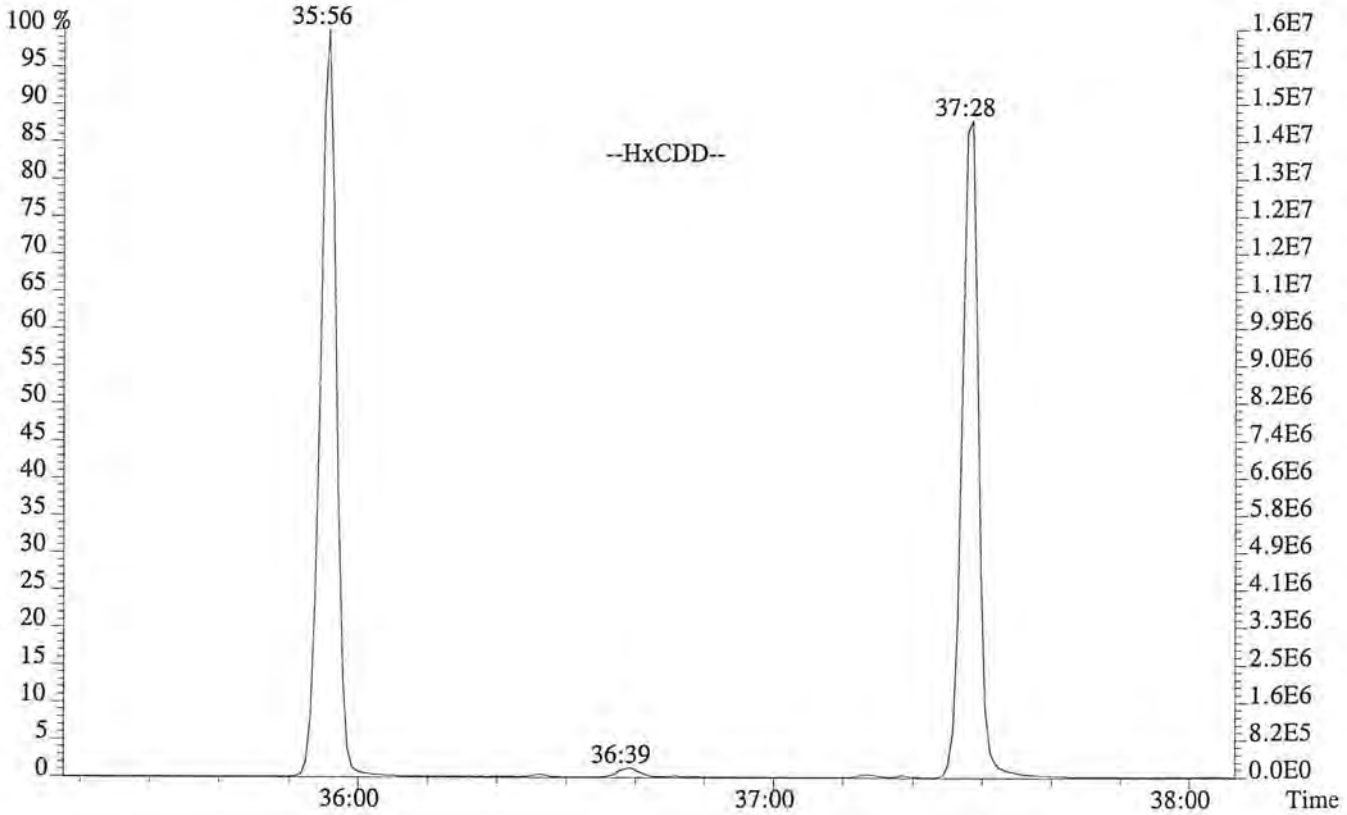
355.8546 F:2



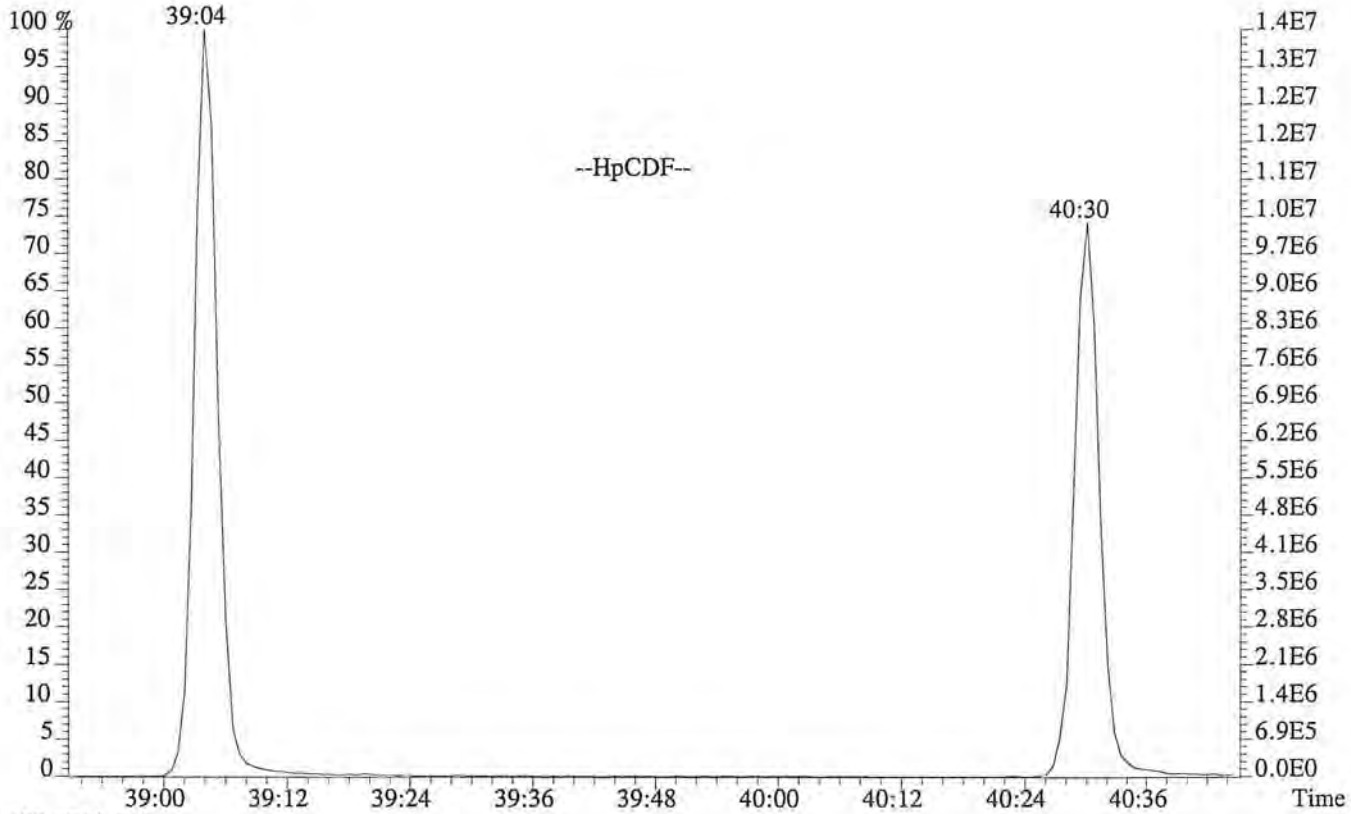
File:P600002 #1-299 Acq:19-AUG-2015 10:52:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WD
373.8208 F:3



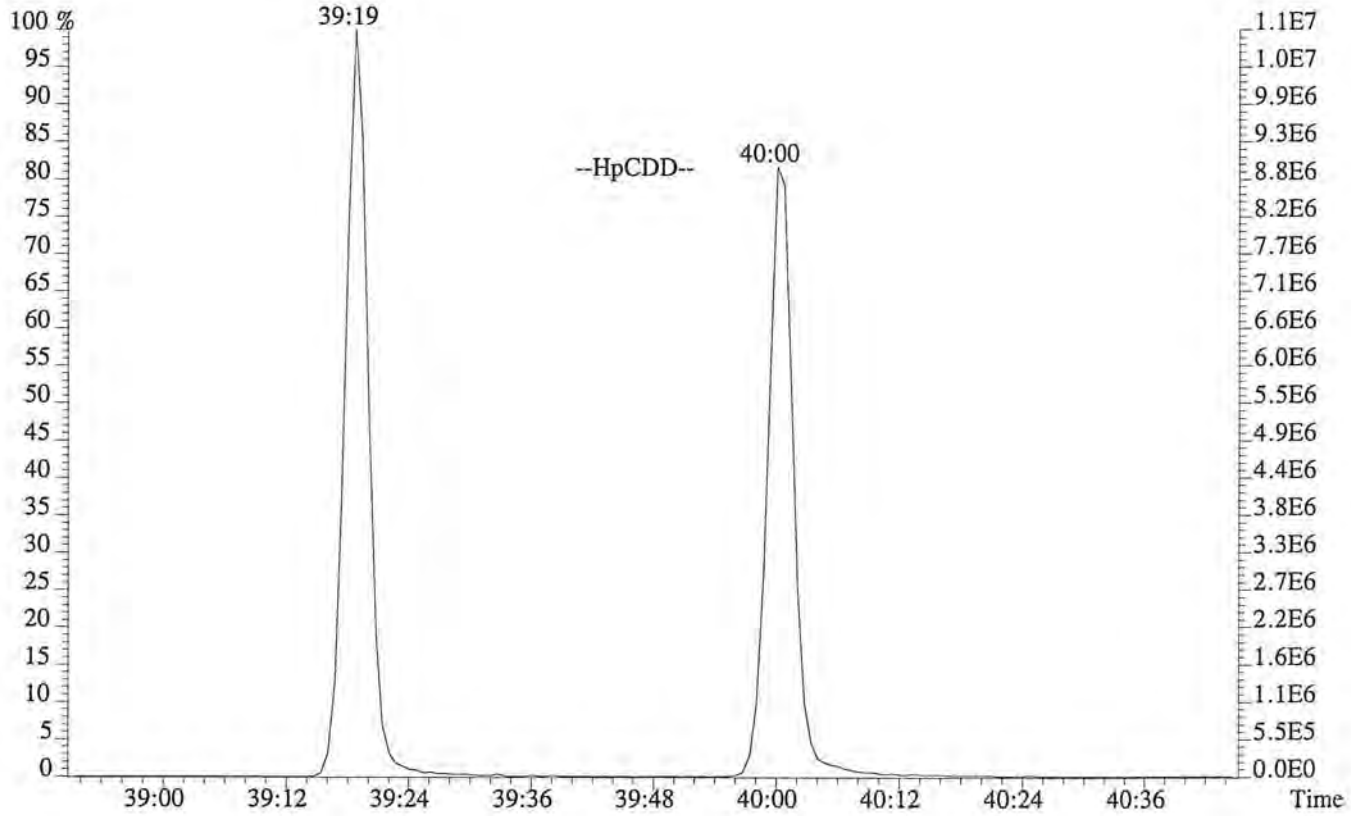
389.8157 F:3



File:P600002 #1-213 Acq:19-AUG-2015 10:52:49 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WD
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 08/19/15 Method
Init. Calib. Time.: 10:52

	RR/RRF							MEAN	
Target Analytes	CS0.5	CS1	CS2	CS3	CS4	CS5	RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.01	1.03	1.01	1.00	1.00	1.01	1.01	0.91	+/-20%
2,3,7,8-TCDF	0.94	0.94	0.92	0.94	0.95	0.95	0.94	1.14	+/-20%
1,2,3,7,8-PeCDF	0.95	1.01	0.99	0.98	1.00	1.00	0.99	2.15	+/-20%
1,2,3,7,8-PeCDD	0.90	0.95	0.94	0.93	0.93	0.95	0.93	2.01	+/-20%
2,3,4,7,8-PeCDF	0.89	0.94	0.94	0.94	0.95	0.94	0.93	2.35	+/-20%
1,2,3,4,7,8-HxCDF	1.16	1.19	1.19	1.19	1.21	1.19	1.19	1.29	+/-20%
1,2,3,6,7,8-HxCDF	1.08	1.14	1.13	1.13	1.14	1.13	1.13	2.02	+/-20%
1,2,3,4,7,8-HxCDD	1.00	1.04	1.02	1.02	1.03	1.05	1.03	1.88	+/-20%
1,2,3,6,7,8-HxCDD	0.96	1.04	1.02	1.03	1.03	1.05	1.02	2.99	+/-20%
1,2,3,7,8,9-HxCDD	1.05	1.20	1.12	1.16	1.14	1.13	1.13	4.43	+/-20%
2,3,4,6,7,8-HxCDF	1.07	1.16	1.12	1.11	1.13	1.11	1.12	2.62	+/-20%
1,2,3,7,8,9-HxCDF	1.13	1.16	1.16	1.15	1.17	1.18	1.16	1.57	+/-20%
1,2,3,4,6,7,8-HpCDF	1.35	1.40	1.37	1.36	1.37	1.39	1.37	1.42	+/-20%
1,2,3,4,6,7,8-HpCDD	1.02	1.06	1.03	1.02	1.03	1.04	1.03	1.46	+/-20%
1,2,3,4,7,8,9-HpCDF	1.25	1.30	1.29	1.28	1.30	1.30	1.29	1.41	+/-20%
OCDD	1.11	1.15	1.11	1.10	1.11	1.10	1.11	1.59	+/-20%
OCDF	1.21	1.30	1.24	1.26	1.29	1.25	1.26	2.48	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	1.22	1.16	1.16	1.20	1.16	1.26	1.19	3.43	+/-35%
13C-1,2,3,7,8-PeCDD	0.94	1.11	1.14	1.00	1.06	1.32	1.09	12.11	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.96	0.89	0.89	0.88	0.90	0.92	0.91	3.13	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.90	0.83	0.89	0.83	0.85	0.86	0.86	3.23	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.89	0.86	0.87	0.90	0.90	0.94	0.89	3.18	+/-35%
13C-OCDD	0.61	0.63	0.60	0.64	0.66	0.70	0.64	5.58	+/-35%
13C-2,3,7,8-TCDF	1.37	1.38	1.35	1.39	1.39	1.40	1.38	1.35	+/-35%
13C-1,2,3,7,8-PeCDF	1.31	1.43	1.48	1.38	1.42	1.72	1.46	9.66	+/-35%
13C-2,3,4,7,8-PeCDF	1.30	1.42	1.50	1.36	1.43	1.78	1.46	11.44	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.10	1.08	1.12	1.02	1.07	1.06	1.07	2.93	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.18	1.12	1.19	1.13	1.15	1.17	1.16	2.49	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.21	1.10	1.12	1.11	1.12	1.14	1.13	3.45	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.03	1.03	1.01	1.02	1.04	1.01	1.02	1.12	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.88	0.86	0.87	0.87	0.89	0.91	0.88	2.12	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.91	0.90	0.90	0.92	0.94	0.92	0.91	1.68	+/-35%
37Cl-2,3,7,8-TCDD	1.31	1.25	1.22	1.26	1.22	1.33	1.26	3.49	+/-35%

1.123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

FORM VI-HR CDD-1 DLM02.2

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-08
Init. Calib. Date(s).: 08/19/15 Method
Init. Calib. Time.: 10:52

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.79	0.77	0.77	0.78	0.76	0.77		0.65-0.89
2,3,7,8-TCDD	320/322	0.76	0.78	0.78	0.78	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.59	1.55	1.55	1.55	1.55	1.51		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.59	1.59	1.56	1.56	1.54	1.48		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.53	1.56	1.57	1.55	1.56	1.56		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.22	1.22	1.19	1.22	1.22	1.15		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.27	1.23	1.20	1.24	1.24	1.18		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.24	1.24	1.22	1.22	1.23	1.15		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.23	1.25	1.21	1.24	1.23	1.21		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.22	1.28	1.25	1.25	1.24	1.25		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.21	1.24	1.24	1.25	1.24	1.25		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.28	1.31	1.26	1.24	1.25	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.02	1.02	1.04	1.02	1.01	1.02		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.00	1.01	1.02	1.02	1.03	1.03		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	1.01	1.04	1.02	1.05	1.04	1.04		0.88-1.20
OCDF	442/444	0.91	0.90	0.89	0.90	0.90	0.94		0.76-1.02
OCDD	458/460	0.88	0.88	0.90	0.89	0.89	0.90		0.76-1.02
13C-2,3,7,8-TCDD	332/334	0.79	0.79	0.79	0.78	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.56	1.57	1.57	1.57	1.57	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.26	1.27	1.27	1.26	1.26	1.26		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.26	1.26	1.26	1.27	1.27	1.26		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.05	1.06	1.06	1.05	1.06	1.06		0.88-1.20
13C-OCDD	470/472	0.90	0.90	0.90	0.90	0.89	0.90		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.79	0.79	0.79	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.57	1.58	1.58	1.57	1.58	1.58		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.57	1.58	1.58	1.59	1.58	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.52	0.52	0.52	0.52	0.52	0.52		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.52	0.53	0.52	0.52	0.52	0.52		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.53	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.52	0.52	0.52	0.52	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.44	0.45	0.44	0.44	0.44	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.45	0.45	0.44	0.45	0.44		0.37-0.51
13C-1,2,3,4-TCDD	332/334	0.79	0.79	0.80	0.79	0.79	0.79		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.26	1.26	1.26	1.25	1.25		1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76554

Run #1 Filename P600004 Samp: 1 Inj: 1 Acquired: 19-AUG-15 12:31:21
Processed: 19-AUG-15 16:14:16 Sample ID: CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:04	1.117e+03	1.416e+03	0.79	yes	no	0.941
2	Unk	1,2,3,7,8-PeCDF	33:03	7.510e+03	4.712e+03	1.59	yes	no	0.987
3	Unk	2,3,4,7,8-PeCDF	33:55	6.945e+03	4.373e+03	1.59	yes	no	0.934
4	Unk	1,2,3,4,7,8-HxCDF	36:30	5.825e+03	4.782e+03	1.22	yes	no	1.189
5	Unk	1,2,3,6,7,8-HxCDF	36:37	5.972e+03	4.720e+03	1.27	yes	no	1.126
6	Unk	2,3,4,6,7,8-HxCDF	37:06	5.975e+03	4.815e+03	1.24	yes	no	1.116
7	Unk	1,2,3,7,8,9-HxCDF	37:50	5.354e+03	4.348e+03	1.23	yes	no	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:04	5.016e+03	4.919e+03	1.02	yes	no	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:30	4.739e+03	4.724e+03	1.00	yes	no	1.287
10	Unk	OCDF	43:04	5.845e+03	6.423e+03	0.91	yes	no	1.257
11	Unk	2,3,7,8-TCDD	29:48	1.037e+03	1.371e+03	0.76	yes	no	1.010
12	Unk	1,2,3,7,8-PeCDD	34:12	4.987e+03	3.252e+03	1.53	yes	no	0.932
13	Unk	1,2,3,4,7,8-HxCDD	37:14	4.362e+03	3.576e+03	1.22	yes	no	1.026
14	Unk	1,2,3,6,7,8-HxCDD	37:18	3.954e+03	3.266e+03	1.21	yes	no	1.021
15	Unk	1,2,3,7,8,9-HxCDD	37:32	4.546e+03	3.539e+03	1.28	yes	no	1.133
16	Unk	1,2,3,4,6,7,8-HpCDD	40:01	3.801e+03	3.761e+03	1.01	yes	no	1.034
17	Unk	OCDD	42:52	5.248e+03	5.994e+03	0.88	yes	no	1.111
18	IS	13C-2,3,7,8-TCDF	29:03	4.752e+05	5.998e+05	0.79	yes	no	1.379
19	IS	13C-1,2,3,7,8-PeCDF	33:03	6.283e+05	4.004e+05	1.57	yes	no	1.456
20	IS	13C-2,3,4,7,8-PeCDF	33:55	6.205e+05	3.964e+05	1.57	yes	no	1.465
21	IS	13C-1,2,3,4,7,8-HxCDF	36:30	2.506e+05	4.797e+05	0.52	yes	no	1.075
22	IS	13C-1,2,3,6,7,8-HxCDF	36:36	2.713e+05	5.186e+05	0.52	yes	no	1.158
23	IS	13C-2,3,4,6,7,8-HxCDF	37:05	2.767e+05	5.291e+05	0.52	yes	no	1.133
24	IS	13C-1,2,3,7,8,9-HxCDF	37:50	2.351e+05	4.532e+05	0.52	yes	no	1.024
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:04	1.809e+05	4.065e+05	0.44	yes	no	0.880
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:29	1.859e+05	4.177e+05	0.45	yes	no	0.914
27	IS	13C-2,3,7,8-TCDD	29:48	4.212e+05	5.354e+05	0.79	yes	no	1.193
28	IS	13C-1,2,3,7,8-PeCDD	34:11	4.478e+05	2.864e+05	1.56	yes	no	1.094
29	IS	13C-1,2,3,4,7,8-HxCDD	37:13	3.553e+05	2.821e+05	1.26	yes	no	0.906
30	IS	13C-1,2,3,6,7,8-HxCDD	37:18	3.347e+05	2.651e+05	1.26	yes	no	0.860
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:59	3.052e+05	2.899e+05	1.05	yes	no	0.892
32	IS	13C-OCDD	42:51	3.843e+05	4.272e+05	0.90	yes	no	0.642
33	RS/RT	13C-1,2,3,4-TCDD	29:15	3.458e+05	4.378e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:32	3.710e+05	2.956e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:48	2.559e+03				no	1.263

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76554

Run #1 Filename P600004 Samp: 1 Inj: 1 Acquired: 19-AUG-15 12:31:21
Processed: 19-AUG-15 16:14:16 LAB. ID: CS0.5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.10e+05	1.90e+03	1.1e+02	2.58e+05	1.84e+03	1.4e+02
2	1,2,3,7,8-PeCDF	1.49e+06	1.84e+03	8.1e+02	9.38e+05	3.10e+03	3.0e+02
3	2,3,4,7,8-PeCDF	1.42e+06	1.84e+03	7.7e+02	8.87e+05	3.10e+03	2.9e+02
4	1,2,3,4,7,8-HxCDF	1.28e+06	2.02e+03	6.3e+02	1.05e+06	6.08e+02	1.7e+03
5	1,2,3,6,7,8-HxCDF	1.30e+06	2.02e+03	6.4e+02	1.04e+06	6.08e+02	1.7e+03
6	2,3,4,6,7,8-HxCDF	1.37e+06	2.02e+03	6.8e+02	1.08e+06	6.08e+02	1.8e+03
7	1,2,3,7,8,9-HxCDF	1.15e+06	2.02e+03	5.7e+02	9.32e+05	6.08e+02	1.5e+03
8	1,2,3,4,6,7,8-HpCDF	1.10e+06	1.84e+03	5.9e+02	1.10e+06	1.67e+03	6.6e+02
9	1,2,3,4,7,8,9-HpCDF	1.01e+06	1.84e+03	5.5e+02	9.84e+05	1.67e+03	5.9e+02
10	OCDF	1.06e+06	1.48e+03	7.2e+02	1.16e+06	2.44e+03	4.8e+02
11	2,3,7,8-TCDD	2.09e+05	1.95e+03	1.1e+02	2.78e+05	2.54e+03	1.1e+02
12	1,2,3,7,8-PeCDD	1.02e+06	3.83e+03	2.7e+02	6.47e+05	2.19e+03	3.0e+02
13	1,2,3,4,7,8-HxCDD	9.98e+05	1.84e+03	5.4e+02	8.15e+05	2.27e+03	3.6e+02
14	1,2,3,6,7,8-HxCDD	8.80e+05	1.84e+03	4.8e+02	7.43e+05	2.27e+03	3.3e+02
15	1,2,3,7,8,9-HxCDD	9.63e+05	1.84e+03	5.2e+02	7.66e+05	2.27e+03	3.4e+02
16	1,2,3,4,6,7,8-HpCDD	7.79e+05	1.88e+03	4.1e+02	7.55e+05	8.00e+02	9.4e+02
17	OCDD	9.49e+05	1.08e+03	8.8e+02	1.09e+06	1.89e+03	5.8e+02
18	13C-2,3,7,8-TCDF	8.93e+07	5.81e+03	1.5e+04	1.13e+08	3.58e+03	3.2e+04
19	13C-1,2,3,7,8-PeCDF	1.22e+08	1.62e+03	7.5e+04	7.74e+07	2.34e+03	3.3e+04
20	13C-2,3,4,7,8-PeCDF	1.24e+08	1.62e+03	7.7e+04	7.87e+07	2.34e+03	3.4e+04
21	13C-1,2,3,4,7,8-HxCDF	5.47e+07	1.35e+03	4.1e+04	1.05e+08	3.21e+03	3.3e+04
22	13C-1,2,3,6,7,8-HxCDF	5.98e+07	1.35e+03	4.4e+04	1.14e+08	3.21e+03	3.6e+04
23	13C-2,3,4,6,7,8-HxCDF	6.16e+07	1.35e+03	4.6e+04	1.19e+08	3.21e+03	3.7e+04
24	13C-1,2,3,7,8,9-HxCDF	5.06e+07	1.35e+03	3.8e+04	9.74e+07	3.21e+03	3.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.88e+07	9.26e+03	4.2e+03	8.85e+07	1.02e+04	8.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.87e+07	9.26e+03	4.2e+03	8.73e+07	1.02e+04	8.6e+03
27	13C-2,3,7,8-TCDD	8.43e+07	9.59e+03	8.8e+03	1.07e+08	5.35e+03	2.0e+04
28	13C-1,2,3,7,8-PeCDD	9.07e+07	2.35e+03	3.9e+04	5.81e+07	2.18e+03	2.7e+04
29	13C-1,2,3,4,7,8-HxCDD	8.00e+07	6.37e+03	1.3e+04	6.32e+07	2.40e+03	2.6e+04
30	13C-1,2,3,6,7,8-HxCDD	7.39e+07	6.37e+03	1.2e+04	5.94e+07	2.40e+03	2.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.27e+07	1.40e+03	4.5e+04	6.02e+07	8.36e+02	7.2e+04
32	13C-OCDD	7.03e+07	1.26e+03	5.6e+04	7.87e+07	1.65e+03	4.8e+04
33	13C-1,2,3,4-TCDD	6.67e+07	9.59e+03	7.0e+03	8.50e+07	5.35e+03	1.6e+04
34	13C-1,2,3,7,8,9-HxCDD	8.19e+07	6.37e+03	1.3e+04	6.60e+07	2.40e+03	2.7e+04
35	37Cl-2,3,7,8-TCDD	5.20e+05	3.14e+03	1.7e+02			

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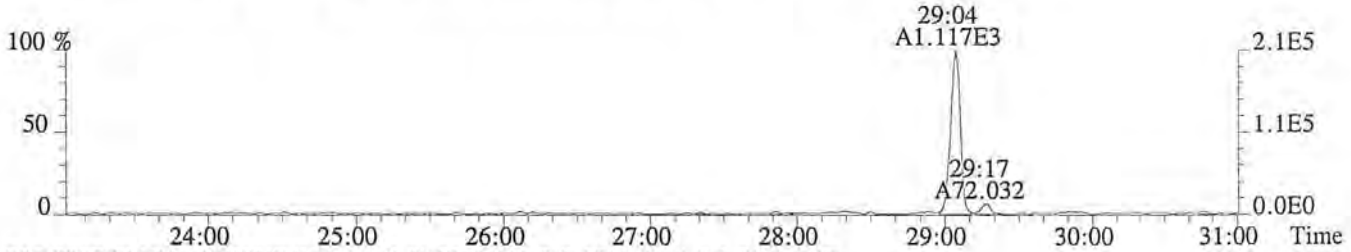
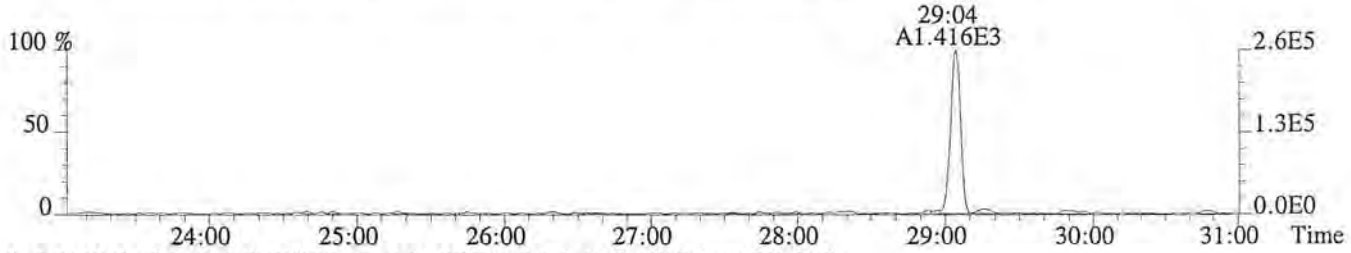
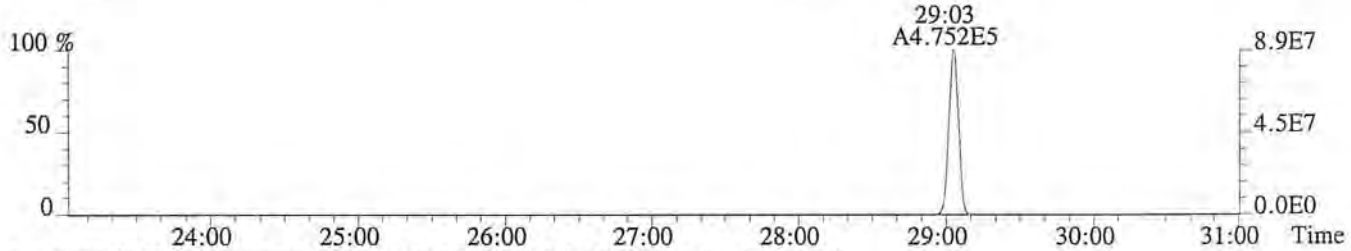
File:P600004 #1-566 Acq:19-AUG-2015 12:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



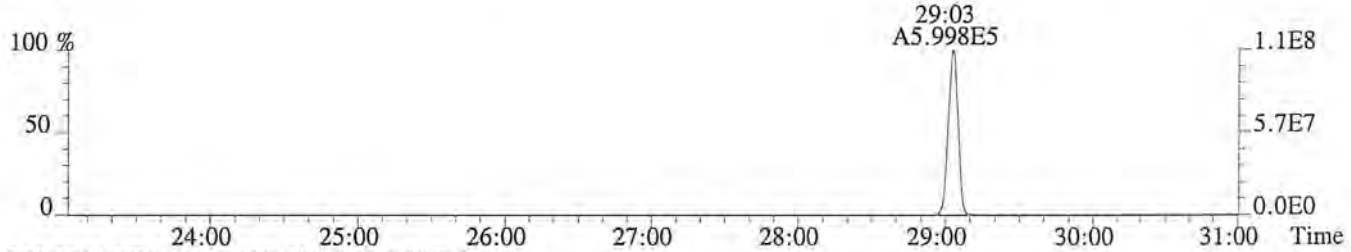
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1844.0,1.00%,F,T)



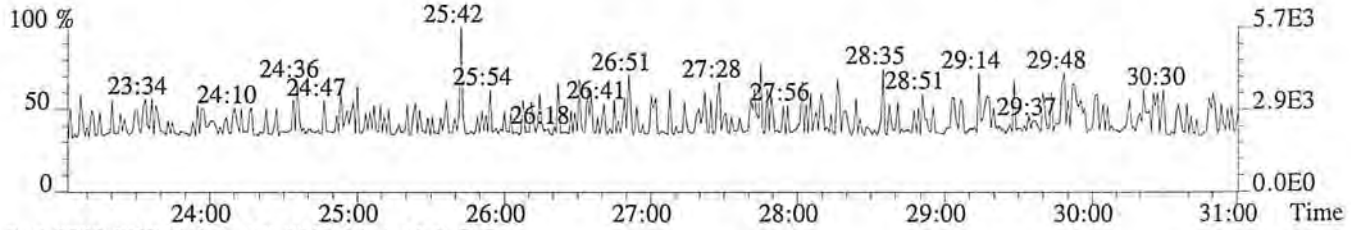
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5812.0,1.00%,F,T)



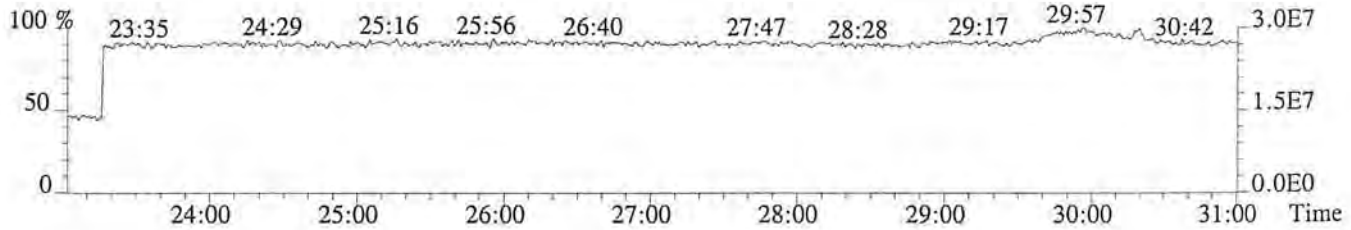
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3576.0,1.00%,F,T)



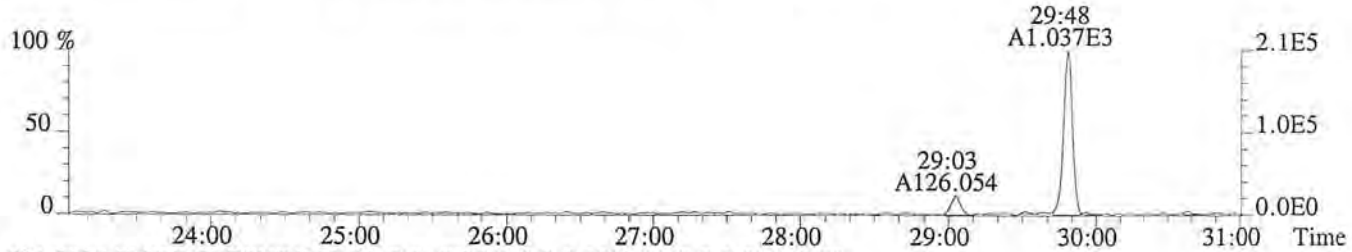
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

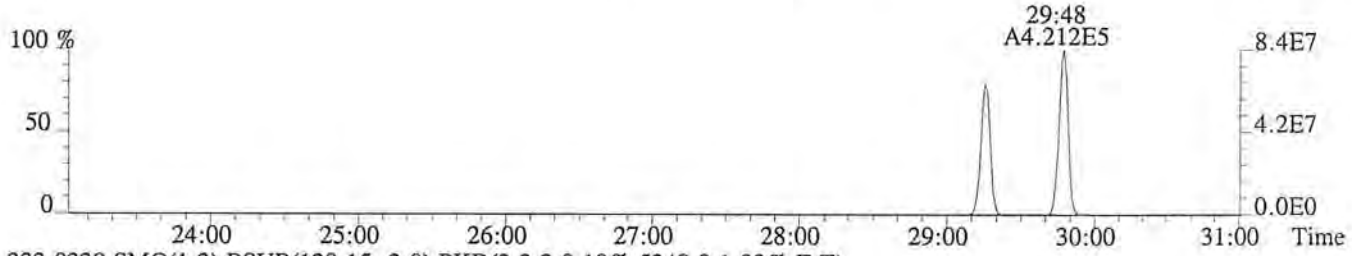


File:P600004 #1-566 Acq:19-AUG-2015 12:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1948.0,1.00%,F,T)

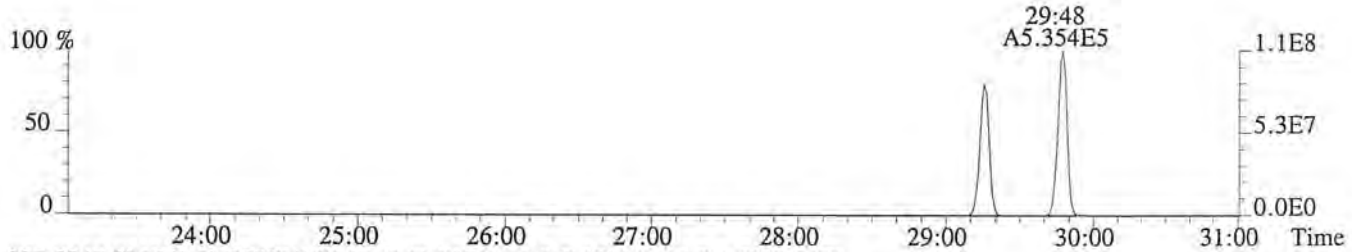


321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2540.0,1.00%,F,T)

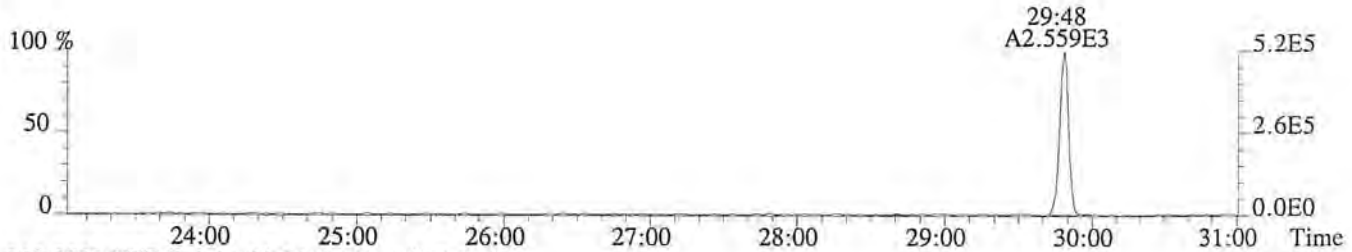
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9588.0,1.00%,F,T)



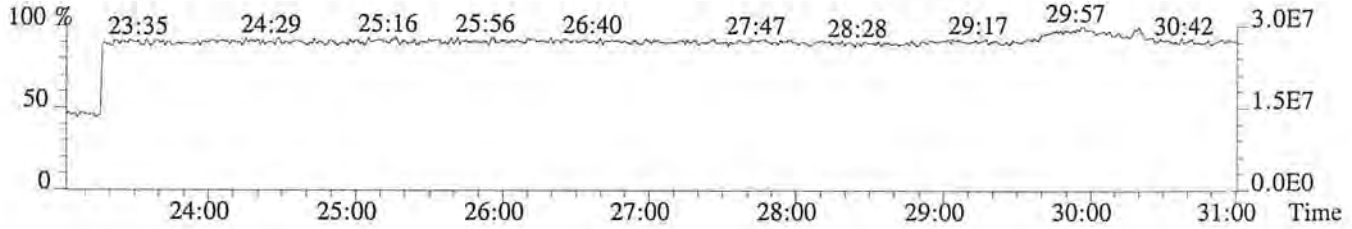
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5348.0,1.00%,F,T)



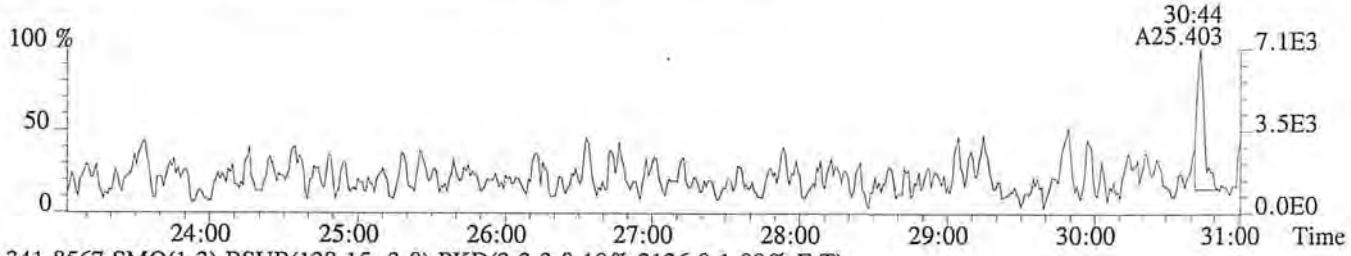
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3136.0,1.00%,F,T)



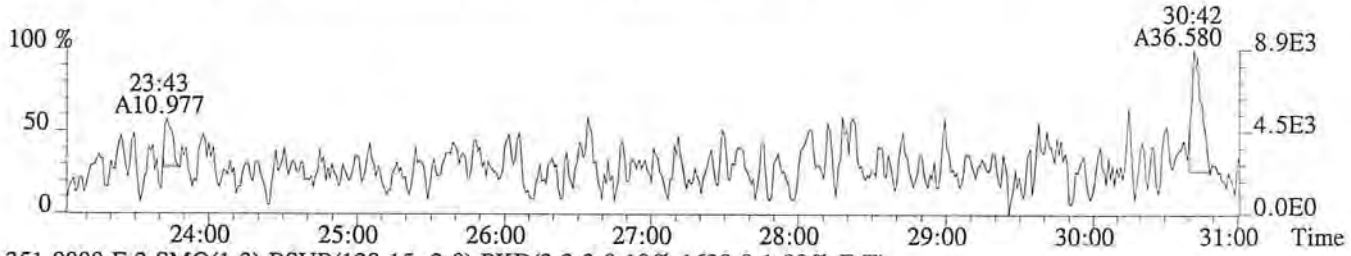
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



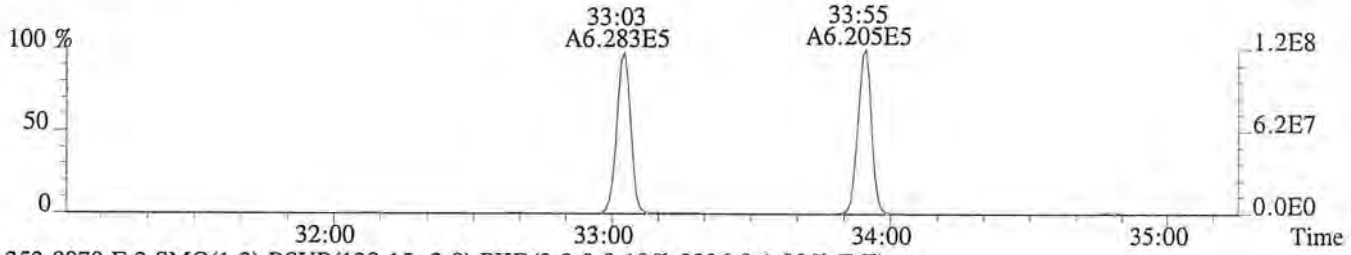
File:P600004 #1-566 Acq:19-AUG-2015 12:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1760.0,1.00%,F,T)



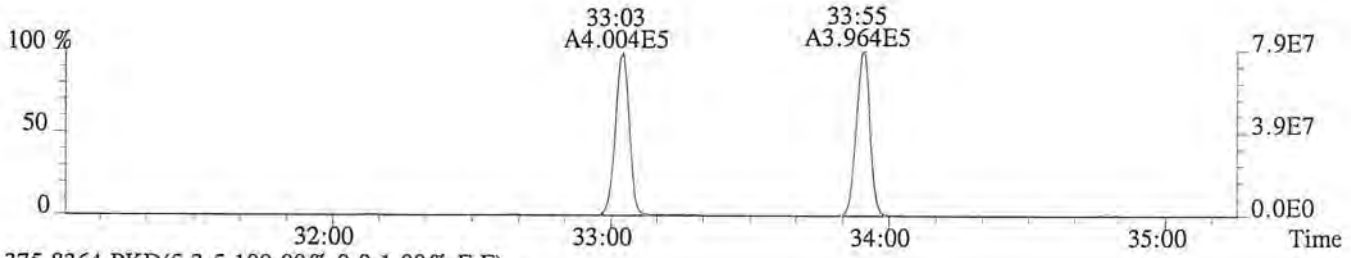
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3136.0,1.00%,F,T)



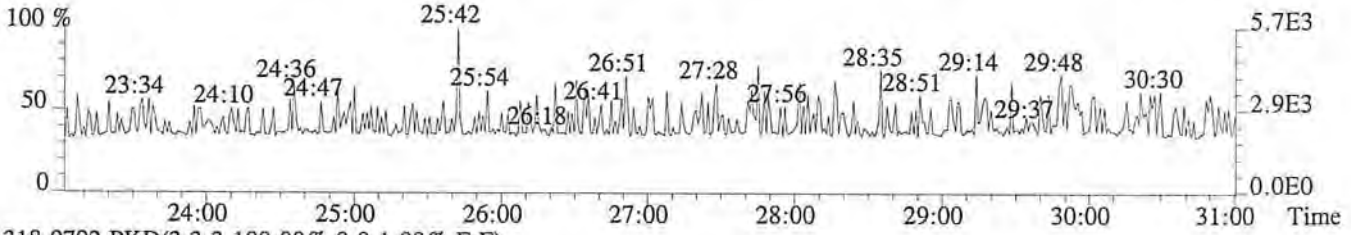
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1620.0,1.00%,F,T)



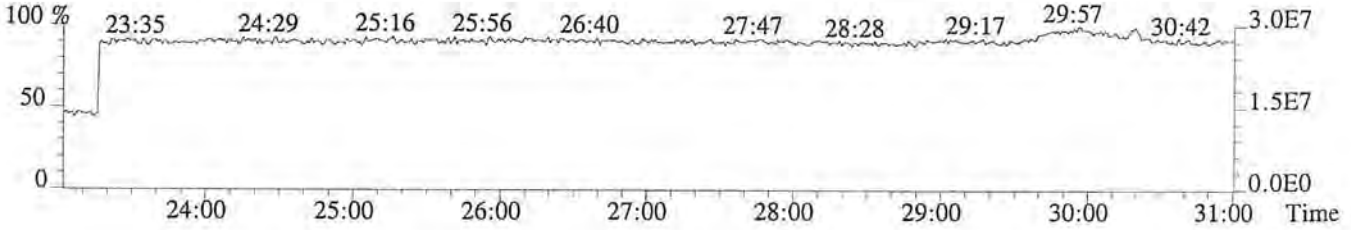
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2336.0,1.00%,F,T)



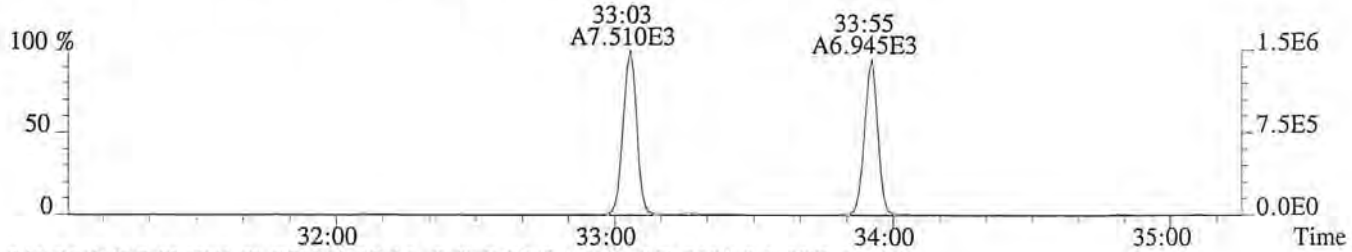
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



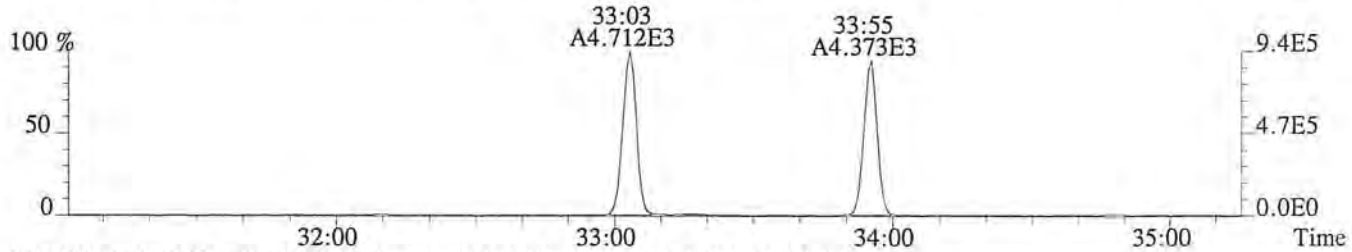
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



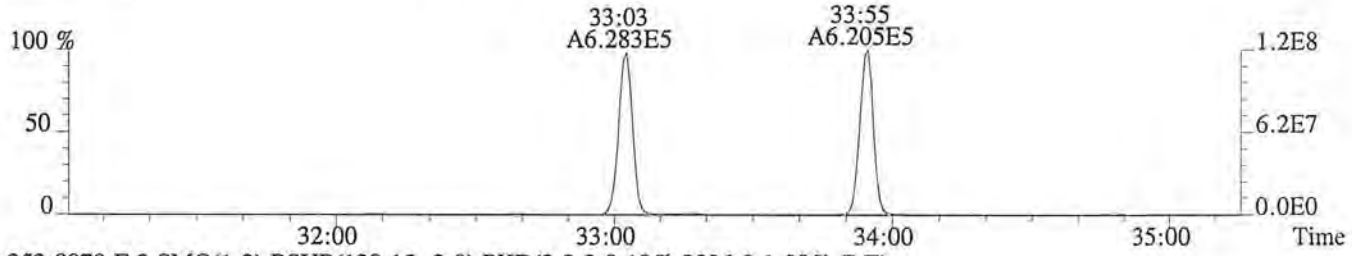
File:P600004 #1-380 Acq:19-AUG-2015 12:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1844.0,1.00%,F,T)



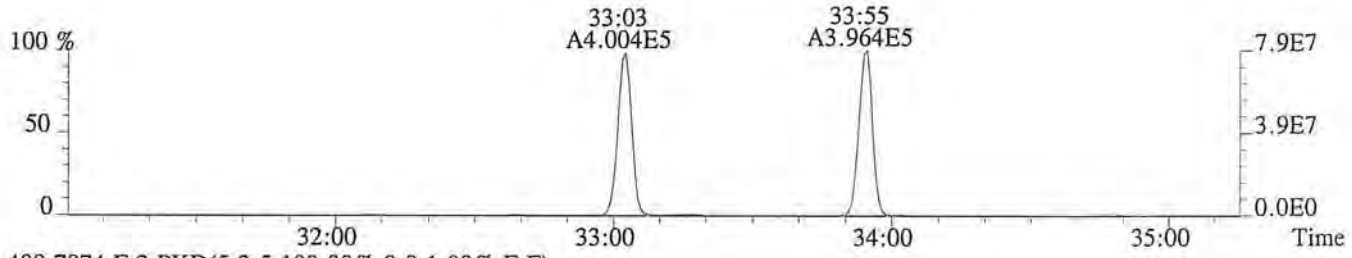
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3100.0,1.00%,F,T)



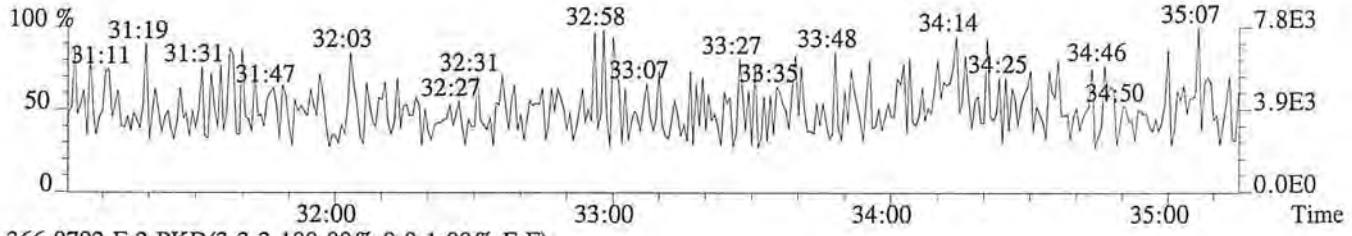
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1620.0,1.00%,F,T)



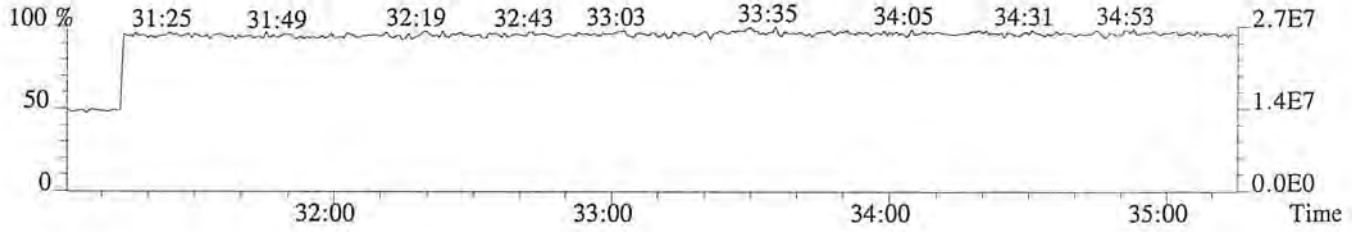
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2336.0,1.00%,F,T)



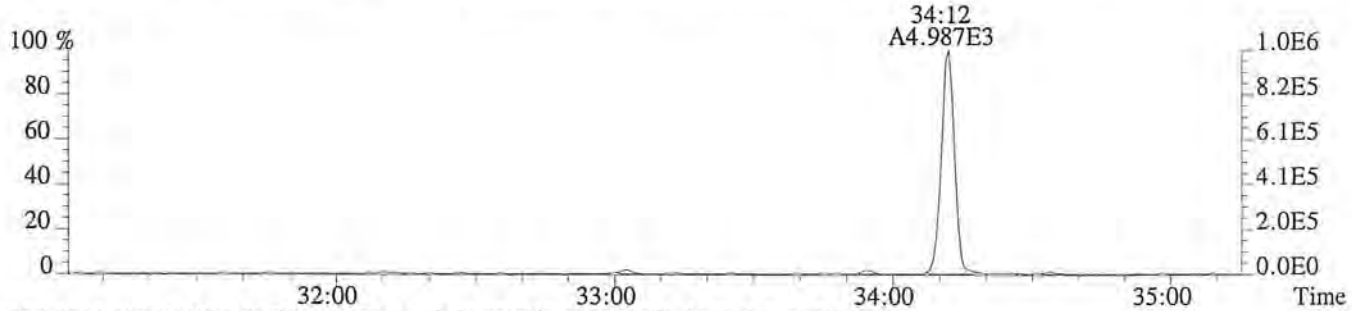
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



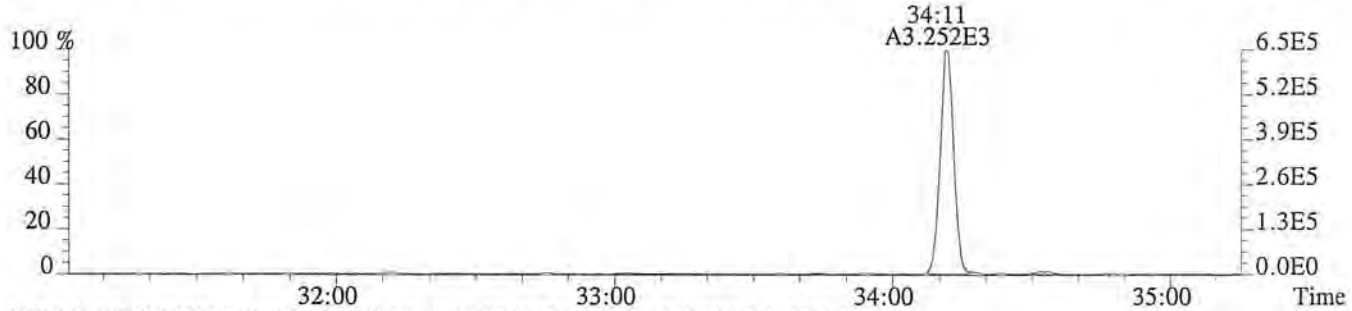
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



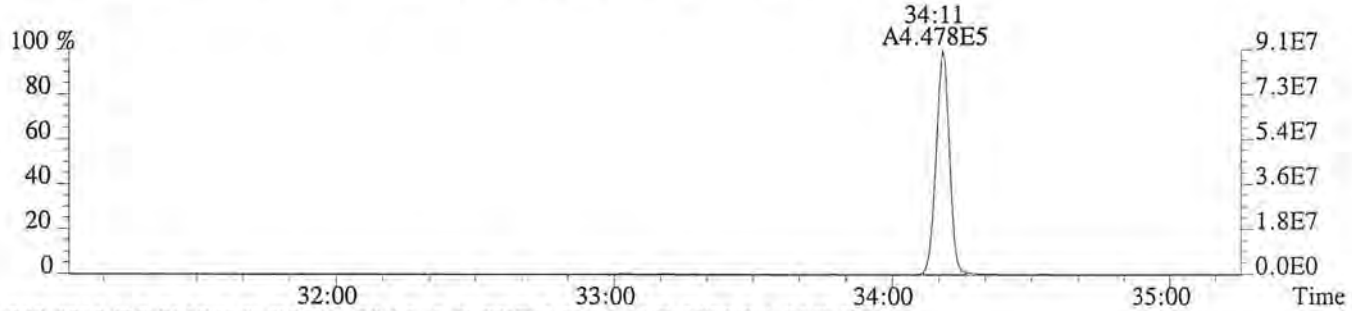
File:P600004 #1-380 Acq:19-AUG-2015 12:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3832.0,1.00%,F,T)



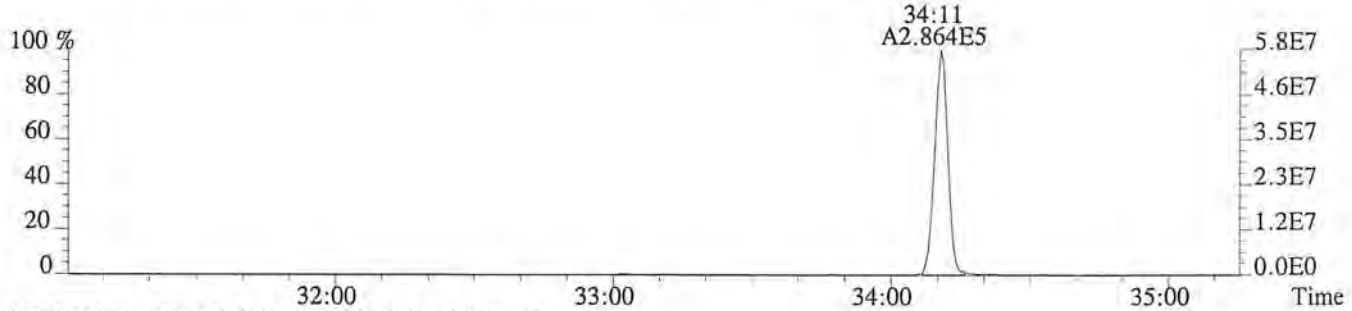
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2192.0,1.00%,F,T)



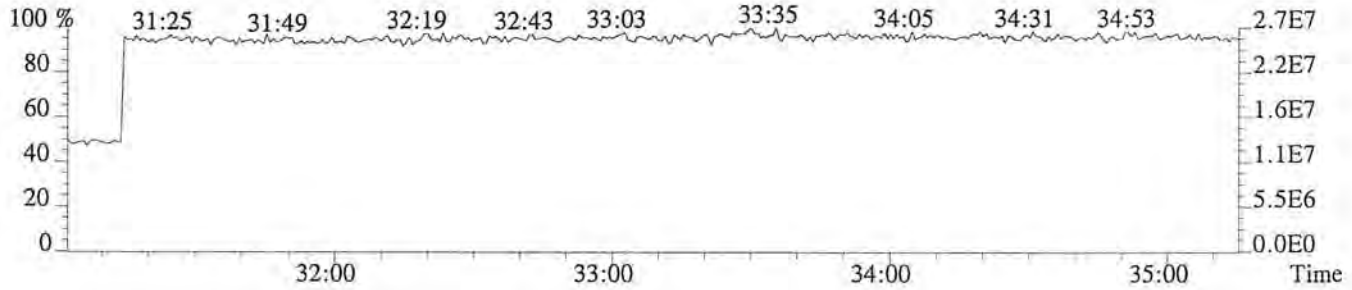
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2348.0,1.00%,F,T)



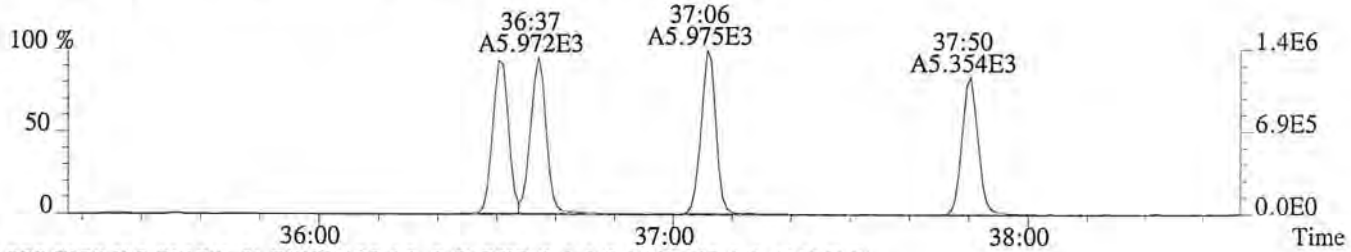
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2180.0,1.00%,F,T)



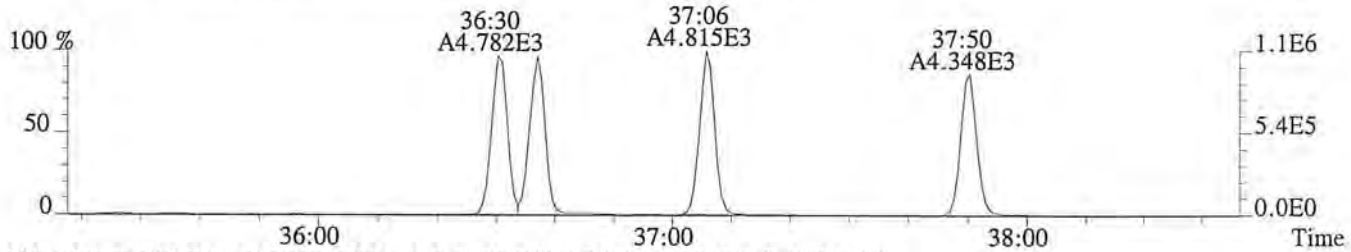
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



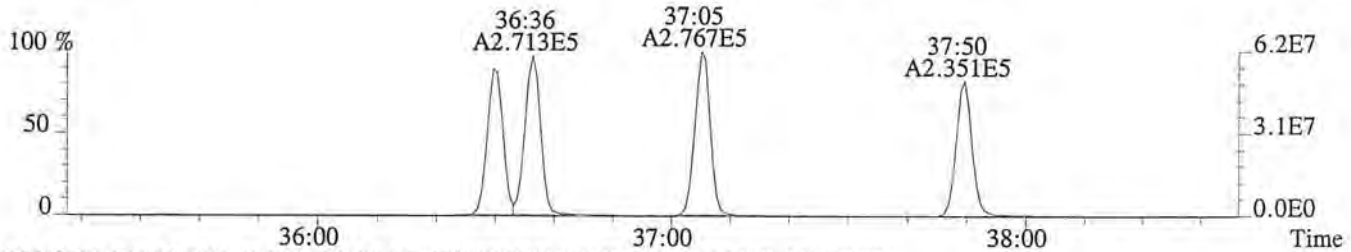
File:P600004 #1-299 Acq:19-AUG-2015 12:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2020.0,0.40%,F,T)



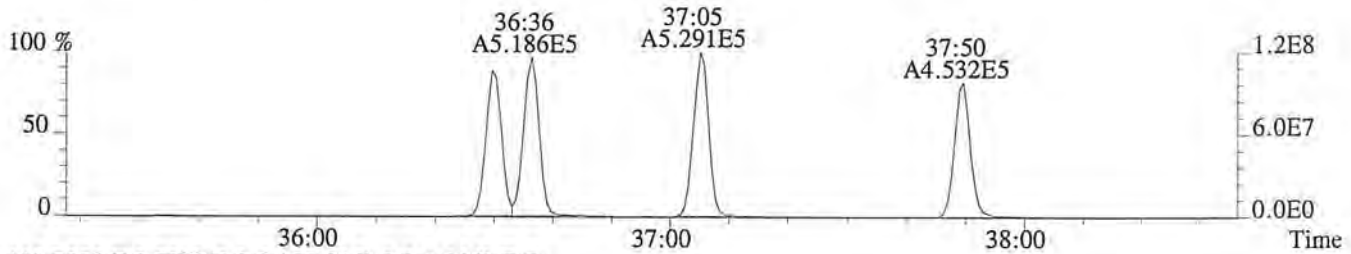
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



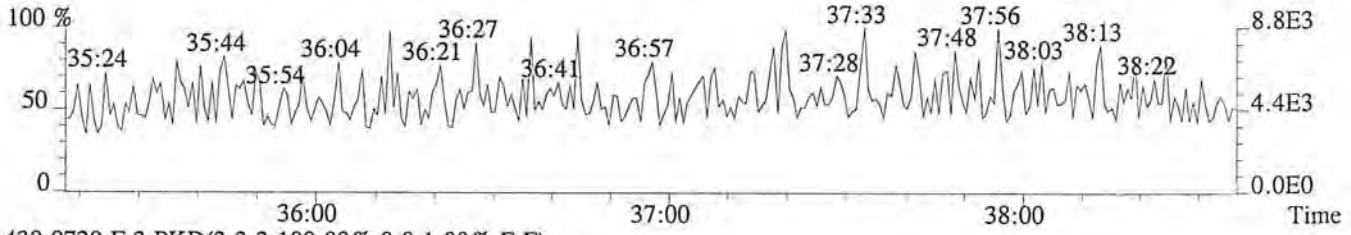
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1348.0,0.40%,F,T)



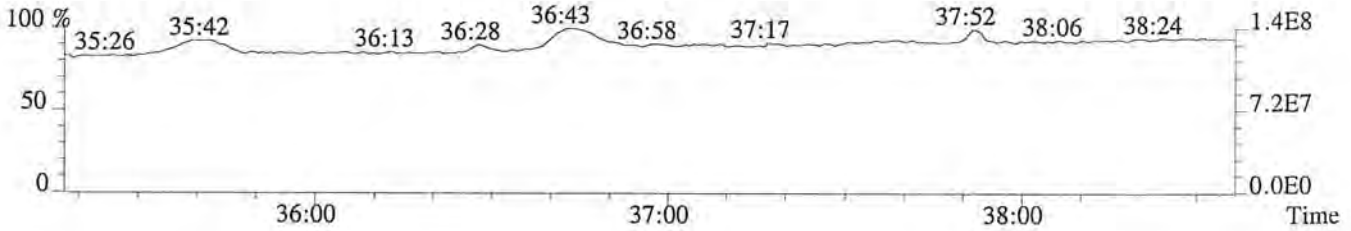
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3212.0,0.40%,F,T)



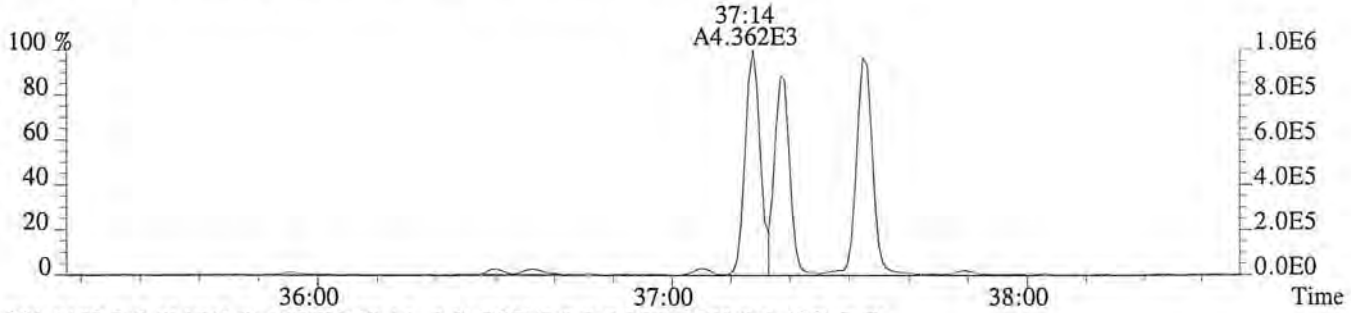
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



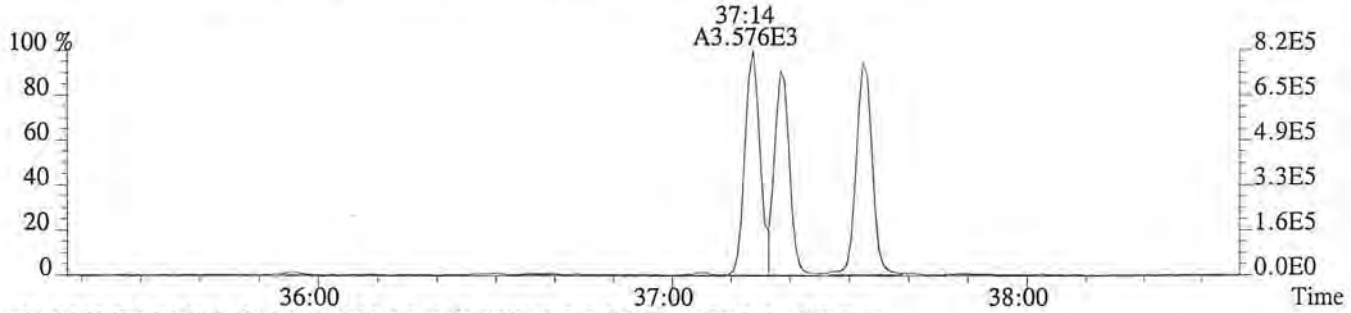
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



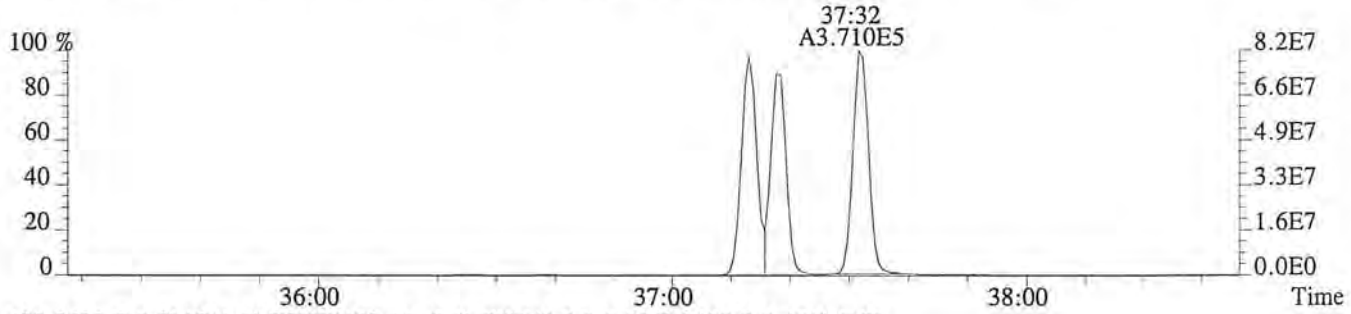
File:P600004 #1-299 Acq:19-AUG-2015 12:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1844.0,0.40%,F,T)



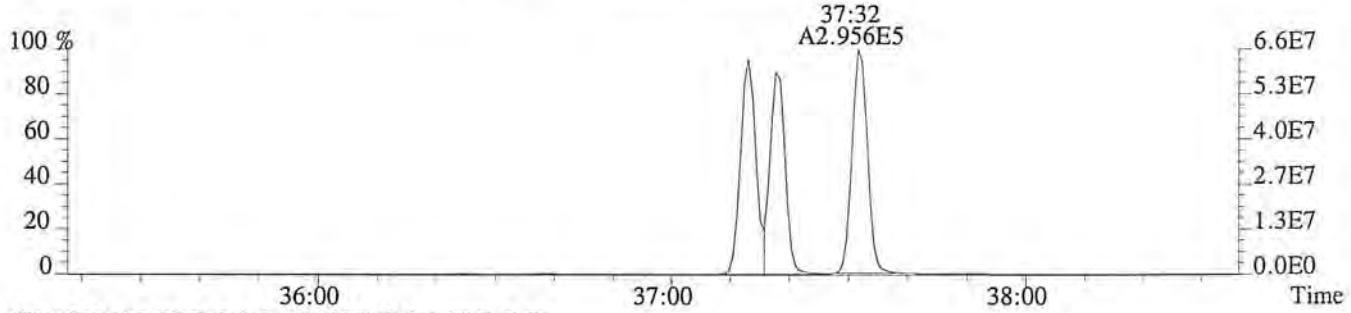
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2272.0,0.40%,F,T)



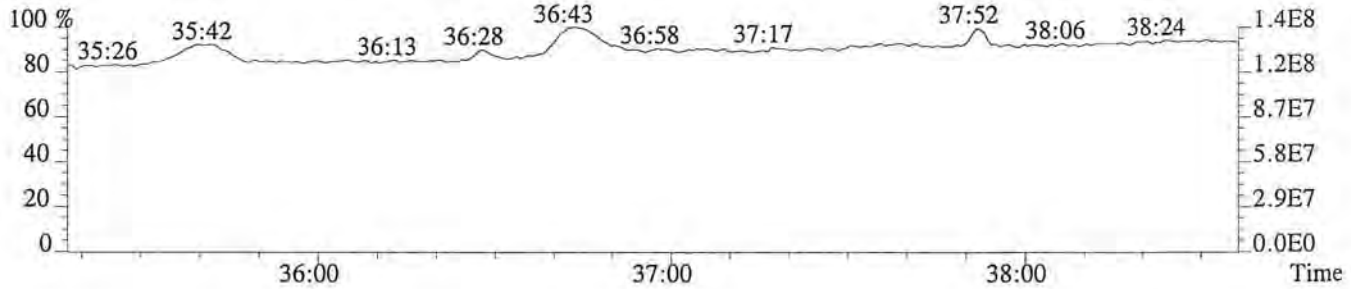
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6372.0,0.40%,F,T)



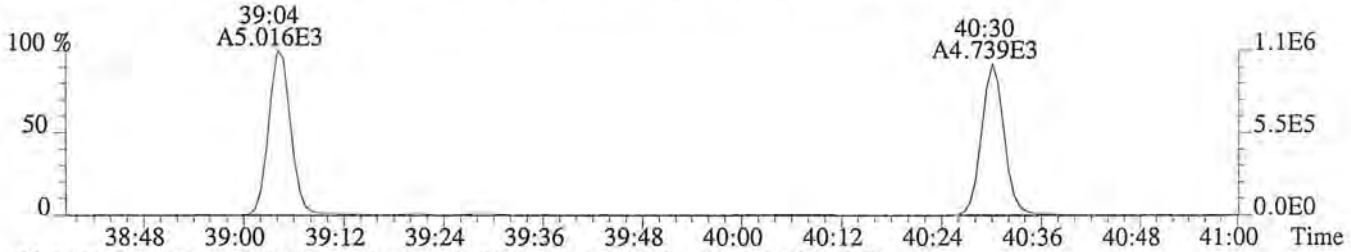
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2400.0,0.40%,F,T)



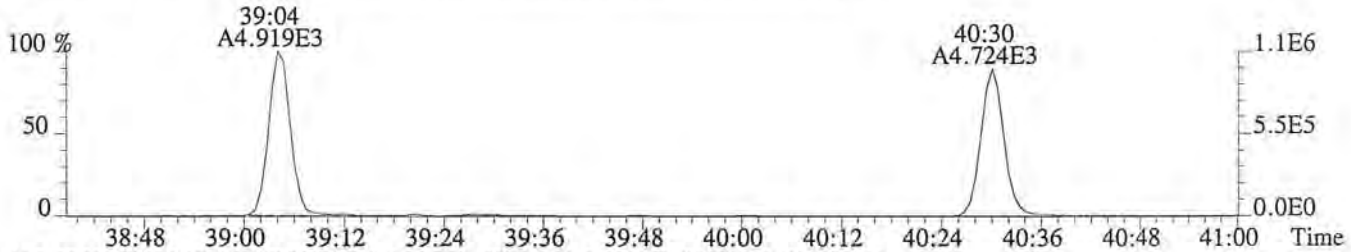
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



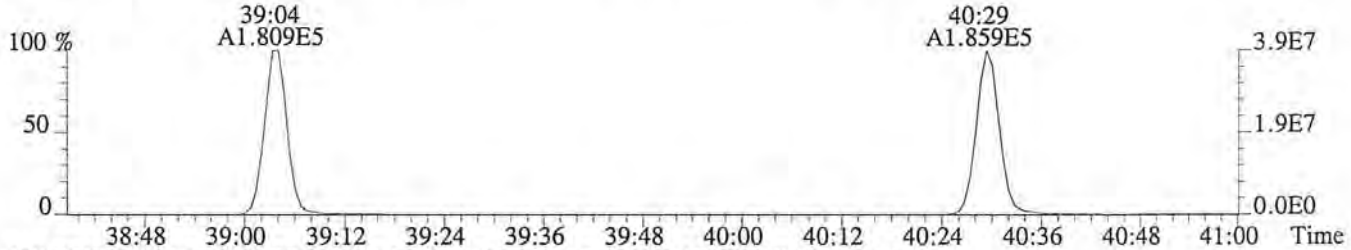
File:P600004 #1-213 Acq:19-AUG-2015 12:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1844.0,0.50%,F,T)



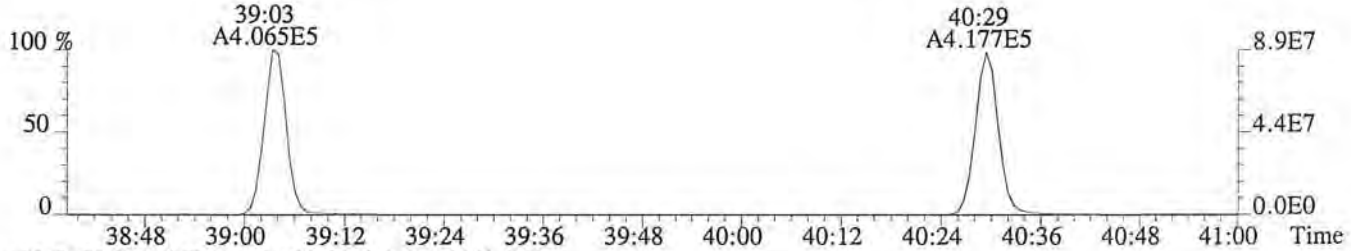
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1672.0,0.50%,F,T)



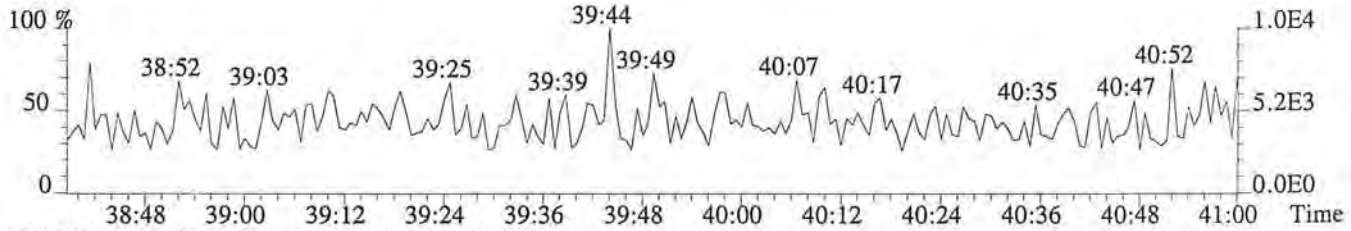
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9264.0,0.50%,F,T)



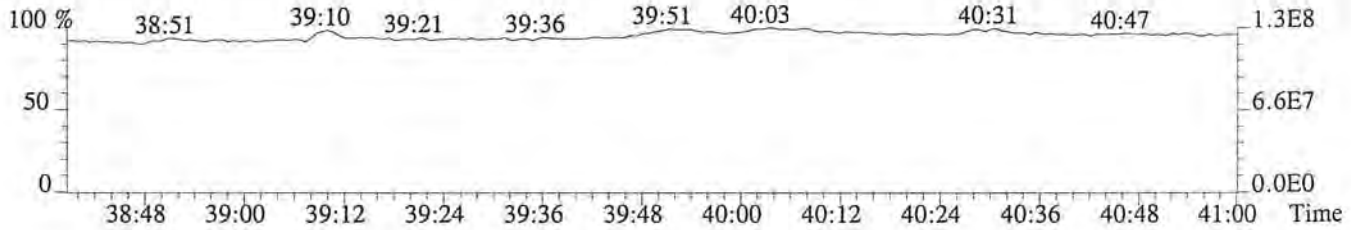
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10200.0,0.50%,F,T)



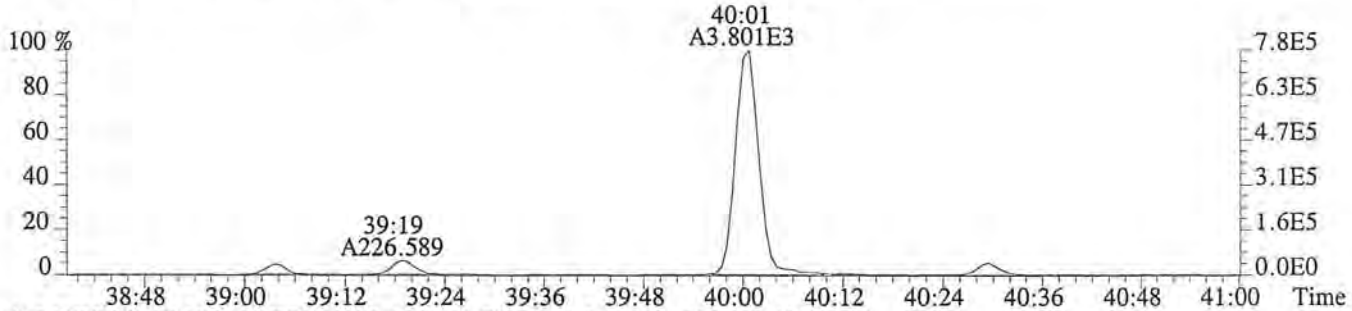
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



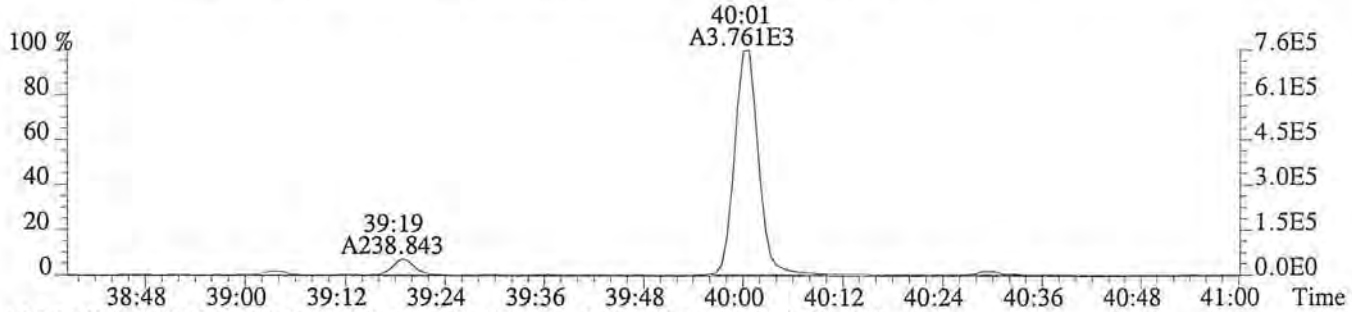
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



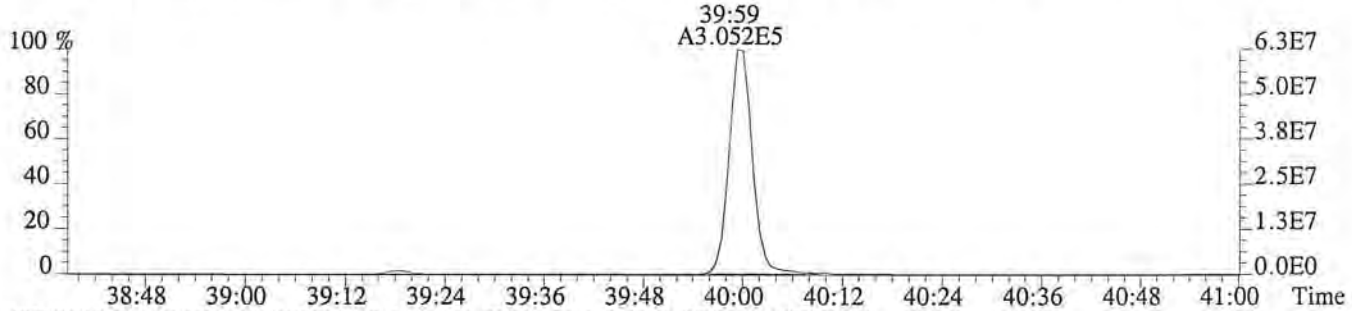
File:P600004 #1-213 Acq:19-AUG-2015 12:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1884.0,0.40%,F,T)



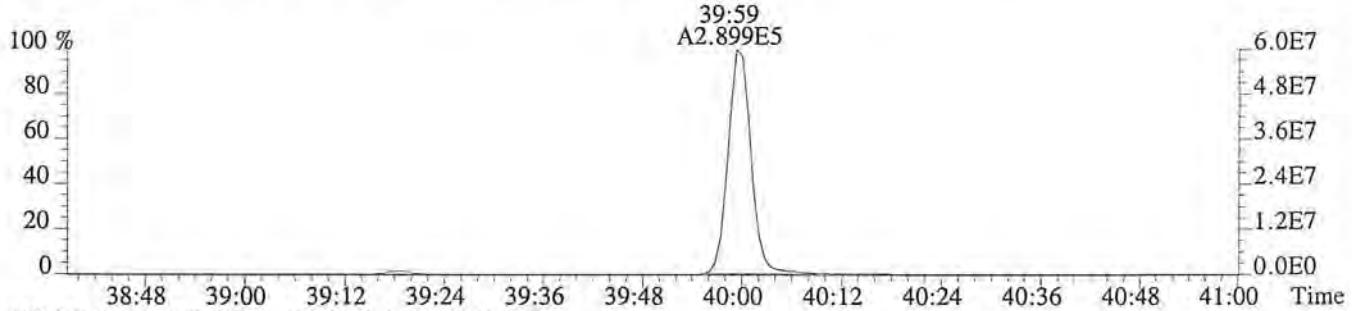
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



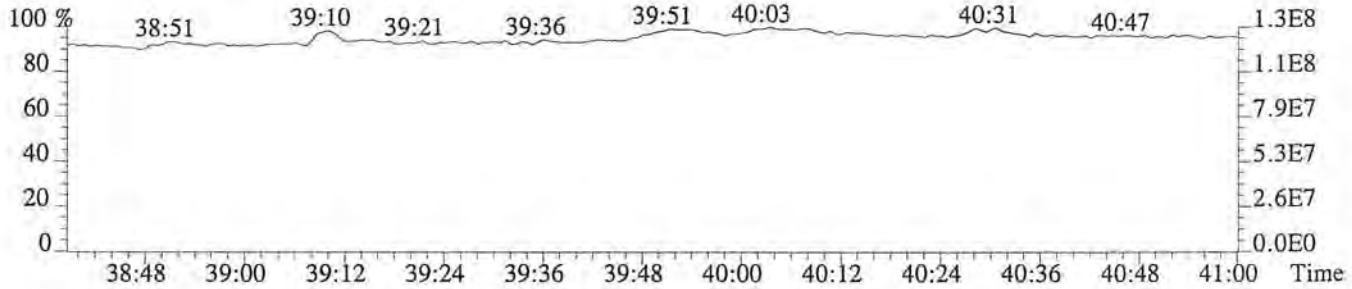
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)



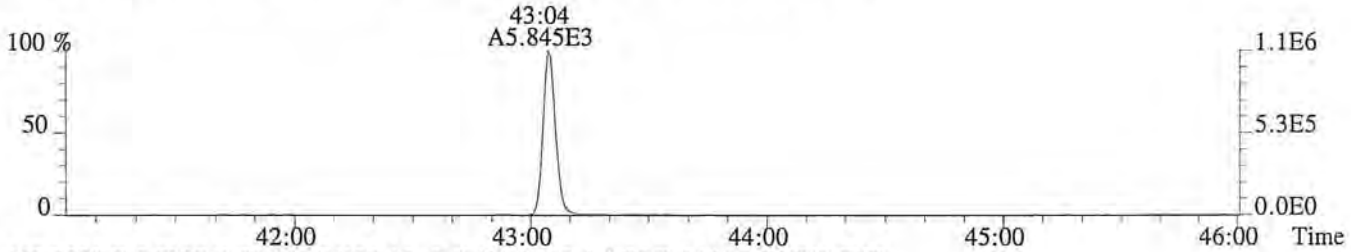
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



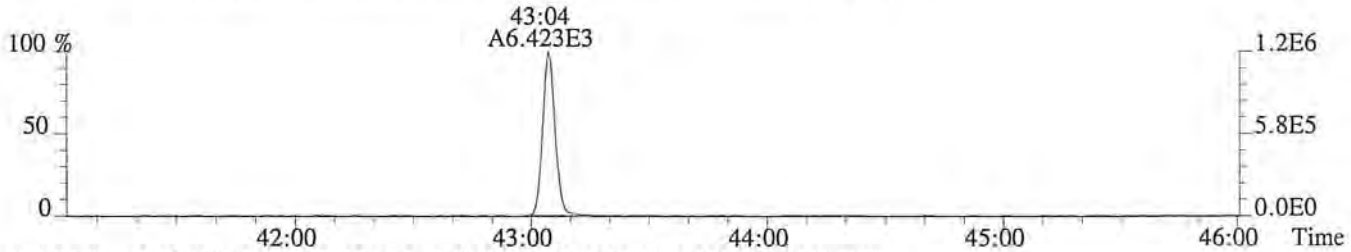
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



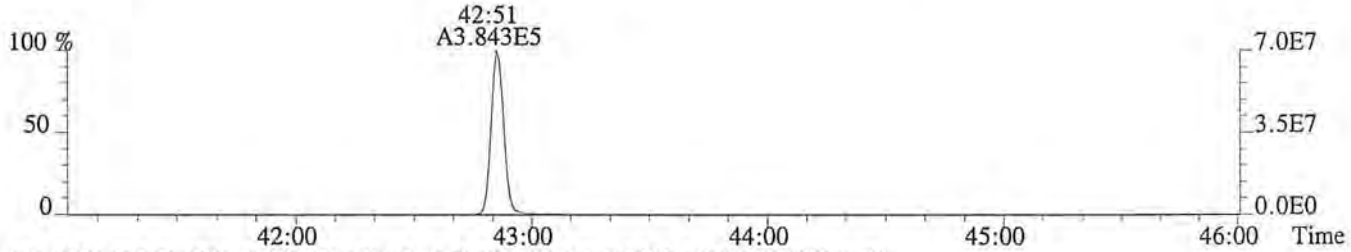
File:P600004 #1-448 Acq:19-AUG-2015 12:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1476.0,0.40%,F,T)



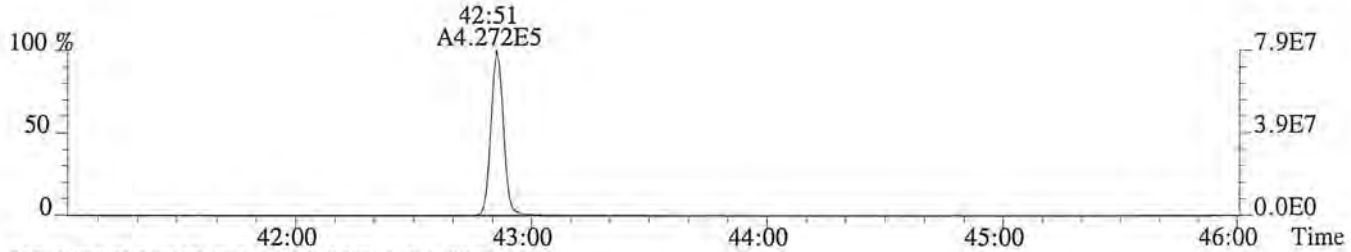
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2444.0,0.40%,F,T)



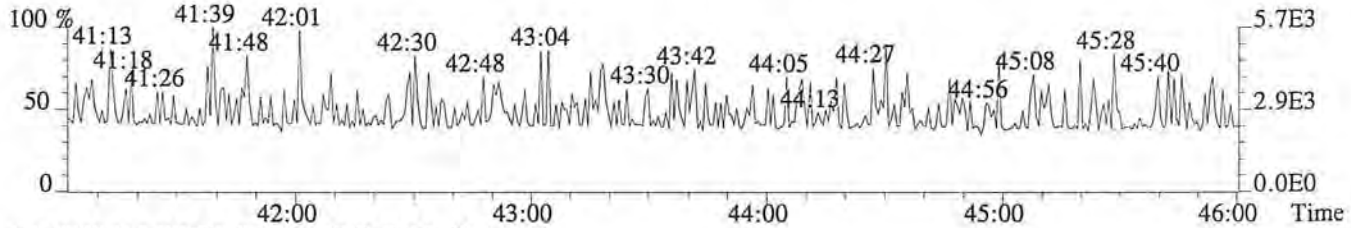
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1260.0,0.40%,F,T)



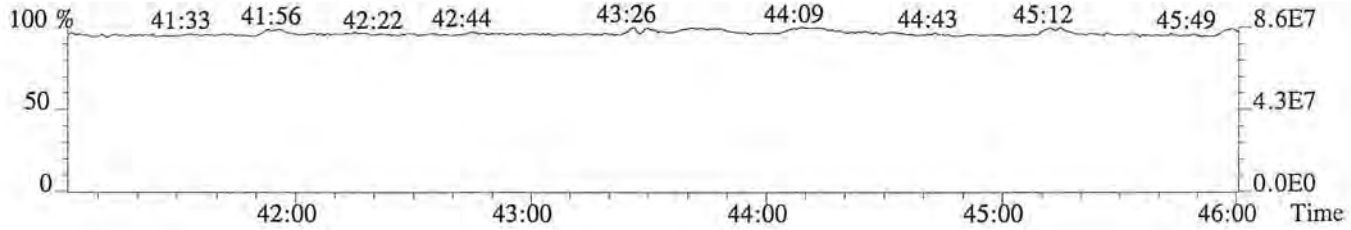
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1652.0,0.40%,F,T)



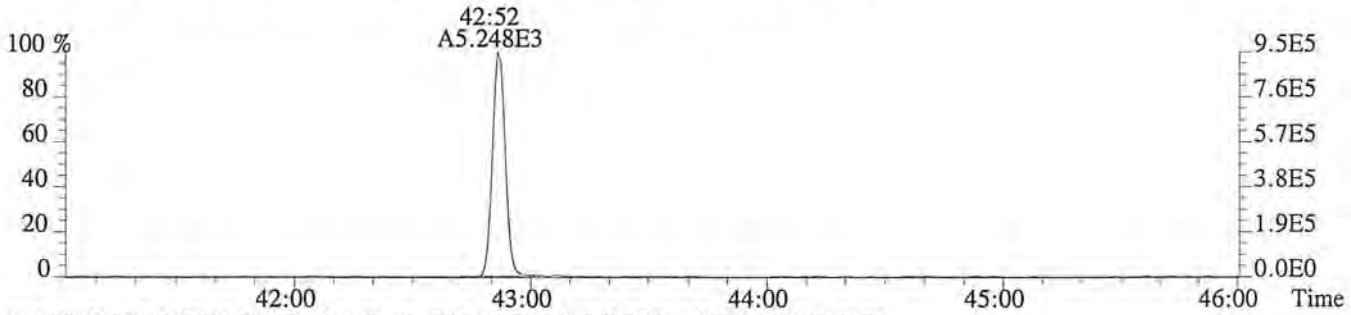
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



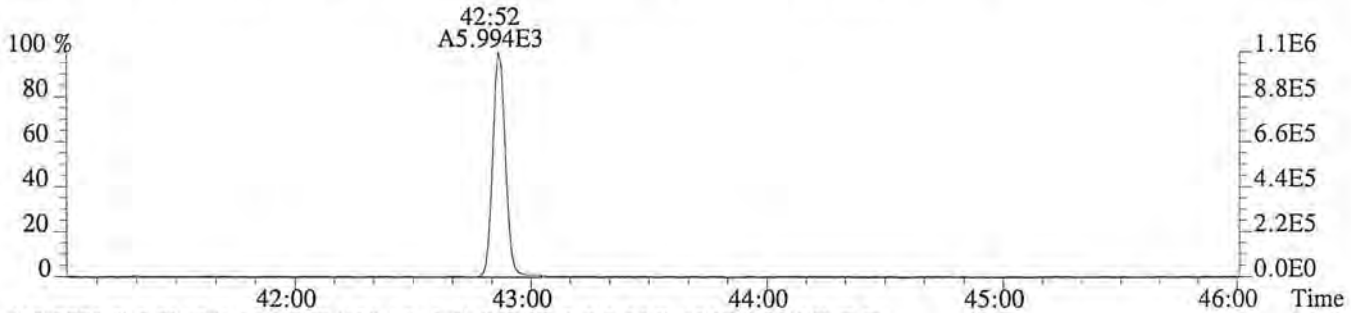
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



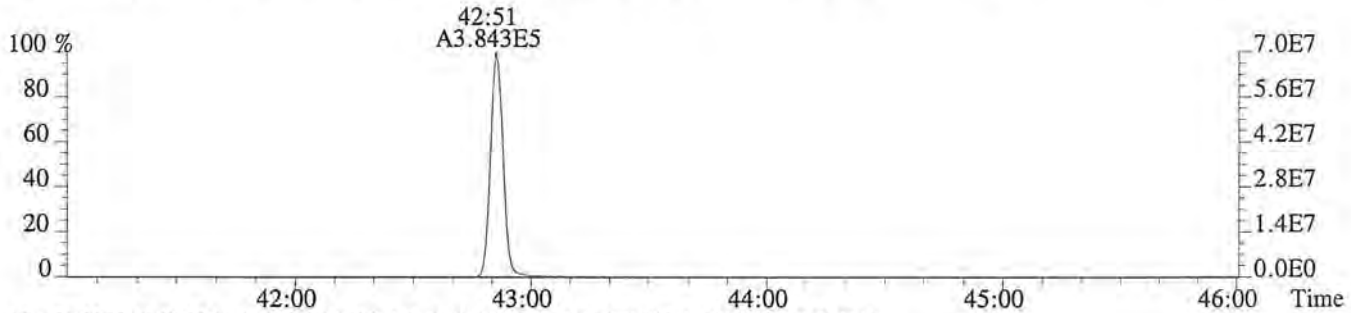
File:P600004 #1-448 Acq:19-AUG-2015 12:31:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1080.0,0.40%,F,T)



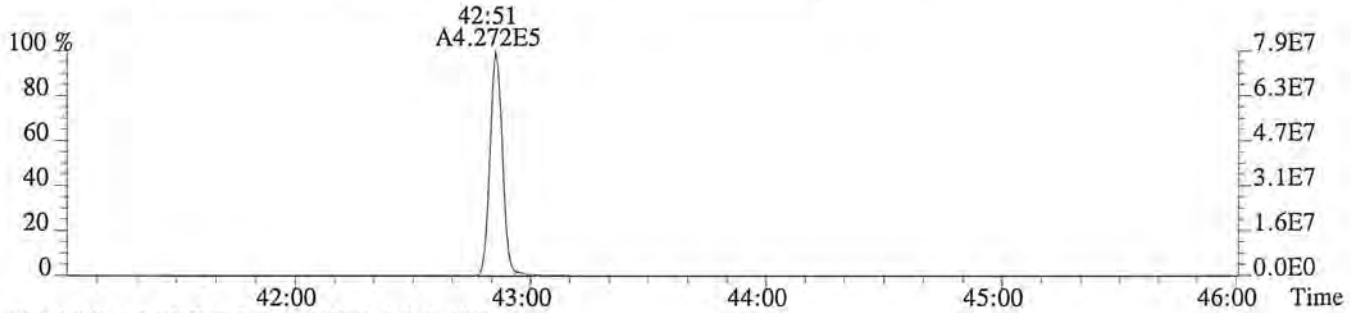
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1892.0,0.40%,F,T)



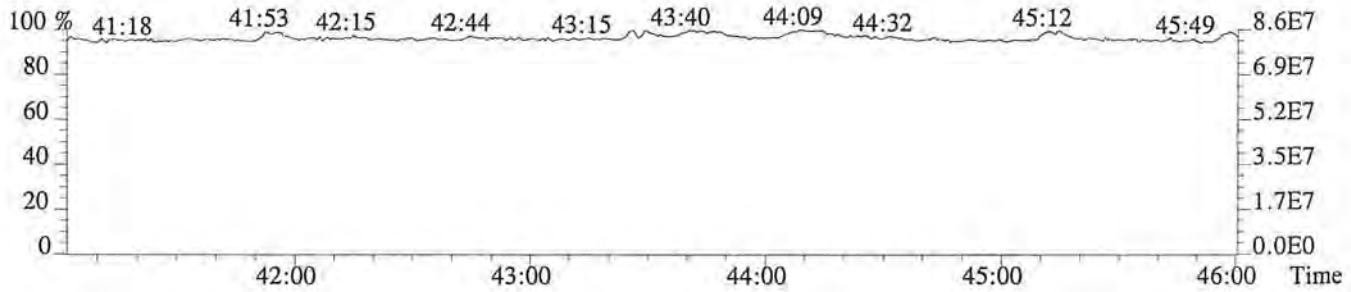
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1652.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76555

Run #2 Filename P600005 Samp: 1 Inj: 1 Acquired: 19-AUG-15 13:20:24
Processed: 19-AUG-15 16:14:16 Sample ID: CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:04	2.223e+03	2.898e+03	0.77	yes	no	0.941
2	Unk	1,2,3,7,8-PeCDF	33:03	1.719e+04	1.109e+04	1.55	yes	no	0.987
3	Unk	2,3,4,7,8-PeCDF	33:55	1.607e+04	1.012e+04	1.59	yes	no	0.934
4	Unk	1,2,3,4,7,8-HxCDF	36:30	1.414e+04	1.156e+04	1.22	yes	no	1.189
5	Unk	1,2,3,6,7,8-HxCDF	36:37	1.407e+04	1.145e+04	1.23	yes	no	1.126
6	Unk	2,3,4,6,7,8-HxCDF	37:06	1.406e+04	1.136e+04	1.24	yes	no	1.116
7	Unk	1,2,3,7,8,9-HxCDF	37:50	1.329e+04	1.063e+04	1.25	yes	no	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:04	1.212e+04	1.191e+04	1.02	yes	no	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:30	1.178e+04	1.163e+04	1.01	yes	no	1.287
10	Unk	OCDF	43:05	1.550e+04	1.716e+04	0.90	yes	no	1.257
11	Unk	2,3,7,8-TCDD	29:48	2.052e+03	2.618e+03	0.78	yes	no	1.010
12	Unk	1,2,3,7,8-PeCDD	34:12	1.256e+04	8.073e+03	1.56	yes	no	0.932
13	Unk	1,2,3,4,7,8-HxCDD	37:14	1.030e+04	8.055e+03	1.28	yes	no	1.026
14	Unk	1,2,3,6,7,8-HxCDD	37:19	9.553e+03	7.673e+03	1.24	yes	no	1.021
15	Unk	1,2,3,7,8,9-HxCDD	37:33	1.167e+04	8.883e+03	1.31	yes	no	1.133
16	Unk	1,2,3,4,6,7,8-HpCDD	40:01	9.232e+03	8.895e+03	1.04	yes	no	1.034
17	Unk	OCDD	42:52	1.351e+04	1.536e+04	0.88	yes	no	1.111
18	IS	13C-2,3,7,8-TCDF	29:03	4.804e+05	6.071e+05	0.79	yes	no	1.379
19	IS	13C-1,2,3,7,8-PeCDF	33:03	6.866e+05	4.355e+05	1.58	yes	no	1.456
20	IS	13C-2,3,4,7,8-PeCDF	33:55	6.829e+05	4.331e+05	1.58	yes	no	1.465
21	IS	13C-1,2,3,4,7,8-HxCDF	36:30	2.953e+05	5.664e+05	0.52	yes	no	1.075
22	IS	13C-1,2,3,6,7,8-HxCDF	36:36	3.081e+05	5.838e+05	0.53	yes	no	1.158
23	IS	13C-2,3,4,6,7,8-HxCDF	37:05	3.005e+05	5.763e+05	0.52	yes	no	1.133
24	IS	13C-1,2,3,7,8,9-HxCDF	37:50	2.807e+05	5.421e+05	0.52	yes	no	1.024
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:04	2.120e+05	4.726e+05	0.45	yes	no	0.880
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:29	2.215e+05	4.965e+05	0.45	yes	no	0.914
27	IS	13C-2,3,7,8-TCDD	29:48	4.011e+05	5.083e+05	0.79	yes	no	1.193
28	IS	13C-1,2,3,7,8-PeCDD	34:11	5.317e+05	3.387e+05	1.57	yes	no	1.094
29	IS	13C-1,2,3,4,7,8-HxCDD	37:13	3.949e+05	3.122e+05	1.27	yes	no	0.906
30	IS	13C-1,2,3,6,7,8-HxCDD	37:18	3.708e+05	2.945e+05	1.26	yes	no	0.860
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:00	3.517e+05	3.330e+05	1.06	yes	no	0.892
32	IS	13C-OCDD	42:51	4.770e+05	5.317e+05	0.90	yes	no	0.642
33	RS/RT	13C-1,2,3,4-TCDD	29:15	3.478e+05	4.386e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:32	4.451e+05	3.534e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:48	4.909e+03				no	1.263

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76555

Run #2 Filename P600005 Samp: 1 Inj: 1 Acquired: 19-AUG-15 13:20:24
Processed: 19-AUG-15 16:14:16 LAB. ID: CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.14e+05	2.02e+03	2.1e+02	5.45e+05	1.85e+03	2.9e+02
2	1,2,3,7,8-PeCDF	3.37e+06	1.72e+03	2.0e+03	2.17e+06	4.40e+03	4.9e+02
3	2,3,4,7,8-PeCDF	3.22e+06	1.72e+03	1.9e+03	2.02e+06	4.40e+03	4.6e+02
4	1,2,3,4,7,8-HxCDF	2.96e+06	1.39e+03	2.1e+03	2.43e+06	8.44e+02	2.9e+03
5	1,2,3,6,7,8-HxCDF	3.05e+06	1.39e+03	2.2e+03	2.47e+06	8.44e+02	2.9e+03
6	2,3,4,6,7,8-HxCDF	3.06e+06	1.39e+03	2.2e+03	2.48e+06	8.44e+02	2.9e+03
7	1,2,3,7,8,9-HxCDF	2.86e+06	1.39e+03	2.1e+03	2.25e+06	8.44e+02	2.7e+03
8	1,2,3,4,6,7,8-HpCDF	2.62e+06	1.51e+03	1.7e+03	2.57e+06	2.16e+03	1.2e+03
9	1,2,3,4,7,8,9-HpCDF	2.40e+06	1.51e+03	1.6e+03	2.37e+06	2.16e+03	1.1e+03
10	OCDF	2.66e+06	1.55e+03	1.7e+03	3.06e+06	2.28e+03	1.3e+03
11	2,3,7,8-TCDD	4.09e+05	2.26e+03	1.8e+02	5.20e+05	2.18e+03	2.4e+02
12	1,2,3,7,8-PeCDD	2.53e+06	2.62e+03	9.7e+02	1.64e+06	1.84e+03	8.9e+02
13	1,2,3,4,7,8-HxCDD	2.34e+06	1.32e+03	1.8e+03	1.82e+06	2.42e+03	7.5e+02
14	1,2,3,6,7,8-HxCDD	2.07e+06	1.32e+03	1.6e+03	1.69e+06	2.42e+03	7.0e+02
15	1,2,3,7,8,9-HxCDD	2.48e+06	1.32e+03	1.9e+03	1.92e+06	2.42e+03	7.9e+02
16	1,2,3,4,6,7,8-HpCDD	1.93e+06	1.49e+03	1.3e+03	1.82e+06	1.76e+03	1.0e+03
17	OCDD	2.46e+06	1.24e+03	2.0e+03	2.82e+06	1.88e+03	1.5e+03
18	13C-2,3,7,8-TCDF	8.89e+07	5.34e+03	1.7e+04	1.13e+08	3.42e+03	3.3e+04
19	13C-1,2,3,7,8-PeCDF	1.29e+08	1.80e+03	7.2e+04	8.15e+07	1.70e+03	4.8e+04
20	13C-2,3,4,7,8-PeCDF	1.35e+08	1.80e+03	7.5e+04	8.53e+07	1.70e+03	5.0e+04
21	13C-1,2,3,4,7,8-HxCDF	6.25e+07	2.66e+03	2.4e+04	1.21e+08	3.55e+03	3.4e+04
22	13C-1,2,3,6,7,8-HxCDF	6.60e+07	2.66e+03	2.5e+04	1.26e+08	3.55e+03	3.5e+04
23	13C-2,3,4,6,7,8-HxCDF	6.57e+07	2.66e+03	2.5e+04	1.27e+08	3.55e+03	3.6e+04
24	13C-1,2,3,7,8,9-HxCDF	6.03e+07	2.66e+03	2.3e+04	1.16e+08	3.55e+03	3.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.54e+07	9.87e+03	4.6e+03	1.01e+08	1.07e+04	9.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.45e+07	9.87e+03	4.5e+03	1.00e+08	1.07e+04	9.4e+03
27	13C-2,3,7,8-TCDD	7.93e+07	9.97e+03	8.0e+03	9.97e+07	6.10e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	1.07e+08	2.26e+03	4.7e+04	6.82e+07	1.62e+03	4.2e+04
29	13C-1,2,3,4,7,8-HxCDD	8.85e+07	6.34e+03	1.4e+04	6.96e+07	3.31e+03	2.1e+04
30	13C-1,2,3,6,7,8-HxCDD	8.03e+07	6.34e+03	1.3e+04	6.45e+07	3.31e+03	2.0e+04
31	13C-1,2,3,4,6,7,8-HpCDD	7.26e+07	1.95e+03	3.7e+04	6.82e+07	1.87e+03	3.6e+04
32	13C-OCDD	8.62e+07	2.08e+03	4.1e+04	9.64e+07	2.02e+03	4.8e+04
33	13C-1,2,3,4-TCDD	6.71e+07	9.97e+03	6.7e+03	8.46e+07	6.10e+03	1.4e+04
34	13C-1,2,3,7,8,9-HxCDD	9.54e+07	6.34e+03	1.5e+04	7.59e+07	3.31e+03	2.3e+04
35	37Cl-2,3,7,8-TCDD	9.89e+05	3.67e+03	2.7e+02			

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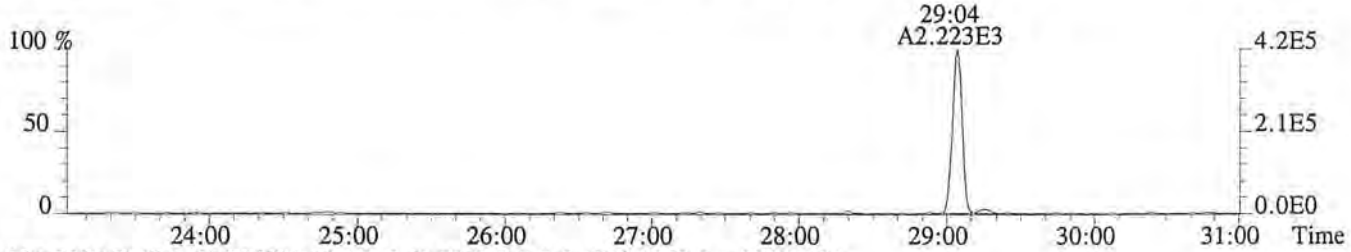
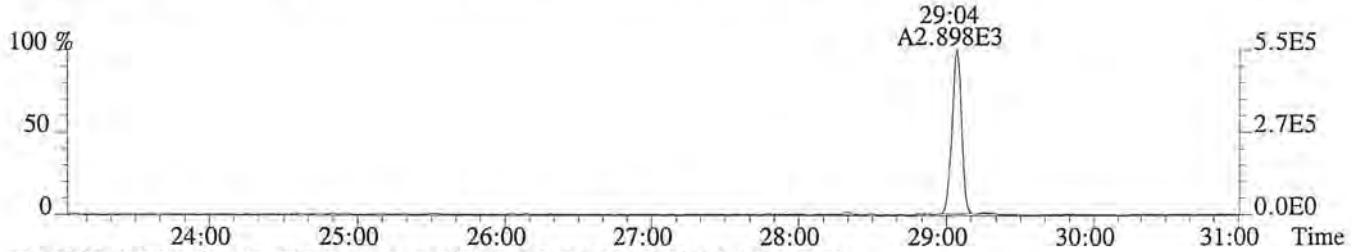
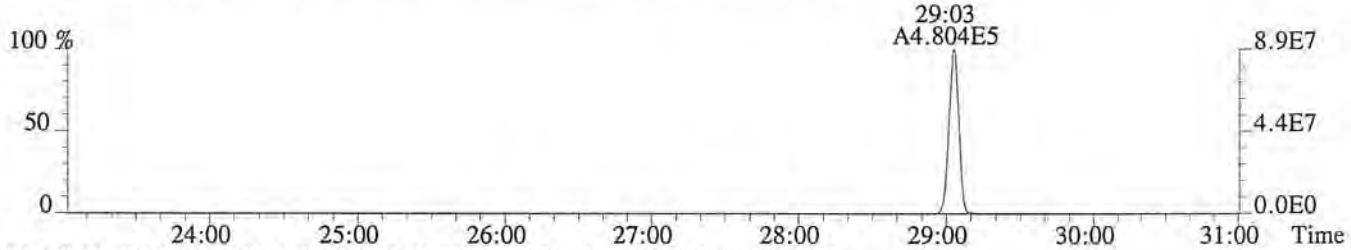
File:P600005 #1-566 Acq:19-AUG-2015 13:20:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2020.0,1.00%,F,T)



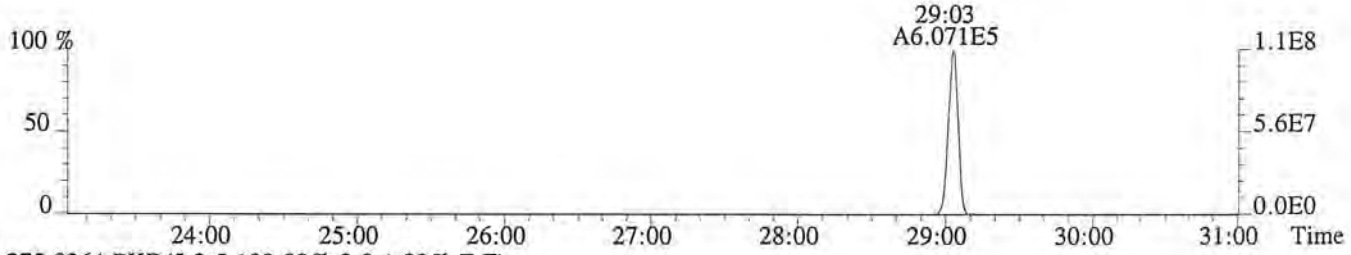
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1852.0,1.00%,F,T)



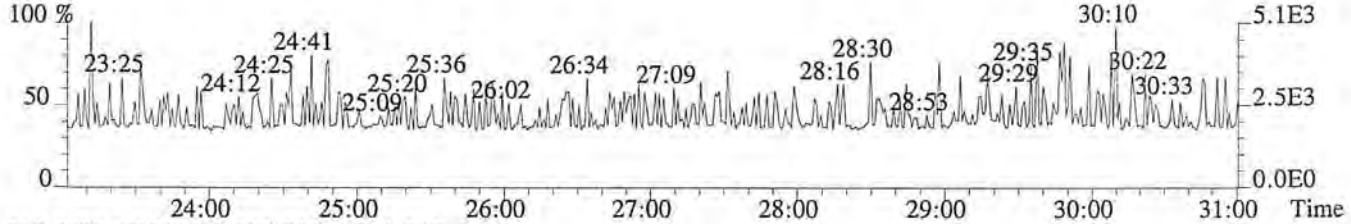
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5340.0,1.00%,F,T)



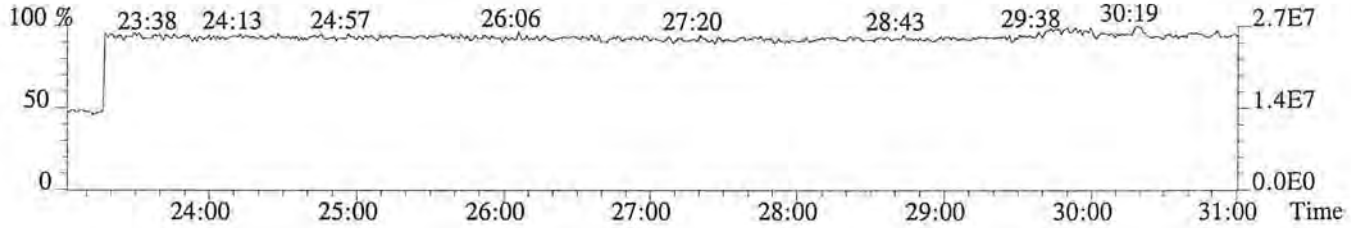
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3424.0,1.00%,F,T)



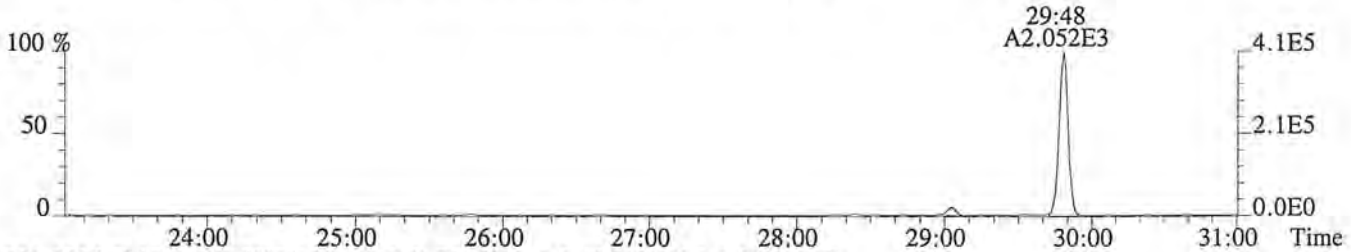
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



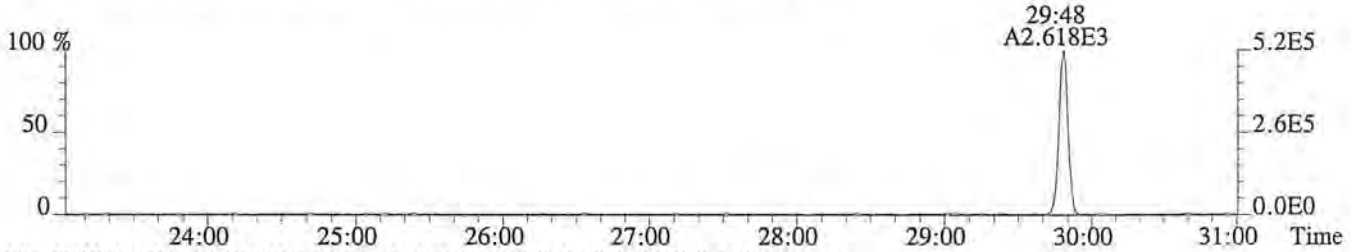
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



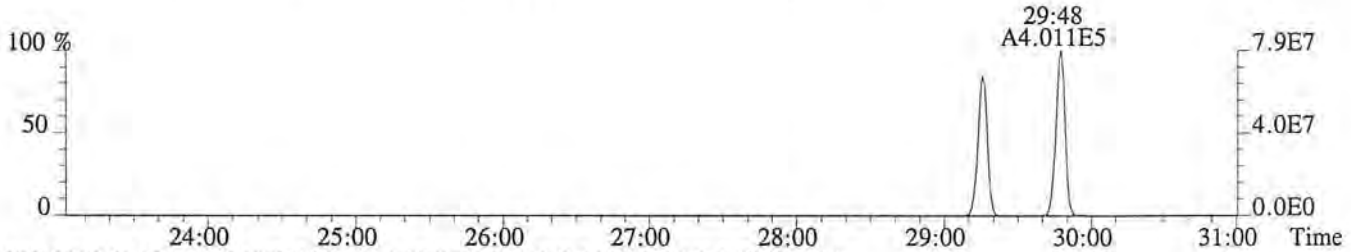
File:P600005 #1-566 Acq:19-AUG-2015 13:20:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2260.0,1.00%,F,T)



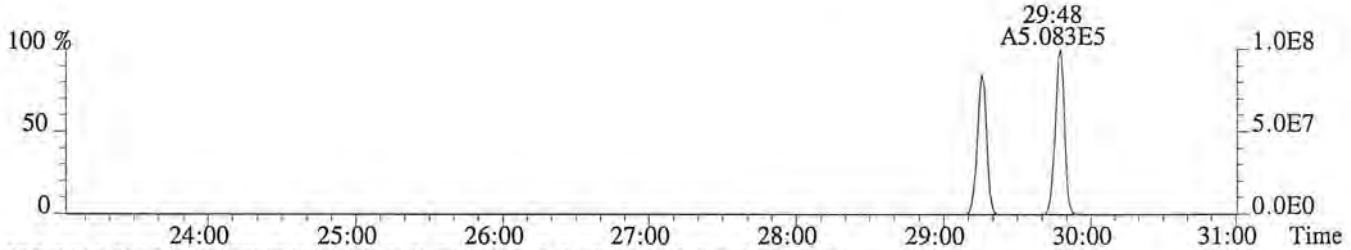
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



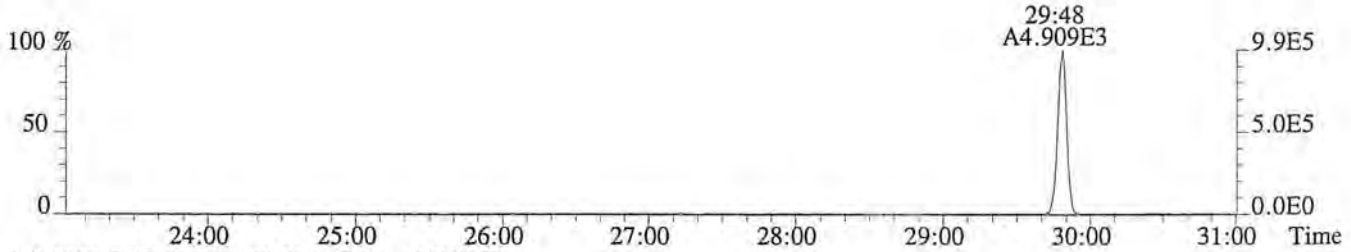
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9968.0,1.00%,F,T)



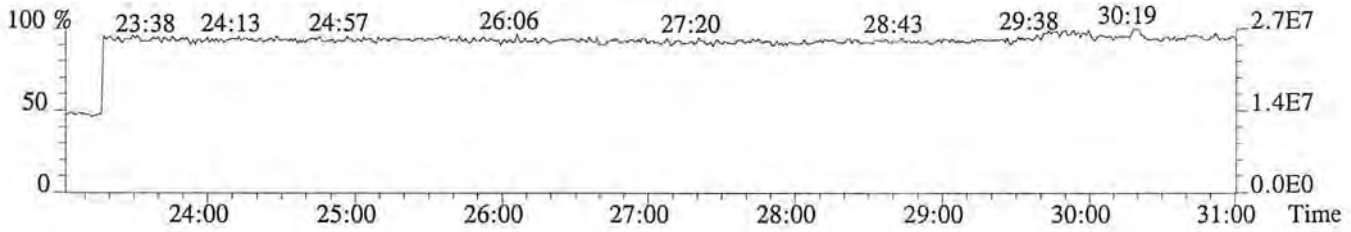
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6100.0,1.00%,F,T)



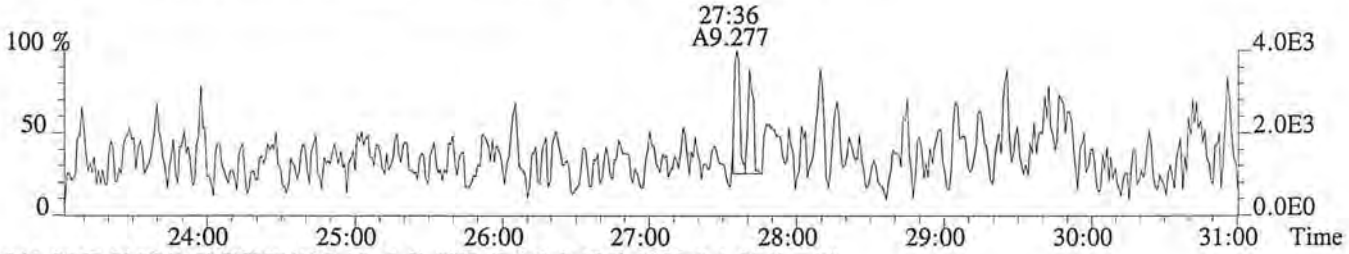
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3668.0,1.00%,F,T)



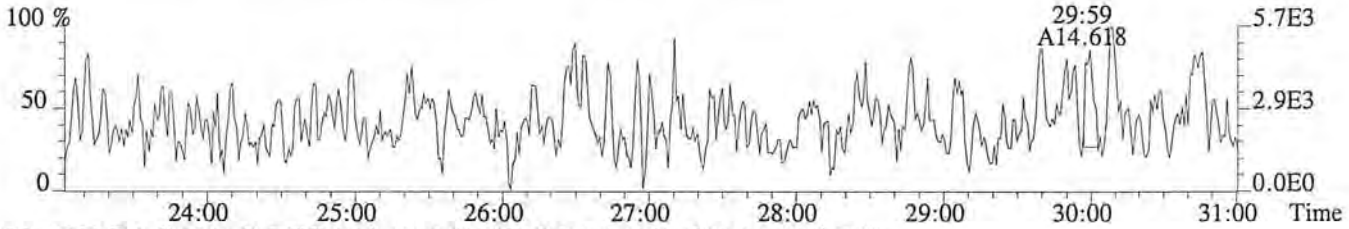
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



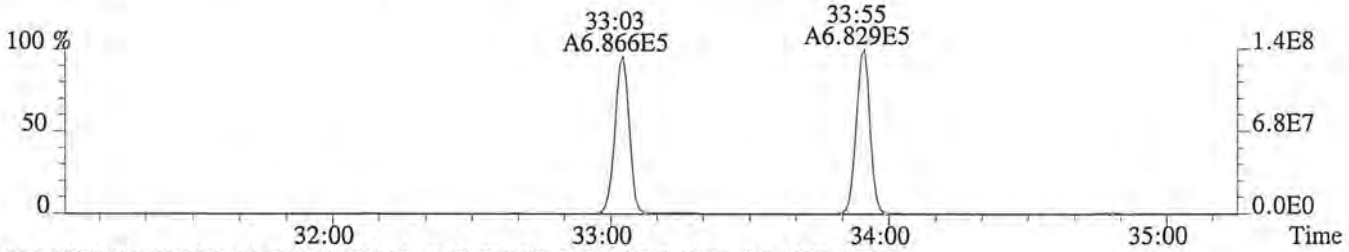
File:P600005 #1-566 Acq:19-AUG-2015 13:20:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1716.0,1.00%,F,T)



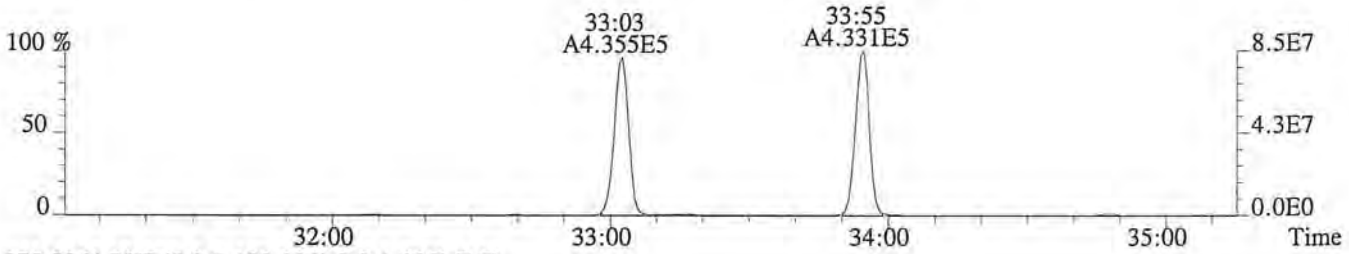
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2992.0,1.00%,F,T)



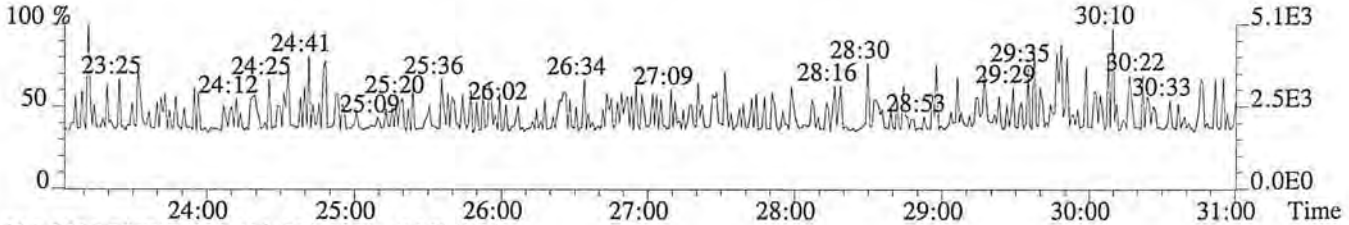
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1804.0,1.00%,F,T)



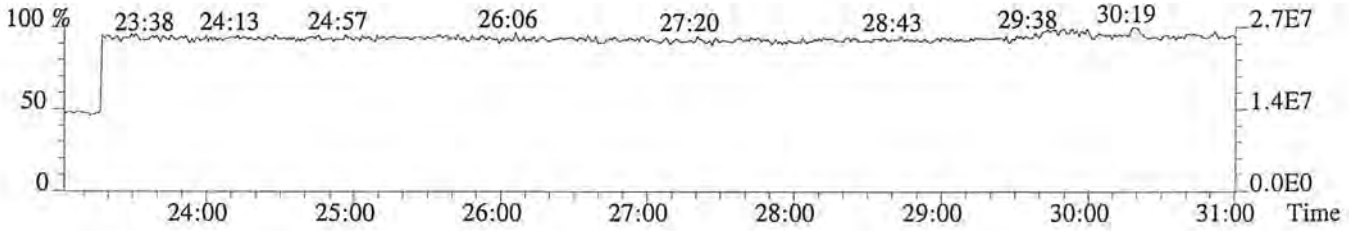
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1704.0,1.00%,F,T)



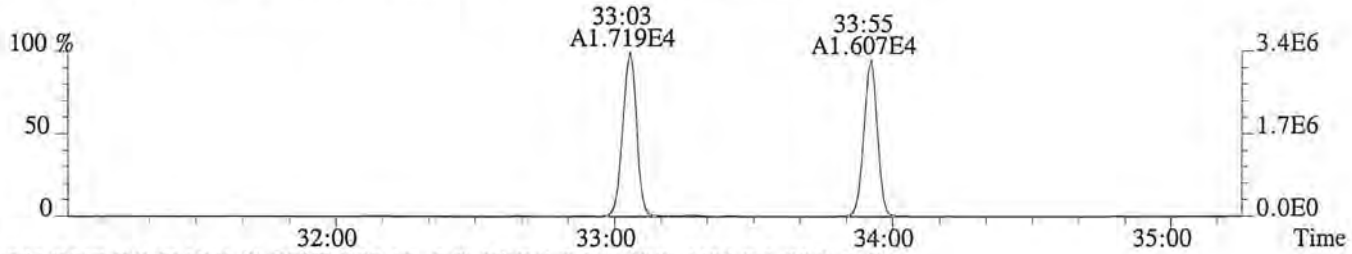
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



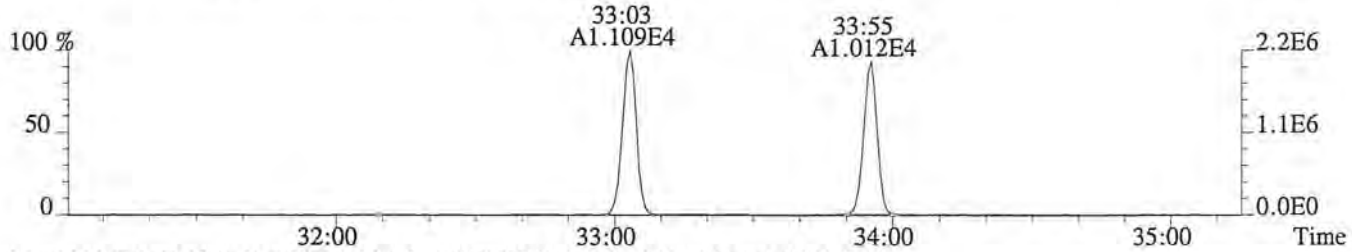
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



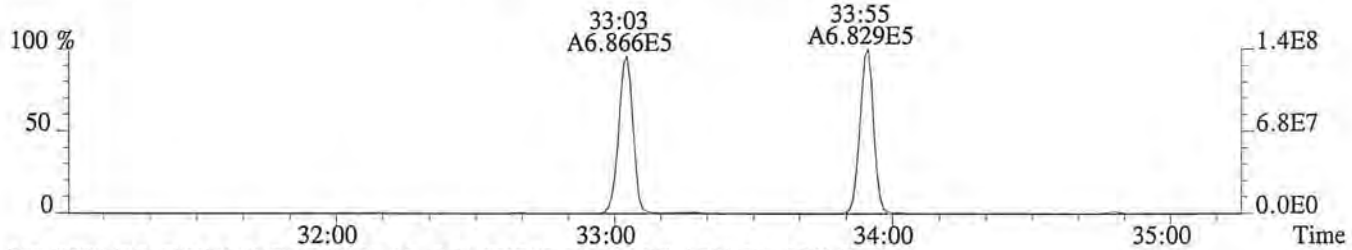
File:P600005 #1-380 Acq:19-AUG-2015 13:20:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



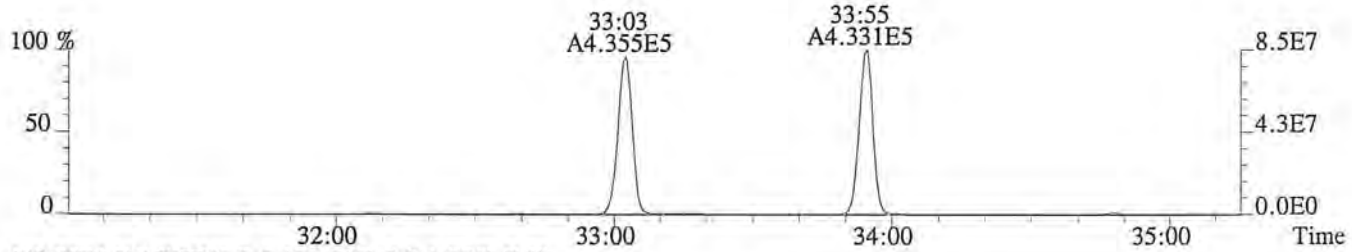
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4404.0,1.00%,F,T)



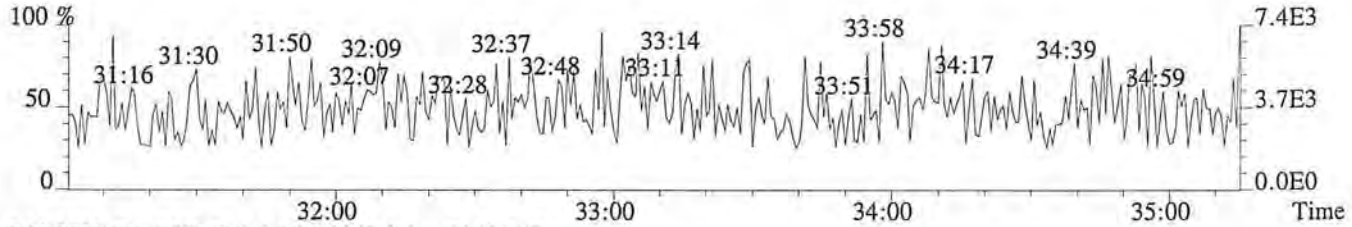
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1804.0,1.00%,F,T)



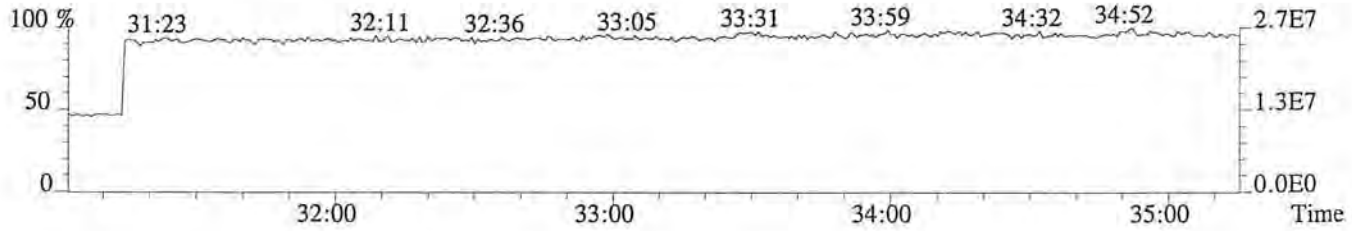
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1704.0,1.00%,F,T)



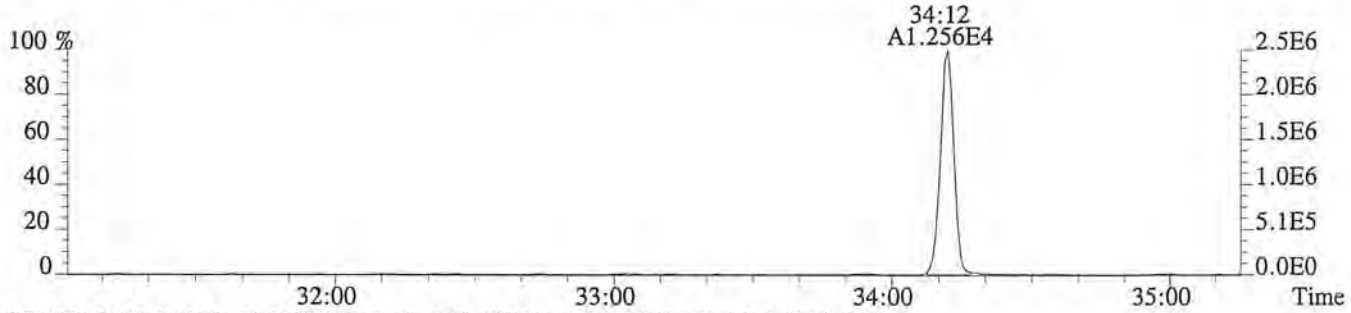
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



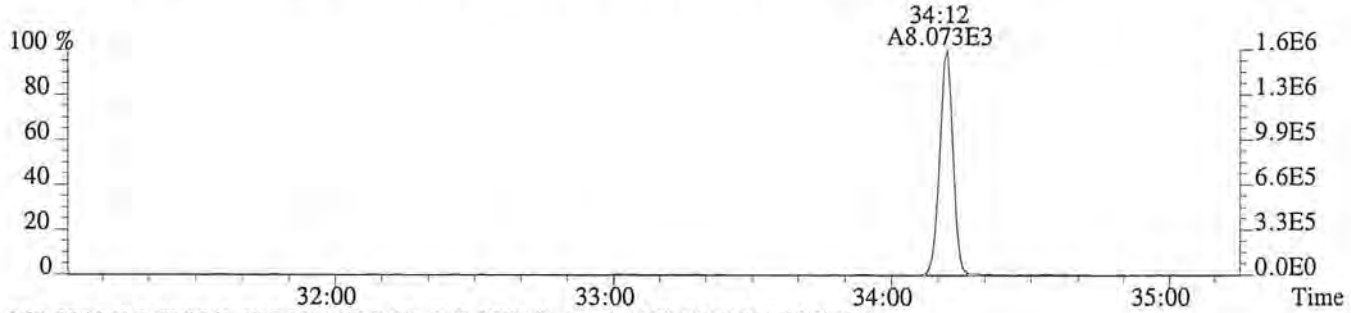
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



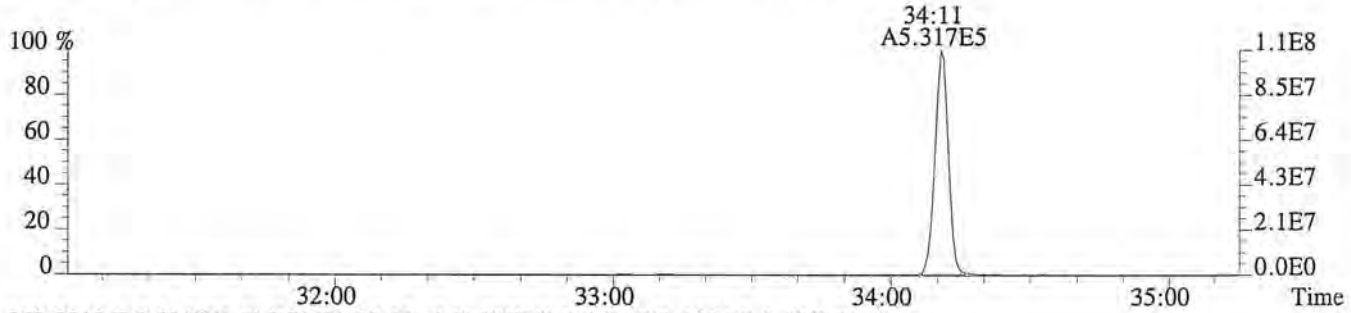
File:P600005 #1-380 Acq:19-AUG-2015 13:20:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2616.0,1.00%,F,T)



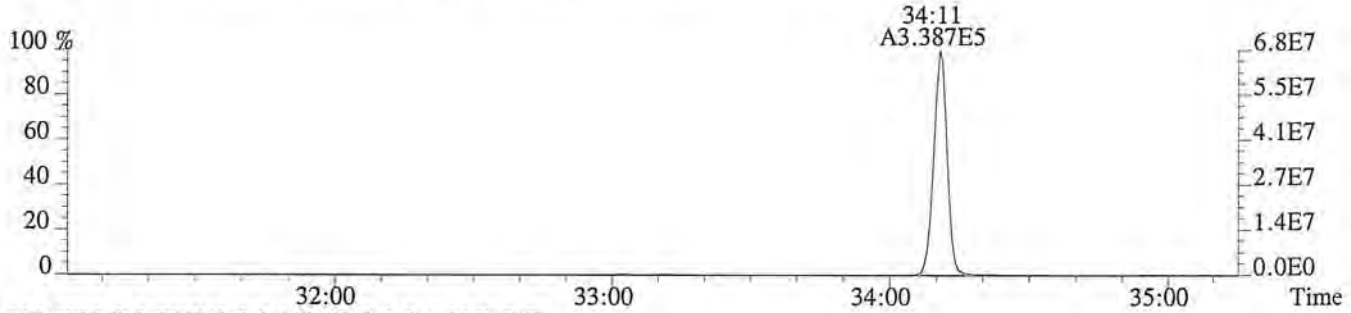
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1836.0,1.00%,F,T)



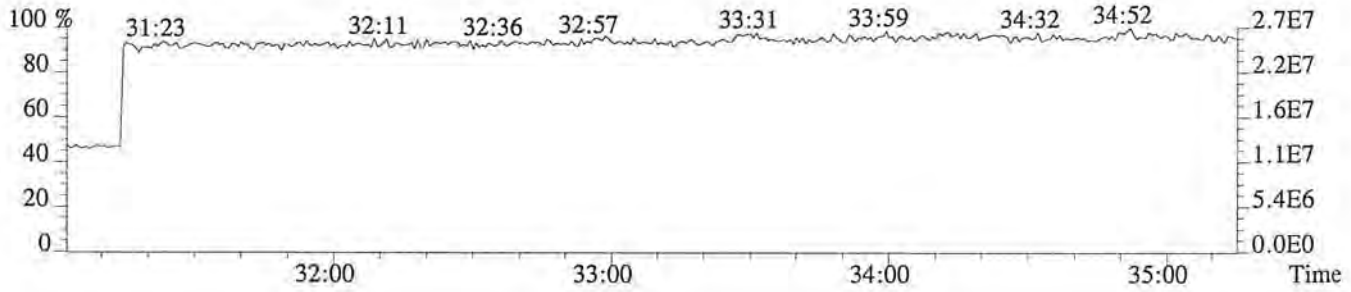
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2256.0,1.00%,F,T)



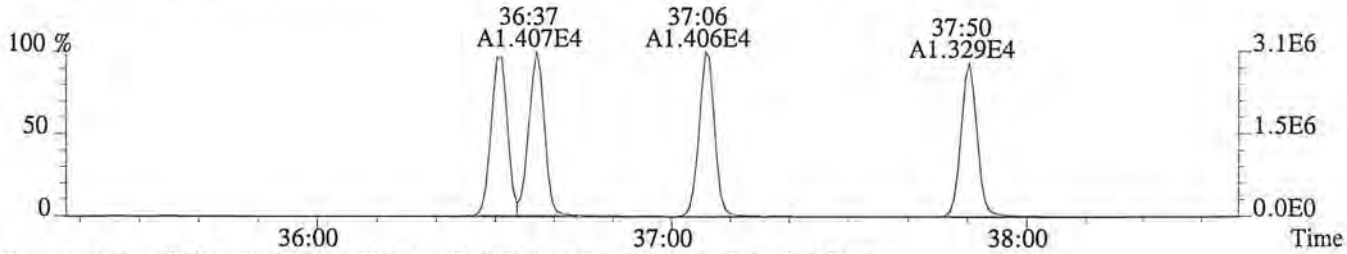
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



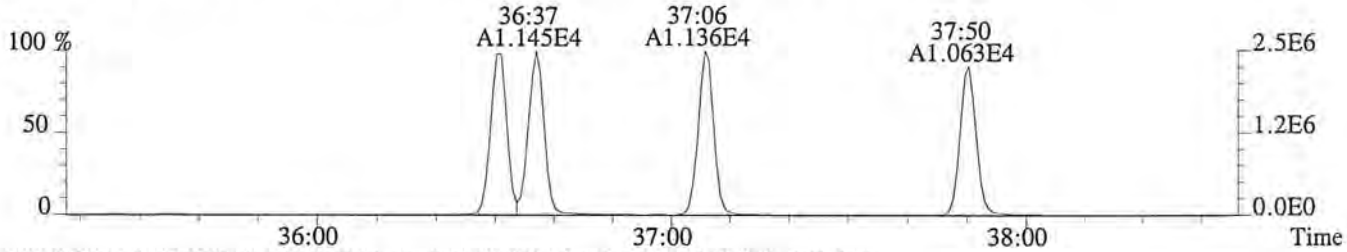
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



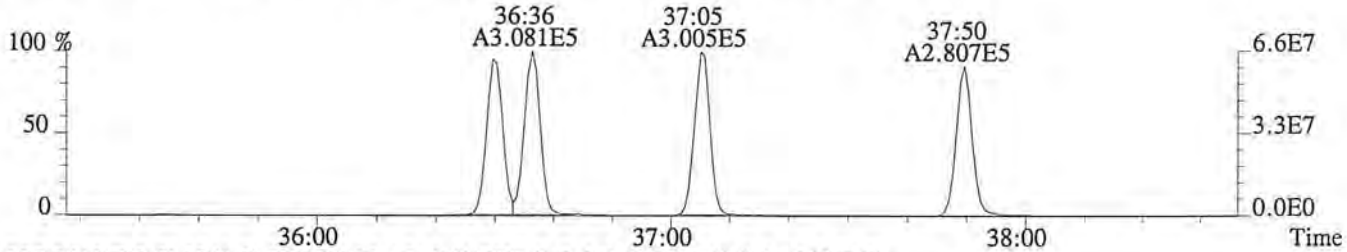
File:P600005 #1-299 Acq:19-AUG-2015 13:20:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1392.0,0.40%,F,T)



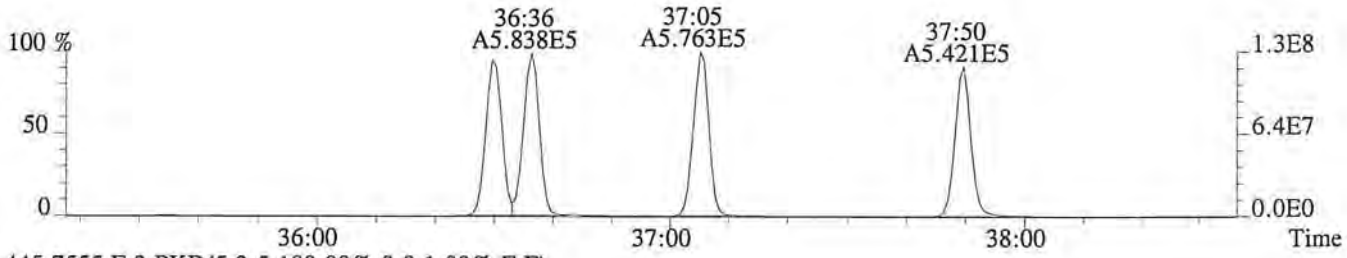
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



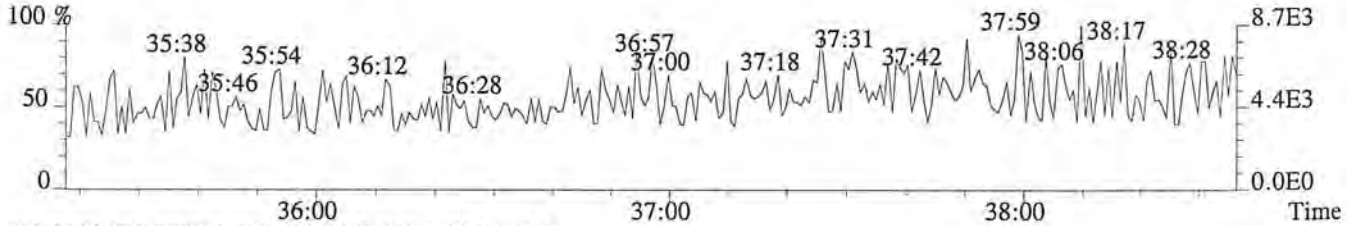
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2660.0,0.40%,F,T)



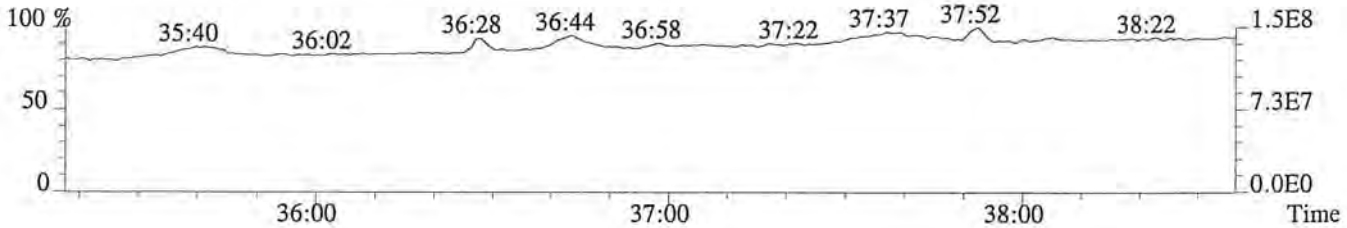
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3552.0,0.40%,F,T)



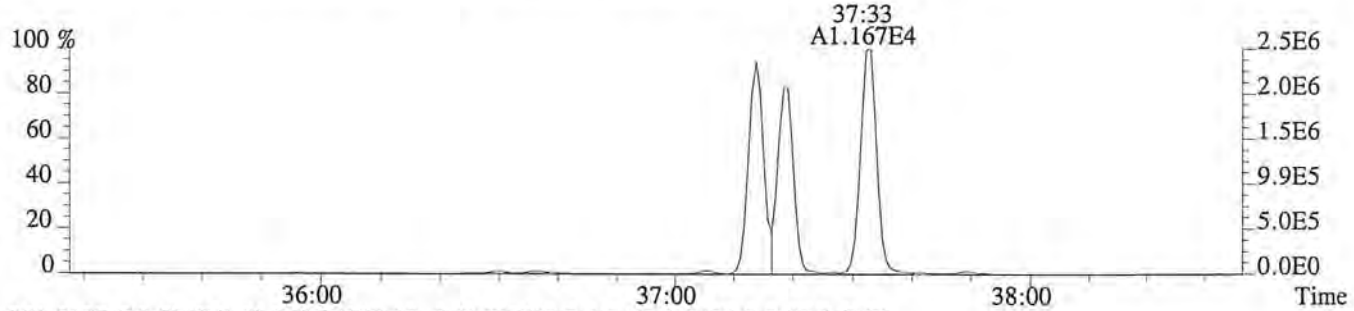
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



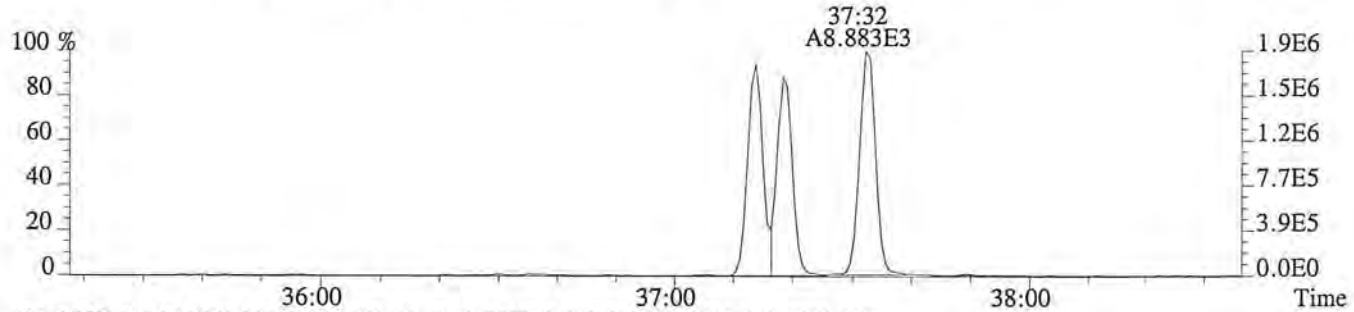
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



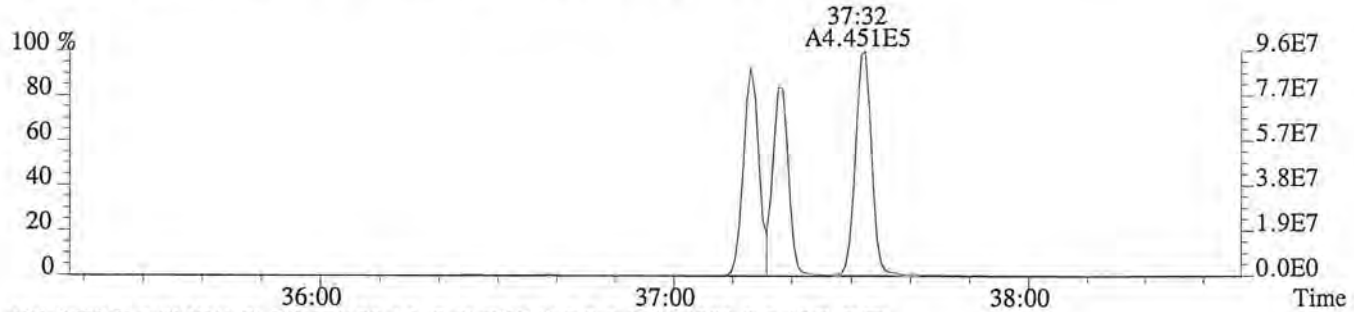
File:P600005 #1-299 Acq:19-AUG-2015 13:20:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)



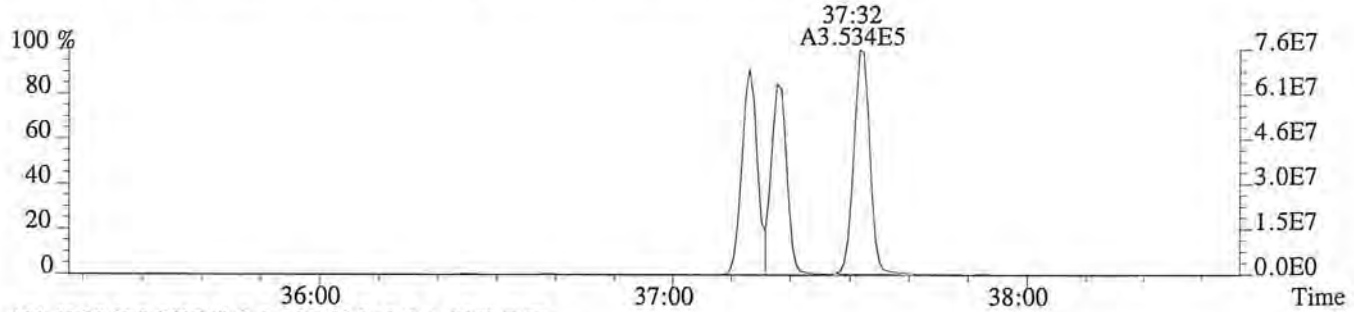
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2420.0,0.40%,F,T)



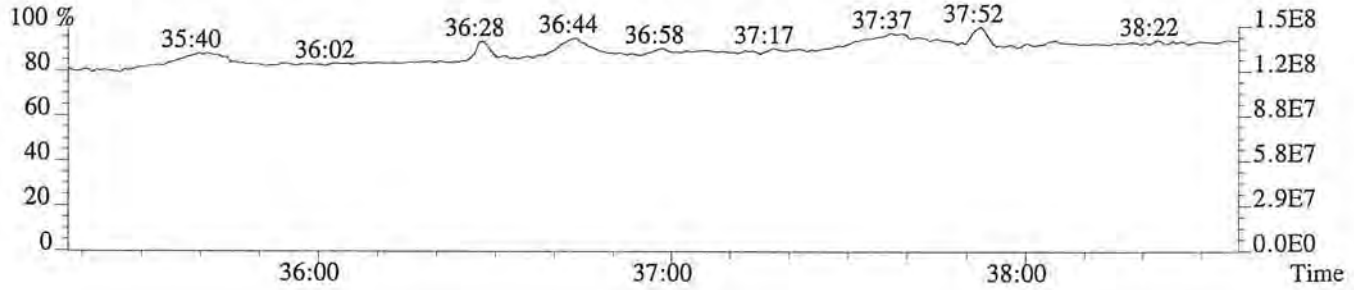
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6344.0,0.40%,F,T)



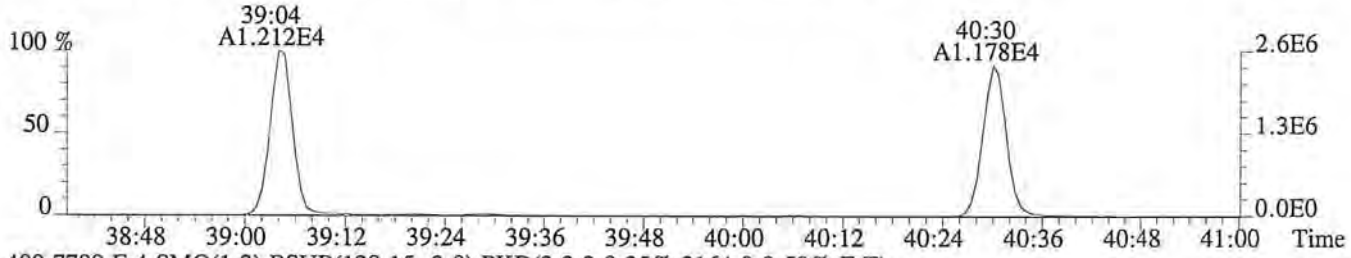
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3308.0,0.40%,F,T)



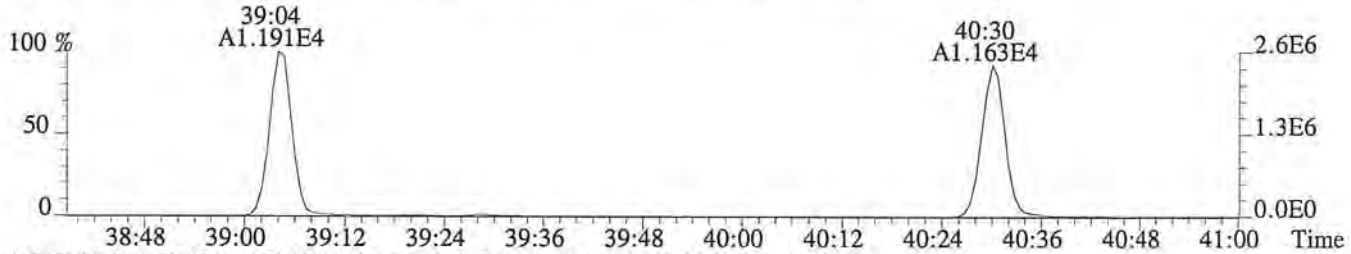
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



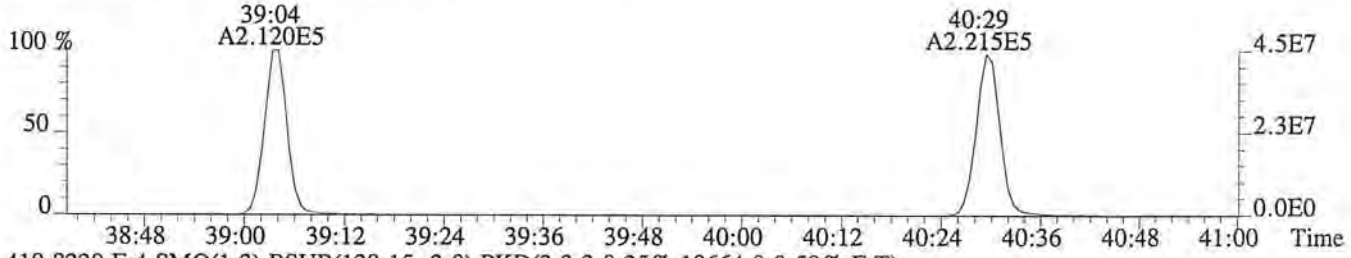
File:P600005 #1-213 Acq:19-AUG-2015 13:20:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1508.0,0.50%,F,T)



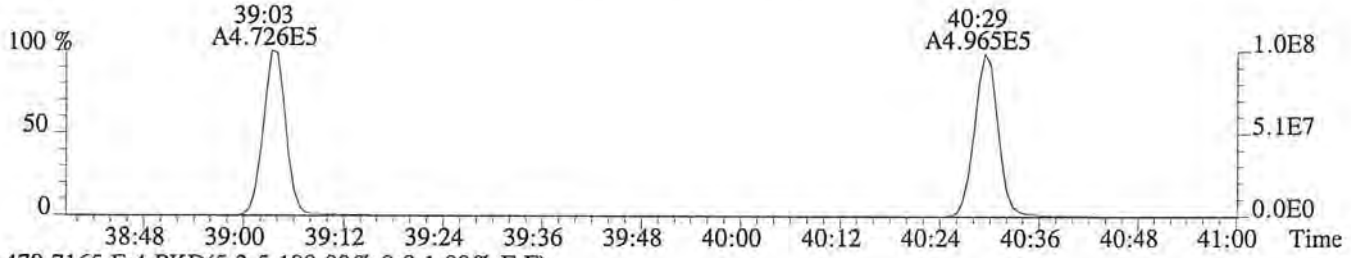
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2164.0,0.50%,F,T)



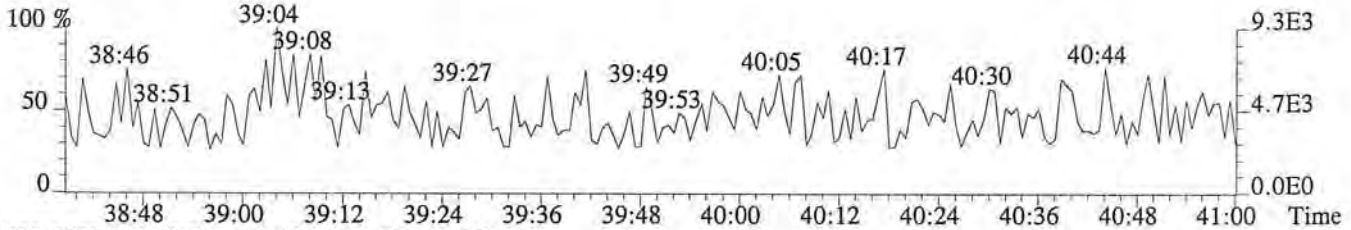
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9868.0,0.50%,F,T)



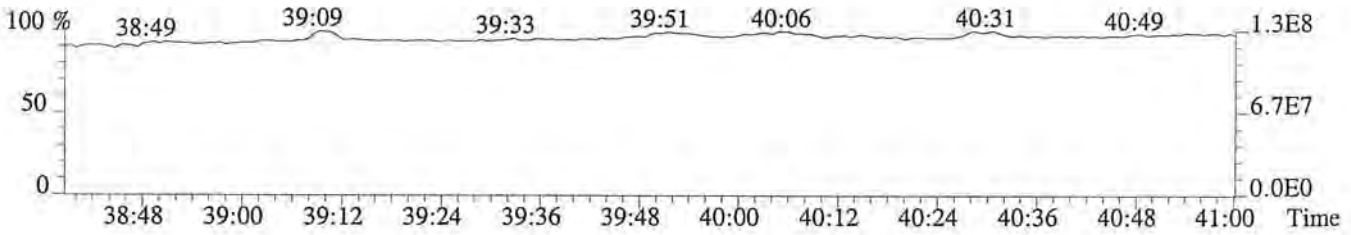
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10664.0,0.50%,F,T)



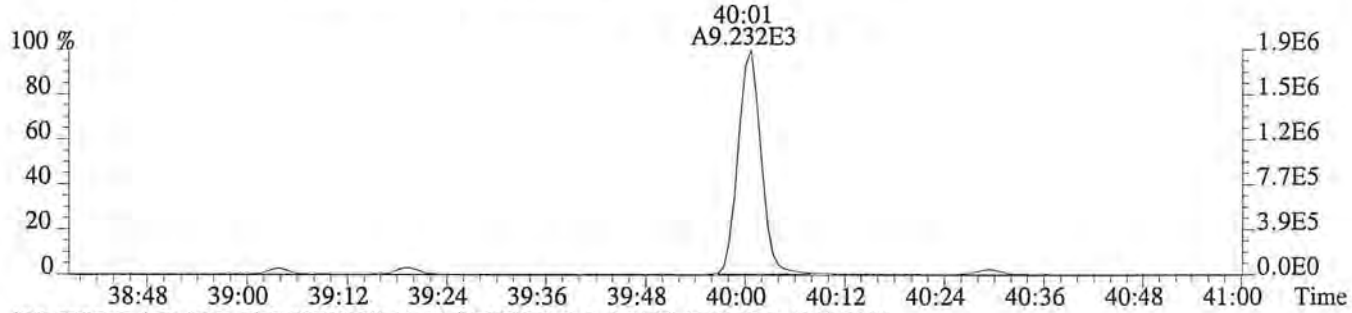
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



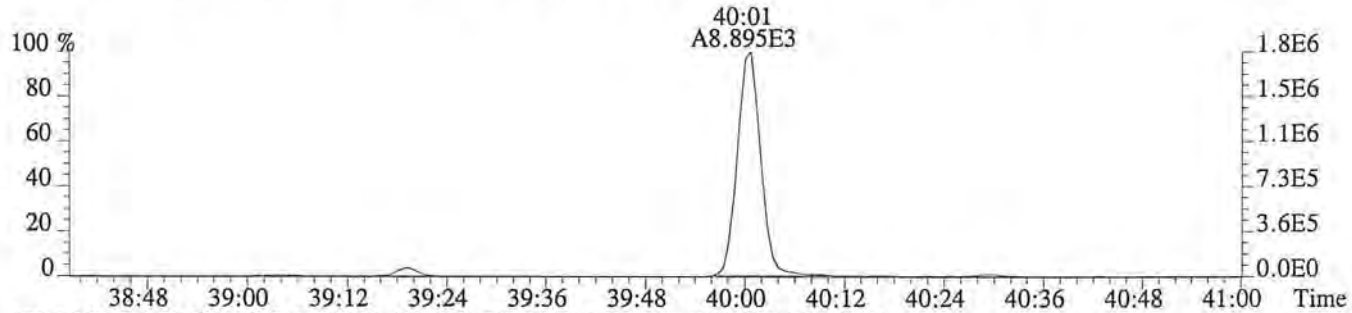
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



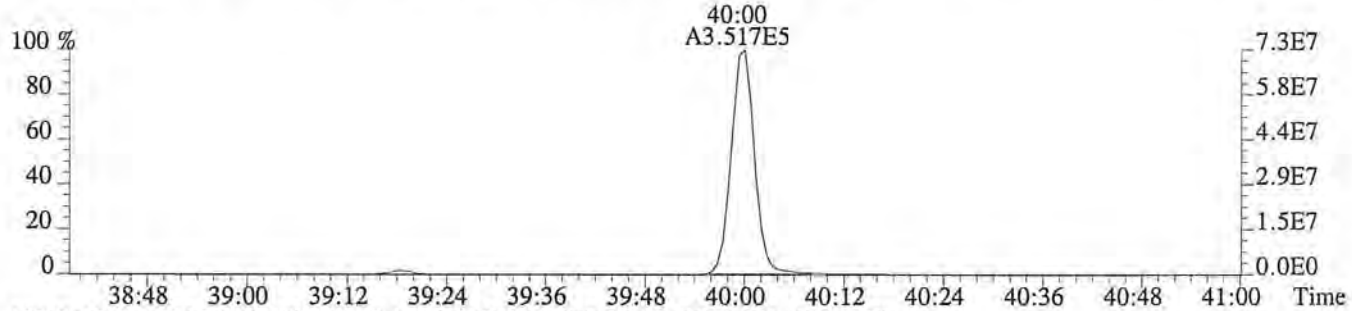
File:P600005 #1-213 Acq:19-AUG-2015 13:20:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1488.0,0.40%,F,T)



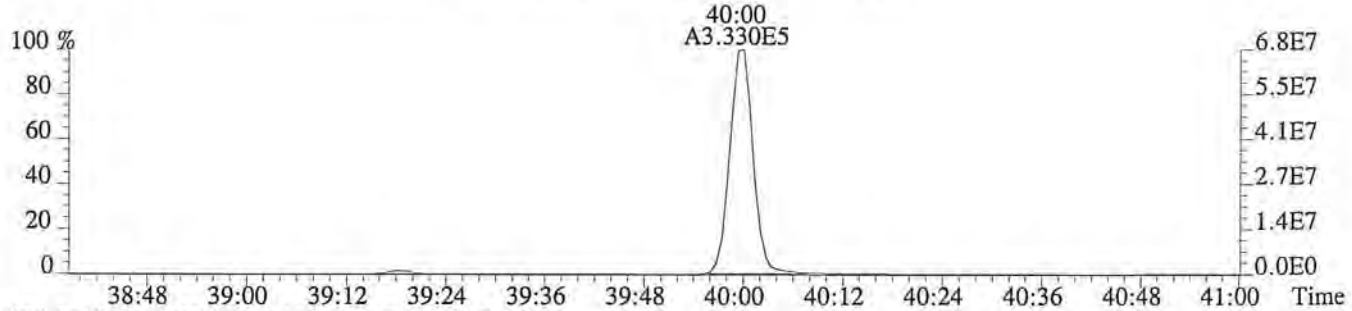
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



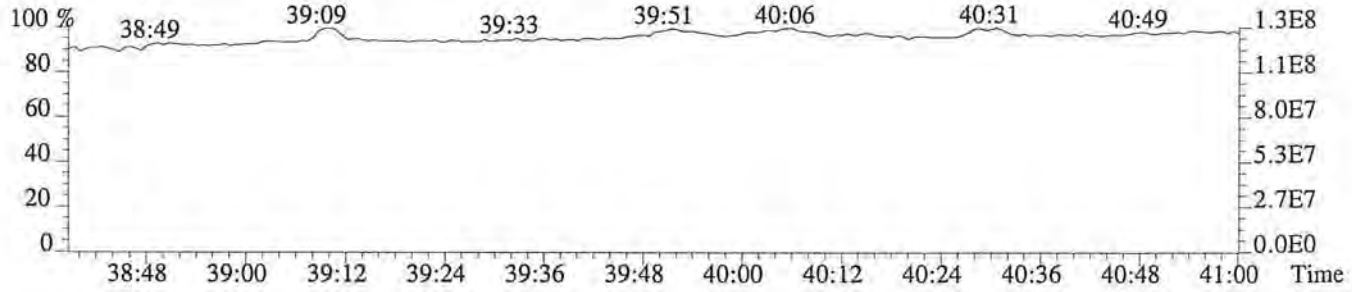
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1952.0,0.40%,F,T)



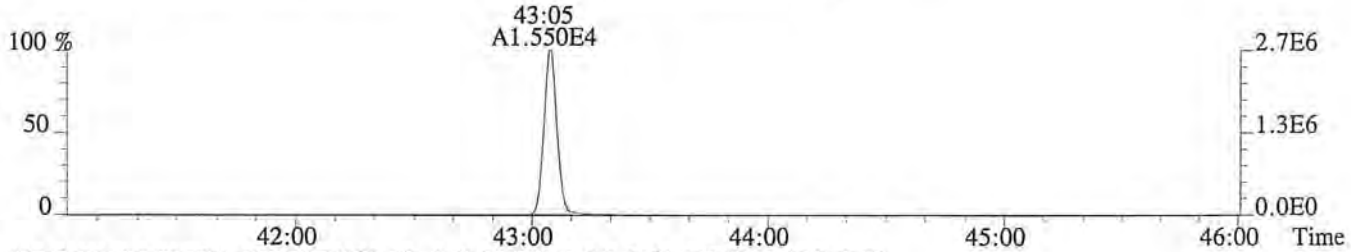
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1872.0,0.40%,F,T)



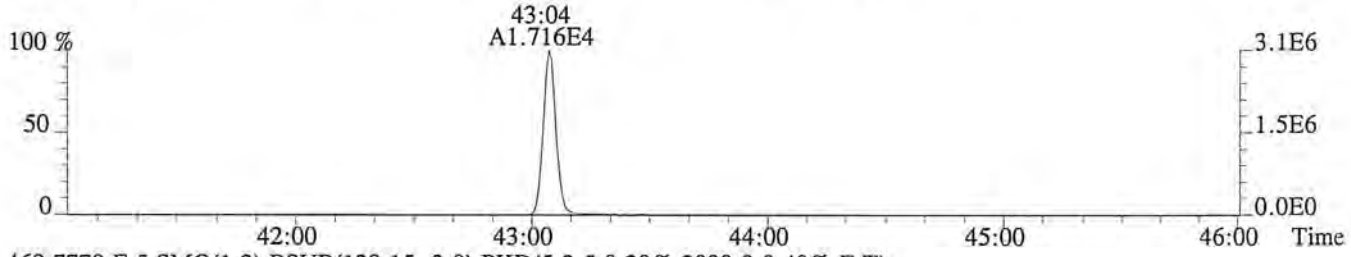
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



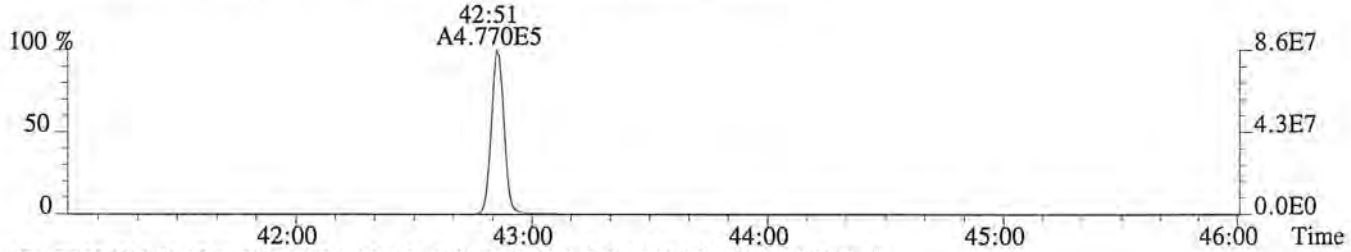
File:P600005 #1-448 Acq:19-AUG-2015 13:20:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1552.0,0.40%,F,T)



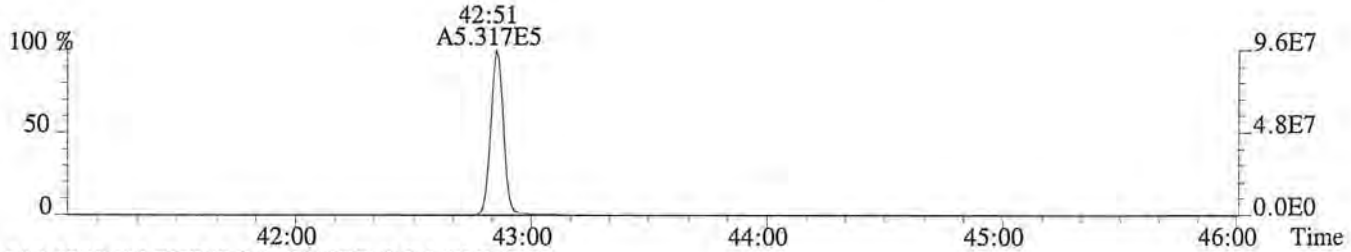
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2284.0,0.40%,F,T)



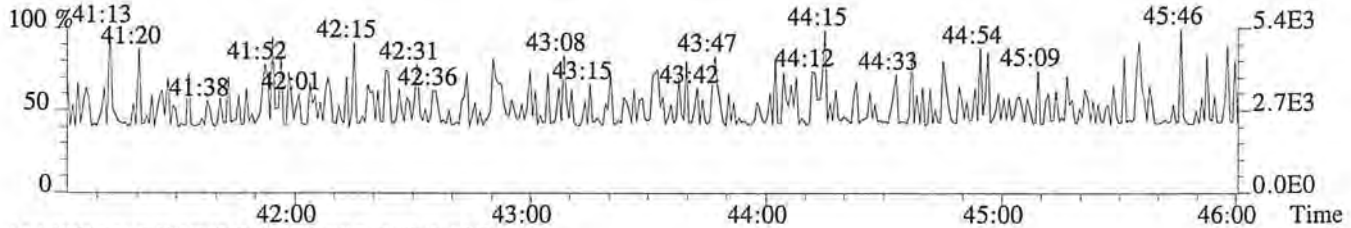
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2080.0,0.40%,F,T)



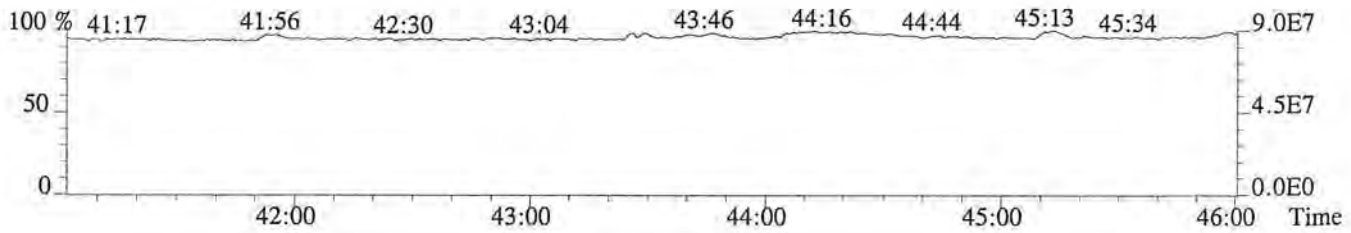
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2024.0,0.40%,F,T)



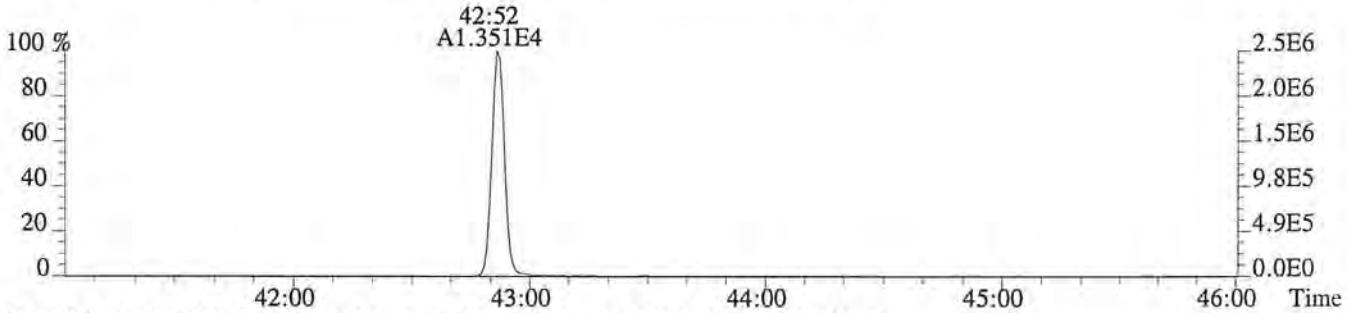
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



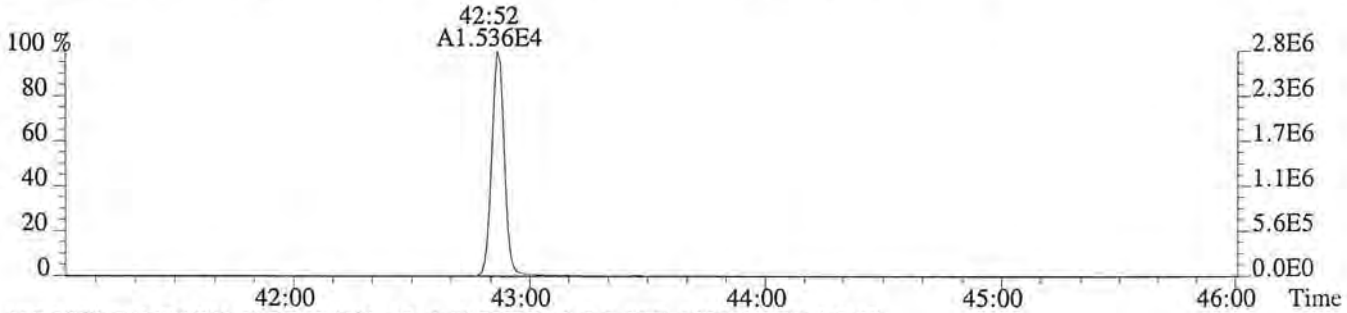
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



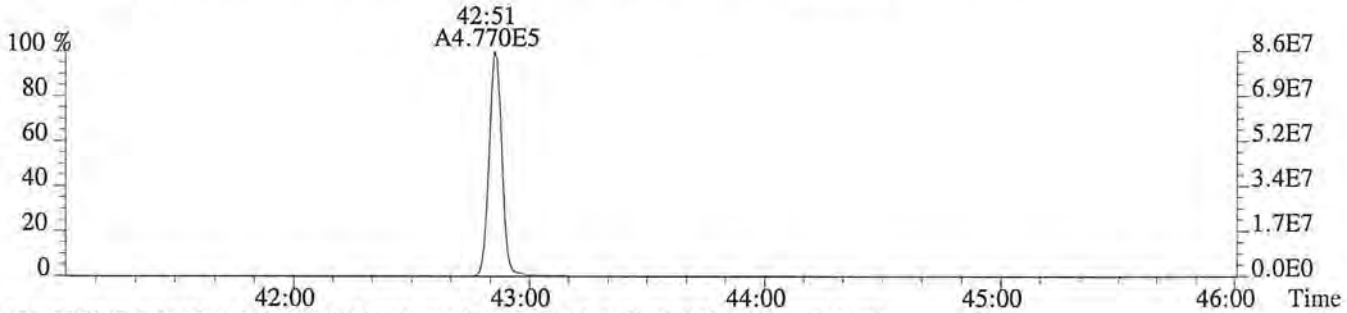
File:P600005 #1-448 Acq:19-AUG-2015 13:20:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1240.0,0.40%,F,T)



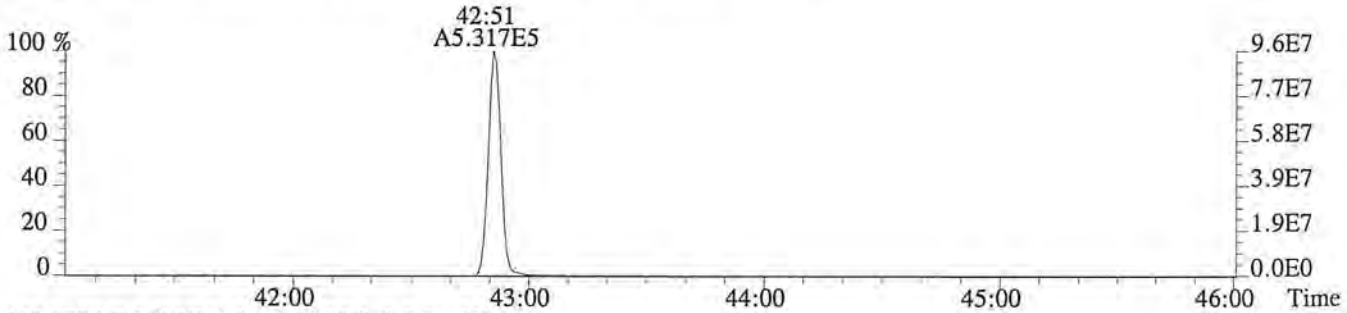
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1880.0,0.40%,F,T)



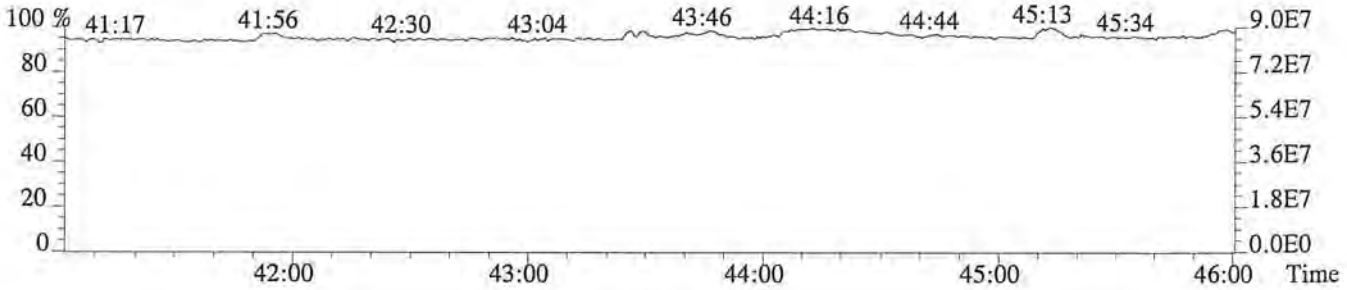
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2080.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2024.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76556

Run #3 Filename P600006 Samp: 1 Inj: 1 Acquired: 19-AUG-15 14:09:28
Processed: 19-AUG-15 16:14:16 Sample ID: CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:04	6.831e+03	8.903e+03	0.77	yes	no	0.941
2	Unk	1,2,3,7,8-PeCDF	33:03	5.624e+04	3.620e+04	1.55	yes	no	0.987
3	Unk	2,3,4,7,8-PeCDF	33:55	5.470e+04	3.513e+04	1.56	yes	no	0.934
4	Unk	1,2,3,4,7,8-HxCDF	36:30	4.851e+04	4.061e+04	1.19	yes	no	1.189
5	Unk	1,2,3,6,7,8-HxCDF	36:37	4.902e+04	4.085e+04	1.20	yes	no	1.126
6	Unk	2,3,4,6,7,8-HxCDF	37:06	4.644e+04	3.802e+04	1.22	yes	no	1.116
7	Unk	1,2,3,7,8,9-HxCDF	37:50	4.318e+04	3.558e+04	1.21	yes	no	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:04	4.095e+04	3.921e+04	1.04	yes	no	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:30	3.945e+04	3.867e+04	1.02	yes	no	1.287
10	Unk	OCDF	43:04	4.756e+04	5.329e+04	0.89	yes	no	1.257
11	Unk	2,3,7,8-TCDD	29:48	6.531e+03	8.367e+03	0.78	yes	no	1.010
12	Unk	1,2,3,7,8-PeCDD	34:11	4.132e+04	2.625e+04	1.57	yes	no	0.932
13	Unk	1,2,3,4,7,8-HxCDD	37:13	3.390e+04	2.716e+04	1.25	yes	no	1.026
14	Unk	1,2,3,6,7,8-HxCDD	37:18	3.366e+04	2.706e+04	1.24	yes	no	1.021
15	Unk	1,2,3,7,8,9-HxCDD	37:32	3.749e+04	2.976e+04	1.26	yes	no	1.133
16	Unk	1,2,3,4,6,7,8-HpCDD	40:00	3.040e+04	2.966e+04	1.02	yes	no	1.034
17	Unk	OCDD	42:52	4.260e+04	4.727e+04	0.90	yes	no	1.111
18	IS	13C-2,3,7,8-TCDF	29:03	3.756e+05	4.770e+05	0.79	yes	no	1.379
19	IS	13C-1,2,3,7,8-PeCDF	33:02	5.735e+05	3.632e+05	1.58	yes	no	1.456
20	IS	13C-2,3,4,7,8-PeCDF	33:54	5.834e+05	3.699e+05	1.58	yes	no	1.465
21	IS	13C-1,2,3,4,7,8-HxCDF	36:30	2.587e+05	4.931e+05	0.52	yes	no	1.075
22	IS	13C-1,2,3,6,7,8-HxCDF	36:36	2.746e+05	5.242e+05	0.52	yes	no	1.158
23	IS	13C-2,3,4,6,7,8-HxCDF	37:05	2.607e+05	4.955e+05	0.53	yes	no	1.133
24	IS	13C-1,2,3,7,8,9-HxCDF	37:49	2.327e+05	4.478e+05	0.52	yes	no	1.024
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:03	1.791e+05	4.052e+05	0.44	yes	no	0.880
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:29	1.869e+05	4.195e+05	0.45	yes	no	0.914
27	IS	13C-2,3,7,8-TCDD	29:47	3.240e+05	4.110e+05	0.79	yes	no	1.193
28	IS	13C-1,2,3,7,8-PeCDD	34:11	4.400e+05	2.800e+05	1.57	yes	no	1.094
29	IS	13C-1,2,3,4,7,8-HxCDD	37:13	3.350e+05	2.646e+05	1.27	yes	no	0.906
30	IS	13C-1,2,3,6,7,8-HxCDD	37:18	3.326e+05	2.649e+05	1.26	yes	no	0.860
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:59	3.000e+05	2.829e+05	1.06	yes	no	0.892
32	IS	13C-OCDD	42:51	3.844e+05	4.278e+05	0.90	yes	no	0.642
33	RS/RT	13C-1,2,3,4-TCDD	29:15	2.808e+05	3.530e+05	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:32	3.755e+05	2.984e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:48	1.549e+04				no	1.263

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76556

Run #3 Filename P600006 Samp: 1 Inj: 1 Acquired: 19-AUG-15 14:09:28
Processed: 19-AUG-15 16:14:16 LAB. ID: CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.33e+06	1.92e+03	7.0e+02	1.77e+06	2.31e+03	7.7e+02
2	1,2,3,7,8-PeCDF	1.11e+07	2.06e+03	5.4e+03	7.11e+06	4.36e+03	1.6e+03
3	2,3,4,7,8-PeCDF	1.15e+07	2.06e+03	5.6e+03	7.43e+06	4.36e+03	1.7e+03
4	1,2,3,4,7,8-HxCDF	1.11e+07	2.51e+03	4.4e+03	9.27e+06	1.32e+03	7.0e+03
5	1,2,3,6,7,8-HxCDF	1.09e+07	2.51e+03	4.3e+03	8.97e+06	1.32e+03	6.8e+03
6	2,3,4,6,7,8-HxCDF	1.09e+07	2.51e+03	4.3e+03	8.92e+06	1.32e+03	6.8e+03
7	1,2,3,7,8,9-HxCDF	9.44e+06	2.51e+03	3.8e+03	7.85e+06	1.32e+03	5.9e+03
8	1,2,3,4,6,7,8-HpCDF	9.29e+06	2.30e+03	4.0e+03	8.87e+06	2.67e+03	3.3e+03
9	1,2,3,4,7,8,9-HpCDF	8.32e+06	2.30e+03	3.6e+03	8.08e+06	2.67e+03	3.0e+03
10	OCDF	8.71e+06	1.61e+03	5.4e+03	9.69e+06	2.88e+03	3.4e+03
11	2,3,7,8-TCDD	1.36e+06	1.46e+03	9.3e+02	1.76e+06	1.87e+03	9.4e+02
12	1,2,3,7,8-PeCDD	8.89e+06	2.56e+03	3.5e+03	5.63e+06	1.18e+03	4.8e+03
13	1,2,3,4,7,8-HxCDD	7.85e+06	1.48e+03	5.3e+03	6.25e+06	2.25e+03	2.8e+03
14	1,2,3,6,7,8-HxCDD	7.75e+06	1.48e+03	5.2e+03	6.23e+06	2.25e+03	2.8e+03
15	1,2,3,7,8,9-HxCDD	8.75e+06	1.48e+03	5.9e+03	6.96e+06	2.25e+03	3.1e+03
16	1,2,3,4,6,7,8-HpCDD	6.55e+06	1.72e+03	3.8e+03	6.45e+06	1.38e+03	4.7e+03
17	OCDD	8.05e+06	1.17e+03	6.9e+03	8.97e+06	2.14e+03	4.2e+03
18	13C-2,3,7,8-TCDF	7.51e+07	6.10e+03	1.2e+04	9.59e+07	3.40e+03	2.8e+04
19	13C-1,2,3,7,8-PeCDF	1.15e+08	9.08e+02	1.3e+05	7.32e+07	2.60e+03	2.8e+04
20	13C-2,3,4,7,8-PeCDF	1.23e+08	9.08e+02	1.4e+05	7.86e+07	2.60e+03	3.0e+04
21	13C-1,2,3,4,7,8-HxCDF	5.85e+07	2.50e+03	2.3e+04	1.11e+08	3.68e+03	3.0e+04
22	13C-1,2,3,6,7,8-HxCDF	6.06e+07	2.50e+03	2.4e+04	1.14e+08	3.68e+03	3.1e+04
23	13C-2,3,4,6,7,8-HxCDF	6.08e+07	2.50e+03	2.4e+04	1.15e+08	3.68e+03	3.1e+04
24	13C-1,2,3,7,8,9-HxCDF	5.10e+07	2.50e+03	2.0e+04	9.88e+07	3.68e+03	2.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.06e+07	6.06e+03	6.7e+03	9.25e+07	1.74e+04	5.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.94e+07	6.06e+03	6.5e+03	8.82e+07	1.74e+04	5.1e+03
27	13C-2,3,7,8-TCDD	6.67e+07	1.14e+04	5.9e+03	8.49e+07	5.64e+03	1.5e+04
28	13C-1,2,3,7,8-PeCDD	9.46e+07	2.58e+03	3.7e+04	5.97e+07	1.92e+03	3.1e+04
29	13C-1,2,3,4,7,8-HxCDD	7.70e+07	6.96e+03	1.1e+04	6.12e+07	3.23e+03	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	7.58e+07	6.96e+03	1.1e+04	6.04e+07	3.23e+03	1.9e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.47e+07	2.50e+03	2.6e+04	6.11e+07	1.71e+03	3.6e+04
32	13C-OCDD	7.28e+07	1.45e+03	5.0e+04	8.10e+07	1.89e+03	4.3e+04
33	13C-1,2,3,4-TCDD	5.80e+07	1.14e+04	5.1e+03	7.31e+07	5.64e+03	1.3e+04
34	13C-1,2,3,7,8,9-HxCDD	8.72e+07	6.96e+03	1.3e+04	6.94e+07	3.23e+03	2.1e+04
35	37Cl-2,3,7,8-TCDD	3.31e+06	3.01e+03	1.1e+03			

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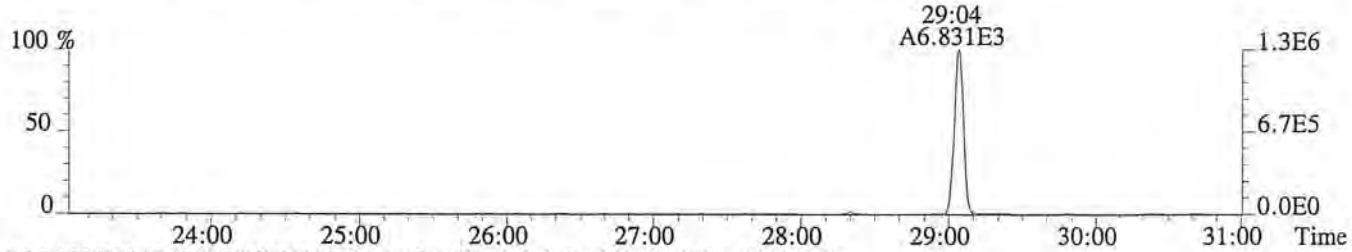
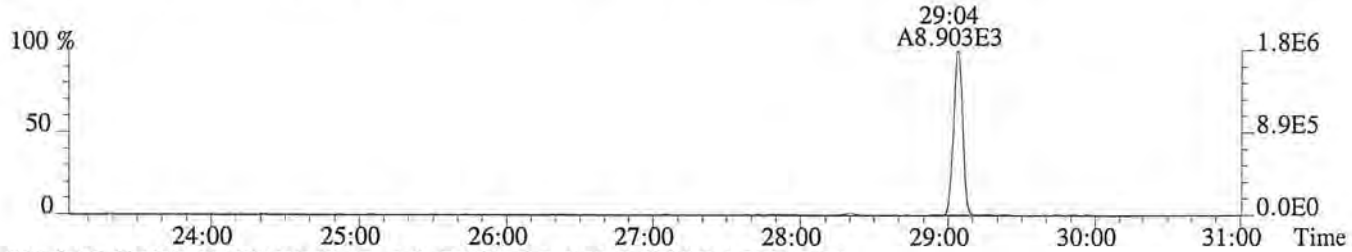
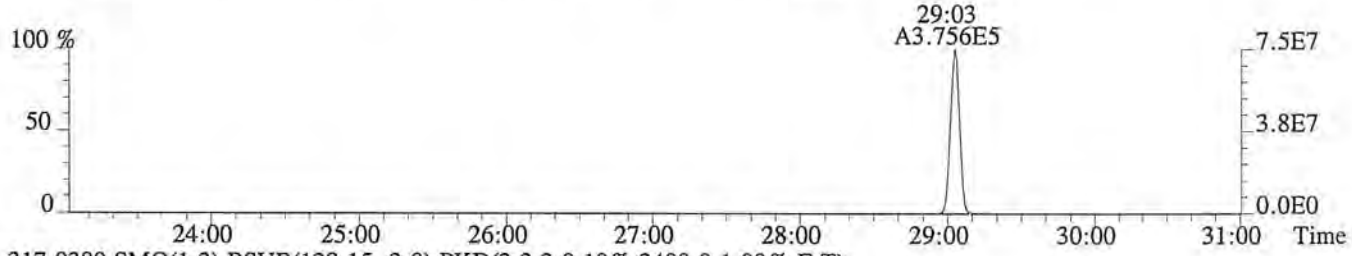
File:P600006 #1-566 Acq:19-AUG-2015 14:09:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1916.0,1.00%,F,T)



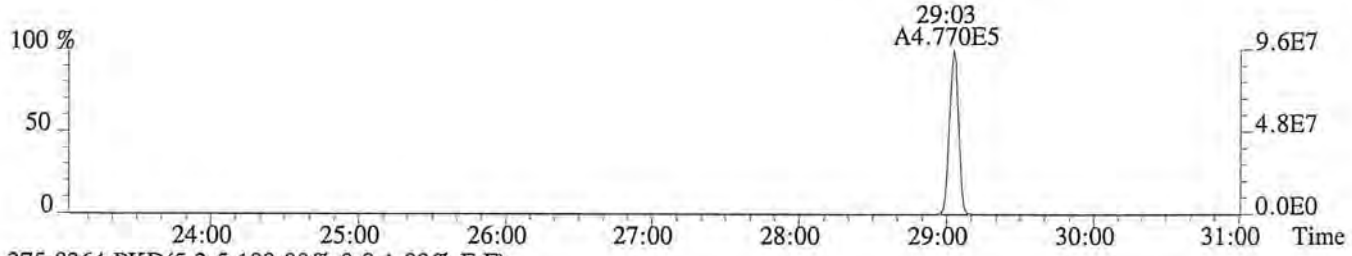
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2312.0,1.00%,F,T)



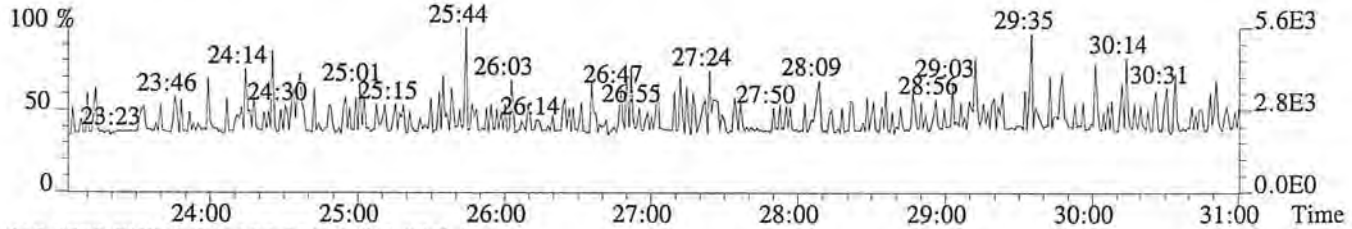
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6104.0,1.00%,F,T)



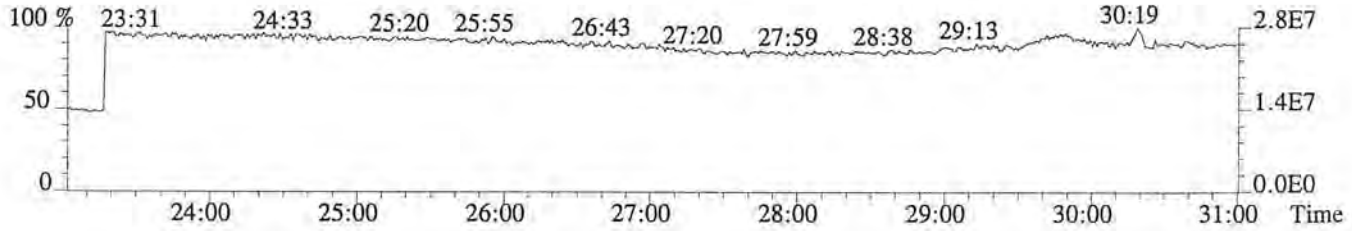
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3400.0,1.00%,F,T)



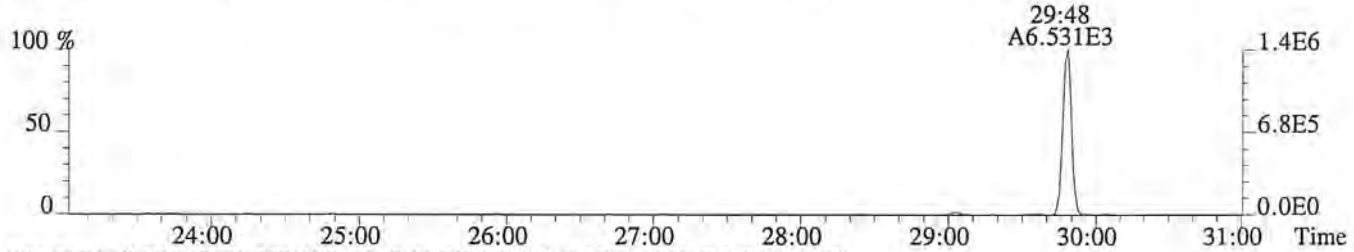
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



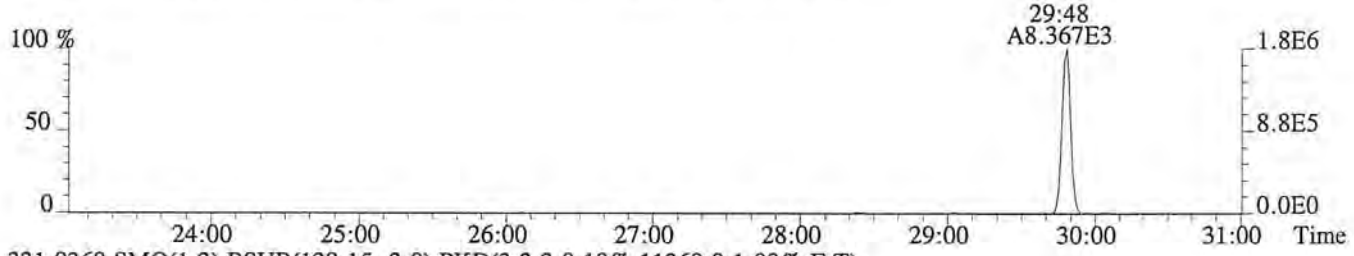
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



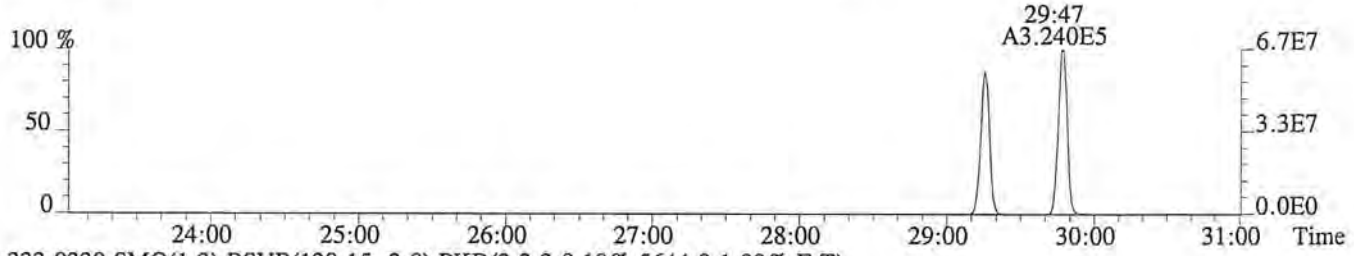
File:P600006 #1-566 Acq:19-AUG-2015 14:09:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1456.0,1.00%,F,T)



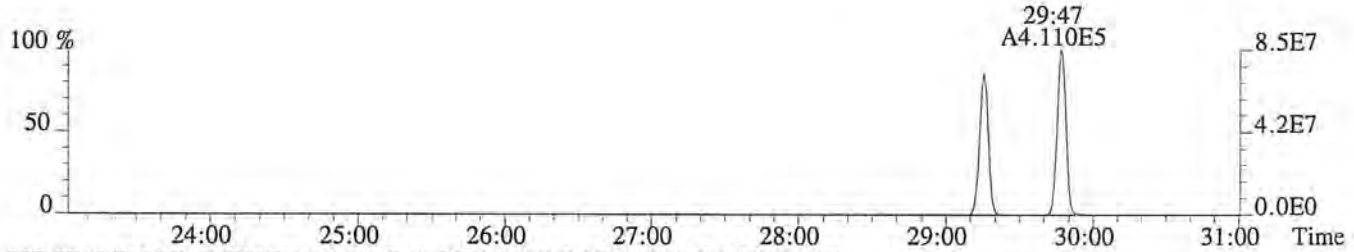
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1872.0,1.00%,F,T)



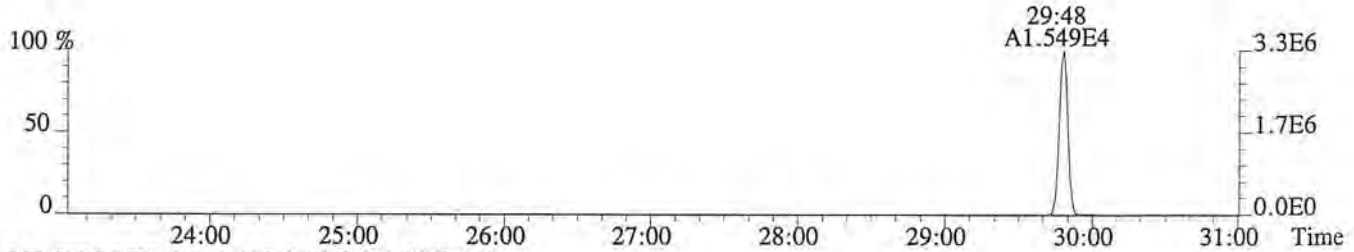
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11360.0,1.00%,F,T)



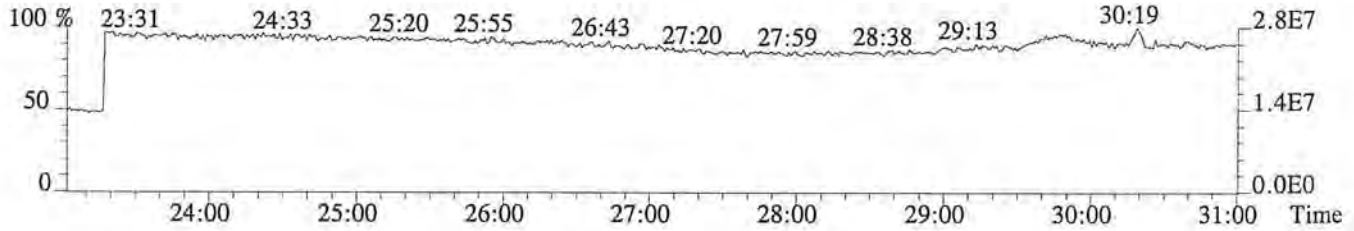
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5644.0,1.00%,F,T)



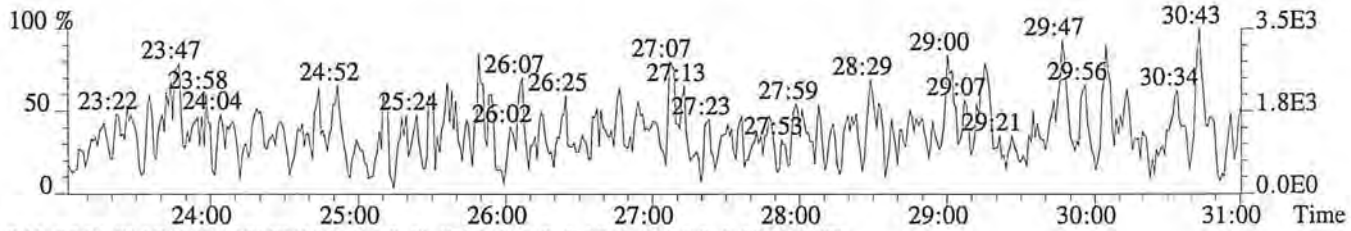
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3012.0,1.00%,F,T)



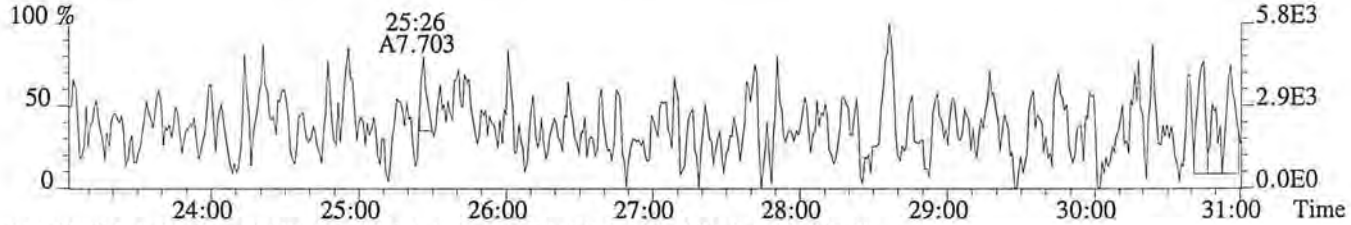
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



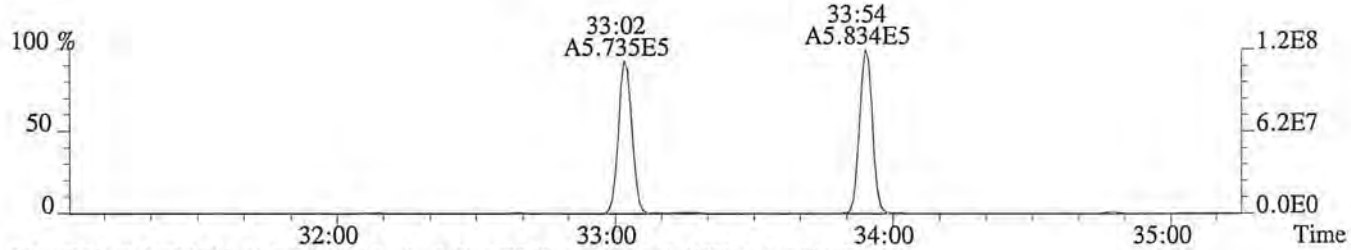
File:P600006 #1-566 Acq:19-AUG-2015 14:09:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



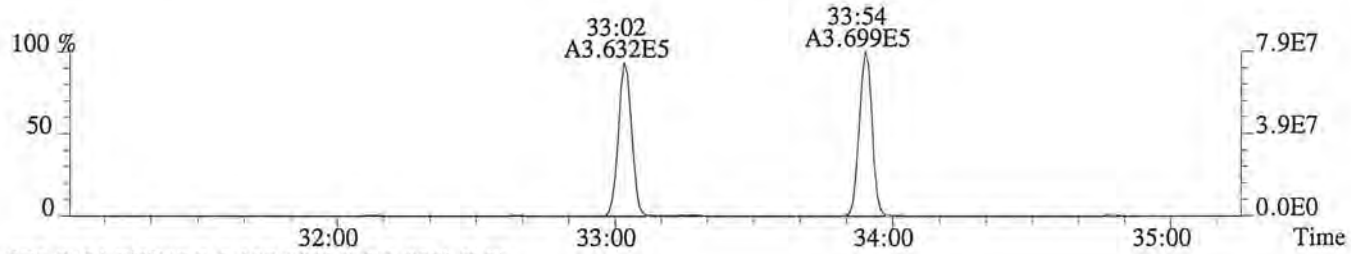
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2616.0,1.00%,F,T)



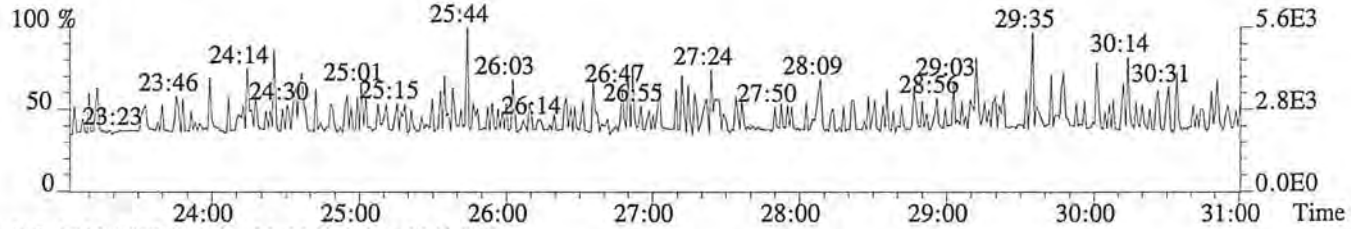
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



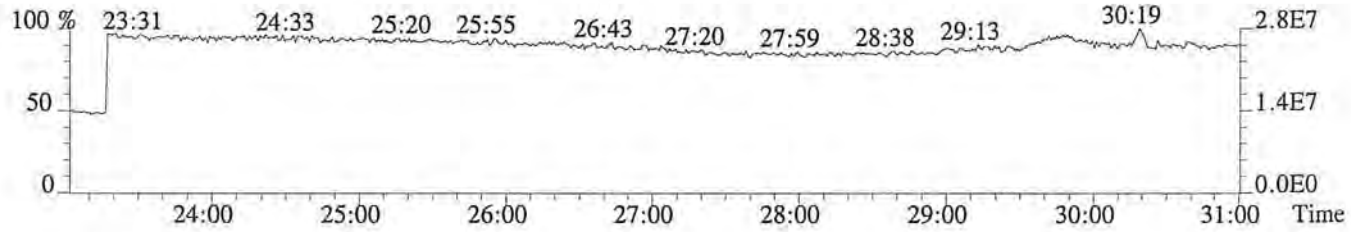
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2600.0,1.00%,F,T)



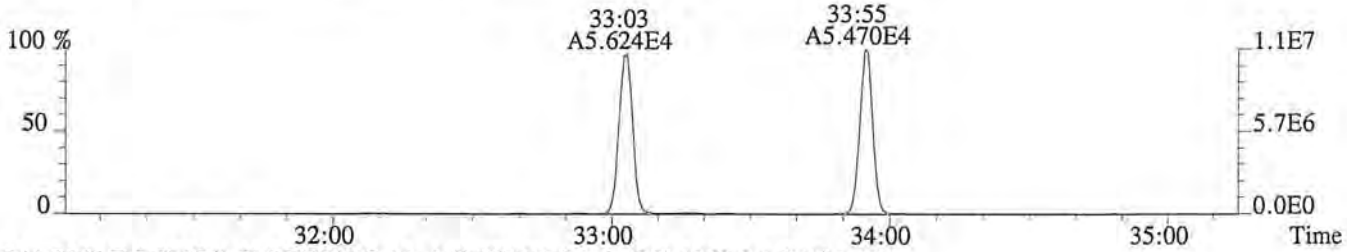
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



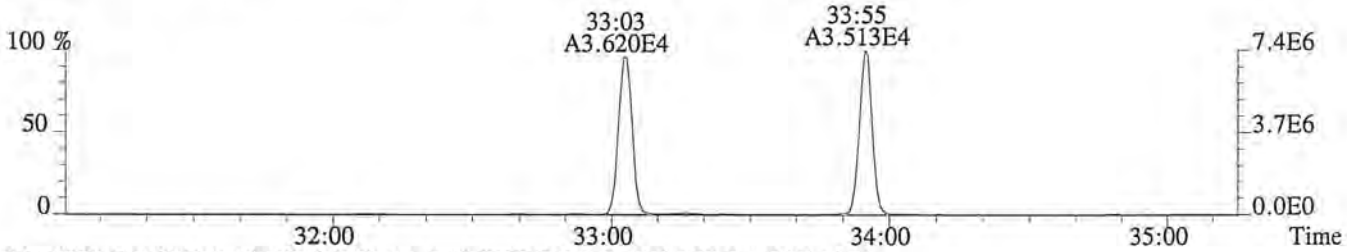
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



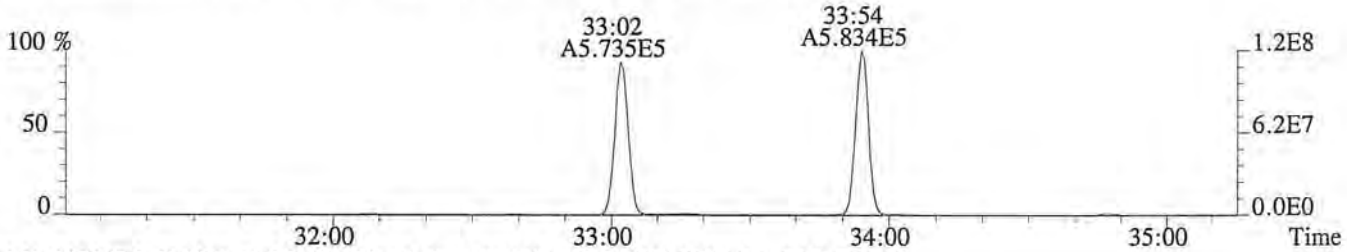
File:P600006 #1-380 Acq:19-AUG-2015 14:09:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2060.0,1.00%,F,T)



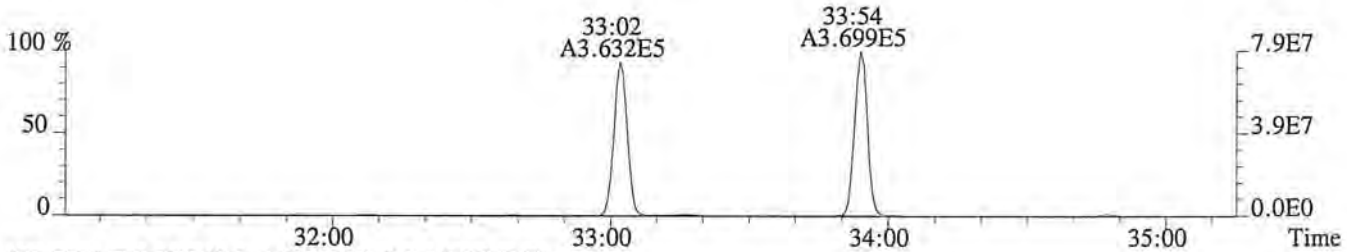
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4360.0,1.00%,F,T)



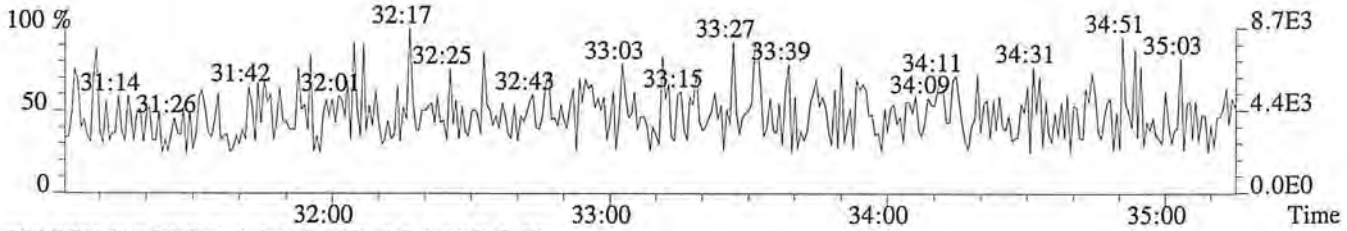
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



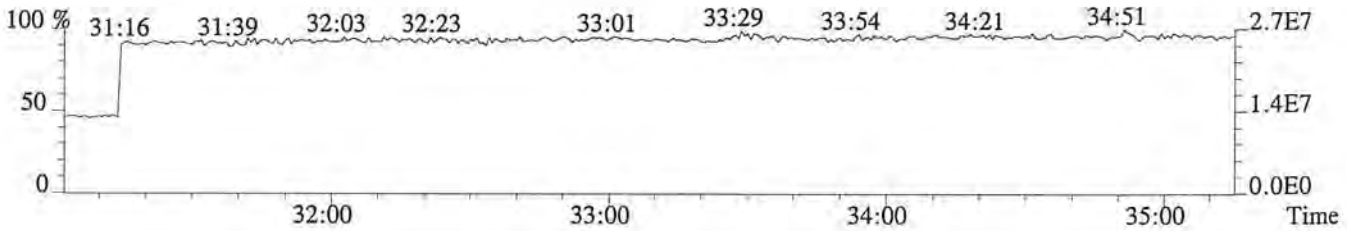
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2600.0,1.00%,F,T)



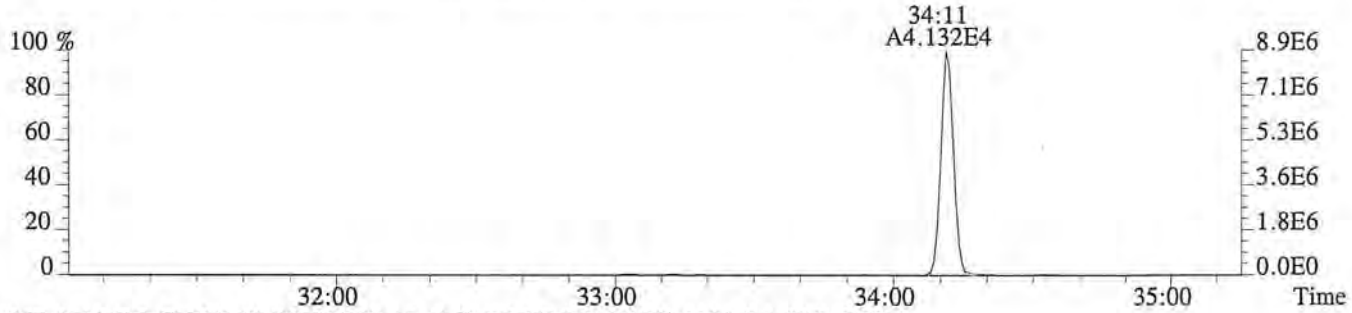
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



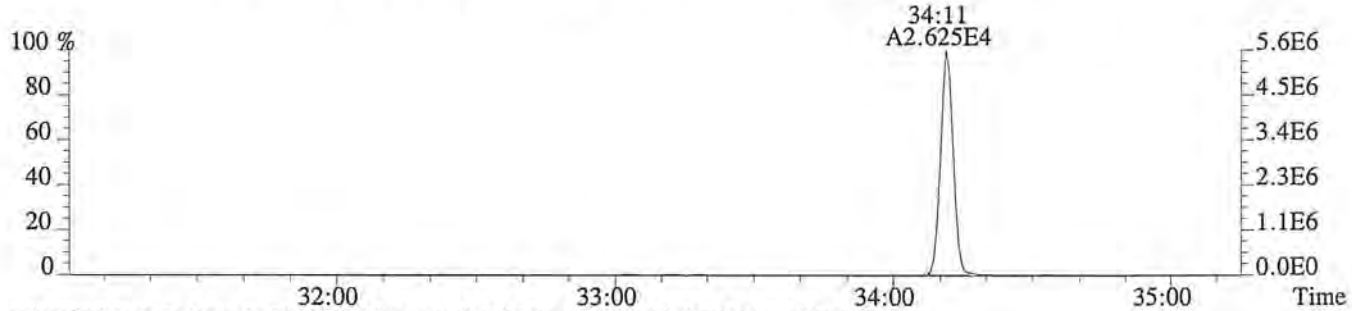
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



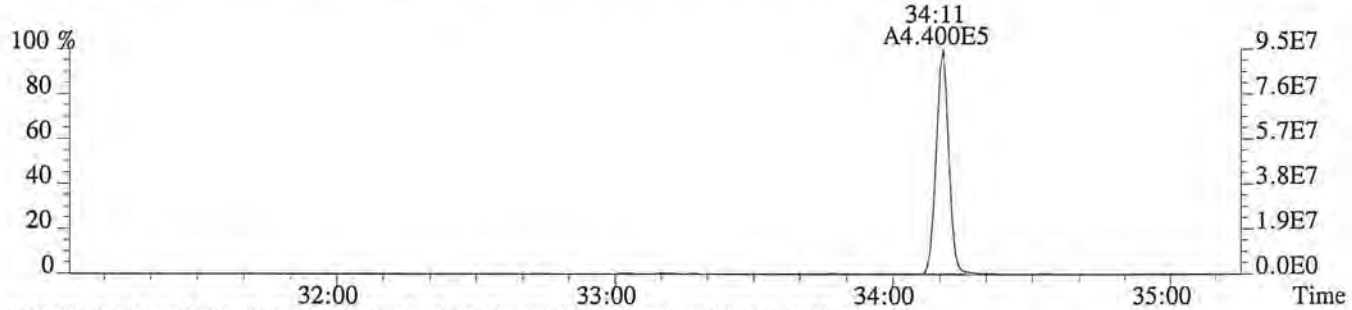
File:P600006 #1-380 Acq:19-AUG-2015 14:09:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2564.0,1.00%,F,T)



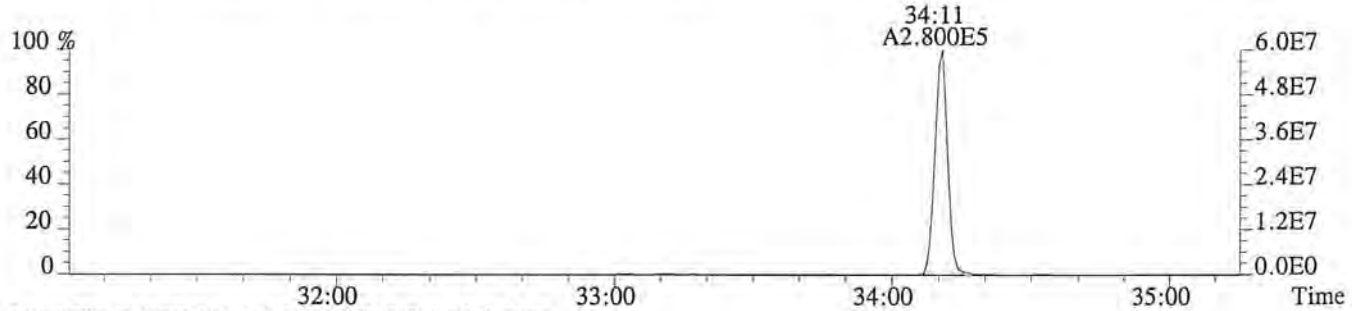
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1184.0,1.00%,F,T)



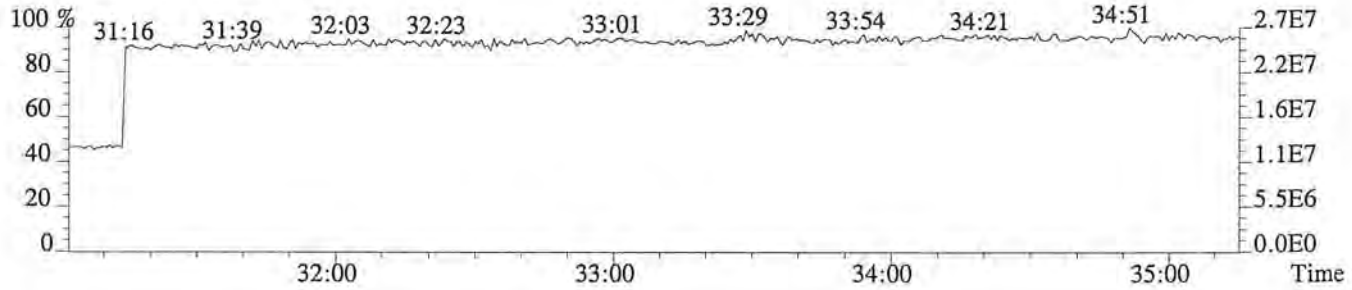
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2580.0,1.00%,F,T)



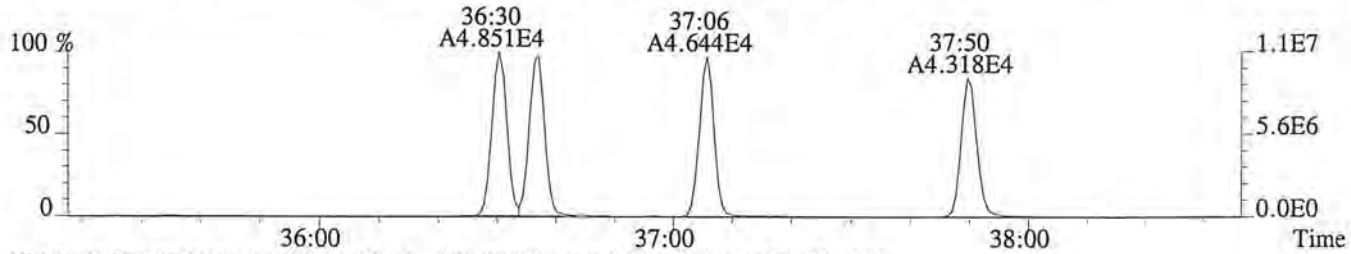
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1916.0,1.00%,F,T)



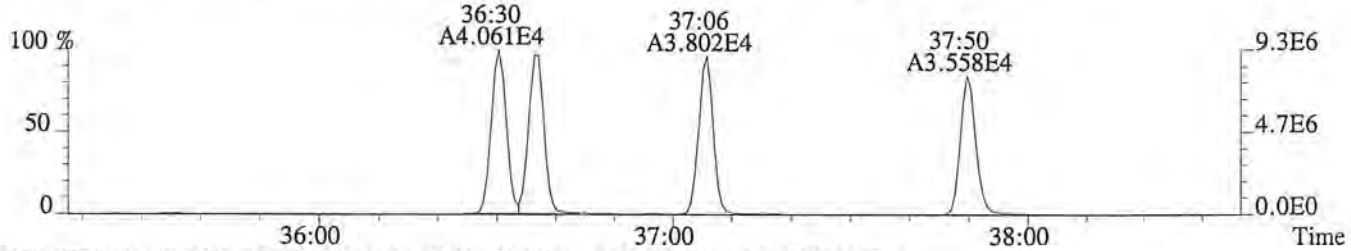
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



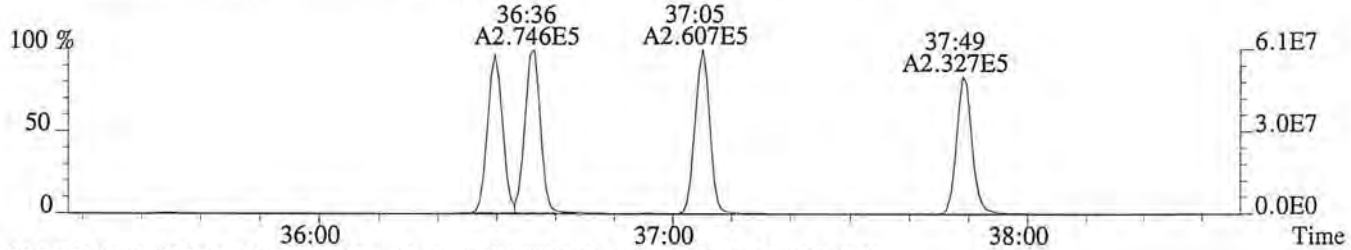
File:P600006 #1-299 Acq:19-AUG-2015 14:09:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2512.0,0.40%,F,T)



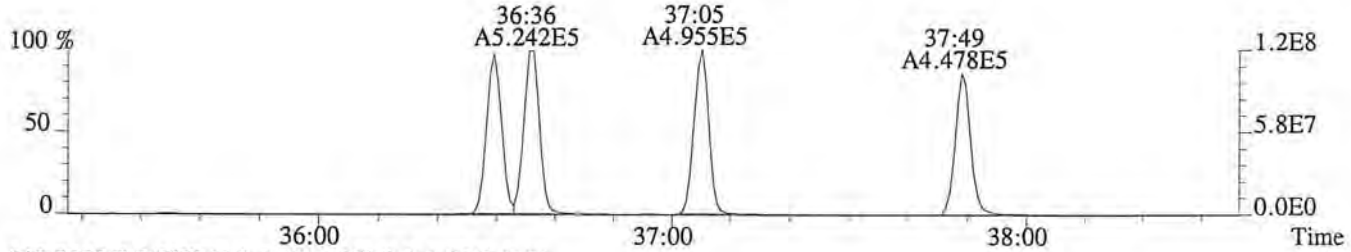
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)



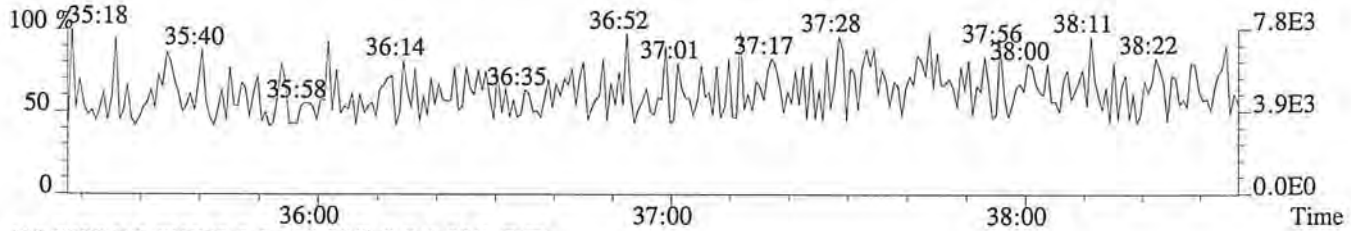
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2504.0,0.40%,F,T)



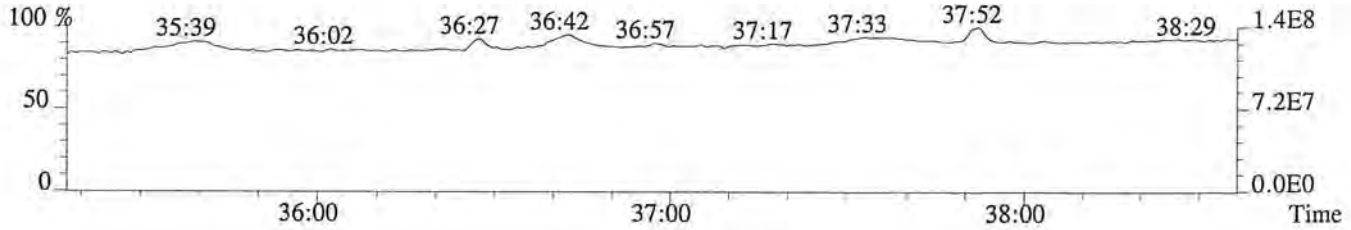
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3684.0,0.40%,F,T)



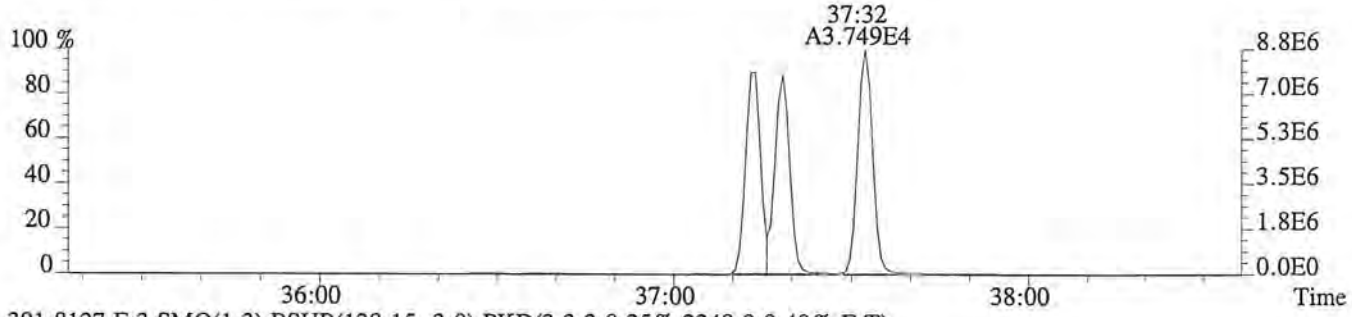
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



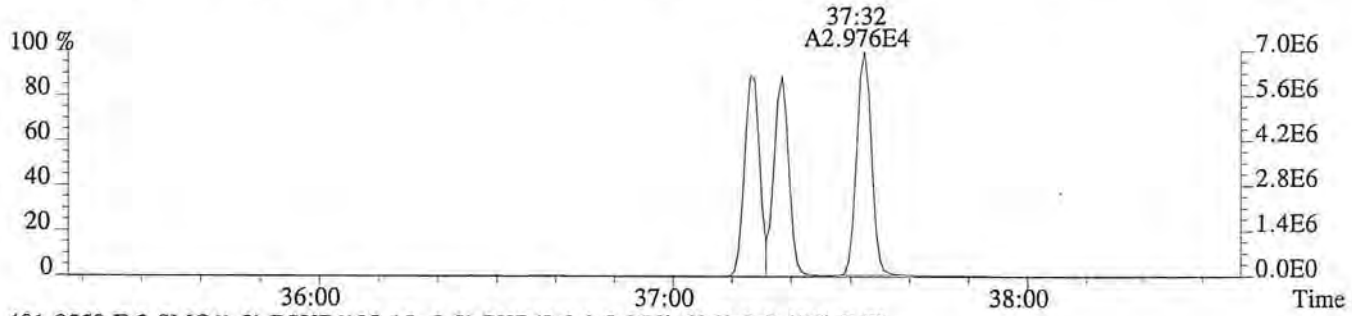
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



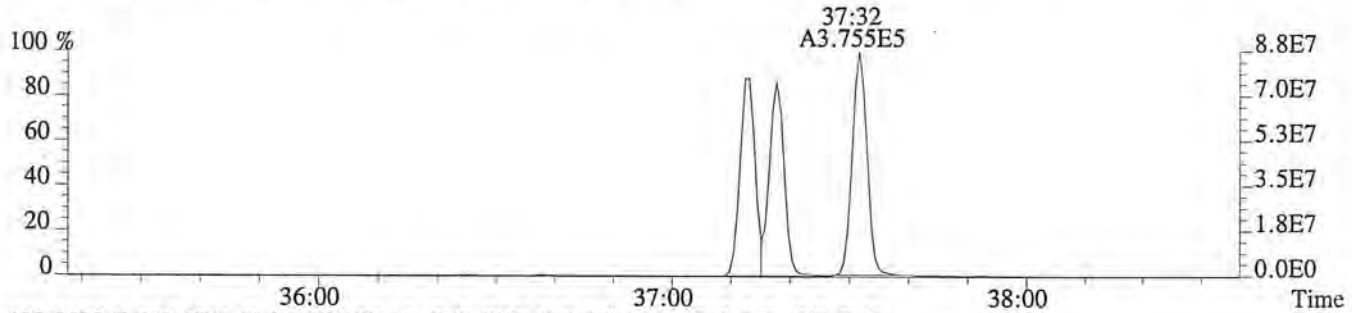
File:P600006 #1-299 Acq:19-AUG-2015 14:09:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1476.0,0.40%,F,T)



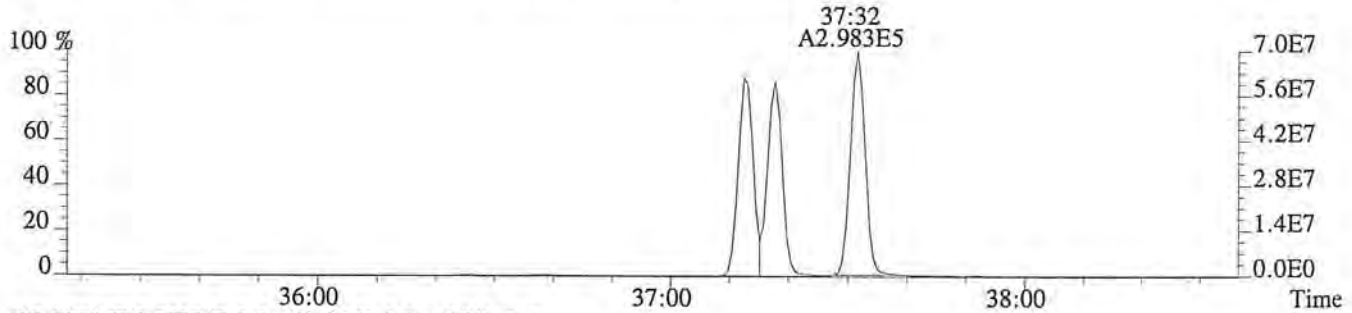
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2248.0,0.40%,F,T)



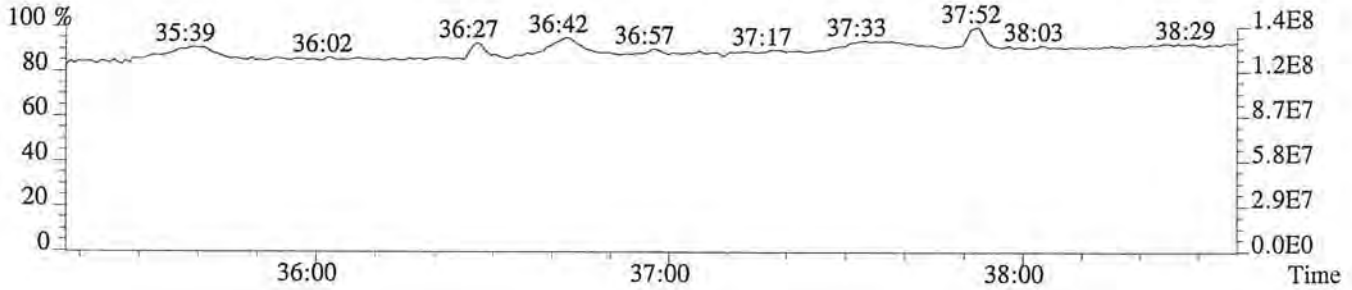
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6960.0,0.40%,F,T)



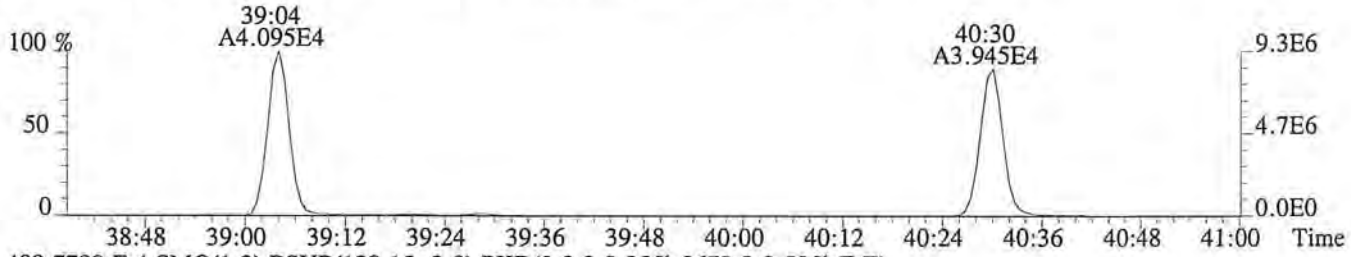
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3232.0,0.40%,F,T)



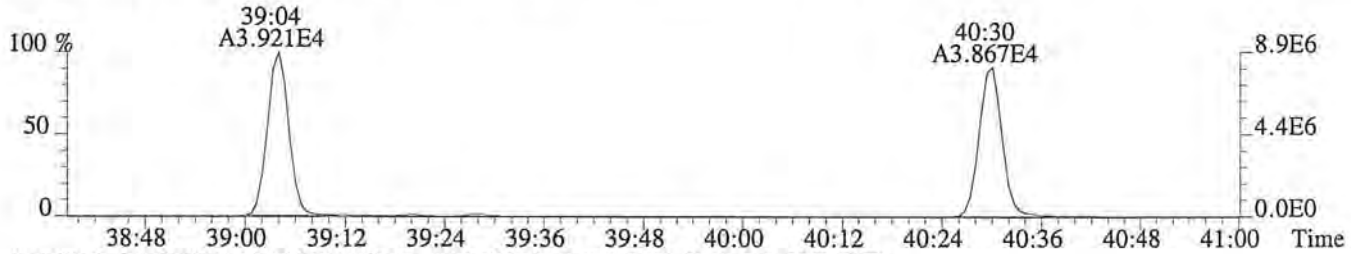
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



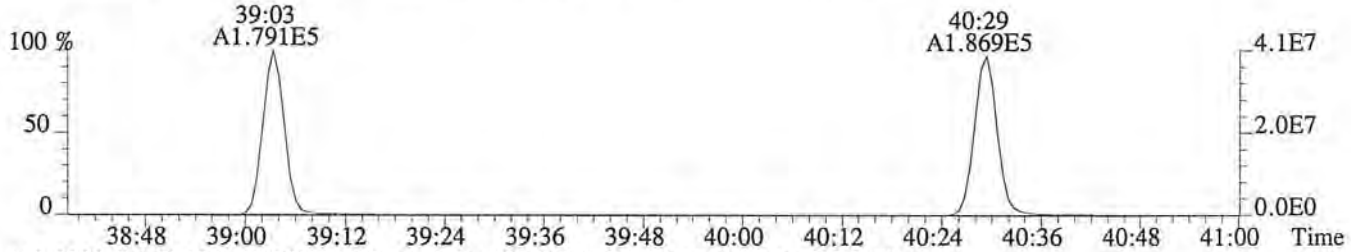
File:P600006 #1-213 Acq:19-AUG-2015 14:09:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2304.0,0.50%,F,T)



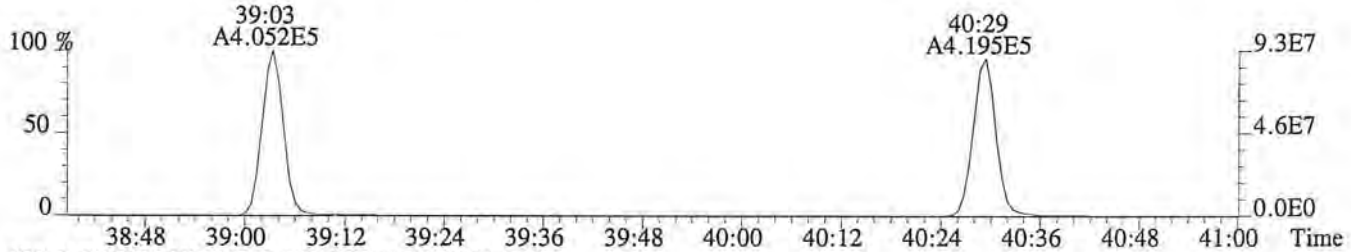
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2672.0,0.50%,F,T)



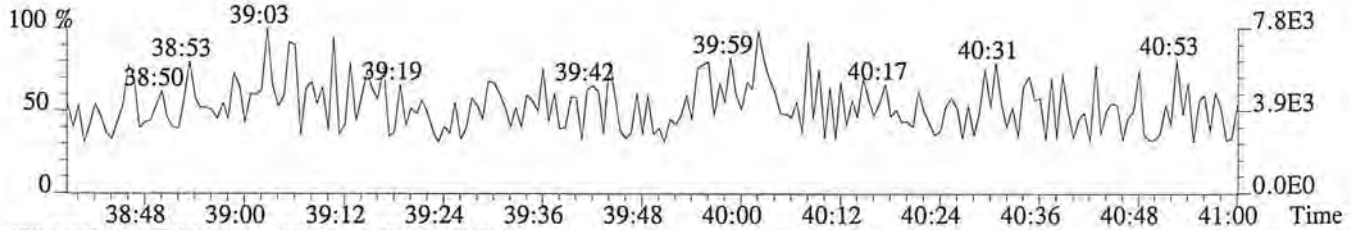
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6060.0,0.50%,F,T)



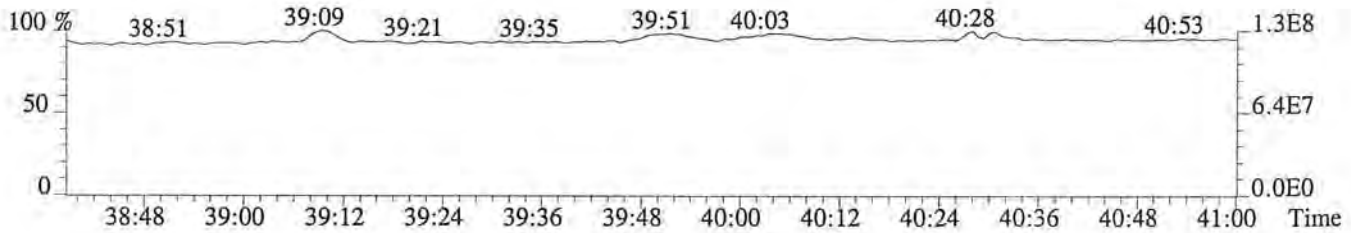
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17444.0,0.50%,F,T)



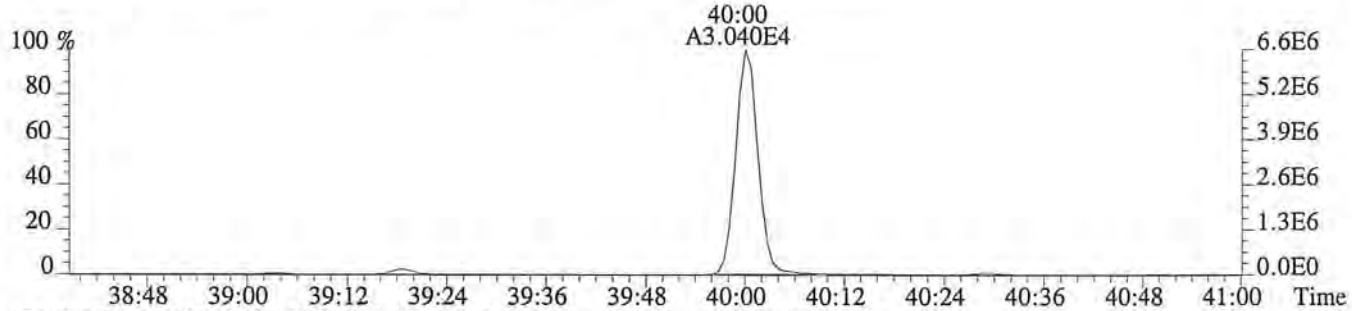
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



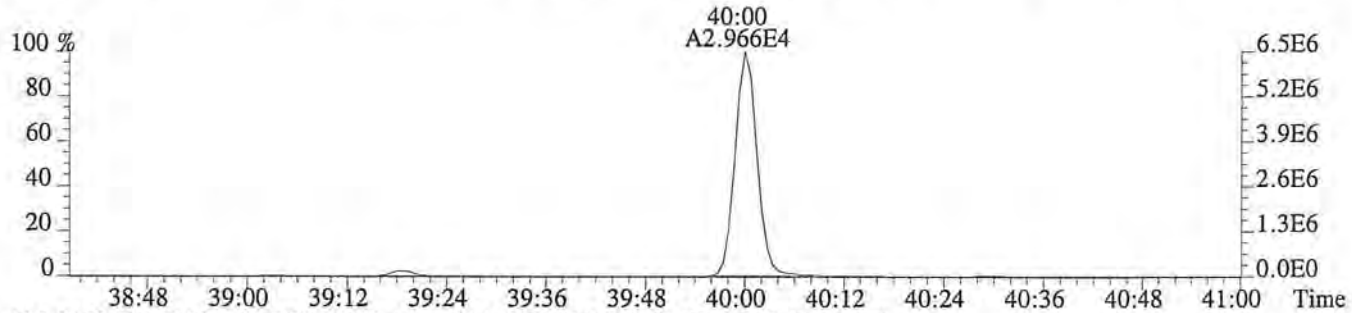
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



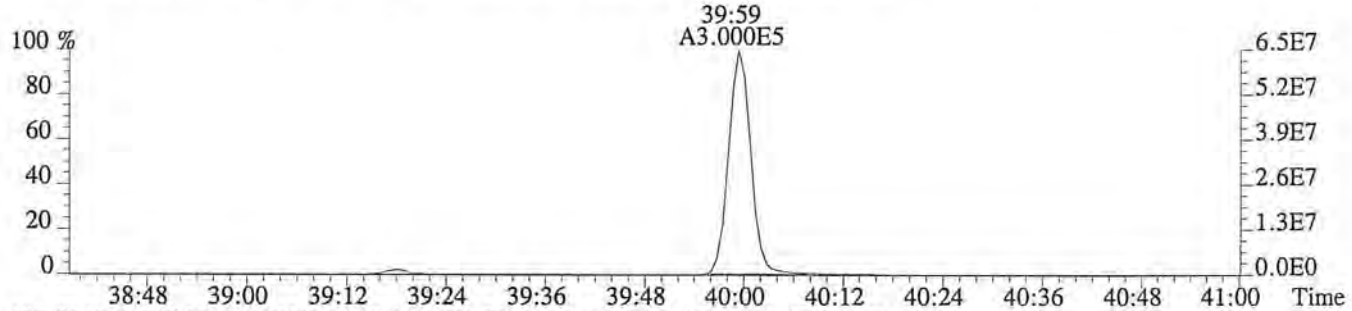
File:P600006 #1-213 Acq:19-AUG-2015 14:09:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1716.0,0.40%,F,T)



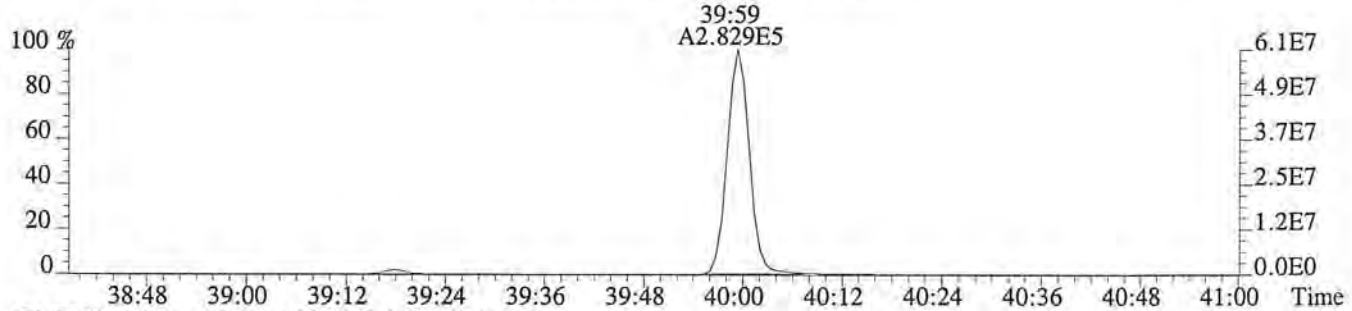
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1380.0,0.40%,F,T)



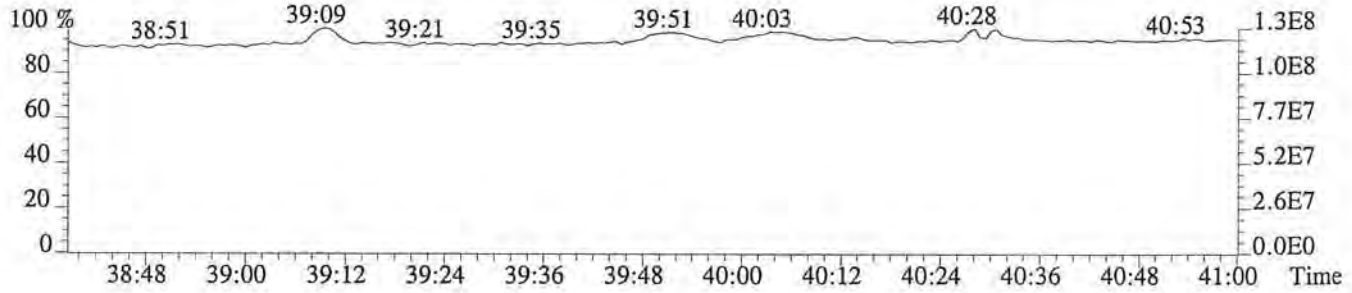
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2504.0,0.40%,F,T)



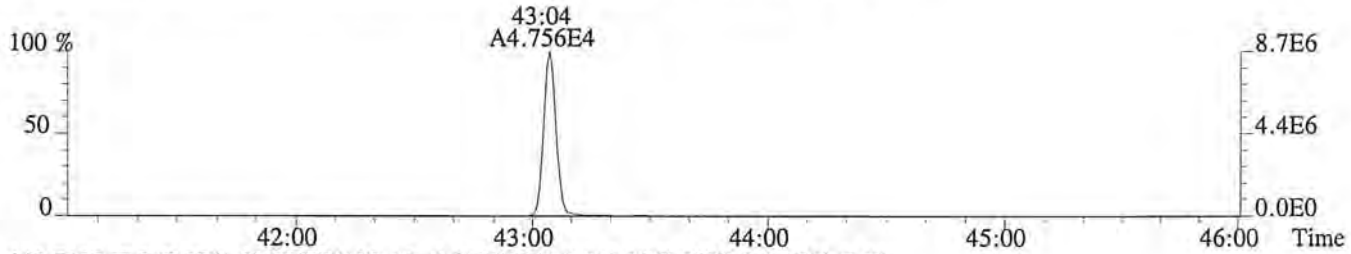
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.40%,F,T)



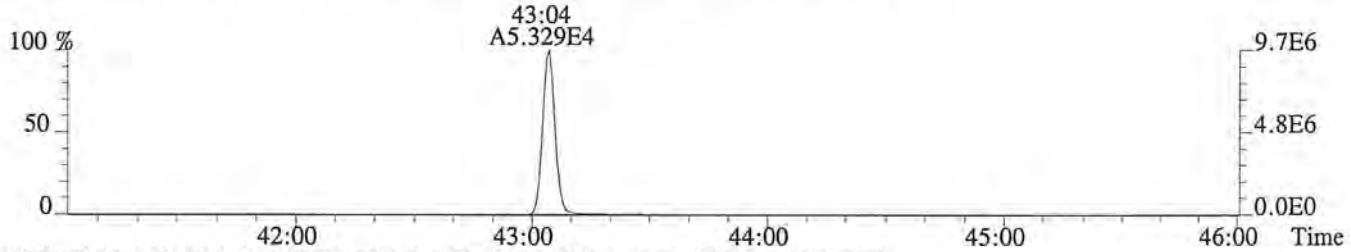
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



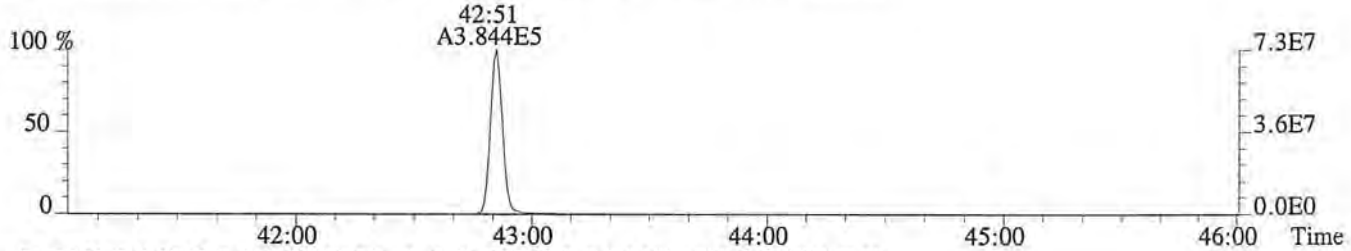
File:P600006 #1-448 Acq:19-AUG-2015 14:09:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1608.0,0.40%,F,T)



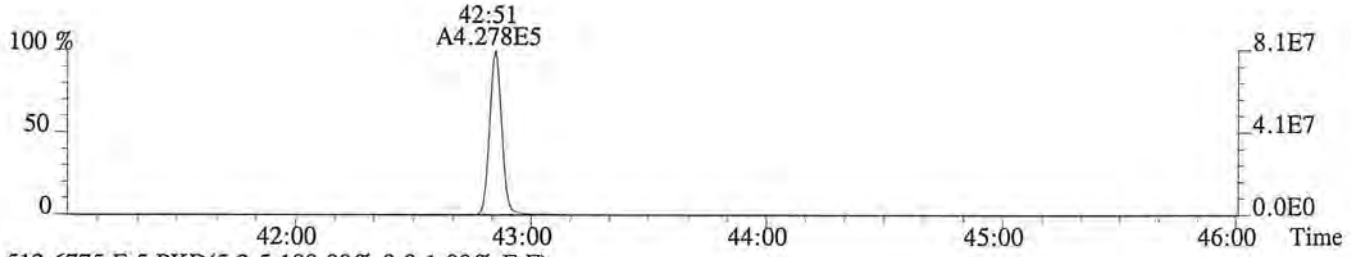
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2880.0,0.40%,F,T)



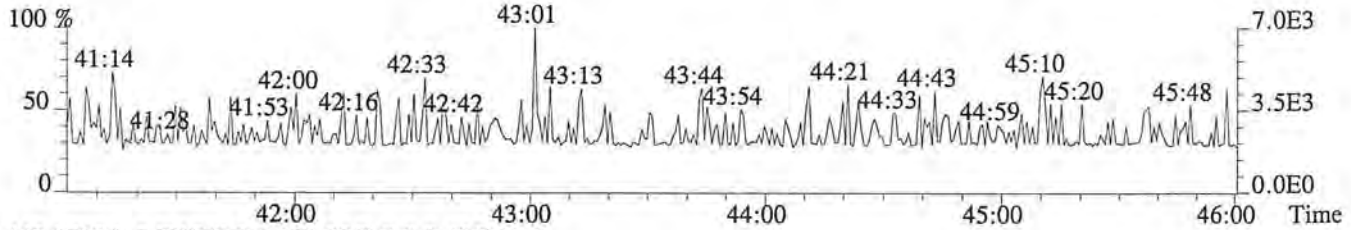
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1448.0,0.40%,F,T)



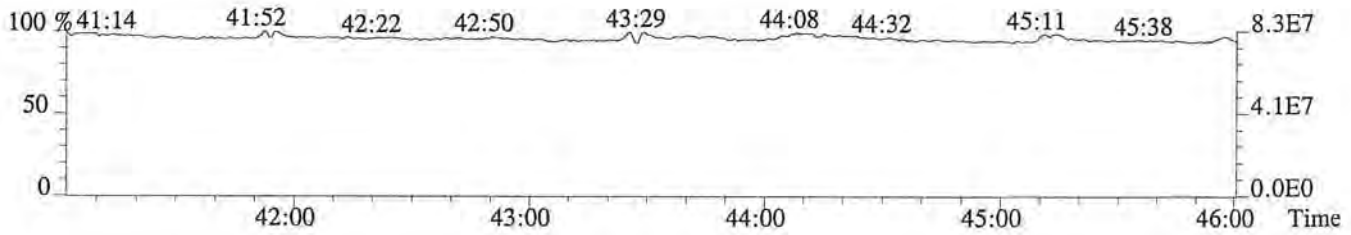
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1892.0,0.40%,F,T)



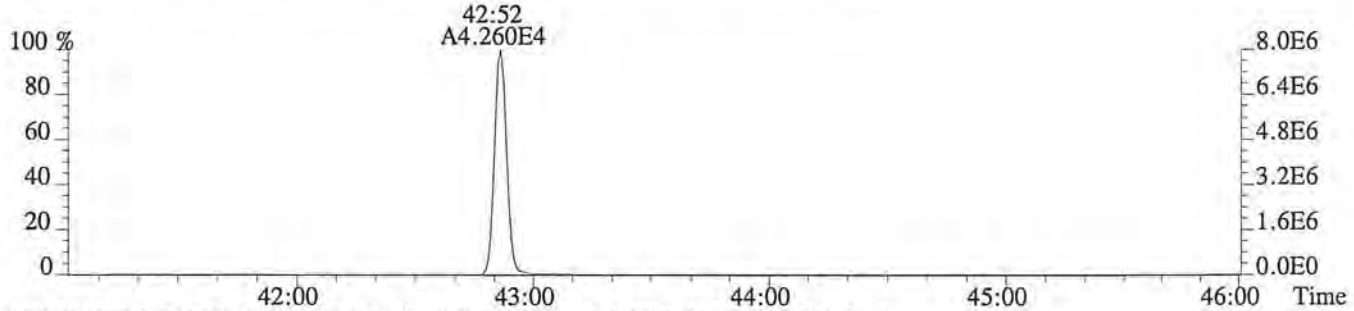
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



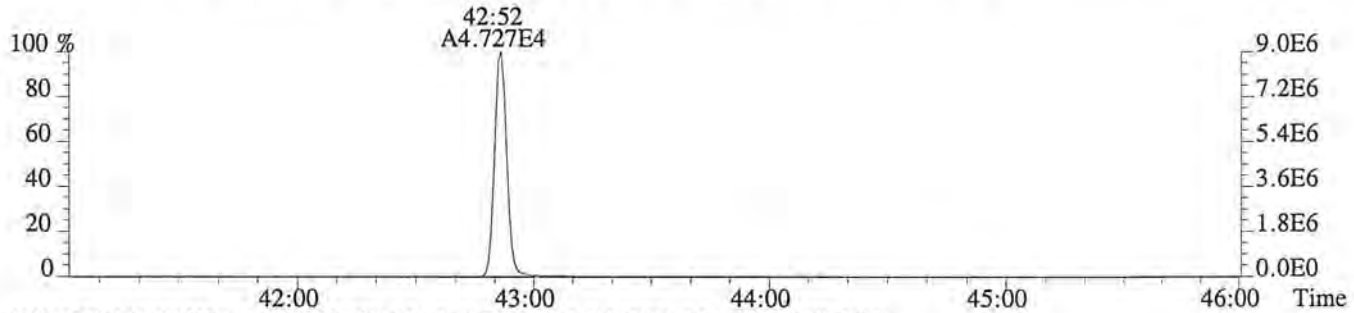
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



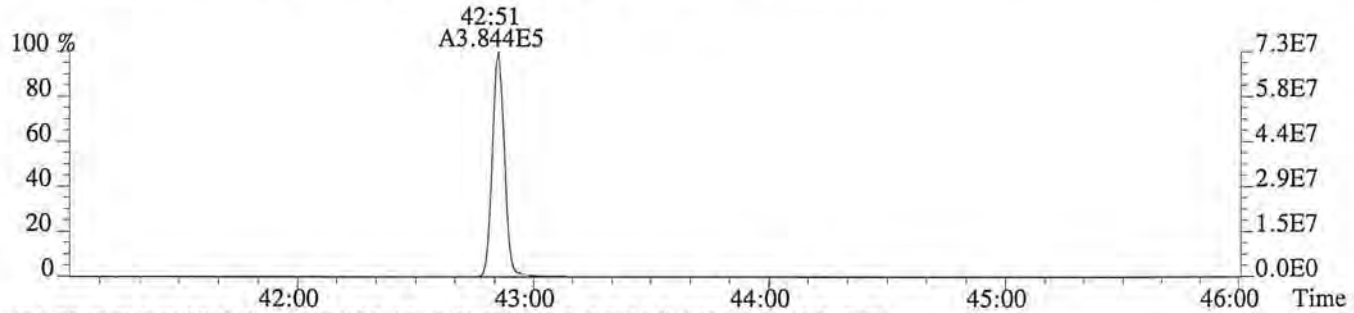
File:P600006 #1-448 Acq:19-AUG-2015 14:09:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1168.0,0.40%,F,T)



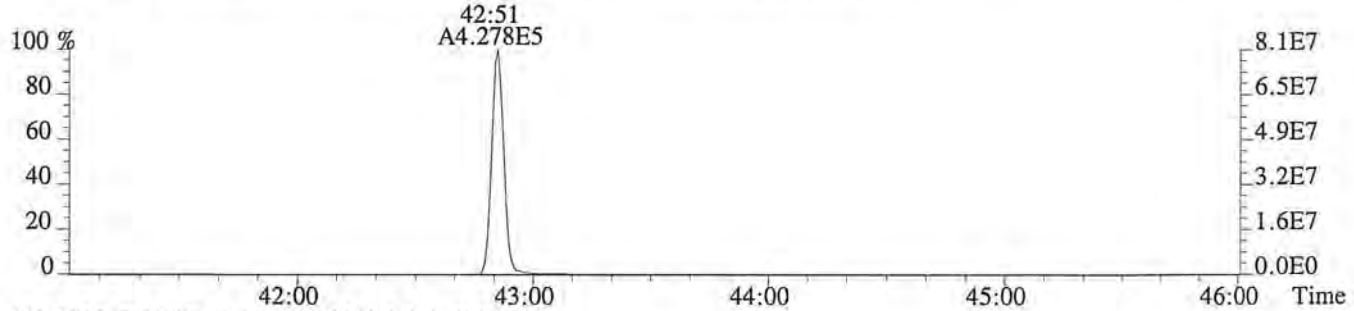
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2144.0,0.40%,F,T)



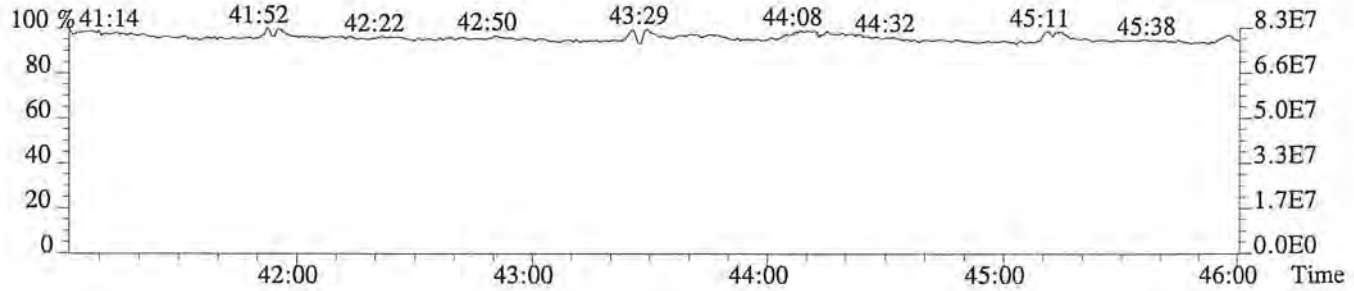
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1448.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1892.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76557

Run #4 Filename P600007 Samp: 1 Inj: 1 Acquired: 19-AUG-15 14:58:32
Processed: 20-AUG-15 08:56:29 Sample ID: CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:04	4.407e+04	5.668e+04	0.78	yes	no	0.941
2	Unk	1,2,3,7,8-PeCDF	33:03	3.175e+05	2.047e+05	1.55	yes	no	0.987
3	Unk	2,3,4,7,8-PeCDF	33:55	3.027e+05	1.939e+05	1.56	yes	no	0.934
4	Unk	1,2,3,4,7,8-HxCDF	36:31	2.587e+05	2.127e+05	1.22	yes	no	1.189
5	Unk	1,2,3,6,7,8-HxCDF	36:37	2.739e+05	2.213e+05	1.24	yes	no	1.126
6	Unk	2,3,4,6,7,8-HxCDF	37:06	2.622e+05	2.144e+05	1.22	yes	no	1.116
7	Unk	1,2,3,7,8,9-HxCDF	37:50	2.507e+05	2.019e+05	1.24	yes	no	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:05	2.308e+05	2.261e+05	1.02	yes	no	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:30	2.304e+05	2.259e+05	1.02	yes	no	1.287
10	Unk	OCDF	43:05	2.970e+05	3.304e+05	0.90	yes	no	1.257
11	Unk	2,3,7,8-TCDD	29:48	4.111e+04	5.238e+04	0.78	yes	no	1.010
12	Unk	1,2,3,7,8-PeCDD	34:12	2.193e+05	1.417e+05	1.55	yes	no	0.932
13	Unk	1,2,3,4,7,8-HxCDD	37:14	1.930e+05	1.541e+05	1.25	yes	no	1.026
14	Unk	1,2,3,6,7,8-HxCDD	37:19	1.835e+05	1.464e+05	1.25	yes	no	1.021
15	Unk	1,2,3,7,8,9-HxCDD	37:33	2.122e+05	1.715e+05	1.24	yes	no	1.133
16	Unk	1,2,3,4,6,7,8-HpCDD	40:01	1.822e+05	1.734e+05	1.05	yes	no	1.034
17	Unk	OCDD	42:52	2.569e+05	2.902e+05	0.89	yes	no	1.111
18	IS	13C-2,3,7,8-TCDF	29:03	4.740e+05	6.028e+05	0.79	yes	no	1.379
19	IS	13C-1,2,3,7,8-PeCDF	33:03	6.539e+05	4.153e+05	1.57	yes	no	1.456
20	IS	13C-2,3,4,7,8-PeCDF	33:55	6.503e+05	4.095e+05	1.59	yes	no	1.465
21	IS	13C-1,2,3,4,7,8-HxCDF	36:30	2.717e+05	5.183e+05	0.52	yes	no	1.075
22	IS	13C-1,2,3,6,7,8-HxCDF	36:36	2.988e+05	5.753e+05	0.52	yes	no	1.158
23	IS	13C-2,3,4,6,7,8-HxCDF	37:06	2.937e+05	5.667e+05	0.52	yes	no	1.133
24	IS	13C-1,2,3,7,8,9-HxCDF	37:50	2.685e+05	5.191e+05	0.52	yes	no	1.024
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:04	2.065e+05	4.673e+05	0.44	yes	no	0.880
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:29	2.196e+05	4.943e+05	0.44	yes	no	0.914
27	IS	13C-2,3,7,8-TCDD	29:48	4.102e+05	5.235e+05	0.78	yes	no	1.193
28	IS	13C-1,2,3,7,8-PeCDD	34:11	4.759e+05	3.025e+05	1.57	yes	no	1.094
29	IS	13C-1,2,3,4,7,8-HxCDD	37:13	3.801e+05	3.019e+05	1.26	yes	no	0.906
30	IS	13C-1,2,3,6,7,8-HxCDD	37:18	3.596e+05	2.838e+05	1.27	yes	no	0.860
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:00	3.565e+05	3.383e+05	1.05	yes	no	0.892
32	IS	13C-OCDD	42:51	4.715e+05	5.243e+05	0.90	yes	no	0.642
33	RS/RT	13C-1,2,3,4-TCDD	29:15	3.435e+05	4.336e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:32	4.300e+05	3.424e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:48	9.764e+04				no	1.263

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76557

Run #4 Filename P600007 Samp: 1 Inj: 1 Acquired: 19-AUG-15 14:58:32
Processed: 20-AUG-15 08:56:29 LAB. ID: CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.44e+06	1.93e+03	4.4e+03	1.08e+07	2.52e+03	4.3e+03
2	1,2,3,7,8-PeCDF	6.21e+07	1.64e+03	3.8e+04	3.99e+07	4.21e+03	9.5e+03
3	2,3,4,7,8-PeCDF	6.23e+07	1.64e+03	3.8e+04	4.00e+07	4.21e+03	9.5e+03
4	1,2,3,4,7,8-HxCDF	5.65e+07	2.31e+03	2.4e+04	4.59e+07	2.90e+03	1.6e+04
5	1,2,3,6,7,8-HxCDF	5.83e+07	2.31e+03	2.5e+04	4.70e+07	2.90e+03	1.6e+04
6	2,3,4,6,7,8-HxCDF	5.71e+07	2.31e+03	2.5e+04	4.65e+07	2.90e+03	1.6e+04
7	1,2,3,7,8,9-HxCDF	5.42e+07	2.31e+03	2.3e+04	4.36e+07	2.90e+03	1.5e+04
8	1,2,3,4,6,7,8-HpCDF	4.99e+07	1.17e+04	4.3e+03	4.83e+07	5.15e+03	9.4e+03
9	1,2,3,4,7,8,9-HpCDF	4.73e+07	1.17e+04	4.0e+03	4.65e+07	5.15e+03	9.0e+03
10	OCDF	5.30e+07	1.30e+03	4.1e+04	5.85e+07	2.57e+03	2.3e+04
11	2,3,7,8-TCDD	8.34e+06	1.86e+03	4.5e+03	1.06e+07	2.33e+03	4.6e+03
12	1,2,3,7,8-PeCDD	4.51e+07	3.20e+03	1.4e+04	2.93e+07	2.36e+03	1.2e+04
13	1,2,3,4,7,8-HxCDD	4.40e+07	1.47e+03	3.0e+04	3.52e+07	1.56e+03	2.3e+04
14	1,2,3,6,7,8-HxCDD	4.04e+07	1.47e+03	2.7e+04	3.21e+07	1.56e+03	2.1e+04
15	1,2,3,7,8,9-HxCDD	4.66e+07	1.47e+03	3.2e+04	3.72e+07	1.56e+03	2.4e+04
16	1,2,3,4,6,7,8-HpCDD	3.84e+07	1.02e+03	3.8e+04	3.62e+07	9.08e+02	4.0e+04
17	OCDD	4.66e+07	9.64e+02	4.8e+04	5.29e+07	1.77e+03	3.0e+04
18	13C-2,3,7,8-TCDF	8.78e+07	6.22e+03	1.4e+04	1.12e+08	3.87e+03	2.9e+04
19	13C-1,2,3,7,8-PeCDF	1.27e+08	1.82e+03	7.0e+04	8.04e+07	2.30e+03	3.5e+04
20	13C-2,3,4,7,8-PeCDF	1.33e+08	1.82e+03	7.3e+04	8.37e+07	2.30e+03	3.6e+04
21	13C-1,2,3,4,7,8-HxCDF	5.91e+07	2.01e+03	2.9e+04	1.12e+08	3.86e+03	2.9e+04
22	13C-1,2,3,6,7,8-HxCDF	6.38e+07	2.01e+03	3.2e+04	1.24e+08	3.86e+03	3.2e+04
23	13C-2,3,4,6,7,8-HxCDF	6.39e+07	2.01e+03	3.2e+04	1.23e+08	3.86e+03	3.2e+04
24	13C-1,2,3,7,8,9-HxCDF	5.80e+07	2.01e+03	2.9e+04	1.13e+08	3.86e+03	2.9e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.46e+07	1.07e+04	4.2e+03	1.00e+08	1.12e+04	9.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.45e+07	1.07e+04	4.1e+03	1.01e+08	1.12e+04	9.0e+03
27	13C-2,3,7,8-TCDD	8.22e+07	1.09e+04	7.5e+03	1.05e+08	5.44e+03	1.9e+04
28	13C-1,2,3,7,8-PeCDD	9.47e+07	1.79e+03	5.3e+04	6.09e+07	1.44e+03	4.2e+04
29	13C-1,2,3,4,7,8-HxCDD	8.65e+07	5.96e+03	1.5e+04	6.88e+07	3.70e+03	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	7.96e+07	5.96e+03	1.3e+04	6.27e+07	3.70e+03	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	7.40e+07	2.78e+03	2.7e+04	6.99e+07	1.59e+03	4.4e+04
32	13C-OCDD	8.49e+07	1.58e+03	5.4e+04	9.49e+07	1.54e+03	6.2e+04
33	13C-1,2,3,4-TCDD	6.58e+07	1.09e+04	6.0e+03	8.38e+07	5.44e+03	1.5e+04
34	13C-1,2,3,7,8,9-HxCDD	9.48e+07	5.96e+03	1.6e+04	7.46e+07	3.70e+03	2.0e+04
35	37Cl-2,3,7,8-TCDD	1.99e+07	2.81e+03	7.1e+03			

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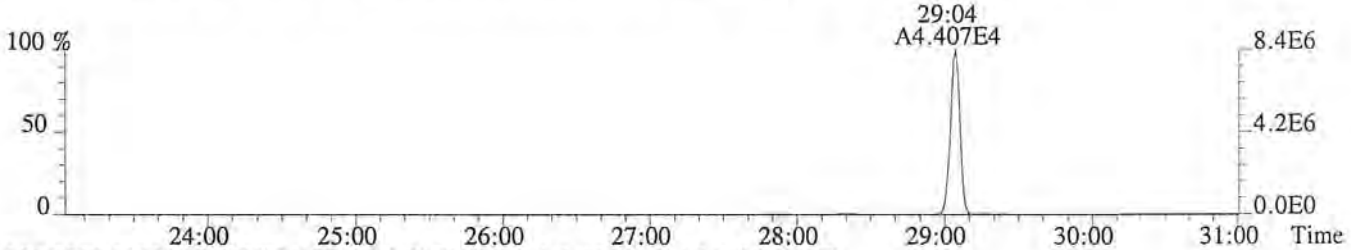
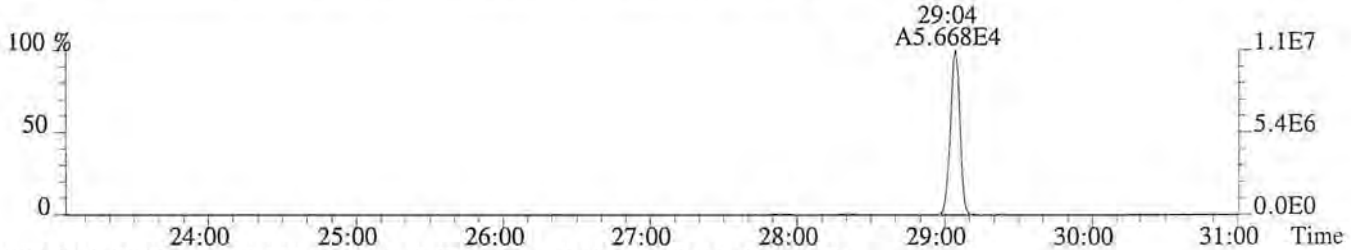
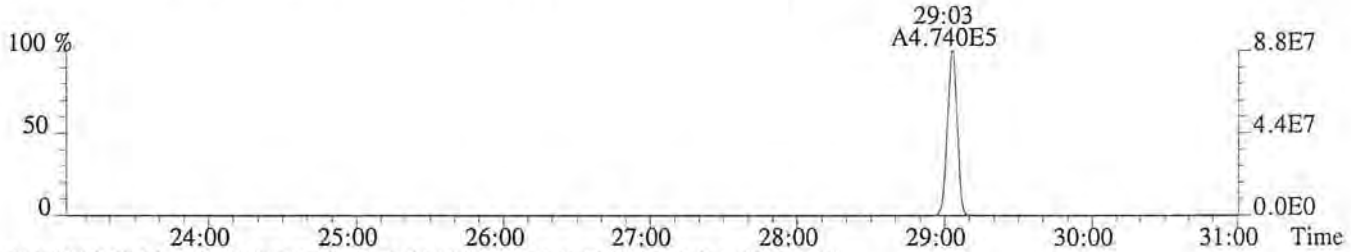
File:P600007 #1-566 Acq:19-AUG-2015 14:58:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1932.0,1.00%,F,T)



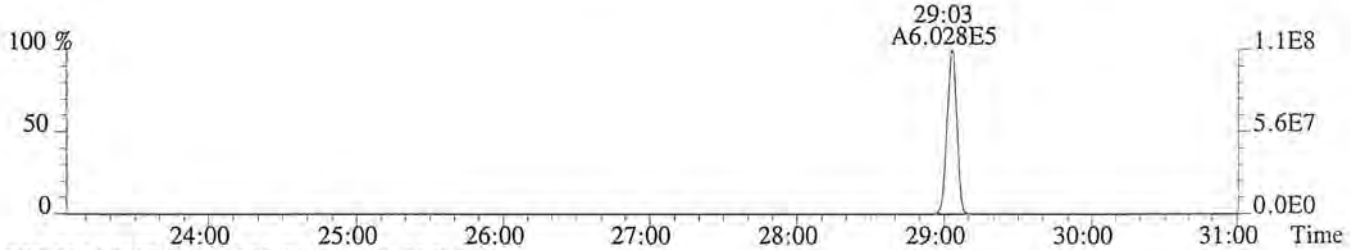
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2524.0,1.00%,F,T)



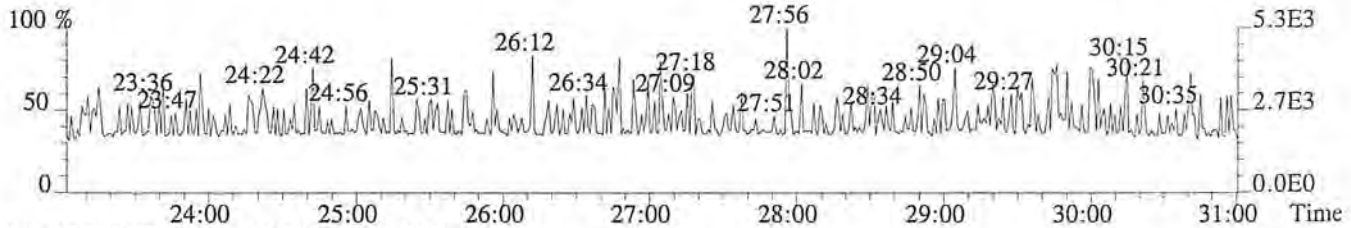
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6216.0,1.00%,F,T)



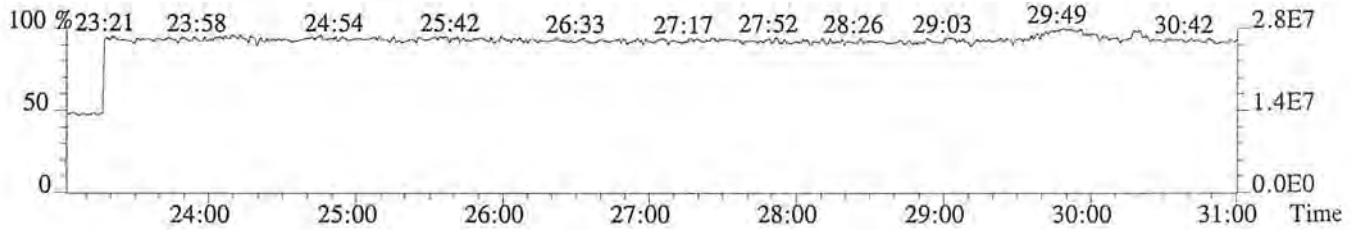
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3872.0,1.00%,F,T)



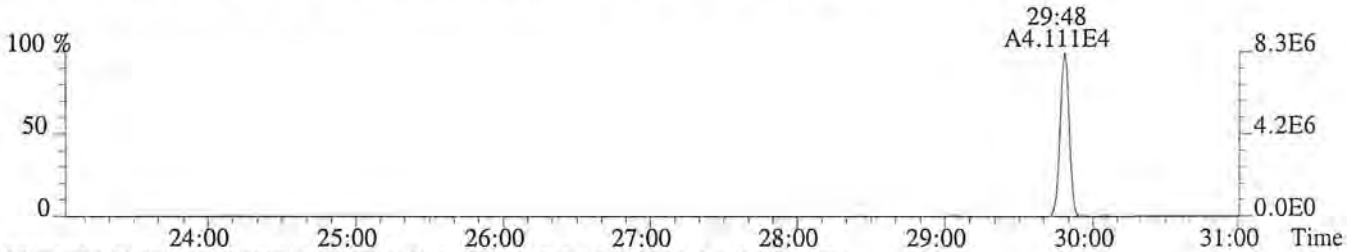
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



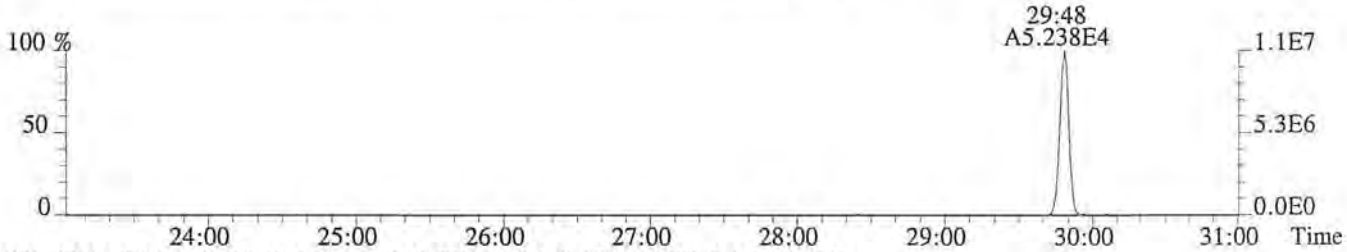
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



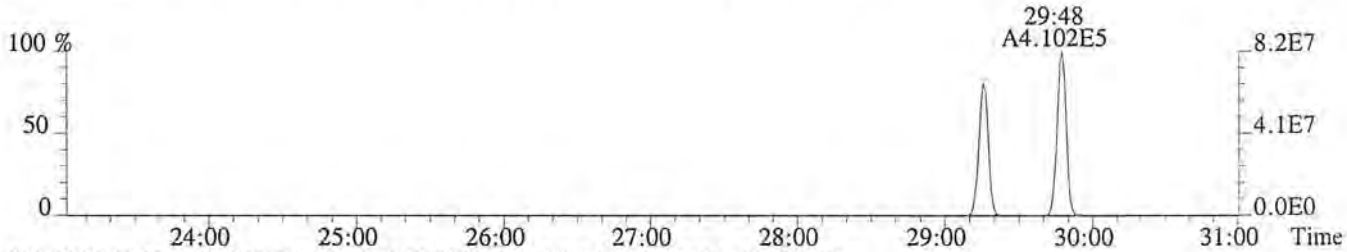
File:P600007 #1-566 Acq:19-AUG-2015 14:58:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



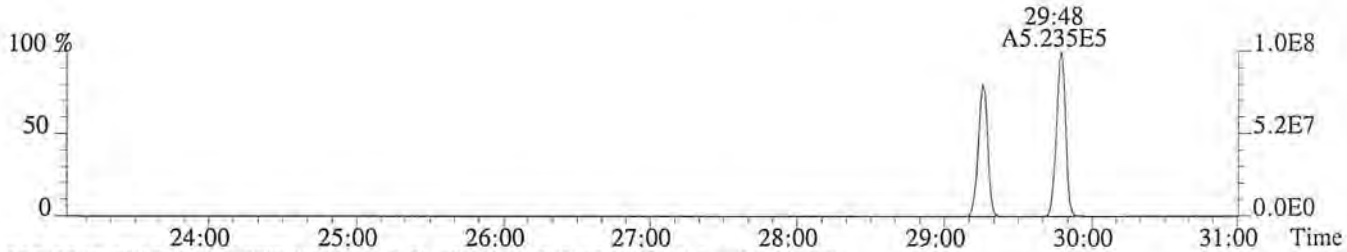
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2328.0,1.00%,F,T)



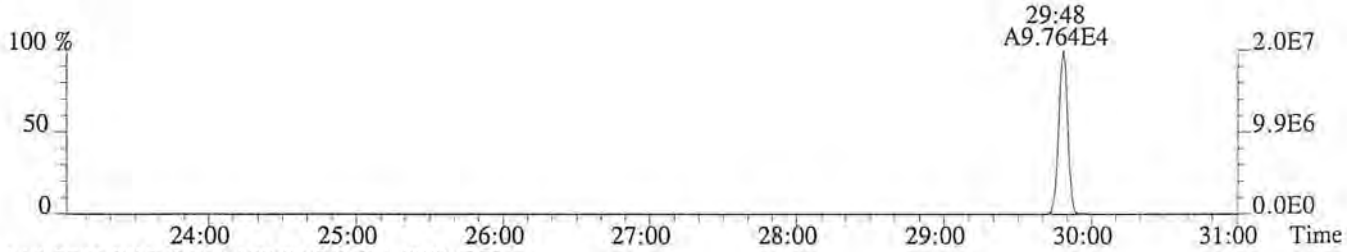
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10896.0,1.00%,F,T)



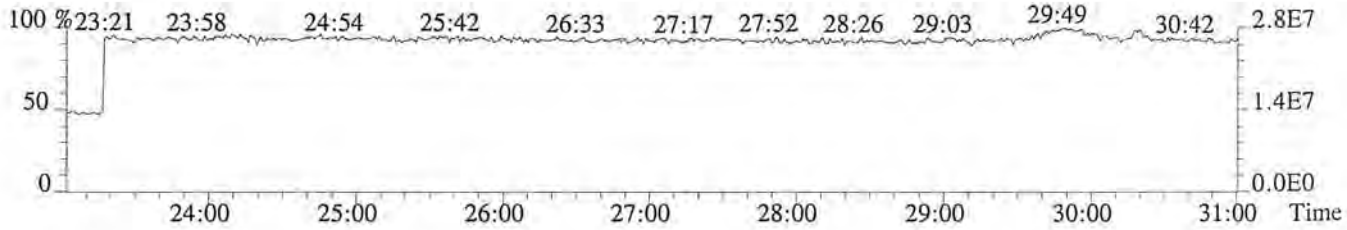
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5444.0,1.00%,F,T)



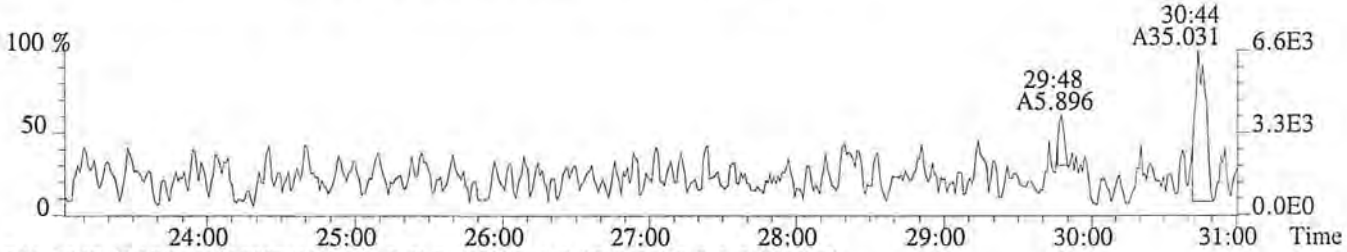
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2812.0,1.00%,F,T)



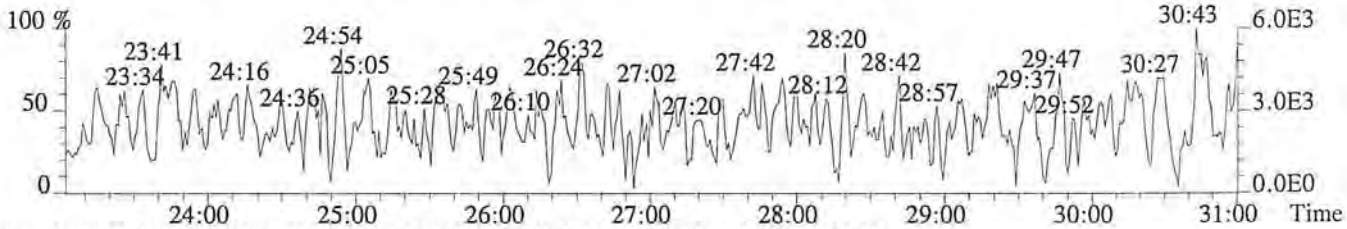
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



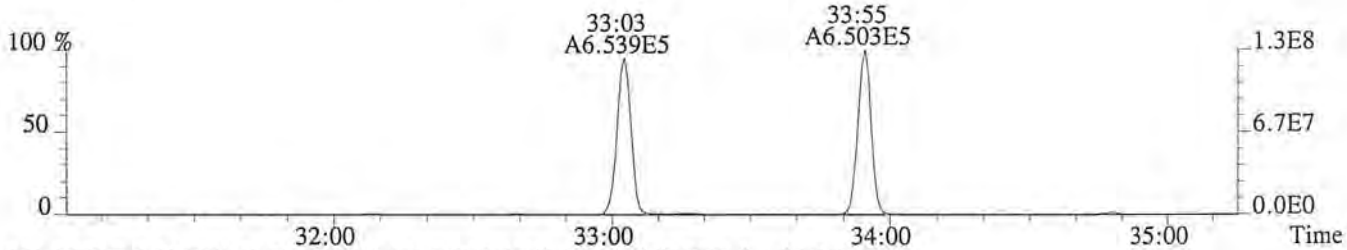
File:P600007 #1-566 Acq:19-AUG-2015 14:58:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1760.0,1.00%,F,T)



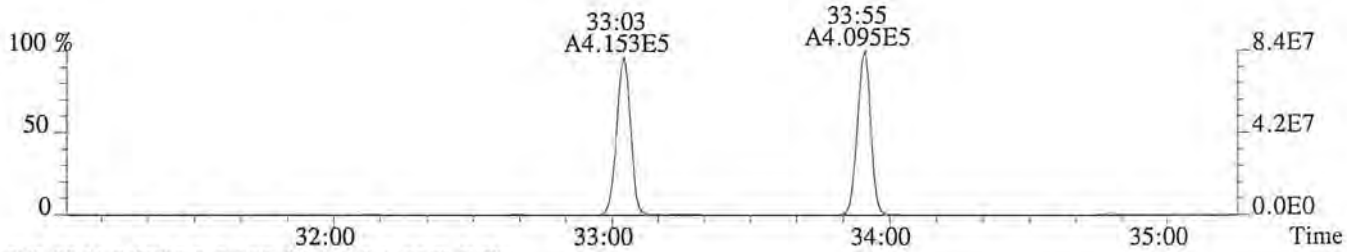
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3348.0,1.00%,F,T)



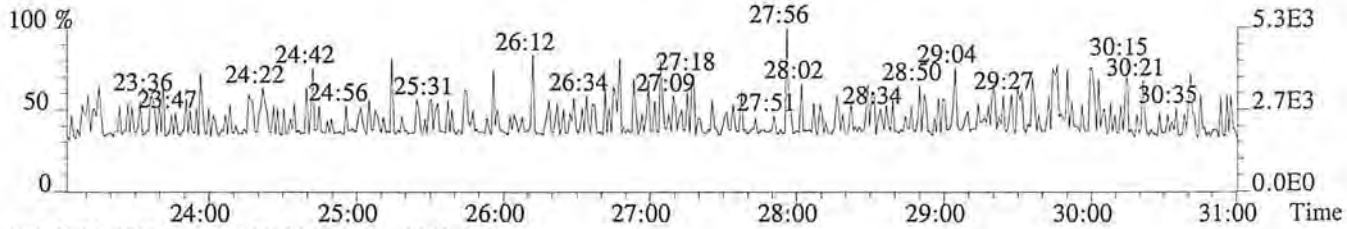
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1820.0,1.00%,F,T)



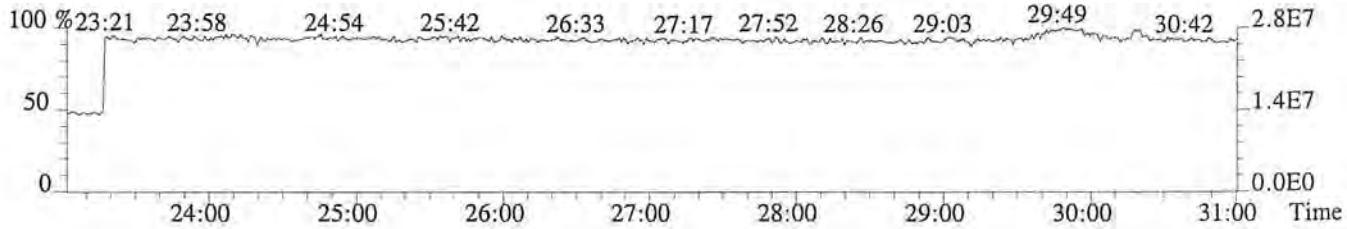
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2296.0,1.00%,F,T)



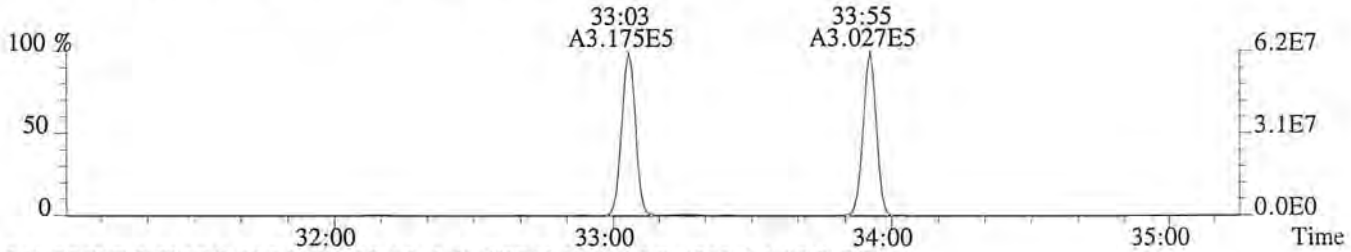
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



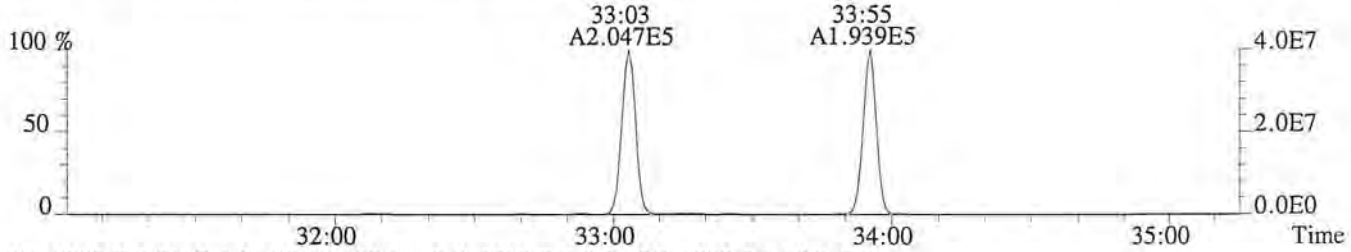
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



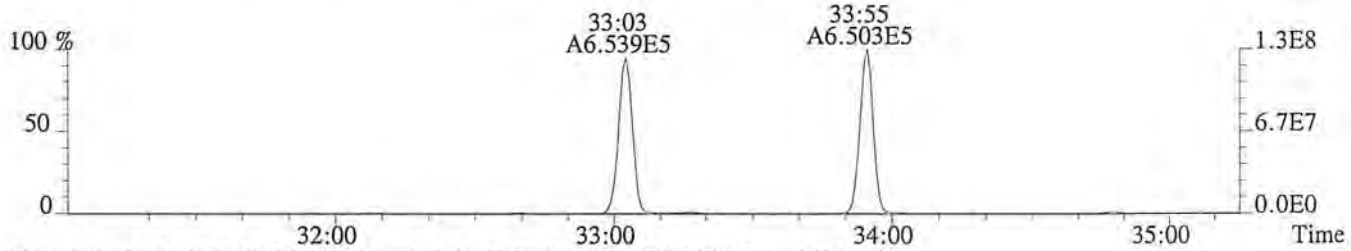
File:P600007 #1-380 Acq:19-AUG-2015 14:58:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)



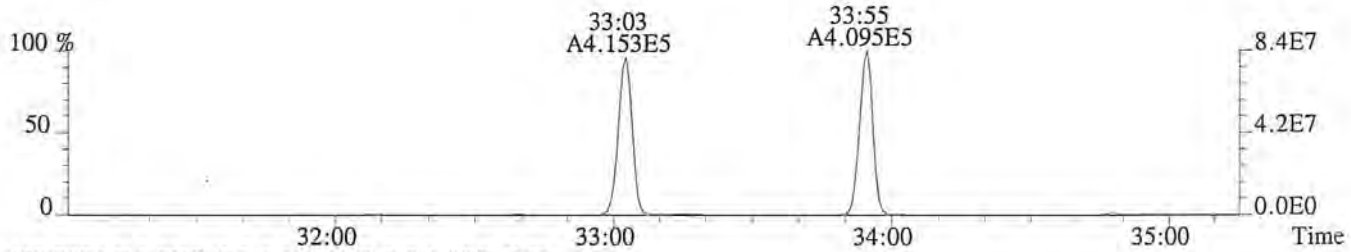
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4212.0,1.00%,F,T)



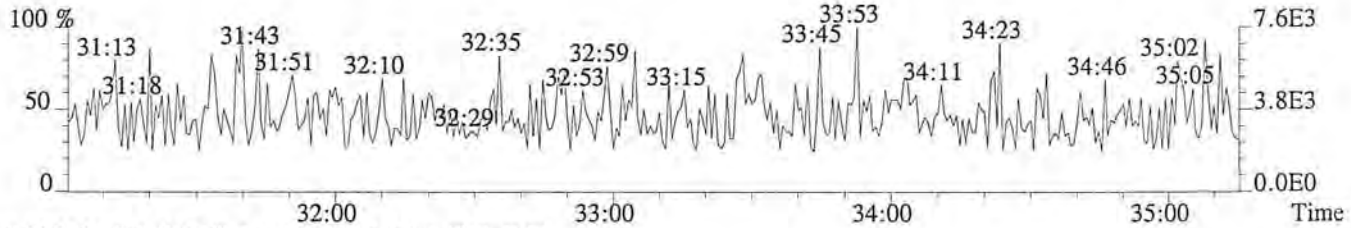
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1820.0,1.00%,F,T)



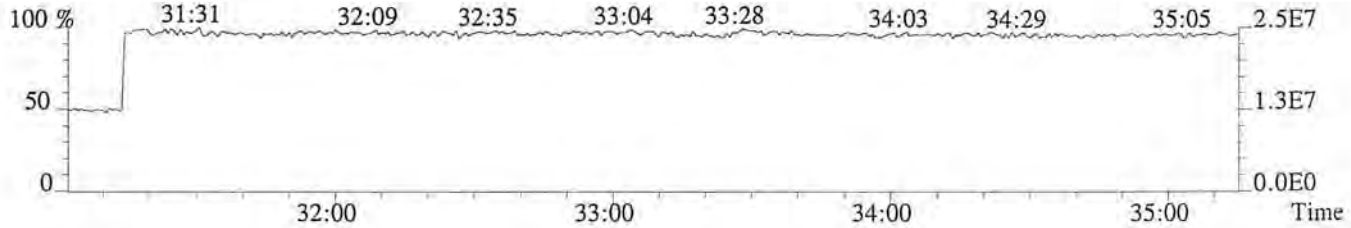
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2296.0,1.00%,F,T)



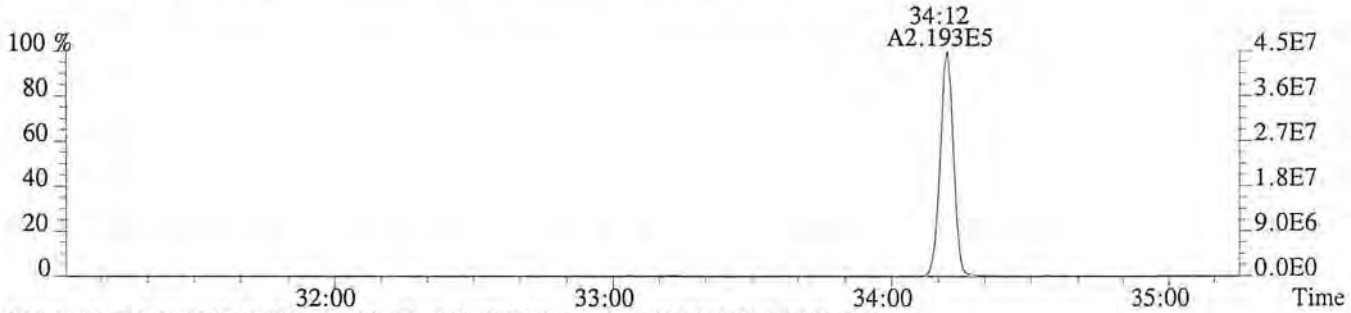
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



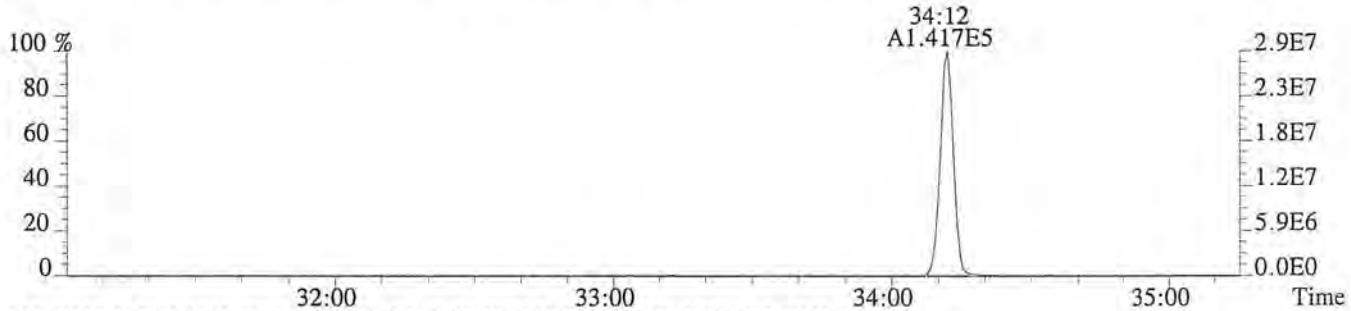
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



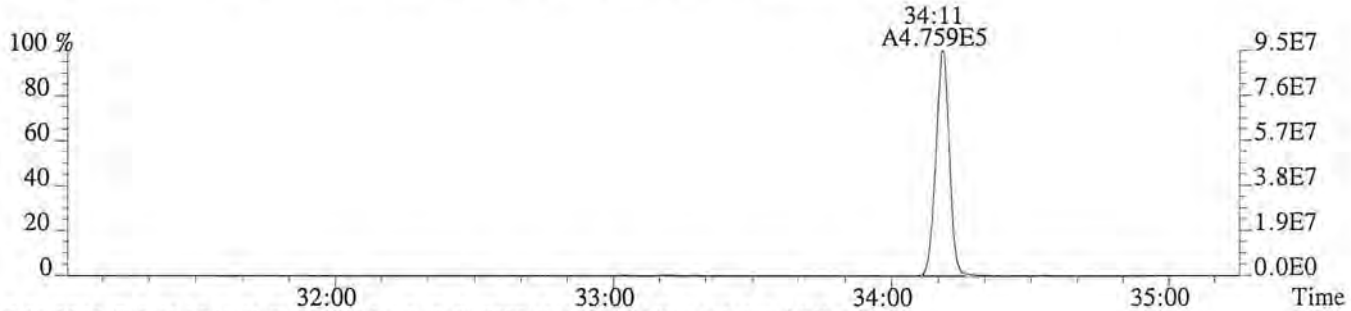
File:P600007 #1-380 Acq:19-AUG-2015 14:58:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3196.0,1.00%,F,T)



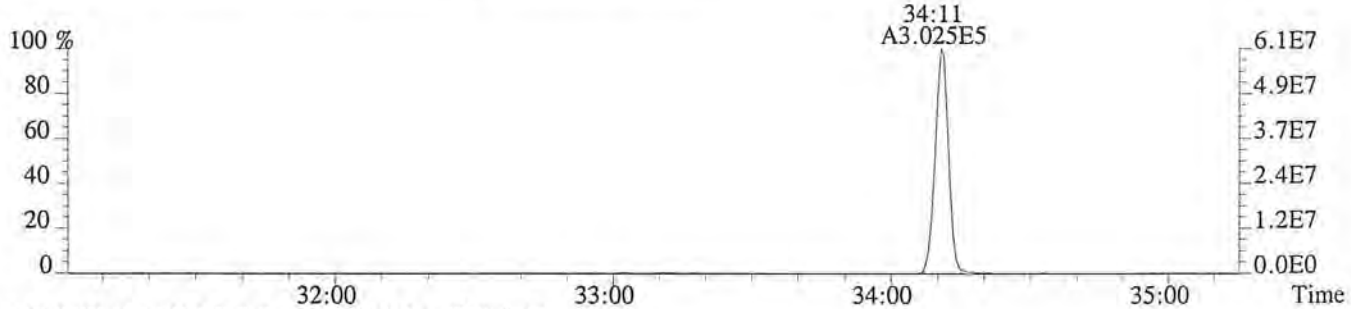
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2356.0,1.00%,F,T)



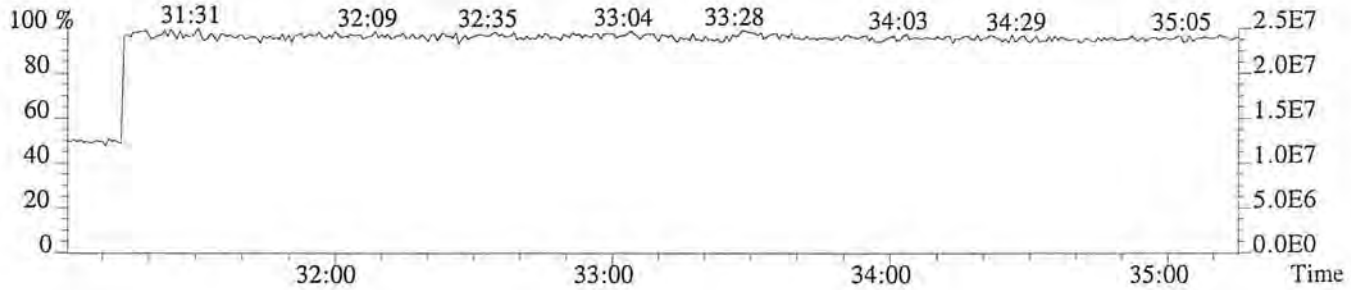
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1792.0,1.00%,F,T)



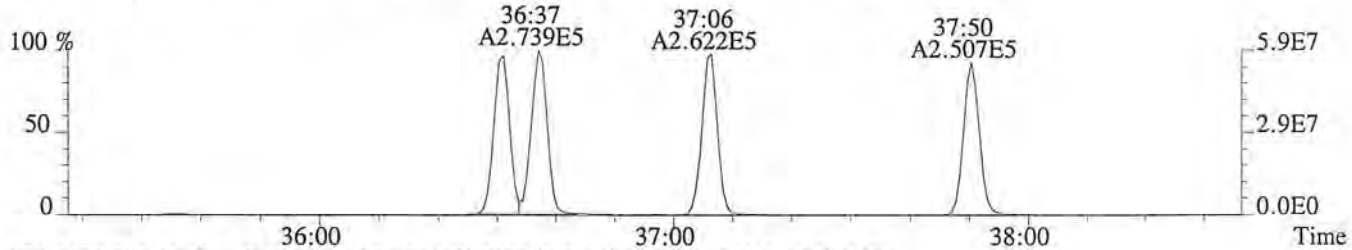
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1440.0,1.00%,F,T)



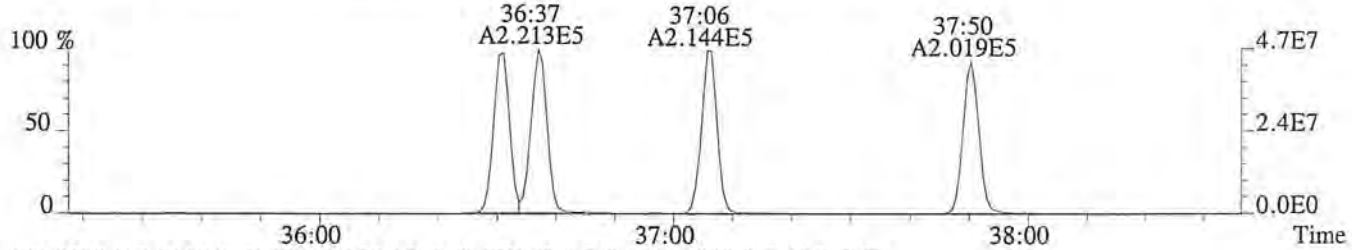
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



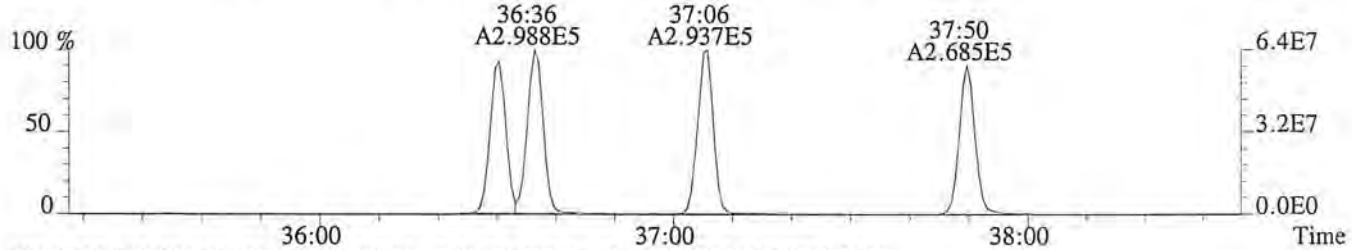
File:P600007 #1-299 Acq:19-AUG-2015 14:58:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2312.0,0.40%,F,T)



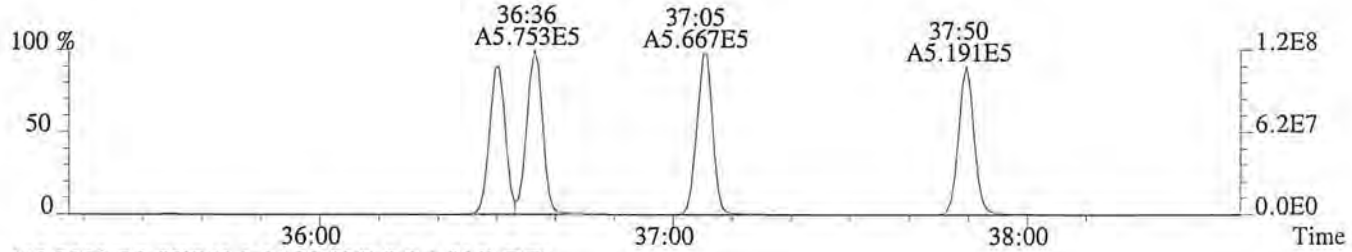
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2900.0,0.40%,F,T)



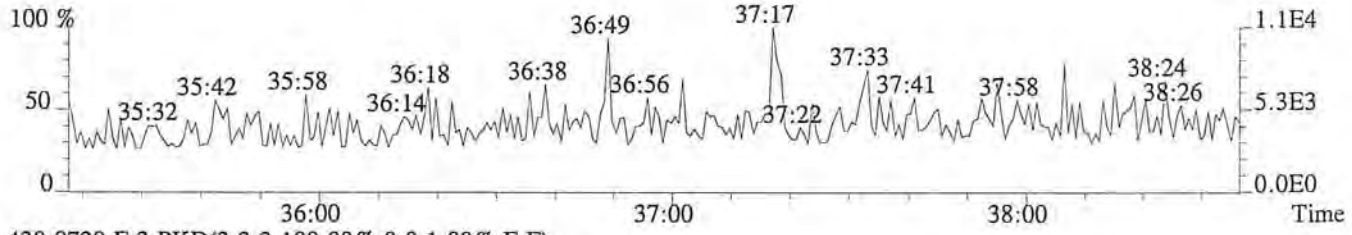
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2008.0,0.40%,F,T)



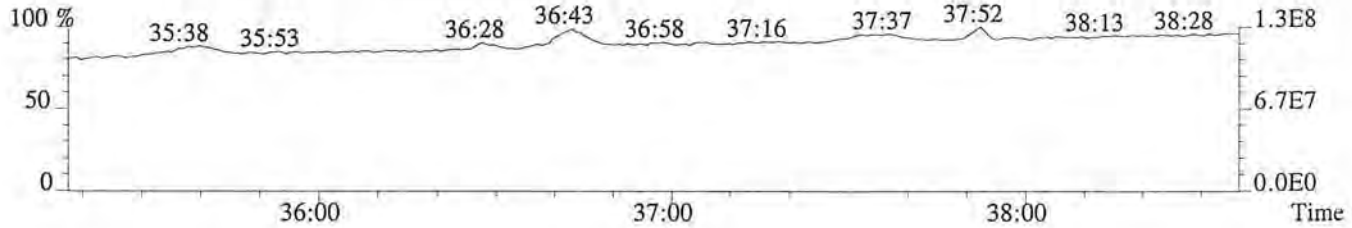
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3856.0,0.40%,F,T)



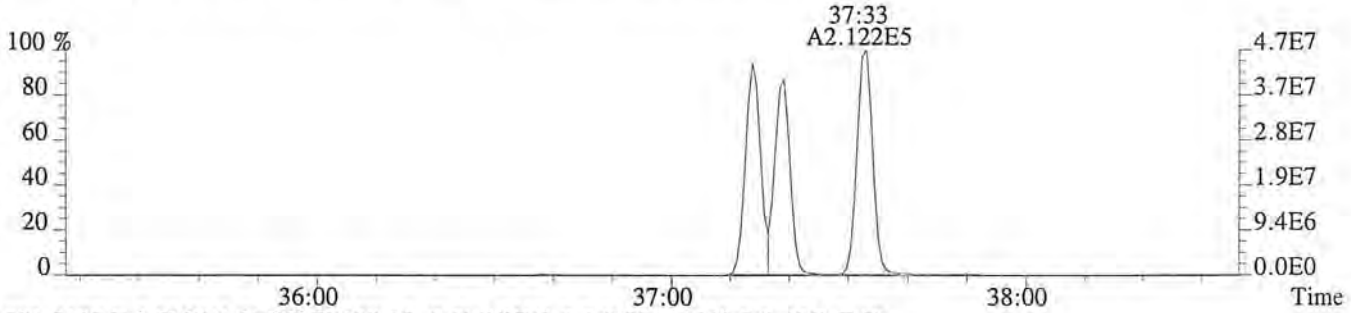
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



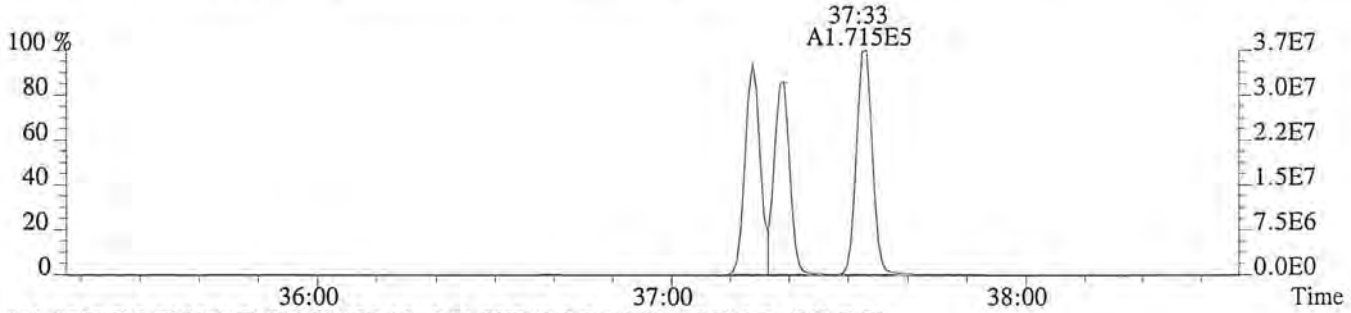
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



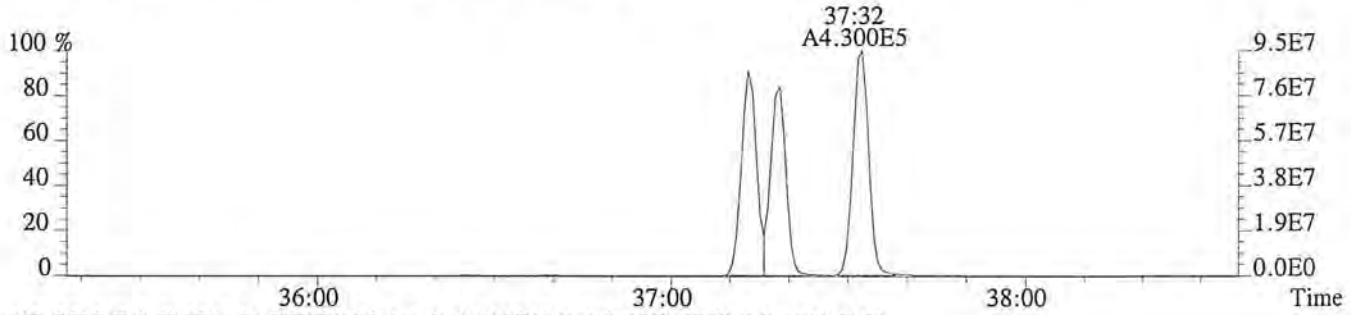
File:P600007 #1-299 Acq:19-AUG-2015 14:58:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1472.0,0.40%,F,T)



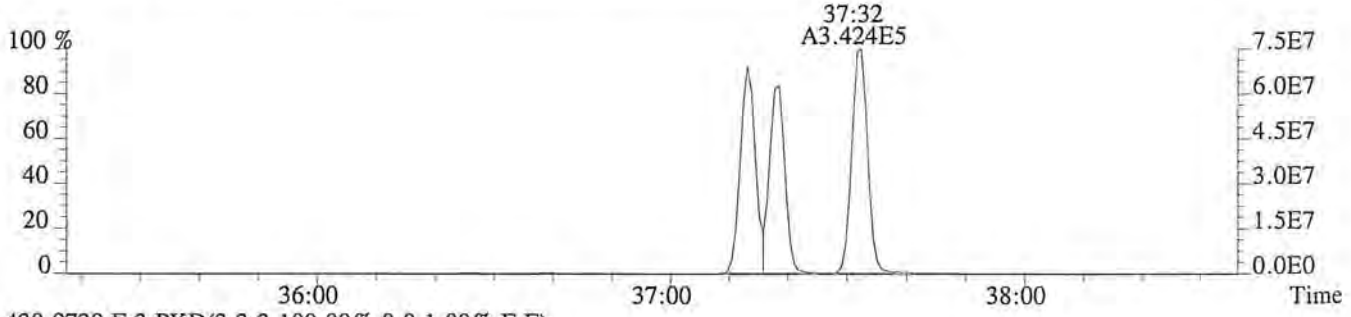
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1560.0,0.40%,F,T)



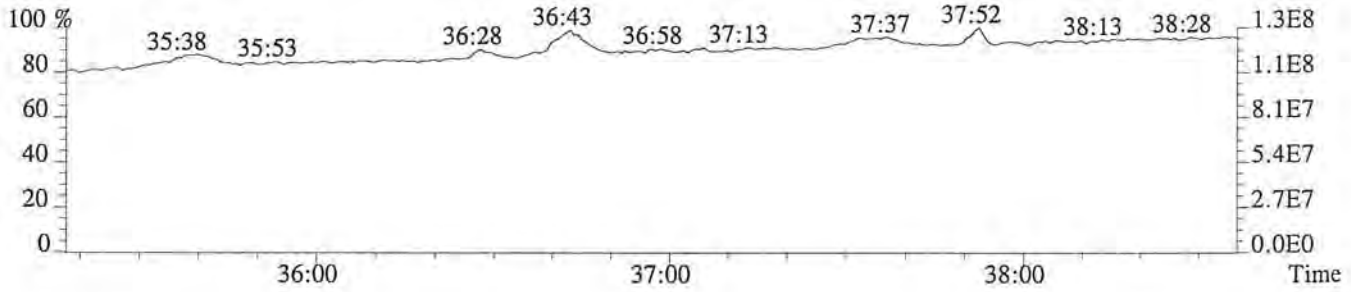
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5960.0,0.40%,F,T)



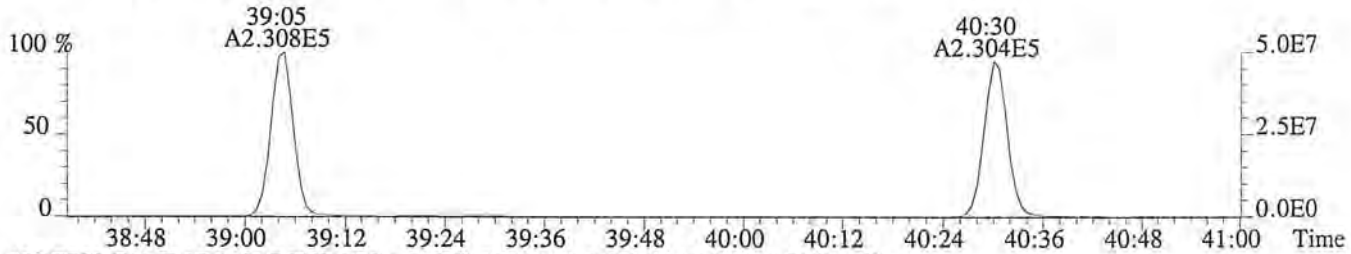
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3700.0,0.40%,F,T)



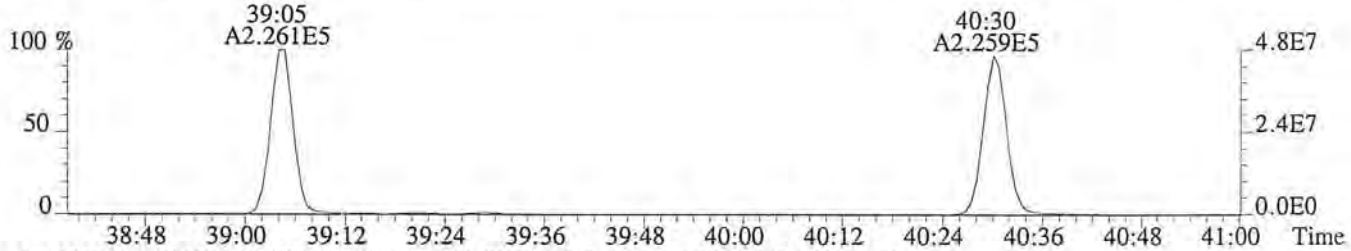
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



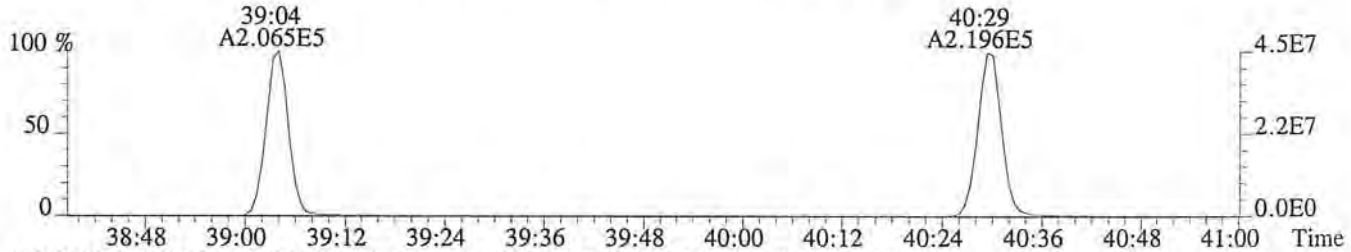
File:P600007 #1-213 Acq:19-AUG-2015 14:58:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11736.0,0.50%,F,T)



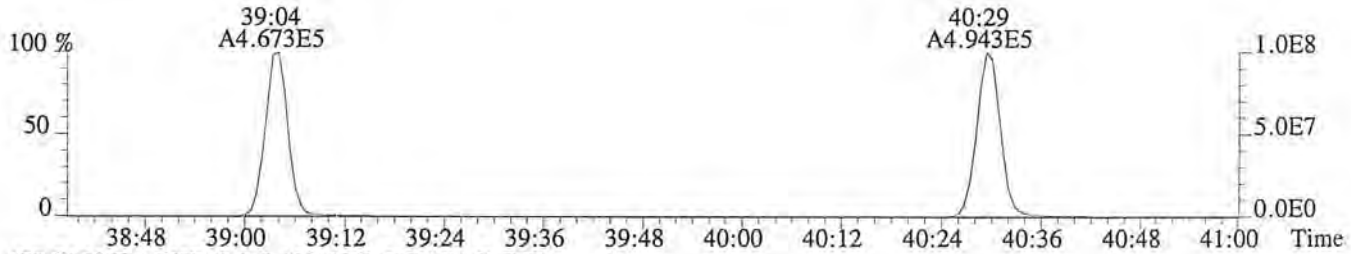
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5148.0,0.50%,F,T)



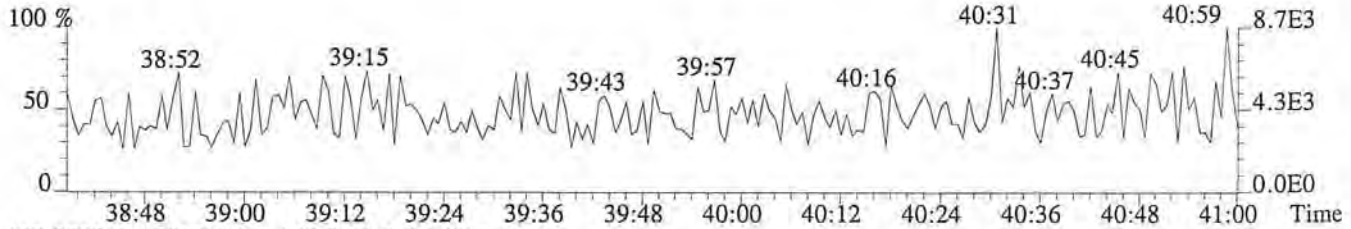
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10736.0,0.50%,F,T)



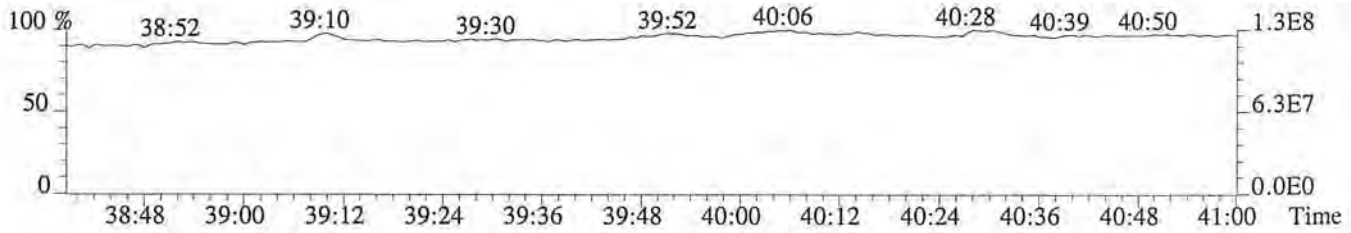
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11184.0,0.50%,F,T)



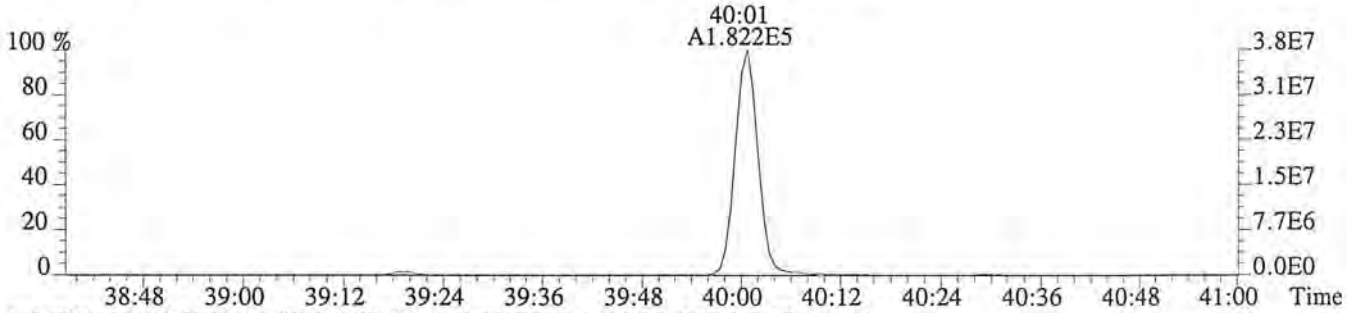
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



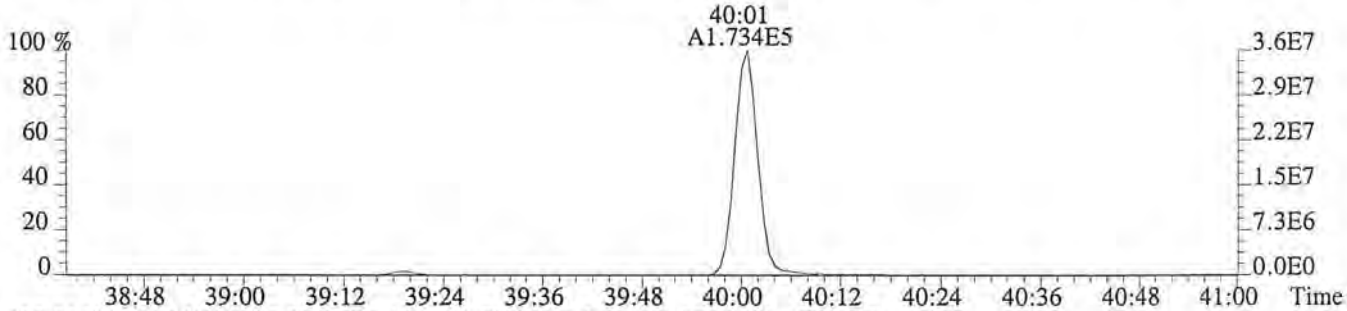
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



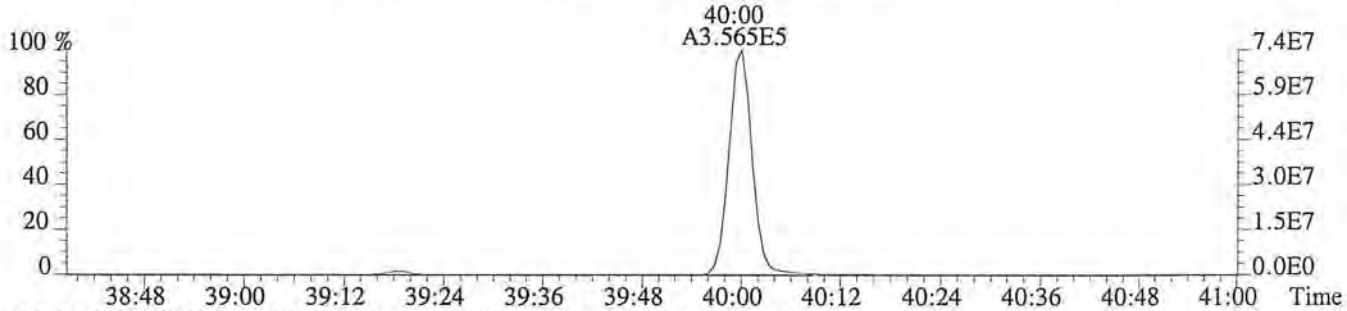
File:P600007 #1-213 Acq:19-AUG-2015 14:58:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



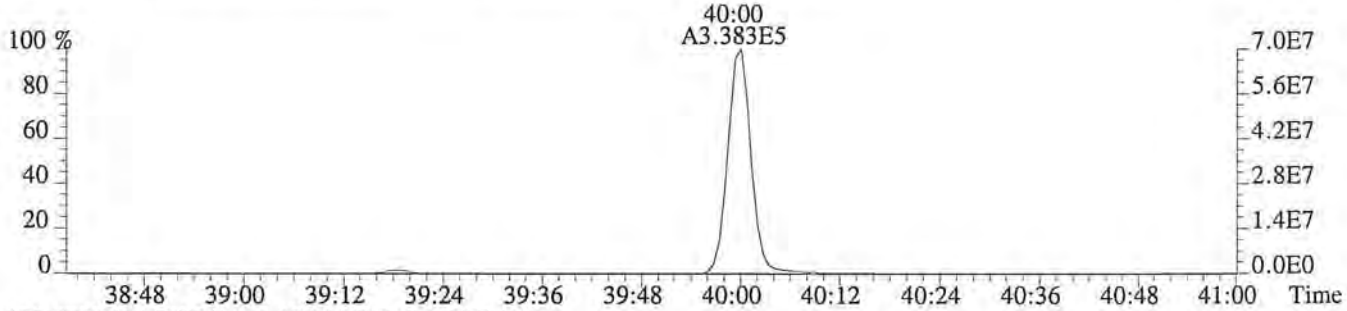
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



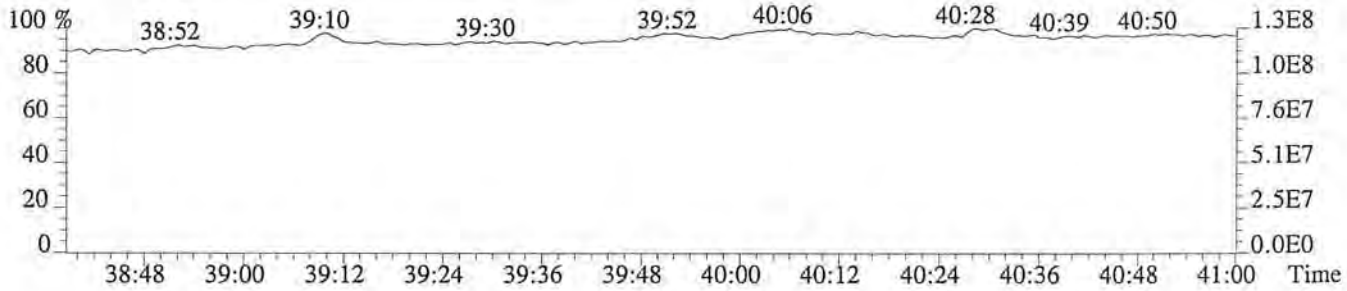
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2784.0,0.40%,F,T)



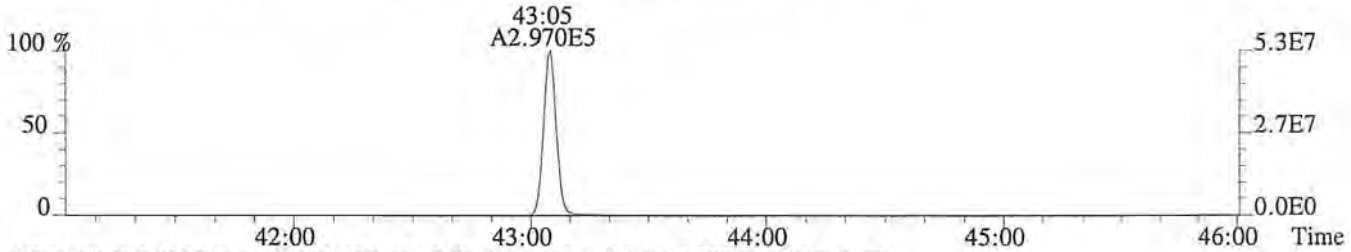
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1592.0,0.40%,F,T)



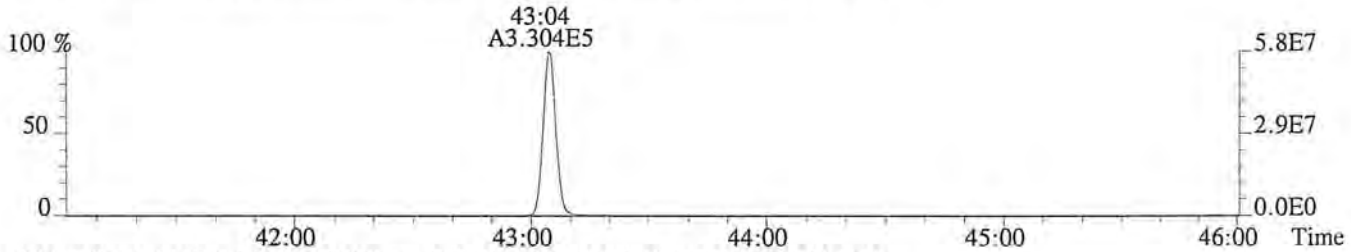
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



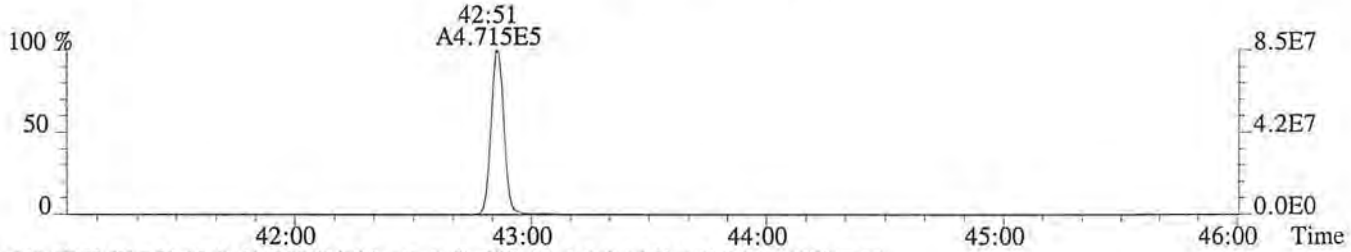
File:P600007 #1-448 Acq:19-AUG-2015 14:58:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1296.0,0.40%,F,T)



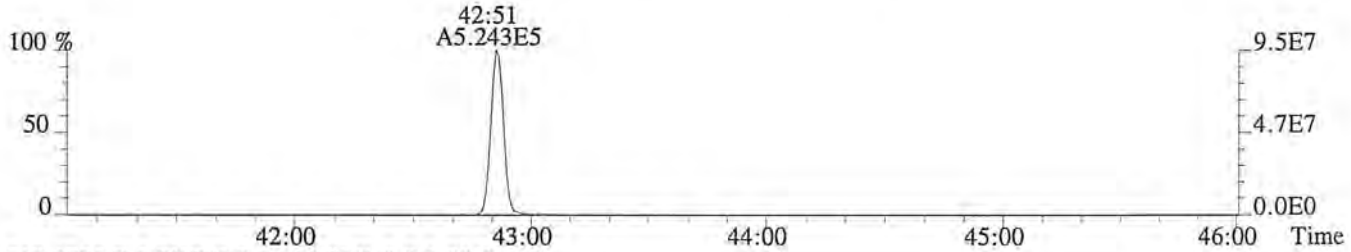
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2572.0,0.40%,F,T)



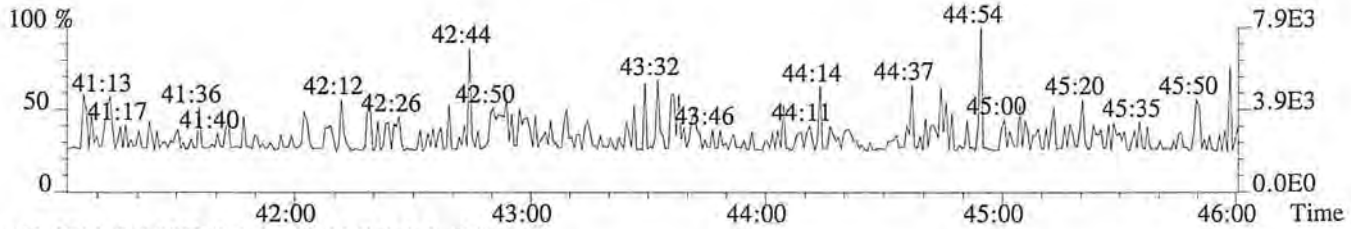
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1576.0,0.40%,F,T)



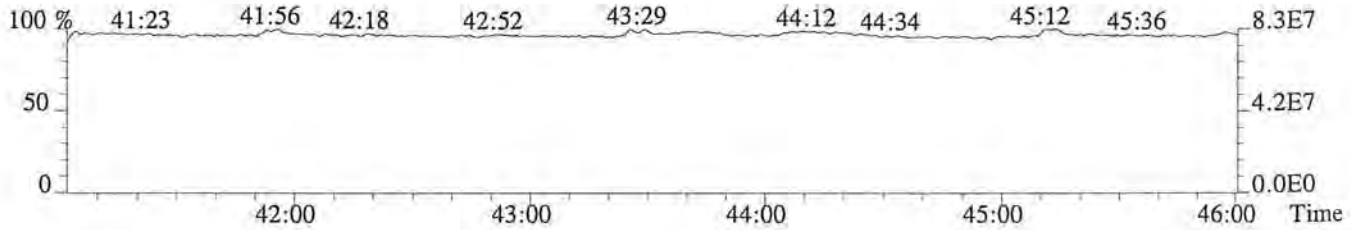
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1536.0,0.40%,F,T)



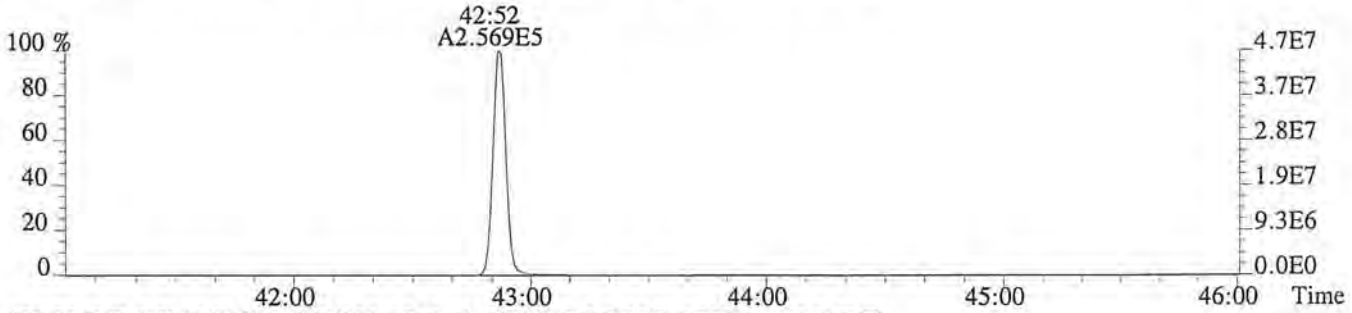
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



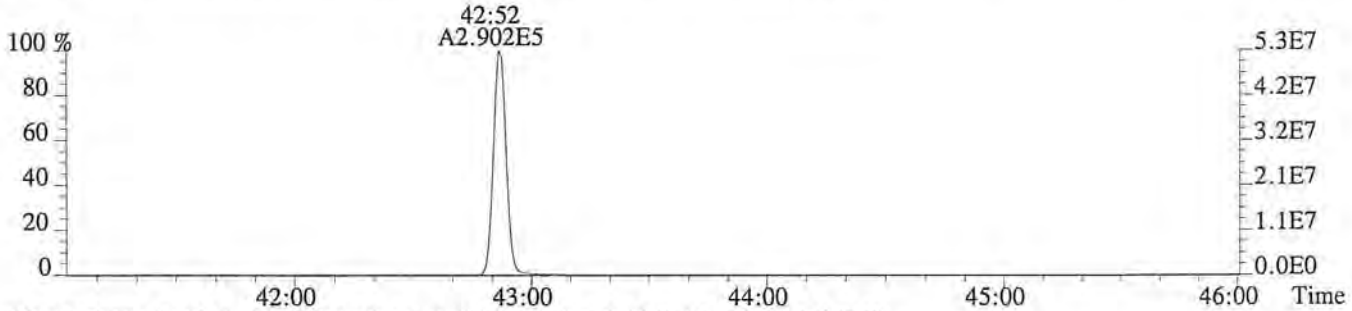
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



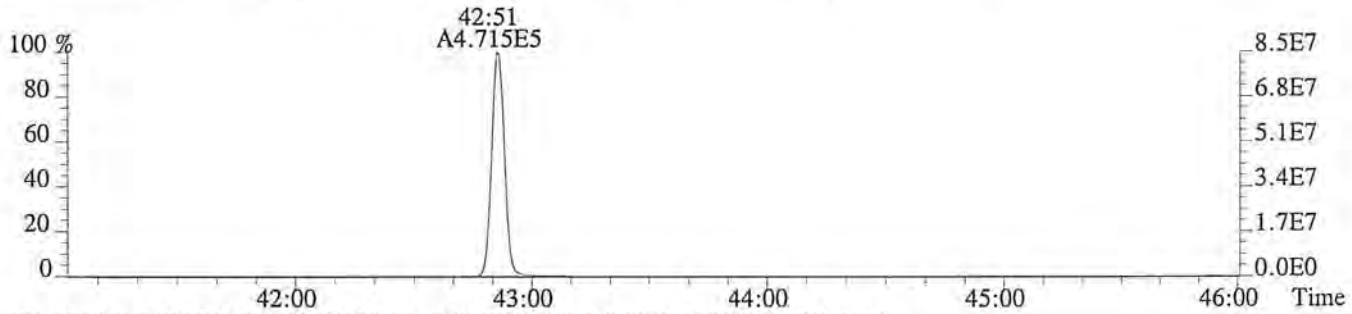
File:P600007 #1-448 Acq:19-AUG-2015 14:58:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,964.0,0.40%,F,T)



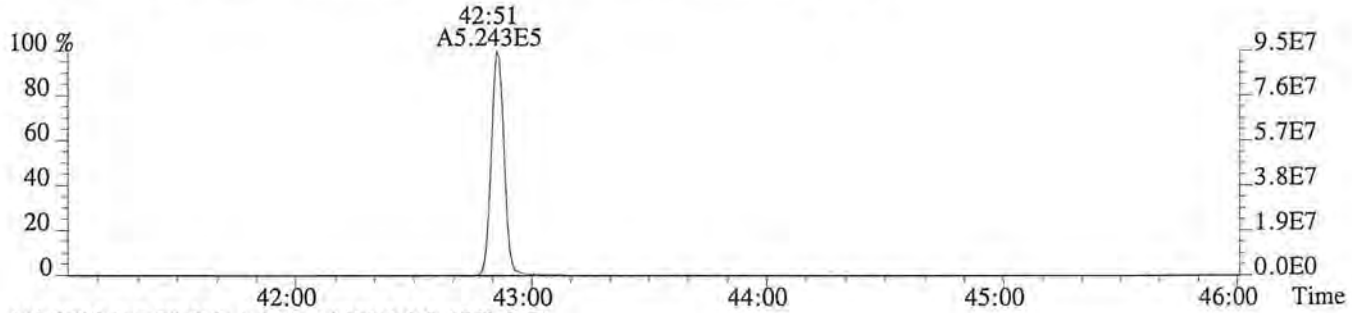
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1768.0,0.40%,F,T)



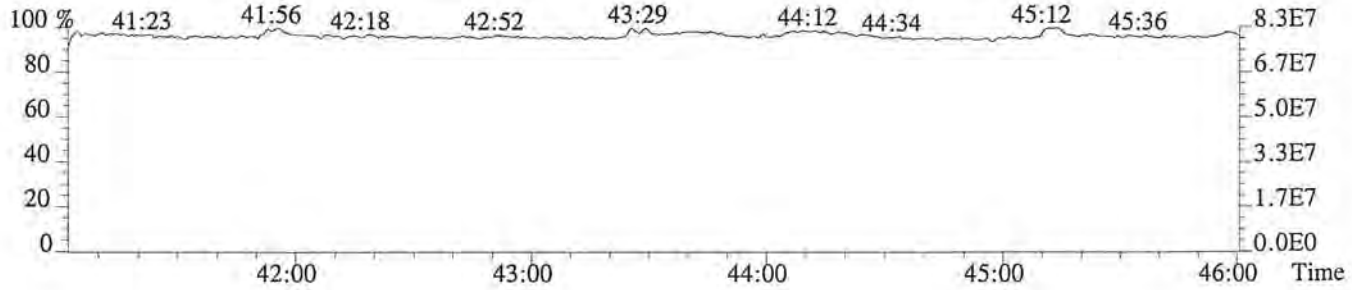
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1576.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1536.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76558

Run #5 Filename P600008 Samp: 1 Inj: 1 Acquired: 19-AUG-15 15:47:35
Processed: 20-AUG-15 08:56:29 Sample ID: CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:04	1.687e+05	2.207e+05	0.76	yes	no	0.941
2	Unk	1,2,3,7,8-PeCDF	33:03	1.274e+06	8.207e+05	1.55	yes	no	0.987
3	Unk	2,3,4,7,8-PeCDF	33:55	1.215e+06	7.888e+05	1.54	yes	no	0.934
4	Unk	1,2,3,4,7,8-HxCDF	36:31	1.049e+06	8.590e+05	1.22	yes	no	1.189
5	Unk	1,2,3,6,7,8-HxCDF	36:37	1.078e+06	8.697e+05	1.24	yes	no	1.126
6	Unk	2,3,4,6,7,8-HxCDF	37:06	1.028e+06	8.378e+05	1.23	yes	no	1.116
7	Unk	1,2,3,7,8,9-HxCDF	37:50	9.900e+05	8.048e+05	1.23	yes	no	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:04	9.017e+05	8.896e+05	1.01	yes	no	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:30	9.086e+05	8.823e+05	1.03	yes	no	1.287
10	Unk	OCDF	43:05	1.194e+06	1.326e+06	0.90	yes	no	1.257
11	Unk	2,3,7,8-TCDD	29:48	1.507e+05	1.934e+05	0.78	yes	no	1.010
12	Unk	1,2,3,7,8-PeCDD	34:12	8.898e+05	5.694e+05	1.56	yes	no	0.932
13	Unk	1,2,3,4,7,8-HxCDD	37:14	7.584e+05	6.099e+05	1.24	yes	no	1.026
14	Unk	1,2,3,6,7,8-HxCDD	37:19	7.164e+05	5.773e+05	1.24	yes	no	1.021
15	Unk	1,2,3,7,8,9-HxCDD	37:33	8.161e+05	6.543e+05	1.25	yes	no	1.133
16	Unk	1,2,3,4,6,7,8-HpCDD	40:01	6.982e+05	6.733e+05	1.04	yes	no	1.034
17	Unk	OCDD	42:52	1.023e+06	1.149e+06	0.89	yes	no	1.111
18	IS	13C-2,3,7,8-TCDF	29:03	4.546e+05	5.724e+05	0.79	yes	no	1.379
19	IS	13C-1,2,3,7,8-PeCDF	33:03	6.414e+05	4.062e+05	1.58	yes	no	1.456
20	IS	13C-2,3,4,7,8-PeCDF	33:55	6.443e+05	4.075e+05	1.58	yes	no	1.465
21	IS	13C-1,2,3,4,7,8-HxCDF	36:30	2.707e+05	5.188e+05	0.52	yes	no	1.075
22	IS	13C-1,2,3,6,7,8-HxCDF	36:36	2.921e+05	5.589e+05	0.52	yes	no	1.158
23	IS	13C-2,3,4,6,7,8-HxCDF	37:05	2.847e+05	5.403e+05	0.53	yes	no	1.133
24	IS	13C-1,2,3,7,8,9-HxCDF	37:50	2.621e+05	5.028e+05	0.52	yes	no	1.024
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:04	2.007e+05	4.552e+05	0.44	yes	no	0.880
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:29	2.129e+05	4.784e+05	0.45	yes	no	0.914
27	IS	13C-2,3,7,8-TCDD	29:48	3.775e+05	4.793e+05	0.79	yes	no	1.193
28	IS	13C-1,2,3,7,8-PeCDD	34:11	4.772e+05	3.040e+05	1.57	yes	no	1.094
29	IS	13C-1,2,3,4,7,8-HxCDD	37:13	3.698e+05	2.938e+05	1.26	yes	no	0.906
30	IS	13C-1,2,3,6,7,8-HxCDD	37:18	3.505e+05	2.764e+05	1.27	yes	no	0.860
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:00	3.425e+05	3.233e+05	1.06	yes	no	0.892
32	IS	13C-OCDD	42:51	4.626e+05	5.176e+05	0.89	yes	no	0.642
33	RS/RT	13C-1,2,3,4-TCDD	29:15	3.253e+05	4.121e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:32	4.098e+05	3.273e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:48	3.596e+05				no	1.263

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76558

Run #5 Filename P600008 Samp: 1 Inj: 1 Acquired: 19-AUG-15 15:47:35
Processed: 20-AUG-15 08:56:29 LAB. ID: CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.19e+07	2.13e+03	1.5e+04	4.14e+07	2.68e+03	1.5e+04
2	1,2,3,7,8-PeCDF	2.51e+08	2.28e+03	1.1e+05	1.61e+08	3.81e+03	4.2e+04
3	2,3,4,7,8-PeCDF	2.50e+08	2.28e+03	1.1e+05	1.62e+08	3.81e+03	4.2e+04
4	1,2,3,4,7,8-HxCDF	2.26e+08	3.59e+03	6.3e+04	1.85e+08	1.92e+03	9.7e+04
5	1,2,3,6,7,8-HxCDF	2.37e+08	3.59e+03	6.6e+04	1.91e+08	1.92e+03	1.0e+05
6	2,3,4,6,7,8-HxCDF	2.27e+08	3.59e+03	6.3e+04	1.87e+08	1.92e+03	9.8e+04
7	1,2,3,7,8,9-HxCDF	2.16e+08	3.59e+03	6.0e+04	1.75e+08	1.92e+03	9.1e+04
8	1,2,3,4,6,7,8-HpCDF	1.94e+08	2.06e+04	9.4e+03	1.94e+08	1.09e+04	1.8e+04
9	1,2,3,4,7,8,9-HpCDF	1.89e+08	2.06e+04	9.2e+03	1.85e+08	1.09e+04	1.7e+04
10	OCDF	2.16e+08	1.33e+03	1.6e+05	2.39e+08	3.02e+03	7.9e+04
11	2,3,7,8-TCDD	3.06e+07	1.70e+03	1.8e+04	3.92e+07	2.12e+03	1.8e+04
12	1,2,3,7,8-PeCDD	1.81e+08	3.26e+03	5.6e+04	1.15e+08	2.08e+03	5.5e+04
13	1,2,3,4,7,8-HxCDD	1.72e+08	1.51e+03	1.1e+05	1.38e+08	1.90e+03	7.3e+04
14	1,2,3,6,7,8-HxCDD	1.58e+08	1.51e+03	1.0e+05	1.29e+08	1.90e+03	6.8e+04
15	1,2,3,7,8,9-HxCDD	1.78e+08	1.51e+03	1.2e+05	1.44e+08	1.90e+03	7.6e+04
16	1,2,3,4,6,7,8-HpCDD	1.49e+08	1.97e+03	7.5e+04	1.43e+08	2.87e+03	5.0e+04
17	OCDD	1.89e+08	1.17e+03	1.6e+05	2.13e+08	2.25e+03	9.5e+04
18	13C-2,3,7,8-TCDF	8.58e+07	6.27e+03	1.4e+04	1.09e+08	3.26e+03	3.3e+04
19	13C-1,2,3,7,8-PeCDF	1.25e+08	1.66e+03	7.5e+04	7.87e+07	2.52e+03	3.1e+04
20	13C-2,3,4,7,8-PeCDF	1.31e+08	1.66e+03	7.9e+04	8.26e+07	2.52e+03	3.3e+04
21	13C-1,2,3,4,7,8-HxCDF	5.77e+07	3.12e+03	1.9e+04	1.11e+08	3.24e+03	3.4e+04
22	13C-1,2,3,6,7,8-HxCDF	6.34e+07	3.12e+03	2.0e+04	1.23e+08	3.24e+03	3.8e+04
23	13C-2,3,4,6,7,8-HxCDF	6.32e+07	3.12e+03	2.0e+04	1.20e+08	3.24e+03	3.7e+04
24	13C-1,2,3,7,8,9-HxCDF	5.72e+07	3.12e+03	1.8e+04	1.09e+08	3.24e+03	3.4e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.33e+07	1.03e+04	4.2e+03	9.74e+07	1.40e+04	7.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.31e+07	1.03e+04	4.2e+03	9.83e+07	1.40e+04	7.0e+03
27	13C-2,3,7,8-TCDD	7.56e+07	8.87e+03	8.5e+03	9.56e+07	4.60e+03	2.1e+04
28	13C-1,2,3,7,8-PeCDD	9.68e+07	2.12e+03	4.6e+04	6.20e+07	1.55e+03	4.0e+04
29	13C-1,2,3,4,7,8-HxCDD	8.40e+07	7.04e+03	1.2e+04	6.64e+07	2.89e+03	2.3e+04
30	13C-1,2,3,6,7,8-HxCDD	7.75e+07	7.04e+03	1.1e+04	6.14e+07	2.89e+03	2.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	7.21e+07	2.10e+03	3.4e+04	6.75e+07	1.63e+03	4.1e+04
32	13C-OCDD	8.47e+07	1.62e+03	5.2e+04	9.56e+07	1.40e+03	6.8e+04
33	13C-1,2,3,4-TCDD	6.26e+07	8.87e+03	7.1e+03	7.97e+07	4.60e+03	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	9.00e+07	7.04e+03	1.3e+04	7.17e+07	2.89e+03	2.5e+04
35	37Cl-2,3,7,8-TCDD	7.29e+07	2.57e+03	2.8e+04			

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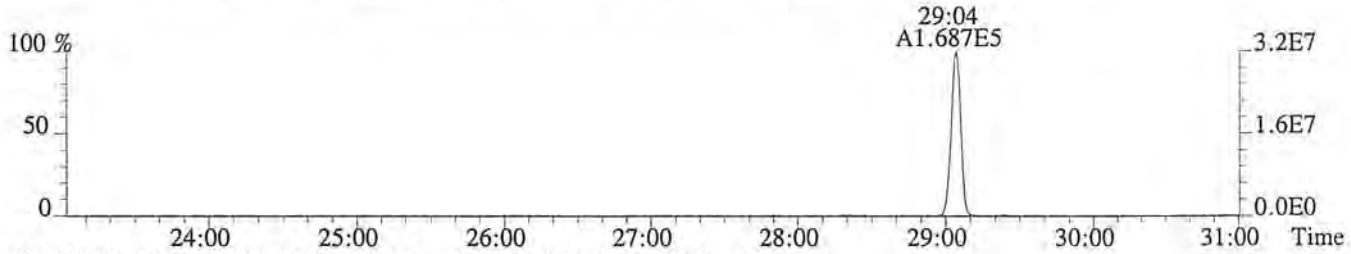
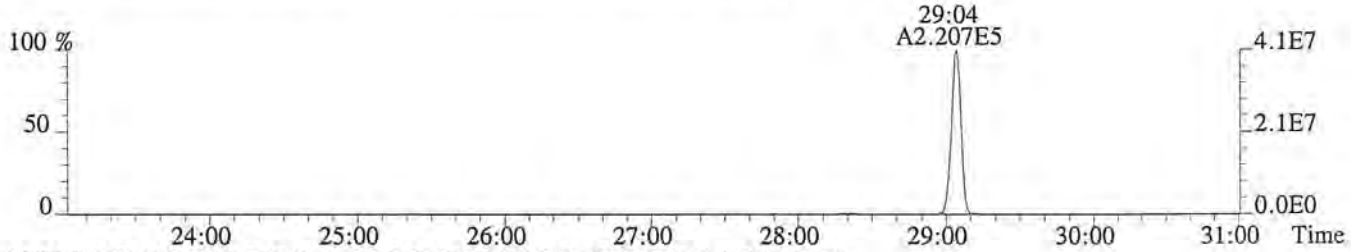
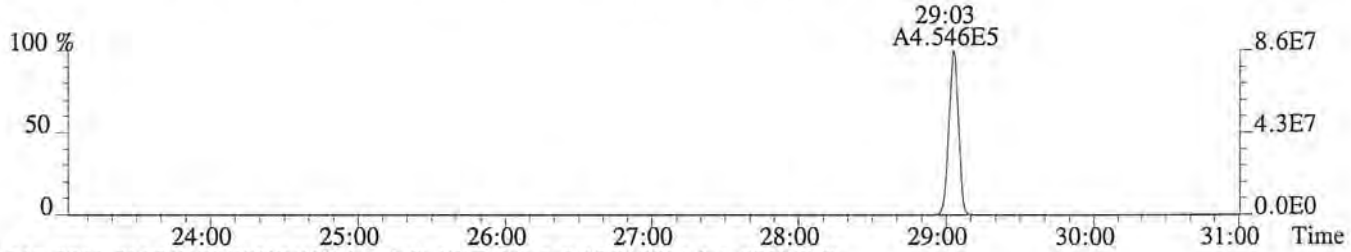
File:P600008 #1-566 Acq:19-AUG-2015 15:47:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2132.0,1.00%,F,T)



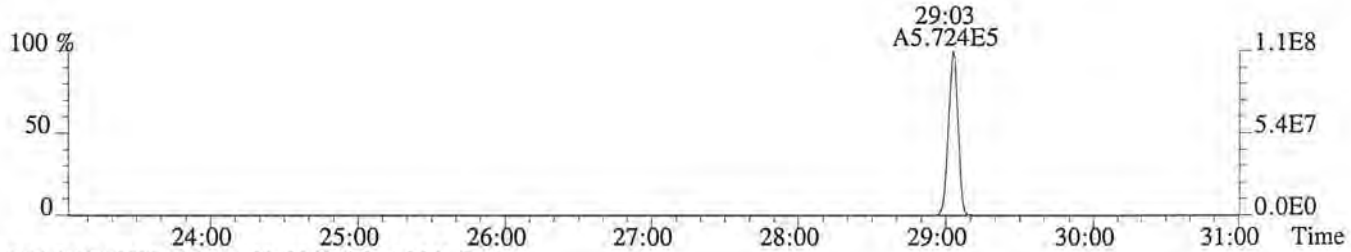
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2684.0,1.00%,F,T)



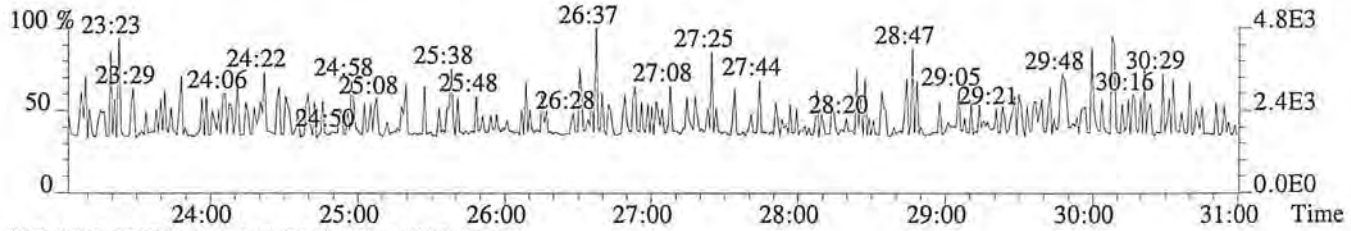
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6268.0,1.00%,F,T)



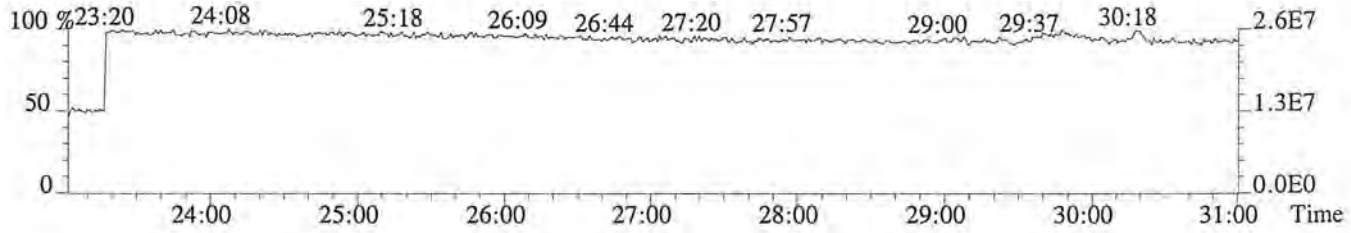
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



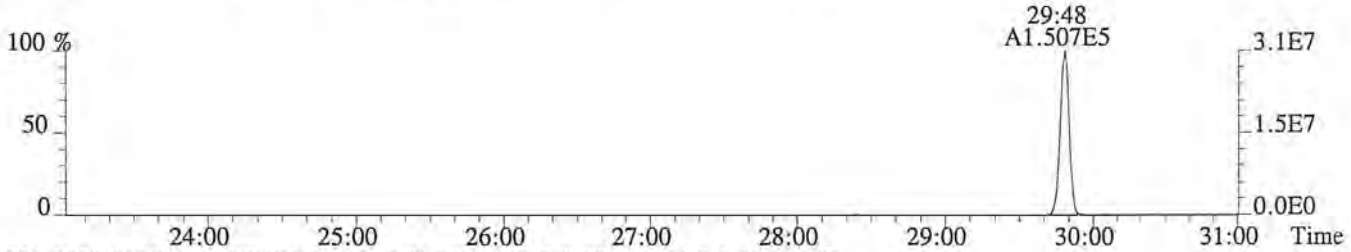
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



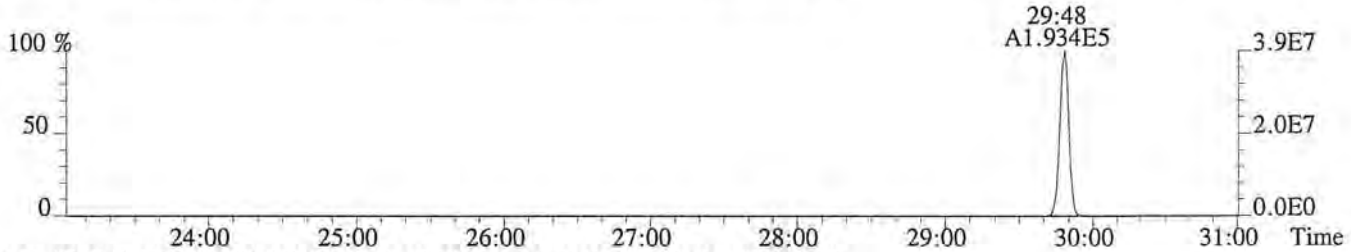
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



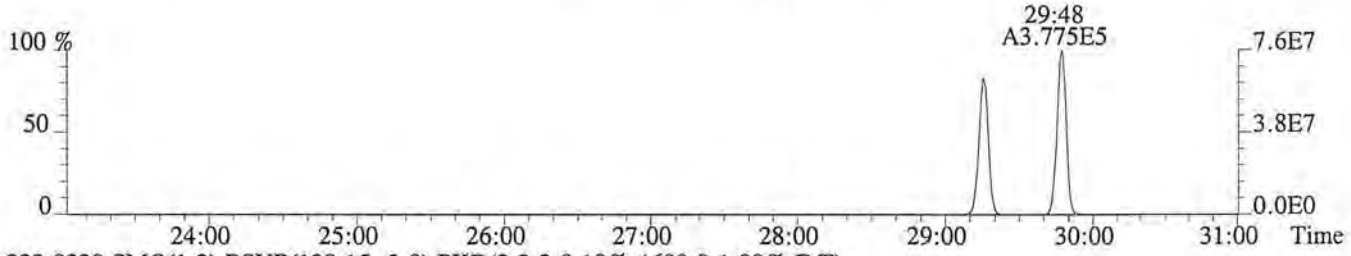
File:P600008 #1-566 Acq:19-AUG-2015 15:47:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1704.0,1.00%,F,T)



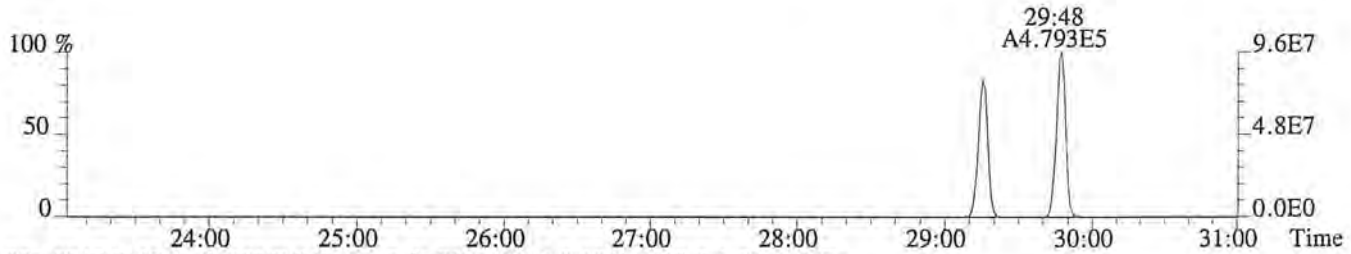
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2124.0,1.00%,F,T)



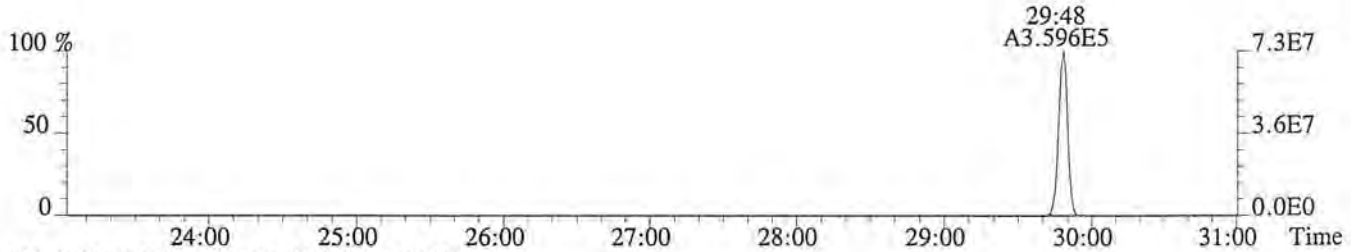
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8872.0,1.00%,F,T)



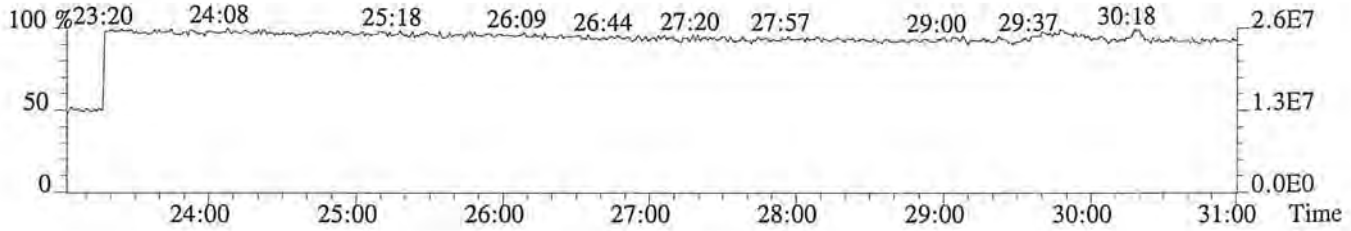
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4600.0,1.00%,F,T)



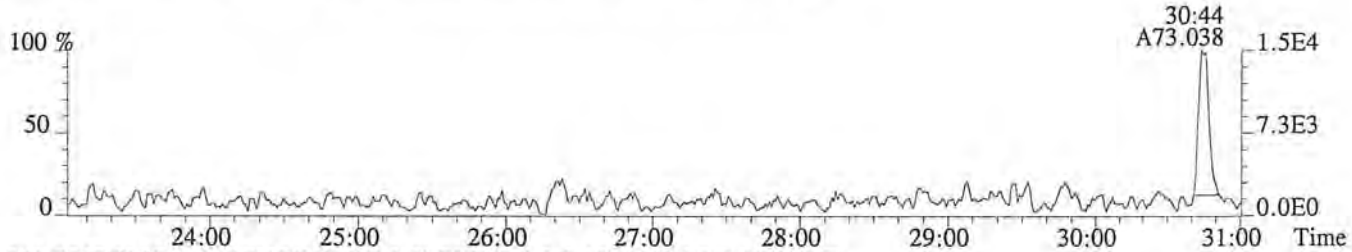
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2568.0,1.00%,F,T)



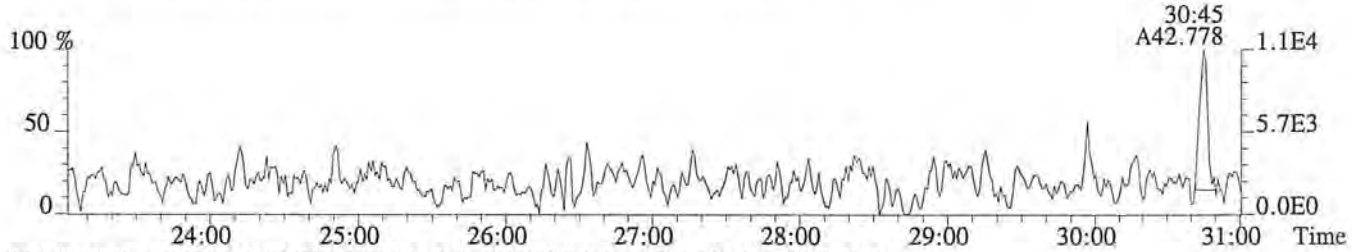
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



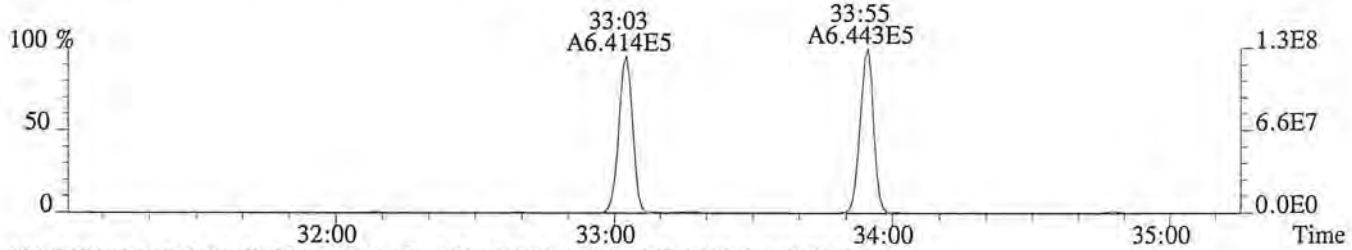
File:P600008 #1-566 Acq:19-AUG-2015 15:47:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1604.0,1.00%,F,T)



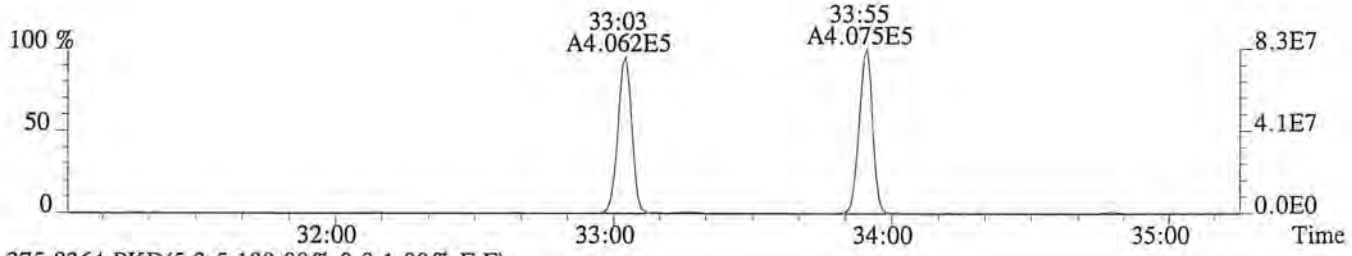
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2856.0,1.00%,F,T)



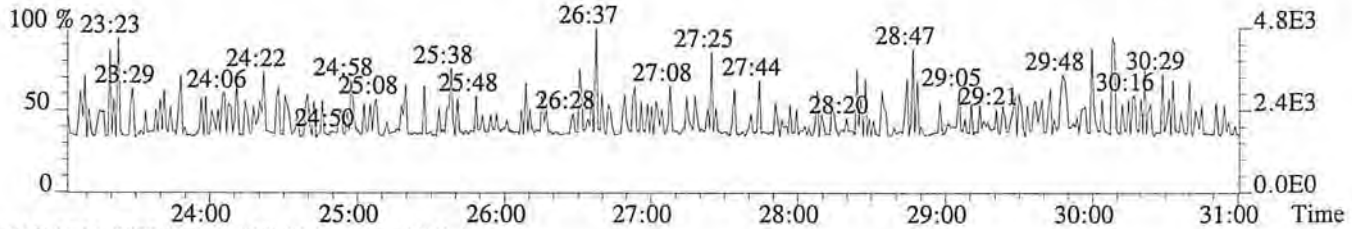
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)



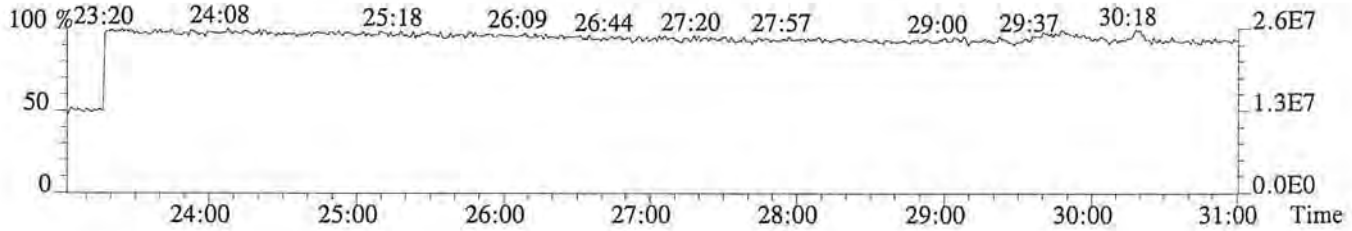
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2520.0,1.00%,F,T)



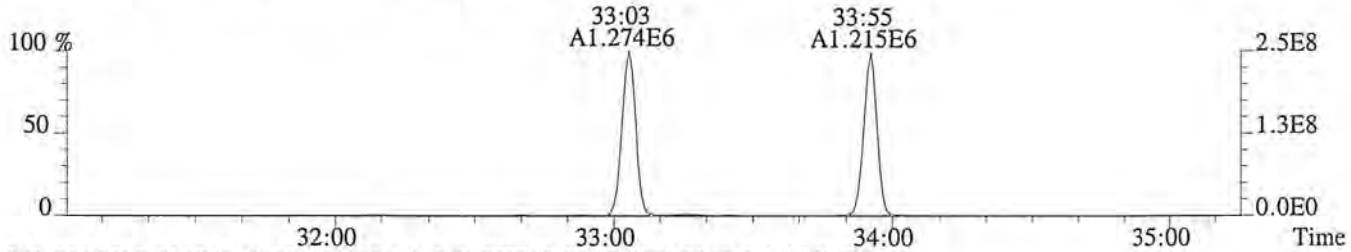
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



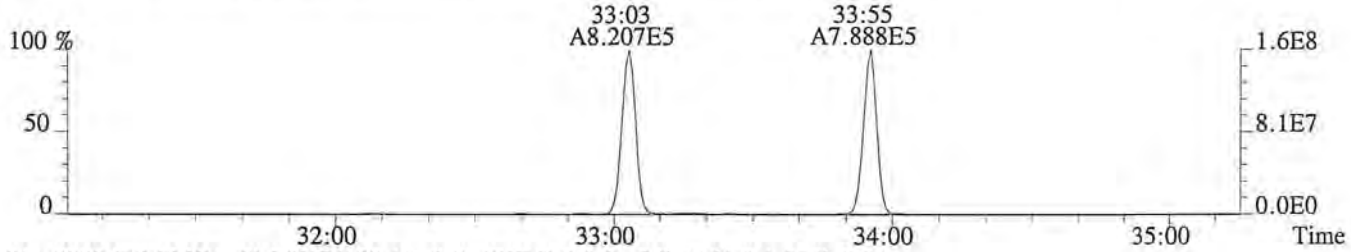
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



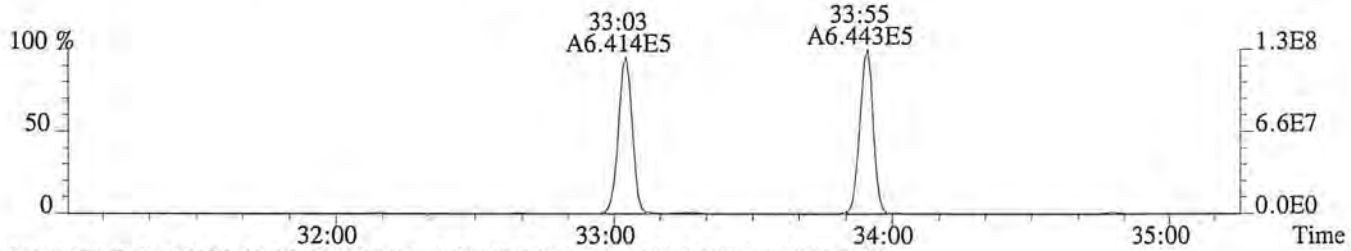
File:P600008 #1-380 Acq:19-AUG-2015 15:47:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2284.0,1.00%,F,T)



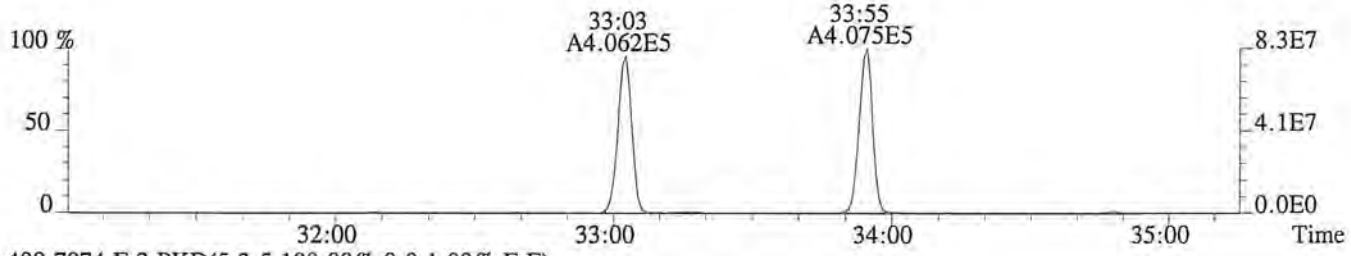
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3812.0,1.00%,F,T)



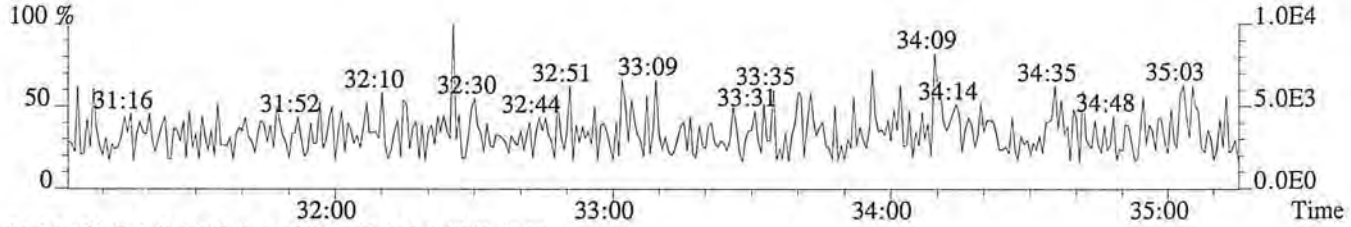
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)



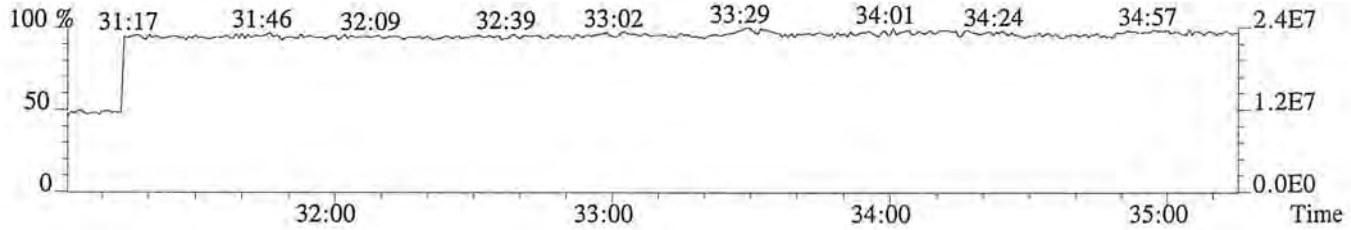
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2520.0,1.00%,F,T)



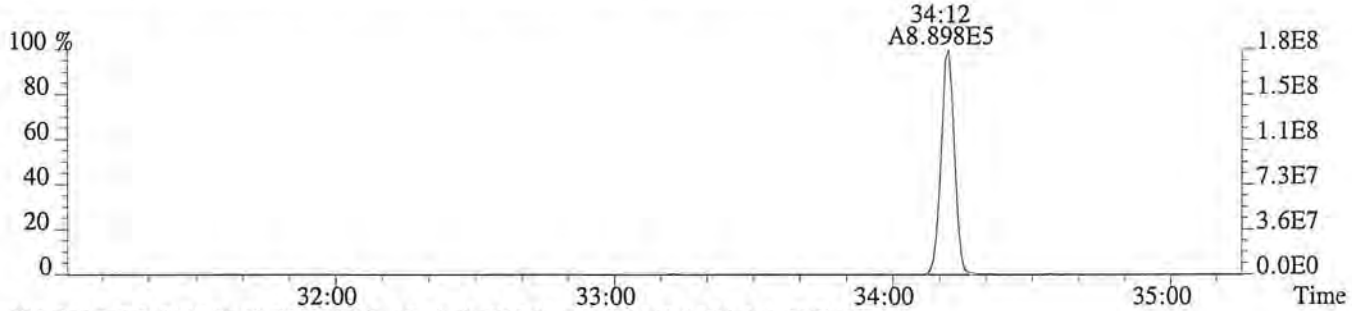
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



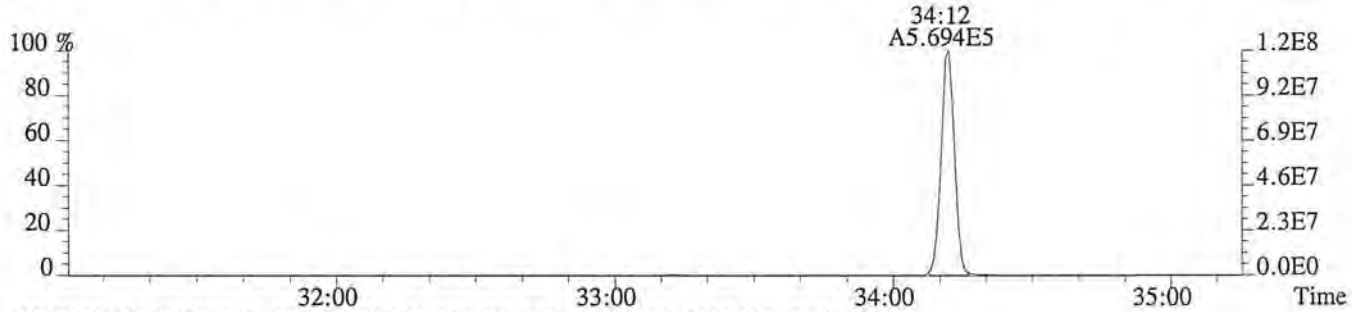
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



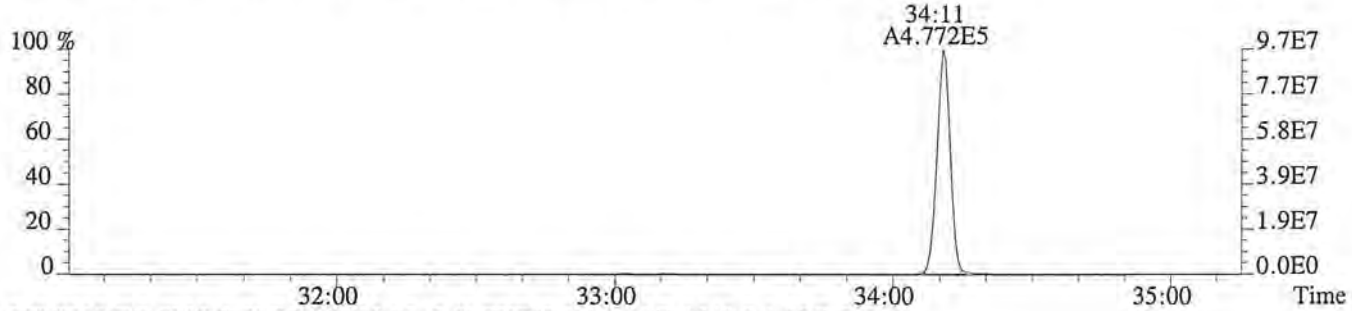
File:P600008 #1-380 Acq:19-AUG-2015 15:47:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3260.0,1.00%,F,T)



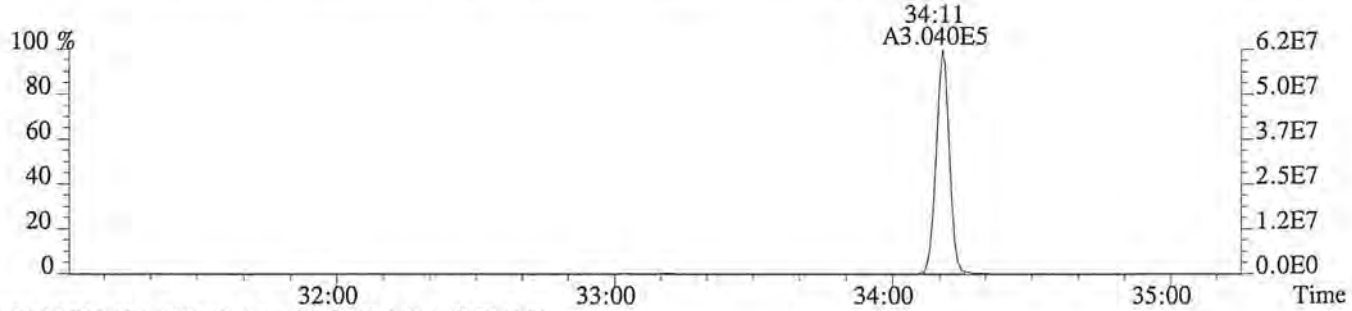
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2084.0,1.00%,F,T)



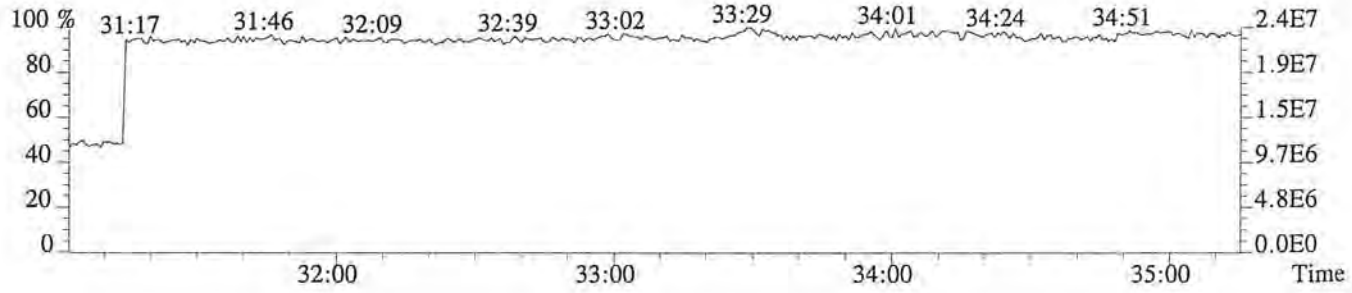
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



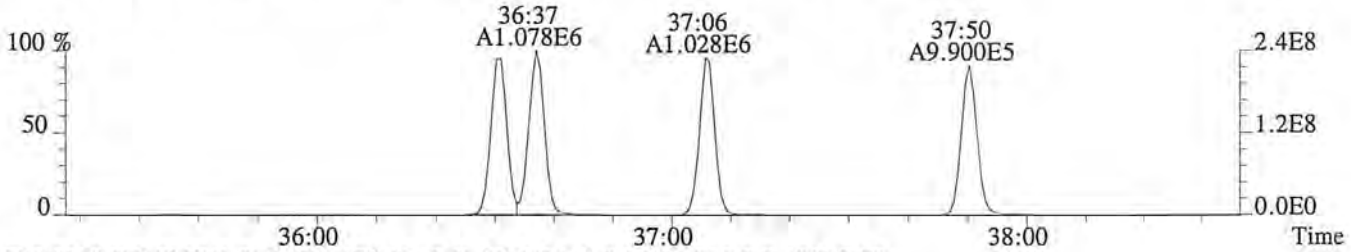
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1548.0,1.00%,F,T)



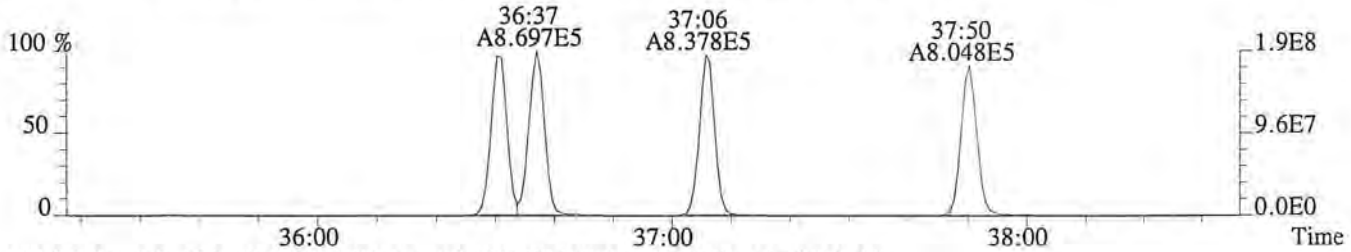
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



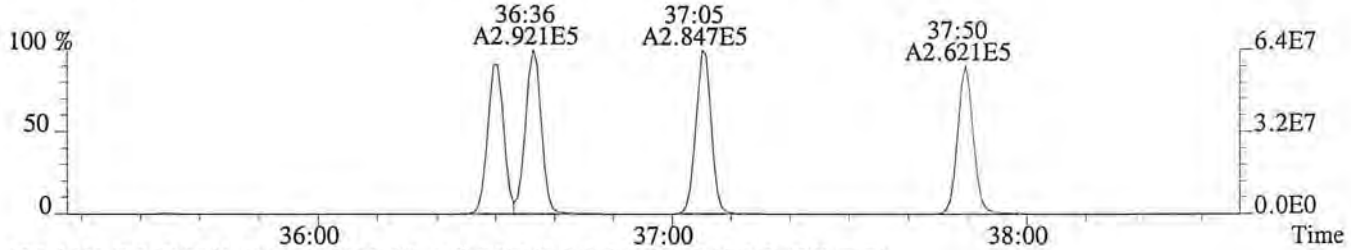
File:P600008 #1-299 Acq:19-AUG-2015 15:47:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3588.0,0.40%,F,T)



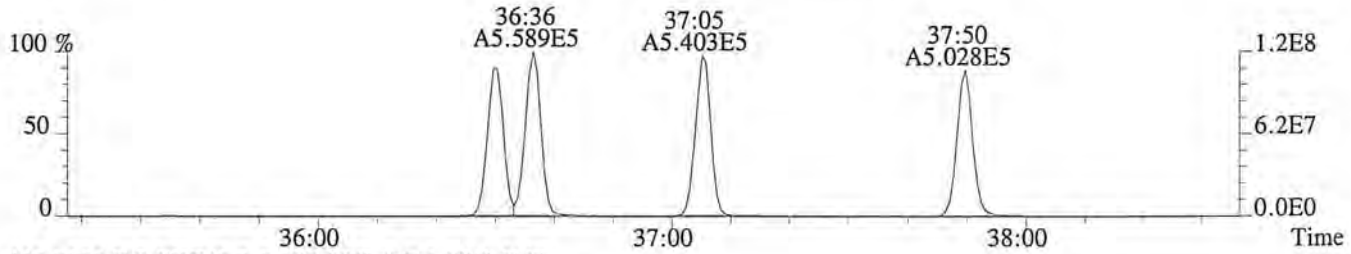
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1916.0,0.40%,F,T)



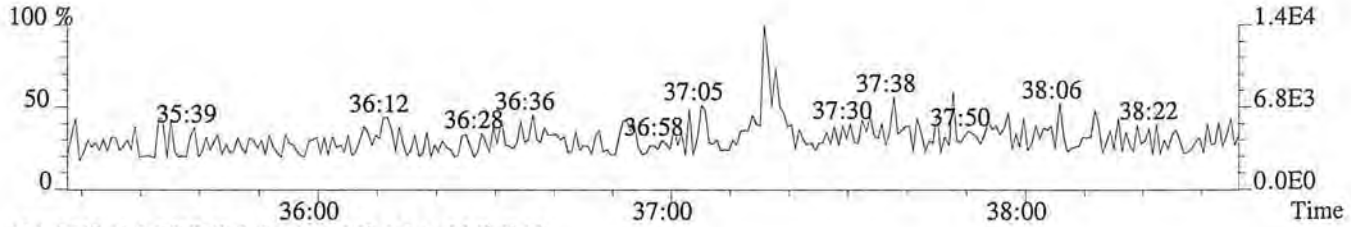
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3120.0,0.40%,F,T)



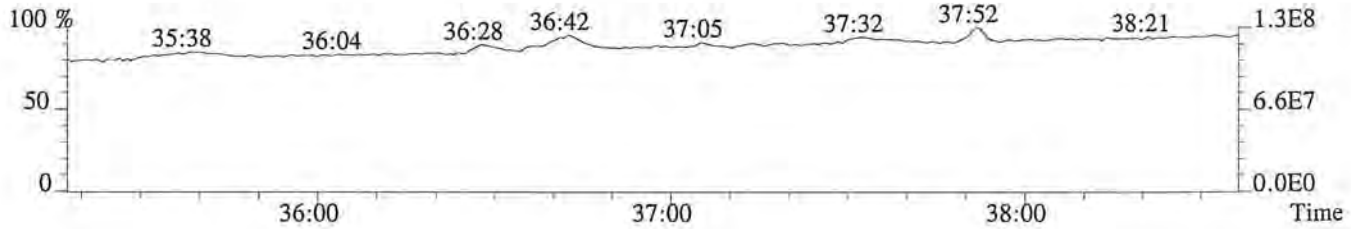
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3244.0,0.40%,F,T)



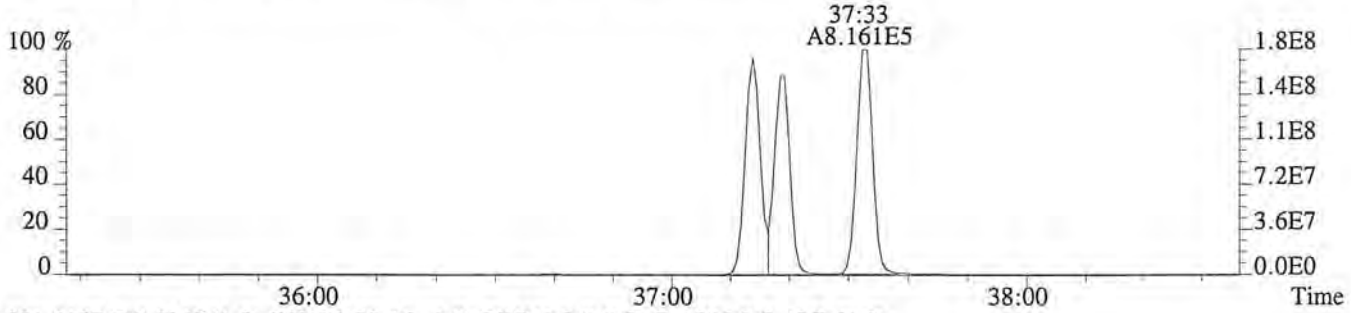
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



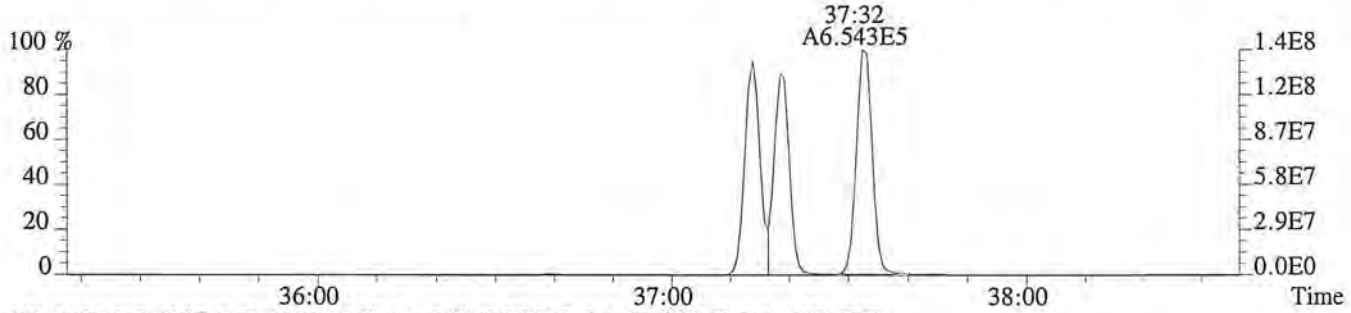
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



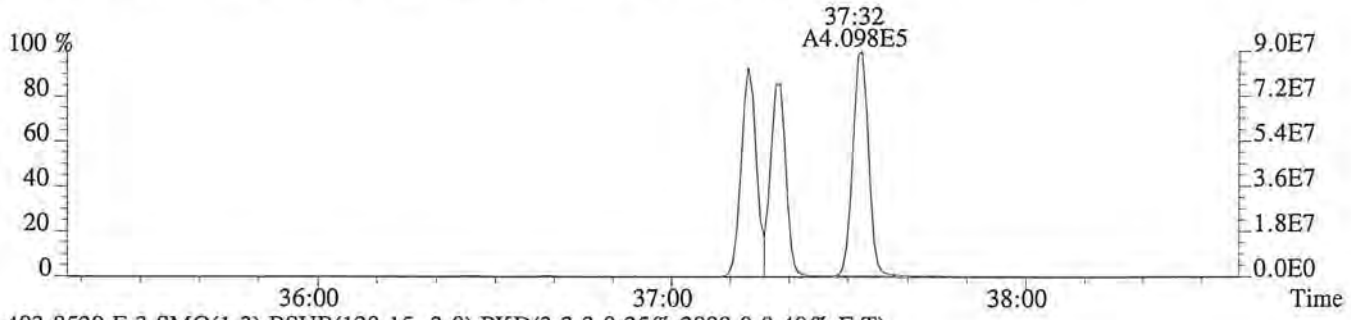
File:P600008 #1-299 Acq:19-AUG-2015 15:47:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1512.0,0.40%,F,T)



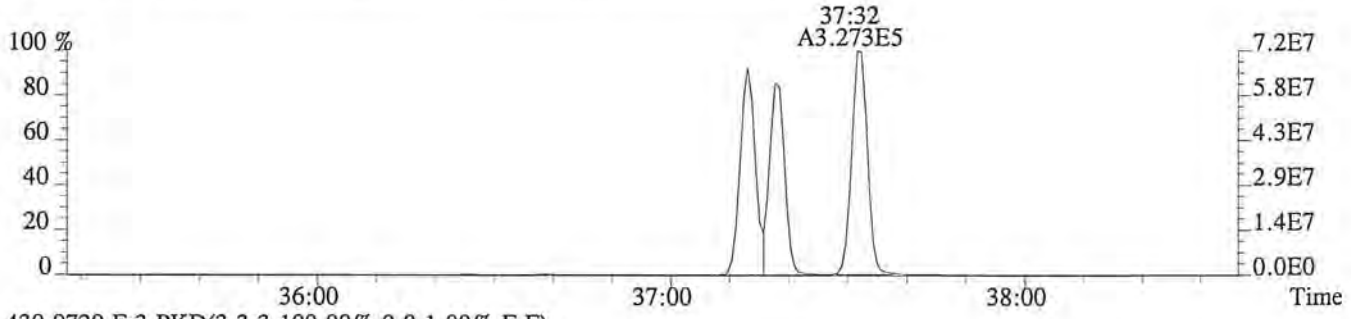
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1896.0,0.40%,F,T)



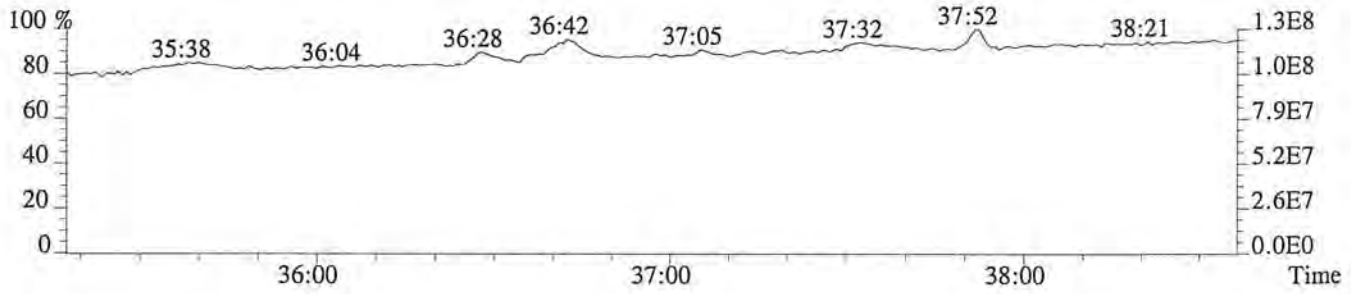
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7044.0,0.40%,F,T)



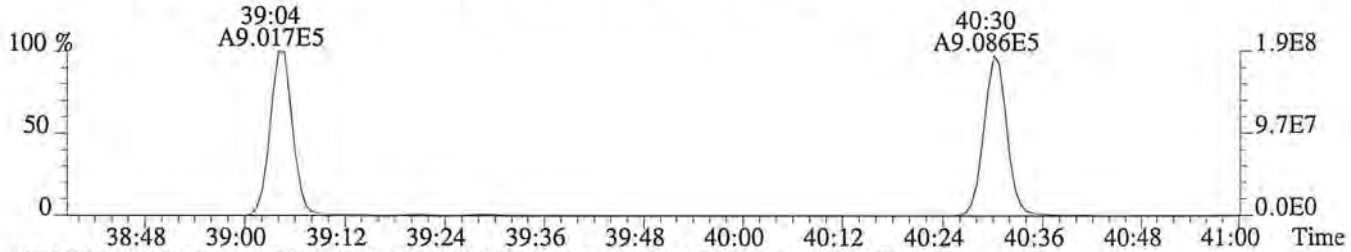
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2888.0,0.40%,F,T)



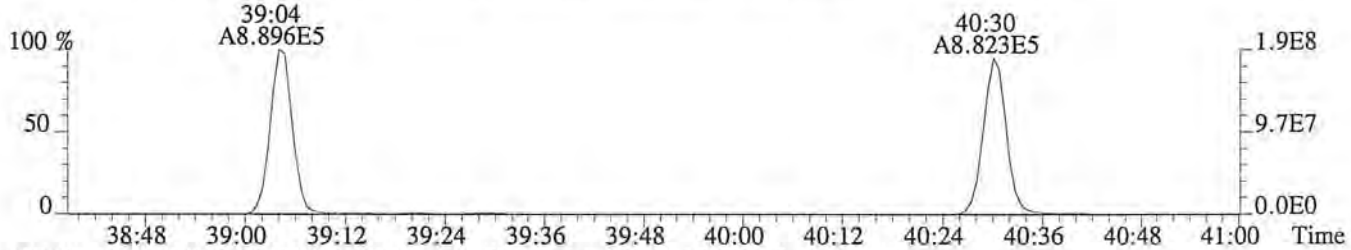
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



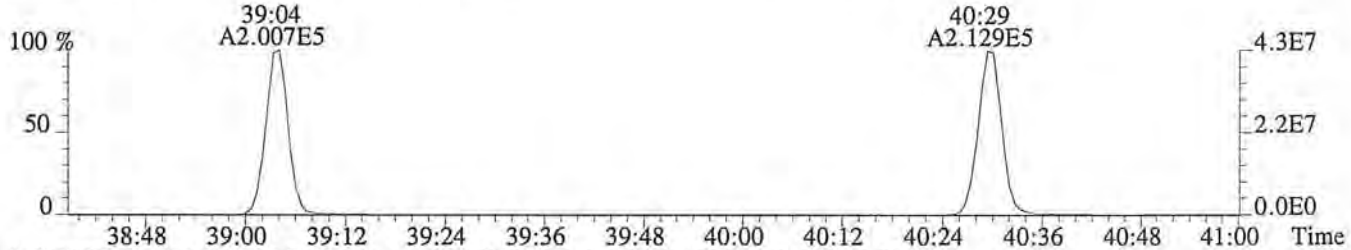
File:P600008 #1-213 Acq:19-AUG-2015 15:47:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20640.0,0.50%,F,T)



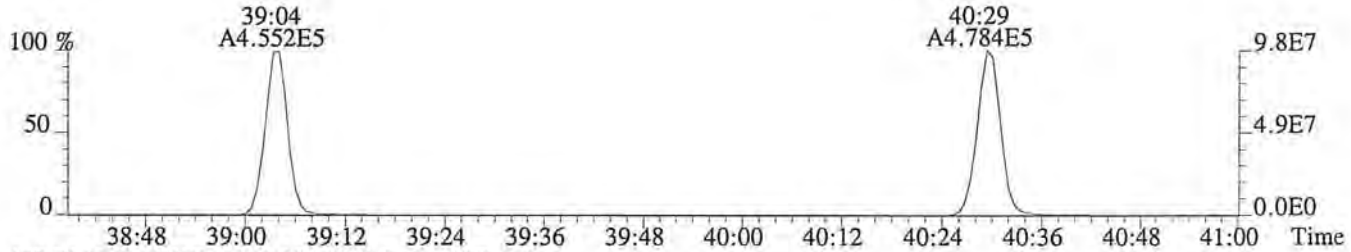
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10900.0,0.50%,F,T)



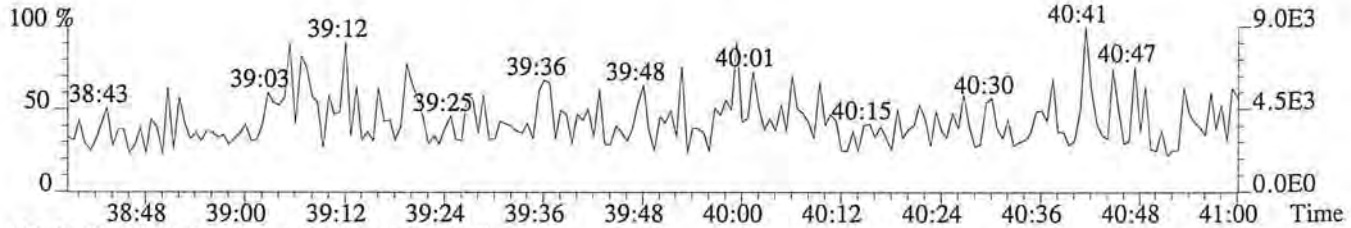
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10272.0,0.50%,F,T)



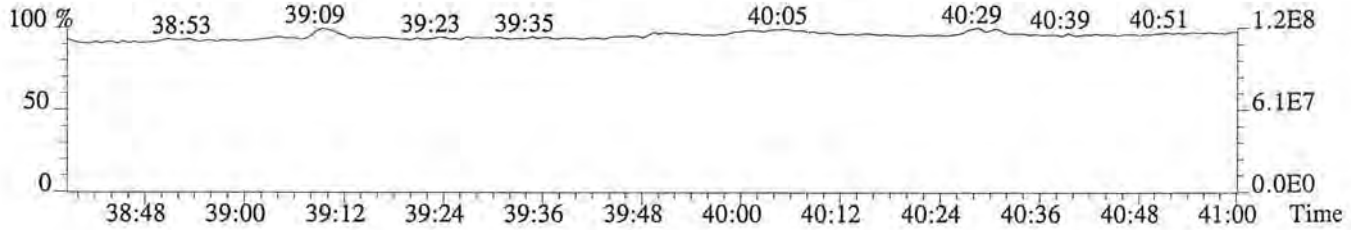
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13964.0,0.50%,F,T)



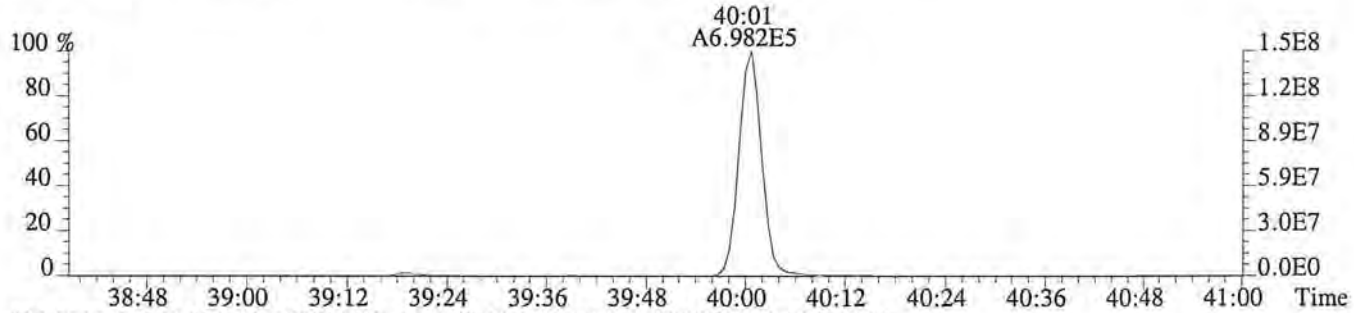
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



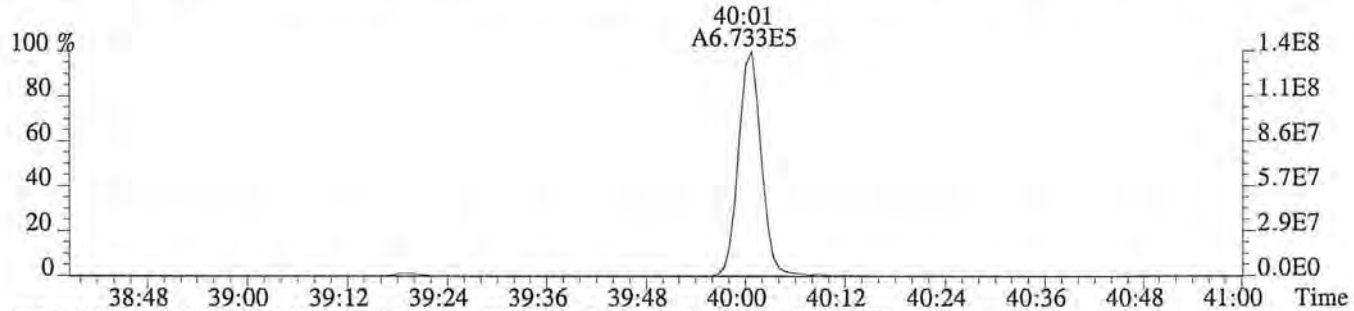
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



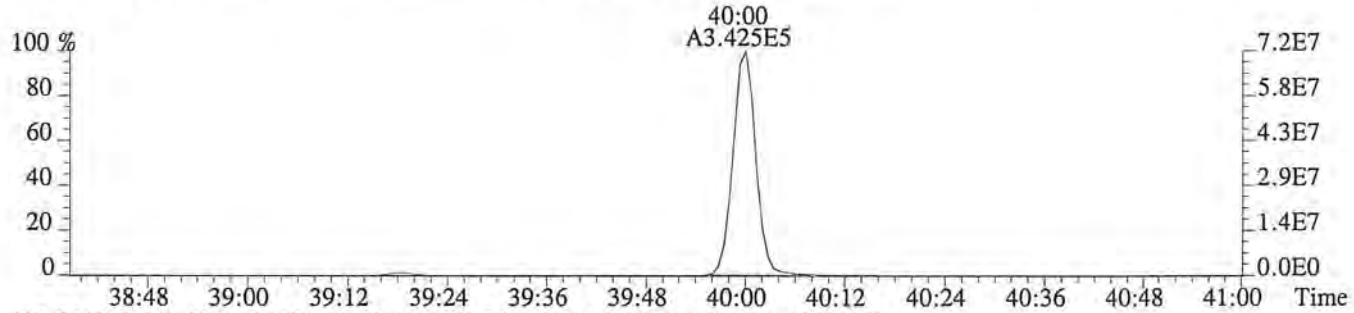
File:P600008 #1-213 Acq:19-AUG-2015 15:47:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1972.0,0.40%,F,T)



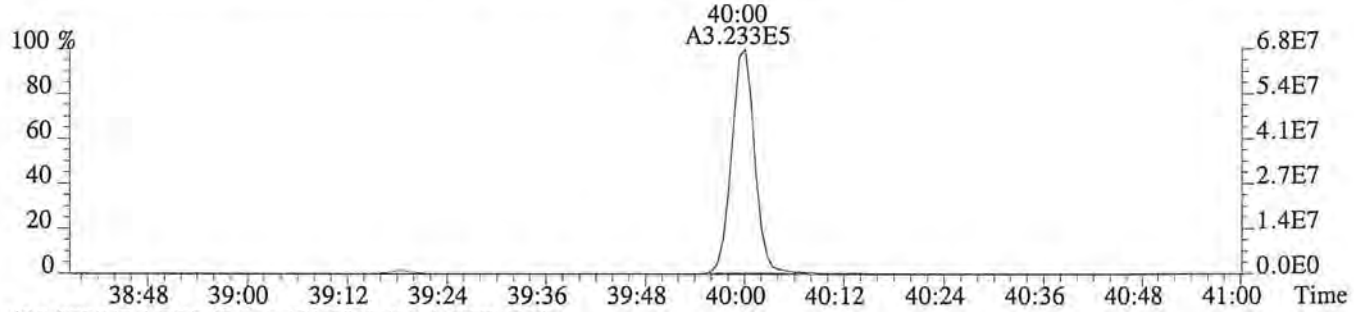
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2868.0,0.40%,F,T)



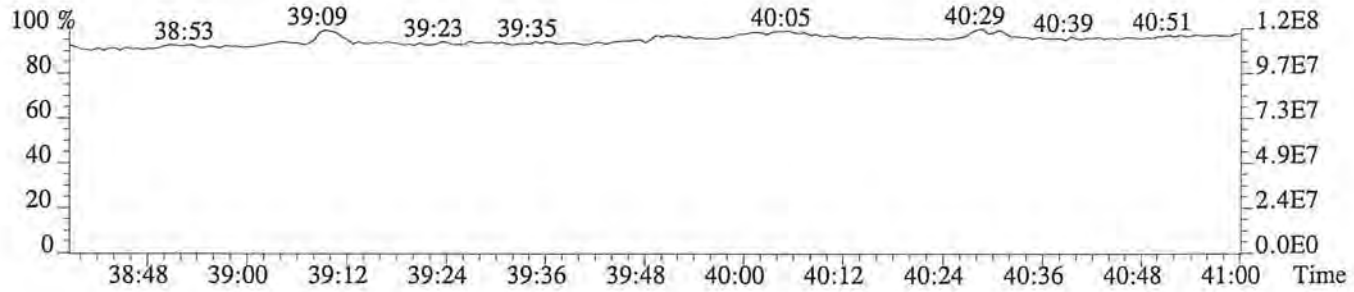
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2104.0,0.40%,F,T)



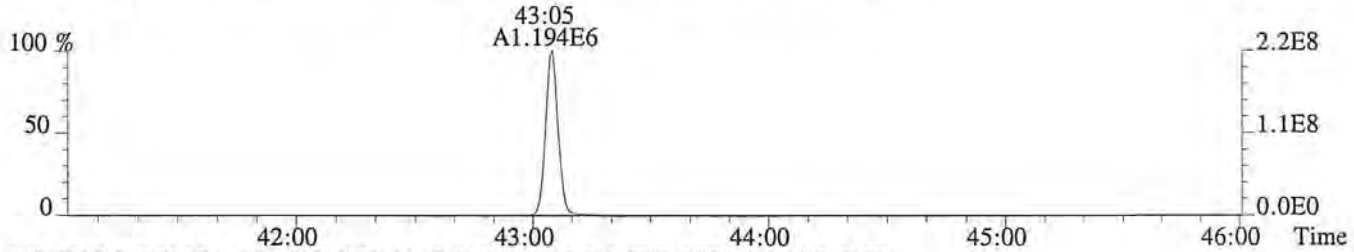
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



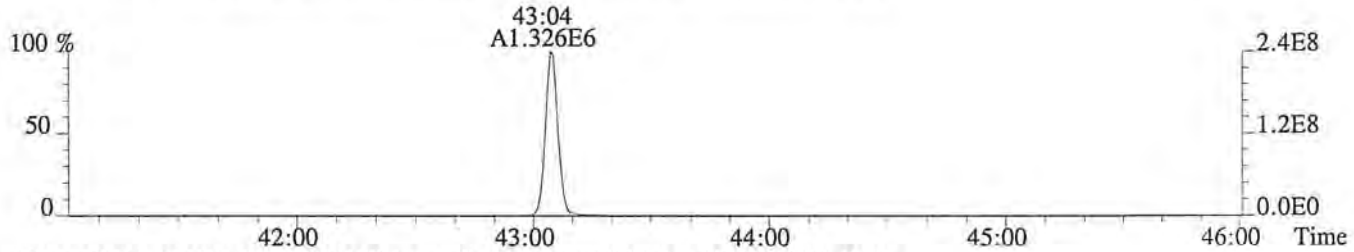
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



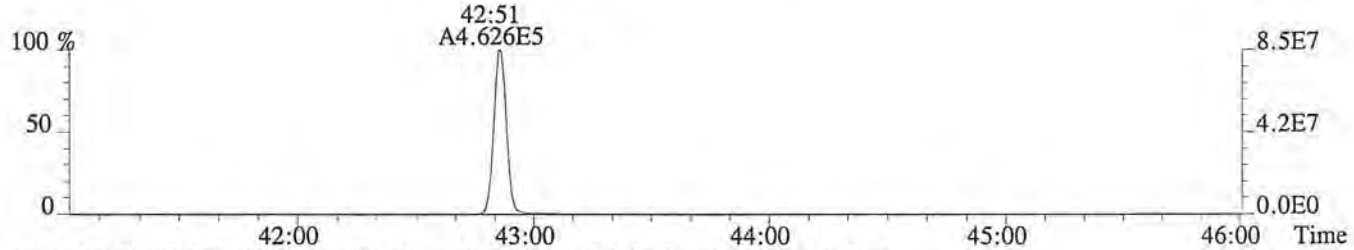
File:P600008 #1-448 Acq:19-AUG-2015 15:47:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1332.0,0.40%,F,T)



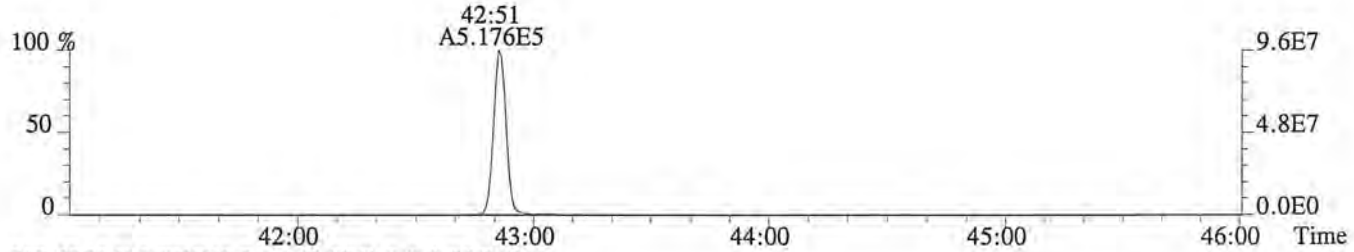
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3020.0,0.40%,F,T)



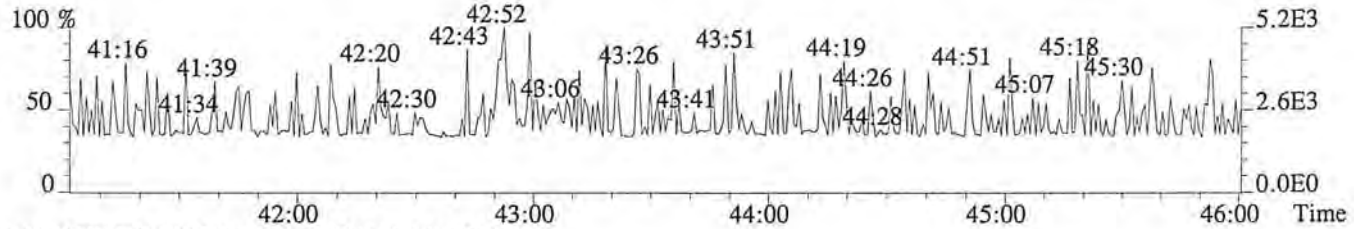
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1620.0,0.40%,F,T)



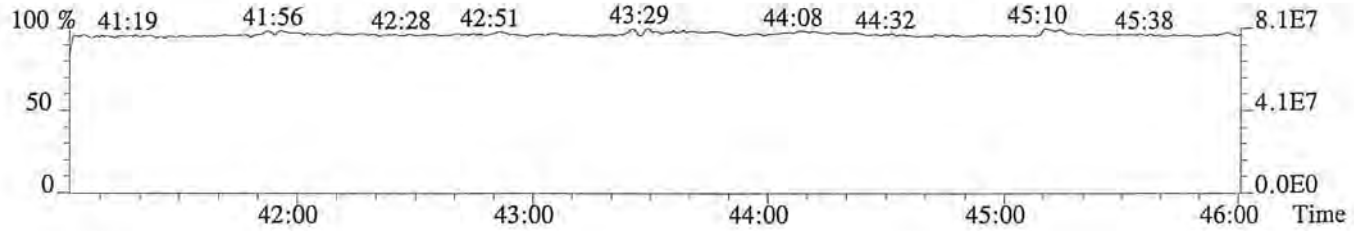
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1396.0,0.40%,F,T)



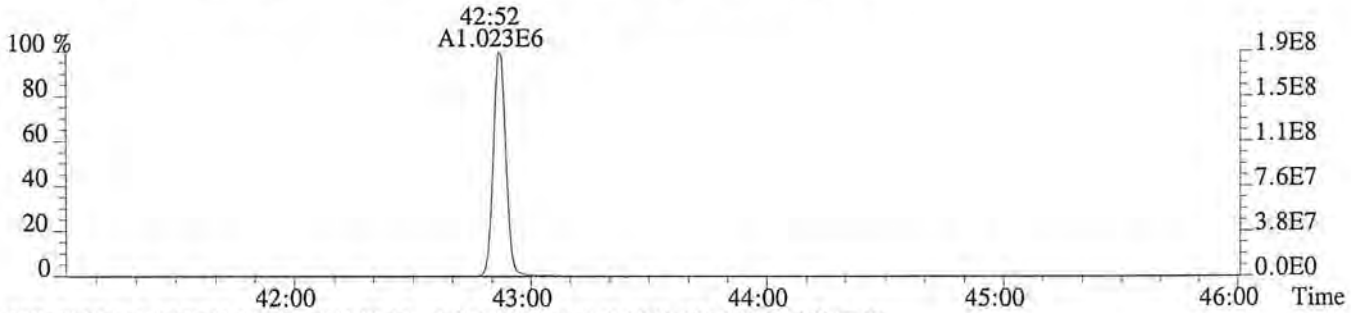
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



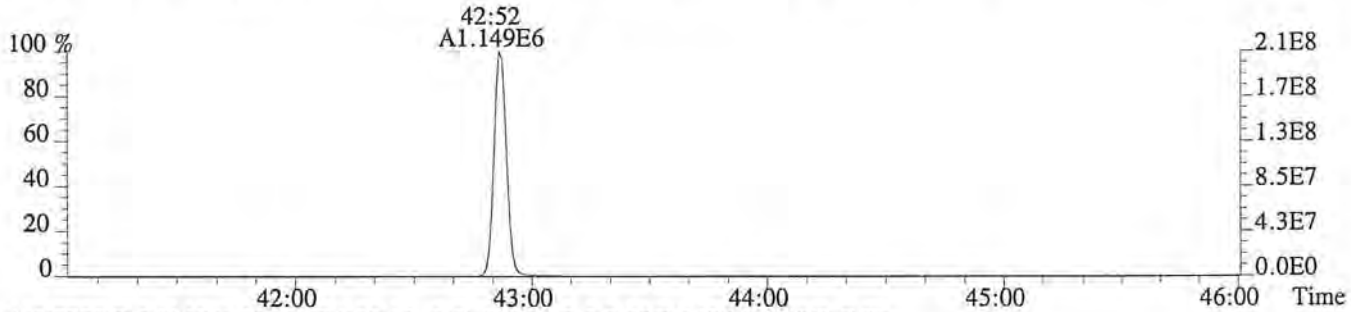
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



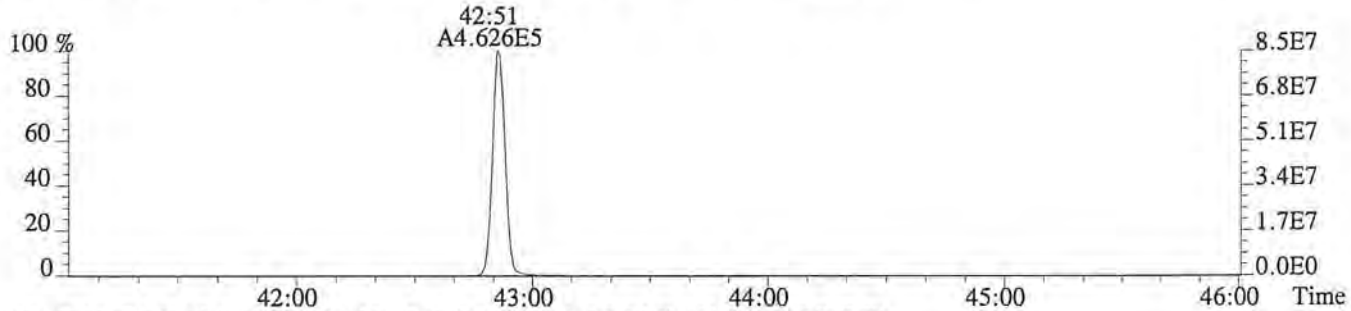
File:P600008 #1-448 Acq:19-AUG-2015 15:47:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1168.0,0.40%,F,T)



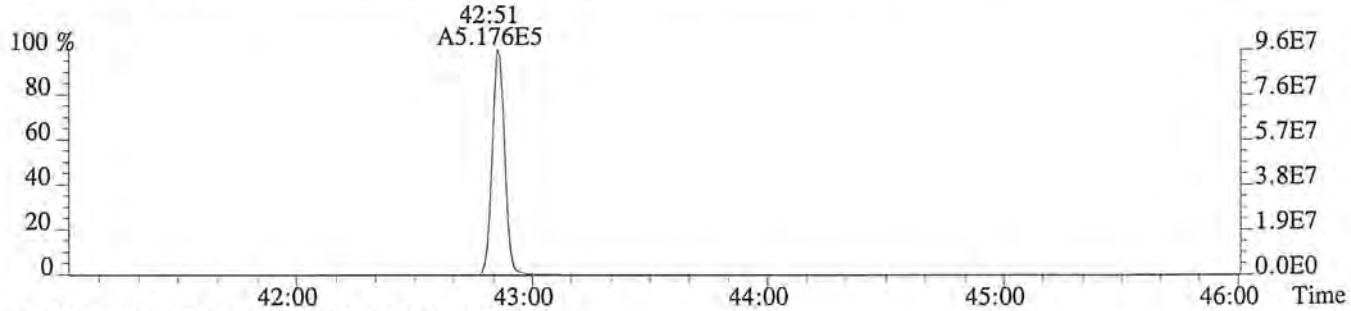
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2248.0,0.40%,F,T)



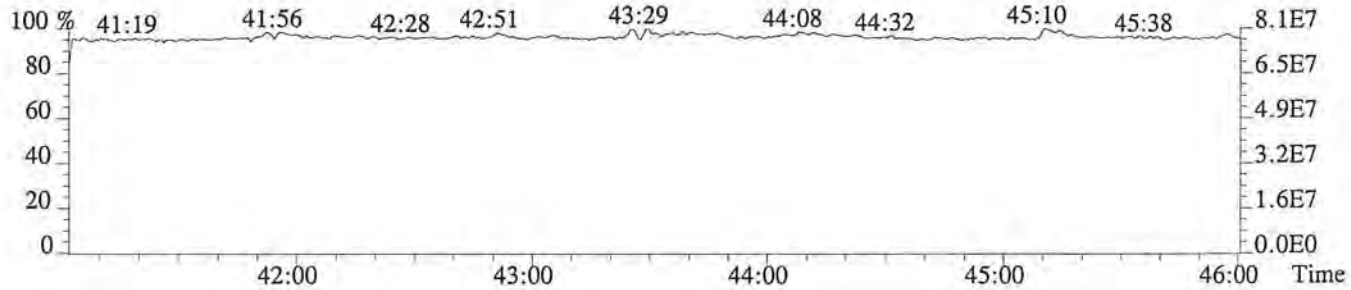
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1620.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1396.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
76956

Run #6 Filename P600009 Samp: 1 Inj: 1 Acquired: 19-AUG-15 16:36:39
Processed: 20-AUG-15 08:56:30 Sample ID: CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:04	5.698e+05	7.358e+05	0.77	yes	no	0.941
2	Unk	1,2,3,7,8-PeCDF	33:03	5.069e+06	3.368e+06	1.51	yes	no	0.987
3	Unk	2,3,4,7,8-PeCDF	33:55	4.895e+06	3.303e+06	1.48	yes	no	0.934
4	Unk	1,2,3,4,7,8-HxCDF	36:30	4.378e+06	3.792e+06	1.15	yes	no	1.189
5	Unk	1,2,3,6,7,8-HxCDF	36:37	4.614e+06	3.895e+06	1.18	yes	no	1.126
6	Unk	2,3,4,6,7,8-HxCDF	37:06	4.324e+06	3.774e+06	1.15	yes	no	1.116
7	Unk	1,2,3,7,8,9-HxCDF	37:50	4.202e+06	3.469e+06	1.21	yes	no	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:04	4.112e+06	4.014e+06	1.02	yes	no	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:30	3.888e+06	3.787e+06	1.03	yes	no	1.287
10	Unk	OCDF	43:05	5.424e+06	5.771e+06	0.94	yes	no	1.257
11	Unk	2,3,7,8-TCDD	29:48	5.437e+05	7.011e+05	0.78	yes	no	1.010
12	Unk	1,2,3,7,8-PeCDD	34:12	3.735e+06	2.401e+06	1.56	yes	no	0.932
13	Unk	1,2,3,4,7,8-HxCDD	37:14	3.464e+06	2.775e+06	1.25	yes	no	1.026
14	Unk	1,2,3,6,7,8-HxCDD	37:18	3.218e+06	2.567e+06	1.25	yes	no	1.021
15	Unk	1,2,3,7,8,9-HxCDD	37:32	3.598e+06	2.877e+06	1.25	yes	no	1.133
16	Unk	1,2,3,4,6,7,8-HpCDD	40:01	3.202e+06	3.074e+06	1.04	yes	no	1.034
17	Unk	OCDD	42:52	4.667e+06	5.176e+06	0.90	yes	no	1.111
18	IS	13C-2,3,7,8-TCDF	29:04	3.019e+05	3.824e+05	0.79	yes	no	1.379
19	IS	13C-1,2,3,7,8-PeCDF	33:03	5.165e+05	3.261e+05	1.58	yes	no	1.456
20	IS	13C-2,3,4,7,8-PeCDF	33:55	5.329e+05	3.377e+05	1.58	yes	no	1.465
21	IS	13C-1,2,3,4,7,8-HxCDF	36:30	2.330e+05	4.514e+05	0.52	yes	no	1.075
22	IS	13C-1,2,3,6,7,8-HxCDF	36:36	2.592e+05	4.960e+05	0.52	yes	no	1.158
23	IS	13C-2,3,4,6,7,8-HxCDF	37:05	2.509e+05	4.802e+05	0.52	yes	no	1.133
24	IS	13C-1,2,3,7,8,9-HxCDF	37:50	2.239e+05	4.271e+05	0.52	yes	no	1.024
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:03	1.807e+05	4.047e+05	0.45	yes	no	0.880
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:29	1.815e+05	4.093e+05	0.44	yes	no	0.914
27	IS	13C-2,3,7,8-TCDD	29:48	2.709e+05	3.451e+05	0.79	yes	no	1.193
28	IS	13C-1,2,3,7,8-PeCDD	34:11	3.952e+05	2.519e+05	1.57	yes	no	1.094
29	IS	13C-1,2,3,4,7,8-HxCDD	37:13	3.311e+05	2.621e+05	1.26	yes	no	0.906
30	IS	13C-1,2,3,6,7,8-HxCDD	37:18	3.070e+05	2.433e+05	1.26	yes	no	0.860
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:00	3.096e+05	2.924e+05	1.06	yes	no	0.892
32	IS	13C-OCDD	42:52	4.253e+05	4.724e+05	0.90	yes	no	0.642
33	RS/RT	13C-1,2,3,4-TCDD	29:15	2.161e+05	2.739e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:32	3.579e+05	2.852e+05	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:48	1.300e+06				no	1.263

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary

CLIENT ID.
76956

Run #6 Filename P600009 Samp: 1 Inj: 1 Acquired: 19-AUG-15 16:36:39
Processed: 20-AUG-15 08:56:30 LAB. ID: CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.17e+08	1.82e+03	6.4e+04	1.51e+08	2.56e+03	5.9e+04
2	1,2,3,7,8-PeCDF	1.04e+09	4.22e+03	2.5e+05	7.01e+08	3.35e+03	2.1e+05
3	2,3,4,7,8-PeCDF	1.05e+09	4.22e+03	2.5e+05	7.21e+08	3.35e+03	2.2e+05
4	1,2,3,4,7,8-HxCDF	9.69e+08	4.94e+03	2.0e+05	8.70e+08	1.94e+03	4.5e+05
5	1,2,3,6,7,8-HxCDF	1.05e+09	4.94e+03	2.1e+05	9.13e+08	1.94e+03	4.7e+05
6	2,3,4,6,7,8-HxCDF	9.97e+08	4.94e+03	2.0e+05	9.00e+08	1.94e+03	4.6e+05
7	1,2,3,7,8,9-HxCDF	9.56e+08	4.94e+03	1.9e+05	7.83e+08	1.94e+03	4.0e+05
8	1,2,3,4,6,7,8-HpCDF	9.41e+08	7.45e+04	1.3e+04	9.27e+08	6.28e+04	1.5e+04
9	1,2,3,4,7,8,9-HpCDF	8.46e+08	7.45e+04	1.1e+04	8.25e+08	6.28e+04	1.3e+04
10	OCDF	1.02e+09	1.29e+03	7.9e+05	1.03e+09	2.48e+03	4.1e+05
11	2,3,7,8-TCDD	1.16e+08	2.61e+03	4.4e+04	1.50e+08	2.32e+03	6.5e+04
12	1,2,3,7,8-PeCDD	8.04e+08	3.48e+03	2.3e+05	5.13e+08	2.10e+03	2.4e+05
13	1,2,3,4,7,8-HxCDD	8.19e+08	1.94e+03	4.2e+05	6.51e+08	1.46e+03	4.5e+05
14	1,2,3,6,7,8-HxCDD	7.51e+08	1.94e+03	3.9e+05	6.07e+08	1.46e+03	4.2e+05
15	1,2,3,7,8,9-HxCDD	8.35e+08	1.94e+03	4.3e+05	6.74e+08	1.46e+03	4.6e+05
16	1,2,3,4,6,7,8-HpCDD	6.97e+08	1.48e+04	4.7e+04	6.63e+08	1.69e+04	3.9e+04
17	OCDD	8.88e+08	1.77e+03	5.0e+05	9.65e+08	1.72e+03	5.6e+05
18	13C-2,3,7,8-TCDF	6.06e+07	7.00e+03	8.7e+03	7.67e+07	3.24e+03	2.4e+04
19	13C-1,2,3,7,8-PeCDF	1.07e+08	2.01e+03	5.3e+04	6.70e+07	3.20e+03	2.1e+04
20	13C-2,3,4,7,8-PeCDF	1.14e+08	2.01e+03	5.7e+04	7.23e+07	3.20e+03	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	5.21e+07	1.12e+03	4.6e+04	1.02e+08	3.30e+03	3.1e+04
22	13C-1,2,3,6,7,8-HxCDF	6.00e+07	1.12e+03	5.4e+04	1.16e+08	3.30e+03	3.5e+04
23	13C-2,3,4,6,7,8-HxCDF	5.82e+07	1.12e+03	5.2e+04	1.13e+08	3.30e+03	3.4e+04
24	13C-1,2,3,7,8,9-HxCDF	5.08e+07	1.12e+03	4.5e+04	9.71e+07	3.30e+03	2.9e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.05e+07	5.44e+03	7.4e+03	9.21e+07	2.72e+03	3.4e+04
26	13C-1,2,3,4,7,8,9-HpCDF	3.89e+07	5.44e+03	7.1e+03	8.85e+07	2.72e+03	3.3e+04
27	13C-2,3,7,8-TCDD	5.82e+07	1.09e+04	5.3e+03	7.39e+07	4.66e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	8.53e+07	2.62e+03	3.3e+04	5.47e+07	1.81e+03	3.0e+04
29	13C-1,2,3,4,7,8-HxCDD	7.80e+07	6.01e+03	1.3e+04	6.12e+07	3.18e+03	1.9e+04
30	13C-1,2,3,6,7,8-HxCDD	7.07e+07	6.01e+03	1.2e+04	5.69e+07	3.18e+03	1.8e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.58e+07	2.96e+03	2.2e+04	6.18e+07	2.63e+03	2.3e+04
32	13C-OCDD	8.04e+07	1.98e+03	4.1e+04	8.87e+07	1.82e+03	4.9e+04
33	13C-1,2,3,4-TCDD	4.39e+07	1.09e+04	4.0e+03	5.59e+07	4.66e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	8.14e+07	6.01e+03	1.4e+04	6.56e+07	3.18e+03	2.1e+04
35	37Cl-2,3,7,8-TCDD	2.80e+08	3.21e+03	8.7e+04			

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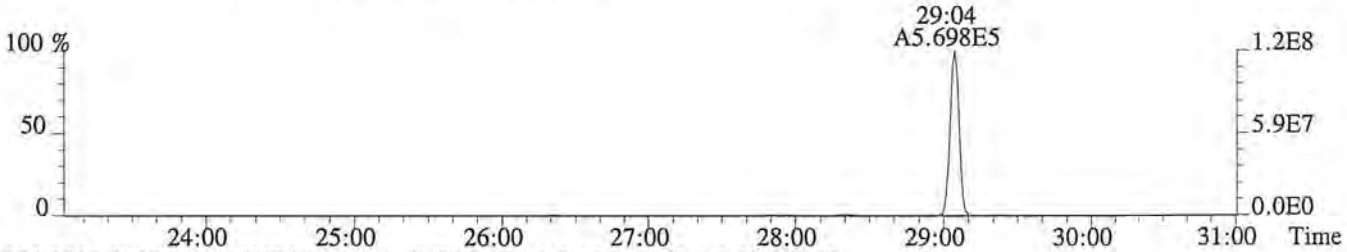
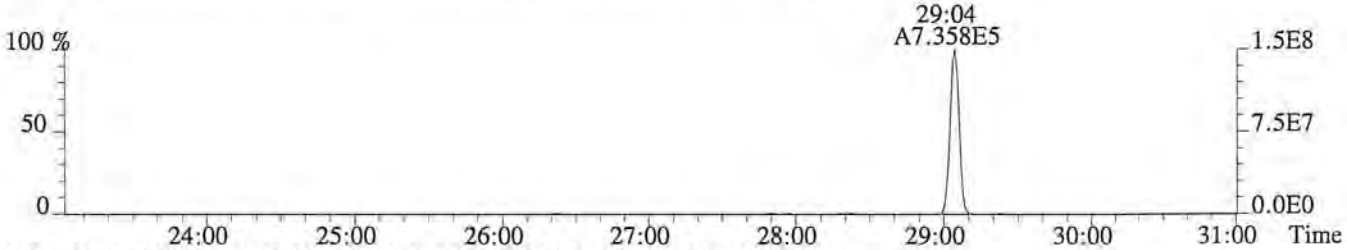
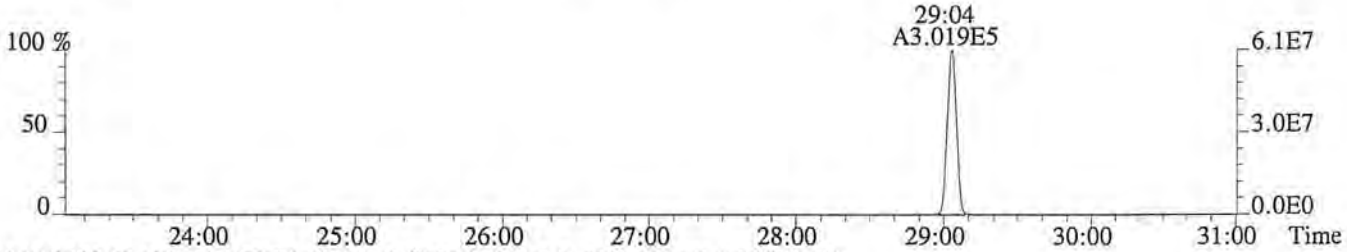
File:P600009 #1-566 Acq:19-AUG-2015 16:36:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1816.0,1.00%,F,T)



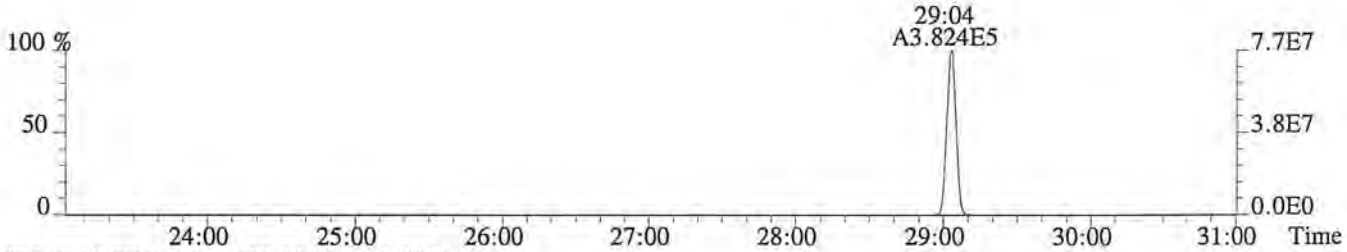
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2560.0,1.00%,F,T)



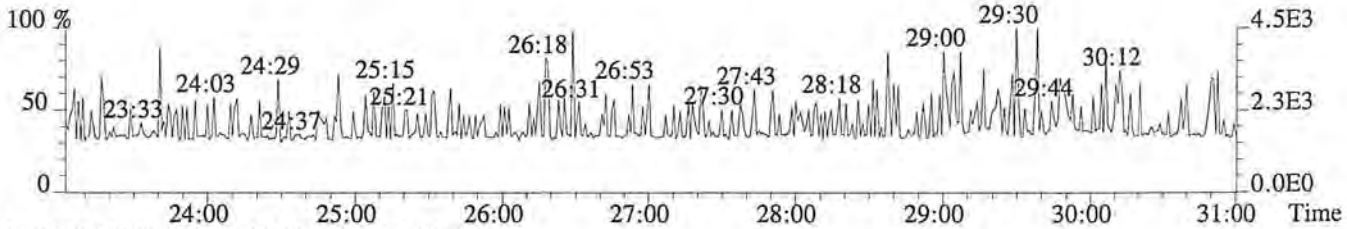
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7004.0,1.00%,F,T)



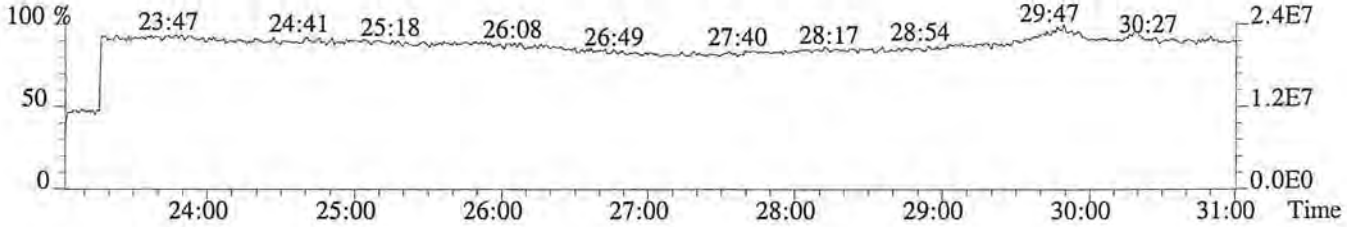
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3244.0,1.00%,F,T)



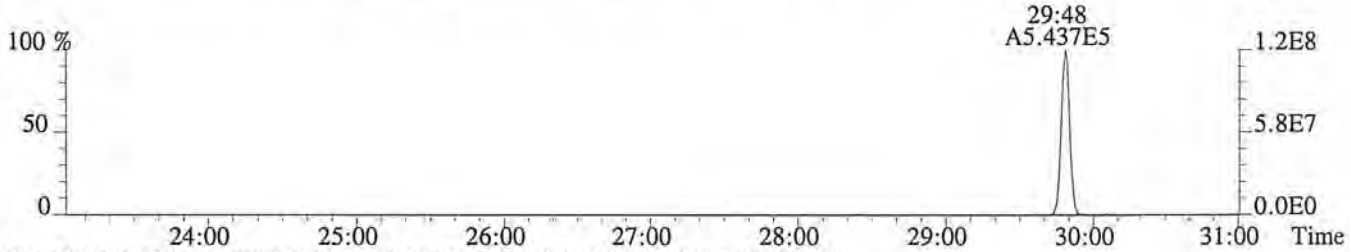
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



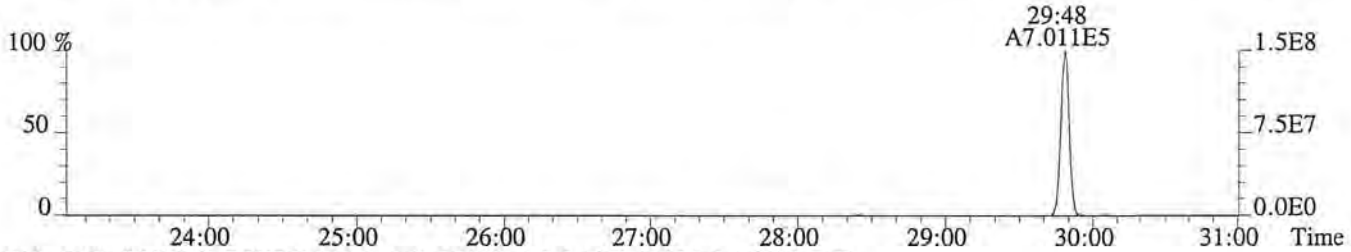
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



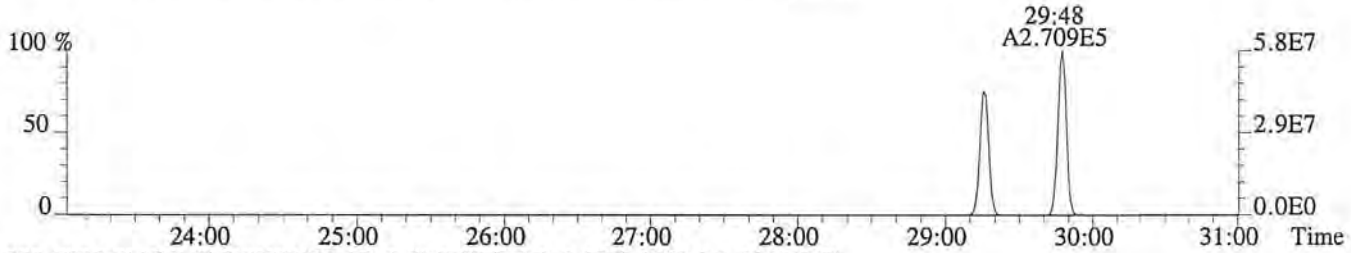
File:P600009 #1-566 Acq:19-AUG-2015 16:36:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2612.0,1.00%,F,T)



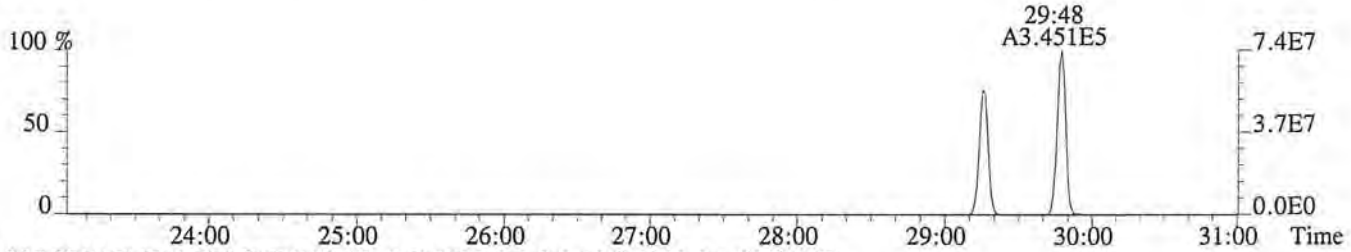
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2320.0,1.00%,F,T)



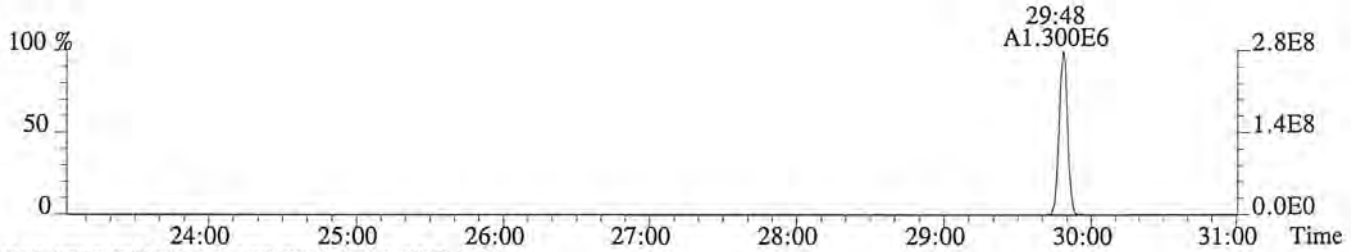
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10896.0,1.00%,F,T)



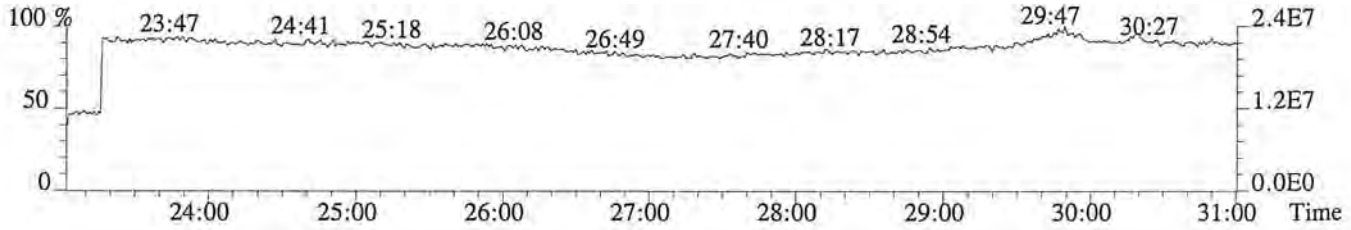
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4660.0,1.00%,F,T)



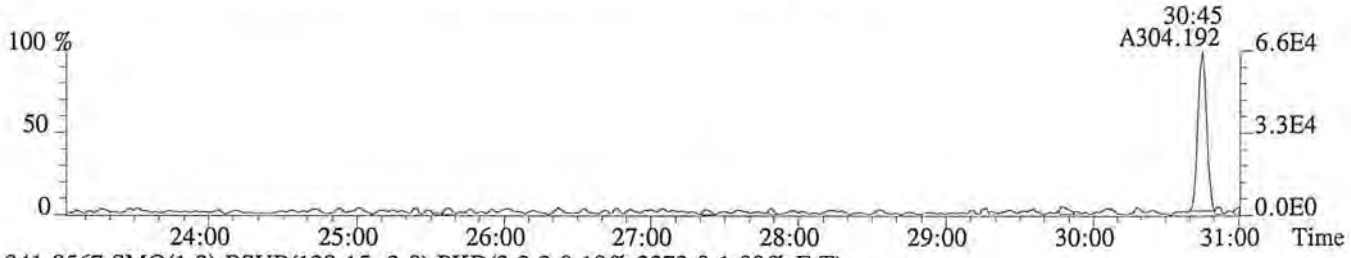
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3208.0,1.00%,F,T)



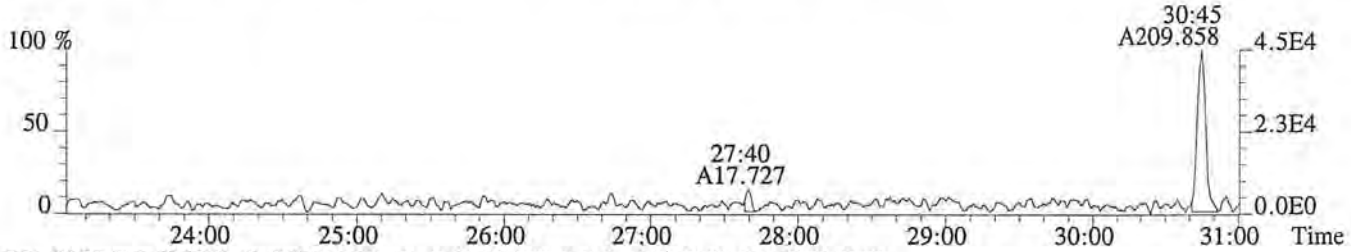
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



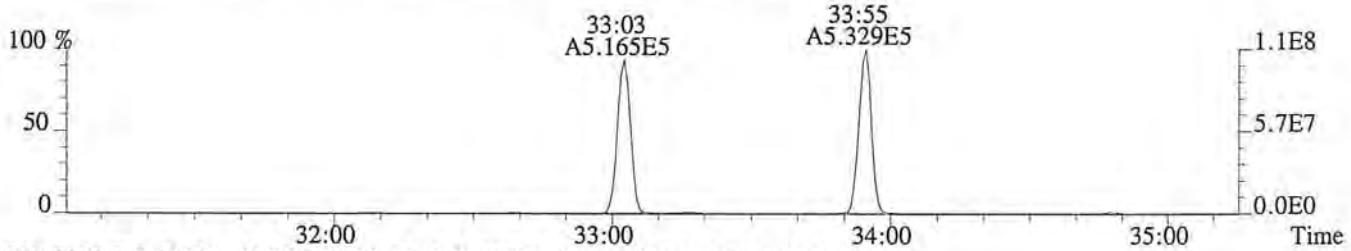
File:P600009 #1-566 Acq:19-AUG-2015 16:36:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



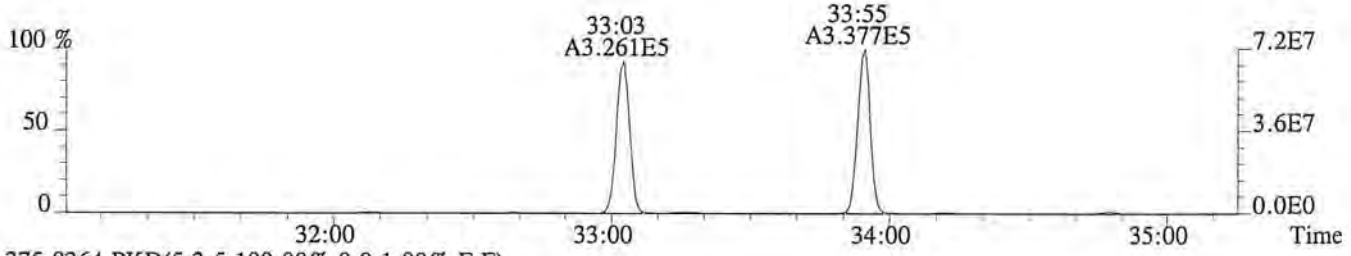
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3272.0,1.00%,F,T)



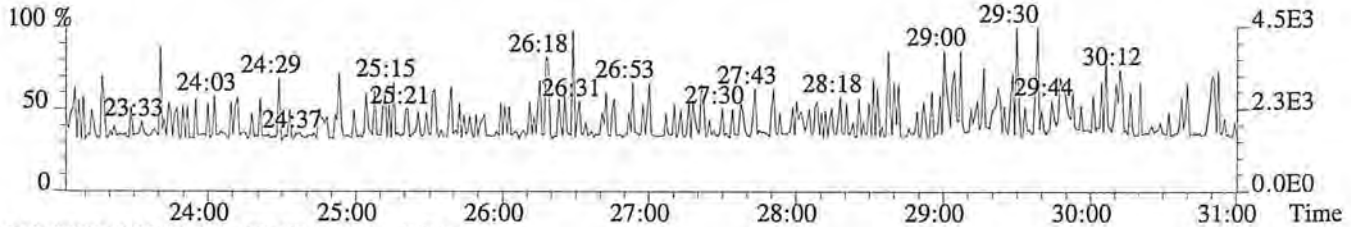
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2008.0,1.00%,F,T)



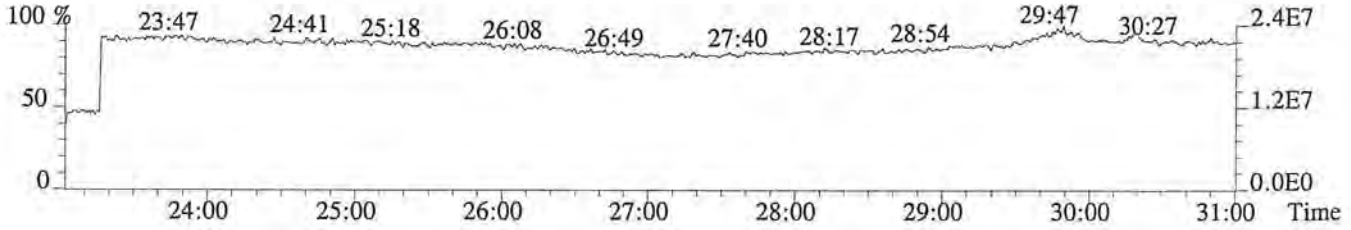
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3196.0,1.00%,F,T)



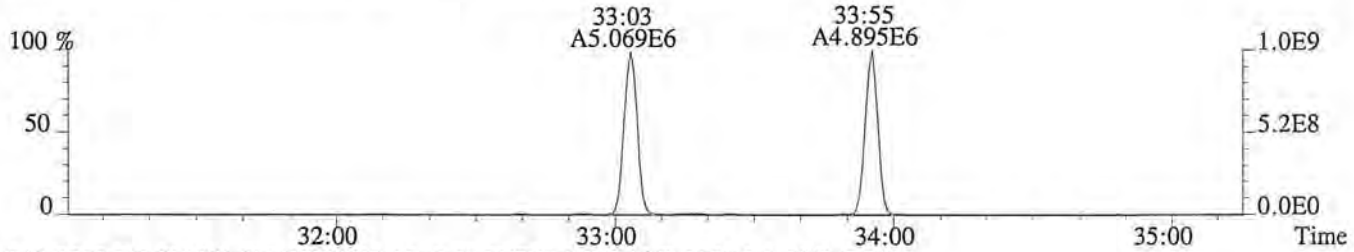
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



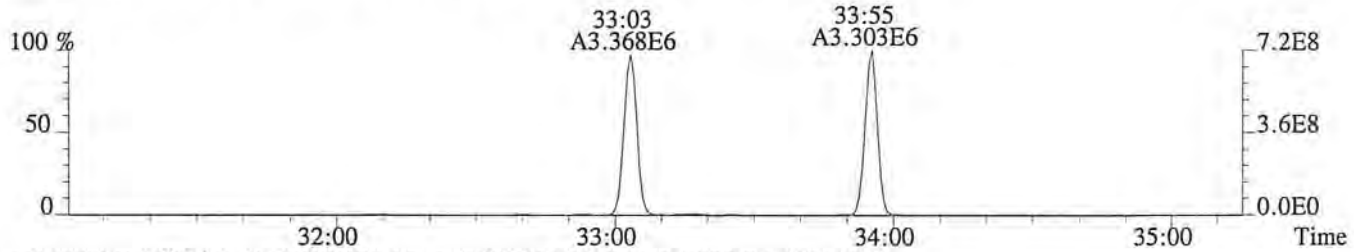
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



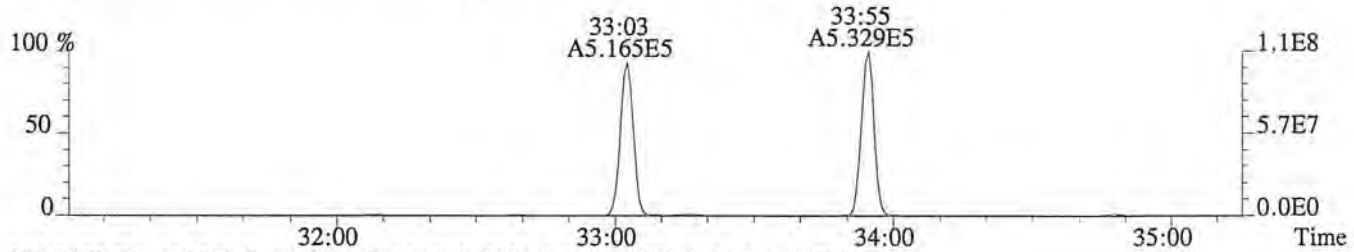
File:P600009 #1-380 Acq:19-AUG-2015 16:36:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4216.0,1.00%,F,T)



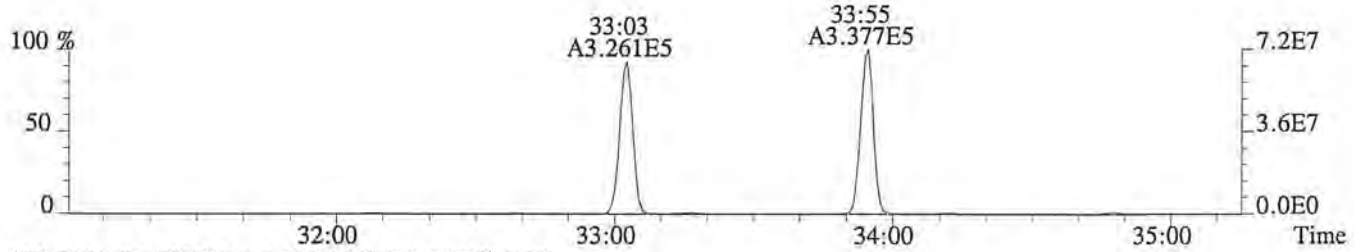
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3352.0,1.00%,F,T)



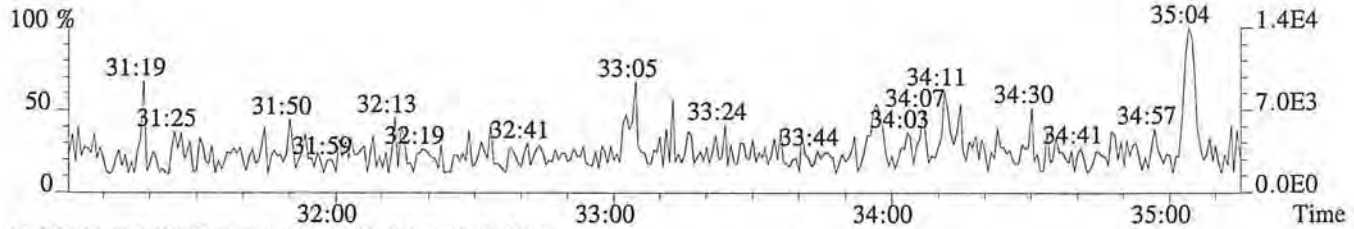
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2008.0,1.00%,F,T)



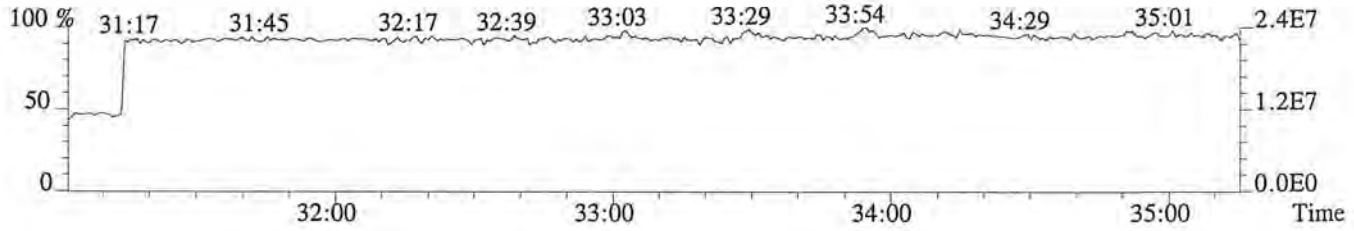
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3196.0,1.00%,F,T)



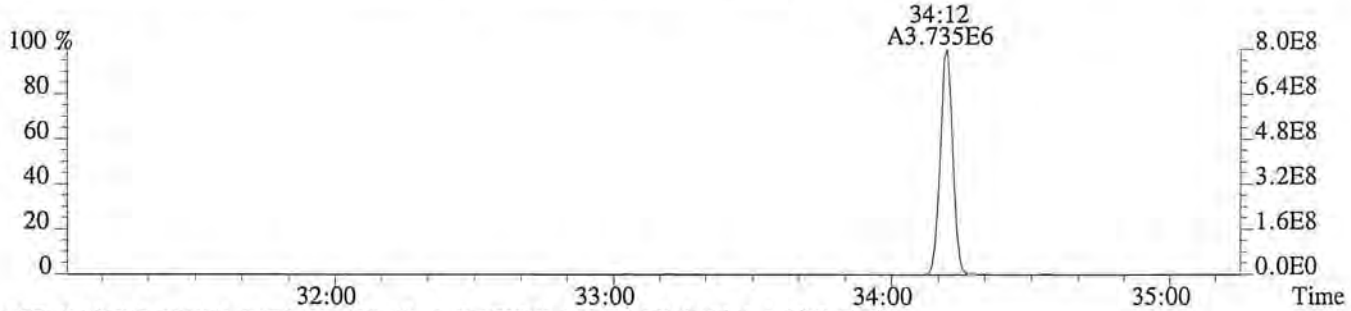
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



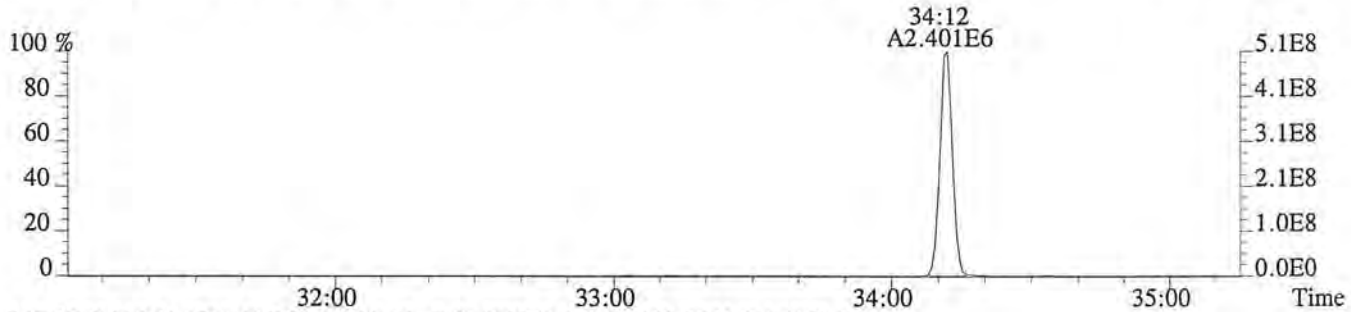
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



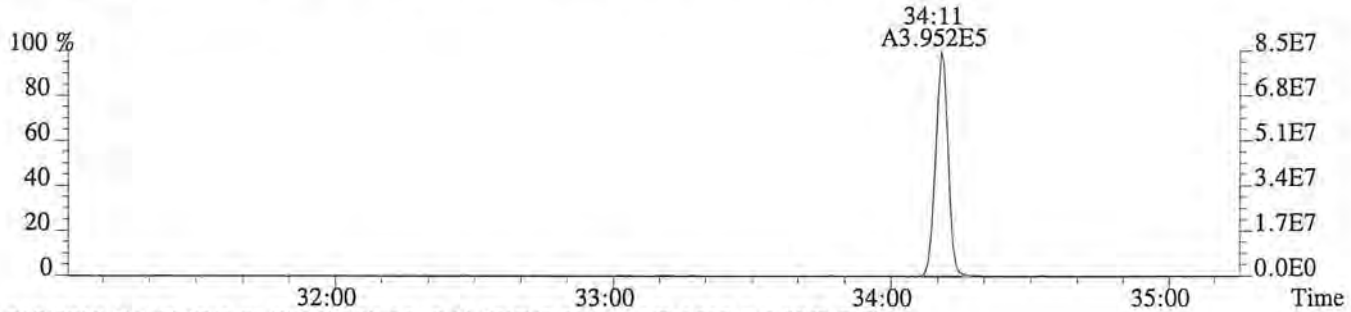
File:P600009 #1-380 Acq:19-AUG-2015 16:36:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3476.0,1.00%,F,T)



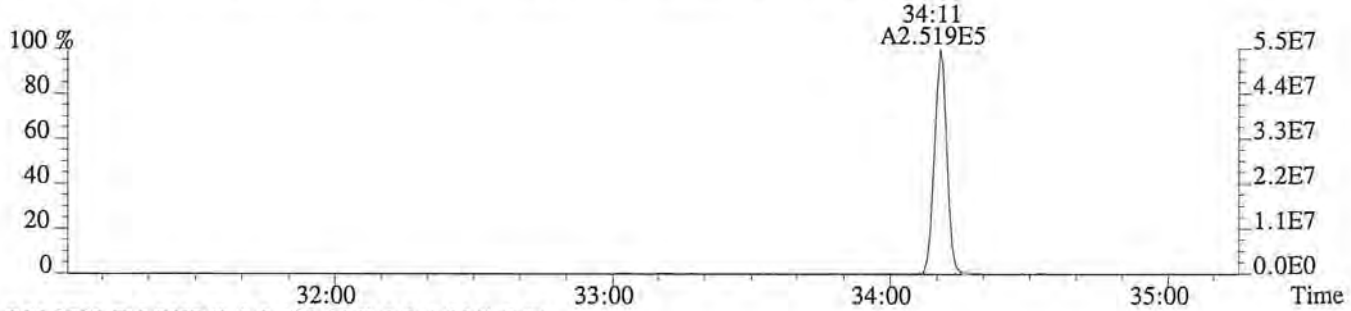
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2100.0,1.00%,F,T)



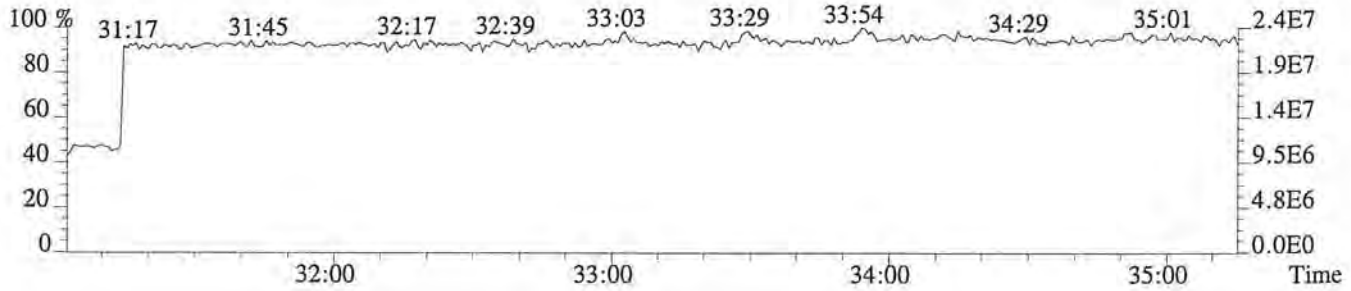
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2624.0,1.00%,F,T)



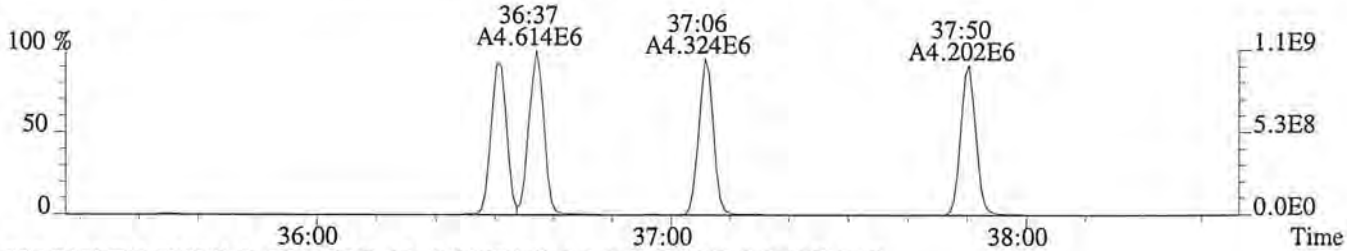
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1812.0,1.00%,F,T)



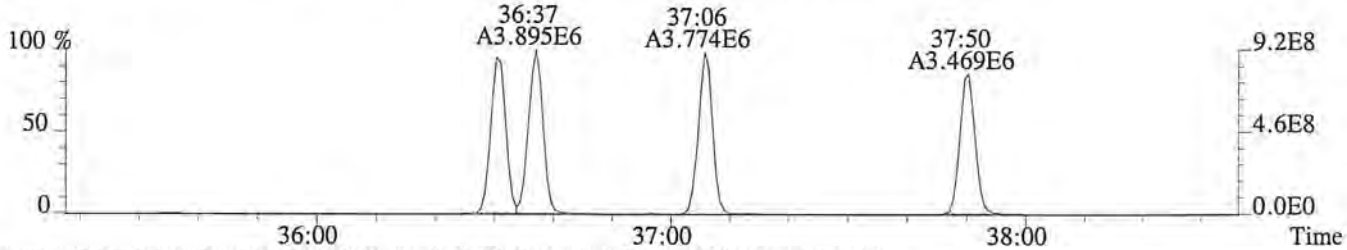
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



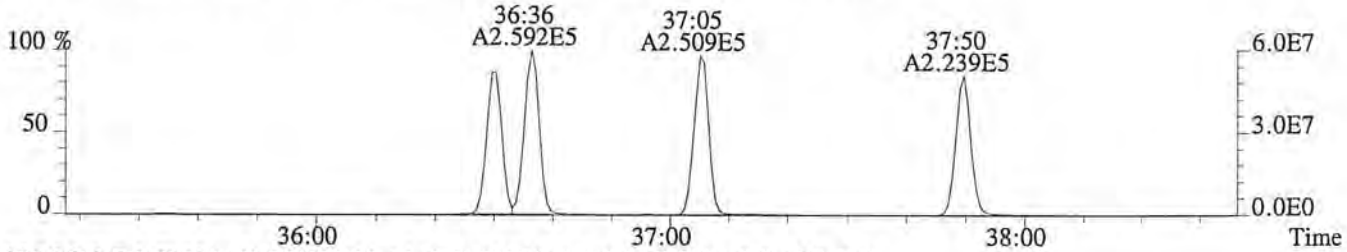
File:P600009 #1-299 Acq:19-AUG-2015 16:36:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4944.0,0.40%,F,T)



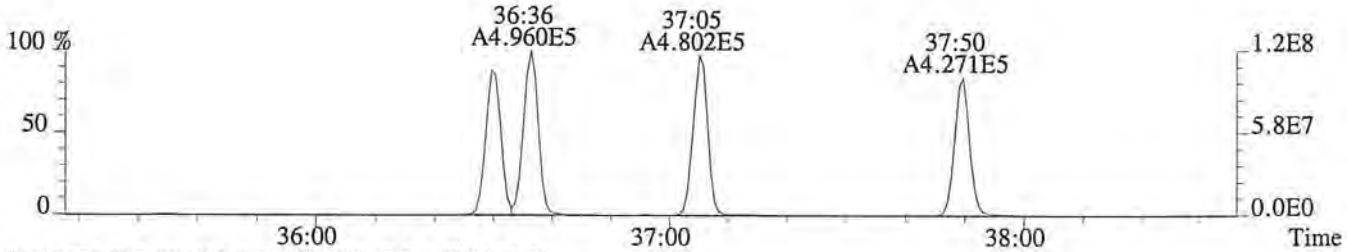
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1936.0,0.40%,F,T)



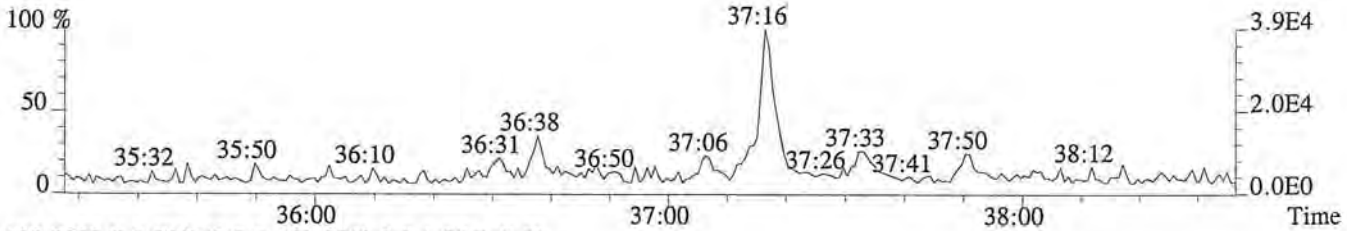
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.40%,F,T)



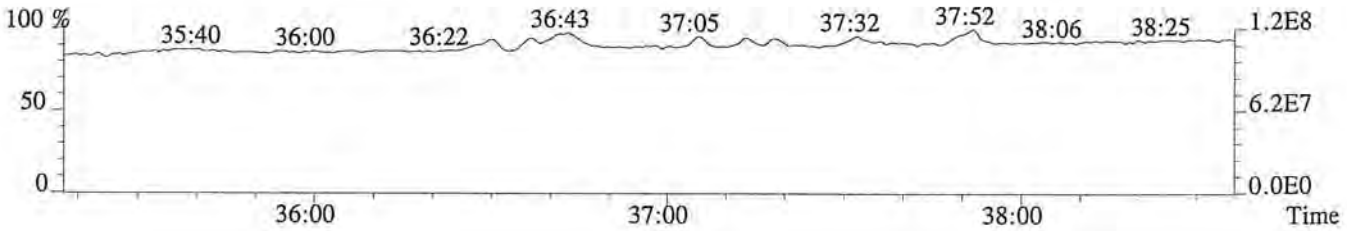
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3304.0,0.40%,F,T)



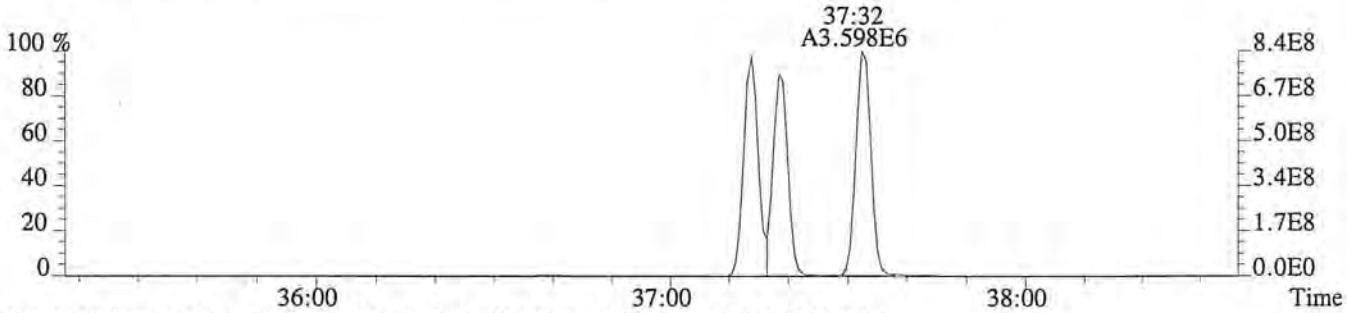
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



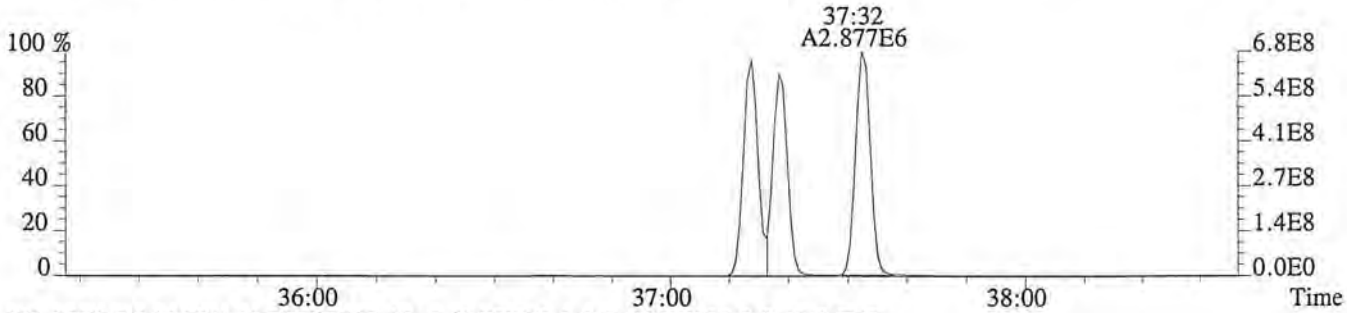
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



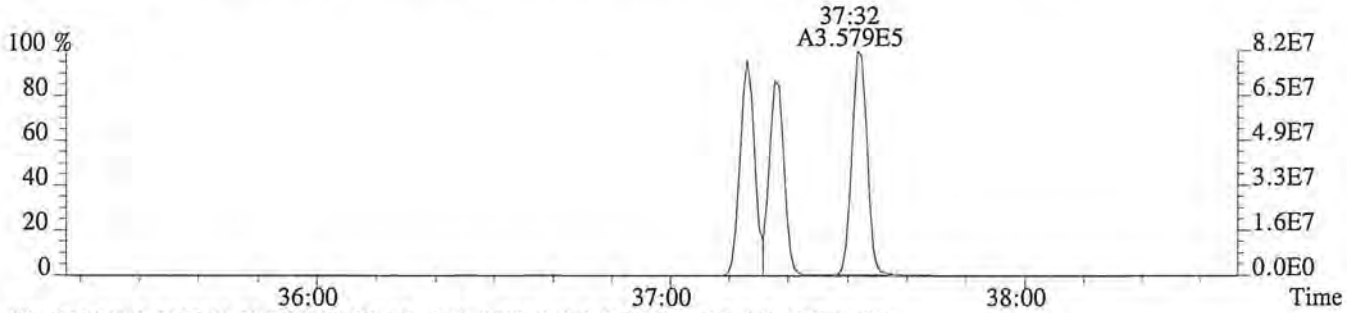
File:P600009 #1-299 Acq:19-AUG-2015 16:36:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1936.0,0.40%,F,T)



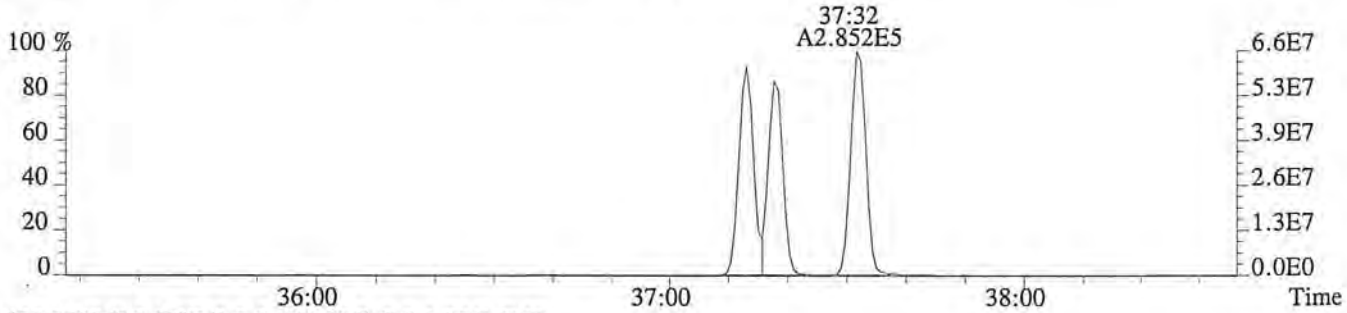
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.40%,F,T)



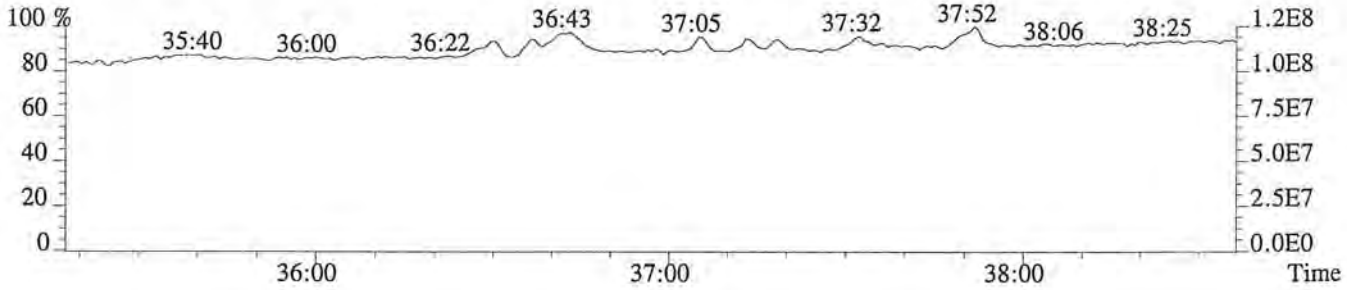
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6008.0,0.40%,F,T)



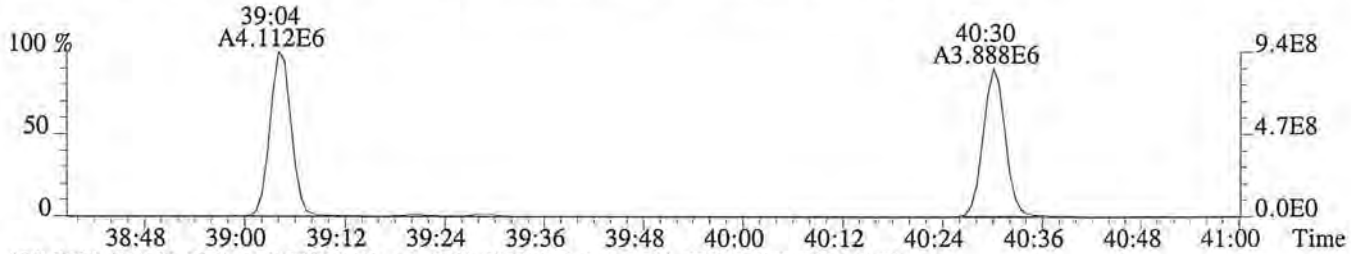
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.40%,F,T)



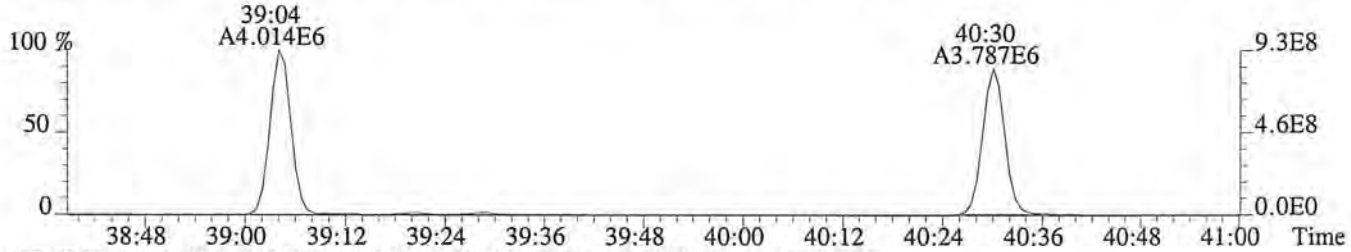
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



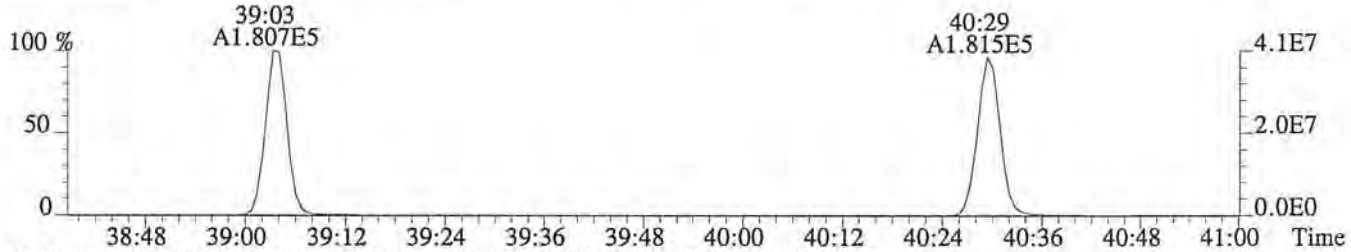
File:P600009 #1-213 Acq:19-AUG-2015 16:36:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,74492.0,0.50%,F,T)



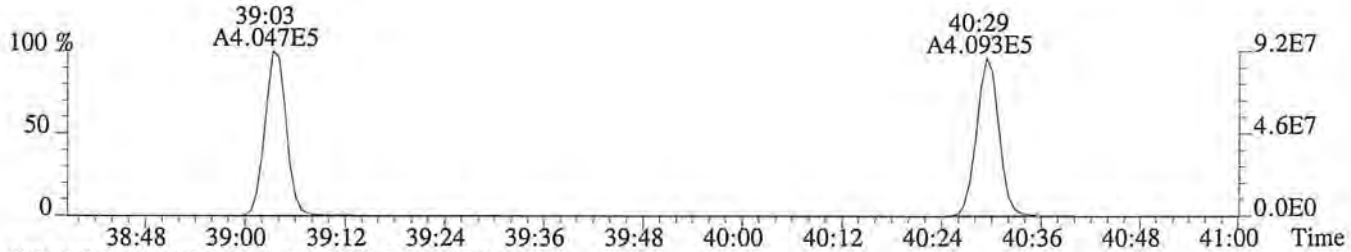
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,62828.0,0.50%,F,T)



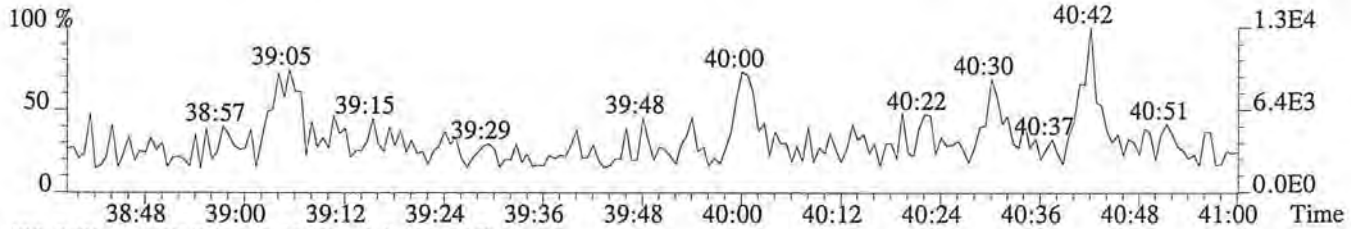
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5444.0,0.50%,F,T)



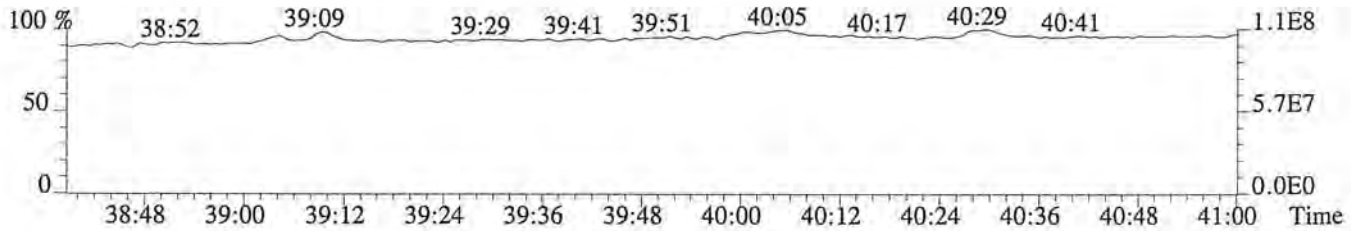
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2716.0,0.50%,F,T)



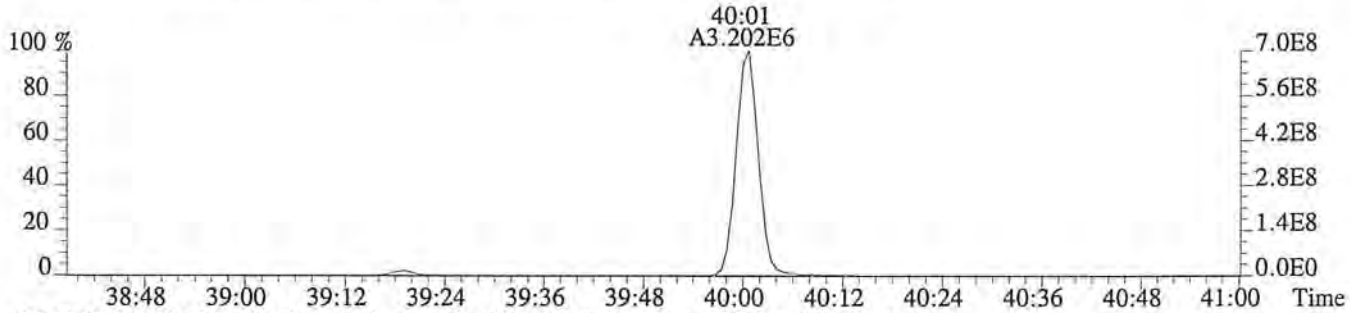
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



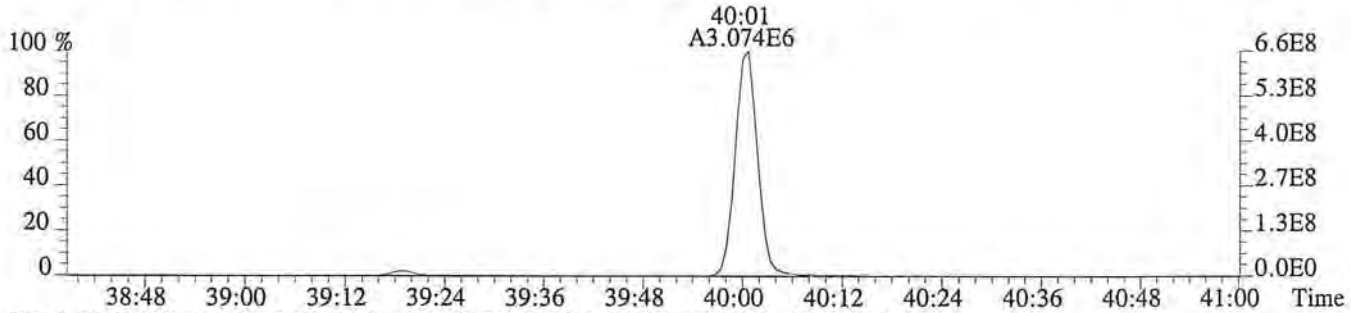
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



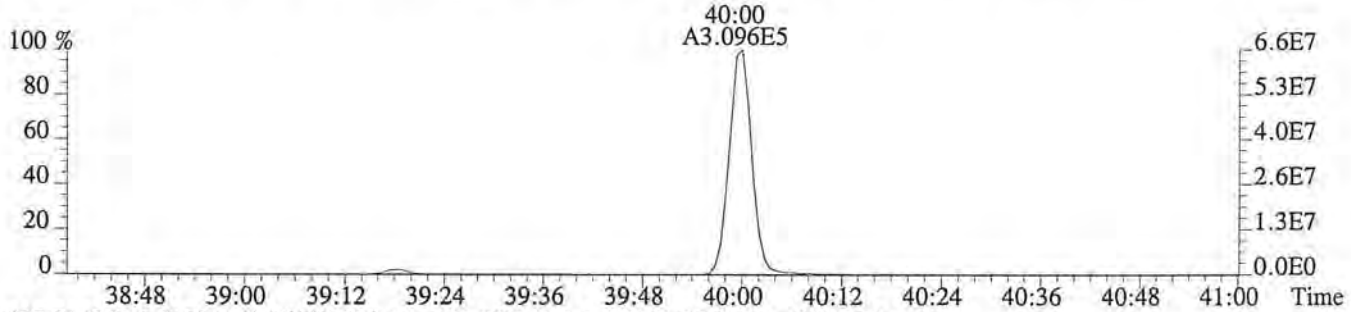
File:P600009 #1-213 Acq:19-AUG-2015 16:36:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14836.0,0.40%,F,T)



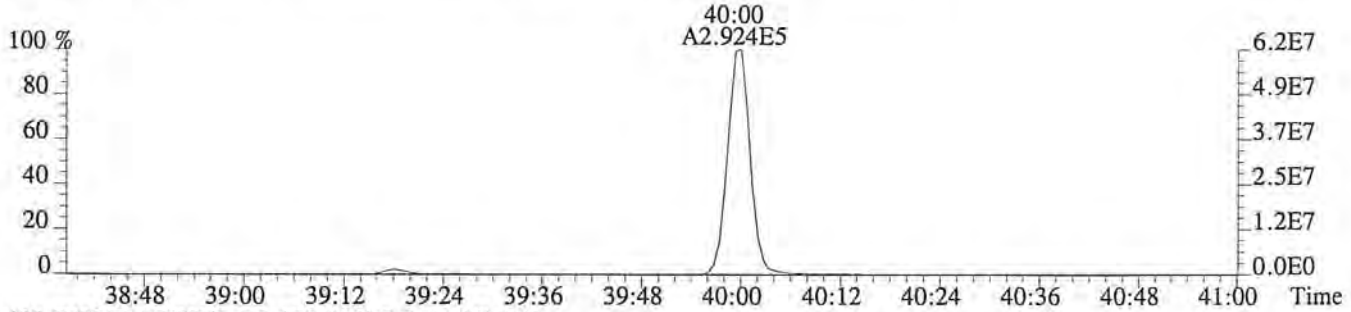
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16880.0,0.40%,F,T)



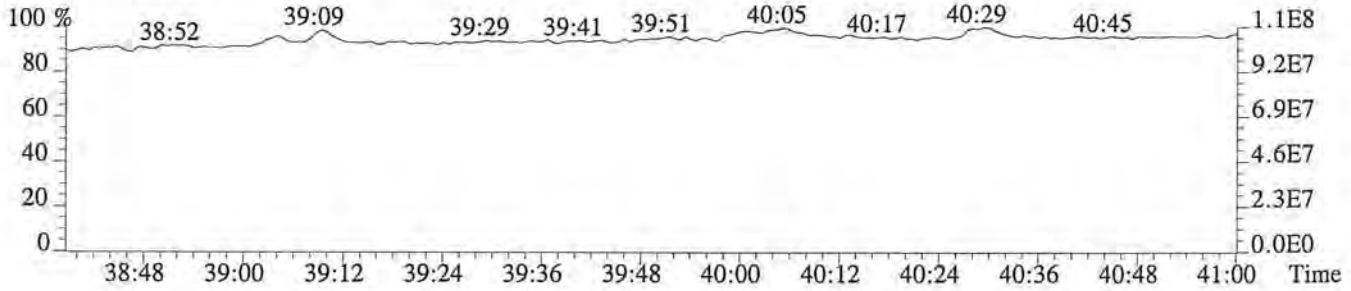
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2956.0,0.40%,F,T)



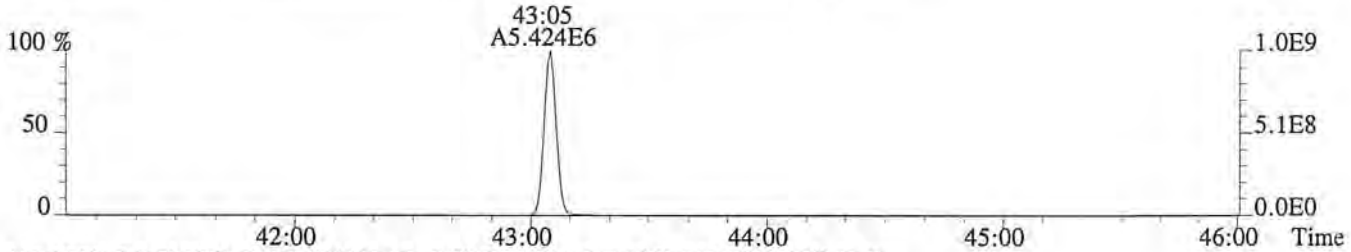
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2632.0,0.40%,F,T)



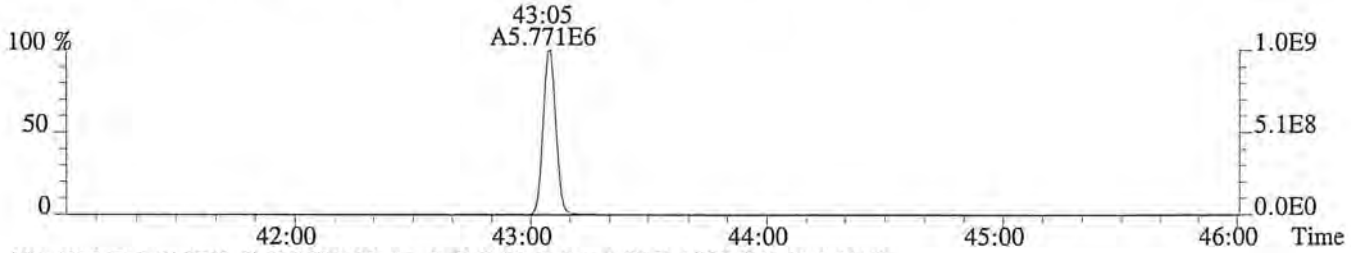
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



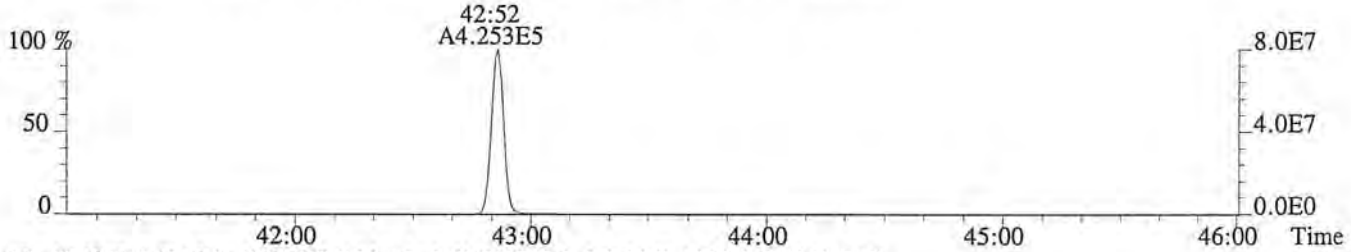
File:P600009 #1-448 Acq:19-AUG-2015 16:36:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1288.0,0.40%,F,T)



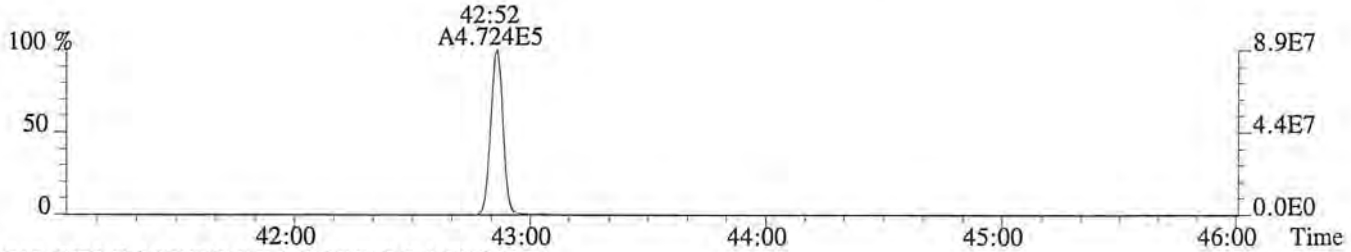
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2484.0,0.40%,F,T)



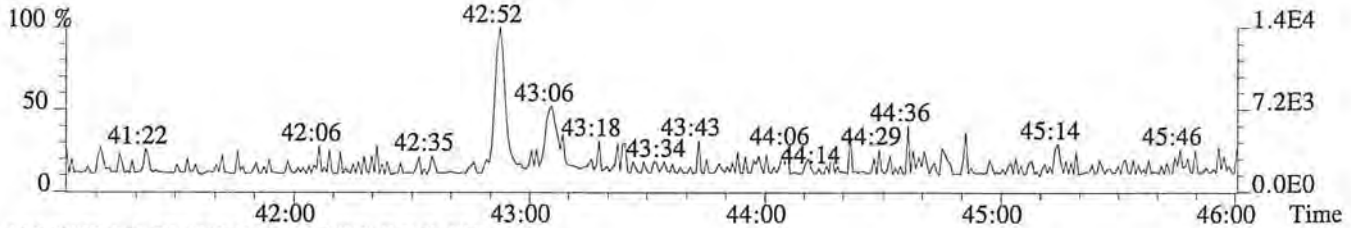
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1980.0,0.40%,F,T)



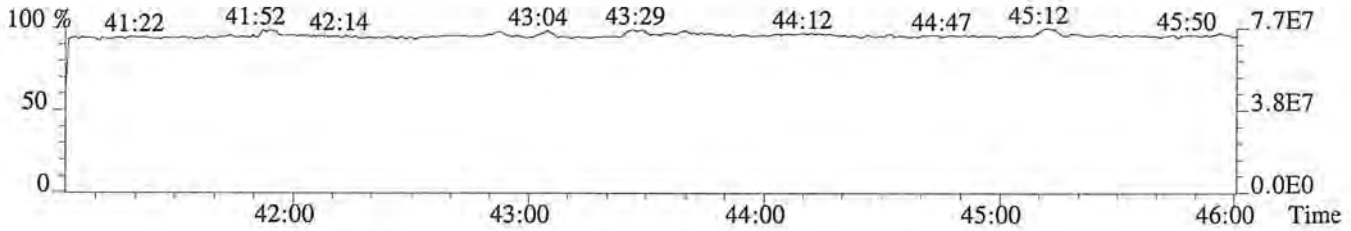
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1820.0,0.40%,F,T)



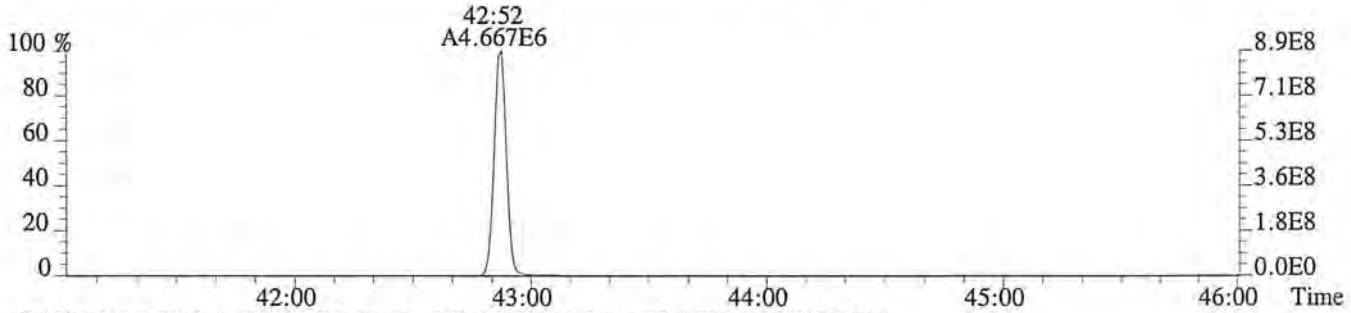
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



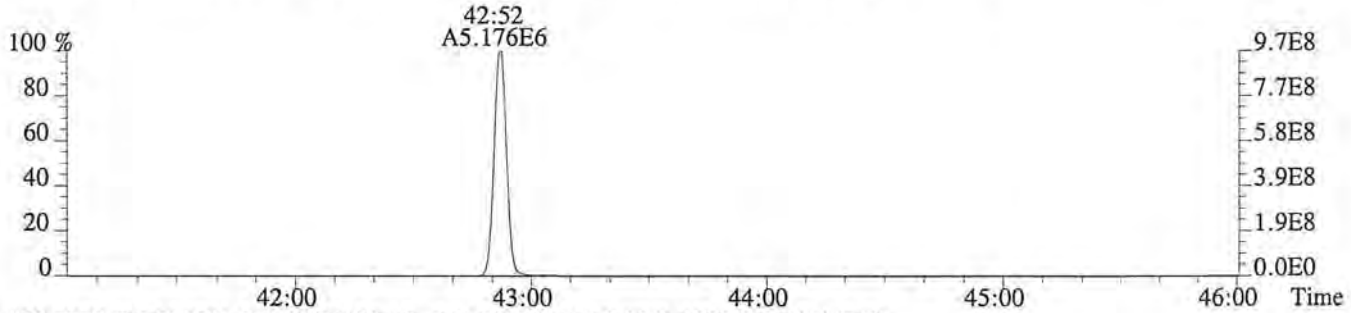
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



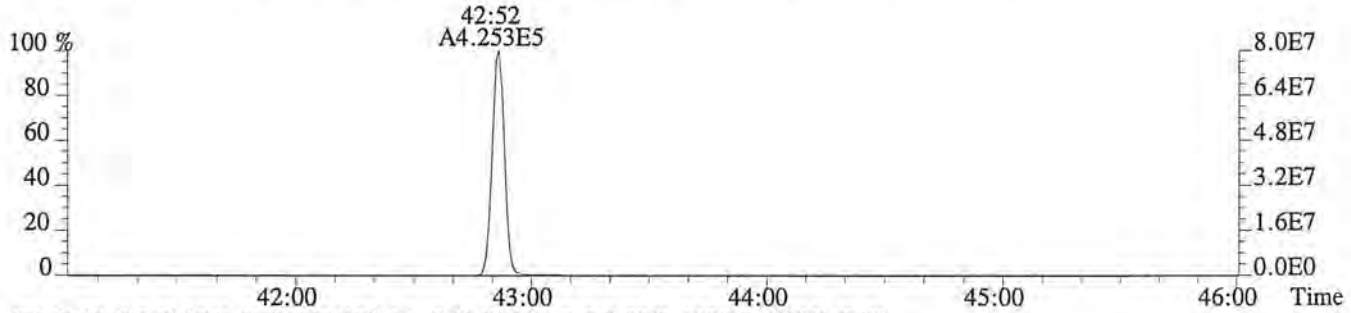
File:P600009 #1-448 Acq:19-AUG-2015 16:36:39 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1772.0,0.40%,F,T)



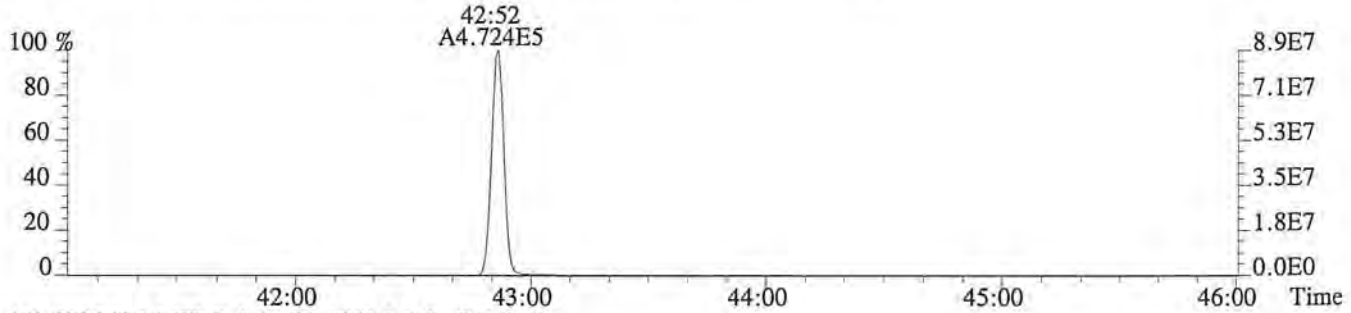
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1720.0,0.40%,F,T)



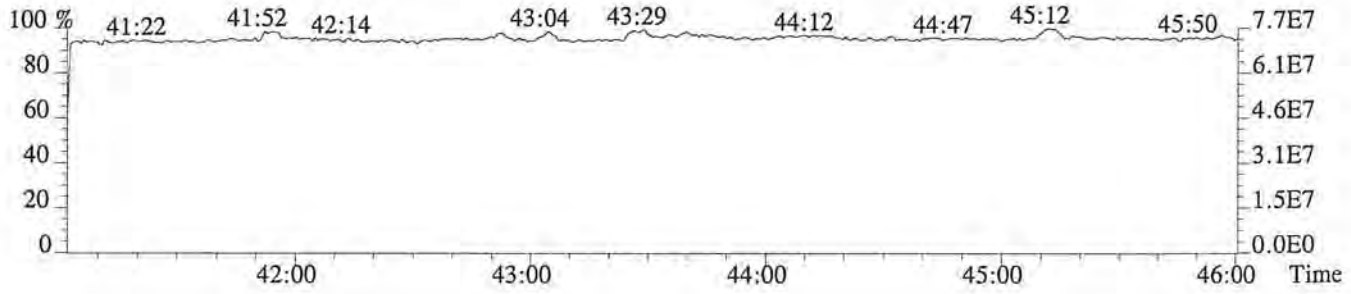
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1980.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1820.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/19/15

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P600011 Analysis Date: 19-AUG-15 Time: 18:14:46

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.8	7.8 - 12.9	-1.6
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	50	39 - 65	1.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	50	39 - 64	-1.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	50	39 - 64	0.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	48	41 - 61	-3.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	-0.1
OCDD	M+2/M+4	0.89	0.76-1.02	99	79 - 126	-0.6
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	10.1	8.4 - 12.0	0.7
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	50	41 - 60	0.4
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	50	41 - 61	0.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	50	45 - 56	-0.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	50	44 - 57	0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	50	45 - 56	0.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	49	44 - 57	-1.2
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	50	45 - 55	-0.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	49	43 - 58	-1.1
OCDF	M+2/M+4	0.90	0.76-1.02	100	63 - 159	-0.2

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %RSD for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

12/2012
1613F4A.FRM

USEPA - ITD

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 08/19/15

Instrument ID: E-HRMS-08 GC Column ID: DB-5MSUI

VER Data Filename: P600011 Analysis Date: 19-AUG-15 Time: 18:14:46

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%RSD (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	103	82 - 121	2.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	104	62 - 160	3.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	101	85 - 117	0.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	105	85 - 118	4.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	108	72 - 138	7.9
13C-OCDD	M+2/M+4	0.90	0.76-1.02	218	96 - 415	9.0
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	98	71 - 140	-1.6
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	101	76 - 130	1.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	105	77 - 130	4.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	100	76 - 131	-0.2
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	2.5
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	100	74 - 135	-0.4
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	73 - 137	2.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	104	78 - 129	4.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	106	77 - 129	6.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.2	7.8 - 12.7	1.8

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(4) No ion abundance ratio; report concentration found.
(5) The beginnning CCAL %RSD for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

12/2012
1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary

CLIENT ID.
54819

Run #7 Filename P600011 Samp: 1 Inj: 1 Acquired: 19-AUG-15 18:14:46
Processed: 20-AUG-15 09:52:05 Sample ID: CS3 SECOND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:04	3.220e+04	4.203e+04	0.77	yes	no	0.941
2	Unk	1,2,3,7,8-PeCDF	33:03	2.558e+05	1.669e+05	1.53	yes	no	0.987
3	Unk	2,3,4,7,8-PeCDF	33:55	2.522e+05	1.639e+05	1.54	yes	no	0.934
4	Unk	1,2,3,4,7,8-HxCDF	36:30	2.262e+05	1.847e+05	1.22	yes	no	1.189
5	Unk	1,2,3,6,7,8-HxCDF	36:37	2.391e+05	1.949e+05	1.23	yes	no	1.126
6	Unk	2,3,4,6,7,8-HxCDF	37:06	2.279e+05	1.862e+05	1.22	yes	no	1.116
7	Unk	1,2,3,7,8,9-HxCDF	37:50	2.134e+05	1.710e+05	1.25	yes	no	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:04	2.059e+05	1.995e+05	1.03	yes	no	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:30	2.036e+05	1.977e+05	1.03	yes	no	1.287
10	Unk	OCDF	43:04	2.706e+05	2.991e+05	0.90	yes	no	1.257
11	Unk	2,3,7,8-TCDD	29:48	3.083e+04	3.972e+04	0.78	yes	no	1.010
12	Unk	1,2,3,7,8-PeCDD	34:11	1.875e+05	1.205e+05	1.56	yes	no	0.932
13	Unk	1,2,3,4,7,8-HxCDD	37:13	1.676e+05	1.334e+05	1.26	yes	no	1.026
14	Unk	1,2,3,6,7,8-HxCDD	37:18	1.649e+05	1.338e+05	1.23	yes	no	1.021
15	Unk	1,2,3,7,8,9-HxCDD	37:32	1.778e+05	1.424e+05	1.25	yes	no	1.133
16	Unk	1,2,3,4,6,7,8-HpCDD	40:00	1.643e+05	1.586e+05	1.04	yes	no	1.034
17	Unk	OCDD	42:52	2.361e+05	2.654e+05	0.89	yes	no	1.111
18	IS	13C-2,3,7,8-TCDF	29:03	3.474e+05	4.365e+05	0.80	yes	no	1.379
19	IS	13C-1,2,3,7,8-PeCDF	33:02	5.231e+05	3.296e+05	1.59	yes	no	1.456
20	IS	13C-2,3,4,7,8-PeCDF	33:54	5.419e+05	3.435e+05	1.58	yes	no	1.465
21	IS	13C-1,2,3,4,7,8-HxCDF	36:30	2.378e+05	4.585e+05	0.52	yes	no	1.075
22	IS	13C-1,2,3,6,7,8-HxCDF	36:36	2.623e+05	5.077e+05	0.52	yes	no	1.158
23	IS	13C-2,3,4,6,7,8-HxCDF	37:05	2.558e+05	4.955e+05	0.52	yes	no	1.133
24	IS	13C-1,2,3,7,8,9-HxCDF	37:49	2.258e+05	4.363e+05	0.52	yes	no	1.024
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:03	1.837e+05	4.106e+05	0.45	yes	no	0.880
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:29	1.939e+05	4.371e+05	0.44	yes	no	0.914
27	IS	13C-2,3,7,8-TCDD	29:47	3.128e+05	3.967e+05	0.79	yes	no	1.193
28	IS	13C-1,2,3,7,8-PeCDD	34:11	4.007e+05	2.535e+05	1.58	yes	no	1.094
29	IS	13C-1,2,3,4,7,8-HxCDD	37:12	3.309e+05	2.619e+05	1.26	yes	no	0.906
30	IS	13C-1,2,3,6,7,8-HxCDD	37:18	3.263e+05	2.579e+05	1.27	yes	no	0.860
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:59	3.204e+05	3.046e+05	1.05	yes	no	0.892
32	IS	13C-OCDD	42:51	4.295e+05	4.787e+05	0.90	yes	no	0.642
33	RS/RT	13C-1,2,3,4-TCDD	29:15	2.554e+05	3.223e+05	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:32	3.615e+05	2.876e+05	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:48	7.431e+04				no	1.263

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Signal/Noise Height Ratio Summary

CLIENT ID.
54819

Run #7 Filename P600011 Samp: 1 Inj: 1 Acquired: 19-AUG-15 18:14:46
Processed: 20-AUG-15 09:52:05 LAB. ID: CS3 SECOND SOURCE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.39e+06	2.09e+03	3.1e+03	8.47e+06	2.94e+03	2.9e+03
2	1,2,3,7,8-PeCDF	5.15e+07	2.39e+03	2.2e+04	3.41e+07	3.88e+03	8.8e+03
3	2,3,4,7,8-PeCDF	5.36e+07	2.39e+03	2.2e+04	3.50e+07	3.88e+03	9.0e+03
4	1,2,3,4,7,8-HxCDF	5.20e+07	3.05e+03	1.7e+04	4.23e+07	2.12e+03	2.0e+04
5	1,2,3,6,7,8-HxCDF	5.32e+07	3.05e+03	1.7e+04	4.32e+07	2.12e+03	2.0e+04
6	2,3,4,6,7,8-HxCDF	5.25e+07	3.05e+03	1.7e+04	4.29e+07	2.12e+03	2.0e+04
7	1,2,3,7,8,9-HxCDF	4.68e+07	3.05e+03	1.5e+04	3.78e+07	2.12e+03	1.8e+04
8	1,2,3,4,6,7,8-HpCDF	4.77e+07	1.04e+04	4.6e+03	4.57e+07	3.52e+03	1.3e+04
9	1,2,3,4,7,8,9-HpCDF	4.21e+07	1.04e+04	4.0e+03	4.05e+07	3.52e+03	1.2e+04
10	OCDF	5.05e+07	1.25e+03	4.0e+04	5.46e+07	2.46e+03	2.2e+04
11	2,3,7,8-TCDD	6.55e+06	1.91e+03	3.4e+03	8.46e+06	2.52e+03	3.4e+03
12	1,2,3,7,8-PeCDD	4.04e+07	3.51e+03	1.2e+04	2.61e+07	2.18e+03	1.2e+04
13	1,2,3,4,7,8-HxCDD	3.92e+07	1.29e+03	3.0e+04	3.12e+07	1.84e+03	1.7e+04
14	1,2,3,6,7,8-HxCDD	3.80e+07	1.29e+03	3.0e+04	3.11e+07	1.84e+03	1.7e+04
15	1,2,3,7,8,9-HxCDD	4.13e+07	1.29e+03	3.2e+04	3.28e+07	1.84e+03	1.8e+04
16	1,2,3,4,6,7,8-HpCDD	3.53e+07	3.24e+03	1.1e+04	3.41e+07	1.98e+03	1.7e+04
17	OCDD	4.42e+07	1.13e+03	3.9e+04	4.93e+07	1.52e+03	3.2e+04
18	13C-2,3,7,8-TCDF	7.01e+07	5.42e+03	1.3e+04	8.78e+07	2.58e+03	3.4e+04
19	13C-1,2,3,7,8-PeCDF	1.08e+08	2.96e+03	3.6e+04	6.81e+07	2.28e+03	3.0e+04
20	13C-2,3,4,7,8-PeCDF	1.17e+08	2.96e+03	3.9e+04	7.45e+07	2.28e+03	3.3e+04
21	13C-1,2,3,4,7,8-HxCDF	5.44e+07	1.82e+03	3.0e+04	1.05e+08	4.44e+03	2.4e+04
22	13C-1,2,3,6,7,8-HxCDF	5.73e+07	1.82e+03	3.1e+04	1.12e+08	4.44e+03	2.5e+04
23	13C-2,3,4,6,7,8-HxCDF	5.95e+07	1.82e+03	3.3e+04	1.14e+08	4.44e+03	2.6e+04
24	13C-1,2,3,7,8,9-HxCDF	5.01e+07	1.82e+03	2.7e+04	9.76e+07	4.44e+03	2.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.25e+07	5.19e+03	8.2e+03	9.47e+07	7.77e+03	1.2e+04
26	13C-1,2,3,4,7,8,9-HpCDF	4.04e+07	5.19e+03	7.8e+03	9.00e+07	7.77e+03	1.2e+04
27	13C-2,3,7,8-TCDD	6.58e+07	9.84e+03	6.7e+03	8.37e+07	5.09e+03	1.6e+04
28	13C-1,2,3,7,8-PeCDD	8.52e+07	2.40e+03	3.6e+04	5.36e+07	1.52e+03	3.5e+04
29	13C-1,2,3,4,7,8-HxCDD	7.68e+07	6.38e+03	1.2e+04	6.10e+07	3.96e+03	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	7.48e+07	6.38e+03	1.2e+04	5.91e+07	3.96e+03	1.5e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.89e+07	3.54e+03	1.9e+04	6.56e+07	2.36e+03	2.8e+04
32	13C-OCDD	7.99e+07	1.25e+03	6.4e+04	8.87e+07	1.28e+03	7.0e+04
33	13C-1,2,3,4-TCDD	5.27e+07	9.84e+03	5.4e+03	6.64e+07	5.09e+03	1.3e+04
34	13C-1,2,3,7,8,9-HxCDD	8.45e+07	6.38e+03	1.3e+04	6.67e+07	3.96e+03	1.7e+04
35	37Cl-2,3,7,8-TCDD	1.57e+07	3.34e+03	4.7e+03			

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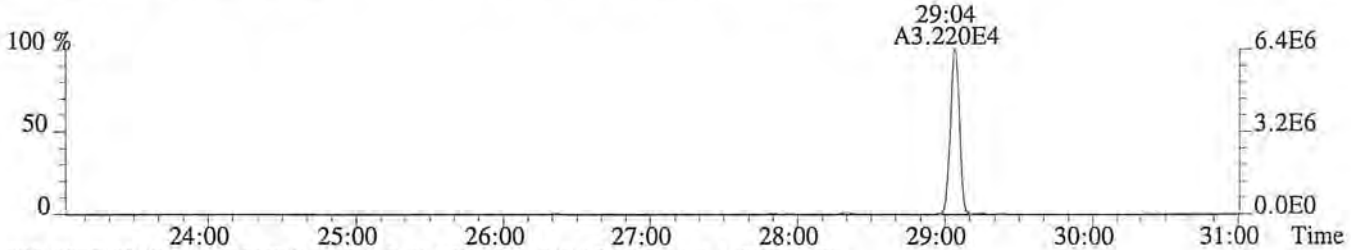
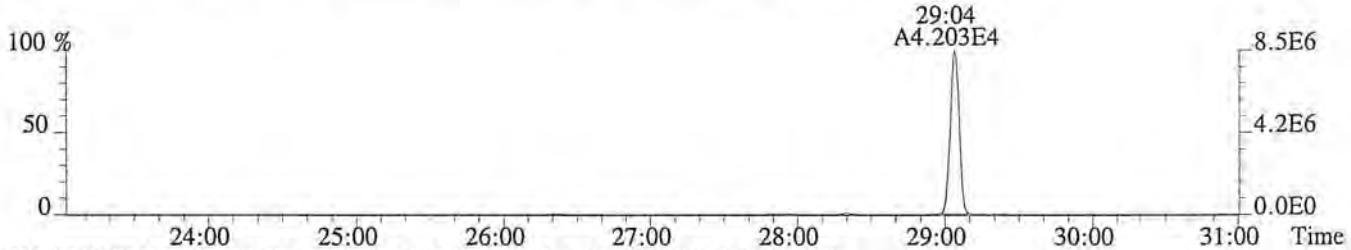
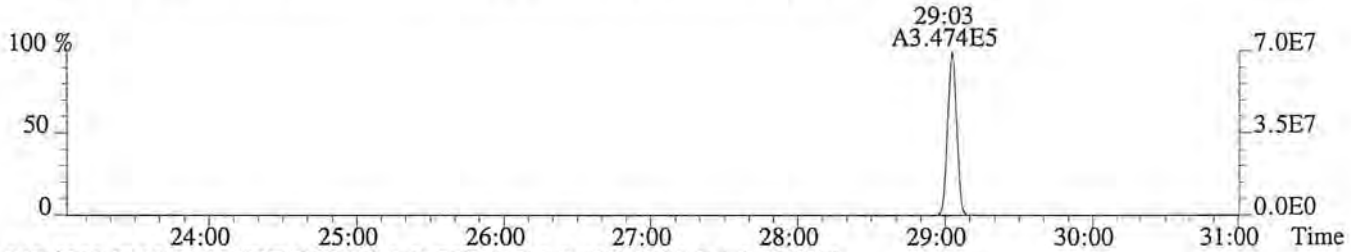
File:P600011 #1-566 Acq:19-AUG-2015 18:14:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 Second Source
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2088.0,1.00%,F,T)



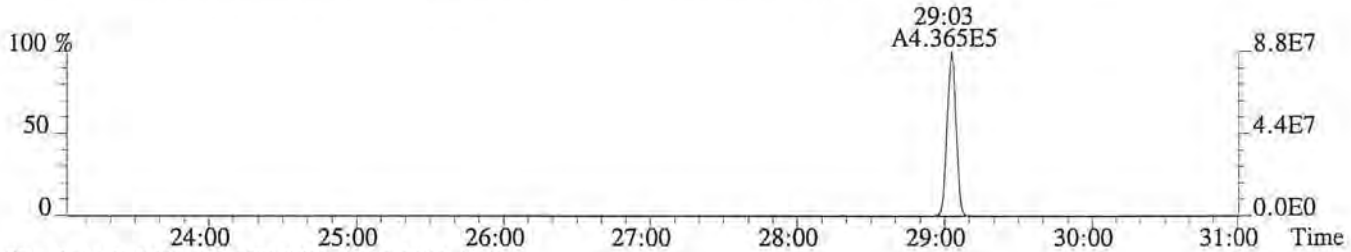
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2944.0,1.00%,F,T)



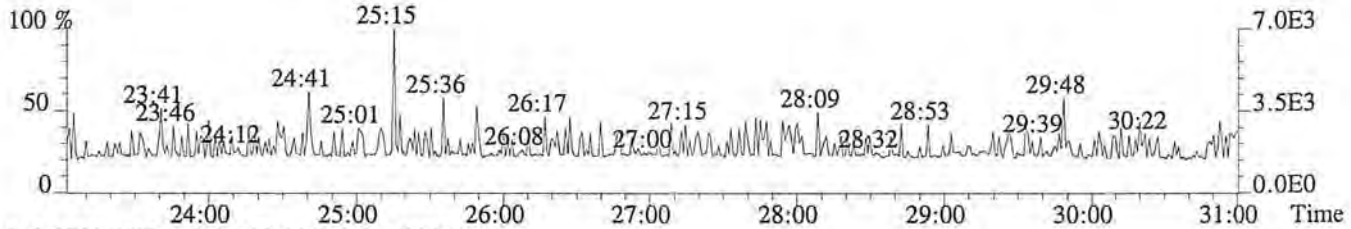
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5420.0,1.00%,F,T)



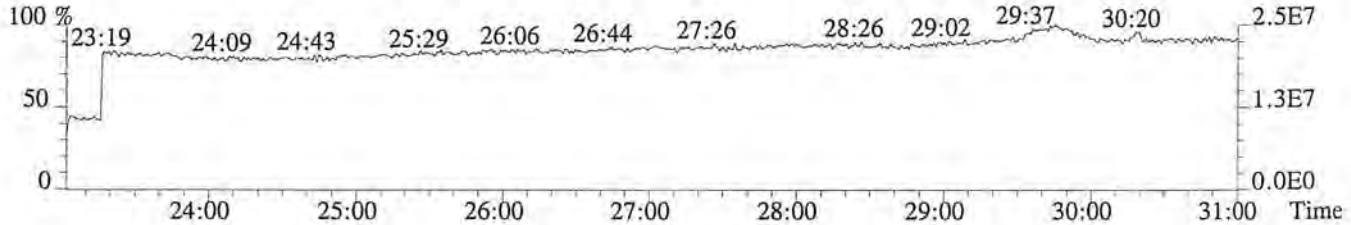
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2580.0,1.00%,F,T)



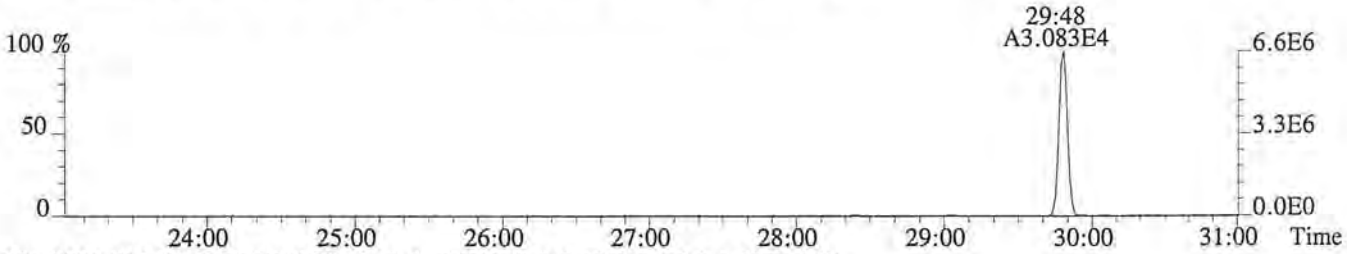
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



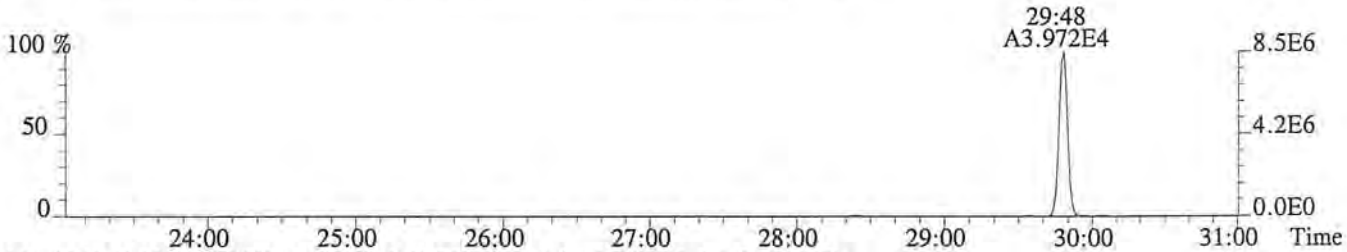
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



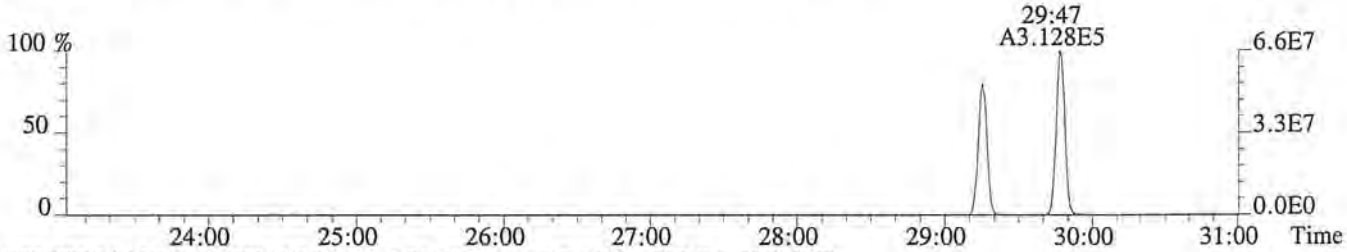
File:P600011 #1-566 Acq:19-AUG-2015 18:14:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 Second Source
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1912.0,1.00%,F,T)



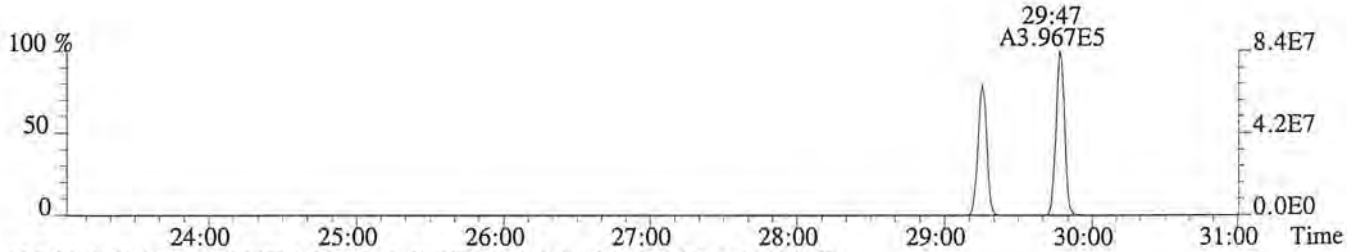
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2516.0,1.00%,F,T)



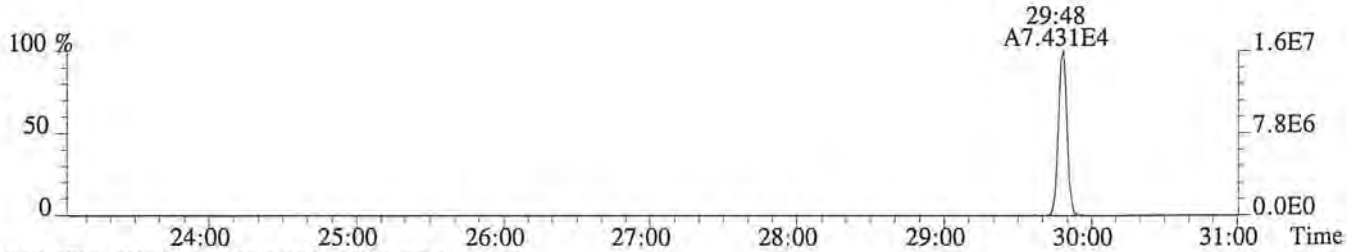
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9840.0,1.00%,F,T)



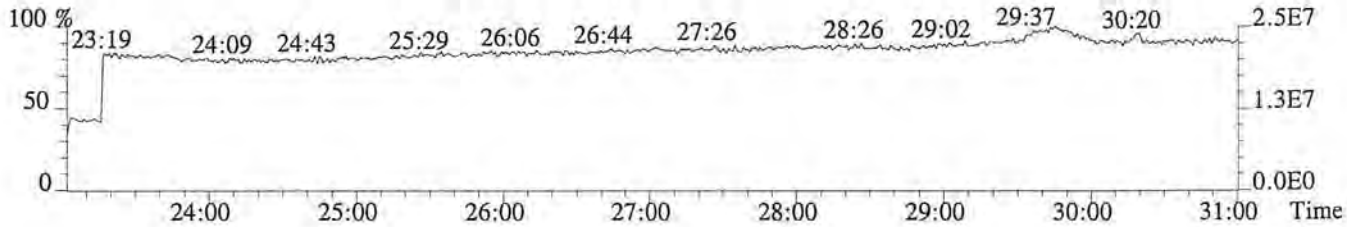
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5092.0,1.00%,F,T)



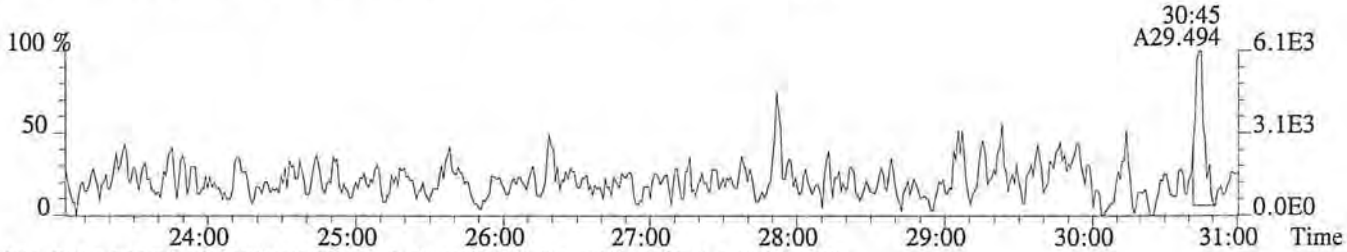
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3336.0,1.00%,F,T)



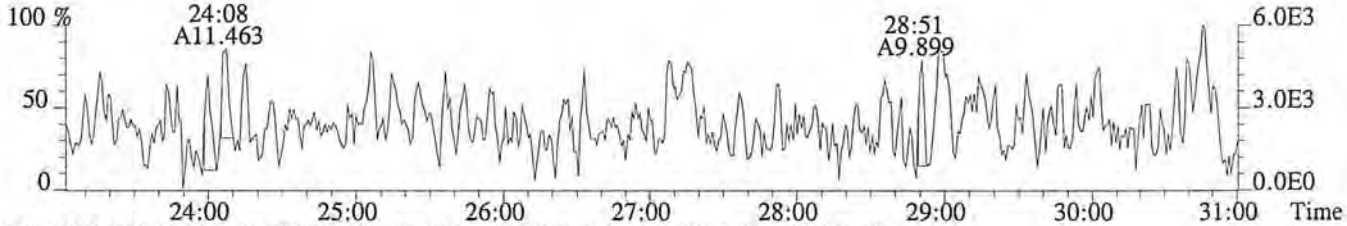
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



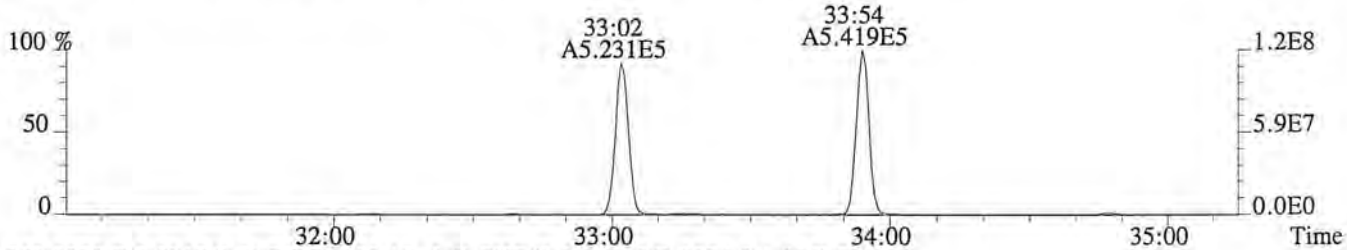
File:P600011 #1-566 Acq:19-AUG-2015 18:14:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 Second Source
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



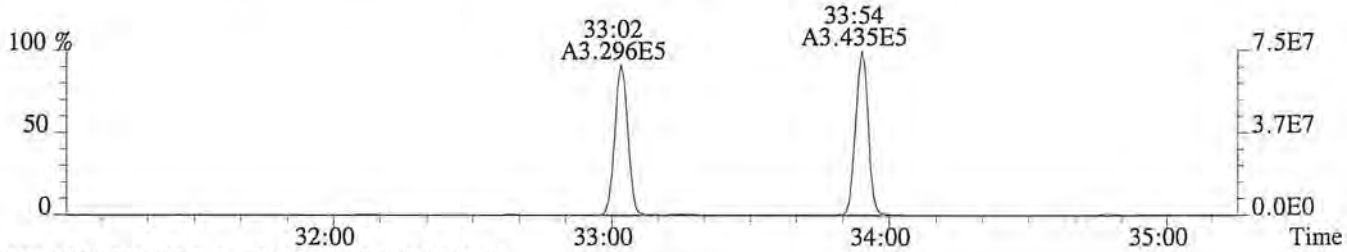
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2888.0,1.00%,F,T)



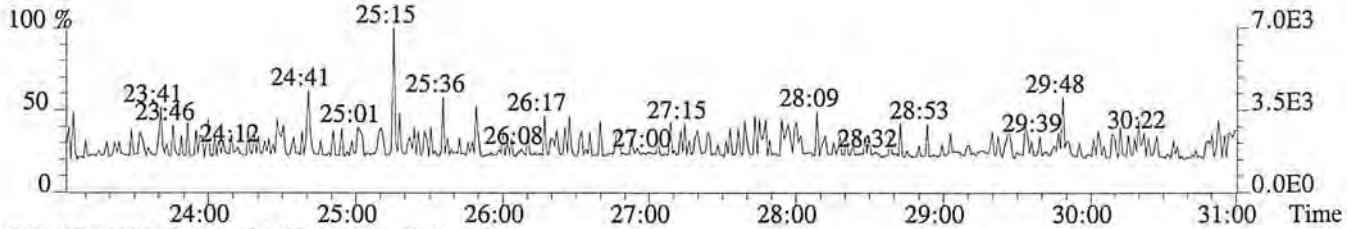
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



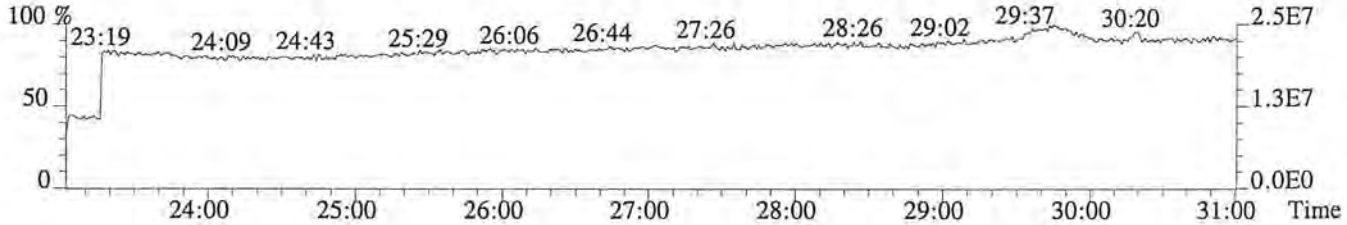
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2276.0,1.00%,F,T)



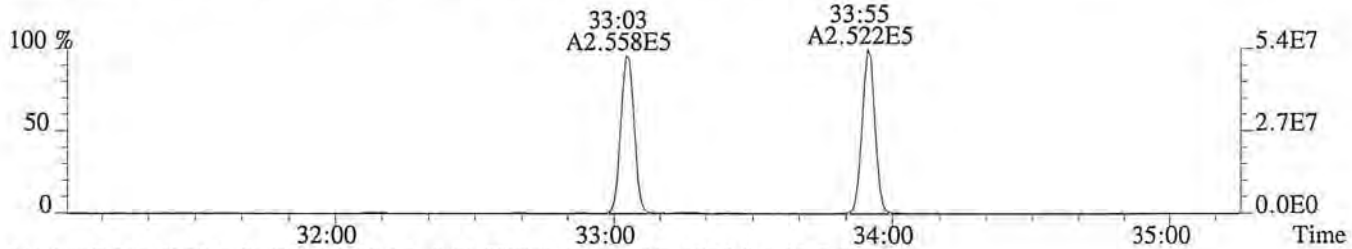
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



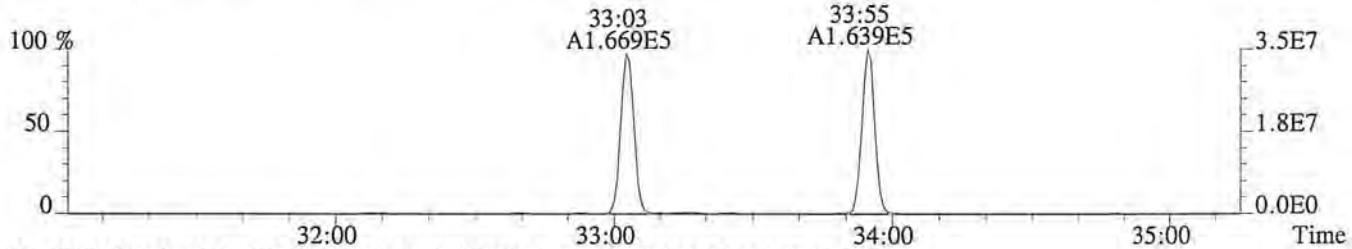
318.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



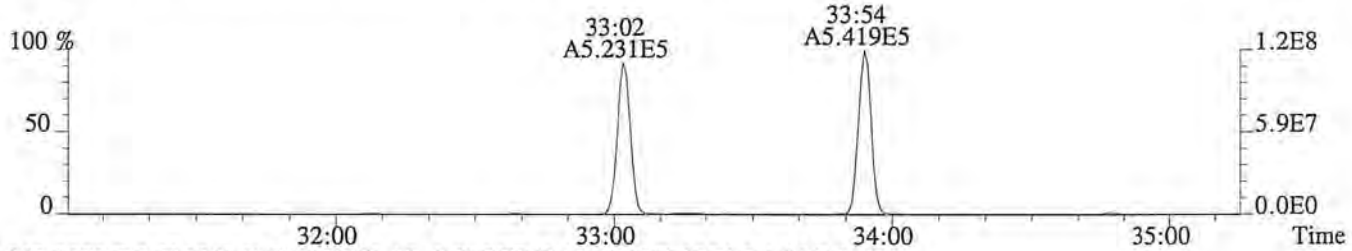
File:P600011 #1-380 Acq:19-AUG-2015 18:14:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 Second Source
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2392.0,1.00%,F,T)



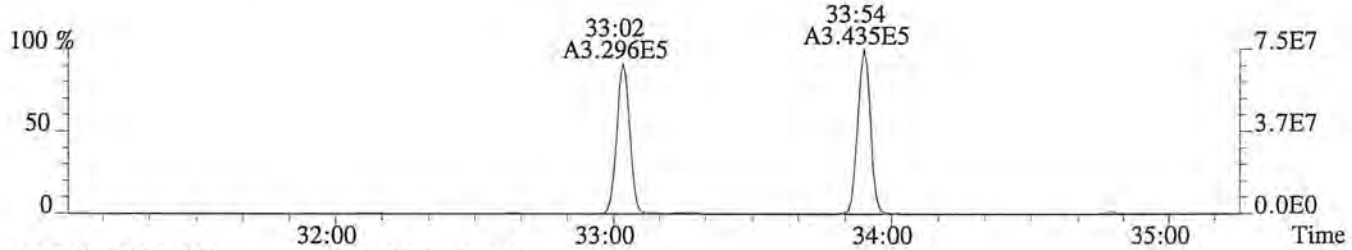
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3880.0,1.00%,F,T)



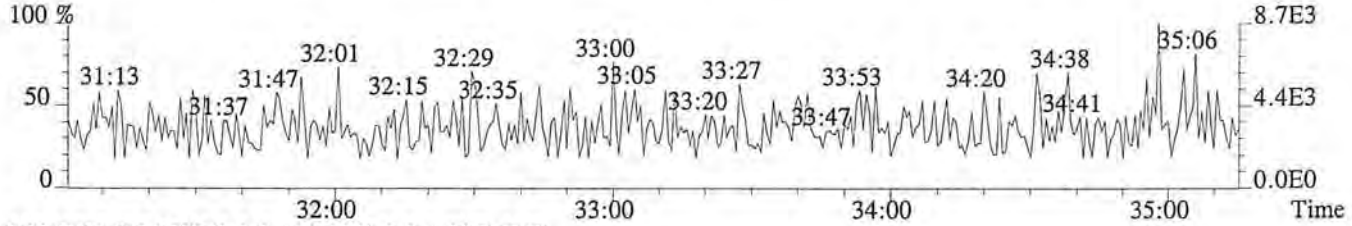
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2964.0,1.00%,F,T)



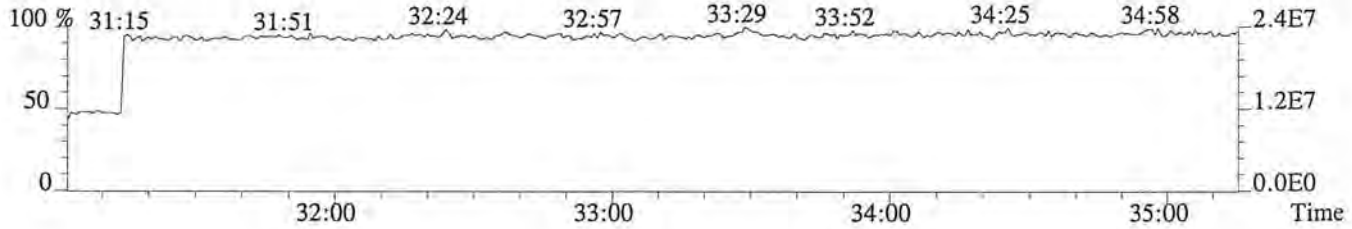
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2276.0,1.00%,F,T)



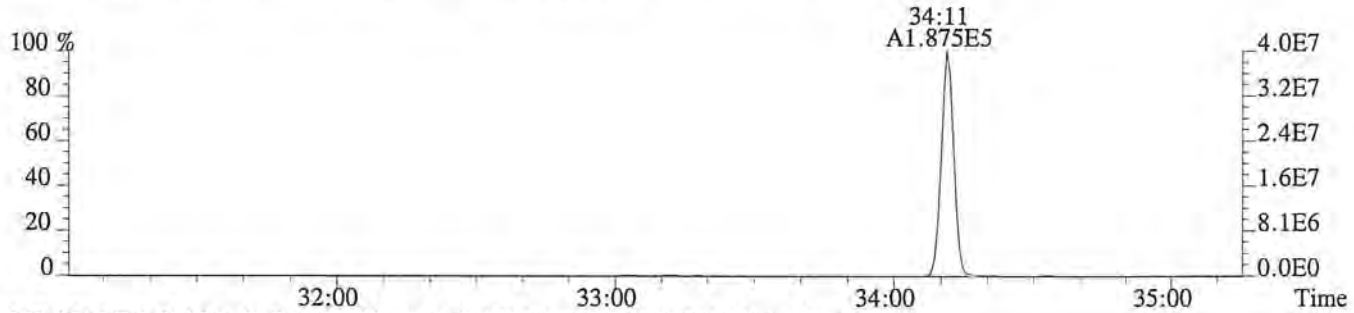
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



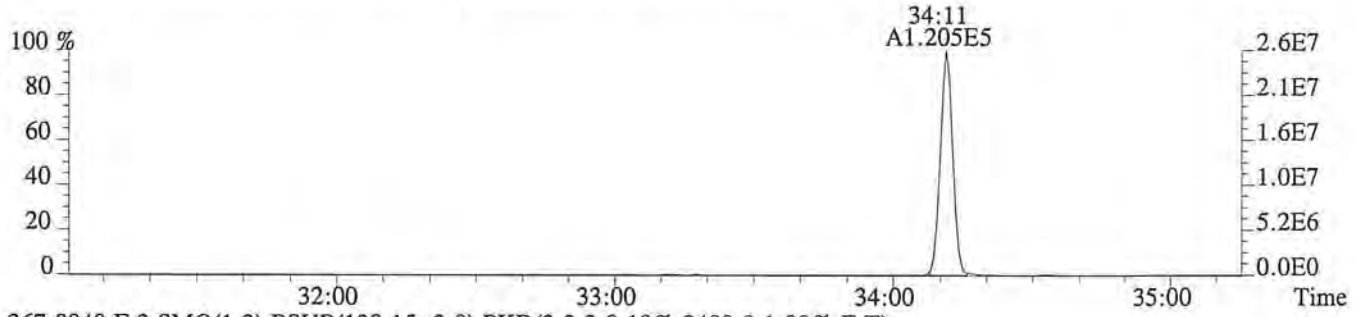
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



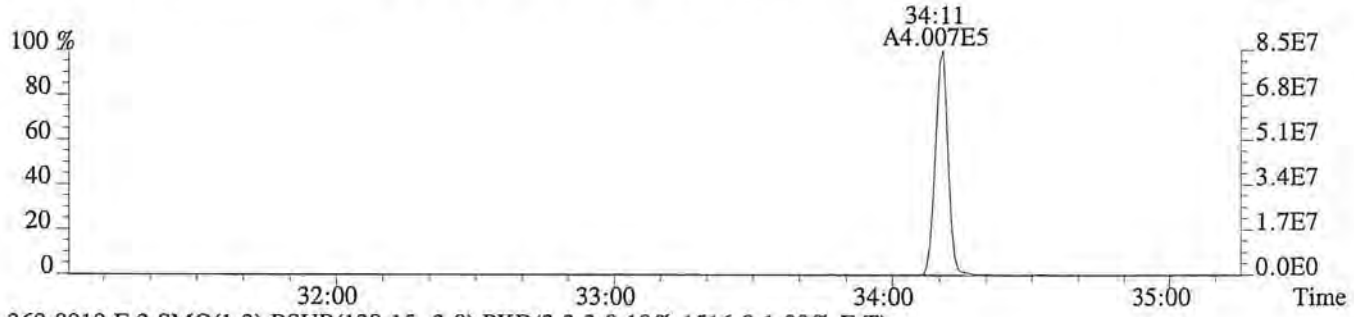
File:P600011 #1-380 Acq:19-AUG-2015 18:14:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 Second Source
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3512.0,1.00%,F,T)



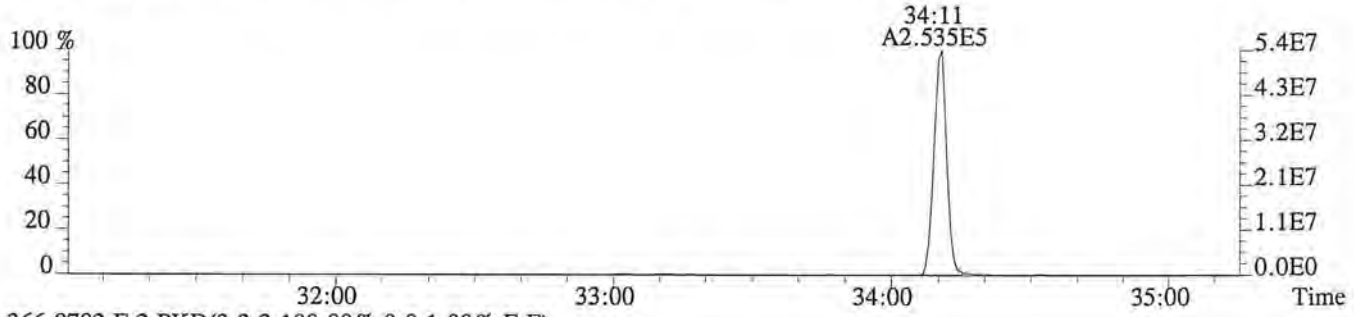
357.8516 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2176.0,1.00%,F,T)



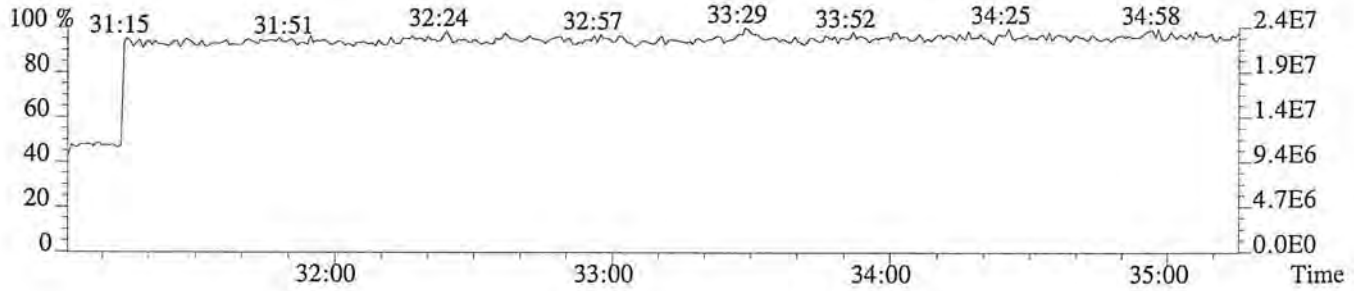
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2400.0,1.00%,F,T)



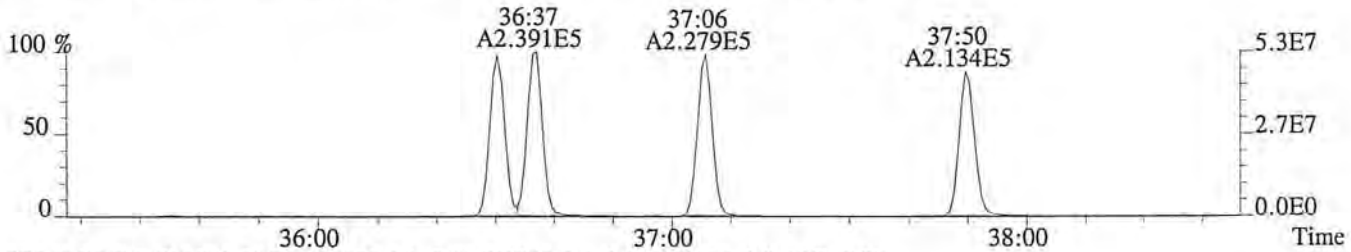
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1516.0,1.00%,F,T)



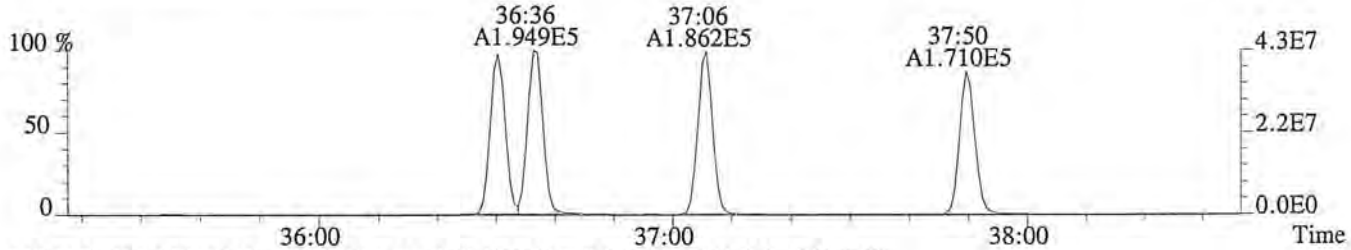
366.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



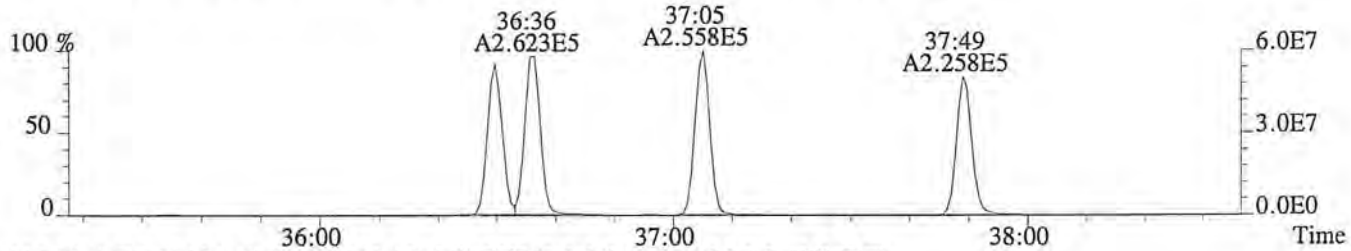
File:P600011 #1-299 Acq:19-AUG-2015 18:14:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 Second Source
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3048.0,0.40%,F,T)



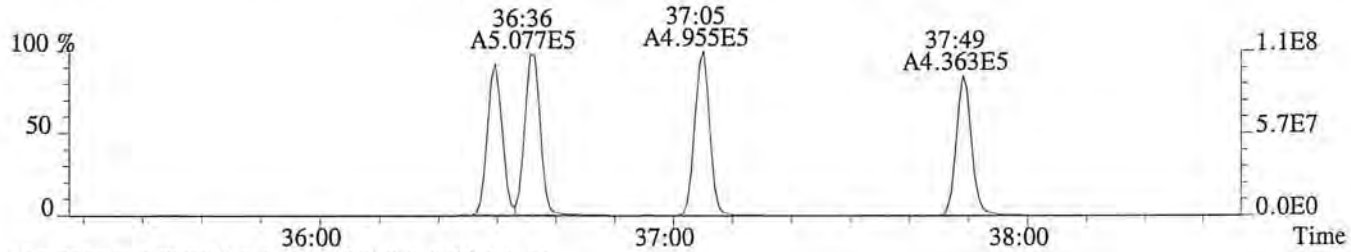
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2116.0,0.40%,F,T)



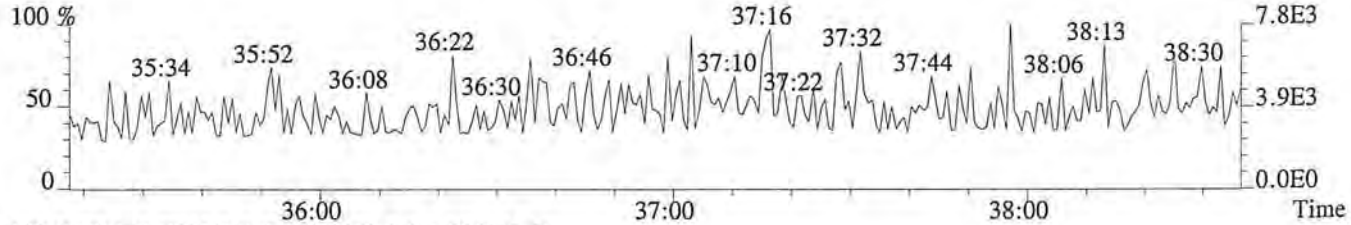
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1824.0,0.40%,F,T)



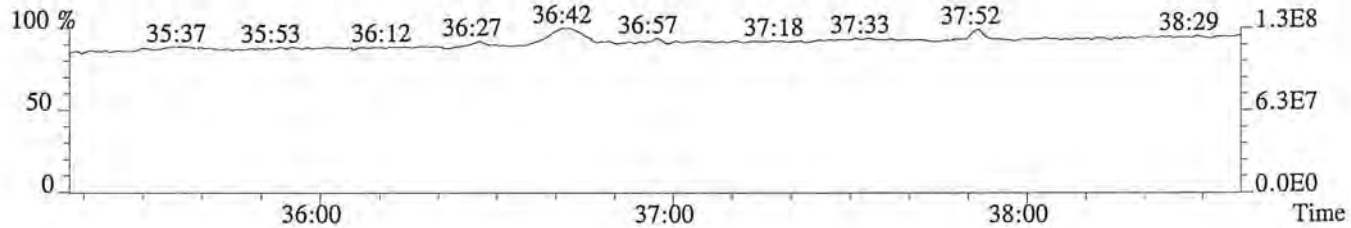
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4436.0,0.40%,F,T)



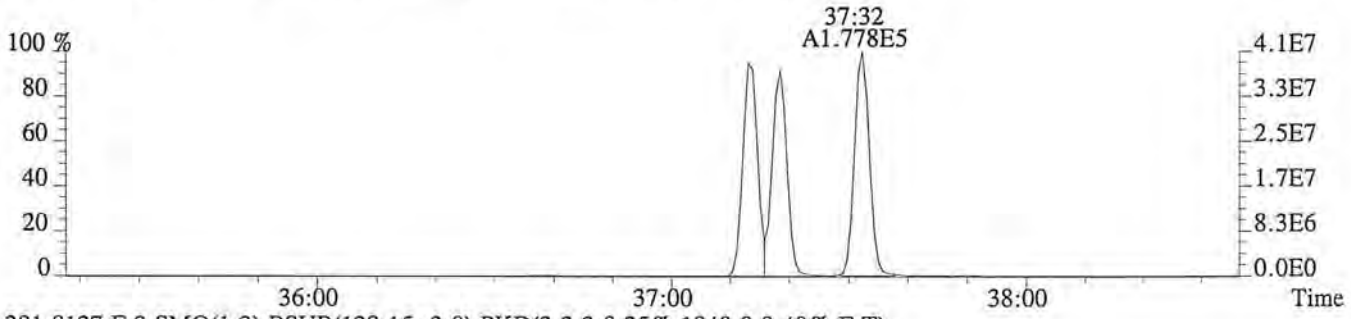
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



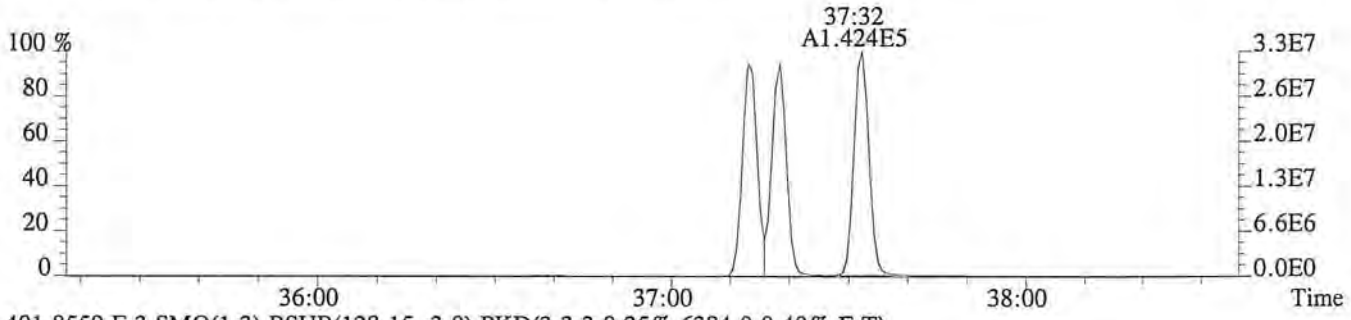
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



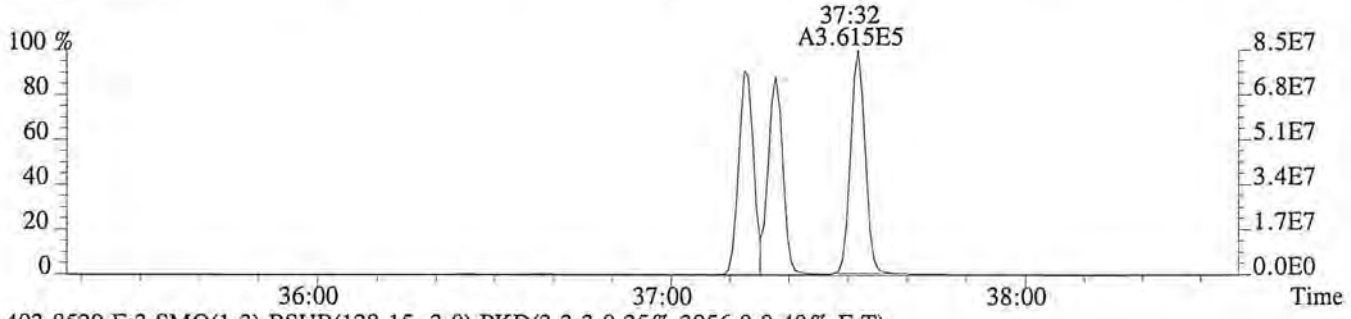
File:P600011 #1-299 Acq:19-AUG-2015 18:14:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 Second Source
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1288.0,0.40%,F,T)



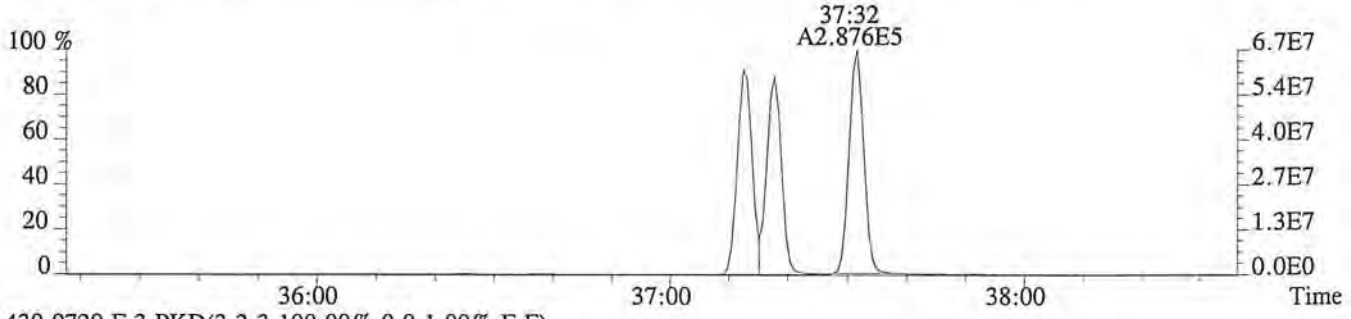
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1840.0,0.40%,F,T)



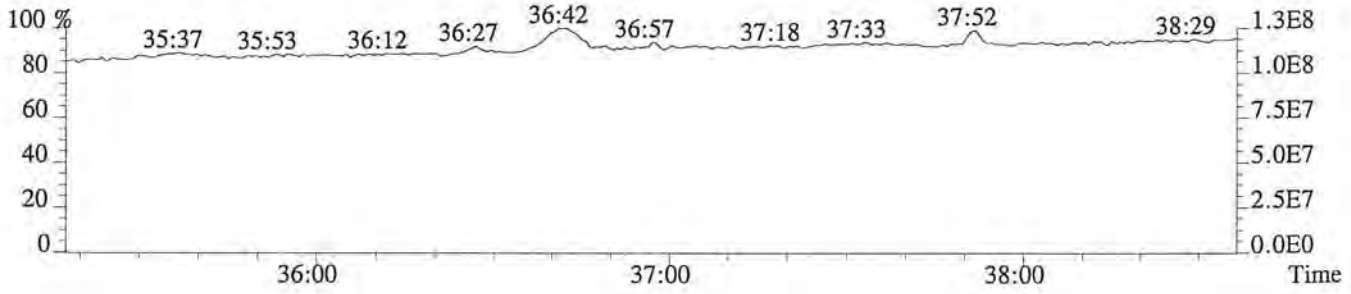
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6384.0,0.40%,F,T)



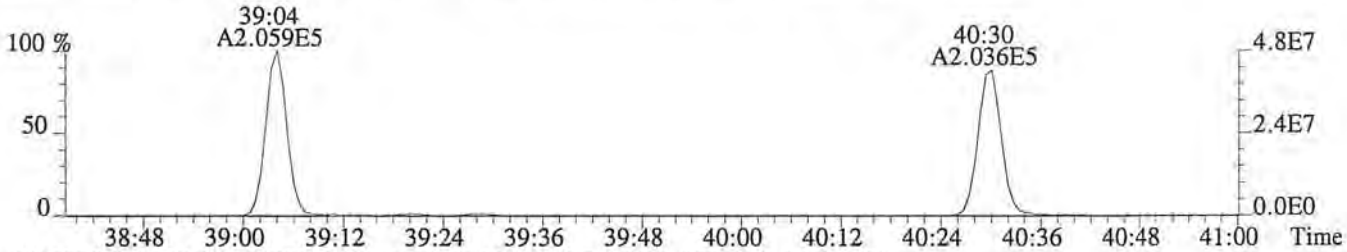
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3956.0,0.40%,F,T)



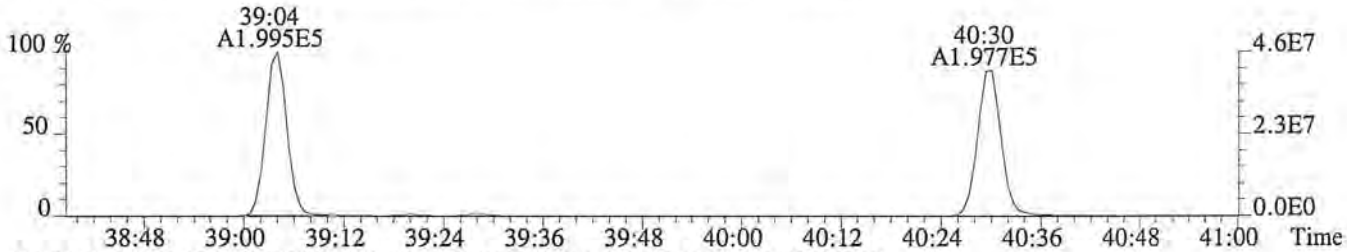
430.9729 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



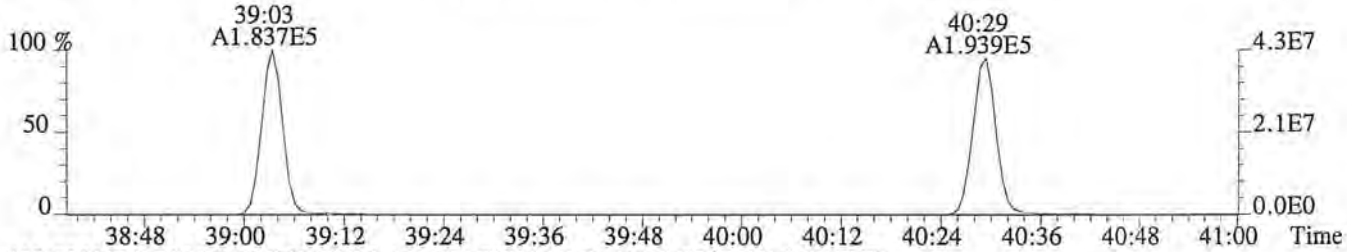
File:P600011 #1-213 Acq:19-AUG-2015 18:14:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 Second Source
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10444.0,0.50%,F,T)



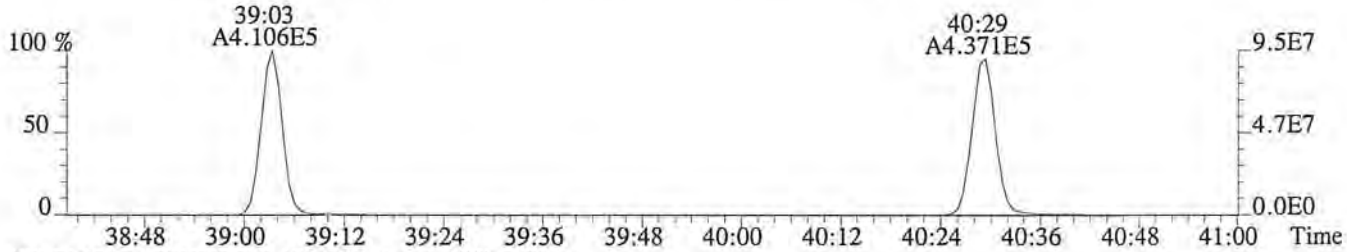
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3524.0,0.50%,F,T)



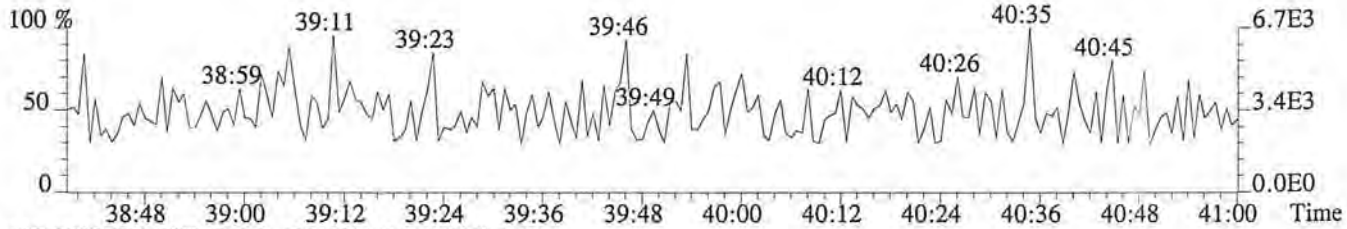
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5188.0,0.50%,F,T)



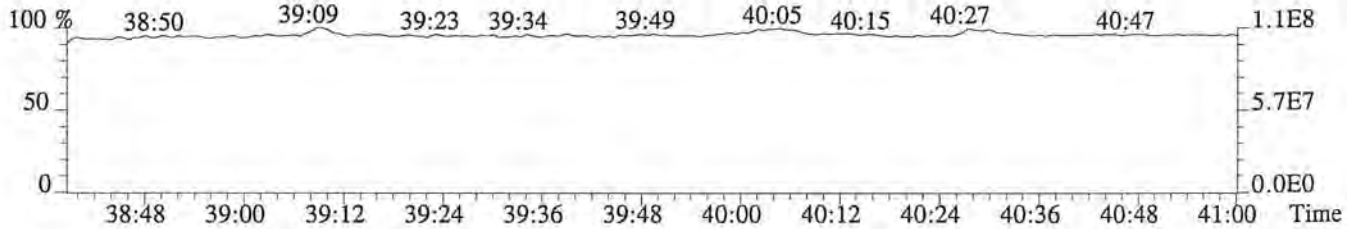
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7768.0,0.50%,F,T)



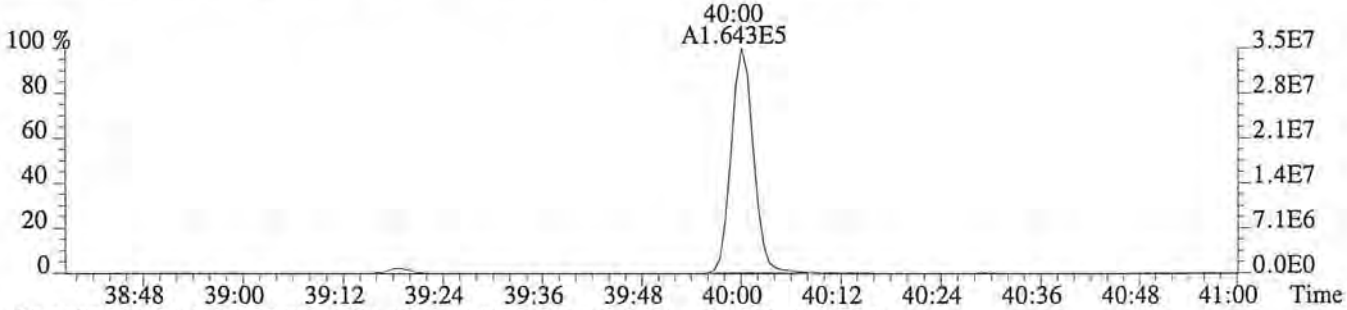
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



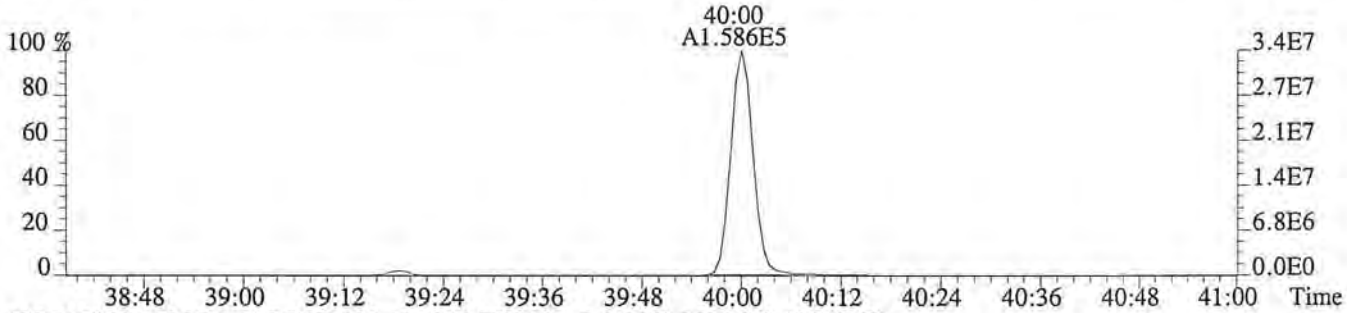
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



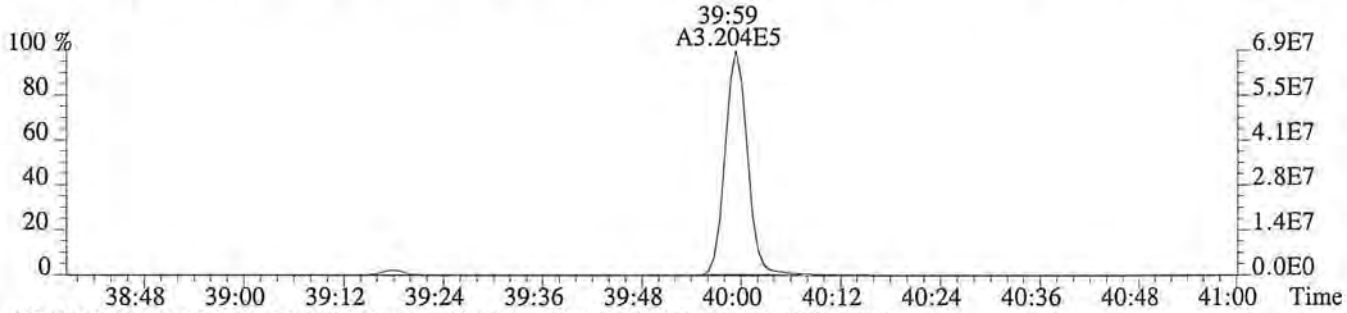
File:P600011 #1-213 Acq:19-AUG-2015 18:14:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 Second Source
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3240.0,0.40%,F,T)



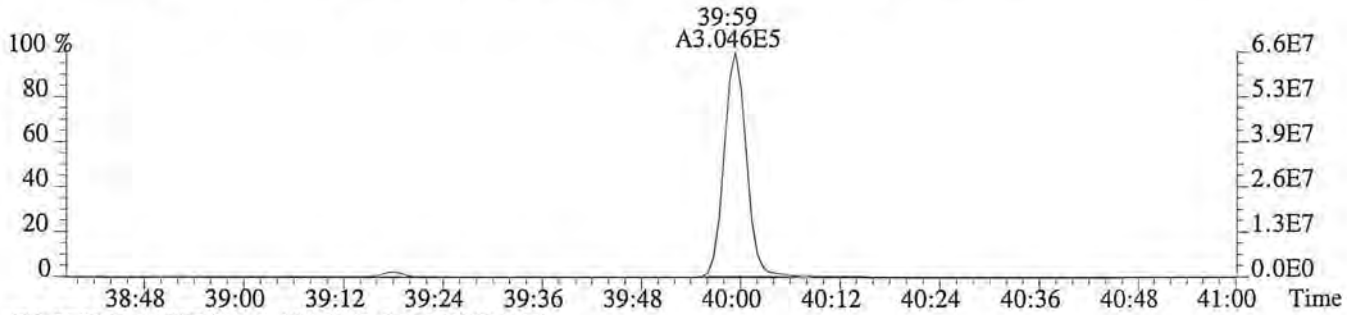
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1984.0,0.40%,F,T)



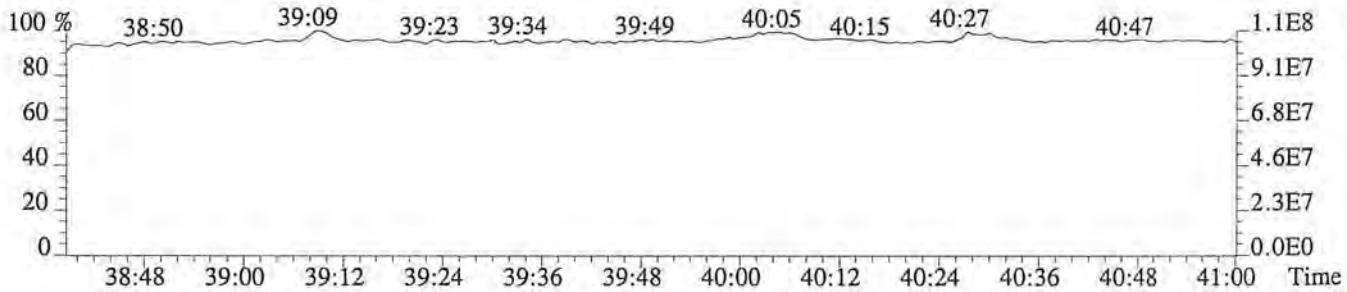
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3536.0,0.40%,F,T)



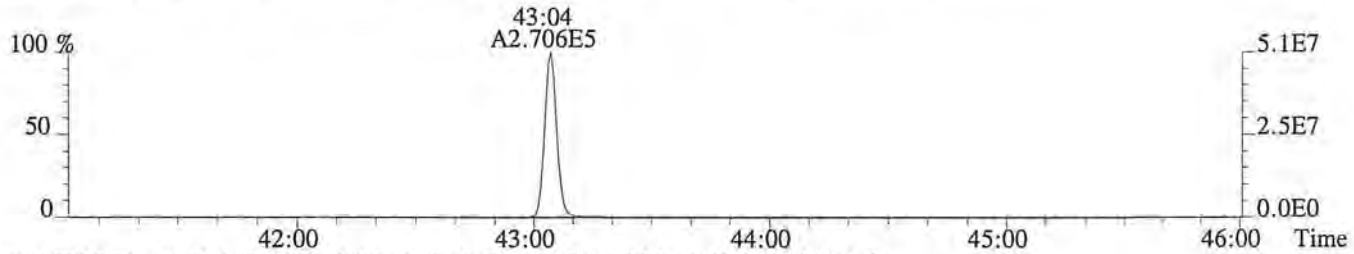
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2360.0,0.40%,F,T)



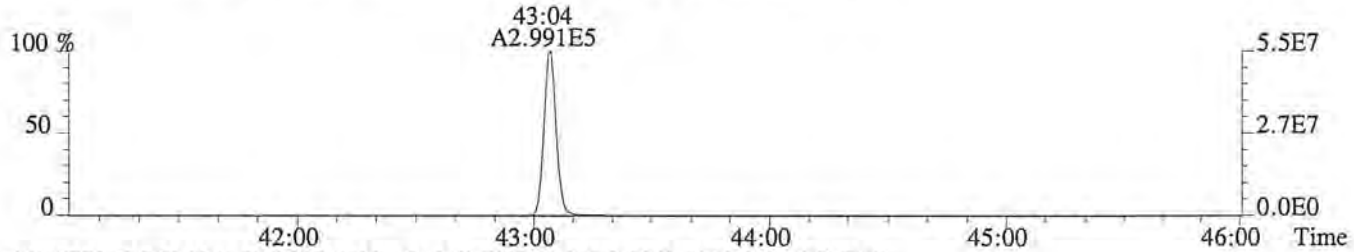
430.9729 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



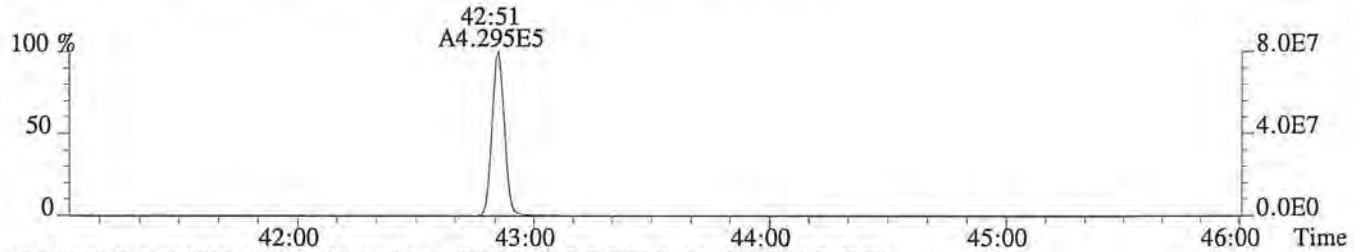
File:P600011 #1-448 Acq:19-AUG-2015 18:14:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 Second Source
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1248.0,0.40%,F,T)



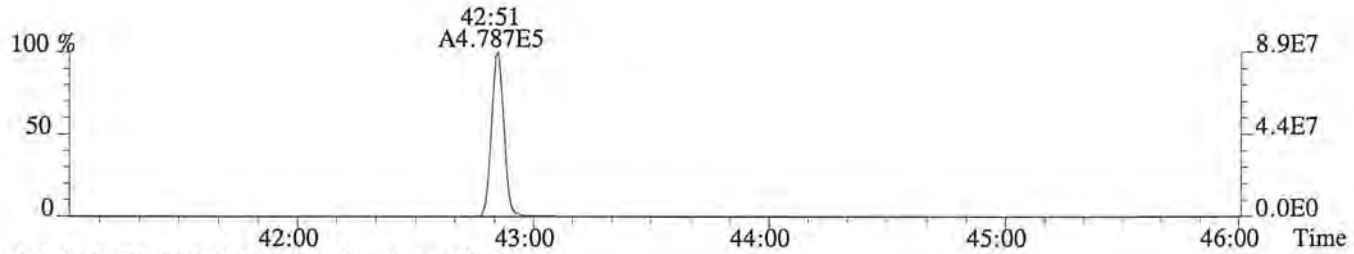
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2460.0,0.40%,F,T)



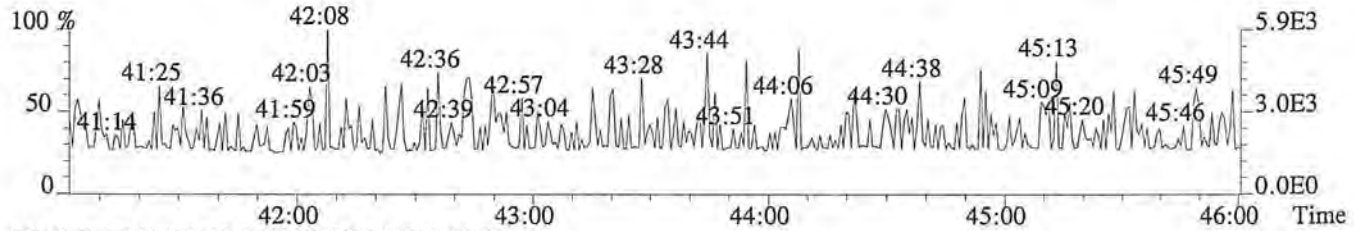
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1248.0,0.40%,F,T)



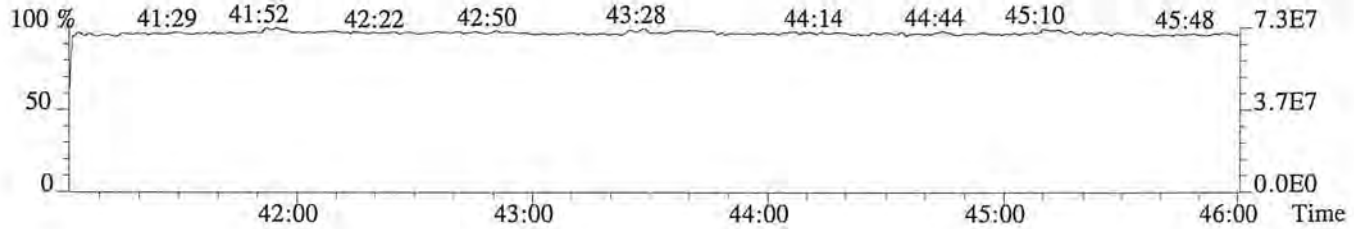
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1276.0,0.40%,F,T)



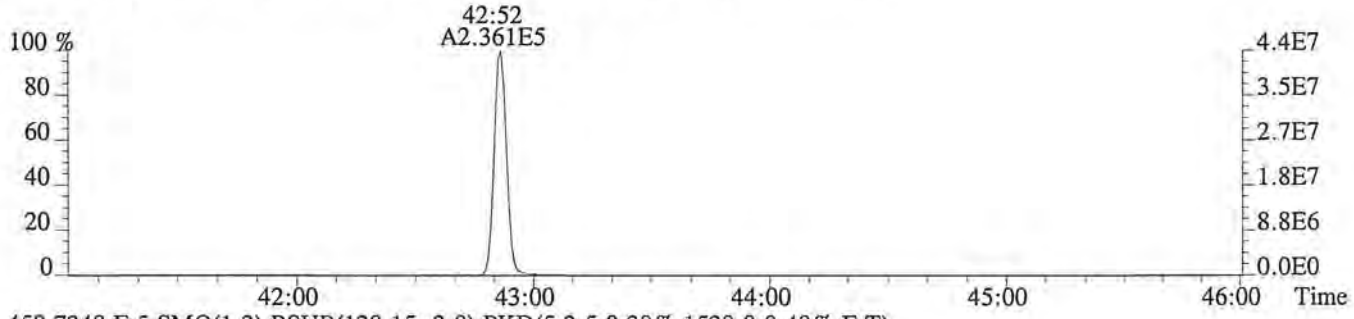
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



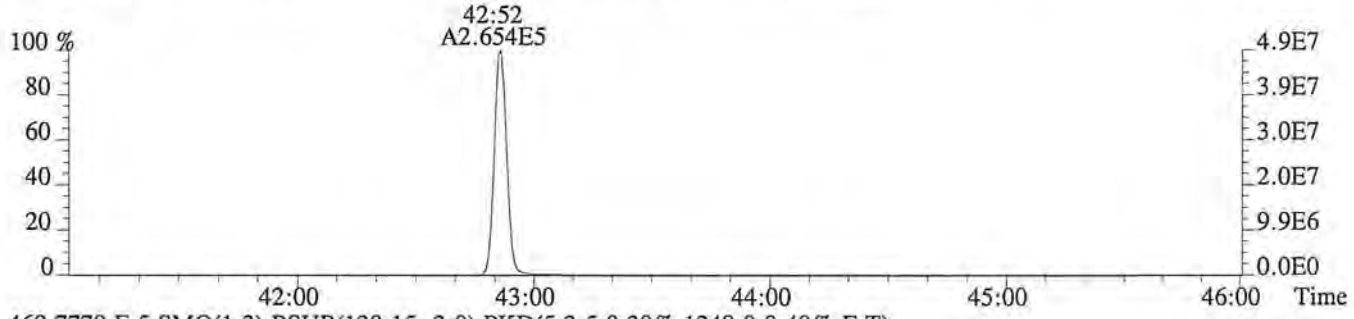
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



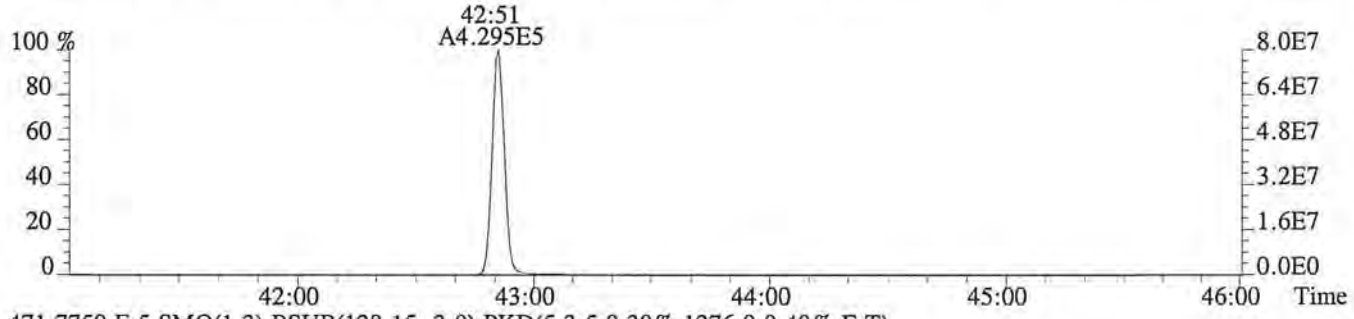
File:P600011 #1-448 Acq:19-AUG-2015 18:14:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 Second Source
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1128.0,0.40%,F,T)



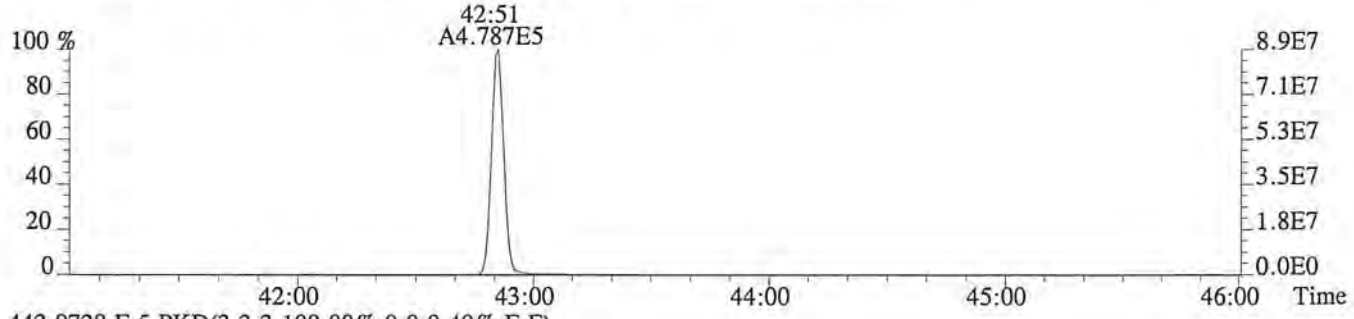
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1520.0,0.40%,F,T)



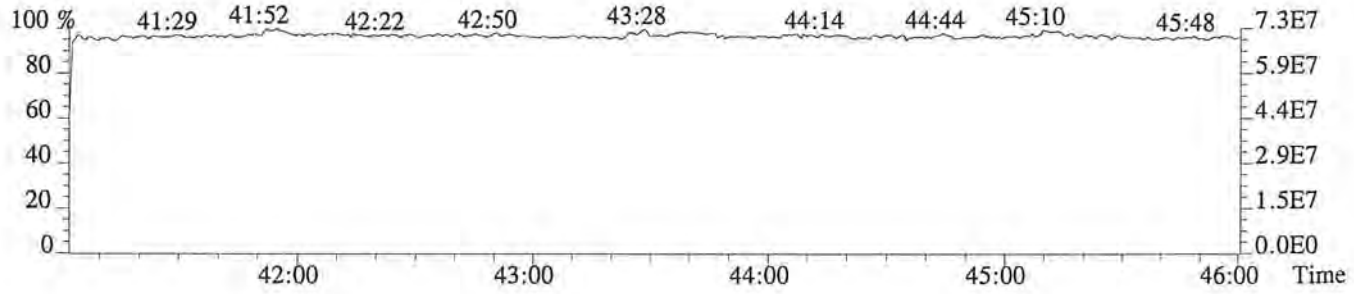
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1248.0,0.40%,F,T)



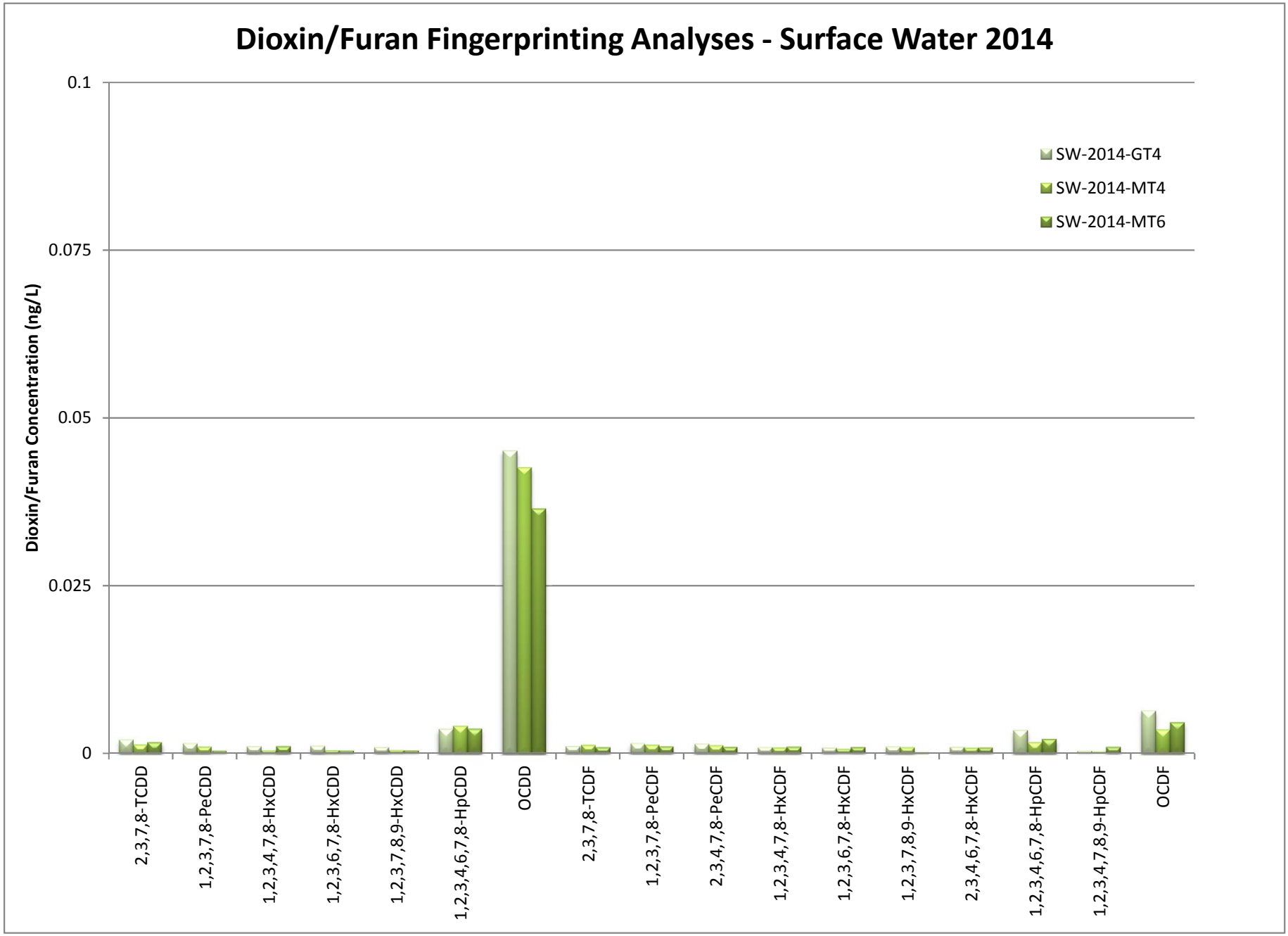
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1276.0,0.40%,F,T)

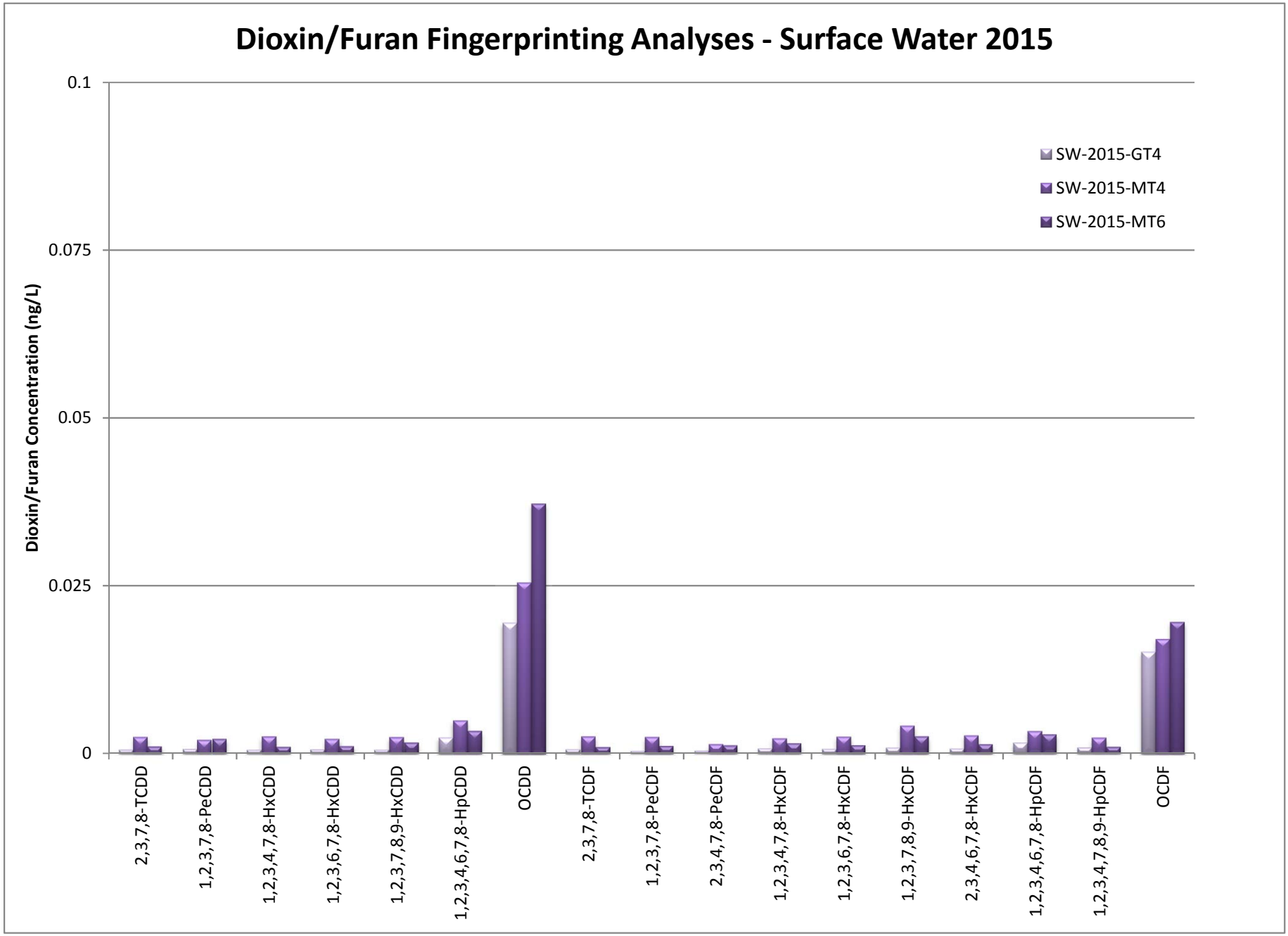


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Appendix D
Dioxin/Furan Fingerprinting Analyses of Surface Water


Dioxin/Furan Fingerprinting Analyses - Surface Water 2014
Dioxin/Furan Concentration (ng/L)
0.1
0.075
0.05
0.025
0
SW-2014-GT4
SW-2014-MT4
SW-2014-MT6
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
2,3,4,6,7,8-HxCDF
1,2,3,4,6,7,8-HpCDF
1,2,3,4,7,8,9-HpCDF
OCDF


Dioxin/Furan Fingerprinting Analyses - Surface Water 2015
Dioxin/Furan Concentration (ng/L)
0.1
0.075
0.05
0.025
0
SW-2015-GT4
SW-2015-MT4
SW-2015-MT6
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
2,3,4,6,7,8-HxCDF
1,2,3,4,6,7,8-HpCDF
1,2,3,4,7,8,9-HpCDF
OCDF

Appendix E
CZR Fish Tissue Sampling Report

WELCH CREEK
FISH DIOXIN AND FURAN MONITORING

April / May 2015

Prepared for:
Domtar Pulp and Paper Mill

Prepared by:
CZR Incorporated
4709 College Acres Drive, Suite #2
Wilmington, NC 28403

December 2015

EXECUTIVE SUMMARY

Composite samples consisting of fish tissue collected from four separate sampling locations along a 4.5-mile portion of lower Welch Creek (from Highway U.S. 64 downstream to its confluence with the Roanoke River) were analyzed for chlorinated dioxins and furans. Target species consisted of both bottom feeders and forage fish for each sampling location. Bottom feeders were filleted and the fillets were submitted for analysis; right fillets only were removed from forage fish and both right fillets and remaining carcasses (whole fish minus right fillet) were submitted separately for analysis. Due to the poor capture success of catfish species in past years sampling events in Welch Creek, common carp were also used for tissue analysis and served as a surrogate in the absence of catfish species.

Sampling was conducted late April into early May of 2015 and the following report provides transfer of the dioxin data to the Plymouth Mill, Domtar Paper Company, LLC. Dioxin data are summarized as individual concentrations of dioxin and furan congeners, as total toxicity equivalent (TEQ) based on the 1989 International Toxicity Equivalent Factors (I-TEFs) for human health, and as total TEQs and 2,3,7,8 TCDD/F TEQs based on the 2005 World Health Organization (WHO) TEFs for mammals.

For fish collected during 2015 from Welch Creek and submitted as filleted tissue composites, total TEQs for all 17 congeners calculated using WHO TEFs across all four sampling locations ranged from 0.11 parts per trillion (ppt) to 0.63 ppt in bluegill (*Lepomis macrochirus*) and 0.10 ppt to 1.01 ppt in largemouth bass (*Micropterus salmoides*); total TEQs for filleted tissue composites for three composites of yellow bullhead (*Ameiurus natalis*) from the three most upstream sampling locations were 0.25 ppt, 0.84 ppt, and 1.06 ppt, respectively. Total TEQ for a single composite of common carp (*Cyprinus carpio*) submitted as filleted tissue and collected at sampling location MT-8 to GT-19 was 6.21 ppt. Whole fish concentrations for both bluegill and largemouth bass (carcasses plus fillets on a weighted basis) submitted across all four sampling locations ranged from 0.70 ppt to 3.23 ppt and 2.11 ppt to 6.31 ppt, respectively.

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Lab Results

Digital version of lab results included on accompanying CD:

ALS Environmental
Service Request Number: E1500743
31 August 2015

Introduction

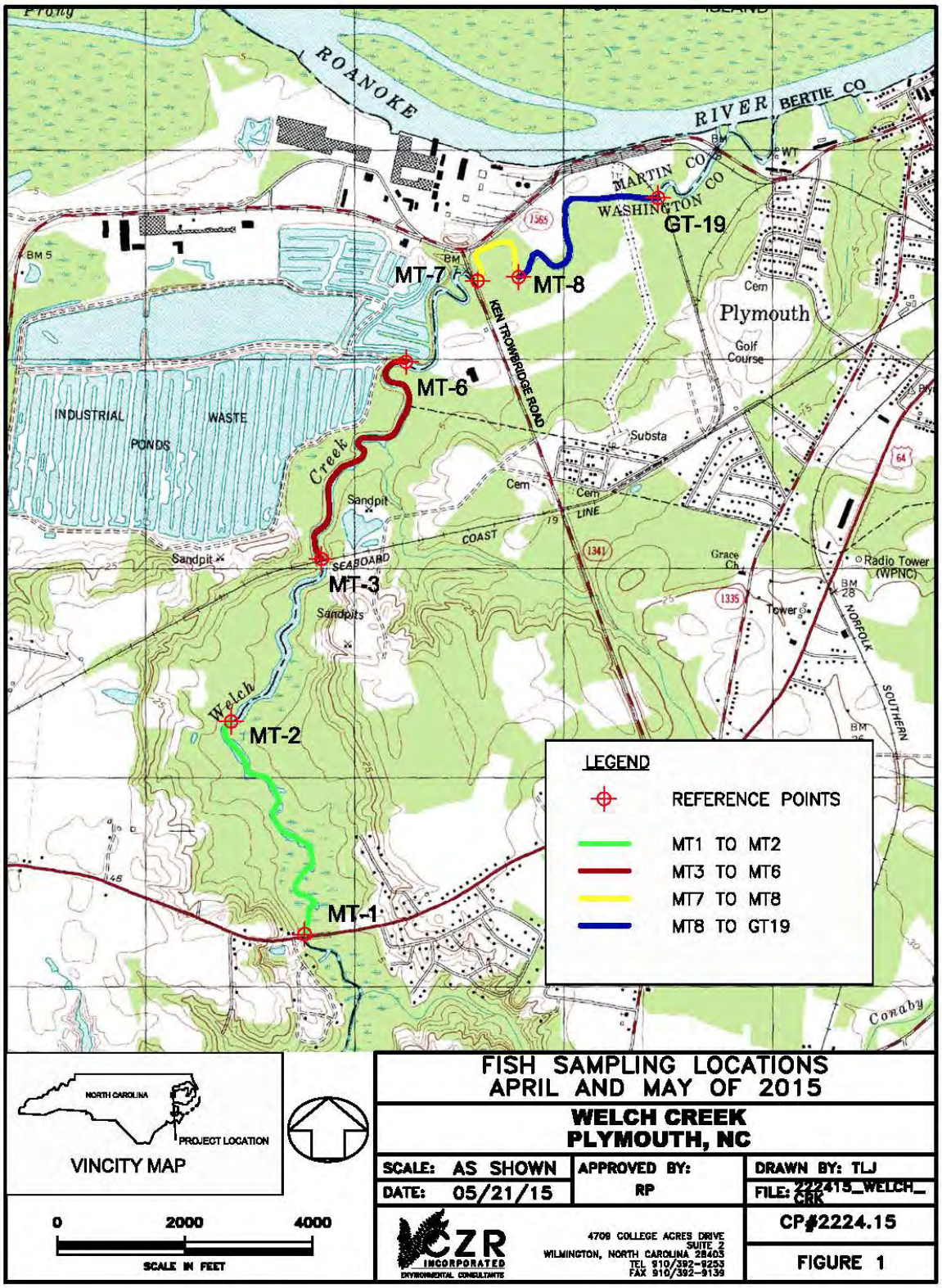
This report summarizes dioxin and furan data detected in fish collected from portions of Welch Creek by CZR Incorporated (CZR), late April into early May of 2015. Fish tissue analyses were conducted to monitor the current concentrations in dioxin and furan levels in fish inhabiting Welch Creek to respond to the United States Environmental Protection Agency (USEPA) Record of Decision for Welch Creek (OU4) and to support the state NPDES monitoring program. Domtar Paper Company, LLC, in conjunction with USEPA and TRC Environmental Corporation (TRC), have developed a monitoring plan (Performance Standards Verification Plan [PSVP]; September 2011) upon which the sampling strategy and methodology are based (Appendix A).

Fish collections in 2015 consisted of composite samples from each of the following locations on Welch Creek (Figure 1) and as described in Appendix B:

- upper Welch Creek in the vicinity of US Hwy 64 bridge and proceeding downstream approximately 0.81 river mile (MT-1 to MT-2),
- both upstream and downstream of the Domtar boat launch/landing (MT-3 to MT-6),
- in the vicinity of the NC Hwy 149(Ken Trowbridge Road) bridge and proceeding downstream approximately 0.31 river mile (MT-7 to MT-8), and
- upstream of the Weyco Drive bridge (MT-8 to GT-19).

The target number of composite samples for fish collections at all sampling locations was three, each composite consisting of three to five individuals. Two additional composites were targeted each at sampling location MT-3 to MT-6 and MT-7 to MT-8, with time permitting and fish availability. Target species consisted of bottom feeders and both small and large forage fish for each sampling location. Bottom feeders were filleted and the fillets were submitted for analysis; right fillets only were removed from forage fish and both right fillets and remaining remnants of carcasses (whole fish minus right fillet) were submitted separately for analysis. For the purpose of comparison to previously collected whole fish samples in years past, carcasses and corresponding fillets will be mathematically combined on a weight basis to arrive at a whole fish concentration. Catfish species were desired for bottom feeder composites; however, there has been poor capture success of these species in Welch Creek following anoxic conditions associated with drainage from both Hurricane Isabel in 2003 and Hurricane Irene in 2011 (CZR, 2012 and 2013). Over the duration of the April and May 2015 sampling period, four white catfish (*Ameiurus catus*), three channel catfish (*Ictalurus punctatus*), twelve yellow bullhead (*Ameiurus natalis*), and four brown bullhead (*Ameiurus nebulosus)* were captured. Conversely, eleven common carp (*Cyprinus carpio*) were captured across all four sampling locations and serve as a surrogate in the absence of catfish species. Bluegill (*Lepomis macrochirus*) and largemouth bass (*Micropterus salmoides*) were captured at all four sampling locations and submitted as small and large forage feeders, respectively.

Specific sampling location descriptions, field, analytical, and data analysis methods are provided in Appendix B. Composite samples for dioxin and furan analyses were prepared from the collected fish listed in Appendix C. Fish selections for the composite samples were based on meeting, to the extent possible, the numbers and types of samples listed in the sampling plan (Appendix A). Appendix D contains the individual composite sample data and Appendix E summarizes the level of effort for 2015 fish collections by location. Appendix F contains all water quality parameters measured over the duration of the sampling period.


ROANOKE
RIVER
BERTIE CO
MARTIN CO
WASHINGTON CO
GT-19
MT-7
MT-8
KEN TROWBRIDGE ROAD
Plymouth
Golf Course
Cem
MT-6
INDUSTRIAL WASTE PONDS
Creek
Substa
Sandpit
COAST LINE
SEABOARD
MT-3
Sandpits
Radio Tower (WPNC)
Grace Ch
Tower
NORFOLK SOUTHERN
Welch
MT-2
MT-1
Conaby
LEGEND
REFERENCE POINTS
MT1 TO MT2
MT3 TO MT6
MT7 TO MT8
MT8 TO GT19
NORTH CAROLINA
PROJECT LOCATION
VINCITY MAP
0 2000 4000
SCALE IN FEET
FISH SAMPLING LOCATIONS
APRIL AND MAY OF 2015
WELCH CREEK
PLYMOUTH, NC
SCALE: AS SHOWN
APPROVED BY:
DRAWN BY: TLJ
DATE: 05/21/15
RP
FILE: 222415_WELCH_CRK
CZR INCORPORATED
ENVIRONMENTAL CONSULTANTS
4709 COLLEGE ACRES DRIVE
SUITE 2
WILMINGTON, NORTH CAROLINA 28403
TEL 910/392-9253
FAX 910/392-9139
CP#2224.15
FIGURE 1

Fish Dioxin and Furan Concentrations – April and May of 2015

The dioxin toxicity equivalents (TEQs, defined in Appendix B) for the Welch Creek 2015 samples were calculated using 17 of the 2,3,7,8-chlorine substituted dioxin and furan congeners following both the International Toxicity Equivalent Factors (I-TEFs) for human health (EPA, 1989) and the 2005 World Health Organization (WHO) TEFs for mammals (Van den Berg et al., 2006) methodologies, as the two methodologies differ in assigned TEFs for five of the 17 congeners. Because data from years prior are likely limited to 2,3,7,8-tetrachlorinated dioxin and furan, TEQs for 2015 samples were also calculated using only the 2,3,7,8-TCDD/F congeners for comparison to data collected from Welch Creek in earlier years. Congeners reported as non-detect in laboratory reports were given a concentration of zero in calculations of TEQs.

Table 1 provides values by composite sample for percent lipid and dioxin/furan congener concentrations along with TEQs from fish composite samples collected in Welch Creek in April and May of 2015. The TEQs are reported for 2,3,7,8-TCDD/F only, and total TEQs for all 17 congeners (using both WHO TEFs and I-TEFs). Data for individual congeners used for calculation of total TEQs, both with and without estimated maximum possible concentrations (EMPCs), are provided in Appendix D for each composite sample.

Total TEQs (using WHO TEFs) in bluegill composite samples, based on all 17 congeners, ranged from 0.11 parts per trillion (ppt) to 0.63 ppt in composites both from sampling location MT-7 to MT-8 for filleted tissue and 0.70 ppt at reference sampling location MT-1 to MT-2 to 3.23 ppt at sampling location MT-7 to MT-8 for whole fish (carcasses plus fillets on a weighted basis). Total TEQs for largemouth bass composite samples ranged from 0.10 ppt at sampling location MT-3 to MT-6 to 1.01 ppt at sampling location MT-8 to GT-19 for filleted tissue and 2.11 ppt at sampling location MT-3 to MT-6 to 6.31 ppt at sampling location MT-7 to MT-8 for whole fish (carcasses plus fillets on a weighted basis) (Table 1 and Figure 2).

Three yellow bullhead composites submitted as filleted tissue had total TEQs of 0.25 ppt at reference sampling location MT-1 to MT-2, 0.84 ppt at sampling location MT-3 to MT-6, and 1.06 ppt at sampling location MT-7 to MT-8. Total TEQ for a single composite of common carp submitted as filleted tissue and collected at sampling location MT-8 to GT-19 was 6.21 ppt (Table 1 and Figure 2).

The State of North Carolina currently uses a dioxin and furan concentration of 4.00 ppt in issuing an advisory for edible fish tissue (NCDENR, 2013). Total dioxin and furan concentrations below these values in filleted tissue are considered safe and acceptable by the North Carolina Division of Water Resources (NCDWR). Of the 14 fish composites submitted as filleted tissue from Welch Creek in 2015, one common carp fillet sample (PLY-14-15 MT8/GT19 CC - Fillet) exceeded the NC fish consumption advisory level of 4.00 ppt; as a result, the MT-7 to MT-8 sampling location had the highest levels of total dioxin detected for composite samples of filleted tissue (Table 1 and Figure 2).

Whole fish composites are often analyzed for assessing bioaccumulation of contaminants (NCDENR, 2013; USEPA, 1992). Whole fish concentrations of total dioxin and furan in both bluegill and largemouth bass (carcasses plus fillets on a weighted basis) submitted from Welch Creek in 2015 ranged from 0.70 ppt to 3.23 ppt and 2.11 ppt to 6.31 ppt, respectively. The MT-7 to MT-8 sampling location also had the highest detected levels of mathematically derived total dioxin for whole fish (carcasses plus fillets on a weighted basis) composite samples (Table 1 and Figure 2).

QA/QC Results

Both fillet and carcass composite samples were homogenized and analyzed for dioxin and furan concentrations by ALS Environmental in Houston, Texas. Reported data were all within control limits specified in the Quality Assurance Project Plan (QAPP) and quality control information with the laboratory analysis is found in Appendix B (Certificate of Analysis).

Table 1. Percent lipid and dioxin and furan concentrations from fish composite samples collected in Welch Creek in 2015. Data on individual congeners are provided for each sample in Appendix D. Units are parts per million (ppm) and parts per trillion (ppt). Species are: (BG) bluegill; (CC) common carp; (LB) largemouth bass; (YB) yellow bullhead.

			Carcass						Fillet						Whole[a]		
				EMPC = EMPC[b]			EMPC = 0			EMPC = EMPC[b]			EMPC = 0			EMPC = 0	
Composite	Location	Species	Lipids (%)	2,3,7,8-TCDD (ppt)	2,3,7,8-TCDF (ppt)	2,3,7,8-TCDD/F (ppt)	Total TEQ I-TEFs (ppt)	Total TEQ WHO TEFs (ppt)	Lipids (%)	2,3,7,8-TCDD (ppt)	2,3,7,8-TCDF (ppt)	2,3,7,8-TCDD/F (ppt)	Total TEQ I-TEFs (ppt)	Total TEQ WHO TEFs (ppt)	Lipids (%)	Total TEQ I-TEFs (ppt)	Total TEQ WHO TEFs (ppt)
PLY-01-15	MT1 to MT2	BG	7.58	0.55	0.81	0.63	0.79	0.76	1.46	0.00	0.00	0.00	0.18	0.14	6.94	0.73	0.70
PLY-02-15	MT1 to MT2	LB	4.18	2.60	2.09	2.81	2.93	2.90	1.26	0.73	0.43	0.77	0.92	0.89	3.75	2.64	2.61
PLY-03-15	MT1 to MT2	YB	N/A	N/A	N/A	N/A	N/A	N/A	1.42	0.51	1.25	0.64	0.28	0.25	N/A	N/A	N/A
PLY-04-15	MT3 to MT6	BG	7.03	1.77	3.40	2.11	2.25	2.22	1.71	0.42	0.53	0.48	0.64	0.62	6.65	2.14	2.11
PLY-05-15	MT3 to MT6	BG	8.61	2.83	5.21	3.35	3.51	3.47	4.08	0.40	0.49	0.45	0.20	0.17	8.20	3.21	3.17
PLY-06-15	MT3 to MT6	LB	4.39	2.24	1.56	2.40	2.53	2.50	1.11	0.37	0.00	0.37	0.14	0.10	3.86	2.14	2.11
PLY-07-15	MT3 to MT6	YB	N/A	N/A	N/A	N/A	N/A	N/A	1.48	0.48	1.54	0.63	0.92	0.84	N/A	N/A	N/A
PLY-08-15	MT7 to MT8	BG	4.93	2.64	3.89	3.03	3.15	3.12	3.22	0.46	0.45	0.50	0.14	0.11	4.78	2.88	2.85
PLY-09-15	MT7 to MT8	BG	6.16	3.05	5.30	3.58	3.76	3.72	1.26	0.45	0.66	0.52	0.67	0.63	5.39	3.27	3.23
PLY-10-15	MT7 to MT8	LB	5.88	6.54	5.54	7.09	7.28	7.24	1.99	0.63	0.45	0.67	0.81	0.78	5.32	6.35	6.31
PLY-11-15	MT7 to MT8	YB	N/A	N/A	N/A	N/A	N/A	N/A	0.98	0.63	1.47	0.78	1.06	1.06	N/A	N/A	N/A
PLY-12-15	MT8 to GT19	BG	5.86	1.62	2.73	1.89	2.07	2.04	1.69	0.58	0.45	0.63	0.21	0.18	5.47	1.90	1.87
PLY-13-15	MT8 to GT19	LB	3.46	3.14	2.00	3.34	3.50	3.47	1.45	0.88	0.44	0.93	1.03	1.01	3.12	3.08	3.05
PLY-14-15	MT8 to GT19	CC	N/A	N/A	N/A	N/A	N/A	N/A	7.68	2.49	4.39	2.93	6.19	6.21	N/A	N/A	N/A

[a]Whole fish concentrations were calculated using corresponding carcass and fillet concentrations on a weighted basis:

[(carcass % lipid x carcass weight) + (fillet % lipid x fillet weight)] / (carcass weight + fillet weight)

[(carcass TEQ x carcass weight) + (fillet TEQ x fillet weight)] / (carcass weight + fillet weight)

[b]Calculations of 2,3,7,8-TCDD/F TEQs include Estimated Maximum Possible Concentrations (EMPCs) for comparison to data in previous years. EMPC indicates estimated maximum value due to ion ratio failure.

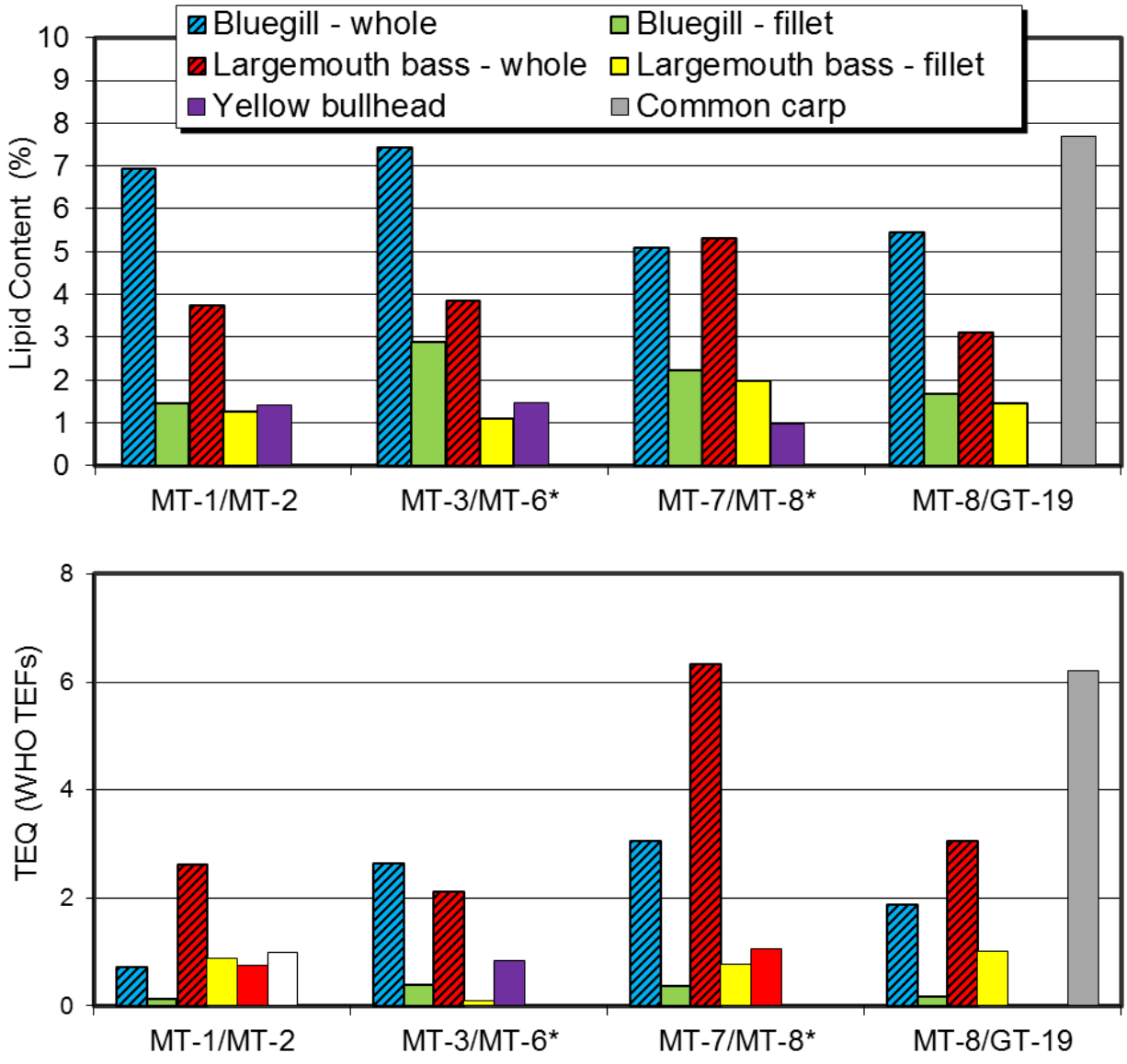


Figure 2. Lipid content and total TEQ (WHO TEFs) by location and species collected in Welch Creek in April and May of 2015. See Figure 1 for sampling locations. Hatched fill indicates whole fish concentrations (carcasses plus fillets on a weighted basis). (*Bluegill concentrations for both MT-3 to MT-6 and MT-7 to MT-8 represent an average of two composites.)

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APPENDIX A

SAMPLING PLAN

PLYMOUTH MILL / DOMTAR
WELCH CREEK FISH DIOXIN AND MERCURY STUDY
2015 SAMPLING PLAN

SAMPLING PLAN / APPROACH

1. Fish will be collected over two four to five day work weeks which includes site mobilization, setup, and sample processing, from four locations spanning along a 4.5-mile portion of lower Welch Creek, from Highway U.S. 64 extending downstream to the confluence with the Roanoke River (Figure 1). Workdays will be targeted to include a minimum of four hours of active sampling techniques along with a minimum of four hours of passive sampling techniques. Fish sampling locations will be prioritized to maximize the potential for obtaining samples from desired upstream and downstream locations. Sampling effort will first be targeted at upstream reference location MT-1 to MT-2 and upstream area MT-3 to MT-6. Sampling efforts will be expanded to include MT-8 and MT-8 to GT-15 once sufficient sample capture has occurred at the locations listed above, and as long as time permits. Due to the difficulty of fish capture in such small refined areas, CZR expanded both sites MT-8 and MT-8 to GT-15. MT-8 will be expanded from MT-7 to MT-8 and MT-8 to GT-15 will now extend to GT-19.

2. Fish collections will take place when favorable water quality field conditions are present, usually in the spring, April and/or May. Composites will consist of the best available samples after fishing at an intense level-of-effort for four to five days; but which are also dependent on weather/river conditions and fish availability.

3. The target fish will be bottom dwelling/feeding species such as channel catfish, white catfish, blue catfish, and common carp and forage feeding fish such as bluegill and largemouth bass.

4. One composite sample of bottom dwelling fish and two composite samples of forage fish will be collected for each sampling location, where possible, including an additional two composite samples that will be collected each at locations MT-3 to MT-6 and MT-7 to MT-8, time and fish availability permitting.

5. A target for each composite sample will be three to five individual fish, although the actual number of fish making up a composite may vary because of availability of the particular species. An attempt will be made to obtain fish of the same species and size range for each particular sampling location. The maximum number of composite samples that can be obtained totals 16 (3 per sampling location x 4 sampling locations + 2 MT-3 to MT-6 + 2 MT-7 to MT-8 samples with time permitting), provided fish are available. The approximate number of fish to be collected and retained for the duration of the sampling period totals between 48 and 80 (16 composite samples each with 3 to 5 fish per composite).

6. Lipid content of both the muscle tissue (i.e., fillet) fish composites and whole fish composites will be analyzed to determine the dioxin concentrations relative to lipid content.

7. Samples will be analyzed for all seventeen of the 2,3,7,8- chlorine substituted dioxin and furan congeners. The analyses will be done on a fresh weight basis using high-resolution gas chromatography/high resolution mass spectrometry. Dioxin analyses will be performed by a competent laboratory using EPA or equivalent techniques.

APPENDIX B

SAMPLE LOCATIONS AND METHODS

B.1 Sample Locations

The analyzed fish samples were obtained from the sampling locations described below.

Sampling location	Approx. miles from confluence with Roanoke River	Description and approximate coordinates
MT-1 to MT-2	4.5	Downstream of US Highway 64 bridge; Approximately 4,300 linear feet; 35°49’45.25”N 76°47’5.62”W (upstream) 35°50’17.89”N 76°47’20.75”W (downstream)
MT-3 to MT-6	2.8	Upstream and downstream of the Domtar boat launch/landing; Approximately 4,300 linear feet; 35°50’43.05”N 76°47’3.45”W (upstream) 35°51’13.93”N 76°46’49.78”W (downstream)
MT-7 to MT-8	1.6	Downstream of Ken Trowbridge Road, NC Highway 149; Approximately 1,650 linear feet; 35°51’26.66”N 76°46’35.02”W (upstream) 35°51’27.81”N 76°46’27.67”W (downstream)
MT-8 to GT-19	1.2	Upstream of Weyco Drive; Approximately 3,200 linear feet; 35°51’27.81”N 76°46’27.67”W (upstream) 35°51’40.35”N 76°46’3.95”W (downstream)

B.2 Fish Collection Methods and Compositing

Fish collections and initial processing for this project was done for Plymouth Mill, Domtar Paper Company, LLC under contract with CZR Incorporated (CZR) of Wilmington, North Carolina. CZR collected fish using appropriate collection permits and licenses.

Quality control of fish collections and initial processing were done by CZR staff. Standard fishery techniques (electrofishing, gill nets, and trot lines) were used to collect the fish. In the field, fish were identified to species and fish used for analysis were placed on ice in separate coolers for each sampling location (whole fish were stored on ice for a maximum of two days). When fish were collected, water proof field logs were used to record pertinent data – sampling location, date, time, water quality parameters, and collection technique. Excess fish or unwanted species were returned to the water.

Each fish collected was measured for total length (mm), weighed (g), and was assigned an individual identifying number. Bottom dwelling fish were filleted; right fillets only were removed from forage fish and both right fillets and remaining carcasses (whole fish minus right fillet) were separated for individual analysis. Bottom dwellers (filleted fish) also had sex determined during composite preparation.

The protocol for filleting and processing the samples is in B.3. Hexane- and methanol-rinsed utensils and aluminum foil were used during all processing procedures, with adequate clean up between fish. After removal of muscle fillets from bottom dwelling fish and right fillets only from forage fish by CZR, samples (both fillets and carcasses) were stored wrapped in solvent cleaned foil and plastic bags and transferred to CZR's facility in Wilmington, North Carolina for secure storage and final processing. Signed chain-of-custody forms accompanied all fish samples during storage and transport.

Composite samples targeting three to five fish were prepared by CZR at the direction of Plymouth Mill / Domtar staff and TRC from both forage (right fillet only) and bottom dwelling fish muscle fillets and forage fish carcasses (whole fish minus right fillet). Hexane- and methanol-rinsed utensils and foil were used during all processing procedures, with adequate clean up between sample composites. Composite samples (grouped, but unblended frozen carcasses and fish fillets) were shipped to ALS Environmental in Houston, Texas. An analysis request and chain-of-custody sheet accompanied the shipped samples. Homogenization of the fish composites and dioxin analysis procedures were done using EPA or equivalent methods. The reporting limit was < 1 parts per trillion (ppt) for dioxins. Lipid and moisture content was also determined. The remaining homogenized samples will be archived for three years by ALS Environmental.

B.3 Fish Cutting / Processing

PURPOSE: To provide guidelines for processing fish for dioxin analysis.

PRECAUTIONS: At all times adherence to "clean" technique is a must. Clean technique is the purposeful and systematic avoidance of contamination of dioxins from utensil to sample, from a nontarget part of the fish to the target part of the fish, and from sample to sample.

PROTOCOL:

1. Select each individual fish from which fillets or carcasses will be composited to make a single fish composite sample. Assign a sample number to the composite, referencing the Tag Numbers making up the composite. As a general guideline, a single composite sample will be made of fillets or carcasses from three to five fish from the same sampling location and species, with fillet samples consisting of only the right muscle fillet of larger specimens and both fillets of small specimens. Try to minimize size variation within a sample; at the same time focus on larger specimens when sufficient numbers of fish were collected. Catfish and or bottom dweller fillets will be skinned and forage fish fillets will be submitted without scales. Carcasses will be submitted without scales. Prior to processing any fish make sure the tag number matches the information regarding species and location the composite is to represent.

2. Pre-rinse some glass jars and aluminum foil with pesticide grade hexane and methanol. The foil and jars will be used to wrap the fillets and or carcasses, place clean utensils, etc. All utensils shall also be pre-rinsed in the same manner. Utensils shall be washed between samples to loosen and remove residual fish tissue from fillet samples prior to solvent rinsing. Several scalpels and/or knives should be readied for each sample that is to be filleted.

3. Pre-label a zip lock plastic bag in which to place the foil-wrapped samples.

4. Between each bottom dwelling fish (i.e. catfish) composite sample, and if needed between individual fish, cover the cutting board surface with clean aluminum foil. When removing fillet samples, this foil shall not be pre-rinsed with solvents, but muscle sample shall not be directly placed on this foil. Wear a new pair of disposable latex gloves for each sample, also changing gloves anytime contamination from any source is suspected.

5. For bottom dwelling fish samples, rinse the target fillet area with distilled water and make a shallow incision with a clean blade around the entire fillet, leaving a tab of loose skin near the operculum. Remove the skin from the fillet area by firmly gripping the tab of skin with solvent-rinsed pliers, taking care not to contact muscle, and pull in an anterior (head) to posterior (tail) motion.

6. Using a clean blade, remove the right fillet without cutting into the body cavity if possible. Then using scissors or a blade cut the fillet into small pieces, placing the pieces onto a solvent-rinsed sheet of aluminum foil, which is sufficiently large enough to hold and mix all the fillet pieces for the sample, making sure to tightly wrap the foil around the sample.

7. Place a piece of tape around the aluminum foil-wrapped sample, marking the sample number on the tape. Place the sample in the labeled zip-lock bag and freeze the sample. Prepare a sample analysis request sheet, making sure the sample number is on the sheet. This sheet will act as a chain-of-custody for the lot of samples.

8. Repeat the procedure (steps 5 and 7) for the left fillet if needed.

9. Use a separate blade to open the body cavity to determine the sex of the fish. Record the gender if it can be determined visually (presence of ovaries or testes). If sex is not possible to determine, record "U" for unknown.

10. Remove the Tag from the fish carcass, dispose of the carcass and continue with the next specimen for the same composite sample. The blade and scissors used to fillet the previous fish can be reused without solvent rinsing, unless contamination from another source other than the muscle tissue is suspected.

11. When the composite sample is complete, place all corresponding zip lock packaged tissue placed within solvent-rinsed aluminum foil into one large pre-labeled zip lock plastic bag labeled with composite identification and information.

12. After all bottom dwelling fish composites are completed, clean the utensils, rinsing with distilled water and solvents. Place a new, clean sheet of solvent rinsed aluminum foil over the cutting board for packaging of carcasses.

13. Gently scale forage fish with solvent rinsed fish scaler and rinse with distilled water to remove any excess scales left on the fish tissue. Repeat steps 6 and 7 to remove the right fillet only. Be sure the solvent rinsed foil from step 12 above is sufficiently large enough to contain the remaining carcass as these will be submitted whole.

14. Tightly wrap the foil around the carcass sample. Place a piece of tape marking the sample number around the foil-wrapped sample. Place the sample in the labeled zip-lock bag and freeze the sample. Prepare a sample analysis request sheet, making sure the sample number is on the sheet. This sheet will act as a chain-of-custody for the lot of samples.

15. When the composite sample is complete, place all corresponding zip lock packaged forage fish placed within solvent-rinsed aluminum foil (both carcass and fillet) into one large pre-labeled zip lock plastic bag labeled with composite identification and information.

B.4 Analytical Methods

Homogenization of the fish composites and primary dioxin analyses were done at ALS Environmental in Houston, Texas. Procedures followed EPA Method 1613B with reporting limits < 1 parts per trillion (ppt) for dioxins. All dioxin and furan data were reported as ppt on a wet weight basis. Lipid content (%) and total solids / moisture content (%) of each fish composite was also determined.

Specific methodology and quality control was provided by ALS on the following four pages.

ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

E1500743 2 of 1267

ALS ENVIRONMENTAL

Client:	Domtar Industries, LLC (Plymouth)	**Service Request No.:**	E1500743
Project:	Plymouth - 2015 Fish Tissue Samples Welch Creek Monitoring	**Date Received:**	7/30/15
Sample Matrix:	Tissue		

ALS ENVIRONMENTAL NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Twenty four tissue samples were received for analysis at ALS Environmental – Houston HRMS on 7/30/15.

The samples were received at -33.8°C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a freezer at -20°C upon receipt at the laboratory.

The following discrepancies were also noted upon initial sample inspection: no custody seals on cooler. The exceptions are also noted on the cooler receipt and preservation form included in this data package

Sample Composite

All samples were composited as ALS-Houston HRMS per client instructions. Additional aliquots of samples were created for pending mercury test by 1631.

Data Validation Notes and Discussion

Method Blank

The Method Blank EQ1500471-01 contained low levels of various analytes above the EDL, but below the Method Reporting Limit (MRL).

The Method Blank EQ1500484-01 contained low levels of various analytes above the EDL, but below the Method Reporting Limit (MRL).

The associated compounds in the samples are flagged with 'B' flags.

MS/MSD

EQ1500471: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/DMS for this extraction batch. 1234678-HpCDF and 123789-HxCDF were outside the control limits.

EQ1500484: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/DMS for this extraction batch. The batch quality control criteria were met.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions were sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Y flags – Labeled Standards

Samples that had recoveries of labeled standards outside the acceptance limits are flagged with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1, making these data acceptable.

Sample E1500743-024 had low labeled standards.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

The TEQ Summary results for each sample have been calculated by ALS ENVIRONMENTAL/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur

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irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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B.5 Data Analysis

Dioxin toxicity equivalent (TEQ) is a measure of the summed concentrations of the chlorinated dioxin and furan congeners, each congener concentration expressed as the relative ratio of its potential toxicity to that of 2,3,7,8-TCDD. In this study, all 17 of the dioxin and furan congeners with chlorine substituted at the 2,3,7, and 8- positions were analyzed using both the International Toxicity Equivalent Factors (I-TEFs) for human health (EPA, 1989) and the 2005 World Health Organization (WHO) TEFs for mammals (Van den Berg et al., 2006), as the two methodologies differ in assigned TEFs for five of the 17 congeners. Because data from years prior are likely limited to 2,3,7,8-tetrachlorinated dioxin and furan, TEQs for 2015 samples were also calculated using only the 2,3,7,8-TCDD/F congeners for comparison to data collected from Welch Creek in earlier years. Congener concentrations reported as non-detect were entered as zero in the calculation of TEQ values. Congeners reported as estimated maximum possible concentrations (EMPC) were not included in calculations of total TEQs; however, total TEQs, both with and without estimated maximum possible concentrations (EMPCs), are provided in Appendix D for each composite sample.

Data were summarized as arithmetic means by fish species at each sampling location since that procedure is utilized by the State of North Carolina in their assessment of dioxin data in fish. Actual fish dioxin data distributions may be represented as log-normal, which generally warrants using geometric means for data summarization.

APPENDIX C

2015 FISH COLLECTION LIST

Table C1. Data collected on individual fish species captured in Welch Creek in 2015. See Figure 1 for sampling locations.

Date	Tag #	Location	Species	Total length (mm)	Weight (g)	Sex	Sample group	Composite ID
29-Apr-15	WC15012	MT1/MT2	BG	139	55	-	1	PLY-01-15 MT1/MT2 BG Carcass/Fillet
29-Apr-15	WC15010	MT1/MT2	BG	147	60	-	1	PLY-01-15 MT1/MT2 BG Carcass/Fillet
29-Apr-15	WC15009	MT1/MT2	BG	154	80	-	1	PLY-01-15 MT1/MT2 BG Carcass/Fillet
30-Apr-15	WC15055	MT1/MT2	BG	155	70	-	1	PLY-01-15 MT1/MT2 BG Carcass/Fillet
29-Apr-15	WC15007	MT1/MT2	BG	166	70	-	1	PLY-01-15 MT1/MT2 BG Carcass/Fillet
29-Apr-15	WC15003	MT1/MT2	LB	324	475	-	2	PLY-02-15 MT1/MT2 LB Carcass/Fillet
4-May-15	WC15112	MT1/MT2	LB	325	450	-	2	PLY-02-15 MT1/MT2 LB Carcass/Fillet
30-Apr-15	WC15053	MT1/MT2	LB	330	520	-	2	PLY-02-15 MT1/MT2 LB Carcass/Fillet
29-Apr-15	WC15002	MT1/MT2	LB	339	550	-	2	PLY-02-15 MT1/MT2 LB Carcass/Fillet
4-May-15	WC15113	MT1/MT2	LB	385	580	-	2	PLY-02-15 MT1/MT2 LB Carcass/Fillet
5-May-15	WC15116	MT1/MT2	YB	308	440	F	3	PLY-03-15 MT1/MT2 YB Fillet
5-May-15	WC15115	MT1/MT2	YB	335	530	M	3	PLY-03-15 MT1/MT2 YB Fillet
4-May-15	WC15107	MT1/MT2	BG	174	100	-	Not Used	
29-Apr-15	WC15011	MT1/MT2	BG	175	90	-	Not Used	
29-Apr-15	WC15006	MT1/MT2	BG	180	130	-	Not Used	
29-Apr-15	WC15008	MT1/MT2	BG	180	135	-	Not Used	
4-May-15	WC15105	MT1/MT2	BG	180	125	-	Not Used	
4-May-15	WC15106	MT1/MT2	BG	180	130	-	Not Used	
4-May-15	WC15108	MT1/MT2	BG	180	125	-	Not Used	
4-May-15	WC15109	MT1/MT2	BG	190	145	-	Not Used	
29-Apr-15	WC15013	MT1/MT2	RE	185	120	-	Not Used	
30-Apr-15	WC15056	MT1/MT2	RE	218	185	-	Not Used	
30-Apr-15	WC15054	MT1/MT2	RE	241	320	-	Not Used	
29-Apr-15	WC15014	MT1/MT2	RE	242	300	-	Not Used	
29-Apr-15	WC15005	MT1/MT2	LB	270	265	-	Not Used	
29-Apr-15	WC15004	MT1/MT2	LB	277	310	-	Not Used	
4-May-15	WC15111	MT1/MT2	LB	332	620	-	Not Used	
4-May-15	WC15110	MT1/MT2	LB	368	720	-	Not Used	
4-May-15	WC15114	MT1/MT2	LB	412	870	-	Not Used	
29-Apr-15	WC15001	MT1/MT2	LB	427	1,200	-	Not Used	
5-May-15	WC15117	MT1/MT2	CC	660	3,550	M	Not Used	
7-May-15	WC15148	MT1/MT2	WC	368	630	F	Not Used	
29-Apr-15	WC15030	MT3/MT6	BG	156	70	-	4	PLY-04-15 MT3/MT6 BG Carcass/Fillet
29-Apr-15	WC15029	MT3/MT6	BG	160	90	-	4	PLY-04-15 MT3/MT6 BG Carcass/Fillet
29-Apr-15	WC15028	MT3/MT6	BG	161	85	-	4	PLY-04-15 MT3/MT6 BG Carcass/Fillet
29-Apr-15	WC15026	MT3/MT6	BG	166	90	-	4	PLY-04-15 MT3/MT6 BG Carcass/Fillet
29-Apr-15	WC15023	MT3/MT6	BG	175	90	-	4	PLY-04-15 MT3/MT6 BG Carcass/Fillet
29-Apr-15	WC15027	MT3/MT6	BG	165	100	-	5	PLY-05-15 MT3/MT6 BG Carcass/Fillet
29-Apr-15	WC15024	MT3/MT6	BG	170	120	-	5	PLY-05-15 MT3/MT6 BG Carcass/Fillet
29-Apr-15	WC15022	MT3/MT6	BG	171	105	-	5	PLY-05-15 MT3/MT6 BG Carcass/Fillet
30-Apr-15	WC15060	MT3/MT6	BG	177	110	-	5	PLY-05-15 MT3/MT6 BG Carcass/Fillet
30-Apr-15	WC15059	MT3/MT6	BG	179	120	-	5	PLY-05-15 MT3/MT6 BG Carcass/Fillet
29-Apr-15	WC15017	MT3/MT6	LB	299	385	-	6	PLY-06-15 MT3/MT6 LB Carcass/Fillet
30-Apr-15	WC15069	MT3/MT6	LB	300	400	-	6	PLY-06-15 MT3/MT6 LB Carcass/Fillet
29-Apr-15	WC15016	MT3/MT6	LB	322	420	-	6	PLY-06-15 MT3/MT6 LB Carcass/Fillet
30-Apr-15	WC15067	MT3/MT6	LB	326	450	-	6	PLY-06-15 MT3/MT6 LB Carcass/Fillet
29-Apr-15	WC15021	MT3/MT6	LB	345	355	-	6	PLY-06-15 MT3/MT6 LB Carcass/Fillet

Table C1. (Continued).

Date	Tag #	Location	Species	Total length (mm)	Weight (g)	Sex	Sample group	Composite ID
6-May-15	WC15144	MT3/MT6	YB	260	250	M	7	PLY-07-15 MT3/MT6 YB Fillet
7-May-15	WC15152	MT3/MT6	YB	272	295	M	7	PLY-07-15 MT3/MT6 YB Fillet
6-May-15	WC15143	MT3/MT6	YB	280	340	M	7	PLY-07-15 MT3/MT6 YB Fillet
7-May-15	WC15150	MT3/MT6	YB	290	360	F	7	PLY-07-15 MT3/MT6 YB Fillet
6-May-15	WC15142	MT3/MT6	YB	293	345	M	7	PLY-07-15 MT3/MT6 YB Fillet
29-Apr-15	WC15025	MT3/MT6	BG	146	50	-	Not Used	
29-Apr-15	WC15031	MT3/MT6	BG	149	65	-	Not Used	
30-Apr-15	WC15058	MT3/MT6	BG	175	130	-	Not Used	
30-Apr-15	WC15062	MT3/MT6	BG	185	140	-	Not Used	
30-Apr-15	WC15057	MT3/MT6	BG	214	185	-	Not Used	
29-Apr-15	WC15032	MT3/MT6	RE	213	220	-	Not Used	
30-Apr-15	WC15066	MT3/MT6	LB	318	485	-	Not Used	
30-Apr-15	WC15068	MT3/MT6	LB	326	460	-	Not Used	
29-Apr-15	WC15015	MT3/MT6	LB	333	560	-	Not Used	
30-Apr-15	WC15065	MT3/MT6	LB	335	510	-	Not Used	
29-Apr-15	WC15018	MT3/MT6	LB	348	675	-	Not Used	
30-Apr-15	WC15064	MT3/MT6	LB	364	700	-	Not Used	
30-Apr-15	WC15061	MT3/MT6	LB	368	575	-	Not Used	
29-Apr-15	WC15019	MT3/MT6	LB	382	750	-	Not Used	
30-Apr-15	WC15063	MT3/MT6	LB	393	725	-	Not Used	
29-Apr-15	WC15020	MT3/MT6	LB	443	1,550	-	Not Used	
7-May-15	WC15149	MT3/MT6	BB	360	660	F	Not Used	
6-May-15	WC15145	MT3/MT6	CH	272	255	M	Not Used	
6-May-15	WC15139	MT3/MT6	CH	510	1,350	F	Not Used	
6-May-15	WC15138	MT3/MT6	CH	555	1,550	F	Not Used	
13-May-15	WC15154	MT3/MT6	CC	522	2,150	M	Not Used	
14-May-15	WC15159	MT3/MT6	CC	658	3,900	M	Not Used	
6-May-15	WC15146	MT3/MT6	CC	729	5,500	F	Not Used	
6-May-15	WC15141	MT3/MT6	WC	330	490	M	Not Used	
6-May-15	WC15140	MT3/MT6	WC	353	560	F	Not Used	
7-May-15	WC15151	MT3/MT6	YB	300	540	F	Not Used	
30-Apr-15	WC15082	MT7/MT8	BG	145	60	-	8	PLY-08-15 MT7/MT8 BG Carcass/Fillet
4-May-15	WC15099	MT7/MT8	BG	146	60	-	8	PLY-08-15 MT7/MT8 BG Carcass/Fillet
29-Apr-15	WC15037	MT7/MT8	BG	150	70	-	8	PLY-08-15 MT7/MT8 BG Carcass/Fillet
30-Apr-15	WC15080	MT7/MT8	BG	158	70	-	8	PLY-08-15 MT7/MT8 BG Carcass/Fillet
30-Apr-15	WC15078	MT7/MT8	BG	160	75	-	8	PLY-08-15 MT7/MT8 BG Carcass/Fillet
29-Apr-15	WC15036	MT7/MT8	BG	177	120	-	9	PLY-09-15 MT7/MT8 BG Carcass/Fillet
5-May-15	WC15133	MT7/MT8	BG	179	130	-	9	PLY-09-15 MT7/MT8 BG Carcass/Fillet
30-Apr-15	WC15077	MT7/MT8	BG	180	130	-	9	PLY-09-15 MT7/MT8 BG Carcass/Fillet
4-May-15	WC15100	MT7/MT8	BG	190	130	-	9	PLY-09-15 MT7/MT8 BG Carcass/Fillet
5-May-15	WC15132	MT7/MT8	BG	191	155	-	9	PLY-09-15 MT7/MT8 BG Carcass/Fillet
29-Apr-15	WC15034	MT7/MT8	LB	270	310	-	10	PLY-10-15 MT7/MT8 LB Carcass/Fillet
30-Apr-15	WC15076	MT7/MT8	LB	295	370	-	10	PLY-10-15 MT7/MT8 LB Carcass/Fillet
29-Apr-15	WC15035	MT7/MT8	LB	298	345	-	10	PLY-10-15 MT7/MT8 LB Carcass/Fillet
30-Apr-15	WC15074	MT7/MT8	LB	300	380	-	10	PLY-10-15 MT7/MT8 LB Carcass/Fillet
4-May-15	WC15104	MT7/MT8	LB	300	360	-	10	PLY-10-15 MT7/MT8 LB Carcass/Fillet
14-May-15	WC15157	MT7/MT8	YB	240	200	M	11	PLY-11-15 MT7/MT8 YB Fillet
14-May-15	WC15156	MT7/MT8	YB	271	320	F	11	PLY-11-15 MT7/MT8 YB Fillet

Table C1. (Continued).

Date	Tag #	Location	Species	Total length (mm)	Weight (g)	Sex	Sample group	Composite ID
14-May-15	WC15155	MT7/MT8	YB	282	380	M	11	PLY-11-15 MT7/MT8 YB Fillet
30-Apr-15	WC15081	MT7/MT8	BG	170	85	-	Not Used	
4-May-15	WC15101	MT7/MT8	RE	175	120	-	Not Used	
30-Apr-15	WC15079	MT7/MT8	RE	195	160	-	Not Used	
29-Apr-15	WC15038	MT7/MT8	RE	211	215	-	Not Used	
30-Apr-15	WC15073	MT7/MT8	LB	317	460	-	Not Used	
5-May-15	WC15129	MT7/MT8	LB	319	475	-	Not Used	
30-Apr-15	WC15075	MT7/MT8	LB	323	420	-	Not Used	
5-May-15	WC15130	MT7/MT8	LB	328	465	-	Not Used	
5-May-15	WC15131	MT7/MT8	LB	328	445	-	Not Used	
30-Apr-15	WC15072	MT7/MT8	LB	330	450	-	Not Used	
29-Apr-15	WC15033	MT7/MT8	LB	333	385	-	Not Used	
4-May-15	WC15103	MT7/MT8	LB	345	630	-	Not Used	
30-Apr-15	WC15071	MT7/MT8	LB	349	650	-	Not Used	
4-May-15	WC15102	MT7/MT8	LB	375	710	-	Not Used	
30-Apr-15	WC15070	MT7/MT8	LB	379	800	-	Not Used	
5-May-15	WC15136	MT7/MT8	BB	225	180	F	Not Used	
5-May-15	WC15135	MT7/MT8	BB	240	215	M	Not Used	
5-May-15	WC15134	MT7/MT8	CC	445	1,500	M	Not Used	
6-May-15	WC15147	MT7/MT8	CC	703	4,840	M	Not Used	
29-Apr-15	WC15048	MT8/GT19	BG	149	65	-	12	PLY-12-15 MT8/GT19 BG Carcass/Fillet
29-Apr-15	WC15047	MT8/GT19	BG	155	70	-	12	PLY-12-15 MT8/GT19 BG Carcass/Fillet
29-Apr-15	WC15044	MT8/GT19	BG	160	80	-	12	PLY-12-15 MT8/GT19 BG Carcass/Fillet
4-May-15	WC15089	MT8/GT19	BG	160	80	-	12	PLY-12-15 MT8/GT19 BG Carcass/Fillet
30-Apr-15	WC15087	MT8/GT19	BG	163	80	-	12	PLY-12-15 MT8/GT19 BG Carcass/Fillet
4-May-15	WC15096	MT8/GT19	LB	282	340	-	13	PLY-13-15 MT8/GT19 LB Carcass/Fillet
29-Apr-15	WC15042	MT8/GT19	LB	290	365	-	13	PLY-13-15 MT8/GT19 LB Carcass/Fillet
30-Apr-15	WC15083	MT8/GT19	LB	299	350	-	13	PLY-13-15 MT8/GT19 LB Carcass/Fillet
4-May-15	WC15097	MT8/GT19	LB	301	360	-	13	PLY-13-15 MT8/GT19 LB Carcass/Fillet
5-May-15	WC15123	MT8/GT19	LB	305	425	-	13	PLY-13-15 MT8/GT19 LB Carcass/Fillet
14-May-15	WC15158	MT8/GT19	CC	608	2,900	M	14	PLY-14-15 MT8/GT19 CC Fillet
6-May-15	WC15137	MT8/GT19	CC	610	2,950	M	14	PLY-14-15 MT8/GT19 CC Fillet
13-May-15	WC15153	MT8/GT19	CC	655	3,450	M	14	PLY-14-15 MT8/GT19 CC Fillet
29-Apr-15	WC15046	MT8/GT19	BG	153	90	-	Not Used	
5-May-15	WC15127	MT8/GT19	BG	160	100	-	Not Used	
5-May-15	WC15128	MT8/GT19	BG	162	110	-	Not Used	
29-Apr-15	WC15045	MT8/GT19	BG	168	100	-	Not Used	
30-Apr-15	WC15086	MT8/GT19	BG	175	110	-	Not Used	
5-May-15	WC15126	MT8/GT19	BG	175	140	-	Not Used	
4-May-15	WC15088	MT8/GT19	BG	180	140	-	Not Used	
5-May-15	WC15124	MT8/GT19	BG	180	175	-	Not Used	
5-May-15	WC15125	MT8/GT19	BG	180	160	-	Not Used	
30-Apr-15	WC15085	MT8/GT19	BG	194	150	-	Not Used	
29-Apr-15	WC15043	MT8/GT19	BG	196	165	-	Not Used	
29-Apr-15	WC15052	MT8/GT19	RE	160	75	-	Not Used	
4-May-15	WC15091	MT8/GT19	RE	200	150	-	Not Used	
4-May-15	WC15092	MT8/GT19	RE	200	160	-	Not Used	
4-May-15	WC15093	MT8/GT19	RE	204	155	-	Not Used	

Table C1. (Concluded).

Date	Tag #	Location	Species	Total length (mm)	Weight (g)	Sex	Sample group	Composite ID
29-Apr-15	WC15051	MT8/GT19	RE	217	215	-	Not Used	
4-May-15	WC15090	MT8/GT19	RE	225	210	-	Not Used	
29-Apr-15	WC15050	MT8/GT19	RE	251	320	-	Not Used	
29-Apr-15	WC15041	MT8/GT19	LB	305	470	-	Not Used	
5-May-15	WC15122	MT8/GT19	LB	325	450	-	Not Used	
30-Apr-15	WC15084	MT8/GT19	LB	350	540	-	Not Used	
29-Apr-15	WC15040	MT8/GT19	LB	362	750	-	Not Used	
4-May-15	WC15094	MT8/GT19	LB	370	725	-	Not Used	
5-May-15	WC15121	MT8/GT19	LB	385	950	-	Not Used	
29-Apr-15	WC15039	MT8/GT19	LB	389	900	-	Not Used	
4-May-15	WC15095	MT8/GT19	LB	390	1,050	-	Not Used	
29-Apr-15	WC15049	MT8/GT19	BB	264	260	F	Not Used	
5-May-15	WC15120	MT8/GT19	CC	670	5,300	F	Not Used	
5-May-15	WC15119	MT8/GT19	CC	750	6,010	F	Not Used	
5-May-15	WC15118	MT8/GT19	WC	360	580	M	Not Used	
4-May-15	WC15098	MT8/GT19	YB	240	195	M	Not Used	

APPENDIX D

2015 SAMPLE DATA

Table D1. Sample collection information for Welch Creek in April and May of 2015 by composite sample. Species are: (BG) bluegill; (CC) common carp; (LB) largemouth bass; (YB) yellow bullhead. See Figure 1 for station locations in Welch Creek.

					Fish Lengths		Fish Weights		Carcass					Fillet				
											TEQ (ppt)					TEQ (ppt)		
Composite	Location	Collection Dates	Species	Number of Fish	Mean (mm)	Range (mm)	Mean (g)	Range (g)	Moisture (%)	Lipids (%)	2,3,7,8 Only	89 I-TEF	05 WHO Mammalian	Moisture (%)	Lipids (%)	2,3,7,8 Only	89 I-TEF	05 WHO Mammalian
PLY-01-15	MT1 to MT2	4/29, 4/30	BG	5	152	139-166	67	55-80	74.8	7.58	0.63	0.79	0.76	81.9	1.46	0.00	0.18	0.14
PLY-02-15	MT1 to MT2	4/29, 4/30, 5/4	LB	5	341	324-385	515	450-580	75.7	4.18	2.81	2.93	2.90	80.3	1.26	0.73	0.92	0.89
PLY-03-15	MT1 to MT2	5/5	YB	2	322	308-335	485	440-530	N/A	N/A	N/A	N/A	N/A	82.7	1.42	0.64	0.28	0.25
PLY-04-15	MT3 to MT6	4/29	BG	5	164	156-175	85	70-90	75.7	7.03	2.11	2.25	2.22	80.1	1.71	0.48	0.64	0.62
PLY-05-15	MT3 to MT6	4/29, 4/30	BG	5	172	165-179	111	100-120	74.7	8.61	3.35	3.51	3.47	80.0	4.08	0.05	0.20	0.17
PLY-06-15	MT3 to MT6	4/29, 4/30	LB	5	318	299-345	402	355-450	74.9	4.39	2.40	2.53	2.50	80.8	1.11	0.00	0.14	0.10
PLY-07-15	MT3 to MT6	5/6, 5/7	YB	5	279	260-293	318	250-360	N/A	N/A	N/A	N/A	N/A	82.3	1.48	0.63	0.92	0.84
PLY-08-15	MT7 to MT8	4/29, 4/30, 5/4	BG	5	152	145-160	67	60-75	76.2	4.93	3.03	3.15	3.12	80.0	3.22	0.00	0.14	0.11
PLY-09-15	MT7 to MT8	4/29, 4/30, 5/4, 5/5	BG	5	183	177-191	133	120-155	76.6	6.16	3.58	3.76	3.72	80.0	1.26	0.52	0.67	0.63
PLY-10-15	MT7 to MT8	4/29, 4/30, 5/4	LB	5	293	270-300	353	310-380	75.2	5.88	7.09	7.28	7.24	77.4	1.99	0.67	0.81	0.78
PLY-11-15	MT7 to MT8	5/14	YB	3	264	240-282	300	200-380	N/A	N/A	N/A	N/A	N/A	81.9	0.98	0.78	1.06	1.06
PLY-12-15	MT8 to GT19	4/29, 4/30, 5/4	BG	5	157	149-163	75	65-80	75.4	5.86	1.89	2.07	2.04	80.3	1.69	0.04	0.21	0.18
PLY-13-15	MT8 to GT19	4/29, 4/30, 5/4, 5/5	LB	5	295	282-305	368	340-425	76.5	3.46	3.34	3.50	3.47	79.3	1.45	0.88	1.03	1.01
PLY-14-15	MT8 to GT19	5/6, 5/13, 5/14	CC	3	624	608-655	3,100	2,900-3,450	N/A	N/A	N/A	N/A	N/A	76.3	7.68	2.93	6.19	6.21

Table D2. Congener data (ng/Kg and TEF TEQ) by sample analyzed for Welch Creek in April and May of 2015. See Figure 1 for sampling station locations. Values for TEFs are WHO mammalian factors from Van den Berg et al., 2006.

Composite		PLY-01-15		PLY-01-15		PLY-02-15		PLY-02-15		PLY-03-15		PLY-04-15	
Location		MT1/MT2		MT1/MT2		MT1/MT2		MT1/MT2		MT1/MT2		MT3/MT6	
Species	WHO-TEF	BG - Carcass		BG - Fillet		LB - Carcass		LB - Fillet		YB - Fillet		BG - Carcass	
Lab		ALS		ALS		ALS		ALS		ALS		ALS	
Units		ng/Kg	TEQ	ng/Kg	TEQ	ng/Kg	TEQ	ng/Kg	TEQ	ng/Kg	TEQ	ng/Kg	TEQ
TCDD													
2,3,7,8-TCDD	1.0	0.55	0.55	ND(0.13)	0.00	2.60	2.60	0.73	0.73	EMPC(0.51)	0.51	1.77	1.77
PeCDD													
1,2,3,7,8-PeCDD	1.0	ND(0.14)	0.00	ND(0.13)	0.00	ND(0.13)	0.00	ND(0.13)	0.00	ND(0.15)	0.00	ND(0.14)	0.00
HxCDD													
1,2,3,4,7,8-HxCDD	0.1	ND(0.08)	0.00	ND(0.09)	0.00	ND(0.12)	0.00	ND(0.09)	0.00	ND(0.08)	0.00	ND(0.06)	0.00
1,2,3,6,7,8-HxCDD	0.1	0.37	0.04	0.32	0.03	EMPC(0.40)	0.04	0.33	0.03	0.33	0.03	EMPC(0.32)	0.03
1,2,3,7,8,9-HxCDD	0.1	EMPC(0.11)	0.01	ND(0.09)	0.00	ND(0.12)	0.00	0.14	0.01	ND(0.08)	0.00	0.13	0.01
HpCDD													
1,2,3,4,6,7,8-HpCDD	0.01	5.87	0.06	7.59	0.08	5.86	0.06	5.98	0.06	5.91	0.06	5.97	0.06
OCDD	0.0003	38.90	0.01	44.90	0.01	35.10	0.01	41.00	0.01	37.00	0.01	44.50	0.01
TCDF													
2,3,7,8-TCDF	0.1	0.81	0.08	ND(0.18)	0.00	2.09	0.21	EMPC(0.43)	0.04	1.25	0.13	3.40	0.34
PeCDF													
1,2,3,7,8-PeCDF	0.03	ND(0.10)	0.00	ND(0.11)	0.00	ND(0.12)	0.00	ND(0.09)	0.00	ND(0.10)	0.00	ND(0.12)	0.00
2,3,4,7,8-PeCDF	0.3	ND(0.11)	0.00	ND(0.11)	0.00	ND(0.12)	0.00	ND(0.11)	0.00	ND(0.11)	0.00	ND(0.13)	0.00
HxCDF													
1,2,3,4,7,8-HxCDF	0.1	ND(0.06)	0.00	ND(0.09)	0.00	ND(0.08)	0.00	ND(0.07)	0.00	ND(0.06)	0.00	EMPC(0.09)	0.01
1,2,3,6,7,8-HxCDF	0.1	ND(0.06)	0.00	ND(0.08)	0.00	ND(0.07)	0.00	ND(0.06)	0.00	ND(0.05)	0.00	ND(0.07)	0.00
1,2,3,7,8,9-HxCDF	0.1	ND(0.05)	0.00	ND(0.07)	0.00	ND(0.06)	0.00	ND(0.07)	0.00	ND(0.04)	0.00	ND(0.06)	0.00
2,3,4,6,7,8-HxCDF	0.1	ND(0.06)	0.00	ND(0.09)	0.00	ND(0.07)	0.00	0.12	0.01	ND(0.06)	0.00	EMPC(0.08)	0.00
HpCDF													
1,2,3,4,6,7,8-HpCDF	0.01	1.69	0.02	1.77	0.02	1.62	0.02	2.52	0.03	1.69	0.02	1.76	0.02
1,2,3,4,7,8,9-HpCDF	0.01	ND(0.15)	0.00	ND(0.15)	0.00	ND(0.14)	0.00	ND(0.24)	0.00	ND(0.12)	0.00	ND(0.11)	0.00
OCDF	0.0003	7.48	0.00	7.66	0.00	7.59	0.00	8.58	0.00	6.84	0.00	7.48	0.00
TOTAL TEQ (EMPC = 0)			**0.76**		**0.14**		**2.90**		**0.89**		**0.25**		**2.22**
TOTAL TEQ (EMPC = EMPC)			**0.77**		**0.14**		**2.94**		**0.93**		**0.76**		**2.26**

Legend/Notes: (BG) bluegill; (CC) common carp; (LB) largemouth bass; (YB) yellow bullhead; ND (Detection Limit) indicates compound not detected; EMPC (Estimated Maximum Possible Concentration) indicates estimated maximum value due to ion ratio failure.

Table D2. (continued).

Composite		PLY-04-15		PLY-05-15		PLY-05-15		PLY-06-15		PLY-06-15		PLY-07-15	
Location		MT3/MT6		MT3/MT6		MT3/MT6		MT3/MT6		MT3/MT6		MT3/MT6	
Species	WHO-TEF	BG - Fillet		BG - Carcass		BG - Fillet		LB - Carcass		LB- Fillet		YB - Fillet	
Lab		ALS		ALS		ALS		ALS		ALS		ALS	
Units		ng/Kg	TEQ	ng/Kg	TEQ	ng/Kg	TEQ	ng/Kg	TEQ	ng/Kg	TEQ	ng/Kg	TEQ
TCDD													
2,3,7,8-TCDD	1.0	0.42	0.42	2.83	2.83	EMPC(0.40)	0.40	2.24	2.24	EMPC(0.37)	0.37	**0.48**	0.48
PeCDD													
1,2,3,7,8-PeCDD	1.0	ND(0.16)	0.00	ND(0.12)	0.00	ND(0.15)	0.00	ND(0.12)	0.00	ND(0.13)	0.00	ND(0.15)	0.00
HxCDD													
1,2,3,4,7,8-HxCDD	0.1	ND(0.09)	0.00	ND(0.09)	0.00	ND(0.07)	0.00	ND(0.08)	0.00	ND(0.08)	0.00	ND(0.09)	0.00
1,2,3,6,7,8-HxCDD	0.1	0.34	0.03	0.30	0.03	EMPC(0.40)	0.04	EMPC(0.56)	0.06	0.30	0.03	0.38	0.04
1,2,3,7,8,9-HxCDD	0.1	ND(0.09)	0.00	ND(0.08)	0.00	EMPC(0.15)	0.01	EMPC(0.17)	0.01	ND(0.08)	0.00	ND(0.09)	0.00
HpCDD													
1,2,3,4,6,7,8-HpCDD	0.01	5.62	0.06	5.92	0.06	8.08	0.08	5.91	0.06	5.95	0.06	11.50	0.12
OCDD	0.0003	38.30	0.01	42.70	0.01	49.00	0.01	**37.80**	0.01	**40.30**	0.01	108.00	0.03
TCDF													
2,3,7,8-TCDF	0.1	0.53	0.05	5.21	0.52	0.49	0.05	1.56	0.16	ND(0.18)	0.00	**1.54**	0.15
PeCDF													
1,2,3,7,8-PeCDF	0.03	ND(0.08)	0.00	ND(0.11)	0.00	ND(0.10)	0.00	ND(0.08)	0.00	ND(0.10)	0.00	ND(0.11)	0.00
2,3,4,7,8-PeCDF	0.3	ND(0.08)	0.00	ND(0.11)	0.00	ND(0.11)	0.00	ND(0.08)	0.00	ND(0.12)	0.00	EMPC(0.18)	0.05
HxCDF													
1,2,3,4,7,8-HxCDF	0.1	0.09	0.01	ND(0.06)	0.00	ND(0.08)	0.00	ND(0.08)	0.00	**ND(0.10)**	0.00	ND(0.07)	0.00
1,2,3,6,7,8-HxCDF	0.1	EMPC(0.07)	0.01	ND(0.06)	0.00	ND(0.07)	0.00	ND(0.07)	0.00	**ND(0.09)**	0.00	**ND(0.07)**	0.00
1,2,3,7,8,9-HxCDF	0.1	0.06	0.01	ND(0.05)	0.00	ND(0.07)	0.00	ND(0.07)	0.00	**ND(0.12)**	0.00	ND(0.06)	0.00
2,3,4,6,7,8-HxCDF	0.1	EMPC(0.08)	0.01	ND(0.06)	0.00	ND(0.08)	0.00	0.11	0.01	EMPC(0.10)	0.01	ND(0.07)	0.00
HpCDF													
1,2,3,4,6,7,8-HpCDF	0.01	1.98	0.02	1.81	0.02	1.88	0.02	**1.71**	0.02	EMPC(3.36)	0.03	**1.81**	0.02
1,2,3,4,7,8,9-HpCDF	0.01	ND(0.20)	0.00	ND(0.15)	0.00	ND(0.19)	0.00	**ND(0.16)**	0.00	**ND(0.72)**	0.00	EMPC(0.13)	0.00
OCDF	0.0003	7.82	0.00	7.95	0.00	7.36	0.00	**7.35**	0.00	**8.65**	0.00	**7.14**	0.00
TOTAL TEQ (EMPC = 0)			**0.62**		**3.47**		**0.17**		**2.50**		**0.10**		**0.84**
TOTAL TEQ (EMPC = EMPC)			**0.63**		**3.47**		**0.62**		**2.57**		**0.51**		**0.89**

Legend/Notes: (BG) bluegill; (CC) common carp; (LB) largemouth bass; (YB) yellow bullhead; ND (Detection Limit) indicates compound not detected; EMPC (Estimated Maximum Possible Concentration) indicates estimated maximum value due to ion ratio failure.

Table D2. (continued).

Composite		PLY-08-15		PLY-08-15		PLY-09-15		PLY-09-15		PLY-10-15		PLY-10-15	
Location		MT7/MT8		MT7/MT8		MT7/MT8		MT7/MT8		MT7/MT8		MT7/MT8	
Species	WHO-TEF	BG - Carcass		BG - Fillet		BG - Carcass		BG - Fillet		LB - Carcass		LB - Fillet	
Lab		ALS		ALS		ALS		ALS		ALS		ALS	
Units		ng/Kg	TEQ	ng/Kg	TEQ	ng/Kg	TEQ	ng/Kg	TEQ	ng/Kg	TEQ	ng/Kg	TEQ
TCDD													
2,3,7,8-TCDD	1.0	2.64	2.64	EMPC(0.46)	0.46	3.05	3.05	0.45	0.45	6.54	6.54	0.63	0.63
PeCDD													
1,2,3,7,8-PeCDD	1.0	ND(0.13)	0.00	ND(0.11)	0.00	ND(0.14)	0.00	ND(0.12)	0.00	ND(0.29)	0.00	ND(0.11)	0.00
HxCDD													
1,2,3,4,7,8-HxCDD	0.1	EMPC(0.11)	0.01	ND(0.08)	0.00	EMPC(0.09)	0.01	ND(0.10)	0.00	ND(0.15)	0.00	ND(0.09)	0.00
1,2,3,6,7,8-HxCDD	0.1	EMPC(0.28)	0.03	0.29	0.03	0.40	0.04	EMPC(0.35)	0.03	0.39	0.04	0.27	0.03
1,2,3,7,8,9-HxCDD	0.1	ND(0.07)	0.00	ND(0.07)	0.00	EMPC(0.13)	0.01	ND(0.09)	0.00	ND(0.14)	0.00	ND(0.09)	0.00
HpCDD													
1,2,3,4,6,7,8-HpCDD	0.01	6.06	0.06	5.44	0.05	6.24	0.06	7.48	0.07	6.93	0.07	5.37	0.05
OCDD	0.0003	38.30	0.01	35.10	0.01	50.60	0.02	50.00	0.02	46.80	0.01	33.50	0.01
TCDF													
2,3,7,8-TCDF	0.1	3.89	0.39	EMPC(0.45)	0.05	5.30	0.53	0.66	0.07	5.54	0.55	0.45	0.05
PeCDF													
1,2,3,7,8-PeCDF	0.03	ND(0.09)	0.00	ND(0.11)	0.00	ND(0.11)	0.00	ND(0.13)	0.00	ND(0.25)	0.00	ND(0.08)	0.00
2,3,4,7,8-PeCDF	0.3	ND(0.09)	0.00	ND(0.12)	0.00	ND(0.12)	0.00	ND(0.14)	0.00	ND(0.26)	0.00	ND(0.09)	0.00
HxCDF													
1,2,3,4,7,8-HxCDF	0.1	ND(0.05)	0.00	ND(0.07)	0.00	ND(0.06)	0.00	ND(0.08)	0.00	ND(0.22)	0.00	ND(0.07)	0.00
1,2,3,6,7,8-HxCDF	0.1	ND(0.05)	0.00	ND(0.06)	0.00	EMPC(0.10)	0.01	ND(0.07)	0.00	ND(0.21)	0.00	ND(0.06)	0.00
1,2,3,7,8,9-HxCDF	0.1	ND(0.05)	0.00	ND(0.06)	0.00	ND(0.05)	0.00	ND(0.06)	0.00	ND(0.17)	0.00	ND(0.06)	0.00
2,3,4,6,7,8-HxCDF	0.1	EMPC(0.07)	0.01	ND(0.06)	0.00	ND(0.06)	0.00	ND(0.08)	0.00	ND(0.22)	0.00	ND(0.07)	0.00
HpCDF													
1,2,3,4,6,7,8-HpCDF	0.01	1.77	0.02	1.84	0.02	1.80	0.02	1.77	0.02	2.19	0.02	1.68	0.02
1,2,3,4,7,8,9-HpCDF	0.01	ND(0.14)	0.00	ND(0.19)	0.00	0.15	0.00	ND(0.12)	0.00	ND(0.25)	0.00	ND(0.16)	0.00
OCDF	0.0003	7.43	0.00	7.39	0.00	7.87	0.00	7.27	0.00	8.57	0.00	7.15	0.00
TOTAL TEQ (EMPC = 0)			**3.12**		**0.11**		**3.72**		**0.63**		**7.24**		**0.78**
TOTAL TEQ (EMPC = EMPC)			**3.17**		**0.62**		**3.75**		**0.66**		**7.24**		**0.78**

Legend/Notes: (BG) bluegill; (CC) common carp; (LB) largemouth bass; (YB) yellow bullhead; ND (Detection Limit) indicates compound not detected; EMPC (Estimated Maximum Possible Concentration) indicates estimated maximum value due to ion ratio failure.

Table D2. (concluded).

Composite		PLY-11-15		PLY-12-15		PLY-12-15		PLY-13-15		PLY-13-15		PLY-14-15	
Location		MT7/MT8		MT8/GT19		MT8/GT19		MT8/GT19		MT8/GT19		MT8/GT19	
Species	WHO-	YB - Fillet		BG - Carcass		BG - Fillet		LB - Carcass		LB - Fillet		CC - Fillet	
Lab	TEF	ALS		ALS		ALS		ALS		ALS		ALS	
Units		ng/Kg	TEQ	ng/Kg	TEQ	ng/Kg	TEQ	ng/Kg	TEQ	ng/Kg	TEQ	ng/Kg	TEQ
TCDD													
2,3,7,8-TCDD	1.0	0.63	0.63	1.62	1.62	EMPC(0.58)	0.58	3.14	3.14	0.88	0.88	2.49	2.49
PeCDD													
1,2,3,7,8-PeCDD	1.0	0.08	0.08	EMPC(0.07)	0.07	EMPC(0.20)	0.20	EMPC(0.18)	0.18	ND(0.14)	0.00	0.96	0.96
HxCDD													
1,2,3,4,7,8-HxCDD	0.1	0.09	0.01	0.08	0.01	EMPC(0.25)	0.03	0.15	0.02	ND(0.10)	0.00	2.18	0.22
1,2,3,6,7,8-HxCDD	0.1	0.36	0.04	0.30	0.03	0.38	0.04	EMPC(0.52)	0.05	0.34	0.03	4.52	0.45
1,2,3,7,8,9-HxCDD	0.1	0.10	0.01	0.11	0.01	0.18	0.02	0.17	0.02	ND(0.10)	0.00	4.21	0.42
HpCDD													
1,2,3,4,6,7,8-HpCDD	0.01	8.92	0.09	5.74	0.06	5.45	0.05	6.09	0.06	5.69	0.06	94.30	0.94
OCDD	0.0003	58.90	0.02	36.20	0.01	31.20	0.01	39.30	0.01	37.10	0.01	614.00	0.18
TCDF													
2,3,7,8-TCDF	0.1	1.47	0.15	2.73	0.27	0.45	0.05	2.00	0.20	EMPC(0.44)	0.04	4.39	0.44
PeCDF													
1,2,3,7,8-PeCDF	0.03	ND(0.03)	0.00	0.04	0.00	ND(0.09)	0.00	ND(0.11)	0.00	ND(0.09)	0.00	ND(0.12)	0.00
2,3,4,7,8-PeCDF	0.3	EMPC(0.08)	0.02	EMPC(0.05)	0.02	ND(0.10)	0.00	ND(0.11)	0.00	ND(0.10)	0.00	EMPC(0.47)	0.14
HxCDF													
1,2,3,4,7,8-HxCDF	0.1	0.06	0.01	EMPC(0.07)	0.01	ND(0.08)	0.00	ND(0.06)	0.00	ND(0.07)	0.00	ND(0.14)	0.00
1,2,3,6,7,8-HxCDF	0.1	0.05	0.01	0.04	0.00	ND(0.08)	0.00	ND(0.06)	0.00	ND(0.06)	0.00	EMPC(0.22)	0.02
1,2,3,7,8,9-HxCDF	0.1	ND(0.01)	0.00	ND(0.02)	0.00	ND(0.07)	0.00	ND(0.05)	0.00	ND(0.05)	0.00	ND(0.17)	0.00
2,3,4,6,7,8-HxCDF	0.1	EMPC(0.05)	0.01	0.04	0.00	ND(0.08)	0.00	EMPC(0.09)	0.01	ND(0.07)	0.00	0.36	0.04
HpCDF													
1,2,3,4,6,7,8-HpCDF	0.01	2.21	0.02	1.71	0.02	1.73	0.02	1.82	0.02	1.86	0.02	6.25	0.06
1,2,3,4,7,8,9-HpCDF	0.01	EMPC(0.16)	0.00	0.08	0.00	ND(0.15)	0.00	ND(0.14)	0.00	ND(0.14)	0.00	ND(1.10)	0.00
OCDF	0.0003	9.57	0.00	7.15	0.00	6.67	0.00	7.66	0.00	8.02	0.00	35.60	0.01
TOTAL TEQ (EMPC = 0)			**1.06**		**2.04**		**0.18**		**3.47**		**1.01**		**6.21**
TOTAL TEQ (EMPC = EMPC)			**1.09**		**2.14**		**0.99**		**3.71**		**1.05**		**6.38**

Legend/Notes: (BG) bluegill; (CC) common carp; (LB) largemouth bass; (YB) yellow bullhead; ND (Detection Limit) indicates compound not detected; EMPC (Estimated Maximum Possible Concentration) indicates estimated maximum value due to ion ratio failure.

APPENDIX E

2015 SAMPLING EFFORT

Table E1. Collection locations, dates, techniques, effort, and fish captured in Welch Creek sampling during April and May of 2015 in association with Domtar Mill, Plymouth, NC. See Figure 1 for site/station locations.

Station Location	Date	Gear	Level of Effort	Catch[a]
MT-1 to MT-2	29 April 2015	Shocking	57 minutes	7 bluegill, 2 redear, 5 largemouth bass
MT-1 to MT-2	30 April 2015	Shocking	50 minutes	1 bluegill, 2 redear, 1 largemouth bass
MT-1 to MT-2	4 May 2015	Shocking	56 minutes	5 bluegill, 5 largemouth bass
MT-1 to MT-2	5 May 2015	Gill net	2 nets overnight - 100 yards	1 common carp, 2 yellow bullhead, 1 largemouth bass (eaten/released), 2 longnose gar (released)
		Shocking	26 minutes	0 fish
MT-1 to MT-2	6 May 2015	Gill net	3 nets overnight - 150 yards	2 bowfin (released), 2 longnose gar (released)
		Shocking	39 minutes	0 fish
MT-1 to MT-2	7 May 2015	Gill net	3 nets overnight - 150 yards	1 white catfish, 1 chain pickerel (released), 2 longnose gar (released)
MT-1 to MT-2	12 May 2015	Trot line	1 line = 25 hooks	0 fish
		Gill net	3 nets overnight - 150 yards	1 longnose gar (released)
MT-1 to MT-2	13 May 2015	Trot line	1 line = 25 hooks	0 fish
		Gill net	2 nets overnight - 100 yards	0 fish
		Shocking	71 minutes	0 fish
MT-1 to MT-2	14 May 2015	Gill net	3 nets overnight - 200 yards	0 fish
		Shocking	52 minutes	0 fish
MT-3 to MT-6	29 April 2015	Shocking	62 minutes	10 bluegill, 1 redear, 7 largemouth bass
MT-3 to MT-6	30 April 2015	Shocking	43 minutes	5 bluegill, 8 largemouth bass
MT-3 to MT-6	4 May 2015	Shocking	34 minutes	0 fish
MT-3 to MT-6	5 May 2015	Trot line	2 lines = 50 hooks	0 fish
		Shocking	29 minutes	0 fish
MT-3 to MT-6	6 May 2015	Trot line	3 lines = 75 hooks	2 channel catfish, 2 white catfish, 3 yellow bullhead, 2 bowfin (released)
		Shocking	45 minutes	1 channel catfish, 1 common carp
MT-3 to MT-6	7 May 2015	Trot line	3 lines = 75 hooks	3 yellow bullhead, 1 brown bullhead, 1 American eel (released), 1 bowfin (released)
MT-3 to MT-6	13 May 2015	Trot line	2 lines = 50 hooks	0 fish
		Shocking	59 minutes	1 common carp
MT-3 to MT-6	14 May 2015	Trot line	3 lines = 75 hooks	1 channel catfish (small/released), 1 yellow bullhead (eaten/released)
		Shocking	52 minutes	1 common carp
MT-7 to MT-8	29 April 2015	Shocking	51 minutes	2 bluegill, 1 redear, 3 largemouth bass

Table E1. (Concluded).

Station Location	Date	Gear	Level of Effort	Catch[a]
MT-7 to MT-8	30 April 2015	Gill net	2 nets overnight - 100 yards	0 fish
		Shocking	40 minutes	5 bluegill, 1 redear, 7 largemouth bass
MT-7 to MT-8	4 May 2015	Shocking	33 minutes	2 bluegill, 1 redear, 3 largemouth bass
MT-7 to MT-8	5 May 2015	Gill net	2 nets overnight - 100 yards	1 longnose gar (released)
		Shocking	32 minutes	2 bluegill, 3 largemouth bass, 1 common carp, 2 brown bullhead
MT-7 to MT-8	6 May 2015	Gill net	2 nets overnight - 100 yards	1 bowfin (released), 1 gizzard shad (released)
		Shocking	38 minutes	1 common carp
MT-7 to MT-8	7 May 2015	Gill net	3 nets overnight - 150 yards	1 longnose gar (released)
MT-7 to MT-8	12 May 2015	Trot line	1 line = 25 hooks	1 yellow bullhead (eaten/released)
		Gill net	3 nets overnight - 150 yards	1 bowfin (released), 2 longnose gar (released)
MT-7 to MT-8	13 May 2015	Gill net	3 nets overnight - 150 yards	0 fish
		Shocking	41 minutes	0 fish
MT-7 to MT-8	14 May 2015	Trot line	1 line = 25 hooks	3 yellow bullhead
		Gill net	3 nets overnight - 150 yards	1 largemouth bass (released), 1 gizzard shad (released), 1 longnose gar (released)
		Shocking	33 minutes	0 fish
MT-8 to GT-19	29 April 2015	Shocking	59 minutes	6 bluegill, 3 redear, 4 largemouth bass, 1 brown bullhead
MT-8 to GT-19	30 April 2015	Gill net	2 nets overnight - 100 yards	0 fish
		Shocking	48 minutes	3 bluegill, 2 largemouth bass
MT-8 to GT-19	4 May 2015	Shocking	50 minutes	2 bluegill, 4 redear, 4 largemouth bass, 1 yellow bullhead
MT-8 to GT-19	5 May 2015	Gill net	2 nets overnight - 100 yards	1 white catfish
		Shocking	39 minutes	5 bluegill, 3 largemouth bass, 2 common carp
MT-8 to GT-19	6 May 2015	Gill net	3 nets overnight - 150 yards	1 common carp, 1 bowfin (released)
		Shocking	35 minutes	0 fish
MT-8 to GT-19	7 May 2015	Gill net	2 nets overnight - 150 yards	1 gizzard shad (released), 1 longnose gar (released)
MT-8 to GT-19	13 May 2015	Trot line	2 lines = 50 hooks	0 fish
		Gill net	1 net overnight - 50 yards	1 common carp
		Shocking	49 minutes	0 fish
MT-8 to GT-19	14 May 2015	Trot line	1 line = 25 hooks	0 fish
		Gill net	2 nets overnight - 100 yards	1 common carp, 1 longnose gar (released)
		Shocking	53 minutes	0 fish

[a]Shocking catch data is not representative of total abundance; only retained fish that were practical for compositing.

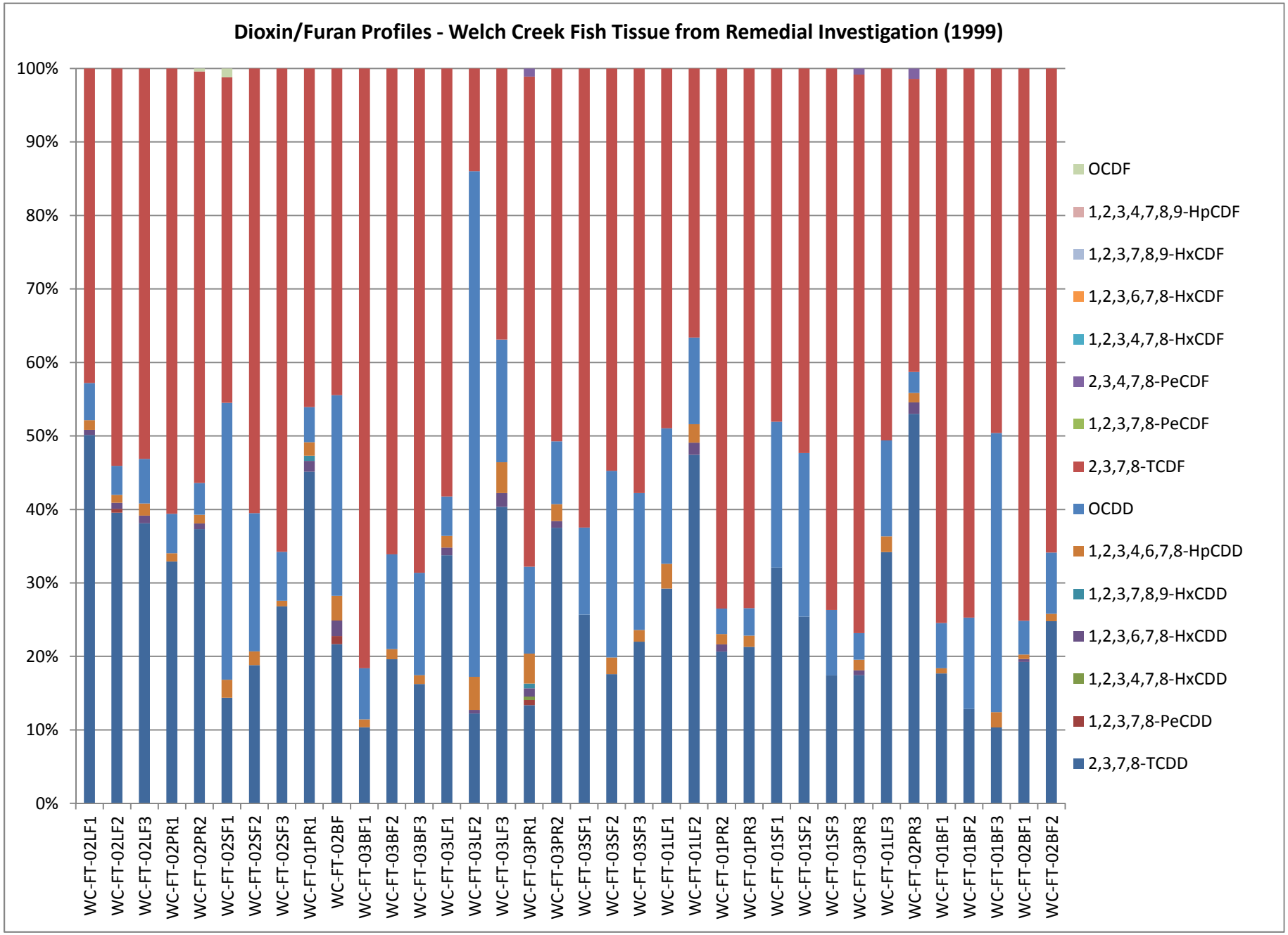
APPENDIX F

2015 WATER QUALITY

Table F1. Water quality parameters measured in Welch Creek sampling during April and May of 2014 in association with DomtarMill, Plymouth, NC.

SITE	DATE	TIME	DO%	DO (mg/L)	Cond(mS)	SpCond(mS)	Salinity(ppt)	Temp (°C)	Turbidity	Secchi(in)	pH	Note
MT-1 to MT-2	28-Apr-14	1250	21.7	2.21	0.085	0.106	0.05	14.9	3.4	35.50	5.38	Start of shocking (HWY 64 bridge) - MT1
MT-1 to MT-2	29-Apr-14	0900	33.9	3.22	0.088	0.102	0.05	18.0	2.7	38.00	5.92	Gill nets - MT1
MT-1 to MT-2	29-Apr-14	1400	42.6	3.79	0.097	0.109	0.05	18.3	6.4	38.00	6.11	Start of shocking (HWY 64 bridge) - MT1
MT-1 to MT-2	5-May-14	1020	31.4	2.89	0.088	0.098	0.05	19.6	3.3	34.25	5.33	Start of shocking (HWY 64 bridge) - MT1
MT-1 to MT-2	6-May-14	0830	26.8	1.94	0.092	0.102	0.05	19.7	3.6	38.50	5.48	Gill nets - MT1
MT-1 to MT-2	6-May-14	0945	26.8	2.33	0.088	0.098	0.05	19.5	4.7	36.00	5.30	Start of shocking (HWY 64 bridge) - MT1
MT-1 to MT-2	7-May-14	0740	28.9	2.63	0.091	0.100	0.05	19.9	3.5	33.50	5.47	Gill nets - MT1
MT-1 to MT-2	7-May-14	1345	18.1	2.05	0.091	0.102	0.05	19.4	3.2	34.75	5.68	Start of shocking (HWY 64 bridge) - MT1
MT-1 to MT-2	8-May-14	0910	32.8	2.96	0.094	0.103	0.05	20.5	3.0	35.50	5.62	Gill nets / Trot lines - MT1
MT-1 to MT-2	20-May-14	1015	55.2	5.05	0.086	0.096	0.04	20.1	5.1	30.50	5.67	Gill nets / Trot lines - MT1
MT-1 to MT-2	21-May-14	0910	51.5	4.68	0.091	0.100	0.05	20.4	4.7	34.25	5.58	Gill nets / Trot lines - MT1
MT-3 to MT-6	28-Apr-14	1400	36.0	3.5	0.090	0.106	0.05	16.8	3.3	40.50	5.53	Start of shocking (railroad) - MT3
MT-3 to MT-6	29-Apr-14	0945	38.3	3.65	0.108	0.125	0.06	17.4	4.0	40.00	6.16	Trot lines - MT3
MT-3 to MT-6	29-Apr-14	1230	45.7	4.32	0.108	0.121	0.06	18.0	6.1	38.75	6.27	Start of shocking (railroad) - MT3
MT-3 to MT-6	30-Apr-14	0800	50.6	4.66	0.097	0.108	0.05	19.5	2.1	42.50	6.00	Trot lines - MT3
MT-3 to MT-6	5-May-14	1130	20.8	1.89	0.103	0.114	0.05	19.7	2.7	38.50	5.61	Start of shocking (railroad) - MT3
MT-3 to MT-6	6-May-14	0800	42.6	3.59	0.105	0.117	0.05	19.6	2.1	42.00	5.60	Trot lines - MT3
MT-3 to MT-6	6-May-14	1130	39.5	3.39	0.102	0.114	0.05	19.6	3.1	39.75	5.92	Start of shocking (railroad) - MT3
MT-3 to MT-6	7-May-14	0640	30.8	2.87	0.101	0.112	0.05	19.6	2.3	37.25	5.56	Trot lines - MT3
MT-3 to MT-6	7-May-14	1240	23.4	2.10	0.098	0.109	0.05	19.6	2.6	37.00	5.78	Start of shocking (railroad) - MT3
MT-3 to MT-6	8-May-14	0645	48.3	4.19	0.107	0.116	0.05	20.0	2.2	38.25	5.75	Trot lines - MT3
MT-3 to MT-6	20-May-14	0905	21.3	1.95	0.105	0.116	0.05	20.1	4.4	33.00	5.65	Trot lines - MT3
MT-3 to MT-6	21-May-14	0815	27.2	2.48	0.109	0.118	0.05	20.8	3.6	38.50	5.59	Trot lines - MT3
MT-7 to MT-8	28-Apr-14	1525	46.9	4.39	0.117	0.135	0.06	18.2	4.1	31.75	4.10	Start of shocking - MT7
MT-7 to MT-8	29-Apr-14	0650	37.6	3.59	0.115	0.134	0.06	17.5	3.2	26.25	6.15	Gill nets - MT7
MT-7 to MT-8	29-Apr-14	1135	37.5	3.57	0.117	0.136	0.06	17.6	5.9	39.00	6.22	Start of shocking - MT7
MT-7 to MT-8	29-Apr-14	1535	50.2	4.49	0.115	0.132	0.06	18.0	4.8	39.00	6.31	Start of shocking - MT7
MT-7 to MT-8	30-Apr-14	0700	35.6	3.36	0.114	0.131	0.06	18.3	4.5	34.75	6.24	Gill nets - MT7
MT-7 to MT-8	5-May-14	1320	22.0	1.98	0.110	0.121	0.06	20.2	2.1	43.00	5.70	Start of shocking - MT7
MT-7 to MT-8	6-May-14	0650	33.6	2.28	0.112	0.124	0.06	19.6	2.9	37.00	5.62	Gill nets - MT7
MT-7 to MT-8	6-May-14	1300	35.5	2.80	0.115	0.127	0.06	20.1	4.0	37.25	5.85	Start of shocking - MT7
MT-7 to MT-8	7-May-14	0815	19.5	1.80	0.113	0.127	0.06	19.4	2.7	35.50	5.74	Gill nets - MT7
MT-7 to MT-8	7-May-14	1125	20.5	1.76	0.128	0.143	0.06	19.8	2.1	39.50	5.94	Start of shocking - MT7
MT-7 to MT-8	7-May-14	1445	16.7	1.50	0.115	0.129	0.06	19.8	2.2	39.50	6.00	Start of shocking - MT7
MT-7 to MT-8	8-May-14	0750	23.1	2.03	0.118	0.130	0.06	20.1	2.5	36.00	5.79	Gill nets - MT7
MT-7 to MT-8	20-May-14	0645	8.4	0.77	0.117	0.130	0.06	19.8	3.7	31.25	5.74	Gill nets / Trot lines - MT7
MT-7 to MT-8	21-May-14	0620	25.3	2.28	0.121	0.132	0.06	20.5	3.6	34.00	5.58	Gill nets / Trot lines - MT7
MT-8 to GT-19	29-Apr-14	0800	46.8	4.49	0.098	0.122	0.06	17.6	3.0	39.00	6.21	Gill nets- MT8
MT-8 to GT-19	29-Apr-14	0955	48.8	4.50	0.098	0.114	0.06	17.6	6.4	37.50	6.30	Start of shocking - MT8
MT-8 to GT-19	30-Apr-14	0725	37.8	3.56	0.121	0.138	0.06	18.4	3.6	33.00	6.12	Gill nets- MT8
MT-8 to GT-19	5-May-14	1415	42.5	3.61	0.107	0.119	0.06	20.0	3.6	33.00	5.67	Start of shocking - MT8
MT-8 to GT-19	6-May-14	0720	44.5	3.64	0.110	0.120	0.06	19.5	5.2	36.25	5.65	Gill nets- MT8
MT-8 to GT-19	6-May-14	1345	80.8	4.10	0.115	0.125	0.06	20.4	4.7	38.00	5.86	Start of shocking - MT8
MT-8 to GT-19	7-May-14	0855	18.3	1.67	0.117	0.129	0.06	19.9	2.4	35.50	5.81	Gill nets- MT8
MT-8 to GT-19	7-May-14	0945	17.1	1.65	0.116	0.129	0.06	19.8	2.2	39.50	5.89	Start of shocking - MT8
MT-8 to GT-19	8-May-14	0830	22.6	2.01	0.119	0.131	0.06	20.3	2.7	43.25	5.90	Gill nets / Trot lines - MT8
MT-8 to GT-19	20-May-14	0735	27.0	2.43	0.124	0.136	0.06	20.2	4.1	34.00	5.79	Gill nets / Trot lines - MT8
MT-8 to GT-19	21-May-14	0735	24.9	2.23	0.124	0.139	0.06	20.9	3.9	39.25	5.66	Gill nets / Trot lines - MT8

Appendix F
Dioxin/Furan Profiles in Fish Tissue


Dioxin/Furan Profiles - Welch Creek Fish Tissue from Remedial Investigation (1999)
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80%
70%
60%
50%
40%
30%
20%
10%
0%
WC-FT-02LF1
WC-FT-02LF2
WC-FT-02LF3
WC-FT-02PR1
WC-FT-02PR2
WC-FT-02SF1
WC-FT-02SF2
WC-FT-02SF3
WC-FT-01PR1
WC-FT-02BF
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WC-FT-03BF2
WC-FT-03BF3
WC-FT-03LF1
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WC-FT-03PR1
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WC-FT-03SF1
WC-FT-03SF2
WC-FT-03SF3
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WC-FT-01PR2
WC-FT-01PR3
WC-FT-01SF1
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WC-FT-02BF1
WC-FT-02BF2
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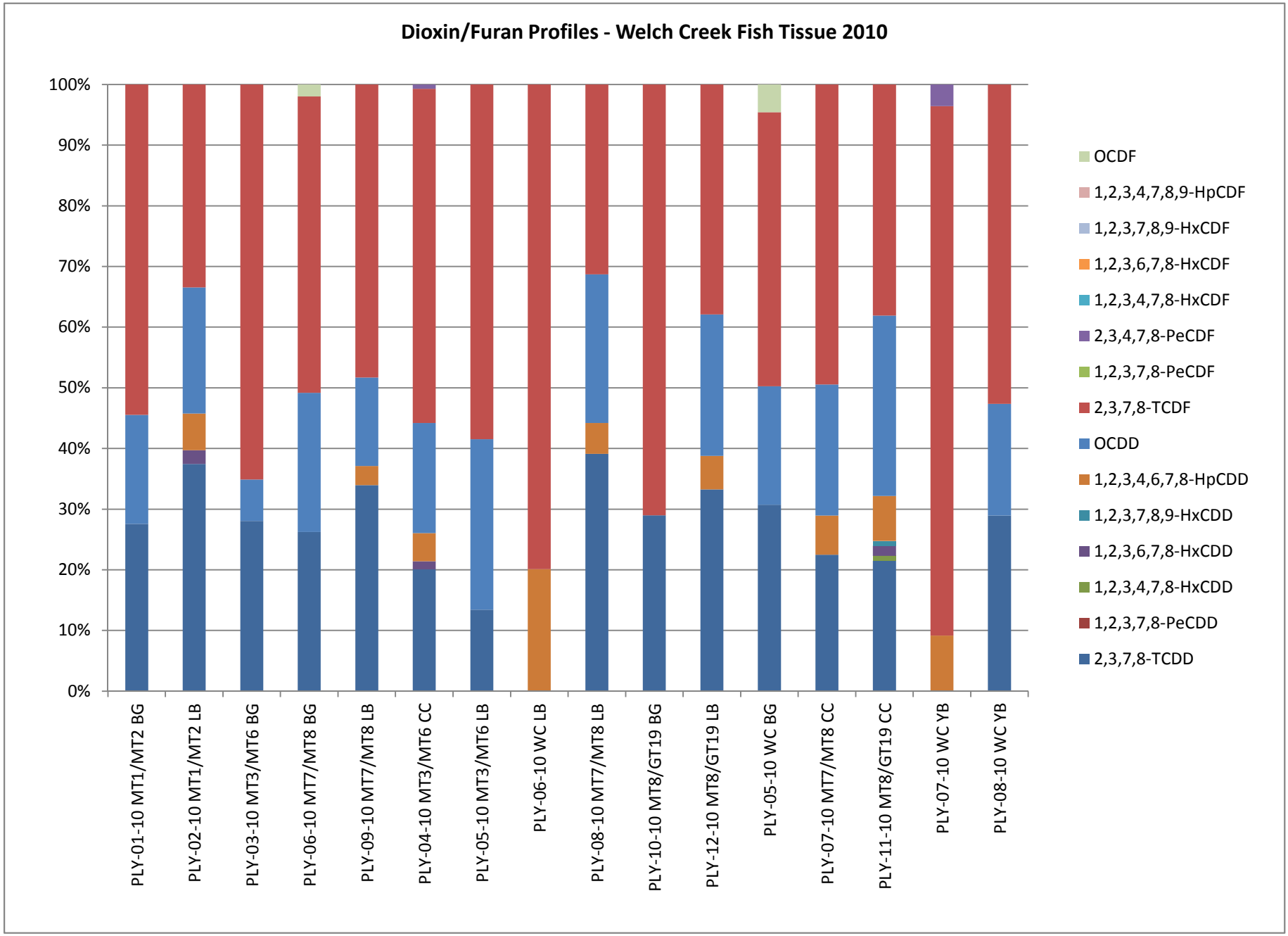
1,2,3,4,7,8-HxCDF
2,3,4,7,8-PeCDF
1,2,3,7,8-PeCDF
2,3,7,8-TCDF
OCDD
1,2,3,4,6,7,8-HpCDD
1,2,3,7,8,9-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,4,7,8-HxCDD
1,2,3,7,8-PeCDD
2,3,7,8-TCDD


Dioxin/Furan Profiles - Welch Creek Fish Tissue 2010
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
PLY-01-10 MT1/MT2 BG
PLY-02-10 MT1/MT2 LB
PLY-03-10 MT3/MT6 BG
PLY-06-10 MT7/MT8 BG
PLY-09-10 MT7/MT8 LB
PLY-04-10 MT3/MT6 CC
PLY-05-10 MT3/MT6 LB
PLY-06-10 WC LB
PLY-08-10 MT7/MT8 LB
PLY-10-10 MT8/GT19 BG
PLY-12-10 MT8/GT19 LB
PLY-05-10 WC BG
PLY-07-10 MT7/MT8 CC
PLY-11-10 MT8/GT19 CC
PLY-07-10 WC YB
PLY-08-10 WC YB
OCDF
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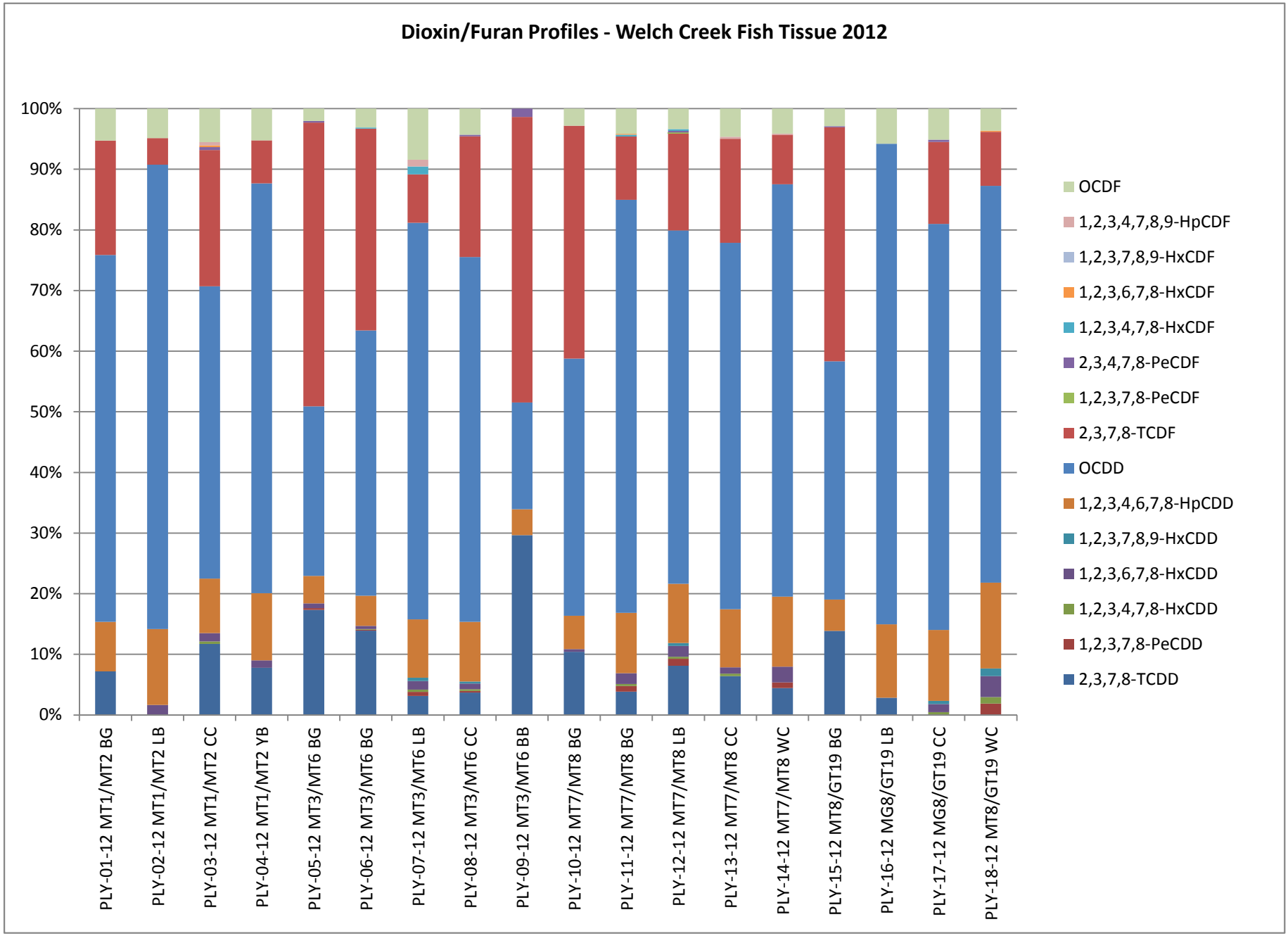
1,2,3,6,7,8-HxCDF
1,2,3,4,7,8-HxCDF
2,3,4,7,8-PeCDF
1,2,3,7,8-PeCDF
2,3,7,8-TCDF
OCDD
1,2,3,4,6,7,8-HpCDD
1,2,3,7,8,9-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,4,7,8-HxCDD
1,2,3,7,8-PeCDD
2,3,7,8-TCDD


Dioxin/Furan Profiles - Welch Creek Fish Tissue 2012
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
PLY-01-12 MT1/MT2 BG
PLY-02-12 MT1/MT2 LB
PLY-03-12 MT1/MT2 CC
PLY-04-12 MT1/MT2 YB
PLY-05-12 MT3/MT6 BG
PLY-06-12 MT3/MT6 BG
PLY-07-12 MT3/MT6 LB
PLY-08-12 MT3/MT6 CC
PLY-09-12 MT3/MT6 BB
PLY-10-12 MT7/MT8 BG
PLY-11-12 MT7/MT8 BG
PLY-12-12 MT7/MT8 LB
PLY-13-12 MT7/MT8 CC
PLY-14-12 MT7/MT8 WC
PLY-15-12 MT8/GT19 BG
PLY-16-12 MG8/GT19 LB
PLY-17-12 MG8/GT19 CC
PLY-18-12 MT8/GT19 WC
OCDF
1,2,3,4,7,8,9-HpCDF
1,2,3,7,8,9-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,4,7,8-HxCDF
2,3,4,7,8-PeCDF
1,2,3,7,8-PeCDF
2,3,7,8-TCDF
OCDD
1,2,3,4,6,7,8-HpCDD
1,2,3,7,8,9-HxCDD
1,2,3,6,7,8-HxCDD
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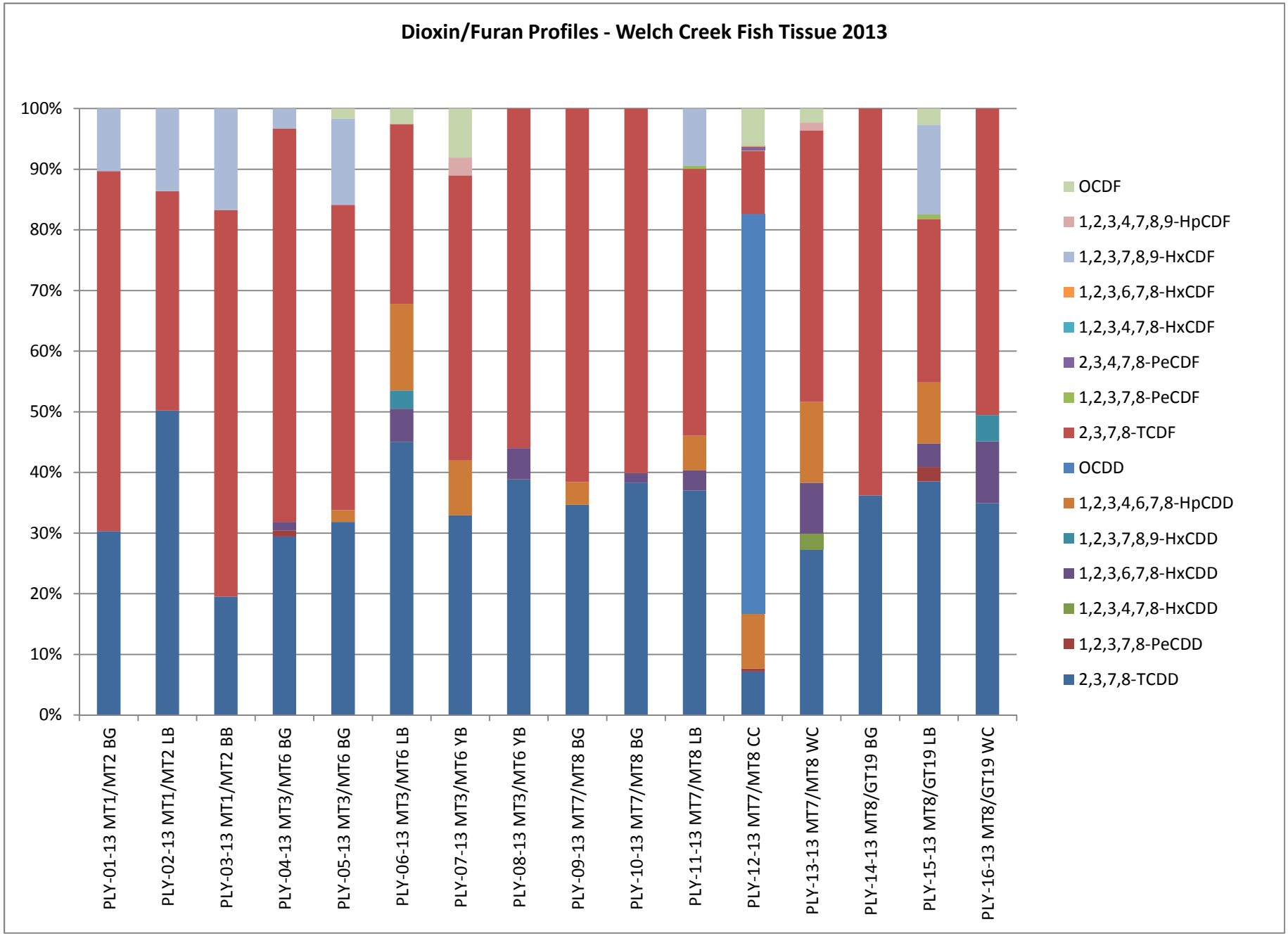
2,3,7,8-TCDD


Dioxin/Furan Profiles - Welch Creek Fish Tissue 2013
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
PLY-01-13 MT1/MT2 BG
PLY-02-13 MT1/MT2 LB
PLY-03-13 MT1/MT2 BB
PLY-04-13 MT3/MT6 BG
PLY-05-13 MT3/MT6 BG
PLY-06-13 MT3/MT6 LB
PLY-07-13 MT3/MT6 YB
PLY-08-13 MT3/MT6 YB
PLY-09-13 MT7/MT8 BG
PLY-10-13 MT7/MT8 BG
PLY-11-13 MT7/MT8 LB
PLY-12-13 MT7/MT8 CC
PLY-13-13 MT7/MT8 WC
PLY-14-13 MT8/GT19 BG
PLY-15-13 MT8/GT19 LB
PLY-16-13 MT8/GT19 WC
OCDF
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1,2,3,4,7,8-HxCDF
2,3,4,7,8-PeCDF
1,2,3,7,8-PeCDF
2,3,7,8-TCDF
OCDD
1,2,3,4,6,7,8-HpCDD
1,2,3,7,8,9-HxCDD
1,2,3,6,7,8-HxCDD
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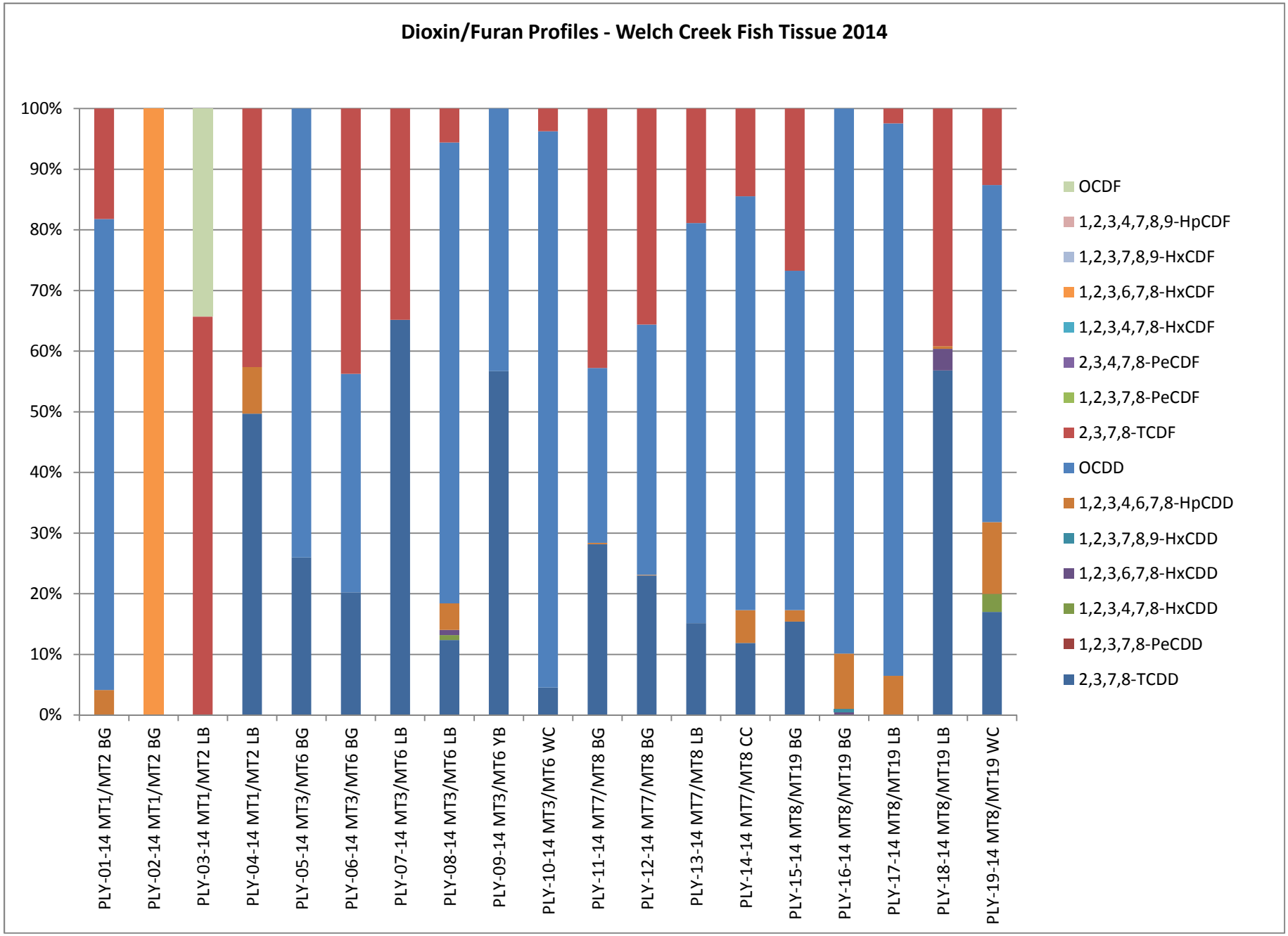
2,3,7,8-TCDD


Dioxin/Furan Profiles - Welch Creek Fish Tissue 2014
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
PLY-01-14 MT1/MT2 BG
PLY-02-14 MT1/MT2 BG
PLY-03-14 MT1/MT2 LB
PLY-04-14 MT1/MT2 LB
PLY-05-14 MT3/MT6 BG
PLY-06-14 MT3/MT6 BG
PLY-07-14 MT3/MT6 LB
PLY-08-14 MT3/MT6 LB
PLY-09-14 MT3/MT6 YB
PLY-10-14 MT3/MT6 WC
PLY-11-14 MT7/MT8 BG
PLY-12-14 MT7/MT8 BG
PLY-13-14 MT7/MT8 LB
PLY-14-14 MT7/MT8 CC
PLY-15-14 MT8/MT19 BG
PLY-16-14 MT8/MT19 BG
PLY-17-14 MT8/MT19 LB
PLY-18-14 MT8/MT19 LB
PLY-19-14 MT8/MT19 WC
OCDF
1,2,3,4,7,8,9-HpCDF
1,2,3,7,8,9-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,4,7,8-HxCDF
2,3,4,7,8-PeCDF
1,2,3,7,8-PeCDF
2,3,7,8-TCDF
OCDD
1,2,3,4,6,7,8-HpCDD
1,2,3,7,8,9-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,4,7,8-HxCDD
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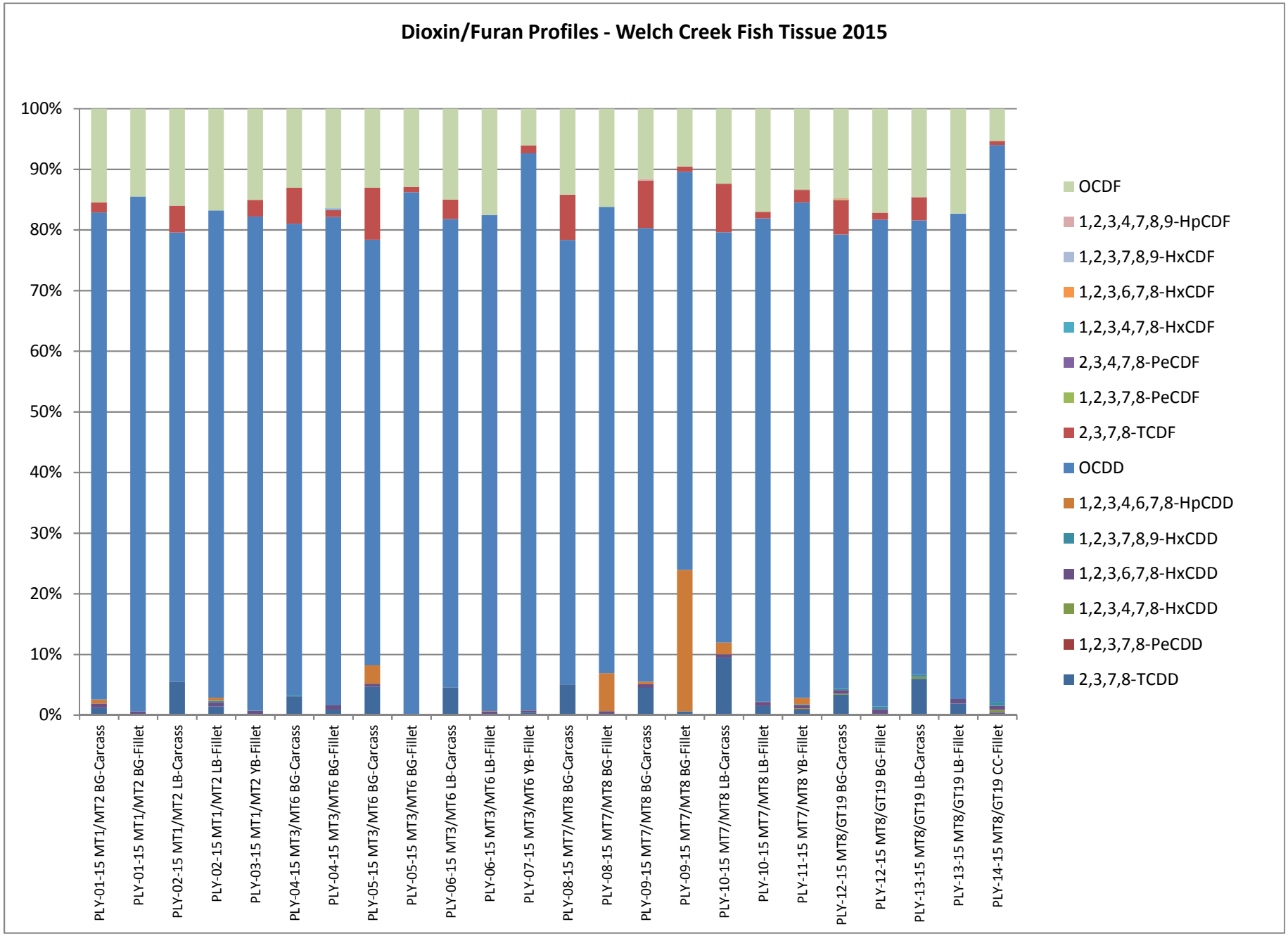
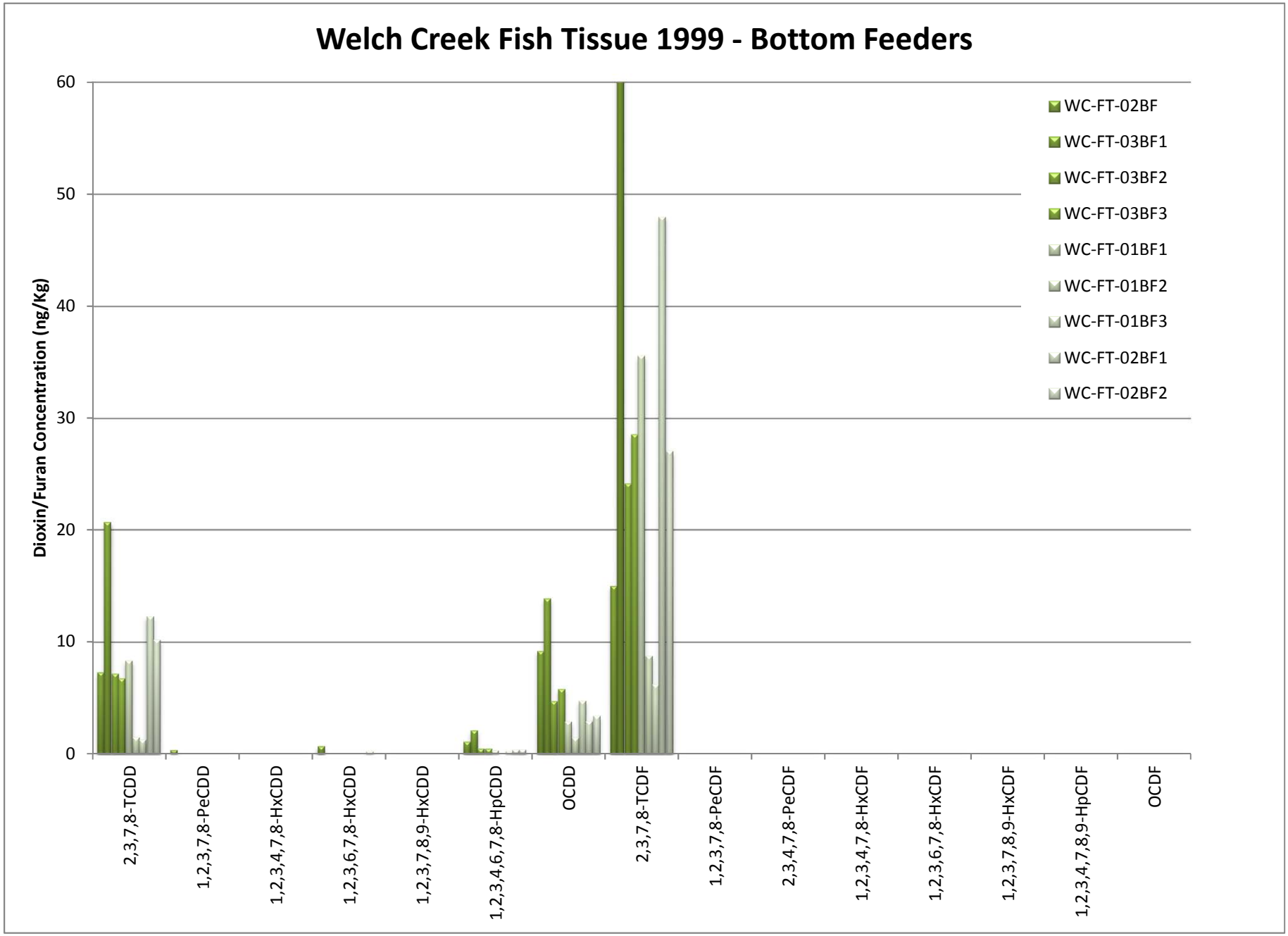
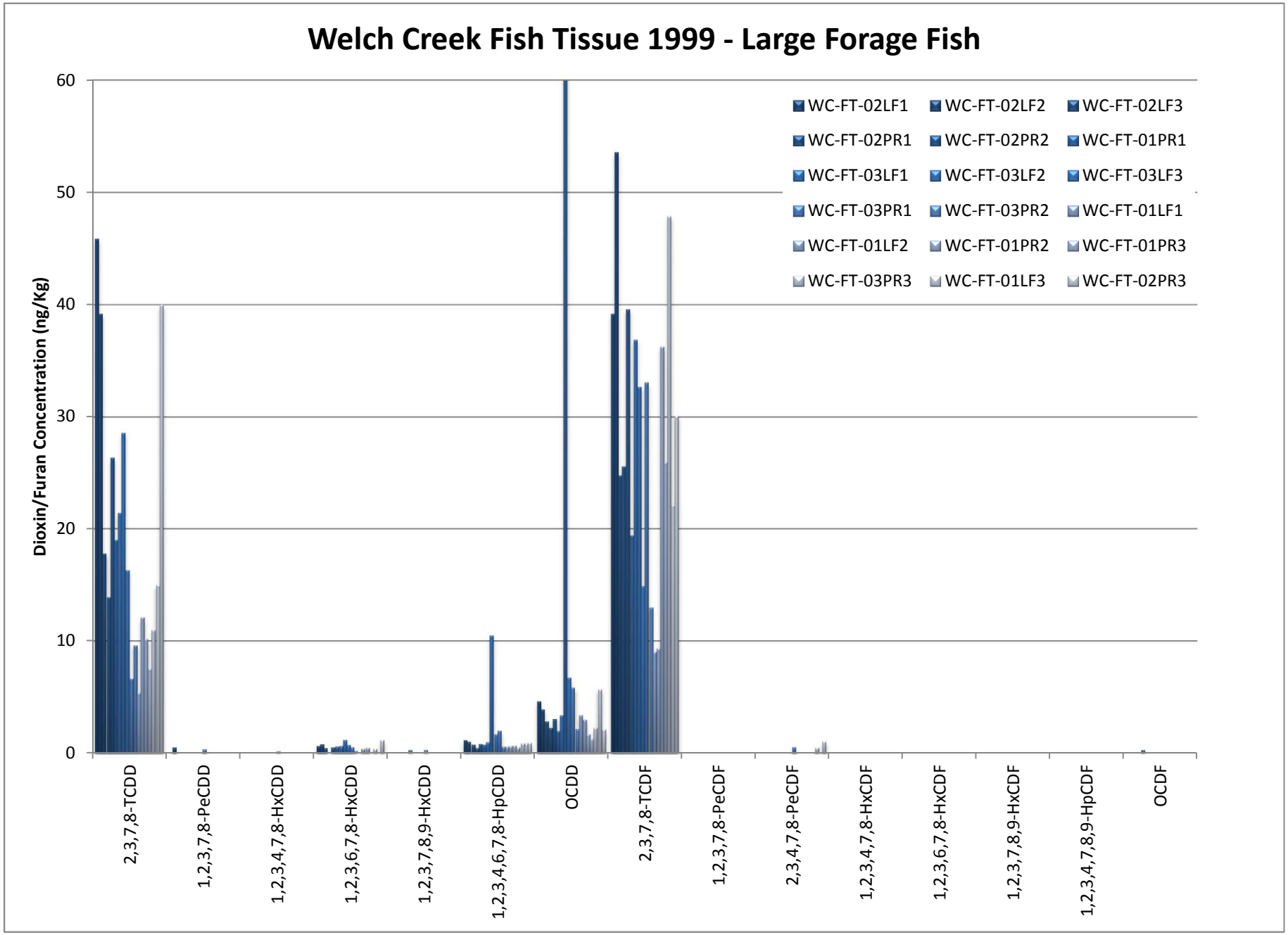
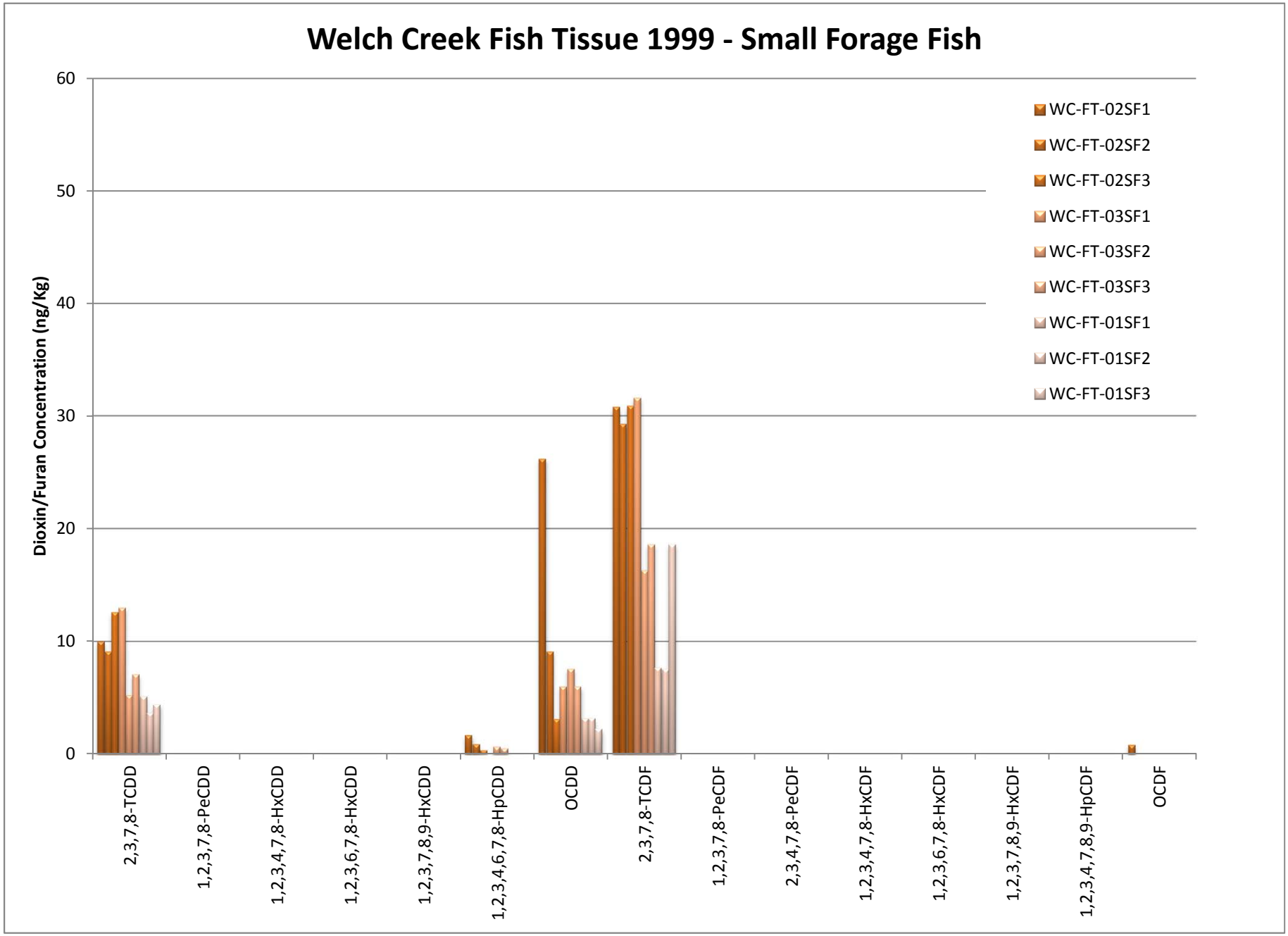
2,3,7,8-TCDD

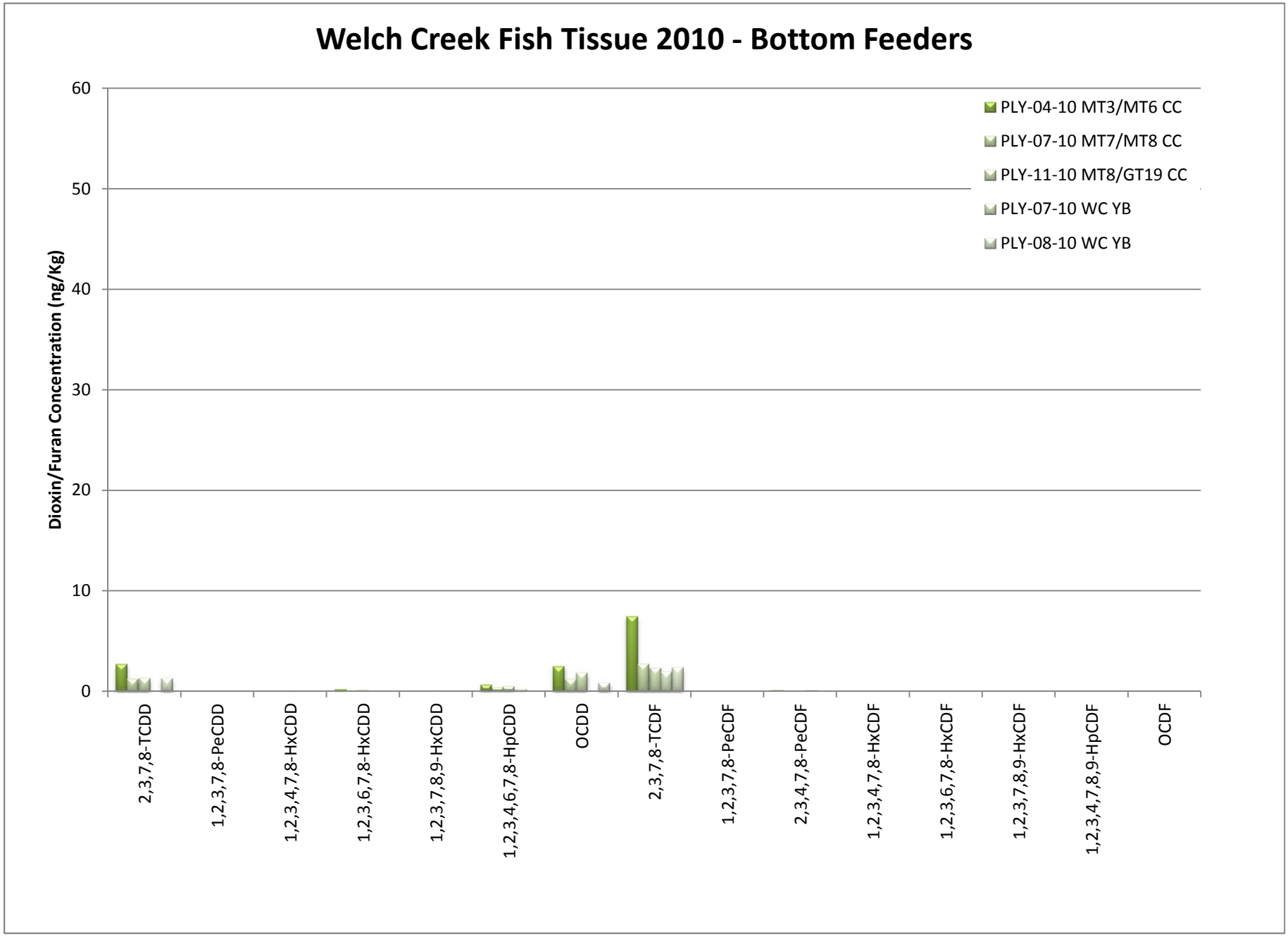

Dioxin/Furan Profiles - Welch Creek Fish Tissue 2015
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
PLY-01-15 MT1/MT2 BG-Carcass
PLY-01-15 MT1/MT2 BG-Fillet
PLY-02-15 MT1/MT2 LB-Carcass
PLY-02-15 MT1/MT2 LB-Fillet
PLY-03-15 MT1/MT2 YB-Fillet
PLY-04-15 MT3/MT6 BG-Carcass
PLY-04-15 MT3/MT6 BG-Fillet
PLY-05-15 MT3/MT6 BG-Carcass
PLY-05-15 MT3/MT6 BG-Fillet
PLY-06-15 MT3/MT6 LB-Carcass
PLY-06-15 MT3/MT6 LB-Fillet
PLY-07-15 MT3/MT6 YB-Fillet
PLY-08-15 MT7/MT8 BG-Carcass
PLY-08-15 MT7/MT8 BG-Fillet
PLY-09-15 MT7/MT8 BG-Carcass
PLY-09-15 MT7/MT8 BG-Fillet
PLY-10-15 MT7/MT8 LB-Carcass
PLY-10-15 MT7/MT8 LB-Fillet
PLY-11-15 MT7/MT8 YB-Fillet
PLY-12-15 MT8/GT19 BG-Carcass
PLY-12-15 MT8/GT19 BG-Fillet
PLY-13-15 MT8/GT19 LB-Carcass
PLY-13-15 MT8/GT19 LB-Fillet
PLY-14-15 MT8/GT19 CC-Fillet
OCDF
1,2,3,4,7,8,9-HpCDF
1,2,3,7,8,9-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,4,7,8-HxCDF
2,3,4,7,8-PeCDF
1,2,3,7,8-PeCDF
2,3,7,8-TCDF
OCDD
1,2,3,4,6,7,8-HpCDD
1,2,3,7,8,9-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,4,7,8-HxCDD
1,2,3,7,8-PeCDD
2,3,7,8-TCDD

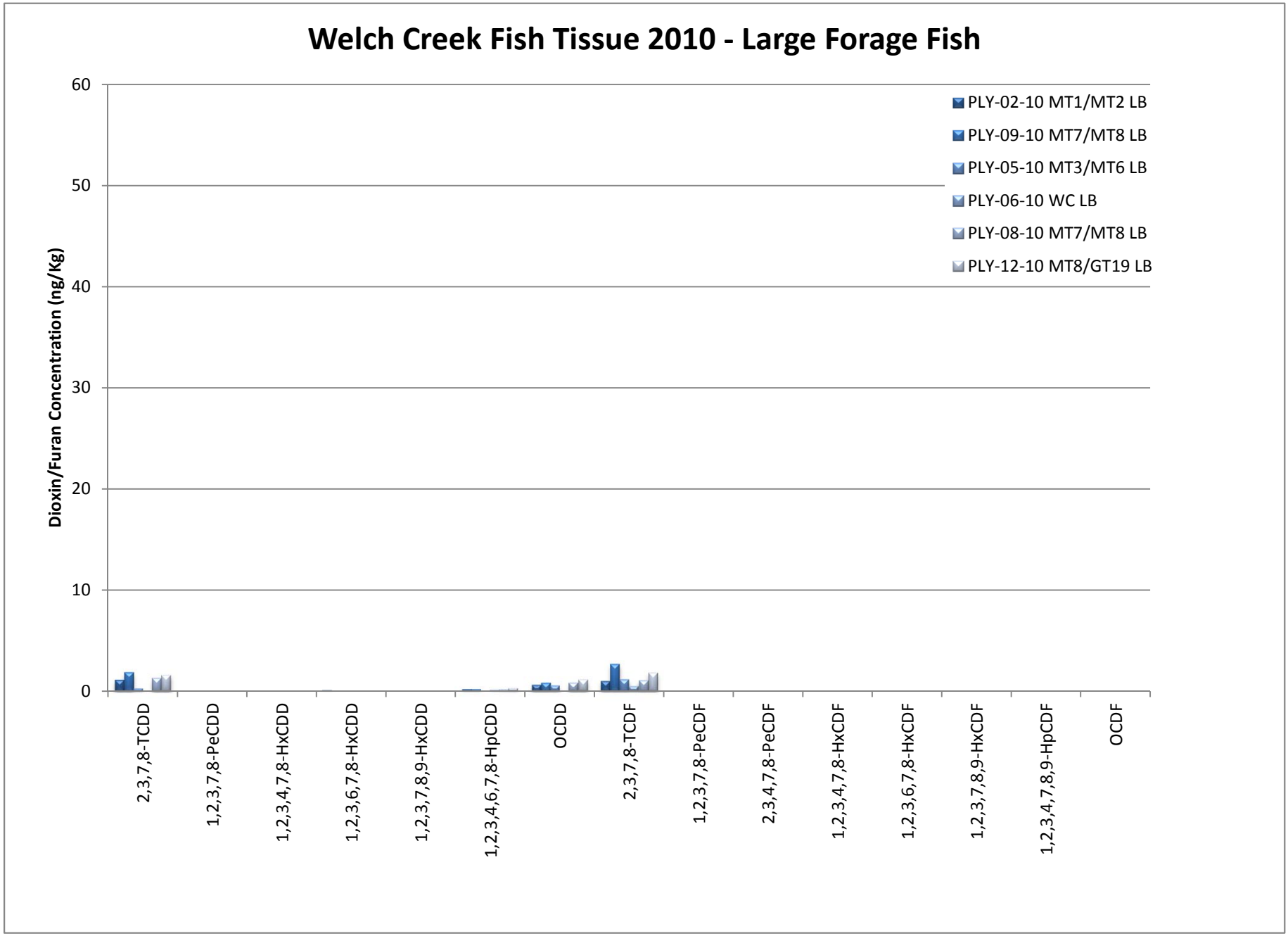
Appendix G
Fish Tissue Fingerprinting Analyses

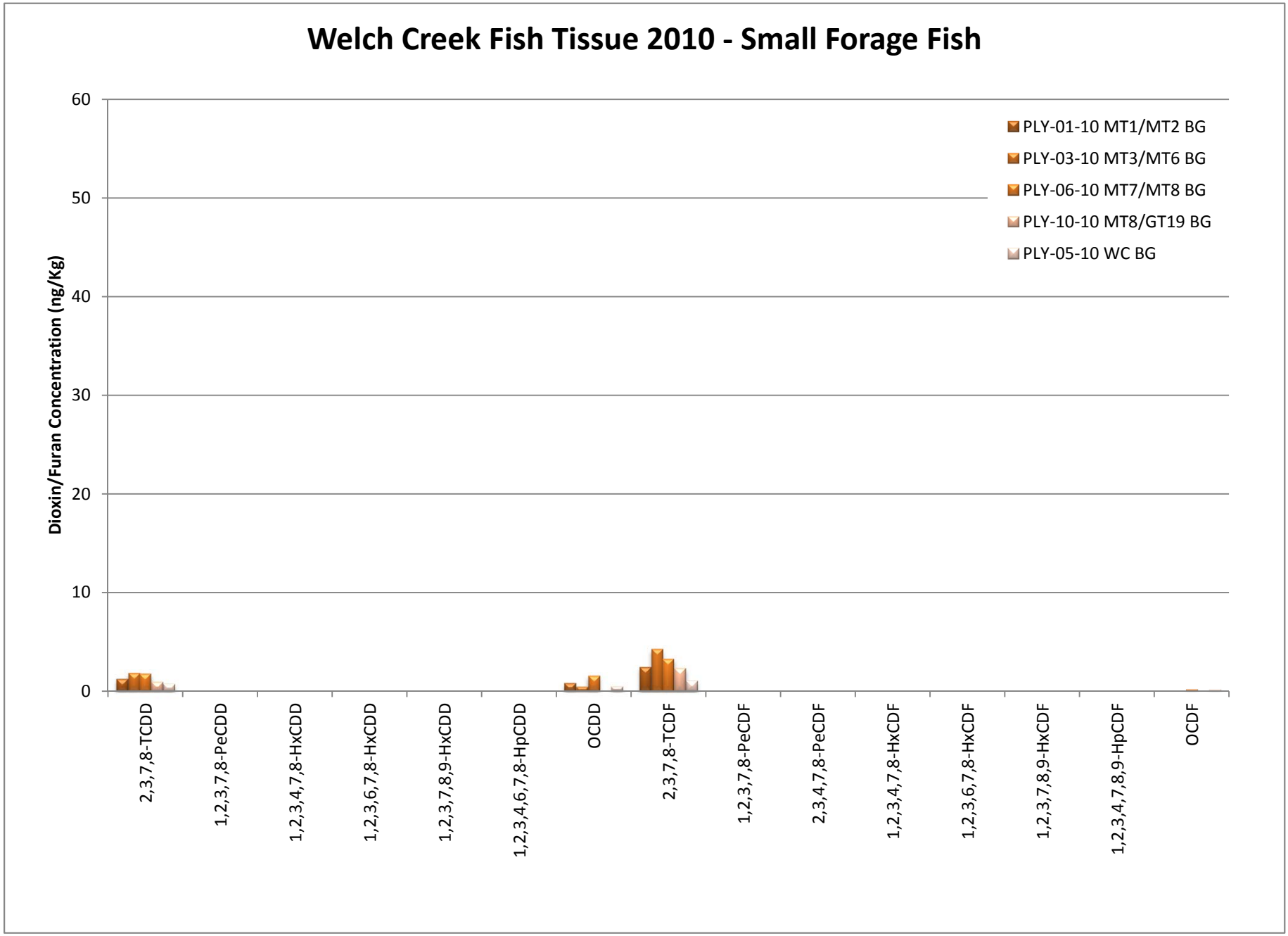

Welch Creek Fish Tissue 1999 - Bottom Feeders
Dioxin/Furan Concentration (ng/Kg)
60
50
40
30
20
10
0
WC-FT-02BF
WC-FT-03BF1
WC-FT-03BF2
WC-FT-03BF3
WC-FT-01BF1
WC-FT-01BF2
WC-FT-01BF3
WC-FT-02BF1
WC-FT-02BF2
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8,9-HpCDF
OCDF

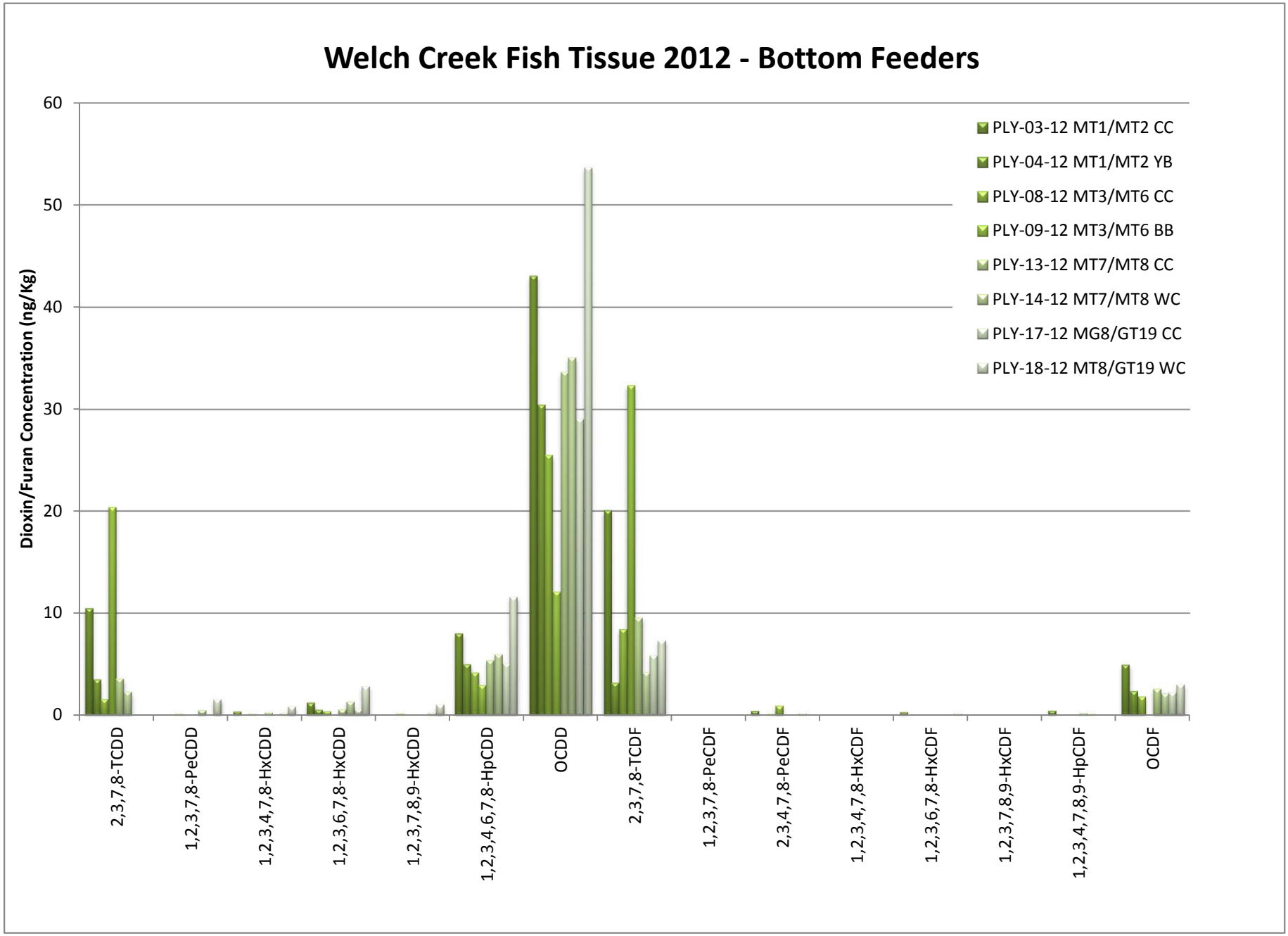

Welch Creek Fish Tissue 1999 - Large Forage Fish
Dioxin/Furan Concentration (ng/Kg)
60
50
40
30
20
10
0
WC-FT-02LF1
WC-FT-02LF2
WC-FT-02LF3
WC-FT-02PR1
WC-FT-02PR2
WC-FT-01PR1
WC-FT-03LF1
WC-FT-03LF2
WC-FT-03LF3
WC-FT-03PR1
WC-FT-03PR2
WC-FT-01LF1
WC-FT-01LF2
WC-FT-01PR2
WC-FT-01PR3
WC-FT-03PR3
WC-FT-01LF3
WC-FT-02PR3
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8,9-HpCDF
OCDF

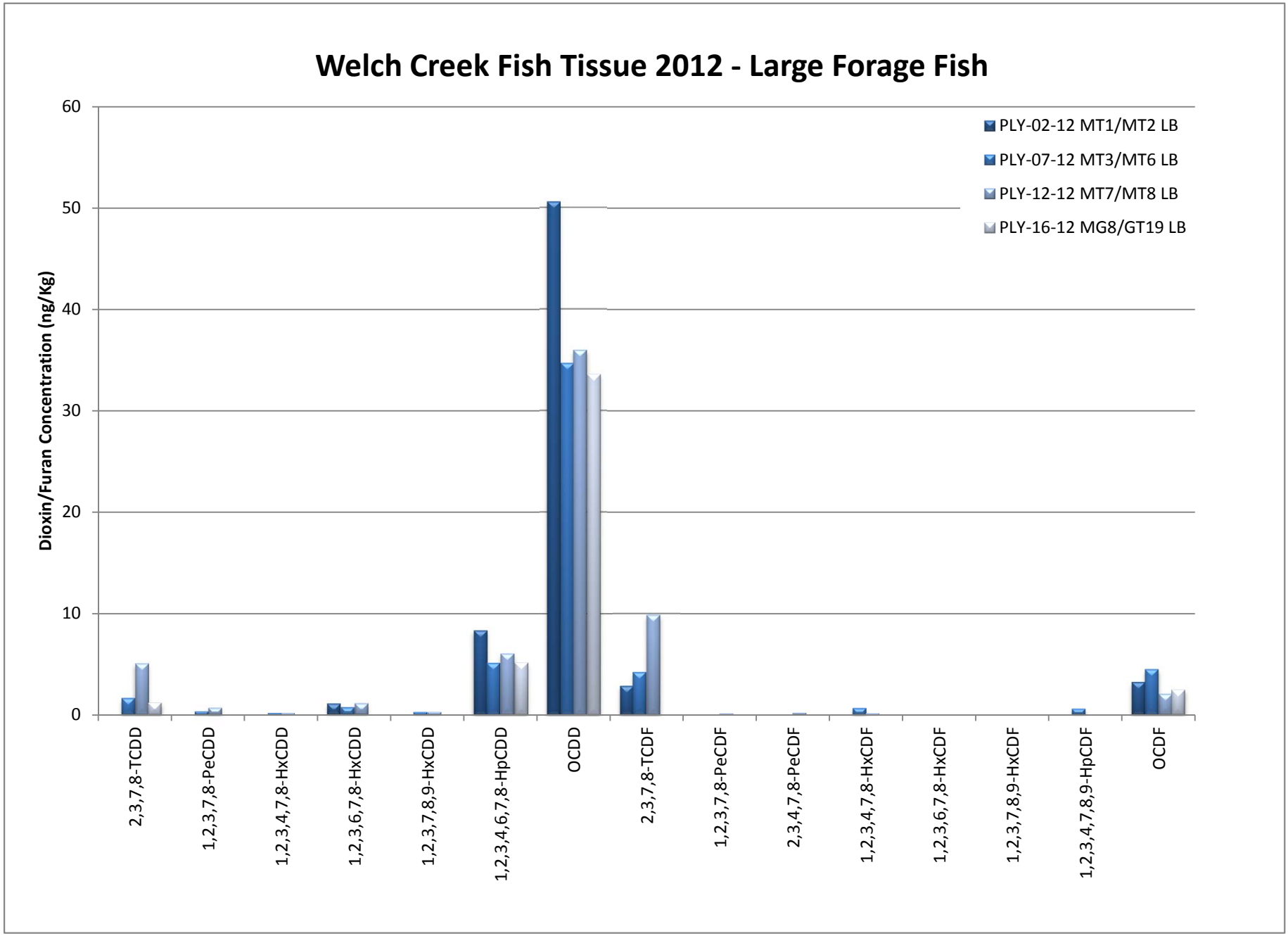

Welch Creek Fish Tissue 1999 - Small Forage Fish
Dioxin/Furan Concentration (ng/Kg)
60
50
40
30
20
10
0
WC-FT-02SF1
WC-FT-02SF2
WC-FT-02SF3
WC-FT-03SF1
WC-FT-03SF2
WC-FT-03SF3
WC-FT-01SF1
WC-FT-01SF2
WC-FT-01SF3
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8,9-HpCDF
OCDF

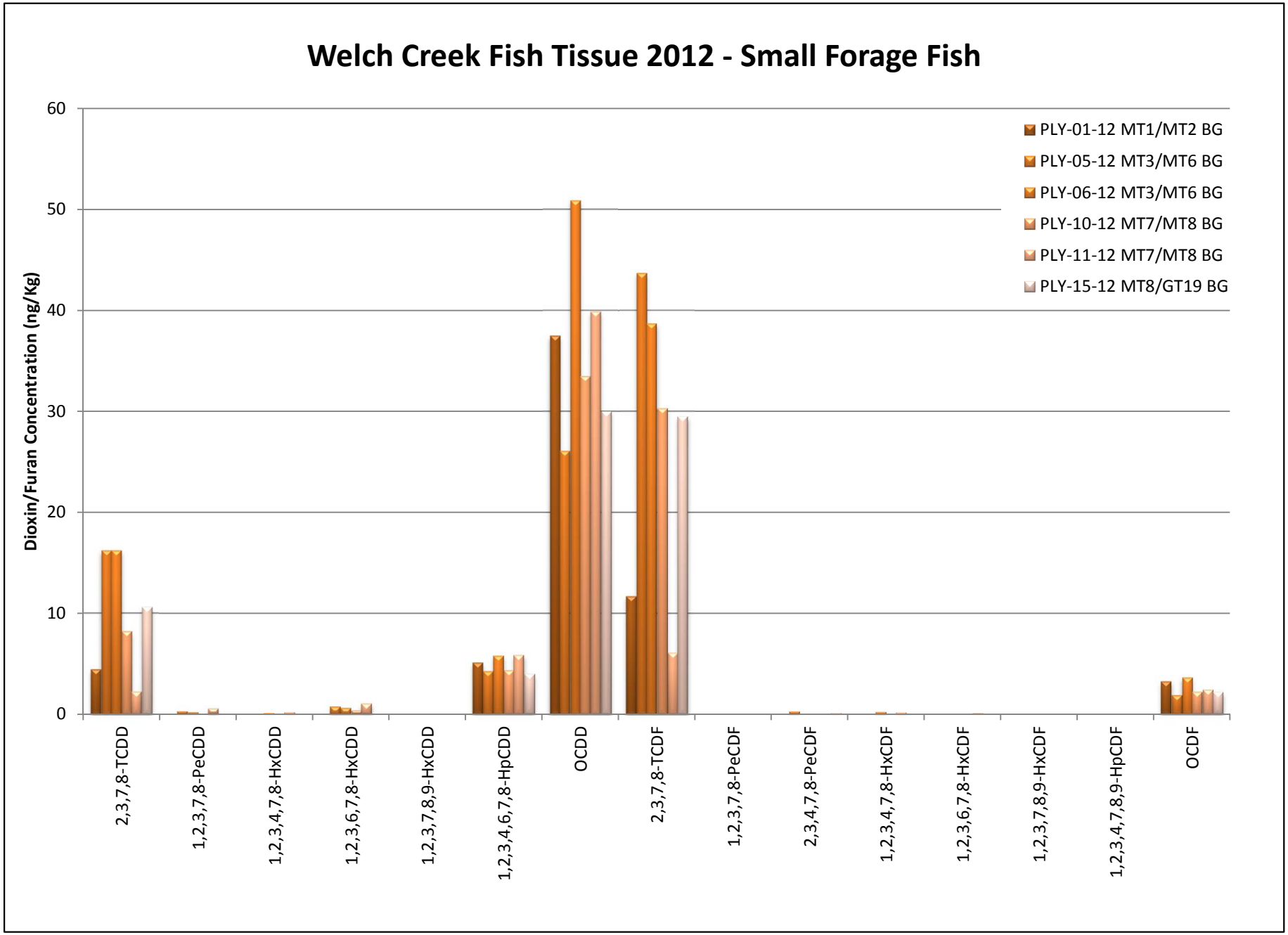

Welch Creek Fish Tissue 2010 - Bottom Feeders
Dioxin/Furan Concentration (ng/Kg)
60
50
40
30
20
10
0
PLY-04-10 MT3/MT6 CC
PLY-07-10 MT7/MT8 CC
PLY-11-10 MT8/GT19 CC
PLY-07-10 WC YB
PLY-08-10 WC YB
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8,9-HpCDF
OCDF

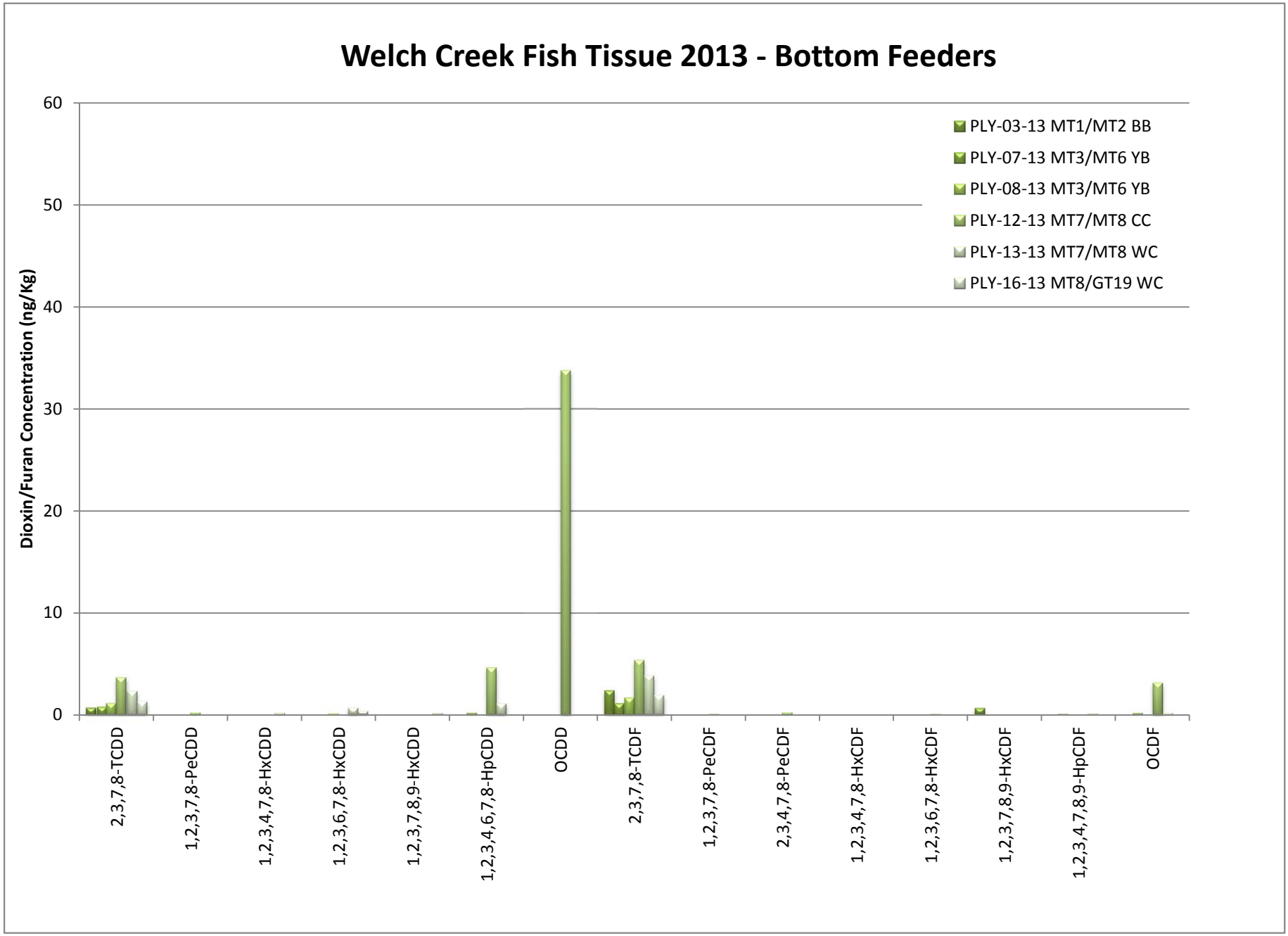

Welch Creek Fish Tissue 2010 - Large Forage Fish
Dioxin/Furan Concentration (ng/Kg)
60
50
40
30
20
10
0
PLY-02-10 MT1/MT2 LB
PLY-09-10 MT7/MT8 LB
PLY-05-10 MT3/MT6 LB
PLY-06-10 WC LB
PLY-08-10 MT7/MT8 LB
PLY-12-10 MT8/GT19 LB
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8,9-HpCDF
OCDF

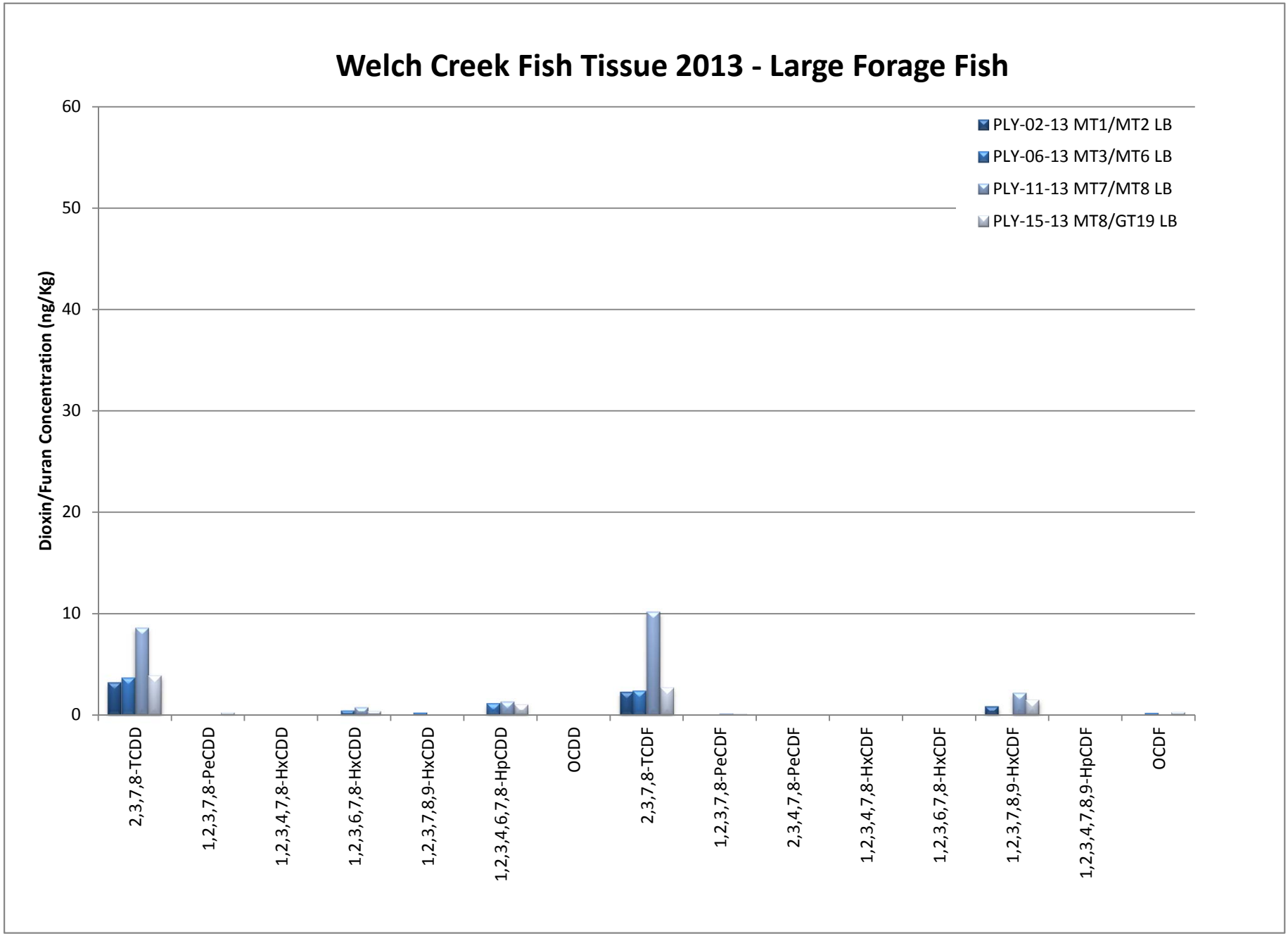

Welch Creek Fish Tissue 2010 - Small Forage Fish
Dioxin/Furan Concentration (ng/Kg)
60
50
40
30
20
10
0
PLY-01-10 MT1/MT2 BG
PLY-03-10 MT3/MT6 BG
PLY-06-10 MT7/MT8 BG
PLY-10-10 MT8/GT19 BG
PLY-05-10 WC BG
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8,9-HpCDF
OCDF

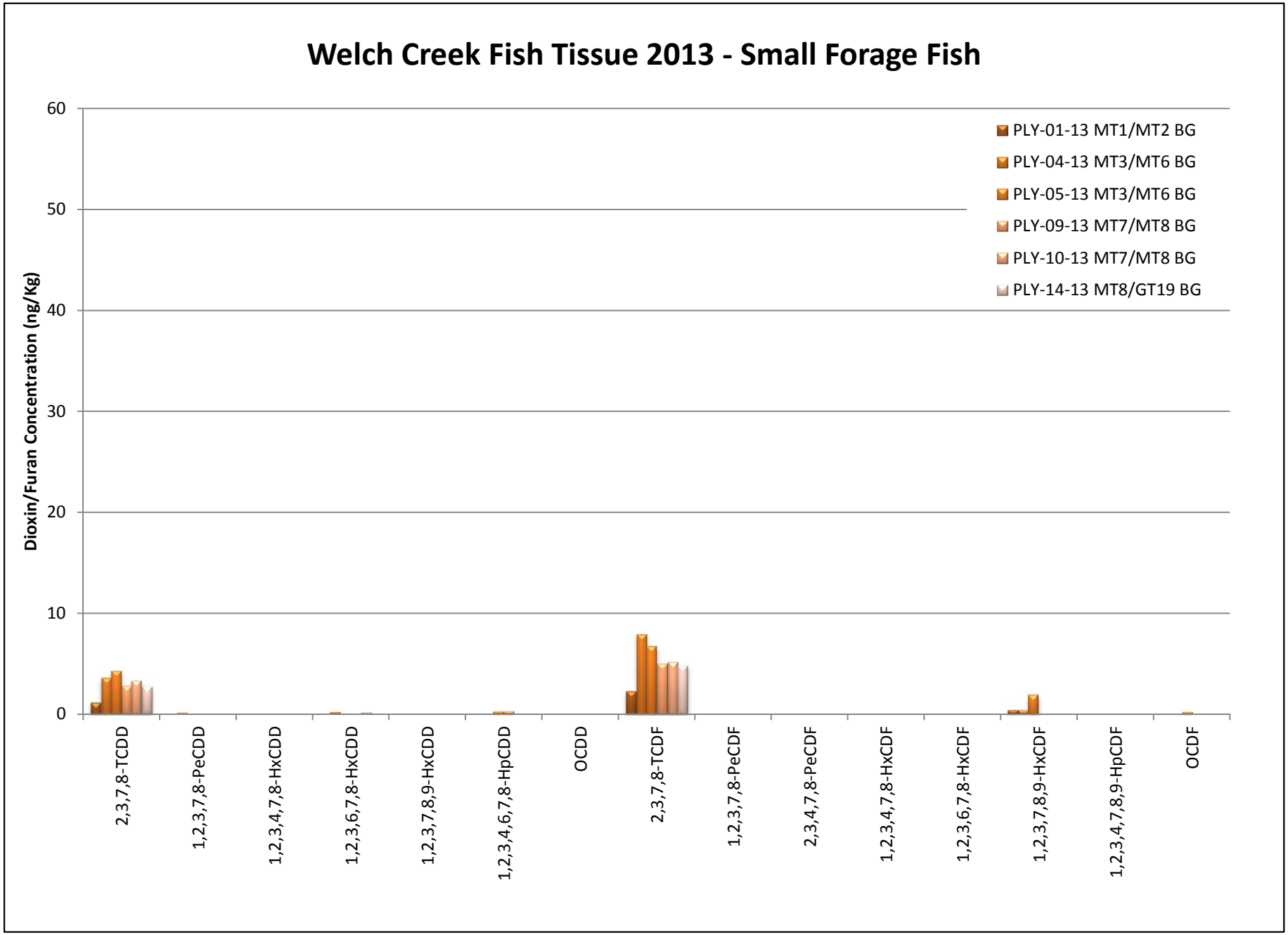

Welch Creek Fish Tissue 2012 - Bottom Feeders
Dioxin/Furan Concentration (ng/Kg)
60
50
40
30
20
10
0
PLY-03-12 MT1/MT2 CC
PLY-04-12 MT1/MT2 YB
PLY-08-12 MT3/MT6 CC
PLY-09-12 MT3/MT6 BB
PLY-13-12 MT7/MT8 CC
PLY-14-12 MT7/MT8 WC
PLY-17-12 MG8/GT19 CC
PLY-18-12 MT8/GT19 WC
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8,9-HpCDF
OCDF

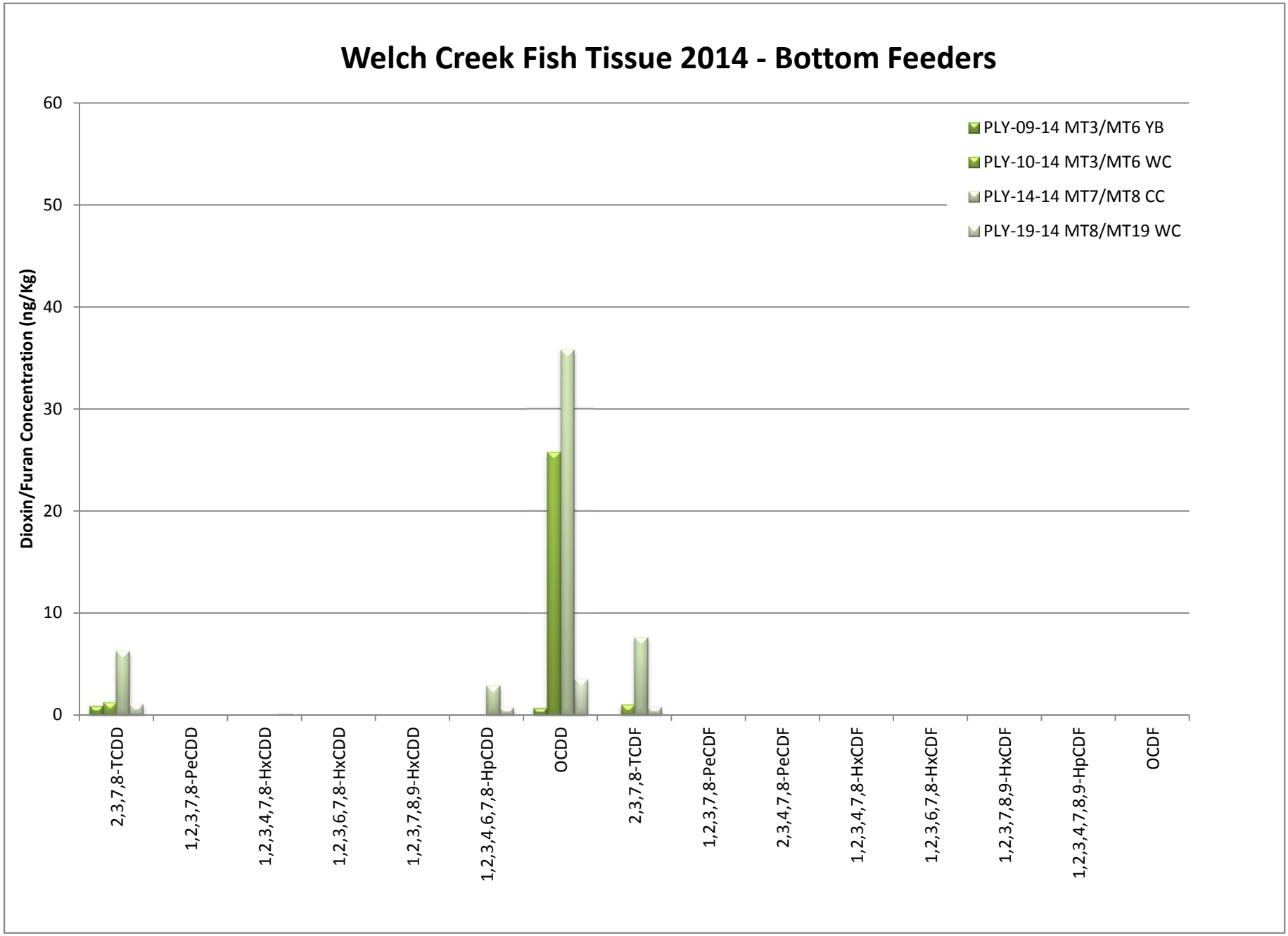

Welch Creek Fish Tissue 2012 - Large Forage Fish
Dioxin/Furan Concentration (ng/Kg)
60
50
40
30
20
10
0
PLY-02-12 MT1/MT2 LB
PLY-07-12 MT3/MT6 LB
PLY-12-12 MT7/MT8 LB
PLY-16-12 MG8/GT19 LB
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8,9-HpCDF
OCDF

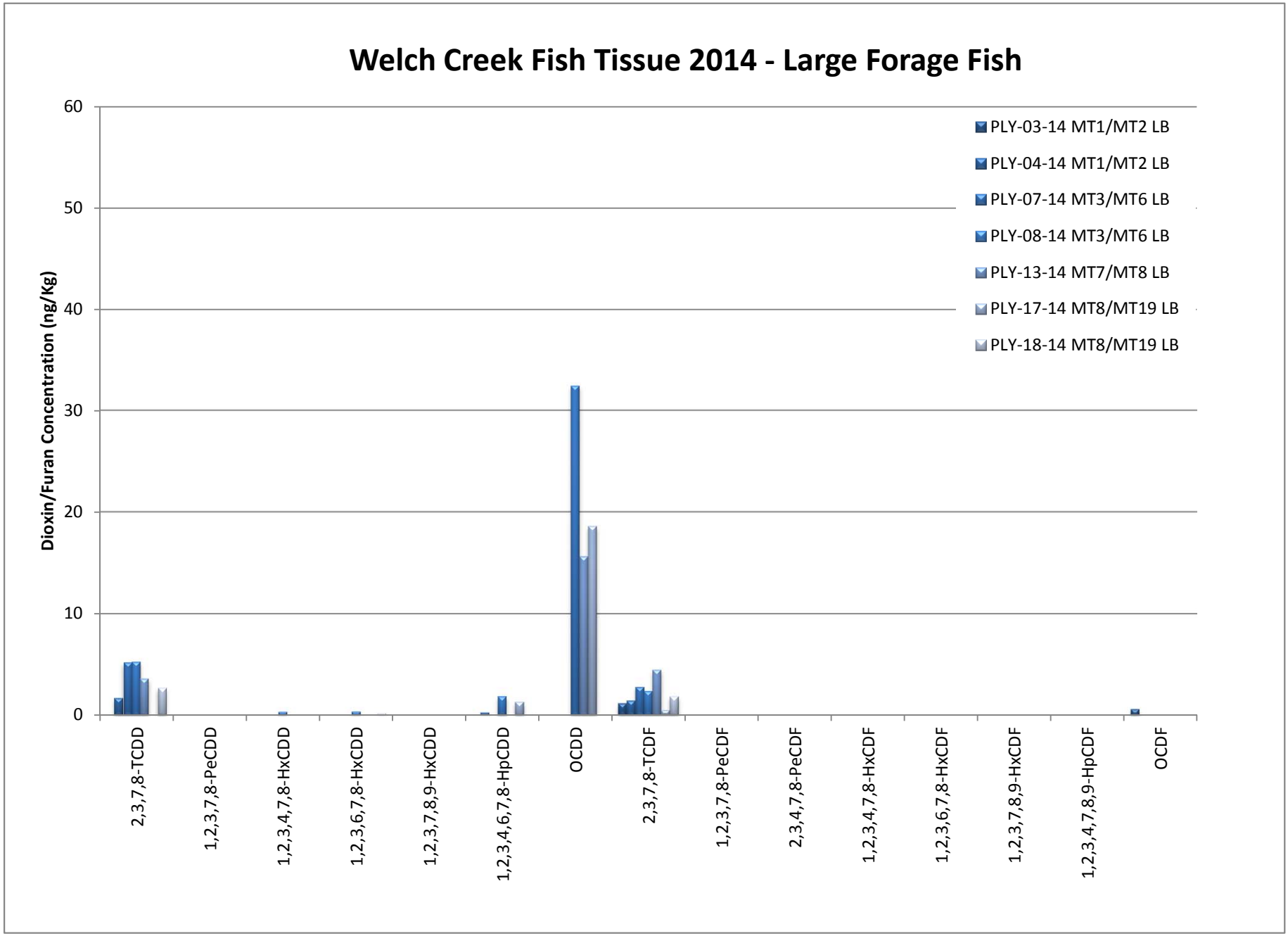

Welch Creek Fish Tissue 2012 - Small Forage Fish
Dioxin/Furan Concentration (ng/Kg)
60
50
40
30
20
10
0
PLY-01-12 MT1/MT2 BG
PLY-05-12 MT3/MT6 BG
PLY-06-12 MT3/MT6 BG
PLY-10-12 MT7/MT8 BG
PLY-11-12 MT7/MT8 BG
PLY-15-12 MT8/GT19 BG
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8,9-HpCDF
OCDF

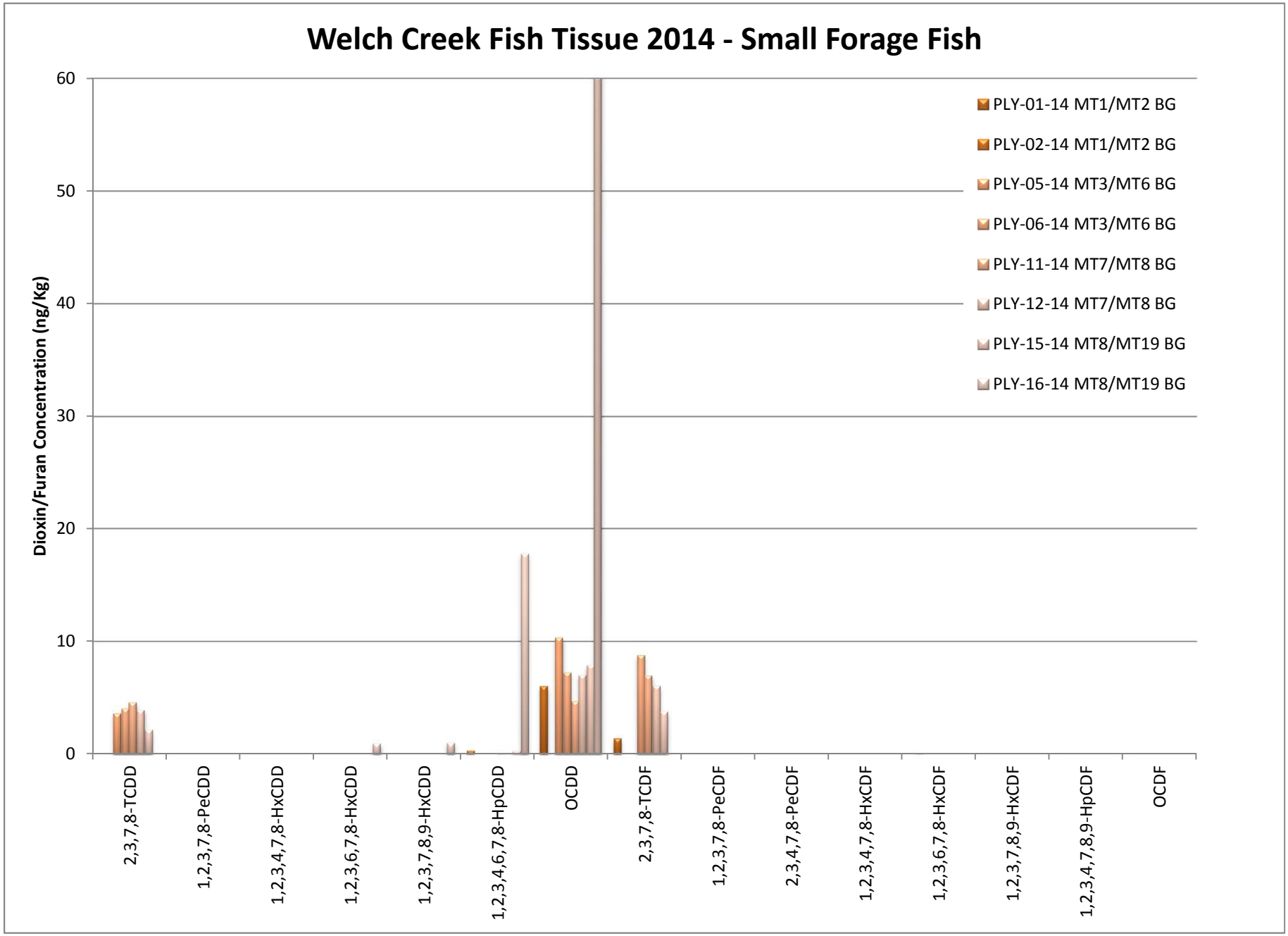

Welch Creek Fish Tissue 2013 - Bottom Feeders
Dioxin/Furan Concentration (ng/Kg)
60
50
40
30
20
10
0
PLY-03-13 MT1/MT2 BB
PLY-07-13 MT3/MT6 YB
PLY-08-13 MT3/MT6 YB
PLY-12-13 MT7/MT8 CC
PLY-13-13 MT7/MT8 WC
PLY-16-13 MT8/GT19 WC
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8,9-HpCDF
OCDF

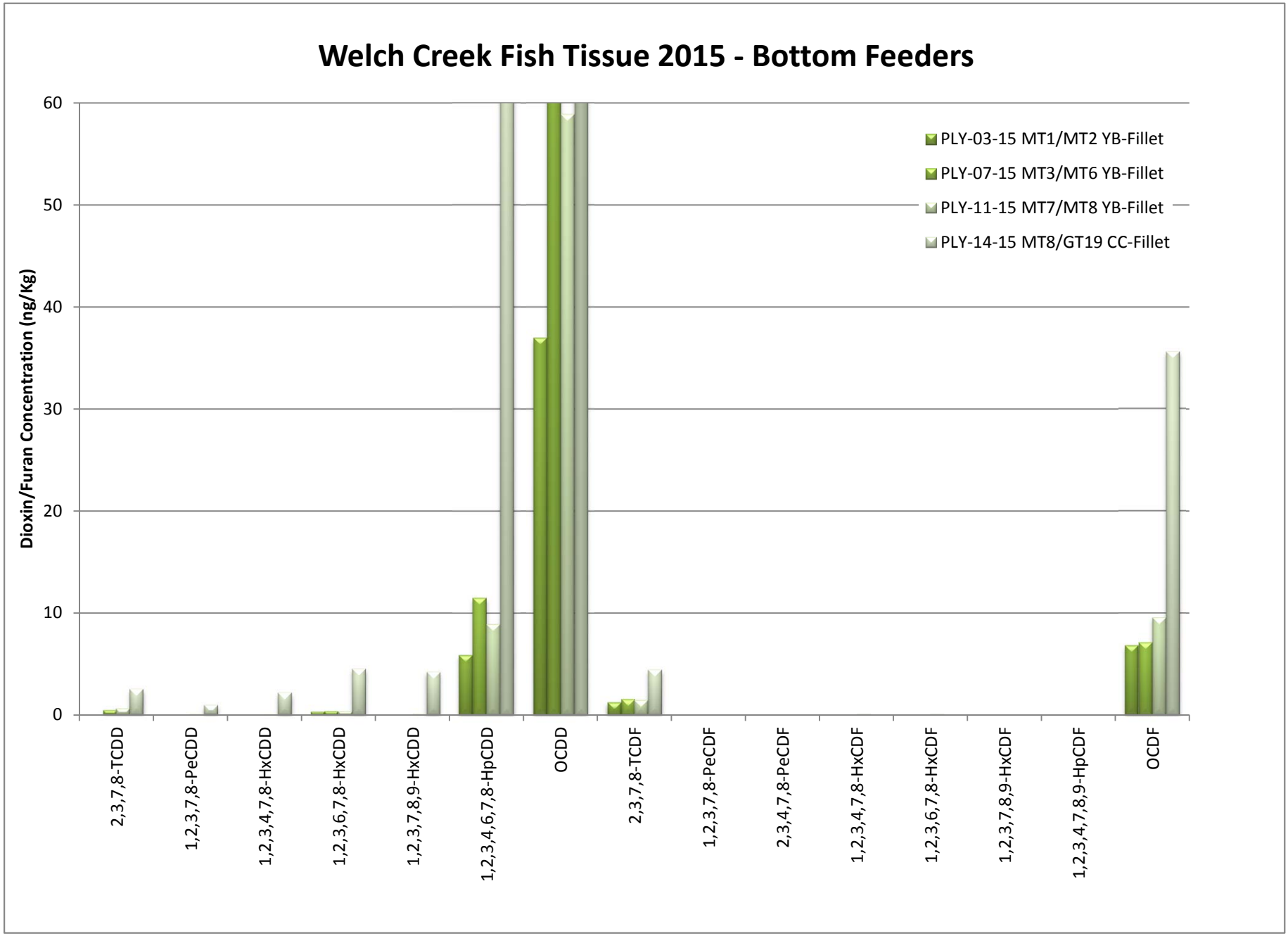

Welch Creek Fish Tissue 2013 - Large Forage Fish
Dioxin/Furan Concentration (ng/Kg)
60
50
40
30
20
10
0
PLY-02-13 MT1/MT2 LB
PLY-06-13 MT3/MT6 LB
PLY-11-13 MT7/MT8 LB
PLY-15-13 MT8/GT19 LB
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8,9-HpCDF
OCDF

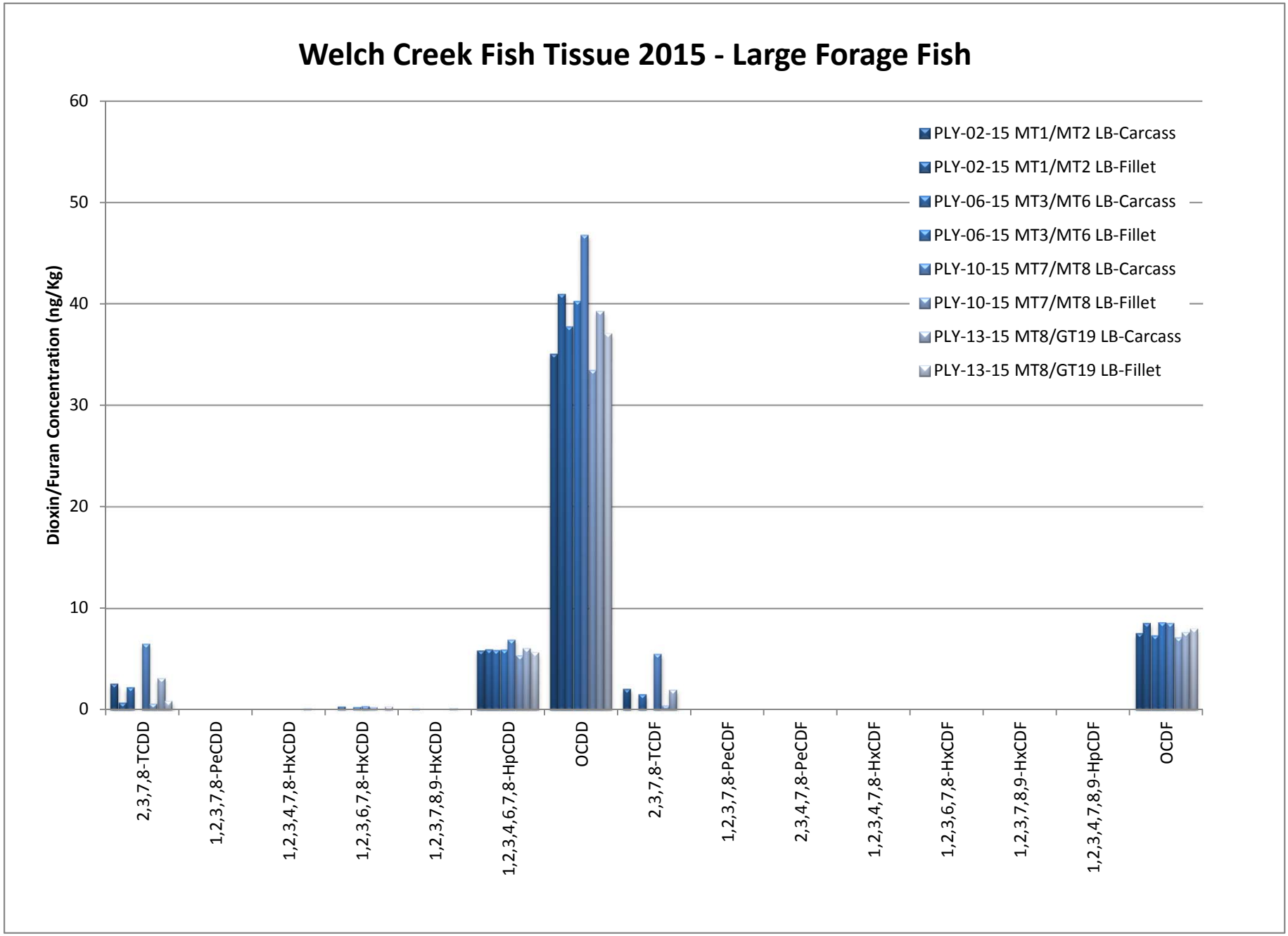

Welch Creek Fish Tissue 2013 - Small Forage Fish
Dioxin/Furan Concentration (ng/Kg)
60
50
40
30
20
10
0
PLY-01-13 MT1/MT2 BG
PLY-04-13 MT3/MT6 BG
PLY-05-13 MT3/MT6 BG
PLY-09-13 MT7/MT8 BG
PLY-10-13 MT7/MT8 BG
PLY-14-13 MT8/GT19 BG
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8,9-HpCDF
OCDF

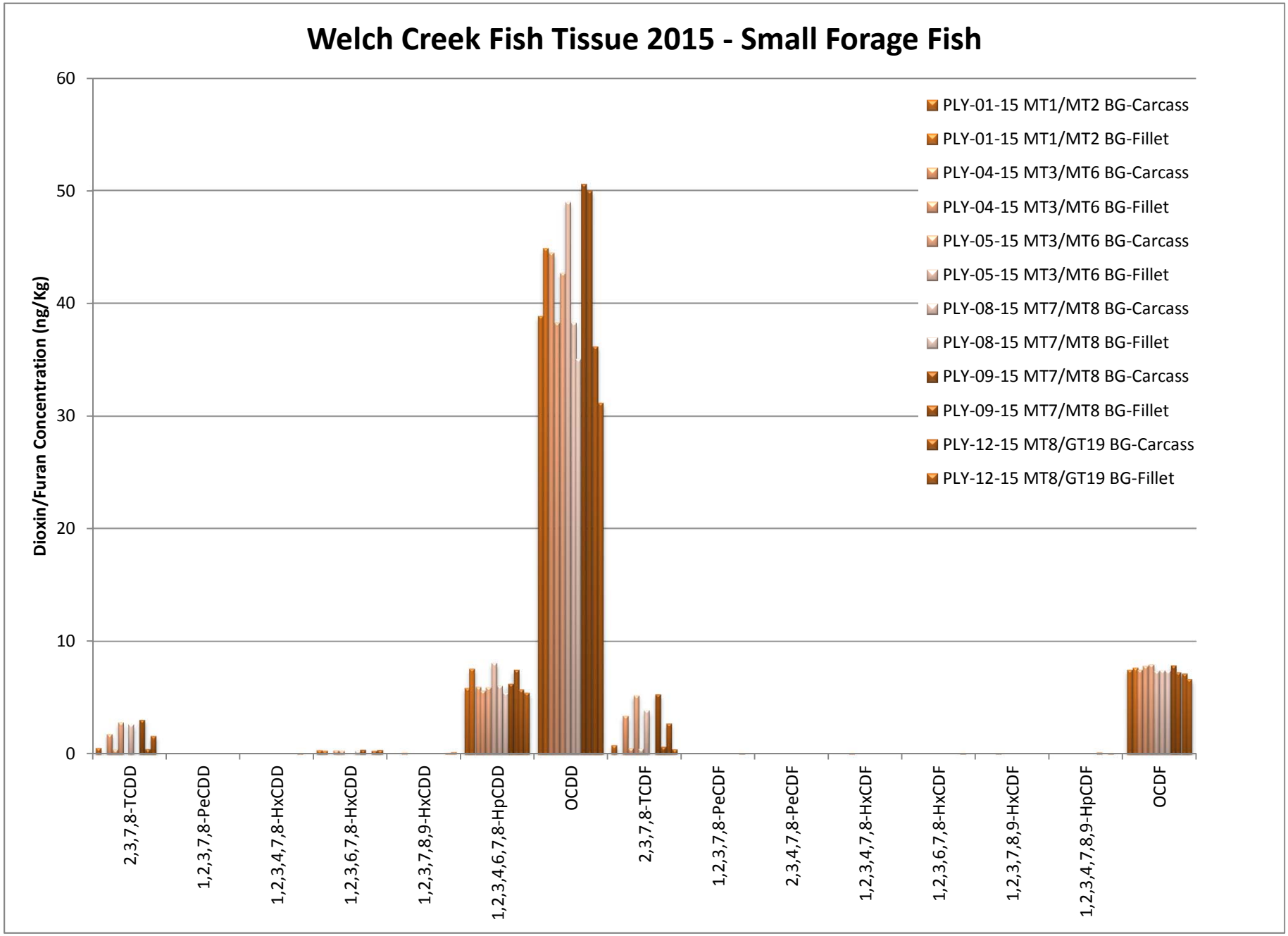

Welch Creek Fish Tissue 2014 - Bottom Feeders
Dioxin/Furan Concentration (ng/Kg)
60
50
40
30
20
10
0
PLY-09-14 MT3/MT6 YB
PLY-10-14 MT3/MT6 WC
PLY-14-14 MT7/MT8 CC
PLY-19-14 MT8/MT19 WC
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8,9-HpCDF
OCDF


Welch Creek Fish Tissue 2014 - Large Forage Fish
Dioxin/Furan Concentration (ng/Kg)
60
50
40
30
20
10
0
PLY-03-14 MT1/MT2 LB
PLY-04-14 MT1/MT2 LB
PLY-07-14 MT3/MT6 LB
PLY-08-14 MT3/MT6 LB
PLY-13-14 MT7/MT8 LB
PLY-17-14 MT8/MT19 LB
PLY-18-14 MT8/MT19 LB
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8,9-HpCDF
OCDF


Welch Creek Fish Tissue 2014 - Small Forage Fish
Dioxin/Furan Concentration (ng/Kg)
60
50
40
30
20
10
0
PLY-01-14 MT1/MT2 BG
PLY-02-14 MT1/MT2 BG
PLY-05-14 MT3/MT6 BG
PLY-06-14 MT3/MT6 BG
PLY-11-14 MT7/MT8 BG
PLY-12-14 MT7/MT8 BG
PLY-15-14 MT8/MT19 BG
PLY-16-14 MT8/MT19 BG
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8,9-HpCDF
OCDF


Welch Creek Fish Tissue 2015 - Bottom Feeders
Dioxin/Furan Concentration (ng/Kg)
60
50
40
30
20
10
0
PLY-03-15 MT1/MT2 YB-Fillet
PLY-07-15 MT3/MT6 YB-Fillet
PLY-11-15 MT7/MT8 YB-Fillet
PLY-14-15 MT8/GT19 CC-Fillet
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8,9-HpCDF
OCDF


Welch Creek Fish Tissue 2015 - Large Forage Fish
Dioxin/Furan Concentration (ng/Kg)
60
50
40
30
20
10
0
PLY-02-15 MT1/MT2 LB-Carcass
PLY-02-15 MT1/MT2 LB-Fillet
PLY-06-15 MT3/MT6 LB-Carcass
PLY-06-15 MT3/MT6 LB-Fillet
PLY-10-15 MT7/MT8 LB-Carcass
PLY-10-15 MT7/MT8 LB-Fillet
PLY-13-15 MT8/GT19 LB-Carcass
PLY-13-15 MT8/GT19 LB-Fillet
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8,9-HpCDF
OCDF


Welch Creek Fish Tissue 2015 - Small Forage Fish
Dioxin/Furan Concentration (ng/Kg)
60
50
40
30
20
10
0
PLY-01-15 MT1/MT2 BG-Carcass
PLY-01-15 MT1/MT2 BG-Fillet
PLY-04-15 MT3/MT6 BG-Carcass
PLY-04-15 MT3/MT6 BG-Fillet
PLY-05-15 MT3/MT6 BG-Carcass
PLY-05-15 MT3/MT6 BG-Fillet
PLY-08-15 MT7/MT8 BG-Carcass
PLY-08-15 MT7/MT8 BG-Fillet
PLY-09-15 MT7/MT8 BG-Carcass
PLY-09-15 MT7/MT8 BG-Fillet
PLY-12-15 MT8/GT19 BG-Carcass
PLY-12-15 MT8/GT19 BG-Fillet
2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,6,7,8-HpCDD
OCDD
2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8,9-HpCDF
OCDF