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June 9, 2014

Ms. Betsy Nightingale
On-Scene Coordinator
U.S. Environmental Protection Agency, Region V
9311 Groh Road
Grosse Ile, MI 48138

Subject: **Alreco Metals Site**
Benton Harbor, Berrien County, Michigan
Contract No.: EP-S5-06-04
Technical Direction Document (TDD) No.: S05-0001-1404-007
Document Control No.: 2323-2A-BLUM
Work Order No.: 20405.012.001.2323.00

Dear Ms. Nightingale:

Under TDD No. S05-0001-1404-007, the U.S. Environmental Protection Agency tasked the Weston Solutions, Inc. (WESTON®), Superfund Technical Assessment and Response Team (START) to perform a site assessment at the Alreco Metals Site in Benton Harbor, Berrien County, MI (the Site).

This letter report discusses the Site description, Site history, Site assessment activities, Site assessment analytical results, and conclusions. The report has four attachments. **Attachment A** provides the figures; **Attachment B** provides a photographic log of Site conditions and sampling activities. **Attachment C** provides the tables, and **Attachment D** provides the laboratory analytical results and data validation report for samples collected during the site assessment.

SITE DESCRIPTION

The Site is located at 900 Alreco Road, Benton Harbor, Berrien County, MI (**Figure 1**), in a commercial/industrial area and is in various stages of being salvaged and demolished. The Site is bordered by railroad tracks to the northwest with open land beyond, open land to the northeast, railroad tracks to the southwest with commercial/industrial properties beyond, and the Paw Paw River to the southeast with open land beyond (**Figure 2**). The coordinates of the Site are 42°08’18.29” North latitude and 86°26’11.31” West longitude. Residential properties are located approximately 1,100 feet west-southwest of the Site. Lake Michigan is located approximately 1 mile west of the Site.

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SITE HISTORY

This Site was an aluminum smelting facility from 1965 to 1981, with secondary (recycled) aluminum smelting activities conducted on the property from 1981 through 2001. In 1981, the Berrien County Circuit Court issued a consent order for Site cleanup.

This plant was purchased by the Reynolds Metals Company from Michigan Standard Alloys in 1981. It was refurbished for the reclamation of aluminum for the die cast industry in 1982 under the name ALRECO, a division of Reynolds Aluminum. In 1983, ALRECO conducted the removal of large amounts of aluminum dross disposed of along the Paw Paw River and restored the banks as part of the court-ordered response. Response activities were completed by 1988.

Tobian Metals acquired the property in 1997 and operated the smelter until 2001. Several aboveground storage tanks (AST) (250,000-gallon fuel oil; two 500-gallon diesel; one 500-gallon gasoline) were reported as abandoned containers in 1999 as part of a Baseline Environmental Assessment (BEA) and the prospective owner was to abandon these ASTs. A release of petroleum to Site soils was reported. The ASTs were not abandoned. An approved partial closure was approved for the site in 2001 in response to Part 201 issues at the Site.

The Berrien County Brownfield Authority conducted a cleanup and due care response in 2005 that included the removal of dross, bag house dust, an oil-water separator and drains, abandoned containers, and contaminated soils. It also repaired/replaced concrete and asphalt in the manufacturing building in preparation for redevelopment by Ace Companies, LLC (Ace). Ace (Harbor Light Metals) acquired the property and submitted a Notice of (contaminant) Migration as part of a BEA for the property in 2005. Permitting requirements of the MDEQ-Air Quality Division and MDEQ-Water Quality Division were not met by the owner between this time and 2010.

SITE INVESTIGATION ACTIVITIES

On April 24, 2014, EPA OSC Betsy Nightingale and WESTON START personnel met at the Site to conduct the site assessment. **Attachment B** provides a photographic log of sampling activities. The site investigation objectives included the following activities:

- Identify the constituents and/or characteristic properties of material present in drums, other miscellaneous containers, baghouse dust, and waste piles at the Site.
- Identify the constituents and/or characteristic properties of soil at the Site.
- Determine if a removal action is warranted based on National Oil and Hazardous Substances Pollution Contingency Plan (NCP) criteria and, if so, whether the response should be classified as emergency, time-critical, or non-time critical.

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- Rapidly assess and evaluate the urgency, magnitude, extent, and effects of a release, or threatened release, of hazardous substances, pollutants, or contaminants identified and their effects on human health and/or the environment.
- Determine a remedy to eliminate, reduce, or control risks to human health and the environment and to support an Action Memorandum documenting the identified removal approach.

Site Reconnaissance

EPA and WESTON START conducted a Site reconnaissance after an initial health and safety briefing. The site reconnaissance was performed in Level D personal protective equipment (PPE) in accordance with the approved site-specific Health and Safety Plan (HASP). Air monitoring was conducted in the breathing zone throughout the site reconnaissance using a MultiRAE five-gas, AreaRAE, hydrogen detector, and Micro-R gamma radiation detector. The MultiRAE five-gas monitor includes a photoionization detector (PID) that measures organic vapors and sensors that measure for carbon monoxide (CO), hydrogen sulfide (H_2S), lower explosive limit (LEL), and oxygen (O_2). The AreaRAE monitor includes sensors that measure for ammonia (NH_3) and sulfur dioxide (SO_2). No readings exceeded background levels during the Site reconnaissance.

Observations made during the Site reconnaissance are summarized in the bullets that follow (**Figure 2**). **Table 1** summarizes the general inventory of containers, which included documenting the approximate sizes, volumes, label information, and contents of containers observed.

- An old railroad spur, piles of old shingles (suspected asbestos-containing material [ACM]), and several smaller storage buildings in various stages of decay were identified in the western portion of the Site. Several labeled (sulfuric acid and bleach) and unlabeled drums were identified in these storage buildings. At the request of EPA, no drums were sampled during this Site assessment.
- A demolished building (suspected ACM), stained soils, and waste piles of baghouse dust (approximately 8 feet by 5 feet by 1 foot) were identified in the southern portion of the Site.
- A large waste pile, approximately 120 feet by 240 feet by 10 feet (approximately 288,000 cubic feet [ft^3]), was observed along the eastern end of the main demolished building.
- Approximately 23 fabric bags of baghouse dust were observed along the northern end of the main demolished building. Some fabric bags were in good condition while others were ripped and the contents spilled along the ground surface.
- A storage building was identified in the northern portion of the Site. Numerous drums, debris piles, and suspected ACMs were identified in this building. A small

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furnace/smelter was identified, which the owner said was a zinc furnace, and contained significant residue (e.g., mixture of precipitate, salts, metals).

- A water pit, approximately 200 feet by 55 feet, was observed along the southern end of the main demolished building. According to the owner, the pit is approximately 10 feet deep and is estimated to be approximately ½ full.
- Drums identified throughout the Site were in various conditions. Some were in good condition with proper labels and some were unlabeled, bulging, or corroded to the point of being open. Contents and volumes of some observed drums are unknown.
- Large sections of fence were either missing or broken along all sides of the Site. Numerous non-Site persons were observed sifting through the various waste piles for scrap materials.
- The buildings were in various stages of demolition/salvage. A majority of the Site is covered in building debris (suspected ACM), insulation, garbage, wooden pallets, scrap, and other miscellaneous containers that are located in uncovered areas of the Site and exposed to all weather-related events.

Sampling Activities

Sampling locations were selected based on observations during the site reconnaissance and chosen to be representative of areas posing potential risk to the public health or welfare of the United States or the environment. The sampling activities were conducted in Level D PPE in accordance with the approved site-specific HASP. All sampling teams remained within eyesight throughout the sampling event. Air monitoring was conducted in the breathing zone throughout the sampling activities using a MultiRAE five-gas meter.

Figure 3 shows the sampling locations. WESTON START collected seven solid waste samples, one liquid waste sample, and one soil sample. **Table 2** provides a sampling summary. The sampling locations are summarized as follows:

- Samples AM-WS01-04242014 and AM-WS02-04242014 were gray/black ash material collected from the baghouse dust waste pile located on the northern end of the former building.
- Samples AM-WS03-04242014, AM-WS04-04242014, and AM-WS05-04242014 were gray/black ash material collected from the waste pile located on the eastern end of the former building.
- Sample AM-WS06-04242014 was black ash/debris material collected from a burn pile located south of the former building.
- Sample AM-WS07-04242014 was suspected ACM collected from a waste pile located inside the north building.

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- Sample AM-WL01-04242014 was clear liquid material collected from a water pit located on the southern end of the former building.
- Sample AM-SS01-04242014 was black soil/debris material collected along the southern property boundary.

Fresh outer sampling gloves were donned before sampling activities began at each new sampling location. All solid, liquid, and soil samples were collected as grab samples. The solid waste and soil samples were collected using disposable plastic scoops and the liquid waste sample was collected using a spare unpreserved laboratory-provided container. All sample containers were filled and labeled with the sample identification number, sampling date, and sampling time. All sampling information was recorded in the Site logbook, and all samples were recorded on the chain-of-custody form.

The samples were submitted to ALS Environmental (ALS) in Holland, MI, under chain of custody for analysis for the following: Target Compound List (TCL) volatile organic compounds (VOC), TCL semivolatile organic compounds (SVOC), Target Analyte List (TAL) metals, polychlorinated biphenyls (PCB), Toxicity Characteristic Leaching Procedure (TCLP) metals, total cyanide, total sulfide, ignitability (flashpoint), corrosivity (pH), and asbestos. On May 9, 2014, EPA requested that samples AM-WS01-04242014 and AM-WS02-04242014 be analyzed for dioxins. ALS in Houston, TX, performed this analysis.

SITE ASSESSMENT ANALYTICAL RESULTS

WESTON START collected seven solid waste samples, one liquid waste sample, and one soil sample to assess whether the Site poses imminent and substantial threats to the public health or welfare of the United States or the environment from the presence of potentially hazardous materials. **Appendix D** provides the laboratory analytical reports and the data validation reports for the samples.

The analytical results were compared to the screening criteria in 40 CFR, Part 261, Subpart C (total cyanide, total sulfide, ignitability, corrosivity, and TCLP metals), MDEQ Non-Residential Soil Direct Contact (TCL VOCs, TCL SVOCs, TAL metals, and PCBs), and EPA Removal Management Levels (RML)-Industrial Soil-Hazard Quotient (HQ) 3 (dioxins) which are based on the EPA Regional Screening Levels-Industrial Soil- May 2014. All solid waste, liquid waste, and soil sample laboratory analytical results were either below the detection limits or below the applicable screening criteria with the exception of dioxins.

The total Toxic Equivalent Quotient (TEQ) to 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) value was used for comparison to the RML for 2,3,7,8-TCDD. The dioxin and furan compounds are members of the same family and exhibit similar toxicological properties; however, they differ in the degree of toxicity. Therefore, a toxicity equivalence factor (TEF) must first be applied to adjust the measured concentrations to a toxicity equivalent concentration. The adjusted toxic

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equivalent concentrations are then added together to result in a total TEQ concentration.

Solid Waste Results (Tables 3 and 4)

Sample AM-WS01-04242014

- The following VOC was detected: acetone, CFC-11, and xylenes. CFC-11 was detected at 3.6 milligram per kilogram (mg/kg) and xylene was detected at 0.25 mg/kg, the maximum concentrations detected.
- The following SVOCs were detected: 1,2-benzphenanthracene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, caprolactam, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. Caprolactam was detected at 8.7 mg/kg and naphthalene was detected at 0.31 mg/kg, the maximum concentrations detected.
- The following TAL metals were detected: aluminum, antimony, barium, cadmium, calcium, chromium, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, sodium, vanadium, and zinc. Antimony was detected at 49 mg/kg; chromium was detected at 630 mg/kg; magnesium was detected at 18,000 mg/kg; manganese was detected at 2,200 mg/kg; mercury was detected at 1.7 mg/kg; sodium was detected at 81,000 mg/kg; and vanadium was detected at 55 mg/kg, the maximum concentrations detected.
- The sample contained 21 percent (%) aluminum (210,000 mg/kg).
- The following TCLP metals were detected: barium, cadmium, chromium, and lead. TCLP cadmium was detected at 0.095 milligram per liter (mg/L), the maximum concentration detected.
- Aroclor-1242 was detected at 2 mg/kg and Aroclor 1254 was detected at 0.44 mg/kg, the maximum concentrations detected.
- The corrosivity result showed a pH of 7.6 Standard Units (SUs). According to 40 CFR 261.22(a), this waste sample does not represent material that meets the definition of characteristically hazardous waste for corrosivity (D002) because the pH value is not less than or equal to 2 SUs or greater than or equal to 12.5 SUs.
- The ignitability result showed a flashpoint of greater than 200 degrees Fahrenheit (°F). According to 40 CFR 261.21 (a), this waste sample does not represent material that meets the definition of characteristically hazardous waste for ignitability (D001) because the flashpoint is not below 140 °F.
- Total cyanide was detected at 1.7 mg/kg, the maximum concentration detected.

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- The total TCDD TEQ showed a result of 1,070 nanogram per kilogram (ng/kg) which exceeds the screening criteria of 152 ng/kg.

Sample AM-WS02-04242014

- The following VOC was detected: acetone and CFC-11. Acetone was detected at 0.51 mg/kg, the maximum concentrations detected.
- The following SVOCs were detected: 1,2-benzphenanthracene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene; benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, caprolactam, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. 1,2-benzphenanthracene was detected at 12 mg/kg; acenaphthylene was detected at 0.58 mg/kg; benzo(a)anthracene was detected at 7.3 mg/kg; benzo(a)pyrene was detected at 4.1 mg/kg; benzo(g,h,i)perylene was detected at 10 mg/kg; benzo(k)fluoranthene was detected at 9.1 mg/kg; fluoranthene was detected at 39 mg/kg; fluorene was detected at 0.51 mg/kg; indeno(1,2,3-cd)pyrene was detected at 10 mg/kg; phenanthrene was detected at 26 mg/kg; and pyrene was detected at 34 mg/kg, the maximum concentrations detected.
- The following TAL metals were detected: aluminum, calcium, chromium, copper, iron, lead, magnesium, manganese, mercury, potassium, sodium, and zinc. Potassium was detected at 64,000 mg/kg, the maximum concentrations detected.
- The sample contained 20% aluminum (200,000 mg/kg).
- The following TCLP metals were detected: arsenic, barium, chromium, and lead. TCLP arsenic was detected at 0.016 mg/L and TCLP chromium was detected at 0.18 mg/L, the maximum concentrations detected.
- The following PCBs were detected: Aroclor 1242 and Aroclor 1254.
- The corrosivity result showed a pH of 7.5 SUs. According to 40 CFR 261.22(a), this waste sample does not represent material that meets the definition of characteristically hazardous waste for corrosivity (D002) because the pH value is not less than or equal to 2 SUs or greater than or equal to 12.5 SUs.
- The ignitability result showed a flashpoint of greater than 200 °F. According to 40 CFR 261.21 (a), this waste sample does not represent material that meets the definition of characteristically hazardous waste for ignitability (D001) because the flashpoint is not below 140 °F.
- Total cyanide was detected at 0.58 mg/kg.
- The total TCDD TEQ showed a result of 972 ng/kg which exceeds the screening criteria of 152 ng/kg.

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Sample AM-WS03-04242014

- The following VOCs were detected: acetone, CFC-11, and styrene. Styrene was detected at 0.059 mg/kg, the maximum concentration detected.
- The following SVOCs were detected: 1,2-benzphenanthracene, 2-methylnaphthalene, acetophenone, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, di-n-octylphthalate, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. 2-methylnaphthalene was detected at 0.15 mg/kg; acetophenone was detected at 1.5 mg/kg; bis(2-ethylhexyl)phthalate was detected at 36 mg/kg; and di-n-octylphthalate was detected at 2.1 mg/kg, the maximum concentrations detected.
- The following TAL metals were detected: aluminum, chromium, copper, iron, lead, magnesium, manganese, mercury, potassium, sodium, and zinc. Iron was detected at 32,000 mg/kg and zinc was detected at 48,000 mg/kg, the maximum concentrations detected.
- The sample contained 17% aluminum (170,000 mg/kg).
- The following TCLP metals were detected: barium, cadmium, and lead.
- The following PCBs were detected: Aroclor 1242 and Aroclor 1254.
- The corrosivity result showed a pH of 8.5 SUs. According to 40 CFR 261.22(a), this waste sample does not represent material that meets the definition of characteristically hazardous waste for corrosivity (D002) because the pH value is not less than or equal to 2 SUs or greater than or equal to 12.5 SUs.
- The ignitability result showed a flashpoint of greater than 200 °F. According to 40 CFR 261.21 (a), this waste sample does not represent material that meets the definition of characteristically hazardous waste for ignitability (D001) because the flashpoint is not below 140 °F.

Sample AM-WS04-04242014

- The following VOC was detected: CFC-11.
- The following SVOCs were detected: 1,2-benzphenanthracene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene.
- The following TAL metals were detected: aluminum, antimony, barium, calcium, chromium, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, sodium, vanadium, and zinc. Nickel was detected at 270 mg/kg, the maximum concentrations detected.

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- The sample contained 17% aluminum (170,000 mg/kg).
- The following TCLP metals were detected: barium and cadmium.
- The corrosivity result showed a pH of 8.4 SUs. According to 40 CFR 261.22(a), this waste sample does not represent material that meets the definition of characteristically hazardous waste for corrosivity (D002) because the pH value is not less than or equal to 2 SUs or greater than or equal to 12.5 SUs.
- The ignitability result showed a flashpoint of greater than 200 °F. According to 40 CFR 261.21 (a), this waste sample does not represent material that meets the definition of characteristically hazardous waste for ignitability (D001) because the flashpoint is not below 140 °F.

Sample AM-WS05-04242014

- The following VOC was detected: acetone.
- The following SVOCs were detected: 1,2-benzphenanthracene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene. Anthracene was detected at 2.2 mg/kg; benzo(b)fluoranthene was detected at 12 mg/kg; and dibenzo(a,h)anthracene was detected at 2.6 mg/kg, the maximum concentrations detected.
- The following TAL metals were detected: aluminum, antimony, barium, cadmium, chromium, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, sodium, vanadium, and zinc. Cadmium was detected at 46 mg/kg; calcium was detected at 49,000 mg/kg; and magnesium was detected at 18,000 mg/kg, the maximum concentrations detected.
- The sample contained 18% aluminum (180,000 mg/kg).
- The following TCLP metal was detected: barium.
- The following PCBs were detected: Aroclor 1242 and Aroclor 1254.
- The corrosivity result showed a pH of 7.4 SUs. According to 40 CFR 261.22(a), this waste sample does not represent material that meets the definition of characteristically hazardous waste for corrosivity (D002) because the pH value is not less than or equal to 2 SUs or greater than or equal to 12.5 SUs.
- The ignitability result showed a flashpoint of greater than 200 °F. According to 40 CFR 261.21 (a), this waste sample does not represent material that meets the definition of characteristically hazardous waste for ignitability (D001) because the flashpoint is not below 140 °F.

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Sample AM-WS06-04242014

- The following SVOCs were detected: benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene.
- The following TAL metals were detected: aluminum, barium, calcium, chromium, copper, iron, lead, magnesium, manganese, mercury, nickel, sodium, vanadium, and zinc. Aluminum was detected at 250,000 mg/kg; barium was detected at 1,400 mg/kg; copper was detected at 7,900 mg/kg; and lead was detected at 610 mg/kg, the maximum concentrations detected.
- The sample contained 25% aluminum (250,000 mg/kg).
- TCLP barium was detected at 20 mg/L and TCLP lead was detected at 0.97 mg/L, the maximum concentrations detected.
- The corrosivity result showed a pH of 7.6 SUs. According to 40 CFR 261.22(a), this waste sample does not represent material that meets the definition of characteristically hazardous waste for corrosivity (D002) because the pH value is not less than or equal to 2 SUs or greater than or equal to 12.5 SUs.
- The ignitability result showed a flashpoint of greater than 200 °F. According to 40 CFR 261.21 (a), this waste sample does not represent material that meets the definition of characteristically hazardous waste for ignitability (D001) because the flashpoint is not below 140 °F.

Sample AM-WS07-04242014

- The asbestos results showed no detections of asbestos.

Liquid Waste Results (Table 3)

Sample AM-WL01-04242014

- The following TAL metals were detected: aluminum, barium, calcium, copper, iron, magnesium, manganese, potassium, and sodium.
- The corrosivity result showed a pH of 7.58 SUs. According to 40 CFR 261.22(a), this waste sample does not represent material that meets the definition of characteristically hazardous waste for corrosivity (D002) because the pH value is not less than or equal to 2 SUs or greater than or equal to 12.5 SUs.
- The ignitability result showed a flashpoint of greater than 200 °F. According to 40 CFR 261.21 (a), this waste sample does not represent material that meets the definition of characteristically hazardous waste for ignitability (D001) because the flashpoint is not below 140 °F.

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Soil Results (Table 3)

Sample AM-SS01-04242014

- The following SVOCs were detected: fluoranthene and pyrene.
- The following TAL metals were detected: aluminum, antimony, arsenic, barium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, sodium, vanadium, and zinc.
- The following PCB was detected: Aroclor 1260 at 0.53 mg/kg.
- The corrosivity result showed a pH of 7.9 SUs. According to 40 CFR 261.22(a), this waste sample does not represent material that meets the definition of characteristically hazardous waste for corrosivity (D002) because the pH value is not less than or equal to 2 SUs or greater than or equal to 12.5 SUs.
- The ignitability result showed a flashpoint of greater than 200 °F. According to 40 CFR 261.21 (a), this waste sample does not represent material that meets the definition of characteristically hazardous waste for ignitability (D001) because the flashpoint is not below 140 °F.
- Total cyanide was detected at 0.56 mg/kg.

THREATS TO HUMAN HEALTH AND THE ENVIRONMENT

Factors to be considered in determining the appropriateness of a potential removal action at a Site are delineated in the NCP at 40 CFR 300.415(b)(2). A summary of the factors applicable to this Site is presented as follows:

- **Actual or potential exposure of nearby human populations, animals, or the food chain to hazardous substances, pollutants, or contaminants.**

  The Paw Paw River is located immediately to the southeast of the Site. Residential properties are located approximately 1,100 feet west-southwest of the Site.

  Large sections of fence were either missing or broken along all sides of the Site. Numerous non-Site persons were observed sifting through the various waste piles for scrap materials. The buildings were in various stages of demolition/salvage. A majority of the Site is covered in building debris (suspected ACM), insulation, garbage, wooden pallets, scrap, and other miscellaneous containers.

  Drums identified throughout the Site were in various conditions. Some were in good condition with proper labels and some unlabeled, bulging, or corroded to the point of being open. Unopened drums of sulfuric acid and bleach were identified and were in good condition.

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Solid waste samples collected from baghouse dust and waste piles contained 17-25% aluminum (170,000-250,000 mg/kg).

The total TCDD TEQ exceeded the applicable screening criteria in samples AM-WS01-04242014 (1,070 ng/kg) and AM-WS02-04242014 (972 ng/kg).

- **Hazardous substances, pollutants, or contaminants in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release.**

  Drums identified throughout the Site were in various conditions. Some were in good condition with proper labels and some unlabeled, bulging, or corroded to the point of being open. Unopened drums of sulfuric acid and bleach were identified and were in good condition.

- **Threat of fire or explosion.**

  Solid waste samples collected from baghouse dust and waste piles contained 17-25% aluminum (170,000-250,000 mg/kg). The possible reactivity threat due to water is a fire concern. In situations with aluminum dross, contact with water can generate flammable and toxic gases such as oxides of sulfur and ammonia. In addition, hydrogen gas could be emitted from the waste piles.

- **Weather conditions that may cause hazardous substances, pollutants, or contaminants to migrate or be released.**

  Benton Harbor receives an average yearly precipitation of 36 inches. Average temperatures range from 20 to 83 °F. The Site ground surface is relatively flat.

  Over 20 fabric bags of baghouse dust were observed along the northern end of the main demolished building. Some fabric bags were in good condition while some were ripped and the contents spilled along the ground surface. The buildings were in various stages of being demolished and salvaged. A majority of the Site is covered in building debris (suspected ACM), insulation, garbage, wooden pallets, scrap, and other miscellaneous containers that are located in uncovered areas of the Site and exposed to all weather-related events. Weather conditions (e.g., precipitation, wind) could cause the contents to migrate.

CONCLUSIONS

WESTON START collected seven solid waste samples, one liquid waste sample, and one soil sample for analysis of the following: TCL VOCs, TCL SVOCs, TAL metals, PCBs, TCLP metals, total cyanide, total sulfide, ignitability (flashpoint), corrosivity (pH), asbestos, and dioxins.

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Wastes present at the Site pose a potential threat of release and a substantial threat to the public health or welfare of the United States or the environment. Hazards identified at the Site include the following uncontrolled factors:

- The total TCDD TEQ exceeded the applicable screening criteria in samples AM-WS01-04242014 (1,070 ng/kg) and AM-WS02-04242014 (972 ng/kg).
- High levels of detectable metals.
- Drums of sulfuric acid and bleach identified.
- Suspected ACM in debris piles and building materials.
- Contaminants in open uncovered areas and miscellaneous containers in poor condition.
- Uncontrolled Site access.
- Questionable integrity of Site building structures.
- Close proximity of Site to residential properties and other sensitive receptors (including waterways).
- Potential migration pathways for waste to public areas.

If you have any questions or comments regarding this report, please contact me at (312) 424-3314.

Very truly yours,
Weston Solutions, Inc.

Trenna J. Seilheimer
WESTON START Project Manager

Attachments:
A - Figures
B - Photographic Log
C – Multi-Media Analytical Results Summary Tables
D - Laboratory Analytical Results and Data Validation Reports for Multi-Media Samples

cc: WESTON START DCN File

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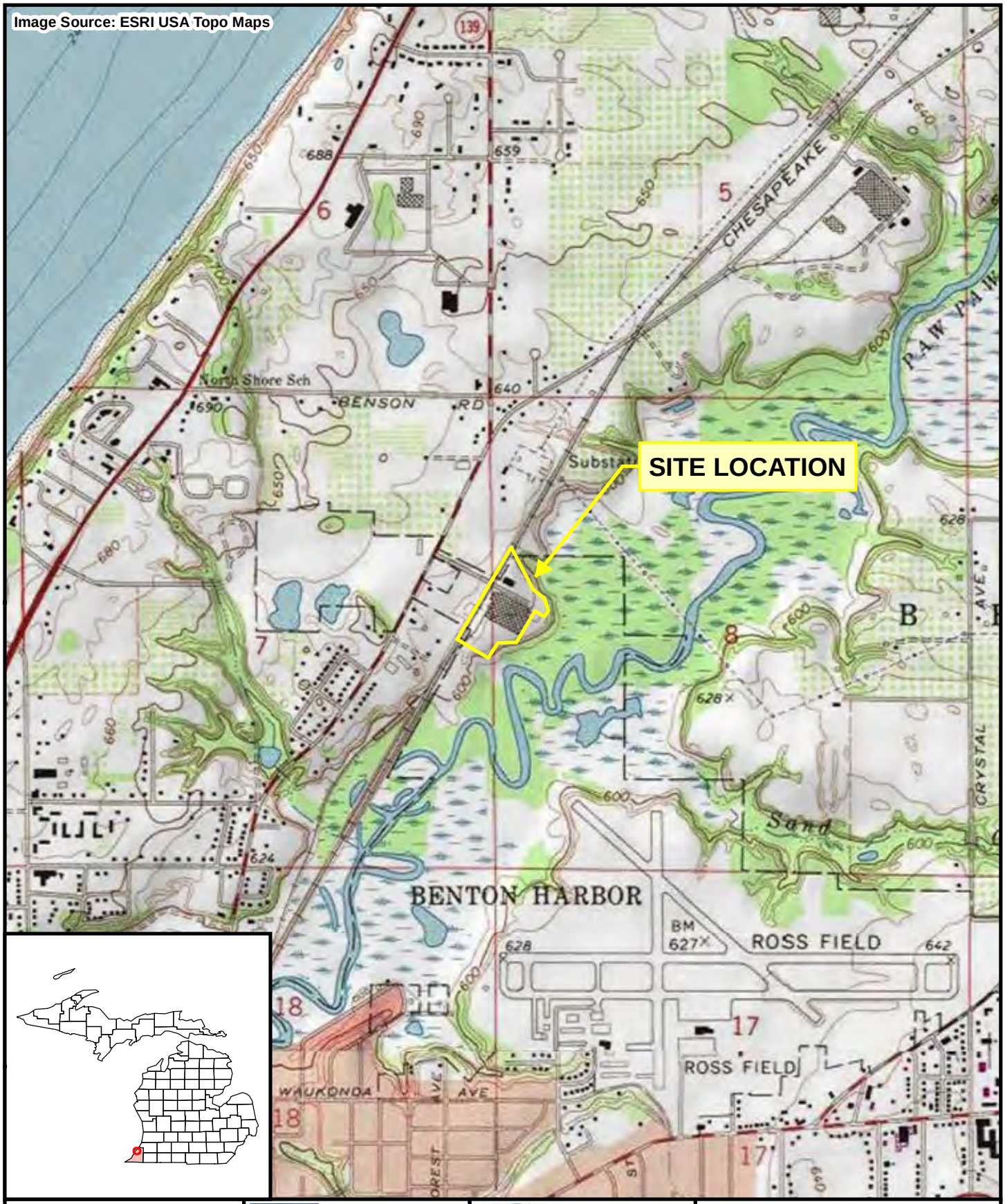
ATTACHMENT A
FIGURES



Legend

Site Boundary

0 2,000 Feet

N

Prepared for:
U.S. EPA REGION V

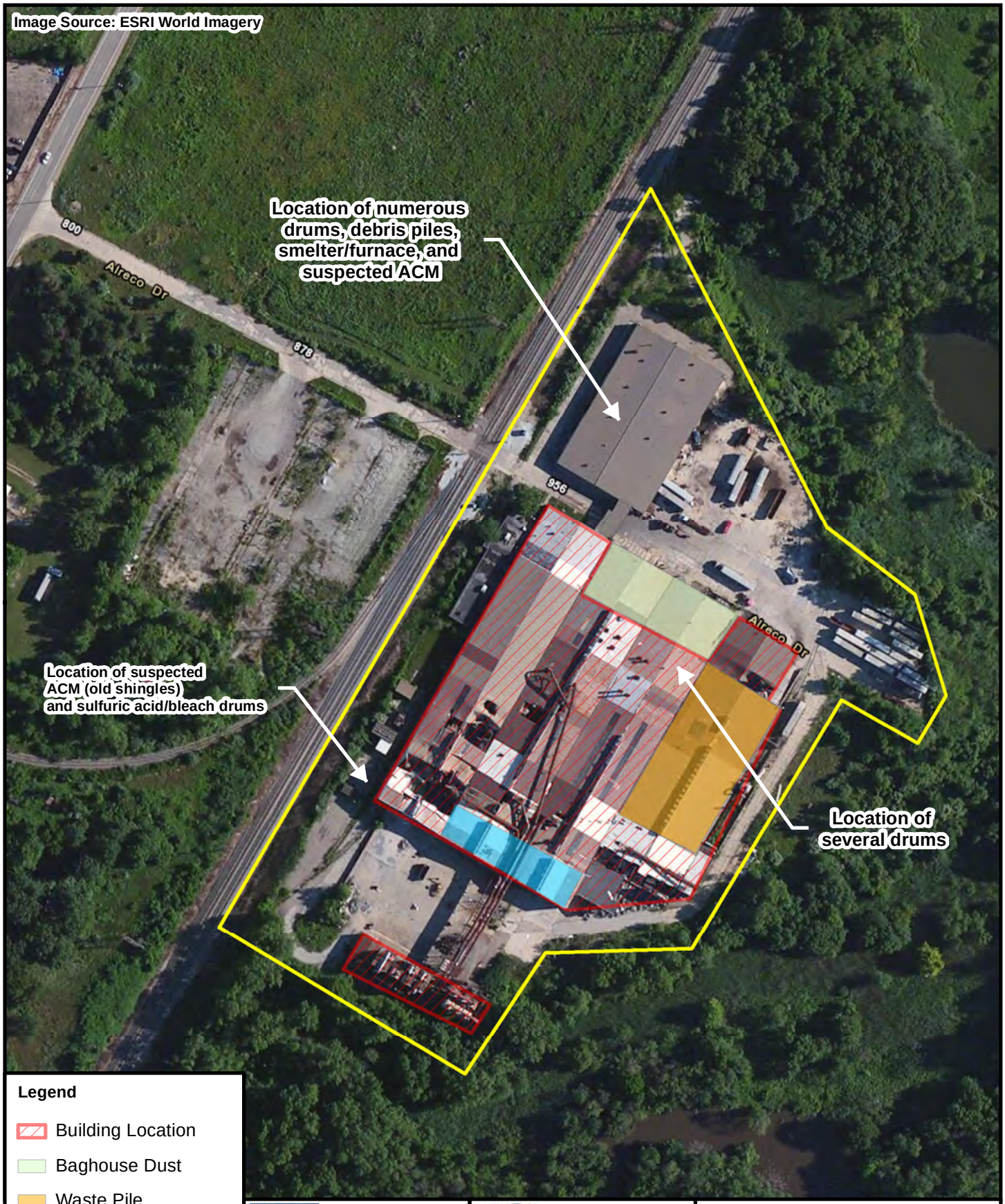
Contract No.: EP-S5-06-04
TDD: S05-0001-1404-007
DCN: 2323-2A-BLUM

Prepared By:
WESTON SOLUTIONS, INC

20 North Wacker Drive
Suite 2035
Chicago, IL 60606

Figure 1
Site Location Map
Alreco Metals SA
Benton Harbor,
Berrien County, Michigan

File: D:\Alreco_Metals\mxd\LR\F1_Site_Location.mxd, 5/9/2014 3:13:41 PM, wojdakon



Legend

- Building Location
- Baghouse Dust
- Waste Pile
- Water Pit
- Site Boundary

0 250 Feet

N

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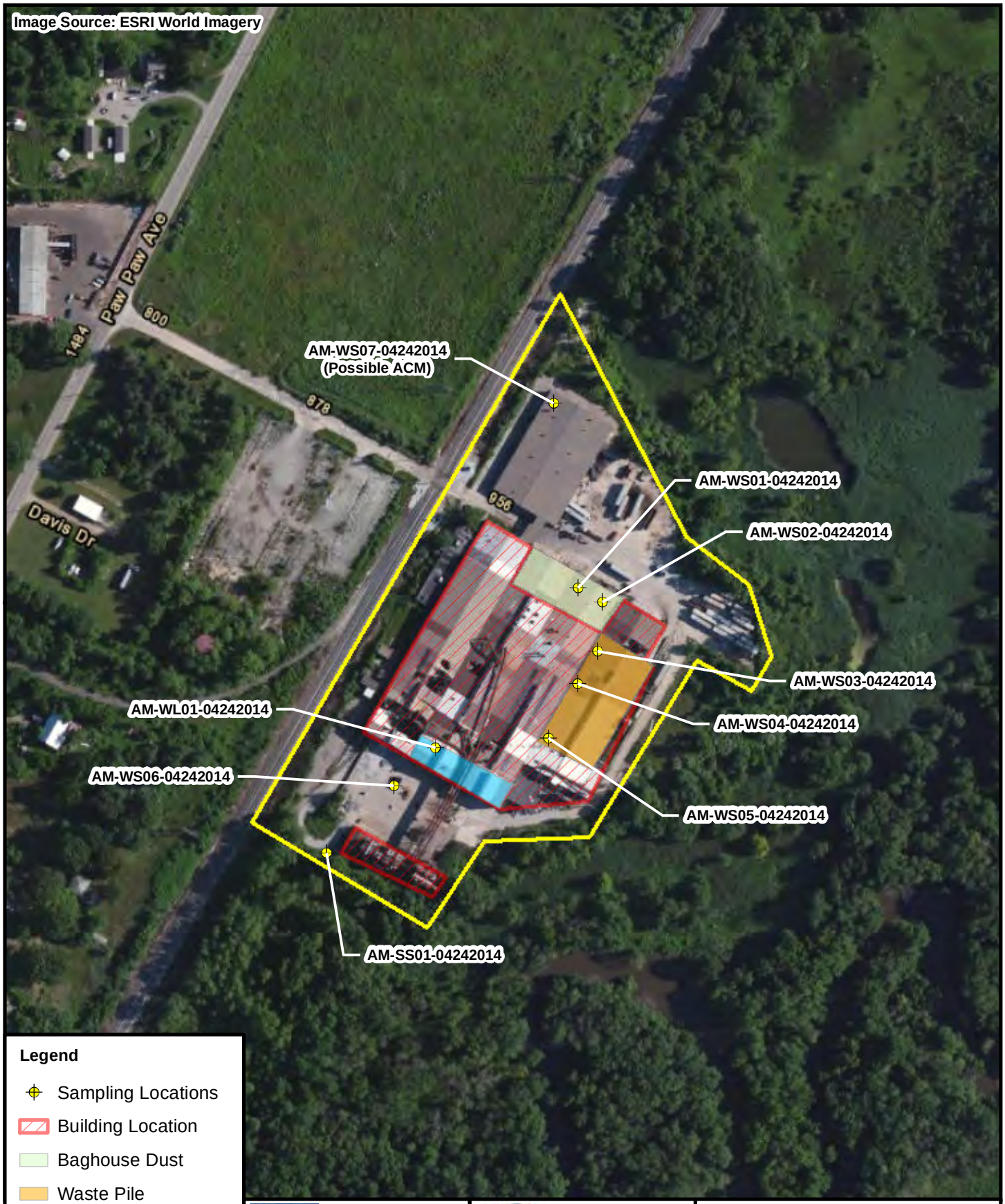
Suite 2035
Chicago, IL 60606

Figure 2
Site Features Map
Alreco Metals SA
Benton Harbor,
Berrien County, Michigan

File: D:\Alreco_Metals\mxd\LRIF2_Site_Features.mxd, 6/9/2014 2:35:25 PM, wojdakon



Prepared for:
U.S. EPA REGION V

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TDD: S05-0001-1404-007
DCN: 2323-2A-BLUM

Prepared By:
WESTON SOLUTIONS, INC

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Suite 2035
Chicago, IL 60606

Figure 3
Sampling Location Map
Alreco Metals SA
Benton Harbor,
Berrien County, Michigan

File: D:\Alreco_Metals\mxd\LR\F3_Sampling_Locations.mxd, 5/13/2014 4:36:44 PM, wojdakon

ATTACHMENT B
PHOTOGRAPHIC LOG

Site: Alreco Metals Site
Photograph No.: 1 **Date:** 4/24/14
Direction: Southeast **Photographer:** Jarod Dempsey
Subject: Debris from demolished office portion of building

Site: Alreco Metals Site
Photograph No.: 2 **Date:** 4/24/14
Direction: East **Photographer:** Jarod Dempsey
Subject: Interior of loading dock portion of building

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Site: Alreco Metals Site
Photograph No.: 3 **Date:** 4/24/14
Direction: South **Photographer:** Jarod Dempsey
Subject: Former railroad spur located on west side of Site

Site: Alreco Metals Site
Photograph No.: 4 **Date:** 4/24/14
Direction: East **Photographer:** Jarod Dempsey
Subject: Water pit located on southern end of demolished building

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Site: Alreco Metals Site
Photograph No.: 5 **Date:** 4/24/14
Direction: Southeast **Photographer:** Jarod Dempsey
Subject: Stained soils located in southern portion of Site

Site: Alreco Metals Site
Photograph No.: 6 **Date:** 4/24/14
Direction: South **Photographer:** Jarod Dempsey
Subject: Baghouse dust/burn waste pile located in southern portion of Site

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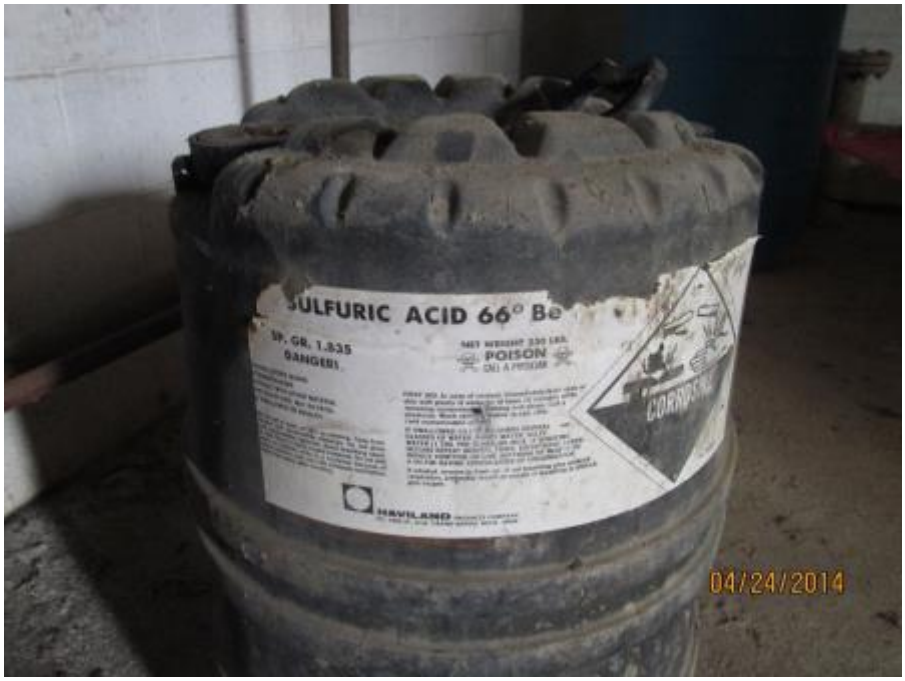
Site: Alreco Metals Site
Photograph No.: 7 **Date:** 4/24/14
Direction: North **Photographer:** Jarod Dempsey
Subject: Piles of oil shingles located on west side of Site



Site: Alreco Metals Site
Photograph No.: 8 **Date:** 4/24/14
Direction: Not Applicable (NA) **Photographer:** Jarod Dempsey
Subject: 30-gallon drum labeled sulfuric acid

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Site: Alreco Metals Site
Photograph No.: 9 **Date:** 4/24/14
Direction: North **Photographer:** Jarod Dempsey
Subject: Baghouse dust sacks located inside the loading dock portion of demolished building

Site: Alreco Metals Site
Photograph No.: 10 **Date:** 4/24/14
Direction: South **Photographer:** Jarod Dempsey
Subject: Compromised baghouse dust sacks

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Site: Alreco Metals Site
Photograph No.: 11 **Date:** 4/24/14
Direction: East **Photographer:** Jarod Dempsey
Subject: South end of waste pile located on eastern end of demolished building

Site: Alreco Metals Site
Photograph No.: 12 **Date:** 4/24/14
Direction: Northwest **Photographer:** Jarod Dempsey
Subject: Waste pile located on eastern end of demolished building

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Site: Alreco Metals Site
Photograph No.: 13 **Date:** 4/24/14
Direction: Northwest **Photographer:** Jarod Dempsey
Subject: Non-Site related people retrieving scrap metal from the north end of waste pile

Site: Alreco Metals Site
Photograph No.: 14 **Date:** 4/24/14
Direction: Southwest **Photographer:** Jarod Dempsey
Subject: Miscellaneous drums and debris located throughout the interior of the north building

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ATTACHMENT C
MULTI-MEDIA ANALYTICAL RESULTS SUMMARY TABLES

Table 1
Container Inventory
Alreco Metals Site
Benton Harbor, Berrien County, Michigan

Location	Quantity	Size (gallons)	Type of Container	Percent Full	Contents or Labeling
Northern portion of Site	13	--	Bag	100	Baghouse dust
	10	--	Bag	50	Baghouse dust (ripped/spilling)
	5	5	Bucket	Unknown	Unknown
	2	1	Pail	100	Paint
	30	55	Drum (steel)	0	Empty
	12	55	Drum (steel)	100	Garbage/Debris
	5	55	Drum (steel)	50	Oil
	3	55	Drum (fiber)	0	Empty or Filled with Debris
	1	--	Tote	10	Clear/light yellow liquid
Eastern portion of Site	10	--	Bag	50	Baghouse dust (ripped/spilling)
	5	55	Drum (poly)	0	Unknown
	5	55	Drum (steel)	0	Unknown
Western portion of Site	3	30	Drum (poly)	100	Sulfuric Acid
	2	55	Drum (poly)	100	Bleach
	2	55	Drum (poly)	Unknown	Unlabeled

Notes:
"--" - Not Available
Fiber - Fiberboard
Poly - Polyethylene

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Table 2
Sampling Summary
Alreco Metals Site
Benton Harbor, Berrien County, Michigan

Field Sample ID	Sample Date	Sample Time	Sampling Location	Sample Description	Sample Analyses
Solid Waste Samples					
AM-WS01-04242014	4/24/14	1535	Baghouse dust waste pile located on northern end of former building	Gray/black ash	TCL VOC, TCL SVOC, TAL Metal, TCLP Metal, PCB, Total Cyanide, Total Sulfide, Corrosivity (pH), Ignitability (flashpoint), Dioxins
AM-WS02-04242014	4/24/14	1540	Baghouse dust waste pile located on northern end of former building	Gray/black ash	
AM-WS03-04242014	4/24/14	1545	Waste pile located on eastern end of former building	Gray/black ash	TCL VOC, TCL SVOC, TAL Metal, TCLP Metal, PCB, Total Cyanide, Total Sulfide, Corrosivity (pH), and Ignitability (flashpoint)
AM-WS04-04242014	4/24/14	1550	Waste pile located on eastern end of former building	Gray/black ash	
AM-WS05-04242014	4/24/14	1555	Waste pile located on eastern end of former building	Gray/black ash	
AM-WS06-04242014	4/24/14	1610	Burn pile located south of former building	Black ash/debris	
AM-WS07-04242014	4/24/14	1625	Waste pile located inside north building-suspected asbestos containing material	White, Homogeneous, Fibrous	Asbestos
Liquid Waste Sample					
AM-WL01-042422014	4/24/14	1640	Water pit located on southern end of former building	Water, Clear	TCL VOC, TCL SVOC, TAL Metal, PCB, Total Cyanide, Total Sulfide, Corrosivity (pH), and Ignitability (flashpoint)
Soil Sample					
AM-SS01-04242014	4/24/14	1605	Southern property boundary	Black soil/debris	TCL SVOC, TAL Metal, PCB, Total Cyanide, Total Sulfide, Corrosivity (pH), and Ignitability (flashpoint)

Notes:
ID - Identification
PCB - Polychlorinated biphenyl
SVOC - Semivolatile organic compound
TAL - Target Analyte List
TCL - Target Compound List
TCLP - Toxicity Characteristic Leaching Procedure
VOC - Volatile organic compound

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Table 3
Solid Waste, Liquid Waste, and Soil Sample Analytical Results
Alreco Metals Site
Benton Harbor, Berrien County, Michigan

		Location ID	AM-WS01	AM-WS02	AM-WS03	AM-WS04	AM-WS05	AM-WS06	AM-WS07	AM-WL01	AM-SS01
		Field Sample ID	AM-WS01-04242014	AM-WS02-04242014	AM-WS03-04242014	AM-WS04-04242014	AM-WS05-04242014	AM-WS06-04242014	AM-WS07-04242014	AM-WL01-04242014	AM-SS01-04242014
		Sample Type	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Liquid Waste	Soil
		Sample Date	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014
Chemical Name	**40 CFR[1]**	**MDEQ DC[2]**	**Result**								
General Parameters											
IGNITABILITY_FLASHPOINT (ºF)	< 140	NL	200 >	200 >	200 >	200 >	200 >	200 >	NA	200 >	200 >
CYANIDE (mg/kg)	NL	250	1.7	0.58	0.65 U	0.67 U	0.81 U	0.67 U	NA	0.005 U	0.56
SULFIDE (mg/kg)	NL	NL	130 U	110 U	130 U	130 U	160 U	130 UJ	NA	1 U	110 U
CORROSIVITY_pH (S.U.)	<=2 or >=12.5	NL	7.6	7.5	8.5	8.4	7.4	7.6	NA	7.58	7.9
Asbestos (%)											
Cellulose	NL	NL	NA	NA	NA	NA	NA	NA	>1<=3	NA	NA
Fiberglass	NL	NL	NA	NA	NA	NA	NA	NA	>90<=100	NA	NA
Non-Fibrous	NL	NL	NA	NA	NA	NA	NA	NA	>1<=3	NA	NA
Other Fibers	NL	NL	NA	NA	NA	NA	NA	NA	ND	NA	NA
Resin/Binder	NL	NL	NA	NA	NA	NA	NA	NA	ND	NA	NA
Amosite	NL	NL	NA	NA	NA	NA	NA	NA	ND	NA	NA
Anthophyllite	NL	NL	NA	NA	NA	NA	NA	NA	ND	NA	NA
Chrysotile	NL	NL	NA	NA	NA	NA	NA	NA	ND	NA	NA
Crocidotile	NL	NL	NA	NA	NA	NA	NA	NA	ND	NA	NA
Tremolite-Actinolite	NL	NL	NA	NA	NA	NA	NA	NA	ND	NA	NA
TAL Metals (Waste Solid/Soil = mg/kg, Waste Liquid = mg/L)											
ALUMINUM	NL	370000	210000	200000	170000	170000	180000	250000	NA	0.22	25000
ANTIMONY	NL	670	49	230 U	250 U	24	42	26 U	NA	0.005 U	7.5
ARSENIC	NL	37	25 U	230 U	250 U	24 U	28 U	26 U	NA	0.005 U	4.5
BARIUM	NL	130000	190	230 U	250 U	130	250	1400	NA	10	200
BERYLLIUM	NL	1600	10 U	91 U	100 U	9.5 U	11 U	10 U	NA	0.002 U	0.92 U
CADMIUM	NL	2100	45	91 U	100 U	9.5 U	46	10 U	NA	0.002 U	5.8
CALCIUM	NL	NL	18000	26000	25000 U	34000	49000	5600	NA	140	45000
CHROMIUM	NL	NL	630	380	330	440	450	280	NA	0.005 U	71
COBALT	NL	9000	25 U	230 U	250 U	24 U	28 U	26 U	NA	0.005 U	4.2
COPPER	NL	73000	6600	6200	5400	6600	5700	7900	NA	0.015	760
IRON	NL	580000	19000	30000	32000	24000	17000	20000	NA	0.18	24000
LEAD	NL	900	420	350	280	260	420	610	NA	0.005 U	69
MAGNESIUM	NL	1000000	18000	12000	12000	9700	18000	6700	NA	43	9600
MANGANESE	NL	90000	2200	1400	1200	1300	1700	1300	NA	0.058	730
MERCURY	NL	580	1.7	0.98	0.26	0.043	1.3	0.067	NA	0.0002 U	0.37
NICKEL	NL	150000	240	230 U	250 U	270	260	240	NA	0.005 U	37
POTASSIUM	NL	NL	59000	64000	30000	32000	53000	1000 U	NA	340	1300
SELENIUM	NL	9600	25 U	230 U	250 U	24 U	28 U	26 U	NA	0.005 U	3.3
SILVER	NL	9000	51 U	230 U	250 U	24 U	28 U	26 U	NA	0.005 U	2.3 U
SODIUM	NL	NL	81000	79000	40000	45000	66000	3000	NA	500	760
THALLIUM	NL	130	25 U	230 U	250 U	24 U	28 U	26 U	NA	0.005 U	2.3 U

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Table 3
Solid Waste, Liquid Waste, and Soil Sample Analytical Results
Alreco Metals Site
Benton Harbor, Berrien County, Michigan

		Location ID	AM-WS01	AM-WS02	AM-WS03	AM-WS04	AM-WS05	AM-WS06	AM-WS07	AM-WL01	AM-SS01
		Field Sample ID	AM-WS01-04242014	AM-WS02-04242014	AM-WS03-04242014	AM-WS04-04242014	AM-WS05-04242014	AM-WS06-04242014	AM-WS07-04242014	AM-WL01-04242014	AM-SS01-04242014
		Sample Type	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Liquid Waste	Soil
		Sample Date	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014
Chemical Name	**40 CFR[1]**	**MDEQ DC[2]**	**Result**								
VANADIUM	NL	5500	55	230 U	250 U	26	36	39	NA	0.005 U	18
ZINC	NL	630000	7400	29000	48000	5200	5800	6200	NA	0.1 U	780
TCLP Metals (mg/L)											
ARSENIC, TCLP	5	NL	0.01 U	0.016	0.01 U	0.1 U	0.1 U	0.1 U	NA	NA	NA
BARIUM, TCLP	100	NL	3.6	1.1	0.98	0.87	1.2	20	NA	NA	NA
CADMIUM, TCLP	1	NL	0.095	0.012	0.037	0.041	0.02 U	0.02 U	NA	NA	NA
CHROMIUM, TCLP	5	NL	0.17	0.18	0.02 U	0.2 U	0.2 U	0.2 U	NA	NA	NA
LEAD, TCLP	5	NL	0.21	0.072	0.053	0.1 U	0.1 U	0.97	NA	NA	NA
SELENIUM, TCLP	1	NL	0.02 U	0.02 U	0.02 U	0.2 U	0.2 U	0.2 U	NA	NA	NA
SILVER, TCLP	5	NL	0.005 U	0.005 U	0.005 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
MERCURY, TCLP	0.2	NL	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	NA	NA	NA
PCBs (Waste Solid/Soil = mg/kg, Waste Liquid = mg/L)											
AROCLOR 1016	NL	NL	0.11 U	0.093 U	0.11 U	0.11 U	0.13 U	0.11 U	NA	0.0002 U	0.092 U
AROCLOR 1221	NL	NL	0.11 U	0.093 U	0.11 U	0.11 U	0.13 U	0.11 U	NA	0.0002 U	0.092 U
AROCLOR 1232	NL	NL	0.11 U	0.093 U	0.11 U	0.11 U	0.13 U	0.11 U	NA	0.0002 U	0.092 U
AROCLOR 1242	NL	NL	2	1.3	0.88	0.11 U	0.32	0.11 U	NA	0.0002 U	0.092 U
AROCLOR 1248	NL	NL	0.11 U	0.093 U	0.11 U	0.11 U	0.13 U	0.11 U	NA	0.0002 U	0.092 U
AROCLOR 1254	NL	NL	0.44	0.25	0.26	0.11 U	0.15	0.11 U	NA	0.0002 U	0.092 U
AROCLOR 1260	NL	NL	0.11 U	0.093 U	0.11 U	0.11 U	0.13 U	0.11 U	NA	0.0002 U	0.53
TCL VOCs (Waste Solid/Soil = mg/kg, Waste Liquid = mg/L)											
1,1,1-TRICHLOROETHANE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
1,1,2,2-TETRACHLOROETHANE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
1,1,2-TRICHLOROETHANE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
1,1-DICHLOROETHANE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
1,1-DICHLOROETHYLENE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
1,2,4-TRICHLOROBENZENE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
1,2-DIBROMO-3-CHLOROPROPANE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
1,2-DIBROMOETHANE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
1,2-DICHLOROBENZENE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
1,2-DICHLOROETHANE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
1,2-DICHLOROPROPANE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.002 U	NA
1,4-DICHLOROBENZENE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.002 U	NA
2-BUTANONE	NL	NA	0.51 U	0.46 U	0.26 U	0.27 U	0.63 U	0.27 U	NA	0.005 U	NA
4-METHYL-2-PENTANONE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.005 U	NA
ACETONE	NL	NA	0.3	0.51	0.14	0.13 U	0.47	0.13 U	NA	0.02 U	NA
BENZENE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
BROMODICHLOROMETHANE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
BROMOMETHANE	NL	NA	0.19 U	0.17 U	0.099 U	0.099 U	0.24 U	0.1 U	NA	0.001 U	NA
CARBON DISULFIDE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.0025 U	NA

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Table 3
Solid Waste, Liquid Waste, and Soil Sample Analytical Results
Alreco Metals Site
Benton Harbor, Berrien County, Michigan

		Location ID	AM-WS01	AM-WS02	AM-WS03	AM-WS04	AM-WS05	AM-WS06	AM-WS07	AM-WL01	AM-SS01
		Field Sample ID	AM-WS01-04242014	AM-WS02-04242014	AM-WS03-04242014	AM-WS04-04242014	AM-WS05-04242014	AM-WS06-04242014	AM-WS07-04242014	AM-WL01-04242014	AM-SS01-04242014
		Sample Type	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Liquid Waste	Soil
		Sample Date	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014
Chemical Name	**40 CFR[1]**	**MDEQ DC[2]**	**Result**								
CARBON TETRACHLORIDE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
CFC-11	NL	NA	3.6	0.92	3.4	0.77	0.095 U	0.04 U	NA	0.001 U	NA
CFC-12	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
CHLORINATED FLUOROCARBON	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
CHLOROBENZENE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
CHLORODIBROMOMETHANE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
CHLOROETHANE	NL	NA	0.25 U	0.23 U	0.13 U	0.13 U	0.32 U	0.13 U	NA	0.001 U	NA
CHLOROFORM	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
CHLOROMETHANE	NL	NA	0.25 U	0.23 U	0.13 U	0.13 U	0.32 U	0.13 U	NA	0.001 U	NA
CIS-1,2-DICHLOROETHENE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
CIS-1,3-DICHLOROPROPENE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
CYCLOHEXANE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.005 U	NA
DICHLOROMETHANE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.005 U	NA
ETHYLBENZENE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
ISOPROPYLBENZENE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
M-DICHLOROBENZENE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.002 U	NA
METHYL ACETATE	NL	NA	0.51 U	0.46 U	0.26 U	0.27 U	0.63 U	0.27 U	NA	0.002 U	NA
METHYL N-BUTYL KETONE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.005 U	NA
METHYL TERT-BUTYL ETHER	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.005 U	NA
METHYLBENZENE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
METHYLCYLOHEXANE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.005 U	NA
STYRENE (MONOMER)	NL	NA	0.076 U	0.068 U	0.059	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
TETRACHLOROETHENE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.002 U	NA
TRANS-1,2-DICHLOROETHENE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
TRANS-1,3-DICHLOROPROPENE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
TRIBOMOMETHANE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
TRICHLOROETHYLENE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
VINYL CHLORIDE	NL	NA	0.076 U	0.068 U	0.04 U	0.04 U	0.095 U	0.04 U	NA	0.001 U	NA
XYLENES, TOTAL	NL	NA	0.25	0.21 U	0.12 U	0.12 U	0.28 U	0.12 U	NA	0.003 U	NA
TCL SVOCs (Waste Solid/Soil = mg/kg, Waste Liquid = mg/L)											
1,1`-BIPHENYL	NL	NL	2.2 U	1.8 U	1.3 U	1.2 U	20 U	0.87 U	NA	0.005 U	37 U
1,2-BENZPHENANTHRACENE	NL	8000	11	12	0.17	0.28	10	0.018 U	NA	0.005 U	0.74 U
2,4,5-TRICHLOROPHENOL	NL	73000	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
2,4,6-TRICHLOROPHENOL	NL	3300	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
2,4-DICHLOROPHENOL	NL	3900	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.01 U	18 U
2,4-DIMETHYLPHENOL	NL	36000	2.2 U	1.8 U	1.3 U	1.2 U	20 U	0.87 U	NA	0.005 U	37 U
2,4-DINITROPHENOL	NL	NL	4.5 U	3.7 U	2.5 U	2.5 U	40 U	1.7 U	NA	0.005 U	74 U
2,4-DINITROTOLUENE	NL	220	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
2,6-DINITROTOLUENE	NL	NL	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U

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Table 3
Solid Waste, Liquid Waste, and Soil Sample Analytical Results
Alreco Metals Site
Benton Harbor, Berrien County, Michigan

		Location ID	AM-WS01	AM-WS02	AM-WS03	AM-WS04	AM-WS05	AM-WS06	AM-WS07	AM-WL01	AM-SS01
		Field Sample ID	AM-WS01-04242014	AM-WS02-04242014	AM-WS03-04242014	AM-WS04-04242014	AM-WS05-04242014	AM-WS06-04242014	AM-WS07-04242014	AM-WL01-04242014	AM-SS01-04242014
		Sample Type	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Liquid Waste	Soil
		Sample Date	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014
Chemical Name	**40 CFR[1]**	**MDEQ DC[2]**	**Result**								
2-CHLORONAPHTHALENE	NL	180000	0.045 U	0.037 U	0.026 U	0.025 U	0.41 U	0.018 U	NA	0.005 U	0.74 U
2-CHLOROPHENOL	NL	4500	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
2-METHYLNAPHTHALENE	NL	26000	0.045 U	0.037 U	0.15	0.025 U	0.41 U	0.018 U	NA	0.005 U	0.74 U
2-METHYLPHENOL	NL	NL	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
2-NITROANILINE	NL	NL	4.5 U	3.7 U	2.5 U	2.5 U	40 U	1.7 U	NA	0.02 U	74 U
2-NITROPHENOL	NL	2000	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
3,3'-DICHLOROBENZIDINE	NL	30	4.5 U	3.7 U	2.5 U	2.5 U	40 U	1.7 U	NA	0.005 U	74 U
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	NL	22000	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
3-NITROANILINE	NL	NL	4.5 U	3.7 U	2.5 U	2.5 U	40 U	1.7 U	NA	0.02 U	74 U
4,6-DINITRO-2-METHYLPHENOL	NL	260	2.2 U	1.8 U	1.3 U	1.2 U	20 U	0.87 U	NA	0.02 U	37 U
4-BROMOPHENYL PHENYL ETHER	NL	NL	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
4-CHLORO-3-METHYLPHENOL	NL	15000	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
4-CHLOROPHENYL PHENYL ETHER	NL	NL	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
4-METHYLPHENOL	NL	NL	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
4-NITROPHENOL	NL	NL	4.5 U	3.7 U	2.5 U	2.5 U	40 U	1.7 U	NA	0.02 U	74 U
ACENAPHTHENE	NL	130000	0.045 U	0.037 U	0.026 U	0.025 U	0.41 U	0.018 U	NA	0.005 U	0.74 U
ACENAPHTHYLENE	NL	5200	0.47	0.58	0.026 U	0.025 U	0.41 U	0.018 U	NA	0.005 U	0.74 U
ACETOPHENONE	NL	150000	2.2 U	1.8 U	1.5	1.2 U	20 U	0.87 U	NA	0.001 U	37 U
ANTHRACENE	NL	730000	1.4	1.4	0.12	0.15	2.2	0.018 U	NA	0.005 U	0.74 U
ATRAZINE	NL	330	2.2 U	1.8 U	1.3 U	1.2 U	20 U	0.87 U	NA	0.001 U	37 U
BENZALDEHYDE	NL	NL	2.2 U	1.8 U	1.3 U	1.2 U	20 U	0.87 U	NA	0.001 U	37 U
BENZO(A)ANTHRACENE	NL	80	7	7.3	0.16	0.2	5.6	0.018 U	NA	0.005 U	0.74 U
BENZO(A)PYRENE	NL	8	2.9	4.1	0.24	0.23	3.8	0.13	NA	0.005 U	0.74 U
BENZO(B)FLUORANTHENE	NL	80	7.6	11	0.31	0.38	12	0.13	NA	0.005 U	0.74 U
BENZO(G,H,I)PERYLENE	NL	7000	5.9	10	0.22	0.25	6.5	0.09	NA	0.005 U	0.74 U
BENZO(K)FLUORANTHENE	NL	800	8.1	9.1	0.19	0.19	4.6	0.098	NA	0.005 U	0.74 U
BENZYL BUTYL PHTHALATE	NL	120000	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
BIS(2-CHLOROETHOXY)METHANE	NL	NL	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
BIS(2-CHLOROETHYL)ETHER	NL	58	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
BIS(2-CHLOROISOPROPYL)ETHER	NL	NL	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
BIS(2-ETHYLHEXYL)PHTHALATE	NL	12000	11	8.5	36	1.2 U	20 U	0.87 U	NA	0.005 U	37 U
CAPROLACTAM	NL	310000	8.7	4.8	1.3 U	1.2 U	20 U	0.87 U	NA	0.01 U	37 U
CARBAZOLE	NL	2400	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.01 U	18 U
DIBENZO(A,H)ANTHRACENE	NL	8	1	1.6	0.026 U	0.025 U	2.6	0.018 U	NA	0.005 U	0.74 U
DIBENZOFURAN	NL	NL	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
DIETHYL PHTHALATE	NL	550000	2.2 U	1.8 U	1.3 U	1.2 U	20 U	0.87 U	NA	0.02 U	37 U
DIMETHYL PHTHALATE	NL	1000000	2.2 U	1.8 U	1.3 U	1.2 U	20 U	0.87 U	NA	0.02 U	37 U
DI-N-BUTYL PHTHALATE	NL	87000	2.2 U	1.8 U	1.3 U	1.2 U	20 U	0.87 U	NA	0.005 U	37 U

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Table 3
Solid Waste, Liquid Waste, and Soil Sample Analytical Results
Alreco Metals Site
Benton Harbor, Berrien County, Michigan

		Location ID	AM-WS01	AM-WS02	AM-WS03	AM-WS04	AM-WS05	AM-WS06	AM-WS07	AM-WL01	AM-SS01
		Field Sample ID	AM-WS01-04242014	AM-WS02-04242014	AM-WS03-04242014	AM-WS04-04242014	AM-WS05-04242014	AM-WS06-04242014	AM-WS07-04242014	AM-WL01-04242014	AM-SS01-04242014
		Sample Type	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Solid Waste	Liquid Waste	Soil
		Sample Date	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014	4/24/2014
Chemical Name	**40 CFR[1]**	**MDEQ DC[2]**	**Result**								
DI-N-OCTYL PHTHALATE	NL	20000	1.1 U	0.89 U	2.1	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
FLUORANTHENE	NL	130000	29	39	0.57	0.77	20	0.16	NA	0.005 U	6.2
FLUORENE	NL	87000	0.43	0.51	0.026 U	0.025 U	0.41 U	0.018 U	NA	0.005 U	0.74 U
HEXACHLORO-1,3-BUTADIENE	NL	470	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
HEXACHLOROBENZENE	NL	37	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
HEXACHLOROCYCLOPENTADIENE	NL	6700	2.2 U	1.8 U	1.3 U	1.2 U	20 U	0.87 U	NA	0.02 U	37 U
HEXACHLOROETHANE	NL	730	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
INDENO(1,2,3-CD)PYRENE	NL	80	6.7	10	0.39	0.31	7.9	0.13	NA	0.005 U	0.74 U
NAPHTHALENE	NL	52000	0.31	0.15	0.076	0.025 U	0.41 U	0.018 U	NA	0.005 U	0.74 U
NITROBENZENE	NL	340	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
N-NITROSODI-N-PROPYLAMINE	NL	5.4	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
N-NITROSODIPHENYLAMINE	NL	7800	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
P-CHLOROANILINE	NL	NL	4.5 U	3.7 U	2.5 U	2.5 U	40 U	1.7 U	NA	0.02 U	74 U
PENTACHLOROPHENOL	NL	320	2.2 U	1.8 U	1.3 U	1.2 U	20 U	0.87 U	NA	0.02 U	37 U
PHENANTHRENE	NL	5200	19	26	0.28	0.39	12	0.018 U	NA	0.005 U	0.74 U
PHENOL	NL	230000	1.1 U	0.89 U	0.61 U	0.6 U	9.8 U	0.42 U	NA	0.005 U	18 U
P-NITROANILINE	NL	NL	4.5 U	3.7 U	2.5 U	2.5 U	40 U	1.7 U	NA	0.02 U	74 U
PYRENE	NL	84000	24	34	0.39	0.54	15	0.087	NA	0.005 U	7.3

Notes:

% - Percent
ºF - Degree Fahrenheit
CFR - Code of Federal Regulations
DC - Direct Contact
ID - Identification
J - Estimated value
MDEQ - Michigan Department of Environmental Quality
mg/kg - Milligram per kilogram
mg/L - Milligram per liter
NA - Not analyzed/applicable
ND - Not detected
NL - Not listed
S.U. - Standard unit
SVOC - Semivolatile organic compound
TAL - Target Analyte List
TCL - Target Compound List
TCLP - Toxicity Characteristic Leaching Procedure
U - Not detected; the associated numerical value is the reporting limit
UJ - Not detected at the estimated associated numerical reporting limit
VOC - Volatile organic compound

1 Screening criteria from Title 40 of the CFR, Part 261, Subpart C
2 Screening criteria from MDEQ Cleanup Criteria Requirements for Response Activity - Non-Residential Soil Direct Contact

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Table 4
Solid Waste Sample Dioxin Analytical Results
Alreco Metals Site
Benton Harbor, Berrien County, Michigan

Chemical Name	RML HQ3 Ind[1]	Location ID	AM-WS01			AM-WS02		
		Field Sample ID	AM-WS01-04242014			AM-WS02-04242014		
		Sample Type	Solid Waste			Solid Waste		
		Sample Date	4/24/2014			4/24/2014		
			Result	TEF Result	TEF Result Adjusted	Result	TEF Result	TEF Result Adjusted
Dioxins (ng/kg)								
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD)			37.1 J	1	37.1	33.6	1	33.6
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN (PECDD)			95.3	1	95.3	77.2	1	77.2
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN (HXCDD)			73.3	0.1	7.33	59.3	0.1	5.93
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN (HXCDD)			128	0.1	12.8	112	0.1	11.2
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN (HXCDD)			90	0.1	9	72.8	0.1	7.28
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN (HPCDD)			934 J	0.01	9.34	667	0.01	6.67
OCTACHLORODIBENZO-P-DIOXIN (OCDD)			5240 J	0.0003	1.572	1910 J	0.0003	0.573
2,3,7,8-TETRACHLORODIBENZOFURAN (TCDF)			1270 J	0.1	127	1110	0.1	111
1,2,3,7,8-PENTACHLORODIBENZOFURAN (PECDF)			671	0.03	20.13	636	0.03	19.08
2,3,4,7,8-PENTACHLORODIBENZOFURAN (PECDF)			1480 P	0.3	444	1370	0.3	411
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN (HXCDF)			888	0.1	88.8	835	0.1	83.5
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN (HXCDF)			681 P	0.1	68.1	650 P	0.1	65
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN (HXCDF)			292	0.1	29.2	267	0.1	26.7
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN (HXCDF)			985	0.1	98.5	872	0.1	87.2
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN (HPCDF)			2310 J	0.01	23.1	2210	0.01	22.1
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN (HPCDF)			270	0.01	2.7	273	0.01	2.73
OCTACHLORODIBENZOFURAN (OCDF)			1850	0.0003	0.555	2520	0.0003	0.756
TOTAL TCDD TEQ - 2005 WHO (ND = MRL)	152		**1070**			**972**		

Notes:

BOLD and highlighted indicates exceedance

EPA - U.S. Environmental Protection Agency
HQ - Hazard Quotient
ID - Identification
Ind - Industrial
J - Estimated value
MRL - Method reporting limit
ND - Non-detect
NL - Not listed
ng/kg - Nanogram per kilogram
P - Indicates chlorodiphenyl either interference present at the retention time of the target compound
RML - Removal Management Level
RSL - Regional Screening Level
TEF - Toxicity Equivalency Factor
TEQ - Toxicity Equivalency Quotient
WHO - World Health Organization

1 Screening criteria from EPA RMLs-Industrial Soil-HQ3-based on EPA RSLs-Industrial Soil May 2014

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ATTACHMENT D
LABORATORY ANALYTICAL RESULTS AND DATA VALIDATION REPORTS FOR MULTI-MEDIA SAMPLES

08-May-2014

Lisa Graczyk
Weston Solutions, Inc
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Re: **20405.016.001.2323.77/Alreco Metals** Work Order: **14041301**

Dear Lisa,

ALS Environmental received 15 samples on 24-Apr-2014 06:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 121.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Electronically approved by: Bill Carey

Tom Beamish
Senior Project Manager

Certificate No: MN 532786

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185
ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

ALS Group USA, Corp

Date: 08-May-14

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: **14041301**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
14041301-01	AM-WS01-04242014	Waste		4/24/2014 15:35	4/24/2014 18:00	☐
14041301-02	AM-WS02-04242014	Waste		4/24/2014 15:40	4/24/2014 18:00	☐
14041301-03	AM-WS03-04242014	Waste		4/24/2014 15:45	4/24/2014 18:00	☐
14041301-04	AM-WS04-04242014	Waste		4/24/2014 15:50	4/24/2014 18:00	☐
14041301-05	AM-WS05-04242014	Waste		4/24/2014 15:55	4/24/2014 18:00	☐
14041301-06	AM-SS01-04242014	Soil		4/24/2014 16:05	4/24/2014 18:00	☐
14041301-07	AM-WS06-04242014	Waste		4/24/2014 16:10	4/24/2014 18:00	☐
14041301-08	AM-WS07-04242014	Waste		4/24/2014 16:25	4/24/2014 18:00	☐
14041301-09	AM-WL01-04242014	Water		4/24/2014 16:40	4/24/2014 18:00	☐
14041301-10	AM-WS01-04242014	Tclp Extract		4/24/2014 15:35	4/24/2014 18:00	☐
14041301-11	AM-WS02-04242014	Tclp Extract		4/24/2014 15:40	4/24/2014 18:00	☐
14041301-12	AM-WS03-04242014	Tclp Extract		4/24/2014 15:45	4/24/2014 18:00	☐
14041301-13	AM-WS04-04242014	Tclp Extract		4/24/2014 15:50	4/24/2014 18:00	☐
14041301-14	AM-WS05-04242014	Tclp Extract		4/24/2014 15:55	4/24/2014 18:00	☐
14041301-15	AM-WS06-04242014	Tclp Extract		4/24/2014 16:10	4/24/2014 18:00	☐

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
WorkOrder: **14041301**

QUALIFIERS, ACRONYMS, UNITS

ALS Group USA, Corp

Date: 08-May-14

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
% of sample	Percent of Sample
°F	Degrees Fahrenheit
as noted	
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
s.u.	Standard Units

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301

Case Narrative

Batch 58013, Method SVO_8270_W, Sample 14041179-19B MS and MSD: The MS and/or MSD recovery was outside the control limit. The parent sample is unrelated to this project.

Batch 58021, Method ICP_6020_W, Sample 14041183-02EMS and MSD: The MS and/or MSD recovery was outside the control limit. The parent sample is unrelated to this project.

Batch 58021, Method ICP_6020_W, Sample 14041301-09C: The reporting limit is elevated due to dilution for high concentrations of non-target analytes.

Batch 58023, Method VOC_8260_S, Sample 14041211-03A MS and MSD: The MS and/or MSD recovery was outside the control limit. The parent sample is unrelated to this project. er control limit. The corresponding result in the parent sample may be biased low for this analyte: THF

Batch 58023, Method VOC_8260_S, Sample LCS-58023: The LCS recovery was above the upper control limit. All sample results in the batch were non-detect. No qualification is necessary for this analyte: 1,2-Dibromoethane

Batch 58052, Method SVO_8270_S, Sample 14041211-03B MS and MSD: The MS and/or MSD recovery was outside the control limit. The parent sample is unrelated to this project.

Batch 58052, Method SVO_8270_S, Sample 14041301-05A: Surrogates out due to matrix interference.

Batch 58052, Method SVO_8270_S, Sample 14041301-05A: The reporting limit is elevated due to not being able to concentrate the sample extract down to the desired final volume.

Batch 58052, Method SVO_8270_S, Sample 14041301-06A: Surrogates out due to matrix interference.

Batch 58052, Method SVO_8270_S, Sample 14041301-06A: The reporting limit is elevated due to not being able to concentrate the sample extract down to the desired final volume.

Batch 58069, Method ICP_6020_W, Sample 14041218-01EMSD: The MS and/or MSD recovery was outside the control limit. The parent sample is unrelated to this project.

Batch 58081, Method ICP_6020_S, Sample 14041242-04BMS and MSD: The MS and/or MSD recovery was outside the control limit. The parent sample is unrelated to this project.

Batch 58114, Method CN_9012_S, Sample 14041352-08B MS and MSD: The MS and/or MSD recovery was outside the control limit. The parent sample is unrelated to this project.

Batch R139612, Method PH_9040_W, Sample 14041301-09F: This is considered a "field test" and, as such, the recommended sample holding time expired prior to sample receipt.

Batch R139970A, Method VOC_8260_W, Sample 14041364-01A MS and MSD: The MS and/or MSD recovery was outside the control limit. The parent sample is unrelated to this project.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS01-04242014
Lab ID: 14041301-01
Collection Date: 4/24/2014 03:35 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**		Prep: SW3541 / 4/28/14	Analyst: **JD**
Aroclor 1016	ND		0.11	mg/Kg-dry	1	4/29/2014 01:28 PM
Aroclor 1221	ND		0.11	mg/Kg-dry	1	4/29/2014 01:28 PM
Aroclor 1232	ND		0.11	mg/Kg-dry	1	4/29/2014 01:28 PM
Aroclor 1242	**2.0**		**0.11**	**mg/Kg-dry**	1	4/29/2014 01:28 PM
Aroclor 1248	ND		0.11	mg/Kg-dry	1	4/29/2014 01:28 PM
Aroclor 1254	**0.44**		**0.11**	**mg/Kg-dry**	1	4/29/2014 01:28 PM
Aroclor 1260	ND		0.11	mg/Kg-dry	1	4/29/2014 01:28 PM
Surr: Decachlorobiphenyl	*87.1*		*40-140*	*%REC*	1	4/29/2014 01:28 PM
MERCURY BY CVAA			**SW7471**		Prep: SW7471 / 4/30/14	Analyst: **LR**
Mercury	**1.7**		**0.24**	**mg/Kg-dry**	10	4/30/2014 06:23 PM
METALS BY ICP-MS			**SW6020A**		Prep: SW3050B / 4/29/14	Analyst: **ML**
Aluminum	**210,000**		**5,100**	**mg/Kg-dry**	5000	5/2/2014 01:28 PM
Antimony	**49**		**25**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Arsenic	ND		25	mg/Kg-dry	50	5/1/2014 04:44 PM
Barium	**190**		**25**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Beryllium	ND		10	mg/Kg-dry	50	5/1/2014 04:44 PM
Cadmium	**45**		**10**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Calcium	**18,000**		**2,500**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Chromium	**630**		**25**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Cobalt	ND		25	mg/Kg-dry	50	5/1/2014 04:44 PM
Copper	**6,600**		**25**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Iron	**19,000**		**410**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Lead	**420**		**25**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Magnesium	**18,000**		**1,000**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Manganese	**2,200**		**25**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Nickel	**240**		**25**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Potassium	**59,000**		**1,000**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Selenium	ND		25	mg/Kg-dry	50	5/1/2014 04:44 PM
Silver	ND		51	mg/Kg-dry	100	5/3/2014 12:20 PM
Sodium	**81,000**		**1,000**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Thallium	ND		25	mg/Kg-dry	50	5/1/2014 04:44 PM
Vanadium	**55**		**25**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Zinc	**7,400**		**51**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep: SW3541 / 4/28/14	Analyst: **RM**
1,1`-Biphenyl	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
2,4,5-Trichlorophenol	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
2,4,6-Trichlorophenol	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS01-04242014
Lab ID: 14041301-01
Collection Date: 4/24/2014 03:35 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
2,4-Dichlorophenol	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
2,4-Dimethylphenol	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
2,4-Dinitrophenol	ND		4.5	mg/Kg-dry	1	4/30/2014 08:22 PM
2,4-Dinitrotoluene	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
2,6-Dinitrotoluene	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
2-Chloronaphthalene	ND		0.045	mg/Kg-dry	1	4/30/2014 08:22 PM
2-Chlorophenol	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
2-Methylnaphthalene	ND		0.045	mg/Kg-dry	1	4/30/2014 08:22 PM
2-Methylphenol	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
2-Nitroaniline	ND		4.5	mg/Kg-dry	1	4/30/2014 08:22 PM
2-Nitrophenol	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
3,3´-Dichlorobenzidine	ND		4.5	mg/Kg-dry	1	4/30/2014 08:22 PM
3-Nitroaniline	ND		4.5	mg/Kg-dry	1	4/30/2014 08:22 PM
4,6-Dinitro-2-methylphenol	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
4-Bromophenyl phenyl ether	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
4-Chloro-3-methylphenol	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
4-Chloroaniline	ND		4.5	mg/Kg-dry	1	4/30/2014 08:22 PM
4-Chlorophenyl phenyl ether	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
4-Methylphenol	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
4-Nitroaniline	ND		4.5	mg/Kg-dry	1	4/30/2014 08:22 PM
4-Nitrophenol	ND		4.5	mg/Kg-dry	1	4/30/2014 08:22 PM
Acenaphthene	ND		0.045	mg/Kg-dry	1	4/30/2014 08:22 PM
Acenaphthylene	**0.47**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Acetophenone	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
Anthracene	**1.4**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Atrazine	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
Benzaldehyde	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
Benzo(a)anthracene	**7.0**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Benzo(a)pyrene	**2.9**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Benzo(b)fluoranthene	**7.6**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Benzo(g,h,i)perylene	**5.9**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Benzo(k)fluoranthene	**8.1**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Bis(2-chloroethoxy)methane	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Bis(2-chloroethyl)ether	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Bis(2-chloroisopropyl)ether	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Bis(2-ethylhexyl)phthalate	**11**		**2.2**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Butyl benzyl phthalate	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Caprolactam	**8.7**		**2.2**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Carbazole	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Chrysene	**11**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS01-04242014
Lab ID: 14041301-01
Collection Date: 4/24/2014 03:35 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibenzo(a,h)anthracene	**1.0**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Dibenzofuran	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Diethyl phthalate	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
Dimethyl phthalate	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
Di-n-butyl phthalate	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
Di-n-octyl phthalate	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Fluoranthene	**29**		**0.45**	**mg/Kg-dry**	10	5/2/2014 12:57 AM
Fluorene	**0.43**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Hexachlorobenzene	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Hexachlorobutadiene	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Hexachlorocyclopentadiene	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
Hexachloroethane	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Indeno(1,2,3-cd)pyrene	**6.7**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Isophorone	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Naphthalene	**0.31**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Nitrobenzene	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
N-Nitrosodi-n-propylamine	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
N-Nitrosodiphenylamine	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Pentachlorophenol	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
Phenanthrene	**19**		**0.45**	**mg/Kg-dry**	10	5/2/2014 12:57 AM
Phenol	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Pyrene	**24**		**0.45**	**mg/Kg-dry**	10	5/2/2014 12:57 AM
Surr: 2,4,6-Tribromophenol	*82.8*		*34-140*	*%REC*	1	4/30/2014 08:22 PM
Surr: 2-Fluorobiphenyl	*85.2*		*12-100*	*%REC*	1	4/30/2014 08:22 PM
Surr: 2-Fluorophenol	*96.1*		*33-117*	*%REC*	1	4/30/2014 08:22 PM
Surr: 4-Terphenyl-d14	*113*		*25-137*	*%REC*	1	4/30/2014 08:22 PM
Surr: Nitrobenzene-d5	*88.2*		*37-107*	*%REC*	1	4/30/2014 08:22 PM
Surr: Phenol-d6	*95.7*		*40-106*	*%REC*	1	4/30/2014 08:22 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 4/28/14	Analyst: **RS**
1,1,1-Trichloroethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,1,2,2-Tetrachloroethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,1,2-Trichloroethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,1,2-Trichlorotrifluoroethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,1-Dichloroethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,1-Dichloroethene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,2,4-Trichlorobenzene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,2-Dibromo-3-chloropropane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,2-Dibromoethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,2-Dichlorobenzene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,2-Dichloroethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS01-04242014
Lab ID: 14041301-01
Collection Date: 4/24/2014 03:35 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,2-Dichloropropane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,3-Dichlorobenzene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,4-Dichlorobenzene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
2-Butanone	ND		0.51	mg/Kg-dry	1	5/1/2014 05:57 PM
2-Hexanone	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
4-Methyl-2-pentanone	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Acetone	**0.30**		**0.25**	**mg/Kg-dry**	1	5/1/2014 05:57 PM
Benzene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Bromodichloromethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Bromoform	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Bromomethane	ND		0.19	mg/Kg-dry	1	5/1/2014 05:57 PM
Carbon disulfide	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Carbon tetrachloride	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Chlorobenzene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Chloroethane	ND		0.25	mg/Kg-dry	1	5/1/2014 05:57 PM
Chloroform	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Chloromethane	ND		0.25	mg/Kg-dry	1	5/1/2014 05:57 PM
cis-1,2-Dichloroethene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
cis-1,3-Dichloropropene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Cyclohexane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Dibromochloromethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Dichlorodifluoromethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Ethylbenzene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Isopropylbenzene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Methyl acetate	ND		0.51	mg/Kg-dry	1	5/1/2014 05:57 PM
Methyl tert-butyl ether	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Methylcyclohexane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Methylene chloride	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Styrene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Tetrachloroethene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Toluene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
trans-1,2-Dichloroethene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
trans-1,3-Dichloropropene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Trichloroethene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Trichlorofluoromethane	**3.6**		**0.076**	**mg/Kg-dry**	1	5/1/2014 05:57 PM
Vinyl chloride	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Xylenes, Total	**0.25**		**0.23**	**mg/Kg-dry**	1	5/1/2014 05:57 PM
Surr: 1,2-Dichloroethane-d4	*98.0*		*70-130*	*%REC*	1	5/1/2014 05:57 PM
Surr: 4-Bromofluorobenzene	*99.0*		*70-130*	*%REC*	1	5/1/2014 05:57 PM
Surr: Dibromofluoromethane	*95.7*		*70-130*	*%REC*	1	5/1/2014 05:57 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS01-04242014
Lab ID: 14041301-01
Collection Date: 4/24/2014 03:35 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Toluene-d8	*98.6*		*70-130*	*%REC*	1	5/1/2014 05:57 PM
CYANIDE, TOTAL			**SW9012A**		Prep: SW9012A / 4/30/14	Analyst: **JB**
Cyanide, Total	**1.7**		**0.64**	**mg/Kg-dry**	1	4/30/2014 02:40 PM
FLASHPOINT, OPEN-CUP			**D92**			Analyst: **RLF**
Flashpoint, Open-cup	**>200**			**°F**	1	4/29/2014 08:45 AM
MOISTURE			**A2540 G**			Analyst: **AT**
Moisture	**22**		**0.050**	**% of sample**	1	4/25/2014 12:50 PM
PH			**SW9045D**		Prep: EXTRACT / 4/25/14	Analyst: **AT**
pH	**7.6**			**s.u.**	1	4/25/2014 04:00 PM
SULFIDE			**SW9034**		Prep: SW9030 / 4/29/14	Analyst: **EE**
Sulfide (Acid Soluble)	ND		130	mg/Kg-dry	1	4/29/2014 03:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS02-04242014
Lab ID: 14041301-02
Collection Date: 4/24/2014 03:40 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**		Prep: SW3541 / 4/28/14	Analyst: **JD**
Aroclor 1016	ND		0.093	mg/Kg-dry	1	4/29/2014 01:44 PM
Aroclor 1221	ND		0.093	mg/Kg-dry	1	4/29/2014 01:44 PM
Aroclor 1232	ND		0.093	mg/Kg-dry	1	4/29/2014 01:44 PM
Aroclor 1242	**1.3**		**0.093**	**mg/Kg-dry**	1	4/29/2014 01:44 PM
Aroclor 1248	ND		0.093	mg/Kg-dry	1	4/29/2014 01:44 PM
Aroclor 1254	**0.25**		**0.093**	**mg/Kg-dry**	1	4/29/2014 01:44 PM
Aroclor 1260	ND		0.093	mg/Kg-dry	1	4/29/2014 01:44 PM
Surr: Decachlorobiphenyl	*78.1*		*40-140*	*%REC*	1	4/29/2014 01:44 PM
MERCURY BY CVAA			**SW7471**		Prep: SW7471 / 4/30/14	Analyst: **LR**
Mercury	**0.98**		**0.11**	**mg/Kg-dry**	5	4/30/2014 06:25 PM
METALS BY ICP-MS			**SW6020A**		Prep: SW3050B / 4/29/14	Analyst: **ML**
Aluminum	**200,000**		**4,600**	**mg/Kg-dry**	5000	5/2/2014 01:34 PM
Antimony	ND		230	mg/Kg-dry	500	5/1/2014 04:50 PM
Arsenic	ND		230	mg/Kg-dry	500	5/1/2014 04:50 PM
Barium	ND		230	mg/Kg-dry	500	5/1/2014 04:50 PM
Beryllium	ND		91	mg/Kg-dry	500	5/1/2014 04:50 PM
Cadmium	ND		91	mg/Kg-dry	500	5/1/2014 04:50 PM
Calcium	**26,000**		**23,000**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
Chromium	**380**		**230**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
Cobalt	ND		230	mg/Kg-dry	500	5/1/2014 04:50 PM
Copper	**6,200**		**230**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
Iron	**30,000**		**3,700**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
Lead	**350**		**230**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
Magnesium	**12,000**		**9,100**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
Manganese	**1,400**		**230**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
Nickel	ND		230	mg/Kg-dry	500	5/1/2014 04:50 PM
Potassium	**64,000**		**9,100**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
Selenium	ND		230	mg/Kg-dry	500	5/1/2014 04:50 PM
Silver	ND		230	mg/Kg-dry	500	5/1/2014 04:50 PM
Sodium	**79,000**		**9,100**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
Thallium	ND		230	mg/Kg-dry	500	5/1/2014 04:50 PM
Vanadium	ND		230	mg/Kg-dry	500	5/1/2014 04:50 PM
Zinc	**29,000**		**460**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep: SW3541 / 4/28/14	Analyst: **RM**
1,1`-Biphenyl	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
2,4,5-Trichlorophenol	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
2,4,6-Trichlorophenol	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS02-04242014
Lab ID: 14041301-02
Collection Date: 4/24/2014 03:40 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
2,4-Dichlorophenol	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
2,4-Dimethylphenol	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
2,4-Dinitrophenol	ND		3.7	mg/Kg-dry	1	4/30/2014 08:42 PM
2,4-Dinitrotoluene	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
2,6-Dinitrotoluene	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
2-Chloronaphthalene	ND		0.037	mg/Kg-dry	1	4/30/2014 08:42 PM
2-Chlorophenol	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
2-Methylnaphthalene	ND		0.037	mg/Kg-dry	1	4/30/2014 08:42 PM
2-Methylphenol	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
2-Nitroaniline	ND		3.7	mg/Kg-dry	1	4/30/2014 08:42 PM
2-Nitrophenol	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
3,3´-Dichlorobenzidine	ND		3.7	mg/Kg-dry	1	4/30/2014 08:42 PM
3-Nitroaniline	ND		3.7	mg/Kg-dry	1	4/30/2014 08:42 PM
4,6-Dinitro-2-methylphenol	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
4-Bromophenyl phenyl ether	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
4-Chloro-3-methylphenol	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
4-Chloroaniline	ND		3.7	mg/Kg-dry	1	4/30/2014 08:42 PM
4-Chlorophenyl phenyl ether	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
4-Methylphenol	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
4-Nitroaniline	ND		3.7	mg/Kg-dry	1	4/30/2014 08:42 PM
4-Nitrophenol	ND		3.7	mg/Kg-dry	1	4/30/2014 08:42 PM
Acenaphthene	ND		0.037	mg/Kg-dry	1	4/30/2014 08:42 PM
Acenaphthylene	**0.58**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Acetophenone	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
Anthracene	**1.4**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Atrazine	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
Benzaldehyde	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
Benzo(a)anthracene	**7.3**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Benzo(a)pyrene	**4.1**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Benzo(b)fluoranthene	**11**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Benzo(g,h,i)perylene	**10**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Benzo(k)fluoranthene	**9.1**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Bis(2-chloroethoxy)methane	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Bis(2-chloroethyl)ether	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Bis(2-chloroisopropyl)ether	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Bis(2-ethylhexyl)phthalate	**8.5**		**1.8**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Butyl benzyl phthalate	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Caprolactam	**4.8**		**1.8**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Carbazole	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Chrysene	**12**		**0.37**	**mg/Kg-dry**	10	5/2/2014 01:17 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS02-04242014
Lab ID: 14041301-02
Collection Date: 4/24/2014 03:40 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibenzo(a,h)anthracene	**1.6**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Dibenzofuran	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Diethyl phthalate	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
Dimethyl phthalate	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
Di-n-butyl phthalate	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
Di-n-octyl phthalate	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Fluoranthene	**39**		**0.37**	**mg/Kg-dry**	10	5/2/2014 01:17 AM
Fluorene	**0.51**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Hexachlorobenzene	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Hexachlorobutadiene	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Hexachlorocyclopentadiene	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
Hexachloroethane	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Indeno(1,2,3-cd)pyrene	**10**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Isophorone	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Naphthalene	**0.15**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Nitrobenzene	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
N-Nitrosodi-n-propylamine	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
N-Nitrosodiphenylamine	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Pentachlorophenol	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
Phenanthrene	**26**		**0.37**	**mg/Kg-dry**	10	5/2/2014 01:17 AM
Phenol	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Pyrene	**34**		**0.37**	**mg/Kg-dry**	10	5/2/2014 01:17 AM
Surr: 2,4,6-Tribromophenol	*89.6*		*34-140*	*%REC*	1	4/30/2014 08:42 PM
Surr: 2-Fluorobiphenyl	*86.0*		*12-100*	*%REC*	1	4/30/2014 08:42 PM
Surr: 2-Fluorophenol	*92.6*		*33-117*	*%REC*	1	4/30/2014 08:42 PM
Surr: 4-Terphenyl-d14	*113*		*25-137*	*%REC*	1	4/30/2014 08:42 PM
Surr: Nitrobenzene-d5	*84.8*		*37-107*	*%REC*	1	4/30/2014 08:42 PM
Surr: Phenol-d6	*94.5*		*40-106*	*%REC*	1	4/30/2014 08:42 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 4/28/14	Analyst: **RS**
1,1,1-Trichloroethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,1,2,2-Tetrachloroethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,1,2-Trichloroethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,1,2-Trichlorotrifluoroethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,1-Dichloroethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,1-Dichloroethene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,2,4-Trichlorobenzene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,2-Dibromo-3-chloropropane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,2-Dibromoethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,2-Dichlorobenzene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,2-Dichloroethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS02-04242014
Lab ID: 14041301-02
Collection Date: 4/24/2014 03:40 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,2-Dichloropropane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,3-Dichlorobenzene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,4-Dichlorobenzene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
2-Butanone	ND		0.46	mg/Kg-dry	1	5/1/2014 06:22 PM
2-Hexanone	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
4-Methyl-2-pentanone	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Acetone	**0.51**		**0.23**	**mg/Kg-dry**	1	5/1/2014 06:22 PM
Benzene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Bromodichloromethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Bromoform	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Bromomethane	ND		0.17	mg/Kg-dry	1	5/1/2014 06:22 PM
Carbon disulfide	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Carbon tetrachloride	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Chlorobenzene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Chloroethane	ND		0.23	mg/Kg-dry	1	5/1/2014 06:22 PM
Chloroform	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Chloromethane	ND		0.23	mg/Kg-dry	1	5/1/2014 06:22 PM
cis-1,2-Dichloroethene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
cis-1,3-Dichloropropene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Cyclohexane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Dibromochloromethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Dichlorodifluoromethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Ethylbenzene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Isopropylbenzene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Methyl acetate	ND		0.46	mg/Kg-dry	1	5/1/2014 06:22 PM
Methyl tert-butyl ether	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Methylcyclohexane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Methylene chloride	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Styrene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Tetrachloroethene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Toluene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
trans-1,2-Dichloroethene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
trans-1,3-Dichloropropene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Trichloroethene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Trichlorofluoromethane	**0.92**		**0.068**	**mg/Kg-dry**	1	5/1/2014 06:22 PM
Vinyl chloride	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Xylenes, Total	ND		0.21	mg/Kg-dry	1	5/1/2014 06:22 PM
Surr: 1,2-Dichloroethane-d4	*98.3*		*70-130*	*%REC*	1	5/1/2014 06:22 PM
Surr: 4-Bromofluorobenzene	*99.0*		*70-130*	*%REC*	1	5/1/2014 06:22 PM
Surr: Dibromofluoromethane	*91.0*		*70-130*	*%REC*	1	5/1/2014 06:22 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS02-04242014
Lab ID: 14041301-02
Collection Date: 4/24/2014 03:40 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Toluene-d8	*100*		*70-130*	*%REC*	1	5/1/2014 06:22 PM
CYANIDE, TOTAL			**SW9012A**		Prep: SW9012A / 4/30/14	Analyst: **JB**
Cyanide, Total	**0.58**		**0.57**	**mg/Kg-dry**	1	4/30/2014 02:40 PM
FLASHPOINT, OPEN-CUP			**D92**			Analyst: **RLF**
Flashpoint, Open-cup	**>200**			**°F**	1	4/29/2014 08:45 AM
MOISTURE			**A2540 G**			Analyst: **AT**
Moisture	**12**		**0.050**	**% of sample**	1	4/25/2014 12:50 PM
PH			**SW9045D**		Prep: EXTRACT / 4/25/14	Analyst: **AT**
pH	**7.5**			**s.u.**	1	4/25/2014 04:00 PM
SULFIDE			**SW9034**		Prep: SW9030 / 4/29/14	Analyst: **EE**
Sulfide (Acid Soluble)	ND		110	mg/Kg-dry	1	4/29/2014 03:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS03-04242014
Lab ID: 14041301-03
Collection Date: 4/24/2014 03:45 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**		Prep: SW3541 / 4/28/14	Analyst: **JD**
Aroclor 1016	ND		0.11	mg/Kg-dry	1	4/29/2014 02:00 PM
Aroclor 1221	ND		0.11	mg/Kg-dry	1	4/29/2014 02:00 PM
Aroclor 1232	ND		0.11	mg/Kg-dry	1	4/29/2014 02:00 PM
Aroclor 1242	**0.88**		**0.11**	**mg/Kg-dry**	1	4/29/2014 02:00 PM
Aroclor 1248	ND		0.11	mg/Kg-dry	1	4/29/2014 02:00 PM
Aroclor 1254	**0.26**		**0.11**	**mg/Kg-dry**	1	4/29/2014 02:00 PM
Aroclor 1260	ND		0.11	mg/Kg-dry	1	4/29/2014 02:00 PM
Surr: Decachlorobiphenyl	*83.1*		*40-140*	*%REC*	1	4/29/2014 02:00 PM
MERCURY BY CVAA			**SW7471**		Prep: SW7471 / 4/30/14	Analyst: **LR**
Mercury	**0.26**		**0.12**	**mg/Kg-dry**	5	4/30/2014 06:28 PM
METALS BY ICP-MS			**SW6020A**		Prep: SW3050B / 4/29/14	Analyst: **ML**
Aluminum	**170,000**		**500**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
Antimony	ND		250	mg/Kg-dry	500	5/1/2014 06:29 PM
Arsenic	ND		250	mg/Kg-dry	500	5/1/2014 06:29 PM
Barium	ND		250	mg/Kg-dry	500	5/1/2014 06:29 PM
Beryllium	ND		100	mg/Kg-dry	500	5/1/2014 06:29 PM
Cadmium	ND		100	mg/Kg-dry	500	5/1/2014 06:29 PM
Calcium	ND		25,000	mg/Kg-dry	500	5/1/2014 06:29 PM
Chromium	**330**		**250**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
Cobalt	ND		250	mg/Kg-dry	500	5/1/2014 06:29 PM
Copper	**5,400**		**250**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
Iron	**32,000**		**4,000**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
Lead	**280**		**250**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
Magnesium	**12,000**		**10,000**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
Manganese	**1,200**		**250**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
Nickel	ND		250	mg/Kg-dry	500	5/1/2014 06:29 PM
Potassium	**30,000**		**10,000**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
Selenium	ND		250	mg/Kg-dry	500	5/1/2014 06:29 PM
Silver	ND		250	mg/Kg-dry	500	5/1/2014 06:29 PM
Sodium	**40,000**		**10,000**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
Thallium	ND		250	mg/Kg-dry	500	5/1/2014 06:29 PM
Vanadium	ND		250	mg/Kg-dry	500	5/1/2014 06:29 PM
Zinc	**48,000**		**500**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep: SW3541 / 4/28/14	Analyst: **RM**
1,1`-Biphenyl	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
2,4,5-Trichlorophenol	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
2,4,6-Trichlorophenol	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS03-04242014
Lab ID: 14041301-03
Collection Date: 4/24/2014 03:45 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
2,4-Dichlorophenol	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
2,4-Dimethylphenol	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
2,4-Dinitrophenol	ND		2.5	mg/Kg-dry	1	4/30/2014 09:02 PM
2,4-Dinitrotoluene	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
2,6-Dinitrotoluene	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
2-Chloronaphthalene	ND		0.026	mg/Kg-dry	1	4/30/2014 09:02 PM
2-Chlorophenol	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
2-Methylnaphthalene	**0.15**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
2-Methylphenol	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
2-Nitroaniline	ND		2.5	mg/Kg-dry	1	4/30/2014 09:02 PM
2-Nitrophenol	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
3,3´-Dichlorobenzidine	ND		2.5	mg/Kg-dry	1	4/30/2014 09:02 PM
3-Nitroaniline	ND		2.5	mg/Kg-dry	1	4/30/2014 09:02 PM
4,6-Dinitro-2-methylphenol	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
4-Bromophenyl phenyl ether	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
4-Chloro-3-methylphenol	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
4-Chloroaniline	ND		2.5	mg/Kg-dry	1	4/30/2014 09:02 PM
4-Chlorophenyl phenyl ether	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
4-Methylphenol	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
4-Nitroaniline	ND		2.5	mg/Kg-dry	1	4/30/2014 09:02 PM
4-Nitrophenol	ND		2.5	mg/Kg-dry	1	4/30/2014 09:02 PM
Acenaphthene	ND		0.026	mg/Kg-dry	1	4/30/2014 09:02 PM
Acenaphthylene	ND		0.026	mg/Kg-dry	1	4/30/2014 09:02 PM
Acetophenone	**1.5**		**1.3**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Anthracene	**0.12**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Atrazine	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
Benzaldehyde	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
Benzo(a)anthracene	**0.16**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Benzo(a)pyrene	**0.24**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Benzo(b)fluoranthene	**0.31**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Benzo(g,h,i)perylene	**0.22**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Benzo(k)fluoranthene	**0.19**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Bis(2-chloroethoxy)methane	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Bis(2-chloroethyl)ether	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Bis(2-chloroisopropyl)ether	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Bis(2-ethylhexyl)phthalate	**36**		**13**	**mg/Kg-dry**	10	5/2/2014 01:37 AM
Butyl benzyl phthalate	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Caprolactam	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
Carbazole	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Chrysene	**0.17**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS03-04242014
Lab ID: 14041301-03
Collection Date: 4/24/2014 03:45 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibenzo(a,h)anthracene	ND		0.026	mg/Kg-dry	1	4/30/2014 09:02 PM
Dibenzofuran	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Diethyl phthalate	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
Dimethyl phthalate	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
Di-n-butyl phthalate	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
Di-n-octyl phthalate	**2.1**		**0.61**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Fluoranthene	**0.57**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Fluorene	ND		0.026	mg/Kg-dry	1	4/30/2014 09:02 PM
Hexachlorobenzene	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Hexachlorobutadiene	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Hexachlorocyclopentadiene	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
Hexachloroethane	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Indeno(1,2,3-cd)pyrene	**0.39**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Isophorone	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Naphthalene	**0.076**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Nitrobenzene	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
N-Nitrosodi-n-propylamine	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
N-Nitrosodiphenylamine	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Pentachlorophenol	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
Phenanthrene	**0.28**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Phenol	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Pyrene	**0.39**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Surr: 2,4,6-Tribromophenol	*77.4*		*34-140*	*%REC*	1	4/30/2014 09:02 PM
Surr: 2-Fluorobiphenyl	*82.0*		*12-100*	*%REC*	1	4/30/2014 09:02 PM
Surr: 2-Fluorophenol	*81.7*		*33-117*	*%REC*	1	4/30/2014 09:02 PM
Surr: 4-Terphenyl-d14	*99.3*		*25-137*	*%REC*	1	4/30/2014 09:02 PM
Surr: Nitrobenzene-d5	*81.0*		*37-107*	*%REC*	1	4/30/2014 09:02 PM
Surr: Phenol-d6	*86.3*		*40-106*	*%REC*	1	4/30/2014 09:02 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 4/28/14	Analyst: **RS**
1,1,1-Trichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,1,2,2-Tetrachloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,1,2-Trichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,1,2-Trichlorotrifluoroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,1-Dichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,1-Dichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,2,4-Trichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,2-Dibromo-3-chloropropane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,2-Dibromoethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,2-Dichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,2-Dichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS03-04242014
Lab ID: 14041301-03
Collection Date: 4/24/2014 03:45 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,2-Dichloropropane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,3-Dichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,4-Dichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
2-Butanone	ND		0.26	mg/Kg-dry	1	5/1/2014 06:48 PM
2-Hexanone	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
4-Methyl-2-pentanone	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Acetone	**0.14**		**0.13**	**mg/Kg-dry**	1	5/1/2014 06:48 PM
Benzene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Bromodichloromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Bromoform	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Bromomethane	ND		0.099	mg/Kg-dry	1	5/1/2014 06:48 PM
Carbon disulfide	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Carbon tetrachloride	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Chlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Chloroethane	ND		0.13	mg/Kg-dry	1	5/1/2014 06:48 PM
Chloroform	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Chloromethane	ND		0.13	mg/Kg-dry	1	5/1/2014 06:48 PM
cis-1,2-Dichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
cis-1,3-Dichloropropene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Cyclohexane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Dibromochloromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Dichlorodifluoromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Ethylbenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Isopropylbenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Methyl acetate	ND		0.26	mg/Kg-dry	1	5/1/2014 06:48 PM
Methyl tert-butyl ether	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Methylcyclohexane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Methylene chloride	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Styrene	**0.059**		**0.040**	**mg/Kg-dry**	1	5/1/2014 06:48 PM
Tetrachloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Toluene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
trans-1,2-Dichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
trans-1,3-Dichloropropene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Trichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Trichlorofluoromethane	**3.4**		**0.040**	**mg/Kg-dry**	1	5/1/2014 06:48 PM
Vinyl chloride	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Xylenes, Total	ND		0.12	mg/Kg-dry	1	5/1/2014 06:48 PM
Surr: 1,2-Dichloroethane-d4	*99.0*		*70-130*	*%REC*	1	5/1/2014 06:48 PM
Surr: 4-Bromofluorobenzene	*97.2*		*70-130*	*%REC*	1	5/1/2014 06:48 PM
Surr: Dibromofluoromethane	*93.1*		*70-130*	*%REC*	1	5/1/2014 06:48 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS03-04242014
Lab ID: 14041301-03
Collection Date: 4/24/2014 03:45 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Toluene-d8	*98.5*		*70-130*	*%REC*	1	5/1/2014 06:48 PM
CYANIDE, TOTAL			**SW9012A**		Prep: SW9012A / 4/30/14	Analyst: **JB**
Cyanide, Total	ND		0.65	mg/Kg-dry	1	4/30/2014 02:40 PM
FLASHPOINT, OPEN-CUP			**D92**			Analyst: **RLF**
Flashpoint, Open-cup	**>200**			**°F**	1	4/29/2014 08:45 AM
MOISTURE			**A2540 G**			Analyst: **AT**
Moisture	**24**		**0.050**	**% of sample**	1	4/25/2014 12:50 PM
PH			**SW9045D**		Prep: EXTRACT / 4/25/14	Analyst: **AT**
pH	**8.5**			**s.u.**	1	4/25/2014 04:00 PM
SULFIDE			**SW9034**		Prep: SW9030 / 4/29/14	Analyst: **EE**
Sulfide (Acid Soluble)	ND		130	mg/Kg-dry	1	4/29/2014 03:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS04-04242014
Lab ID: 14041301-04
Collection Date: 4/24/2014 03:50 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**		Prep: SW3541 / 4/28/14	Analyst: **JD**
Aroclor 1016	ND		0.11	mg/Kg-dry	1	4/29/2014 02:16 PM
Aroclor 1221	ND		0.11	mg/Kg-dry	1	4/29/2014 02:16 PM
Aroclor 1232	ND		0.11	mg/Kg-dry	1	4/29/2014 02:16 PM
Aroclor 1242	ND		0.11	mg/Kg-dry	1	4/29/2014 02:16 PM
Aroclor 1248	ND		0.11	mg/Kg-dry	1	4/29/2014 02:16 PM
Aroclor 1254	ND		0.11	mg/Kg-dry	1	4/29/2014 02:16 PM
Aroclor 1260	ND		0.11	mg/Kg-dry	1	4/29/2014 02:16 PM
Surr: Decachlorobiphenyl	*90.1*		*40-140*	*%REC*	1	4/29/2014 02:16 PM
MERCURY BY CVAA			**SW7471**		Prep: SW7471 / 4/30/14	Analyst: **CES**
Mercury	**0.043**		**0.025**	**mg/Kg-dry**	1	5/4/2014 04:48 PM
METALS BY ICP-MS			**SW6020A**		Prep: SW3050B / 4/29/14	Analyst: **ML**
Aluminum	**170,000**		**48**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Antimony	**24**		**24**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Arsenic	ND		24	mg/Kg-dry	50	5/1/2014 06:34 PM
Barium	**130**		**24**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Beryllium	ND		9.5	mg/Kg-dry	50	5/1/2014 06:34 PM
Cadmium	ND		9.5	mg/Kg-dry	50	5/1/2014 06:34 PM
Calcium	**34,000**		**2,400**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Chromium	**440**		**24**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Cobalt	ND		24	mg/Kg-dry	50	5/1/2014 06:34 PM
Copper	**6,600**		**24**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Iron	**24,000**		**380**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Lead	**260**		**24**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Magnesium	**9,700**		**950**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Manganese	**1,300**		**24**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Nickel	**270**		**24**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Potassium	**32,000**		**950**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Selenium	ND		24	mg/Kg-dry	50	5/1/2014 06:34 PM
Silver	ND		24	mg/Kg-dry	50	5/1/2014 06:34 PM
Sodium	**45,000**		**950**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Thallium	ND		24	mg/Kg-dry	50	5/1/2014 06:34 PM
Vanadium	**26**		**24**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Zinc	**5,200**		**48**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep: SW3541 / 4/28/14	Analyst: **RM**
1,1`-Biphenyl	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
2,4,5-Trichlorophenol	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
2,4,6-Trichlorophenol	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS04-04242014
Lab ID: 14041301-04
Collection Date: 4/24/2014 03:50 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
2,4-Dichlorophenol	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
2,4-Dimethylphenol	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
2,4-Dinitrophenol	ND		2.5	mg/Kg-dry	1	4/30/2014 09:23 PM
2,4-Dinitrotoluene	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
2,6-Dinitrotoluene	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
2-Chloronaphthalene	ND		0.025	mg/Kg-dry	1	4/30/2014 09:23 PM
2-Chlorophenol	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
2-Methylnaphthalene	ND		0.025	mg/Kg-dry	1	4/30/2014 09:23 PM
2-Methylphenol	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
2-Nitroaniline	ND		2.5	mg/Kg-dry	1	4/30/2014 09:23 PM
2-Nitrophenol	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
3,3´-Dichlorobenzidine	ND		2.5	mg/Kg-dry	1	4/30/2014 09:23 PM
3-Nitroaniline	ND		2.5	mg/Kg-dry	1	4/30/2014 09:23 PM
4,6-Dinitro-2-methylphenol	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
4-Bromophenyl phenyl ether	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
4-Chloro-3-methylphenol	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
4-Chloroaniline	ND		2.5	mg/Kg-dry	1	4/30/2014 09:23 PM
4-Chlorophenyl phenyl ether	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
4-Methylphenol	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
4-Nitroaniline	ND		2.5	mg/Kg-dry	1	4/30/2014 09:23 PM
4-Nitrophenol	ND		2.5	mg/Kg-dry	1	4/30/2014 09:23 PM
Acenaphthene	ND		0.025	mg/Kg-dry	1	4/30/2014 09:23 PM
Acenaphthylene	ND		0.025	mg/Kg-dry	1	4/30/2014 09:23 PM
Acetophenone	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Anthracene	**0.15**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Atrazine	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Benzaldehyde	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Benzo(a)anthracene	**0.20**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Benzo(a)pyrene	**0.23**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Benzo(b)fluoranthene	**0.38**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Benzo(g,h,i)perylene	**0.25**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Benzo(k)fluoranthene	**0.19**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Bis(2-chloroethoxy)methane	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Bis(2-chloroethyl)ether	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Bis(2-chloroisopropyl)ether	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Bis(2-ethylhexyl)phthalate	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Butyl benzyl phthalate	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Caprolactam	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Carbazole	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Chrysene	**0.28**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS04-04242014
Lab ID: 14041301-04
Collection Date: 4/24/2014 03:50 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibenzo(a,h)anthracene	ND		0.025	mg/Kg-dry	1	4/30/2014 09:23 PM
Dibenzofuran	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Diethyl phthalate	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Dimethyl phthalate	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Di-n-butyl phthalate	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Di-n-octyl phthalate	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Fluoranthene	**0.77**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Fluorene	ND		0.025	mg/Kg-dry	1	4/30/2014 09:23 PM
Hexachlorobenzene	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Hexachlorobutadiene	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Hexachlorocyclopentadiene	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Hexachloroethane	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Indeno(1,2,3-cd)pyrene	**0.31**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Isophorone	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Naphthalene	ND		0.025	mg/Kg-dry	1	4/30/2014 09:23 PM
Nitrobenzene	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
N-Nitrosodi-n-propylamine	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
N-Nitrosodiphenylamine	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Pentachlorophenol	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Phenanthrene	**0.39**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Phenol	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Pyrene	**0.54**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Surr: 2,4,6-Tribromophenol	*88.3*		*34-140*	*%REC*	1	4/30/2014 09:23 PM
Surr: 2-Fluorobiphenyl	*74.7*		*12-100*	*%REC*	1	4/30/2014 09:23 PM
Surr: 2-Fluorophenol	*73.4*		*33-117*	*%REC*	1	4/30/2014 09:23 PM
Surr: 4-Terphenyl-d14	*104*		*25-137*	*%REC*	1	4/30/2014 09:23 PM
Surr: Nitrobenzene-d5	*69.6*		*37-107*	*%REC*	1	4/30/2014 09:23 PM
Surr: Phenol-d6	*73.4*		*40-106*	*%REC*	1	4/30/2014 09:23 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 4/28/14	Analyst: **RS**
1,1,1-Trichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,1,2,2-Tetrachloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,1,2-Trichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,1,2-Trichlorotrifluoroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,1-Dichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,1-Dichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,2,4-Trichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,2-Dibromo-3-chloropropane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,2-Dibromoethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,2-Dichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,2-Dichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS04-04242014
Lab ID: 14041301-04
Collection Date: 4/24/2014 03:50 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,2-Dichloropropane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,3-Dichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,4-Dichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
2-Butanone	ND		0.27	mg/Kg-dry	1	5/1/2014 07:14 PM
2-Hexanone	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
4-Methyl-2-pentanone	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Acetone	ND		0.13	mg/Kg-dry	1	5/1/2014 07:14 PM
Benzene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Bromodichloromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Bromoform	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Bromomethane	ND		0.099	mg/Kg-dry	1	5/1/2014 07:14 PM
Carbon disulfide	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Carbon tetrachloride	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Chlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Chloroethane	ND		0.13	mg/Kg-dry	1	5/1/2014 07:14 PM
Chloroform	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Chloromethane	ND		0.13	mg/Kg-dry	1	5/1/2014 07:14 PM
cis-1,2-Dichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
cis-1,3-Dichloropropene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Cyclohexane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Dibromochloromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Dichlorodifluoromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Ethylbenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Isopropylbenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Methyl acetate	ND		0.27	mg/Kg-dry	1	5/1/2014 07:14 PM
Methyl tert-butyl ether	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Methylcyclohexane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Methylene chloride	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Styrene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Tetrachloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Toluene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
trans-1,2-Dichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
trans-1,3-Dichloropropene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Trichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Trichlorofluoromethane	**0.77**		**0.040**	**mg/Kg-dry**	1	5/1/2014 07:14 PM
Vinyl chloride	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Xylenes, Total	ND		0.12	mg/Kg-dry	1	5/1/2014 07:14 PM
Surr: 1,2-Dichloroethane-d4	*98.0*		*70-130*	*%REC*	1	5/1/2014 07:14 PM
Surr: 4-Bromofluorobenzene	*98.8*		*70-130*	*%REC*	1	5/1/2014 07:14 PM
Surr: Dibromofluoromethane	*91.1*		*70-130*	*%REC*	1	5/1/2014 07:14 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS04-04242014
Lab ID: 14041301-04
Collection Date: 4/24/2014 03:50 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Toluene-d8	*99.7*		*70-130*	*%REC*	1	5/1/2014 07:14 PM
CYANIDE, TOTAL			**SW9012A**		Prep: SW9012A / 4/30/14	Analyst: **JB**
Cyanide, Total	ND		0.67	mg/Kg-dry	1	4/30/2014 02:40 PM
FLASHPOINT, OPEN-CUP			**D92**			Analyst: **RLF**
Flashpoint, Open-cup	**>200**			**°F**	1	4/29/2014 08:45 AM
MOISTURE			**A2540 G**			Analyst: **AT**
Moisture	**25**		**0.050**	**% of sample**	1	4/25/2014 12:50 PM
PH			**SW9045D**		Prep: EXTRACT / 4/25/14	Analyst: **AT**
pH	**8.4**			**s.u.**	1	4/25/2014 04:00 PM
SULFIDE			**SW9034**		Prep: SW9030 / 4/29/14	Analyst: **EE**
Sulfide (Acid Soluble)	ND		130	mg/Kg-dry	1	4/29/2014 03:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS05-04242014
Lab ID: 14041301-05
Collection Date: 4/24/2014 03:55 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**		Prep: SW3541 / 4/28/14	Analyst: **JD**
Aroclor 1016	ND		0.13	mg/Kg-dry	1	4/29/2014 02:32 PM
Aroclor 1221	ND		0.13	mg/Kg-dry	1	4/29/2014 02:32 PM
Aroclor 1232	ND		0.13	mg/Kg-dry	1	4/29/2014 02:32 PM
Aroclor 1242	**0.32**		**0.13**	**mg/Kg-dry**	1	4/29/2014 02:32 PM
Aroclor 1248	ND		0.13	mg/Kg-dry	1	4/29/2014 02:32 PM
Aroclor 1254	**0.15**		**0.13**	**mg/Kg-dry**	1	4/29/2014 02:32 PM
Aroclor 1260	ND		0.13	mg/Kg-dry	1	4/29/2014 02:32 PM
Surr: Decachlorobiphenyl	*79.1*		*40-140*	*%REC*	1	4/29/2014 02:32 PM
MERCURY BY CVAA			**SW7471**		Prep: SW7471 / 4/30/14	Analyst: **LR**
Mercury	**1.3**		**0.15**	**mg/Kg-dry**	5	4/30/2014 06:32 PM
METALS BY ICP-MS			**SW6020A**		Prep: SW3050B / 4/29/14	Analyst: **ML**
Aluminum	**180,000**		**56**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Antimony	**42**		**28**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Arsenic	ND		28	mg/Kg-dry	50	5/1/2014 06:40 PM
Barium	**250**		**28**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Beryllium	ND		11	mg/Kg-dry	50	5/1/2014 06:40 PM
Cadmium	**46**		**11**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Calcium	**49,000**		**2,800**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Chromium	**450**		**28**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Cobalt	ND		28	mg/Kg-dry	50	5/1/2014 06:40 PM
Copper	**5,700**		**28**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Iron	**17,000**		**450**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Lead	**420**		**28**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Magnesium	**18,000**		**1,100**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Manganese	**1,700**		**28**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Nickel	**260**		**28**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Potassium	**53,000**		**1,100**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Selenium	ND		28	mg/Kg-dry	50	5/1/2014 06:40 PM
Silver	ND		28	mg/Kg-dry	50	5/1/2014 06:40 PM
Sodium	**66,000**		**1,100**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Thallium	ND		28	mg/Kg-dry	50	5/1/2014 06:40 PM
Vanadium	**36**		**28**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Zinc	**5,800**		**56**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep: SW3541 / 4/29/14	Analyst: **RM**
1,1`-Biphenyl	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
2,4,5-Trichlorophenol	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
2,4,6-Trichlorophenol	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS05-04242014
Lab ID: 14041301-05
Collection Date: 4/24/2014 03:55 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
2,4-Dichlorophenol	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
2,4-Dimethylphenol	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
2,4-Dinitrophenol	ND		40	mg/Kg-dry	5	4/29/2014 10:25 PM
2,4-Dinitrotoluene	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
2,6-Dinitrotoluene	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
2-Chloronaphthalene	ND		0.41	mg/Kg-dry	5	4/29/2014 10:25 PM
2-Chlorophenol	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
2-Methylnaphthalene	ND		0.41	mg/Kg-dry	5	4/29/2014 10:25 PM
2-Methylphenol	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
2-Nitroaniline	ND		40	mg/Kg-dry	5	4/29/2014 10:25 PM
2-Nitrophenol	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
3,3´-Dichlorobenzidine	ND		40	mg/Kg-dry	5	4/29/2014 10:25 PM
3-Nitroaniline	ND		40	mg/Kg-dry	5	4/29/2014 10:25 PM
4,6-Dinitro-2-methylphenol	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
4-Bromophenyl phenyl ether	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
4-Chloro-3-methylphenol	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
4-Chloroaniline	ND		40	mg/Kg-dry	5	4/29/2014 10:25 PM
4-Chlorophenyl phenyl ether	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
4-Methylphenol	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
4-Nitroaniline	ND		40	mg/Kg-dry	5	4/29/2014 10:25 PM
4-Nitrophenol	ND		40	mg/Kg-dry	5	4/29/2014 10:25 PM
Acenaphthene	ND		0.41	mg/Kg-dry	5	4/29/2014 10:25 PM
Acenaphthylene	ND		0.41	mg/Kg-dry	5	4/29/2014 10:25 PM
Acetophenone	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Anthracene	**2.2**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Atrazine	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Benzaldehyde	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Benzo(a)anthracene	**5.6**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Benzo(a)pyrene	**3.8**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Benzo(b)fluoranthene	**12**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Benzo(g,h,i)perylene	**6.5**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Benzo(k)fluoranthene	**4.6**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Bis(2-chloroethoxy)methane	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Bis(2-chloroethyl)ether	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Bis(2-chloroisopropyl)ether	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Bis(2-ethylhexyl)phthalate	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Butyl benzyl phthalate	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Caprolactam	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Carbazole	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Chrysene	**10**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS05-04242014
Lab ID: 14041301-05
Collection Date: 4/24/2014 03:55 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibenzo(a,h)anthracene	**2.6**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Dibenzofuran	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Diethyl phthalate	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Dimethyl phthalate	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Di-n-butyl phthalate	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Di-n-octyl phthalate	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Fluoranthene	**20**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Fluorene	ND		0.41	mg/Kg-dry	5	4/29/2014 10:25 PM
Hexachlorobenzene	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Hexachlorobutadiene	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Hexachlorocyclopentadiene	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Hexachloroethane	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Indeno(1,2,3-cd)pyrene	**7.9**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Isophorone	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Naphthalene	ND		0.41	mg/Kg-dry	5	4/29/2014 10:25 PM
Nitrobenzene	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
N-Nitrosodi-n-propylamine	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
N-Nitrosodiphenylamine	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Pentachlorophenol	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Phenanthrene	**12**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Phenol	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Pyrene	**15**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Surr: 2,4,6-Tribromophenol	*140*		*34-140*	*%REC*	5	4/29/2014 10:25 PM
Surr: 2-Fluorobiphenyl	*85.6*		*12-100*	*%REC*	5	4/29/2014 10:25 PM
Surr: 2-Fluorophenol	*100*		*33-117*	*%REC*	5	4/29/2014 10:25 PM
Surr: 4-Terphenyl-d14	*123*		*25-137*	*%REC*	5	4/29/2014 10:25 PM
Surr: Nitrobenzene-d5	*119*	S	*37-107*	*%REC*	5	4/29/2014 10:25 PM
Surr: Phenol-d6	*98.8*		*40-106*	*%REC*	5	4/29/2014 10:25 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 4/28/14	Analyst: **RS**
1,1,1-Trichloroethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,1,2,2-Tetrachloroethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,1,2-Trichloroethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,1,2-Trichlorotrifluoroethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,1-Dichloroethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,1-Dichloroethene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,2,4-Trichlorobenzene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,2-Dibromo-3-chloropropane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,2-Dibromoethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,2-Dichlorobenzene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,2-Dichloroethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS05-04242014
Lab ID: 14041301-05
Collection Date: 4/24/2014 03:55 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,2-Dichloropropane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,3-Dichlorobenzene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,4-Dichlorobenzene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
2-Butanone	ND		0.63	mg/Kg-dry	1	5/1/2014 07:40 PM
2-Hexanone	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
4-Methyl-2-pentanone	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Acetone	**0.47**		**0.32**	**mg/Kg-dry**	1	5/1/2014 07:40 PM
Benzene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Bromodichloromethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Bromoform	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Bromomethane	ND		0.24	mg/Kg-dry	1	5/1/2014 07:40 PM
Carbon disulfide	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Carbon tetrachloride	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Chlorobenzene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Chloroethane	ND		0.32	mg/Kg-dry	1	5/1/2014 07:40 PM
Chloroform	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Chloromethane	ND		0.32	mg/Kg-dry	1	5/1/2014 07:40 PM
cis-1,2-Dichloroethene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
cis-1,3-Dichloropropene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Cyclohexane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Dibromochloromethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Dichlorodifluoromethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Ethylbenzene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Isopropylbenzene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Methyl acetate	ND		0.63	mg/Kg-dry	1	5/1/2014 07:40 PM
Methyl tert-butyl ether	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Methylcyclohexane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Methylene chloride	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Styrene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Tetrachloroethene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Toluene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
trans-1,2-Dichloroethene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
trans-1,3-Dichloropropene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Trichloroethene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Trichlorofluoromethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Vinyl chloride	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Xylenes, Total	ND		0.28	mg/Kg-dry	1	5/1/2014 07:40 PM
Surr: 1,2-Dichloroethane-d4	*95.5*		*70-130*	*%REC*	1	5/1/2014 07:40 PM
Surr: 4-Bromofluorobenzene	*99.3*		*70-130*	*%REC*	1	5/1/2014 07:40 PM
Surr: Dibromofluoromethane	*92.2*		*70-130*	*%REC*	1	5/1/2014 07:40 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS05-04242014
Lab ID: 14041301-05
Collection Date: 4/24/2014 03:55 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Toluene-d8	*98.0*		*70-130*	*%REC*	1	5/1/2014 07:40 PM
CYANIDE, TOTAL			**SW9012A**		Prep: SW9012A / 4/30/14	Analyst: **JB**
Cyanide, Total	ND		0.81	mg/Kg-dry	1	4/30/2014 02:40 PM
FLASHPOINT, OPEN-CUP			**D92**			Analyst: **RLF**
Flashpoint, Open-cup	**>200**			**°F**	1	4/29/2014 08:45 AM
MOISTURE			**A2540 G**			Analyst: **AT**
Moisture	**38**		**0.050**	**% of sample**	1	4/25/2014 12:50 PM
PH			**SW9045D**		Prep: EXTRACT / 4/25/14	Analyst: **AT**
pH	**7.4**			**s.u.**	1	4/25/2014 04:00 PM
SULFIDE			**SW9034**		Prep: SW9030 / 4/29/14	Analyst: **EE**
Sulfide (Acid Soluble)	ND		160	mg/Kg-dry	1	4/29/2014 03:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-SS01-04242014
Lab ID: 14041301-06
Collection Date: 4/24/2014 04:05 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**		Prep: SW3541 / 4/28/14	Analyst: **JD**
Aroclor 1016	ND		0.092	mg/Kg-dry	1	4/29/2014 02:48 PM
Aroclor 1221	ND		0.092	mg/Kg-dry	1	4/29/2014 02:48 PM
Aroclor 1232	ND		0.092	mg/Kg-dry	1	4/29/2014 02:48 PM
Aroclor 1242	ND		0.092	mg/Kg-dry	1	4/29/2014 02:48 PM
Aroclor 1248	ND		0.092	mg/Kg-dry	1	4/29/2014 02:48 PM
Aroclor 1254	ND		0.092	mg/Kg-dry	1	4/29/2014 02:48 PM
Aroclor 1260	**0.53**		**0.092**	**mg/Kg-dry**	1	4/29/2014 02:48 PM
Surr: Decachlorobiphenyl	*74.1*		*40-140*	*%REC*	1	4/29/2014 02:48 PM
MERCURY BY CVAA			**SW7471**		Prep: SW7471 / 4/30/14	Analyst: **LR**
Mercury	**0.37**		**0.092**	**mg/Kg-dry**	5	4/30/2014 06:35 PM
METALS BY ICP-MS			**SW6020A**		Prep: SW3050B / 4/29/14	Analyst: **ML**
Aluminum	**25,000**		**4.6**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Antimony	**7.5**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Arsenic	**4.5**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Barium	**200**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Beryllium	ND		0.92	mg/Kg-dry	5	5/1/2014 06:46 PM
Cadmium	**5.8**		**0.92**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Calcium	**45,000**		**230**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Chromium	**71**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Cobalt	**4.2**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Copper	**760**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Iron	**24,000**		**37**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Lead	**69**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Magnesium	**9,600**		**92**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Manganese	**730**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Nickel	**37**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Potassium	**1,300**		**92**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Selenium	**3.3**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Silver	ND		2.3	mg/Kg-dry	5	5/2/2014 01:40 PM
Sodium	**760**		**92**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Thallium	ND		2.3	mg/Kg-dry	5	5/1/2014 06:46 PM
Vanadium	**18**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Zinc	**780**		**4.6**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep: SW3541 / 4/29/14	Analyst: **RM**
1,1`-Biphenyl	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
2,4,5-Trichlorophenol	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
2,4,6-Trichlorophenol	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-SS01-04242014
Lab ID: 14041301-06
Collection Date: 4/24/2014 04:05 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
2,4-Dichlorophenol	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
2,4-Dimethylphenol	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
2,4-Dinitrophenol	ND		74	mg/Kg-dry	5	4/29/2014 10:45 PM
2,4-Dinitrotoluene	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
2,6-Dinitrotoluene	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
2-Chloronaphthalene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
2-Chlorophenol	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
2-Methylnaphthalene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
2-Methylphenol	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
2-Nitroaniline	ND		74	mg/Kg-dry	5	4/29/2014 10:45 PM
2-Nitrophenol	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
3,3´-Dichlorobenzidine	ND		74	mg/Kg-dry	5	4/29/2014 10:45 PM
3-Nitroaniline	ND		74	mg/Kg-dry	5	4/29/2014 10:45 PM
4,6-Dinitro-2-methylphenol	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
4-Bromophenyl phenyl ether	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
4-Chloro-3-methylphenol	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
4-Chloroaniline	ND		74	mg/Kg-dry	5	4/29/2014 10:45 PM
4-Chlorophenyl phenyl ether	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
4-Methylphenol	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
4-Nitroaniline	ND		74	mg/Kg-dry	5	4/29/2014 10:45 PM
4-Nitrophenol	ND		74	mg/Kg-dry	5	4/29/2014 10:45 PM
Acenaphthene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Acenaphthylene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Acetophenone	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Anthracene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Atrazine	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Benzaldehyde	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Benzo(a)anthracene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Benzo(a)pyrene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Benzo(b)fluoranthene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Benzo(g,h,i)perylene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Benzo(k)fluoranthene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Bis(2-chloroethoxy)methane	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Bis(2-chloroethyl)ether	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Bis(2-chloroisopropyl)ether	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Bis(2-ethylhexyl)phthalate	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Butyl benzyl phthalate	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Caprolactam	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Carbazole	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Chrysene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-SS01-04242014
Lab ID: 14041301-06
Collection Date: 4/24/2014 04:05 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibenzo(a,h)anthracene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Dibenzofuran	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Diethyl phthalate	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Dimethyl phthalate	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Di-n-butyl phthalate	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Di-n-octyl phthalate	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Fluoranthene	**6.2**		**0.74**	**mg/Kg-dry**	5	4/29/2014 10:45 PM
Fluorene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Hexachlorobenzene	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Hexachlorobutadiene	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Hexachlorocyclopentadiene	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Hexachloroethane	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Indeno(1,2,3-cd)pyrene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Isophorone	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Naphthalene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Nitrobenzene	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
N-Nitrosodi-n-propylamine	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
N-Nitrosodiphenylamine	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Pentachlorophenol	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Phenanthrene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Phenol	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Pyrene	**7.3**		**0.74**	**mg/Kg-dry**	5	4/29/2014 10:45 PM
Surr: 2,4,6-Tribromophenol	*205*	S	*34-140*	*%REC*	5	4/29/2014 10:45 PM
Surr: 2-Fluorobiphenyl	*81.0*		*12-100*	*%REC*	5	4/29/2014 10:45 PM
Surr: 2-Fluorophenol	*103*		*33-117*	*%REC*	5	4/29/2014 10:45 PM
Surr: 4-Terphenyl-d14	*200*	S	*25-137*	*%REC*	5	4/29/2014 10:45 PM
Surr: Nitrobenzene-d5	*164*	S	*37-107*	*%REC*	5	4/29/2014 10:45 PM
Surr: Phenol-d6	*85.0*		*40-106*	*%REC*	5	4/29/2014 10:45 PM
CYANIDE, TOTAL			**SW9012A**		Prep: SW9012A / 4/30/14	Analyst: **JB**
Cyanide, Total	**0.56**		**0.56**	**mg/Kg-dry**	1	4/30/2014 02:40 PM
FLASHPOINT, OPEN-CUP			**D92**			Analyst: **RLF**
Flashpoint, Open-cup	**>200**			**°F**	1	4/29/2014 08:45 AM
MOISTURE			**A2540 G**			Analyst: **AT**
Moisture	**12**		**0.050**	**% of sample**	1	4/25/2014 12:50 PM
PH			**SW9045D**		Prep: EXTRACT / 4/25/14	Analyst: **AT**
pH	**7.9**			**s.u.**	1	4/25/2014 04:00 PM
SULFIDE			**SW9034**		Prep: SW9030 / 4/29/14	Analyst: **EE**
Sulfide (Acid Soluble)	ND		110	mg/Kg-dry	1	4/29/2014 03:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS06-04242014
Lab ID: 14041301-07
Collection Date: 4/24/2014 04:10 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**		Prep: SW3541 / 4/28/14	Analyst: **JD**
Aroclor 1016	ND		0.11	mg/Kg-dry	1	4/29/2014 03:53 PM
Aroclor 1221	ND		0.11	mg/Kg-dry	1	4/29/2014 03:53 PM
Aroclor 1232	ND		0.11	mg/Kg-dry	1	4/29/2014 03:53 PM
Aroclor 1242	ND		0.11	mg/Kg-dry	1	4/29/2014 03:53 PM
Aroclor 1248	ND		0.11	mg/Kg-dry	1	4/29/2014 03:53 PM
Aroclor 1254	ND		0.11	mg/Kg-dry	1	4/29/2014 03:53 PM
Aroclor 1260	ND		0.11	mg/Kg-dry	1	4/29/2014 03:53 PM
Surr: Decachlorobiphenyl	*85.1*		*40-140*	*%REC*	1	4/29/2014 03:53 PM
MERCURY BY CVAA			**SW7471**		Prep: SW7471 / 4/30/14	Analyst: **RH**
Mercury	**0.067**		**0.024**	**mg/Kg-dry**	1	5/1/2014 03:25 PM
METALS BY ICP-MS			**SW6020A**		Prep: SW3050B / 4/29/14	Analyst: **ML**
Aluminum	**250,000**		**51**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Antimony	ND		26	mg/Kg-dry	50	5/1/2014 06:52 PM
Arsenic	ND		26	mg/Kg-dry	50	5/1/2014 06:52 PM
Barium	**1,400**		**26**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Beryllium	ND		10	mg/Kg-dry	50	5/1/2014 06:52 PM
Cadmium	ND		10	mg/Kg-dry	50	5/1/2014 06:52 PM
Calcium	**5,600**		**2,600**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Chromium	**280**		**26**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Cobalt	ND		26	mg/Kg-dry	50	5/1/2014 06:52 PM
Copper	**7,900**		**26**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Iron	**20,000**		**410**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Lead	**610**		**26**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Magnesium	**6,700**		**1,000**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Manganese	**1,300**		**26**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Nickel	**240**		**26**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Potassium	ND		1,000	mg/Kg-dry	50	5/1/2014 06:52 PM
Selenium	ND		26	mg/Kg-dry	50	5/1/2014 06:52 PM
Silver	ND		26	mg/Kg-dry	50	5/1/2014 06:52 PM
Sodium	**3,000**		**1,000**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Thallium	ND		26	mg/Kg-dry	50	5/1/2014 06:52 PM
Vanadium	**39**		**26**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Zinc	**6,200**		**51**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep: SW3541 / 4/29/14	Analyst: **RM**
1,1`-Biphenyl	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
2,4,5-Trichlorophenol	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
2,4,6-Trichlorophenol	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS06-04242014
Lab ID: 14041301-07
Collection Date: 4/24/2014 04:10 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
2,4-Dichlorophenol	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
2,4-Dimethylphenol	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
2,4-Dinitrophenol	ND		1.7	mg/Kg-dry	1	4/29/2014 11:05 PM
2,4-Dinitrotoluene	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
2,6-Dinitrotoluene	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
2-Chloronaphthalene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
2-Chlorophenol	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
2-Methylnaphthalene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
2-Methylphenol	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
2-Nitroaniline	ND		1.7	mg/Kg-dry	1	4/29/2014 11:05 PM
2-Nitrophenol	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
3,3´-Dichlorobenzidine	ND		1.7	mg/Kg-dry	1	4/29/2014 11:05 PM
3-Nitroaniline	ND		1.7	mg/Kg-dry	1	4/29/2014 11:05 PM
4,6-Dinitro-2-methylphenol	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
4-Bromophenyl phenyl ether	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
4-Chloro-3-methylphenol	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
4-Chloroaniline	ND		1.7	mg/Kg-dry	1	4/29/2014 11:05 PM
4-Chlorophenyl phenyl ether	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
4-Methylphenol	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
4-Nitroaniline	ND		1.7	mg/Kg-dry	1	4/29/2014 11:05 PM
4-Nitrophenol	ND		1.7	mg/Kg-dry	1	4/29/2014 11:05 PM
Acenaphthene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
Acenaphthylene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
Acetophenone	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Anthracene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
Atrazine	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Benzaldehyde	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Benzo(a)anthracene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
Benzo(a)pyrene	**0.13**		**0.018**	**mg/Kg-dry**	1	4/29/2014 11:05 PM
Benzo(b)fluoranthene	**0.13**		**0.018**	**mg/Kg-dry**	1	4/29/2014 11:05 PM
Benzo(g,h,i)perylene	**0.090**		**0.018**	**mg/Kg-dry**	1	4/29/2014 11:05 PM
Benzo(k)fluoranthene	**0.098**		**0.018**	**mg/Kg-dry**	1	4/29/2014 11:05 PM
Bis(2-chloroethoxy)methane	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Bis(2-chloroethyl)ether	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Bis(2-chloroisopropyl)ether	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Bis(2-ethylhexyl)phthalate	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Butyl benzyl phthalate	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Caprolactam	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Carbazole	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Chrysene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS06-04242014
Lab ID: 14041301-07
Collection Date: 4/24/2014 04:10 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibenzo(a,h)anthracene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
Dibenzofuran	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Diethyl phthalate	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Dimethyl phthalate	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Di-n-butyl phthalate	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Di-n-octyl phthalate	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Fluoranthene	**0.16**		**0.018**	**mg/Kg-dry**	1	4/29/2014 11:05 PM
Fluorene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
Hexachlorobenzene	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Hexachlorobutadiene	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Hexachlorocyclopentadiene	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Hexachloroethane	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Indeno(1,2,3-cd)pyrene	**0.13**		**0.018**	**mg/Kg-dry**	1	4/29/2014 11:05 PM
Isophorone	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Naphthalene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
Nitrobenzene	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
N-Nitrosodi-n-propylamine	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
N-Nitrosodiphenylamine	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Pentachlorophenol	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Phenanthrene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
Phenol	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Pyrene	**0.087**		**0.018**	**mg/Kg-dry**	1	4/29/2014 11:05 PM
Surr: 2,4,6-Tribromophenol	*51.9*		*34-140*	*%REC*	1	4/29/2014 11:05 PM
Surr: 2-Fluorobiphenyl	*74.7*		*12-100*	*%REC*	1	4/29/2014 11:05 PM
Surr: 2-Fluorophenol	*62.6*		*33-117*	*%REC*	1	4/29/2014 11:05 PM
Surr: 4-Terphenyl-d14	*107*		*25-137*	*%REC*	1	4/29/2014 11:05 PM
Surr: Nitrobenzene-d5	*71.5*		*37-107*	*%REC*	1	4/29/2014 11:05 PM
Surr: Phenol-d6	*71.6*		*40-106*	*%REC*	1	4/29/2014 11:05 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 4/28/14	Analyst: **RS**
1,1,1-Trichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,1,2,2-Tetrachloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,1,2-Trichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,1,2-Trichlorotrifluoroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,1-Dichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,1-Dichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,2,4-Trichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,2-Dibromo-3-chloropropane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,2-Dibromoethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,2-Dichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,2-Dichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS06-04242014
Lab ID: 14041301-07
Collection Date: 4/24/2014 04:10 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,2-Dichloropropane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,3-Dichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,4-Dichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
2-Butanone	ND		0.27	mg/Kg-dry	1	5/1/2014 08:05 PM
2-Hexanone	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
4-Methyl-2-pentanone	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Acetone	ND		0.13	mg/Kg-dry	1	5/1/2014 08:05 PM
Benzene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Bromodichloromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Bromoform	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Bromomethane	ND		0.10	mg/Kg-dry	1	5/1/2014 08:05 PM
Carbon disulfide	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Carbon tetrachloride	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Chlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Chloroethane	ND		0.13	mg/Kg-dry	1	5/1/2014 08:05 PM
Chloroform	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Chloromethane	ND		0.13	mg/Kg-dry	1	5/1/2014 08:05 PM
cis-1,2-Dichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
cis-1,3-Dichloropropene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Cyclohexane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Dibromochloromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Dichlorodifluoromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Ethylbenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Isopropylbenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Methyl acetate	ND		0.27	mg/Kg-dry	1	5/1/2014 08:05 PM
Methyl tert-butyl ether	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Methylcyclohexane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Methylene chloride	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Styrene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Tetrachloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Toluene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
trans-1,2-Dichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
trans-1,3-Dichloropropene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Trichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Trichlorofluoromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Vinyl chloride	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Xylenes, Total	ND		0.12	mg/Kg-dry	1	5/1/2014 08:05 PM
Surr: 1,2-Dichloroethane-d4	*101*		*70-130*	*%REC*	1	5/1/2014 08:05 PM
Surr: 4-Bromofluorobenzene	*98.4*		*70-130*	*%REC*	1	5/1/2014 08:05 PM
Surr: Dibromofluoromethane	*92.9*		*70-130*	*%REC*	1	5/1/2014 08:05 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS06-04242014
Lab ID: 14041301-07
Collection Date: 4/24/2014 04:10 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Toluene-d8	*101*		*70-130*	*%REC*	1	5/1/2014 08:05 PM
CYANIDE, TOTAL			**SW9012A**		Prep: SW9012A / 4/30/14	Analyst: **JB**
Cyanide, Total	ND		0.67	mg/Kg-dry	1	4/30/2014 02:40 PM
FLASHPOINT, OPEN-CUP			**D92**			Analyst: **RLF**
Flashpoint, Open-cup	**>200**			**°F**	1	4/29/2014 08:45 AM
MOISTURE			**A2540 G**			Analyst: **AT**
Moisture	**25**		**0.050**	**% of sample**	1	4/25/2014 12:50 PM
PH			**SW9045D**		Prep: EXTRACT / 4/25/14	Analyst: **AT**
pH	**7.6**			**s.u.**	1	4/25/2014 04:00 PM
SULFIDE			**SW9034**		Prep: SW9030 / 4/29/14	Analyst: **EE**
Sulfide (Acid Soluble)	ND		130	mg/Kg-dry	1	4/29/2014 03:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client:	Weston Solutions, Inc		
Project:	20405.016.001.2323.77/Alreco Metals	**Work Order:**	14041301
Sample ID:	AM-WS07-04242014	**Lab ID:**	14041301-08
Collection Date:	4/24/2014 04:25 PM	**Matrix:**	WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SUBCONTRACTED ANALYSES			**SUBCONTRACT**			Analyst: **ALS**
Subcontracted Analyses	**See report**			**as noted**	1	5/6/2014

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WL01-04242014
Lab ID: 14041301-09
Collection Date: 4/24/2014 04:40 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**		Prep: SW3510 / 4/28/14	Analyst: **JD**
Aroclor 1016	ND		0.00020	mg/L	1	4/28/2014 07:22 PM
Aroclor 1221	ND		0.00020	mg/L	1	4/28/2014 07:22 PM
Aroclor 1232	ND		0.00020	mg/L	1	4/28/2014 07:22 PM
Aroclor 1242	ND		0.00020	mg/L	1	4/28/2014 07:22 PM
Aroclor 1248	ND		0.00020	mg/L	1	4/28/2014 07:22 PM
Aroclor 1254	ND		0.00020	mg/L	1	4/28/2014 07:22 PM
Aroclor 1260	ND		0.00020	mg/L	1	4/28/2014 07:22 PM
Surr: Decachlorobiphenyl	*75.0*		*40-110*	*%REC*	1	4/28/2014 07:22 PM
MERCURY BY CVAA			**SW7470**		Prep: SW7470 / 4/30/14	Analyst: **LR**
Mercury	ND		0.00020	mg/L	1	4/30/2014 04:39 PM
METALS BY ICP-MS			**SW6020A**		Prep: SW3005A / 4/28/14	Analyst: **ML**
Aluminum	**0.22**		**0.10**	**mg/L**	10	4/29/2014 07:40 PM
Antimony	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Arsenic	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Barium	**10**		**0.050**	**mg/L**	10	4/29/2014 07:40 PM
Beryllium	ND		0.0020	mg/L	1	4/29/2014 03:26 AM
Cadmium	ND		0.0020	mg/L	1	4/29/2014 03:26 AM
Calcium	**140**		**0.50**	**mg/L**	1	4/29/2014 03:26 AM
Chromium	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Cobalt	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Copper	**0.015**		**0.0050**	**mg/L**	1	4/29/2014 03:26 AM
Iron	**0.18**		**0.080**	**mg/L**	1	4/29/2014 03:26 AM
Lead	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Magnesium	**43**		**0.20**	**mg/L**	1	4/29/2014 03:26 AM
Manganese	**0.058**		**0.0050**	**mg/L**	1	4/29/2014 03:26 AM
Nickel	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Potassium	**340**		**2.0**	**mg/L**	10	4/29/2014 07:40 PM
Selenium	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Silver	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Sodium	**500**		**2.0**	**mg/L**	10	4/29/2014 07:40 PM
Thallium	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Vanadium	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Zinc	ND		0.10	mg/L	10	4/29/2014 07:40 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep: SW3510 / 4/28/14	Analyst: **HL**
1,1`-Biphenyl	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WL01-04242014
Lab ID: 14041301-09
Collection Date: 4/24/2014 04:40 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
2,4-Dichlorophenol	ND		0.010	mg/L	1	4/28/2014 11:12 PM
2,4-Dimethylphenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2,4-Dinitrophenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2,4-Dinitrotoluene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2,6-Dinitrotoluene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2-Chloronaphthalene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2-Chlorophenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2-Methylphenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2-Nitroaniline	ND		0.020	mg/L	1	4/28/2014 11:12 PM
2-Nitrophenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
3,3´-Dichlorobenzidine	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
3-Nitroaniline	ND		0.020	mg/L	1	4/28/2014 11:12 PM
4,6-Dinitro-2-methylphenol	ND		0.020	mg/L	1	4/28/2014 11:12 PM
4-Bromophenyl phenyl ether	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
4-Chloro-3-methylphenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
4-Chloroaniline	ND		0.020	mg/L	1	4/28/2014 11:12 PM
4-Chlorophenyl phenyl ether	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
4-Methylphenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
4-Nitroaniline	ND		0.020	mg/L	1	4/28/2014 11:12 PM
4-Nitrophenol	ND		0.020	mg/L	1	4/28/2014 11:12 PM
Acenaphthene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Acenaphthylene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Acetophenone	ND		0.0010	mg/L	1	4/28/2014 11:12 PM
Anthracene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Atrazine	ND		0.0010	mg/L	1	4/28/2014 11:12 PM
Benzaldehyde	ND		0.0010	mg/L	1	4/28/2014 11:12 PM
Benzo(a)anthracene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Benzo(a)pyrene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Benzo(b)fluoranthene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Benzo(g,h,i)perylene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Benzo(k)fluoranthene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Bis(2-chloroethoxy)methane	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Bis(2-chloroethyl)ether	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Bis(2-chloroisopropyl)ether	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Bis(2-ethylhexyl)phthalate	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Butyl benzyl phthalate	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Caprolactam	ND		0.010	mg/L	1	4/28/2014 11:12 PM
Carbazole	ND		0.010	mg/L	1	4/28/2014 11:12 PM
Chrysene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WL01-04242014
Lab ID: 14041301-09
Collection Date: 4/24/2014 04:40 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibenzo(a,h)anthracene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Dibenzofuran	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Diethyl phthalate	ND		0.020	mg/L	1	4/28/2014 11:12 PM
Dimethyl phthalate	ND		0.020	mg/L	1	4/28/2014 11:12 PM
Di-n-butyl phthalate	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Di-n-octyl phthalate	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Fluoranthene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Fluorene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Hexachlorobenzene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Hexachlorobutadiene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Hexachlorocyclopentadiene	ND		0.020	mg/L	1	4/28/2014 11:12 PM
Hexachloroethane	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Isophorone	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Naphthalene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Nitrobenzene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Pentachlorophenol	ND		0.020	mg/L	1	4/28/2014 11:12 PM
Phenanthrene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Phenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Pyrene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Surr: 2,4,6-Tribromophenol	*73.3*		*32-115*	*%REC*	1	4/28/2014 11:12 PM
Surr: 2-Fluorobiphenyl	*64.4*		*32-100*	*%REC*	1	4/28/2014 11:12 PM
Surr: 2-Fluorophenol	*29.6*		*22-59*	*%REC*	1	4/28/2014 11:12 PM
Surr: 4-Terphenyl-d14	*83.1*		*23-112*	*%REC*	1	4/28/2014 11:12 PM
Surr: Nitrobenzene-d5	*55.8*		*31-93*	*%REC*	1	4/28/2014 11:12 PM
Surr: Phenol-d6	*16.8*		*13-36*	*%REC*	1	4/28/2014 11:12 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260**			Analyst: **AK**
1,1,1-Trichloroethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,1,2,2-Tetrachloroethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,1,2-Trichloroethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,1,2-Trichlorotrifluoroethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,1-Dichloroethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,1-Dichloroethene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,2,4-Trichlorobenzene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,2-Dibromo-3-chloropropane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,2-Dibromoethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,2-Dichlorobenzene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,2-Dichloroethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WL01-04242014
Lab ID: 14041301-09
Collection Date: 4/24/2014 04:40 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,2-Dichloropropane	ND		0.0020	mg/L	1	5/2/2014 12:24 PM
1,3-Dichlorobenzene	ND		0.0020	mg/L	1	5/2/2014 12:24 PM
1,4-Dichlorobenzene	ND		0.0020	mg/L	1	5/2/2014 12:24 PM
2-Butanone	ND		0.0050	mg/L	1	5/2/2014 12:24 PM
2-Hexanone	ND		0.0050	mg/L	1	5/2/2014 12:24 PM
4-Methyl-2-pentanone	ND		0.0050	mg/L	1	5/2/2014 12:24 PM
Acetone	ND		0.020	mg/L	1	5/2/2014 12:24 PM
Benzene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Bromodichloromethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Bromoform	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Bromomethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Carbon disulfide	ND		0.0025	mg/L	1	5/2/2014 12:24 PM
Carbon tetrachloride	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Chlorobenzene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Chloroethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Chloroform	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Chloromethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
cis-1,2-Dichloroethene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
cis-1,3-Dichloropropene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Cyclohexane	ND		0.0050	mg/L	1	5/2/2014 12:24 PM
Dibromochloromethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Dichlorodifluoromethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Ethylbenzene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Isopropylbenzene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Methyl acetate	ND		0.0020	mg/L	1	5/2/2014 12:24 PM
Methyl tert-butyl ether	ND		0.0050	mg/L	1	5/2/2014 12:24 PM
Methylcyclohexane	ND		0.0050	mg/L	1	5/2/2014 12:24 PM
Methylene chloride	ND		0.0050	mg/L	1	5/2/2014 12:24 PM
Styrene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Tetrachloroethene	ND		0.0020	mg/L	1	5/2/2014 12:24 PM
Toluene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
trans-1,2-Dichloroethene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
trans-1,3-Dichloropropene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Trichloroethene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Trichlorofluoromethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Vinyl chloride	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Xylenes, Total	ND		0.0030	mg/L	1	5/2/2014 12:24 PM
Surr: 1,2-Dichloroethane-d4	*103*		*75-120*	*%REC*	1	5/2/2014 12:24 PM
Surr: 4-Bromofluorobenzene	*94.8*		*80-110*	*%REC*	1	5/2/2014 12:24 PM
Surr: Dibromofluoromethane	*98.8*		*85-115*	*%REC*	1	5/2/2014 12:24 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WL01-04242014
Lab ID: 14041301-09
Collection Date: 4/24/2014 04:40 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Toluene-d8	*99.3*		*85-110*	*%REC*	1	5/2/2014 12:24 PM
CYANIDE, TOTAL			**SW9012A**		Prep: SW9012A / 4/28/14	Analyst: **JB**
Cyanide, Total	ND		0.0050	mg/L	1	4/28/2014 02:32 PM
FLASHPOINT, P-M CLOSED-CUP			**D93**			Analyst: **RLF**
Flashpoint, P-M Closed-cup	**>200**			**°F**	1	4/29/2014 08:45 AM
PH			**SW9040**			Analyst: **AT**
pH (laboratory)	**7.58**			**s.u.**	1	4/25/2014 04:00 PM
SULFIDE			**SW9030**			Analyst: **EE**
Sulfide	ND		1.0	mg/L	1	4/30/2014 04:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS01-04242014
Lab ID: 14041301-10
Collection Date: 4/24/2014 03:35 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 / 4/30/14	Analyst: **LR**
Mercury	ND		0.0020	mg/L	1	4/30/2014 04:42 PM
TCLP METALS ANALYSIS BY ICP-MS			**SW6020A**		Prep: SW3005A / 4/28/14	Analyst: **ML**
Arsenic	ND		0.010	mg/L	1	4/29/2014 03:32 AM
Barium	**3.6**		**0.050**	**mg/L**	1	4/29/2014 03:32 AM
Cadmium	**0.095**		**0.0020**	**mg/L**	1	4/29/2014 03:32 AM
Chromium	**0.17**		**0.020**	**mg/L**	1	4/29/2014 03:32 AM
Lead	**0.21**		**0.010**	**mg/L**	1	4/29/2014 03:32 AM
Selenium	ND		0.020	mg/L	1	4/29/2014 03:32 AM
Silver	ND		0.0050	mg/L	1	4/29/2014 03:32 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS02-04242014
Lab ID: 14041301-11
Collection Date: 4/24/2014 03:40 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 / 4/30/14	Analyst: **LR**
Mercury	ND		0.0020	mg/L	1	4/30/2014 04:44 PM
TCLP METALS ANALYSIS BY ICP-MS			**SW6020A**		Prep: SW3005A / 4/28/14	Analyst: **ML**
Arsenic	**0.016**		**0.010**	**mg/L**	1	4/29/2014 03:38 AM
Barium	**1.1**		**0.050**	**mg/L**	1	4/29/2014 03:38 AM
Cadmium	**0.012**		**0.0020**	**mg/L**	1	4/29/2014 03:38 AM
Chromium	**0.18**		**0.020**	**mg/L**	1	4/29/2014 03:38 AM
Lead	**0.072**		**0.010**	**mg/L**	1	4/29/2014 03:38 AM
Selenium	ND		0.020	mg/L	1	4/29/2014 03:38 AM
Silver	ND		0.0050	mg/L	1	4/29/2014 03:38 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS03-04242014
Lab ID: 14041301-12
Collection Date: 4/24/2014 03:45 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 / 4/30/14	Analyst: **LR**
Mercury	ND		0.0020	mg/L	1	4/30/2014 04:53 PM
TCLP METALS ANALYSIS BY ICP-MS			**SW6020A**		Prep: SW3005A / 4/28/14	Analyst: **ML**
Arsenic	ND		0.010	mg/L	1	4/29/2014 03:44 AM
Barium	**0.98**		**0.050**	**mg/L**	1	4/29/2014 03:44 AM
Cadmium	**0.037**		**0.0020**	**mg/L**	1	4/29/2014 03:44 AM
Chromium	ND		0.020	mg/L	1	4/29/2014 03:44 AM
Lead	**0.053**		**0.010**	**mg/L**	1	4/29/2014 03:44 AM
Selenium	ND		0.020	mg/L	1	4/29/2014 03:44 AM
Silver	ND		0.0050	mg/L	1	4/29/2014 03:44 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS04-04242014
Lab ID: 14041301-13
Collection Date: 4/24/2014 03:50 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 / 4/30/14	Analyst: **LR**
Mercury	ND		0.0020	mg/L	1	4/30/2014 04:55 PM
TCLP METALS ANALYSIS BY ICP-MS			**SW6020A**		Prep: SW3005A / 4/29/14	Analyst: **RH**
Arsenic	ND		0.10	mg/L	10	4/30/2014 05:17 AM
Barium	**0.87**		**0.50**	**mg/L**	10	4/30/2014 05:17 AM
Cadmium	**0.041**		**0.020**	**mg/L**	10	4/30/2014 05:17 AM
Chromium	ND		0.20	mg/L	10	4/30/2014 05:17 AM
Lead	ND		0.10	mg/L	10	4/30/2014 05:17 AM
Selenium	ND		0.20	mg/L	10	4/30/2014 05:17 AM
Silver	ND		0.050	mg/L	10	4/30/2014 05:17 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS05-04242014
Lab ID: 14041301-14
Collection Date: 4/24/2014 03:55 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 / 4/30/14	Analyst: **LR**
Mercury	ND		0.0020	mg/L	1	4/30/2014 04:58 PM
TCLP METALS ANALYSIS BY ICP-MS			**SW6020A**		Prep: SW3005A / 4/29/14	Analyst: **RH**
Arsenic	ND		0.10	mg/L	10	4/30/2014 05:41 AM
Barium	**1.2**		**0.50**	**mg/L**	10	4/30/2014 05:41 AM
Cadmium	ND		0.020	mg/L	10	4/30/2014 05:41 AM
Chromium	ND		0.20	mg/L	10	4/30/2014 05:41 AM
Lead	ND		0.10	mg/L	10	4/30/2014 05:41 AM
Selenium	ND		0.20	mg/L	10	4/30/2014 05:41 AM
Silver	ND		0.050	mg/L	10	4/30/2014 05:41 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS06-04242014
Lab ID: 14041301-15
Collection Date: 4/24/2014 04:10 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 / 4/30/14	Analyst: **LR**
Mercury	ND		0.0020	mg/L	1	4/30/2014 05:00 PM
TCLP METALS ANALYSIS BY ICP-MS			**SW6020A**		Prep: SW3005A / 4/29/14	Analyst: **RH**
Arsenic	ND		0.10	mg/L	10	4/30/2014 05:47 AM
Barium	**20**		**0.50**	**mg/L**	10	4/30/2014 05:47 AM
Cadmium	ND		0.020	mg/L	10	4/30/2014 05:47 AM
Chromium	ND		0.20	mg/L	10	4/30/2014 05:47 AM
Lead	**0.97**		**0.10**	**mg/L**	10	4/30/2014 05:47 AM
Selenium	ND		0.20	mg/L	10	4/30/2014 05:47 AM
Silver	ND		0.050	mg/L	10	4/30/2014 05:47 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 08-May-14

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58017** Instrument ID **GC14** Method: **SW8082**

MBLK Sample ID: **PBLKW1-58017-58017** Units: **µg/L** Analysis Date: **4/28/2014 05:13 PM**

Client ID: Run ID: **GC14_140428B** SeqNo: **2738285** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	0.20								
Aroclor 1221	ND	0.20								
Aroclor 1232	ND	0.20								
Aroclor 1242	ND	0.20								
Aroclor 1248	ND	0.20								
Aroclor 1254	ND	0.20								
Aroclor 1260	ND	0.20								
Surr: Decachlorobiphenyl	*0.071*	0	*0.1*	0	*71*	*40-110*	0			

LCS Sample ID: **PLCSW1-58017-58017** Units: **µg/L** Analysis Date: **4/28/2014 05:29 PM**

Client ID: Run ID: **GC14_140428B** SeqNo: **2738286** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	1.797	0.20	2.5	0	71.9	50-130	0			
Aroclor 1260	1.806	0.20	2.5	0	72.2	50-130	0			
Surr: Decachlorobiphenyl	*0.066*	0	*0.1*	0	*66*	*40-110*	0			

MS Sample ID: **14041302-01D MS** Units: **µg/L** Analysis Date: **4/28/2014 06:34 PM**

Client ID: Run ID: **GC14_140428B** SeqNo: **2738290** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	11.48	2.0	25	0	45.9	40-140	0			
Aroclor 1260	10.94	2.0	25	0	43.8	40-140	0			
Surr: Decachlorobiphenyl	*0.17*	0	*1*	0	*17*	*40-110*	0			*S*

MSD Sample ID: **14041302-01D MSD** Units: **µg/L** Analysis Date: **4/28/2014 06:50 PM**

Client ID: Run ID: **GC14_140428B** SeqNo: **2738291** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	11.27	2.0	25	0	45.1	40-140	11.48	1.85	50	
Aroclor 1260	12.33	2.0	25	0	49.3	40-140	10.94	11.9	50	
Surr: Decachlorobiphenyl	*0.22*	0	*1*	0	*22*	*40-110*	0.17	*25.6*	*50*	*S*

The following samples were analyzed in this batch: 14041301-09A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58035** Instrument ID **GC14** Method: **SW8082**

MBLK Sample ID: **PBLKS1-58035-58035** Units: **µg/Kg** Analysis Date: **4/29/2014 12:39 PM**
Client ID: Run ID: **GC14_140429A** SeqNo: **2741423** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	83								
Aroclor 1221	ND	83								
Aroclor 1232	ND	83								
Aroclor 1242	ND	83								
Aroclor 1248	ND	83								
Aroclor 1254	ND	83								
Aroclor 1260	ND	83								
Surr: Decachlorobiphenyl	*31.67*	0	*33.3*	0	*95.1*	*40-140*	0			

LCS Sample ID: **PLCSS1-58035-58035** Units: **µg/Kg** Analysis Date: **4/29/2014 12:55 PM**
Client ID: Run ID: **GC14_140429A** SeqNo: **2741424** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	802.3	83	833	0	96.3	50-130	0			
Aroclor 1260	754.3	83	833	0	90.6	50-130	0			
Surr: Decachlorobiphenyl	*30.67*	0	*33.3*	0	*92.1*	*40-140*	0			

MS Sample ID: **14041301-06A MS** Units: **µg/Kg** Analysis Date: **4/29/2014 03:05 PM**
Client ID: **AM-SS01-04242014** Run ID: **GC14_140429A** SeqNo: **2741432** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	362.8	80	799.6	0	45.4	40-140	0			
Aroclor 1260	1176	80	799.6	467.6	88.7	40-140	0			
Surr: Decachlorobiphenyl	*23.04*	0	*31.96*	0	*72.1*	*40-140*	0			

MSD Sample ID: **14041301-06A MSD** Units: **µg/Kg** Analysis Date: **4/29/2014 03:37 PM**
Client ID: **AM-SS01-04242014** Run ID: **GC14_140429A** SeqNo: **2741433** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	373	83	831.5	0	44.9	40-140	362.8	2.76	50	
Aroclor 1260	1199	83	831.5	467.6	87.9	40-140	1176	1.88	50	
Surr: Decachlorobiphenyl	*24.96*	0	*33.24*	0	*75.1*	*40-140*	23.04	*7.99*	*50*	

The following samples were analyzed in this batch:

14041301-01A	14041301-02A	14041301-03A
14041301-04A	14041301-05A	14041301-06A
14041301-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58094** Instrument ID **HG1** Method: **SW7470**

MBLK Sample ID: **MBLK-58094-58094** Units: **mg/L** Analysis Date: **4/30/2014 03:54 PM**
Client ID: Run ID: **HG1_140430A** SeqNo: **2738601** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-58094-58094** Units: **mg/L** Analysis Date: **4/30/2014 03:56 PM**
Client ID: Run ID: **HG1_140430A** SeqNo: **2738602** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001985	0.00020	0.002	0	99.2	80-120		0		

MS Sample ID: **14041218-02EMS** Units: **mg/L** Analysis Date: **4/30/2014 04:07 PM**
Client ID: Run ID: **HG1_140430A** SeqNo: **2738607** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002108	0.00020	0.002	-0.000008	106	75-125		0		

MSD Sample ID: **14041218-02EMSD** Units: **mg/L** Analysis Date: **4/30/2014 04:09 PM**
Client ID: Run ID: **HG1_140430A** SeqNo: **2738608** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00211	0.00020	0.002	-0.000008	106	75-125	0.002108	0.0948	20	

The following samples were analyzed in this batch:

14041301-09C	14041301-10A	14041301-11A
14041301-12A	14041301-13A	14041301-14A
14041301-15A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58095** Instrument ID **HG1** Method: **SW7471**

MBLK Sample ID: **MBLK-58095-58095** Units: **mg/Kg** Analysis Date: **4/30/2014 05:02 PM**
Client ID: Run ID: **HG1_140430A** SeqNo: **2738681** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.020								

LCS Sample ID: **LCS-58095-58095** Units: **mg/Kg** Analysis Date: **4/30/2014 05:05 PM**
Client ID: Run ID: **HG1_140430A** SeqNo: **2738682** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1868	0.020	0.1665	0	112	80-120	0			

MS Sample ID: **14041290-01BMS** Units: **mg/Kg** Analysis Date: **4/30/2014 05:49 PM**
Client ID: Run ID: **HG1_140430A** SeqNo: **2738698** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1542	0.015	0.1224	0.02088	109	75-125	0			

MSD Sample ID: **14041290-01BMSD** Units: **mg/Kg** Analysis Date: **4/30/2014 05:51 PM**
Client ID: Run ID: **HG1_140430A** SeqNo: **2738699** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1552	0.015	0.1226	0.02088	110	75-125	0.1542	0.638	35	

The following samples were analyzed in this batch:

14041301-01A	14041301-02A	14041301-03A
14041301-04A	14041301-05A	14041301-06A
14041301-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58021** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-58021-58021** Units: **mg/L** Analysis Date: **4/29/2014 12:39 AM**

Client ID: Run ID: **ICPMS1_140428A** SeqNo: **2735778** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	ND	0.0050								
Arsenic	ND	0.0050								
Barium	0.000449	0.0050								J
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	0.04749	0.50								J
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	0.02438	0.080								J
Lead	ND	0.0050								
Magnesium	0.009071	0.20								J
Manganese	0.0007988	0.0050								J
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Thallium	ND	0.0050								
Vanadium	ND	0.0050								
Zinc	ND	0.010								

MBLK Sample ID: **MBLK-58021-58021** Units: **mg/L** Analysis Date: **5/7/2014 09:54 AM**

Client ID: Run ID: **ICPMS2_140506A** SeqNo: **2749440** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.0008786	0.010								J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58021** Instrument ID **ICPMS1** Method: **SW6020A**

LCS Sample ID: **LCS-58021-58021** Units: **mg/L** Analysis Date: **4/29/2014 12:45 AM**

Client ID: Run ID: **ICPMS1_140428A** SeqNo: **2735779** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1014	0.0050	0.1	0	101	80-120	0			
Arsenic	0.09675	0.0050	0.1	0	96.8	80-120	0			
Barium	0.09318	0.0050	0.1	0	93.2	80-120	0			
Beryllium	0.09257	0.0020	0.1	0	92.6	80-120	0			
Cadmium	0.0972	0.0020	0.1	0	97.2	80-120	0			
Calcium	9.385	0.50	10	0	93.8	80-120	0			
Chromium	0.09679	0.0050	0.1	0	96.8	80-120	0			
Cobalt	0.09723	0.0050	0.1	0	97.2	80-120	0			
Copper	0.09601	0.0050	0.1	0	96	80-120	0			
Iron	9.926	0.080	10	0	99.3	80-120	0			
Lead	0.09271	0.0050	0.1	0	92.7	80-120	0			
Magnesium	9.55	0.20	10	0	95.5	80-120	0			
Manganese	0.09606	0.0050	0.1	0	96.1	80-120	0			
Nickel	0.09571	0.0050	0.1	0	95.7	80-120	0			
Potassium	9.421	0.20	10	0	94.2	80-120	0			
Selenium	0.1006	0.0050	0.1	0	101	80-120	0			
Silver	0.09478	0.0050	0.1	0	94.8	80-120	0			
Sodium	9.288	0.20	10	0	92.9	80-120	0			
Thallium	0.08965	0.0050	0.1	0	89.6	80-120	0			
Vanadium	0.09886	0.0050	0.1	0	98.9	80-120	0			
Zinc	0.1023	0.010	0.1	0	102	80-120	0			

LCS Sample ID: **LCS-58021-58021** Units: **mg/L** Analysis Date: **5/7/2014 10:00 AM**

Client ID: Run ID: **ICPMS2_140506A** SeqNo: **2749441** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.08866	0.010	0.1	0	88.7	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58021** Instrument ID **ICPMS1** Method: **SW6020A**

MS Sample ID: **14041183-02EMS** Units: **mg/L** Analysis Date: **4/29/2014 01:57 AM**
Client ID: Run ID: **ICPMS1_140428A** SeqNo: **2735789** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09387	0.0050	0.1	0.0002462	93.6	75-125	0			
Arsenic	0.1037	0.0050	0.1	0.007531	96.2	75-125	0			
Barium	0.3875	0.0050	0.1	0.2825	105	75-125	0			
Beryllium	0.08948	0.0020	0.1	0.00002746	89.5	75-125	0			
Cadmium	0.09313	0.0020	0.1	0.0003955	92.7	75-125	0			
Calcium	255.8	0.50	10	237.7	181	75-125	0			SEO
Chromium	0.09721	0.0050	0.1	0.002793	94.4	75-125	0			
Cobalt	0.09914	0.0050	0.1	0.00768	91.5	75-125	0			
Copper	0.09152	0.0050	0.1	0.00426	87.3	75-125	0			
Iron	11.23	0.080	10	1.6	96.3	75-125	0			
Lead	0.09164	0.0050	0.1	0.0006911	90.9	75-125	0			
Magnesium	108.5	0.20	10	95.77	127	75-125	0			SO
Nickel	0.1124	0.0050	0.1	0.02456	87.8	75-125	0			
Potassium	20.53	0.20	10	10.12	104	75-125	0			
Selenium	0.09558	0.0050	0.1	0.001359	94.2	75-125	0			
Silver	0.08283	0.0050	0.1	-1.221E-05	82.8	75-125	0			
Sodium	75.26	0.20	10	63.21	120	75-125	0			O
Thallium	0.089	0.0050	0.1	0.00006765	88.9	75-125	0			
Vanadium	0.1011	0.0050	0.1	0.002396	98.7	75-125	0			
Zinc	0.1154	0.010	0.1	0.02808	87.3	75-125	0			

MS Sample ID: **14041183-02EMS** Units: **mg/L** Analysis Date: **4/29/2014 05:55 PM**
Client ID: Run ID: **ICPMS1_140429A** SeqNo: **2737149** Prep Date: **4/28/2014** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	4.115	0.050	0.1	3.866	249	75-125	0			SO

MS Sample ID: **14041183-02EMS** Units: **mg/L** Analysis Date: **5/1/2014 11:39 PM**
Client ID: Run ID: **ICPMS1_140501A** SeqNo: **2741255** Prep Date: **4/28/2014** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1342	0.10	0.1	0.02485	109	75-125	0			B
Barium	0.3813	0.050	0.1	0.274	107	75-125	0			
Cadmium	0.1151	0.020	0.1	0	115	75-125	0			
Lead	0.1062	0.050	0.1	0	106	75-125	0			
Manganese	4.075	0.050	0.1	3.954	121	75-125	0			O

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58021** Instrument ID **ICPMS1** Method: **SW6020A**

MSD Sample ID: **14041183-02EMSD** Units: **mg/L** Analysis Date: **4/29/2014 02:03 AM**

Client ID: Run ID: **ICPMS1_140428A** SeqNo: **2735790** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09244	0.0050	0.1	0.0002462	92.2	75-125	0.09387	1.54	20	
Arsenic	0.1018	0.0050	0.1	0.007531	94.3	75-125	0.1037	1.85	20	
Barium	0.3776	0.0050	0.1	0.2825	95.1	75-125	0.3875	2.59	20	
Beryllium	0.08773	0.0020	0.1	0.00002746	87.7	75-125	0.08948	1.98	20	
Cadmium	0.09158	0.0020	0.1	0.0003955	91.2	75-125	0.09313	1.68	20	
Calcium	246.9	0.50	10	237.7	92	75-125	255.8	3.54	20	EO
Chromium	0.09535	0.0050	0.1	0.002793	92.6	75-125	0.09721	1.93	20	
Cobalt	0.09761	0.0050	0.1	0.00768	89.9	75-125	0.09914	1.56	20	
Copper	0.08981	0.0050	0.1	0.00426	85.6	75-125	0.09152	1.89	20	
Iron	11	0.080	10	1.6	94	75-125	11.23	2.07	20	
Lead	0.08962	0.0050	0.1	0.0006911	88.9	75-125	0.09164	2.23	20	
Magnesium	105.7	0.20	10	95.77	99.3	75-125	108.5	2.61	20	O
Nickel	0.1099	0.0050	0.1	0.02456	85.3	75-125	0.1124	2.25	20	
Potassium	19.92	0.20	10	10.12	98	75-125	20.53	3.02	20	
Selenium	0.09514	0.0050	0.1	0.001359	93.8	75-125	0.09558	0.461	20	
Silver	0.08163	0.0050	0.1	-1.221E-05	81.6	75-125	0.08283	1.46	20	
Sodium	72.74	0.20	10	63.21	95.3	75-125	75.26	3.41	20	O
Thallium	0.08737	0.0050	0.1	0.00006765	87.3	75-125	0.089	1.85	20	
Vanadium	0.1001	0.0050	0.1	0.002396	97.7	75-125	0.1011	0.994	20	
Zinc	0.1117	0.010	0.1	0.02808	83.6	75-125	0.1154	3.26	20	

MSD Sample ID: **14041183-02EMSD** Units: **mg/L** Analysis Date: **4/29/2014 07:34 PM**

Client ID: Run ID: **ICPMS1_140429A** SeqNo: **2737166** Prep Date: **4/28/2014** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	4.138	0.050	0.1	3.866	272	75-125	4.115	0.557	20	SO

MSD Sample ID: **14041183-02EMSD** Units: **mg/L** Analysis Date: **5/1/2014 11:45 PM**

Client ID: Run ID: **ICPMS1_140501A** SeqNo: **2741256** Prep Date: **4/28/2014** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1469	0.10	0.1	0.02485	122	75-125	0.1342	9.04	20	B
Barium	0.3895	0.050	0.1	0.274	116	75-125	0.3813	2.13	20	
Cadmium	0.1185	0.020	0.1	0	118	75-125	0.1151	2.91	20	
Lead	0.11	0.050	0.1	0	110	75-125	0.1062	3.52	20	
Manganese	4.083	0.050	0.1	3.954	129	75-125	4.075	0.196	20	SO

The following samples were analyzed in this batch:

14041301-09C	14041301-10A	14041301-11A
14041301-12A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58069** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-58069-58069** Units: **mg/L** Analysis Date: **4/29/2014 03:49 PM**
Client ID: Run ID: **ICPMS2_140429A** SeqNo: **2736948** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Lead	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								

LCS Sample ID: **LCS-58069-58069** Units: **mg/L** Analysis Date: **4/29/2014 04:00 PM**
Client ID: Run ID: **ICPMS2_140429A** SeqNo: **2736949** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1011	0.0050	0.1	0	101	80-120	0			
Barium	0.09855	0.0050	0.1	0	98.6	80-120	0			
Cadmium	0.09952	0.0020	0.1	0	99.5	80-120	0			
Chromium	0.1021	0.0050	0.1	0	102	80-120	0			
Lead	0.099	0.0050	0.1	0	99	80-120	0			
Selenium	0.09943	0.0050	0.1	0	99.4	80-120	0			
Silver	0.09627	0.0050	0.1	0	96.3	80-120	0			

MS Sample ID: **14041218-01EMS** Units: **mg/L** Analysis Date: **4/29/2014 04:19 PM**
Client ID: Run ID: **ICPMS2_140429A** SeqNo: **2736952** Prep Date: **4/29/2014** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.0934	0.025	0.1	0.000947	92.5	75-125	0			
Barium	0.129	0.025	0.1	0.03388	95.1	75-125	0			
Cadmium	0.09655	0.010	0.1	0.000397	96.2	75-125	0			
Chromium	0.09815	0.025	0.1	0.004279	93.9	75-125	0			
Lead	0.09475	0.025	0.1	0.002278	92.5	75-125	0			
Selenium	0.08865	0.025	0.1	0.00062	88	75-125	0			
Silver	0.0876	0.025	0.1	3.868E-06	87.6	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58069** Instrument ID **ICPMS2** Method: **SW6020A**

MSD Sample ID: **14041218-01EMSD** Units: **mg/L** Analysis Date: **4/29/2014 04:25 PM**

Client ID: Run ID: **ICPMS2_140429A** SeqNo: **2736953** Prep Date: **4/29/2014** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.09455	0.025	0.1	0.000947	93.6	75-125	0.0934	1.22	20	
Barium	0.1262	0.025	0.1	0.03388	92.3	75-125	0.129	2.23	20	
Cadmium	0.0943	0.010	0.1	0.000397	93.9	75-125	0.09655	2.36	20	
Chromium	0.0998	0.025	0.1	0.004279	95.5	75-125	0.09815	1.67	20	
Lead	0.0917	0.025	0.1	0.002278	89.4	75-125	0.09475	3.27	20	
Selenium	0.09215	0.025	0.1	0.00062	91.5	75-125	0.08865	3.87	20	
Silver	0.0893	0.025	0.1	3.868E-06	89.3	75-125	0.0876	1.92	20	

The following samples were analyzed in this batch:

14041301-13A	14041301-14A	14041301-15A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58081** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-58081-58081** Units: **mg/Kg** Analysis Date: **4/30/2014 04:13 PM**

Client ID: Run ID: **ICPMS1_140430A** SeqNo: **2739210** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	ND	0.25								
Arsenic	ND	0.25								
Barium	ND	0.25								
Beryllium	ND	0.10								
Cadmium	ND	0.10								
Calcium	3.811	25								J
Chromium	ND	0.25								
Cobalt	ND	0.25								
Copper	0.05655	0.25								J
Iron	0.842	4.0								J
Lead	ND	0.25								
Magnesium	0.96	10								J
Manganese	0.02666	0.25								J
Nickel	ND	0.25								
Potassium	3.324	10								J
Selenium	ND	0.25								
Silver	ND	0.25								
Sodium	5.765	10								J
Thallium	ND	0.25								
Vanadium	ND	0.25								
Zinc	0.0319	0.50								J

MBLK Sample ID: **MBLK-58081-58081** Units: **mg/Kg** Analysis Date: **5/1/2014 03:58 PM**

Client ID: Run ID: **ICPMS1_140501A** SeqNo: **2741150** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.476	0.50								J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58081** Instrument ID **ICPMS1** Method: **SW6020A**

LCS Sample ID: **LCS-58081-58081** Units: **mg/Kg** Analysis Date: **4/30/2014 04:19 PM**

Client ID: Run ID: **ICPMS1_140430A** SeqNo: **2739211** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	4.834	0.25	5	0	96.7	80-120	0			
Arsenic	4.68	0.25	5	0	93.6	80-120	0			
Barium	4.92	0.25	5	0	98.4	80-120	0			
Beryllium	4.606	0.10	5	0	92.1	80-120	0			
Cadmium	4.775	0.10	5	0	95.5	80-120	0			
Calcium	512.5	25	500	0	102	80-120	0			
Chromium	4.902	0.25	5	0	98	80-120	0			
Cobalt	4.9	0.25	5	0	98	80-120	0			
Copper	4.78	0.25	5	0	95.6	80-120	0			
Iron	507.5	4.0	500	0	102	80-120	0			
Lead	5.24	0.25	5	0	105	80-120	0			
Magnesium	520	10	500	0	104	80-120	0			
Manganese	4.94	0.25	5	0	98.8	80-120	0			
Nickel	4.838	0.25	5	0	96.8	80-120	0			
Potassium	515	10	500	0	103	80-120	0			
Selenium	4.301	0.25	5	0	86	80-120	0			
Silver	4.774	0.25	5	0	95.5	80-120	0			
Sodium	509.5	10	500	0	102	80-120	0			
Thallium	5.08	0.25	5	0	102	80-120	0			
Vanadium	4.998	0.25	5	0	100	80-120	0			
Zinc	4.424	0.50	5	0	88.5	80-120	0			

LCS Sample ID: **LCS-58081-58081** Units: **mg/Kg** Analysis Date: **5/2/2014 01:07 PM**

Client ID: Run ID: **ICPMS1_140502A** SeqNo: **2742949** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	5.12	0.50	5	0	102	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58081** Instrument ID **ICPMS1** Method: **SW6020A**

MS Sample ID: **14041242-04BMS** Units: **mg/Kg** Analysis Date: **4/30/2014 04:43 PM**

Client ID: Run ID: **ICPMS1_140430A** SeqNo: **2739215** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	7.726	0.42	8.319	0.02239	92.6	75-125	0			
Arsenic	8.164	0.42	8.319	0.6468	90.4	75-125	0			
Barium	10.55	0.42	8.319	1.888	104	75-125	0			
Beryllium	7.052	0.17	8.319	0.01951	84.5	75-125	0			
Cadmium	7.904	0.17	8.319	0.01695	94.8	75-125	0			
Calcium	1371	42	831.9	476.9	107	75-125	0			
Chromium	9.135	0.42	8.319	1.642	90.1	75-125	0			
Cobalt	8.163	0.42	8.319	0.3227	94.2	75-125	0			
Copper	7.973	0.42	8.319	0.3761	91.3	75-125	0			
Iron	2082	6.7	831.9	1481	72.2	75-125	0			S
Lead	9.068	0.42	8.319	0.4137	104	75-125	0			
Magnesium	1029	17	831.9	162.6	104	75-125	0			
Manganese	31.53	0.42	8.319	24.11	89.2	75-125	0			
Nickel	8.71	0.42	8.319	1.045	92.1	75-125	0			
Potassium	918.5	17	831.9	50.14	104	75-125	0			
Selenium	7.275	0.42	8.319	0.3315	83.5	75-125	0			
Silver	7.607	0.42	8.319	0.002418	91.4	75-125	0			
Sodium	855.2	17	831.9	40.2	98	75-125	0			
Thallium	8.344	0.42	8.319	-0.01862	101	75-125	0			
Vanadium	11.23	0.42	8.319	3.731	90.2	75-125	0			
Zinc	8.644	0.83	8.319	1.807	82.2	75-125	0			

MS Sample ID: **14041242-04BMS** Units: **mg/Kg** Analysis Date: **5/2/2014 01:13 PM**

Client ID: Run ID: **ICPMS1_140502A** SeqNo: **2742950** Prep Date: **4/29/2014** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	745.1	8.3	8.319	767.2	-266	75-125	0			SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58081** Instrument ID **ICPMS1** Method: **SW6020A**

MSD Sample ID: **14041242-04BMSD** Units: **mg/Kg** Analysis Date: **4/30/2014 05:06 PM**

Client ID: Run ID: **ICPMS1_140430A** SeqNo: **2739219** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	7.501	0.40	7.987	0.02239	93.6	75-125	7.726	2.96	25	
Arsenic	7.869	0.40	7.987	0.6468	90.4	75-125	8.164	3.68	25	
Barium	10.45	0.40	7.987	1.888	107	75-125	10.55	0.97	25	
Beryllium	6.673	0.16	7.987	0.01951	83.3	75-125	7.052	5.54	25	
Cadmium	7.573	0.16	7.987	0.01695	94.6	75-125	7.904	4.28	25	
Calcium	2174	40	798.7	476.9	212	75-125	1371	45.3	25	SR
Chromium	9.625	0.40	7.987	1.642	99.9	75-125	9.135	5.22	25	
Cobalt	7.995	0.40	7.987	0.3227	96.1	75-125	8.163	2.08	25	
Copper	8.73	0.40	7.987	0.3761	105	75-125	7.973	9.06	25	
Iron	2202	6.4	798.7	1481	90.2	75-125	2082	5.59	25	
Lead	8.81	0.40	7.987	0.4137	105	75-125	9.068	2.89	25	
Magnesium	1119	16	798.7	162.6	120	75-125	1029	8.37	25	
Manganese	34.75	0.40	7.987	24.11	133	75-125	31.53	9.72	25	S
Nickel	8.754	0.40	7.987	1.045	96.5	75-125	8.71	0.498	25	
Potassium	902.6	16	798.7	50.14	107	75-125	918.5	1.75	25	
Selenium	6.935	0.40	7.987	0.3315	82.7	75-125	7.275	4.8	25	
Silver	7.433	0.40	7.987	0.002418	93	75-125	7.607	2.32	25	
Sodium	821.9	16	798.7	40.2	97.9	75-125	855.2	3.98	25	
Thallium	8.075	0.40	7.987	-0.01862	101	75-125	8.344	3.28	25	
Vanadium	10.72	0.40	7.987	3.731	87.5	75-125	11.23	4.67	25	
Zinc	8.938	0.80	7.987	1.807	89.3	75-125	8.644	3.34	25	

MSD Sample ID: **14041242-04BMSD** Units: **mg/Kg** Analysis Date: **5/2/2014 01:18 PM**

Client ID: Run ID: **ICPMS1_140502A** SeqNo: **2742951** Prep Date: **4/29/2014** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	958.5	8.0	7.987	767.2	2390	75-125	745.1	25.1	25	SRO

The following samples were analyzed in this batch:

14041301-01A	14041301-02A	14041301-03A
14041301-04A	14041301-05A	14041301-06A
14041301-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58013** Instrument ID **SVMS7** Method: **SW8270**

MBLK Sample ID: **SBLKW1-58013-58013** Units: **µg/L** Analysis Date: **4/28/2014 03:53 PM**

Client ID: Run ID: **SVMS7_140428A** SeqNo: **2736331** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	20								
2-Nitrophenol	ND	5.0								
3,3´-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	20								
4,6-Dinitro-2-methylphenol	ND	20								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	20								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Methylphenol	ND	5.0								
4-Nitroaniline	ND	20								
4-Nitrophenol	ND	20								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Acetophenone	ND	1.0								
Anthracene	ND	5.0								
Atrazine	ND	1.0								
Benzaldehyde	ND	1.0								
Benzo(a)anthracene	ND	5.0								
Benzo(a)pyrene	ND	5.0								
Benzo(b)fluoranthene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Caprolactam	ND	10								
Carbazole	ND	10								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58013** Instrument ID **SVMS7** Method: **SW8270**

Chrysene	ND	5.0					
Dibenzo(a,h)anthracene	ND	5.0					
Dibenzofuran	ND	5.0					
Diethyl phthalate	ND	20					
Dimethyl phthalate	ND	20					
Di-n-butyl phthalate	ND	5.0					
Di-n-octyl phthalate	ND	5.0					
Fluoranthene	ND	5.0					
Fluorene	ND	5.0					
Hexachlorobenzene	ND	5.0					
Hexachlorobutadiene	ND	5.0					
Hexachlorocyclopentadiene	ND	20					
Hexachloroethane	ND	5.0					
Indeno(1,2,3-cd)pyrene	ND	5.0					
Isophorone	ND	5.0					
Naphthalene	ND	5.0					
Nitrobenzene	ND	5.0					
N-Nitrosodi-n-propylamine	ND	5.0					
N-Nitrosodiphenylamine	ND	5.0					
Pentachlorophenol	ND	20					
Phenanthrene	ND	5.0					
Phenol	ND	5.0					
Pyrene	ND	5.0					
Surr: 2,4,6-Tribromophenol	*30.44*	0	*50*	0	*60.9*	*38-115*	0
Surr: 2-Fluorobiphenyl	*29.26*	0	*50*	0	*58.5*	*32-100*	0
Surr: 2-Fluorophenol	*16.57*	0	*50*	0	*33.1*	*22-59*	0
Surr: 4-Terphenyl-d14	*48.74*	0	*50*	0	*97.5*	*23-112*	0
Surr: Nitrobenzene-d5	*24.09*	0	*50*	0	*48.2*	*31-93*	0
Surr: Phenol-d6	*8.24*	0	*50*	0	*16.5*	*13-36*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58013** Instrument ID **SVMS7** Method: **SW8270**

LCS Sample ID: **SLCSW1-58013-58013** Units: **µg/L** Analysis Date: **4/28/2014 03:30 PM**

Client ID: Run ID: **SVMS7_140428A** SeqNo: **2736330** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	14.55	5.0	20	0	72.8	50-110	0			
2,4,6-Trichlorophenol	14.71	5.0	20	0	73.6	50-115	0			
2,4-Dichlorophenol	11.61	10	20	0	58	50-105	0			
2,4-Dimethylphenol	11.51	5.0	20	0	57.6	30-110	0			
2,4-Dinitrophenol	11.96	5.0	20	0	59.8	15-140	0			
2,4-Dinitrotoluene	14.37	5.0	20	0	71.8	50-120	0			
2,6-Dinitrotoluene	14.8	5.0	20	0	74	50-115	0			
2-Chloronaphthalene	14.49	5.0	20	0	72.4	50-105	0			
2-Chlorophenol	11.47	5.0	20	0	57.4	35-105	0			
2-Methylnaphthalene	13.04	5.0	20	0	65.2	45-105	0			
2-Methylphenol	9.29	5.0	20	0	46.4	40-110	0			
2-Nitroaniline	15.32	20	20	0	76.6	50-115	0			J
2-Nitrophenol	13.55	5.0	20	0	67.8	40-115	0			
3-Nitroaniline	14.84	20	20	0	74.2	20-125	0			J
4,6-Dinitro-2-methylphenol	15	20	20	0	75	40-130	0			J
4-Bromophenyl phenyl ether	14.3	5.0	20	0	71.5	50-115	0			
4-Chloro-3-methylphenol	12.67	5.0	20	0	63.4	45-110	0			
4-Chloroaniline	12.23	20	20	0	61.2	15-110	0			J
4-Chlorophenyl phenyl ether	13.78	5.0	20	0	68.9	50-110	0			
4-Methylphenol	8.37	5.0	20	0	41.8	30-110	0			
4-Nitroaniline	13.23	20	20	0	66.2	35-150	0			J
4-Nitrophenol	6.73	20	20	0	33.6	1-58	0			J
Acenaphthene	15.09	5.0	20	0	75.4	45-110	0			
Acenaphthylene	14.81	5.0	20	0	74	50-105	0			
Anthracene	15.85	5.0	20	0	79.2	55-110	0			
Benzo(a)anthracene	15.28	5.0	20	0	76.4	55-110	0			
Benzo(a)pyrene	16.02	5.0	20	0	80.1	55-110	0			
Benzo(b)fluoranthene	16.22	5.0	20	0	81.1	45-120	0			
Benzo(g,h,i)perylene	15.4	5.0	20	0	77	40-125	0			
Benzo(k)fluoranthene	16.59	5.0	20	0	83	45-125	0			
Bis(2-chloroethoxy)methane	14.5	5.0	20	0	72.5	45-105	0			
Bis(2-chloroethyl)ether	14.9	5.0	20	0	74.5	35-110	0			
Bis(2-chloroisopropyl)ether	13.33	5.0	20	0	66.6	25-130	0			
Bis(2-ethylhexyl)phthalate	17.86	5.0	20	0	89.3	40-125	0			
Butyl benzyl phthalate	18.19	5.0	20	0	91	45-115	0			
Carbazole	16.65	10	20	0	83.2	50-150	0			
Chrysene	15.74	5.0	20	0	78.7	55-110	0			
Dibenzo(a,h)anthracene	14.6	5.0	20	0	73	40-125	0			
Dibenzofuran	14.29	5.0	20	0	71.4	55-105	0			
Diethyl phthalate	14.47	20	20	0	72.4	40-120	0			J
Dimethyl phthalate	16.25	20	20	0	81.2	25-125	0			J
Di-n-butyl phthalate	15.76	5.0	20	0	78.8	55-115	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58013** Instrument ID **SVMS7** Method: **SW8270**

Di-n-octyl phthalate	19.48	5.0	20	0	97.4	35-135	0	
Fluoranthene	15.75	5.0	20	0	78.8	55-115	0	
Fluorene	15.76	5.0	20	0	78.8	50-110	0	
Hexachlorobenzene	14.95	5.0	20	0	74.8	50-110	0	
Hexachlorobutadiene	14.25	5.0	20	0	71.2	25-105	0	
Hexachlorocyclopentadiene	6.82	20	20	0	34.1	25-105	0	J
Hexachloroethane	16	5.0	20	0	80	30-95	0	
Indeno(1,2,3-cd)pyrene	15.36	5.0	20	0	76.8	45-125	0	
Isophorone	14.49	5.0	20	0	72.4	50-110	0	
Naphthalene	13.97	5.0	20	0	69.8	40-100	0	
Nitrobenzene	16.72	5.0	20	0	83.6	45-110	0	
N-Nitrosodi-n-propylamine	14.51	5.0	20	0	72.6	35-130	0	
N-Nitrosodiphenylamine	15.38	5.0	20	0	76.9	50-110	0	
Pentachlorophenol	11.2	20	20	0	56	40-115	0	J
Phenanthrene	14.97	5.0	20	0	74.8	50-115	0	
Phenol	4.62	5.0	20	0	23.1	12-43	0	J
Pyrene	15.69	5.0	20	0	78.4	50-130	0	
Surr: 2,4,6-Tribromophenol	*34.99*	0	*50*	0	*70*	*38-115*	0	
Surr: 2-Fluorobiphenyl	*38.09*	0	*50*	0	*76.2*	*32-100*	0	
Surr: 2-Fluorophenol	*18.28*	0	*50*	0	*36.6*	*22-59*	0	
Surr: 4-Terphenyl-d14	*46.23*	0	*50*	0	*92.5*	*23-112*	0	
Surr: Nitrobenzene-d5	*34.48*	0	*50*	0	*69*	*31-93*	0	
Surr: Phenol-d6	*9.95*	0	*50*	0	*19.9*	*13-36*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58013** Instrument ID **SVMS7** Method: **SW8270**

MS Sample ID: **14041179-19B MS** Units: **µg/L** Analysis Date: **4/29/2014 12:11 PM**

Client ID: Run ID: **SVMS4_140429A** SeqNo: **2737886** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	160.5	50	200	0	80.2	50-110	0			
2,4,6-Trichlorophenol	156.8	50	200	0	78.4	50-115	0			
2,4-Dichlorophenol	138.7	100	200	0	69.4	50-105	0			
2,4-Dimethylphenol	150.6	50	200	4.19	73.2	30-110	0			
2,4-Dinitrophenol	170.8	50	200	0	85.4	15-140	0			
2,4-Dinitrotoluene	154.4	50	200	0	77.2	50-120	0			
2,6-Dinitrotoluene	161.5	50	200	0	80.8	50-115	0			
2-Chloronaphthalene	144	50	200	0	72	50-105	0			
2-Chlorophenol	128.7	50	200	0	64.4	35-105	0			
2-Methylnaphthalene	140.3	50	200	0	70.2	45-105	0			
2-Methylphenol	117.2	50	200	2.26	57.5	40-110	0			
2-Nitroaniline	161.4	200	200	0	80.7	50-115	0			J
2-Nitrophenol	133.4	50	200	0	66.7	40-115	0			
3-Nitroaniline	164.7	200	200	0	82.4	20-125	0			J
4,6-Dinitro-2-methylphenol	127.6	200	200	0	63.8	40-130	0			J
4-Bromophenyl phenyl ether	155.1	50	200	0	77.6	50-115	0			
4-Chloro-3-methylphenol	147.5	50	200	0	73.8	45-110	0			
4-Chloroaniline	206	200	200	0	103	15-110	0			
4-Chlorophenyl phenyl ether	143.6	50	200	0	71.8	50-110	0			
4-Methylphenol	114.4	50	200	8.88	52.8	30-110	0			
4-Nitroaniline	184.2	200	200	0	92.1	35-150	0			J
4-Nitrophenol	72.2	200	200	0	36.1	1-58	0			J
Acenaphthene	146.1	50	200	0	73	45-110	0			
Acenaphthylene	148.9	50	200	0	74.4	50-105	0			
Anthracene	161.3	50	200	0	80.6	55-110	0			
Benzo(a)anthracene	167.4	50	200	0	83.7	55-110	0			
Benzo(a)pyrene	162.9	50	200	0	81.4	55-110	0			
Benzo(b)fluoranthene	160.2	50	200	0	80.1	45-120	0			
Benzo(g,h,i)perylene	164.1	50	200	0	82	40-125	0			
Benzo(k)fluoranthene	154.1	50	200	0	77	45-125	0			
Bis(2-chloroethoxy)methane	137.4	50	200	0	68.7	45-105	0			
Bis(2-chloroethyl)ether	132.3	50	200	0	66.2	35-110	0			
Bis(2-chloroisopropyl)ether	135.4	50	200	0	67.7	25-130	0			
Bis(2-ethylhexyl)phthalate	153.1	50	200	0	76.6	40-125	0			
Butyl benzyl phthalate	178.3	50	200	0	89.2	45-115	0			
Carbazole	203.5	100	200	0	102	50-150	0			
Chrysene	155.2	50	200	0	77.6	55-110	0			
Dibenzo(a,h)anthracene	162.9	50	200	0	81.4	40-125	0			
Dibenzofuran	145	50	200	0	72.5	55-105	0			
Diethyl phthalate	169.1	200	200	0	84.6	40-120	0			J
Dimethyl phthalate	159.6	200	200	0	79.8	25-125	0			J
Di-n-butyl phthalate	159.4	50	200	0	79.7	55-115	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58013** Instrument ID **SVMS7** Method: **SW8270**

Di-n-octyl phthalate	143.8	50	200	0	71.9	35-135	0	
Fluoranthene	173.3	50	200	0	86.6	55-115	0	
Fluorene	151.1	50	200	0	75.6	50-110	0	
Hexachlorobenzene	145	50	200	0	72.5	50-110	0	
Hexachlorobutadiene	129.5	50	200	0	64.8	25-105	0	
Hexachlorocyclopentadiene	64.2	200	200	0	32.1	25-105	0	J
Hexachloroethane	140.2	50	200	0	70.1	30-95	0	
Indeno(1,2,3-cd)pyrene	158.8	50	200	0	79.4	45-125	0	
Isophorone	148.2	50	200	0	74.1	50-110	0	
Naphthalene	129.5	50	200	2.75	63.4	40-100	0	
Nitrobenzene	139.1	50	200	0	69.6	45-110	0	
N-Nitrosodi-n-propylamine	152.1	50	200	0	76	35-130	0	
N-Nitrosodiphenylamine	184.6	50	200	0	92.3	50-110	0	
Pentachlorophenol	280	200	200	0	140	40-115	0	S
Phenanthrene	154.9	50	200	0	77.4	50-115	0	
Phenol	71.7	50	200	23.45	24.1	12-43	0	
Pyrene	161.3	50	200	0	80.6	50-130	0	
Surr: 2,4,6-Tribromophenol	*434.7*	0	*500*	0	*86.9*	*38-115*	0	
Surr: 2-Fluorobiphenyl	*354.4*	0	*500*	0	*70.9*	*32-100*	0	
Surr: 2-Fluorophenol	*193.2*	0	*500*	0	*38.6*	*22-59*	0	
Surr: 4-Terphenyl-d14	*426.4*	0	*500*	0	*85.3*	*23-112*	0	
Surr: Nitrobenzene-d5	*344.2*	0	*500*	0	*68.8*	*31-93*	0	
Surr: Phenol-d6	*119.2*	0	*500*	0	*23.8*	*13-36*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58013** Instrument ID **SVMS7** Method: **SW8270**

MSD Sample ID: **14041179-19B MSD** Units: **µg/L** Analysis Date: **4/29/2014 12:44 PM**

Client ID: Run ID: **SVMS4_140429A** SeqNo: **2737887** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	166.6	50	200	0	83.3	50-110	160.5	3.73	30	
2,4,6-Trichlorophenol	162.2	50	200	0	81.1	50-115	156.8	3.39	30	
2,4-Dichlorophenol	140.8	100	200	0	70.4	50-105	138.7	1.5	30	
2,4-Dimethylphenol	153.8	50	200	4.19	74.8	30-110	150.6	2.1	30	
2,4-Dinitrophenol	183.7	50	200	0	91.8	15-140	170.8	7.28	30	
2,4-Dinitrotoluene	160.8	50	200	0	80.4	50-120	154.4	4.06	30	
2,6-Dinitrotoluene	165.5	50	200	0	82.8	50-115	161.5	2.45	30	
2-Chloronaphthalene	146.7	50	200	0	73.4	50-105	144	1.86	30	
2-Chlorophenol	130.2	50	200	0	65.1	35-105	128.7	1.16	30	
2-Methylnaphthalene	138.4	50	200	0	69.2	45-105	140.3	1.36	30	
2-Methylphenol	122.7	50	200	2.26	60.2	40-110	117.2	4.59	30	
2-Nitroaniline	165.7	200	200	0	82.8	50-115	161.4	0	30	J
2-Nitrophenol	132.2	50	200	0	66.1	40-115	133.4	0.904	30	
3-Nitroaniline	167.5	200	200	0	83.8	20-125	164.7	0	30	J
4,6-Dinitro-2-methylphenol	138.6	200	200	0	69.3	40-130	127.6	0	30	J
4-Bromophenyl phenyl ether	160.1	50	200	0	80	50-115	155.1	3.17	30	
4-Chloro-3-methylphenol	151.4	50	200	0	75.7	45-110	147.5	2.61	30	
4-Chloroaniline	207.3	200	200	0	104	15-110	206	0.629	30	
4-Chlorophenyl phenyl ether	147.8	50	200	0	73.9	50-110	143.6	2.88	30	
4-Methylphenol	121.2	50	200	8.88	56.2	30-110	114.4	5.77	30	
4-Nitroaniline	203.5	200	200	0	102	35-150	184.2	9.96	30	
4-Nitrophenol	80.3	200	200	0	40.2	1-58	72.2	0	0	J
Acenaphthene	149.3	50	200	0	74.6	45-110	146.1	2.17	30	
Acenaphthylene	151.6	50	200	0	75.8	50-105	148.9	1.8	30	
Anthracene	166.6	50	200	0	83.3	55-110	161.3	3.23	30	
Benzo(a)anthracene	172	50	200	0	86	55-110	167.4	2.71	30	
Benzo(a)pyrene	170	50	200	0	85	55-110	162.9	4.27	30	
Benzo(b)fluoranthene	158.6	50	200	0	79.3	45-120	160.2	1	30	
Benzo(g,h,i)perylene	166.4	50	200	0	83.2	40-125	164.1	1.39	30	
Benzo(k)fluoranthene	169.4	50	200	0	84.7	45-125	154.1	9.46	30	
Bis(2-chloroethoxy)methane	137.8	50	200	0	68.9	45-105	137.4	0.291	30	
Bis(2-chloroethyl)ether	128.3	50	200	0	64.2	35-110	132.3	3.07	30	
Bis(2-chloroisopropyl)ether	130.2	50	200	0	65.1	25-130	135.4	3.92	30	
Bis(2-ethylhexyl)phthalate	161.4	50	200	0	80.7	40-125	153.1	5.28	30	
Butyl benzyl phthalate	183.9	50	200	0	92	45-115	178.3	3.09	30	
Carbazole	212	100	200	0	106	50-150	203.5	4.09	30	
Chrysene	162.7	50	200	0	81.4	55-110	155.2	4.72	30	
Dibenzo(a,h)anthracene	165.3	50	200	0	82.6	40-125	162.9	1.46	30	
Dibenzofuran	148.2	50	200	0	74.1	55-105	145	2.18	30	
Diethyl phthalate	168.9	200	200	0	84.4	40-120	169.1	0	30	J
Dimethyl phthalate	165	200	200	0	82.5	25-125	159.6	0	30	J
Di-n-butyl phthalate	166.7	50	200	0	83.4	55-115	159.4	4.48	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58013** Instrument ID **SVMS7** Method: **SW8270**

Di-n-octyl phthalate	153	50	200	0	76.5	35-135	143.8	6.2	30	
Fluoranthene	177.8	50	200	0	88.9	55-115	173.3	2.56	30	
Fluorene	154	50	200	0	77	50-110	151.1	1.9	30	
Hexachlorobenzene	148.9	50	200	0	74.4	50-110	145	2.65	30	
Hexachlorobutadiene	125.8	50	200	0	62.9	25-105	129.5	2.9	30	
Hexachlorocyclopentadiene	63.7	200	200	0	31.8	25-105	64.2	0	30	J
Hexachloroethane	134.7	50	200	0	67.4	30-95	140.2	4	30	
Indeno(1,2,3-cd)pyrene	161.7	50	200	0	80.8	45-125	158.8	1.81	30	
Isophorone	147.8	50	200	0	73.9	50-110	148.2	0.27	30	
Naphthalene	127.8	50	200	2.75	62.5	40-100	129.5	1.32	30	
Nitrobenzene	135.9	50	200	0	68	45-110	139.1	2.33	30	
N-Nitrosodi-n-propylamine	151.1	50	200	0	75.6	35-130	152.1	0.66	30	
N-Nitrosodiphenylamine	191.2	50	200	0	95.6	50-110	184.6	3.51	30	
Pentachlorophenol	279.9	200	200	0	140	40-115	280	0.0357	30	S
Phenanthrene	160	50	200	0	80	50-115	154.9	3.24	30	
Phenol	75.6	50	200	23.45	26.1	12-43	71.7	5.3	30	
Pyrene	166.1	50	200	0	83	50-130	161.3	2.93	30	
Surr: 2,4,6-Tribromophenol	*442.9*	0	*500*	0	*88.6*	*38-115*	434.7	*1.87*	*40*	
Surr: 2-Fluorobiphenyl	*359.2*	0	*500*	0	*71.8*	*32-100*	354.4	*1.35*	*40*	
Surr: 2-Fluorophenol	*200*	0	*500*	0	*40*	*22-59*	193.2	*3.46*	*40*	
Surr: 4-Terphenyl-d14	*438.5*	0	*500*	0	*87.7*	*23-112*	426.4	*2.8*	*40*	
Surr: Nitrobenzene-d5	*328*	0	*500*	0	*65.6*	*31-93*	344.2	*4.82*	*40*	
Surr: Phenol-d6	*127.2*	0	*500*	0	*25.4*	*13-36*	119.2	*6.49*	*40*	

The following samples were analyzed in this batch: 14041301-09A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58019** Instrument ID **SVMS4** Method: **SW8270**

MBLK	Sample ID: **SBLKS1-58019-58019**	Units: **µg/Kg**	Analysis Date: **4/28/2014 09:25 PM**
Client ID:	Run ID: **SVMS4_140428A**	SeqNo: **2735483** Prep Date: **4/28/2014**	DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	ND	330								
2,4,5-Trichlorophenol	ND	160								
2,4,6-Trichlorophenol	ND	160								
2,4-Dichlorophenol	ND	160								
2,4-Dimethylphenol	ND	330								
2,4-Dinitrophenol	ND	660								
2,4-Dinitrotoluene	ND	160								
2,6-Dinitrotoluene	ND	160								
2-Chloronaphthalene	ND	6.7								
2-Chlorophenol	ND	160								
2-Methylnaphthalene	ND	6.7								
2-Methylphenol	ND	160								
2-Nitroaniline	ND	660								
2-Nitrophenol	ND	160								
3,3´-Dichlorobenzidine	ND	660								
3-Nitroaniline	ND	660								
4,6-Dinitro-2-methylphenol	ND	330								
4-Bromophenyl phenyl ether	ND	160								
4-Chloro-3-methylphenol	ND	160								
4-Chloroaniline	ND	660								
4-Chlorophenyl phenyl ether	ND	160								
4-Methylphenol	ND	160								
4-Nitroaniline	ND	660								
4-Nitrophenol	ND	660								
Acenaphthene	ND	6.7								
Acenaphthylene	ND	6.7								
Acetophenone	ND	330								
Anthracene	ND	6.7								
Atrazine	ND	330								
Benzaldehyde	ND	330								
Benzo(a)anthracene	ND	6.7								
Benzo(a)pyrene	ND	6.7								
Benzo(b)fluoranthene	ND	6.7								
Benzo(g,h,i)perylene	ND	6.7								
Benzo(k)fluoranthene	ND	6.7								
Bis(2-chloroethoxy)methane	ND	160								
Bis(2-chloroethyl)ether	ND	160								
Bis(2-chloroisopropyl)ether	ND	160								
Bis(2-ethylhexyl)phthalate	ND	330								
Butyl benzyl phthalate	ND	160								
Caprolactam	ND	330								
Carbazole	ND	160								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **58019** Instrument ID **SVMS4** Method: **SW8270**

Chrysene	ND	6.7						
Dibenzo(a,h)anthracene	ND	6.7						
Dibenzofuran	ND	160						
Diethyl phthalate	ND	330						
Dimethyl phthalate	ND	330						
Di-n-butyl phthalate	9.333	330						J
Di-n-octyl phthalate	ND	160						
Fluoranthene	ND	6.7						
Fluorene	ND	6.7						
Hexachlorobenzene	ND	160						
Hexachlorobutadiene	ND	160						
Hexachlorocyclopentadiene	ND	330						
Hexachloroethane	ND	160						
Indeno(1,2,3-cd)pyrene	ND	6.7						
Isophorone	ND	160						
Naphthalene	ND	6.7						
Nitrobenzene	ND	160						
N-Nitrosodi-n-propylamine	ND	160						
N-Nitrosodiphenylamine	ND	160						
Pentachlorophenol	ND	330						
Phenanthrene	ND	6.7						
Phenol	ND	160						
Pyrene	ND	6.7						
Surr: 2,4,6-Tribromophenol	*1253*	0	*1667*	0	*75.2*	*34-140*	0	
Surr: 2-Fluorobiphenyl	*1210*	0	*1667*	0	*72.6*	*12-100*	0	
Surr: 2-Fluorophenol	*1403*	0	*1667*	0	*84.2*	*33-117*	0	
Surr: 4-Terphenyl-d14	*1556*	0	*1667*	0	*93.3*	*25-137*	0	
Surr: Nitrobenzene-d5	*1249*	0	*1667*	0	*74.9*	*37-107*	0	
Surr: Phenol-d6	*1454*	0	*1667*	0	*87.2*	*40-106*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58019** Instrument ID **SVMS4** Method: **SW8270**

LCS Sample ID: **SLCSS1-58019-58019** Units: **µg/Kg** Analysis Date: **4/28/2014 07:17 PM**

Client ID: Run ID: **SVMS4_140428A** SeqNo: **2735479** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	548.3	160	666.7	0	82.2	50-110	0			
2,4,6-Trichlorophenol	538.3	160	666.7	0	80.7	45-110	0			
2,4-Dichlorophenol	552.3	160	666.7	0	82.8	45-110	0			
2,4-Dimethylphenol	548.7	330	666.7	0	82.3	30-105	0			
2,4-Dinitrophenol	571.7	660	666.7	0	85.7	15-130	0			J
2,4-Dinitrotoluene	596	160	666.7	0	89.4	50-115	0			
2,6-Dinitrotoluene	591.3	160	666.7	0	88.7	50-110	0			
2-Chloronaphthalene	558	6.7	666.7	0	83.7	45-105	0			
2-Chlorophenol	588.7	160	666.7	0	88.3	45-105	0			
2-Methylnaphthalene	559.3	6.7	666.7	0	83.9	45-105	0			
2-Methylphenol	579	160	666.7	0	86.8	40-105	0			
2-Nitroaniline	573.3	660	666.7	0	86	45-120	0			J
2-Nitrophenol	545.7	160	666.7	0	81.8	40-110	0			
3-Nitroaniline	366.7	660	666.7	0	55	25-150	0			J
4-Bromophenyl phenyl ether	582.3	160	666.7	0	87.3	45-115	0			
4-Chloro-3-methylphenol	570.3	160	666.7	0	85.5	45-115	0			
4-Chloroaniline	471.7	660	666.7	0	70.7	15-110	0			J
4-Chlorophenyl phenyl ether	537	160	666.7	0	80.5	45-110	0			
4-Methylphenol	605.3	160	666.7	0	90.8	40-105	0			
4-Nitroaniline	370.7	660	666.7	0	55.6	35-150	0			J
4-Nitrophenol	575.7	660	666.7	0	86.3	15-140	0			J
Acenaphthene	544.7	6.7	666.7	0	81.7	45-110	0			
Acenaphthylene	559.3	6.7	666.7	0	83.9	45-105	0			
Anthracene	612.3	6.7	666.7	0	91.8	55-105	0			
Benzo(a)anthracene	621.7	6.7	666.7	0	93.2	50-110	0			
Benzo(a)pyrene	633	6.7	666.7	0	94.9	50-110	0			
Benzo(b)fluoranthene	580	6.7	666.7	0	87	45-115	0			
Benzo(g,h,i)perylene	624	6.7	666.7	0	93.6	40-125	0			
Benzo(k)fluoranthene	664.3	6.7	666.7	0	99.6	45-115	0			
Bis(2-chloroethoxy)methane	538.3	160	666.7	0	80.7	45-110	0			
Bis(2-chloroethyl)ether	526.7	160	666.7	0	79	40-105	0			
Bis(2-chloroisopropyl)ether	542.7	160	666.7	0	81.4	20-115	0			
Bis(2-ethylhexyl)phthalate	665.3	330	666.7	0	99.8	45-125	0			
Butyl benzyl phthalate	698.3	160	666.7	0	105	50-125	0			
Carbazole	656.3	160	666.7	0	98.4	50-150	0			
Chrysene	598.3	6.7	666.7	0	89.7	55-110	0			
Dibenzo(a,h)anthracene	581	6.7	666.7	0	87.1	40-125	0			
Dibenzofuran	544.3	160	666.7	0	81.6	50-105	0			
Diethyl phthalate	606.3	330	666.7	0	90.9	50-115	0			
Dimethyl phthalate	578	330	666.7	0	86.7	50-110	0			
Di-n-butyl phthalate	620.7	330	666.7	0	93.1	55-110	0			
Di-n-octyl phthalate	618.7	160	666.7	0	92.8	40-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **58019** Instrument ID **SVMS4** Method: **SW8270**

Fluoranthene	643.7	6.7	666.7	0	96.5	55-115	0
Fluorene	552.7	6.7	666.7	0	82.9	50-110	0
Hexachlorobenzene	560.7	160	666.7	0	84.1	45-120	0
Hexachlorobutadiene	548	160	666.7	0	82.2	40-115	0
Hexachlorocyclopentadiene	514.3	330	666.7	0	77.1	40-115	0
Hexachloroethane	561	160	666.7	0	84.1	35-110	0
Indeno(1,2,3-cd)pyrene	581	6.7	666.7	0	87.1	40-120	0
Isophorone	559	160	666.7	0	83.8	45-110	0
Naphthalene	527.7	6.7	666.7	0	79.1	40-105	0
Nitrobenzene	565.3	160	666.7	0	84.8	40-115	0
N-Nitrosodi-n-propylamine	581	160	666.7	0	87.1	40-115	0
N-Nitrosodiphenylamine	709.7	160	666.7	0	106	50-115	0
Pentachlorophenol	683.7	330	666.7	0	103	25-120	0
Phenanthrene	585.7	6.7	666.7	0	87.8	50-110	0
Phenol	558.7	160	666.7	0	83.8	40-100	0
Pyrene	628	6.7	666.7	0	94.2	45-125	0
Surr: 2,4,6-Tribromophenol	*1546*	0	*1667*	0	*92.8*	*34-140*	0
Surr: 2-Fluorobiphenyl	*1388*	0	*1667*	0	*83.3*	*12-100*	0
Surr: 2-Fluorophenol	*1530*	0	*1667*	0	*91.8*	*33-117*	0
Surr: 4-Terphenyl-d14	*1730*	0	*1667*	0	*104*	*25-137*	0
Surr: Nitrobenzene-d5	*1385*	0	*1667*	0	*83.1*	*37-107*	0
Surr: Phenol-d6	*1589*	0	*1667*	0	*95.3*	*40-106*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58019** Instrument ID **SVMS4** Method: **SW8270**

MS Sample ID: **14041242-01B MS** Units: **µg/Kg** Analysis Date: **4/28/2014 07:49 PM**

Client ID: Run ID: **SVMS4_140428A** SeqNo: **2735480** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	1109	310	1301	0	85.2	50-110	0			
2,4,6-Trichlorophenol	1072	310	1301	0	82.4	45-110	0			
2,4-Dichlorophenol	995.3	310	1301	0	76.5	45-110	0			
2,4-Dimethylphenol	804.7	640	1301	0	61.8	30-105	0			
2,4-Dinitrophenol	988.2	1,300	1301	0	75.9	15-130	0			J
2,4-Dinitrotoluene	1135	310	1301	0	87.2	50-115	0			
2,6-Dinitrotoluene	1148	310	1301	0	88.2	50-110	0			
2-Chloronaphthalene	1025	13	1301	0	78.7	45-105	0			
2-Chlorophenol	1011	310	1301	0	77.7	45-105	0			
2-Methylnaphthalene	999.9	13	1301	30.44	74.5	45-105	0			
2-Methylphenol	995.3	310	1301	0	76.5	40-105	0			
2-Nitroaniline	1120	1,300	1301	0	86	45-120	0			J
2-Nitrophenol	950.4	310	1301	0	73	40-110	0			
3-Nitroaniline	815.8	1,300	1301	0	62.7	25-110	0			J
4-Bromophenyl phenyl ether	1148	310	1301	0	88.2	45-115	0			
4-Chloro-3-methylphenol	1123	310	1301	0	86.3	45-115	0			
4-Chloroaniline	616.1	1,300	1301	0	47.3	15-110	0			J
4-Chlorophenyl phenyl ether	1048	310	1301	0	80.5	45-110	0			
4-Methylphenol	1066	310	1301	0	81.9	40-105	0			
4-Nitroaniline	850.9	1,300	1301	0	65.4	35-150	0			J
4-Nitrophenol	1108	1,300	1301	0	85.1	15-140	0			J
Acenaphthene	1045	13	1301	0	80.3	45-110	0			
Acenaphthylene	1061	13	1301	0	81.5	45-105	0			
Anthracene	1187	13	1301	4.962	90.9	55-105	0			
Benzo(a)anthracene	1194	13	1301	8.932	91.1	50-110	0			
Benzo(a)pyrene	1228	13	1301	26.47	92.4	50-110	0			
Benzo(b)fluoranthene	1230	13	1301	44.66	91.1	45-115	0			
Benzo(g,h,i)perylene	1220	13	1301	50.28	89.9	40-125	0			
Benzo(k)fluoranthene	1169	13	1301	19.19	88.4	45-115	0			
Bis(2-chloroethoxy)methane	929	310	1301	0	71.4	45-110	0			
Bis(2-chloroethyl)ether	889.9	310	1301	0	68.4	40-105	0			
Bis(2-chloroisopropyl)ether	943.3	310	1301	0	72.5	20-115	0			
Bis(2-ethylhexyl)phthalate	1148	640	1301	12.57	87.3	45-125	0			
Butyl benzyl phthalate	1285	310	1301	6.286	98.3	50-125	0			
Carbazole	1426	310	1301	0	110	50-150	0			
Chrysene	1171	13	1301	40.69	86.9	55-110	0			
Dibenzo(a,h)anthracene	1096	13	1301	28.12	82.1	40-125	0			
Dibenzofuran	1063	310	1301	11.25	80.8	50-105	0			
Diethyl phthalate	1158	640	1301	0	89	50-115	0			
Dimethyl phthalate	1114	640	1301	0	85.6	50-110	0			
Di-n-butyl phthalate	1148	640	1301	11.25	87.4	55-110	0			
Di-n-octyl phthalate	1150	310	1301	0	88.4	40-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **58019** Instrument ID **SVMS4** Method: **SW8270**

Fluoranthene	1325	13	1301	62.19	97.1	55-115	0
Fluorene	1089	13	1301	5.624	83.3	50-110	0
Hexachlorobenzene	1065	310	1301	0	81.8	45-120	0
Hexachlorobutadiene	919.2	310	1301	0	70.6	40-115	0
Hexachlorocyclopentadiene	684.4	640	1301	0	52.6	40-115	0
Hexachloroethane	947.2	310	1301	0	72.8	35-110	0
Indeno(1,2,3-cd)pyrene	1114	13	1301	22.5	83.9	40-120	0
Isophorone	988.8	310	1301	0	76	45-110	0
Naphthalene	918.6	13	1301	21.5	68.9	40-105	0
Nitrobenzene	979.7	310	1301	0	75.3	40-115	0
N-Nitrosodi-n-propylamine	1007	310	1301	0	77.4	40-115	0
N-Nitrosodiphenylamine	1361	310	1301	0	105	50-115	0
Pentachlorophenol	1379	640	1301	0	106	25-120	0
Phenanthrene	1191	13	1301	52.6	87.5	50-110	0
Phenol	975.1	310	1301	0	74.9	40-100	0
Pyrene	1249	13	1301	46.65	92.4	45-125	0
Surr: 2,4,6-Tribromophenol	*2952*	0	*3253*	0	*90.8*	*34-140*	0
Surr: 2-Fluorobiphenyl	*2513*	0	*3253*	0	*77.3*	*12-100*	0
Surr: 2-Fluorophenol	*2600*	0	*3253*	0	*79.9*	*33-117*	0
Surr: 4-Terphenyl-d14	*3173*	0	*3253*	0	*97.5*	*25-137*	0
Surr: Nitrobenzene-d5	*2364*	0	*3253*	0	*72.7*	*37-107*	0
Surr: Phenol-d6	*2729*	0	*3253*	0	*83.9*	*40-106*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58019** Instrument ID **SVMS4** Method: **SW8270**

MSD Sample ID: **14041242-01B MSD** Units: **µg/Kg** Analysis Date: **4/28/2014 08:21 PM**

Client ID: Run ID: **SVMS4_140428A** SeqNo: **2735481** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	1089	320	1318	0	82.6	50-110	1109	1.79	30	
2,4,6-Trichlorophenol	1029	320	1318	0	78	45-110	1072	4.11	30	
2,4-Dichlorophenol	978.1	320	1318	0	74.2	45-110	995.3	1.74	30	
2,4-Dimethylphenol	851.6	650	1318	0	64.6	30-105	804.7	5.66	30	
2,4-Dinitrophenol	1027	1,300	1318	0	77.9	15-130	988.2	0	30	J
2,4-Dinitrotoluene	1120	320	1318	0	84.9	50-115	1135	1.3	30	
2,6-Dinitrotoluene	1077	320	1318	0	81.7	50-110	1148	6.34	30	
2-Chloronaphthalene	976.1	13	1318	0	74	45-105	1025	4.84	30	
2-Chlorophenol	1006	320	1318	0	76.3	45-105	1011	0.443	30	
2-Methylnaphthalene	990.6	13	1318	30.44	72.8	45-105	999.9	0.927	30	
2-Methylphenol	994.6	320	1318	0	75.4	40-105	995.3	0.0725	30	
2-Nitroaniline	1070	1,300	1318	0	81.1	45-120	1120	0	30	J
2-Nitrophenol	950.4	320	1318	0	72.1	40-110	950.4	0.0006	30	
3-Nitroaniline	917.5	1,300	1318	0	69.6	25-110	815.8	0	30	J
4-Bromophenyl phenyl ether	1100	320	1318	0	83.4	45-115	1148	4.28	30	
4-Chloro-3-methylphenol	1082	320	1318	0	82.1	45-115	1123	3.68	30	
4-Chloroaniline	614.3	1,300	1318	0	46.6	15-110	616.1	0	30	J
4-Chlorophenyl phenyl ether	982.7	320	1318	0	74.5	45-110	1048	6.43	30	
4-Methylphenol	1046	320	1318	0	79.3	40-105	1066	1.91	30	
4-Nitroaniline	948.5	1,300	1318	0	71.9	35-150	850.9	0	30	J
4-Nitrophenol	1117	1,300	1318	0	84.7	15-140	1108	0	30	J
Acenaphthene	970.2	13	1318	0	73.6	45-110	1045	7.46	30	
Acenaphthylene	1008	13	1318	0	76.5	45-105	1061	5.08	30	
Anthracene	1151	13	1318	4.962	86.9	55-105	1187	3.12	30	
Benzo(a)anthracene	1208	13	1318	8.932	91	50-110	1194	1.2	30	
Benzo(a)pyrene	1212	13	1318	26.47	89.9	50-110	1228	1.32	30	
Benzo(b)fluoranthene	1166	13	1318	44.66	85.1	45-115	1230	5.36	30	
Benzo(g,h,i)perylene	1127	13	1318	50.28	81.7	40-125	1220	7.9	30	
Benzo(k)fluoranthene	1194	13	1318	19.19	89.1	45-115	1169	2.09	30	
Bis(2-chloroethoxy)methane	931.3	320	1318	0	70.6	45-110	929	0.254	30	
Bis(2-chloroethyl)ether	869.4	320	1318	0	65.9	40-105	889.9	2.34	30	
Bis(2-chloroisopropyl)ether	919.5	320	1318	0	69.7	20-115	943.3	2.56	30	
Bis(2-ethylhexyl)phthalate	1115	650	1318	12.57	83.6	45-125	1148	2.97	30	
Butyl benzyl phthalate	1258	320	1318	6.286	94.9	50-125	1285	2.14	30	
Carbazole	1422	320	1318	0	108	50-150	1426	0.3	30	
Chrysene	1120	13	1318	40.69	81.9	55-110	1171	4.41	30	
Dibenzo(a,h)anthracene	1068	13	1318	28.12	78.9	40-125	1096	2.62	30	
Dibenzofuran	997.2	320	1318	11.25	74.8	50-105	1063	6.38	30	
Diethyl phthalate	1117	650	1318	0	84.7	50-115	1158	3.64	30	
Dimethyl phthalate	1044	650	1318	0	79.2	50-110	1114	6.46	30	
Di-n-butyl phthalate	1127	650	1318	11.25	84.6	55-110	1148	1.86	30	
Di-n-octyl phthalate	1100	320	1318	0	83.4	40-130	1150	4.45	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58019** Instrument ID **SVMS4** Method: **SW8270**

Fluoranthene	1281	13	1318	62.19	92.4	55-115	1325	3.41	30	
Fluorene	1020	13	1318	5.624	76.9	50-110	1089	6.58	30	
Hexachlorobenzene	1056	320	1318	0	80.1	45-120	1065	0.852	30	
Hexachlorobutadiene	922.8	320	1318	0	70	40-115	919.2	0.385	30	
Hexachlorocyclopentadiene	585.9	650	1318	0	44.4	40-115	684.4	0	30	J
Hexachloroethane	941.2	320	1318	0	71.4	35-110	947.2	0.632	30	
Indeno(1,2,3-cd)pyrene	1075	13	1318	22.5	79.8	40-120	1114	3.6	30	
Isophorone	968.2	320	1318	0	73.4	45-110	988.8	2.1	30	
Naphthalene	913.5	13	1318	21.5	67.7	40-105	918.6	0.549	30	
Nitrobenzene	969.5	320	1318	0	73.5	40-115	979.7	1.04	30	
N-Nitrosodi-n-propylamine	1008	320	1318	0	76.5	40-115	1007	0.14	30	
N-Nitrosodiphenylamine	1331	320	1318	0	101	50-115	1361	2.24	30	
Pentachlorophenol	1452	650	1318	0	110	25-120	1379	5.15	30	
Phenanthrene	1160	13	1318	52.6	84	50-110	1191	2.65	30	
Phenol	976.8	320	1318	0	74.1	40-100	975.1	0.169	30	
Pyrene	1208	13	1318	46.65	88.1	45-125	1249	3.33	30	
Surr: 2,4,6-Tribromophenol	*3023*	0	*3296*	0	*91.7*	*34-140*	2952	*2.38*	*40*	
Surr: 2-Fluorobiphenyl	*2435*	0	*3296*	0	*73.9*	*12-100*	2513	*3.16*	*40*	
Surr: 2-Fluorophenol	*2605*	0	*3296*	0	*79.1*	*33-117*	2600	*0.228*	*40*	
Surr: 4-Terphenyl-d14	*3196*	0	*3296*	0	*97*	*25-137*	3173	*0.734*	*40*	
Surr: Nitrobenzene-d5	*2368*	0	*3296*	0	*71.9*	*37-107*	2364	*0.175*	*40*	
Surr: Phenol-d6	*2732*	0	*3296*	0	*82.9*	*40-106*	2729	*0.111*	*40*	

The following samples were analyzed in this batch:

14041301-01A 14041301-02A 14041301-03A
14041301-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58052** Instrument ID **SVMS8** Method: **SW8270**

MBLK Sample ID: **SBLKS1-58052-58052** Units: **µg/Kg** Analysis Date: **4/29/2014 05:15 PM**

Client ID: Run ID: **SVMS8_140429A** SeqNo: **2738164** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	ND	330								
2,4,5-Trichlorophenol	ND	160								
2,4,6-Trichlorophenol	ND	160								
2,4-Dichlorophenol	ND	160								
2,4-Dimethylphenol	ND	330								
2,4-Dinitrophenol	ND	660								
2,4-Dinitrotoluene	ND	160								
2,6-Dinitrotoluene	ND	160								
2-Chloronaphthalene	ND	6.7								
2-Chlorophenol	ND	160								
2-Methylnaphthalene	ND	6.7								
2-Methylphenol	ND	160								
2-Nitroaniline	ND	660								
2-Nitrophenol	ND	160								
3,3´-Dichlorobenzidine	ND	660								
3-Nitroaniline	ND	660								
4,6-Dinitro-2-methylphenol	ND	330								
4-Bromophenyl phenyl ether	ND	160								
4-Chloro-3-methylphenol	ND	160								
4-Chloroaniline	ND	660								
4-Chlorophenyl phenyl ether	ND	160								
4-Methylphenol	ND	160								
4-Nitroaniline	ND	660								
4-Nitrophenol	ND	660								
Acenaphthene	ND	6.7								
Acenaphthylene	ND	6.7								
Acetophenone	ND	330								
Anthracene	ND	6.7								
Atrazine	ND	330								
Benzaldehyde	ND	330								
Benzo(a)anthracene	ND	6.7								
Benzo(a)pyrene	ND	6.7								
Benzo(b)fluoranthene	ND	6.7								
Benzo(g,h,i)perylene	ND	6.7								
Benzo(k)fluoranthene	ND	6.7								
Bis(2-chloroethoxy)methane	ND	160								
Bis(2-chloroethyl)ether	ND	160								
Bis(2-chloroisopropyl)ether	ND	160								
Bis(2-ethylhexyl)phthalate	ND	330								
Butyl benzyl phthalate	ND	160								
Caprolactam	ND	330								
Carbazole	ND	160								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58052** Instrument ID **SVMS8** Method: **SW8270**

Chrysene	ND	6.7					
Dibenzo(a,h)anthracene	ND	6.7					
Dibenzofuran	ND	160					
Diethyl phthalate	ND	330					
Dimethyl phthalate	ND	330					
Di-n-butyl phthalate	ND	330					
Di-n-octyl phthalate	ND	160					
Fluoranthene	ND	6.7					
Fluorene	ND	6.7					
Hexachlorobenzene	ND	160					
Hexachlorobutadiene	ND	160					
Hexachlorocyclopentadiene	ND	330					
Hexachloroethane	ND	160					
Indeno(1,2,3-cd)pyrene	ND	6.7					
Isophorone	ND	160					
Naphthalene	ND	6.7					
Nitrobenzene	ND	160					
N-Nitrosodi-n-propylamine	ND	160					
N-Nitrosodiphenylamine	ND	160					
Pentachlorophenol	ND	330					
Phenanthrene	ND	6.7					
Phenol	ND	160					
Pyrene	ND	6.7					
Surr: 2,4,6-Tribromophenol	*1160*	0	*1667*	0	*69.6*	*34-140*	0
Surr: 2-Fluorobiphenyl	*1223*	0	*1667*	0	*73.4*	*12-100*	0
Surr: 2-Fluorophenol	*1331*	0	*1667*	0	*79.9*	*33-117*	0
Surr: 4-Terphenyl-d14	*2035*	0	*1667*	0	*122*	*25-137*	0
Surr: Nitrobenzene-d5	*1171*	0	*1667*	0	*70.3*	*37-107*	0
Surr: Phenol-d6	*1278*	0	*1667*	0	*76.7*	*40-106*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58052** Instrument ID **SVMS8** Method: **SW8270**

LCS Sample ID: **SLCSS1-58052-58052** Units: **µg/Kg** Analysis Date: **4/29/2014 05:35 PM**

Client ID: Run ID: **SVMS8_140429A** SeqNo: **2738165** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	603.7	160	666.7	0	90.5	50-110	0			
2,4,6-Trichlorophenol	614.3	160	666.7	0	92.1	45-110	0			
2,4-Dichlorophenol	594.7	160	666.7	0	89.2	45-110	0			
2,4-Dimethylphenol	511.7	330	666.7	0	76.7	30-105	0			
2,4-Dinitrophenol	563	660	666.7	0	84.4	15-130	0			J
2,4-Dinitrotoluene	650.7	160	666.7	0	97.6	50-115	0			
2,6-Dinitrotoluene	642.3	160	666.7	0	96.3	50-110	0			
2-Chloronaphthalene	607.7	6.7	666.7	0	91.1	45-105	0			
2-Chlorophenol	622.3	160	666.7	0	93.3	45-105	0			
2-Methylnaphthalene	602.3	6.7	666.7	0	90.3	45-105	0			
2-Methylphenol	605.7	160	666.7	0	90.8	40-105	0			
2-Nitroaniline	579.3	660	666.7	0	86.9	45-120	0			J
2-Nitrophenol	641.7	160	666.7	0	96.2	40-110	0			
3-Nitroaniline	333.7	660	666.7	0	50	25-150	0			J
4-Bromophenyl phenyl ether	654.7	160	666.7	0	98.2	45-115	0			
4-Chloro-3-methylphenol	622.3	160	666.7	0	93.3	45-115	0			
4-Chloroaniline	439	660	666.7	0	65.8	15-110	0			J
4-Chlorophenyl phenyl ether	673.7	160	666.7	0	101	45-110	0			
4-Methylphenol	595.7	160	666.7	0	89.3	40-105	0			
4-Nitroaniline	279.7	660	666.7	0	41.9	35-150	0			J
4-Nitrophenol	695	660	666.7	0	104	15-140	0			
Acenaphthene	544.3	6.7	666.7	0	81.6	45-110	0			
Acenaphthylene	553	6.7	666.7	0	82.9	45-105	0			
Anthracene	576.7	6.7	666.7	0	86.5	55-105	0			
Benzo(a)anthracene	593.7	6.7	666.7	0	89	50-110	0			
Benzo(a)pyrene	573.7	6.7	666.7	0	86	50-110	0			
Benzo(b)fluoranthene	588.3	6.7	666.7	0	88.2	45-115	0			
Benzo(g,h,i)perylene	602.3	6.7	666.7	0	90.3	40-125	0			
Benzo(k)fluoranthene	613.7	6.7	666.7	0	92	45-115	0			
Bis(2-chloroethoxy)methane	580	160	666.7	0	87	45-110	0			
Bis(2-chloroethyl)ether	582	160	666.7	0	87.3	40-105	0			
Bis(2-chloroisopropyl)ether	481.3	160	666.7	0	72.2	20-115	0			
Bis(2-ethylhexyl)phthalate	660.7	330	666.7	0	99.1	45-125	0			
Butyl benzyl phthalate	621.3	160	666.7	0	93.2	50-125	0			
Carbazole	569.3	160	666.7	0	85.4	50-150	0			
Chrysene	651	6.7	666.7	0	97.6	55-110	0			
Dibenzo(a,h)anthracene	588	6.7	666.7	0	88.2	40-125	0			
Dibenzofuran	602.3	160	666.7	0	90.3	50-105	0			
Diethyl phthalate	658.3	330	666.7	0	98.7	50-115	0			
Dimethyl phthalate	673.3	330	666.7	0	101	50-110	0			
Di-n-butyl phthalate	644	330	666.7	0	96.6	55-110	0			
Di-n-octyl phthalate	600	160	666.7	0	90	40-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58052** Instrument ID **SVMS8** Method: **SW8270**

Fluoranthene	589.7	6.7	666.7	0	88.4	55-115	0
Fluorene	642.7	6.7	666.7	0	96.4	50-110	0
Hexachlorobenzene	619.7	160	666.7	0	92.9	45-120	0
Hexachlorobutadiene	644	160	666.7	0	96.6	40-115	0
Hexachlorocyclopentadiene	511.3	330	666.7	0	76.7	40-115	0
Hexachloroethane	593.3	160	666.7	0	89	35-110	0
Indeno(1,2,3-cd)pyrene	566	6.7	666.7	0	84.9	40-120	0
Isophorone	551	160	666.7	0	82.6	45-110	0
Naphthalene	561	6.7	666.7	0	84.1	40-105	0
Nitrobenzene	581.7	160	666.7	0	87.2	40-115	0
N-Nitrosodi-n-propylamine	593.7	160	666.7	0	89	40-115	0
N-Nitrosodiphenylamine	568.3	160	666.7	0	85.2	50-115	0
Pentachlorophenol	650.3	330	666.7	0	97.5	25-120	0
Phenanthrene	591.7	6.7	666.7	0	88.7	50-110	0
Phenol	586.7	160	666.7	0	88	40-100	0
Pyrene	667.3	6.7	666.7	0	100	45-125	0
Surr: 2,4,6-Tribromophenol	*1495*	0	*1667*	0	*89.7*	*34-140*	0
Surr: 2-Fluorobiphenyl	*1499*	0	*1667*	0	*89.9*	*12-100*	0
Surr: 2-Fluorophenol	*1538*	0	*1667*	0	*92.3*	*33-117*	0
Surr: 4-Terphenyl-d14	*2018*	0	*1667*	0	*121*	*25-137*	0
Surr: Nitrobenzene-d5	*1504*	0	*1667*	0	*90.3*	*37-107*	0
Surr: Phenol-d6	*1508*	0	*1667*	0	*90.5*	*40-106*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58052** Instrument ID **SVMS8** Method: **SW8270**

MS Sample ID: **14041211-03B MS** Units: **µg/Kg** Analysis Date: **4/29/2014 07:44 PM**

Client ID: Run ID: **SVMS8_140429A** SeqNo: **2738170** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	1189	320	1320	0	90	50-110	0			
2,4,6-Trichlorophenol	1163	320	1320	0	88.1	45-110	0			
2,4-Dichlorophenol	1044	320	1320	0	79	45-110	0			
2,4-Dimethylphenol	1023	650	1320	0	77.4	30-105	0			
2,4-Dinitrophenol	914.3	1,300	1320	0	69.2	15-130	0			J
2,4-Dinitrotoluene	1216	320	1320	0	92.1	50-115	0			
2,6-Dinitrotoluene	1130	320	1320	0	85.6	50-110	0			
2-Chloronaphthalene	967.7	13	1320	0	73.3	45-105	0			
2-Chlorophenol	953.2	320	1320	0	72.2	45-105	0			
2-Methylnaphthalene	917.6	13	1320	0	69.5	45-105	0			
2-Methylphenol	1033	320	1320	0	78.2	40-105	0			
2-Nitroaniline	1158	1,300	1320	0	87.7	45-120	0			J
2-Nitrophenol	962.4	320	1320	0	72.9	40-110	0			
3-Nitroaniline	834.4	1,300	1320	0	63.2	25-110	0			J
4-Bromophenyl phenyl ether	1234	320	1320	0	93.5	45-115	0			
4-Chloro-3-methylphenol	1163	320	1320	0	88.1	45-115	0			
4-Chloroaniline	474.6	1,300	1320	0	35.9	15-110	0			J
4-Chlorophenyl phenyl ether	1161	320	1320	0	87.9	45-110	0			
4-Methylphenol	1029	320	1320	0	77.9	40-105	0			
4-Nitroaniline	916.9	1,300	1320	0	69.4	35-150	0			J
4-Nitrophenol	1292	1,300	1320	0	97.8	15-140	0			J
Acenaphthene	944	13	1320	0	71.5	45-110	0			
Acenaphthylene	975	13	1320	0	73.8	45-105	0			
Anthracene	1069	13	1320	0	81	55-105	0			
Benzo(a)anthracene	1141	13	1320	0	86.4	50-110	0			
Benzo(a)pyrene	1133	13	1320	0	85.8	50-110	0			
Benzo(b)fluoranthene	1087	13	1320	0	82.3	45-115	0			
Benzo(g,h,i)perylene	1122	13	1320	0	84.9	40-125	0			
Benzo(k)fluoranthene	1051	13	1320	0	79.6	45-115	0			
Bis(2-chloroethoxy)methane	876.6	320	1320	0	66.4	45-110	0			
Bis(2-chloroethyl)ether	1030	320	1320	0	78	40-105	0			
Bis(2-chloroisopropyl)ether	722.8	320	1320	0	54.7	20-115	0			
Bis(2-ethylhexyl)phthalate	1425	650	1320	0	108	45-125	0			
Butyl benzyl phthalate	1384	320	1320	0	105	50-125	0			
Carbazole	1019	320	1320	0	77.1	50-150	0			
Chrysene	1149	13	1320	0	87	55-110	0			
Dibenzo(a,h)anthracene	1091	13	1320	0	82.6	40-125	0			
Dibenzofuran	1042	320	1320	0	78.9	50-105	0			
Diethyl phthalate	1194	650	1320	0	90.4	50-115	0			
Dimethyl phthalate	1159	650	1320	0	87.8	50-110	0			
Di-n-butyl phthalate	1312	650	1320	0	99.4	55-110	0			
Di-n-octyl phthalate	1522	320	1320	0	115	40-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58052** Instrument ID **SVMS8** Method: **SW8270**

Fluoranthene	1103	13	1320	0	83.5	55-115	0	
Fluorene	1139	13	1320	0	86.2	50-110	0	
Hexachlorobenzene	1120	320	1320	0	84.8	45-120	0	
Hexachlorobutadiene	919.5	320	1320	0	69.6	40-115	0	
Hexachlorocyclopentadiene	482.5	650	1320	0	36.5	40-115	0	JS
Hexachloroethane	843	320	1320	0	63.8	35-110	0	
Indeno(1,2,3-cd)pyrene	1159	13	1320	0	87.8	40-120	0	
Isophorone	894.4	320	1320	0	67.7	45-110	0	
Naphthalene	804.7	13	1320	0	60.9	40-105	0	
Nitrobenzene	859.5	320	1320	0	65.1	40-115	0	
N-Nitrosodi-n-propylamine	930.8	320	1320	0	70.5	40-115	0	
N-Nitrosodiphenylamine	1022	320	1320	0	77.4	50-115	0	
Pentachlorophenol	1466	650	1320	0	111	25-120	0	
Phenanthrene	1057	13	1320	0	80	50-110	0	
Phenol	936.7	320	1320	0	70.9	40-100	0	
Pyrene	1221	13	1320	0	92.4	45-125	0	
Surr: 2,4,6-Tribromophenol	*2867*	0	*3301*	0	*86.9*	*34-140*	0	
Surr: 2-Fluorobiphenyl	*2399*	0	*3301*	0	*72.7*	*12-100*	0	
Surr: 2-Fluorophenol	*2287*	0	*3301*	0	*69.3*	*33-117*	0	
Surr: 4-Terphenyl-d14	*3497*	0	*3301*	0	*106*	*25-137*	0	
Surr: Nitrobenzene-d5	*2225*	0	*3301*	0	*67.4*	*37-107*	0	
Surr: Phenol-d6	*2425*	0	*3301*	0	*73.5*	*40-106*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58052** Instrument ID **SVMS8** Method: **SW8270**

MSD Sample ID: **14041211-03B MSD** Units: **µg/Kg** Analysis Date: **4/29/2014 08:04 PM**

Client ID: Run ID: **SVMS8_140429A** SeqNo: **2738171** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	1190	310	1281	0	92.8	50-110	1189	0.0707	30	
2,4,6-Trichlorophenol	1129	310	1281	0	88.1	45-110	1163	2.93	30	
2,4-Dichlorophenol	986.6	310	1281	0	77	45-110	1044	5.62	30	
2,4-Dimethylphenol	957.8	630	1281	0	74.7	30-105	1023	6.54	30	
2,4-Dinitrophenol	783.5	1,300	1281	0	61.1	15-130	914.3	0	30	J
2,4-Dinitrotoluene	1195	310	1281	0	93.3	50-115	1216	1.7	30	
2,6-Dinitrotoluene	1098	310	1281	0	85.7	50-110	1130	2.87	30	
2-Chloronaphthalene	897.6	13	1281	0	70	45-105	967.7	7.52	30	
2-Chlorophenol	907.2	310	1281	0	70.8	45-105	953.2	4.95	30	
2-Methylnaphthalene	862.3	13	1281	0	67.3	45-105	917.6	6.21	30	
2-Methylphenol	982.8	310	1281	0	76.7	40-105	1033	4.99	30	
2-Nitroaniline	1160	1,300	1281	0	90.5	45-120	1158	0	30	J
2-Nitrophenol	910.4	310	1281	0	71	40-110	962.4	5.56	30	
3-Nitroaniline	869.4	1,300	1281	0	67.8	25-110	834.4	0	30	J
4-Bromophenyl phenyl ether	1224	310	1281	0	95.5	45-115	1234	0.875	30	
4-Chloro-3-methylphenol	1155	310	1281	0	90.1	45-115	1163	0.691	30	
4-Chloroaniline	481.1	1,300	1281	0	37.5	15-110	474.6	0	30	J
4-Chlorophenyl phenyl ether	1135	310	1281	0	88.6	45-110	1161	2.25	30	
4-Methylphenol	924.5	310	1281	0	72.1	40-105	1029	10.7	30	
4-Nitroaniline	1068	1,300	1281	0	83.3	35-150	916.9	0	30	J
4-Nitrophenol	1240	1,300	1281	0	96.7	15-140	1292	0	30	J
Acenaphthene	873.2	13	1281	0	68.1	45-110	944	7.79	30	
Acenaphthylene	923.8	13	1281	0	72.1	45-105	975	5.39	30	
Anthracene	1085	13	1281	0	84.6	55-105	1069	1.42	30	
Benzo(a)anthracene	1192	13	1281	0	93	50-110	1141	4.37	30	
Benzo(a)pyrene	1119	13	1281	0	87.3	50-110	1133	1.2	30	
Benzo(b)fluoranthene	1080	13	1281	0	84.2	45-115	1087	0.71	30	
Benzo(g,h,i)perylene	1086	13	1281	0	84.7	40-125	1122	3.23	30	
Benzo(k)fluoranthene	1032	13	1281	0	80.5	45-115	1051	1.8	30	
Bis(2-chloroethoxy)methane	823.2	310	1281	0	64.2	45-110	876.6	6.28	30	
Bis(2-chloroethyl)ether	789.3	310	1281	0	61.6	40-105	1030	26.5	30	
Bis(2-chloroisopropyl)ether	679.7	310	1281	0	53	20-115	722.8	6.14	30	
Bis(2-ethylhexyl)phthalate	1556	630	1281	0	121	45-125	1425	8.79	30	
Butyl benzyl phthalate	1441	310	1281	0	112	50-125	1384	4.1	30	
Carbazole	1060	310	1281	0	82.7	50-150	1019	3.95	30	
Chrysene	1186	13	1281	0	92.6	55-110	1149	3.25	30	
Dibenzo(a,h)anthracene	1084	13	1281	0	84.6	40-125	1091	0.659	30	
Dibenzofuran	981.5	310	1281	0	76.6	50-105	1042	6.01	30	
Diethyl phthalate	1183	630	1281	0	92.3	50-115	1194	0.967	30	
Dimethyl phthalate	1130	630	1281	0	88.2	50-110	1159	2.54	30	
Di-n-butyl phthalate	1348	630	1281	0	105	55-110	1312	2.68	30	
Di-n-octyl phthalate	1588	310	1281	0	124	40-130	1522	4.2	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58052** Instrument ID **SVMS8** Method: **SW8270**

Fluoranthene	1124	13	1281	0	87.7	55-115	1103	1.86	30	
Fluorene	1108	13	1281	0	86.4	50-110	1139	2.76	30	
Hexachlorobenzene	1084	310	1281	0	84.6	45-120	1120	3.29	30	
Hexachlorobutadiene	864.9	310	1281	0	67.5	40-115	919.5	6.12	30	
Hexachlorocyclopentadiene	445.9	630	1281	0	34.8	40-115	482.5	0	30	JS
Hexachloroethane	775.2	310	1281	0	60.5	35-110	843	8.38	30	
Indeno(1,2,3-cd)pyrene	1170	13	1281	0	91.3	40-120	1159	0.918	30	
Isophorone	839.3	310	1281	0	65.5	45-110	894.4	6.37	30	
Naphthalene	758.5	13	1281	0	59.2	40-105	804.7	5.9	30	
Nitrobenzene	809.1	310	1281	0	63.1	40-115	859.5	6.03	30	
N-Nitrosodi-n-propylamine	867.4	310	1281	0	67.7	40-115	930.8	7.04	30	
N-Nitrosodiphenylamine	1045	310	1281	0	81.5	50-115	1022	2.23	30	
Pentachlorophenol	1614	630	1281	0	126	25-120	1466	9.59	30	S
Phenanthrene	1058	13	1281	0	82.6	50-110	1057	0.145	30	
Phenol	866.2	310	1281	0	67.6	40-100	936.7	7.82	30	
Pyrene	1221	13	1281	0	95.3	45-125	1221	0.0449	30	
Surr: 2,4,6-Tribromophenol	*2918*	0	*3203*	0	*91.1*	*34-140*	2867	*1.75*	*40*	
Surr: 2-Fluorobiphenyl	*2204*	0	*3203*	0	*68.8*	*12-100*	2399	*8.5*	*40*	
Surr: 2-Fluorophenol	*2169*	0	*3203*	0	*67.7*	*33-117*	2287	*5.33*	*40*	
Surr: 4-Terphenyl-d14	*3515*	0	*3203*	0	*110*	*25-137*	3497	*0.514*	*40*	
Surr: Nitrobenzene-d5	*2130*	0	*3203*	0	*66.5*	*37-107*	2225	*4.37*	*40*	
Surr: Phenol-d6	*2234*	0	*3203*	0	*69.7*	*40-106*	2425	*8.21*	*40*	

The following samples were analyzed in this batch:

14041301-05A	14041301-06A	14041301-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58023** Instrument ID **VMS8** Method: **SW8260B**

MBLK Sample ID: **MBLK-58023-58023** Units: **µg/Kg** Analysis Date: **4/28/2014 02:39 PM**

Client ID: Run ID: **VMS8_140428A** SeqNo: **2735068** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1,2-Trichlorotrifluoroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Benzene	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dichlorodifluoromethane	ND	30								
Ethylbenzene	ND	30								
Isopropylbenzene	ND	30								
Methyl acetate	ND	200								
Methyl tert-butyl ether	ND	30								
Methylcyclohexane	ND	30								
Methylene chloride	ND	30								
Styrene	ND	30								
Tetrachloroethene	ND	30								
Toluene	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58023** Instrument ID **VMS8** Method: **SW8260B**

trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Xylenes, Total	ND	90					
Surr: 1,2-Dichloroethane-d4	*995.5*	0	*1000*	0	*99.6*	*70-130*	0
Surr: 4-Bromofluorobenzene	*953*	0	*1000*	0	*95.3*	*70-130*	0
Surr: Dibromofluoromethane	*986*	0	*1000*	0	*98.6*	*70-130*	0
Surr: Toluene-d8	*999*	0	*1000*	0	*99.9*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58023** Instrument ID **VMS8** Method: **SW8260B**

LCS Sample ID: **LCS-58023-58023** Units: **µg/Kg** Analysis Date: **4/28/2014 12:13 PM**

Client ID: Run ID: **VMS8_140428A** SeqNo: **2735067** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	1032	30	1000	0	103	70-135	0			
1,1,2,2-Tetrachloroethane	1136	30	1000	0	114	55-130	0			
1,1,2-Trichloroethane	1038	30	1000	0	104	60-125	0			
1,1-Dichloroethane	1020	30	1000	0	102	75-125	0			
1,1-Dichloroethene	999.5	30	1000	0	100	65-135	0			
1,2,4-Trichlorobenzene	1244	30	1000	0	124	65-130	0			
1,2-Dibromo-3-chloropropane	1166	30	1000	0	117	40-135	0			
1,2-Dibromoethane	1534	30	1000	0	153	75-125	0			S
1,2-Dichlorobenzene	1114	30	1000	0	111	75-120	0			
1,2-Dichloroethane	1088	30	1000	0	109	70-135	0			
1,2-Dichloropropane	1084	30	1000	0	108	70-120	0			
1,3-Dichlorobenzene	1084	30	1000	0	108	70-125	0			
1,4-Dichlorobenzene	1082	30	1000	0	108	70-125	0			
2-Butanone	1179	200	1000	0	118	30-160	0			
2-Hexanone	1114	30	1000	0	111	45-145	0			
4-Methyl-2-pentanone	1473	30	1000	0	147	96-168	0			
Acetone	1110	100	1000	0	111	20-160	0			
Benzene	1048	30	1000	0	105	75-125	0			
Bromodichloromethane	1047	30	1000	0	105	70-130	0			
Bromoform	1006	30	1000	0	101	55-135	0			
Bromomethane	1200	75	1000	0	120	30-160	0			
Carbon disulfide	1066	30	1000	0	107	45-160	0			
Carbon tetrachloride	1070	30	1000	0	107	65-135	0			
Chlorobenzene	1062	30	1000	0	106	75-125	0			
Chloroethane	871	100	1000	0	87.1	40-155	0			
Chloroform	1058	30	1000	0	106	70-125	0			
Chloromethane	738	100	1000	0	73.8	50-130	0			
cis-1,2-Dichloroethene	1044	30	1000	0	104	65-125	0			
cis-1,3-Dichloropropene	1070	30	1000	0	107	70-125	0			
Dibromochloromethane	959.5	30	1000	0	96	65-135	0			
Dichlorodifluoromethane	650.5	30	1000	0	65	35-135	0			
Ethylbenzene	1026	30	1000	0	103	75-125	0			
Isopropylbenzene	996.5	30	1000	0	99.6	75-130	0			
Methyl tert-butyl ether	1104	30	1000	0	110	75-125	0			
Methylene chloride	1129	30	1000	0	113	55-145	0			
Styrene	1052	30	1000	0	105	75-125	0			
Tetrachloroethene	1215	30	1000	0	122	64-140	0			
Toluene	1033	30	1000	0	103	70-125	0			
trans-1,2-Dichloroethene	1114	30	1000	0	111	65-135	0			
trans-1,3-Dichloropropene	1020	30	1000	0	102	65-125	0			
Trichloroethene	1081	30	1000	0	108	75-125	0			
Trichlorofluoromethane	919.5	30	1000	0	92	25-185	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58023** Instrument ID **VMS8** Method: **SW8260B**

Vinyl chloride	798	30	1000	0	79.8	60-125	0
Xylenes, Total	3068	90	3000	0	102	75-125	0
Surr: 1,2-Dichloroethane-d4	*1002*	0	*1000*	0	*100*	*70-130*	0
Surr: 4-Bromofluorobenzene	*969.5*	0	*1000*	0	*97*	*70-130*	0
Surr: Dibromofluoromethane	*1027*	0	*1000*	0	*103*	*70-130*	0
Surr: Toluene-d8	*986*	0	*1000*	0	*98.6*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58023** Instrument ID **VMS8** Method: **SW8260B**

MS Sample ID: **14041211-03A MS** Units: **µg/Kg** Analysis Date: **4/30/2014 09:37 AM**

Client ID: Run ID: **VMS5_140429B** SeqNo: **2737873** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	2100	64	2118	0	99.2	70-135	0			
1,1,2,2-Tetrachloroethane	1998	64	2118	0	94.3	55-130	0			
1,1,2-Trichloroethane	2021	64	2118	0	95.4	60-125	0			
1,1-Dichloroethane	2030	64	2118	0	95.8	75-125	0			
1,1-Dichloroethene	2171	64	2118	0	102	65-135	0			
1,2,4-Trichlorobenzene	2025	64	2118	0	95.6	65-130	0			
1,2-Dibromo-3-chloropropane	1565	64	2118	0	73.9	40-135	0			
1,2-Dibromoethane	2310	64	2118	0	109	75-125	0			
1,2-Dichlorobenzene	1984	64	2118	0	93.6	75-120	0			
1,2-Dichloroethane	2042	64	2118	0	96.4	70-135	0			
1,2-Dichloropropane	1978	64	2118	0	93.4	70-120	0			
1,3-Dichlorobenzene	2011	64	2118	0	95	70-125	0			
1,4-Dichlorobenzene	1952	64	2118	0	92.2	70-125	0			
2-Butanone	2100	420	2118	0	99.2	30-160	0			
2-Hexanone	1879	64	2118	0	88.7	45-145	0			
4-Methyl-2-pentanone	2404	64	2118	0	114	89-161	0			
Acetone	2390	210	2118	0	113	20-160	0			
Benzene	2074	64	2118	0	97.9	75-125	0			
Bromodichloromethane	2079	64	2118	0	98.2	70-130	0			
Bromoform	1679	64	2118	0	79.2	55-135	0			
Bromomethane	2423	160	2118	0	114	30-160	0			
Carbon disulfide	2131	64	2118	0	101	45-160	0			
Carbon tetrachloride	2177	64	2118	0	103	65-135	0			
Chlorobenzene	2057	64	2118	0	97.1	75-125	0			
Chloroethane	2109	210	2118	0	99.6	40-155	0			
Chloroform	1979	64	2118	0	93.4	70-125	0			
Chloromethane	1676	210	2118	0	79.1	50-130	0			
cis-1,2-Dichloroethene	2000	64	2118	0	94.4	65-125	0			
cis-1,3-Dichloropropene	2016	64	2118	0	95.2	70-125	0			
Dibromochloromethane	1683	64	2118	0	79.4	65-135	0			
Dichlorodifluoromethane	1571	64	2118	0	74.2	35-135	0			
Ethylbenzene	2093	64	2118	0	98.8	75-125	0			
Isopropylbenzene	2126	64	2118	0	100	75-130	0			
Methyl tert-butyl ether	1951	64	2118	0	92.1	75-125	0			
Methylene chloride	2177	64	2118	0	103	55-145	0			
Styrene	2171	64	2118	0	102	75-125	0			
Tetrachloroethene	2069	64	2118	0	97.6	64-140	0			
Toluene	2056	64	2118	0	97	70-125	0			
trans-1,2-Dichloroethene	2177	64	2118	0	103	65-135	0			
trans-1,3-Dichloropropene	1969	64	2118	0	93	65-125	0			
Trichloroethene	2101	64	2118	0	99.2	75-125	0			
Trichlorofluoromethane	2100	64	2118	0	99.2	25-185	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58023** Instrument ID **VMS8** Method: **SW8260B**

Vinyl chloride	1877	64	2118	0	88.6	60-125	0
Xylenes, Total	6245	190	6355	0	98.3	75-125	0
Surr: 1,2-Dichloroethane-d4	*2042*	0	*2118*	0	*96.4*	*70-130*	0
Surr: 4-Bromofluorobenzene	*2018*	0	*2118*	0	*95.2*	*70-130*	0
Surr: Dibromofluoromethane	*2117*	0	*2118*	0	*100*	*70-130*	0
Surr: Toluene-d8	*2030*	0	*2118*	0	*95.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58023** Instrument ID **VMS8** Method: **SW8260B**

MSD Sample ID: **14041211-03A MSD** Units: **µg/Kg** Analysis Date: **4/30/2014 10:02 AM**

Client ID: Run ID: **VMS5_140429B** SeqNo: **2737874** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	2000	64	2118	0	94.4	70-135	2100	4.91	30	
1,1,2,2-Tetrachloroethane	1965	64	2118	0	92.8	55-130	1998	1.66	30	
1,1,2-Trichloroethane	2003	64	2118	0	94.6	60-125	2021	0.895	30	
1,1-Dichloroethane	1943	64	2118	0	91.7	75-125	2030	4.43	30	
1,1-Dichloroethene	2040	64	2118	0	96.3	65-135	2171	6.24	30	
1,2,4-Trichlorobenzene	2114	64	2118	0	99.8	65-130	2025	4.3	30	
1,2-Dibromo-3-chloropropane	1608	64	2118	0	75.9	40-135	1565	2.67	30	
1,2-Dibromoethane	2229	64	2118	0	105	75-125	2310	3.59	30	
1,2-Dichlorobenzene	2068	64	2118	0	97.6	75-120	1984	4.13	30	
1,2-Dichloroethane	1976	64	2118	0	93.3	70-135	2042	3.27	30	
1,2-Dichloropropane	1920	64	2118	0	90.6	70-120	1978	2.93	30	
1,3-Dichlorobenzene	2077	64	2118	0	98	70-125	2011	3.21	30	
1,4-Dichlorobenzene	2026	64	2118	0	95.6	70-125	1952	3.73	30	
2-Butanone	2170	420	2118	0	102	30-160	2100	3.27	30	
2-Hexanone	1939	64	2118	0	91.6	45-145	1879	3.16	30	
4-Methyl-2-pentanone	2444	64	2118	0	115	89-161	2404	1.62	30	
Acetone	2444	210	2118	0	115	20-160	2390	2.24	30	
Benzene	1987	64	2118	0	93.8	75-125	2074	4.28	30	
Bromodichloromethane	1972	64	2118	0	93.1	70-130	2079	5.28	30	
Bromoform	1597	64	2118	0	75.4	55-135	1679	4.98	30	
Bromomethane	1009	160	2118	0	47.6	30-160	2423	82.4	30	R
Carbon disulfide	1859	64	2118	0	87.8	45-160	2131	13.6	30	
Carbon tetrachloride	2062	64	2118	0	97.4	65-135	2177	5.4	30	
Chlorobenzene	1991	64	2118	0	94	75-125	2057	3.24	30	
Chloroethane	1516	210	2118	0	71.6	40-155	2109	32.7	30	R
Chloroform	1903	64	2118	0	89.8	70-125	1979	3.87	30	
Chloromethane	1570	210	2118	0	74.1	50-130	1676	6.53	30	
cis-1,2-Dichloroethene	1915	64	2118	0	90.4	65-125	2000	4.33	30	
cis-1,3-Dichloropropene	1925	64	2118	0	90.8	70-125	2016	4.62	30	
Dibromochloromethane	1577	64	2118	0	74.4	65-135	1683	6.5	30	
Dichlorodifluoromethane	1467	64	2118	0	69.2	35-135	1571	6.83	30	
Ethylbenzene	2091	64	2118	0	98.7	75-125	2093	0.101	30	
Isopropylbenzene	2166	64	2118	0	102	75-130	2126	1.88	30	
Methyl tert-butyl ether	1892	64	2118	0	89.3	75-125	1951	3.09	30	
Methylene chloride	2134	64	2118	0	101	55-145	2177	1.97	30	
Styrene	2141	64	2118	0	101	75-125	2171	1.42	30	
Tetrachloroethene	2069	64	2118	0	97.6	64-140	2069	0	30	
Toluene	2007	64	2118	0	94.8	70-125	2056	2.4	30	
trans-1,2-Dichloroethene	2044	64	2118	0	96.5	65-135	2177	6.27	30	
trans-1,3-Dichloropropene	1914	64	2118	0	90.4	65-125	1969	2.84	30	
Trichloroethene	1978	64	2118	0	93.4	75-125	2101	6.08	30	
Trichlorofluoromethane	2003	64	2118	0	94.6	25-185	2100	4.75	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58023** Instrument ID **VMS8** Method: **SW8260B**

Vinyl chloride	1775	64	2118	0	83.8	60-125	1877	5.57	30
Xylenes, Total	6258	190	6355	0	98.5	75-125	6245	0.203	30
Surr: 1,2-Dichloroethane-d4	*2050*	0	*2118*	0	*96.8*	*70-130*	2042	*0.362*	*30*
Surr: 4-Bromofluorobenzene	*2023*	0	*2118*	0	*95.5*	*70-130*	2018	*0.262*	*30*
Surr: Dibromofluoromethane	*2126*	0	*2118*	0	*100*	*70-130*	2117	*0.399*	*30*
Surr: Toluene-d8	*2036*	0	*2118*	0	*96.1*	*70-130*	2030	*0.26*	*30*

The following samples were analyzed in this batch:

14041301-01A	14041301-02A	14041301-03A
14041301-04A	14041301-05A	14041301-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **R139970A** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **VBLKW1-140501-R139970A** Units: **µg/L** Analysis Date: **5/1/2014 04:42 PM**

Client ID: Run ID: **VMS8_140501A** SeqNo: **2741535** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1,2-Trichlorotrifluoroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	1.0								
1,2-Dibromoethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	2.0								
1,3-Dichlorobenzene	ND	2.0								
1,4-Dichlorobenzene	ND	2.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
4-Methyl-2-pentanone	ND	5.0								
Acetone	ND	20								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	2.5								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Cyclohexane	ND	5.0								
Dibromochloromethane	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
Ethylbenzene	ND	1.0								
Isopropylbenzene	ND	1.0								
Methyl acetate	ND	2.0								
Methyl tert-butyl ether	ND	5.0								
Methylcyclohexane	ND	5.0								
Methylene chloride	2.44	5.0								J
Styrene	ND	1.0								
Tetrachloroethene	ND	2.0								
Toluene	ND	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R139970A** Instrument ID **VMS8** Method: **SW8260**

trans-1,2-Dichloroethene	ND	1.0					
trans-1,3-Dichloropropene	ND	1.0					
Trichloroethene	ND	1.0					
Trichlorofluoromethane	ND	1.0					
Vinyl chloride	ND	1.0					
Xylenes, Total	ND	3.0					
Surr: 1,2-Dichloroethane-d4	*20.4*	0	*20*	0	*102*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.11*	0	*20*	0	*95.6*	*80-110*	0
Surr: Dibromofluoromethane	*19.71*	0	*20*	0	*98.6*	*85-115*	0
Surr: Toluene-d8	*19.57*	0	*20*	0	*97.8*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **R139970A** Instrument ID **VMS8** Method: **SW8260**

LCS Sample ID: **VLCSW1-140501-R139970A** Units: **µg/L** Analysis Date: **5/1/2014 03:04 PM**

Client ID: Run ID: **VMS8_140501A** SeqNo: **2741534** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.34	1.0	20	0	96.7	75-130	0			
1,1,2,2-Tetrachloroethane	20.24	1.0	20	0	101	75-130	0			
1,1,2-Trichloroethane	19.3	1.0	20	0	96.5	75-125	0			
1,1-Dichloroethane	21.53	1.0	20	0	108	75-133	0			
1,1-Dichloroethene	20.19	1.0	20	0	101	70-145	0			
1,2,4-Trichlorobenzene	25.45	1.0	20	0	127	70-135	0			
1,2-Dibromo-3-chloropropane	18.86	1.0	20	0	94.3	60-130	0			
1,2-Dibromoethane	27.49	1.0	20	0	137	80-150	0			
1,2-Dichlorobenzene	21.7	1.0	20	0	108	70-130	0			
1,2-Dichloroethane	21.66	1.0	20	0	108	78-125	0			
1,2-Dichloropropane	21.04	2.0	20	0	105	75-125	0			
1,3-Dichlorobenzene	21.26	2.0	20	0	106	75-130	0			
1,4-Dichlorobenzene	21.34	2.0	20	0	107	75-130	0			
2-Butanone	20.54	5.0	20	0	103	55-150	0			
2-Hexanone	20.62	5.0	20	0	103	60-135	0			
4-Methyl-2-pentanone	26.13	5.0	20	0	131	77-178	0			
Acetone	19.22	20	20	0	96.1	60-160	0			J
Benzene	20.58	1.0	20	0	103	85-125	0			
Bromodichloromethane	20.17	1.0	20	0	101	75-125	0			
Bromoform	16.55	1.0	20	0	82.8	60-125	0			
Bromomethane	26.68	1.0	20	0	133	30-185	0			
Carbon disulfide	22.03	2.5	20	0	110	60-165	0			
Carbon tetrachloride	19.64	1.0	20	0	98.2	65-140	0			
Chlorobenzene	19.87	1.0	20	0	99.4	80-120	0			
Chloroethane	16.86	1.0	20	0	84.3	50-140	0			
Chloroform	21.72	1.0	20	0	109	80-130	0			
Chloromethane	16.14	1.0	20	0	80.7	50-130	0			
cis-1,2-Dichloroethene	22.23	1.0	20	0	111	75-134	0			
cis-1,3-Dichloropropene	20.33	1.0	20	0	102	70-130	0			
Dibromochloromethane	17.03	1.0	20	0	85.2	60-115	0			
Dichlorodifluoromethane	12.53	1.0	20	0	62.6	20-120	0			
Ethylbenzene	20.16	1.0	20	0	101	85-125	0			
Isopropylbenzene	19.97	1.0	20	0	99.8	80-127	0			
Methyl tert-butyl ether	21.98	5.0	20	0	110	80-130	0			
Methylene chloride	25.79	5.0	20	0	129	75-140	0			
Styrene	19.82	1.0	20	0	99.1	85-125	0			
Tetrachloroethene	22.69	2.0	20	0	113	77-138	0			
Toluene	20.21	1.0	20	0	101	85-125	0			
trans-1,2-Dichloroethene	23.92	1.0	20	0	120	80-140	0			
trans-1,3-Dichloropropene	19.46	1.0	20	0	97.3	81-123	0			
Trichloroethene	20.06	1.0	20	0	100	84-130	0			
Trichlorofluoromethane	18.08	1.0	20	0	90.4	60-140	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R139970A** Instrument ID **VMS8** Method: **SW8260**

Vinyl chloride	16.32	1.0	20	0	81.6	50-136	0
Xylenes, Total	59.34	3.0	60	0	98.9	80-126	0
Surr: 1,2-Dichloroethane-d4	*20.55*	0	*20*	0	*103*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.4*	0	*20*	0	*97*	*80-110*	0
Surr: Dibromofluoromethane	*20.08*	0	*20*	0	*100*	*85-115*	0
Surr: Toluene-d8	*19.81*	0	*20*	0	*99*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **R139970A** Instrument ID **VMS8** Method: **SW8260**

MS Sample ID: **14041364-01A MS** Units: **µg/L** Analysis Date: **5/2/2014 01:13 AM**

Client ID: Run ID: **VMS8_140501A** SeqNo: **2741567** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.51	1.0	20	0	97.6	75-130	0			
1,1,2,2-Tetrachloroethane	18.98	1.0	20	0	94.9	75-130	0			
1,1,2-Trichloroethane	18.3	1.0	20	0	91.5	75-125	0			
1,1-Dichloroethane	21.01	1.0	20	0	105	75-133	0			
1,1-Dichloroethene	20.24	1.0	20	0	101	70-145	0			
1,2,4-Trichlorobenzene	16.25	1.0	20	0	81.2	70-135	0			
1,2-Dibromo-3-chloropropane	15.58	1.0	20	0	77.9	60-130	0			
1,2-Dibromoethane	25.79	1.0	20	0	129	80-150	0			
1,2-Dichlorobenzene	18.31	1.0	20	0	91.6	70-130	0			
1,2-Dichloroethane	20.95	1.0	20	0	105	78-125	0			
1,2-Dichloropropane	20.63	2.0	20	0	103	75-125	0			
1,3-Dichlorobenzene	18.35	2.0	20	0	91.8	75-130	0			
1,4-Dichlorobenzene	18.07	2.0	20	0	90.4	75-130	0			
2-Butanone	20.15	5.0	20	0	101	55-150	0			
2-Hexanone	17.76	5.0	20	0	88.8	60-135	0			
4-Methyl-2-pentanone	25.04	5.0	20	0	125	77-178	0			
Acetone	18.79	20	20	0	94	60-160	0			J
Benzene	20.3	1.0	20	0	102	85-125	0			
Bromodichloromethane	19.56	1.0	20	0	97.8	75-125	0			
Bromoform	15.08	1.0	20	0	75.4	60-125	0			
Bromomethane	29.05	1.0	20	0	145	30-185	0			
Carbon disulfide	21.87	2.5	20	0	109	60-165	0			
Carbon tetrachloride	20.09	1.0	20	0	100	65-140	0			
Chlorobenzene	19.02	1.0	20	0	95.1	80-120	0			
Chloroethane	17.2	1.0	20	0	86	50-140	0			
Chloroform	21.14	1.0	20	0	106	80-130	0			
Chloromethane	15.03	1.0	20	0	75.2	50-130	0			
cis-1,2-Dichloroethene	22.41	1.0	20	0	112	75-134	0			
cis-1,3-Dichloropropene	18.78	1.0	20	0	93.9	70-130	0			
Dibromochloromethane	16	1.0	20	0	80	60-115	0			
Dichlorodifluoromethane	12.72	1.0	20	0	63.6	20-120	0			
Ethylbenzene	19.56	1.0	20	0	97.8	85-125	0			
Isopropylbenzene	18.42	1.0	20	0	92.1	80-127	0			
Methyl tert-butyl ether	20.68	5.0	20	0	103	80-130	0			
Methylene chloride	23.93	5.0	20	0	120	75-140	0			
Styrene	18.37	1.0	20	0	91.8	85-125	0			
Tetrachloroethene	21.47	2.0	20	0	107	77-138	0			
Toluene	19.89	1.0	20	0	99.4	85-125	0			
trans-1,2-Dichloroethene	23.47	1.0	20	0	117	80-140	0			
trans-1,3-Dichloropropene	17.05	1.0	20	0	85.2	81-123	0			
Trichloroethene	19.96	1.0	20	0	99.8	84-130	0			
Trichlorofluoromethane	18.89	1.0	20	0	94.4	60-140	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R139970A** Instrument ID **VMS8** Method: **SW8260**

Vinyl chloride	16.57	1.0	20	0	82.8	50-136	0
Xylenes, Total	57.99	3.0	60	0	96.6	80-126	0
Surr: 1,2-Dichloroethane-d4	*20.79*	0	*20*	0	*104*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.97*	0	*20*	0	*99.8*	*80-110*	0
Surr: Dibromofluoromethane	*20.3*	0	*20*	0	*102*	*85-115*	0
Surr: Toluene-d8	*19.89*	0	*20*	0	*99.4*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **R139970A** Instrument ID **VMS8** Method: **SW8260**

MSD Sample ID: **14041364-01A MSD** Units: **µg/L** Analysis Date: **5/2/2014 01:37 AM**

Client ID: Run ID: **VMS8_140501A** SeqNo: **2741571** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.07	1.0	20	0	100	75-130	19.51	2.83	30	
1,1,2,2-Tetrachloroethane	19.8	1.0	20	0	99	75-130	18.98	4.23	30	
1,1,2-Trichloroethane	18.96	1.0	20	0	94.8	75-125	18.3	3.54	30	
1,1-Dichloroethane	22	1.0	20	0	110	75-133	21.01	4.6	30	
1,1-Dichloroethene	21.11	1.0	20	0	106	70-145	20.24	4.21	30	
1,2,4-Trichlorobenzene	19.25	1.0	20	0	96.2	70-135	16.25	16.9	30	
1,2-Dibromo-3-chloropropane	16.7	1.0	20	0	83.5	60-130	15.58	6.94	30	
1,2-Dibromoethane	26.41	1.0	20	0	132	80-150	25.79	2.38	30	
1,2-Dichlorobenzene	19.68	1.0	20	0	98.4	70-130	18.31	7.21	30	
1,2-Dichloroethane	22.03	1.0	20	0	110	78-125	20.95	5.03	30	
1,2-Dichloropropane	20.94	2.0	20	0	105	75-125	20.63	1.49	30	
1,3-Dichlorobenzene	19.68	2.0	20	0	98.4	75-130	18.35	6.99	30	
1,4-Dichlorobenzene	19.14	2.0	20	0	95.7	75-130	18.07	5.75	30	
2-Butanone	22.13	5.0	20	0	111	55-150	20.15	9.37	30	
2-Hexanone	19.46	5.0	20	0	97.3	60-135	17.76	9.13	30	
4-Methyl-2-pentanone	25.68	5.0	20	0	128	77-178	25.04	2.52	30	
Acetone	20.66	20	20	0	103	60-160	18.79	9.48	30	
Benzene	20.41	1.0	20	0	102	85-125	20.3	0.54	30	
Bromodichloromethane	19.5	1.0	20	0	97.5	75-125	19.56	0.307	30	
Bromoform	15.85	1.0	20	0	79.2	60-125	15.08	4.98	30	
Bromomethane	22.02	1.0	20	0	110	30-185	29.05	27.5	30	
Carbon disulfide	22.89	2.5	20	0	114	60-165	21.87	4.56	30	
Carbon tetrachloride	20.07	1.0	20	0	100	65-140	20.09	0.0996	30	
Chlorobenzene	19.47	1.0	20	0	97.4	80-120	19.02	2.34	30	
Chloroethane	17.79	1.0	20	0	89	50-140	17.2	3.37	30	
Chloroform	21.81	1.0	20	0	109	80-130	21.14	3.12	30	
Chloromethane	15.85	1.0	20	0	79.2	50-130	15.03	5.31	30	
cis-1,2-Dichloroethene	22.52	1.0	20	0	113	75-134	22.41	0.49	30	
cis-1,3-Dichloropropene	19.48	1.0	20	0	97.4	70-130	18.78	3.66	30	
Dibromochloromethane	16.13	1.0	20	0	80.6	60-115	16	0.809	30	
Dichlorodifluoromethane	13.77	1.0	20	0	68.8	20-120	12.72	7.93	30	
Ethylbenzene	19.73	1.0	20	0	98.6	85-125	19.56	0.865	30	
Isopropylbenzene	18.84	1.0	20	0	94.2	80-127	18.42	2.25	30	
Methyl tert-butyl ether	21.96	5.0	20	0	110	80-130	20.68	6	30	
Methylene chloride	24.87	5.0	20	0	124	75-140	23.93	3.85	30	
Styrene	19.38	1.0	20	0	96.9	85-125	18.37	5.35	30	
Tetrachloroethene	22.18	2.0	20	0	111	77-138	21.47	3.25	30	
Toluene	19.96	1.0	20	0	99.8	85-125	19.89	0.351	30	
trans-1,2-Dichloroethene	24.27	1.0	20	0	121	80-140	23.47	3.35	30	
trans-1,3-Dichloropropene	17.72	1.0	20	0	88.6	81-123	17.05	3.85	30	
Trichloroethene	20.21	1.0	20	0	101	84-130	19.96	1.24	30	
Trichlorofluoromethane	19.46	1.0	20	0	97.3	60-140	18.89	2.97	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **R139970A** Instrument ID **VMS8** Method: **SW8260**

Vinyl chloride	17.51	1.0	20	0	87.6	50-136	16.57	5.52	30
Xylenes, Total	58.31	3.0	60	0	97.2	80-126	57.99	0.55	30
Surr: 1,2-Dichloroethane-d4	*20.86*	0	*20*	0	*104*	*75-120*	20.79	*0.336*	*30*
Surr: 4-Bromofluorobenzene	*19.5*	0	*20*	0	*97.5*	*80-110*	19.97	*2.38*	*30*
Surr: Dibromofluoromethane	*19.91*	0	*20*	0	*99.6*	*85-115*	20.3	*1.94*	*30*
Surr: Toluene-d8	*19.59*	0	*20*	0	*98*	*85-110*	19.89	*1.52*	*30*

The following samples were analyzed in this batch: 14041301-09B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **57995** Instrument ID **WETCHEM** Method: **SW9045D**

LCS Sample ID: **LCS-57995-57995** Units: **s.u.** Analysis Date: **4/25/2014 04:00 PM**
Client ID: Run ID: **WETCHEM_140425L** SeqNo: **2730889** Prep Date: **4/25/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	3.95	0	4	0	98.8	90-110	0			

DUP Sample ID: **14041288-01B DUP** Units: **s.u.** Analysis Date: **4/25/2014 04:00 PM**
Client ID: Run ID: **WETCHEM_140425L** SeqNo: **2730891** Prep Date: **4/25/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.41	0	0	0	0	0-0	7.33	1.09	20	

DUP Sample ID: **14041301-05A DUP** Units: **s.u.** Analysis Date: **4/25/2014 04:00 PM**
Client ID: **AM-WS05-04242014** Run ID: **WETCHEM_140425L** SeqNo: **2730901** Prep Date: **4/25/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.34	0	0	0	0	0-0	7.37	0.408	20	

The following samples were analyzed in this batch:

14041301-01A	14041301-02A	14041301-03A
14041301-04A	14041301-05A	14041301-06A
14041301-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58029a** Instrument ID **LACHAT** Method: **SW9012A**

MBLK Sample ID: **MBLK-58029-58029a** Units: **mg/L** Analysis Date: **4/28/2014 02:32 PM**

Client ID: Run ID: **LACHAT_140428A** SeqNo: **2734423** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	ND	0.0050								

LCS Sample ID: **LCS-58029-58029a** Units: **mg/L** Analysis Date: **4/28/2014 02:32 PM**

Client ID: Run ID: **LACHAT_140428A** SeqNo: **2734424** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.2683	0.0050	0.25	0	107	82-122		0		

MS Sample ID: **1404943-01D MS** Units: **mg/L** Analysis Date: **4/28/2014 02:32 PM**

Client ID: Run ID: **LACHAT_140428A** SeqNo: **2734427** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.2445	0.0050	0.25	0.0003312	97.7	70-130		0		

MSD Sample ID: **1404943-01D MSD** Units: **mg/L** Analysis Date: **4/28/2014 02:32 PM**

Client ID: Run ID: **LACHAT_140428A** SeqNo: **2734428** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.2479	0.0050	0.25	0.0003312	99	70-130	0.2445	1.38	30	

The following samples were analyzed in this batch: 14041301-09D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58112** Instrument ID **WETCHEM** Method: **SW9034**

MBLK Sample ID: **MBLK-58112-58112** Units: **mg/Kg** Analysis Date: **4/29/2014 03:30 PM**

Client ID: Run ID: **WETCHEM_140429S** SeqNo: **2737280** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide (Acid Soluble)	ND	100								

LCS Sample ID: **LCS-58112-58112** Units: **mg/Kg** Analysis Date: **4/29/2014 03:30 PM**

Client ID: Run ID: **WETCHEM_140429S** SeqNo: **2737281** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide (Acid Soluble)	708	100	1075	0	65.9	21-81	0			

MS Sample ID: **14041301-07A MS** Units: **mg/Kg** Analysis Date: **4/29/2014 03:30 PM**

Client ID: **AM-WS06-04242014** Run ID: **WETCHEM_140429S** SeqNo: **2737290** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide (Acid Soluble)	ND	100	1075	60	-5.58	21-81	0			S

MSD Sample ID: **14041301-07A MSD** Units: **mg/Kg** Analysis Date: **4/29/2014 03:30 PM**

Client ID: **AM-WS06-04242014** Run ID: **WETCHEM_140429S** SeqNo: **2737291** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide (Acid Soluble)	48	100	1075	60	-1.12	21-81	36	0	50	JS

The following samples were analyzed in this batch:

14041301-01A	14041301-02A	14041301-03A
14041301-04A	14041301-05A	14041301-06A
14041301-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58114** Instrument ID **LACHAT** Method: **SW9012A**

MBLK Sample ID: **MBLK-58114-58114** Units: **mg/Kg** Analysis Date: **4/30/2014 02:40 PM**
Client ID: Run ID: **LACHAT_140430B** SeqNo: **2738356** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	ND	0.50								

LCS Sample ID: **LCS-58114-58114** Units: **mg/Kg** Analysis Date: **4/30/2014 02:40 PM**
Client ID: Run ID: **LACHAT_140430B** SeqNo: **2738357** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	2.612	0.50	2.5	0	104	85-119	0			

MS Sample ID: **14041301-04A MS** Units: **mg/Kg** Analysis Date: **4/30/2014 02:40 PM**
Client ID: **AM-WS04-04242014** Run ID: **LACHAT_140430B** SeqNo: **2738362** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	2.189	0.50	2.51	0.1327	81.9	70-130	0			

MS Sample ID: **14041352-08B MS** Units: **mg/Kg** Analysis Date: **4/30/2014 02:40 PM**
Client ID: Run ID: **LACHAT_140430B** SeqNo: **2738377** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	1.059	0.51	2.53	0.07136	39	70-130	0			S

MSD Sample ID: **14041301-04A MSD** Units: **mg/Kg** Analysis Date: **4/30/2014 02:40 PM**
Client ID: **AM-WS04-04242014** Run ID: **LACHAT_140430B** SeqNo: **2738363** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	2.415	0.51	2.541	0.1327	89.8	70-130	2.189	9.81	30	

MSD Sample ID: **14041352-08B MSD** Units: **mg/Kg** Analysis Date: **4/30/2014 02:40 PM**
Client ID: Run ID: **LACHAT_140430B** SeqNo: **2738386** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.1308	0.50	2.48	0.07136	2.39	70-130	1.059	0	30	JS

The following samples were analyzed in this batch:

14041301-01A	14041301-02A	14041301-03A
14041301-04A	14041301-05A	14041301-06A
14041301-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **R139612** Instrument ID **WETCHEM** Method: **A4500-H B-96**

LCS Sample ID: **LCS-R139612-R139612** Units: **s.u.** Analysis Date: **4/25/2014 04:00 PM**
Client ID: Run ID: **WETCHEM_140425L** SeqNo: **2730904** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	3.95	0	4	0	98.8	90-110	0			

LCS Sample ID: **LCS-R139612-R139612** Units: **s.u.** Analysis Date: **4/25/2014 04:00 PM**
Client ID: Run ID: **WETCHEM_140425L** SeqNo: **2730913** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	3.95	0	4	0	98.8	90-110	0			

DUP Sample ID: **14041286-03C DUP** Units: **s.u.** Analysis Date: **4/25/2014 04:00 PM**
Client ID: Run ID: **WETCHEM_140425L** SeqNo: **2730906** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	7.86	0	0	0	0	0-0	7.84	0.255	20	

DUP Sample ID: **14041301-09F DUP** Units: **s.u.** Analysis Date: **4/25/2014 04:00 PM**
Client ID: **AM-WL01-04242014** Run ID: **WETCHEM_140425L** SeqNo: **2730915** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	7.59	0	0	0	0	0-0	7.58	0.132	20	

The following samples were analyzed in this batch: 14041301-09F

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **R139636** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS-R139636** Units: **% of sample** Analysis Date: **4/25/2014 12:50 PM**
Client ID: Run ID: **MOIST_140425A** SeqNo: **2731377** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R139636** Units: **% of sample** Analysis Date: **4/25/2014 12:50 PM**
Client ID: Run ID: **MOIST_140425A** SeqNo: **2731376** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **14041288-01B DUP** Units: **% of sample** Analysis Date: **4/25/2014 12:50 PM**
Client ID: Run ID: **MOIST_140425A** SeqNo: **2731362** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	13.72	0.050	0	0	0	0-0	13.3	3.11	20	

DUP Sample ID: **14041301-05A DUP** Units: **% of sample** Analysis Date: **4/25/2014 12:50 PM**
Client ID: **AM-WS05-04242014** Run ID: **MOIST_140425A** SeqNo: **2731372** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	38.2	0.050	0	0	0	0-0	37.69	1.34	20	

The following samples were analyzed in this batch:

14041301-01A	14041301-02A	14041301-03A
14041301-04A	14041301-05A	14041301-06A
14041301-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **R139782** Instrument ID **WETCHEM** Method: **D92**

LCS Sample ID: **LCS-R139782-R139782** Units: **°F** Analysis Date: **4/29/2014 08:45 AM**
Client ID: Run ID: **WETCHEM_140429K** SeqNo: **2736413** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, Open-cup	82	0	81	0	101	97-103	0			

LCS Sample ID: **LCS-R139782-R139782** Units: **°F** Analysis Date: **4/29/2014 08:45 AM**
Client ID: Run ID: **WETCHEM_140429K** SeqNo: **2736456** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	82	0	81	0	101	97-103	0			

DUP Sample ID: **14041256-01A Duplicate** Units: **°F** Analysis Date: **4/29/2014 08:45 AM**
Client ID: Run ID: **WETCHEM_140429K** SeqNo: **2736458** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	142	0	0	0	0	0-0	140	1.42	10	

DUP Sample ID: **14041314-01A Duplicate** Units: **°F** Analysis Date: **4/29/2014 08:45 AM**
Client ID: Run ID: **WETCHEM_140429K** SeqNo: **2736461** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	88	0	0	0	0	0-0	84	4.65	10	

The following samples were analyzed in this batch:

14041301-01A	14041301-02A	14041301-03A
14041301-04A	14041301-05A	14041301-06A
14041301-07A	14041301-09F	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **R139892** Instrument ID **WETCHEM** Method: **SW9030**

MBLK Sample ID: **WBLKW1-043014-R139892** Units: **mg/L** Analysis Date: **4/30/2014 04:45 PM**

Client ID: Run ID: **WETCHEM_140430R** SeqNo: **2738630** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	ND	1.0								

LCS Sample ID: **WLCSW1-043014-R139892** Units: **mg/L** Analysis Date: **4/30/2014 04:45 PM**

Client ID: Run ID: **WETCHEM_140430R** SeqNo: **2738631** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	9.48	1.0	10.75	0	88.2	60-140		0		

The following samples were analyzed in this batch: 14041301-09E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

08-May-2014

Tom Beamish
ALS Laboratory Group, Inc.
3352 128th Avenue
Holland, MI 49424

Tel: (616) 399-6070
Fax: (616) 399-6185

Re: 14041301 Work Order: **1405022**

Dear Tom,

ALS Environmental received 1 sample on 01-May-2014 12:23 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 6.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Shawn Smythe

Electronically approved by: Shawn Smythe

Shawn Smythe
Project Manager

ALS Environmental

Date: 08-May-14

Client: ALS Laboratory Group, Inc.
Project: 14041301
Work Order: **1405022**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1405022-01	14041301-08A	Bulk		4/24/2014 16:25	5/1/2014 12:23	☐

Client: ALS Laboratory Group, Inc.
Project: 14041301
Work Order: 1405022

Case Narrative

Estimates of concentration are made on an area basis.

Any analytical result reported as Trace on the proceeding pages is defined as <1%.

Wherever possible, separate phases are analyzed and reported individually.

Floor tiles, decorative paints, joint compounds, and cement materials require additional treatment in order to evaluate the concentration of small asbestos fibers bound in the material. Some samples may contain fibers that are not visible by PLM and can only be detected by electron microscopy techniques. Floor tiles are analyzed as homogeneous materials if insufficient mastic is present or if phases have been cross contaminated.

The Federal Register Vol. 55, No. 224, Tuesday Nov. 20 1990 Rules and Regulations, as clarified by the memo of May 8, 1991, Clarification of Asbestos NESHAP Requirement to Perform Point Counting states "…if the analyst detects asbestos in the sample and estimates the amount by visual estimation to be less than 10%, the owner or operator of the building may (1) elect to assume the amount to be greater than 1% and treat the material as asbestos-containing material or (2) require verification of the amount by point counting." Any of the samples tested can be reanalyzed by point counting or an equivalent estimation technique at the client's request.

ALS Laboratory Group Environmental Divison (Cincinnati) NVLAP Lab ID: 101917. Laboratory accreditation by the National Institute of Standards and Technology does not in any way constitute approval or endorsement by NVLAP, NIST, or any agency of the federal government.

ALS Environmental

Date: *08-May-14*

Client: ALS Laboratory Group, Inc.
Project: 14041301

Work Order: 1405022

Lab ID: 1405022-01A
Client Sample ID: 14041301-08A

Collection Date: 4/24/2014 4:25:00 PM
Matrix: BULK

Analytical Results

Analyses	Result	Units		
Asbestos by PLM				Date Analyzed **5/6/2014**
Macroscopic Examination	Prep Date:	**5/6/2014**	**E600/R-93/116**	Analyst: **AFS**
Color	White			
Description	Material			
Homogeneity	Homogeneous			
Texture	Fibrous			
Other Materials			**E600/R-93/116**	
Cellulose	>1<=3	%		
Fiberglass	>90<=100	%		
Non-fibrous	>1<=3	%		
Other fibers	ND	%		
Resin/binder	ND	%		
Asbestiform Minerals			**E600/R-93/116**	
Amosite	ND	%		
Anthophyllite	ND	%		
Chrysotile	ND	%		
Crocidolite	ND	%		
Tremolite - actinolite	ND	%		
Total asbestos	**ND**	**%**		

Note:

ALS Environmental

Date: 08-May-14

Client: ALS Laboratory Group, Inc.
Project: 14041301
WorkOrder: **1405022**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
E	EPA Method
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SDL	Sample Detection Limit
SW	SW-846 Method

Units Reported	Description
%	

ALS Environmental

Sample Receipt Checklist

Client Name: **ALS-HOLLAND** Date/Time Received: **01-May-14 12:23**

Work Order: **1405022** Received by: **SNH**

Checklist completed by Stephanie Harrington 02-May-14 (eSignature / Date)

Reviewed by: Shawn Smythe 02-May-14 (eSignature / Date)

Matrices:

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):			
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

ALS Environmental

Cincinnati, OH +1 513 733 5336 | Fort Collins, CO +1 970 490 1511 | Houston, TX +1 281 530 5656 | Spring City, PA +1 610 948 4903 | South Charleston, WV +1 304 356 3168
Everett, WA +1 425 356 2600 | Holland, MI +1 616 399 6070 | Middletown, PA +1 717 944 5541 | Salt Lake City, UT +1 801 266 7700 | York, PA +1 717 505 5280

Chain of Custody Form

Page ____ of ____

COC ID: 106561

ALS Project Manager: | ALS Work Order #: 1404301

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Alreco Metals	A	PCB
Work Order		Project Number		B	TCLP Metals
Company Name	Weston Solutions, Inc	Bill To Company	Weston Solutions, Inc	C	TCL SVOC
Send Report To	Lisa Graczyk	Invoice Attn	Lisa Graczyk	D	TCL VOC
Address	20 North Wacker Drive Suite 1210	Address	20 North Wacker Drive Suite 1210	E	TAL Metals
				F	Total Cyanide
City/State/Zip	Chicago, IL 60606	City/State/Zip	Chicago, IL 60606	G	Total Sulfide
Phone	(312) 424-3300	Phone	(312) 424-3300	H	Corrosivity
Fax	(312) 424-3330	Fax	(312) 424-3330	I	Ignitibility
e-Mail Address	lgraczyk@ces-dynamac.com	e-Mail Address		J	Asbestos

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	AM-WS01-04242014	04/24/2014	1535	WS	—	1	X	-10 ⊗	X	X	X	X	X	X	X		
2	AM-WS02-04242014	04/24/2014	1540	WS	—	1	X	-11 ⊗	X	X	X	X	X	X	X		
3	AM-WS03-04242014	04/24/2014	1545	WS	—	1	X	-12 ⊗	X	X	X	X	X	X	X		
4	AM-WS04-04242014	04/24/2014	1550	WS	—	1	X	-13 ⊗	X	X	X	X	X	X	X		
5	AM-WS05-04242014	04/24/2014	1555	WS	—	1	X	-14 ⊗	X	X	X	X	X	X	X		
6	AM-SS01-04242014	04/24/2014	1605	Soil	—	1	X		X		X	X	X	X	X		
7	AM-WS06-04242014	04/24/2014	1610	WS	—	1	X	-15 ⊗	X	X	X	X	X	X	X		
8	AM-WS07-04242014	04/24/2014	1625	WS	—	1	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	X	X	X	X	
9	AM-WL01-04242014	04/24/2014	1640	Water	HNO3 NaOH Zinc acetate Sodium hydroxide	7	X		X	X	X	X	X	X	X		
10																	

Sampler(s) Please Print & Sign: Jared Dempsey

Shipment Method:

Required Turnaround Time: (Check Box) ☑ Std. 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by: | Date: 04/24/2014 | Time: 1800 | Received by:

Relinquished by: | Date: | Time: | Received by (Laboratory):

Logged by (Laboratory): KJ | Date: 4/25/14 | Time: 1300 | Checked by (Laboratory):

Notes:

Cooler ID	Cooler Temp.
	4.0°C

QC Package: (Check One Box Below)
☑ Level II Std QC
☐ Level III Std QC/Raw Data
☐ Level IV SW846/CLP
☐ Other
☐ TRRP Checklist
☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

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ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **WESTON - CHI** Date/Time Received: **24-Apr-14 18:00**

Work Order: **14041301** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 25-Apr-14 (Date) Reviewed by: Bill Carey (eSignature) 28-Apr-14 (Date)

Matrices: Waste & Water

Carrier name: Client

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☐	No ☑	
Temperature(s)/Thermometer(s):	4.0 C		
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	4/25/2014 1:58:22 PM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes: Stored in the walk-in cooler overnight.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

ALRECO METALS
BENTON HARBOR, MICHIGAN
DATA VALIDATION REPORT

Date: May 12, 2014
Laboratory: ALS Environmental (ALS), Holland, Michigan
Laboratory Project #: 14041301
Data Validation Performed By: Lisa Graczyk, Weston Solutions, Inc. (WESTON®) Superfund Technical Assessment and Response Team (START)
Weston Analytical Work Order #/TDD #: 20405.016.001.2323.77/S05-0001-1404-007

This data validation report has been prepared by WESTON START under the START III Region V contract. This report documents the data validation for seven waste solid samples, one water sample, and one soil sample collected for the Alreco Metals Site that were analyzed for the following parameters and U.S. Environmental Protection Agency methods:

- Volatile Organic Compounds (VOC) by SW-846 Method 8260
- Semivolatile Organic Carbons (SVOC) by SW-846 Method 8270
- Polychlorinated Biphenyls (PCB) by SW-846 Method 8082
- Metals by SW-846 Methods 6020A, 7471, and 7470
- Toxicity Characteristic Leaching Procedure (TCLP) Metals by SW-846 Methods 1311, 6020A, and 7470A
- Cyanide by SW-846 Method 9012A
- Sulfide by SW-846 Method 9034
- Flashpoint by ASTM D92
- pH by SW-846 Method 9045D
- Asbestos by Polarized Light Microscopy (PLM)

A level II data package was requested from ALS. The data validation was conducted in general accordance with the EPA "Contract Laboratory Program National Functional Guidance for Superfund Organic Methods Data Review" dated June 2008 and "Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review" dated January 2010. The Attachment contains the results summary sheets with the hand-written qualifiers applied during data validation.

Note that the asbestos analysis does not lend itself to data validation procedures. Therefore, the asbestos results are included in the attachment for reference only.

Data Validation Report
Alreco Metals Site
ALS Environmental
Laboratory Project #: 14041301

VOCs by SW-846 METHOD 8260

1. Samples

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Analyzed
AM-WS01-04242014	14041301-01	Solid	4/24/2014	5/1/2014
AM-WS02-04242014	14041301-02	Solid	4/24/2014	5/1/2014
AM-WS03-04242014	14041301-03	Solid	4/24/2014	5/1/2014
AM-WS04-04242014	14041301-04	Solid	4/24/2014	5/1/2014
AM-WS05-04242014	14041301-05	Solid	4/24/2014	5/1/2014
AM-WS06-04242014	14041301-07	Solid	4/24/2014	5/1/2014
AM-WL01-04242014	14041301-09	Water	4/24/2014	5/2/2014

2. Holding Times

The samples were analyzed within the required holding time limit of 14 days from sample collection.

3. Blanks

Method blanks were analyzed with the VOC analyses and were free of target compounds above the reporting limits. Methylene chloride was detected below the reporting limit in the liquid method blank. Because methylene chloride was not detected in the samples; no qualification was required.

4. Surrogate Results

The surrogate recovery results were within the laboratory-established quality control (QC) limits.

5. Laboratory Control Sample (LCS) Results

The LCS recoveries were within laboratory QC limits except for as follows. One compound was detected high; however this compound was not detected in the samples and no qualification was required.

6. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

A site-specific MS and MSD were not analyzed with this work order for VOCs; therefore, matrix interferences could not be evaluated using the MS and MSDs. For the MS and MSD that were analyzed, the percent recoveries and relative percent differences (RPD) were acceptable.

7. Overall Assessment

The VOC data are acceptable for use based on the information received.

SVOCs BY SW-846 METHOD 8270

1. Samples

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Prepared	Date Analyzed
AM-WS01-04242014	14041301-01	Solid	4/24/2014	4/28/2014	4/30/2014
AM-WS02-04242014	14041301-02	Solid	4/24/2014	4/28/2014	4/30/2014
AM-WS03-04242014	14041301-03	Solid	4/24/2014	4/28/2014	4/30/2014
AM-WS04-04242014	14041301-04	Solid	4/24/2014	4/28/2014	4/30/2014
AM-WS05-04242014	14041301-05	Solid	4/24/2014	4/29/2014	4/29/2014
AM-SS01-04242014	14041301-06	Soil	4/24/2014	4/29/2014	4/29/2014
AM-WS06-04242014	14041301-07	Solid	4/24/2014	4/29/2014	4/29/2014
AM-WL01-04242014	14041301-09	Water	4/24/2014	4/28/2014	4/28/2014

2. Holding Times

The samples were analyzed within the required holding time limit of 14 days from sample collection to extraction (7 days for waters) and 40 days from extraction to analysis.

3. Blanks

Method blanks were analyzed with the SVOC analyses. The method blanks were free of target compound contamination above the reporting limits. Di-n-butyl phthalate was detected in a method blank below the reporting limit. Because the samples did not contain detections of this compound, no qualifications were required.

4. Surrogate Results

The surrogate recoveries were within the laboratory-established QC limits except for as follows. In a few samples, one to three of the six surrogates were detected high, above the QC limit. However, no qualifications were required as the other surrogates were within QC limits.

5. LCS Results

The percent recoveries for the LCS results were within the laboratory-established QC limits.

6. MS and MSD Results

A site-specific MS and MSD were not analyzed with this work order for SVOCs; therefore, matrix interferences could not be evaluated using the MS and MSDs. For the MS and MSD that were analyzed, the percent recoveries and RPDs were acceptable.

7. Overall Assessment

The SVOC data are acceptable for use based on the information received.

PCBs BY U.S. EPA SW-846 METHOD 8082

1. Samples

The following table summarizes the samples for which this data validation was conducted.

Samples	Lab ID	Matrix	Date Collected	Date Prepared	Date Analyzed
AM-WS01-04242014	14041301-01	Solid	4/24/2014	4/28/2014	4/29/2014
AM-WS02-04242014	14041301-02	Solid	4/24/2014	4/28/2014	4/29/2014
AM-WS03-04242014	14041301-03	Solid	4/24/2014	4/28/2014	4/29/2014
AM-WS04-04242014	14041301-04	Solid	4/24/2014	4/28/2014	4/29/2014
AM-WS05-04242014	14041301-05	Solid	4/24/2014	4/28/2014	4/29/2014
AM-SS01-04242014	14041301-06	Soil	4/24/2014	4/28/2014	4/29/2014
AM-WS06-04242014	14041301-07	Solid	4/24/2014	4/28/2014	4/29/2014
AM-WL01-04242014	14041301-09	Water	4/24/2014	4/28/2014	4/29/2014

2. Holding Times

The samples were analyzed within the required holding time limit of 14 days from sample collection to extraction (7 days for waters) and 40 days from extraction to analysis.

3. Blanks

A method blank was analyzed with the PCB analyses. The method blank was free of target compound contamination above the reporting limit.

4. Surrogates

The surrogate recoveries were within QC limits.

5. LCS Results

The LCS recoveries were within the laboratory-established QC limits.

6. MS and MSD Results

One site-specific MS and MSD were analyzed. The percent recoveries and RPDs were with QC limits.

7. Overall Assessment

The PCB data are acceptable for use based on the information received.

Data Validation Report
Alreco Metals Site
ALS Environmental
Laboratory Project #: 14041301

TOTAL METALS BY SW-846 METHODS 6020A, 7471, and 7470

1. Samples

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Analyzed
AM-WS01-04242014	14041301-01	Solid	4/24/2014	4/30/2014 – 5/2/2014
AM-WS02-04242014	14041301-02	Solid	4/24/2014	4/30/2014 – 5/2/2014
AM-WS03-04242014	14041301-03	Solid	4/24/2014	4/30/2014 – 5/1/2014
AM-WS04-04242014	14041301-04	Solid	4/24/2014	5/1/2014 – 5/4/2014
AM-WS05-04242014	14041301-05	Solid	4/24/2014	4/30/2014 – 5/1/2014
AM-SS01-04242014	14041301-06	Soil	4/24/2014	4/30/2014 – 5/1/2014
AM-WS06-04242014	14041301-07	Solid	4/24/2014	5/1/2014
AM-WL01-04242014	14041301-09	Water	4/24/2014	4/29/2014 – 4/30/2014

2. Holding Times

The samples were analyzed within the required holding time limit of 28 days from sample collection to analysis for mercury and 180 days from sample collection to analysis for all other metals.

3. Blank Results

Method blanks were analyzed with the metals analysis. The blanks were free of target analyte contamination above the reporting limits. Some metals were detected below the reporting limits in the method blanks; however, the sample concentrations were either non-detect or much higher than the blank concentrations. No qualifications were required.

4. LCS Results

The LCS recoveries were within the laboratory-established QC limits.

5. MS and MSD Results

A site-specific MS and MSD were not analyzed with this work order for metals; therefore, matrix interferences could not be evaluated using the MS and MSDs. No qualifications were required.

6. Overall Assessment

The metals data are acceptable for use based on the information received.

TCLP METALS BY SW-846 METHODS 1311, 6020, AND 7470A

1. Samples

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Analyzed
AM-WS01-04242014	14041301-01	Solid	4/24/2014	4/29/2014 – 4/30/2014
AM-WS02-04242014	14041301-02	Solid	4/24/2014	4/29/2014 – 4/30/2014
AM-WS03-04242014	14041301-03	Solid	4/24/2014	4/29/2014 – 4/30/2014
AM-WS04-04242014	14041301-04	Solid	4/24/2014	4/30/2014
AM-WS05-04242014	14041301-05	Solid	4/24/2014	4/30/2014
AM-WS06-04242014	14041301-07	Solid	4/24/2014	4/30/2014

2. Holding Times

The samples were analyzed within the required holding time limit of 28 days from sample collection to analysis for mercury and 180 days from sample collection to analysis for all other metals.

3. Blank Results

Method blanks were analyzed with the metals analysis. The blanks were free of target analyte contamination above the reporting limits. Some TCLP metals were detected below the reporting limit. However, the sample results were either non-detect or much greater than the method blank results and no qualifications were required.

4. LCS Results

The LCS recoveries were within the laboratory-established QC limits for target analytes.

5. MS and MSD Results

A site-specific MS and MSD were not analyzed with this work order for metals; therefore, matrix interferences could not be evaluated using the MS and MSDs. No qualifications were required.

6. Overall Assessment

The TCLP metals data are acceptable for use based on the information received.

GENERAL CHEMISTRY PARAMETERS (Cyanide by 9012A, Sulfide by 9034, Flashpoint by ASTM D92, and pH by 9045D)

1. Samples

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Analyzed
AM-WS01-04242014	14041301-01	Solid	4/24/2014	4/25/2014 – 4/30/2014
AM-WS02-04242014	14041301-02	Solid	4/24/2014	4/25/2014 – 4/30/2014
AM-WS03-04242014	14041301-03	Solid	4/24/2014	4/25/2014 – 4/30/2014
AM-WS04-04242014	14041301-04	Solid	4/24/2014	4/25/2014 – 4/30/2014
AM-WS05-04242014	14041301-05	Solid	4/24/2014	4/25/2014 – 4/30/2014
AM-SS01-04242014	14041301-06	Soil	4/24/2014	4/25/2014 – 4/30/2014
AM-WS06-04242014	14041301-07	Solid	4/24/2014	4/25/2014 – 4/30/2014
AM-WL01-04242014	14041301-09	Water	4/24/2014	4/25/2014 – 4/30/2014

2. Holding Times

The holding times were acceptable.

3. Method Blanks

Method blanks were analyzed with the cyanide and sulfide analyses and were free of target analyte contamination above the reporting limit.

4. LCS Results

The percent recoveries were within QC limits for the LCSs analyzed.

5. MS and MSD Results

A site specific MS and MSD were analyzed with the cyanide and sulfide analyses.

For cyanide, the percent recoveries and RPD were within QC limits.

For sulfide, the recoveries were low. In sample AM-WS06-04242014, the sample used for the MS/MSD, the quantitation limit for sulfide was flagged "UJ" as estimated.

6. Laboratory Duplicate Results

Laboratory duplicates were analyzed with the pH and flashpoint analyses. The RPDs were within QC limits.

7. Overall Assessment

The cyanide, sulfide, flashpoint, and pH data are acceptable for use based on the information received.

ATTACHMENT

ALS ENVIRONMENTAL
RESULTS SUMMARY WITH QUALIFIERS

08-May-2014

Lisa Graczyk
Weston Solutions, Inc
20 North Wacker Drive
Suite 1210
Chicago, IL 60606

Re: **20405.016.001.2323.77/Alreco Metals** Work Order: **14041301**

Dear Lisa,

ALS Environmental received 15 samples on 24-Apr-2014 06:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 121.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Electronically approved by: Bill Carey

Tom Beamish
Senior Project Manager

Certificate No: MN 532786

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ALS Group USA, Corp

Date: 08-May-14

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: **14041301**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
14041301-01	AM-WS01-04242014	Waste		4/24/2014 15:35	4/24/2014 18:00	☐
14041301-02	AM-WS02-04242014	Waste		4/24/2014 15:40	4/24/2014 18:00	☐
14041301-03	AM-WS03-04242014	Waste		4/24/2014 15:45	4/24/2014 18:00	☐
14041301-04	AM-WS04-04242014	Waste		4/24/2014 15:50	4/24/2014 18:00	☐
14041301-05	AM-WS05-04242014	Waste		4/24/2014 15:55	4/24/2014 18:00	☐
14041301-06	AM-SS01-04242014	Soil		4/24/2014 16:05	4/24/2014 18:00	☐
14041301-07	AM-WS06-04242014	Waste		4/24/2014 16:10	4/24/2014 18:00	☐
14041301-08	AM-WS07-04242014	Waste		4/24/2014 16:25	4/24/2014 18:00	☐
14041301-09	AM-WL01-04242014	Water		4/24/2014 16:40	4/24/2014 18:00	☐
14041301-10	AM-WS01-04242014	Tclp Extract		4/24/2014 15:35	4/24/2014 18:00	☐
14041301-11	AM-WS02-04242014	Tclp Extract		4/24/2014 15:40	4/24/2014 18:00	☐
14041301-12	AM-WS03-04242014	Tclp Extract		4/24/2014 15:45	4/24/2014 18:00	☐
14041301-13	AM-WS04-04242014	Tclp Extract		4/24/2014 15:50	4/24/2014 18:00	☐
14041301-14	AM-WS05-04242014	Tclp Extract		4/24/2014 15:55	4/24/2014 18:00	☐
14041301-15	AM-WS06-04242014	Tclp Extract		4/24/2014 16:10	4/24/2014 18:00	☐

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
WorkOrder: **14041301**

QUALIFIERS, ACRONYMS, UNITS

ALS Group USA, Corp

Date: 08-May-14

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
% of sample	Percent of Sample
°F	Degrees Fahrenheit
as noted	
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
s.u.	Standard Units

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301

Case Narrative

Batch 58013, Method SVO_8270_W, Sample 14041179-19B MS and MSD: The MS and/or MSD recovery was outside the control limit. The parent sample is unrelated to this project.

Batch 58021, Method ICP_6020_W, Sample 14041183-02EMS and MSD: The MS and/or MSD recovery was outside the control limit. The parent sample is unrelated to this project.

Batch 58021, Method ICP_6020_W, Sample 14041301-09C: The reporting limit is elevated due to dilution for high concentrations of non-target analytes.

Batch 58023, Method VOC_8260_S, Sample 14041211-03A MS and MSD: The MS and/or MSD recovery was outside the control limit. The parent sample is unrelated to this project. er control limit. The corresponding result in the parent sample may be biased low for this analyte: THF

Batch 58023, Method VOC_8260_S, Sample LCS-58023: The LCS recovery was above the upper control limit. All sample results in the batch were non-detect. No qualification is necessary for this analyte: 1,2-Dibromoethane

Batch 58052, Method SVO_8270_S, Sample 14041211-03B MS and MSD: The MS and/or MSD recovery was outside the control limit. The parent sample is unrelated to this project.

Batch 58052, Method SVO_8270_S, Sample 14041301-05A: Surrogates out due to matrix interference.

Batch 58052, Method SVO_8270_S, Sample 14041301-05A: The reporting limit is elevated due to not being able to concentrate the sample extract down to the desired final volume.

Batch 58052, Method SVO_8270_S, Sample 14041301-06A: Surrogates out due to matrix interference.

Batch 58052, Method SVO_8270_S, Sample 14041301-06A: The reporting limit is elevated due to not being able to concentrate the sample extract down to the desired final volume.

Batch 58069, Method ICP_6020_W, Sample 14041218-01EMSD: The MS and/or MSD recovery was outside the control limit. The parent sample is unrelated to this project.

Batch 58081, Method ICP_6020_S, Sample 14041242-04BMS and MSD: The MS and/or MSD recovery was outside the control limit. The parent sample is unrelated to this project.

Batch 58114, Method CN_9012_S, Sample 14041352-08B MS and MSD: The MS and/or MSD recovery was outside the control limit. The parent sample is unrelated to this project.

Batch R139612, Method PH_9040_W, Sample 14041301-09F: This is considered a "field test" and, as such, the recommended sample holding time expired prior to sample receipt.

Batch R139970A, Method VOC_8260_W, Sample 14041364-01A MS and MSD: The MS and/or MSD recovery was outside the control limit. The parent sample is unrelated to this project.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS01-04242014
Lab ID: 14041301-01
Collection Date: 4/24/2014 03:35 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**		Prep: SW3541 / 4/28/14	Analyst: **JD**
Aroclor 1016	ND		0.11	mg/Kg-dry	1	4/29/2014 01:28 PM
Aroclor 1221	ND		0.11	mg/Kg-dry	1	4/29/2014 01:28 PM
Aroclor 1232	ND		0.11	mg/Kg-dry	1	4/29/2014 01:28 PM
Aroclor 1242	**2.0**		**0.11**	**mg/Kg-dry**	1	4/29/2014 01:28 PM
Aroclor 1248	ND		0.11	mg/Kg-dry	1	4/29/2014 01:28 PM
Aroclor 1254	**0.44**		**0.11**	**mg/Kg-dry**	1	4/29/2014 01:28 PM
Aroclor 1260	ND		0.11	mg/Kg-dry	1	4/29/2014 01:28 PM
Surr: Decachlorobiphenyl	*87.1*		*40-140*	*%REC*	1	4/29/2014 01:28 PM
MERCURY BY CVAA			**SW7471**		Prep: SW7471 / 4/30/14	Analyst: **LR**
Mercury	**1.7**		**0.24**	**mg/Kg-dry**	10	4/30/2014 06:23 PM
METALS BY ICP-MS			**SW6020A**		Prep: SW3050B / 4/29/14	Analyst: **ML**
Aluminum	**210,000**		**5,100**	**mg/Kg-dry**	5000	5/2/2014 01:28 PM
Antimony	**49**		**25**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Arsenic	ND		25	mg/Kg-dry	50	5/1/2014 04:44 PM
Barium	**190**		**25**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Beryllium	ND		10	mg/Kg-dry	50	5/1/2014 04:44 PM
Cadmium	**45**		**10**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Calcium	**18,000**		**2,500**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Chromium	**630**		**25**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Cobalt	ND		25	mg/Kg-dry	50	5/1/2014 04:44 PM
Copper	**6,600**		**25**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Iron	**19,000**		**410**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Lead	**420**		**25**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Magnesium	**18,000**		**1,000**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Manganese	**2,200**		**25**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Nickel	**240**		**25**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Potassium	**59,000**		**1,000**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Selenium	ND		25	mg/Kg-dry	50	5/1/2014 04:44 PM
Silver	ND		51	mg/Kg-dry	100	5/3/2014 12:20 PM
Sodium	**81,000**		**1,000**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Thallium	ND		25	mg/Kg-dry	50	5/1/2014 04:44 PM
Vanadium	**55**		**25**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
Zinc	**7,400**		**51**	**mg/Kg-dry**	50	5/1/2014 04:44 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep: SW3541 / 4/28/14	Analyst: **RM**
1,1`-Biphenyl	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
2,4,5-Trichlorophenol	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
2,4,6-Trichlorophenol	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS01-04242014
Lab ID: 14041301-01
Collection Date: 4/24/2014 03:35 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
2,4-Dichlorophenol	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
2,4-Dimethylphenol	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
2,4-Dinitrophenol	ND		4.5	mg/Kg-dry	1	4/30/2014 08:22 PM
2,4-Dinitrotoluene	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
2,6-Dinitrotoluene	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
2-Chloronaphthalene	ND		0.045	mg/Kg-dry	1	4/30/2014 08:22 PM
2-Chlorophenol	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
2-Methylnaphthalene	ND		0.045	mg/Kg-dry	1	4/30/2014 08:22 PM
2-Methylphenol	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
2-Nitroaniline	ND		4.5	mg/Kg-dry	1	4/30/2014 08:22 PM
2-Nitrophenol	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
3,3´-Dichlorobenzidine	ND		4.5	mg/Kg-dry	1	4/30/2014 08:22 PM
3-Nitroaniline	ND		4.5	mg/Kg-dry	1	4/30/2014 08:22 PM
4,6-Dinitro-2-methylphenol	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
4-Bromophenyl phenyl ether	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
4-Chloro-3-methylphenol	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
4-Chloroaniline	ND		4.5	mg/Kg-dry	1	4/30/2014 08:22 PM
4-Chlorophenyl phenyl ether	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
4-Methylphenol	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
4-Nitroaniline	ND		4.5	mg/Kg-dry	1	4/30/2014 08:22 PM
4-Nitrophenol	ND		4.5	mg/Kg-dry	1	4/30/2014 08:22 PM
Acenaphthene	ND		0.045	mg/Kg-dry	1	4/30/2014 08:22 PM
Acenaphthylene	**0.47**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Acetophenone	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
Anthracene	**1.4**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Atrazine	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
Benzaldehyde	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
Benzo(a)anthracene	**7.0**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Benzo(a)pyrene	**2.9**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Benzo(b)fluoranthene	**7.6**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Benzo(g,h,i)perylene	**5.9**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Benzo(k)fluoranthene	**8.1**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Bis(2-chloroethoxy)methane	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Bis(2-chloroethyl)ether	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Bis(2-chloroisopropyl)ether	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Bis(2-ethylhexyl)phthalate	**11**		**2.2**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Butyl benzyl phthalate	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Caprolactam	**8.7**		**2.2**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Carbazole	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Chrysene	**11**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS01-04242014
Lab ID: 14041301-01
Collection Date: 4/24/2014 03:35 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibenzo(a,h)anthracene	**1.0**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Dibenzofuran	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Diethyl phthalate	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
Dimethyl phthalate	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
Di-n-butyl phthalate	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
Di-n-octyl phthalate	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Fluoranthene	**29**		**0.45**	**mg/Kg-dry**	10	5/2/2014 12:57 AM
Fluorene	**0.43**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Hexachlorobenzene	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Hexachlorobutadiene	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Hexachlorocyclopentadiene	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
Hexachloroethane	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Indeno(1,2,3-cd)pyrene	**6.7**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Isophorone	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Naphthalene	**0.31**		**0.045**	**mg/Kg-dry**	1	4/30/2014 08:22 PM
Nitrobenzene	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
N-Nitrosodi-n-propylamine	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
N-Nitrosodiphenylamine	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Pentachlorophenol	ND		2.2	mg/Kg-dry	1	4/30/2014 08:22 PM
Phenanthrene	**19**		**0.45**	**mg/Kg-dry**	10	5/2/2014 12:57 AM
Phenol	ND		1.1	mg/Kg-dry	1	4/30/2014 08:22 PM
Pyrene	**24**		**0.45**	**mg/Kg-dry**	10	5/2/2014 12:57 AM
Surr: 2,4,6-Tribromophenol	*82.8*		*34-140*	*%REC*	1	4/30/2014 08:22 PM
Surr: 2-Fluorobiphenyl	*85.2*		*12-100*	*%REC*	1	4/30/2014 08:22 PM
Surr: 2-Fluorophenol	*96.1*		*33-117*	*%REC*	1	4/30/2014 08:22 PM
Surr: 4-Terphenyl-d14	*113*		*25-137*	*%REC*	1	4/30/2014 08:22 PM
Surr: Nitrobenzene-d5	*88.2*		*37-107*	*%REC*	1	4/30/2014 08:22 PM
Surr: Phenol-d6	*95.7*		*40-106*	*%REC*	1	4/30/2014 08:22 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 4/28/14	Analyst: **RS**
1,1,1-Trichloroethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,1,2,2-Tetrachloroethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,1,2-Trichloroethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,1,2-Trichlorotrifluoroethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,1-Dichloroethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,1-Dichloroethene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,2,4-Trichlorobenzene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,2-Dibromo-3-chloropropane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,2-Dibromoethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,2-Dichlorobenzene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,2-Dichloroethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS01-04242014
Lab ID: 14041301-01
Collection Date: 4/24/2014 03:35 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,2-Dichloropropane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,3-Dichlorobenzene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
1,4-Dichlorobenzene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
2-Butanone	ND		0.51	mg/Kg-dry	1	5/1/2014 05:57 PM
2-Hexanone	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
4-Methyl-2-pentanone	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Acetone	**0.30**		**0.25**	**mg/Kg-dry**	1	5/1/2014 05:57 PM
Benzene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Bromodichloromethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Bromoform	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Bromomethane	ND		0.19	mg/Kg-dry	1	5/1/2014 05:57 PM
Carbon disulfide	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Carbon tetrachloride	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Chlorobenzene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Chloroethane	ND		0.25	mg/Kg-dry	1	5/1/2014 05:57 PM
Chloroform	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Chloromethane	ND		0.25	mg/Kg-dry	1	5/1/2014 05:57 PM
cis-1,2-Dichloroethene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
cis-1,3-Dichloropropene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Cyclohexane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Dibromochloromethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Dichlorodifluoromethane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Ethylbenzene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Isopropylbenzene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Methyl acetate	ND		0.51	mg/Kg-dry	1	5/1/2014 05:57 PM
Methyl tert-butyl ether	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Methylcyclohexane	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Methylene chloride	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Styrene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Tetrachloroethene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Toluene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
trans-1,2-Dichloroethene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
trans-1,3-Dichloropropene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Trichloroethene	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Trichlorofluoromethane	**3.6**		**0.076**	**mg/Kg-dry**	1	5/1/2014 05:57 PM
Vinyl chloride	ND		0.076	mg/Kg-dry	1	5/1/2014 05:57 PM
Xylenes, Total	**0.25**		**0.23**	**mg/Kg-dry**	1	5/1/2014 05:57 PM
Surr: 1,2-Dichloroethane-d4	*98.0*		*70-130*	*%REC*	1	5/1/2014 05:57 PM
Surr: 4-Bromofluorobenzene	*99.0*		*70-130*	*%REC*	1	5/1/2014 05:57 PM
Surr: Dibromofluoromethane	*95.7*		*70-130*	*%REC*	1	5/1/2014 05:57 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS01-04242014
Lab ID: 14041301-01
Collection Date: 4/24/2014 03:35 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Toluene-d8	*98.6*		*70-130*	*%REC*	1	5/1/2014 05:57 PM
CYANIDE, TOTAL			**SW9012A**		Prep: SW9012A / 4/30/14	Analyst: **JB**
Cyanide, Total	**1.7**		**0.64**	**mg/Kg-dry**	1	4/30/2014 02:40 PM
FLASHPOINT, OPEN-CUP			**D92**			Analyst: **RLF**
Flashpoint, Open-cup	**>200**			**°F**	1	4/29/2014 08:45 AM
MOISTURE			**A2540 G**			Analyst: **AT**
Moisture	**22**		**0.050**	**% of sample**	1	4/25/2014 12:50 PM
PH			**SW9045D**		Prep: EXTRACT / 4/25/14	Analyst: **AT**
pH	**7.6**			**s.u.**	1	4/25/2014 04:00 PM
SULFIDE			**SW9034**		Prep: SW9030 / 4/29/14	Analyst: **EE**
Sulfide (Acid Soluble)	ND		130	mg/Kg-dry	1	4/29/2014 03:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS02-04242014
Lab ID: 14041301-02
Collection Date: 4/24/2014 03:40 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**		Prep: SW3541 / 4/28/14	Analyst: **JD**
Aroclor 1016	ND		0.093	mg/Kg-dry	1	4/29/2014 01:44 PM
Aroclor 1221	ND		0.093	mg/Kg-dry	1	4/29/2014 01:44 PM
Aroclor 1232	ND		0.093	mg/Kg-dry	1	4/29/2014 01:44 PM
Aroclor 1242	**1.3**		**0.093**	**mg/Kg-dry**	1	4/29/2014 01:44 PM
Aroclor 1248	ND		0.093	mg/Kg-dry	1	4/29/2014 01:44 PM
Aroclor 1254	**0.25**		**0.093**	**mg/Kg-dry**	1	4/29/2014 01:44 PM
Aroclor 1260	ND		0.093	mg/Kg-dry	1	4/29/2014 01:44 PM
Surr: Decachlorobiphenyl	*78.1*		*40-140*	*%REC*	1	4/29/2014 01:44 PM
MERCURY BY CVAA			**SW7471**		Prep: SW7471 / 4/30/14	Analyst: **LR**
Mercury	**0.98**		**0.11**	**mg/Kg-dry**	5	4/30/2014 06:25 PM
METALS BY ICP-MS			**SW6020A**		Prep: SW3050B / 4/29/14	Analyst: **ML**
Aluminum	**200,000**		**4,600**	**mg/Kg-dry**	5000	5/2/2014 01:34 PM
Antimony	ND		230	mg/Kg-dry	500	5/1/2014 04:50 PM
Arsenic	ND		230	mg/Kg-dry	500	5/1/2014 04:50 PM
Barium	ND		230	mg/Kg-dry	500	5/1/2014 04:50 PM
Beryllium	ND		91	mg/Kg-dry	500	5/1/2014 04:50 PM
Cadmium	ND		91	mg/Kg-dry	500	5/1/2014 04:50 PM
Calcium	**26,000**		**23,000**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
Chromium	**380**		**230**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
Cobalt	ND		230	mg/Kg-dry	500	5/1/2014 04:50 PM
Copper	**6,200**		**230**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
Iron	**30,000**		**3,700**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
Lead	**350**		**230**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
Magnesium	**12,000**		**9,100**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
Manganese	**1,400**		**230**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
Nickel	ND		230	mg/Kg-dry	500	5/1/2014 04:50 PM
Potassium	**64,000**		**9,100**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
Selenium	ND		230	mg/Kg-dry	500	5/1/2014 04:50 PM
Silver	ND		230	mg/Kg-dry	500	5/1/2014 04:50 PM
Sodium	**79,000**		**9,100**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
Thallium	ND		230	mg/Kg-dry	500	5/1/2014 04:50 PM
Vanadium	ND		230	mg/Kg-dry	500	5/1/2014 04:50 PM
Zinc	**29,000**		**460**	**mg/Kg-dry**	500	5/1/2014 04:50 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep: SW3541 / 4/28/14	Analyst: **RM**
1,1`-Biphenyl	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
2,4,5-Trichlorophenol	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
2,4,6-Trichlorophenol	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS02-04242014
Lab ID: 14041301-02
Collection Date: 4/24/2014 03:40 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
2,4-Dichlorophenol	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
2,4-Dimethylphenol	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
2,4-Dinitrophenol	ND		3.7	mg/Kg-dry	1	4/30/2014 08:42 PM
2,4-Dinitrotoluene	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
2,6-Dinitrotoluene	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
2-Chloronaphthalene	ND		0.037	mg/Kg-dry	1	4/30/2014 08:42 PM
2-Chlorophenol	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
2-Methylnaphthalene	ND		0.037	mg/Kg-dry	1	4/30/2014 08:42 PM
2-Methylphenol	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
2-Nitroaniline	ND		3.7	mg/Kg-dry	1	4/30/2014 08:42 PM
2-Nitrophenol	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
3,3´-Dichlorobenzidine	ND		3.7	mg/Kg-dry	1	4/30/2014 08:42 PM
3-Nitroaniline	ND		3.7	mg/Kg-dry	1	4/30/2014 08:42 PM
4,6-Dinitro-2-methylphenol	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
4-Bromophenyl phenyl ether	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
4-Chloro-3-methylphenol	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
4-Chloroaniline	ND		3.7	mg/Kg-dry	1	4/30/2014 08:42 PM
4-Chlorophenyl phenyl ether	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
4-Methylphenol	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
4-Nitroaniline	ND		3.7	mg/Kg-dry	1	4/30/2014 08:42 PM
4-Nitrophenol	ND		3.7	mg/Kg-dry	1	4/30/2014 08:42 PM
Acenaphthene	ND		0.037	mg/Kg-dry	1	4/30/2014 08:42 PM
Acenaphthylene	**0.58**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Acetophenone	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
Anthracene	**1.4**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Atrazine	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
Benzaldehyde	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
Benzo(a)anthracene	**7.3**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Benzo(a)pyrene	**4.1**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Benzo(b)fluoranthene	**11**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Benzo(g,h,i)perylene	**10**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Benzo(k)fluoranthene	**9.1**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Bis(2-chloroethoxy)methane	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Bis(2-chloroethyl)ether	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Bis(2-chloroisopropyl)ether	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Bis(2-ethylhexyl)phthalate	**8.5**		**1.8**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Butyl benzyl phthalate	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Caprolactam	**4.8**		**1.8**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Carbazole	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Chrysene	**12**		**0.37**	**mg/Kg-dry**	10	5/2/2014 01:17 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS02-04242014
Lab ID: 14041301-02
Collection Date: 4/24/2014 03:40 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibenzo(a,h)anthracene	**1.6**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Dibenzofuran	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Diethyl phthalate	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
Dimethyl phthalate	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
Di-n-butyl phthalate	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
Di-n-octyl phthalate	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Fluoranthene	**39**		**0.37**	**mg/Kg-dry**	10	5/2/2014 01:17 AM
Fluorene	**0.51**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Hexachlorobenzene	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Hexachlorobutadiene	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Hexachlorocyclopentadiene	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
Hexachloroethane	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Indeno(1,2,3-cd)pyrene	**10**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Isophorone	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Naphthalene	**0.15**		**0.037**	**mg/Kg-dry**	1	4/30/2014 08:42 PM
Nitrobenzene	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
N-Nitrosodi-n-propylamine	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
N-Nitrosodiphenylamine	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Pentachlorophenol	ND		1.8	mg/Kg-dry	1	4/30/2014 08:42 PM
Phenanthrene	**26**		**0.37**	**mg/Kg-dry**	10	5/2/2014 01:17 AM
Phenol	ND		0.89	mg/Kg-dry	1	4/30/2014 08:42 PM
Pyrene	**34**		**0.37**	**mg/Kg-dry**	10	5/2/2014 01:17 AM
Surr: 2,4,6-Tribromophenol	*89.6*		*34-140*	*%REC*	1	4/30/2014 08:42 PM
Surr: 2-Fluorobiphenyl	*86.0*		*12-100*	*%REC*	1	4/30/2014 08:42 PM
Surr: 2-Fluorophenol	*92.6*		*33-117*	*%REC*	1	4/30/2014 08:42 PM
Surr: 4-Terphenyl-d14	*113*		*25-137*	*%REC*	1	4/30/2014 08:42 PM
Surr: Nitrobenzene-d5	*84.8*		*37-107*	*%REC*	1	4/30/2014 08:42 PM
Surr: Phenol-d6	*94.5*		*40-106*	*%REC*	1	4/30/2014 08:42 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 4/28/14	Analyst: **RS**
1,1,1-Trichloroethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,1,2,2-Tetrachloroethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,1,2-Trichloroethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,1,2-Trichlorotrifluoroethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,1-Dichloroethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,1-Dichloroethene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,2,4-Trichlorobenzene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,2-Dibromo-3-chloropropane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,2-Dibromoethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,2-Dichlorobenzene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,2-Dichloroethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS02-04242014
Lab ID: 14041301-02
Collection Date: 4/24/2014 03:40 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,2-Dichloropropane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,3-Dichlorobenzene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
1,4-Dichlorobenzene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
2-Butanone	ND		0.46	mg/Kg-dry	1	5/1/2014 06:22 PM
2-Hexanone	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
4-Methyl-2-pentanone	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Acetone	**0.51**		**0.23**	**mg/Kg-dry**	1	5/1/2014 06:22 PM
Benzene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Bromodichloromethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Bromoform	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Bromomethane	ND		0.17	mg/Kg-dry	1	5/1/2014 06:22 PM
Carbon disulfide	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Carbon tetrachloride	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Chlorobenzene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Chloroethane	ND		0.23	mg/Kg-dry	1	5/1/2014 06:22 PM
Chloroform	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Chloromethane	ND		0.23	mg/Kg-dry	1	5/1/2014 06:22 PM
cis-1,2-Dichloroethene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
cis-1,3-Dichloropropene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Cyclohexane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Dibromochloromethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Dichlorodifluoromethane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Ethylbenzene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Isopropylbenzene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Methyl acetate	ND		0.46	mg/Kg-dry	1	5/1/2014 06:22 PM
Methyl tert-butyl ether	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Methylcyclohexane	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Methylene chloride	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Styrene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Tetrachloroethene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Toluene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
trans-1,2-Dichloroethene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
trans-1,3-Dichloropropene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Trichloroethene	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Trichlorofluoromethane	**0.92**		**0.068**	**mg/Kg-dry**	1	5/1/2014 06:22 PM
Vinyl chloride	ND		0.068	mg/Kg-dry	1	5/1/2014 06:22 PM
Xylenes, Total	ND		0.21	mg/Kg-dry	1	5/1/2014 06:22 PM
Surr: 1,2-Dichloroethane-d4	*98.3*		*70-130*	*%REC*	1	5/1/2014 06:22 PM
Surr: 4-Bromofluorobenzene	*99.0*		*70-130*	*%REC*	1	5/1/2014 06:22 PM
Surr: Dibromofluoromethane	*91.0*		*70-130*	*%REC*	1	5/1/2014 06:22 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS02-04242014
Lab ID: 14041301-02
Collection Date: 4/24/2014 03:40 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Toluene-d8	*100*		*70-130*	*%REC*	1	5/1/2014 06:22 PM
CYANIDE, TOTAL			**SW9012A**		Prep: SW9012A / 4/30/14	Analyst: **JB**
Cyanide, Total	**0.58**		**0.57**	**mg/Kg-dry**	1	4/30/2014 02:40 PM
FLASHPOINT, OPEN-CUP			**D92**			Analyst: **RLF**
Flashpoint, Open-cup	**>200**			**°F**	1	4/29/2014 08:45 AM
MOISTURE			**A2540 G**			Analyst: **AT**
Moisture	**12**		**0.050**	**% of sample**	1	4/25/2014 12:50 PM
PH			**SW9045D**		Prep: EXTRACT / 4/25/14	Analyst: **AT**
pH	**7.5**			**s.u.**	1	4/25/2014 04:00 PM
SULFIDE			**SW9034**		Prep: SW9030 / 4/29/14	Analyst: **EE**
Sulfide (Acid Soluble)	ND		110	mg/Kg-dry	1	4/29/2014 03:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS03-04242014
Lab ID: 14041301-03
Collection Date: 4/24/2014 03:45 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**		Prep: SW3541 / 4/28/14	Analyst: **JD**
Aroclor 1016	ND		0.11	mg/Kg-dry	1	4/29/2014 02:00 PM
Aroclor 1221	ND		0.11	mg/Kg-dry	1	4/29/2014 02:00 PM
Aroclor 1232	ND		0.11	mg/Kg-dry	1	4/29/2014 02:00 PM
Aroclor 1242	**0.88**		**0.11**	**mg/Kg-dry**	1	4/29/2014 02:00 PM
Aroclor 1248	ND		0.11	mg/Kg-dry	1	4/29/2014 02:00 PM
Aroclor 1254	**0.26**		**0.11**	**mg/Kg-dry**	1	4/29/2014 02:00 PM
Aroclor 1260	ND		0.11	mg/Kg-dry	1	4/29/2014 02:00 PM
Surr: Decachlorobiphenyl	*83.1*		*40-140*	*%REC*	1	4/29/2014 02:00 PM
MERCURY BY CVAA			**SW7471**		Prep: SW7471 / 4/30/14	Analyst: **LR**
Mercury	**0.26**		**0.12**	**mg/Kg-dry**	5	4/30/2014 06:28 PM
METALS BY ICP-MS			**SW6020A**		Prep: SW3050B / 4/29/14	Analyst: **ML**
Aluminum	**170,000**		**500**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
Antimony	ND		250	mg/Kg-dry	500	5/1/2014 06:29 PM
Arsenic	ND		250	mg/Kg-dry	500	5/1/2014 06:29 PM
Barium	ND		250	mg/Kg-dry	500	5/1/2014 06:29 PM
Beryllium	ND		100	mg/Kg-dry	500	5/1/2014 06:29 PM
Cadmium	ND		100	mg/Kg-dry	500	5/1/2014 06:29 PM
Calcium	ND		25,000	mg/Kg-dry	500	5/1/2014 06:29 PM
Chromium	**330**		**250**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
Cobalt	ND		250	mg/Kg-dry	500	5/1/2014 06:29 PM
Copper	**5,400**		**250**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
Iron	**32,000**		**4,000**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
Lead	**280**		**250**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
Magnesium	**12,000**		**10,000**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
Manganese	**1,200**		**250**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
Nickel	ND		250	mg/Kg-dry	500	5/1/2014 06:29 PM
Potassium	**30,000**		**10,000**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
Selenium	ND		250	mg/Kg-dry	500	5/1/2014 06:29 PM
Silver	ND		250	mg/Kg-dry	500	5/1/2014 06:29 PM
Sodium	**40,000**		**10,000**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
Thallium	ND		250	mg/Kg-dry	500	5/1/2014 06:29 PM
Vanadium	ND		250	mg/Kg-dry	500	5/1/2014 06:29 PM
Zinc	**48,000**		**500**	**mg/Kg-dry**	500	5/1/2014 06:29 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep: SW3541 / 4/28/14	Analyst: **RM**
1,1`-Biphenyl	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
2,4,5-Trichlorophenol	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
2,4,6-Trichlorophenol	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS03-04242014
Lab ID: 14041301-03
Collection Date: 4/24/2014 03:45 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
2,4-Dichlorophenol	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
2,4-Dimethylphenol	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
2,4-Dinitrophenol	ND		2.5	mg/Kg-dry	1	4/30/2014 09:02 PM
2,4-Dinitrotoluene	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
2,6-Dinitrotoluene	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
2-Chloronaphthalene	ND		0.026	mg/Kg-dry	1	4/30/2014 09:02 PM
2-Chlorophenol	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
2-Methylnaphthalene	**0.15**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
2-Methylphenol	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
2-Nitroaniline	ND		2.5	mg/Kg-dry	1	4/30/2014 09:02 PM
2-Nitrophenol	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
3,3´-Dichlorobenzidine	ND		2.5	mg/Kg-dry	1	4/30/2014 09:02 PM
3-Nitroaniline	ND		2.5	mg/Kg-dry	1	4/30/2014 09:02 PM
4,6-Dinitro-2-methylphenol	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
4-Bromophenyl phenyl ether	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
4-Chloro-3-methylphenol	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
4-Chloroaniline	ND		2.5	mg/Kg-dry	1	4/30/2014 09:02 PM
4-Chlorophenyl phenyl ether	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
4-Methylphenol	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
4-Nitroaniline	ND		2.5	mg/Kg-dry	1	4/30/2014 09:02 PM
4-Nitrophenol	ND		2.5	mg/Kg-dry	1	4/30/2014 09:02 PM
Acenaphthene	ND		0.026	mg/Kg-dry	1	4/30/2014 09:02 PM
Acenaphthylene	ND		0.026	mg/Kg-dry	1	4/30/2014 09:02 PM
Acetophenone	**1.5**		**1.3**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Anthracene	**0.12**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Atrazine	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
Benzaldehyde	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
Benzo(a)anthracene	**0.16**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Benzo(a)pyrene	**0.24**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Benzo(b)fluoranthene	**0.31**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Benzo(g,h,i)perylene	**0.22**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Benzo(k)fluoranthene	**0.19**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Bis(2-chloroethoxy)methane	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Bis(2-chloroethyl)ether	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Bis(2-chloroisopropyl)ether	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Bis(2-ethylhexyl)phthalate	**36**		**13**	**mg/Kg-dry**	10	5/2/2014 01:37 AM
Butyl benzyl phthalate	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Caprolactam	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
Carbazole	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Chrysene	**0.17**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS03-04242014
Lab ID: 14041301-03
Collection Date: 4/24/2014 03:45 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibenzo(a,h)anthracene	ND		0.026	mg/Kg-dry	1	4/30/2014 09:02 PM
Dibenzofuran	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Diethyl phthalate	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
Dimethyl phthalate	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
Di-n-butyl phthalate	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
Di-n-octyl phthalate	**2.1**		**0.61**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Fluoranthene	**0.57**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Fluorene	ND		0.026	mg/Kg-dry	1	4/30/2014 09:02 PM
Hexachlorobenzene	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Hexachlorobutadiene	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Hexachlorocyclopentadiene	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
Hexachloroethane	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Indeno(1,2,3-cd)pyrene	**0.39**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Isophorone	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Naphthalene	**0.076**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Nitrobenzene	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
N-Nitrosodi-n-propylamine	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
N-Nitrosodiphenylamine	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Pentachlorophenol	ND		1.3	mg/Kg-dry	1	4/30/2014 09:02 PM
Phenanthrene	**0.28**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Phenol	ND		0.61	mg/Kg-dry	1	4/30/2014 09:02 PM
Pyrene	**0.39**		**0.026**	**mg/Kg-dry**	1	4/30/2014 09:02 PM
Surr: 2,4,6-Tribromophenol	*77.4*		*34-140*	*%REC*	1	4/30/2014 09:02 PM
Surr: 2-Fluorobiphenyl	*82.0*		*12-100*	*%REC*	1	4/30/2014 09:02 PM
Surr: 2-Fluorophenol	*81.7*		*33-117*	*%REC*	1	4/30/2014 09:02 PM
Surr: 4-Terphenyl-d14	*99.3*		*25-137*	*%REC*	1	4/30/2014 09:02 PM
Surr: Nitrobenzene-d5	*81.0*		*37-107*	*%REC*	1	4/30/2014 09:02 PM
Surr: Phenol-d6	*86.3*		*40-106*	*%REC*	1	4/30/2014 09:02 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 4/28/14	Analyst: **RS**
1,1,1-Trichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,1,2,2-Tetrachloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,1,2-Trichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,1,2-Trichlorotrifluoroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,1-Dichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,1-Dichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,2,4-Trichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,2-Dibromo-3-chloropropane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,2-Dibromoethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,2-Dichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,2-Dichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS03-04242014
Lab ID: 14041301-03
Collection Date: 4/24/2014 03:45 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,2-Dichloropropane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,3-Dichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
1,4-Dichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
2-Butanone	ND		0.26	mg/Kg-dry	1	5/1/2014 06:48 PM
2-Hexanone	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
4-Methyl-2-pentanone	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Acetone	**0.14**		**0.13**	**mg/Kg-dry**	1	5/1/2014 06:48 PM
Benzene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Bromodichloromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Bromoform	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Bromomethane	ND		0.099	mg/Kg-dry	1	5/1/2014 06:48 PM
Carbon disulfide	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Carbon tetrachloride	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Chlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Chloroethane	ND		0.13	mg/Kg-dry	1	5/1/2014 06:48 PM
Chloroform	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Chloromethane	ND		0.13	mg/Kg-dry	1	5/1/2014 06:48 PM
cis-1,2-Dichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
cis-1,3-Dichloropropene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Cyclohexane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Dibromochloromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Dichlorodifluoromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Ethylbenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Isopropylbenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Methyl acetate	ND		0.26	mg/Kg-dry	1	5/1/2014 06:48 PM
Methyl tert-butyl ether	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Methylcyclohexane	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Methylene chloride	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Styrene	**0.059**		**0.040**	**mg/Kg-dry**	1	5/1/2014 06:48 PM
Tetrachloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Toluene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
trans-1,2-Dichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
trans-1,3-Dichloropropene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Trichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Trichlorofluoromethane	**3.4**		**0.040**	**mg/Kg-dry**	1	5/1/2014 06:48 PM
Vinyl chloride	ND		0.040	mg/Kg-dry	1	5/1/2014 06:48 PM
Xylenes, Total	ND		0.12	mg/Kg-dry	1	5/1/2014 06:48 PM
Surr: 1,2-Dichloroethane-d4	*99.0*		*70-130*	*%REC*	1	5/1/2014 06:48 PM
Surr: 4-Bromofluorobenzene	*97.2*		*70-130*	*%REC*	1	5/1/2014 06:48 PM
Surr: Dibromofluoromethane	*93.1*		*70-130*	*%REC*	1	5/1/2014 06:48 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS03-04242014
Lab ID: 14041301-03
Collection Date: 4/24/2014 03:45 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Toluene-d8	*98.5*		*70-130*	*%REC*	1	5/1/2014 06:48 PM
CYANIDE, TOTAL			**SW9012A**		Prep: SW9012A / 4/30/14	Analyst: **JB**
Cyanide, Total	ND		0.65	mg/Kg-dry	1	4/30/2014 02:40 PM
FLASHPOINT, OPEN-CUP			**D92**			Analyst: **RLF**
Flashpoint, Open-cup	**>200**			**°F**	1	4/29/2014 08:45 AM
MOISTURE			**A2540 G**			Analyst: **AT**
Moisture	**24**		**0.050**	**% of sample**	1	4/25/2014 12:50 PM
PH			**SW9045D**		Prep: EXTRACT / 4/25/14	Analyst: **AT**
pH	**8.5**			**s.u.**	1	4/25/2014 04:00 PM
SULFIDE			**SW9034**		Prep: SW9030 / 4/29/14	Analyst: **EE**
Sulfide (Acid Soluble)	ND		130	mg/Kg-dry	1	4/29/2014 03:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS04-04242014
Lab ID: 14041301-04
Collection Date: 4/24/2014 03:50 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**		Prep: SW3541 / 4/28/14	Analyst: **JD**
Aroclor 1016	ND		0.11	mg/Kg-dry	1	4/29/2014 02:16 PM
Aroclor 1221	ND		0.11	mg/Kg-dry	1	4/29/2014 02:16 PM
Aroclor 1232	ND		0.11	mg/Kg-dry	1	4/29/2014 02:16 PM
Aroclor 1242	ND		0.11	mg/Kg-dry	1	4/29/2014 02:16 PM
Aroclor 1248	ND		0.11	mg/Kg-dry	1	4/29/2014 02:16 PM
Aroclor 1254	ND		0.11	mg/Kg-dry	1	4/29/2014 02:16 PM
Aroclor 1260	ND		0.11	mg/Kg-dry	1	4/29/2014 02:16 PM
Surr: Decachlorobiphenyl	*90.1*		*40-140*	*%REC*	1	4/29/2014 02:16 PM
MERCURY BY CVAA			**SW7471**		Prep: SW7471 / 4/30/14	Analyst: **CES**
Mercury	**0.043**		**0.025**	**mg/Kg-dry**	1	5/4/2014 04:48 PM
METALS BY ICP-MS			**SW6020A**		Prep: SW3050B / 4/29/14	Analyst: **ML**
Aluminum	**170,000**		**48**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Antimony	**24**		**24**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Arsenic	ND		24	mg/Kg-dry	50	5/1/2014 06:34 PM
Barium	**130**		**24**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Beryllium	ND		9.5	mg/Kg-dry	50	5/1/2014 06:34 PM
Cadmium	ND		9.5	mg/Kg-dry	50	5/1/2014 06:34 PM
Calcium	**34,000**		**2,400**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Chromium	**440**		**24**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Cobalt	ND		24	mg/Kg-dry	50	5/1/2014 06:34 PM
Copper	**6,600**		**24**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Iron	**24,000**		**380**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Lead	**260**		**24**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Magnesium	**9,700**		**950**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Manganese	**1,300**		**24**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Nickel	**270**		**24**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Potassium	**32,000**		**950**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Selenium	ND		24	mg/Kg-dry	50	5/1/2014 06:34 PM
Silver	ND		24	mg/Kg-dry	50	5/1/2014 06:34 PM
Sodium	**45,000**		**950**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Thallium	ND		24	mg/Kg-dry	50	5/1/2014 06:34 PM
Vanadium	**26**		**24**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
Zinc	**5,200**		**48**	**mg/Kg-dry**	50	5/1/2014 06:34 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep: SW3541 / 4/28/14	Analyst: **RM**
1,1`-Biphenyl	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
2,4,5-Trichlorophenol	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
2,4,6-Trichlorophenol	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS04-04242014
Lab ID: 14041301-04
Collection Date: 4/24/2014 03:50 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
2,4-Dichlorophenol	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
2,4-Dimethylphenol	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
2,4-Dinitrophenol	ND		2.5	mg/Kg-dry	1	4/30/2014 09:23 PM
2,4-Dinitrotoluene	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
2,6-Dinitrotoluene	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
2-Chloronaphthalene	ND		0.025	mg/Kg-dry	1	4/30/2014 09:23 PM
2-Chlorophenol	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
2-Methylnaphthalene	ND		0.025	mg/Kg-dry	1	4/30/2014 09:23 PM
2-Methylphenol	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
2-Nitroaniline	ND		2.5	mg/Kg-dry	1	4/30/2014 09:23 PM
2-Nitrophenol	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
3,3´-Dichlorobenzidine	ND		2.5	mg/Kg-dry	1	4/30/2014 09:23 PM
3-Nitroaniline	ND		2.5	mg/Kg-dry	1	4/30/2014 09:23 PM
4,6-Dinitro-2-methylphenol	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
4-Bromophenyl phenyl ether	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
4-Chloro-3-methylphenol	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
4-Chloroaniline	ND		2.5	mg/Kg-dry	1	4/30/2014 09:23 PM
4-Chlorophenyl phenyl ether	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
4-Methylphenol	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
4-Nitroaniline	ND		2.5	mg/Kg-dry	1	4/30/2014 09:23 PM
4-Nitrophenol	ND		2.5	mg/Kg-dry	1	4/30/2014 09:23 PM
Acenaphthene	ND		0.025	mg/Kg-dry	1	4/30/2014 09:23 PM
Acenaphthylene	ND		0.025	mg/Kg-dry	1	4/30/2014 09:23 PM
Acetophenone	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Anthracene	**0.15**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Atrazine	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Benzaldehyde	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Benzo(a)anthracene	**0.20**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Benzo(a)pyrene	**0.23**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Benzo(b)fluoranthene	**0.38**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Benzo(g,h,i)perylene	**0.25**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Benzo(k)fluoranthene	**0.19**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Bis(2-chloroethoxy)methane	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Bis(2-chloroethyl)ether	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Bis(2-chloroisopropyl)ether	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Bis(2-ethylhexyl)phthalate	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Butyl benzyl phthalate	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Caprolactam	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Carbazole	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Chrysene	**0.28**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS04-04242014
Lab ID: 14041301-04
Collection Date: 4/24/2014 03:50 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibenzo(a,h)anthracene	ND		0.025	mg/Kg-dry	1	4/30/2014 09:23 PM
Dibenzofuran	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Diethyl phthalate	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Dimethyl phthalate	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Di-n-butyl phthalate	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Di-n-octyl phthalate	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Fluoranthene	**0.77**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Fluorene	ND		0.025	mg/Kg-dry	1	4/30/2014 09:23 PM
Hexachlorobenzene	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Hexachlorobutadiene	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Hexachlorocyclopentadiene	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Hexachloroethane	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Indeno(1,2,3-cd)pyrene	**0.31**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Isophorone	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Naphthalene	ND		0.025	mg/Kg-dry	1	4/30/2014 09:23 PM
Nitrobenzene	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
N-Nitrosodi-n-propylamine	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
N-Nitrosodiphenylamine	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Pentachlorophenol	ND		1.2	mg/Kg-dry	1	4/30/2014 09:23 PM
Phenanthrene	**0.39**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Phenol	ND		0.60	mg/Kg-dry	1	4/30/2014 09:23 PM
Pyrene	**0.54**		**0.025**	**mg/Kg-dry**	1	4/30/2014 09:23 PM
Surr: 2,4,6-Tribromophenol	*88.3*		*34-140*	*%REC*	1	4/30/2014 09:23 PM
Surr: 2-Fluorobiphenyl	*74.7*		*12-100*	*%REC*	1	4/30/2014 09:23 PM
Surr: 2-Fluorophenol	*73.4*		*33-117*	*%REC*	1	4/30/2014 09:23 PM
Surr: 4-Terphenyl-d14	*104*		*25-137*	*%REC*	1	4/30/2014 09:23 PM
Surr: Nitrobenzene-d5	*69.6*		*37-107*	*%REC*	1	4/30/2014 09:23 PM
Surr: Phenol-d6	*73.4*		*40-106*	*%REC*	1	4/30/2014 09:23 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 4/28/14	Analyst: **RS**
1,1,1-Trichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,1,2,2-Tetrachloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,1,2-Trichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,1,2-Trichlorotrifluoroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,1-Dichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,1-Dichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,2,4-Trichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,2-Dibromo-3-chloropropane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,2-Dibromoethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,2-Dichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,2-Dichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS04-04242014
Lab ID: 14041301-04
Collection Date: 4/24/2014 03:50 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,2-Dichloropropane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,3-Dichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
1,4-Dichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
2-Butanone	ND		0.27	mg/Kg-dry	1	5/1/2014 07:14 PM
2-Hexanone	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
4-Methyl-2-pentanone	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Acetone	ND		0.13	mg/Kg-dry	1	5/1/2014 07:14 PM
Benzene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Bromodichloromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Bromoform	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Bromomethane	ND		0.099	mg/Kg-dry	1	5/1/2014 07:14 PM
Carbon disulfide	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Carbon tetrachloride	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Chlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Chloroethane	ND		0.13	mg/Kg-dry	1	5/1/2014 07:14 PM
Chloroform	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Chloromethane	ND		0.13	mg/Kg-dry	1	5/1/2014 07:14 PM
cis-1,2-Dichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
cis-1,3-Dichloropropene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Cyclohexane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Dibromochloromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Dichlorodifluoromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Ethylbenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Isopropylbenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Methyl acetate	ND		0.27	mg/Kg-dry	1	5/1/2014 07:14 PM
Methyl tert-butyl ether	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Methylcyclohexane	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Methylene chloride	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Styrene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Tetrachloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Toluene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
trans-1,2-Dichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
trans-1,3-Dichloropropene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Trichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Trichlorofluoromethane	**0.77**		**0.040**	**mg/Kg-dry**	1	5/1/2014 07:14 PM
Vinyl chloride	ND		0.040	mg/Kg-dry	1	5/1/2014 07:14 PM
Xylenes, Total	ND		0.12	mg/Kg-dry	1	5/1/2014 07:14 PM
Surr: 1,2-Dichloroethane-d4	*98.0*		*70-130*	*%REC*	1	5/1/2014 07:14 PM
Surr: 4-Bromofluorobenzene	*98.8*		*70-130*	*%REC*	1	5/1/2014 07:14 PM
Surr: Dibromofluoromethane	*91.1*		*70-130*	*%REC*	1	5/1/2014 07:14 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS04-04242014
Lab ID: 14041301-04
Collection Date: 4/24/2014 03:50 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Toluene-d8	*99.7*		*70-130*	*%REC*	1	5/1/2014 07:14 PM
CYANIDE, TOTAL			**SW9012A**		Prep: SW9012A / 4/30/14	Analyst: **JB**
Cyanide, Total	ND		0.67	mg/Kg-dry	1	4/30/2014 02:40 PM
FLASHPOINT, OPEN-CUP			**D92**			Analyst: **RLF**
Flashpoint, Open-cup	**>200**			**°F**	1	4/29/2014 08:45 AM
MOISTURE			**A2540 G**			Analyst: **AT**
Moisture	**25**		**0.050**	**% of sample**	1	4/25/2014 12:50 PM
PH			**SW9045D**		Prep: EXTRACT / 4/25/14	Analyst: **AT**
pH	**8.4**			**s.u.**	1	4/25/2014 04:00 PM
SULFIDE			**SW9034**		Prep: SW9030 / 4/29/14	Analyst: **EE**
Sulfide (Acid Soluble)	ND		130	mg/Kg-dry	1	4/29/2014 03:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS05-04242014
Lab ID: 14041301-05
Collection Date: 4/24/2014 03:55 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**		Prep: SW3541 / 4/28/14	Analyst: **JD**
Aroclor 1016	ND		0.13	mg/Kg-dry	1	4/29/2014 02:32 PM
Aroclor 1221	ND		0.13	mg/Kg-dry	1	4/29/2014 02:32 PM
Aroclor 1232	ND		0.13	mg/Kg-dry	1	4/29/2014 02:32 PM
Aroclor 1242	**0.32**		**0.13**	**mg/Kg-dry**	1	4/29/2014 02:32 PM
Aroclor 1248	ND		0.13	mg/Kg-dry	1	4/29/2014 02:32 PM
Aroclor 1254	**0.15**		**0.13**	**mg/Kg-dry**	1	4/29/2014 02:32 PM
Aroclor 1260	ND		0.13	mg/Kg-dry	1	4/29/2014 02:32 PM
Surr: Decachlorobiphenyl	*79.1*		*40-140*	*%REC*	1	4/29/2014 02:32 PM
MERCURY BY CVAA			**SW7471**		Prep: SW7471 / 4/30/14	Analyst: **LR**
Mercury	**1.3**		**0.15**	**mg/Kg-dry**	5	4/30/2014 06:32 PM
METALS BY ICP-MS			**SW6020A**		Prep: SW3050B / 4/29/14	Analyst: **ML**
Aluminum	**180,000**		**56**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Antimony	**42**		**28**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Arsenic	ND		28	mg/Kg-dry	50	5/1/2014 06:40 PM
Barium	**250**		**28**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Beryllium	ND		11	mg/Kg-dry	50	5/1/2014 06:40 PM
Cadmium	**46**		**11**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Calcium	**49,000**		**2,800**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Chromium	**450**		**28**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Cobalt	ND		28	mg/Kg-dry	50	5/1/2014 06:40 PM
Copper	**5,700**		**28**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Iron	**17,000**		**450**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Lead	**420**		**28**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Magnesium	**18,000**		**1,100**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Manganese	**1,700**		**28**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Nickel	**260**		**28**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Potassium	**53,000**		**1,100**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Selenium	ND		28	mg/Kg-dry	50	5/1/2014 06:40 PM
Silver	ND		28	mg/Kg-dry	50	5/1/2014 06:40 PM
Sodium	**66,000**		**1,100**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Thallium	ND		28	mg/Kg-dry	50	5/1/2014 06:40 PM
Vanadium	**36**		**28**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
Zinc	**5,800**		**56**	**mg/Kg-dry**	50	5/1/2014 06:40 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep: SW3541 / 4/29/14	Analyst: **RM**
1,1`-Biphenyl	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
2,4,5-Trichlorophenol	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
2,4,6-Trichlorophenol	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS05-04242014
Lab ID: 14041301-05
Collection Date: 4/24/2014 03:55 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
2,4-Dichlorophenol	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
2,4-Dimethylphenol	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
2,4-Dinitrophenol	ND		40	mg/Kg-dry	5	4/29/2014 10:25 PM
2,4-Dinitrotoluene	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
2,6-Dinitrotoluene	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
2-Chloronaphthalene	ND		0.41	mg/Kg-dry	5	4/29/2014 10:25 PM
2-Chlorophenol	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
2-Methylnaphthalene	ND		0.41	mg/Kg-dry	5	4/29/2014 10:25 PM
2-Methylphenol	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
2-Nitroaniline	ND		40	mg/Kg-dry	5	4/29/2014 10:25 PM
2-Nitrophenol	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
3,3´-Dichlorobenzidine	ND		40	mg/Kg-dry	5	4/29/2014 10:25 PM
3-Nitroaniline	ND		40	mg/Kg-dry	5	4/29/2014 10:25 PM
4,6-Dinitro-2-methylphenol	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
4-Bromophenyl phenyl ether	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
4-Chloro-3-methylphenol	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
4-Chloroaniline	ND		40	mg/Kg-dry	5	4/29/2014 10:25 PM
4-Chlorophenyl phenyl ether	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
4-Methylphenol	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
4-Nitroaniline	ND		40	mg/Kg-dry	5	4/29/2014 10:25 PM
4-Nitrophenol	ND		40	mg/Kg-dry	5	4/29/2014 10:25 PM
Acenaphthene	ND		0.41	mg/Kg-dry	5	4/29/2014 10:25 PM
Acenaphthylene	ND		0.41	mg/Kg-dry	5	4/29/2014 10:25 PM
Acetophenone	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Anthracene	**2.2**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Atrazine	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Benzaldehyde	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Benzo(a)anthracene	**5.6**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Benzo(a)pyrene	**3.8**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Benzo(b)fluoranthene	**12**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Benzo(g,h,i)perylene	**6.5**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Benzo(k)fluoranthene	**4.6**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Bis(2-chloroethoxy)methane	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Bis(2-chloroethyl)ether	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Bis(2-chloroisopropyl)ether	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Bis(2-ethylhexyl)phthalate	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Butyl benzyl phthalate	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Caprolactam	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Carbazole	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Chrysene	**10**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS05-04242014
Lab ID: 14041301-05
Collection Date: 4/24/2014 03:55 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibenzo(a,h)anthracene	**2.6**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Dibenzofuran	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Diethyl phthalate	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Dimethyl phthalate	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Di-n-butyl phthalate	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Di-n-octyl phthalate	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Fluoranthene	**20**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Fluorene	ND		0.41	mg/Kg-dry	5	4/29/2014 10:25 PM
Hexachlorobenzene	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Hexachlorobutadiene	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Hexachlorocyclopentadiene	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Hexachloroethane	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Indeno(1,2,3-cd)pyrene	**7.9**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Isophorone	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Naphthalene	ND		0.41	mg/Kg-dry	5	4/29/2014 10:25 PM
Nitrobenzene	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
N-Nitrosodi-n-propylamine	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
N-Nitrosodiphenylamine	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Pentachlorophenol	ND		20	mg/Kg-dry	5	4/29/2014 10:25 PM
Phenanthrene	**12**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Phenol	ND		9.8	mg/Kg-dry	5	4/29/2014 10:25 PM
Pyrene	**15**		**0.41**	**mg/Kg-dry**	5	4/29/2014 10:25 PM
Surr: 2,4,6-Tribromophenol	*140*		*34-140*	*%REC*	5	4/29/2014 10:25 PM
Surr: 2-Fluorobiphenyl	*85.6*		*12-100*	*%REC*	5	4/29/2014 10:25 PM
Surr: 2-Fluorophenol	*100*		*33-117*	*%REC*	5	4/29/2014 10:25 PM
Surr: 4-Terphenyl-d14	*123*		*25-137*	*%REC*	5	4/29/2014 10:25 PM
Surr: Nitrobenzene-d5	*119*	S	*37-107*	*%REC*	5	4/29/2014 10:25 PM
Surr: Phenol-d6	*98.8*		*40-106*	*%REC*	5	4/29/2014 10:25 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 4/28/14	Analyst: **RS**
1,1,1-Trichloroethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,1,2,2-Tetrachloroethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,1,2-Trichloroethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,1,2-Trichlorotrifluoroethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,1-Dichloroethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,1-Dichloroethene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,2,4-Trichlorobenzene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,2-Dibromo-3-chloropropane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,2-Dibromoethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,2-Dichlorobenzene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,2-Dichloroethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS05-04242014
Lab ID: 14041301-05
Collection Date: 4/24/2014 03:55 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,2-Dichloropropane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,3-Dichlorobenzene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
1,4-Dichlorobenzene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
2-Butanone	ND		0.63	mg/Kg-dry	1	5/1/2014 07:40 PM
2-Hexanone	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
4-Methyl-2-pentanone	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Acetone	**0.47**		**0.32**	**mg/Kg-dry**	1	5/1/2014 07:40 PM
Benzene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Bromodichloromethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Bromoform	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Bromomethane	ND		0.24	mg/Kg-dry	1	5/1/2014 07:40 PM
Carbon disulfide	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Carbon tetrachloride	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Chlorobenzene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Chloroethane	ND		0.32	mg/Kg-dry	1	5/1/2014 07:40 PM
Chloroform	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Chloromethane	ND		0.32	mg/Kg-dry	1	5/1/2014 07:40 PM
cis-1,2-Dichloroethene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
cis-1,3-Dichloropropene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Cyclohexane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Dibromochloromethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Dichlorodifluoromethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Ethylbenzene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Isopropylbenzene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Methyl acetate	ND		0.63	mg/Kg-dry	1	5/1/2014 07:40 PM
Methyl tert-butyl ether	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Methylcyclohexane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Methylene chloride	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Styrene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Tetrachloroethene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Toluene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
trans-1,2-Dichloroethene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
trans-1,3-Dichloropropene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Trichloroethene	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Trichlorofluoromethane	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Vinyl chloride	ND		0.095	mg/Kg-dry	1	5/1/2014 07:40 PM
Xylenes, Total	ND		0.28	mg/Kg-dry	1	5/1/2014 07:40 PM
Surr: 1,2-Dichloroethane-d4	*95.5*		*70-130*	*%REC*	1	5/1/2014 07:40 PM
Surr: 4-Bromofluorobenzene	*99.3*		*70-130*	*%REC*	1	5/1/2014 07:40 PM
Surr: Dibromofluoromethane	*92.2*		*70-130*	*%REC*	1	5/1/2014 07:40 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS05-04242014
Lab ID: 14041301-05
Collection Date: 4/24/2014 03:55 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Toluene-d8	*98.0*		*70-130*	*%REC*	1	5/1/2014 07:40 PM
CYANIDE, TOTAL			**SW9012A**		Prep: SW9012A / 4/30/14	Analyst: **JB**
Cyanide, Total	ND		0.81	mg/Kg-dry	1	4/30/2014 02:40 PM
FLASHPOINT, OPEN-CUP			**D92**			Analyst: **RLF**
Flashpoint, Open-cup	**>200**			**°F**	1	4/29/2014 08:45 AM
MOISTURE			**A2540 G**			Analyst: **AT**
Moisture	**38**		**0.050**	**% of sample**	1	4/25/2014 12:50 PM
PH			**SW9045D**		Prep: EXTRACT / 4/25/14	Analyst: **AT**
pH	**7.4**			**s.u.**	1	4/25/2014 04:00 PM
SULFIDE			**SW9034**		Prep: SW9030 / 4/29/14	Analyst: **EE**
Sulfide (Acid Soluble)	ND		160	mg/Kg-dry	1	4/29/2014 03:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-SS01-04242014
Lab ID: 14041301-06
Collection Date: 4/24/2014 04:05 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**		Prep: SW3541 / 4/28/14	Analyst: **JD**
Aroclor 1016	ND		0.092	mg/Kg-dry	1	4/29/2014 02:48 PM
Aroclor 1221	ND		0.092	mg/Kg-dry	1	4/29/2014 02:48 PM
Aroclor 1232	ND		0.092	mg/Kg-dry	1	4/29/2014 02:48 PM
Aroclor 1242	ND		0.092	mg/Kg-dry	1	4/29/2014 02:48 PM
Aroclor 1248	ND		0.092	mg/Kg-dry	1	4/29/2014 02:48 PM
Aroclor 1254	ND		0.092	mg/Kg-dry	1	4/29/2014 02:48 PM
Aroclor 1260	**0.53**		**0.092**	**mg/Kg-dry**	1	4/29/2014 02:48 PM
Surr: Decachlorobiphenyl	*74.1*		*40-140*	*%REC*	1	4/29/2014 02:48 PM
MERCURY BY CVAA			**SW7471**		Prep: SW7471 / 4/30/14	Analyst: **LR**
Mercury	**0.37**		**0.092**	**mg/Kg-dry**	5	4/30/2014 06:35 PM
METALS BY ICP-MS			**SW6020A**		Prep: SW3050B / 4/29/14	Analyst: **ML**
Aluminum	**25,000**		**4.6**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Antimony	**7.5**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Arsenic	**4.5**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Barium	**200**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Beryllium	ND		0.92	mg/Kg-dry	5	5/1/2014 06:46 PM
Cadmium	**5.8**		**0.92**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Calcium	**45,000**		**230**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Chromium	**71**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Cobalt	**4.2**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Copper	**760**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Iron	**24,000**		**37**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Lead	**69**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Magnesium	**9,600**		**92**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Manganese	**730**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Nickel	**37**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Potassium	**1,300**		**92**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Selenium	**3.3**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Silver	ND		2.3	mg/Kg-dry	5	5/2/2014 01:40 PM
Sodium	**760**		**92**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Thallium	ND		2.3	mg/Kg-dry	5	5/1/2014 06:46 PM
Vanadium	**18**		**2.3**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
Zinc	**780**		**4.6**	**mg/Kg-dry**	5	5/1/2014 06:46 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep: SW3541 / 4/29/14	Analyst: **RM**
1,1`-Biphenyl	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
2,4,5-Trichlorophenol	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
2,4,6-Trichlorophenol	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-SS01-04242014
Lab ID: 14041301-06
Collection Date: 4/24/2014 04:05 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
2,4-Dichlorophenol	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
2,4-Dimethylphenol	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
2,4-Dinitrophenol	ND		74	mg/Kg-dry	5	4/29/2014 10:45 PM
2,4-Dinitrotoluene	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
2,6-Dinitrotoluene	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
2-Chloronaphthalene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
2-Chlorophenol	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
2-Methylnaphthalene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
2-Methylphenol	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
2-Nitroaniline	ND		74	mg/Kg-dry	5	4/29/2014 10:45 PM
2-Nitrophenol	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
3,3´-Dichlorobenzidine	ND		74	mg/Kg-dry	5	4/29/2014 10:45 PM
3-Nitroaniline	ND		74	mg/Kg-dry	5	4/29/2014 10:45 PM
4,6-Dinitro-2-methylphenol	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
4-Bromophenyl phenyl ether	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
4-Chloro-3-methylphenol	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
4-Chloroaniline	ND		74	mg/Kg-dry	5	4/29/2014 10:45 PM
4-Chlorophenyl phenyl ether	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
4-Methylphenol	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
4-Nitroaniline	ND		74	mg/Kg-dry	5	4/29/2014 10:45 PM
4-Nitrophenol	ND		74	mg/Kg-dry	5	4/29/2014 10:45 PM
Acenaphthene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Acenaphthylene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Acetophenone	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Anthracene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Atrazine	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Benzaldehyde	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Benzo(a)anthracene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Benzo(a)pyrene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Benzo(b)fluoranthene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Benzo(g,h,i)perylene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Benzo(k)fluoranthene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Bis(2-chloroethoxy)methane	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Bis(2-chloroethyl)ether	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Bis(2-chloroisopropyl)ether	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Bis(2-ethylhexyl)phthalate	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Butyl benzyl phthalate	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Caprolactam	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Carbazole	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Chrysene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-SS01-04242014
Lab ID: 14041301-06
Collection Date: 4/24/2014 04:05 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibenzo(a,h)anthracene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Dibenzofuran	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Diethyl phthalate	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Dimethyl phthalate	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Di-n-butyl phthalate	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Di-n-octyl phthalate	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Fluoranthene	**6.2**		**0.74**	**mg/Kg-dry**	5	4/29/2014 10:45 PM
Fluorene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Hexachlorobenzene	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Hexachlorobutadiene	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Hexachlorocyclopentadiene	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Hexachloroethane	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Indeno(1,2,3-cd)pyrene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Isophorone	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Naphthalene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Nitrobenzene	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
N-Nitrosodi-n-propylamine	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
N-Nitrosodiphenylamine	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Pentachlorophenol	ND		37	mg/Kg-dry	5	4/29/2014 10:45 PM
Phenanthrene	ND		0.74	mg/Kg-dry	5	4/29/2014 10:45 PM
Phenol	ND		18	mg/Kg-dry	5	4/29/2014 10:45 PM
Pyrene	**7.3**		**0.74**	**mg/Kg-dry**	5	4/29/2014 10:45 PM
Surr: 2,4,6-Tribromophenol	*205*	S	*34-140*	*%REC*	5	4/29/2014 10:45 PM
Surr: 2-Fluorobiphenyl	*81.0*		*12-100*	*%REC*	5	4/29/2014 10:45 PM
Surr: 2-Fluorophenol	*103*		*33-117*	*%REC*	5	4/29/2014 10:45 PM
Surr: 4-Terphenyl-d14	*200*	S	*25-137*	*%REC*	5	4/29/2014 10:45 PM
Surr: Nitrobenzene-d5	*164*	S	*37-107*	*%REC*	5	4/29/2014 10:45 PM
Surr: Phenol-d6	*85.0*		*40-106*	*%REC*	5	4/29/2014 10:45 PM
CYANIDE, TOTAL			**SW9012A**		Prep: SW9012A / 4/30/14	Analyst: **JB**
Cyanide, Total	**0.56**		**0.56**	**mg/Kg-dry**	1	4/30/2014 02:40 PM
FLASHPOINT, OPEN-CUP			**D92**			Analyst: **RLF**
Flashpoint, Open-cup	**>200**			**°F**	1	4/29/2014 08:45 AM
MOISTURE			**A2540 G**			Analyst: **AT**
Moisture	**12**		**0.050**	**% of sample**	1	4/25/2014 12:50 PM
PH			**SW9045D**		Prep: EXTRACT / 4/25/14	Analyst: **AT**
pH	**7.9**			**s.u.**	1	4/25/2014 04:00 PM
SULFIDE			**SW9034**		Prep: SW9030 / 4/29/14	Analyst: **EE**
Sulfide (Acid Soluble)	ND		110	mg/Kg-dry	1	4/29/2014 03:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS06-04242014
Lab ID: 14041301-07
Collection Date: 4/24/2014 04:10 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**		Prep: SW3541 / 4/28/14	Analyst: **JD**
Aroclor 1016	ND		0.11	mg/Kg-dry	1	4/29/2014 03:53 PM
Aroclor 1221	ND		0.11	mg/Kg-dry	1	4/29/2014 03:53 PM
Aroclor 1232	ND		0.11	mg/Kg-dry	1	4/29/2014 03:53 PM
Aroclor 1242	ND		0.11	mg/Kg-dry	1	4/29/2014 03:53 PM
Aroclor 1248	ND		0.11	mg/Kg-dry	1	4/29/2014 03:53 PM
Aroclor 1254	ND		0.11	mg/Kg-dry	1	4/29/2014 03:53 PM
Aroclor 1260	ND		0.11	mg/Kg-dry	1	4/29/2014 03:53 PM
Surr: Decachlorobiphenyl	*85.1*		*40-140*	*%REC*	1	4/29/2014 03:53 PM
MERCURY BY CVAA			**SW7471**		Prep: SW7471 / 4/30/14	Analyst: **RH**
Mercury	**0.067**		**0.024**	**mg/Kg-dry**	1	5/1/2014 03:25 PM
METALS BY ICP-MS			**SW6020A**		Prep: SW3050B / 4/29/14	Analyst: **ML**
Aluminum	**250,000**		**51**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Antimony	ND		26	mg/Kg-dry	50	5/1/2014 06:52 PM
Arsenic	ND		26	mg/Kg-dry	50	5/1/2014 06:52 PM
Barium	**1,400**		**26**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Beryllium	ND		10	mg/Kg-dry	50	5/1/2014 06:52 PM
Cadmium	ND		10	mg/Kg-dry	50	5/1/2014 06:52 PM
Calcium	**5,600**		**2,600**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Chromium	**280**		**26**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Cobalt	ND		26	mg/Kg-dry	50	5/1/2014 06:52 PM
Copper	**7,900**		**26**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Iron	**20,000**		**410**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Lead	**610**		**26**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Magnesium	**6,700**		**1,000**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Manganese	**1,300**		**26**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Nickel	**240**		**26**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Potassium	ND		1,000	mg/Kg-dry	50	5/1/2014 06:52 PM
Selenium	ND		26	mg/Kg-dry	50	5/1/2014 06:52 PM
Silver	ND		26	mg/Kg-dry	50	5/1/2014 06:52 PM
Sodium	**3,000**		**1,000**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Thallium	ND		26	mg/Kg-dry	50	5/1/2014 06:52 PM
Vanadium	**39**		**26**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
Zinc	**6,200**		**51**	**mg/Kg-dry**	50	5/1/2014 06:52 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep: SW3541 / 4/29/14	Analyst: **RM**
1,1`-Biphenyl	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
2,4,5-Trichlorophenol	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
2,4,6-Trichlorophenol	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS06-04242014
Lab ID: 14041301-07
Collection Date: 4/24/2014 04:10 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
2,4-Dichlorophenol	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
2,4-Dimethylphenol	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
2,4-Dinitrophenol	ND		1.7	mg/Kg-dry	1	4/29/2014 11:05 PM
2,4-Dinitrotoluene	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
2,6-Dinitrotoluene	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
2-Chloronaphthalene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
2-Chlorophenol	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
2-Methylnaphthalene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
2-Methylphenol	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
2-Nitroaniline	ND		1.7	mg/Kg-dry	1	4/29/2014 11:05 PM
2-Nitrophenol	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
3,3´-Dichlorobenzidine	ND		1.7	mg/Kg-dry	1	4/29/2014 11:05 PM
3-Nitroaniline	ND		1.7	mg/Kg-dry	1	4/29/2014 11:05 PM
4,6-Dinitro-2-methylphenol	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
4-Bromophenyl phenyl ether	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
4-Chloro-3-methylphenol	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
4-Chloroaniline	ND		1.7	mg/Kg-dry	1	4/29/2014 11:05 PM
4-Chlorophenyl phenyl ether	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
4-Methylphenol	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
4-Nitroaniline	ND		1.7	mg/Kg-dry	1	4/29/2014 11:05 PM
4-Nitrophenol	ND		1.7	mg/Kg-dry	1	4/29/2014 11:05 PM
Acenaphthene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
Acenaphthylene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
Acetophenone	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Anthracene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
Atrazine	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Benzaldehyde	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Benzo(a)anthracene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
Benzo(a)pyrene	**0.13**		**0.018**	**mg/Kg-dry**	1	4/29/2014 11:05 PM
Benzo(b)fluoranthene	**0.13**		**0.018**	**mg/Kg-dry**	1	4/29/2014 11:05 PM
Benzo(g,h,i)perylene	**0.090**		**0.018**	**mg/Kg-dry**	1	4/29/2014 11:05 PM
Benzo(k)fluoranthene	**0.098**		**0.018**	**mg/Kg-dry**	1	4/29/2014 11:05 PM
Bis(2-chloroethoxy)methane	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Bis(2-chloroethyl)ether	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Bis(2-chloroisopropyl)ether	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Bis(2-ethylhexyl)phthalate	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Butyl benzyl phthalate	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Caprolactam	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Carbazole	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Chrysene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS06-04242014
Lab ID: 14041301-07
Collection Date: 4/24/2014 04:10 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibenzo(a,h)anthracene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
Dibenzofuran	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Diethyl phthalate	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Dimethyl phthalate	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Di-n-butyl phthalate	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Di-n-octyl phthalate	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Fluoranthene	**0.16**		**0.018**	**mg/Kg-dry**	1	4/29/2014 11:05 PM
Fluorene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
Hexachlorobenzene	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Hexachlorobutadiene	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Hexachlorocyclopentadiene	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Hexachloroethane	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Indeno(1,2,3-cd)pyrene	**0.13**		**0.018**	**mg/Kg-dry**	1	4/29/2014 11:05 PM
Isophorone	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Naphthalene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
Nitrobenzene	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
N-Nitrosodi-n-propylamine	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
N-Nitrosodiphenylamine	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Pentachlorophenol	ND		0.87	mg/Kg-dry	1	4/29/2014 11:05 PM
Phenanthrene	ND		0.018	mg/Kg-dry	1	4/29/2014 11:05 PM
Phenol	ND		0.42	mg/Kg-dry	1	4/29/2014 11:05 PM
Pyrene	**0.087**		**0.018**	**mg/Kg-dry**	1	4/29/2014 11:05 PM
Surr: 2,4,6-Tribromophenol	*51.9*		*34-140*	*%REC*	1	4/29/2014 11:05 PM
Surr: 2-Fluorobiphenyl	*74.7*		*12-100*	*%REC*	1	4/29/2014 11:05 PM
Surr: 2-Fluorophenol	*62.6*		*33-117*	*%REC*	1	4/29/2014 11:05 PM
Surr: 4-Terphenyl-d14	*107*		*25-137*	*%REC*	1	4/29/2014 11:05 PM
Surr: Nitrobenzene-d5	*71.5*		*37-107*	*%REC*	1	4/29/2014 11:05 PM
Surr: Phenol-d6	*71.6*		*40-106*	*%REC*	1	4/29/2014 11:05 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 4/28/14	Analyst: **RS**
1,1,1-Trichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,1,2,2-Tetrachloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,1,2-Trichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,1,2-Trichlorotrifluoroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,1-Dichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,1-Dichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,2,4-Trichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,2-Dibromo-3-chloropropane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,2-Dibromoethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,2-Dichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,2-Dichloroethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS06-04242014
Lab ID: 14041301-07
Collection Date: 4/24/2014 04:10 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,2-Dichloropropane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,3-Dichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
1,4-Dichlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
2-Butanone	ND		0.27	mg/Kg-dry	1	5/1/2014 08:05 PM
2-Hexanone	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
4-Methyl-2-pentanone	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Acetone	ND		0.13	mg/Kg-dry	1	5/1/2014 08:05 PM
Benzene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Bromodichloromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Bromoform	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Bromomethane	ND		0.10	mg/Kg-dry	1	5/1/2014 08:05 PM
Carbon disulfide	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Carbon tetrachloride	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Chlorobenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Chloroethane	ND		0.13	mg/Kg-dry	1	5/1/2014 08:05 PM
Chloroform	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Chloromethane	ND		0.13	mg/Kg-dry	1	5/1/2014 08:05 PM
cis-1,2-Dichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
cis-1,3-Dichloropropene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Cyclohexane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Dibromochloromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Dichlorodifluoromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Ethylbenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Isopropylbenzene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Methyl acetate	ND		0.27	mg/Kg-dry	1	5/1/2014 08:05 PM
Methyl tert-butyl ether	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Methylcyclohexane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Methylene chloride	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Styrene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Tetrachloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Toluene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
trans-1,2-Dichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
trans-1,3-Dichloropropene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Trichloroethene	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Trichlorofluoromethane	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Vinyl chloride	ND		0.040	mg/Kg-dry	1	5/1/2014 08:05 PM
Xylenes, Total	ND		0.12	mg/Kg-dry	1	5/1/2014 08:05 PM
Surr: 1,2-Dichloroethane-d4	*101*		*70-130*	*%REC*	1	5/1/2014 08:05 PM
Surr: 4-Bromofluorobenzene	*98.4*		*70-130*	*%REC*	1	5/1/2014 08:05 PM
Surr: Dibromofluoromethane	*92.9*		*70-130*	*%REC*	1	5/1/2014 08:05 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Sample ID: AM-WS06-04242014
Collection Date: 4/24/2014 04:10 PM

Work Order: 14041301
Lab ID: 14041301-07
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Toluene-d8	*101*		*70-130*	*%REC*	1	5/1/2014 08:05 PM
CYANIDE, TOTAL			**SW9012A**		Prep: SW9012A / 4/30/14	Analyst: **JB**
Cyanide, Total	ND		0.67	mg/Kg-dry	1	4/30/2014 02:40 PM
FLASHPOINT, OPEN-CUP			**D92**			Analyst: **RLF**
Flashpoint, Open-cup	**>200**			**°F**	1	4/29/2014 08:45 AM
MOISTURE			**A2540 G**			Analyst: **AT**
Moisture	**25**		**0.050**	**% of sample**	1	4/25/2014 12:50 PM
PH			**SW9045D**		Prep: EXTRACT / 4/25/14	Analyst: **AT**
pH	**7.6**			**s.u.**	1	4/25/2014 04:00 PM
SULFIDE			**SW9034**		Prep: SW9030 / 4/29/14	Analyst: **EE**
Sulfide (Acid Soluble)	ND	UJ	130	mg/Kg-dry	1	4/29/2014 03:30 PM

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5-12-14

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client:	Weston Solutions, Inc		
Project:	20405.016.001.2323.77/Alreco Metals	**Work Order:**	14041301
Sample ID:	AM-WS07-04242014	**Lab ID:**	14041301-08
Collection Date:	4/24/2014 04:25 PM	**Matrix:**	WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SUBCONTRACTED ANALYSES			**SUBCONTRACT**			Analyst: **ALS**
Subcontracted Analyses	**See report**			**as noted**	1	5/6/2014

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WL01-04242014
Lab ID: 14041301-09
Collection Date: 4/24/2014 04:40 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**		Prep: SW3510 / 4/28/14	Analyst: **JD**
Aroclor 1016	ND		0.00020	mg/L	1	4/28/2014 07:22 PM
Aroclor 1221	ND		0.00020	mg/L	1	4/28/2014 07:22 PM
Aroclor 1232	ND		0.00020	mg/L	1	4/28/2014 07:22 PM
Aroclor 1242	ND		0.00020	mg/L	1	4/28/2014 07:22 PM
Aroclor 1248	ND		0.00020	mg/L	1	4/28/2014 07:22 PM
Aroclor 1254	ND		0.00020	mg/L	1	4/28/2014 07:22 PM
Aroclor 1260	ND		0.00020	mg/L	1	4/28/2014 07:22 PM
Surr: Decachlorobiphenyl	*75.0*		*40-110*	*%REC*	1	4/28/2014 07:22 PM
MERCURY BY CVAA			**SW7470**		Prep: SW7470 / 4/30/14	Analyst: **LR**
Mercury	ND		0.00020	mg/L	1	4/30/2014 04:39 PM
METALS BY ICP-MS			**SW6020A**		Prep: SW3005A / 4/28/14	Analyst: **ML**
Aluminum	**0.22**		**0.10**	**mg/L**	10	4/29/2014 07:40 PM
Antimony	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Arsenic	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Barium	**10**		**0.050**	**mg/L**	10	4/29/2014 07:40 PM
Beryllium	ND		0.0020	mg/L	1	4/29/2014 03:26 AM
Cadmium	ND		0.0020	mg/L	1	4/29/2014 03:26 AM
Calcium	**140**		**0.50**	**mg/L**	1	4/29/2014 03:26 AM
Chromium	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Cobalt	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Copper	**0.015**		**0.0050**	**mg/L**	1	4/29/2014 03:26 AM
Iron	**0.18**		**0.080**	**mg/L**	1	4/29/2014 03:26 AM
Lead	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Magnesium	**43**		**0.20**	**mg/L**	1	4/29/2014 03:26 AM
Manganese	**0.058**		**0.0050**	**mg/L**	1	4/29/2014 03:26 AM
Nickel	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Potassium	**340**		**2.0**	**mg/L**	10	4/29/2014 07:40 PM
Selenium	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Silver	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Sodium	**500**		**2.0**	**mg/L**	10	4/29/2014 07:40 PM
Thallium	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Vanadium	ND		0.0050	mg/L	1	4/29/2014 03:26 AM
Zinc	ND		0.10	mg/L	10	4/29/2014 07:40 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270**		Prep: SW3510 / 4/28/14	Analyst: **HL**
1,1`-Biphenyl	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WL01-04242014
Lab ID: 14041301-09
Collection Date: 4/24/2014 04:40 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
2,4-Dichlorophenol	ND		0.010	mg/L	1	4/28/2014 11:12 PM
2,4-Dimethylphenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2,4-Dinitrophenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2,4-Dinitrotoluene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2,6-Dinitrotoluene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2-Chloronaphthalene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2-Chlorophenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2-Methylphenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
2-Nitroaniline	ND		0.020	mg/L	1	4/28/2014 11:12 PM
2-Nitrophenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
3,3´-Dichlorobenzidine	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
3-Nitroaniline	ND		0.020	mg/L	1	4/28/2014 11:12 PM
4,6-Dinitro-2-methylphenol	ND		0.020	mg/L	1	4/28/2014 11:12 PM
4-Bromophenyl phenyl ether	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
4-Chloro-3-methylphenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
4-Chloroaniline	ND		0.020	mg/L	1	4/28/2014 11:12 PM
4-Chlorophenyl phenyl ether	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
4-Methylphenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
4-Nitroaniline	ND		0.020	mg/L	1	4/28/2014 11:12 PM
4-Nitrophenol	ND		0.020	mg/L	1	4/28/2014 11:12 PM
Acenaphthene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Acenaphthylene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Acetophenone	ND		0.0010	mg/L	1	4/28/2014 11:12 PM
Anthracene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Atrazine	ND		0.0010	mg/L	1	4/28/2014 11:12 PM
Benzaldehyde	ND		0.0010	mg/L	1	4/28/2014 11:12 PM
Benzo(a)anthracene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Benzo(a)pyrene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Benzo(b)fluoranthene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Benzo(g,h,i)perylene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Benzo(k)fluoranthene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Bis(2-chloroethoxy)methane	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Bis(2-chloroethyl)ether	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Bis(2-chloroisopropyl)ether	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Bis(2-ethylhexyl)phthalate	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Butyl benzyl phthalate	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Caprolactam	ND		0.010	mg/L	1	4/28/2014 11:12 PM
Carbazole	ND		0.010	mg/L	1	4/28/2014 11:12 PM
Chrysene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WL01-04242014
Lab ID: 14041301-09
Collection Date: 4/24/2014 04:40 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibenzo(a,h)anthracene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Dibenzofuran	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Diethyl phthalate	ND		0.020	mg/L	1	4/28/2014 11:12 PM
Dimethyl phthalate	ND		0.020	mg/L	1	4/28/2014 11:12 PM
Di-n-butyl phthalate	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Di-n-octyl phthalate	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Fluoranthene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Fluorene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Hexachlorobenzene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Hexachlorobutadiene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Hexachlorocyclopentadiene	ND		0.020	mg/L	1	4/28/2014 11:12 PM
Hexachloroethane	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Isophorone	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Naphthalene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Nitrobenzene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Pentachlorophenol	ND		0.020	mg/L	1	4/28/2014 11:12 PM
Phenanthrene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Phenol	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Pyrene	ND		0.0050	mg/L	1	4/28/2014 11:12 PM
Surr: 2,4,6-Tribromophenol	*73.3*		*32-115*	*%REC*	1	4/28/2014 11:12 PM
Surr: 2-Fluorobiphenyl	*64.4*		*32-100*	*%REC*	1	4/28/2014 11:12 PM
Surr: 2-Fluorophenol	*29.6*		*22-59*	*%REC*	1	4/28/2014 11:12 PM
Surr: 4-Terphenyl-d14	*83.1*		*23-112*	*%REC*	1	4/28/2014 11:12 PM
Surr: Nitrobenzene-d5	*55.8*		*31-93*	*%REC*	1	4/28/2014 11:12 PM
Surr: Phenol-d6	*16.8*		*13-36*	*%REC*	1	4/28/2014 11:12 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260**			Analyst: **AK**
1,1,1-Trichloroethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,1,2,2-Tetrachloroethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,1,2-Trichloroethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,1,2-Trichlorotrifluoroethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,1-Dichloroethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,1-Dichloroethene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,2,4-Trichlorobenzene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,2-Dibromo-3-chloropropane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,2-Dibromoethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,2-Dichlorobenzene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
1,2-Dichloroethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WL01-04242014
Lab ID: 14041301-09
Collection Date: 4/24/2014 04:40 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,2-Dichloropropane	ND		0.0020	mg/L	1	5/2/2014 12:24 PM
1,3-Dichlorobenzene	ND		0.0020	mg/L	1	5/2/2014 12:24 PM
1,4-Dichlorobenzene	ND		0.0020	mg/L	1	5/2/2014 12:24 PM
2-Butanone	ND		0.0050	mg/L	1	5/2/2014 12:24 PM
2-Hexanone	ND		0.0050	mg/L	1	5/2/2014 12:24 PM
4-Methyl-2-pentanone	ND		0.0050	mg/L	1	5/2/2014 12:24 PM
Acetone	ND		0.020	mg/L	1	5/2/2014 12:24 PM
Benzene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Bromodichloromethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Bromoform	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Bromomethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Carbon disulfide	ND		0.0025	mg/L	1	5/2/2014 12:24 PM
Carbon tetrachloride	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Chlorobenzene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Chloroethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Chloroform	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Chloromethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
cis-1,2-Dichloroethene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
cis-1,3-Dichloropropene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Cyclohexane	ND		0.0050	mg/L	1	5/2/2014 12:24 PM
Dibromochloromethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Dichlorodifluoromethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Ethylbenzene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Isopropylbenzene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Methyl acetate	ND		0.0020	mg/L	1	5/2/2014 12:24 PM
Methyl tert-butyl ether	ND		0.0050	mg/L	1	5/2/2014 12:24 PM
Methylcyclohexane	ND		0.0050	mg/L	1	5/2/2014 12:24 PM
Methylene chloride	ND		0.0050	mg/L	1	5/2/2014 12:24 PM
Styrene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Tetrachloroethene	ND		0.0020	mg/L	1	5/2/2014 12:24 PM
Toluene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
trans-1,2-Dichloroethene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
trans-1,3-Dichloropropene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Trichloroethene	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Trichlorofluoromethane	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Vinyl chloride	ND		0.0010	mg/L	1	5/2/2014 12:24 PM
Xylenes, Total	ND		0.0030	mg/L	1	5/2/2014 12:24 PM
Surr: 1,2-Dichloroethane-d4	*103*		*75-120*	*%REC*	1	5/2/2014 12:24 PM
Surr: 4-Bromofluorobenzene	*94.8*		*80-110*	*%REC*	1	5/2/2014 12:24 PM
Surr: Dibromofluoromethane	*98.8*		*85-115*	*%REC*	1	5/2/2014 12:24 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WL01-04242014
Lab ID: 14041301-09
Collection Date: 4/24/2014 04:40 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Toluene-d8	*99.3*		*85-110*	*%REC*	1	5/2/2014 12:24 PM
CYANIDE, TOTAL			**SW9012A**		Prep: SW9012A / 4/28/14	Analyst: **JB**
Cyanide, Total	ND		0.0050	mg/L	1	4/28/2014 02:32 PM
FLASHPOINT, P-M CLOSED-CUP			**D93**			Analyst: **RLF**
Flashpoint, P-M Closed-cup	**>200**			**°F**	1	4/29/2014 08:45 AM
PH			**SW9040**			Analyst: **AT**
pH (laboratory)	**7.58**			**s.u.**	1	4/25/2014 04:00 PM
SULFIDE			**SW9030**			Analyst: **EE**
Sulfide	ND		1.0	mg/L	1	4/30/2014 04:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS01-04242014
Lab ID: 14041301-10
Collection Date: 4/24/2014 03:35 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 / 4/30/14	Analyst: **LR**
Mercury	ND		0.0020	mg/L	1	4/30/2014 04:42 PM
TCLP METALS ANALYSIS BY ICP-MS			**SW6020A**		Prep: SW3005A / 4/28/14	Analyst: **ML**
Arsenic	ND		0.010	mg/L	1	4/29/2014 03:32 AM
Barium	**3.6**		**0.050**	**mg/L**	1	4/29/2014 03:32 AM
Cadmium	**0.095**		**0.0020**	**mg/L**	1	4/29/2014 03:32 AM
Chromium	**0.17**		**0.020**	**mg/L**	1	4/29/2014 03:32 AM
Lead	**0.21**		**0.010**	**mg/L**	1	4/29/2014 03:32 AM
Selenium	ND		0.020	mg/L	1	4/29/2014 03:32 AM
Silver	ND		0.0050	mg/L	1	4/29/2014 03:32 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS02-04242014
Lab ID: 14041301-11
Collection Date: 4/24/2014 03:40 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 / 4/30/14	Analyst: **LR**
Mercury	ND		0.0020	mg/L	1	4/30/2014 04:44 PM
TCLP METALS ANALYSIS BY ICP-MS			**SW6020A**		Prep: SW3005A / 4/28/14	Analyst: **ML**
Arsenic	**0.016**		**0.010**	**mg/L**	1	4/29/2014 03:38 AM
Barium	**1.1**		**0.050**	**mg/L**	1	4/29/2014 03:38 AM
Cadmium	**0.012**		**0.0020**	**mg/L**	1	4/29/2014 03:38 AM
Chromium	**0.18**		**0.020**	**mg/L**	1	4/29/2014 03:38 AM
Lead	**0.072**		**0.010**	**mg/L**	1	4/29/2014 03:38 AM
Selenium	ND		0.020	mg/L	1	4/29/2014 03:38 AM
Silver	ND		0.0050	mg/L	1	4/29/2014 03:38 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS03-04242014
Lab ID: 14041301-12
Collection Date: 4/24/2014 03:45 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 / 4/30/14	Analyst: **LR**
Mercury	ND		0.0020	mg/L	1	4/30/2014 04:53 PM
TCLP METALS ANALYSIS BY ICP-MS			**SW6020A**		Prep: SW3005A / 4/28/14	Analyst: **ML**
Arsenic	ND		0.010	mg/L	1	4/29/2014 03:44 AM
Barium	**0.98**		**0.050**	**mg/L**	1	4/29/2014 03:44 AM
Cadmium	**0.037**		**0.0020**	**mg/L**	1	4/29/2014 03:44 AM
Chromium	ND		0.020	mg/L	1	4/29/2014 03:44 AM
Lead	**0.053**		**0.010**	**mg/L**	1	4/29/2014 03:44 AM
Selenium	ND		0.020	mg/L	1	4/29/2014 03:44 AM
Silver	ND		0.0050	mg/L	1	4/29/2014 03:44 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS04-04242014
Lab ID: 14041301-13
Collection Date: 4/24/2014 03:50 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 / 4/30/14	Analyst: **LR**
Mercury	ND		0.0020	mg/L	1	4/30/2014 04:55 PM
TCLP METALS ANALYSIS BY ICP-MS			**SW6020A**		Prep: SW3005A / 4/29/14	Analyst: **RH**
Arsenic	ND		0.10	mg/L	10	4/30/2014 05:17 AM
Barium	**0.87**		**0.50**	**mg/L**	10	4/30/2014 05:17 AM
Cadmium	**0.041**		**0.020**	**mg/L**	10	4/30/2014 05:17 AM
Chromium	ND		0.20	mg/L	10	4/30/2014 05:17 AM
Lead	ND		0.10	mg/L	10	4/30/2014 05:17 AM
Selenium	ND		0.20	mg/L	10	4/30/2014 05:17 AM
Silver	ND		0.050	mg/L	10	4/30/2014 05:17 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS05-04242014
Lab ID: 14041301-14
Collection Date: 4/24/2014 03:55 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 / 4/30/14	Analyst: **LR**
Mercury	ND		0.0020	mg/L	1	4/30/2014 04:58 PM
TCLP METALS ANALYSIS BY ICP-MS			**SW6020A**		Prep: SW3005A / 4/29/14	Analyst: **RH**
Arsenic	ND		0.10	mg/L	10	4/30/2014 05:41 AM
Barium	**1.2**		**0.50**	**mg/L**	10	4/30/2014 05:41 AM
Cadmium	ND		0.020	mg/L	10	4/30/2014 05:41 AM
Chromium	ND		0.20	mg/L	10	4/30/2014 05:41 AM
Lead	ND		0.10	mg/L	10	4/30/2014 05:41 AM
Selenium	ND		0.20	mg/L	10	4/30/2014 05:41 AM
Silver	ND		0.050	mg/L	10	4/30/2014 05:41 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *08-May-14*

Client: Weston Solutions, Inc
Project: 20405.016.001.2323.77/Alreco Metals
Work Order: 14041301
Sample ID: AM-WS06-04242014
Lab ID: 14041301-15
Collection Date: 4/24/2014 04:10 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 / 4/30/14	Analyst: **LR**
Mercury	ND		0.0020	mg/L	1	4/30/2014 05:00 PM
TCLP METALS ANALYSIS BY ICP-MS			**SW6020A**		Prep: SW3005A / 4/29/14	Analyst: **RH**
Arsenic	ND		0.10	mg/L	10	4/30/2014 05:47 AM
Barium	**20**		**0.50**	**mg/L**	10	4/30/2014 05:47 AM
Cadmium	ND		0.020	mg/L	10	4/30/2014 05:47 AM
Chromium	ND		0.20	mg/L	10	4/30/2014 05:47 AM
Lead	**0.97**		**0.10**	**mg/L**	10	4/30/2014 05:47 AM
Selenium	ND		0.20	mg/L	10	4/30/2014 05:47 AM
Silver	ND		0.050	mg/L	10	4/30/2014 05:47 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 08-May-14

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58017** Instrument ID **GC14** Method: **SW8082**

MBLK Sample ID: **PBLKW1-58017-58017** Units: **µg/L** Analysis Date: **4/28/2014 05:13 PM**

Client ID: Run ID: **GC14_140428B** SeqNo: **2738285** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	0.20								
Aroclor 1221	ND	0.20								
Aroclor 1232	ND	0.20								
Aroclor 1242	ND	0.20								
Aroclor 1248	ND	0.20								
Aroclor 1254	ND	0.20								
Aroclor 1260	ND	0.20								
Surr: Decachlorobiphenyl	*0.071*	0	*0.1*	0	*71*	*40-110*	0			

LCS Sample ID: **PLCSW1-58017-58017** Units: **µg/L** Analysis Date: **4/28/2014 05:29 PM**

Client ID: Run ID: **GC14_140428B** SeqNo: **2738286** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	1.797	0.20	2.5	0	71.9	50-130	0			
Aroclor 1260	1.806	0.20	2.5	0	72.2	50-130	0			
Surr: Decachlorobiphenyl	*0.066*	0	*0.1*	0	*66*	*40-110*	0			

MS Sample ID: **14041302-01D MS** Units: **µg/L** Analysis Date: **4/28/2014 06:34 PM**

Client ID: Run ID: **GC14_140428B** SeqNo: **2738290** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	11.48	2.0	25	0	45.9	40-140	0			
Aroclor 1260	10.94	2.0	25	0	43.8	40-140	0			
Surr: Decachlorobiphenyl	*0.17*	0	*1*	0	*17*	*40-110*	0			*S*

MSD Sample ID: **14041302-01D MSD** Units: **µg/L** Analysis Date: **4/28/2014 06:50 PM**

Client ID: Run ID: **GC14_140428B** SeqNo: **2738291** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	11.27	2.0	25	0	45.1	40-140	11.48	1.85	50	
Aroclor 1260	12.33	2.0	25	0	49.3	40-140	10.94	11.9	50	
Surr: Decachlorobiphenyl	*0.22*	0	*1*	0	*22*	*40-110*	0.17	*25.6*	*50*	*S*

The following samples were analyzed in this batch: 14041301-09A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58035** Instrument ID **GC14** Method: **SW8082**

MBLK Sample ID: **PBLKS1-58035-58035** Units: **µg/Kg** Analysis Date: **4/29/2014 12:39 PM**
Client ID: Run ID: **GC14_140429A** SeqNo: **2741423** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	83								
Aroclor 1221	ND	83								
Aroclor 1232	ND	83								
Aroclor 1242	ND	83								
Aroclor 1248	ND	83								
Aroclor 1254	ND	83								
Aroclor 1260	ND	83								
Surr: Decachlorobiphenyl	*31.67*	0	*33.3*	0	*95.1*	*40-140*	0			

LCS Sample ID: **PLCSS1-58035-58035** Units: **µg/Kg** Analysis Date: **4/29/2014 12:55 PM**
Client ID: Run ID: **GC14_140429A** SeqNo: **2741424** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	802.3	83	833	0	96.3	50-130	0			
Aroclor 1260	754.3	83	833	0	90.6	50-130	0			
Surr: Decachlorobiphenyl	*30.67*	0	*33.3*	0	*92.1*	*40-140*	0			

MS Sample ID: **14041301-06A MS** Units: **µg/Kg** Analysis Date: **4/29/2014 03:05 PM**
Client ID: **AM-SS01-04242014** Run ID: **GC14_140429A** SeqNo: **2741432** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	362.8	80	799.6	0	45.4	40-140	0			
Aroclor 1260	1176	80	799.6	467.6	88.7	40-140	0			
Surr: Decachlorobiphenyl	*23.04*	0	*31.96*	0	*72.1*	*40-140*	0			

MSD Sample ID: **14041301-06A MSD** Units: **µg/Kg** Analysis Date: **4/29/2014 03:37 PM**
Client ID: **AM-SS01-04242014** Run ID: **GC14_140429A** SeqNo: **2741433** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	373	83	831.5	0	44.9	40-140	362.8	2.76	50	
Aroclor 1260	1199	83	831.5	467.6	87.9	40-140	1176	1.88	50	
Surr: Decachlorobiphenyl	*24.96*	0	*33.24*	0	*75.1*	*40-140*	23.04	*7.99*	*50*	

The following samples were analyzed in this batch:

14041301-01A	14041301-02A	14041301-03A
14041301-04A	14041301-05A	14041301-06A
14041301-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58094** Instrument ID **HG1** Method: **SW7470**

MBLK Sample ID: **MBLK-58094-58094** Units: **mg/L** Analysis Date: **4/30/2014 03:54 PM**
Client ID: Run ID: **HG1_140430A** SeqNo: **2738601** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-58094-58094** Units: **mg/L** Analysis Date: **4/30/2014 03:56 PM**
Client ID: Run ID: **HG1_140430A** SeqNo: **2738602** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001985	0.00020	0.002	0	99.2	80-120		0		

MS Sample ID: **14041218-02EMS** Units: **mg/L** Analysis Date: **4/30/2014 04:07 PM**
Client ID: Run ID: **HG1_140430A** SeqNo: **2738607** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002108	0.00020	0.002	-0.000008	106	75-125		0		

MSD Sample ID: **14041218-02EMSD** Units: **mg/L** Analysis Date: **4/30/2014 04:09 PM**
Client ID: Run ID: **HG1_140430A** SeqNo: **2738608** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00211	0.00020	0.002	-0.000008	106	75-125	0.002108	0.0948	20	

The following samples were analyzed in this batch:

14041301-09C	14041301-10A	14041301-11A
14041301-12A	14041301-13A	14041301-14A
14041301-15A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58095** Instrument ID **HG1** Method: **SW7471**

MBLK Sample ID: **MBLK-58095-58095** Units: **mg/Kg** Analysis Date: **4/30/2014 05:02 PM**
Client ID: Run ID: **HG1_140430A** SeqNo: **2738681** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.020								

LCS Sample ID: **LCS-58095-58095** Units: **mg/Kg** Analysis Date: **4/30/2014 05:05 PM**
Client ID: Run ID: **HG1_140430A** SeqNo: **2738682** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1868	0.020	0.1665	0	112	80-120	0			

MS Sample ID: **14041290-01BMS** Units: **mg/Kg** Analysis Date: **4/30/2014 05:49 PM**
Client ID: Run ID: **HG1_140430A** SeqNo: **2738698** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1542	0.015	0.1224	0.02088	109	75-125	0			

MSD Sample ID: **14041290-01BMSD** Units: **mg/Kg** Analysis Date: **4/30/2014 05:51 PM**
Client ID: Run ID: **HG1_140430A** SeqNo: **2738699** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1552	0.015	0.1226	0.02088	110	75-125	0.1542	0.638	35	

The following samples were analyzed in this batch:

14041301-01A	14041301-02A	14041301-03A
14041301-04A	14041301-05A	14041301-06A
14041301-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58021** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-58021-58021** Units: **mg/L** Analysis Date: **4/29/2014 12:39 AM**

Client ID: Run ID: **ICPMS1_140428A** SeqNo: **2735778** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	ND	0.0050								
Arsenic	ND	0.0050								
Barium	0.000449	0.0050								J
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	0.04749	0.50								J
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	0.02438	0.080								J
Lead	ND	0.0050								
Magnesium	0.009071	0.20								J
Manganese	0.0007988	0.0050								J
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Thallium	ND	0.0050								
Vanadium	ND	0.0050								
Zinc	ND	0.010								

MBLK Sample ID: **MBLK-58021-58021** Units: **mg/L** Analysis Date: **5/7/2014 09:54 AM**

Client ID: Run ID: **ICPMS2_140506A** SeqNo: **2749440** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.0008786	0.010								J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58021** Instrument ID **ICPMS1** Method: **SW6020A**

LCS Sample ID: **LCS-58021-58021** Units: **mg/L** Analysis Date: **4/29/2014 12:45 AM**

Client ID: Run ID: **ICPMS1_140428A** SeqNo: **2735779** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1014	0.0050	0.1	0	101	80-120	0			
Arsenic	0.09675	0.0050	0.1	0	96.8	80-120	0			
Barium	0.09318	0.0050	0.1	0	93.2	80-120	0			
Beryllium	0.09257	0.0020	0.1	0	92.6	80-120	0			
Cadmium	0.0972	0.0020	0.1	0	97.2	80-120	0			
Calcium	9.385	0.50	10	0	93.8	80-120	0			
Chromium	0.09679	0.0050	0.1	0	96.8	80-120	0			
Cobalt	0.09723	0.0050	0.1	0	97.2	80-120	0			
Copper	0.09601	0.0050	0.1	0	96	80-120	0			
Iron	9.926	0.080	10	0	99.3	80-120	0			
Lead	0.09271	0.0050	0.1	0	92.7	80-120	0			
Magnesium	9.55	0.20	10	0	95.5	80-120	0			
Manganese	0.09606	0.0050	0.1	0	96.1	80-120	0			
Nickel	0.09571	0.0050	0.1	0	95.7	80-120	0			
Potassium	9.421	0.20	10	0	94.2	80-120	0			
Selenium	0.1006	0.0050	0.1	0	101	80-120	0			
Silver	0.09478	0.0050	0.1	0	94.8	80-120	0			
Sodium	9.288	0.20	10	0	92.9	80-120	0			
Thallium	0.08965	0.0050	0.1	0	89.6	80-120	0			
Vanadium	0.09886	0.0050	0.1	0	98.9	80-120	0			
Zinc	0.1023	0.010	0.1	0	102	80-120	0			

LCS Sample ID: **LCS-58021-58021** Units: **mg/L** Analysis Date: **5/7/2014 10:00 AM**

Client ID: Run ID: **ICPMS2_140506A** SeqNo: **2749441** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.08866	0.010	0.1	0	88.7	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58021** Instrument ID **ICPMS1** Method: **SW6020A**

MS Sample ID: **14041183-02EMS** Units: **mg/L** Analysis Date: **4/29/2014 01:57 AM**
Client ID: Run ID: **ICPMS1_140428A** SeqNo: **2735789** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09387	0.0050	0.1	0.0002462	93.6	75-125	0			
Arsenic	0.1037	0.0050	0.1	0.007531	96.2	75-125	0			
Barium	0.3875	0.0050	0.1	0.2825	105	75-125	0			
Beryllium	0.08948	0.0020	0.1	0.00002746	89.5	75-125	0			
Cadmium	0.09313	0.0020	0.1	0.0003955	92.7	75-125	0			
Calcium	255.8	0.50	10	237.7	181	75-125	0			SEO
Chromium	0.09721	0.0050	0.1	0.002793	94.4	75-125	0			
Cobalt	0.09914	0.0050	0.1	0.00768	91.5	75-125	0			
Copper	0.09152	0.0050	0.1	0.00426	87.3	75-125	0			
Iron	11.23	0.080	10	1.6	96.3	75-125	0			
Lead	0.09164	0.0050	0.1	0.0006911	90.9	75-125	0			
Magnesium	108.5	0.20	10	95.77	127	75-125	0			SO
Nickel	0.1124	0.0050	0.1	0.02456	87.8	75-125	0			
Potassium	20.53	0.20	10	10.12	104	75-125	0			
Selenium	0.09558	0.0050	0.1	0.001359	94.2	75-125	0			
Silver	0.08283	0.0050	0.1	-1.221E-05	82.8	75-125	0			
Sodium	75.26	0.20	10	63.21	120	75-125	0			O
Thallium	0.089	0.0050	0.1	0.00006765	88.9	75-125	0			
Vanadium	0.1011	0.0050	0.1	0.002396	98.7	75-125	0			
Zinc	0.1154	0.010	0.1	0.02808	87.3	75-125	0			

MS Sample ID: **14041183-02EMS** Units: **mg/L** Analysis Date: **4/29/2014 05:55 PM**
Client ID: Run ID: **ICPMS1_140429A** SeqNo: **2737149** Prep Date: **4/28/2014** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	4.115	0.050	0.1	3.866	249	75-125	0			SO

MS Sample ID: **14041183-02EMS** Units: **mg/L** Analysis Date: **5/1/2014 11:39 PM**
Client ID: Run ID: **ICPMS1_140501A** SeqNo: **2741255** Prep Date: **4/28/2014** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1342	0.10	0.1	0.02485	109	75-125	0			B
Barium	0.3813	0.050	0.1	0.274	107	75-125	0			
Cadmium	0.1151	0.020	0.1	0	115	75-125	0			
Lead	0.1062	0.050	0.1	0	106	75-125	0			
Manganese	4.075	0.050	0.1	3.954	121	75-125	0			O

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58021** Instrument ID **ICPMS1** Method: **SW6020A**

MSD Sample ID: **14041183-02EMSD** Units: **mg/L** Analysis Date: **4/29/2014 02:03 AM**

Client ID: Run ID: **ICPMS1_140428A** SeqNo: **2735790** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09244	0.0050	0.1	0.0002462	92.2	75-125	0.09387	1.54	20	
Arsenic	0.1018	0.0050	0.1	0.007531	94.3	75-125	0.1037	1.85	20	
Barium	0.3776	0.0050	0.1	0.2825	95.1	75-125	0.3875	2.59	20	
Beryllium	0.08773	0.0020	0.1	0.00002746	87.7	75-125	0.08948	1.98	20	
Cadmium	0.09158	0.0020	0.1	0.0003955	91.2	75-125	0.09313	1.68	20	
Calcium	246.9	0.50	10	237.7	92	75-125	255.8	3.54	20	EO
Chromium	0.09535	0.0050	0.1	0.002793	92.6	75-125	0.09721	1.93	20	
Cobalt	0.09761	0.0050	0.1	0.00768	89.9	75-125	0.09914	1.56	20	
Copper	0.08981	0.0050	0.1	0.00426	85.6	75-125	0.09152	1.89	20	
Iron	11	0.080	10	1.6	94	75-125	11.23	2.07	20	
Lead	0.08962	0.0050	0.1	0.0006911	88.9	75-125	0.09164	2.23	20	
Magnesium	105.7	0.20	10	95.77	99.3	75-125	108.5	2.61	20	O
Nickel	0.1099	0.0050	0.1	0.02456	85.3	75-125	0.1124	2.25	20	
Potassium	19.92	0.20	10	10.12	98	75-125	20.53	3.02	20	
Selenium	0.09514	0.0050	0.1	0.001359	93.8	75-125	0.09558	0.461	20	
Silver	0.08163	0.0050	0.1	-1.221E-05	81.6	75-125	0.08283	1.46	20	
Sodium	72.74	0.20	10	63.21	95.3	75-125	75.26	3.41	20	O
Thallium	0.08737	0.0050	0.1	0.00006765	87.3	75-125	0.089	1.85	20	
Vanadium	0.1001	0.0050	0.1	0.002396	97.7	75-125	0.1011	0.994	20	
Zinc	0.1117	0.010	0.1	0.02808	83.6	75-125	0.1154	3.26	20	

MSD Sample ID: **14041183-02EMSD** Units: **mg/L** Analysis Date: **4/29/2014 07:34 PM**

Client ID: Run ID: **ICPMS1_140429A** SeqNo: **2737166** Prep Date: **4/28/2014** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	4.138	0.050	0.1	3.866	272	75-125	4.115	0.557	20	SO

MSD Sample ID: **14041183-02EMSD** Units: **mg/L** Analysis Date: **5/1/2014 11:45 PM**

Client ID: Run ID: **ICPMS1_140501A** SeqNo: **2741256** Prep Date: **4/28/2014** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1469	0.10	0.1	0.02485	122	75-125	0.1342	9.04	20	B
Barium	0.3895	0.050	0.1	0.274	116	75-125	0.3813	2.13	20	
Cadmium	0.1185	0.020	0.1	0	118	75-125	0.1151	2.91	20	
Lead	0.11	0.050	0.1	0	110	75-125	0.1062	3.52	20	
Manganese	4.083	0.050	0.1	3.954	129	75-125	4.075	0.196	20	SO

The following samples were analyzed in this batch:

14041301-09C	14041301-10A	14041301-11A
14041301-12A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58069** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-58069-58069** Units: **mg/L** Analysis Date: **4/29/2014 03:49 PM**
Client ID: Run ID: **ICPMS2_140429A** SeqNo: **2736948** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Lead	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								

LCS Sample ID: **LCS-58069-58069** Units: **mg/L** Analysis Date: **4/29/2014 04:00 PM**
Client ID: Run ID: **ICPMS2_140429A** SeqNo: **2736949** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1011	0.0050	0.1	0	101	80-120	0			
Barium	0.09855	0.0050	0.1	0	98.6	80-120	0			
Cadmium	0.09952	0.0020	0.1	0	99.5	80-120	0			
Chromium	0.1021	0.0050	0.1	0	102	80-120	0			
Lead	0.099	0.0050	0.1	0	99	80-120	0			
Selenium	0.09943	0.0050	0.1	0	99.4	80-120	0			
Silver	0.09627	0.0050	0.1	0	96.3	80-120	0			

MS Sample ID: **14041218-01EMS** Units: **mg/L** Analysis Date: **4/29/2014 04:19 PM**
Client ID: Run ID: **ICPMS2_140429A** SeqNo: **2736952** Prep Date: **4/29/2014** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.0934	0.025	0.1	0.000947	92.5	75-125	0			
Barium	0.129	0.025	0.1	0.03388	95.1	75-125	0			
Cadmium	0.09655	0.010	0.1	0.000397	96.2	75-125	0			
Chromium	0.09815	0.025	0.1	0.004279	93.9	75-125	0			
Lead	0.09475	0.025	0.1	0.002278	92.5	75-125	0			
Selenium	0.08865	0.025	0.1	0.00062	88	75-125	0			
Silver	0.0876	0.025	0.1	3.868E-06	87.6	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58069** Instrument ID **ICPMS2** Method: **SW6020A**

MSD Sample ID: **14041218-01EMSD** Units: **mg/L** Analysis Date: **4/29/2014 04:25 PM**

Client ID: Run ID: **ICPMS2_140429A** SeqNo: **2736953** Prep Date: **4/29/2014** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.09455	0.025	0.1	0.000947	93.6	75-125	0.0934	1.22	20	
Barium	0.1262	0.025	0.1	0.03388	92.3	75-125	0.129	2.23	20	
Cadmium	0.0943	0.010	0.1	0.000397	93.9	75-125	0.09655	2.36	20	
Chromium	0.0998	0.025	0.1	0.004279	95.5	75-125	0.09815	1.67	20	
Lead	0.0917	0.025	0.1	0.002278	89.4	75-125	0.09475	3.27	20	
Selenium	0.09215	0.025	0.1	0.00062	91.5	75-125	0.08865	3.87	20	
Silver	0.0893	0.025	0.1	3.868E-06	89.3	75-125	0.0876	1.92	20	

The following samples were analyzed in this batch:

14041301-13A	14041301-14A	14041301-15A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58081** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-58081-58081** Units: **mg/Kg** Analysis Date: **4/30/2014 04:13 PM**

Client ID: Run ID: **ICPMS1_140430A** SeqNo: **2739210** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	ND	0.25								
Arsenic	ND	0.25								
Barium	ND	0.25								
Beryllium	ND	0.10								
Cadmium	ND	0.10								
Calcium	3.811	25								J
Chromium	ND	0.25								
Cobalt	ND	0.25								
Copper	0.05655	0.25								J
Iron	0.842	4.0								J
Lead	ND	0.25								
Magnesium	0.96	10								J
Manganese	0.02666	0.25								J
Nickel	ND	0.25								
Potassium	3.324	10								J
Selenium	ND	0.25								
Silver	ND	0.25								
Sodium	5.765	10								J
Thallium	ND	0.25								
Vanadium	ND	0.25								
Zinc	0.0319	0.50								J

MBLK Sample ID: **MBLK-58081-58081** Units: **mg/Kg** Analysis Date: **5/1/2014 03:58 PM**

Client ID: Run ID: **ICPMS1_140501A** SeqNo: **2741150** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.476	0.50								J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58081** Instrument ID **ICPMS1** Method: **SW6020A**

LCS Sample ID: **LCS-58081-58081** Units: **mg/Kg** Analysis Date: **4/30/2014 04:19 PM**

Client ID: Run ID: **ICPMS1_140430A** SeqNo: **2739211** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	4.834	0.25	5	0	96.7	80-120	0			
Arsenic	4.68	0.25	5	0	93.6	80-120	0			
Barium	4.92	0.25	5	0	98.4	80-120	0			
Beryllium	4.606	0.10	5	0	92.1	80-120	0			
Cadmium	4.775	0.10	5	0	95.5	80-120	0			
Calcium	512.5	25	500	0	102	80-120	0			
Chromium	4.902	0.25	5	0	98	80-120	0			
Cobalt	4.9	0.25	5	0	98	80-120	0			
Copper	4.78	0.25	5	0	95.6	80-120	0			
Iron	507.5	4.0	500	0	102	80-120	0			
Lead	5.24	0.25	5	0	105	80-120	0			
Magnesium	520	10	500	0	104	80-120	0			
Manganese	4.94	0.25	5	0	98.8	80-120	0			
Nickel	4.838	0.25	5	0	96.8	80-120	0			
Potassium	515	10	500	0	103	80-120	0			
Selenium	4.301	0.25	5	0	86	80-120	0			
Silver	4.774	0.25	5	0	95.5	80-120	0			
Sodium	509.5	10	500	0	102	80-120	0			
Thallium	5.08	0.25	5	0	102	80-120	0			
Vanadium	4.998	0.25	5	0	100	80-120	0			
Zinc	4.424	0.50	5	0	88.5	80-120	0			

LCS Sample ID: **LCS-58081-58081** Units: **mg/Kg** Analysis Date: **5/2/2014 01:07 PM**

Client ID: Run ID: **ICPMS1_140502A** SeqNo: **2742949** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	5.12	0.50	5	0	102	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58081** Instrument ID **ICPMS1** Method: **SW6020A**

MS Sample ID: **14041242-04BMS** Units: **mg/Kg** Analysis Date: **4/30/2014 04:43 PM**

Client ID: Run ID: **ICPMS1_140430A** SeqNo: **2739215** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	7.726	0.42	8.319	0.02239	92.6	75-125	0			
Arsenic	8.164	0.42	8.319	0.6468	90.4	75-125	0			
Barium	10.55	0.42	8.319	1.888	104	75-125	0			
Beryllium	7.052	0.17	8.319	0.01951	84.5	75-125	0			
Cadmium	7.904	0.17	8.319	0.01695	94.8	75-125	0			
Calcium	1371	42	831.9	476.9	107	75-125	0			
Chromium	9.135	0.42	8.319	1.642	90.1	75-125	0			
Cobalt	8.163	0.42	8.319	0.3227	94.2	75-125	0			
Copper	7.973	0.42	8.319	0.3761	91.3	75-125	0			
Iron	2082	6.7	831.9	1481	72.2	75-125	0			S
Lead	9.068	0.42	8.319	0.4137	104	75-125	0			
Magnesium	1029	17	831.9	162.6	104	75-125	0			
Manganese	31.53	0.42	8.319	24.11	89.2	75-125	0			
Nickel	8.71	0.42	8.319	1.045	92.1	75-125	0			
Potassium	918.5	17	831.9	50.14	104	75-125	0			
Selenium	7.275	0.42	8.319	0.3315	83.5	75-125	0			
Silver	7.607	0.42	8.319	0.002418	91.4	75-125	0			
Sodium	855.2	17	831.9	40.2	98	75-125	0			
Thallium	8.344	0.42	8.319	-0.01862	101	75-125	0			
Vanadium	11.23	0.42	8.319	3.731	90.2	75-125	0			
Zinc	8.644	0.83	8.319	1.807	82.2	75-125	0			

MS Sample ID: **14041242-04BMS** Units: **mg/Kg** Analysis Date: **5/2/2014 01:13 PM**

Client ID: Run ID: **ICPMS1_140502A** SeqNo: **2742950** Prep Date: **4/29/2014** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	745.1	8.3	8.319	767.2	-266	75-125	0			SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58081** Instrument ID **ICPMS1** Method: **SW6020A**

MSD Sample ID: **14041242-04BMSD** Units: **mg/Kg** Analysis Date: **4/30/2014 05:06 PM**

Client ID: Run ID: **ICPMS1_140430A** SeqNo: **2739219** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	7.501	0.40	7.987	0.02239	93.6	75-125	7.726	2.96	25	
Arsenic	7.869	0.40	7.987	0.6468	90.4	75-125	8.164	3.68	25	
Barium	10.45	0.40	7.987	1.888	107	75-125	10.55	0.97	25	
Beryllium	6.673	0.16	7.987	0.01951	83.3	75-125	7.052	5.54	25	
Cadmium	7.573	0.16	7.987	0.01695	94.6	75-125	7.904	4.28	25	
Calcium	2174	40	798.7	476.9	212	75-125	1371	45.3	25	SR
Chromium	9.625	0.40	7.987	1.642	99.9	75-125	9.135	5.22	25	
Cobalt	7.995	0.40	7.987	0.3227	96.1	75-125	8.163	2.08	25	
Copper	8.73	0.40	7.987	0.3761	105	75-125	7.973	9.06	25	
Iron	2202	6.4	798.7	1481	90.2	75-125	2082	5.59	25	
Lead	8.81	0.40	7.987	0.4137	105	75-125	9.068	2.89	25	
Magnesium	1119	16	798.7	162.6	120	75-125	1029	8.37	25	
Manganese	34.75	0.40	7.987	24.11	133	75-125	31.53	9.72	25	S
Nickel	8.754	0.40	7.987	1.045	96.5	75-125	8.71	0.498	25	
Potassium	902.6	16	798.7	50.14	107	75-125	918.5	1.75	25	
Selenium	6.935	0.40	7.987	0.3315	82.7	75-125	7.275	4.8	25	
Silver	7.433	0.40	7.987	0.002418	93	75-125	7.607	2.32	25	
Sodium	821.9	16	798.7	40.2	97.9	75-125	855.2	3.98	25	
Thallium	8.075	0.40	7.987	-0.01862	101	75-125	8.344	3.28	25	
Vanadium	10.72	0.40	7.987	3.731	87.5	75-125	11.23	4.67	25	
Zinc	8.938	0.80	7.987	1.807	89.3	75-125	8.644	3.34	25	

MSD Sample ID: **14041242-04BMSD** Units: **mg/Kg** Analysis Date: **5/2/2014 01:18 PM**

Client ID: Run ID: **ICPMS1_140502A** SeqNo: **2742951** Prep Date: **4/29/2014** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	958.5	8.0	7.987	767.2	2390	75-125	745.1	25.1	25	SRO

The following samples were analyzed in this batch:

14041301-01A	14041301-02A	14041301-03A
14041301-04A	14041301-05A	14041301-06A
14041301-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58013** Instrument ID **SVMS7** Method: **SW8270**

MBLK Sample ID: **SBLKW1-58013-58013** Units: **µg/L** Analysis Date: **4/28/2014 03:53 PM**

Client ID: Run ID: **SVMS7_140428A** SeqNo: **2736331** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	10								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	20								
2-Nitrophenol	ND	5.0								
3,3´-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	20								
4,6-Dinitro-2-methylphenol	ND	20								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	20								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Methylphenol	ND	5.0								
4-Nitroaniline	ND	20								
4-Nitrophenol	ND	20								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Acetophenone	ND	1.0								
Anthracene	ND	5.0								
Atrazine	ND	1.0								
Benzaldehyde	ND	1.0								
Benzo(a)anthracene	ND	5.0								
Benzo(a)pyrene	ND	5.0								
Benzo(b)fluoranthene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Caprolactam	ND	10								
Carbazole	ND	10								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58013** Instrument ID **SVMS7** Method: **SW8270**

Chrysene	ND	5.0					
Dibenzo(a,h)anthracene	ND	5.0					
Dibenzofuran	ND	5.0					
Diethyl phthalate	ND	20					
Dimethyl phthalate	ND	20					
Di-n-butyl phthalate	ND	5.0					
Di-n-octyl phthalate	ND	5.0					
Fluoranthene	ND	5.0					
Fluorene	ND	5.0					
Hexachlorobenzene	ND	5.0					
Hexachlorobutadiene	ND	5.0					
Hexachlorocyclopentadiene	ND	20					
Hexachloroethane	ND	5.0					
Indeno(1,2,3-cd)pyrene	ND	5.0					
Isophorone	ND	5.0					
Naphthalene	ND	5.0					
Nitrobenzene	ND	5.0					
N-Nitrosodi-n-propylamine	ND	5.0					
N-Nitrosodiphenylamine	ND	5.0					
Pentachlorophenol	ND	20					
Phenanthrene	ND	5.0					
Phenol	ND	5.0					
Pyrene	ND	5.0					
Surr: 2,4,6-Tribromophenol	*30.44*	0	*50*	0	*60.9*	*38-115*	0
Surr: 2-Fluorobiphenyl	*29.26*	0	*50*	0	*58.5*	*32-100*	0
Surr: 2-Fluorophenol	*16.57*	0	*50*	0	*33.1*	*22-59*	0
Surr: 4-Terphenyl-d14	*48.74*	0	*50*	0	*97.5*	*23-112*	0
Surr: Nitrobenzene-d5	*24.09*	0	*50*	0	*48.2*	*31-93*	0
Surr: Phenol-d6	*8.24*	0	*50*	0	*16.5*	*13-36*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58013** Instrument ID **SVMS7** Method: **SW8270**

LCS Sample ID: **SLCSW1-58013-58013** Units: **µg/L** Analysis Date: **4/28/2014 03:30 PM**

Client ID: Run ID: **SVMS7_140428A** SeqNo: **2736330** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	14.55	5.0	20	0	72.8	50-110	0			
2,4,6-Trichlorophenol	14.71	5.0	20	0	73.6	50-115	0			
2,4-Dichlorophenol	11.61	10	20	0	58	50-105	0			
2,4-Dimethylphenol	11.51	5.0	20	0	57.6	30-110	0			
2,4-Dinitrophenol	11.96	5.0	20	0	59.8	15-140	0			
2,4-Dinitrotoluene	14.37	5.0	20	0	71.8	50-120	0			
2,6-Dinitrotoluene	14.8	5.0	20	0	74	50-115	0			
2-Chloronaphthalene	14.49	5.0	20	0	72.4	50-105	0			
2-Chlorophenol	11.47	5.0	20	0	57.4	35-105	0			
2-Methylnaphthalene	13.04	5.0	20	0	65.2	45-105	0			
2-Methylphenol	9.29	5.0	20	0	46.4	40-110	0			
2-Nitroaniline	15.32	20	20	0	76.6	50-115	0			J
2-Nitrophenol	13.55	5.0	20	0	67.8	40-115	0			
3-Nitroaniline	14.84	20	20	0	74.2	20-125	0			J
4,6-Dinitro-2-methylphenol	15	20	20	0	75	40-130	0			J
4-Bromophenyl phenyl ether	14.3	5.0	20	0	71.5	50-115	0			
4-Chloro-3-methylphenol	12.67	5.0	20	0	63.4	45-110	0			
4-Chloroaniline	12.23	20	20	0	61.2	15-110	0			J
4-Chlorophenyl phenyl ether	13.78	5.0	20	0	68.9	50-110	0			
4-Methylphenol	8.37	5.0	20	0	41.8	30-110	0			
4-Nitroaniline	13.23	20	20	0	66.2	35-150	0			J
4-Nitrophenol	6.73	20	20	0	33.6	1-58	0			J
Acenaphthene	15.09	5.0	20	0	75.4	45-110	0			
Acenaphthylene	14.81	5.0	20	0	74	50-105	0			
Anthracene	15.85	5.0	20	0	79.2	55-110	0			
Benzo(a)anthracene	15.28	5.0	20	0	76.4	55-110	0			
Benzo(a)pyrene	16.02	5.0	20	0	80.1	55-110	0			
Benzo(b)fluoranthene	16.22	5.0	20	0	81.1	45-120	0			
Benzo(g,h,i)perylene	15.4	5.0	20	0	77	40-125	0			
Benzo(k)fluoranthene	16.59	5.0	20	0	83	45-125	0			
Bis(2-chloroethoxy)methane	14.5	5.0	20	0	72.5	45-105	0			
Bis(2-chloroethyl)ether	14.9	5.0	20	0	74.5	35-110	0			
Bis(2-chloroisopropyl)ether	13.33	5.0	20	0	66.6	25-130	0			
Bis(2-ethylhexyl)phthalate	17.86	5.0	20	0	89.3	40-125	0			
Butyl benzyl phthalate	18.19	5.0	20	0	91	45-115	0			
Carbazole	16.65	10	20	0	83.2	50-150	0			
Chrysene	15.74	5.0	20	0	78.7	55-110	0			
Dibenzo(a,h)anthracene	14.6	5.0	20	0	73	40-125	0			
Dibenzofuran	14.29	5.0	20	0	71.4	55-105	0			
Diethyl phthalate	14.47	20	20	0	72.4	40-120	0			J
Dimethyl phthalate	16.25	20	20	0	81.2	25-125	0			J
Di-n-butyl phthalate	15.76	5.0	20	0	78.8	55-115	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58013** Instrument ID **SVMS7** Method: **SW8270**

Di-n-octyl phthalate	19.48	5.0	20	0	97.4	35-135	0	
Fluoranthene	15.75	5.0	20	0	78.8	55-115	0	
Fluorene	15.76	5.0	20	0	78.8	50-110	0	
Hexachlorobenzene	14.95	5.0	20	0	74.8	50-110	0	
Hexachlorobutadiene	14.25	5.0	20	0	71.2	25-105	0	
Hexachlorocyclopentadiene	6.82	20	20	0	34.1	25-105	0	J
Hexachloroethane	16	5.0	20	0	80	30-95	0	
Indeno(1,2,3-cd)pyrene	15.36	5.0	20	0	76.8	45-125	0	
Isophorone	14.49	5.0	20	0	72.4	50-110	0	
Naphthalene	13.97	5.0	20	0	69.8	40-100	0	
Nitrobenzene	16.72	5.0	20	0	83.6	45-110	0	
N-Nitrosodi-n-propylamine	14.51	5.0	20	0	72.6	35-130	0	
N-Nitrosodiphenylamine	15.38	5.0	20	0	76.9	50-110	0	
Pentachlorophenol	11.2	20	20	0	56	40-115	0	J
Phenanthrene	14.97	5.0	20	0	74.8	50-115	0	
Phenol	4.62	5.0	20	0	23.1	12-43	0	J
Pyrene	15.69	5.0	20	0	78.4	50-130	0	
Surr: 2,4,6-Tribromophenol	*34.99*	0	*50*	0	*70*	*38-115*	0	
Surr: 2-Fluorobiphenyl	*38.09*	0	*50*	0	*76.2*	*32-100*	0	
Surr: 2-Fluorophenol	*18.28*	0	*50*	0	*36.6*	*22-59*	0	
Surr: 4-Terphenyl-d14	*46.23*	0	*50*	0	*92.5*	*23-112*	0	
Surr: Nitrobenzene-d5	*34.48*	0	*50*	0	*69*	*31-93*	0	
Surr: Phenol-d6	*9.95*	0	*50*	0	*19.9*	*13-36*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58013** Instrument ID **SVMS7** Method: **SW8270**

MS Sample ID: **14041179-19B MS** Units: **µg/L** Analysis Date: **4/29/2014 12:11 PM**

Client ID: Run ID: **SVMS4_140429A** SeqNo: **2737886** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	160.5	50	200	0	80.2	50-110	0			
2,4,6-Trichlorophenol	156.8	50	200	0	78.4	50-115	0			
2,4-Dichlorophenol	138.7	100	200	0	69.4	50-105	0			
2,4-Dimethylphenol	150.6	50	200	4.19	73.2	30-110	0			
2,4-Dinitrophenol	170.8	50	200	0	85.4	15-140	0			
2,4-Dinitrotoluene	154.4	50	200	0	77.2	50-120	0			
2,6-Dinitrotoluene	161.5	50	200	0	80.8	50-115	0			
2-Chloronaphthalene	144	50	200	0	72	50-105	0			
2-Chlorophenol	128.7	50	200	0	64.4	35-105	0			
2-Methylnaphthalene	140.3	50	200	0	70.2	45-105	0			
2-Methylphenol	117.2	50	200	2.26	57.5	40-110	0			
2-Nitroaniline	161.4	200	200	0	80.7	50-115	0			J
2-Nitrophenol	133.4	50	200	0	66.7	40-115	0			
3-Nitroaniline	164.7	200	200	0	82.4	20-125	0			J
4,6-Dinitro-2-methylphenol	127.6	200	200	0	63.8	40-130	0			J
4-Bromophenyl phenyl ether	155.1	50	200	0	77.6	50-115	0			
4-Chloro-3-methylphenol	147.5	50	200	0	73.8	45-110	0			
4-Chloroaniline	206	200	200	0	103	15-110	0			
4-Chlorophenyl phenyl ether	143.6	50	200	0	71.8	50-110	0			
4-Methylphenol	114.4	50	200	8.88	52.8	30-110	0			
4-Nitroaniline	184.2	200	200	0	92.1	35-150	0			J
4-Nitrophenol	72.2	200	200	0	36.1	1-58	0			J
Acenaphthene	146.1	50	200	0	73	45-110	0			
Acenaphthylene	148.9	50	200	0	74.4	50-105	0			
Anthracene	161.3	50	200	0	80.6	55-110	0			
Benzo(a)anthracene	167.4	50	200	0	83.7	55-110	0			
Benzo(a)pyrene	162.9	50	200	0	81.4	55-110	0			
Benzo(b)fluoranthene	160.2	50	200	0	80.1	45-120	0			
Benzo(g,h,i)perylene	164.1	50	200	0	82	40-125	0			
Benzo(k)fluoranthene	154.1	50	200	0	77	45-125	0			
Bis(2-chloroethoxy)methane	137.4	50	200	0	68.7	45-105	0			
Bis(2-chloroethyl)ether	132.3	50	200	0	66.2	35-110	0			
Bis(2-chloroisopropyl)ether	135.4	50	200	0	67.7	25-130	0			
Bis(2-ethylhexyl)phthalate	153.1	50	200	0	76.6	40-125	0			
Butyl benzyl phthalate	178.3	50	200	0	89.2	45-115	0			
Carbazole	203.5	100	200	0	102	50-150	0			
Chrysene	155.2	50	200	0	77.6	55-110	0			
Dibenzo(a,h)anthracene	162.9	50	200	0	81.4	40-125	0			
Dibenzofuran	145	50	200	0	72.5	55-105	0			
Diethyl phthalate	169.1	200	200	0	84.6	40-120	0			J
Dimethyl phthalate	159.6	200	200	0	79.8	25-125	0			J
Di-n-butyl phthalate	159.4	50	200	0	79.7	55-115	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58013** Instrument ID **SVMS7** Method: **SW8270**

Di-n-octyl phthalate	143.8	50	200	0	71.9	35-135	0	
Fluoranthene	173.3	50	200	0	86.6	55-115	0	
Fluorene	151.1	50	200	0	75.6	50-110	0	
Hexachlorobenzene	145	50	200	0	72.5	50-110	0	
Hexachlorobutadiene	129.5	50	200	0	64.8	25-105	0	
Hexachlorocyclopentadiene	64.2	200	200	0	32.1	25-105	0	J
Hexachloroethane	140.2	50	200	0	70.1	30-95	0	
Indeno(1,2,3-cd)pyrene	158.8	50	200	0	79.4	45-125	0	
Isophorone	148.2	50	200	0	74.1	50-110	0	
Naphthalene	129.5	50	200	2.75	63.4	40-100	0	
Nitrobenzene	139.1	50	200	0	69.6	45-110	0	
N-Nitrosodi-n-propylamine	152.1	50	200	0	76	35-130	0	
N-Nitrosodiphenylamine	184.6	50	200	0	92.3	50-110	0	
Pentachlorophenol	280	200	200	0	140	40-115	0	S
Phenanthrene	154.9	50	200	0	77.4	50-115	0	
Phenol	71.7	50	200	23.45	24.1	12-43	0	
Pyrene	161.3	50	200	0	80.6	50-130	0	
Surr: 2,4,6-Tribromophenol	*434.7*	0	*500*	0	*86.9*	*38-115*	0	
Surr: 2-Fluorobiphenyl	*354.4*	0	*500*	0	*70.9*	*32-100*	0	
Surr: 2-Fluorophenol	*193.2*	0	*500*	0	*38.6*	*22-59*	0	
Surr: 4-Terphenyl-d14	*426.4*	0	*500*	0	*85.3*	*23-112*	0	
Surr: Nitrobenzene-d5	*344.2*	0	*500*	0	*68.8*	*31-93*	0	
Surr: Phenol-d6	*119.2*	0	*500*	0	*23.8*	*13-36*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58013** Instrument ID **SVMS7** Method: **SW8270**

MSD Sample ID: **14041179-19B MSD** Units: **µg/L** Analysis Date: **4/29/2014 12:44 PM**

Client ID: Run ID: **SVMS4_140429A** SeqNo: **2737887** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	166.6	50	200	0	83.3	50-110	160.5	3.73	30	
2,4,6-Trichlorophenol	162.2	50	200	0	81.1	50-115	156.8	3.39	30	
2,4-Dichlorophenol	140.8	100	200	0	70.4	50-105	138.7	1.5	30	
2,4-Dimethylphenol	153.8	50	200	4.19	74.8	30-110	150.6	2.1	30	
2,4-Dinitrophenol	183.7	50	200	0	91.8	15-140	170.8	7.28	30	
2,4-Dinitrotoluene	160.8	50	200	0	80.4	50-120	154.4	4.06	30	
2,6-Dinitrotoluene	165.5	50	200	0	82.8	50-115	161.5	2.45	30	
2-Chloronaphthalene	146.7	50	200	0	73.4	50-105	144	1.86	30	
2-Chlorophenol	130.2	50	200	0	65.1	35-105	128.7	1.16	30	
2-Methylnaphthalene	138.4	50	200	0	69.2	45-105	140.3	1.36	30	
2-Methylphenol	122.7	50	200	2.26	60.2	40-110	117.2	4.59	30	
2-Nitroaniline	165.7	200	200	0	82.8	50-115	161.4	0	30	J
2-Nitrophenol	132.2	50	200	0	66.1	40-115	133.4	0.904	30	
3-Nitroaniline	167.5	200	200	0	83.8	20-125	164.7	0	30	J
4,6-Dinitro-2-methylphenol	138.6	200	200	0	69.3	40-130	127.6	0	30	J
4-Bromophenyl phenyl ether	160.1	50	200	0	80	50-115	155.1	3.17	30	
4-Chloro-3-methylphenol	151.4	50	200	0	75.7	45-110	147.5	2.61	30	
4-Chloroaniline	207.3	200	200	0	104	15-110	206	0.629	30	
4-Chlorophenyl phenyl ether	147.8	50	200	0	73.9	50-110	143.6	2.88	30	
4-Methylphenol	121.2	50	200	8.88	56.2	30-110	114.4	5.77	30	
4-Nitroaniline	203.5	200	200	0	102	35-150	184.2	9.96	30	
4-Nitrophenol	80.3	200	200	0	40.2	1-58	72.2	0	0	J
Acenaphthene	149.3	50	200	0	74.6	45-110	146.1	2.17	30	
Acenaphthylene	151.6	50	200	0	75.8	50-105	148.9	1.8	30	
Anthracene	166.6	50	200	0	83.3	55-110	161.3	3.23	30	
Benzo(a)anthracene	172	50	200	0	86	55-110	167.4	2.71	30	
Benzo(a)pyrene	170	50	200	0	85	55-110	162.9	4.27	30	
Benzo(b)fluoranthene	158.6	50	200	0	79.3	45-120	160.2	1	30	
Benzo(g,h,i)perylene	166.4	50	200	0	83.2	40-125	164.1	1.39	30	
Benzo(k)fluoranthene	169.4	50	200	0	84.7	45-125	154.1	9.46	30	
Bis(2-chloroethoxy)methane	137.8	50	200	0	68.9	45-105	137.4	0.291	30	
Bis(2-chloroethyl)ether	128.3	50	200	0	64.2	35-110	132.3	3.07	30	
Bis(2-chloroisopropyl)ether	130.2	50	200	0	65.1	25-130	135.4	3.92	30	
Bis(2-ethylhexyl)phthalate	161.4	50	200	0	80.7	40-125	153.1	5.28	30	
Butyl benzyl phthalate	183.9	50	200	0	92	45-115	178.3	3.09	30	
Carbazole	212	100	200	0	106	50-150	203.5	4.09	30	
Chrysene	162.7	50	200	0	81.4	55-110	155.2	4.72	30	
Dibenzo(a,h)anthracene	165.3	50	200	0	82.6	40-125	162.9	1.46	30	
Dibenzofuran	148.2	50	200	0	74.1	55-105	145	2.18	30	
Diethyl phthalate	168.9	200	200	0	84.4	40-120	169.1	0	30	J
Dimethyl phthalate	165	200	200	0	82.5	25-125	159.6	0	30	J
Di-n-butyl phthalate	166.7	50	200	0	83.4	55-115	159.4	4.48	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58013** Instrument ID **SVMS7** Method: **SW8270**

Di-n-octyl phthalate	153	50	200	0	76.5	35-135	143.8	6.2	30	
Fluoranthene	177.8	50	200	0	88.9	55-115	173.3	2.56	30	
Fluorene	154	50	200	0	77	50-110	151.1	1.9	30	
Hexachlorobenzene	148.9	50	200	0	74.4	50-110	145	2.65	30	
Hexachlorobutadiene	125.8	50	200	0	62.9	25-105	129.5	2.9	30	
Hexachlorocyclopentadiene	63.7	200	200	0	31.8	25-105	64.2	0	30	J
Hexachloroethane	134.7	50	200	0	67.4	30-95	140.2	4	30	
Indeno(1,2,3-cd)pyrene	161.7	50	200	0	80.8	45-125	158.8	1.81	30	
Isophorone	147.8	50	200	0	73.9	50-110	148.2	0.27	30	
Naphthalene	127.8	50	200	2.75	62.5	40-100	129.5	1.32	30	
Nitrobenzene	135.9	50	200	0	68	45-110	139.1	2.33	30	
N-Nitrosodi-n-propylamine	151.1	50	200	0	75.6	35-130	152.1	0.66	30	
N-Nitrosodiphenylamine	191.2	50	200	0	95.6	50-110	184.6	3.51	30	
Pentachlorophenol	279.9	200	200	0	140	40-115	280	0.0357	30	S
Phenanthrene	160	50	200	0	80	50-115	154.9	3.24	30	
Phenol	75.6	50	200	23.45	26.1	12-43	71.7	5.3	30	
Pyrene	166.1	50	200	0	83	50-130	161.3	2.93	30	
Surr: 2,4,6-Tribromophenol	*442.9*	0	*500*	0	*88.6*	*38-115*	434.7	*1.87*	*40*	
Surr: 2-Fluorobiphenyl	*359.2*	0	*500*	0	*71.8*	*32-100*	354.4	*1.35*	*40*	
Surr: 2-Fluorophenol	*200*	0	*500*	0	*40*	*22-59*	193.2	*3.46*	*40*	
Surr: 4-Terphenyl-d14	*438.5*	0	*500*	0	*87.7*	*23-112*	426.4	*2.8*	*40*	
Surr: Nitrobenzene-d5	*328*	0	*500*	0	*65.6*	*31-93*	344.2	*4.82*	*40*	
Surr: Phenol-d6	*127.2*	0	*500*	0	*25.4*	*13-36*	119.2	*6.49*	*40*	

The following samples were analyzed in this batch: 14041301-09A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58019** Instrument ID **SVMS4** Method: **SW8270**

MBLK	Sample ID: **SBLKS1-58019-58019**	Units: **µg/Kg**	Analysis Date: **4/28/2014 09:25 PM**
Client ID:	Run ID: **SVMS4_140428A**	SeqNo: **2735483** Prep Date: **4/28/2014**	DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	ND	330								
2,4,5-Trichlorophenol	ND	160								
2,4,6-Trichlorophenol	ND	160								
2,4-Dichlorophenol	ND	160								
2,4-Dimethylphenol	ND	330								
2,4-Dinitrophenol	ND	660								
2,4-Dinitrotoluene	ND	160								
2,6-Dinitrotoluene	ND	160								
2-Chloronaphthalene	ND	6.7								
2-Chlorophenol	ND	160								
2-Methylnaphthalene	ND	6.7								
2-Methylphenol	ND	160								
2-Nitroaniline	ND	660								
2-Nitrophenol	ND	160								
3,3´-Dichlorobenzidine	ND	660								
3-Nitroaniline	ND	660								
4,6-Dinitro-2-methylphenol	ND	330								
4-Bromophenyl phenyl ether	ND	160								
4-Chloro-3-methylphenol	ND	160								
4-Chloroaniline	ND	660								
4-Chlorophenyl phenyl ether	ND	160								
4-Methylphenol	ND	160								
4-Nitroaniline	ND	660								
4-Nitrophenol	ND	660								
Acenaphthene	ND	6.7								
Acenaphthylene	ND	6.7								
Acetophenone	ND	330								
Anthracene	ND	6.7								
Atrazine	ND	330								
Benzaldehyde	ND	330								
Benzo(a)anthracene	ND	6.7								
Benzo(a)pyrene	ND	6.7								
Benzo(b)fluoranthene	ND	6.7								
Benzo(g,h,i)perylene	ND	6.7								
Benzo(k)fluoranthene	ND	6.7								
Bis(2-chloroethoxy)methane	ND	160								
Bis(2-chloroethyl)ether	ND	160								
Bis(2-chloroisopropyl)ether	ND	160								
Bis(2-ethylhexyl)phthalate	ND	330								
Butyl benzyl phthalate	ND	160								
Caprolactam	ND	330								
Carbazole	ND	160								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **58019** Instrument ID **SVMS4** Method: **SW8270**

Chrysene	ND	6.7						
Dibenzo(a,h)anthracene	ND	6.7						
Dibenzofuran	ND	160						
Diethyl phthalate	ND	330						
Dimethyl phthalate	ND	330						
Di-n-butyl phthalate	9.333	330						J
Di-n-octyl phthalate	ND	160						
Fluoranthene	ND	6.7						
Fluorene	ND	6.7						
Hexachlorobenzene	ND	160						
Hexachlorobutadiene	ND	160						
Hexachlorocyclopentadiene	ND	330						
Hexachloroethane	ND	160						
Indeno(1,2,3-cd)pyrene	ND	6.7						
Isophorone	ND	160						
Naphthalene	ND	6.7						
Nitrobenzene	ND	160						
N-Nitrosodi-n-propylamine	ND	160						
N-Nitrosodiphenylamine	ND	160						
Pentachlorophenol	ND	330						
Phenanthrene	ND	6.7						
Phenol	ND	160						
Pyrene	ND	6.7						
Surr: 2,4,6-Tribromophenol	*1253*	0	*1667*	0	*75.2*	*34-140*	0	
Surr: 2-Fluorobiphenyl	*1210*	0	*1667*	0	*72.6*	*12-100*	0	
Surr: 2-Fluorophenol	*1403*	0	*1667*	0	*84.2*	*33-117*	0	
Surr: 4-Terphenyl-d14	*1556*	0	*1667*	0	*93.3*	*25-137*	0	
Surr: Nitrobenzene-d5	*1249*	0	*1667*	0	*74.9*	*37-107*	0	
Surr: Phenol-d6	*1454*	0	*1667*	0	*87.2*	*40-106*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58019** Instrument ID **SVMS4** Method: **SW8270**

LCS Sample ID: **SLCSS1-58019-58019** Units: **µg/Kg** Analysis Date: **4/28/2014 07:17 PM**

Client ID: Run ID: **SVMS4_140428A** SeqNo: **2735479** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	548.3	160	666.7	0	82.2	50-110	0			
2,4,6-Trichlorophenol	538.3	160	666.7	0	80.7	45-110	0			
2,4-Dichlorophenol	552.3	160	666.7	0	82.8	45-110	0			
2,4-Dimethylphenol	548.7	330	666.7	0	82.3	30-105	0			
2,4-Dinitrophenol	571.7	660	666.7	0	85.7	15-130	0			J
2,4-Dinitrotoluene	596	160	666.7	0	89.4	50-115	0			
2,6-Dinitrotoluene	591.3	160	666.7	0	88.7	50-110	0			
2-Chloronaphthalene	558	6.7	666.7	0	83.7	45-105	0			
2-Chlorophenol	588.7	160	666.7	0	88.3	45-105	0			
2-Methylnaphthalene	559.3	6.7	666.7	0	83.9	45-105	0			
2-Methylphenol	579	160	666.7	0	86.8	40-105	0			
2-Nitroaniline	573.3	660	666.7	0	86	45-120	0			J
2-Nitrophenol	545.7	160	666.7	0	81.8	40-110	0			
3-Nitroaniline	366.7	660	666.7	0	55	25-150	0			J
4-Bromophenyl phenyl ether	582.3	160	666.7	0	87.3	45-115	0			
4-Chloro-3-methylphenol	570.3	160	666.7	0	85.5	45-115	0			
4-Chloroaniline	471.7	660	666.7	0	70.7	15-110	0			J
4-Chlorophenyl phenyl ether	537	160	666.7	0	80.5	45-110	0			
4-Methylphenol	605.3	160	666.7	0	90.8	40-105	0			
4-Nitroaniline	370.7	660	666.7	0	55.6	35-150	0			J
4-Nitrophenol	575.7	660	666.7	0	86.3	15-140	0			J
Acenaphthene	544.7	6.7	666.7	0	81.7	45-110	0			
Acenaphthylene	559.3	6.7	666.7	0	83.9	45-105	0			
Anthracene	612.3	6.7	666.7	0	91.8	55-105	0			
Benzo(a)anthracene	621.7	6.7	666.7	0	93.2	50-110	0			
Benzo(a)pyrene	633	6.7	666.7	0	94.9	50-110	0			
Benzo(b)fluoranthene	580	6.7	666.7	0	87	45-115	0			
Benzo(g,h,i)perylene	624	6.7	666.7	0	93.6	40-125	0			
Benzo(k)fluoranthene	664.3	6.7	666.7	0	99.6	45-115	0			
Bis(2-chloroethoxy)methane	538.3	160	666.7	0	80.7	45-110	0			
Bis(2-chloroethyl)ether	526.7	160	666.7	0	79	40-105	0			
Bis(2-chloroisopropyl)ether	542.7	160	666.7	0	81.4	20-115	0			
Bis(2-ethylhexyl)phthalate	665.3	330	666.7	0	99.8	45-125	0			
Butyl benzyl phthalate	698.3	160	666.7	0	105	50-125	0			
Carbazole	656.3	160	666.7	0	98.4	50-150	0			
Chrysene	598.3	6.7	666.7	0	89.7	55-110	0			
Dibenzo(a,h)anthracene	581	6.7	666.7	0	87.1	40-125	0			
Dibenzofuran	544.3	160	666.7	0	81.6	50-105	0			
Diethyl phthalate	606.3	330	666.7	0	90.9	50-115	0			
Dimethyl phthalate	578	330	666.7	0	86.7	50-110	0			
Di-n-butyl phthalate	620.7	330	666.7	0	93.1	55-110	0			
Di-n-octyl phthalate	618.7	160	666.7	0	92.8	40-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **58019** Instrument ID **SVMS4** Method: **SW8270**

Fluoranthene	643.7	6.7	666.7	0	96.5	55-115	0
Fluorene	552.7	6.7	666.7	0	82.9	50-110	0
Hexachlorobenzene	560.7	160	666.7	0	84.1	45-120	0
Hexachlorobutadiene	548	160	666.7	0	82.2	40-115	0
Hexachlorocyclopentadiene	514.3	330	666.7	0	77.1	40-115	0
Hexachloroethane	561	160	666.7	0	84.1	35-110	0
Indeno(1,2,3-cd)pyrene	581	6.7	666.7	0	87.1	40-120	0
Isophorone	559	160	666.7	0	83.8	45-110	0
Naphthalene	527.7	6.7	666.7	0	79.1	40-105	0
Nitrobenzene	565.3	160	666.7	0	84.8	40-115	0
N-Nitrosodi-n-propylamine	581	160	666.7	0	87.1	40-115	0
N-Nitrosodiphenylamine	709.7	160	666.7	0	106	50-115	0
Pentachlorophenol	683.7	330	666.7	0	103	25-120	0
Phenanthrene	585.7	6.7	666.7	0	87.8	50-110	0
Phenol	558.7	160	666.7	0	83.8	40-100	0
Pyrene	628	6.7	666.7	0	94.2	45-125	0
Surr: 2,4,6-Tribromophenol	*1546*	0	*1667*	0	*92.8*	*34-140*	0
Surr: 2-Fluorobiphenyl	*1388*	0	*1667*	0	*83.3*	*12-100*	0
Surr: 2-Fluorophenol	*1530*	0	*1667*	0	*91.8*	*33-117*	0
Surr: 4-Terphenyl-d14	*1730*	0	*1667*	0	*104*	*25-137*	0
Surr: Nitrobenzene-d5	*1385*	0	*1667*	0	*83.1*	*37-107*	0
Surr: Phenol-d6	*1589*	0	*1667*	0	*95.3*	*40-106*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58019** Instrument ID **SVMS4** Method: **SW8270**

MS Sample ID: **14041242-01B MS** Units: **µg/Kg** Analysis Date: **4/28/2014 07:49 PM**

Client ID: Run ID: **SVMS4_140428A** SeqNo: **2735480** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	1109	310	1301	0	85.2	50-110	0			
2,4,6-Trichlorophenol	1072	310	1301	0	82.4	45-110	0			
2,4-Dichlorophenol	995.3	310	1301	0	76.5	45-110	0			
2,4-Dimethylphenol	804.7	640	1301	0	61.8	30-105	0			
2,4-Dinitrophenol	988.2	1,300	1301	0	75.9	15-130	0			J
2,4-Dinitrotoluene	1135	310	1301	0	87.2	50-115	0			
2,6-Dinitrotoluene	1148	310	1301	0	88.2	50-110	0			
2-Chloronaphthalene	1025	13	1301	0	78.7	45-105	0			
2-Chlorophenol	1011	310	1301	0	77.7	45-105	0			
2-Methylnaphthalene	999.9	13	1301	30.44	74.5	45-105	0			
2-Methylphenol	995.3	310	1301	0	76.5	40-105	0			
2-Nitroaniline	1120	1,300	1301	0	86	45-120	0			J
2-Nitrophenol	950.4	310	1301	0	73	40-110	0			
3-Nitroaniline	815.8	1,300	1301	0	62.7	25-110	0			J
4-Bromophenyl phenyl ether	1148	310	1301	0	88.2	45-115	0			
4-Chloro-3-methylphenol	1123	310	1301	0	86.3	45-115	0			
4-Chloroaniline	616.1	1,300	1301	0	47.3	15-110	0			J
4-Chlorophenyl phenyl ether	1048	310	1301	0	80.5	45-110	0			
4-Methylphenol	1066	310	1301	0	81.9	40-105	0			
4-Nitroaniline	850.9	1,300	1301	0	65.4	35-150	0			J
4-Nitrophenol	1108	1,300	1301	0	85.1	15-140	0			J
Acenaphthene	1045	13	1301	0	80.3	45-110	0			
Acenaphthylene	1061	13	1301	0	81.5	45-105	0			
Anthracene	1187	13	1301	4.962	90.9	55-105	0			
Benzo(a)anthracene	1194	13	1301	8.932	91.1	50-110	0			
Benzo(a)pyrene	1228	13	1301	26.47	92.4	50-110	0			
Benzo(b)fluoranthene	1230	13	1301	44.66	91.1	45-115	0			
Benzo(g,h,i)perylene	1220	13	1301	50.28	89.9	40-125	0			
Benzo(k)fluoranthene	1169	13	1301	19.19	88.4	45-115	0			
Bis(2-chloroethoxy)methane	929	310	1301	0	71.4	45-110	0			
Bis(2-chloroethyl)ether	889.9	310	1301	0	68.4	40-105	0			
Bis(2-chloroisopropyl)ether	943.3	310	1301	0	72.5	20-115	0			
Bis(2-ethylhexyl)phthalate	1148	640	1301	12.57	87.3	45-125	0			
Butyl benzyl phthalate	1285	310	1301	6.286	98.3	50-125	0			
Carbazole	1426	310	1301	0	110	50-150	0			
Chrysene	1171	13	1301	40.69	86.9	55-110	0			
Dibenzo(a,h)anthracene	1096	13	1301	28.12	82.1	40-125	0			
Dibenzofuran	1063	310	1301	11.25	80.8	50-105	0			
Diethyl phthalate	1158	640	1301	0	89	50-115	0			
Dimethyl phthalate	1114	640	1301	0	85.6	50-110	0			
Di-n-butyl phthalate	1148	640	1301	11.25	87.4	55-110	0			
Di-n-octyl phthalate	1150	310	1301	0	88.4	40-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **58019** Instrument ID **SVMS4** Method: **SW8270**

Fluoranthene	1325	13	1301	62.19	97.1	55-115	0
Fluorene	1089	13	1301	5.624	83.3	50-110	0
Hexachlorobenzene	1065	310	1301	0	81.8	45-120	0
Hexachlorobutadiene	919.2	310	1301	0	70.6	40-115	0
Hexachlorocyclopentadiene	684.4	640	1301	0	52.6	40-115	0
Hexachloroethane	947.2	310	1301	0	72.8	35-110	0
Indeno(1,2,3-cd)pyrene	1114	13	1301	22.5	83.9	40-120	0
Isophorone	988.8	310	1301	0	76	45-110	0
Naphthalene	918.6	13	1301	21.5	68.9	40-105	0
Nitrobenzene	979.7	310	1301	0	75.3	40-115	0
N-Nitrosodi-n-propylamine	1007	310	1301	0	77.4	40-115	0
N-Nitrosodiphenylamine	1361	310	1301	0	105	50-115	0
Pentachlorophenol	1379	640	1301	0	106	25-120	0
Phenanthrene	1191	13	1301	52.6	87.5	50-110	0
Phenol	975.1	310	1301	0	74.9	40-100	0
Pyrene	1249	13	1301	46.65	92.4	45-125	0
Surr: 2,4,6-Tribromophenol	*2952*	0	*3253*	0	*90.8*	*34-140*	0
Surr: 2-Fluorobiphenyl	*2513*	0	*3253*	0	*77.3*	*12-100*	0
Surr: 2-Fluorophenol	*2600*	0	*3253*	0	*79.9*	*33-117*	0
Surr: 4-Terphenyl-d14	*3173*	0	*3253*	0	*97.5*	*25-137*	0
Surr: Nitrobenzene-d5	*2364*	0	*3253*	0	*72.7*	*37-107*	0
Surr: Phenol-d6	*2729*	0	*3253*	0	*83.9*	*40-106*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58019** Instrument ID **SVMS4** Method: **SW8270**

MSD Sample ID: **14041242-01B MSD** Units: **µg/Kg** Analysis Date: **4/28/2014 08:21 PM**

Client ID: Run ID: **SVMS4_140428A** SeqNo: **2735481** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	1089	320	1318	0	82.6	50-110	1109	1.79	30	
2,4,6-Trichlorophenol	1029	320	1318	0	78	45-110	1072	4.11	30	
2,4-Dichlorophenol	978.1	320	1318	0	74.2	45-110	995.3	1.74	30	
2,4-Dimethylphenol	851.6	650	1318	0	64.6	30-105	804.7	5.66	30	
2,4-Dinitrophenol	1027	1,300	1318	0	77.9	15-130	988.2	0	30	J
2,4-Dinitrotoluene	1120	320	1318	0	84.9	50-115	1135	1.3	30	
2,6-Dinitrotoluene	1077	320	1318	0	81.7	50-110	1148	6.34	30	
2-Chloronaphthalene	976.1	13	1318	0	74	45-105	1025	4.84	30	
2-Chlorophenol	1006	320	1318	0	76.3	45-105	1011	0.443	30	
2-Methylnaphthalene	990.6	13	1318	30.44	72.8	45-105	999.9	0.927	30	
2-Methylphenol	994.6	320	1318	0	75.4	40-105	995.3	0.0725	30	
2-Nitroaniline	1070	1,300	1318	0	81.1	45-120	1120	0	30	J
2-Nitrophenol	950.4	320	1318	0	72.1	40-110	950.4	0.0006	30	
3-Nitroaniline	917.5	1,300	1318	0	69.6	25-110	815.8	0	30	J
4-Bromophenyl phenyl ether	1100	320	1318	0	83.4	45-115	1148	4.28	30	
4-Chloro-3-methylphenol	1082	320	1318	0	82.1	45-115	1123	3.68	30	
4-Chloroaniline	614.3	1,300	1318	0	46.6	15-110	616.1	0	30	J
4-Chlorophenyl phenyl ether	982.7	320	1318	0	74.5	45-110	1048	6.43	30	
4-Methylphenol	1046	320	1318	0	79.3	40-105	1066	1.91	30	
4-Nitroaniline	948.5	1,300	1318	0	71.9	35-150	850.9	0	30	J
4-Nitrophenol	1117	1,300	1318	0	84.7	15-140	1108	0	30	J
Acenaphthene	970.2	13	1318	0	73.6	45-110	1045	7.46	30	
Acenaphthylene	1008	13	1318	0	76.5	45-105	1061	5.08	30	
Anthracene	1151	13	1318	4.962	86.9	55-105	1187	3.12	30	
Benzo(a)anthracene	1208	13	1318	8.932	91	50-110	1194	1.2	30	
Benzo(a)pyrene	1212	13	1318	26.47	89.9	50-110	1228	1.32	30	
Benzo(b)fluoranthene	1166	13	1318	44.66	85.1	45-115	1230	5.36	30	
Benzo(g,h,i)perylene	1127	13	1318	50.28	81.7	40-125	1220	7.9	30	
Benzo(k)fluoranthene	1194	13	1318	19.19	89.1	45-115	1169	2.09	30	
Bis(2-chloroethoxy)methane	931.3	320	1318	0	70.6	45-110	929	0.254	30	
Bis(2-chloroethyl)ether	869.4	320	1318	0	65.9	40-105	889.9	2.34	30	
Bis(2-chloroisopropyl)ether	919.5	320	1318	0	69.7	20-115	943.3	2.56	30	
Bis(2-ethylhexyl)phthalate	1115	650	1318	12.57	83.6	45-125	1148	2.97	30	
Butyl benzyl phthalate	1258	320	1318	6.286	94.9	50-125	1285	2.14	30	
Carbazole	1422	320	1318	0	108	50-150	1426	0.3	30	
Chrysene	1120	13	1318	40.69	81.9	55-110	1171	4.41	30	
Dibenzo(a,h)anthracene	1068	13	1318	28.12	78.9	40-125	1096	2.62	30	
Dibenzofuran	997.2	320	1318	11.25	74.8	50-105	1063	6.38	30	
Diethyl phthalate	1117	650	1318	0	84.7	50-115	1158	3.64	30	
Dimethyl phthalate	1044	650	1318	0	79.2	50-110	1114	6.46	30	
Di-n-butyl phthalate	1127	650	1318	11.25	84.6	55-110	1148	1.86	30	
Di-n-octyl phthalate	1100	320	1318	0	83.4	40-130	1150	4.45	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58019** Instrument ID **SVMS4** Method: **SW8270**

Fluoranthene	1281	13	1318	62.19	92.4	55-115	1325	3.41	30	
Fluorene	1020	13	1318	5.624	76.9	50-110	1089	6.58	30	
Hexachlorobenzene	1056	320	1318	0	80.1	45-120	1065	0.852	30	
Hexachlorobutadiene	922.8	320	1318	0	70	40-115	919.2	0.385	30	
Hexachlorocyclopentadiene	585.9	650	1318	0	44.4	40-115	684.4	0	30	J
Hexachloroethane	941.2	320	1318	0	71.4	35-110	947.2	0.632	30	
Indeno(1,2,3-cd)pyrene	1075	13	1318	22.5	79.8	40-120	1114	3.6	30	
Isophorone	968.2	320	1318	0	73.4	45-110	988.8	2.1	30	
Naphthalene	913.5	13	1318	21.5	67.7	40-105	918.6	0.549	30	
Nitrobenzene	969.5	320	1318	0	73.5	40-115	979.7	1.04	30	
N-Nitrosodi-n-propylamine	1008	320	1318	0	76.5	40-115	1007	0.14	30	
N-Nitrosodiphenylamine	1331	320	1318	0	101	50-115	1361	2.24	30	
Pentachlorophenol	1452	650	1318	0	110	25-120	1379	5.15	30	
Phenanthrene	1160	13	1318	52.6	84	50-110	1191	2.65	30	
Phenol	976.8	320	1318	0	74.1	40-100	975.1	0.169	30	
Pyrene	1208	13	1318	46.65	88.1	45-125	1249	3.33	30	
Surr: 2,4,6-Tribromophenol	*3023*	0	*3296*	0	*91.7*	*34-140*	2952	*2.38*	*40*	
Surr: 2-Fluorobiphenyl	*2435*	0	*3296*	0	*73.9*	*12-100*	2513	*3.16*	*40*	
Surr: 2-Fluorophenol	*2605*	0	*3296*	0	*79.1*	*33-117*	2600	*0.228*	*40*	
Surr: 4-Terphenyl-d14	*3196*	0	*3296*	0	*97*	*25-137*	3173	*0.734*	*40*	
Surr: Nitrobenzene-d5	*2368*	0	*3296*	0	*71.9*	*37-107*	2364	*0.175*	*40*	
Surr: Phenol-d6	*2732*	0	*3296*	0	*82.9*	*40-106*	2729	*0.111*	*40*	

The following samples were analyzed in this batch:

14041301-01A 14041301-02A 14041301-03A
14041301-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58052** Instrument ID **SVMS8** Method: **SW8270**

MBLK Sample ID: **SBLKS1-58052-58052** Units: **µg/Kg** Analysis Date: **4/29/2014 05:15 PM**

Client ID: Run ID: **SVMS8_140429A** SeqNo: **2738164** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	ND	330								
2,4,5-Trichlorophenol	ND	160								
2,4,6-Trichlorophenol	ND	160								
2,4-Dichlorophenol	ND	160								
2,4-Dimethylphenol	ND	330								
2,4-Dinitrophenol	ND	660								
2,4-Dinitrotoluene	ND	160								
2,6-Dinitrotoluene	ND	160								
2-Chloronaphthalene	ND	6.7								
2-Chlorophenol	ND	160								
2-Methylnaphthalene	ND	6.7								
2-Methylphenol	ND	160								
2-Nitroaniline	ND	660								
2-Nitrophenol	ND	160								
3,3´-Dichlorobenzidine	ND	660								
3-Nitroaniline	ND	660								
4,6-Dinitro-2-methylphenol	ND	330								
4-Bromophenyl phenyl ether	ND	160								
4-Chloro-3-methylphenol	ND	160								
4-Chloroaniline	ND	660								
4-Chlorophenyl phenyl ether	ND	160								
4-Methylphenol	ND	160								
4-Nitroaniline	ND	660								
4-Nitrophenol	ND	660								
Acenaphthene	ND	6.7								
Acenaphthylene	ND	6.7								
Acetophenone	ND	330								
Anthracene	ND	6.7								
Atrazine	ND	330								
Benzaldehyde	ND	330								
Benzo(a)anthracene	ND	6.7								
Benzo(a)pyrene	ND	6.7								
Benzo(b)fluoranthene	ND	6.7								
Benzo(g,h,i)perylene	ND	6.7								
Benzo(k)fluoranthene	ND	6.7								
Bis(2-chloroethoxy)methane	ND	160								
Bis(2-chloroethyl)ether	ND	160								
Bis(2-chloroisopropyl)ether	ND	160								
Bis(2-ethylhexyl)phthalate	ND	330								
Butyl benzyl phthalate	ND	160								
Caprolactam	ND	330								
Carbazole	ND	160								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58052** Instrument ID **SVMS8** Method: **SW8270**

Chrysene	ND	6.7					
Dibenzo(a,h)anthracene	ND	6.7					
Dibenzofuran	ND	160					
Diethyl phthalate	ND	330					
Dimethyl phthalate	ND	330					
Di-n-butyl phthalate	ND	330					
Di-n-octyl phthalate	ND	160					
Fluoranthene	ND	6.7					
Fluorene	ND	6.7					
Hexachlorobenzene	ND	160					
Hexachlorobutadiene	ND	160					
Hexachlorocyclopentadiene	ND	330					
Hexachloroethane	ND	160					
Indeno(1,2,3-cd)pyrene	ND	6.7					
Isophorone	ND	160					
Naphthalene	ND	6.7					
Nitrobenzene	ND	160					
N-Nitrosodi-n-propylamine	ND	160					
N-Nitrosodiphenylamine	ND	160					
Pentachlorophenol	ND	330					
Phenanthrene	ND	6.7					
Phenol	ND	160					
Pyrene	ND	6.7					
Surr: 2,4,6-Tribromophenol	*1160*	0	*1667*	0	*69.6*	*34-140*	0
Surr: 2-Fluorobiphenyl	*1223*	0	*1667*	0	*73.4*	*12-100*	0
Surr: 2-Fluorophenol	*1331*	0	*1667*	0	*79.9*	*33-117*	0
Surr: 4-Terphenyl-d14	*2035*	0	*1667*	0	*122*	*25-137*	0
Surr: Nitrobenzene-d5	*1171*	0	*1667*	0	*70.3*	*37-107*	0
Surr: Phenol-d6	*1278*	0	*1667*	0	*76.7*	*40-106*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58052** Instrument ID **SVMS8** Method: **SW8270**

LCS Sample ID: **SLCSS1-58052-58052** Units: **µg/Kg** Analysis Date: **4/29/2014 05:35 PM**

Client ID: Run ID: **SVMS8_140429A** SeqNo: **2738165** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	603.7	160	666.7	0	90.5	50-110	0			
2,4,6-Trichlorophenol	614.3	160	666.7	0	92.1	45-110	0			
2,4-Dichlorophenol	594.7	160	666.7	0	89.2	45-110	0			
2,4-Dimethylphenol	511.7	330	666.7	0	76.7	30-105	0			
2,4-Dinitrophenol	563	660	666.7	0	84.4	15-130	0			J
2,4-Dinitrotoluene	650.7	160	666.7	0	97.6	50-115	0			
2,6-Dinitrotoluene	642.3	160	666.7	0	96.3	50-110	0			
2-Chloronaphthalene	607.7	6.7	666.7	0	91.1	45-105	0			
2-Chlorophenol	622.3	160	666.7	0	93.3	45-105	0			
2-Methylnaphthalene	602.3	6.7	666.7	0	90.3	45-105	0			
2-Methylphenol	605.7	160	666.7	0	90.8	40-105	0			
2-Nitroaniline	579.3	660	666.7	0	86.9	45-120	0			J
2-Nitrophenol	641.7	160	666.7	0	96.2	40-110	0			
3-Nitroaniline	333.7	660	666.7	0	50	25-150	0			J
4-Bromophenyl phenyl ether	654.7	160	666.7	0	98.2	45-115	0			
4-Chloro-3-methylphenol	622.3	160	666.7	0	93.3	45-115	0			
4-Chloroaniline	439	660	666.7	0	65.8	15-110	0			J
4-Chlorophenyl phenyl ether	673.7	160	666.7	0	101	45-110	0			
4-Methylphenol	595.7	160	666.7	0	89.3	40-105	0			
4-Nitroaniline	279.7	660	666.7	0	41.9	35-150	0			J
4-Nitrophenol	695	660	666.7	0	104	15-140	0			
Acenaphthene	544.3	6.7	666.7	0	81.6	45-110	0			
Acenaphthylene	553	6.7	666.7	0	82.9	45-105	0			
Anthracene	576.7	6.7	666.7	0	86.5	55-105	0			
Benzo(a)anthracene	593.7	6.7	666.7	0	89	50-110	0			
Benzo(a)pyrene	573.7	6.7	666.7	0	86	50-110	0			
Benzo(b)fluoranthene	588.3	6.7	666.7	0	88.2	45-115	0			
Benzo(g,h,i)perylene	602.3	6.7	666.7	0	90.3	40-125	0			
Benzo(k)fluoranthene	613.7	6.7	666.7	0	92	45-115	0			
Bis(2-chloroethoxy)methane	580	160	666.7	0	87	45-110	0			
Bis(2-chloroethyl)ether	582	160	666.7	0	87.3	40-105	0			
Bis(2-chloroisopropyl)ether	481.3	160	666.7	0	72.2	20-115	0			
Bis(2-ethylhexyl)phthalate	660.7	330	666.7	0	99.1	45-125	0			
Butyl benzyl phthalate	621.3	160	666.7	0	93.2	50-125	0			
Carbazole	569.3	160	666.7	0	85.4	50-150	0			
Chrysene	651	6.7	666.7	0	97.6	55-110	0			
Dibenzo(a,h)anthracene	588	6.7	666.7	0	88.2	40-125	0			
Dibenzofuran	602.3	160	666.7	0	90.3	50-105	0			
Diethyl phthalate	658.3	330	666.7	0	98.7	50-115	0			
Dimethyl phthalate	673.3	330	666.7	0	101	50-110	0			
Di-n-butyl phthalate	644	330	666.7	0	96.6	55-110	0			
Di-n-octyl phthalate	600	160	666.7	0	90	40-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58052** Instrument ID **SVMS8** Method: **SW8270**

Fluoranthene	589.7	6.7	666.7	0	88.4	55-115	0
Fluorene	642.7	6.7	666.7	0	96.4	50-110	0
Hexachlorobenzene	619.7	160	666.7	0	92.9	45-120	0
Hexachlorobutadiene	644	160	666.7	0	96.6	40-115	0
Hexachlorocyclopentadiene	511.3	330	666.7	0	76.7	40-115	0
Hexachloroethane	593.3	160	666.7	0	89	35-110	0
Indeno(1,2,3-cd)pyrene	566	6.7	666.7	0	84.9	40-120	0
Isophorone	551	160	666.7	0	82.6	45-110	0
Naphthalene	561	6.7	666.7	0	84.1	40-105	0
Nitrobenzene	581.7	160	666.7	0	87.2	40-115	0
N-Nitrosodi-n-propylamine	593.7	160	666.7	0	89	40-115	0
N-Nitrosodiphenylamine	568.3	160	666.7	0	85.2	50-115	0
Pentachlorophenol	650.3	330	666.7	0	97.5	25-120	0
Phenanthrene	591.7	6.7	666.7	0	88.7	50-110	0
Phenol	586.7	160	666.7	0	88	40-100	0
Pyrene	667.3	6.7	666.7	0	100	45-125	0
Surr: 2,4,6-Tribromophenol	*1495*	0	*1667*	0	*89.7*	*34-140*	0
Surr: 2-Fluorobiphenyl	*1499*	0	*1667*	0	*89.9*	*12-100*	0
Surr: 2-Fluorophenol	*1538*	0	*1667*	0	*92.3*	*33-117*	0
Surr: 4-Terphenyl-d14	*2018*	0	*1667*	0	*121*	*25-137*	0
Surr: Nitrobenzene-d5	*1504*	0	*1667*	0	*90.3*	*37-107*	0
Surr: Phenol-d6	*1508*	0	*1667*	0	*90.5*	*40-106*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58052** Instrument ID **SVMS8** Method: **SW8270**

MS Sample ID: **14041211-03B MS** Units: **µg/Kg** Analysis Date: **4/29/2014 07:44 PM**

Client ID: Run ID: **SVMS8_140429A** SeqNo: **2738170** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	1189	320	1320	0	90	50-110	0			
2,4,6-Trichlorophenol	1163	320	1320	0	88.1	45-110	0			
2,4-Dichlorophenol	1044	320	1320	0	79	45-110	0			
2,4-Dimethylphenol	1023	650	1320	0	77.4	30-105	0			
2,4-Dinitrophenol	914.3	1,300	1320	0	69.2	15-130	0			J
2,4-Dinitrotoluene	1216	320	1320	0	92.1	50-115	0			
2,6-Dinitrotoluene	1130	320	1320	0	85.6	50-110	0			
2-Chloronaphthalene	967.7	13	1320	0	73.3	45-105	0			
2-Chlorophenol	953.2	320	1320	0	72.2	45-105	0			
2-Methylnaphthalene	917.6	13	1320	0	69.5	45-105	0			
2-Methylphenol	1033	320	1320	0	78.2	40-105	0			
2-Nitroaniline	1158	1,300	1320	0	87.7	45-120	0			J
2-Nitrophenol	962.4	320	1320	0	72.9	40-110	0			
3-Nitroaniline	834.4	1,300	1320	0	63.2	25-110	0			J
4-Bromophenyl phenyl ether	1234	320	1320	0	93.5	45-115	0			
4-Chloro-3-methylphenol	1163	320	1320	0	88.1	45-115	0			
4-Chloroaniline	474.6	1,300	1320	0	35.9	15-110	0			J
4-Chlorophenyl phenyl ether	1161	320	1320	0	87.9	45-110	0			
4-Methylphenol	1029	320	1320	0	77.9	40-105	0			
4-Nitroaniline	916.9	1,300	1320	0	69.4	35-150	0			J
4-Nitrophenol	1292	1,300	1320	0	97.8	15-140	0			J
Acenaphthene	944	13	1320	0	71.5	45-110	0			
Acenaphthylene	975	13	1320	0	73.8	45-105	0			
Anthracene	1069	13	1320	0	81	55-105	0			
Benzo(a)anthracene	1141	13	1320	0	86.4	50-110	0			
Benzo(a)pyrene	1133	13	1320	0	85.8	50-110	0			
Benzo(b)fluoranthene	1087	13	1320	0	82.3	45-115	0			
Benzo(g,h,i)perylene	1122	13	1320	0	84.9	40-125	0			
Benzo(k)fluoranthene	1051	13	1320	0	79.6	45-115	0			
Bis(2-chloroethoxy)methane	876.6	320	1320	0	66.4	45-110	0			
Bis(2-chloroethyl)ether	1030	320	1320	0	78	40-105	0			
Bis(2-chloroisopropyl)ether	722.8	320	1320	0	54.7	20-115	0			
Bis(2-ethylhexyl)phthalate	1425	650	1320	0	108	45-125	0			
Butyl benzyl phthalate	1384	320	1320	0	105	50-125	0			
Carbazole	1019	320	1320	0	77.1	50-150	0			
Chrysene	1149	13	1320	0	87	55-110	0			
Dibenzo(a,h)anthracene	1091	13	1320	0	82.6	40-125	0			
Dibenzofuran	1042	320	1320	0	78.9	50-105	0			
Diethyl phthalate	1194	650	1320	0	90.4	50-115	0			
Dimethyl phthalate	1159	650	1320	0	87.8	50-110	0			
Di-n-butyl phthalate	1312	650	1320	0	99.4	55-110	0			
Di-n-octyl phthalate	1522	320	1320	0	115	40-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58052** Instrument ID **SVMS8** Method: **SW8270**

Fluoranthene	1103	13	1320	0	83.5	55-115	0	
Fluorene	1139	13	1320	0	86.2	50-110	0	
Hexachlorobenzene	1120	320	1320	0	84.8	45-120	0	
Hexachlorobutadiene	919.5	320	1320	0	69.6	40-115	0	
Hexachlorocyclopentadiene	482.5	650	1320	0	36.5	40-115	0	JS
Hexachloroethane	843	320	1320	0	63.8	35-110	0	
Indeno(1,2,3-cd)pyrene	1159	13	1320	0	87.8	40-120	0	
Isophorone	894.4	320	1320	0	67.7	45-110	0	
Naphthalene	804.7	13	1320	0	60.9	40-105	0	
Nitrobenzene	859.5	320	1320	0	65.1	40-115	0	
N-Nitrosodi-n-propylamine	930.8	320	1320	0	70.5	40-115	0	
N-Nitrosodiphenylamine	1022	320	1320	0	77.4	50-115	0	
Pentachlorophenol	1466	650	1320	0	111	25-120	0	
Phenanthrene	1057	13	1320	0	80	50-110	0	
Phenol	936.7	320	1320	0	70.9	40-100	0	
Pyrene	1221	13	1320	0	92.4	45-125	0	
Surr: 2,4,6-Tribromophenol	*2867*	0	*3301*	0	*86.9*	*34-140*	0	
Surr: 2-Fluorobiphenyl	*2399*	0	*3301*	0	*72.7*	*12-100*	0	
Surr: 2-Fluorophenol	*2287*	0	*3301*	0	*69.3*	*33-117*	0	
Surr: 4-Terphenyl-d14	*3497*	0	*3301*	0	*106*	*25-137*	0	
Surr: Nitrobenzene-d5	*2225*	0	*3301*	0	*67.4*	*37-107*	0	
Surr: Phenol-d6	*2425*	0	*3301*	0	*73.5*	*40-106*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58052** Instrument ID **SVMS8** Method: **SW8270**

MSD Sample ID: **14041211-03B MSD** Units: **µg/Kg** Analysis Date: **4/29/2014 08:04 PM**

Client ID: Run ID: **SVMS8_140429A** SeqNo: **2738171** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	1190	310	1281	0	92.8	50-110	1189	0.0707	30	
2,4,6-Trichlorophenol	1129	310	1281	0	88.1	45-110	1163	2.93	30	
2,4-Dichlorophenol	986.6	310	1281	0	77	45-110	1044	5.62	30	
2,4-Dimethylphenol	957.8	630	1281	0	74.7	30-105	1023	6.54	30	
2,4-Dinitrophenol	783.5	1,300	1281	0	61.1	15-130	914.3	0	30	J
2,4-Dinitrotoluene	1195	310	1281	0	93.3	50-115	1216	1.7	30	
2,6-Dinitrotoluene	1098	310	1281	0	85.7	50-110	1130	2.87	30	
2-Chloronaphthalene	897.6	13	1281	0	70	45-105	967.7	7.52	30	
2-Chlorophenol	907.2	310	1281	0	70.8	45-105	953.2	4.95	30	
2-Methylnaphthalene	862.3	13	1281	0	67.3	45-105	917.6	6.21	30	
2-Methylphenol	982.8	310	1281	0	76.7	40-105	1033	4.99	30	
2-Nitroaniline	1160	1,300	1281	0	90.5	45-120	1158	0	30	J
2-Nitrophenol	910.4	310	1281	0	71	40-110	962.4	5.56	30	
3-Nitroaniline	869.4	1,300	1281	0	67.8	25-110	834.4	0	30	J
4-Bromophenyl phenyl ether	1224	310	1281	0	95.5	45-115	1234	0.875	30	
4-Chloro-3-methylphenol	1155	310	1281	0	90.1	45-115	1163	0.691	30	
4-Chloroaniline	481.1	1,300	1281	0	37.5	15-110	474.6	0	30	J
4-Chlorophenyl phenyl ether	1135	310	1281	0	88.6	45-110	1161	2.25	30	
4-Methylphenol	924.5	310	1281	0	72.1	40-105	1029	10.7	30	
4-Nitroaniline	1068	1,300	1281	0	83.3	35-150	916.9	0	30	J
4-Nitrophenol	1240	1,300	1281	0	96.7	15-140	1292	0	30	J
Acenaphthene	873.2	13	1281	0	68.1	45-110	944	7.79	30	
Acenaphthylene	923.8	13	1281	0	72.1	45-105	975	5.39	30	
Anthracene	1085	13	1281	0	84.6	55-105	1069	1.42	30	
Benzo(a)anthracene	1192	13	1281	0	93	50-110	1141	4.37	30	
Benzo(a)pyrene	1119	13	1281	0	87.3	50-110	1133	1.2	30	
Benzo(b)fluoranthene	1080	13	1281	0	84.2	45-115	1087	0.71	30	
Benzo(g,h,i)perylene	1086	13	1281	0	84.7	40-125	1122	3.23	30	
Benzo(k)fluoranthene	1032	13	1281	0	80.5	45-115	1051	1.8	30	
Bis(2-chloroethoxy)methane	823.2	310	1281	0	64.2	45-110	876.6	6.28	30	
Bis(2-chloroethyl)ether	789.3	310	1281	0	61.6	40-105	1030	26.5	30	
Bis(2-chloroisopropyl)ether	679.7	310	1281	0	53	20-115	722.8	6.14	30	
Bis(2-ethylhexyl)phthalate	1556	630	1281	0	121	45-125	1425	8.79	30	
Butyl benzyl phthalate	1441	310	1281	0	112	50-125	1384	4.1	30	
Carbazole	1060	310	1281	0	82.7	50-150	1019	3.95	30	
Chrysene	1186	13	1281	0	92.6	55-110	1149	3.25	30	
Dibenzo(a,h)anthracene	1084	13	1281	0	84.6	40-125	1091	0.659	30	
Dibenzofuran	981.5	310	1281	0	76.6	50-105	1042	6.01	30	
Diethyl phthalate	1183	630	1281	0	92.3	50-115	1194	0.967	30	
Dimethyl phthalate	1130	630	1281	0	88.2	50-110	1159	2.54	30	
Di-n-butyl phthalate	1348	630	1281	0	105	55-110	1312	2.68	30	
Di-n-octyl phthalate	1588	310	1281	0	124	40-130	1522	4.2	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58052** Instrument ID **SVMS8** Method: **SW8270**

Fluoranthene	1124	13	1281	0	87.7	55-115	1103	1.86	30	
Fluorene	1108	13	1281	0	86.4	50-110	1139	2.76	30	
Hexachlorobenzene	1084	310	1281	0	84.6	45-120	1120	3.29	30	
Hexachlorobutadiene	864.9	310	1281	0	67.5	40-115	919.5	6.12	30	
Hexachlorocyclopentadiene	445.9	630	1281	0	34.8	40-115	482.5	0	30	JS
Hexachloroethane	775.2	310	1281	0	60.5	35-110	843	8.38	30	
Indeno(1,2,3-cd)pyrene	1170	13	1281	0	91.3	40-120	1159	0.918	30	
Isophorone	839.3	310	1281	0	65.5	45-110	894.4	6.37	30	
Naphthalene	758.5	13	1281	0	59.2	40-105	804.7	5.9	30	
Nitrobenzene	809.1	310	1281	0	63.1	40-115	859.5	6.03	30	
N-Nitrosodi-n-propylamine	867.4	310	1281	0	67.7	40-115	930.8	7.04	30	
N-Nitrosodiphenylamine	1045	310	1281	0	81.5	50-115	1022	2.23	30	
Pentachlorophenol	1614	630	1281	0	126	25-120	1466	9.59	30	S
Phenanthrene	1058	13	1281	0	82.6	50-110	1057	0.145	30	
Phenol	866.2	310	1281	0	67.6	40-100	936.7	7.82	30	
Pyrene	1221	13	1281	0	95.3	45-125	1221	0.0449	30	
Surr: 2,4,6-Tribromophenol	*2918*	0	*3203*	0	*91.1*	*34-140*	2867	*1.75*	*40*	
Surr: 2-Fluorobiphenyl	*2204*	0	*3203*	0	*68.8*	*12-100*	2399	*8.5*	*40*	
Surr: 2-Fluorophenol	*2169*	0	*3203*	0	*67.7*	*33-117*	2287	*5.33*	*40*	
Surr: 4-Terphenyl-d14	*3515*	0	*3203*	0	*110*	*25-137*	3497	*0.514*	*40*	
Surr: Nitrobenzene-d5	*2130*	0	*3203*	0	*66.5*	*37-107*	2225	*4.37*	*40*	
Surr: Phenol-d6	*2234*	0	*3203*	0	*69.7*	*40-106*	2425	*8.21*	*40*	

The following samples were analyzed in this batch:

14041301-05A	14041301-06A	14041301-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58023** Instrument ID **VMS8** Method: **SW8260B**

MBLK Sample ID: **MBLK-58023-58023** Units: **µg/Kg** Analysis Date: **4/28/2014 02:39 PM**

Client ID: Run ID: **VMS8_140428A** SeqNo: **2735068** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1,2-Trichlorotrifluoroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Benzene	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Cyclohexane	ND	30								
Dibromochloromethane	ND	30								
Dichlorodifluoromethane	ND	30								
Ethylbenzene	ND	30								
Isopropylbenzene	ND	30								
Methyl acetate	ND	200								
Methyl tert-butyl ether	ND	30								
Methylcyclohexane	ND	30								
Methylene chloride	ND	30								
Styrene	ND	30								
Tetrachloroethene	ND	30								
Toluene	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58023** Instrument ID **VMS8** Method: **SW8260B**

trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl chloride	ND	30					
Xylenes, Total	ND	90					
Surr: 1,2-Dichloroethane-d4	*995.5*	0	*1000*	0	*99.6*	*70-130*	0
Surr: 4-Bromofluorobenzene	*953*	0	*1000*	0	*95.3*	*70-130*	0
Surr: Dibromofluoromethane	*986*	0	*1000*	0	*98.6*	*70-130*	0
Surr: Toluene-d8	*999*	0	*1000*	0	*99.9*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58023** Instrument ID **VMS8** Method: **SW8260B**

LCS Sample ID: **LCS-58023-58023** Units: **µg/Kg** Analysis Date: **4/28/2014 12:13 PM**

Client ID: Run ID: **VMS8_140428A** SeqNo: **2735067** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	1032	30	1000	0	103	70-135	0			
1,1,2,2-Tetrachloroethane	1136	30	1000	0	114	55-130	0			
1,1,2-Trichloroethane	1038	30	1000	0	104	60-125	0			
1,1-Dichloroethane	1020	30	1000	0	102	75-125	0			
1,1-Dichloroethene	999.5	30	1000	0	100	65-135	0			
1,2,4-Trichlorobenzene	1244	30	1000	0	124	65-130	0			
1,2-Dibromo-3-chloropropane	1166	30	1000	0	117	40-135	0			
1,2-Dibromoethane	1534	30	1000	0	153	75-125	0			S
1,2-Dichlorobenzene	1114	30	1000	0	111	75-120	0			
1,2-Dichloroethane	1088	30	1000	0	109	70-135	0			
1,2-Dichloropropane	1084	30	1000	0	108	70-120	0			
1,3-Dichlorobenzene	1084	30	1000	0	108	70-125	0			
1,4-Dichlorobenzene	1082	30	1000	0	108	70-125	0			
2-Butanone	1179	200	1000	0	118	30-160	0			
2-Hexanone	1114	30	1000	0	111	45-145	0			
4-Methyl-2-pentanone	1473	30	1000	0	147	96-168	0			
Acetone	1110	100	1000	0	111	20-160	0			
Benzene	1048	30	1000	0	105	75-125	0			
Bromodichloromethane	1047	30	1000	0	105	70-130	0			
Bromoform	1006	30	1000	0	101	55-135	0			
Bromomethane	1200	75	1000	0	120	30-160	0			
Carbon disulfide	1066	30	1000	0	107	45-160	0			
Carbon tetrachloride	1070	30	1000	0	107	65-135	0			
Chlorobenzene	1062	30	1000	0	106	75-125	0			
Chloroethane	871	100	1000	0	87.1	40-155	0			
Chloroform	1058	30	1000	0	106	70-125	0			
Chloromethane	738	100	1000	0	73.8	50-130	0			
cis-1,2-Dichloroethene	1044	30	1000	0	104	65-125	0			
cis-1,3-Dichloropropene	1070	30	1000	0	107	70-125	0			
Dibromochloromethane	959.5	30	1000	0	96	65-135	0			
Dichlorodifluoromethane	650.5	30	1000	0	65	35-135	0			
Ethylbenzene	1026	30	1000	0	103	75-125	0			
Isopropylbenzene	996.5	30	1000	0	99.6	75-130	0			
Methyl tert-butyl ether	1104	30	1000	0	110	75-125	0			
Methylene chloride	1129	30	1000	0	113	55-145	0			
Styrene	1052	30	1000	0	105	75-125	0			
Tetrachloroethene	1215	30	1000	0	122	64-140	0			
Toluene	1033	30	1000	0	103	70-125	0			
trans-1,2-Dichloroethene	1114	30	1000	0	111	65-135	0			
trans-1,3-Dichloropropene	1020	30	1000	0	102	65-125	0			
Trichloroethene	1081	30	1000	0	108	75-125	0			
Trichlorofluoromethane	919.5	30	1000	0	92	25-185	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58023** Instrument ID **VMS8** Method: **SW8260B**

Vinyl chloride	798	30	1000	0	79.8	60-125	0
Xylenes, Total	3068	90	3000	0	102	75-125	0
Surr: 1,2-Dichloroethane-d4	*1002*	0	*1000*	0	*100*	*70-130*	0
Surr: 4-Bromofluorobenzene	*969.5*	0	*1000*	0	*97*	*70-130*	0
Surr: Dibromofluoromethane	*1027*	0	*1000*	0	*103*	*70-130*	0
Surr: Toluene-d8	*986*	0	*1000*	0	*98.6*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58023** Instrument ID **VMS8** Method: **SW8260B**

MS Sample ID: **14041211-03A MS** Units: **µg/Kg** Analysis Date: **4/30/2014 09:37 AM**

Client ID: Run ID: **VMS5_140429B** SeqNo: **2737873** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	2100	64	2118	0	99.2	70-135	0			
1,1,2,2-Tetrachloroethane	1998	64	2118	0	94.3	55-130	0			
1,1,2-Trichloroethane	2021	64	2118	0	95.4	60-125	0			
1,1-Dichloroethane	2030	64	2118	0	95.8	75-125	0			
1,1-Dichloroethene	2171	64	2118	0	102	65-135	0			
1,2,4-Trichlorobenzene	2025	64	2118	0	95.6	65-130	0			
1,2-Dibromo-3-chloropropane	1565	64	2118	0	73.9	40-135	0			
1,2-Dibromoethane	2310	64	2118	0	109	75-125	0			
1,2-Dichlorobenzene	1984	64	2118	0	93.6	75-120	0			
1,2-Dichloroethane	2042	64	2118	0	96.4	70-135	0			
1,2-Dichloropropane	1978	64	2118	0	93.4	70-120	0			
1,3-Dichlorobenzene	2011	64	2118	0	95	70-125	0			
1,4-Dichlorobenzene	1952	64	2118	0	92.2	70-125	0			
2-Butanone	2100	420	2118	0	99.2	30-160	0			
2-Hexanone	1879	64	2118	0	88.7	45-145	0			
4-Methyl-2-pentanone	2404	64	2118	0	114	89-161	0			
Acetone	2390	210	2118	0	113	20-160	0			
Benzene	2074	64	2118	0	97.9	75-125	0			
Bromodichloromethane	2079	64	2118	0	98.2	70-130	0			
Bromoform	1679	64	2118	0	79.2	55-135	0			
Bromomethane	2423	160	2118	0	114	30-160	0			
Carbon disulfide	2131	64	2118	0	101	45-160	0			
Carbon tetrachloride	2177	64	2118	0	103	65-135	0			
Chlorobenzene	2057	64	2118	0	97.1	75-125	0			
Chloroethane	2109	210	2118	0	99.6	40-155	0			
Chloroform	1979	64	2118	0	93.4	70-125	0			
Chloromethane	1676	210	2118	0	79.1	50-130	0			
cis-1,2-Dichloroethene	2000	64	2118	0	94.4	65-125	0			
cis-1,3-Dichloropropene	2016	64	2118	0	95.2	70-125	0			
Dibromochloromethane	1683	64	2118	0	79.4	65-135	0			
Dichlorodifluoromethane	1571	64	2118	0	74.2	35-135	0			
Ethylbenzene	2093	64	2118	0	98.8	75-125	0			
Isopropylbenzene	2126	64	2118	0	100	75-130	0			
Methyl tert-butyl ether	1951	64	2118	0	92.1	75-125	0			
Methylene chloride	2177	64	2118	0	103	55-145	0			
Styrene	2171	64	2118	0	102	75-125	0			
Tetrachloroethene	2069	64	2118	0	97.6	64-140	0			
Toluene	2056	64	2118	0	97	70-125	0			
trans-1,2-Dichloroethene	2177	64	2118	0	103	65-135	0			
trans-1,3-Dichloropropene	1969	64	2118	0	93	65-125	0			
Trichloroethene	2101	64	2118	0	99.2	75-125	0			
Trichlorofluoromethane	2100	64	2118	0	99.2	25-185	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **58023** Instrument ID **VMS8** Method: **SW8260B**

Vinyl chloride	1877	64	2118	0	88.6	60-125	0
Xylenes, Total	6245	190	6355	0	98.3	75-125	0
Surr: 1,2-Dichloroethane-d4	*2042*	0	*2118*	0	*96.4*	*70-130*	0
Surr: 4-Bromofluorobenzene	*2018*	0	*2118*	0	*95.2*	*70-130*	0
Surr: Dibromofluoromethane	*2117*	0	*2118*	0	*100*	*70-130*	0
Surr: Toluene-d8	*2030*	0	*2118*	0	*95.8*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58023** Instrument ID **VMS8** Method: **SW8260B**

MSD Sample ID: **14041211-03A MSD** Units: **µg/Kg** Analysis Date: **4/30/2014 10:02 AM**

Client ID: Run ID: **VMS5_140429B** SeqNo: **2737874** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	2000	64	2118	0	94.4	70-135	2100	4.91	30	
1,1,2,2-Tetrachloroethane	1965	64	2118	0	92.8	55-130	1998	1.66	30	
1,1,2-Trichloroethane	2003	64	2118	0	94.6	60-125	2021	0.895	30	
1,1-Dichloroethane	1943	64	2118	0	91.7	75-125	2030	4.43	30	
1,1-Dichloroethene	2040	64	2118	0	96.3	65-135	2171	6.24	30	
1,2,4-Trichlorobenzene	2114	64	2118	0	99.8	65-130	2025	4.3	30	
1,2-Dibromo-3-chloropropane	1608	64	2118	0	75.9	40-135	1565	2.67	30	
1,2-Dibromoethane	2229	64	2118	0	105	75-125	2310	3.59	30	
1,2-Dichlorobenzene	2068	64	2118	0	97.6	75-120	1984	4.13	30	
1,2-Dichloroethane	1976	64	2118	0	93.3	70-135	2042	3.27	30	
1,2-Dichloropropane	1920	64	2118	0	90.6	70-120	1978	2.93	30	
1,3-Dichlorobenzene	2077	64	2118	0	98	70-125	2011	3.21	30	
1,4-Dichlorobenzene	2026	64	2118	0	95.6	70-125	1952	3.73	30	
2-Butanone	2170	420	2118	0	102	30-160	2100	3.27	30	
2-Hexanone	1939	64	2118	0	91.6	45-145	1879	3.16	30	
4-Methyl-2-pentanone	2444	64	2118	0	115	89-161	2404	1.62	30	
Acetone	2444	210	2118	0	115	20-160	2390	2.24	30	
Benzene	1987	64	2118	0	93.8	75-125	2074	4.28	30	
Bromodichloromethane	1972	64	2118	0	93.1	70-130	2079	5.28	30	
Bromoform	1597	64	2118	0	75.4	55-135	1679	4.98	30	
Bromomethane	1009	160	2118	0	47.6	30-160	2423	82.4	30	R
Carbon disulfide	1859	64	2118	0	87.8	45-160	2131	13.6	30	
Carbon tetrachloride	2062	64	2118	0	97.4	65-135	2177	5.4	30	
Chlorobenzene	1991	64	2118	0	94	75-125	2057	3.24	30	
Chloroethane	1516	210	2118	0	71.6	40-155	2109	32.7	30	R
Chloroform	1903	64	2118	0	89.8	70-125	1979	3.87	30	
Chloromethane	1570	210	2118	0	74.1	50-130	1676	6.53	30	
cis-1,2-Dichloroethene	1915	64	2118	0	90.4	65-125	2000	4.33	30	
cis-1,3-Dichloropropene	1925	64	2118	0	90.8	70-125	2016	4.62	30	
Dibromochloromethane	1577	64	2118	0	74.4	65-135	1683	6.5	30	
Dichlorodifluoromethane	1467	64	2118	0	69.2	35-135	1571	6.83	30	
Ethylbenzene	2091	64	2118	0	98.7	75-125	2093	0.101	30	
Isopropylbenzene	2166	64	2118	0	102	75-130	2126	1.88	30	
Methyl tert-butyl ether	1892	64	2118	0	89.3	75-125	1951	3.09	30	
Methylene chloride	2134	64	2118	0	101	55-145	2177	1.97	30	
Styrene	2141	64	2118	0	101	75-125	2171	1.42	30	
Tetrachloroethene	2069	64	2118	0	97.6	64-140	2069	0	30	
Toluene	2007	64	2118	0	94.8	70-125	2056	2.4	30	
trans-1,2-Dichloroethene	2044	64	2118	0	96.5	65-135	2177	6.27	30	
trans-1,3-Dichloropropene	1914	64	2118	0	90.4	65-125	1969	2.84	30	
Trichloroethene	1978	64	2118	0	93.4	75-125	2101	6.08	30	
Trichlorofluoromethane	2003	64	2118	0	94.6	25-185	2100	4.75	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58023** Instrument ID **VMS8** Method: **SW8260B**

Vinyl chloride	1775	64	2118	0	83.8	60-125	1877	5.57	30
Xylenes, Total	6258	190	6355	0	98.5	75-125	6245	0.203	30
Surr: 1,2-Dichloroethane-d4	*2050*	0	*2118*	0	*96.8*	*70-130*	2042	*0.362*	*30*
Surr: 4-Bromofluorobenzene	*2023*	0	*2118*	0	*95.5*	*70-130*	2018	*0.262*	*30*
Surr: Dibromofluoromethane	*2126*	0	*2118*	0	*100*	*70-130*	2117	*0.399*	*30*
Surr: Toluene-d8	*2036*	0	*2118*	0	*96.1*	*70-130*	2030	*0.26*	*30*

The following samples were analyzed in this batch:

14041301-01A	14041301-02A	14041301-03A
14041301-04A	14041301-05A	14041301-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **R139970A** Instrument ID **VMS8** Method: **SW8260**

MBLK Sample ID: **VBLKW1-140501-R139970A** Units: **µg/L** Analysis Date: **5/1/2014 04:42 PM**

Client ID: Run ID: **VMS8_140501A** SeqNo: **2741535** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1,2-Trichlorotrifluoroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	1.0								
1,2-Dibromoethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	2.0								
1,3-Dichlorobenzene	ND	2.0								
1,4-Dichlorobenzene	ND	2.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
4-Methyl-2-pentanone	ND	5.0								
Acetone	ND	20								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	2.5								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Cyclohexane	ND	5.0								
Dibromochloromethane	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
Ethylbenzene	ND	1.0								
Isopropylbenzene	ND	1.0								
Methyl acetate	ND	2.0								
Methyl tert-butyl ether	ND	5.0								
Methylcyclohexane	ND	5.0								
Methylene chloride	2.44	5.0								J
Styrene	ND	1.0								
Tetrachloroethene	ND	2.0								
Toluene	ND	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R139970A** Instrument ID **VMS8** Method: **SW8260**

trans-1,2-Dichloroethene	ND	1.0					
trans-1,3-Dichloropropene	ND	1.0					
Trichloroethene	ND	1.0					
Trichlorofluoromethane	ND	1.0					
Vinyl chloride	ND	1.0					
Xylenes, Total	ND	3.0					
Surr: 1,2-Dichloroethane-d4	*20.4*	0	*20*	0	*102*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.11*	0	*20*	0	*95.6*	*80-110*	0
Surr: Dibromofluoromethane	*19.71*	0	*20*	0	*98.6*	*85-115*	0
Surr: Toluene-d8	*19.57*	0	*20*	0	*97.8*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **R139970A** Instrument ID **VMS8** Method: **SW8260**

LCS Sample ID: **VLCSW1-140501-R139970A** Units: **µg/L** Analysis Date: **5/1/2014 03:04 PM**

Client ID: Run ID: **VMS8_140501A** SeqNo: **2741534** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.34	1.0	20	0	96.7	75-130	0			
1,1,2,2-Tetrachloroethane	20.24	1.0	20	0	101	75-130	0			
1,1,2-Trichloroethane	19.3	1.0	20	0	96.5	75-125	0			
1,1-Dichloroethane	21.53	1.0	20	0	108	75-133	0			
1,1-Dichloroethene	20.19	1.0	20	0	101	70-145	0			
1,2,4-Trichlorobenzene	25.45	1.0	20	0	127	70-135	0			
1,2-Dibromo-3-chloropropane	18.86	1.0	20	0	94.3	60-130	0			
1,2-Dibromoethane	27.49	1.0	20	0	137	80-150	0			
1,2-Dichlorobenzene	21.7	1.0	20	0	108	70-130	0			
1,2-Dichloroethane	21.66	1.0	20	0	108	78-125	0			
1,2-Dichloropropane	21.04	2.0	20	0	105	75-125	0			
1,3-Dichlorobenzene	21.26	2.0	20	0	106	75-130	0			
1,4-Dichlorobenzene	21.34	2.0	20	0	107	75-130	0			
2-Butanone	20.54	5.0	20	0	103	55-150	0			
2-Hexanone	20.62	5.0	20	0	103	60-135	0			
4-Methyl-2-pentanone	26.13	5.0	20	0	131	77-178	0			
Acetone	19.22	20	20	0	96.1	60-160	0			J
Benzene	20.58	1.0	20	0	103	85-125	0			
Bromodichloromethane	20.17	1.0	20	0	101	75-125	0			
Bromoform	16.55	1.0	20	0	82.8	60-125	0			
Bromomethane	26.68	1.0	20	0	133	30-185	0			
Carbon disulfide	22.03	2.5	20	0	110	60-165	0			
Carbon tetrachloride	19.64	1.0	20	0	98.2	65-140	0			
Chlorobenzene	19.87	1.0	20	0	99.4	80-120	0			
Chloroethane	16.86	1.0	20	0	84.3	50-140	0			
Chloroform	21.72	1.0	20	0	109	80-130	0			
Chloromethane	16.14	1.0	20	0	80.7	50-130	0			
cis-1,2-Dichloroethene	22.23	1.0	20	0	111	75-134	0			
cis-1,3-Dichloropropene	20.33	1.0	20	0	102	70-130	0			
Dibromochloromethane	17.03	1.0	20	0	85.2	60-115	0			
Dichlorodifluoromethane	12.53	1.0	20	0	62.6	20-120	0			
Ethylbenzene	20.16	1.0	20	0	101	85-125	0			
Isopropylbenzene	19.97	1.0	20	0	99.8	80-127	0			
Methyl tert-butyl ether	21.98	5.0	20	0	110	80-130	0			
Methylene chloride	25.79	5.0	20	0	129	75-140	0			
Styrene	19.82	1.0	20	0	99.1	85-125	0			
Tetrachloroethene	22.69	2.0	20	0	113	77-138	0			
Toluene	20.21	1.0	20	0	101	85-125	0			
trans-1,2-Dichloroethene	23.92	1.0	20	0	120	80-140	0			
trans-1,3-Dichloropropene	19.46	1.0	20	0	97.3	81-123	0			
Trichloroethene	20.06	1.0	20	0	100	84-130	0			
Trichlorofluoromethane	18.08	1.0	20	0	90.4	60-140	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R139970A** Instrument ID **VMS8** Method: **SW8260**

Vinyl chloride	16.32	1.0	20	0	81.6	50-136	0
Xylenes, Total	59.34	3.0	60	0	98.9	80-126	0
Surr: 1,2-Dichloroethane-d4	*20.55*	0	*20*	0	*103*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.4*	0	*20*	0	*97*	*80-110*	0
Surr: Dibromofluoromethane	*20.08*	0	*20*	0	*100*	*85-115*	0
Surr: Toluene-d8	*19.81*	0	*20*	0	*99*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **R139970A** Instrument ID **VMS8** Method: **SW8260**

MS Sample ID: **14041364-01A MS** Units: **µg/L** Analysis Date: **5/2/2014 01:13 AM**

Client ID: Run ID: **VMS8_140501A** SeqNo: **2741567** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.51	1.0	20	0	97.6	75-130	0			
1,1,2,2-Tetrachloroethane	18.98	1.0	20	0	94.9	75-130	0			
1,1,2-Trichloroethane	18.3	1.0	20	0	91.5	75-125	0			
1,1-Dichloroethane	21.01	1.0	20	0	105	75-133	0			
1,1-Dichloroethene	20.24	1.0	20	0	101	70-145	0			
1,2,4-Trichlorobenzene	16.25	1.0	20	0	81.2	70-135	0			
1,2-Dibromo-3-chloropropane	15.58	1.0	20	0	77.9	60-130	0			
1,2-Dibromoethane	25.79	1.0	20	0	129	80-150	0			
1,2-Dichlorobenzene	18.31	1.0	20	0	91.6	70-130	0			
1,2-Dichloroethane	20.95	1.0	20	0	105	78-125	0			
1,2-Dichloropropane	20.63	2.0	20	0	103	75-125	0			
1,3-Dichlorobenzene	18.35	2.0	20	0	91.8	75-130	0			
1,4-Dichlorobenzene	18.07	2.0	20	0	90.4	75-130	0			
2-Butanone	20.15	5.0	20	0	101	55-150	0			
2-Hexanone	17.76	5.0	20	0	88.8	60-135	0			
4-Methyl-2-pentanone	25.04	5.0	20	0	125	77-178	0			
Acetone	18.79	20	20	0	94	60-160	0			J
Benzene	20.3	1.0	20	0	102	85-125	0			
Bromodichloromethane	19.56	1.0	20	0	97.8	75-125	0			
Bromoform	15.08	1.0	20	0	75.4	60-125	0			
Bromomethane	29.05	1.0	20	0	145	30-185	0			
Carbon disulfide	21.87	2.5	20	0	109	60-165	0			
Carbon tetrachloride	20.09	1.0	20	0	100	65-140	0			
Chlorobenzene	19.02	1.0	20	0	95.1	80-120	0			
Chloroethane	17.2	1.0	20	0	86	50-140	0			
Chloroform	21.14	1.0	20	0	106	80-130	0			
Chloromethane	15.03	1.0	20	0	75.2	50-130	0			
cis-1,2-Dichloroethene	22.41	1.0	20	0	112	75-134	0			
cis-1,3-Dichloropropene	18.78	1.0	20	0	93.9	70-130	0			
Dibromochloromethane	16	1.0	20	0	80	60-115	0			
Dichlorodifluoromethane	12.72	1.0	20	0	63.6	20-120	0			
Ethylbenzene	19.56	1.0	20	0	97.8	85-125	0			
Isopropylbenzene	18.42	1.0	20	0	92.1	80-127	0			
Methyl tert-butyl ether	20.68	5.0	20	0	103	80-130	0			
Methylene chloride	23.93	5.0	20	0	120	75-140	0			
Styrene	18.37	1.0	20	0	91.8	85-125	0			
Tetrachloroethene	21.47	2.0	20	0	107	77-138	0			
Toluene	19.89	1.0	20	0	99.4	85-125	0			
trans-1,2-Dichloroethene	23.47	1.0	20	0	117	80-140	0			
trans-1,3-Dichloropropene	17.05	1.0	20	0	85.2	81-123	0			
Trichloroethene	19.96	1.0	20	0	99.8	84-130	0			
Trichlorofluoromethane	18.89	1.0	20	0	94.4	60-140	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R139970A** Instrument ID **VMS8** Method: **SW8260**

Vinyl chloride	16.57	1.0	20	0	82.8	50-136	0
Xylenes, Total	57.99	3.0	60	0	96.6	80-126	0
Surr: 1,2-Dichloroethane-d4	*20.79*	0	*20*	0	*104*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.97*	0	*20*	0	*99.8*	*80-110*	0
Surr: Dibromofluoromethane	*20.3*	0	*20*	0	*102*	*85-115*	0
Surr: Toluene-d8	*19.89*	0	*20*	0	*99.4*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **R139970A** Instrument ID **VMS8** Method: **SW8260**

MSD Sample ID: **14041364-01A MSD** Units: **µg/L** Analysis Date: **5/2/2014 01:37 AM**

Client ID: Run ID: **VMS8_140501A** SeqNo: **2741571** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.07	1.0	20	0	100	75-130	19.51	2.83	30	
1,1,2,2-Tetrachloroethane	19.8	1.0	20	0	99	75-130	18.98	4.23	30	
1,1,2-Trichloroethane	18.96	1.0	20	0	94.8	75-125	18.3	3.54	30	
1,1-Dichloroethane	22	1.0	20	0	110	75-133	21.01	4.6	30	
1,1-Dichloroethene	21.11	1.0	20	0	106	70-145	20.24	4.21	30	
1,2,4-Trichlorobenzene	19.25	1.0	20	0	96.2	70-135	16.25	16.9	30	
1,2-Dibromo-3-chloropropane	16.7	1.0	20	0	83.5	60-130	15.58	6.94	30	
1,2-Dibromoethane	26.41	1.0	20	0	132	80-150	25.79	2.38	30	
1,2-Dichlorobenzene	19.68	1.0	20	0	98.4	70-130	18.31	7.21	30	
1,2-Dichloroethane	22.03	1.0	20	0	110	78-125	20.95	5.03	30	
1,2-Dichloropropane	20.94	2.0	20	0	105	75-125	20.63	1.49	30	
1,3-Dichlorobenzene	19.68	2.0	20	0	98.4	75-130	18.35	6.99	30	
1,4-Dichlorobenzene	19.14	2.0	20	0	95.7	75-130	18.07	5.75	30	
2-Butanone	22.13	5.0	20	0	111	55-150	20.15	9.37	30	
2-Hexanone	19.46	5.0	20	0	97.3	60-135	17.76	9.13	30	
4-Methyl-2-pentanone	25.68	5.0	20	0	128	77-178	25.04	2.52	30	
Acetone	20.66	20	20	0	103	60-160	18.79	9.48	30	
Benzene	20.41	1.0	20	0	102	85-125	20.3	0.54	30	
Bromodichloromethane	19.5	1.0	20	0	97.5	75-125	19.56	0.307	30	
Bromoform	15.85	1.0	20	0	79.2	60-125	15.08	4.98	30	
Bromomethane	22.02	1.0	20	0	110	30-185	29.05	27.5	30	
Carbon disulfide	22.89	2.5	20	0	114	60-165	21.87	4.56	30	
Carbon tetrachloride	20.07	1.0	20	0	100	65-140	20.09	0.0996	30	
Chlorobenzene	19.47	1.0	20	0	97.4	80-120	19.02	2.34	30	
Chloroethane	17.79	1.0	20	0	89	50-140	17.2	3.37	30	
Chloroform	21.81	1.0	20	0	109	80-130	21.14	3.12	30	
Chloromethane	15.85	1.0	20	0	79.2	50-130	15.03	5.31	30	
cis-1,2-Dichloroethene	22.52	1.0	20	0	113	75-134	22.41	0.49	30	
cis-1,3-Dichloropropene	19.48	1.0	20	0	97.4	70-130	18.78	3.66	30	
Dibromochloromethane	16.13	1.0	20	0	80.6	60-115	16	0.809	30	
Dichlorodifluoromethane	13.77	1.0	20	0	68.8	20-120	12.72	7.93	30	
Ethylbenzene	19.73	1.0	20	0	98.6	85-125	19.56	0.865	30	
Isopropylbenzene	18.84	1.0	20	0	94.2	80-127	18.42	2.25	30	
Methyl tert-butyl ether	21.96	5.0	20	0	110	80-130	20.68	6	30	
Methylene chloride	24.87	5.0	20	0	124	75-140	23.93	3.85	30	
Styrene	19.38	1.0	20	0	96.9	85-125	18.37	5.35	30	
Tetrachloroethene	22.18	2.0	20	0	111	77-138	21.47	3.25	30	
Toluene	19.96	1.0	20	0	99.8	85-125	19.89	0.351	30	
trans-1,2-Dichloroethene	24.27	1.0	20	0	121	80-140	23.47	3.35	30	
trans-1,3-Dichloropropene	17.72	1.0	20	0	88.6	81-123	17.05	3.85	30	
Trichloroethene	20.21	1.0	20	0	101	84-130	19.96	1.24	30	
Trichlorofluoromethane	19.46	1.0	20	0	97.3	60-140	18.89	2.97	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **R139970A** Instrument ID **VMS8** Method: **SW8260**

Vinyl chloride	17.51	1.0	20	0	87.6	50-136	16.57	5.52	30
Xylenes, Total	58.31	3.0	60	0	97.2	80-126	57.99	0.55	30
Surr: 1,2-Dichloroethane-d4	*20.86*	0	*20*	0	*104*	*75-120*	20.79	*0.336*	*30*
Surr: 4-Bromofluorobenzene	*19.5*	0	*20*	0	*97.5*	*80-110*	19.97	*2.38*	*30*
Surr: Dibromofluoromethane	*19.91*	0	*20*	0	*99.6*	*85-115*	20.3	*1.94*	*30*
Surr: Toluene-d8	*19.59*	0	*20*	0	*98*	*85-110*	19.89	*1.52*	*30*

The following samples were analyzed in this batch: 14041301-09B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **57995** Instrument ID **WETCHEM** Method: **SW9045D**

LCS Sample ID: **LCS-57995-57995** Units: **s.u.** Analysis Date: **4/25/2014 04:00 PM**
Client ID: Run ID: **WETCHEM_140425L** SeqNo: **2730889** Prep Date: **4/25/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	3.95	0	4	0	98.8	90-110	0			

DUP Sample ID: **14041288-01B DUP** Units: **s.u.** Analysis Date: **4/25/2014 04:00 PM**
Client ID: Run ID: **WETCHEM_140425L** SeqNo: **2730891** Prep Date: **4/25/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.41	0	0	0	0	0-0	7.33	1.09	20	

DUP Sample ID: **14041301-05A DUP** Units: **s.u.** Analysis Date: **4/25/2014 04:00 PM**
Client ID: **AM-WS05-04242014** Run ID: **WETCHEM_140425L** SeqNo: **2730901** Prep Date: **4/25/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.34	0	0	0	0	0-0	7.37	0.408	20	

The following samples were analyzed in this batch:

14041301-01A	14041301-02A	14041301-03A
14041301-04A	14041301-05A	14041301-06A
14041301-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58029a** Instrument ID **LACHAT** Method: **SW9012A**

MBLK Sample ID: **MBLK-58029-58029a** Units: **mg/L** Analysis Date: **4/28/2014 02:32 PM**

Client ID: Run ID: **LACHAT_140428A** SeqNo: **2734423** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	ND	0.0050								

LCS Sample ID: **LCS-58029-58029a** Units: **mg/L** Analysis Date: **4/28/2014 02:32 PM**

Client ID: Run ID: **LACHAT_140428A** SeqNo: **2734424** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.2683	0.0050	0.25	0	107	82-122		0		

MS Sample ID: **1404943-01D MS** Units: **mg/L** Analysis Date: **4/28/2014 02:32 PM**

Client ID: Run ID: **LACHAT_140428A** SeqNo: **2734427** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.2445	0.0050	0.25	0.0003312	97.7	70-130		0		

MSD Sample ID: **1404943-01D MSD** Units: **mg/L** Analysis Date: **4/28/2014 02:32 PM**

Client ID: Run ID: **LACHAT_140428A** SeqNo: **2734428** Prep Date: **4/28/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.2479	0.0050	0.25	0.0003312	99	70-130	0.2445	1.38	30	

The following samples were analyzed in this batch: 14041301-09D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58112** Instrument ID **WETCHEM** Method: **SW9034**

MBLK Sample ID: **MBLK-58112-58112** Units: **mg/Kg** Analysis Date: **4/29/2014 03:30 PM**

Client ID: Run ID: **WETCHEM_140429S** SeqNo: **2737280** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide (Acid Soluble)	ND	100								

LCS Sample ID: **LCS-58112-58112** Units: **mg/Kg** Analysis Date: **4/29/2014 03:30 PM**

Client ID: Run ID: **WETCHEM_140429S** SeqNo: **2737281** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide (Acid Soluble)	708	100	1075	0	65.9	21-81	0			

MS Sample ID: **14041301-07A MS** Units: **mg/Kg** Analysis Date: **4/29/2014 03:30 PM**

Client ID: **AM-WS06-04242014** Run ID: **WETCHEM_140429S** SeqNo: **2737290** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide (Acid Soluble)	ND	100	1075	60	-5.58	21-81	0			S

MSD Sample ID: **14041301-07A MSD** Units: **mg/Kg** Analysis Date: **4/29/2014 03:30 PM**

Client ID: **AM-WS06-04242014** Run ID: **WETCHEM_140429S** SeqNo: **2737291** Prep Date: **4/29/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide (Acid Soluble)	48	100	1075	60	-1.12	21-81	36	0	50	JS

The following samples were analyzed in this batch:

14041301-01A	14041301-02A	14041301-03A
14041301-04A	14041301-05A	14041301-06A
14041301-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **58114** Instrument ID **LACHAT** Method: **SW9012A**

MBLK Sample ID: **MBLK-58114-58114** Units: **mg/Kg** Analysis Date: **4/30/2014 02:40 PM**
Client ID: Run ID: **LACHAT_140430B** SeqNo: **2738356** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	ND	0.50								

LCS Sample ID: **LCS-58114-58114** Units: **mg/Kg** Analysis Date: **4/30/2014 02:40 PM**
Client ID: Run ID: **LACHAT_140430B** SeqNo: **2738357** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	2.612	0.50	2.5	0	104	85-119	0			

MS Sample ID: **14041301-04A MS** Units: **mg/Kg** Analysis Date: **4/30/2014 02:40 PM**
Client ID: **AM-WS04-04242014** Run ID: **LACHAT_140430B** SeqNo: **2738362** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	2.189	0.50	2.51	0.1327	81.9	70-130	0			

MS Sample ID: **14041352-08B MS** Units: **mg/Kg** Analysis Date: **4/30/2014 02:40 PM**
Client ID: Run ID: **LACHAT_140430B** SeqNo: **2738377** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	1.059	0.51	2.53	0.07136	39	70-130	0			S

MSD Sample ID: **14041301-04A MSD** Units: **mg/Kg** Analysis Date: **4/30/2014 02:40 PM**
Client ID: **AM-WS04-04242014** Run ID: **LACHAT_140430B** SeqNo: **2738363** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	2.415	0.51	2.541	0.1327	89.8	70-130	2.189	9.81	30	

MSD Sample ID: **14041352-08B MSD** Units: **mg/Kg** Analysis Date: **4/30/2014 02:40 PM**
Client ID: Run ID: **LACHAT_140430B** SeqNo: **2738386** Prep Date: **4/30/2014** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.1308	0.50	2.48	0.07136	2.39	70-130	1.059	0	30	JS

The following samples were analyzed in this batch:

14041301-01A	14041301-02A	14041301-03A
14041301-04A	14041301-05A	14041301-06A
14041301-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **R139612** Instrument ID **WETCHEM** Method: **A4500-H B-96**

LCS Sample ID: **LCS-R139612-R139612** Units: **s.u.** Analysis Date: **4/25/2014 04:00 PM**
Client ID: Run ID: **WETCHEM_140425L** SeqNo: **2730904** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	3.95	0	4	0	98.8	90-110	0			

LCS Sample ID: **LCS-R139612-R139612** Units: **s.u.** Analysis Date: **4/25/2014 04:00 PM**
Client ID: Run ID: **WETCHEM_140425L** SeqNo: **2730913** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	3.95	0	4	0	98.8	90-110	0			

DUP Sample ID: **14041286-03C DUP** Units: **s.u.** Analysis Date: **4/25/2014 04:00 PM**
Client ID: Run ID: **WETCHEM_140425L** SeqNo: **2730906** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	7.86	0	0	0	0	0-0	7.84	0.255	20	

DUP Sample ID: **14041301-09F DUP** Units: **s.u.** Analysis Date: **4/25/2014 04:00 PM**
Client ID: **AM-WL01-04242014** Run ID: **WETCHEM_140425L** SeqNo: **2730915** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	7.59	0	0	0	0	0-0	7.58	0.132	20	

The following samples were analyzed in this batch: 14041301-09F

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **R139636** Instrument ID **MOIST** Method: **A2540 G**

MBLK Sample ID: **WBLKS-R139636** Units: **% of sample** Analysis Date: **4/25/2014 12:50 PM**
Client ID: Run ID: **MOIST_140425A** SeqNo: **2731377** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R139636** Units: **% of sample** Analysis Date: **4/25/2014 12:50 PM**
Client ID: Run ID: **MOIST_140425A** SeqNo: **2731376** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **14041288-01B DUP** Units: **% of sample** Analysis Date: **4/25/2014 12:50 PM**
Client ID: Run ID: **MOIST_140425A** SeqNo: **2731362** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	13.72	0.050	0	0	0	0-0	13.3	3.11	20	

DUP Sample ID: **14041301-05A DUP** Units: **% of sample** Analysis Date: **4/25/2014 12:50 PM**
Client ID: **AM-WS05-04242014** Run ID: **MOIST_140425A** SeqNo: **2731372** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	38.2	0.050	0	0	0	0-0	37.69	1.34	20	

The following samples were analyzed in this batch:

14041301-01A	14041301-02A	14041301-03A
14041301-04A	14041301-05A	14041301-06A
14041301-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **R139782** Instrument ID **WETCHEM** Method: **D92**

LCS Sample ID: **LCS-R139782-R139782** Units: **°F** Analysis Date: **4/29/2014 08:45 AM**
Client ID: Run ID: **WETCHEM_140429K** SeqNo: **2736413** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, Open-cup	82	0	81	0	101	97-103	0			

LCS Sample ID: **LCS-R139782-R139782** Units: **°F** Analysis Date: **4/29/2014 08:45 AM**
Client ID: Run ID: **WETCHEM_140429K** SeqNo: **2736456** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	82	0	81	0	101	97-103	0			

DUP Sample ID: **14041256-01A Duplicate** Units: **°F** Analysis Date: **4/29/2014 08:45 AM**
Client ID: Run ID: **WETCHEM_140429K** SeqNo: **2736458** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	142	0	0	0	0	0-0	140	1.42	10	

DUP Sample ID: **14041314-01A Duplicate** Units: **°F** Analysis Date: **4/29/2014 08:45 AM**
Client ID: Run ID: **WETCHEM_140429K** SeqNo: **2736461** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint, P-M Closed-cup	88	0	0	0	0	0-0	84	4.65	10	

The following samples were analyzed in this batch:

14041301-01A	14041301-02A	14041301-03A
14041301-04A	14041301-05A	14041301-06A
14041301-07A	14041301-09F	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Weston Solutions, Inc
Work Order: 14041301
Project: 20405.016.001.2323.77/Alreco Metals

QC BATCH REPORT

Batch ID: **R139892** Instrument ID **WETCHEM** Method: **SW9030**

MBLK Sample ID: **WBLKW1-043014-R139892** Units: **mg/L** Analysis Date: **4/30/2014 04:45 PM**

Client ID: Run ID: **WETCHEM_140430R** SeqNo: **2738630** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	ND	1.0								

LCS Sample ID: **WLCSW1-043014-R139892** Units: **mg/L** Analysis Date: **4/30/2014 04:45 PM**

Client ID: Run ID: **WETCHEM_140430R** SeqNo: **2738631** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	9.48	1.0	10.75	0	88.2	60-140		0		

The following samples were analyzed in this batch: 14041301-09E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

08-May-2014

Tom Beamish
ALS Laboratory Group, Inc.
3352 128th Avenue
Holland, MI 49424

Tel: (616) 399-6070
Fax: (616) 399-6185

Re: 14041301 Work Order: **1405022**

Dear Tom,

ALS Environmental received 1 sample on 01-May-2014 12:23 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 6.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Shawn Smythe

Electronically approved by: Shawn Smythe

Shawn Smythe
Project Manager

ALS Environmental

Date: 08-May-14

Client: ALS Laboratory Group, Inc.
Project: 14041301
Work Order: **1405022**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1405022-01	14041301-08A	Bulk		4/24/2014 16:25	5/1/2014 12:23	☐

Client: ALS Laboratory Group, Inc.
Project: 14041301
Work Order: 1405022

Case Narrative

Estimates of concentration are made on an area basis.

Any analytical result reported as Trace on the proceeding pages is defined as <1%.

Wherever possible, separate phases are analyzed and reported individually.

Floor tiles, decorative paints, joint compounds, and cement materials require additional treatment in order to evaluate the concentration of small asbestos fibers bound in the material. Some samples may contain fibers that are not visible by PLM and can only be detected by electron microscopy techniques. Floor tiles are analyzed as homogeneous materials if insufficient mastic is present or if phases have been cross contaminated.

The Federal Register Vol. 55, No. 224, Tuesday Nov. 20 1990 Rules and Regulations, as clarified by the memo of May 8, 1991, Clarification of Asbestos NESHAP Requirement to Perform Point Counting states "…if the analyst detects asbestos in the sample and estimates the amount by visual estimation to be less than 10%, the owner or operator of the building may (1) elect to assume the amount to be greater than 1% and treat the material as asbestos-containing material or (2) require verification of the amount by point counting." Any of the samples tested can be reanalyzed by point counting or an equivalent estimation technique at the client's request.

ALS Laboratory Group Environmental Divison (Cincinnati) NVLAP Lab ID: 101917. Laboratory accreditation by the National Institute of Standards and Technology does not in any way constitute approval or endorsement by NVLAP, NIST, or any agency of the federal government.

ALS Environmental

Date: *08-May-14*

Client: ALS Laboratory Group, Inc.
Project: 14041301

Work Order: 1405022

Lab ID: 1405022-01A
Client Sample ID: 14041301-08A

Collection Date: 4/24/2014 4:25:00 PM
Matrix: BULK

Analytical Results

Analyses	Result	Units		
Asbestos by PLM				Date Analyzed **5/6/2014**
Macroscopic Examination	Prep Date:	**5/6/2014**	**E600/R-93/116**	Analyst: **AFS**
Color	White			
Description	Material			
Homogeneity	Homogeneous			
Texture	Fibrous			
Other Materials			**E600/R-93/116**	
Cellulose	>1<=3	%		
Fiberglass	>90<=100	%		
Non-fibrous	>1<=3	%		
Other fibers	ND	%		
Resin/binder	ND	%		
Asbestiform Minerals			**E600/R-93/116**	
Amosite	ND	%		
Anthophyllite	ND	%		
Chrysotile	ND	%		
Crocidolite	ND	%		
Tremolite - actinolite	ND	%		
Total asbestos	**ND**	**%**		

Note:

ALS Environmental

Date: 08-May-14

Client: ALS Laboratory Group, Inc.
Project: 14041301
WorkOrder: **1405022**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
E	EPA Method
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SDL	Sample Detection Limit
SW	SW-846 Method

Units Reported	Description
%	

ALS Environmental

Sample Receipt Checklist

Client Name: **ALS-HOLLAND** Date/Time Received: **01-May-14 12:23**

Work Order: **1405022** Received by: **SNH**

Checklist completed by Stephanie Harrington 02-May-14 (eSignature / Date)

Reviewed by: Shawn Smythe 02-May-14 (eSignature / Date)

Matrices:

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):			
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

ALS Environmental

Cincinnati, OH +1 513 733 5336 | Fort Collins, CO +1 970 490 1511 | Houston, TX +1 281 530 5656 | Spring City, PA +1 610 948 4903 | South Charleston, WV +1 304 356 3168
Everett, WA +1 425 356 2600 | Holland, MI +1 616 399 6070 | Middletown, PA +1 717 944 5541 | Salt Lake City, UT +1 801 266 7700 | York, PA +1 717 505 5280

Chain of Custody Form

Page ____ of ____

COC ID: 106561

ALS Project Manager: | ALS Work Order #: 1404301

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Alreco Metals	A	PCB
Work Order		Project Number		B	TCLP Metals
Company Name	Weston Solutions, Inc	Bill To Company	Weston Solutions, Inc	C	TCL SVOC
Send Report To	Lisa Graczyk	Invoice Attn	Lisa Graczyk	D	TCL VOC
Address	20 North Wacker Drive Suite 1210	Address	20 North Wacker Drive Suite 1210	E	TAL Metals
				F	Total Cyanide
City/State/Zip	Chicago, IL 60606	City/State/Zip	Chicago, IL 60606	G	Total Sulfide
Phone	(312) 424-3300	Phone	(312) 424-3300	H	Corrosivity
Fax	(312) 424-3330	Fax	(312) 424-3330	I	Ignitibility
e-Mail Address	lgraczyk@ces-dynamac.com	e-Mail Address		J	Asbestos

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	AM-WS01-04242014	04/24/2014	1535	WS	—	1	X	-10 ⊗	X	X	X	X	X	X	X		
2	AM-WS02-04242014	04/24/2014	1540	WS	—	1	X	-11 ⊗	X	X	X	X	X	X	X		
3	AM-WS03-04242014	04/24/2014	1545	WS	—	1	X	-12 ⊗	X	X	X	X	X	X	X		
4	AM-WS04-04242014	04/24/2014	1550	WS	—	1	X	-13 ⊗	X	X	X	X	X	X	X		
5	AM-WS05-04242014	04/24/2014	1555	WS	—	1	X	-14 ⊗	X	X	X	X	X	X	X		
6	AM-SS01-04242014	04/24/2014	1605	Soil	—	1	X		X		X	X	X	X	X		
7	AM-WS06-04242014	04/24/2014	1610	WS	—	1	X	-15 ⊗	X	X	X	X	X	X	X		
8	AM-WS07-04242014	04/24/2014	1625	WS	—	1	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	X	X	X	X	
9	AM-WL01-04242014	04/24/2014	1640	Water	HNO3 NaOH Zinc acetate Sodium hydroxide	7	X		X	X	X	X	X	X	X		
10																	

Sampler(s) Please Print & Sign: Jared Dempsey

Shipment Method:

Required Turnaround Time: (Check Box) ☑ Std. 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by: | Date: 04/24/2014 | Time: 1800 | Received by:

Relinquished by: | Date: | Time: | Received by (Laboratory):

Logged by (Laboratory): KJ | Date: 4/25/14 | Time: 1300 | Checked by (Laboratory):

Notes:

Cooler ID	Cooler Temp.
	4.0°C

QC Package: (Check One Box Below)
☑ Level II Std QC
☐ Level III Std QC/Raw Data
☐ Level IV SW846/CLP
☐ Other
☐ TRRP Checklist
☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

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ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **WESTON - CHI** Date/Time Received: **24-Apr-14 18:00**

Work Order: **14041301** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 25-Apr-14 (Date) Reviewed by: Bill Carey (eSignature) 28-Apr-14 (Date)

Matrices: Waste & Water

Carrier name: Client

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☐	No ☑	
Temperature(s)/Thermometer(s):	4.0 C		
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	4/25/2014 1:58:22 PM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes: Stored in the walk-in cooler overnight.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

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

May 29, 2014

Service Request No: E1400541

Ms. Lisa Graczyk/Dynamac
Weston Solutions, Inc.
20 North Wacker Drive, Suite 1210
Chicago, IL 60606

Laboratory Results for: Alreco Metals Dioxins Furans Analysis

Dear Ms. Graczyk/Dynamac:

Enclosed are the results of the sample(s) submitted to our laboratory on May 13, 2014. For your reference, these analyses have been assigned our service request number **E1400541**.

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 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

Page 1 of _____

For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com.

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:	Weston Solutions, Inc.	**Service Request No.:**	E1400541
Project:	Alreco Metals	**Date Received:**	05/13/14
Sample Matrix:	Solid		

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 IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Two solid samples were received for analysis at ALS Environmental on 05/13/14.

The samples were received at 4 °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 Blanks EQ1400257-01 and EQ1400264-01 contained low levels of various compounds below the Method Reporting Limit (MRL).

The compounds, 1234678-HpCDD and OCDD, were detected above the MRL in the method blank EQ1400264-01. The compounds, 1234678-HpCDD, OCDD, 1234678-HpCDF and OCDF, were detected above the MRL in the method blank EQ1400257-01. This low level contamination has been traced to samples in the associated batch with extremely high levels of target compounds. Since the samples have high concentrations, the results are reportable. The sample results for the associated compounds up to a level comparable to the method blank result should be considered biased high.

MS/MSD

EQ1400257 & EQ1400264: One Laboratory Control Spike (LCS) sample was analyzed and reported in addition to an MS/MSD for these extraction batches.

For EQ1400257, the batch precision (MS/DMS) measurements were determined on another order in the extraction batch. The MS/DMS results are not included in this report.

For EQ1400264, the LCS was lost and is not reportable. Batch control is demonstrated by the MS and MSD data included with this report. Due to high levels detected in the associated sample, the batch control criteria is not applicable for 1234678-HpCDD or OCDD for the MS/MSD. The matrix spike recoveries of 1234678-HpCDF and OCDF in the MS and 123789-HxCDF in the MSD were above control limits due to the heterogeneous nature of the sample. The recovery of 1234678-HpCDF and OCDF was acceptable in the MSD. The recovery of 123789-HxCDF was acceptable in the MS. The relative percent difference (RPD) between the MS and MSD was outside control limits for 1234678-HpCDF, 123789-HxCDF and OCDF.

E flags

When OCDD and/or OCDF exceed the upper method calibration limit (MCL), Method 8290 Section 7.9.3 advises the chemist to "report the measured concentration and indicate that the value exceeds the MCL." We use 'E' flag on the Sample Analytical Report results page results to indicate a compound has exceeded the MCL.

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.

Y flags – Labeled Standards

Quantification of the native 2,3,7,8-substituted congeners is based on isotopic dilution, which automatically corrects for variation in extraction efficiency and provides accurate values even with poor recovery. Samples that had recoveries of labeled standards outside the acceptance limits are qualified with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1 and detection limits were below the Method Reporting Limits.

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/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 reported as ND = ½ * Detection Limit

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.

Service Request Summary

Folder #: **E1400541**
Client Name: Weston Solutions, Incorporated
Project Name: Alreco Metals Dioxins Furans Analysis
Project Number:

Report To: Lisa Graczyk/Dynamac
Weston Solutions, Inc.
20 North Wacker Drive, Suite 1210
Chicago, IL 60606
Phone Number: 312-424-3300
Cell Number: 312-305-6745
Fax Number: 314-424-3330
E-mail: lgraczyk@css-dynamac.com

Project Chemist: Nicole Brown
Originating Lab: HOUSTON
Logged By: AKODUR
Date Received: 5/13/14
Internal Due Date: 5/28/14
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: N
Report to MDL?: Y
P.O. Number: Alreco Metals Dioxins Furans A
EDD: No EDD Specified

2 - 32 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 8B

RUSH

Lab Samp No.	Client Samp No.	Matrix	Collected		SVM 8290/ PCDD PCDF	SVM CAS SOP/ Total Solids
E1400541-001	AM-WS01-04242014	Misc. Solid	4/24/14	1535	**IV**	**IV**
E1400541-002	AM-WS02-04242014	Misc. Solid	4/24/14	1540	**IV**	**IV**

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	PCDD PCDF/8290	1-2	Use 3 grams. Baghouse dust with ash Rush 2 week TAT
Semivoa GCMS	Total Solids/CAS SOP	1-2	Rush 2 week TAT

Client: Weston Solutions, Inc.
Project: Alreco Metals Dioxins Furans Analysis

Service Request: E1400541

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1400541-001	AM-WS01-04242014	4/24/14	15:35
E1400541-002	AM-WS02-04242014	4/24/14	15:40

Superset Summary

Service Request: E1400541 **SuperSet Reference:** 14-0000290024 rev 00

8290/PCDD PCDF

Calibrations: 05/21/2014 02/01/14 03/25/14

Data Files:

Raw Data	*Begin CCAL*	*Method Blank*	*Lab ID*
P171052	P171046	P229279	E1400541-001
P171053	P171046	P229237	E1400541-002
P229237	P229235	P229237	EQ1400264-01
P229261	P229248	P229237	EQ1400264-02
P229279	P229277	P229279	EQ1400257-01
U149281	U149277	P229279	EQ1400257-02

Laboratory Certifications
2014-2015

STATE/PROGRAM	AGENCY	CERT#	EXP DATE	CERTIFIED?
ARIZONA	AZ-DHS	AZ0725	05/27/14	Yes
ARKANSAS	ADEQ	12-035-0	06/16/14	Yes
CALIFORNIA	CA-ELAP	2452	02/28/15	Yes
DOD ELAP	A2LA	2897.01	11/30/14	Yes
FLORIDA/NELAP	FL-DOHS	E87611	06/30/14	Yes
HAWAII	HI-DOH	N/A	06/30/14	Yes
ILLINOIS/NELAP	IL-EPA	003004	10/06/14	Yes
ISO 17025	A2LA	2897.01	01/31/14	Yes
KANSAS	KS-DHE	E-10406	11/30/14	Yes
LOUISIANA/NELAP	LELAP	03048	06/30/14	Yes
LOUISIANA/NELAP	LDHH	LA120014	12/31/14	Yes
MAINE	ME-DOHS	2012017	06/05/14	Yes
MARYLAND	MDE	343	06/30/14	Yes
MICHIGAN	MIDEQ	9971	06/30/14	Yes
MINNESOTA	MDH	048-999-427	12/31/14	Yes
NEVADA	NDEP	TX014112013A	07/31/14	Yes
NEW JERSEY	NJDEP	TX008	06/30/14	Yes
NEW MEXICO	NMED-DWB	N/A	06/30/14	Yes
NEW YORK/NELAP	NY-DOH	11707	04/01/14	Yes
OKLAHOMA	OKDEQ	2012-133	08/31/14	Yes
OREGON/NELAP	ORELAP	TX200002-009	03/24/14	Yes
PENNSYLVANIA/NELAP	PLAP	68-03441	06/30/14	Yes
SOIL IMPORT PERMIT	USDA	P330-12-00002	01/13/15	Yes
TENNESSEE	TNDEC	TN04016	06/30/14	Yes
TEXAS/NELAP	TCEQ	T104704216-12-3	06/30/14	Yes
UTAH/NELAP	UTELCP	TX014112013-2	06/30/14	Yes
WASHINGTON/NELAP	WA-Ecology	C819-12	11/14/14	Yes
WEST VIRGINIA	WVDEP	347	07/31/14	Yes

Abbreviations, Acronyms & Definitions

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

Data Qualifier Flags – Dioxin/Furans

B Indicates the associated analyte is found in the method blank, as well as in the sample

C 2378-TCDF is detected on the DB-5 column above the MRL, confirmation analysis was performed on a second column (DB-225.) The results from both the DB-5 column and the DB-225 column are included in this data package. The results from the DB-225 analyses should be used to evaluate the 2378-TCDF in the samples. The confirmed result are used in determining the TEQ value for TCDF.

E The reported result is above the instrument calibration range and is an estimated value.

J Indicates an estimated value – used when the analyte concentration is below the method reporting limit (MRL) and above the estimated detection limit (EDL)

K Ion abundance ratios between the primary and secondary ions were outside of theoretical acceptance limits. The reported result is an estimated maximum possible concentration (EMPC)

i The associated MRL/MDL has been elevated due to matrix interference.

U Indicates the compound was analyzed for, but not detected (ND)

Y C13-Labeled standard percent recoveries are outside of method acceptance limits

S Peak is saturated; data not reportable

P Indicates chlorodiphenyl ether interference present at the retention time of the target compound.

X See case narrative

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

SR# Unique ID E1400541 DB-5 (DB-5MSUI) DB-225 SPB-Octyl

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

Date:	Analyst:	Samples:
05/28/14	gc	001, 002

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

Date:	Analyst:	Samples:
05/28/14	uu	001, 002

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
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www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	4/24/14 1535
Sample Matrix:	Misc. Solid	**Date Received:**	5/13/14
Sample Name:	AM-WS01-04242014	**Units:**	ng/Kg
Lab Code:	E1400541-001	**Basis:**	Dry
		Percent Solids:	86.4

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	5/27/14 1329
Prep Method:	Method	**Date Extracted:**	5/20/14
Sample Amount:	3.147g	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P171052	**Blank File Name:**	P229279
ICAL Date:	03/25/14	**Cal Ver. File Name:**	P171046

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**37.1**		1.05	1.84	0.80	1.001	1
1,2,3,7,8-PeCDD	**95.3**		4.84	9.19	1.49	1.000	1
1,2,3,4,7,8-HxCDD	**73.3**		5.43	9.19	1.33	1.000	1
1,2,3,6,7,8-HxCDD	**128**		6.15	9.19	1.28	1.000	1
1,2,3,7,8,9-HxCDD	**90.0**		5.38	9.19	1.30	1.007	1
1,2,3,4,6,7,8-HpCDD	**934**		6.63	9.19	1.09	1.000	1
OCDD	**5240**		2.54	18.4	0.88	1.000	1
2,3,7,8-TCDF	**1270**		2.01	2.01	0.77	1.001	1
1,2,3,7,8-PeCDF	**671**		37.7	37.7	1.55	1.001	1
2,3,4,7,8-PeCDF	**1480**	P	39.7	39.7	1.61	1.000	1
1,2,3,4,7,8-HxCDF	**888**		30.8	30.8	1.27	1.000	1
1,2,3,6,7,8-HxCDF	**681**	P	25.7	25.7	1.23	1.000	1
1,2,3,7,8,9-HxCDF	**292**		30.2	30.2	1.30	1.001	1
2,3,4,6,7,8-HxCDF	**985**		29.9	29.9	1.21	1.000	1
1,2,3,4,6,7,8-HpCDF	**2310**		13.9	13.9	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	**270**		16.7	16.7	0.95	1.000	1
OCDF	**1850**		15.8	18.4	0.90	1.005	1
Total Tetra-Dioxins	**1110**		1.05	1.84	0.72		1
Total Penta-Dioxins	**2140**		4.84	9.19	1.56		1
Total Hexa-Dioxins	**2340**		5.65	9.19	1.26		1
Total Hepta-Dioxins	**2310**		6.63	9.19	1.05		1
Total Tetra-Furans	**20500**		2.01	2.01	0.75		1
Total Penta-Furans	**15000**		0.352	9.19	1.56		1
Total Hexa-Furans	**8600**		28.9	28.9	1.25		1
Total Hepta-Furans	**3770**		15.3	15.3	1.03		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	4/24/14 1535
Sample Matrix:	Misc. Solid	**Date Received:**	5/13/14
Sample Name:	AM-WS01-04242014	**Units:**	Percent
Lab Code:	E1400541-001	**Basis:**	Dry
		Percent Solids:	86.4

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	5/27/14 1329
Prep Method:	Method	**Date Extracted:**	5/20/14
Sample Amount:	3.147g	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P171052	**Blank File Name:**	P229279
ICAL Date:	03/25/14	**Cal Ver. File Name:**	P171046

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	954.909	48		40-135	0.77	1.019
13C-1,2,3,7,8-PeCDD	2000	985.028	49		40-135	1.55	1.168
13C-1,2,3,4,7,8-HxCDD	2000	1167.827	58		40-135	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1123.225	56		40-135	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	783.464	39	Y	40-135	1.06	1.065
13C-OCDD	4000	995.382	25	Y	40-135	0.90	1.141
13C-2,3,7,8-TCDF	2000	788.380	39	Y	40-135	0.77	0.993
13C-1,2,3,7,8-PeCDF	2000	908.273	45		40-135	1.56	1.129
13C-2,3,4,7,8-PeCDF	2000	874.459	44		40-135	1.57	1.159
13C-1,2,3,4,7,8-HxCDF	2000	1088.858	54		40-135	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1269.602	63		40-135	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1204.927	60		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1169.393	58		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	785.755	39	Y	40-135	0.44	1.040
13C-1,2,3,4,7,8,9-HpCDF	2000	904.711	45		40-135	0.42	1.078
37Cl-2,3,7,8-TCDD	800	298.501	37	Y	40-135	NA	1.019

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	4/24/14 1535
Sample Matrix:	Misc. Solid	**Date Received:**	5/13/14
Sample Name:	AM-WS01-04242014	**Units:**	ng/Kg
Lab Code:	E1400541-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**37.1**	1.05	1.84	1	1	37.1
1,2,3,7,8-PeCDD	**95.3**	4.84	9.19	1	1	95.3
1,2,3,4,7,8-HxCDD	**73.3**	5.43	9.19	1	0.1	7.33
1,2,3,6,7,8-HxCDD	**128**	6.15	9.19	1	0.1	12.8
1,2,3,7,8,9-HxCDD	**90.0**	5.38	9.19	1	0.1	9.00
1,2,3,4,6,7,8-HpCDD	**934**	6.63	9.19	1	0.01	9.34
OCDD	**5240**	2.54	18.4	1	0.0003	1.57
2,3,7,8-TCDF	**1270**	2.01	2.01	1	0.1	127
1,2,3,7,8-PeCDF	**671**	37.7	37.7	1	0.03	20.1
2,3,4,7,8-PeCDF	**1480**	39.7	39.7	1	0.3	444
1,2,3,4,7,8-HxCDF	**888**	30.8	30.8	1	0.1	88.8
1,2,3,6,7,8-HxCDF	**681**	25.7	25.7	1	0.1	68.1
1,2,3,7,8,9-HxCDF	**292**	30.2	30.2	1	0.1	29.2
2,3,4,6,7,8-HxCDF	**985**	29.9	29.9	1	0.1	98.5
1,2,3,4,6,7,8-HpCDF	**2310**	13.9	13.9	1	0.01	23.1
1,2,3,4,7,8,9-HpCDF	**270**	16.7	16.7	1	0.01	2.70
OCDF	**1850**	15.8	18.4	1	0.0003	0.555
		Total TEQ				1070

2005 WHO TEFs, ND = 0.5*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	4/24/14 1535
Sample Matrix:	Misc. Solid	**Date Received:**	5/13/14
		Date Analyzed:	5/22/14 07:24
Sample Name:	AM-WS01-04242014	**Units:**	Percent
Lab Code:	E1400541-001	**Basis:**	NA

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	393296
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	86.4				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	4/24/14 1540
Sample Matrix:	Misc. Solid	**Date Received:**	5/13/14
Sample Name:	AM-WS02-04242014	**Units:**	ng/Kg
Lab Code:	E1400541-002	**Basis:**	Dry
		Percent Solids:	87.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	5/27/14 1417
Prep Method:	Method	**Date Extracted:**	5/22/14
Sample Amount:	3.016g	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P171053	**Blank File Name:**	P229237
ICAL Date:	03/25/14	**Cal Ver. File Name:**	P171046

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**33.6**		2.19	2.19	0.67	1.001	1
1,2,3,7,8-PeCDD	**77.2**		5.20	9.45	1.60	1.000	1
1,2,3,4,7,8-HxCDD	**59.3**		3.88	9.45	1.30	1.000	1
1,2,3,6,7,8-HxCDD	**112**		4.53	9.45	1.22	1.000	1
1,2,3,7,8,9-HxCDD	**72.8**		3.90	9.45	1.20	1.007	1
1,2,3,4,6,7,8-HpCDD	**667**		6.24	9.45	1.03	1.001	1
OCDD	**1910**		3.74	18.9	0.90	1.000	1
2,3,7,8-TCDF	**1110**		1.04	1.89	0.77	1.001	1
1,2,3,7,8-PeCDF	**636**		33.6	33.6	1.58	1.001	1
2,3,4,7,8-PeCDF	**1370**		34.2	34.2	1.60	1.000	1
1,2,3,4,7,8-HxCDF	**835**		19.2	19.2	1.24	1.000	1
1,2,3,6,7,8-HxCDF	**650**	P	15.9	15.9	1.22	1.000	1
1,2,3,7,8,9-HxCDF	**267**		18.7	18.7	1.29	1.000	1
2,3,4,6,7,8-HxCDF	**872**		18.4	18.4	1.22	1.000	1
1,2,3,4,6,7,8-HpCDF	**2210**		10.2	10.2	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	**273**		11.9	11.9	1.12	1.000	1
OCDF	**2520**		8.33	18.9	0.89	1.005	1
Total Tetra-Dioxins	**1560**		2.19	2.19	0.76		1
Total Penta-Dioxins	**1790**		5.20	9.45	1.64		1
Total Hexa-Dioxins	**1990**		4.09	9.45	1.21		1
Total Hepta-Dioxins	**1510**		6.24	9.45	1.04		1
Total Tetra-Furans	**28000**		1.04	1.89	0.73		1
Total Penta-Furans	**14900**		0.300	9.45	1.57		1
Total Hexa-Furans	**8070**		17.9	17.9	1.25		1
Total Hepta-Furans	**3610**		11.0	11.0	1.04		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	4/24/14 1540
Sample Matrix:	Misc. Solid	**Date Received:**	5/13/14
Sample Name:	AM-WS02-04242014	**Units:**	Percent
Lab Code:	E1400541-002	**Basis:**	Dry
		Percent Solids:	87.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	5/27/14 1417
Prep Method:	Method	**Date Extracted:**	5/22/14
Sample Amount:	3.016g	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P171053	**Blank File Name:**	P229237
ICAL Date:	03/25/14	**Cal Ver. File Name:**	P171046

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	1017.399	51		40-135	0.76	1.019
13C-1,2,3,7,8-PeCDD	2000	1050.432	53		40-135	1.58	1.168
13C-1,2,3,4,7,8-HxCDD	2000	1332.054	67		40-135	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1239.304	62		40-135	1.24	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	839.083	42		40-135	1.05	1.064
13C-OCDD	4000	971.740	24	Y	40-135	0.88	1.140
13C-2,3,7,8-TCDF	2000	1028.061	51		40-135	0.76	0.993
13C-1,2,3,7,8-PeCDF	2000	972.192	49		40-135	1.56	1.129
13C-2,3,4,7,8-PeCDF	2000	973.084	49		40-135	1.57	1.159
13C-1,2,3,4,7,8-HxCDF	2000	1198.700	60		40-135	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1416.744	71		40-135	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1215.950	61		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1327.315	66		40-135	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	833.854	42		40-135	0.44	1.039
13C-1,2,3,4,7,8,9-HpCDF	2000	934.374	47		40-135	0.45	1.078
37Cl-2,3,7,8-TCDD	800	326.008	41		40-135	NA	1.019

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	4/24/14 1540
Sample Matrix:	Misc. Solid	**Date Received:**	5/13/14
Sample Name:	AM-WS02-04242014	**Units:**	ng/Kg
Lab Code:	E1400541-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**33.6**	2.19	2.19	1	1	33.6
1,2,3,7,8-PeCDD	**77.2**	5.20	9.45	1	1	77.2
1,2,3,4,7,8-HxCDD	**59.3**	3.88	9.45	1	0.1	5.93
1,2,3,6,7,8-HxCDD	**112**	4.53	9.45	1	0.1	11.2
1,2,3,7,8,9-HxCDD	**72.8**	3.90	9.45	1	0.1	7.28
1,2,3,4,6,7,8-HpCDD	**667**	6.24	9.45	1	0.01	6.67
OCDD	**1910**	3.74	18.9	1	0.0003	0.573
2,3,7,8-TCDF	**1110**	1.04	1.89	1	0.1	111
1,2,3,7,8-PeCDF	**636**	33.6	33.6	1	0.03	19.1
2,3,4,7,8-PeCDF	**1370**	34.2	34.2	1	0.3	411
1,2,3,4,7,8-HxCDF	**835**	19.2	19.2	1	0.1	83.5
1,2,3,6,7,8-HxCDF	**650**	15.9	15.9	1	0.1	65.0
1,2,3,7,8,9-HxCDF	**267**	18.7	18.7	1	0.1	26.7
2,3,4,6,7,8-HxCDF	**872**	18.4	18.4	1	0.1	87.2
1,2,3,4,6,7,8-HpCDF	**2210**	10.2	10.2	1	0.01	22.1
1,2,3,4,7,8,9-HpCDF	**273**	11.9	11.9	1	0.01	2.73
OCDF	**2520**	8.33	18.9	1	0.0003	0.756
		Total TEQ				972

2005 WHO TEFs, ND = 0.5*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	4/24/14 1540
Sample Matrix:	Misc. Solid	**Date Received:**	5/13/14
		Date Analyzed:	5/23/14 12:56
Sample Name:	AM-WS02-04242014	**Units:**	Percent
Lab Code:	E1400541-002	**Basis:**	NA

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	393699
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	87.7				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	NA
Sample Matrix:	Misc. Solid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1400257-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	5/27/14 0116
Prep Method:	Method	**Date Extracted:**	5/20/14
Sample Amount:	10.201g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229279	**Blank File Name:**	P229279
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229277

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.116	0.490			1
1,2,3,7,8-PeCDD	**0.219**	JK	0.0728	2.45	2.35	1.000	1
1,2,3,4,7,8-HxCDD	**0.343**	J	0.0609	2.45	1.27	1.000	1
1,2,3,6,7,8-HxCDD	**0.789**	J	0.0675	2.45	1.16	1.000	1
1,2,3,7,8,9-HxCDD	**0.549**	J	0.0620	2.45	1.36	1.007	1
1,2,3,4,6,7,8-HpCDD	**13.9**		0.204	2.45	1.06	1.000	1
OCDD	**81.1**		0.142	4.90	0.90	1.000	1
2,3,7,8-TCDF	**0.154**	JK	0.0884	0.490	0.48	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.112	2.45			1
2,3,4,7,8-PeCDF	**0.226**	JK	0.110	2.45	0.84	1.001	1
1,2,3,4,7,8-HxCDF	**0.381**	J	0.0899	2.45	1.16	1.000	1
1,2,3,6,7,8-HxCDF	**0.276**	JK	0.0775	2.45	1.51	1.000	1
1,2,3,7,8,9-HxCDF	**0.390**	JK	0.0988	2.45	0.93	1.000	1
2,3,4,6,7,8-HxCDF	**0.426**	JK	0.0819	2.45	1.57	1.000	1
1,2,3,4,6,7,8-HpCDF	**2.73**		0.181	2.45	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	**0.789**	J	0.222	2.45	1.19	1.000	1
OCDF	**5.91**		0.122	4.90	0.87	1.006	1
Total Tetra-Dioxins	ND	U	0.116	0.490			1
Total Penta-Dioxins	**0.233**	J	0.0728	2.45	1.76		1
Total Hexa-Dioxins	**2.76**		0.0635	2.45	1.25		1
Total Hepta-Dioxins	**24.0**		0.204	2.45	1.08		1
Total Tetra-Furans	**0.246**	J	0.0884	0.490	0.68		1
Total Penta-Furans	ND	U	0.0596	2.45			1
Total Hexa-Furans	**3.74**		0.0862	2.45	1.28		1
Total Hepta-Furans	**10.8**		0.200	2.45	1.02		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	NA
Sample Matrix:	Misc. Solid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1400257-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	5/27/14 0116
Prep Method:	Method	**Date Extracted:**	5/20/14
Sample Amount:	10.201g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229279	**Blank File Name:**	P229279
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229277

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	1229.055	61		40-135	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1570.411	79		40-135	1.58	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1408.597	70		40-135	1.29	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1331.457	67		40-135	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1203.054	60		40-135	1.07	1.066
13C-OCDD	4000	2038.053	51		40-135	0.90	1.142
13C-2,3,7,8-TCDF	2000	1190.844	60		40-135	0.79	0.995
13C-1,2,3,7,8-PeCDF	2000	1208.865	60		40-135	1.61	1.134
13C-2,3,4,7,8-PeCDF	2000	1233.219	62		40-135	1.59	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1020.458	51		40-135	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1143.434	57		40-135	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1169.762	58		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1221.469	61		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	959.447	48		40-135	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1048.845	52		40-135	0.44	1.079
37Cl-2,3,7,8-TCDD	800	394.699	49		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	NA
Sample Matrix:	Misc. Solid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1400264-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	5/25/14 1547
Prep Method:	Method	**Date Extracted:**	5/22/14
Sample Amount:	10.159g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229237	**Blank File Name:**	P229237
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229235

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.0906	0.492			1
1,2,3,7,8-PeCDD	ND	U	0.0402	2.46			1
1,2,3,4,7,8-HxCDD	ND	U	0.0353	2.46			1
1,2,3,6,7,8-HxCDD	ND	U	0.0372	2.46			1
1,2,3,7,8,9-HxCDD	**0.143**	JK	0.0350	2.46	1.55	1.007	1
1,2,3,4,6,7,8-HpCDD	**2.59**		0.0409	2.46	1.09	1.000	1
OCDD	**58.6**		0.0434	4.92	0.90	1.000	1
2,3,7,8-TCDF	ND	U	0.0883	0.492			1
1,2,3,7,8-PeCDF	ND	U	0.0669	2.46			1
2,3,4,7,8-PeCDF	ND	U	0.0670	2.46			1
1,2,3,4,7,8-HxCDF	**0.0835**	J	0.0400	2.46	1.24	1.000	1
1,2,3,6,7,8-HxCDF	**0.110**	J	0.0354	2.46	1.05	1.000	1
1,2,3,7,8,9-HxCDF	**0.0864**	JK	0.0447	2.46	1.96	1.000	1
2,3,4,6,7,8-HxCDF	**0.141**	JK	0.0365	2.46	0.86	1.000	1
1,2,3,4,6,7,8-HpCDF	**0.348**	JK	0.0375	2.46	0.86	1.000	1
1,2,3,4,7,8,9-HpCDF	**0.292**	J	0.0475	2.46	0.88	1.000	1
OCDF	**0.327**	JK	0.0678	4.92	1.34	1.005	1
Total Tetra-Dioxins	ND	U	0.0906	0.492			1
Total Penta-Dioxins	ND	U	0.0402	2.46			1
Total Hexa-Dioxins	ND	U	0.0358	2.46			1
Total Hepta-Dioxins	**5.42**		0.0409	2.46	1.04		1
Total Tetra-Furans	ND	U	0.0883	0.492			1
Total Penta-Furans	ND	U	0.0499	2.46			1
Total Hexa-Furans	**0.360**	J	0.0388	2.46	1.14		1
Total Hepta-Furans	**0.536**	J	0.0422	2.46	1.06		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	NA
Sample Matrix:	Misc. Solid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1400264-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	5/25/14 1547
Prep Method:	Method	**Date Extracted:**	5/22/14
Sample Amount:	10.159g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229237	**Blank File Name:**	P229237
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229235

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	1269.998	63		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1580.271	79		40-135	1.60	1.174
13C-1,2,3,4,7,8-HxCDD	2000	1330.549	67		40-135	1.26	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1347.413	67		40-135	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1265.863	63		40-135	1.07	1.066
13C-OCDD	4000	2541.675	64		40-135	0.91	1.142
13C-2,3,7,8-TCDF	2000	1252.398	63		40-135	0.80	0.994
13C-1,2,3,7,8-PeCDF	2000	1256.887	63		40-135	1.62	1.134
13C-2,3,4,7,8-PeCDF	2000	1270.417	64		40-135	1.61	1.165
13C-1,2,3,4,7,8-HxCDF	2000	1023.646	51		40-135	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1147.510	57		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1224.973	61		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1216.500	61		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1024.235	51		40-135	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1141.138	57		40-135	0.45	1.079
37Cl-2,3,7,8-TCDD	800	421.558	53		40-135	NA	1.021

Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Weston Solutions, Incorporated
Project: Alreco Metals Dioxins Furans Analysis
Sample Matrix: Misc. Solid

Service Request: E1400541
Date Analyzed: 5/28/14

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

Analytical Method: 8290
Prep Method: Method

Units: ng/Kg
Basis: Dry

Extraction Lot: 208804

Lab Control Sample
EQ1400257-02

Analyte Name	Result	Spike Amount	% Rec		% Rec Limits
2,3,7,8-TCDD	21.6	19.7	110		70 - 130
1,2,3,7,8-PeCDD	106	98.5	108		70 - 130
1,2,3,4,7,8-HxCDD	106	98.5	108		70 - 130
1,2,3,6,7,8-HxCDD	112	98.5	113		70 - 130
1,2,3,7,8,9-HxCDD	110	98.5	111		70 - 130
1,2,3,4,6,7,8-HpCDD	115	98.5	117		70 - 130
OCDD	306	197	155	*	70 - 130
2,3,7,8-TCDF	22.3	19.7	113		70 - 130
1,2,3,7,8-PeCDF	115	98.5	116		70 - 130
2,3,4,7,8-PeCDF	110	98.5	112		70 - 130
1,2,3,4,7,8-HxCDF	117	98.5	119		70 - 130
1,2,3,6,7,8-HxCDF	99.8	98.5	101		70 - 130
1,2,3,7,8,9-HxCDF	111	98.5	112		70 - 130
2,3,4,6,7,8-HxCDF	102	98.5	103		70 - 130
1,2,3,4,6,7,8-HpCDF	110	98.5	112		70 - 130
1,2,3,4,7,8,9-HpCDF	109	98.5	111		70 - 130
OCDF	231	197	117		70 - 130

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

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

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	NA
Sample Matrix:	Misc. Solid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1400257-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	5/28/14 1155
Prep Method:	Method	**Date Extracted:**	5/20/14
Sample Amount:	10.156g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149281	**Blank File Name:**	P229279
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149277

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**21.6**		0.251	0.492	0.83	1.001	1
1,2,3,7,8-PeCDD	**106**		0.243	2.46	1.67	1.000	1
1,2,3,4,7,8-HxCDD	**106**		0.353	2.46	1.26	1.000	1
1,2,3,6,7,8-HxCDD	**112**		0.380	2.46	1.24	1.000	1
1,2,3,7,8,9-HxCDD	**110**		0.337	2.46	1.27	1.007	1
1,2,3,4,6,7,8-HpCDD	**115**		0.670	2.46	1.03	1.000	1
OCDD	**306**		1.50	4.92	0.89	1.000	1
2,3,7,8-TCDF	**22.3**		0.178	0.492	0.77	1.001	1
1,2,3,7,8-PeCDF	**115**		0.151	2.46	1.52	1.001	1
2,3,4,7,8-PeCDF	**110**		0.153	2.46	1.54	1.000	1
1,2,3,4,7,8-HxCDF	**117**		0.240	2.46	1.24	1.000	1
1,2,3,6,7,8-HxCDF	**99.8**		0.204	2.46	1.22	1.000	1
1,2,3,7,8,9-HxCDF	**111**		0.277	2.46	1.23	1.000	1
2,3,4,6,7,8-HxCDF	**102**		0.220	2.46	1.20	1.000	1
1,2,3,4,6,7,8-HpCDF	**110**		0.521	2.46	0.99	1.000	1
1,2,3,4,7,8,9-HpCDF	**109**		0.729	2.46	1.03	1.000	1
OCDF	**231**		0.541	4.92	0.90	1.005	1
Total Tetra-Dioxins	**21.7**		0.251	0.492	0.74		1
Total Penta-Dioxins	**106**		0.243	2.46	1.54		1
Total Hexa-Dioxins	**329**		0.356	2.46	1.33		1
Total Hepta-Dioxins	**124**		0.670	2.46	1.14		1
Total Tetra-Furans	**22.4**		0.178	0.492	0.70		1
Total Penta-Furans	**227**		0.189	2.46	1.72		1
Total Hexa-Furans	**431**		0.232	2.46	1.25		1
Total Hepta-Furans	**227**		0.617	2.46	0.99		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	NA
Sample Matrix:	Misc. Solid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1400257-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	5/28/14 1155
Prep Method:	Method	**Date Extracted:**	5/20/14
Sample Amount:	10.156g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149281	**Blank File Name:**	P229279
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149277

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	1121.652	56		40-135	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1282.797	64		40-135	1.57	1.176
13C-1,2,3,4,7,8-HxCDD	2000	1554.854	78		40-135	1.30	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1483.671	74		40-135	1.30	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1403.853	70		40-135	1.11	1.067
13C-OCDD	4000	2210.340	55		40-135	0.92	1.143
13C-2,3,7,8-TCDF	2000	1148.543	57		40-135	0.82	0.994
13C-1,2,3,7,8-PeCDF	2000	1152.558	58		40-135	1.58	1.135
13C-2,3,4,7,8-PeCDF	2000	1146.808	57		40-135	1.58	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1364.040	68		40-135	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1594.132	80		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1405.299	70		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1583.270	79		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1321.183	66		40-135	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1294.264	65		40-135	0.45	1.080
37Cl-2,3,7,8-TCDD	800	338.479	42		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	NA
Sample Matrix:	Misc. Solid	**Date Received:**	NA
		Date Analyzed:	5/26/14

Matrix Spike Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Sample Name:	Batch QC	**Units:**	ng/Kg
Lab Code:	EQ1400264-05	**Basis:**	Dry

Analytical Method: 8290
Prep Method: Method

		Batch QCMS **Matrix Spike** EQ1400264-06				Batch QCDMS **Duplicate Matrix Spike** EQ1400264-07						
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**		**% Rec Limits**	**RPD**		**RPD Limit**
2,3,7,8-TCDD	0.221	27.1	21.8	123		27.1	22.1	122		70 - 130	<1		25
1,2,3,7,8-PeCDD	2.17	122	109	110		121	110	107		70 - 130	<1		25
1,2,3,4,7,8-HxCDD	7.48	128	109	110		120	110	102		70 - 130	6		25
1,2,3,6,7,8-HxCDD	22.0	133	109	102		126	110	94		70 - 130	6		25
1,2,3,7,8,9-HxCDD	12.6	147	109	123		135	110	111		70 - 130	9		25
1,2,3,4,6,7,8-HpCDD	652	1240	109	538	#	789	110	125	#	70 - 130	44	*	25
OCDD	5600	6120	218	235	#	5610	221	4	#	70 - 130	9		25
2,3,7,8-TCDF	ND	21.7	21.8	99		22.2	22.1	101		70 - 130	2		25
1,2,3,7,8-PeCDF	0.516	121	109	111		126	110	114		70 - 130	4		25
2,3,4,7,8-PeCDF	0.949	123	109	112		118	110	106		70 - 130	4		25
1,2,3,4,7,8-HxCDF	7.26	142	109	123		134	110	115		70 - 130	5		25
1,2,3,6,7,8-HxCDF	2.78	117	109	105		116	110	102		70 - 130	1		25
1,2,3,7,8,9-HxCDF	1.14	135	109	123		237	110	214	*	70 - 130	55	*	25
2,3,4,6,7,8-HxCDF	5.11	123	109	108		114	110	99		70 - 130	7		25
1,2,3,4,6,7,8-HpCDF	122	328	109	189	*	247	110	114		70 - 130	28	*	25
1,2,3,4,7,8,9-HpCDF	5.28	141	109	124		130	110	113		70 - 130	8		25
OCDF	219	690	218	216	*	448	221	104		70 - 130	43	*	25

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

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	NA
Sample Matrix:	Misc. Solid	**Date Received:**	NA
Sample Name:	Batch QC	**Units:**	ng/Kg
Lab Code:	EQ1400264-06	**Basis:**	Dry
Run Type:	Matrix Spike		

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	5/26/14 0919
Prep Method:	Method	**Date Extracted:**	5/22/14
Sample Amount:	10.168g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229259	**Blank File Name:**	P229237
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229248

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**27.1**		0.280	0.545	0.77	1.001	1
1,2,3,7,8-PeCDD	**122**		0.652	2.73	1.55	1.000	1
1,2,3,4,7,8-HxCDD	**128**		1.45	2.73	1.26	1.000	1
1,2,3,6,7,8-HxCDD	**133**		1.51	2.73	1.26	1.000	1
1,2,3,7,8,9-HxCDD	**147**		1.43	2.73	1.28	1.009	1
1,2,3,4,6,7,8-HpCDD	**1240**		5.20	5.20	1.04	1.000	1
OCDD	**6120**	E	1.31	5.45	0.90	1.000	1
2,3,7,8-TCDF	**21.7**		0.474	0.545	0.76	1.001	1
1,2,3,7,8-PeCDF	**121**		1.09	2.73	1.58	1.001	1
2,3,4,7,8-PeCDF	**123**		0.998	2.73	1.53	1.000	1
1,2,3,4,7,8-HxCDF	**142**		1.83	2.73	1.23	1.000	1
1,2,3,6,7,8-HxCDF	**117**		1.58	2.73	1.23	1.000	1
1,2,3,7,8,9-HxCDF	**135**		1.96	2.73	1.23	1.000	1
2,3,4,6,7,8-HxCDF	**123**		1.68	2.73	1.20	1.000	1
1,2,3,4,6,7,8-HpCDF	**328**		3.64	3.64	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	**141**		4.37	4.37	1.03	1.000	1
OCDF	**690**		0.853	5.45	0.89	1.005	1
Total Tetra-Dioxins	**33.3**		0.280	0.545	0.75		1
Total Penta-Dioxins	**179**		0.652	2.73	1.69		1
Total Hexa-Dioxins	**627**		1.46	2.73	1.29		1
Total Hepta-Dioxins	**2100**		5.20	5.20	1.05		1
Total Tetra-Furans	**21.7**		0.474	0.545	0.76		1
Total Penta-Furans	**344**		0.388	2.73	1.62		1
Total Hexa-Furans	**760**		1.75	2.73	1.25		1
Total Hepta-Furans	**1050**		3.99	3.99	1.02		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	NA
Sample Matrix:	Misc. Solid	**Date Received:**	NA
Sample Name:	Batch QC	**Units:**	Percent
Lab Code:	EQ1400264-06	**Basis:**	Dry
Run Type:	Matrix Spike		

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	5/26/14 0919
Prep Method:	Method	**Date Extracted:**	5/22/14
Sample Amount:	10.168g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229259	**Blank File Name:**	P229237
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229248

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	1083.259	54		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1409.476	70		40-135	1.59	1.173
13C-1,2,3,4,7,8-HxCDD	2000	1306.345	65		40-135	1.29	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1234.933	62		40-135	1.29	0.992
13C-1,2,3,4,6,7,8-HpCDD	2000	1041.496	52		40-135	1.08	1.066
13C-OCDD	4000	1965.151	49		40-135	0.91	1.141
13C-2,3,7,8-TCDF	2000	1064.246	53		40-135	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1081.971	54		40-135	1.61	1.134
13C-2,3,4,7,8-PeCDF	2000	1153.350	58		40-135	1.60	1.164
13C-1,2,3,4,7,8-HxCDF	2000	960.901	48		40-135	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1066.941	53		40-135	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1120.695	56		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1147.602	57		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	894.568	45		40-135	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1037.427	52		40-135	0.45	1.079
37Cl-2,3,7,8-TCDD	800	354.186	44		40-135	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	NA
Sample Matrix:	Misc. Solid	**Date Received:**	NA
Sample Name:	Batch QC	**Units:**	ng/Kg
Lab Code:	EQ1400264-07	**Basis:**	Dry
Run Type:	Duplicate Matrix Spike		

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	5/26/14 1007
Prep Method:	Method	**Date Extracted:**	5/22/14
Sample Amount:	10.048g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229260	**Blank File Name:**	P229237
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229248

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**27.1**		0.199	0.552	0.80	1.001	1
1,2,3,7,8-PeCDD	**121**		0.552	2.76	1.57	1.000	1
1,2,3,4,7,8-HxCDD	**120**		2.20	2.76	1.26	1.000	1
1,2,3,6,7,8-HxCDD	**126**		2.31	2.76	1.26	1.000	1
1,2,3,7,8,9-HxCDD	**135**		2.18	2.76	1.25	1.009	1
1,2,3,4,6,7,8-HpCDD	**789**		1.52	2.76	1.04	1.000	1
OCDD	**5610**	E	1.01	5.52	0.90	1.000	1
2,3,7,8-TCDF	**22.2**		0.216	0.552	0.78	1.001	1
1,2,3,7,8-PeCDF	**126**		1.60	2.76	1.55	1.001	1
2,3,4,7,8-PeCDF	**118**		1.48	2.76	1.52	1.000	1
1,2,3,4,7,8-HxCDF	**134**		5.11	5.11	1.23	1.000	1
1,2,3,6,7,8-HxCDF	**116**		4.46	4.46	1.24	1.000	1
1,2,3,7,8,9-HxCDF	**237**		5.74	5.74	1.21	1.000	1
2,3,4,6,7,8-HxCDF	**114**		4.81	4.81	1.25	1.000	1
1,2,3,4,6,7,8-HpCDF	**247**		3.83	3.83	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	**130**		4.60	4.60	0.99	1.000	1
OCDF	**448**		0.939	5.52	0.89	1.006	1
Total Tetra-Dioxins	**27.8**		0.199	0.552	0.86		1
Total Penta-Dioxins	**126**		0.552	2.76	1.50		1
Total Hexa-Dioxins	**489**		2.23	2.76	1.22		1
Total Hepta-Dioxins	**1460**		1.52	2.76	1.05		1
Total Tetra-Furans	**23.2**		0.216	0.552	0.68		1
Total Penta-Furans	**258**		0.251	2.76	1.50		1
Total Hexa-Furans	**718**		4.99	4.99	1.22		1
Total Hepta-Furans	**618**		4.20	4.20	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	NA
Sample Matrix:	Misc. Solid	**Date Received:**	NA
Sample Name:	Batch QC	**Units:**	Percent
Lab Code:	EQ1400264-07	**Basis:**	Dry
Run Type:	Duplicate Matrix Spike		

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	5/26/14 1007
Prep Method:	Method	**Date Extracted:**	5/22/14
Sample Amount:	10.048g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229260	**Blank File Name:**	P229237
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229248

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	1306.896	65		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1635.783	82		40-135	1.58	1.173
13C-1,2,3,4,7,8-HxCDD	2000	1510.346	76		40-135	1.28	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1427.782	71		40-135	1.28	0.992
13C-1,2,3,4,6,7,8-HpCDD	2000	1310.935	66		40-135	1.08	1.066
13C-OCDD	4000	2372.868	59		40-135	0.93	1.141
13C-2,3,7,8-TCDF	2000	1265.649	63		40-135	0.80	0.994
13C-1,2,3,7,8-PeCDF	2000	1255.773	63		40-135	1.59	1.134
13C-2,3,4,7,8-PeCDF	2000	1319.281	66		40-135	1.61	1.164
13C-1,2,3,4,7,8-HxCDF	2000	1142.806	57		40-135	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1252.910	63		40-135	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1291.154	65		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1328.414	66		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1054.614	53		40-135	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1223.044	61		40-135	0.44	1.079
37Cl-2,3,7,8-TCDD	800	428.736	54		40-135	NA	1.020

Chain of Custody

ALS Environmental - Houston HRMS
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Chain of Custody Form

Page ____ of ____

COC ID: 106561

ALS Project Manager: | ALS Work Order #: 1404301

Customer Information		Project Information		Parameter/Method Request for Analysis
Purchase Order		Project Name	Alreco Metals	A PCB
Work Order		Project Number		B TCLP Metals
Company Name	Weston Solutions, Inc	Bill To Company	Weston Solutions, Inc	C TCL SVOC
Send Report To	Lisa Graczyk	Invoice Attn	Lisa Graczyk	D TCL VOC
Address	20 North Wacker Drive Suite 1210	Address	20 North Wacker Drive Suite 1210	E TAL Metals
				F Total Cyanide
City/State/Zip	Chicago, IL 60606	City/State/Zip	Chicago, IL 60606	G Total Sulfide
Phone	(312) 424-3300	Phone	(312) 424-3300	H Corrosivity
Fax	(312) 424-3330	Fax	(312) 424-3330	I Ignitibility
e-Mail Address	lgraczyk@cse-dynamac.com	e-Mail Address		J Asbestos

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	AM-WS01-04242014	04/24/2014	1535	WS	—	1	X	-10 ⊗	X	X	X	X	X	X	X		
2	AM-WS02-04242014	04/24/2014	1540	WS	—	1	X	-11 ⊗	X	X	X	X	X	X	X		
3	AM-WS03-04242014	04/24/2014	1545	WS	—	1	X	-12 ⊗	X	X	X	X	X	X	X		
4	AM-WS04-04242014	04/24/2014	1550	WS	—	1	X	-13 ⊗	X	X	X	X	X	X	X		
5	AM-WS05-04242014	04/24/2014	1555	WS	—	1	X	-14 ⊗	X	X	X	X	X	X	X		
6	AM-SS01-04242014	04/24/2014	1605	Soil	—	1	X		X		X	X	X	X	X		
7	AM-WS06-04242014	04/24/2014	1610	WS	—	1	X	-15 ⊗	X	X	X	X	X	X	X		
8	AM-WS07-04242014	04/24/2014	1625	WS	—	1	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	
9	AM-WL01-04242014	04/24/2014	1640	Water	HNO3 NaOH HCl Zinc acetate Sodium hydroxide	7	X		X	X	X	X	X	X	X		
10																	

Sampler(s) Please Print & Sign: [signature] | Shipment Method: | Required Turnaround Time: (Check Box) ☑ Std 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour ☐ Other | Results Due Date:

Relinquished by: [signature] Date: 04/24/2014 Time: 1800 Received by: [signature] Notes: 1340 5/13/14

Relinquished by: Date: 5/13/14 Time: 9:55 Received by (Laboratory): [signature]

Logged by (Laboratory): [signature] Date: 4/25/14 Time: 1300 Checked by (Laboratory): [signature]

Cooler ID	Cooler Temp.
	4.0°C

QC Package: (Check One Box Below)
- ☑ Level II Std QC
- ☐ Level III Std QC/Raw Data
- ☐ Level IV SW846/CLP
- ☐ Other
- ☐ TRRP Checklist
- ☐ TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-NaHSO$_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

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Cooler Receipt Form

Project Chemist NB

Client/Project Westin

Thermometer ID 8MO

Date/Time Received: 955 5/13/14 Initials: dh

Date/Time Logged in: 5/13/14 1357 Initials dh

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 front

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?
5781 0082 5477	—	5/13/14	1347	dh	4	☐
						☐
						☐
						☐

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: E1400541

Effective 10/04/2013

ALS Environmental - Houston HRMS

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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 Benchsheet

Prep Run#: 209023 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/WMCDONOUGH **Prep Method:** Method **Prep Date/Time:** 5/22/14 09:45 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Sample Description
1	E1400525-002	SO-206(0-3)	.01	8290A/PCDD PCDF		Soil	10.346g	Damp, Brown Soil
2	E1400525-004	SO-207(0-3)	.01	8290A/PCDD PCDF		Soil	10.108g	Wet, Orange/Brown Dirt
3	E1400525-006	SO-25(0-3)	.01	8290A/PCDD PCDF		Soil	10.327g	Damp, Brown Soil
4	E1400525-008	SO-56(0-3)	.01	8290A/PCDD PCDF		Soil	10.079g	Damp, Brown Soil
5	E1400525-010	SO-57(0-3)	.01	8290A/PCDD PCDF		Soil	10.037g	Damp, Brown Soil
6	E1400525-012	SO-58(0-3)	.01	8290A/PCDD PCDF		Soil	10.314g	Damp, Brown Soil
7	E1400525-014	SO-59(0-3)	.01	8290A/PCDD PCDF		Soil	10.036g	Damp, Brown Soil
8	E1400525-016	SO-60A(0-3)	.01	8290A/PCDD PCDF		Soil	10.154g	Damp, Brown Soil
9	E1400525-018	SO-61(0-3)	.01	8290A/PCDD PCDF		Soil	10.429g	Damp, Brown Soil
10	E1400525-020	SO-62-(0-3)	.01	8290A/PCDD PCDF		Soil	10.376g	Red/Brown Soil (w/ wood chips)
11	E1400525-022	SO-63(0-3)	.01	8290A/PCDD PCDF		Soil	10.256g	Damp, Brown Soil
12	E1400525-024	SO-64(0-3)	.01	8290A/PCDD PCDF		Soil	10.445g	Red/Brown Soil
13	E1400525-026	SO-65(0-3)	.01	8290A/PCDD PCDF		Soil	10.158g	Damp, Brown Soil
14	E1400527-002	SO-209(0-3)	.01	8290A/PCDD PCDF		Soil	10.072g	Damp, Brown Soil
15	E1400527-004	SO-66(0-3)	.01	8290A/PCDD PCDF		Soil	10.175g	Damp, Brown Soil
16	E1400527-006	SO-67(0-3)	.01	8290A/PCDD PCDF		Soil	10.410g	Damp, Brown Soil
17	E1400527-008	SO-68(0-3)	.01	8290A/PCDD PCDF		Soil	10.070g	Damp, Brown Soil
18	E1400528-001	SO-78(0-3)	.01	8290A/PCDD PCDF		Soil	10.524g	Damp, Brown Soil
19	E1400528-003	SO-79(0-3)	.01	8290A/PCDD PCDF		Soil	10.127g	Damp, Brown Soil
20	E1400541-002	AM-WS02-04242014	.01	8290/PCDD PCDF		Misc. Solid	3.016g	Fine, Black Powder
21	EQ1400264-01	MB		8290A/PCDD PCDF		Solid	10.159g	
22	EQ1400264-02	LCS		8290A/PCDD PCDF		Solid	10.229g	
23	EQ1400264-03	SO-206(0-3) MS	.01	8290A/PCDD PCDF		Solid	10.168g	
24	EQ1400264-04	SO-206(0-3) DMS	.01	8290A/PCDD PCDF		Solid	10.048g	
25	EQ1400264-05	Batch QC		8290/PCDD PCDF		Soil	10.346g	
26	EQ1400264-06	Batch QC MS		8290/PCDD PCDF		Solid	10.168g	
27	EQ1400264-07	Batch QC DMS		8290/PCDD PCDF		Solid	10.048g	

Preparation Information Benchsheet

Prep Run#: 209023 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/WMCDONOUGH **Prep Method:** Method **Prep Date/Time:** 5/22/14 09:45 AM

Spiking Solutions

Name: 8290/1613B Cleanup Working Standard Inventory ID 70651 Logbook Ref: 70651 CID 05/20/2014 Expires On: 11/16/2014

E1400525-002	100.00µL	E1400525-004	100.00µL	E1400525-006	100.00µL	E1400525-008	100.00µL	E1400525-008.R	100.00µL	E1400525-010	100.00µL
E1400525-012	100.00µL	E1400525-014	100.00µL	E1400525-014.R	100.00µL	E1400525-016	100.00µL	E1400525-016.R	100.00µL	E1400525-018	100.00µL
E1400525-018.R	100.00µL	E1400525-020	100.00µL	E1400525-020.R	100.00µL	E1400525-022	100.00µL	E1400525-022.R	100.00µL	E1400525-024	100.00µL
E1400525-026	100.00µL	E1400527-002	100.00µL	E1400527-004	100.00µL	E1400527-006	100.00µL	E1400527-006.R	100.00µL	E1400527-008	100.00µL
E1400527-008.R	100.00µL	E1400528-001	100.00µL	E1400528-003	100.00µL	E1400528-003.R	100.00µL	E1400541-002	100.00µL	EQ1400264-01	100.00µL
EQ1400264-01	100.00µL	EQ1400264-02	100.00µL	EQ1400264-02	100.00µL	EQ1400264-03	100.00µL	EQ1400264-04	100.00µL	EQ1400264-05	100.00µL
EQ1400264-06	100.00µL	EQ1400264-07	100.00µL								

Name: 1613B Labeled Working Standard Inventory ID 70713 Logbook Ref: 70713 TL 5/21/14 Expires On: 05/21/2015

E1400525-002	1,000.00µL	E1400525-004	1,000.00µL	E1400525-006	1,000.00µL	E1400525-008	1,000.00µL	E1400525-008.R	1,000.00µL	E1400525-010	1,000.00µL
E1400525-012	1,000.00µL	E1400525-014	1,000.00µL	E1400525-014.R	1,000.00µL	E1400525-016	1,000.00µL	E1400525-016.R	1,000.00µL	E1400525-018	1,000.00µL
E1400525-018.R	1,000.00µL	E1400525-020	1,000.00µL	E1400525-020.R	1,000.00µL	E1400525-022	1,000.00µL	E1400525-022.R	1,000.00µL	E1400525-024	1,000.00µL
E1400525-026	1,000.00µL	E1400527-002	1,000.00µL	E1400527-004	1,000.00µL	E1400527-006	1,000.00µL	E1400527-006.R	1,000.00µL	E1400527-008	1,000.00µL
E1400527-008.R	1,000.00µL	E1400528-001	1,000.00µL	E1400528-003	1,000.00µL	E1400528-003.R	1,000.00µL	E1400541-002	1,000.00µL	EQ1400264-01	1,000.00µL
EQ1400264-01	1,000.00µL	EQ1400264-02	1,000.00µL	EQ1400264-02	1,000.00µL	EQ1400264-03	1,000.00µL	EQ1400264-04	1,000.00µL	EQ1400264-05	1,000.00µL
EQ1400264-06	1,000.00µL	EQ1400264-07	1,000.00µL								

Name: 1613B Matrix Working Standard Inventory ID 70792 Logbook Ref: 70792 WM 5/22/14 Expires On: 05/22/2015

EQ1400264-02	100.00µL	EQ1400264-02	100.00µL	EQ1400264-03	100.00µL	EQ1400264-04	100.00µL	EQ1400264-06	100.00µL	EQ1400264-07	100.00µL

Preparation Materials

Carbon, High Purity	AL 05/19/14 (70615)	Ethyl Acetate 99.9% Minimum EtOAc	AL 04/02/14 (69066)	Glass Wool	AL 05/19/14 (70618)
Sulfuric Acid Reagent Grade H2SO4	AL 04/02/14 (69067)	Hexanes 95%	AL 05/19/14 (70617)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL 05/19/14 (70625)
Sodium Chloride Reagent Grade NaCl	C2-65-5 (38670)	Sodium Hydroxide Reagent Grade NaOH	C2-73-7 (53023)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 02/05/14 (67011)
Tridecane (n-Tridecane)	AL 04/18/14 (69701)	Toluene 99.9% Minimum	AL 05/19/14 (70616)	Silica Gel Reagent Grade	AL 03/19/14 (68439)

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	5/22/14 09:45	Started:	5/23/14 07:00	Started:	5/23/14 13:00	Started:	5/23/14 17:30
Finished:	5/23/14 05:20	Finished:	5/23/14 07:40	Finished:	5/23/14 14:50	Finished:	5/23/14 18:15
By:	WMCDONOUGH	By:	CDIAZ	By:	CDIAZ	By:	JPLASSARD
Comments		Comments		Comments		Comments	

Preparation Information Benchsheet

Prep Run#: 209023 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/WMCDONOUGH **Prep Method:** Method **Prep Date/Time:** 5/22/14 09:45 AM

Comments:

Reviewed By: rJWP 052814 Date: 5/30/2014

Chain of Custody

Relinquished By: Date:

Received By: Date:

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 208804 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/WMCDONOUGH **Prep Method:** Method **Prep Date/Time:** 5/20/14 09:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Sample Description
1	E1400510-024	SO-18(0-3)	.01	8290A/PCDD PCDF		Soil	10.188g	Brown Soil (w/ root and rock)
2	E1400510-026	SO-19(0-3)	.01	8290A/PCDD PCDF		Soil	10.487g	Brown Soil (w/ root and rock)
3	E1400510-028	SO-20(0-3)	.01	8290A/PCDD PCDF		Soil	10.164g	Brown Soil (w/ root and rock)
4	E1400510-030	SO-201(0-3)	.01	8290A/PCDD PCDF		Soil	10.273g	Brown/Orange Soil (w/ root and rock)
5	E1400510-032	SO-202(0-3)	.01	8290A/PCDD PCDF		Soil	10.433g	Brown Soil (w/ root and rock)
6	E1400510-034	SO-204(0-3)	.01	8290A/PCDD PCDF		Soil	10.017g	Brown Soil (w/ root and rock)
7	E1400510-036	SO-37(0-3)	.01	8290A/PCDD PCDF		Soil	10.477g	Brown Soil (w/ root and rock)
8	E1400510-038	SO-47(0-3)	.01	8290A/PCDD PCDF		Soil	10.186g	Brown Soil (w/ root and rock)
9	E1400510-040	SO-49(0-3)	.01	8290A/PCDD PCDF		Soil	10.110g	Brown Soil (w/ root and rock)
10	E1400524-001	SO-205(0-3)	.01	8290A/PCDD PCDF		Soil	10.407g	Brown Soil (w/ root and rock)
11	E1400524-003	SO-26(0-3)	.01	8290A/PCDD PCDF		Soil	10.387g	Brown Soil (w/ root and rock)
12	E1400524-005	SO-33(0-3)	.01	8290A/PCDD PCDF		Soil	10.232g	Brown Soil (w/ root and rock)
13	E1400524-007	SO-42(0-3)	.01	8290A/PCDD PCDF		Soil	10.358g	Wet, Brown Dirt
14	E1400524-009	SO-43(0-3)	.01	8290A/PCDD PCDF		Soil	10.306g	Wet, Brown Dirt
15	E1400524-011	SO-46(0-3)	.01	8290A/PCDD PCDF		Soil	10.083g	Brown Soil (w/ root and rock)
16	E1400524-013	SO-48(0-3)	.01	8290A/PCDD PCDF		Soil	10.007g	Brown/Orange Soil (w/ root and rock)
17	E1400524-015	SO-53(0-3)	.01	8290A/PCDD PCDF		Soil	10.128g	Brown Soil (w/ root and rock)
18	E1400524-017	SO-54(0-3)	.01	8290A/PCDD PCDF		Soil	10.312g	Brown Soil (w/ root and rock)
19	E1400524-019	SO-55(0-3)	.01	8290A/PCDD PCDF		Soil	10.037g	Brown/Orange Soil (w/ root and rock)
20	E1400541-001	AM-WS01-04242014	.01	8290/PCDD PCDF		Misc. Solid	3.147g	Fine, Black Powder
21	EQ1400257-01	MB		8290A/PCDD PCDF		Solid	10.201g	
22	EQ1400257-02	LCS		8290A/PCDD PCDF		Solid	10.156g	
23	EQ1400257-03	SO-46(0-3) MS	.01	8290A/PCDD PCDF		Solid	10.395g	
24	EQ1400257-04	SO-46(0-3) DMS	.01	8290A/PCDD PCDF		Solid	10.014g	
25	EQ1400257-05	Batch QC		8290/PCDD PCDF		Soil	10.083g	
26	EQ1400257-06	Batch QC MS		8290/PCDD PCDF		Solid	10.395g	
27	EQ1400257-07	Batch QC DMS		8290/PCDD PCDF		Solid	10.014g	

Preparation Information Benchsheet

Prep Run#: 208804 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/WMCDONOUGH **Prep Method:** Method **Prep Date/Time:** 5/20/14 09:00 AM

Spiking Solutions

Name:	1613B Matrix Working Standard	Inventory ID	69961	Logbook Ref:	69961 WM 4/29/14	Expires On:	04/29/2015

EQ1400257-02	100.00µL	EQ1400257-02	100.00µL	EQ1400257-03	100.00µL	EQ1400257-04	100.00µL	EQ1400257-06	100.00µL	EQ1400257-07	100.00µL

Name:	1613B Labeled Working Standard	Inventory ID	70492	Logbook Ref:	70492 TL 5/14/14	Expires On:	01/31/2017

E1400510-024	1,000.00µL	E1400510-024.R	1,000.00µL	E1400510-026	1,000.00µL	E1400510-026.R	1,000.00µL	E1400510-028	1,000.00µL	E1400510-028.R	1,000.00µL
E1400510-030	1,000.00µL	E1400510-030.R	1,000.00µL	E1400510-032	1,000.00µL	E1400510-032.R	1,000.00µL	E1400510-034	1,000.00µL	E1400510-034.R	1,000.00µL
E1400510-036	1,000.00µL	E1400510-036.R	1,000.00µL	E1400510-038	1,000.00µL	E1400510-038.R	1,000.00µL	E1400510-040	1,000.00µL	E1400524-001	1,000.00µL
E1400524-003	1,000.00µL	E1400524-003.R	1,000.00µL	E1400524-005	1,000.00µL	E1400524-007	1,000.00µL	E1400524-009	1,000.00µL	E1400524-011	1,000.00µL
E1400524-013	1,000.00µL	E1400524-015	1,000.00µL	E1400524-017	1,000.00µL	E1400524-019	1,000.00µL	E1400541-001	1,000.00µL	EQ1400257-01	1,000.00µL
EQ1400257-01	1,000.00µL	EQ1400257-02	1,000.00µL	EQ1400257-02	1,000.00µL	EQ1400257-03	1,000.00µL	EQ1400257-04	1,000.00µL	EQ1400257-05	1,000.00µL
EQ1400257-06	1,000.00µL	EQ1400257-07	1,000.00µL								

Name:	8290/1613B Cleanup Working Standard	Inventory ID	70651	Logbook Ref:	70651 CID 05/20/2014	Expires On:	11/16/2014

E1400510-024	100.00µL	E1400510-024.R	100.00µL	E1400510-026	100.00µL	E1400510-026.R	100.00µL	E1400510-028	100.00µL	E1400510-028.R	100.00µL
E1400510-030	100.00µL	E1400510-030.R	100.00µL	E1400510-032	100.00µL	E1400510-032.R	100.00µL	E1400510-034	100.00µL	E1400510-034.R	100.00µL
E1400510-036	100.00µL	E1400510-036.R	100.00µL	E1400510-038	100.00µL	E1400510-038.R	100.00µL	E1400510-040	100.00µL	E1400524-001	100.00µL
E1400524-003	100.00µL	E1400524-003.R	100.00µL	E1400524-005	100.00µL	E1400524-007	100.00µL	E1400524-009	100.00µL	E1400524-011	100.00µL
E1400524-013	100.00µL	E1400524-015	100.00µL	E1400524-017	100.00µL	E1400524-019	100.00µL	E1400541-001	100.00µL	EQ1400257-01	100.00µL
EQ1400257-01	100.00µL	EQ1400257-02	100.00µL	EQ1400257-02	100.00µL	EQ1400257-03	100.00µL	EQ1400257-04	100.00µL	EQ1400257-05	100.00µL
EQ1400257-06	100.00µL	EQ1400257-07	100.00µL								

Preparation Materials

Carbon, High Purity	AL 05/19/14 (70615)	Ethyl Acetate 99.9% Minimum EtOAc	AL 04/02/14 (69066)	Glass Wool	AL 03/13/14 (68258)
Sulfuric Acid Reagent Grade H2SO4	AL 05/21/14 (70716)	Hexanes 95%	AL 05/19/14 (70617)	Sodium Chloride Reagent Grade NaCl	C2-65-5 (38670)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 02/05/14 (67011)	Tridecane (n-Tridecane)	AL 04/18/14 (69701)	Silica Gel Reagent Grade	AL 03/19/14 (68439)
Toluene 99.9% Minimum	AL 05/19/14 (70624)	Sodium Hydroxide Reagent Grade NaOH	C2-73-7 (53023)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	5/20/14 09:00	Started:	5/22/14 13:10	Started:	5/23/14 08:15	Started:	5/23/14 16:00
Finished:	5/21/14 05:45	Finished:	5/22/14 14:00	Finished:	5/23/14 10:20	Finished:	5/23/14 16:45
By:	WMCDONOUGH	By:	CDIAZ	By:	CDIAZ	By:	JPLASSARD
Comments		Comments		Comments		Comments	

Preparation Information Benchsheet

Prep Run#: 208804 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/WMCDONOUGH **Prep Method:** Method **Prep Date/Time:** 5/20/14 09:00 AM

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
AM-WS01-04242

Run #12 Filename P171052 Samp: 1 Inj: 1 Acquired: 27-MAY-14 13:29:42
Processed: 27-MAY-14 15:34:31 Sample ID: E1400541-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:06	1.388e+04	1.808e+04	0.77	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:06	1.615e+04	1.040e+04	1.55	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	33:57	3.263e+04	2.021e+04	1.61	yes	yes	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:33	1.409e+04	1.113e+04	1.27	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:39	1.359e+04	1.104e+04	1.23	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:08	1.636e+04	1.349e+04	1.21	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	37:54	4.737e+03	3.657e+03	1.30	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:06	2.367e+04	2.293e+04	1.03	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:32	2.585e+03	2.707e+03	0.95	yes	no	1.324
10	Unk	OCDF	43:07	8.669e+03	9.680e+03	0.90	yes	no	1.307
11	Unk	2,3,7,8-TCDD	29:51	3.972e+02	4.950e+02	0.80	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:13	1.609e+03	1.081e+03	1.49	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:15	8.786e+02	6.618e+02	1.33	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:21	1.518e+03	1.190e+03	1.28	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:35	1.155e+03	8.894e+02	1.30	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:02	6.727e+03	6.177e+03	1.09	yes	no	1.016
17	Unk	OCDD	42:54	2.007e+04	2.281e+04	0.88	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:05	8.469e+03	1.104e+04	0.77	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:04	1.746e+04	1.116e+04	1.56	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	33:56	1.641e+04	1.042e+04	1.57	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:32	5.682e+03	1.116e+04	0.51	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:38	7.714e+03	1.486e+04	0.52	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:07	6.661e+03	1.272e+04	0.52	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	37:52	6.286e+03	1.204e+04	0.52	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:06	3.218e+03	7.341e+03	0.44	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:31	3.222e+03	7.680e+03	0.42	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	29:50	7.401e+03	9.673e+03	0.77	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:13	1.347e+04	8.682e+03	1.55	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:15	8.239e+03	6.606e+03	1.25	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:20	8.813e+03	6.913e+03	1.27	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:01	5.140e+03	4.857e+03	1.06	yes	no	0.862
32	IS	13C-OCDD	42:54	5.301e+03	5.861e+03	0.90	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:17	1.501e+04	1.907e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:35	1.634e+04	1.326e+04	1.23	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:51	5.721e+03				no	1.125

$$\text{OCDD} = \frac{(2.007e+04 + 2.281e+04) \times 4000 \text{ pg} \times 1}{(5.301e+03 + 5.861e+03) \times 3.147 \text{ g} \times 86.4 \times 1.079} = 5237.702 \text{ ng/kg}$$

LLM 05/28/14

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP1

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
AM-WS01-04242014

Run #12 Filename P171052 Samp: 1 Inj: 1 Acquired: 27-MAY-14 13:29:42
Processed: 27-MAY-14 15:34:311 LAB. ID: E1400541-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.86e+06	1.88e+03	1.5e+03	3.74e+06	2.27e+03	1.7e+03
2	1,2,3,7,8-PeCDF	3.03e+06	6.50e+04	4.7e+01	1.93e+06	4.38e+04	4.4e+01
3	2,3,4,7,8-PeCDF	5.42e+06	6.50e+04	8.3e+01	3.41e+06	4.38e+04	7.8e+01
4	1,2,3,4,7,8-HxCDF	2.84e+06	3.99e+04	7.1e+01	2.24e+06	3.19e+04	7.0e+01
5	1,2,3,6,7,8-HxCDF	2.65e+06	3.99e+04	6.6e+01	2.15e+06	3.19e+04	6.7e+01
6	2,3,4,6,7,8-HxCDF	3.09e+06	3.99e+04	7.7e+01	2.49e+06	3.19e+04	7.8e+01
7	1,2,3,7,8,9-HxCDF	1.09e+06	3.99e+04	2.7e+01	8.32e+05	3.19e+04	2.6e+01
8	1,2,3,4,6,7,8-HpCDF	4.52e+06	1.07e+04	4.2e+02	4.30e+06	1.09e+04	3.9e+02
9	1,2,3,4,7,8,9-HpCDF	4.72e+05	1.07e+04	4.4e+01	4.63e+05	1.09e+04	4.2e+01
10	OCDF	1.20e+06	5.76e+03	2.1e+02	1.34e+06	2.89e+03	4.6e+02
11	2,3,7,8-TCDD	8.37e+04	8.48e+02	9.9e+01	1.06e+05	1.27e+03	8.4e+01
12	1,2,3,7,8-PeCDD	2.98e+05	4.77e+03	6.2e+01	1.97e+05	5.52e+03	3.6e+01
13	1,2,3,4,7,8-HxCDD	1.90e+05	3.84e+03	4.9e+01	1.38e+05	5.75e+03	2.4e+01
14	1,2,3,6,7,8-HxCDD	2.92e+05	3.84e+03	7.6e+01	2.16e+05	5.75e+03	3.8e+01
15	1,2,3,7,8,9-HxCDD	2.06e+05	3.84e+03	5.4e+01	1.54e+05	5.75e+03	2.7e+01
16	1,2,3,4,6,7,8-HpCDD	1.17e+06	2.64e+03	4.4e+02	1.10e+06	3.74e+03	3.0e+02
17	OCDD	2.81e+06	4.96e+02	5.7e+03	3.09e+06	6.56e+02	4.7e+03
18	13C-2,3,7,8-TCDF	1.73e+06	3.68e+02	4.7e+03	2.28e+06	4.04e+02	5.6e+03
19	13C-1,2,3,7,8-PeCDF	3.17e+06	2.60e+02	1.2e+04	2.03e+06	1.06e+03	1.9e+03
20	13C-2,3,4,7,8-PeCDF	3.16e+06	2.60e+02	1.2e+04	2.00e+06	1.06e+03	1.9e+03
21	13C-1,2,3,4,7,8-HxCDF	1.18e+06	9.92e+02	1.2e+03	2.26e+06	9.92e+02	2.3e+03
22	13C-1,2,3,6,7,8-HxCDF	1.48e+06	9.92e+02	1.5e+03	2.86e+06	9.92e+02	2.9e+03
23	13C-2,3,4,6,7,8-HxCDF	1.30e+06	9.92e+02	1.3e+03	2.55e+06	9.92e+02	2.6e+03
24	13C-1,2,3,7,8,9-HxCDF	1.29e+06	9.92e+02	1.3e+03	2.50e+06	9.92e+02	2.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.33e+05	2.34e+03	2.7e+02	1.39e+06	2.50e+03	5.6e+02
26	13C-1,2,3,4,7,8,9-HpCDF	5.34e+05	2.34e+03	2.3e+02	1.25e+06	2.50e+03	5.0e+02
27	13C-2,3,7,8-TCDD	1.55e+06	2.04e+03	7.6e+02	2.02e+06	9.12e+02	2.2e+03
28	13C-1,2,3,7,8-PeCDD	2.54e+06	5.28e+02	4.8e+03	1.62e+06	3.96e+02	4.1e+03
29	13C-1,2,3,4,7,8-HxCDD	1.74e+06	6.52e+02	2.7e+03	1.38e+06	3.52e+02	3.9e+03
30	13C-1,2,3,6,7,8-HxCDD	1.59e+06	6.52e+02	2.4e+03	1.29e+06	3.52e+02	3.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.00e+05	9.00e+02	1.0e+03	8.34e+05	1.84e+02	4.5e+03
32	13C-OCDD	7.20e+05	8.36e+02	8.6e+02	8.25e+05	4.00e+02	2.1e+03
33	13C-1,2,3,4-TCDD	3.28e+06	2.04e+03	1.6e+03	4.18e+06	9.12e+02	4.6e+03
34	13C-1,2,3,7,8,9-HxCDD	2.81e+06	6.52e+02	4.3e+03	2.31e+06	3.52e+02	6.5e+03
35	37Cl-2,3,7,8-TCDD	1.20e+06	6.60e+02	1.8e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

AM-WS01-04242014

Entry: 36 Totals Name: Total Tetra-Furans

Run: 12 File: P171052 Sample: 1 Injection: 1 Function: 1
Llim: 24:45 Ulim: 30:58
Acquired: 27-MAY-14 13:29:42 Processed: 27-MAY-14 15:34:31
Mass: 303.9020 305.8990 Tot Response: 5.14e+05 RRF: 0.9451

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:51	3.19e+03	4.25e+03	0.75	yes	7.44e+03		n	n
2	25:21	3.21e+03	4.23e+03	0.76	yes	7.44e+03		n	n
3	25:38	1.55e+02	2.13e+02	0.73	yes	3.68e+02		n	n
4	25:53	2.93e+03	3.66e+03	0.80	yes	6.59e+03		n	y
5	26:18	6.70e+03	8.58e+03	0.78	yes	1.53e+04		y	y
6	26:24	2.31e+04	3.08e+04	0.75	yes	5.39e+04		y	y
7	26:38	4.23e+03	5.83e+03	0.73	yes	1.01e+04		y	y
8	26:43	1.25e+04	1.57e+04	0.80	yes	2.82e+04		y	y
9	27:04	5.68e+03	6.68e+03	0.85	yes	1.24e+04		n	n
10	27:10	6.33e+03	8.84e+03	0.72	yes	1.52e+04		n	n
11	27:19	8.71e+03	1.12e+04	0.78	yes	1.99e+04		n	n
12	27:41	4.87e+03	6.29e+03	0.77	yes	1.12e+04		y	y
13	27:45	1.29e+04	1.64e+04	0.79	yes	2.93e+04		y	y
14	27:51	6.97e+03	8.93e+03	0.78	yes	1.59e+04		n	n
15	28:00	3.45e+04	4.46e+04	0.77	yes	7.91e+04		n	n
16	28:22	1.80e+04	2.32e+04	0.78	yes	4.12e+04		n	n
17	28:35	9.64e+03	1.24e+04	0.78	yes	2.20e+04		n	n
18	28:45	1.28e+04	1.68e+04	0.76	yes	2.95e+04		n	n
19	29:06	1.39e+04	1.81e+04	0.77	yes	3.20e+04	2,3,7,8-TCDF	n	n
20	29:25	3.01e+04	3.90e+04	0.77	yes	6.91e+04		n	n
21	29:37	1.09e+03	1.33e+03	0.82	yes	2.43e+03		n	y
22	29:53	1.06e+03	1.44e+03	0.74	yes	2.50e+03		n	y
23	30:49	1.50e+03	1.82e+03	0.82	yes	3.32e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

AM-WS01-04242014

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 12 File: P171052 Sample: 1 Injection: 1 Function: 1
Llim: 26:36 Ulim: 30:49
Acquired: 27-MAY-14 13:29:42 Processed: 27-MAY-14 15:34:31
Mass: 319.8970 321.8940 Tot Response: 2.68e+04 RRF: 1.037

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:42	1.91e+03	2.66e+03	0.72	yes	4.57e+03		n	n
2	27:02	1.44e+03	1.99e+03	0.72	yes	3.43e+03		n	n
3	27:24	3.26e+02	4.67e+02	0.70	yes	7.93e+02		n	n
4	28:15	1.33e+03	1.83e+03	0.73	yes	3.16e+03		n	n
5	28:26	1.12e+03	1.44e+03	0.78	yes	2.56e+03		n	n
6	28:35	4.45e+02	5.92e+02	0.75	yes	1.04e+03		n	n
7	28:48	1.38e+02	1.86e+02	0.74	yes	3.24e+02		n	n
8	28:58	6.44e+02	8.08e+02	0.80	yes	1.45e+03		n	n
9	29:18	1.16e+03	1.53e+03	0.76	yes	2.70e+03		n	n
10	29:36	1.55e+03	2.05e+03	0.75	yes	3.60e+03		n	n
11	29:51	3.97e+02	4.95e+02	0.80	yes	8.92e+02	2,3,7,8-TCDD	n	n
12	30:07	6.50e+02	7.76e+02	0.84	yes	1.43e+03		n	n
13	30:12	1.41e+02	1.68e+02	0.84	yes	3.09e+02		n	n
14	30:39	2.44e+02	3.27e+02	0.75	yes	5.71e+02		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

AM-WS01-04242014

Entry: 38 Totals Name: Total Penta-Furan1

Run: 12 File: P171052 Sample: 1 Injection: 1 Function: 1
Llim: 30:41 Ulim: 35:00
Acquired: 27-MAY-14 13:29:42 Processed: 27-MAY-14 15:34:31
Mass: 339.8600 341.8570 Tot Response: 4.43e+04 RRF: 0.9970

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:49	2.70e+04	1.73e+04 1.56	yes	4.43e+04		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

AM-WS01-04242014

Entry: 39 Totals Name: Total Penta-Furan2

Run: 12 File: P171052 Sample: 1 Injection: 1 Function: 2
Llim: 30:41 Ulim: 35:00
Acquired: 27-MAY-14 13:29:42 Processed: 27-MAY-14 15:34:31
Mass: 339.8600 341.8570 Tot Response: 5.20e+05 RRF: 0.9970

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:06	5.79e+04	3.70e+04	1.57	yes	9.49e+04		n	n
2	32:14	7.28e+04	4.60e+04	1.58	yes	1.19e+05		n	n
3	32:24	3.22e+03	1.84e+03	1.75	yes	5.07e+03		n	n
4	32:35	6.09e+03	3.77e+03	1.62	yes	9.86e+03		n	n
5	32:41	5.43e+04	3.36e+04	1.62	yes	8.80e+04		n	n
6	32:48	1.31e+04	9.12e+03	1.43	yes	2.22e+04		n	n
7	32:55	1.39e+04	8.89e+03	1.57	yes	2.28e+04		n	n
8	33:06	1.61e+04	1.04e+04	1.55	yes	2.65e+04	1,2,3,7,8-PeCDF	n	n
9	33:19	3.42e+04	2.20e+04	1.56	yes	5.62e+04		n	n
10	33:28	2.46e+03	1.51e+03	1.63	yes	3.97e+03		n	n
11	33:47	3.22e+03	2.09e+03	1.54	yes	5.31e+03		n	n
12	33:57	3.26e+04	2.02e+04	1.61	yes	5.28e+04	2,3,4,7,8-PeCDF	n	n
13	34:15	5.02e+03	3.08e+03	1.63	yes	8.10e+03		n	n
14	34:50	2.98e+03	1.89e+03	1.58	yes	4.88e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

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AM-WS01-04242014

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 12 File: P171052 Sample: 1 Injection: 1 Function: 2
Llim: 32:08 Ulim: 34:44
Acquired: 27-MAY-14 13:29:42 Processed: 27-MAY-14 15:34:31
Mass: 355.8550 357.8520 Tot Response: 6.04e+04 RRF: 0.9375

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:16	1.13e+04	7.27e+03	1.56	yes	1.86e+04		n	n
2	32:39	1.07e+03	7.15e+02	1.49	yes	1.78e+03		n	n
3	33:05	6.52e+03	4.16e+03	1.57	yes	1.07e+04		n	n
4	33:14	1.77e+03	1.07e+03	1.64	yes	2.84e+03		n	n
5	33:20	4.35e+03	2.77e+03	1.57	yes	7.12e+03		n	n
6	33:32	3.62e+03	2.25e+03	1.61	yes	5.86e+03		n	n
7	33:50	4.30e+03	2.78e+03	1.55	yes	7.08e+03		n	n
8	34:13	1.61e+03	1.08e+03	1.49	yes	2.69e+03	1,2,3,7,8-PeCDD	n	n
9	34:17	1.01e+03	6.71e+02	1.51	yes	1.68e+03		n	n
10	34:34	1.21e+03	8.43e+02	1.44	yes	2.06e+03		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

AM-WS01-04242014

Entry: 41 Totals Name: Total Hexa-Furans

Run: 12 File: P171052 Sample: 1 Injection: 1 Function: 3
Llim: 35:23 Ulim: 38:03
Acquired: 27-MAY-14 13:29:42 Processed: 27-MAY-14 15:34:31
Mass: 373.8210 375.8180 Tot Response: 2.66e+05 RRF: 1.180

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:28	1.77e+04	1.41e+04	1.25	yes	3.18e+04		n	n
2	35:38	4.11e+04	3.33e+04	1.24	yes	7.44e+04		n	n
3	35:49	2.54e+03	2.01e+03	1.27	yes	4.54e+03		n	n
4	35:58	5.45e+03	4.06e+03	1.34	yes	9.51e+03		n	n
5	36:08	3.13e+03	2.47e+03	1.27	yes	5.61e+03		n	n
6	36:28	1.95e+04	1.62e+04	1.21	yes	3.57e+04		n	n
7	36:33	1.41e+04	1.11e+04	1.27	yes	2.52e+04	1,2,3,4,7,8-HxCDF	n	n
8	36:39	1.36e+04	1.10e+04	1.23	yes	2.46e+04	1,2,3,6,7,8-HxCDF	n	n
9	36:47	2.59e+03	1.99e+03	1.30	yes	4.58e+03		n	n
10	36:54	3.74e+03	3.14e+03	1.19	yes	6.88e+03		n	n
11	36:59	2.78e+03	2.18e+03	1.27	yes	4.96e+03		n	n
12	37:08	1.64e+04	1.35e+04	1.21	yes	2.98e+04	2,3,4,6,7,8-HxCDF	n	n
13	37:54	4.74e+03	3.66e+03	1.30	yes	8.39e+03	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

AM-WS01-04242014

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 12 File: P171052 Sample: 1 Injection: 1 Function: 3
Llim: 35:52 Ulim: 37:39
Acquired: 27-MAY-14 13:29:42 Processed: 27-MAY-14 15:34:31
Mass: 389.8160 391.8130 Tot Response: 5.07e+04 RRF: 1.040

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:58	3.78e+03	2.99e+03	1.26	yes	6.77e+03		n	n
2	36:28	1.17e+04	9.52e+03	1.23	yes	2.12e+04		n	n
3	36:41	6.73e+03	5.38e+03	1.25	yes	1.21e+04		n	n
4	36:48	8.23e+02	6.55e+02	1.26	yes	1.48e+03		n	n
5	37:15	8.79e+02	6.62e+02	1.33	yes	1.54e+03	1,2,3,4,7,8-HxCDD	n	n
6	37:21	1.52e+03	1.19e+03	1.28	yes	2.71e+03	1,2,3,6,7,8-HxCDD	n	n
7	37:31	1.58e+03	1.24e+03	1.28	yes	2.82e+03		n	n
8	37:35	1.16e+03	8.89e+02	1.30	yes	2.04e+03	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

AM-WS01-04242014

Entry: 43 Totals Name: Total Hepta-Furans

Run: 12 File: P171052 Sample: 1 Injection: 1 Function: 4
Llim: 39:01 Ulim: 40:42
Acquired: 27-MAY-14 13:29:42 Processed: 27-MAY-14 15:34:31
Mass: 407.7820 409.7790 Tot Response: 7.54e+04 RRF: 1.365

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:06	2.37e+04	2.29e+04	1.03	yes	4.66e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	39:22	5.08e+03	5.19e+03	0.98	yes	1.03e+04		n	n
3	39:31	6.60e+03	6.68e+03	0.99	yes	1.33e+04		n	n
4	40:32	2.59e+03	2.71e+03	0.95	yes	5.29e+03	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

AM-WS01-04242014

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 12 File: P171052 Sample: 1 Injection: 1 Function: 4
Llim: 39:15 Ulim: 40:11
Acquired: 27-MAY-14 13:29:42 Processed: 27-MAY-14 15:34:31
Mass: 423.7770 425.7740 Tot Response: 3.19e+04 RRF: 1.016

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:21	9.74e+03	9.30e+03	1.05	yes	1.90e+04		n	n
2	40:02	6.73e+03	6.18e+03	1.09	yes	1.29e+04	1,2,3,4,6,7,8-HpCDD	n	n

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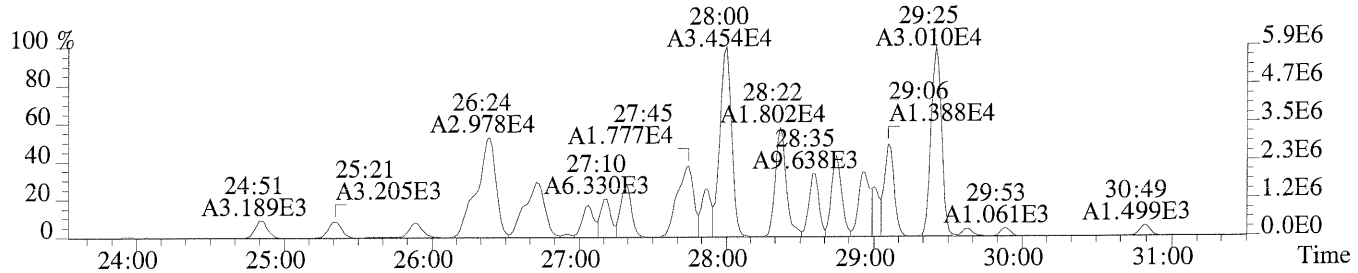
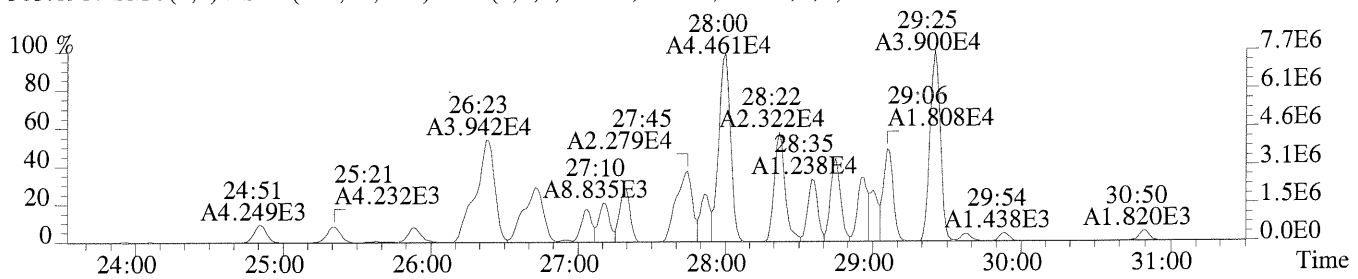
File:P171052 #1-501 Acq:27-MAY-2014 13:29:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-001

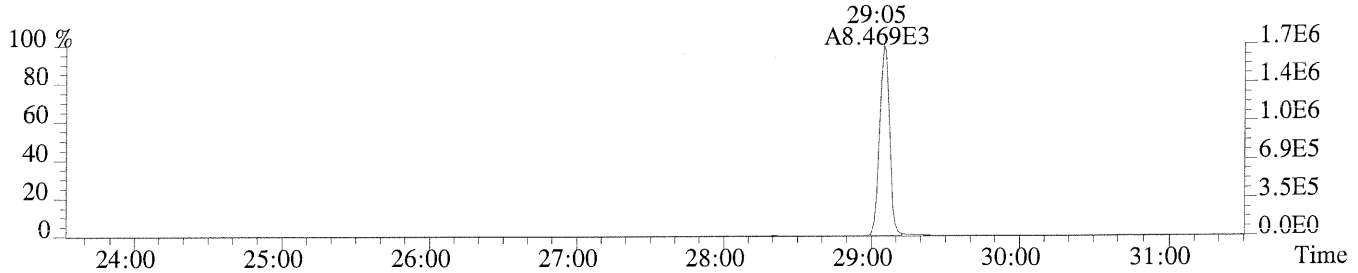
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)



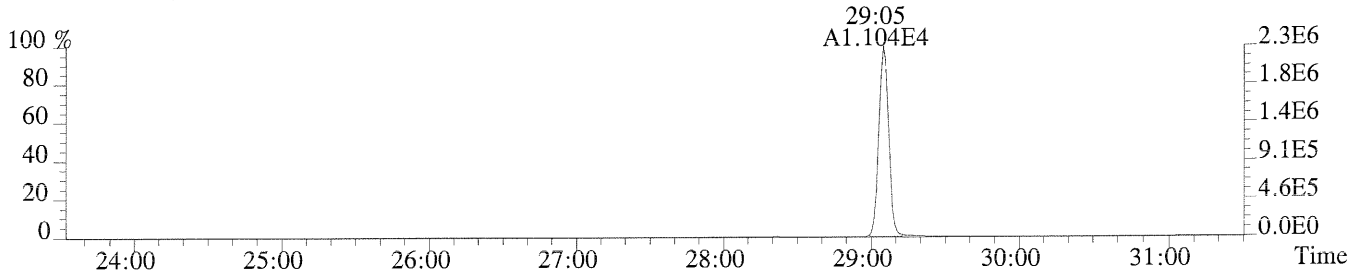
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2268.0,1.00%,F,T)



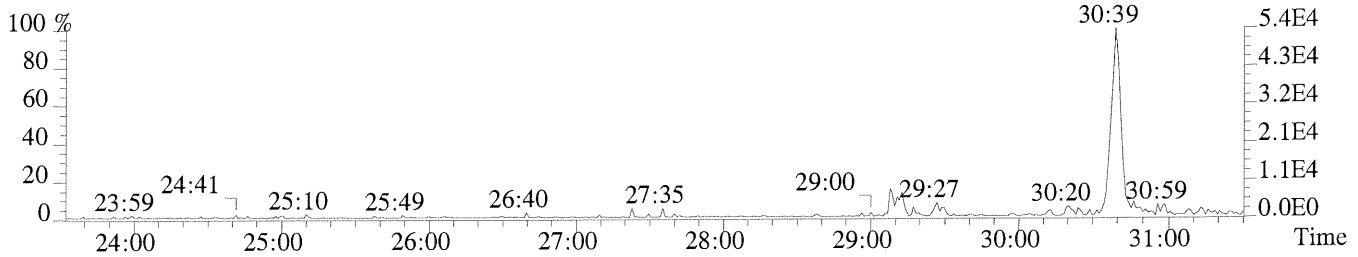
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



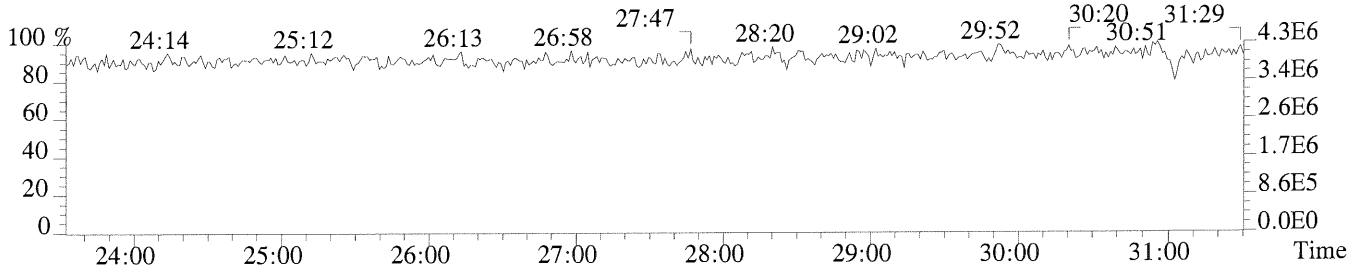
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



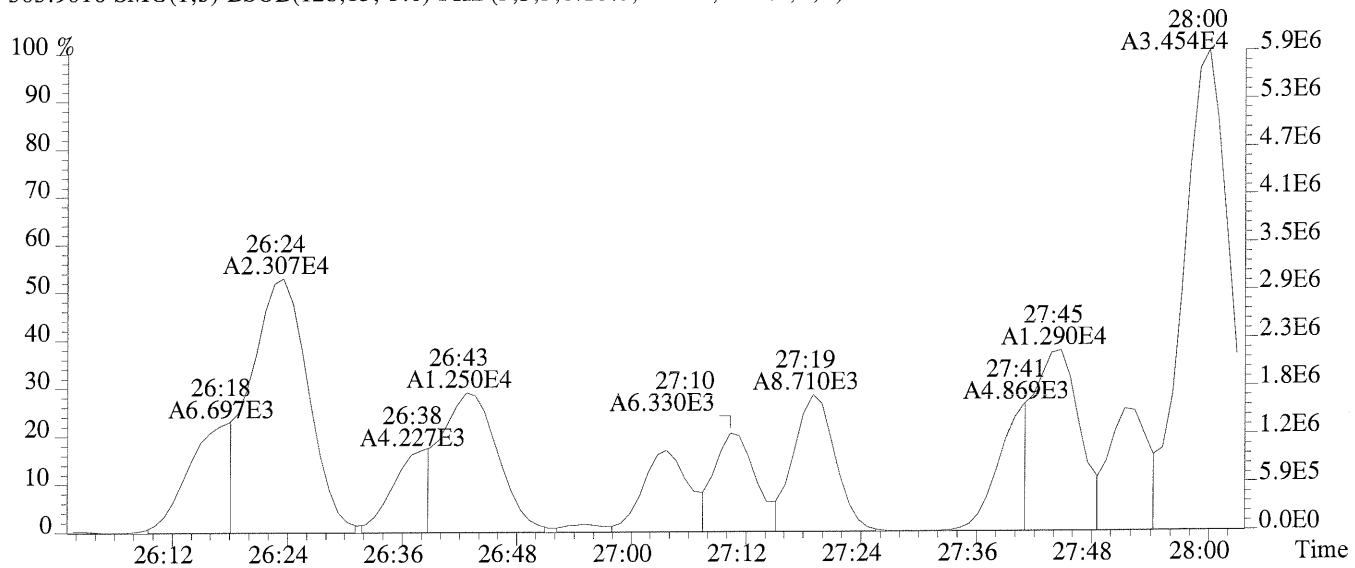
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



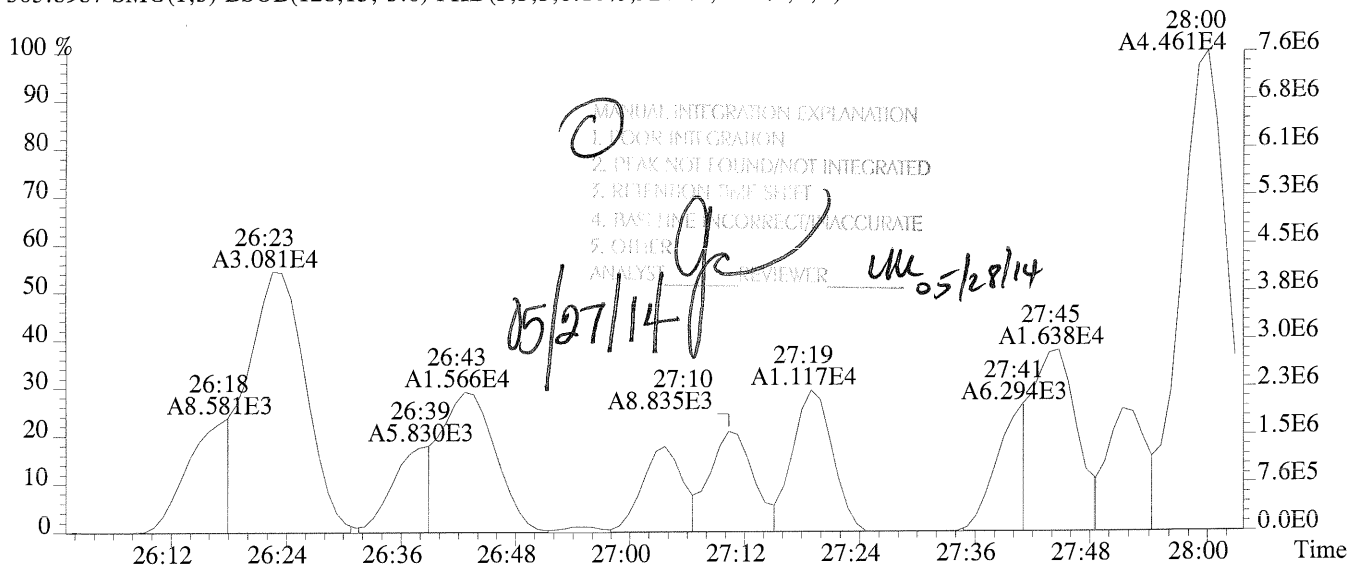
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P171052 #1-501 Acq:27-MAY-2014 13:29:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-001
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1884.0,1.00%,F,T)

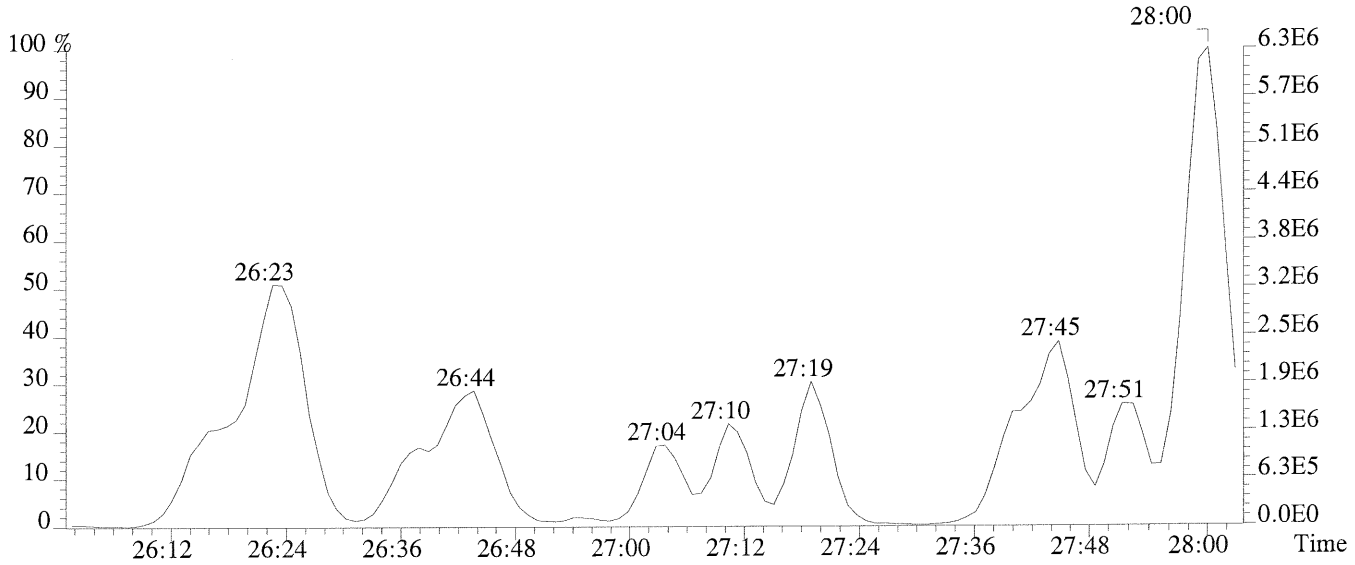


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2268.0,1.00%,F,T)



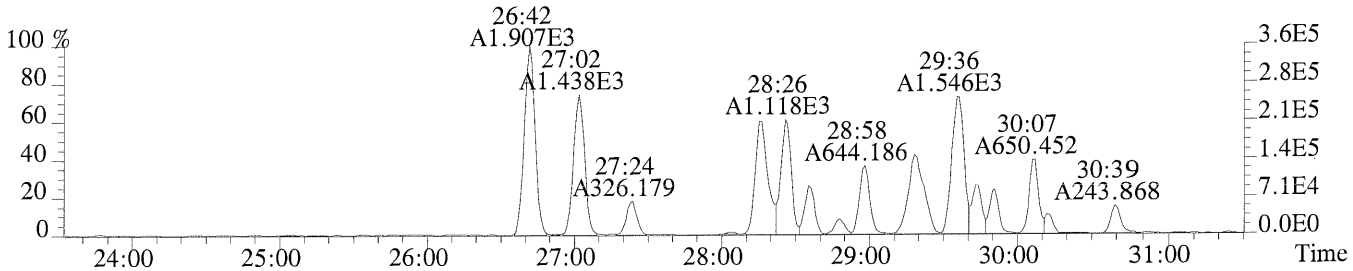
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST 05/27/14 REVIEWER UU 05/28/14

303.9016

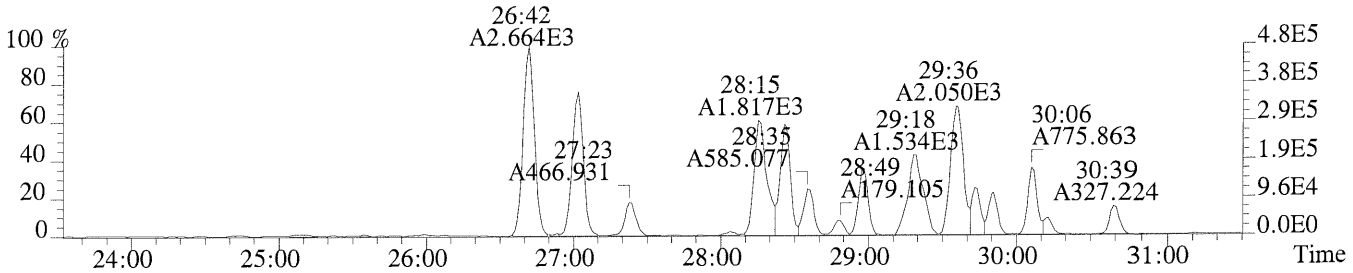


File:P171052 #1-501 Acq:27-MAY-2014 13:29:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-001

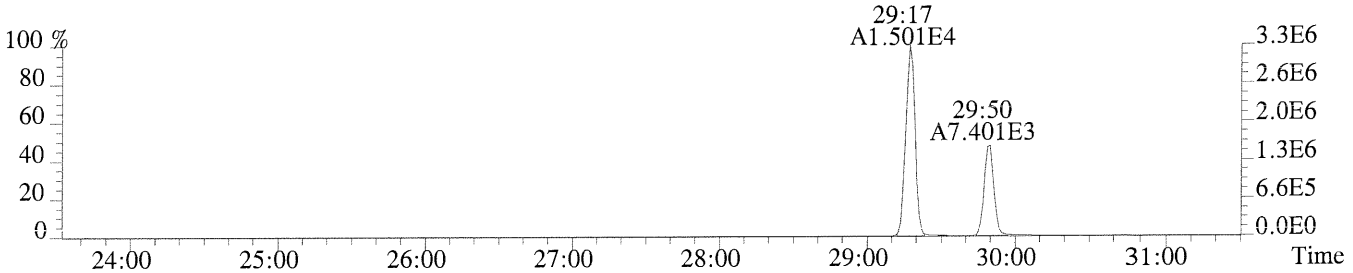
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



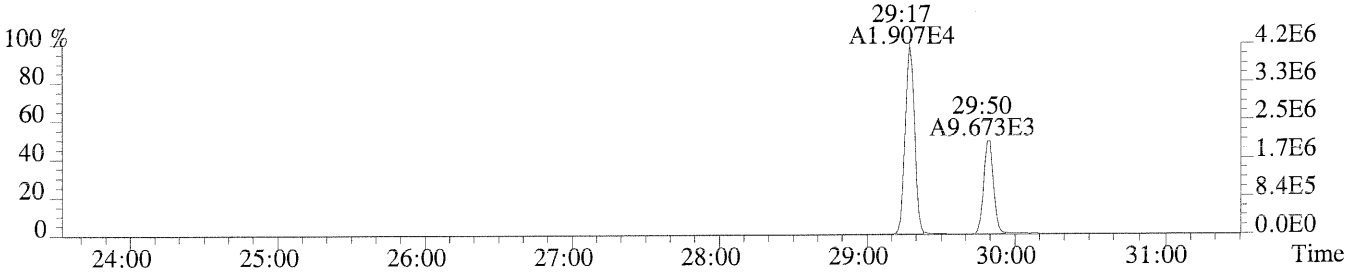
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



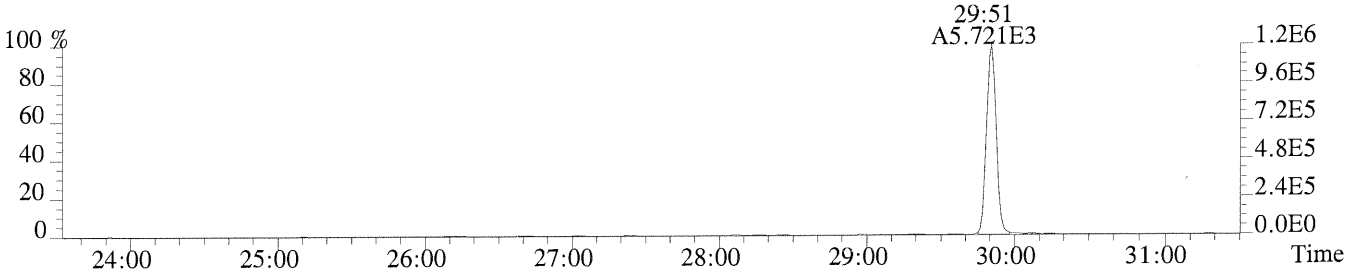
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2040.0,1.00%,F,T)



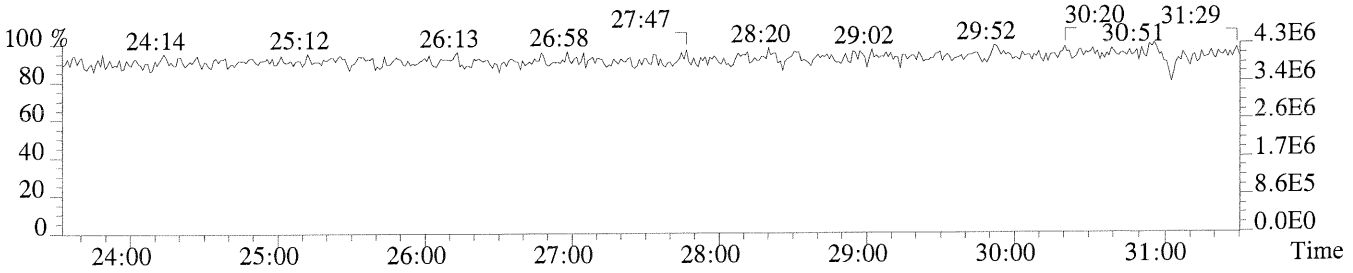
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)

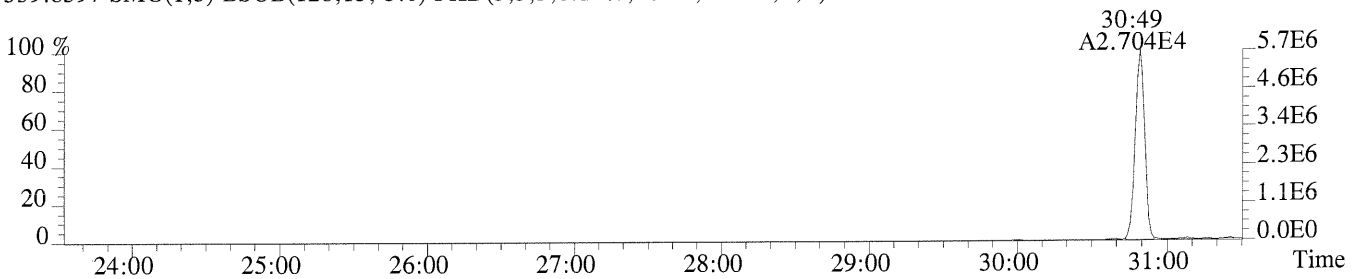


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

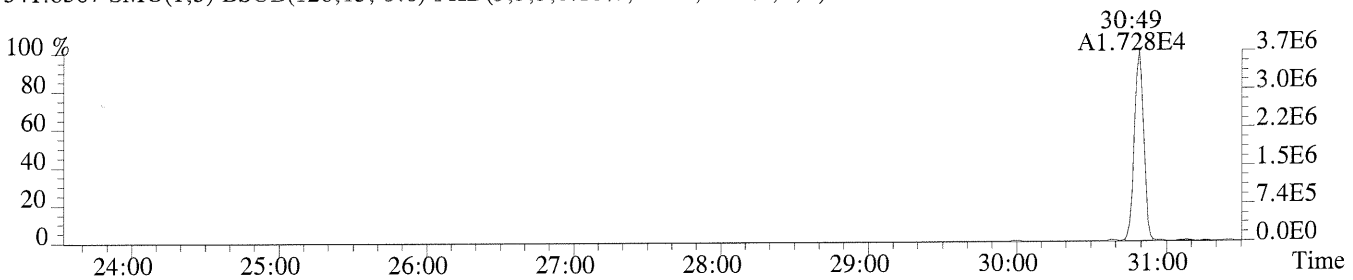


File:P171052 #1-501 Acq:27-MAY-2014 13:29:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-001

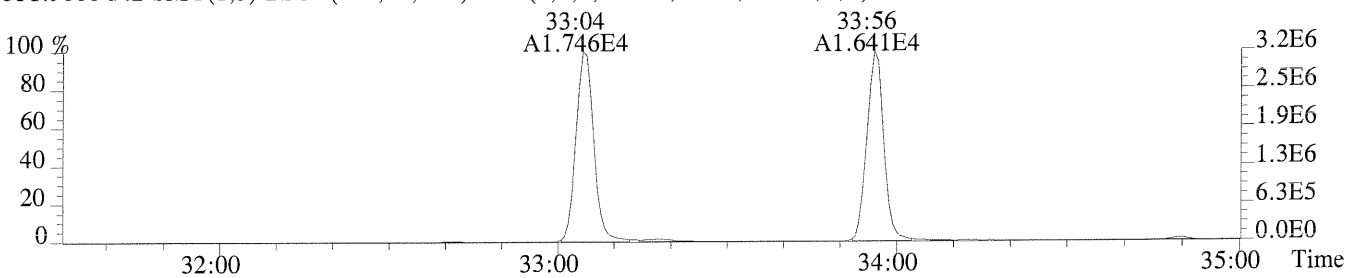
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



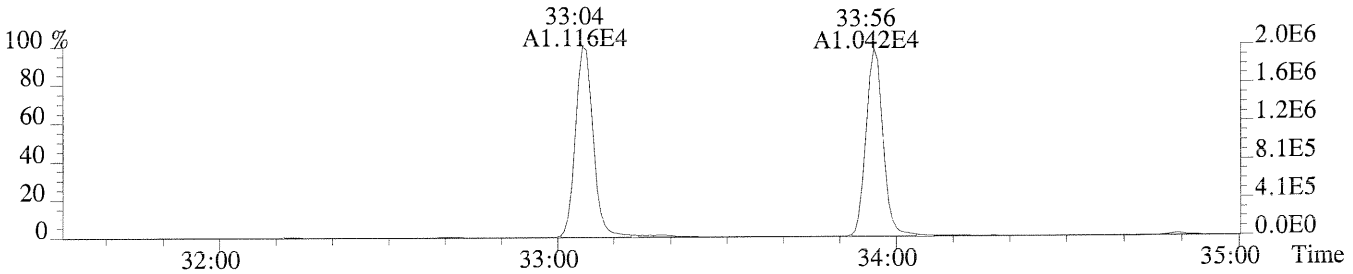
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



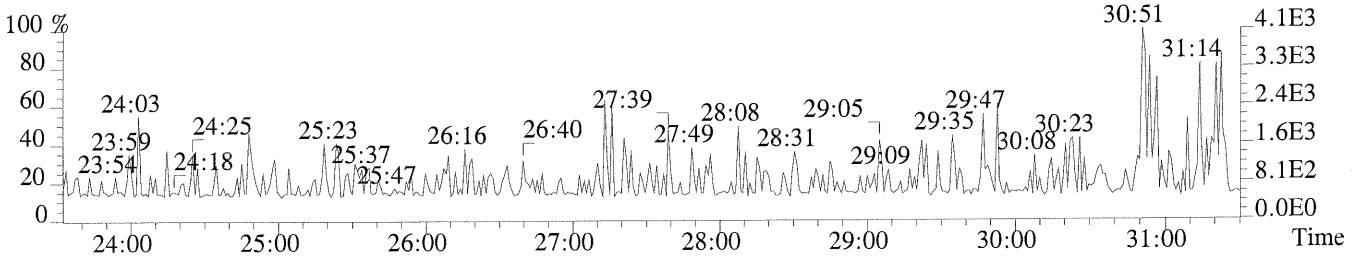
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



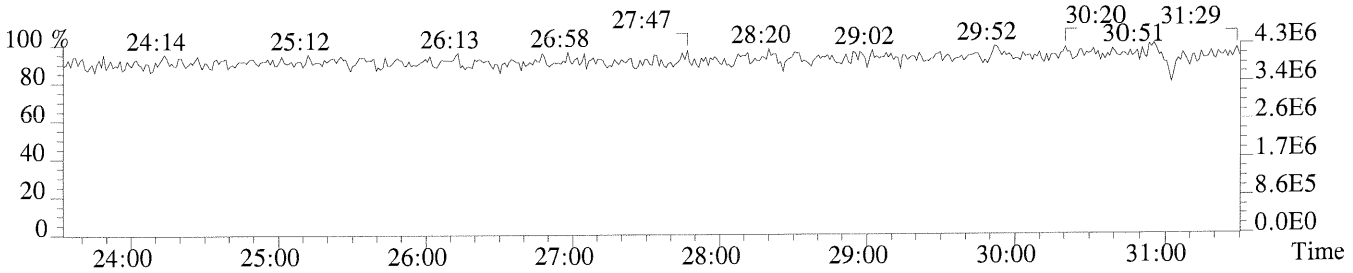
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

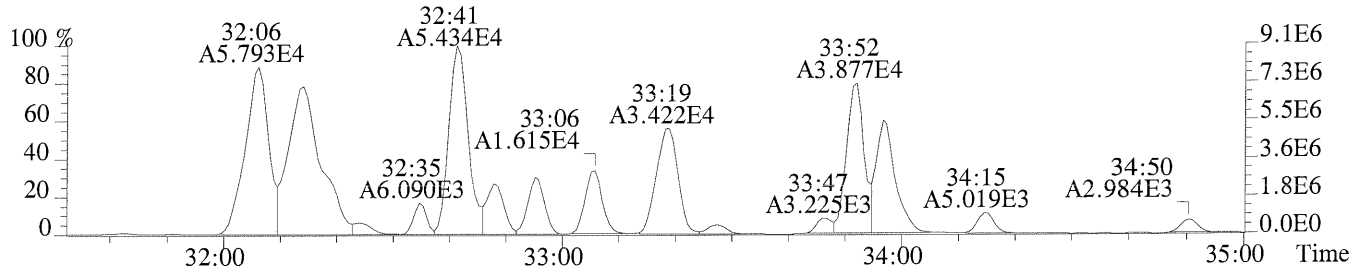


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

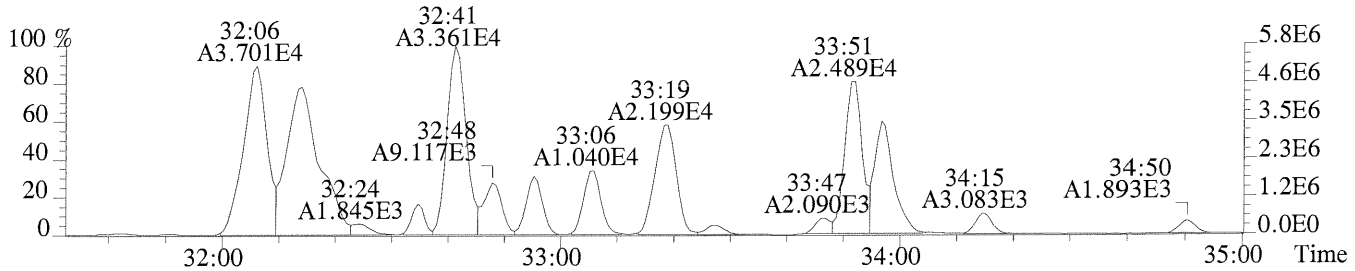


File:P171052 #1-315 Acq:27-MAY-2014 13:29:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-001

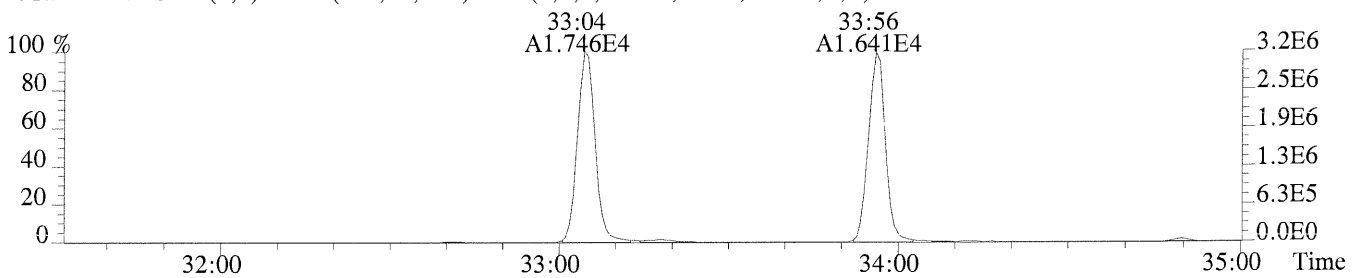
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,64984.0,1.00%,F,T)



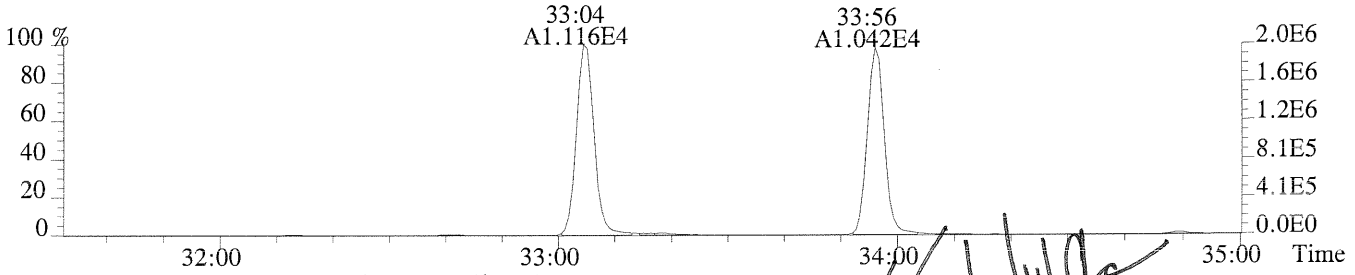
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,43824.0,1.00%,F,T)



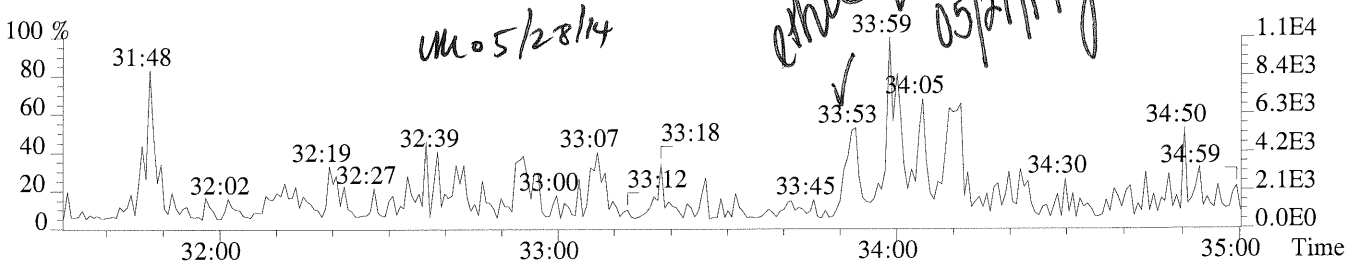
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,260.0,1.00%,F,T)



353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



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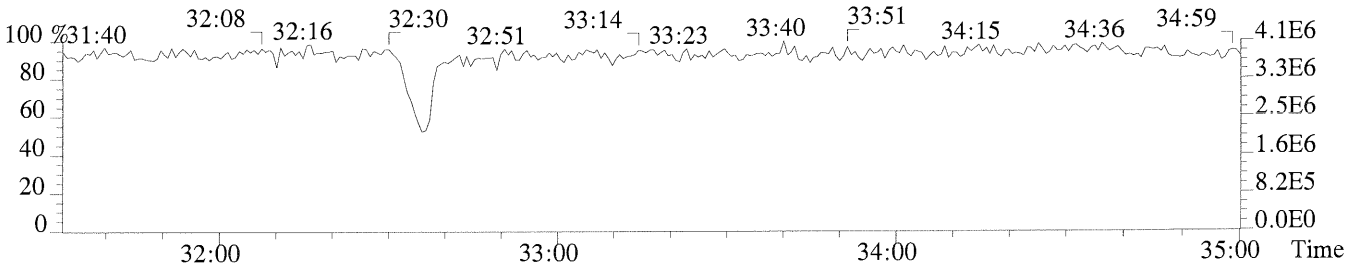
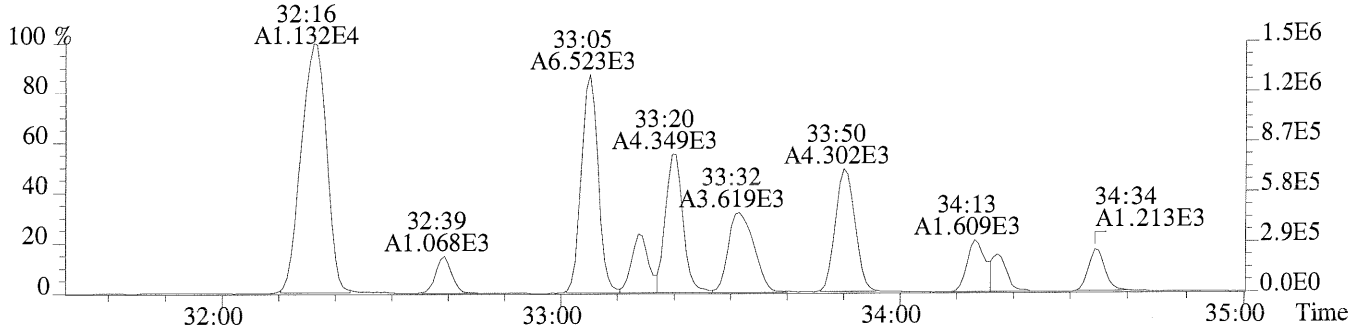
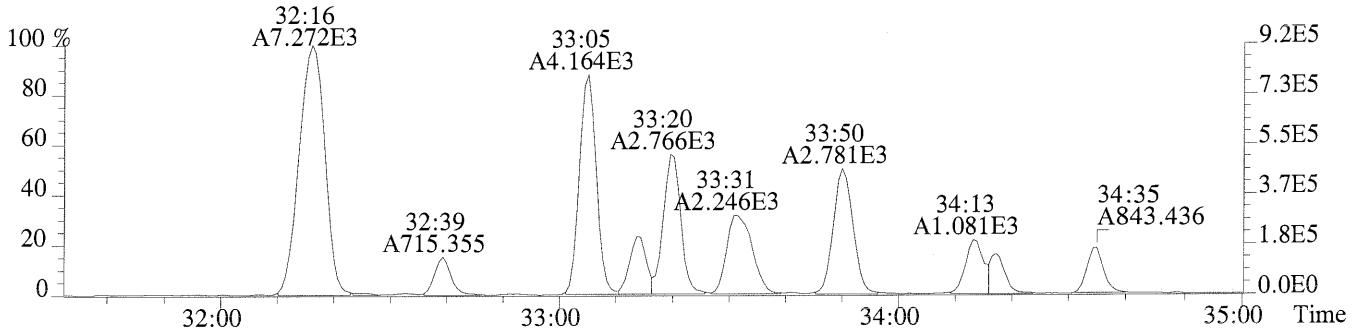
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



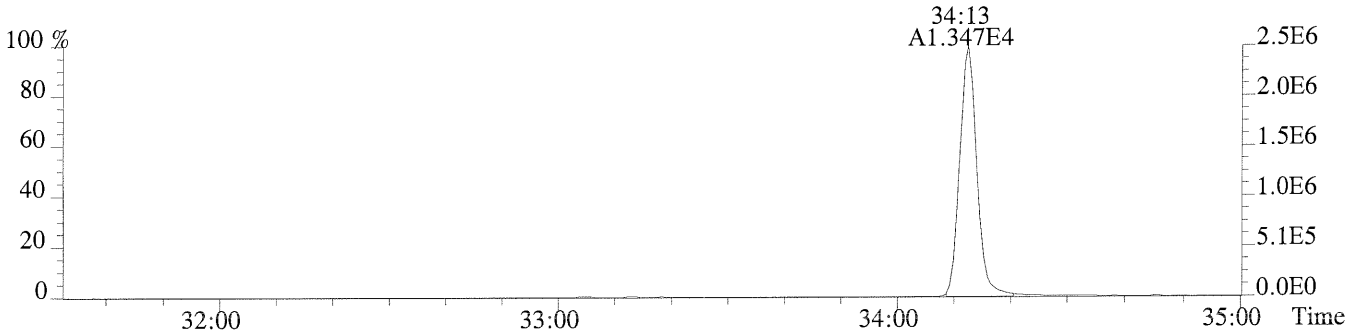
File:P171052 #1-315 Acq:27-MAY-2014 13:29:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4772.0,1.00%,F,T)



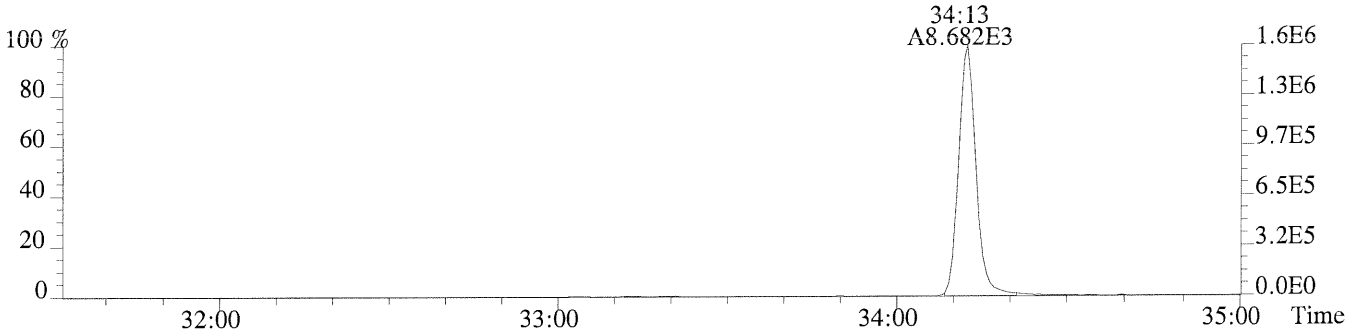
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5516.0,1.00%,F,T)



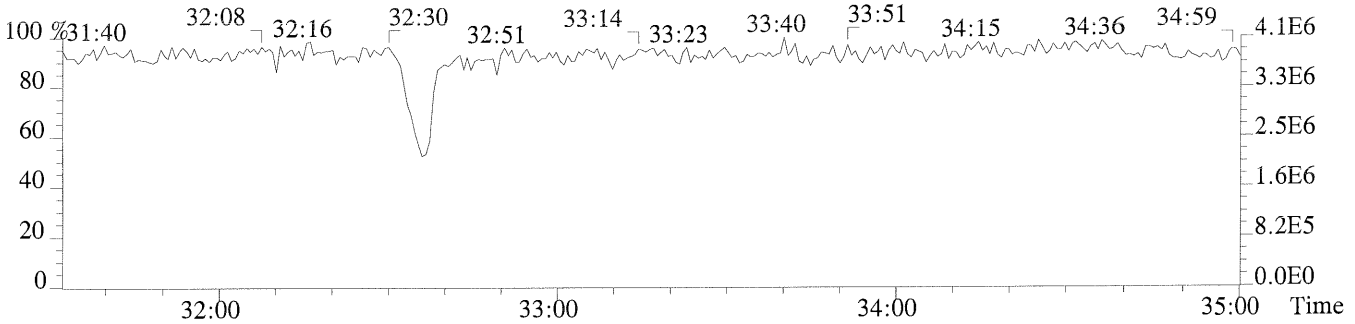
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)

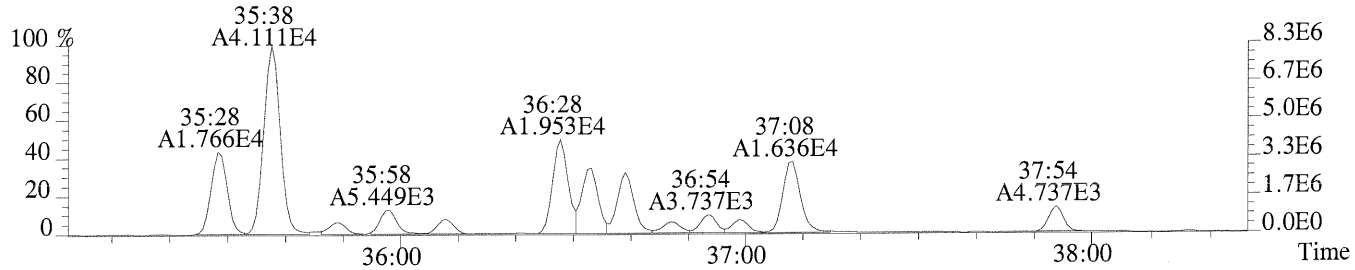


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

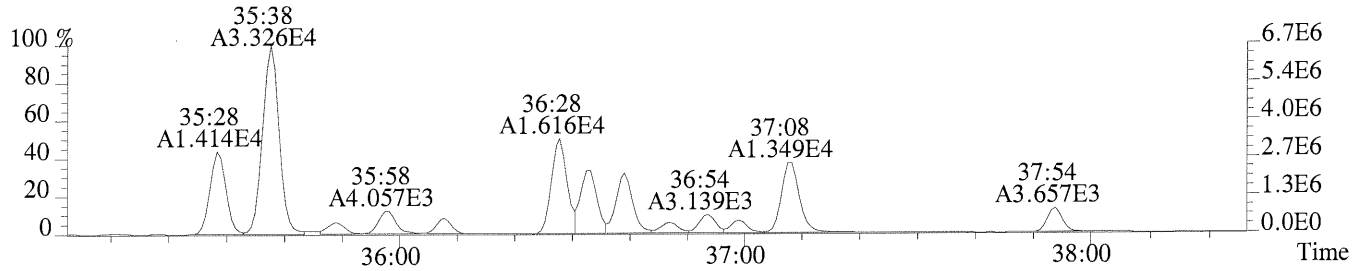


File:P171052 #1-309 Acq:27-MAY-2014 13:29:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-001

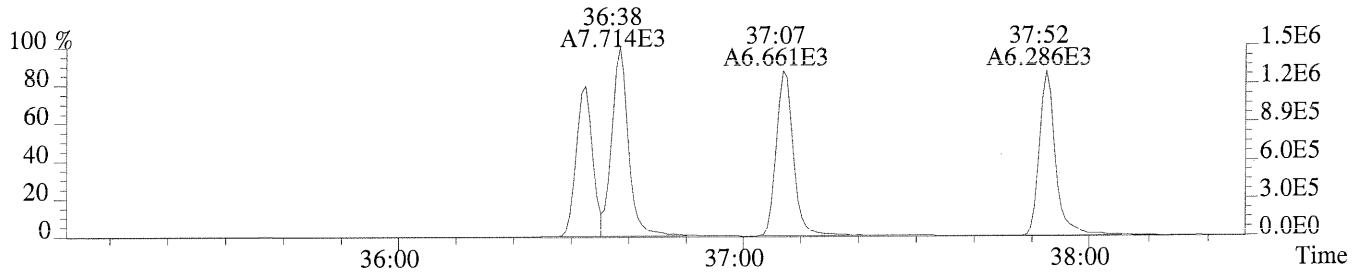
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,39944.0,0.40%,F,T)



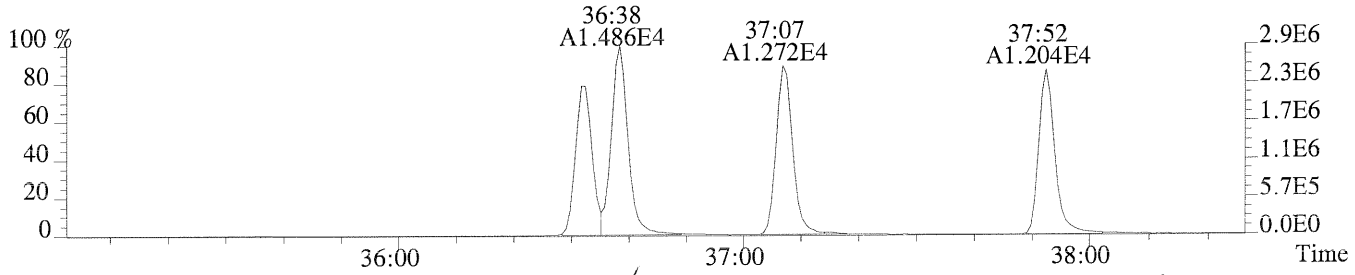
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,31872.0,0.40%,F,T)



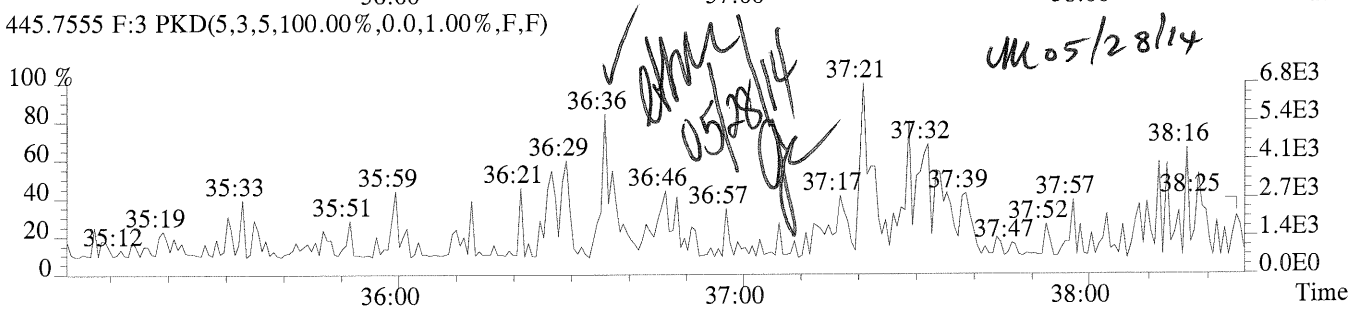
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



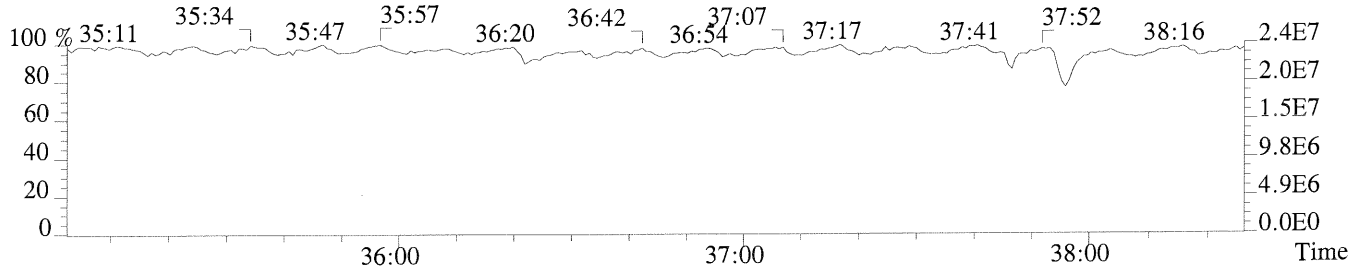
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



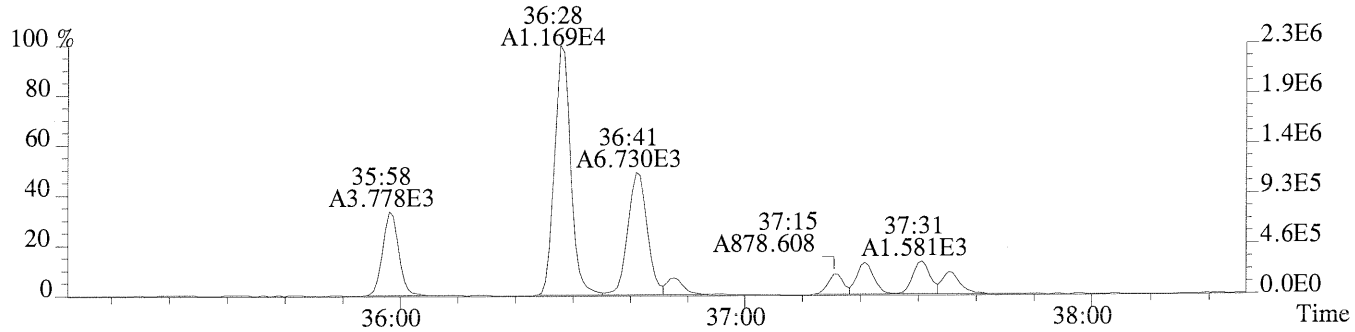
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



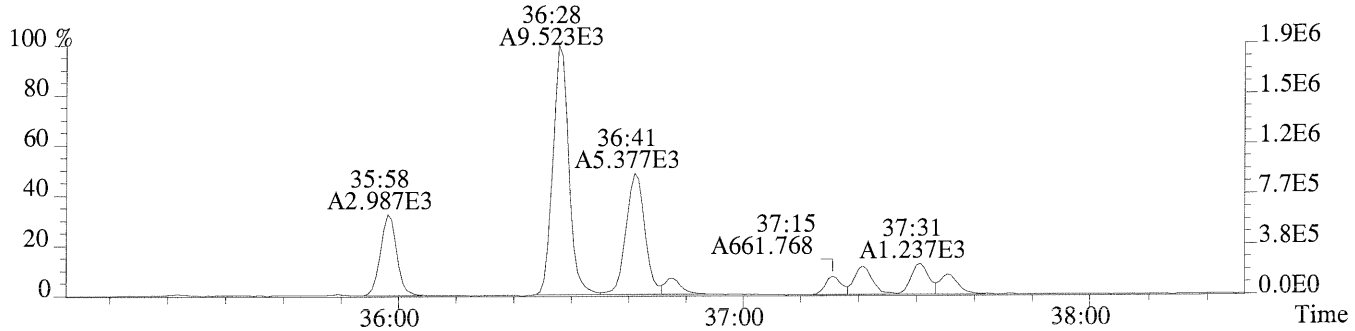
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



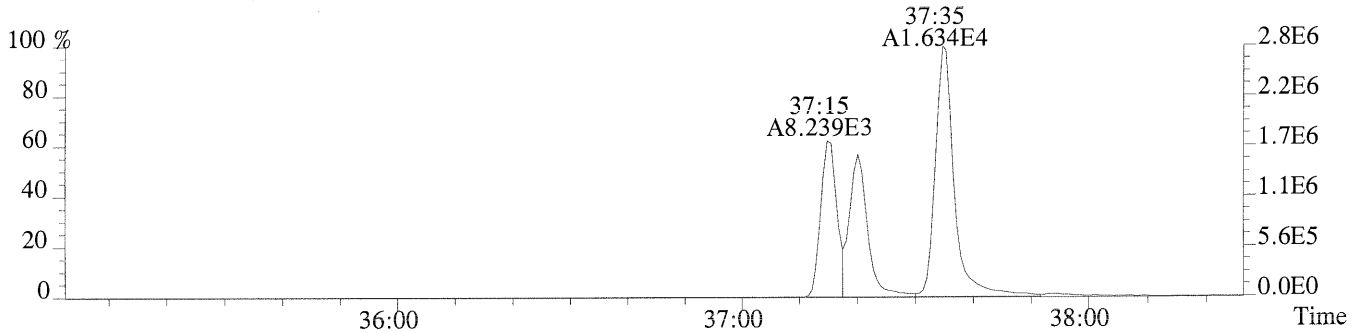
File:P171052 #1-309 Acq:27-MAY-2014 13:29:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-001
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3844.0,0.40%,F,T)



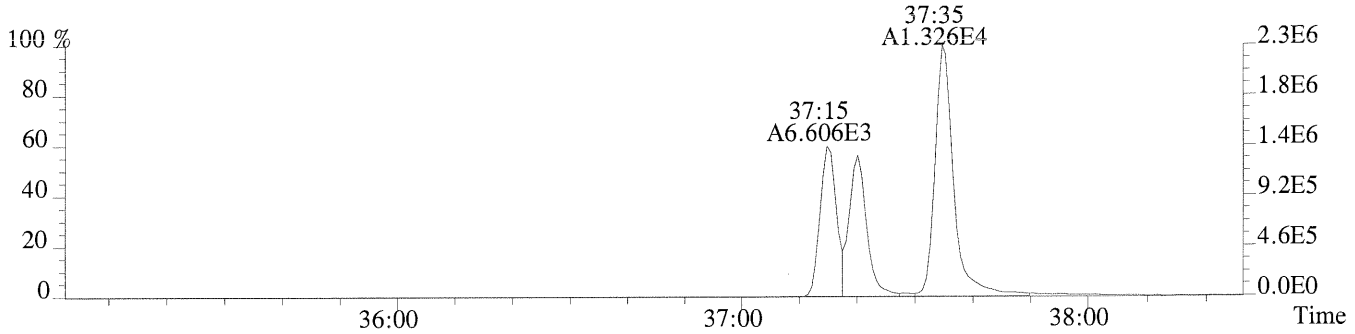
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5752.0,0.40%,F,T)



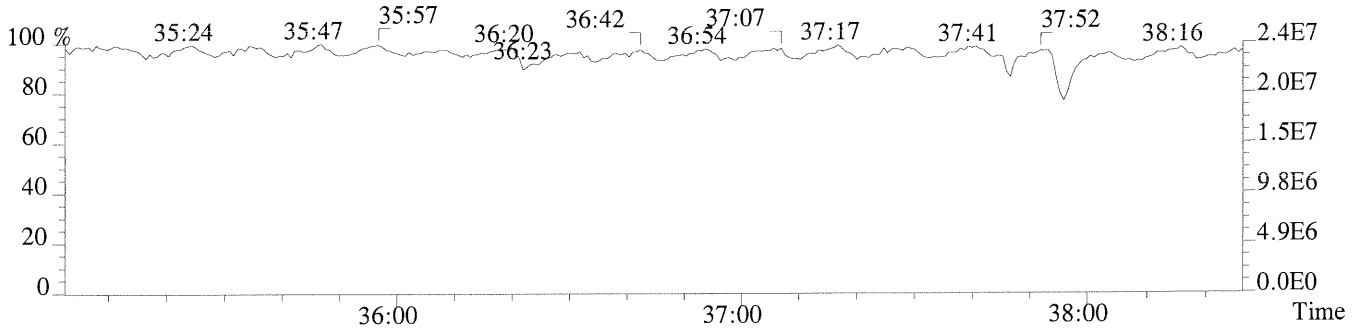
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)

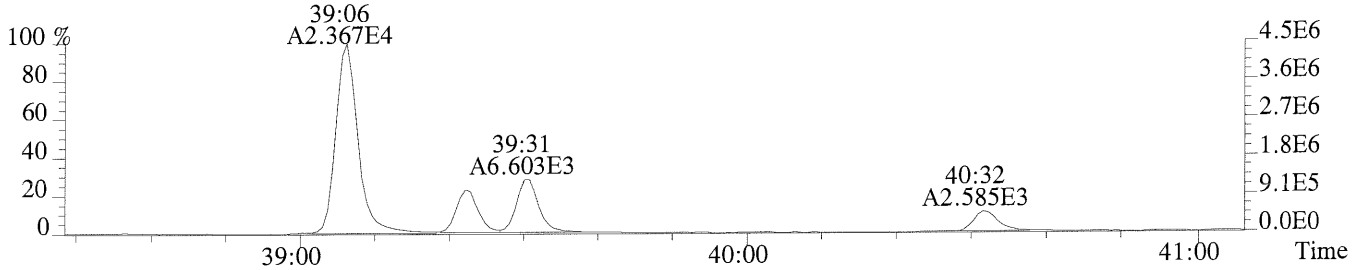


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

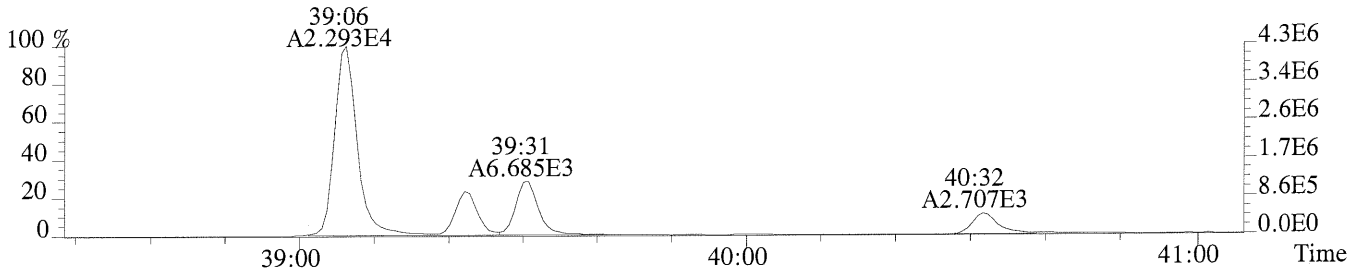


File:P171052 #1-239 Acq:27-MAY-2014 13:29:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-001

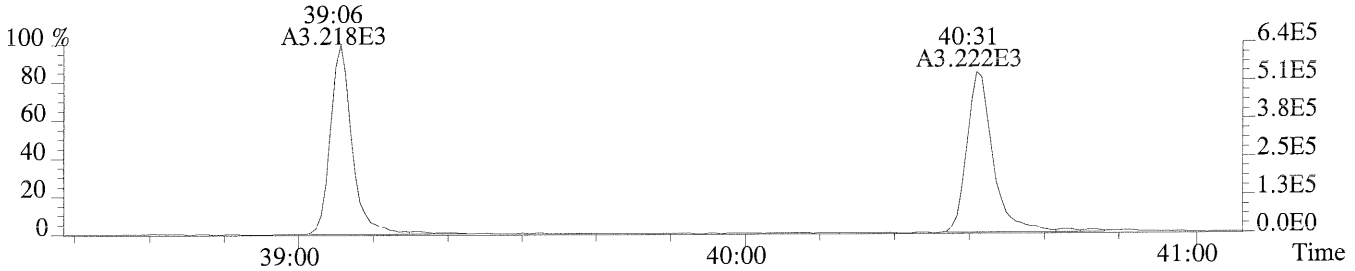
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10692.0,0.50%,F,T)



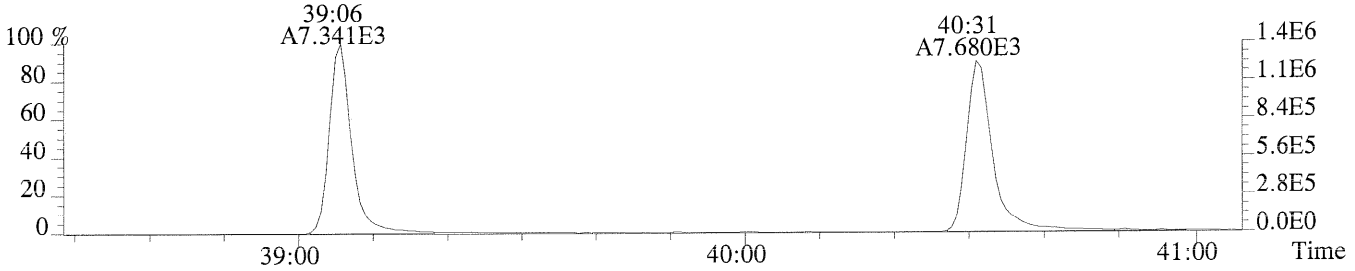
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10936.0,0.50%,F,T)



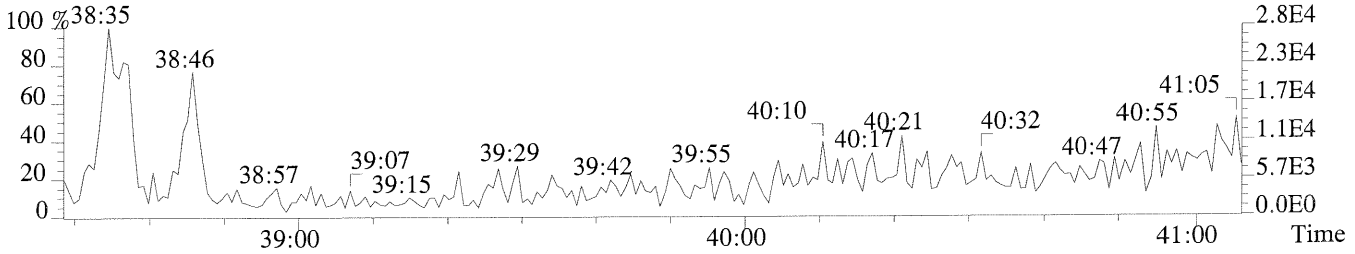
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2340.0,0.50%,F,T)



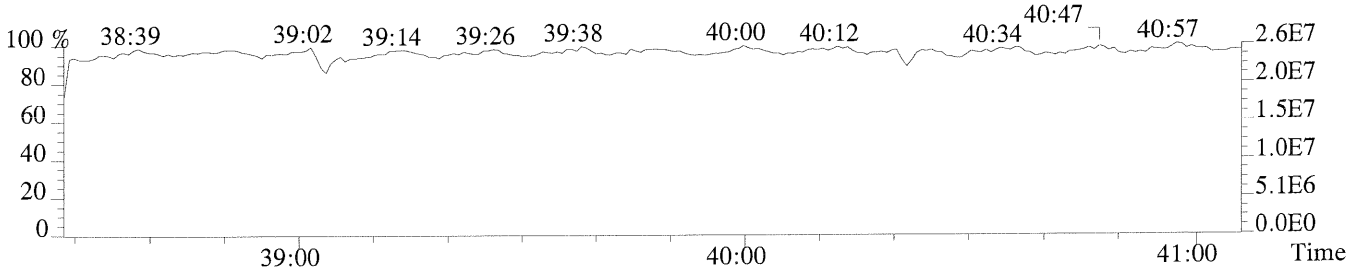
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2504.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

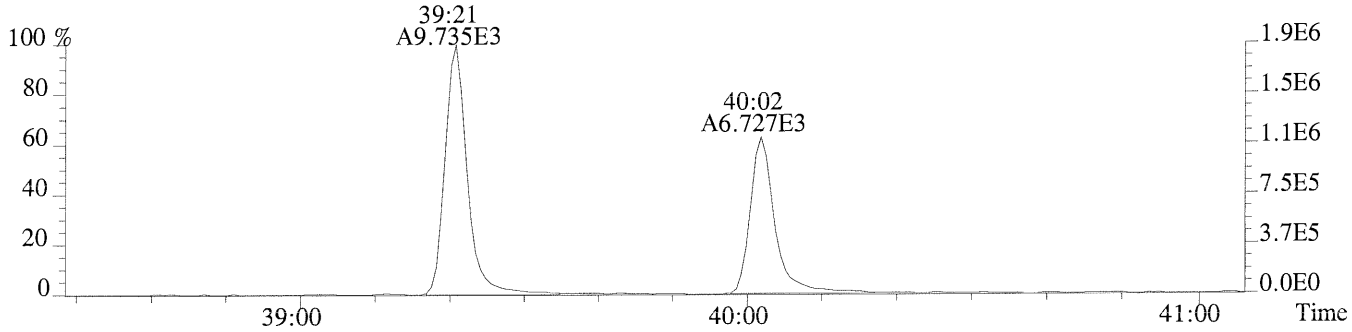


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

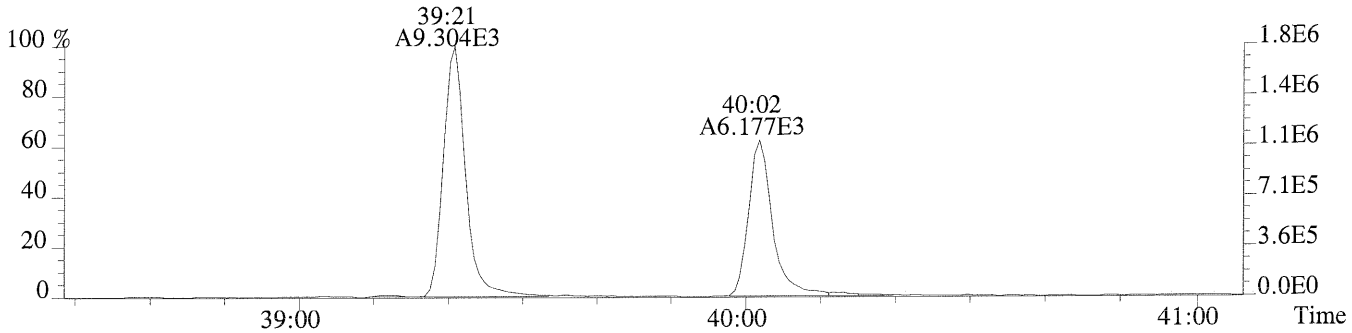


File:P171052 #1-239 Acq:27-MAY-2014 13:29:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-001

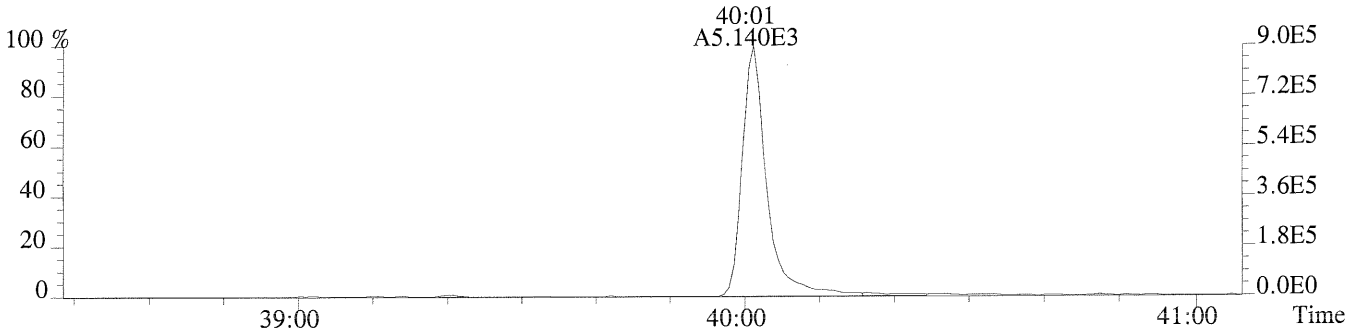
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2636.0,0.40%,F,T)



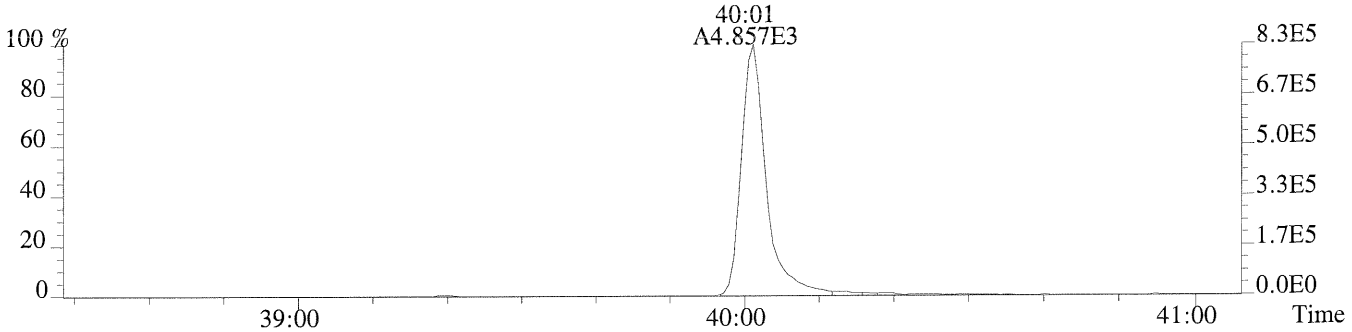
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3736.0,0.40%,F,T)



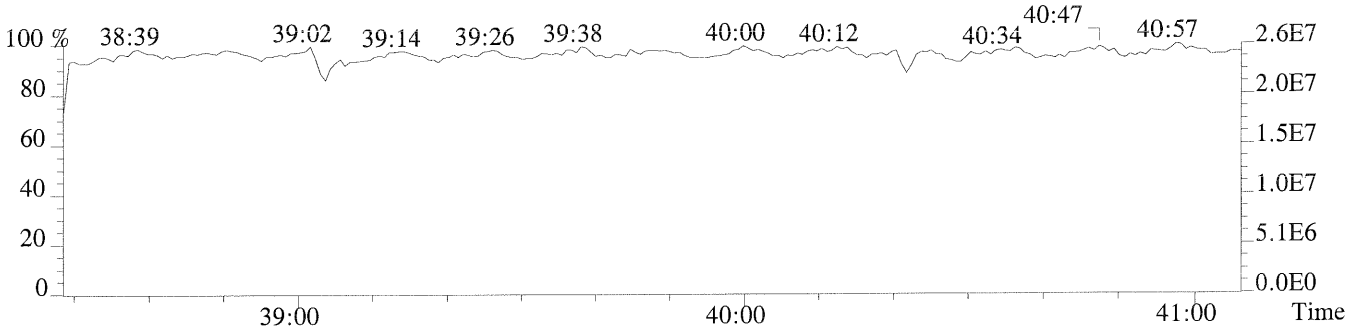
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,900.0,0.40%,F,T)



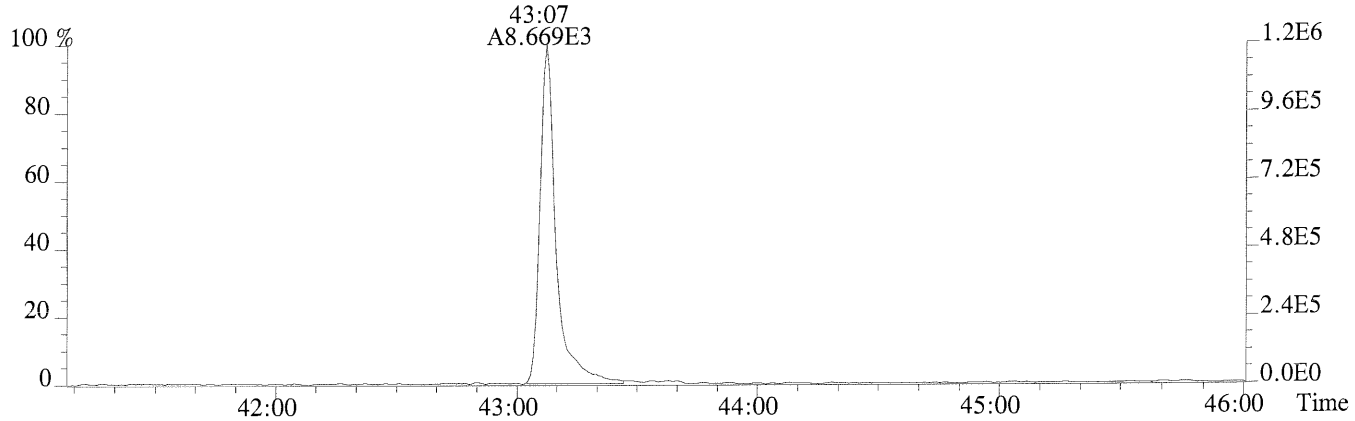
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.40%,F,T)



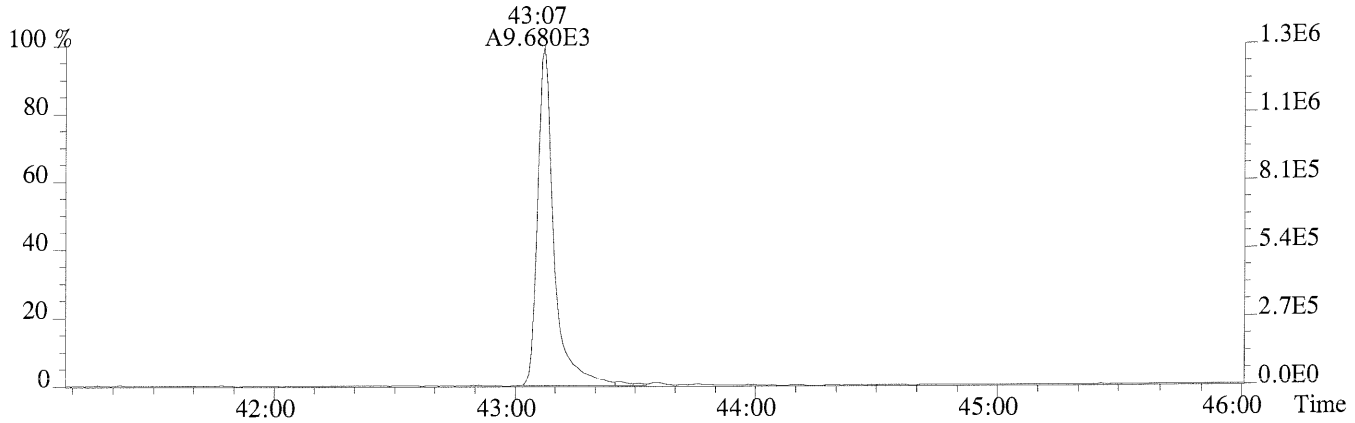
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



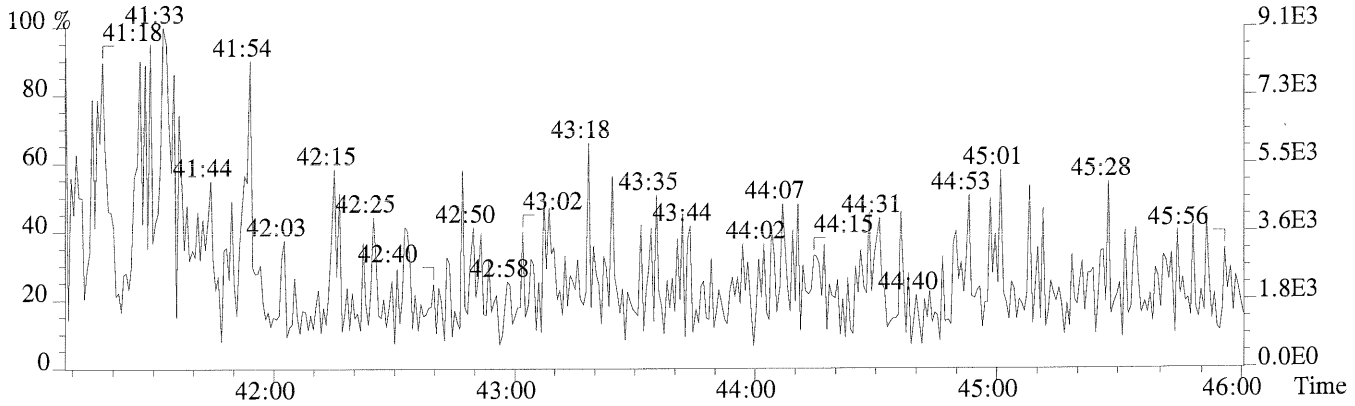
File:P171052 #1-448 Acq:27-MAY-2014 13:29:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-001
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5756.0,0.40%,F,T)



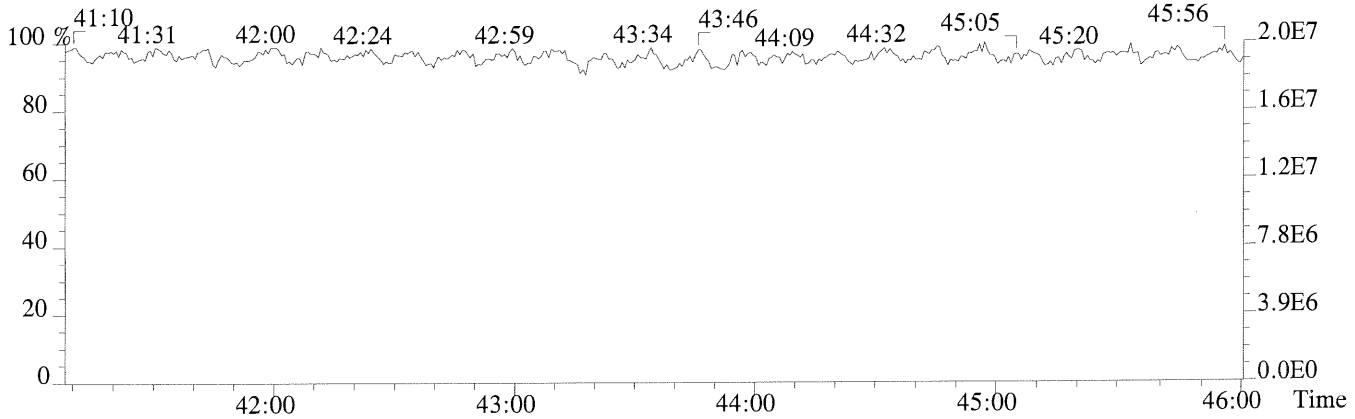
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2888.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

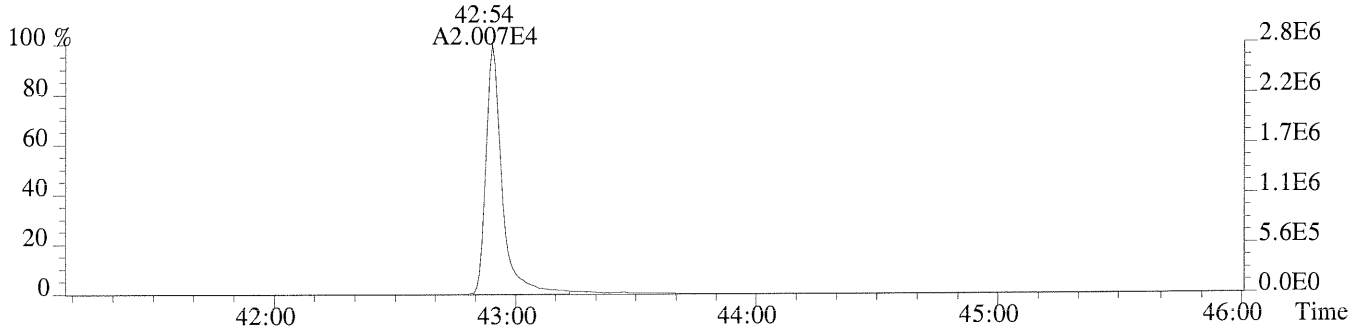


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

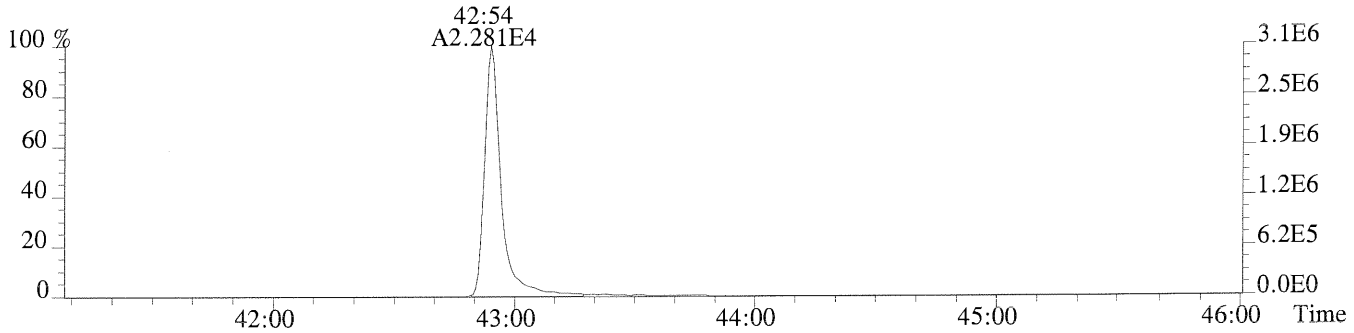


File:P171052 #1-448 Acq:27-MAY-2014 13:29:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-001

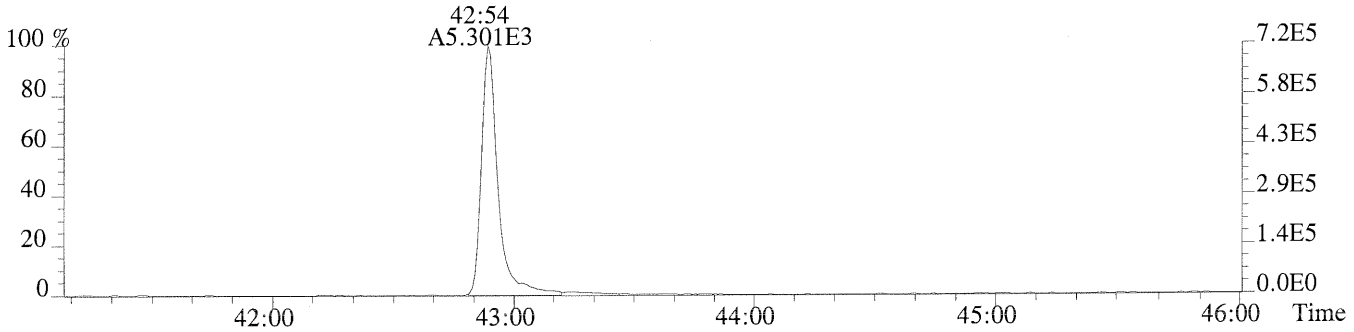
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,496.0,0.40%,F,T)



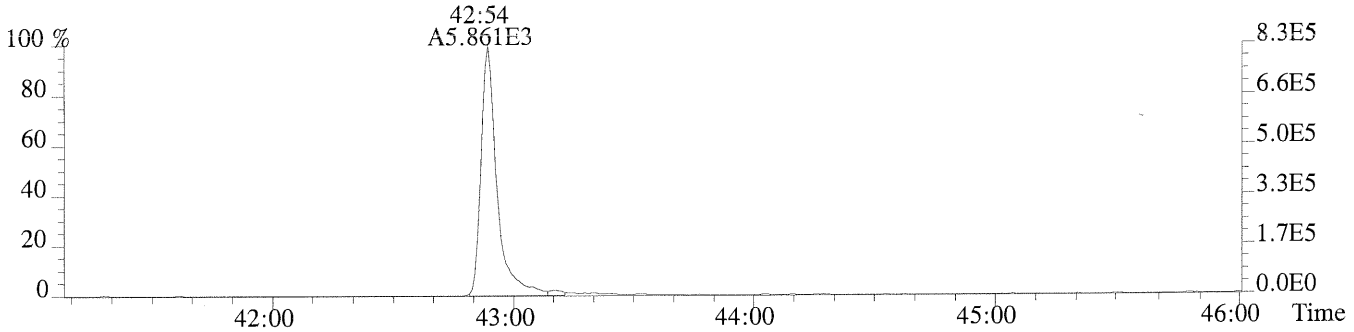
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



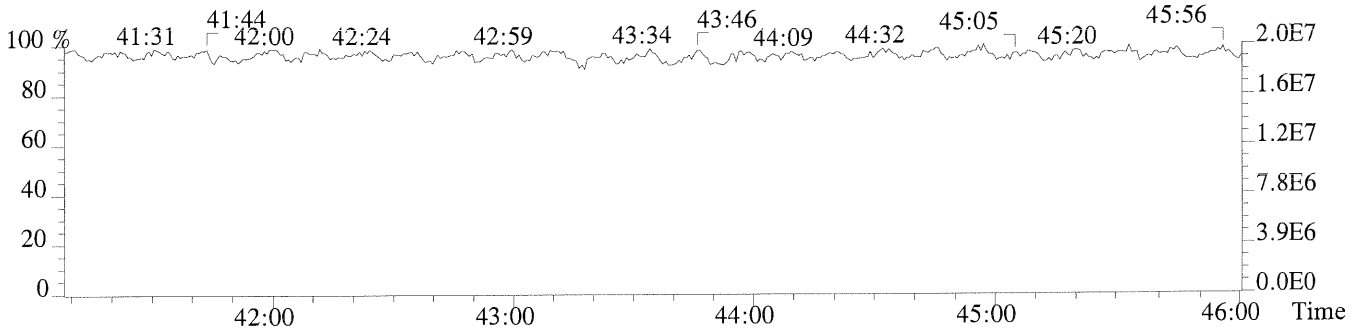
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
AM-WS02-04242

Run #13 Filename P171053 Samp: 1 Inj: 1 Acquired: 27-MAY-14 14:17:51
Processed: 27-MAY-14 15:34:40 Sample ID: E1400541-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:07	1.528e+04	1.984e+04	0.77	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:06	1.601e+04	1.015e+04	1.58	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	33:57	3.246e+04	2.035e+04	1.60	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:34	1.383e+04	1.111e+04	1.24	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:40	1.377e+04	1.127e+04	1.22	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:09	1.573e+04	1.292e+04	1.22	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	37:54	4.163e+03	3.230e+03	1.29	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:06	2.302e+04	2.208e+04	1.04	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:32	2.789e+03	2.501e+03	1.12	yes	no	1.324
10	Unk	OCDF	43:08	1.097e+04	1.232e+04	0.89	yes	no	1.307
11	Unk	2,3,7,8-TCDD	29:52	3.368e+02	5.016e+02	0.67	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:14	1.390e+03	8.683e+02	1.60	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:17	7.676e+02	5.904e+02	1.30	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:22	1.376e+03	1.128e+03	1.22	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:37	9.669e+02	8.052e+02	1.20	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:03	4.782e+03	4.636e+03	1.03	yes	no	1.016
17	Unk	OCDD	42:55	6.933e+03	7.673e+03	0.90	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:06	1.096e+04	1.445e+04	0.76	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:05	1.867e+04	1.194e+04	1.56	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	33:57	1.822e+04	1.160e+04	1.57	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:33	6.223e+03	1.198e+04	0.52	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:39	8.368e+03	1.637e+04	0.51	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:08	7.305e+03	1.430e+04	0.51	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	37:54	6.115e+03	1.204e+04	0.51	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:06	3.365e+03	7.639e+03	0.44	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:32	3.410e+03	7.647e+03	0.45	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	29:51	7.846e+03	1.033e+04	0.76	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:13	1.445e+04	9.149e+03	1.58	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:16	9.320e+03	7.309e+03	1.28	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:21	9.420e+03	7.620e+03	1.24	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:01	5.380e+03	5.136e+03	1.05	yes	no	0.862
32	IS	13C-OCDD	42:54	4.995e+03	5.706e+03	0.88	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:18	1.498e+04	1.907e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:37	1.634e+04	1.273e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:52	6.242e+03				no	1.125

$$\text{OCDD} = \frac{(6.933e+03 + 7.673e+03) \times 4000 \text{ pg} \times 1}{(4.995e+03 + 5.706e+03) \times 3.016\text{g} \times 87.7 \times 1.079} = 1912.998 \text{ ng/kg}$$

MM 05/28/14

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1613RESP1

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
AM-WS02-04242014

Run #13 Filename P171053 Samp: 1 Inj: 1 Acquired: 27-MAY-14 14:17:51
Processed: 27-MAY-14 15:34:401 LAB. ID: E1400541-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.00e+06	1.70e+03	1.8e+03	4.00e+06	9.80e+02	4.1e+03
2	1,2,3,7,8-PeCDF	2.98e+06	6.15e+04	4.8e+01	1.87e+06	4.16e+04	4.5e+01
3	2,3,4,7,8-PeCDF	5.15e+06	6.15e+04	8.4e+01	3.27e+06	4.16e+04	7.9e+01
4	1,2,3,4,7,8-HxCDF	2.77e+06	2.63e+04	1.1e+02	2.23e+06	2.10e+04	1.1e+02
5	1,2,3,6,7,8-HxCDF	2.70e+06	2.63e+04	1.0e+02	2.21e+06	2.10e+04	1.1e+02
6	2,3,4,6,7,8-HxCDF	3.04e+06	2.63e+04	1.2e+02	2.43e+06	2.10e+04	1.2e+02
7	1,2,3,7,8,9-HxCDF	9.89e+05	2.63e+04	3.8e+01	7.85e+05	2.10e+04	3.7e+01
8	1,2,3,4,6,7,8-HpCDF	4.39e+06	8.55e+03	5.1e+02	4.24e+06	7.12e+03	6.0e+02
9	1,2,3,4,7,8,9-HpCDF	4.87e+05	8.55e+03	5.7e+01	4.47e+05	7.12e+03	6.3e+01
10	OCDF	1.48e+06	2.87e+03	5.2e+02	1.67e+06	1.48e+03	1.1e+03
11	2,3,7,8-TCDD	6.24e+04	9.56e+02	6.5e+01	1.02e+05	3.64e+03	2.8e+01
12	1,2,3,7,8-PeCDD	2.88e+05	4.09e+03	7.0e+01	1.76e+05	7.52e+03	2.3e+01
13	1,2,3,4,7,8-HxCDD	1.58e+05	3.19e+03	5.0e+01	1.18e+05	4.07e+03	2.9e+01
14	1,2,3,6,7,8-HxCDD	2.57e+05	3.19e+03	8.1e+01	2.22e+05	4.07e+03	5.4e+01
15	1,2,3,7,8,9-HxCDD	1.91e+05	3.19e+03	6.0e+01	1.60e+05	4.07e+03	3.9e+01
16	1,2,3,4,6,7,8-HpCDD	8.51e+05	2.48e+03	3.4e+02	7.90e+05	3.60e+03	2.2e+02
17	OCDD	9.66e+05	6.68e+02	1.4e+03	1.07e+06	9.40e+02	1.1e+03
18	13C-2,3,7,8-TCDF	2.21e+06	9.28e+02	2.4e+03	2.97e+06	1.07e+03	2.8e+03
19	13C-1,2,3,7,8-PeCDF	3.47e+06	1.10e+03	3.2e+03	2.23e+06	1.26e+03	1.8e+03
20	13C-2,3,4,7,8-PeCDF	3.55e+06	1.10e+03	3.2e+03	2.26e+06	1.26e+03	1.8e+03
21	13C-1,2,3,4,7,8-HxCDF	1.29e+06	5.28e+02	2.4e+03	2.45e+06	5.36e+02	4.6e+03
22	13C-1,2,3,6,7,8-HxCDF	1.61e+06	5.28e+02	3.1e+03	3.17e+06	5.36e+02	5.9e+03
23	13C-2,3,4,6,7,8-HxCDF	1.44e+06	5.28e+02	2.7e+03	2.76e+06	5.36e+02	5.1e+03
24	13C-1,2,3,7,8,9-HxCDF	1.40e+06	5.28e+02	2.7e+03	2.73e+06	5.36e+02	5.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.33e+05	1.21e+03	5.2e+02	1.43e+06	1.92e+03	7.5e+02
26	13C-1,2,3,4,7,8,9-HpCDF	5.75e+05	1.21e+03	4.7e+02	1.31e+06	1.92e+03	6.8e+02
27	13C-2,3,7,8-TCDD	1.67e+06	2.71e+03	6.1e+02	2.15e+06	1.39e+03	1.5e+03
28	13C-1,2,3,7,8-PeCDD	2.77e+06	4.04e+02	6.9e+03	1.72e+06	2.96e+02	5.8e+03
29	13C-1,2,3,4,7,8-HxCDD	1.92e+06	5.48e+02	3.5e+03	1.48e+06	9.96e+02	1.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.67e+06	5.48e+02	3.1e+03	1.38e+06	9.96e+02	1.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.13e+05	8.04e+02	1.1e+03	8.91e+05	4.32e+02	2.1e+03
32	13C-OCDD	7.04e+05	4.76e+02	1.5e+03	8.00e+05	4.44e+02	1.8e+03
33	13C-1,2,3,4-TCDD	3.23e+06	2.71e+03	1.2e+03	4.12e+06	1.39e+03	3.0e+03
34	13C-1,2,3,7,8,9-HxCDD	2.87e+06	5.48e+02	5.2e+03	2.24e+06	9.96e+02	2.2e+03
35	37Cl-2,3,7,8-TCDD	1.33e+06	7.76e+02	1.7e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

AM-WS02-04242014

Entry: 36 Totals Name: Total Tetra-Furans

Run: 13 File: P171053 Sample: 1 Injection: 1 Function: 1
Llim: 24:45 Ulim: 30:58
Acquired: 27-MAY-14 14:17:51 Processed: 27-MAY-14 15:34:40
Mass: 303.9020 305.8990 Tot Response: 8.89e+05 RRF: 0.9451

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	24:52	7.91e+03	1.08e+04	0.73	yes	1.87e+04		n	n
2	25:22	7.81e+03	1.07e+04	0.73	yes	1.85e+04		n	n
3	25:54	7.25e+03	9.22e+03	0.79	yes	1.65e+04		n	n
4	26:17	1.04e+04	1.38e+04	0.76	yes	2.42e+04		y	y
5	26:25	4.68e+04	6.08e+04	0.77	yes	1.08e+05		y	y
6	26:39	8.86e+03	1.10e+04	0.80	yes	1.99e+04		y	y
7	26:44	2.37e+04	3.14e+04	0.75	yes	5.51e+04		y	y
8	27:05	1.07e+04	1.37e+04	0.78	yes	2.44e+04		n	n
9	27:11	1.30e+04	1.65e+04	0.79	yes	2.95e+04		n	n
10	27:20	1.48e+04	1.88e+04	0.78	yes	3.36e+04		n	n
11	27:41	7.67e+03	9.69e+03	0.79	yes	1.74e+04		y	y
12	27:46	2.28e+04	2.91e+04	0.79	yes	5.19e+04		y	y
13	27:52	1.38e+04	1.80e+04	0.77	yes	3.17e+04		n	n
14	28:01	4.91e+04	6.38e+04	0.77	yes	1.13e+05		n	n
15	28:23	2.24e+04	2.89e+04	0.78	yes	5.13e+04		n	n
16	28:36	1.46e+04	1.90e+04	0.77	yes	3.37e+04		n	n
17	28:46	2.04e+04	2.62e+04	0.78	yes	4.66e+04		n	n
18	28:57	1.53e+04	2.05e+04	0.75	yes	3.58e+04		n	n
19	29:01	1.13e+04	1.48e+04	0.77	yes	2.61e+04		n	n
20	29:07	1.53e+04	1.98e+04	0.77	yes	3.51e+04	2,3,7,8-TCDF	n	n
21	29:26	3.71e+04	4.83e+04	0.77	yes	8.54e+04		n	n
22	29:38	2.25e+03	3.00e+03	0.75	yes	5.24e+03		n	n
23	29:55	1.67e+03	2.22e+03	0.76	yes	3.89e+03		y	n
24	30:51	1.79e+03	2.28e+03	0.79	yes	4.07e+03		n	n

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AM-WS02-04242014

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 13 File: P171053 Sample: 1 Injection: 1 Function: 1
Llim: 26:36 Ulim: 30:49
Acquired: 27-MAY-14 14:17:51 Processed: 27-MAY-14 15:34:40
Mass: 319.8970 321.8940 Tot Response: 3.88e+04 RRF: 1.037

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:43	3.78e+03	4.94e+03	0.76	yes	8.72e+03		n	n
2	27:03	2.35e+03	3.13e+03	0.75	yes	5.48e+03		n	n
3	27:24	5.69e+02	7.88e+02	0.72	yes	1.36e+03		n	n
4	28:16	2.13e+03	2.84e+03	0.75	yes	4.97e+03		n	n
5	28:28	1.43e+03	1.82e+03	0.78	yes	3.25e+03		n	n
6	28:36	7.17e+02	9.72e+02	0.74	yes	1.69e+03		n	n
7	28:49	2.07e+02	2.82e+02	0.73	yes	4.88e+02		n	n
8	28:59	7.99e+02	1.12e+03	0.71	yes	1.92e+03		n	n
9	29:19	1.02e+03	1.36e+03	0.75	yes	2.38e+03		y	y
10	29:23	4.21e+02	5.07e+02	0.83	yes	9.28e+02		y	y
11	29:36	1.61e+03	2.08e+03	0.78	yes	3.70e+03		n	n
12	29:44	4.70e+02	6.07e+02	0.78	yes	1.08e+03		n	n
13	29:52	3.37e+02	5.02e+02	0.67	yes	8.38e+02	2,3,7,8-TCDD	n	n
14	30:07	6.61e+02	8.30e+02	0.80	yes	1.49e+03		n	n
15	30:14	2.32e+02	3.12e+02	0.74	yes	5.44e+02		n	n

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AM-WS02-04242014

Entry: 38 Totals Name: Total Penta-Furan1

Run: 13 File: P171053 Sample: 1 Injection: 1 Function: 1
Llim: 30:41 Ulim: 35:00
Acquired: 27-MAY-14 14:17:51 Processed: 27-MAY-14 15:34:40
Mass: 339.8600 341.8570 Tot Response: 4.69e+04 RRF: 0.9970

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:51	2.86e+04	1.83e+04	1.57	yes	4.69e+04	n	n

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Entry: 39 Totals Name: Total Penta-Furan2

Run: 13 File: P171053 Sample: 1 Injection: 1 Function: 2
Llim: 30:41 Ulim: 35:00
Acquired: 27-MAY-14 14:17:51 Processed: 27-MAY-14 15:34:40
Mass: 339.8600 341.8570 Tot Response: 5.46e+05 RRF: 0.9970

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:08	6.00e+04	3.84e+04	1.56	yes	9.84e+04		n	n
2	32:17	7.14e+04	4.51e+04	1.58	yes	1.16e+05		n	n
3	32:27	2.54e+03	1.82e+03	1.40	yes	4.36e+03		n	n
4	32:37	5.02e+03	3.13e+03	1.60	yes	8.15e+03		n	n
5	32:42	5.06e+04	3.21e+04	1.57	yes	8.27e+04		n	n
6	32:49	1.48e+04	9.34e+03	1.59	yes	2.42e+04		n	n
7	33:06	1.60e+04	1.02e+04	1.58	yes	2.62e+04	1,2,3,7,8-PeCDF	n	n
8	33:19	3.52e+04	2.23e+04	1.58	yes	5.75e+04		n	n
9	33:28	2.10e+03	1.51e+03	1.39	yes	3.61e+03		n	n
10	33:47	3.12e+03	2.02e+03	1.55	yes	5.13e+03		n	n
11	33:52	3.37e+04	2.16e+04	1.56	yes	5.53e+04		n	n
12	33:57	3.25e+04	2.03e+04	1.60	yes	5.28e+04	2,3,4,7,8-PeCDF	n	n
13	34:15	4.19e+03	2.72e+03	1.54	yes	6.91e+03		n	n
14	34:51	2.46e+03	1.58e+03	1.56	yes	4.04e+03		n	n

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Entry: 40 Totals Name: Total Penta-Dioxins

Run: 13 File: P171053 Sample: 1 Injection: 1 Function: 2
Llim: 32:08 Ulim: 34:44
Acquired: 27-MAY-14 14:17:51 Processed: 27-MAY-14 15:34:40
Mass: 355.8550 357.8520 Tot Response: 5.25e+04 RRF: 0.9375

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:19	9.74e+03	5.95e+03	1.64	yes	1.57e+04		n	n
2	32:40	7.40e+02	5.30e+02	1.40	yes	1.27e+03		n	n
3	33:06	6.26e+03	4.07e+03	1.54	yes	1.03e+04		n	n
4	33:14	1.53e+03	9.79e+02	1.56	yes	2.51e+03		n	n
5	33:20	4.03e+03	2.55e+03	1.58	yes	6.58e+03		n	n
6	33:32	3.10e+03	1.93e+03	1.60	yes	5.03e+03		n	n
7	33:51	3.24e+03	2.12e+03	1.53	yes	5.36e+03		n	n
8	34:14	1.39e+03	8.68e+02	1.60	yes	2.26e+03	1,2,3,7,8-PeCDD	n	n
9	34:17	1.02e+03	6.67e+02	1.54	yes	1.69e+03		n	n
10	34:35	1.09e+03	6.90e+02	1.58	yes	1.78e+03		n	n

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Entry: 41 Totals Name: Total Hexa-Furans

Run: 13 File: P171053 Sample: 1 Injection: 1 Function: 3
Llim: 35:23 Ulim: 38:03
Acquired: 27-MAY-14 14:17:51 Processed: 27-MAY-14 15:34:40
Mass: 373.8210 375.8180 Tot Response: 2.62e+05 RRF: 1.180

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:30	1.81e+04	1.44e+04	1.25	yes	3.25e+04		n	n
2	35:38	4.16e+04	3.33e+04	1.25	yes	7.49e+04		n	n
3	35:50	2.73e+03	2.25e+03	1.22	yes	4.98e+03		n	n
4	35:59	4.95e+03	4.16e+03	1.19	yes	9.11e+03		n	n
5	36:09	2.49e+03	2.17e+03	1.15	yes	4.66e+03		n	n
6	36:29	1.94e+04	1.56e+04	1.24	yes	3.50e+04		n	n
7	36:34	1.38e+04	1.11e+04	1.24	yes	2.49e+04	1,2,3,4,7,8-HxCDF	n	n
8	36:40	1.38e+04	1.13e+04	1.22	yes	2.50e+04	1,2,3,6,7,8-HxCDF	n	n
9	36:48	2.25e+03	1.82e+03	1.23	yes	4.07e+03		n	n
10	36:54	3.40e+03	2.77e+03	1.23	yes	6.17e+03		n	n
11	37:00	2.50e+03	1.93e+03	1.30	yes	4.42e+03		n	n
12	37:09	1.57e+04	1.29e+04	1.22	yes	2.87e+04	2,3,4,6,7,8-HxCDF	n	n
13	37:54	4.16e+03	3.23e+03	1.29	yes	7.39e+03	1,2,3,7,8,9-HxCDF	n	n

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Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 13 File: P171053 Sample: 1 Injection: 1 Function: 3
Llim: 35:52 Ulim: 37:39
Acquired: 27-MAY-14 14:17:51 Processed: 27-MAY-14 15:34:40
Mass: 389.8160 391.8130 Tot Response: 4.60e+04 RRF: 1.040

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:59	3.11e+03	2.57e+03	1.21	yes	5.69e+03		n	n
2	36:29	1.10e+04	8.88e+03	1.24	yes	1.99e+04		n	n
3	36:42	6.13e+03	4.90e+03	1.25	yes	1.10e+04		n	n
4	36:48	7.44e+02	6.27e+02	1.19	yes	1.37e+03		n	n
5	37:17	7.68e+02	5.90e+02	1.30	yes	1.36e+03	1,2,3,4,7,8-HxCDD	n	n
6	37:22	1.38e+03	1.13e+03	1.22	yes	2.50e+03	1,2,3,6,7,8-HxCDD	n	n
7	37:32	1.33e+03	1.05e+03	1.26	yes	2.38e+03		n	n
8	37:37	9.67e+02	8.05e+02	1.20	yes	1.77e+03	1,2,3,7,8,9-HxCDD	n	n

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Entry: 43 Totals Name: Total Hepta-Furans

Run: 13 File: P171053 Sample: 1 Injection: 1 Function: 4
Llim: 39:01 Ulim: 40:42
Acquired: 27-MAY-14 14:17:51 Processed: 27-MAY-14 15:34:40
Mass: 407.7820 409.7790 Tot Response: 7.28e+04 RRF: 1.365

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:06	2.30e+04	2.21e+04	1.04	yes	4.51e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	39:23	5.23e+03	4.97e+03	1.05	yes	1.02e+04		n	n
3	39:31	6.26e+03	5.92e+03	1.06	yes	1.22e+04		n	n
4	40:32	2.79e+03	2.50e+03	1.12	yes	5.29e+03	1,2,3,4,7,8,9-HpCDF	n	n

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Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 13 File: P171053 Sample: 1 Injection: 1 Function: 4
Llim: 39:15 Ulim: 40:11
Acquired: 27-MAY-14 14:17:51 Processed: 27-MAY-14 15:34:40
Mass: 423.7770 425.7740 Tot Response: 2.13e+04 RRF: 1.016

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:21	6.09e+03	5.83e+03	1.04	yes	1.19e+04		n	n
2	40:03	4.78e+03	4.64e+03	1.03	yes	9.42e+03	1,2,3,4,6,7,8-HpCDD	n	n

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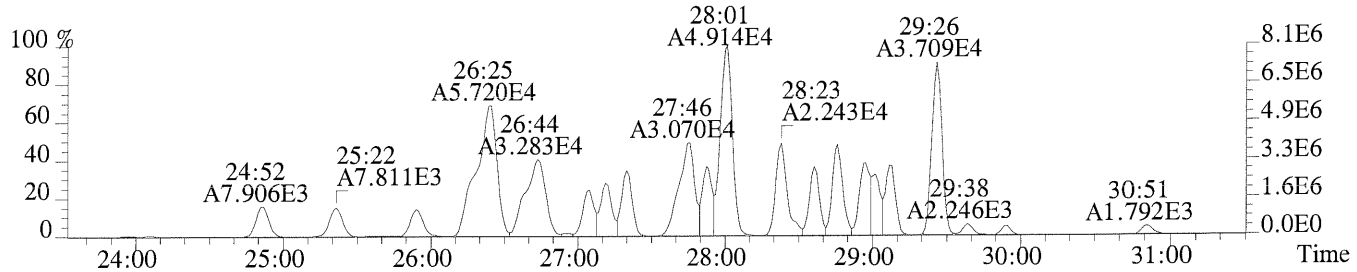
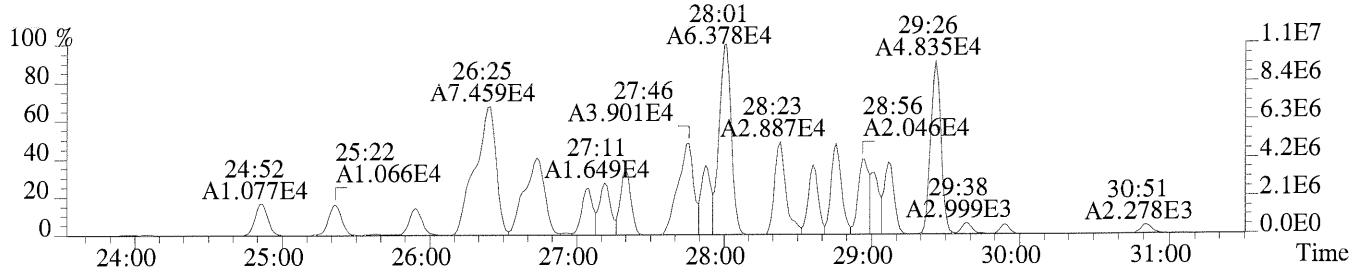
File:P171053 #1-501 Acq:27-MAY-2014 14:17:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-002

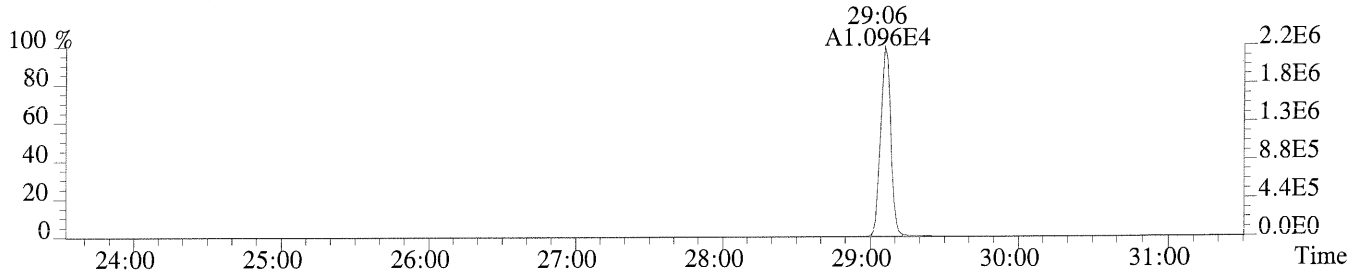
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1700.0,1.00%,F,T)



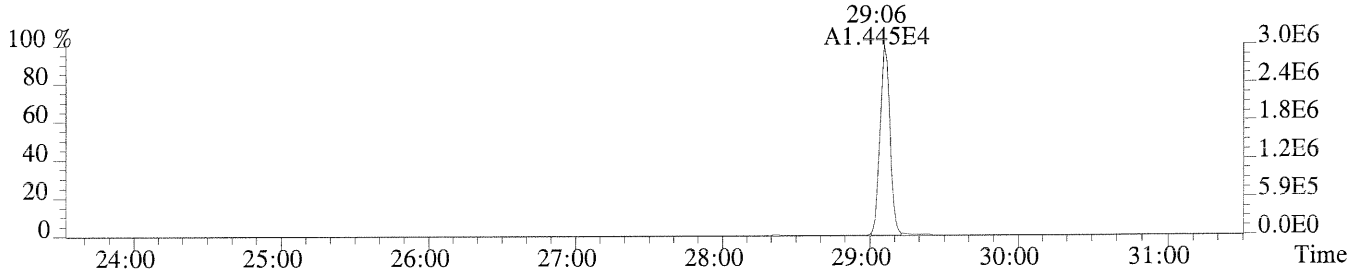
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



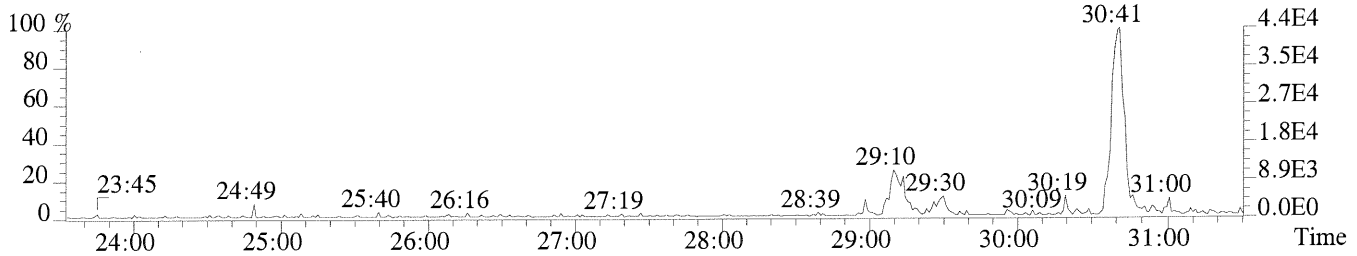
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



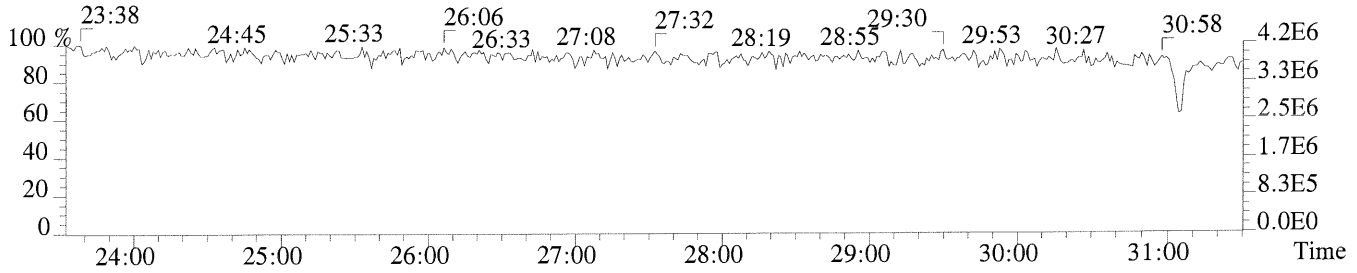
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



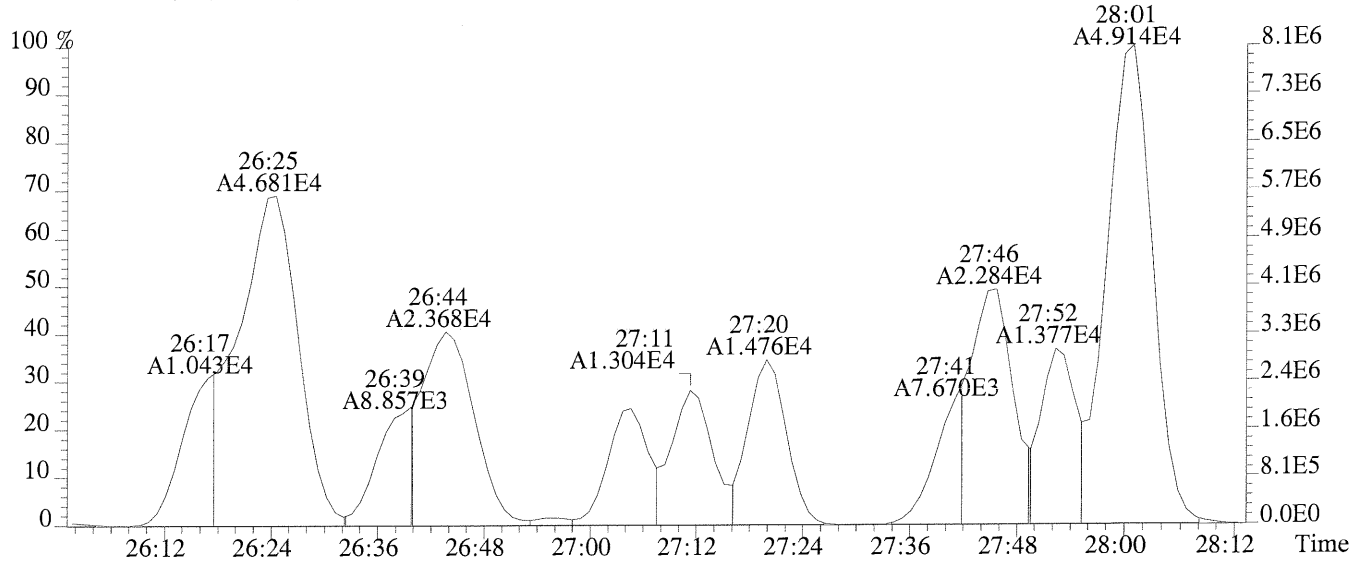
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



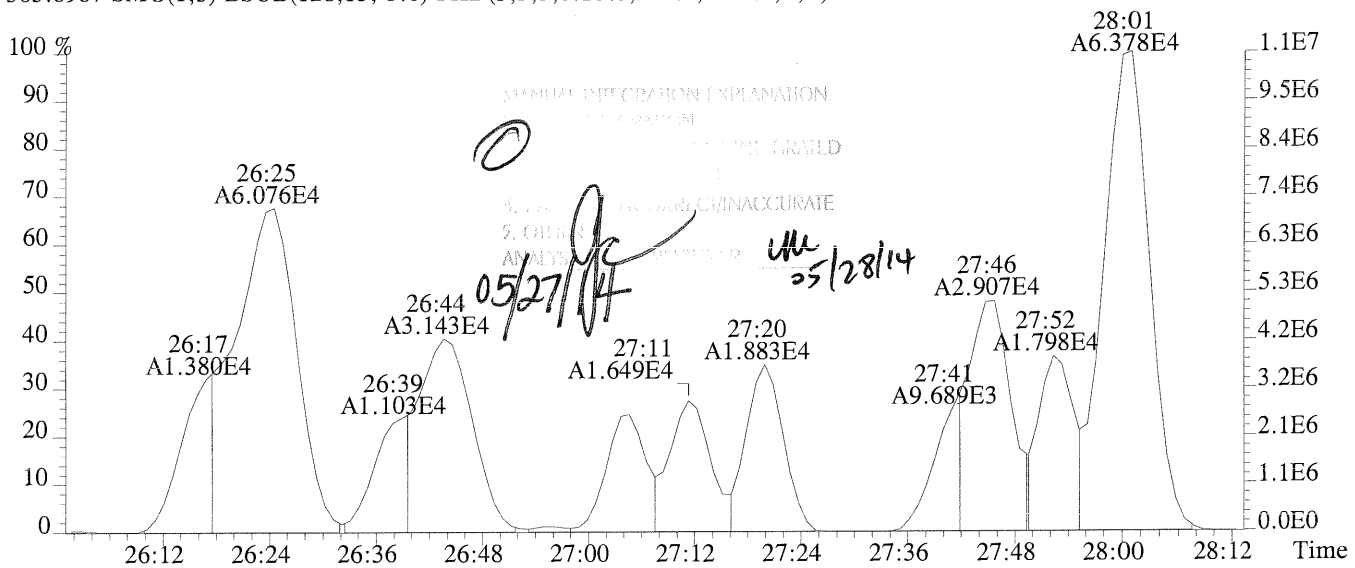
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P171053 #1-501 Acq:27-MAY-2014 14:17:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-002
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1700.0,1.00%,F,T)



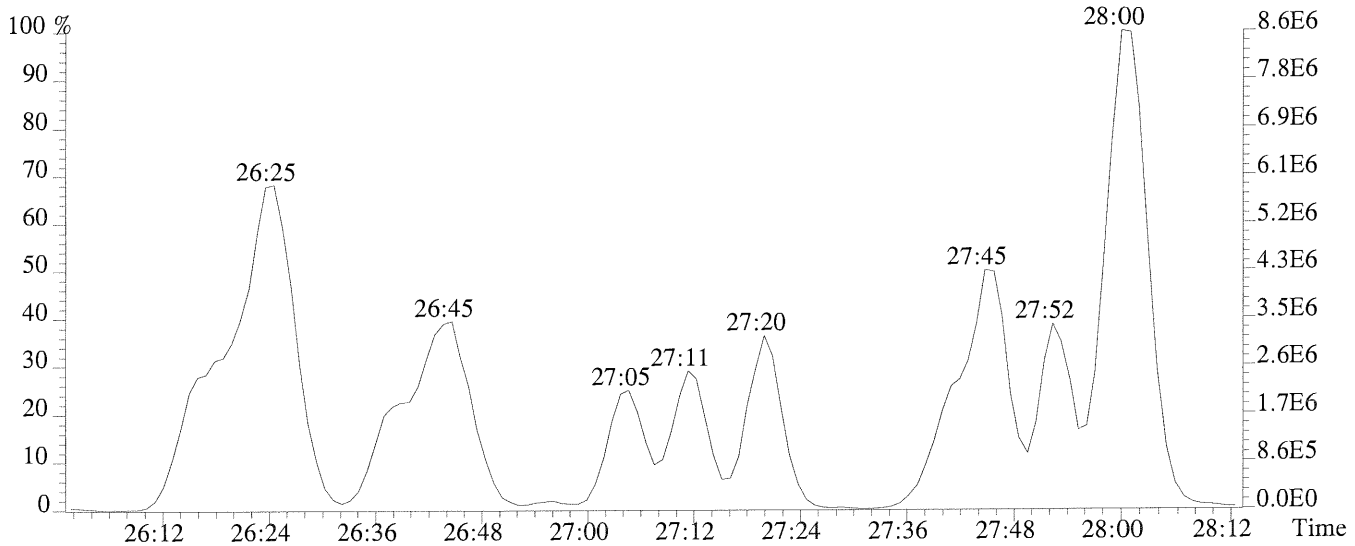
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



05/27/14

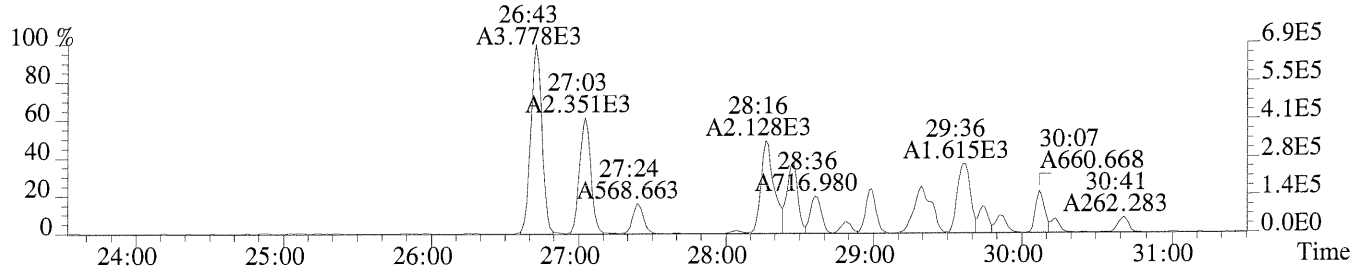
05/28/14

303.9016

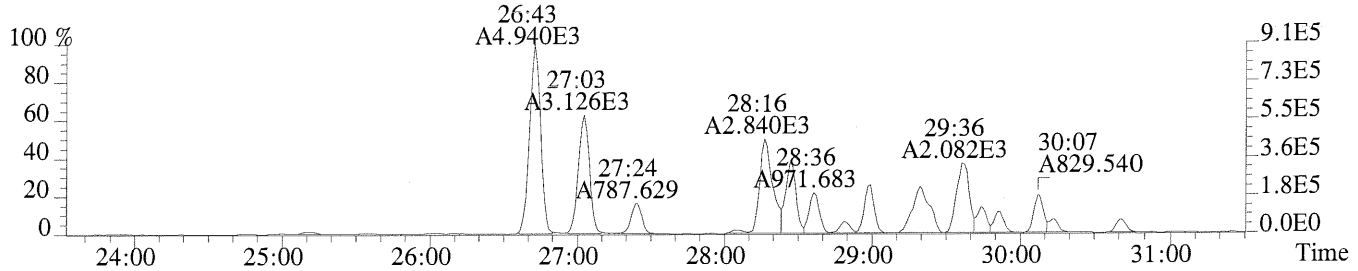


File:P171053 #1-501 Acq:27-MAY-2014 14:17:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-002

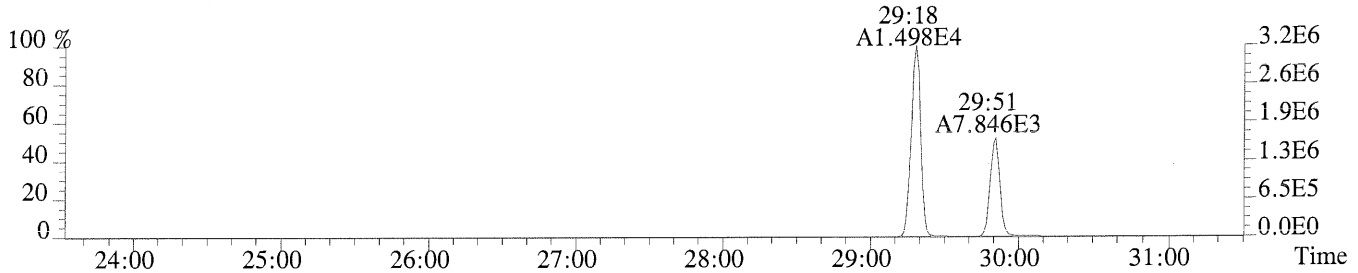
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



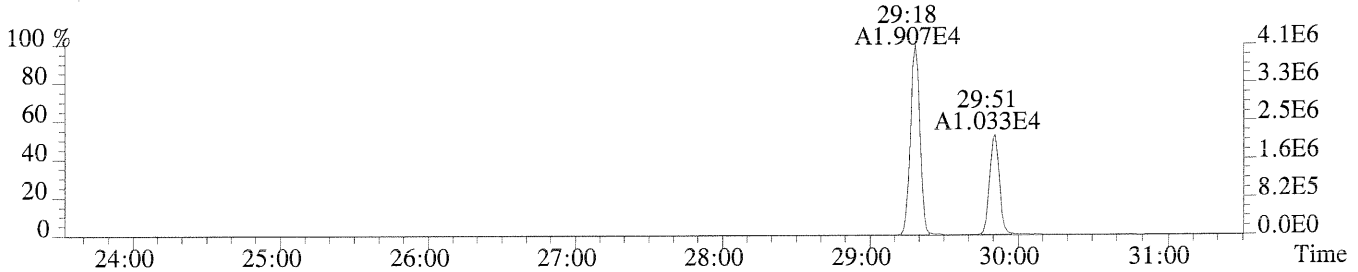
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3640.0,1.00%,F,T)



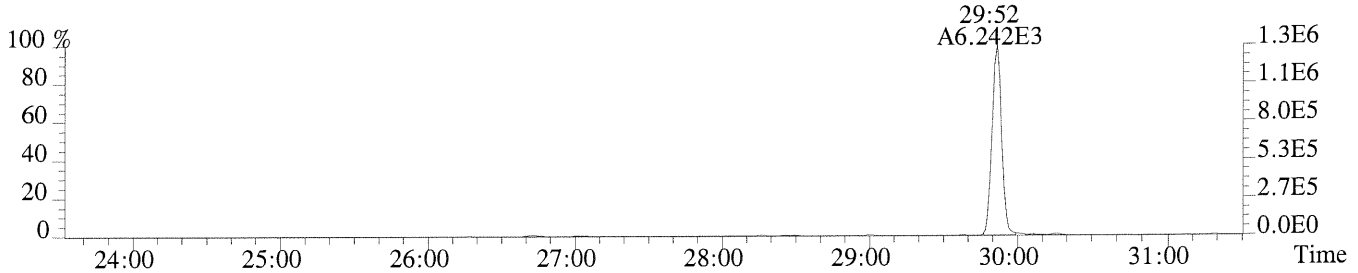
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2712.0,1.00%,F,T)



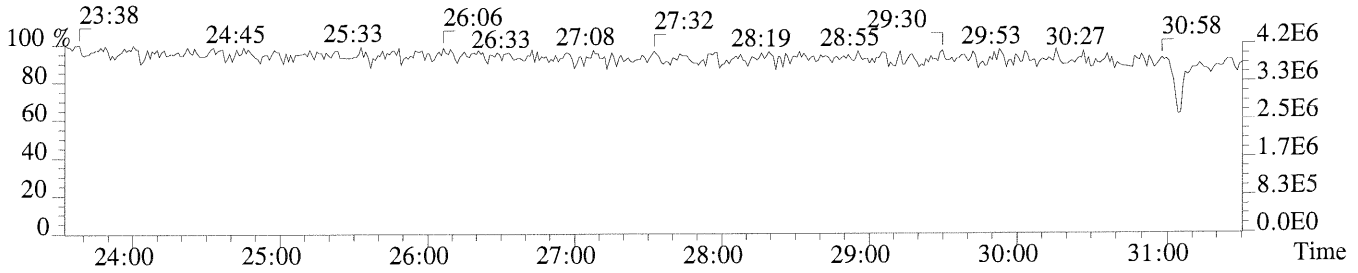
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1392.0,1.00%,F,T)



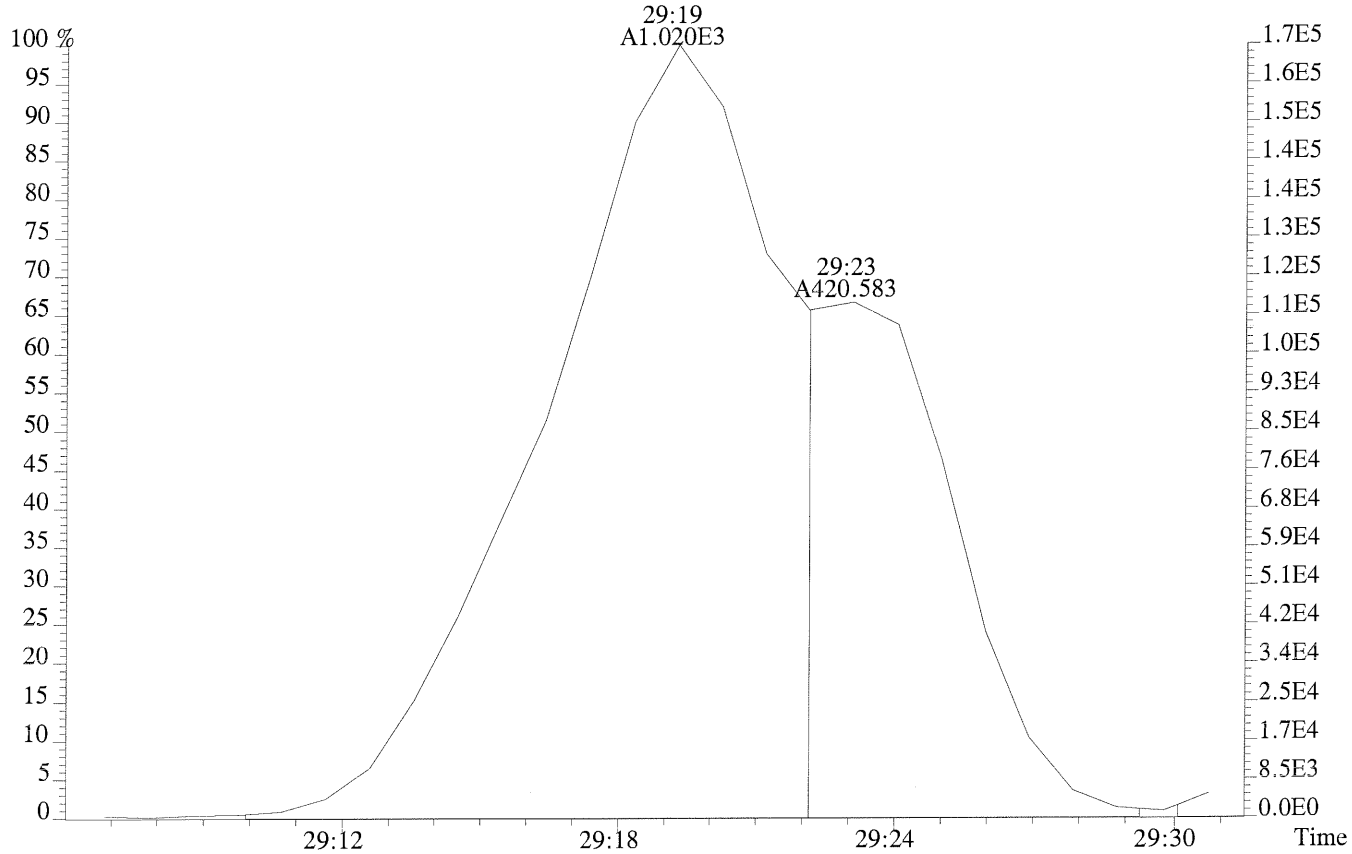
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



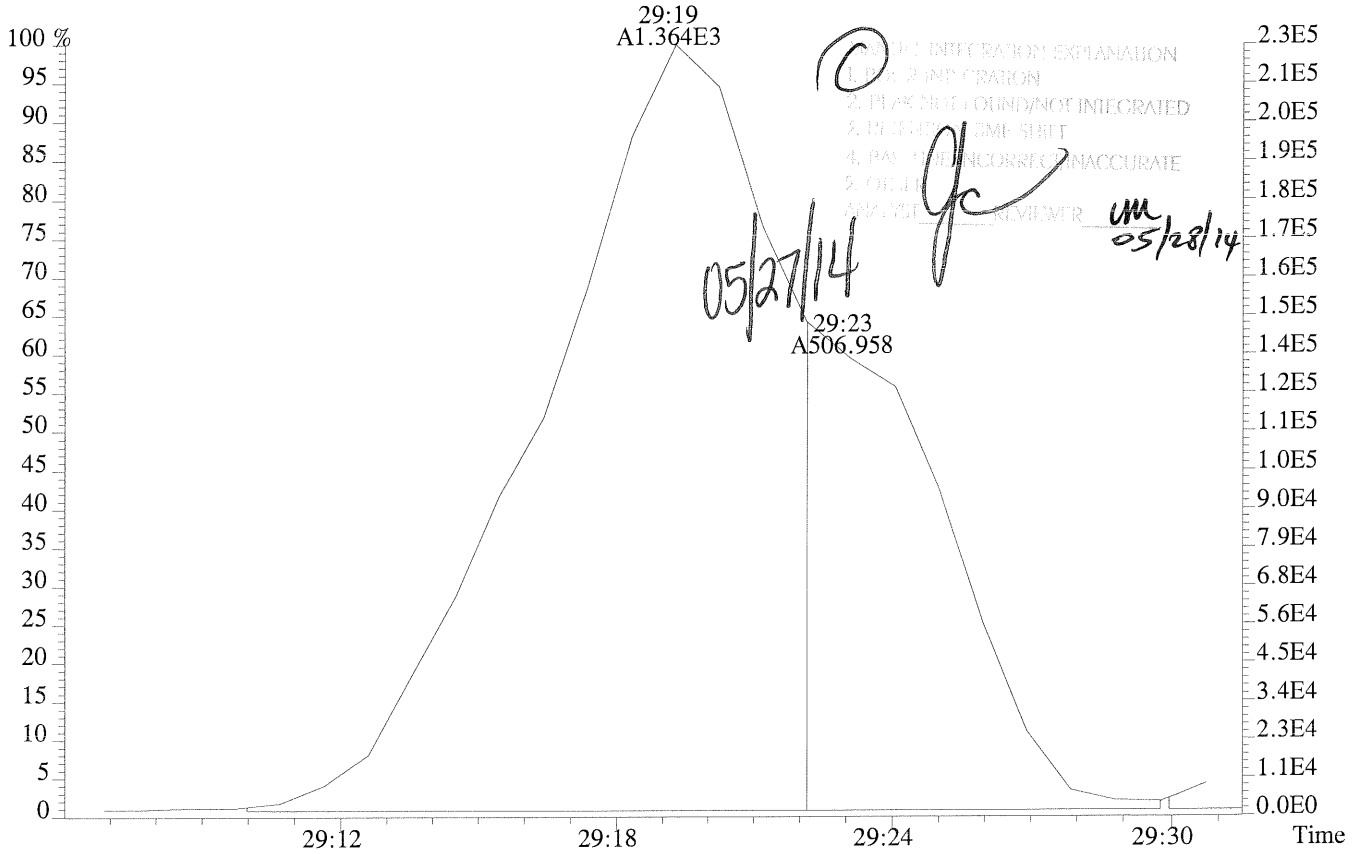
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P171053 #1-501 Acq:27-MAY-2014 14:17:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-002
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3640.0,1.00%,F,T)



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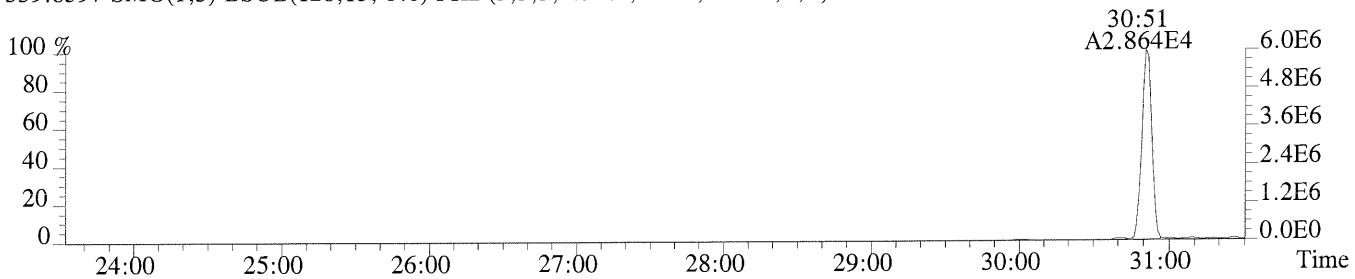
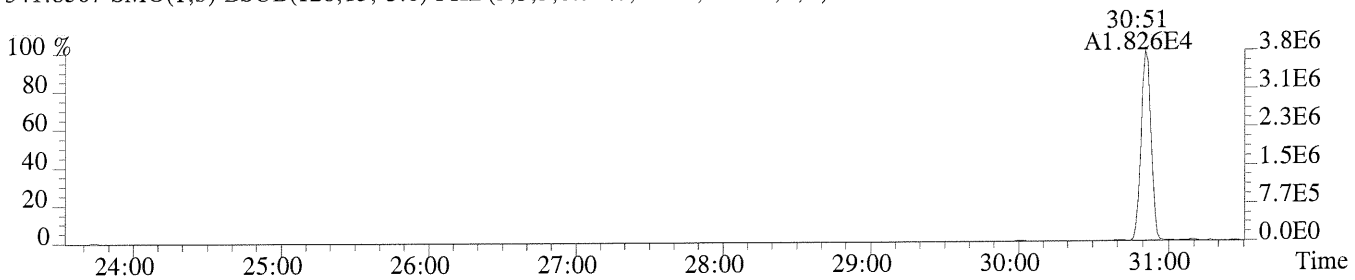
File:P171053 #1-501 Acq:27-MAY-2014 14:17:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-002

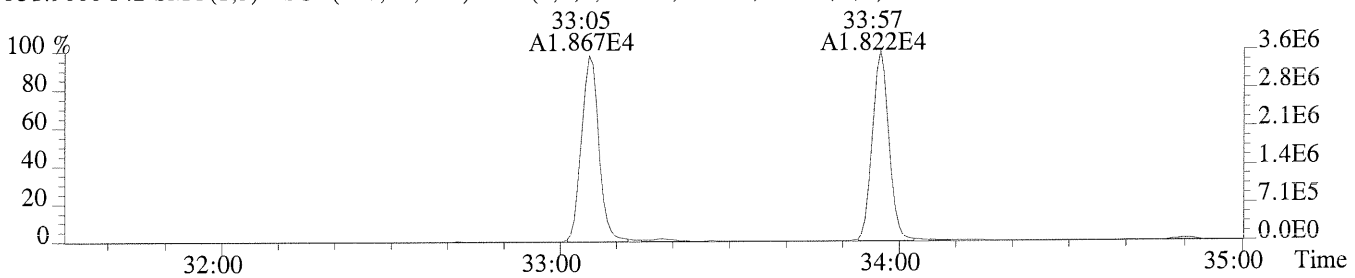
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



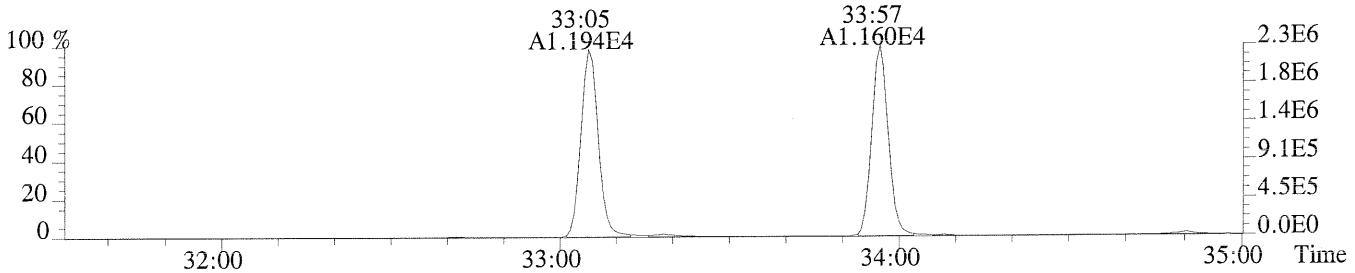
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



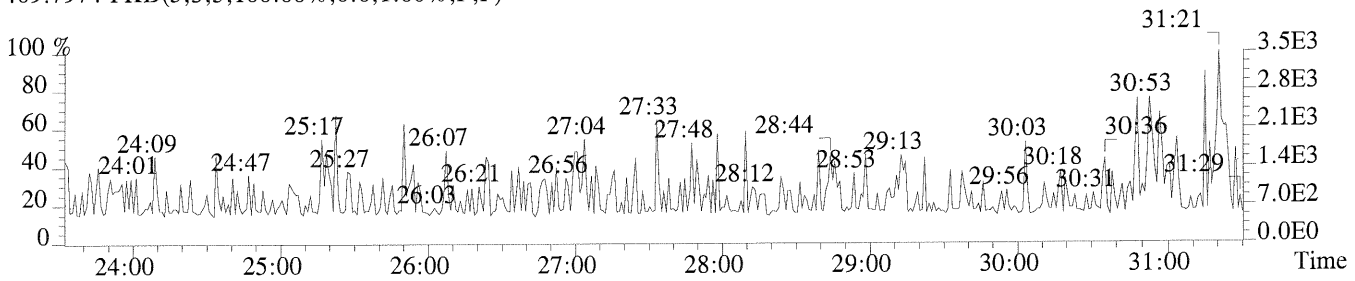
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)



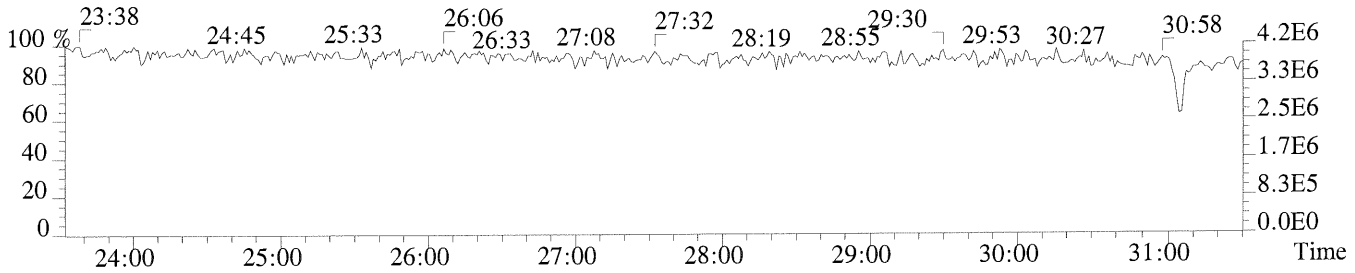
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1264.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

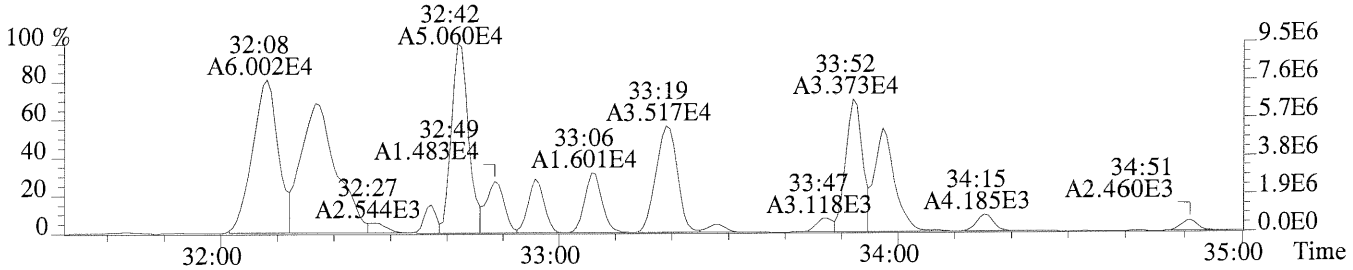


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

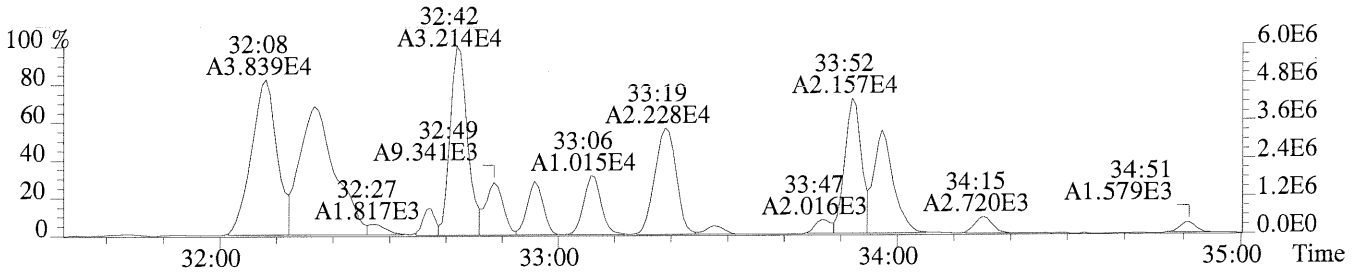


File:P171053 #1-315 Acq:27-MAY-2014 14:17:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-002

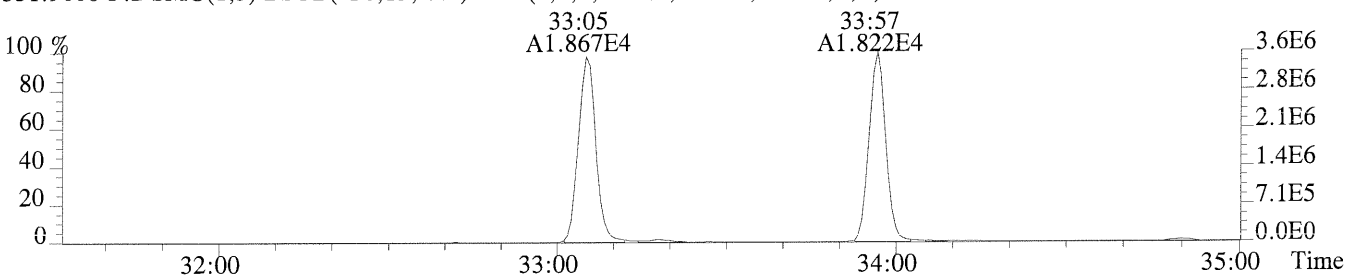
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,61512.0,1.00%,F,T)



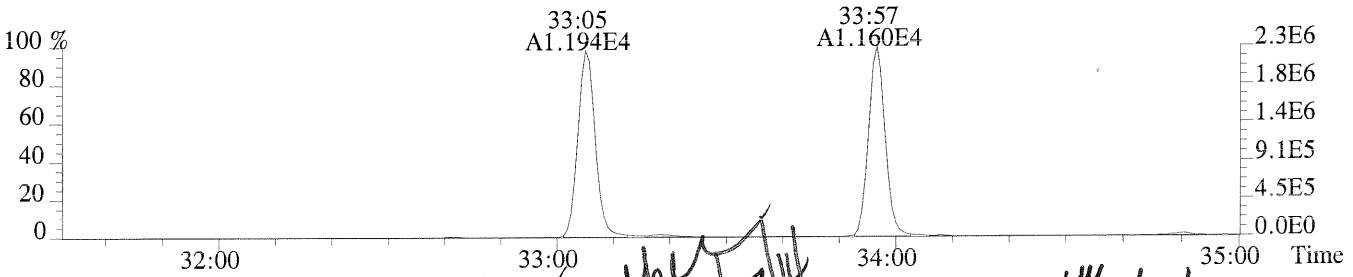
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,41564.0,1.00%,F,T)



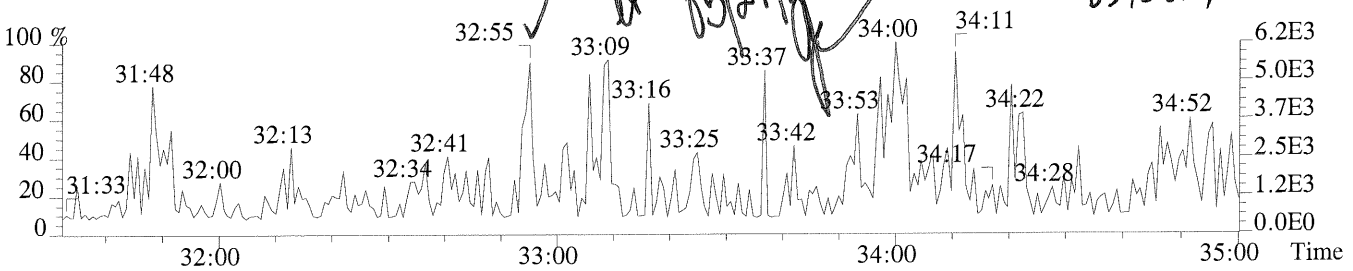
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)



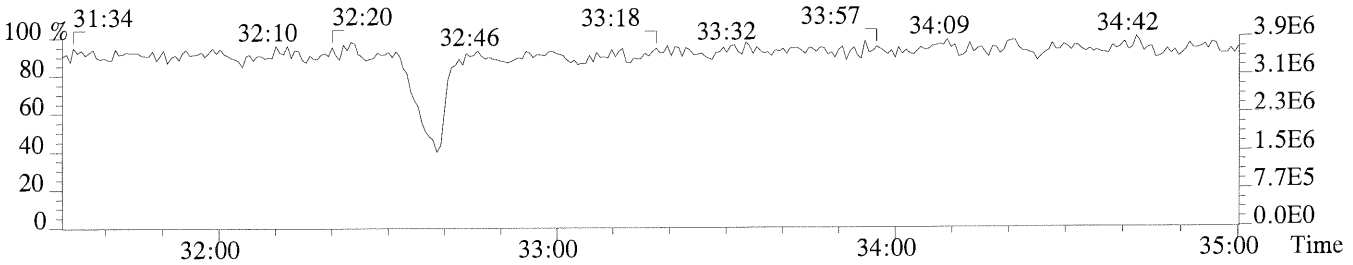
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1264.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

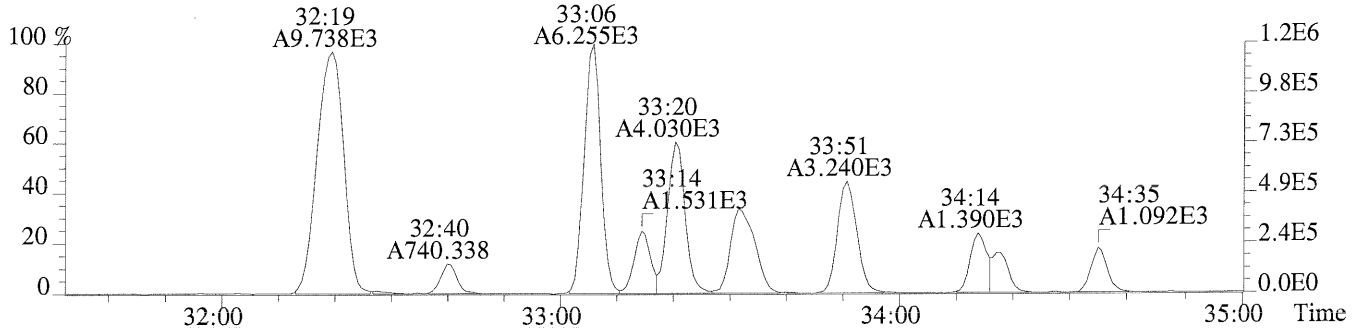


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

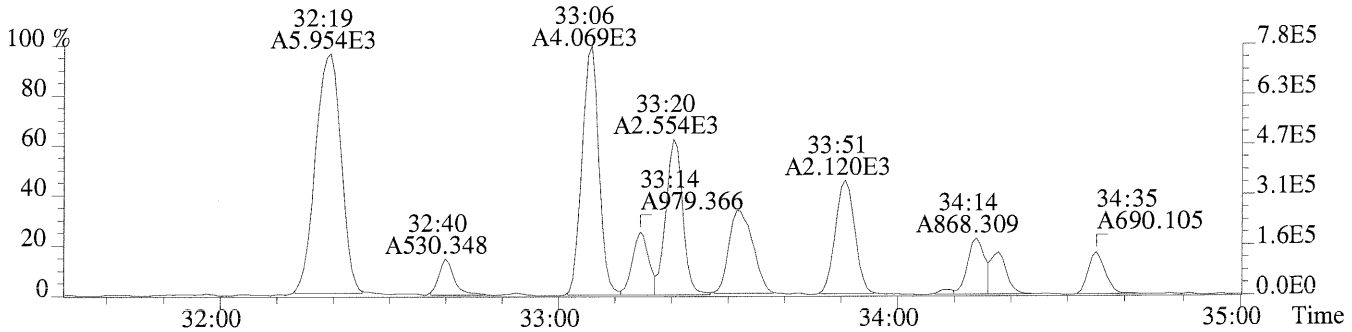


File:P171053 #1-315 Acq:27-MAY-2014 14:17:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-002

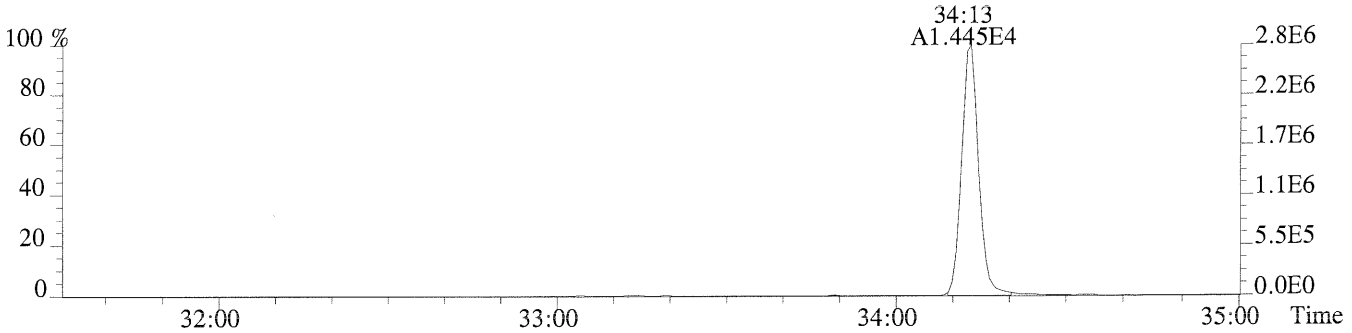
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4092.0,1.00%,F,T)



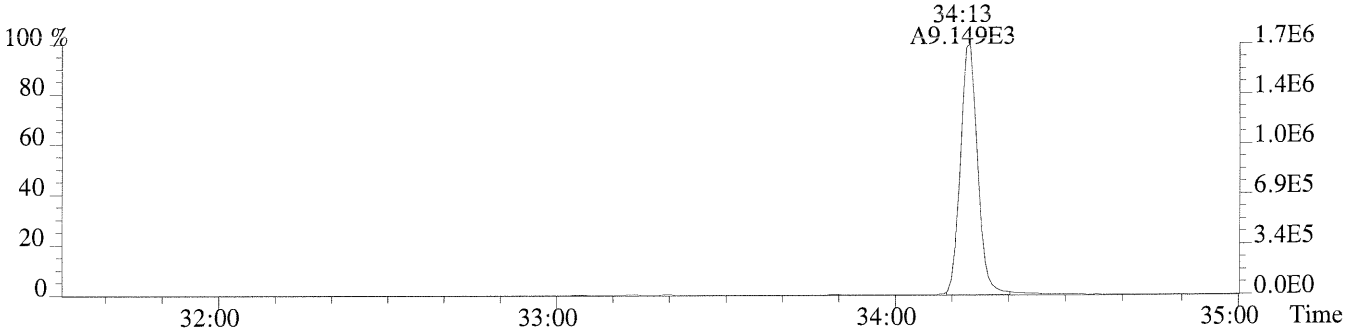
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7516.0,1.00%,F,T)



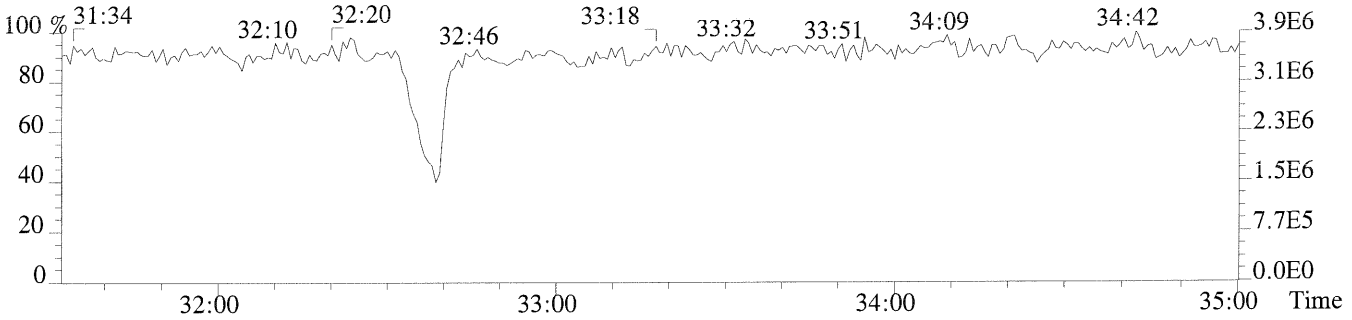
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,296.0,1.00%,F,T)

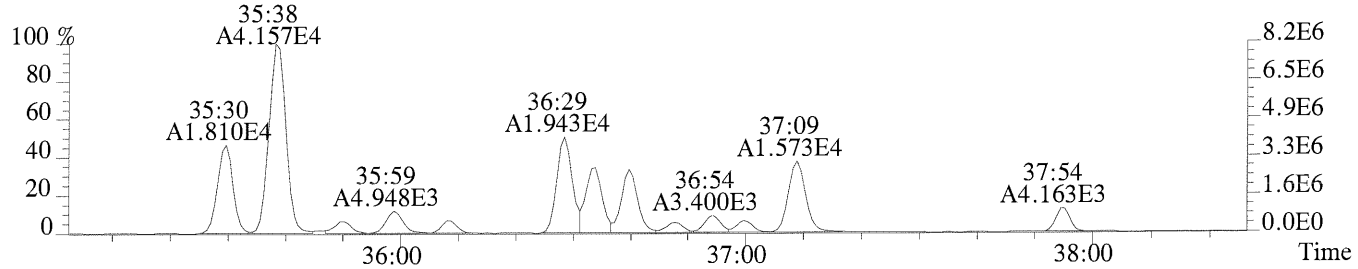


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

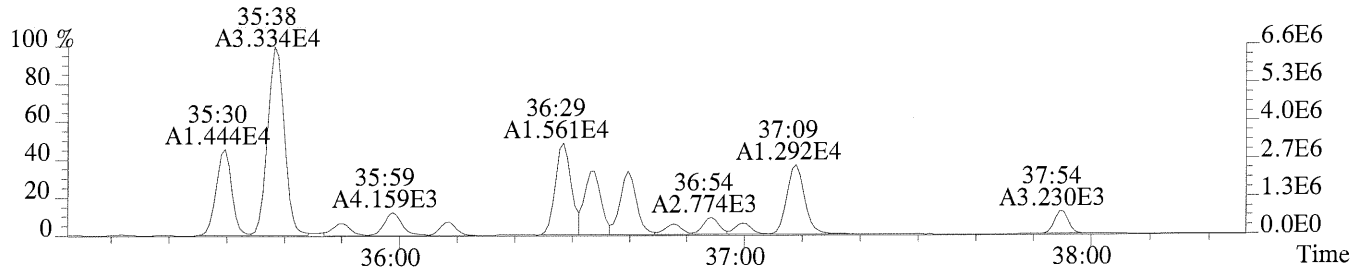


File:P171053 #1-309 Acq:27-MAY-2014 14:17:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-002

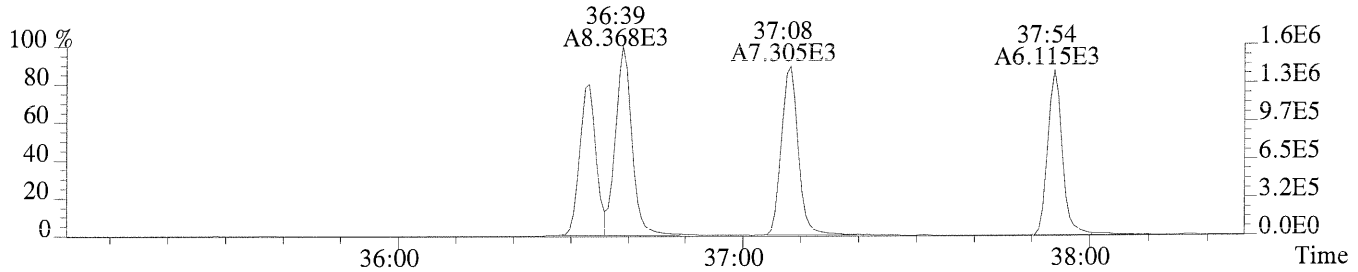
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,26264.0,0.40%,F,T)



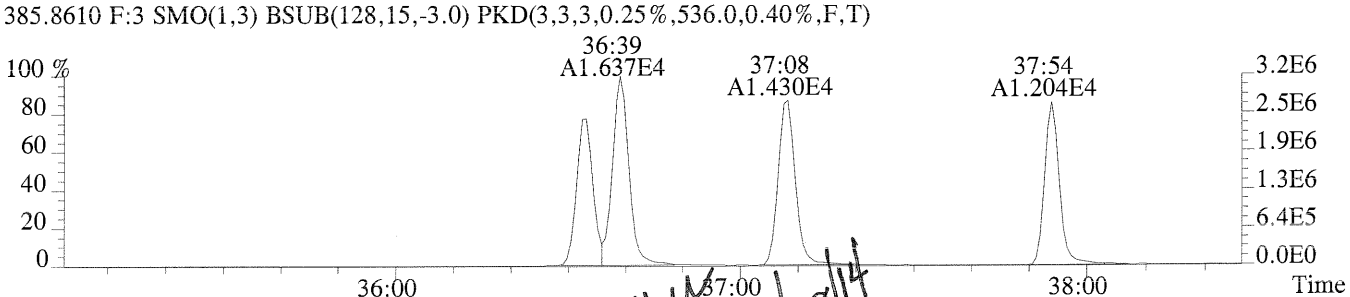
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20992.0,0.40%,F,T)



383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



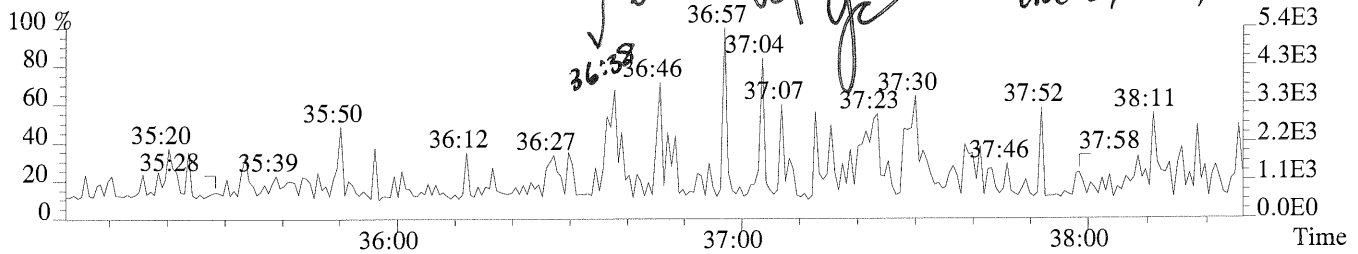
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



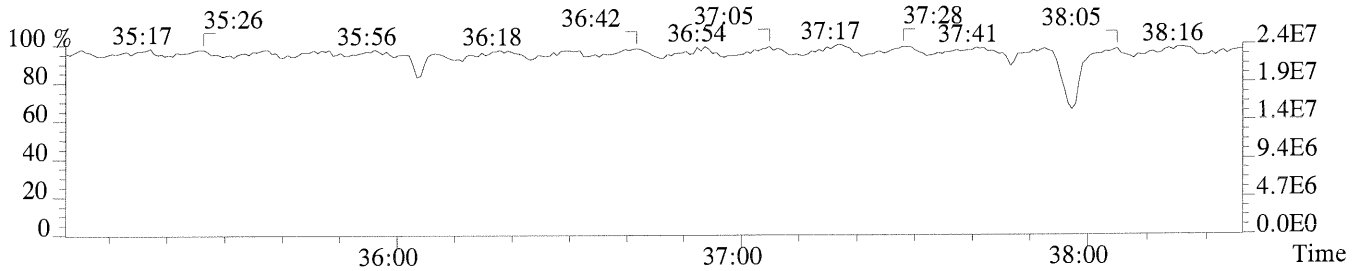
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

ethu 05/28/14 gc

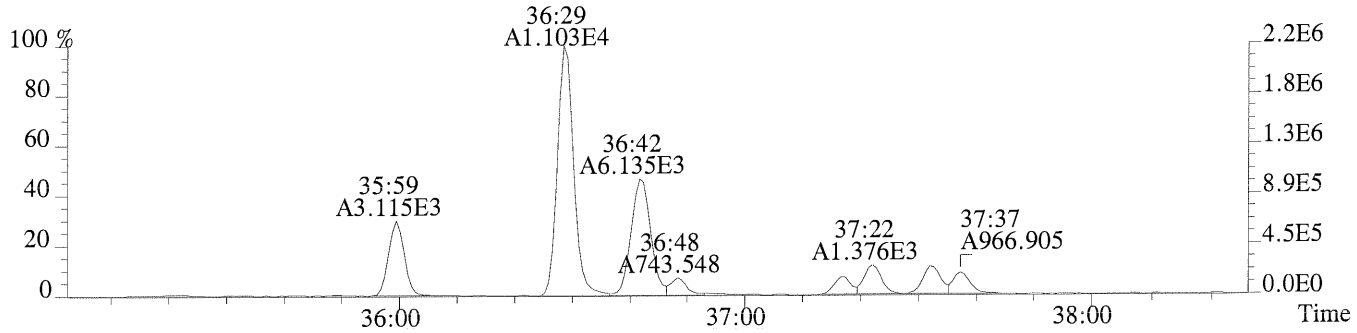
MM 05/28/14



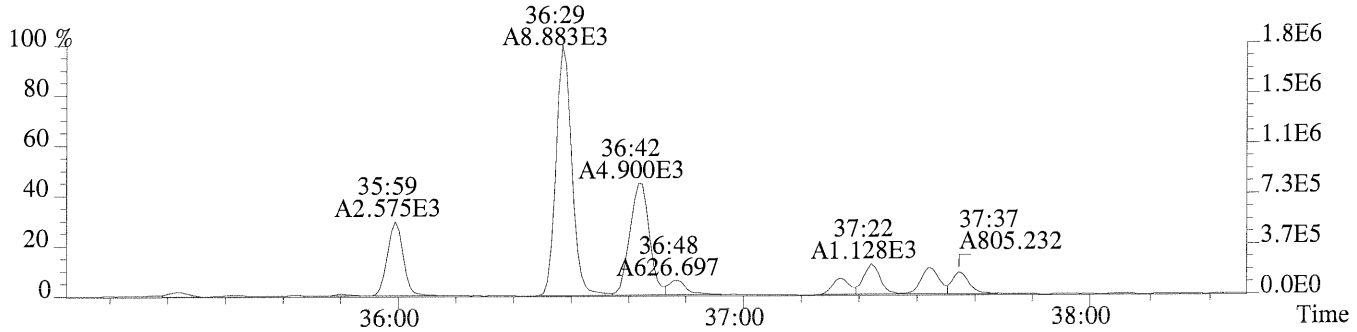
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



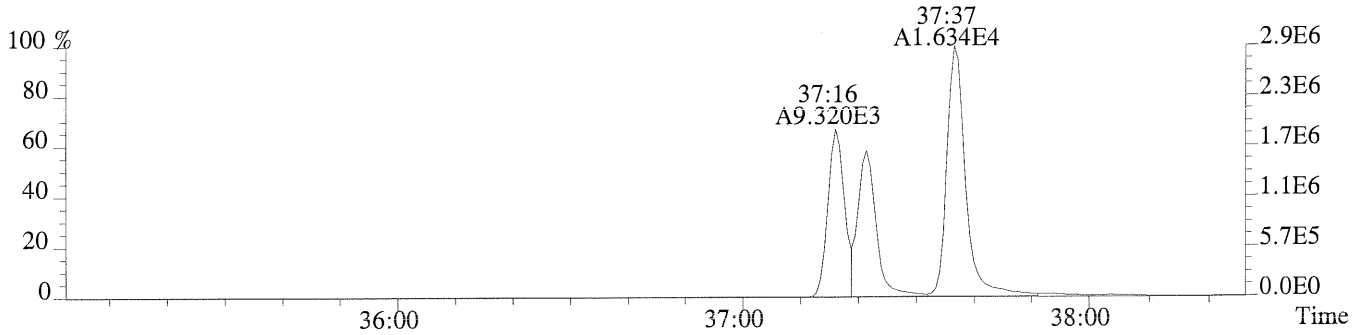
File:P171053 #1-309 Acq:27-MAY-2014 14:17:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-002
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3192.0,0.40%,F,T)



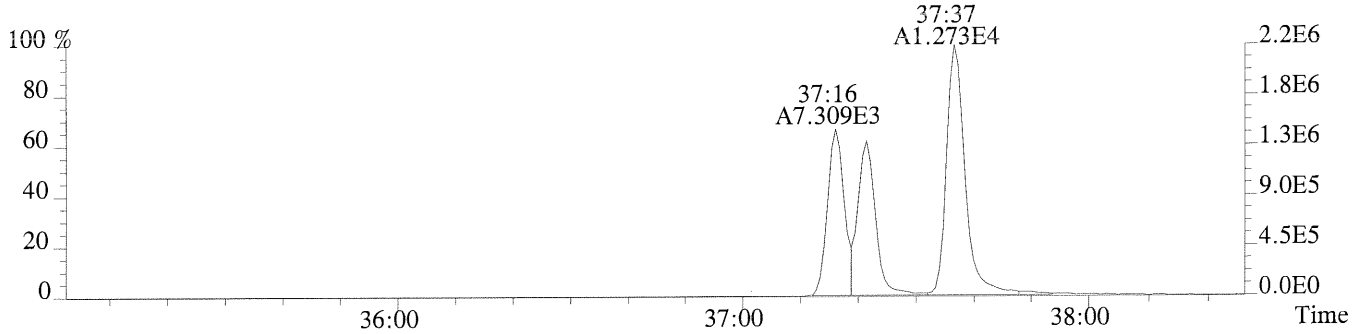
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4072.0,0.40%,F,T)



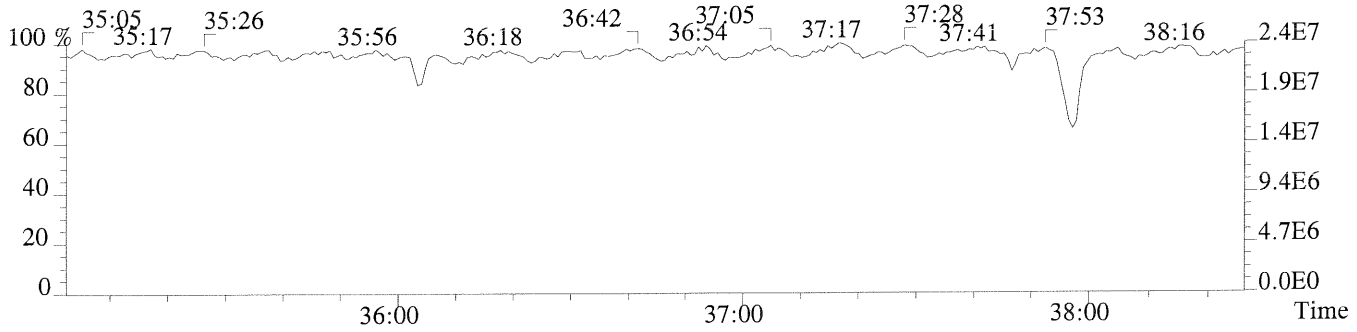
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,996.0,0.40%,F,T)

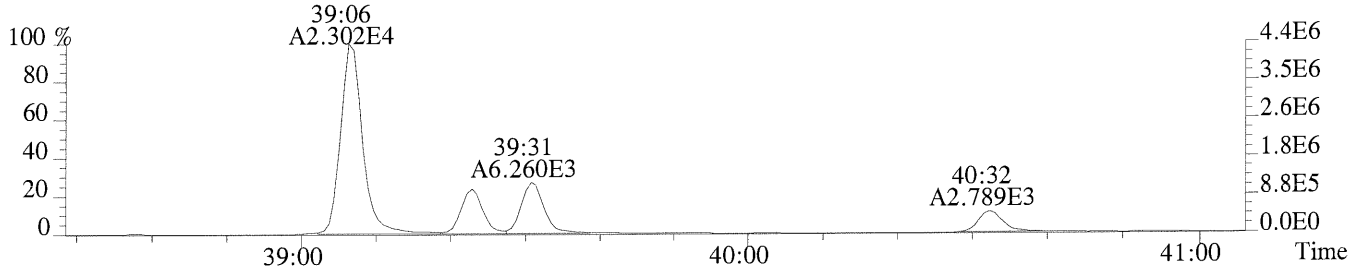


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

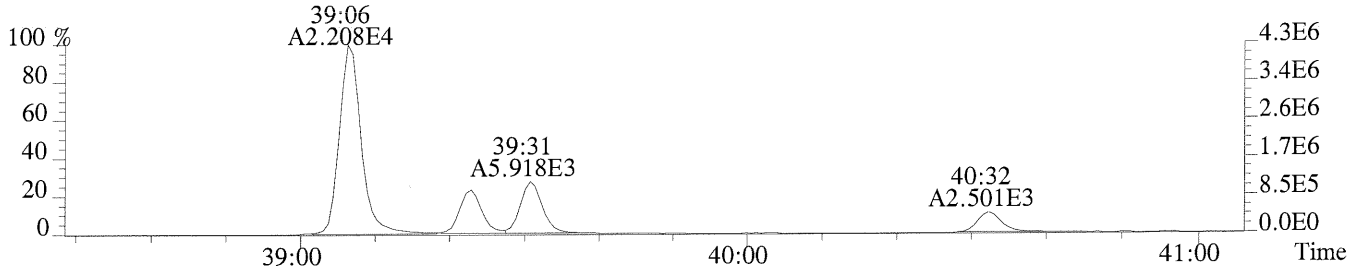


File:P171053 #1-239 Acq:27-MAY-2014 14:17:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-002

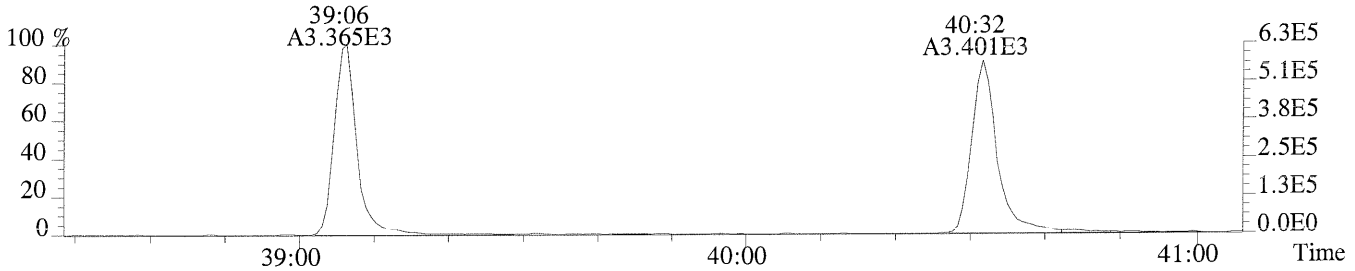
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8552.0,0.50%,F,T)



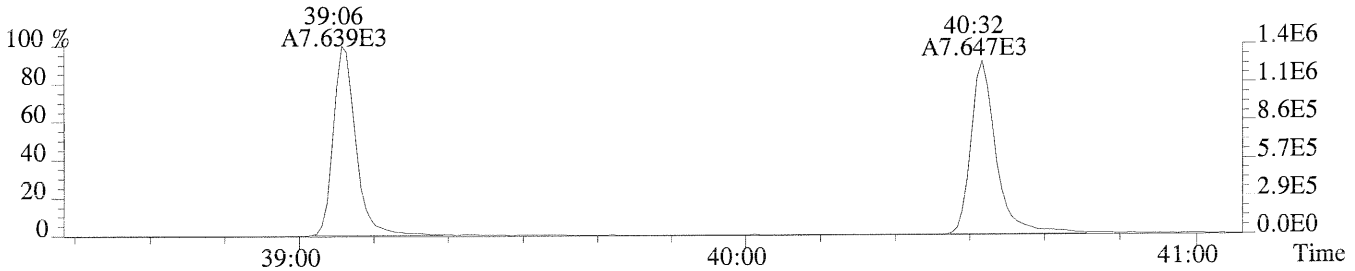
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7124.0,0.50%,F,T)



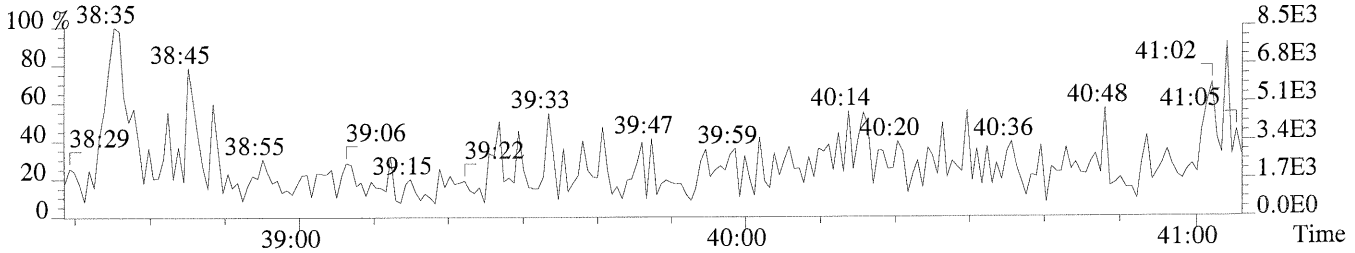
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1212.0,0.50%,F,T)



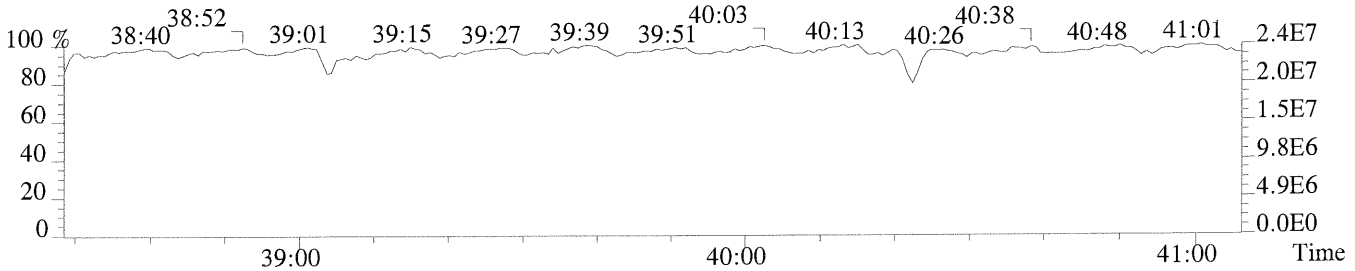
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1916.0,0.50%,F,T)



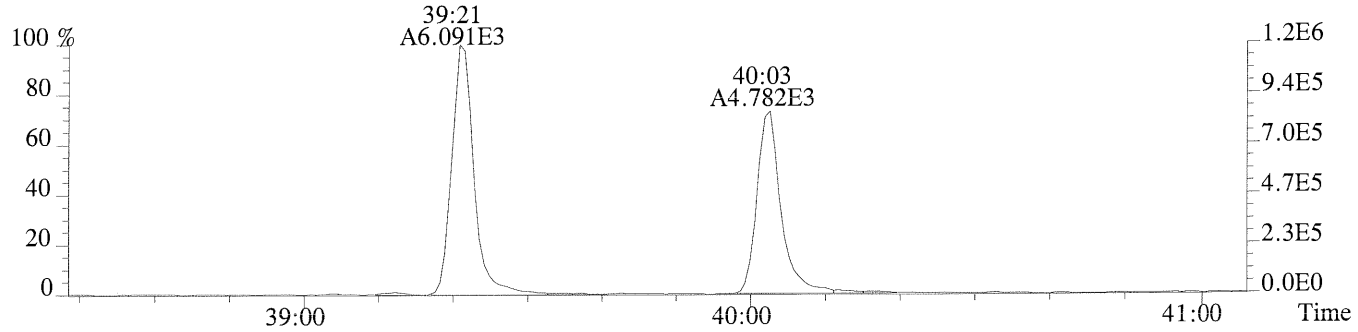
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



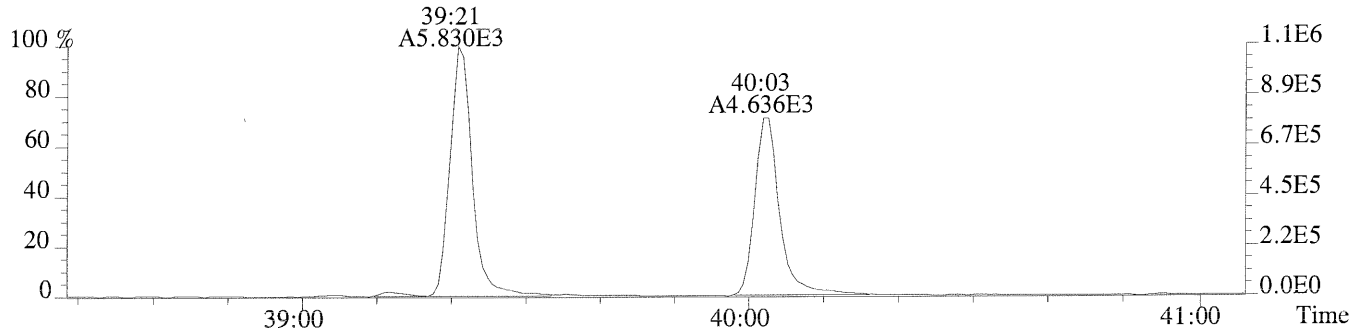
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



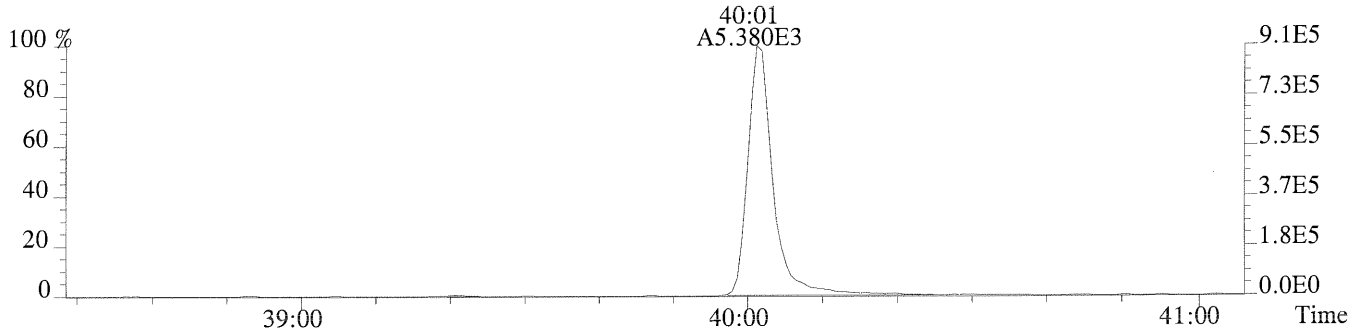
File:P171053 #1-239 Acq:27-MAY-2014 14:17:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-002
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2476.0,0.40%,F,T)



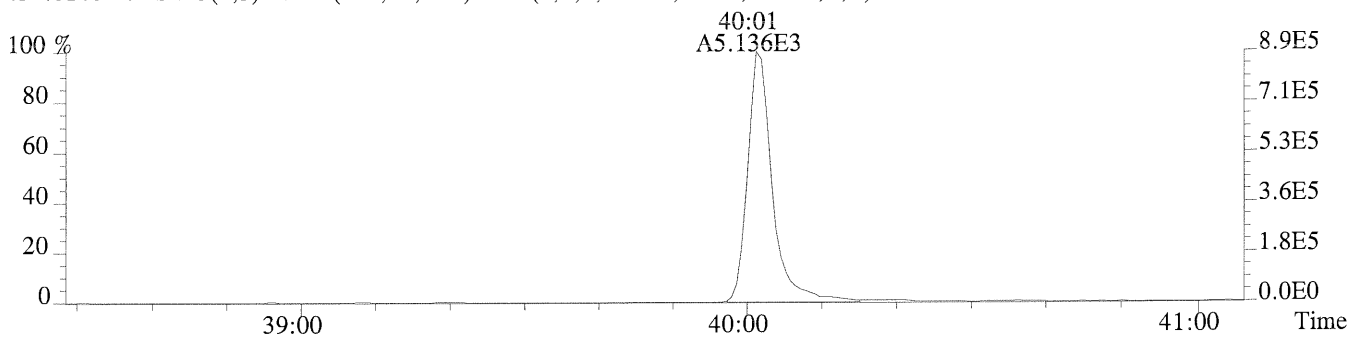
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3596.0,0.40%,F,T)



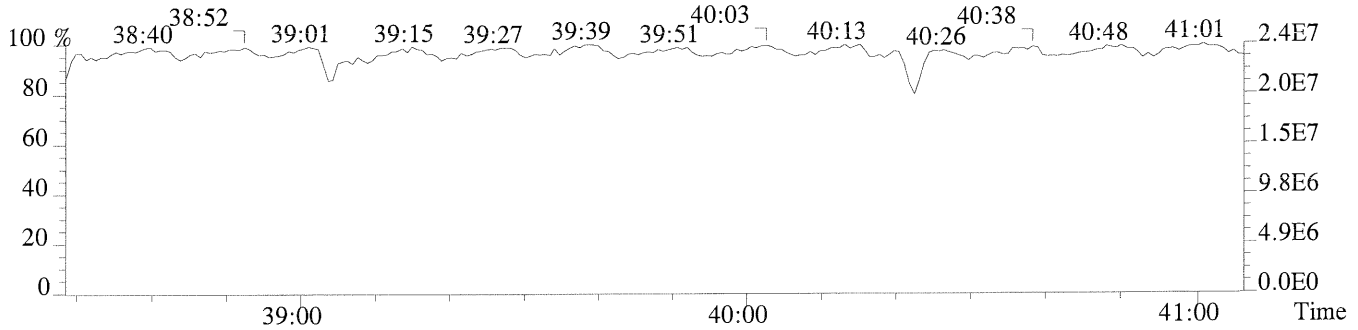
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



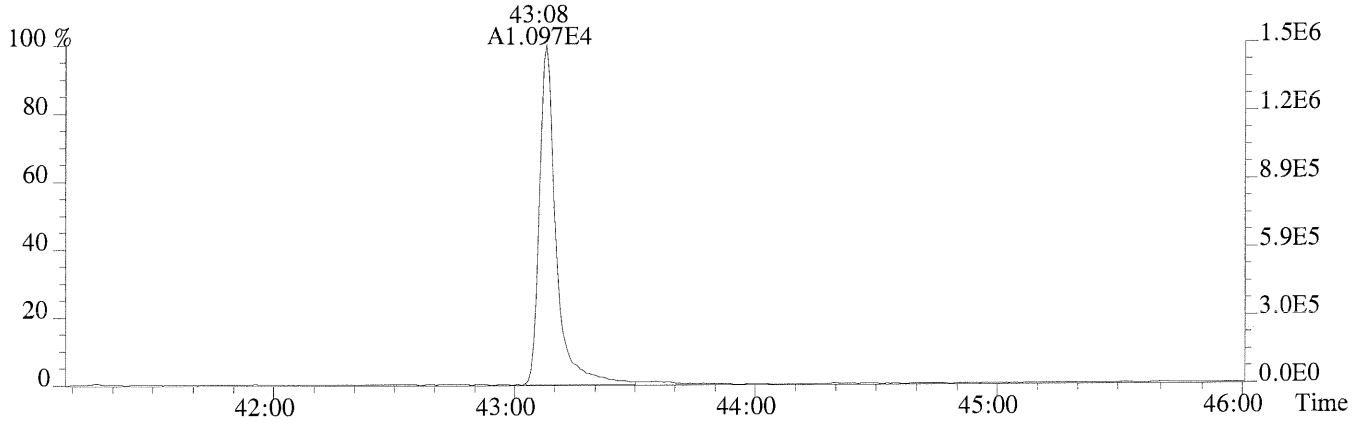
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.40%,F,T)



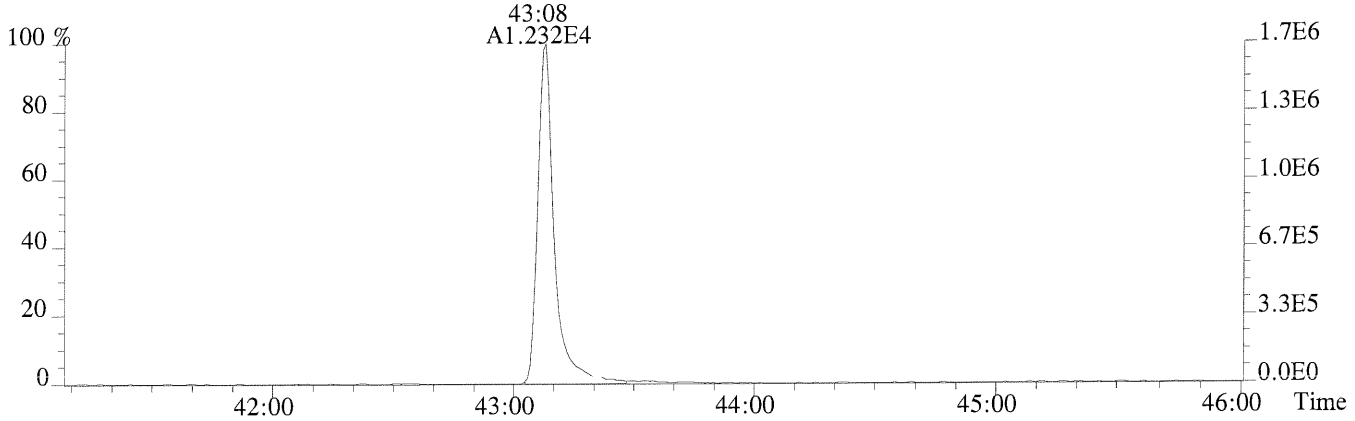
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



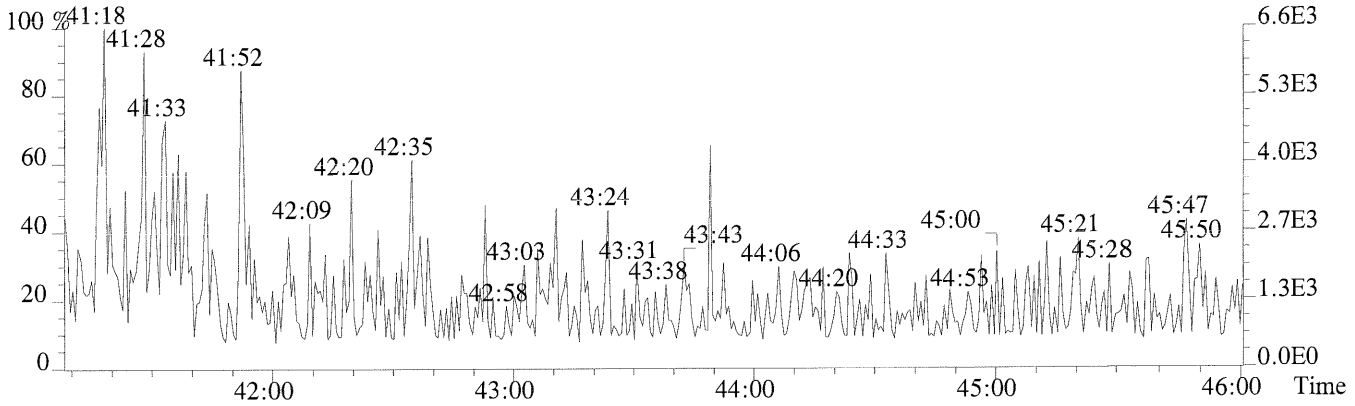
File:P171053 #1-448 Acq:27-MAY-2014 14:17:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-002
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2868.0,0.40%,F,T)



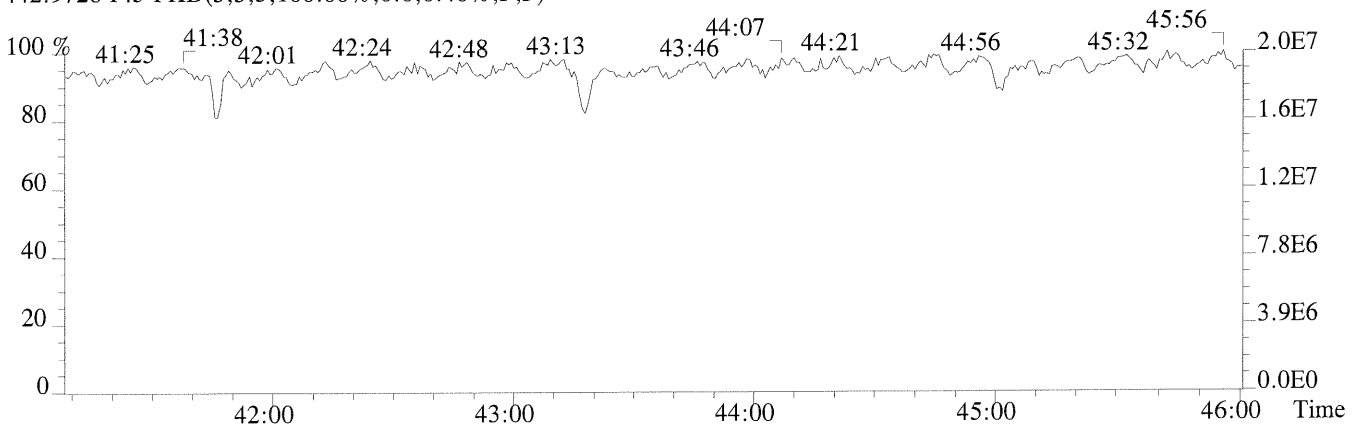
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1476.0,0.40%,F,T)



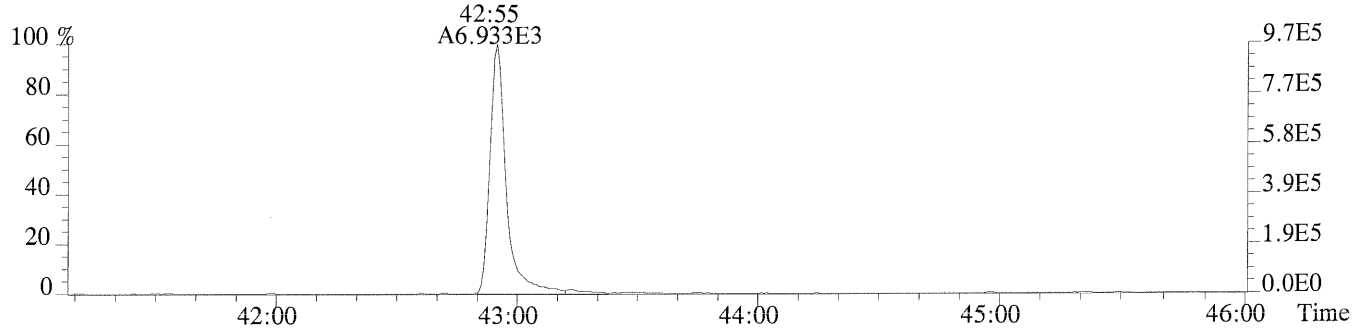
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



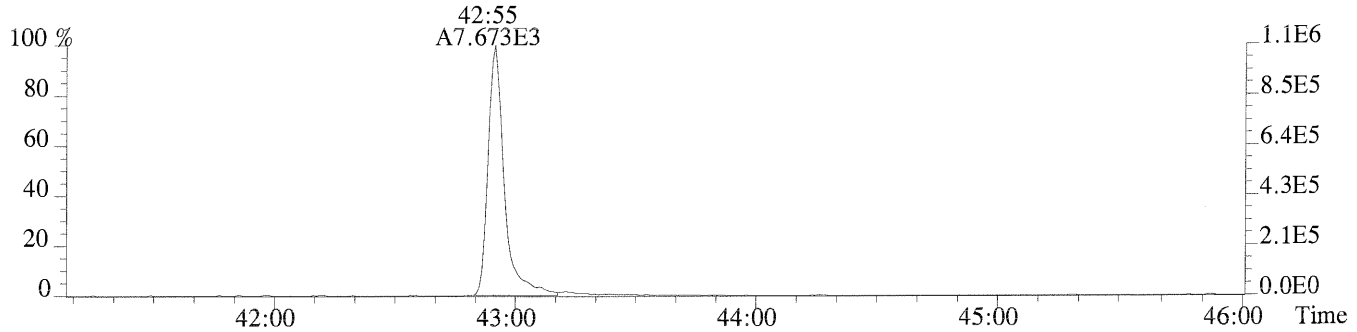
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



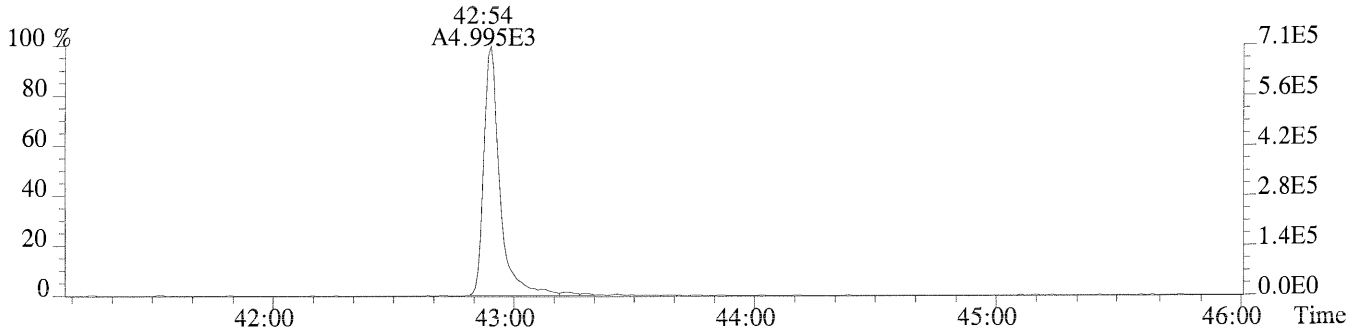
File:P171053 #1-448 Acq:27-MAY-2014 14:17:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1400541-002
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



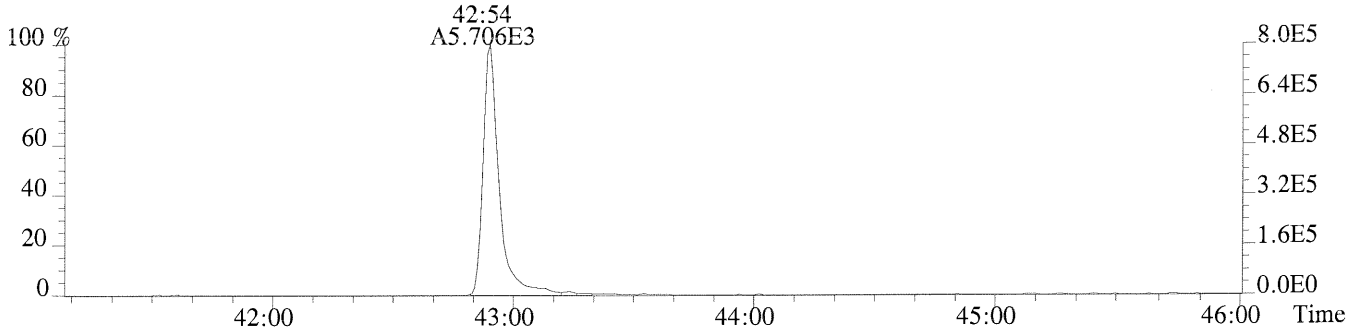
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,940.0,0.40%,F,T)



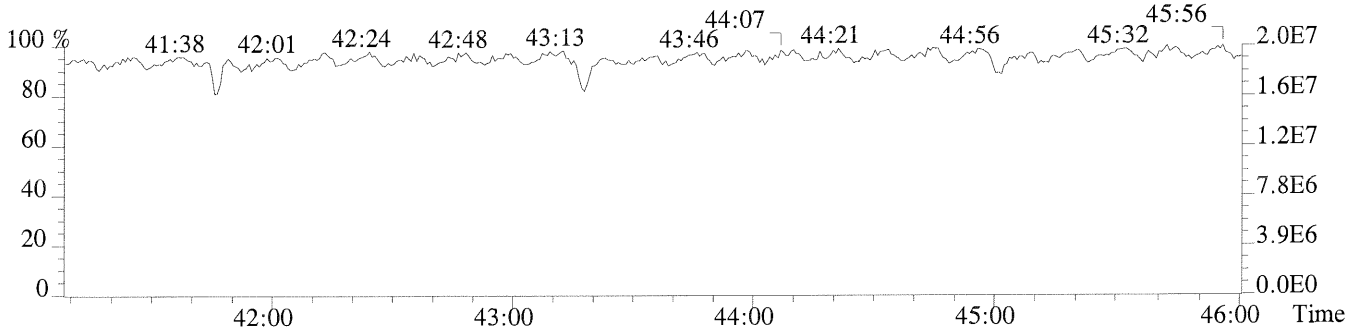
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,476.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
METHOD BLANK

Run #8 Filename P229279 Samp: 1 Inj: 1 Acquired: 27-MAY-14 01:16:07
Processed: 28-MAY-14 07:38:43 Sample ID: EQ1400257-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:47	1.193e+01	2.469e+01	0.48	no	yes	1.127
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.123
3	Unk	2,3,4,7,8-PeCDF	33:43	3.217e+01	3.829e+01	0.84	no	yes	1.101
4	Unk	1,2,3,4,7,8-HxCDF	36:18	6.268e+01	5.381e+01	1.16	yes	no	1.338
5	Unk	1,2,3,6,7,8-HxCDF	36:25	6.061e+01	4.007e+01	1.51	no	no	1.234
6	Unk	2,3,4,6,7,8-HxCDF	36:55	8.933e+01	5.674e+01	1.57	no	no	1.233
7	Unk	1,2,3,7,8,9-HxCDF	37:40	5.455e+01	5.871e+01	0.93	no	no	1.269
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	3.536e+02	3.482e+02	1.02	yes	no	1.421
9	Unk	1,2,3,4,7,8,9-HpCDF	40:18	9.740e+01	8.200e+01	1.19	yes	no	1.381
10	Unk	OCDF	42:52	5.162e+02	5.935e+02	0.87	yes	no	1.703
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	yes	1.053
12	Unk	1,2,3,7,8-PeCDD	33:58	3.630e+01	1.543e+01	2.35	no	no	1.069
13	Unk	1,2,3,4,7,8-HxCDD	37:01	4.850e+01	3.809e+01	1.27	yes	no	1.223
14	Unk	1,2,3,6,7,8-HxCDD	37:07	1.021e+02	8.812e+01	1.16	yes	no	1.168
15	Unk	1,2,3,7,8,9-HxCDD	37:21	8.054e+01	5.943e+01	1.36	yes	no	1.236
16	Unk	1,2,3,4,6,7,8-HpCDD	39:48	1.484e+03	1.400e+03	1.06	yes	no	1.170
17	Unk	OCDD	42:38	5.453e+03	6.071e+03	0.90	yes	no	1.288
18	IS	13C-2,3,7,8-TCDF	28:46	1.827e+04	2.299e+04	0.79	yes	no	1.389
19	IS	13C-1,2,3,7,8-PeCDF	32:48	3.468e+04	2.158e+04	1.61	yes	no	1.865
20	IS	13C-2,3,4,7,8-PeCDF	33:41	3.407e+04	2.143e+04	1.59	yes	no	1.804
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	1.555e+04	2.922e+04	0.53	yes	no	1.421
22	IS	13C-1,2,3,6,7,8-HxCDF	36:24	1.987e+04	3.801e+04	0.52	yes	no	1.639
23	IS	13C-2,3,4,6,7,8-HxCDF	36:54	1.882e+04	3.566e+04	0.53	yes	no	1.444
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	1.534e+04	2.950e+04	0.52	yes	no	1.241
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:51	1.095e+04	2.454e+04	0.45	yes	no	1.198
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	9.820e+03	2.247e+04	0.44	yes	no	0.997
27	IS	13C-2,3,7,8-TCDD	29:30	1.236e+04	1.615e+04	0.77	yes	no	0.930
28	IS	13C-1,2,3,7,8-PeCDD	33:57	2.659e+04	1.678e+04	1.58	yes	no	1.107
29	IS	13C-1,2,3,4,7,8-HxCDD	37:01	2.277e+04	1.768e+04	1.29	yes	no	0.930
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	2.275e+04	1.769e+04	1.29	yes	no	0.983
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	1.795e+04	1.680e+04	1.07	yes	no	0.935
32	IS	13C-OCDD	42:37	2.054e+04	2.272e+04	0.90	yes	no	0.687
33	RS/RT	13C-1,2,3,4-TCDD	28:55	2.205e+04	2.785e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:20	3.459e+04	2.719e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	9.312e+03				no	0.946

$$\text{OCDD} = \frac{(5.453e+03 + 6.071e+03) \times 4000 \text{ pg} \times 1}{(2.054e+04 + 2.272e+04) \times \quad \times \quad \times 1.288} =$$

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1613RESP1

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Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
METHOD BLANK

Run #8 Filename P229279 Samp: 1 Inj: 1 Acquired: 27-MAY-14 01:16:07
Processed: 28-MAY-14 07:38:431 LAB. ID: EQ1400257-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.92e+03	5.44e+02	5.4e+00	3.95e+03	1.22e+03	3.2e+00
2	1,2,3,7,8-PeCDF	*	1.12e+03	*	*	1.69e+03	*
3	2,3,4,7,8-PeCDF	6.13e+03	1.12e+03	5.5e+00	8.20e+03	1.69e+03	4.8e+00
4	1,2,3,4,7,8-HxCDF	1.39e+04	1.12e+03	1.2e+01	1.14e+04	1.33e+03	8.6e+00
5	1,2,3,6,7,8-HxCDF	1.44e+04	1.12e+03	1.3e+01	8.39e+03	1.33e+03	6.3e+00
6	2,3,4,6,7,8-HxCDF	1.88e+04	1.12e+03	1.7e+01	1.06e+04	1.33e+03	8.0e+00
7	1,2,3,7,8,9-HxCDF	1.08e+04	1.12e+03	9.7e+00	1.10e+04	1.33e+03	8.3e+00
8	1,2,3,4,6,7,8-HpCDF	7.57e+04	1.75e+03	4.3e+01	7.49e+04	2.22e+03	3.4e+01
9	1,2,3,4,7,8,9-HpCDF	1.94e+04	1.75e+03	1.1e+01	1.51e+04	2.22e+03	6.8e+00
10	OCDF	8.55e+04	5.76e+02	1.5e+02	9.23e+04	9.32e+02	9.9e+01
11	2,3,7,8-TCDD	*	9.60e+02	*	*	6.40e+02	*
12	1,2,3,7,8-PeCDD	6.50e+03	1.04e+03	6.3e+00	3.39e+03	3.80e+02	8.9e+00
13	1,2,3,4,7,8-HxCDD	8.52e+03	7.32e+02	1.2e+01	1.02e+04	6.88e+02	1.5e+01
14	1,2,3,6,7,8-HxCDD	2.26e+04	7.32e+02	3.1e+01	1.95e+04	6.88e+02	2.8e+01
15	1,2,3,7,8,9-HxCDD	1.80e+04	7.32e+02	2.5e+01	1.30e+04	6.88e+02	1.9e+01
16	1,2,3,4,6,7,8-HpCDD	3.00e+05	1.62e+03	1.8e+02	2.83e+05	1.77e+03	1.6e+02
17	OCDD	8.84e+05	7.00e+02	1.3e+03	9.83e+05	6.24e+02	1.6e+03
18	13C-2,3,7,8-TCDF	3.82e+06	1.10e+03	3.5e+03	4.81e+06	7.76e+02	6.2e+03
19	13C-1,2,3,7,8-PeCDF	6.71e+06	6.12e+02	1.1e+04	4.25e+06	5.28e+02	8.1e+03
20	13C-2,3,4,7,8-PeCDF	7.04e+06	6.12e+02	1.1e+04	4.38e+06	5.28e+02	8.3e+03
21	13C-1,2,3,4,7,8-HxCDF	3.44e+06	5.48e+02	6.3e+03	6.48e+06	1.44e+03	4.5e+03
22	13C-1,2,3,6,7,8-HxCDF	4.28e+06	5.48e+02	7.8e+03	8.22e+06	1.44e+03	5.7e+03
23	13C-2,3,4,6,7,8-HxCDF	4.13e+06	5.48e+02	7.5e+03	7.65e+06	1.44e+03	5.3e+03
24	13C-1,2,3,7,8,9-HxCDF	3.25e+06	5.48e+02	5.9e+03	6.27e+06	1.44e+03	4.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.31e+06	2.13e+03	1.1e+03	5.27e+06	2.36e+03	2.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.95e+06	2.13e+03	9.1e+02	4.37e+06	2.36e+03	1.9e+03
27	13C-2,3,7,8-TCDD	2.79e+06	2.66e+03	1.1e+03	3.65e+06	1.37e+03	2.7e+03
28	13C-1,2,3,7,8-PeCDD	5.44e+06	5.76e+02	9.4e+03	3.45e+06	4.20e+02	8.2e+03
29	13C-1,2,3,4,7,8-HxCDD	5.23e+06	1.05e+03	5.0e+03	4.08e+06	4.60e+02	8.9e+03
30	13C-1,2,3,6,7,8-HxCDD	4.96e+06	1.05e+03	4.7e+03	3.84e+06	4.60e+02	8.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.60e+06	7.96e+02	4.5e+03	3.36e+06	3.72e+02	9.0e+03
32	13C-OCDD	3.38e+06	5.24e+02	6.5e+03	3.73e+06	4.04e+02	9.2e+03
33	13C-1,2,3,4-TCDD	4.78e+06	2.66e+03	1.8e+03	6.03e+06	1.37e+03	4.4e+03
34	13C-1,2,3,7,8,9-HxCDD	7.50e+06	1.05e+03	7.2e+03	5.87e+06	4.60e+02	1.3e+04
35	37Cl-2,3,7,8-TCDD	2.03e+06	6.52e+02	3.1e+03			

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Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 36 Totals Name: Total Tetra-Furans

Run: 8 File: P229279 Sample: 1 Injection: 1 Function: 1
Llim: 24:14 Ulim: 30:42
Acquired: 27-MAY-14 01:16:07 Processed: 28-MAY-14 07:38:43
Mass: 303.9020 305.8990 Tot Response: 5.83e+01 RRF: 1.127

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:34	1.13e+01	1.65e+01	0.68	yes	2.78e+01		y	y
2	30:32	1.27e+01	1.79e+01	0.71	yes	3.06e+01		y	y

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Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 8 File: P229279 Sample: 1 Injection: 1 Function: 2
Llim: 31:50 Ulim: 34:30
Acquired: 27-MAY-14 01:16:07 Processed: 28-MAY-14 07:38:43
Mass: 355.8550 357.8520 Tot Response: 5.51e+01 RRF: 1.069

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	34:20	3.51e+01	2.00e+01	1.76	yes	5.51e+01	n	n

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Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 41 Totals Name: Total Hexa-Furans

Run: 8 File: P229279 Sample: 1 Injection: 1 Function: 3
Llim: 35:07 Ulim: 37:51
Acquired: 27-MAY-14 01:16:07 Processed: 28-MAY-14 07:38:43
Mass: 373.8210 375.8180 Tot Response: 1.21e+03 RRF: 1.267

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:22	2.16e+02	1.69e+02	1.28	yes	3.85e+02		n	n
2	35:53	4.07e+02	3.04e+02	1.34	yes	7.11e+02		n	n
3	36:18	6.27e+01	5.38e+01	1.16	yes	1.16e+02	1,2,3,4,7,8-HxCDF	n	n

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Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 8 File: P229279 Sample: 1 Injection: 1 Function: 3
Llim: 35:37 Ulim: 37:25
Acquired: 27-MAY-14 01:16:07 Processed: 28-MAY-14 07:38:43
Mass: 389.8160 391.8130 Tot Response: 6.86e+02 RRF: 1.208

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:42	1.06e+02	8.47e+01	1.25	yes	1.91e+02		n	n
2	36:13	4.06e+01	3.76e+01	1.08	yes	7.81e+01		n	n
3	37:01	4.85e+01	3.81e+01	1.27	yes	8.66e+01	1,2,3,4,7,8-HxCDD	n	n
4	37:07	1.02e+02	8.81e+01	1.16	yes	1.90e+02	1,2,3,6,7,8-HxCDD	n	n
5	37:21	8.05e+01	5.94e+01	1.36	yes	1.40e+02	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 43 Totals Name: Total Hepta-Furans

Run: 8 File: P229279 Sample: 1 Injection: 1 Function: 4
Llim: 38:47 Ulim: 40:28
Acquired: 27-MAY-14 01:16:07 Processed: 28-MAY-14 07:38:43
Mass: 407.7820 409.7790 Tot Response: 2.65e+03 RRF: 1.403

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:52	3.54e+02	3.48e+02	1.02	yes	7.02e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:08	1.05e+01	9.63e+00	1.09	yes	2.02e+01		n	n
3	39:17	9.04e+02	8.40e+02	1.08	yes	1.74e+03		n	n
4	40:18	9.74e+01	8.20e+01	1.19	yes	1.79e+02	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 8 File: P229279 Sample: 1 Injection: 1 Function: 4
Llim: 39:01 Ulim: 39:58
Acquired: 27-MAY-14 01:16:07 Processed: 28-MAY-14 07:38:43
Mass: 423.7770 425.7740 Tot Response: 4.97e+03 RRF: 1.170

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:07	1.08e+03	1.00e+03 1.08	yes	2.09e+03		n	n
2	39:48	1.48e+03	1.40e+03 1.06	yes	2.88e+03	1,2,3,4,6,7,8-HpCDD	n	n

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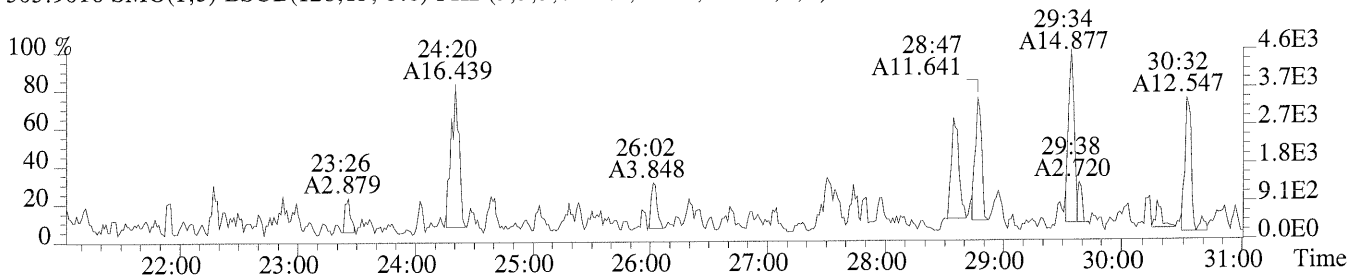
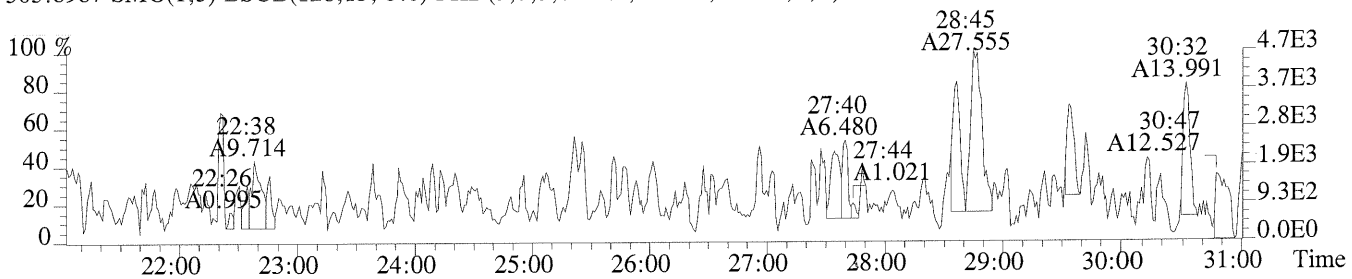
File:P229279 #1-627 Acq:27-MAY-2014 01:16:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-01 MB

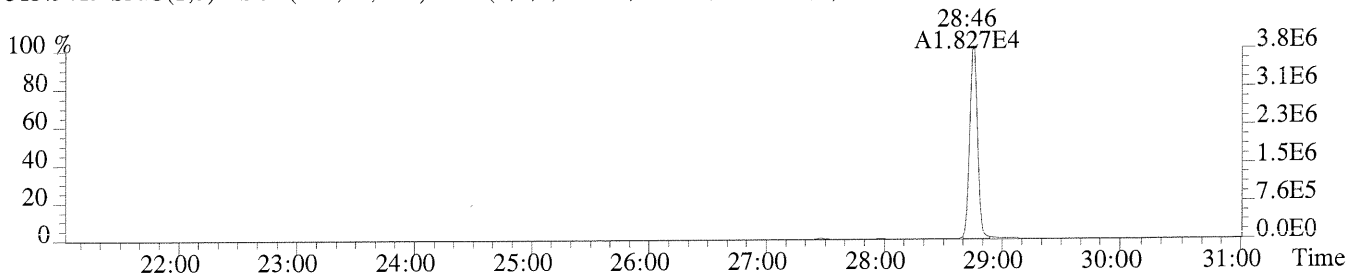
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



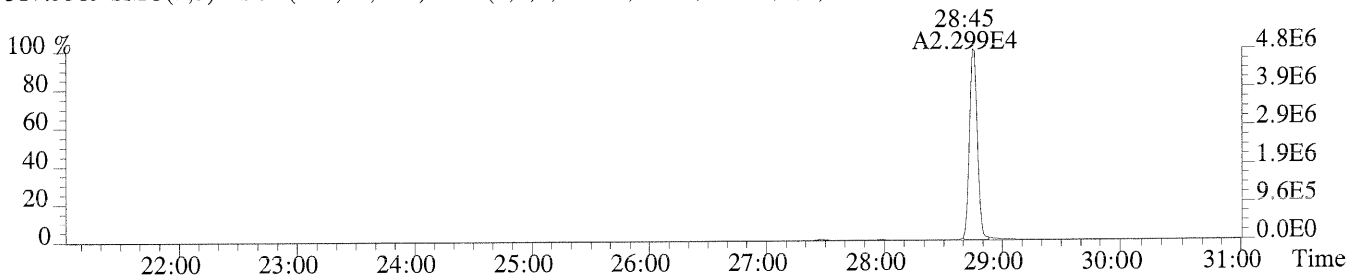
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



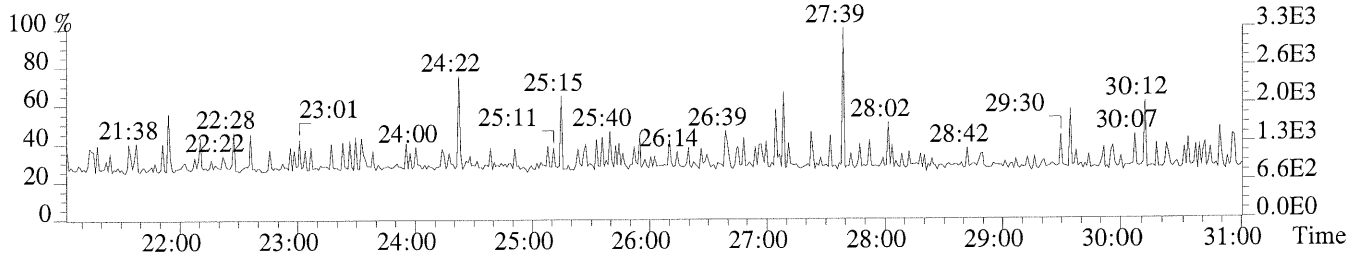
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)



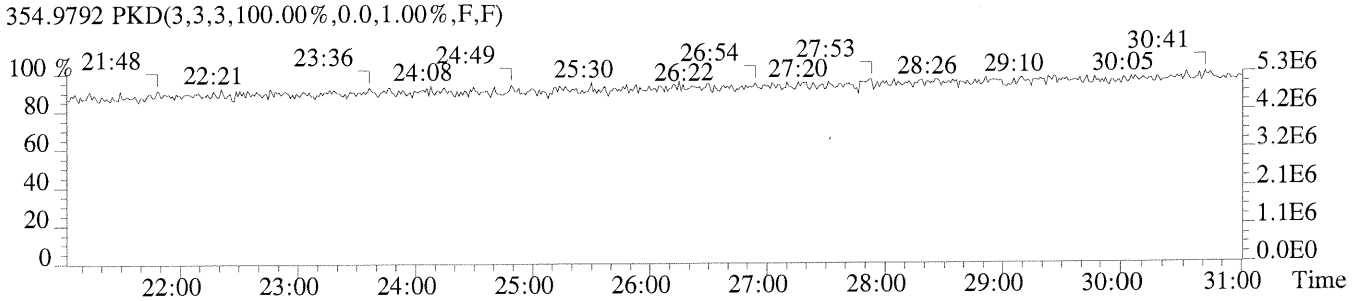
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



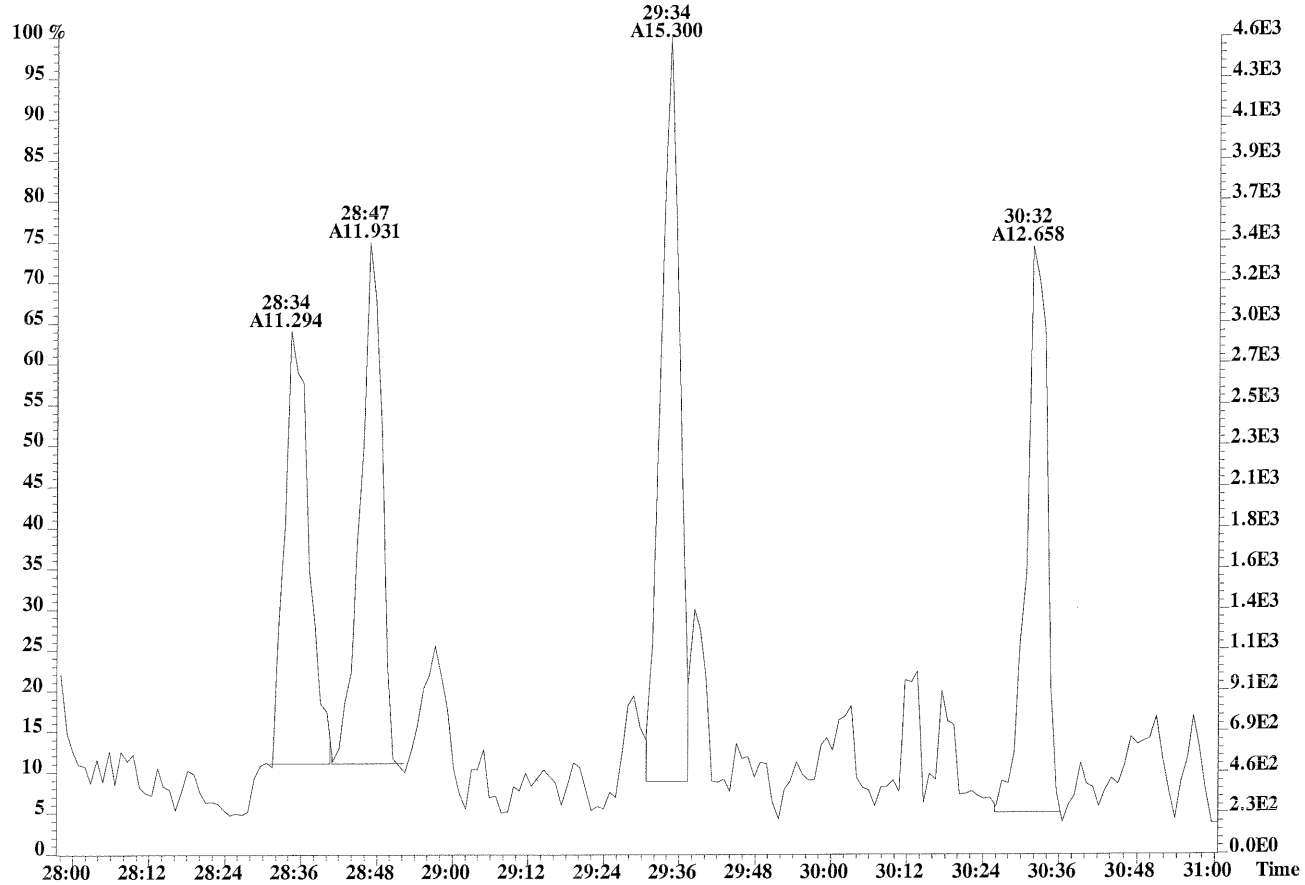
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



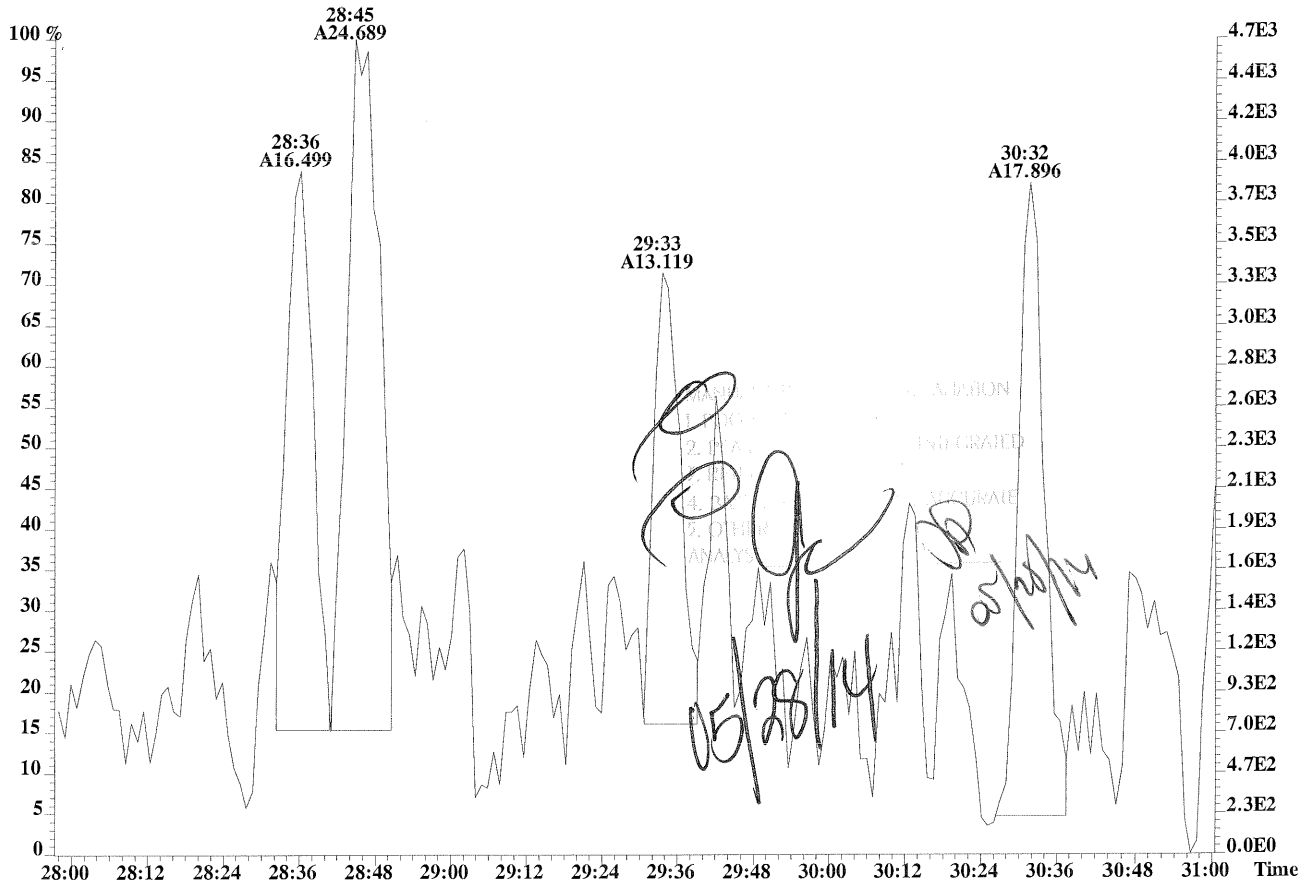
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P229279 #1-627 Acq:27-MAY-2014 01:16:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:EQ1400257-01 MB
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



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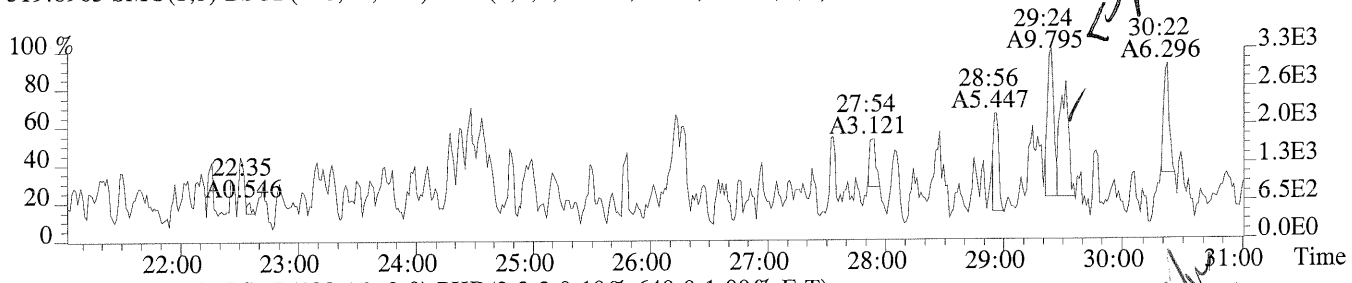
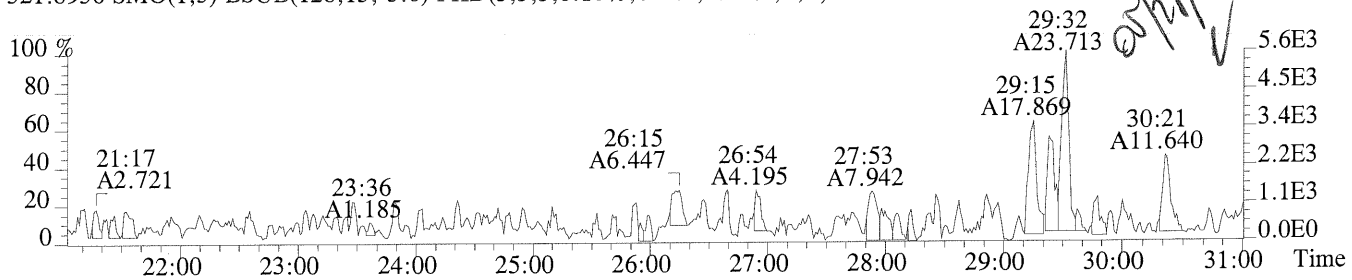
File:P229279 #1-627 Acq:27-MAY-2014 01:16:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-01 MB

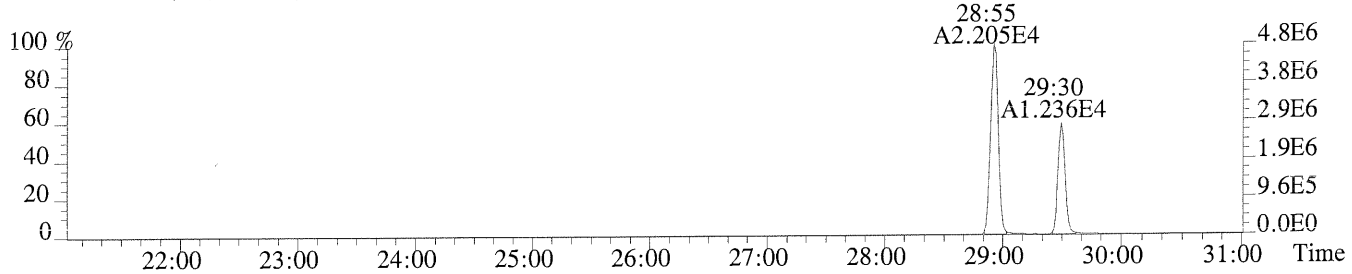
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



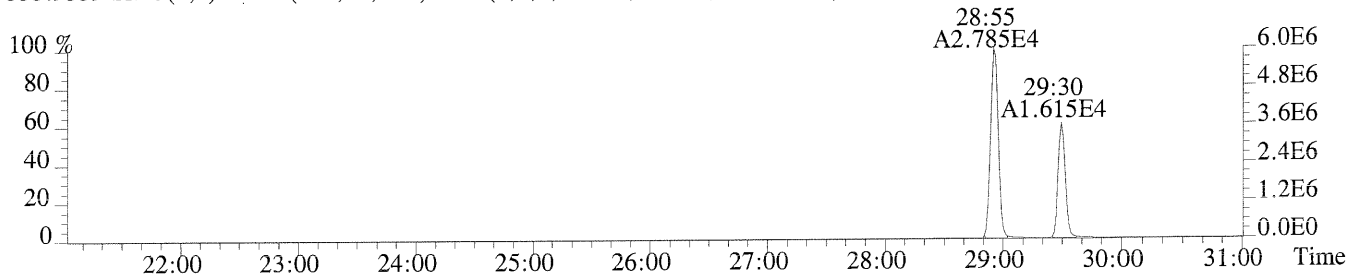
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



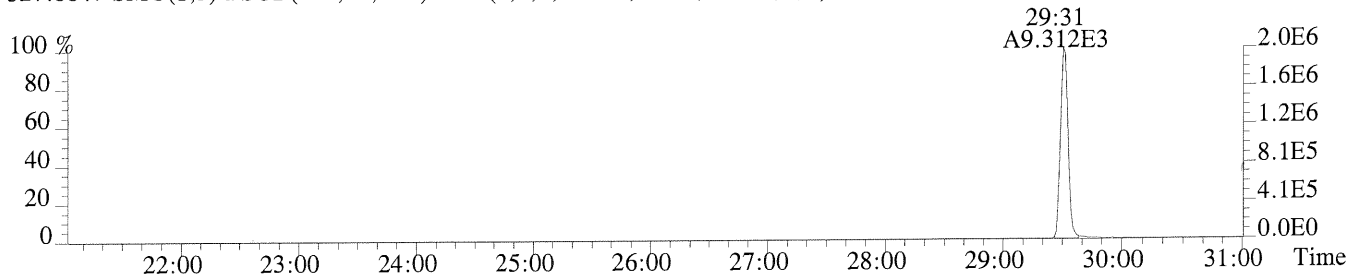
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2660.0,1.00%,F,T)



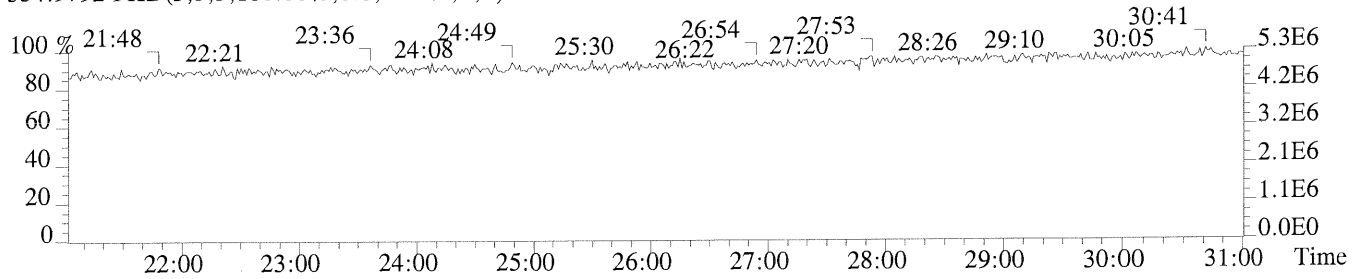
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)

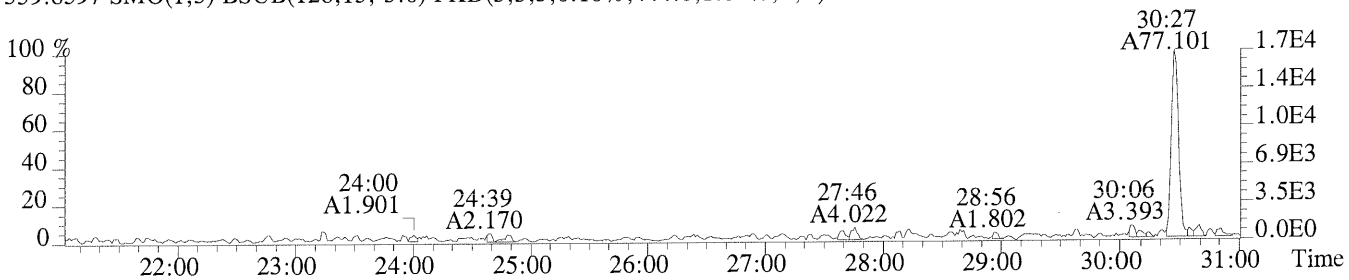


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

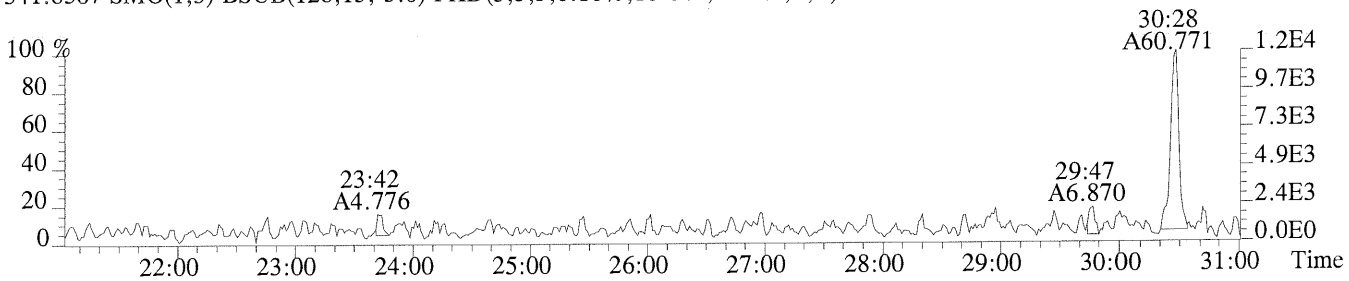


File:P229279 #1-627 Acq:27-MAY-2014 01:16:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-01 MB

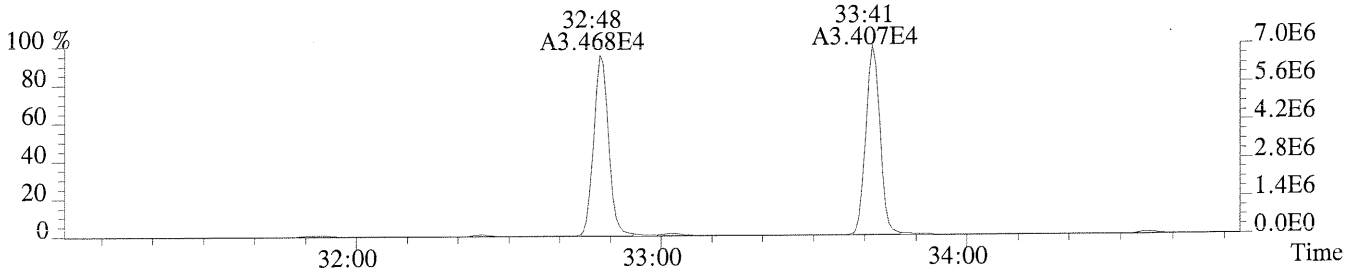
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



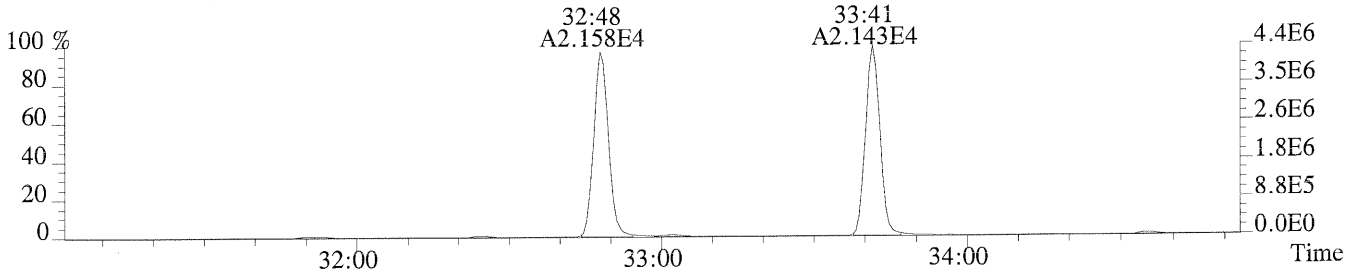
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



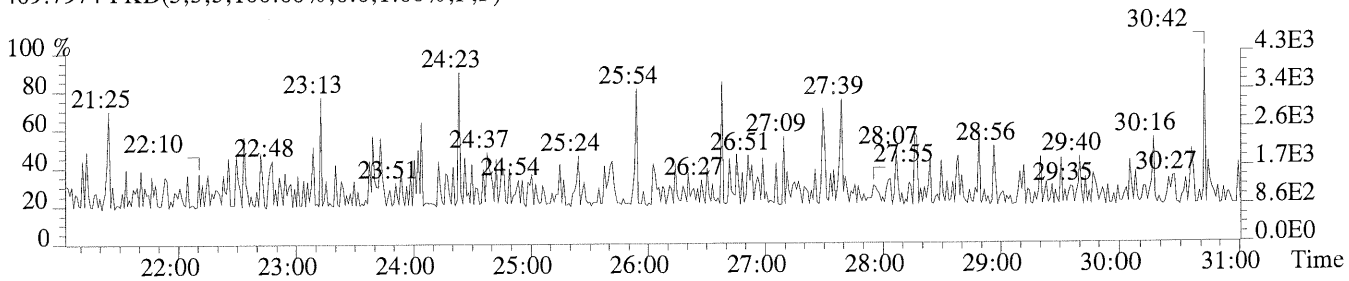
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



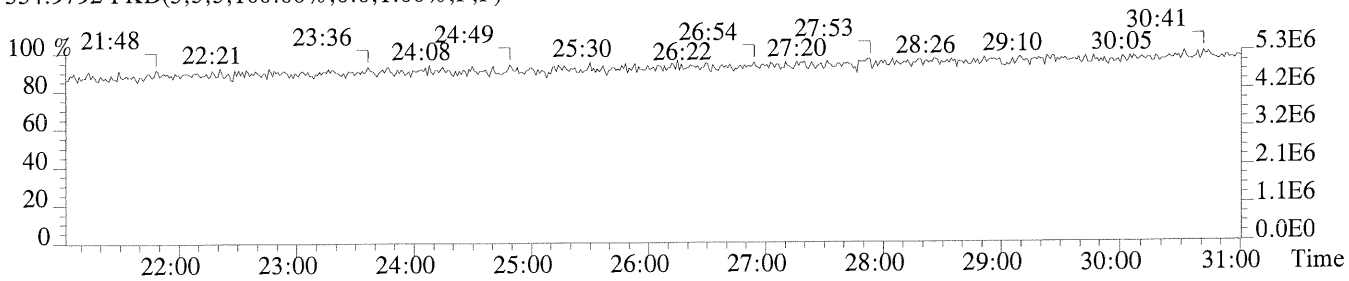
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

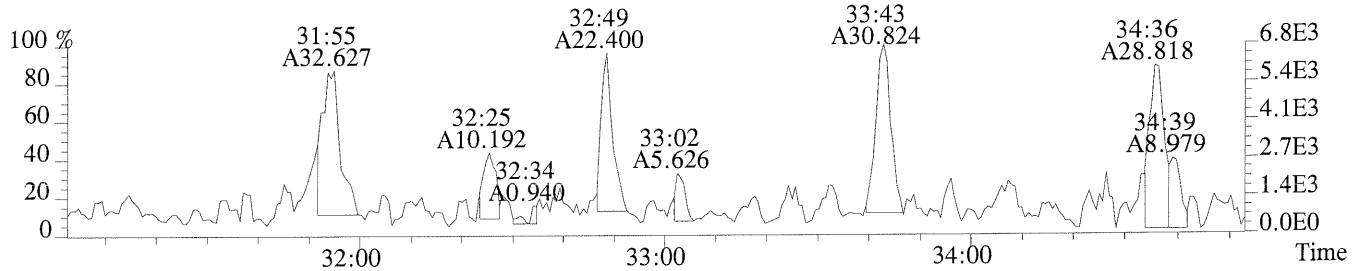


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

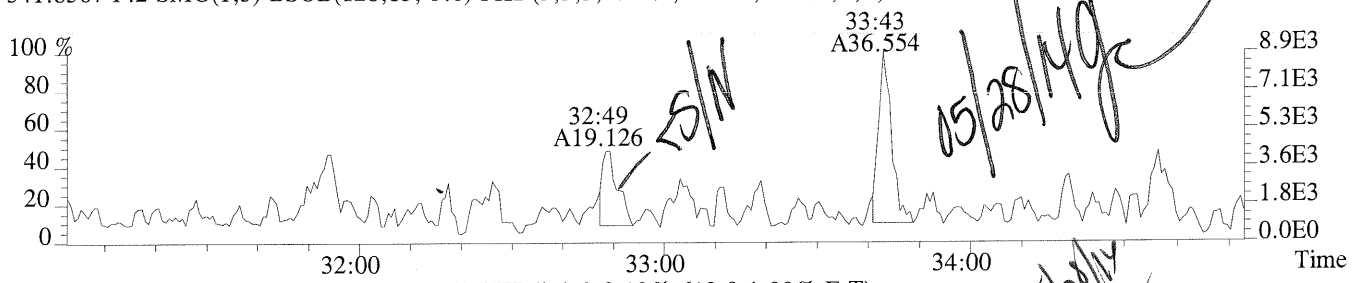


File:P229279 #1-349 Acq:27-MAY-2014 01:16:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-01 MB

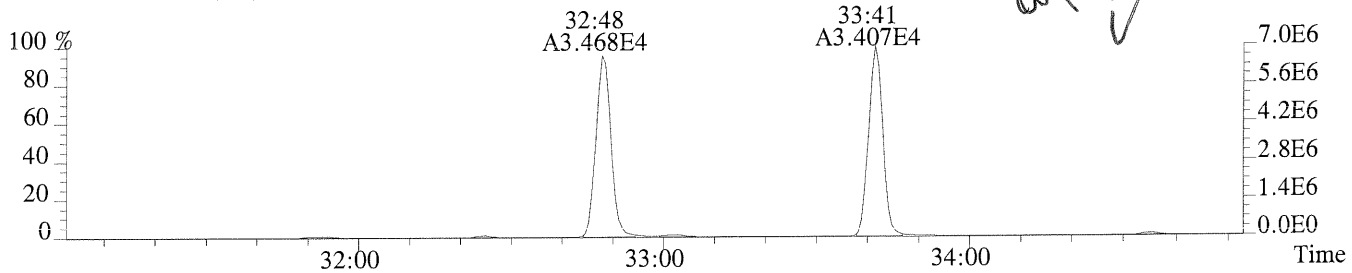
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



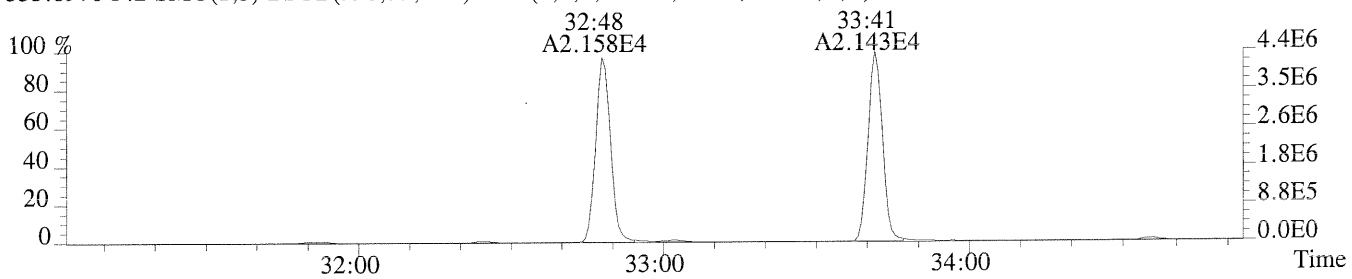
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



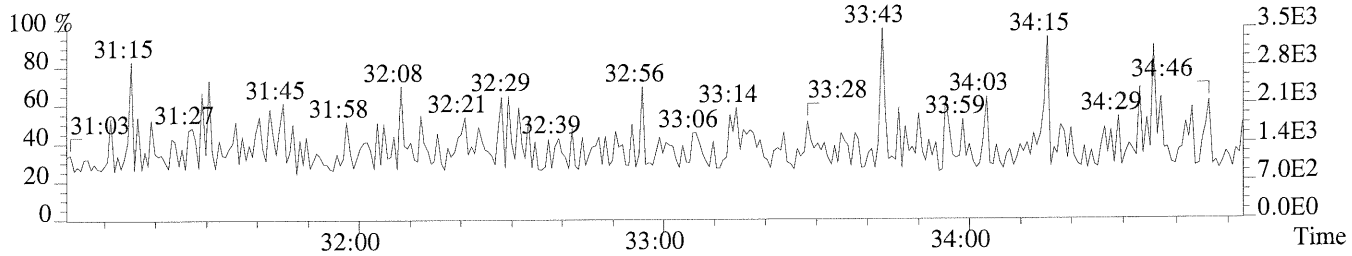
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



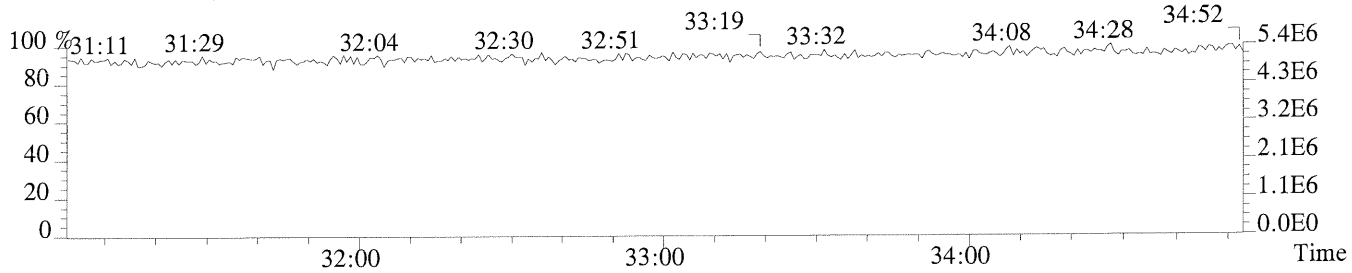
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



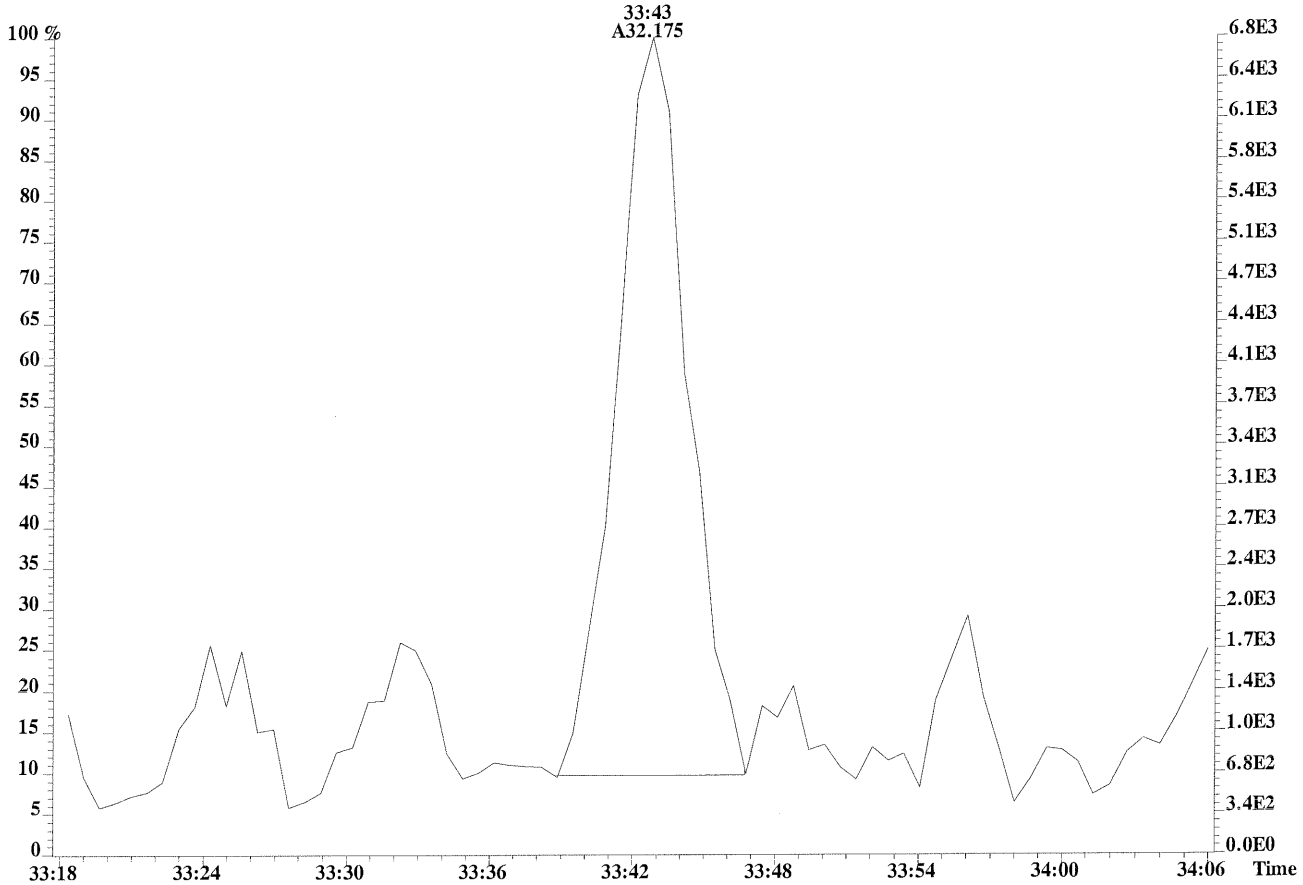
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



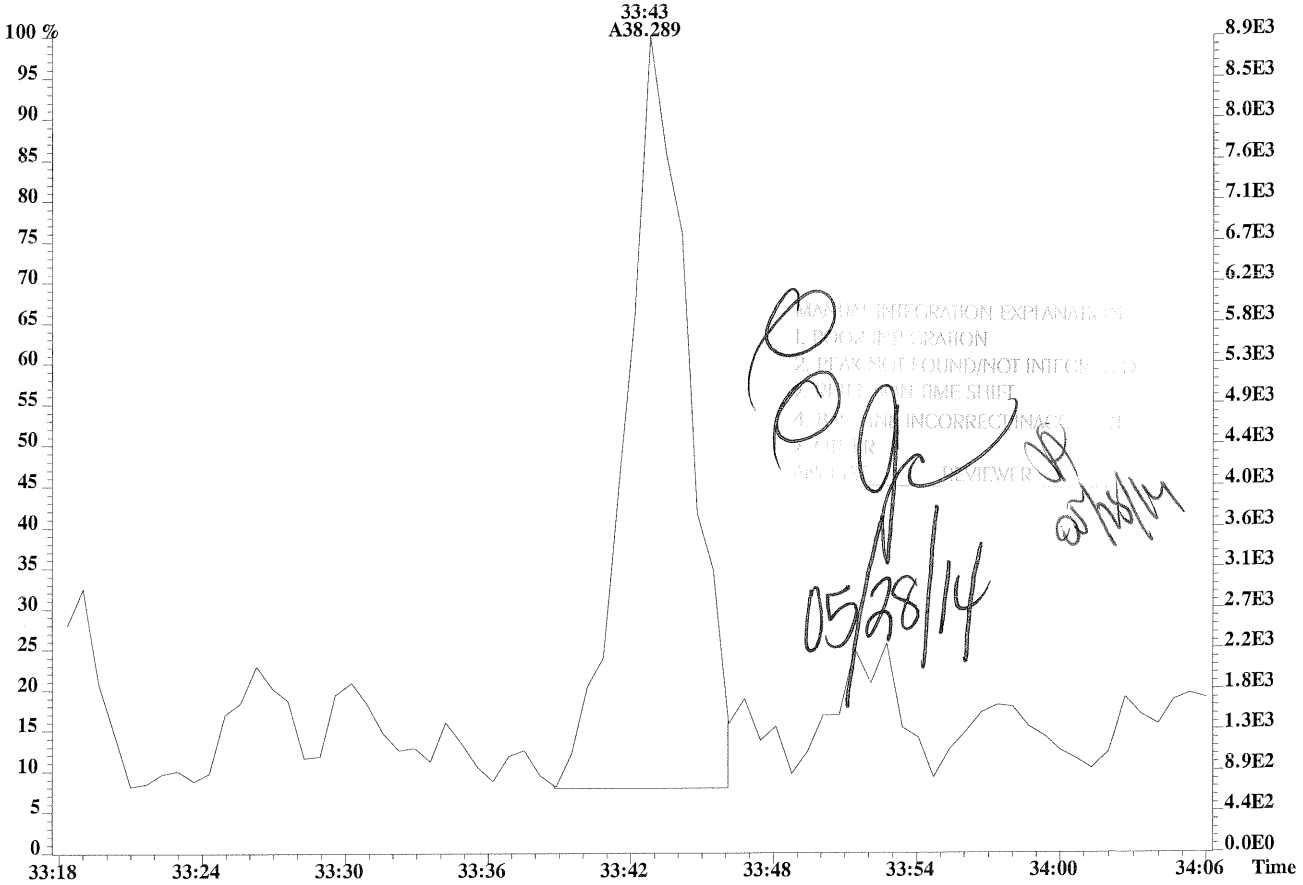
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P229279 #1-349 Acq:27-MAY-2014 01:16:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:EQ1400257-01 MB
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1692.0,1.00%,F,T)



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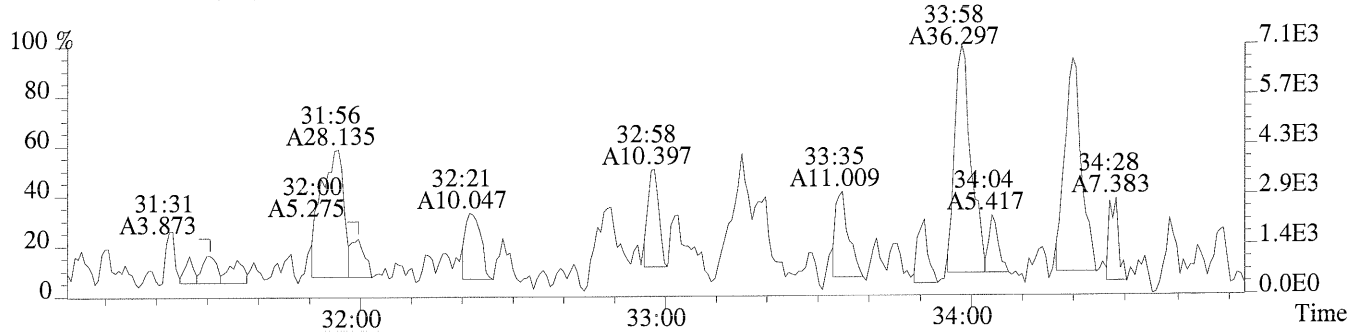
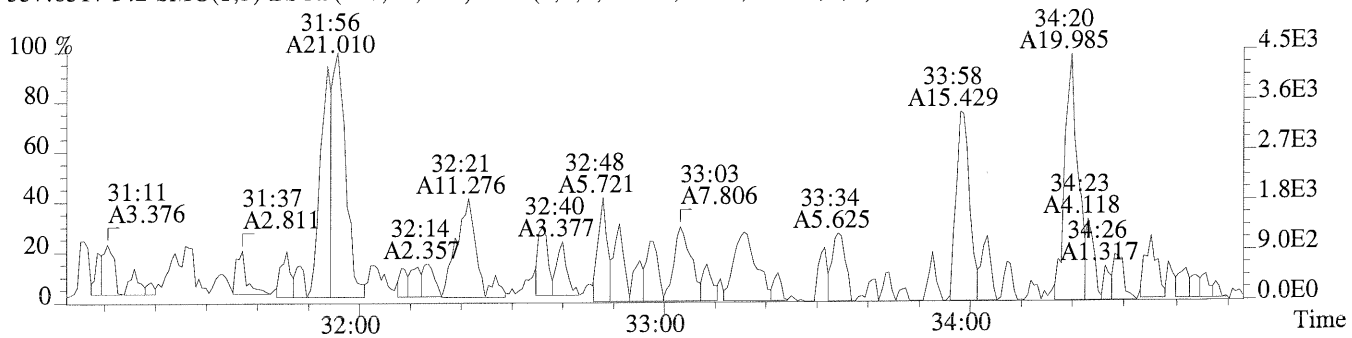
File:P229279 #1-349 Acq:27-MAY-2014 01:16:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-01 MB

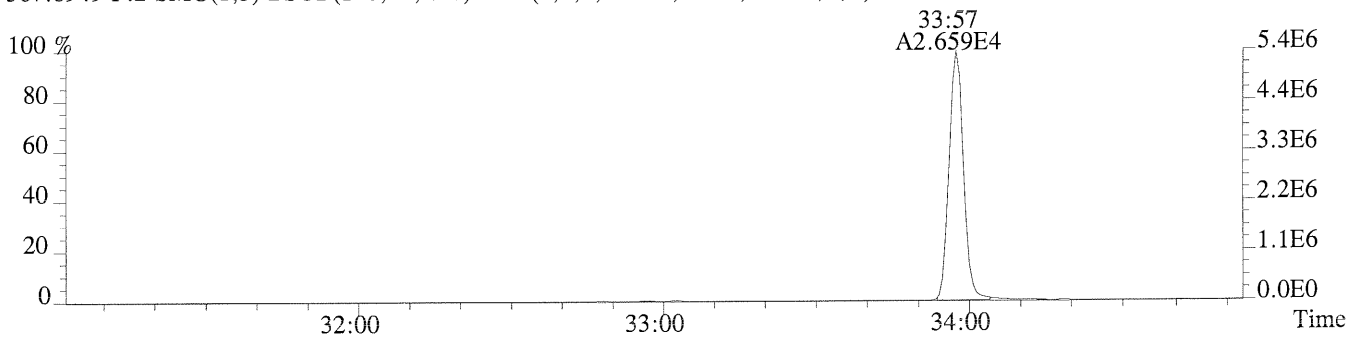
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



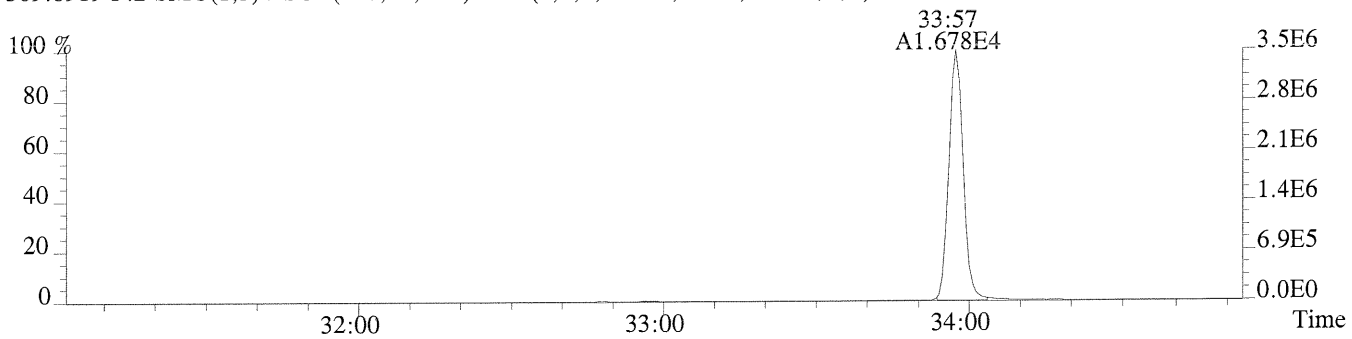
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



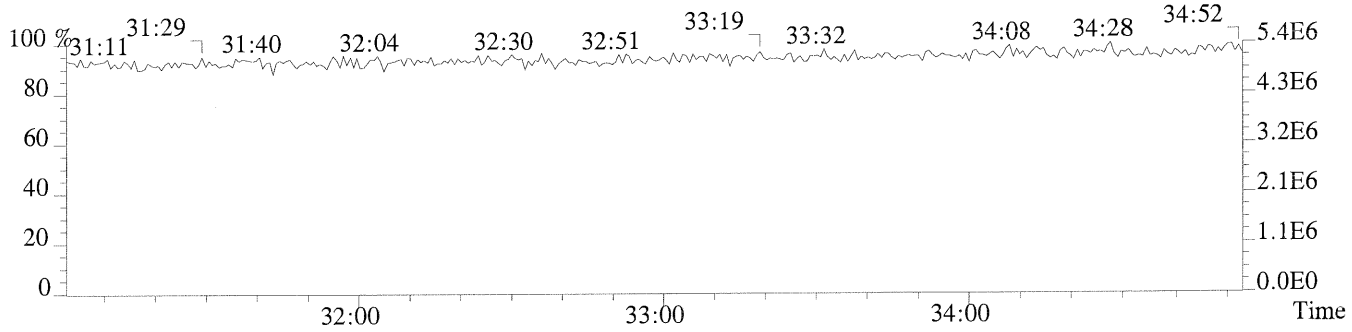
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



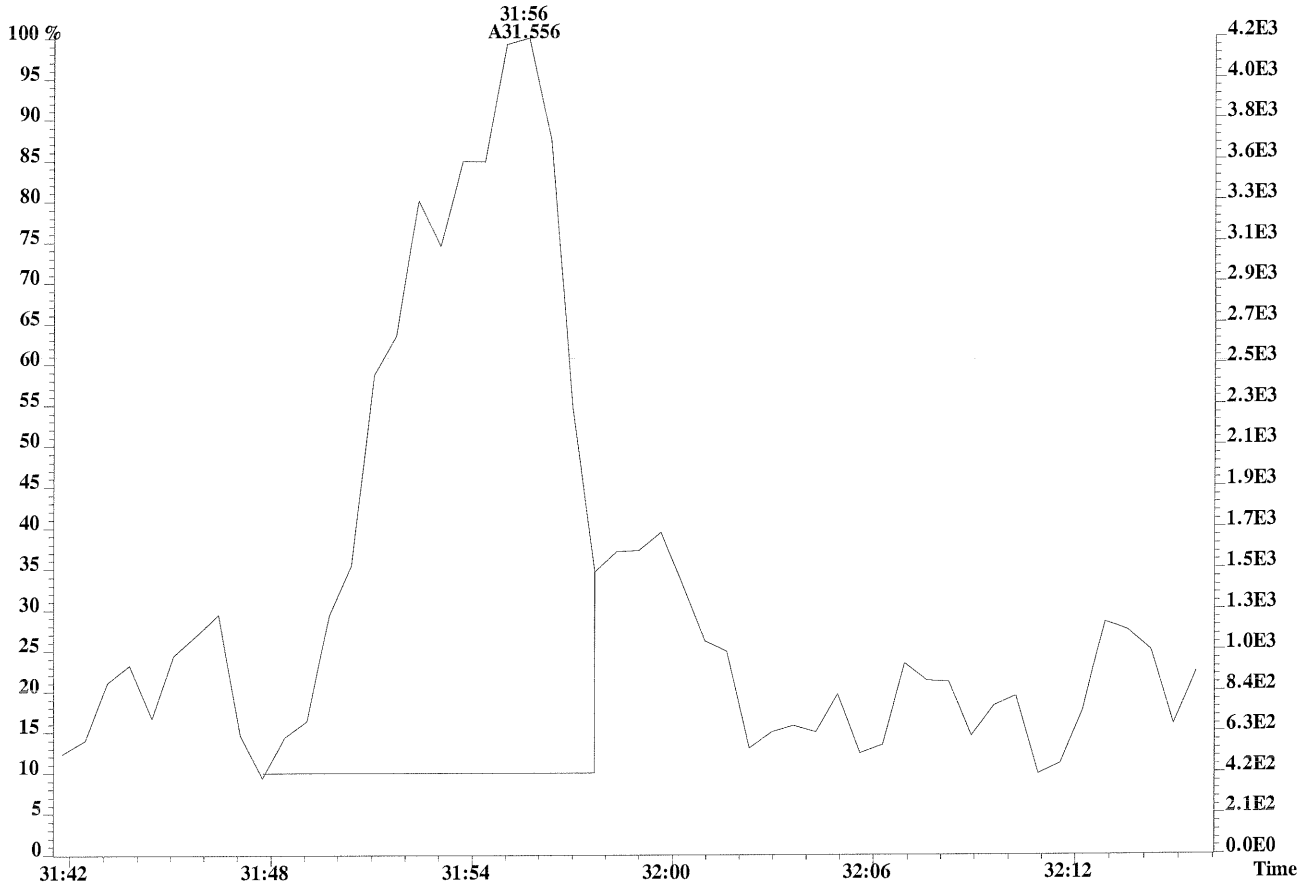
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)



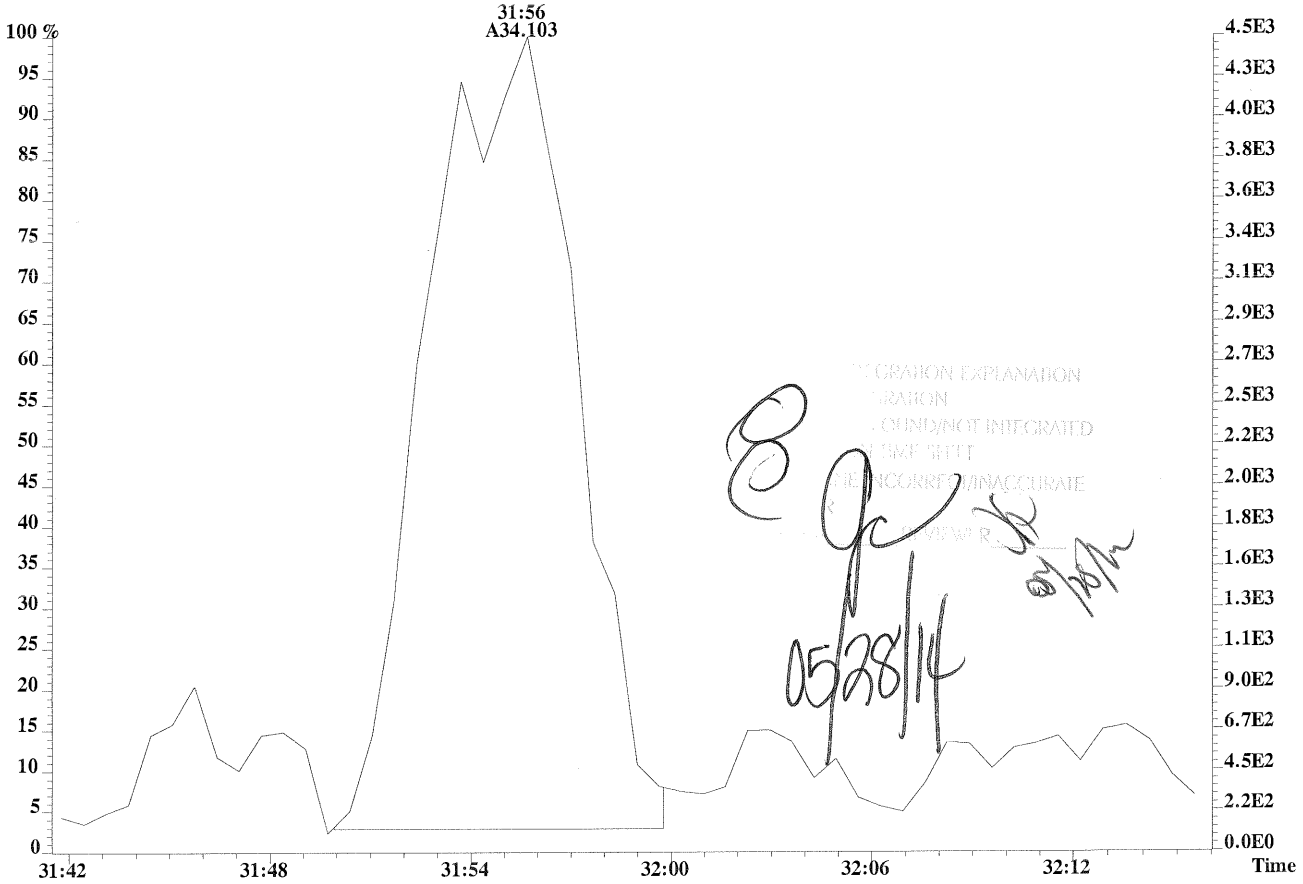
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P229279 #1-349 Acq:27-MAY-2014 01:16:07 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:EQ1400257-01 MB
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)

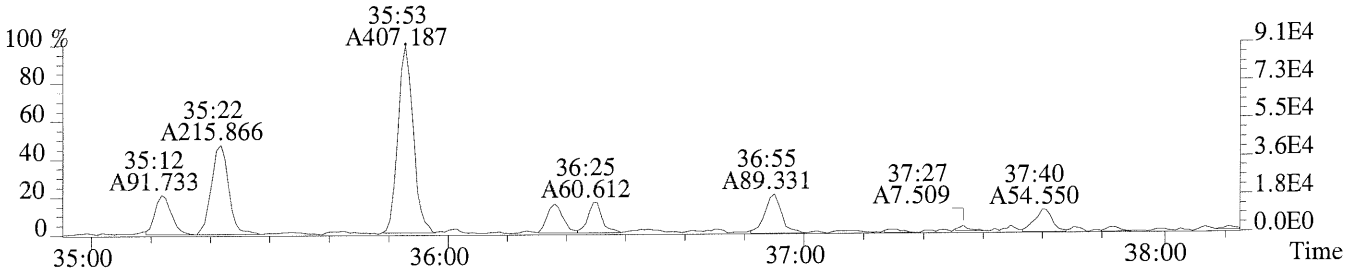


357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)

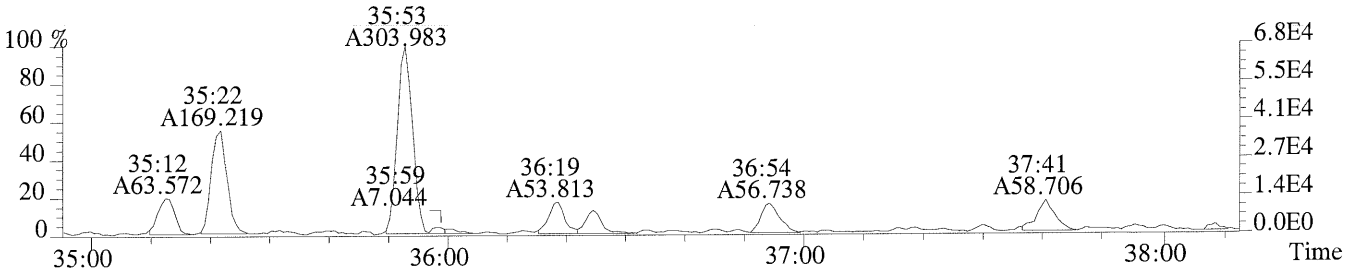


File:P229279 #1-299 Acq:27-MAY-2014 01:16:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-01 MB

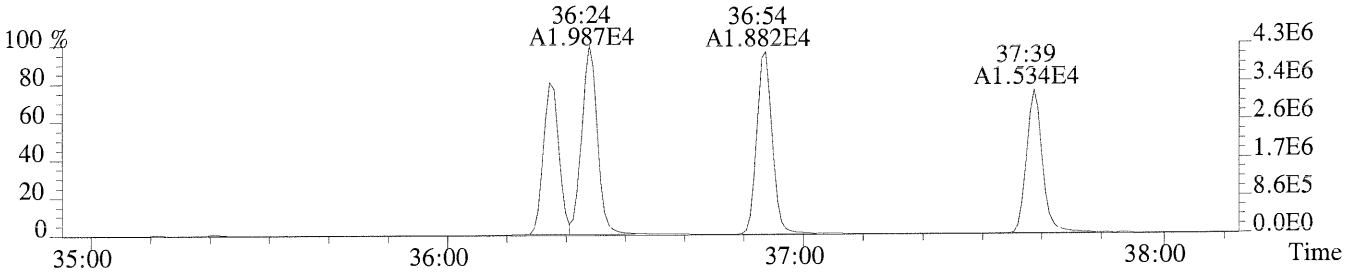
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



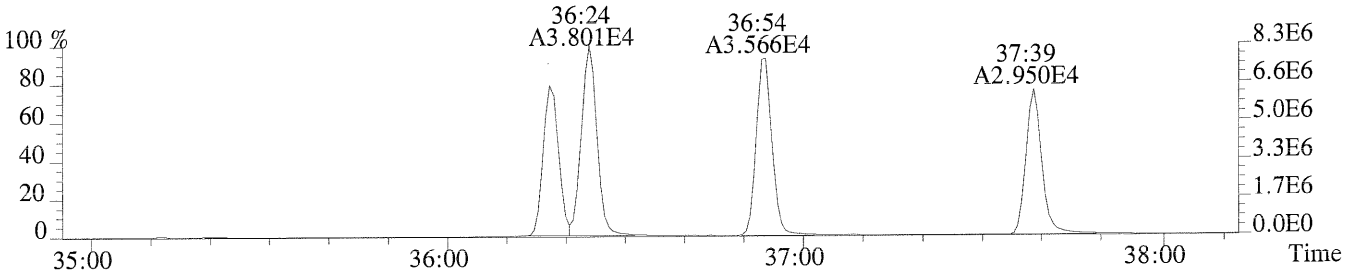
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



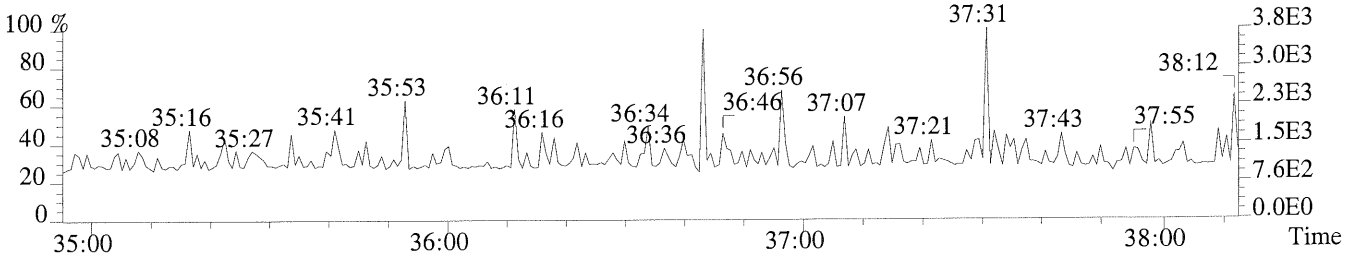
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



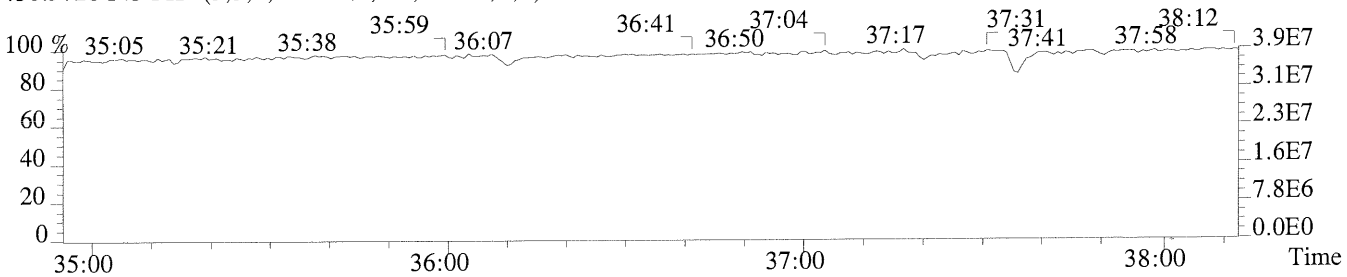
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)



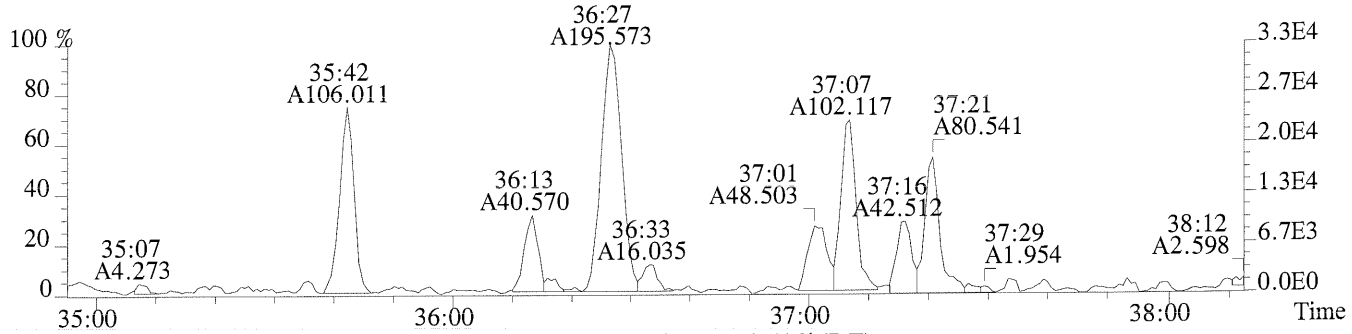
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



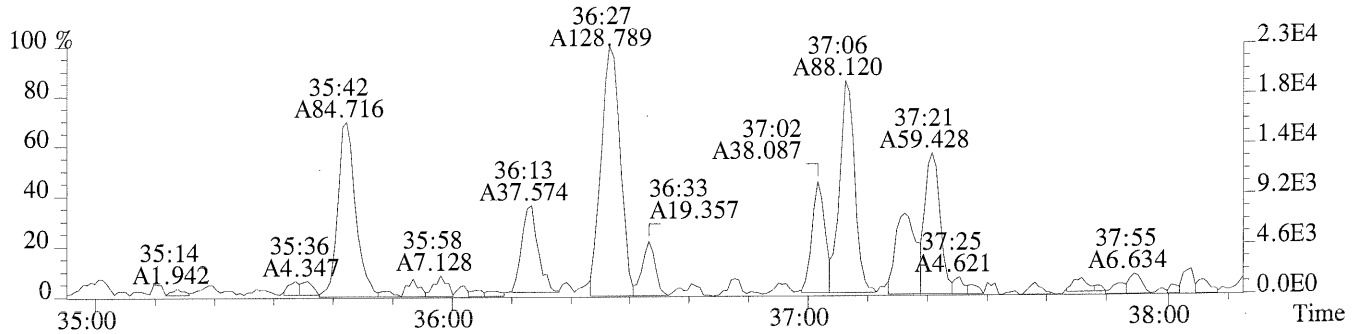
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



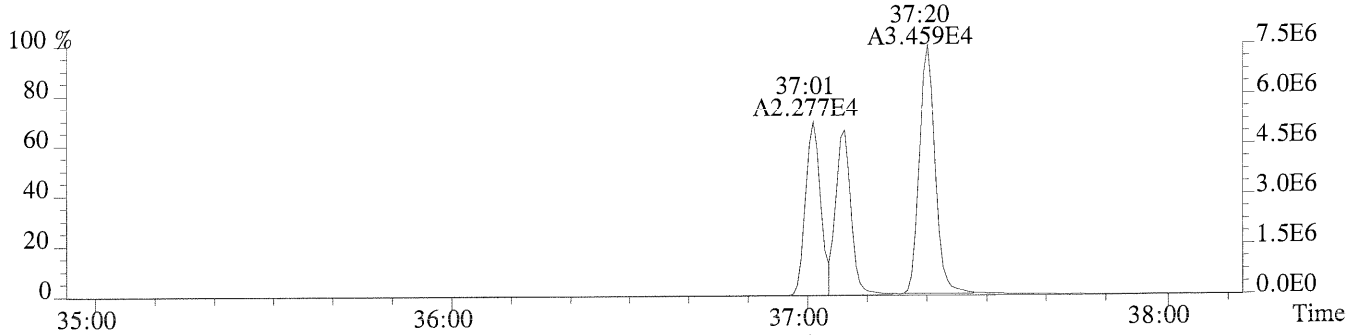
File:P229279 #1-299 Acq:27-MAY-2014 01:16:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-01 MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



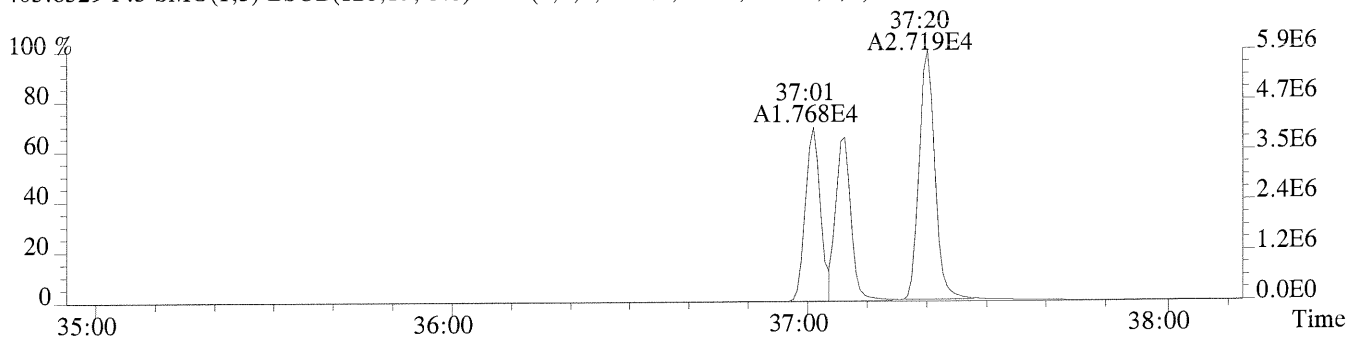
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



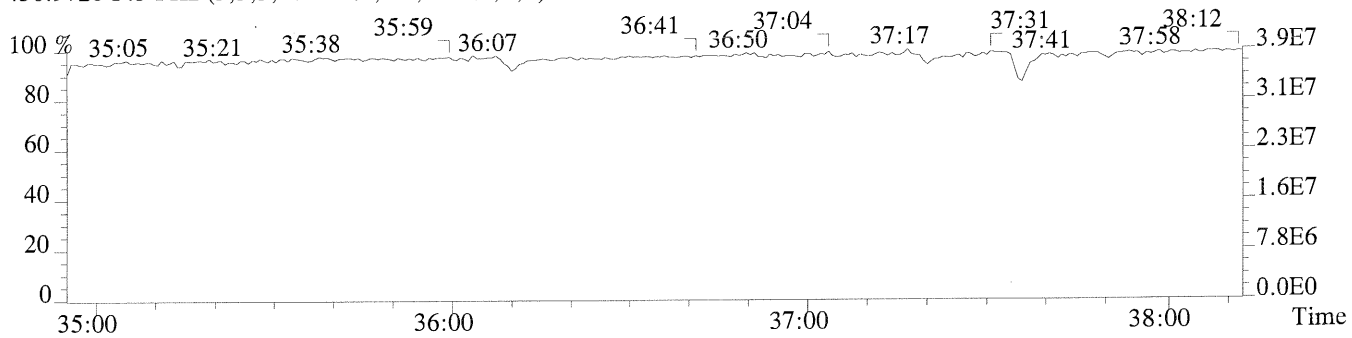
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)

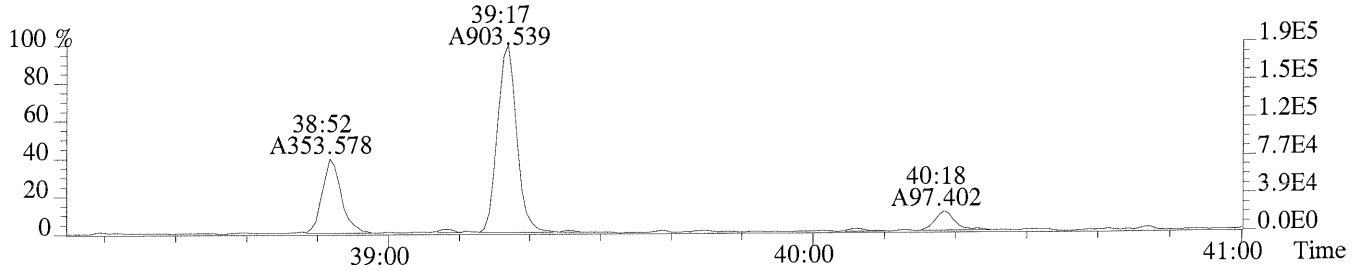


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

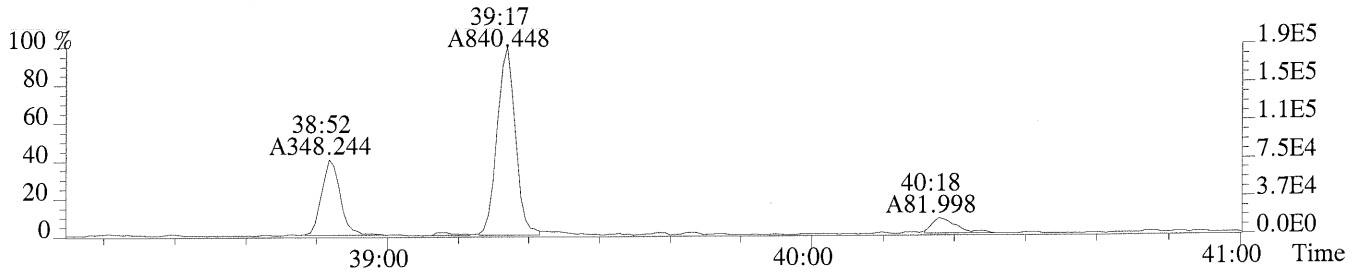


File:P229279 #1-251 Acq:27-MAY-2014 01:16:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-01 MB

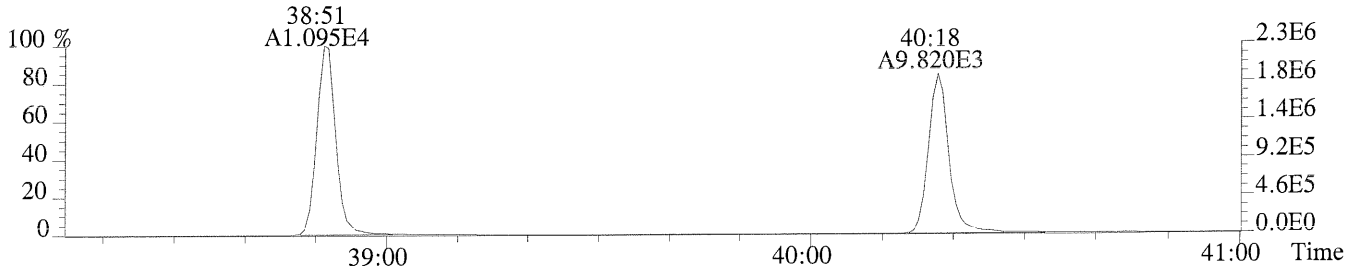
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1748.0,0.50%,F,T)



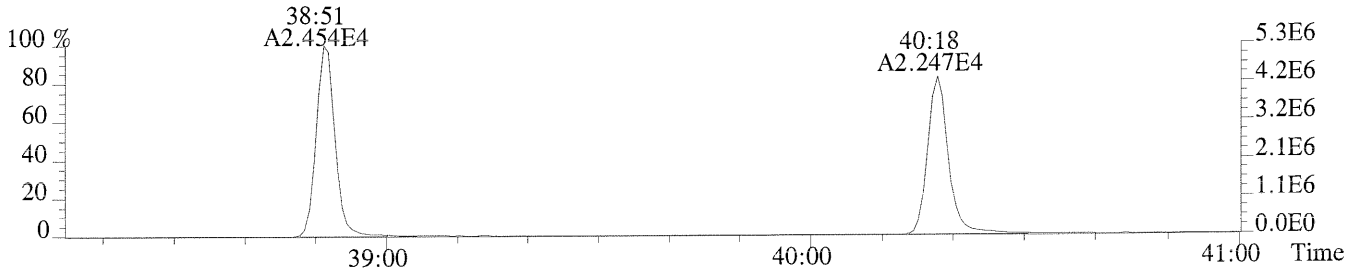
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2224.0,0.50%,F,T)



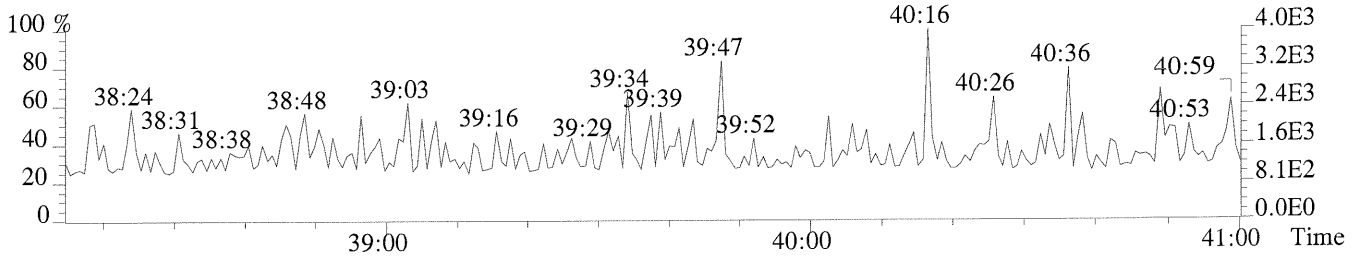
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2128.0,0.50%,F,T)



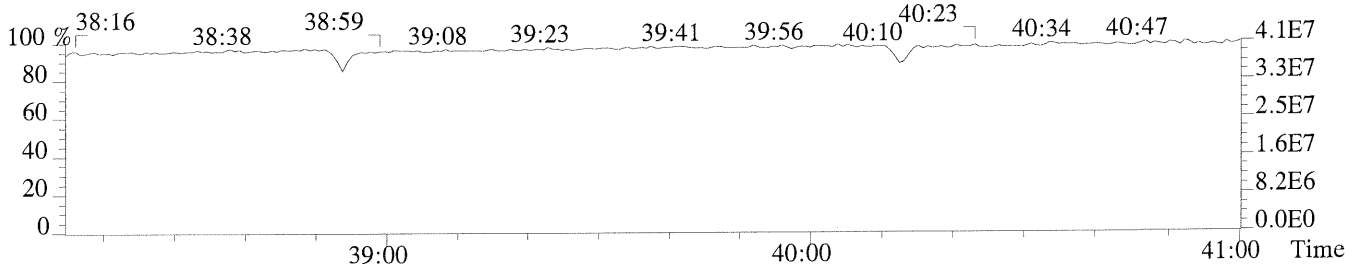
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2360.0,0.50%,F,T)



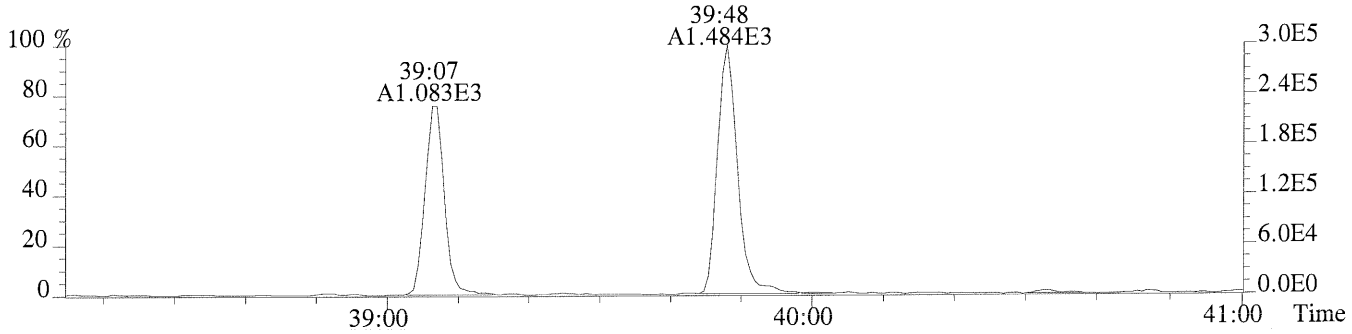
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



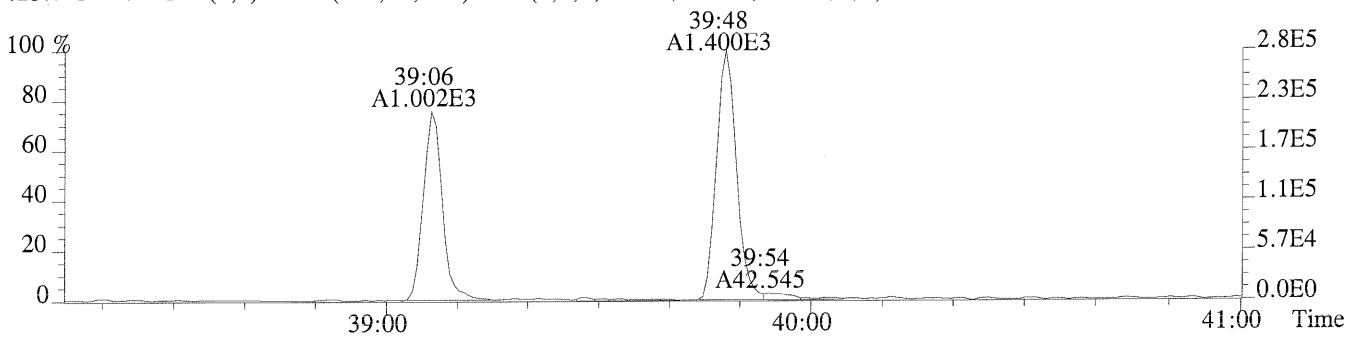
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



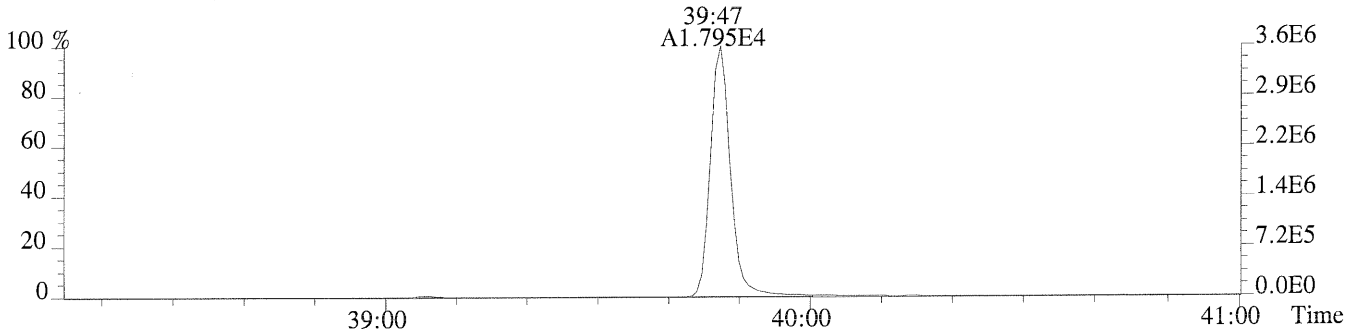
File:P229279 #1-251 Acq:27-MAY-2014 01:16:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-01 MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1624.0,0.40%,F,T)



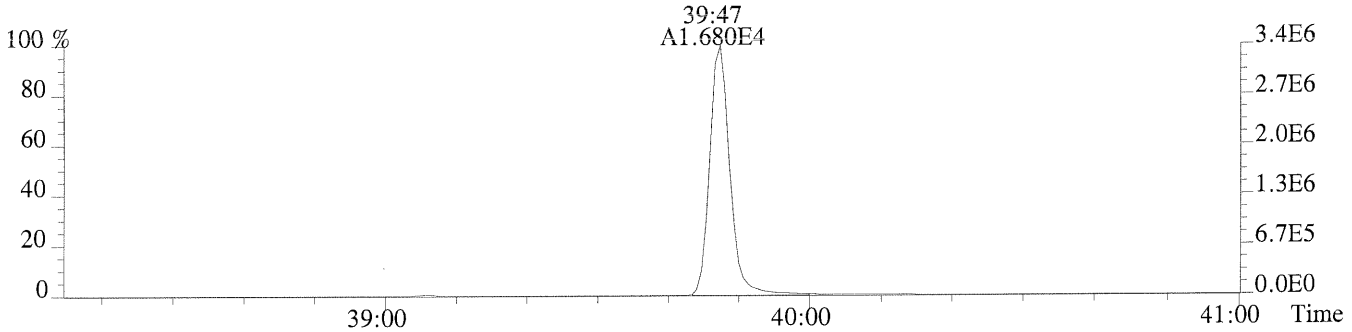
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1768.0,0.40%,F,T)



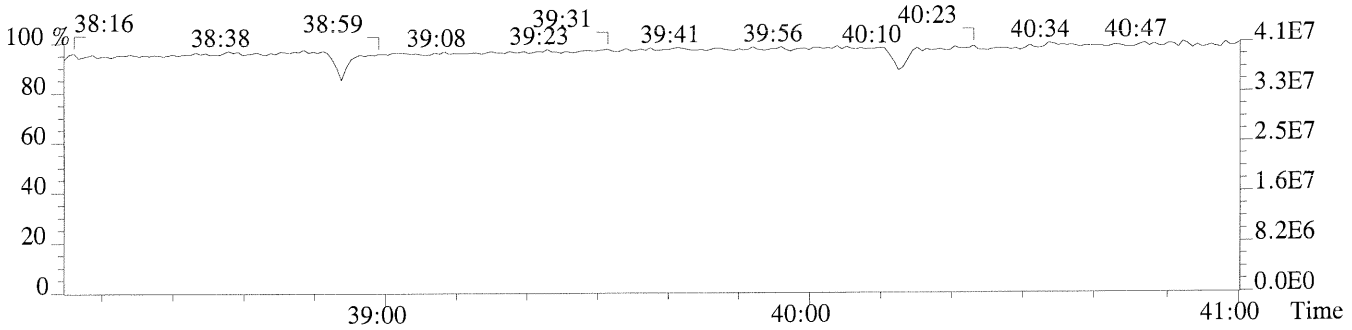
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



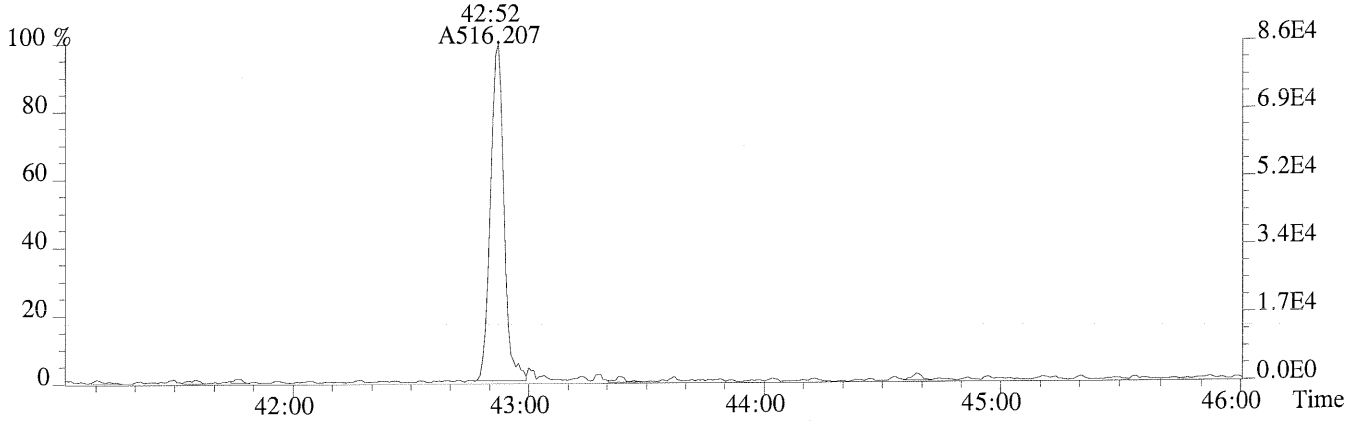
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



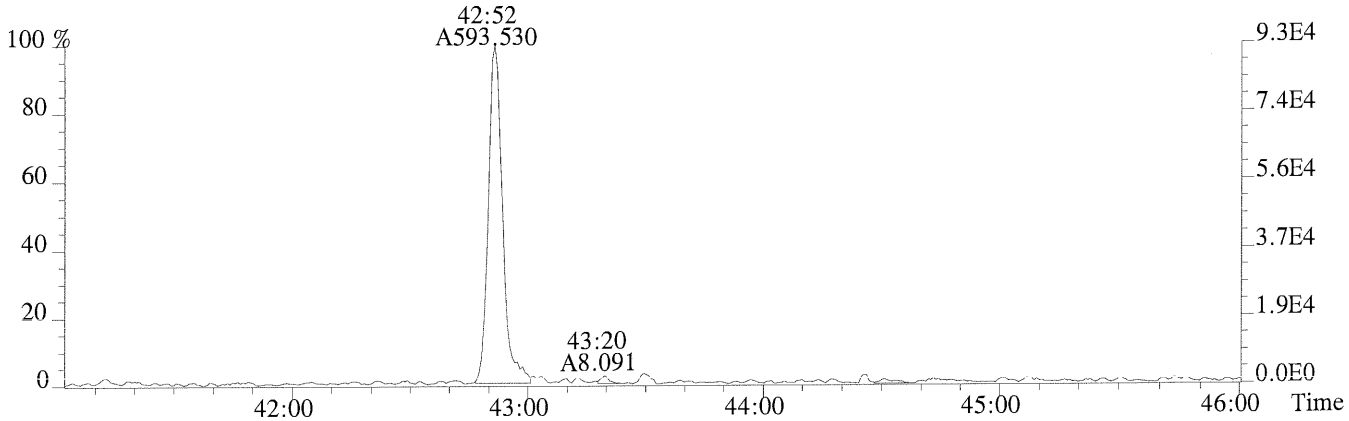
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



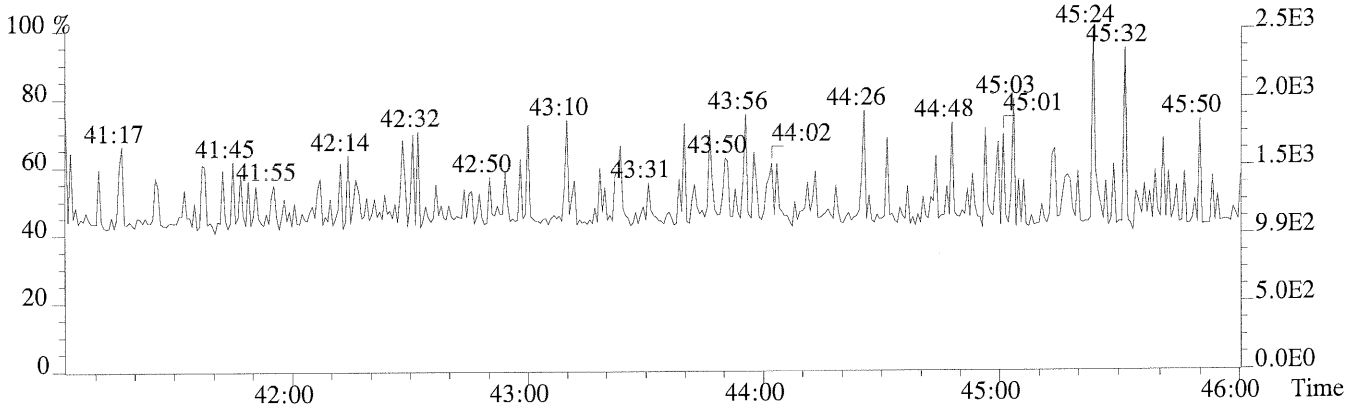
File:P229279 #1-457 Acq:27-MAY-2014 01:16:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-01 MB
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,576.0,0.40%,F,T)



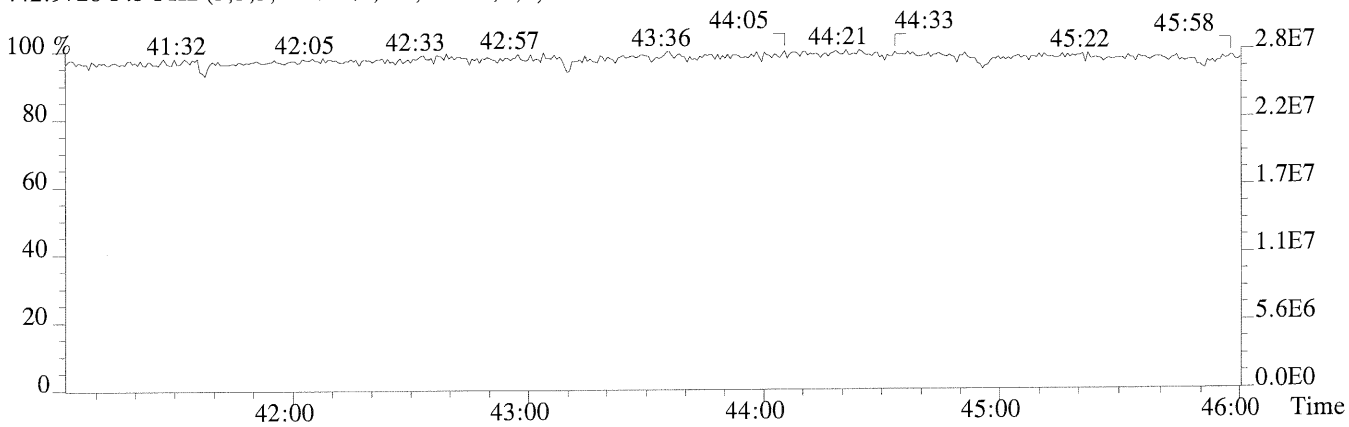
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,932.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

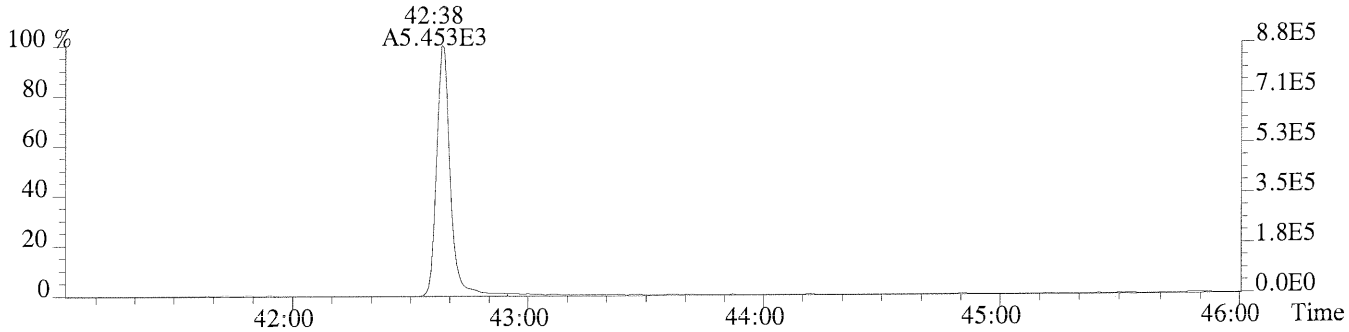


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

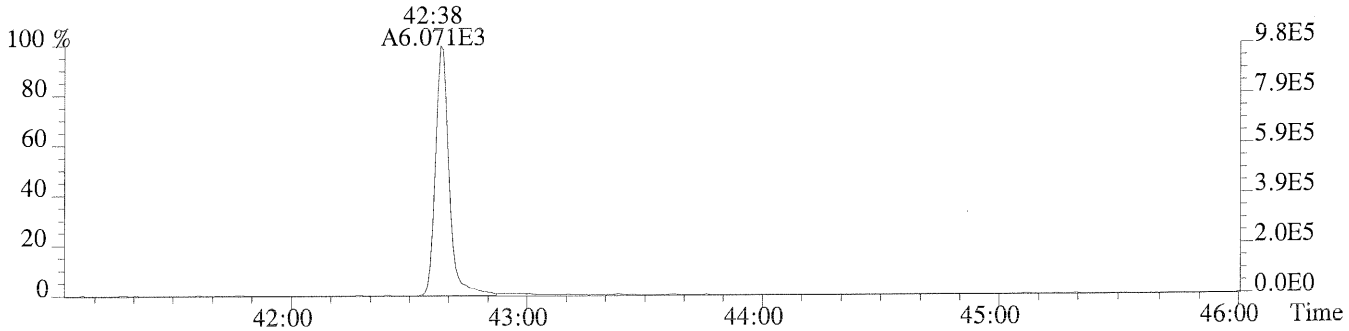


File:P229279 #1-457 Acq:27-MAY-2014 01:16:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-01 MB

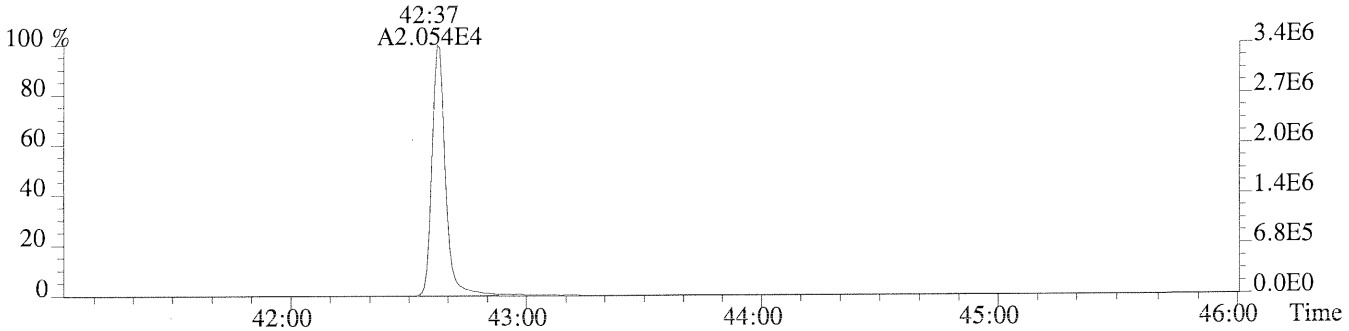
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,700.0,0.40%,F,T)



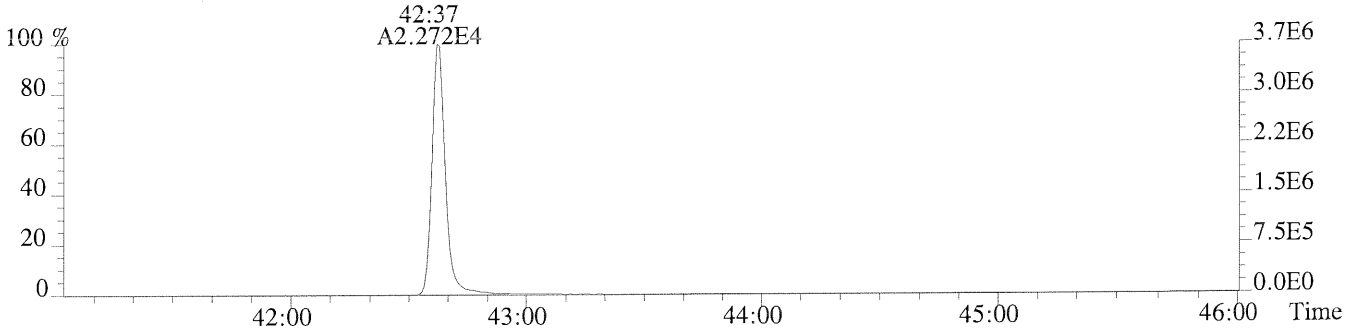
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



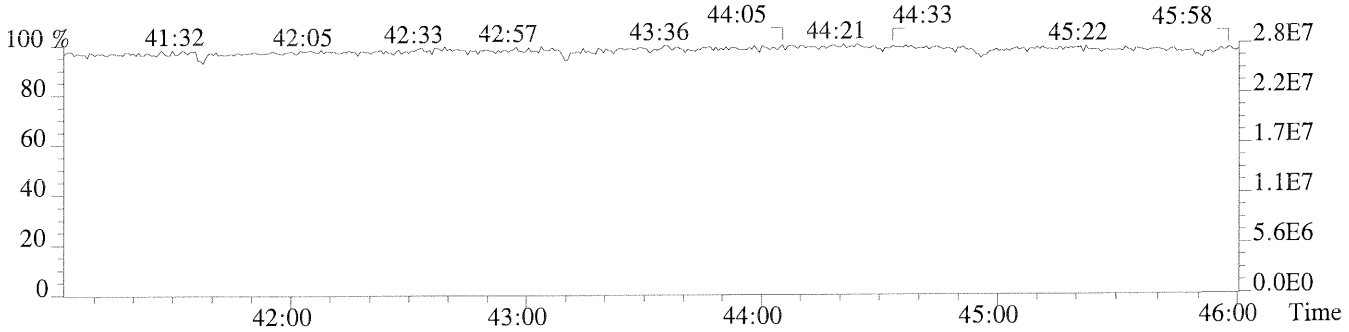
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,524.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
LCS

Run #10 Filename U149281 Samp: 1 Inj: 1 Acquired: 28-MAY-14 11:55:27
Processed: 28-MAY-14 14:22:30 Sample ID: EQ1400257-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:43	1.118e+03	1.443e+03	0.77	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:47	1.102e+04	7.226e+03	1.52	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:41	9.936e+03	6.434e+03	1.54	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:18	9.227e+03	7.453e+03	1.24	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:24	9.834e+03	8.032e+03	1.22	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:54	9.002e+03	7.521e+03	1.20	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	8.225e+03	6.676e+03	1.23	yes	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:53	7.304e+03	7.344e+03	0.99	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:20	6.257e+03	6.074e+03	1.03	yes	no	1.358
10	Unk	OCDF	42:54	8.794e+03	9.731e+03	0.90	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:28	8.614e+02	1.043e+03	0.83	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:57	7.956e+03	4.769e+03	1.67	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:02	6.638e+03	5.260e+03	1.26	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:07	7.042e+03	5.663e+03	1.24	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:21	7.525e+03	5.908e+03	1.27	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:49	5.950e+03	5.772e+03	1.03	yes	no	1.065
17	Unk	OCDD	42:41	1.009e+04	1.131e+04	0.89	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:41	1.078e+04	1.312e+04	0.82	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:46	1.967e+04	1.242e+04	1.58	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:40	1.904e+04	1.203e+04	1.58	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	7.718e+03	1.517e+04	0.51	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	1.056e+04	2.008e+04	0.53	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:54	9.724e+03	1.844e+04	0.53	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	7.794e+03	1.525e+04	0.51	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	5.576e+03	1.275e+04	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:19	5.103e+03	1.126e+04	0.45	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:27	7.460e+03	9.674e+03	0.77	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:56	1.407e+04	8.932e+03	1.57	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:01	1.097e+04	8.456e+03	1.30	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	1.147e+04	8.821e+03	1.30	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:49	9.908e+03	8.963e+03	1.11	yes	no	0.936
32	IS	13C-OCDD	42:40	1.122e+04	1.218e+04	0.92	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:52	1.259e+04	1.641e+04	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:20	1.666e+04	1.205e+04	1.38	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:28	5.126e+03				no	1.044

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
LCS

Run #10 Filename U149281 Samp: 1 Inj: 1 Acquired: 28-MAY-14 11:55:27
Processed: 28-MAY-14 14:22:301 LAB. ID: EQ1400257-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.45e+05	6.88e+02	3.6e+02	3.01e+05	1.05e+03	2.9e+02
2	1,2,3,7,8-PeCDF	2.06e+06	9.52e+02	2.2e+03	1.37e+06	8.92e+02	1.5e+03
3	2,3,4,7,8-PeCDF	2.09e+06	9.52e+02	2.2e+03	1.34e+06	8.92e+02	1.5e+03
4	1,2,3,4,7,8-HxCDF	1.95e+06	2.11e+03	9.2e+02	1.59e+06	8.40e+02	1.9e+03
5	1,2,3,6,7,8-HxCDF	1.99e+06	2.11e+03	9.4e+02	1.65e+06	8.40e+02	2.0e+03
6	2,3,4,6,7,8-HxCDF	1.88e+06	2.11e+03	8.9e+02	1.55e+06	8.40e+02	1.8e+03
7	1,2,3,7,8,9-HxCDF	1.63e+06	2.11e+03	7.7e+02	1.33e+06	8.40e+02	1.6e+03
8	1,2,3,4,6,7,8-HpCDF	1.56e+06	2.14e+03	7.3e+02	1.53e+06	3.62e+03	4.2e+02
9	1,2,3,4,7,8,9-HpCDF	1.15e+06	2.14e+03	5.4e+02	1.09e+06	3.62e+03	3.0e+02
10	OCDF	1.34e+06	1.43e+03	9.4e+02	1.48e+06	1.25e+03	1.2e+03
11	2,3,7,8-TCDD	1.86e+05	8.60e+02	2.2e+02	2.27e+05	1.10e+03	2.1e+02
12	1,2,3,7,8-PeCDD	1.63e+06	1.36e+03	1.2e+03	9.71e+05	1.04e+03	9.4e+02
13	1,2,3,4,7,8-HxCDD	1.52e+06	2.28e+03	6.6e+02	1.19e+06	1.32e+03	9.0e+02
14	1,2,3,6,7,8-HxCDD	1.46e+06	2.28e+03	6.4e+02	1.19e+06	1.32e+03	9.0e+02
15	1,2,3,7,8,9-HxCDD	1.50e+06	2.28e+03	6.6e+02	1.20e+06	1.32e+03	9.1e+02
16	1,2,3,4,6,7,8-HpCDD	1.14e+06	3.27e+03	3.5e+02	1.09e+06	1.80e+03	6.0e+02
17	OCDD	1.51e+06	2.92e+03	5.2e+02	1.73e+06	3.52e+03	4.9e+02
18	13C-2,3,7,8-TCDF	2.29e+06	9.76e+02	2.3e+03	2.80e+06	7.72e+02	3.6e+03
19	13C-1,2,3,7,8-PeCDF	3.81e+06	6.52e+02	5.8e+03	2.36e+06	5.88e+02	4.0e+03
20	13C-2,3,4,7,8-PeCDF	3.89e+06	6.52e+02	6.0e+03	2.42e+06	5.88e+02	4.1e+03
21	13C-1,2,3,4,7,8-HxCDF	1.65e+06	7.32e+02	2.2e+03	3.29e+06	8.32e+02	3.9e+03
22	13C-1,2,3,6,7,8-HxCDF	2.11e+06	7.32e+02	2.9e+03	4.10e+06	8.32e+02	4.9e+03
23	13C-2,3,4,6,7,8-HxCDF	2.00e+06	7.32e+02	2.7e+03	3.80e+06	8.32e+02	4.6e+03
24	13C-1,2,3,7,8,9-HxCDF	1.55e+06	7.32e+02	2.1e+03	3.00e+06	8.32e+02	3.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.15e+06	1.46e+03	7.9e+02	2.65e+06	1.81e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.86e+05	1.46e+03	6.1e+02	1.97e+06	1.81e+03	1.1e+03
27	13C-2,3,7,8-TCDD	1.67e+06	1.12e+03	1.5e+03	2.10e+06	7.68e+02	2.7e+03
28	13C-1,2,3,7,8-PeCDD	2.88e+06	4.28e+02	6.7e+03	1.84e+06	5.32e+02	3.5e+03
29	13C-1,2,3,4,7,8-HxCDD	2.51e+06	7.76e+02	3.2e+03	1.92e+06	5.08e+02	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	2.37e+06	7.76e+02	3.1e+03	1.84e+06	5.08e+02	3.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.84e+06	9.08e+02	2.0e+03	1.65e+06	5.84e+02	2.8e+03
32	13C-OCDD	1.73e+06	6.16e+02	2.8e+03	1.87e+06	6.96e+02	2.7e+03
33	13C-1,2,3,4-TCDD	2.71e+06	1.12e+03	2.4e+03	3.53e+06	7.68e+02	4.6e+03
34	13C-1,2,3,7,8,9-HxCDD	3.33e+06	7.76e+02	4.3e+03	2.50e+06	5.08e+02	4.9e+03
35	37Cl-2,3,7,8-TCDD	1.16e+06	7.44e+02	1.6e+03			

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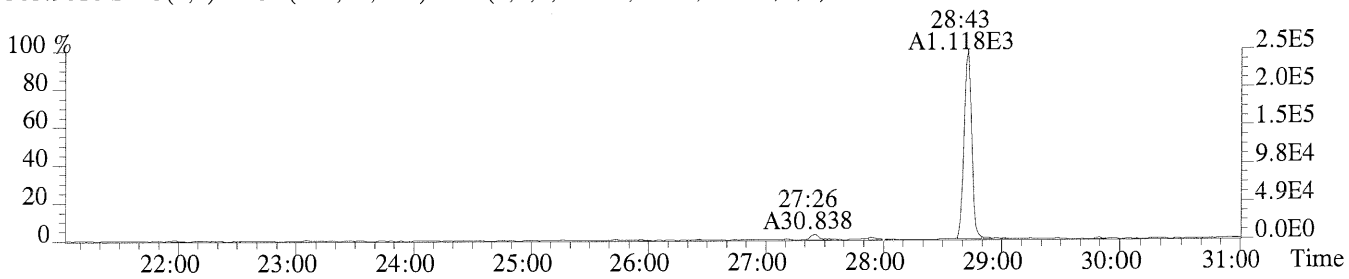
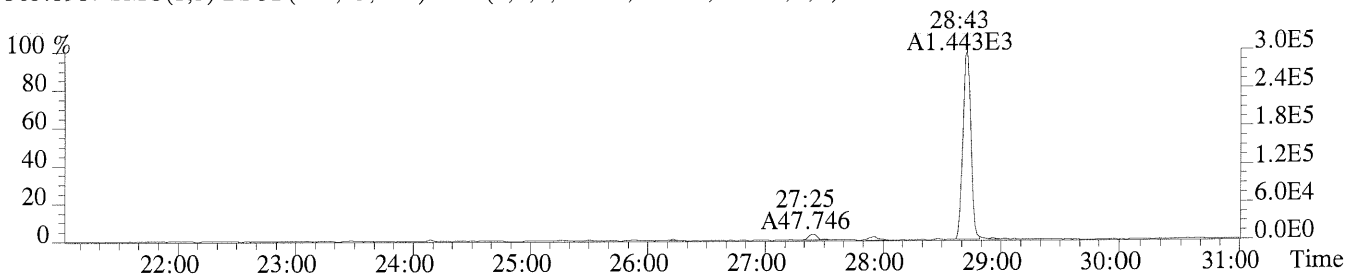
File:U149281 #1-627 Acq:28-MAY-2014 11:55:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-02

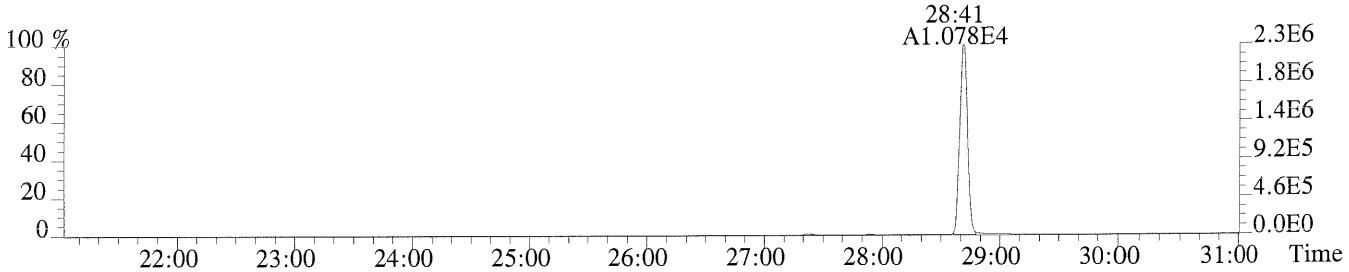
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



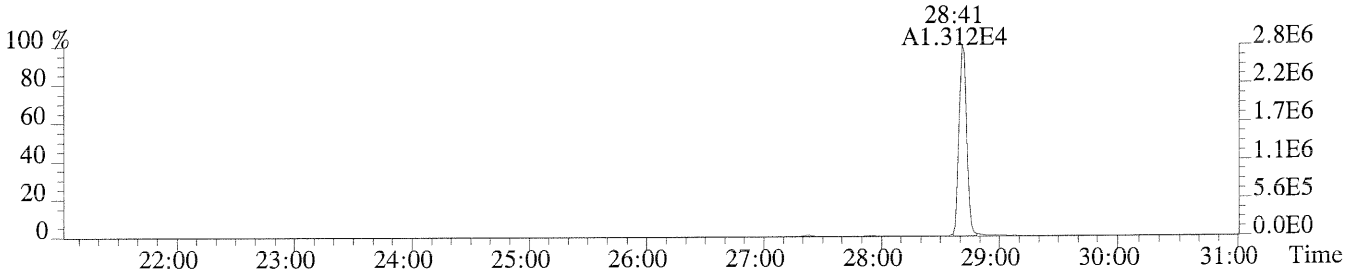
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



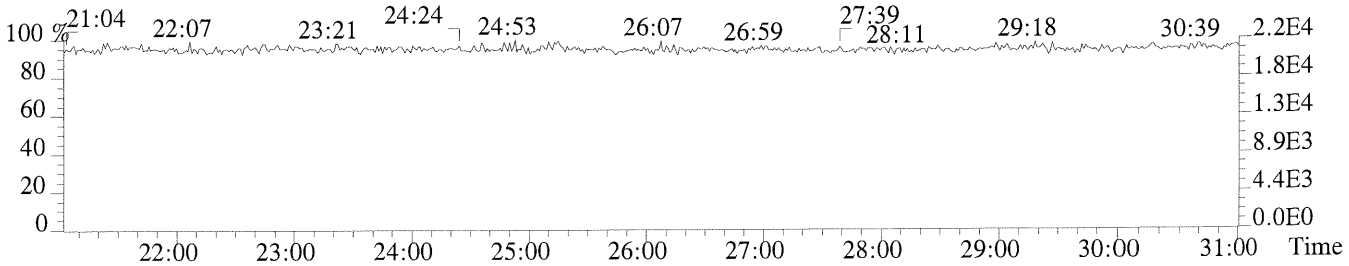
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



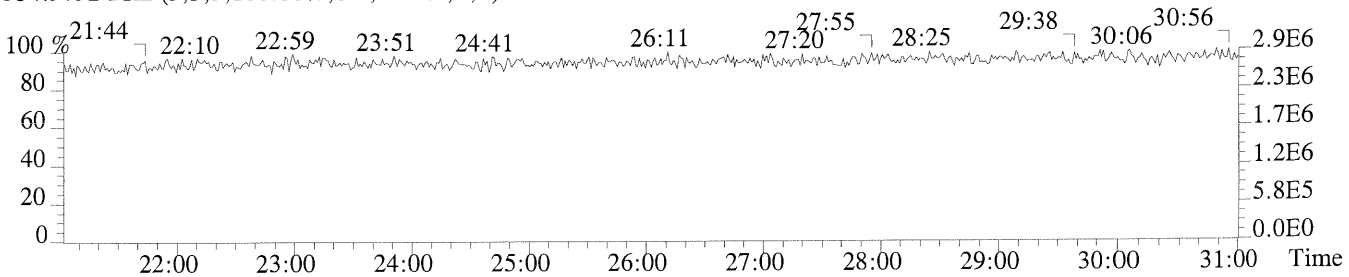
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

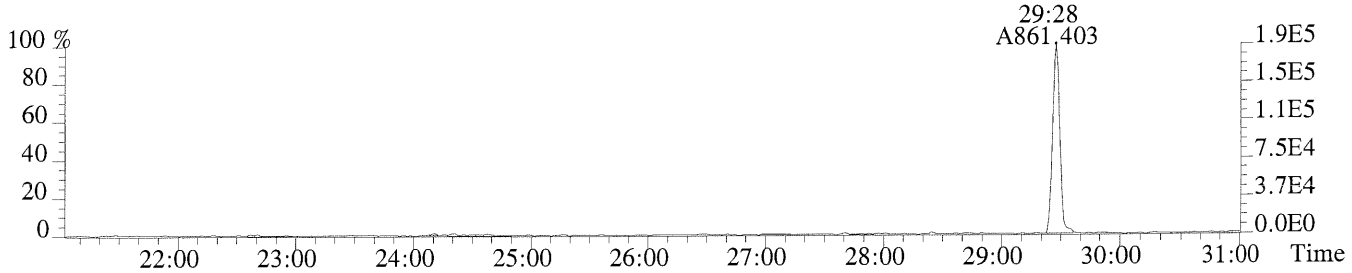


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

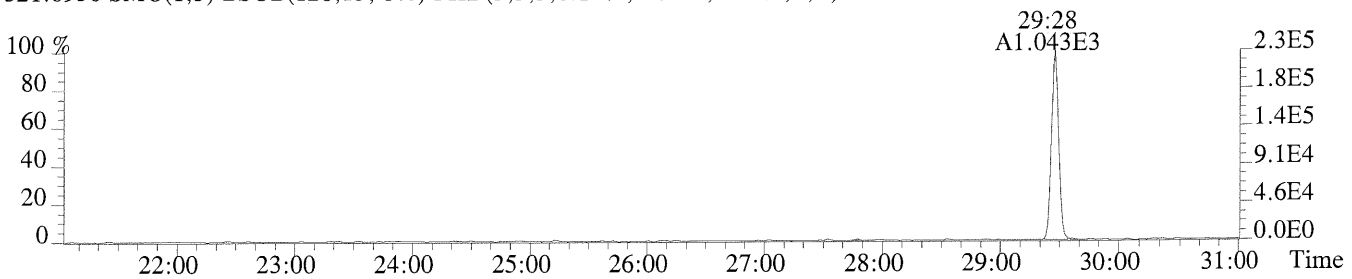


File:U149281 #1-627 Acq:28-MAY-2014 11:55:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-02

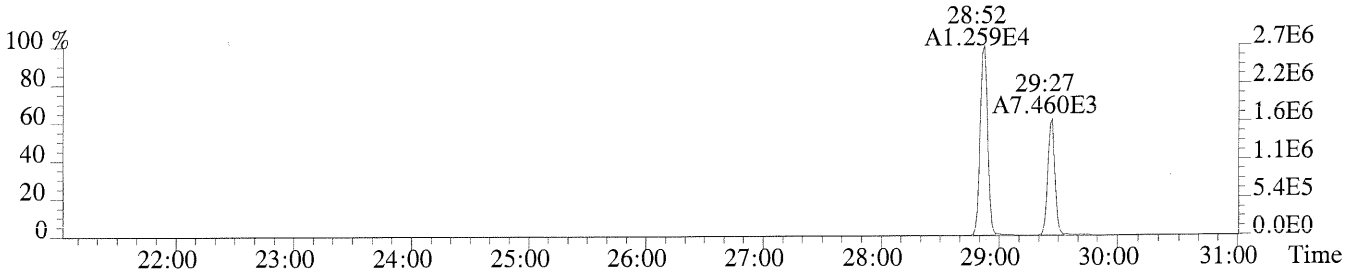
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



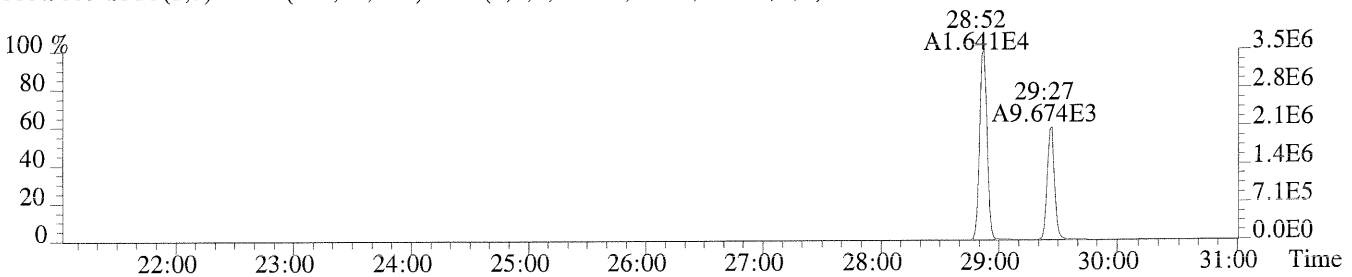
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1096.0,1.00%,F,T)



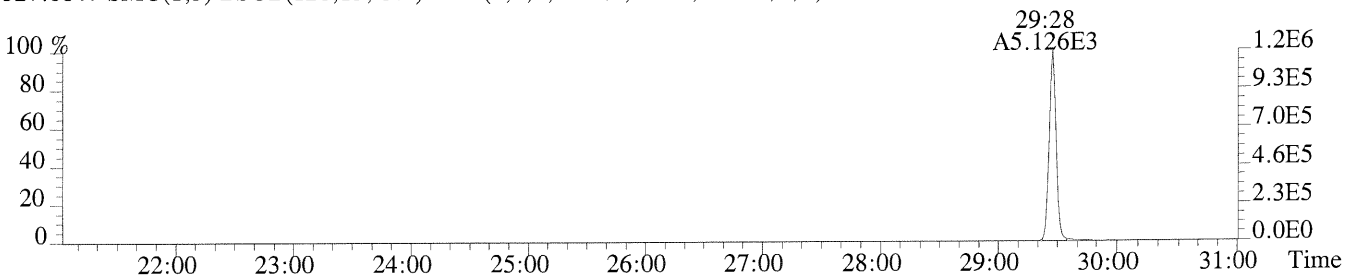
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



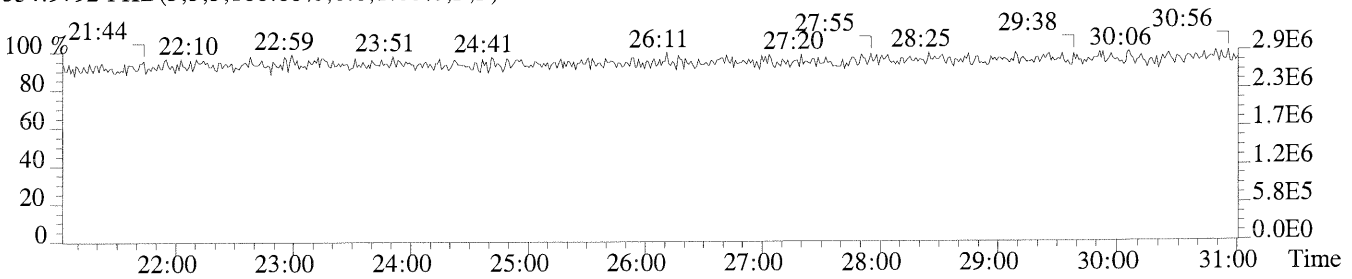
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)

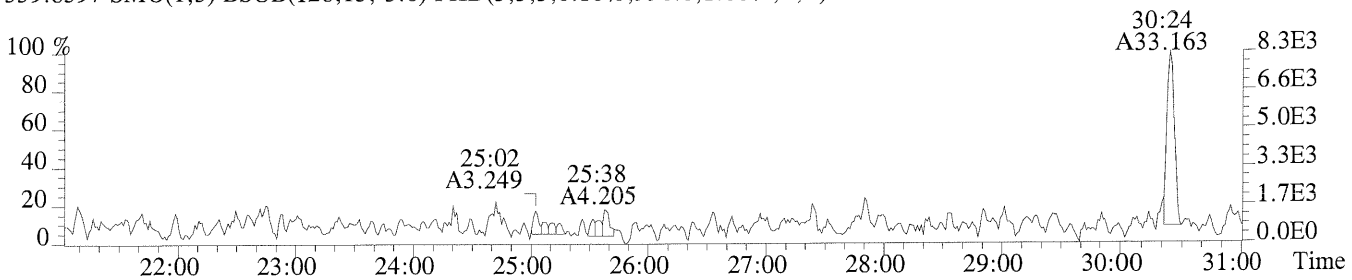


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

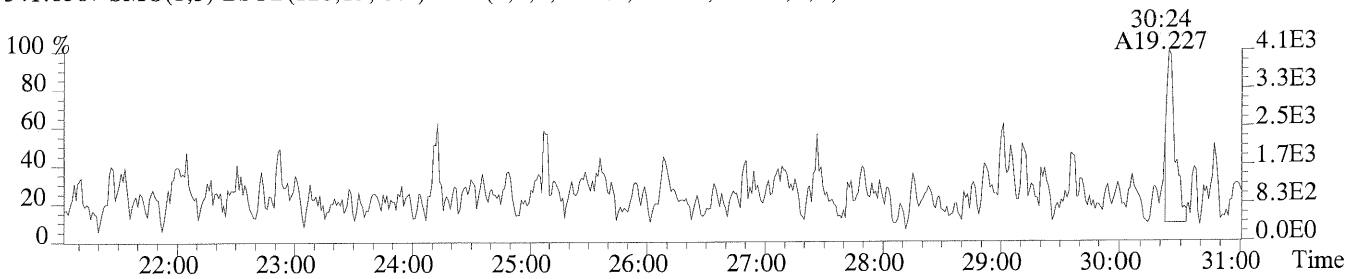


File:U149281 #1-627 Acq:28-MAY-2014 11:55:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-02

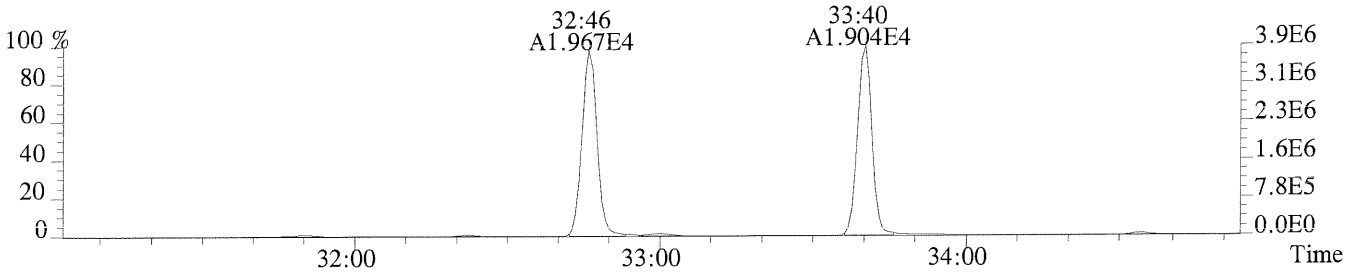
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



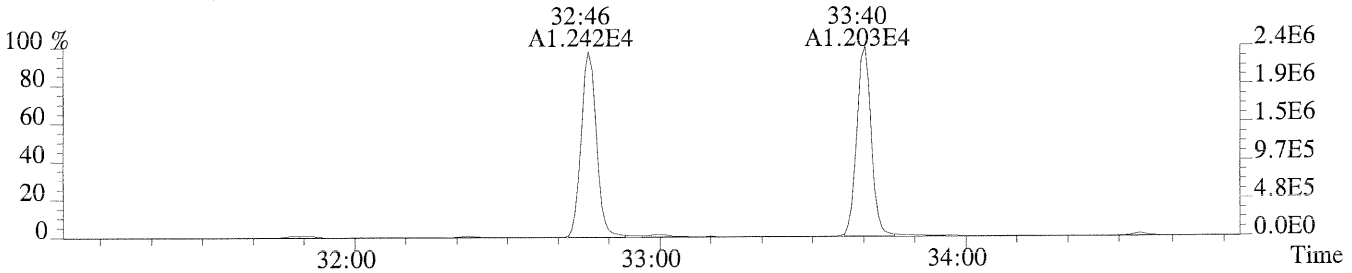
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



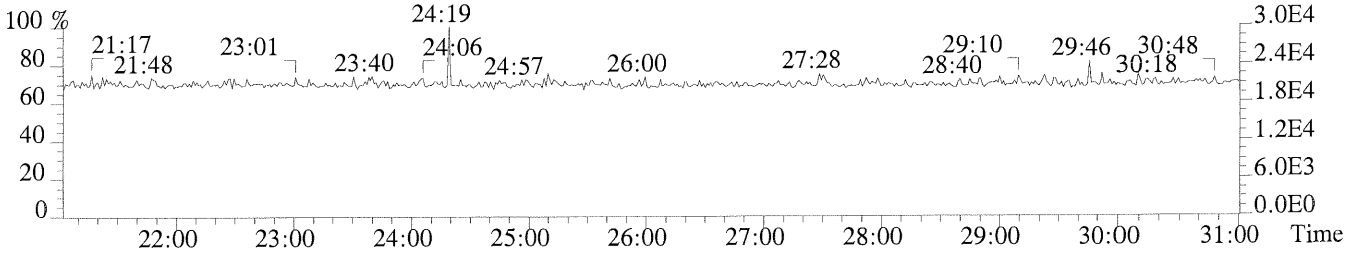
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



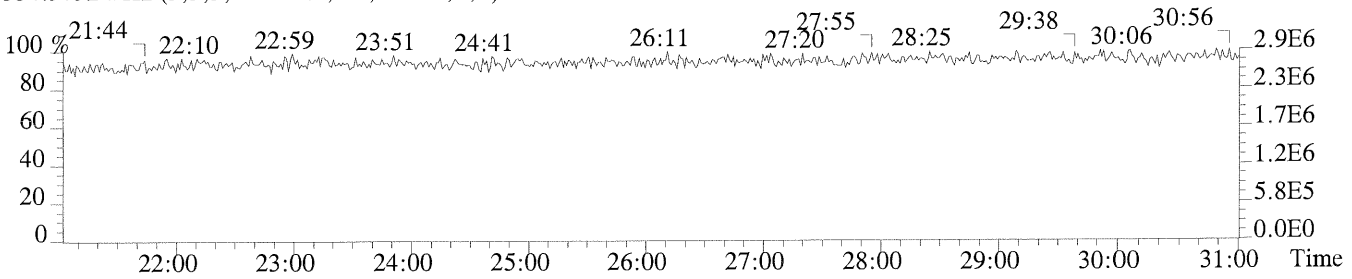
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

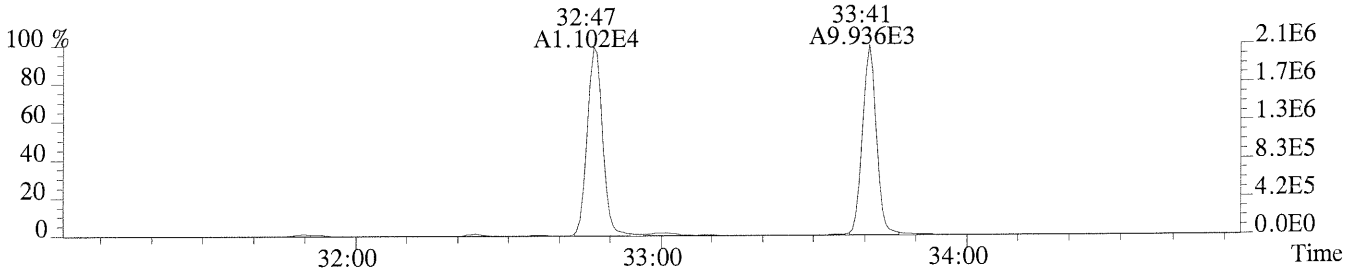


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

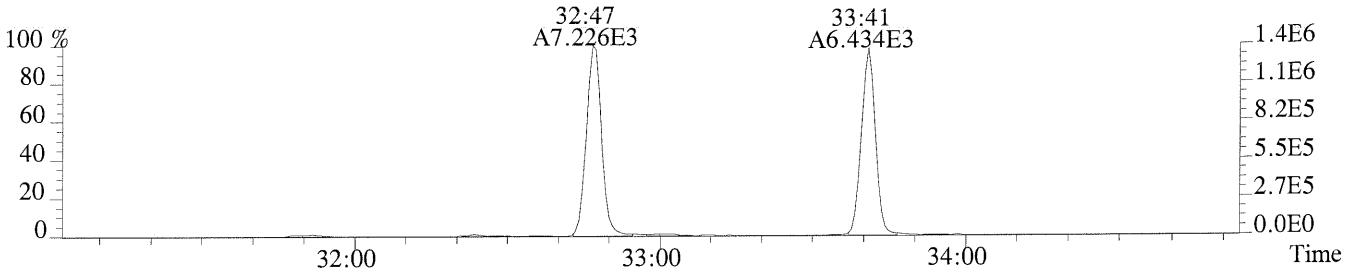


File:U149281 #1-349 Acq:28-MAY-2014 11:55:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-02

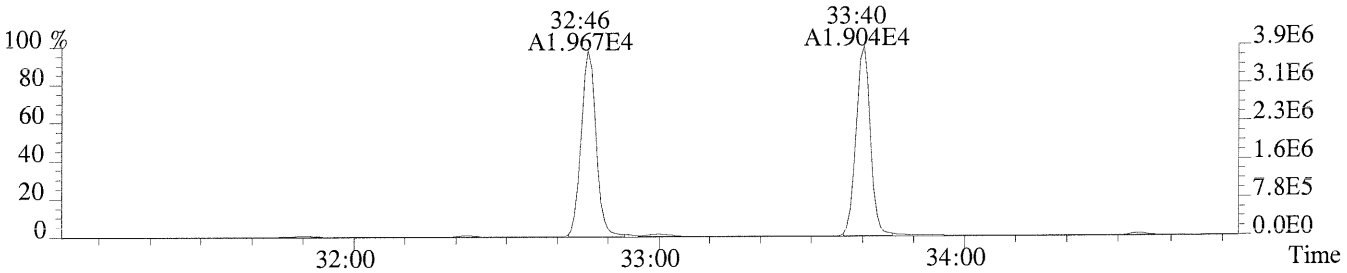
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



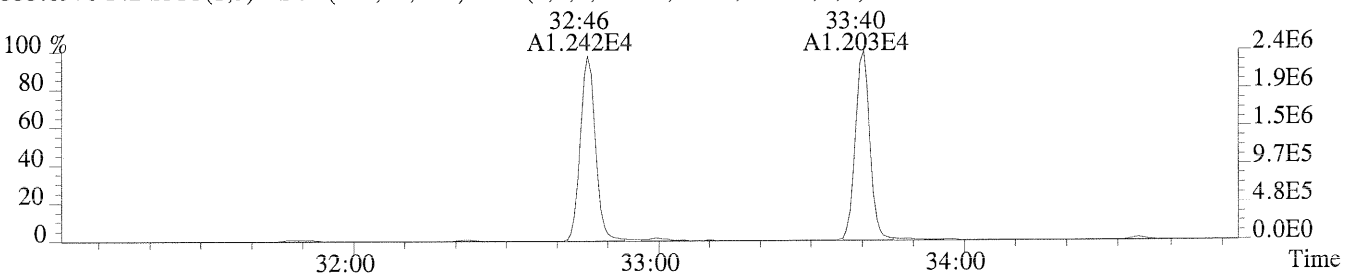
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



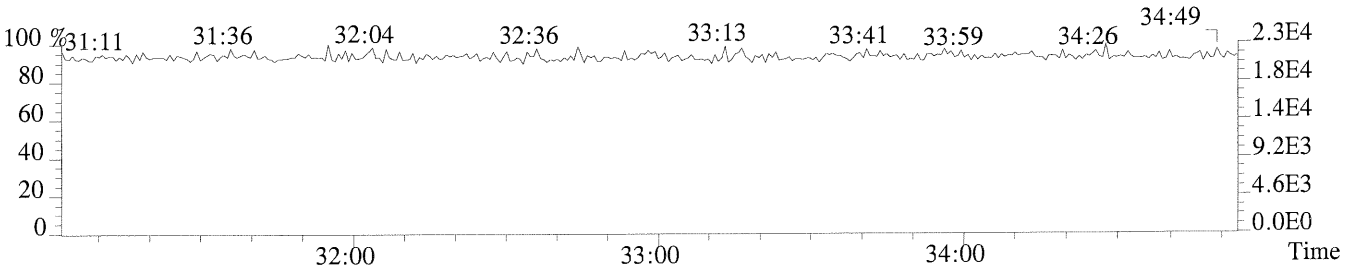
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



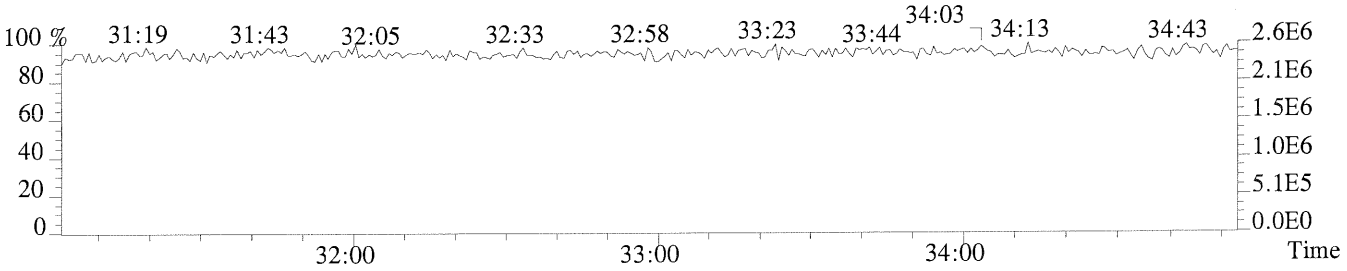
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

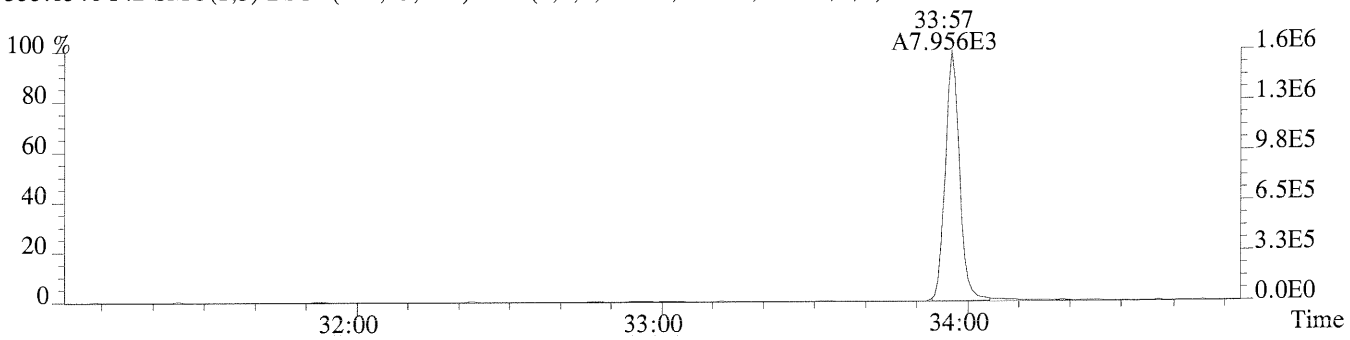


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

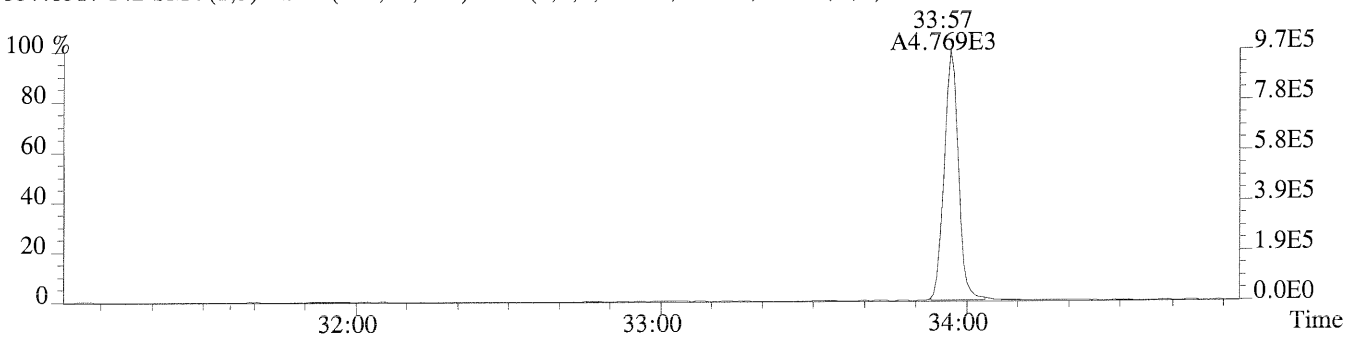


File:U149281 #1-349 Acq:28-MAY-2014 11:55:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-02

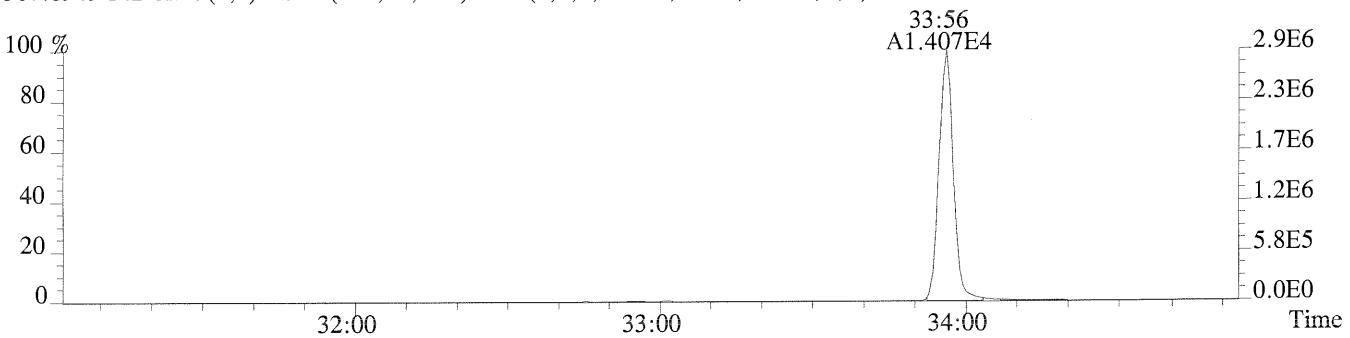
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



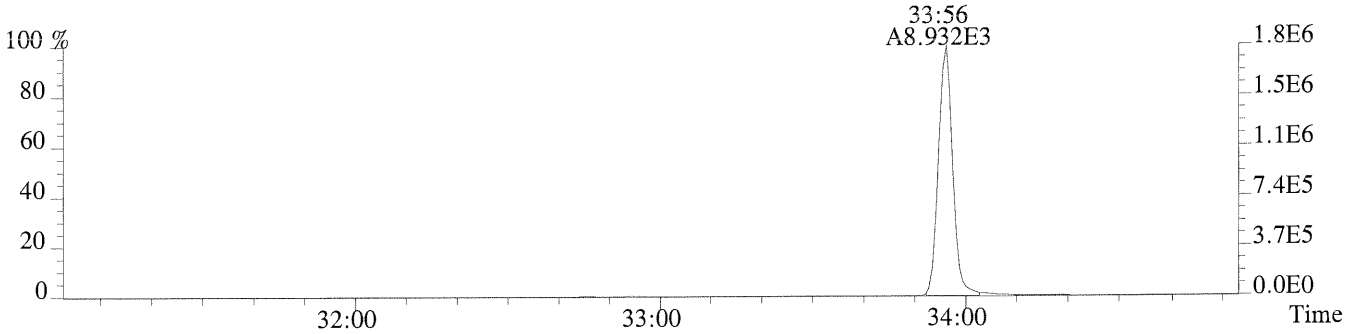
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



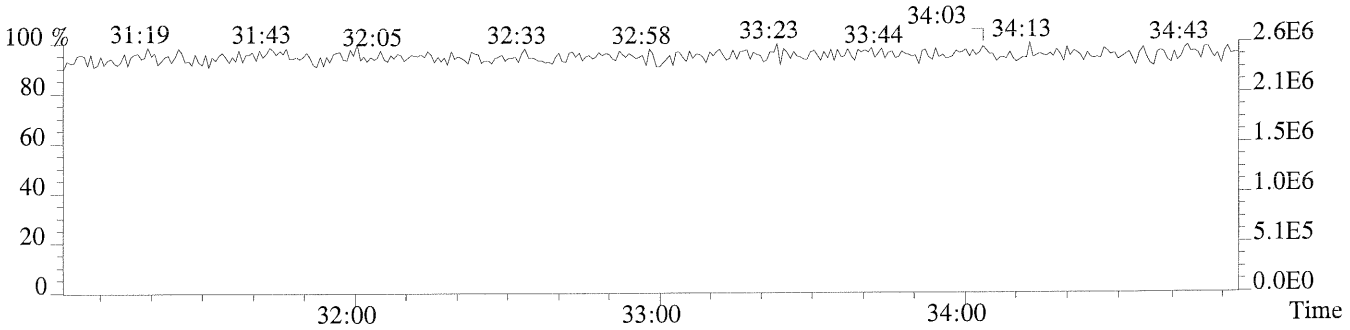
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)

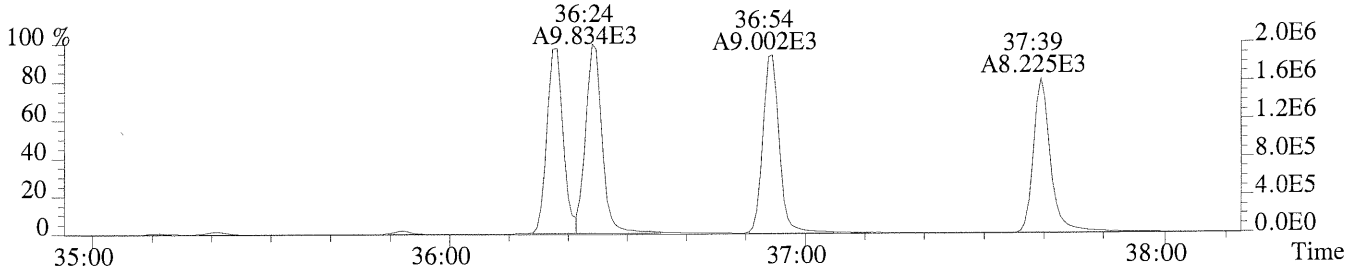


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

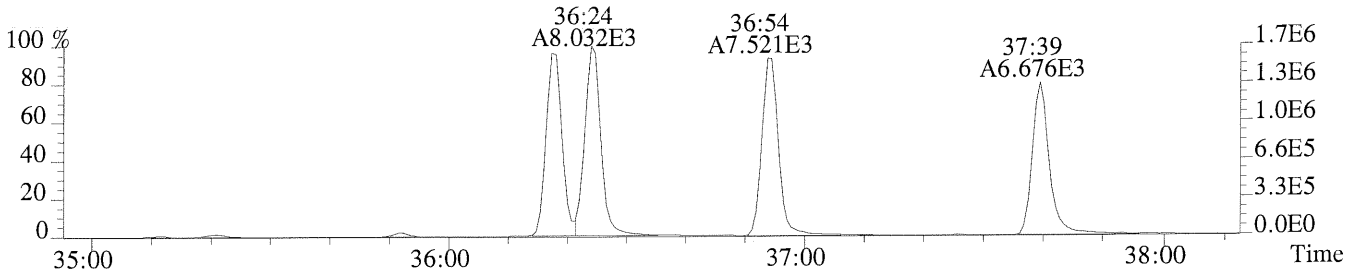


File:U149281 #1-299 Acq:28-MAY-2014 11:55:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-02

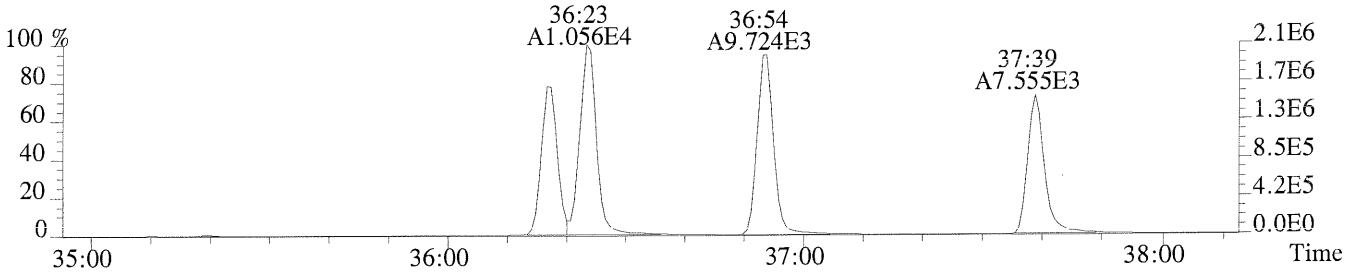
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2112.0,0.40%,F,T)



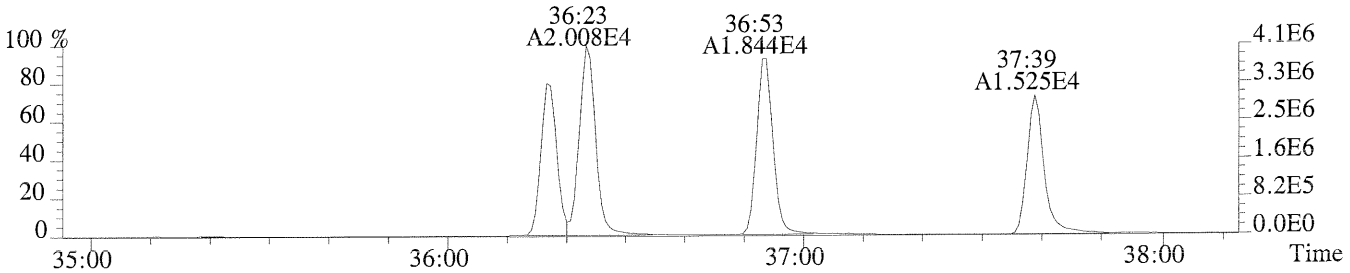
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



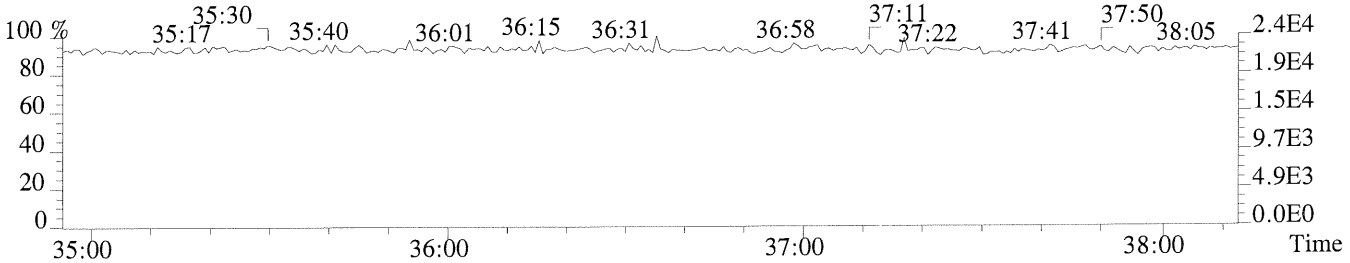
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



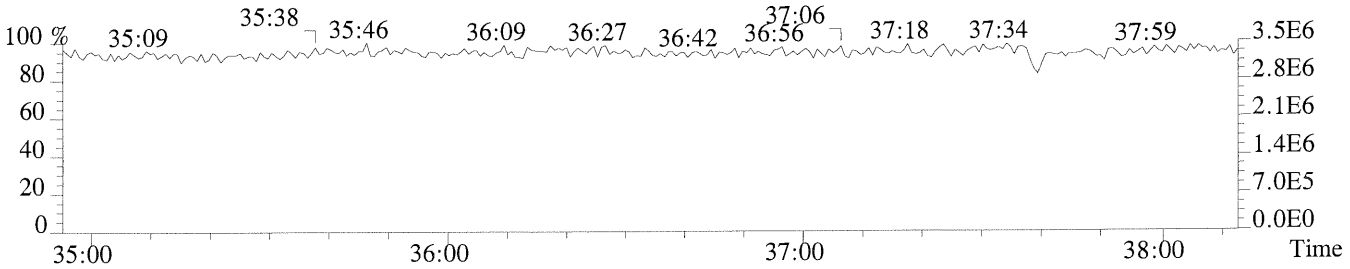
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



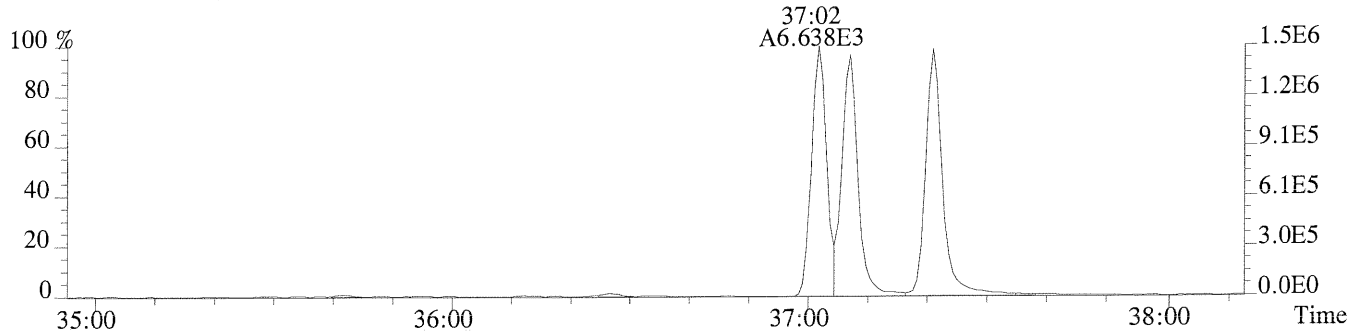
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



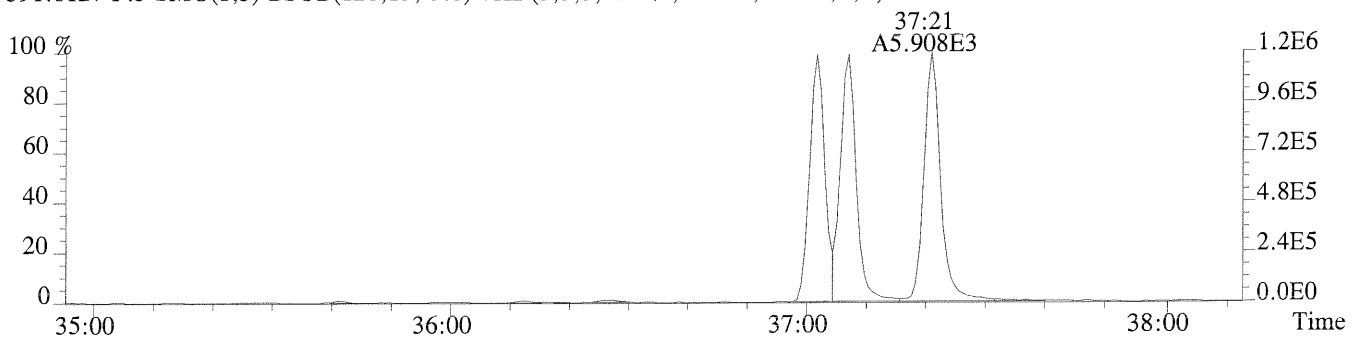
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



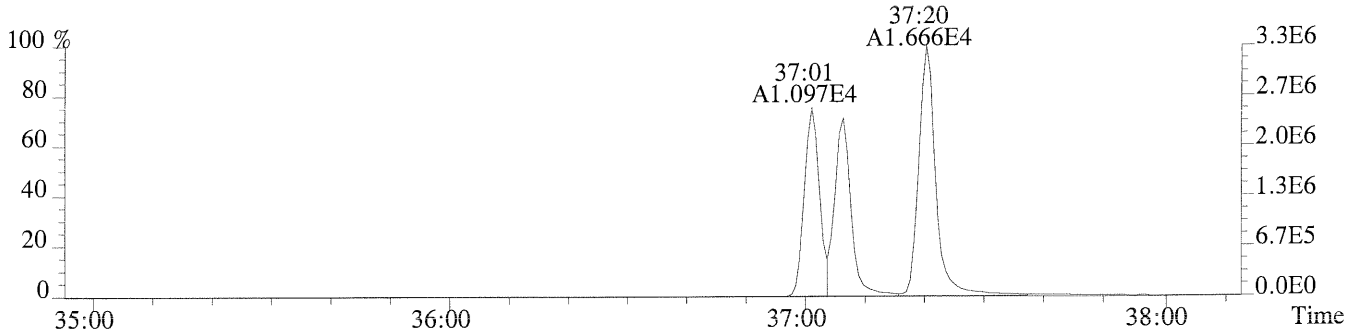
File:U149281 #1-299 Acq:28-MAY-2014 11:55:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-02
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2284.0,0.40%,F,T)



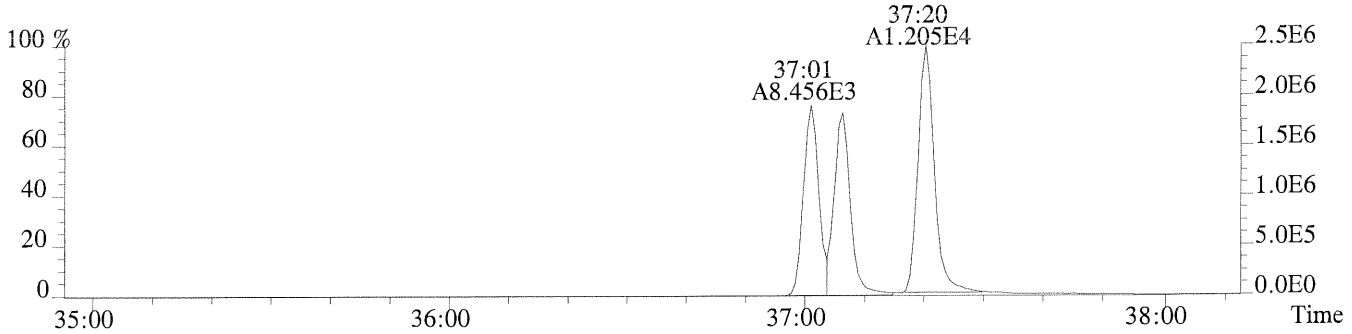
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)



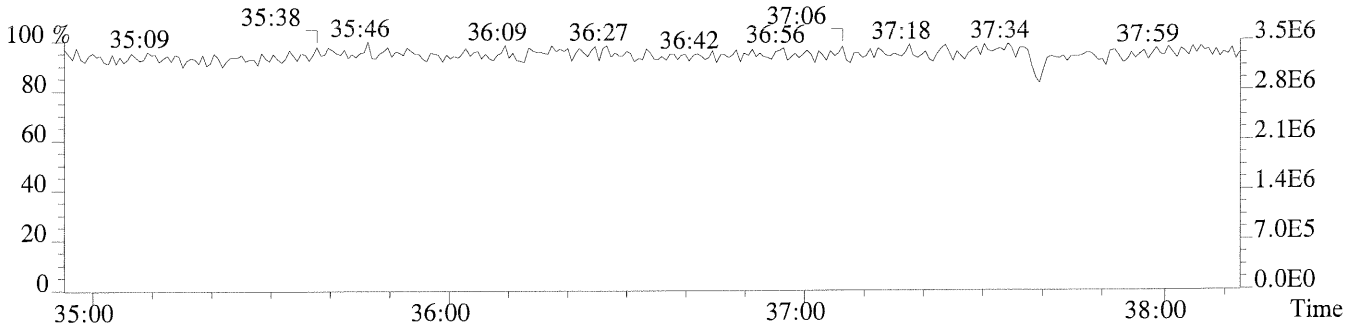
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,776.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)

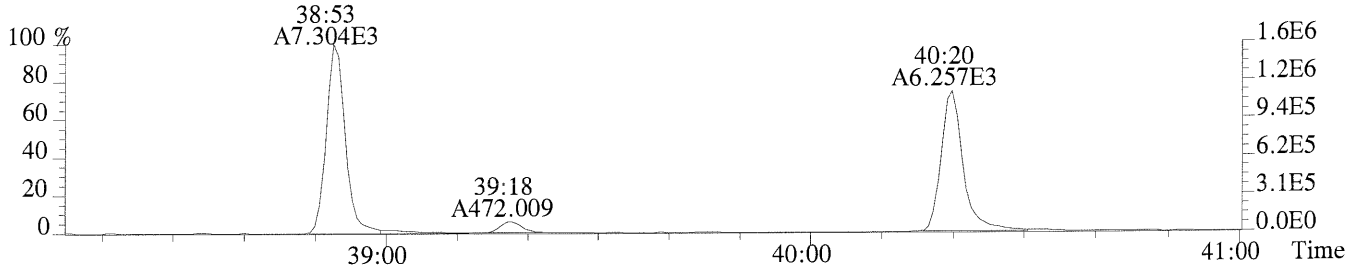


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

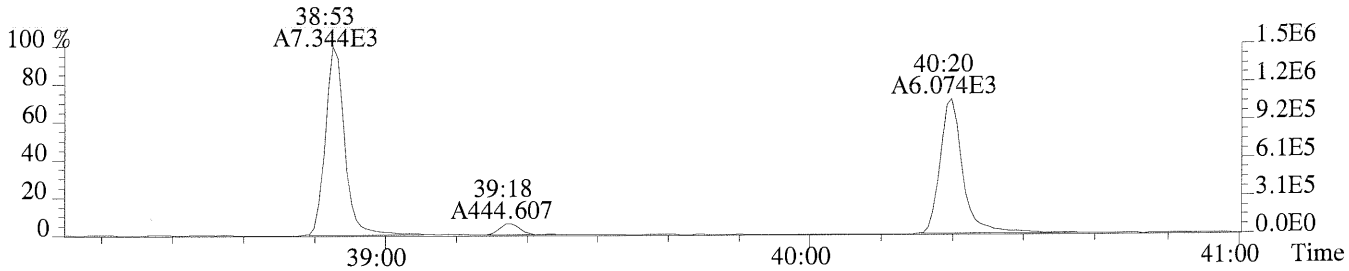


File:U149281 #1-251 Acq:28-MAY-2014 11:55:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-02

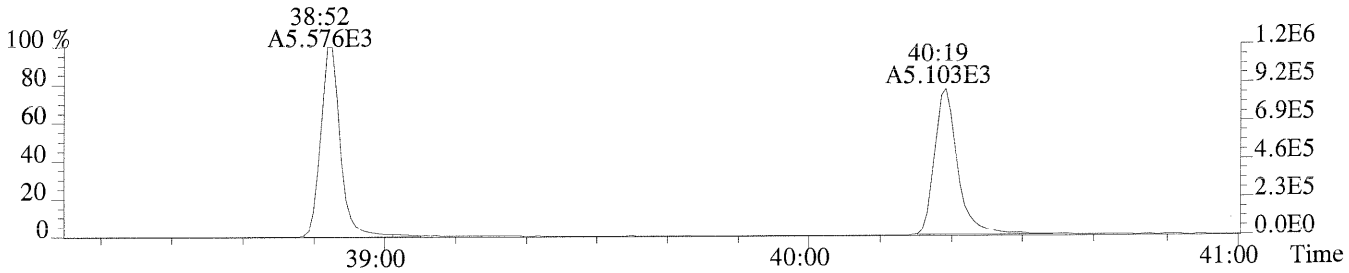
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2136.0,0.50%,F,T)



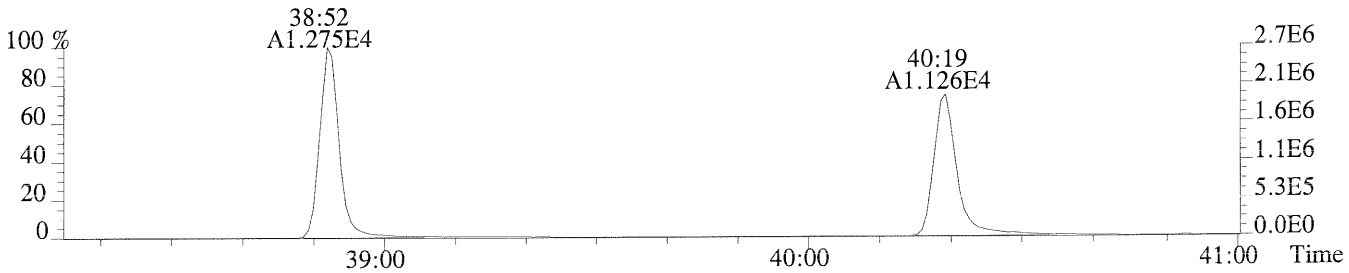
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3616.0,0.50%,F,T)



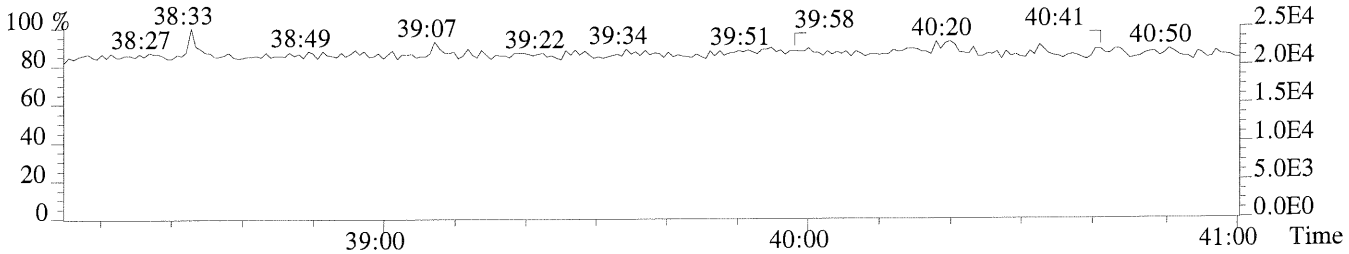
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1460.0,0.50%,F,T)



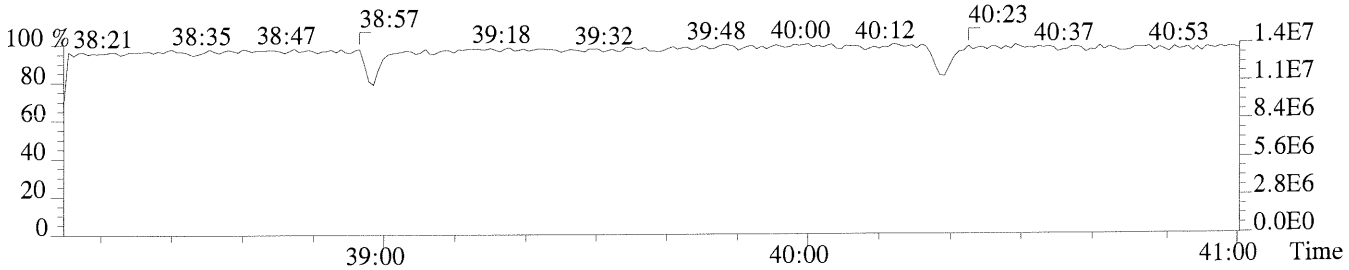
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1812.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

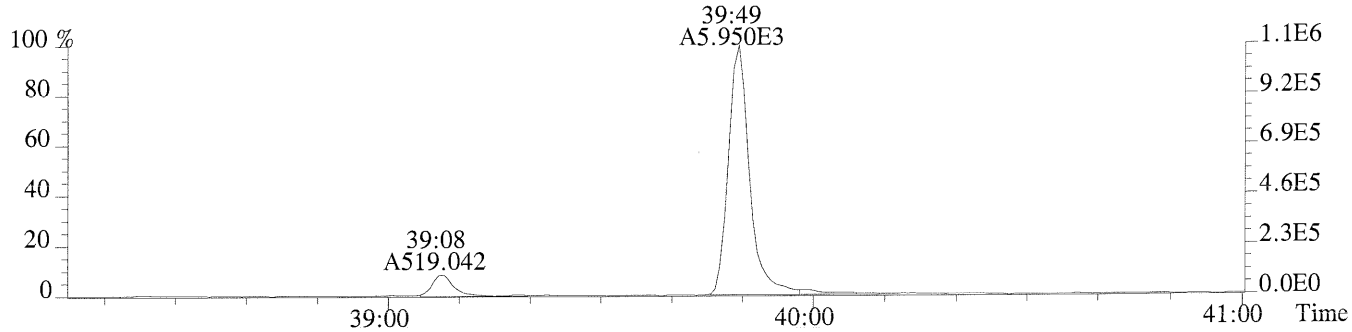


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

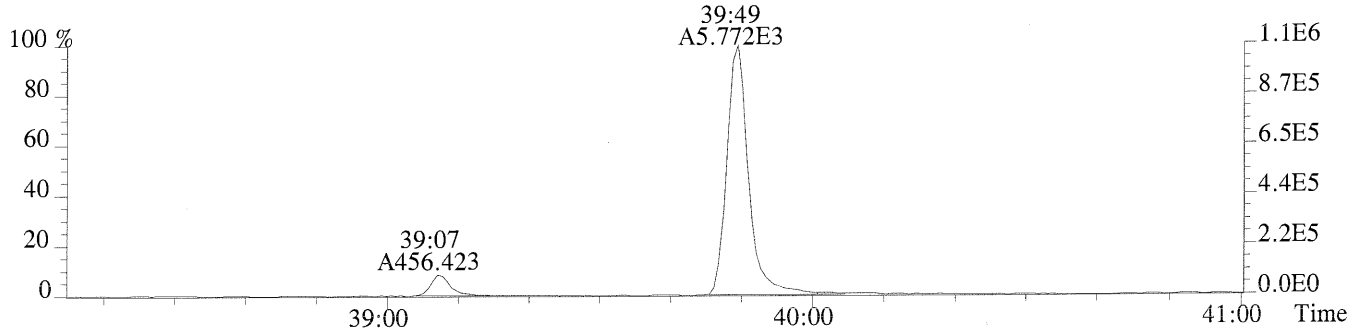


File:U149281 #1-251 Acq:28-MAY-2014 11:55:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-02

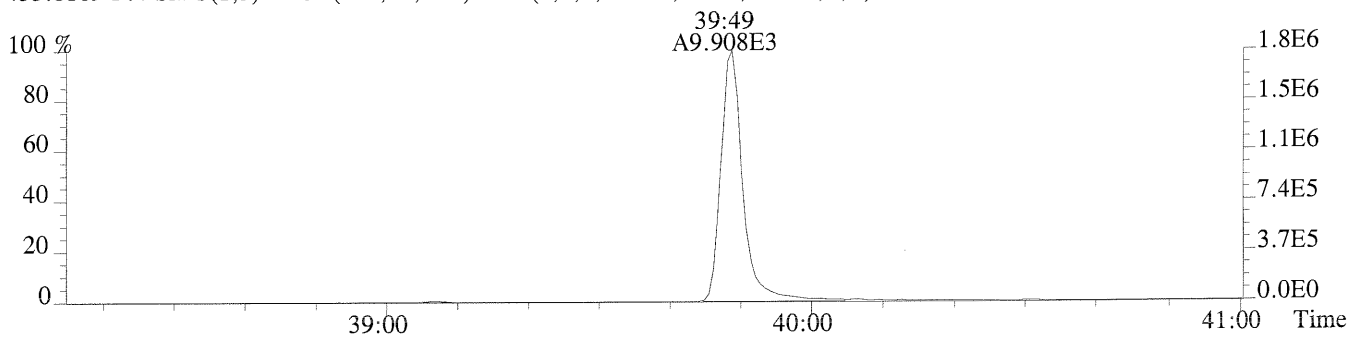
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3272.0,0.40%,F,T)



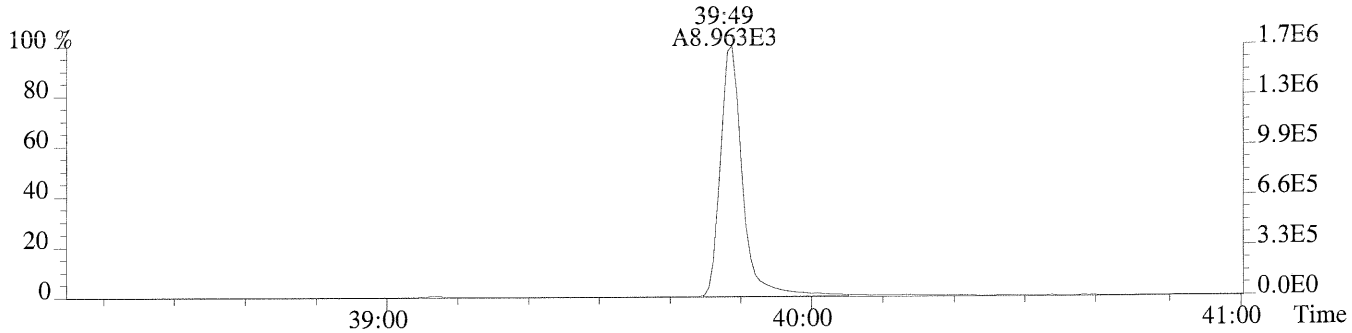
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1804.0,0.40%,F,T)



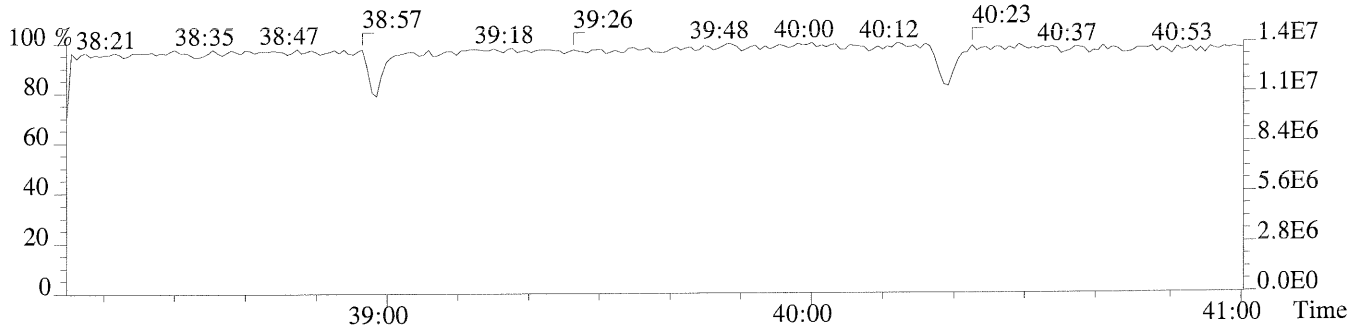
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



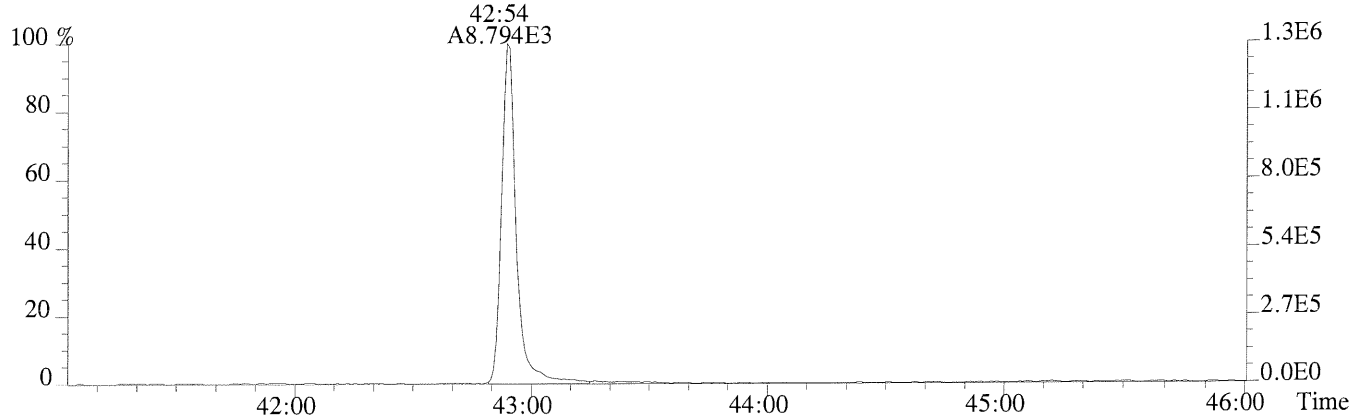
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



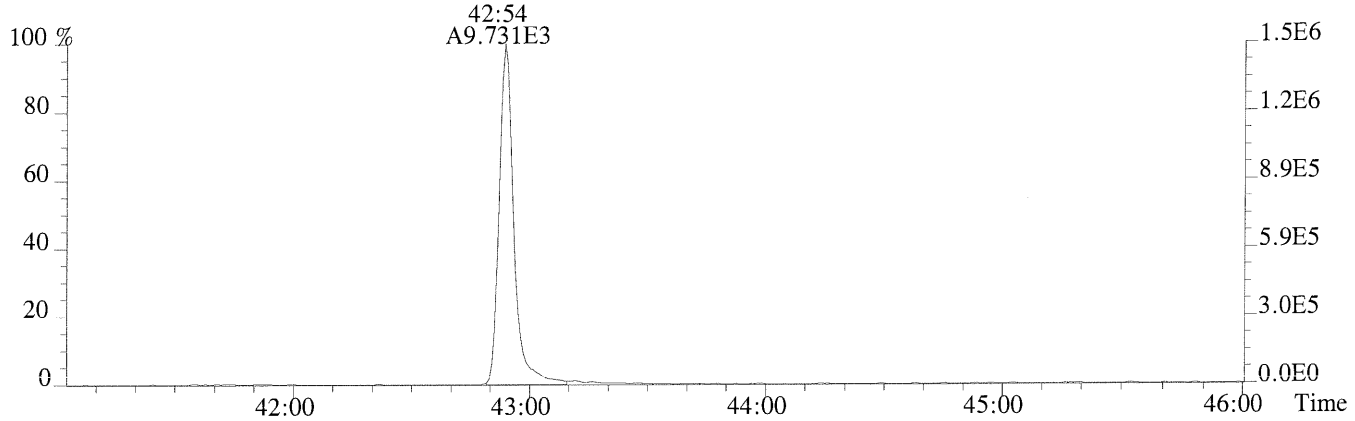
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



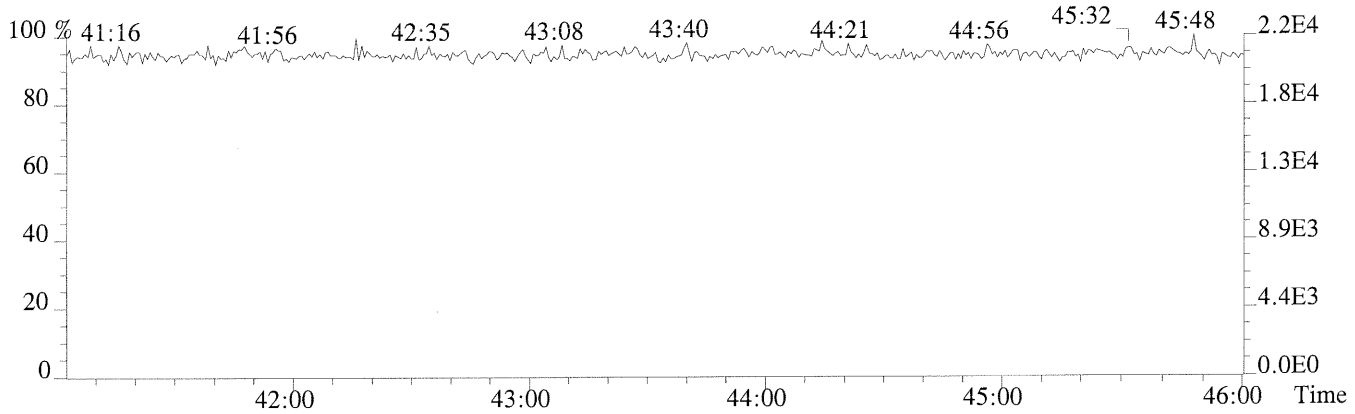
File:U149281 #1-451 Acq:28-MAY-2014 11:55:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1428.0,0.40%,F,T)



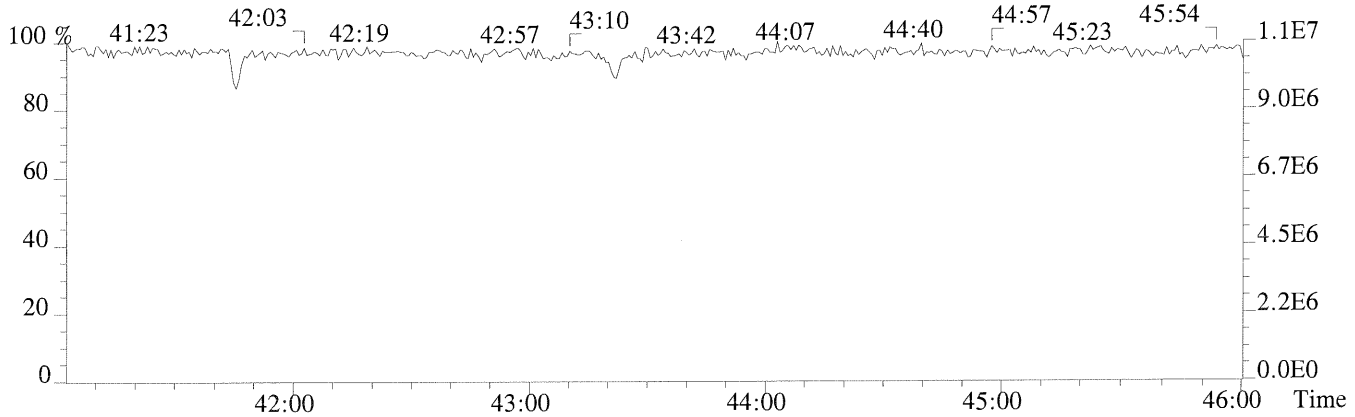
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1248.0,0.40%,F,T)



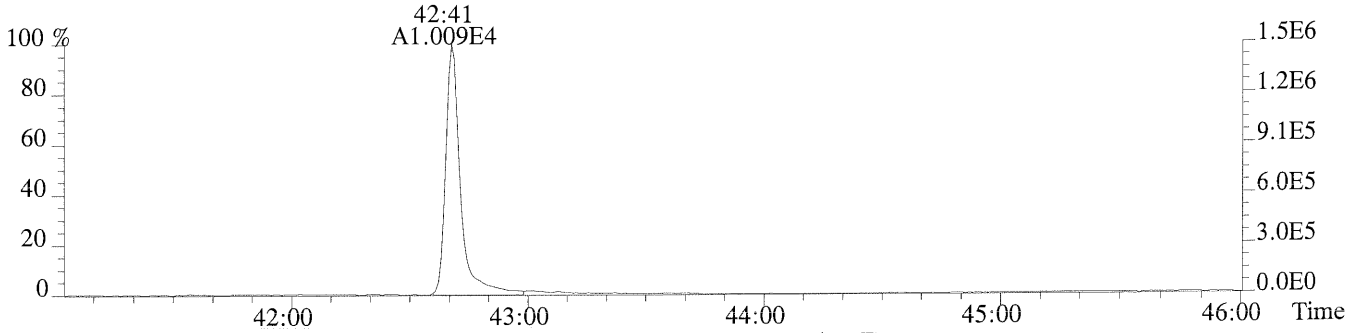
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



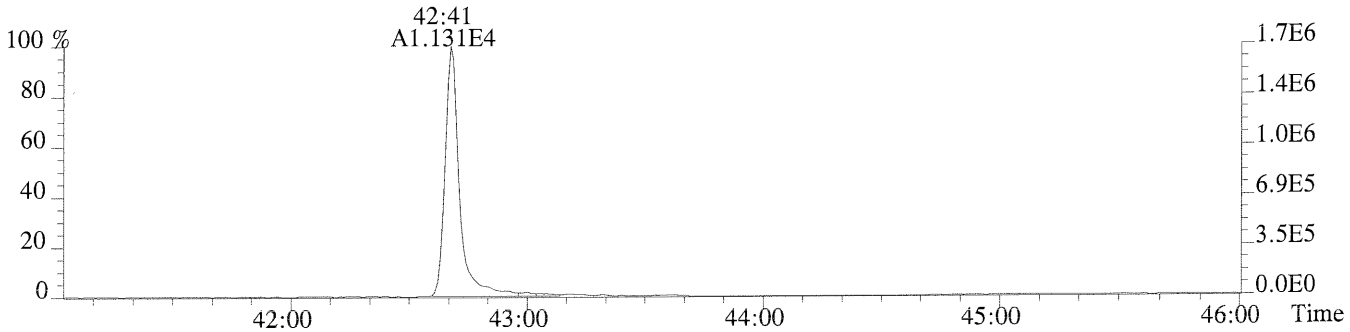
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



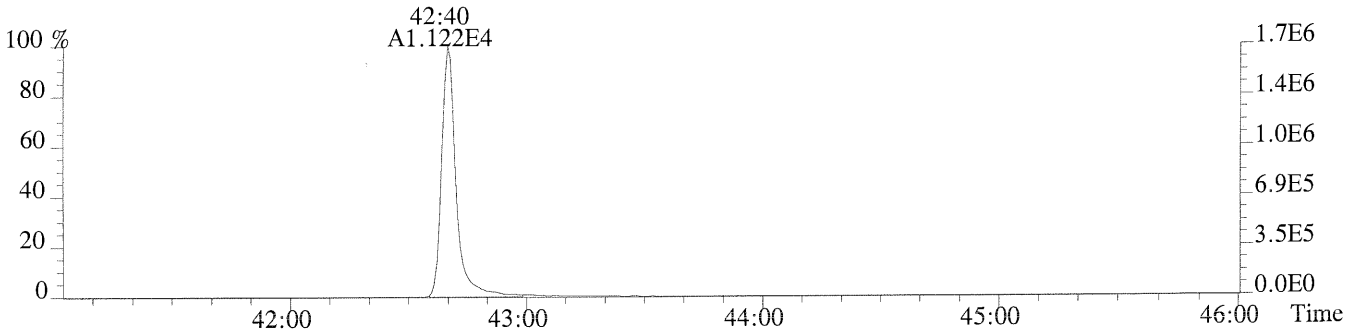
File:U149281 #1-451 Acq:28-MAY-2014 11:55:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400257-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2920.0,0.40%,F,T)



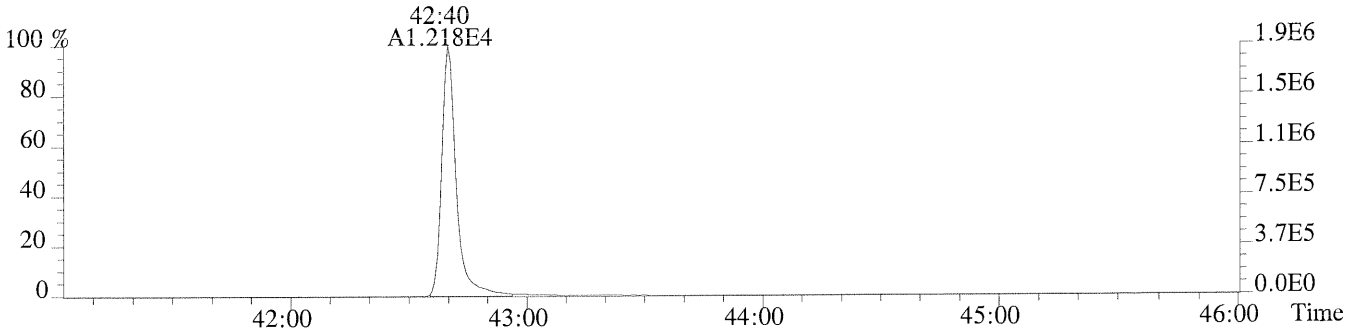
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3516.0,0.40%,F,T)



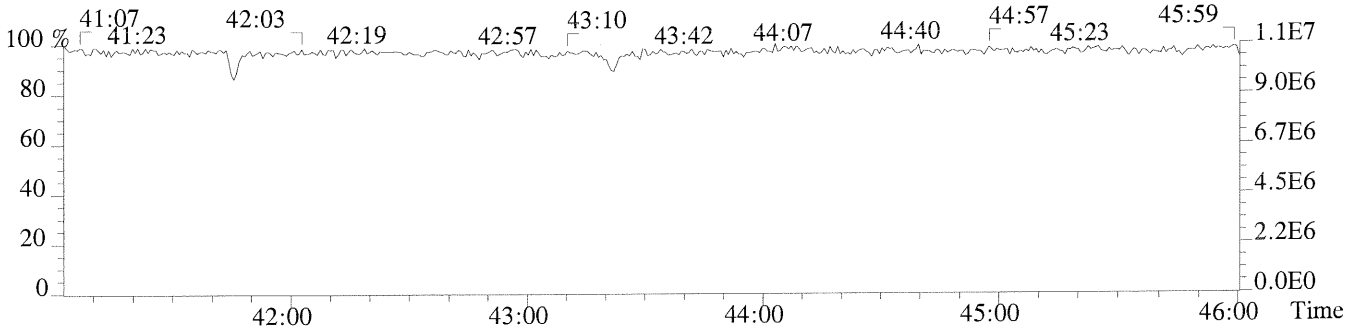
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,696.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
METHOD BLANK

Run #9 Filename P229237 Samp: 1 Inj: 1 Acquired: 25-MAY-14 15:47:02
Processed: 27-MAY-14 11:28:39 Sample ID: EQ1400264-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	1.127
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.123
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.101
4	Unk	1,2,3,4,7,8-HxCDF	36:19	1.403e+01	1.135e+01	1.24	yes	yes	1.338
5	Unk	1,2,3,6,7,8-HxCDF	36:25	2.037e+01	1.937e+01	1.05	yes	yes	1.234
6	Unk	2,3,4,6,7,8-HxCDF	36:54	2.200e+01	2.562e+01	0.86	no	yes	1.233
7	Unk	1,2,3,7,8,9-HxCDF	37:39	1.726e+01	8.805e+00	1.96	no	yes	1.269
8	Unk	1,2,3,4,6,7,8-HpCDF	38:53	4.375e+01	5.096e+01	0.86	no	no	1.421
9	Unk	1,2,3,4,7,8,9-HpCDF	40:19	3.357e+01	3.807e+01	0.88	yes	no	1.381
10	Unk	OCDF	42:52	4.351e+01	3.256e+01	1.34	no	yes	1.703
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.053
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	1.069
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.223
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.168
15	Unk	1,2,3,7,8,9-HxCDD	37:21	2.147e+01	1.387e+01	1.55	no	yes	1.236
16	Unk	1,2,3,4,6,7,8-HpCDD	39:48	2.914e+02	2.681e+02	1.09	yes	no	1.170
17	Unk	OCDD	42:39	4.883e+03	5.406e+03	0.90	yes	no	1.288
18	IS	13C-2,3,7,8-TCDF	28:46	1.912e+04	2.398e+04	0.80	yes	no	1.389
19	IS	13C-1,2,3,7,8-PeCDF	32:49	3.590e+04	2.221e+04	1.62	yes	no	1.865
20	IS	13C-2,3,4,7,8-PeCDF	33:42	3.503e+04	2.177e+04	1.61	yes	no	1.804
21	IS	13C-1,2,3,4,7,8-HxCDF	36:18	1.511e+04	2.962e+04	0.51	yes	no	1.421
22	IS	13C-1,2,3,6,7,8-HxCDF	36:25	1.998e+04	3.786e+04	0.53	yes	no	1.639
23	IS	13C-2,3,4,6,7,8-HxCDF	36:54	1.864e+04	3.539e+04	0.53	yes	no	1.444
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	1.605e+04	3.070e+04	0.52	yes	no	1.241
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	1.151e+04	2.622e+04	0.44	yes	no	1.198
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	1.079e+04	2.419e+04	0.45	yes	no	0.997
27	IS	13C-2,3,7,8-TCDD	29:31	1.282e+04	1.644e+04	0.78	yes	no	0.930
28	IS	13C-1,2,3,7,8-PeCDD	33:58	2.666e+04	1.670e+04	1.60	yes	no	1.107
29	IS	13C-1,2,3,4,7,8-HxCDD	37:02	2.121e+04	1.683e+04	1.26	yes	no	0.930
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	2.298e+04	1.777e+04	1.29	yes	no	0.983
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	1.878e+04	1.763e+04	1.07	yes	no	0.935
32	IS	13C-OCDD	42:38	2.560e+04	2.812e+04	0.91	yes	no	0.687
33	RS/RT	13C-1,2,3,4-TCDD	28:56	2.182e+04	2.776e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:20	3.475e+04	2.676e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.881e+03				no	0.946

$$\text{OCDD} = \frac{(4.883e+03 + 5.406e+03) \times 4000 \text{ pg} \times 1}{(2.560e+04 + 2.812e+04) \times \text{g} \times / 100 \times 1.288} =$$

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1613RESPA

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #9 Filename P229237 Samp: 1 Inj: 1 Acquired: 25-MAY-14 15:47:02
Processed: 27-MAY-14 11:28:391 LAB. ID: EQ1400264-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.96e+02	*	*	1.66e+03	*
2	1,2,3,7,8-PeCDF	*	2.92e+02	*	*	1.44e+03	*
3	2,3,4,7,8-PeCDF	*	2.92e+02	*	*	1.44e+03	*
4	1,2,3,4,7,8-HxCDF	3.38e+03	7.00e+02	4.8e+00	3.30e+03	3.76e+02	8.8e+00
5	1,2,3,6,7,8-HxCDF	4.57e+03	7.00e+02	6.5e+00	3.73e+03	3.76e+02	9.9e+00
6	2,3,4,6,7,8-HxCDF	5.25e+03	7.00e+02	7.5e+00	4.16e+03	3.76e+02	1.1e+01
7	1,2,3,7,8,9-HxCDF	4.82e+03	7.00e+02	6.9e+00	2.64e+03	3.76e+02	7.0e+00
8	1,2,3,4,6,7,8-HpCDF	7.96e+03	4.32e+02	1.8e+01	9.02e+03	4.24e+02	2.1e+01
9	1,2,3,4,7,8,9-HpCDF	5.85e+03	4.32e+02	1.4e+01	6.13e+03	4.24e+02	1.4e+01
10	OCDF	7.82e+03	1.80e+02	4.3e+01	6.21e+03	8.28e+02	7.5e+00
11	2,3,7,8-TCDD	*	7.24e+02	*	*	5.64e+02	*
12	1,2,3,7,8-PeCDD	*	6.80e+02	*	*	1.00e+02	*
13	1,2,3,4,7,8-HxCDD	*	2.56e+02	*	*	5.00e+02	*
14	1,2,3,6,7,8-HxCDD	*	2.56e+02	*	*	5.00e+02	*
15	1,2,3,7,8,9-HxCDD	4.52e+03	2.56e+02	1.8e+01	2.65e+03	5.00e+02	5.3e+00
16	1,2,3,4,6,7,8-HpCDD	4.98e+04	3.04e+02	1.6e+02	5.30e+04	3.76e+02	1.4e+02
17	OCDD	7.69e+05	8.40e+01	9.2e+03	8.57e+05	4.04e+02	2.1e+03
18	13C-2,3,7,8-TCDF	4.04e+06	1.05e+03	3.8e+03	5.08e+06	8.72e+02	5.8e+03
19	13C-1,2,3,7,8-PeCDF	6.99e+06	7.08e+02	9.9e+03	4.33e+06	4.64e+02	9.3e+03
20	13C-2,3,4,7,8-PeCDF	7.14e+06	7.08e+02	1.0e+04	4.42e+06	4.64e+02	9.5e+03
21	13C-1,2,3,4,7,8-HxCDF	3.35e+06	8.56e+02	3.9e+03	6.50e+06	1.66e+03	3.9e+03
22	13C-1,2,3,6,7,8-HxCDF	4.20e+06	8.56e+02	4.9e+03	7.91e+06	1.66e+03	4.8e+03
23	13C-2,3,4,6,7,8-HxCDF	4.03e+06	8.56e+02	4.7e+03	7.73e+06	1.66e+03	4.6e+03
24	13C-1,2,3,7,8,9-HxCDF	3.21e+06	8.56e+02	3.7e+03	6.09e+06	1.66e+03	3.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.42e+06	1.28e+03	1.9e+03	5.48e+06	2.99e+03	1.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.98e+06	1.28e+03	1.5e+03	4.42e+06	2.99e+03	1.5e+03
27	13C-2,3,7,8-TCDD	2.90e+06	2.85e+03	1.0e+03	3.72e+06	1.73e+03	2.2e+03
28	13C-1,2,3,7,8-PeCDD	5.49e+06	6.76e+02	8.1e+03	3.42e+06	4.04e+02	8.5e+03
29	13C-1,2,3,4,7,8-HxCDD	4.82e+06	9.36e+02	5.2e+03	3.79e+06	7.12e+02	5.3e+03
30	13C-1,2,3,6,7,8-HxCDD	4.80e+06	9.36e+02	5.1e+03	3.75e+06	7.12e+02	5.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.57e+06	5.96e+02	6.0e+03	3.40e+06	4.28e+02	7.9e+03
32	13C-OCDD	4.07e+06	4.72e+02	8.6e+03	4.50e+06	6.32e+02	7.1e+03
33	13C-1,2,3,4-TCDD	4.82e+06	2.85e+03	1.7e+03	6.16e+06	1.73e+03	3.6e+03
34	13C-1,2,3,7,8,9-HxCDD	7.07e+06	9.36e+02	7.6e+03	5.44e+06	7.12e+02	7.6e+03
35	37Cl-2,3,7,8-TCDD	2.18e+06	8.00e+02	2.7e+03			

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XLSN

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Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 41 Totals Name: Total Hexa-Furans

Run: 9 File: P229237 Sample: 1 Injection: 1 Function: 3
Llim: - Ulim: -
Acquired: 25-MAY-14 15:47:02 Processed: 27-MAY-14 11:28:39
Mass: 373.8210 375.8180 Tot Response: 1.20e+02 RRF: 1.267

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:23	1.55e+01	1.36e+01	1.14	yes	2.91e+01		y	n
2	36:19	1.40e+01	1.13e+01	1.24	yes	2.54e+01	1,2,3,4,7,8-HxCDF	y	n
3	36:25	2.04e+01	1.94e+01	1.05	yes	3.97e+01	1,2,3,6,7,8-HxCDF	y	n
4	37:42	1.38e+01	1.18e+01	1.18	yes	2.56e+01		y	y

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Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 43 Totals Name: Total Hepta-Furans

Run: 9 File: P229237 Sample: 1 Injection: 1 Function: 4
Llim: - Ulim: -
Acquired: 25-MAY-14 15:47:02 Processed: 27-MAY-14 11:28:39
Mass: 407.7820 409.7790 Tot Response: 1.35e+02 RRF: 1.403

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:18	3.25e+01	3.08e+01	1.06	yes	6.33e+01		n	n
2	40:19	3.36e+01	3.81e+01	0.88	yes	7.16e+01	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 9 File: P229237 Sample: 1 Injection: 1 Function: 4
Llim: - Ulim: -
Acquired: 25-MAY-14 15:47:02 Processed: 27-MAY-14 11:28:39
Mass: 423.7770 425.7740 Tot Response: 1.17e+03 RRF: 1.170

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:07	3.14e+02	3.00e+02	1.04	yes	6.14e+02		y	n
2	39:48	2.91e+02	2.68e+02	1.09	yes	5.60e+02	1,2,3,4,6,7,8-HpCDD	n	n

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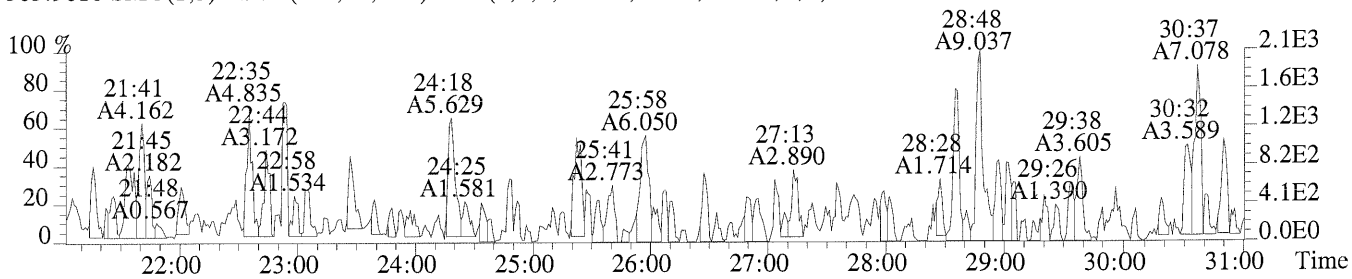
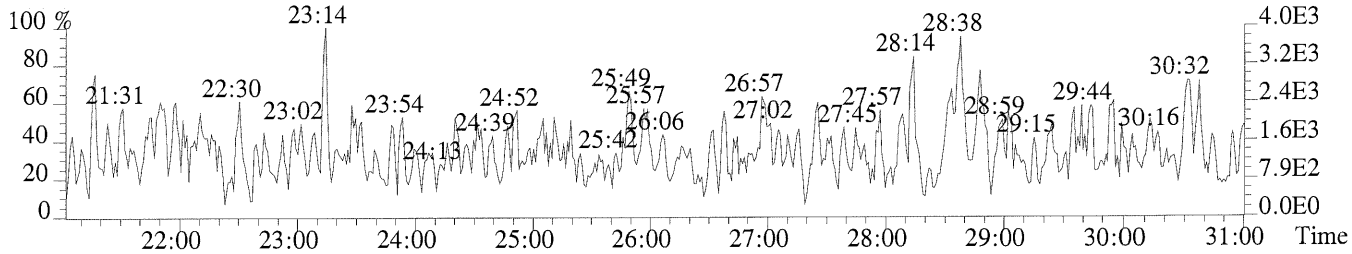
File:P229237 #1-627 Acq:25-MAY-2014 15:47:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-01 MB

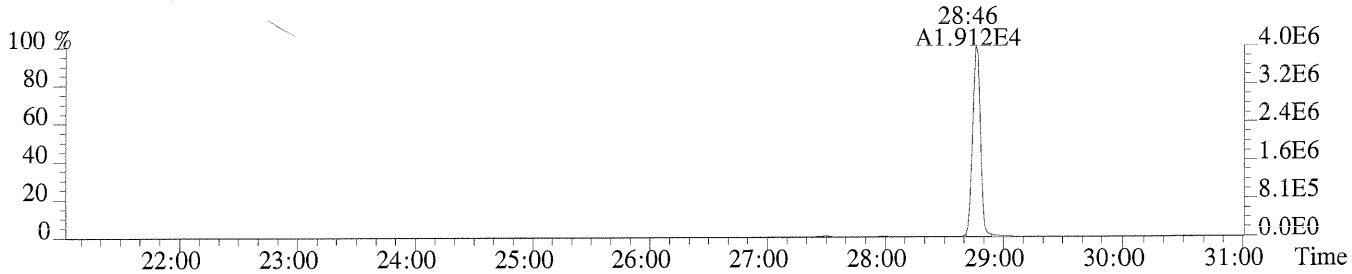
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



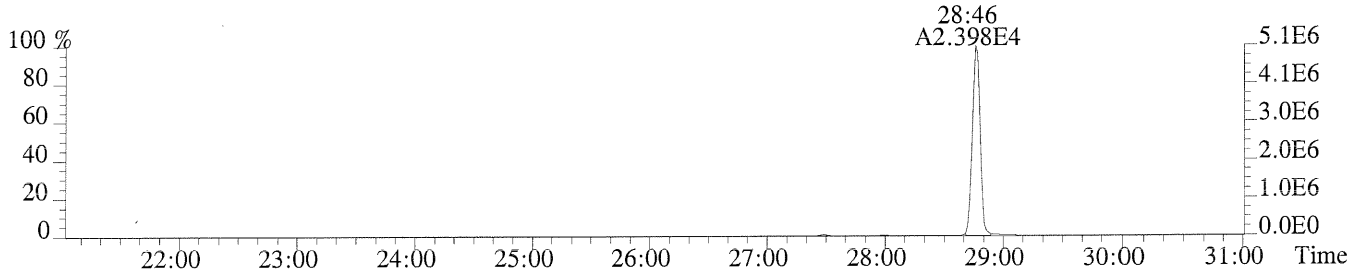
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



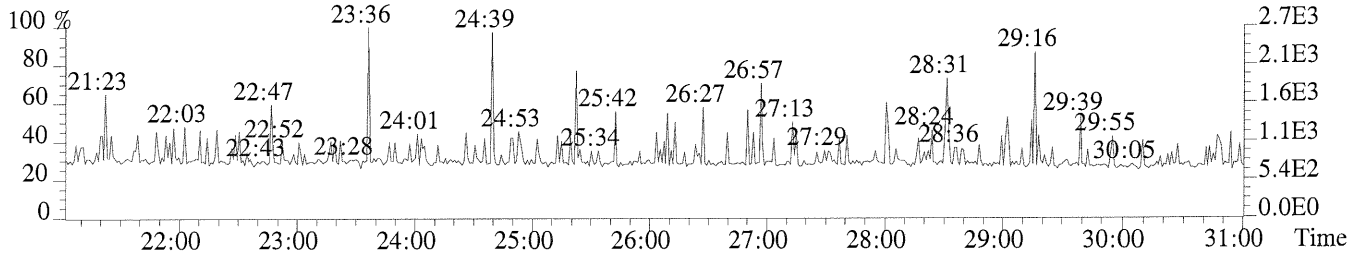
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



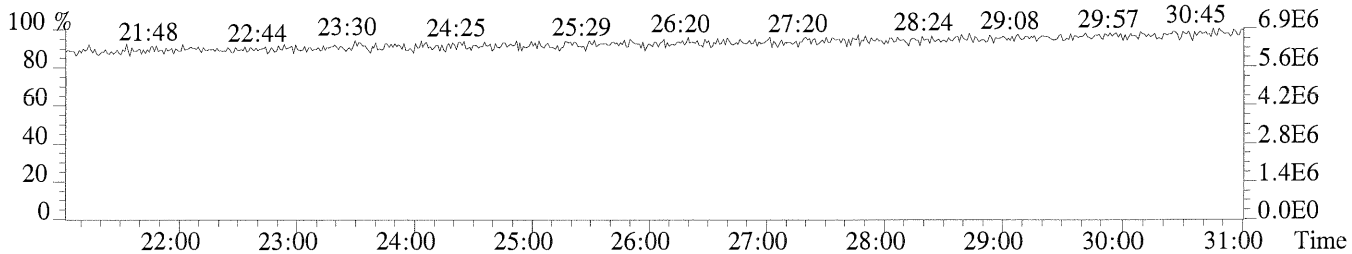
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

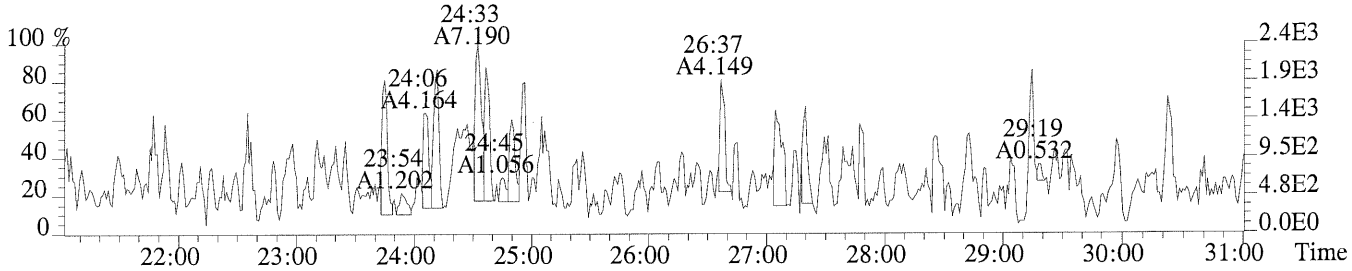


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

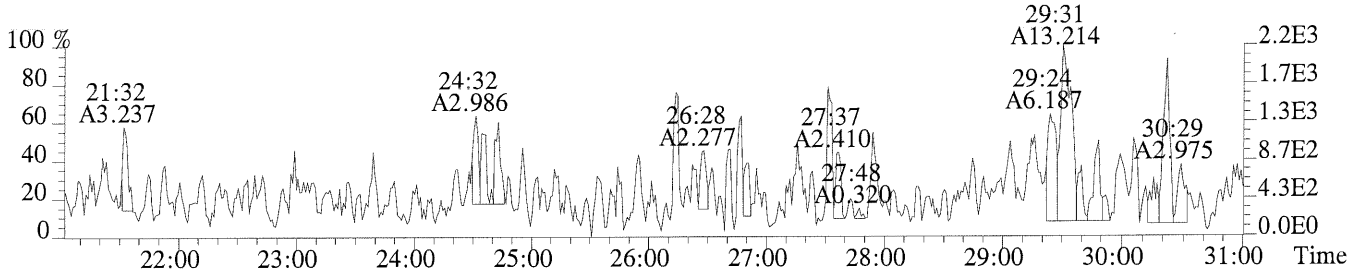


File:P229237 #1-627 Acq:25-MAY-2014 15:47:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-01 MB

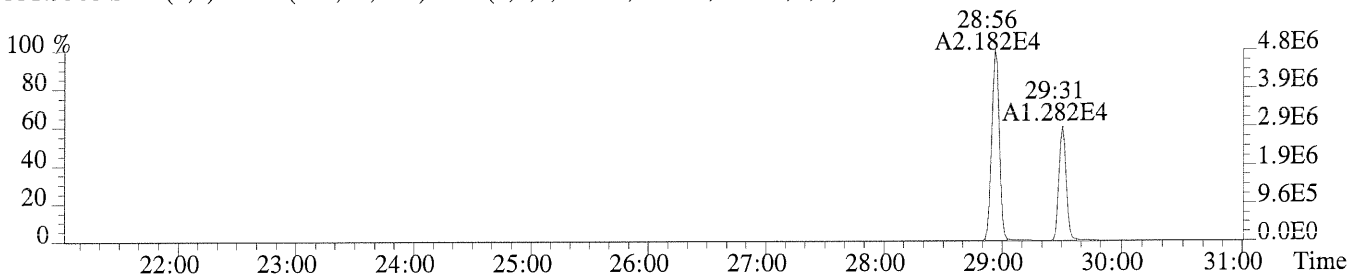
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



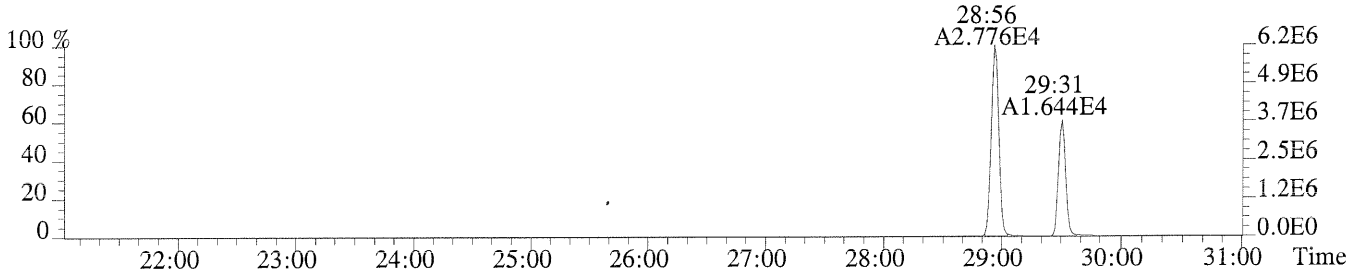
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



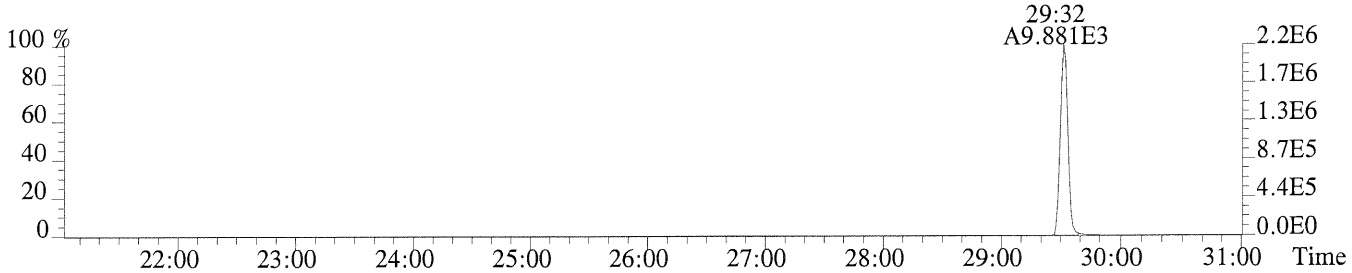
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2848.0,1.00%,F,T)



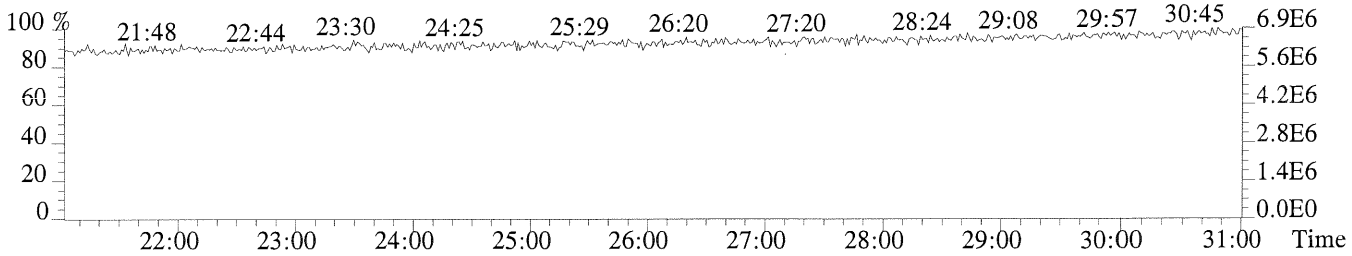
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1728.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)

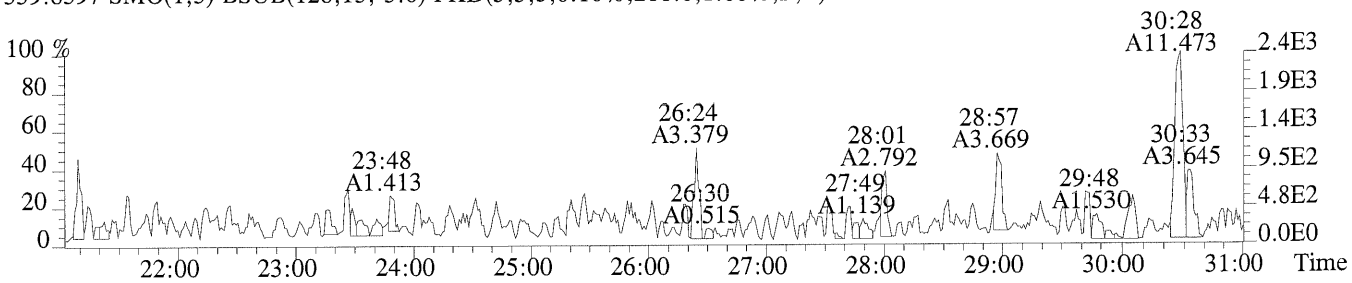


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

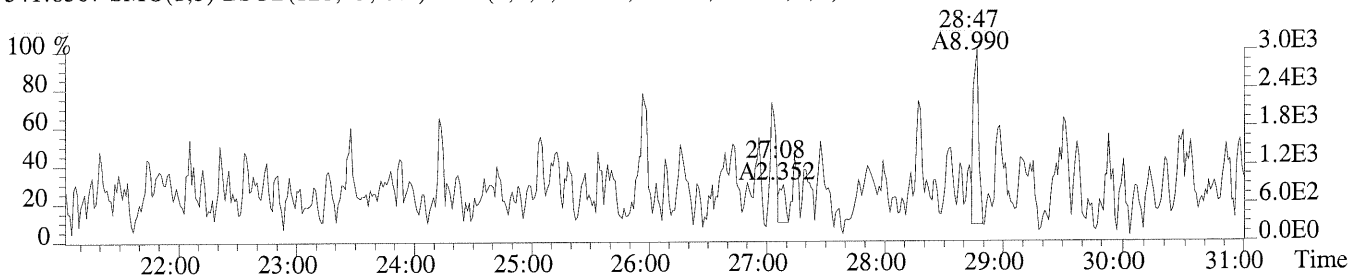


File:P229237 #1-627 Acq:25-MAY-2014 15:47:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-01 MB

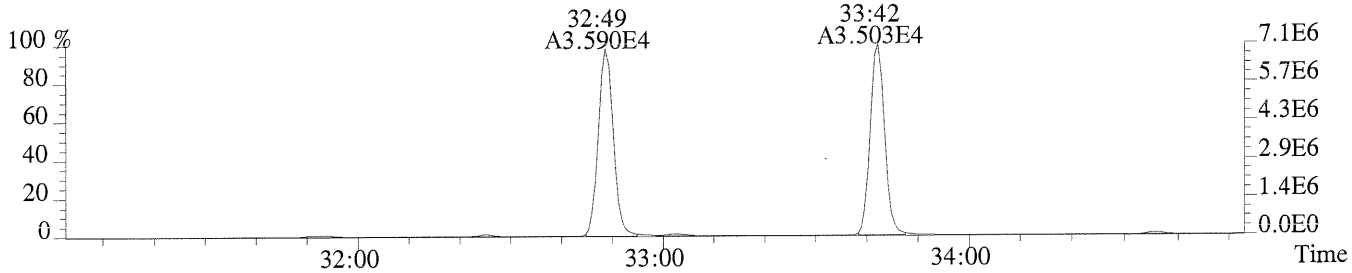
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,288.0,1.00%,F,T)



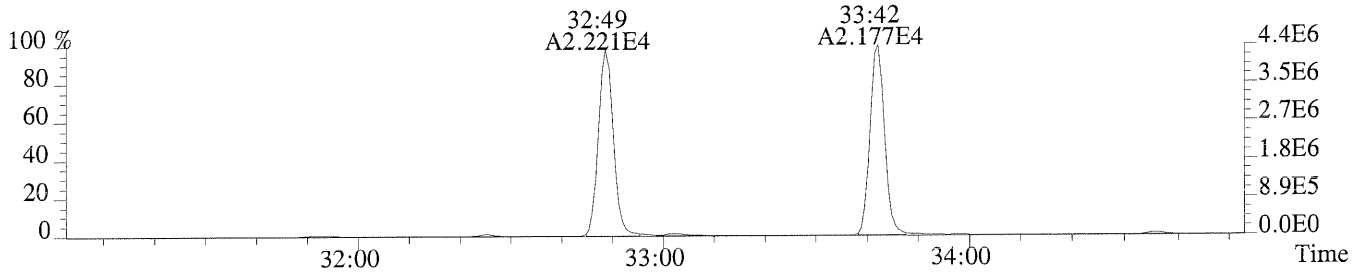
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



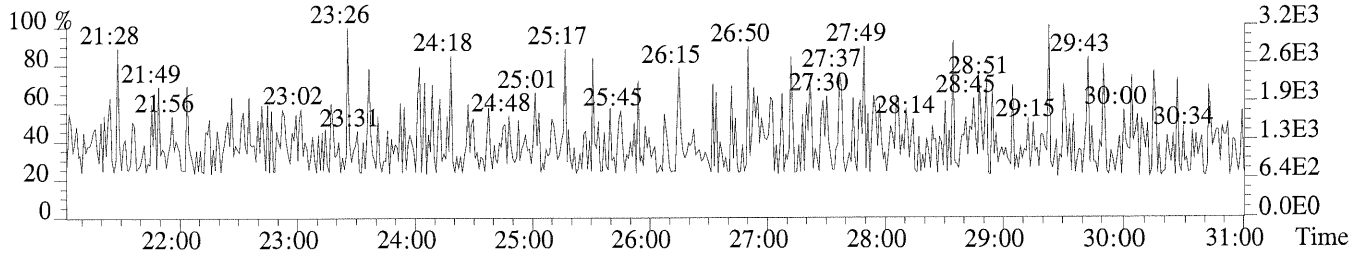
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



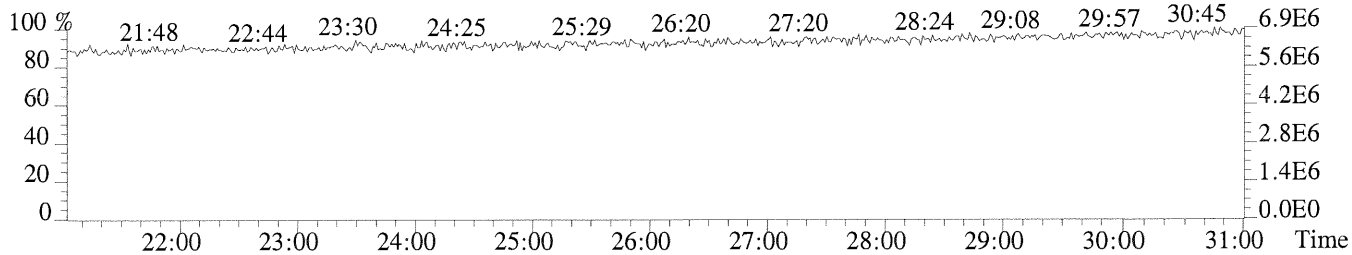
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

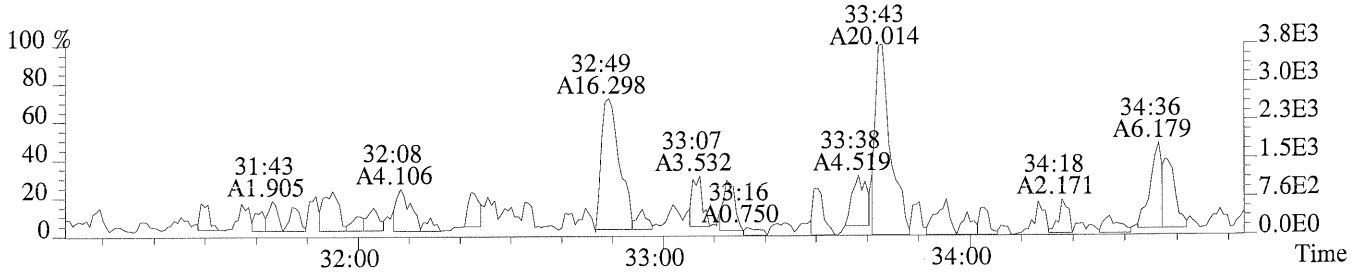


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

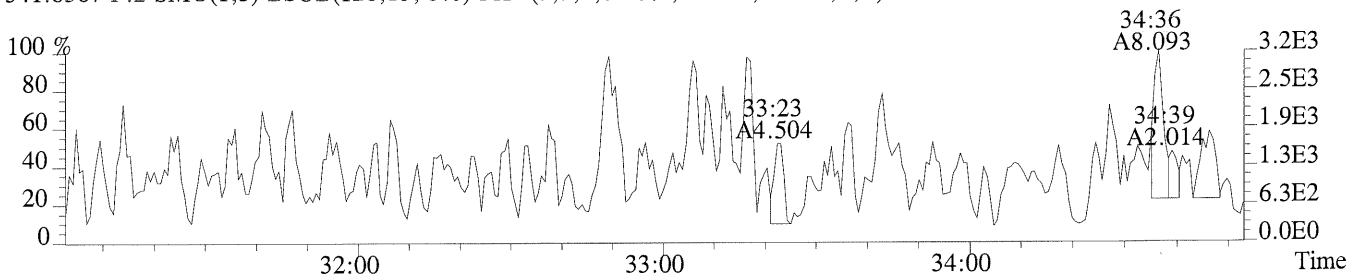


File:P229237 #1-349 Acq:25-MAY-2014 15:47:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-01 MB

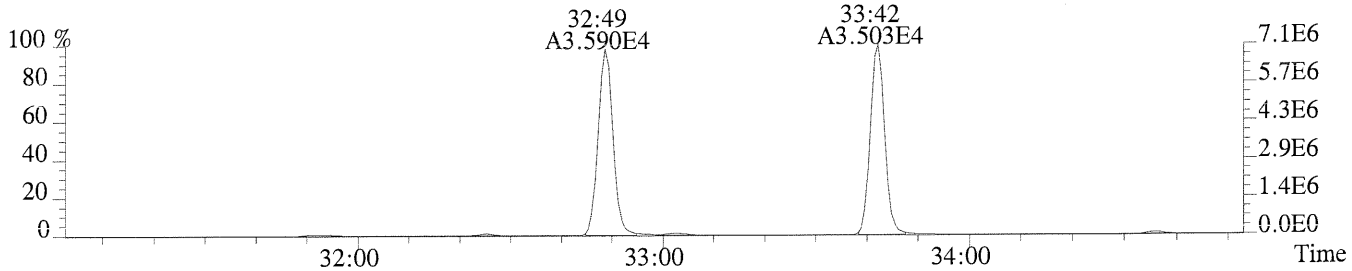
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



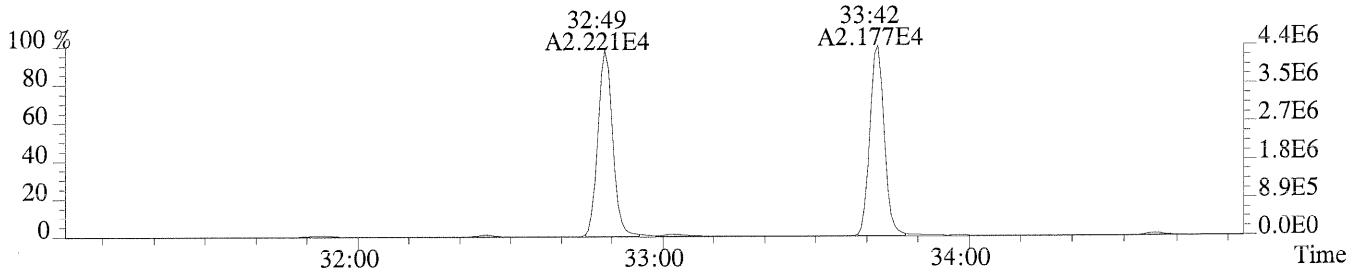
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1444.0,1.00%,F,T)



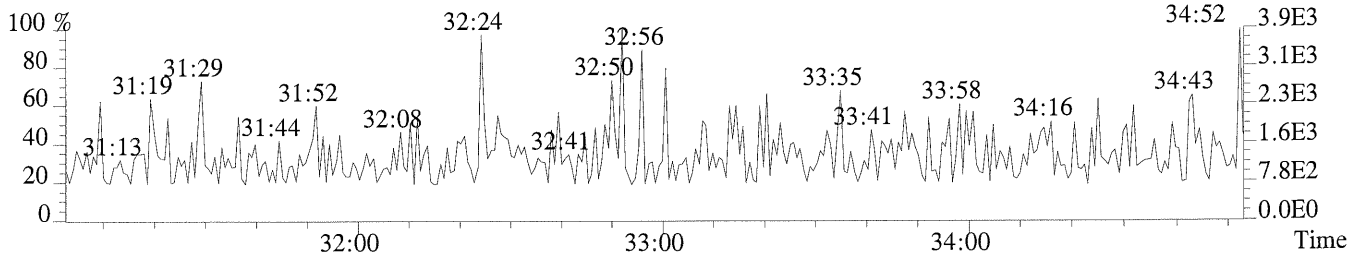
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



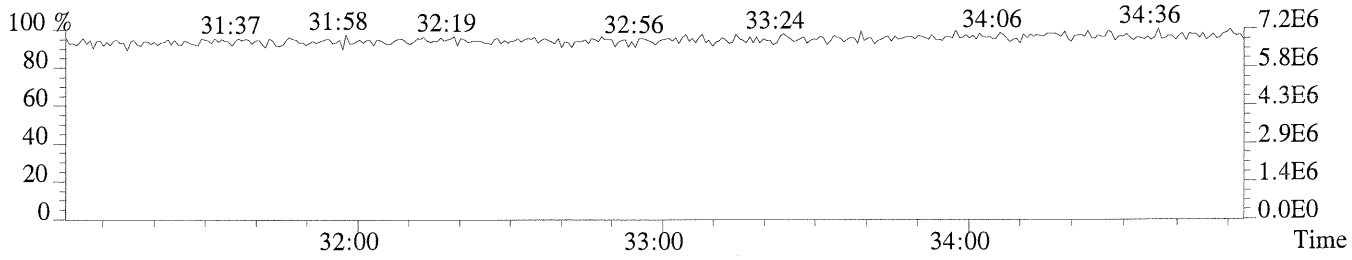
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

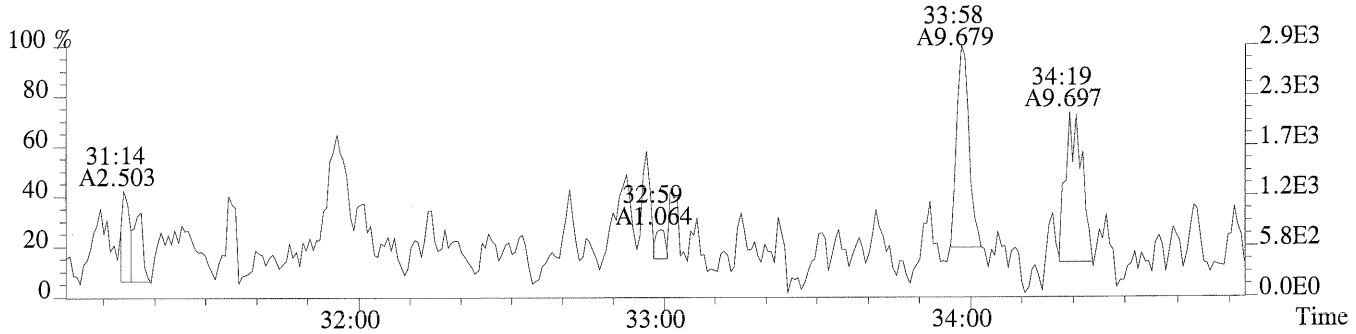


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

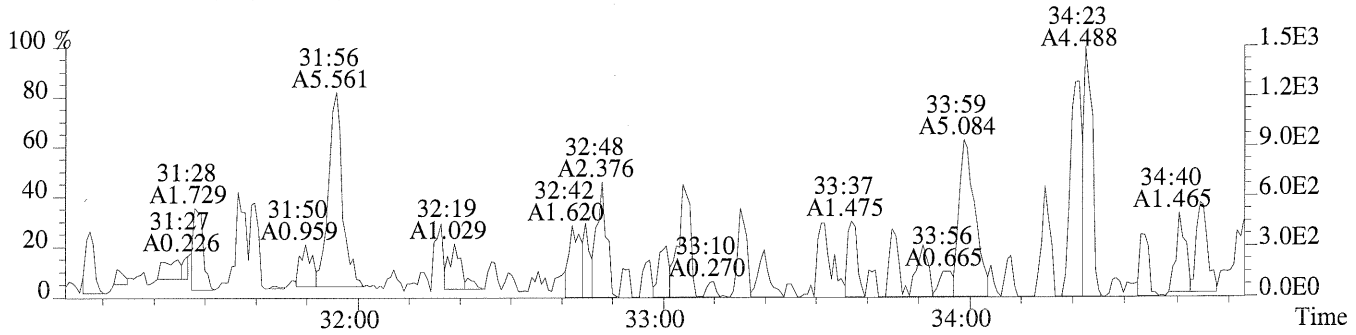


File:P229237 #1-349 Acq:25-MAY-2014 15:47:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-01 MB

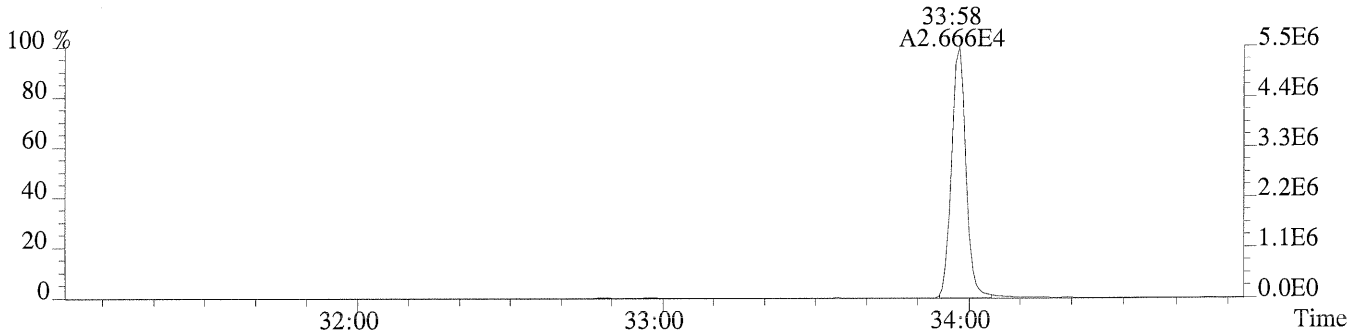
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



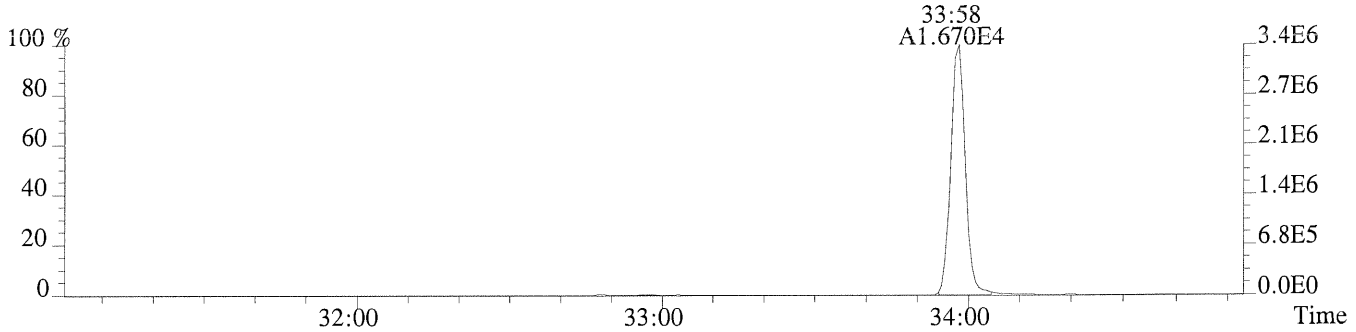
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,100.0,1.00%,F,T)



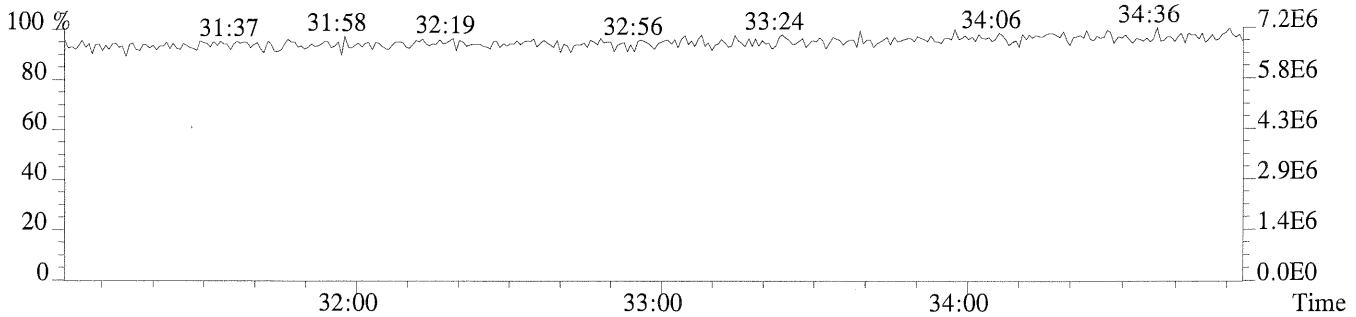
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)

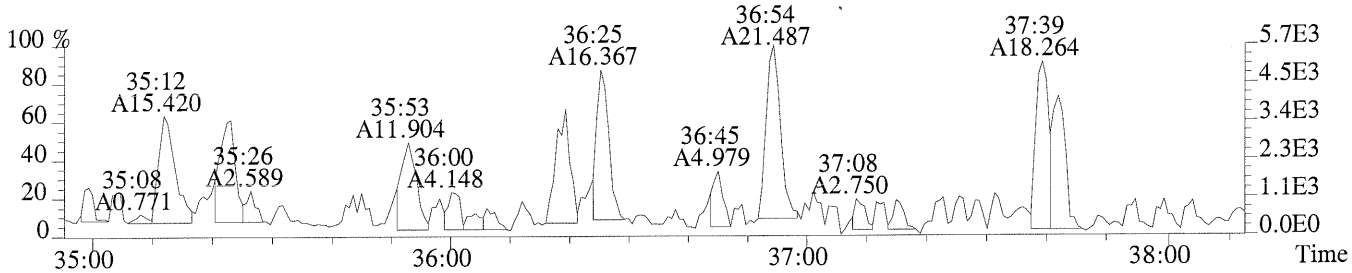


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

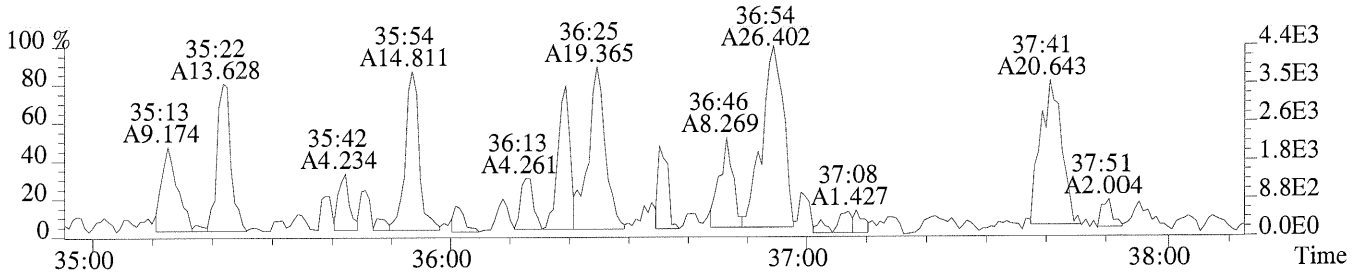


File:P229237 #1-299 Acq:25-MAY-2014 15:47:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-01 MB

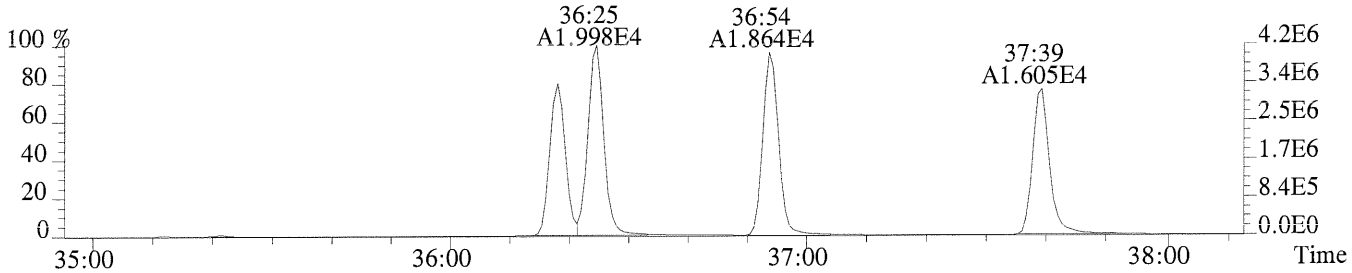
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



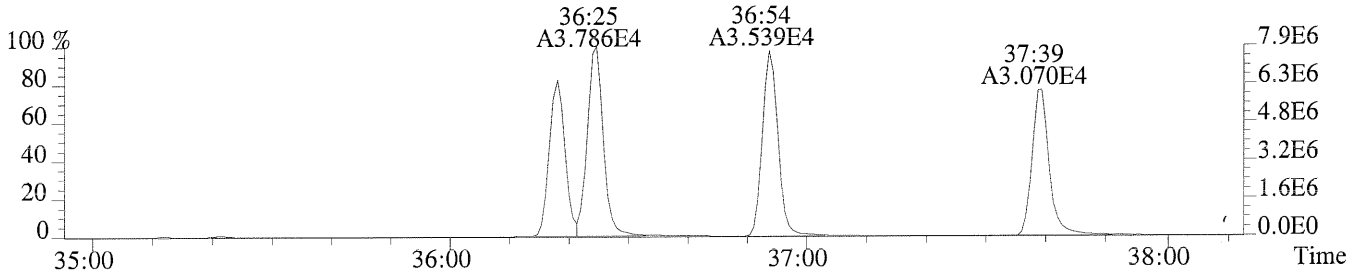
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



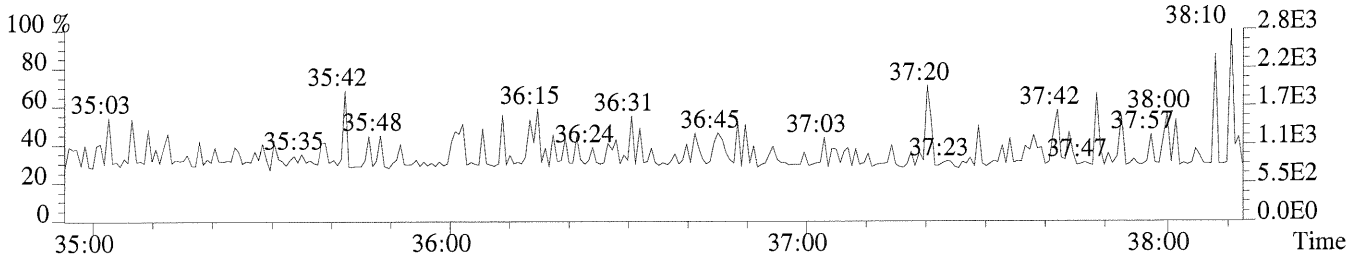
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



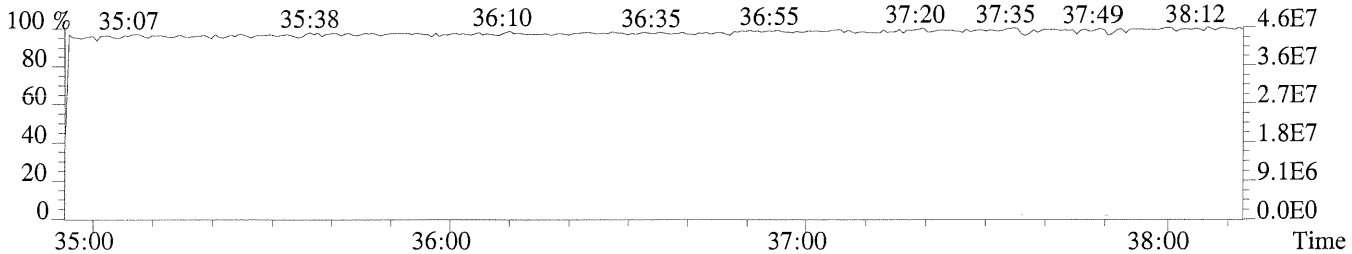
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1664.0,0.40%,F,T)



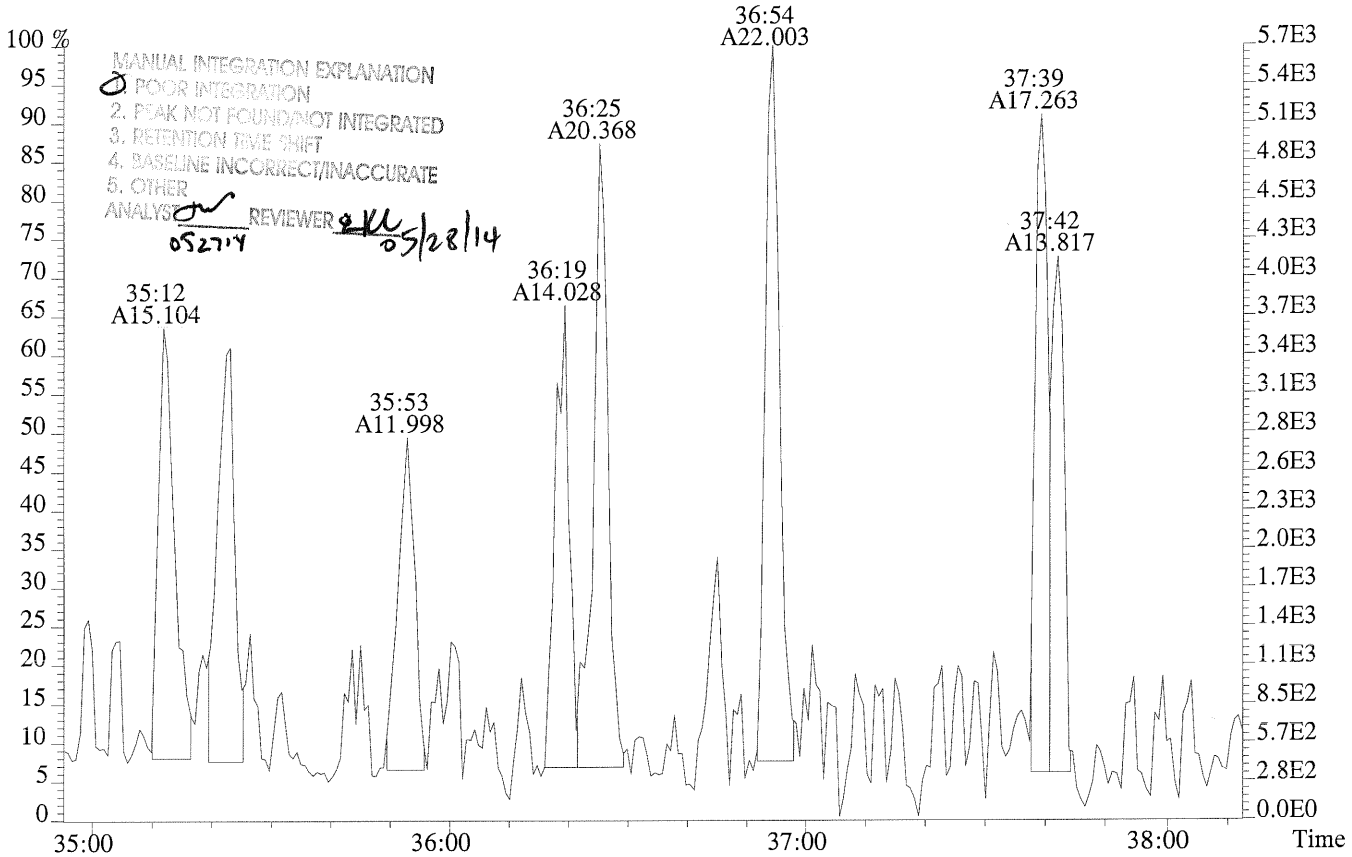
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



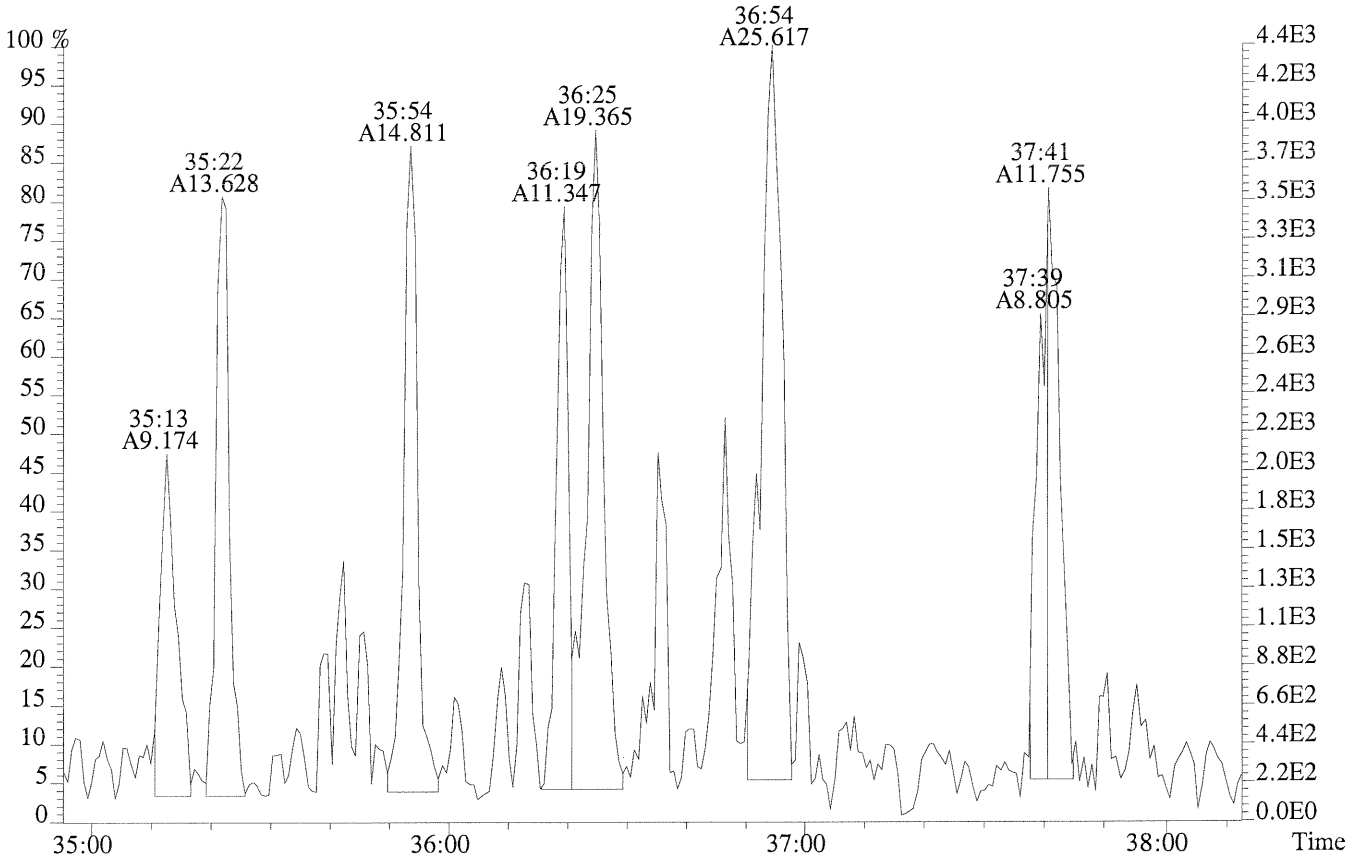
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P229237 #1-299 Acq:25-MAY-2014 15:47:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-01 MB
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)

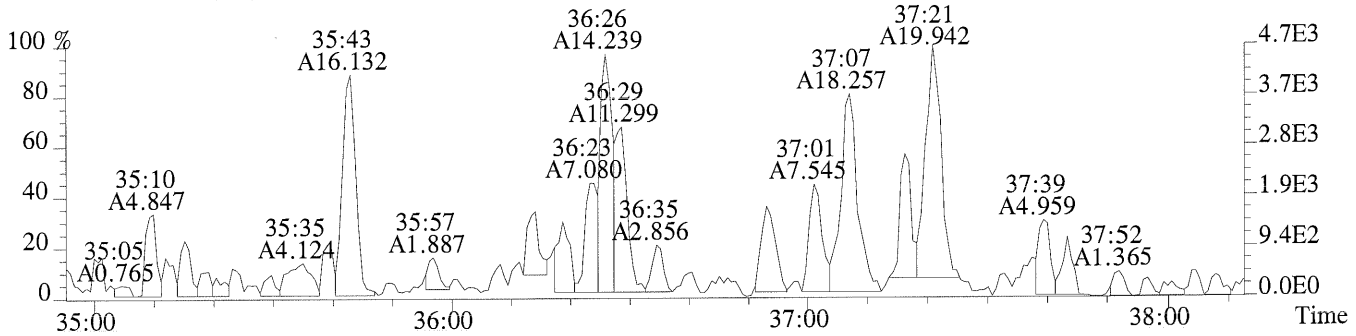


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)

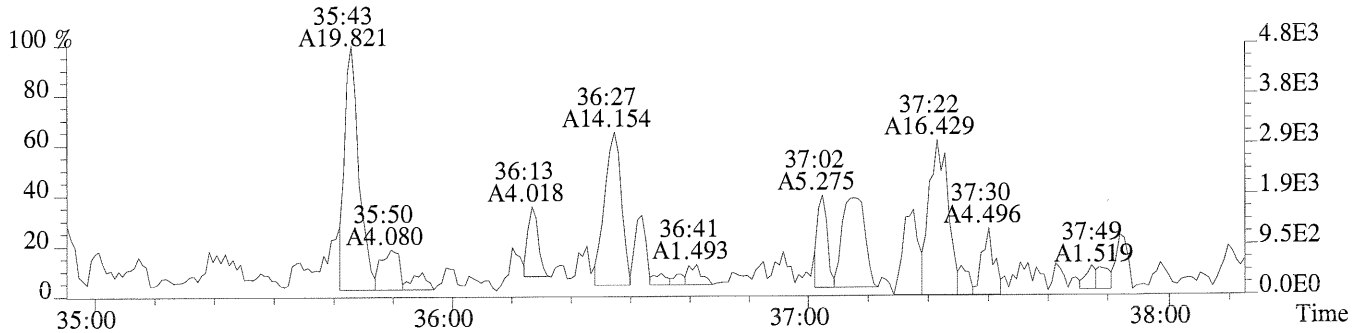


File:P229237 #1-299 Acq:25-MAY-2014 15:47:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-01 MB

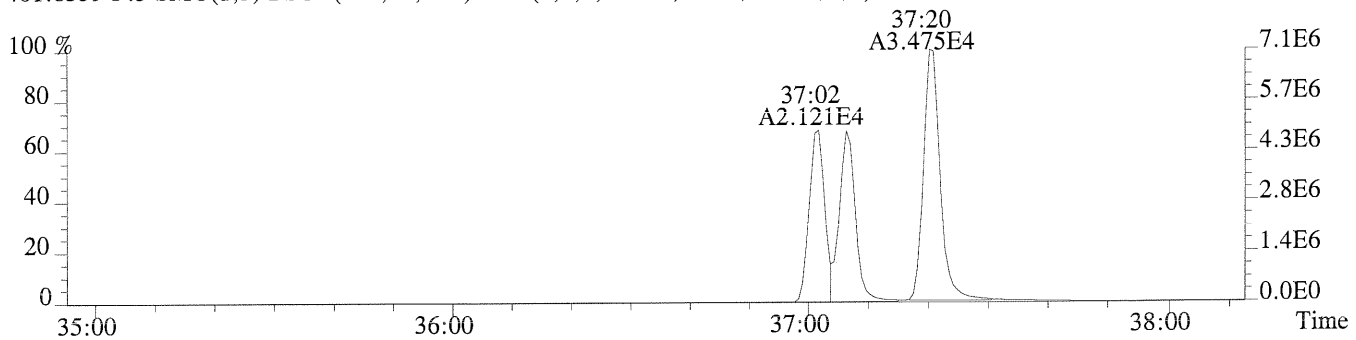
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



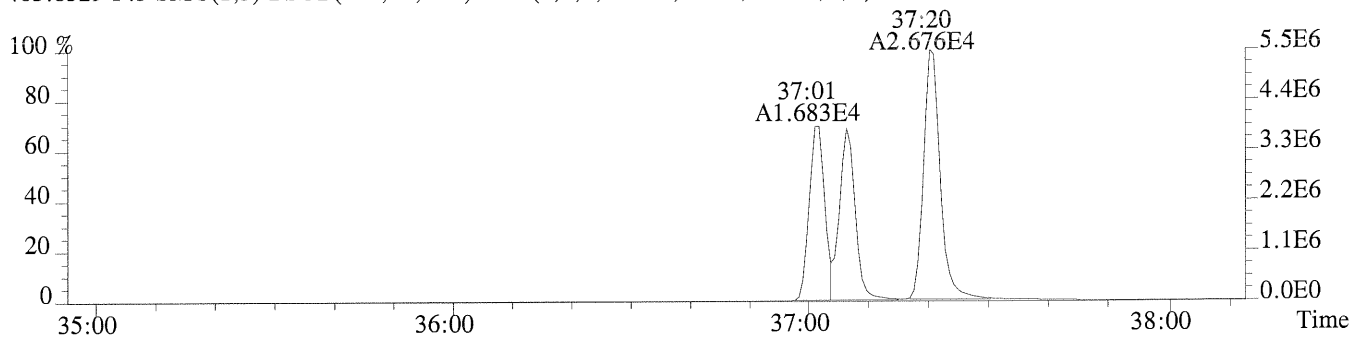
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



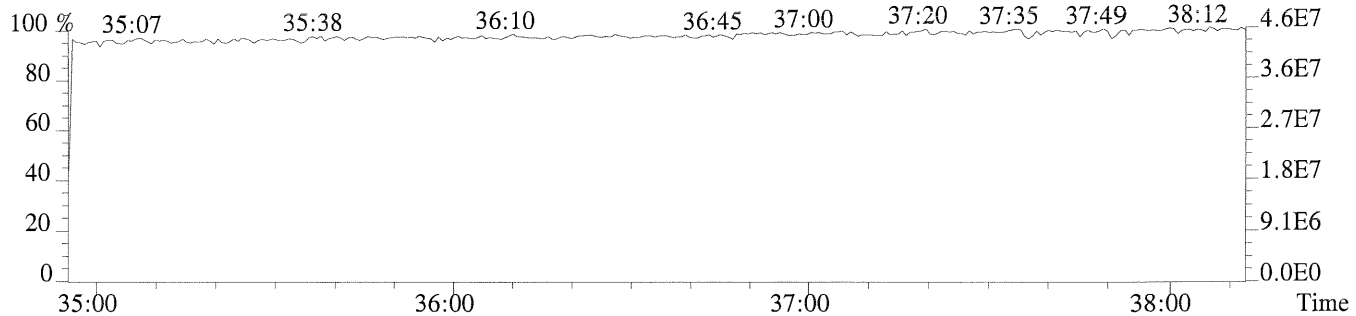
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



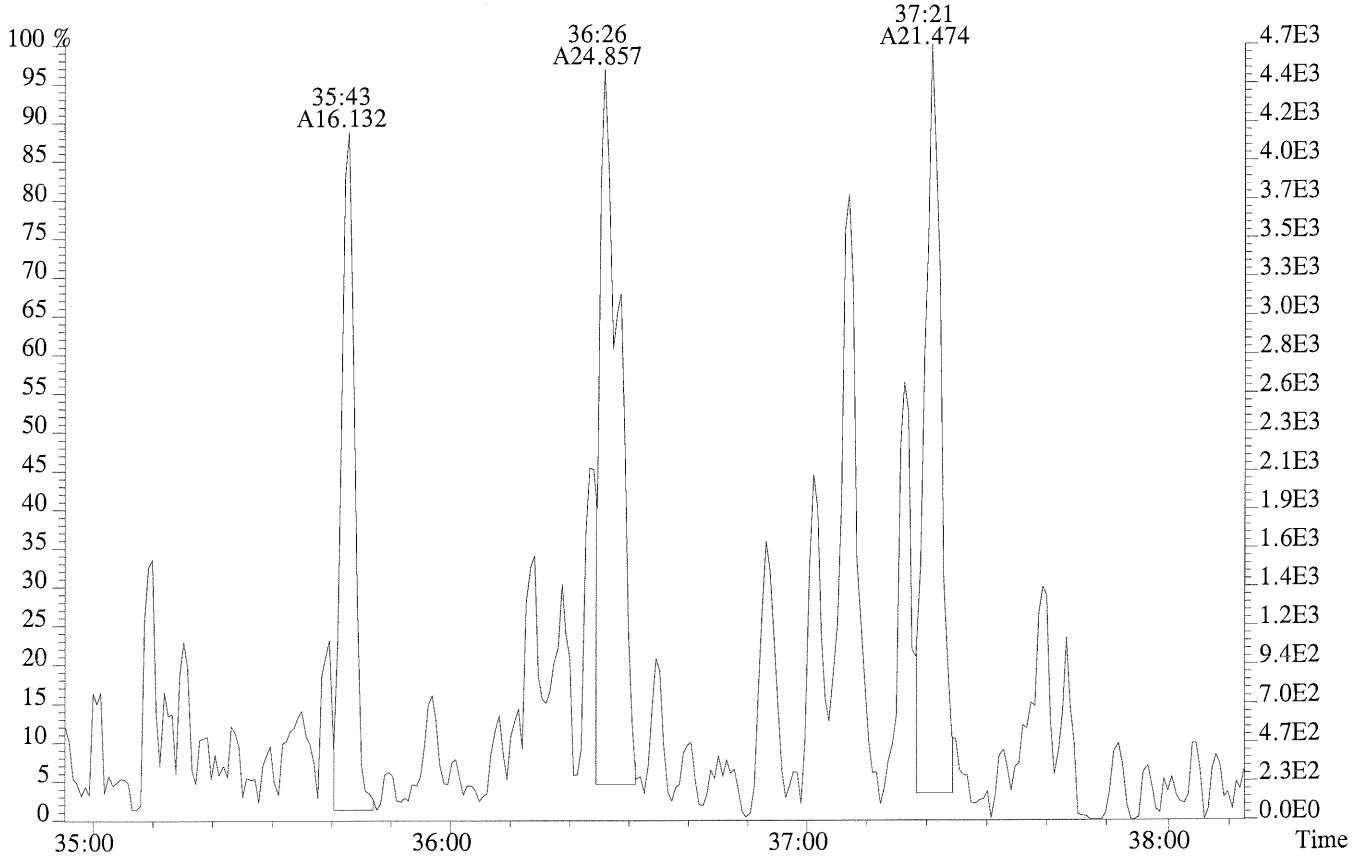
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



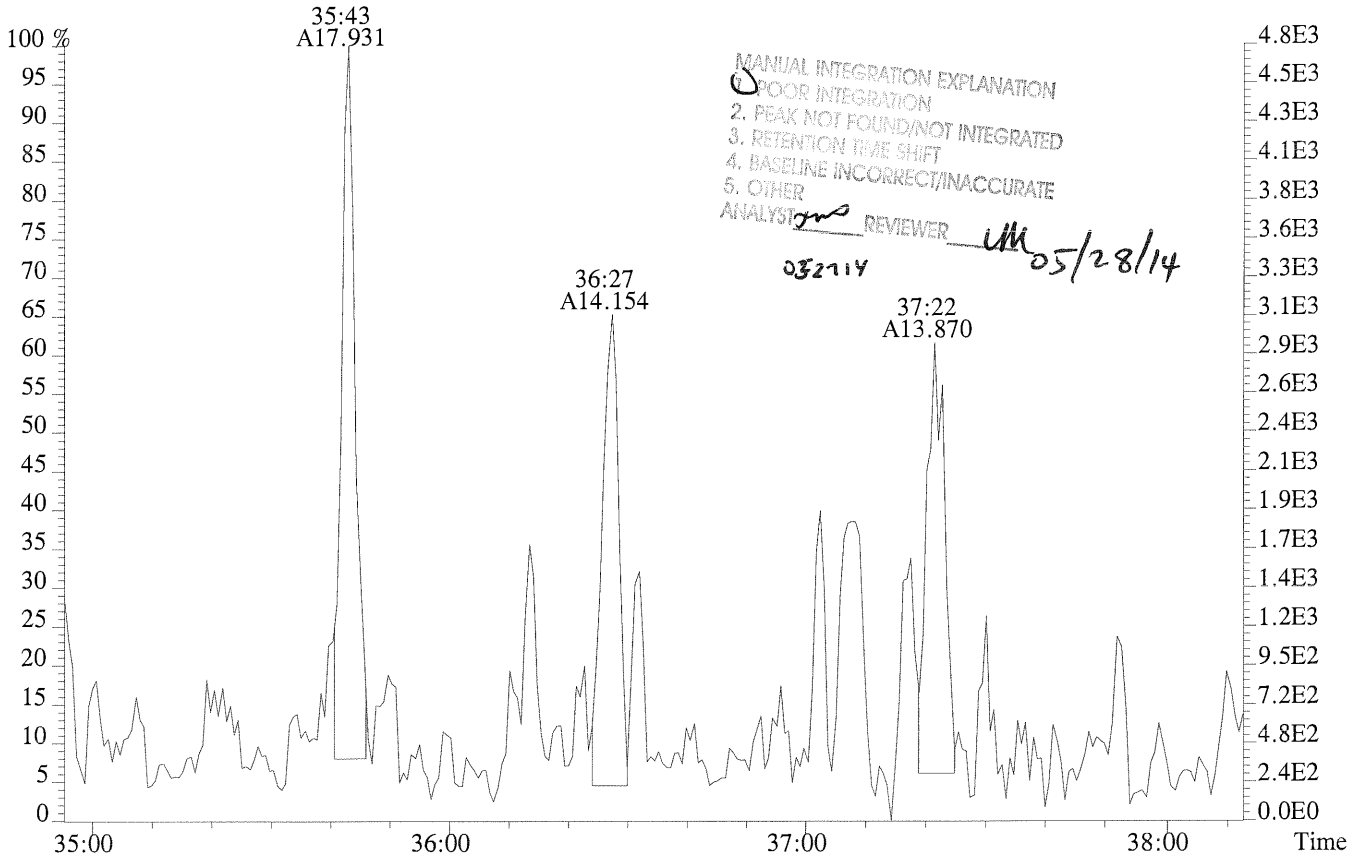
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P229237 #1-299 Acq:25-MAY-2014 15:47:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-01 MB
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



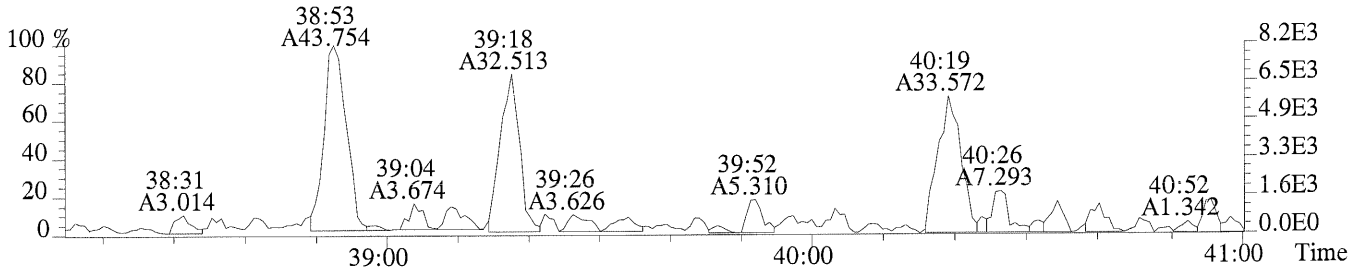
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



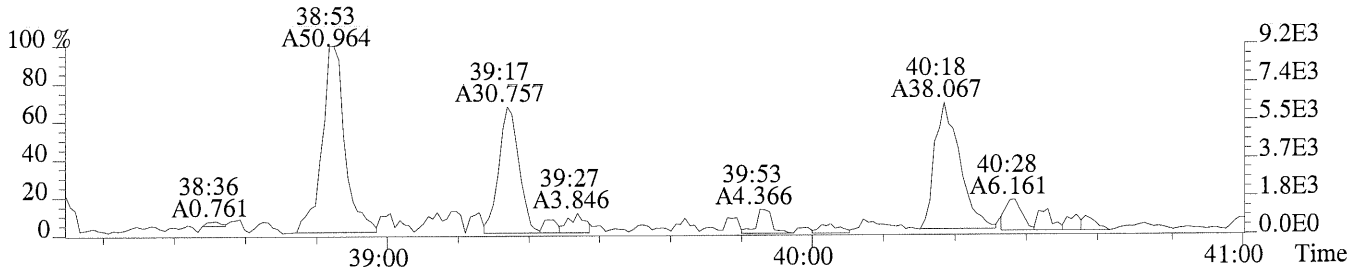
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST 052714 REVIEWER UM 05/28/14

File:P229237 #1-251 Acq:25-MAY-2014 15:47:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-01 MB

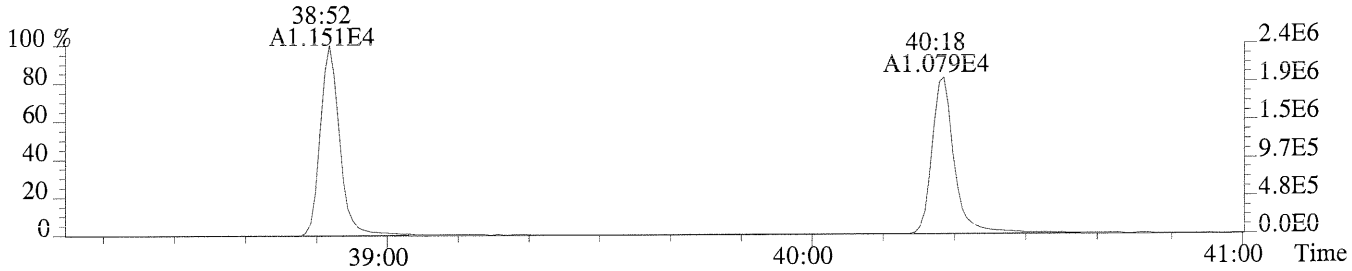
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,432.0,0.50%,F,T)



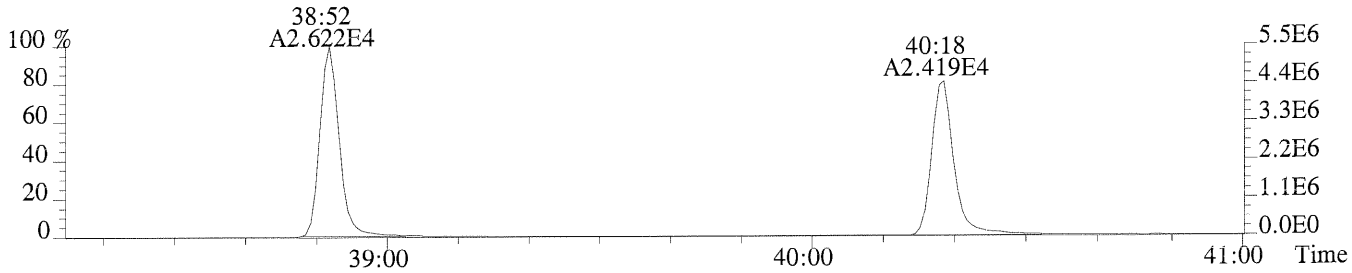
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.50%,F,T)



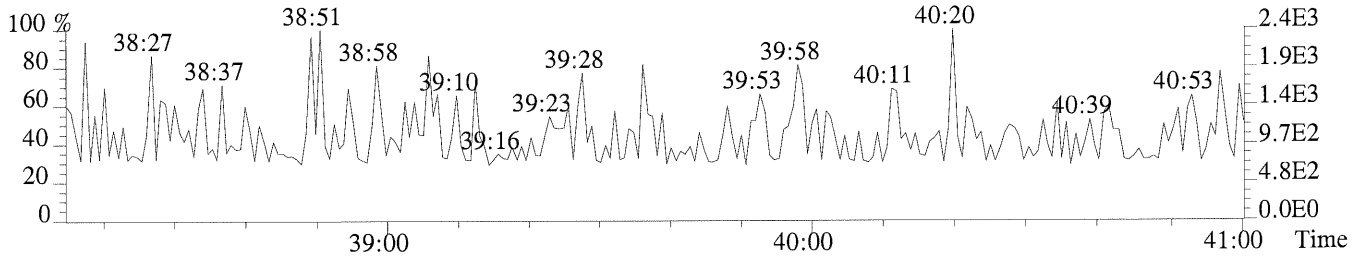
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1280.0,0.50%,F,T)



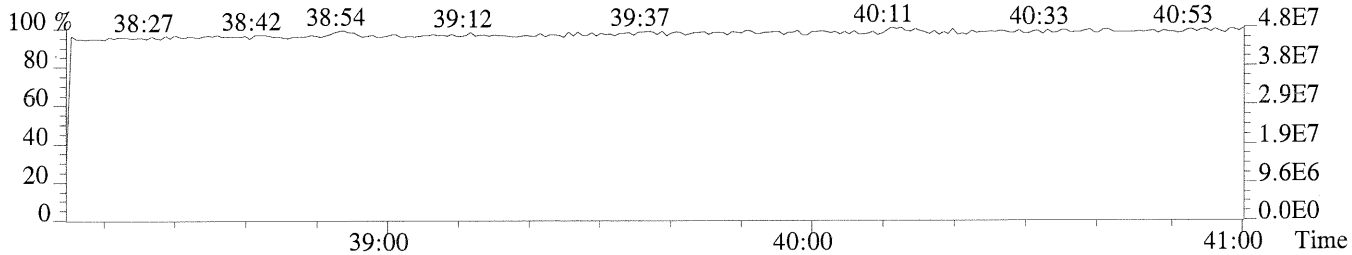
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2992.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

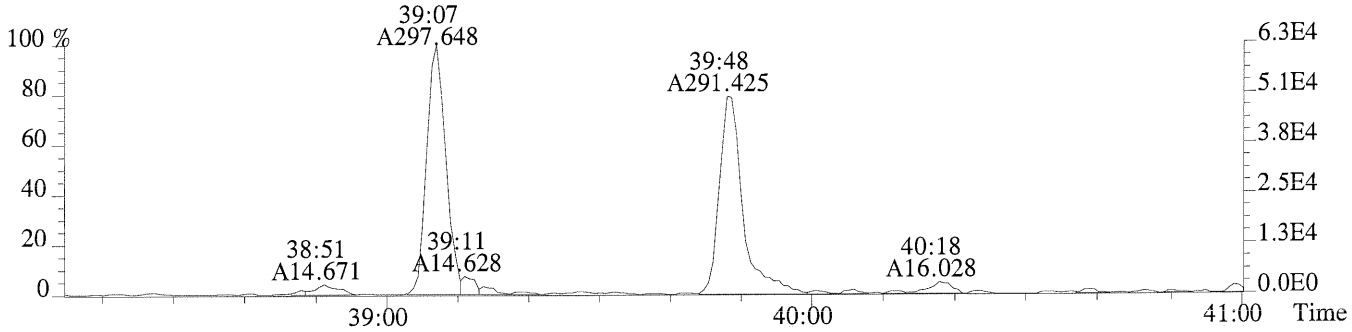


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

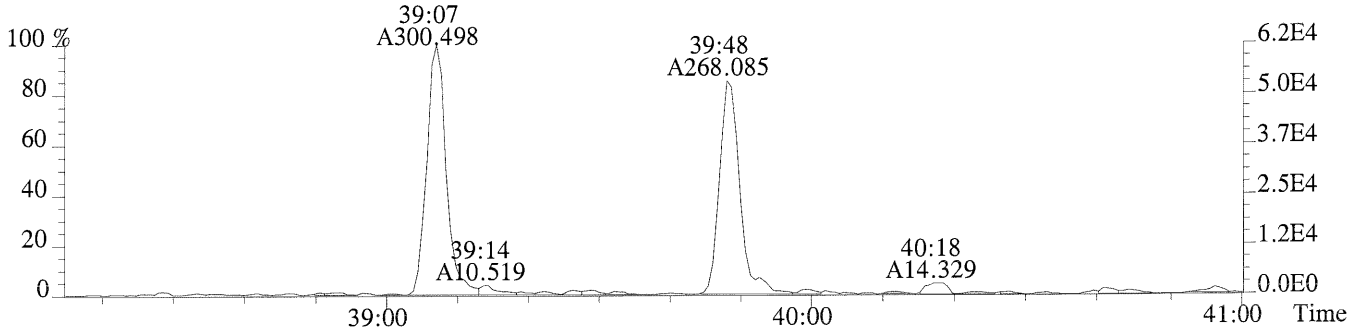


File:P229237 #1-251 Acq:25-MAY-2014 15:47:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-01 MB

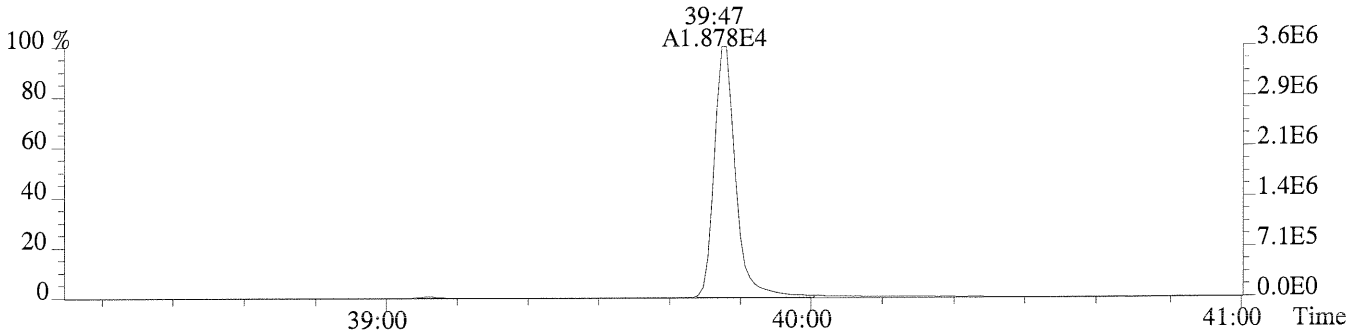
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)



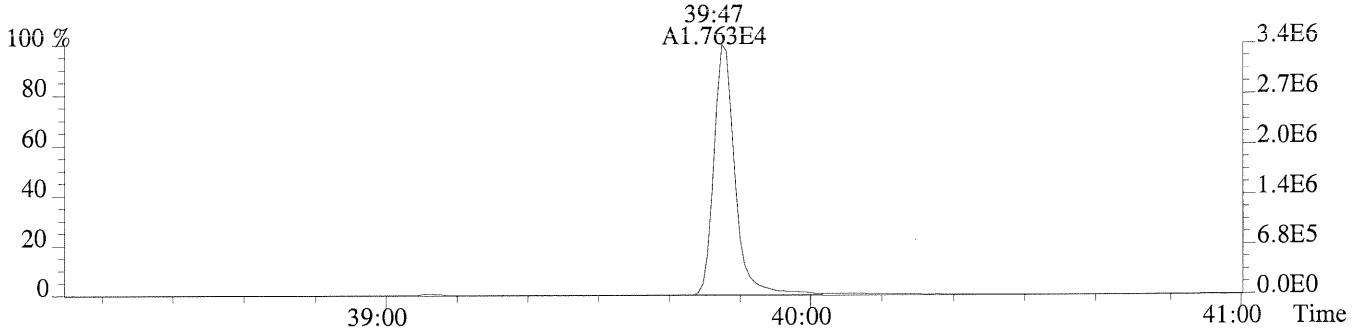
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



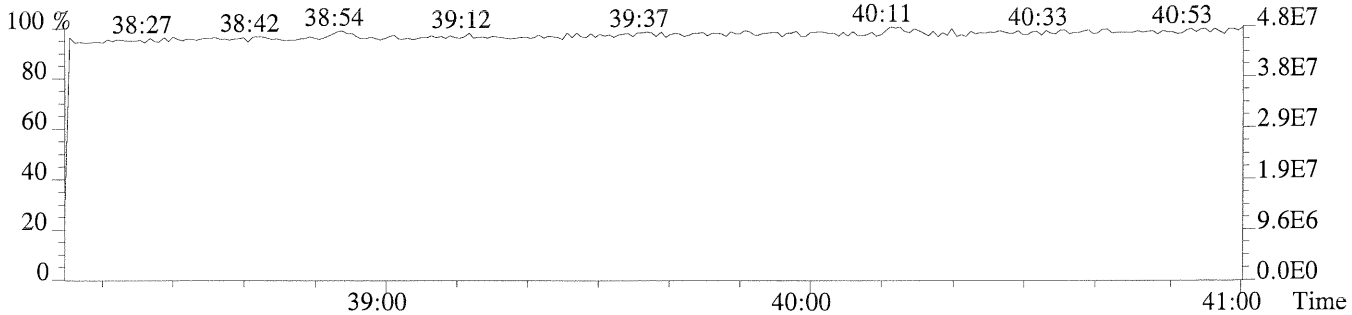
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



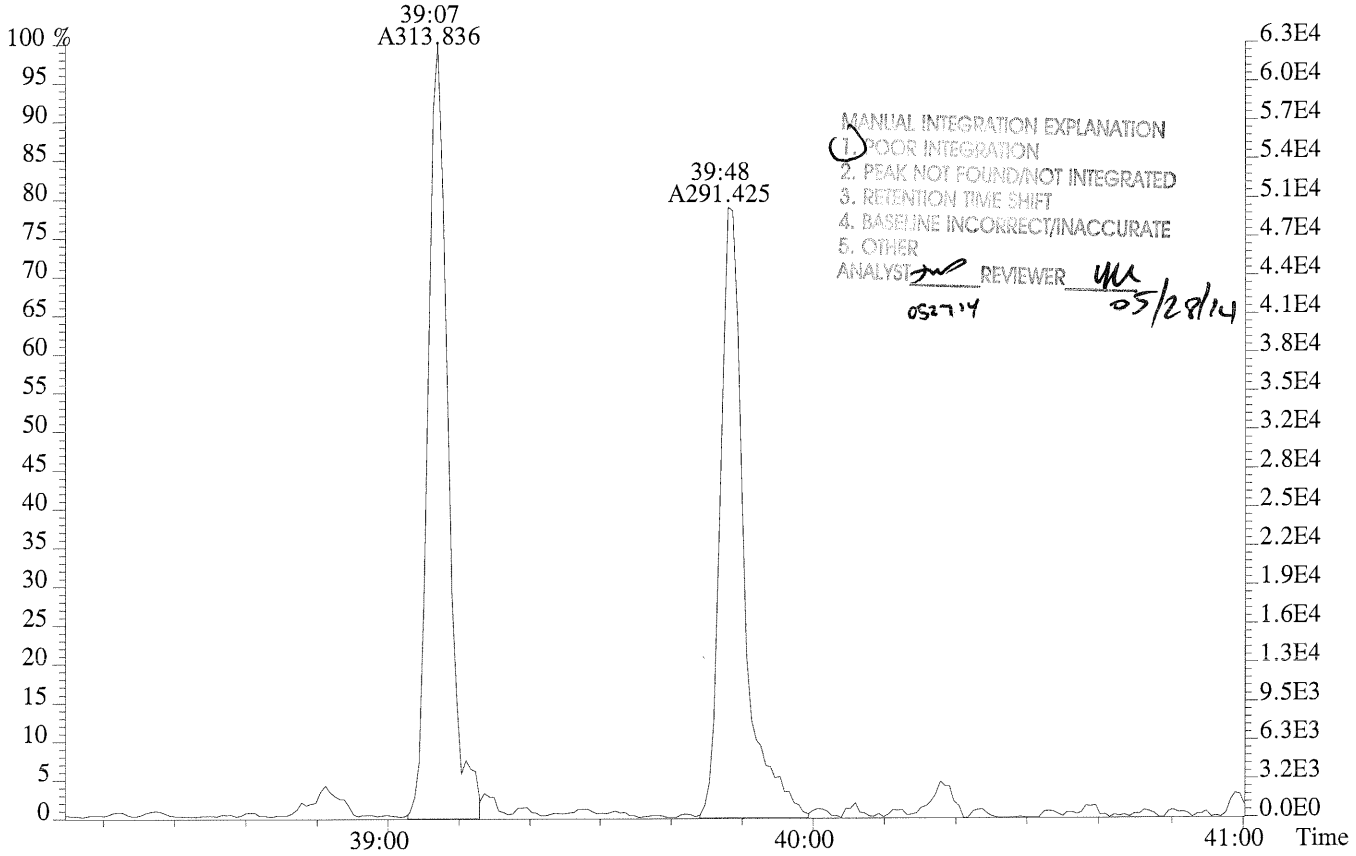
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

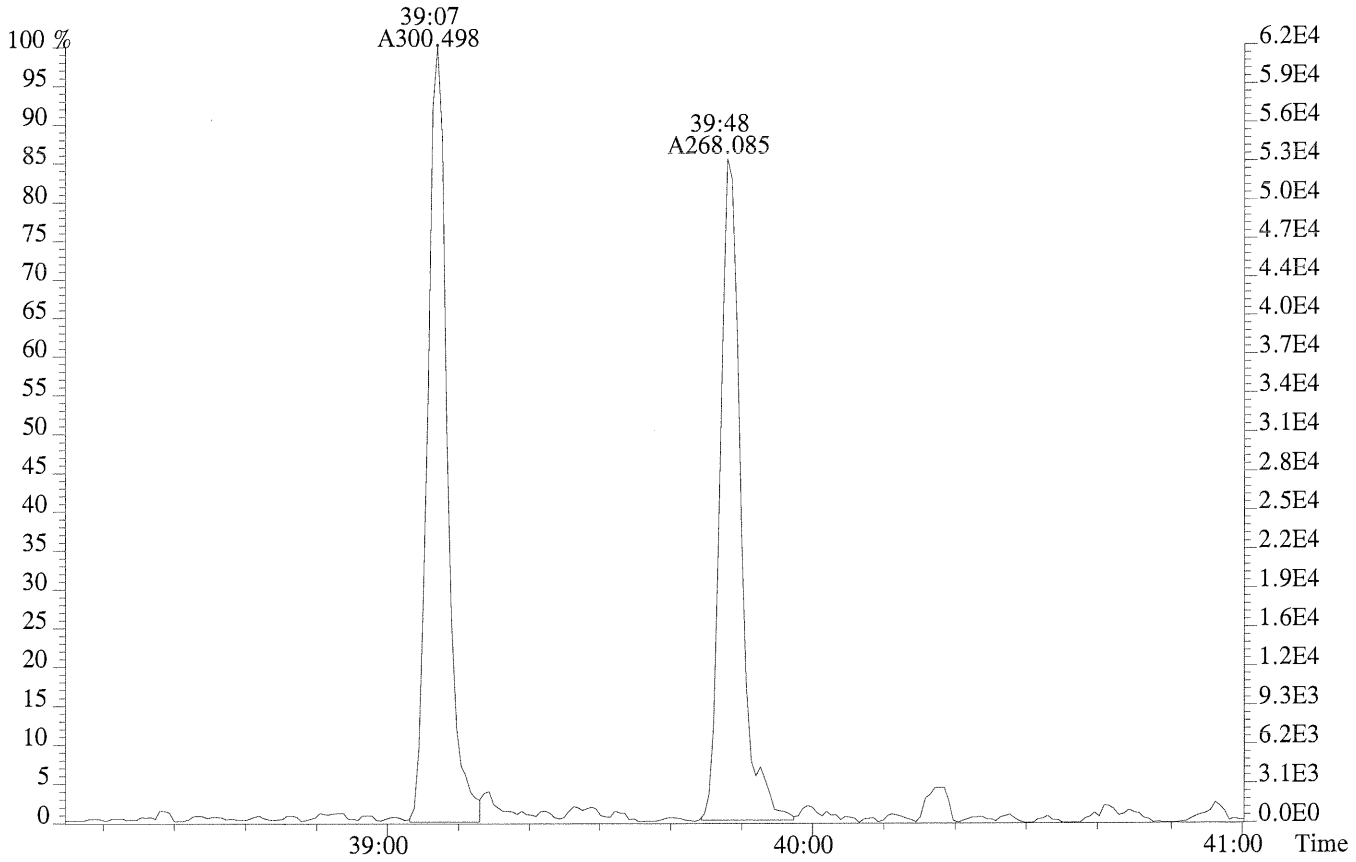


File:P229237 #1-251 Acq:25-MAY-2014 15:47:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-01 MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,304.0,0.40%,F,T)

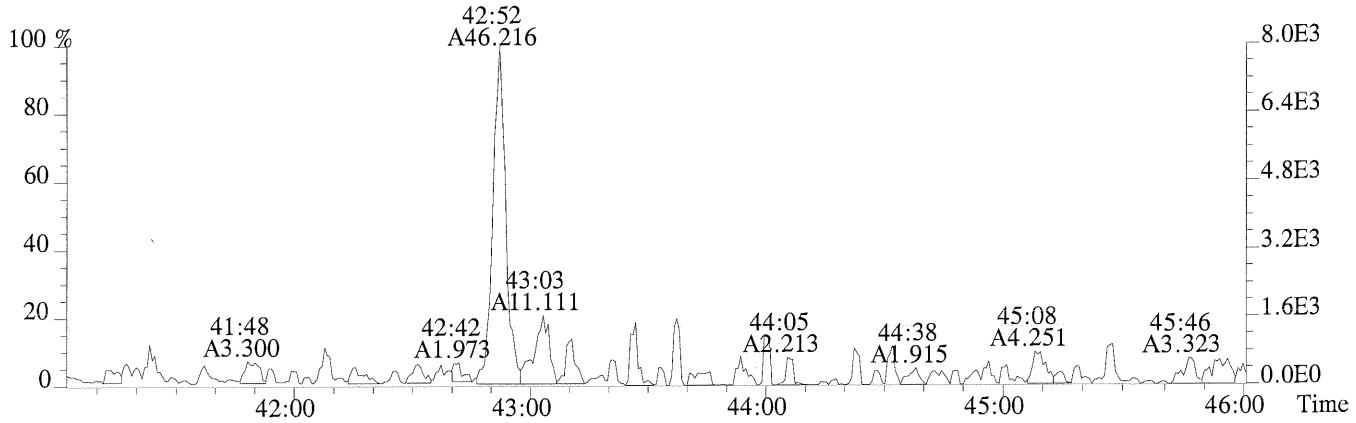


MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST 05/27/14 REVIEWER 05/28/14

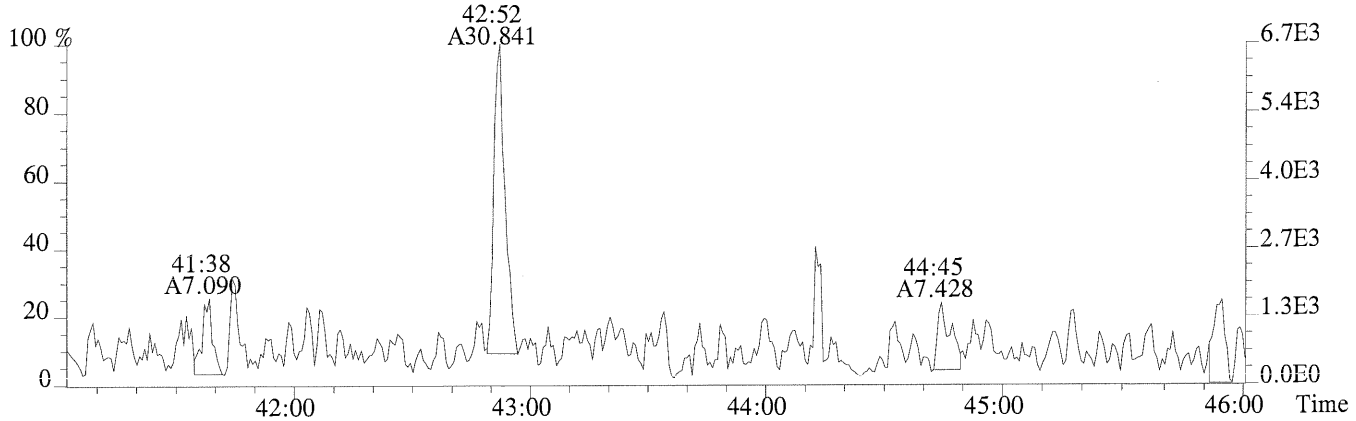
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



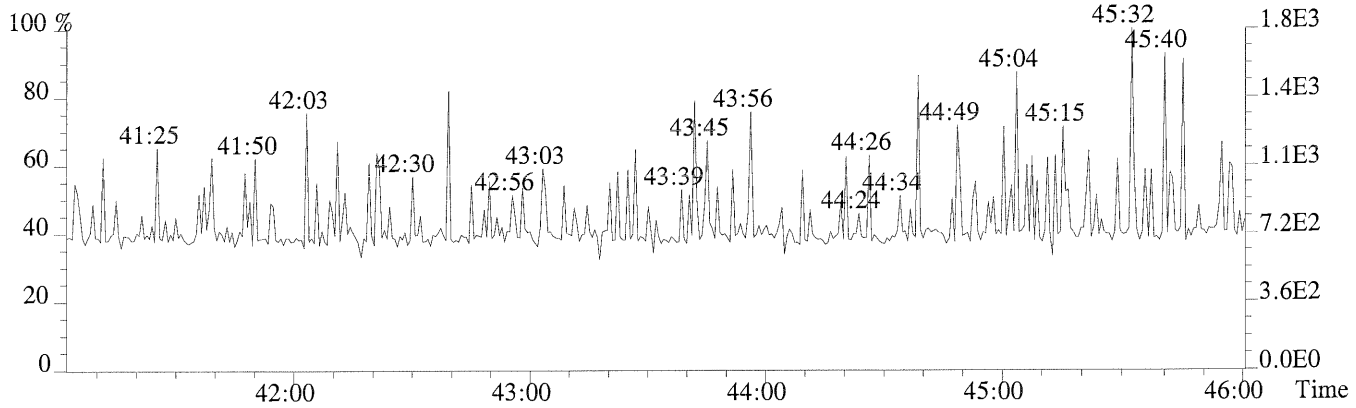
File:P229237 #1-457 Acq:25-MAY-2014 15:47:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-01 MB
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,180.0,0.40%,F,T)



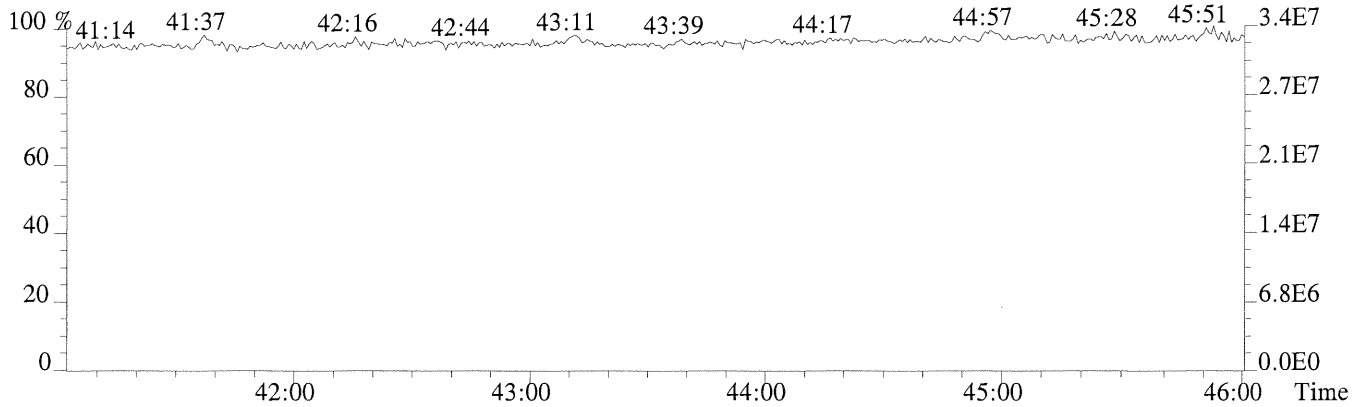
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,828.0,0.40%,F,T)



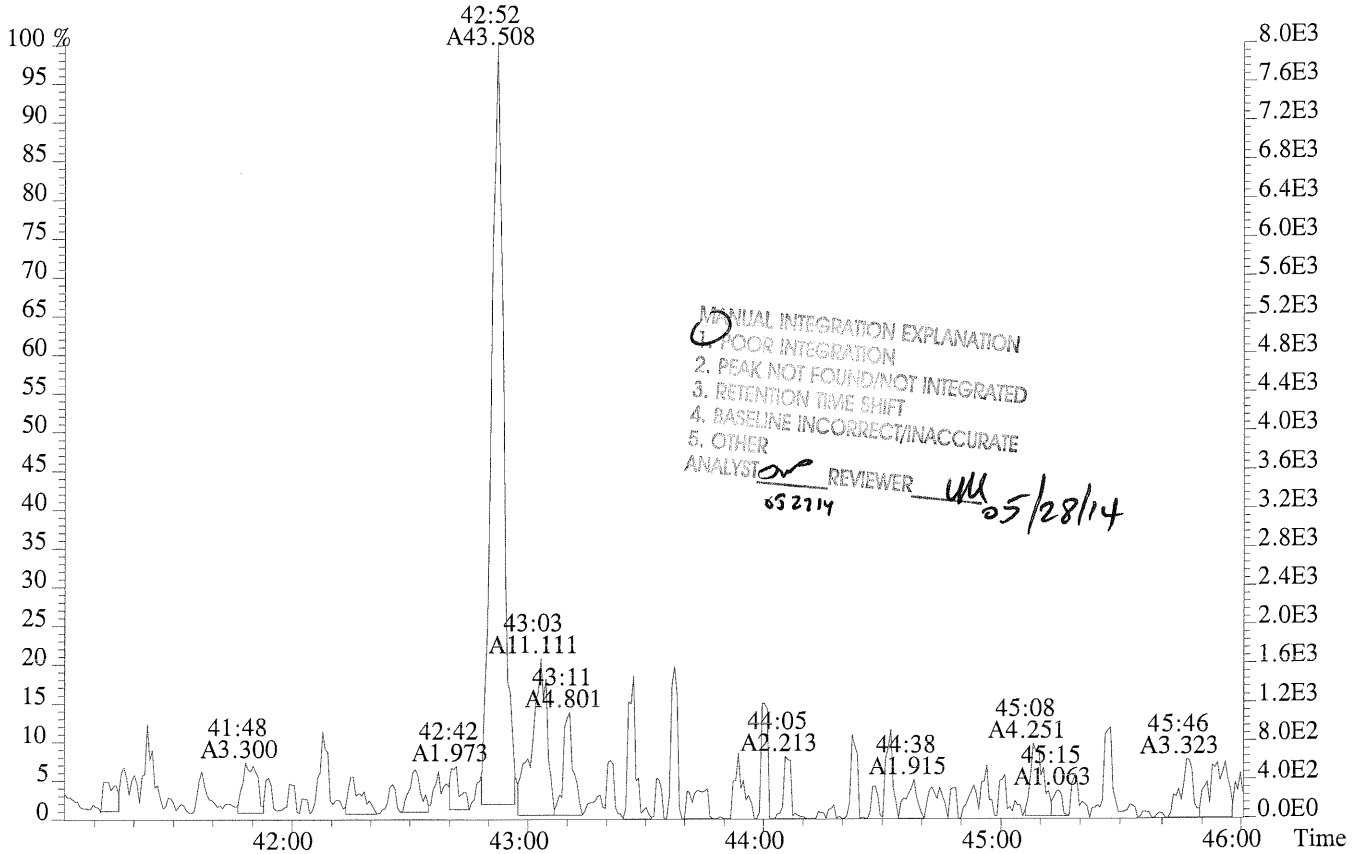
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

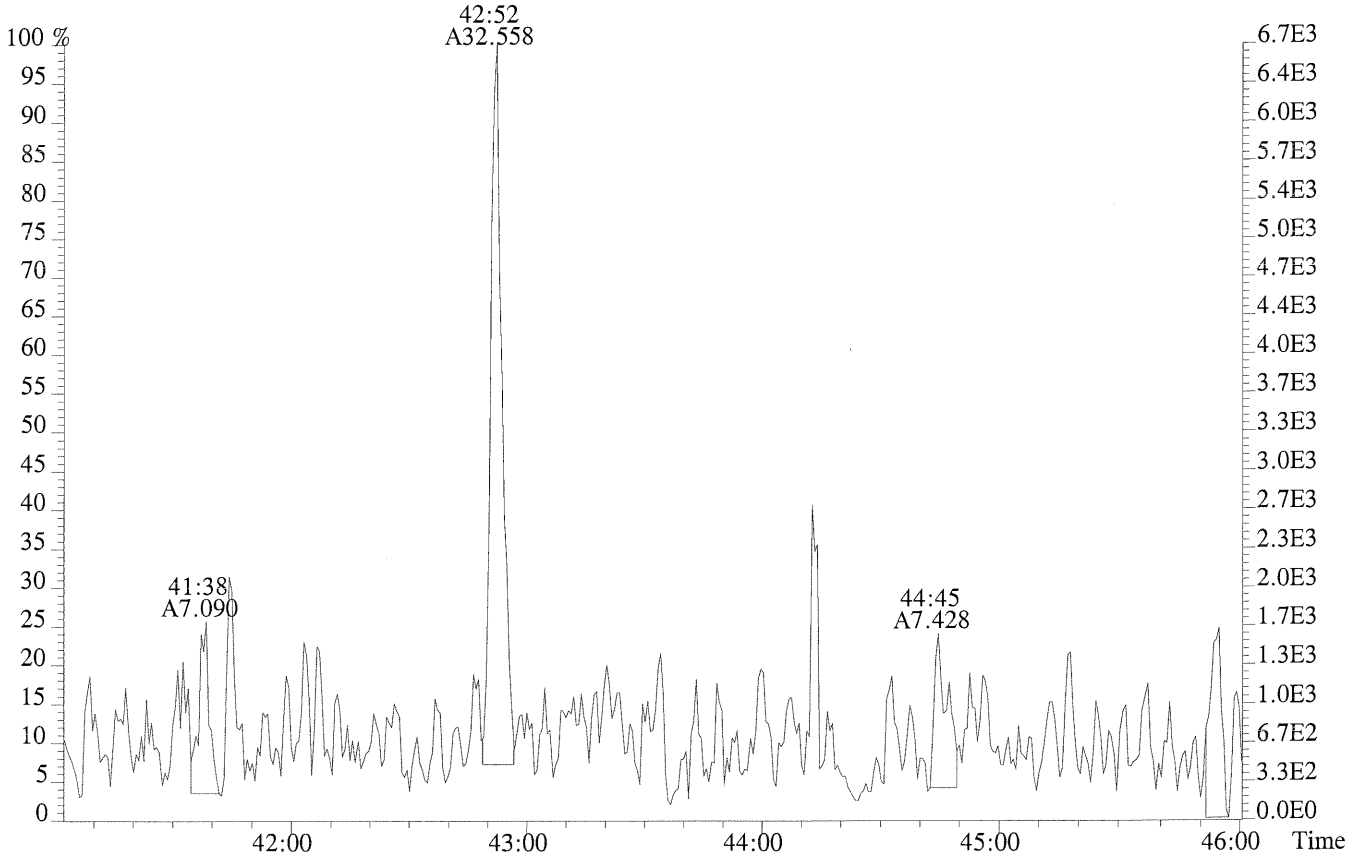


File:P229237 #1-457 Acq:25-MAY-2014 15:47:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-01 MB
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,180.0,0.40%,F,T)



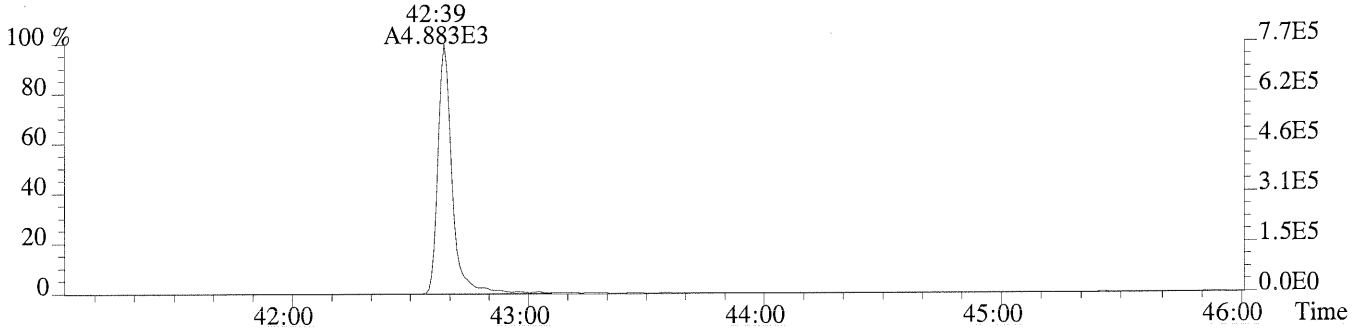
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST 05 27 14 REVIEWER 05/28/14

443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,828.0,0.40%,F,T)

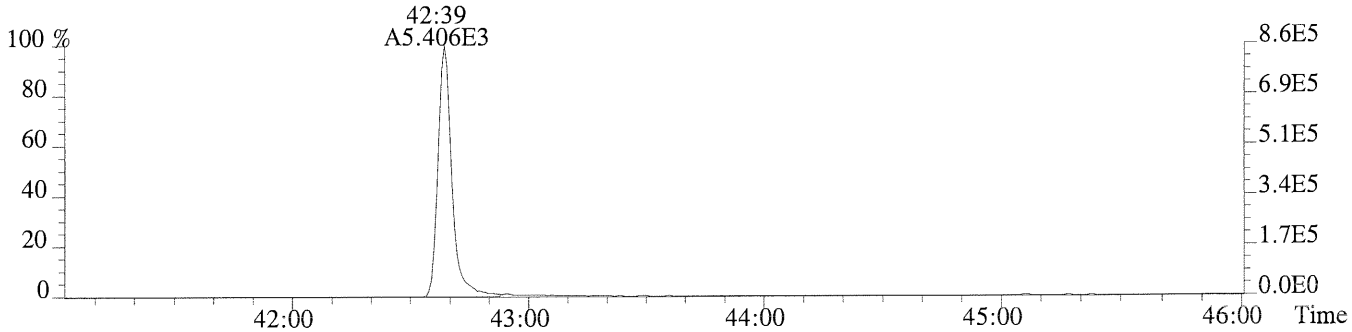


File:P229237 #1-457 Acq:25-MAY-2014 15:47:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-01 MB

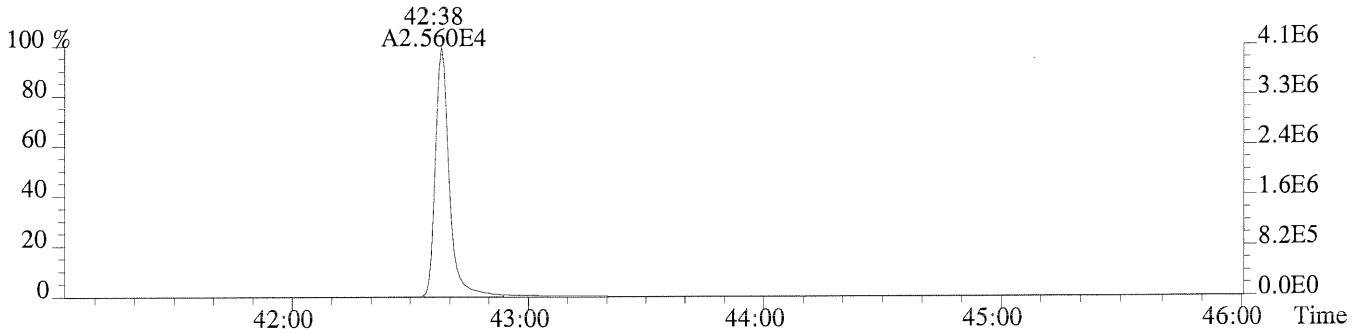
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,84.0,0.40%,F,T)



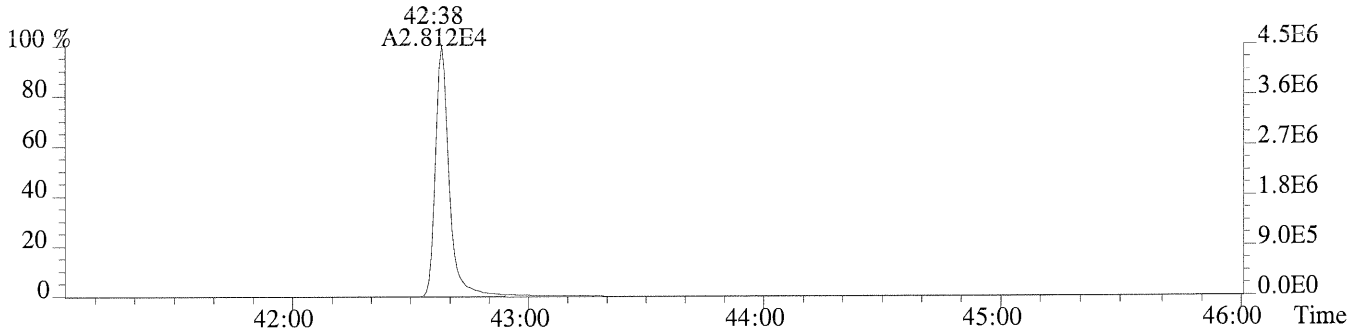
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,404.0,0.40%,F,T)



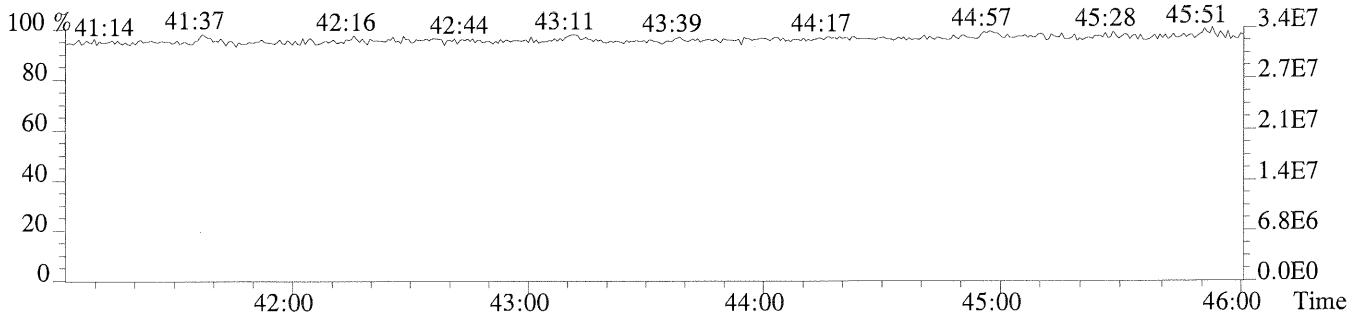
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
LCS

Run #19 Filename P229261 Samp: 1 Inj: 1 Acquired: 26-MAY-14 10:55:06
Processed: 28-MAY-14 09:09:50 Sample ID: EQ1400264-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	1.127
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.123
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.101
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.338
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.234
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.233
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.269
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.421
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.381
10	Unk	OCDF	42:52	9.233e+02	1.068e+03	0.86	yes	no	1.703
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.053
12	Unk	1,2,3,7,8-PeCDD	33:59	4.074e+01	1.431e+01	2.85	no	no	1.069
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.223
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.168
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.236
16	Unk	1,2,3,4,6,7,8-HpCDD	39:49	7.557e+02	7.960e+02	0.95	yes	no	1.170
17	Unk	OCDD	42:39	1.725e+03	1.811e+03	0.95	yes	no	1.288
18	IS	13C-2,3,7,8-TCDF	28:48	3.185e+01	4.504e+01	0.71	yes	no	1.389
19	IS	13C-1,2,3,7,8-PeCDF	32:50	7.600e+01	4.505e+01	1.69	yes	no	1.865
20	IS	13C-2,3,4,7,8-PeCDF	33:43	8.029e+01	4.293e+01	1.87	no	no	1.804
21	IS	13C-1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.421
22	IS	13C-1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.639
23	IS	13C-2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.444
24	IS	13C-1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.241
25	IS	13C-1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.198
26	IS	13C-1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	0.997
27	IS	13C-2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.930
28	IS	13C-1,2,3,7,8-PeCDD	33:58	6.637e+01	3.775e+01	1.76	yes	no	1.107
29	IS	13C-1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	0.930
30	IS	13C-1,2,3,6,7,8-HxCDD	37:07	1.708e+02	1.152e+02	1.48	no	no	0.983
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:48	1.462e+02	8.441e+01	1.73	no	no	0.935
32	IS	13C-OCDD	NotFnd	*	*	*	no	no	0.687
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.388e+04	3.009e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:21	3.833e+04	2.966e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.972e+01				no	0.946

```
        (1.725e+03 + 1.811e+03) x 4000  pg x 1
 OCDD =-------------------------------------------------------- =
        (*         + *        ) x        g  x      / 100 x 1.288
```

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESPA

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #19 Filename P229261 Samp: 1 Inj: 1 Acquired: 26-MAY-14 10:55:06
Processed: 28-MAY-14 09:09:501 LAB. ID: EQ1400264-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.02e+03	*	*	1.88e+03	*
2	1,2,3,7,8-PeCDF	*	6.10e+03	*	*	5.82e+03	*
3	2,3,4,7,8-PeCDF	*	6.10e+03	*	*	5.82e+03	*
4	1,2,3,4,7,8-HxCDF	*	2.65e+04	*	*	2.71e+04	*
5	1,2,3,6,7,8-HxCDF	*	2.65e+04	*	*	2.71e+04	*
6	2,3,4,6,7,8-HxCDF	*	2.65e+04	*	*	2.71e+04	*
7	1,2,3,7,8,9-HxCDF	*	2.65e+04	*	*	2.71e+04	*
8	1,2,3,4,6,7,8-HpCDF	*	2.61e+04	*	*	1.69e+04	*
9	1,2,3,4,7,8,9-HpCDF	*	2.61e+04	*	*	1.69e+04	*
10	OCDF	1.10e+05	6.79e+03	1.6e+01	1.29e+05	5.98e+03	2.2e+01
11	2,3,7,8-TCDD	*	8.12e+02	*	*	1.01e+03	*
12	1,2,3,7,8-PeCDD	9.06e+03	3.71e+03	2.4e+00	2.95e+03	3.00e+03	9.9e-01
13	1,2,3,4,7,8-HxCDD	*	1.56e+04	*	*	1.28e+04	*
14	1,2,3,6,7,8-HxCDD	*	1.56e+04	*	*	1.28e+04	*
15	1,2,3,7,8,9-HxCDD	*	1.56e+04	*	*	1.28e+04	*
16	1,2,3,4,6,7,8-HpCDD	1.56e+05	1.09e+04	1.4e+01	1.70e+05	1.12e+04	1.5e+01
17	OCDD	2.33e+05	2.79e+03	8.4e+01	2.53e+05	2.44e+03	1.0e+02
18	13C-2,3,7,8-TCDF	6.61e+03	1.08e+03	6.1e+00	8.10e+03	9.40e+02	8.6e+00
19	13C-1,2,3,7,8-PeCDF	1.10e+04	2.65e+03	4.1e+00	7.82e+03	2.86e+03	2.7e+00
20	13C-2,3,4,7,8-PeCDF	1.59e+04	2.65e+03	6.0e+00	9.56e+03	2.86e+03	3.3e+00
21	13C-1,2,3,4,7,8-HxCDF	*	1.90e+03	*	*	1.97e+04	*
22	13C-1,2,3,6,7,8-HxCDF	*	1.90e+03	*	*	1.97e+04	*
23	13C-2,3,4,6,7,8-HxCDF	*	1.90e+03	*	*	1.97e+04	*
24	13C-1,2,3,7,8,9-HxCDF	*	1.90e+03	*	*	1.97e+04	*
25	13C-1,2,3,4,6,7,8-HpCDF	*	3.62e+03	*	*	2.55e+04	*
26	13C-1,2,3,4,7,8,9-HpCDF	*	3.62e+03	*	*	2.55e+04	*
27	13C-2,3,7,8-TCDD	*	3.26e+03	*	*	1.51e+03	*
28	13C-1,2,3,7,8-PeCDD	1.40e+04	1.83e+03	7.6e+00	7.56e+03	9.52e+02	7.9e+00
29	13C-1,2,3,4,7,8-HxCDD	*	9.75e+03	*	*	3.45e+03	*
30	13C-1,2,3,6,7,8-HxCDD	4.16e+04	9.75e+03	4.3e+00	3.19e+04	3.45e+03	9.3e+00
31	13C-1,2,3,4,6,7,8-HpCDD	2.74e+04	1.17e+04	2.3e+00	2.07e+04	7.85e+03	2.6e+00
32	13C-OCDD	*	7.28e+04	*	*	1.44e+04	*
33	13C-1,2,3,4-TCDD	5.04e+06	3.26e+03	1.5e+03	6.36e+06	1.51e+03	4.2e+03
34	13C-1,2,3,7,8,9-HxCDD	8.07e+06	9.75e+03	8.3e+02	6.29e+06	3.45e+03	1.8e+03
35	37Cl-2,3,7,8-TCDD	3.54e+03	4.92e+02	7.2e+00			

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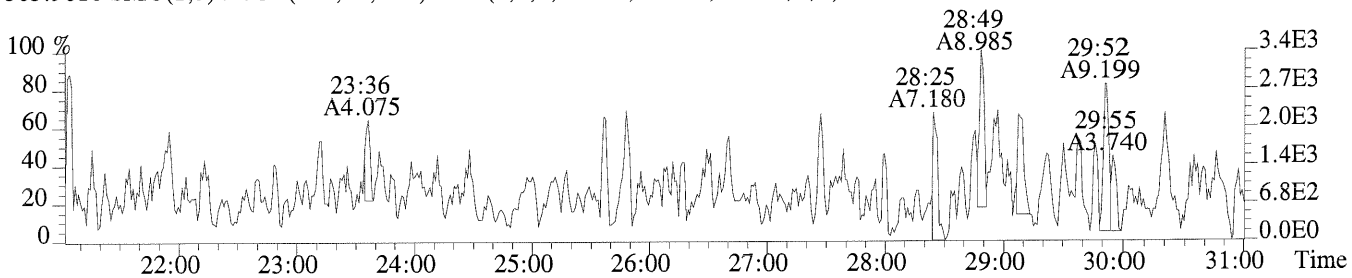
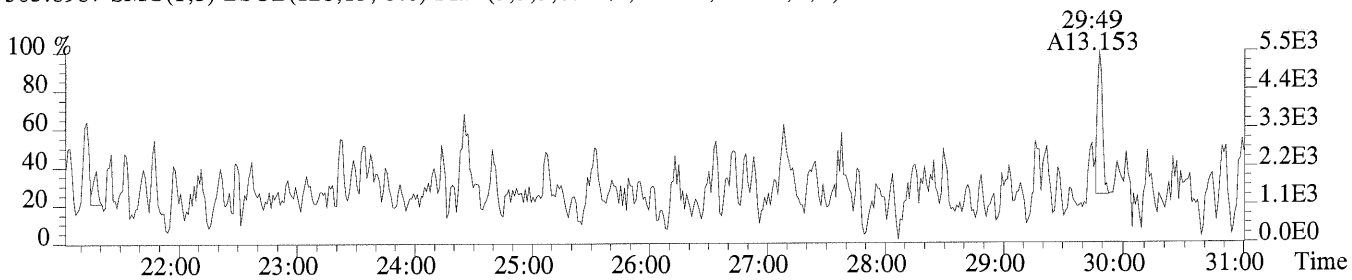
XLSN

File:P229261 #1-627 Acq:26-MAY-2014 10:55:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-002 LCS

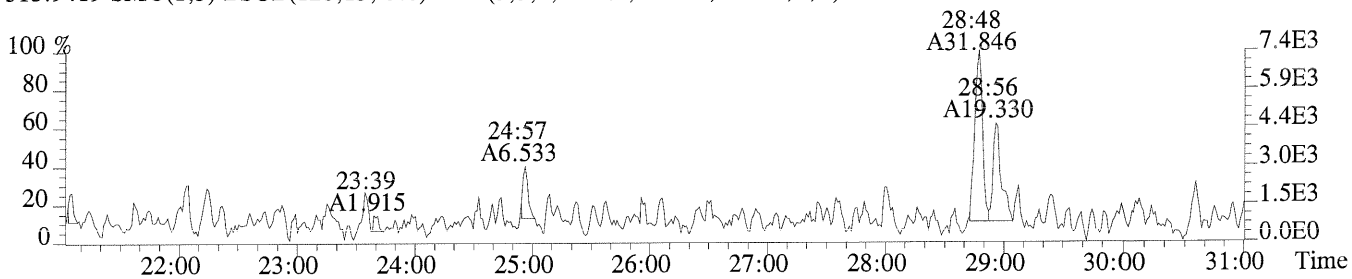
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



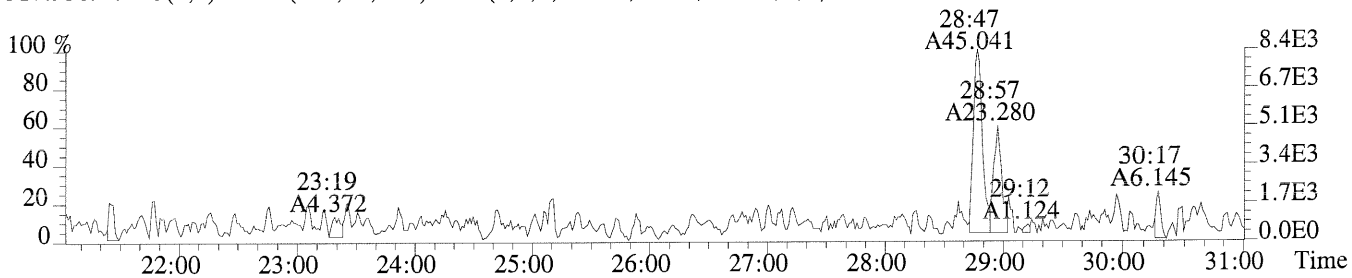
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1880.0,1.00%,F,T)



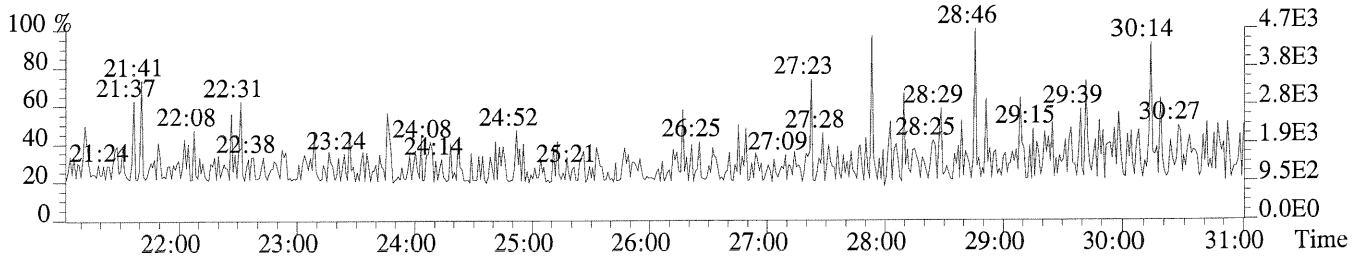
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1080.0,1.00%,F,T)



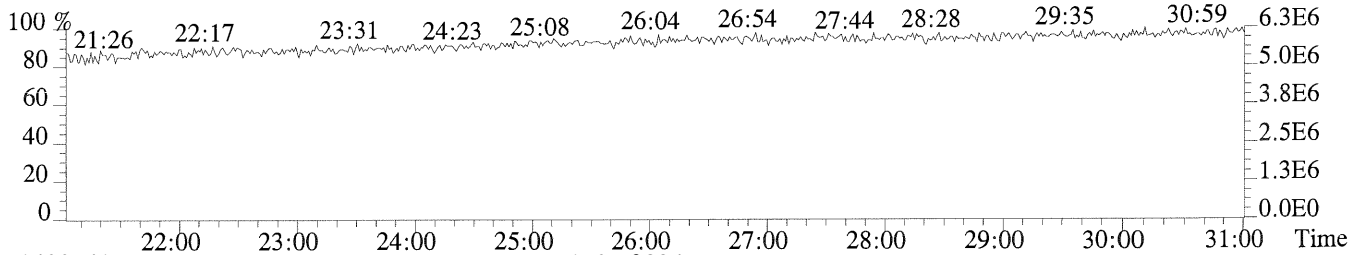
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

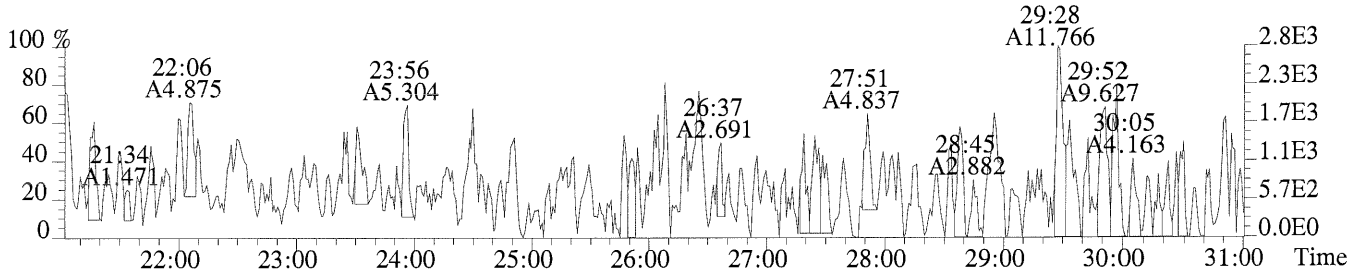


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

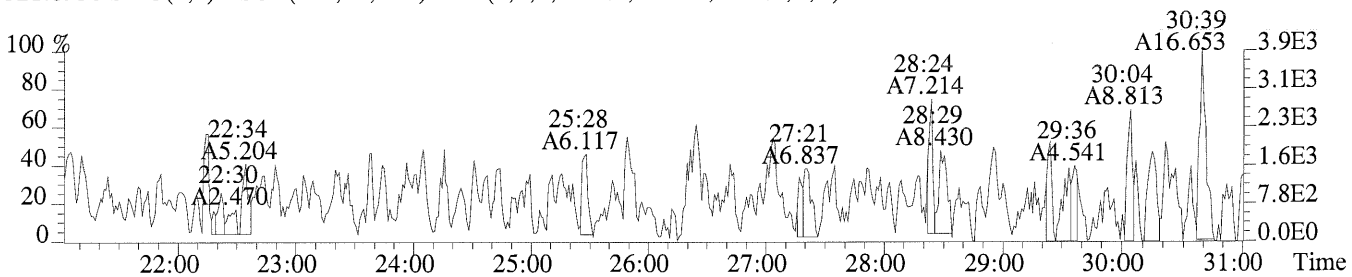


File:P229261 #1-627 Acq:26-MAY-2014 10:55:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-002 LCS

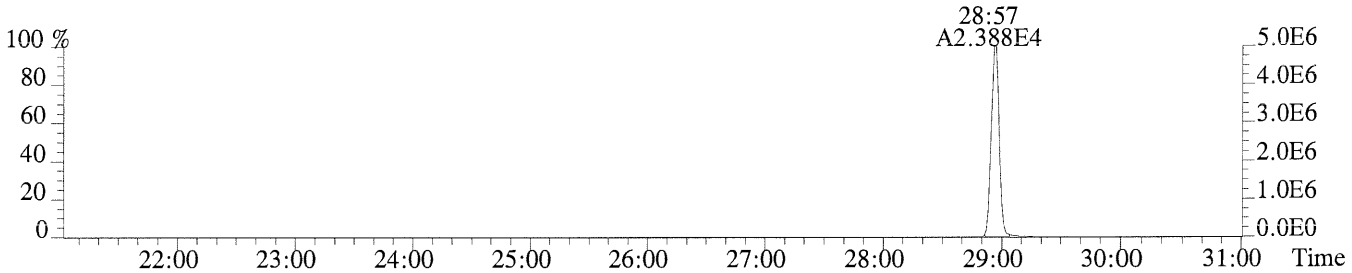
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



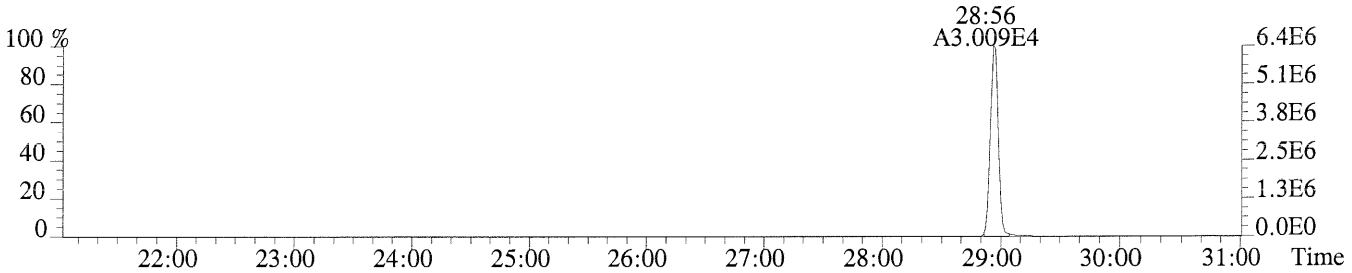
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



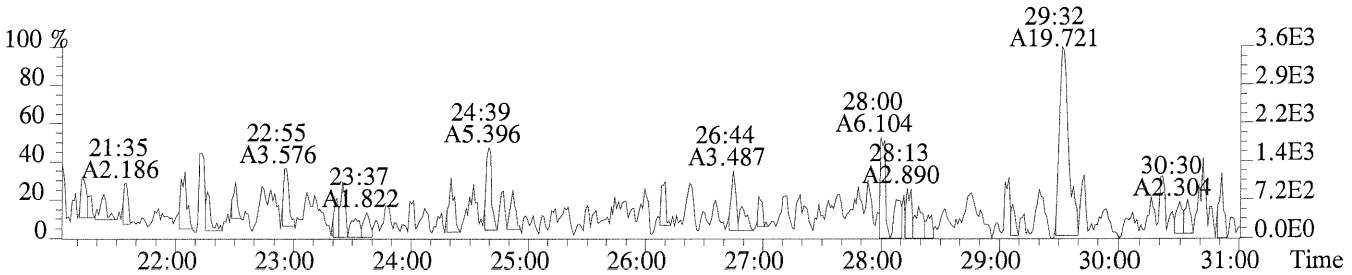
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3264.0,1.00%,F,T)



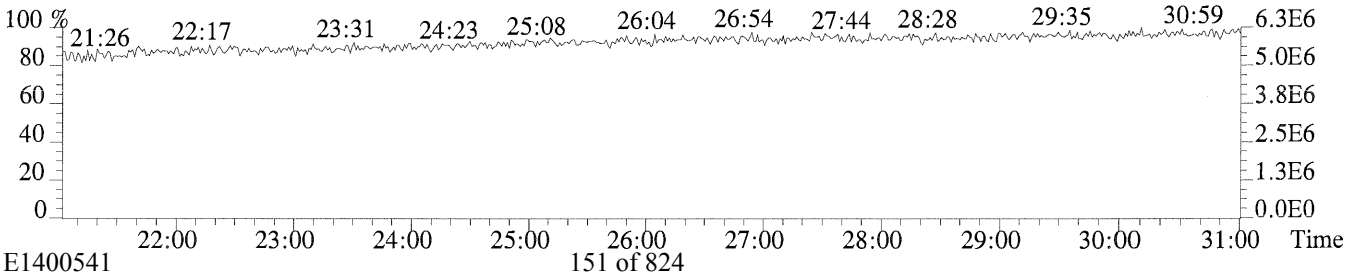
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1512.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)

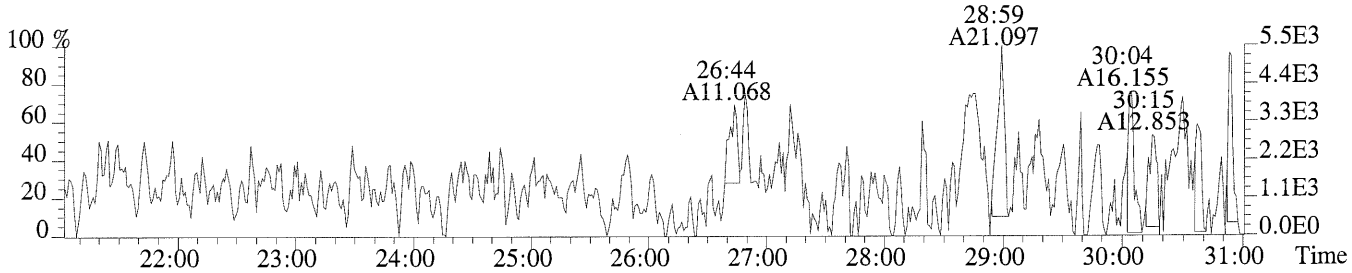


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

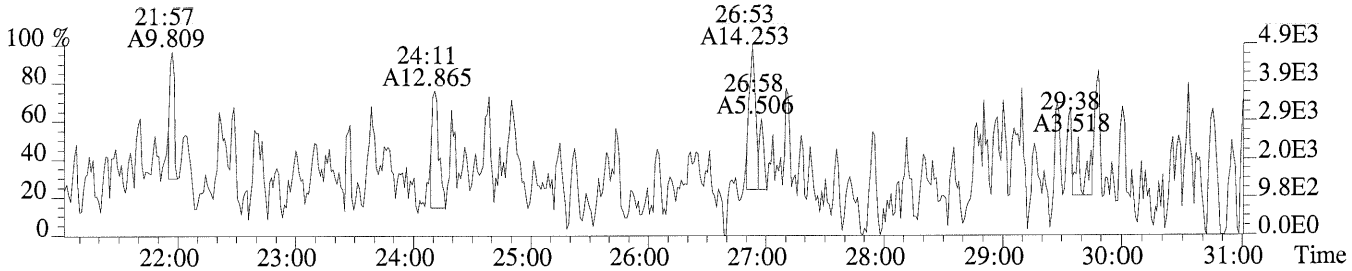


File:P229261 #1-627 Acq:26-MAY-2014 10:55:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-002 LCS

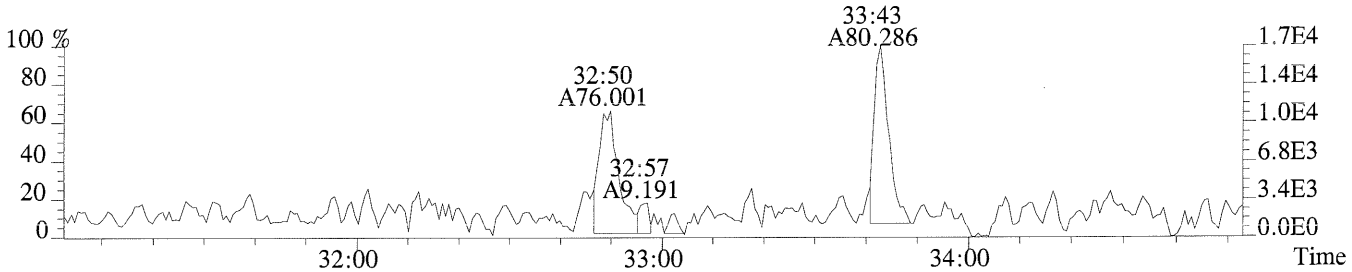
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1852.0,1.00%,F,T)



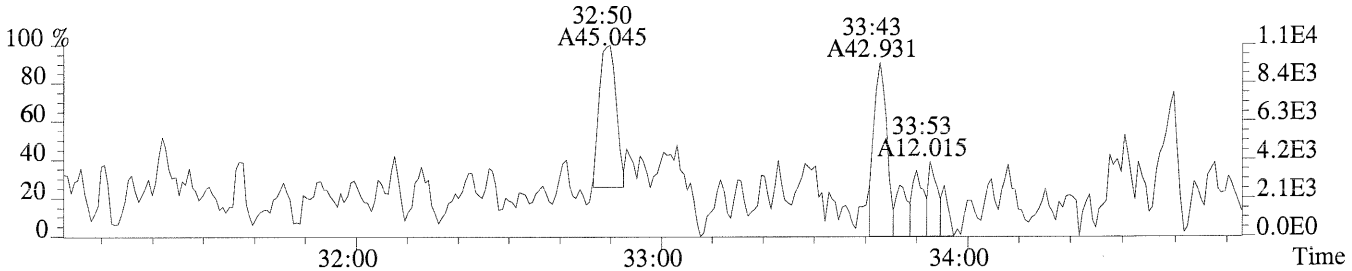
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1956.0,1.00%,F,T)



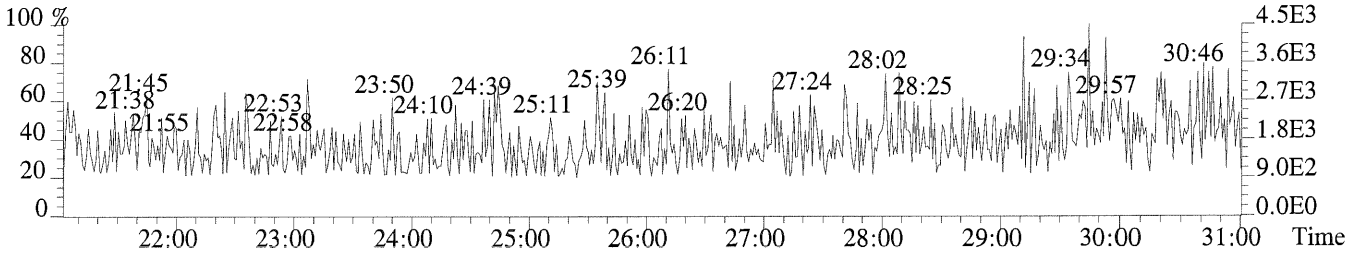
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2648.0,1.00%,F,T)



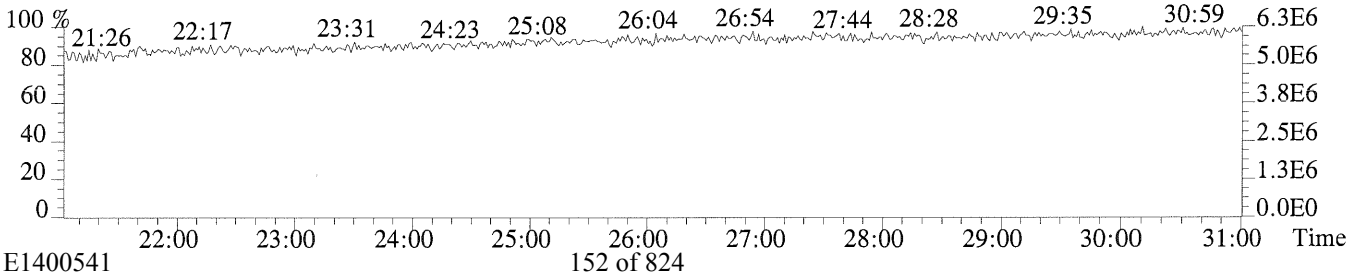
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2856.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

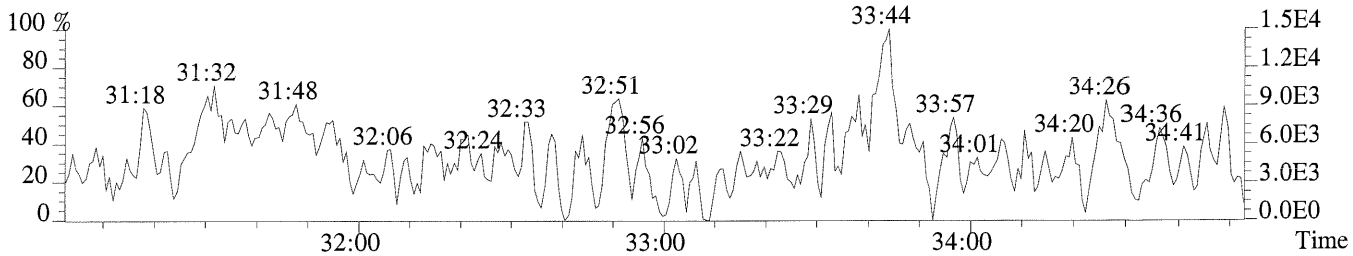


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

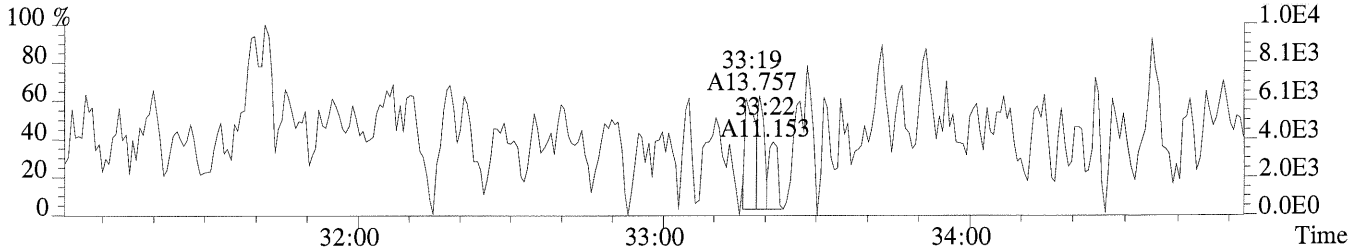


File:P229261 #1-349 Acq:26-MAY-2014 10:55:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-002 LCS

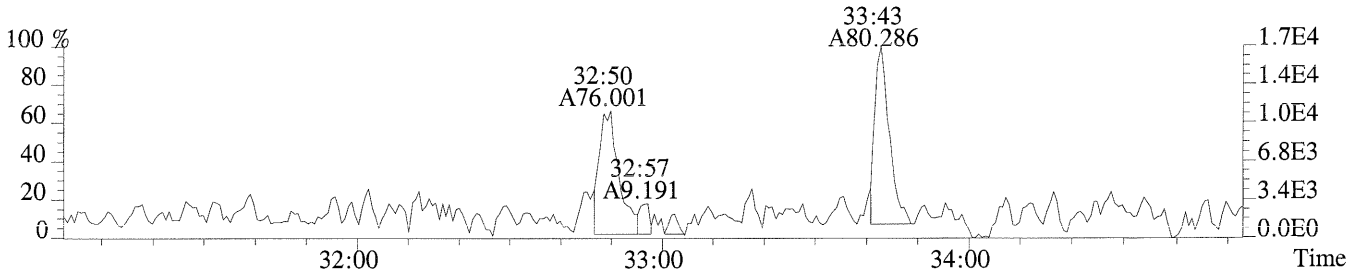
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6104.0,1.00%,F,T)



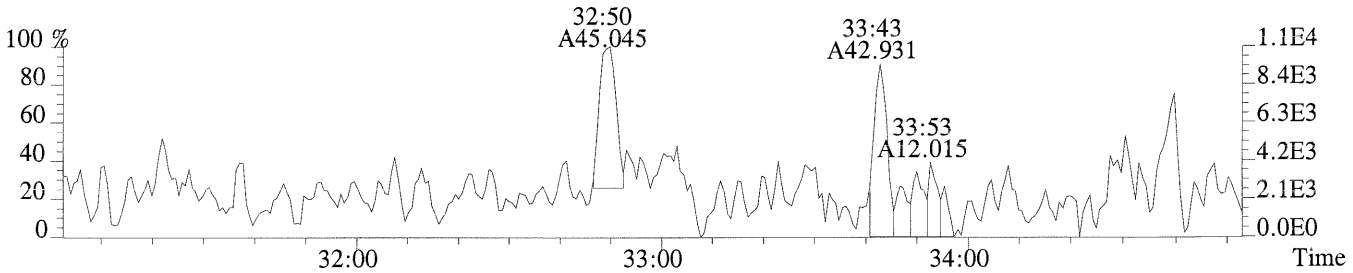
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5816.0,1.00%,F,T)



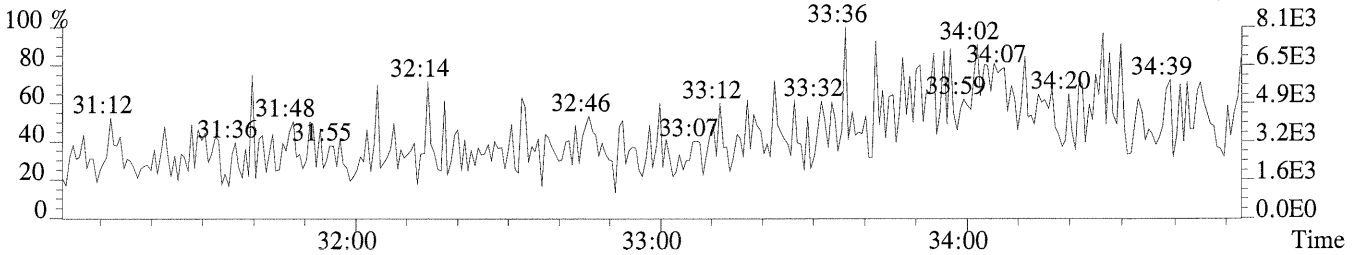
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2648.0,1.00%,F,T)



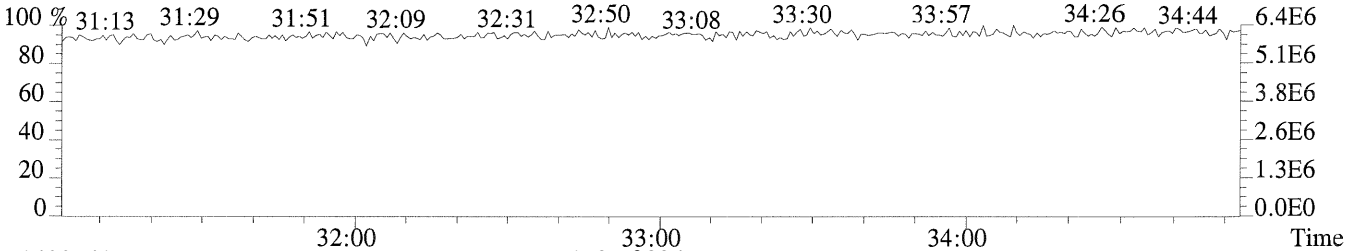
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2856.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

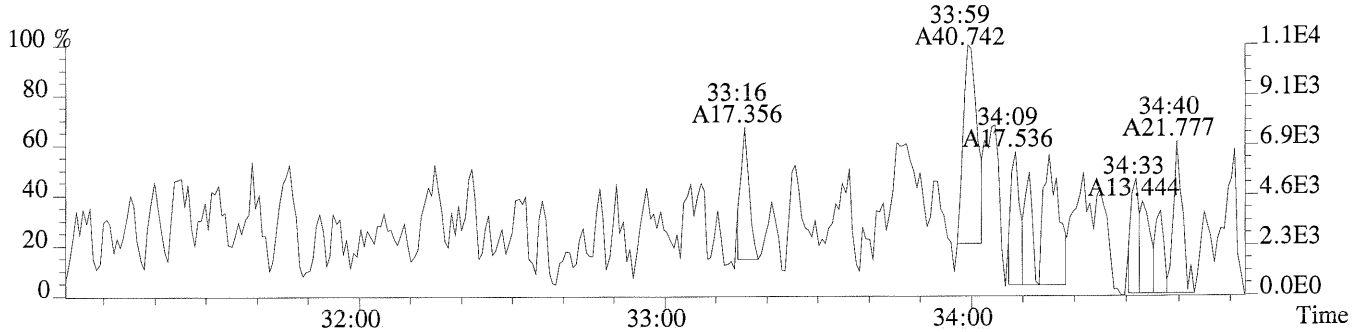


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

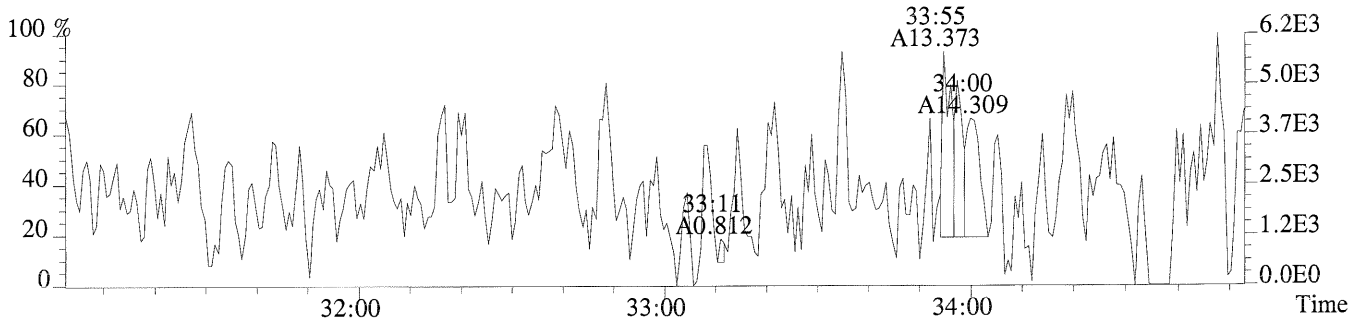


File:P229261 #1-349 Acq:26-MAY-2014 10:55:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-002 LCS

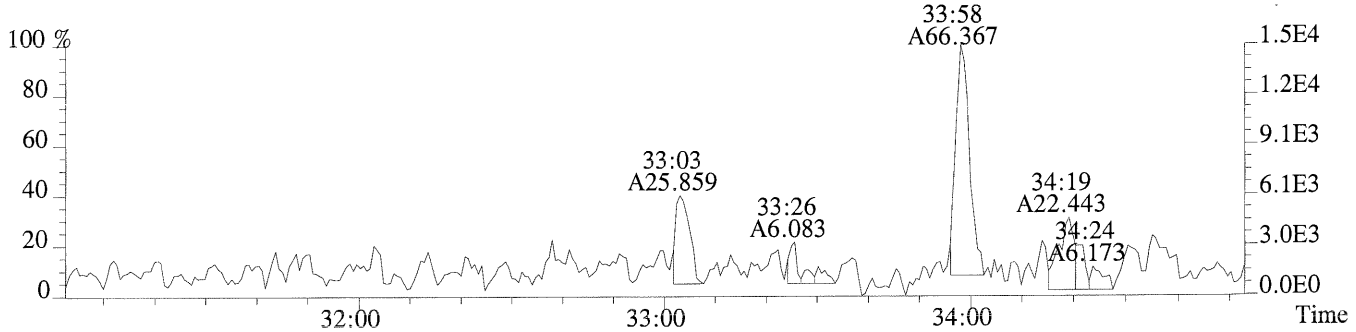
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3708.0,1.00%,F,T)



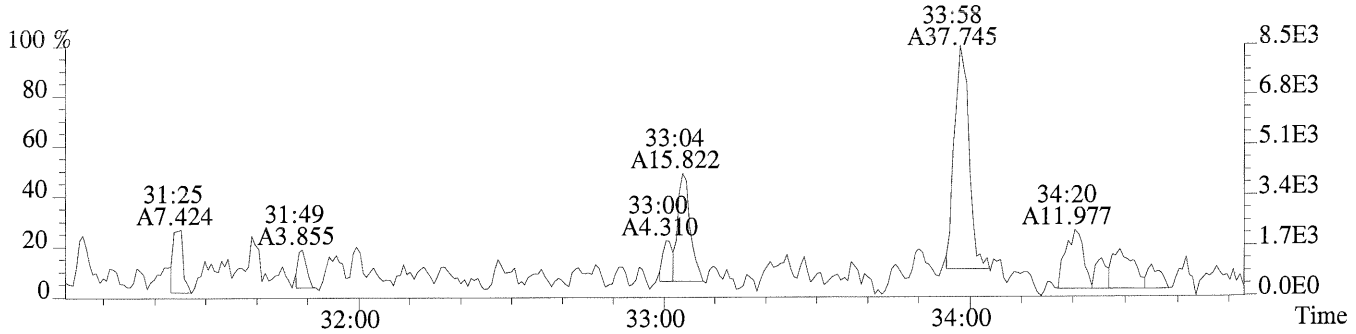
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2996.0,1.00%,F,T)



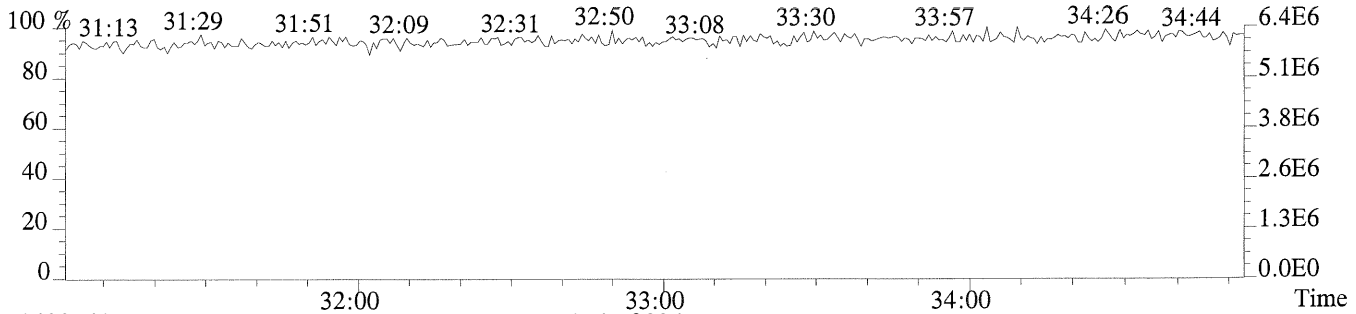
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)

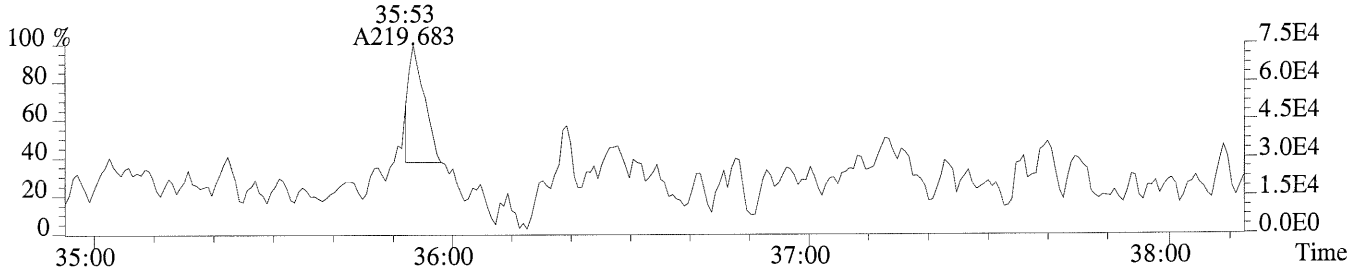


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

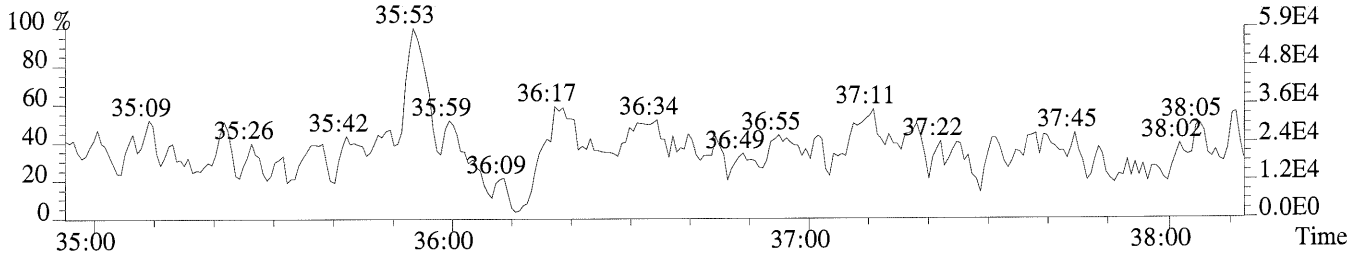


File:P229261 #1-299 Acq:26-MAY-2014 10:55:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-002 LCS

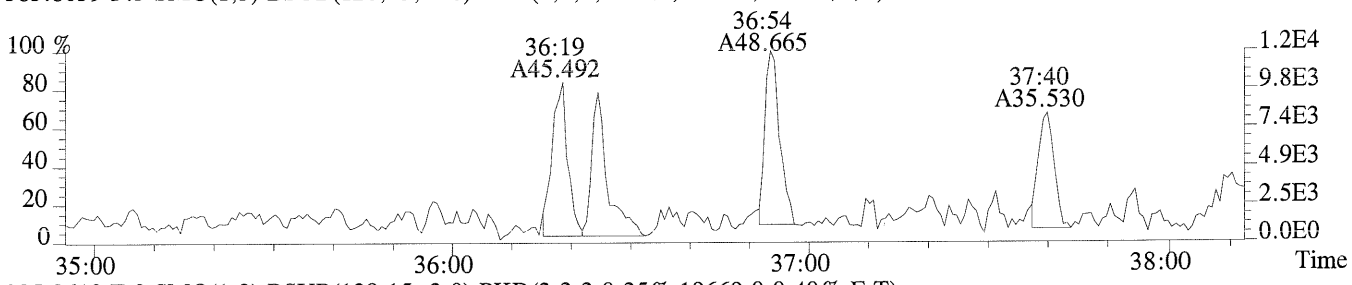
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,26532.0,0.40%,F,T)



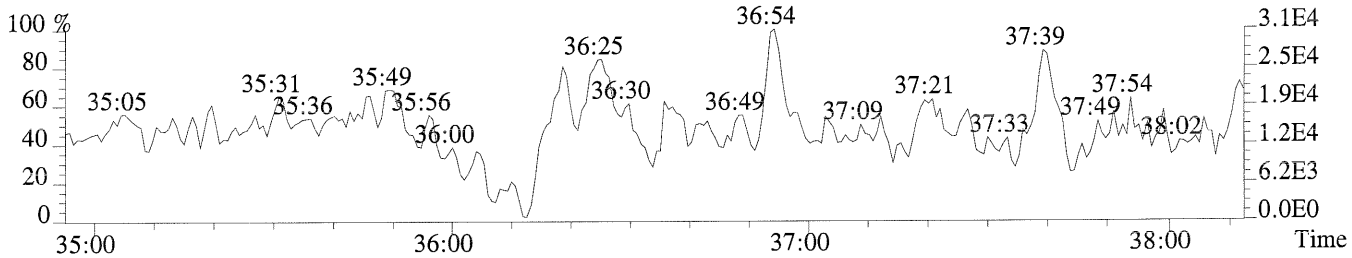
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,27128.0,0.40%,F,T)



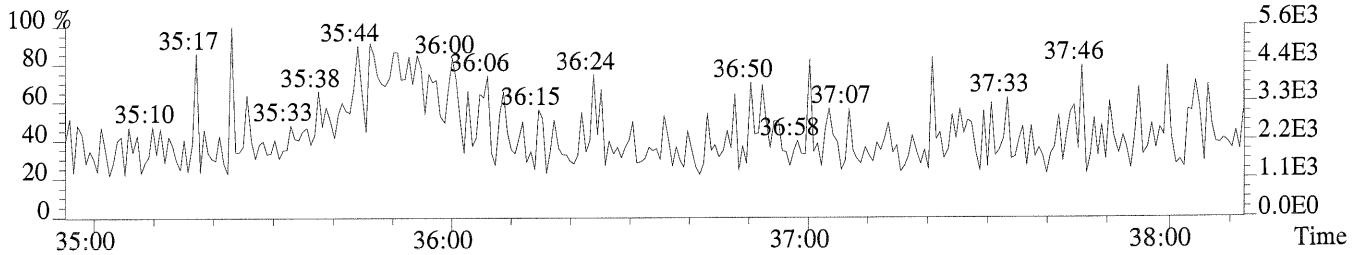
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1904.0,0.40%,F,T)



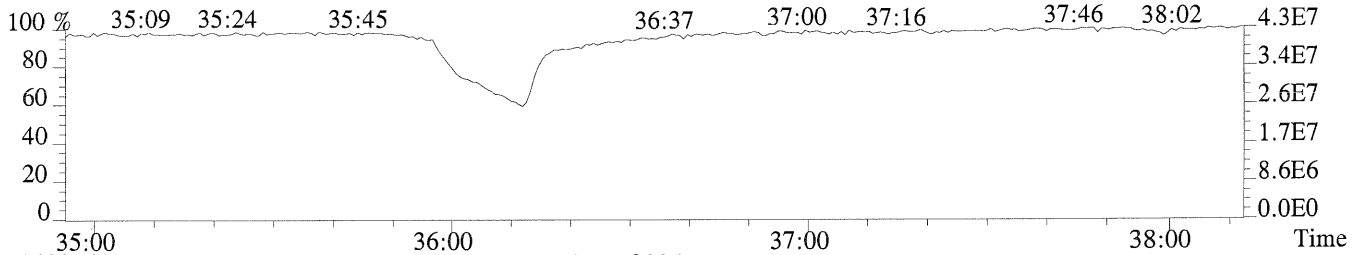
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,19660.0,0.40%,F,T)



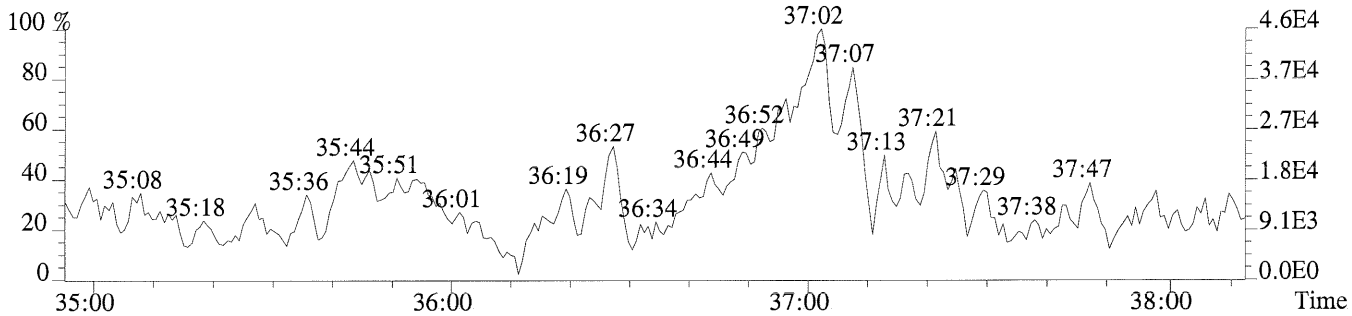
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



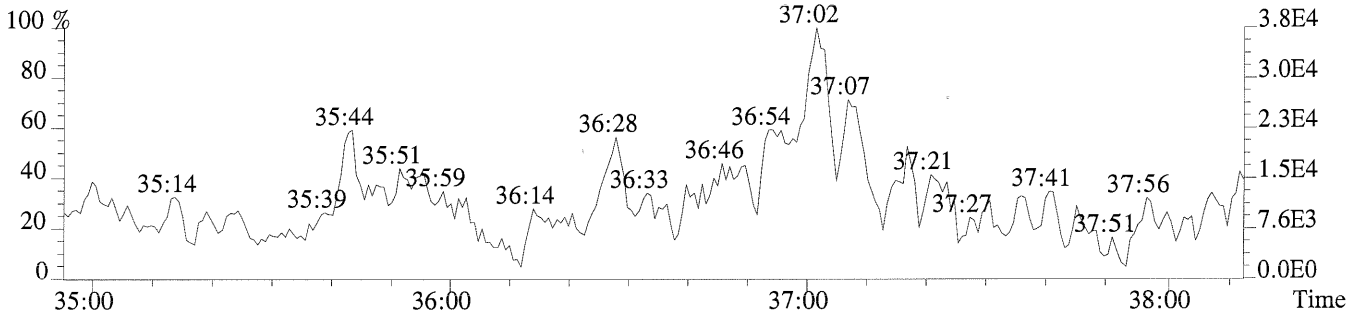
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



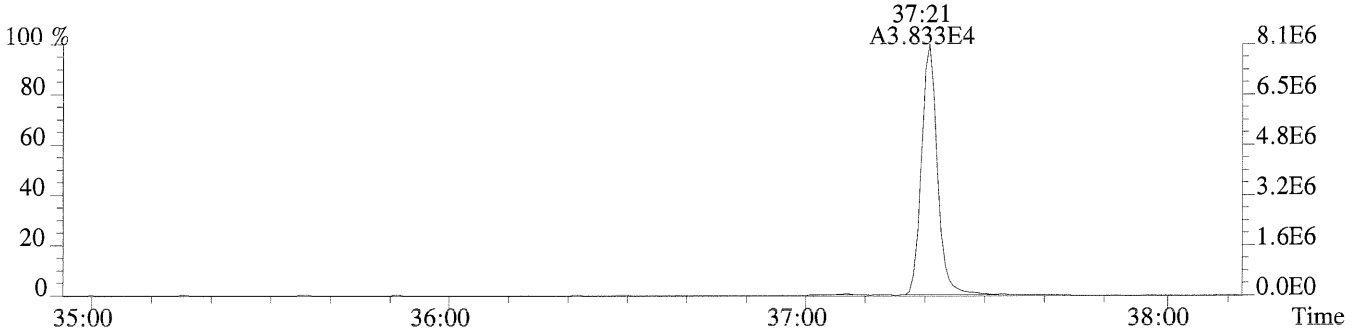
File:P229261 #1-299 Acq:26-MAY-2014 10:55:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-002 LCS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,15640.0,0.40%,F,T)



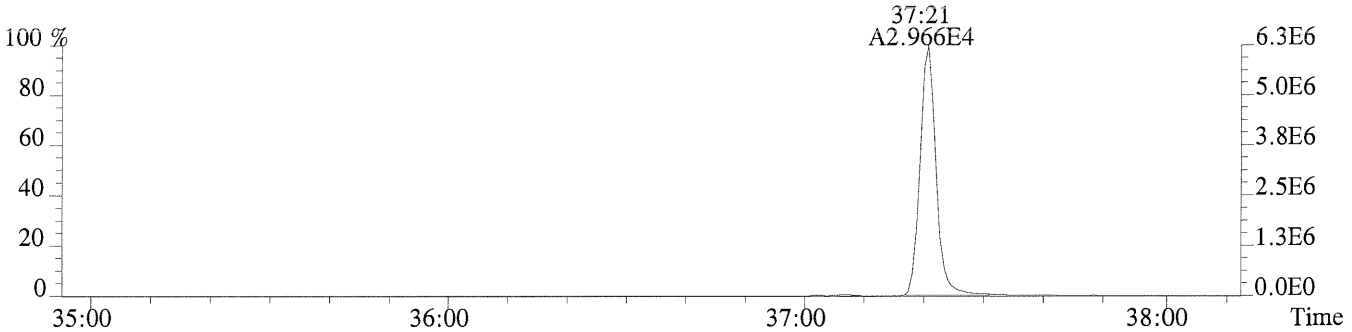
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12836.0,0.40%,F,T)



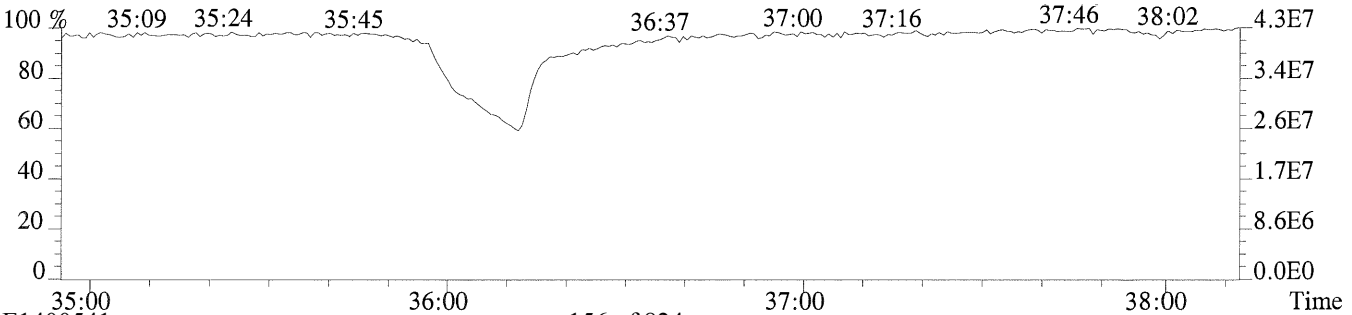
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9752.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3448.0,0.40%,F,T)

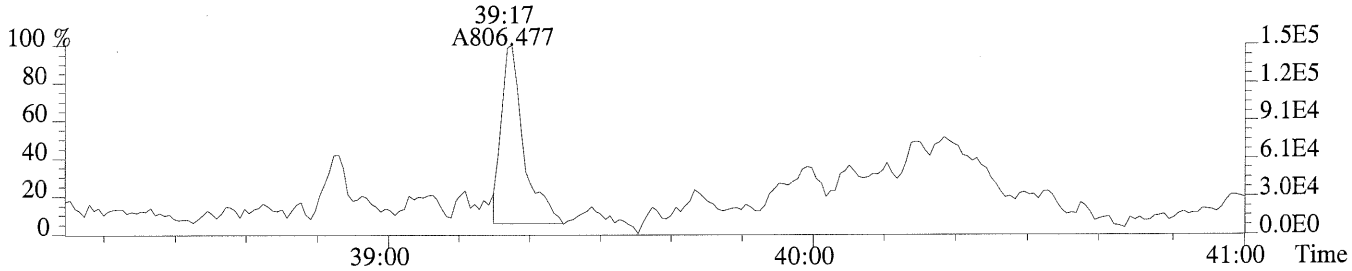


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

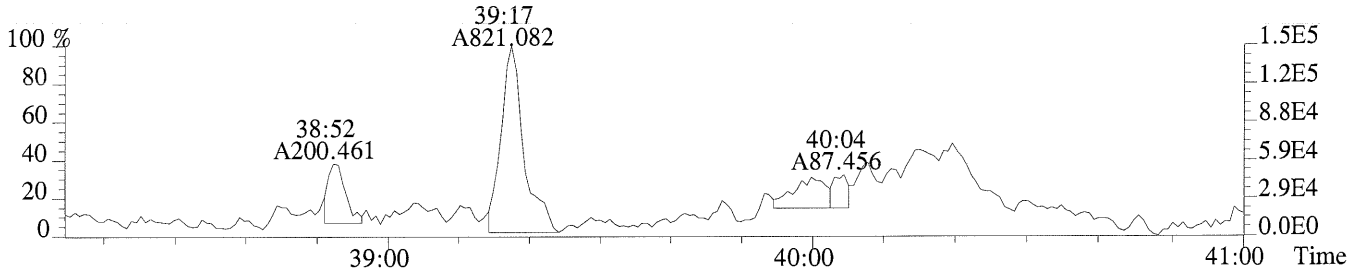


File:P229261 #1-251 Acq:26-MAY-2014 10:55:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-002 LCS

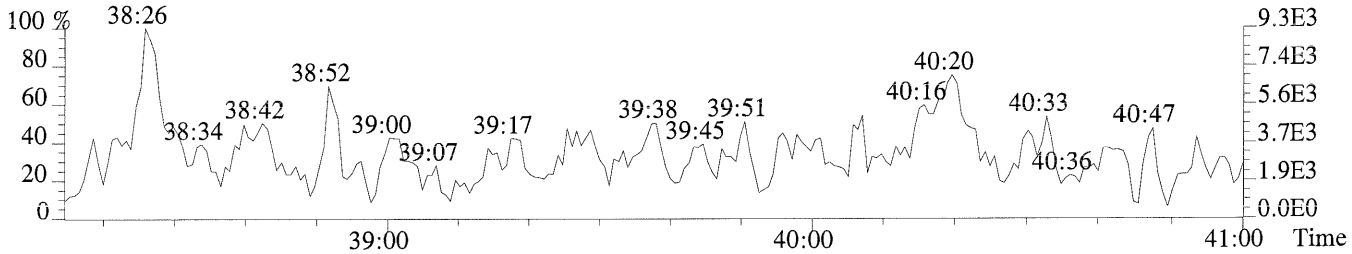
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,26080.0,0.50%,F,T)



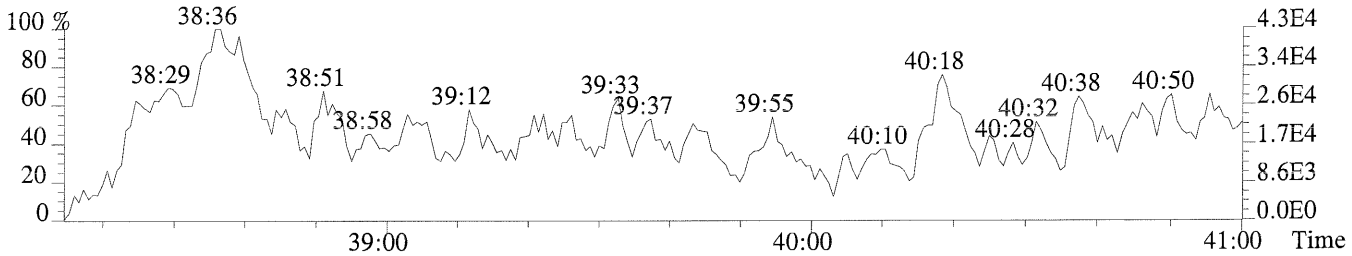
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16948.0,0.50%,F,T)



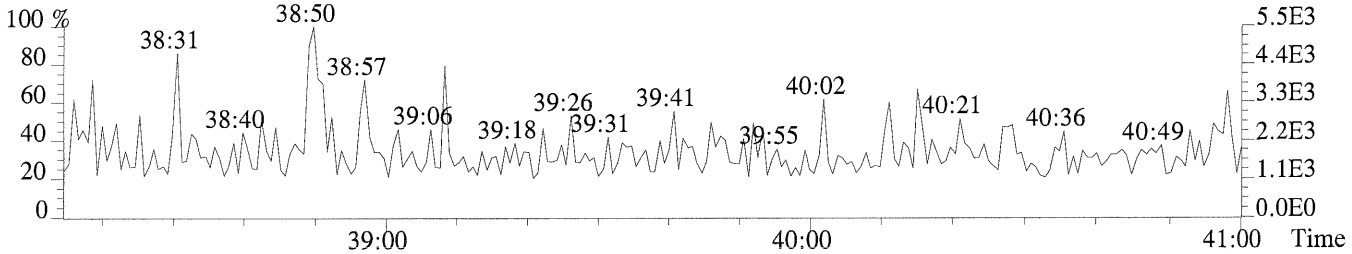
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3624.0,0.50%,F,T)



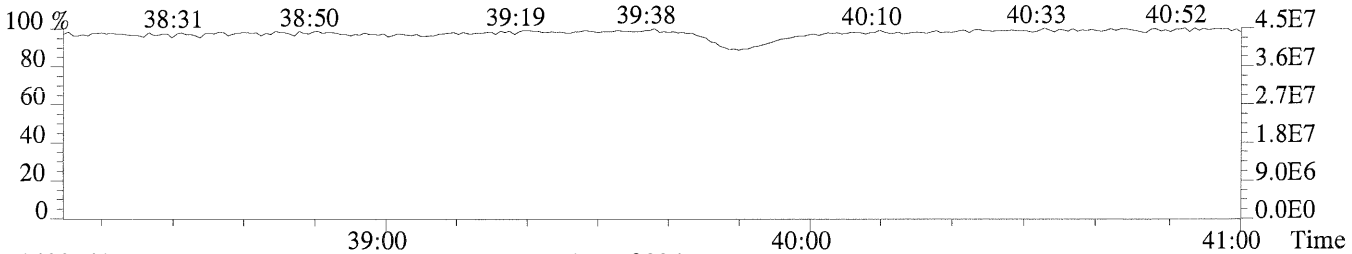
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,25524.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

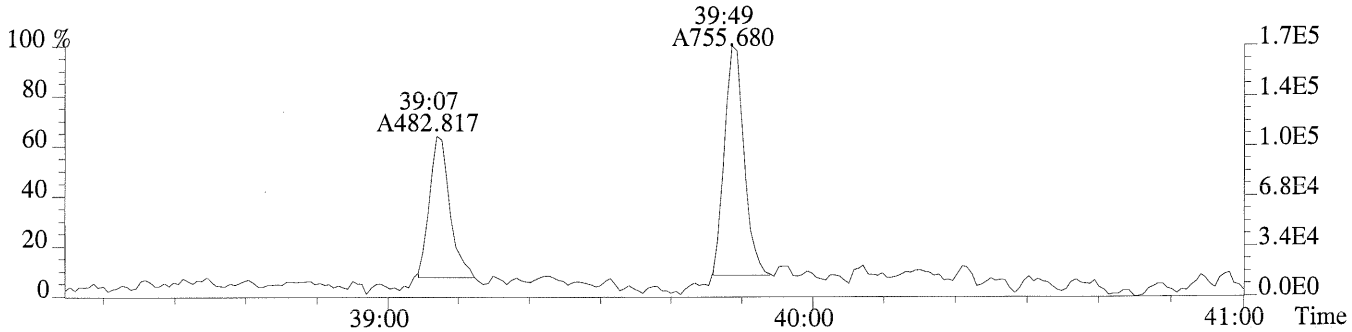


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

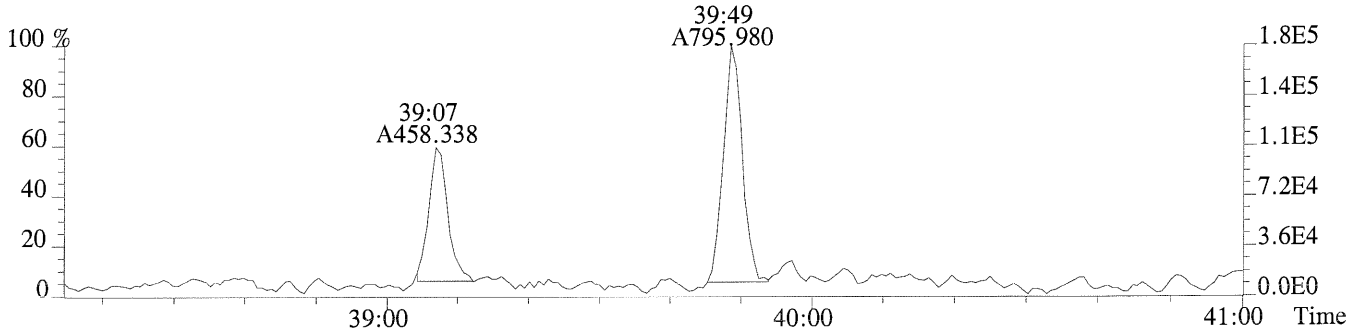


File:P229261 #1-251 Acq:26-MAY-2014 10:55:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-002 LCS

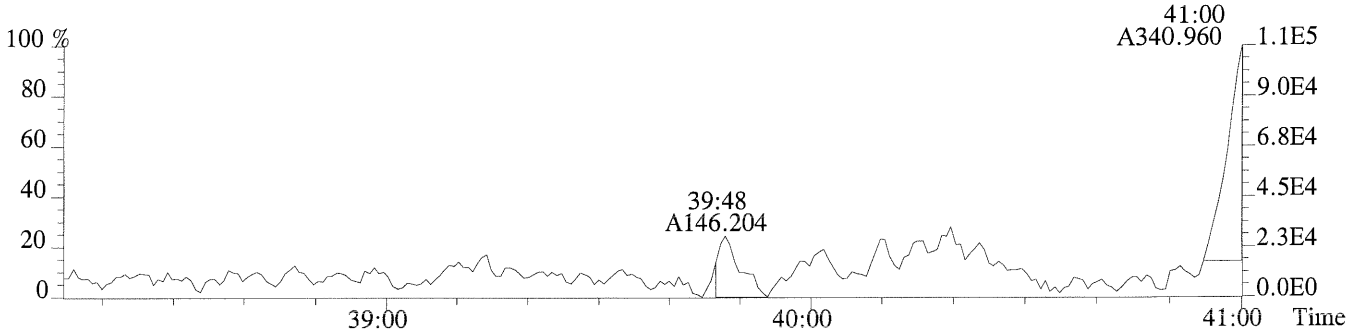
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10916.0,0.40%,F,T)



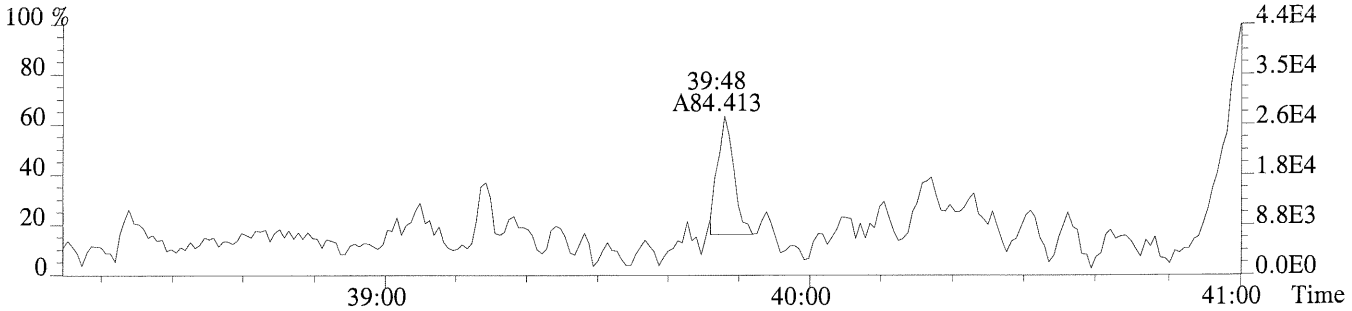
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11188.0,0.40%,F,T)



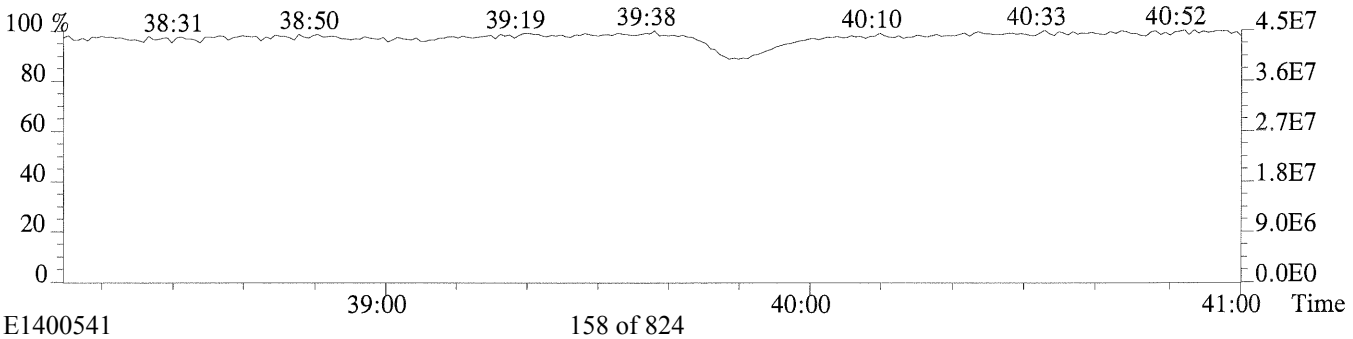
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11716.0,0.40%,F,T)



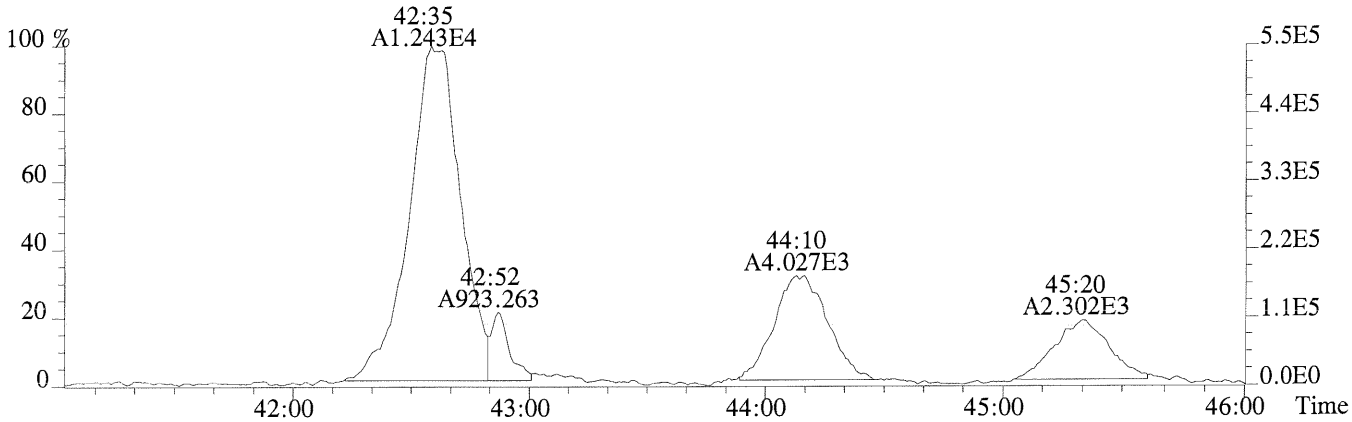
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7848.0,0.40%,F,T)



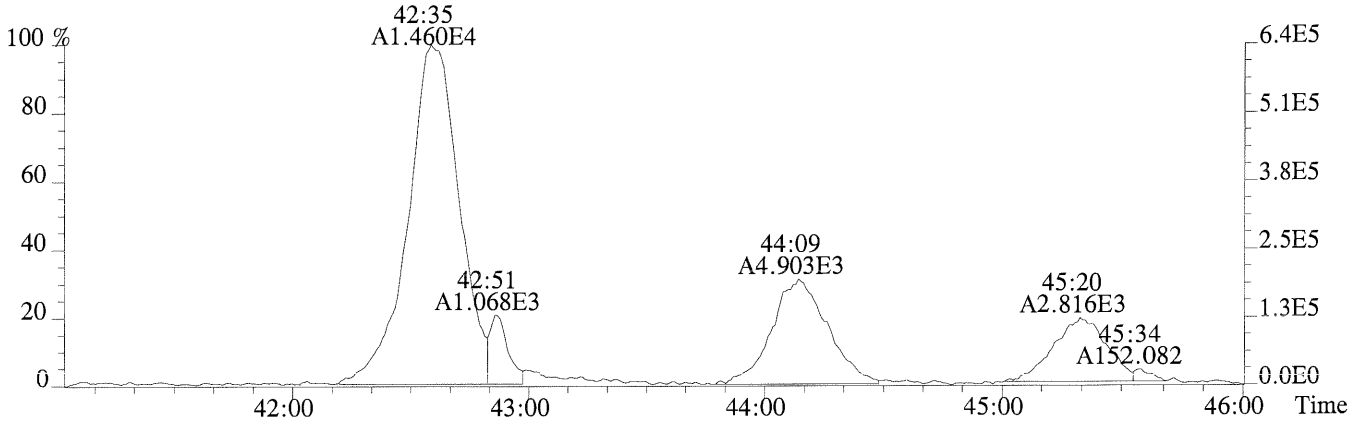
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



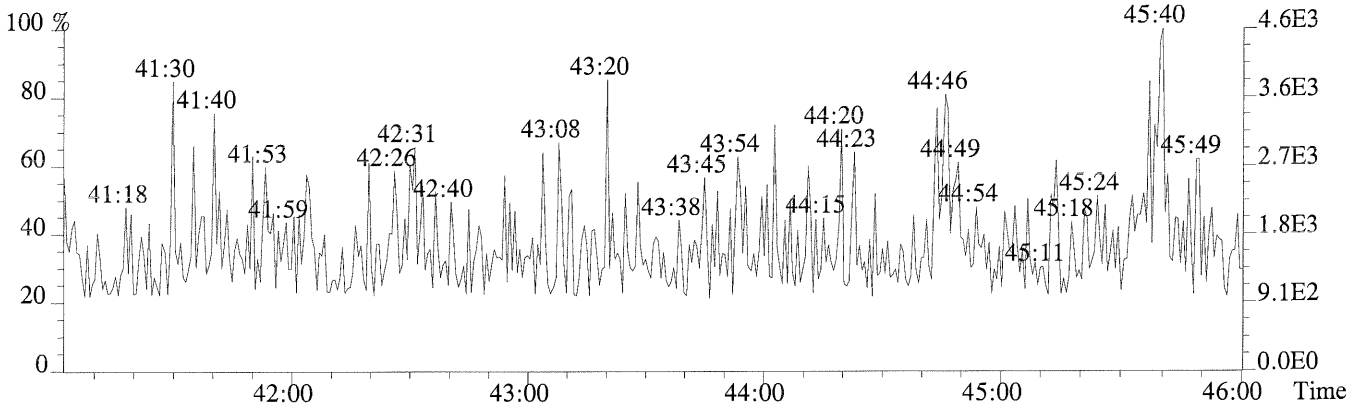
File:P229261 #1-457 Acq:26-MAY-2014 10:55:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-002 LCS
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,6788.0,0.40%,F,T)



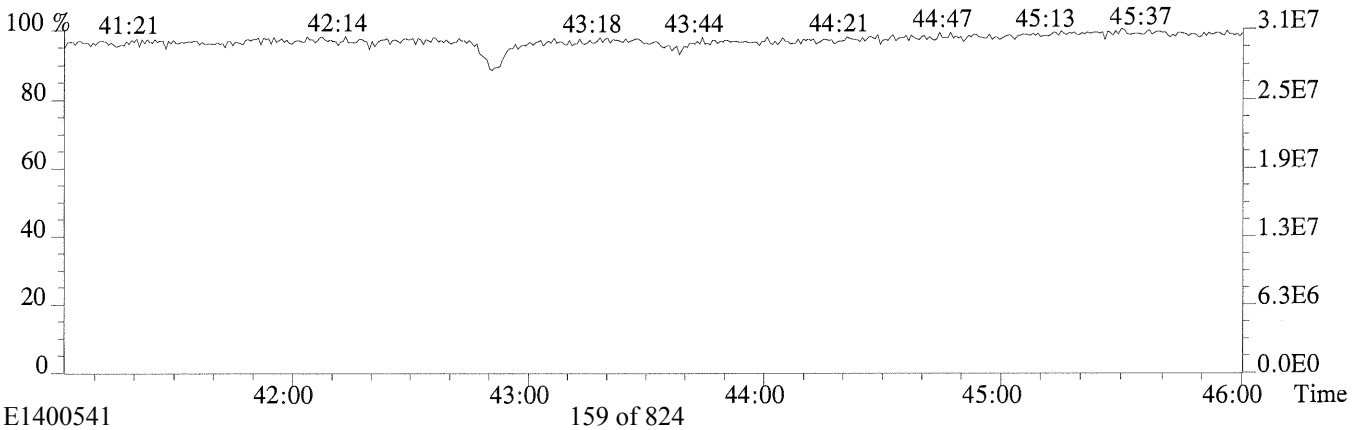
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5980.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

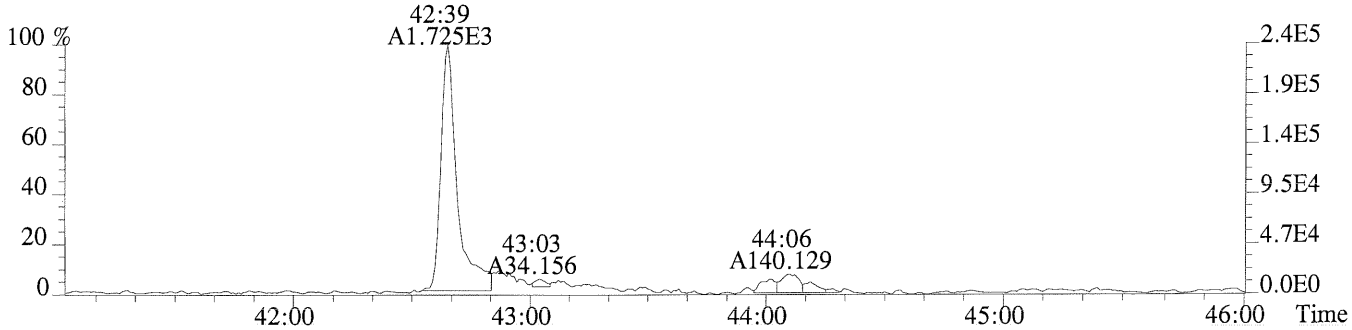


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

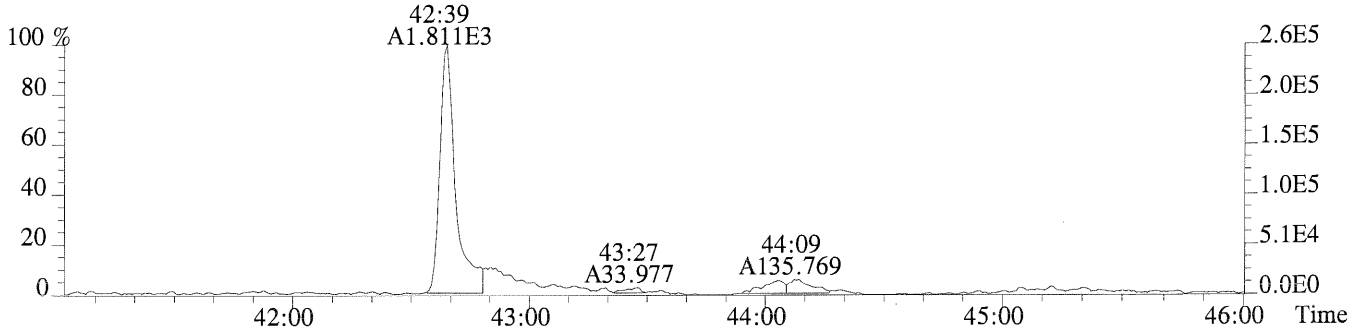


File:P229261 #1-457 Acq:26-MAY-2014 10:55:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-002 LCS

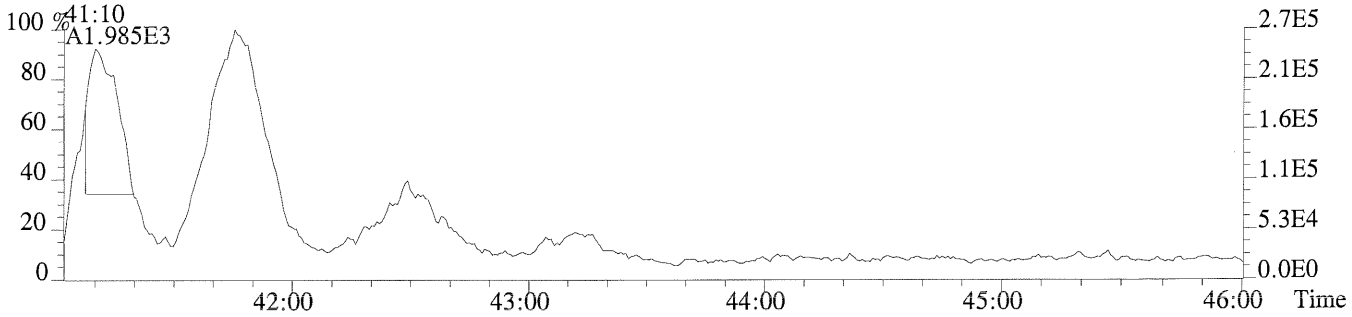
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2788.0,0.40%,F,T)



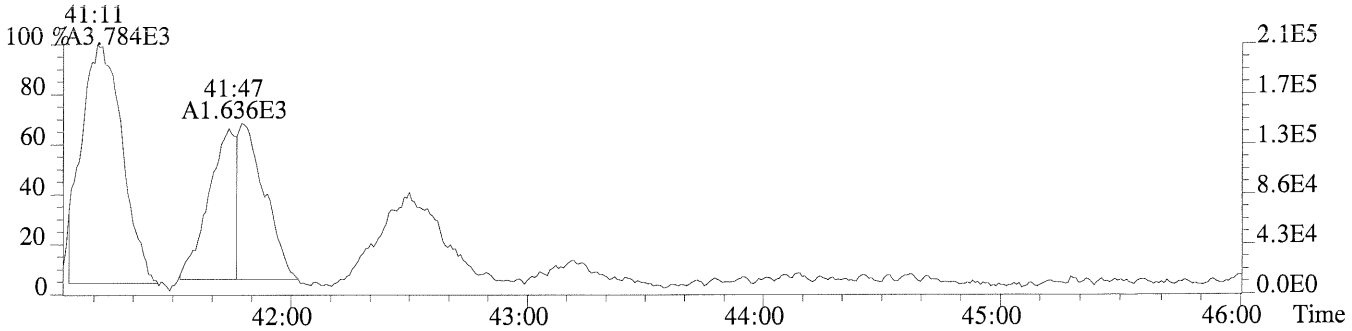
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2444.0,0.40%,F,T)



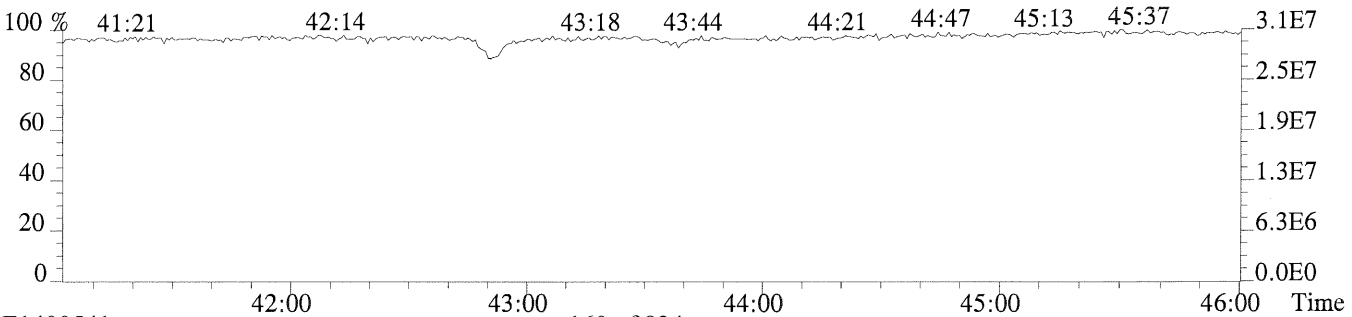
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,72828.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,14376.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
SO-206(0-3) MS

Run #17 Filename P229259 Samp: 1 Inj: 1 Acquired: 26-MAY-14 09:19:21
Processed: 28-MAY-14 08:55:19 Sample ID: EQ1400264-003 MS

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	1.977e+03	2.606e+03	0.76	yes	no	1.127
2	Unk	1,2,3,7,8-PeCDF	32:50	2.136e+04	1.354e+04	1.58	yes	no	1.123
3	Unk	2,3,4,7,8-PeCDF	33:43	2.165e+04	1.413e+04	1.53	yes	yes	1.101
4	Unk	1,2,3,4,7,8-HxCDF	36:19	2.162e+04	1.755e+04	1.23	yes	no	1.338
5	Unk	1,2,3,6,7,8-HxCDF	36:25	2.115e+04	1.716e+04	1.23	yes	no	1.234
6	Unk	2,3,4,6,7,8-HxCDF	36:55	2.078e+04	1.734e+04	1.20	yes	no	1.233
7	Unk	1,2,3,7,8,9-HxCDF	37:40	1.992e+04	1.619e+04	1.23	yes	no	1.269
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	3.819e+04	3.751e+04	1.02	yes	no	1.421
9	Unk	1,2,3,4,7,8,9-HpCDF	40:19	1.548e+04	1.497e+04	1.03	yes	no	1.381
10	Unk	OCDF	42:52	5.653e+04	6.356e+04	0.89	yes	no	1.703
11	Unk	2,3,7,8-TCDD	29:33	1.585e+03	2.062e+03	0.77	yes	no	1.053
12	Unk	1,2,3,7,8-PeCDD	33:59	1.568e+04	1.008e+04	1.55	yes	no	1.069
13	Unk	1,2,3,4,7,8-HxCDD	37:02	1.598e+04	1.270e+04	1.26	yes	no	1.223
14	Unk	1,2,3,6,7,8-HxCDD	37:07	1.900e+04	1.524e+04	1.25	yes	no	1.168
15	Unk	1,2,3,7,8,9-HxCDD	37:21	1.881e+04	1.465e+04	1.28	yes	no	1.236
16	Unk	1,2,3,4,6,7,8-HpCDD	39:49	1.092e+05	1.046e+05	1.04	yes	no	1.170
17	Unk	OCDD	42:39	3.814e+05	4.243e+05	0.90	yes	no	1.288
18	IS	13C-2,3,7,8-TCDF	28:47	1.806e+04	2.283e+04	0.79	yes	no	1.389
19	IS	13C-1,2,3,7,8-PeCDF	32:49	3.443e+04	2.141e+04	1.61	yes	no	1.865
20	IS	13C-2,3,4,7,8-PeCDF	33:42	3.539e+04	2.218e+04	1.60	yes	no	1.804
21	IS	13C-1,2,3,4,7,8-HxCDF	36:18	1.553e+04	2.955e+04	0.53	yes	no	1.421
22	IS	13C-1,2,3,6,7,8-HxCDF	36:25	1.984e+04	3.791e+04	0.52	yes	no	1.639
23	IS	13C-2,3,4,6,7,8-HxCDF	36:54	1.901e+04	3.573e+04	0.53	yes	no	1.444
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	1.581e+04	3.013e+04	0.52	yes	no	1.241
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	1.101e+04	2.438e+04	0.45	yes	no	1.198
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	1.064e+04	2.351e+04	0.45	yes	no	0.997
27	IS	13C-2,3,7,8-TCDD	29:31	1.217e+04	1.569e+04	0.78	yes	no	0.930
28	IS	13C-1,2,3,7,8-PeCDD	33:58	2.648e+04	1.669e+04	1.59	yes	no	1.107
29	IS	13C-1,2,3,4,7,8-HxCDD	37:02	2.256e+04	1.754e+04	1.29	yes	no	0.930
30	IS	13C-1,2,3,6,7,8-HxCDD	37:07	2.154e+04	1.656e+04	1.30	yes	no	0.983
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:48	1.674e+04	1.543e+04	1.08	yes	no	0.935
32	IS	13C-OCDD	42:38	2.126e+04	2.335e+04	0.91	yes	no	0.687
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.421e+04	3.114e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:21	3.698e+04	2.908e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.268e+03				no	0.946

$$\text{OCDD} = \frac{(3.814e+05 + 4.243e+05) \times 4000 \text{ pg} \times 1}{(2.126e+04 + 2.335e+04) \times 10.168 \text{ g} \times 90.2 / 100 \times 1.288} = 6115.658 \text{ ng/kg}$$

UM 05/29/14

ALS ENVIRONMENTAL
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1613RESPA

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
SO-206(0-3) D

Run #18 Filename P229260 Samp: 1 Inj: 1 Acquired: 26-MAY-14 10:07:15
Processed: 28-MAY-14 09:02:34 Sample ID: EQ1400264-004 DMS

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:48	2.406e+03	3.066e+03	0.78	yes	yes	1.127
2	Unk	1,2,3,7,8-PeCDF	32:50	2.512e+04	1.618e+04	1.55	yes	no	1.123
3	Unk	2,3,4,7,8-PeCDF	33:43	2.327e+04	1.529e+04	1.52	yes	no	1.101
4	Unk	1,2,3,4,7,8-HxCDF	36:19	2.455e+04	2.002e+04	1.23	yes	no	1.338
5	Unk	1,2,3,6,7,8-HxCDF	36:25	2.483e+04	2.004e+04	1.24	yes	no	1.234
6	Unk	2,3,4,6,7,8-HxCDF	36:55	2.302e+04	1.836e+04	1.25	yes	no	1.233
7	Unk	1,2,3,7,8,9-HxCDF	37:40	4.029e+04	3.340e+04	1.21	yes	yes	1.269
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	3.417e+04	3.375e+04	1.01	yes	no	1.421
9	Unk	1,2,3,4,7,8,9-HpCDF	40:19	1.665e+04	1.684e+04	0.99	yes	no	1.381
10	Unk	OCDF	42:53	4.484e+04	5.019e+04	0.89	yes	no	1.703
11	Unk	2,3,7,8-TCDD	29:33	1.912e+03	2.404e+03	0.80	yes	no	1.053
12	Unk	1,2,3,7,8-PeCDD	33:59	1.774e+04	1.132e+04	1.57	yes	no	1.069
13	Unk	1,2,3,4,7,8-HxCDD	37:02	1.759e+04	1.396e+04	1.26	yes	no	1.223
14	Unk	1,2,3,6,7,8-HxCDD	37:07	1.941e+04	1.528e+04	1.27	yes	no	1.168
15	Unk	1,2,3,7,8,9-HxCDD	37:21	1.990e+04	1.588e+04	1.25	yes	no	1.236
16	Unk	1,2,3,4,6,7,8-HpCDD	39:49	8.835e+04	8.475e+04	1.04	yes	no	1.170
17	Unk	OCDD	42:39	4.265e+05	4.746e+05	0.90	yes	no	1.288
18	IS	13C-2,3,7,8-TCDF	28:47	2.146e+04	2.677e+04	0.80	yes	no	1.389
19	IS	13C-1,2,3,7,8-PeCDF	32:49	3.943e+04	2.485e+04	1.59	yes	no	1.865
20	IS	13C-2,3,4,7,8-PeCDF	33:42	4.029e+04	2.502e+04	1.61	yes	no	1.804
21	IS	13C-1,2,3,4,7,8-HxCDF	36:18	1.882e+04	3.595e+04	0.52	yes	no	1.421
22	IS	13C-1,2,3,6,7,8-HxCDF	36:25	2.379e+04	4.548e+04	0.52	yes	no	1.639
23	IS	13C-2,3,4,6,7,8-HxCDF	36:54	2.208e+04	4.264e+04	0.52	yes	no	1.444
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	1.842e+04	3.563e+04	0.52	yes	no	1.241
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	1.302e+04	2.959e+04	0.44	yes	no	1.198
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	1.253e+04	2.860e+04	0.44	yes	no	0.997
27	IS	13C-2,3,7,8-TCDD	29:31	1.464e+04	1.870e+04	0.78	yes	no	0.930
28	IS	13C-1,2,3,7,8-PeCDD	33:58	3.046e+04	1.922e+04	1.58	yes	no	1.107
29	IS	13C-1,2,3,4,7,8-HxCDD	37:02	2.664e+04	2.073e+04	1.28	yes	no	0.930
30	IS	13C-1,2,3,6,7,8-HxCDD	37:07	2.617e+04	2.041e+04	1.28	yes	no	0.983
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:48	2.149e+04	1.987e+04	1.08	yes	no	0.935
32	IS	13C-OCDD	42:38	2.645e+04	2.856e+04	0.93	yes	no	0.687
33	RS/RT	13C-1,2,3,4-TCDD	28:57	2.399e+04	3.090e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:21	3.804e+04	2.943e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.113e+04				no	0.946

$$\text{OCDD} = \frac{(4.265e{+}05 + 4.746e{+}05) \times 4000 \text{ pg} \times 1}{(2.645e{+}04 + 2.856e{+}04) \times 10.048 \text{ g} \times 90.2 / 100 \times 1.288} = 5612.925 \text{ ng/kg}$$

UM 05/29/14

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1613RESPA

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METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
SO-206(0-3) DMS

Run #18 Filename P229260 Samp: 1 Inj: 1 Acquired: 26-MAY-14 10:07:15
Processed: 28-MAY-14 09:02:341 LAB. ID: EQ1400264-004 DMS

	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	1.70e+03	3.0e+02	6.52e+05	2.85e+03	2.3e+02
2	1,2,3,7,8-PeCDF	4.93e+06	2.62e+04	1.9e+02	3.14e+06	1.41e+04	2.2e+02
3	2,3,4,7,8-PeCDF	4.81e+06	2.62e+04	1.8e+02	3.17e+06	1.41e+04	2.3e+02
4	1,2,3,4,7,8-HxCDF	5.44e+06	9.47e+04	5.8e+01	4.47e+06	5.81e+04	7.7e+01
5	1,2,3,6,7,8-HxCDF	5.42e+06	9.47e+04	5.7e+01	4.42e+06	5.81e+04	7.6e+01
6	2,3,4,6,7,8-HxCDF	5.06e+06	9.47e+04	5.3e+01	4.02e+06	5.81e+04	6.9e+01
7	1,2,3,7,8,9-HxCDF	6.40e+06	9.47e+04	6.8e+01	5.09e+06	5.81e+04	8.8e+01
8	1,2,3,4,6,7,8-HpCDF	7.71e+06	4.17e+04	1.9e+02	7.62e+06	5.24e+04	1.5e+02
9	1,2,3,4,7,8,9-HpCDF	3.33e+06	4.17e+04	8.0e+01	3.33e+06	5.24e+04	6.4e+01
10	OCDF	7.54e+06	6.57e+03	1.1e+03	8.23e+06	7.17e+03	1.1e+03
11	2,3,7,8-TCDD	4.13e+05	1.34e+03	3.1e+02	5.20e+05	1.52e+03	3.4e+02
12	1,2,3,7,8-PeCDD	3.65e+06	5.91e+03	6.2e+02	2.31e+06	5.17e+03	4.5e+02
13	1,2,3,4,7,8-HxCDD	4.04e+06	2.85e+04	1.4e+02	3.21e+06	2.45e+04	1.3e+02
14	1,2,3,6,7,8-HxCDD	4.30e+06	2.85e+04	1.5e+02	3.36e+06	2.45e+04	1.4e+02
15	1,2,3,7,8,9-HxCDD	4.28e+06	2.85e+04	1.5e+02	3.42e+06	2.45e+04	1.4e+02
16	1,2,3,4,6,7,8-HpCDD	1.82e+07	1.55e+04	1.2e+03	1.74e+07	1.21e+04	1.4e+03
17	OCDD	7.24e+07	5.87e+03	1.2e+04	8.09e+07	5.24e+03	1.5e+04
18	13C-2,3,7,8-TCDF	4.60e+06	1.19e+03	3.9e+03	5.69e+06	1.00e+03	5.7e+03
19	13C-1,2,3,7,8-PeCDF	7.53e+06	7.01e+03	1.1e+03	4.79e+06	9.45e+03	5.1e+02
20	13C-2,3,4,7,8-PeCDF	8.41e+06	7.01e+03	1.2e+03	5.22e+06	9.45e+03	5.5e+02
21	13C-1,2,3,4,7,8-HxCDF	4.21e+06	2.30e+03	1.8e+03	8.07e+06	1.23e+04	6.6e+02
22	13C-1,2,3,6,7,8-HxCDF	5.23e+06	2.30e+03	2.3e+03	1.00e+07	1.23e+04	8.2e+02
23	13C-2,3,4,6,7,8-HxCDF	4.85e+06	2.30e+03	2.1e+03	9.30e+06	1.23e+04	7.6e+02
24	13C-1,2,3,7,8,9-HxCDF	3.94e+06	2.30e+03	1.7e+03	7.56e+06	1.23e+04	6.2e+02
25	13C-1,2,3,4,6,7,8-HpCDF	2.90e+06	5.13e+03	5.6e+02	6.64e+06	1.39e+04	4.8e+02
26	13C-1,2,3,4,7,8,9-HpCDF	2.48e+06	5.13e+03	4.8e+02	5.68e+06	1.39e+04	4.1e+02
27	13C-2,3,7,8-TCDD	3.30e+06	2.74e+03	1.2e+03	4.22e+06	1.74e+03	2.4e+03
28	13C-1,2,3,7,8-PeCDD	6.31e+06	7.92e+03	8.0e+02	4.01e+06	1.58e+03	2.5e+03
29	13C-1,2,3,4,7,8-HxCDD	6.11e+06	1.55e+04	3.9e+02	4.72e+06	6.60e+03	7.1e+02
30	13C-1,2,3,6,7,8-HxCDD	5.68e+06	1.55e+04	3.7e+02	4.43e+06	6.60e+03	6.7e+02
31	13C-1,2,3,4,6,7,8-HpCDD	4.45e+06	4.03e+04	1.1e+02	4.11e+06	2.11e+04	2.0e+02
32	13C-OCDD	4.53e+06	1.13e+04	4.0e+02	4.92e+06	9.14e+03	5.4e+02
33	13C-1,2,3,4-TCDD	5.18e+06	2.74e+03	1.9e+03	6.70e+06	1.74e+03	3.8e+03
34	13C-1,2,3,7,8,9-HxCDD	8.23e+06	1.55e+04	5.3e+02	6.39e+06	6.60e+03	9.7e+02
35	37Cl-2,3,7,8-TCDD	2.44e+06	5.36e+02	4.6e+03			

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XLSN

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Peak List Summary

CLIENT ID.

SO-206(0-3) DMS

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P229260 Sample: 1 Injection: 1 Function: 1
Llim: - Ulim: -
Acquired: 26-MAY-14 10:07:15 Processed: 28-MAY-14 09:02:34
Mass: 303.9020 305.8990 Tot Response: 5.72e+03 RRF: 1.127

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	25:25	1.02e+02	1.51e+02	0.68	yes	2.52e+02	n	n
2	28:48	2.41e+03	3.07e+03	0.78	yes	5.47e+03	2,3,7,8-TCDF	y	n

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Peak List Summary

CLIENT ID.

SO-206(0-3) DMS

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P229260 Sample: 1 Injection: 1 Function: 1
Llim: - Ulim: -
Acquired: 26-MAY-14 10:07:15 Processed: 28-MAY-14 09:02:34
Mass: 319.8970 321.8940 Tot Response: 4.42e+03 RRF: 1.053

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:16	4.97e+01	5.76e+01	0.86	yes	1.07e+02		n	n
2	29:33	1.91e+03	2.40e+03	0.80	yes	4.32e+03	2,3,7,8-TCDD	n	n

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Peak List Summary

CLIENT ID.

SO-206(0-3) DMS

Entry: 38 Totals Name: Total Penta-Furan1

Run: 18 File: P229260 Sample: 1 Injection: 1 Function: 1
Llim: - Ulim: -
Acquired: 26-MAY-14 10:07:15 Processed: 28-MAY-14 09:02:34
Mass: 339.8600 341.8570 Tot Response: 2.87e+03 RRF: 1.112

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:29	1.72e+03	1.15e+03	1.50	yes	2.87e+03	n	n

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Peak List Summary

CLIENT ID.

SO-206(0-3) DMS

Entry: 39 Totals Name: Total Penta-Furan2

Run: 18 File: P229260 Sample: 1 Injection: 1 Function: 2
Llim: - Ulim: -
Acquired: 26-MAY-14 10:07:15 Processed: 28-MAY-14 09:02:34
Mass: 339.8600 341.8570 Tot Response: 8.15e+04 RRF: 1.112

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:55	6.01e+02	3.62e+02	1.66	yes	9.63e+02		n	n
2	32:50	2.51e+04	1.62e+04	1.55	yes	4.13e+04	1,2,3,7,8-PeCDF	n	n
3	33:03	4.18e+02	2.99e+02	1.40	yes	7.17e+02		n	n
4	33:43	2.33e+04	1.53e+04	1.52	yes	3.86e+04	2,3,4,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.

SO-206(0-3) DMS

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 18 File: P229260 Sample: 1 Injection: 1 Function: 2
Llim: - Ulim: -
Acquired: 26-MAY-14 10:07:15 Processed: 28-MAY-14 09:02:34
Mass: 355.8550 357.8520 Tot Response: 3.04e+04 RRF: 1.069

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:58	3.16e+02	2.11e+02	1.50	yes	5.27e+02	n	n
2	33:04	1.97e+02	1.44e+02	1.37	yes	3.40e+02	n	n
3	33:16	3.05e+02	2.10e+02	1.45	yes	5.15e+02	n	n
4	33:59	1.77e+04	1.13e+04	1.57	yes	2.91e+04	1,2,3,7,8-PeCDD n	n

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Peak List Summary

CLIENT ID.

SO-206(0-3) DMS

Entry: 41 Totals Name: Total Hexa-Furans

Run: 18 File: P229260 Sample: 1 Injection: 1 Function: 3
Llim: - Ulim: -
Acquired: 26-MAY-14 10:07:15 Processed: 28-MAY-14 09:02:34
Mass: 373.8210 375.8180 Tot Response: 2.45e+05 RRF: 1.267

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:13	1.98e+03	1.62e+03	1.22	yes	3.60e+03		n	n
2	35:22	8.44e+03	6.88e+03	1.23	yes	1.53e+04		n	n
3	35:53	1.19e+04	9.61e+03	1.24	yes	2.15e+04		n	n
4	36:19	2.46e+04	2.00e+04	1.23	yes	4.46e+04	1,2,3,4,7,8-HxCDF	n	n
5	36:25	2.48e+04	2.00e+04	1.24	yes	4.49e+04	1,2,3,6,7,8-HxCDF	n	n
6	36:55	2.30e+04	1.84e+04	1.25	yes	4.14e+04	2,3,4,6,7,8-HxCDF	n	n
7	37:40	4.03e+04	3.34e+04	1.21	yes	7.37e+04	1,2,3,7,8,9-HxCDF	y	y

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Peak List Summary

CLIENT ID.

SO-206(0-3) DMS

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 18 File: P229260 Sample: 1 Injection: 1 Function: 3
Llim: - Ulim: -
Acquired: 26-MAY-14 10:07:15 Processed: 28-MAY-14 09:02:34
Mass: 389.8160 391.8130 Tot Response: 1.26e+05 RRF: 1.208

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:43	5.66e+03	4.65e+03	1.22	yes	1.03e+04		n	n
2	36:27	7.26e+03	5.71e+03	1.27	yes	1.30e+04		n	n
3	37:02	1.76e+04	1.40e+04	1.26	yes	3.16e+04	1,2,3,4,7,8-HxCDD	n	n
4	37:07	1.94e+04	1.53e+04	1.27	yes	3.47e+04	1,2,3,6,7,8-HxCDD	n	n
5	37:17	6.48e+02	4.94e+02	1.31	yes	1.14e+03		n	n
6	37:21	1.99e+04	1.59e+04	1.25	yes	3.58e+04	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.

SO-206(0-3) DMS

Entry: 43 Totals Name: Total Hepta-Furans

Run: 18 File: P229260 Sample: 1 Injection: 1 Function: 4
Llim: - Ulim: -
Acquired: 26-MAY-14 10:07:15 Processed: 28-MAY-14 09:02:34
Mass: 407.7820 409.7790 Tot Response: 1.65e+05 RRF: 1.403

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:52	3.42e+04	3.38e+04	1.01	yes	6.79e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	39:17	3.31e+04	3.09e+04	1.07	yes	6.40e+04		y	n
3	40:19	1.67e+04	1.68e+04	0.99	yes	3.35e+04	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.

SO-206(0-3) DMS

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 18 File: P229260 Sample: 1 Injection: 1 Function: 4
Llim: - Ulim: -
Acquired: 26-MAY-14 10:07:15 Processed: 28-MAY-14 09:02:34
Mass: 423.7770 425.7740 Tot Response: 3.19e+05 RRF: 1.170

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:07	7.48e+04	7.14e+04	1.05	yes	1.46e+05		n	n
2	39:49	8.84e+04	8.47e+04	1.04	yes	1.73e+05	1,2,3,4,6,7,8-HpCDD	n	n

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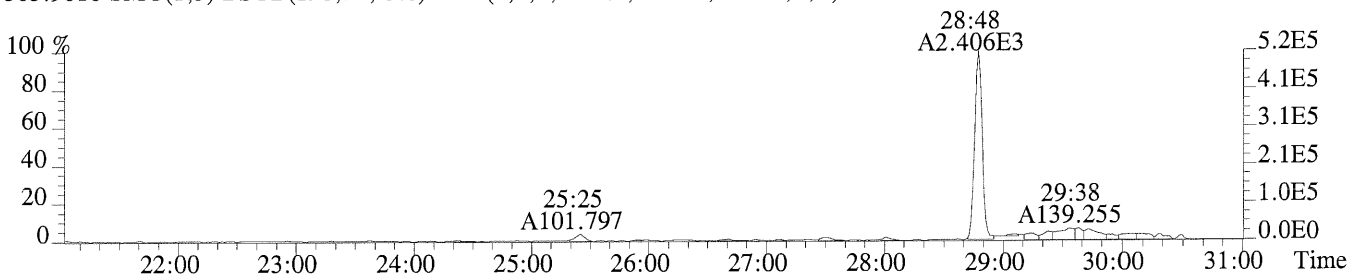
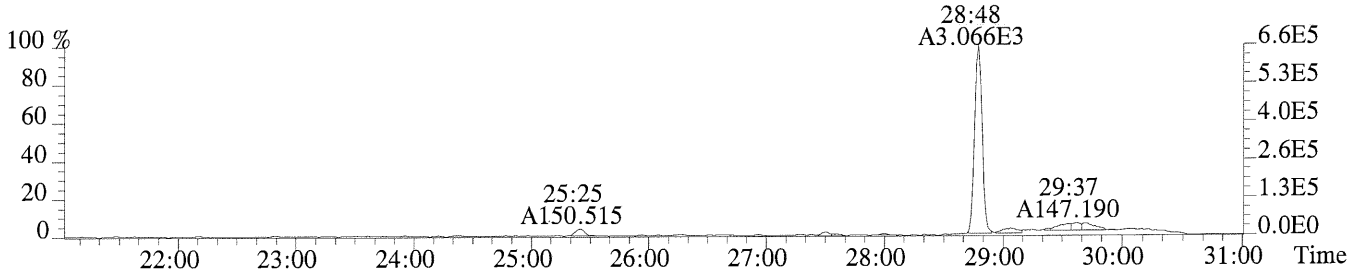
File:P229260 #1-627 Acq:26-MAY-2014 10:07:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-004 DMS

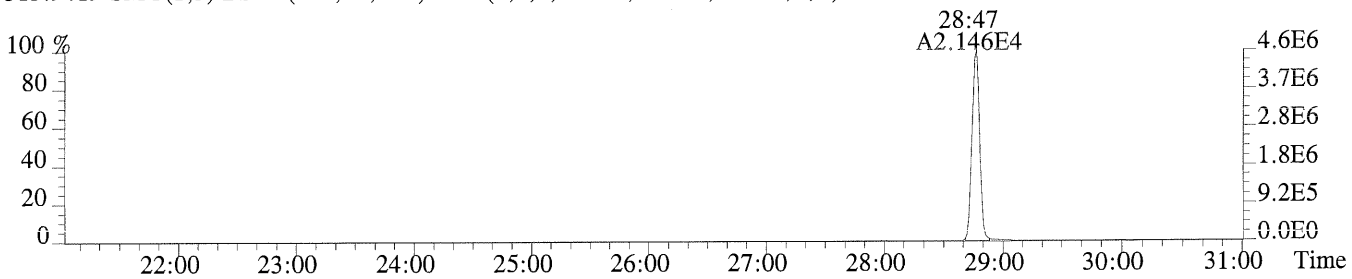
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1704.0,1.00%,F,T)



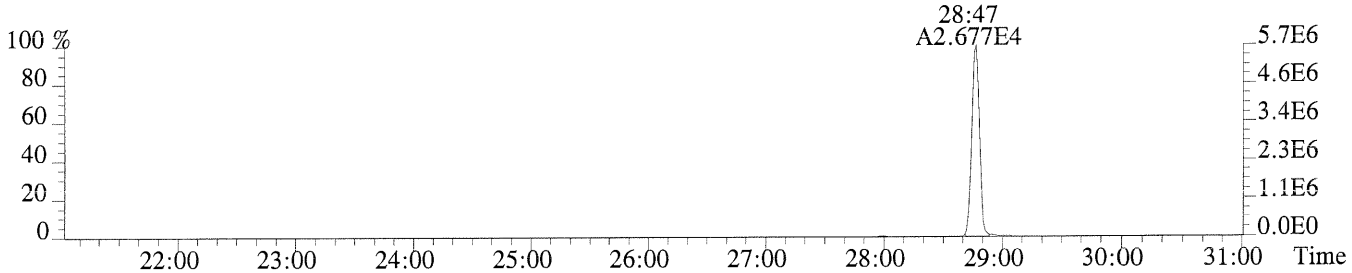
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2852.0,1.00%,F,T)



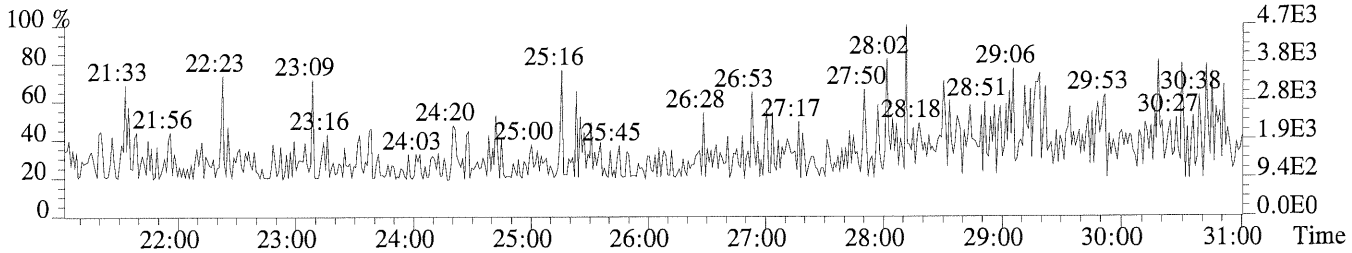
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1192.0,1.00%,F,T)



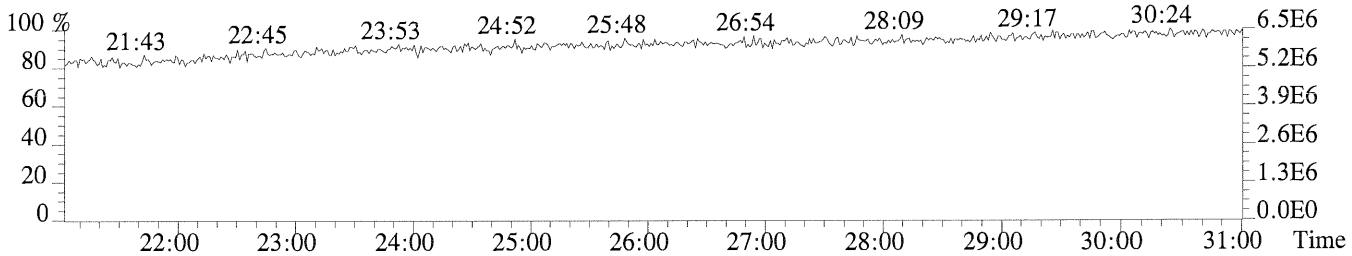
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

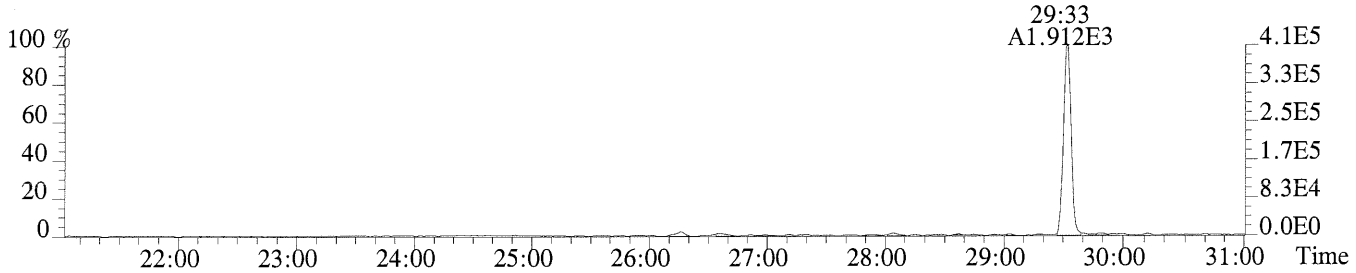


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

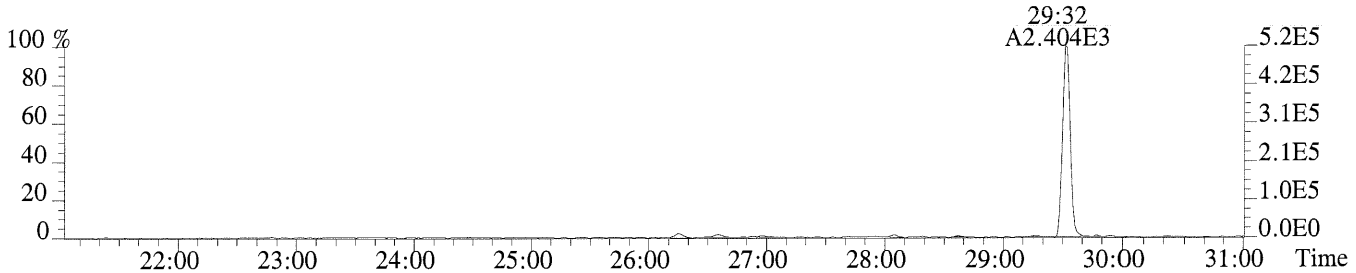


File:P229260 #1-627 Acq:26-MAY-2014 10:07:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-004 DMS

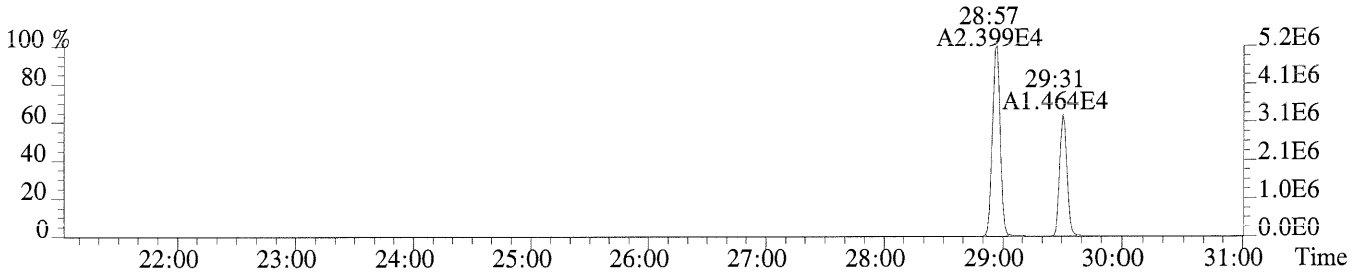
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1340.0,1.00%,F,T)



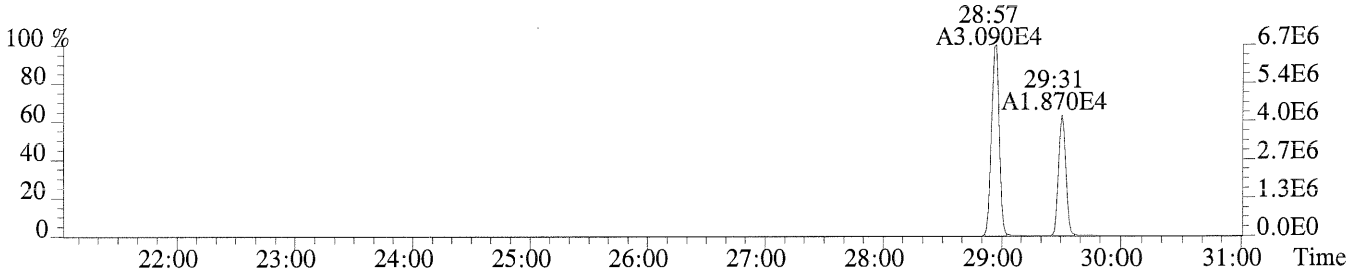
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1516.0,1.00%,F,T)



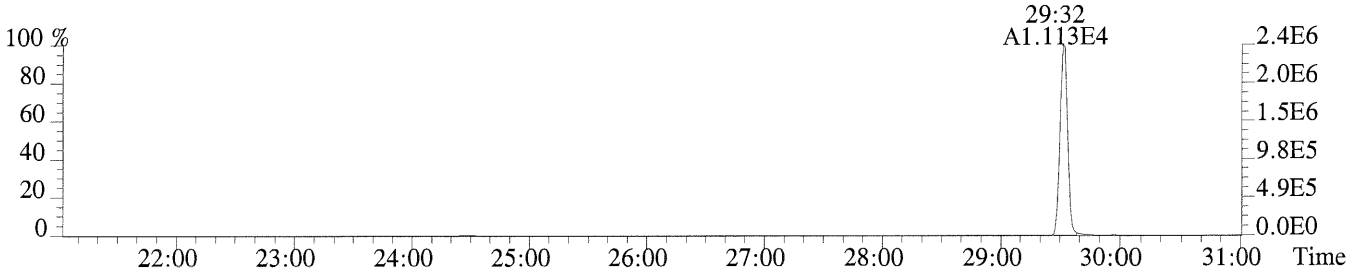
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2744.0,1.00%,F,T)



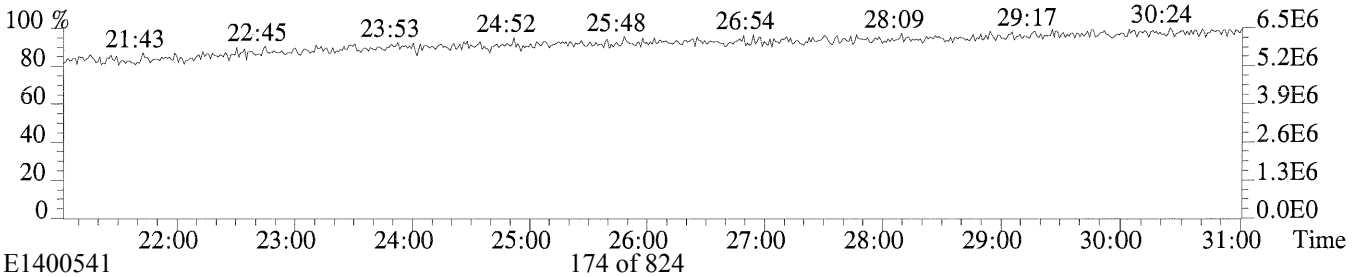
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1740.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)

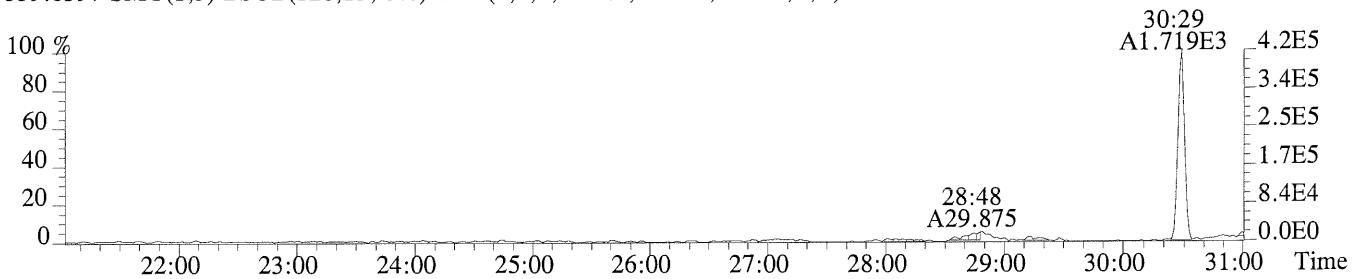


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

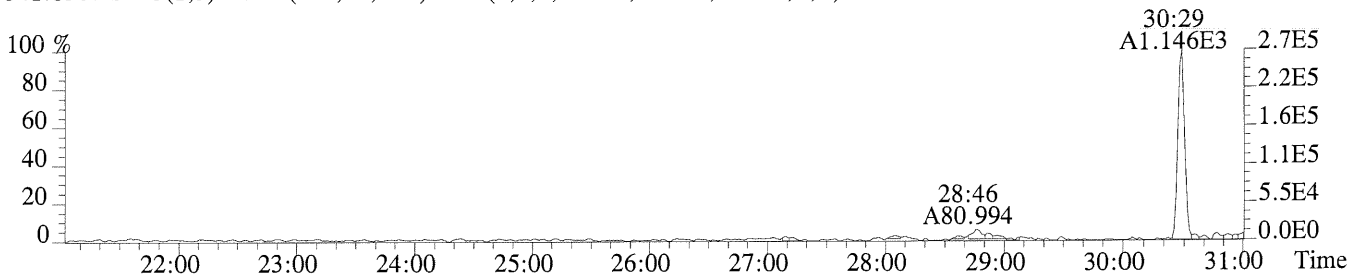


File:P229260 #1-627 Acq:26-MAY-2014 10:07:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-004 DMS

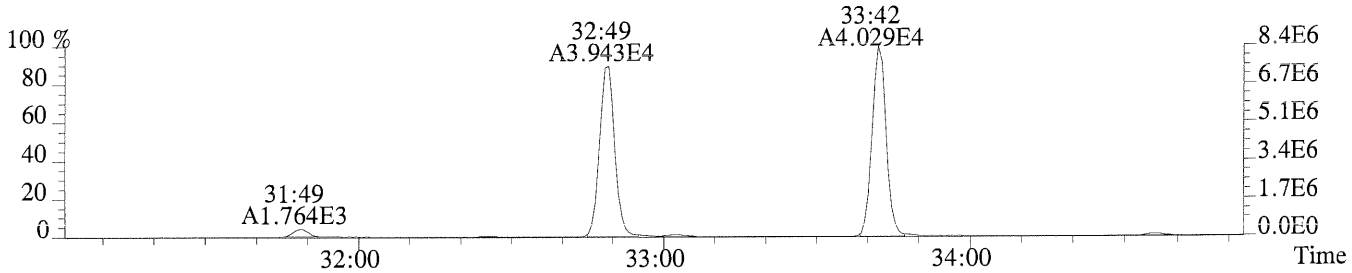
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3544.0,1.00%,F,T)



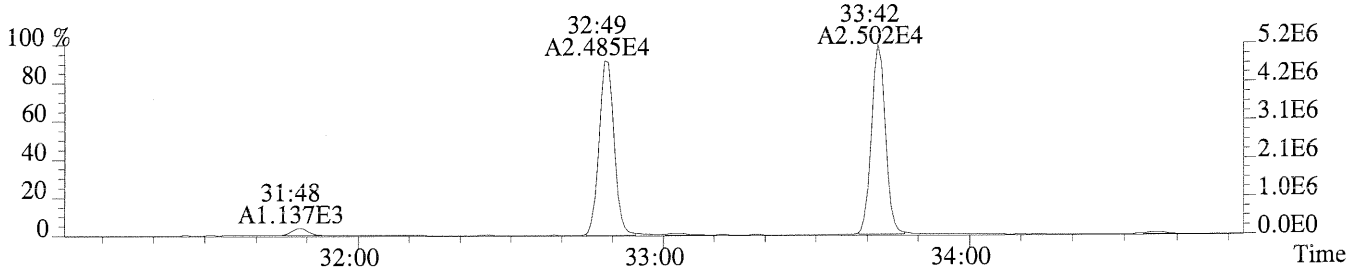
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3024.0,1.00%,F,T)



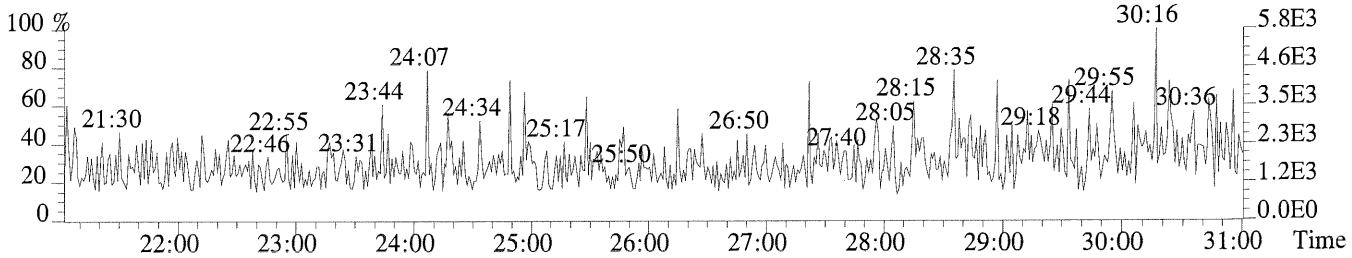
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7012.0,1.00%,F,T)



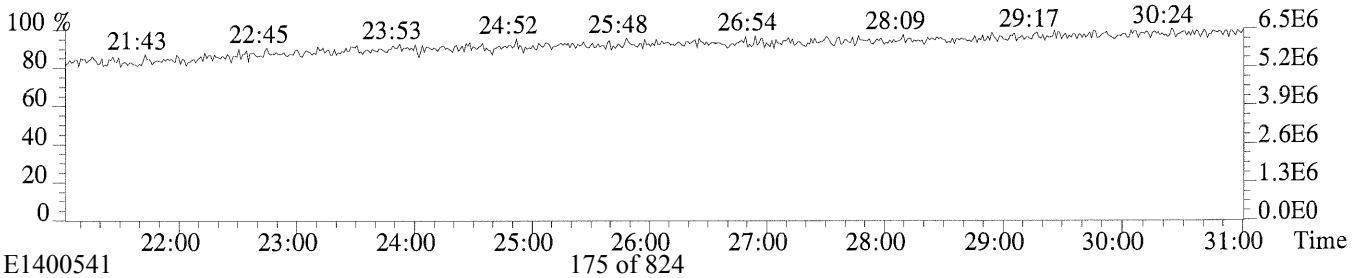
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9452.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

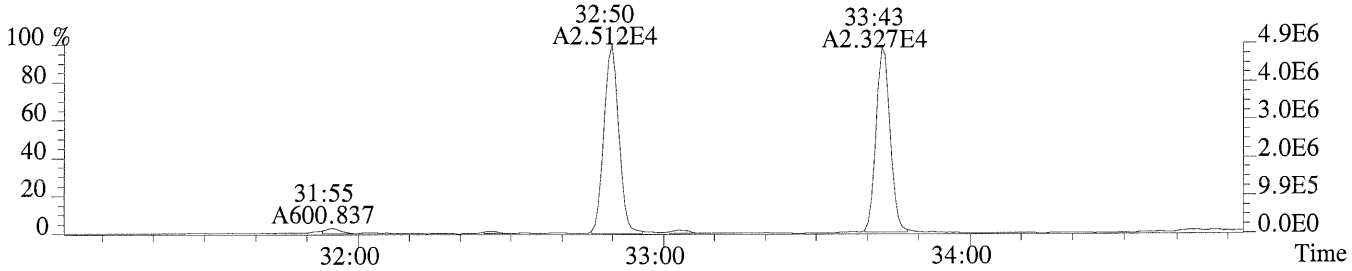


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

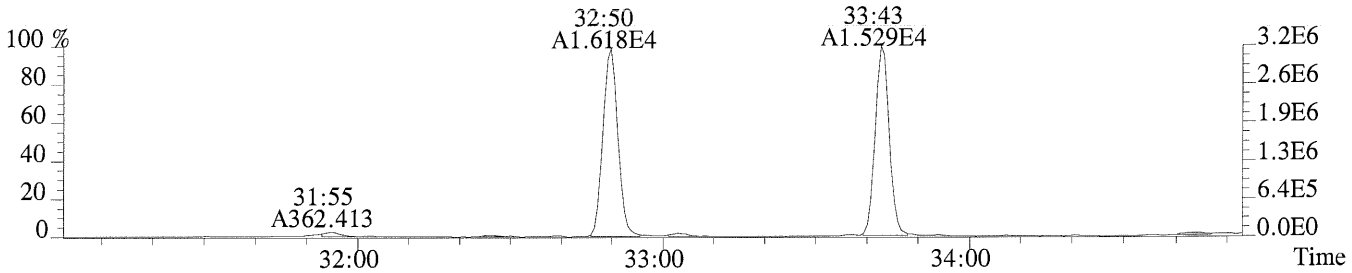


File:P229260 #1-349 Acq:26-MAY-2014 10:07:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-004 DMS

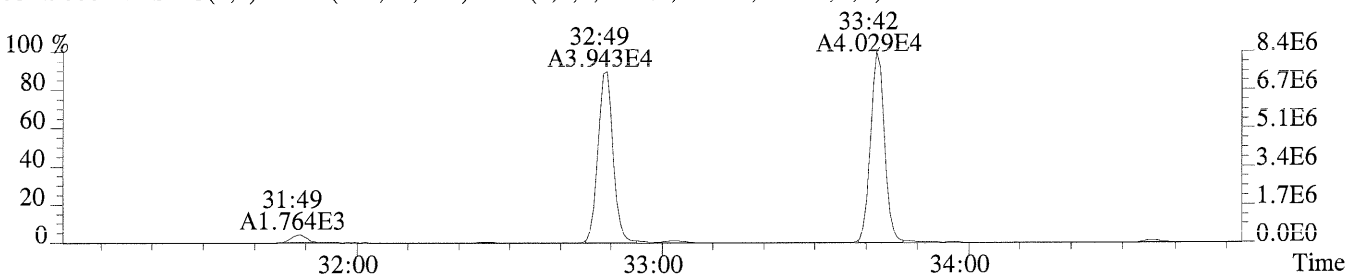
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,26204.0,1.00%,F,T)



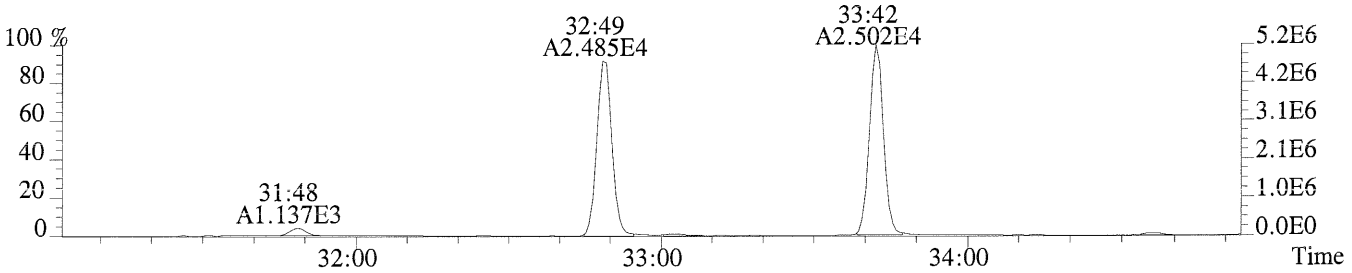
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,14088.0,1.00%,F,T)



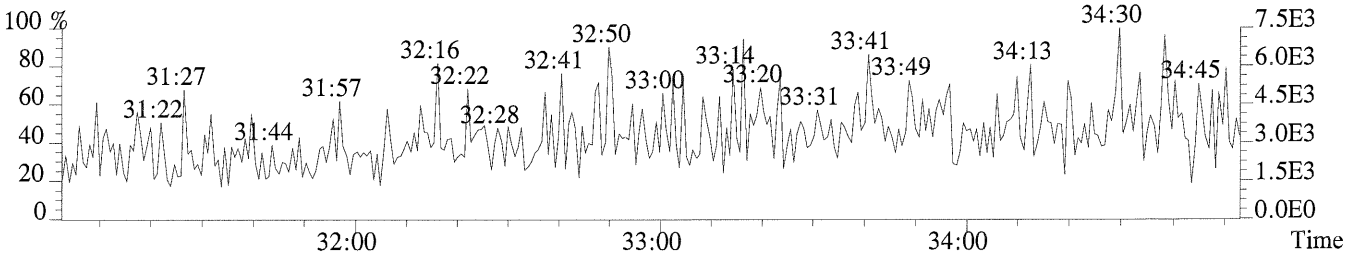
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7012.0,1.00%,F,T)



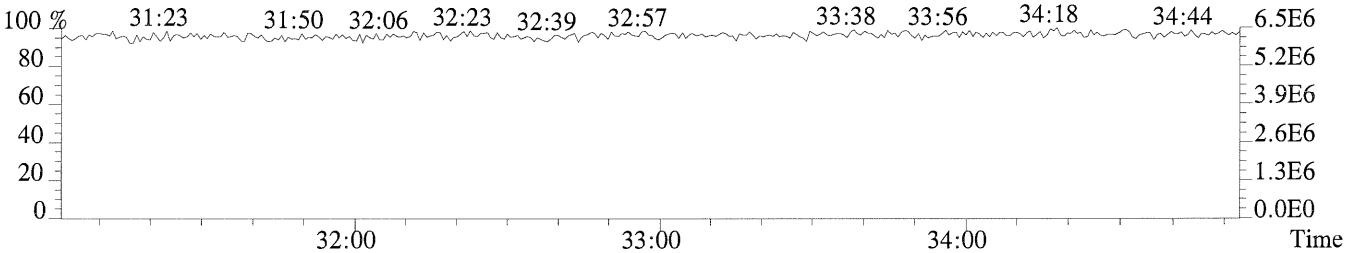
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9452.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

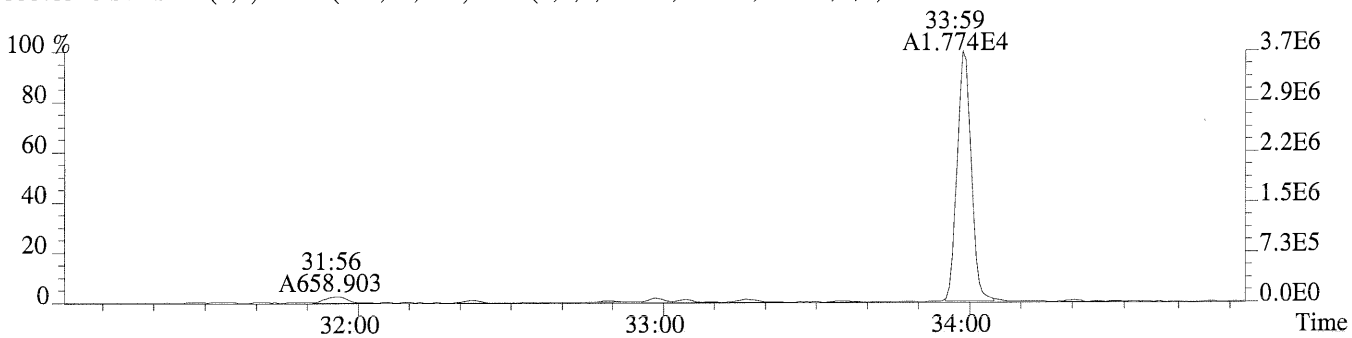


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

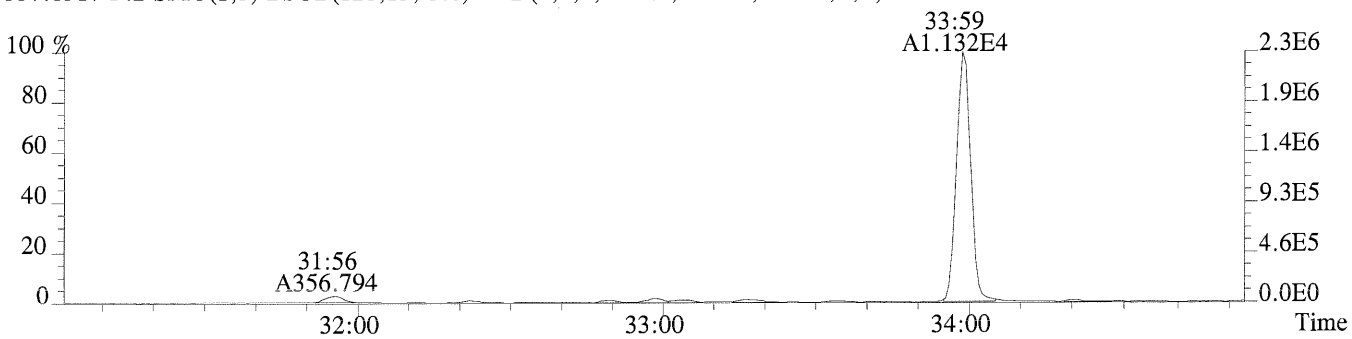


File:P229260 #1-349 Acq:26-MAY-2014 10:07:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-004 DMS

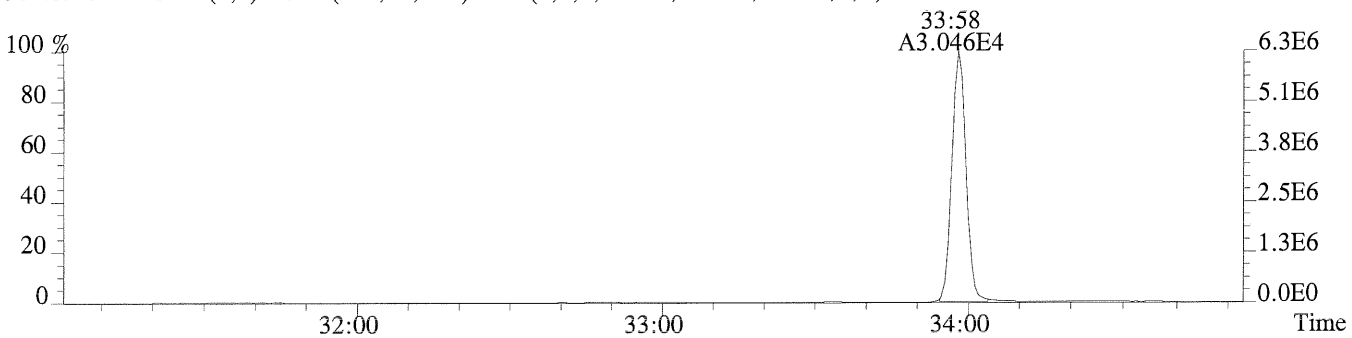
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5912.0,1.00%,F,T)



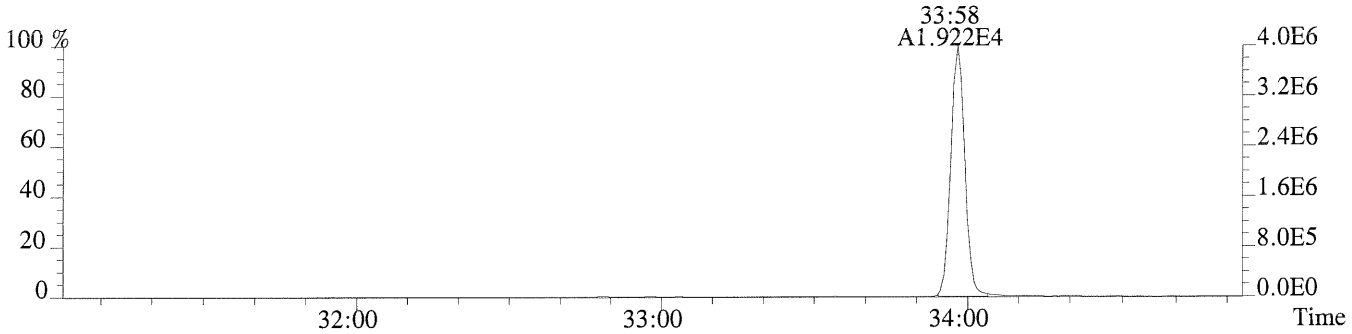
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5172.0,1.00%,F,T)



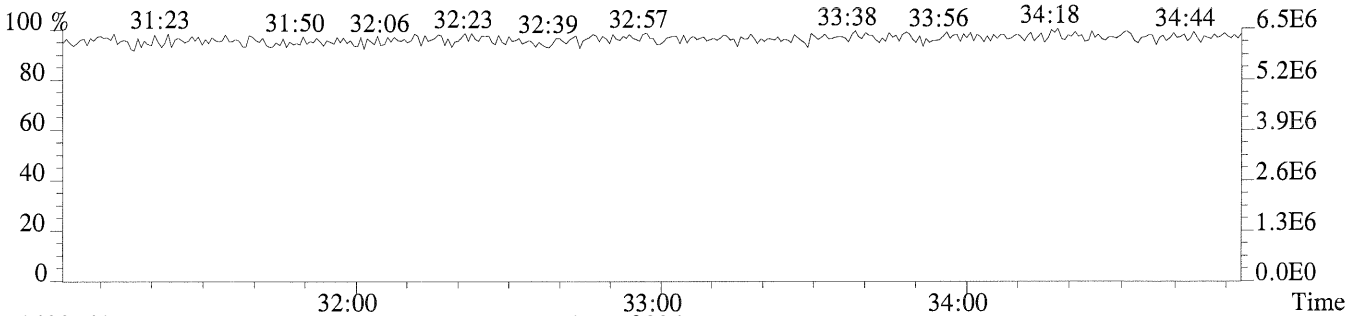
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7920.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1580.0,1.00%,F,T)

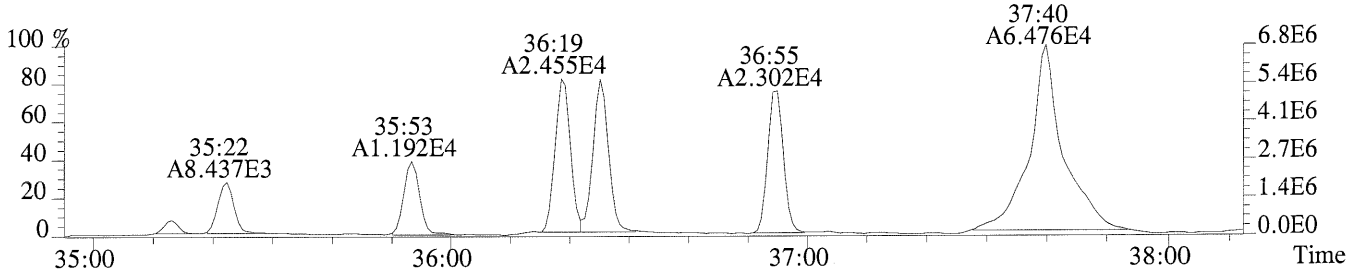


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

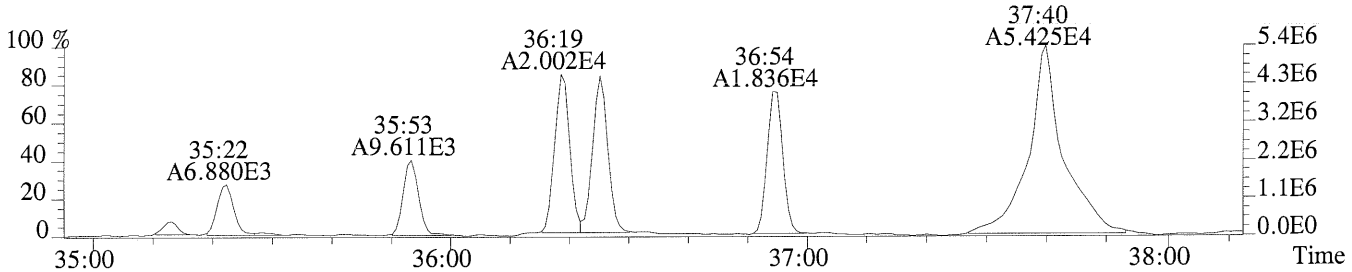


File:P229260 #1-299 Acq:26-MAY-2014 10:07:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-004 DMS

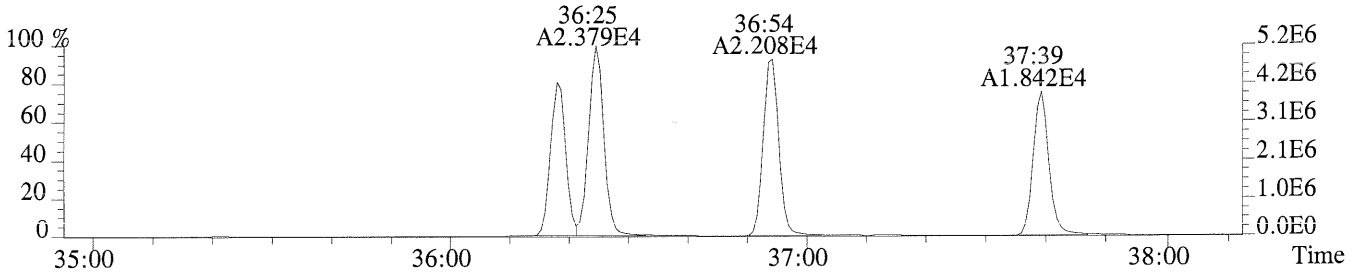
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,94668.0,0.40%,F,T)



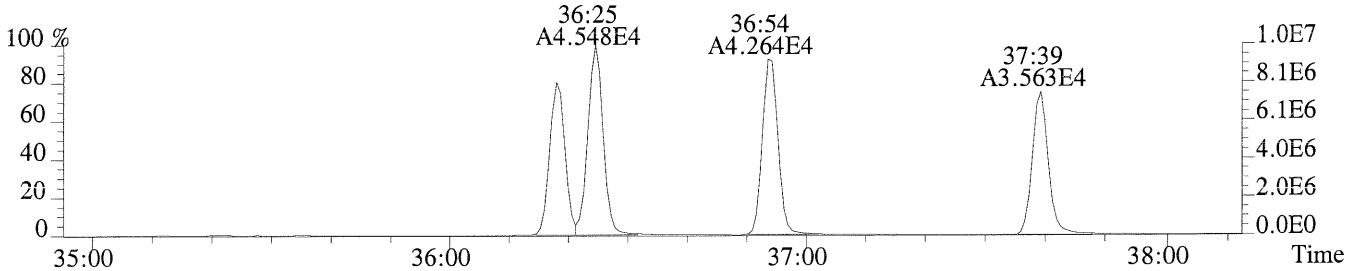
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,58068.0,0.40%,F,T)



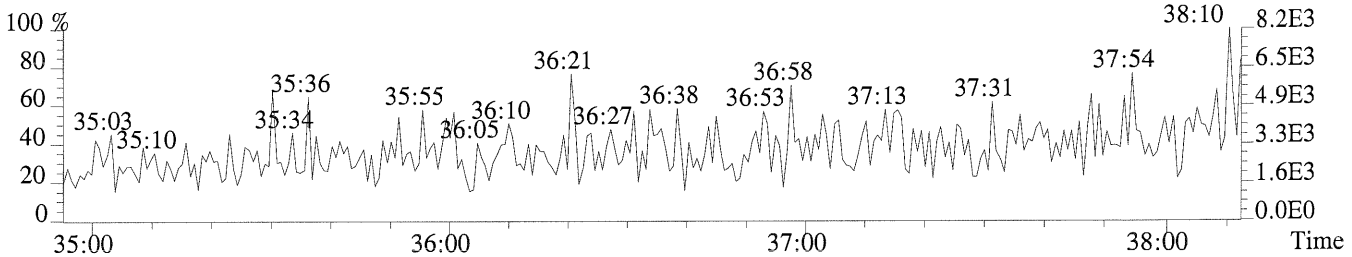
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2296.0,0.40%,F,T)



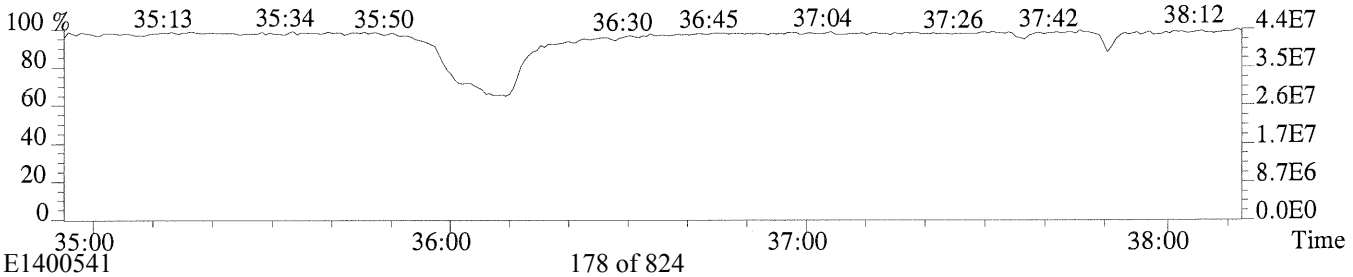
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12264.0,0.40%,F,T)



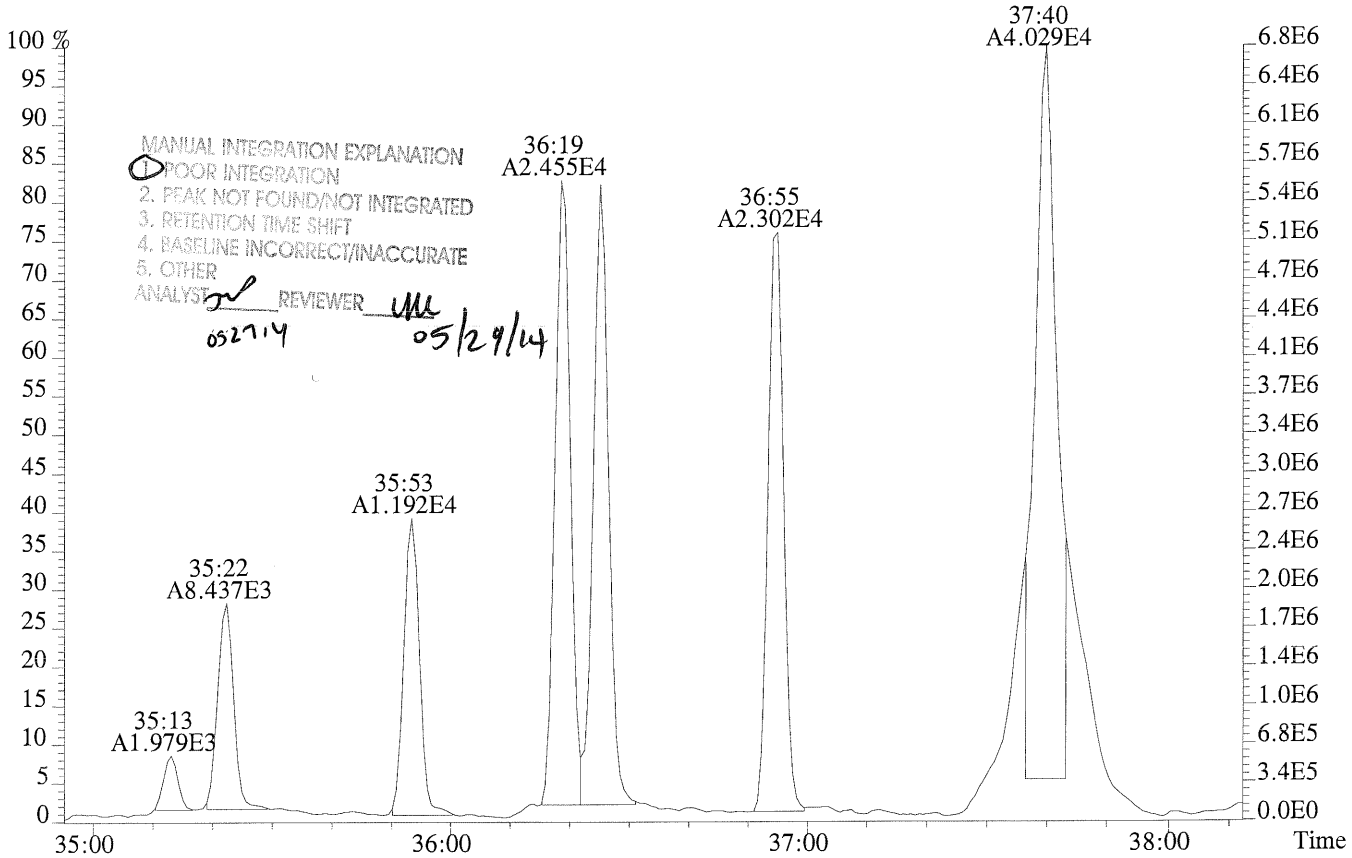
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



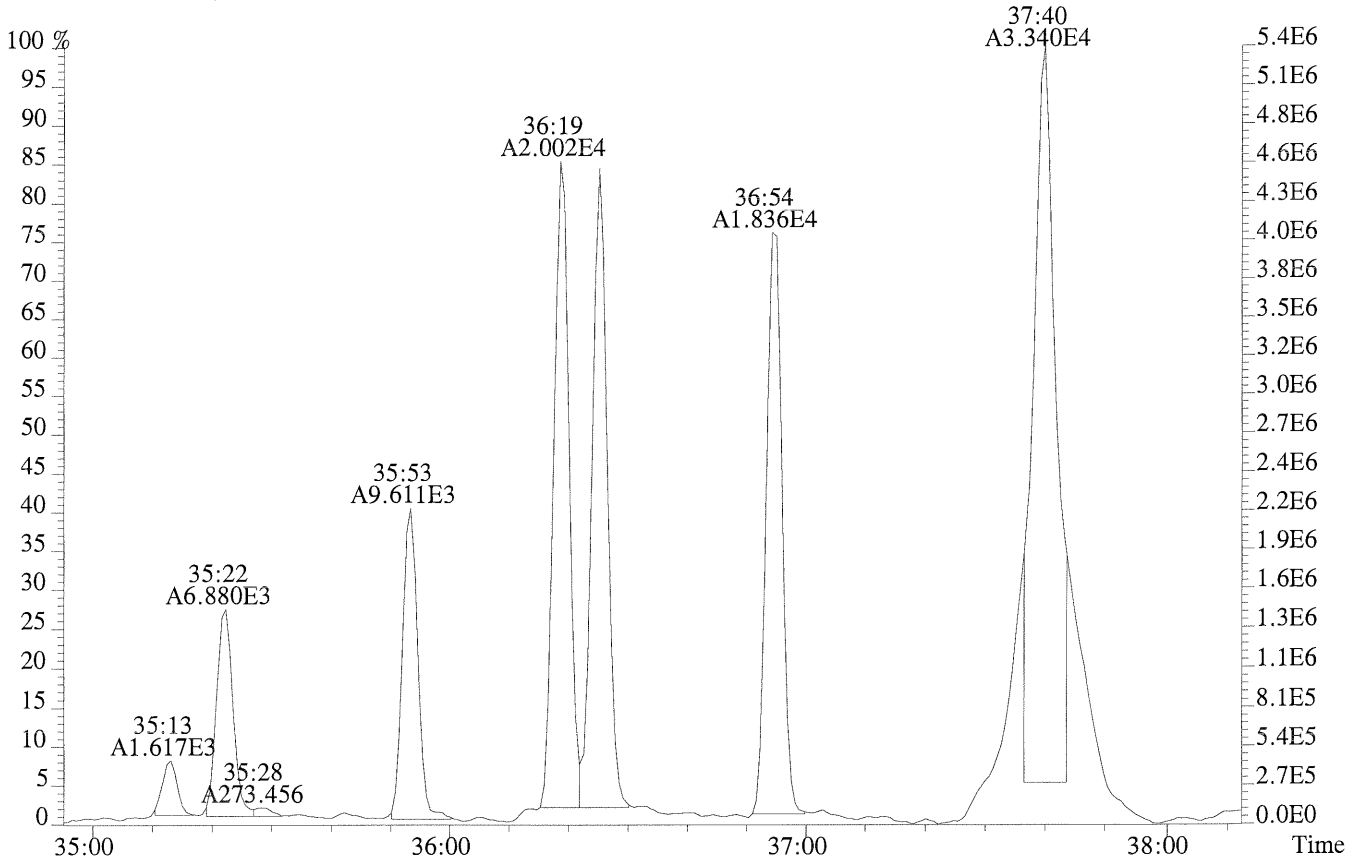
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



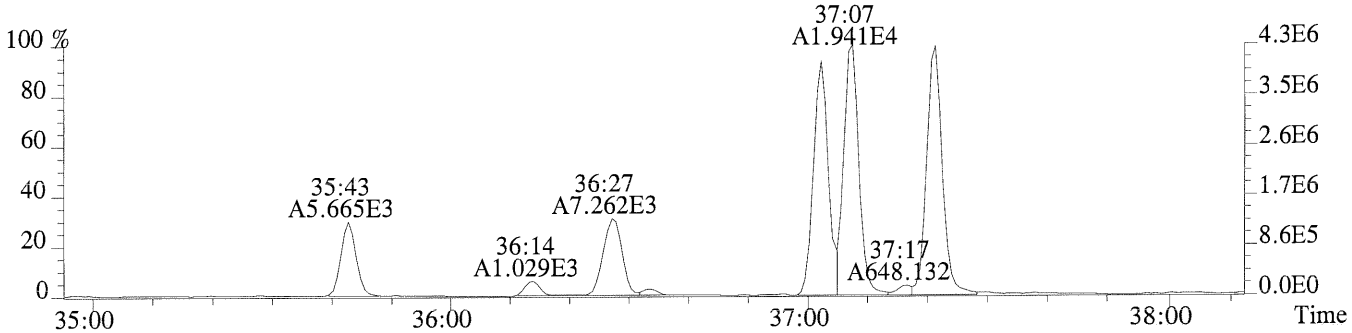
File:P229260 #1-299 Acq:26-MAY-2014 10:07:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-004 DMS
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,94668.0,0.40%,F,T)



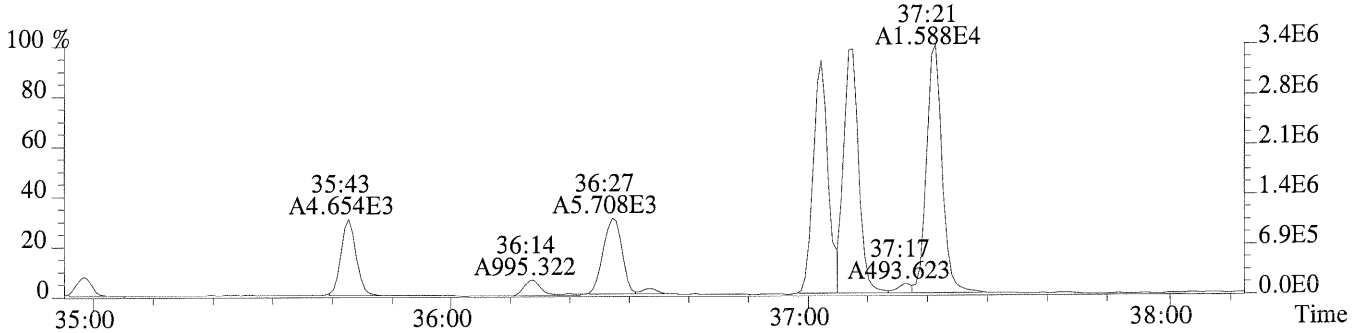
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,58068.0,0.40%,F,T)



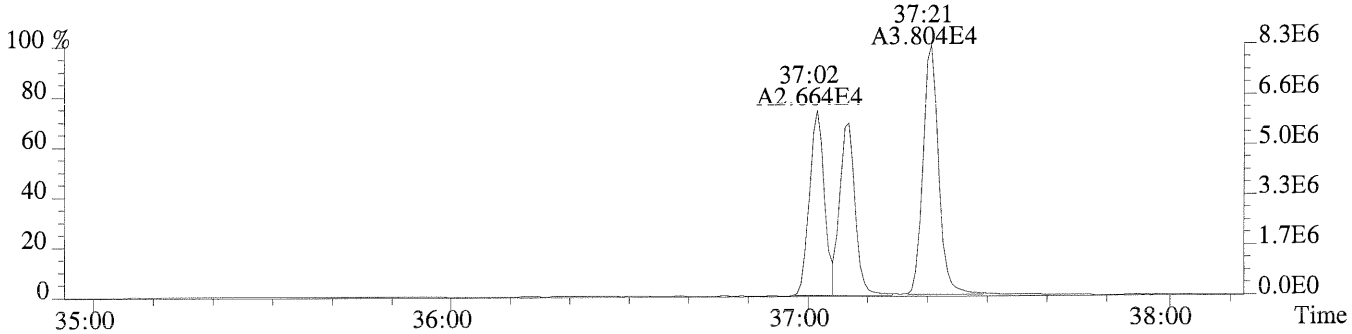
File:P229260 #1-299 Acq:26-MAY-2014 10:07:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-004 DMS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,28488.0,0.40%,F,T)



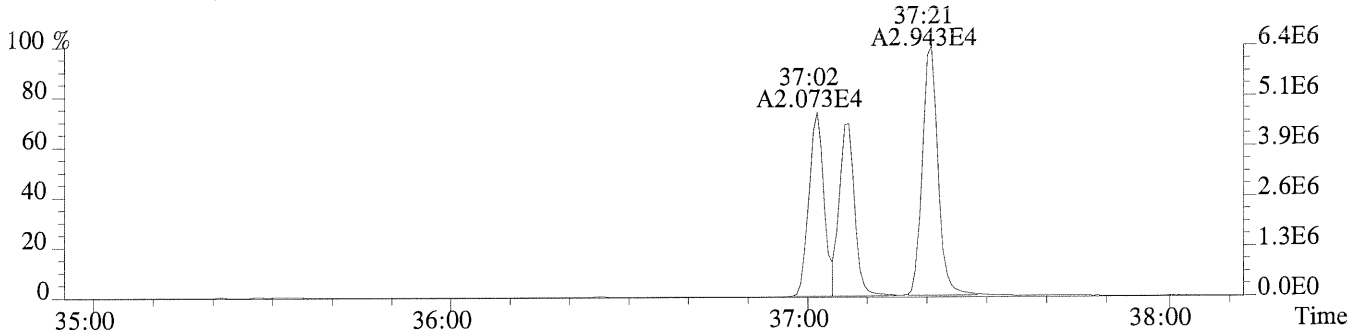
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,24488.0,0.40%,F,T)



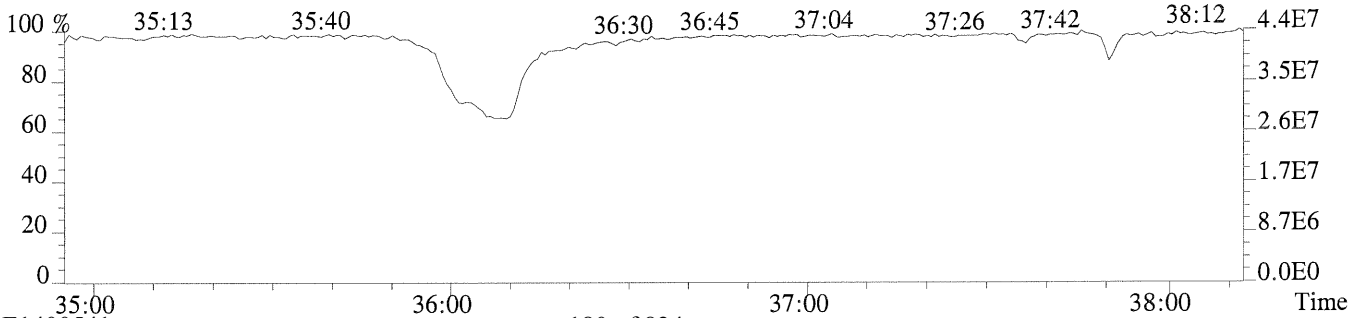
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,15476.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6604.0,0.40%,F,T)

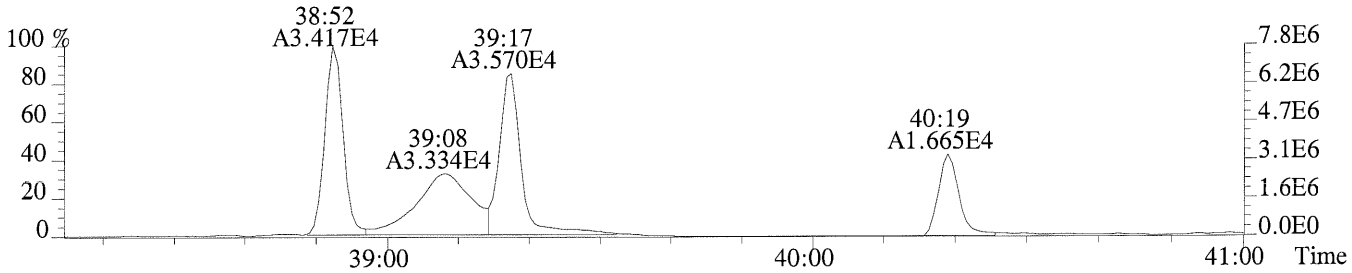


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

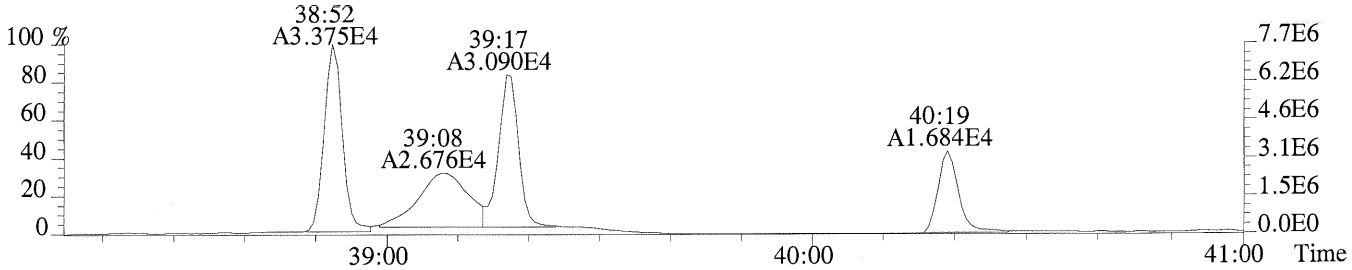


File:P229260 #1-251 Acq:26-MAY-2014 10:07:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-004 DMS

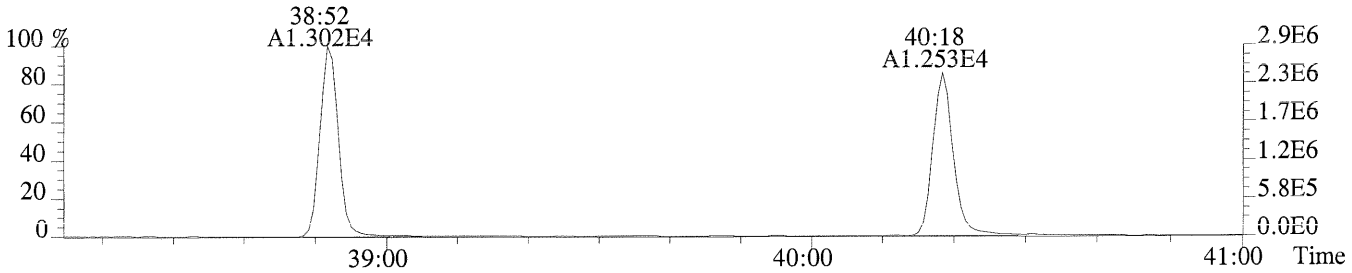
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,41692.0,0.50%,F,T)



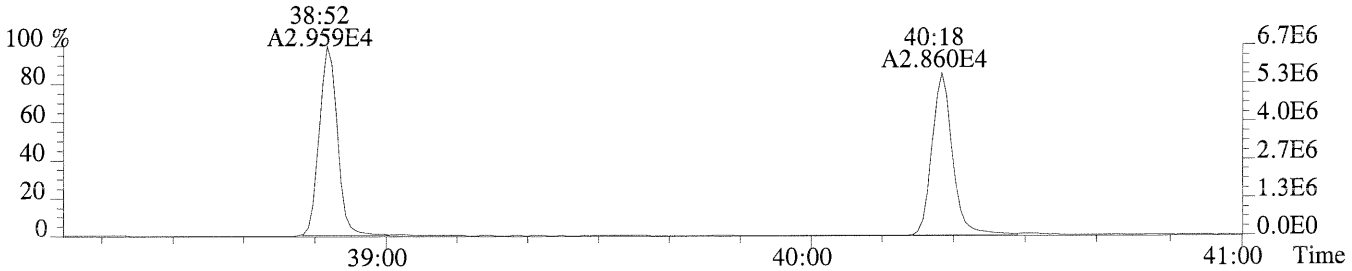
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,52408.0,0.50%,F,T)



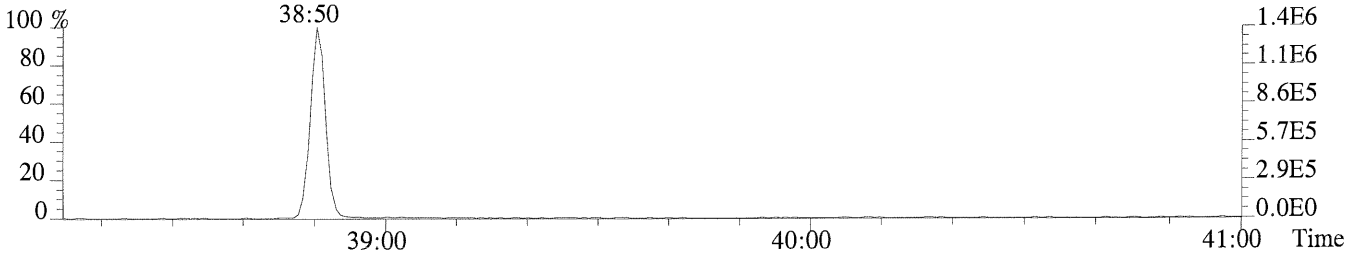
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5132.0,0.50%,F,T)



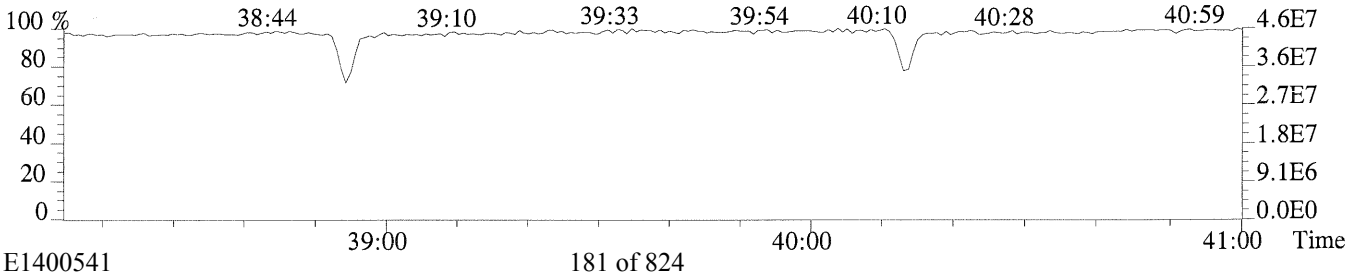
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13948.0,0.50%,F,T)



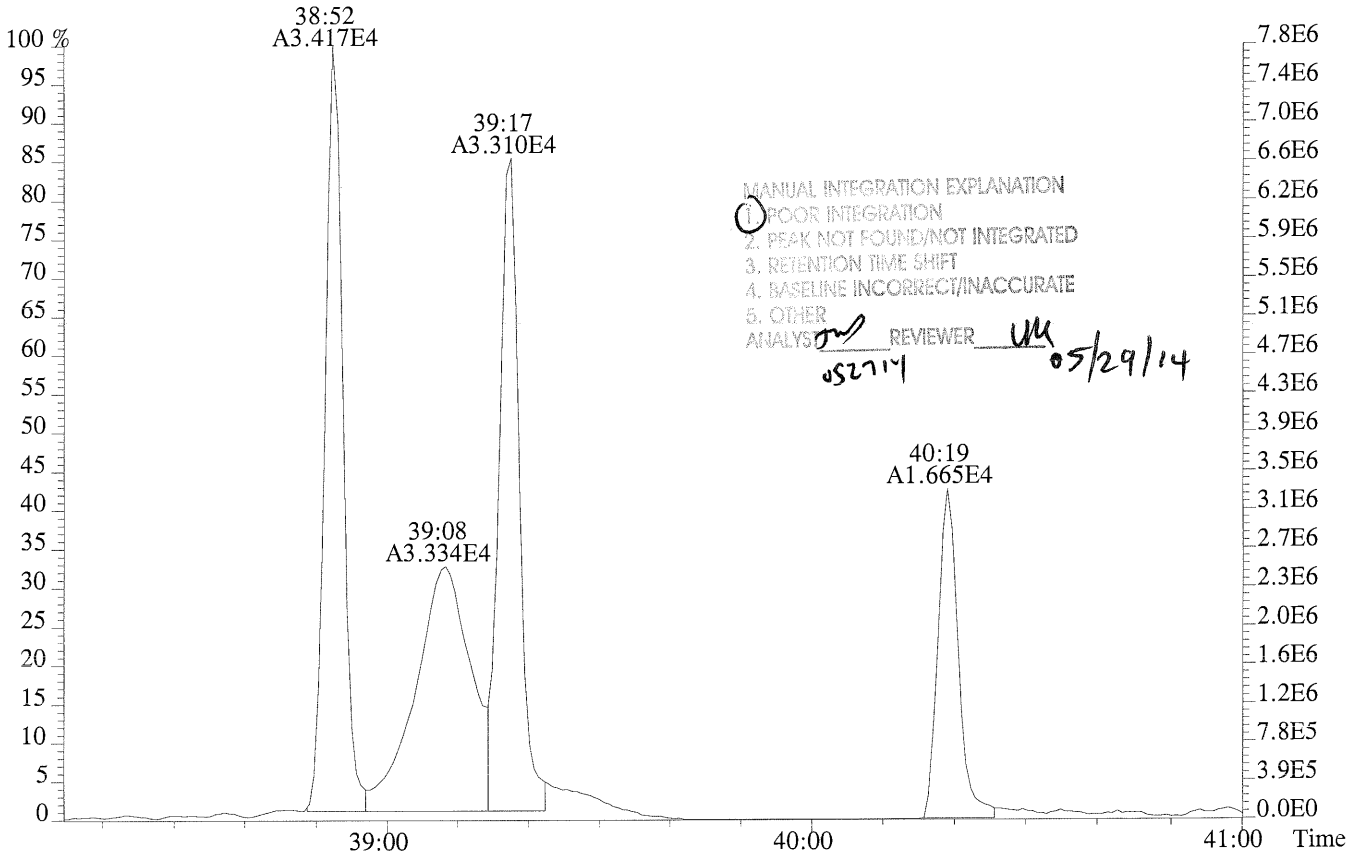
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

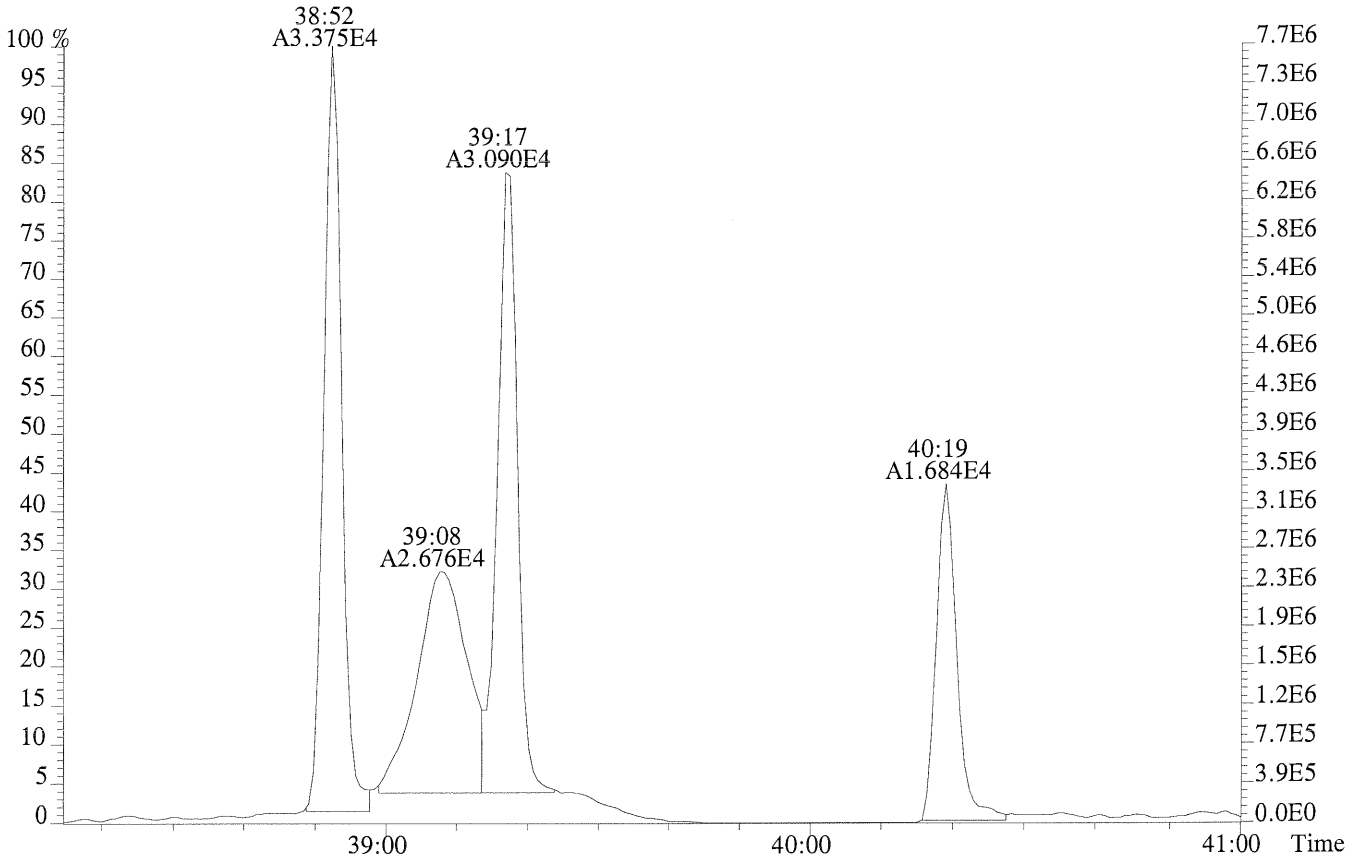


File:P229260 #1-251 Acq:26-MAY-2014 10:07:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-004 DMS
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,41692.0,0.50%,F,T)



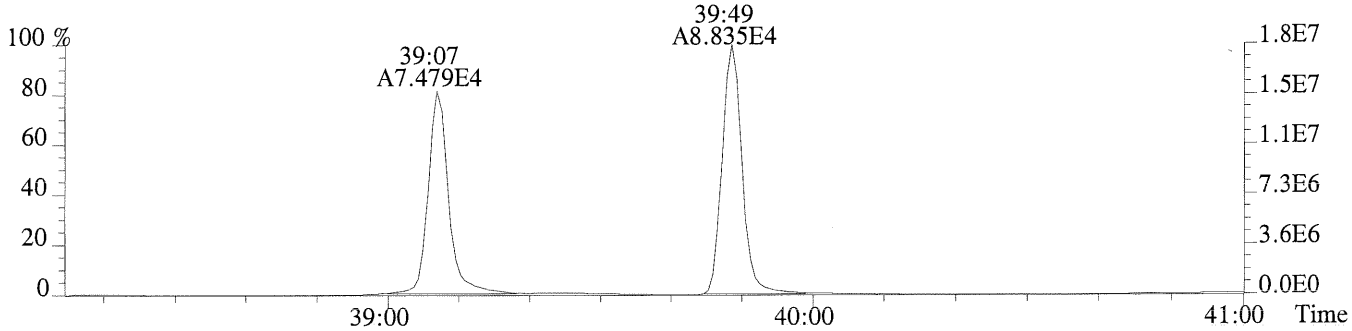
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST [signature] 052714 REVIEWER [signature] 05/29/14

409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,52408.0,0.50%,F,T)

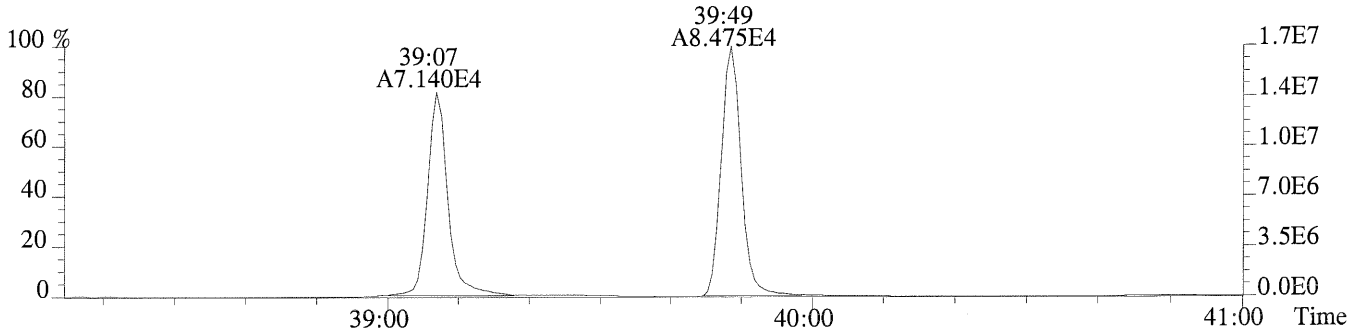


File:P229260 #1-251 Acq:26-MAY-2014 10:07:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-004 DMS

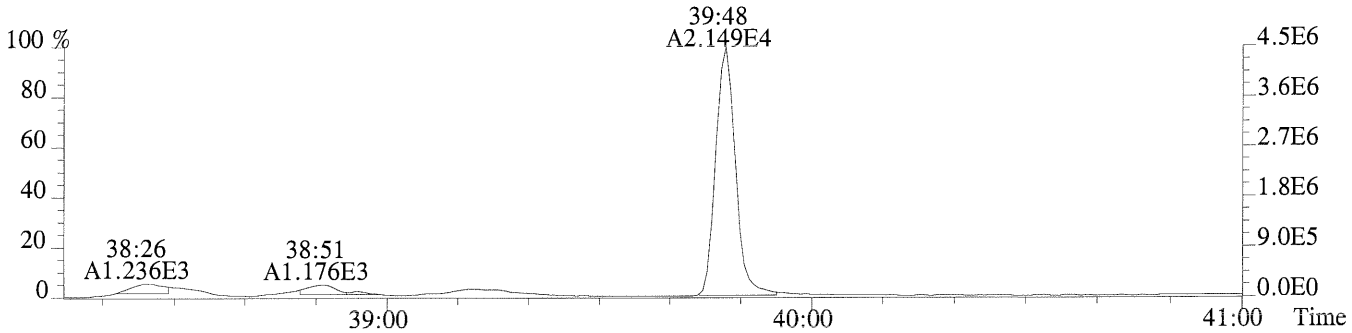
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,15536.0,0.40%,F,T)



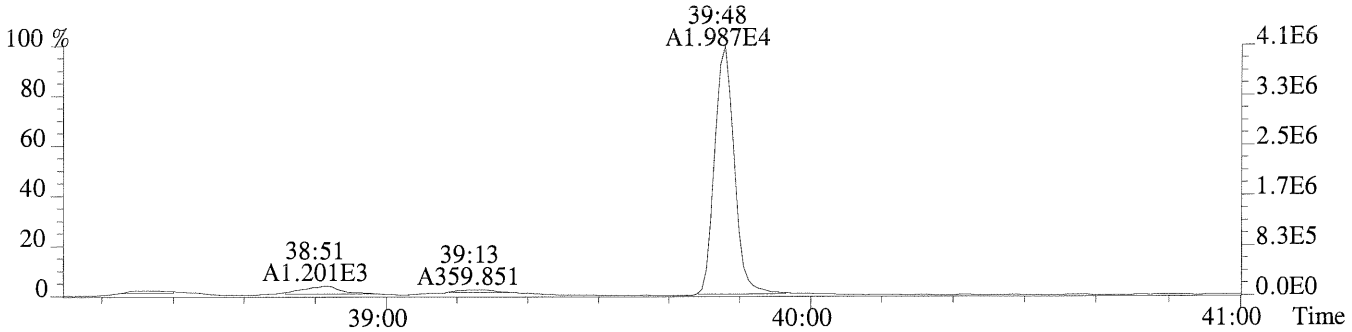
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12132.0,0.40%,F,T)



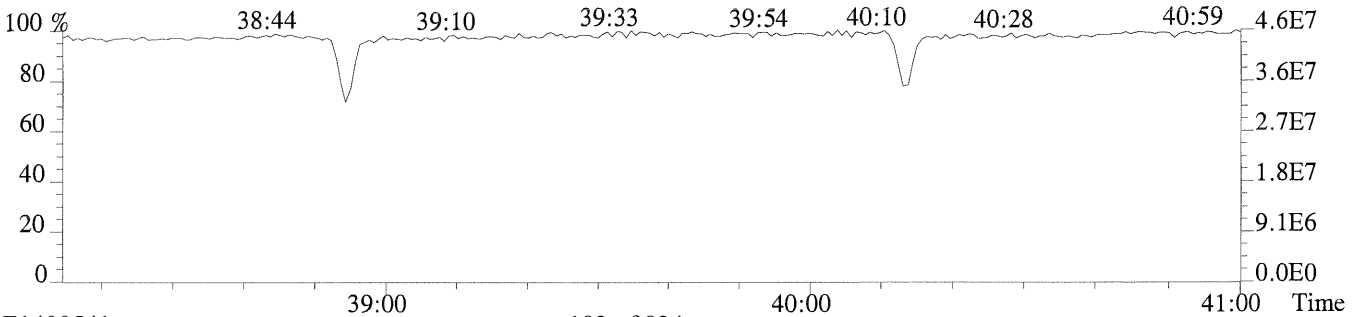
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,40312.0,0.40%,F,T)



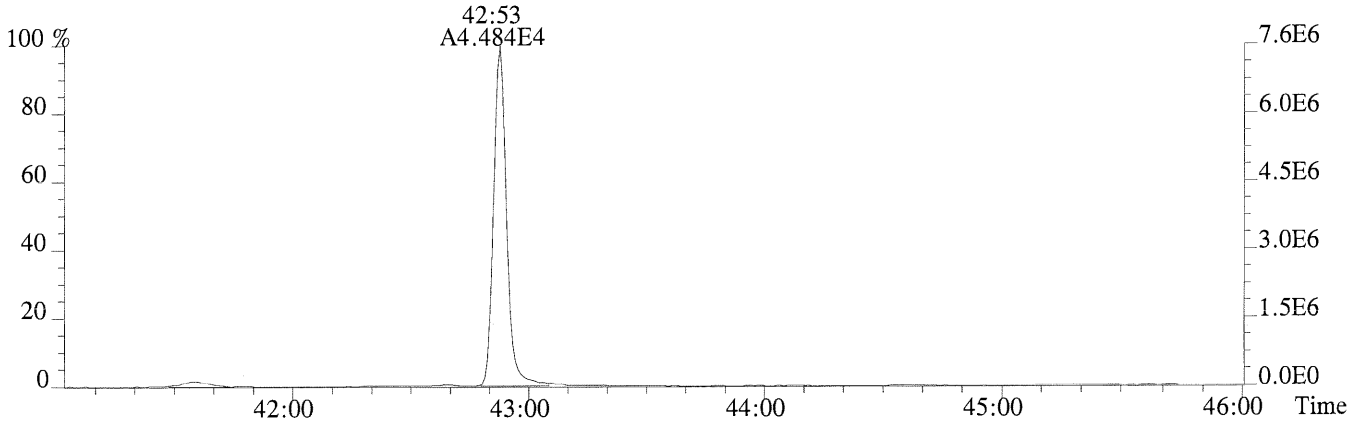
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,21068.0,0.40%,F,T)



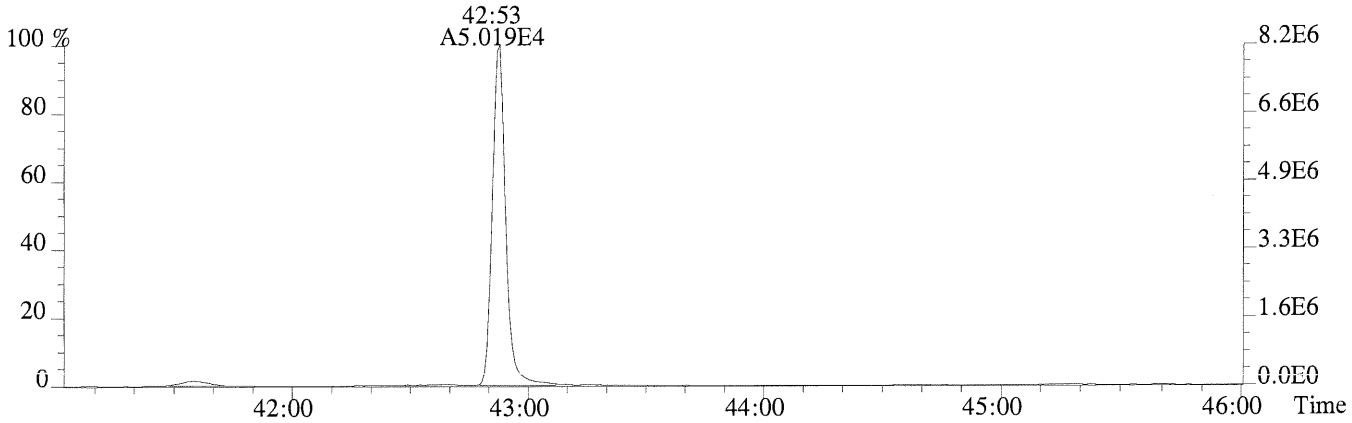
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



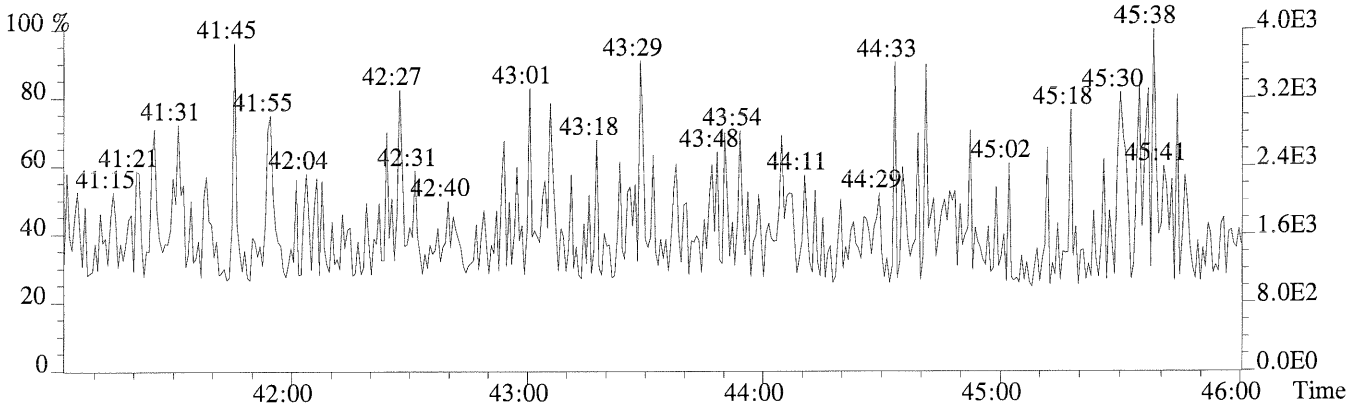
File:P229260 #1-457 Acq:26-MAY-2014 10:07:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-004 DMS
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,6572.0,0.40%,F,T)



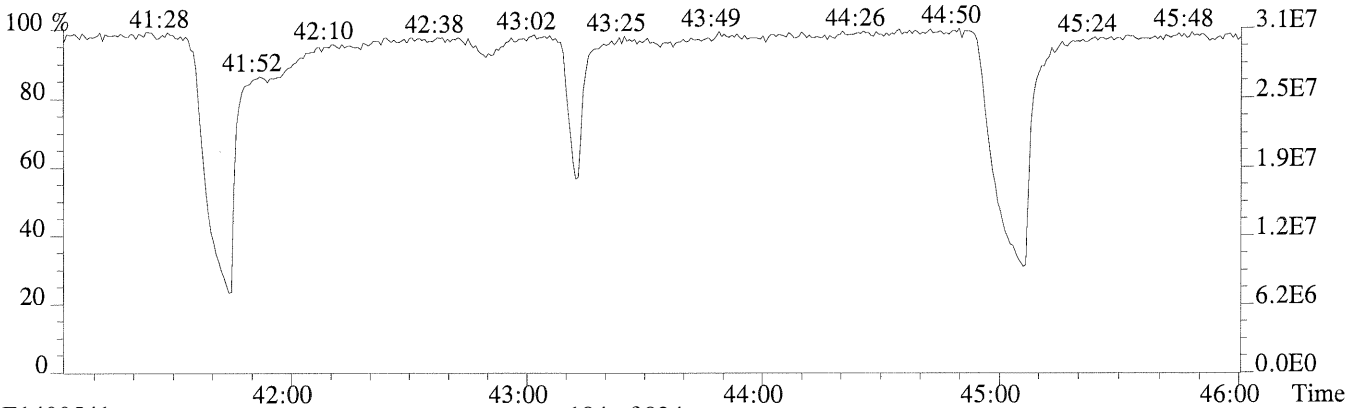
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,7172.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

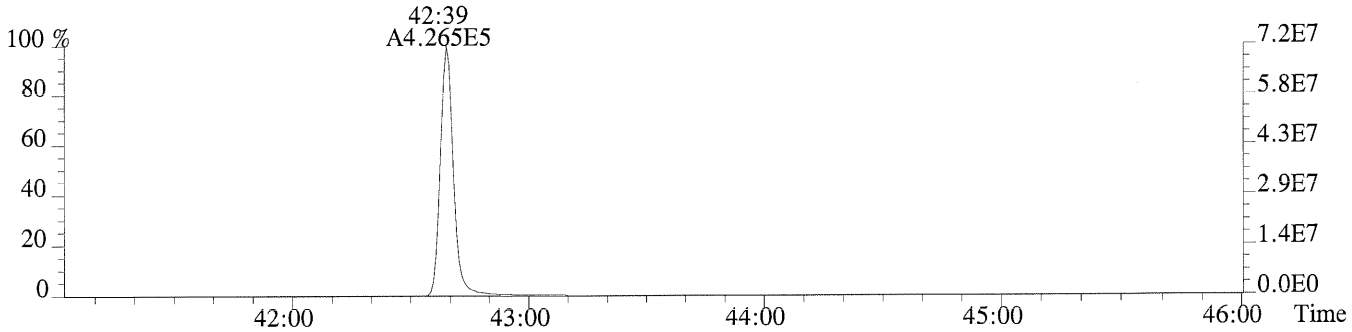


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

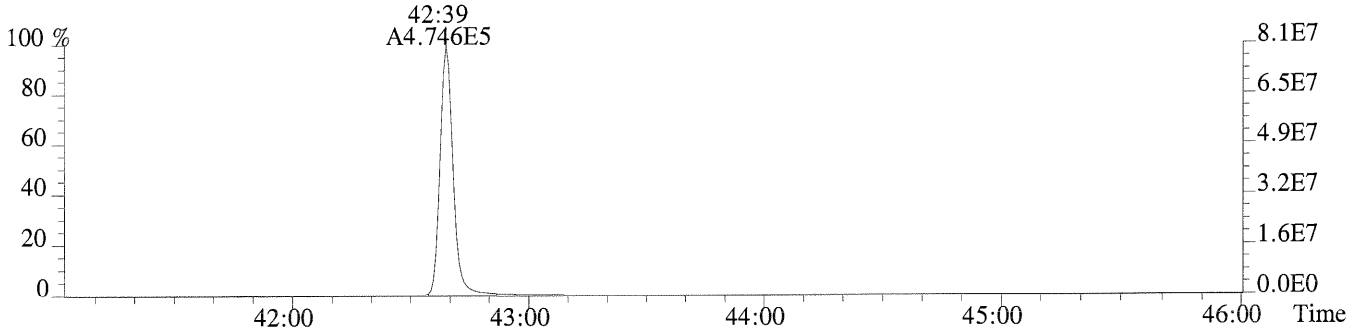


File:P229260 #1-457 Acq:26-MAY-2014 10:07:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-004 DMS

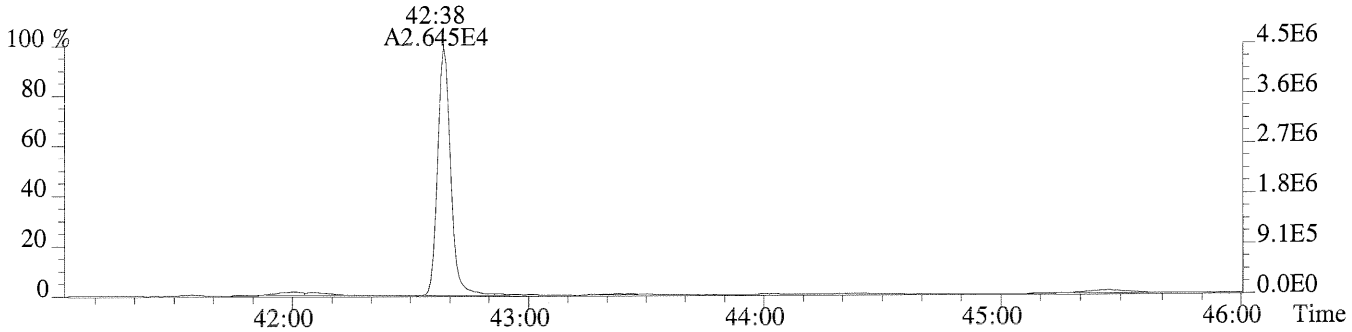
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5872.0,0.40%,F,T)



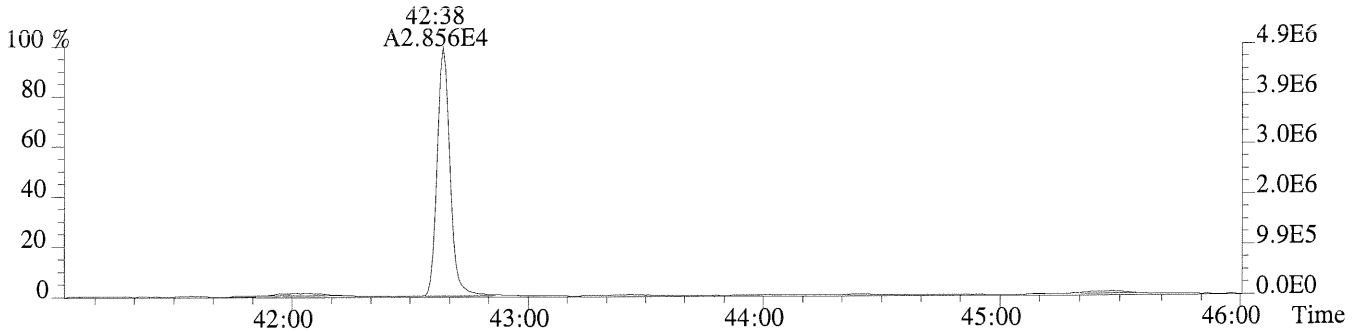
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5244.0,0.40%,F,T)



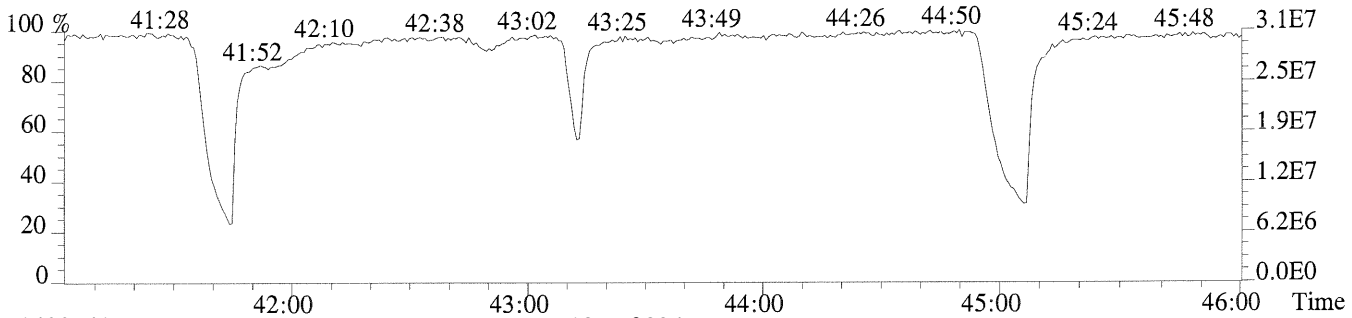
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,11260.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,9136.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
SO-206(0-3) MS

Run #17 Filename P229259 Samp: 1 Inj: 1 Acquired: 26-MAY-14 09:19:21
Processed: 28-MAY-14 08:55:191 LAB. ID: EQ1400264-003 MS

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.33e+05	3.18e+03	1.4e+02	5.60e+05	5.34e+03	1.0e+02
2	1,2,3,7,8-PeCDF	4.25e+06	1.54e+04	2.8e+02	2.71e+06	8.73e+03	3.1e+02
3	2,3,4,7,8-PeCDF	4.17e+06	1.54e+04	2.7e+02	2.77e+06	8.73e+03	3.2e+02
4	1,2,3,4,7,8-HxCDF	4.78e+06	3.15e+04	1.5e+02	3.87e+06	1.40e+04	2.8e+02
5	1,2,3,6,7,8-HxCDF	4.58e+06	3.15e+04	1.5e+02	3.70e+06	1.40e+04	2.6e+02
6	2,3,4,6,7,8-HxCDF	4.49e+06	3.15e+04	1.4e+02	3.61e+06	1.40e+04	2.6e+02
7	1,2,3,7,8,9-HxCDF	3.91e+06	3.15e+04	1.2e+02	3.20e+06	1.40e+04	2.3e+02
8	1,2,3,4,6,7,8-HpCDF	8.51e+06	3.53e+04	2.4e+02	8.35e+06	3.94e+04	2.1e+02
9	1,2,3,4,7,8,9-HpCDF	3.07e+06	3.53e+04	8.7e+01	2.93e+06	3.94e+04	7.4e+01
10	OCDF	9.38e+06	4.15e+03	2.3e+03	1.06e+07	5.98e+03	1.8e+03
11	2,3,7,8-TCDD	3.39e+05	1.83e+03	1.8e+02	4.48e+05	1.53e+03	2.9e+02
12	1,2,3,7,8-PeCDD	3.16e+06	6.00e+03	5.3e+02	2.06e+06	5.45e+03	3.8e+02
13	1,2,3,4,7,8-HxCDD	3.64e+06	1.63e+04	2.2e+02	2.92e+06	1.35e+04	2.2e+02
14	1,2,3,6,7,8-HxCDD	4.08e+06	1.63e+04	2.5e+02	3.32e+06	1.35e+04	2.5e+02
15	1,2,3,7,8,9-HxCDD	3.85e+06	1.63e+04	2.4e+02	2.99e+06	1.35e+04	2.2e+02
16	1,2,3,4,6,7,8-HpCDD	2.22e+07	3.63e+04	6.1e+02	2.12e+07	3.70e+04	5.7e+02
17	OCDD	6.51e+07	5.58e+03	1.2e+04	7.20e+07	6.18e+03	1.2e+04
18	13C-2,3,7,8-TCDF	3.86e+06	1.31e+03	2.9e+03	4.81e+06	1.03e+03	4.7e+03
19	13C-1,2,3,7,8-PeCDF	6.65e+06	1.82e+03	3.7e+03	4.13e+06	2.47e+03	1.7e+03
20	13C-2,3,4,7,8-PeCDF	7.33e+06	1.82e+03	4.0e+03	4.60e+06	2.47e+03	1.9e+03
21	13C-1,2,3,4,7,8-HxCDF	3.48e+06	2.14e+03	1.6e+03	6.67e+06	3.33e+03	2.0e+03
22	13C-1,2,3,6,7,8-HxCDF	4.39e+06	2.14e+03	2.0e+03	8.27e+06	3.33e+03	2.5e+03
23	13C-2,3,4,6,7,8-HxCDF	4.15e+06	2.14e+03	1.9e+03	7.81e+06	3.33e+03	2.3e+03
24	13C-1,2,3,7,8,9-HxCDF	3.44e+06	2.14e+03	1.6e+03	6.50e+06	3.33e+03	2.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.42e+06	3.25e+03	7.4e+02	5.47e+06	5.24e+03	1.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.09e+06	3.25e+03	6.4e+02	4.63e+06	5.24e+03	8.8e+02
27	13C-2,3,7,8-TCDD	2.72e+06	2.94e+03	9.3e+02	3.50e+06	1.40e+03	2.5e+03
28	13C-1,2,3,7,8-PeCDD	5.45e+06	1.94e+03	2.8e+03	3.46e+06	1.28e+03	2.7e+03
29	13C-1,2,3,4,7,8-HxCDD	5.18e+06	2.84e+03	1.8e+03	4.01e+06	3.89e+03	1.0e+03
30	13C-1,2,3,6,7,8-HxCDD	4.67e+06	2.84e+03	1.6e+03	3.65e+06	3.89e+03	9.4e+02
31	13C-1,2,3,4,6,7,8-HpCDD	3.37e+06	8.13e+03	4.1e+02	3.18e+06	5.24e+03	6.1e+02
32	13C-OCDD	3.63e+06	3.95e+03	9.2e+02	3.94e+06	5.39e+03	7.3e+02
33	13C-1,2,3,4-TCDD	5.24e+06	2.94e+03	1.8e+03	6.71e+06	1.40e+03	4.8e+03
34	13C-1,2,3,7,8,9-HxCDD	7.98e+06	2.84e+03	2.8e+03	6.24e+06	3.89e+03	1.6e+03
35	37Cl-2,3,7,8-TCDD	2.00e+06	5.80e+02	3.5e+03			

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Peak List Summary

CLIENT ID.

SO-206(0-3) MS

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P229259 Sample: 1 Injection: 1 Function: 1
Llim: - Ulim: -
Acquired: 26-MAY-14 09:19:21 Processed: 28-MAY-14 08:55:19
Mass: 303.9020 305.8990 Tot Response: 4.58e+03 RRF: 1.127

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:48	1.98e+03	2.61e+03 0.76	yes	4.58e+03	2,3,7,8-TCDF	n	n

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Peak List Summary

CLIENT ID.

SO-206(0-3) MS

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 17 File: P229259 Sample: 1 Injection: 1 Function: 1
Llim: - Ulim: -
Acquired: 26-MAY-14 09:19:21 Processed: 28-MAY-14 08:55:19
Mass: 319.8970 321.8940 Tot Response: 4.48e+03 RRF: 1.053

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:44	1.30e+01	1.74e+01	0.75	yes	3.05e+01		n	n
2	26:59	6.75e+01	9.82e+01	0.69	yes	1.66e+02		n	n
3	27:05	2.14e+01	2.83e+01	0.75	yes	4.97e+01		n	n
4	27:54	9.25e+01	1.08e+02	0.86	yes	2.01e+02		n	n
5	29:16	7.09e+01	8.90e+01	0.80	yes	1.60e+02		n	n
6	29:33	1.58e+03	2.06e+03	0.77	yes	3.65e+03	2,3,7,8-TCDD	n	n
7	29:49	6.63e+01	9.51e+01	0.70	yes	1.61e+02		n	n
8	29:54	2.41e+01	3.67e+01	0.66	yes	6.09e+01		n	n

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Peak List Summary

CLIENT ID.

SO-206(0-3) MS

Entry: 38 Totals Name: Total Penta-Furan1

Run: 17 File: P229259 Sample: 1 Injection: 1 Function: 1
Llim: - Ulim: -
Acquired: 26-MAY-14 09:19:21 Processed: 28-MAY-14 08:55:19
Mass: 339.8600 341.8570 Tot Response: 1.83e+04 RRF: 1.112

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	26:47	3.21e+03	1.98e+03	1.62	yes	5.19e+03	n	n
2	27:12	5.69e+03	3.53e+03	1.61	yes	9.22e+03	n	n
3	30:29	2.40e+03	1.52e+03	1.58	yes	3.92e+03	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SO-206(0-3) MS

Entry: 39 Totals Name: Total Penta-Furan2

Run: 17 File: P229259 Sample: 1 Injection: 1 Function: 2
Llim: - Ulim: -
Acquired: 26-MAY-14 09:19:21 Processed: 28-MAY-14 08:55:19
Mass: 339.8600 341.8570 Tot Response: 8.11e+04 RRF: 1.112

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:26	3.39e+02	2.55e+02	1.33	yes	5.94e+02		y	n
2	32:50	2.14e+04	1.35e+04	1.58	yes	3.49e+04	1,2,3,7,8-PeCDF	n	n
3	33:36	5.73e+03	4.09e+03	1.40	yes	9.83e+03		n	y
4	33:43	2.16e+04	1.41e+04	1.53	yes	3.58e+04	2,3,4,7,8-PeCDF	n	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SO-206(0-3) MS

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 17 File: P229259 Sample: 1 Injection: 1 Function: 2
Llim: - Ulim: -
Acquired: 26-MAY-14 09:19:21 Processed: 28-MAY-14 08:55:19
Mass: 355.8550 357.8520 Tot Response: 3.80e+04 RRF: 1.069

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:56	1.77e+03	1.05e+03	1.69	yes	2.82e+03		y	y
2	32:49	3.02e+02	1.94e+02	1.56	yes	4.97e+02		n	n
3	32:58	5.32e+02	3.57e+02	1.49	yes	8.88e+02		n	n
4	33:04	3.85e+02	2.50e+02	1.54	yes	6.35e+02		n	n
5	33:16	9.89e+02	6.65e+02	1.49	yes	1.65e+03		n	n
6	33:35	3.08e+03	1.89e+03	1.63	yes	4.97e+03		n	n
7	33:59	1.57e+04	1.01e+04	1.55	yes	2.58e+04	1,2,3,7,8-PeCDD	n	n
8	34:20	4.68e+02	2.73e+02	1.72	yes	7.41e+02		n	n

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Peak List Summary

CLIENT ID.

SO-206(0-3) MS

Entry: 41 Totals Name: Total Hexa-Furans

Run: 17 File: P229259 Sample: 1 Injection: 1 Function: 3
Llim: - Ulim: -
Acquired: 26-MAY-14 09:19:21 Processed: 28-MAY-14 08:55:19
Mass: 373.8210 375.8180 Tot Response: 2.24e+05 RRF: 1.267

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:13	3.29e+03	2.62e+03	1.25	yes	5.91e+03		n	n
2	35:22	1.25e+04	1.03e+04	1.22	yes	2.28e+04		n	n
3	35:53	2.41e+04	1.92e+04	1.26	yes	4.32e+04		n	n
4	36:19	2.16e+04	1.76e+04	1.23	yes	3.92e+04	1,2,3,4,7,8-HxCDF	n	n
5	36:25	2.11e+04	1.72e+04	1.23	yes	3.83e+04	1,2,3,6,7,8-HxCDF	n	n
6	36:55	2.08e+04	1.73e+04	1.20	yes	3.81e+04	2,3,4,6,7,8-HxCDF	n	n
7	37:40	1.99e+04	1.62e+04	1.23	yes	3.61e+04	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SO-206(0-3) MS

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 17 File: P229259 Sample: 1 Injection: 1 Function: 3
Llim: - Ulim: -
Acquired: 26-MAY-14 09:19:21 Processed: 28-MAY-14 08:55:19
Mass: 389.8160 391.8130 Tot Response: 1.39e+05 RRF: 1.208

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:43	7.47e+03	5.81e+03	1.29	yes	1.33e+04		n	n
2	36:13	2.62e+03	1.91e+03	1.37	yes	4.53e+03		n	n
3	36:27	1.08e+04	8.44e+03	1.28	yes	1.92e+04		n	n
4	36:34	1.48e+03	1.06e+03	1.39	yes	2.54e+03		n	n
5	37:02	1.60e+04	1.27e+04	1.26	yes	2.87e+04	1,2,3,4,7,8-HxCDD	n	n
6	37:07	1.90e+04	1.52e+04	1.25	yes	3.42e+04	1,2,3,6,7,8-HxCDD	n	n
7	37:17	1.72e+03	1.36e+03	1.26	yes	3.08e+03		n	n
8	37:21	1.88e+04	1.47e+04	1.28	yes	3.35e+04	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SO-206(0-3) MS

Entry: 43 Totals Name: Total Hepta-Furans

Run: 17 File: P229259 Sample: 1 Injection: 1 Function: 4
Llim: - Ulim: -
Acquired: 26-MAY-14 09:19:21 Processed: 28-MAY-14 08:55:19
Mass: 407.7820 409.7790 Tot Response: 2.36e+05 RRF: 1.403

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:52	3.82e+04	3.75e+04	1.02	yes	7.57e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	39:18	6.56e+04	6.38e+04	1.03	yes	1.29e+05		n	n
3	40:19	1.55e+04	1.50e+04	1.03	yes	3.04e+04	1,2,3,4,7,8,9-HpCDF	n	n

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

SO-206(0-3) MS

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 17 File: P229259 Sample: 1 Injection: 1 Function: 4
Llim: - Ulim: -
Acquired: 26-MAY-14 09:19:21 Processed: 28-MAY-14 08:55:19
Mass: 423.7770 425.7740 Tot Response: 3.62e+05 RRF: 1.170

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:07	7.60e+04	7.24e+04	1.05	yes	1.48e+05	n	n
2	39:49	1.09e+05	1.05e+05	1.04	yes	2.14e+05 1,2,3,4,6,7,8-HpCDD	n	n

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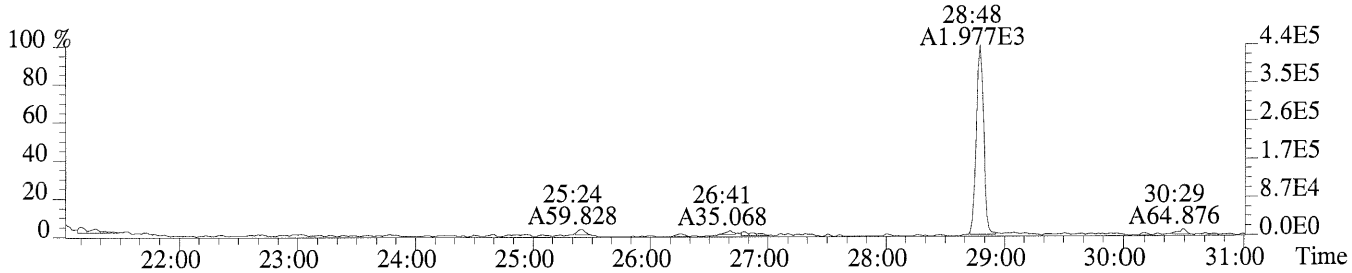
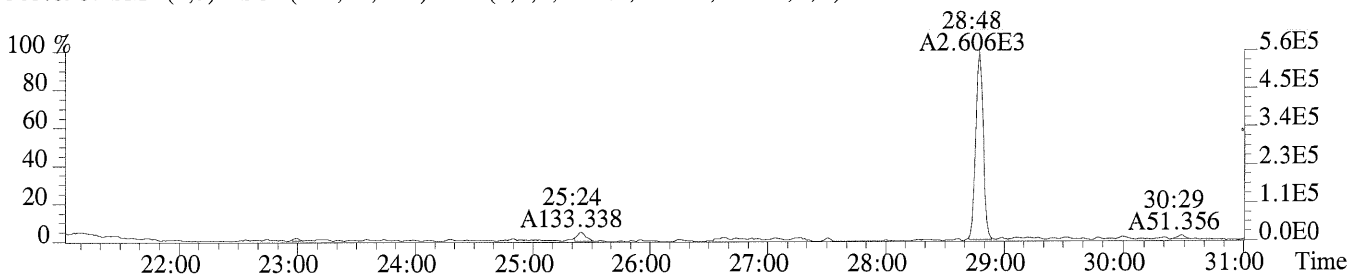
File:P229259 #1-627 Acq:26-MAY-2014 09:19:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-003 MS

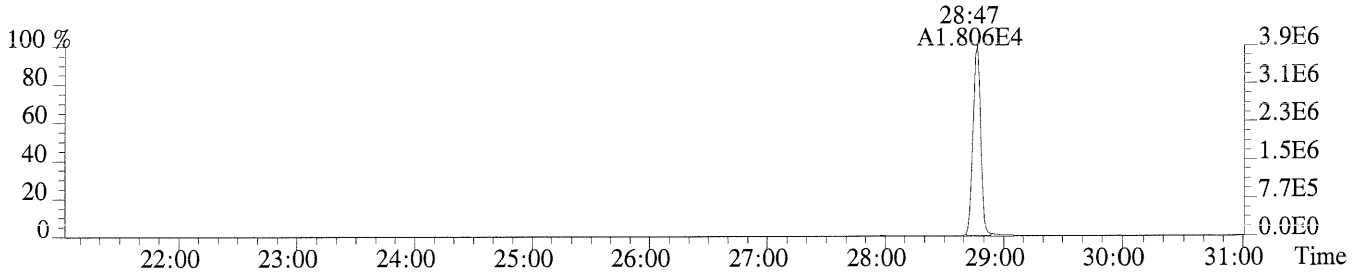
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3184.0,1.00%,F,T)



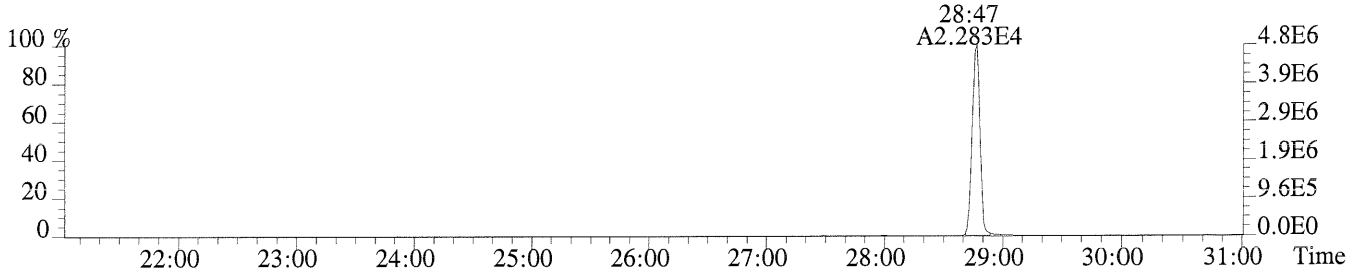
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5340.0,1.00%,F,T)



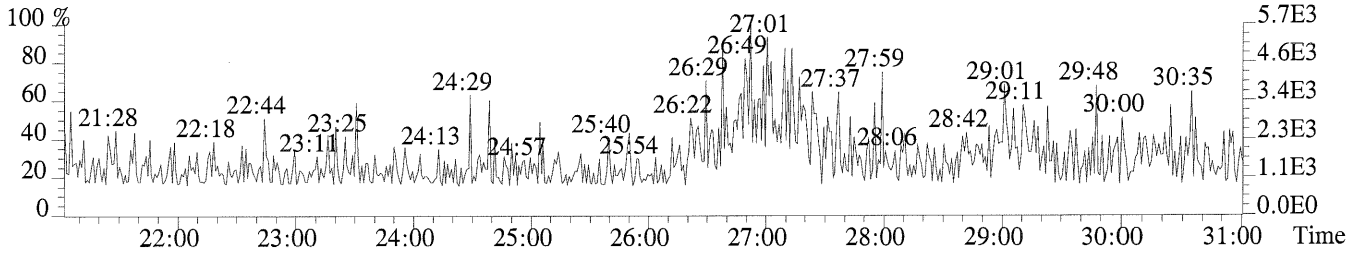
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1308.0,1.00%,F,T)



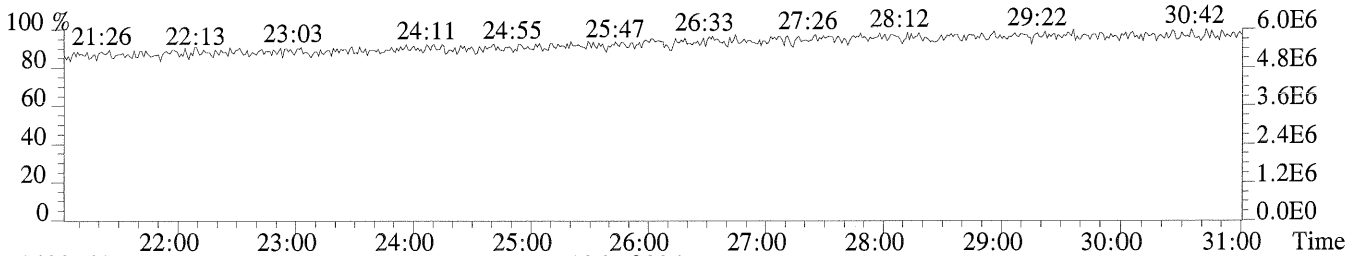
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

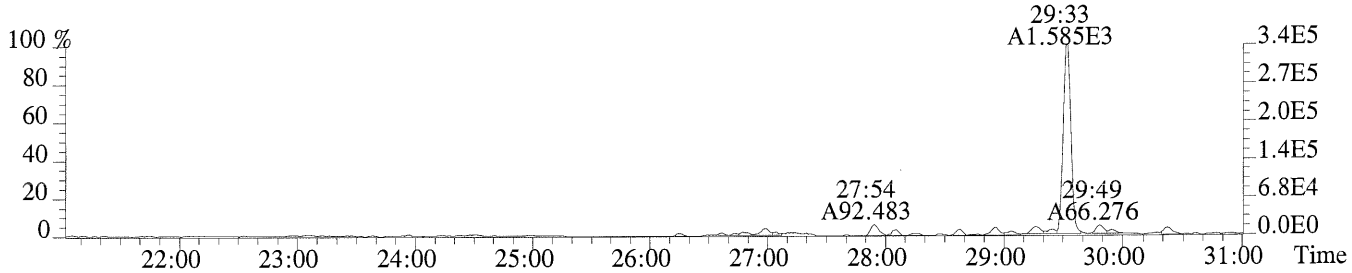


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

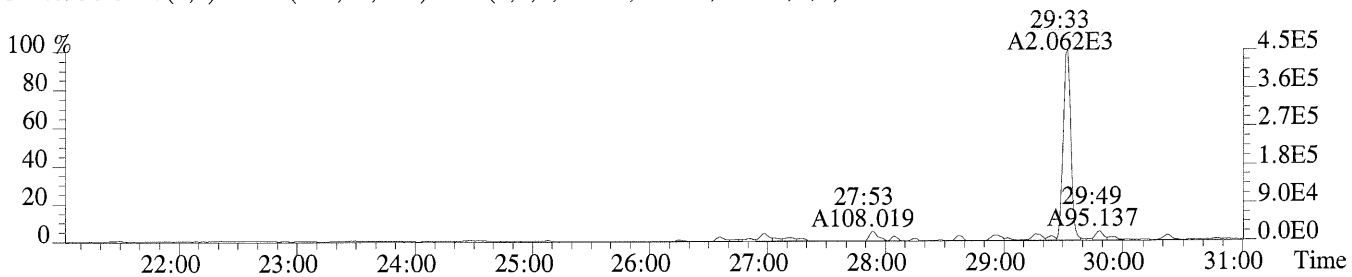


File:P229259 #1-627 Acq:26-MAY-2014 09:19:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-003 MS

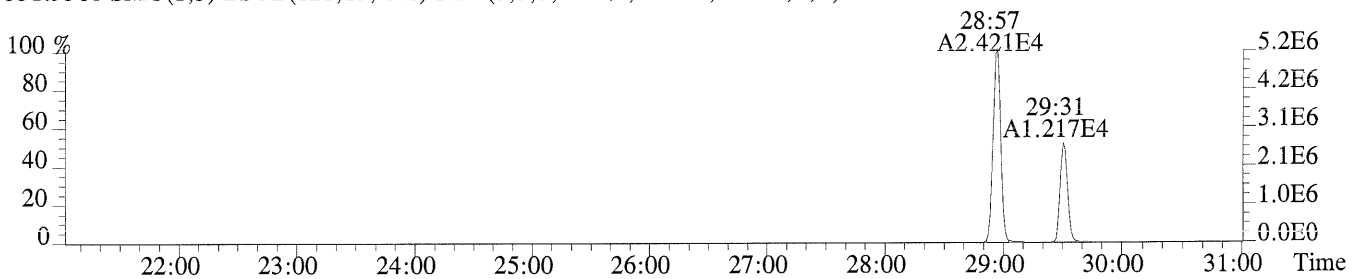
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)



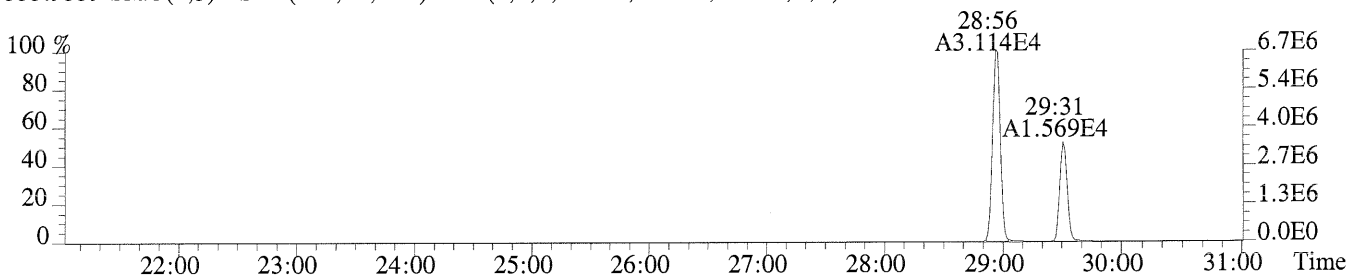
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1532.0,1.00%,F,T)



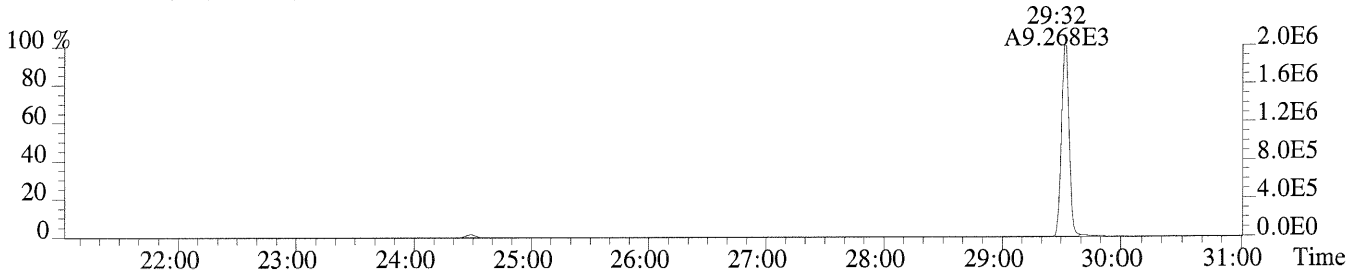
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2936.0,1.00%,F,T)



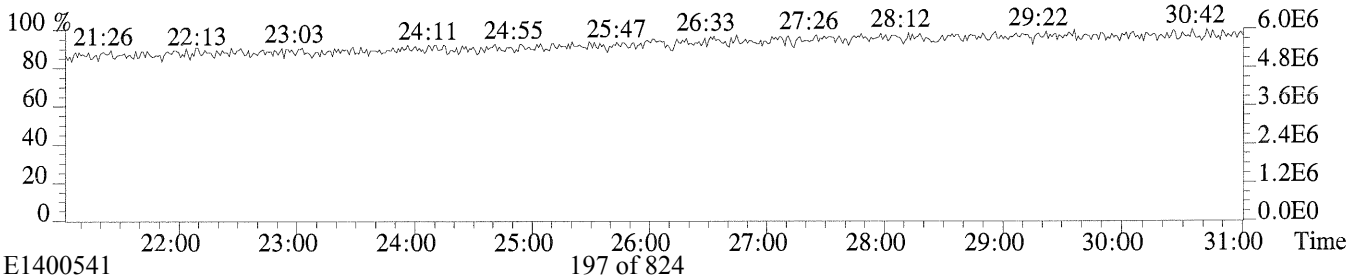
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1404.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)

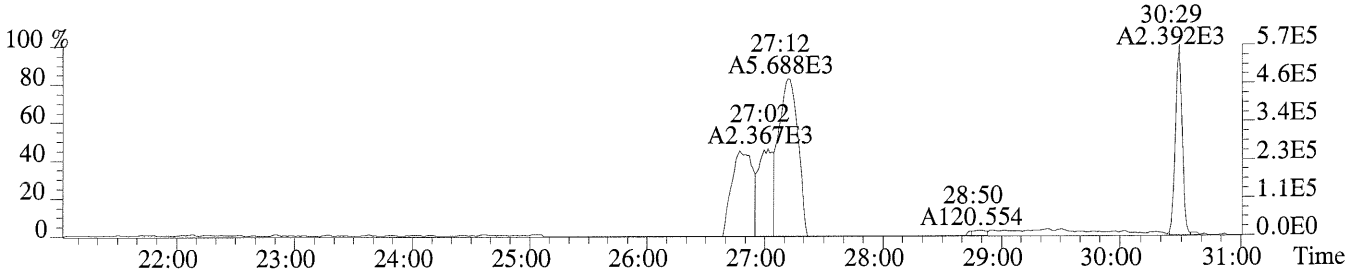


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

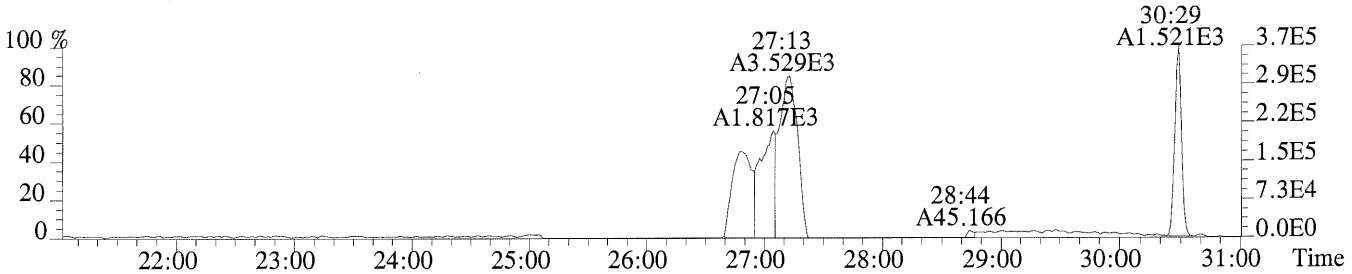


File:P229259 #1-627 Acq:26-MAY-2014 09:19:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-003 MS

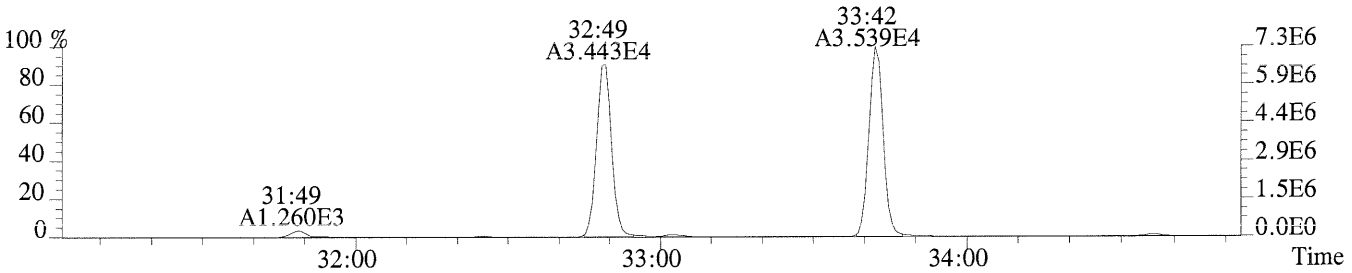
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4792.0,1.00%,F,T)



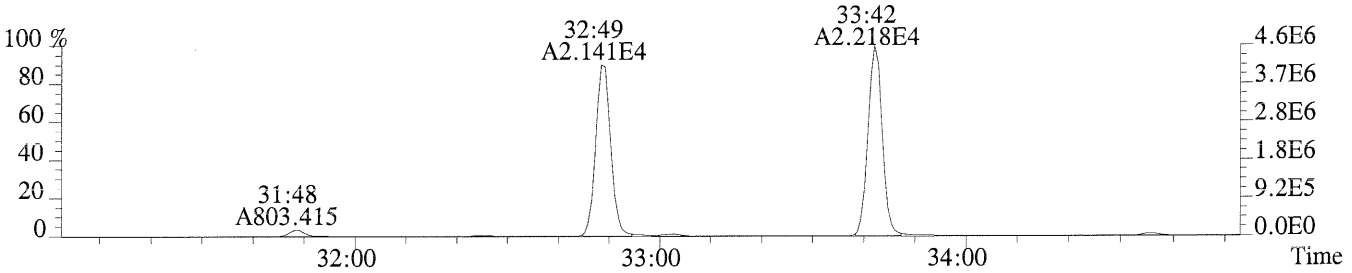
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4204.0,1.00%,F,T)



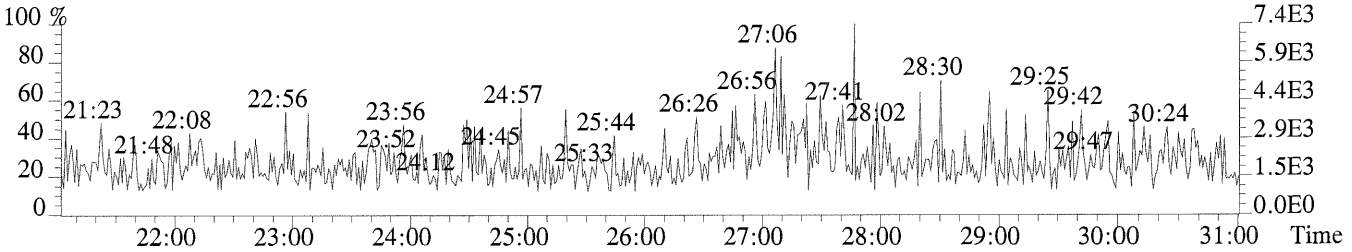
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1820.0,1.00%,F,T)



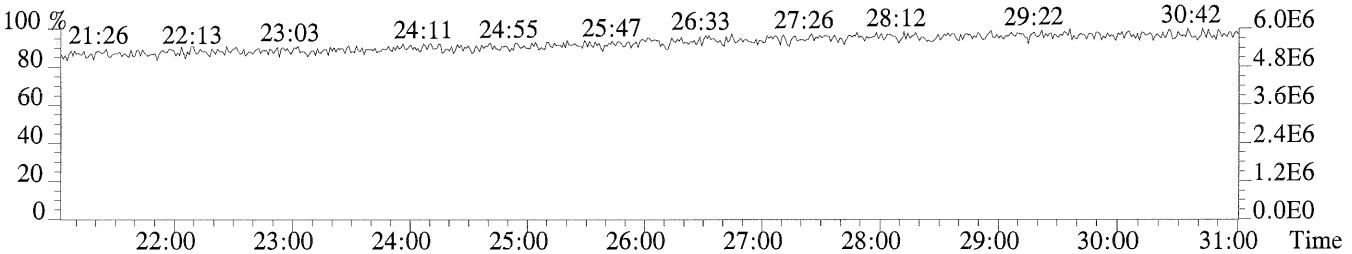
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2468.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

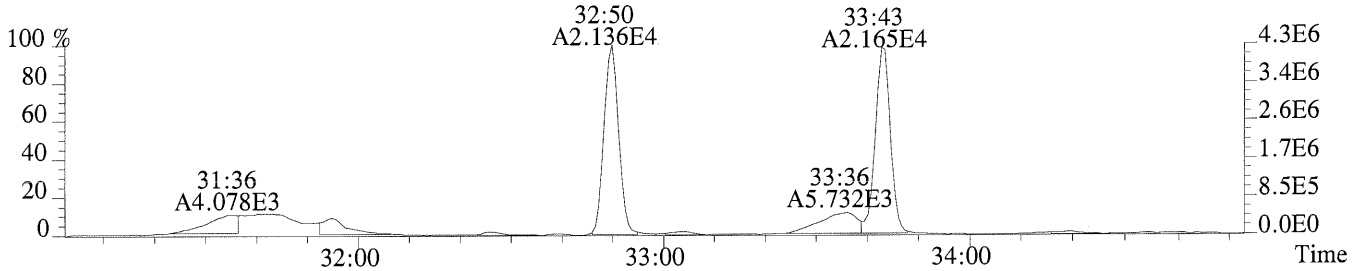


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

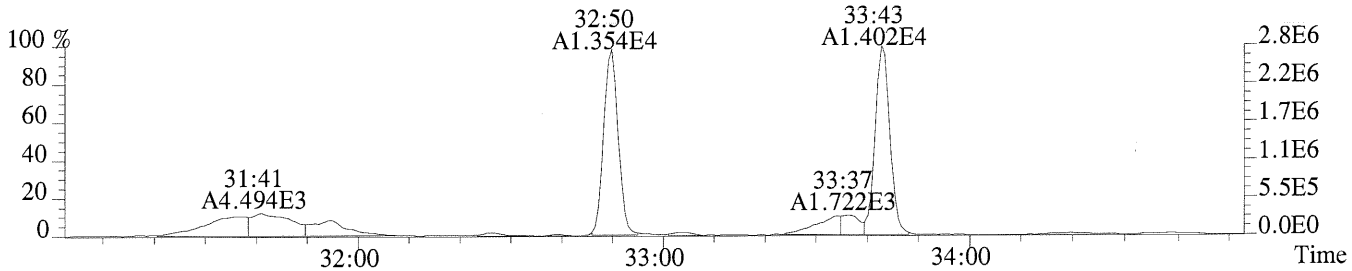


File:P229259 #1-349 Acq:26-MAY-2014 09:19:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-003 MS

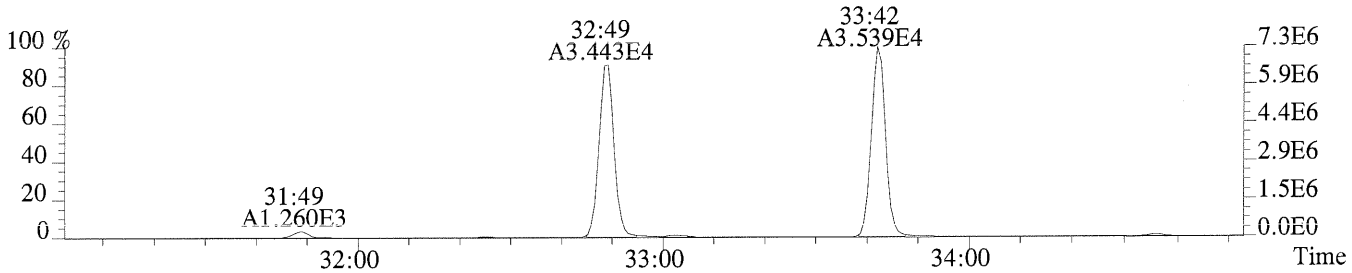
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15404.0,1.00%,F,T)



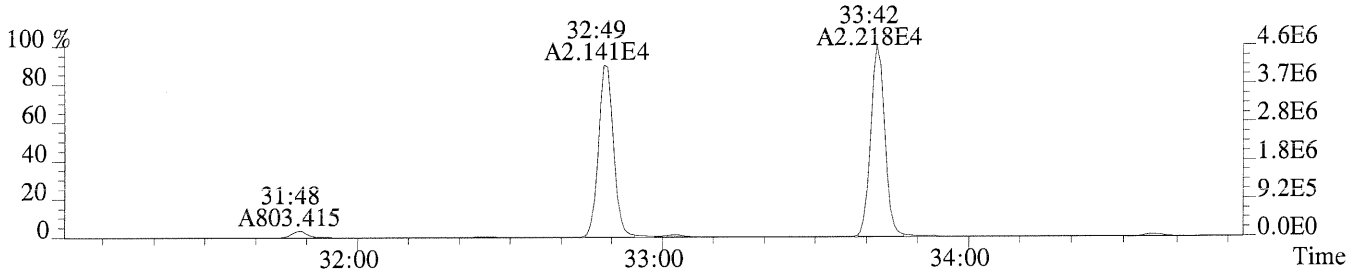
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8732.0,1.00%,F,T)



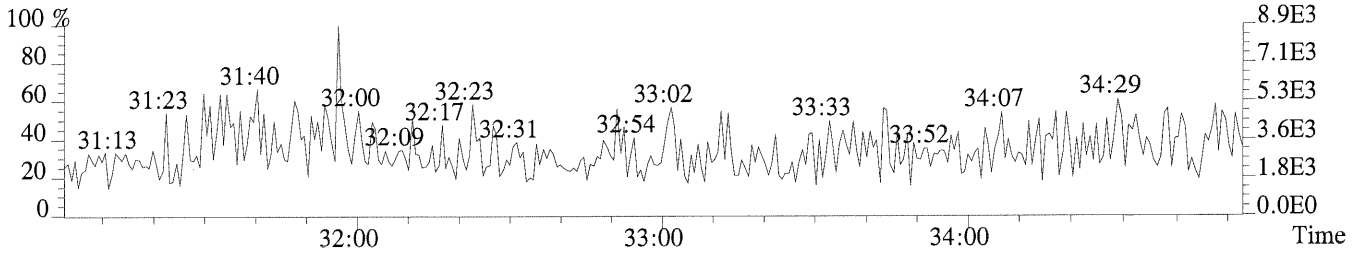
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1820.0,1.00%,F,T)



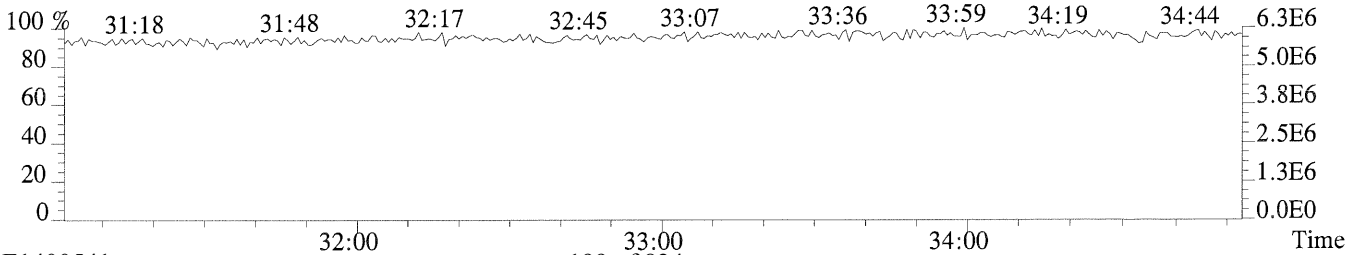
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2468.0,1.00%,F,T)



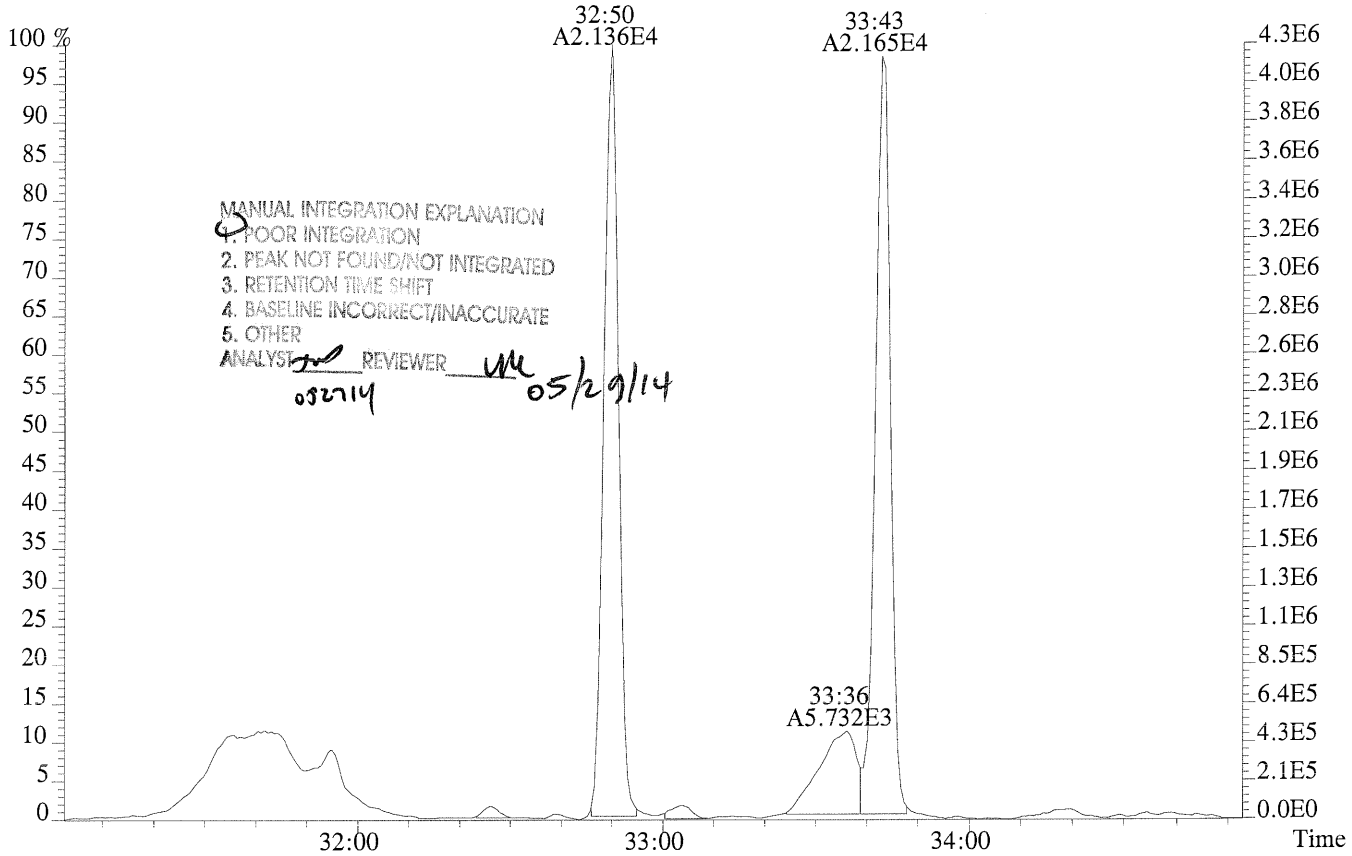
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

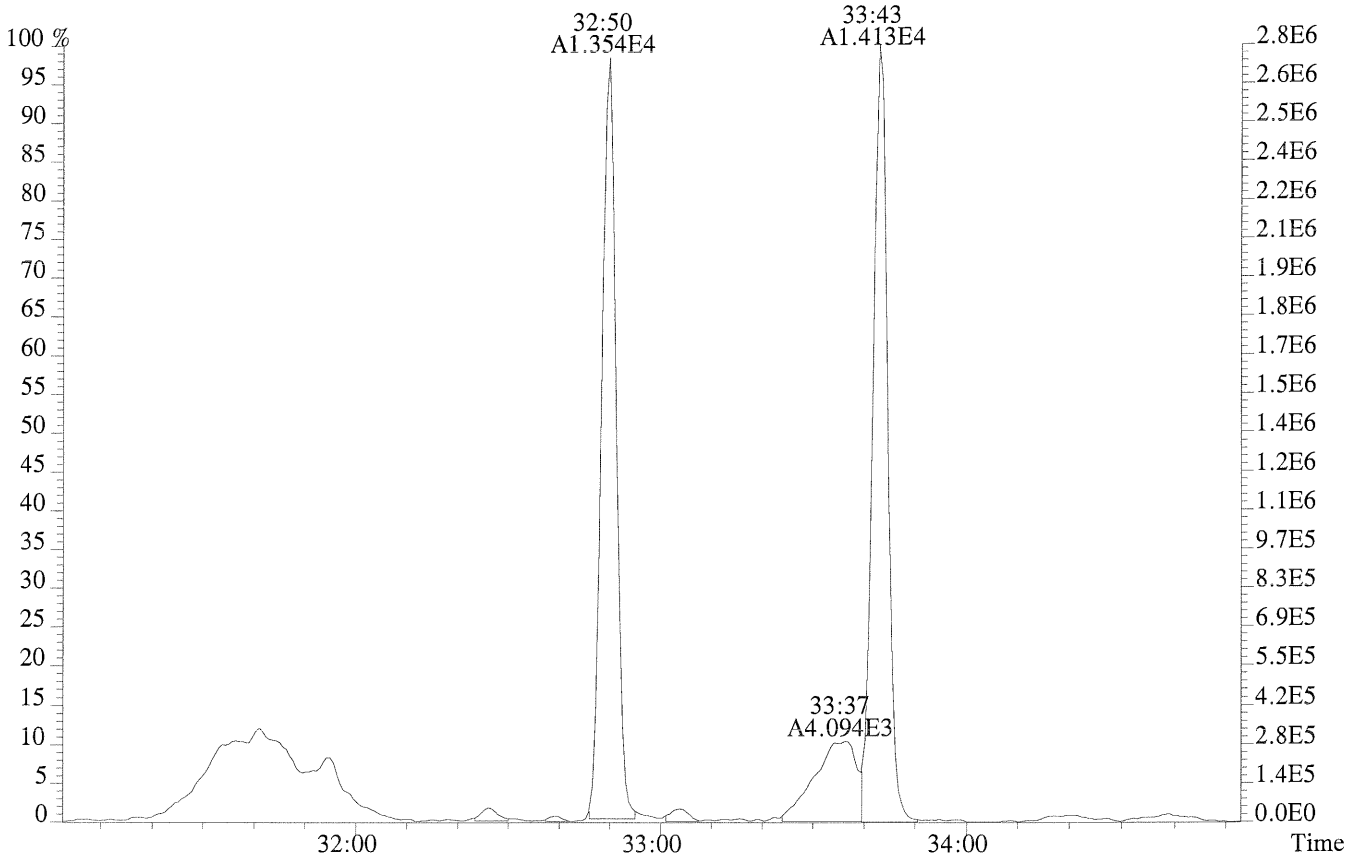


File:P229259 #1-349 Acq:26-MAY-2014 09:19:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-003 MS
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,15404.0,1.00%,F,T)



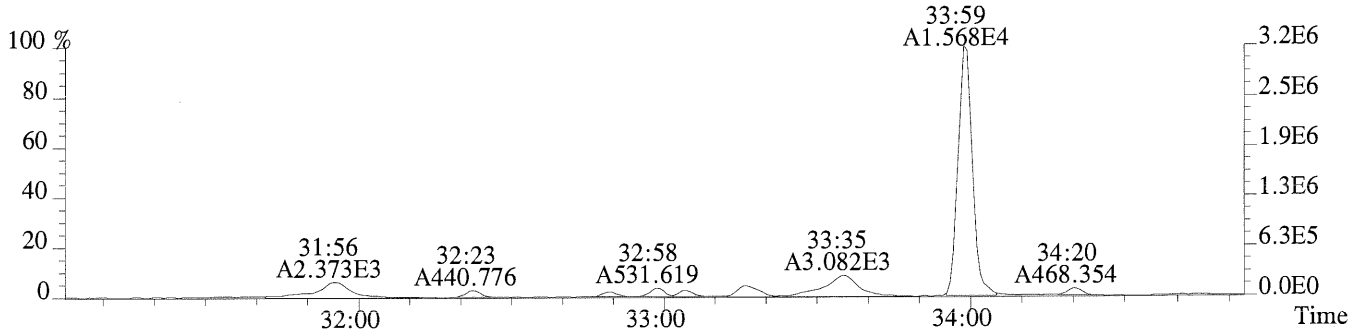
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST [illegible] REVIEWER [illegible]
052714 05/29/14

341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8732.0,1.00%,F,T)

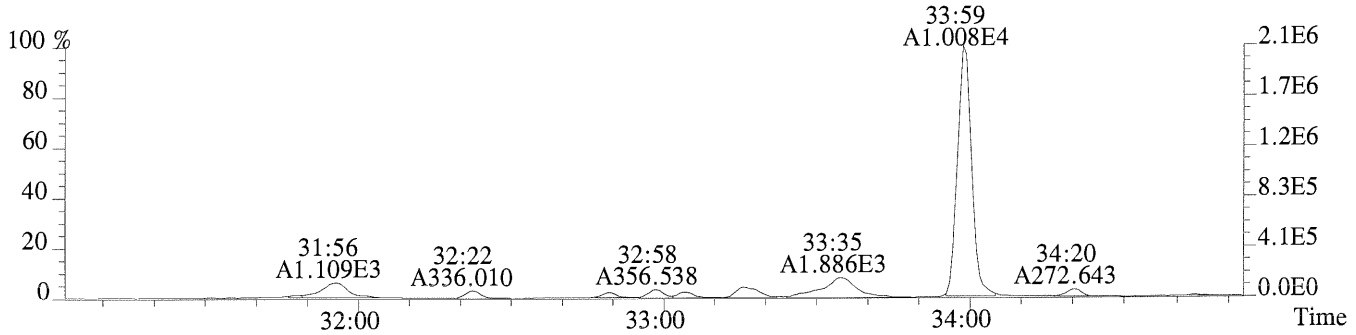


File:P229259 #1-349 Acq:26-MAY-2014 09:19:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-003 MS

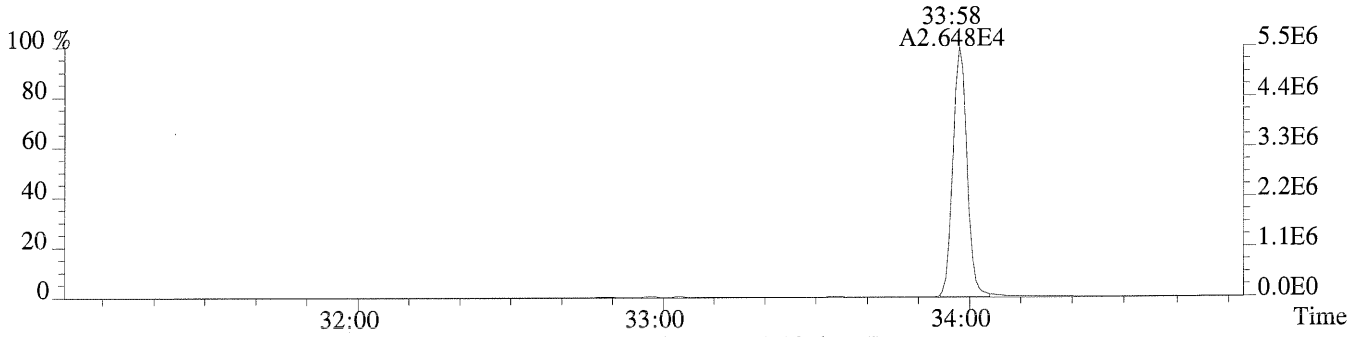
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5996.0,1.00%,F,T)



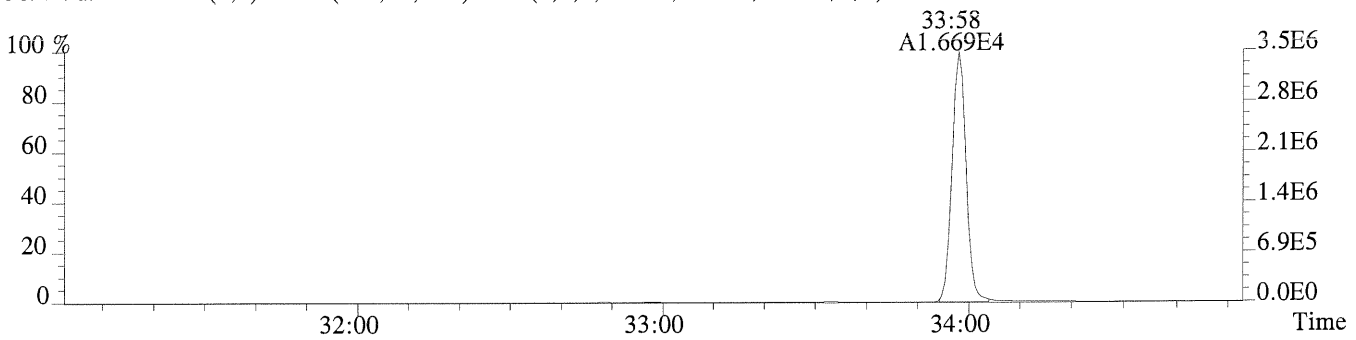
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5452.0,1.00%,F,T)



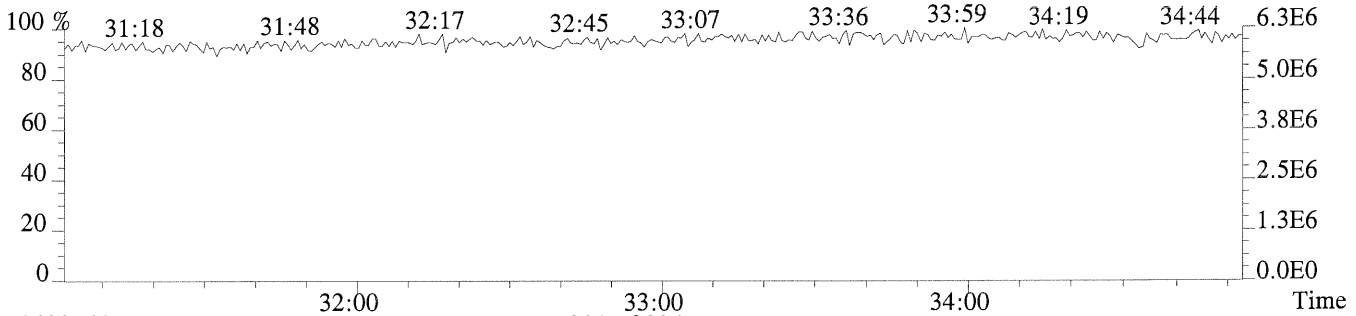
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1936.0,1.00%,F,T)



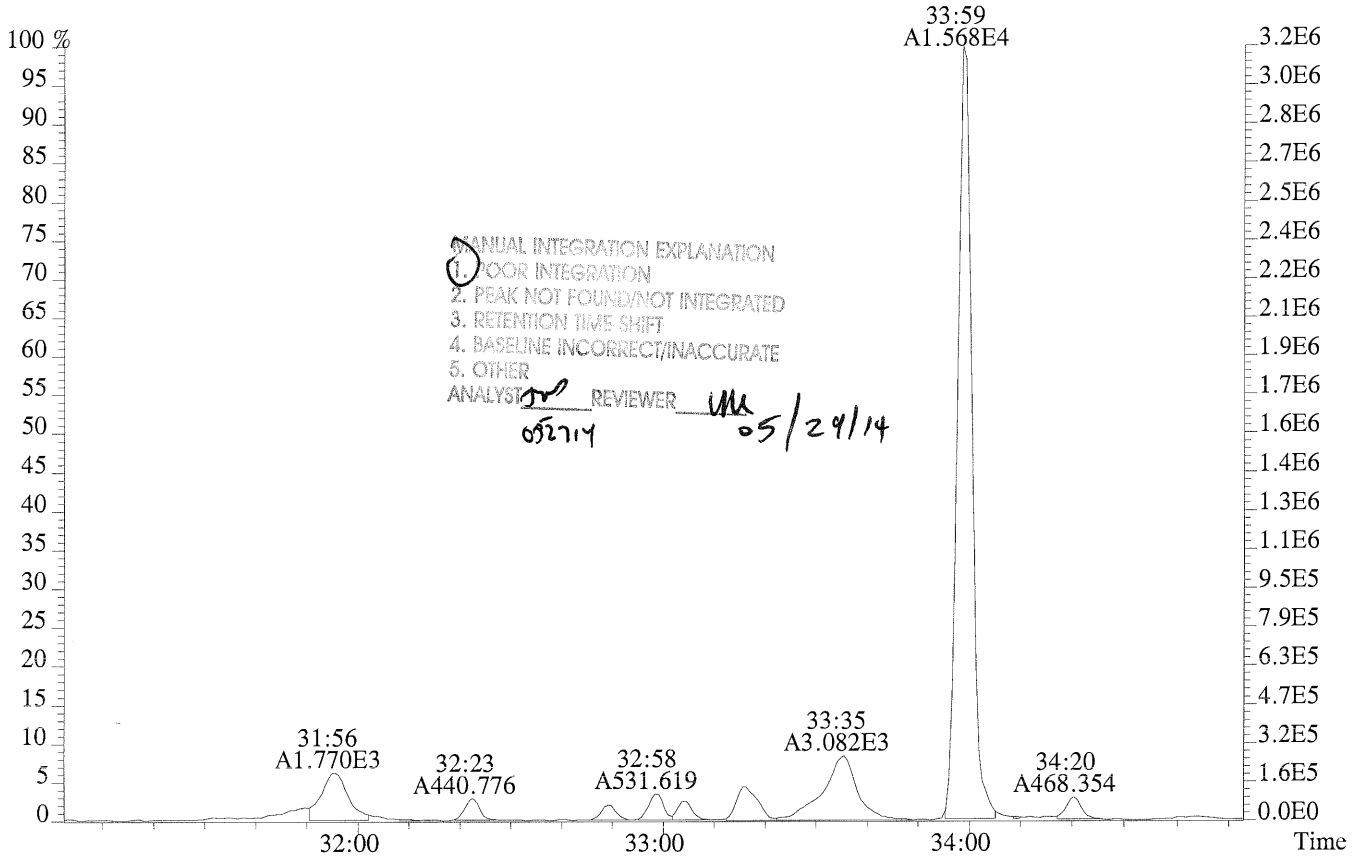
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1284.0,1.00%,F,T)



354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

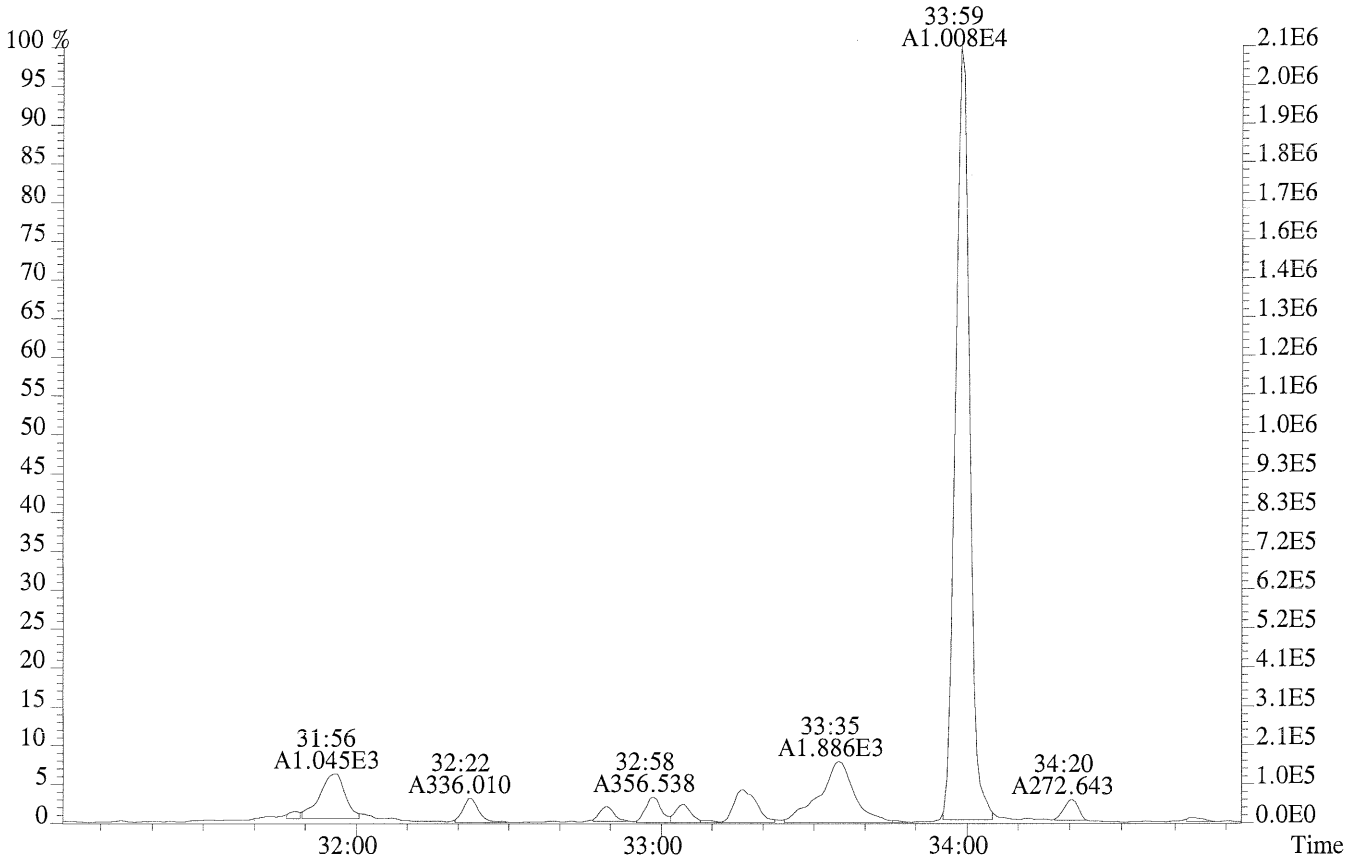


File:P229259 #1-349 Acq:26-MAY-2014 09:19:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-003 MS
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5996.0,1.00%,F,T)



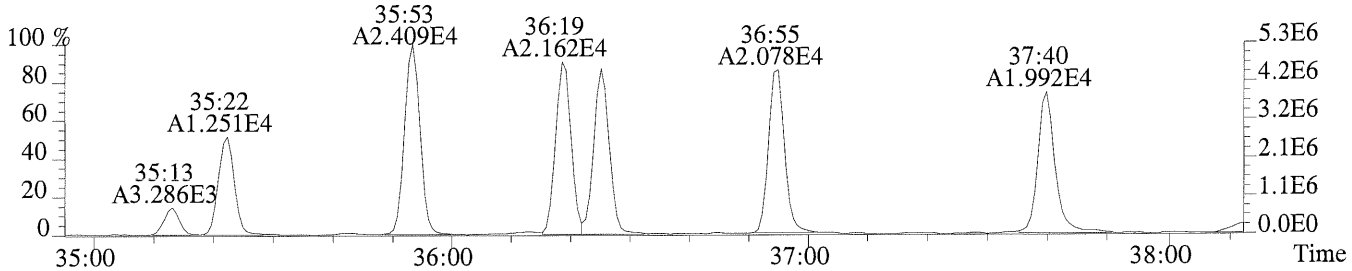
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST JV REVIEWER UK
052714 05/29/14

357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5452.0,1.00%,F,T)

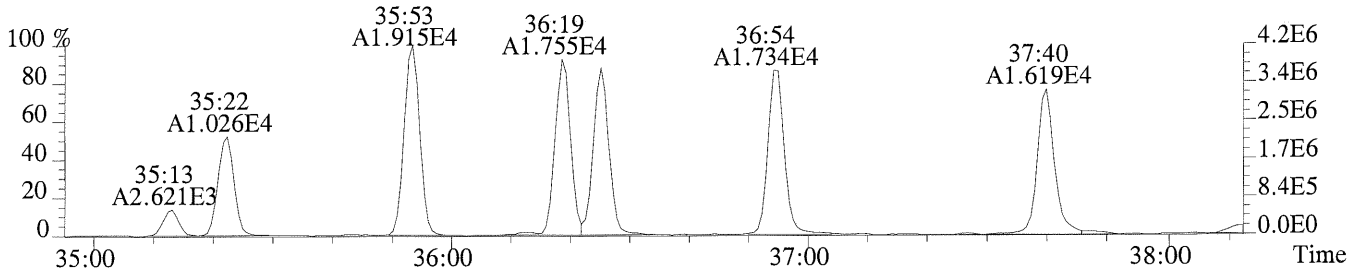


File:P229259 #1-299 Acq:26-MAY-2014 09:19:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-003 MS

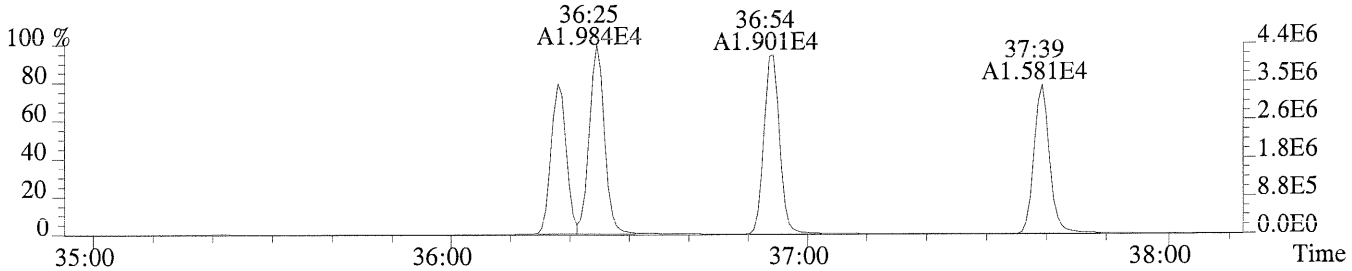
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,31492.0,0.40%,F,T)



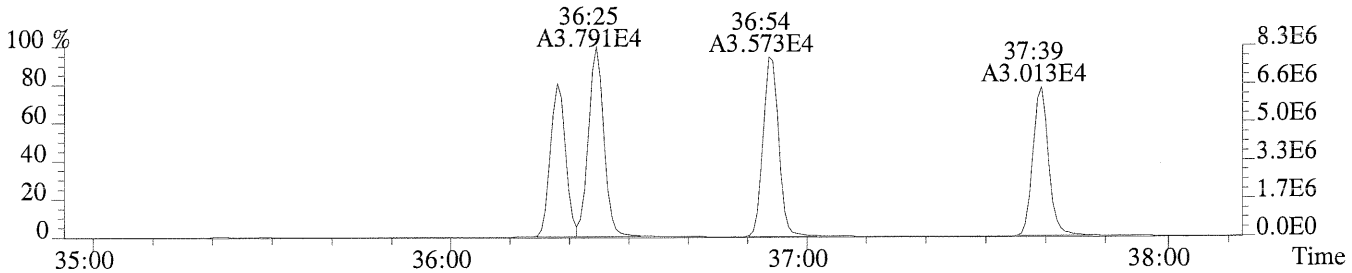
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13968.0,0.40%,F,T)



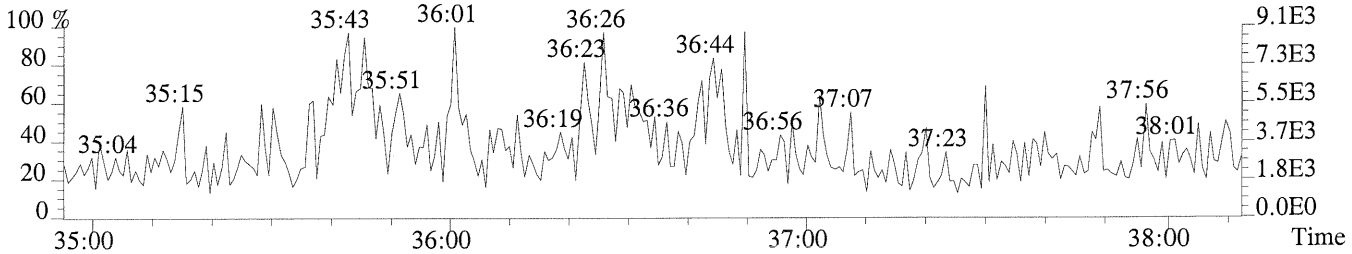
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2140.0,0.40%,F,T)



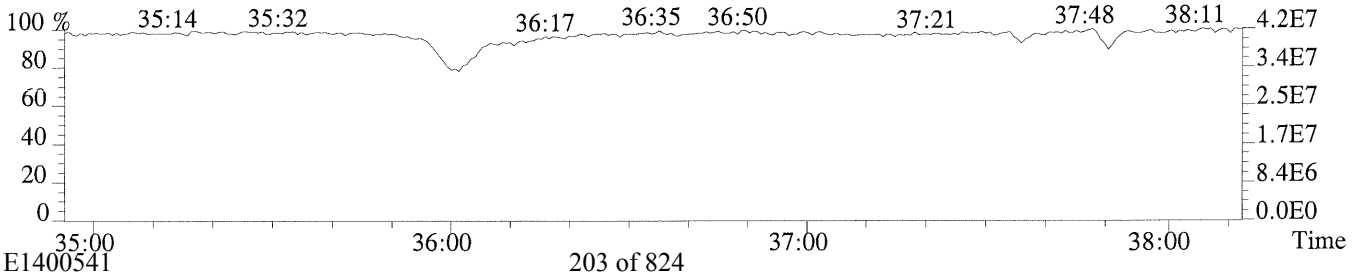
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3328.0,0.40%,F,T)



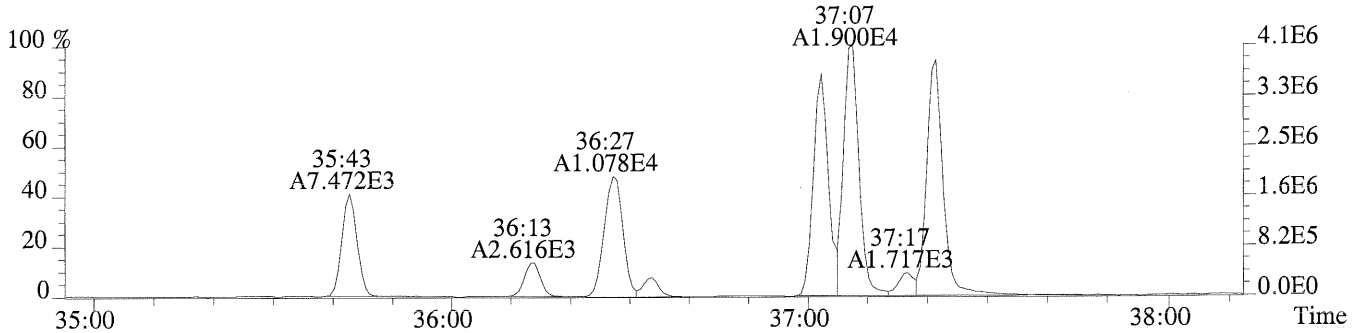
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



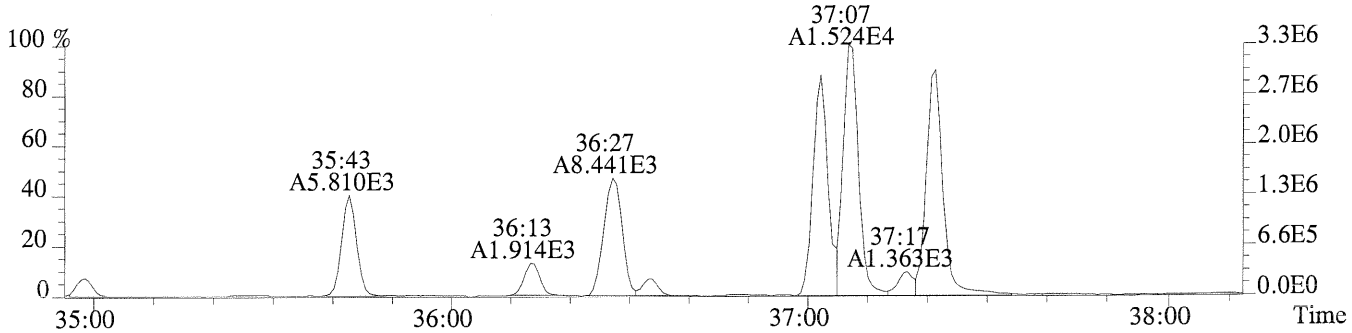
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



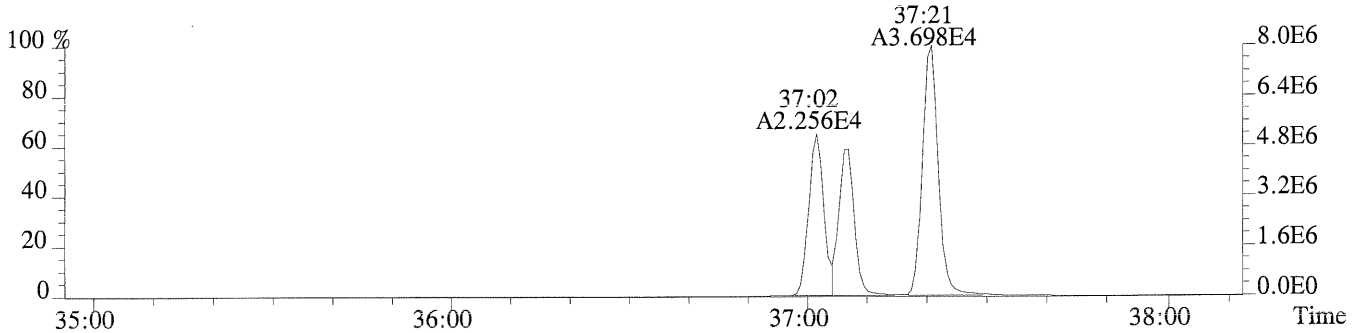
File:P229259 #1-299 Acq:26-MAY-2014 09:19:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-003 MS
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16320.0,0.40%,F,T)



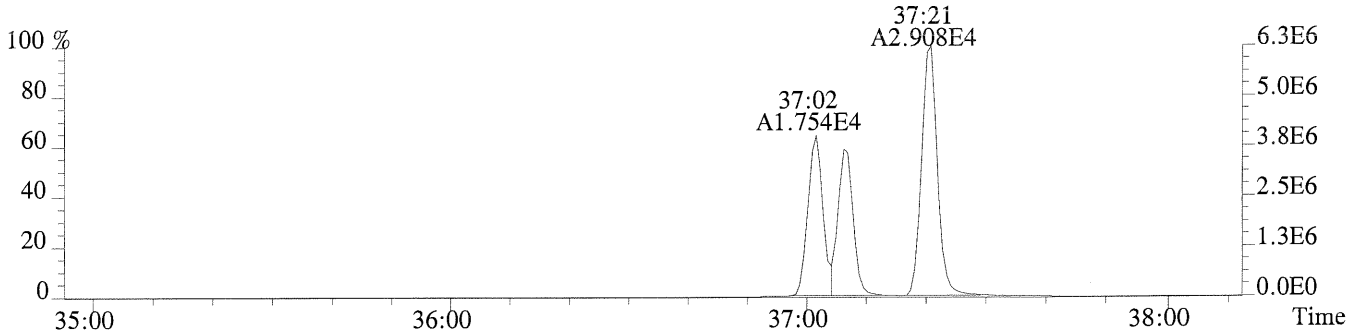
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13504.0,0.40%,F,T)



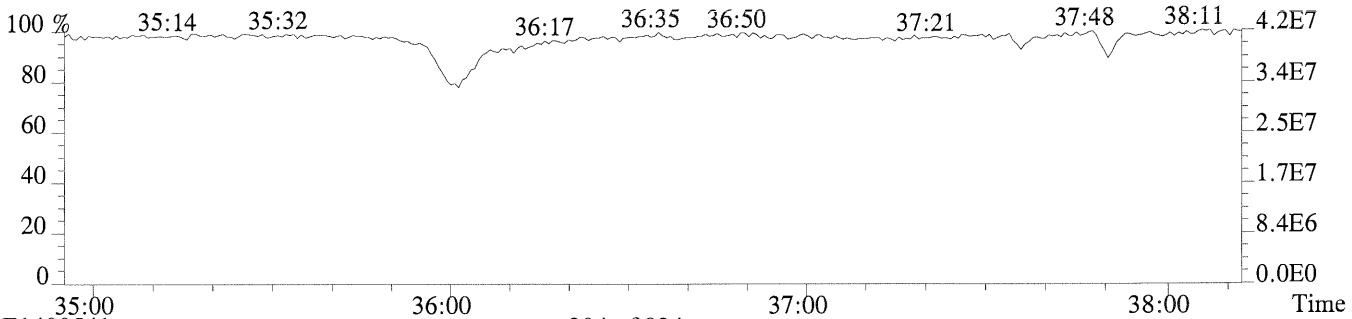
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2840.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3888.0,0.40%,F,T)

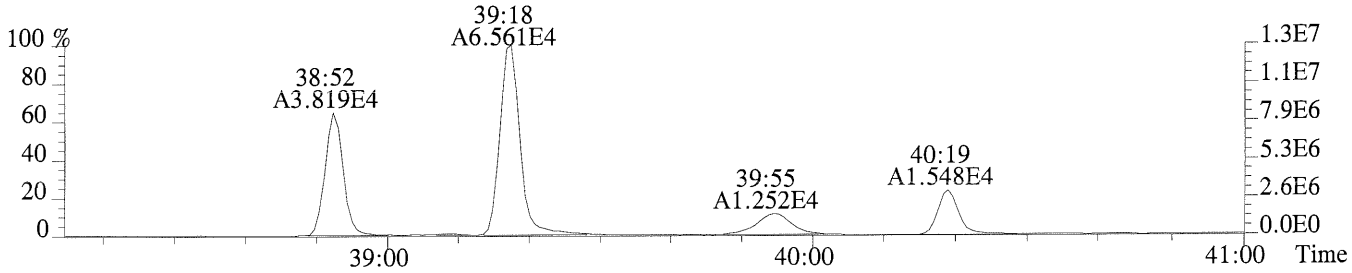


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

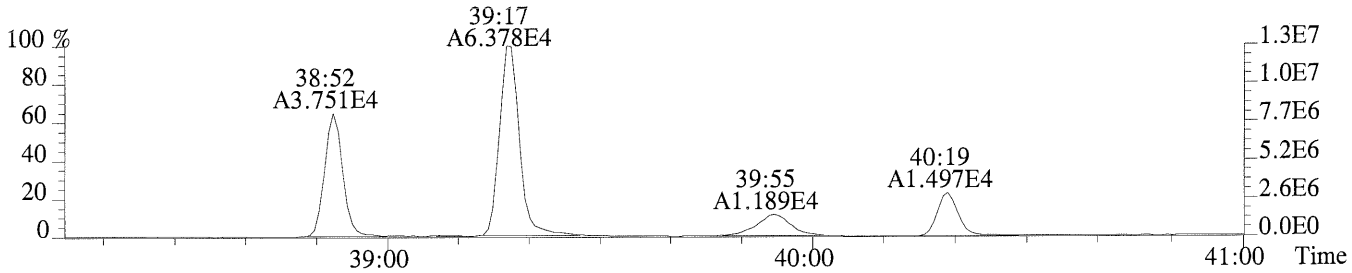


File:P229259 #1-251 Acq:26-MAY-2014 09:19:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-003 MS

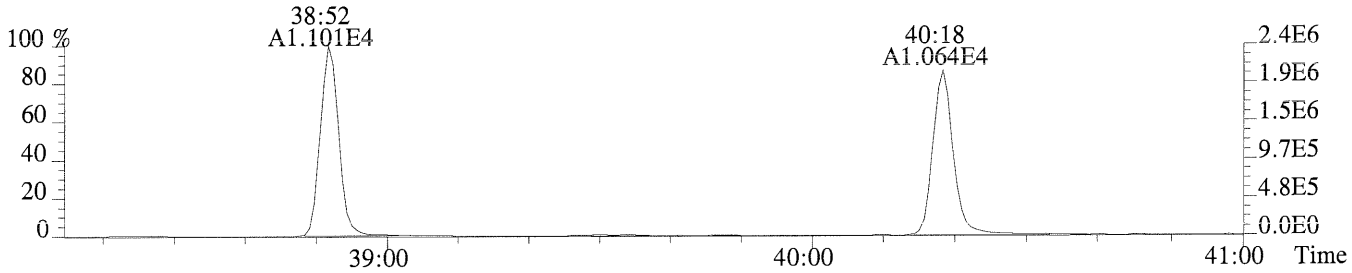
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,35280.0,0.50%,F,T)



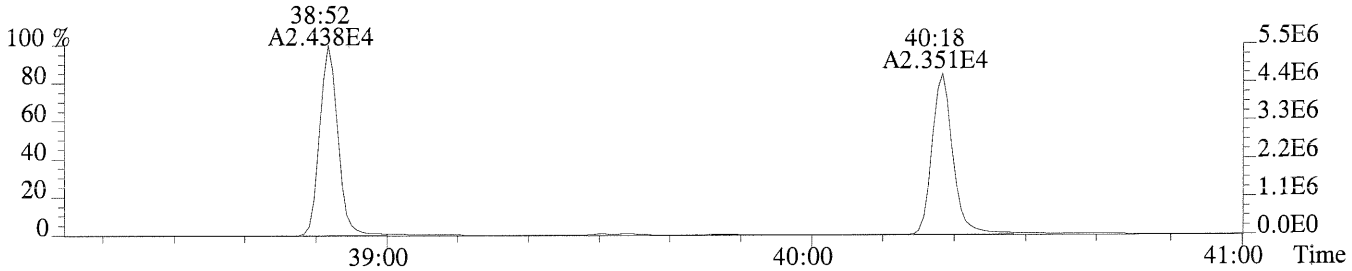
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,39404.0,0.50%,F,T)



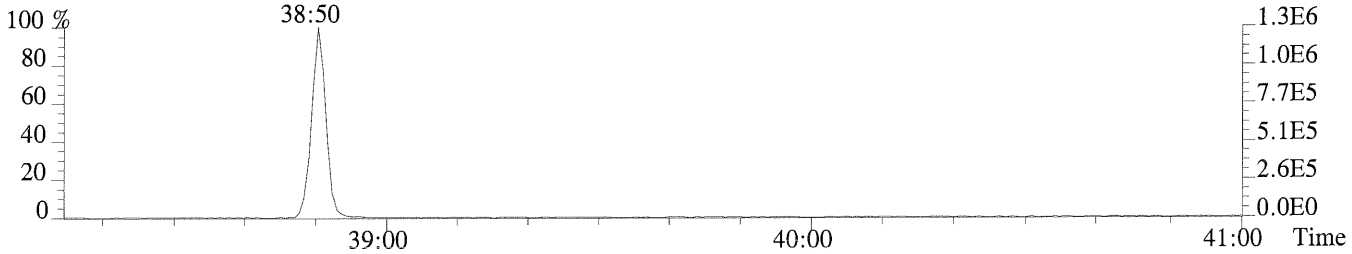
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3252.0,0.50%,F,T)



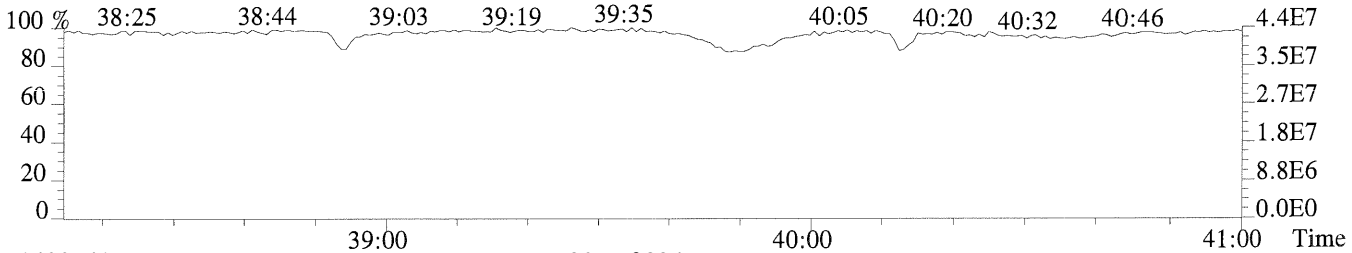
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5240.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

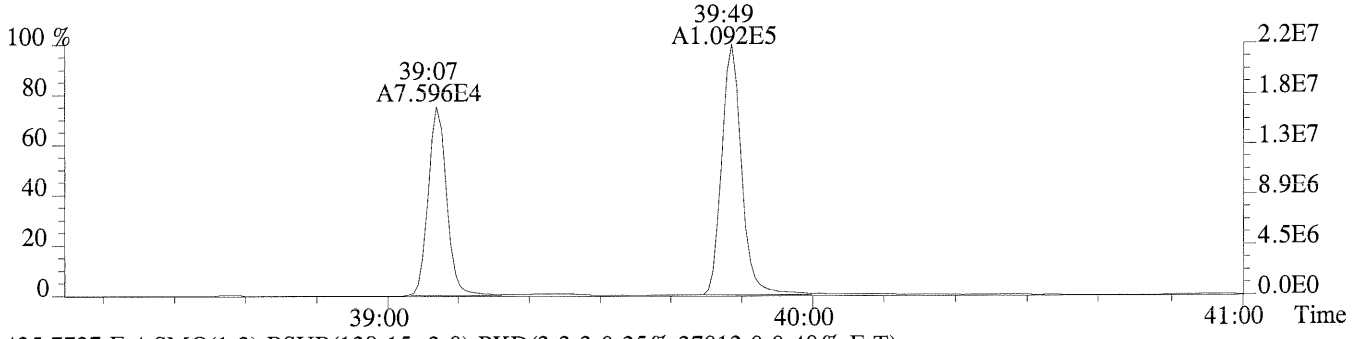


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

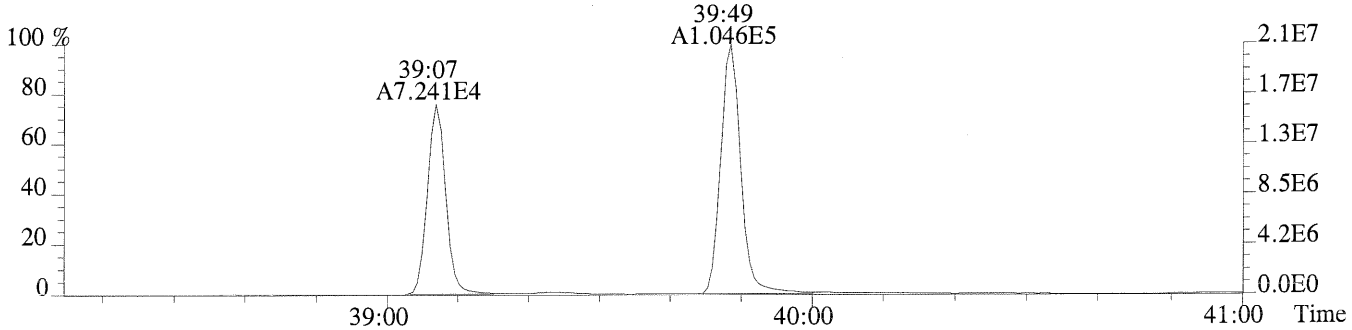


File:P229259 #1-251 Acq:26-MAY-2014 09:19:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-003 MS

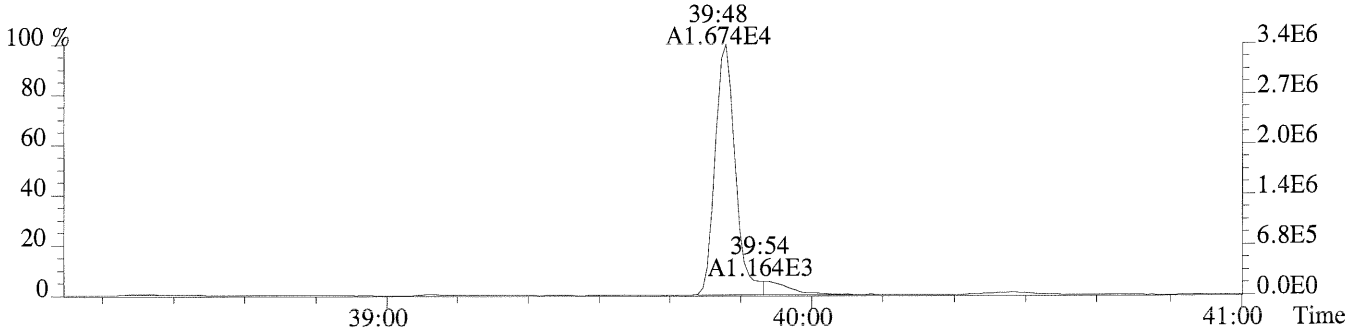
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,36280.0,0.40%,F,T)



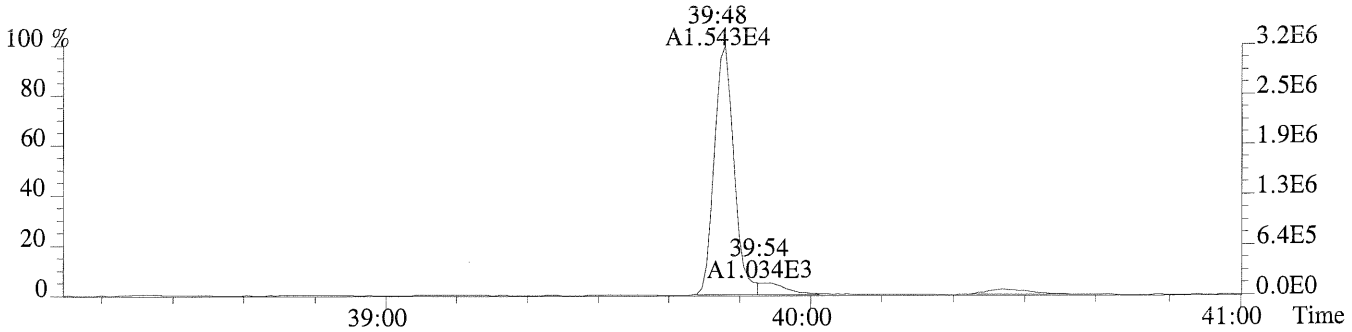
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,37012.0,0.40%,F,T)



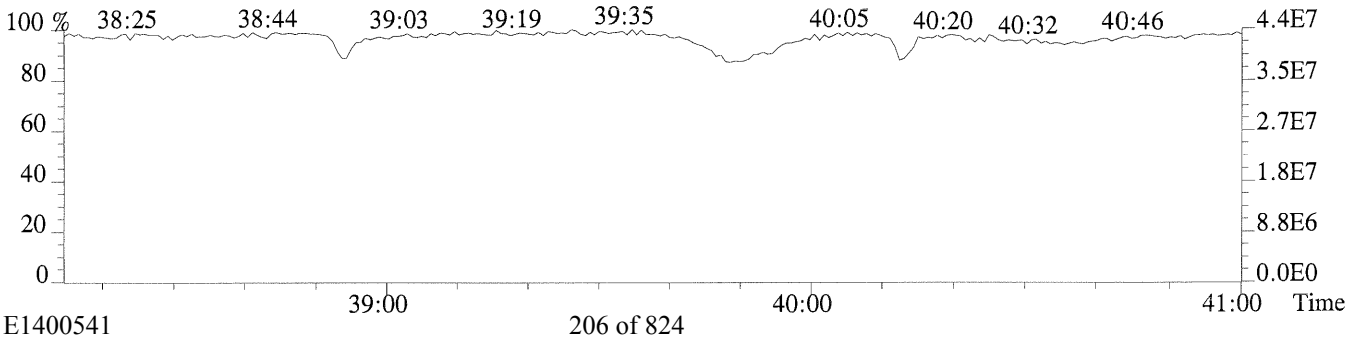
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8132.0,0.40%,F,T)



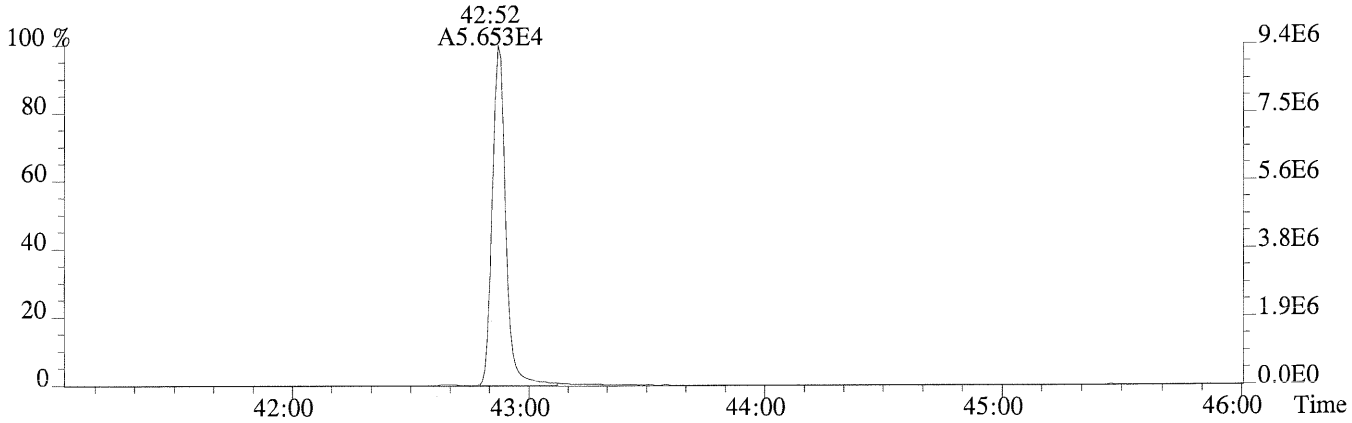
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5244.0,0.40%,F,T)



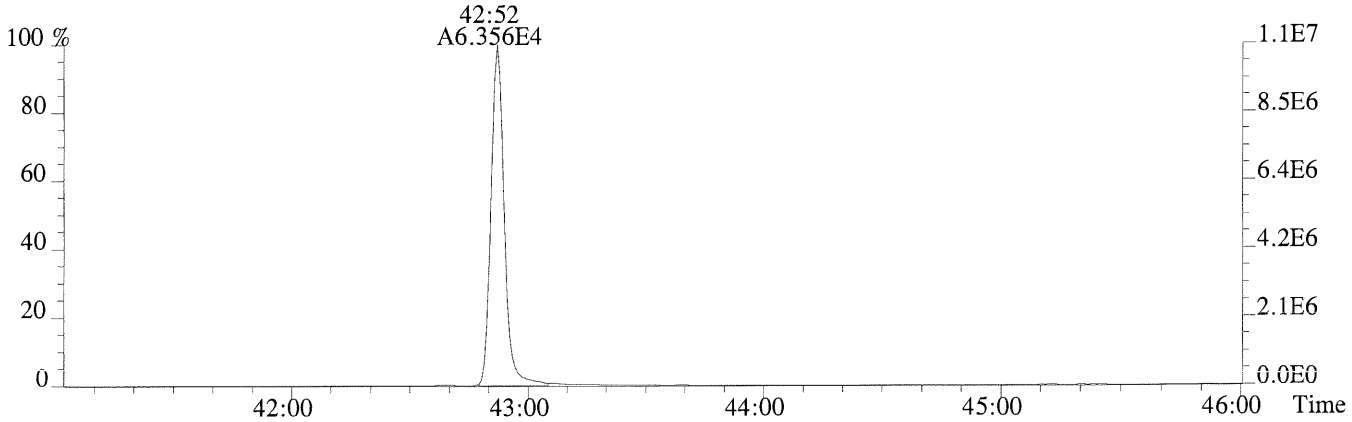
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



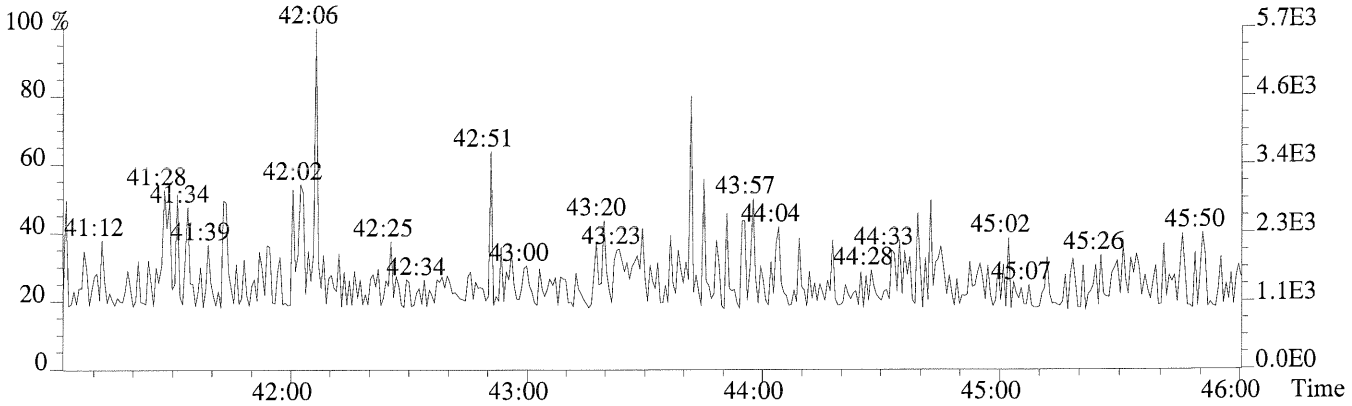
File:P229259 #1-457 Acq:26-MAY-2014 09:19:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-003 MS
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4148.0,0.40%,F,T)



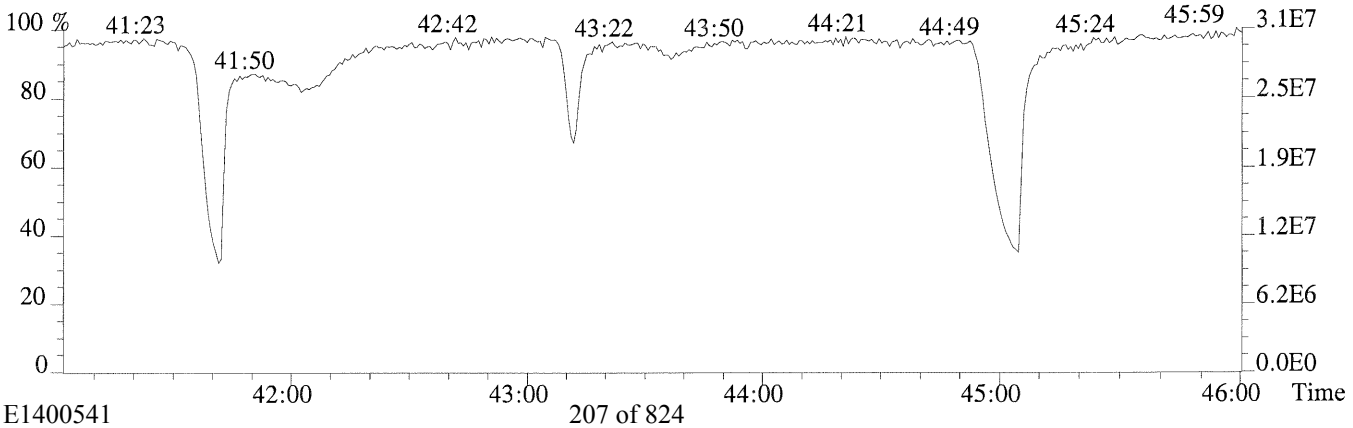
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5976.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

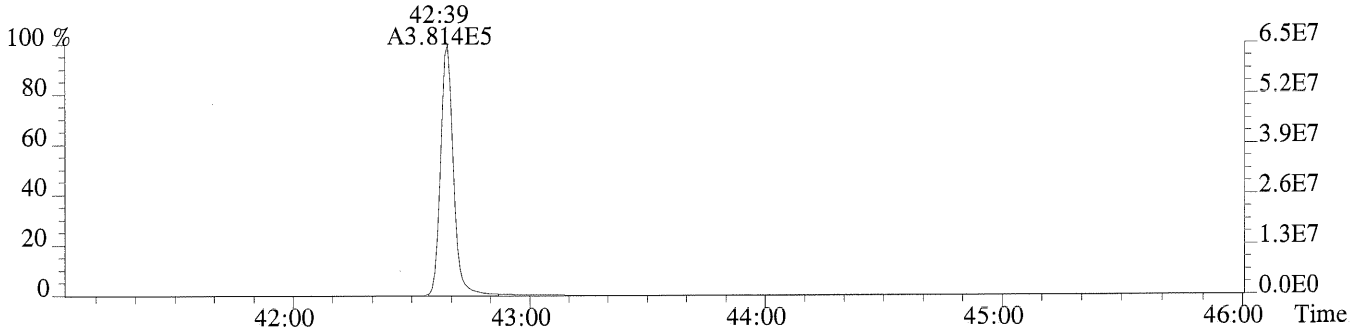


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

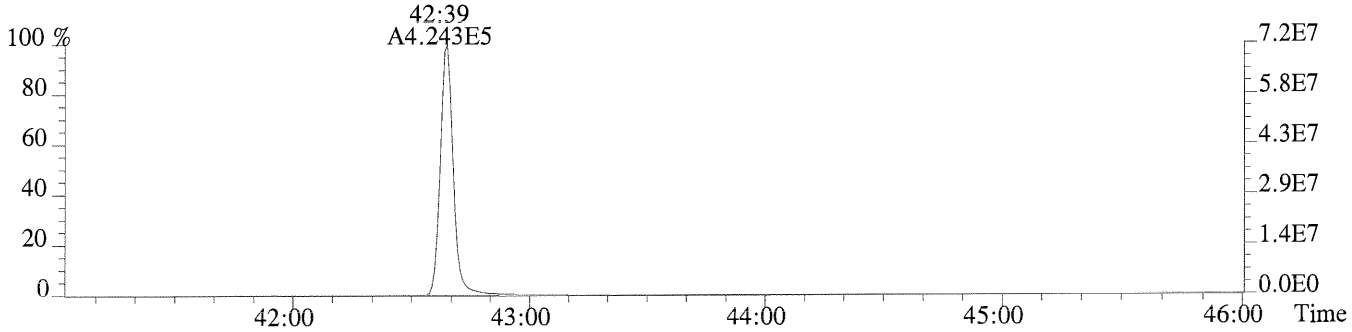


File:P229259 #1-457 Acq:26-MAY-2014 09:19:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400264-003 MS

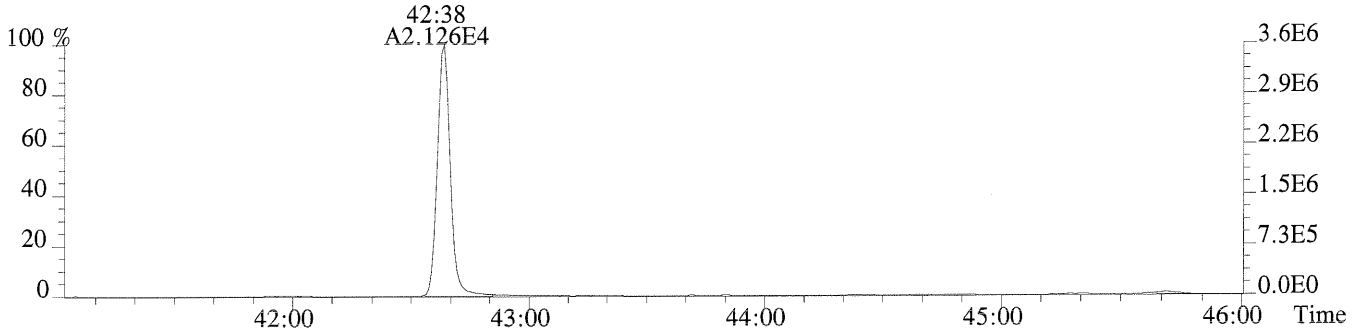
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5576.0,0.40%,F,T)



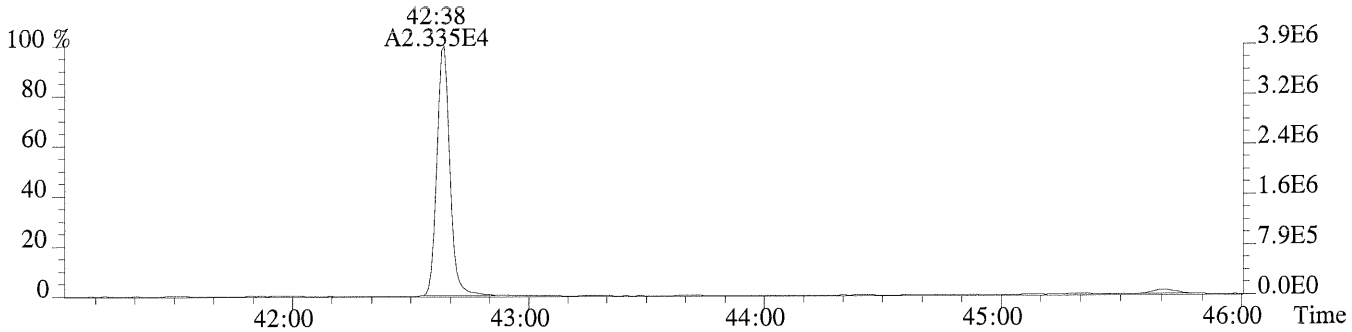
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,6184.0,0.40%,F,T)



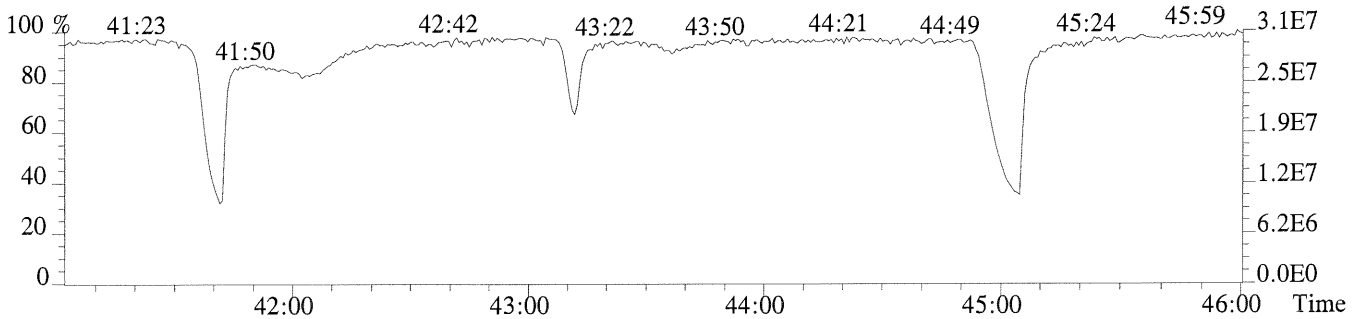
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3952.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5392.0,0.40%,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

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P171046–P171054

Date: 05/27/14

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	✓	✓

Analyst: gc

Second QC: LKL

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: 03/25/14

Init. Calib.Times: 16:28

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
63680	WINDOW DEFINE	P171047	27-MAY-14	09:29:05
66131	CCAL HRCC3/CS3	P171046	27-MAY-14	08:40:54
METHOD BLANK	EQ1400244-01	P171048	27-MAY-14	10:17:13
SO-48(0-3)	E1400524-013	P171049	27-MAY-14	11:05:21
SO-53(0-3)	E1400524-015	P171050	27-MAY-14	11:53:28
SO-54(0-3)	E1400524-017	P171051	27-MAY-14	12:41:35
AM-WS01-04242014	E1400541-001	P171052	27-MAY-14	13:29:42
AM-WS02-04242014	E1400541-002	P171053	27-MAY-14	14:17:51
66131	CCAL HRCC3/CS3	P171054	27-MAY-14	15:19:16

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P1140527.SPL

Last Modified: Tuesday, May 27, 2014 10:29:42 Central Daylight Time

Printed: Tuesday, May 27, 2014 16:21:05 Central Daylight Time

e: P171046res

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	05/27/14	08:40	P171046	CCAL HRCC3/CS3	66131		HRMS Check 08:29	8290cas
2		09:29	P171047	WINDOW DEFINE	63680			8290cas
3		10:17	P171048	EQ1400244-01 MB	MB			8290cas
4		11:05	P171049	E1400524-013	E1400524-013			8290cas
5		11:53	P171050	E1400524-015	E1400524-015			8290cas
6		12:41	P171051	E1400524-017	E1400524-017			8290cas
7		13:29	P171052	E1400541-001	E1400541-001			8290cas
8		14:17	P171053	E1400541-002	E1400541-002			8290cas
9		15:19	P171054	CCAL HRCC3/CS3	66131		HRMS Check 16:15	8290cas
10			---	---	---			8290cas
11			---	---	---			8290cas
12			---	---	---			8290cas
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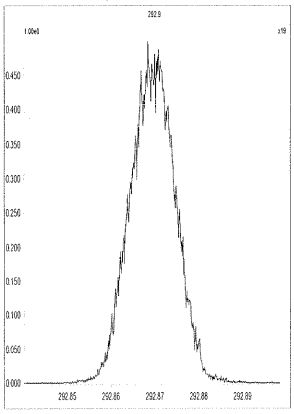
39	---	---	---	---	---	---	---	8290cas

Reviewed By: 05/28/14

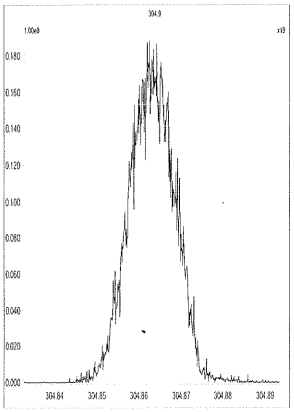
042

Printed: Tuesday, May 27, 2014 08:29:15 Central Daylight Time

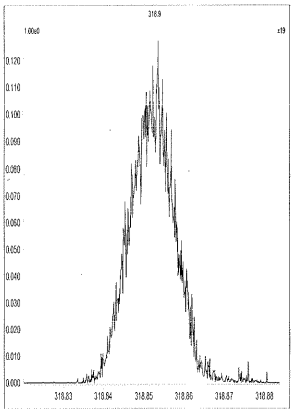
M 292.9824 R 12791



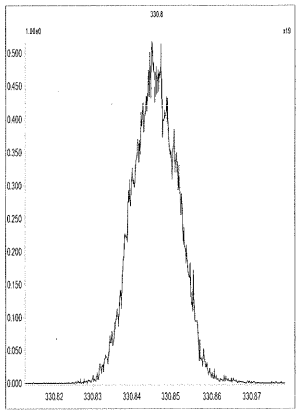
M 304.9824 R 13094



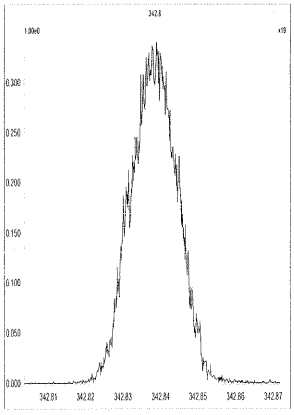
M 318.9792 R 13440



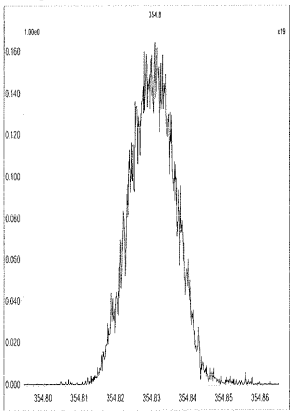
M 330.9792 R 12690



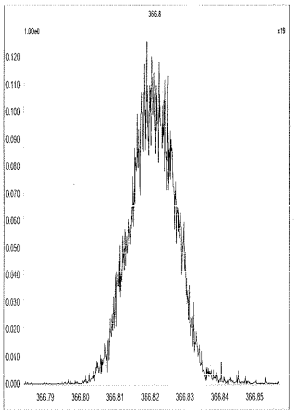
M 342.9792 R 12821



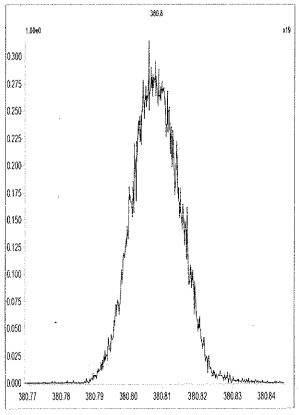
M 354.9792 R 13021



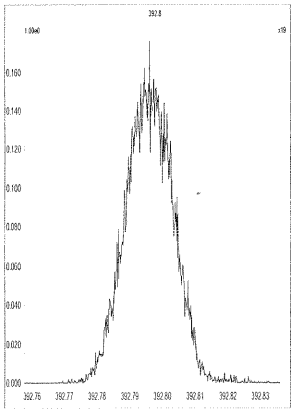
M 366.9792 R 13298



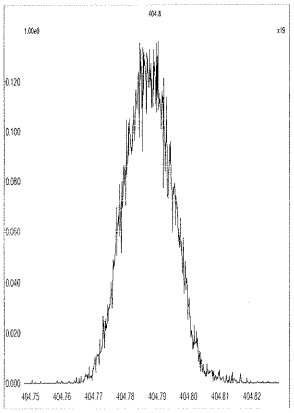
M 380.9760 R 12408



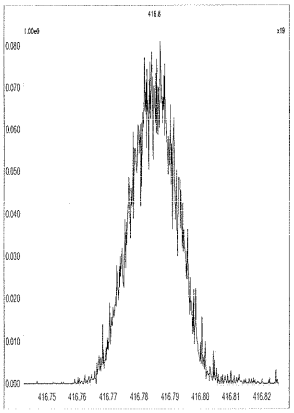
M 392.9760 R 12345



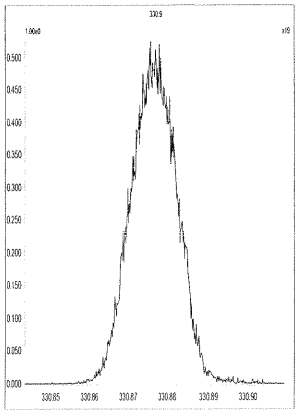
M 404.9760 R 12254



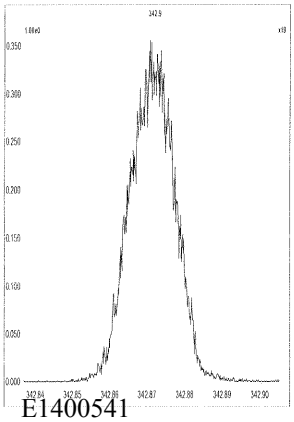
M 416.9760 R 12165



M 330.9792 R 12886



M 342.9792 R 12919



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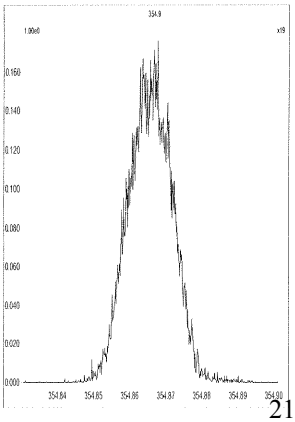

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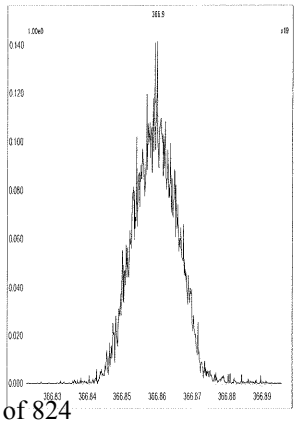
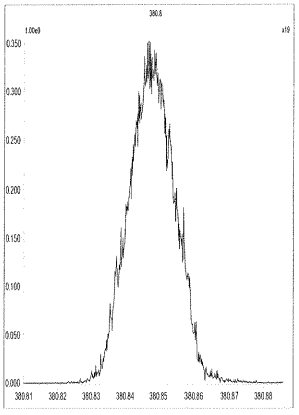


M 380.9760 R 12886



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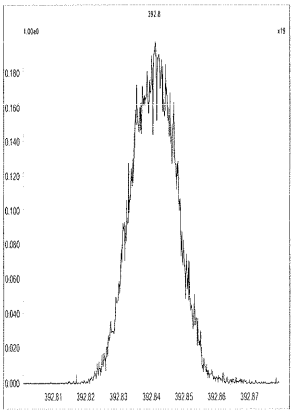
M 392.9760 R 12842



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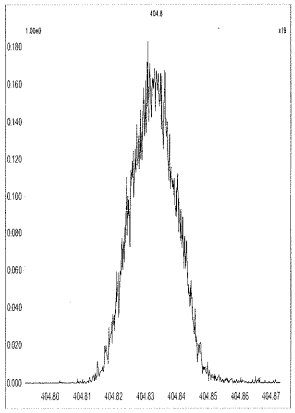

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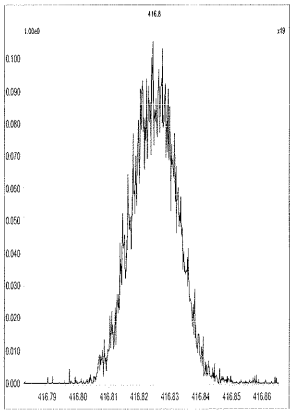

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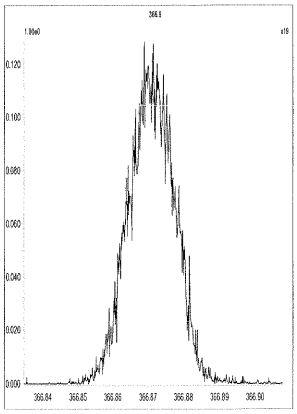
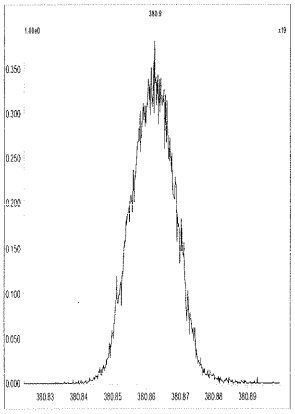


M 380.9760 R 13054



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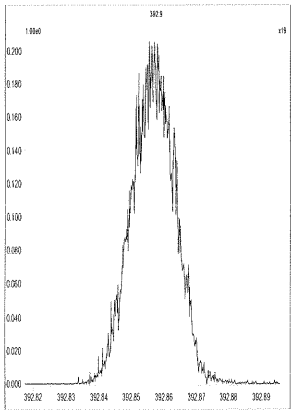

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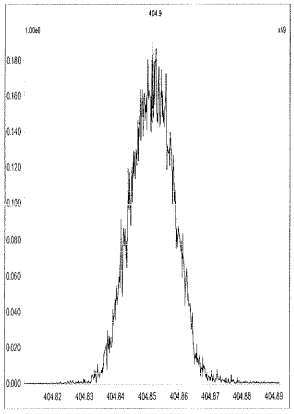
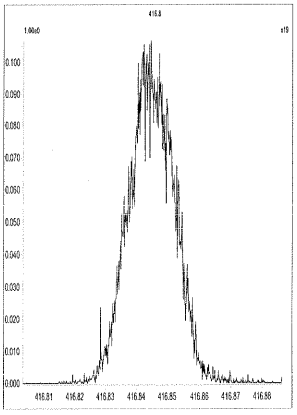
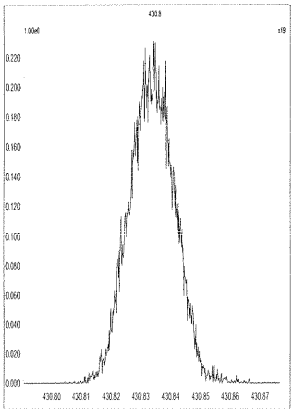


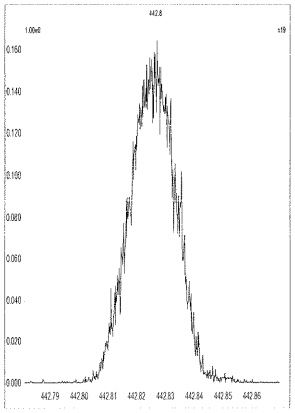
M 416.9760 R 13227



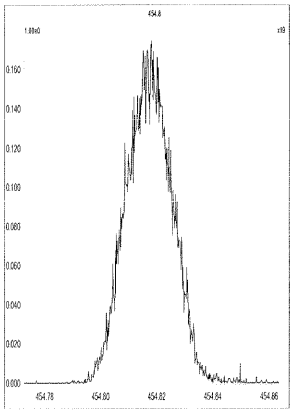
M 430.9728 R 12919



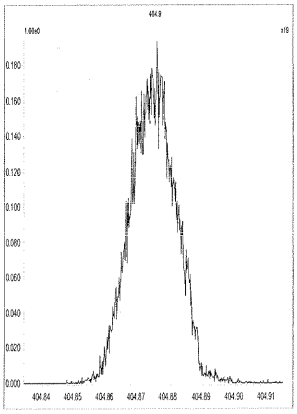
M 442.9728 R 13134



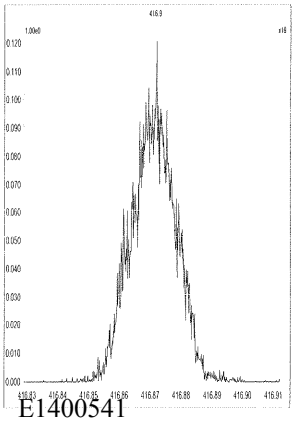
M 454.9728 R 12562



M 404.9760 R 13199



M 416.9760 R 13545



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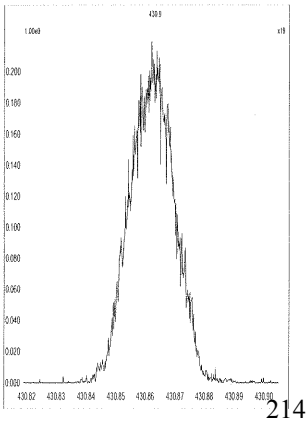
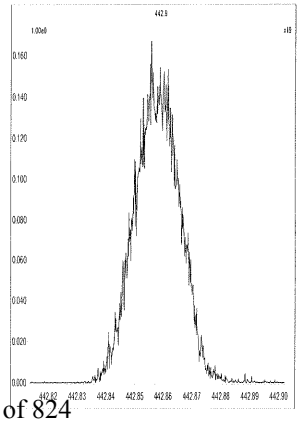
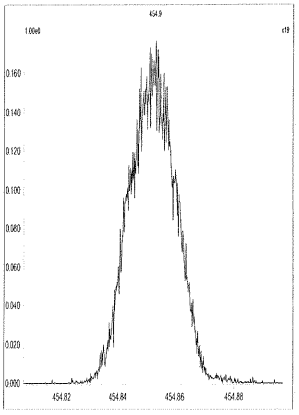


M 442.9728 R 13228



M 454.9728 R 12563



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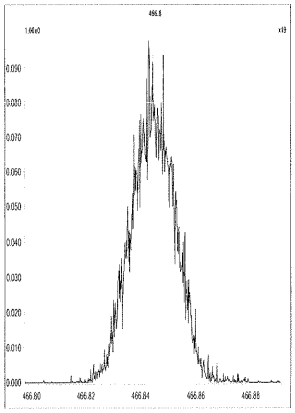
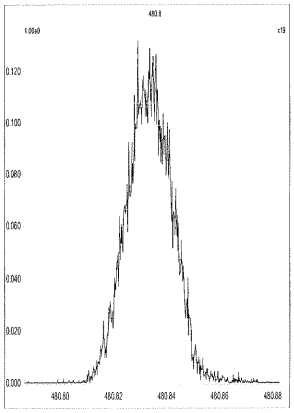
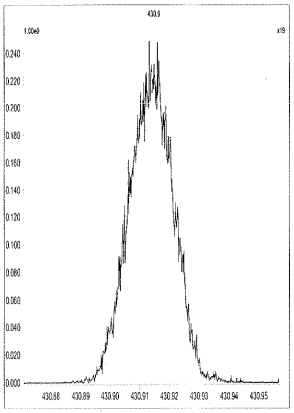


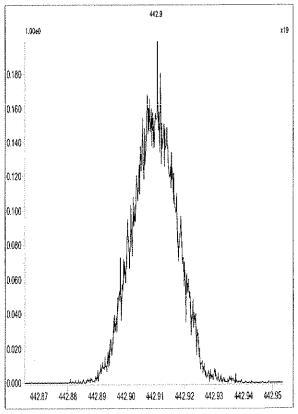
M 480.9696 R 12933



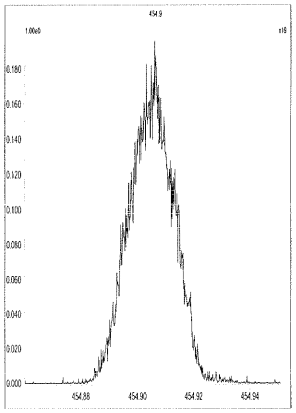
M 430.9728 R 13054



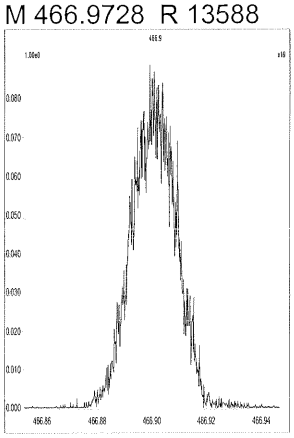
M 442.9728 R 12886



M 454.9728 R 12954



M 466.9728 R 13588



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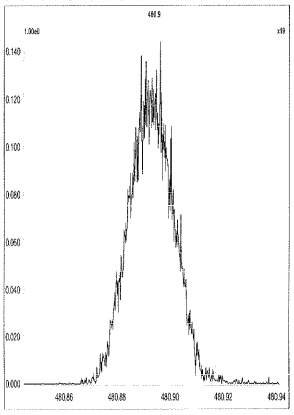
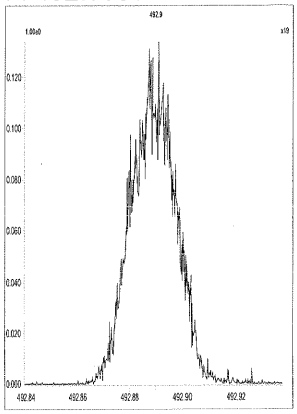
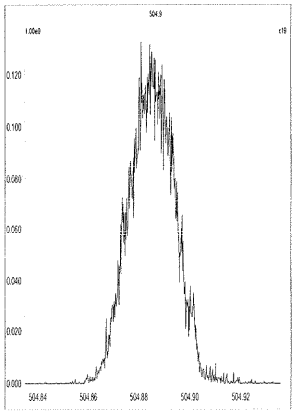


M 492.9696 R 13088



M 504.9696 R 13477



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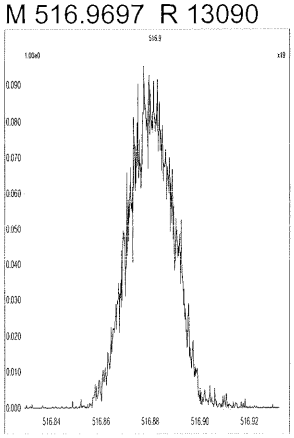

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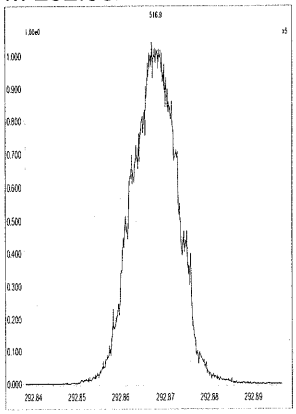

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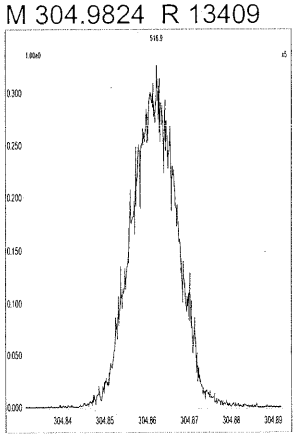

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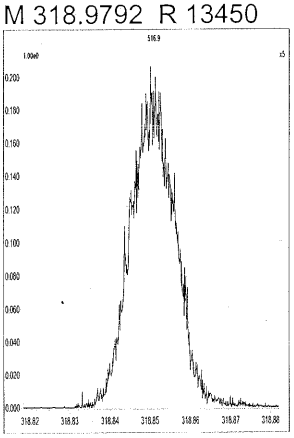
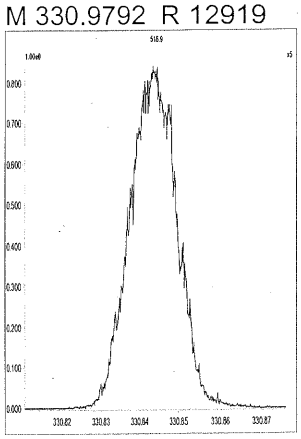
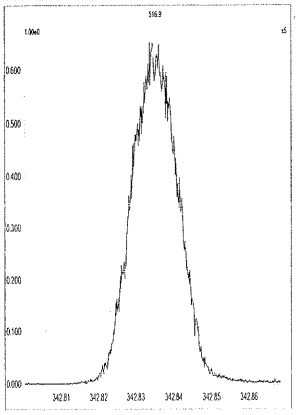


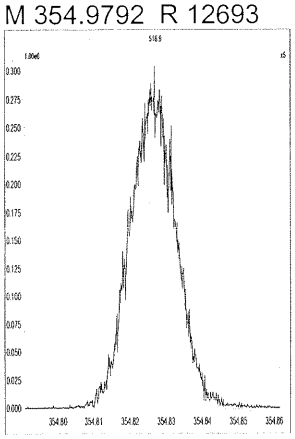
M 330.9792 R 12919



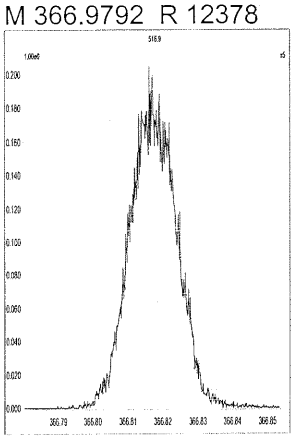
M 342.9792 R 12956



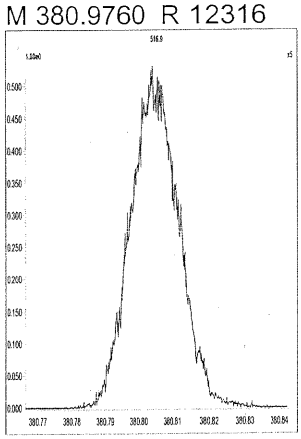
M 354.9792 R 12693



M 366.9792 R 12378



M 380.9760 R 12316



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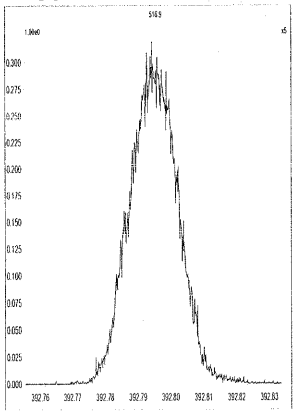
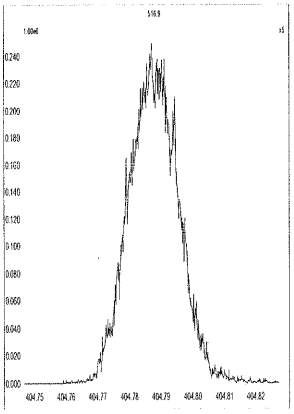
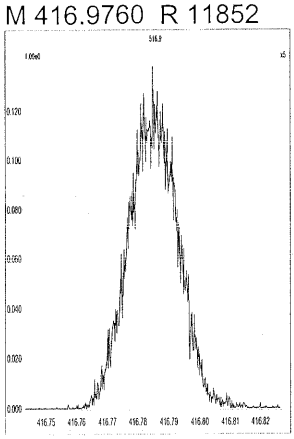


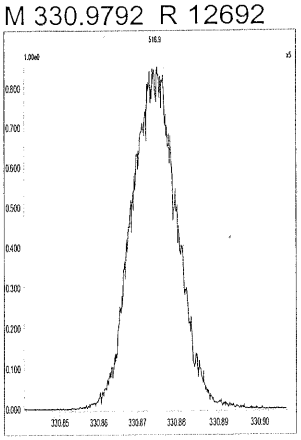
M 404.9760 R 11603



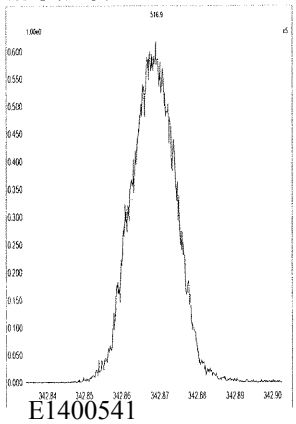
M 416.9760 R 11852



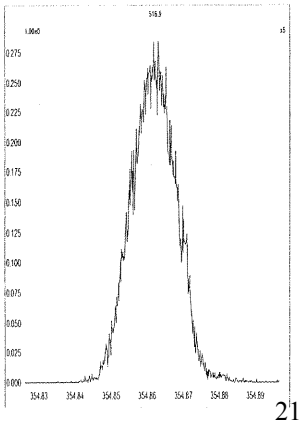
M 330.9792 R 12692



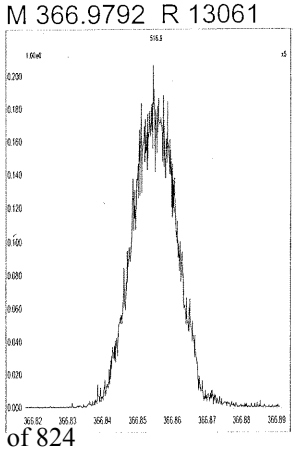
M 342.9792 R 13056



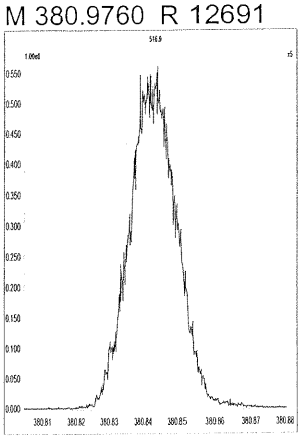
M 354.9792 R 13592



M 366.9792 R 13061



M 380.9760 R 12691



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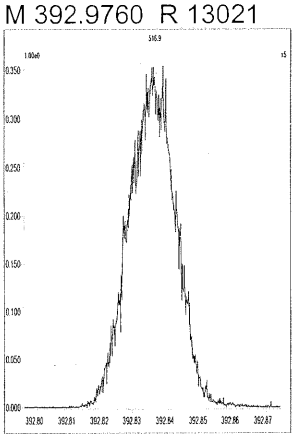
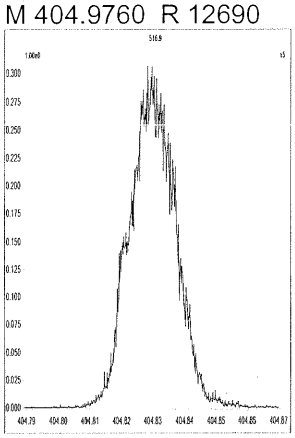
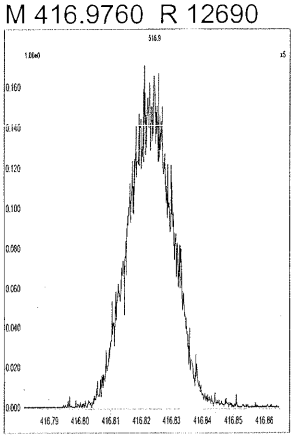
M 392.9760 R 13021



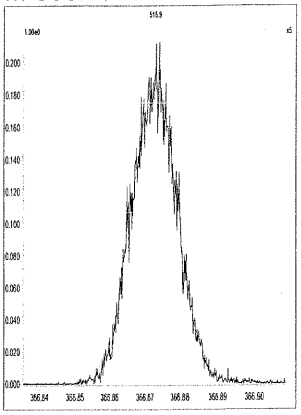
M 404.9760 R 12690



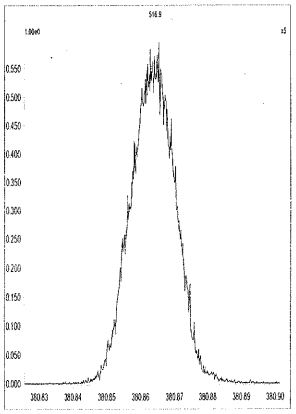
M 416.9760 R 12690



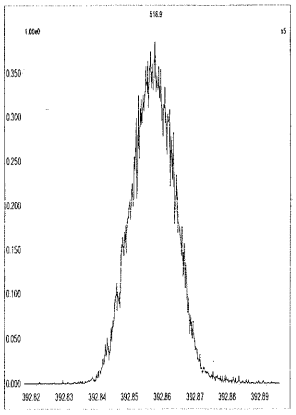
M 366.9792 R 12825



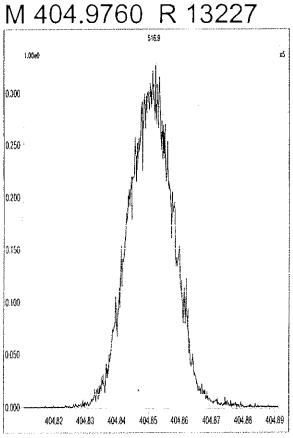
M 380.9760 R 13300



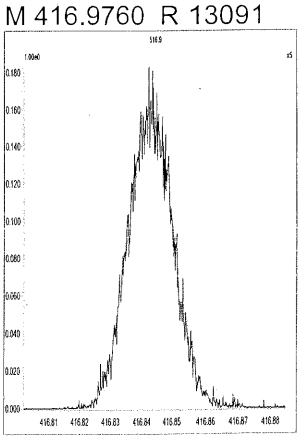
M 392.9760 R 13056



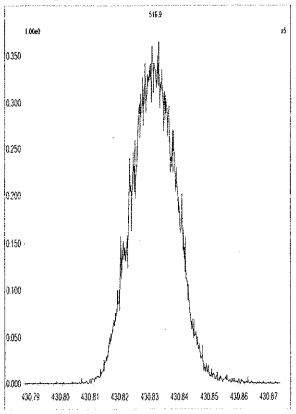
M 404.9760 R 13227



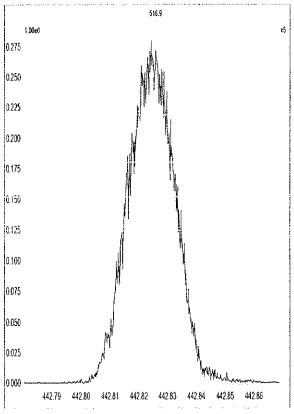
M 416.9760 R 13091



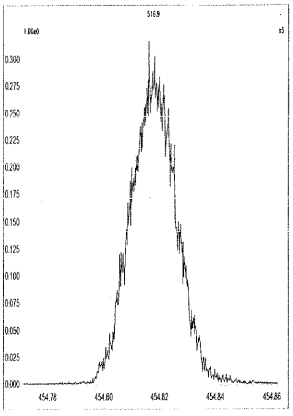
M 430.9728 R 12953



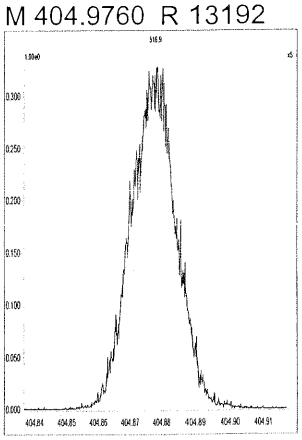
M 442.9728 R 12563



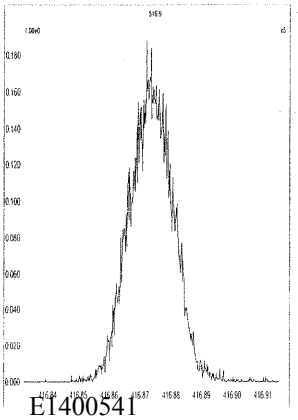
M 454.9728 R 12660



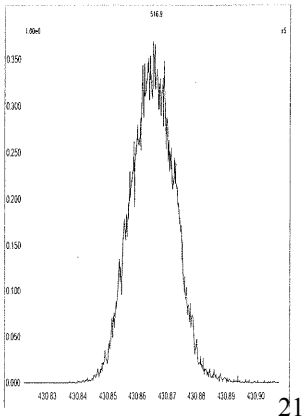
M 404.9760 R 13192



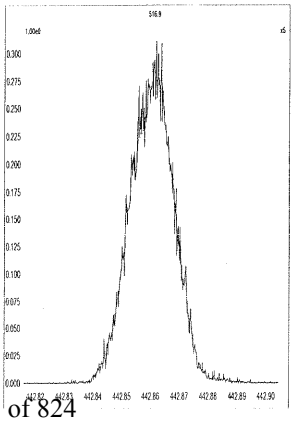
M 416.9760 R 13662



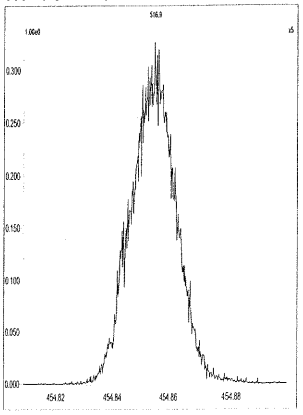
M 430.9728 R 12887



M 442.9728 R 13519

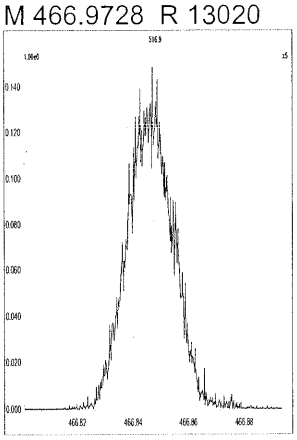


M 454.9728 R 12923

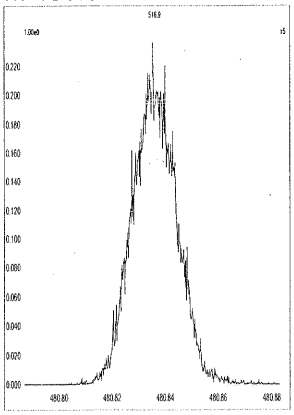


Printed: Tuesday, May 27, 2014 16:15:03 Central Daylight Time

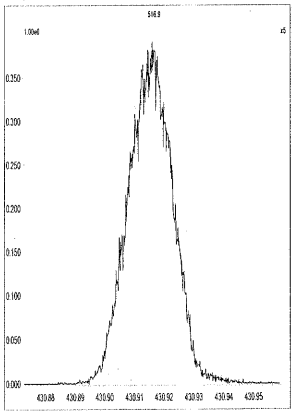
M 466.9728 R 13020



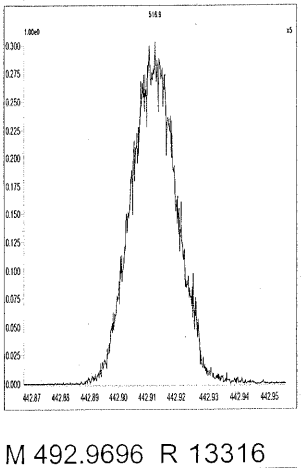
M 480.9696 R 12953



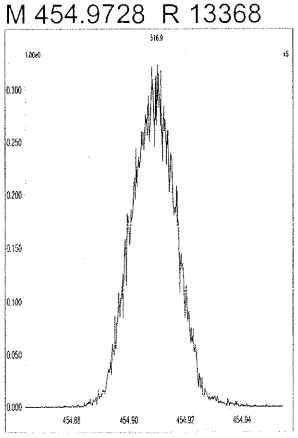
M 430.9728 R 13477



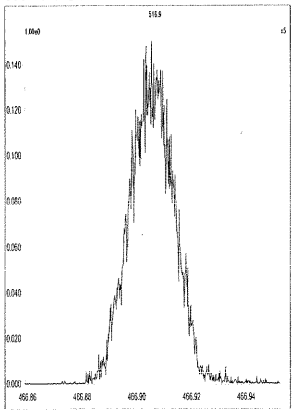
M 442.9728 R 13158



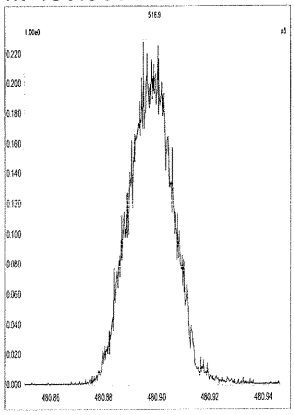
M 454.9728 R 13368



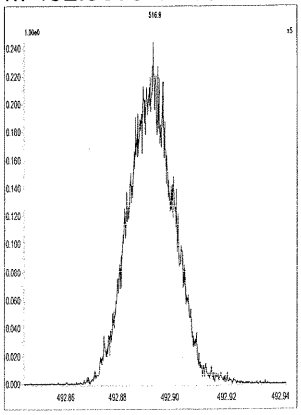
M 466.9728 R 13736



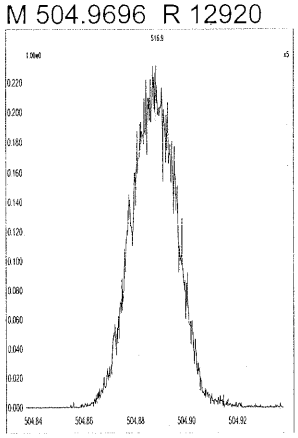
M 480.9696 R 13368



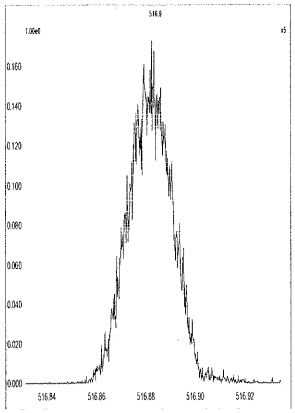
M 492.9696 R 13316



M 504.9696 R 12920



M 516.9697 R 13127



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

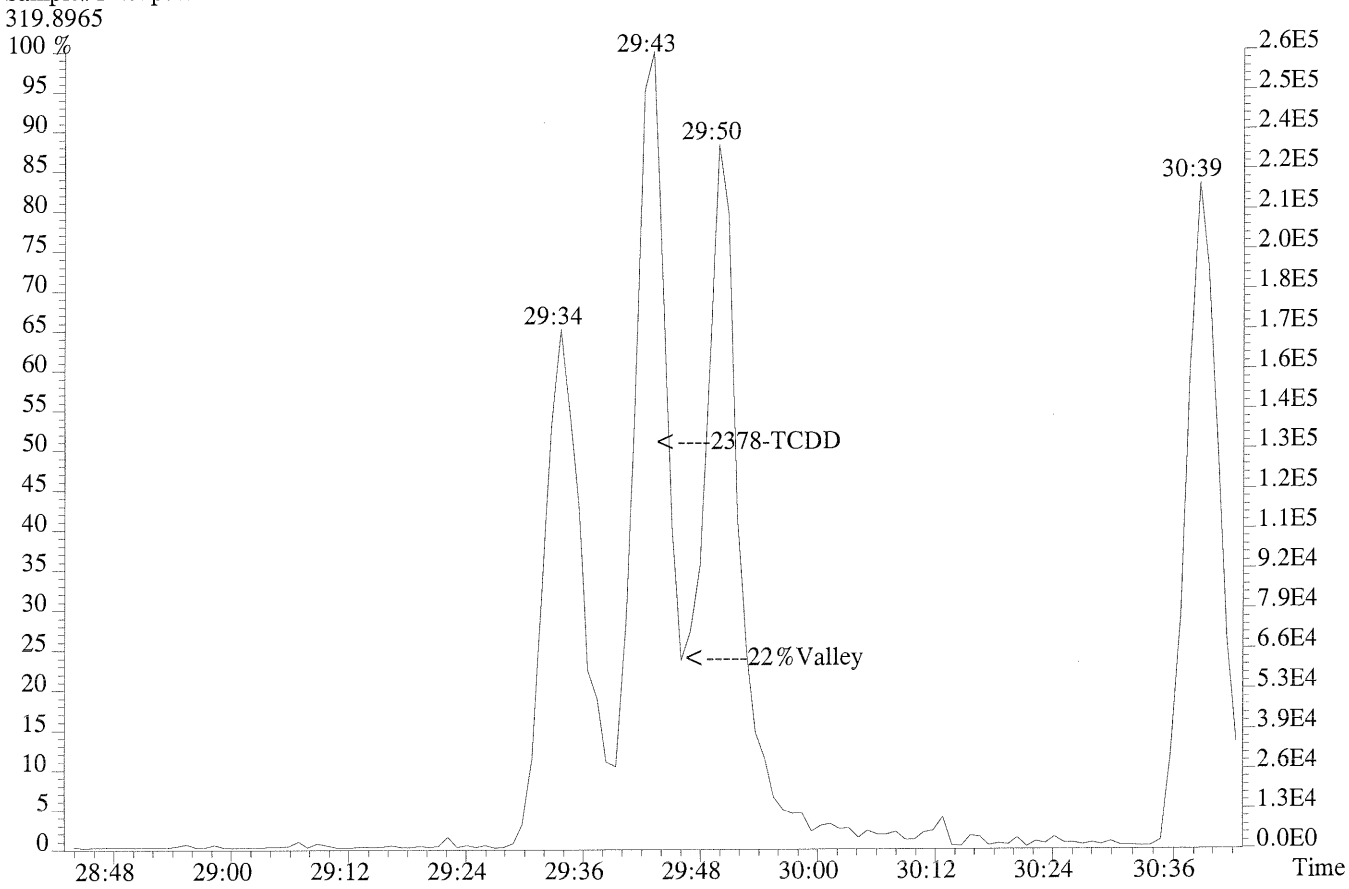
WDM

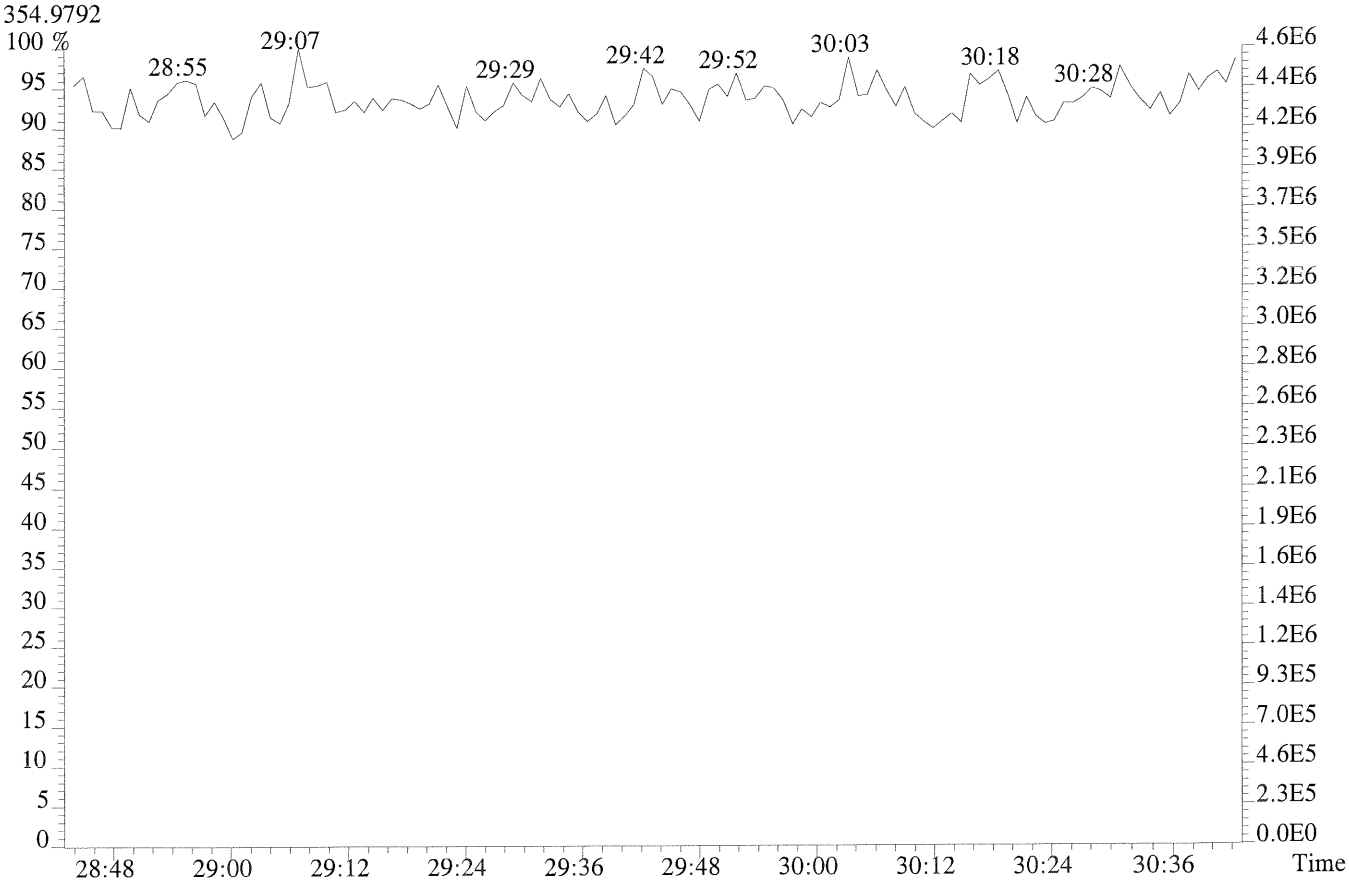
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411 Case No.: SDG No.:
GC Column: DB-5msUI ID: 0.25 (mm) Lab File ID: P171047
Date Analyzed: 27-MAY-2014
Time Analyzed: 09:29:05

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:50	30:48
TCDD	26:41	30:39
PeCDF	30:46	34:50
PeCDD	32:13	34:34
HxCDF	35:28	37:53
HxCDD	35:57	37:29
HpCDF	39:06	40:32
HpCDD	39:20	40:01

% Valley 2378-TCDD: 22 %

File:P171047 #1-501 Acq:27-MAY-2014 09:29:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





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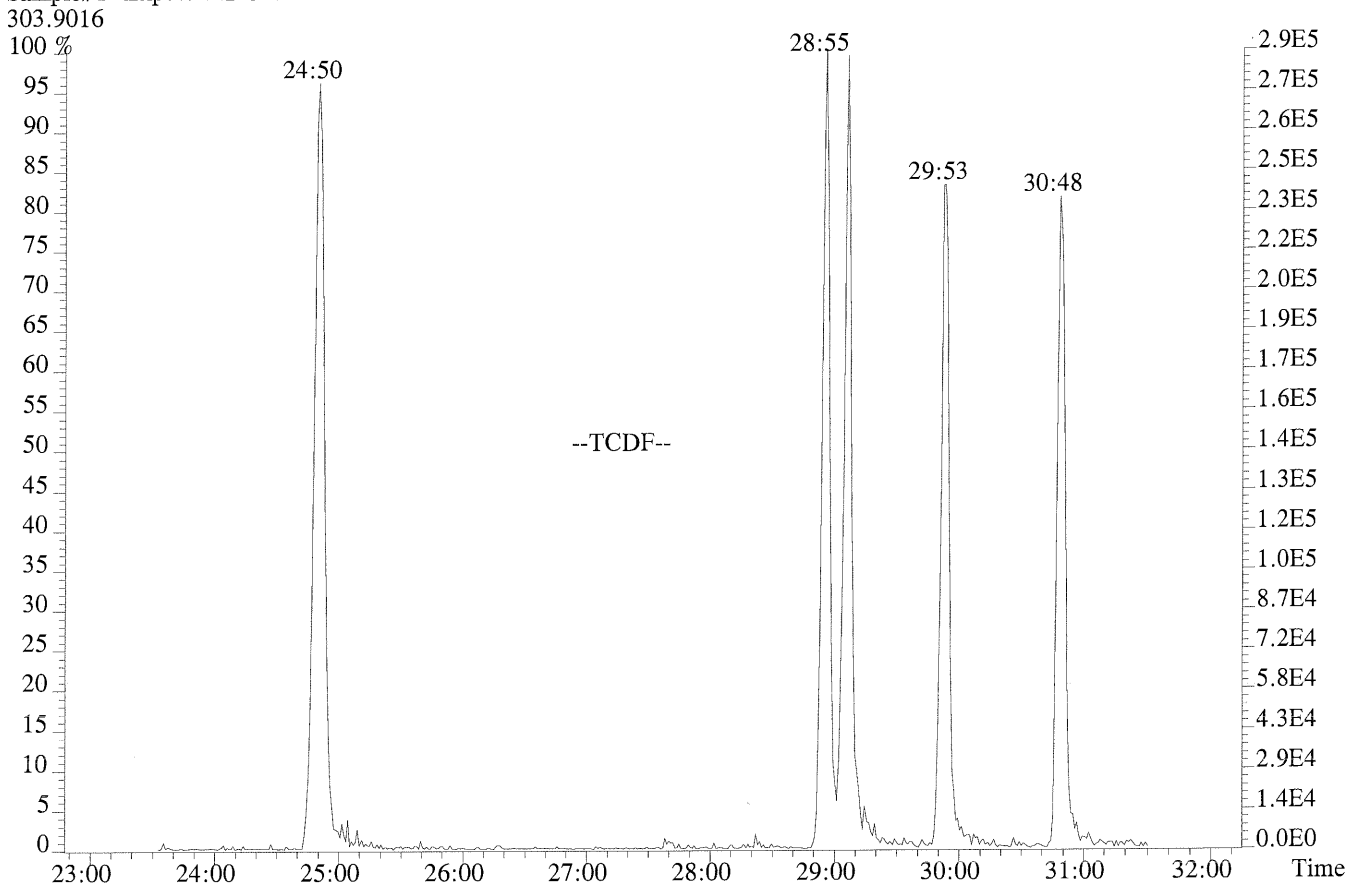
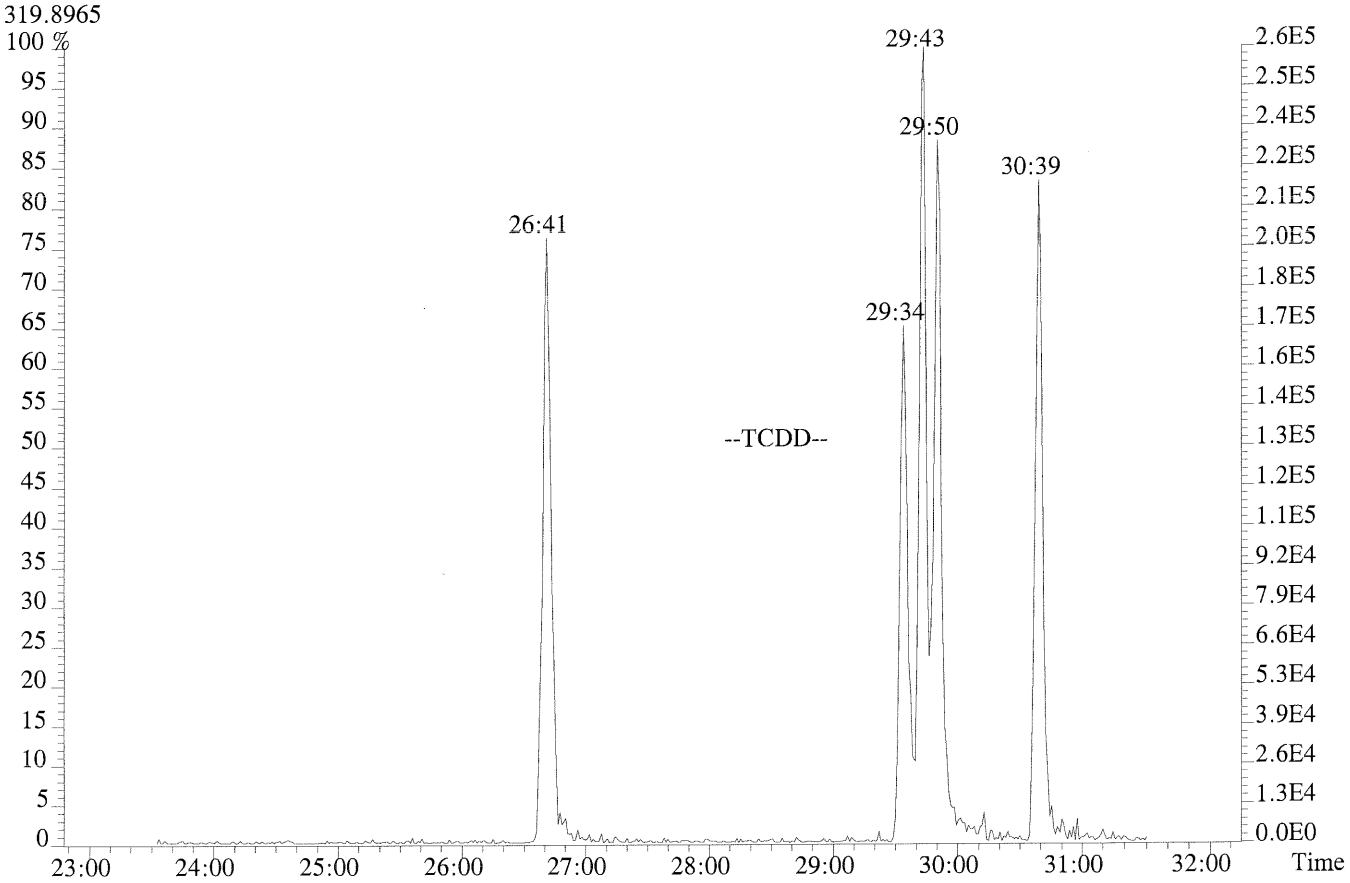
Sample#1 Exp:WINDOW DEFINE





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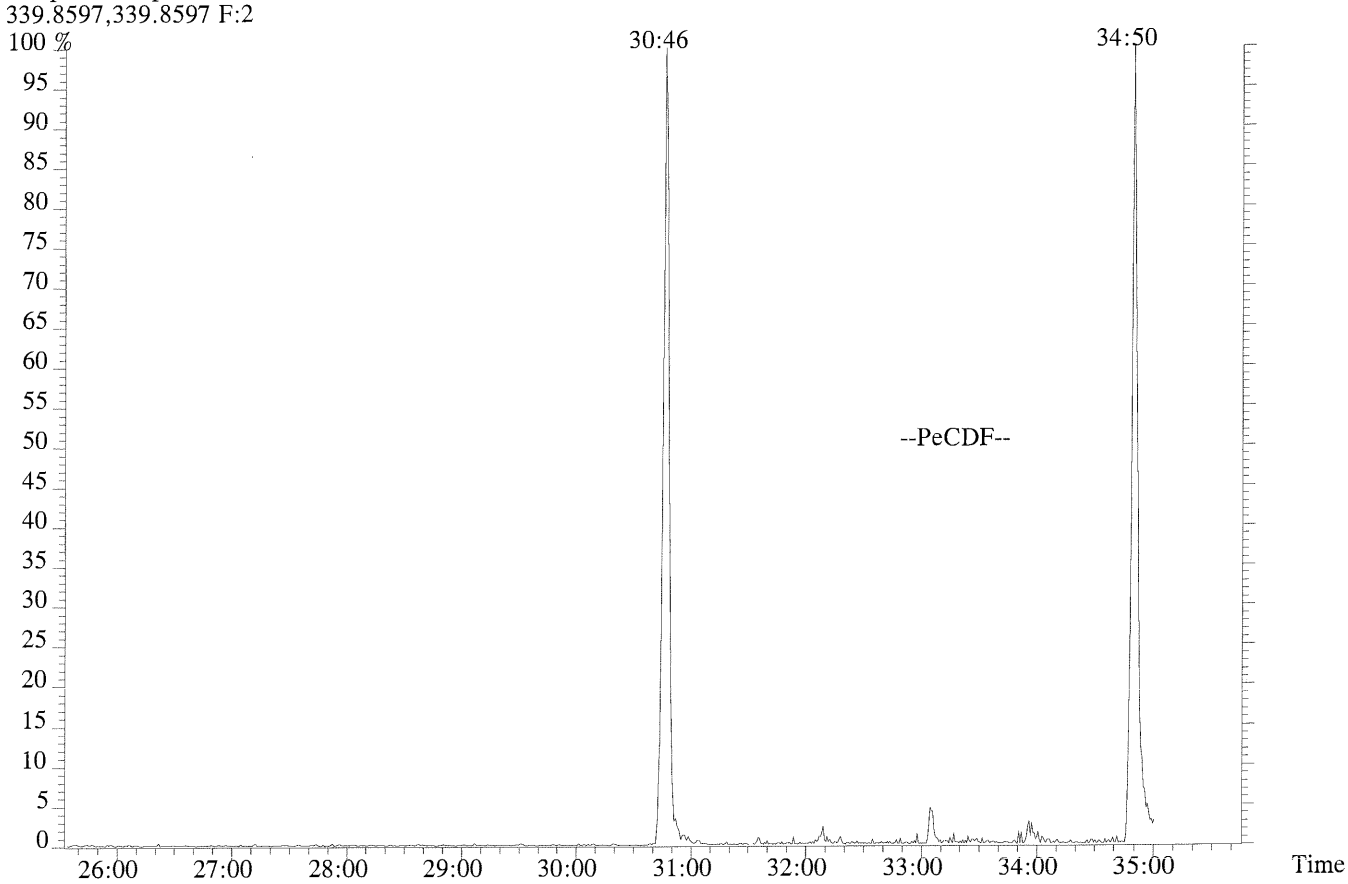
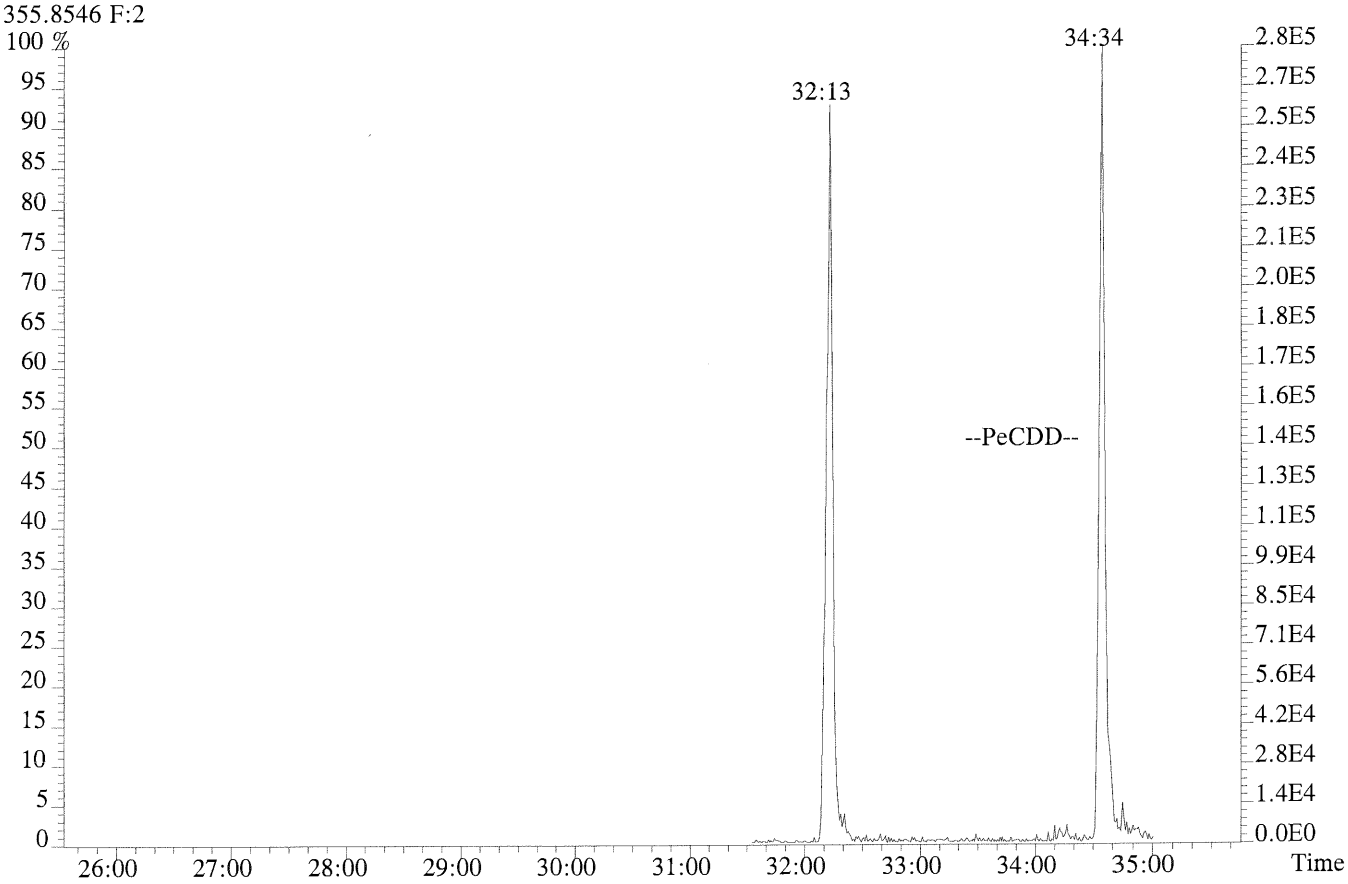
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



355.8546 F:2



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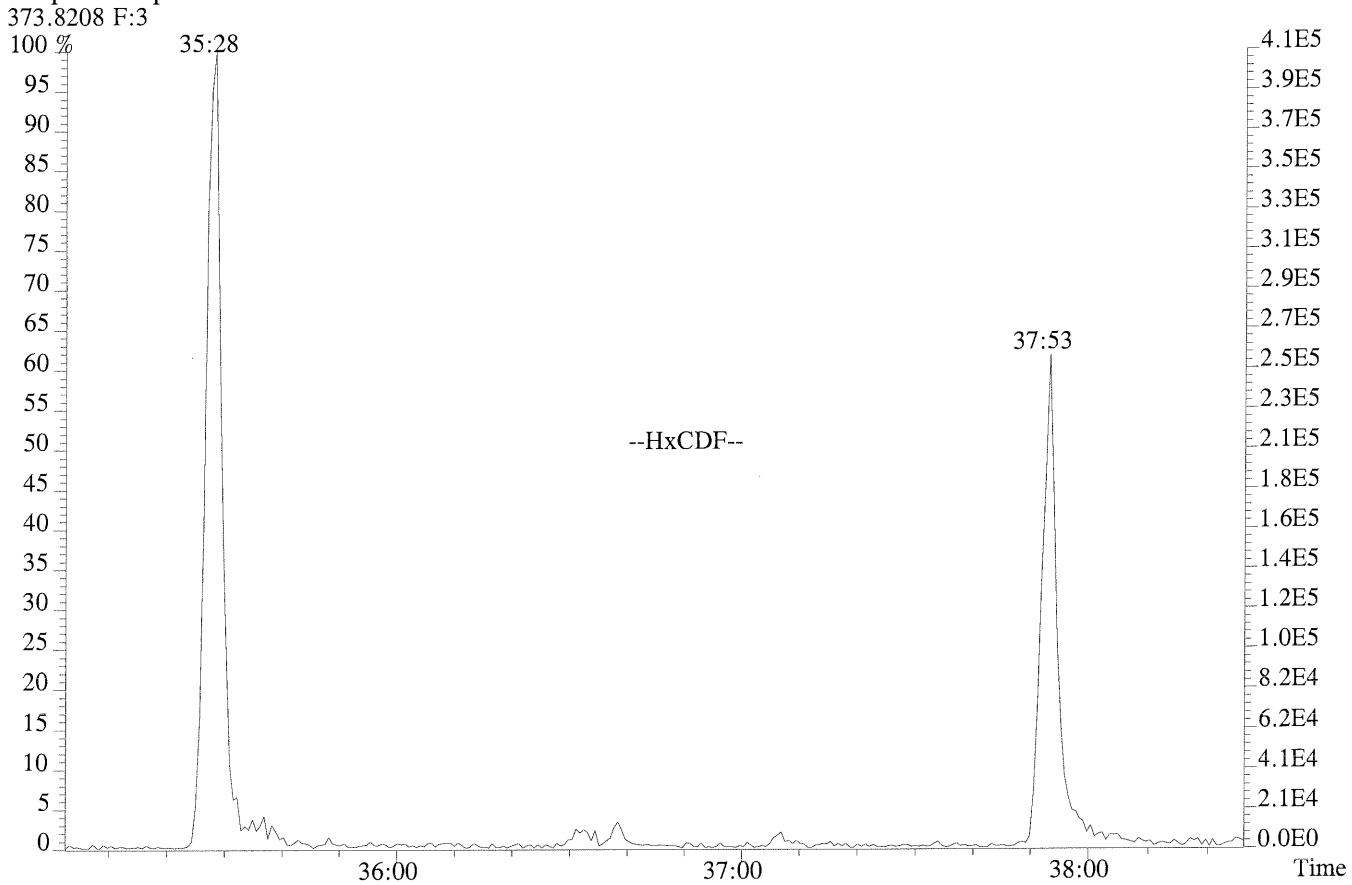
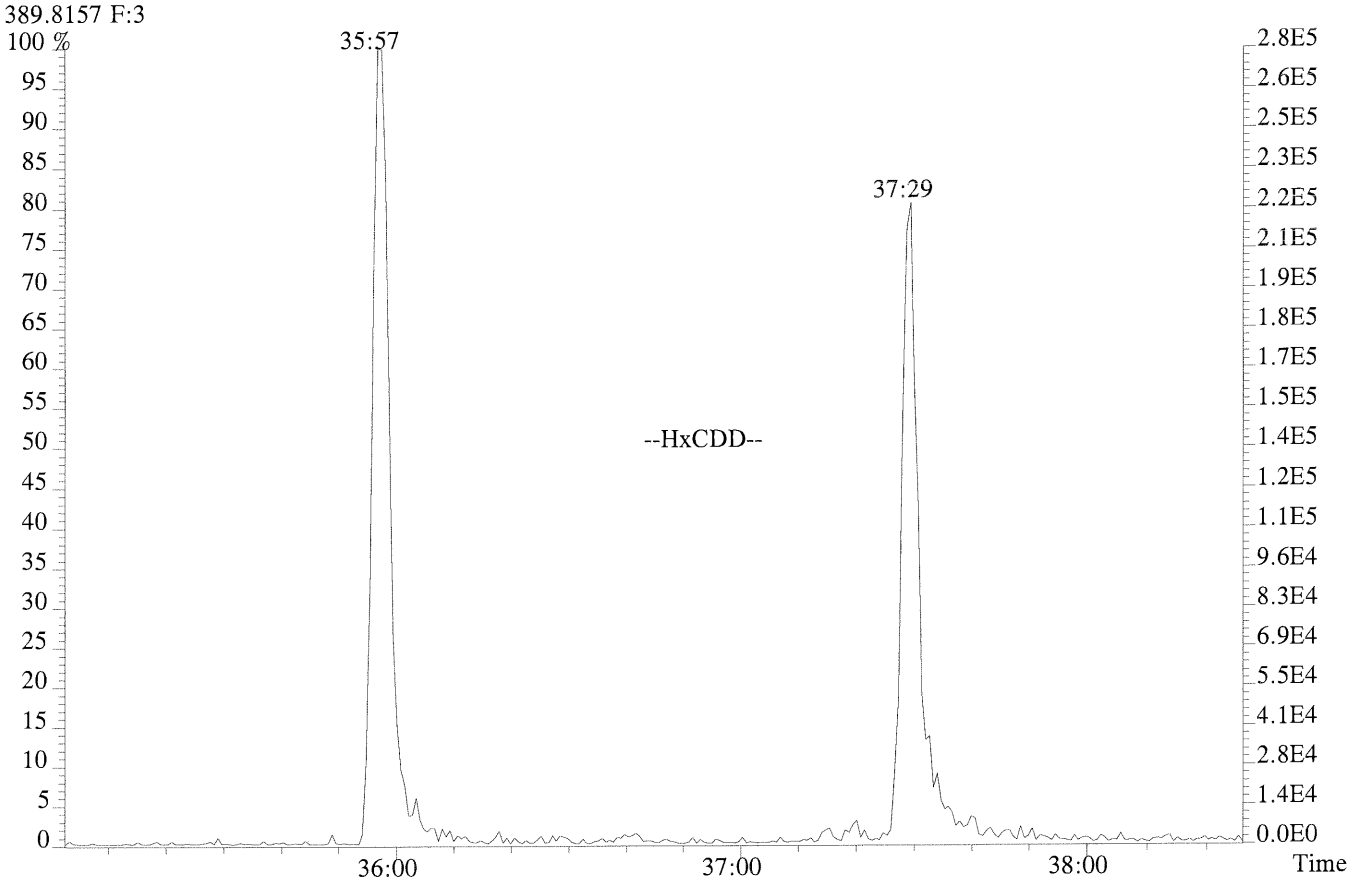
Sample#1 Exp:WINDOW DEFINE





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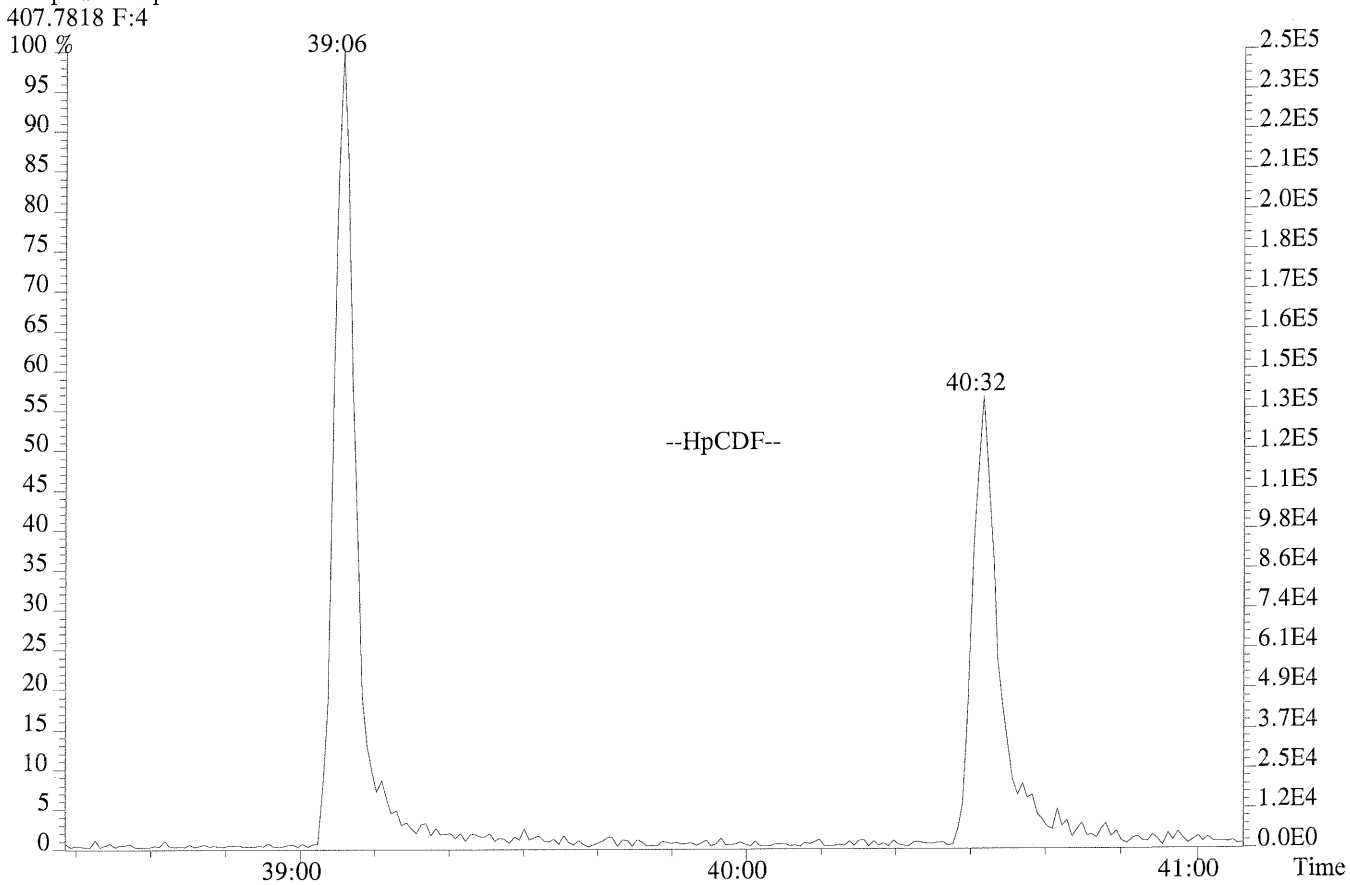
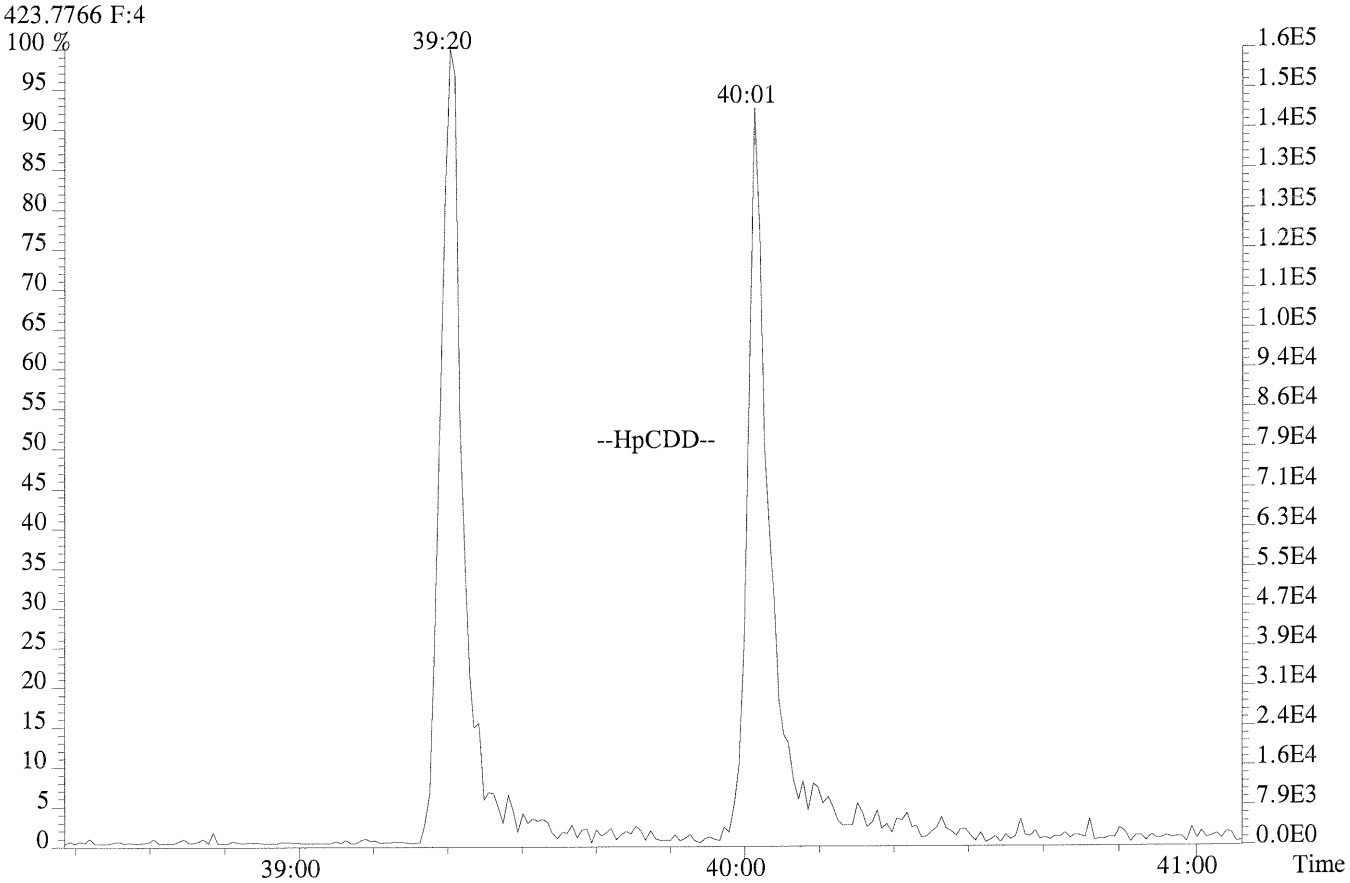
Sample#1 Exp:WINDOW DEFINE





USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 | GC Column ID: DB-5MSUI

VER Data Filename: P171046 | Analysis Date: 27-MAY-14 Time: 08:40:54

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.6	7.8 - 12.9	-3.6
1,2,3,7,8-PeCDD	M+2/M+4	1.55	1.32-1.78	49	39 - 65	-2.3
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	49	39 - 64	-1.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	51	39 - 64	2.7
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	47	41 - 61	-5.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.10	0.88-1.20	51	43 - 58	2.2
OCDD	M+2/M+4	0.90	0.76-1.02	104	79 - 126	4.4
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	9.6	8.4 - 12.0	-4.2
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	53	41 - 60	5.3
2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	51	41 - 61	1.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.19	1.05-1.43	52	45 - 56	4.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	44 - 57	3.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	53	45 - 56	5.5
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	54	44 - 57	7.2
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	52	45 - 55	3.8
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.06	0.88-1.20	51	43 - 58	1.8
OCDF	M+2/M+4	0.89	0.76-1.02	105	63 - 159	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) The beginning CCAL %D 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

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 GC Column ID: DB-5MSUI

VER Data Filename: P171046 Analysis Date: 27-MAY-14 Time: 08:40:54

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	85	82 - 121	-14.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	75	62 - 160	-24.7
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	95	85 - 117	-5.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	108	85 - 118	8.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	86	72 - 138	-14.2
13C-OCDD	M+2/M+4	0.89	0.76-1.02	144	96 - 415	-28.0
13C-2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	88	71 - 140	-12.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	75	76 - 130	-24.5
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	77	77 - 130	-23.1
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	76 - 131	1.5
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	116	70 - 143	16.3
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	89	74 - 135	-10.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.50	0.43-0.59	105	73 - 137	5.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	96	78 - 129	-4.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	83	77 - 129	-16.8
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				8.6	7.8 - 12.7	-14.0

(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.
(5) The beginnning CCAL %D 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)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66131

Run #7 Filename P171046 Samp: 1 Inj: 1 Acquired: 27-MAY-14 08:40:54
Processed: 27-MAY-14 15:33:45 Sample ID: CCAL HRCC3/CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:07	1.485e+03	1.922e+03	0.77	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:06	1.335e+04	8.661e+03	1.54	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	33:57	1.241e+04	7.839e+03	1.58	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:33	9.376e+03	7.883e+03	1.19	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:40	1.165e+04	9.537e+03	1.22	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:08	9.876e+03	8.264e+03	1.20	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	37:52	7.673e+03	6.301e+03	1.22	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:07	8.041e+03	7.781e+03	1.03	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:32	5.878e+03	5.539e+03	1.06	yes	no	1.324
10	Unk	OCDF	43:08	8.811e+03	9.943e+03	0.89	yes	no	1.307
11	Unk	2,3,7,8-TCDD	29:52	1.154e+03	1.482e+03	0.78	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:14	8.149e+03	5.250e+03	1.55	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:16	5.823e+03	4.636e+03	1.26	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:21	7.194e+03	5.812e+03	1.24	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:35	6.567e+03	5.259e+03	1.25	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:02	5.034e+03	4.570e+03	1.10	yes	no	1.016
17	Unk	OCDD	42:55	7.268e+03	8.103e+03	0.90	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:06	1.624e+04	2.138e+04	0.76	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:06	2.487e+04	1.624e+04	1.53	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	33:57	2.481e+04	1.597e+04	1.55	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:32	9.024e+03	1.749e+04	0.52	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:39	1.204e+04	2.290e+04	0.53	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:07	9.757e+03	1.967e+04	0.50	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	37:52	7.921e+03	1.505e+04	0.53	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:06	6.784e+03	1.495e+04	0.45	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:32	5.145e+03	1.179e+04	0.44	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	29:50	1.155e+04	1.481e+04	0.78	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:13	1.795e+04	1.131e+04	1.59	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:15	1.130e+04	9.014e+03	1.25	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:20	1.415e+04	1.143e+04	1.24	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:02	9.567e+03	8.929e+03	1.07	yes	no	0.862
32	IS	13C-OCDD	42:54	1.283e+04	1.445e+04	0.89	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:18	1.306e+04	1.639e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:34	1.394e+04	1.105e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:52	2.847e+03				no	1.125

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
66131

Run #7 Filename P171046 Samp: 1 Inj: 1 Acquired: 27-MAY-14 08:40:54
Processed: 27-MAY-14 15:33:451 LAB. ID: CCAL HRCC3/CS3

	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+05	1.08e+02	2.7e+03	3.61e+05	1.12e+03	3.2e+02
2	1,2,3,7,8-PeCDF	2.23e+06	1.26e+03	1.8e+03	1.40e+06	7.08e+02	2.0e+03
3	2,3,4,7,8-PeCDF	2.14e+06	1.26e+03	1.7e+03	1.37e+06	7.08e+02	1.9e+03
4	1,2,3,4,7,8-HxCDF	1.89e+06	3.81e+03	5.0e+02	1.57e+06	3.52e+03	4.4e+02
5	1,2,3,6,7,8-HxCDF	2.01e+06	3.81e+03	5.3e+02	1.59e+06	3.52e+03	4.5e+02
6	2,3,4,6,7,8-HxCDF	1.81e+06	3.81e+03	4.7e+02	1.50e+06	3.52e+03	4.3e+02
7	1,2,3,7,8,9-HxCDF	1.30e+06	3.81e+03	3.4e+02	1.03e+06	3.52e+03	2.9e+02
8	1,2,3,4,6,7,8-HpCDF	1.41e+06	3.43e+03	4.1e+02	1.33e+06	3.14e+03	4.2e+02
9	1,2,3,4,7,8,9-HpCDF	8.85e+05	3.43e+03	2.6e+02	8.72e+05	3.14e+03	2.8e+02
10	OCDF	1.12e+06	4.96e+02	2.3e+03	1.24e+06	5.84e+02	2.1e+03
11	2,3,7,8-TCDD	2.27e+05	3.44e+02	6.6e+02	2.81e+05	2.84e+02	9.9e+02
12	1,2,3,7,8-PeCDD	1.43e+06	9.92e+02	1.4e+03	9.14e+05	3.60e+02	2.5e+03
13	1,2,3,4,7,8-HxCDD	1.20e+06	3.36e+02	3.6e+03	9.55e+05	1.05e+03	9.1e+02
14	1,2,3,6,7,8-HxCDD	1.25e+06	3.36e+02	3.7e+03	1.01e+06	1.05e+03	9.6e+02
15	1,2,3,7,8,9-HxCDD	1.11e+06	3.36e+02	3.3e+03	8.66e+05	1.05e+03	8.3e+02
16	1,2,3,4,6,7,8-HpCDD	8.01e+05	1.02e+03	7.9e+02	7.42e+05	6.88e+02	1.1e+03
17	OCDD	9.19e+05	1.36e+02	6.8e+03	1.03e+06	1.24e+02	8.3e+03
18	13C-2,3,7,8-TCDF	3.17e+06	4.92e+02	6.4e+03	4.16e+06	7.64e+02	5.4e+03
19	13C-1,2,3,7,8-PeCDF	4.05e+06	9.24e+02	4.4e+03	2.63e+06	3.71e+03	7.1e+02
20	13C-2,3,4,7,8-PeCDF	4.33e+06	9.24e+02	4.7e+03	2.81e+06	3.71e+03	7.6e+02
21	13C-1,2,3,4,7,8-HxCDF	1.80e+06	4.68e+02	3.8e+03	3.48e+06	7.60e+02	4.6e+03
22	13C-1,2,3,6,7,8-HxCDF	2.08e+06	4.68e+02	4.4e+03	3.91e+06	7.60e+02	5.1e+03
23	13C-2,3,4,6,7,8-HxCDF	1.81e+06	4.68e+02	3.9e+03	3.56e+06	7.60e+02	4.7e+03
24	13C-1,2,3,7,8,9-HxCDF	1.31e+06	4.68e+02	2.8e+03	2.52e+06	7.60e+02	3.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.13e+06	1.02e+03	1.1e+03	2.61e+06	6.14e+03	4.2e+02
26	13C-1,2,3,4,7,8,9-HpCDF	7.65e+05	1.02e+03	7.5e+02	1.75e+06	6.14e+03	2.9e+02
27	13C-2,3,7,8-TCDD	2.28e+06	2.47e+03	9.2e+02	2.91e+06	1.24e+03	2.4e+03
28	13C-1,2,3,7,8-PeCDD	3.09e+06	4.64e+02	6.7e+03	1.96e+06	1.48e+02	1.3e+04
29	13C-1,2,3,4,7,8-HxCDD	2.33e+06	3.84e+02	6.1e+03	1.84e+06	3.92e+02	4.7e+03
30	13C-1,2,3,6,7,8-HxCDD	2.48e+06	3.84e+02	6.5e+03	1.96e+06	3.92e+02	5.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.51e+06	4.60e+02	3.3e+03	1.40e+06	3.84e+02	3.7e+03
32	13C-OCDD	1.64e+06	4.00e+02	4.1e+03	1.81e+06	4.60e+02	3.9e+03
33	13C-1,2,3,4-TCDD	2.77e+06	2.47e+03	1.1e+03	3.45e+06	1.24e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	2.25e+06	3.84e+02	5.9e+03	1.82e+06	3.92e+02	4.6e+03
35	37Cl-2,3,7,8-TCDD	5.53e+05	4.84e+02	1.1e+03			

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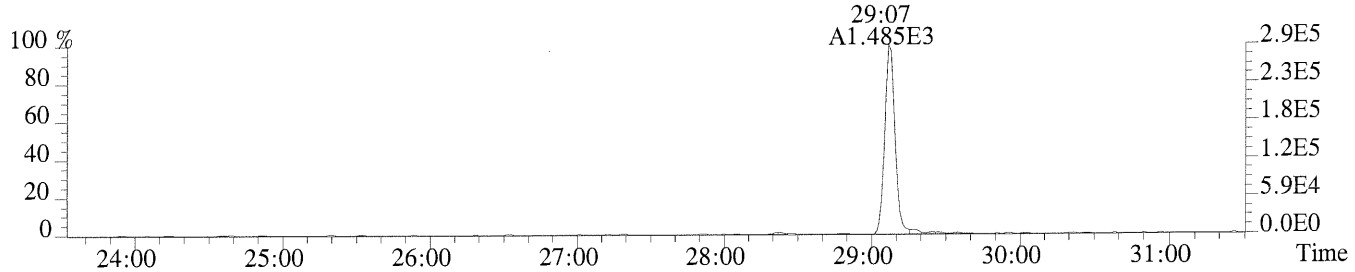
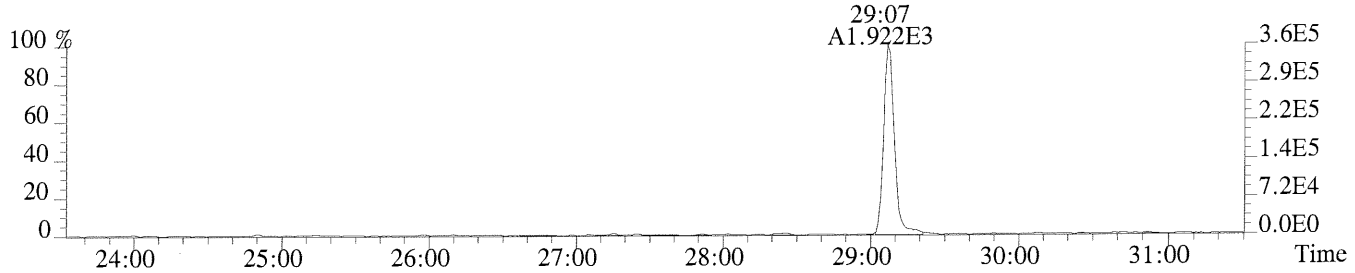
File:P171046 #1-501 Acq:27-MAY-2014 08:40:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

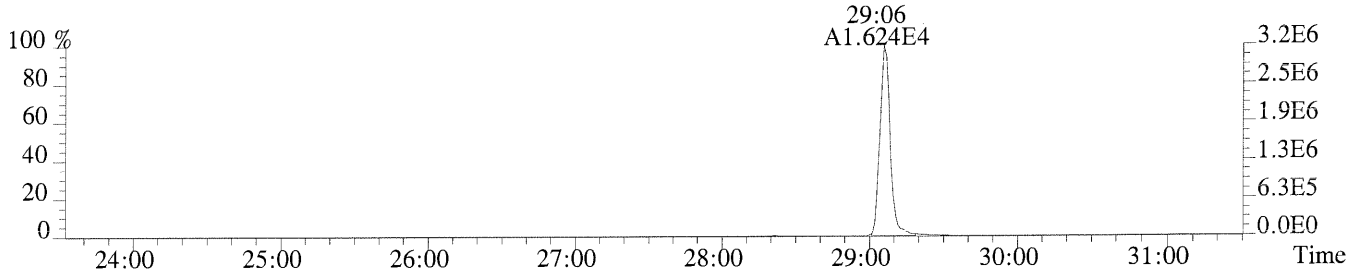
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,108.0,1.00%,F,T)



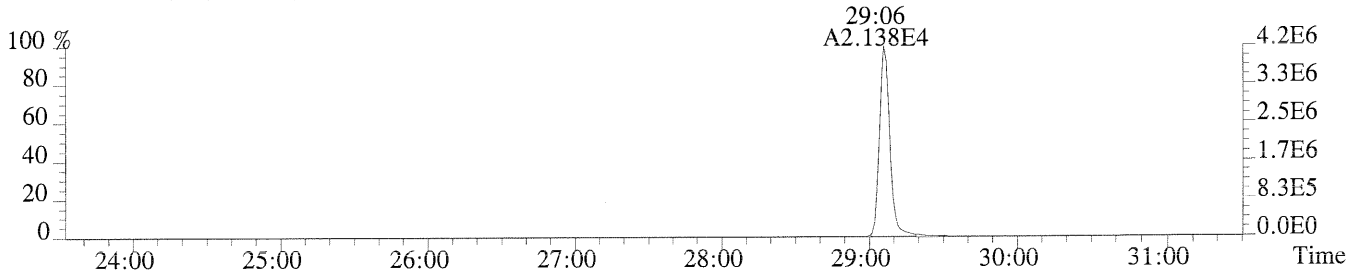
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1116.0,1.00%,F,T)



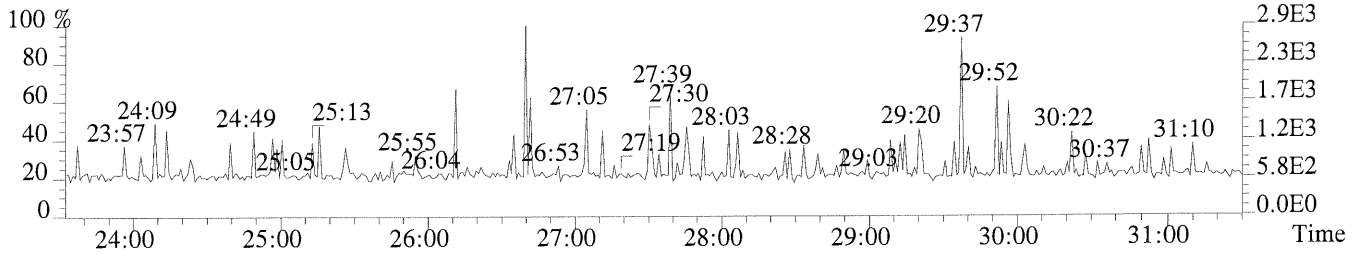
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



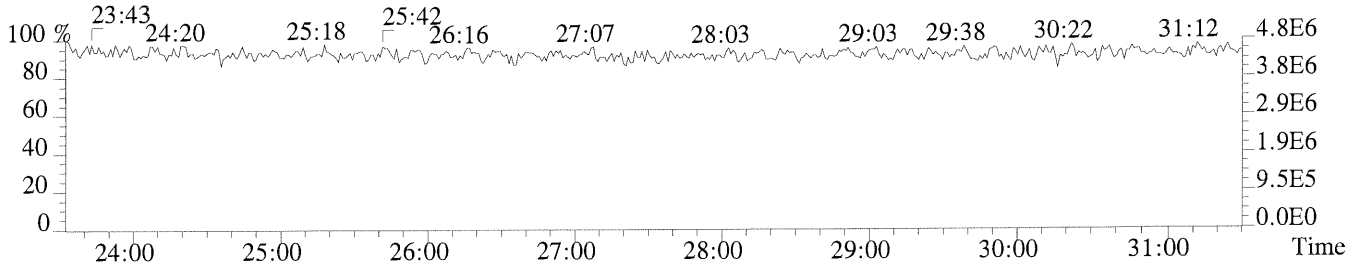
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

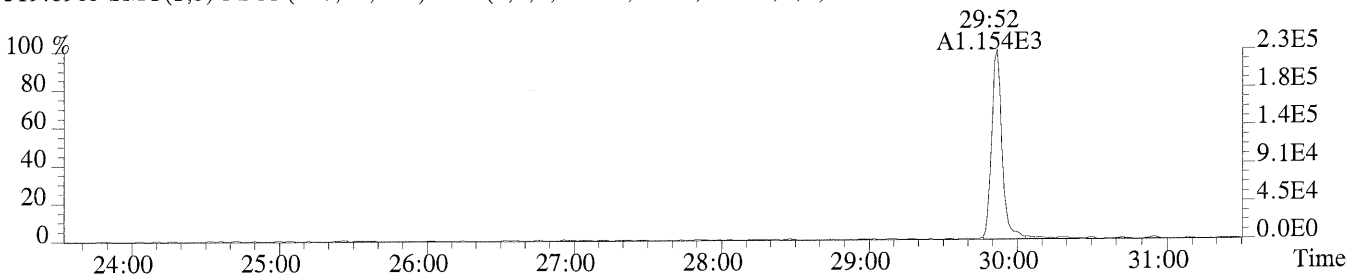


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

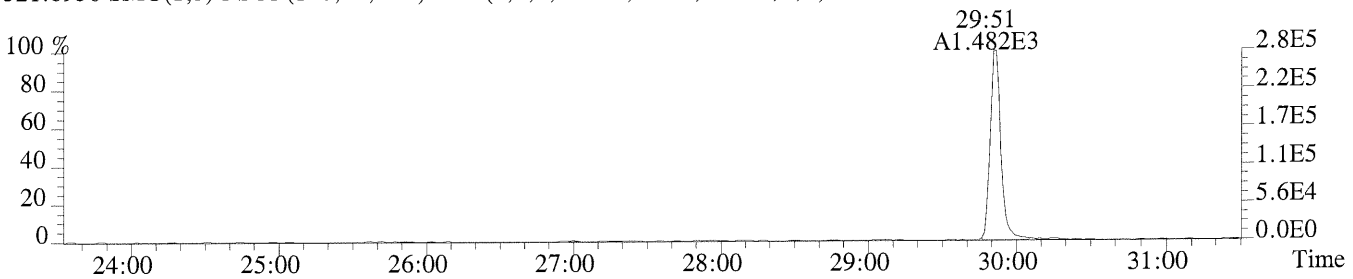


File:P171046 #1-501 Acq:27-MAY-2014 08:40:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

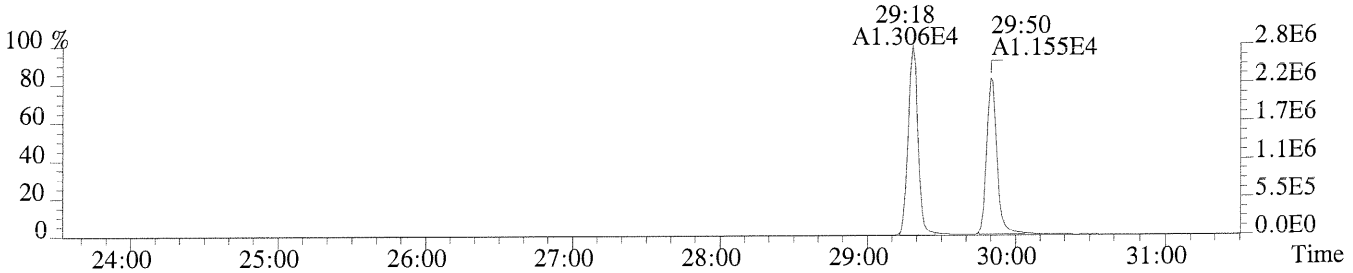
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,344.0,1.00%,F,T)



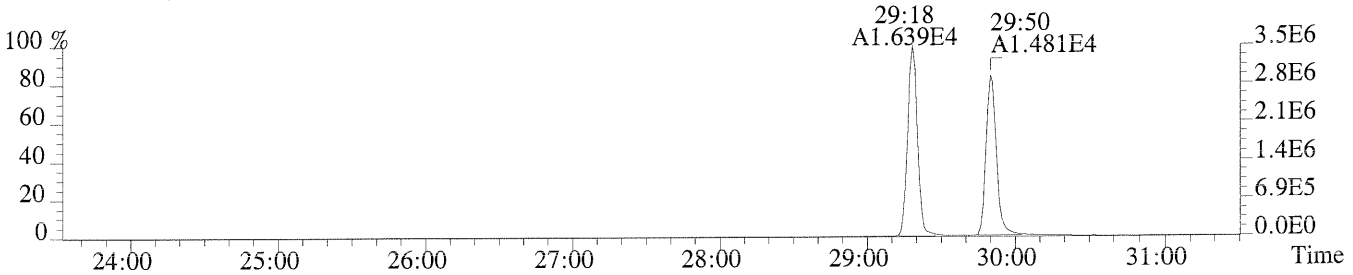
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



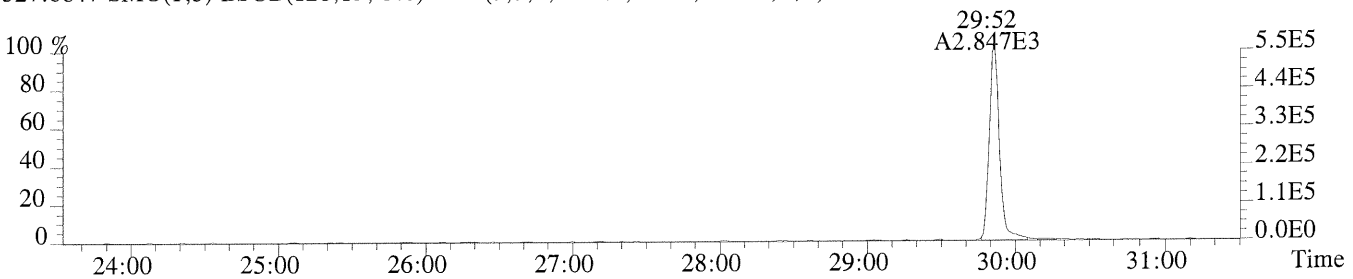
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2468.0,1.00%,F,T)



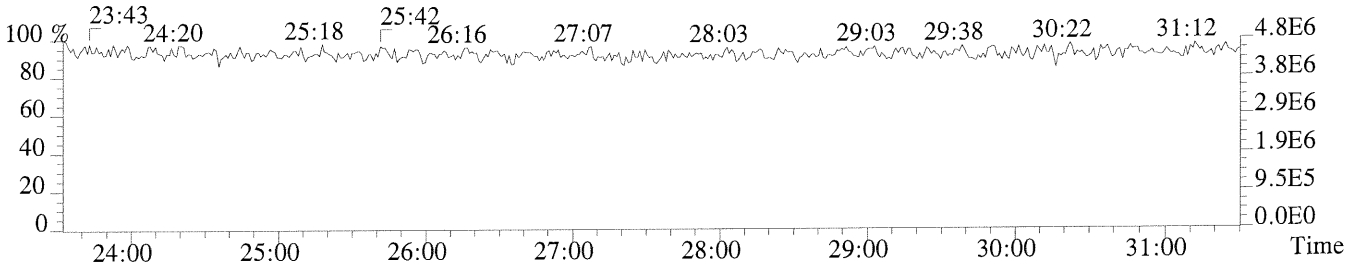
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



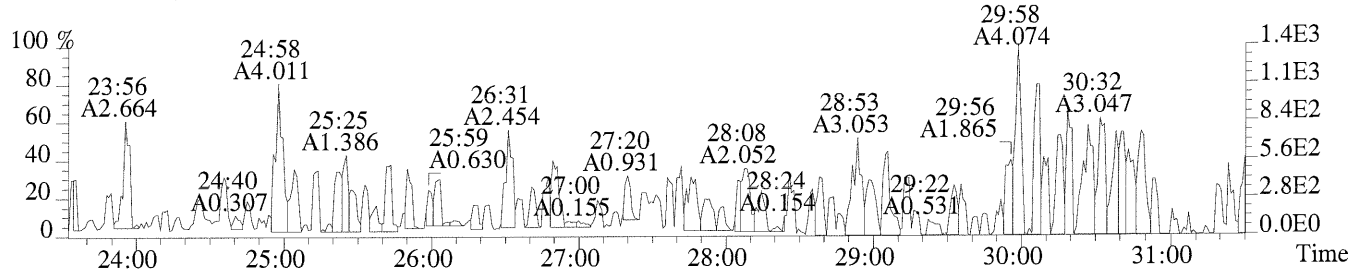
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



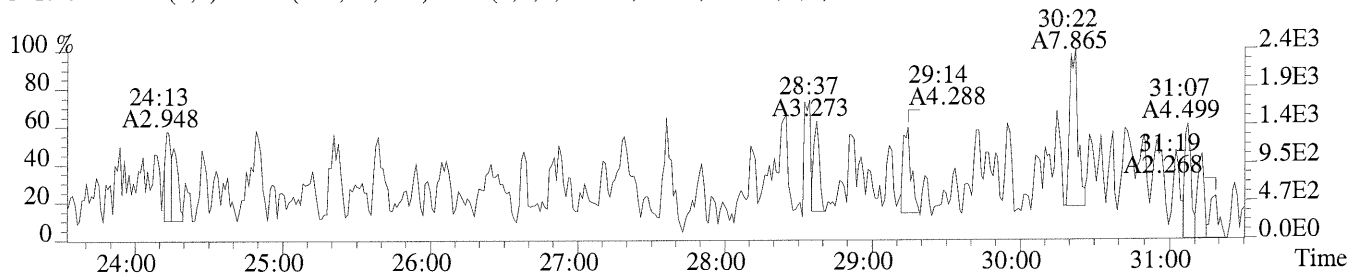
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



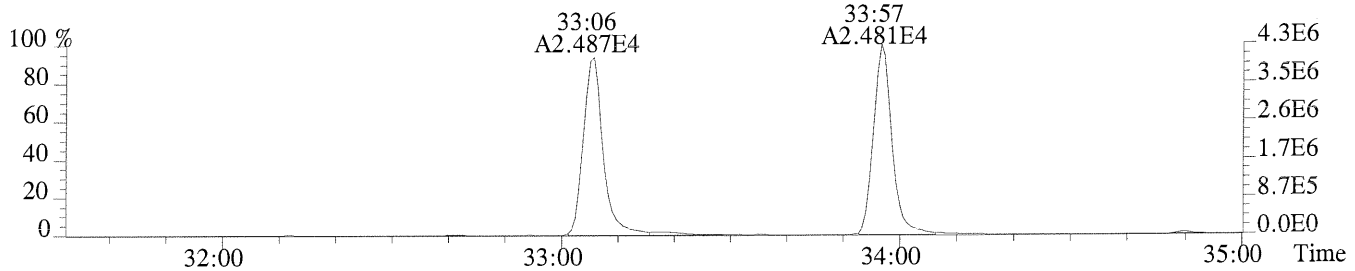
File:P171046 #1-501 Acq:27-MAY-2014 08:40:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,120.0,1.00%,F,T)



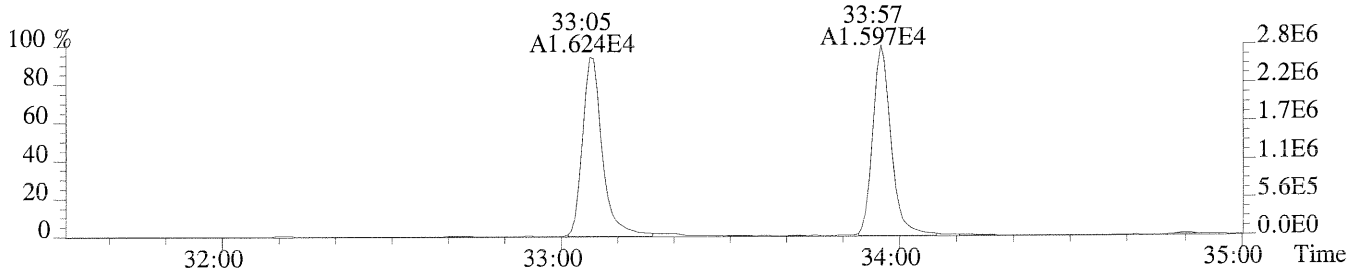
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



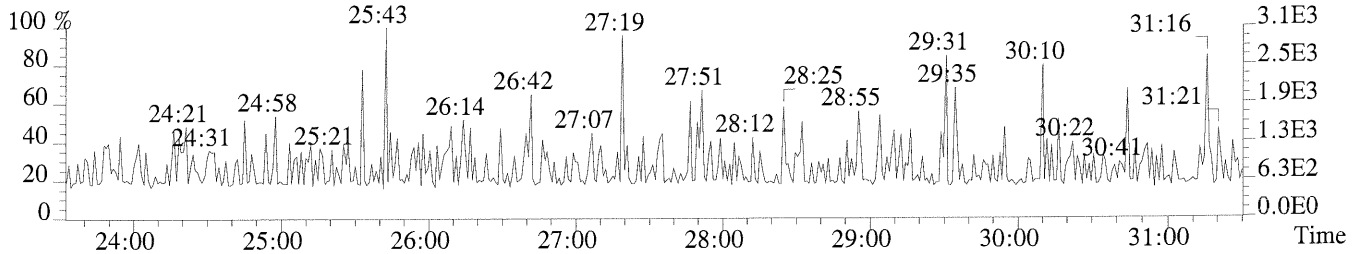
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



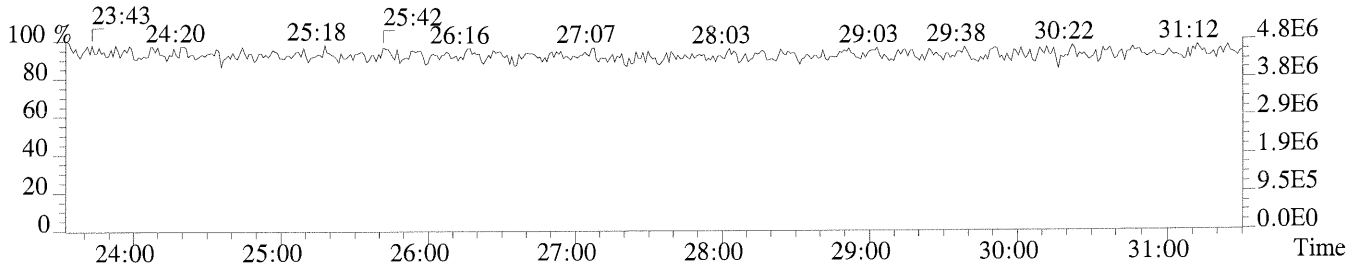
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3708.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

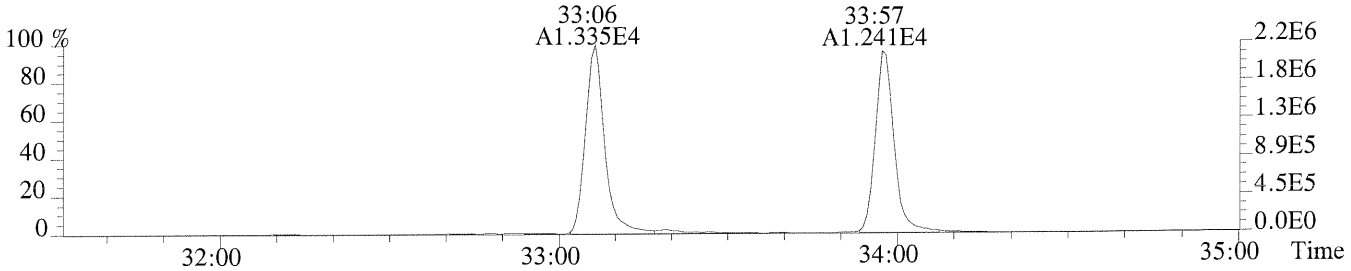


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

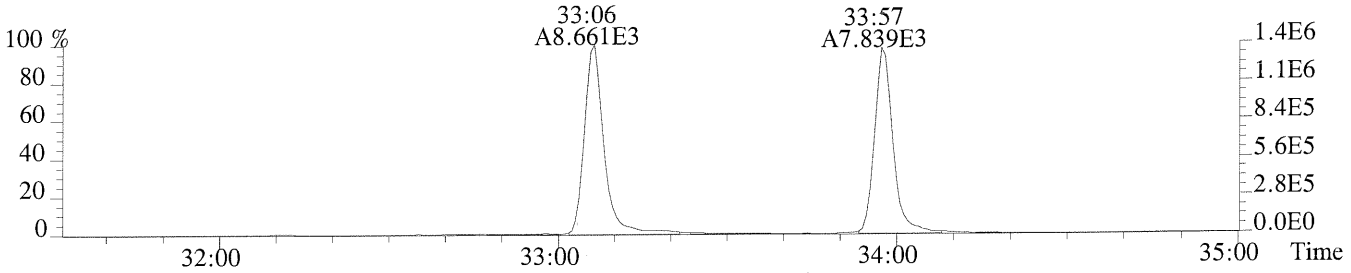


File:P171046 #1-315 Acq:27-MAY-2014 08:40:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

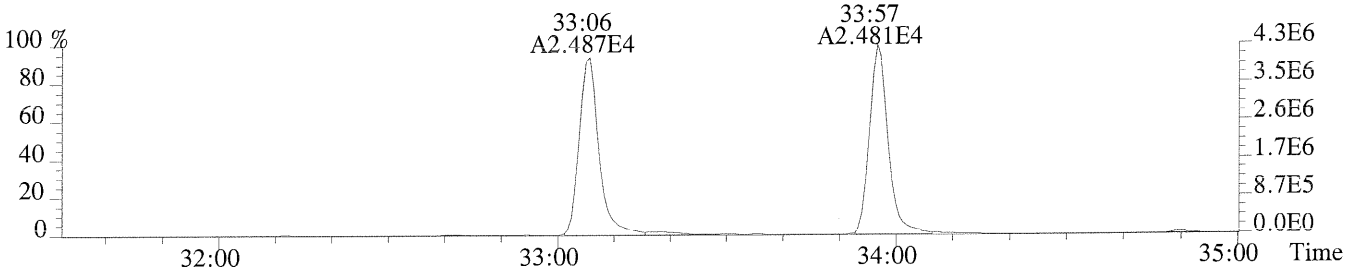
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



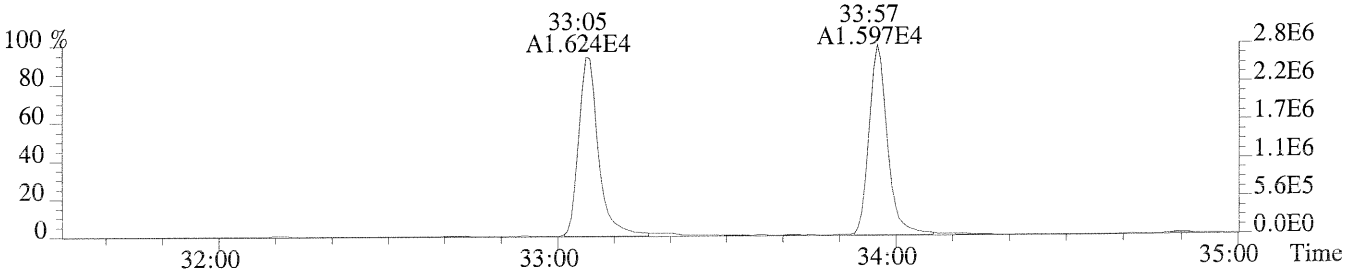
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



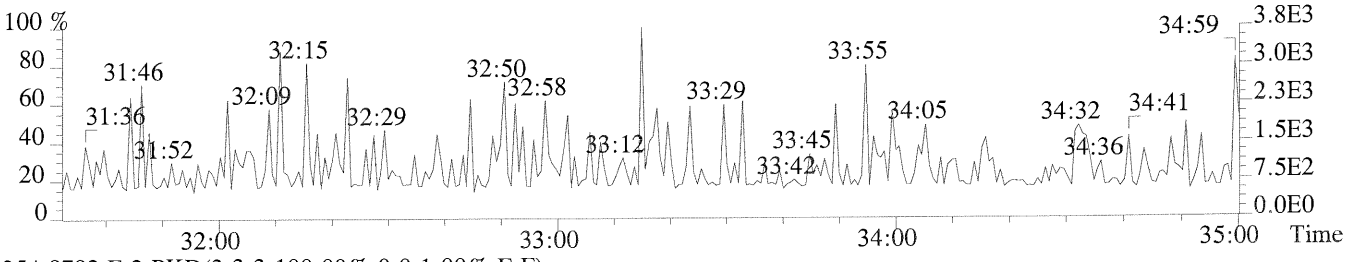
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



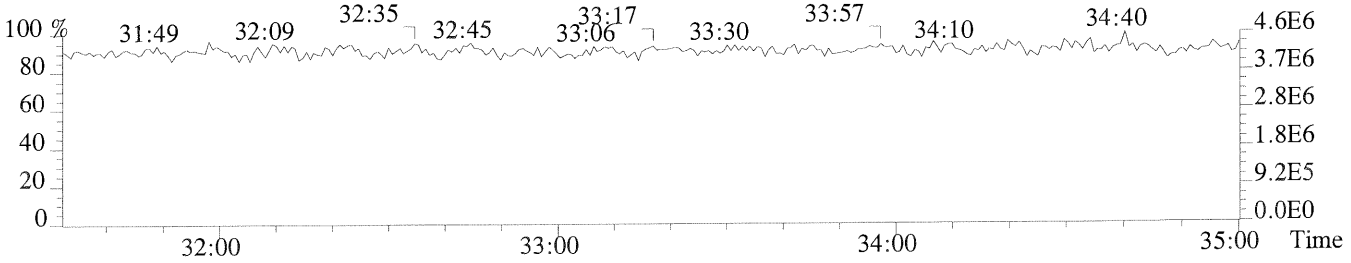
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3708.0,1.00%,F,T)



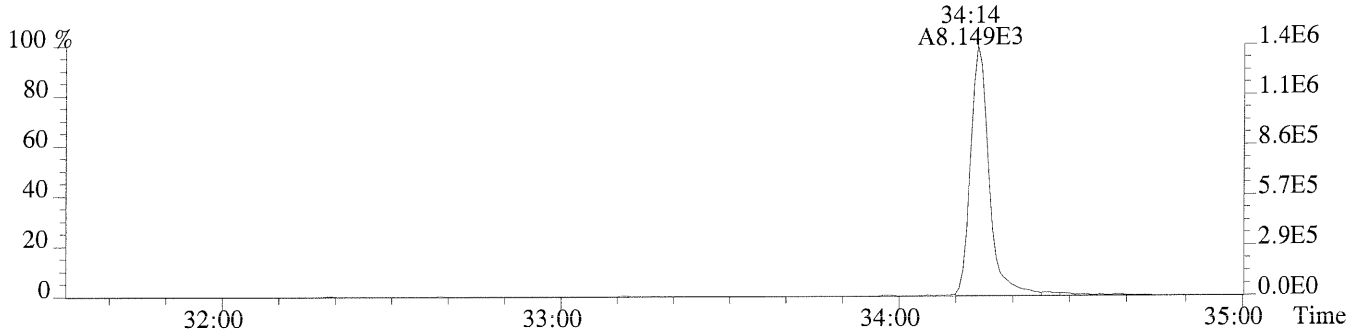
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



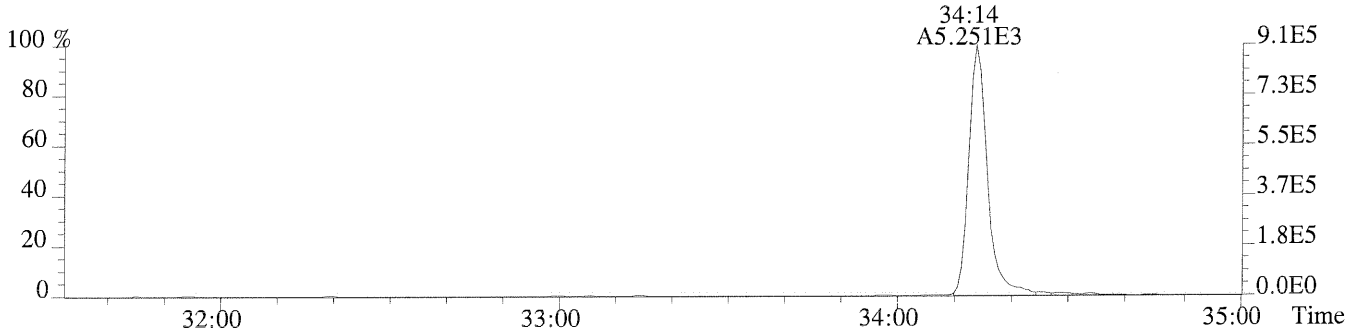
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



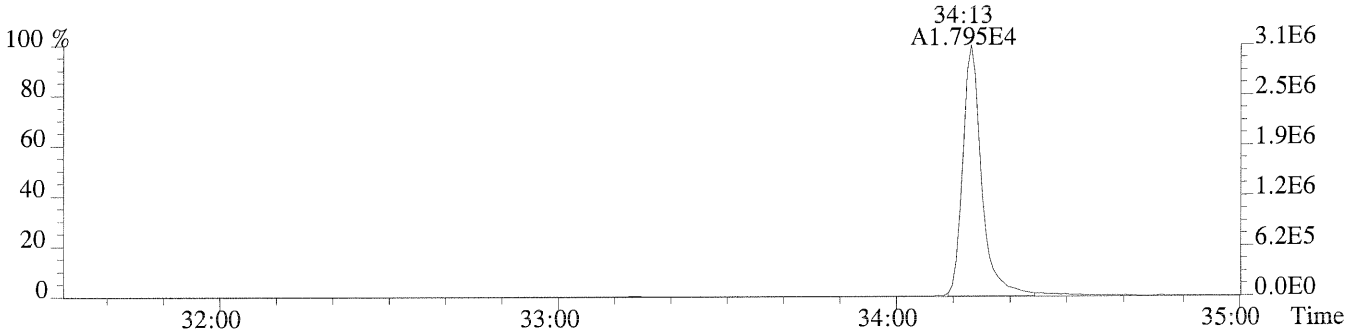
File:P171046 #1-315 Acq:27-MAY-2014 08:40:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



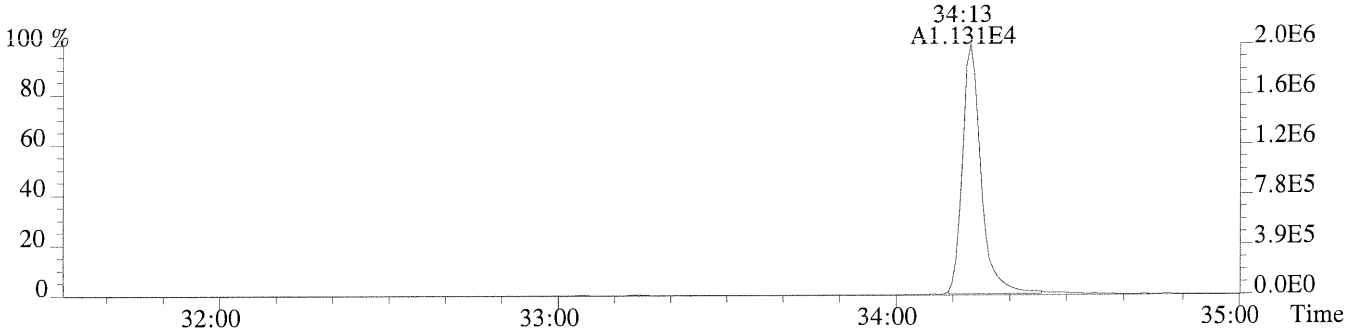
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



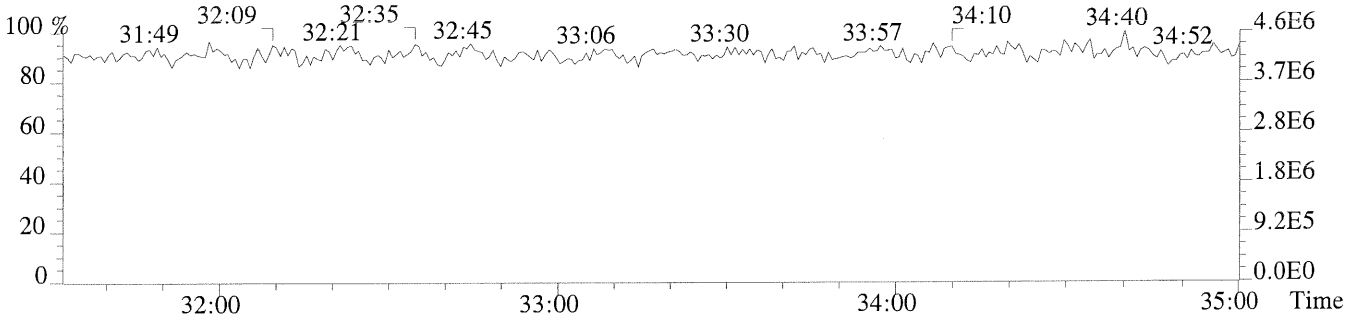
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,148.0,1.00%,F,T)

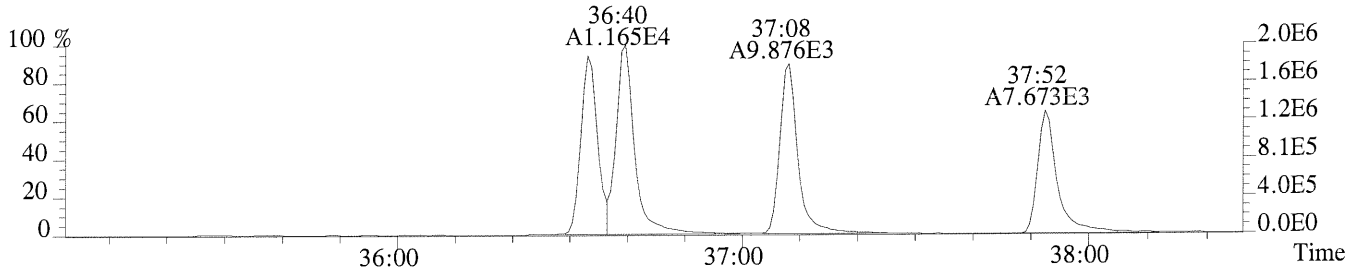


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

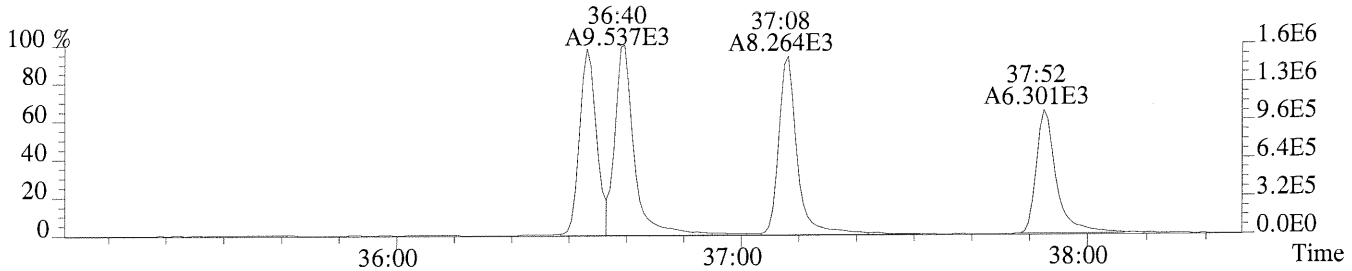


File:P171046 #1-309 Acq:27-MAY-2014 08:40:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

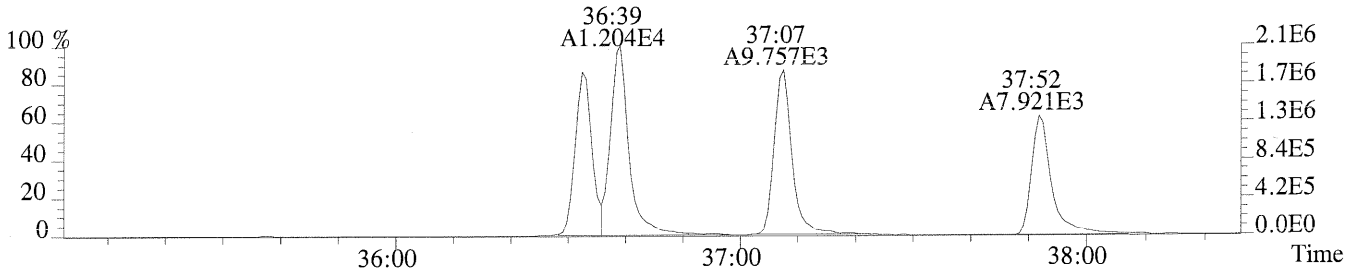
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3812.0,0.40%,F,T)



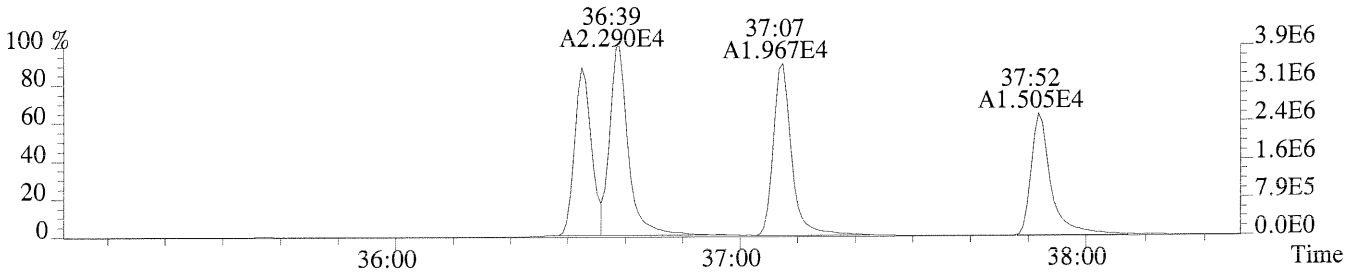
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3520.0,0.40%,F,T)



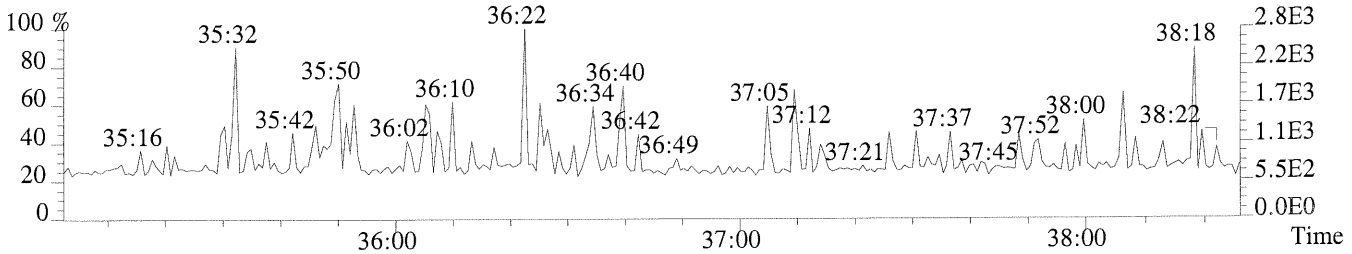
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



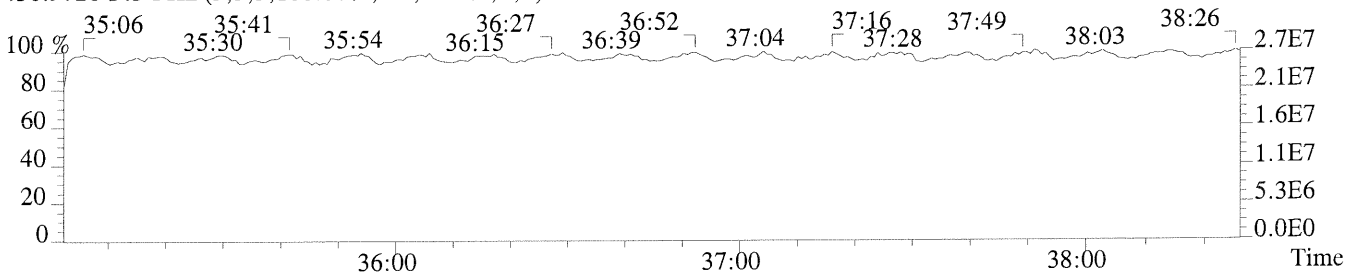
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



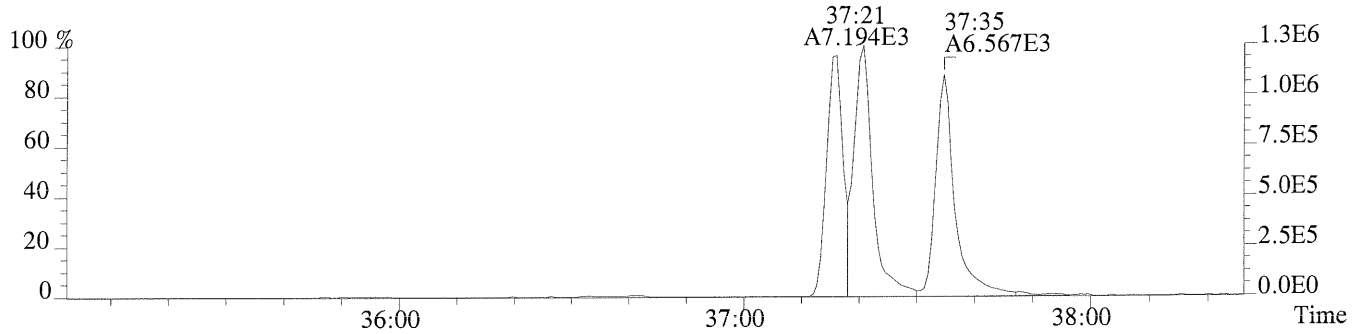
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



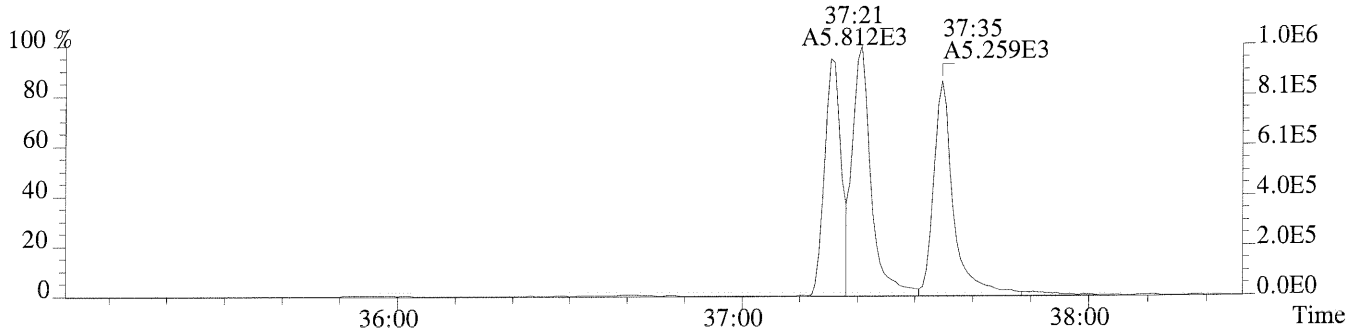
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



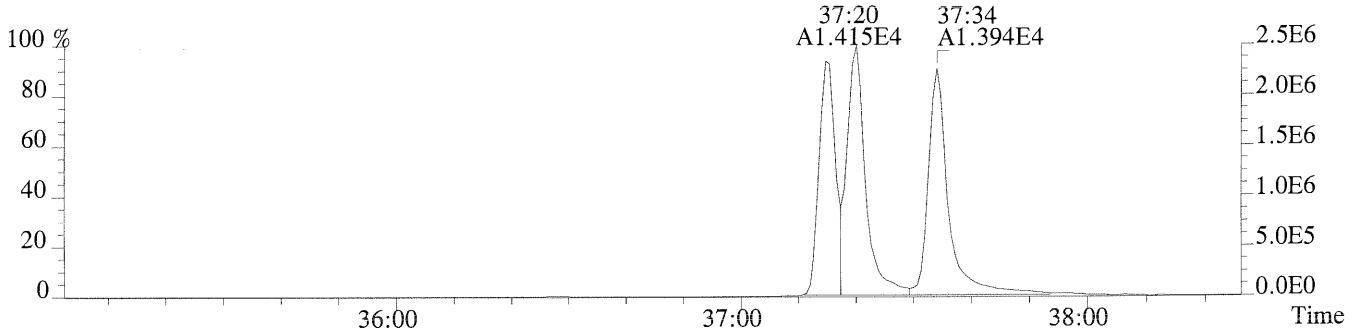
File:P171046 #1-309 Acq:27-MAY-2014 08:40:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



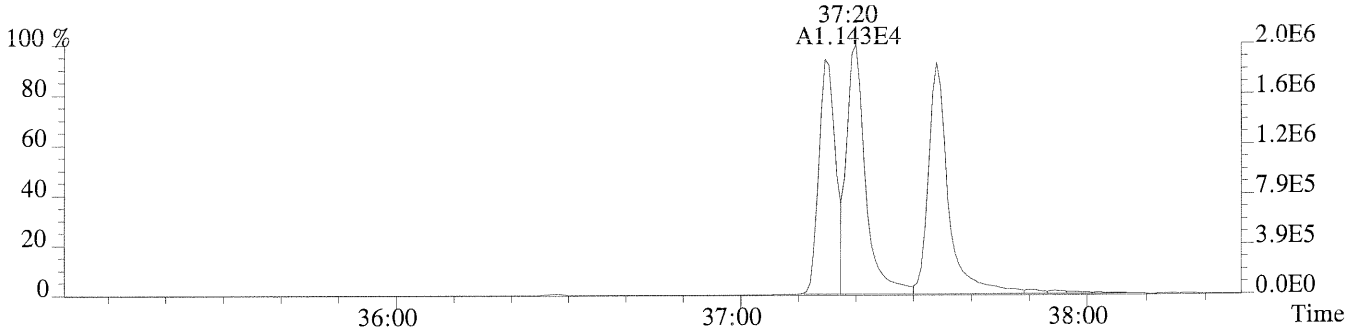
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)



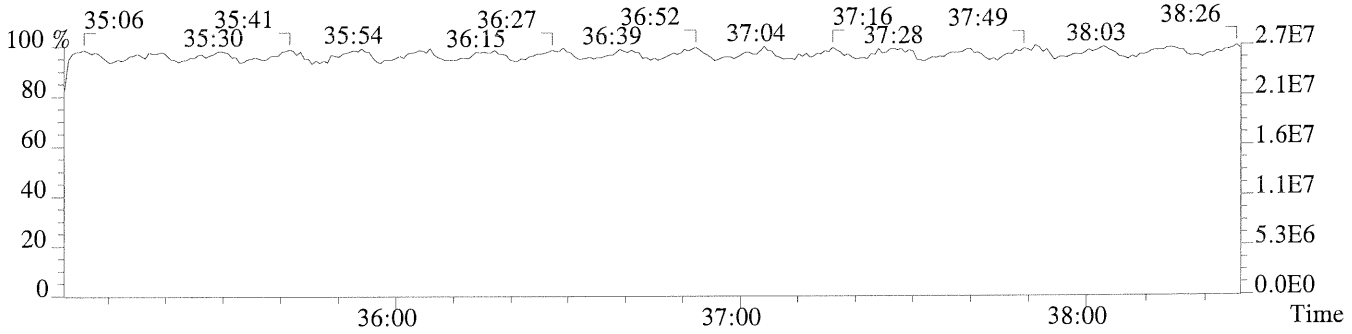
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,392.0,0.40%,F,T)

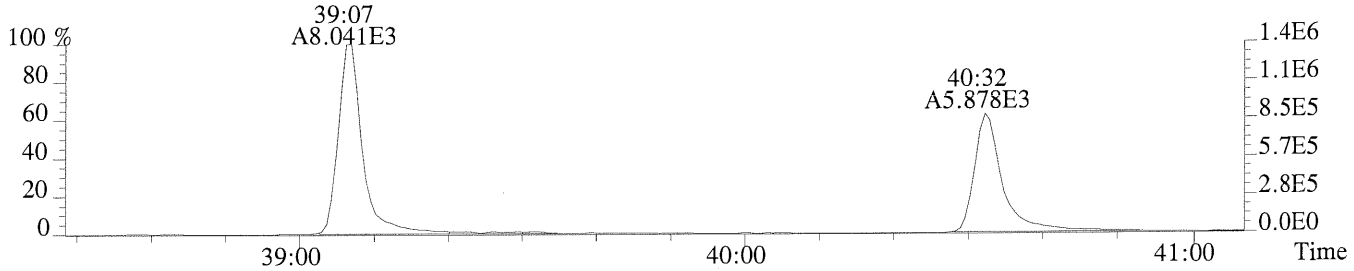


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

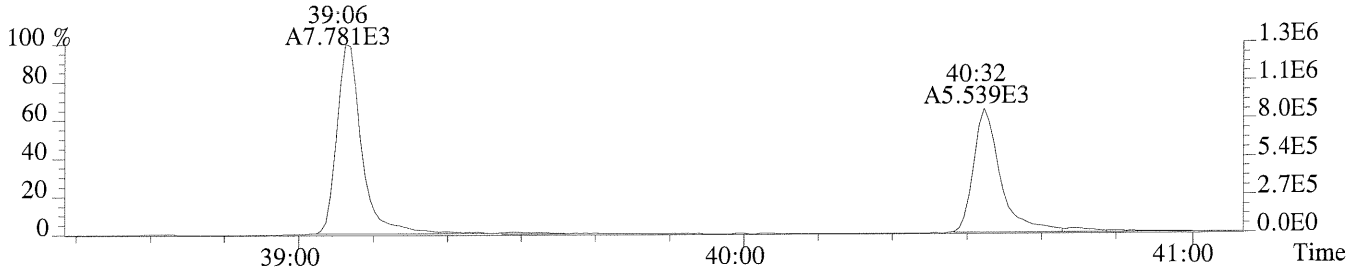


File:P171046 #1-240 Acq:27-MAY-2014 08:40:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

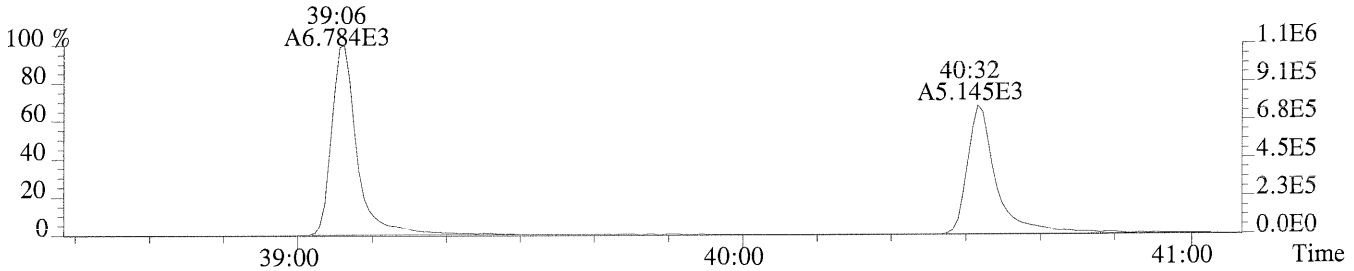
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3432.0,0.50%,F,T)



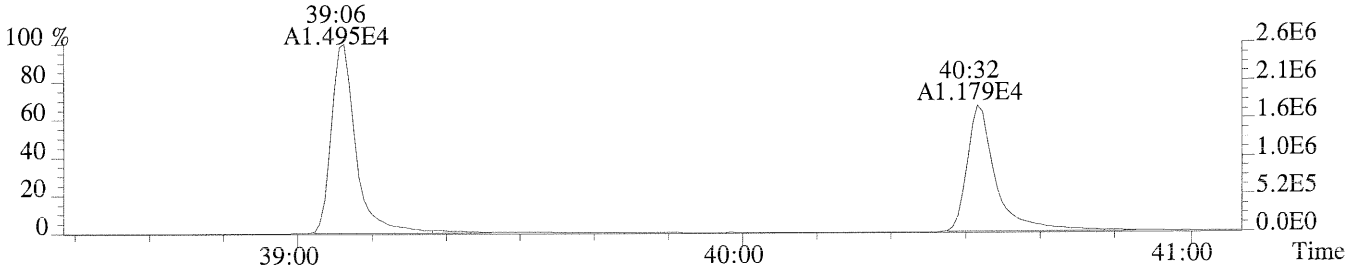
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3144.0,0.50%,F,T)



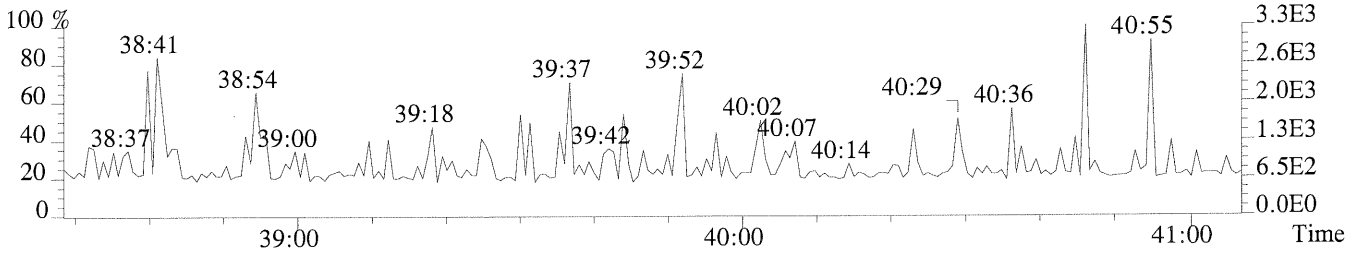
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1024.0,0.50%,F,T)



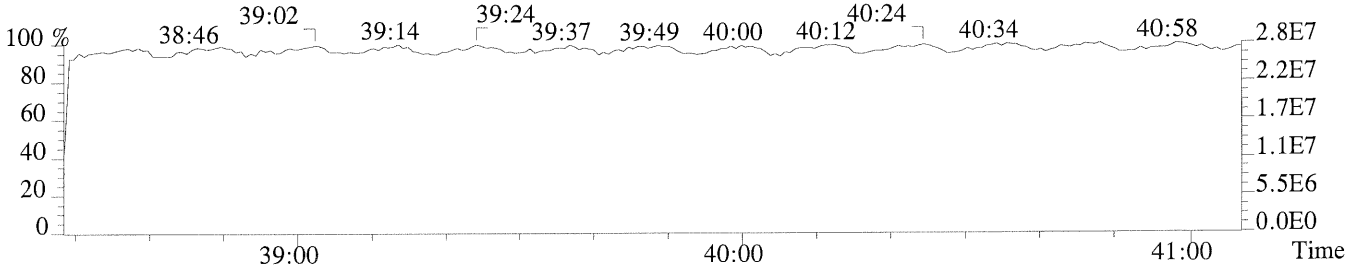
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6136.0,0.50%,F,T)



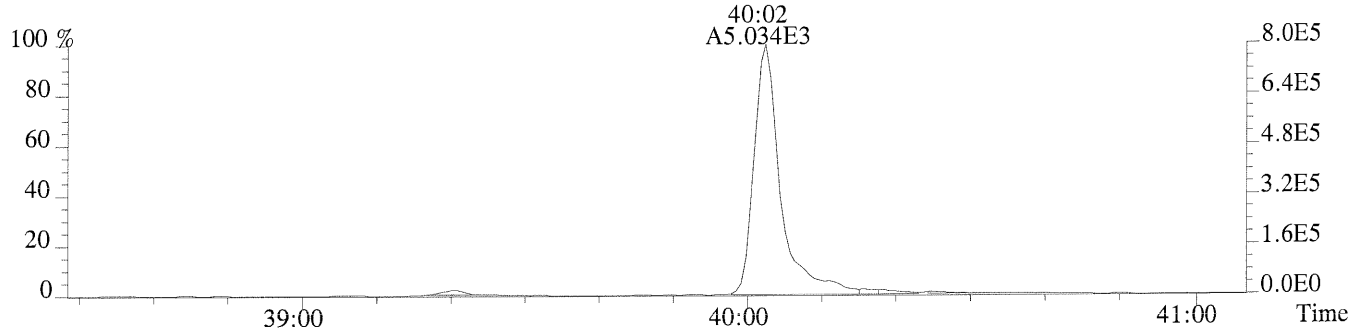
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



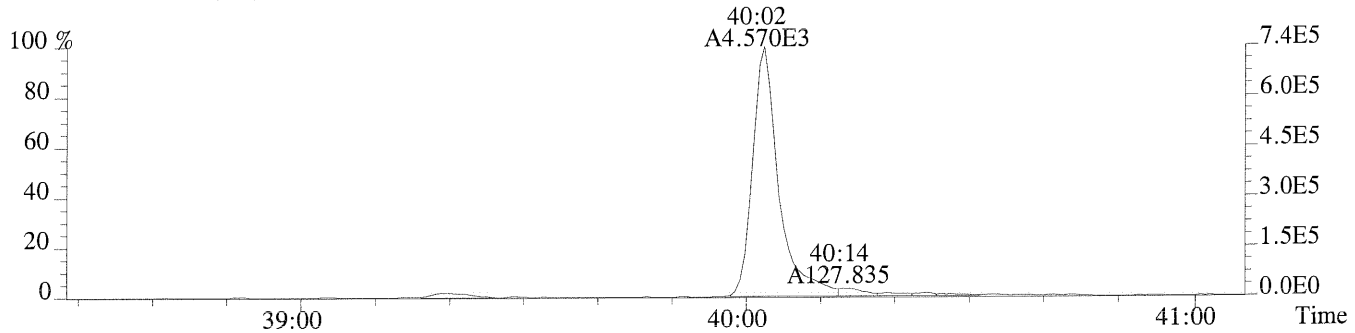
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



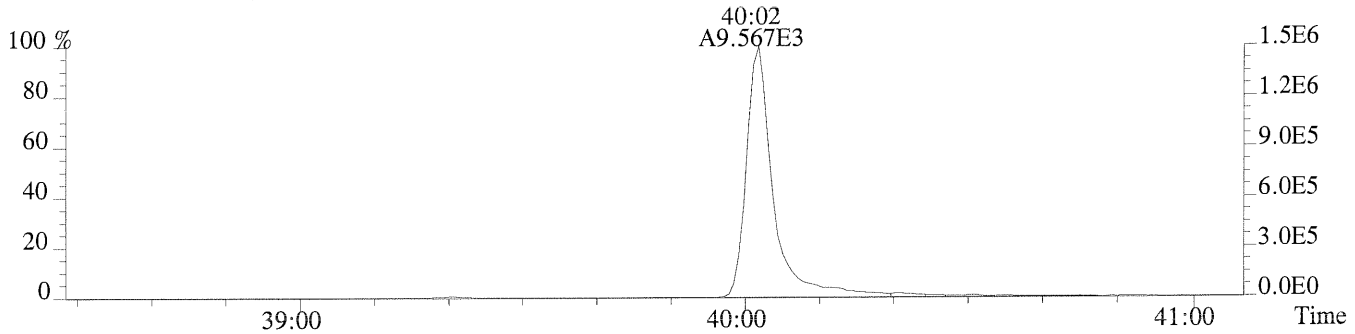
File:P171046 #1-240 Acq:27-MAY-2014 08:40:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.40%,F,T)



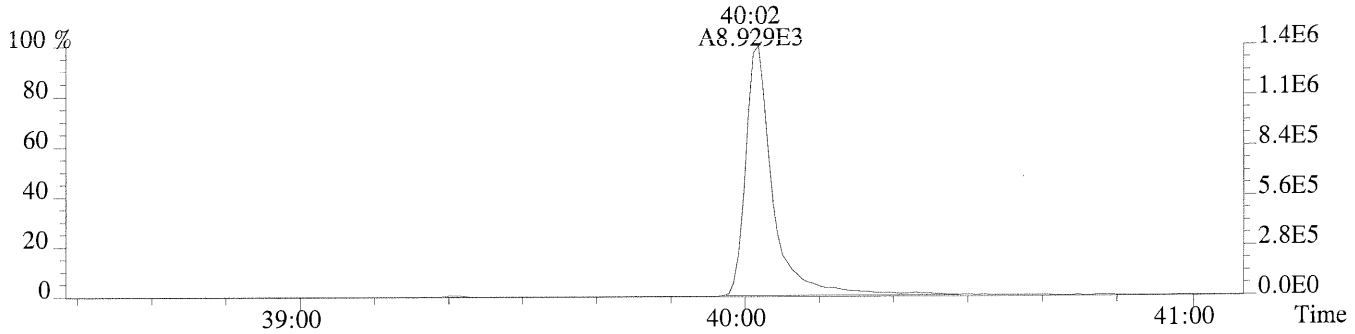
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



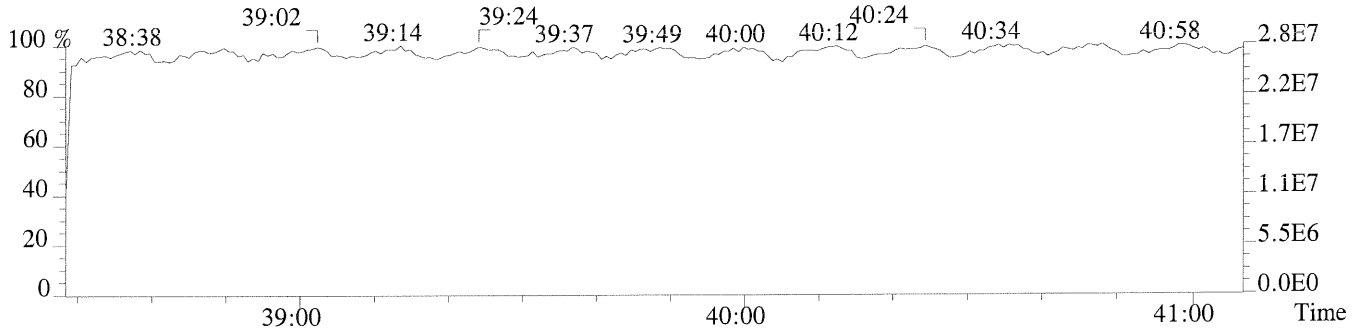
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



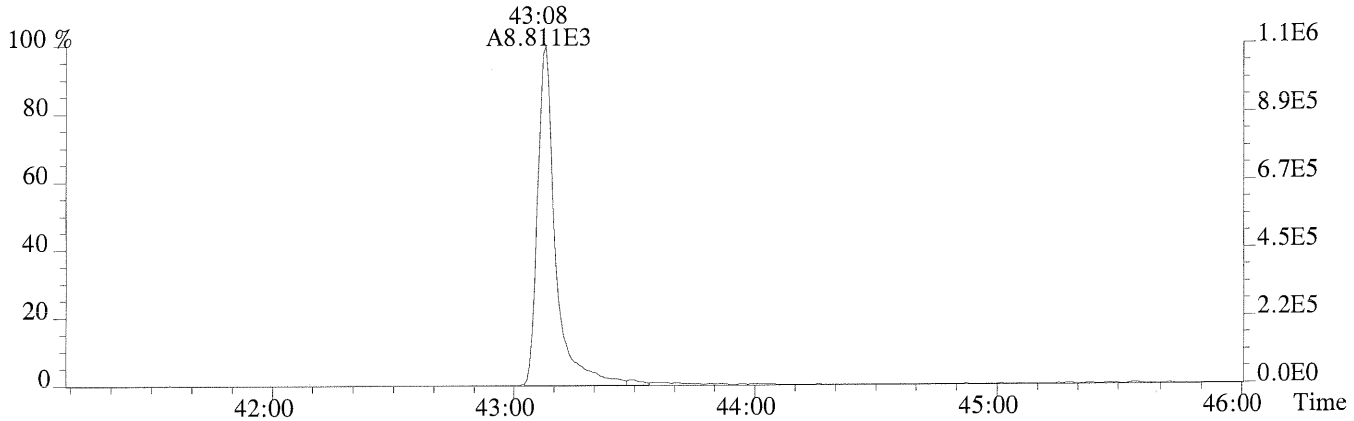
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.40%,F,T)



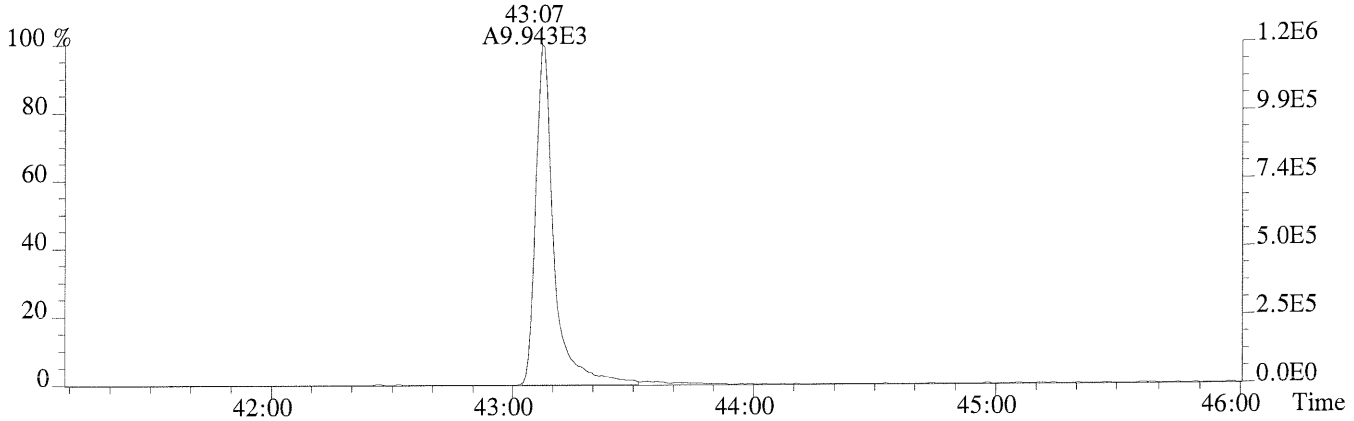
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



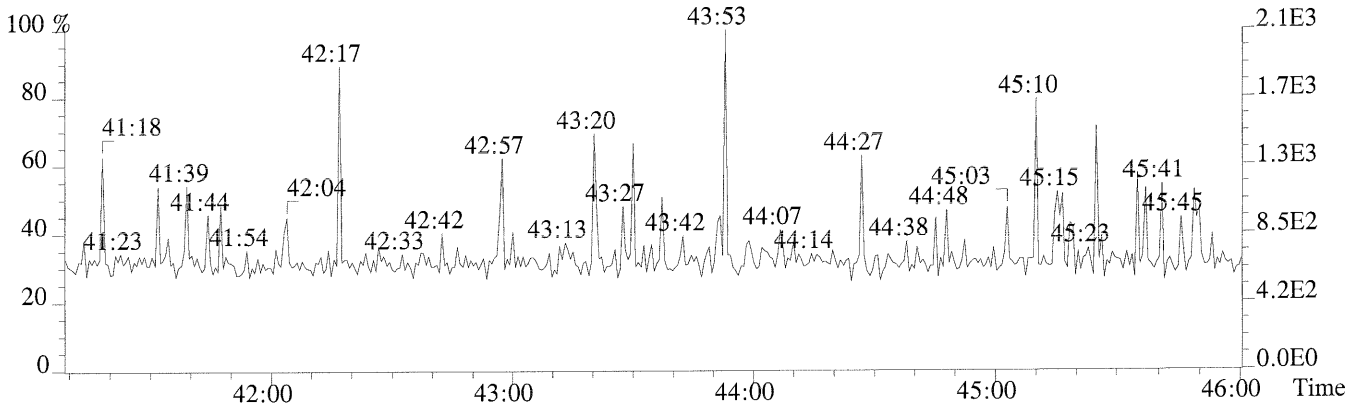
File:P171046 #1-447 Acq:27-MAY-2014 08:40:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,496.0,0.40%,F,T)



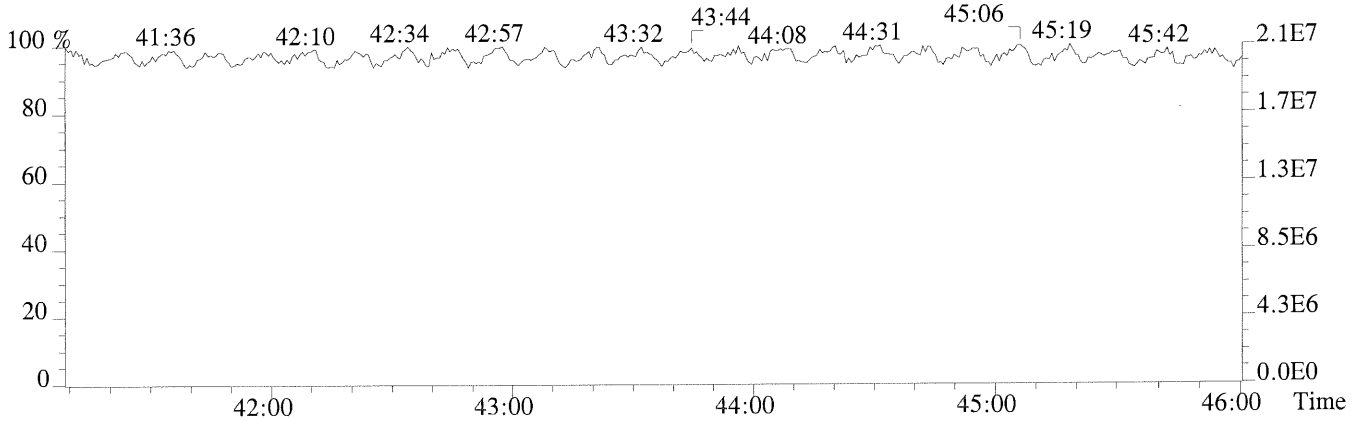
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,584.0,0.40%,F,T)



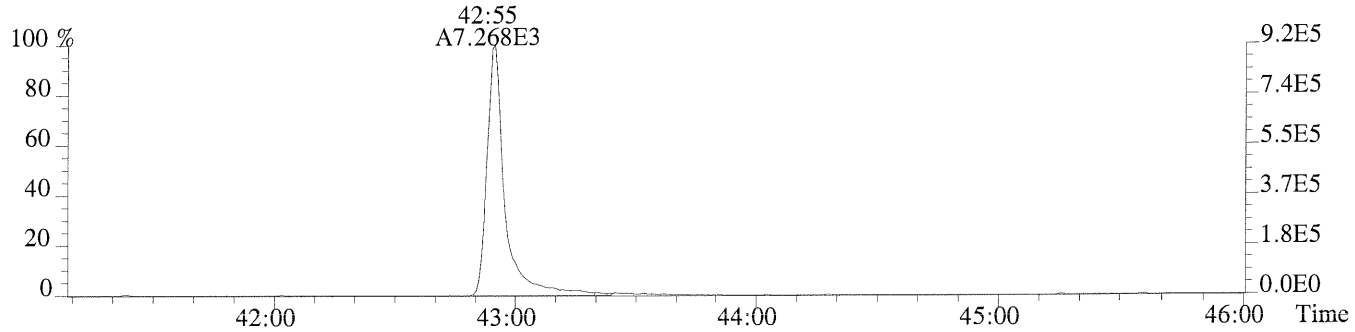
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



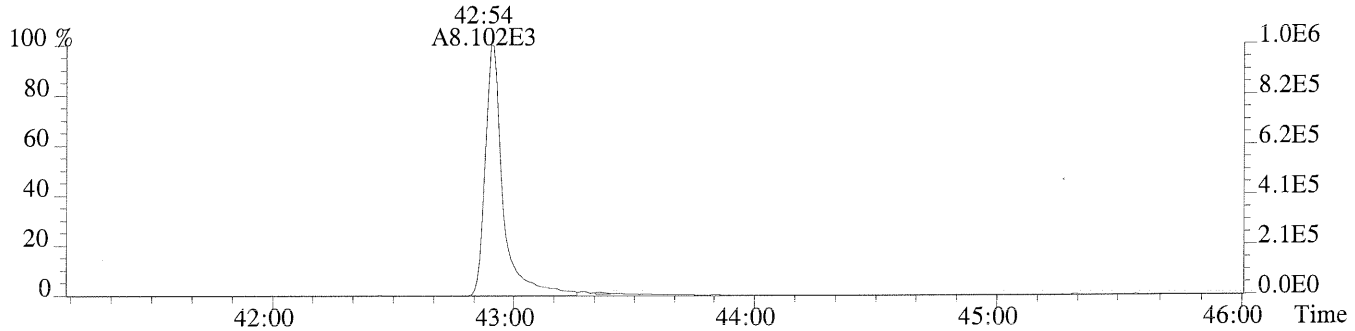
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



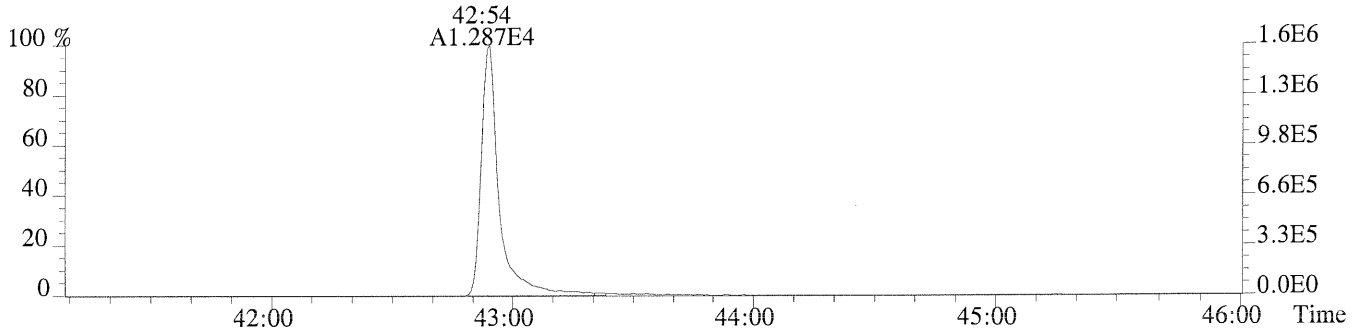
File:P171046 #1-447 Acq:27-MAY-2014 08:40:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,136.0,0.40%,F,T)



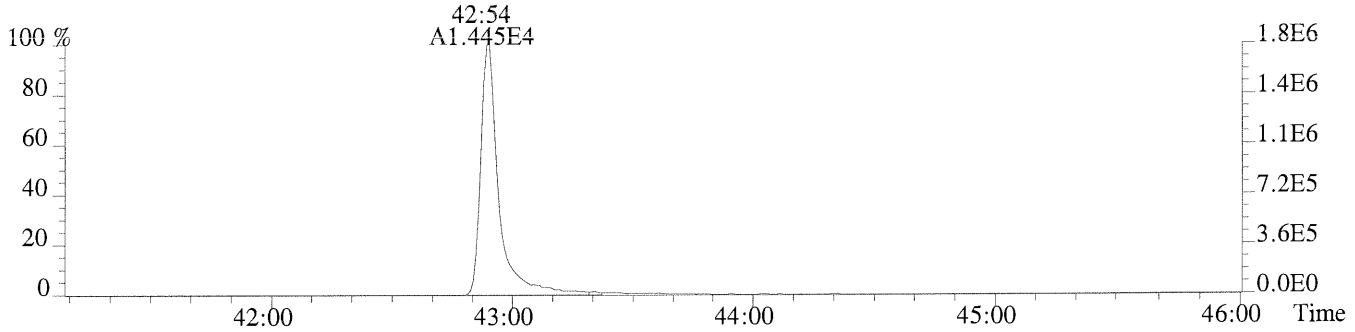
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,124.0,0.40%,F,T)



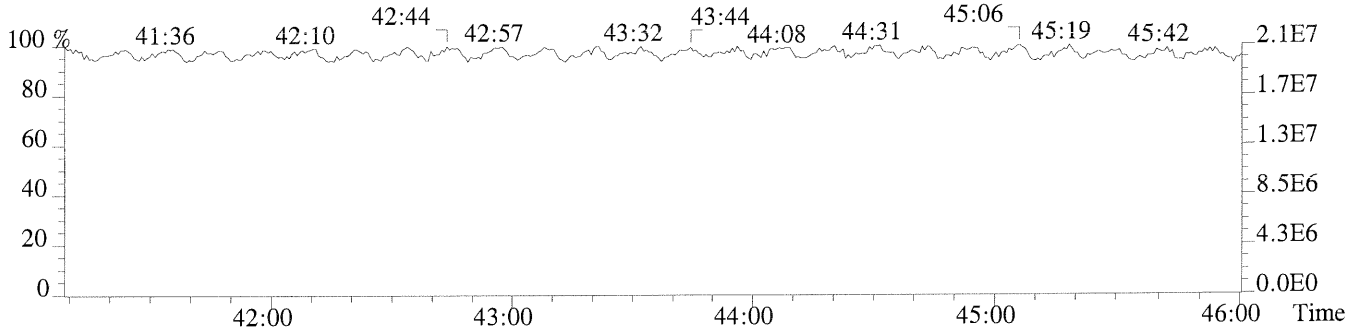
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,400.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,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
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 | GC Column ID: DB-5MSUI

VER Data Filename: P171054 | Analysis Date: 27-MAY-14 Time: 15:19:16

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.72	0.65-0.89	9.1	7.8 - 12.9	-9.1
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	49	39 - 65	-1.6
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	49	39 - 64	-1.6
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	52	39 - 64	4.7
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	49	41 - 61	-1.6
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	51	43 - 58	2.1
OCDD	M+2/M+4	0.89	0.76-1.02	104	79 - 126	3.6
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.4	8.4 - 12.0	-5.8
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	53	41 - 60	5.8
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	51	41 - 61	3.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	53	45 - 56	5.3
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	51	44 - 57	1.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.29	1.05-1.43	51	45 - 56	2.5
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	51	44 - 57	2.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	52	45 - 55	3.9
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	51	43 - 58	1.4
OCDF	M+2/M+4	0.88	0.76-1.02	104	63 - 159	4.1

(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 %D 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

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 GC Column ID: DB-5MSUI

VER Data Filename: P171054 Analysis Date: 27-MAY-14 Time: 15:19:16

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	89	82 - 121	-10.5
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	82	62 - 160	-17.9
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	100	85 - 117	0.3
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	103	85 - 118	3.1
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	88	72 - 138	-12.0
13C-OCDD	M+2/M+4	0.89	0.76-1.02	143	96 - 415	-28.4
13C-2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	89	71 - 140	-11.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	81	76 - 130	-18.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	81	77 - 130	-19.2
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	101	76 - 131	1.4
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	107	70 - 143	6.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	91	74 - 135	-8.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	73 - 137	2.5
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.43	0.37-0.51	94	78 - 129	-6.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.42	0.37-0.51	83	77 - 129	-16.6
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				8.5	7.8 - 12.7	-14.5

(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.
(5) The beginnning CCAL %D 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)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66131

Run #14 Filename P171054 Samp: 1 Inj: 1 Acquired: 27-MAY-14 15:19:16
Processed: 27-MAY-14 15:34:49 Sample ID: CCAL HRCC3/CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:07	2.303e+03	3.081e+03	0.75	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:06	2.307e+04	1.467e+04	1.57	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	33:57	2.083e+04	1.341e+04	1.55	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:33	1.768e+04	1.416e+04	1.25	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:40	1.953e+04	1.579e+04	1.24	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:08	1.724e+04	1.381e+04	1.25	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	37:53	1.437e+04	1.115e+04	1.29	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:07	1.452e+04	1.398e+04	1.04	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:32	1.053e+04	1.044e+04	1.01	yes	no	1.324
10	Unk	OCDF	43:08	1.593e+04	1.801e+04	0.88	yes	no	1.307
11	Unk	2,3,7,8-TCDD	29:51	1.735e+03	2.405e+03	0.72	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:14	1.433e+04	9.028e+03	1.59	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:15	1.134e+04	8.937e+03	1.27	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:21	1.299e+04	1.025e+04	1.27	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:35	1.273e+04	9.987e+03	1.27	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:03	9.368e+03	8.732e+03	1.07	yes	no	1.016
17	Unk	OCDD	42:55	1.311e+04	1.478e+04	0.89	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:06	2.627e+04	3.422e+04	0.77	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:05	4.273e+04	2.741e+04	1.56	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	33:57	4.129e+04	2.680e+04	1.54	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:32	1.658e+04	3.215e+04	0.52	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:39	2.026e+04	3.859e+04	0.53	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:08	1.802e+04	3.472e+04	0.52	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	37:52	1.468e+04	2.849e+04	0.52	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:06	1.178e+04	2.733e+04	0.43	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:32	9.232e+03	2.200e+04	0.42	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	29:50	1.926e+04	2.467e+04	0.78	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:13	3.104e+04	1.963e+04	1.58	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:15	2.199e+04	1.762e+04	1.25	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:20	2.473e+04	2.013e+04	1.23	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:02	1.813e+04	1.676e+04	1.08	yes	no	0.862
32	IS	13C-OCDD	42:54	2.352e+04	2.636e+04	0.89	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:18	2.086e+04	2.593e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:34	2.560e+04	2.037e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:51	4.499e+03				no	1.125

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
66131

Run #14 Filename P171054 Samp: 1 Inj: 1 Acquired: 27-MAY-14 15:19:16
Processed: 27-MAY-14 15:34:491 LAB. ID: CCAL HRCC3/CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.82e+05	1.77e+03	2.7e+02	6.20e+05	1.30e+03	4.8e+02
2	1,2,3,7,8-PeCDF	4.06e+06	1.64e+03	2.5e+03	2.59e+06	2.76e+03	9.4e+02
3	2,3,4,7,8-PeCDF	3.93e+06	1.64e+03	2.4e+03	2.57e+06	2.76e+03	9.3e+02
4	1,2,3,4,7,8-HxCDF	3.72e+06	1.40e+03	2.7e+03	2.93e+06	1.12e+03	2.6e+03
5	1,2,3,6,7,8-HxCDF	3.73e+06	1.40e+03	2.7e+03	3.00e+06	1.12e+03	2.7e+03
6	2,3,4,6,7,8-HxCDF	3.40e+06	1.40e+03	2.4e+03	2.72e+06	1.12e+03	2.4e+03
7	1,2,3,7,8,9-HxCDF	2.67e+06	1.40e+03	1.9e+03	2.14e+06	1.12e+03	1.9e+03
8	1,2,3,4,6,7,8-HpCDF	2.66e+06	2.30e+03	1.2e+03	2.60e+06	2.66e+03	9.8e+02
9	1,2,3,4,7,8,9-HpCDF	1.73e+06	2.30e+03	7.5e+02	1.71e+06	2.66e+03	6.4e+02
10	OCDF	2.14e+06	6.20e+02	3.4e+03	2.36e+06	1.08e+03	2.2e+03
11	2,3,7,8-TCDD	3.57e+05	5.40e+02	6.6e+02	4.86e+05	8.92e+02	5.5e+02
12	1,2,3,7,8-PeCDD	2.64e+06	7.56e+02	3.5e+03	1.67e+06	4.48e+02	3.7e+03
13	1,2,3,4,7,8-HxCDD	2.41e+06	5.40e+02	4.5e+03	1.91e+06	9.52e+02	2.0e+03
14	1,2,3,6,7,8-HxCDD	2.41e+06	5.40e+02	4.5e+03	1.92e+06	9.52e+02	2.0e+03
15	1,2,3,7,8,9-HxCDD	2.35e+06	5.40e+02	4.4e+03	1.81e+06	9.52e+02	1.9e+03
16	1,2,3,4,6,7,8-HpCDD	1.61e+06	5.96e+02	2.7e+03	1.52e+06	1.05e+03	1.5e+03
17	OCDD	1.75e+06	2.84e+02	6.2e+03	1.93e+06	3.08e+02	6.3e+03
18	13C-2,3,7,8-TCDF	5.38e+06	9.92e+02	5.4e+03	7.04e+06	9.16e+02	7.7e+03
19	13C-1,2,3,7,8-PeCDF	7.49e+06	7.84e+02	9.6e+03	4.84e+06	5.40e+02	9.0e+03
20	13C-2,3,4,7,8-PeCDF	7.89e+06	7.84e+02	1.0e+04	5.17e+06	5.40e+02	9.6e+03
21	13C-1,2,3,4,7,8-HxCDF	3.45e+06	3.16e+02	1.1e+04	6.66e+06	5.56e+02	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	3.81e+06	3.16e+02	1.2e+04	7.23e+06	5.56e+02	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	3.55e+06	3.16e+02	1.1e+04	6.72e+06	5.56e+02	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	2.66e+06	3.16e+02	8.4e+03	5.22e+06	5.56e+02	9.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.23e+06	1.88e+03	1.2e+03	5.05e+06	2.70e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.51e+06	1.88e+03	8.1e+02	3.54e+06	2.70e+03	1.3e+03
27	13C-2,3,7,8-TCDD	4.10e+06	2.74e+03	1.5e+03	5.25e+06	1.32e+03	4.0e+03
28	13C-1,2,3,7,8-PeCDD	5.75e+06	5.88e+02	9.8e+03	3.65e+06	4.92e+02	7.4e+03
29	13C-1,2,3,4,7,8-HxCDD	4.64e+06	6.88e+02	6.7e+03	3.70e+06	1.08e+03	3.4e+03
30	13C-1,2,3,6,7,8-HxCDD	4.59e+06	6.88e+02	6.7e+03	3.74e+06	1.08e+03	3.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.15e+06	9.72e+02	3.2e+03	2.91e+06	5.44e+02	5.4e+03
32	13C-OCDD	3.15e+06	4.32e+02	7.3e+03	3.57e+06	4.44e+02	8.0e+03
33	13C-1,2,3,4-TCDD	4.54e+06	2.74e+03	1.7e+03	5.62e+06	1.32e+03	4.2e+03
34	13C-1,2,3,7,8,9-HxCDD	4.64e+06	6.88e+02	6.7e+03	3.74e+06	1.08e+03	3.5e+03
35	37Cl-2,3,7,8-TCDD	9.27e+05	4.28e+02	2.2e+03			

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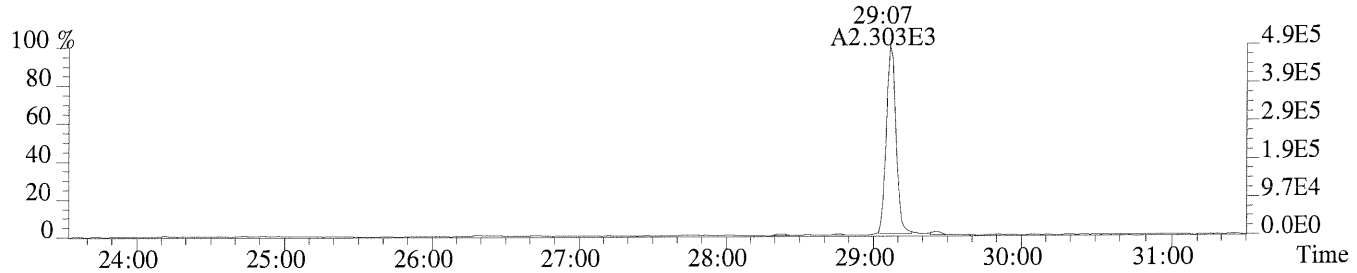
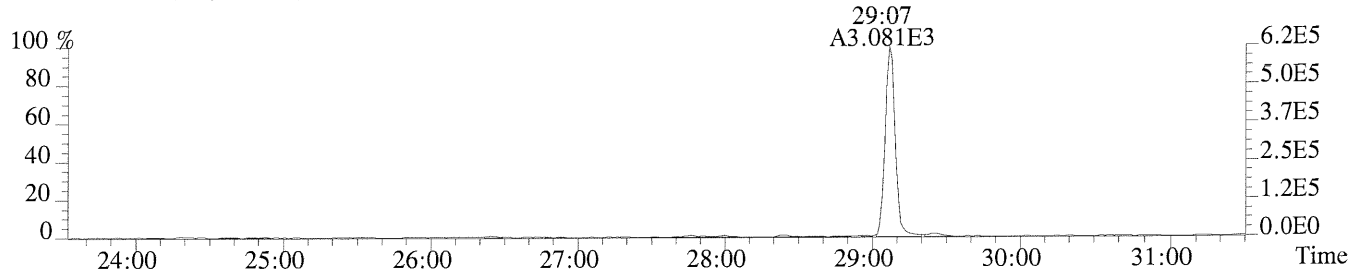
File:P171054 #1-501 Acq:27-MAY-2014 15:19:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

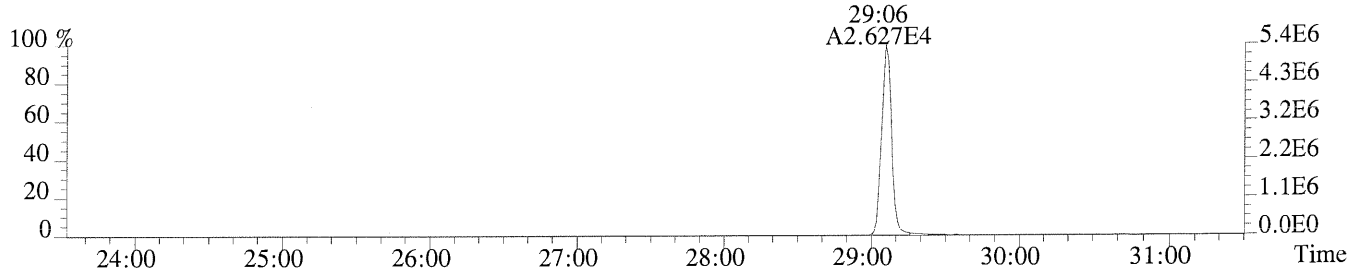
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1768.0,1.00%,F,T)



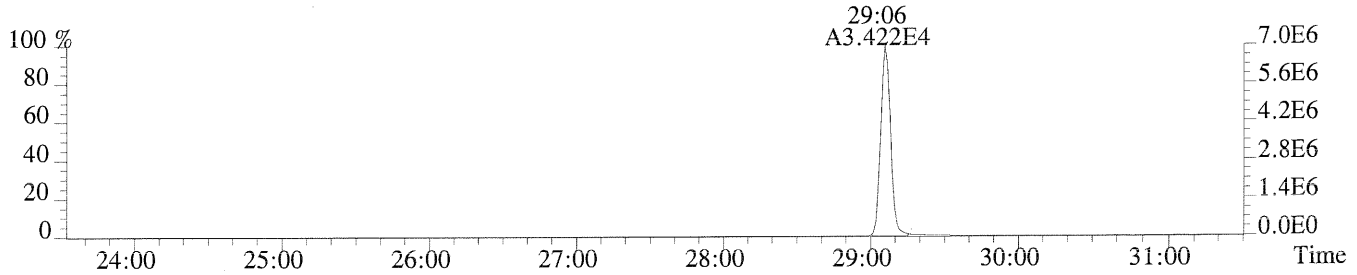
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



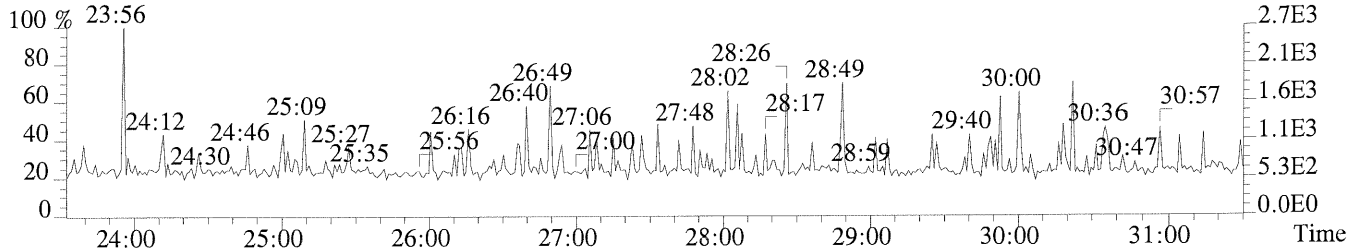
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



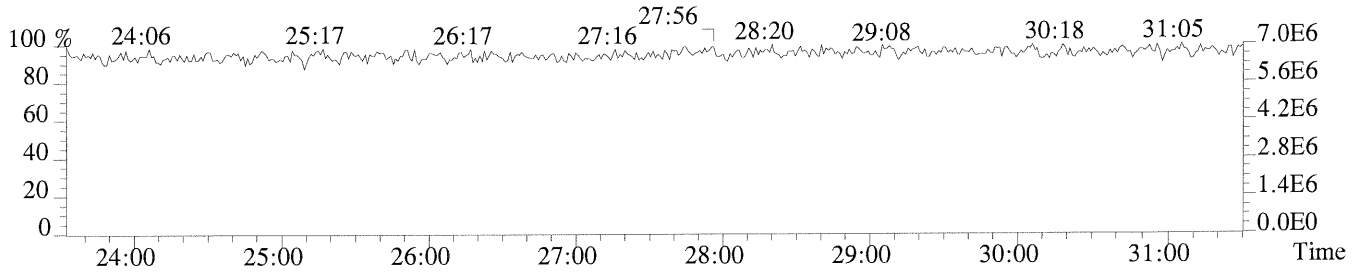
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

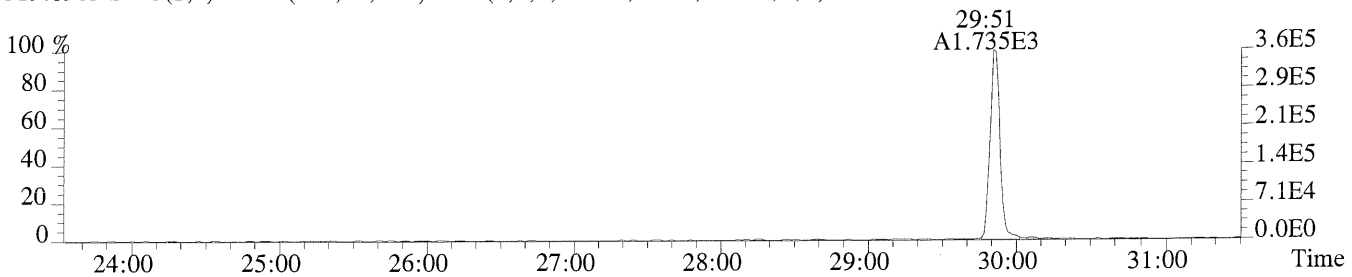


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

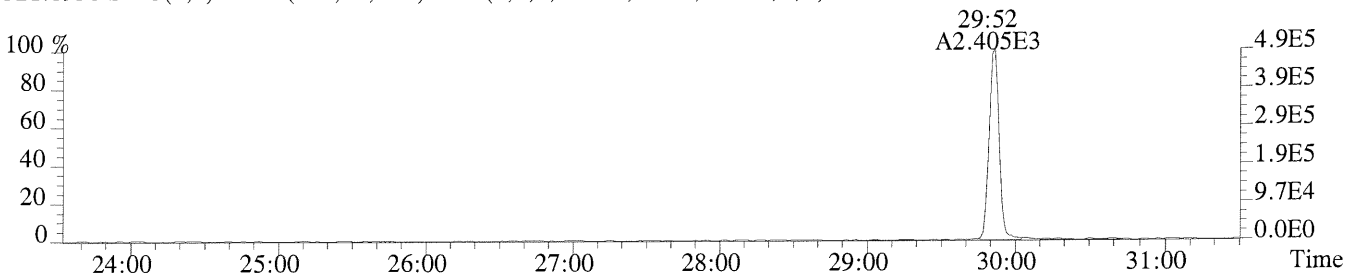


File:P171054 #1-501 Acq:27-MAY-2014 15:19:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

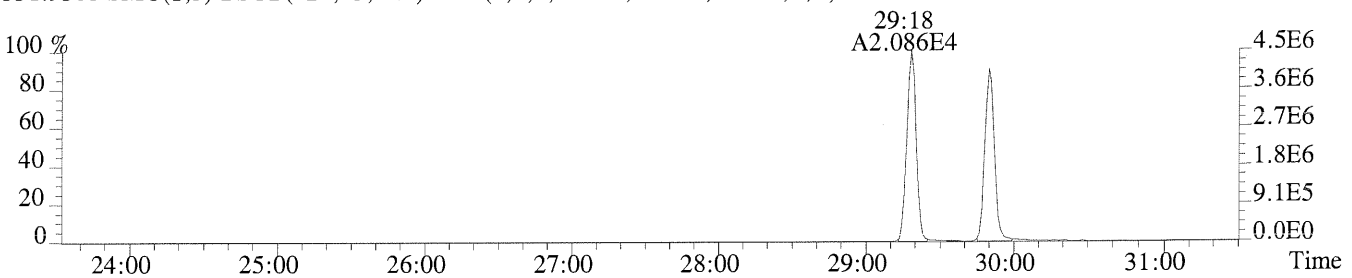
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



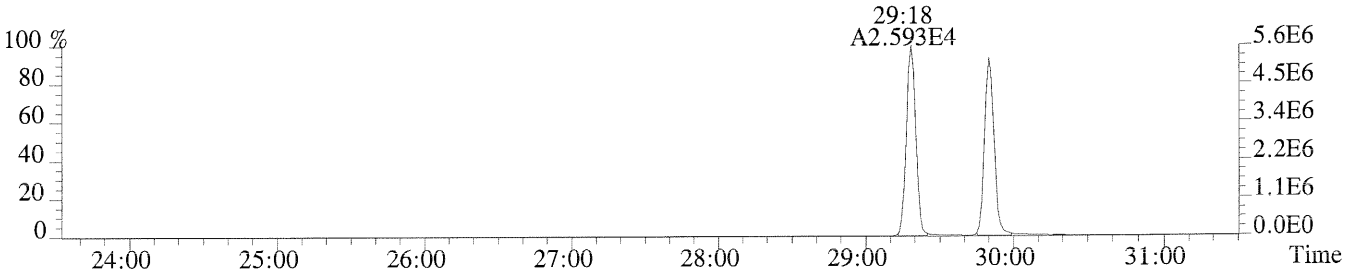
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



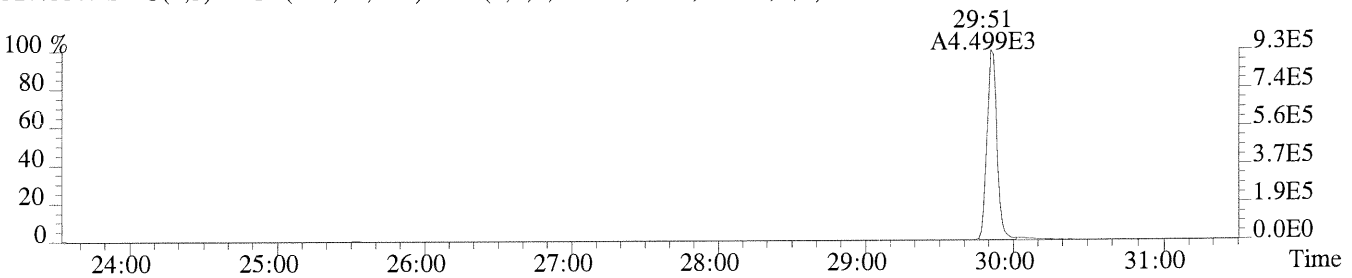
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2744.0,1.00%,F,T)



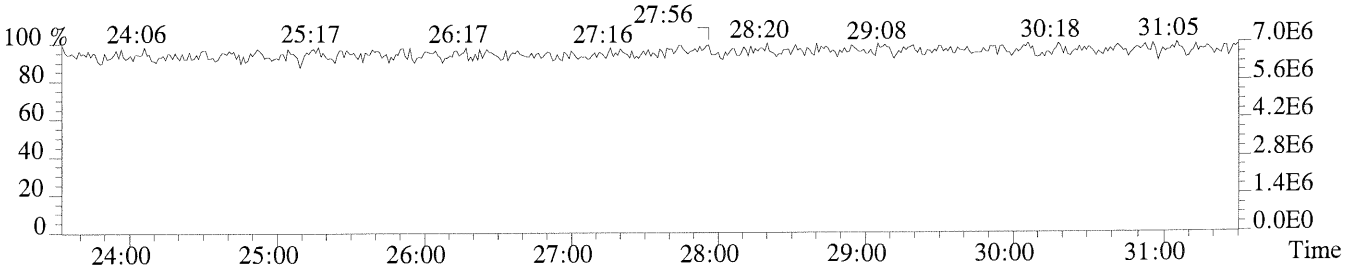
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1324.0,1.00%,F,T)



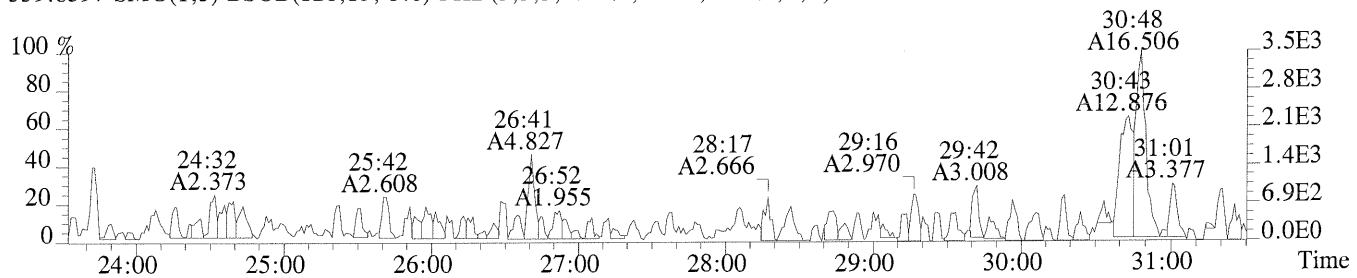
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



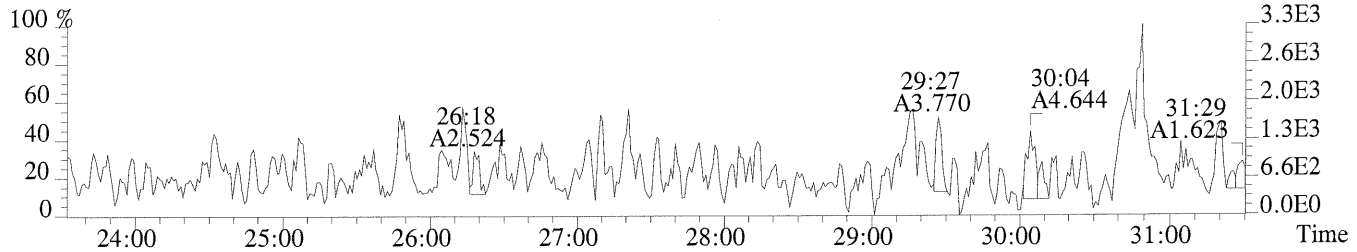
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



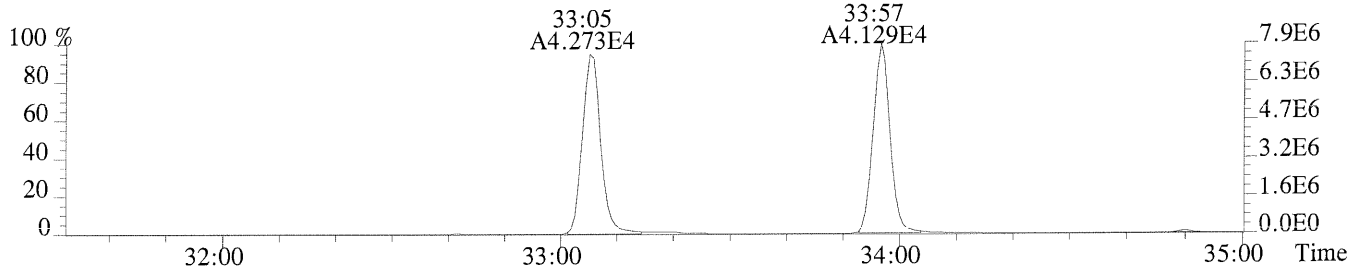
File:P171054 #1-501 Acq:27-MAY-2014 15:19:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



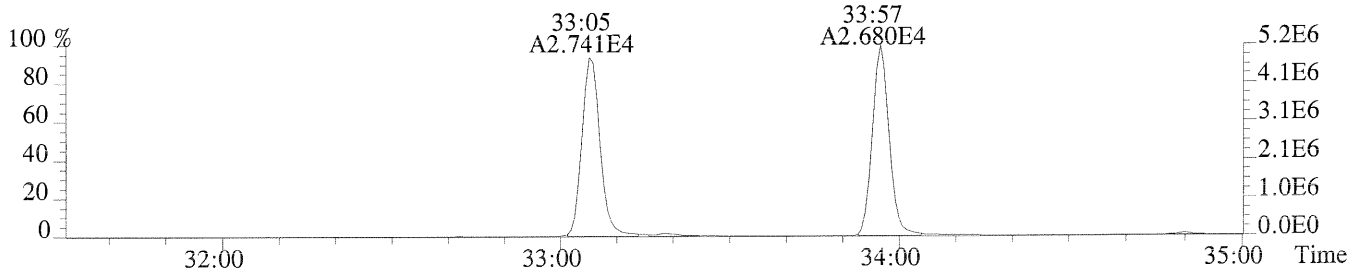
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



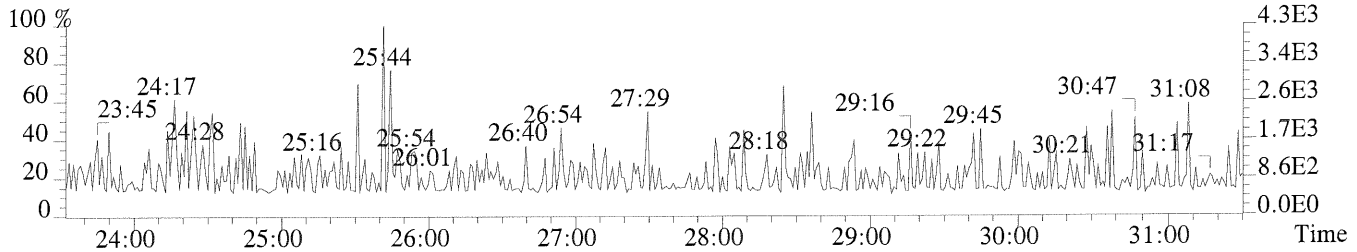
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



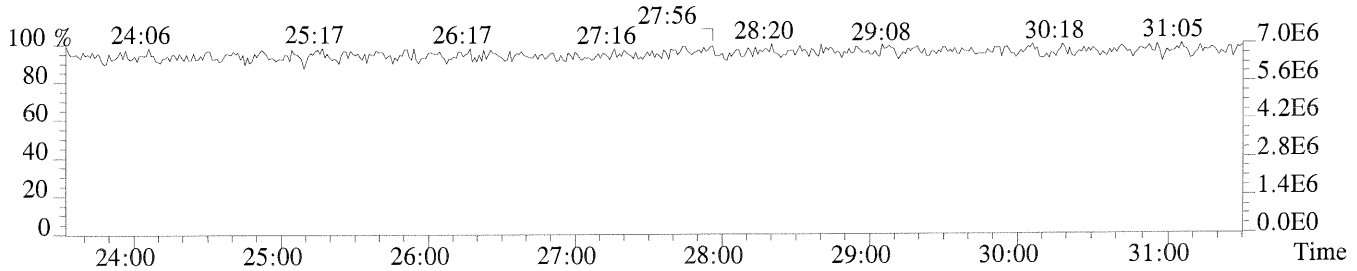
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

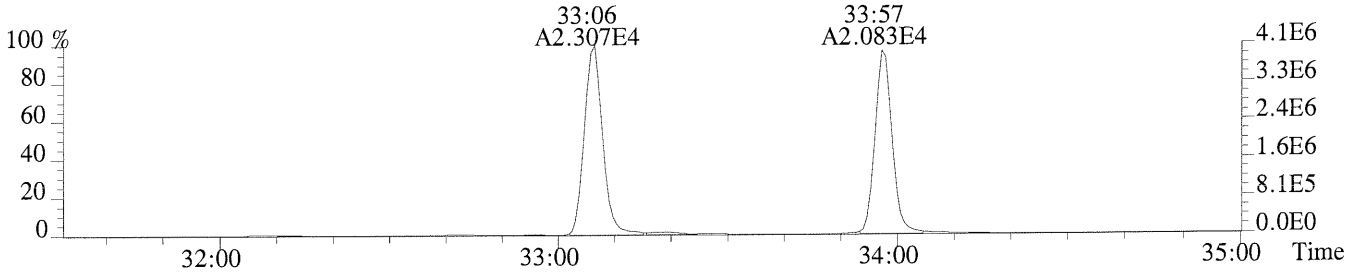


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

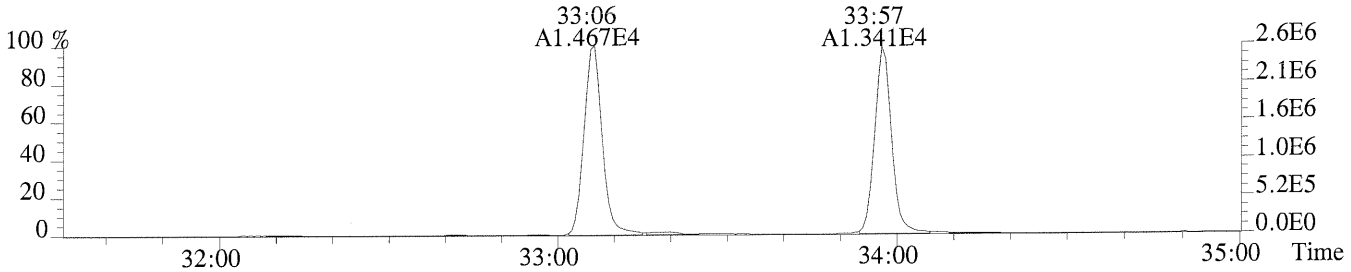


File:P171054 #1-315 Acq:27-MAY-2014 15:19:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

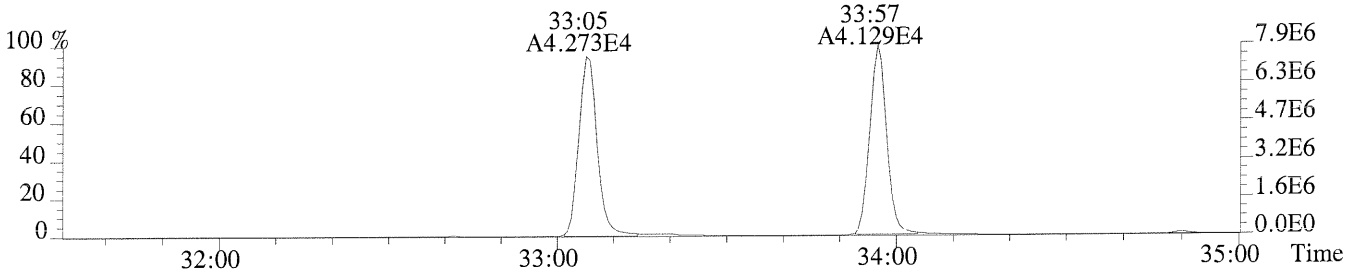
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1644.0,1.00%,F,T)



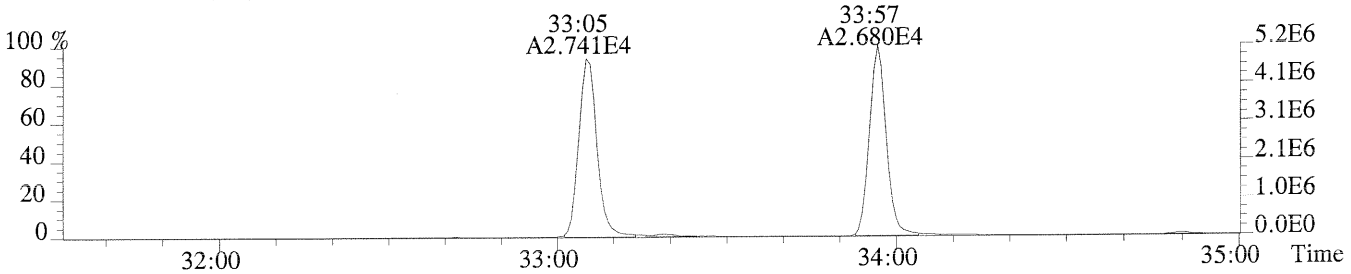
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2764.0,1.00%,F,T)



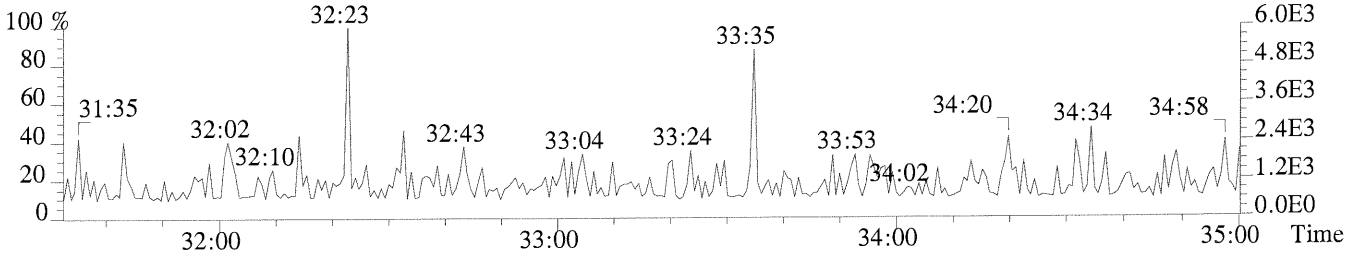
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



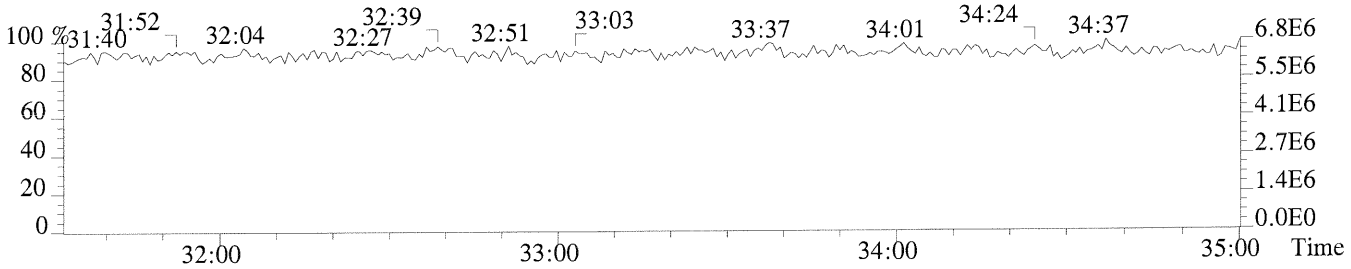
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



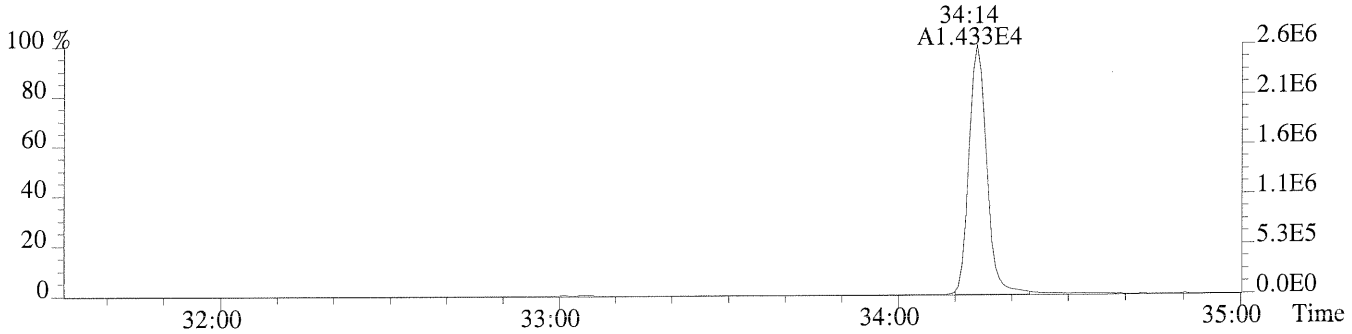
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



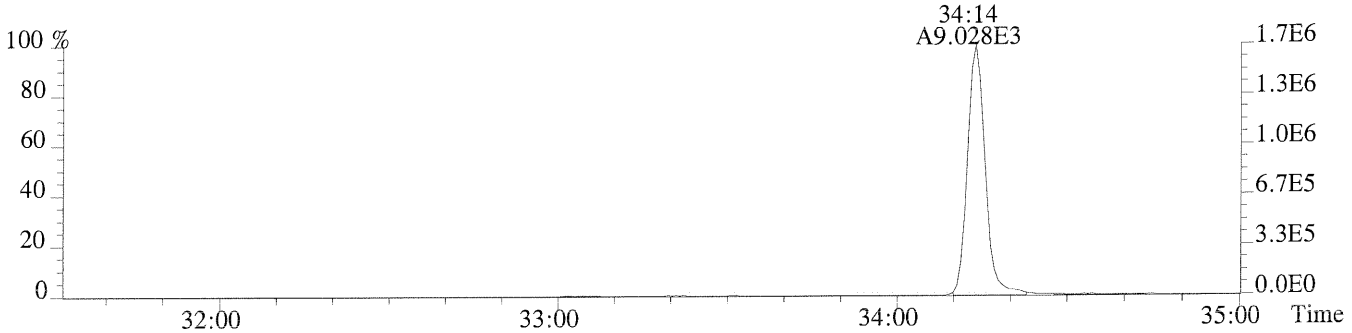
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



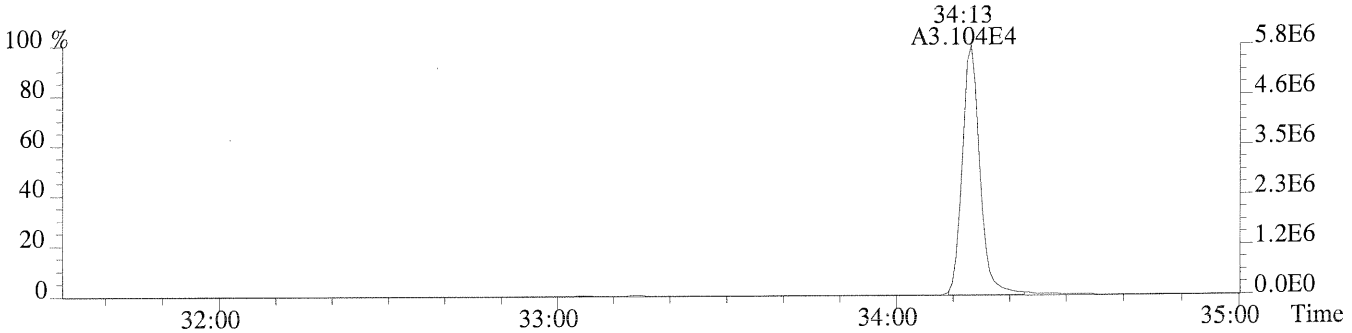
File:P171054 #1-315 Acq:27-MAY-2014 15:19:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



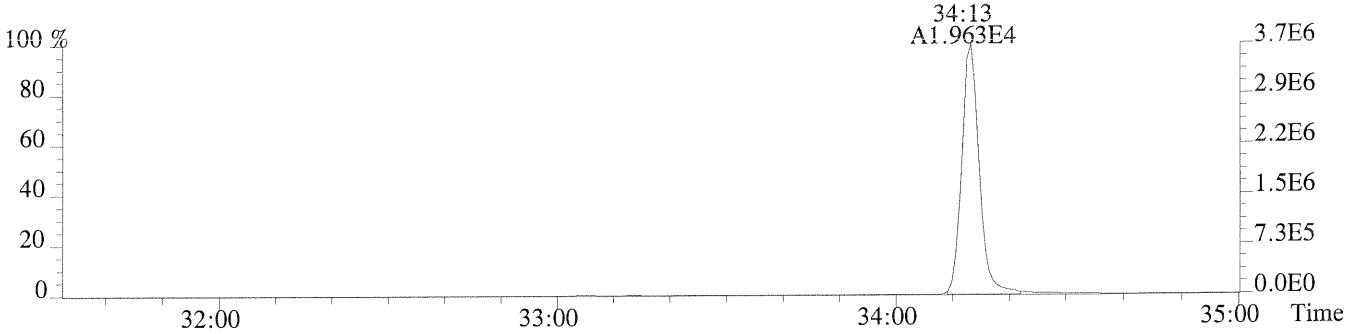
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



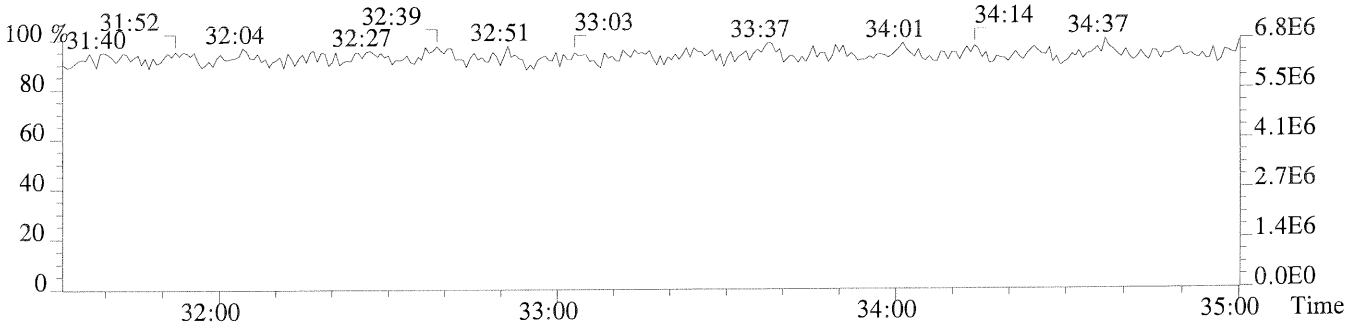
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)

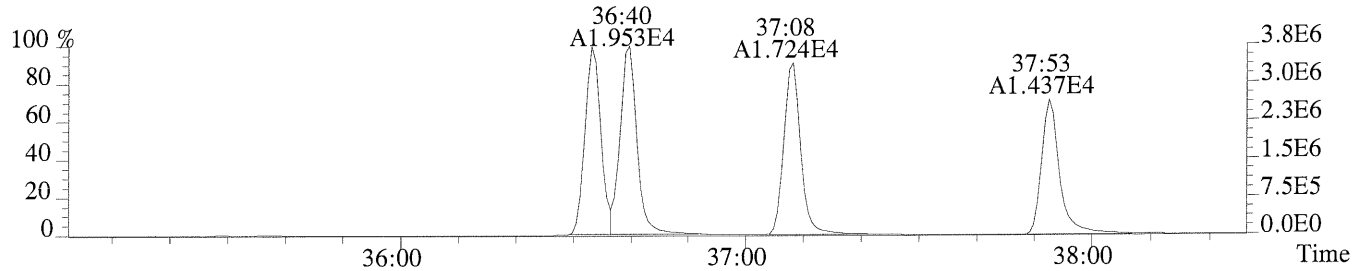


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

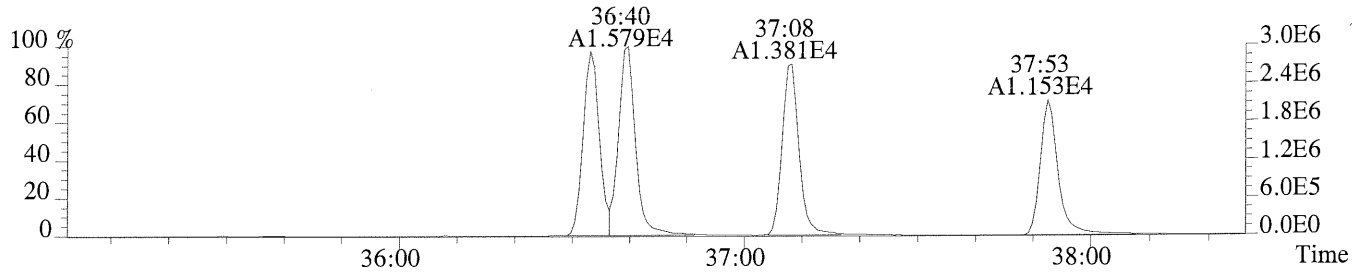


File:P171054 #1-309 Acq:27-MAY-2014 15:19:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

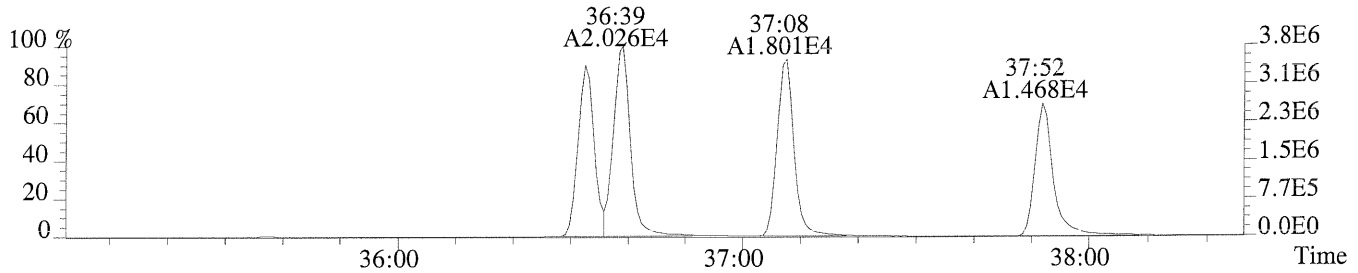
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)



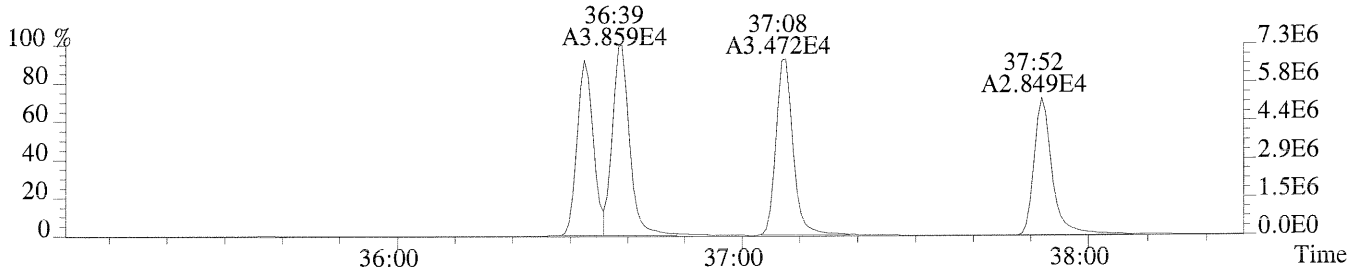
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.40%,F,T)



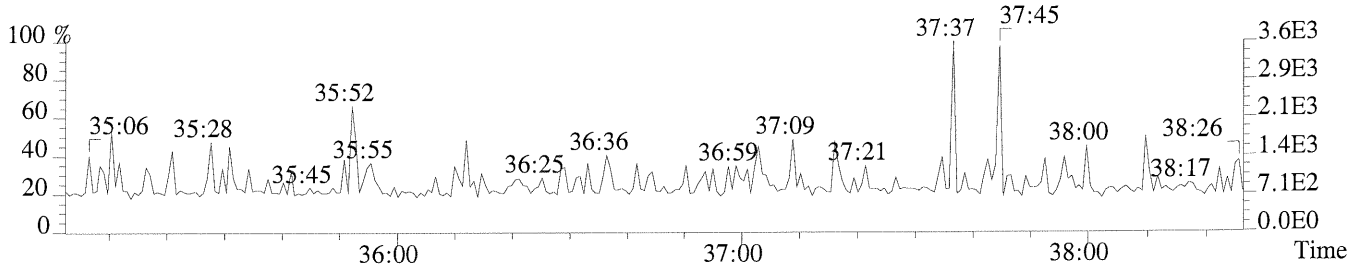
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



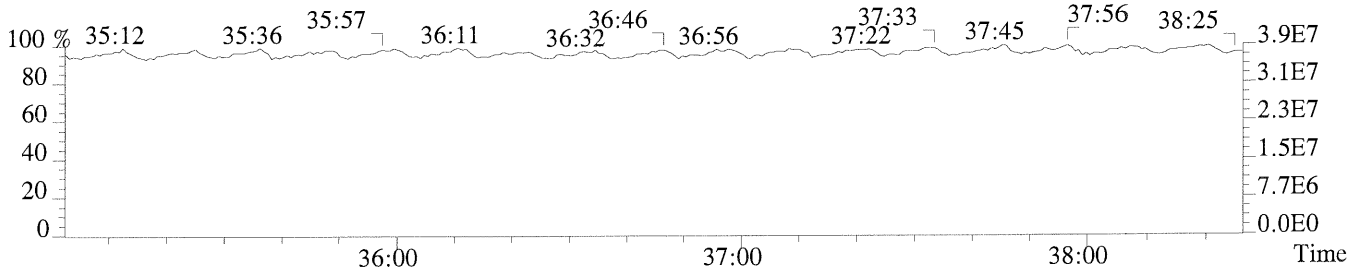
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



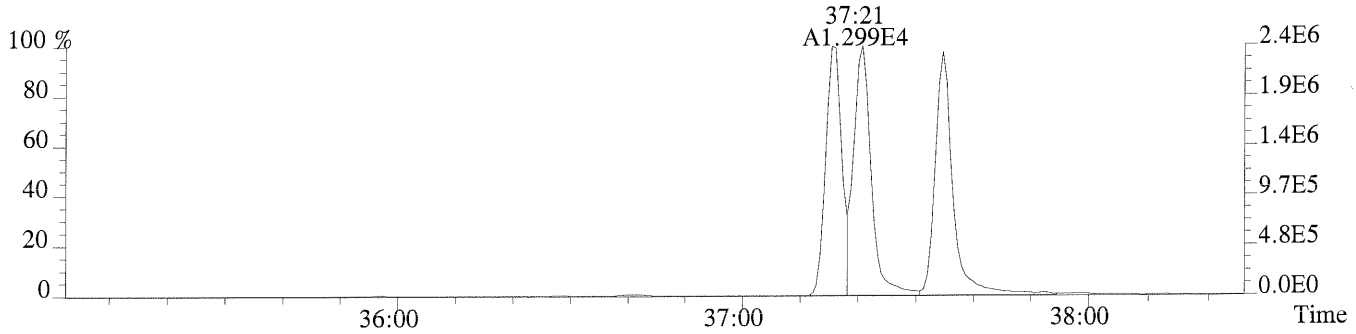
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



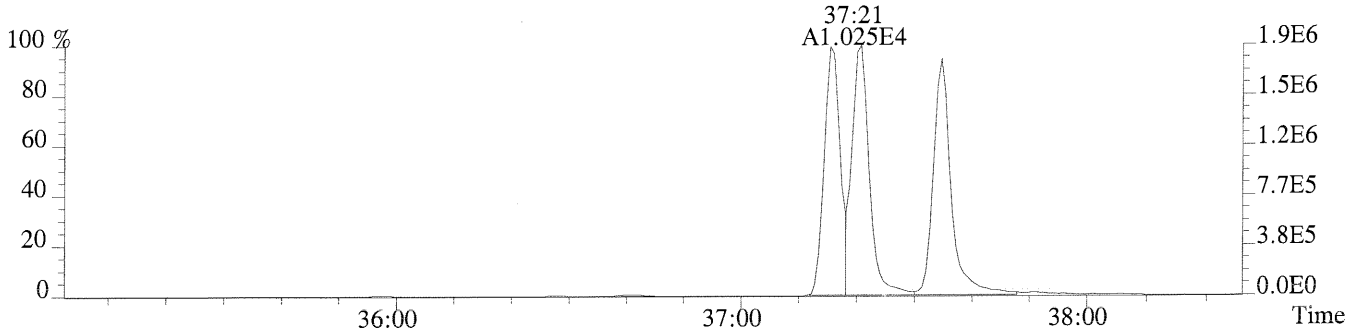
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



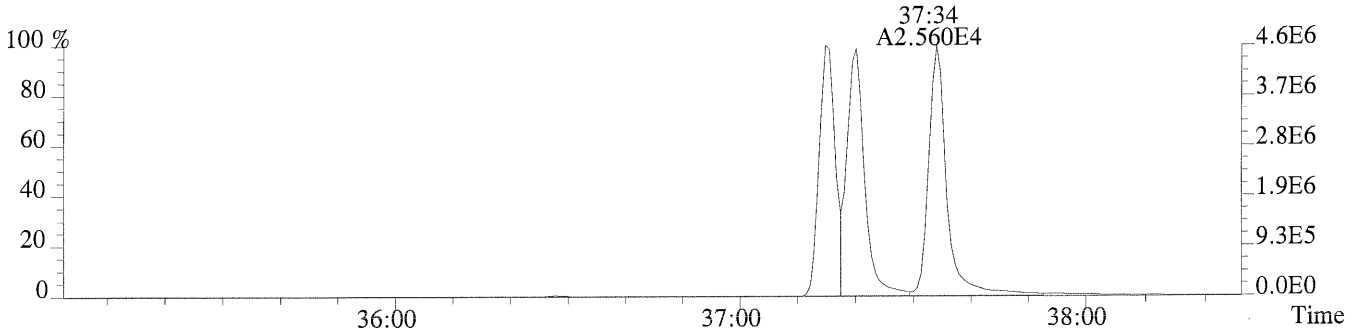
File:P171054 #1-309 Acq:27-MAY-2014 15:19:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



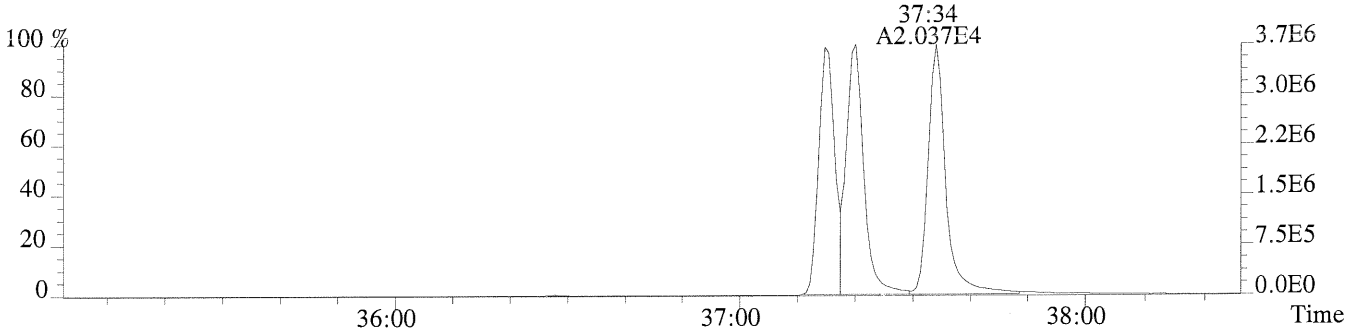
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,952.0,0.40%,F,T)



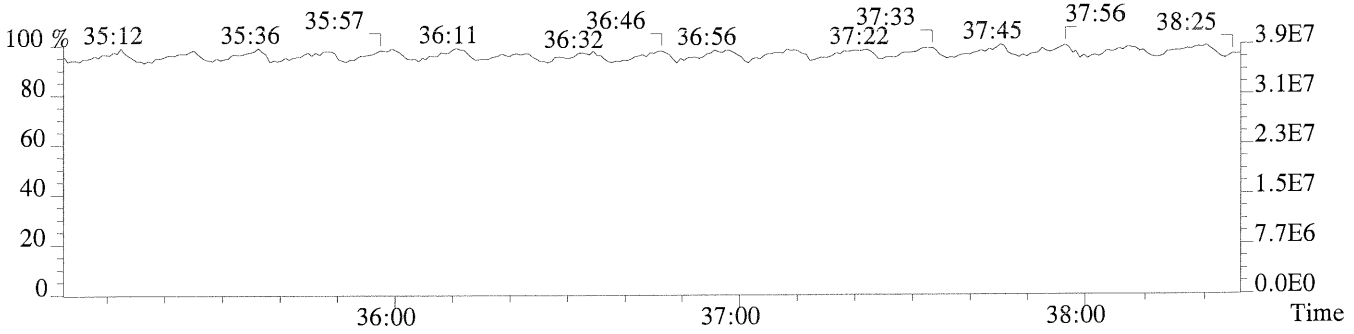
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1080.0,0.40%,F,T)

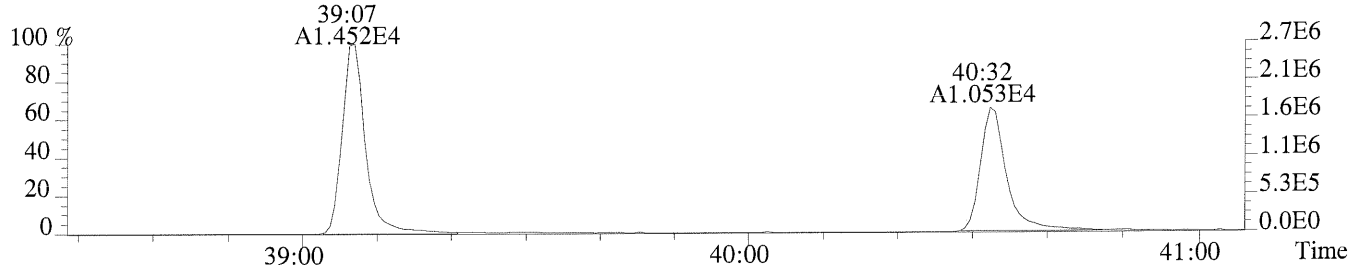


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

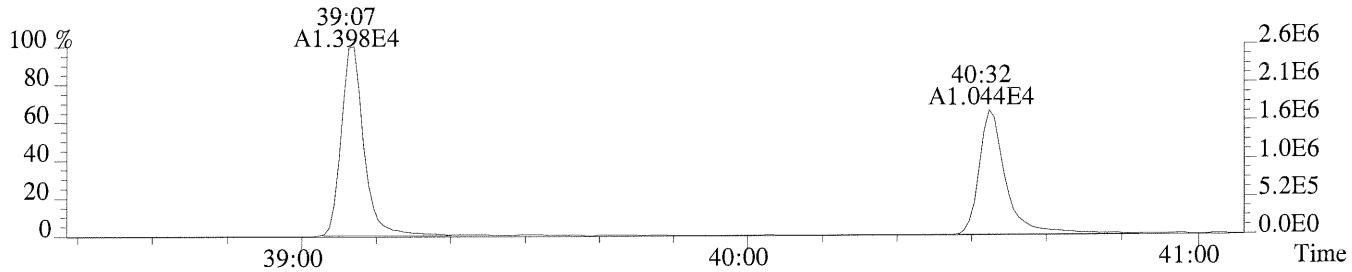


File:P171054 #1-239 Acq:27-MAY-2014 15:19:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

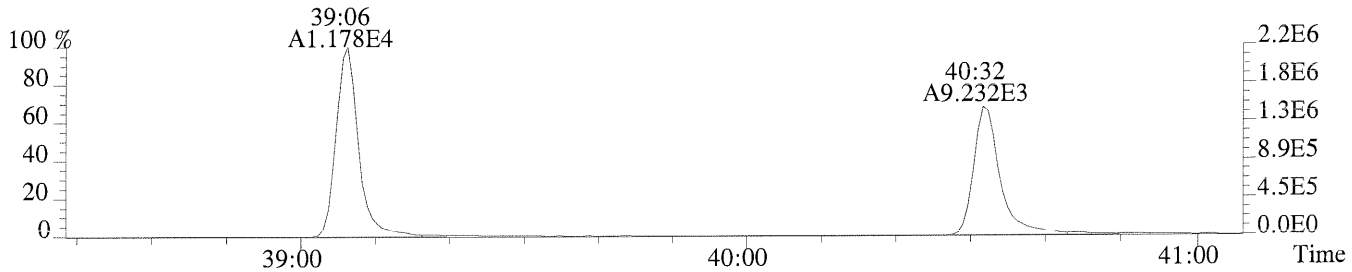
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2304.0,0.50%,F,T)



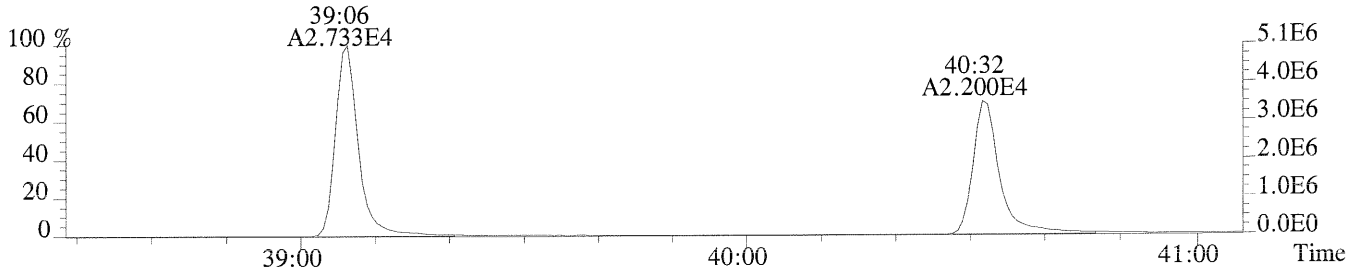
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2656.0,0.50%,F,T)



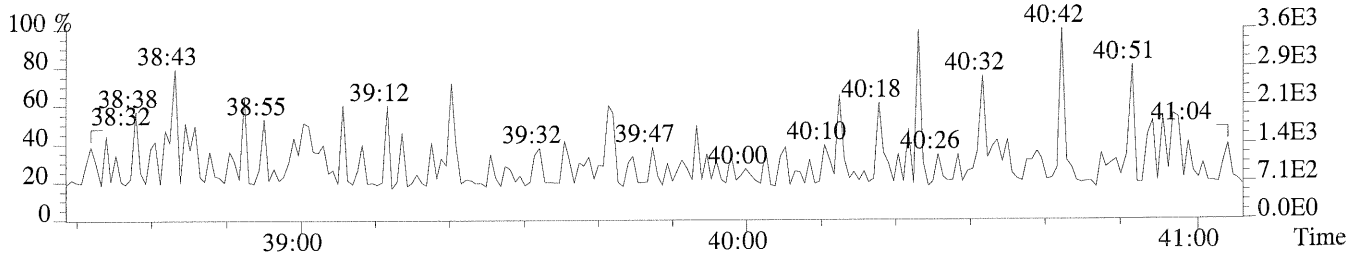
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.50%,F,T)



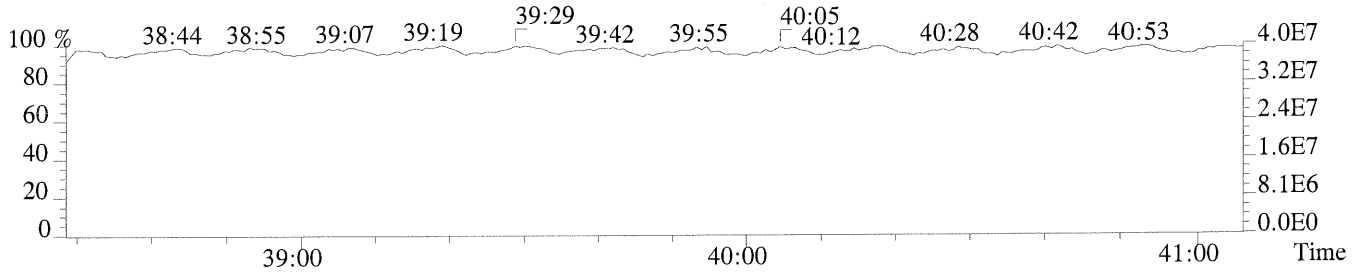
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2704.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

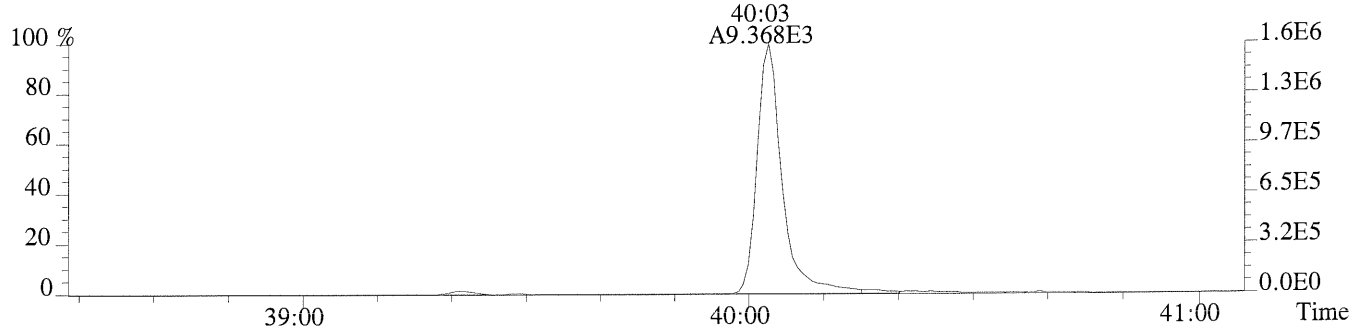


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

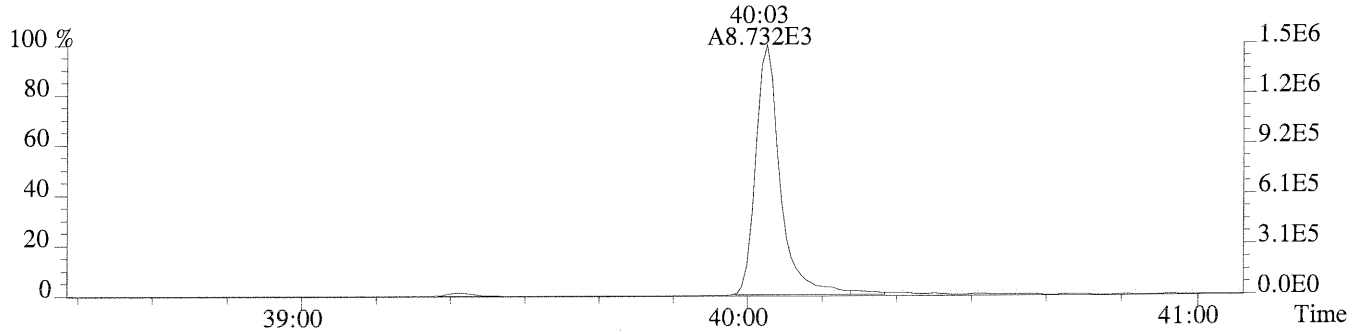


File:P171054 #1-239 Acq:27-MAY-2014 15:19:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

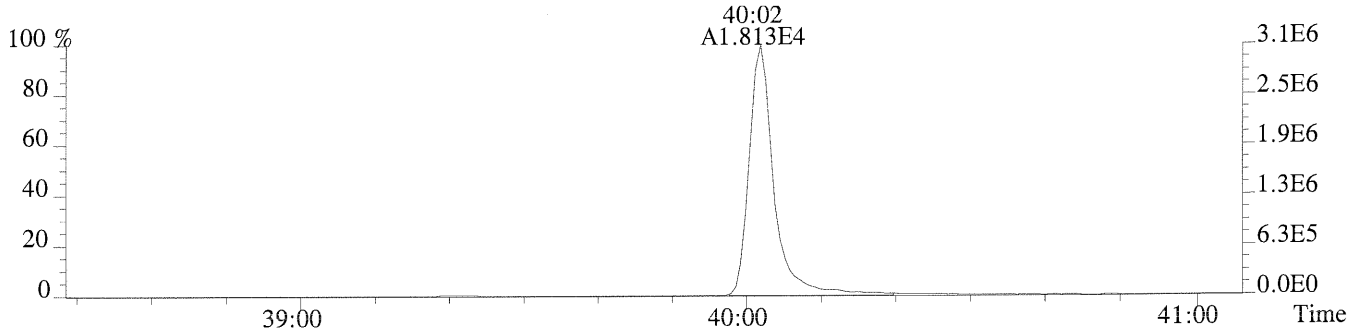
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



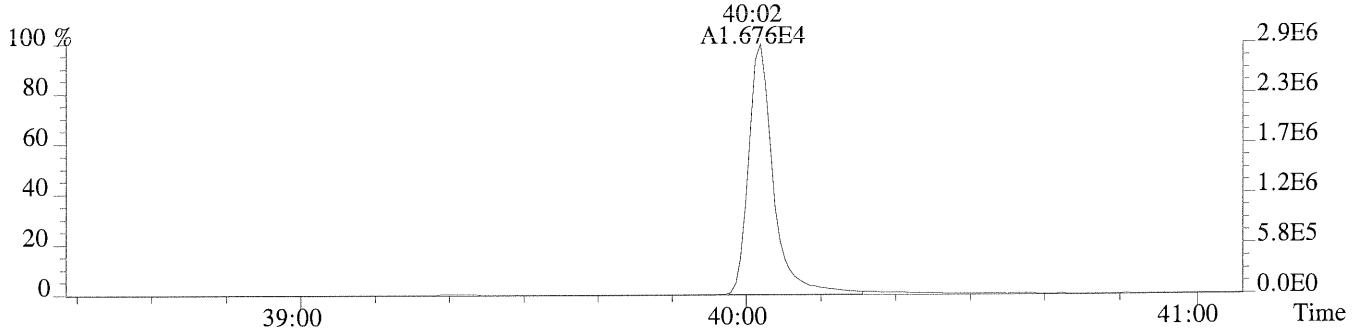
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)



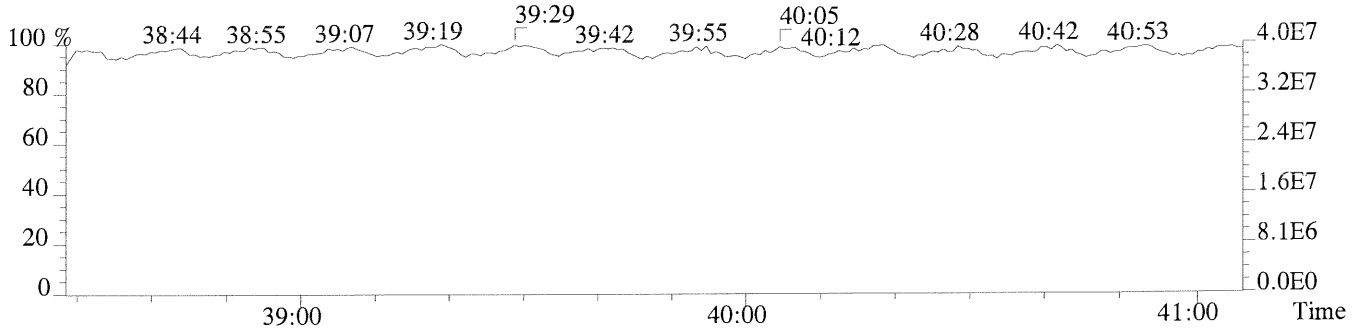
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.40%,F,T)



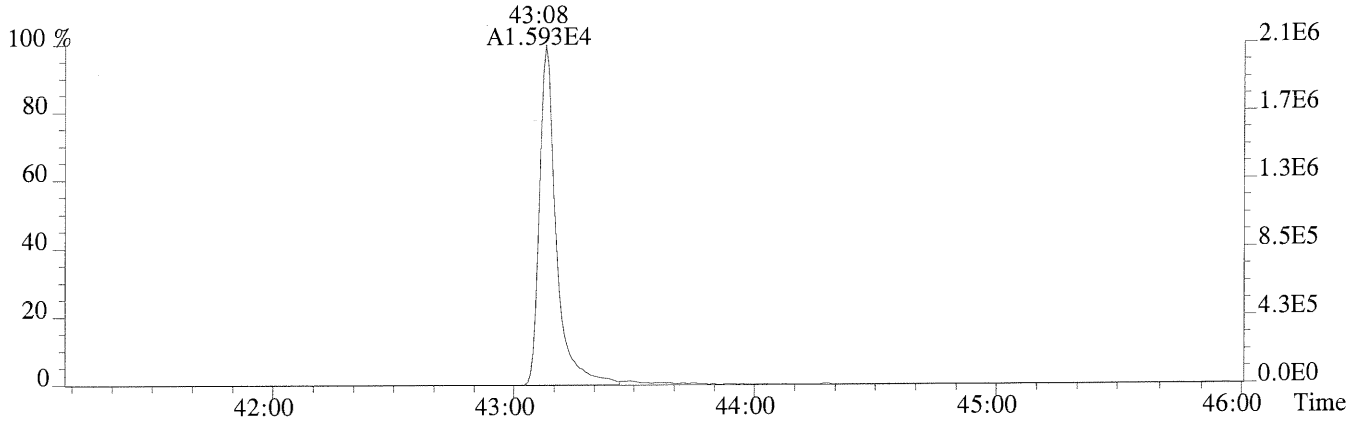
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



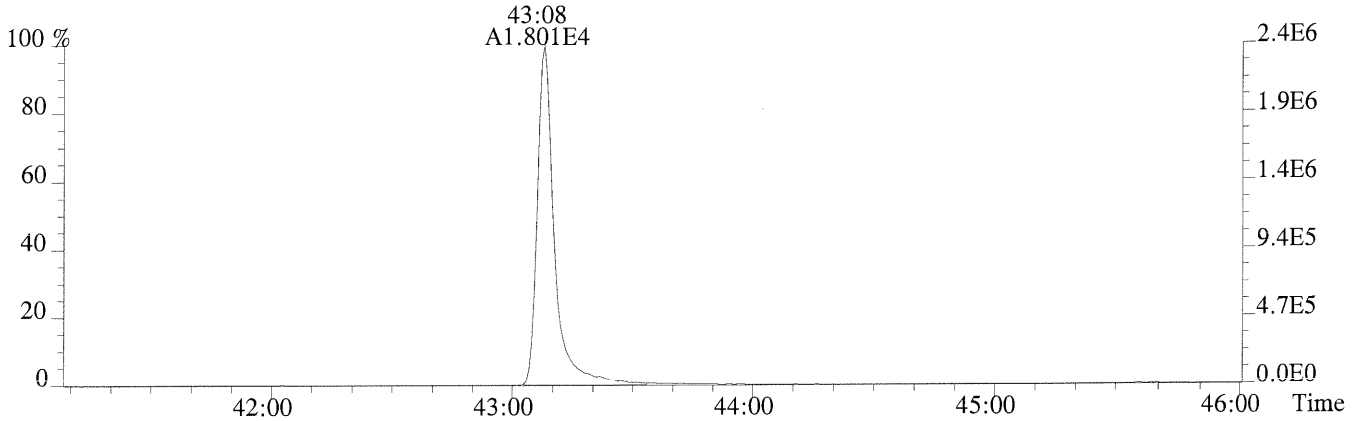
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



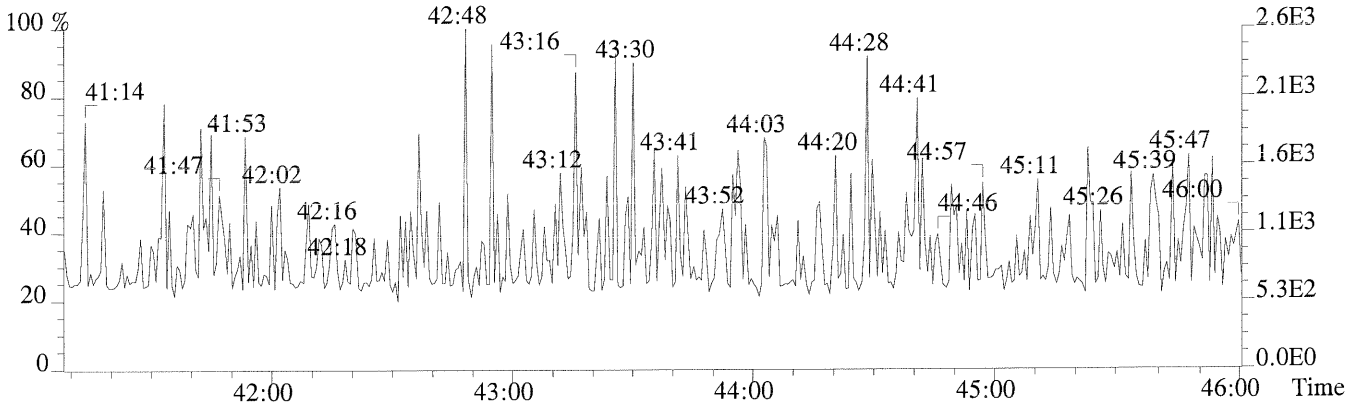
File:P171054 #1-448 Acq:27-MAY-2014 15:19:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,620.0,0.40%,F,T)



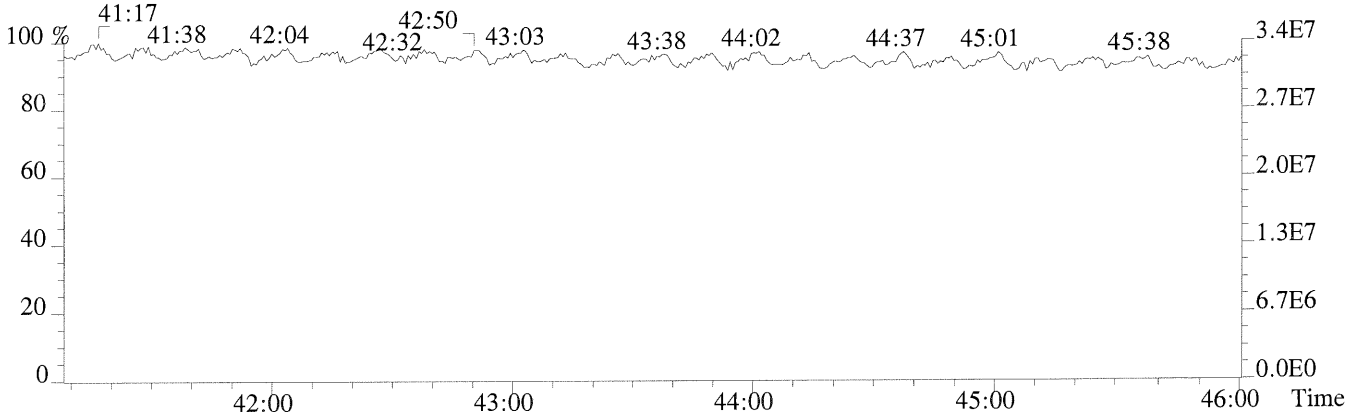
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



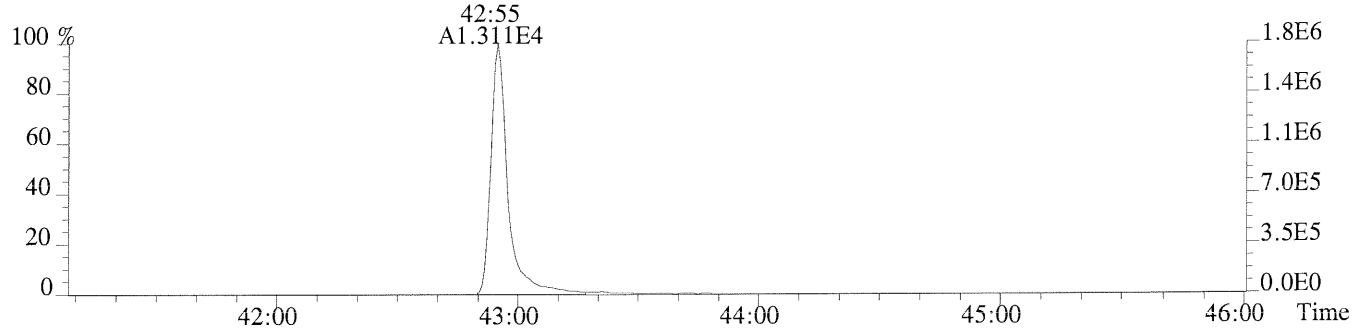
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



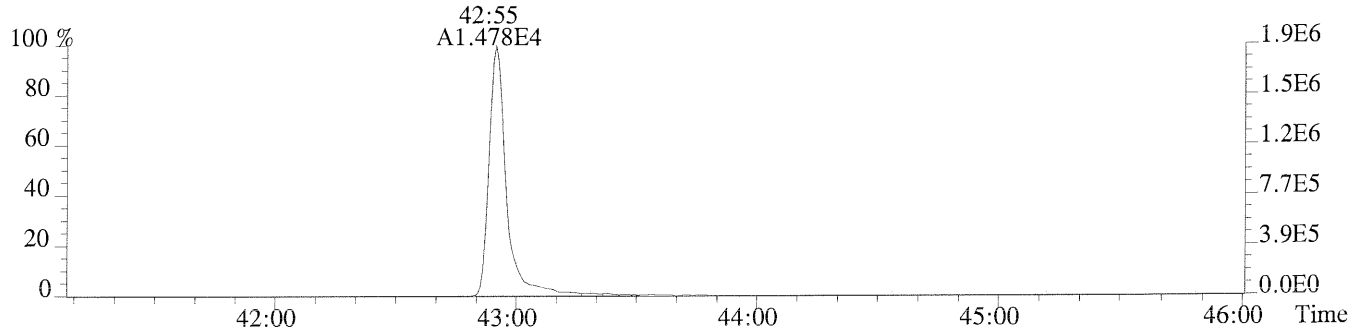
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



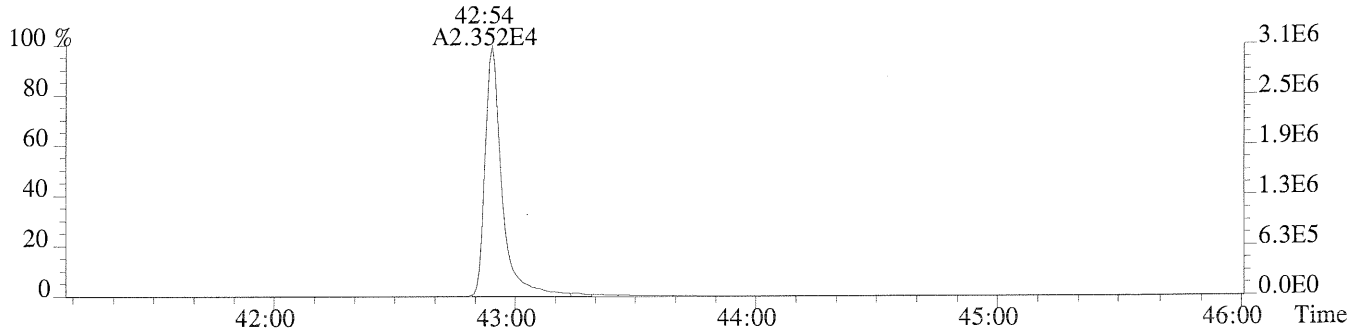
File:P171054 #1-448 Acq:27-MAY-2014 15:19:16 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



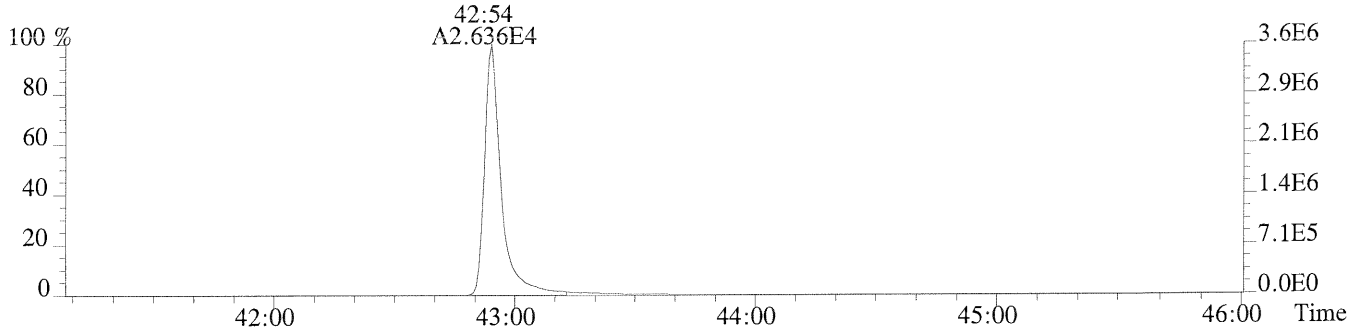
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



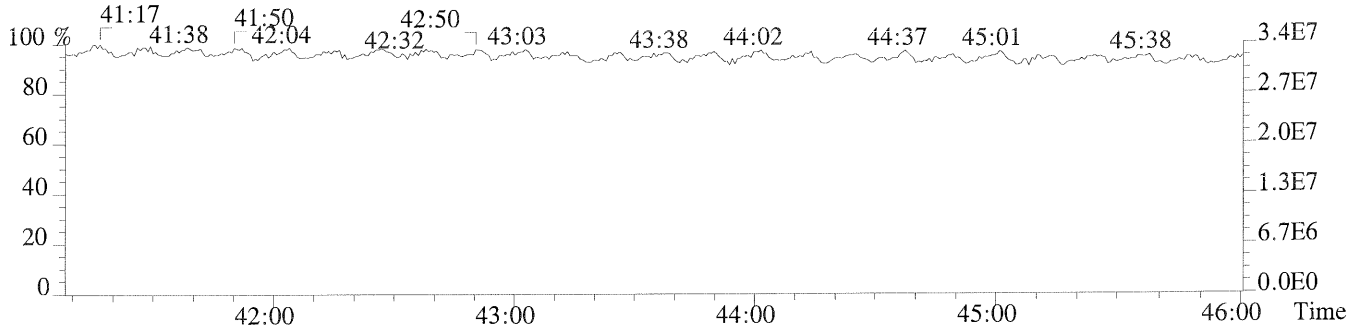
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,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: P229235/P229247

Circle one: Beginning / Ending

Date: 052514

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	✓	✓

Analyst: JW 052714

Second QC: LKL

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) Instrument ID: E-HRMS-04

Init. Calib. Date: 02/01/14

Init. Calib.Times: 15:24

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	P229236	25-MAY-14	14:59:11
CCAL HRCC3/CS3	CCAL HRCC3/CS3	P229235	25-MAY-14	14:11:22
CCAL HRCC3/CS3	CCAL HRCC3/CS3	P229247	25-MAY-14	23:45:28
METHOD BLANK	EQ1400264-01	P229237	25-MAY-14	15:47:02
497624, 497625	E1400522-009	P229238	25-MAY-14	16:34:54
497730, 497731	E1400522-010	P229239	25-MAY-14	17:22:47
301374 & 301375	E1400522-011	P229240	25-MAY-14	18:10:38
301527 & 301528	E1400522-012	P229241	25-MAY-14	18:58:31
301525 & 301526	E1400522-013	P229242	25-MAY-14	19:46:17
301393 & 301394	E1400522-014	P229243	25-MAY-14	20:34:07
301471 & 301472	E1400522-015	P229244	25-MAY-14	21:21:59
SO-206(0-3)	E1400525-002	P229245	25-MAY-14	22:09:51
SO-207(0-3)	E1400525-004	P229246	25-MAY-14	22:57:36

Sample List Report

MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2140525B.SPL
Last Modified: Sunday, May 25, 2014 11:44:46 Central Daylight Time
Printed: Sunday, May 25, 2014 11:45:20 Central Daylight Time

Page Position (1, 1)

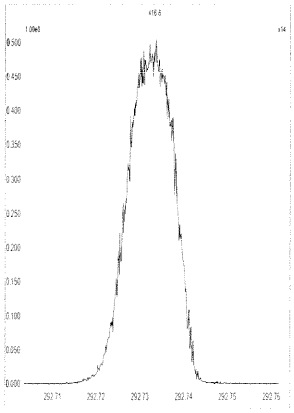
D:\P229235.RES

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	05-25-14	08:24	P229229	CCAL HRCC3/CS3	66131		HRMS Check 10:01 DO NOT USE	8290CAS
2		10:02	P229230	CCAL HRCC3/CS3	66131			8290CAS
3		11:00	P229231	NONANE BLK	NONANE BLK			8290CAS
4		11:47	P229232	NONANE BLK	NONANE BLK			8290CAS
5		12:35	P229233	NONANE BLK	NONANE BLK			8290CAS
6		13:23	P229234	NONANE BLK	NONANE BLK			8290CAS
7		14:11	P229235	CCAL HRCC3/CS3	66131			8290CAS
8		14:59	P229236	WINDOW DEFINE	63680			8290CAS
9		15:47	P229237	EQ1400264-01 MB	MB			8290CAS
10		16:34	P229238	E1400522-009	E1400522-009			8290CAS
11		17:22	P229239	E1400522-010	E1400522-010			8290CAS
12		18:10	P229240	E1400522-011	E1400522-011			8290CAS
13		18:58	P229241	E1400522-012	E1400522-012			8290CAS
14		19:46	P229242	E1400522-013	E1400522-013			8290CAS
15		20:34	P229243	E1400522-014	E1400522-014			8290CAS
16		21:21	P229244	E1400522-015	E1400522-015			8290CAS
17		22:09	P229245	E1400525-002	E1400525-002			8290CAS
18		22:57	P229246	E1400525-004	E1400525-004			8290CAS
19		23:45	P229247	CCAL HRCC3/CS3	66131			8290CAS
20	05-26-14	00:33	P229248	CCAL HRCC3/CS3	66131		HRMS Check 10:53	8290CAS
21			---	---	---			8290CAS
22			---	---	---			8290CAS
23			---	---	---			8290CAS
24			---	---	---			8290CAS
25			---	---	---			8290CAS
26			---	---	---			8290CAS
27			---	---	---			8290CAS
28			---	---	---			TCDFCAS
29			---	---	---			TCDFCAS
30			---	---	---			8290CAS
31	---	---	---	---	---	---	---	8290CAS
32	---	---	---	---	REVIEWED BY:	---	---	8290CAS
33	---	---	---	---	--- 05 27 14	---	---	8290CAS
34	---	---	---	---	---	---	---	8290CAS
35	---	---	---	---	---	---	---	TCDFCAS
36	---	---	---	---	---	---	---	TCDFCAS
37	---	---	---	---	---	---	---	TCDFCAS
38	---	---	---	---	--- 048	---	---	---
39	---	---	---	---	---	---	---	8290CAS

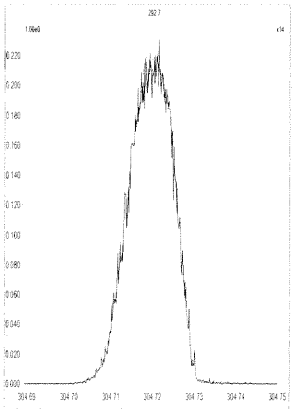
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Sunday, May 25, 2014 10:01:05 Central Daylight Time

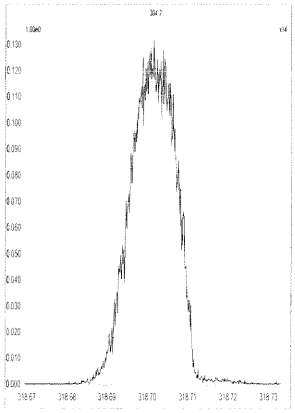
M 292.9824 R 13583



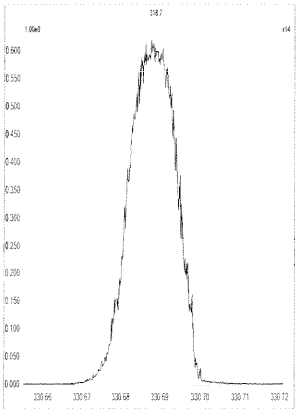
M 304.9824 R 13227



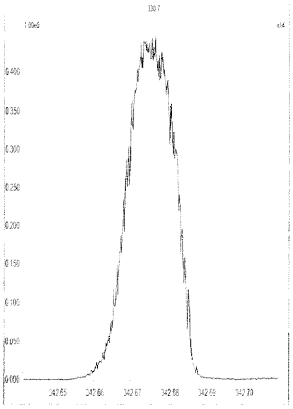
M 318.9792 R 14202



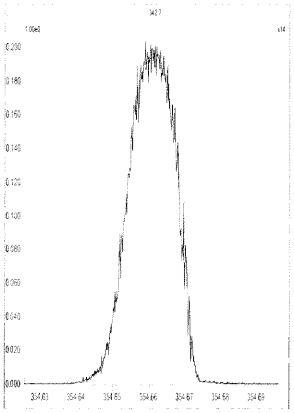
M 330.9792 R 13890



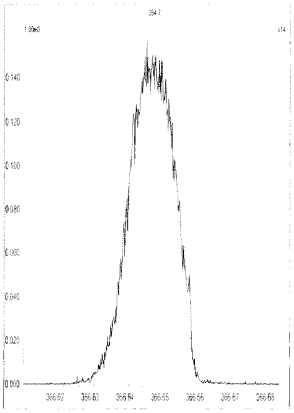
M 342.9792 R 13439



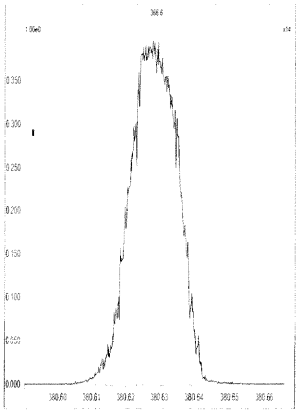
M 354.9792 R 13738



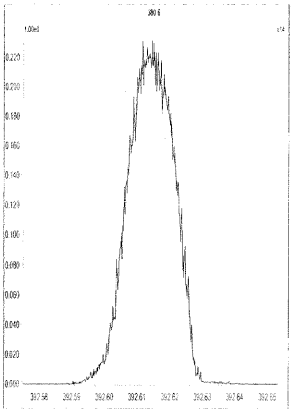
M 366.9792 R 13440



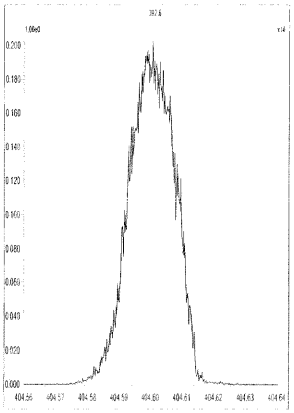
M 380.9760 R 13300



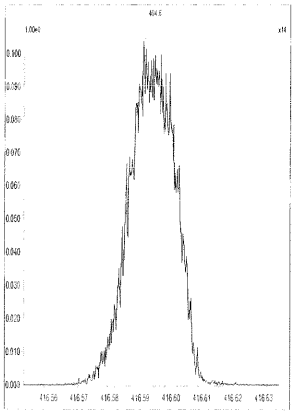
M 392.9760 R 13369



M 404.9760 R 13295



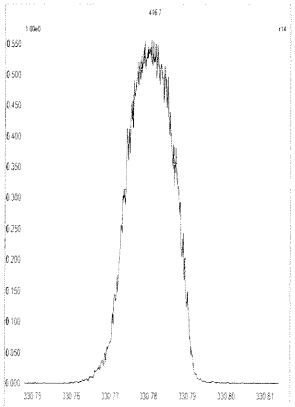
M 416.9760 R 13298



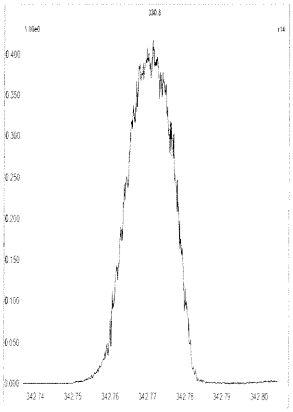
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Sunday, May 25, 2014 10:01:25 Central Daylight Time

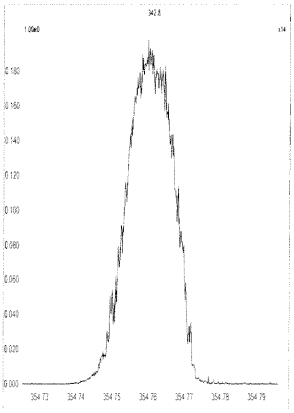
M 330.9792 R 13810



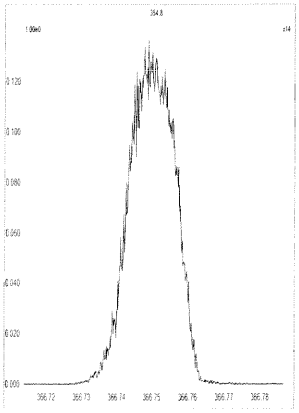
M 342.9792 R 13891



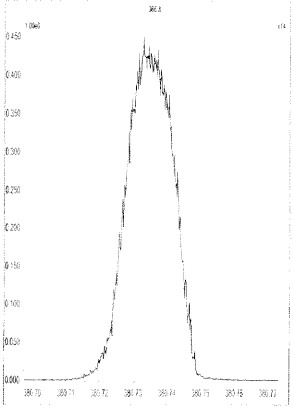
M 354.9792 R 13227



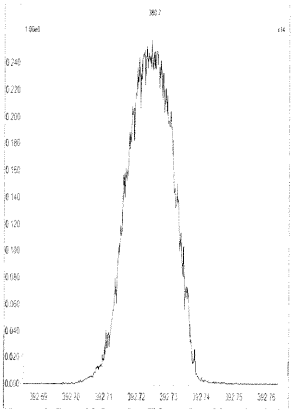
M 366.9792 R 14042



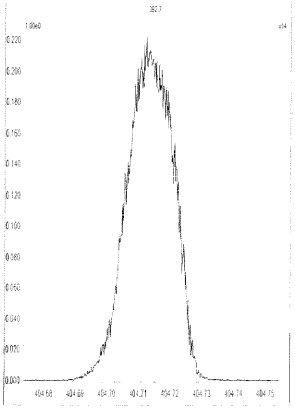
M 380.9760 R 13089



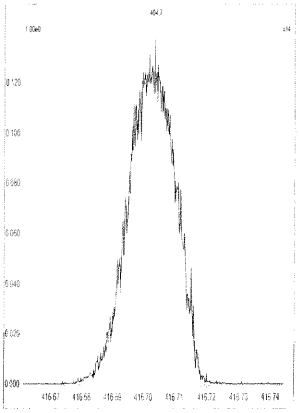
M 392.9760 R 13226



M 404.9760 R 12756



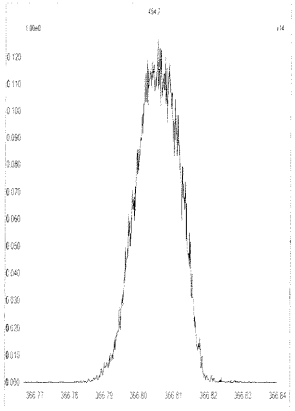
M 416.9760 R 13020



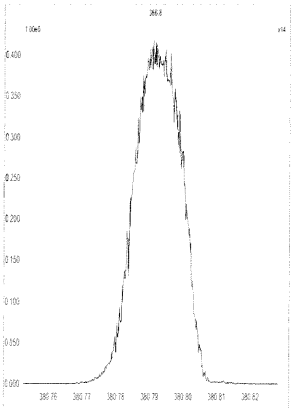
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Sunday, May 25, 2014 10:01:40 Central Daylight Time

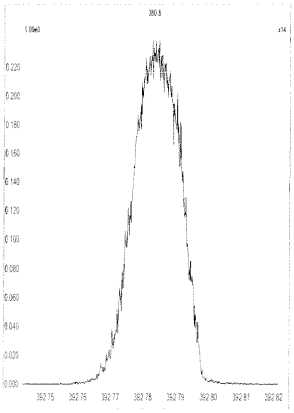
M 366.9792 R 13894



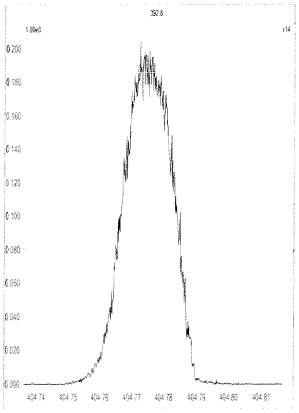
M 380.9760 R 13366



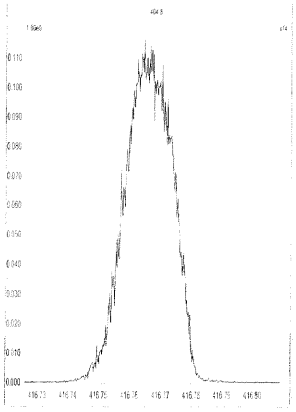
M 392.9760 R 13514



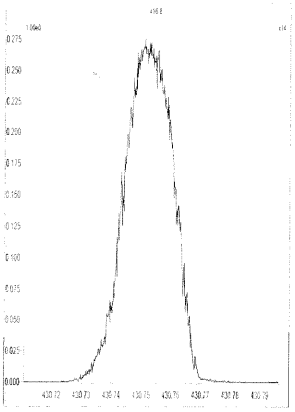
M 404.9760 R 12885



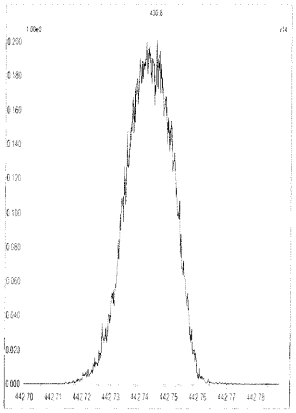
M 416.9760 R 13159



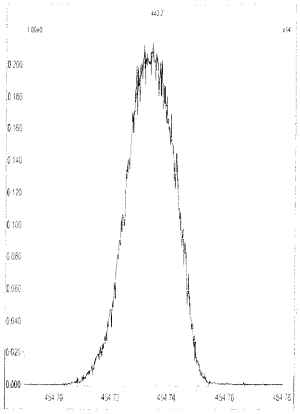
M 430.9728 R 12820



M 442.9728 R 12313



M 454.9728 R 12311



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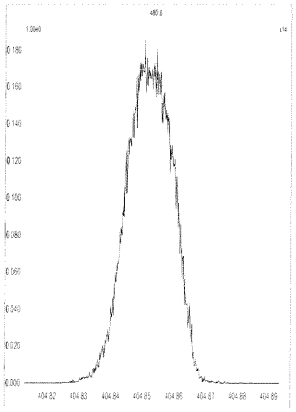
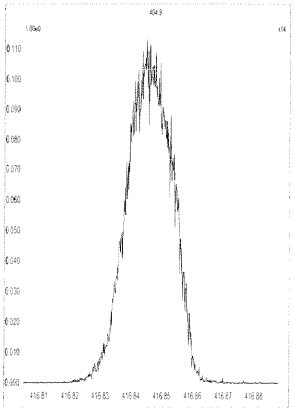
Printed: Sunday, May 25, 2014 10:01:57 Central Daylight Time

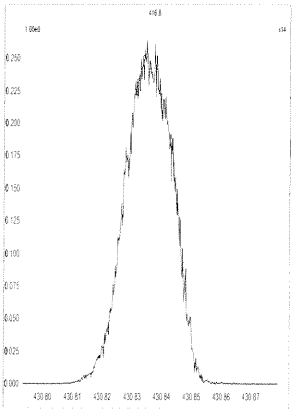
M 404.9760 R 13299



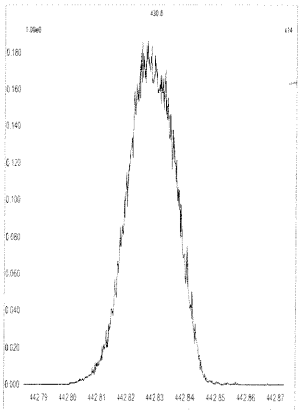
M 416.9760 R 13735



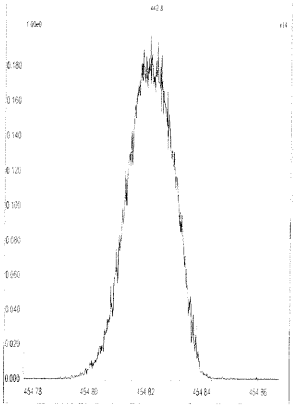
M 430.9728 R 12884



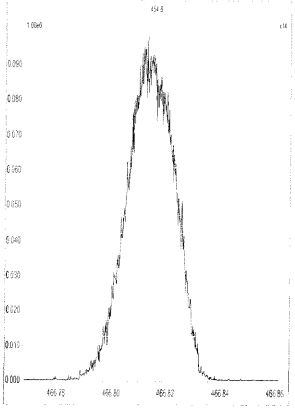
M 442.9728 R 12626



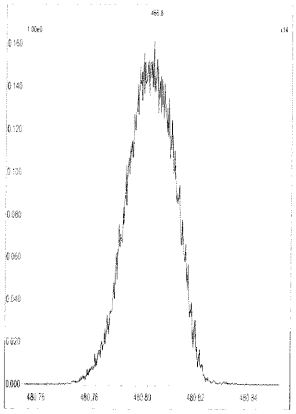
M 454.9728 R 12134



M 466.9728 R 12377



M 480.9696 R 11737



File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Sunday, May 25, 2014 10:02:15 Central Daylight Time

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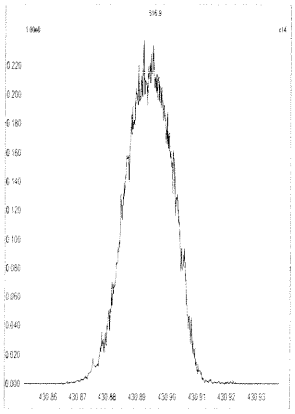
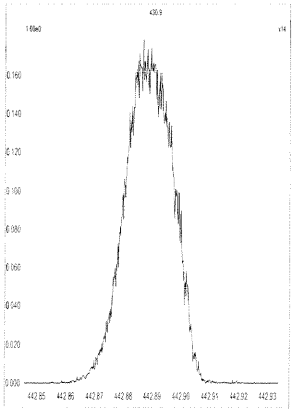
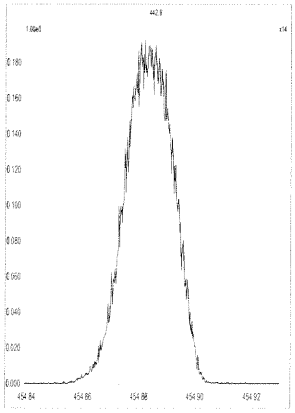


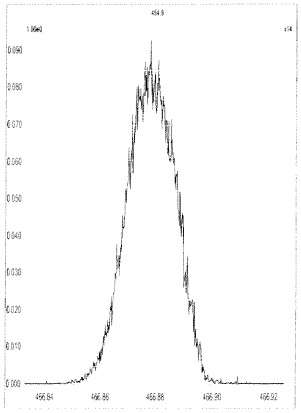
M 442.9728 R 12565



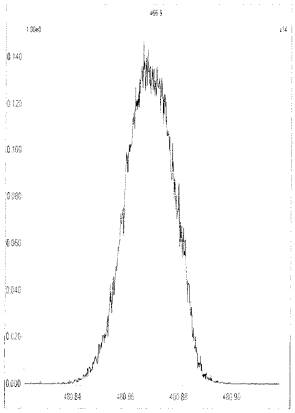
M 454.9728 R 12626



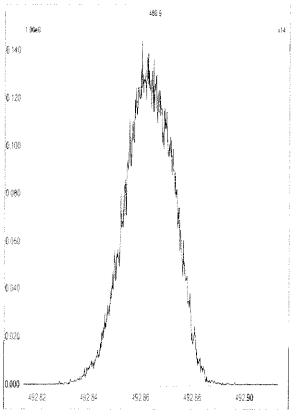
M 466.9728 R 12379



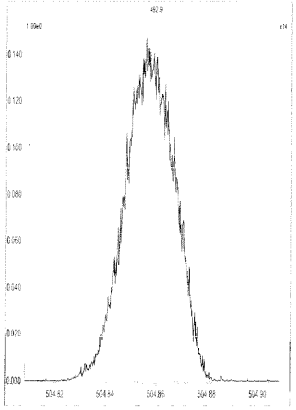
M 480.9696 R 11849



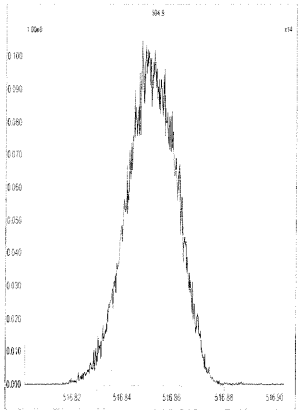
M 492.9696 R 11415



M 504.9696 R 11791



M 516.9697 R 11158



File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, May 27, 2014 10:53:14 Central Daylight Time

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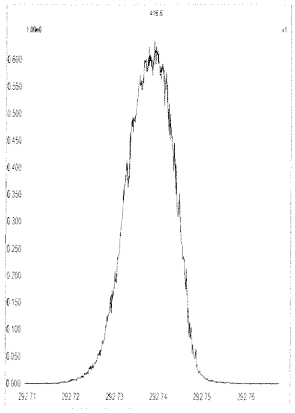
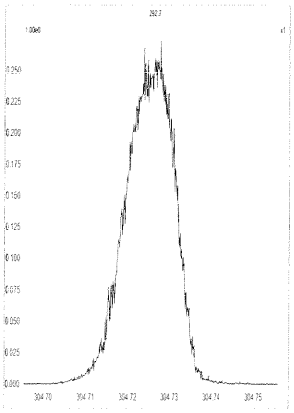
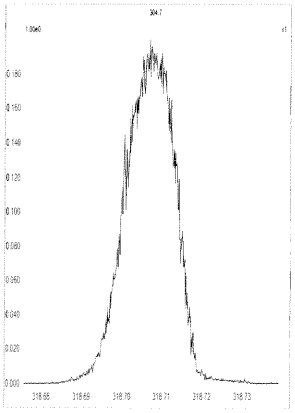


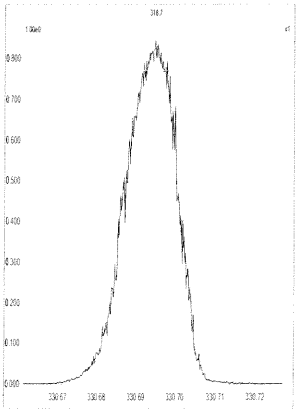
M 304.9824 R 12626



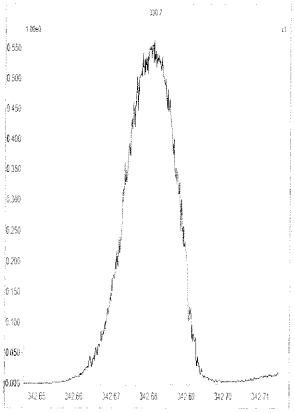
M 318.9792 R 12441



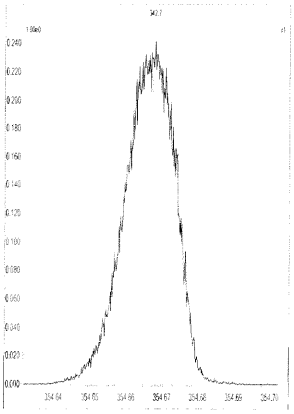
M 330.9792 R 11900



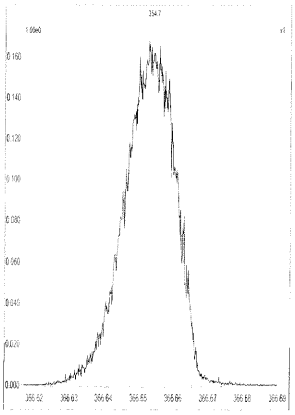
M 342.9792 R 11847



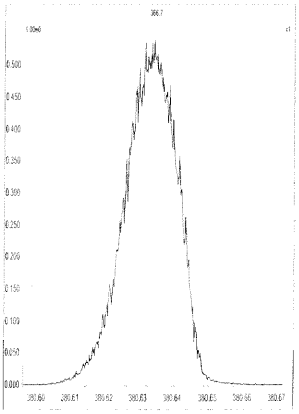
M 354.9792 R 11313



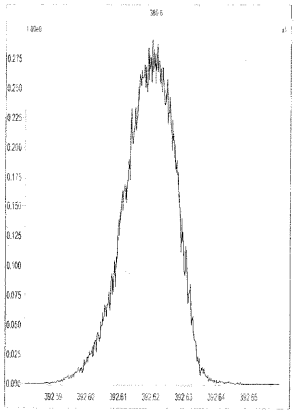
M 366.9792 R 11210



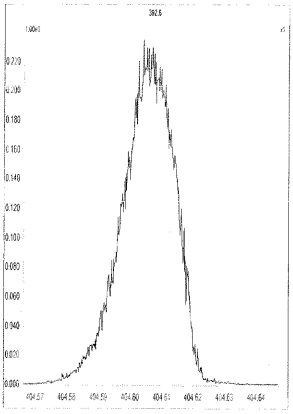
M 380.9760 R 11162



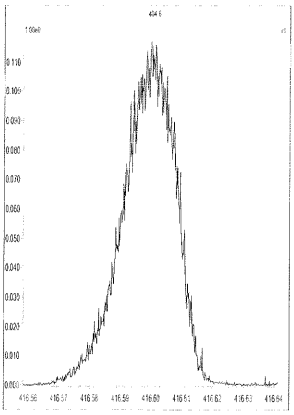
M 392.9760 R 11013



M 404.9760 R 10636



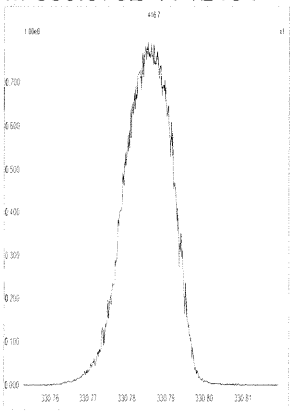
M 416.9760 R 10772



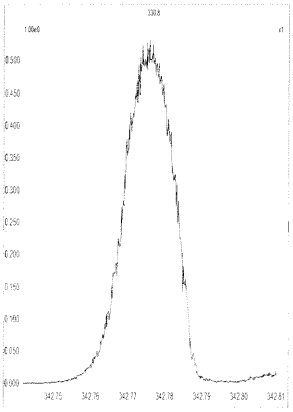
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, May 27, 2014 10:53:40 Central Daylight Time

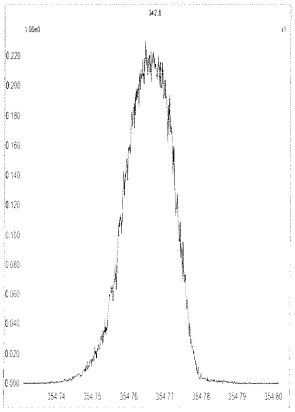
M 330.9792 R 12194



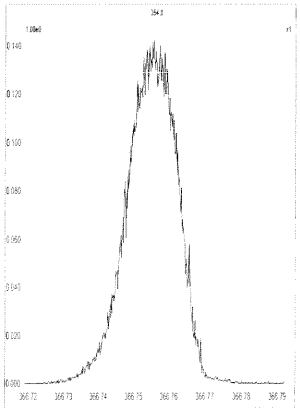
M 342.9792 R 12079



M 354.9792 R 11848

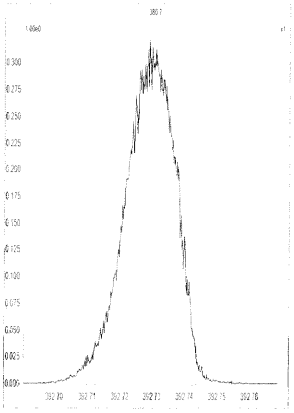


M 366.9792 R 11630

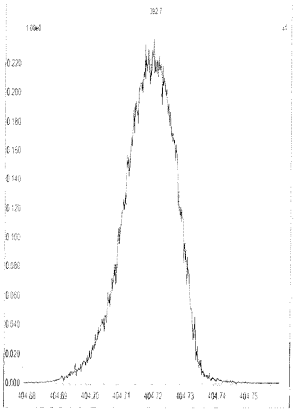


M 380.9760 R 11360

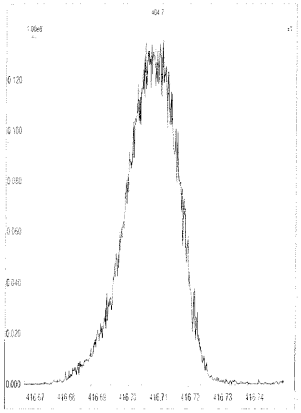
M 392.9760 R 11110



M 404.9760 R 10870



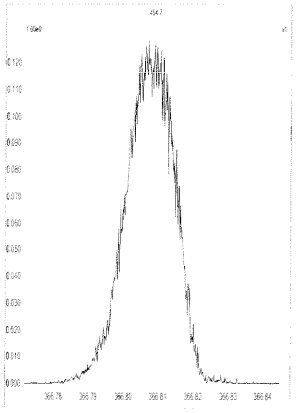
M 416.9760 R 10373



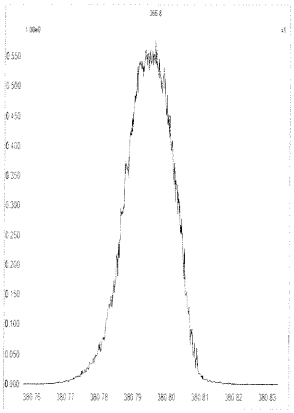
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, May 27, 2014 10:54:03 Central Daylight Time

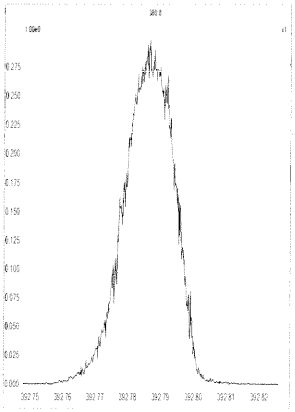
M 366.9792 R 11961



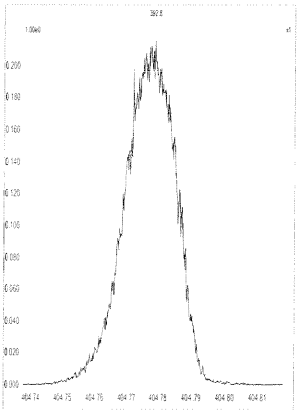
M 380.9760 R 12075



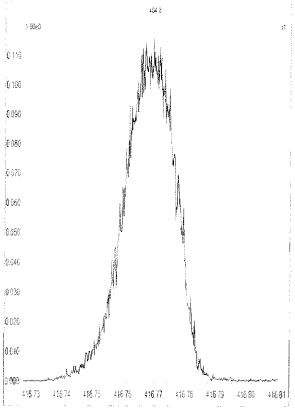
M 392.9760 R 11793



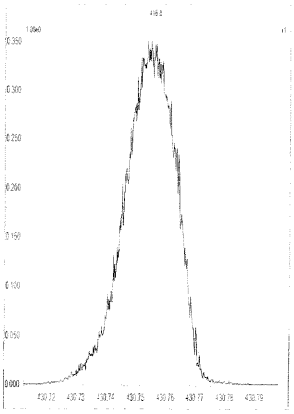
M 404.9760 R 11519



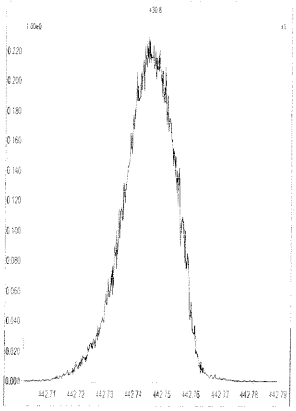
M 416.9760 R 11313



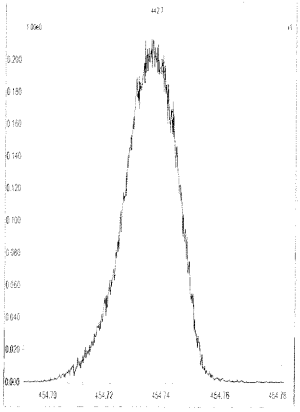
M 430.9728 R 11312



M 442.9728 R 10824



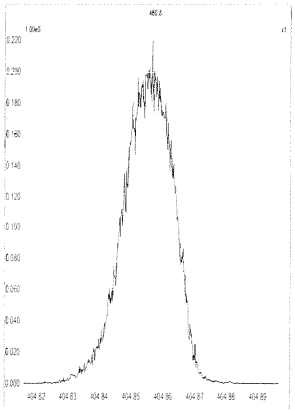
M 454.9728 R 10730



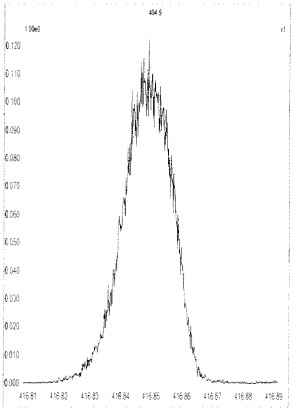
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, May 27, 2014 10:54:20 Central Daylight Time

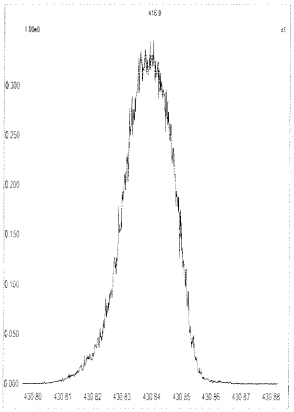
M 404.9760 R 11793



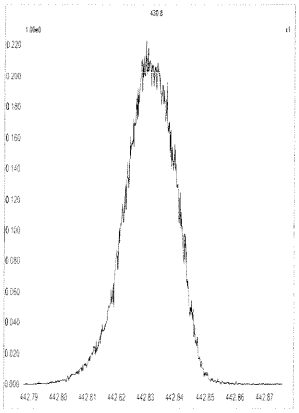
M 416.9760 R 11736



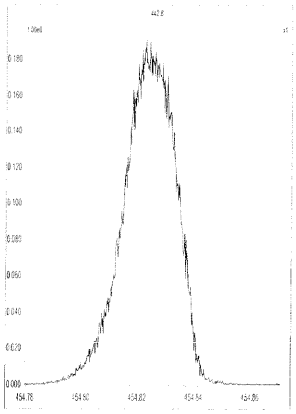
M 430.9728 R 11158



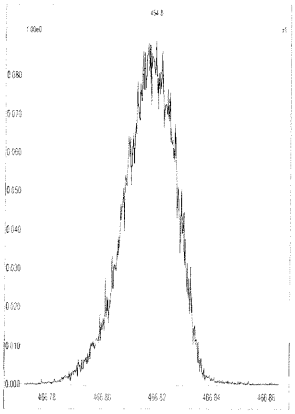
M 442.9728 R 10870



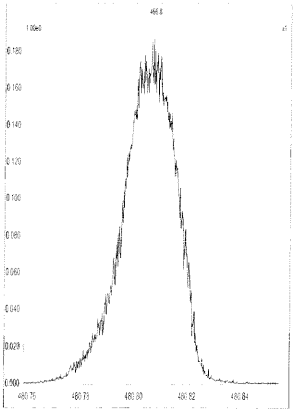
M 454.9728 R 10915



M 466.9728 R 10776



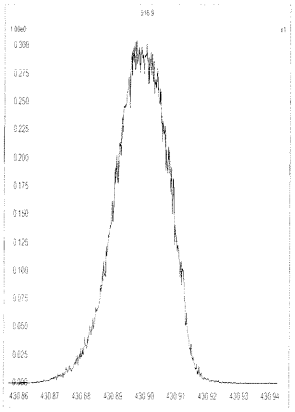
M 480.9696 R 10416



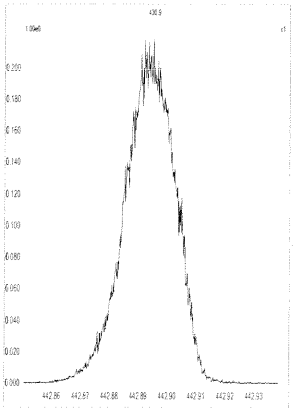
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, May 27, 2014 10:54:38 Central Daylight Time

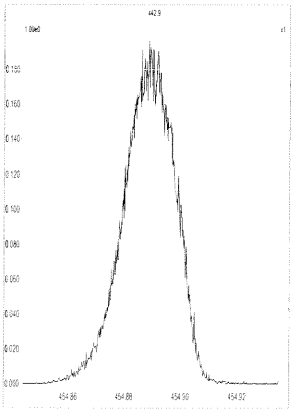
M 430.9728 R 11160



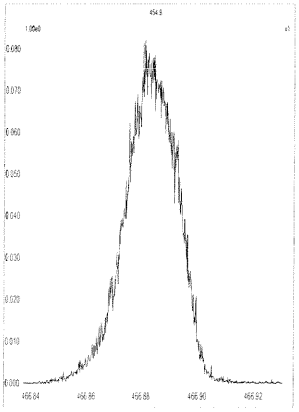
M 442.9728 R 11212



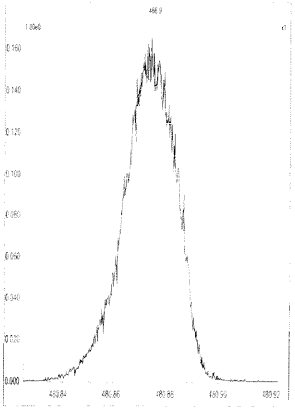
M 454.9728 R 11261



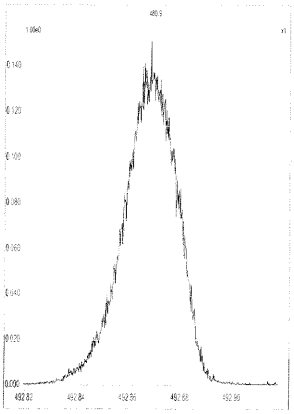
M 466.9728 R 10774



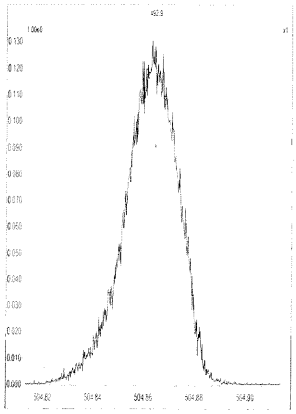
M 480.9696 R 10591



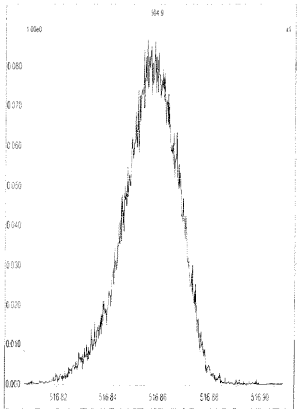
M 492.9696 R 10460



M 504.9696 R 10637



M 516.9697 R 10597



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

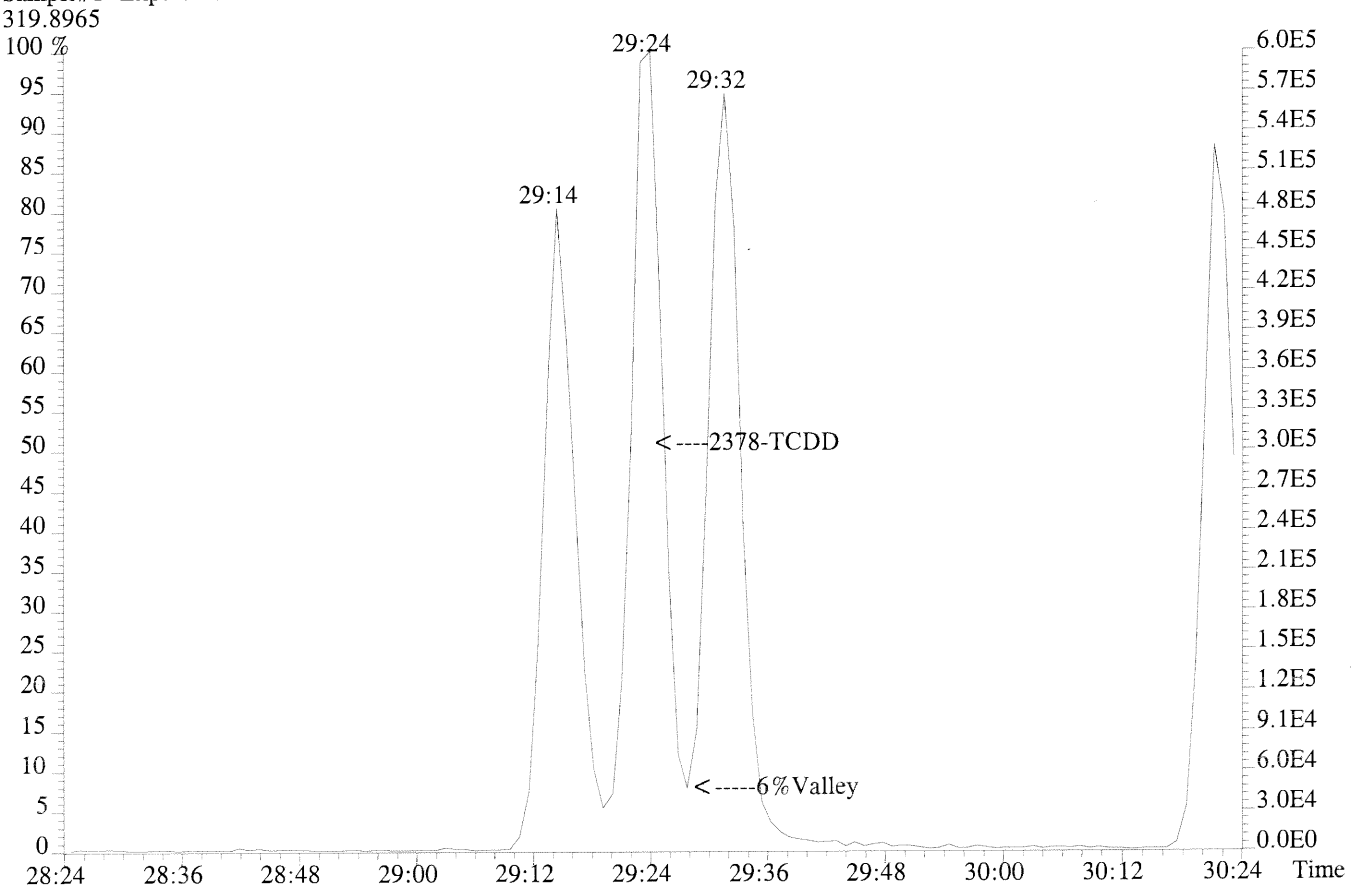
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411
GC Column: DB-5msUI

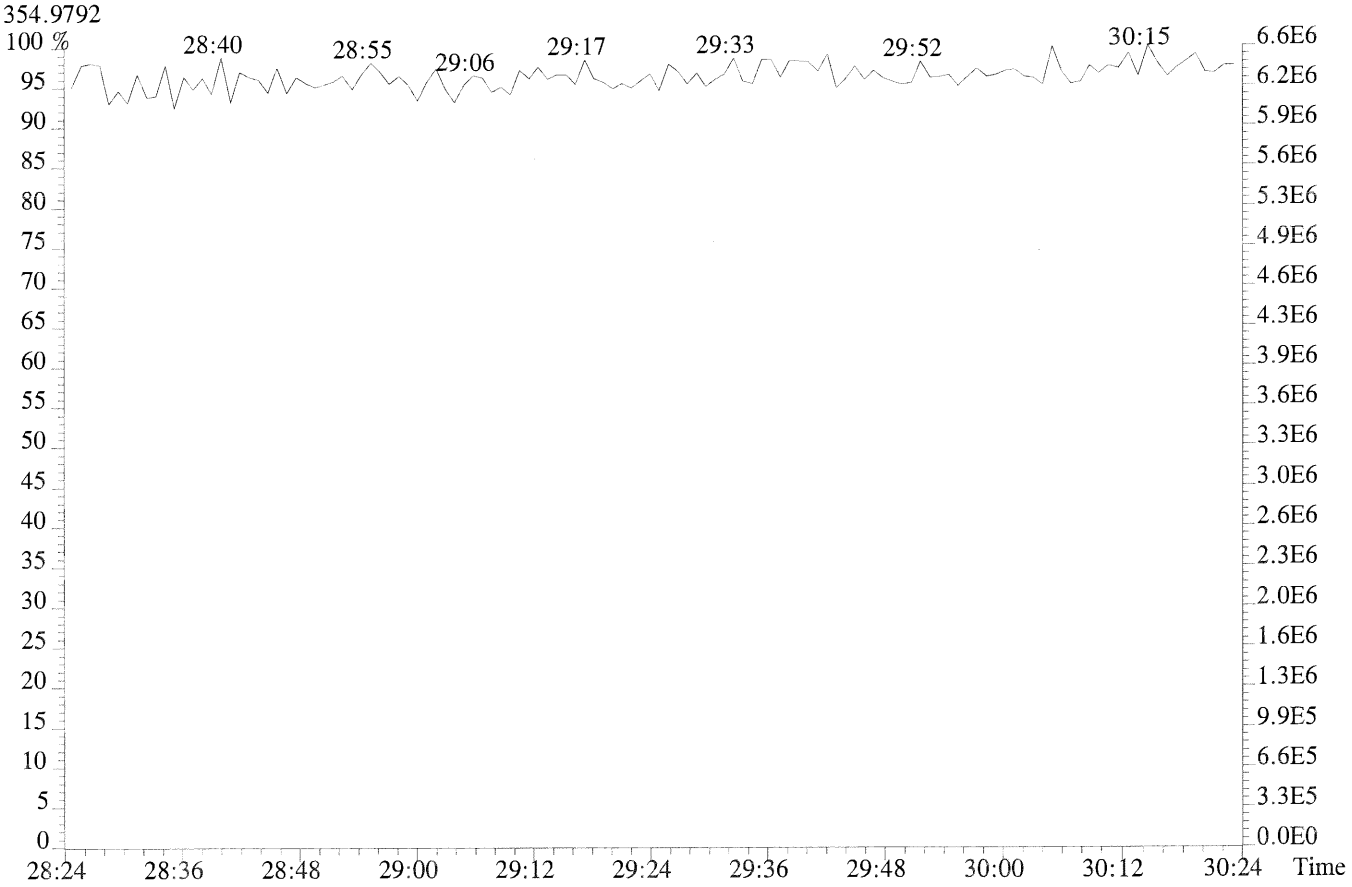
Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P229236
Date Analyzed: 25-MAY-2014
Time Analyzed: 14:59:11

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:20	30:33
TCDD	26:15	30:21
PeCDF	30:26	34:36
PeCDD	31:55	34:20
HxCDF	35:12	37:41
HxCDD	35:42	37:16
HpCDF	38:52	40:19
HpCDD	39:06	39:48

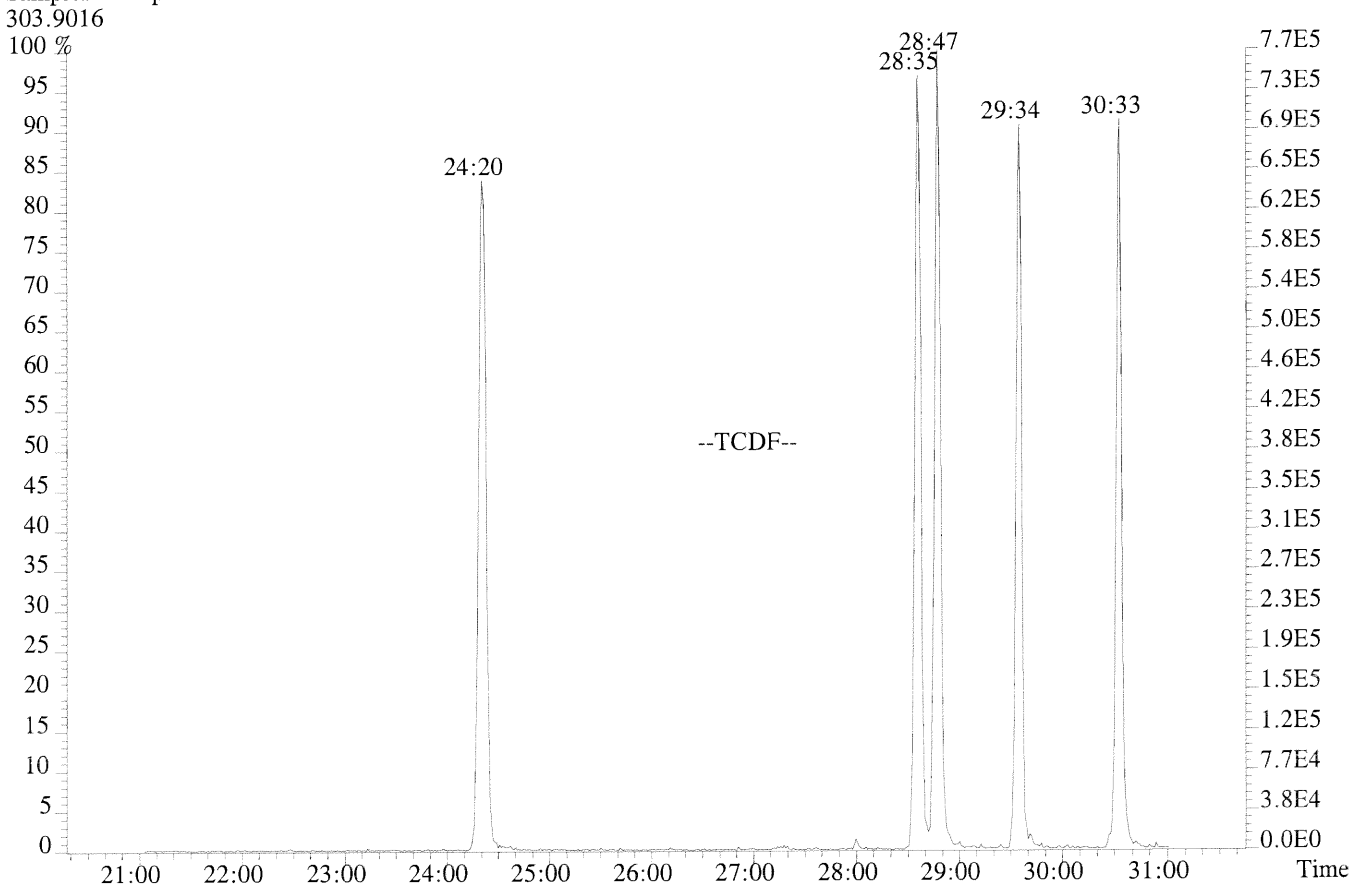
% Valley 2378-TCDD: 6 %

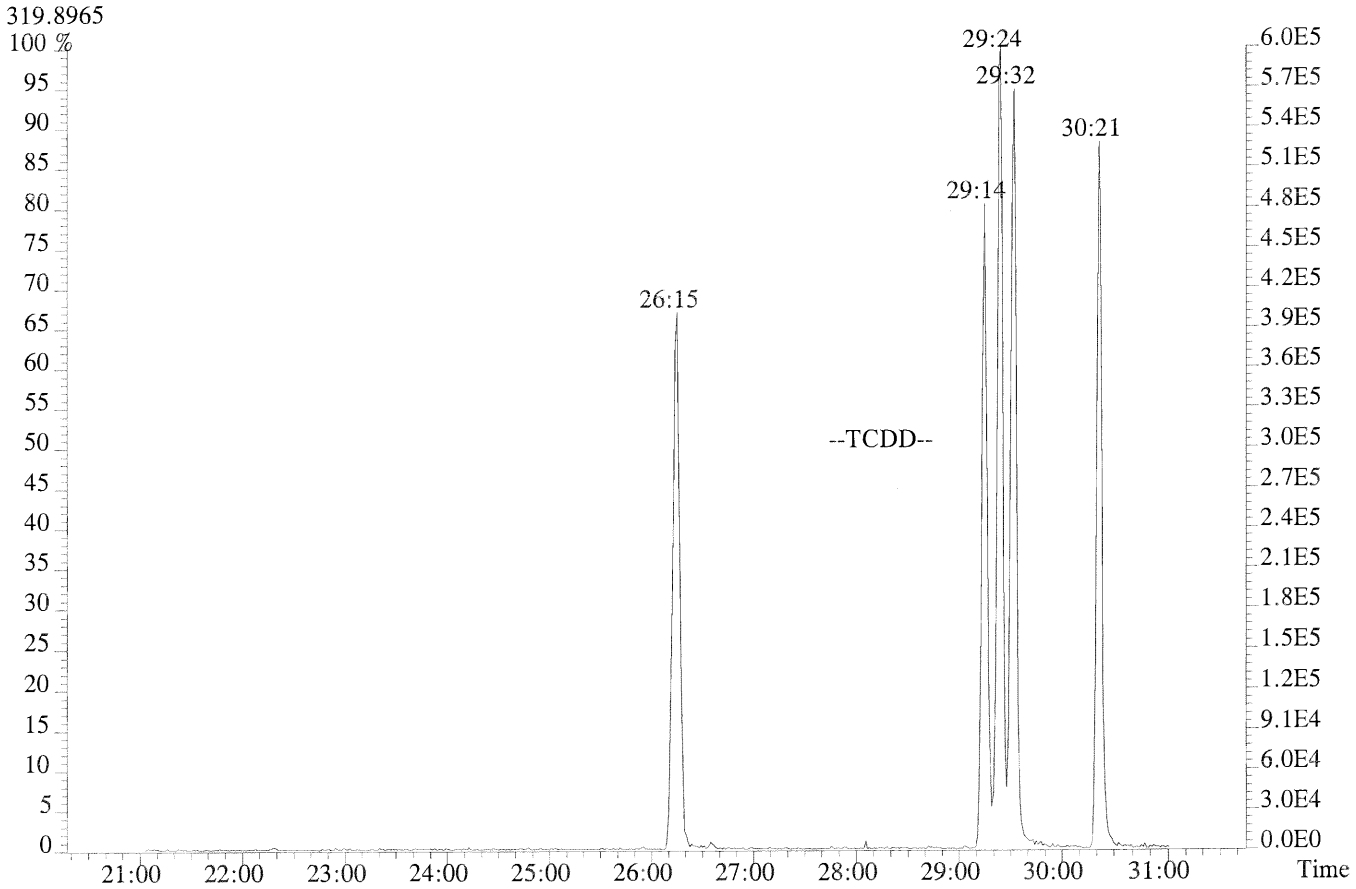
File:P229236 #1-627 Acq:25-MAY-2014 14:59:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



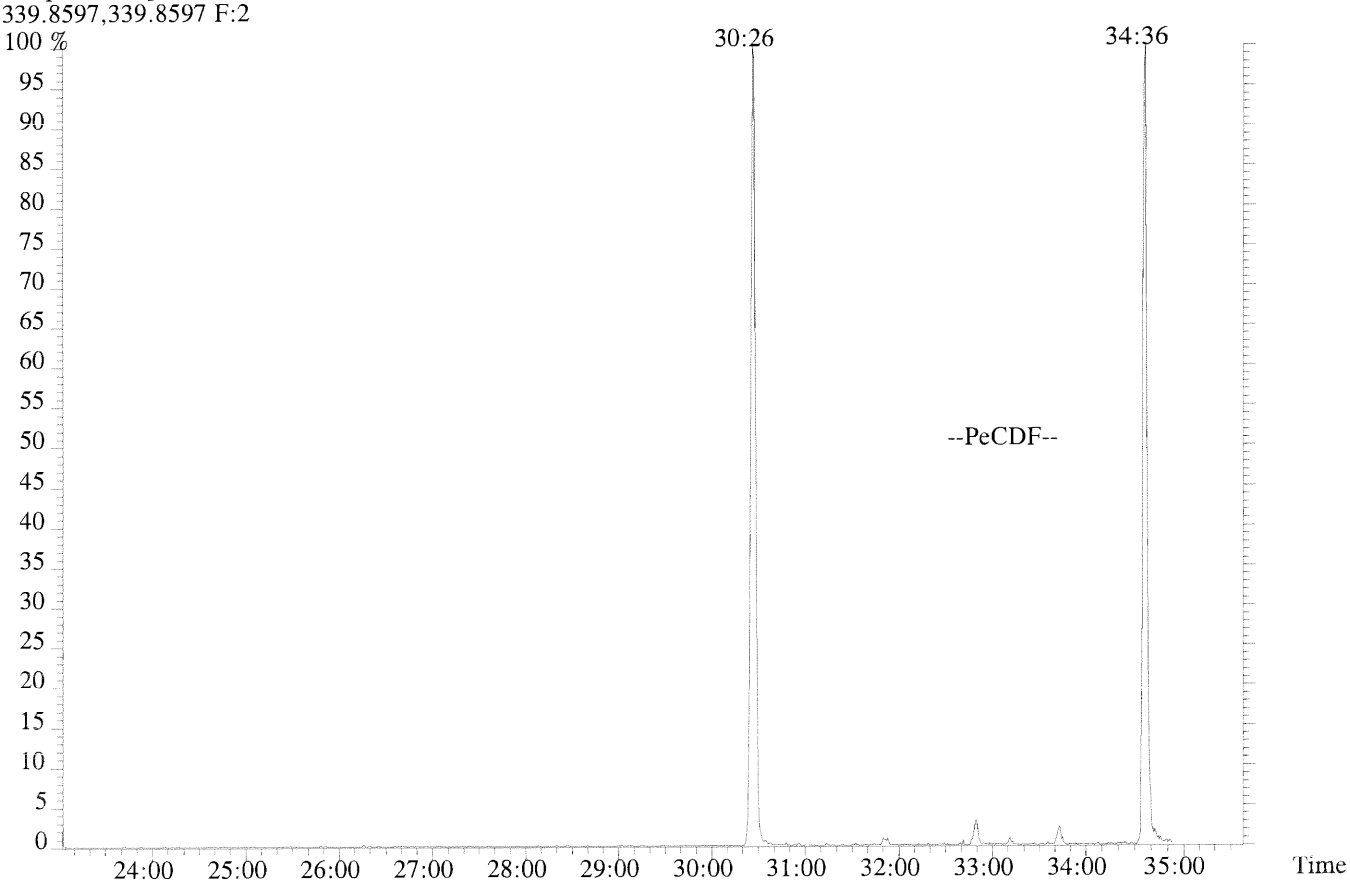


File:P229236 #1-627 Acq:25-MAY-2014 14:59:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

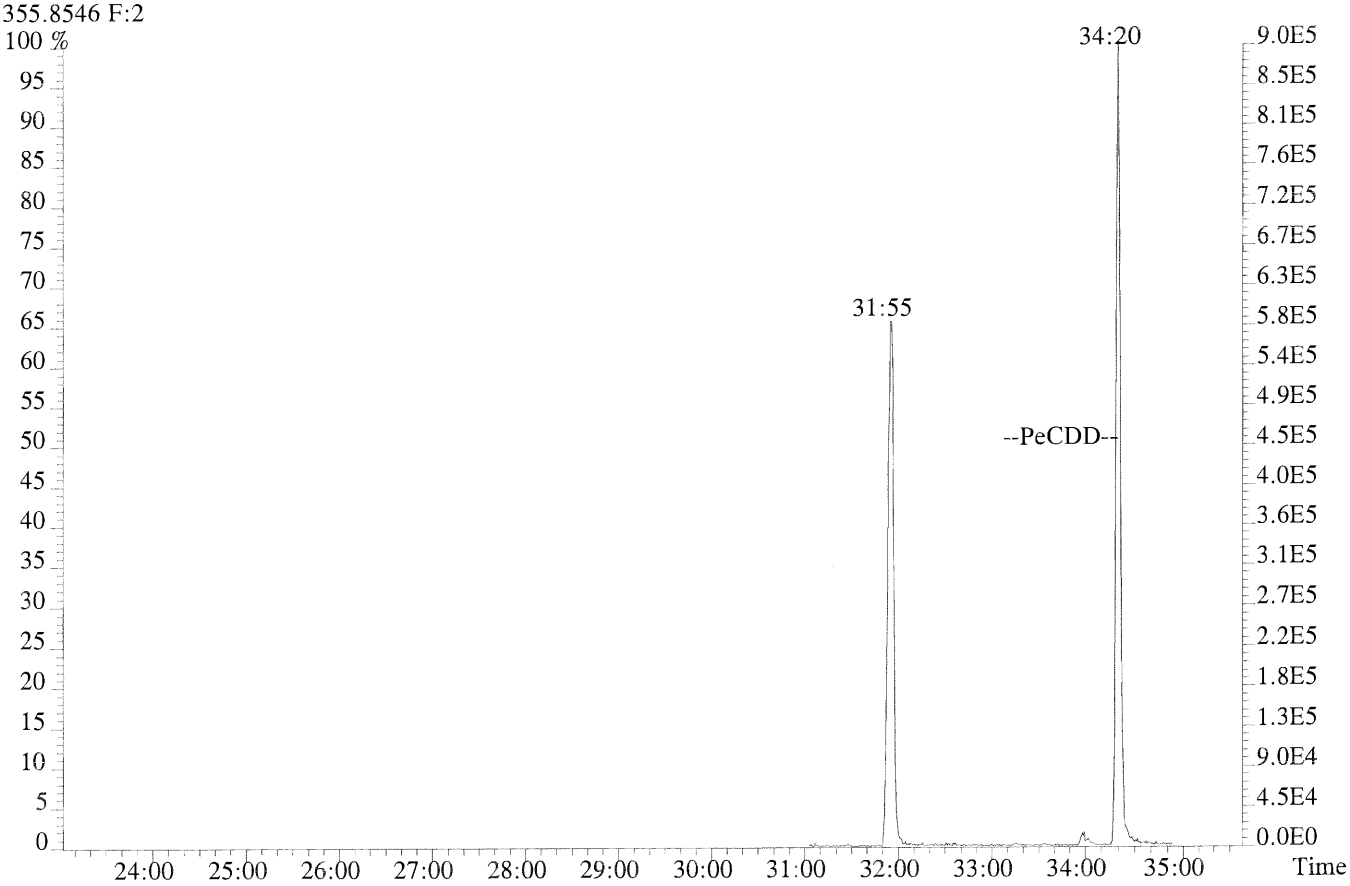




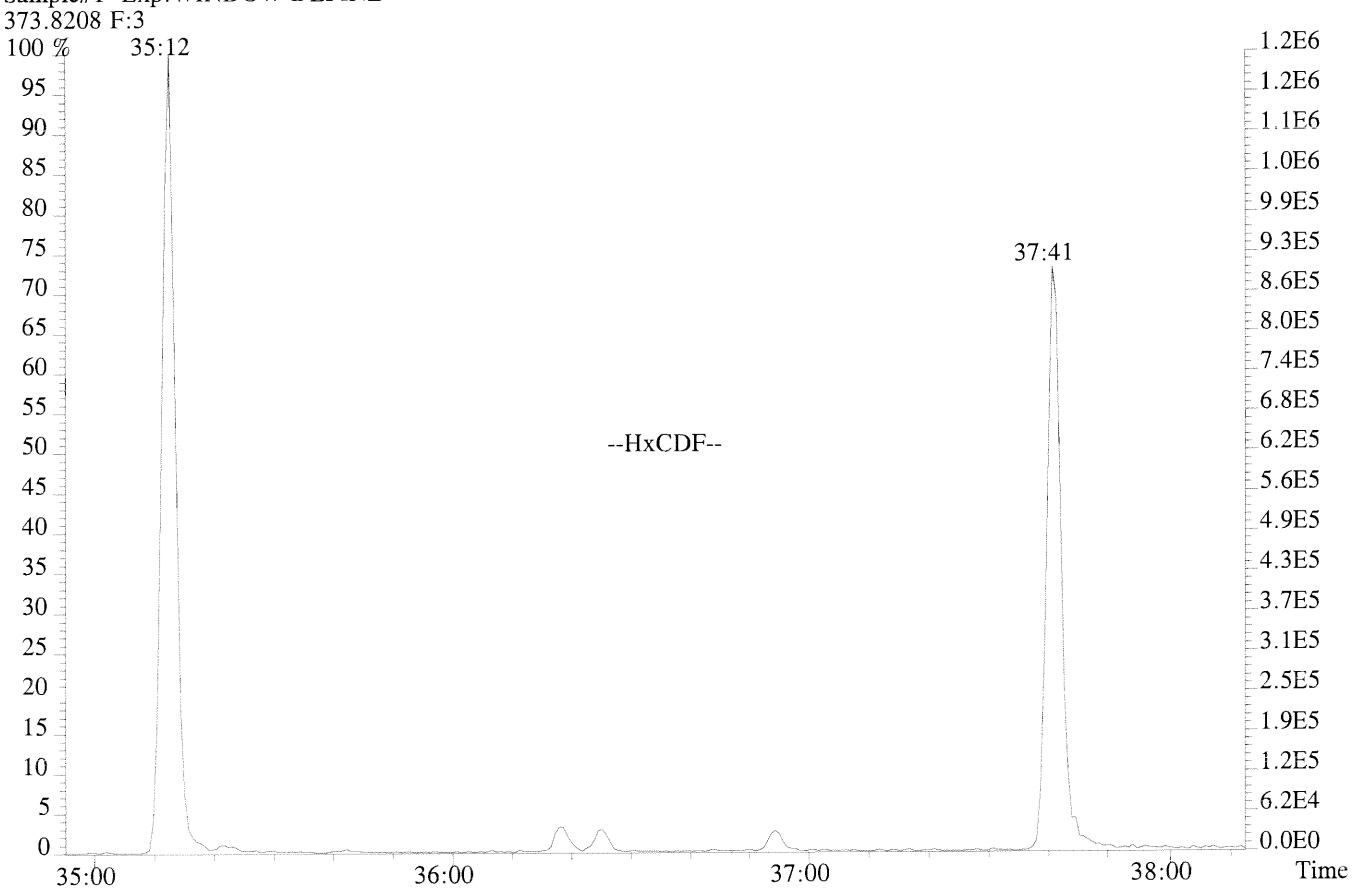
File:P229236 #1-627 Acq:25-MAY-2014 14:59:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

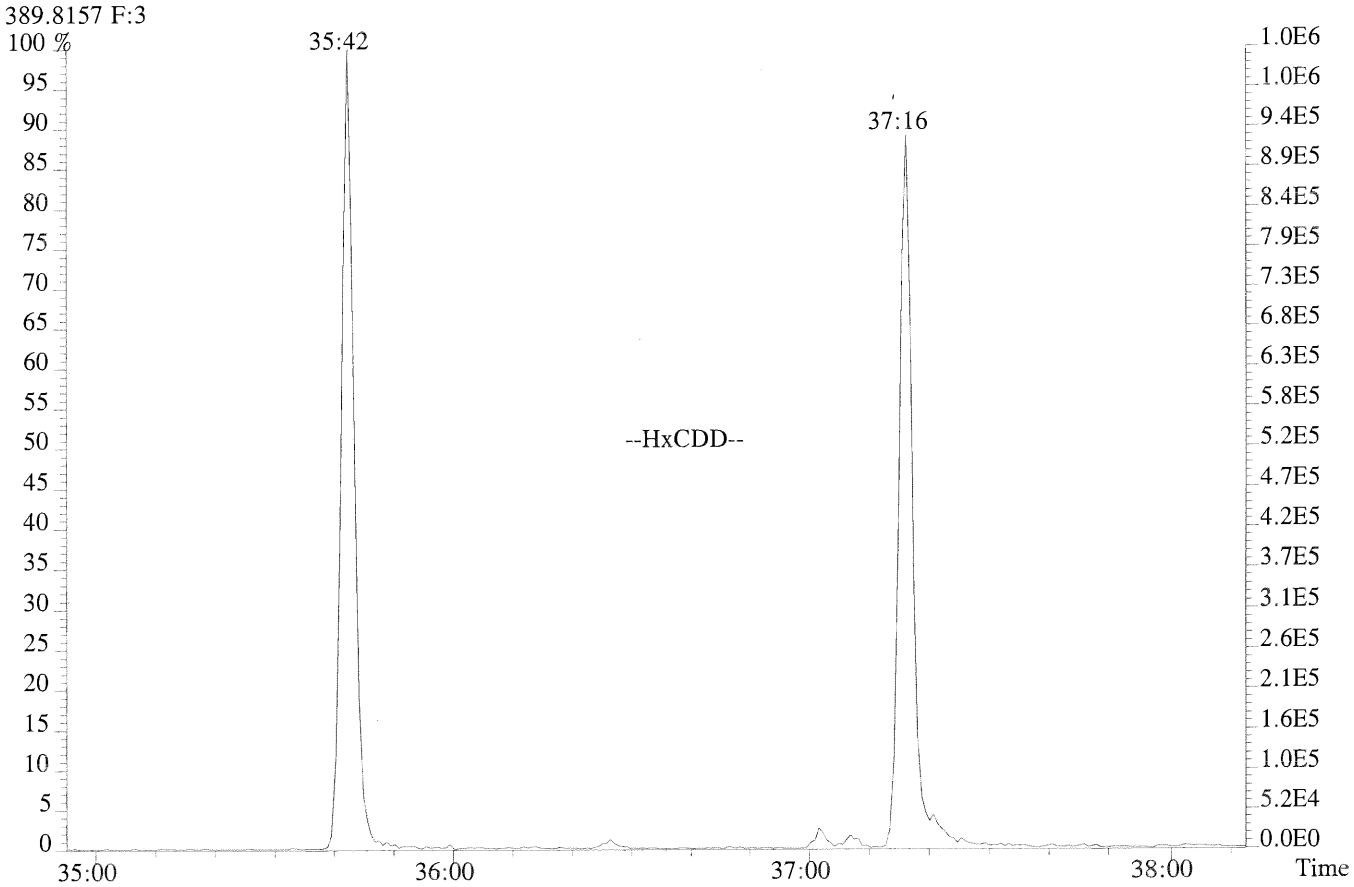


355.8546 F:2

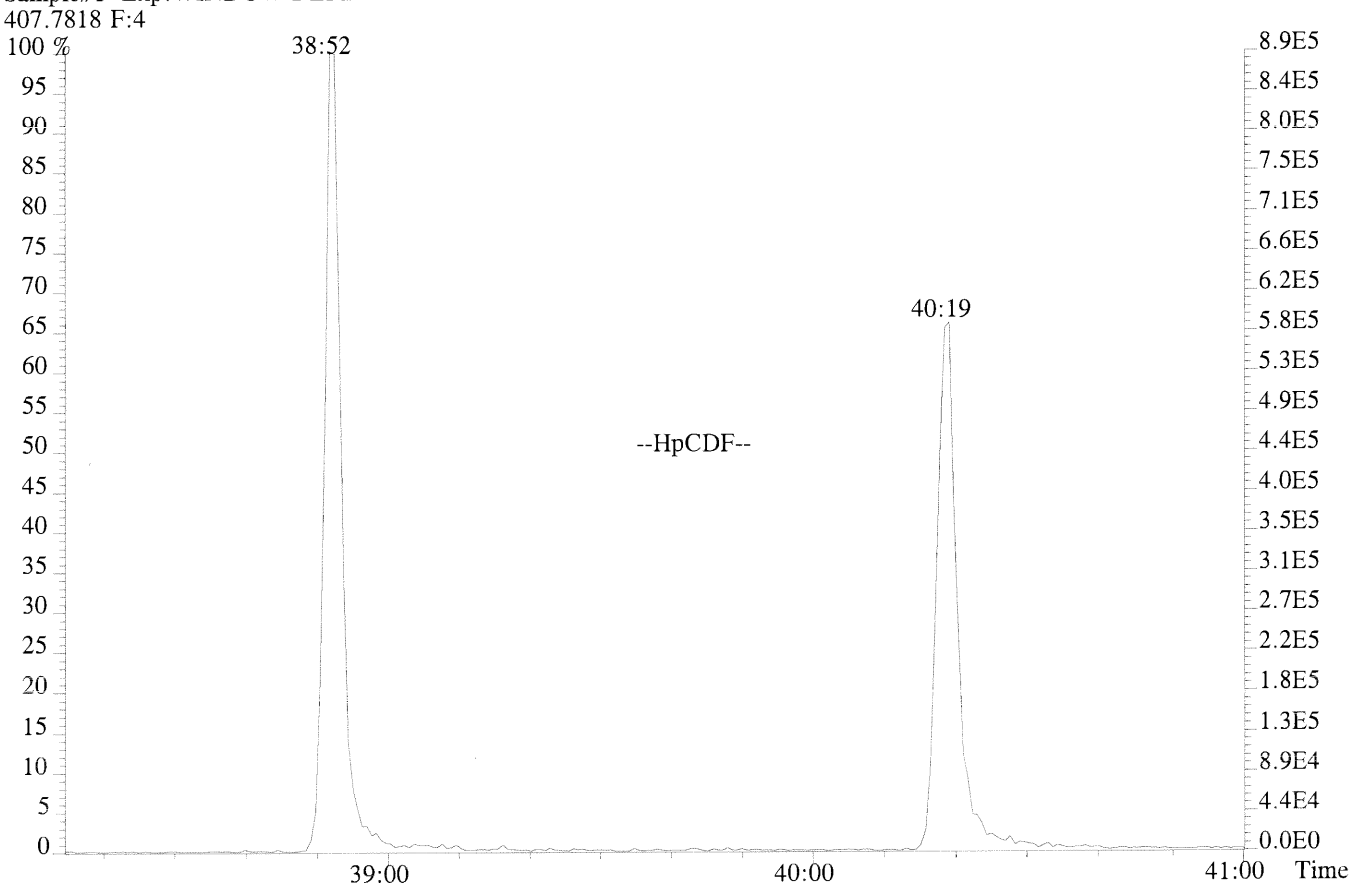


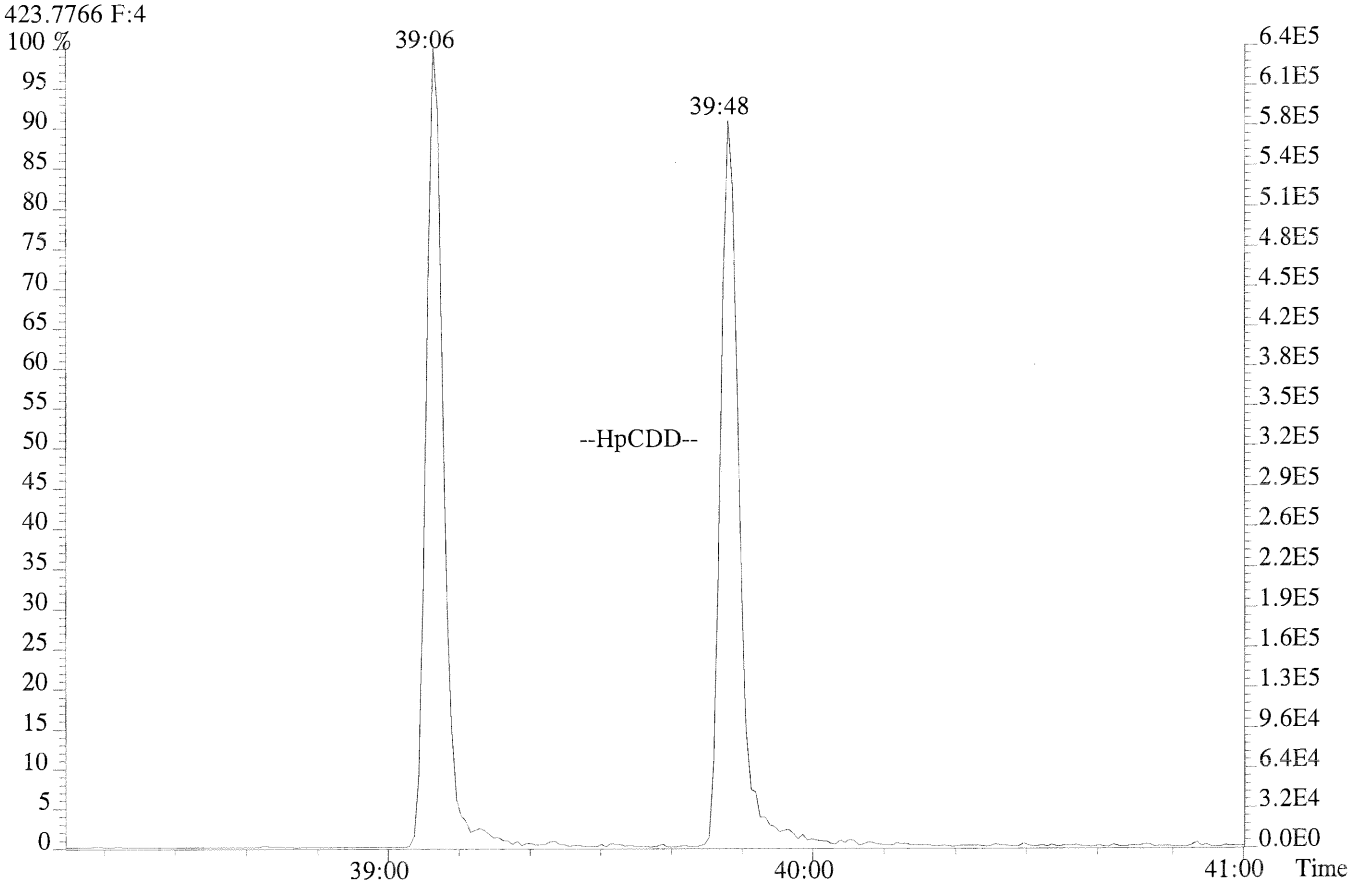
File:P229236 #1-299 Acq:25-MAY-2014 14:59:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





File:P229236 #1-251 Acq:25-MAY-2014 14:59:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 | GC Column ID: DB-5MSUI

VER Data Filename: P229235 | Analysis Date: 25-MAY-14 Time: 14:11:22

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.6	7.8 - 12.9	-4.0
1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	46	39 - 65	-7.3
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	44	39 - 64	-11.6
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	46	39 - 64	-7.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	47	41 - 61	-6.6
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	45	43 - 58	-9.6
OCDD	M+2/M+4	0.90	0.76-1.02	90	79 - 126	-10.3
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	8.5	8.4 - 12.0	-15.0
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	45	41 - 60	-9.4
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	43	41 - 61	-13.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	45	45 - 56	-9.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	45	44 - 57	-9.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	45	45 - 56	-9.6
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	45	44 - 57	-9.9
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	48	45 - 55	-4.9
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	45	43 - 58	-9.3
OCDF	M+2/M+4	0.89	0.76-1.02	80	63 - 159	-19.8

(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) The beginning CCAL %D 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

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 GC Column ID: DB-5MSUI

VER Data Filename: P229235 Analysis Date: 25-MAY-14 Time: 14:11:22

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	108	82 - 121	8.1
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	114	62 - 160	14.3
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	95	85 - 117	-5.2
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	94	85 - 118	-6.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	94	72 - 138	-5.8
13C-OCDD	M+2/M+4	0.92	0.76-1.02	192	96 - 415	-4.0
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	105	71 - 140	4.8
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	101	76 - 130	0.8
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	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	80	76 - 131	-19.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	79	70 - 143	-21.5
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	92	74 - 135	-8.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	85	73 - 137	-15.2
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	80	78 - 129	-20.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	86	77 - 129	-14.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				11.0	7.8 - 12.7	10.3

(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.
(5) The beginnning CCAL %D 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)

1613F4B.FRM

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
CCAL HRCC3/CS3

Run #7 Filename P229235 #1 Samp: 1 Inj: 1 Acquired: 25-MAY-14 14:11:22
Processed: 27-MAY-14 11:10:01 LAB. ID:

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:47	6.284e+03	8.337e+03	0.75	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:49	6.107e+04	3.922e+04	1.56	yes	no	1.000
3	Unk	2,3,4,7,8-PeCDF	33:43	5.717e+04	3.719e+04	1.54	yes	no	1.001
4	Unk	1,2,3,4,7,8-HxCDF	36:19	5.105e+04	4.168e+04	1.22	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:24	5.379e+04	4.341e+04	1.24	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:54	5.024e+04	4.135e+04	1.21	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:39	4.894e+04	3.916e+04	1.25	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	4.366e+04	4.358e+04	1.00	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:18	3.652e+04	3.578e+04	1.02	yes	no	1.000
10	Unk	OCDF	42:52	5.724e+04	6.418e+04	0.89	yes	yes	1.006
11	Unk	2,3,7,8-TCDD	29:32	4.659e+03	5.992e+03	0.78	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:59	4.021e+04	2.551e+04	1.58	yes	no	1.001
13	Unk	1,2,3,4,7,8-HxCDD	37:02	3.589e+04	2.833e+04	1.27	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	37:07	3.769e+04	2.990e+04	1.26	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:21	3.895e+04	3.128e+04	1.25	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:48	3.225e+04	3.054e+04	1.06	yes	no	1.000
17	Unk	OCDD	42:38	4.866e+04	5.409e+04	0.90	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:46	6.752e+04	8.505e+04	0.79	yes	no	0.994
19	IS	13C-1,2,3,7,8-PeCDF	32:49	1.214e+05	7.568e+04	1.60	yes	no	1.134
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.215e+05	7.629e+04	1.59	yes	no	1.164
21	IS	13C-1,2,3,4,7,8-HxCDF	36:18	5.245e+04	1.010e+05	0.52	yes	no	0.972
22	IS	13C-1,2,3,6,7,8-HxCDF	36:24	5.963e+04	1.138e+05	0.52	yes	no	0.975
23	IS	13C-2,3,4,6,7,8-HxCDF	36:54	5.690e+04	1.081e+05	0.53	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	5.264e+04	1.010e+05	0.52	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	3.953e+04	8.963e+04	0.44	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	3.562e+04	7.985e+04	0.45	yes	no	1.079
27	IS	13C-2,3,7,8-TCDD	29:31	4.614e+04	5.921e+04	0.78	yes	no	1.020
28	IS	13C-1,2,3,7,8-PeCDD	33:57	8.152e+04	5.113e+04	1.59	yes	no	1.173
29	IS	13C-1,2,3,4,7,8-HxCDD	37:01	6.694e+04	5.186e+04	1.29	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	6.977e+04	5.473e+04	1.27	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	6.100e+04	5.769e+04	1.06	yes	no	1.066
32	IS	13C-OCDD	42:38	8.498e+04	9.281e+04	0.92	yes	no	1.142
33	RS/RT	13C-1,2,3,4-TCDD	28:56	4.609e+04	5.876e+04	0.78	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:20	7.462e+04	6.014e+04	1.24	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	1.093e+04				no	1.020

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XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
CCAL HRCC3/CS3

Run #7 Filename P229235 Samp: 1 Inj: 1 Acquired: 25-MAY-14 14:11:22
Processed: 27-MAY-14 11:10:011 LAB. ID:

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.35e+06	3.12e+02	4.3e+03	1.83e+06	1.25e+03	1.5e+03
2	1,2,3,7,8-PeCDF	1.20e+07	1.64e+02	7.3e+04	7.69e+06	1.21e+03	6.3e+03
3	2,3,4,7,8-PeCDF	1.16e+07	1.64e+02	7.1e+04	7.49e+06	1.21e+03	6.2e+03
4	1,2,3,4,7,8-HxCDF	1.12e+07	5.72e+02	2.0e+04	9.05e+06	2.40e+02	3.8e+04
5	1,2,3,6,7,8-HxCDF	1.14e+07	5.72e+02	2.0e+04	9.31e+06	2.40e+02	3.9e+04
6	2,3,4,6,7,8-HxCDF	1.12e+07	5.72e+02	2.0e+04	9.18e+06	2.40e+02	3.8e+04
7	1,2,3,7,8,9-HxCDF	1.01e+07	5.72e+02	1.8e+04	8.20e+06	2.40e+02	3.4e+04
8	1,2,3,4,6,7,8-HpCDF	9.13e+06	2.57e+03	3.5e+03	8.99e+06	2.51e+03	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	6.89e+06	2.57e+03	2.7e+03	6.86e+06	2.51e+03	2.7e+03
10	OCDF	9.17e+06	2.00e+02	4.6e+04	1.01e+07	6.68e+02	1.5e+04
11	2,3,7,8-TCDD	1.07e+06	4.24e+02	2.5e+03	1.36e+06	5.44e+02	2.5e+03
12	1,2,3,7,8-PeCDD	8.16e+06	6.28e+02	1.3e+04	5.12e+06	1.56e+02	3.3e+04
13	1,2,3,4,7,8-HxCDD	8.16e+06	1.88e+02	4.3e+04	6.47e+06	5.88e+02	1.1e+04
14	1,2,3,6,7,8-HxCDD	8.02e+06	1.88e+02	4.3e+04	6.39e+06	5.88e+02	1.1e+04
15	1,2,3,7,8,9-HxCDD	8.51e+06	1.88e+02	4.5e+04	6.79e+06	5.88e+02	1.2e+04
16	1,2,3,4,6,7,8-HpCDD	6.39e+06	4.48e+02	1.4e+04	6.10e+06	3.16e+02	1.9e+04
17	OCDD	8.03e+06	2.48e+02	3.2e+04	8.94e+06	2.24e+02	4.0e+04
18	13C-2,3,7,8-TCDF	1.46e+07	1.02e+03	1.4e+04	1.84e+07	6.48e+02	2.8e+04
19	13C-1,2,3,7,8-PeCDF	2.36e+07	4.64e+02	5.1e+04	1.47e+07	7.84e+02	1.9e+04
20	13C-2,3,4,7,8-PeCDF	2.47e+07	4.64e+02	5.3e+04	1.57e+07	7.84e+02	2.0e+04
21	13C-1,2,3,4,7,8-HxCDF	1.15e+07	6.24e+02	1.8e+04	2.19e+07	1.31e+03	1.7e+04
22	13C-1,2,3,6,7,8-HxCDF	1.26e+07	6.24e+02	2.0e+04	2.44e+07	1.31e+03	1.9e+04
23	13C-2,3,4,6,7,8-HxCDF	1.26e+07	6.24e+02	2.0e+04	2.40e+07	1.31e+03	1.8e+04
24	13C-1,2,3,7,8,9-HxCDF	1.09e+07	6.24e+02	1.7e+04	2.09e+07	1.31e+03	1.6e+04
25	13C-1,2,3,4,6,7,8-HpCDF	8.44e+06	1.85e+03	4.6e+03	1.88e+07	4.86e+03	3.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.74e+06	1.85e+03	3.6e+03	1.51e+07	4.86e+03	3.1e+03
27	13C-2,3,7,8-TCDD	1.02e+07	3.44e+03	3.0e+03	1.31e+07	1.42e+03	9.2e+03
28	13C-1,2,3,7,8-PeCDD	1.64e+07	5.80e+02	2.8e+04	1.04e+07	2.48e+02	4.2e+04
29	13C-1,2,3,4,7,8-HxCDD	1.51e+07	6.32e+02	2.4e+04	1.18e+07	6.76e+02	1.7e+04
30	13C-1,2,3,6,7,8-HxCDD	1.48e+07	6.32e+02	2.3e+04	1.17e+07	6.76e+02	1.7e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.21e+07	6.40e+02	1.9e+04	1.16e+07	7.44e+02	1.6e+04
32	13C-OCDD	1.40e+07	6.48e+02	2.2e+04	1.52e+07	5.28e+02	2.9e+04
33	13C-1,2,3,4-TCDD	1.02e+07	3.44e+03	3.0e+03	1.30e+07	1.42e+03	9.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.61e+07	6.32e+02	2.6e+04	1.28e+07	6.76e+02	1.9e+04
35	37Cl-2,3,7,8-TCDD	2.49e+06	5.96e+02	4.2e+03			

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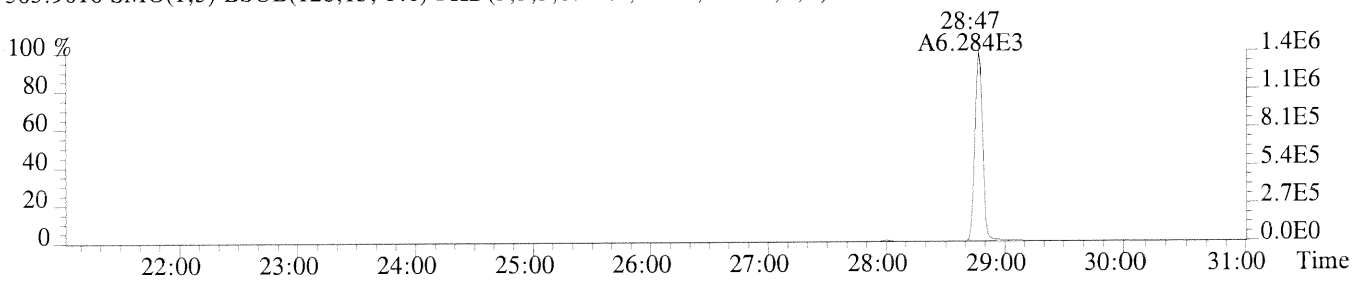
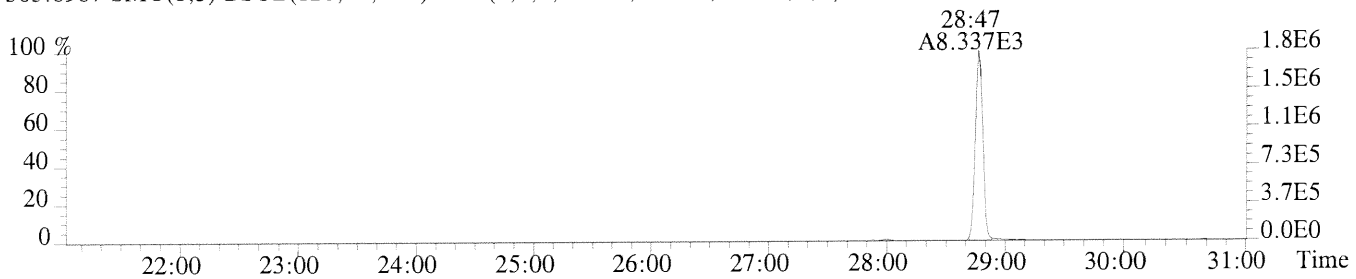
XLSN

File:P229235 #1-627 Acq:25-MAY-2014 14:11:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

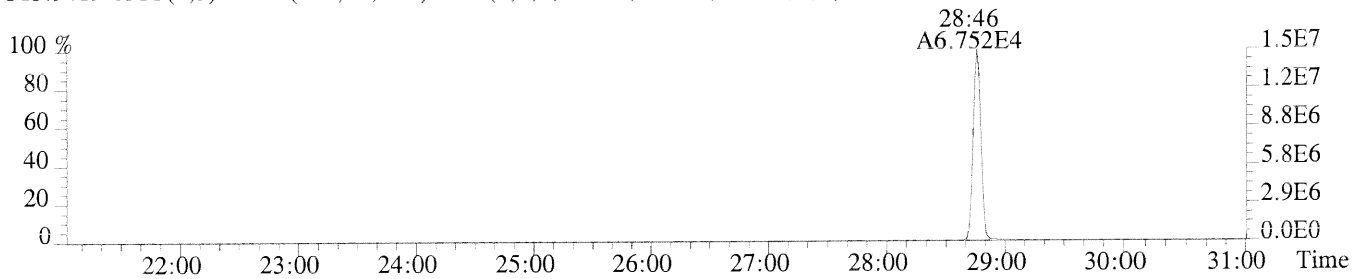
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,312.0,1.00%,F,T)



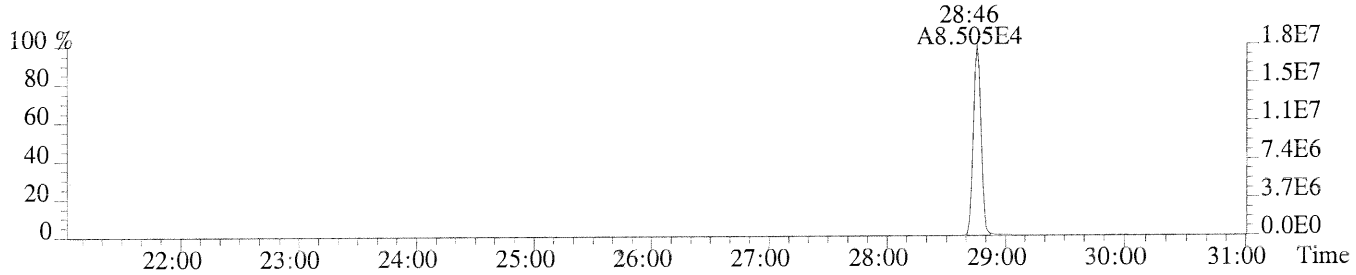
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



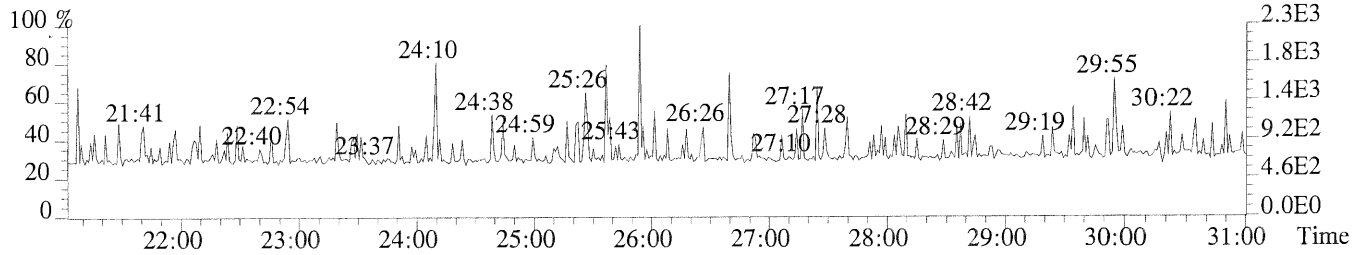
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



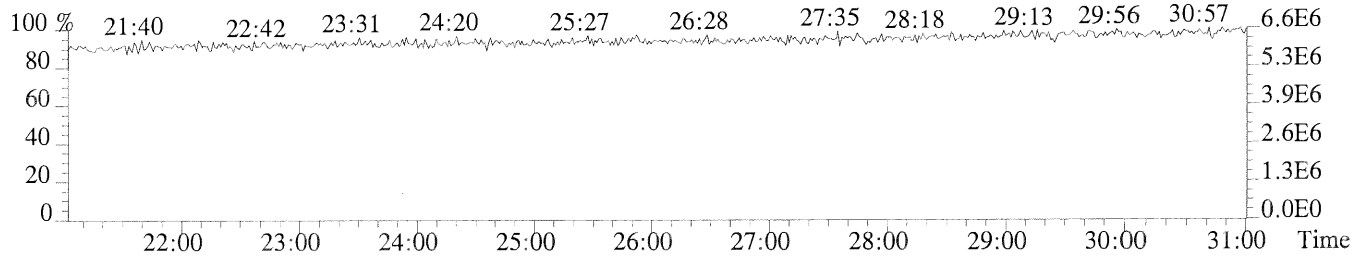
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

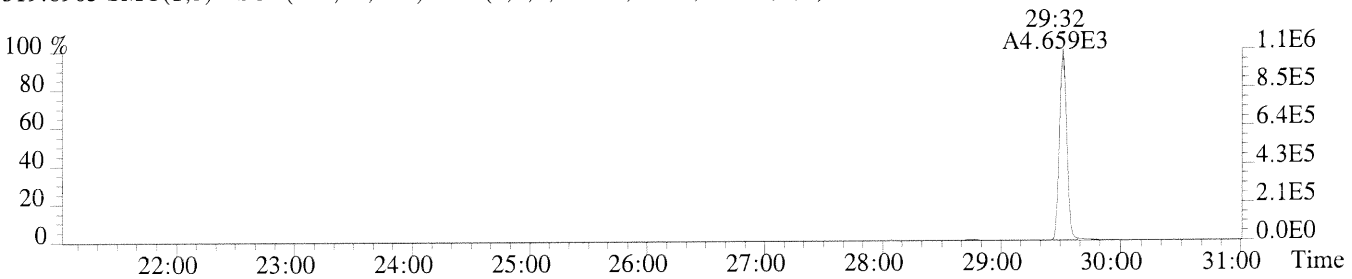


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

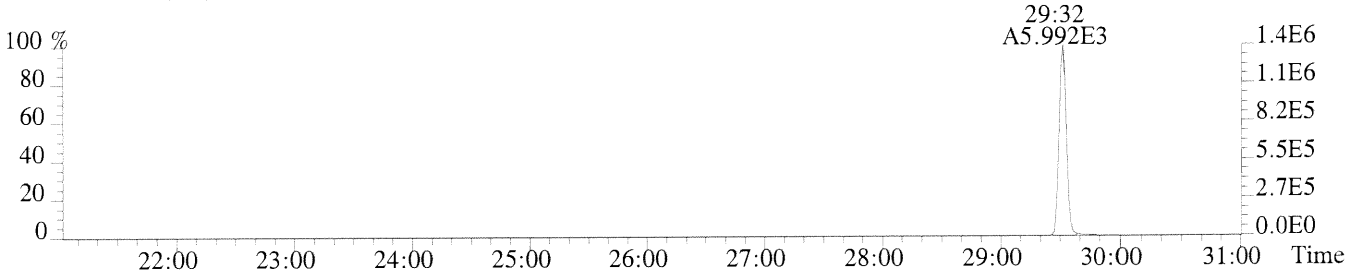


File:P229235 #1-627 Acq:25-MAY-2014 14:11:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

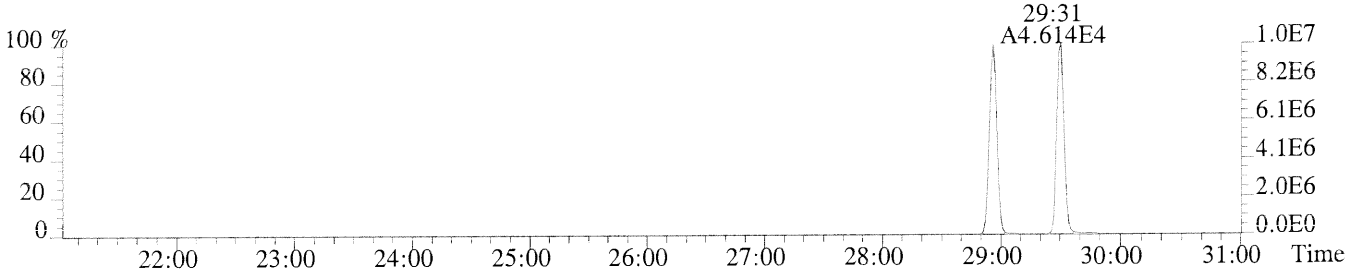
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



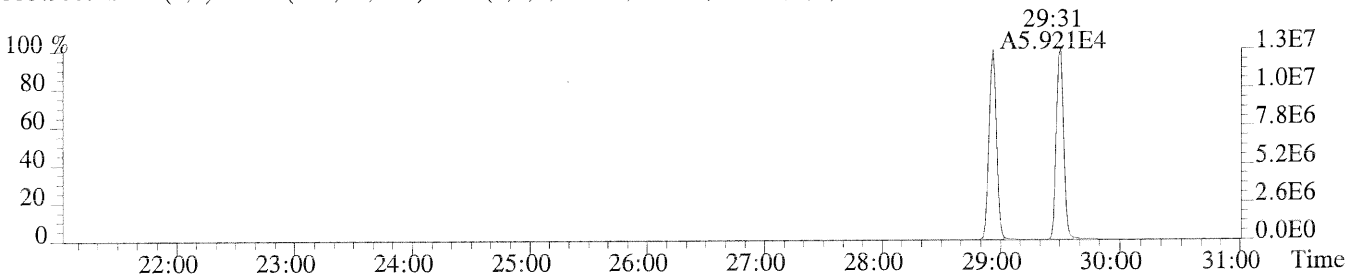
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



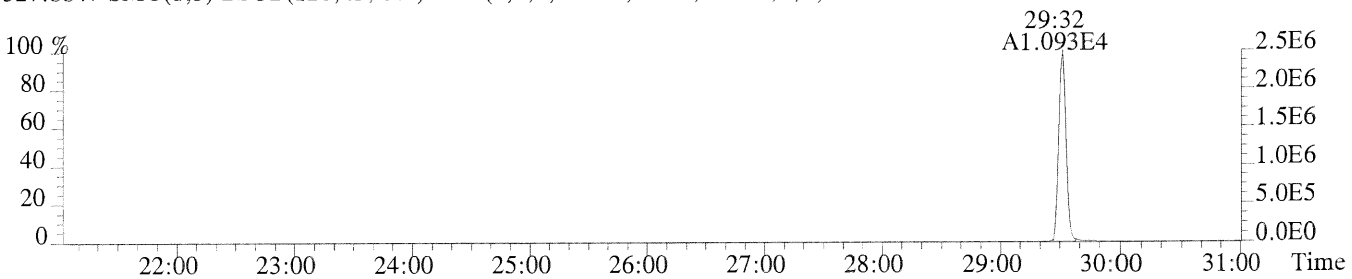
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



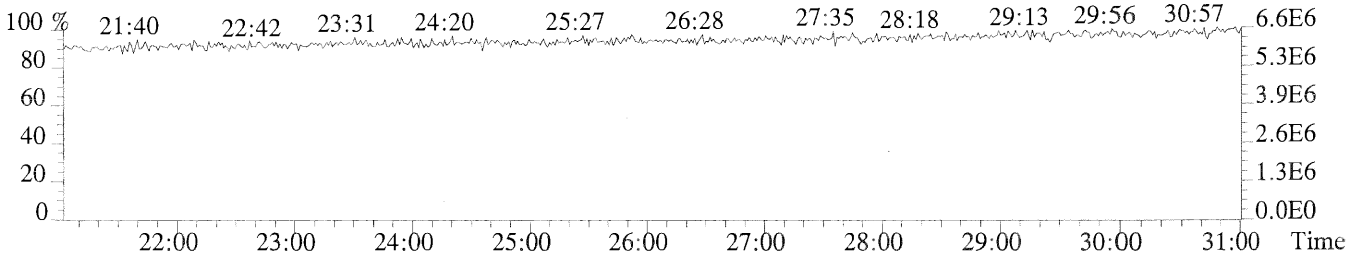
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)

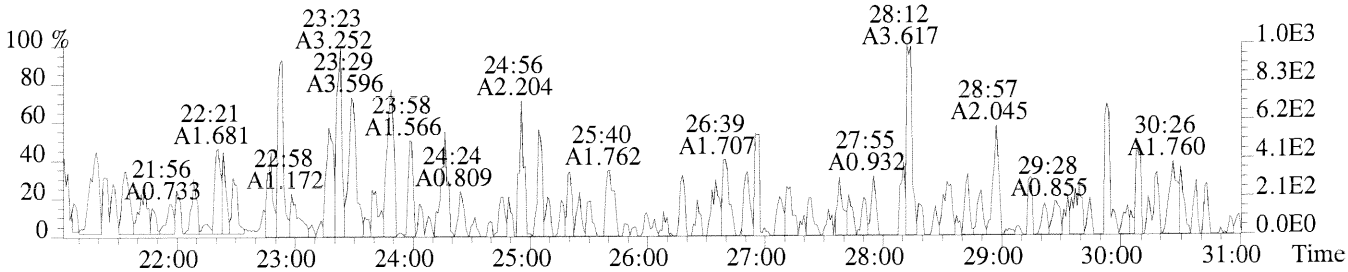


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

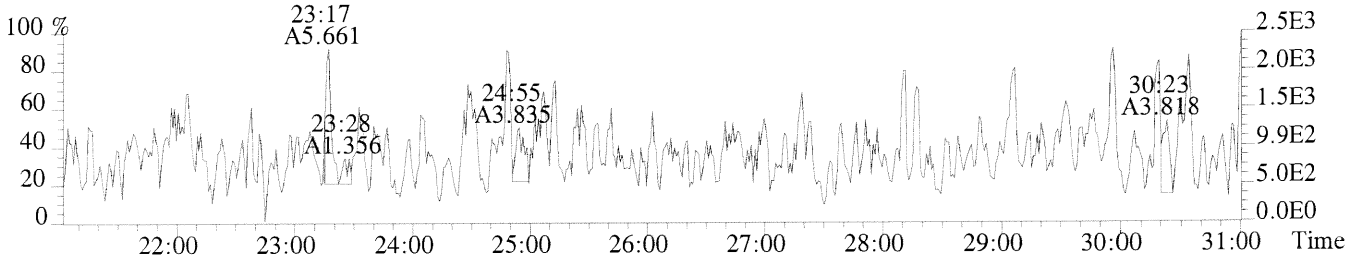


File:P229235 #1-627 Acq:25-MAY-2014 14:11:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

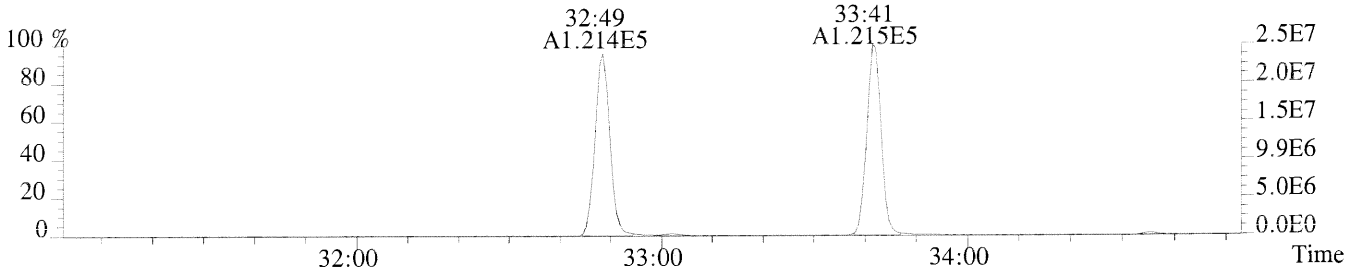
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,60.0,1.00%,F,T)



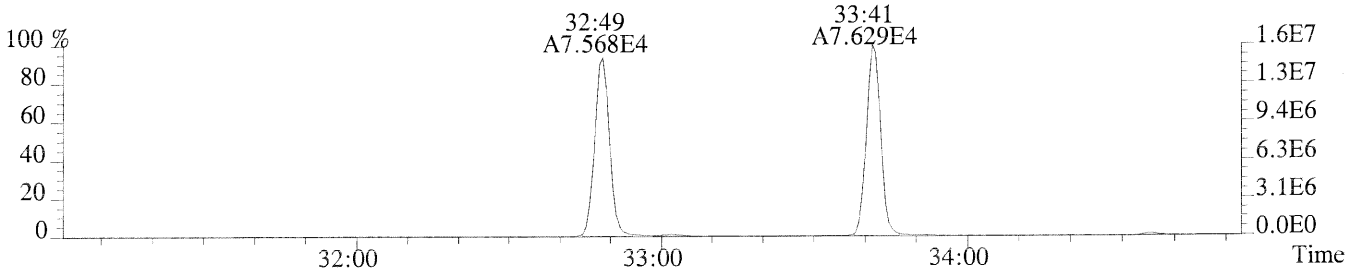
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



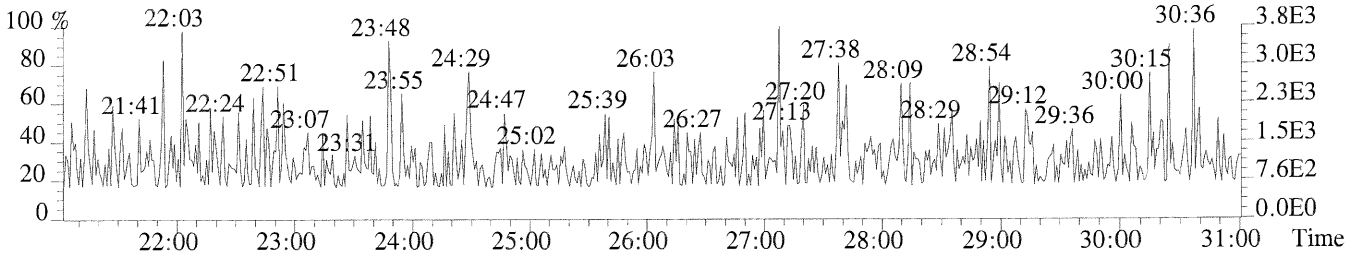
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



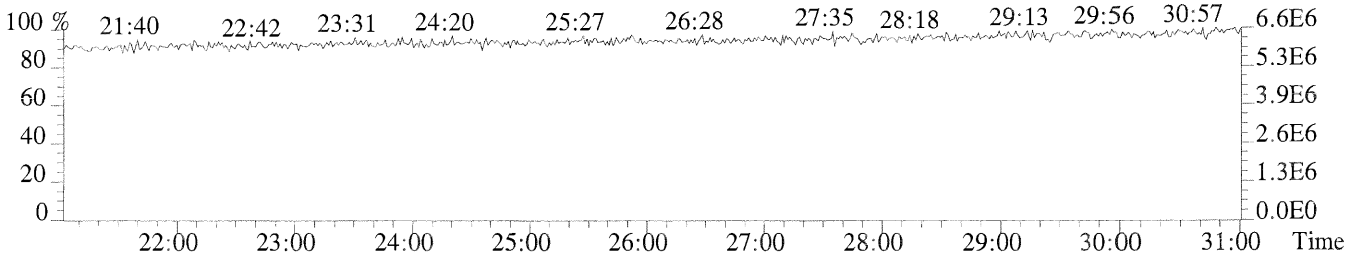
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

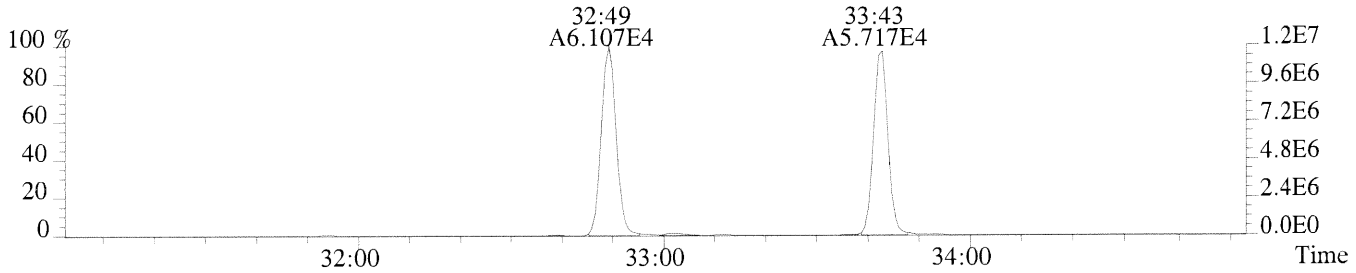


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

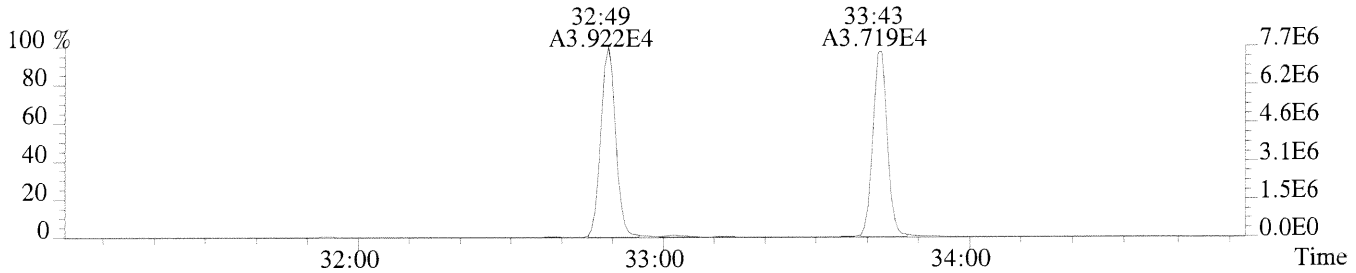


File:P229235 #1-349 Acq:25-MAY-2014 14:11:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

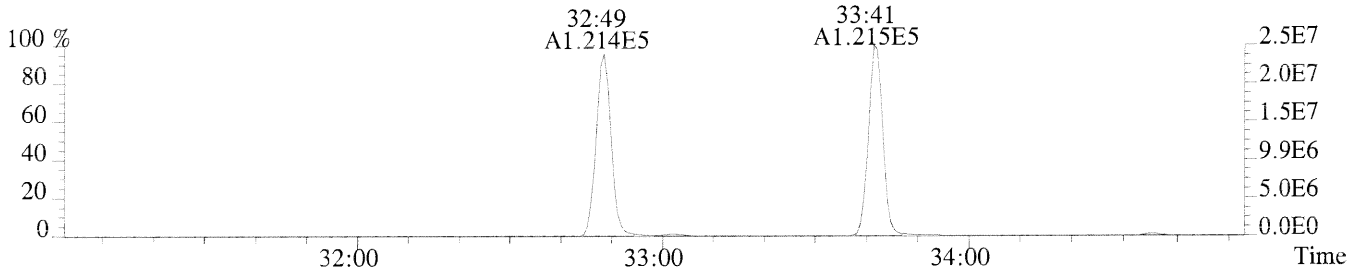
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



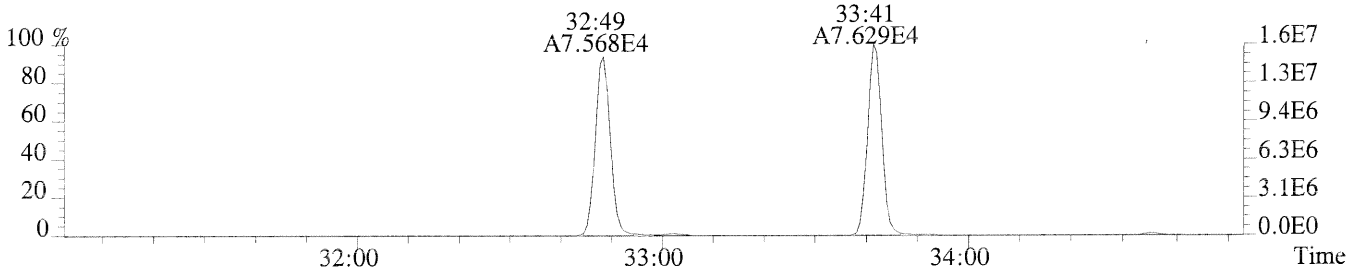
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1212.0,1.00%,F,T)



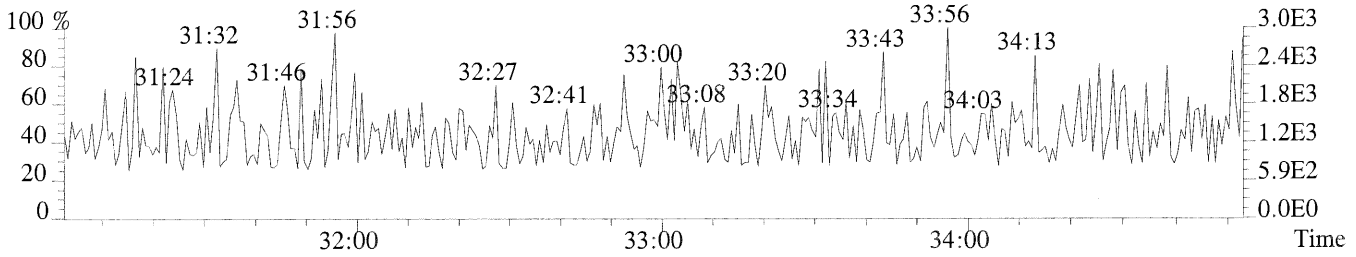
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



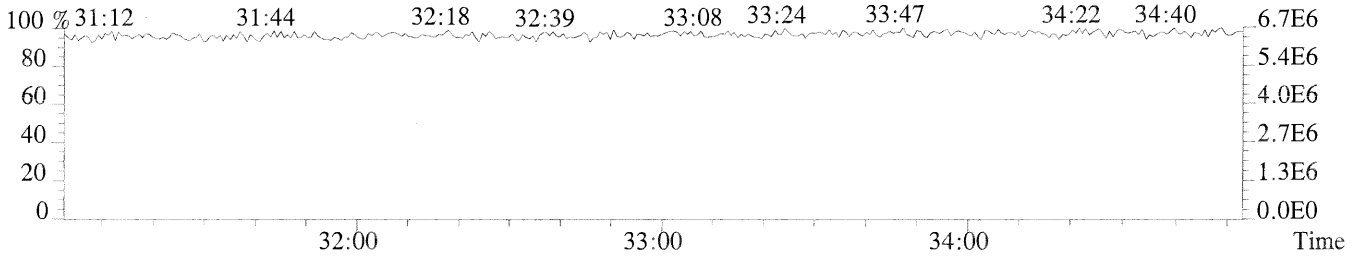
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

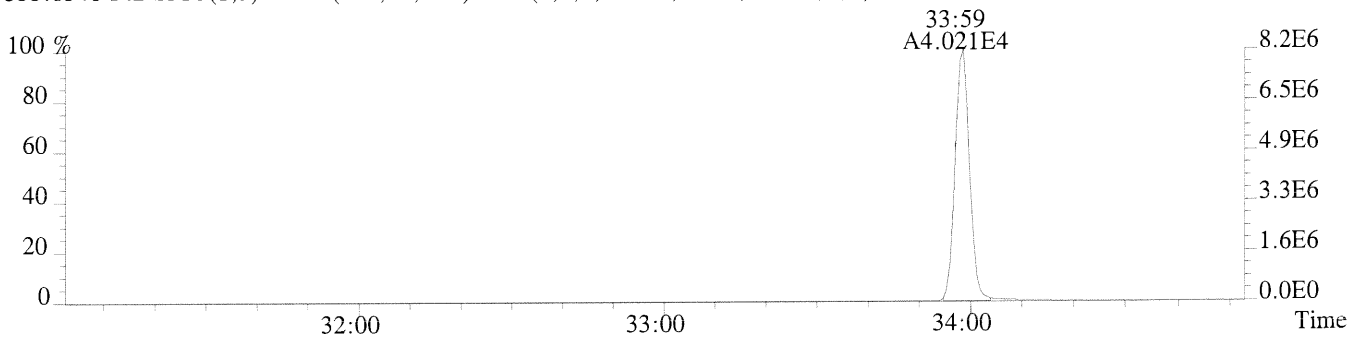


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

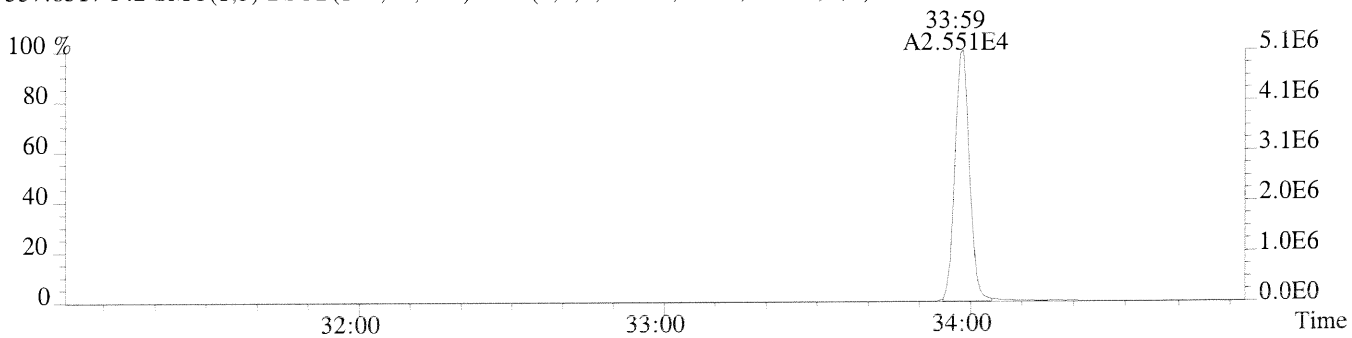


File:P229235 #1-349 Acq:25-MAY-2014 14:11:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

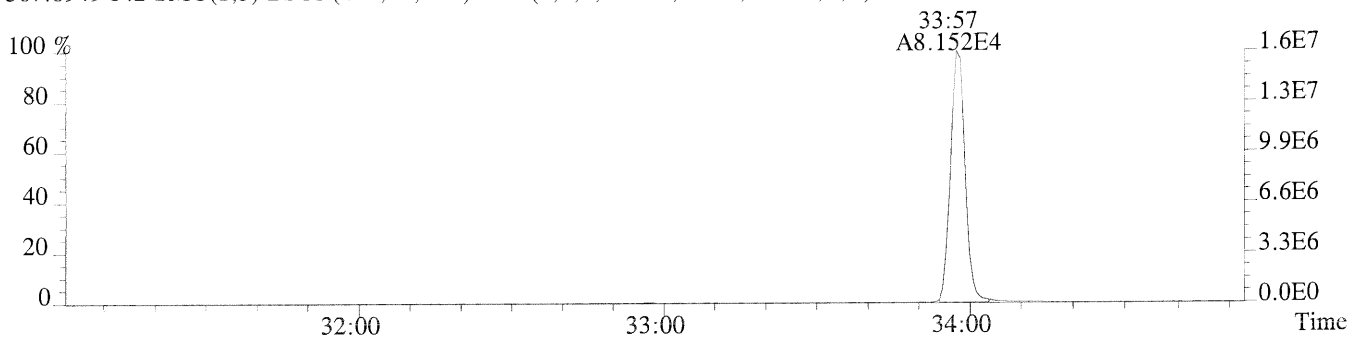
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



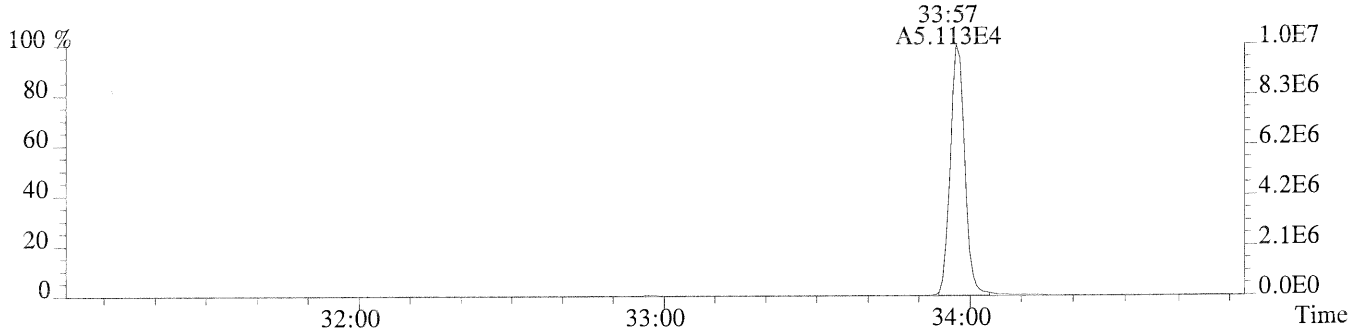
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,156.0,1.00%,F,T)



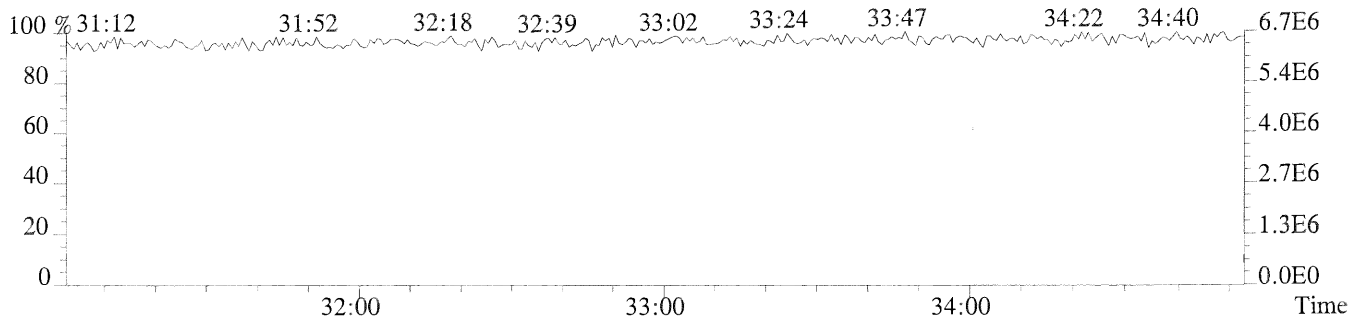
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)

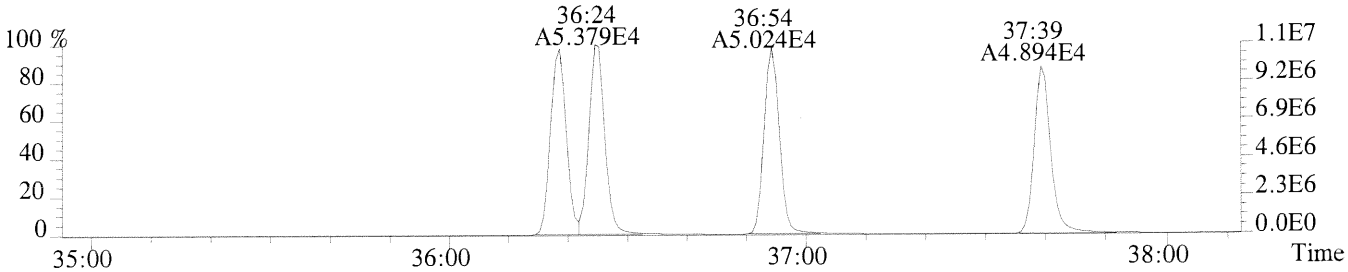


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

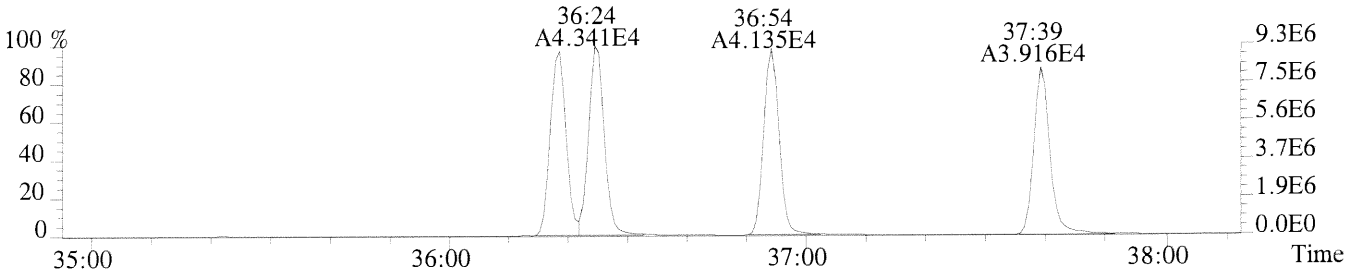


File:P229235 #1-299 Acq:25-MAY-2014 14:11:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

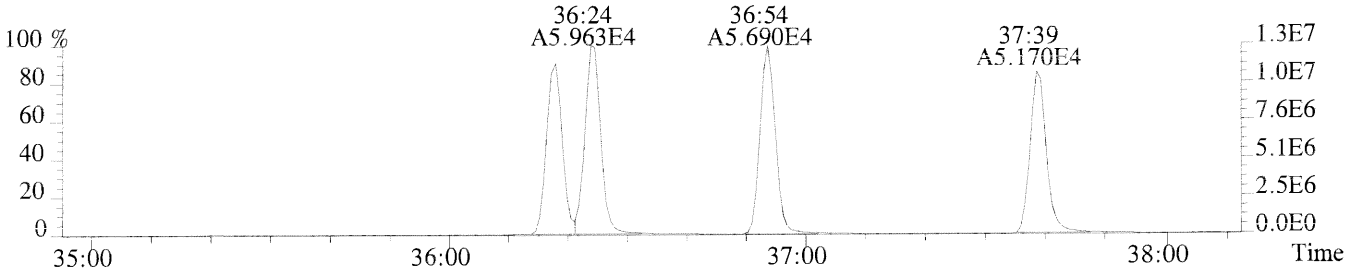
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



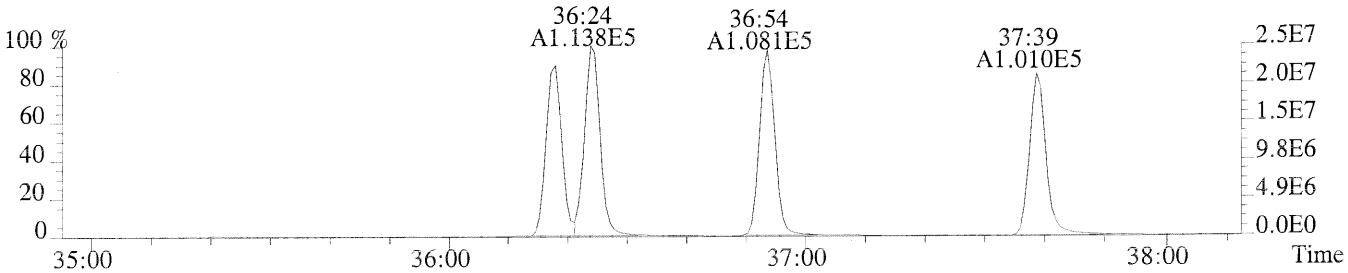
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,240.0,0.40%,F,T)



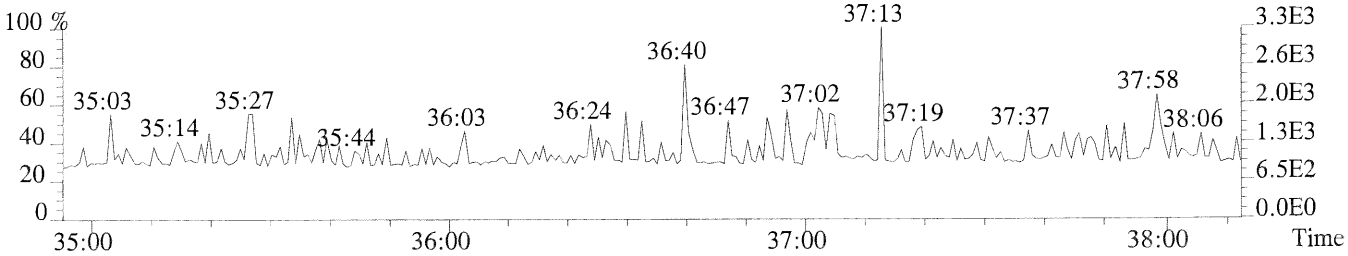
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



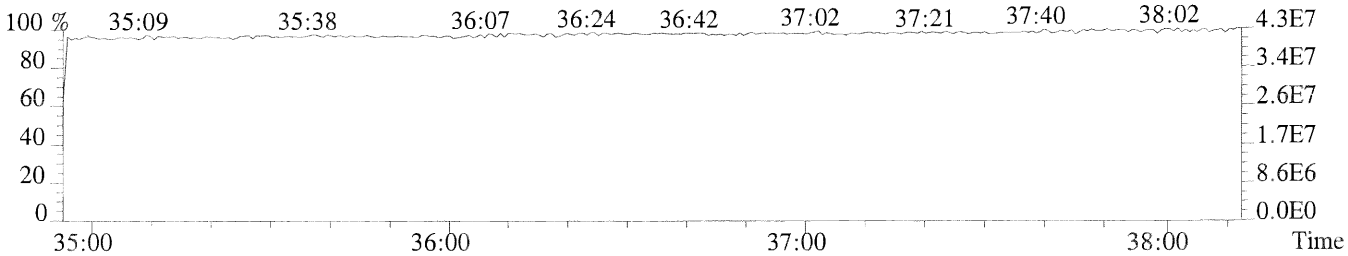
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1312.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

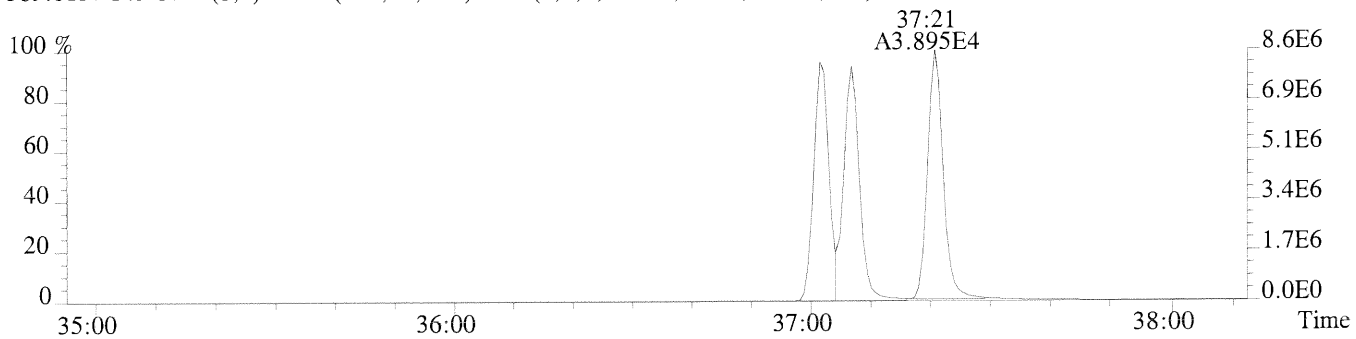


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

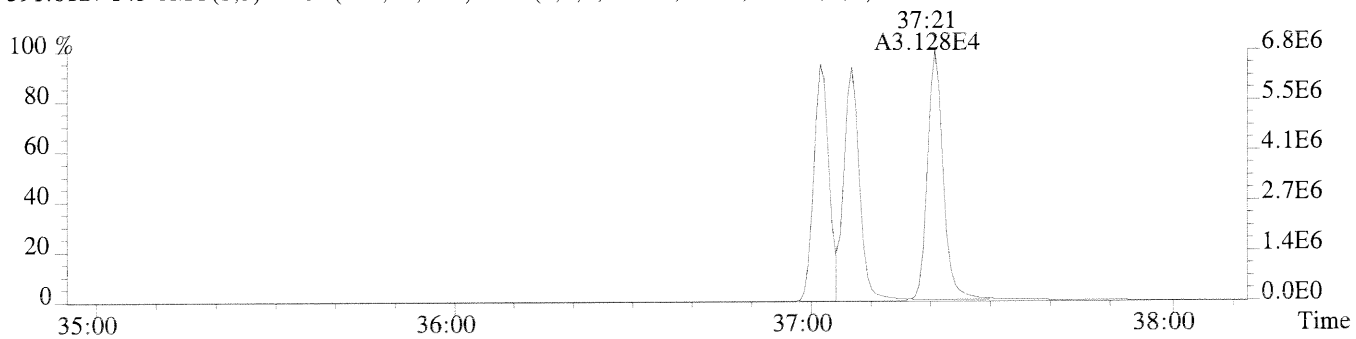


File:P229235 #1-299 Acq:25-MAY-2014 14:11:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

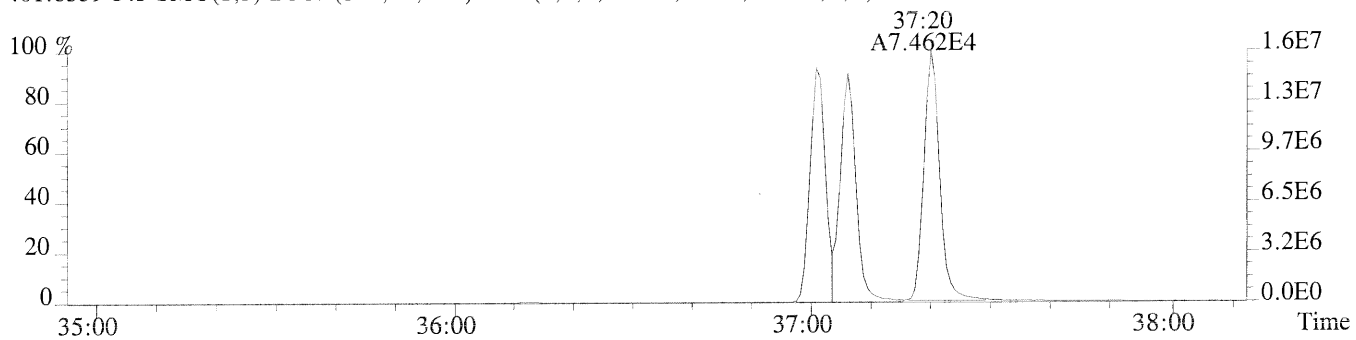
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



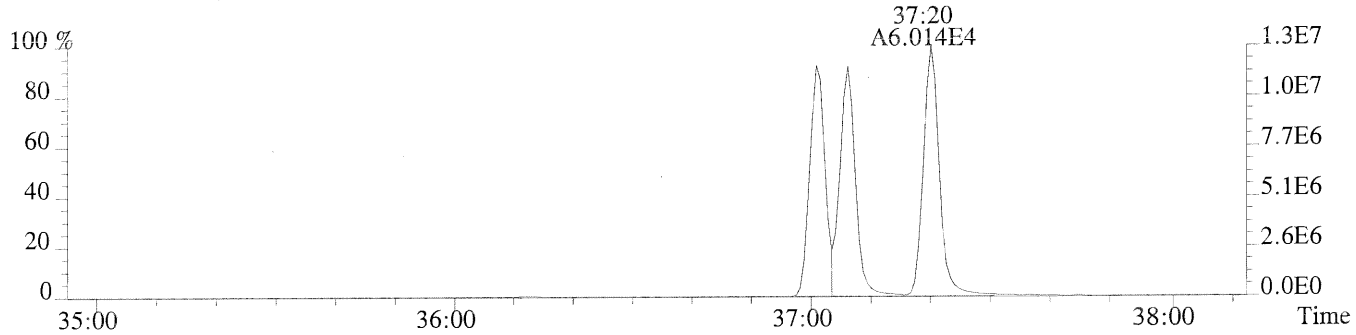
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



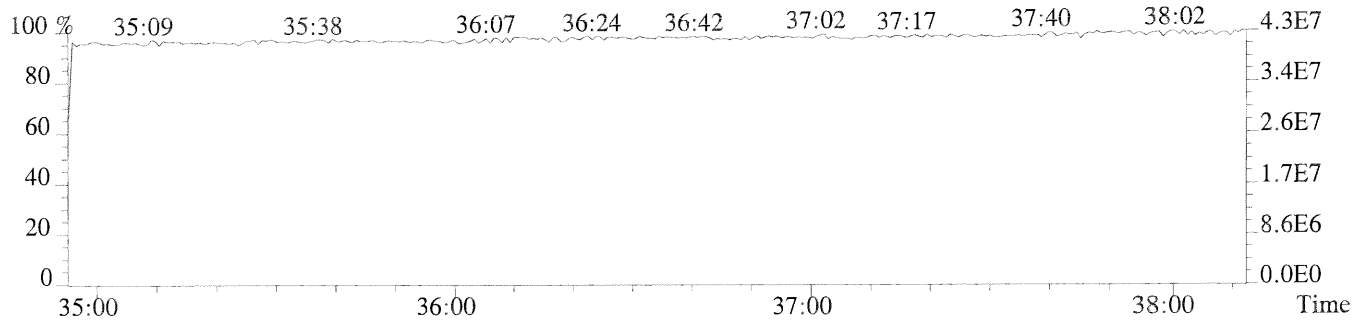
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)

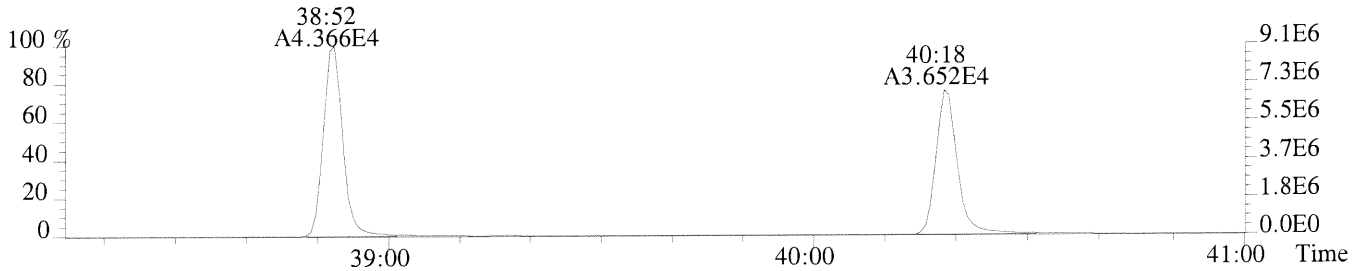


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

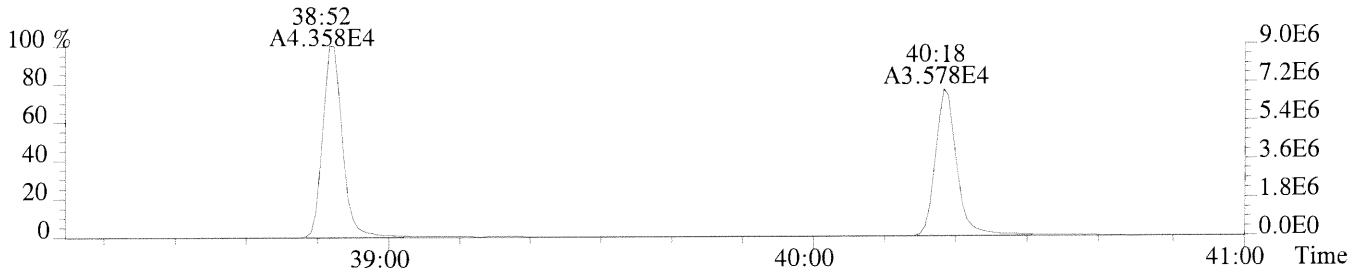


File:P229235 #1-251 Acq:25-MAY-2014 14:11:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

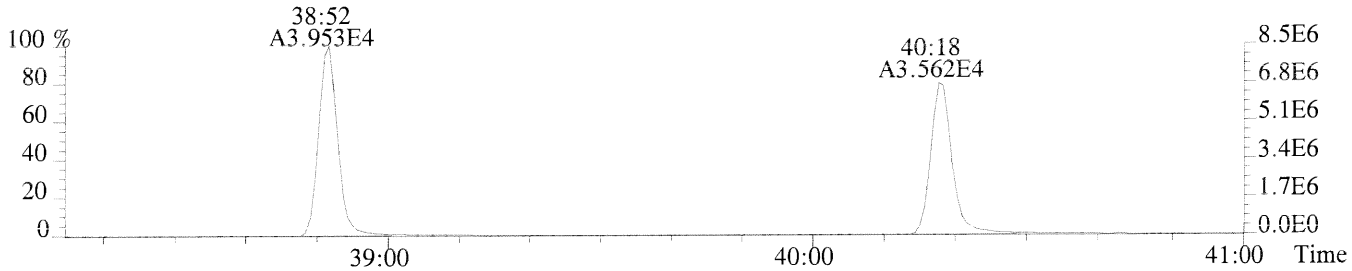
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2572.0,0.50%,F,T)



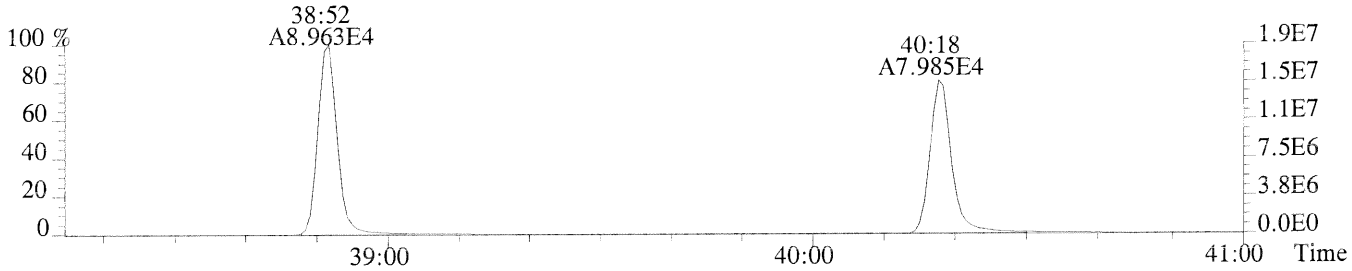
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2508.0,0.50%,F,T)



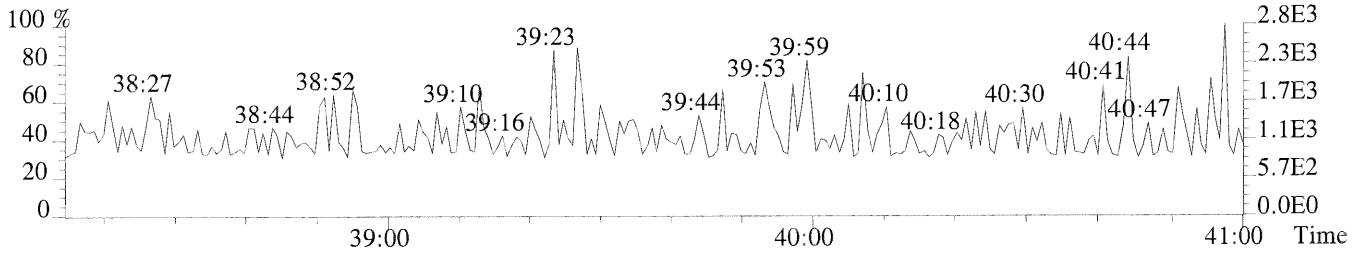
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1852.0,0.50%,F,T)



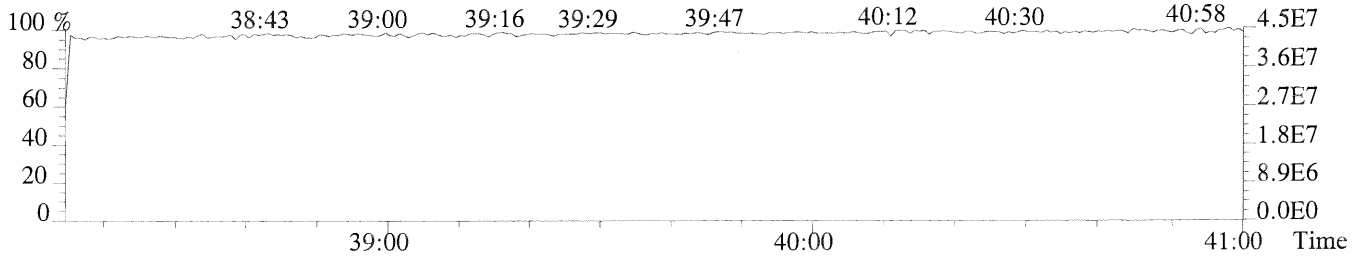
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4864.0,0.50%,F,T)



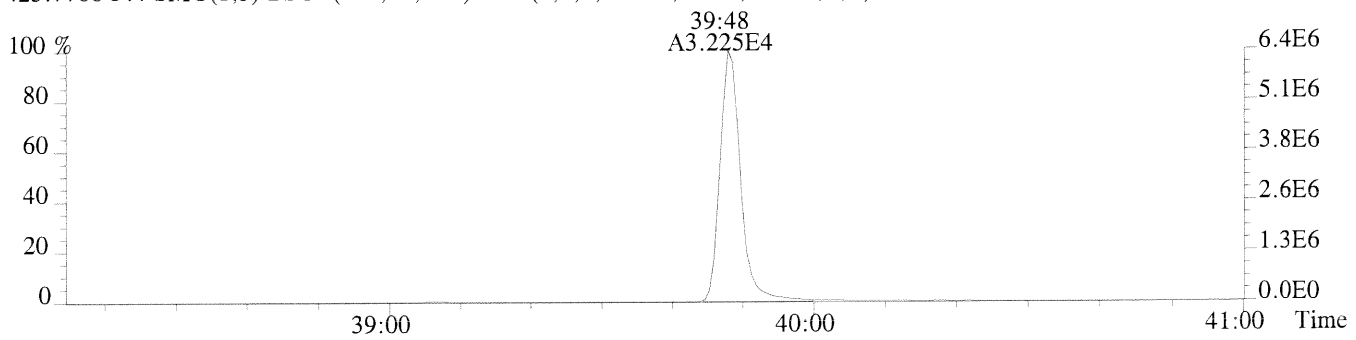
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



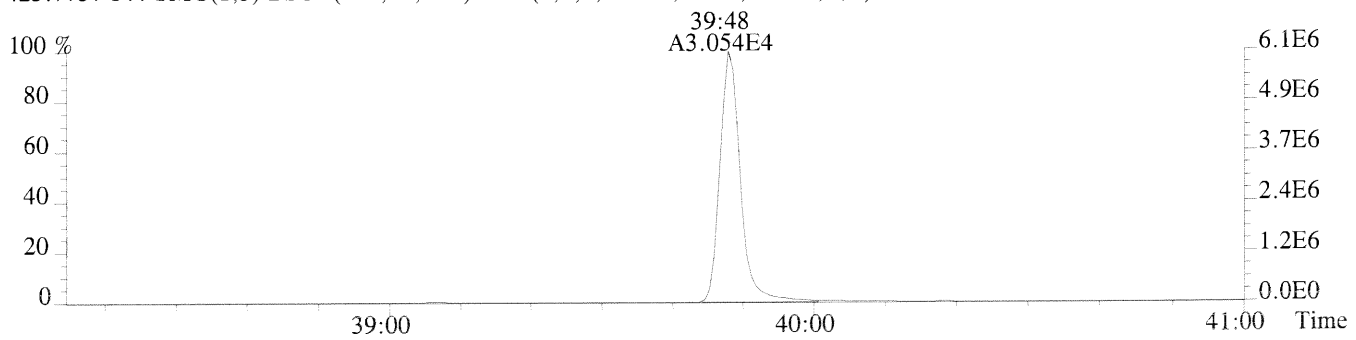
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



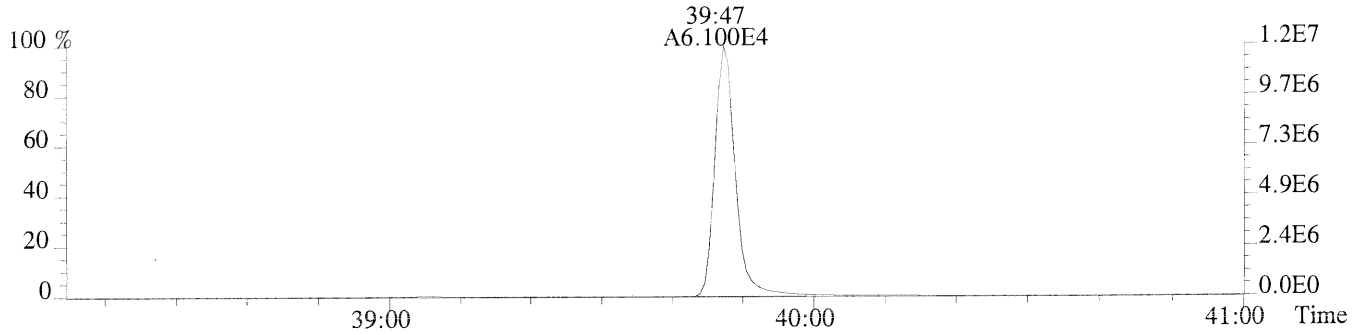
File:P229235 #1-251 Acq:25-MAY-2014 14:11:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)



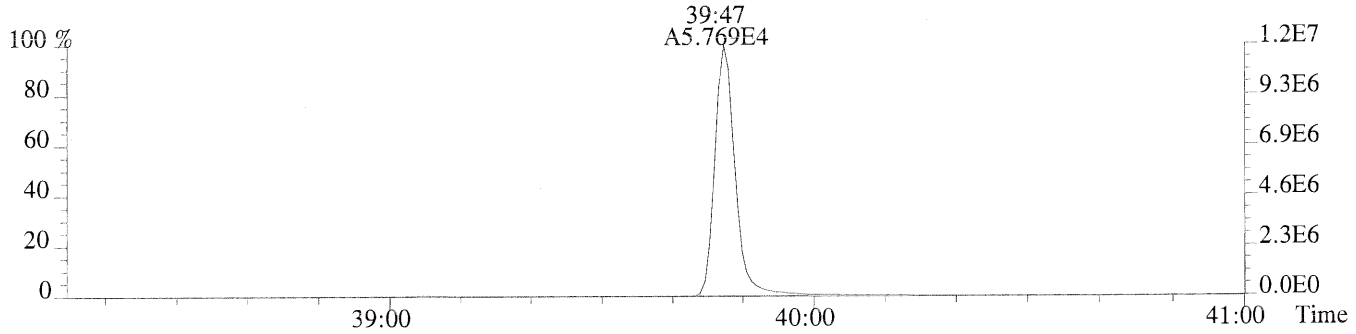
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



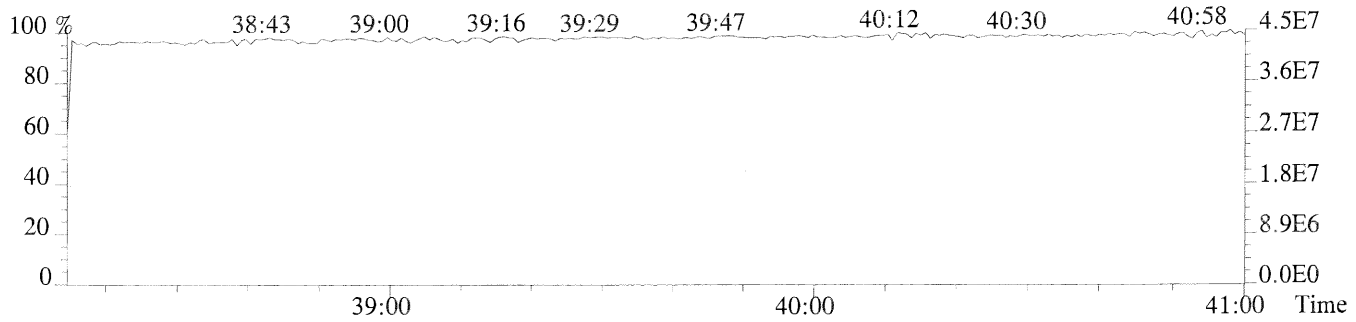
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



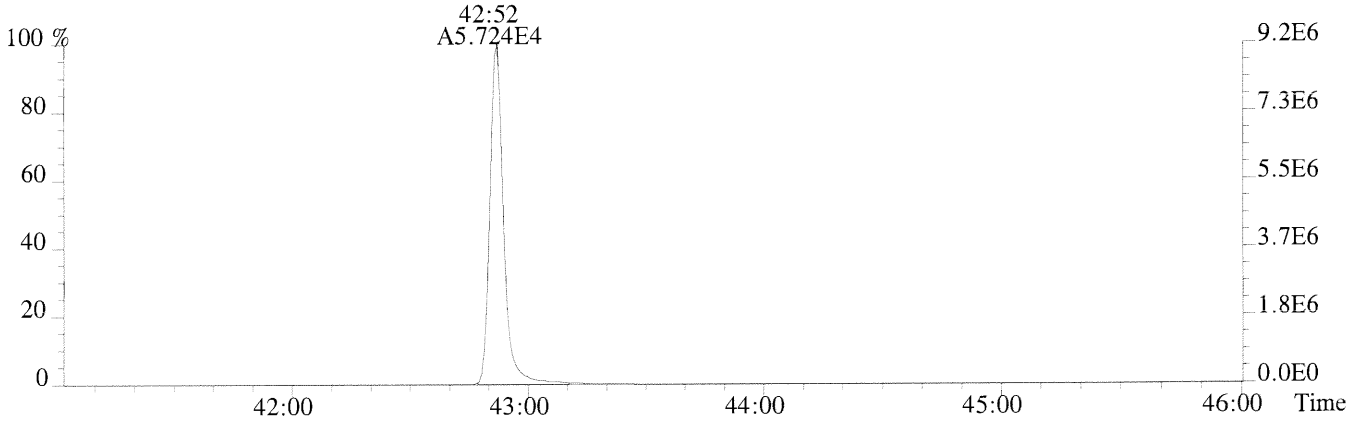
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



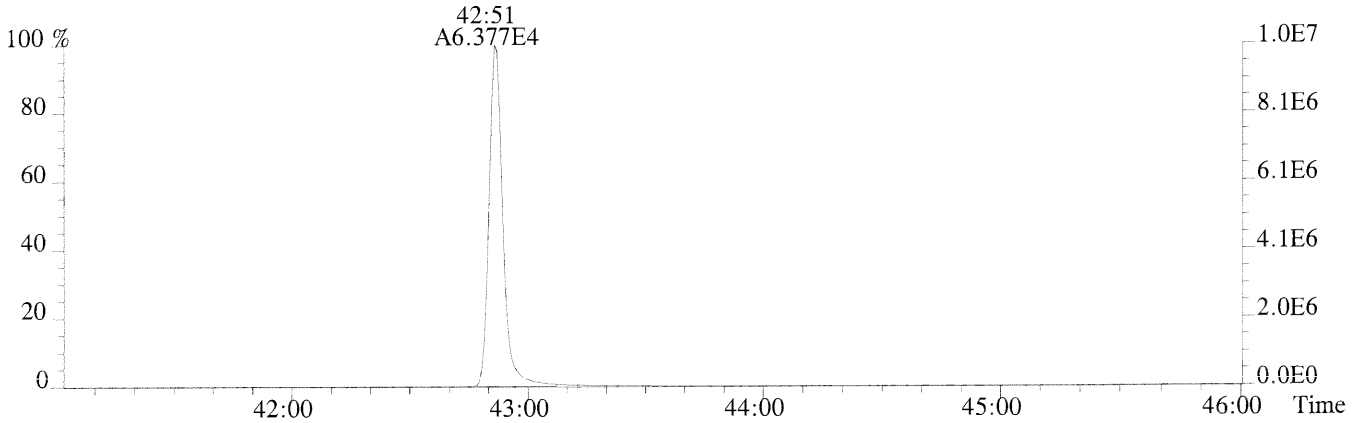
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



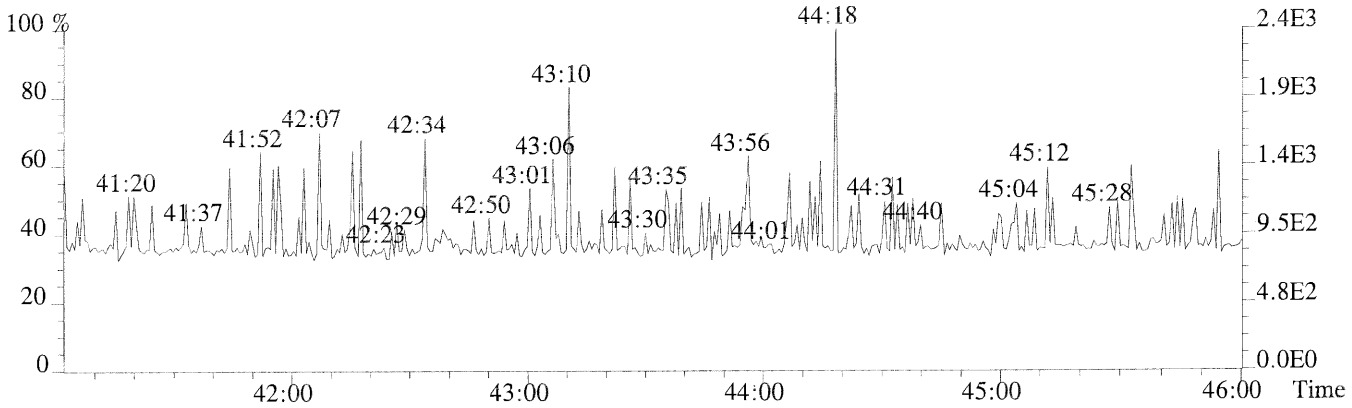
File:P229235 #1-457 Acq:25-MAY-2014 14:11:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



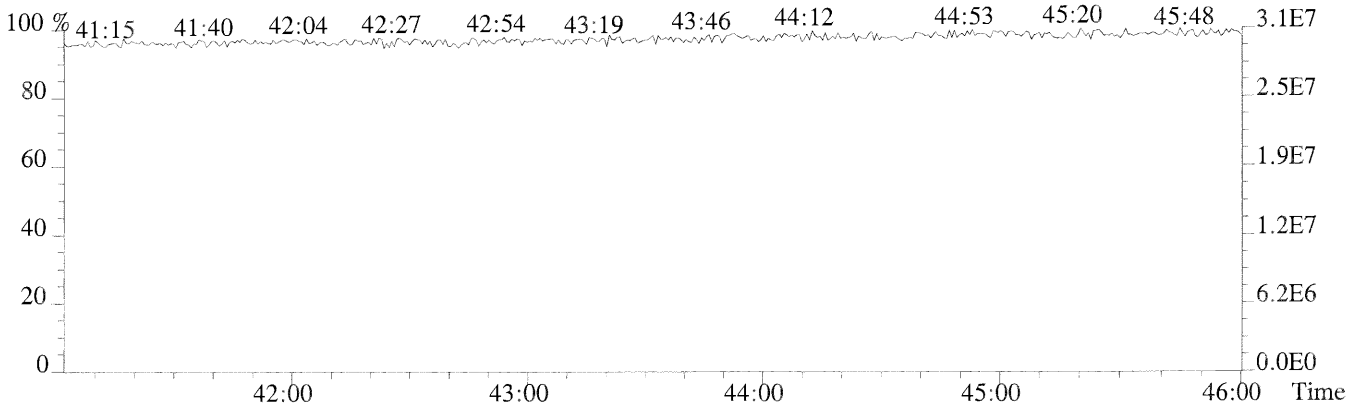
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



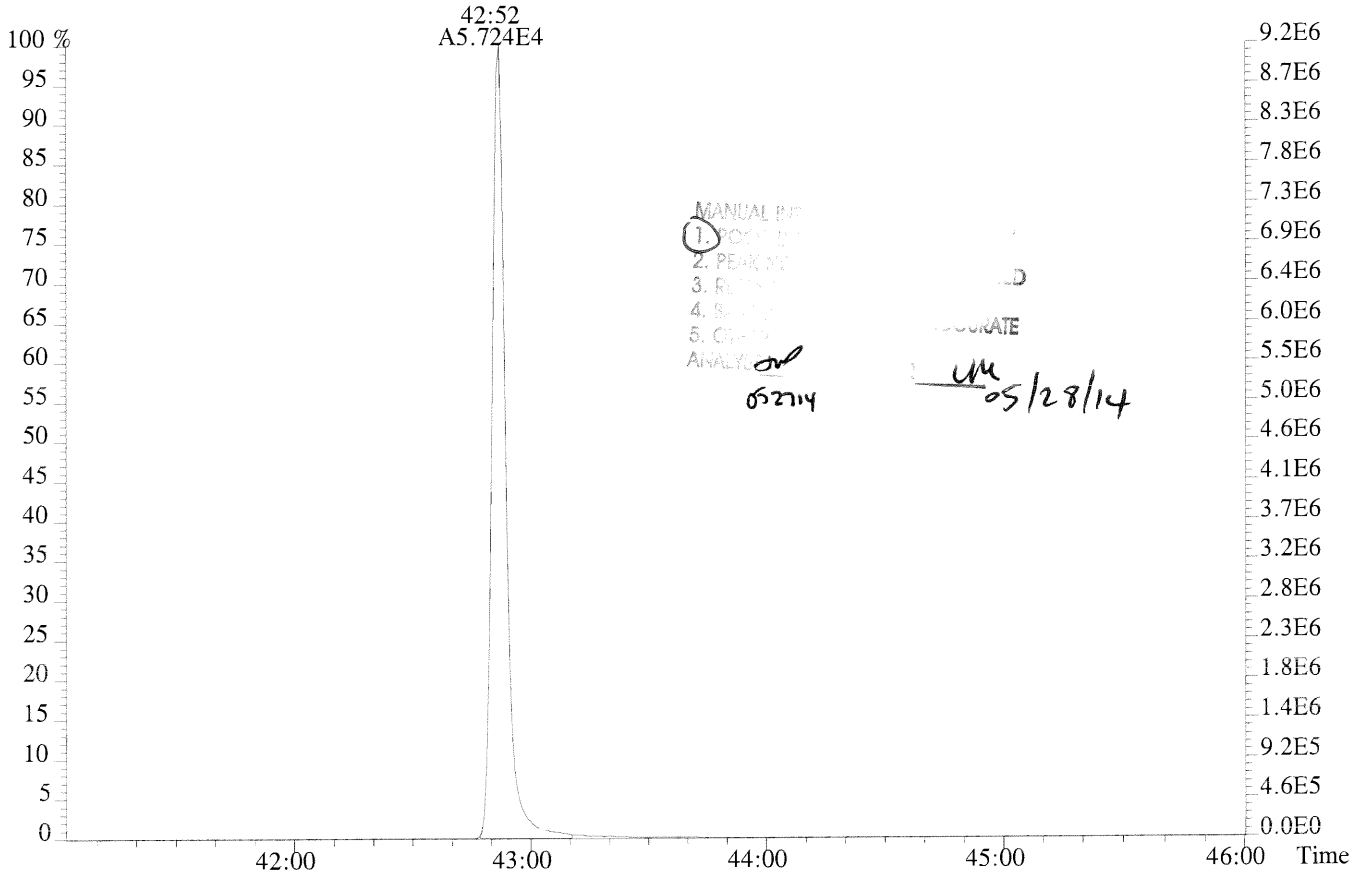
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



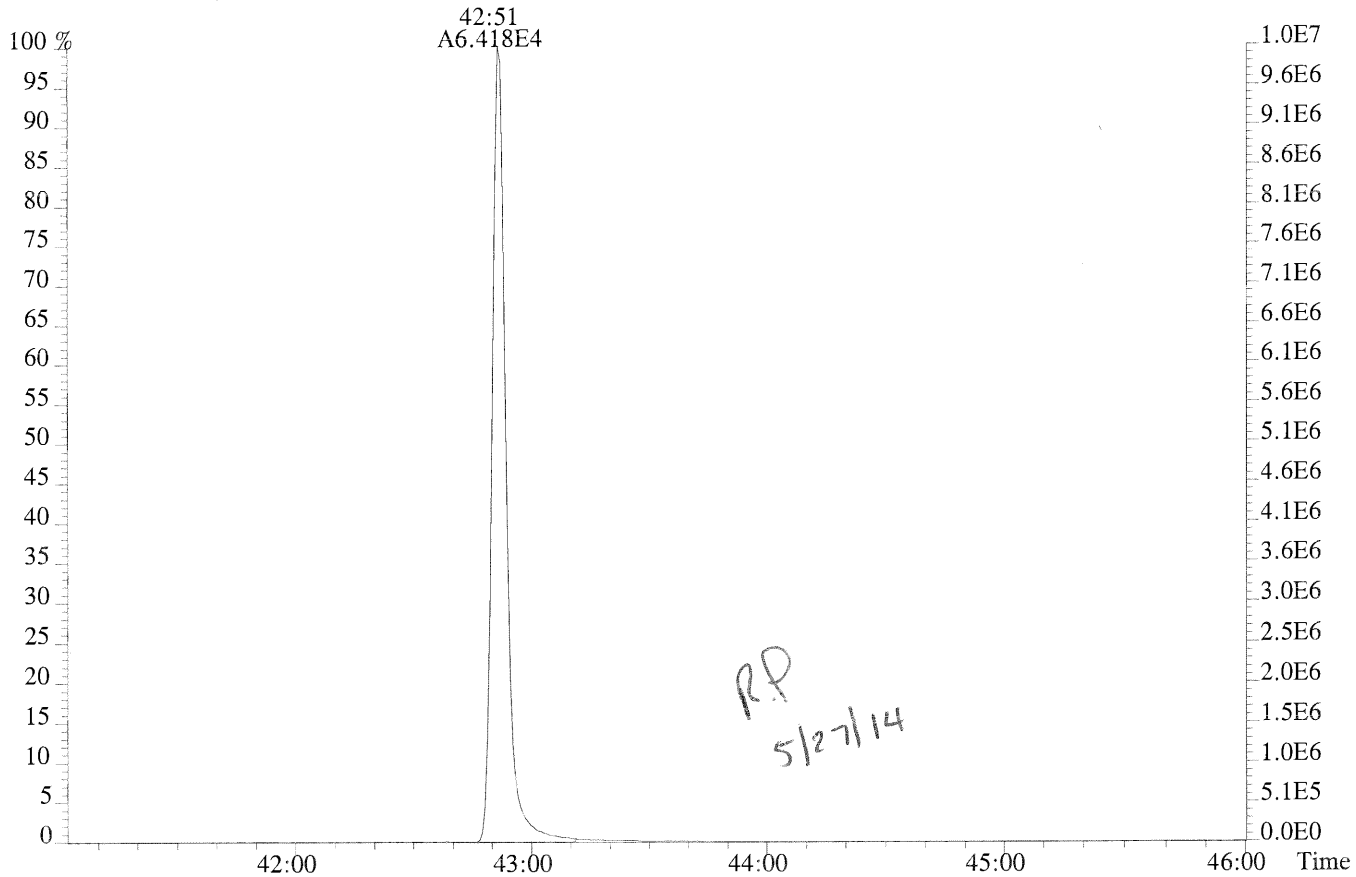
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:P229235 #1-457 Acq:25-MAY-2014 14:11:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)

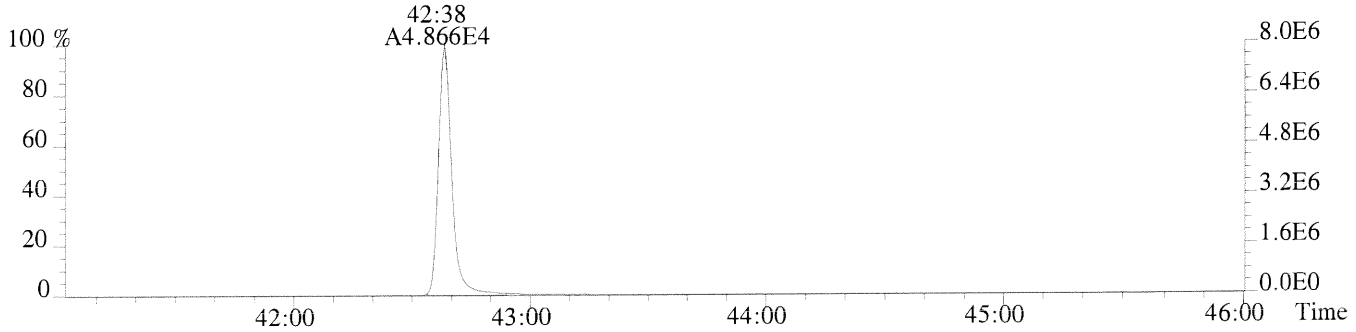


443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)

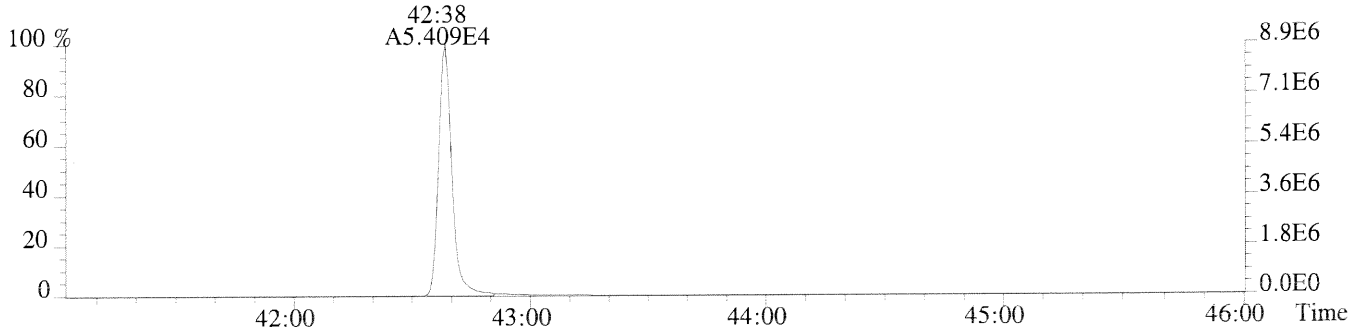


File:P229235 #1-457 Acq:25-MAY-2014 14:11:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

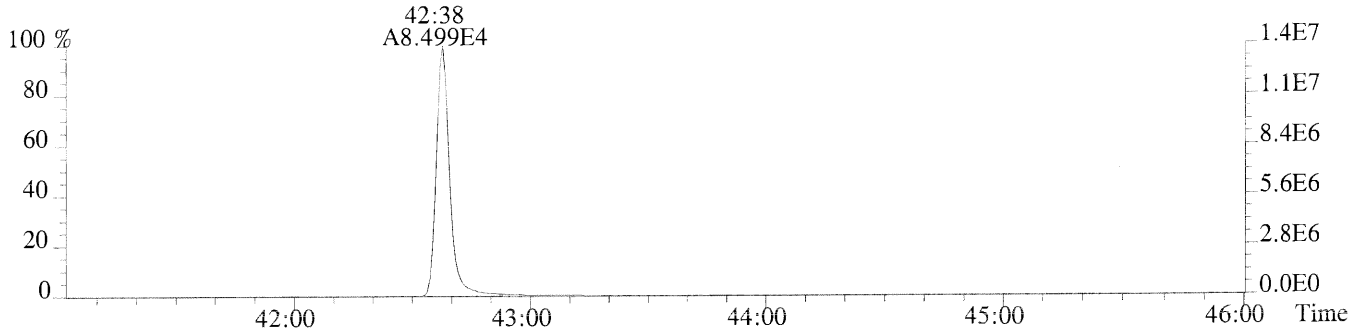
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



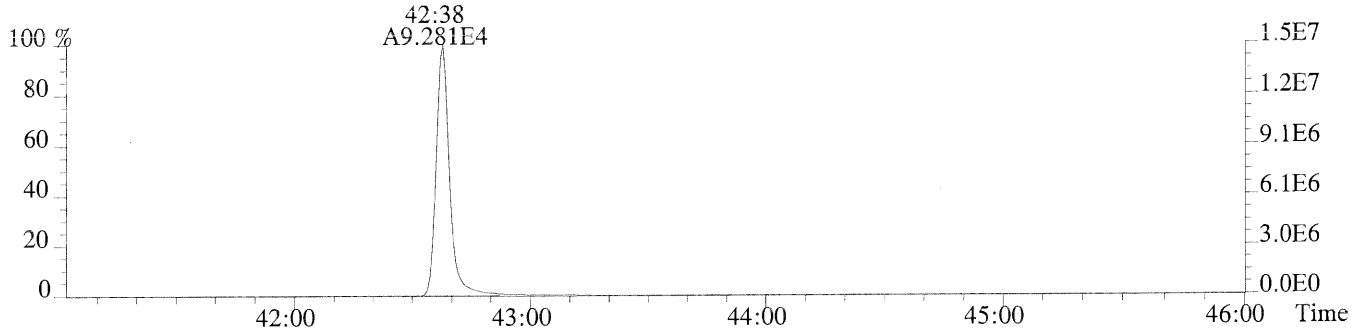
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



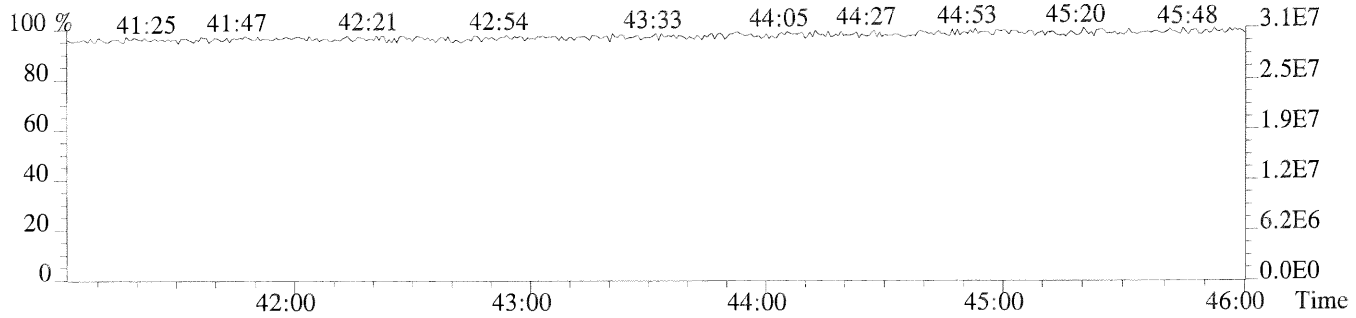
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,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
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 | GC Column ID: DB-5MSUI

VER Data Filename: P229247 | Analysis Date: 25-MAY-14 Time: 23:45:28

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.8	7.8 - 12.9	-1.5
1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	47	39 - 65	-6.7
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	45	39 - 64	-10.6
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	47	39 - 64	-5.7
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	47	41 - 61	-5.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	46	43 - 58	-7.0
OCDD	M+2/M+4	0.90	0.76-1.02	92	79 - 126	-8.1
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	8.6	8.4 - 12.0	-14.4
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	45	41 - 60	-9.5
2,3,4,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	44	41 - 61	-12.6
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	46	45 - 56	-8.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	46	44 - 57	-8.6
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	45	45 - 56	-10.2
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	45	44 - 57	-9.3
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	48	45 - 55	-3.7
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	46	43 - 58	-7.6
OCDF	M+2/M+4	0.90	0.76-1.02	86	63 - 159	-14.5

(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 %D 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

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 GC Column ID: DB-5MSUI

VER Data Filename: P229247 Analysis Date: 25-MAY-14 Time: 23:45:28

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	110	82 - 121	10.2
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	117	62 - 160	17.4
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	100	85 - 117	-0.5
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	92	85 - 118	-8.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	94	72 - 138	-6.1
13C-OCDD	M+2/M+4	0.92	0.76-1.02	184	96 - 415	-7.8
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	105	71 - 140	4.6
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	102	76 - 130	2.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	104	77 - 130	4.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	82	76 - 131	-18.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	81	70 - 143	-19.4
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	92	74 - 135	-7.7
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	84	73 - 137	-15.8
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	80	78 - 129	-20.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	87	77 - 129	-12.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				11.3	7.8 - 12.7	13.2

(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.
(5) The beginnning CCAL %D 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)

1613F4B.FRM

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
CCAL HRCC3/CS3

Run #8 Filename P229247 #1 Samp: 1 Inj: 1 Acquired: 25-MAY-14 23:45:28
Processed: 27-MAY-14 11:19:53 LAB. ID:

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:47	2.081e+04	2.745e+04	0.76	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:49	2.013e+05	1.318e+05	1.53	yes	no	1.000
3	Unk	2,3,4,7,8-PeCDF	33:43	1.884e+05	1.226e+05	1.54	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:19	1.786e+05	1.438e+05	1.24	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:25	1.865e+05	1.521e+05	1.23	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:54	1.703e+05	1.387e+05	1.23	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:40	1.636e+05	1.329e+05	1.23	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	1.500e+05	1.473e+05	1.02	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:19	1.276e+05	1.246e+05	1.02	yes	no	1.000
10	Unk	OCDF	42:52	1.986e+05	2.205e+05	0.90	yes	no	1.006
11	Unk	2,3,7,8-TCDD	29:32	1.600e+04	2.054e+04	0.78	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:59	1.364e+05	8.684e+04	1.57	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	37:02	1.282e+05	1.016e+05	1.26	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	37:07	1.267e+05	9.956e+04	1.27	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:21	1.343e+05	1.083e+05	1.24	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:49	1.113e+05	1.057e+05	1.05	yes	no	1.000
17	Unk	OCDD	42:38	1.612e+05	1.795e+05	0.90	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:46	2.213e+05	2.789e+05	0.79	yes	no	0.994
19	IS	13C-1,2,3,7,8-PeCDF	32:49	4.030e+05	2.521e+05	1.60	yes	no	1.134
20	IS	13C-2,3,4,7,8-PeCDF	33:42	3.969e+05	2.490e+05	1.59	yes	no	1.165
21	IS	13C-1,2,3,4,7,8-HxCDF	36:18	1.816e+05	3.473e+05	0.52	yes	no	0.972
22	IS	13C-1,2,3,6,7,8-HxCDF	36:25	2.070e+05	3.930e+05	0.53	yes	no	0.975
23	IS	13C-2,3,4,6,7,8-HxCDF	36:54	1.897e+05	3.629e+05	0.52	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	1.799e+05	3.403e+05	0.53	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	1.335e+05	3.012e+05	0.44	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	1.224e+05	2.729e+05	0.45	yes	no	1.079
27	IS	13C-2,3,7,8-TCDD	29:31	1.549e+05	1.976e+05	0.78	yes	no	1.020
28	IS	13C-1,2,3,7,8-PeCDD	33:58	2.747e+05	1.727e+05	1.59	yes	no	1.174
29	IS	13C-1,2,3,4,7,8-HxCDD	37:02	2.364e+05	1.838e+05	1.29	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	2.310e+05	1.798e+05	1.28	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:48	2.063e+05	1.926e+05	1.07	yes	no	1.066
32	IS	13C-OCDD	42:38	2.752e+05	3.003e+05	0.92	yes	no	1.141
33	RS/RT	13C-1,2,3,4-TCDD	28:56	1.520e+05	1.923e+05	0.79	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:21	2.546e+05	1.997e+05	1.27	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	3.687e+04				no	1.020

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XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
CCAL HRCC3/CS3

Run #8 Filename P229247 Samp: 1 Inj: 1 Acquired: 25-MAY-14 23:45:28
Processed: 27-MAY-14 11:19:531 LAB. ID:

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.45e+06	2.00e+02	2.2e+04	5.98e+06	1.20e+03	5.0e+03
2	1,2,3,7,8-PeCDF	3.95e+07	8.64e+02	4.6e+04	2.59e+07	1.46e+03	1.8e+04
3	2,3,4,7,8-PeCDF	3.95e+07	8.64e+02	4.6e+04	2.58e+07	1.46e+03	1.8e+04
4	1,2,3,4,7,8-HxCDF	4.06e+07	9.80e+02	4.1e+04	3.27e+07	1.18e+03	2.8e+04
5	1,2,3,6,7,8-HxCDF	4.09e+07	9.80e+02	4.2e+04	3.33e+07	1.18e+03	2.8e+04
6	2,3,4,6,7,8-HxCDF	3.78e+07	9.80e+02	3.9e+04	3.10e+07	1.18e+03	2.6e+04
7	1,2,3,7,8,9-HxCDF	3.47e+07	9.80e+02	3.5e+04	2.80e+07	1.18e+03	2.4e+04
8	1,2,3,4,6,7,8-HpCDF	3.32e+07	8.90e+03	3.7e+03	3.26e+07	4.63e+03	7.1e+03
9	1,2,3,4,7,8,9-HpCDF	2.48e+07	8.90e+03	2.8e+03	2.40e+07	4.63e+03	5.2e+03
10	OCDF	3.29e+07	3.68e+02	8.9e+04	3.60e+07	7.76e+02	4.6e+04
11	2,3,7,8-TCDD	3.70e+06	6.68e+02	5.5e+03	4.75e+06	4.60e+02	1.0e+04
12	1,2,3,7,8-PeCDD	2.91e+07	6.24e+02	4.7e+04	1.85e+07	2.84e+02	6.5e+04
13	1,2,3,4,7,8-HxCDD	2.90e+07	6.36e+02	4.6e+04	2.28e+07	6.48e+02	3.5e+04
14	1,2,3,6,7,8-HxCDD	2.77e+07	6.36e+02	4.4e+04	2.19e+07	6.48e+02	3.4e+04
15	1,2,3,7,8,9-HxCDD	2.90e+07	6.36e+02	4.6e+04	2.34e+07	6.48e+02	3.6e+04
16	1,2,3,4,6,7,8-HpCDD	2.25e+07	9.92e+02	2.3e+04	2.12e+07	8.56e+02	2.5e+04
17	OCDD	2.77e+07	6.04e+02	4.6e+04	3.08e+07	1.08e+03	2.9e+04
18	13C-2,3,7,8-TCDF	4.84e+07	1.04e+03	4.6e+04	6.10e+07	7.28e+02	8.4e+04
19	13C-1,2,3,7,8-PeCDF	8.04e+07	5.80e+02	1.4e+05	5.03e+07	3.08e+02	1.6e+05
20	13C-2,3,4,7,8-PeCDF	8.31e+07	5.80e+02	1.4e+05	5.19e+07	3.08e+02	1.7e+05
21	13C-1,2,3,4,7,8-HxCDF	4.09e+07	7.28e+02	5.6e+04	7.86e+07	1.15e+03	6.8e+04
22	13C-1,2,3,6,7,8-HxCDF	4.53e+07	7.28e+02	6.2e+04	8.64e+07	1.15e+03	7.5e+04
23	13C-2,3,4,6,7,8-HxCDF	4.17e+07	7.28e+02	5.7e+04	8.06e+07	1.15e+03	7.0e+04
24	13C-1,2,3,7,8,9-HxCDF	3.84e+07	7.28e+02	5.3e+04	7.23e+07	1.15e+03	6.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.93e+07	3.40e+03	8.6e+03	6.62e+07	7.67e+03	8.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.38e+07	3.40e+03	7.0e+03	5.24e+07	7.67e+03	6.8e+03
27	13C-2,3,7,8-TCDD	3.54e+07	2.91e+03	1.2e+04	4.51e+07	1.57e+03	2.9e+04
28	13C-1,2,3,7,8-PeCDD	5.76e+07	6.88e+02	8.4e+04	3.61e+07	4.48e+02	8.1e+04
29	13C-1,2,3,4,7,8-HxCDD	5.31e+07	5.36e+02	9.9e+04	4.10e+07	5.56e+02	7.4e+04
30	13C-1,2,3,6,7,8-HxCDD	4.99e+07	5.36e+02	9.3e+04	3.96e+07	5.56e+02	7.1e+04
31	13C-1,2,3,4,6,7,8-HpCDD	4.09e+07	2.00e+03	2.0e+04	3.82e+07	1.18e+03	3.2e+04
32	13C-OCDD	4.65e+07	8.92e+02	5.2e+04	5.08e+07	4.56e+02	1.1e+05
33	13C-1,2,3,4-TCDD	3.39e+07	2.91e+03	1.2e+04	4.30e+07	1.57e+03	2.7e+04
34	13C-1,2,3,7,8,9-HxCDD	5.51e+07	5.36e+02	1.0e+05	4.26e+07	5.56e+02	7.7e+04
35	37Cl-2,3,7,8-TCDD	8.53e+06	6.16e+02	1.4e+04			

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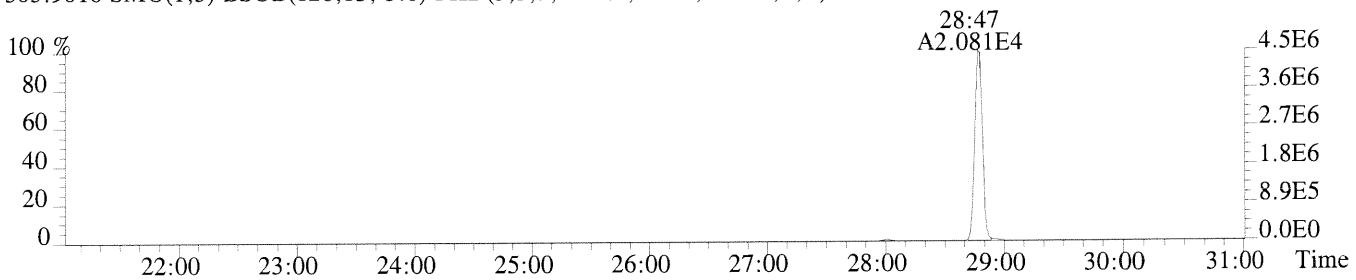
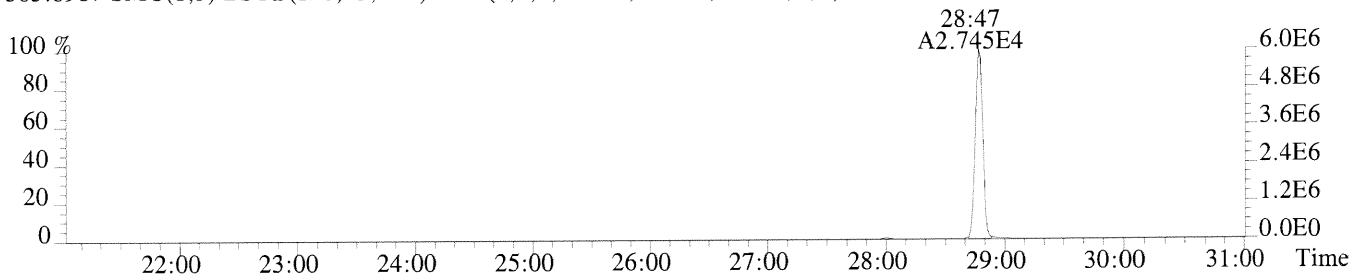
XLSN

File:P229247 #1-627 Acq:25-MAY-2014 23:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

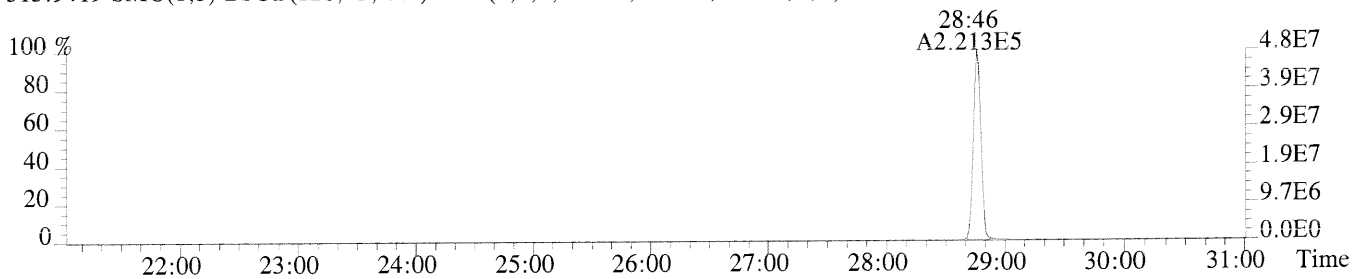
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



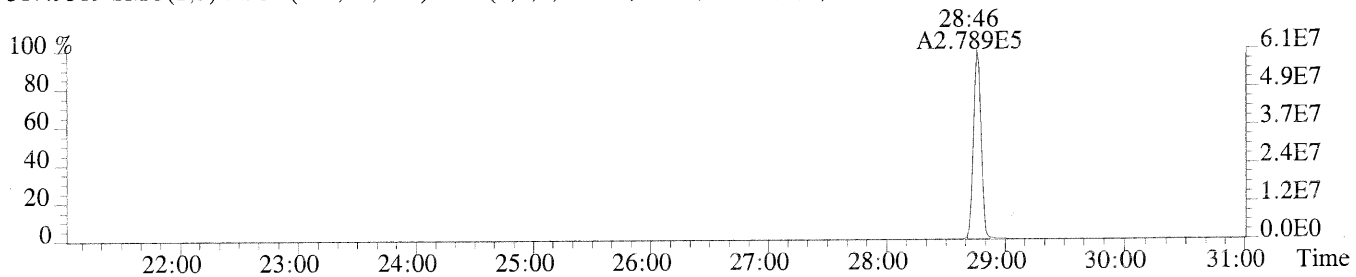
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



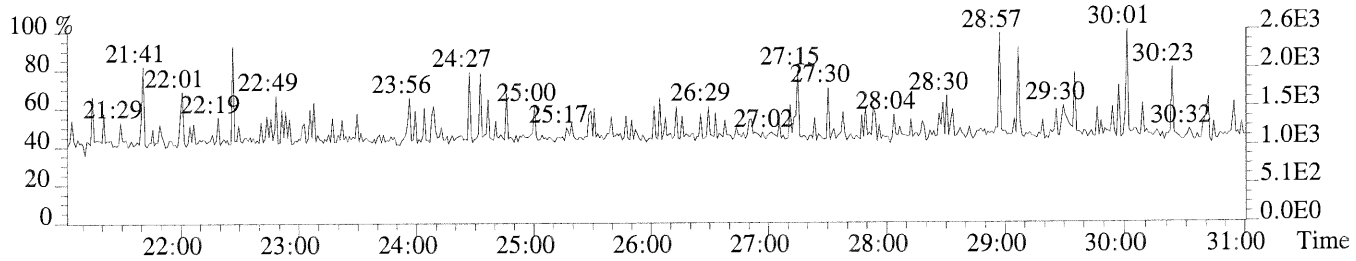
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



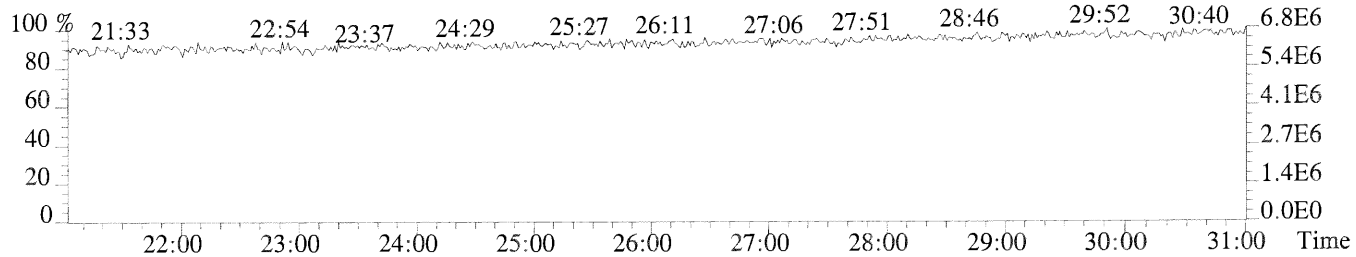
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

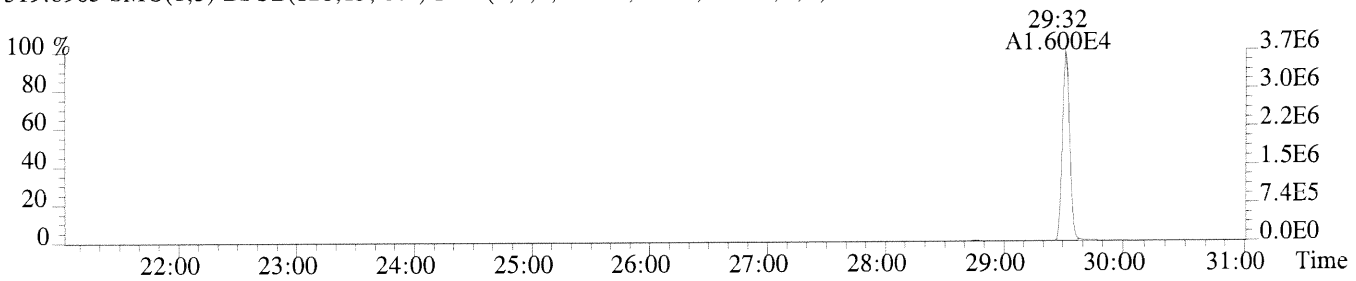


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

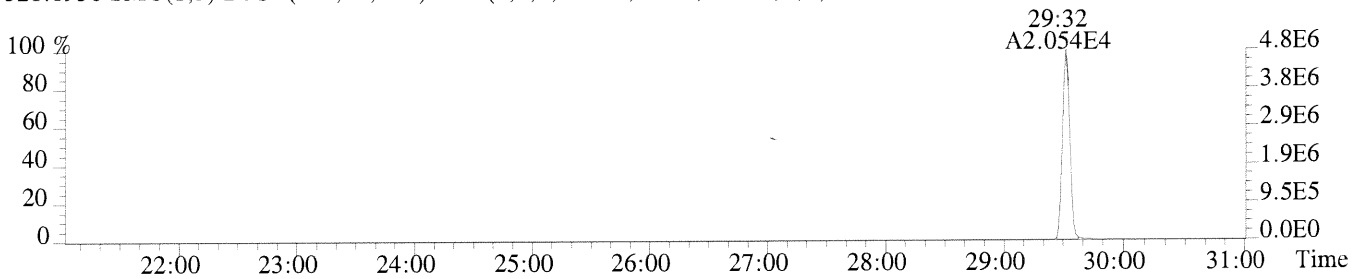


File:P229247 #1-627 Acq:25-MAY-2014 23:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

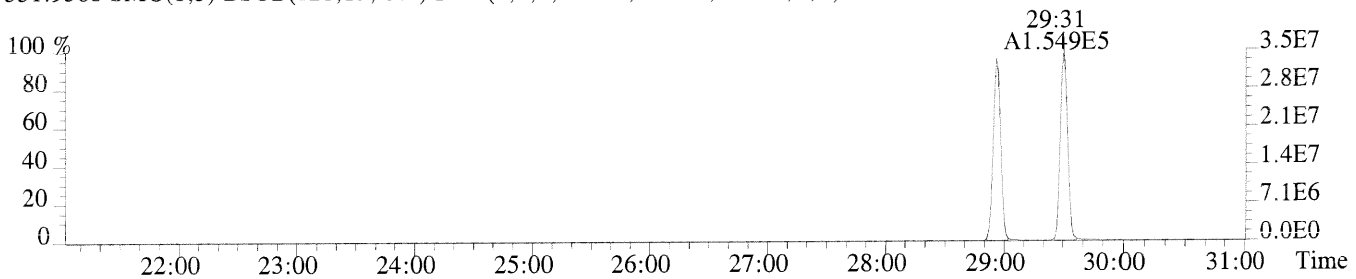
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



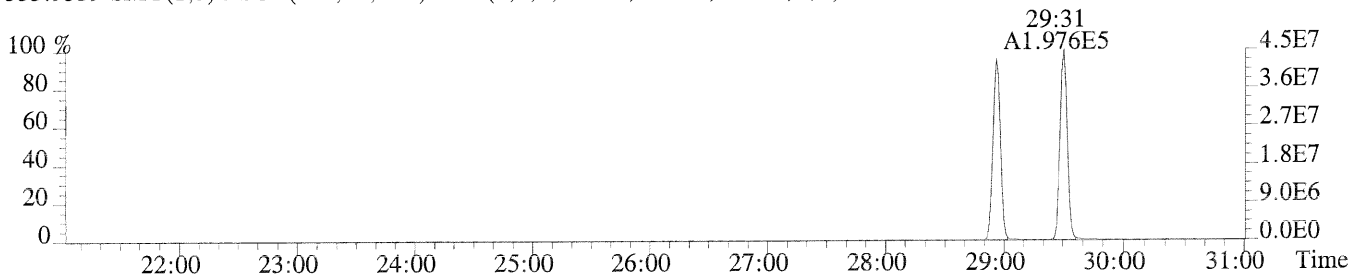
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



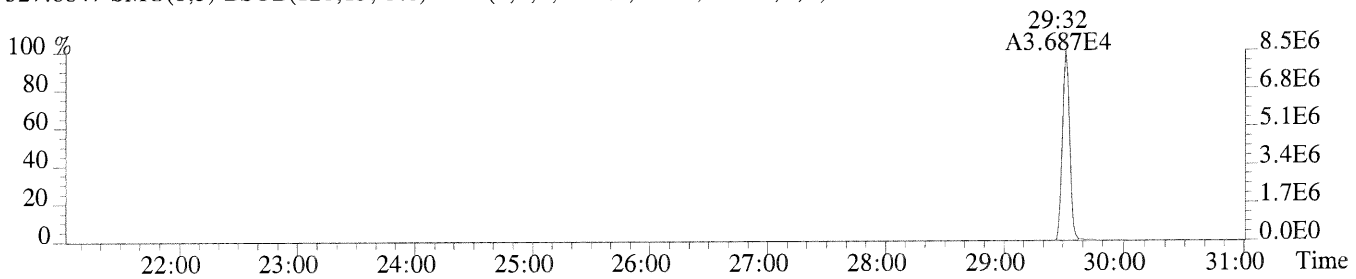
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2908.0,1.00%,F,T)



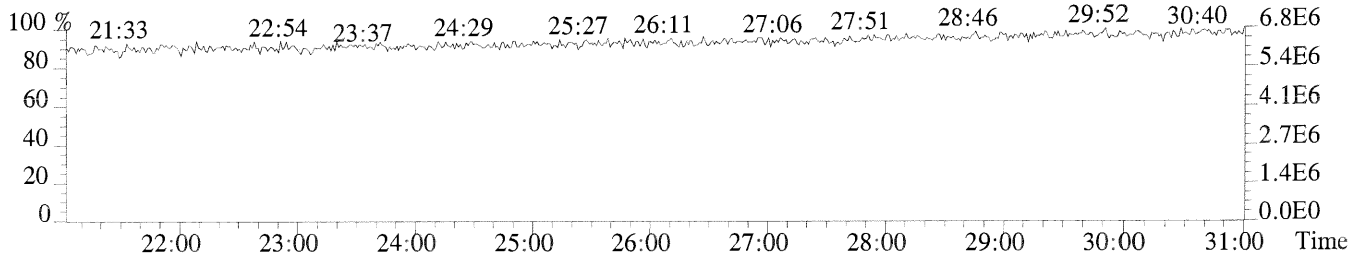
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



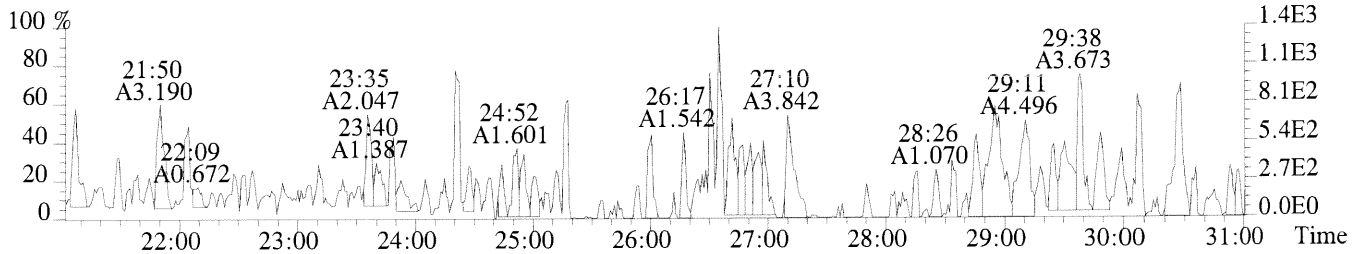
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



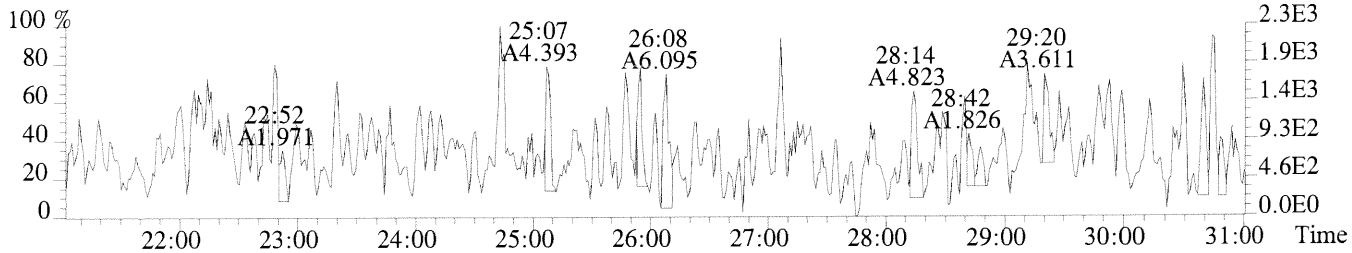
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



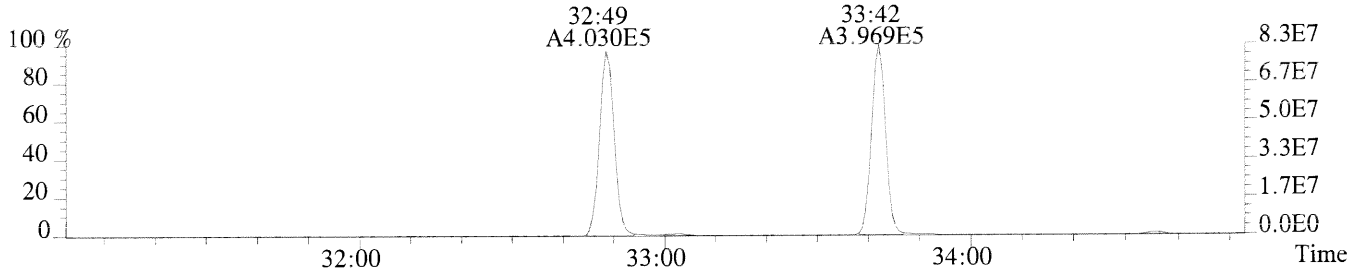
File:P229247 #1-627 Acq:25-MAY-2014 23:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



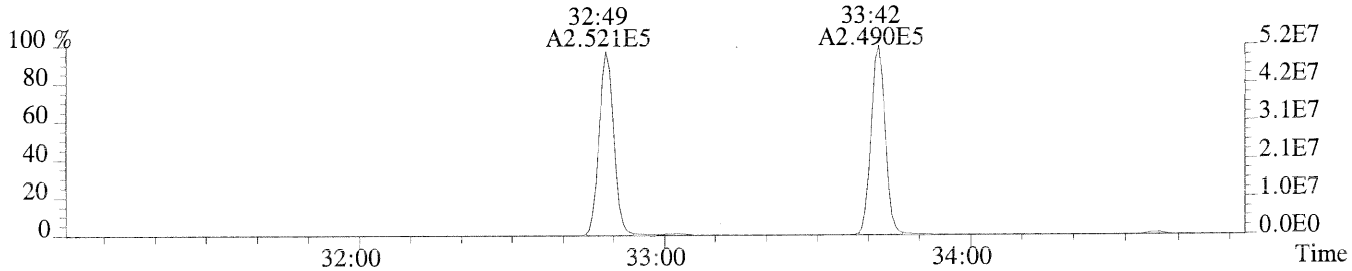
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



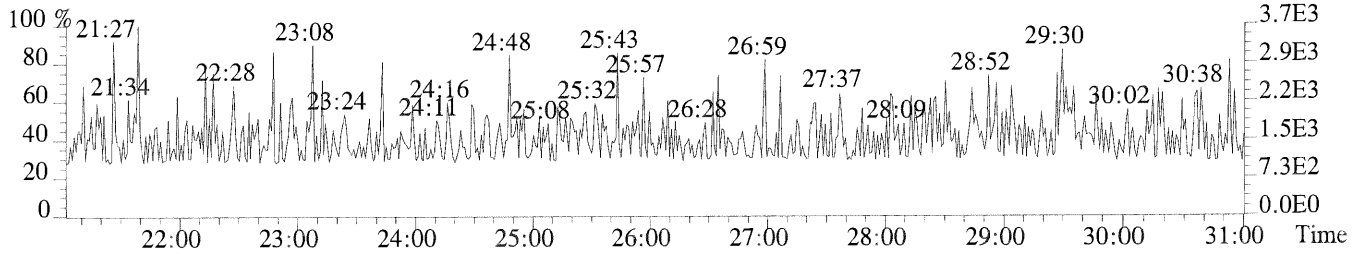
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



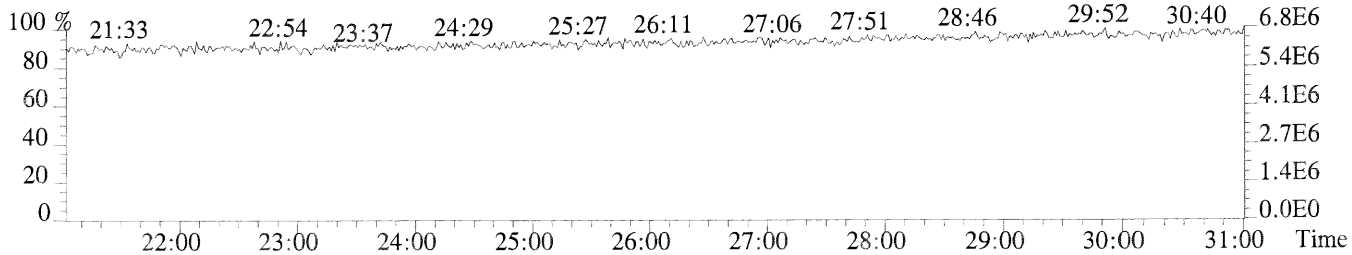
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

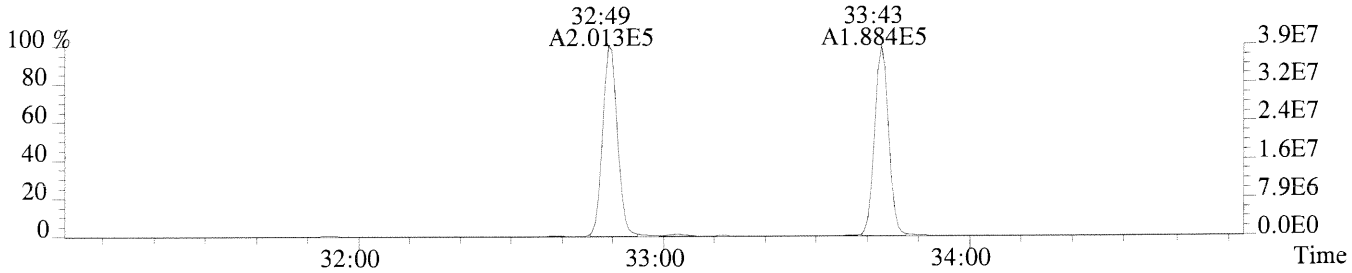


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

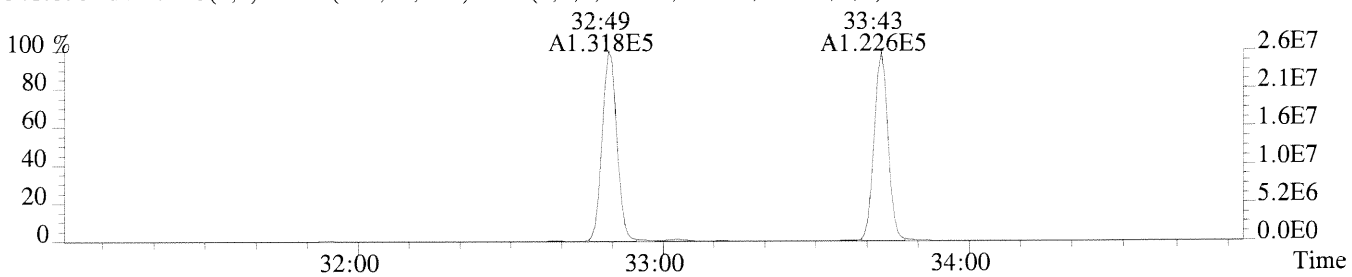


File:P229247 #1-349 Acq:25-MAY-2014 23:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

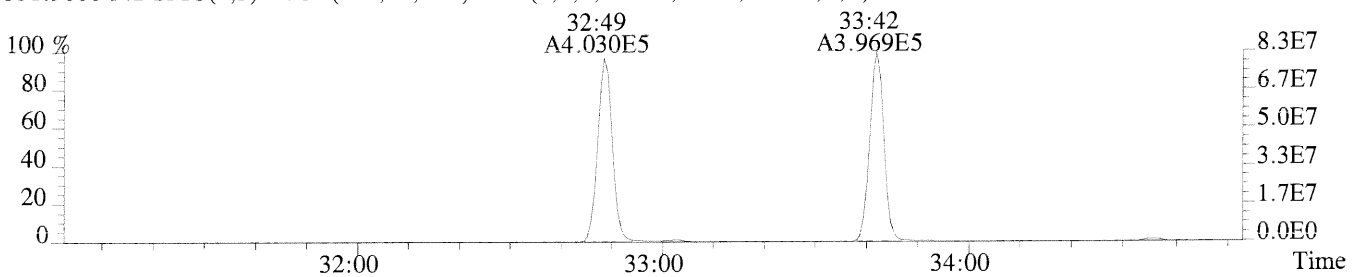
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



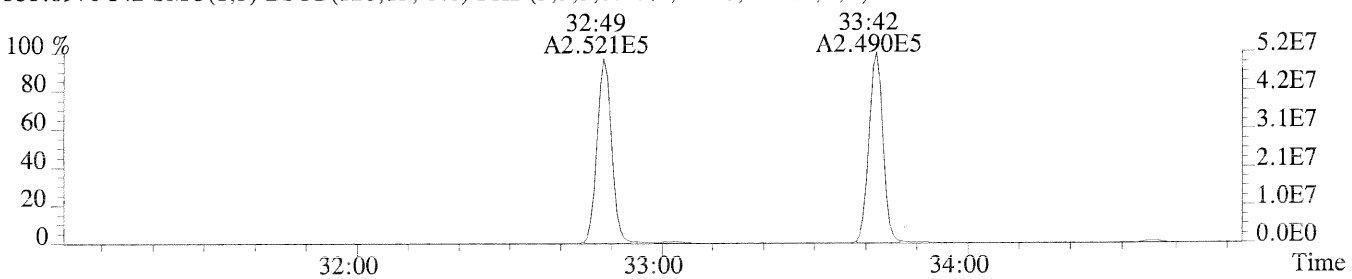
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



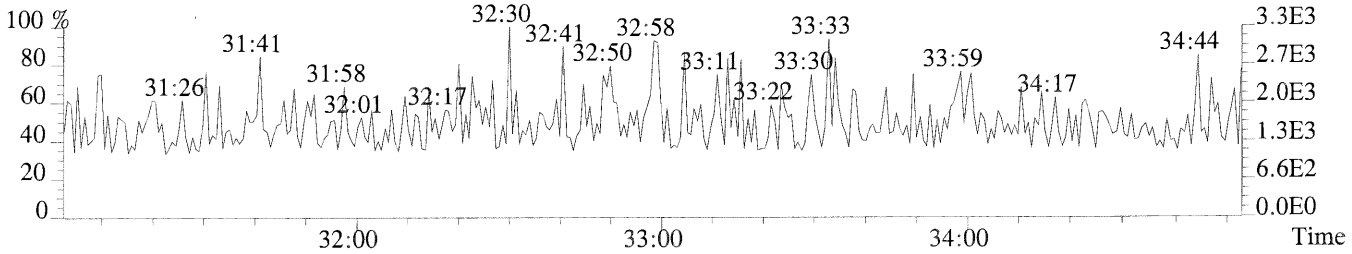
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



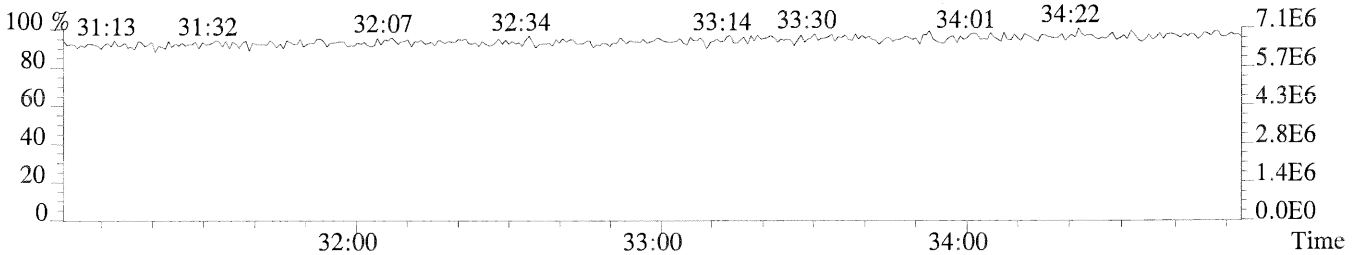
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,308.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

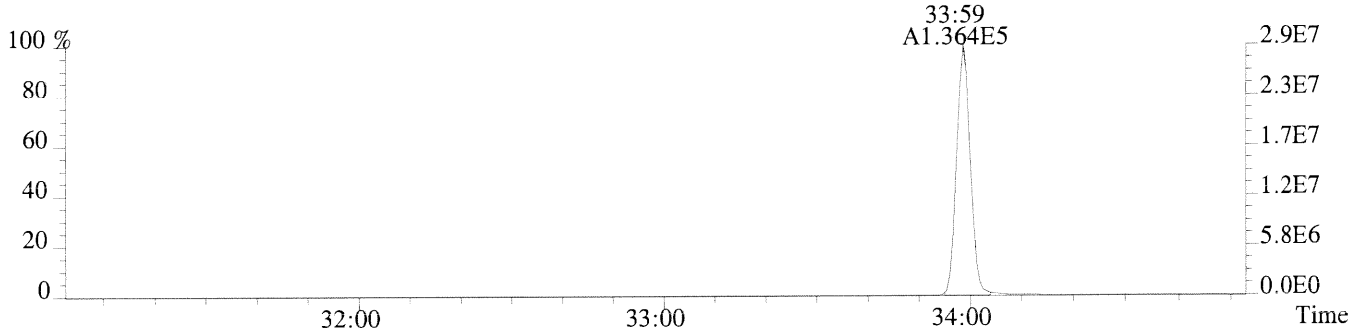


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

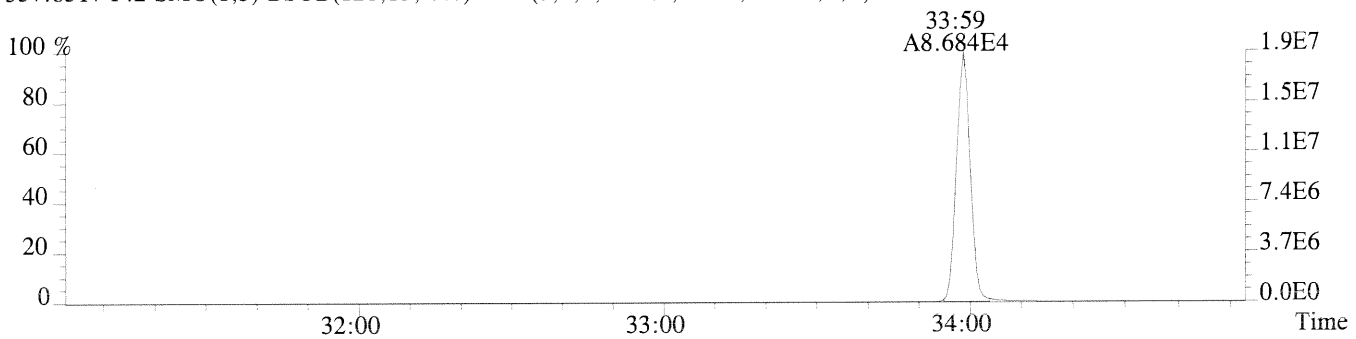


File:P229247 #1-349 Acq:25-MAY-2014 23:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

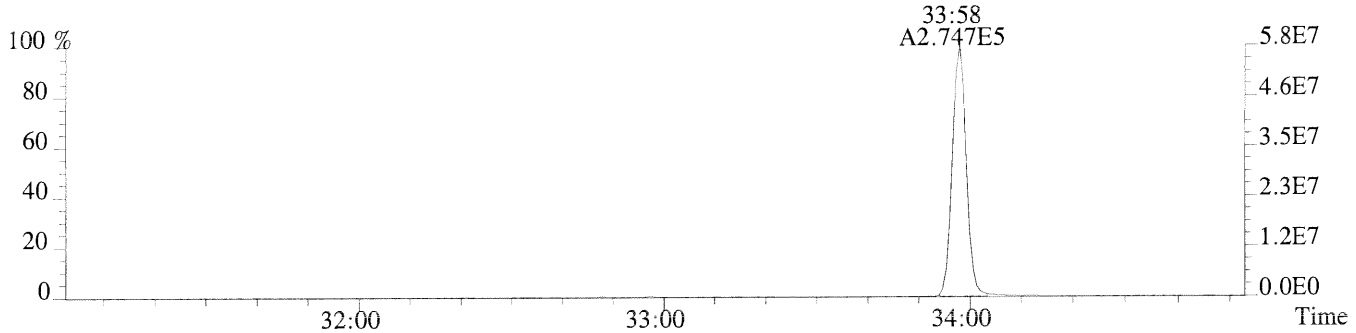
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



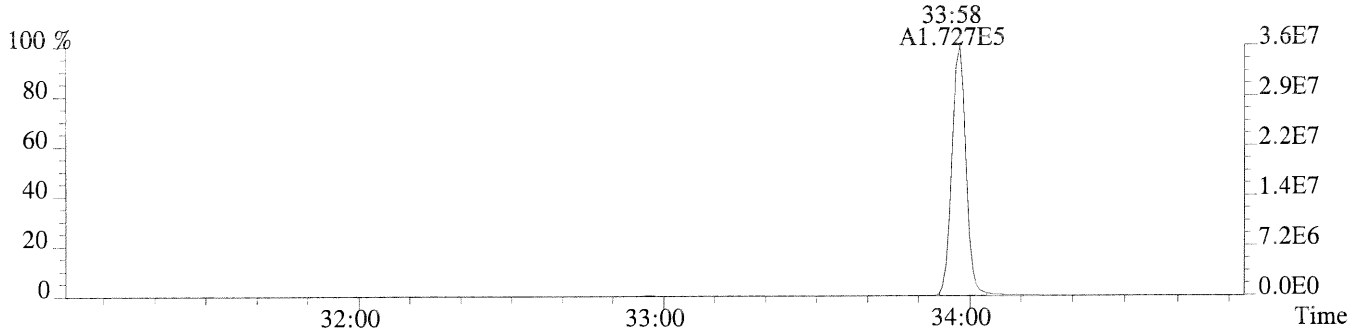
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,284.0,1.00%,F,T)



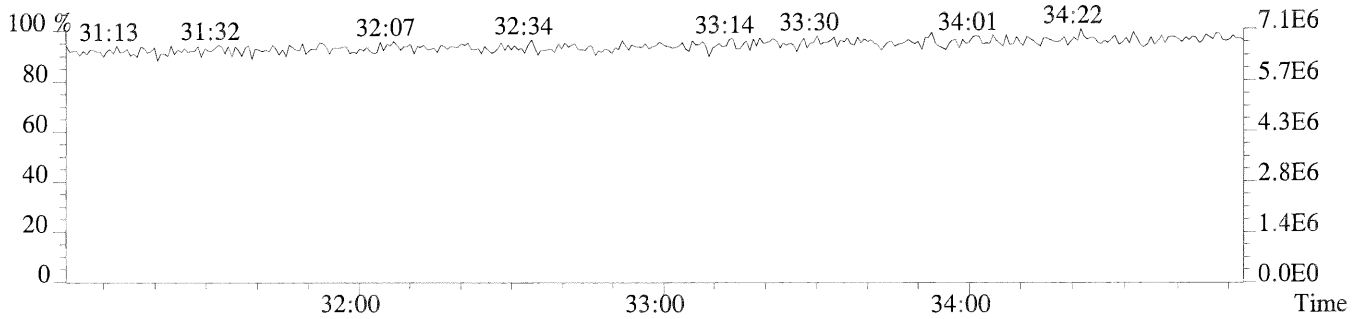
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)

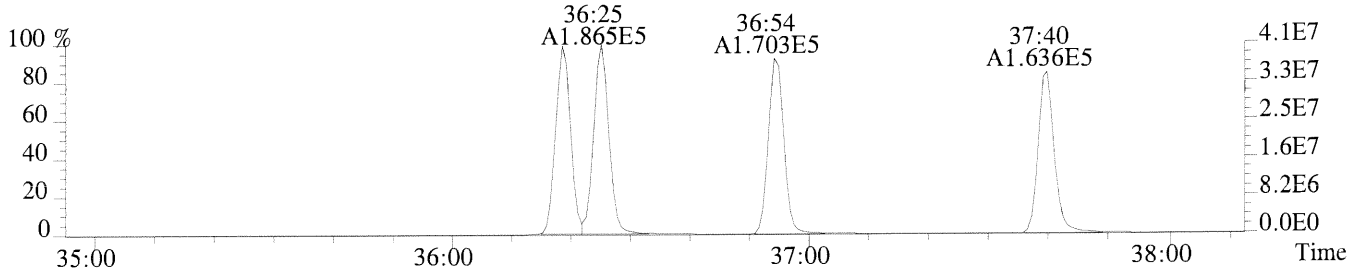


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

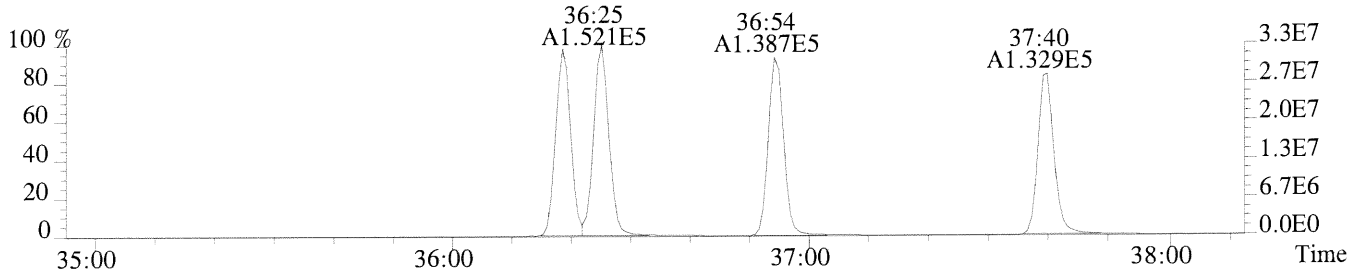


File:P229247 #1-299 Acq:25-MAY-2014 23:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

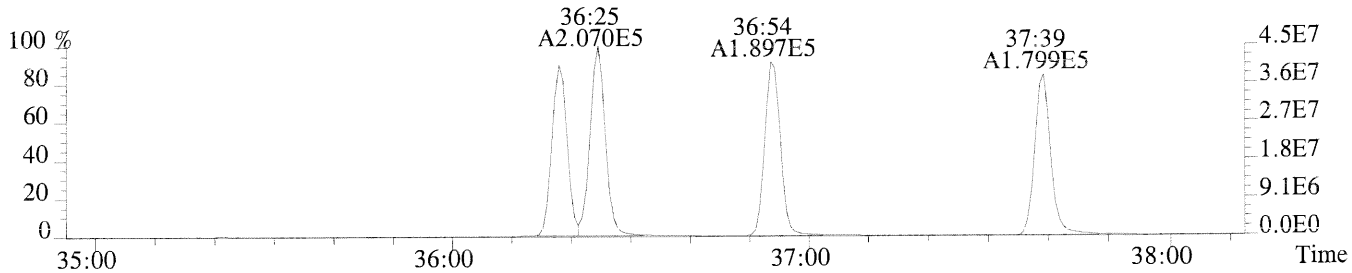
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



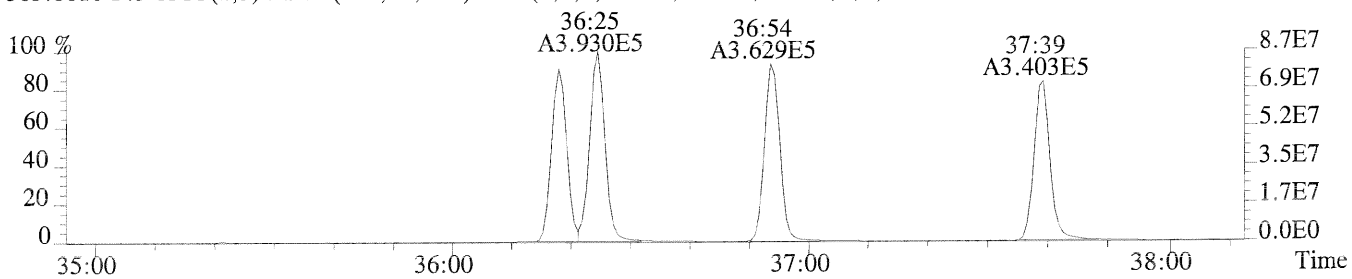
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1184.0,0.40%,F,T)



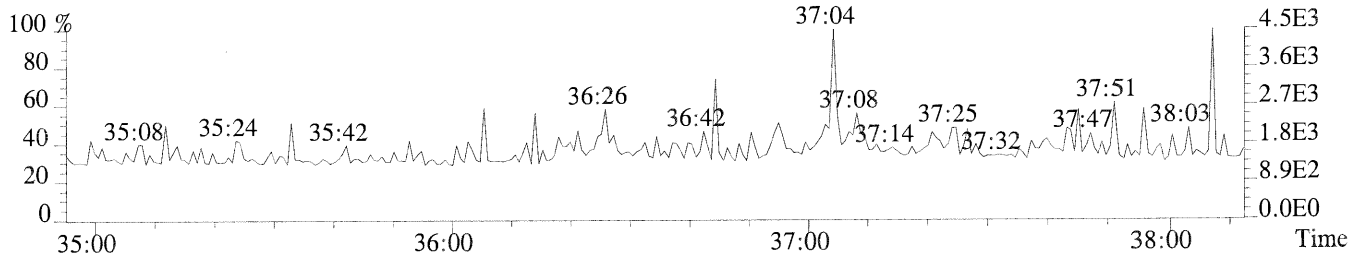
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



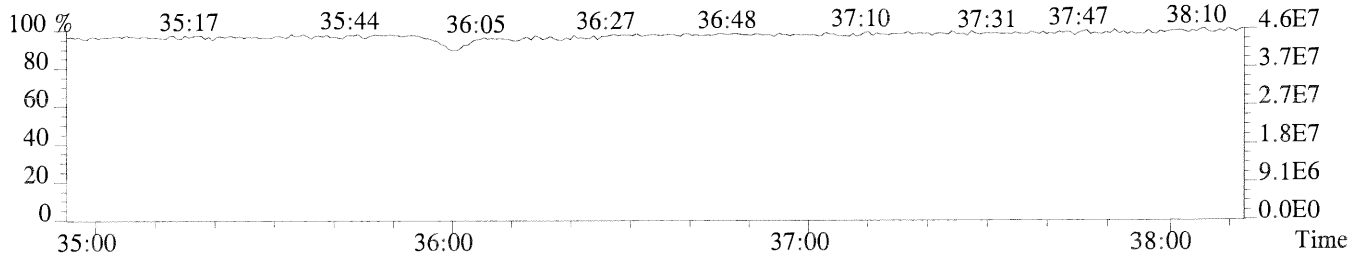
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1152.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

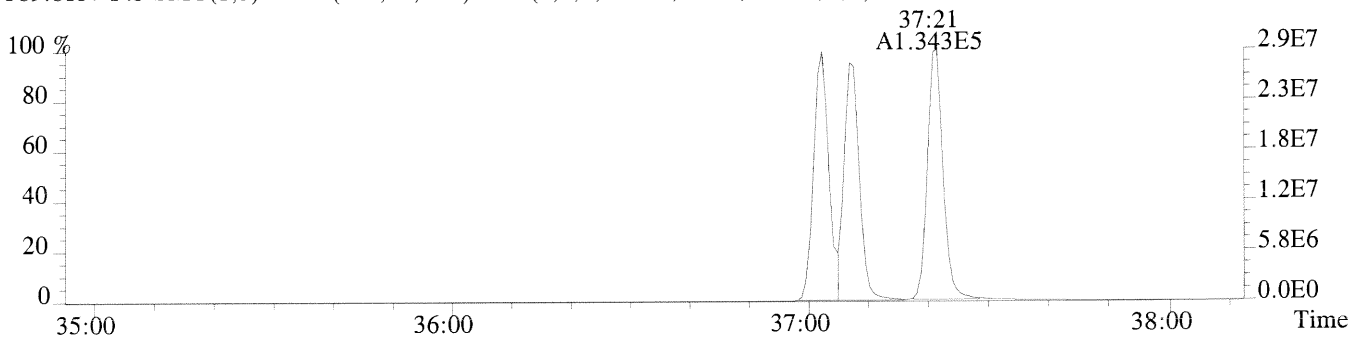


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

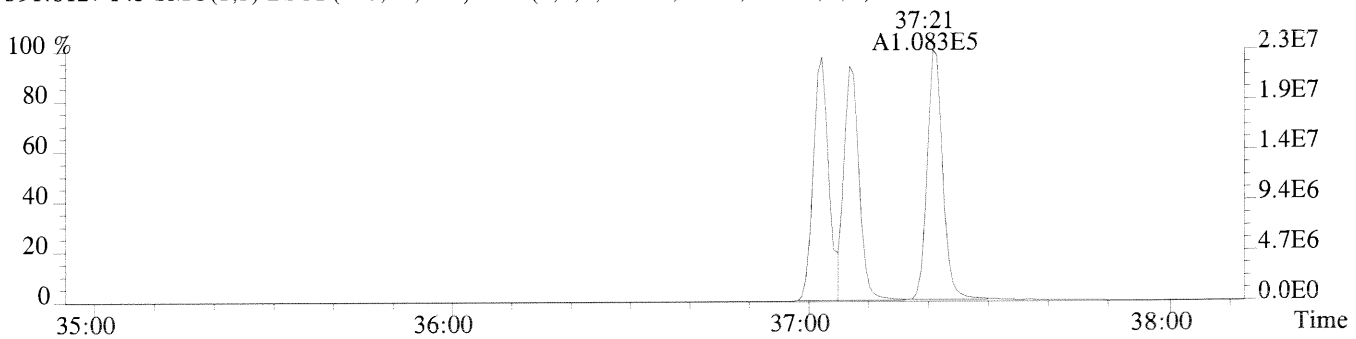


File:P229247 #1-299 Acq:25-MAY-2014 23:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

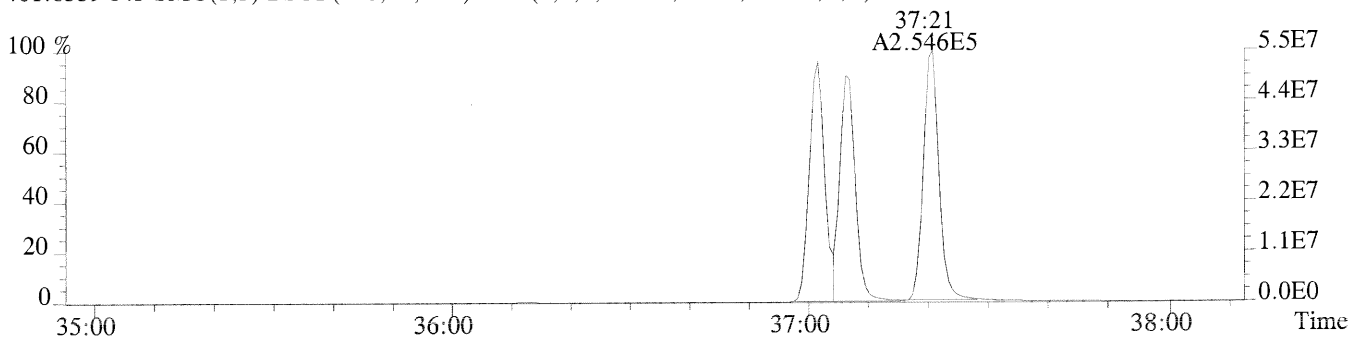
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



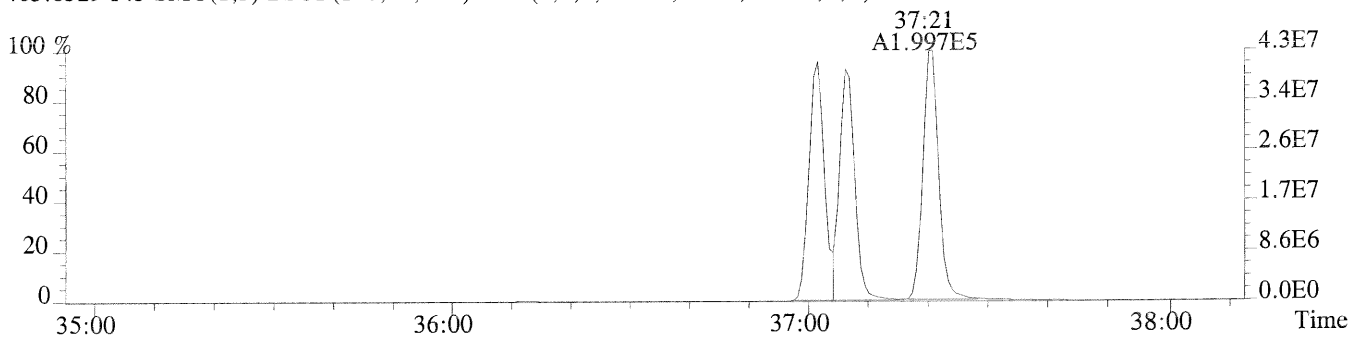
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



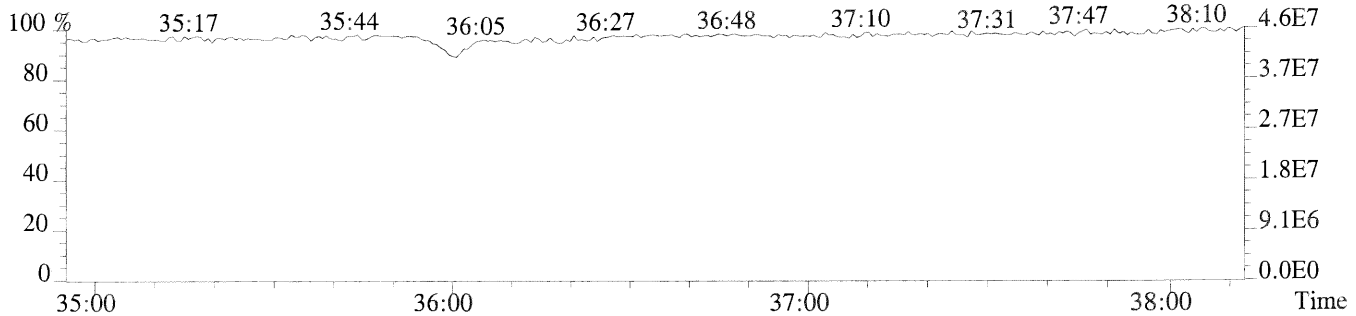
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)

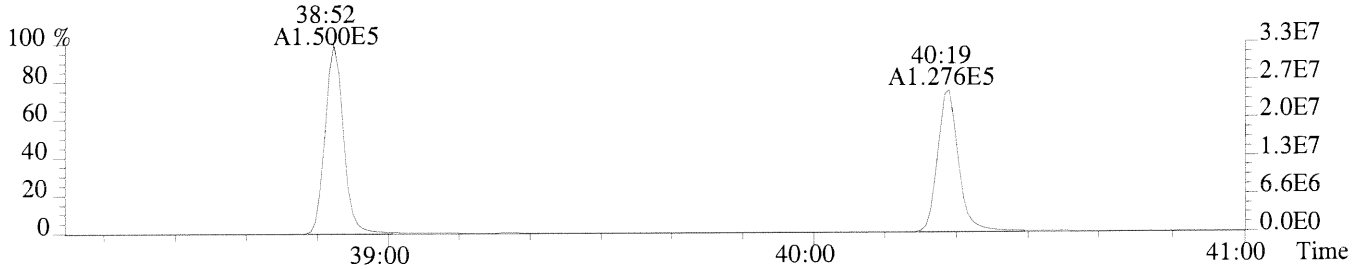


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

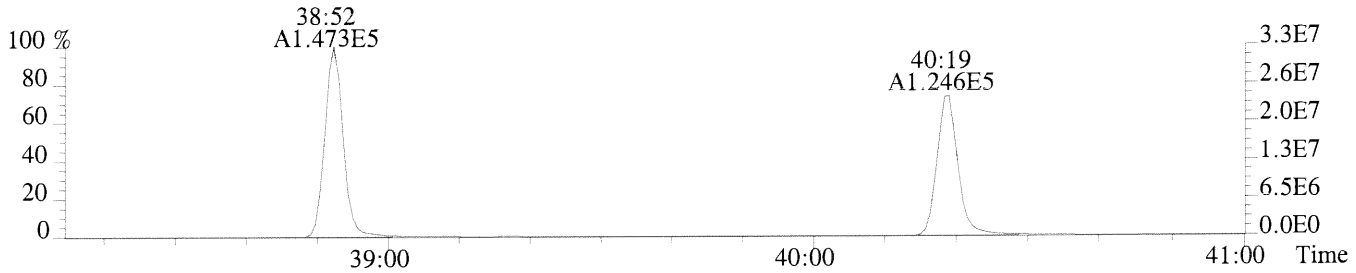


File:P229247 #1-251 Acq:25-MAY-2014 23:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

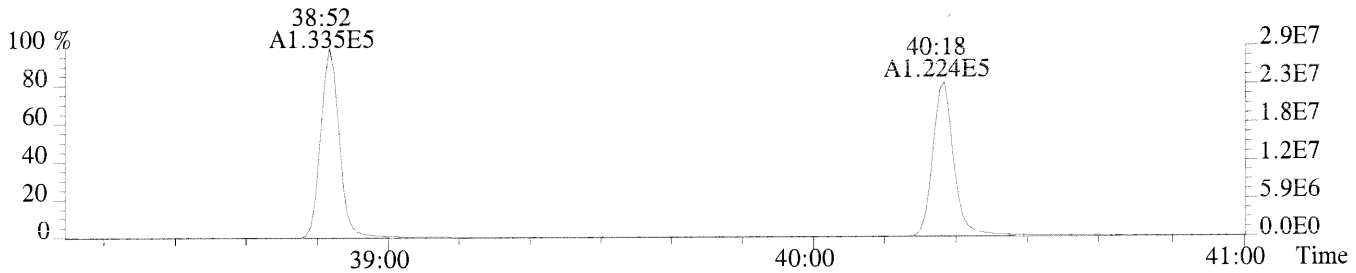
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8900.0,0.50%,F,T)



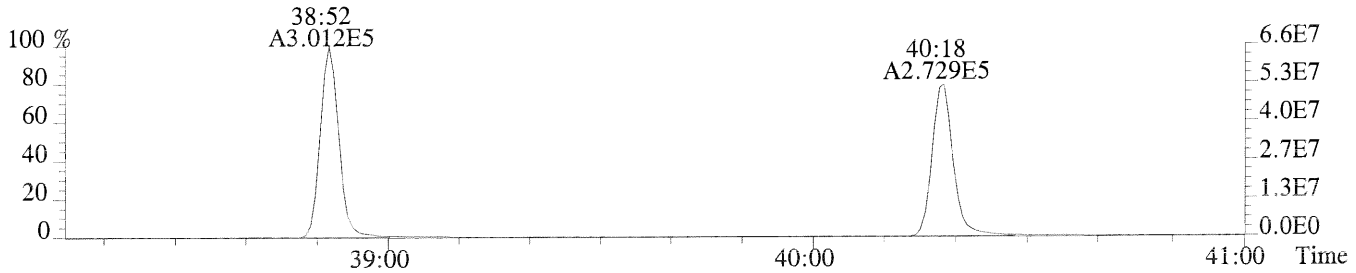
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4628.0,0.50%,F,T)



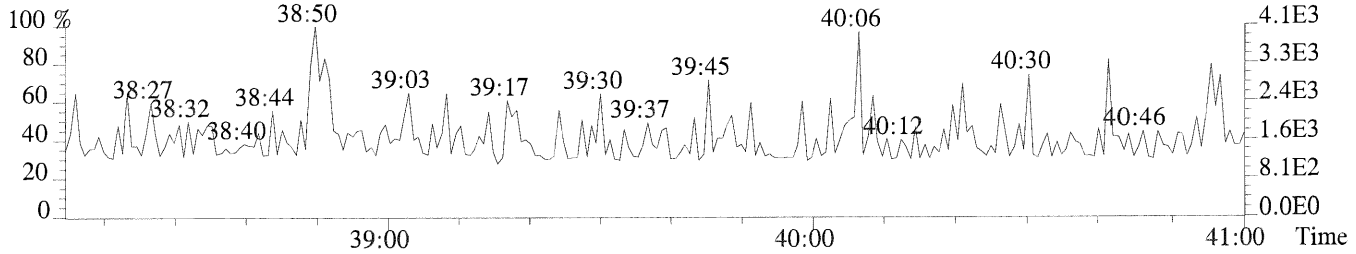
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3404.0,0.50%,F,T)



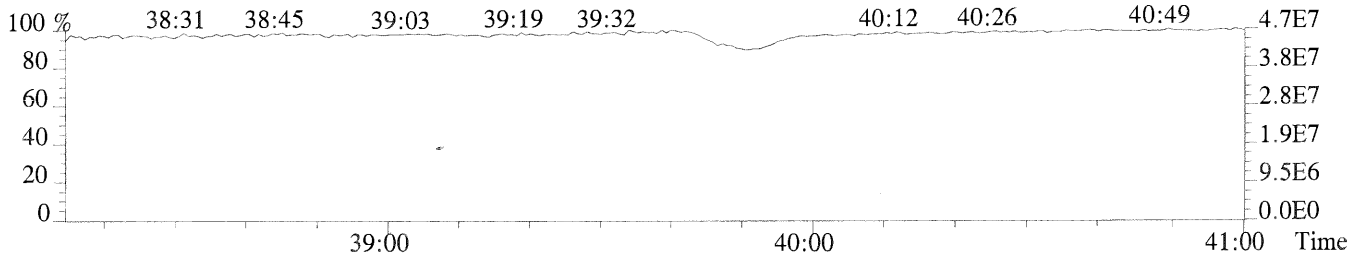
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7668.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

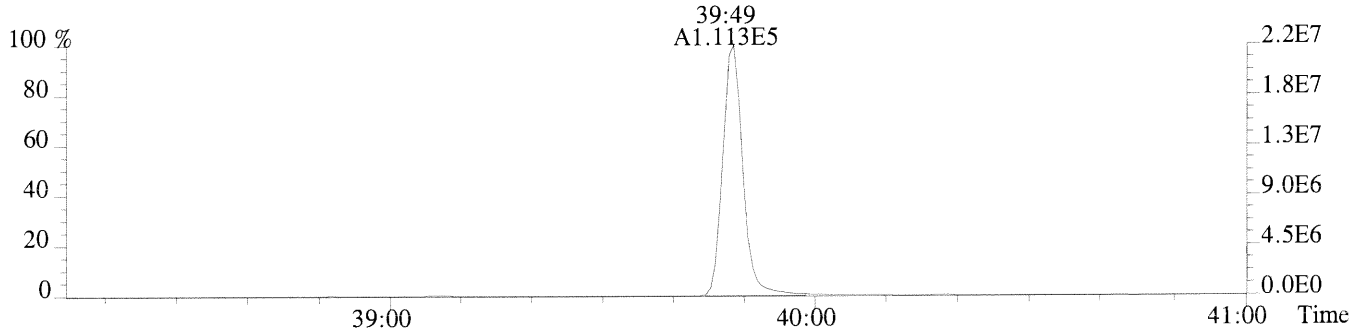


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

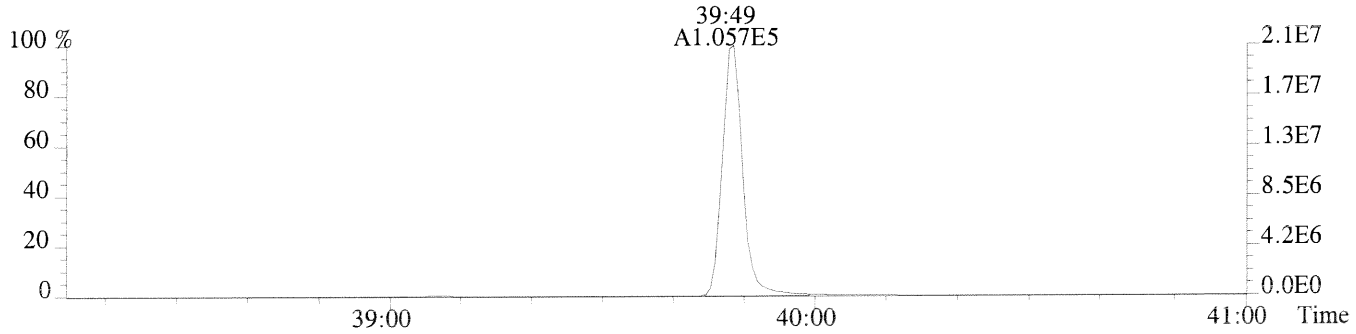


File:P229247 #1-251 Acq:25-MAY-2014 23:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

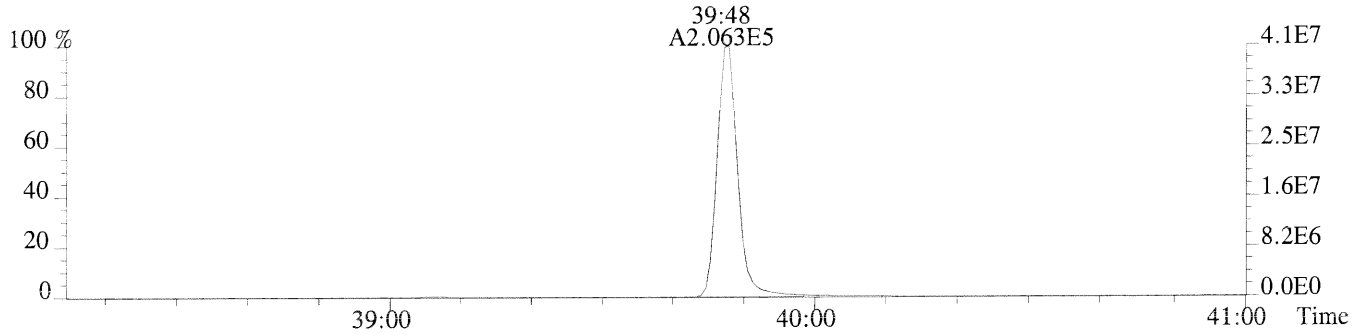
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



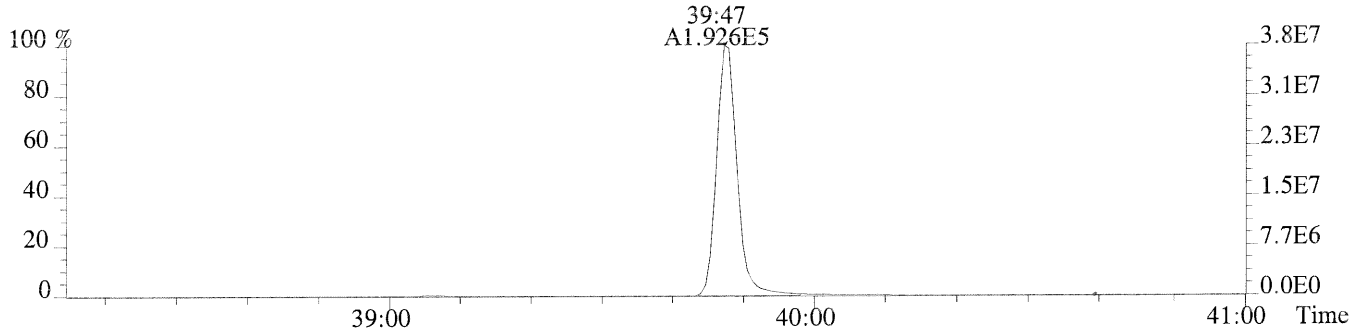
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



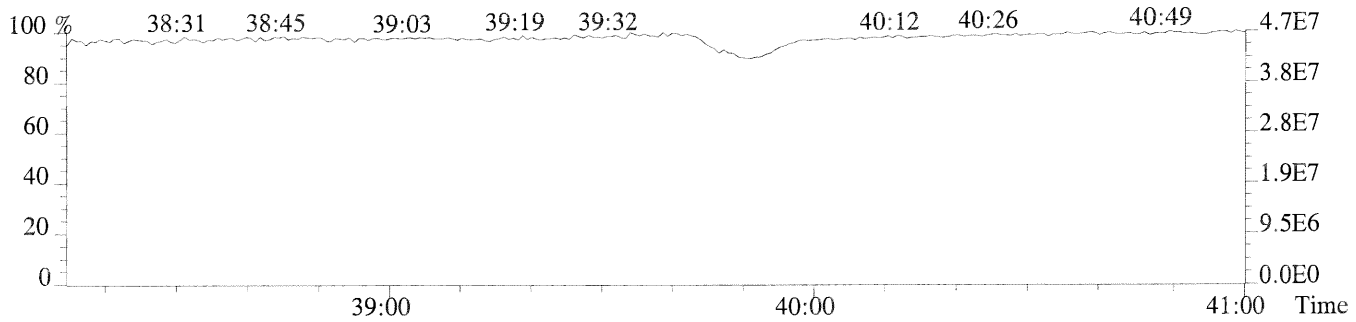
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



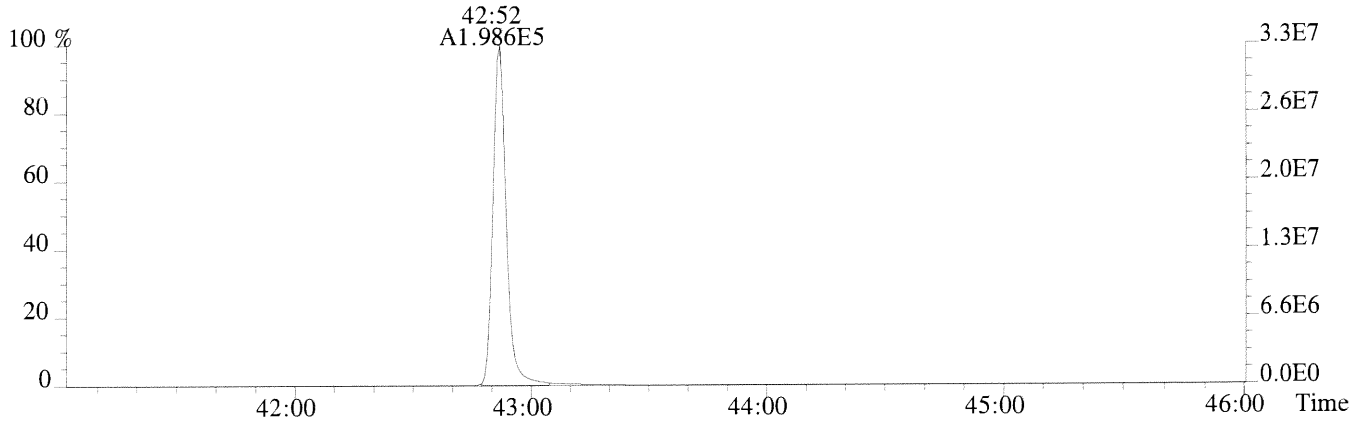
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1180.0,0.40%,F,T)



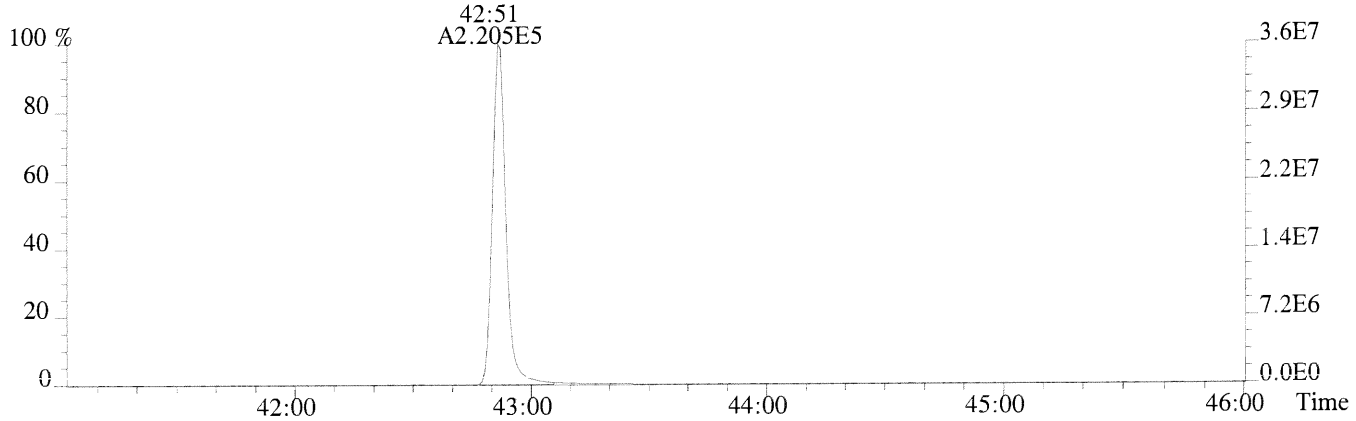
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



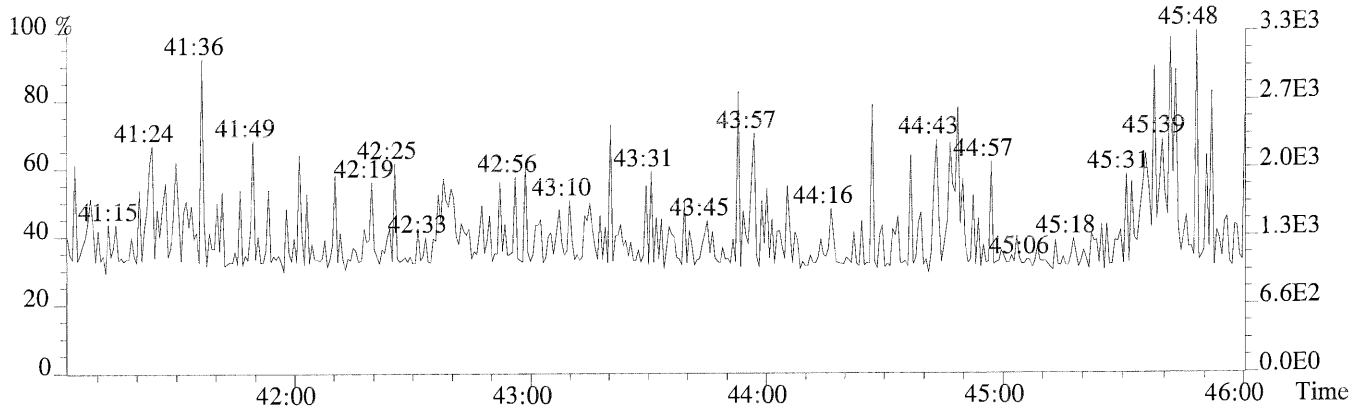
File:P229247 #1-457 Acq:25-MAY-2014 23:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



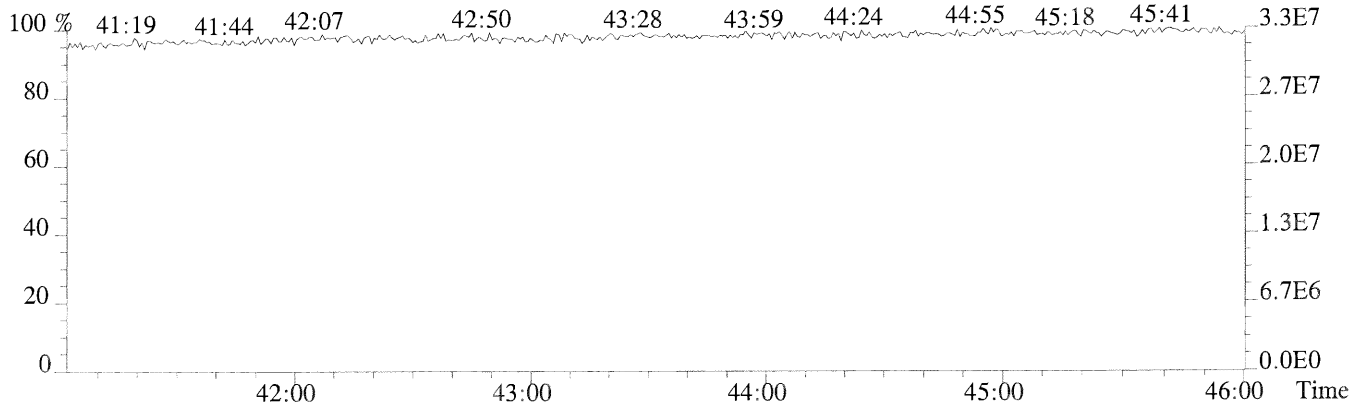
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,776.0,0.40%,F,T)



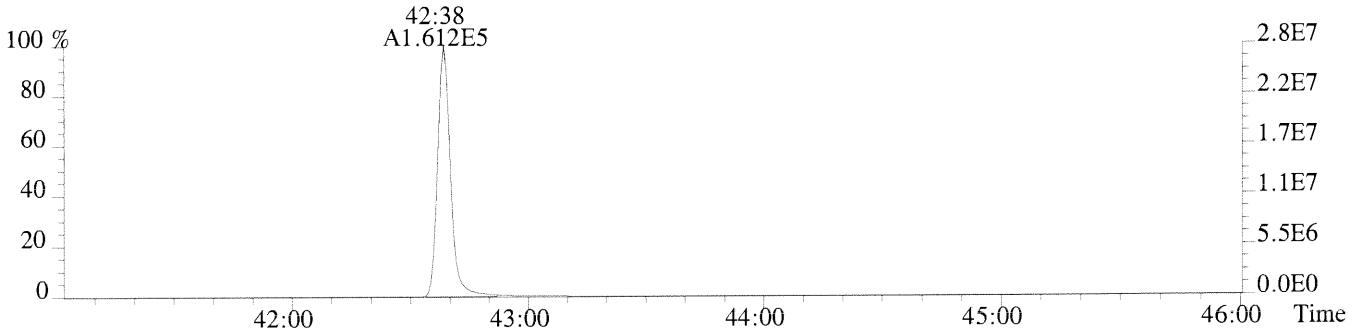
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



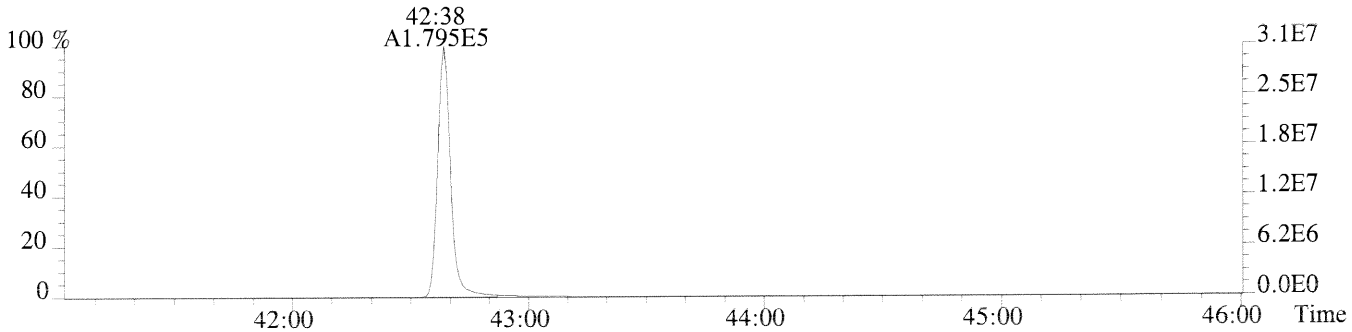
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



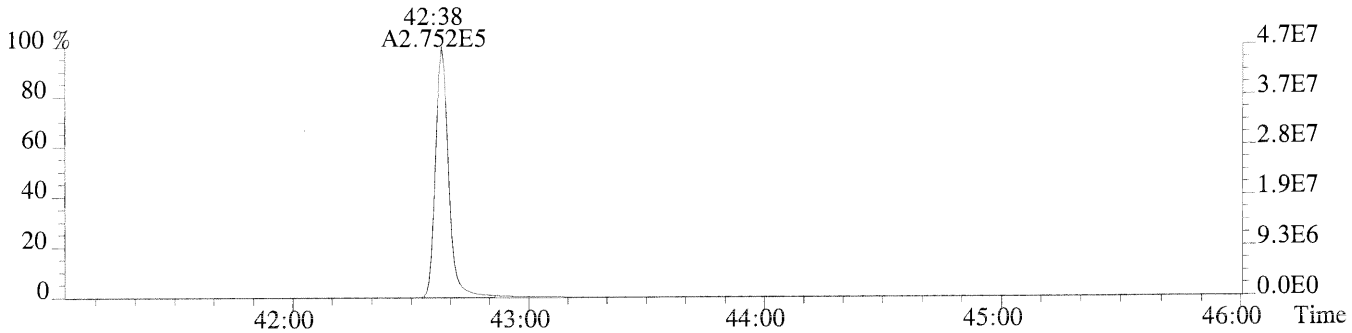
File:P229247 #1-457 Acq:25-MAY-2014 23:45:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



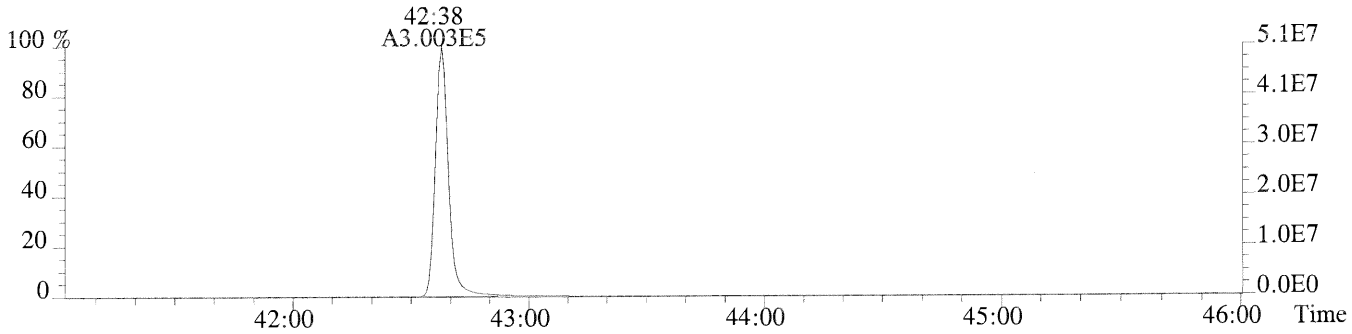
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1076.0,0.40%,F,T)



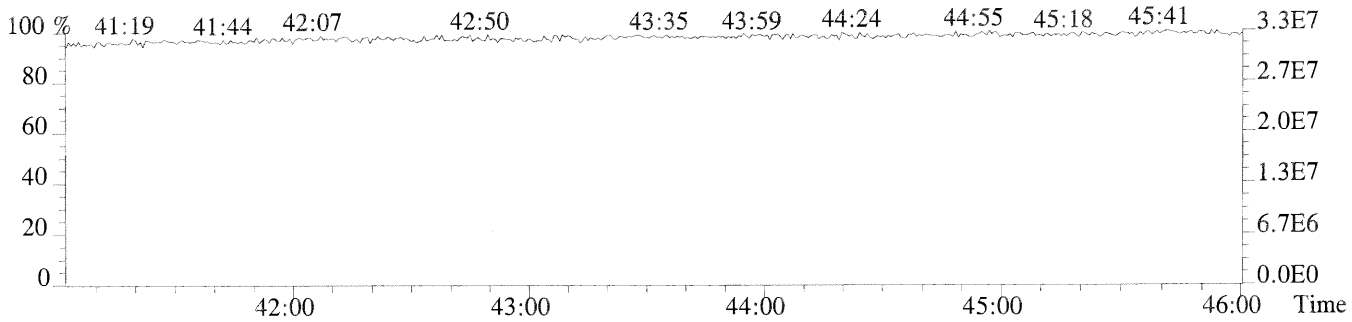
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,892.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,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: P229246 / P229263

Circle one: Beginning / Ending

Date: ~~052814~~ 052614

Method: 1613 / 1613E / 8290A / 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	✓	✓

Analyst: [illegible] 052814

Second QC: UKL

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) Instrument ID: E-HRMS-04

Init. Calib. Date: 02/01/14

Init. Calib.Times: 15:24

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	P229250	26-MAY-14	02:09:03
CCAL HRCC3/CS3	CCAL HRCC3/CS3	P229248	26-MAY-14	00:33:18
CCAL HRCC3/CS3	CCAL HRCC3/CS3	P229263	26-MAY-14	12:30:40
METHOD BLANK	EQ1400264-001	P229251	26-MAY-14	02:56:50
SO-25(0-3)	E1400525-006	P229252	26-MAY-14	03:44:40
SO-56(0-3)	E1400525-008	P229253	26-MAY-14	04:32:25
SO-57(0-3)	E1400525-010	P229254	26-MAY-14	05:20:10
SO-58(0-3)	E1400525-012	P229255	26-MAY-14	06:08:01
SO-59(0-3)	E1400525-014	P229256	26-MAY-14	06:55:53
SO-60A(0-3)	E1400525-016	P229257	26-MAY-14	07:43:45
SO-61(0-3)	E1400525-018	P229258	26-MAY-14	08:31:29
SO-206(0-3) MS	EQ1400264-003 ╗	P229259	26-MAY-14	09:19:21
SO-206(0-3) DMS	EQ1400264-004 ╗	P229260	26-MAY-14	10:07:15
LCS	EQ1400264-002	P229261	26-MAY-14	10:55:06

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2140525C.SPL
Last Modified: Wednesday, May 28, 2014 10:59:48 Central Daylight Time
Printed: Wednesday, May 28, 2014 11:00:01 Central Daylight Time

Page Position (1, 1)

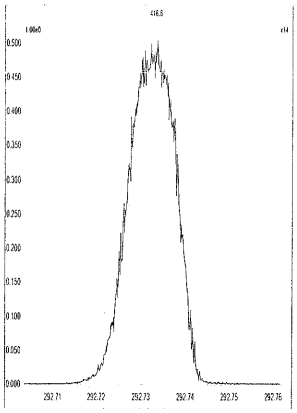
D:\P229248RES

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	05/26/14	00:33	P229248	CCAL HRCC3/CS3	66131	JW	HRMS check 10:01	8290CAS
2		01:21	P229249	TEST	TEST			8290CAS
3		02:09	P229250	WINDOW DEFINE	63680			8290CAS
4		02:56	P229251	EQ1400234-01 MB	MB			8290CAS
5		03:44	P229252	E1400525-006	E1400525-006			8290CAS
6		04:32	P229253	E1400525-008	E1400525-008			8290CAS
7		05:20	P229254	E1400525-010	E1400525-010			8290CAS
8		06:08	P229255	E1400525-012	E1400525-012			8290CAS
9		06:55	P229256	E1400525-014	E1400525-014			8290CAS
10		07:43	P229257	E1400525-016	E1400525-016			8290CAS
11		08:31	P229258	E1400525-018	E1400525-018			8290CAS
12		09:19	P229259	EQ1400264-003 MS	E1400525-002 MS			8290CAS
13		10:07	P229260	EQ1400264-004 DMS	E1400525-002 DMS			8290CAS
14		10:55	P229261	EQ1400264-002 LCS	LCS			8290CAS
15		11:42	P229262	TEST	TEST			8290CAS
16		12:30	P229263	CCAL HRCC3/CS3	66131		HRMS check 10:53	8290CAS
17			---	---	---			8290CAS
18			---	---	---			8290CAS
19			---	---	---			8290CAS
20			---	---	---			8290CAS
21			---	---	---			8290CAS
22			---	---	---			8290CAS
23			---	---	---			8290CAS
24			---	---	---			8290CAS
25			---	---	---			8290CAS
26			---	---	---			8290CAS
27			---	---	---			8290CAS
28			---	---	---			8290CAS
29			---	---	---			TCDFCAS
30			---	---	---			TCDFCAS
31			---	---	---			8290CAS
32	---	---	---	---	---	---	---	8290CAS
33	---	---	---	---	REVIEWED BY: JW	---	---	8290CAS
34	---	---	---	---	--- 052814	---	---	8290CAS
35	---	---	---	---	---	---	---	8290CAS
36	---	---	---	---	---	---	---	TCDFCAS
37	---	---	---	---	---	---	---	TCDFCAS
38	---	---	---	---	--- 048	---	---	TCDFCAS
39	---	---	---	---	---	---	---	---

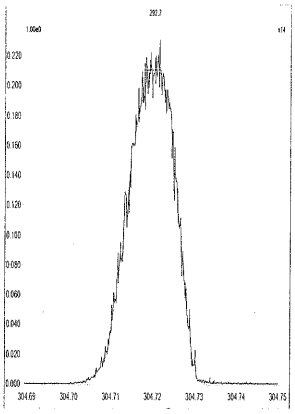
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Sunday, May 25, 2014 10:01:05 Central Daylight Time

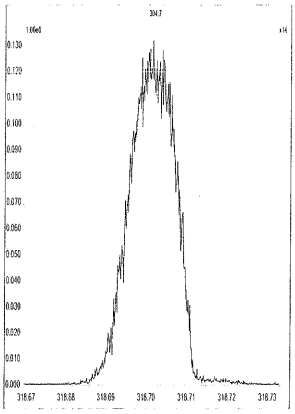
M 292.9824 R 13583



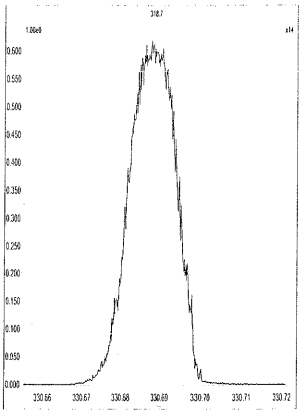
M 304.9824 R 13227



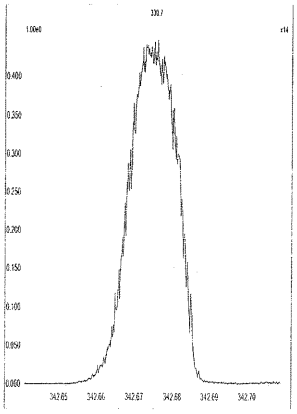
M 318.9792 R 14202



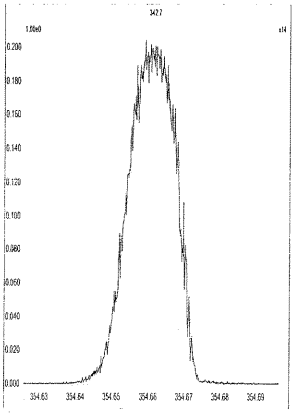
M 330.9792 R 13890



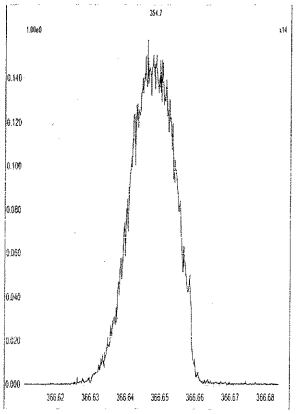
M 342.9792 R 13439



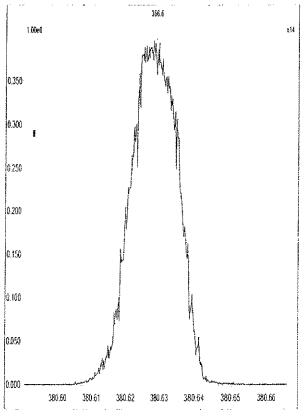
M 354.9792 R 13738



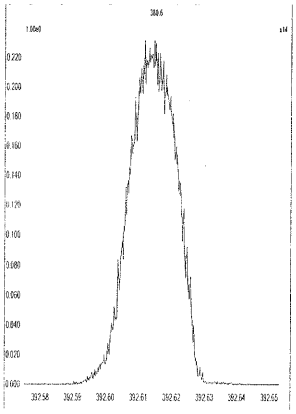
M 366.9792 R 13440



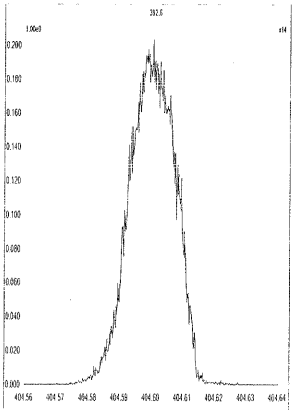
M 380.9760 R 13300



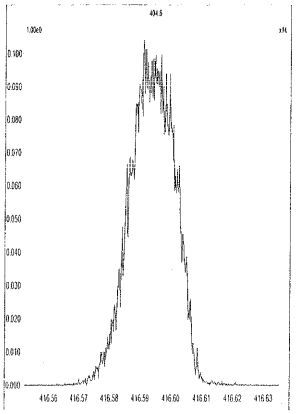
M 392.9760 R 13369



M 404.9760 R 13295



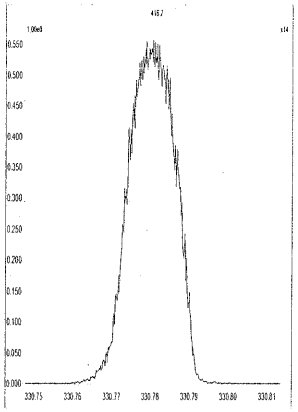
M 416.9760 R 13298



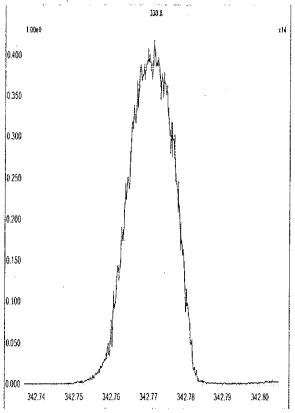
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Sunday, May 25, 2014 10:01:25 Central Daylight Time

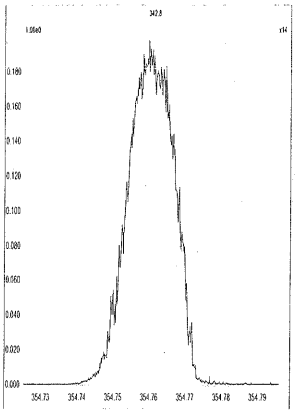
M 330.9792 R 13810



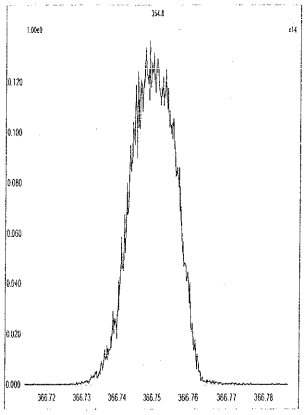
M 342.9792 R 13891



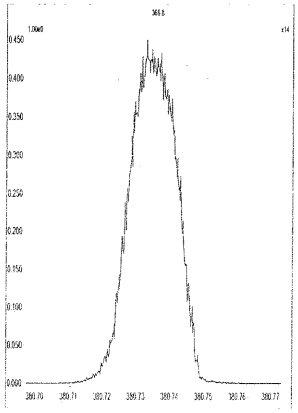
M 354.9792 R 13227



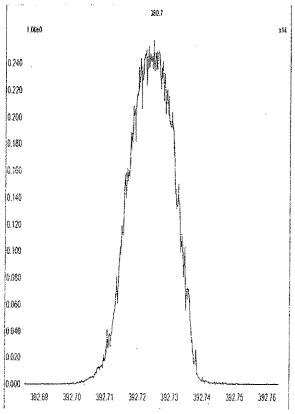
M 366.9792 R 14042



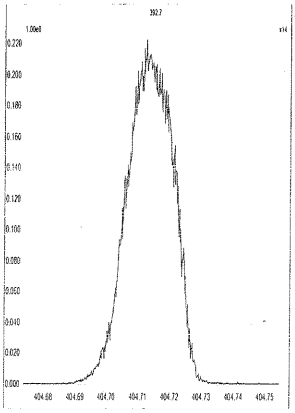
M 380.9760 R 13089



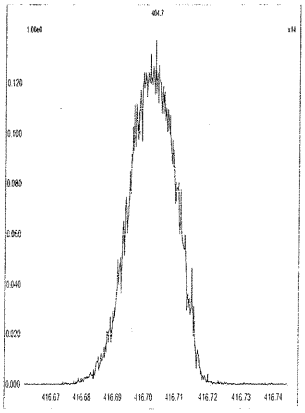
M 392.9760 R 13226



M 404.9760 R 12756



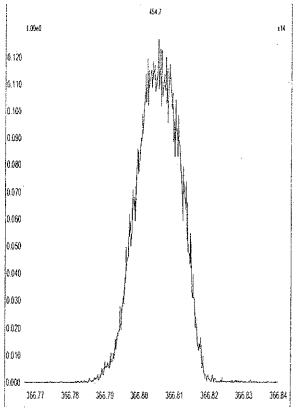
M 416.9760 R 13020



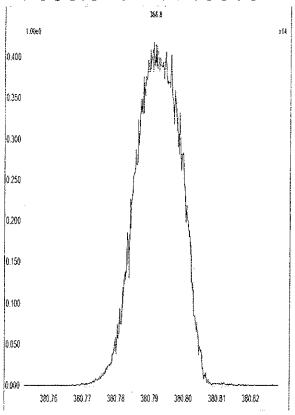
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Sunday, May 25, 2014 10:01:40 Central Daylight Time

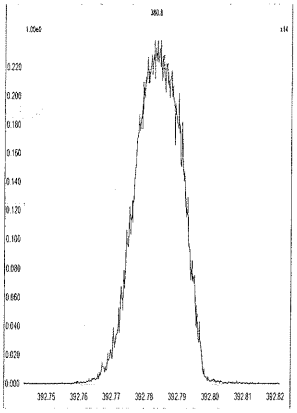
M 366.9792 R 13894



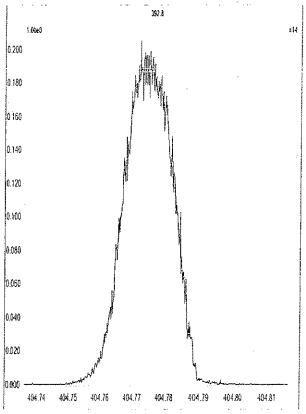
M 380.9760 R 13366



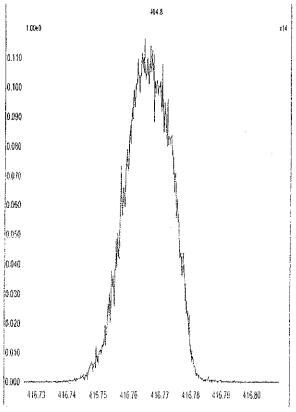
M 392.9760 R 13514



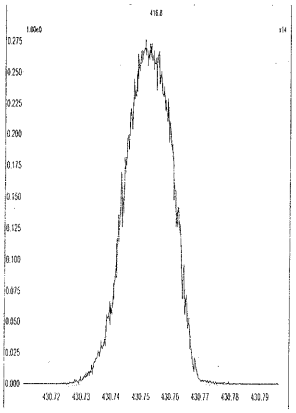
M 404.9760 R 12885



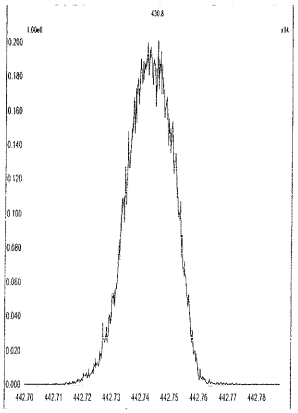
M 416.9760 R 13159



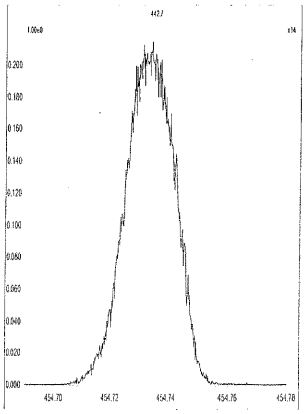
M 430.9728 R 12820



M 442.9728 R 12313



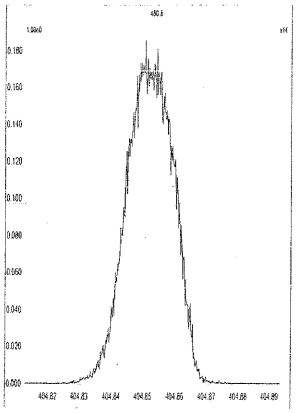
M 454.9728 R 12311



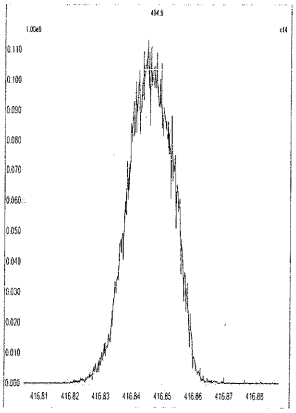
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Sunday, May 25, 2014 10:01:57 Central Daylight Time

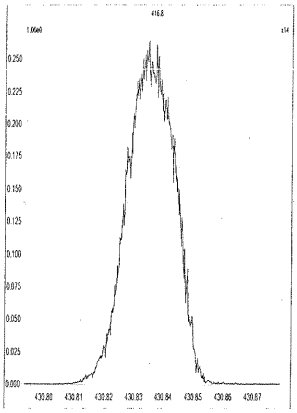
M 404.9760 R 13299



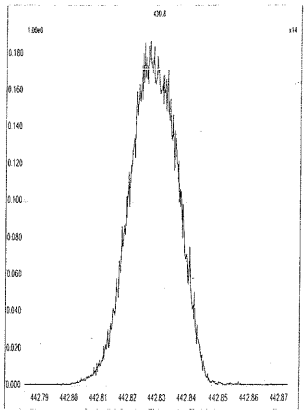
M 416.9760 R 13735



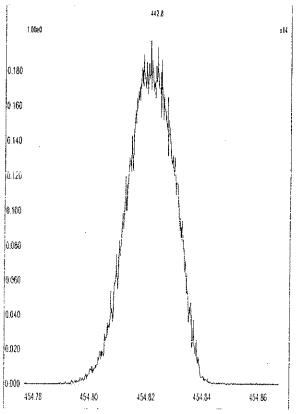
M 430.9728 R 12884



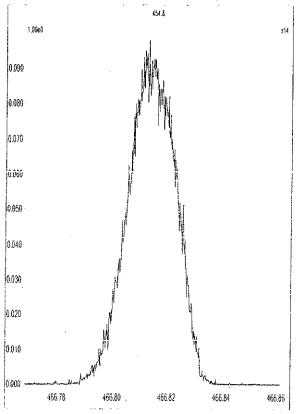
M 442.9728 R 12626



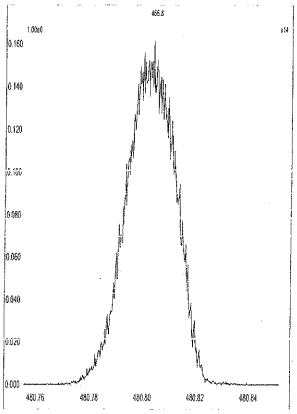
M 454.9728 R 12134



M 466.9728 R 12377



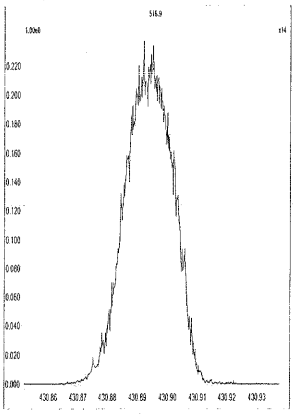
M 480.9696 R 11737



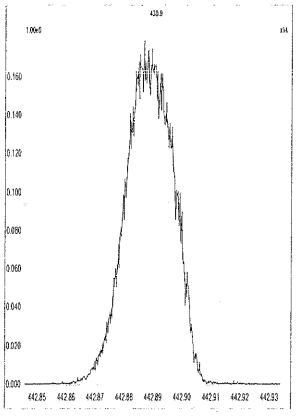
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Sunday, May 25, 2014 10:02:15 Central Daylight Time

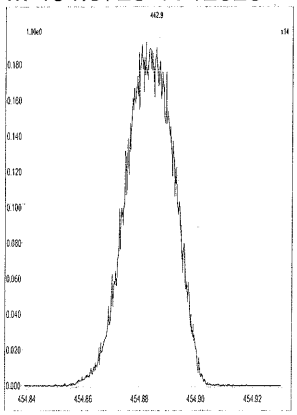
M 430.9728 R 12198



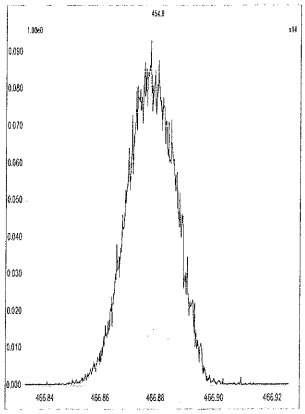
M 442.9728 R 12565



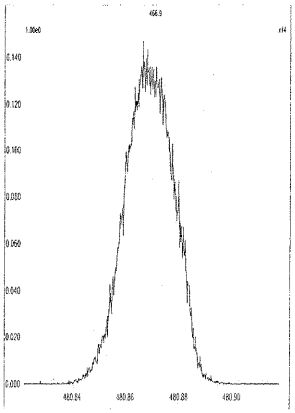
M 454.9728 R 12626



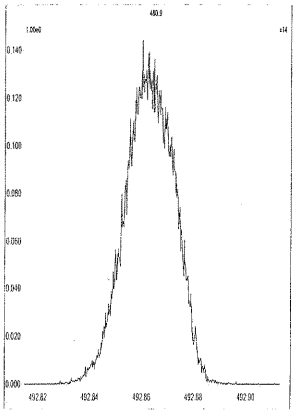
M 466.9728 R 12379



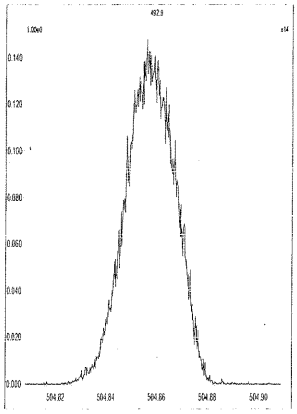
M 480.9696 R 11849



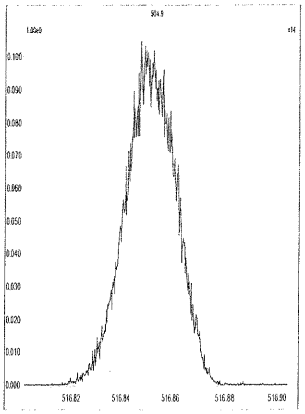
M 492.9696 R 11415



M 504.9696 R 11791



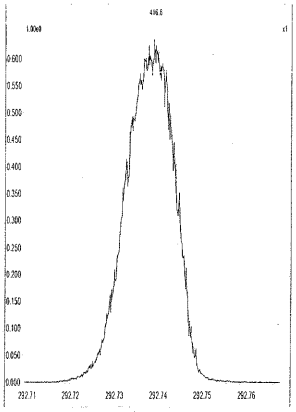
M 516.9697 R 11158



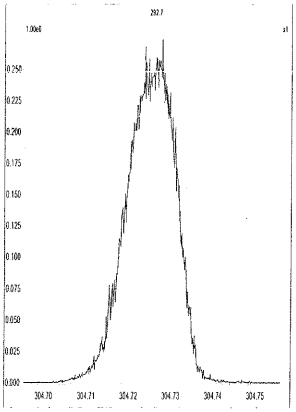
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, May 27, 2014 10:53:14 Central Daylight Time

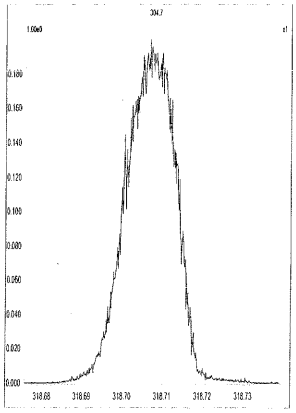
M 292.9824 R 12318



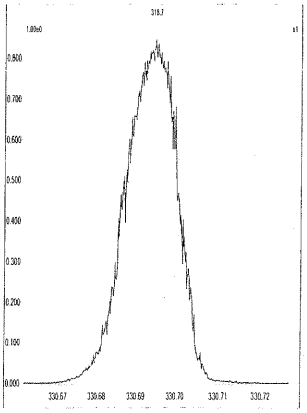
M 304.9824 R 12626



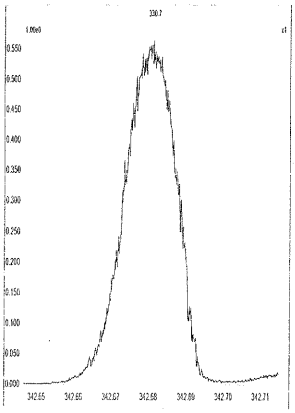
M 318.9792 R 12441



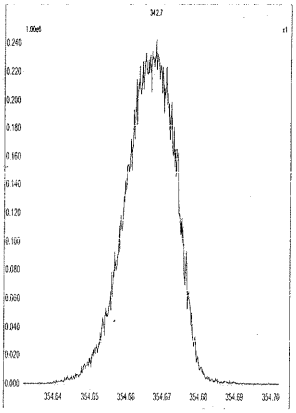
M 330.9792 R 11900



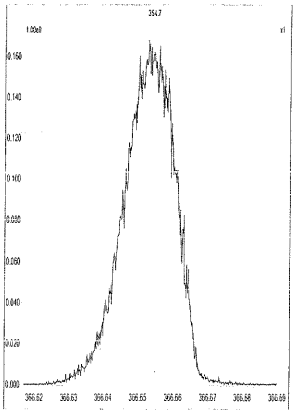
M 342.9792 R 11847



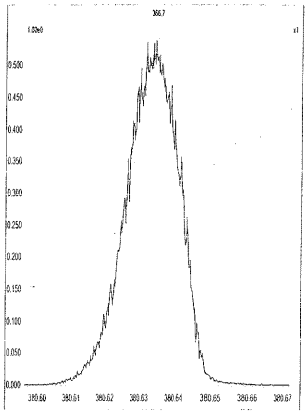
M 354.9792 R 11313



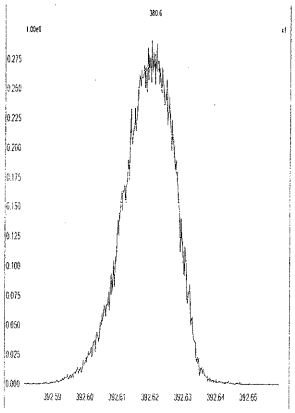
M 366.9792 R 11210



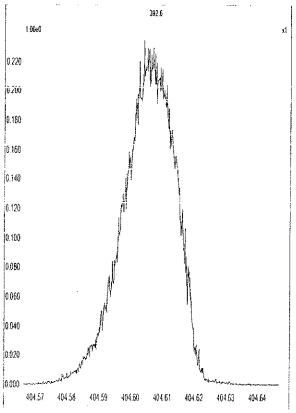
M 380.9760 R 11162



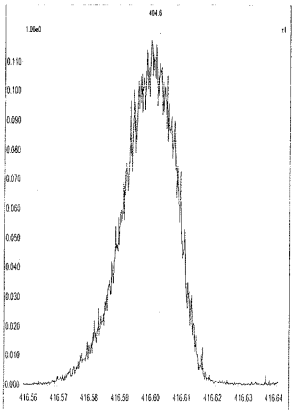
M 392.9760 R 11013



M 404.9760 R 10636



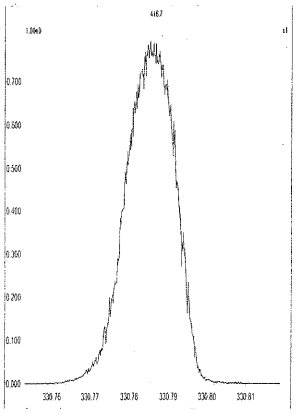
M 416.9760 R 10772



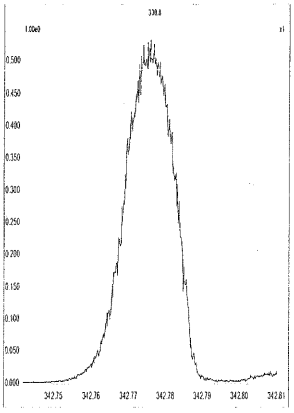
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, May 27, 2014 10:53:40 Central Daylight Time

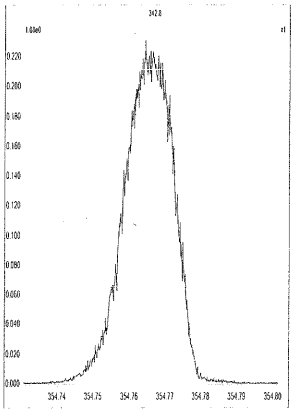
M 330.9792 R 12194



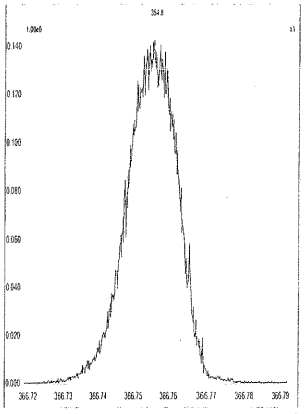
M 342.9792 R 12079



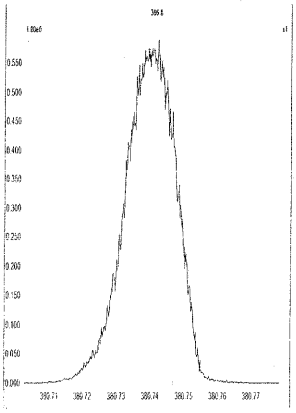
M 354.9792 R 11848



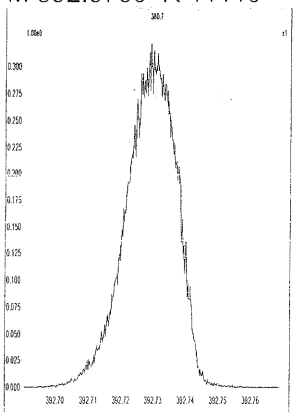
M 366.9792 R 11630



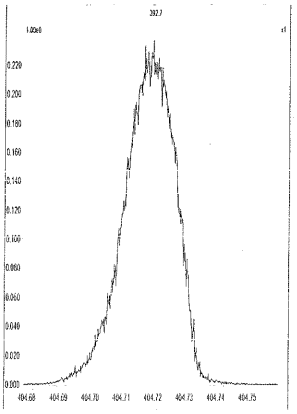
M 380.9760 R 11360



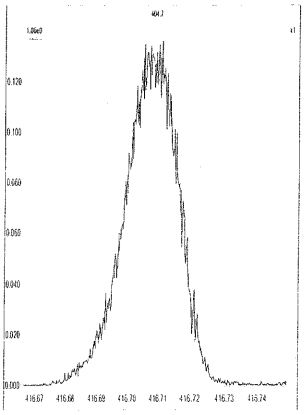
M 392.9760 R 11110



M 404.9760 R 10870



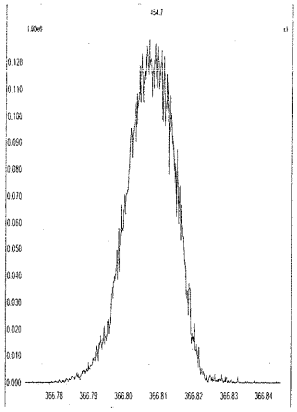
M 416.9760 R 10373



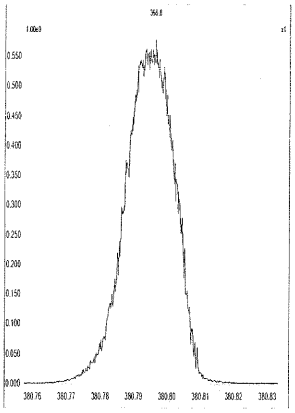
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, May 27, 2014 10:54:03 Central Daylight Time

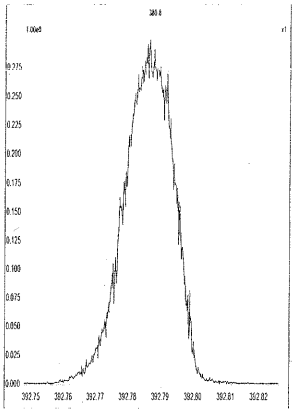
M 366.9792 R 11961



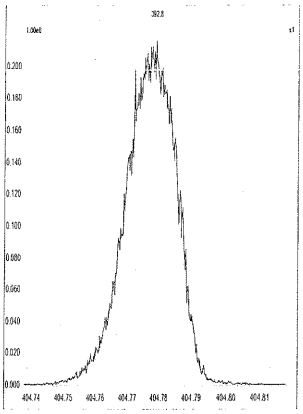
M 380.9760 R 12075



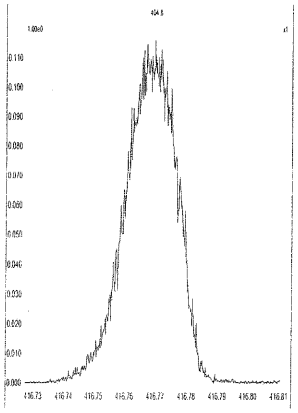
M 392.9760 R 11793



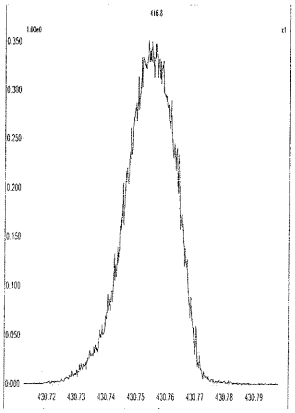
M 404.9760 R 11519



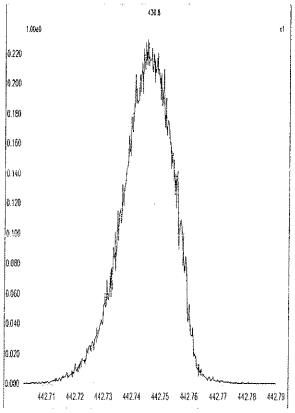
M 416.9760 R 11313



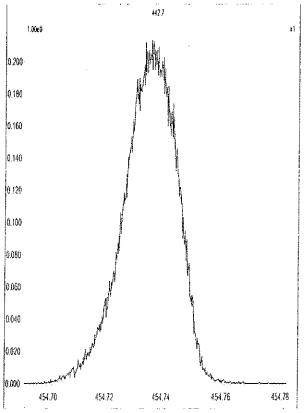
M 430.9728 R 11312



M 442.9728 R 10824



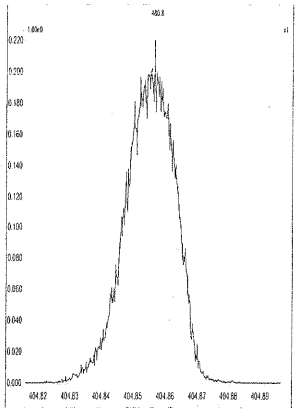
M 454.9728 R 10730



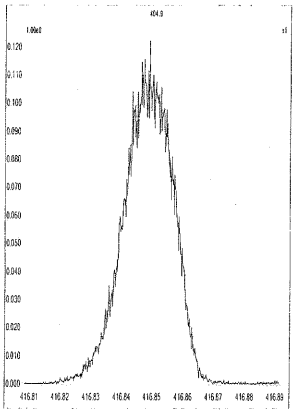
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, May 27, 2014 10:54:20 Central Daylight Time

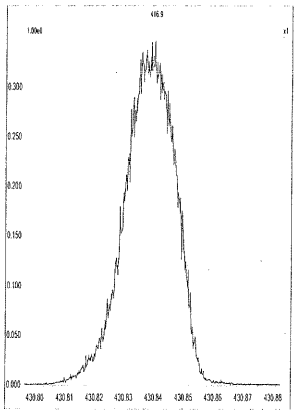
M 404.9760 R 11793



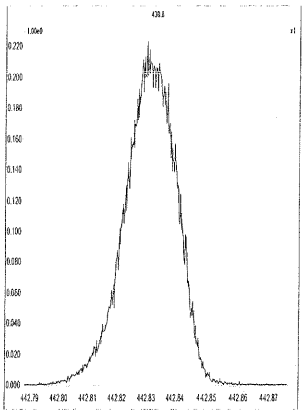
M 416.9760 R 11736



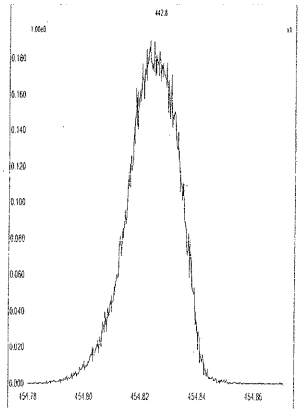
M 430.9728 R 11158



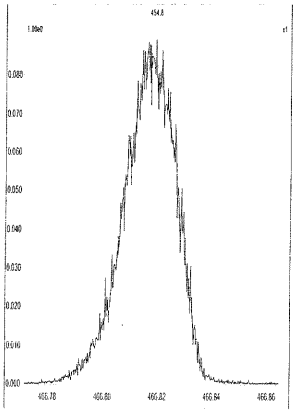
M 442.9728 R 10870



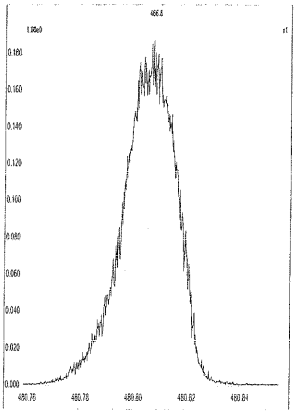
M 454.9728 R 10915



M 466.9728 R 10776



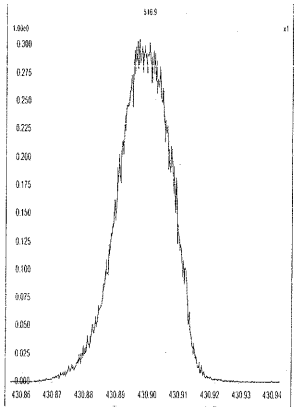
M 480.9696 R 10416



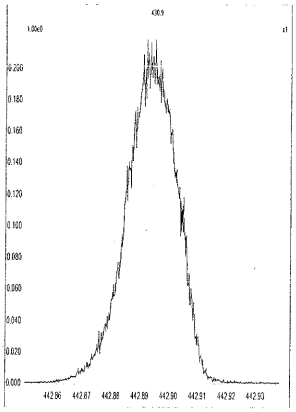
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, May 27, 2014 10:54:38 Central Daylight Time

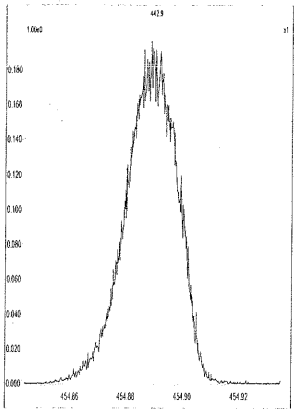
M 430.9728 R 11160



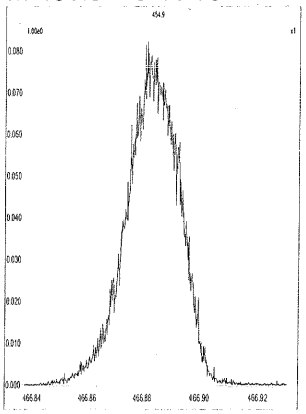
M 442.9728 R 11212



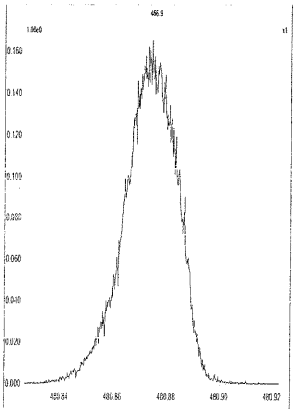
M 454.9728 R 11261



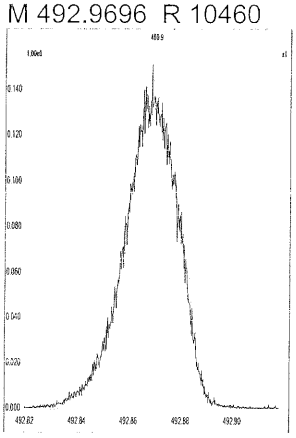
M 466.9728 R 10774



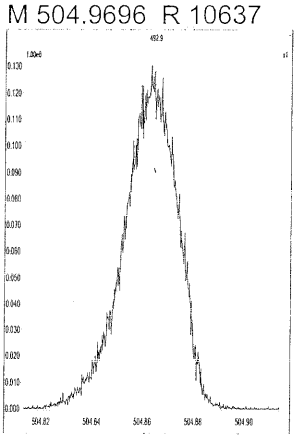
M 480.9696 R 10591



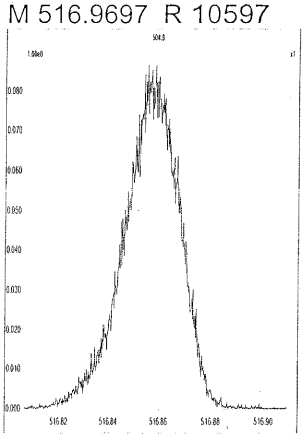
M 492.9696 R 10460



M 504.9696 R 10637



M 516.9697 R 10597



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411
GC Column: DB-5msUI

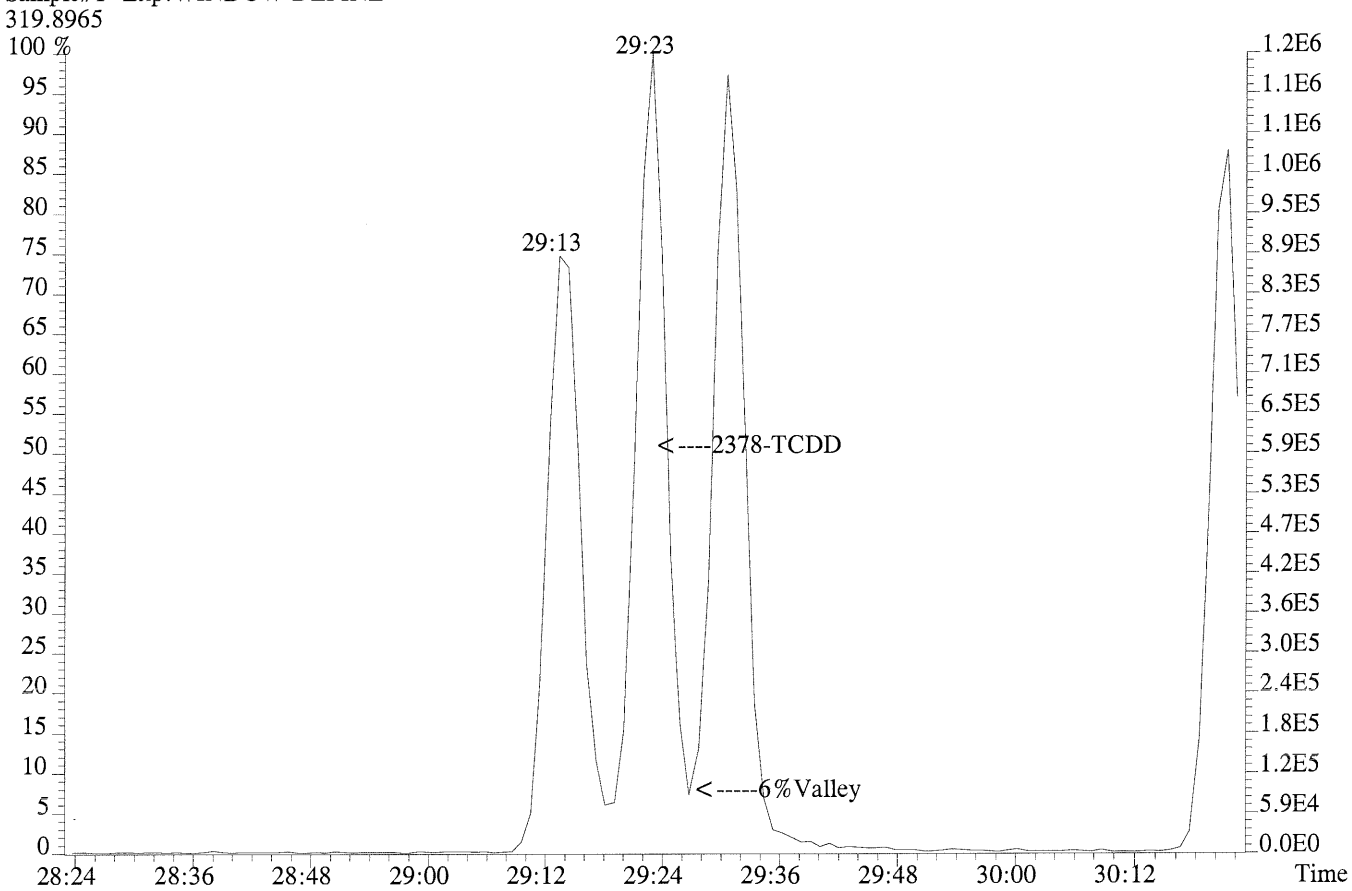
Case No.:
ID: 0.25 (mm)

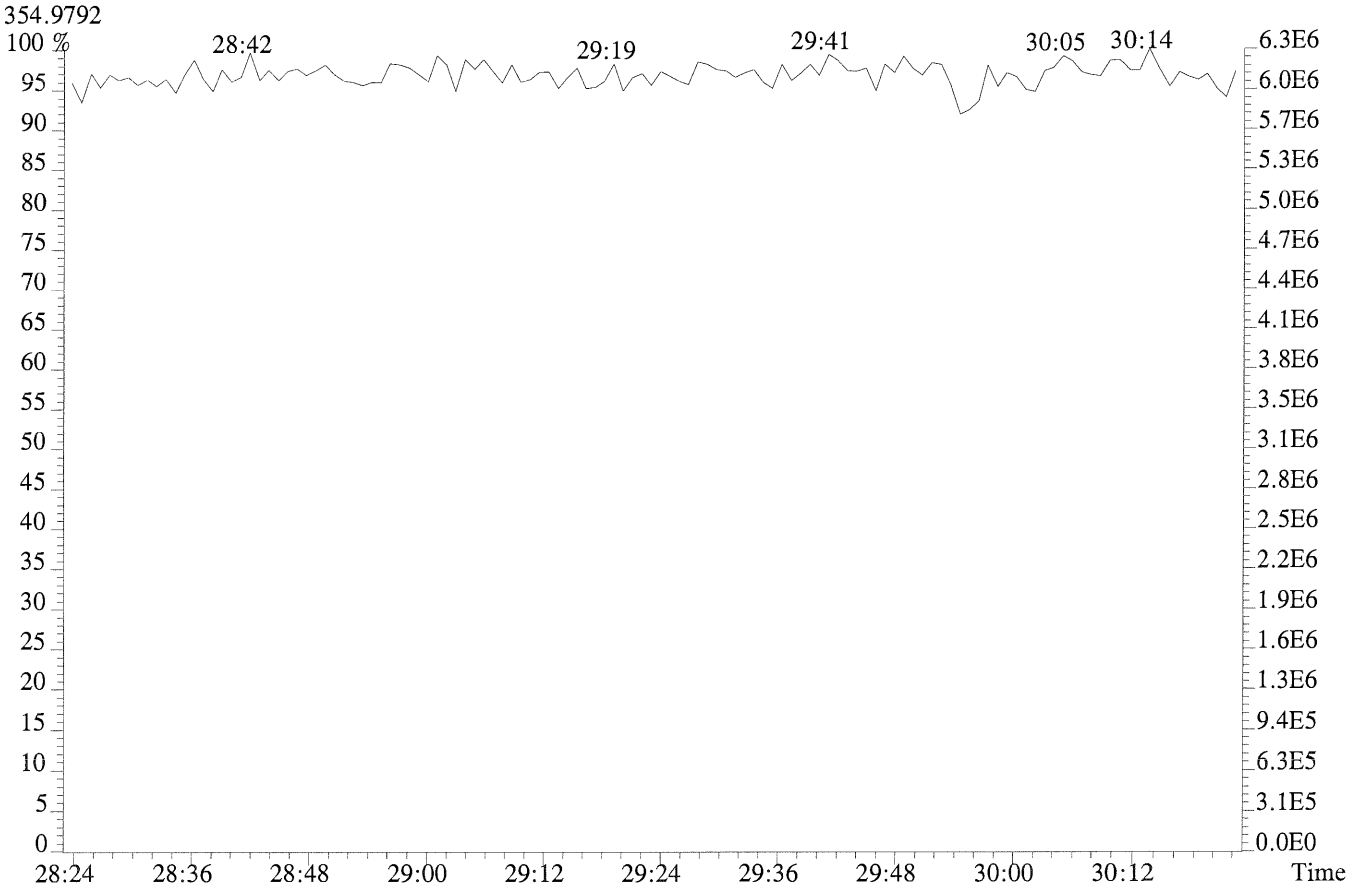
SDG No.:
Lab File ID: P229250
Date Analyzed: 26-MAY-2014
Time Analyzed: 02:09:03

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:19	30:32
TCDD	26:14	30:21
PeCDF	30:26	34:36
PeCDD	31:55	34:19
HxCDF	35:12	37:41
HxCDD	35:42	37:15
HpCDF	38:52	40:18
HpCDD	39:06	39:47

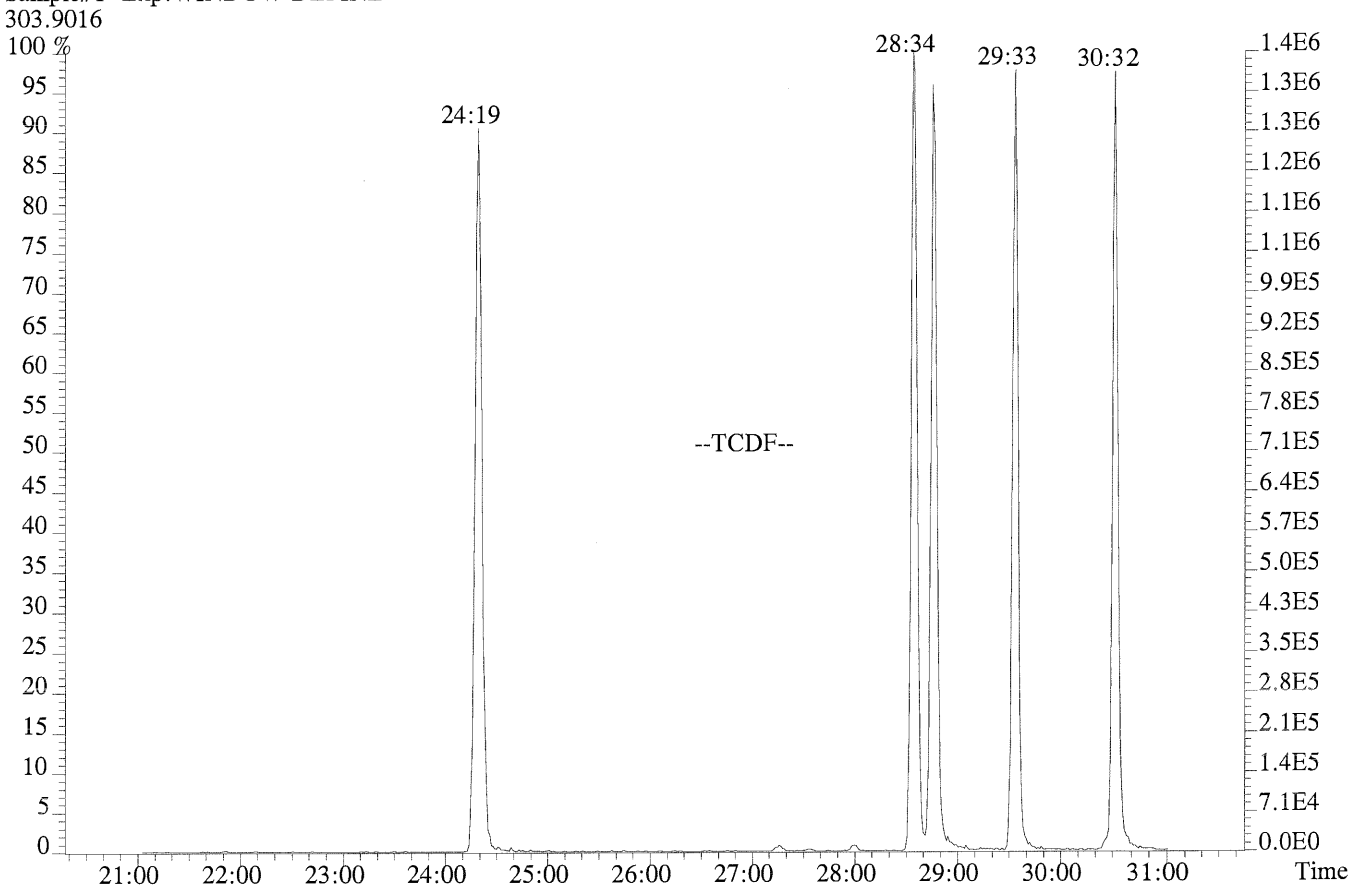
% Valley 2378-TCDD: 6 %

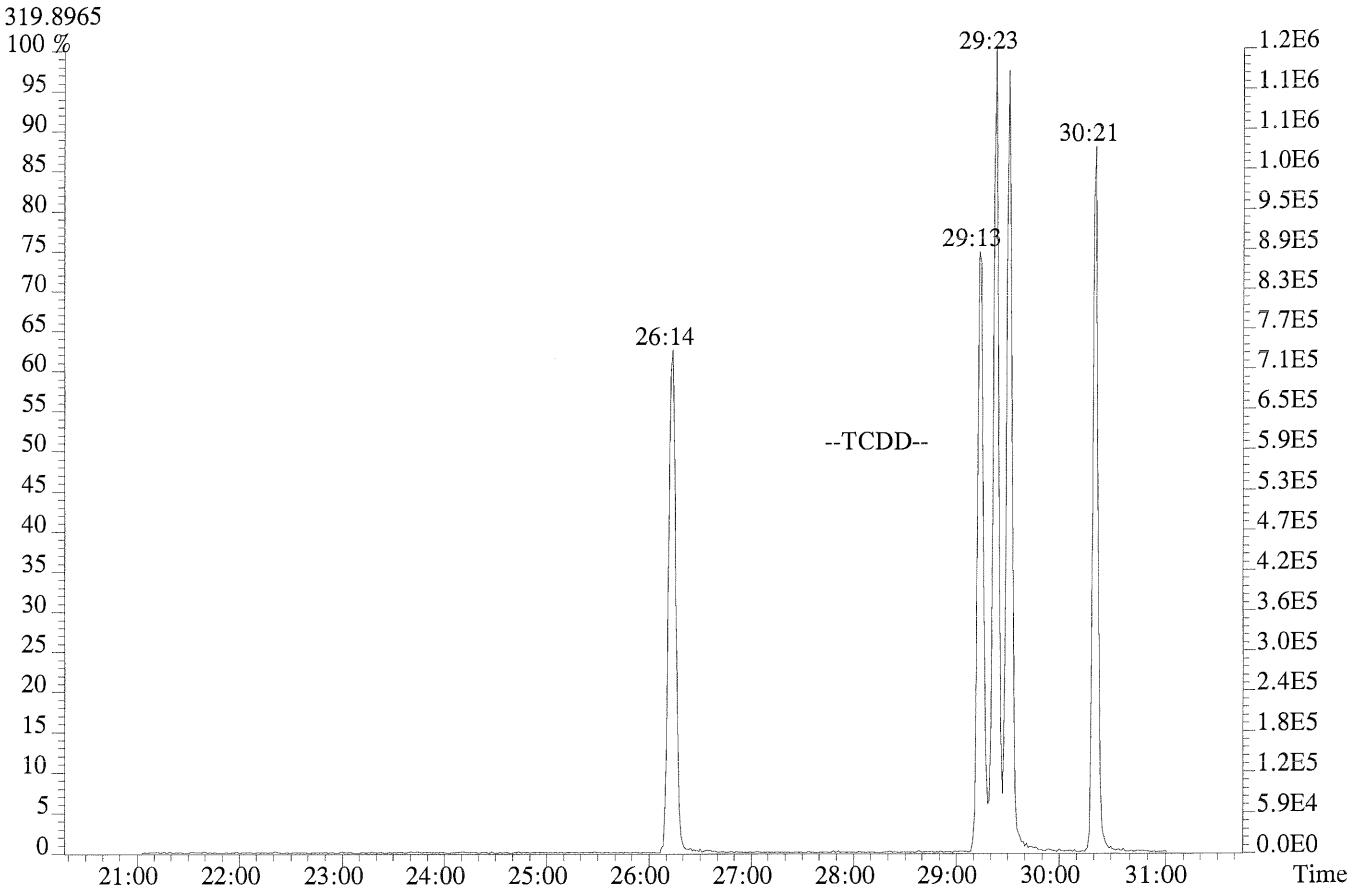
File:P229250 #1-627 Acq:26-MAY-2014 02:09:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



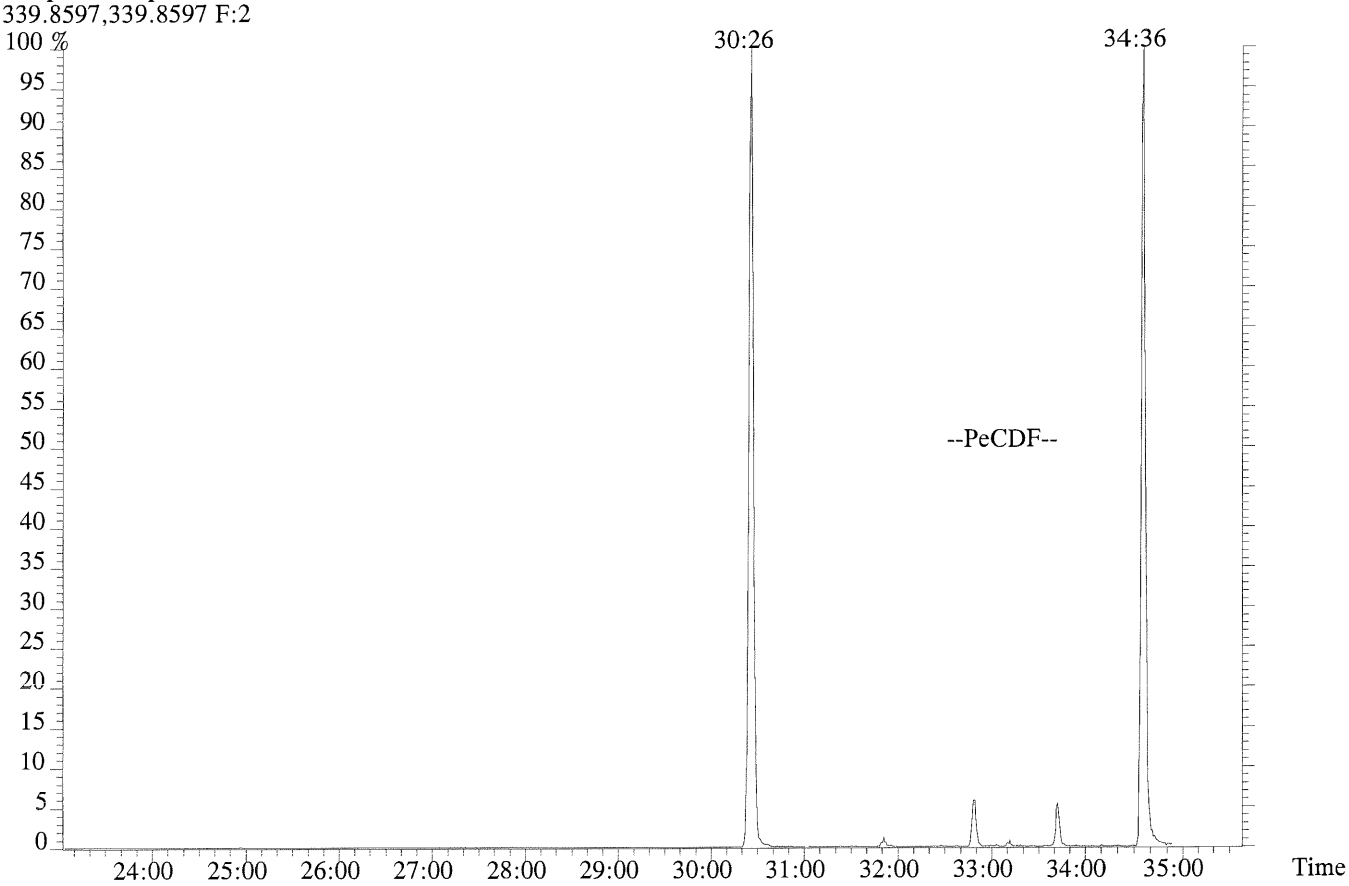


File:P229250 #1-627 Acq:26-MAY-2014 02:09:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

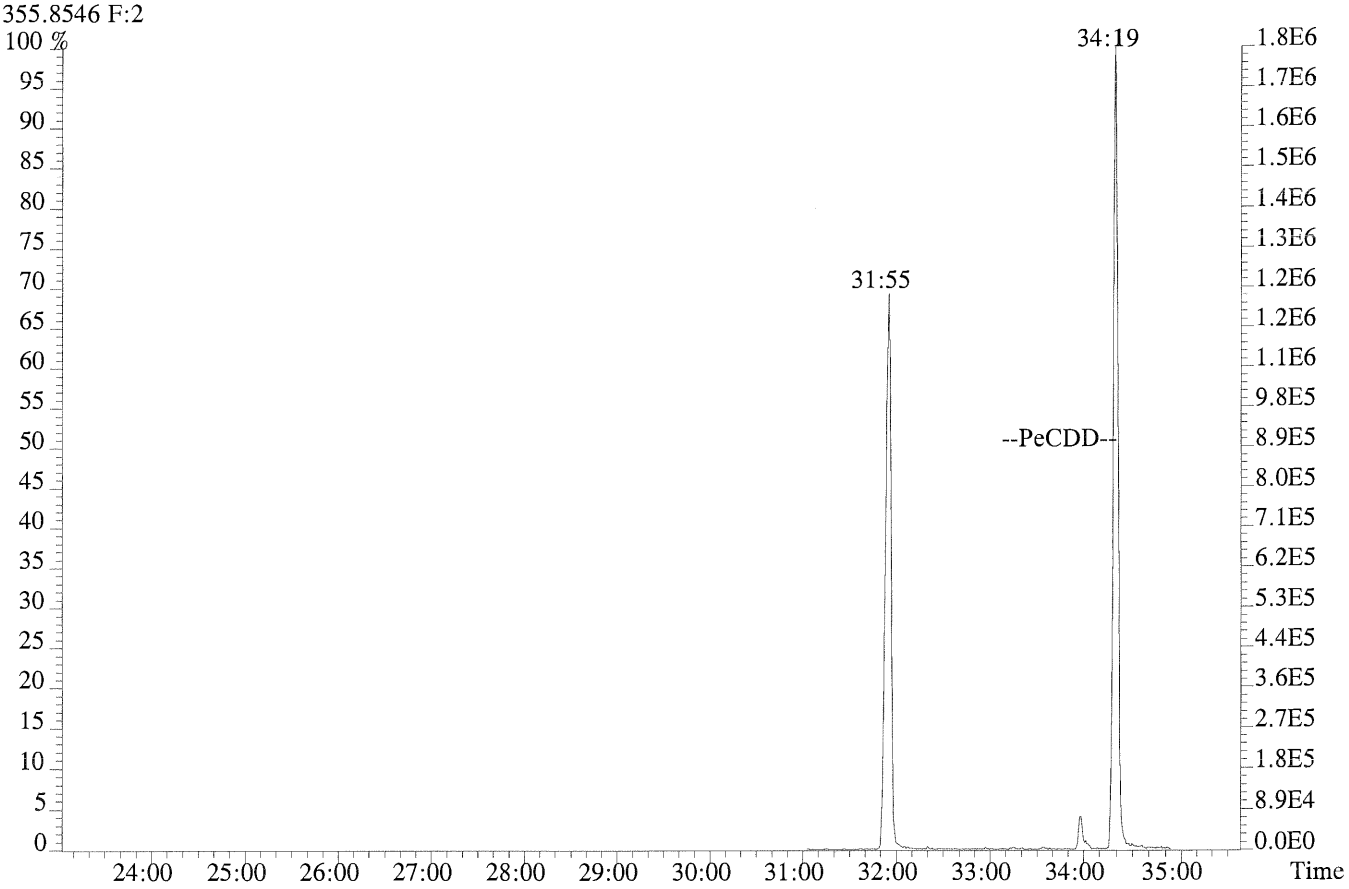




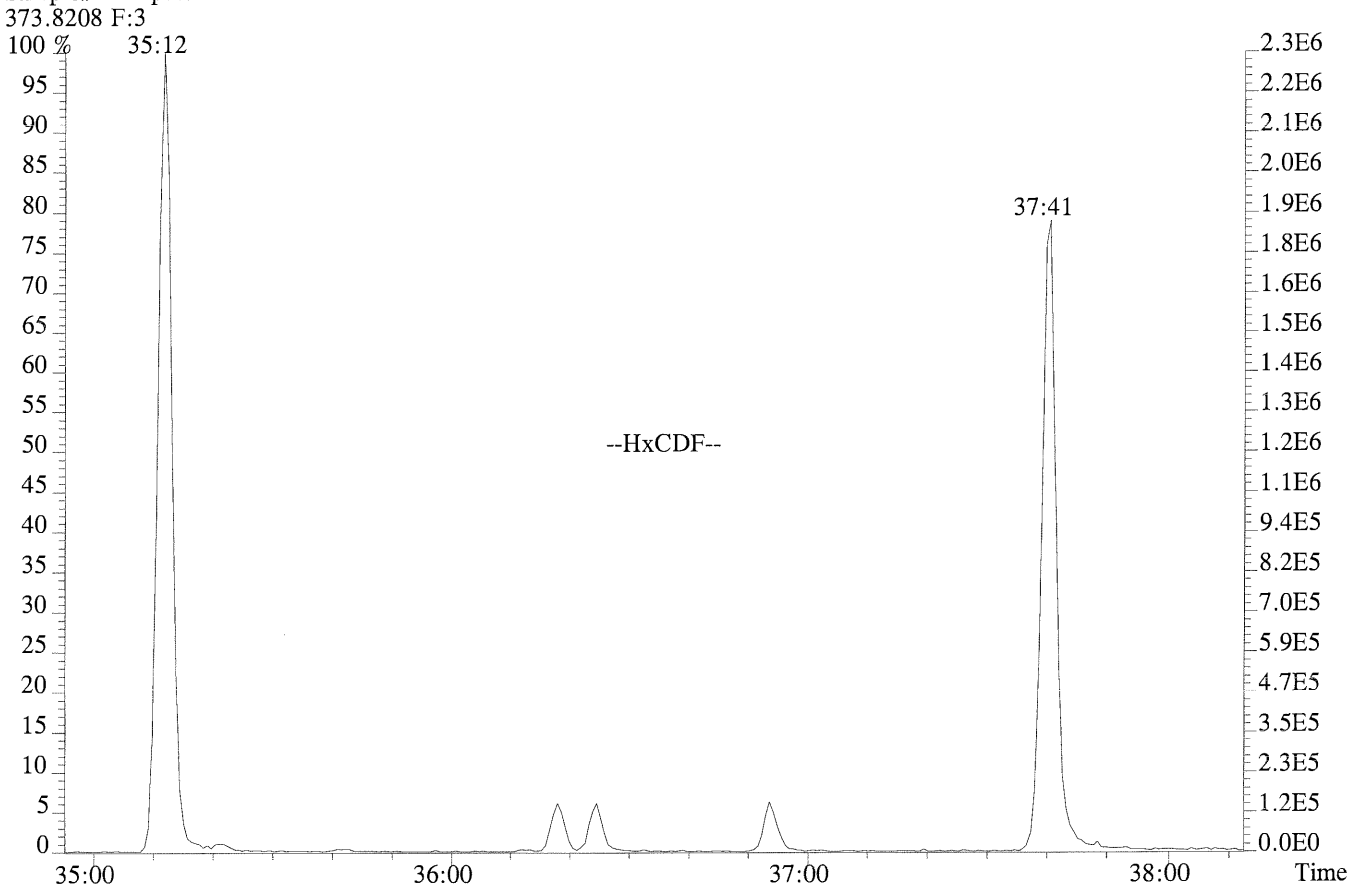
File:P229250 #1-627 Acq:26-MAY-2014 02:09:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

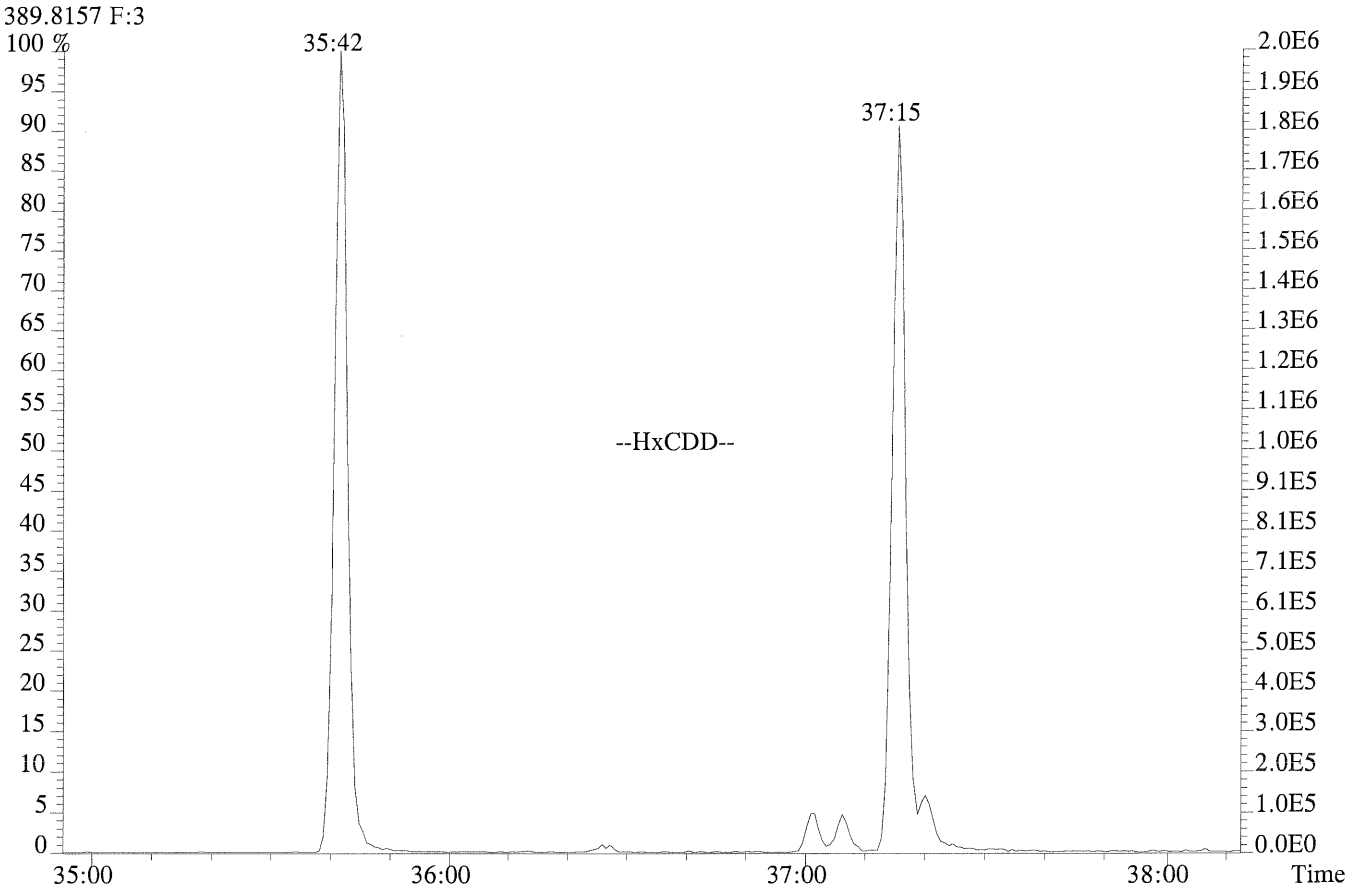


355.8546 F:2

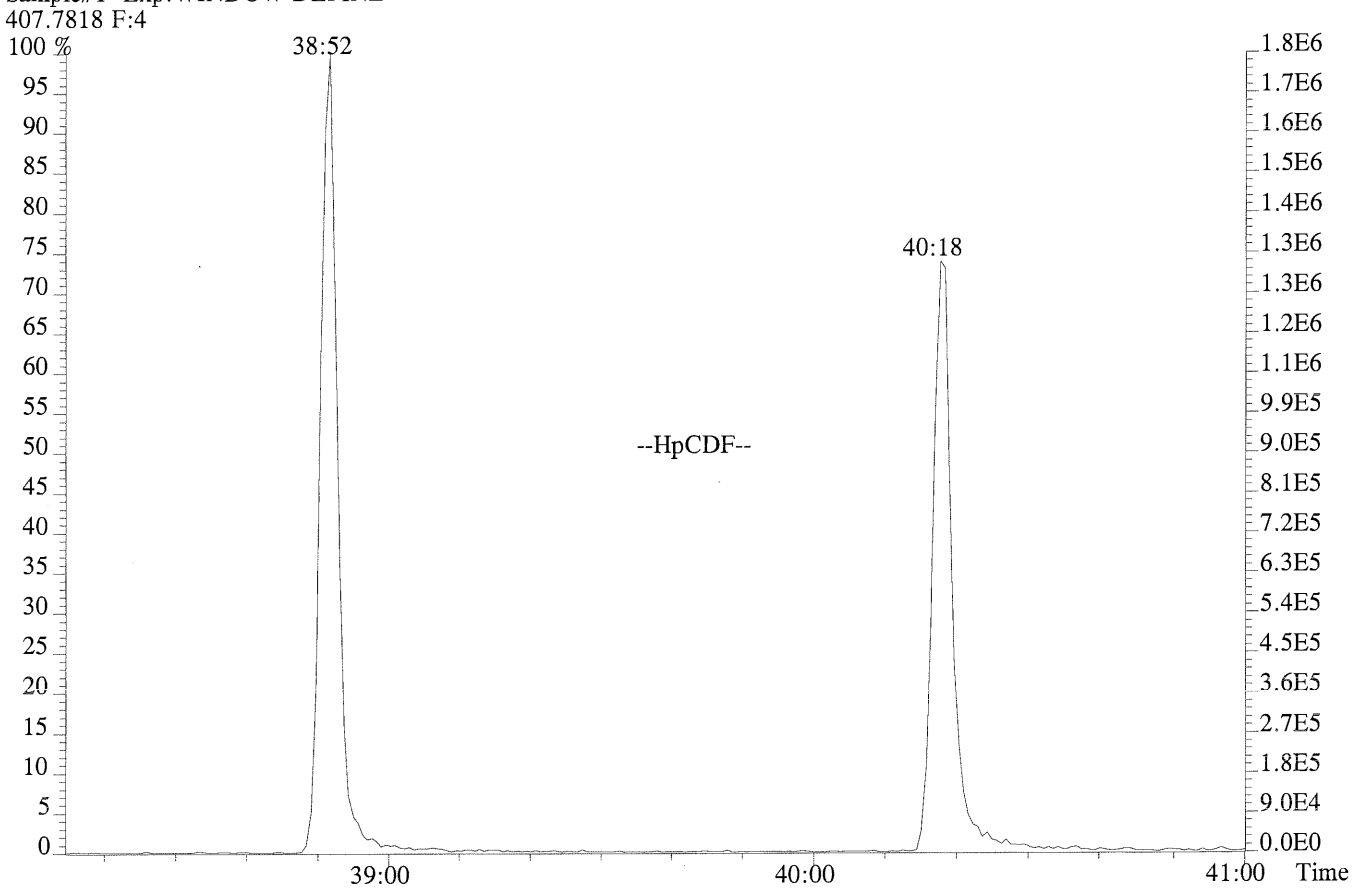


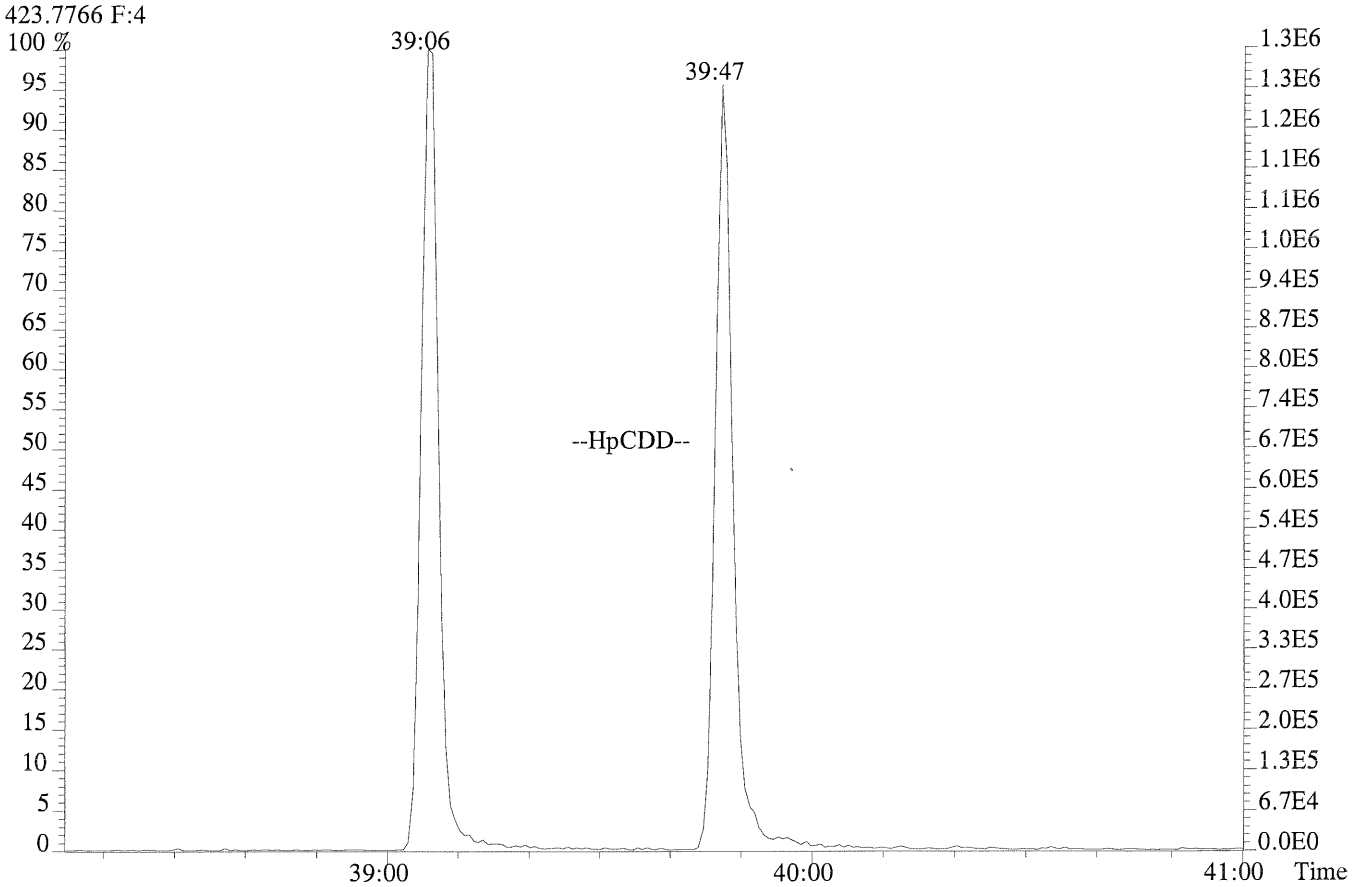
File:P229250 #1-299 Acq:26-MAY-2014 02:09:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





File:P229250 #1-251 Acq:26-MAY-2014 02:09:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-0 | GC Column ID: DB-5MSUI

VER Data Filename: P229248 | Analysis Date: 26-MAY-14 Time: 00:33:18

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.5	7.8 - 12.9	-4.8
1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	46	39 - 65	-7.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	45	39 - 64	-10.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	46	39 - 64	-7.3
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	47	41 - 61	-6.6
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	46	43 - 58	-8.3
OCDD	M+2/M+4	0.90	0.76-1.02	91	79 - 126	-8.5
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	8.3	8.4 - 12.0	-16.8
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	45	41 - 60	-10.8
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	43	41 - 61	-13.9
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	45	45 - 56	-9.6
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	46	44 - 57	-8.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	45	45 - 56	-10.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	45	44 - 57	-9.3
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	47	45 - 55	-5.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	46	43 - 58	-7.2
OCDF	M+2/M+4	0.89	0.76-1.02	81	63 - 159	-18.9

(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 %D 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

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-0 GC Column ID: DB-5MSUI

VER Data Filename: P229248 Analysis Date: 26-MAY-14 Time: 00:33:18

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	109	82 - 121	8.6
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	115	62 - 160	14.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	93	85 - 117	-6.6
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	94	85 - 118	-6.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	103	72 - 138	2.9
13C-OCDD	M+2/M+4	0.90	0.76-1.02	200	96 - 415	0.0
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	105	71 - 140	4.5
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	101	76 - 130	1.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	105	77 - 130	4.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	78	76 - 131	-21.8
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	77	70 - 143	-23.4
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	90	74 - 135	-10.2
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	82	73 - 137	-17.8
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	80	78 - 129	-20.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	90	77 - 129	-10.3
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				11.0	7.8 - 12.7	9.5

(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.
(5) The beginnning CCAL %D 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)

1613F4B.FRM

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
CCAL HRCC3/CS3

Run #7 Filename P229248 #1 Samp: 1 Inj: 1 Acquired: 26-MAY-14 00:33:18
Processed: 27-MAY-14 14:19:12 LAB. ID: CCAL HRCC3/CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:46	4.629e+03	5.953e+03	0.78	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:49	4.460e+04	2.888e+04	1.54	yes	no	1.000
3	Unk	2,3,4,7,8-PeCDF	33:42	4.207e+04	2.757e+04	1.53	yes	no	1.001
4	Unk	1,2,3,4,7,8-HxCDF	36:18	3.841e+04	3.127e+04	1.23	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:24	4.011e+04	3.308e+04	1.21	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:54	3.802e+04	3.078e+04	1.24	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:39	3.645e+04	2.929e+04	1.24	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	3.372e+04	3.327e+04	1.01	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:18	2.999e+04	2.943e+04	1.02	yes	no	1.000
10	Unk	OCDF	42:51	4.650e+04	5.202e+04	0.89	yes	no	1.005
11	Unk	2,3,7,8-TCDD	29:31	3.491e+03	4.373e+03	0.80	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:58	2.984e+04	1.888e+04	1.58	yes	no	1.001
13	Unk	1,2,3,4,7,8-HxCDD	37:01	2.755e+04	2.151e+04	1.28	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	37:06	2.915e+04	2.254e+04	1.29	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:20	2.971e+04	2.384e+04	1.25	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:47	2.724e+04	2.631e+04	1.04	yes	no	1.000
17	Unk	OCDD	42:38	3.977e+04	4.423e+04	0.90	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:45	4.994e+04	6.287e+04	0.79	yes	no	0.994
19	IS	13C-1,2,3,7,8-PeCDF	32:48	9.006e+04	5.656e+04	1.59	yes	no	1.134
20	IS	13C-2,3,4,7,8-PeCDF	33:41	9.056e+04	5.632e+04	1.61	yes	no	1.165
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	3.945e+04	7.579e+04	0.52	yes	no	0.972
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	4.512e+04	8.515e+04	0.53	yes	no	0.975
23	IS	13C-2,3,4,6,7,8-HxCDF	36:53	4.236e+04	8.073e+04	0.52	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	4.006e+04	7.556e+04	0.53	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:51	3.032e+04	6.907e+04	0.44	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:17	2.875e+04	6.395e+04	0.45	yes	no	1.079
27	IS	13C-2,3,7,8-TCDD	29:30	3.443e+04	4.402e+04	0.78	yes	no	1.020
28	IS	13C-1,2,3,7,8-PeCDD	33:57	6.062e+04	3.794e+04	1.60	yes	no	1.174
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	5.057e+04	3.948e+04	1.28	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	5.354e+04	4.193e+04	1.28	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	5.145e+04	4.838e+04	1.06	yes	no	1.066
32	IS	13C-OCDD	42:37	6.768e+04	7.494e+04	0.90	yes	no	1.142
33	RS/RT	13C-1,2,3,4-TCDD	28:55	3.421e+04	4.351e+04	0.79	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	5.896e+04	4.478e+04	1.32	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	8.051e+03				no	1.020

ALS ENVIRONMENTAL
10450 Stancliff, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
CCAL HRCC3/CS3

Run #7 Filename P229248 Samp: 1 Inj: 1 Acquired: 26-MAY-14 00:33:18
Processed: 27-MAY-14 14:19:121 LAB. ID: CCAL HRCC3/CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.86e+05	4.24e+02	2.3e+03	1.25e+06	1.61e+03	7.8e+02
2	1,2,3,7,8-PeCDF	8.84e+06	3.84e+02	2.3e+04	5.70e+06	1.37e+03	4.2e+03
3	2,3,4,7,8-PeCDF	8.54e+06	3.84e+02	2.2e+04	5.60e+06	1.37e+03	4.1e+03
4	1,2,3,4,7,8-HxCDF	8.61e+06	6.80e+02	1.3e+04	6.91e+06	5.12e+02	1.4e+04
5	1,2,3,6,7,8-HxCDF	8.37e+06	6.80e+02	1.2e+04	6.99e+06	5.12e+02	1.4e+04
6	2,3,4,6,7,8-HxCDF	8.45e+06	6.80e+02	1.2e+04	6.88e+06	5.12e+02	1.3e+04
7	1,2,3,7,8,9-HxCDF	7.61e+06	6.80e+02	1.1e+04	6.14e+06	5.12e+02	1.2e+04
8	1,2,3,4,6,7,8-HpCDF	7.16e+06	2.88e+03	2.5e+03	7.01e+06	2.62e+03	2.7e+03
9	1,2,3,4,7,8,9-HpCDF	5.70e+06	2.88e+03	2.0e+03	5.62e+06	2.62e+03	2.1e+03
10	OCDF	7.55e+06	2.60e+02	2.9e+04	8.55e+06	1.35e+03	6.3e+03
11	2,3,7,8-TCDD	7.65e+05	7.12e+02	1.1e+03	9.96e+05	3.76e+02	2.6e+03
12	1,2,3,7,8-PeCDD	6.10e+06	6.52e+02	9.4e+03	3.82e+06	1.28e+02	3.0e+04
13	1,2,3,4,7,8-HxCDD	6.28e+06	6.32e+02	9.9e+03	4.88e+06	5.12e+02	9.5e+03
14	1,2,3,6,7,8-HxCDD	6.32e+06	6.32e+02	1.0e+04	4.84e+06	5.12e+02	9.4e+03
15	1,2,3,7,8,9-HxCDD	6.47e+06	6.32e+02	1.0e+04	5.15e+06	5.12e+02	1.0e+04
16	1,2,3,4,6,7,8-HpCDD	5.37e+06	4.28e+02	1.3e+04	5.23e+06	7.08e+02	7.4e+03
17	OCDD	6.37e+06	3.00e+02	2.1e+04	7.21e+06	7.52e+02	9.6e+03
18	13C-2,3,7,8-TCDF	1.07e+07	1.04e+03	1.0e+04	1.35e+07	8.40e+02	1.6e+04
19	13C-1,2,3,7,8-PeCDF	1.75e+07	3.24e+02	5.4e+04	1.10e+07	7.28e+02	1.5e+04
20	13C-2,3,4,7,8-PeCDF	1.83e+07	3.24e+02	5.6e+04	1.16e+07	7.28e+02	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	8.78e+06	4.88e+02	1.8e+04	1.67e+07	6.24e+02	2.7e+04
22	13C-1,2,3,6,7,8-HxCDF	9.50e+06	4.88e+02	1.9e+04	1.81e+07	6.24e+02	2.9e+04
23	13C-2,3,4,6,7,8-HxCDF	9.44e+06	4.88e+02	1.9e+04	1.79e+07	6.24e+02	2.9e+04
24	13C-1,2,3,7,8,9-HxCDF	8.35e+06	4.88e+02	1.7e+04	1.58e+07	6.24e+02	2.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	6.56e+06	2.04e+03	3.2e+03	1.46e+07	5.32e+03	2.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.44e+06	2.04e+03	2.7e+03	1.21e+07	5.32e+03	2.3e+03
27	13C-2,3,7,8-TCDD	7.74e+06	3.20e+03	2.4e+03	9.87e+06	2.01e+03	4.9e+03
28	13C-1,2,3,7,8-PeCDD	1.23e+07	6.40e+02	1.9e+04	7.76e+06	3.32e+02	2.3e+04
29	13C-1,2,3,4,7,8-HxCDD	1.15e+07	1.31e+03	8.7e+03	9.00e+06	7.32e+02	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	1.15e+07	1.31e+03	8.7e+03	9.03e+06	7.32e+02	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.03e+07	7.12e+02	1.4e+04	9.66e+06	7.84e+02	1.2e+04
32	13C-OCDD	1.09e+07	7.08e+02	1.5e+04	1.20e+07	5.32e+02	2.3e+04
33	13C-1,2,3,4-TCDD	7.60e+06	3.20e+03	2.4e+03	9.68e+06	2.01e+03	4.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.26e+07	1.31e+03	9.6e+03	9.78e+06	7.32e+02	1.3e+04
35	37Cl-2,3,7,8-TCDD	1.82e+06	4.44e+02	4.1e+03			

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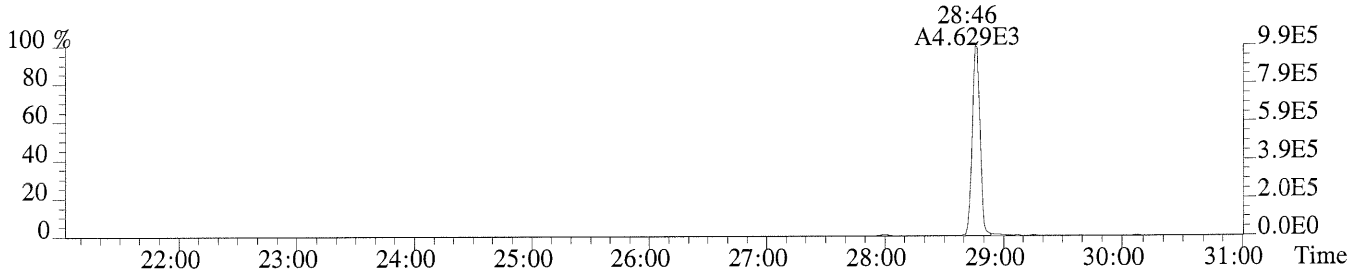
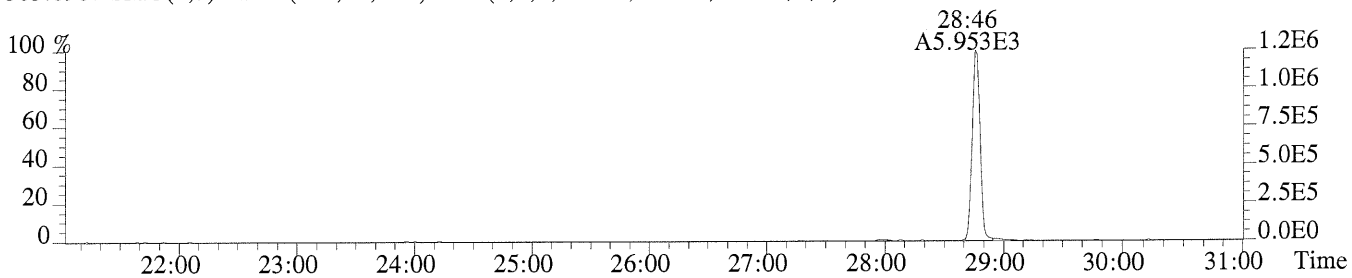
File:P229248 #1-627 Acq:26-MAY-2014 00:33:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

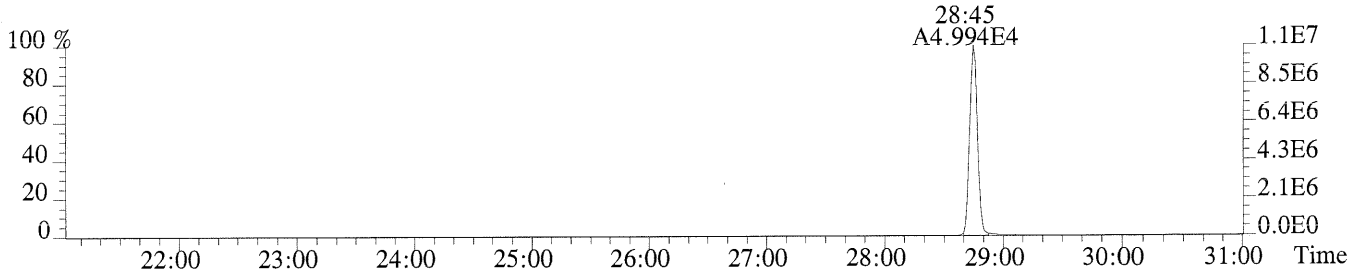
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



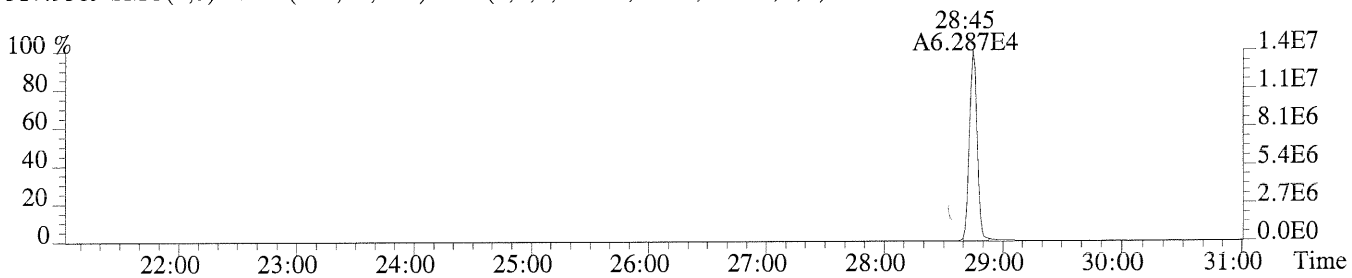
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1608.0,1.00%,F,T)



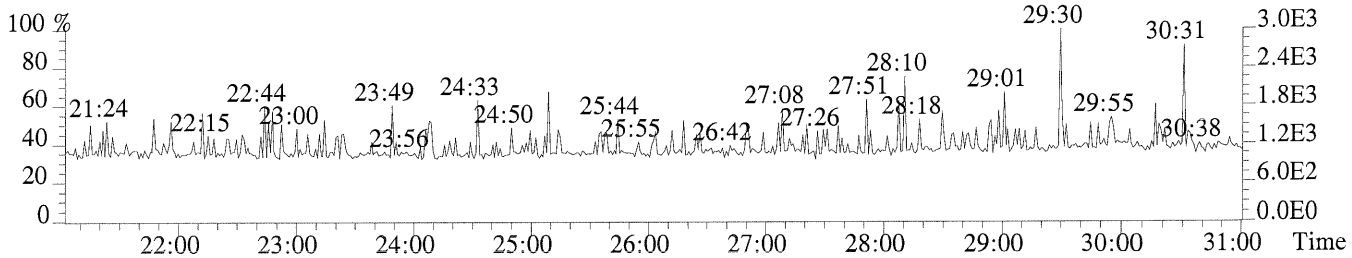
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



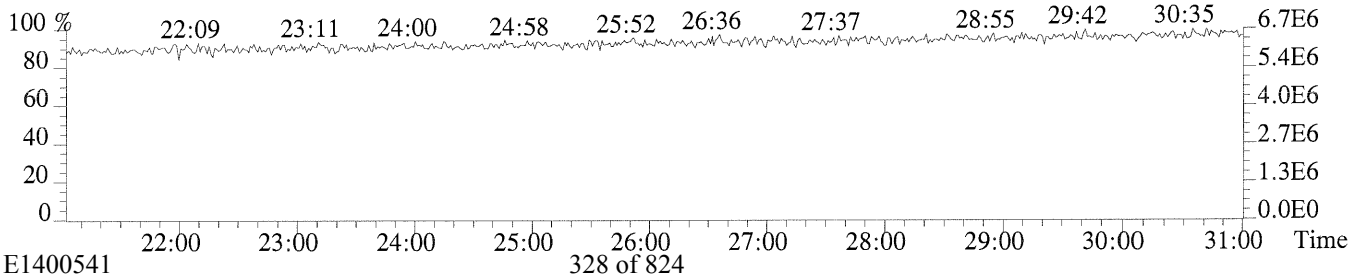
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

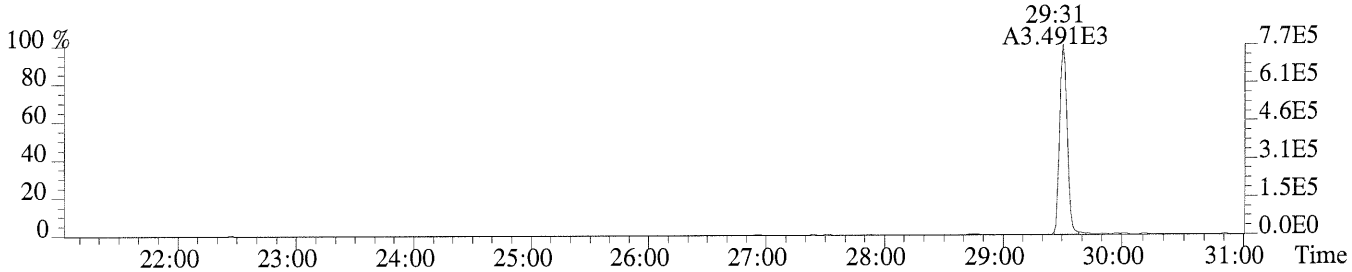


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

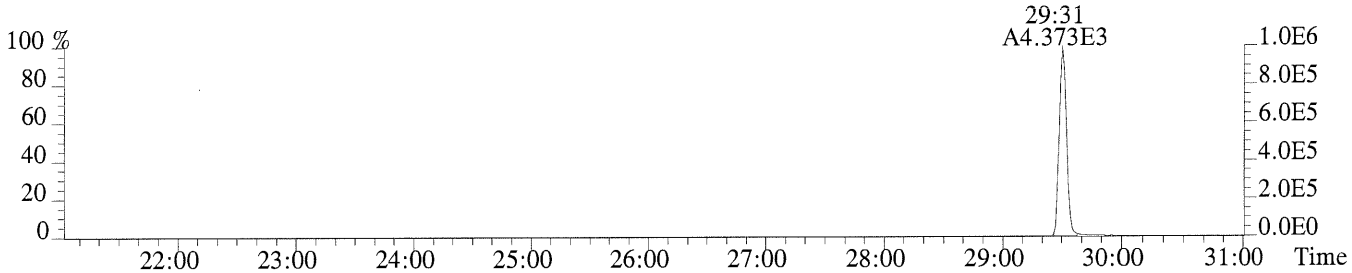


File:P229248 #1-627 Acq:26-MAY-2014 00:33:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

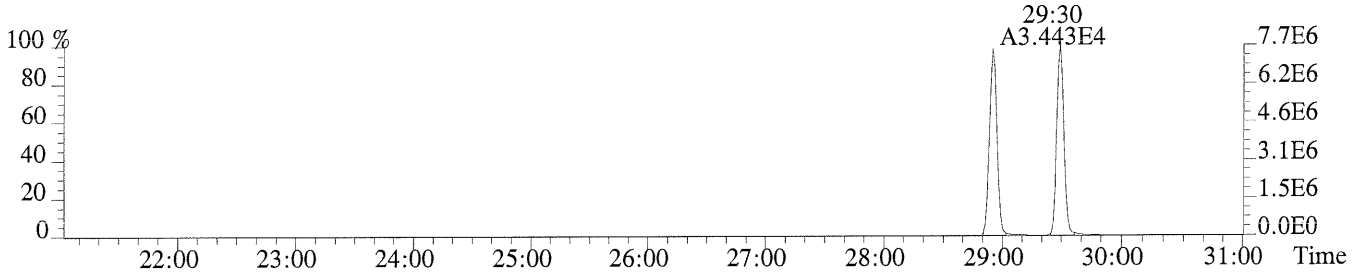
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



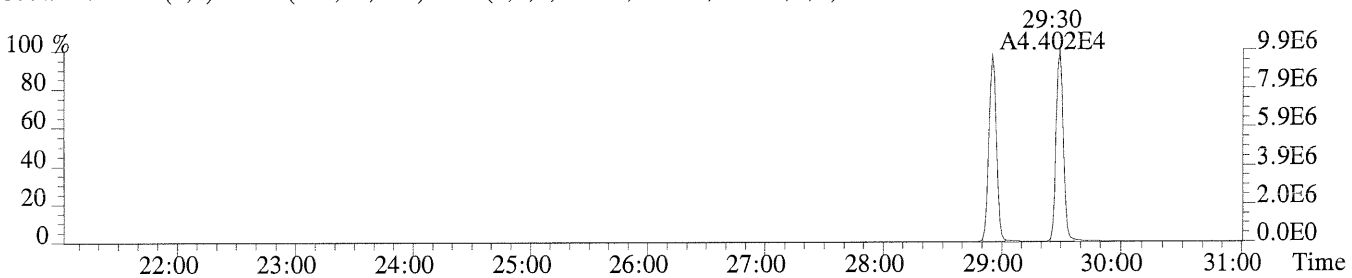
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



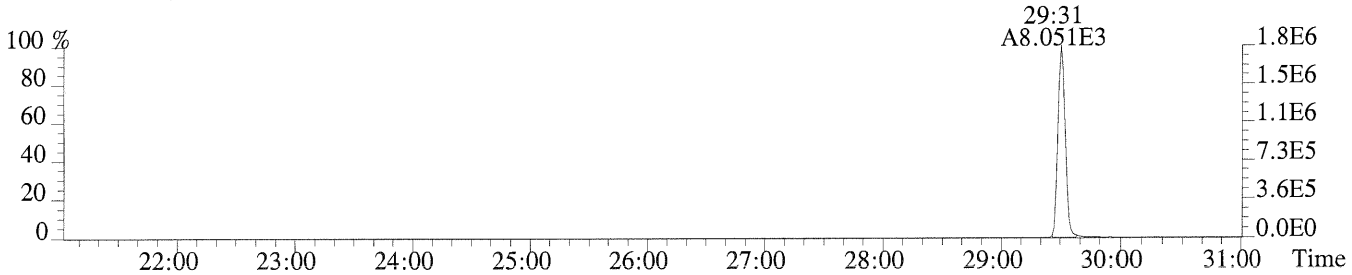
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3200.0,1.00%,F,T)



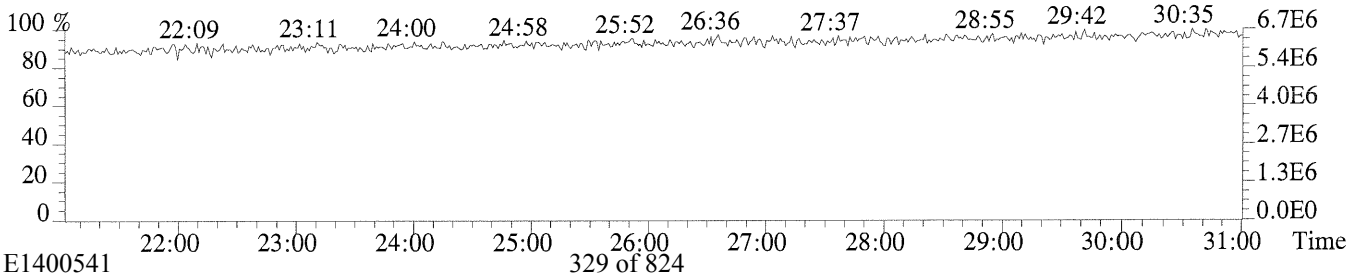
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2008.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)

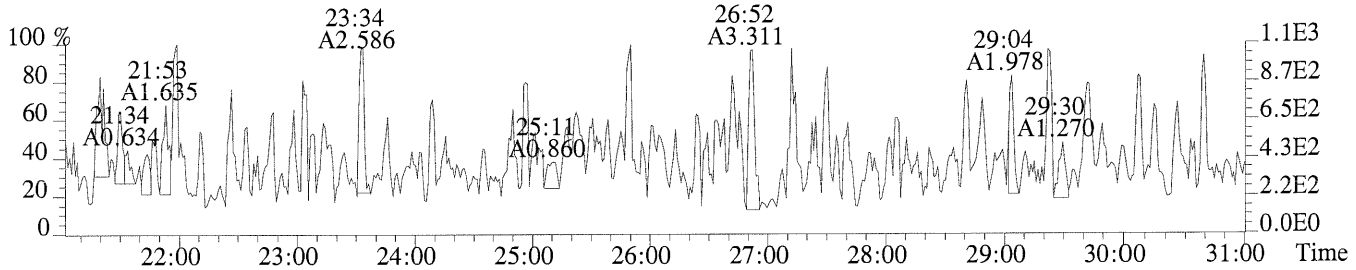


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

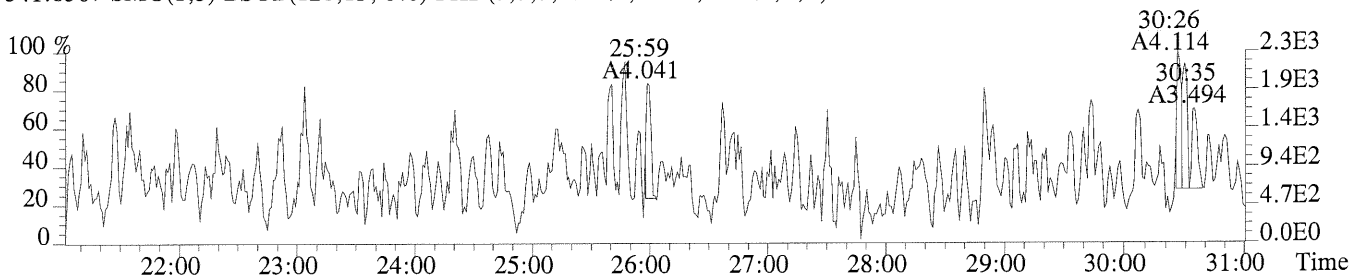


File:P229248 #1-627 Acq:26-MAY-2014 00:33:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

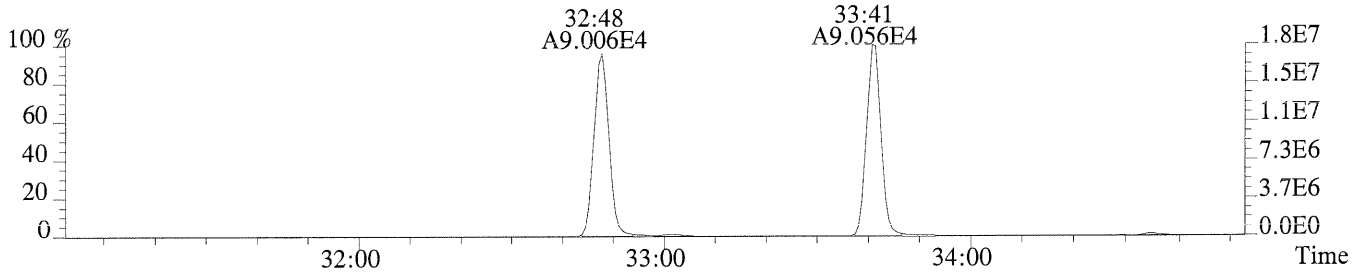
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



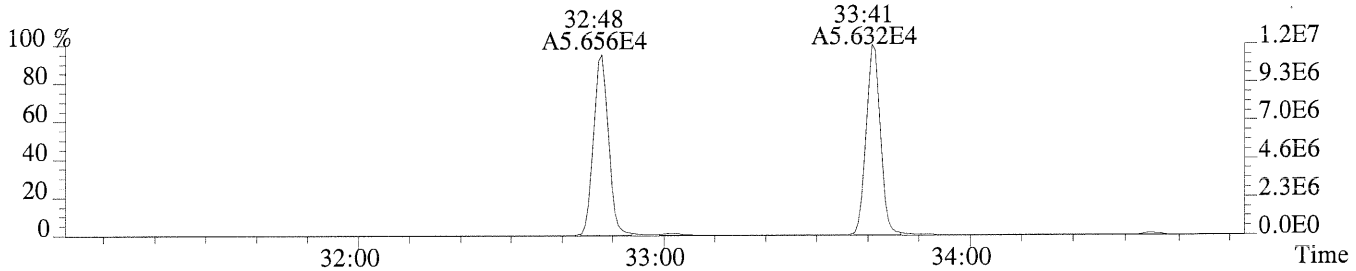
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



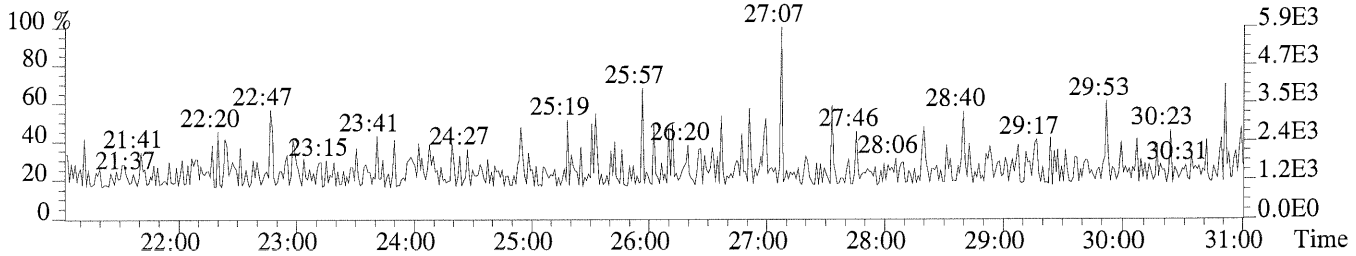
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



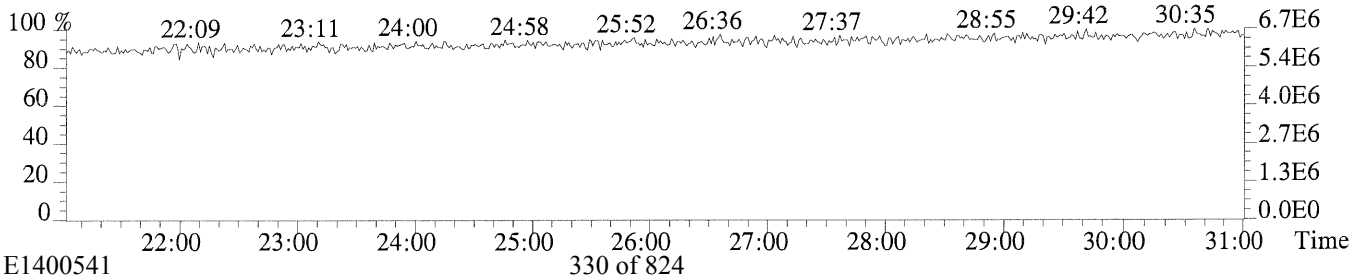
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

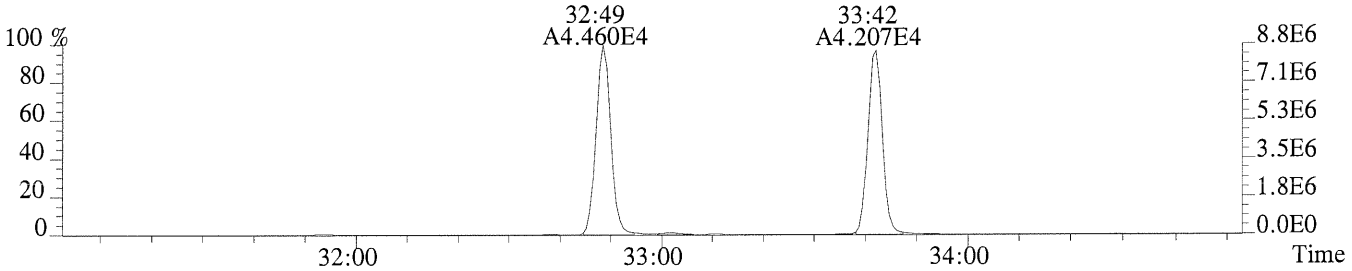


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

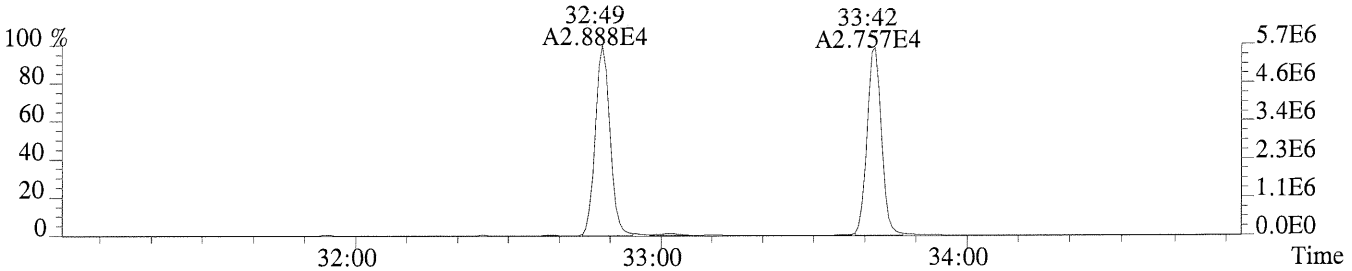


File:P229248 #1-349 Acq:26-MAY-2014 00:33:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

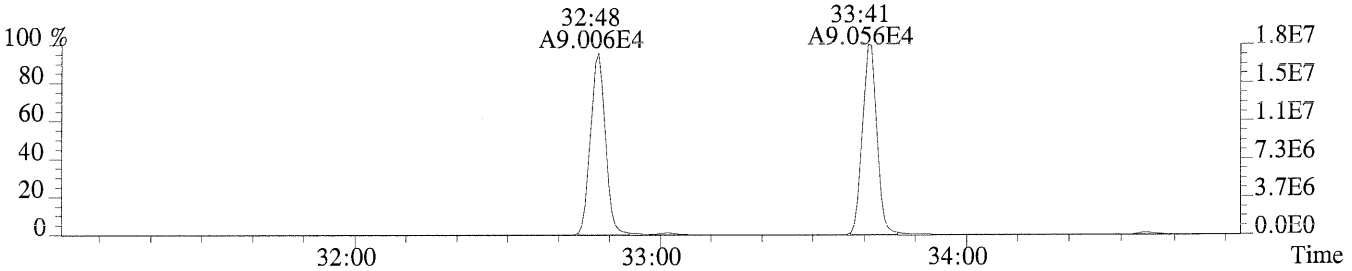
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



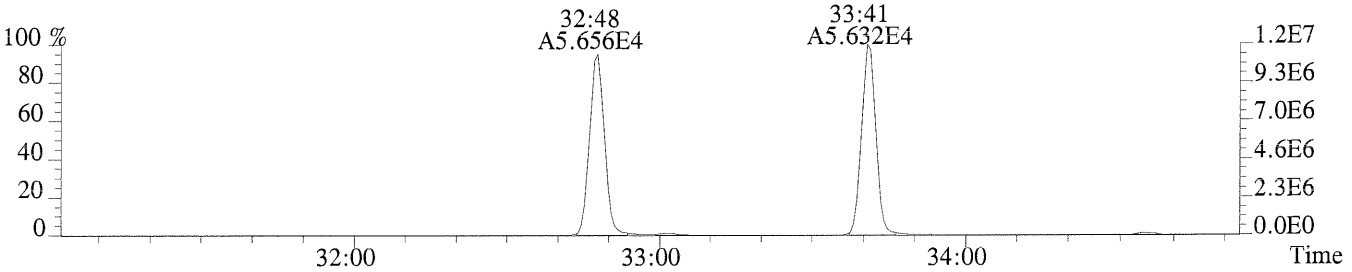
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



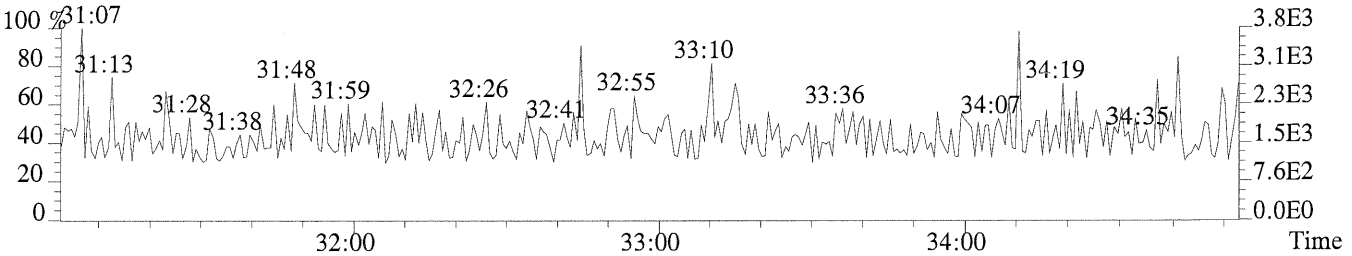
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,324.0,1.00%,F,T)



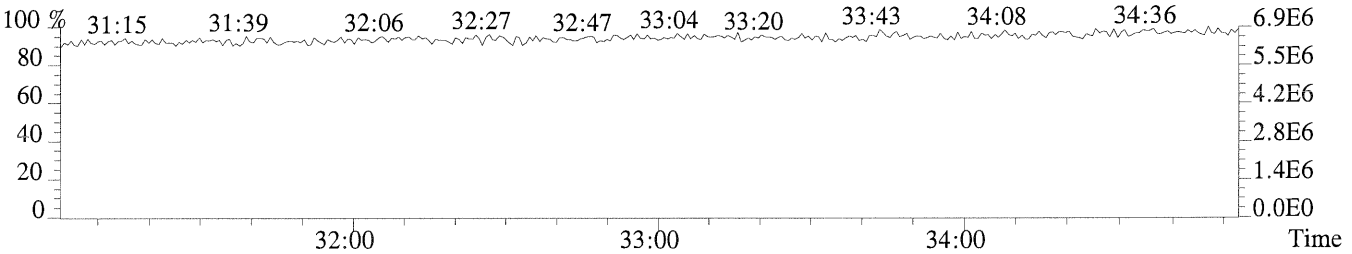
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

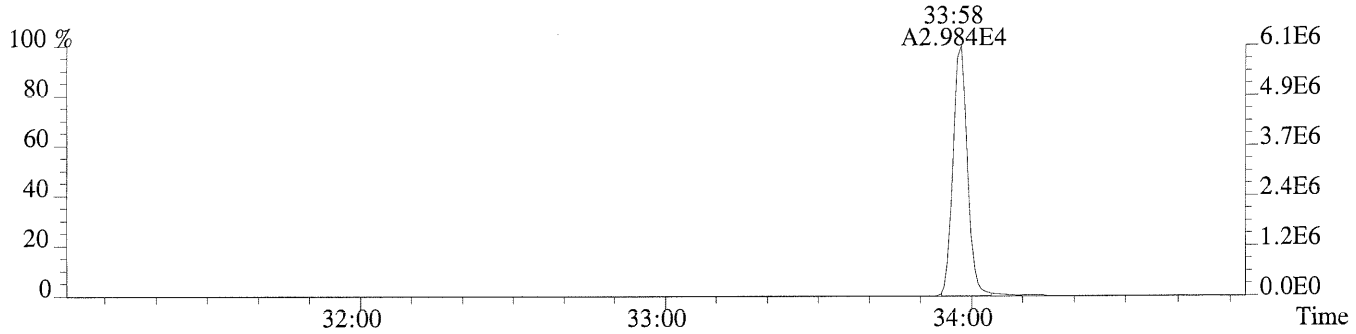


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

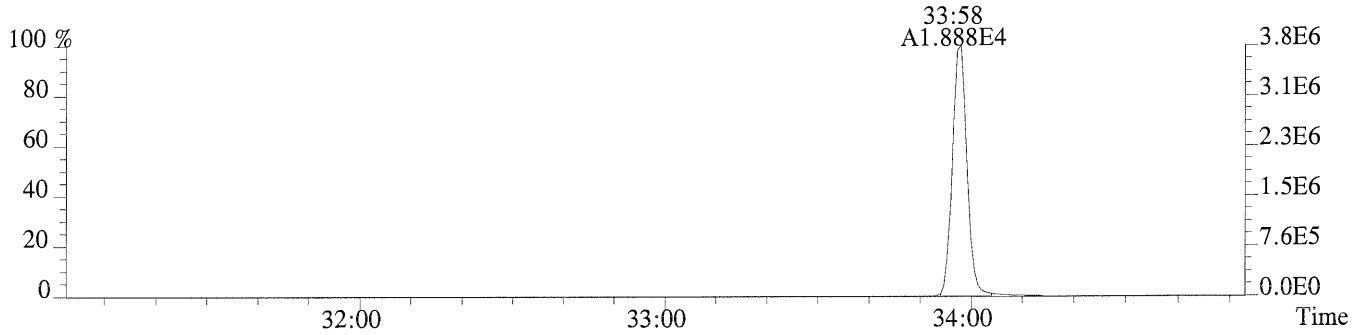


File:P229248 #1-349 Acq:26-MAY-2014 00:33:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

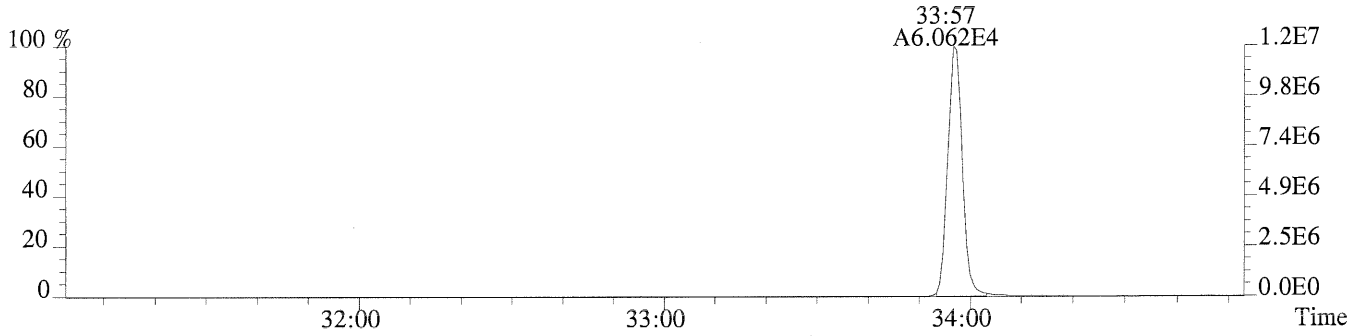
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



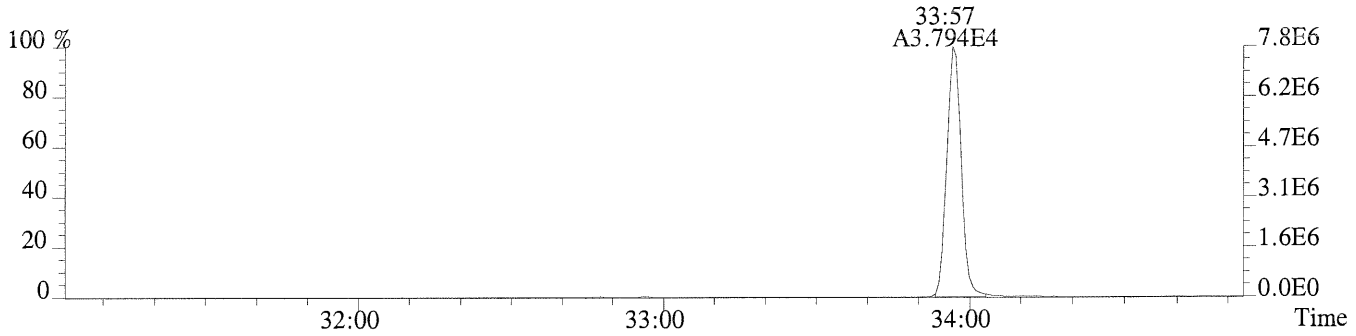
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,128.0,1.00%,F,T)



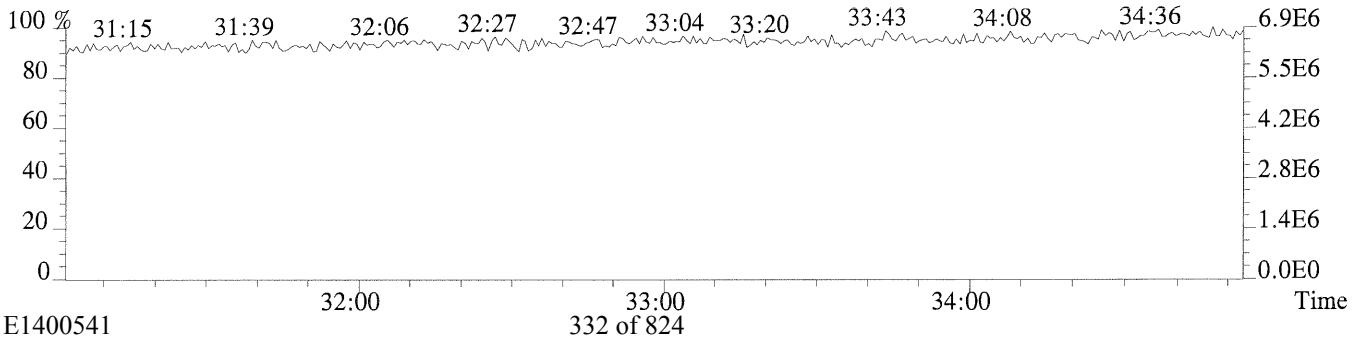
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,332.0,1.00%,F,T)

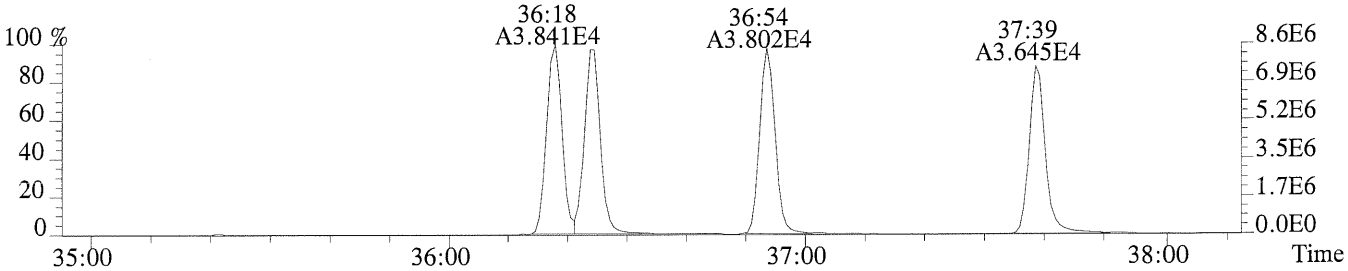


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

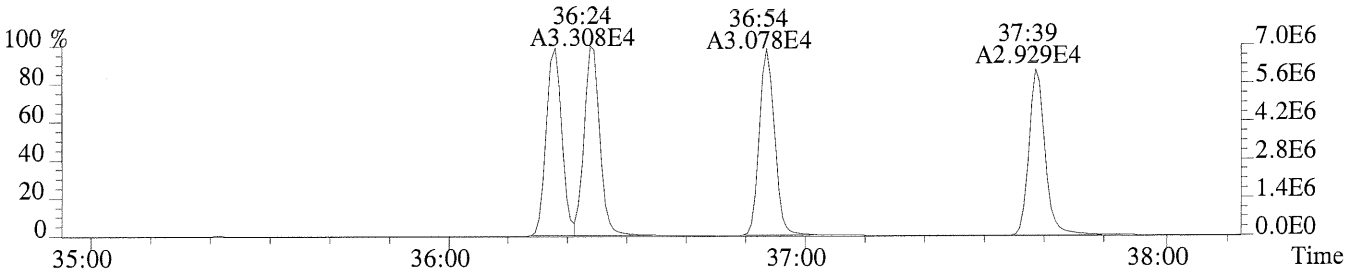


File:P229248 #1-299 Acq:26-MAY-2014 00:33:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

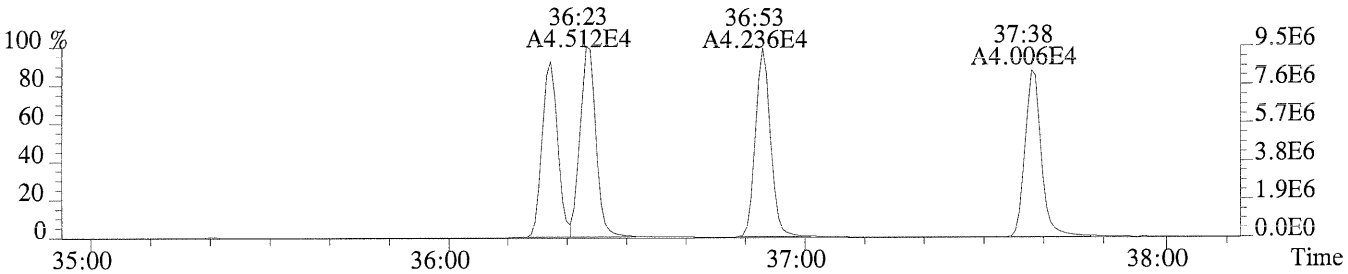
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)



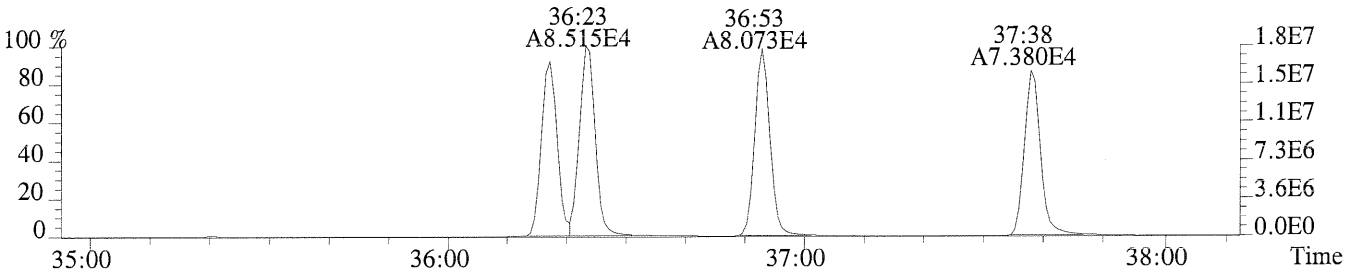
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



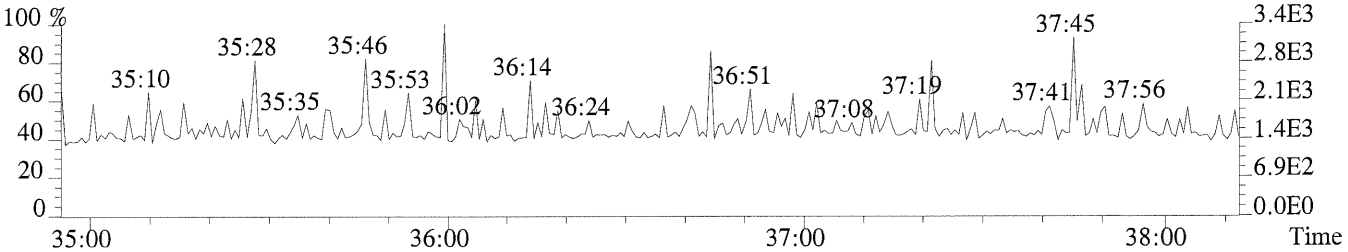
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



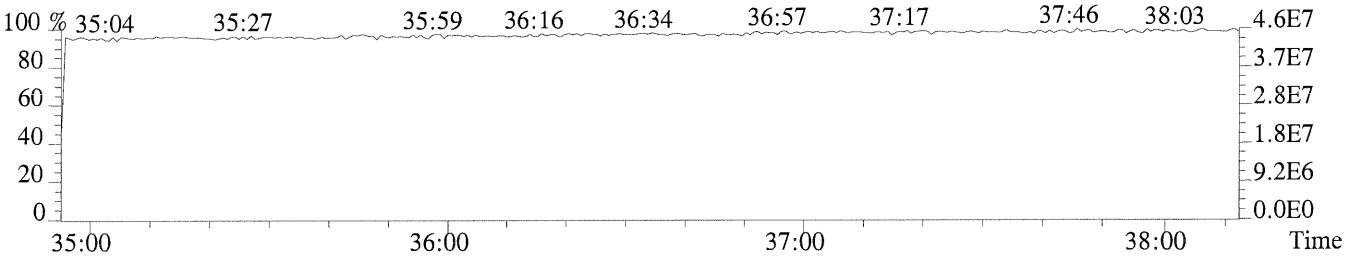
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



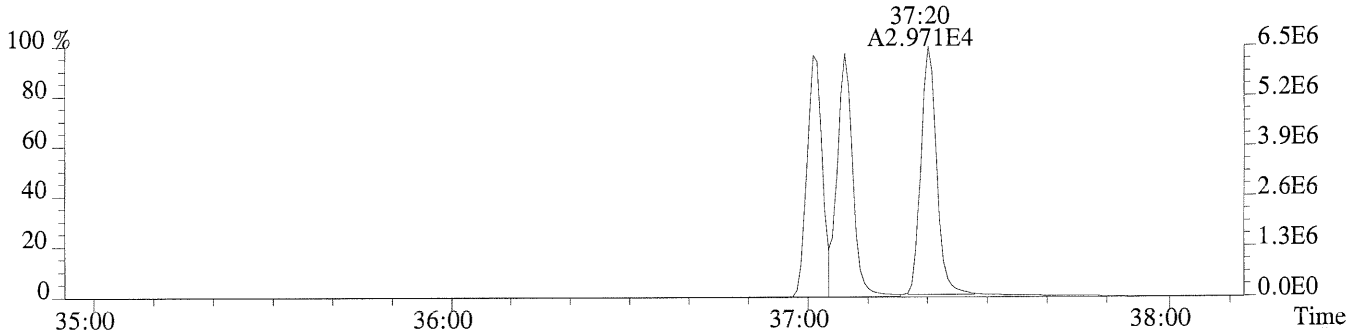
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



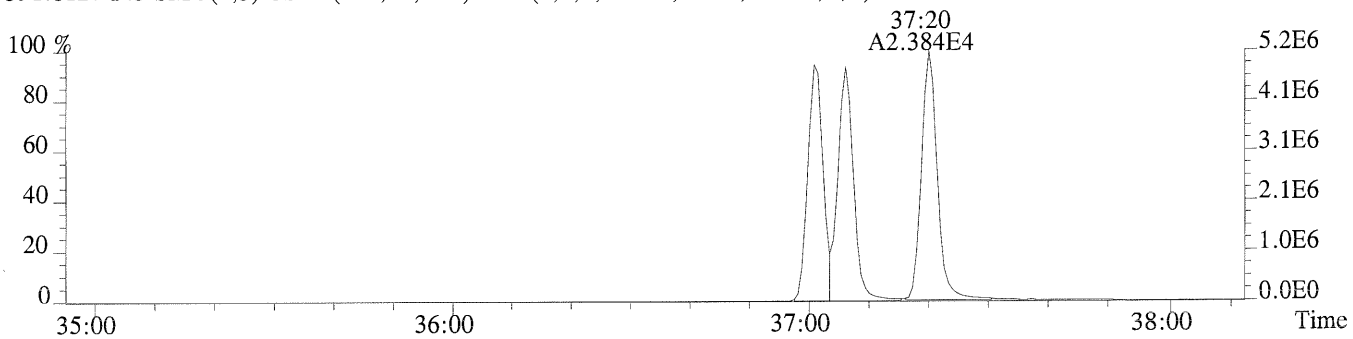
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



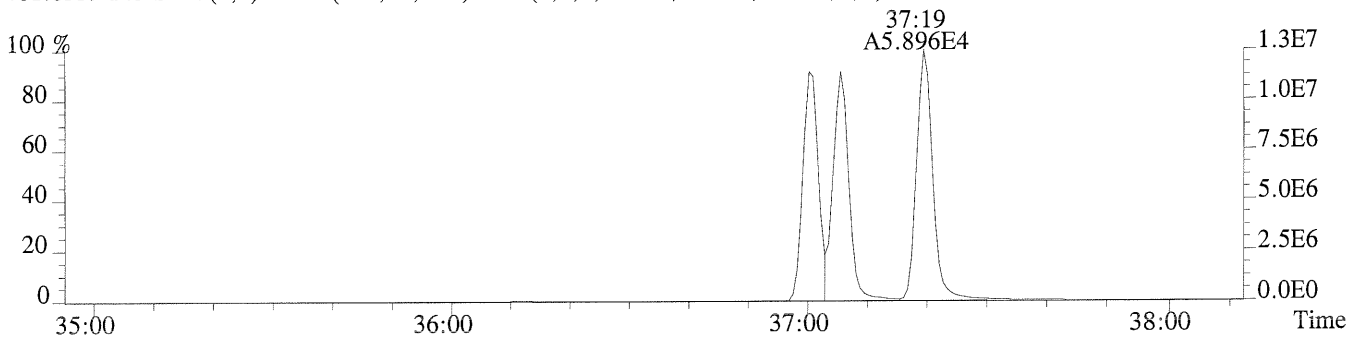
File:P229248 #1-299 Acq:26-MAY-2014 00:33:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.40%,F,T)



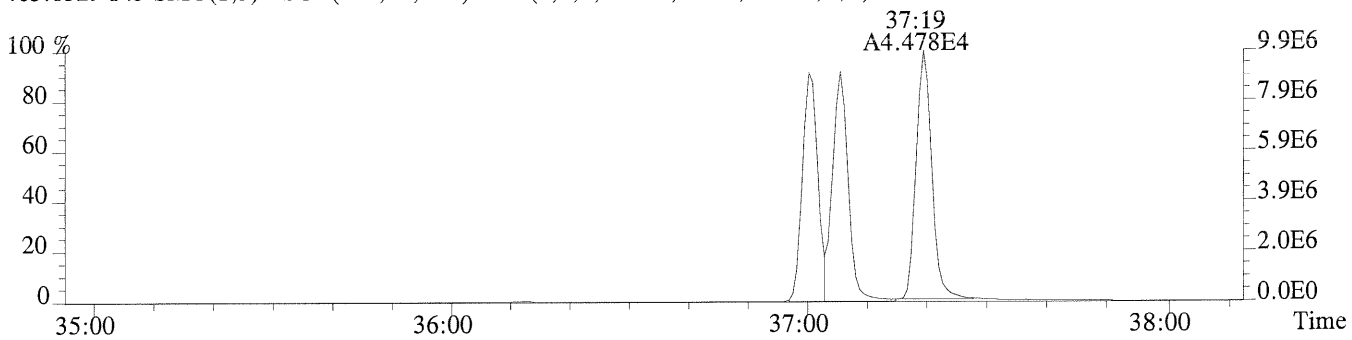
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



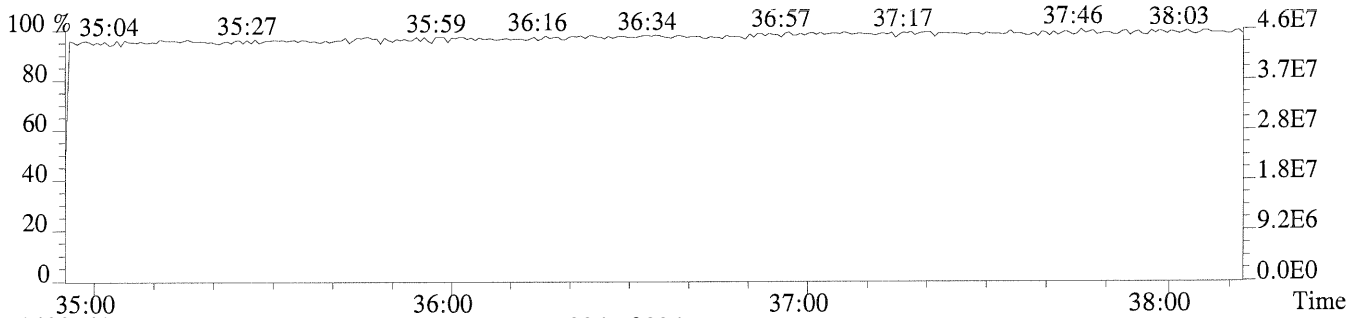
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1312.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)

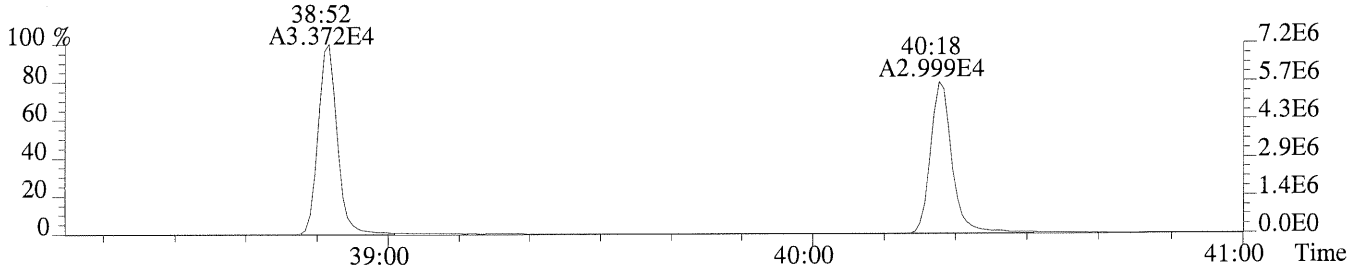


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

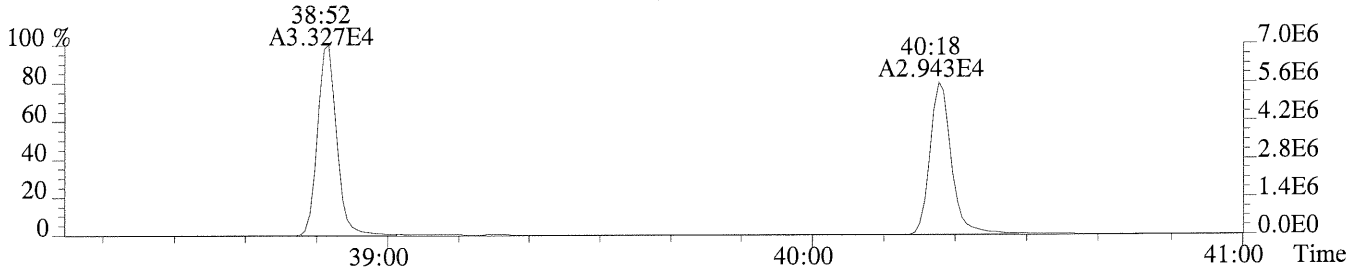


File:P229248 #1-251 Acq:26-MAY-2014 00:33:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

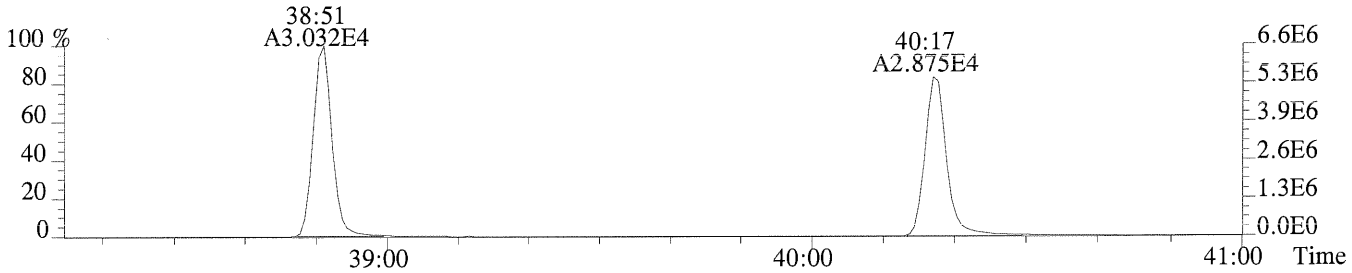
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2884.0,0.50%,F,T)



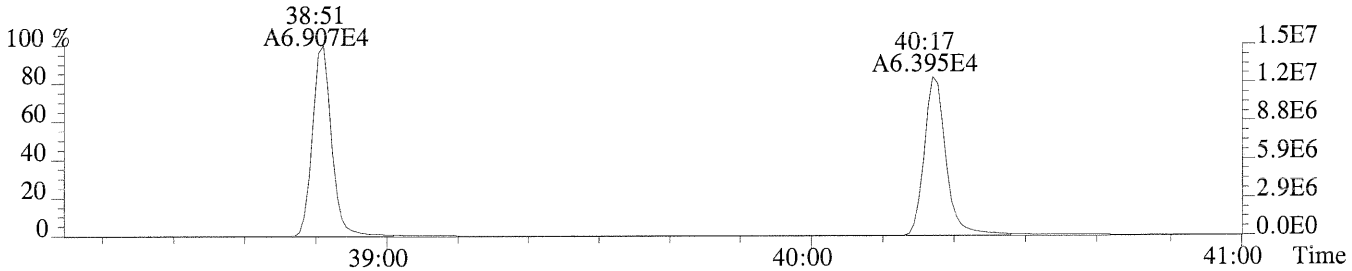
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2624.0,0.50%,F,T)



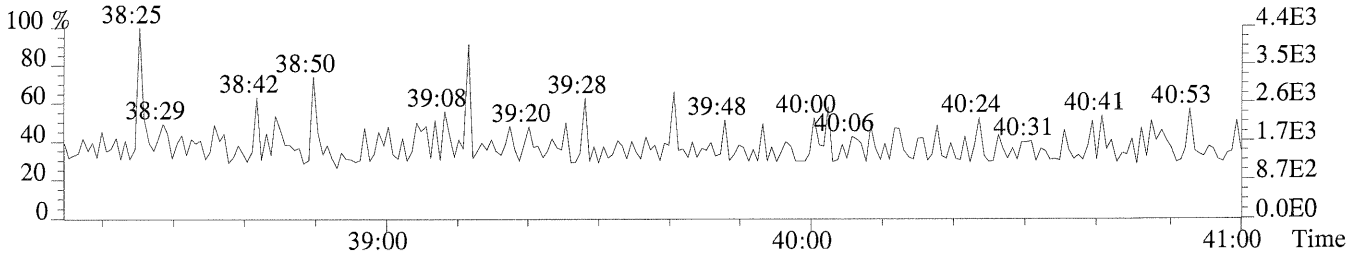
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2040.0,0.50%,F,T)



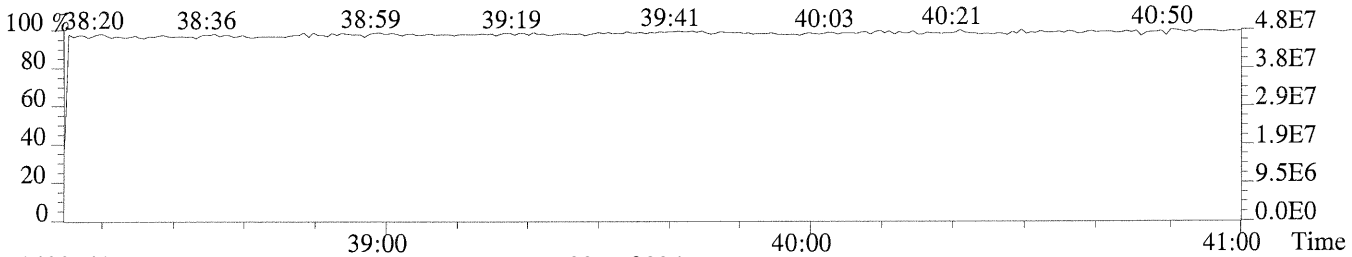
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5320.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

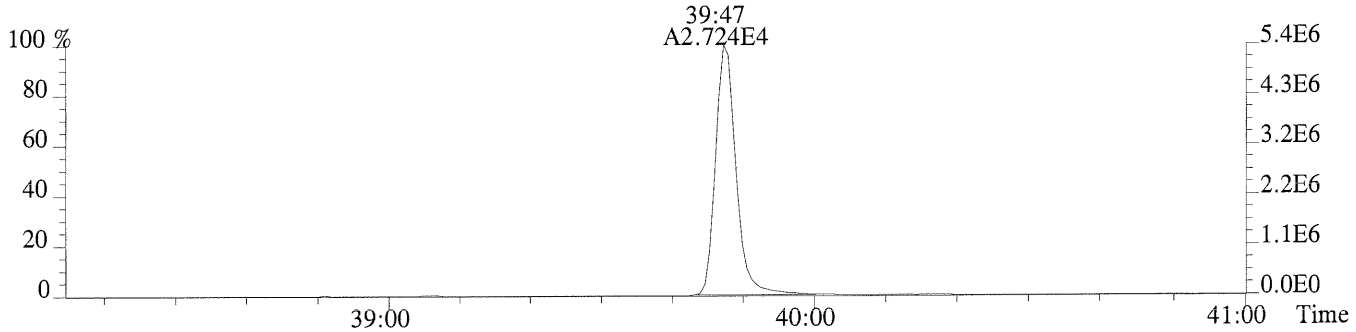


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

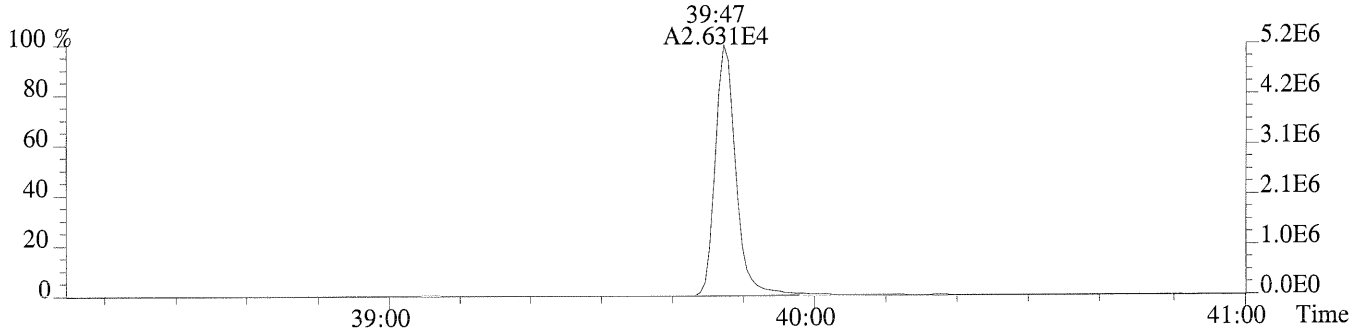


File:P229248 #1-251 Acq:26-MAY-2014 00:33:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

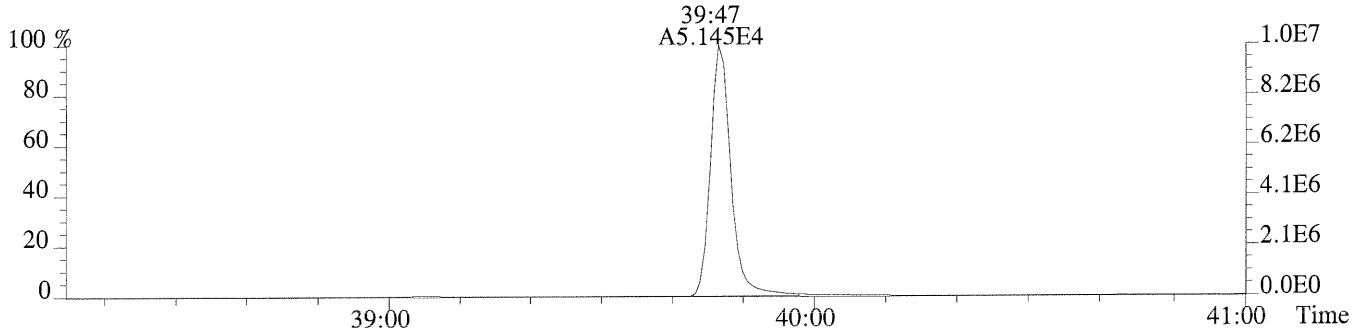
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



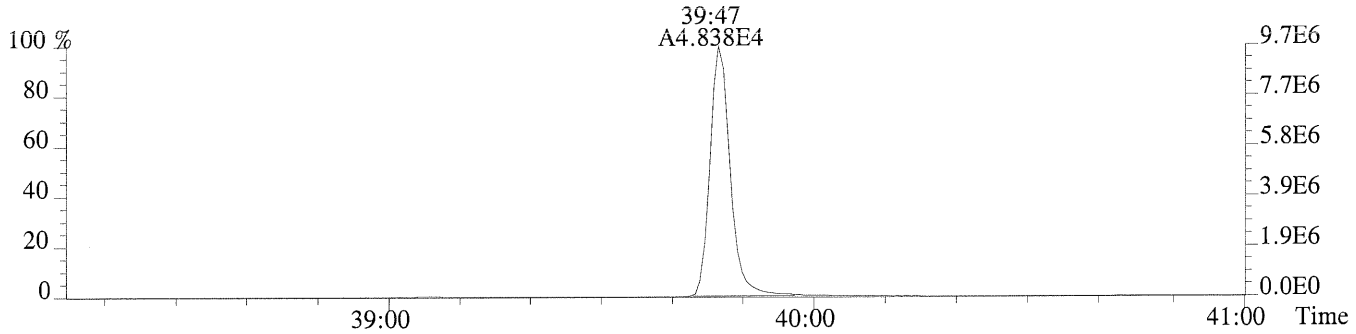
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



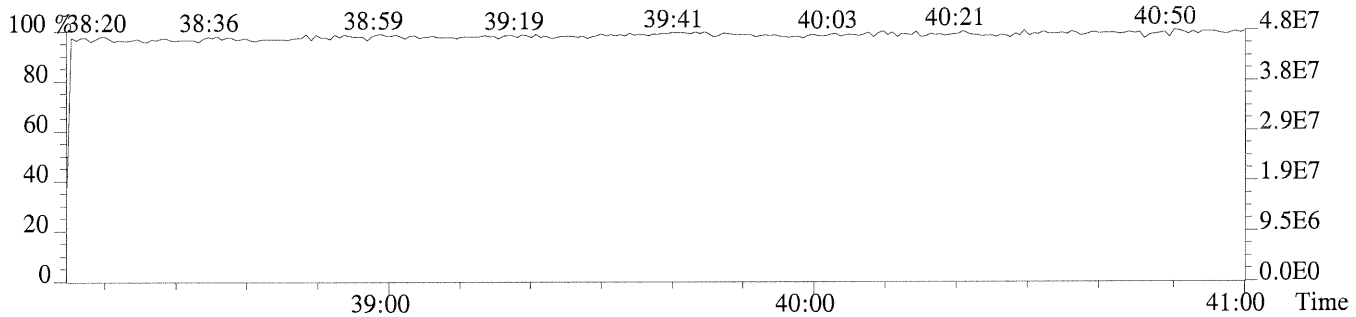
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



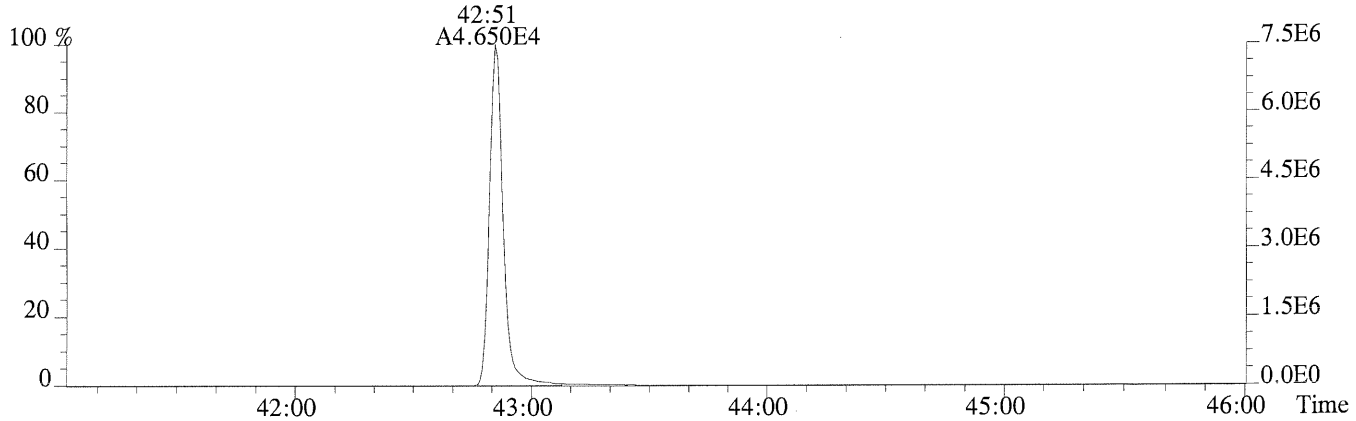
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



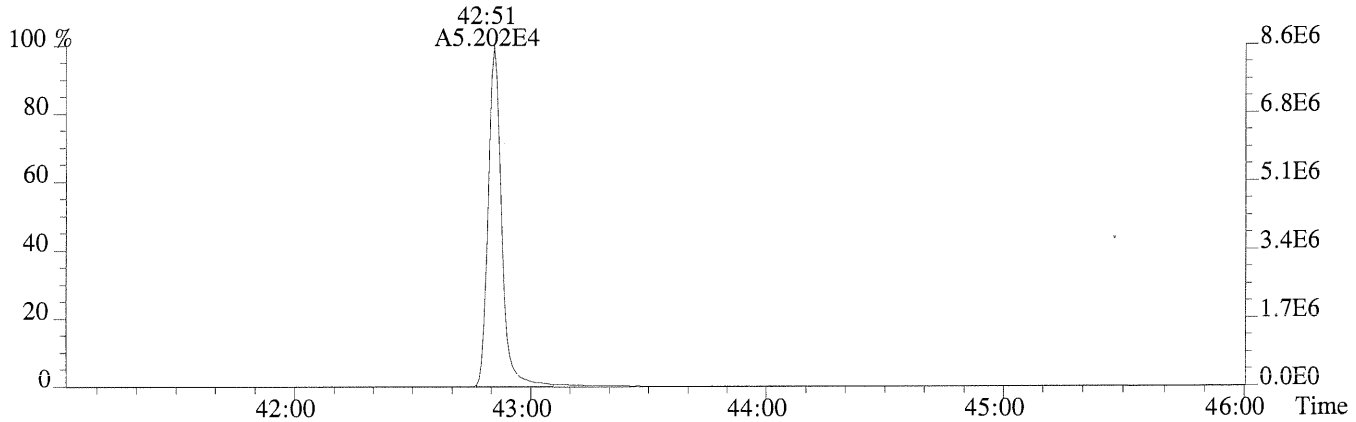
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



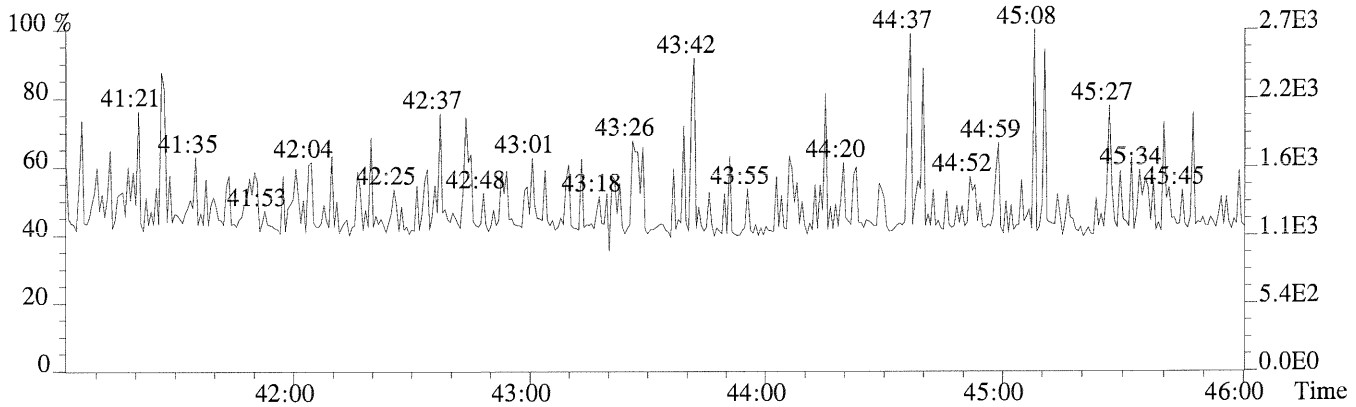
File:P229248 #1-457 Acq:26-MAY-2014 00:33:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,260.0,0.40%,F,T)



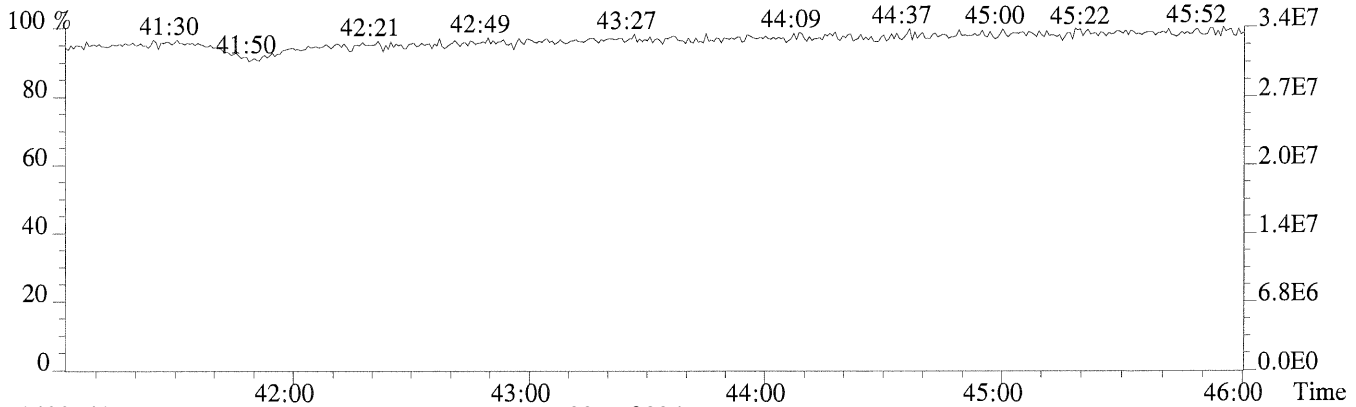
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1348.0,0.40%,F,T)



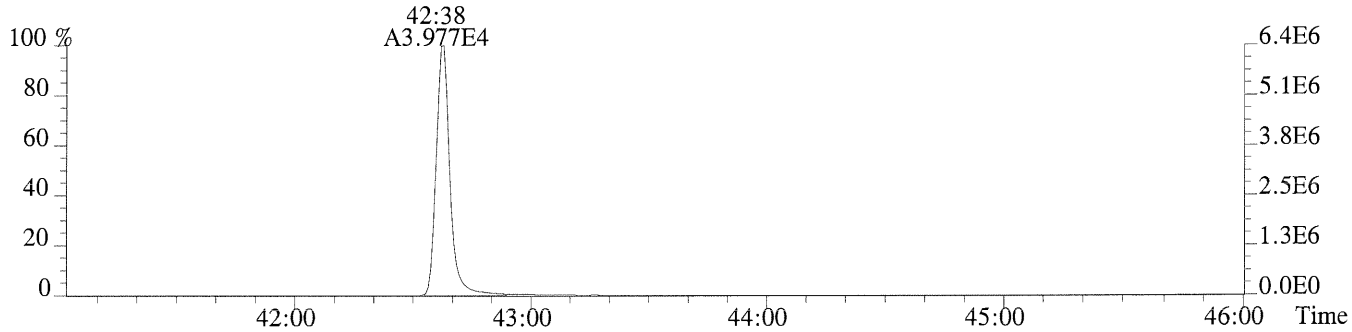
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



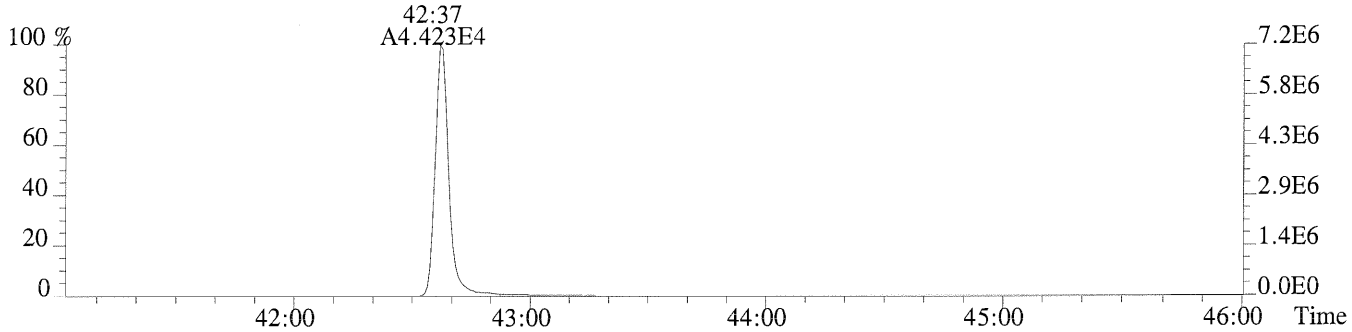
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



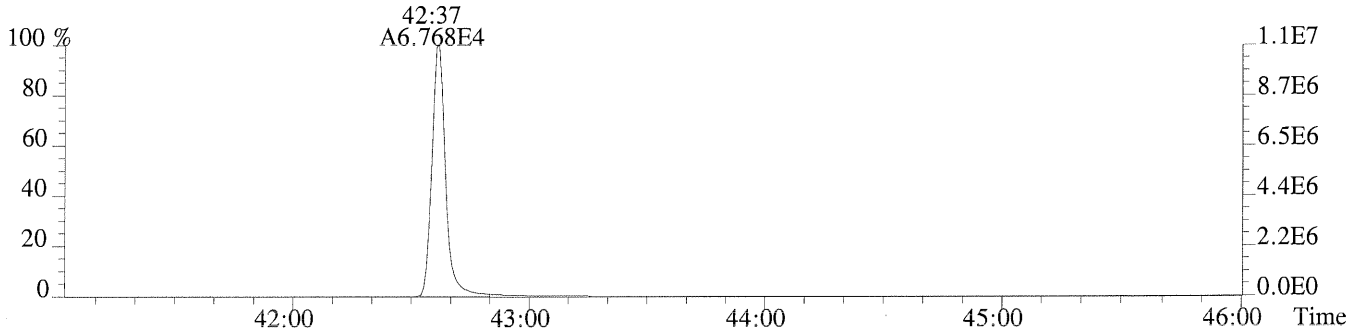
File:P229248 #1-457 Acq:26-MAY-2014 00:33:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,300.0,0.40%,F,T)



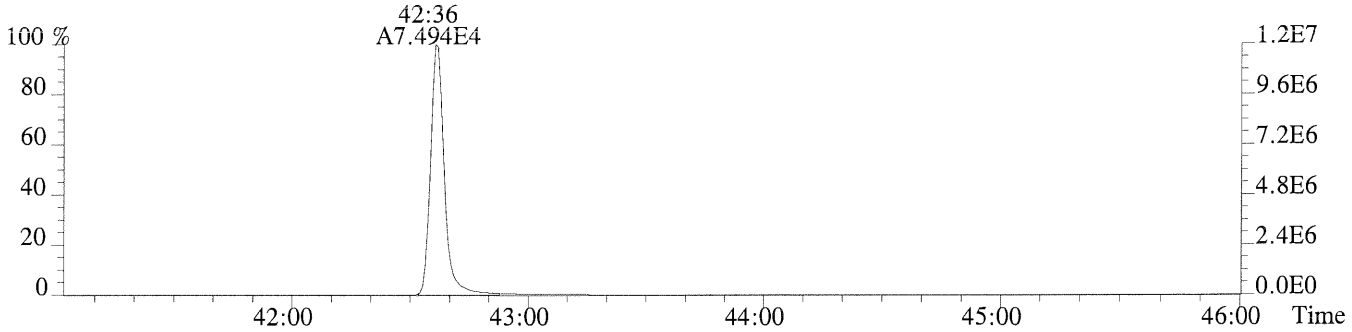
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,752.0,0.40%,F,T)



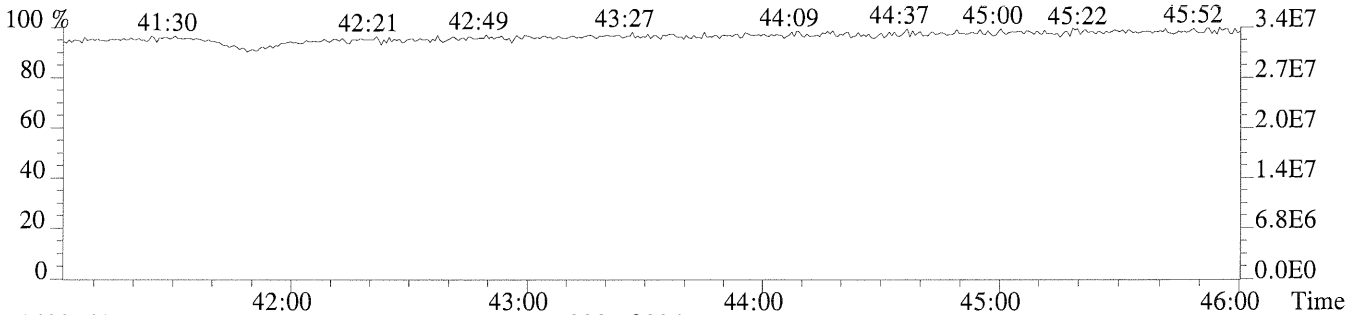
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,708.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,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
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 | GC Column ID: DB-5MSUI

VER Data Filename: P229263 | Analysis Date: 26-MAY-14 Time: 12:30:40

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.5	7.8 - 12.9	-5.2
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	46	39 - 65	-8.3
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	44	39 - 64	-11.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	46	39 - 64	-7.3
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	48	41 - 61	-4.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	46	43 - 58	-8.2
OCDD	M+2/M+4	0.90	0.76-1.02	83	79 - 126	-17.3
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	8.4	8.4 - 12.0	-16.1
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	45	41 - 60	-10.7
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	43	41 - 61	-14.5
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	45	45 - 56	-9.5
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	45	44 - 57	-9.2
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	45	45 - 56	-10.9
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	45	44 - 57	-9.6
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	47	45 - 55	-5.4
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	46	43 - 58	-8.5
OCDF	M+2/M+4	0.89	0.76-1.02	80	63 - 159	-19.5

(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 %D 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

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 GC Column ID: DB-5MSUI

VER Data Filename: P229263 Analysis Date: 26-MAY-14 Time: 12:30:40

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	109	82 - 121	9.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	118	62 - 160	17.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	97	85 - 117	-2.7
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	92	85 - 118	-7.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	97	72 - 138	-3.1
13C-OCDD	M+2/M+4	0.92	0.76-1.02	194	96 - 415	-3.1
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	104	71 - 140	4.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	102	76 - 130	2.2
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	106	77 - 130	5.8
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	78	76 - 131	-21.8
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	79	70 - 143	-21.5
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	90	74 - 135	-9.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	83	73 - 137	-17.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	81	78 - 129	-19.5
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	87	77 - 129	-12.9
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				11.1	7.8 - 12.7	10.8

(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.
(5) The beginnning CCAL %D 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)

1613F4B.FRM

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
CCAL HRCC3/CS3

Run #8 Filename P229263 #1 Samp: 1 Inj: 1 Acquired: 26-MAY-14 12:30:40
Processed: 27-MAY-14 14:20:43 LAB. ID: CCAL HRCC3/CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:47	5.124e+03	6.613e+03	0.77	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:49	4.981e+04	3.239e+04	1.54	yes	no	1.000
3	Unk	2,3,4,7,8-PeCDF	33:42	4.658e+04	3.064e+04	1.52	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:19	4.464e+04	3.644e+04	1.22	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:25	4.768e+04	3.928e+04	1.21	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:54	4.446e+04	3.599e+04	1.24	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:39	4.242e+04	3.404e+04	1.25	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	3.907e+04	3.909e+04	1.00	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:18	3.370e+04	3.246e+04	1.04	yes	no	1.000
10	Unk	OCDF	42:52	5.184e+04	5.817e+04	0.89	yes	yes	1.006
11	Unk	2,3,7,8-TCDD	29:32	3.822e+03	4.906e+03	0.78	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:59	3.366e+04	2.122e+04	1.59	yes	no	1.001
13	Unk	1,2,3,4,7,8-HxCDD	37:02	3.269e+04	2.608e+04	1.25	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	37:07	3.330e+04	2.594e+04	1.28	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:21	3.591e+04	2.827e+04	1.27	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:48	3.004e+04	2.866e+04	1.05	yes	no	1.000
17	Unk	OCDD	42:38	4.057e+04	4.490e+04	0.90	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:46	5.494e+04	6.920e+04	0.79	yes	no	0.994
19	IS	13C-1,2,3,7,8-PeCDF	32:49	1.007e+05	6.318e+04	1.59	yes	no	1.134
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.012e+05	6.284e+04	1.61	yes	no	1.164
21	IS	13C-1,2,3,4,7,8-HxCDF	36:18	4.581e+04	8.813e+04	0.52	yes	no	0.972
22	IS	13C-1,2,3,6,7,8-HxCDF	36:24	5.356e+04	1.016e+05	0.53	yes	no	0.975
23	IS	13C-2,3,4,6,7,8-HxCDF	36:54	4.973e+04	9.467e+04	0.53	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	4.626e+04	8.896e+04	0.52	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:51	3.566e+04	8.062e+04	0.44	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	3.203e+04	7.266e+04	0.44	yes	no	1.079
27	IS	13C-2,3,7,8-TCDD	29:30	3.826e+04	4.917e+04	0.78	yes	no	1.019
28	IS	13C-1,2,3,7,8-PeCDD	33:57	6.866e+04	4.322e+04	1.59	yes	no	1.173
29	IS	13C-1,2,3,4,7,8-HxCDD	37:01	6.137e+04	4.764e+04	1.29	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	6.138e+04	4.802e+04	1.28	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	5.630e+04	5.298e+04	1.06	yes	no	1.066
32	IS	13C-OCDD	42:38	7.684e+04	8.366e+04	0.92	yes	no	1.142
33	RS/RT	13C-1,2,3,4-TCDD	28:56	3.802e+04	4.795e+04	0.79	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:20	6.772e+04	5.282e+04	1.28	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:32	9.004e+03				no	1.020

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XLRESP

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METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
CCAL HRCC3/CS3

Run #8 Filename P229263 Samp: 1 Inj: 1 Acquired: 26-MAY-14 12:30:40
Processed: 27-MAY-14 14:20:431 LAB. ID: CCAL HRCC3/CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.10e+06	8.00e+02	1.4e+03	1.41e+06	1.83e+03	7.7e+02
2	1,2,3,7,8-PeCDF	9.81e+06	2.37e+03	4.1e+03	6.39e+06	3.50e+03	1.8e+03
3	2,3,4,7,8-PeCDF	9.40e+06	2.37e+03	4.0e+03	6.24e+06	3.50e+03	1.8e+03
4	1,2,3,4,7,8-HxCDF	9.83e+06	8.08e+03	1.2e+03	7.96e+06	9.68e+03	8.2e+02
5	1,2,3,6,7,8-HxCDF	1.02e+07	8.08e+03	1.3e+03	8.37e+06	9.68e+03	8.7e+02
6	2,3,4,6,7,8-HxCDF	9.91e+06	8.08e+03	1.2e+03	8.05e+06	9.68e+03	8.3e+02
7	1,2,3,7,8,9-HxCDF	9.11e+06	8.08e+03	1.1e+03	7.38e+06	9.68e+03	7.6e+02
8	1,2,3,4,6,7,8-HpCDF	8.64e+06	4.35e+04	2.0e+02	8.56e+06	4.32e+04	2.0e+02
9	1,2,3,4,7,8,9-HpCDF	6.74e+06	4.35e+04	1.5e+02	6.58e+06	4.32e+04	1.5e+02
10	OCDF	8.80e+06	1.07e+07	8.2e-01	9.97e+06	1.21e+07	8.3e-01
11	2,3,7,8-TCDD	8.42e+05	1.03e+03	8.2e+02	1.10e+06	1.62e+03	6.8e+02
12	1,2,3,7,8-PeCDD	6.76e+06	3.88e+03	1.7e+03	4.29e+06	2.72e+03	1.6e+03
13	1,2,3,4,7,8-HxCDD	7.61e+06	9.78e+03	7.8e+02	6.08e+06	7.28e+03	8.4e+02
14	1,2,3,6,7,8-HxCDD	7.32e+06	9.78e+03	7.5e+02	5.72e+06	7.28e+03	7.9e+02
15	1,2,3,7,8,9-HxCDD	7.90e+06	9.78e+03	8.1e+02	6.24e+06	7.28e+03	8.6e+02
16	1,2,3,4,6,7,8-HpCDD	6.17e+06	1.97e+04	3.1e+02	5.94e+06	1.61e+04	3.7e+02
17	OCDD	7.33e+06	9.17e+05	8.0e+00	8.14e+06	1.12e+06	7.3e+00
18	13C-2,3,7,8-TCDF	1.17e+07	7.20e+02	1.6e+04	1.47e+07	1.00e+03	1.5e+04
19	13C-1,2,3,7,8-PeCDF	1.93e+07	1.67e+03	1.2e+04	1.21e+07	1.82e+03	6.6e+03
20	13C-2,3,4,7,8-PeCDF	2.07e+07	1.67e+03	1.2e+04	1.30e+07	1.82e+03	7.1e+03
21	13C-1,2,3,4,7,8-HxCDF	1.01e+07	1.07e+03	9.4e+03	1.93e+07	4.52e+03	4.3e+03
22	13C-1,2,3,6,7,8-HxCDF	1.15e+07	1.07e+03	1.1e+04	2.18e+07	4.52e+03	4.8e+03
23	13C-2,3,4,6,7,8-HxCDF	1.11e+07	1.07e+03	1.0e+04	2.09e+07	4.52e+03	4.6e+03
24	13C-1,2,3,7,8,9-HxCDF	9.94e+06	1.07e+03	9.3e+03	1.90e+07	4.52e+03	4.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.68e+06	2.34e+03	3.3e+03	1.74e+07	2.00e+04	8.7e+02
26	13C-1,2,3,4,7,8,9-HpCDF	6.36e+06	2.34e+03	2.7e+03	1.44e+07	2.00e+04	7.2e+02
27	13C-2,3,7,8-TCDD	8.38e+06	2.26e+03	3.7e+03	1.08e+07	1.38e+03	7.8e+03
28	13C-1,2,3,7,8-PeCDD	1.40e+07	9.96e+02	1.4e+04	8.92e+06	6.56e+02	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	1.43e+07	3.40e+03	4.2e+03	1.11e+07	2.38e+03	4.6e+03
30	13C-1,2,3,6,7,8-HxCDD	1.35e+07	3.40e+03	4.0e+03	1.05e+07	2.38e+03	4.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.17e+07	8.38e+03	1.4e+03	1.11e+07	6.09e+03	1.8e+03
32	13C-OCDD	1.32e+07	1.86e+04	7.1e+02	1.43e+07	1.89e+04	7.6e+02
33	13C-1,2,3,4-TCDD	8.30e+06	2.26e+03	3.7e+03	1.04e+07	1.38e+03	7.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.51e+07	3.40e+03	4.4e+03	1.18e+07	2.38e+03	4.9e+03
35	37Cl-2,3,7,8-TCDD	2.02e+06	3.92e+02	5.1e+03			

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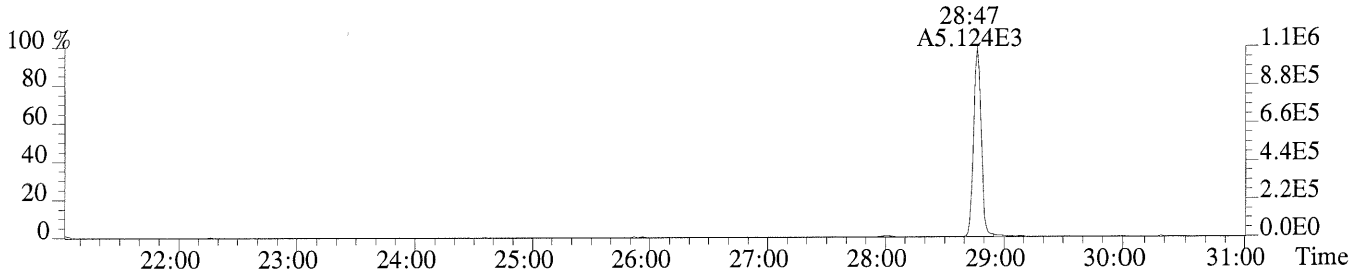
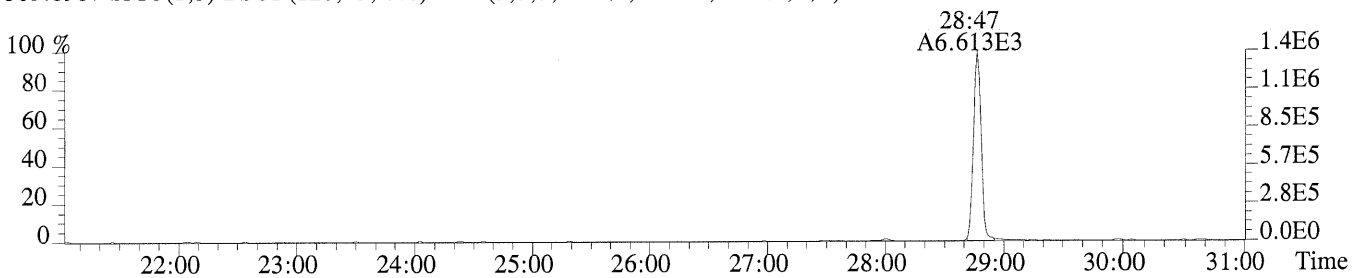
XLSN

File:P229263 #1-627 Acq:26-MAY-2014 12:30:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

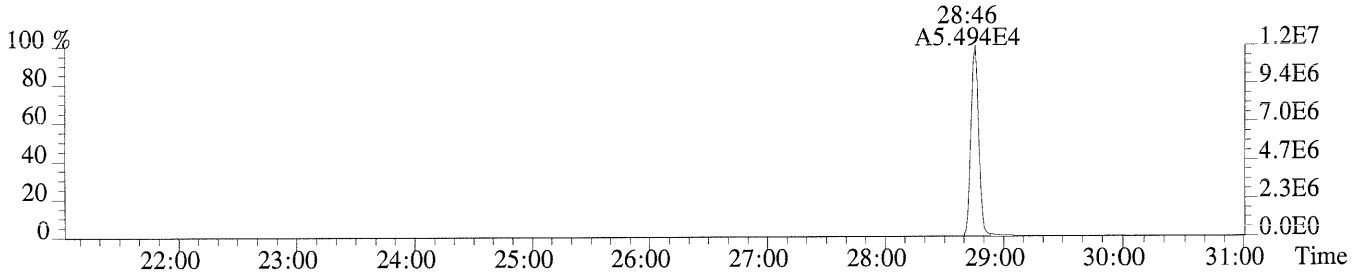
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



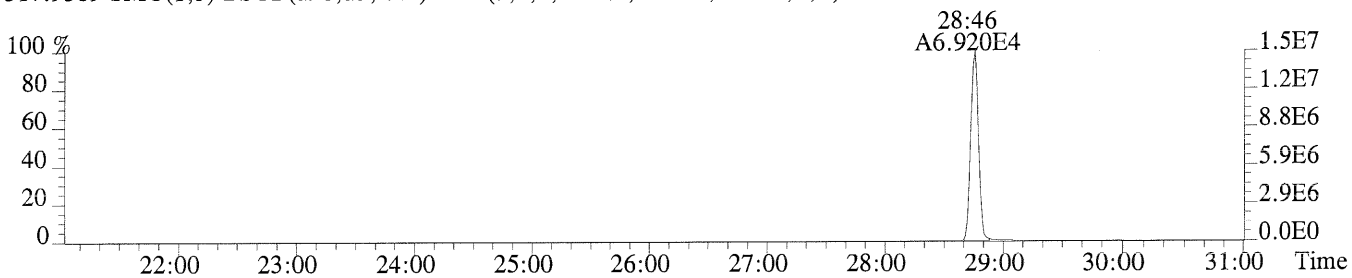
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)



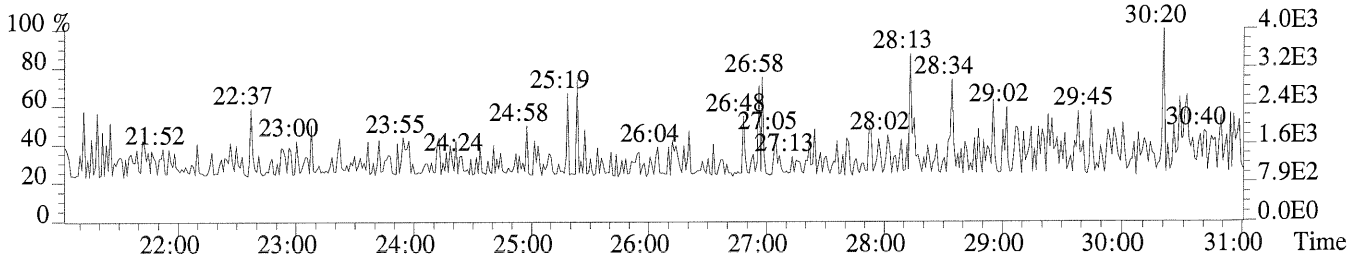
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



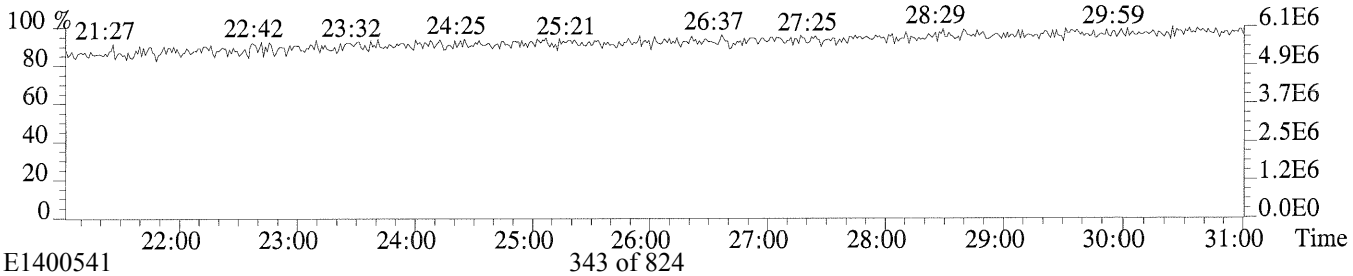
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1000.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

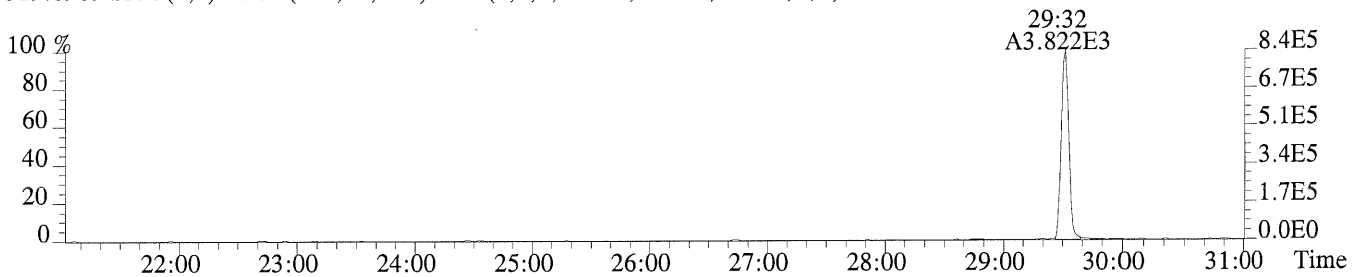


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

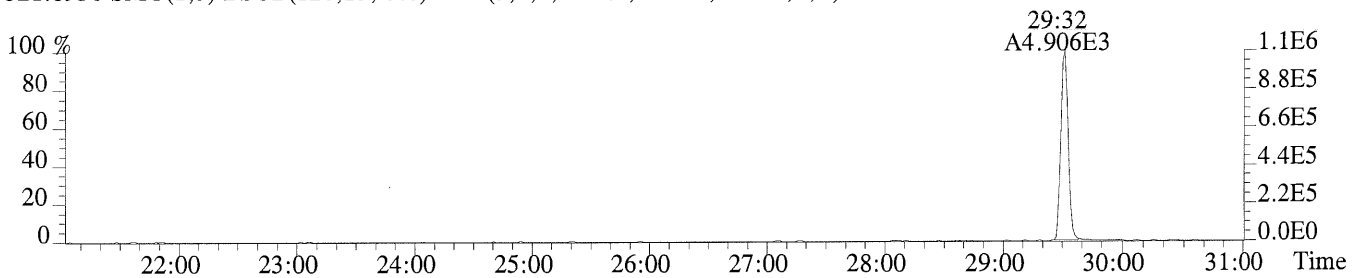


File:P229263 #1-627 Acq:26-MAY-2014 12:30:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

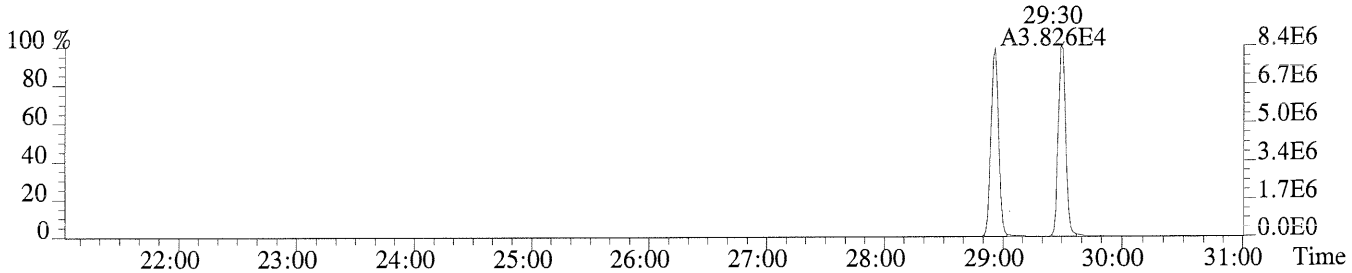
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



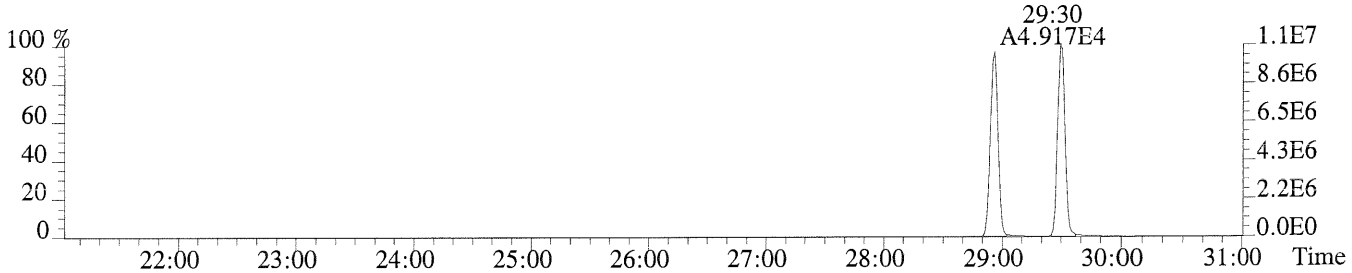
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1616.0,1.00%,F,T)



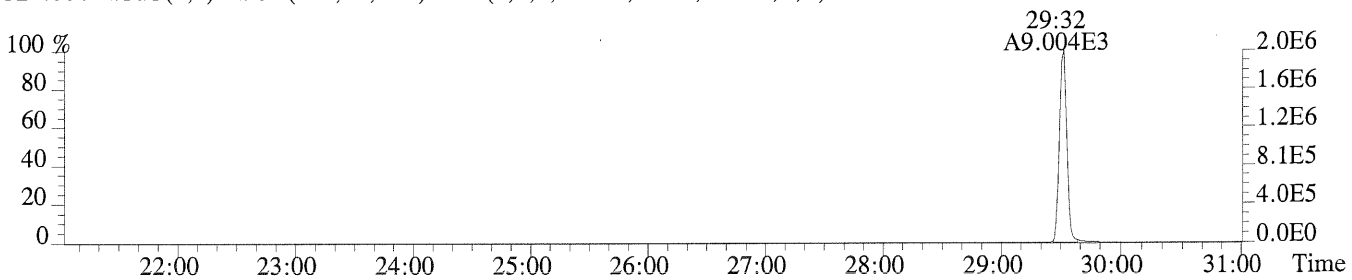
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2264.0,1.00%,F,T)



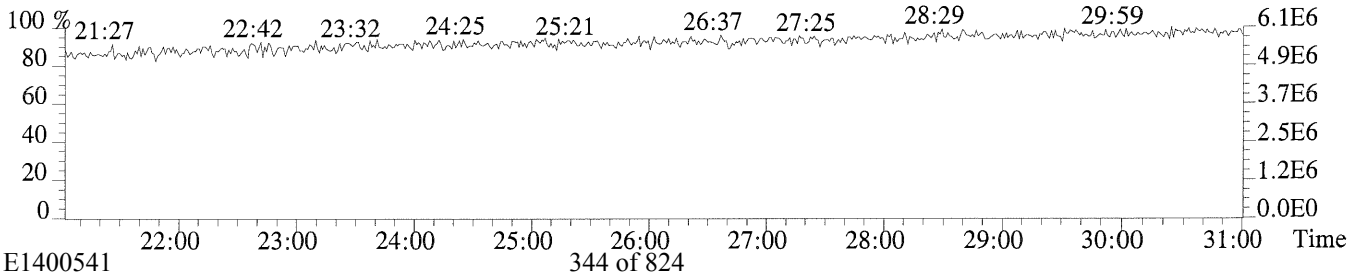
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1384.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,392.0,1.00%,F,T)

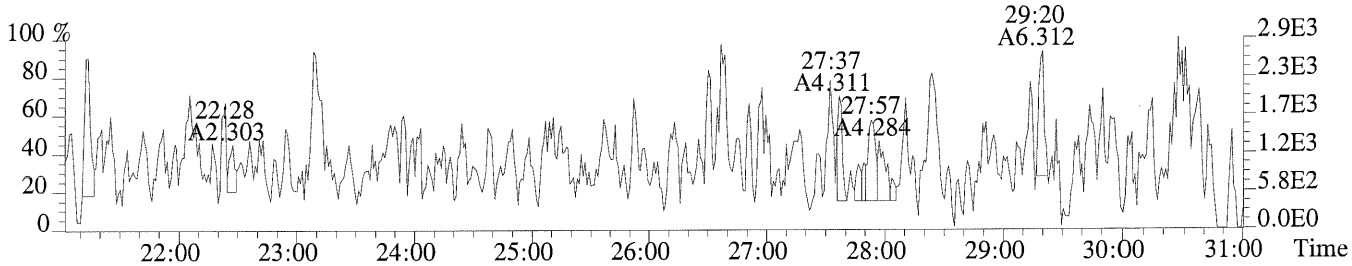


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

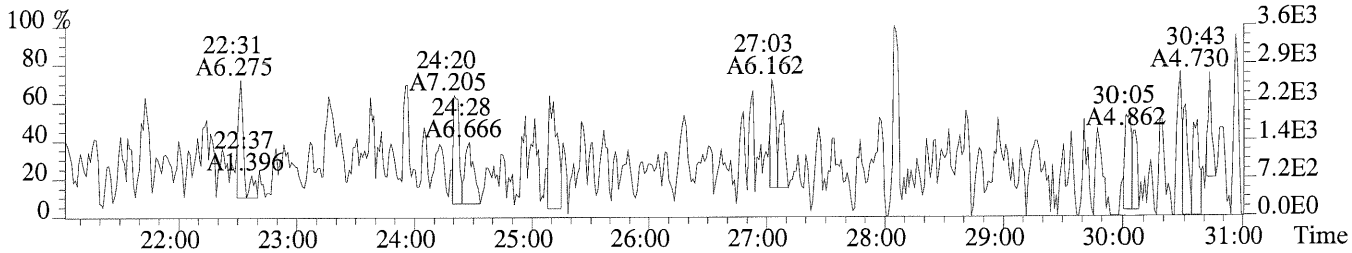


File:P229263 #1-627 Acq:26-MAY-2014 12:30:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

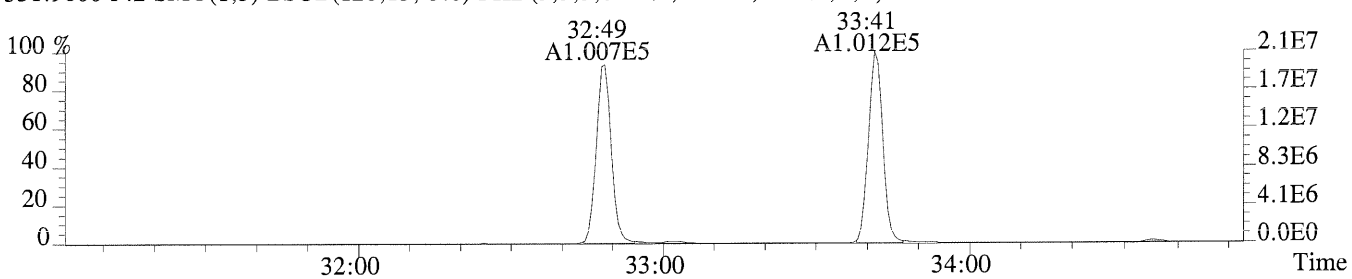
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1288.0,1.00%,F,T)



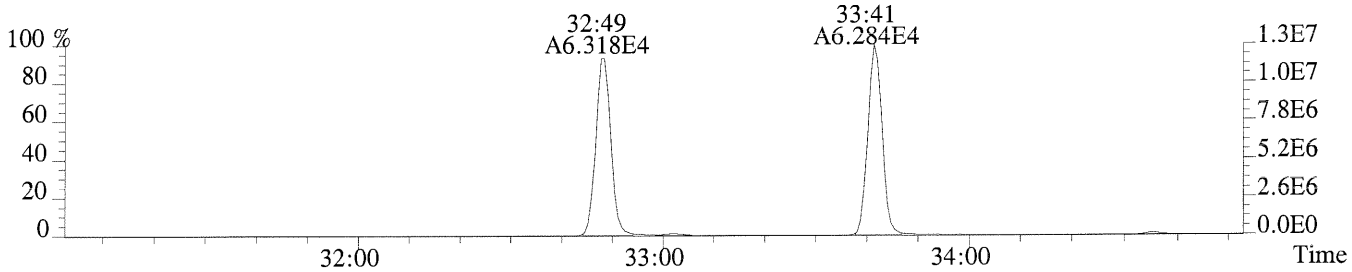
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



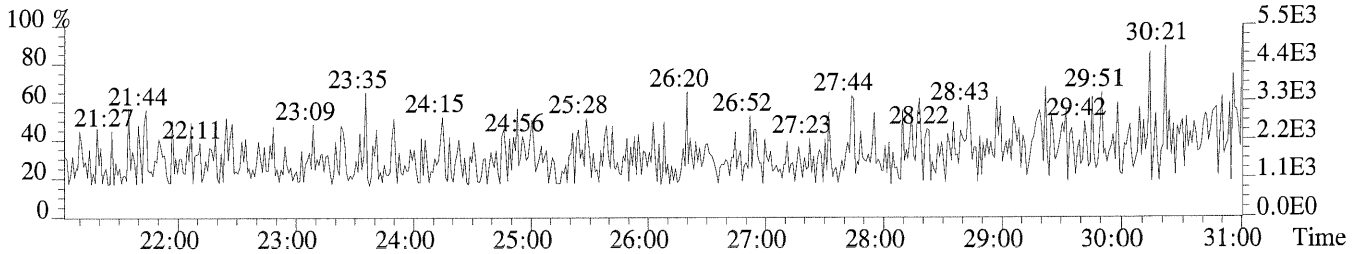
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1672.0,1.00%,F,T)



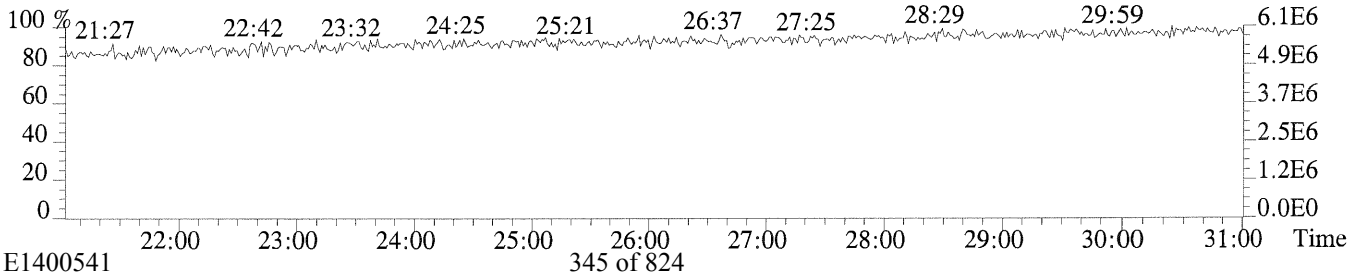
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1824.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

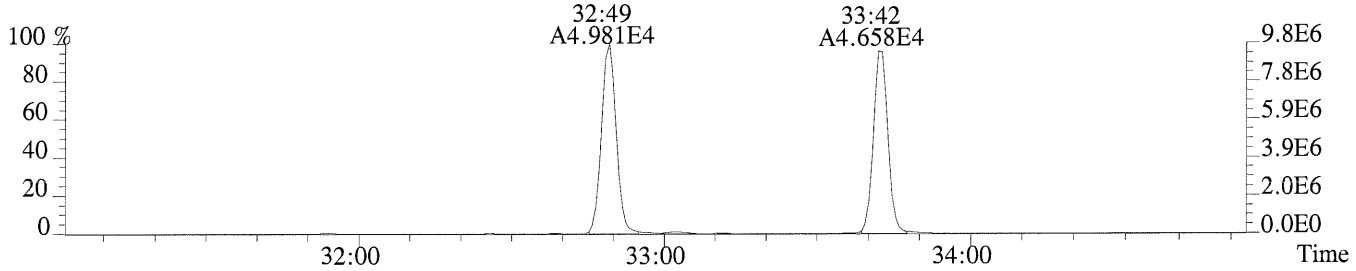


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

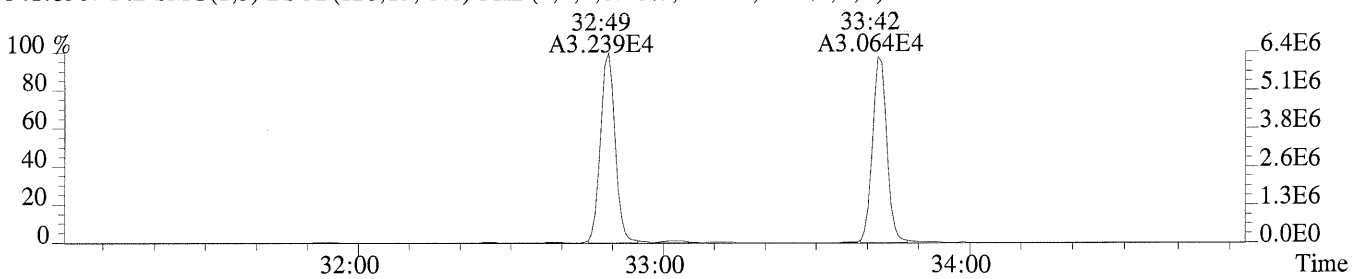


File:P229263 #1-349 Acq:26-MAY-2014 12:30:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

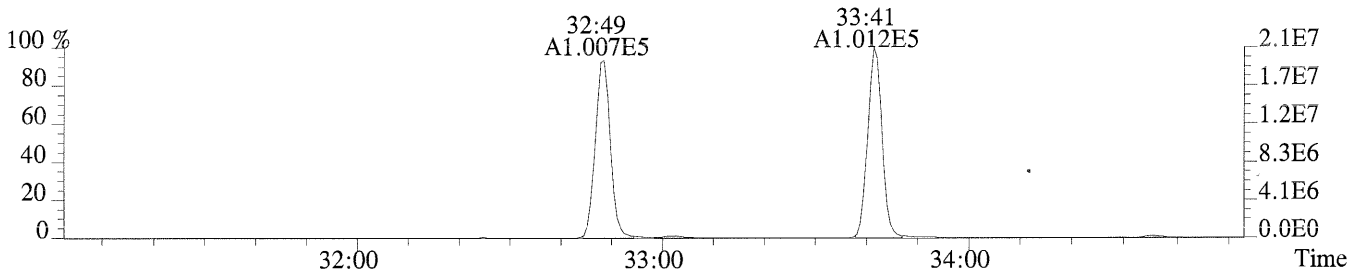
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2372.0,1.00%,F,T)



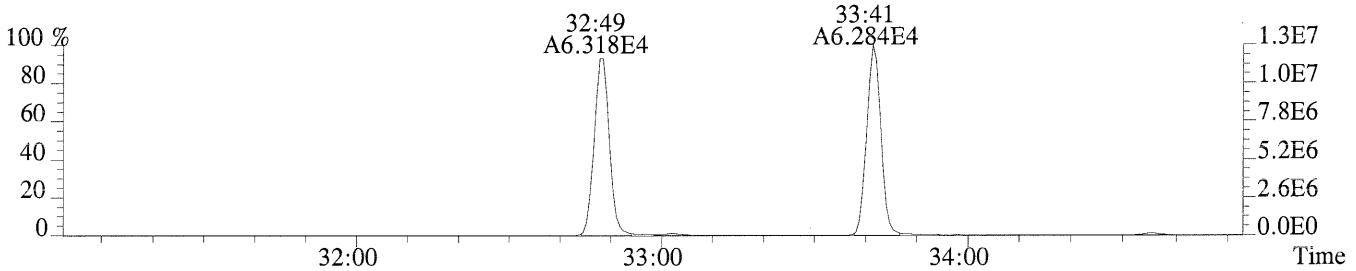
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3504.0,1.00%,F,T)



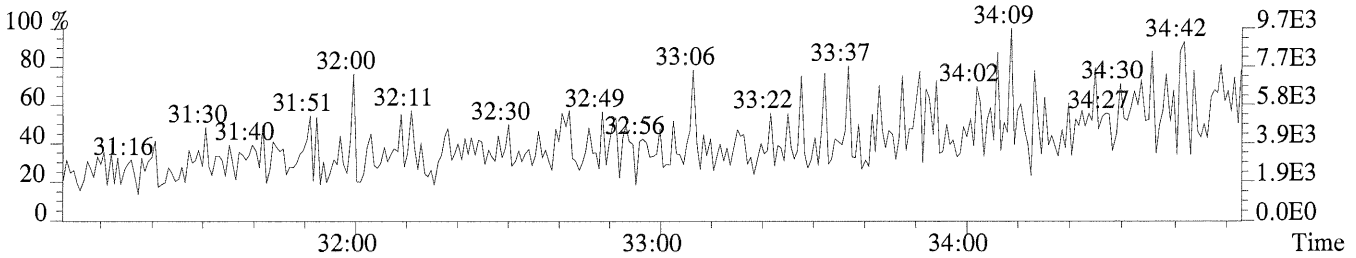
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1672.0,1.00%,F,T)



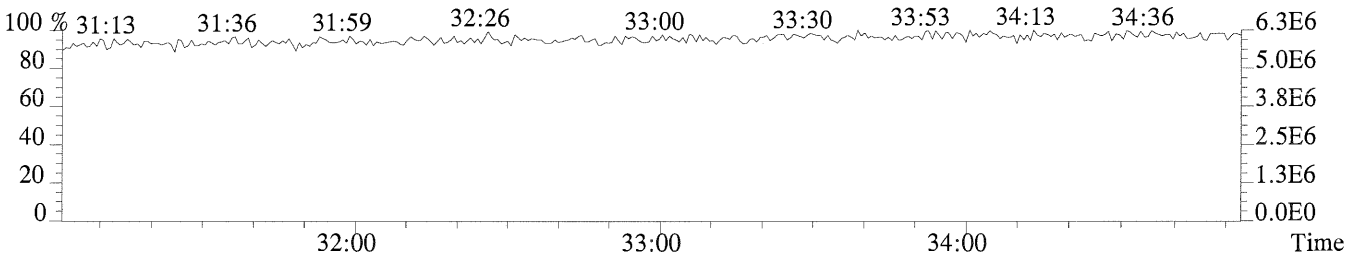
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1824.0,1.00%,F,T)



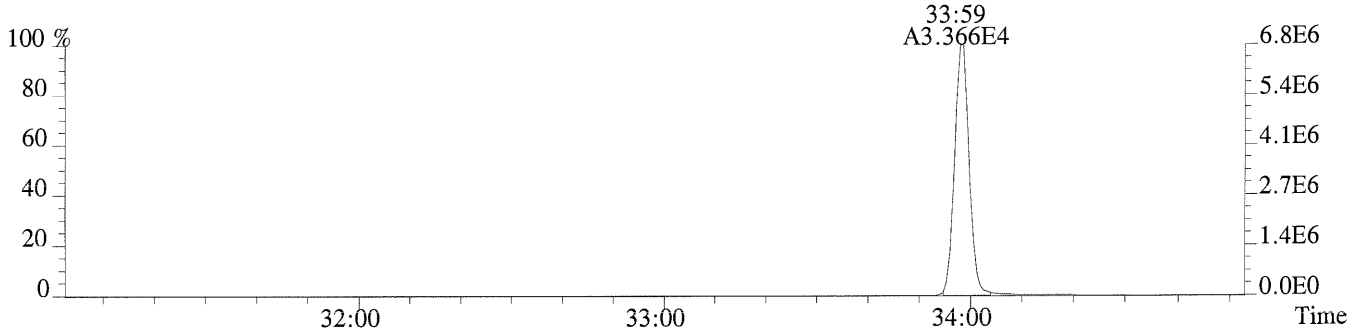
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



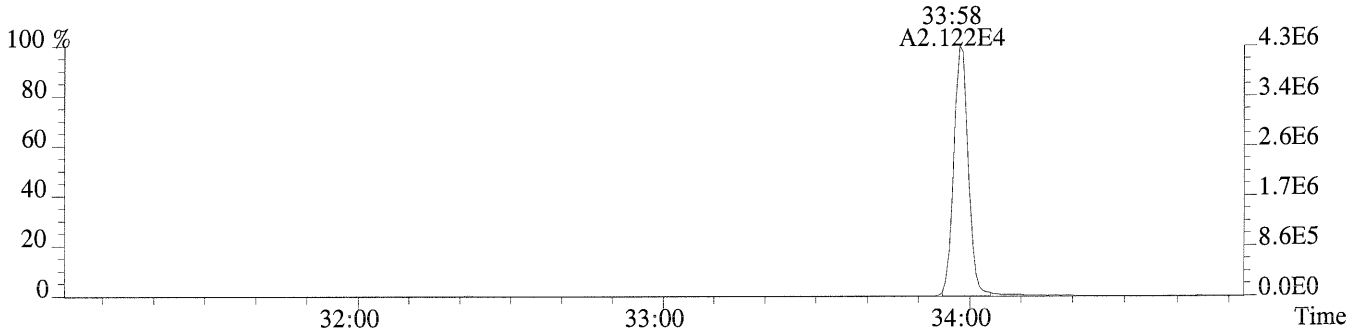
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



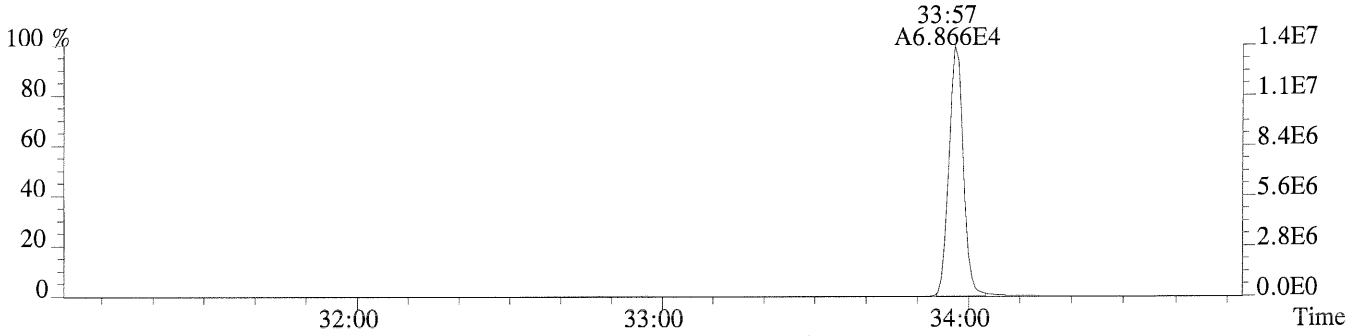
File:P229263 #1-349 Acq:26-MAY-2014 12:30:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3880.0,1.00%,F,T)



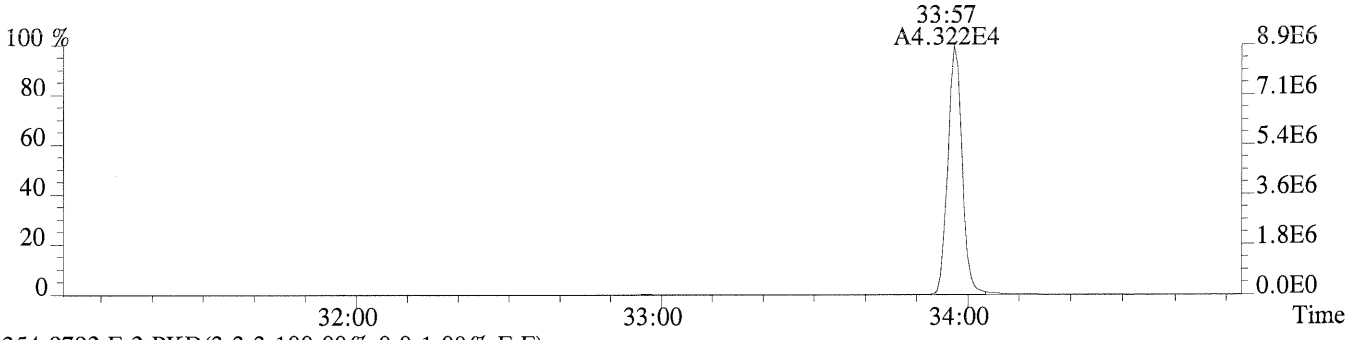
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2720.0,1.00%,F,T)



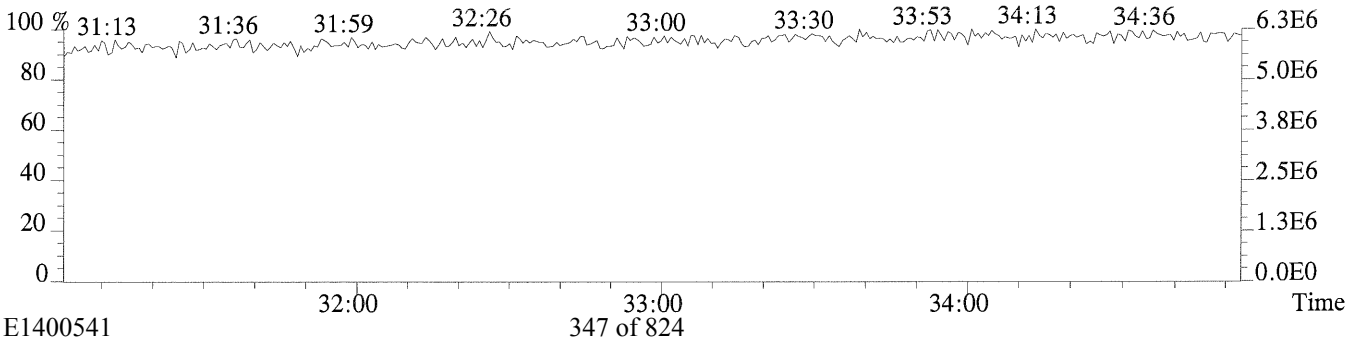
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)

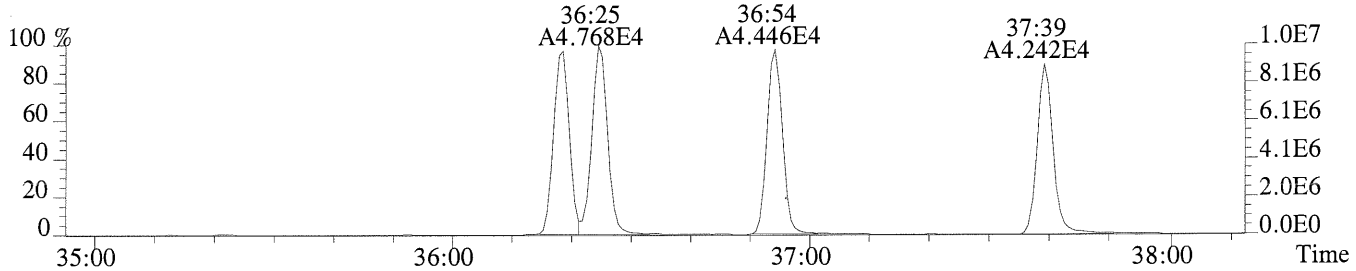


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

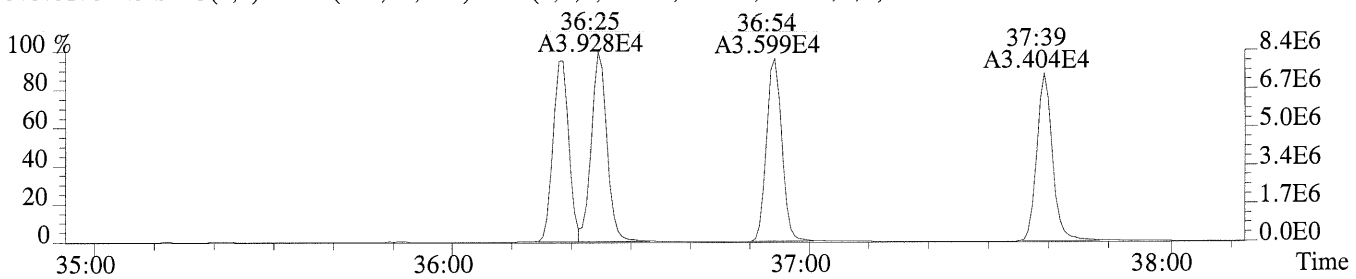


File:P229263 #1-299 Acq:26-MAY-2014 12:30:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

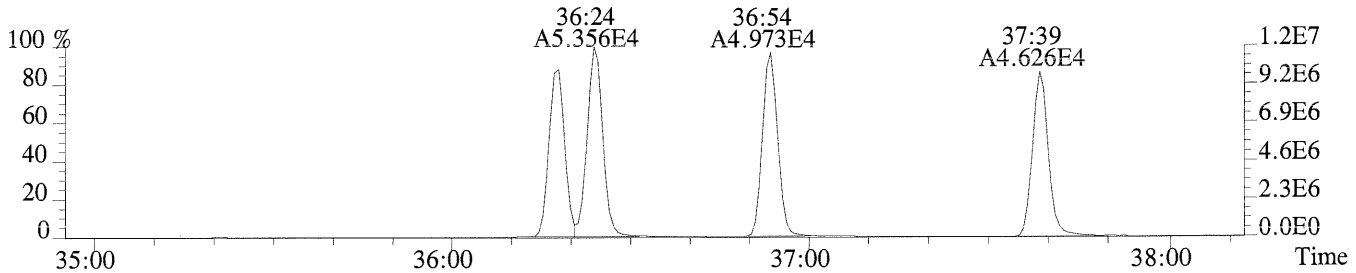
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8080.0,0.40%,F,T)



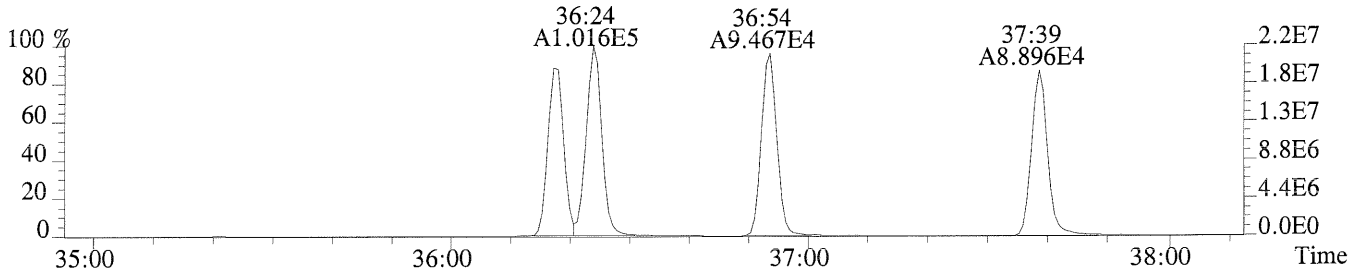
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9676.0,0.40%,F,T)



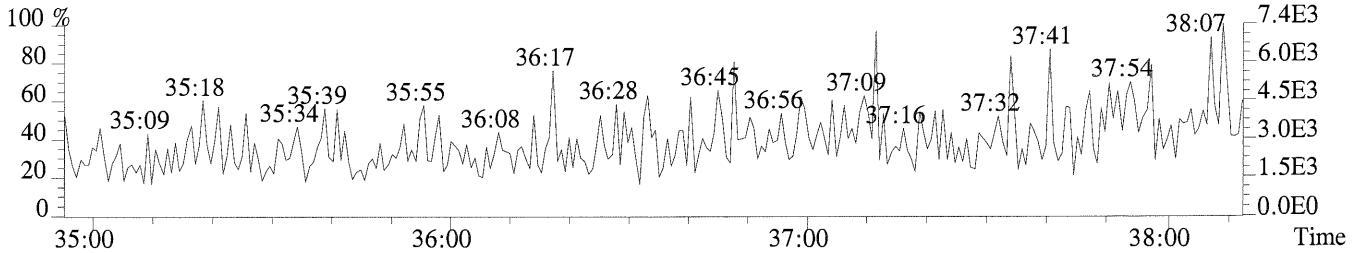
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1072.0,0.40%,F,T)



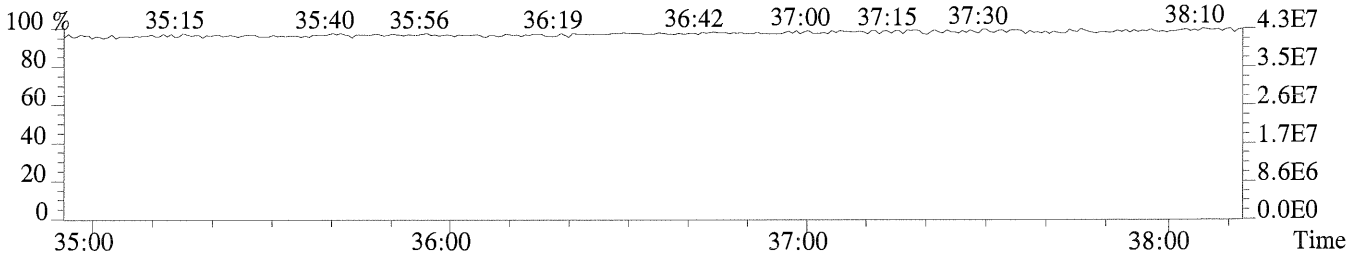
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4520.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

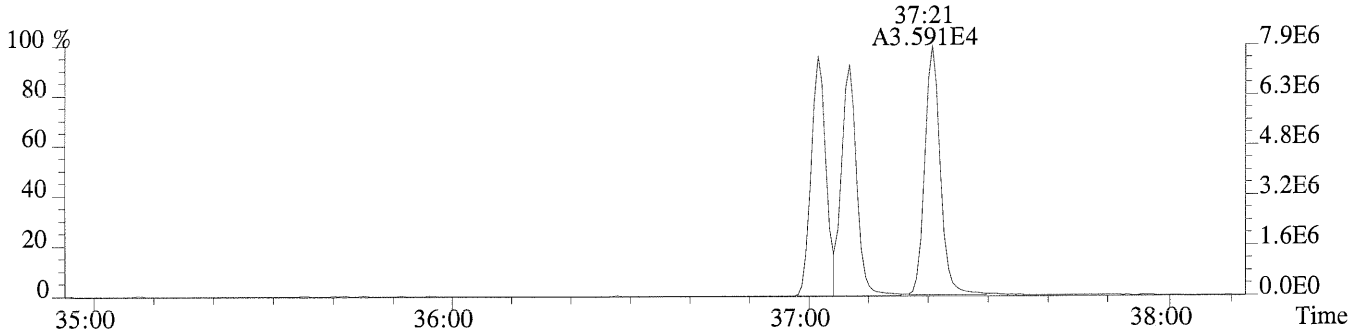


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

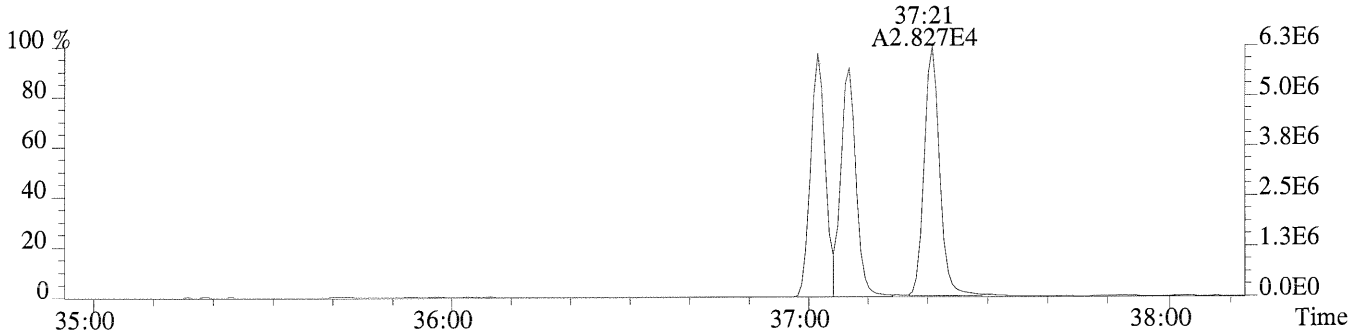


File:P229263 #1-299 Acq:26-MAY-2014 12:30:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

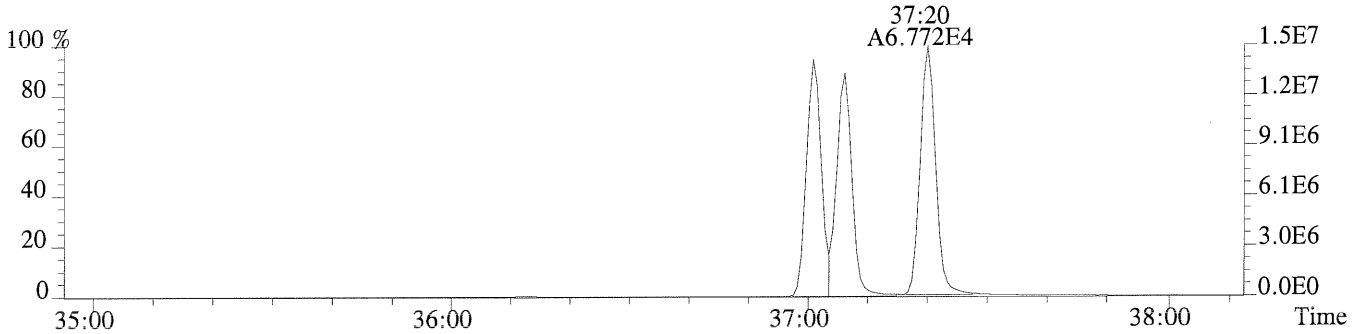
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9780.0,0.40%,F,T)



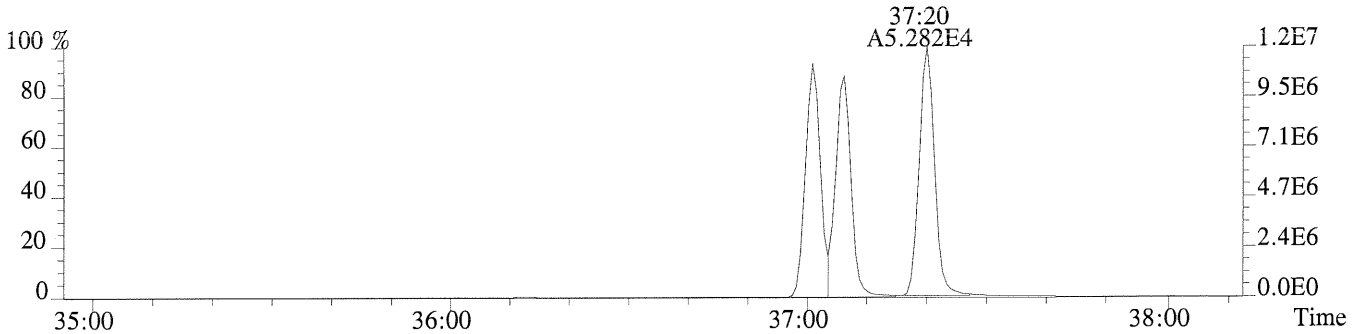
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7280.0,0.40%,F,T)



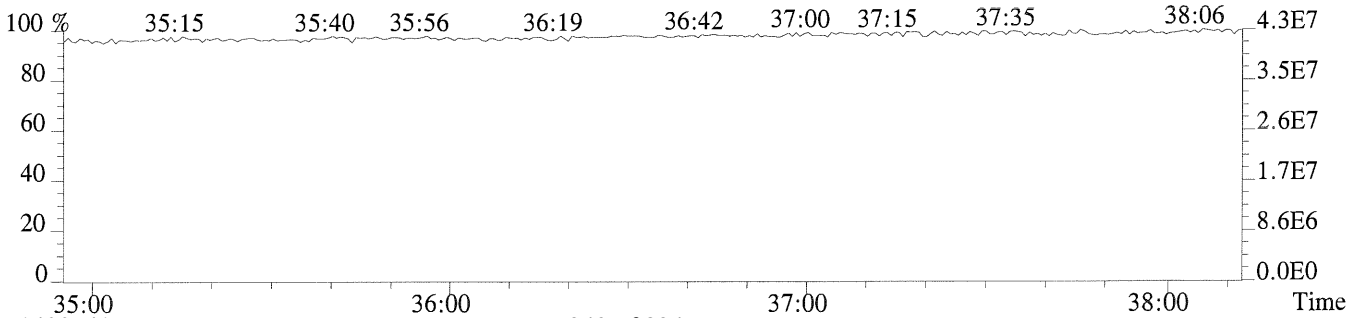
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3400.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2384.0,0.40%,F,T)

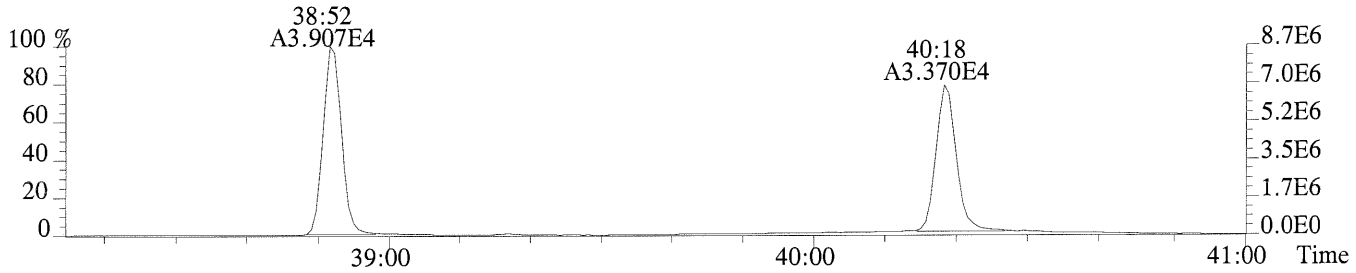


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

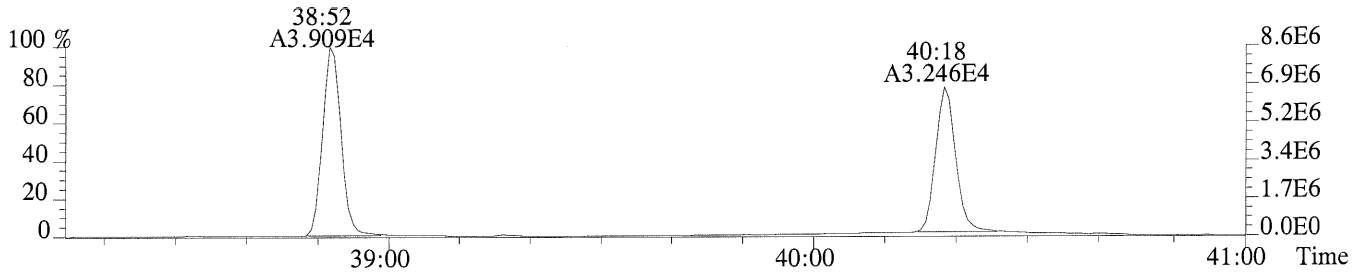


File:P229263 #1-251 Acq:26-MAY-2014 12:30:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

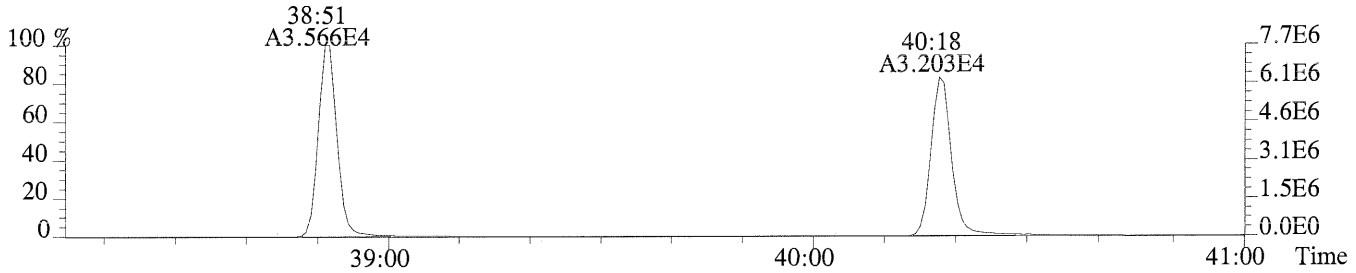
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,43540.0,0.50%,F,T)



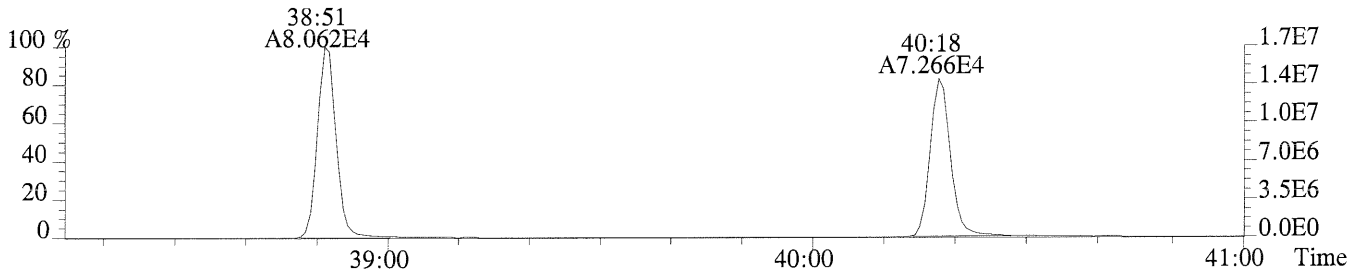
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,43180.0,0.50%,F,T)



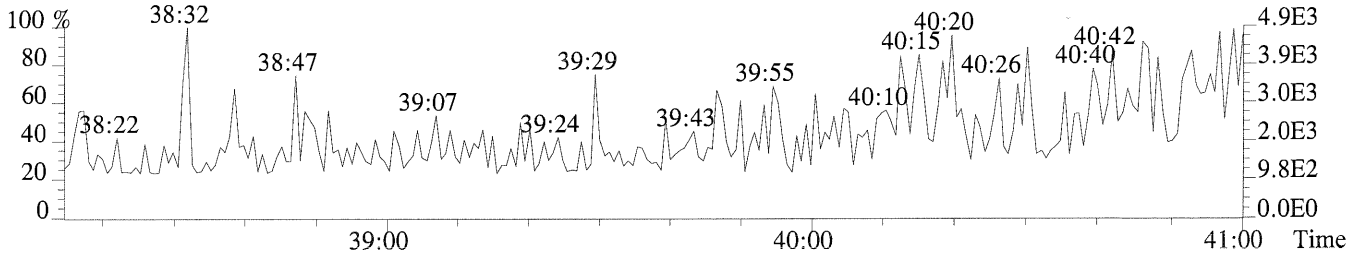
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2340.0,0.50%,F,T)



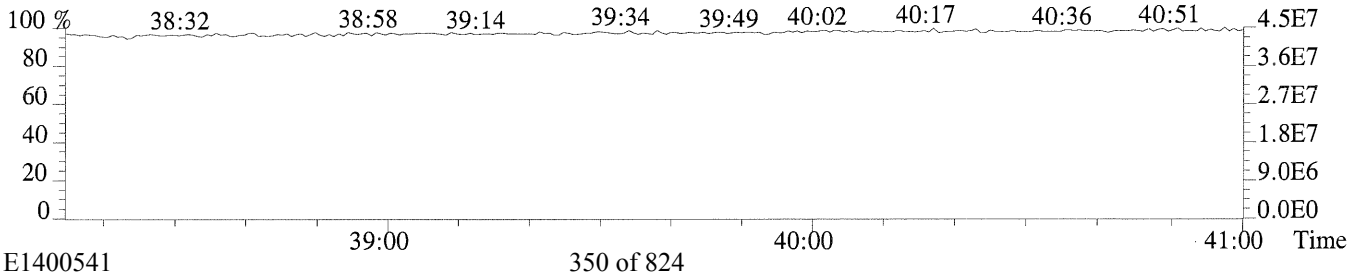
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20020.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

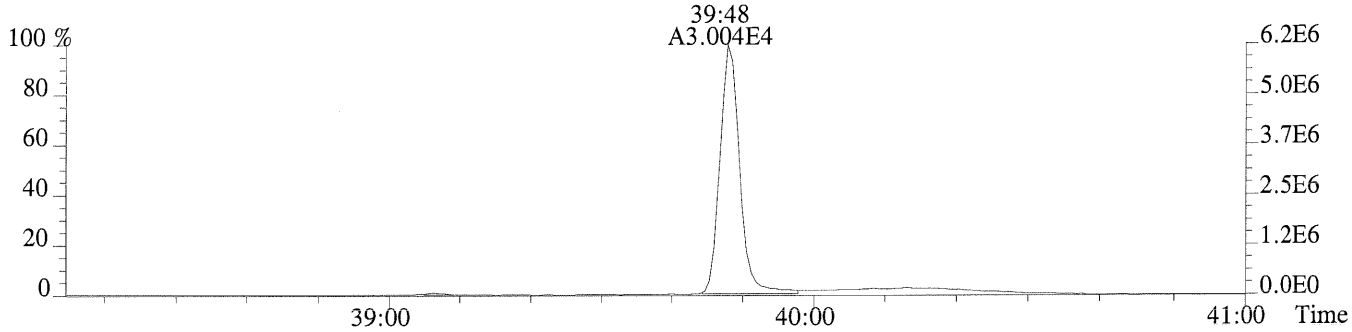


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

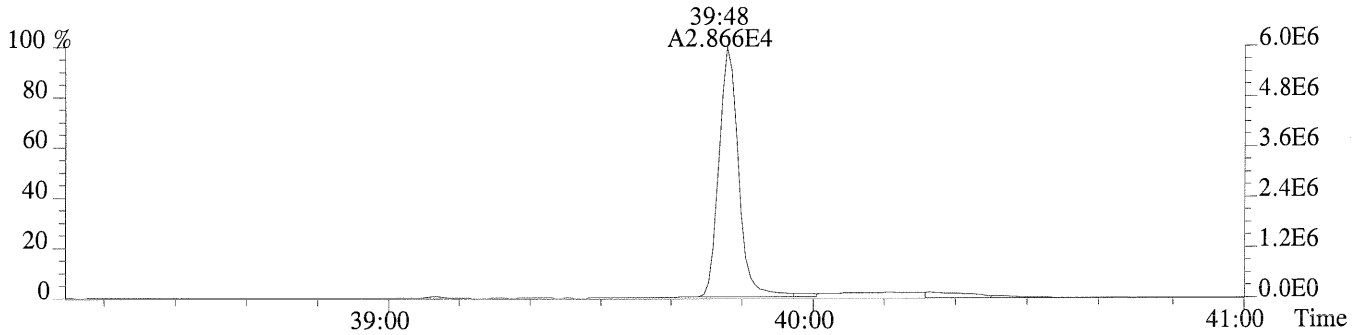


File:P229263 #1-251 Acq:26-MAY-2014 12:30:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

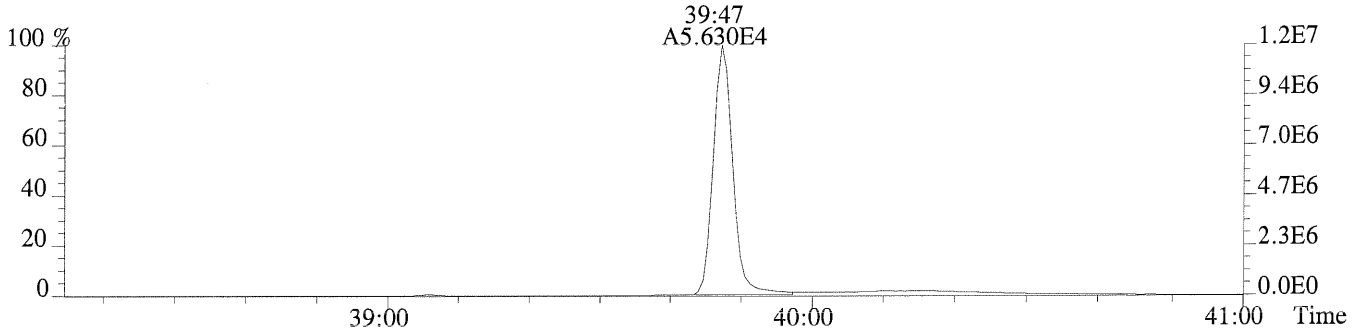
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,19688.0,0.40%,F,T)



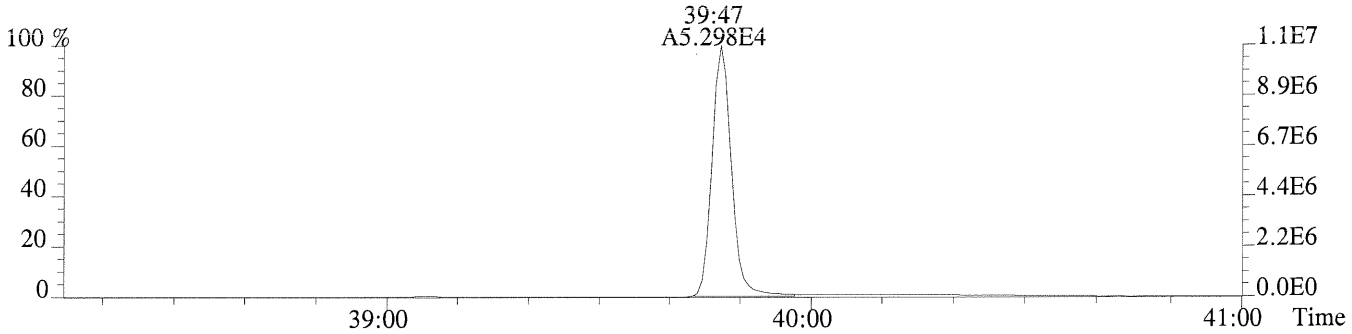
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16056.0,0.40%,F,T)



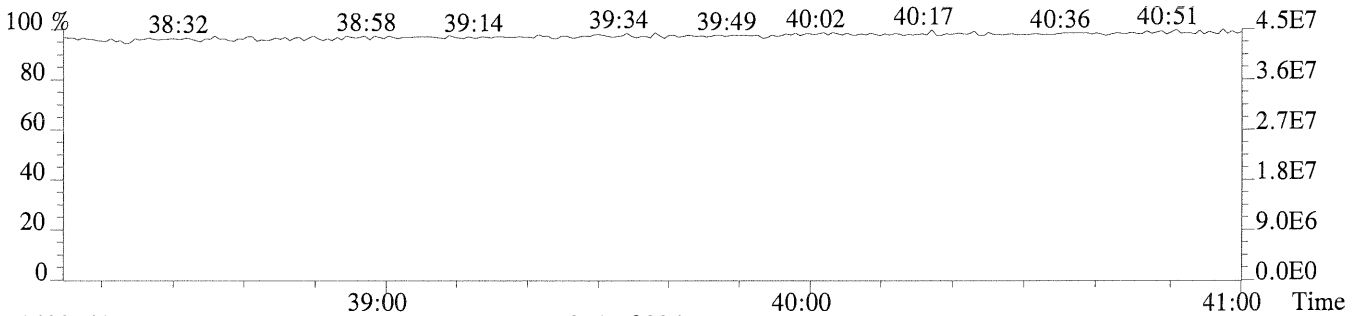
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8376.0,0.40%,F,T)



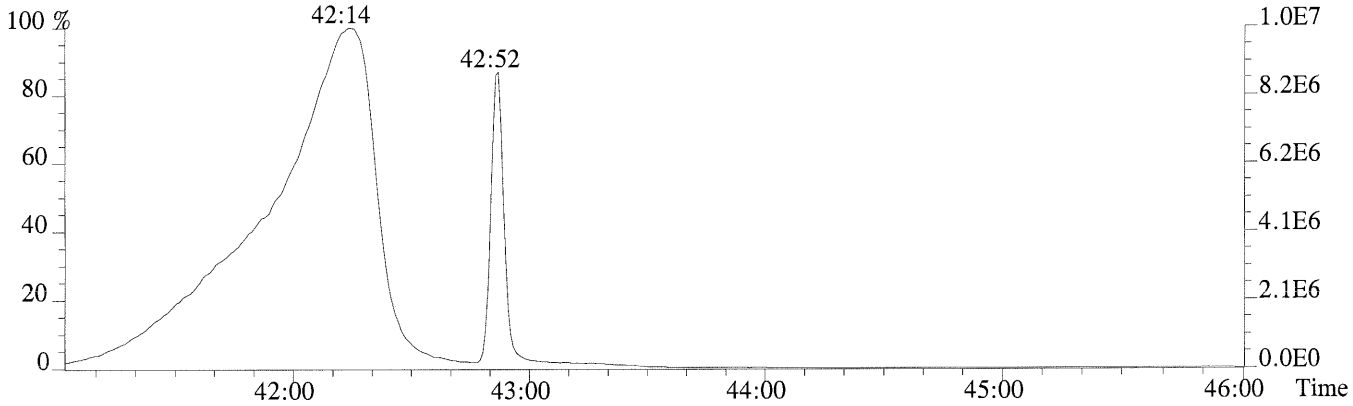
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6088.0,0.40%,F,T)



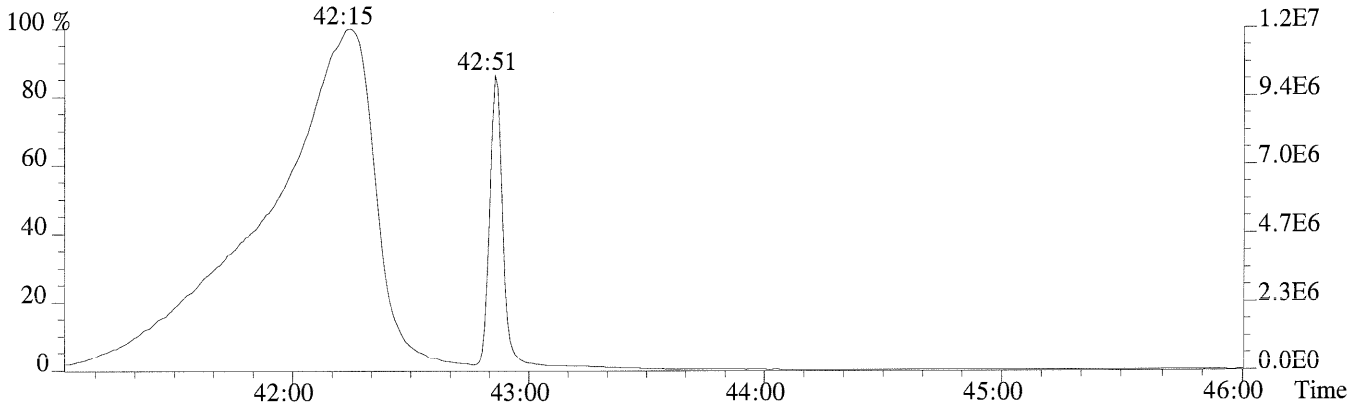
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



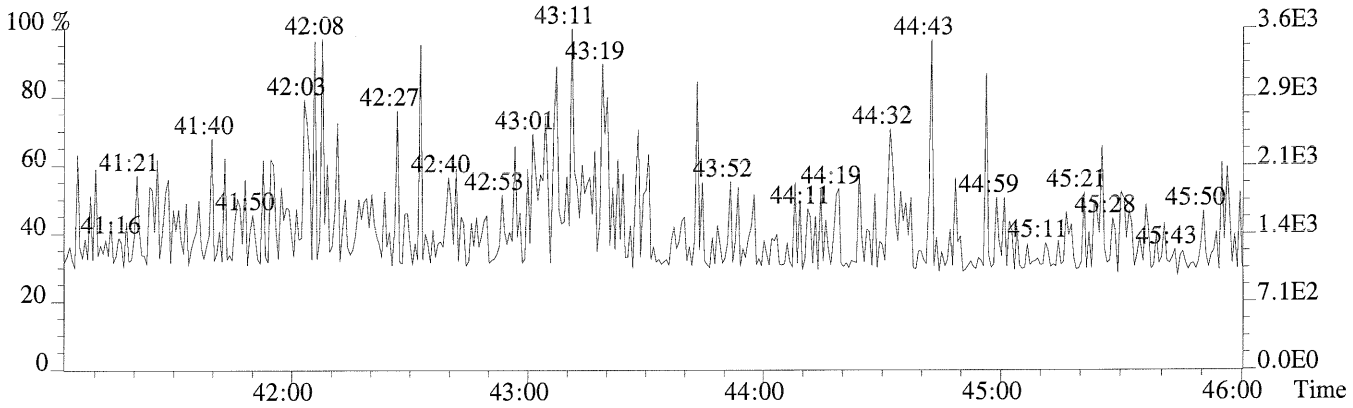
File:P229263 #1-457 Acq:26-MAY-2014 12:30:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,10699516.0,0.40%,F,T)



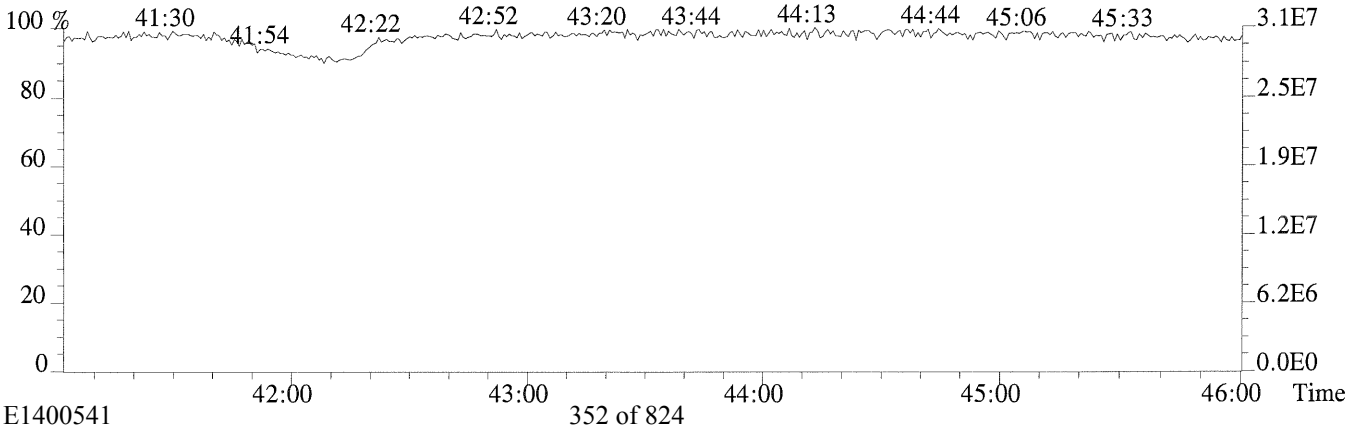
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,12085564.0,0.40%,F,T)



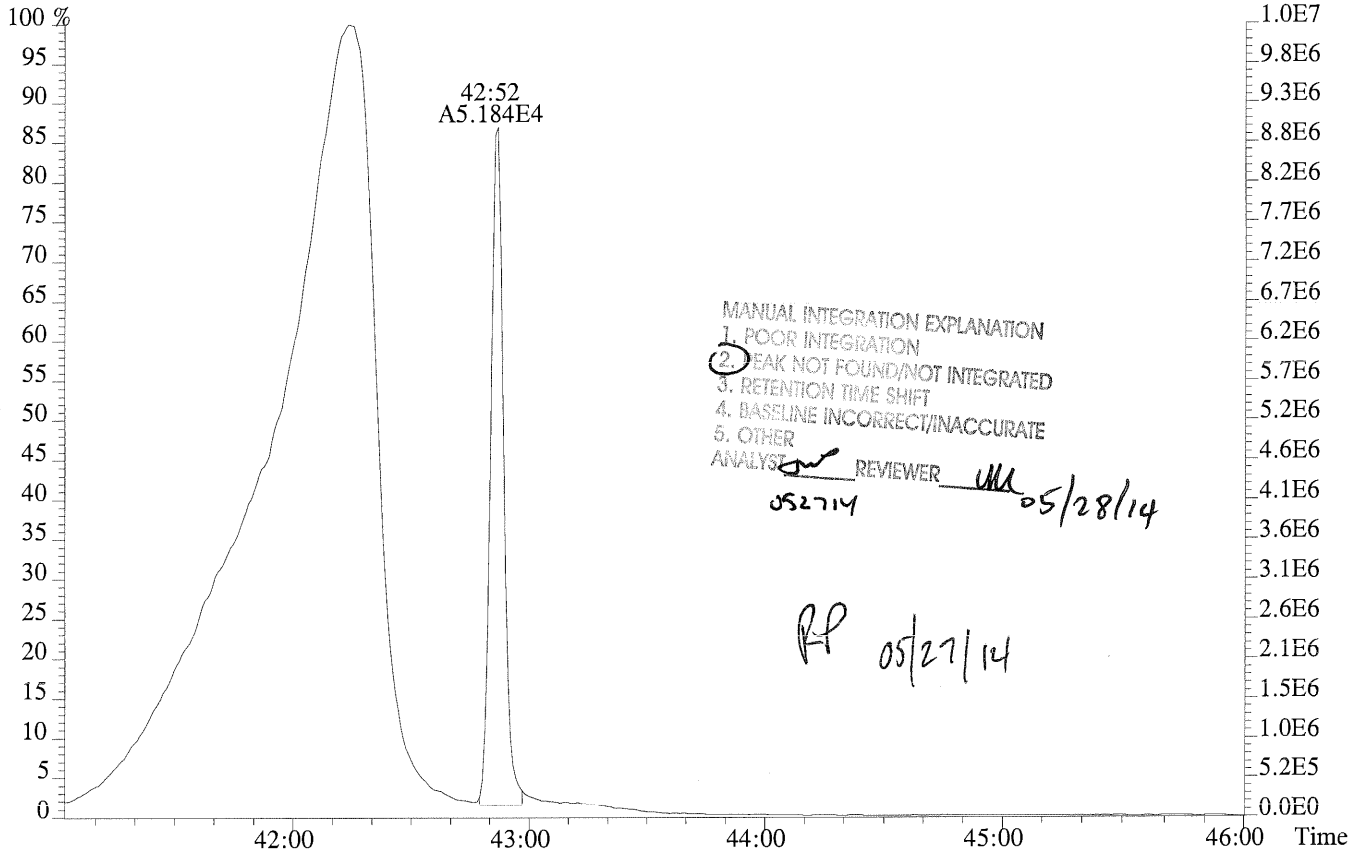
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



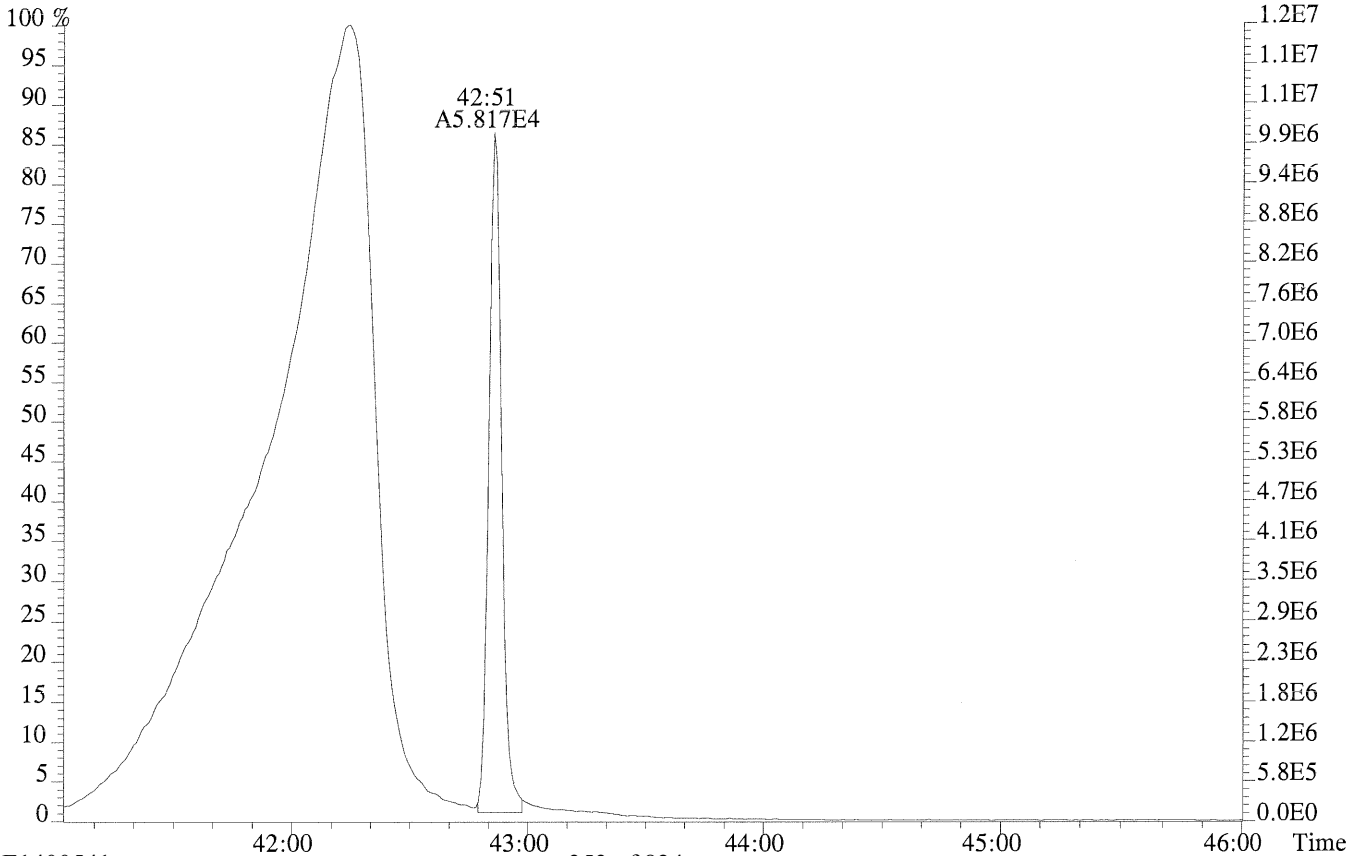
File:P229263 #1-457 Acq:26-MAY-2014 12:30:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,10699516.0,0.40%,F,T)



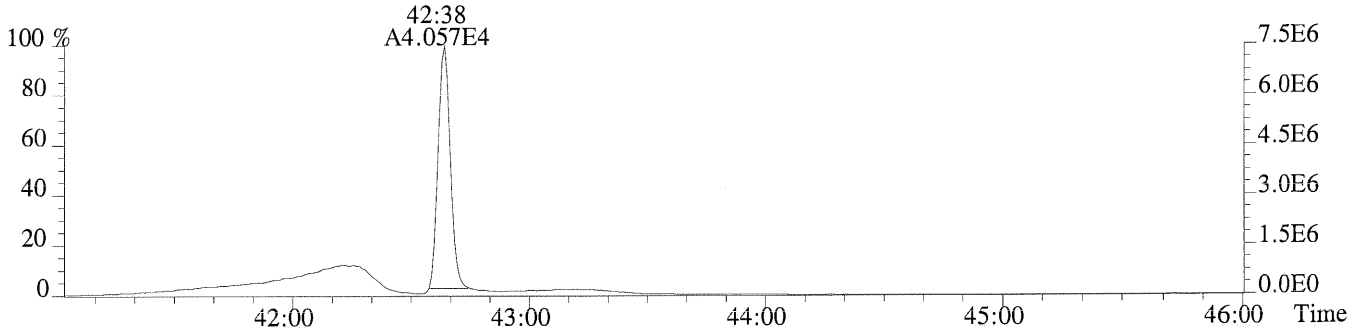
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST 052714 REVIEWER 05/28/14

RP 05/27/14

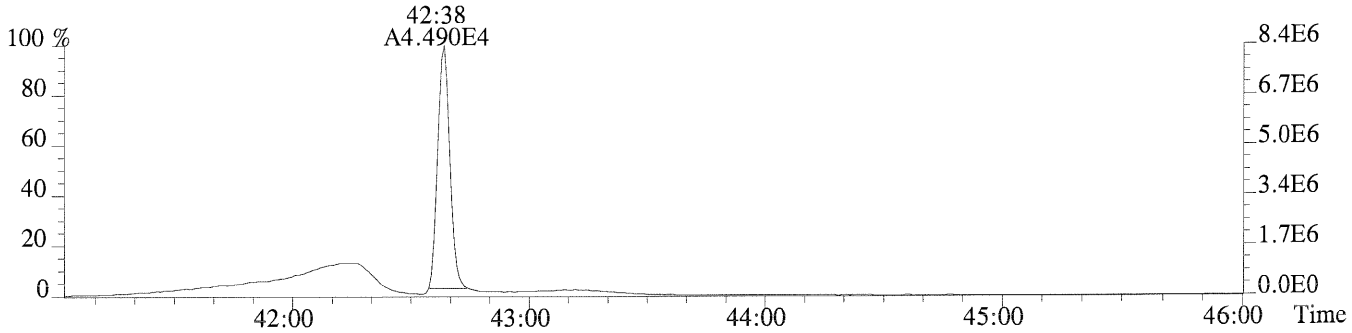
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,12085564.0,0.40%,F,T)



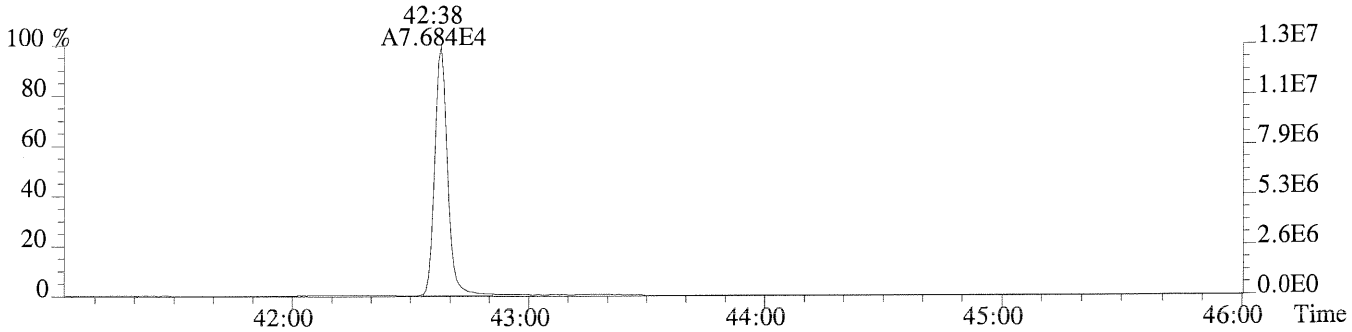
File:P229263 #1-457 Acq:26-MAY-2014 12:30:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,916864.0,0.40%,F,T)



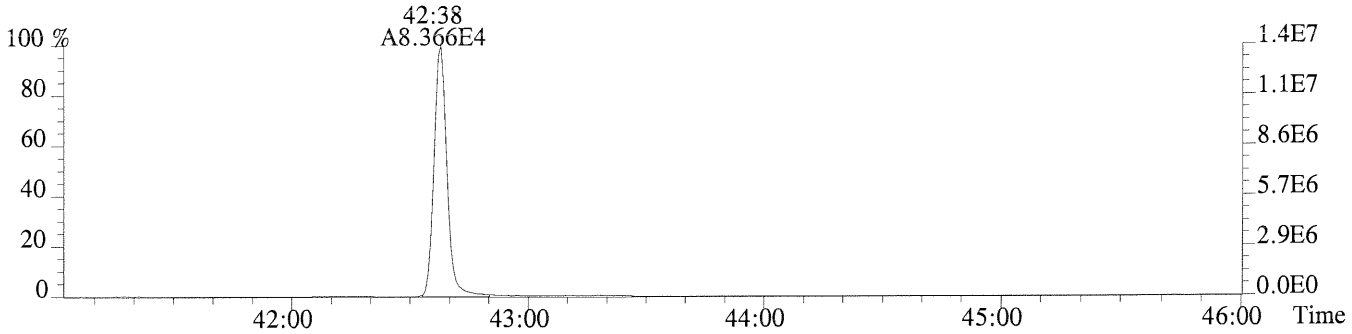
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1119284.0,0.40%,F,T)



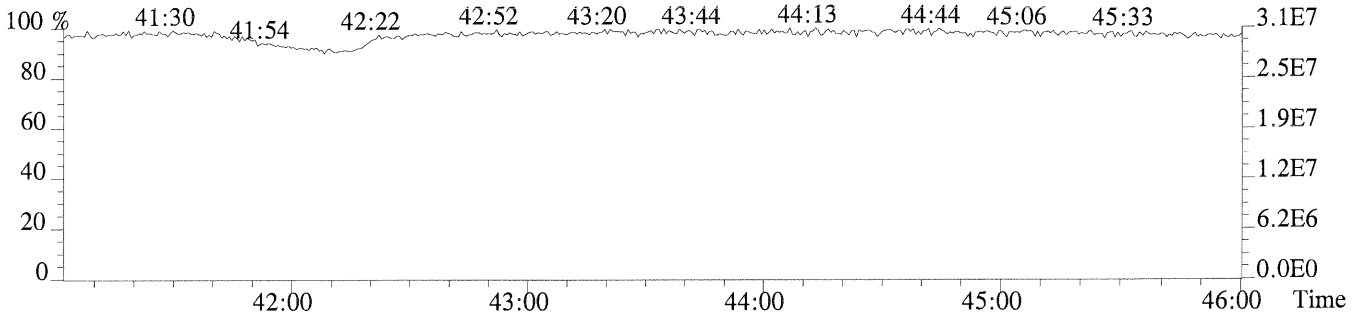
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,18560.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,18880.0,0.40%,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: P229277-P229290 Circle one: Beginning / Ending

Date: 05/26/14-05/27/14

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	✓	✓

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) Instrument ID: E-HRMS-04

Init. Calib. Date: 02/01/14

Init. Calib.Times: 15:24

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
63680	WINDOW DEFINE	P229278	27-MAY-14	00:28:15
66131	CCAL HRCC3/CS3	P229277	26-MAY-14	23:40:26
METHOD BLANK	EQ1400257-01	P229279	27-MAY-14	01:16:07
SO-79(0-3)	E1400528-003	P229280	27-MAY-14	02:03:59
SO-18(0-3)	E1400510-024	P229281	27-MAY-14	02:51:51
SO-19(0-3)	E1400510-026	P229282	27-MAY-14	03:39:42
SO-20(0-3)	E1400510-028	P229283	27-MAY-14	04:27:35
SO-201(0-3)	E1400510-030	P229284	27-MAY-14	05:15:26
SO-202(0-3)	E1400510-032	P229285	27-MAY-14	06:03:12
SO-204(0-3)	E1400510-034	P229286	27-MAY-14	06:51:04
SO-37(0-3)	E1400510-036	P229287	27-MAY-14	07:38:56
SO-47(0-3)	E1400510-038	P229288	27-MAY-14	08:26:41
LCS	EQ1400257-02	P229289	27-MAY-14	09:14:33
66131	CCAL HRCC3/CS3	P229290	27-MAY-14	10:02:24

Sample List Report

MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2140526B.SPL
Last Modified: Tuesday, May 27, 2014 11:29:39 Central Daylight Time
Printed: Tuesday, May 27, 2014 11:30:03 Central Daylight Time

Page Position (1, 1)

e: P229277res

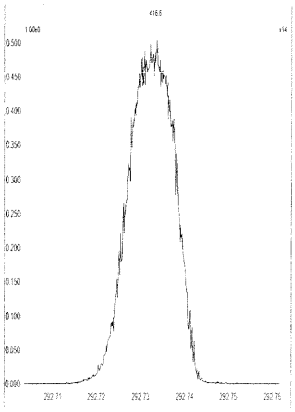
	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	05/26/14	23:40	P229277	CCAL HRCC3/CS3	66131		HRMS Check 10:01	8290CAS
2	05/27/14	00:28	P229278	WINDOW DEFINE	63680			8290CAS
3		01:16	P229279	EQ1400257-01 MB	MB			8290CAS
4		02:03	P229280	E1400528-003	E1400528-003			8290CAS
5		02:51	P229281	E1400510-024	E1400510-024			8290CAS
6		03:39	P229282	E1400510-026	E1400510-026			8290CAS
7		04:27	P229283	E1400510-028	E1400510-028			8290CAS
8		05:15	P229284	E1400510-030	E1400510-030			8290CAS
9		06:03	P229285	E1400510-032	E1400510-032			8290CAS
10		06:51	P229286	E1400510-034	E1400510-034			8290CAS
11		07:38	P229287	E1400510-036	E1400510-036			8290CAS
12		08:26	P229288	E1400510-038	E1400510-038			8290CAS
13		09:14	P229289	EQ1400257-02 LCS	LCS			8290CAS
14		10:02	P229290	CCAL HRCC3/CS3	66131		HRMS Check 10:53	8290CAS
15			---	---	---			8290CAS
16			---	---	---			8290CAS
17			---	---	---			8290CAS
18			---	---	---			8290CAS
19			---	---	---			8290CAS
20			---	---	---			8290CAS
21			---	---	---			8290CAS
22			---	---	---			8290CAS
23			---	---	---			8290CAS
24			---	---	---			8290CAS
25			---	---	---			8290CAS
26			---	---	---			8290CAS
27			---	---	---			8290CAS
28			---	---	---			TCDFCAS
29			---	---	---			TCDFCAS
30			---	---	---			8290CAS
31	---	---	---	---	---	---	---	8290CAS
32	---	---	---	---	REVIEWED BY:	---	---	8290CAS
33	---	---	---	---	---	---	---	8290CAS
34	---	---	---	---	---	---	---	8290CAS
35	---	---	---	---	---	---	---	TCDFCAS
36	---	---	---	---	---	---	---	TCDFCAS
37	---	---	---	---	051	---	---	TCDFCAS
38	---	---	---	---	---	---	---	---
39	---	---	---	---	---	---	---	8290CAS

05/28/14

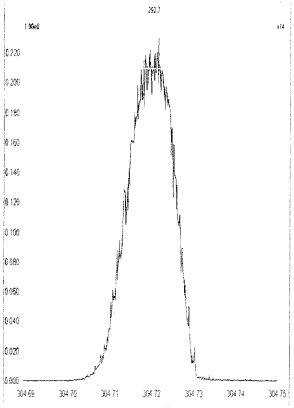
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Sunday, May 25, 2014 10:01:05 Central Daylight Time

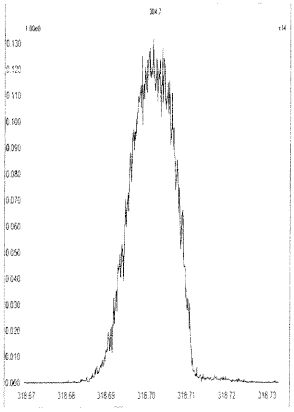
M 292.9824 R 13583



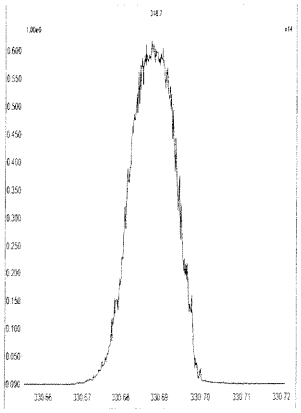
M 304.9824 R 13227



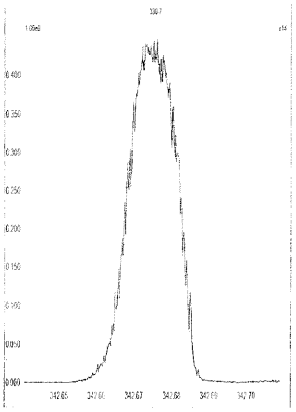
M 318.9792 R 14202



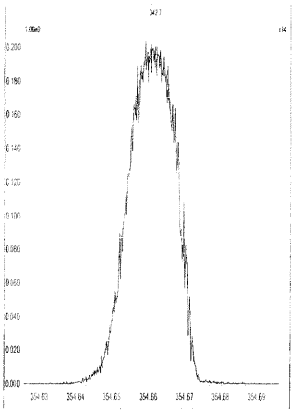
M 330.9792 R 13890



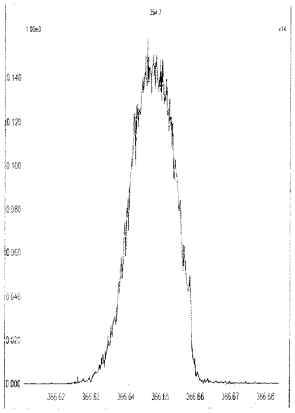
M 342.9792 R 13439



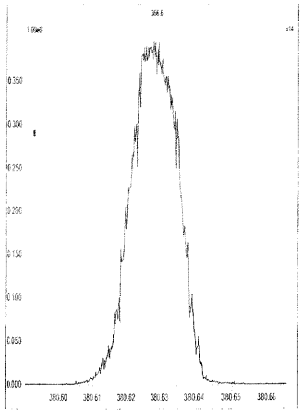
M 354.9792 R 13738



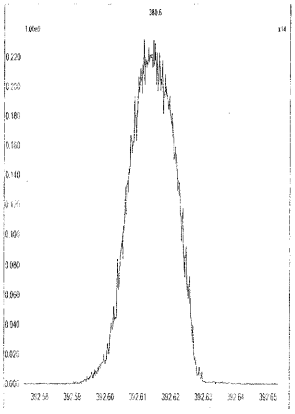
M 366.9792 R 13440



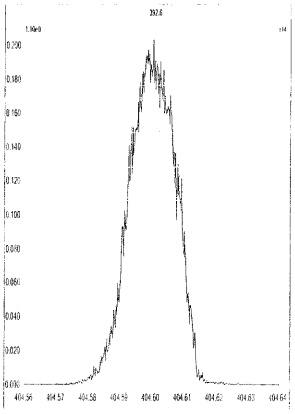
M 380.9760 R 13300



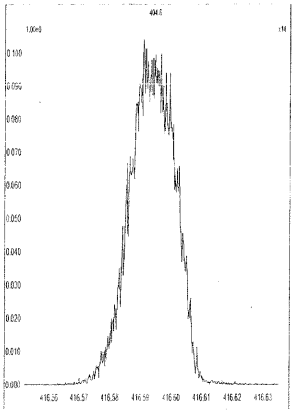
M 392.9760 R 13369



M 404.9760 R 13295



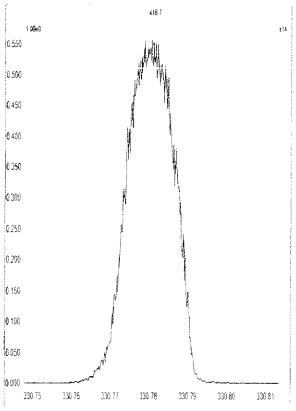
M 416.9760 R 13298



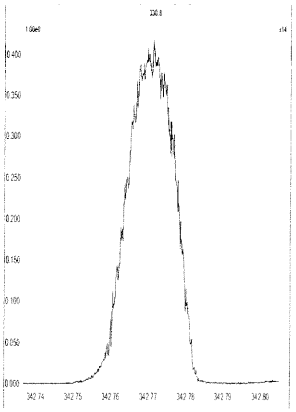
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Sunday, May 25, 2014 10:01:25 Central Daylight Time

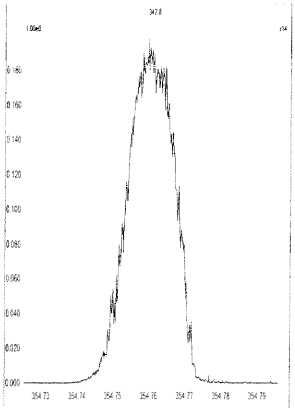
M 330.9792 R 13810



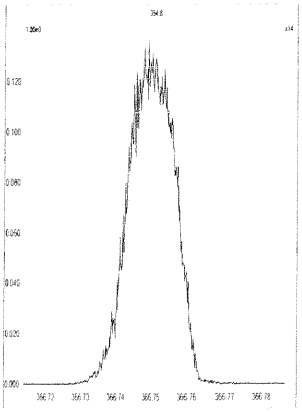
M 342.9792 R 13891



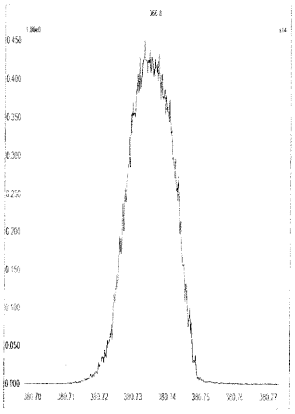
M 354.9792 R 13227



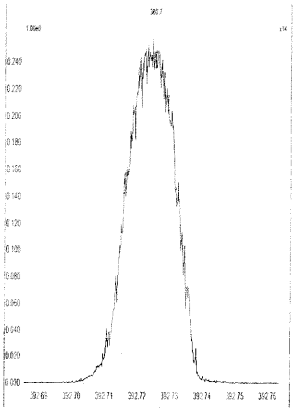
M 366.9792 R 14042



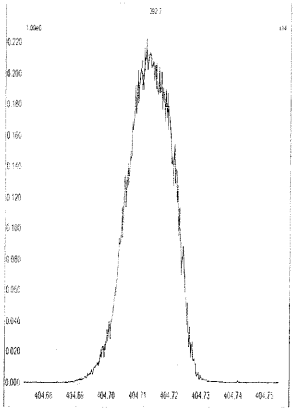
M 380.9760 R 13089



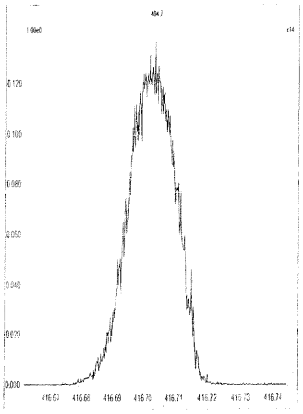
M 392.9760 R 13226



M 404.9760 R 12756



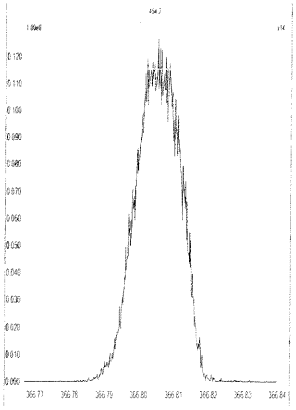
M 416.9760 R 13020



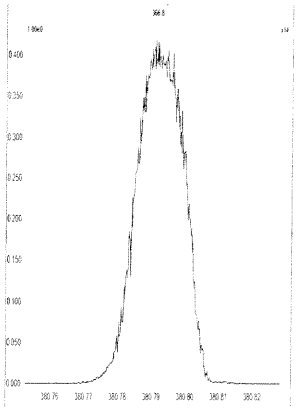
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Sunday, May 25, 2014 10:01:40 Central Daylight Time

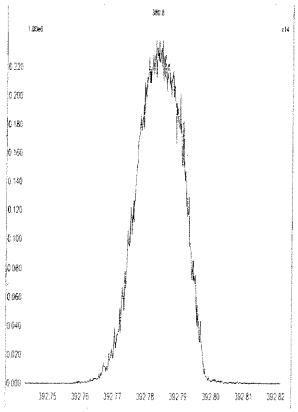
M 366.9792 R 13894



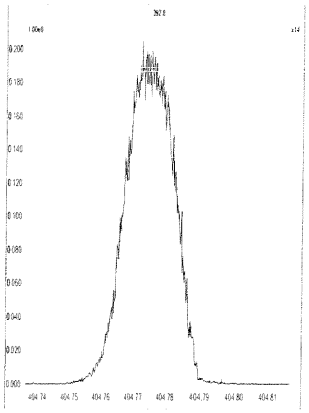
M 380.9760 R 13366



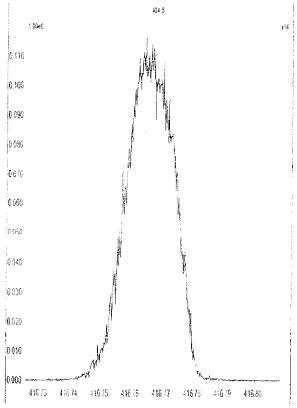
M 392.9760 R 13514



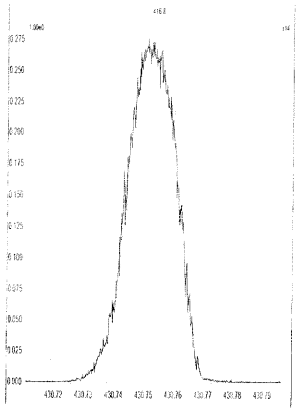
M 404.9760 R 12885



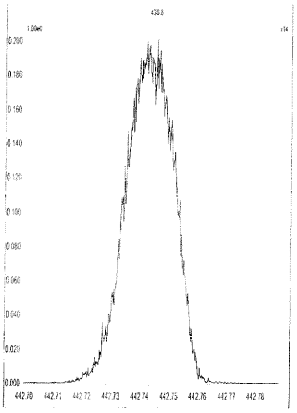
M 416.9760 R 13159



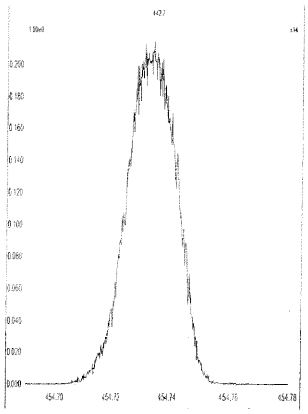
M 430.9728 R 12820



M 442.9728 R 12313



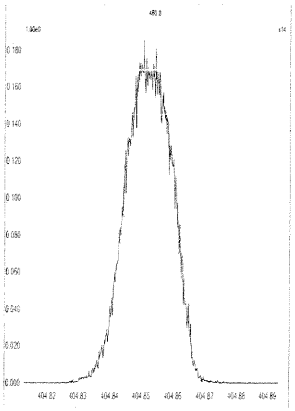
M 454.9728 R 12311



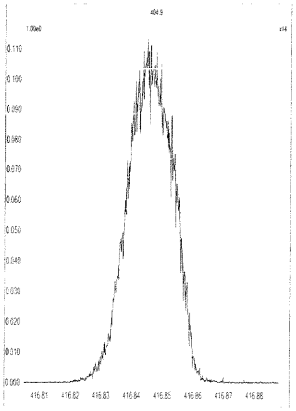
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Sunday, May 25, 2014 10:01:57 Central Daylight Time

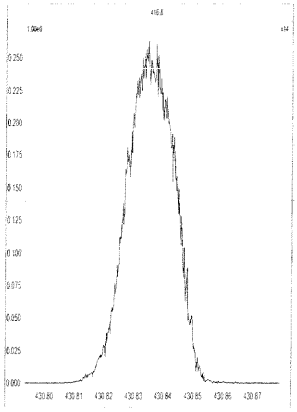
M 404.9760 R 13299



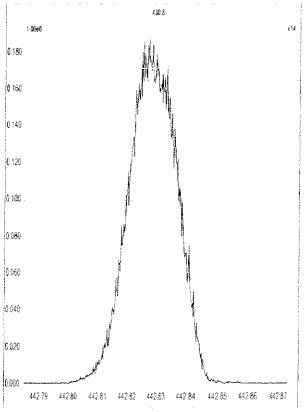
M 416.9760 R 13735



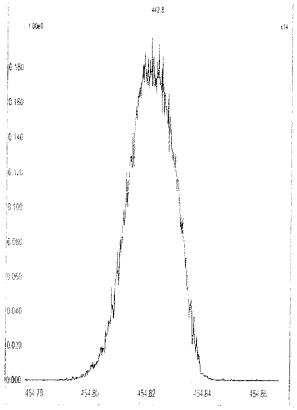
M 430.9728 R 12884



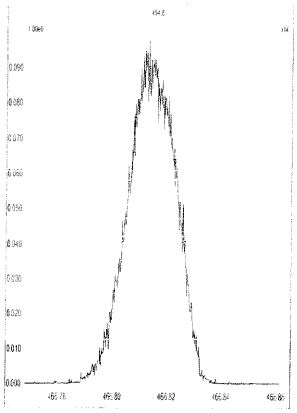
M 442.9728 R 12626



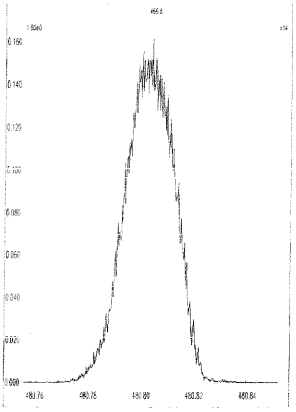
M 454.9728 R 12134



M 466.9728 R 12377



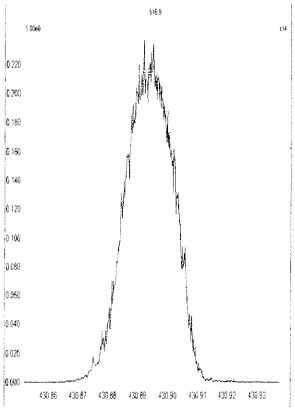
M 480.9696 R 11737



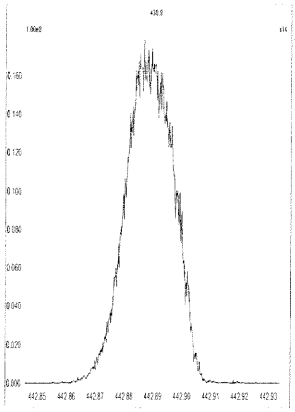
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Sunday, May 25, 2014 10:02:15 Central Daylight Time

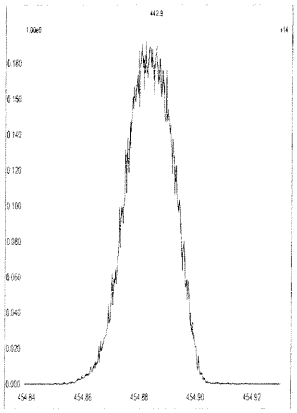
M 430.9728 R 12198



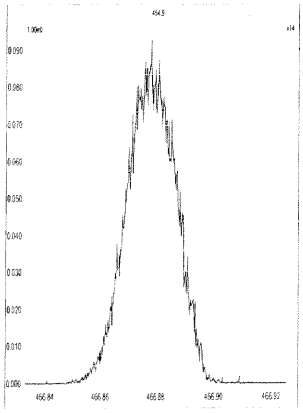
M 442.9728 R 12565



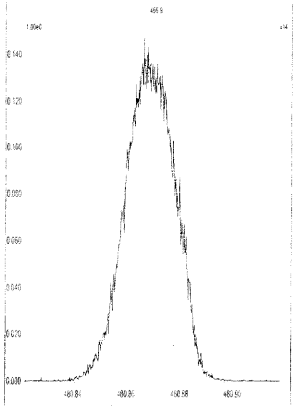
M 454.9728 R 12626



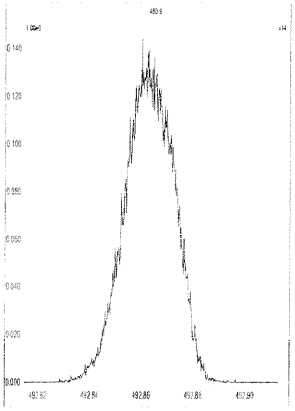
M 466.9728 R 12379



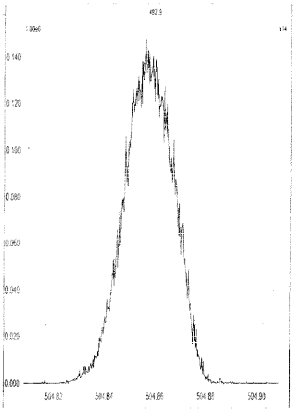
M 480.9696 R 11849



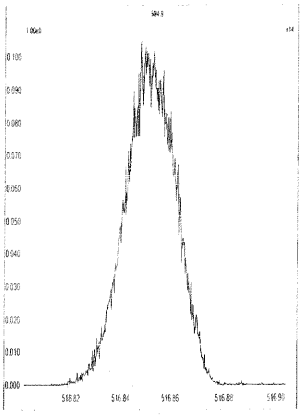
M 492.9696 R 11415



M 504.9696 R 11791



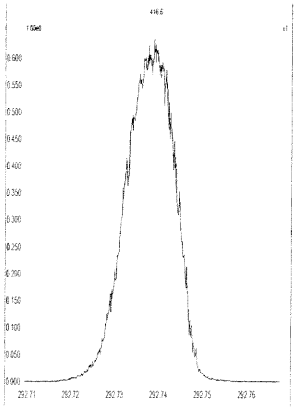
M 516.9697 R 11158



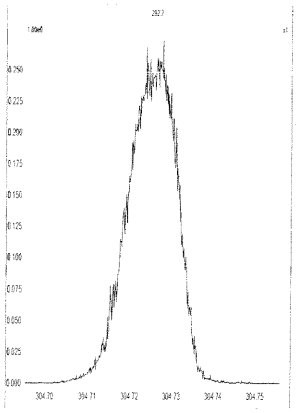
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, May 27, 2014 10:53:14 Central Daylight Time

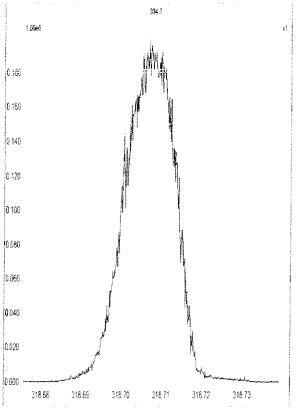
M 292.9824 R 12318



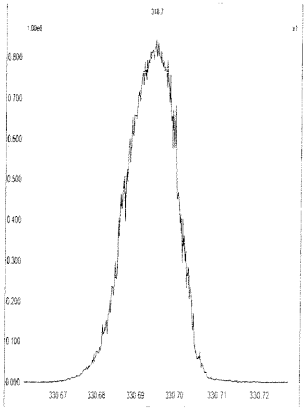
M 304.9824 R 12626



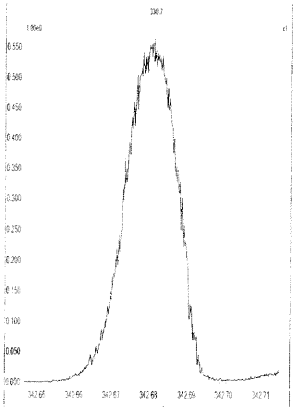
M 318.9792 R 12441



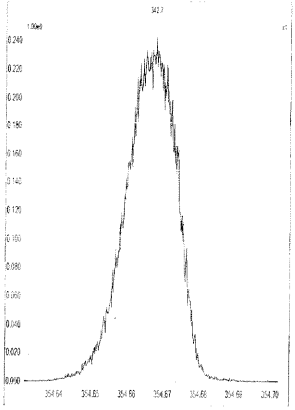
M 330.9792 R 11900



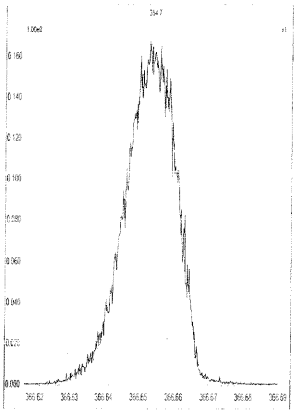
M 342.9792 R 11847



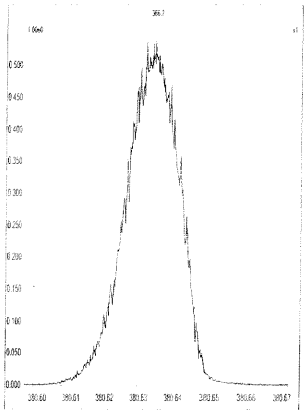
M 354.9792 R 11313



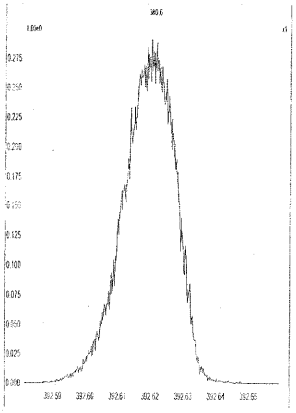
M 366.9792 R 11210



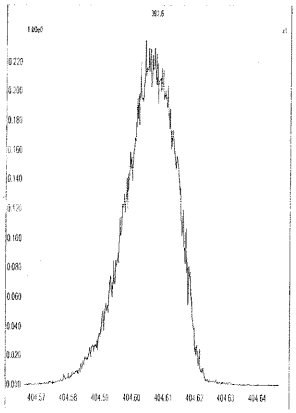
M 380.9760 R 11162



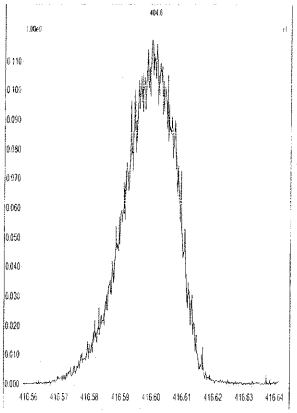
M 392.9760 R 11013



M 404.9760 R 10636



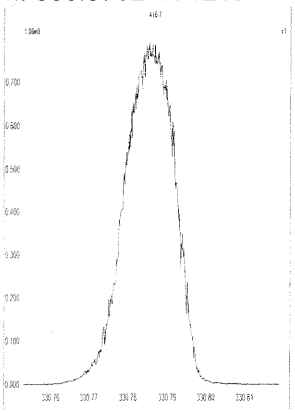
M 416.9760 R 10772



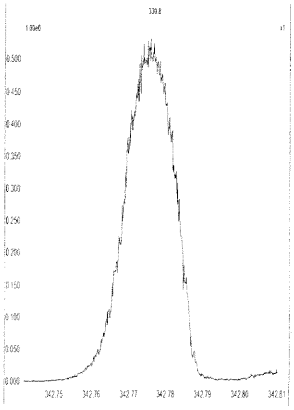
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, May 27, 2014 10:53:40 Central Daylight Time

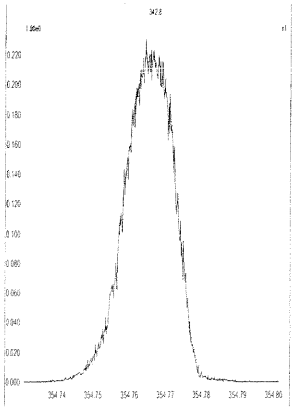
M 330.9792 R 12194



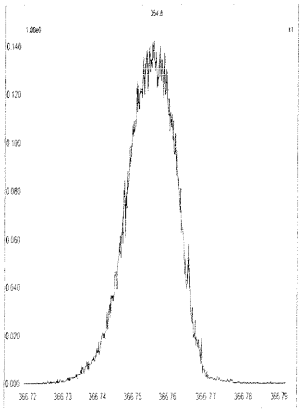
M 342.9792 R 12079



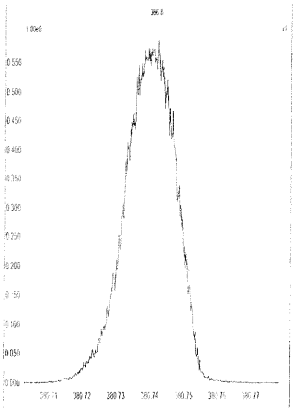
M 354.9792 R 11848



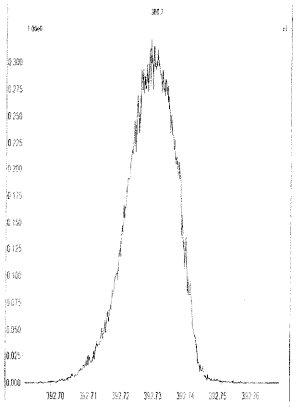
M 366.9792 R 11630



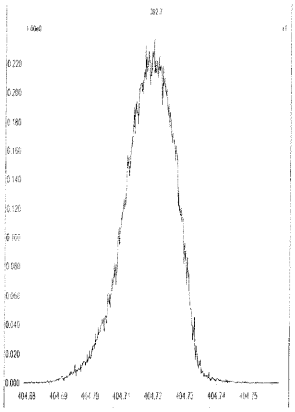
M 380.9760 R 11360



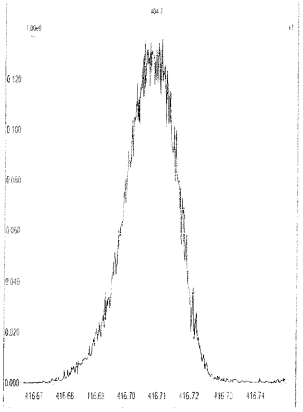
M 392.9760 R 11110



M 404.9760 R 10870



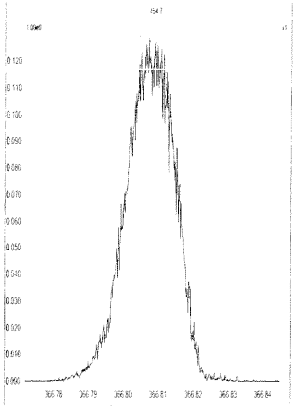
M 416.9760 R 10373



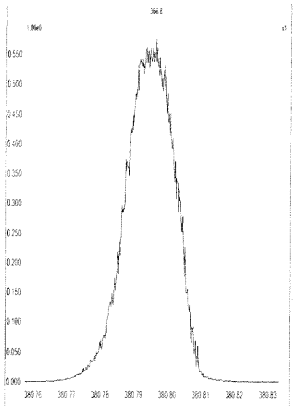
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, May 27, 2014 10:54:03 Central Daylight Time

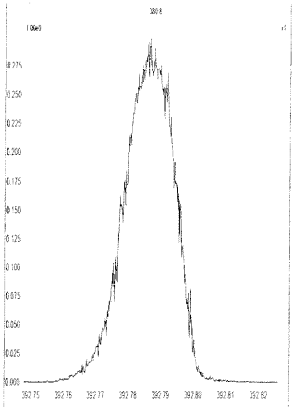
M 366.9792 R 11961



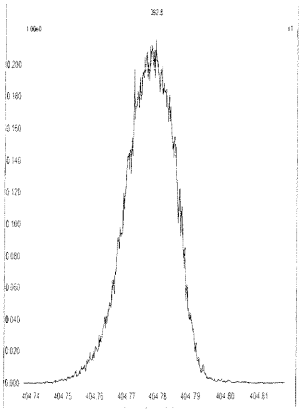
M 380.9760 R 12075



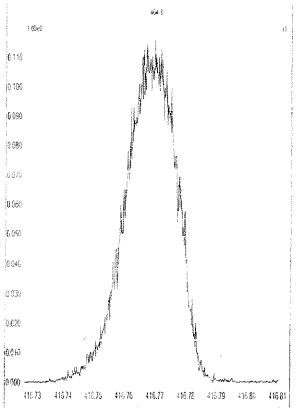
M 392.9760 R 11793



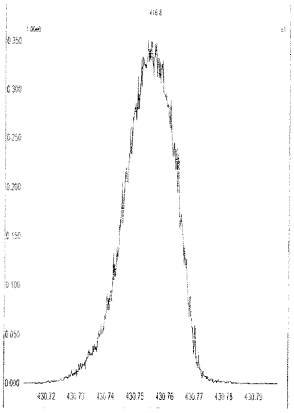
M 404.9760 R 11519



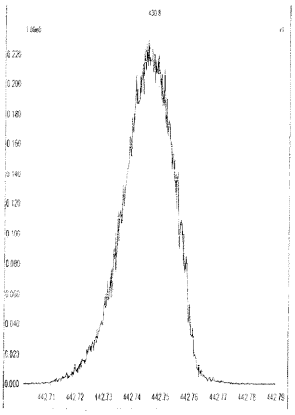
M 416.9760 R 11313



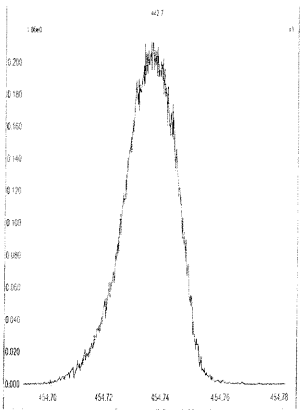
M 430.9728 R 11312



M 442.9728 R 10824



M 454.9728 R 10730



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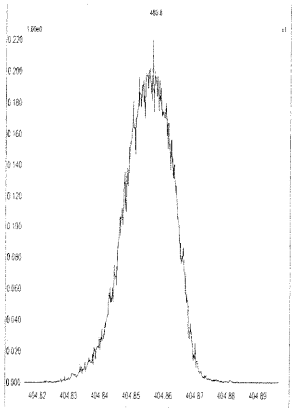
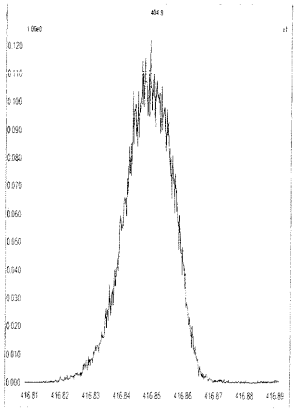
Printed: Tuesday, May 27, 2014 10:54:20 Central Daylight Time

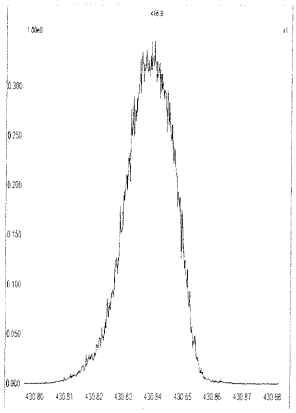
M 404.9760 R 11793



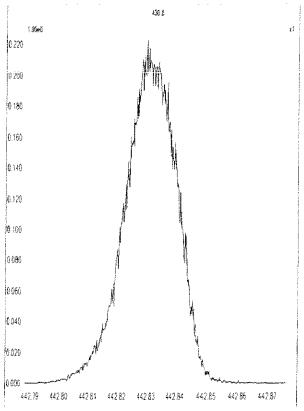
M 416.9760 R 11736



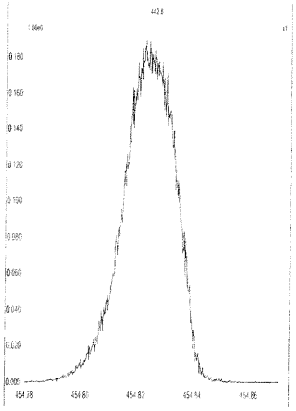
M 430.9728 R 11158



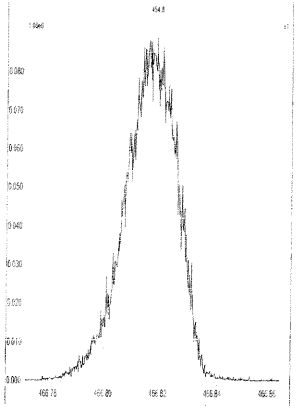
M 442.9728 R 10870



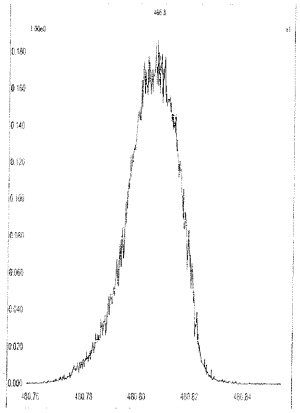
M 454.9728 R 10915



M 466.9728 R 10776



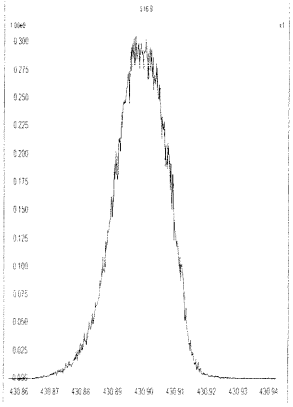
M 480.9696 R 10416



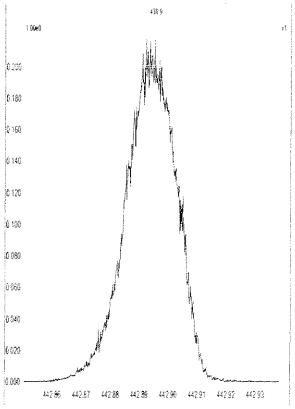
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, May 27, 2014 10:54:38 Central Daylight Time

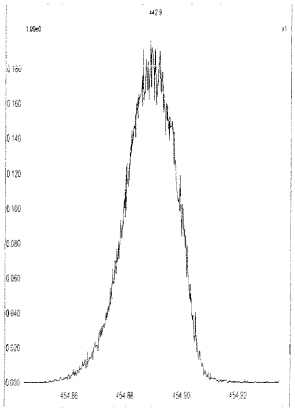
M 430.9728 R 11160



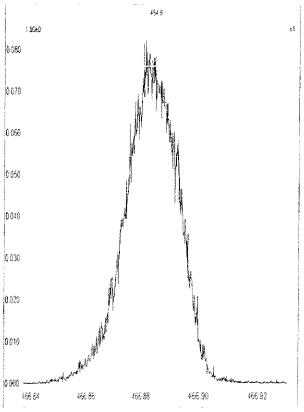
M 442.9728 R 11212



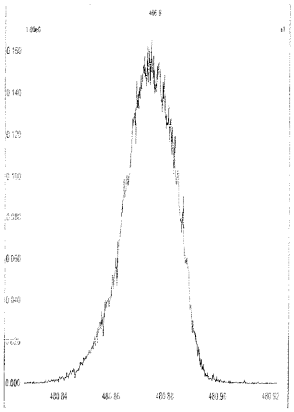
M 454.9728 R 11261



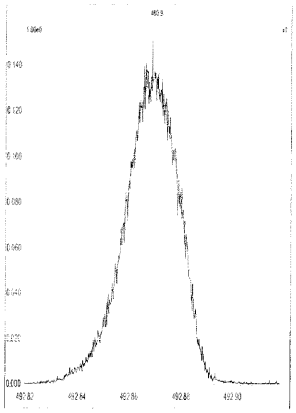
M 466.9728 R 10774



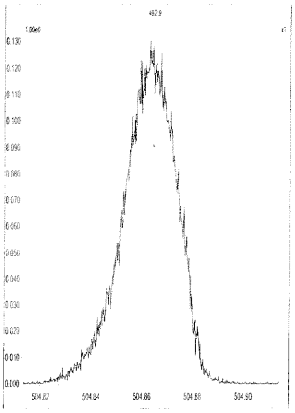
M 480.9696 R 10591



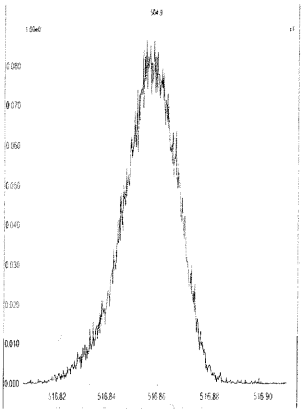
M 492.9696 R 10460



M 504.9696 R 10637



M 516.9697 R 10597



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 | GC Column ID: DB-5MSUI

VER Data Filename: P229277 | Analysis Date: 26-MAY-14 Time: 23:40:26

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.7	7.8 - 12.9	-2.9
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	46	39 - 65	-7.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	44	39 - 64	-11.4
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	47	39 - 64	-6.7
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	47	41 - 61	-6.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	45	43 - 58	-9.7
OCDD	M+2/M+4	0.90	0.76-1.02	91	79 - 126	-8.9
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	8.5	8.4 - 12.0	-15.4
1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	45	41 - 60	-10.2
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	43	41 - 61	-13.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	45	45 - 56	-10.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	46	44 - 57	-8.7
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	45	45 - 56	-10.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	45	44 - 57	-9.7
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	47	45 - 55	-5.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	46	43 - 58	-8.5
OCDF	M+2/M+4	0.90	0.76-1.02	80	63 - 159	-19.8

(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) The beginning CCAL %D 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

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 GC Column ID: DB-5MSUI

VER Data Filename: P229277 Analysis Date: 26-MAY-14 Time: 23:40:26

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	108	82 - 121	8.0
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	118	62 - 160	17.5
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	98	85 - 117	-2.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	92	85 - 118	-8.2
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	90	72 - 138	-9.5
13C-OCDD	M+2/M+4	0.91	0.76-1.02	179	96 - 415	-10.6
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	103	71 - 140	2.6
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	101	76 - 130	1.5
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	106	77 - 130	5.6
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	80	76 - 131	-20.4
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	78	70 - 143	-21.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	90	74 - 135	-9.7
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	84	73 - 137	-16.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	77	78 - 129	-23.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	82	77 - 129	-18.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				11.0	7.8 - 12.7	10.2

(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.
(5) The beginnning CCAL %D 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)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66131

Run #7 Filename P229277 Samp: 1 Inj: 1 Acquired: 26-MAY-14 23:40:26
Processed: 28-MAY-14 07:38:33 Sample ID: CCAL HRCC3/CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:46	7.539e+03	9.843e+03	0.77	yes	no	1.127
2	Unk	1,2,3,7,8-PeCDF	32:49	7.407e+04	4.827e+04	1.53	yes	no	1.123
3	Unk	2,3,4,7,8-PeCDF	33:41	7.006e+04	4.570e+04	1.53	yes	no	1.101
4	Unk	1,2,3,4,7,8-HxCDF	36:17	6.651e+04	5.418e+04	1.23	yes	no	1.338
5	Unk	1,2,3,6,7,8-HxCDF	36:24	7.094e+04	5.744e+04	1.24	yes	no	1.234
6	Unk	2,3,4,6,7,8-HxCDF	36:54	6.575e+04	5.378e+04	1.22	yes	no	1.233
7	Unk	1,2,3,7,8,9-HxCDF	37:39	6.270e+04	5.044e+04	1.24	yes	no	1.269
8	Unk	1,2,3,4,6,7,8-HpCDF	38:51	5.541e+04	5.433e+04	1.02	yes	no	1.421
9	Unk	1,2,3,4,7,8,9-HpCDF	40:18	4.640e+04	4.513e+04	1.03	yes	no	1.381
10	Unk	OCDF	42:51	7.063e+04	7.809e+04	0.90	yes	no	1.703
11	Unk	2,3,7,8-TCDD	29:31	5.750e+03	7.387e+03	0.78	yes	no	1.053
12	Unk	1,2,3,7,8-PeCDD	33:57	5.074e+04	3.196e+04	1.59	yes	no	1.069
13	Unk	1,2,3,4,7,8-HxCDD	37:01	4.888e+04	3.857e+04	1.27	yes	no	1.223
14	Unk	1,2,3,6,7,8-HxCDD	37:06	4.883e+04	3.847e+04	1.27	yes	no	1.168
15	Unk	1,2,3,7,8,9-HxCDD	37:20	5.190e+04	4.135e+04	1.26	yes	no	1.236
16	Unk	1,2,3,4,6,7,8-HpCDD	39:47	4.054e+04	3.869e+04	1.05	yes	no	1.170
17	Unk	OCDD	42:37	6.045e+04	6.731e+04	0.90	yes	no	1.288
18	IS	13C-2,3,7,8-TCDF	28:45	8.055e+04	1.018e+05	0.79	yes	no	1.389
19	IS	13C-1,2,3,7,8-PeCDF	32:47	1.487e+05	9.376e+04	1.59	yes	no	1.865
20	IS	13C-2,3,4,7,8-PeCDF	33:41	1.501e+05	9.382e+04	1.60	yes	no	1.804
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	6.881e+04	1.317e+05	0.52	yes	no	1.421
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	7.842e+04	1.495e+05	0.52	yes	no	1.639
23	IS	13C-2,3,4,6,7,8-HxCDF	36:53	7.411e+04	1.407e+05	0.53	yes	no	1.444
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	6.824e+04	1.305e+05	0.52	yes	no	1.241
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	5.030e+04	1.127e+05	0.45	yes	no	1.198
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:17	4.450e+04	1.003e+05	0.44	yes	no	0.997
27	IS	13C-2,3,7,8-TCDD	29:30	5.634e+04	7.222e+04	0.78	yes	no	0.930
28	IS	13C-1,2,3,7,8-PeCDD	33:57	1.024e+05	6.417e+04	1.60	yes	no	1.107
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	9.059e+04	7.090e+04	1.28	yes	no	0.930
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	8.993e+04	7.018e+04	1.28	yes	no	0.983
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	7.775e+04	7.228e+04	1.08	yes	no	0.935
32	IS	13C-OCDD	42:37	1.038e+05	1.140e+05	0.91	yes	no	0.687
33	RS/RT	13C-1,2,3,4-TCDD	28:55	5.629e+04	7.179e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	9.927e+04	7.803e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	1.335e+04				no	0.946

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1613RESP

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Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
66131

Run #7 Filename P229277 Samp: 1 Inj: 1 Acquired: 26-MAY-14 23:40:26
Processed: 28-MAY-14 07:38:331 LAB. ID: CCAL HRCC3/CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.65e+06	2.20e+02	7.5e+03	2.15e+06	1.08e+03	2.0e+03
2	1,2,3,7,8-PeCDF	1.43e+07	7.24e+02	2.0e+04	9.38e+06	1.24e+03	7.5e+03
3	2,3,4,7,8-PeCDF	1.46e+07	7.24e+02	2.0e+04	9.56e+06	1.24e+03	7.7e+03
4	1,2,3,4,7,8-HxCDF	1.48e+07	2.49e+03	5.9e+03	1.21e+07	2.82e+03	4.3e+03
5	1,2,3,6,7,8-HxCDF	1.55e+07	2.49e+03	6.2e+03	1.26e+07	2.82e+03	4.5e+03
6	2,3,4,6,7,8-HxCDF	1.45e+07	2.49e+03	5.8e+03	1.17e+07	2.82e+03	4.1e+03
7	1,2,3,7,8,9-HxCDF	1.36e+07	2.49e+03	5.5e+03	1.10e+07	2.82e+03	3.9e+03
8	1,2,3,4,6,7,8-HpCDF	1.23e+07	5.89e+03	2.1e+03	1.21e+07	5.18e+03	2.3e+03
9	1,2,3,4,7,8,9-HpCDF	9.34e+06	5.89e+03	1.6e+03	9.11e+06	5.18e+03	1.8e+03
10	OCDF	1.17e+07	2.16e+03	5.4e+03	1.29e+07	2.21e+03	5.8e+03
11	2,3,7,8-TCDD	1.29e+06	7.16e+02	1.8e+03	1.66e+06	7.20e+02	2.3e+03
12	1,2,3,7,8-PeCDD	1.04e+07	1.49e+03	7.0e+03	6.63e+06	6.48e+02	1.0e+04
13	1,2,3,4,7,8-HxCDD	1.12e+07	1.63e+03	6.9e+03	8.80e+06	1.36e+03	6.5e+03
14	1,2,3,6,7,8-HxCDD	1.07e+07	1.63e+03	6.6e+03	8.44e+06	1.36e+03	6.2e+03
15	1,2,3,7,8,9-HxCDD	1.15e+07	1.63e+03	7.1e+03	9.11e+06	1.36e+03	6.7e+03
16	1,2,3,4,6,7,8-HpCDD	8.46e+06	2.03e+03	4.2e+03	8.12e+06	1.84e+03	4.4e+03
17	OCDD	1.01e+07	9.40e+02	1.1e+04	1.13e+07	1.13e+03	1.0e+04
18	13C-2,3,7,8-TCDF	1.75e+07	1.20e+03	1.5e+04	2.21e+07	6.64e+02	3.3e+04
19	13C-1,2,3,7,8-PeCDF	2.92e+07	6.68e+02	4.4e+04	1.85e+07	6.88e+02	2.7e+04
20	13C-2,3,4,7,8-PeCDF	3.15e+07	6.68e+02	4.7e+04	1.97e+07	6.88e+02	2.9e+04
21	13C-1,2,3,4,7,8-HxCDF	1.54e+07	7.56e+02	2.0e+04	2.94e+07	2.20e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	1.73e+07	7.56e+02	2.3e+04	3.30e+07	2.20e+03	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	1.63e+07	7.56e+02	2.2e+04	3.05e+07	2.20e+03	1.4e+04
24	13C-1,2,3,7,8,9-HxCDF	1.49e+07	7.56e+02	2.0e+04	2.83e+07	2.20e+03	1.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.09e+07	3.71e+03	2.9e+03	2.48e+07	7.04e+03	3.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.91e+06	3.71e+03	2.4e+03	2.01e+07	7.04e+03	2.9e+03
27	13C-2,3,7,8-TCDD	1.22e+07	2.54e+03	4.8e+03	1.58e+07	1.33e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	2.13e+07	4.00e+02	5.3e+04	1.34e+07	3.88e+02	3.4e+04
29	13C-1,2,3,4,7,8-HxCDD	2.07e+07	1.30e+03	1.6e+04	1.61e+07	6.64e+02	2.4e+04
30	13C-1,2,3,6,7,8-HxCDD	1.97e+07	1.30e+03	1.5e+04	1.53e+07	6.64e+02	2.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.62e+07	1.50e+03	1.1e+04	1.51e+07	1.18e+03	1.3e+04
32	13C-OCDD	1.72e+07	7.40e+02	2.3e+04	1.90e+07	1.10e+03	1.7e+04
33	13C-1,2,3,4-TCDD	1.24e+07	2.54e+03	4.9e+03	1.58e+07	1.33e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	2.19e+07	1.30e+03	1.7e+04	1.72e+07	6.64e+02	2.6e+04
35	37Cl-2,3,7,8-TCDD	3.00e+06	3.68e+02	8.1e+03			

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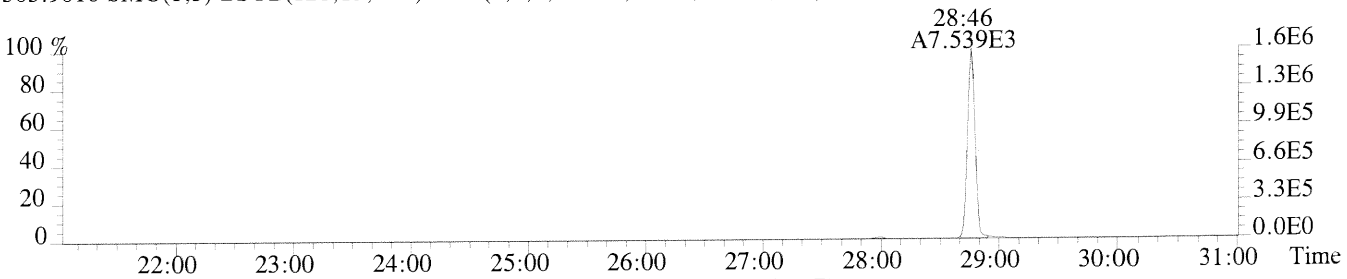
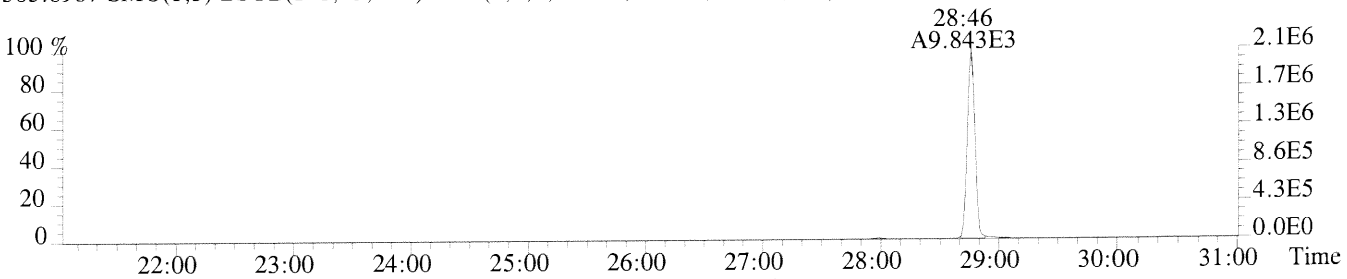
File:P229277 #1-627 Acq:26-MAY-2014 23:40:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

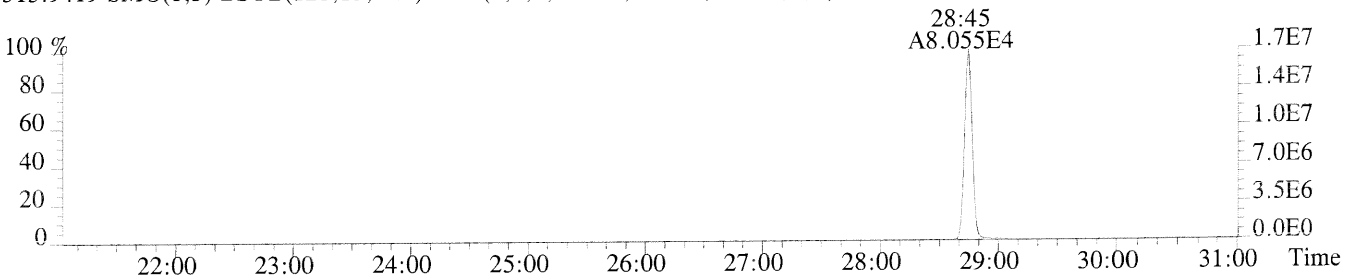
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



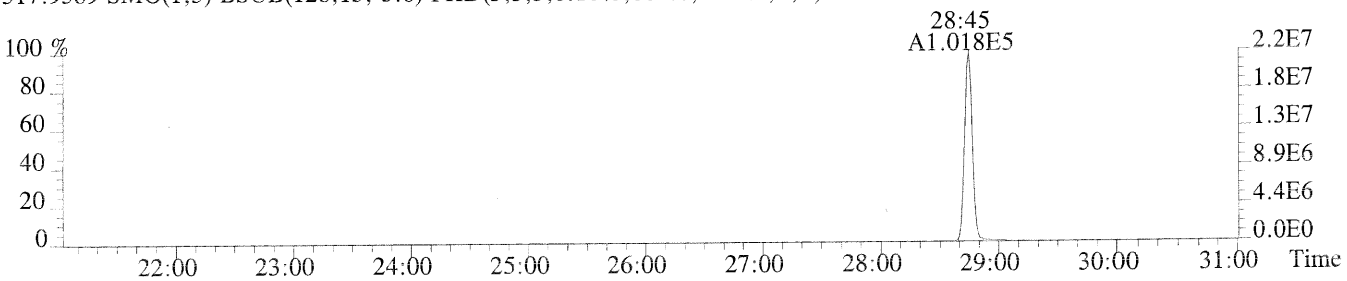
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



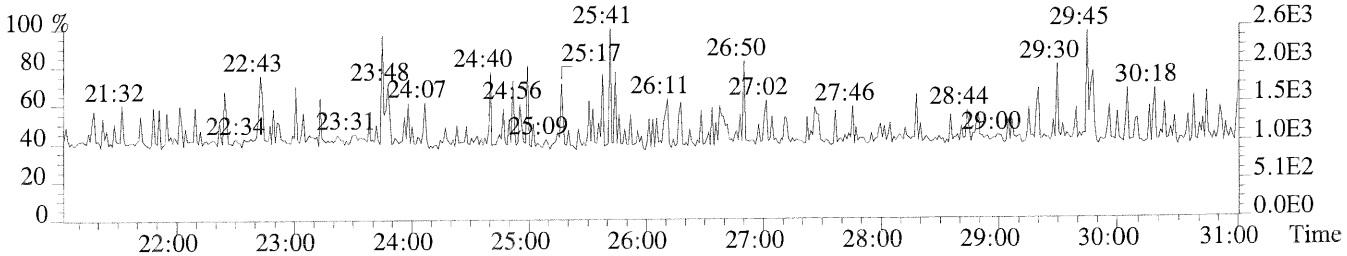
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1200.0,1.00%,F,T)



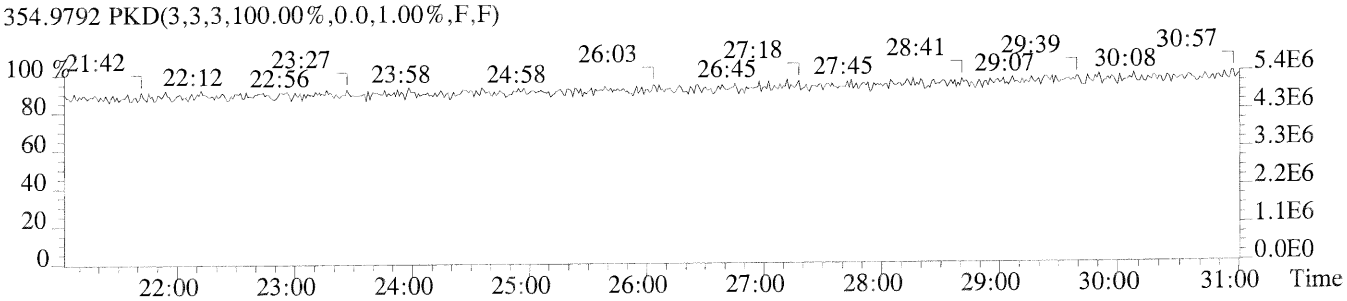
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

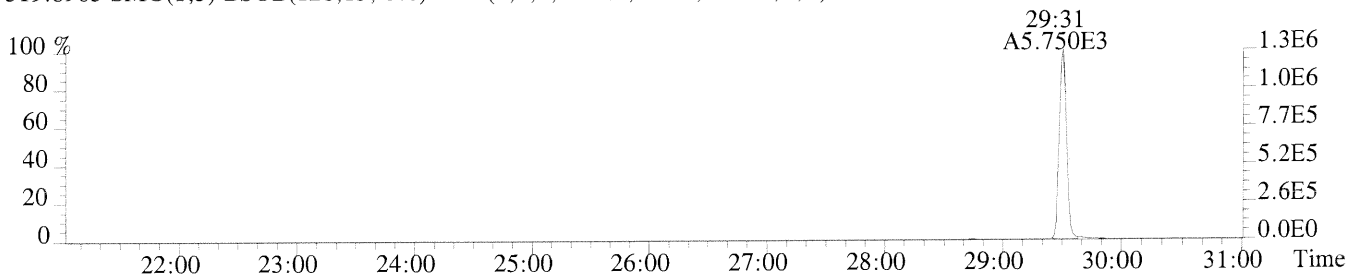


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

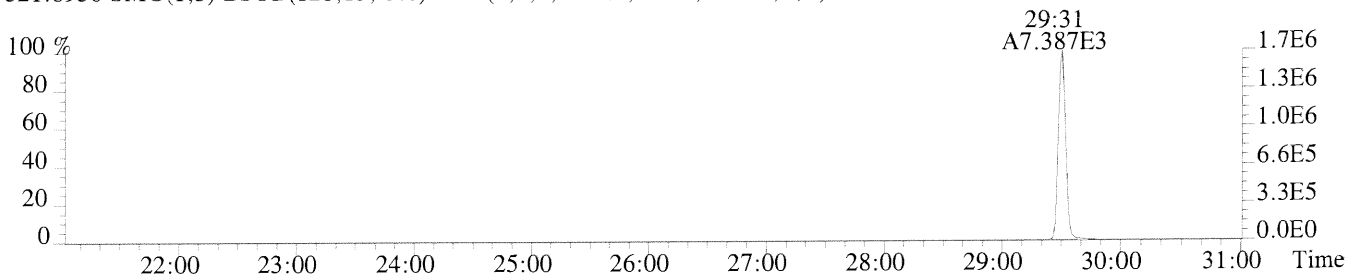


File:P229277 #1-627 Acq:26-MAY-2014 23:40:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

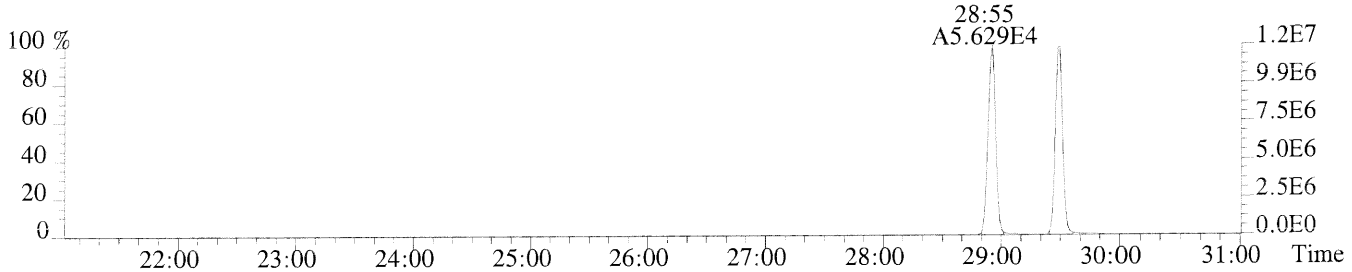
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



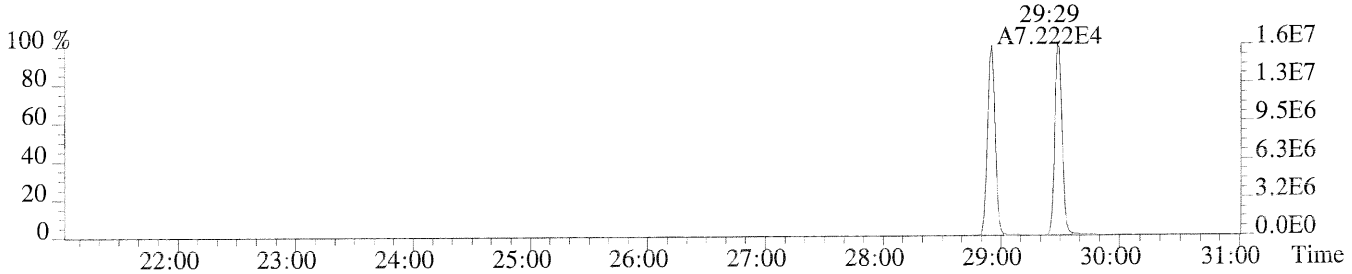
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



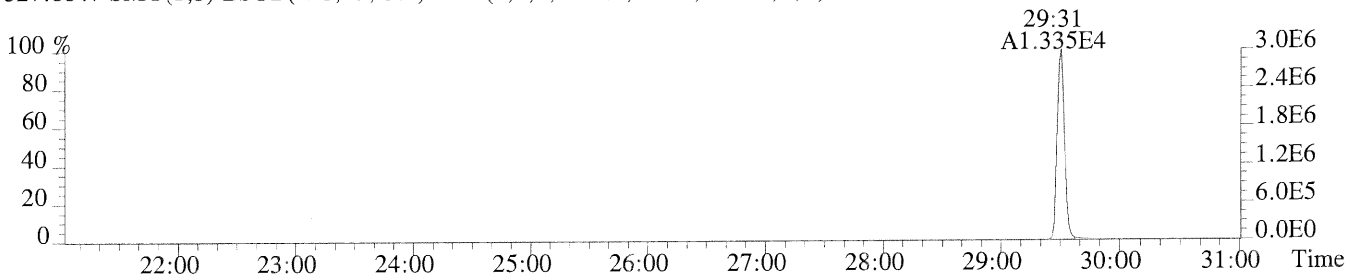
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2540.0,1.00%,F,T)



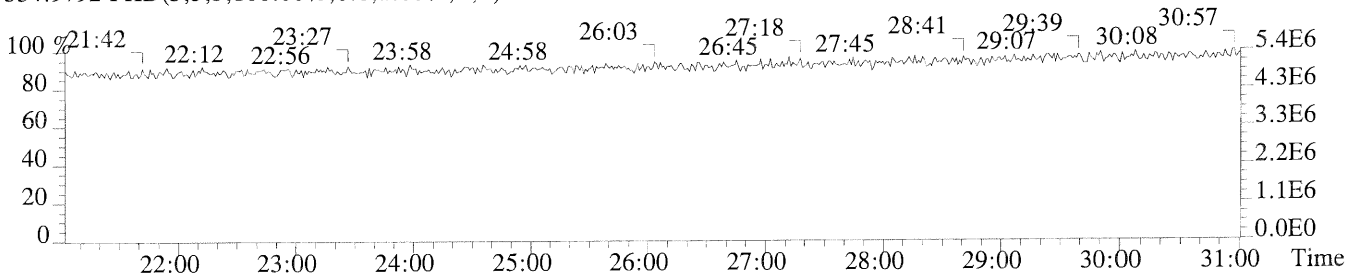
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1328.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)

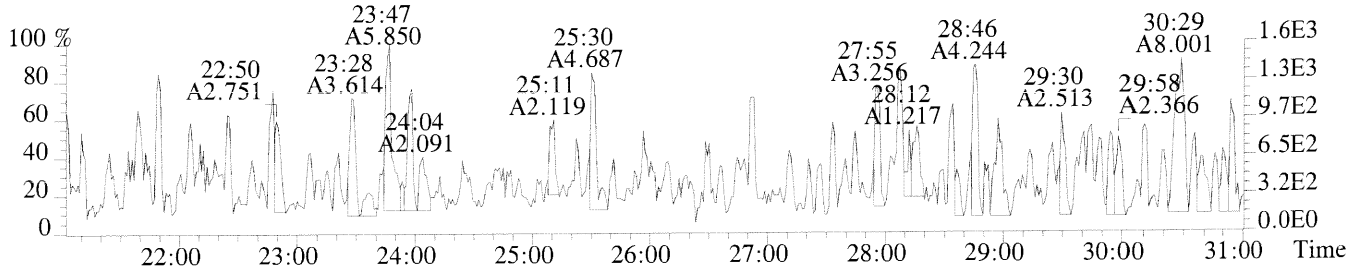


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

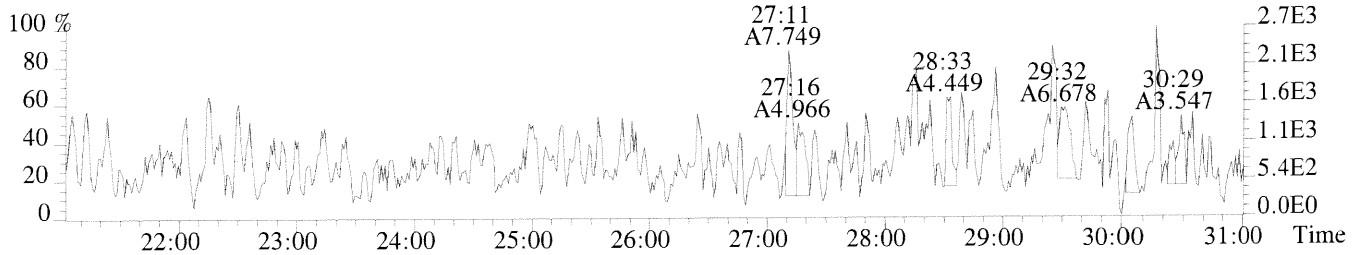


File:P229277 #1-627 Acq:26-MAY-2014 23:40:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

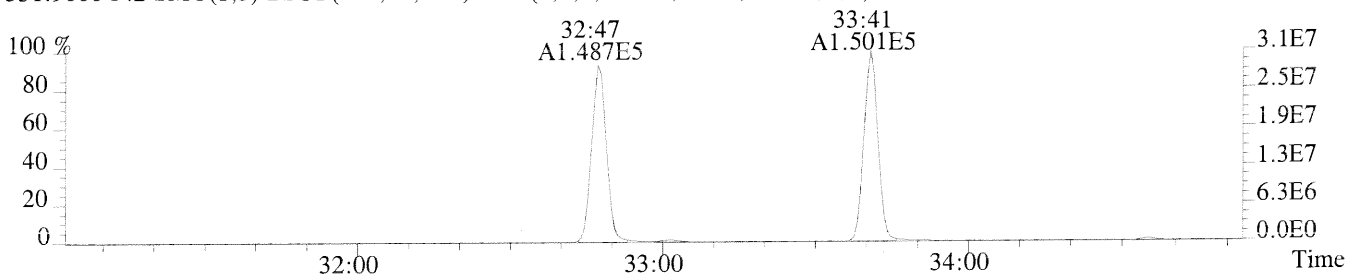
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



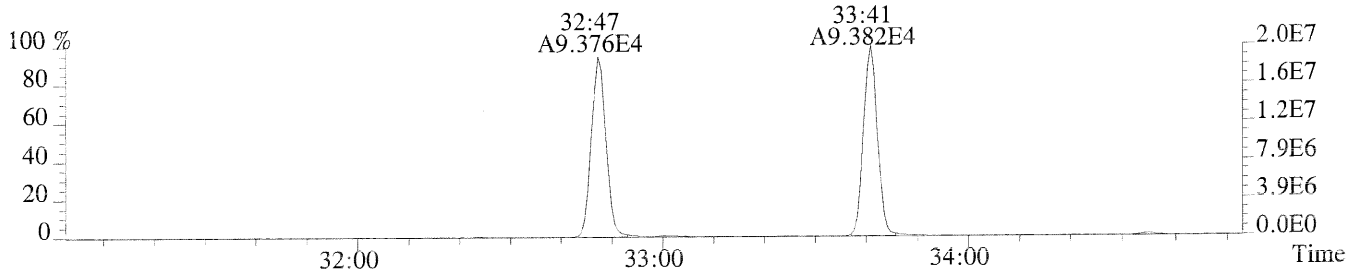
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



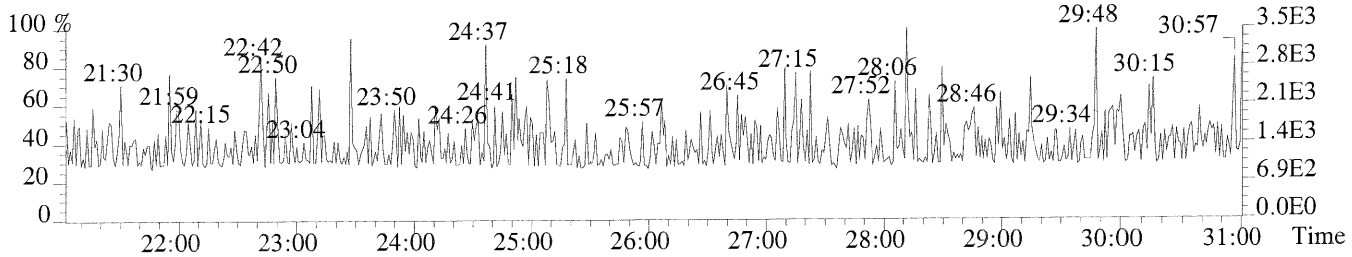
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



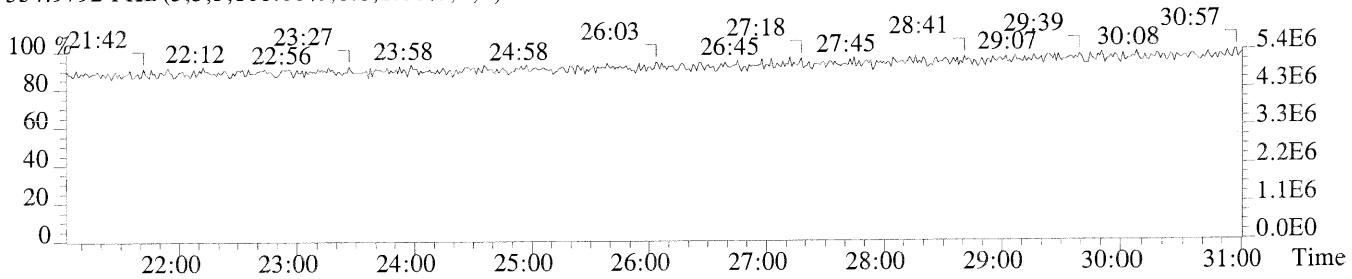
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

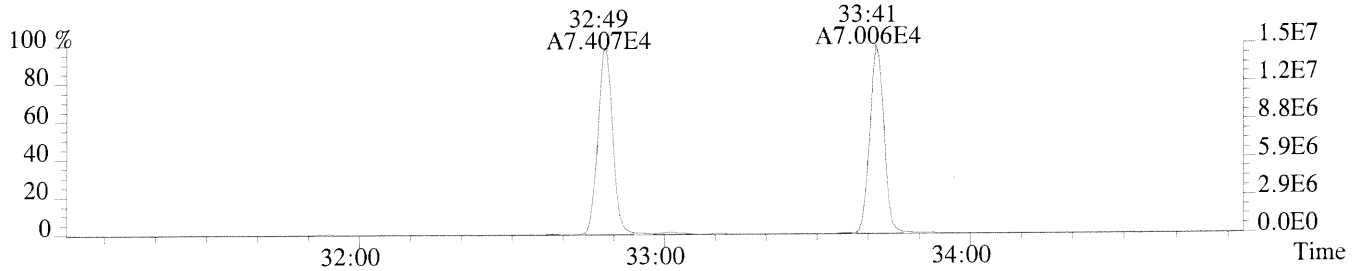


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

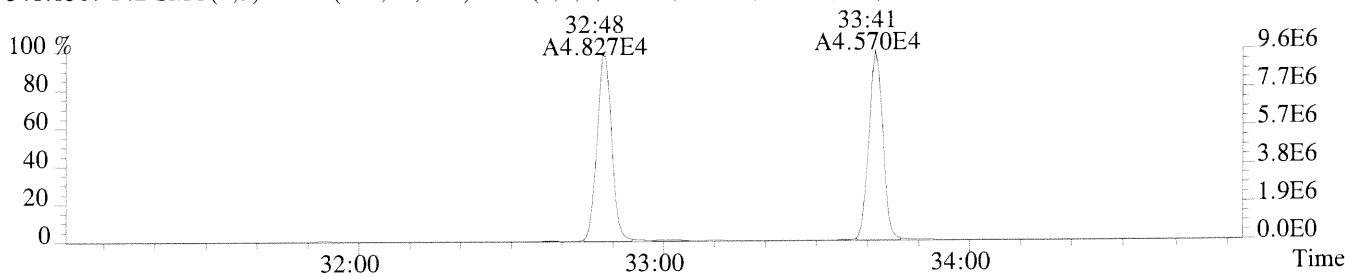


File:P229277 #1-349 Acq:26-MAY-2014 23:40:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

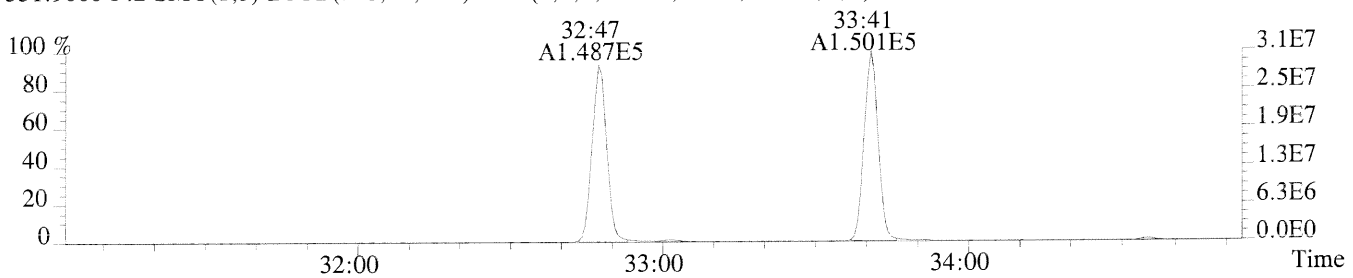
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



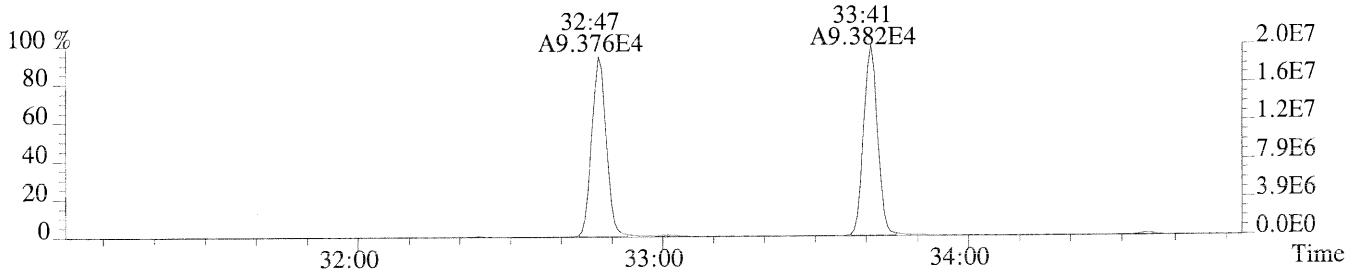
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



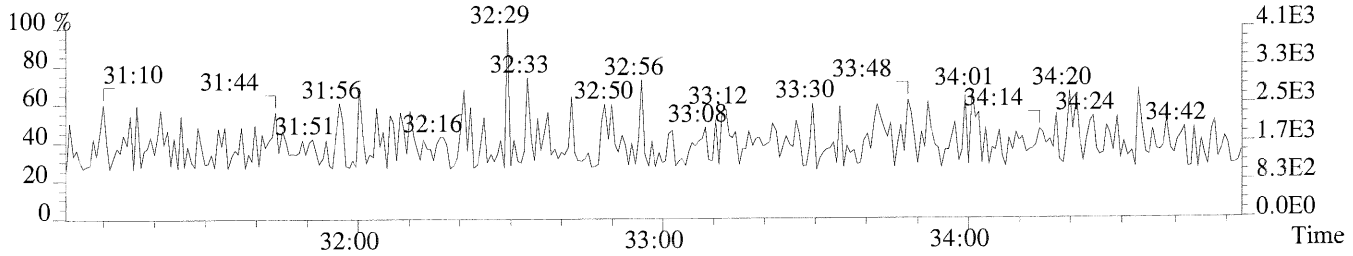
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



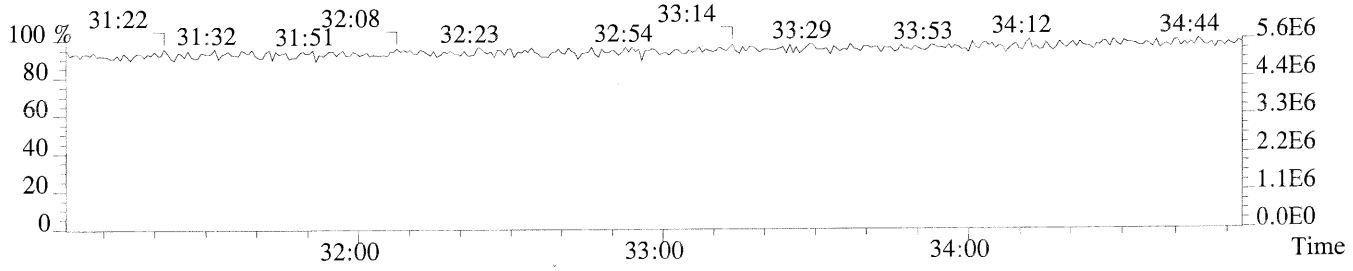
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

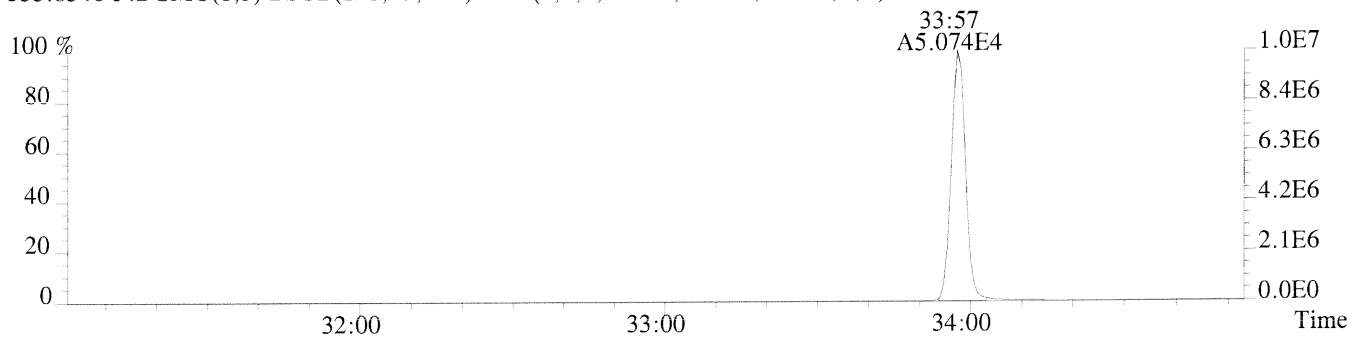


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

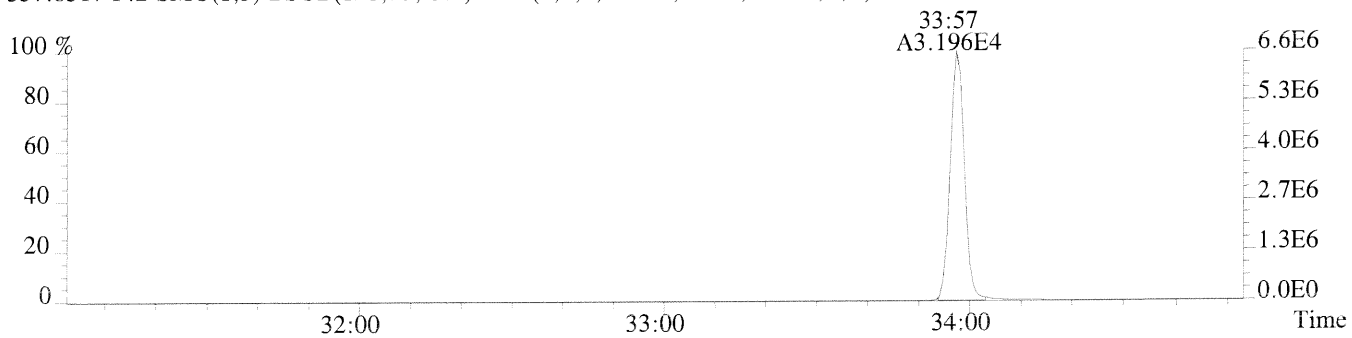


File:P229277 #1-349 Acq:26-MAY-2014 23:40:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

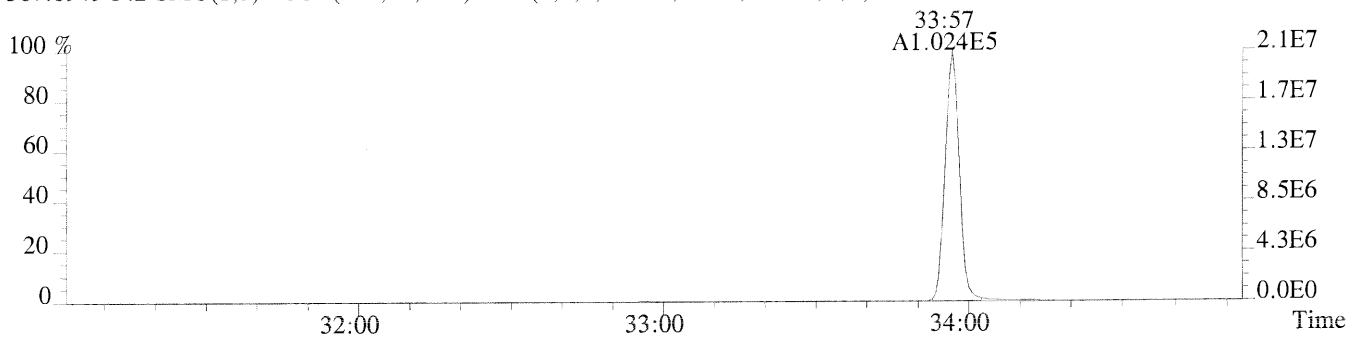
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1492.0,1.00%,F,T)



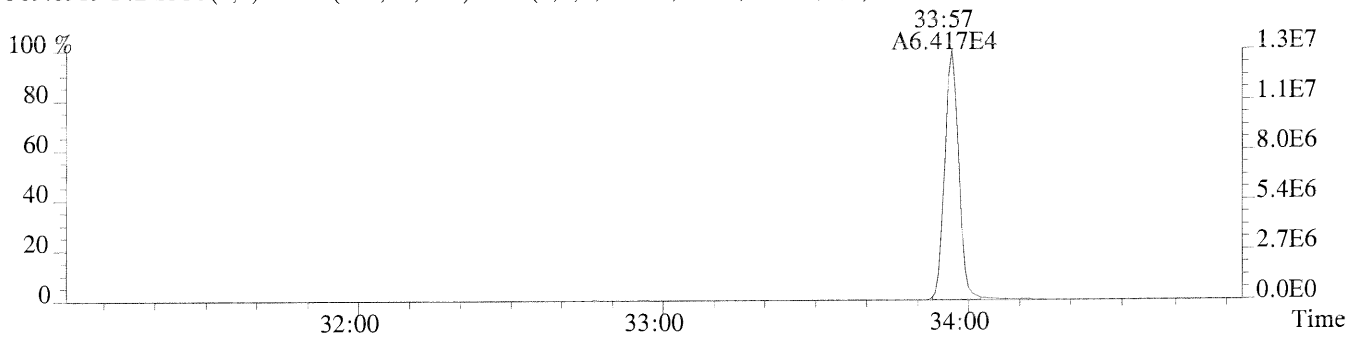
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



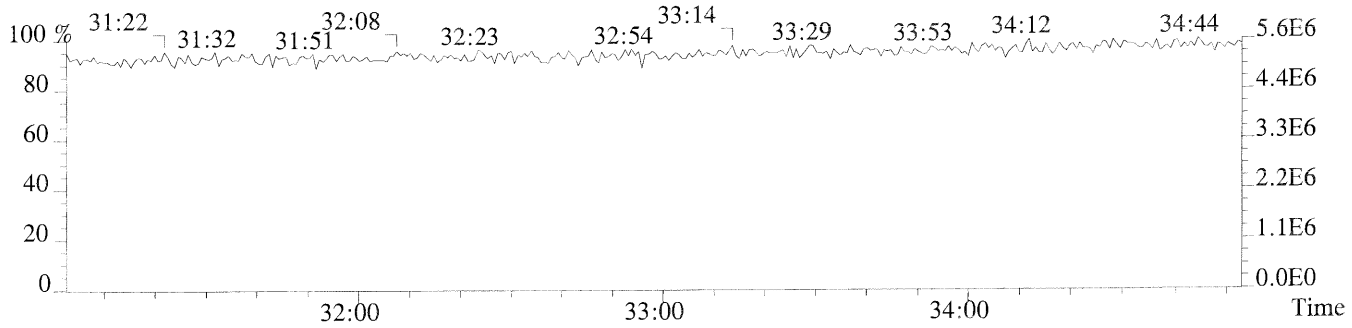
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,400.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)

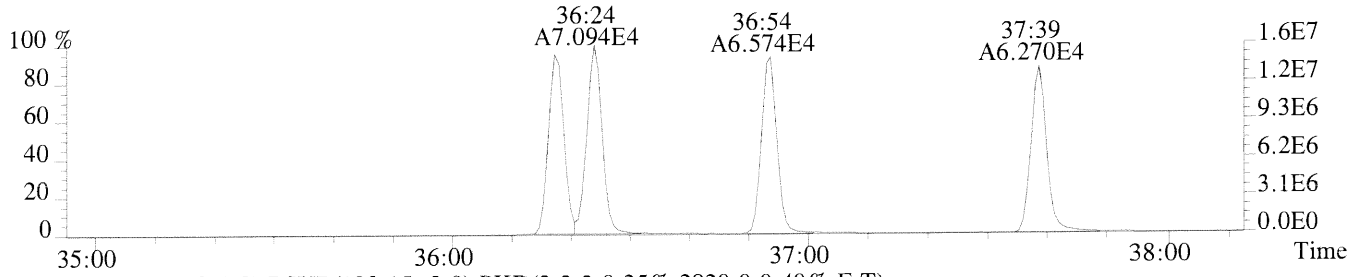


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

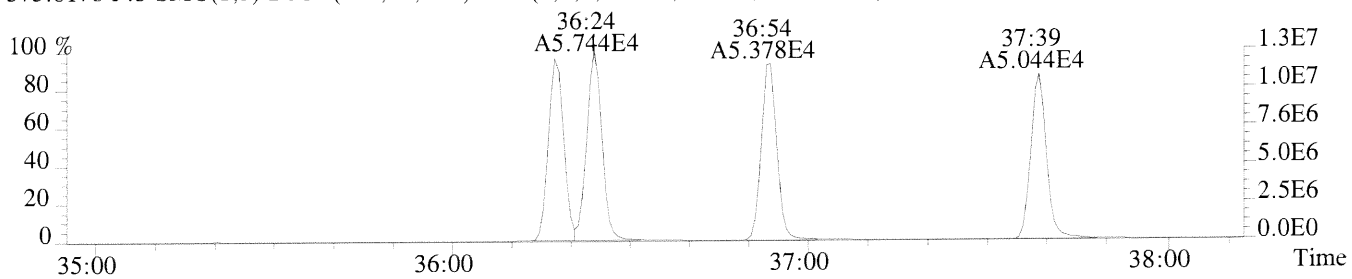


File:P229277 #1-299 Acq:26-MAY-2014 23:40:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

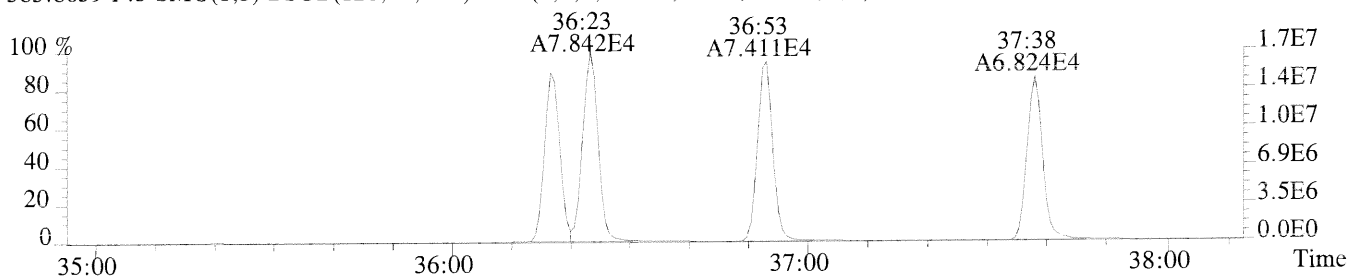
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2488.0,0.40%,F,T)



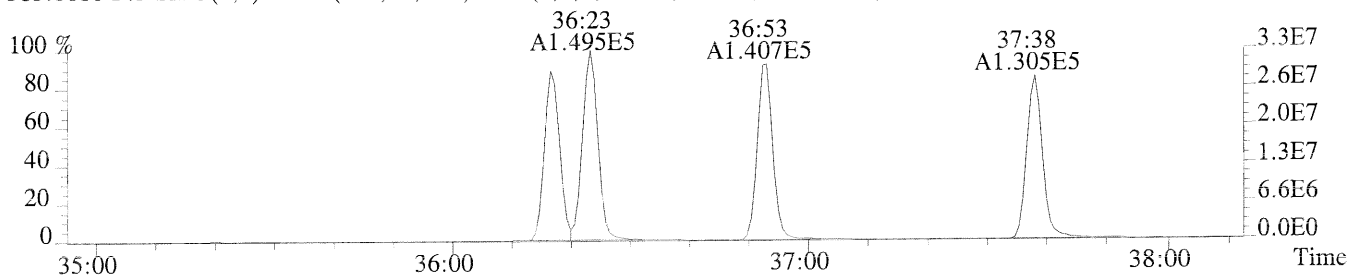
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2820.0,0.40%,F,T)



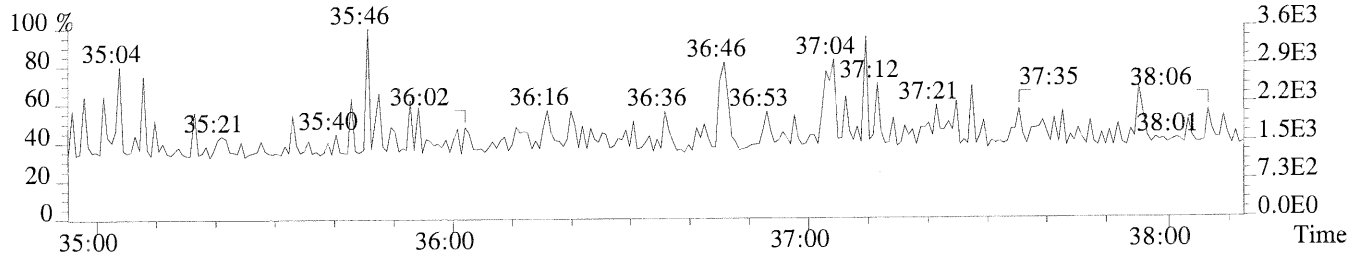
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



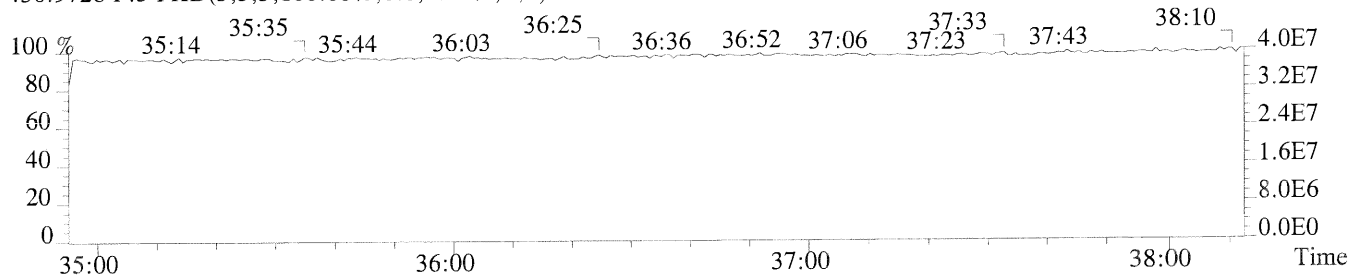
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2200.0,0.40%,F,T)



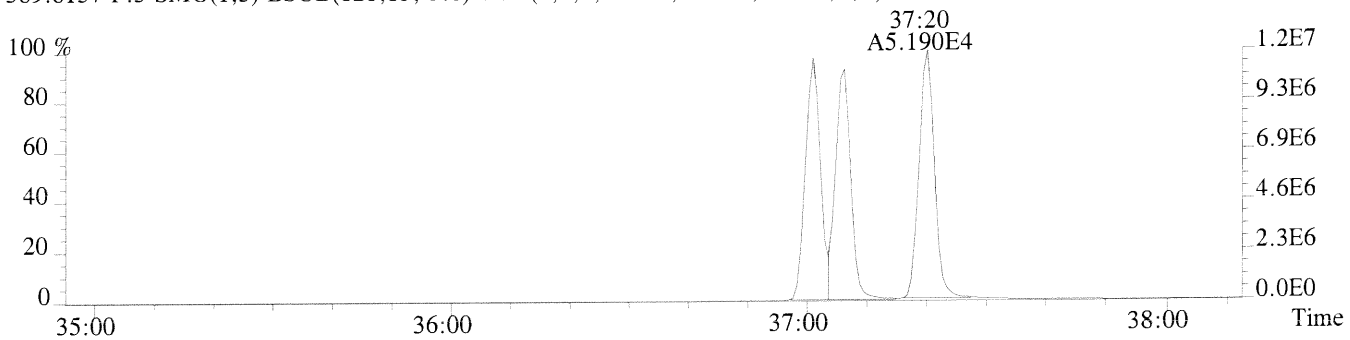
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



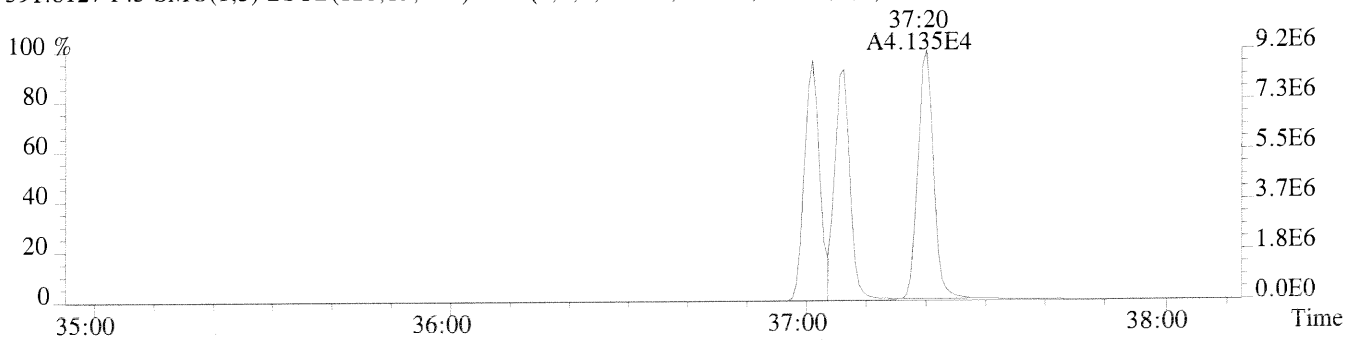
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



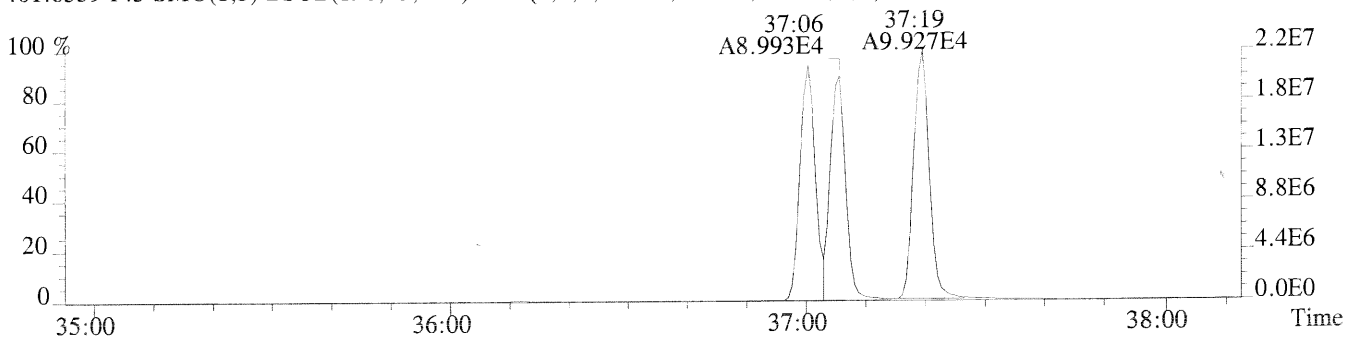
File:P229277 #1-299 Acq:26-MAY-2014 23:40:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1628.0,0.40%,F,T)



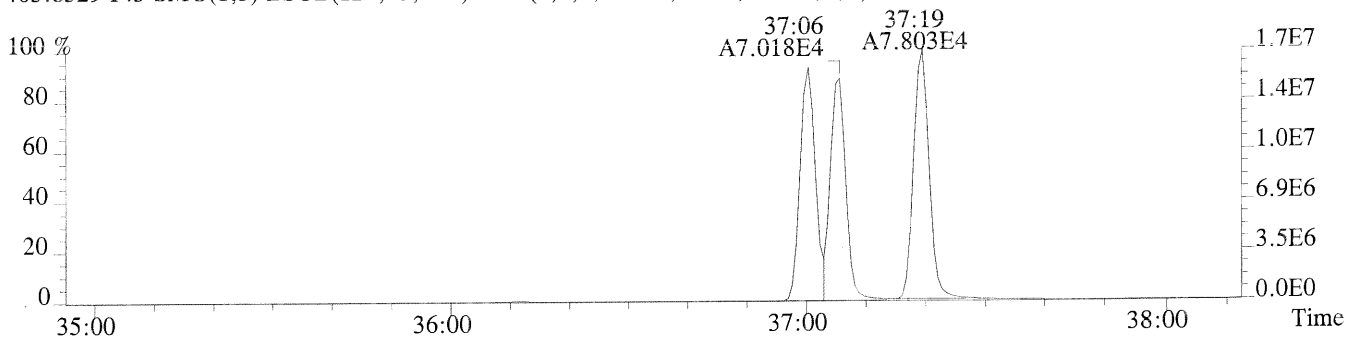
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



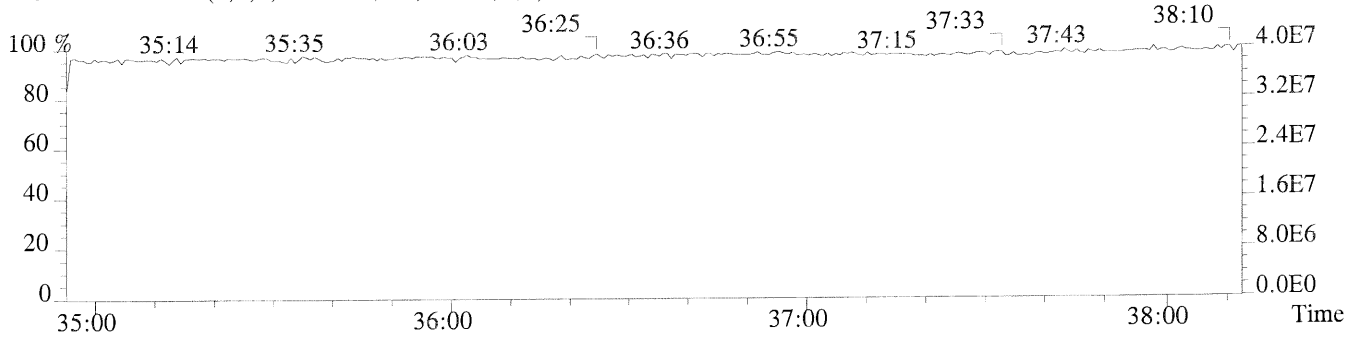
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)

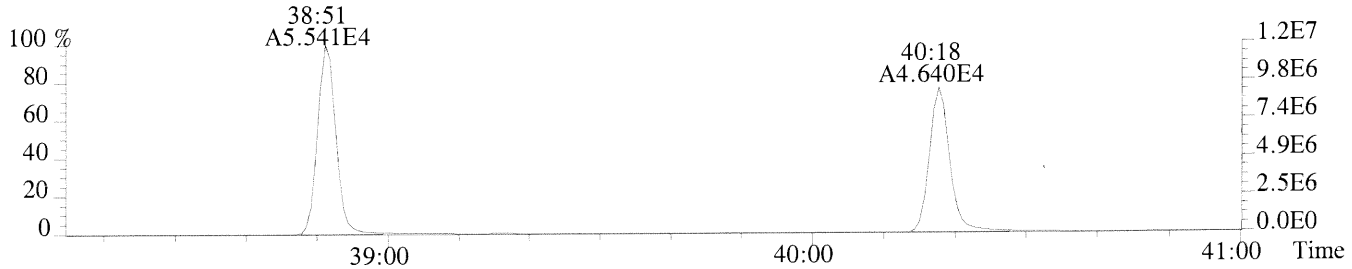


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

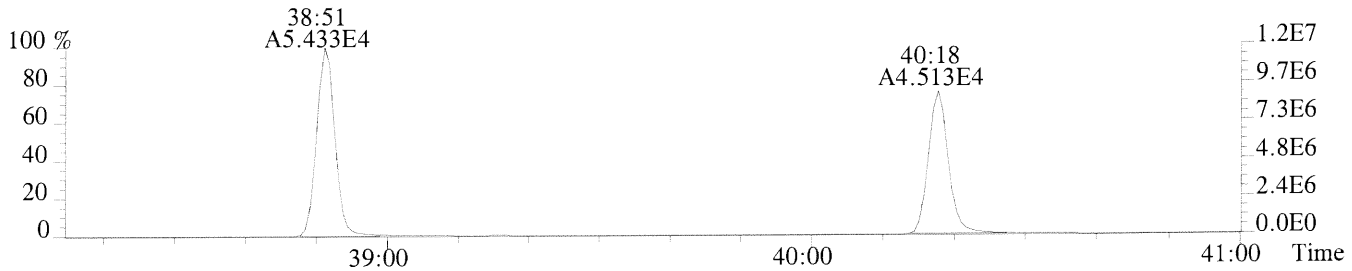


File:P229277 #1-251 Acq:26-MAY-2014 23:40:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

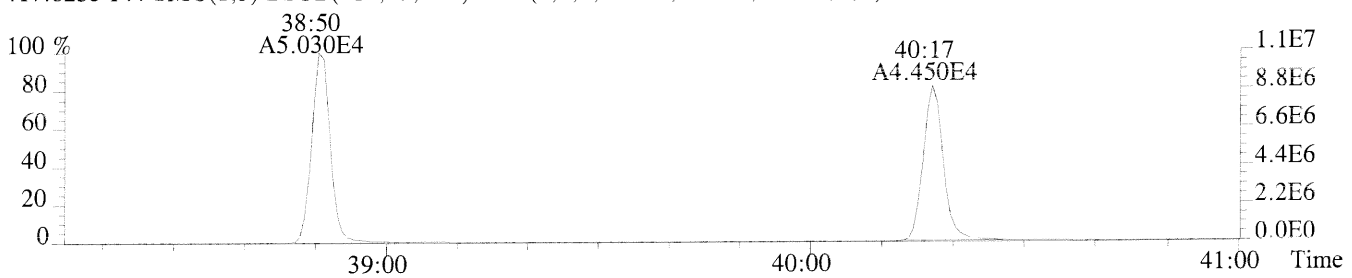
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5892.0,0.50%,F,T)



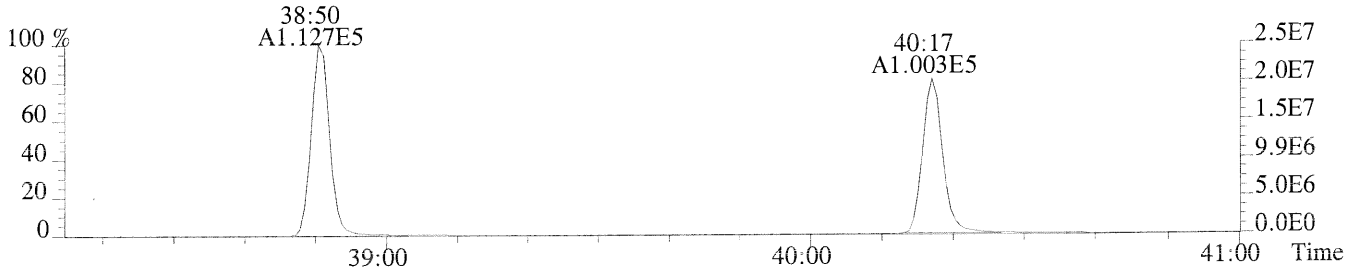
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5180.0,0.50%,F,T)



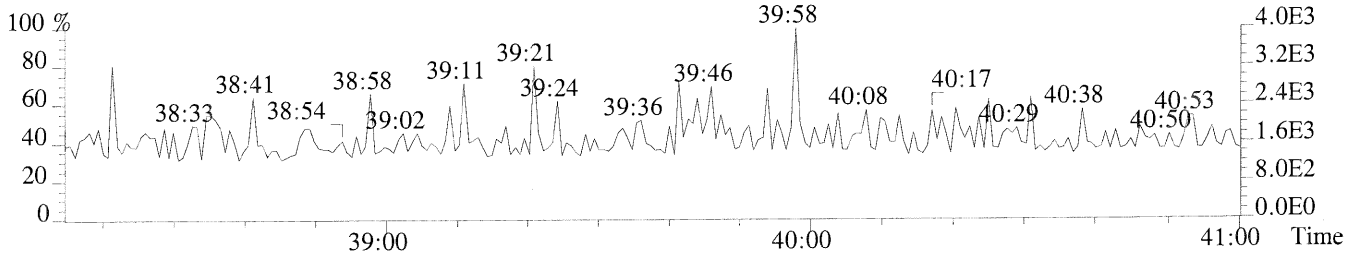
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3712.0,0.50%,F,T)



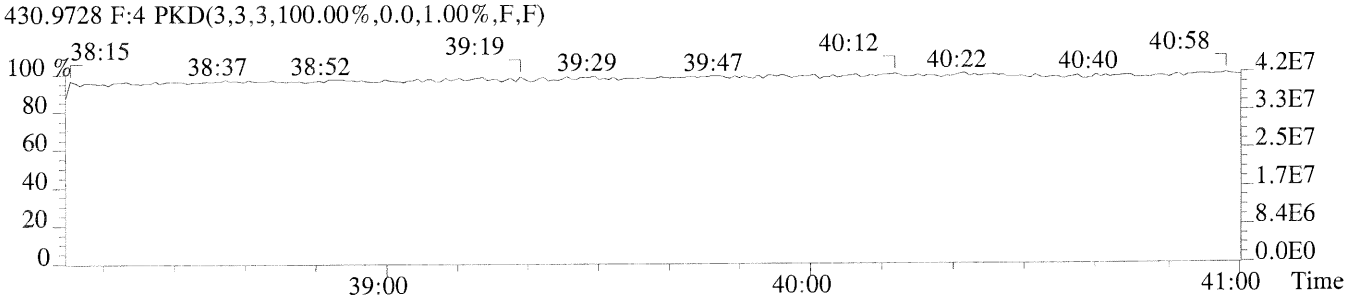
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7040.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

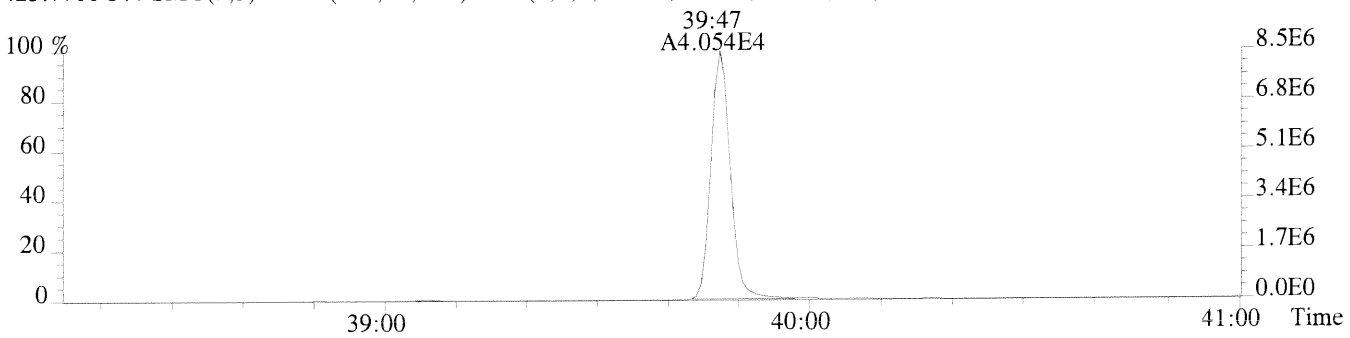


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

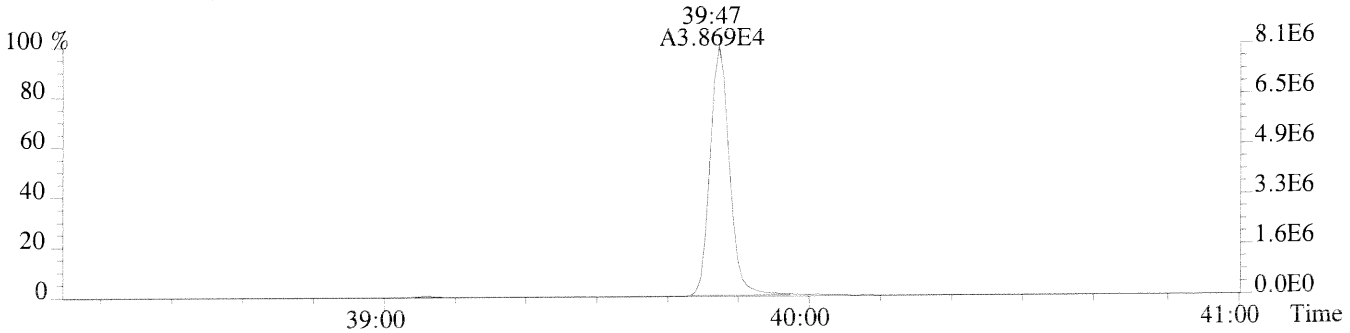


File:P229277 #1-251 Acq:26-MAY-2014 23:40:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

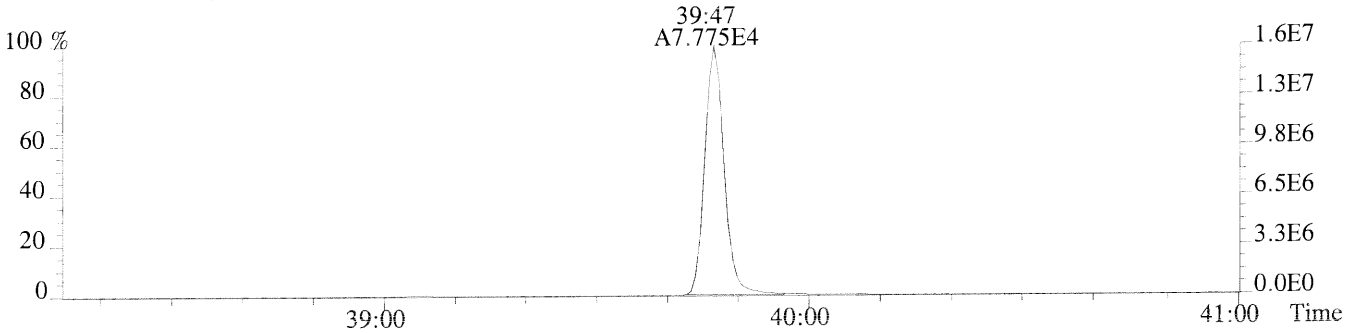
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2032.0,0.40%,F,T)



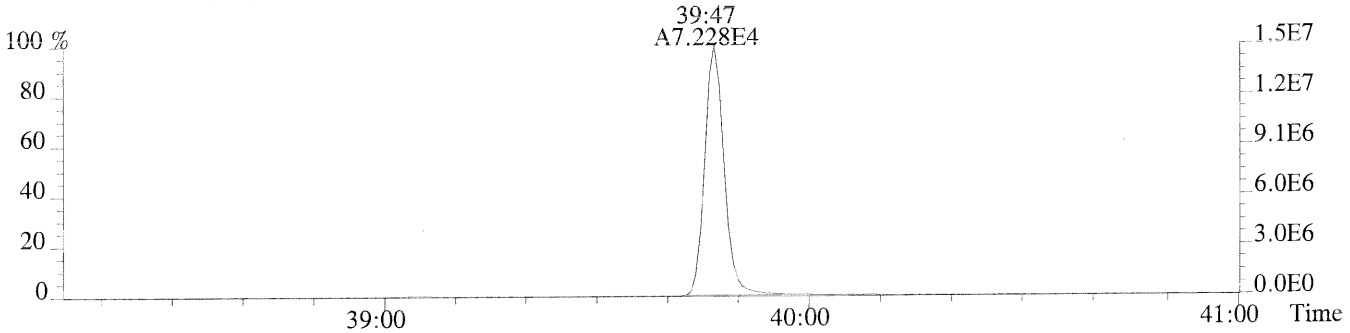
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1844.0,0.40%,F,T)



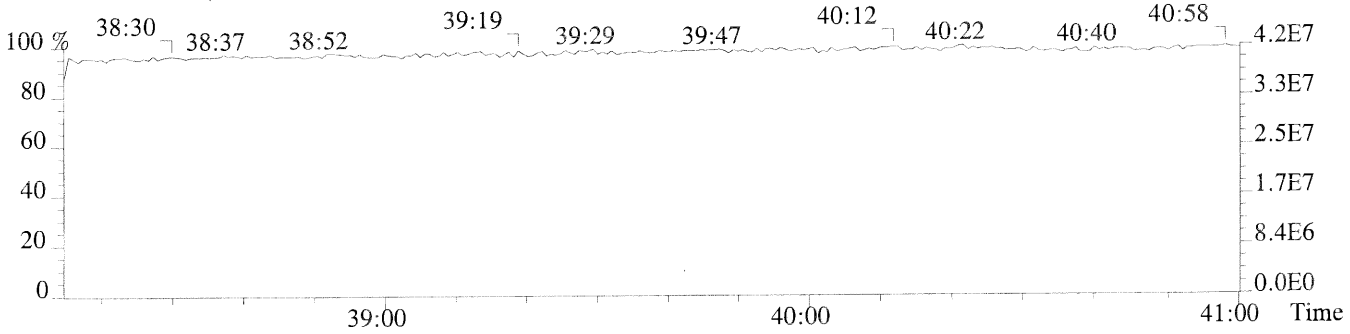
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1496.0,0.40%,F,T)



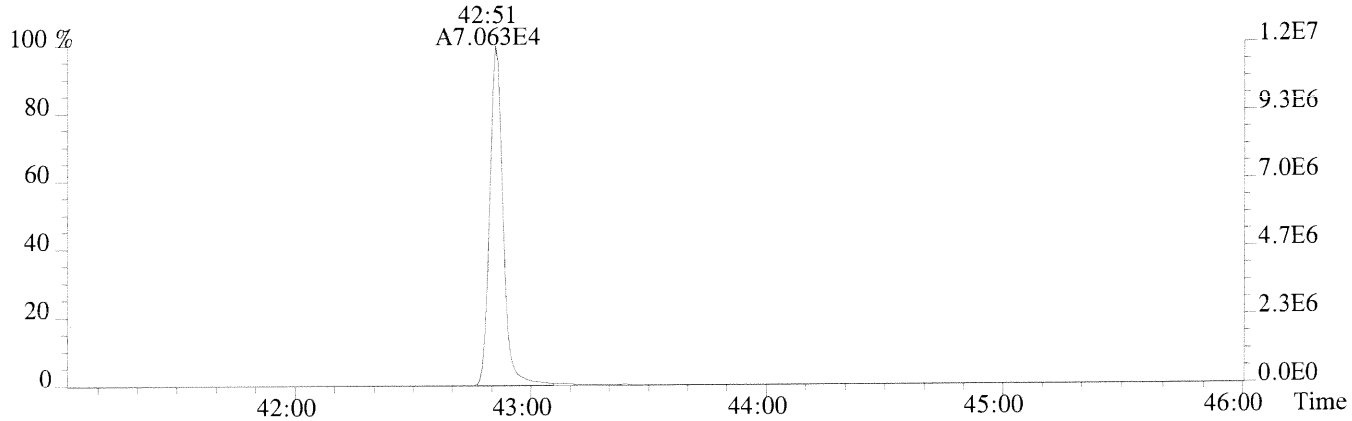
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1180.0,0.40%,F,T)



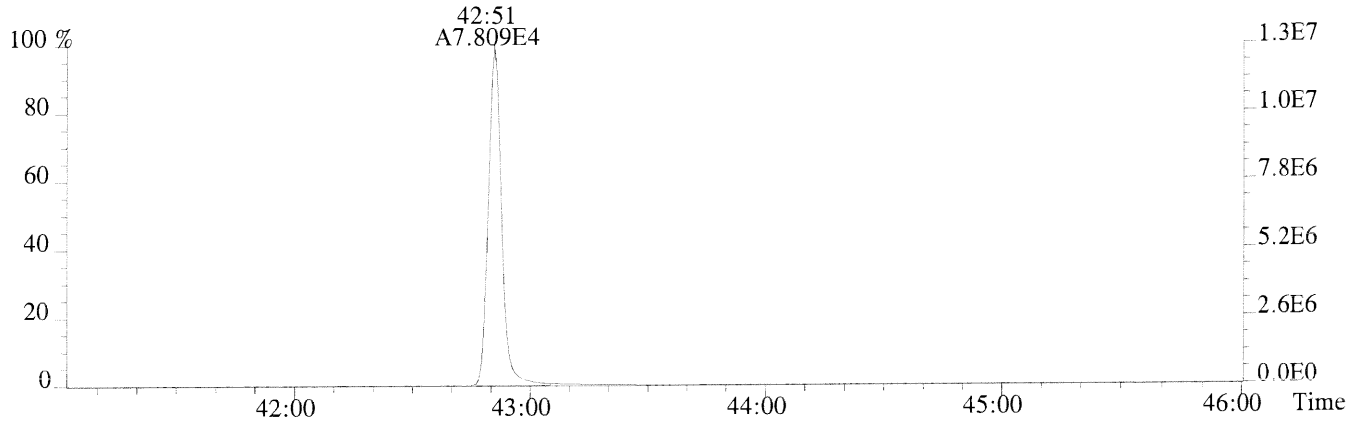
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



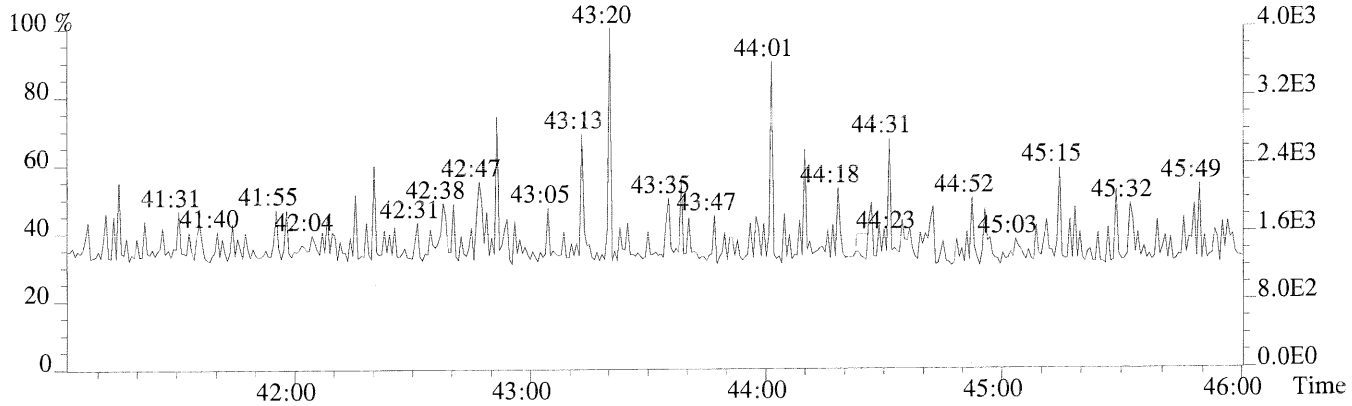
File:P229277 #1-457 Acq:26-MAY-2014 23:40:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2164.0,0.40%,F,T)



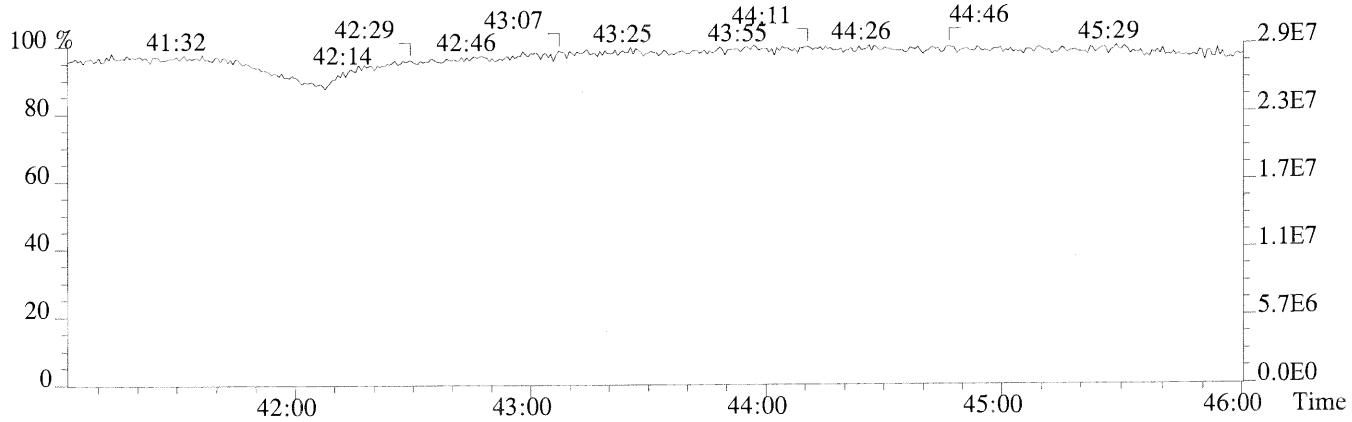
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2212.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

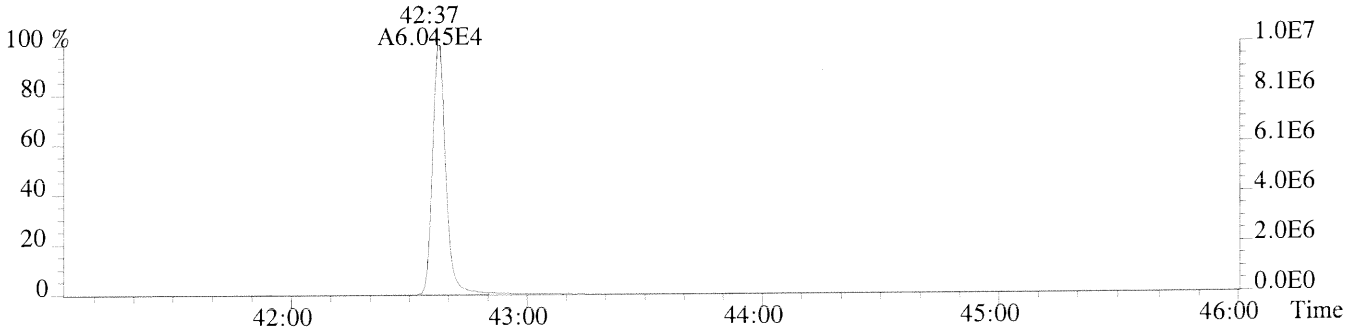


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

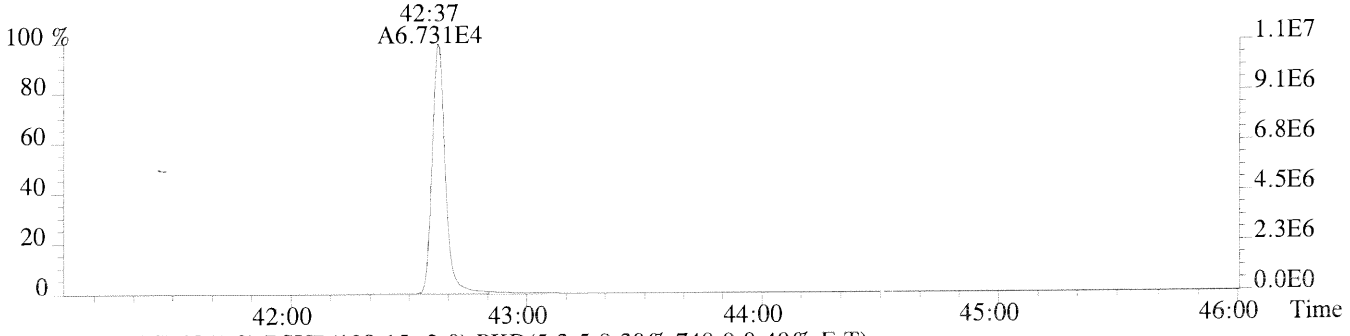


File:P229277 #1-457 Acq:26-MAY-2014 23:40:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

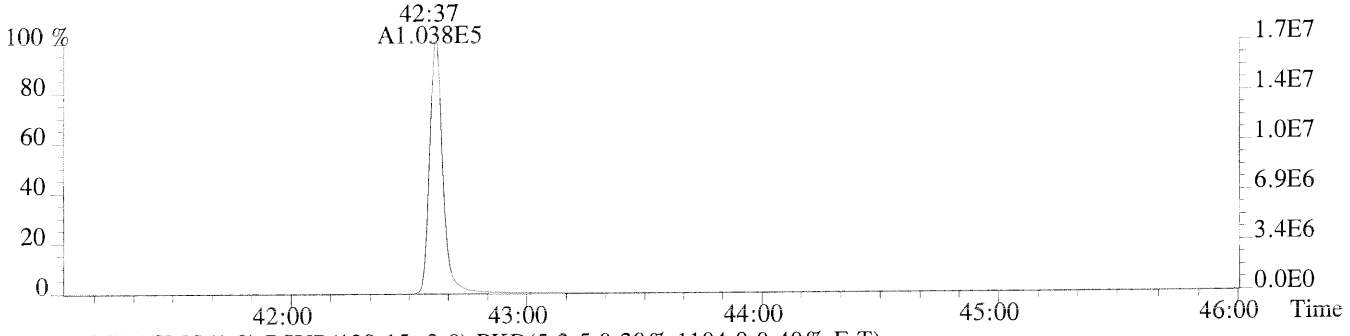
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,940.0,0.40%,F,T)



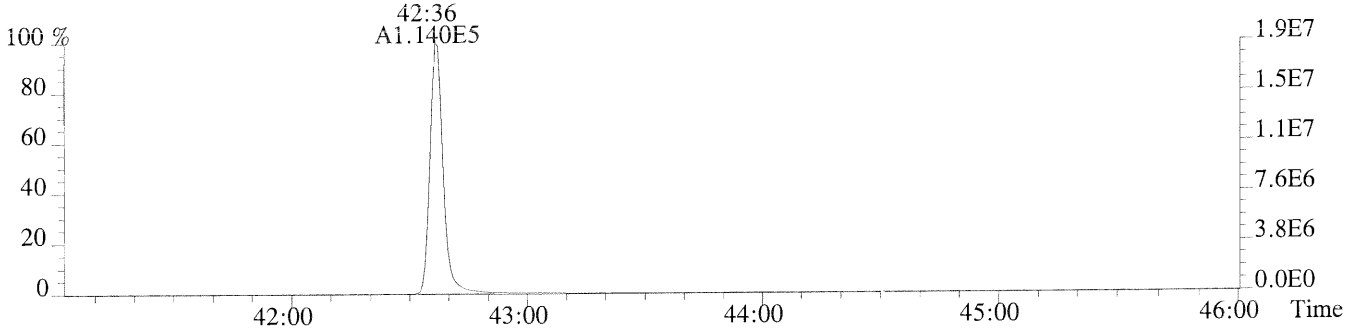
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1128.0,0.40%,F,T)



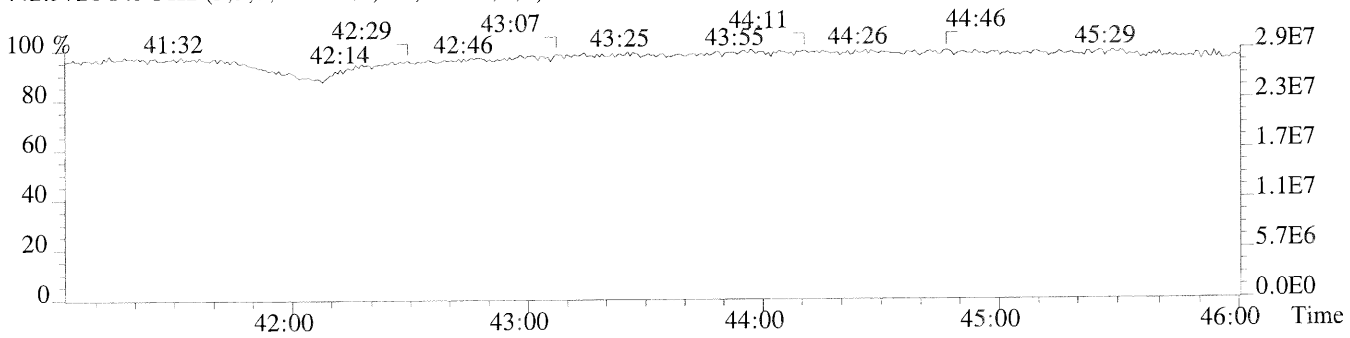
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1104.0,0.40%,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
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 | GC Column ID: DB-5MSUI

VER Data Filename: P229290 | Analysis Date: 27-MAY-14 Time: 10:02:24

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.7	7.8 - 12.9	-3.3
1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	46	39 - 65	-8.6
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	44	39 - 64	-12.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	46	39 - 64	-7.8
1,2,3,7,8,9-HxCDD	M+2/M+4	1.23	1.05-1.43	46	41 - 61	-7.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	48	43 - 58	-3.7
OCDD	M+2/M+4	0.90	0.76-1.02	98	79 - 126	-1.8
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	8.3	8.4 - 12.0	-16.8
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	44	41 - 60	-12.0
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	42	41 - 61	-15.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	45	45 - 56	-10.2
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	45	44 - 57	-9.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	51	45 - 56	3.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	45	44 - 57	-10.3
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	48	45 - 55	-4.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	45	43 - 58	-9.4
OCDF	M+2/M+4	0.90	0.76-1.02	80	63 - 159	-19.7

(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 %D 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

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 GC Column ID: DB-5MSUI

VER Data Filename: P229290 Analysis Date: 27-MAY-14 Time: 10:02:24

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	109	82 - 121	9.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	121	62 - 160	20.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	97	85 - 117	-3.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	90	85 - 118	-10.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	99	72 - 138	-0.7
13C-OCDD	M+2/M+4	0.92	0.76-1.02	203	96 - 415	1.5
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	103	71 - 140	2.7
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	102	76 - 130	2.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	107	77 - 130	7.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	78	76 - 131	-22.3
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	76	70 - 143	-24.5
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	86	74 - 135	-13.9
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	81	73 - 137	-19.5
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	76	78 - 129	-23.7
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	87	77 - 129	-12.5
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				11.2	7.8 - 12.7	12.1

(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.
(5) The beginnning CCAL %D 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)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66131

Run #19 Filename P229290 Samp: 1 Inj: 1 Acquired: 27-MAY-14 10:02:24
Processed: 28-MAY-14 07:40:26 Sample ID: CCAL HRCC3/CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:46	4.927e+03	6.321e+03	0.78	yes	no	1.127
2	Unk	1,2,3,7,8-PeCDF	32:49	4.812e+04	3.108e+04	1.55	yes	no	1.123
3	Unk	2,3,4,7,8-PeCDF	33:42	4.585e+04	3.011e+04	1.52	yes	no	1.101
4	Unk	1,2,3,4,7,8-HxCDF	36:18	4.434e+04	3.608e+04	1.23	yes	no	1.338
5	Unk	1,2,3,6,7,8-HxCDF	36:25	4.630e+04	3.764e+04	1.23	yes	no	1.234
6	Unk	2,3,4,6,7,8-HxCDF	36:54	4.275e+04	3.521e+04	1.21	yes	no	1.233
7	Unk	1,2,3,7,8,9-HxCDF	37:39	4.661e+04	3.812e+04	1.22	yes	no	1.269
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	3.840e+04	3.721e+04	1.03	yes	no	1.421
9	Unk	1,2,3,4,7,8,9-HpCDF	40:18	3.325e+04	3.293e+04	1.01	yes	no	1.381
10	Unk	OCDF	42:51	5.474e+04	6.089e+04	0.90	yes	no	1.703
11	Unk	2,3,7,8-TCDD	29:31	3.839e+03	4.871e+03	0.79	yes	no	1.053
12	Unk	1,2,3,7,8-PeCDD	33:58	3.351e+04	2.144e+04	1.56	yes	no	1.069
13	Unk	1,2,3,4,7,8-HxCDD	37:02	3.244e+04	2.581e+04	1.26	yes	no	1.223
14	Unk	1,2,3,6,7,8-HxCDD	37:06	3.230e+04	2.554e+04	1.26	yes	no	1.168
15	Unk	1,2,3,7,8,9-HxCDD	37:21	3.409e+04	2.769e+04	1.23	yes	no	1.236
16	Unk	1,2,3,4,6,7,8-HpCDD	39:48	3.261e+04	3.080e+04	1.06	yes	no	1.170
17	Unk	OCDD	42:38	5.054e+04	5.640e+04	0.90	yes	no	1.288
18	IS	13C-2,3,7,8-TCDF	28:45	5.307e+04	6.689e+04	0.79	yes	no	1.389
19	IS	13C-1,2,3,7,8-PeCDF	32:48	9.859e+04	6.160e+04	1.60	yes	no	1.865
20	IS	13C-2,3,4,7,8-PeCDF	33:41	9.977e+04	6.259e+04	1.59	yes	no	1.804
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	4.586e+04	8.800e+04	0.52	yes	no	1.421
22	IS	13C-1,2,3,6,7,8-HxCDF	36:24	5.143e+04	9.868e+04	0.52	yes	no	1.639
23	IS	13C-2,3,4,6,7,8-HxCDF	36:53	4.864e+04	9.234e+04	0.53	yes	no	1.444
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	4.431e+04	8.530e+04	0.52	yes	no	1.241
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:51	3.437e+04	7.646e+04	0.45	yes	no	1.198
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	3.239e+04	7.334e+04	0.44	yes	no	0.997
27	IS	13C-2,3,7,8-TCDD	29:30	3.743e+04	4.811e+04	0.78	yes	no	0.930
28	IS	13C-1,2,3,7,8-PeCDD	33:57	6.909e+04	4.334e+04	1.59	yes	no	1.107
29	IS	13C-1,2,3,4,7,8-HxCDD	37:01	6.129e+04	4.801e+04	1.28	yes	no	0.930
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	6.042e+04	4.693e+04	1.29	yes	no	0.983
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	5.817e+04	5.442e+04	1.07	yes	no	0.935
32	IS	13C-OCDD	42:37	8.108e+04	8.806e+04	0.92	yes	no	0.687
33	RS/RT	13C-1,2,3,4-TCDD	28:55	3.691e+04	4.721e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:20	6.803e+04	5.322e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:31	8.918e+03				no	0.946

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
66131

Run #19 Filename P229290 Samp: 1 Inj: 1 Acquired: 27-MAY-14 10:02:24
Processed: 28-MAY-14 07:40:261 LAB. ID: CCAL HRCC3/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	1.37e+03	7.4e+02	1.35e+06	1.99e+03	6.8e+02
2	1,2,3,7,8-PeCDF	9.39e+06	7.11e+03	1.3e+03	6.10e+06	5.18e+03	1.2e+03
3	2,3,4,7,8-PeCDF	9.40e+06	7.11e+03	1.3e+03	6.18e+06	5.18e+03	1.2e+03
4	1,2,3,4,7,8-HxCDF	9.99e+06	1.71e+04	5.8e+02	8.07e+06	1.41e+04	5.7e+02
5	1,2,3,6,7,8-HxCDF	1.00e+07	1.71e+04	5.9e+02	8.06e+06	1.41e+04	5.7e+02
6	2,3,4,6,7,8-HxCDF	9.31e+06	1.71e+04	5.4e+02	7.70e+06	1.41e+04	5.5e+02
7	1,2,3,7,8,9-HxCDF	8.89e+06	1.71e+04	5.2e+02	7.17e+06	1.41e+04	5.1e+02
8	1,2,3,4,6,7,8-HpCDF	8.44e+06	1.70e+04	5.0e+02	8.28e+06	1.99e+04	4.2e+02
9	1,2,3,4,7,8,9-HpCDF	6.43e+06	1.70e+04	3.8e+02	6.36e+06	1.99e+04	3.2e+02
10	OCDF	9.14e+06	4.91e+03	1.9e+03	1.01e+07	1.34e+04	7.6e+02
11	2,3,7,8-TCDD	8.48e+05	1.24e+03	6.9e+02	1.10e+06	1.03e+03	1.1e+03
12	1,2,3,7,8-PeCDD	6.91e+06	3.84e+03	1.8e+03	4.41e+06	3.02e+03	1.5e+03
13	1,2,3,4,7,8-HxCDD	7.30e+06	7.75e+03	9.4e+02	5.73e+06	6.17e+03	9.3e+02
14	1,2,3,6,7,8-HxCDD	7.07e+06	7.75e+03	9.1e+02	5.72e+06	6.17e+03	9.3e+02
15	1,2,3,7,8,9-HxCDD	7.28e+06	7.75e+03	9.4e+02	5.91e+06	6.17e+03	9.6e+02
16	1,2,3,4,6,7,8-HpCDD	6.60e+06	9.65e+03	6.8e+02	6.25e+06	8.52e+03	7.3e+02
17	OCDD	8.33e+06	3.60e+03	2.3e+03	9.34e+06	4.54e+03	2.1e+03
18	13C-2,3,7,8-TCDF	1.13e+07	9.64e+02	1.2e+04	1.43e+07	8.64e+02	1.7e+04
19	13C-1,2,3,7,8-PeCDF	1.91e+07	7.88e+02	2.4e+04	1.19e+07	1.38e+03	8.6e+03
20	13C-2,3,4,7,8-PeCDF	2.00e+07	7.88e+02	2.5e+04	1.25e+07	1.38e+03	9.1e+03
21	13C-1,2,3,4,7,8-HxCDF	1.04e+07	1.95e+03	5.3e+03	1.98e+07	4.56e+03	4.3e+03
22	13C-1,2,3,6,7,8-HxCDF	1.12e+07	1.95e+03	5.7e+03	2.12e+07	4.56e+03	4.7e+03
23	13C-2,3,4,6,7,8-HxCDF	1.06e+07	1.95e+03	5.4e+03	2.03e+07	4.56e+03	4.4e+03
24	13C-1,2,3,7,8,9-HxCDF	9.34e+06	1.95e+03	4.8e+03	1.78e+07	4.56e+03	3.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.59e+06	4.86e+03	1.6e+03	1.69e+07	1.99e+04	8.5e+02
26	13C-1,2,3,4,7,8,9-HpCDF	6.28e+06	4.86e+03	1.3e+03	1.42e+07	1.99e+04	7.1e+02
27	13C-2,3,7,8-TCDD	8.28e+06	2.05e+03	4.0e+03	1.06e+07	1.25e+03	8.5e+03
28	13C-1,2,3,7,8-PeCDD	1.39e+07	1.21e+03	1.2e+04	8.65e+06	6.96e+02	1.2e+04
29	13C-1,2,3,4,7,8-HxCDD	1.37e+07	3.78e+03	3.6e+03	1.06e+07	2.79e+03	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	1.33e+07	3.78e+03	3.5e+03	1.05e+07	2.79e+03	3.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.17e+07	1.01e+04	1.2e+03	1.09e+07	5.23e+03	2.1e+03
32	13C-OCDD	1.36e+07	9.87e+03	1.4e+03	1.48e+07	1.08e+04	1.4e+03
33	13C-1,2,3,4-TCDD	8.10e+06	2.05e+03	3.9e+03	1.04e+07	1.25e+03	8.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.43e+07	3.78e+03	3.8e+03	1.12e+07	2.79e+03	4.0e+03
35	37Cl-2,3,7,8-TCDD	2.00e+06	6.60e+02	3.0e+03			

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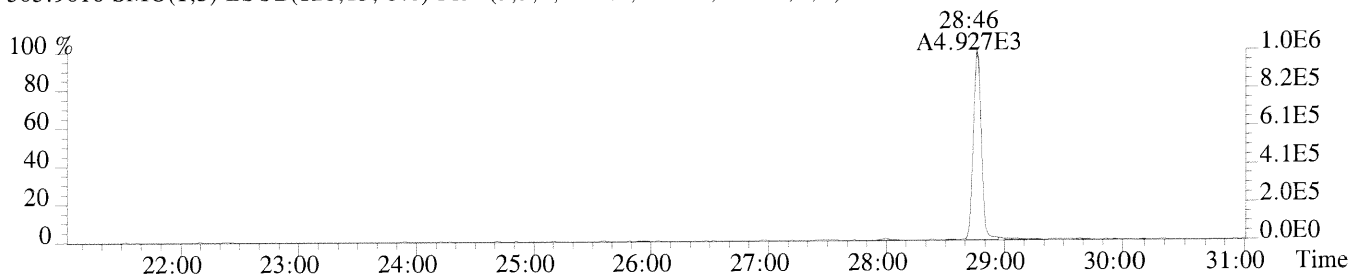
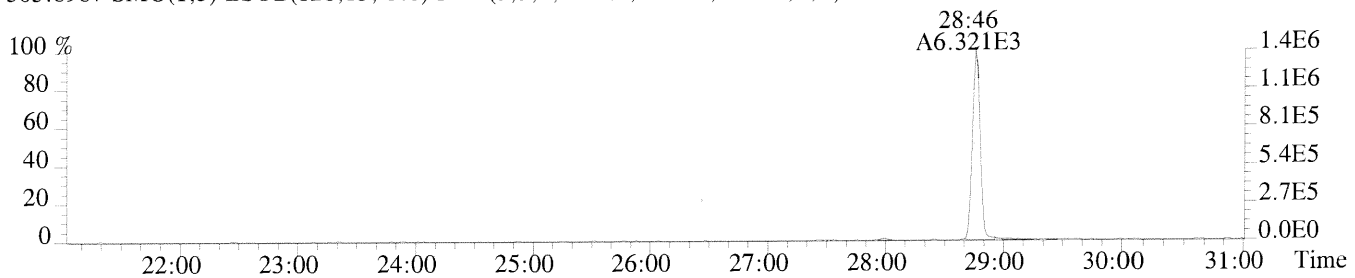
File:P229290 #1-627 Acq:27-MAY-2014 10:02:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

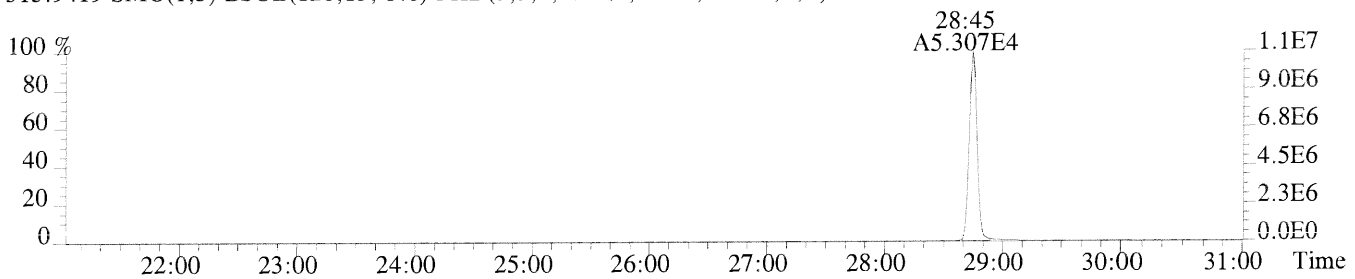
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



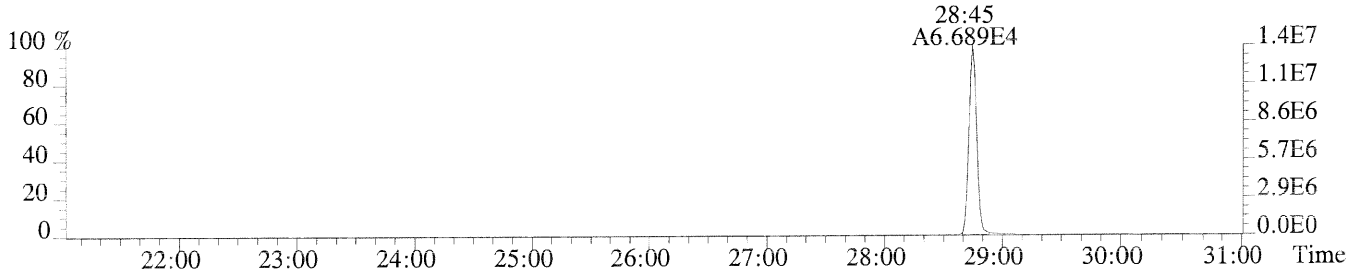
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1988.0,1.00%,F,T)



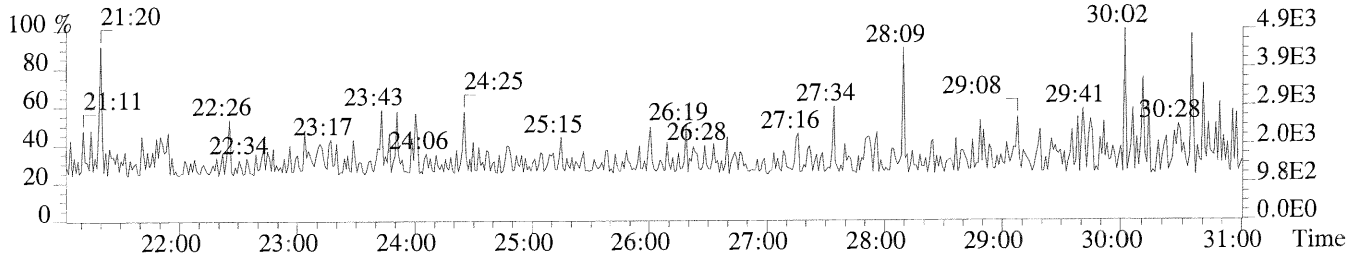
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



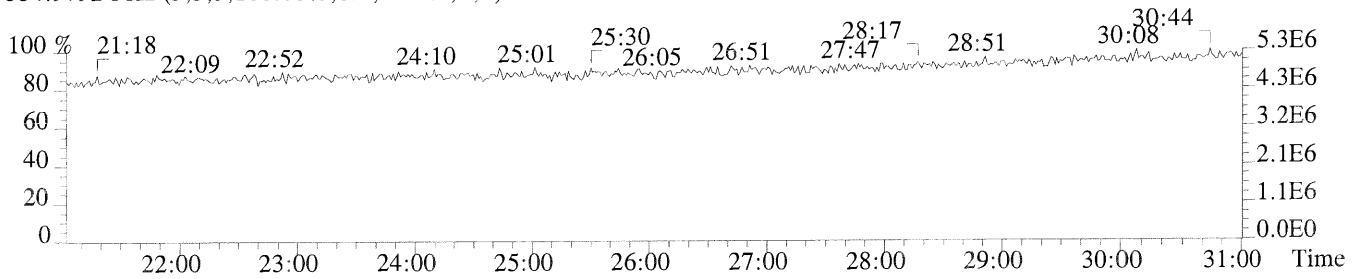
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

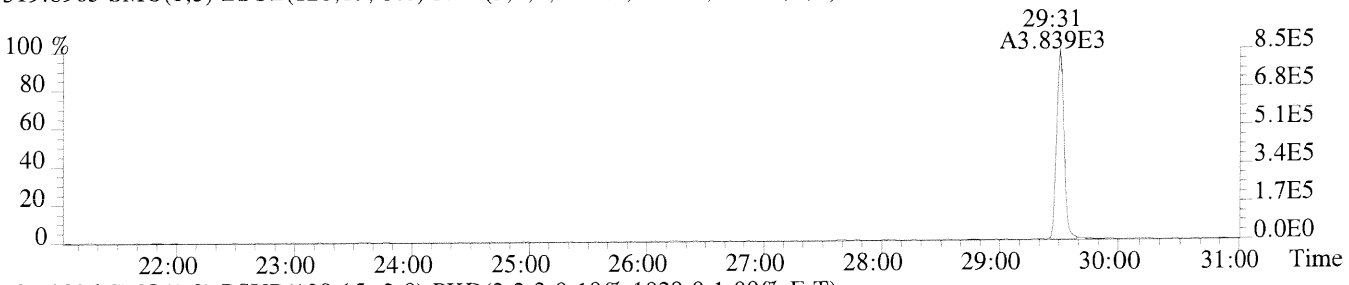


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

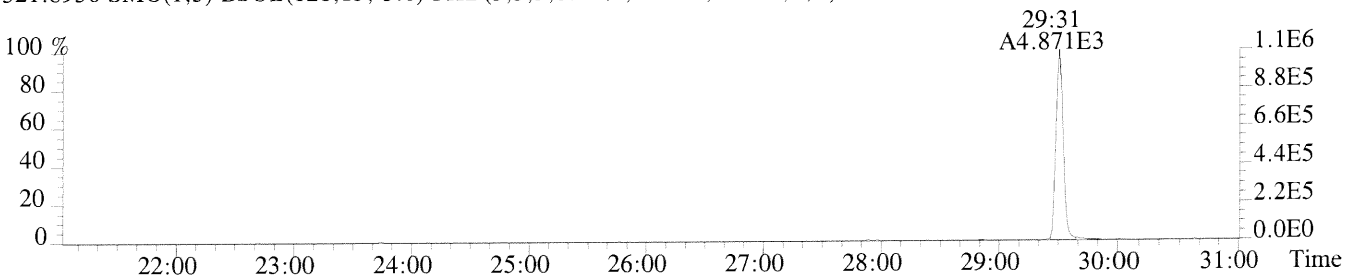


File:P229290 #1-627 Acq:27-MAY-2014 10:02:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

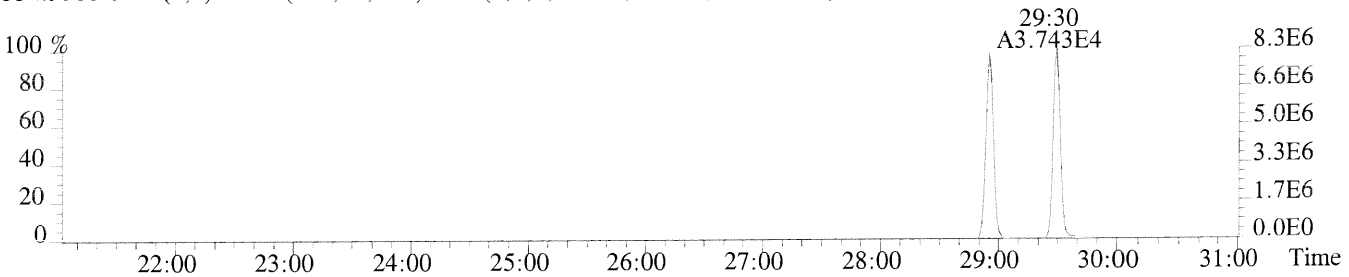
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



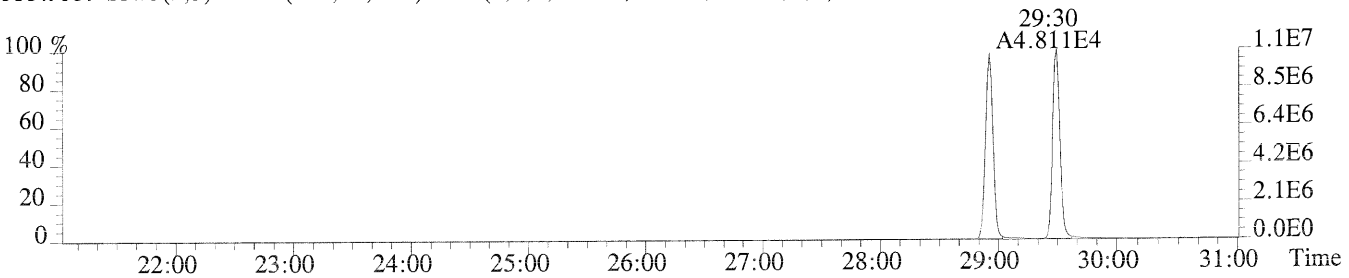
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



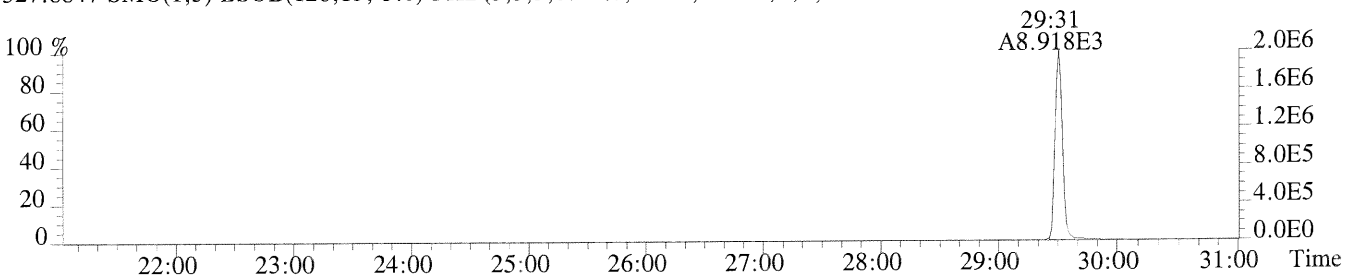
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2052.0,1.00%,F,T)



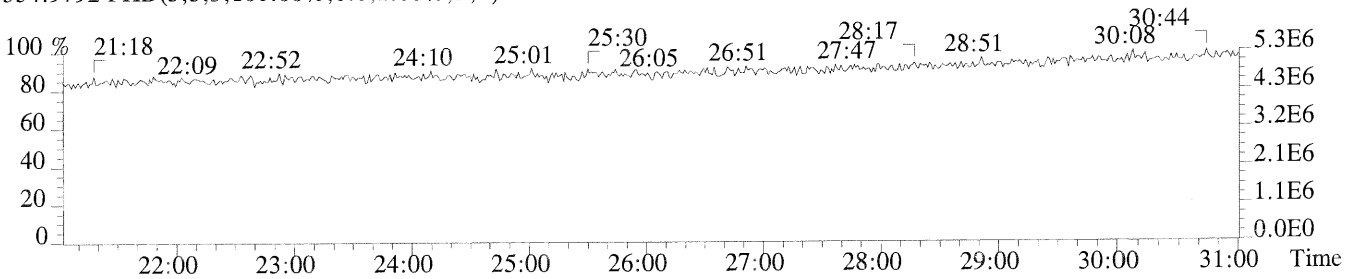
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



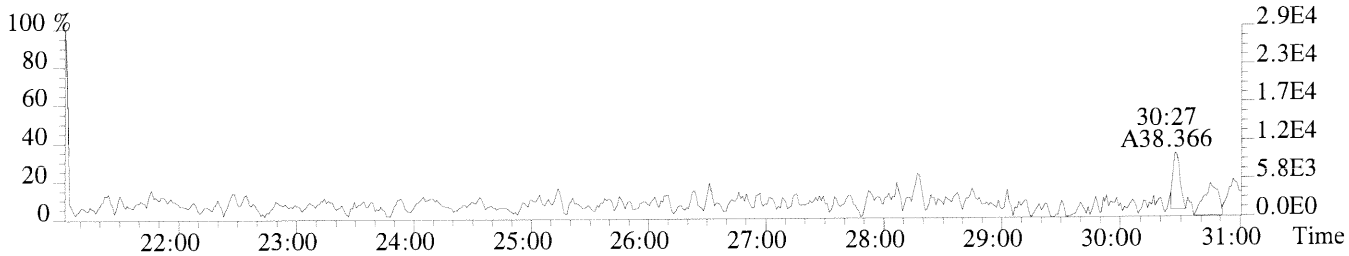
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



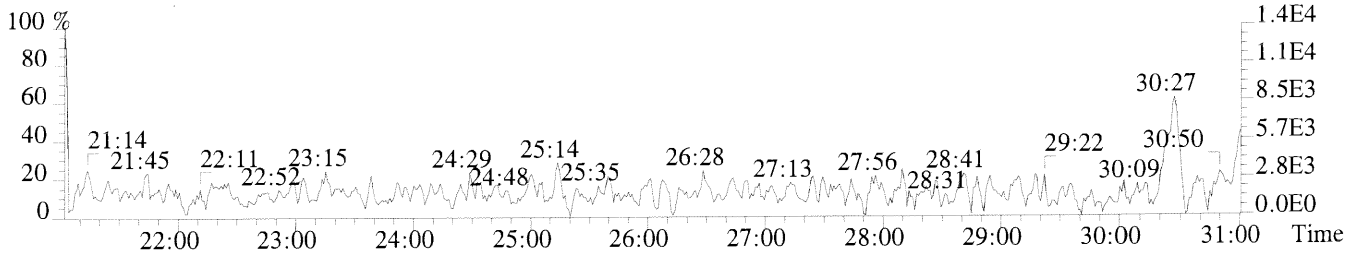
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



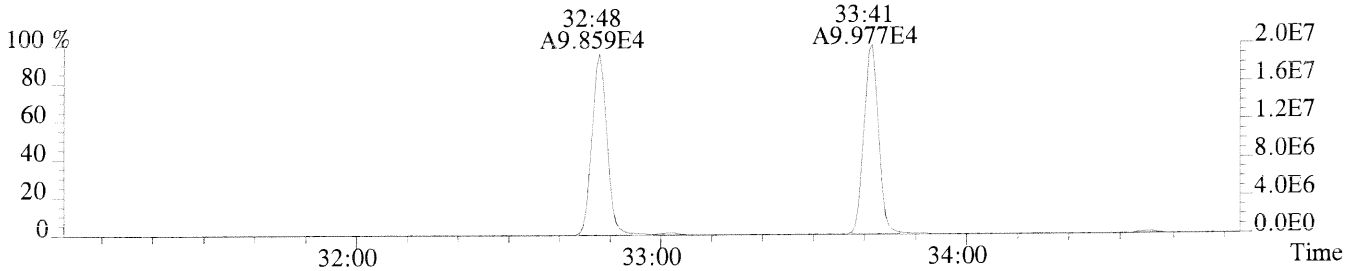
File:P229290 #1-627 Acq:27-MAY-2014 10:02:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2828.0,1.00%,F,T)



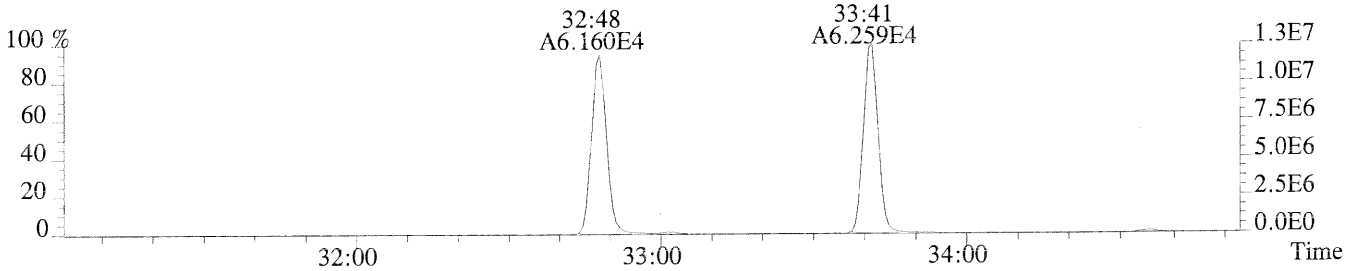
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2300.0,1.00%,F,T)



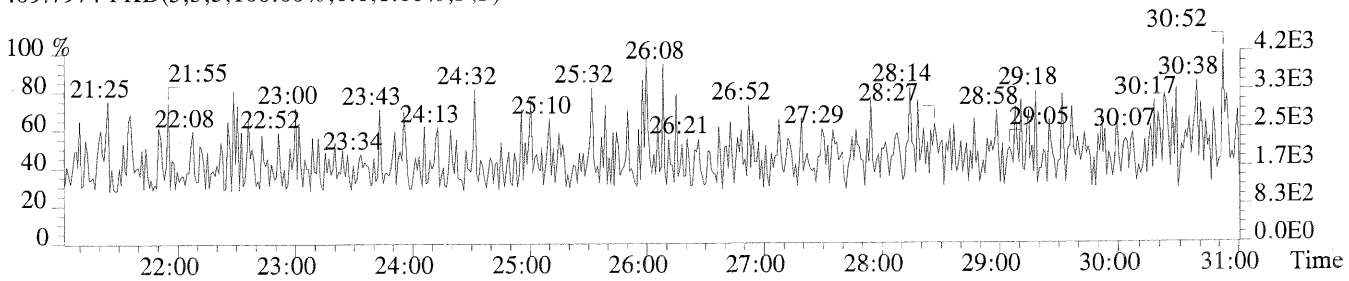
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



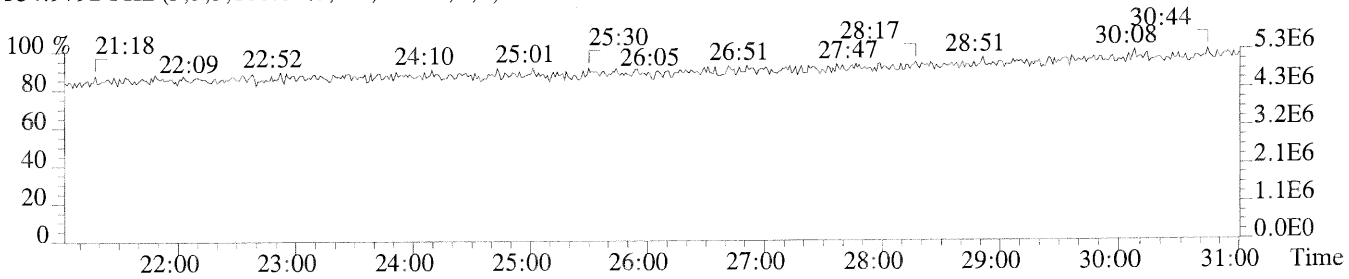
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

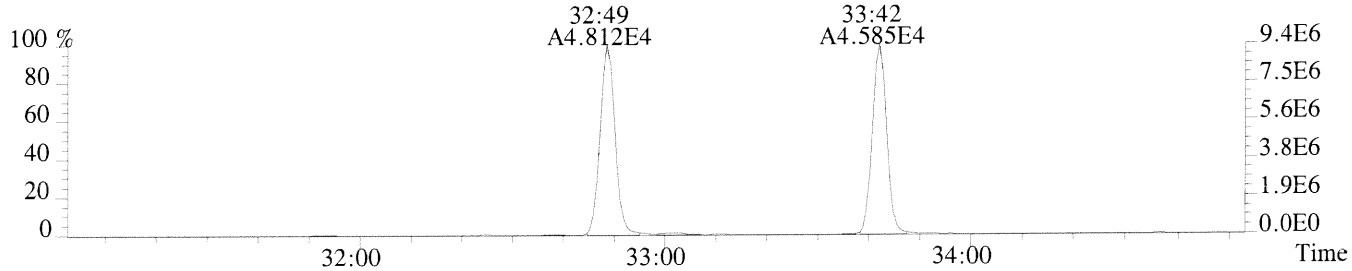


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

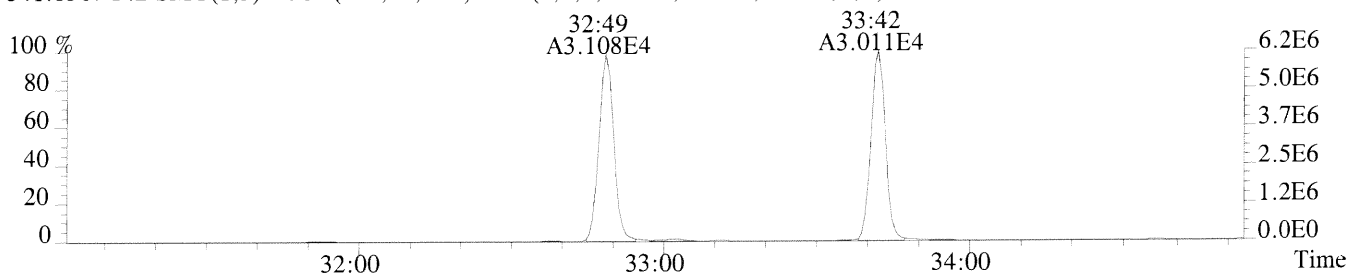


File:P229290 #1-349 Acq:27-MAY-2014 10:02:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

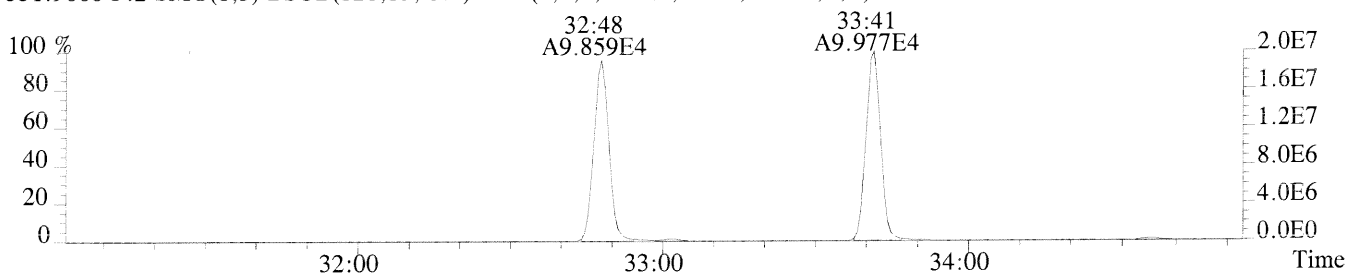
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7108.0,1.00%,F,T)



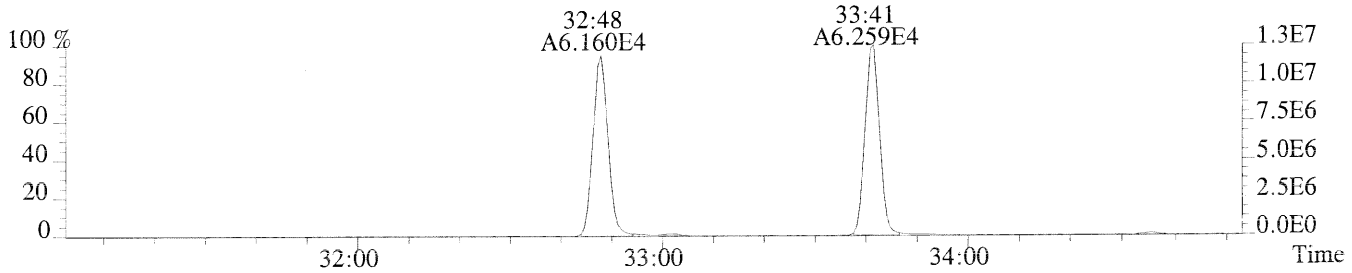
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5184.0,1.00%,F,T)



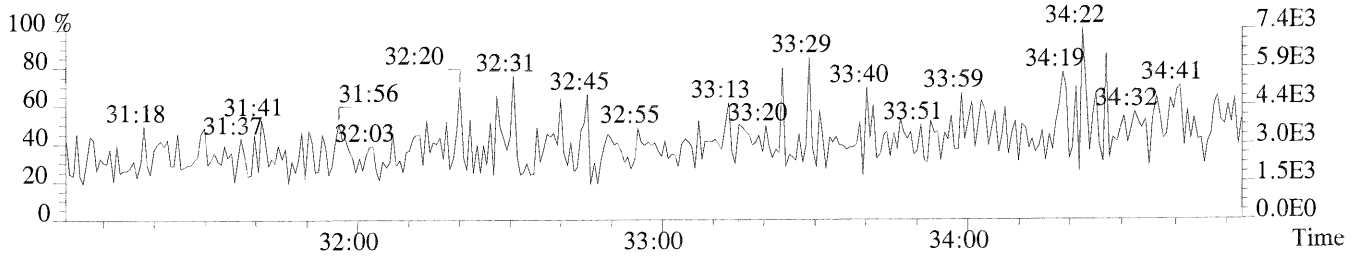
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



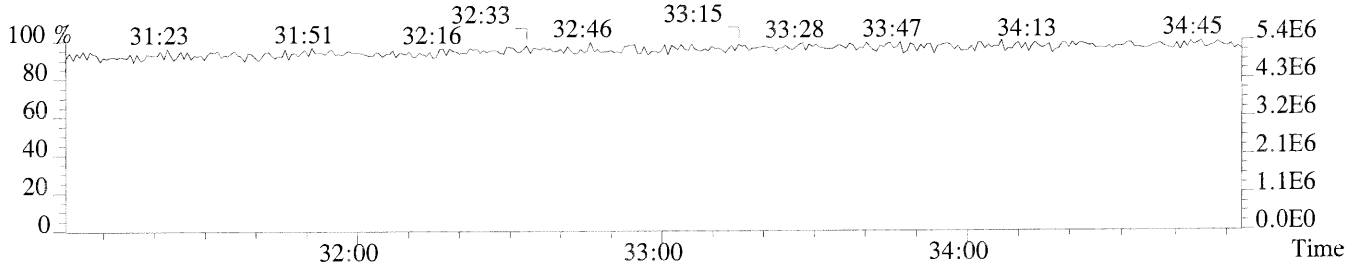
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



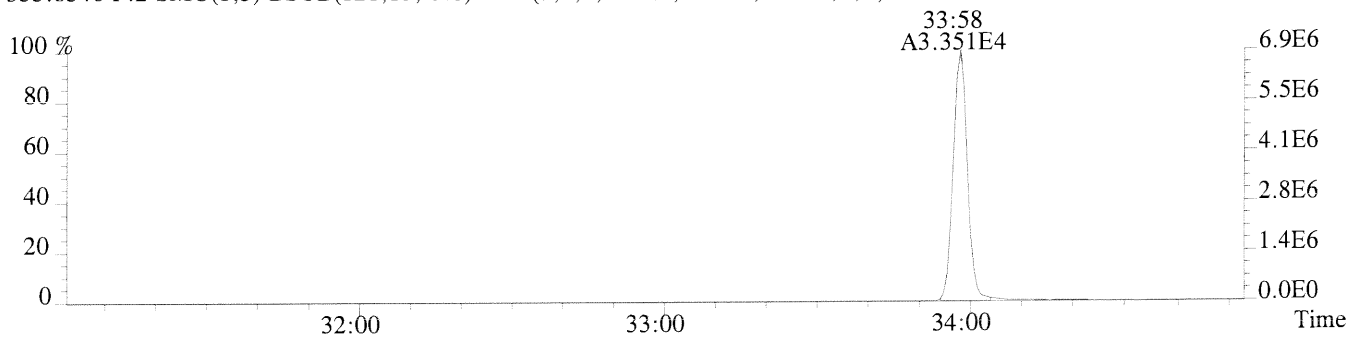
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



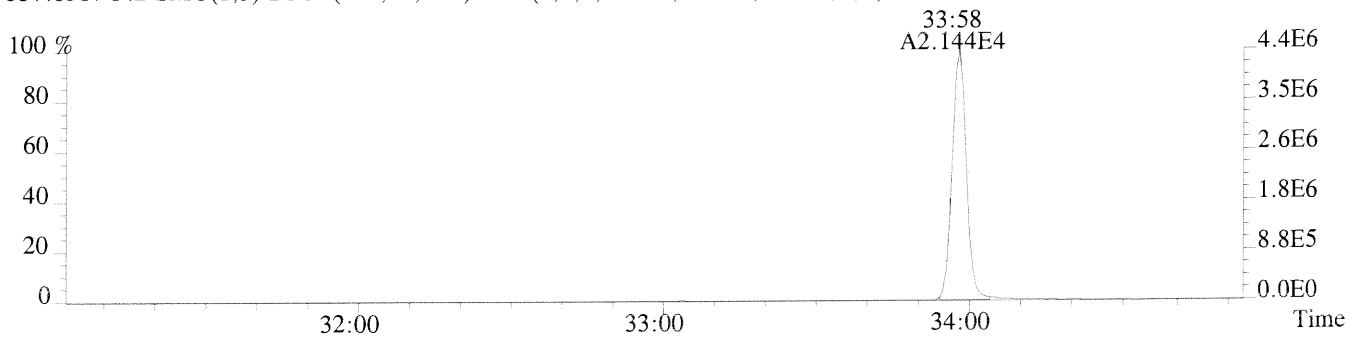
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



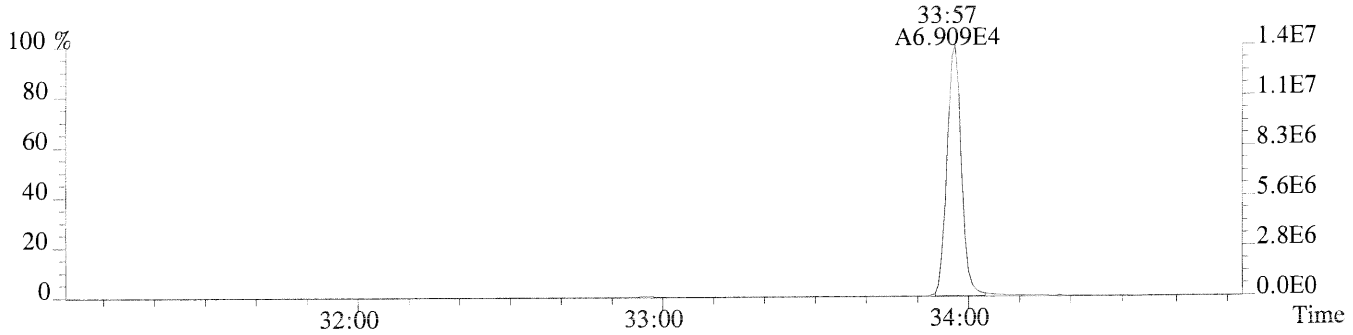
File:P229290 #1-349 Acq:27-MAY-2014 10:02:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3836.0,1.00%,F,T)



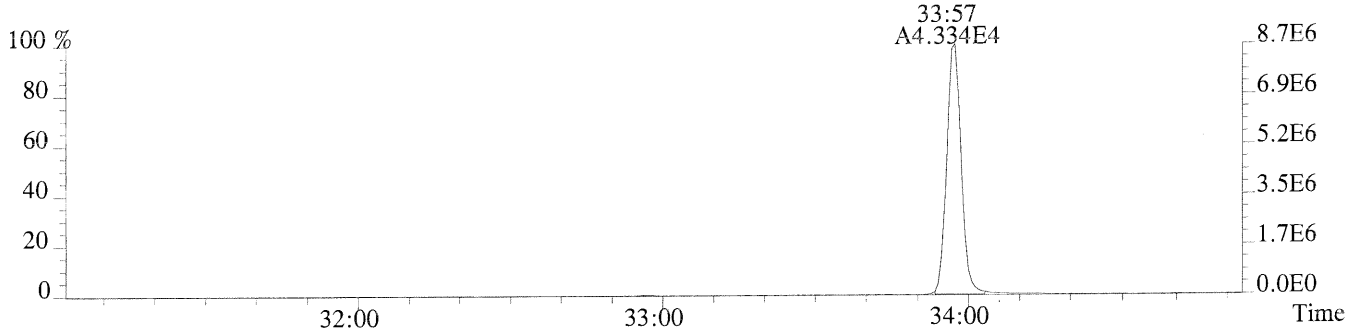
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3024.0,1.00%,F,T)



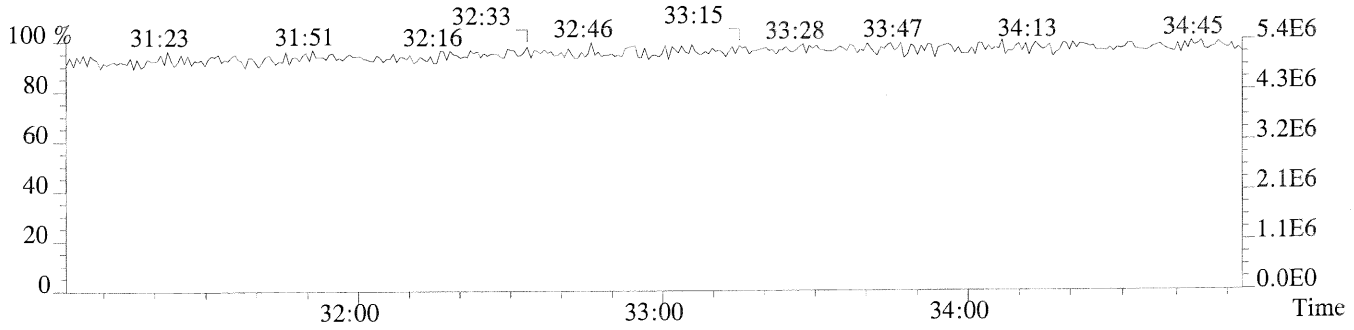
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1208.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)

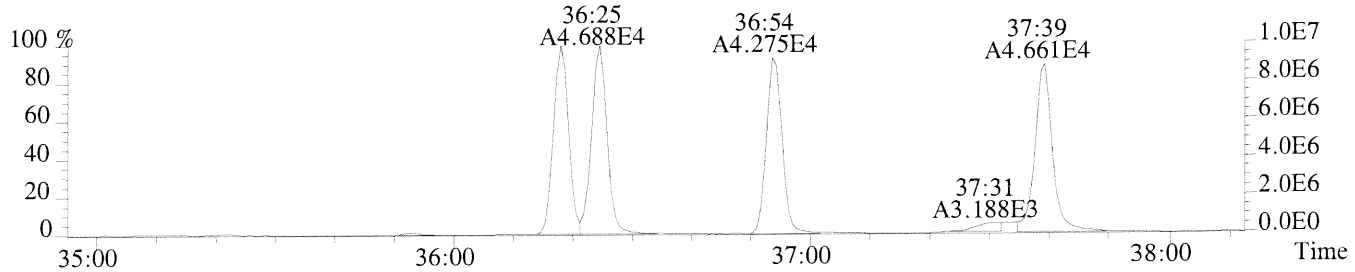


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

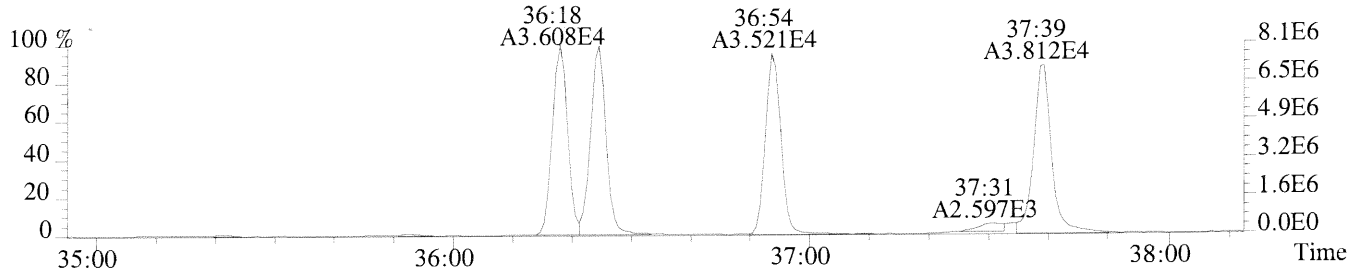


File:P229290 #1-299 Acq:27-MAY-2014 10:02:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

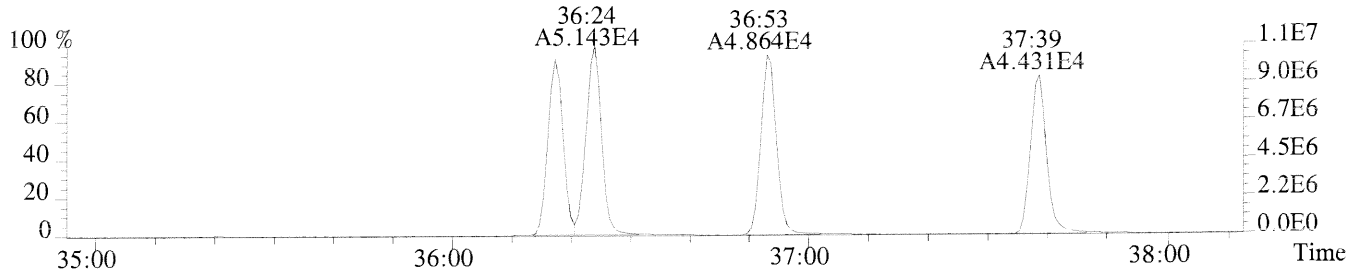
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17084.0,0.40%,F,T)



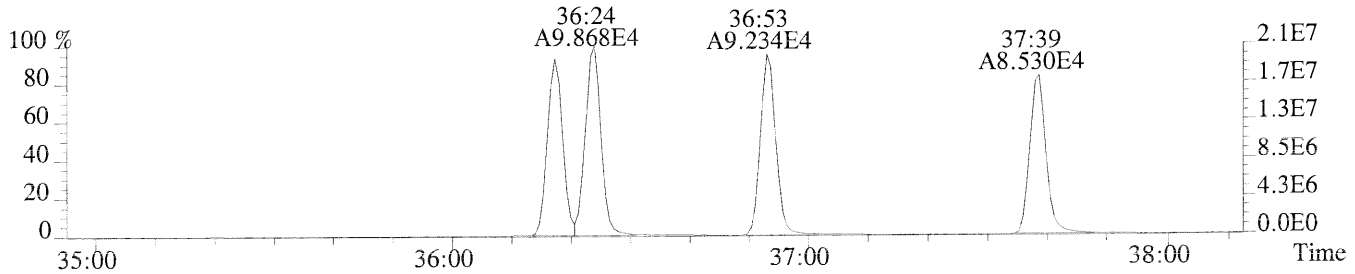
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,14096.0,0.40%,F,T)



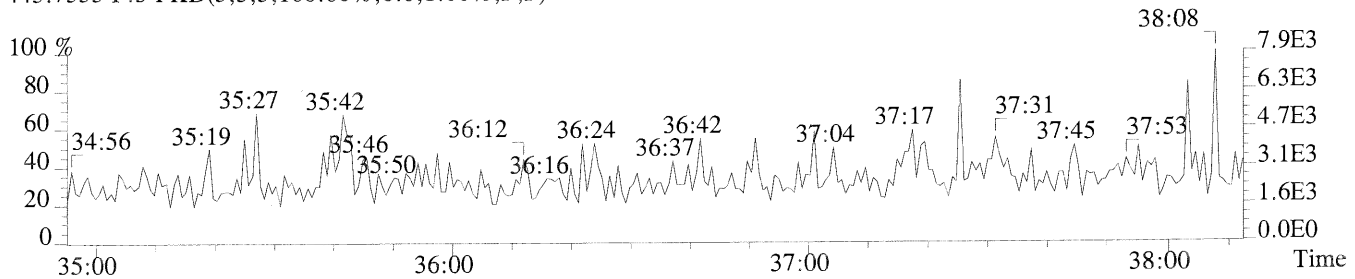
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1952.0,0.40%,F,T)



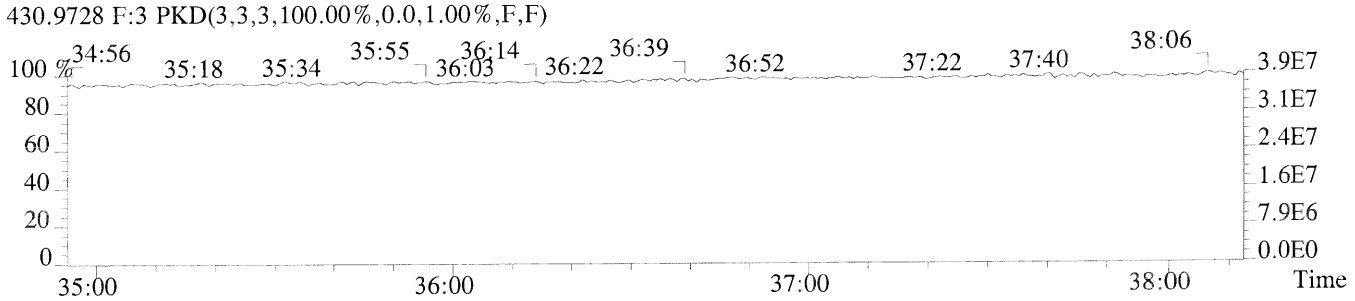
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4560.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

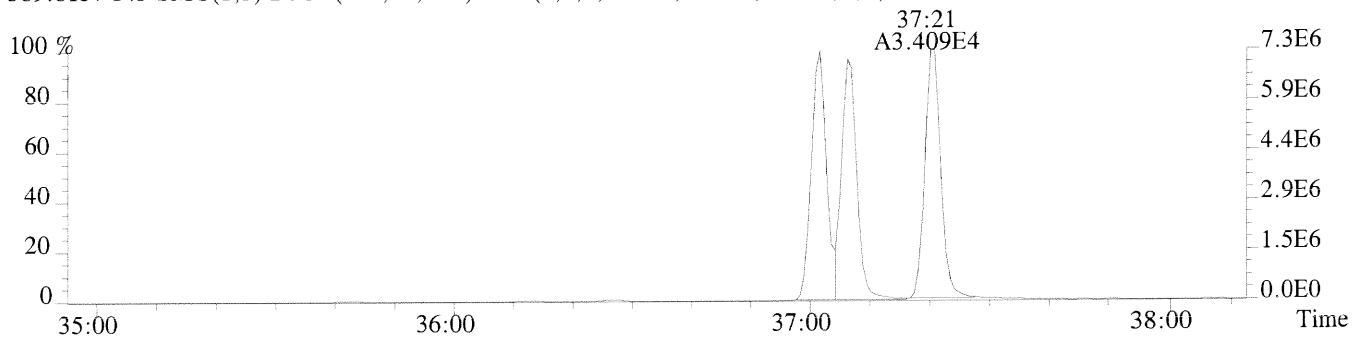


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

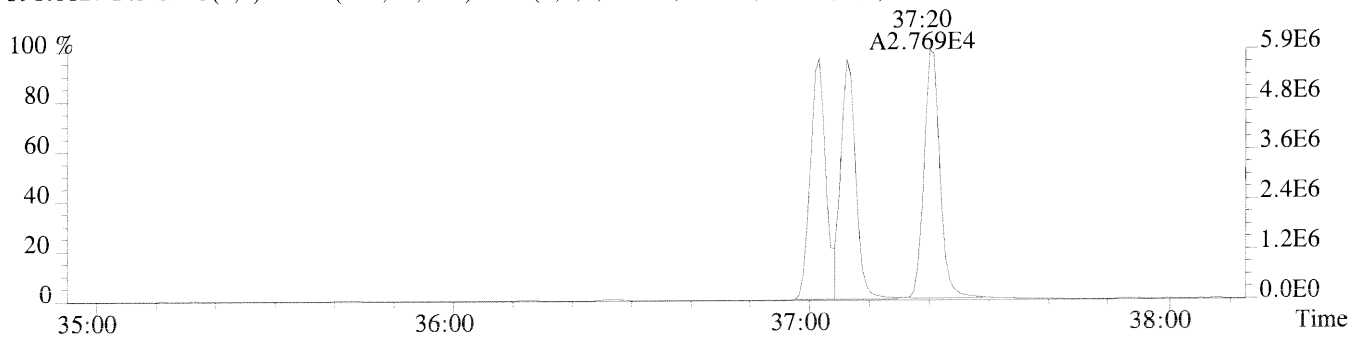


File:P229290 #1-299 Acq:27-MAY-2014 10:02:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

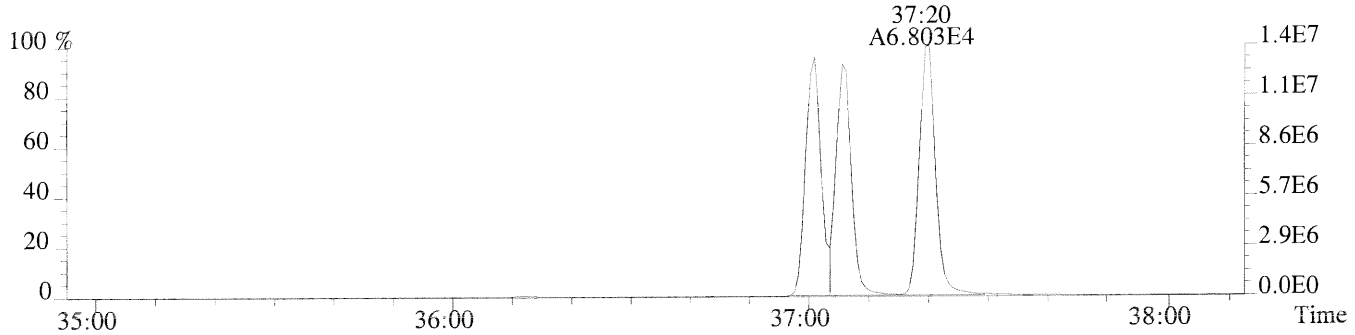
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7752.0,0.40%,F,T)



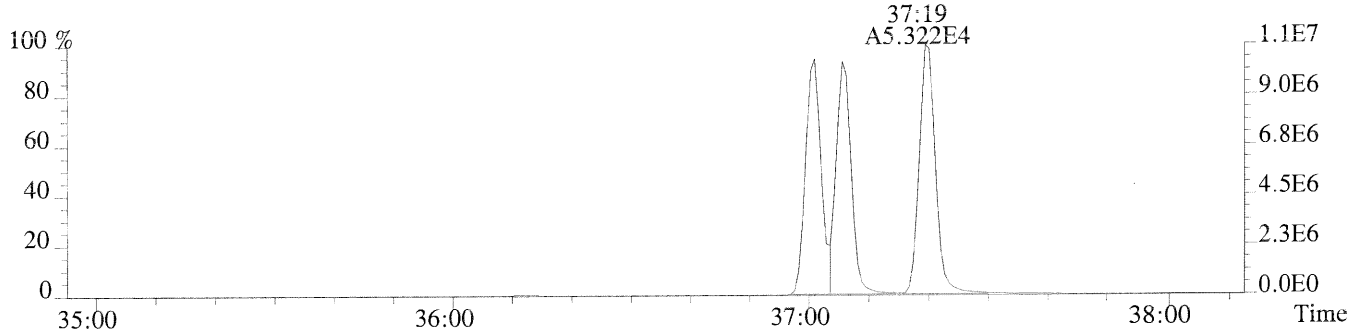
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6172.0,0.40%,F,T)



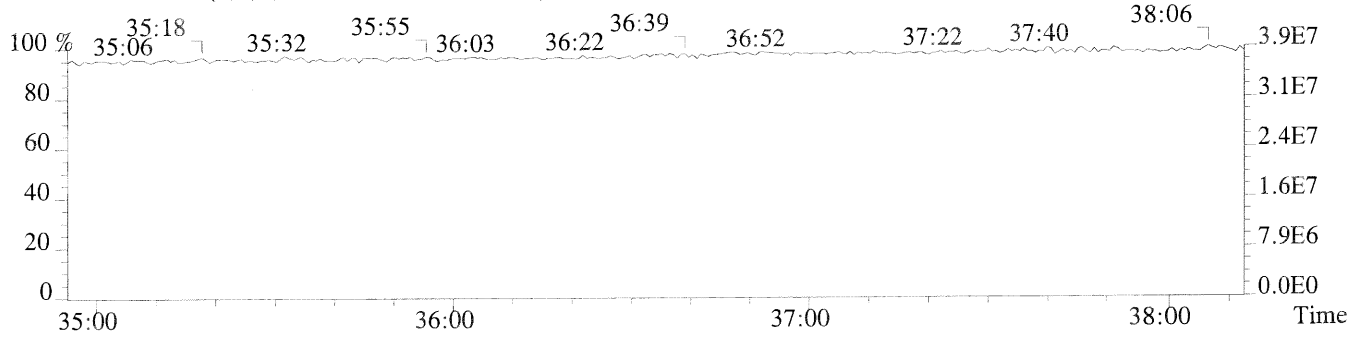
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3784.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2788.0,0.40%,F,T)

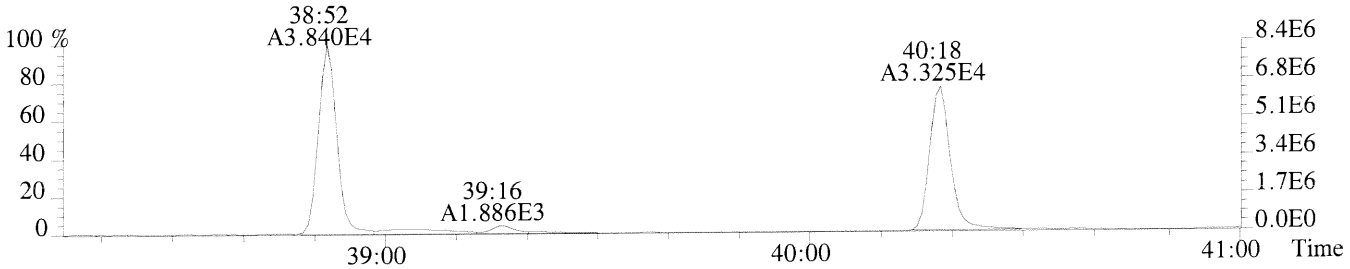


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

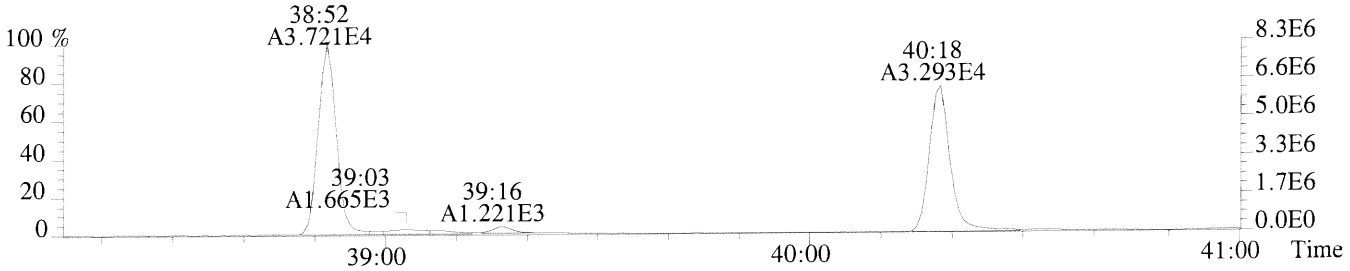


File:P229290 #1-251 Acq:27-MAY-2014 10:02:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

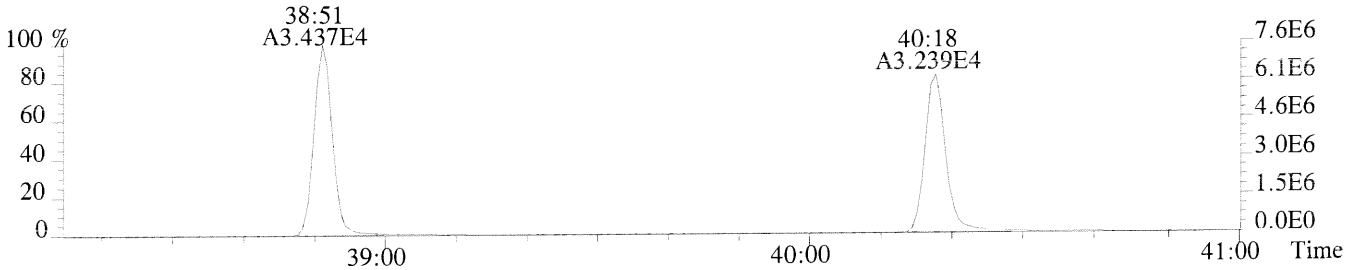
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17048.0,0.50%,F,T)



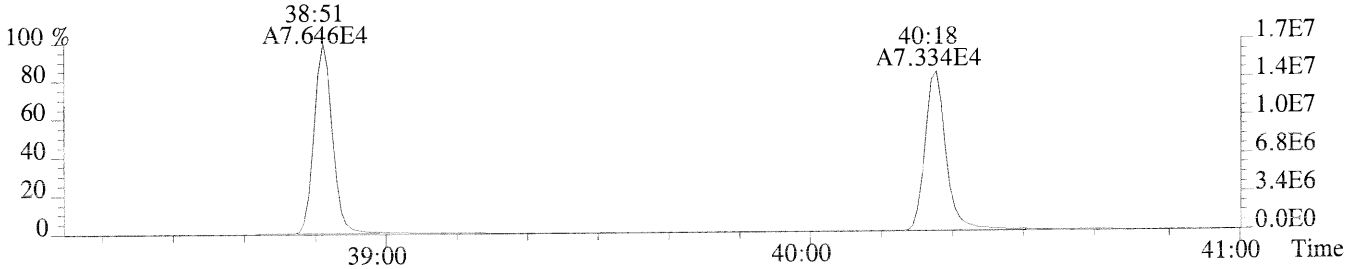
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,19928.0,0.50%,F,T)



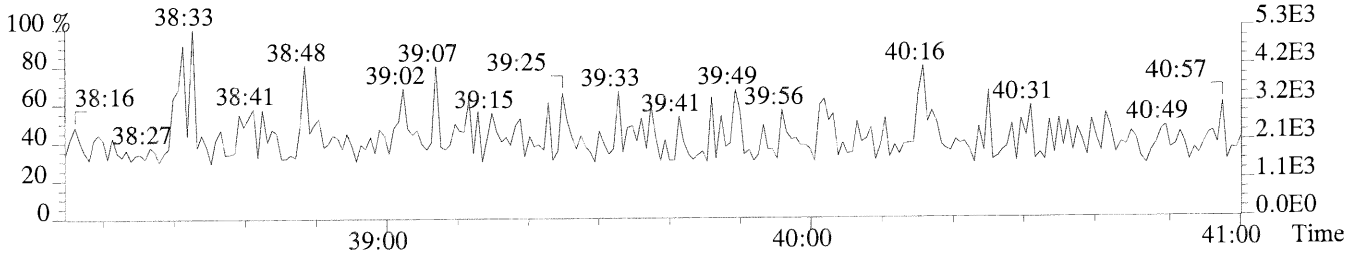
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4864.0,0.50%,F,T)



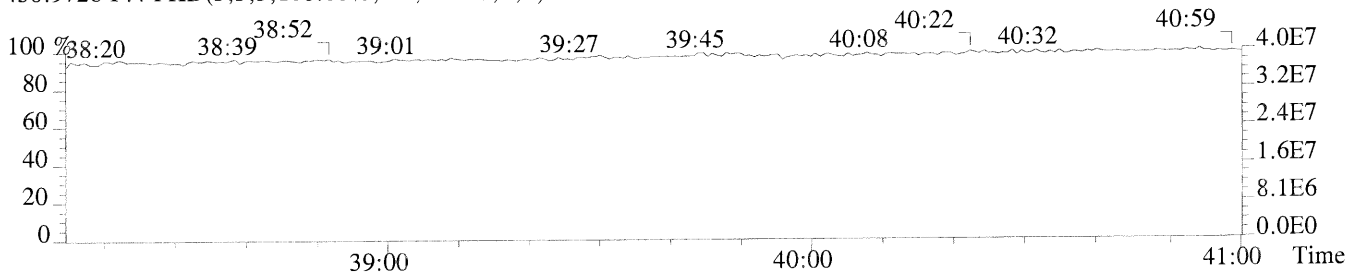
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,19860.0,0.50%,F,T)



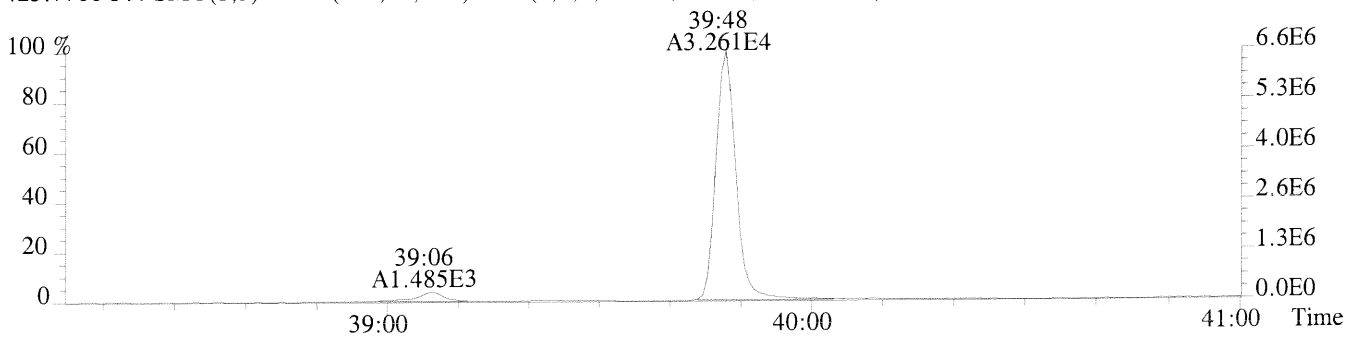
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



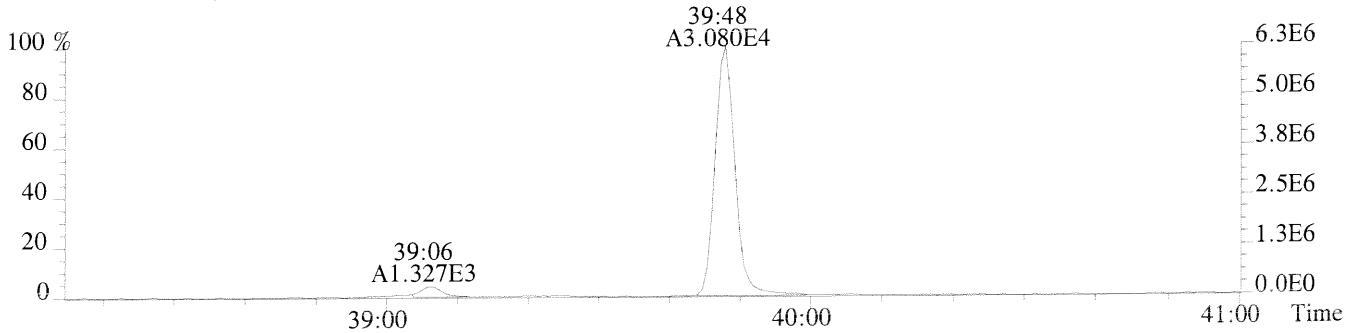
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



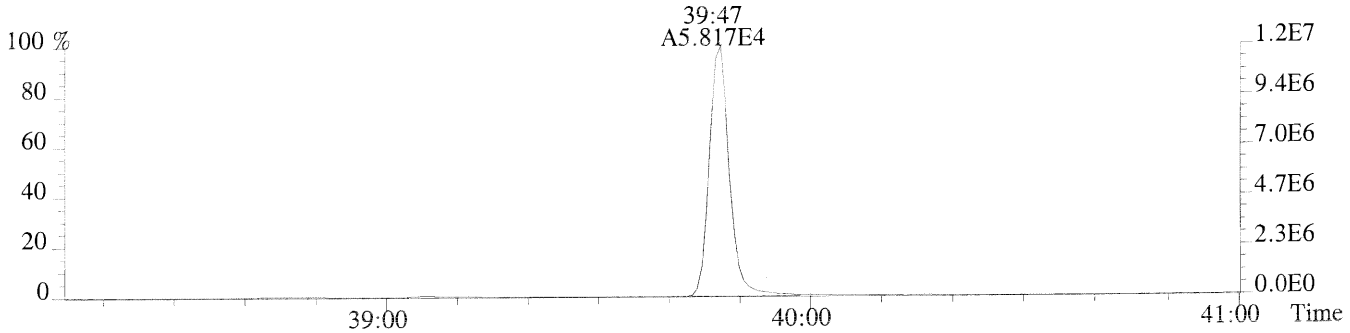
File:P229290 #1-251 Acq:27-MAY-2014 10:02:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9652.0,0.40%,F,T)



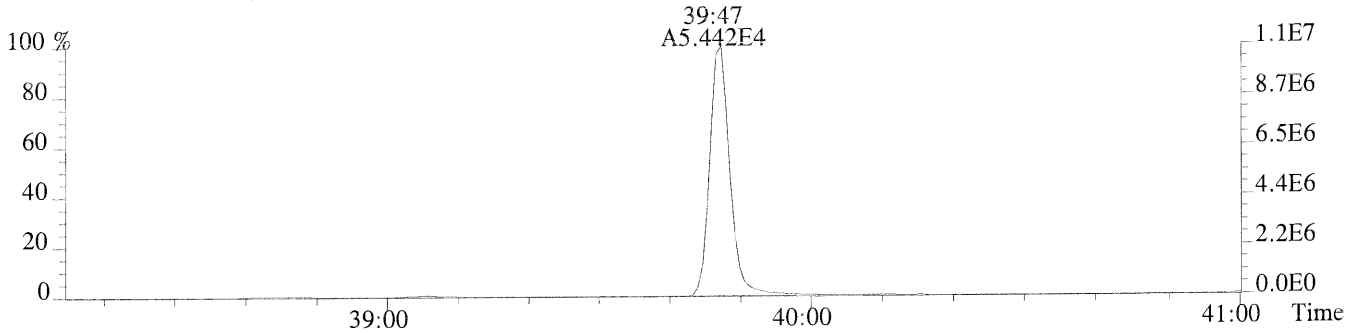
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8516.0,0.40%,F,T)



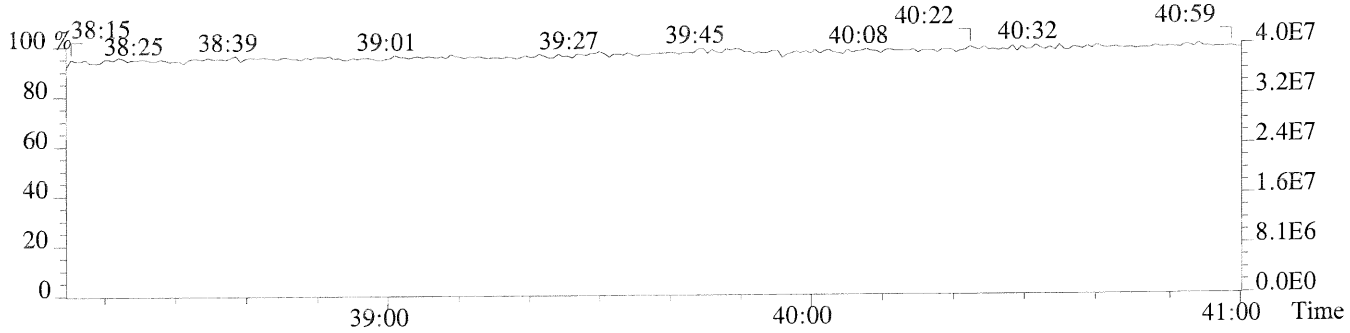
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,10064.0,0.40%,F,T)



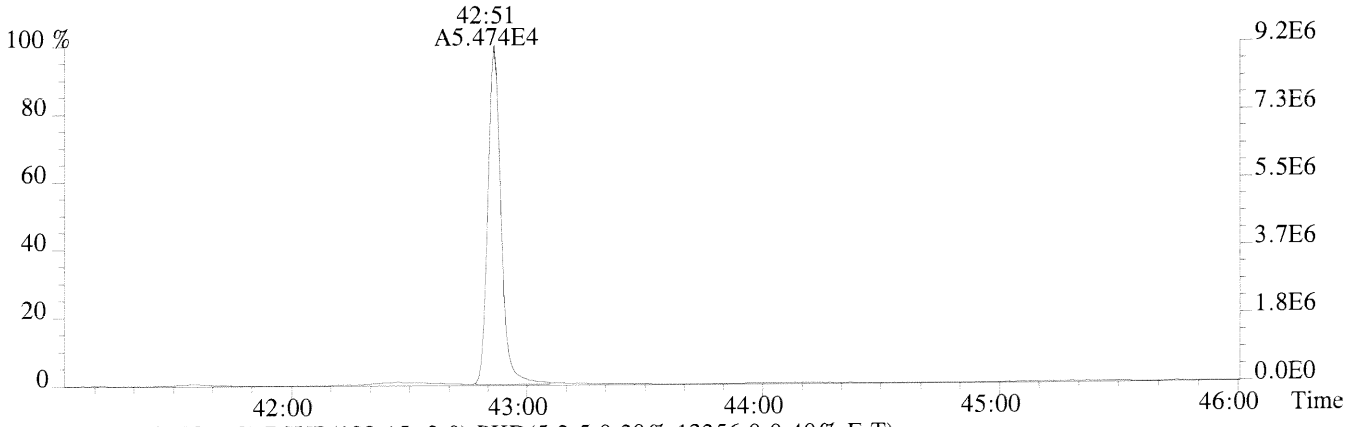
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5232.0,0.40%,F,T)



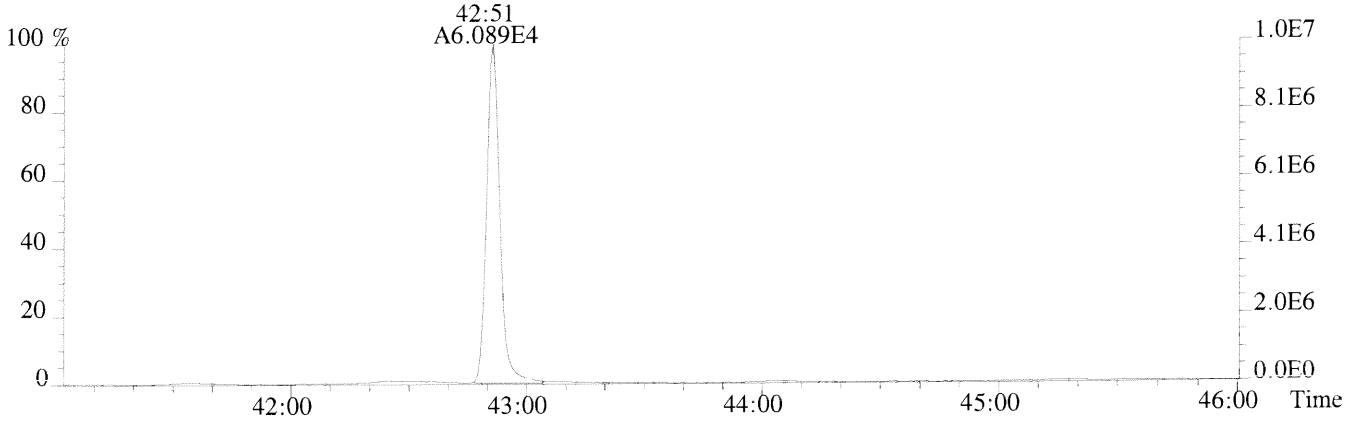
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



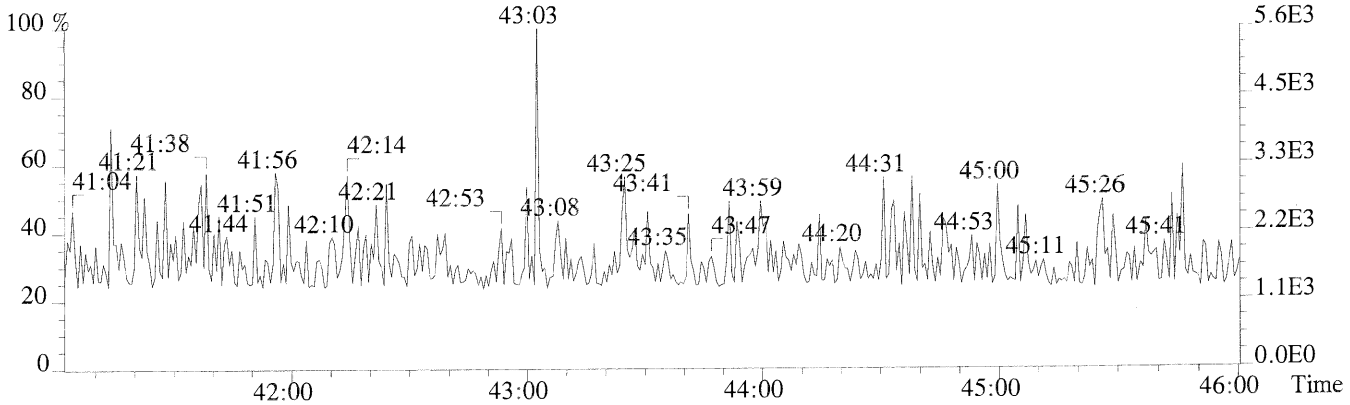
File:P229290 #1-457 Acq:27-MAY-2014 10:02:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4912.0,0.40%,F,T)



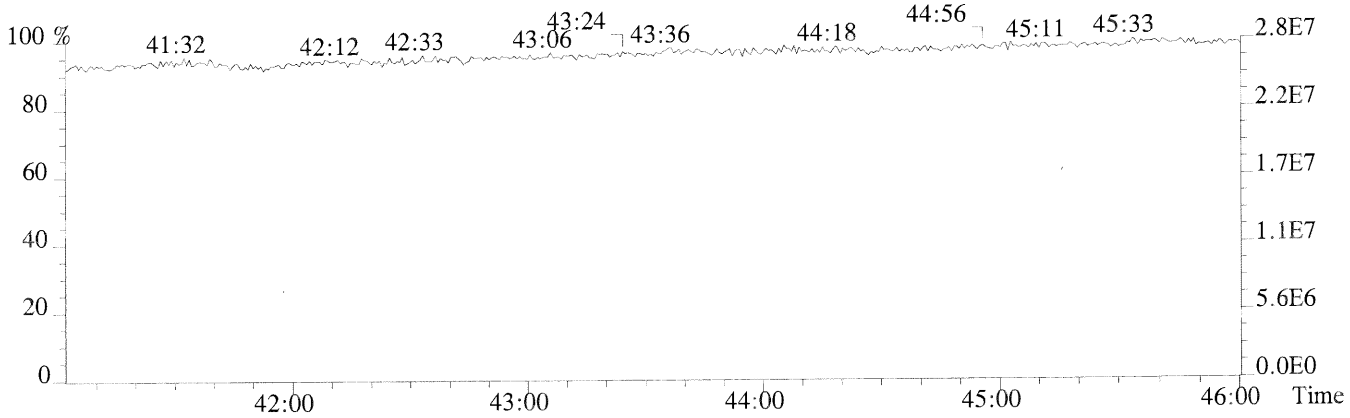
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,13356.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

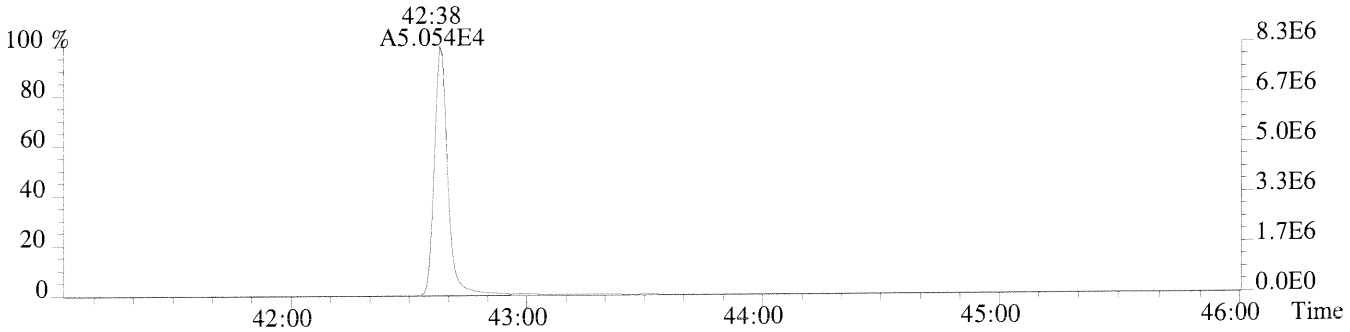


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

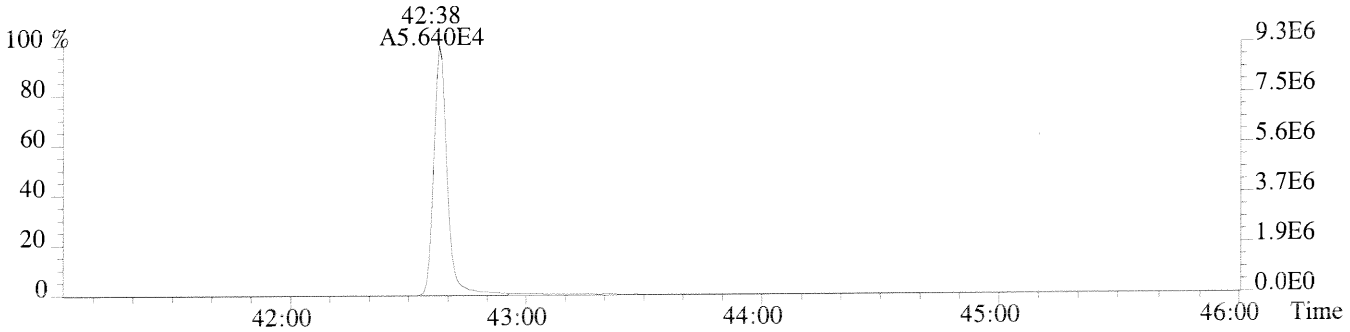


File:P229290 #1-457 Acq:27-MAY-2014 10:02:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

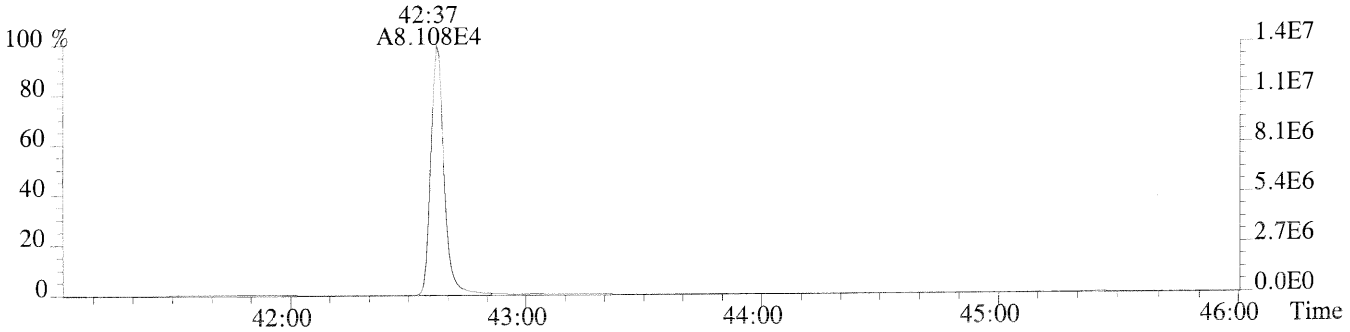
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3600.0,0.40%,F,T)



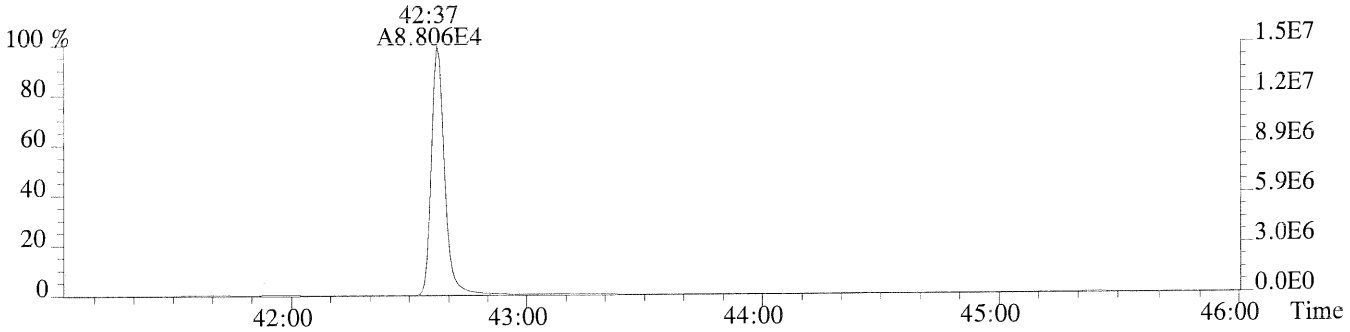
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4544.0,0.40%,F,T)



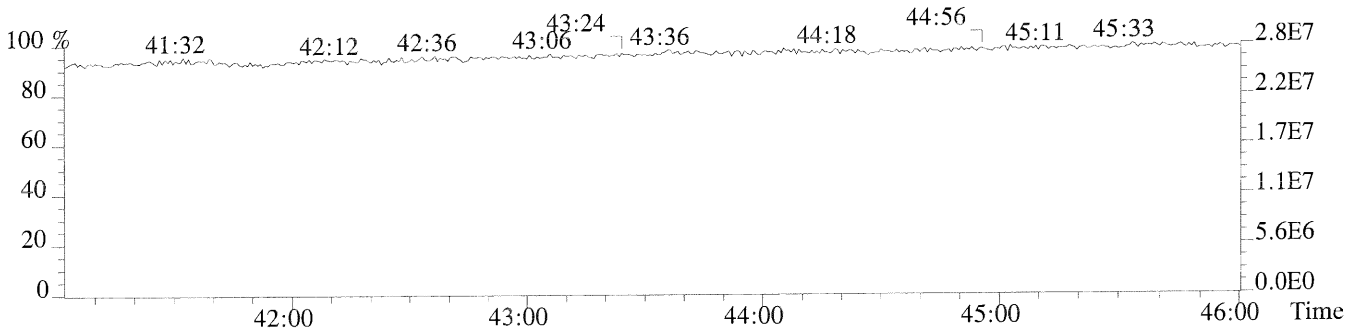
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,9872.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,10832.0,0.40%,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: U149277-U149284

Date: 05/28/14

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	✓	✓

Analyst: gc

Second QC: LKL

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: 05/21/2014

Init. Calib.Times: 13:12

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
63680	WINDOW DEFINE	U149278	28-MAY-14	08:44:26
66131	CCAL HRCC3/CS3	U149277	28-MAY-14	04:01:04
METHOD BLANK	EQ1400264-01	U149279	28-MAY-14	10:19:10
METHOD BLANK	EQ1400257-01	U149280	28-MAY-14	11:06:15
LCS	EQ1400257-02	U149281	28-MAY-14	11:55:27
LCS	EQ1400252-02	U149282	28-MAY-14	12:44:21
LCS	EQ1400260-02	U149283	28-MAY-14	13:33:02
66131	CCAL HRCC3/CS3	U149284	28-MAY-14	14:21:42

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\U1140528.SPL
Last Modified: Wednesday, May 28, 2014 11:47:49 Central Daylight Time
Printed: Wednesday, May 28, 2014 15:39:48 Central Daylight Time

Page Position (1, 1)

e: U149277res

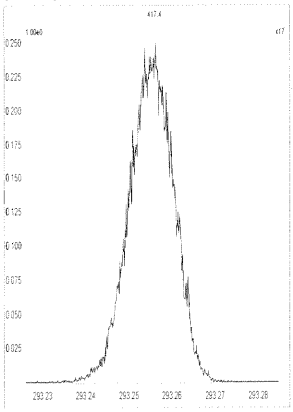
	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	05/28/14	04:01	U149277	CCAL HRCC3/CS3	66131	LL	HRMS Check 08:38	8290cas
2		08:44	U149278	WINDOW DEFINE	63680			8290cas
3		10:19	U149279	EQ1400264-01 MB	MB			8290cas
4		11:00	U149280	EQ1400257-01 MB	MB			8290cas
5		11:55	U149281	EQ1400257-02	LCS			8290cas
6		12:44	U149282	EQ1400252-02	LCS			8290cas
7		13:33	U149283	EQ1400260-02	LCS			8290cas
8		14:21	U149284	CCAL HRCC3/CS3	66131		HRMS Check 15:18	8290cas
9			---	---	---			8290cas
10			---	---	---			8290cas
11			---	---	---			8290cas
12			---	---	---			8290cas
13			---	---	---			8290cas
14			---	---	---			8290cas
15			---	---	---			8290cas
16			---	---	---			1668EPA
17			---	---	---			1668EPA
18			---	---	---			1668EPA
19			---	---	---			1668EPA
20			---	---	---			1668EPA
21			---	---	---			1668EPA
22			---	---	---			1668EPA
23			---	---	---			---
24			---	---	---			---
25			---	---	---			TCDFCAS
26			---	---	---			TCDFCAS
27			---	---	---			TCDFCAS
28			---	---	---			TCDFCAS
29			---	---	---			TCDFCAS
30			---	---	---			TCDFCAS
31			---	---	---			TCDFCAS
32			---	---	---			TCDFCAS
33			---	---	---			TCDFCAS
34			---	---	---			TCDFCAS
35			---	---	---			TCDFCAS
36			---	---	---			---
37			---	---	---			1668EPA
38			---	---	---			1668EPA
39			---	---	---			---

JC 05/28/14

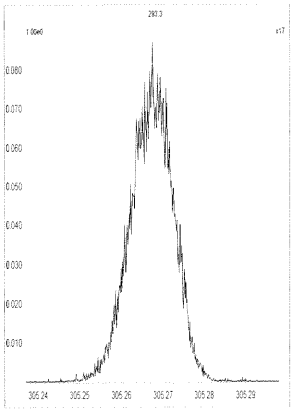
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, May 28, 2014 08:38:47 Central Daylight Time

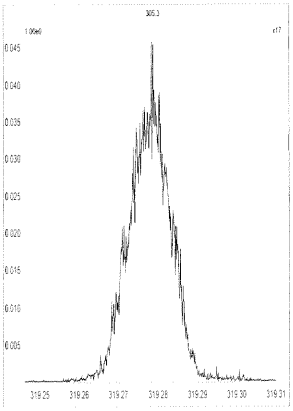
M 292.9824 R 12443



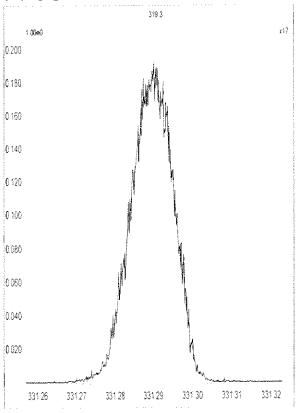
M 304.9824 R 12950



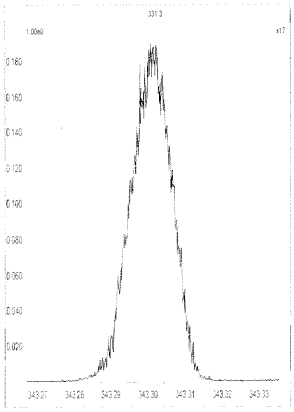
M 318.9792 R 13371



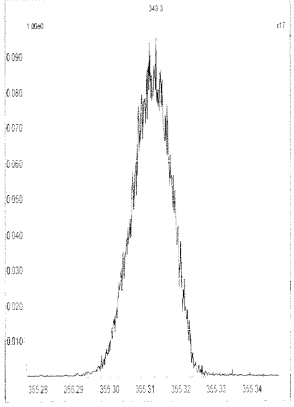
M 330.9792 R 13435



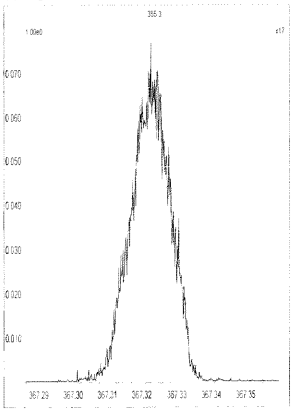
M 342.9792 R 14449



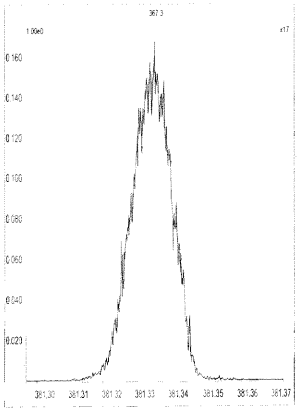
M 354.9792 R 14201



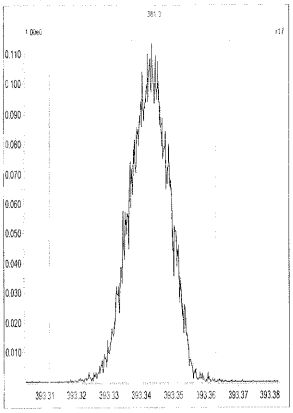
M 366.9792 R 15433



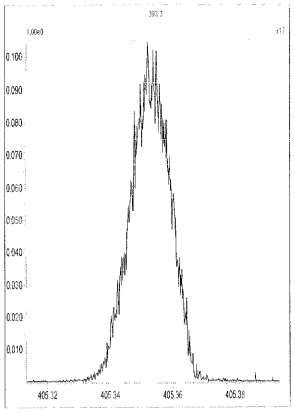
M 380.9760 R 14205



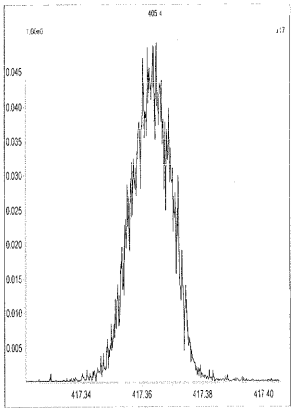
M 392.9760 R 14791



M 404.9760 R 13814



M 416.9760 R 14125

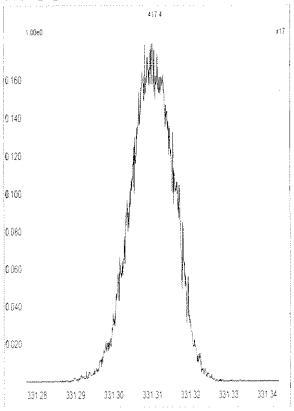


Experiment Calibration Report **MassLynx 4.1**

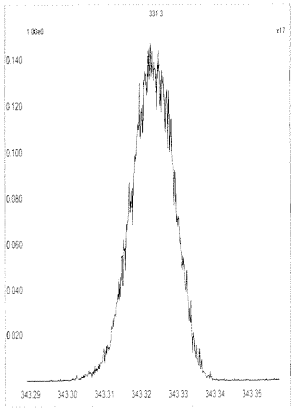
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, May 28, 2014 08:40:14 Central Daylight Time

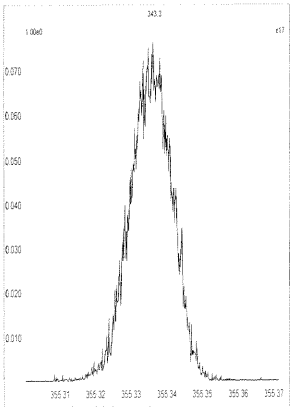
M 330.9792 R 12750



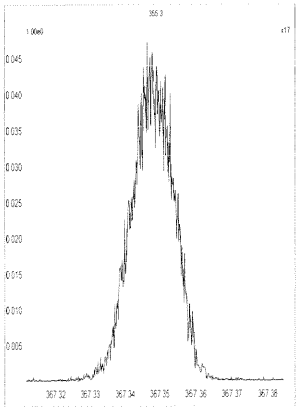
M 342.9792 R 12820



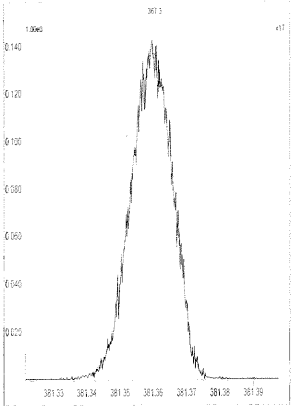
M 354.9792 R 13367



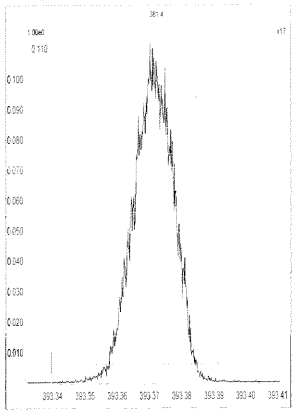
M 366.9792 R 14207



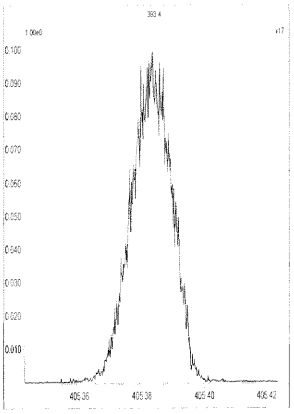
M 380.9760 R 13967



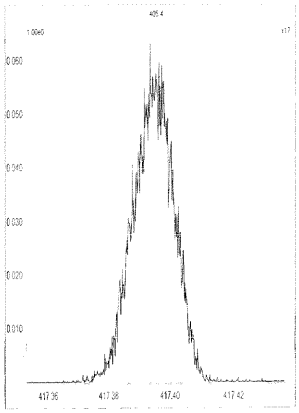
M 392.9760 R 14285



M 404.9760 R 14618



M 416.9760 R 14201

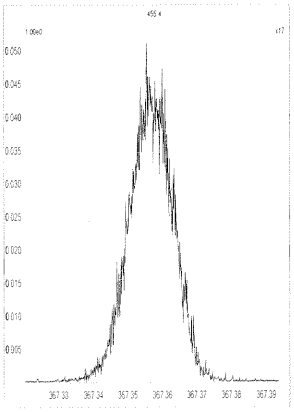


Experiment Calibration Report **MassLynx 4.1**

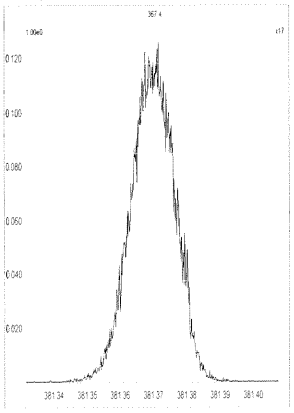
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, May 28, 2014 08:41:19 Central Daylight Time

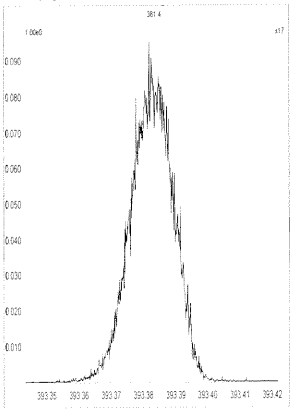
M 366.9792 R 12889



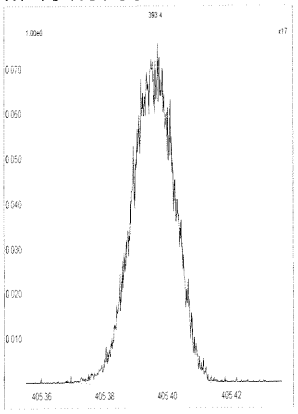
M 380.9760 R 12955



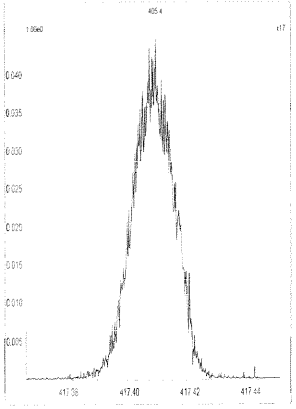
M 392.9760 R 13369



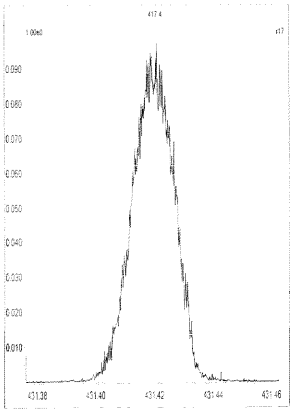
M 404.9760 R 13019



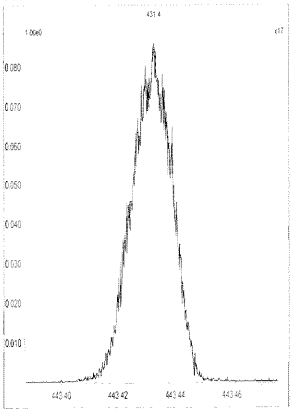
M 416.9760 R 13733



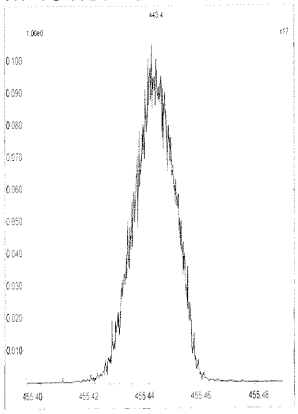
M 430.9728 R 13968



M 442.9728 R 14124



M 454.9728 R 14366

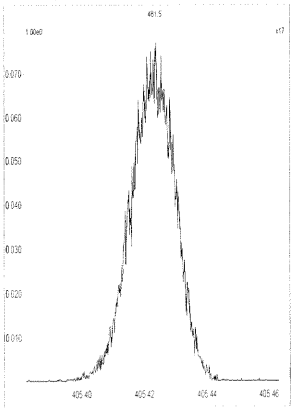


Experiment Calibration Report **MassLynx 4.1**

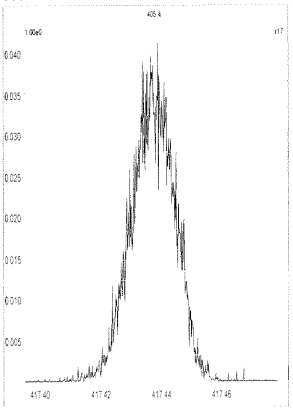
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, May 28, 2014 08:42:26 Central Daylight Time

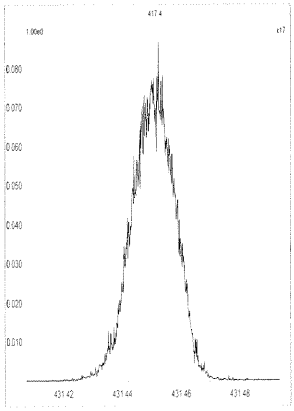
M 404.9760 R 12376



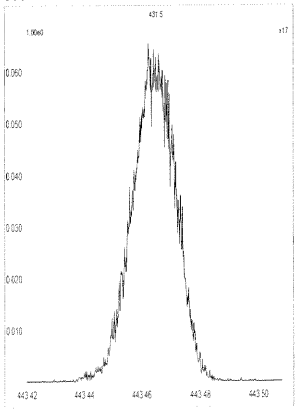
M 416.9760 R 12753



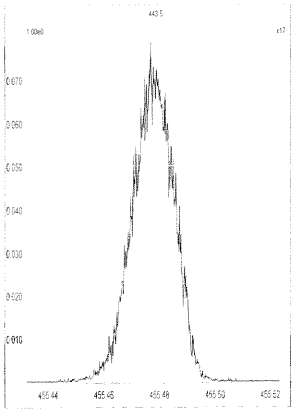
M 430.9728 R 12951



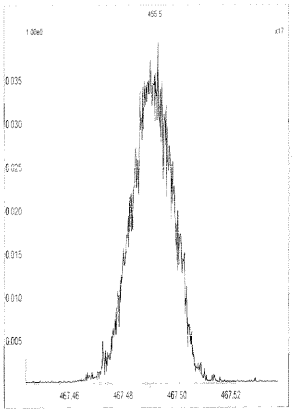
M 442.9728 R 13022



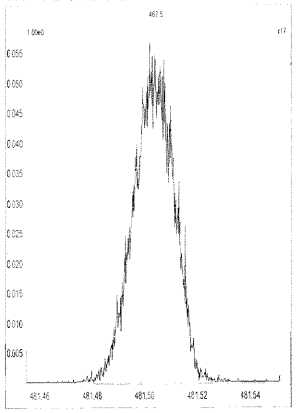
M 454.9728 R 13227



M 466.9728 R 14127



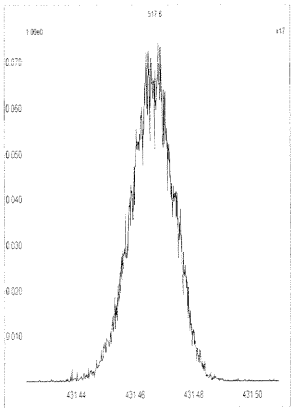
M 480.9696 R 14126



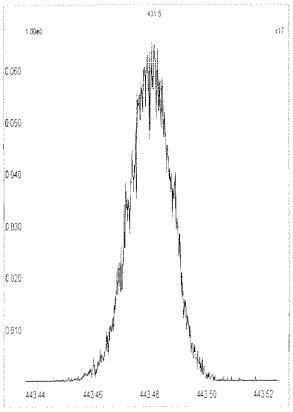
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, May 28, 2014 08:43:28 Central Daylight Time

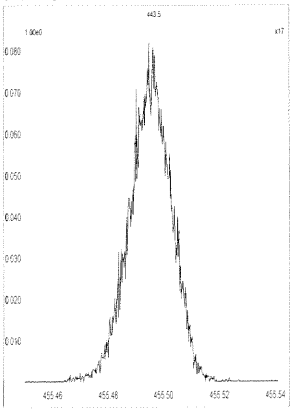
M 430.9728 R 12080



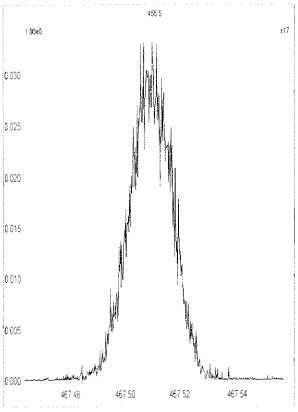
M 442.9728 R 12560



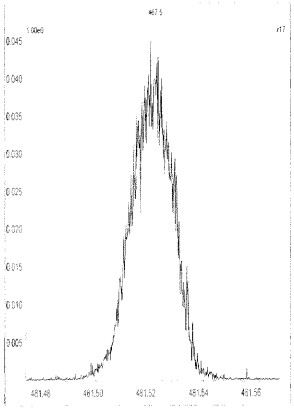
M 454.9728 R 13154



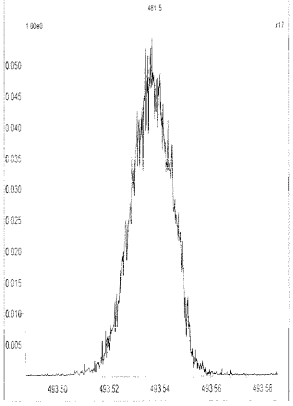
M 466.9728 R 13368



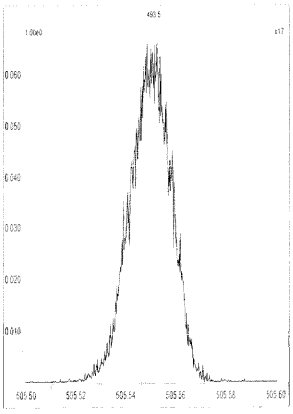
M 480.9696 R 13659



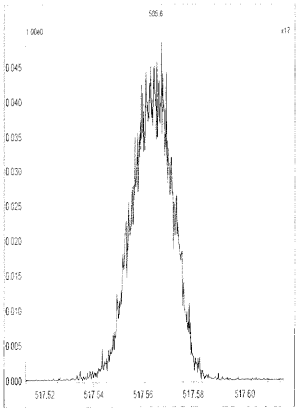
M 492.9696 R 14046



M 504.9696 R 13089

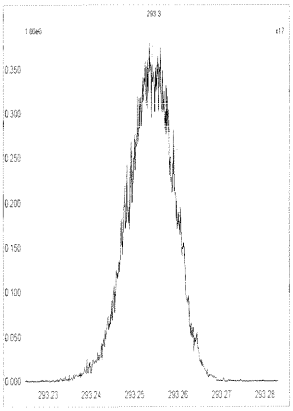


M 516.9697 R 14705

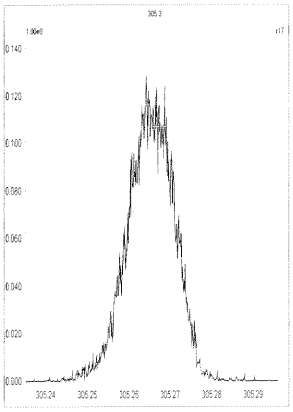


Printed: Wednesday, May 28, 2014 15:18:58 Central Daylight Time

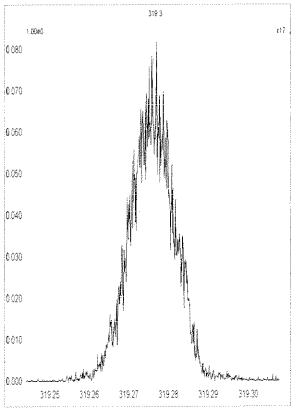
M 292.9824 R 11448



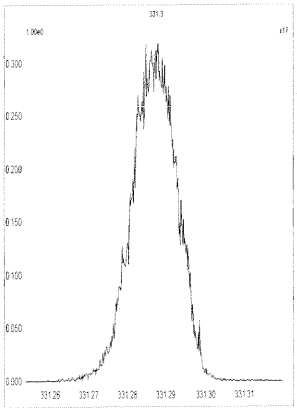
M 304.9824 R 12316



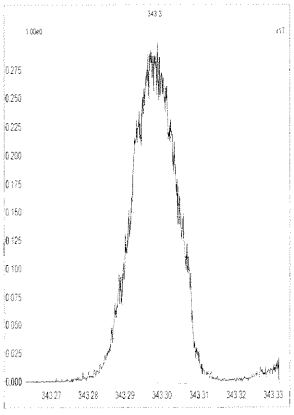
M 318.9792 R 12690



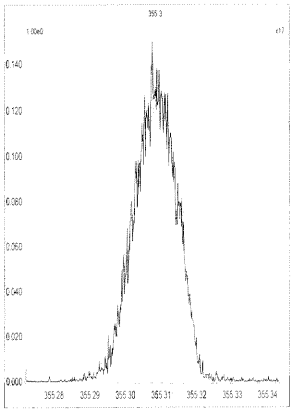
M 330.9792 R 12954



M 342.9792 R 12889



M 354.9792 R 13371



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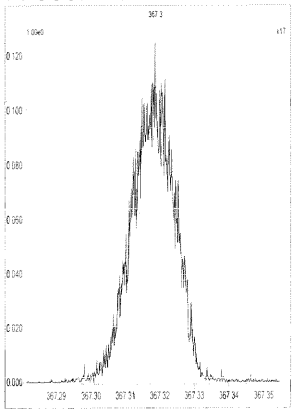
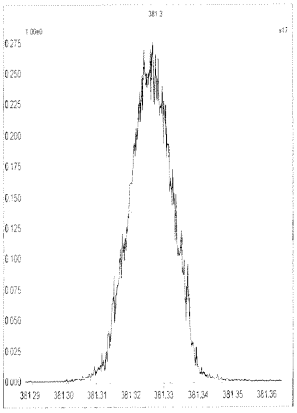


M 380.9760 R 13973



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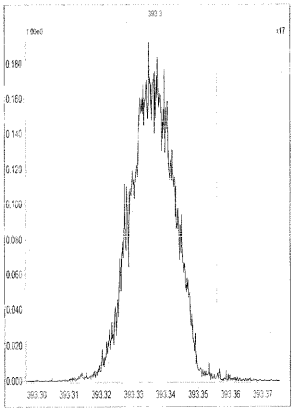

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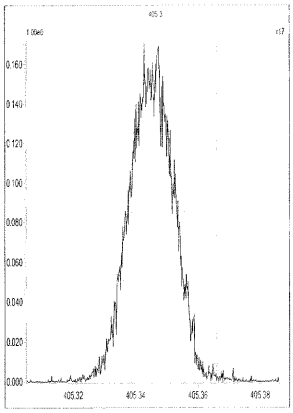

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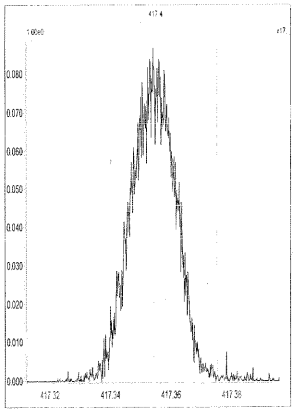

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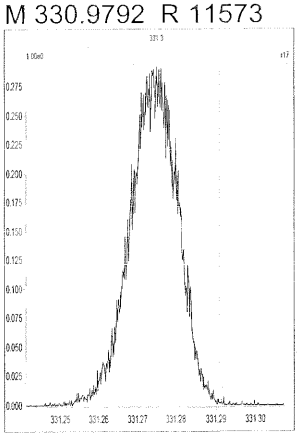

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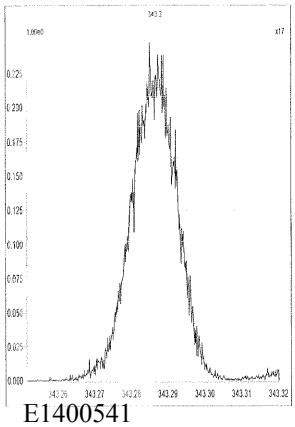
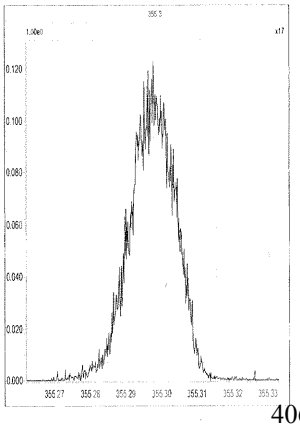
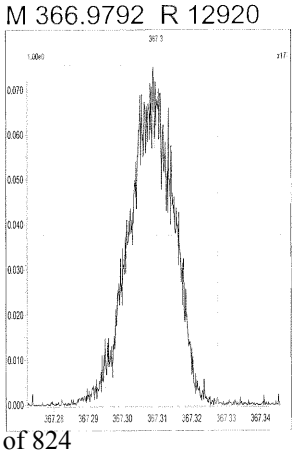


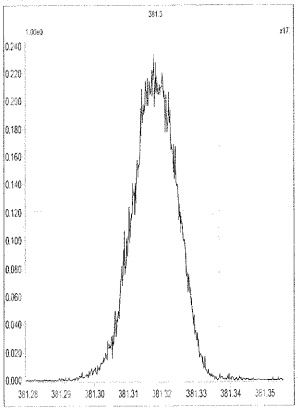
M 354.9792 R 12732



M 366.9792 R 12920



M 380.9760 R 13037



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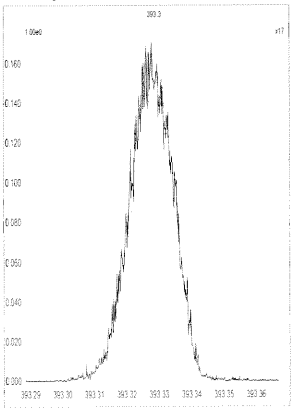
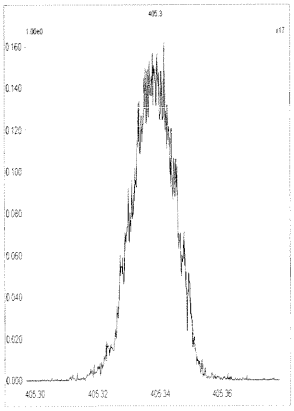
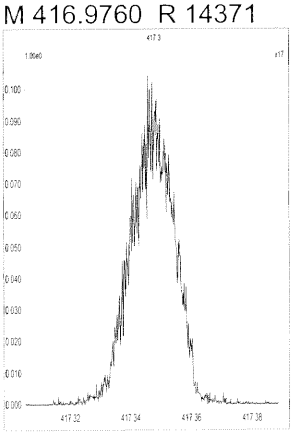
M 392.9760 R 13157



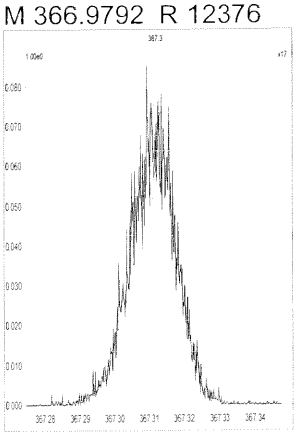
M 404.9760 R 13623



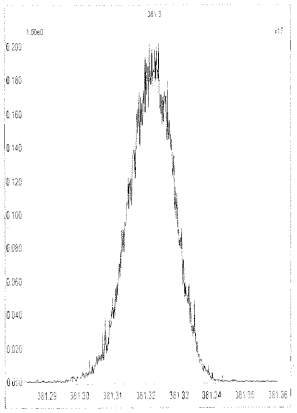
M 416.9760 R 14371



M 366.9792 R 12376



M 380.9760 R 12209



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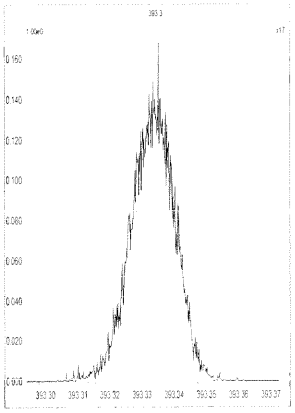

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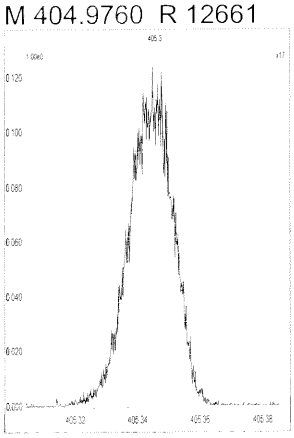

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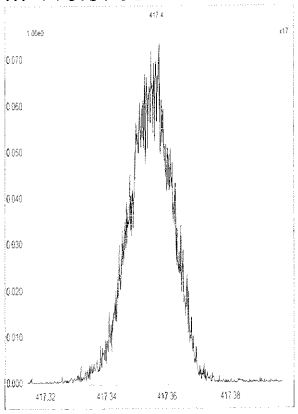
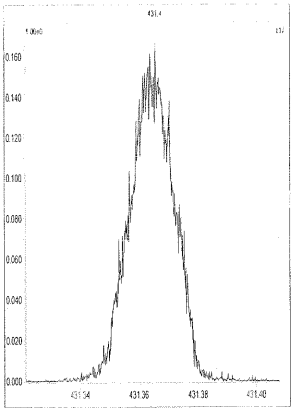


M 430.9728 R 13228



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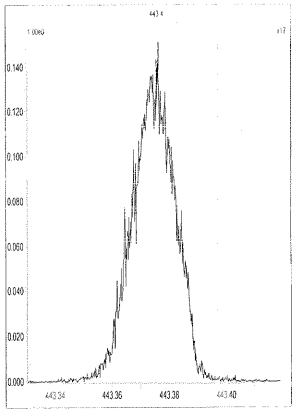
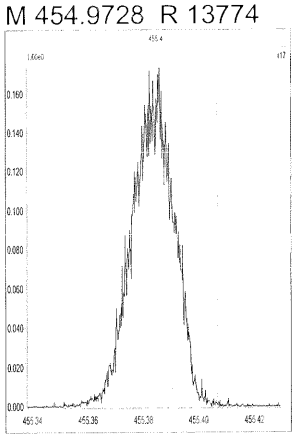


M 454.9728 R 13774



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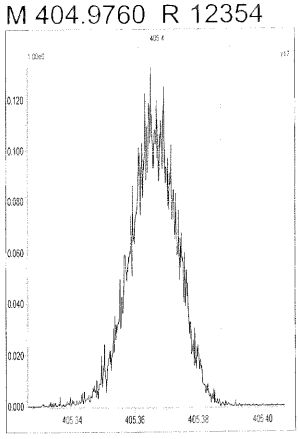
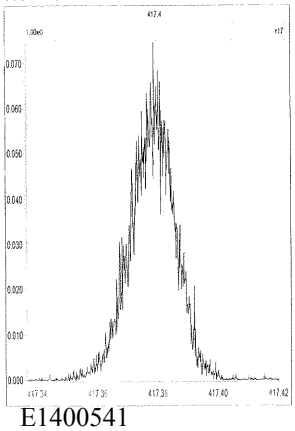


M 416.9760 R 12261



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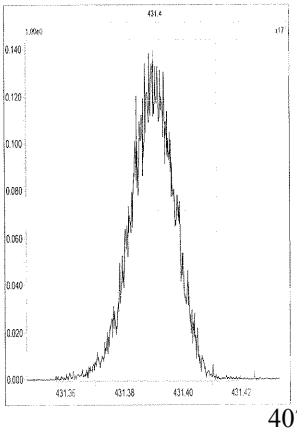
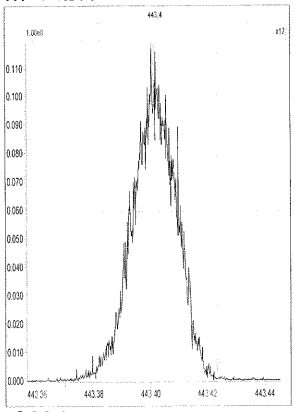
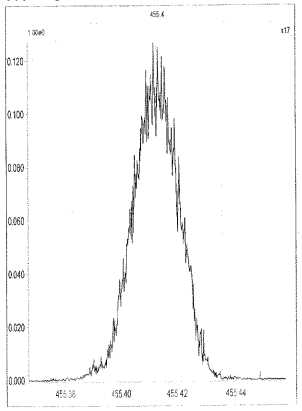


M 442.9728 R 12853



M 454.9728 R 13023



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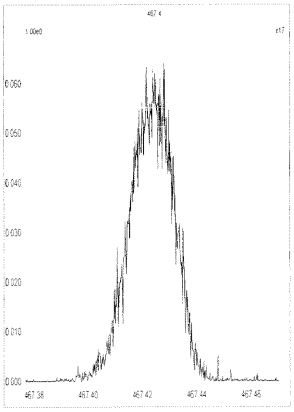
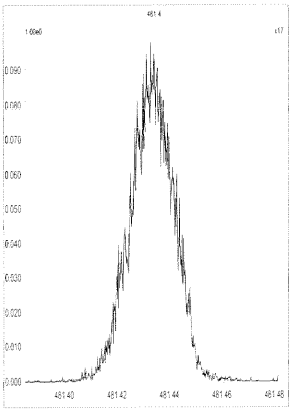
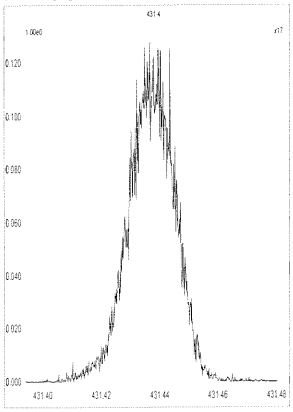
M 466.9728 R 13514



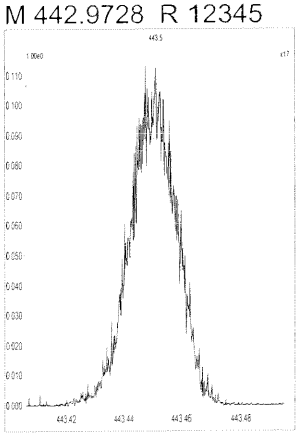
M 480.9696 R 13192



M 430.9728 R 12406



M 442.9728 R 12345



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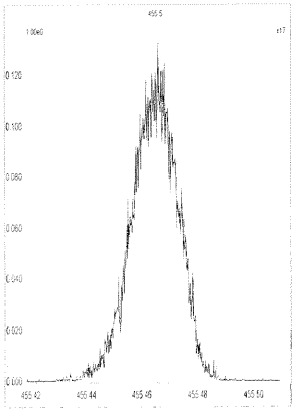
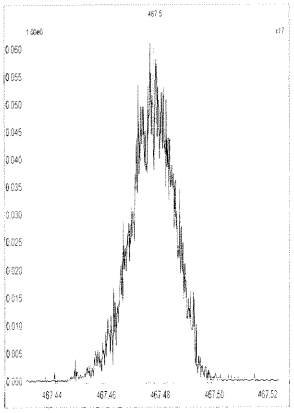
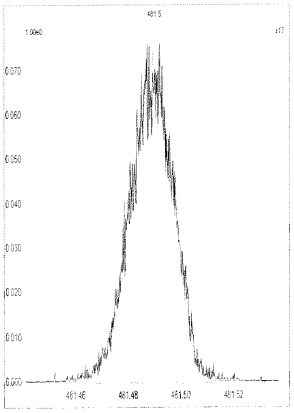


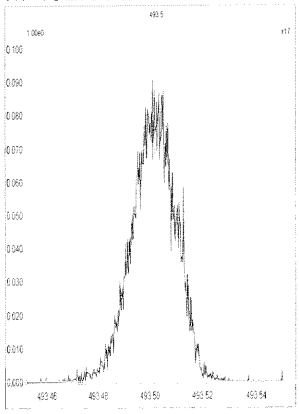
M 466.9728 R 13370



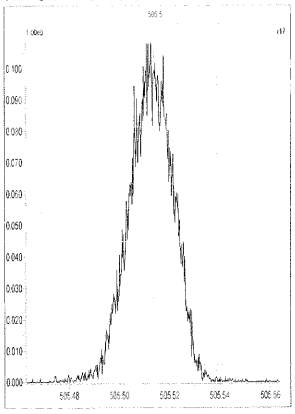
M 480.9696 R 12757



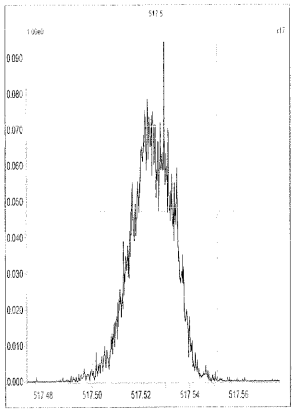
M 492.9696 R 13219



M 504.9696 R 13192



M 516.9697 R 14538



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

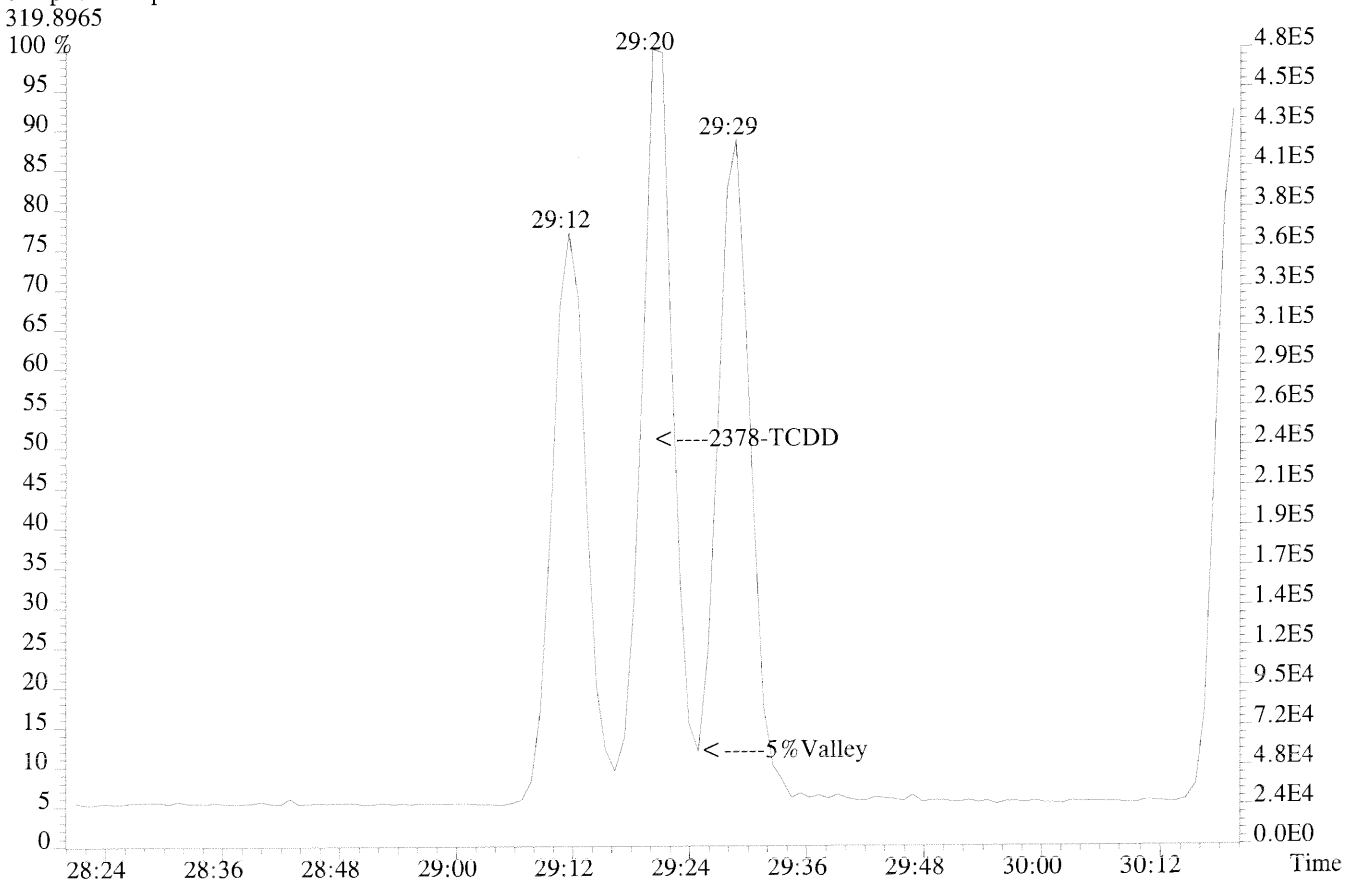
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411
GC Column: DB-5msUI

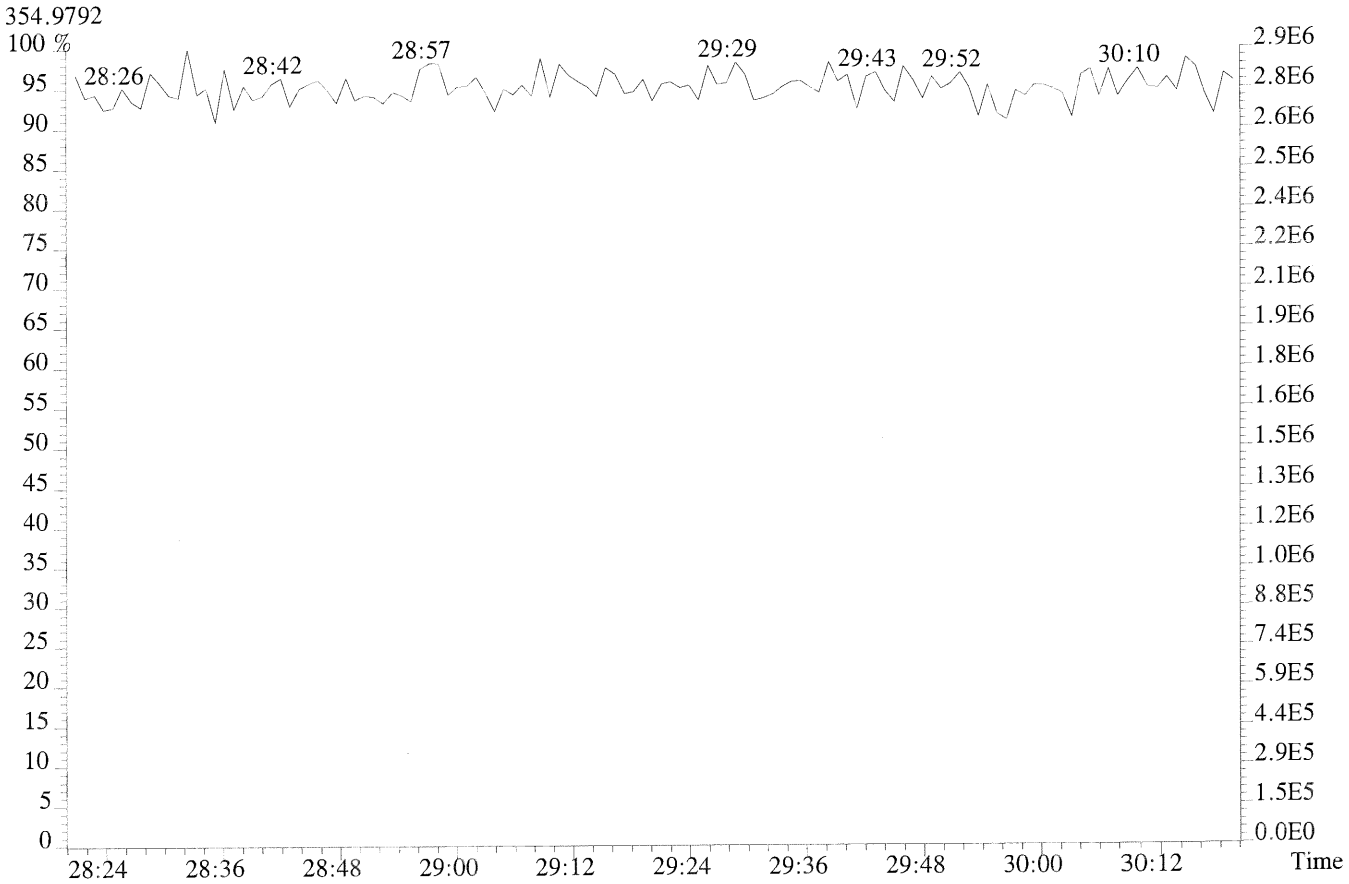
Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: U149278
Date Analyzed: 28-MAY-2014
Time Analyzed: 08:44:26

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:16	30:30
TCDD	26:09	30:19
PeCDF	30:23	34:35
PeCDD	31:54	34:19
HxCDF	35:12	37:41
HxCDD	35:42	37:17
HpCDF	38:53	40:21
HpCDD	39:08	39:50

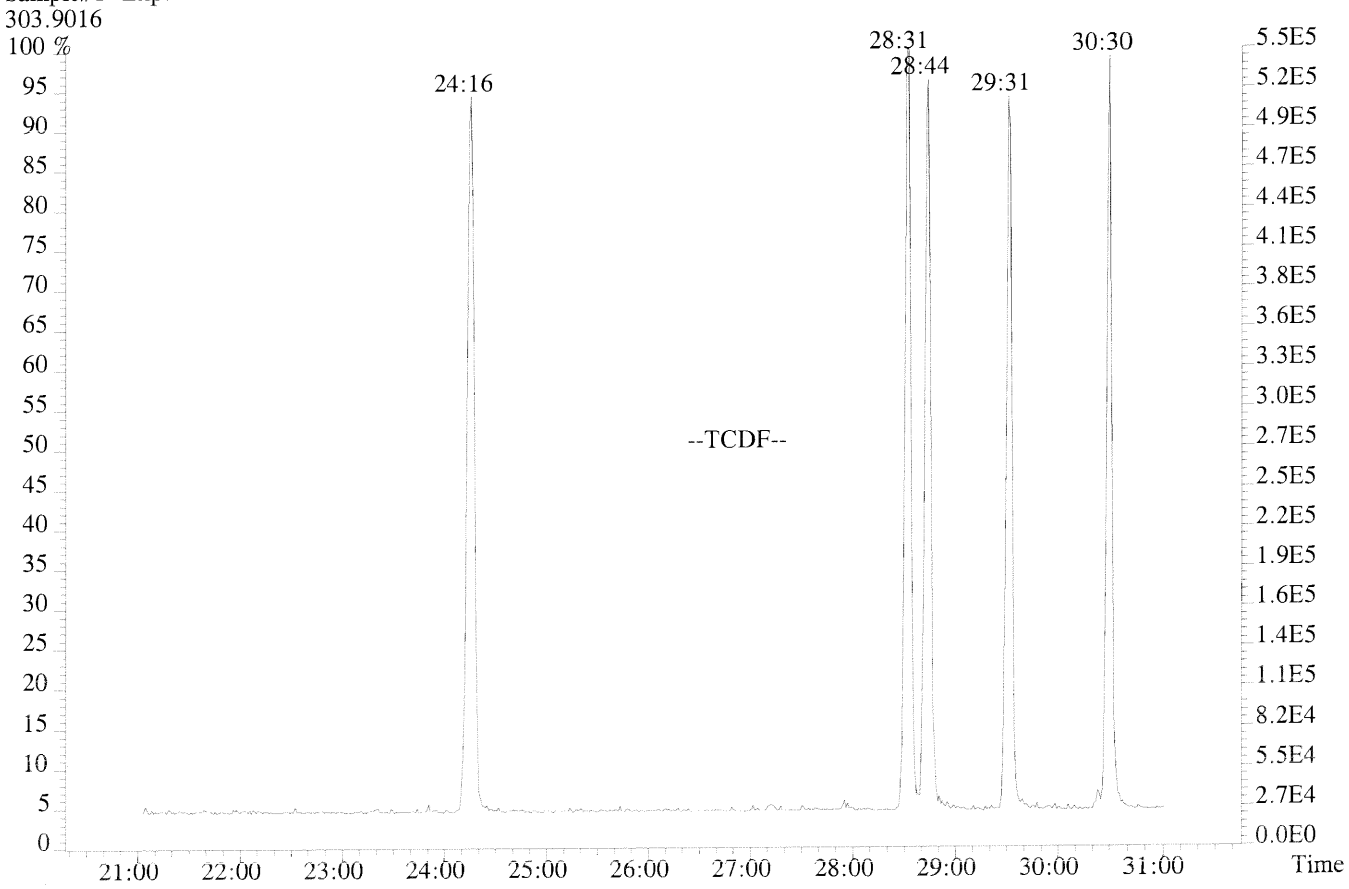
% Valley 2378-TCDD: 5 %

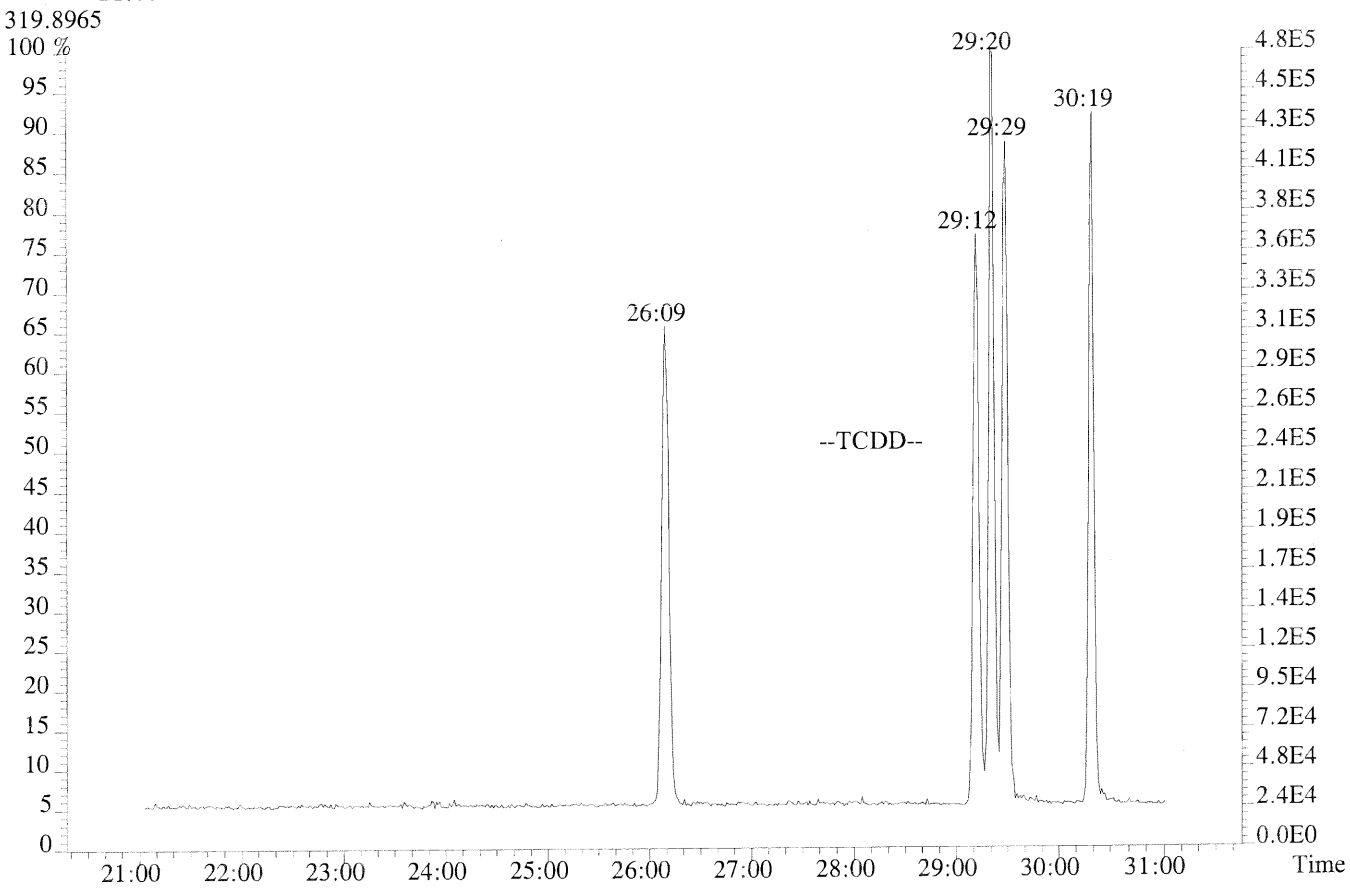
File:U149278 #1-627 Acq:28-MAY-2014 08:44:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



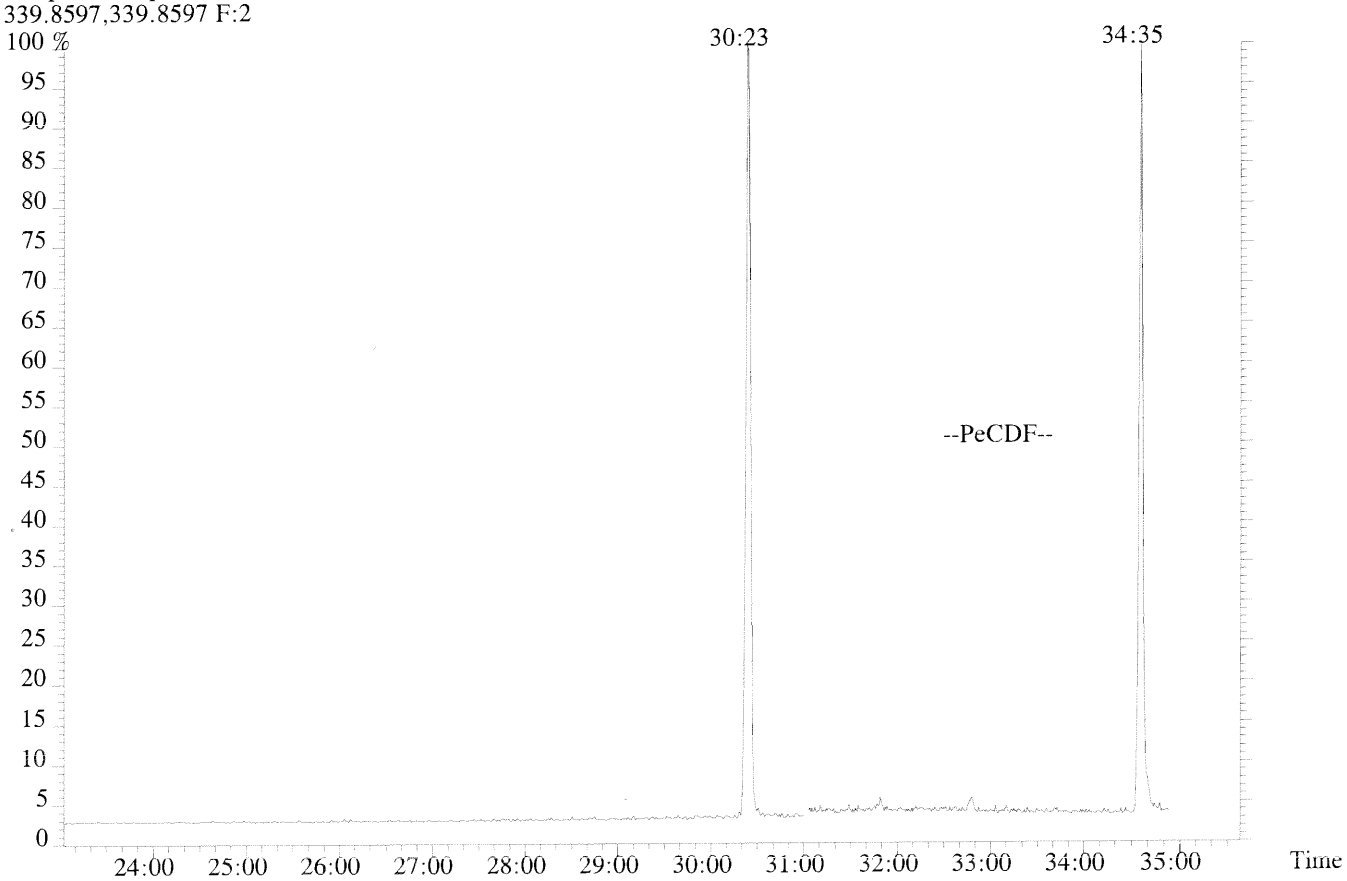


File:U149278 #1-627 Acq:28-MAY-2014 08:44:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

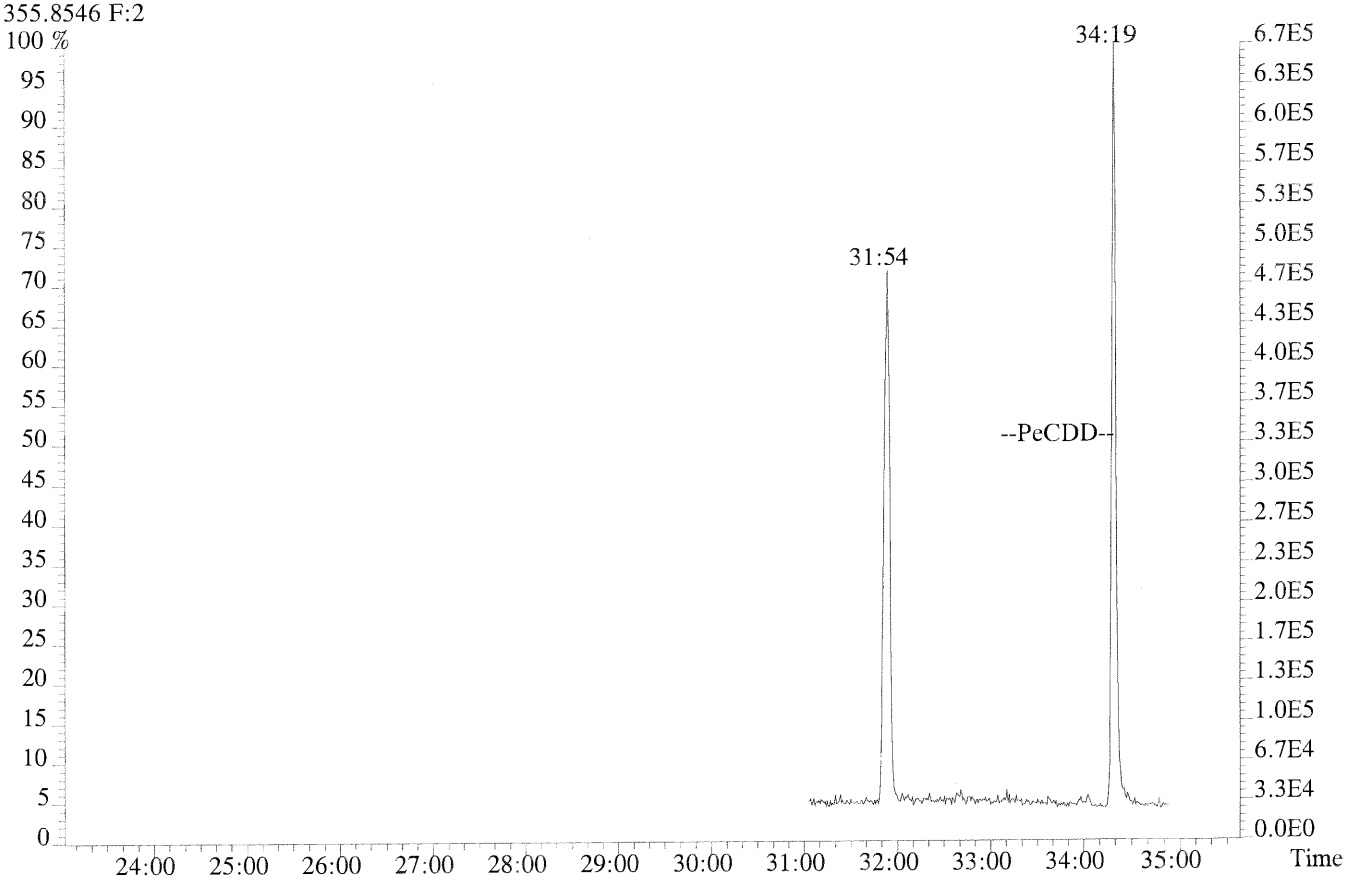




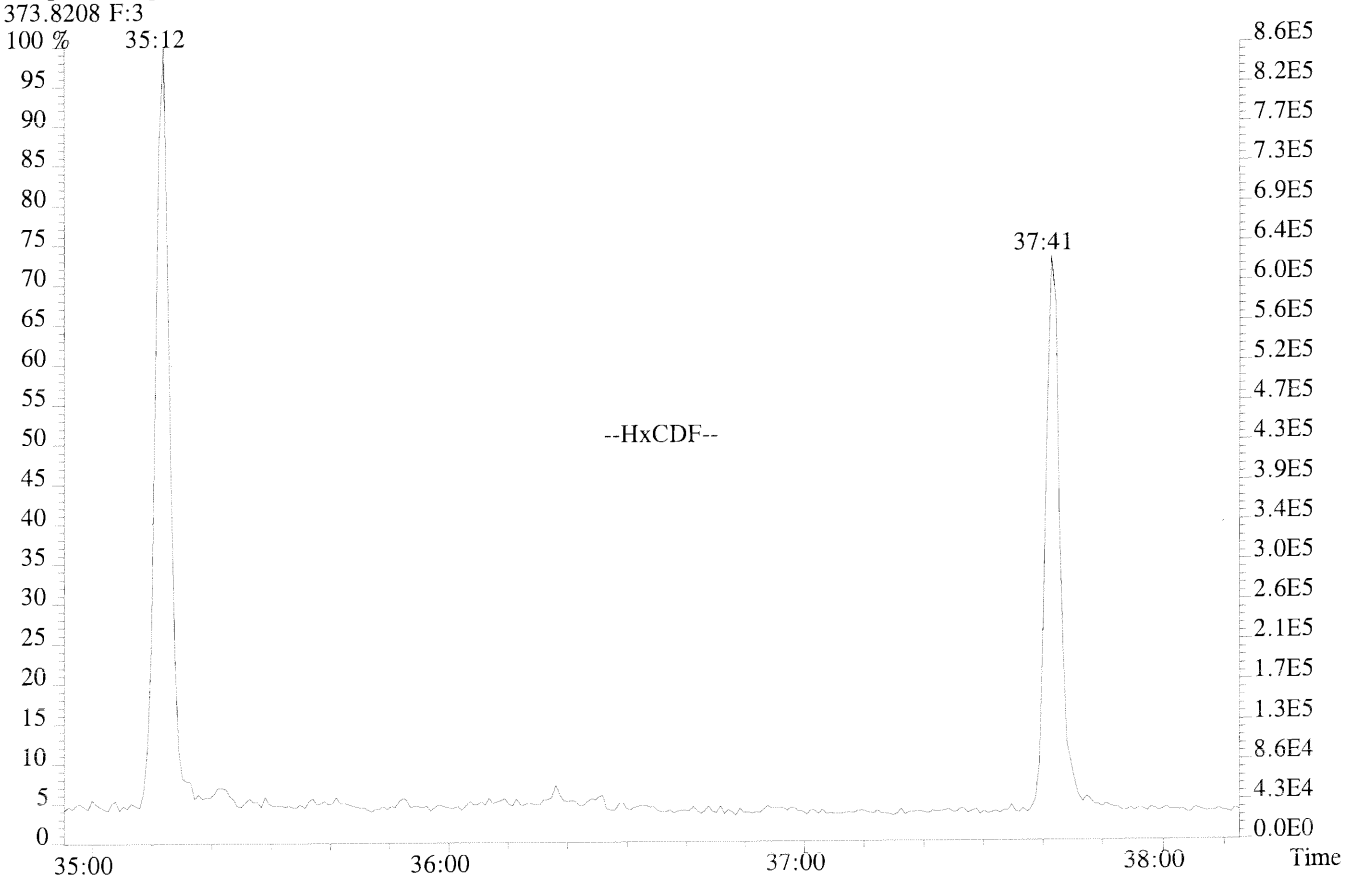
File:U149278 #1-627 Acq:28-MAY-2014 08:44:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

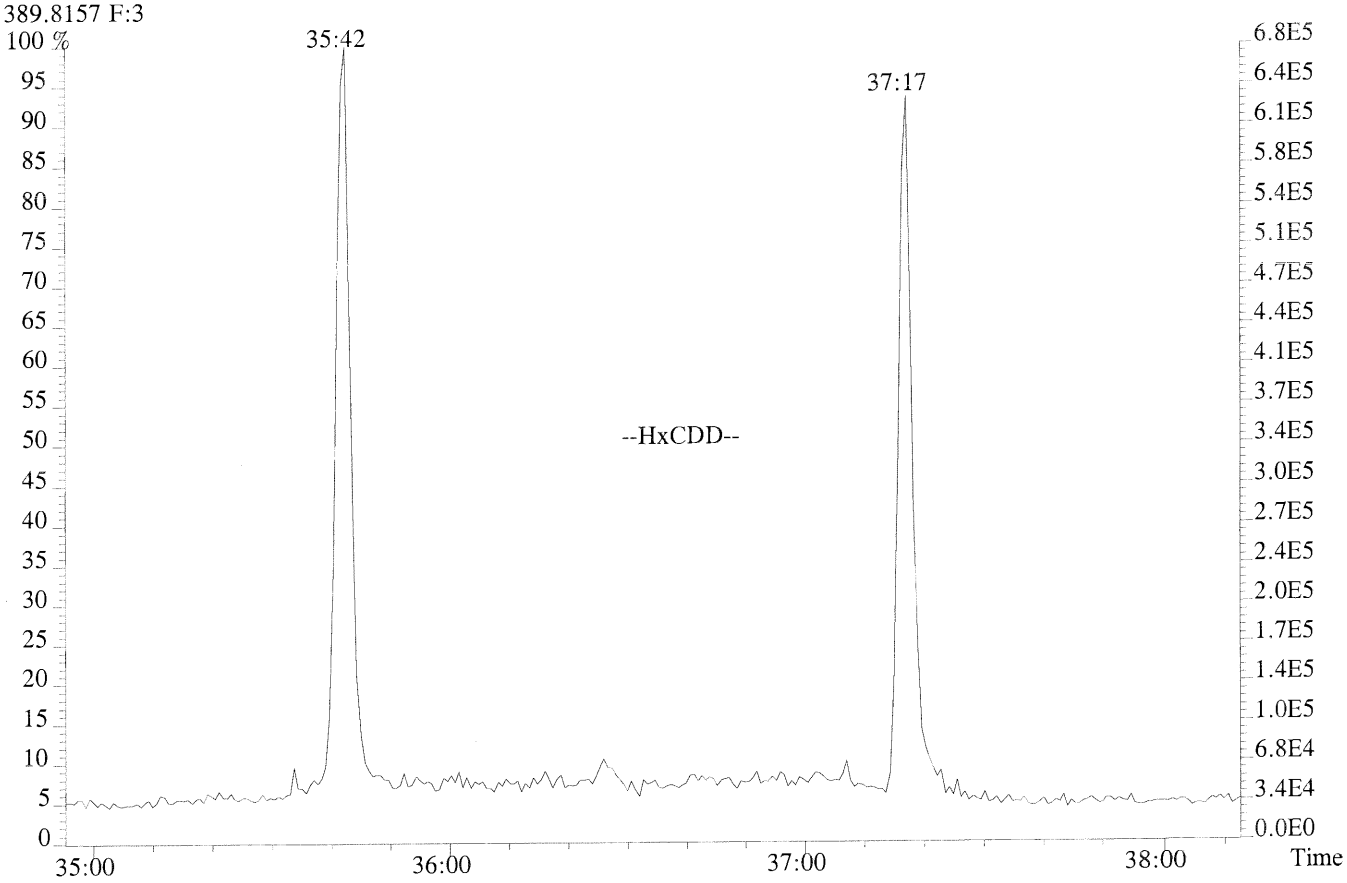


355.8546 F:2

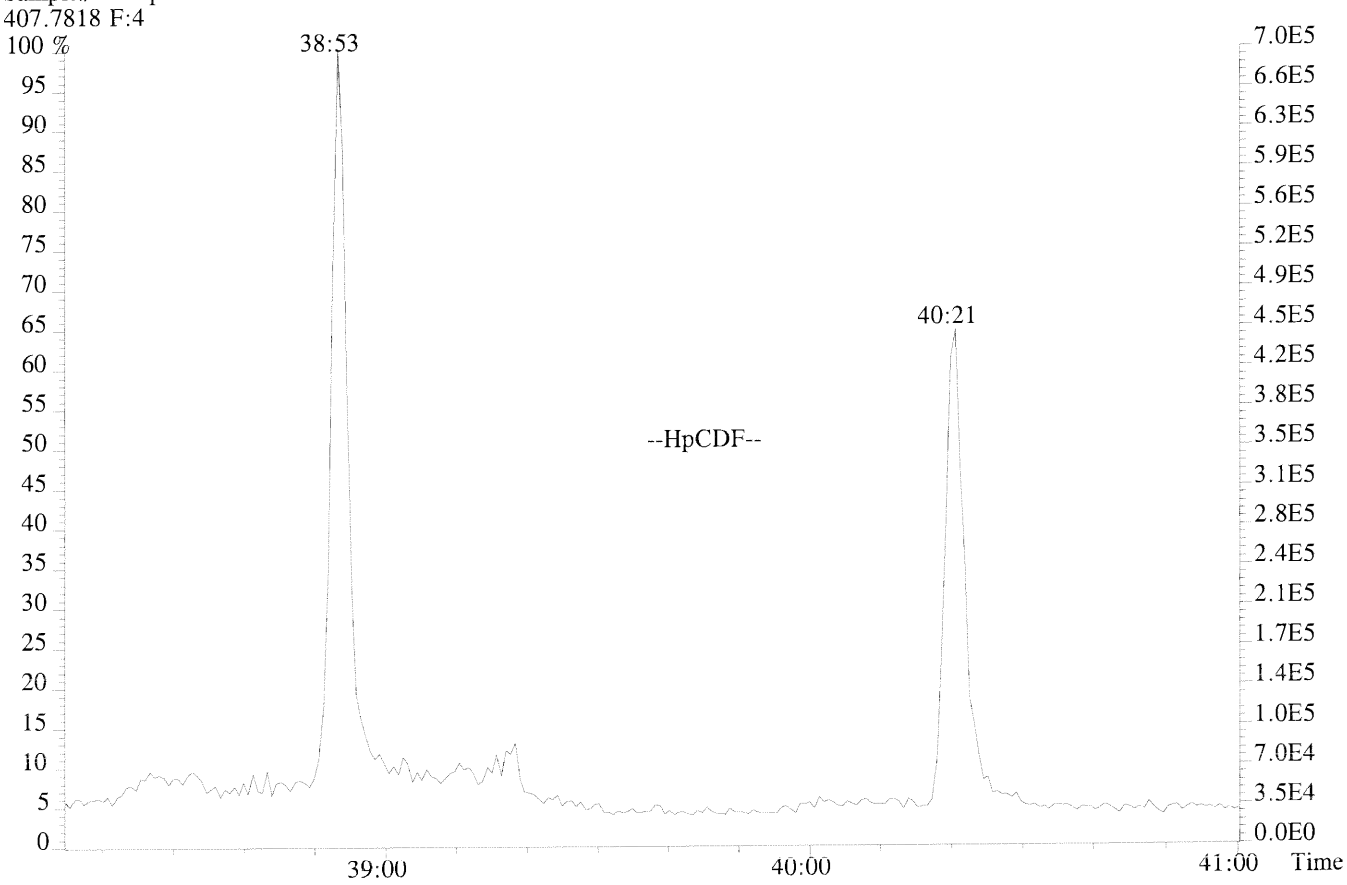


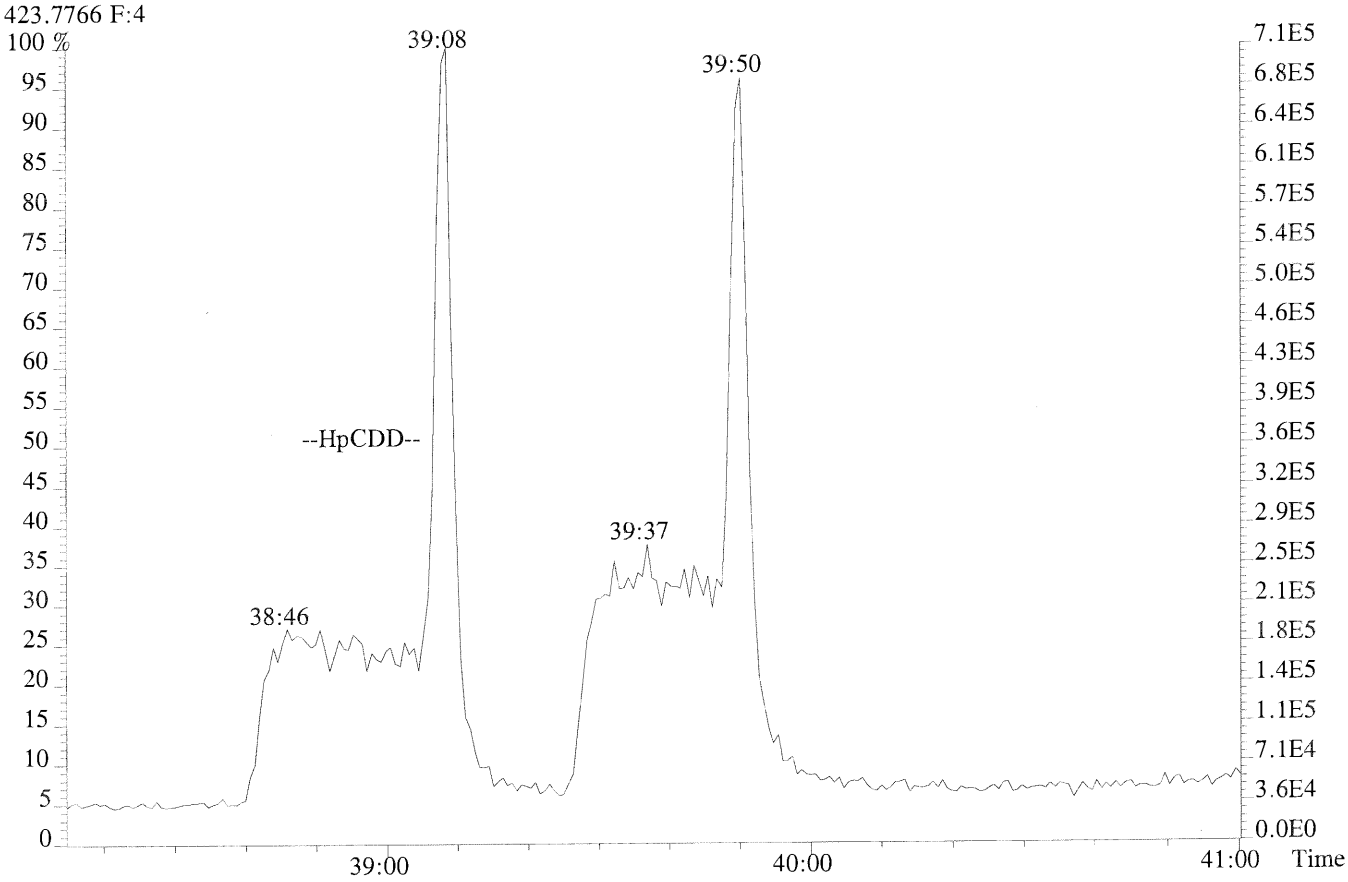
File:U149278 #1-299 Acq:28-MAY-2014 08:44:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





File:U149278 #1-251 Acq:28-MAY-2014 08:44:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 05/21/2014

Instrument ID: E-HRMS-01 | GC Column ID: DB-5MSUI

VER Data Filename: U149277 | Analysis Date: 28-MAY-14 Time: 04:01:04

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.82	0.65-0.89	9.6	7.8 - 12.9	-3.5
1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	50	39 - 65	-0.8
1,2,3,4,7,8-HxCDD	M+2/M+4	1.31	1.05-1.43	50	39 - 64	-0.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.17	1.05-1.43	52	39 - 64	3.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.22	1.05-1.43	50	41 - 61	0.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	-0.6
OCDD	M+2/M+4	0.88	0.76-1.02	116	79 - 126	16.5
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	9.8	8.4 - 12.0	-2.1
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	50	41 - 60	0.6
2,3,4,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	49	41 - 61	-1.9
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	50	45 - 56	-0.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	49	44 - 57	-2.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	50	45 - 56	0.1
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	50	44 - 57	-0.2
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	50	45 - 55	-0.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	50	43 - 58	-0.9
OCDF	M+2/M+4	0.90	0.76-1.02	101	63 - 159	0.8

(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) The beginning CCAL %D 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

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 05/21/2014

Instrument ID: E-HRMS-01 GC Column ID: DB-5MSUI

VER Data Filename: U149277 Analysis Date: 28-MAY-14 Time: 04:01:04

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	94	82 - 121	-5.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	92	62 - 160	-8.2
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.39	1.05-1.43	104	85 - 117	3.6
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	95	85 - 118	-4.5
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	101	72 - 138	0.5
13C-OCDD	M+2/M+4	0.92	0.76-1.02	185	96 - 415	-7.5
13C-2,3,7,8-TCDF	M/M+2	0.82	0.65-0.89	97	71 - 140	-2.8
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	89	76 - 130	-10.8
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	92	77 - 130	-8.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	76 - 131	-3.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	70 - 143	-3.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.50	0.43-0.59	98	74 - 135	-2.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	99	73 - 137	-1.1
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	97	78 - 129	-2.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	99	77 - 129	-0.9
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.6	7.8 - 12.7	-3.8

(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.
(5) The beginnning CCAL %D 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)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66131

Run #7 Filename U149277 Samp: 1 Inj: 1 Acquired: 28-MAY-14 04:01:04
Processed: 28-MAY-14 14:22:29 Sample ID: CCAL HRCC3/CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:43	3.112e+03	3.998e+03	0.78	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:47	2.829e+04	1.811e+04	1.56	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:41	2.634e+04	1.719e+04	1.53	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:18	2.170e+04	1.808e+04	1.20	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:25	2.302e+04	1.896e+04	1.21	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:54	2.228e+04	1.800e+04	1.24	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:40	2.049e+04	1.671e+04	1.23	yes	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:53	1.944e+04	1.925e+04	1.01	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:20	1.714e+04	1.694e+04	1.01	yes	no	1.358
10	Unk	OCDF	42:55	2.556e+04	2.834e+04	0.90	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:28	2.401e+03	2.938e+03	0.82	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:57	1.962e+04	1.217e+04	1.61	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:02	1.668e+04	1.273e+04	1.31	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:07	1.626e+04	1.393e+04	1.17	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:22	1.762e+04	1.447e+04	1.22	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:50	1.474e+04	1.415e+04	1.04	yes	no	1.065
17	Unk	OCDD	42:41	2.540e+04	2.887e+04	0.88	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:42	3.467e+04	4.221e+04	0.82	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:47	5.787e+04	3.652e+04	1.58	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:40	5.802e+04	3.633e+04	1.60	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	2.224e+04	4.309e+04	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:24	2.563e+04	4.916e+04	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:54	2.427e+04	4.681e+04	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	2.162e+04	4.299e+04	0.50	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:53	1.692e+04	3.753e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:19	1.580e+04	3.481e+04	0.45	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:27	2.386e+04	3.076e+04	0.78	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:56	3.824e+04	2.428e+04	1.57	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:02	3.043e+04	2.187e+04	1.39	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	2.945e+04	2.331e+04	1.26	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:49	2.844e+04	2.614e+04	1.09	yes	no	0.936
32	IS	13C-OCDD	42:41	3.787e+04	4.132e+04	0.92	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:52	2.408e+04	3.103e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:21	3.322e+04	2.478e+04	1.34	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:28	5.534e+03				no	1.044

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
66131

Run #7 Filename U149277 Samp: 1 Inj: 1 Acquired: 28-MAY-14 04:01:04
Processed: 28-MAY-14 14:22:291 LAB. ID: CCAL HRCC3/CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.84e+05	9.20e+02	7.4e+02	8.80e+05	1.25e+03	7.1e+02
2	1,2,3,7,8-PeCDF	5.63e+06	1.00e+03	5.6e+03	3.58e+06	1.57e+03	2.3e+03
3	2,3,4,7,8-PeCDF	5.48e+06	1.00e+03	5.5e+03	3.64e+06	1.57e+03	2.3e+03
4	1,2,3,4,7,8-HxCDF	4.85e+06	3.12e+03	1.6e+03	4.06e+06	3.10e+03	1.3e+03
5	1,2,3,6,7,8-HxCDF	5.00e+06	3.12e+03	1.6e+03	4.07e+06	3.10e+03	1.3e+03
6	2,3,4,6,7,8-HxCDF	5.02e+06	3.12e+03	1.6e+03	4.00e+06	3.10e+03	1.3e+03
7	1,2,3,7,8,9-HxCDF	4.21e+06	3.12e+03	1.3e+03	3.41e+06	3.10e+03	1.1e+03
8	1,2,3,4,6,7,8-HpCDF	4.23e+06	8.76e+03	4.8e+02	4.18e+06	1.16e+04	3.6e+02
9	1,2,3,4,7,8,9-HpCDF	3.27e+06	8.76e+03	3.7e+02	3.25e+06	1.16e+04	2.8e+02
10	OCDF	4.17e+06	2.62e+03	1.6e+03	4.73e+06	1.62e+03	2.9e+03
11	2,3,7,8-TCDD	5.56e+05	1.35e+03	4.1e+02	6.57e+05	1.17e+03	5.6e+02
12	1,2,3,7,8-PeCDD	3.95e+06	2.03e+03	1.9e+03	2.49e+06	1.39e+03	1.8e+03
13	1,2,3,4,7,8-HxCDD	3.63e+06	3.25e+03	1.1e+03	2.87e+06	3.66e+03	7.8e+02
14	1,2,3,6,7,8-HxCDD	3.54e+06	3.25e+03	1.1e+03	2.95e+06	3.66e+03	8.0e+02
15	1,2,3,7,8,9-HxCDD	3.65e+06	3.25e+03	1.1e+03	2.96e+06	3.66e+03	8.1e+02
16	1,2,3,4,6,7,8-HpCDD	2.89e+06	7.08e+03	4.1e+02	2.78e+06	4.62e+03	6.0e+02
17	OCDD	4.20e+06	3.72e+03	1.1e+03	4.74e+06	3.95e+03	1.2e+03
18	13C-2,3,7,8-TCDF	7.41e+06	1.22e+03	6.1e+03	9.03e+06	1.16e+03	7.8e+03
19	13C-1,2,3,7,8-PeCDF	1.13e+07	1.96e+03	5.7e+03	7.02e+06	9.32e+02	7.5e+03
20	13C-2,3,4,7,8-PeCDF	1.22e+07	1.96e+03	6.2e+03	7.61e+06	9.32e+02	8.2e+03
21	13C-1,2,3,4,7,8-HxCDF	4.97e+06	1.16e+03	4.3e+03	9.55e+06	2.81e+03	3.4e+03
22	13C-1,2,3,6,7,8-HxCDF	5.54e+06	1.16e+03	4.8e+03	1.06e+07	2.81e+03	3.8e+03
23	13C-2,3,4,6,7,8-HxCDF	5.44e+06	1.16e+03	4.7e+03	1.05e+07	2.81e+03	3.7e+03
24	13C-1,2,3,7,8,9-HxCDF	4.50e+06	1.16e+03	3.9e+03	8.69e+06	2.81e+03	3.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.69e+06	1.60e+03	2.3e+03	8.21e+06	9.63e+03	8.5e+02
26	13C-1,2,3,4,7,8,9-HpCDF	3.01e+06	1.60e+03	1.9e+03	6.64e+06	9.63e+03	6.9e+02
27	13C-2,3,7,8-TCDD	5.40e+06	1.53e+03	3.5e+03	6.91e+06	7.00e+02	9.9e+03
28	13C-1,2,3,7,8-PeCDD	7.93e+06	8.24e+02	9.6e+03	5.06e+06	8.80e+02	5.7e+03
29	13C-1,2,3,4,7,8-HxCDD	6.59e+06	9.84e+02	6.7e+03	4.95e+06	1.29e+03	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	6.44e+06	9.84e+02	6.5e+03	4.93e+06	1.29e+03	3.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.62e+06	2.00e+03	2.8e+03	5.23e+06	1.69e+03	3.1e+03
32	13C-OCDD	6.43e+06	1.85e+03	3.5e+03	7.00e+06	1.66e+03	4.2e+03
33	13C-1,2,3,4-TCDD	5.36e+06	1.53e+03	3.5e+03	6.88e+06	7.00e+02	9.8e+03
34	13C-1,2,3,7,8,9-HxCDD	6.75e+06	9.84e+02	6.9e+03	5.21e+06	1.29e+03	4.0e+03
35	37Cl-2,3,7,8-TCDD	1.26e+06	7.48e+02	1.7e+03			

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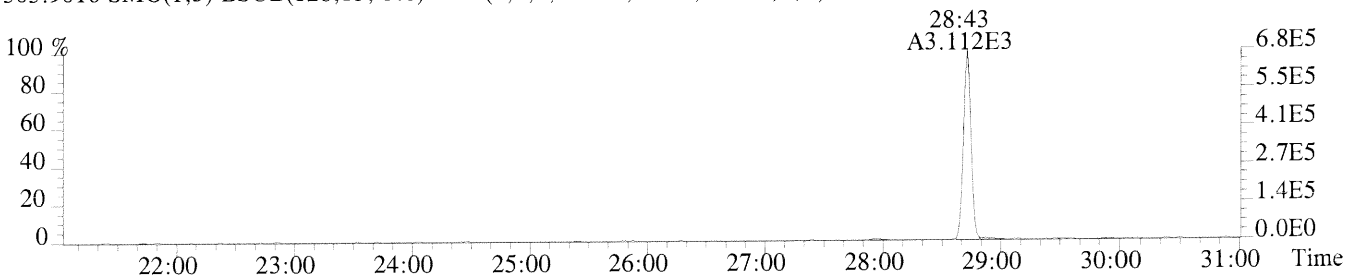
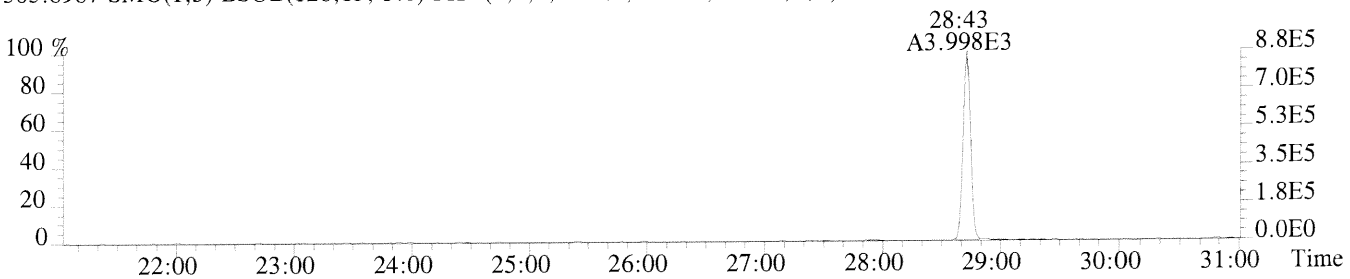
File:U149277 #1-627 Acq:28-MAY-2014 04:01:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

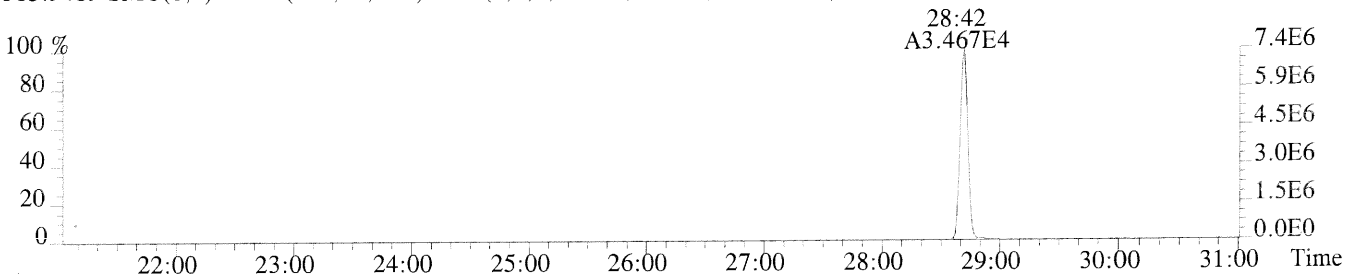
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



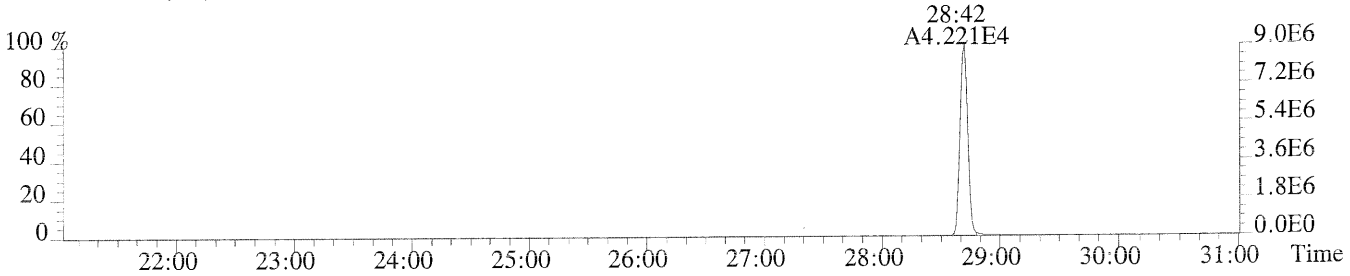
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)



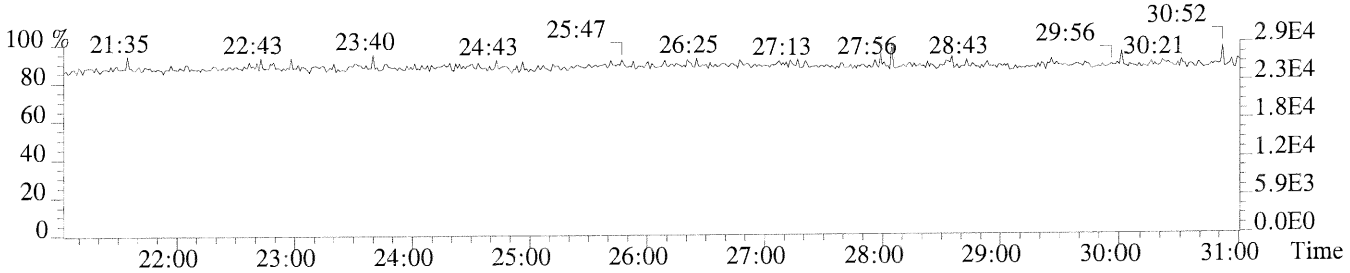
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



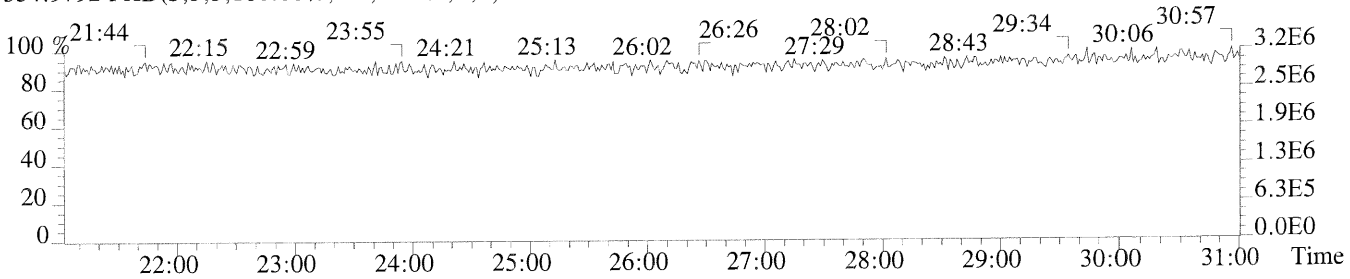
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1164.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

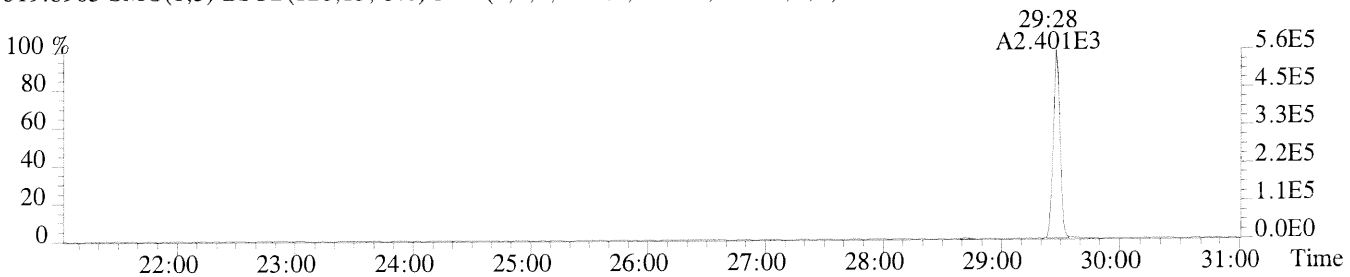


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

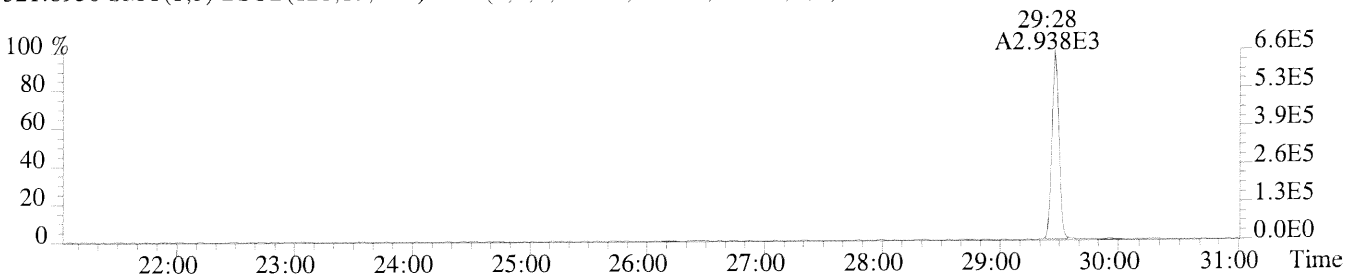


File:U149277 #1-627 Acq:28-MAY-2014 04:01:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

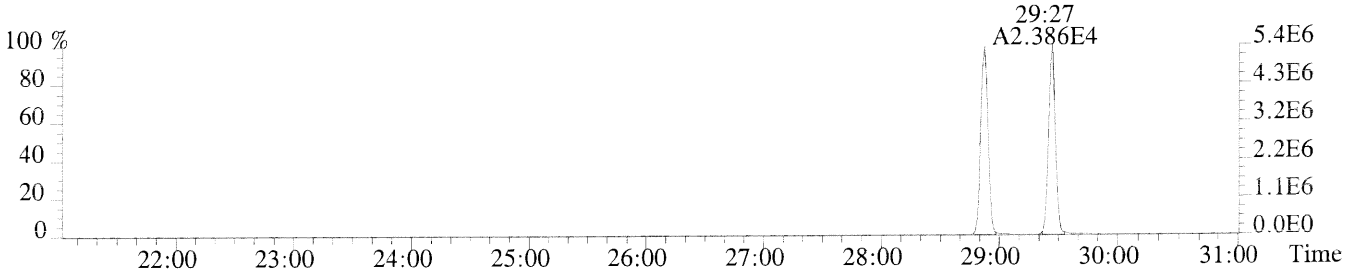
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



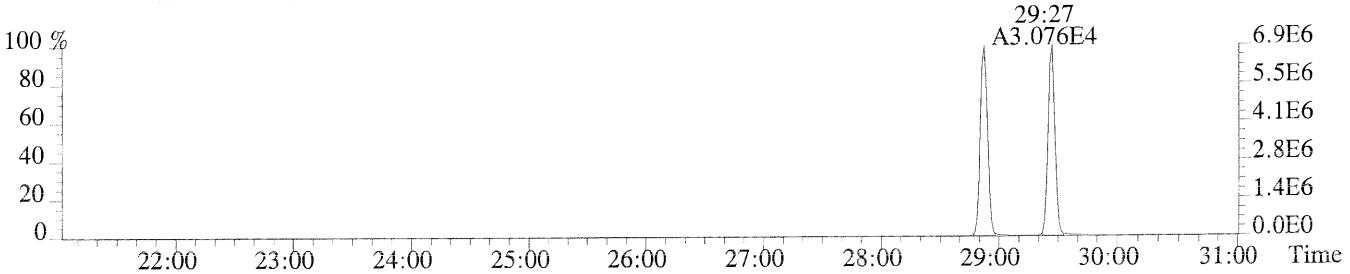
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



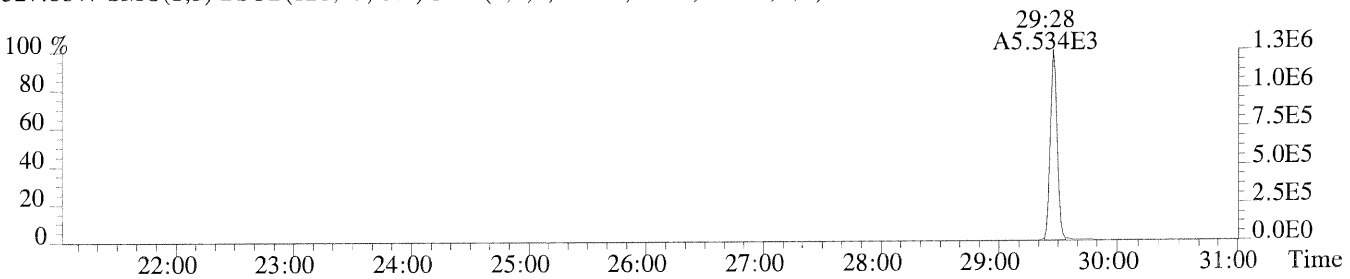
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1528.0,1.00%,F,T)



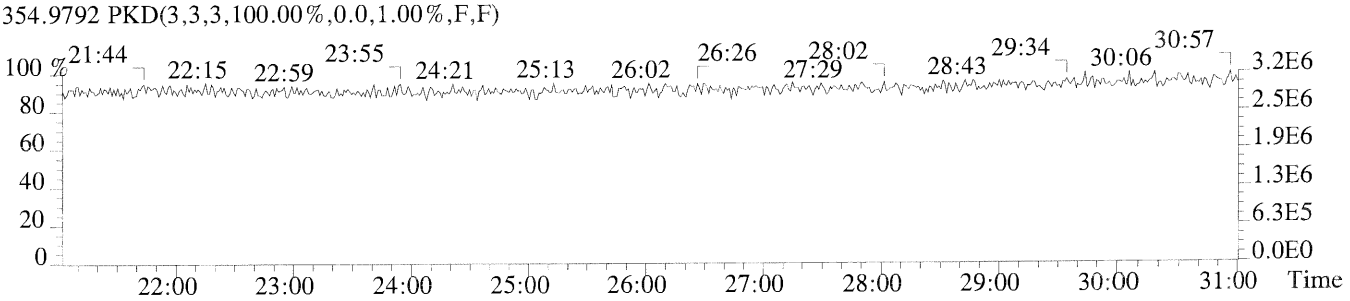
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)

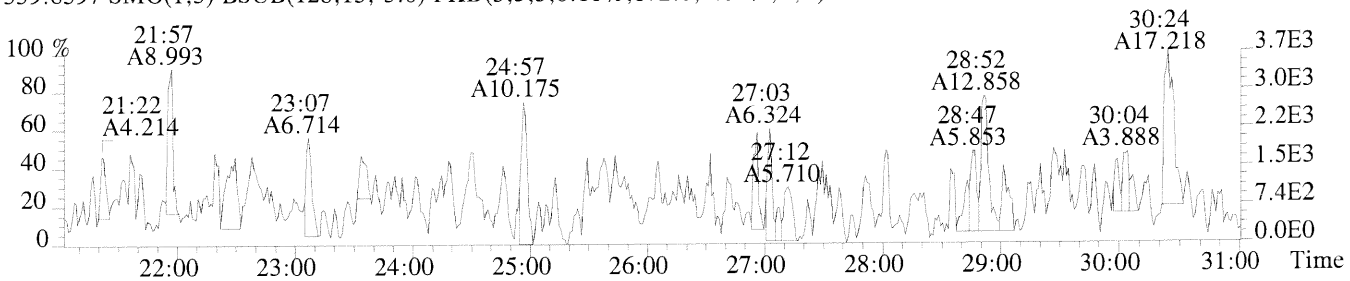


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

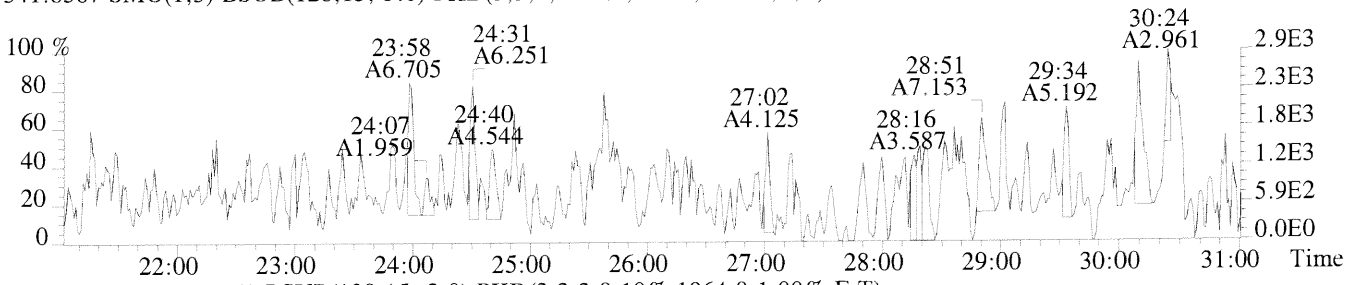


File:U149277 #1-627 Acq:28-MAY-2014 04:01:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

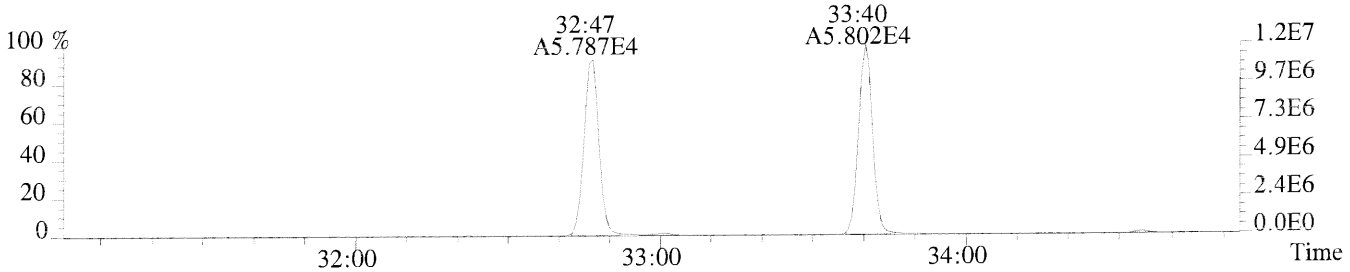
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



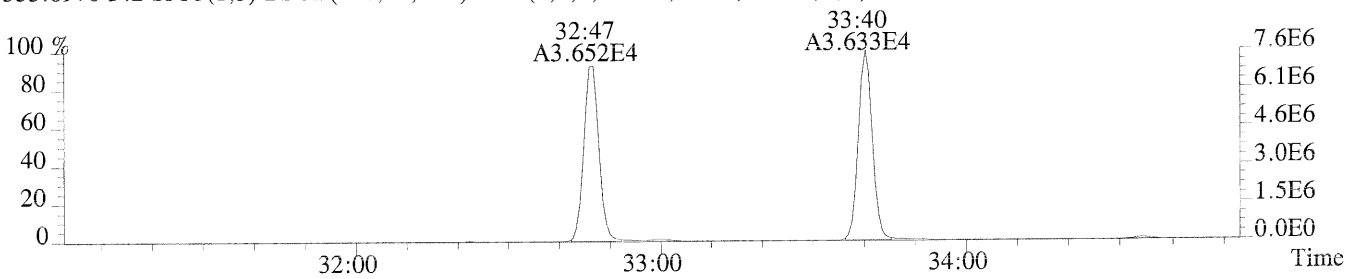
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



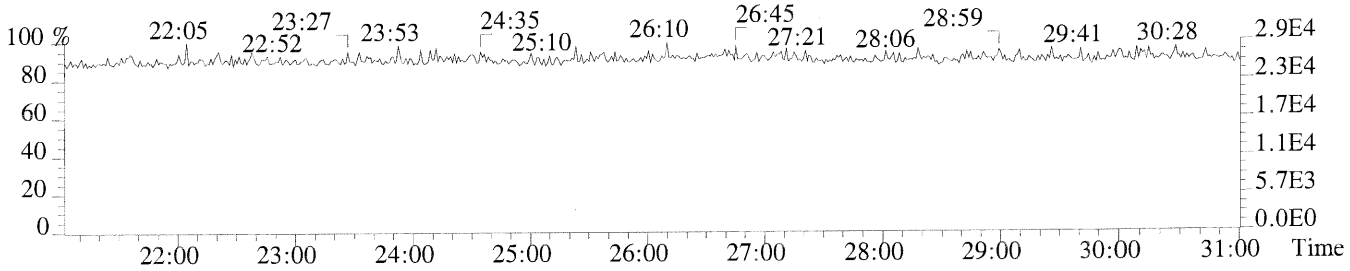
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1964.0,1.00%,F,T)



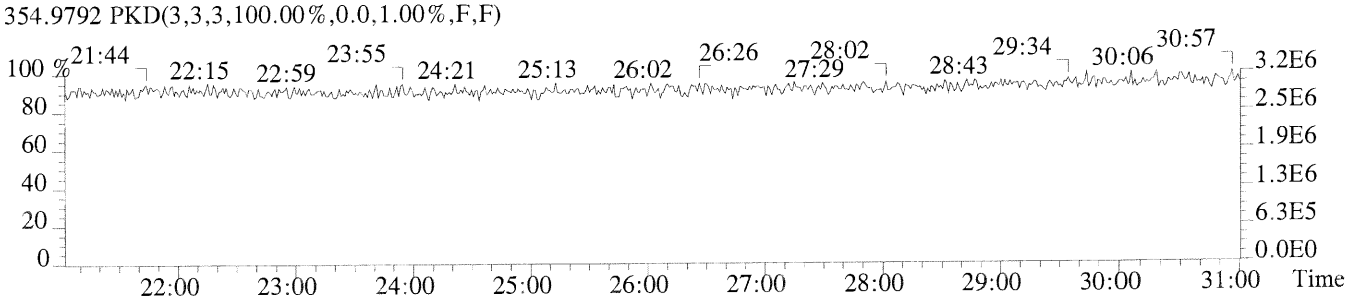
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

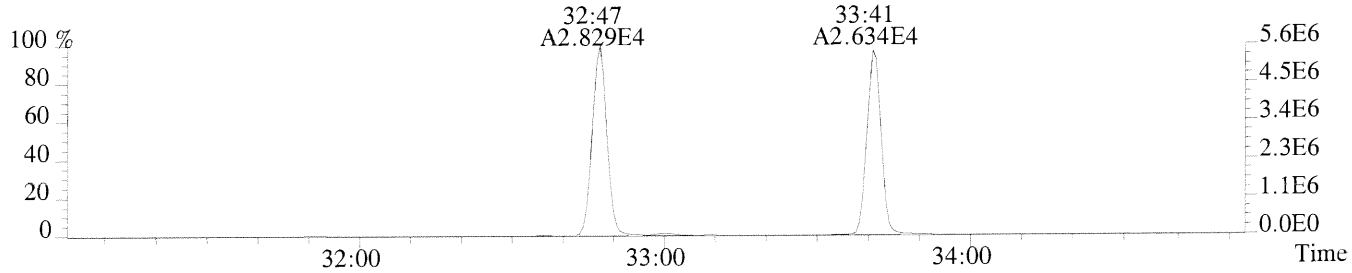


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

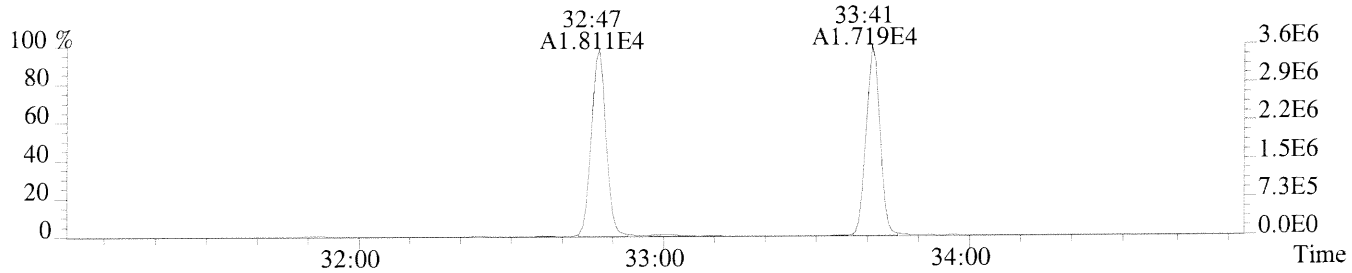


File:U149277 #1-349 Acq:28-MAY-2014 04:01:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

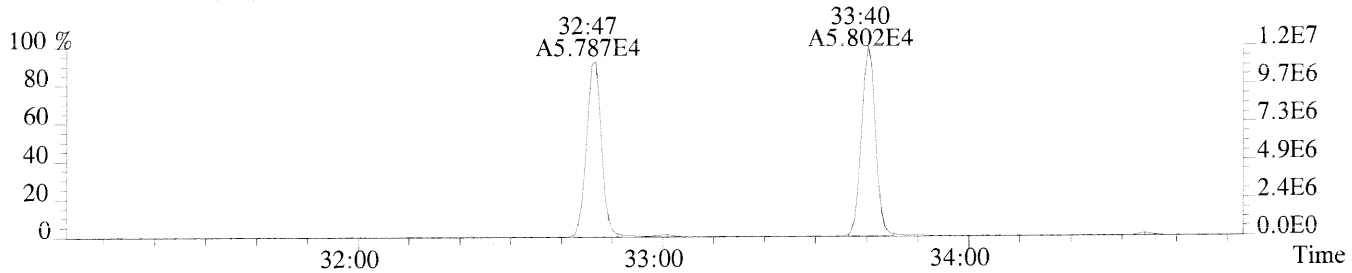
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



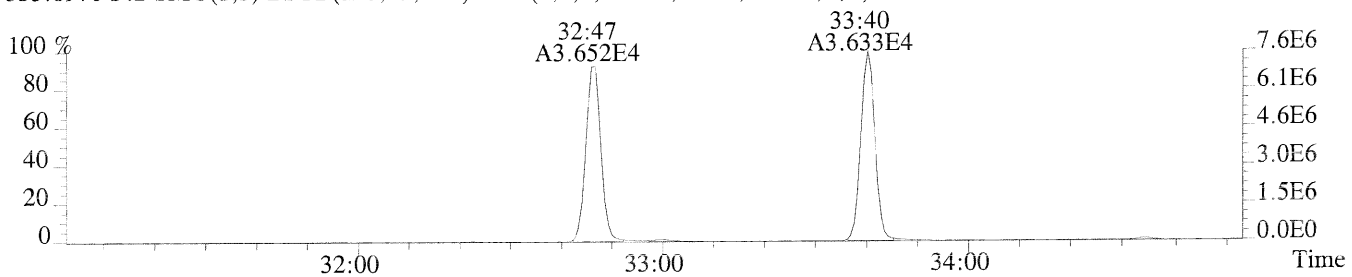
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



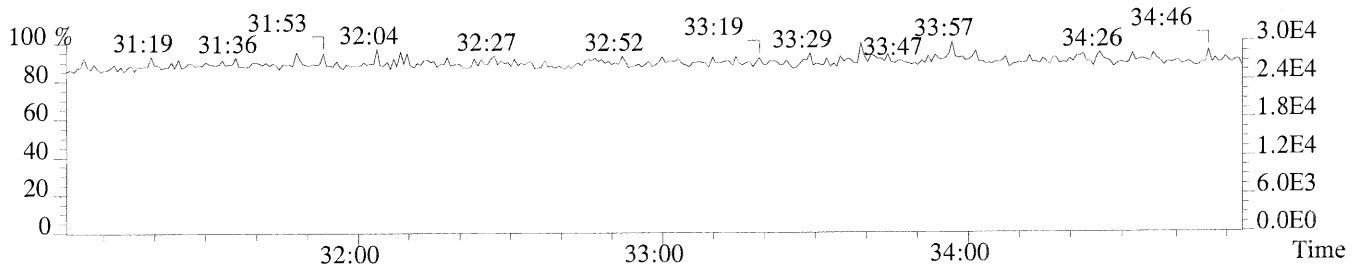
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1964.0,1.00%,F,T)



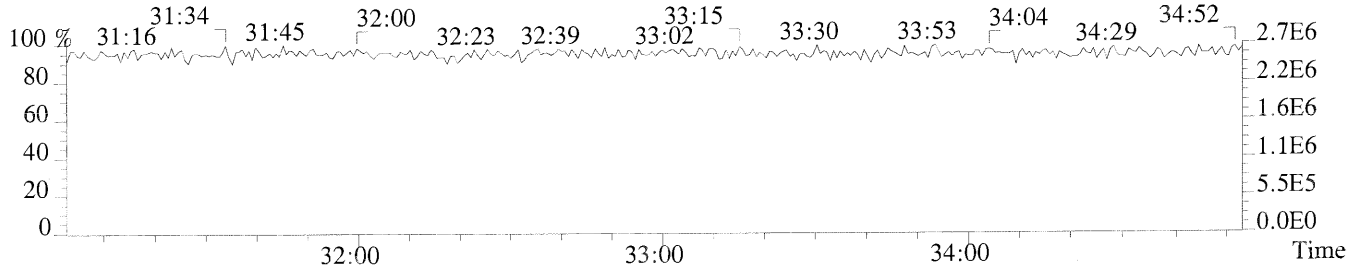
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

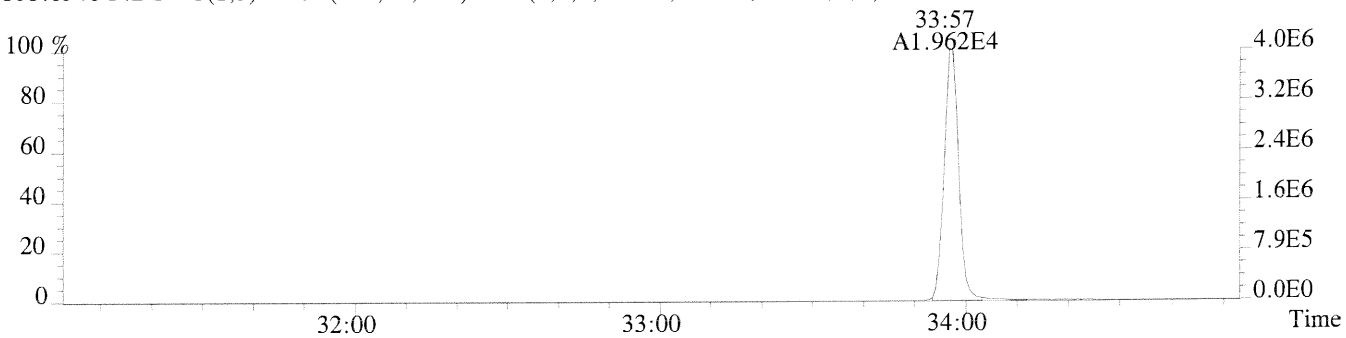


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

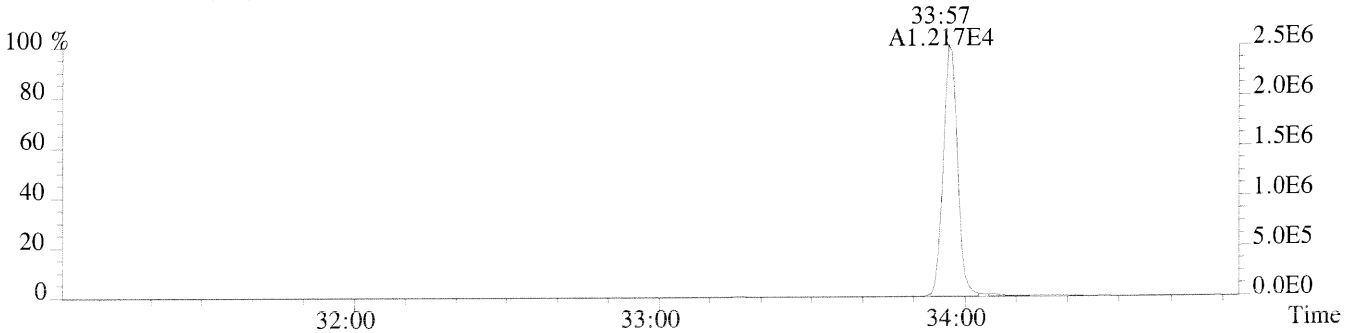


File:U149277 #1-349 Acq:28-MAY-2014 04:01:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

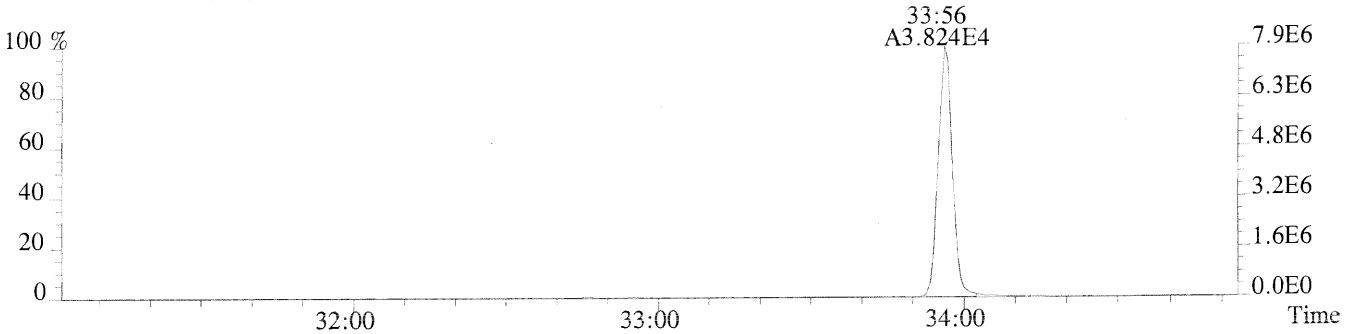
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2032.0,1.00%,F,T)



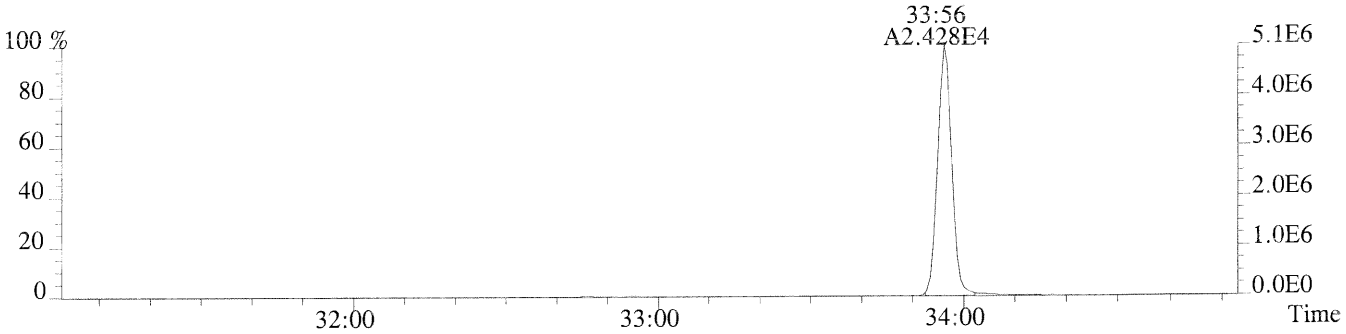
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1392.0,1.00%,F,T)



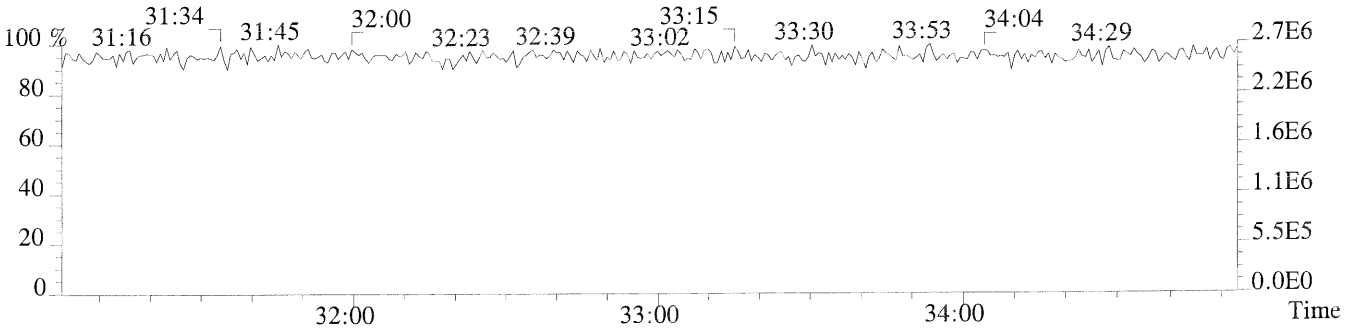
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)

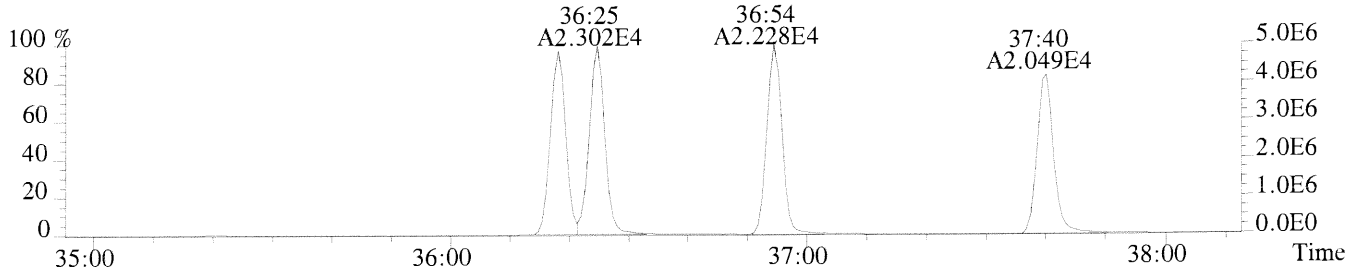


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

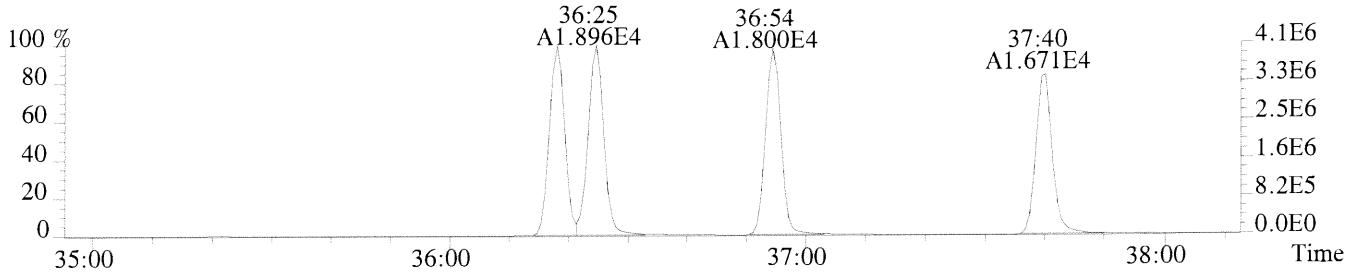


File:U149277 #1-299 Acq:28-MAY-2014 04:01:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

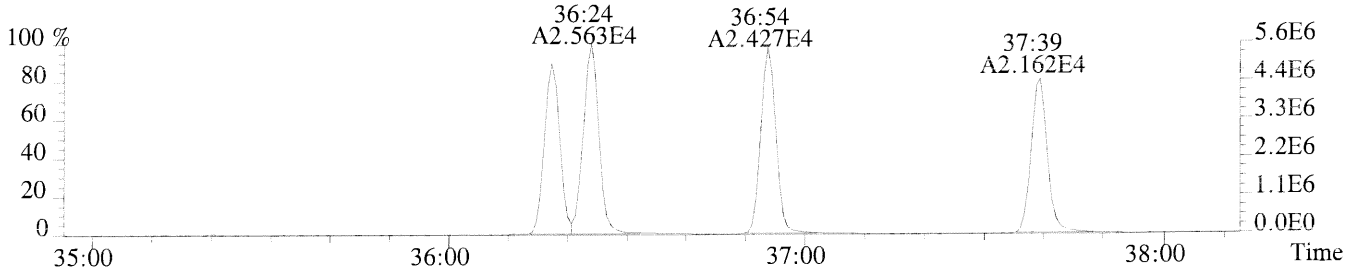
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3124.0,0.40%,F,T)



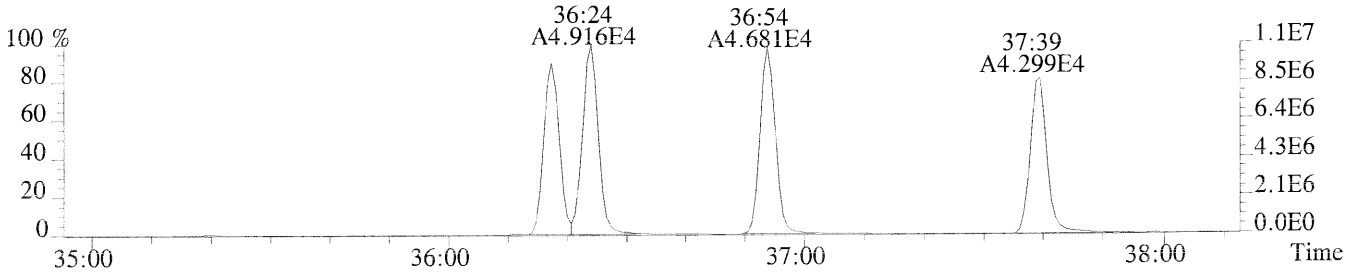
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3100.0,0.40%,F,T)



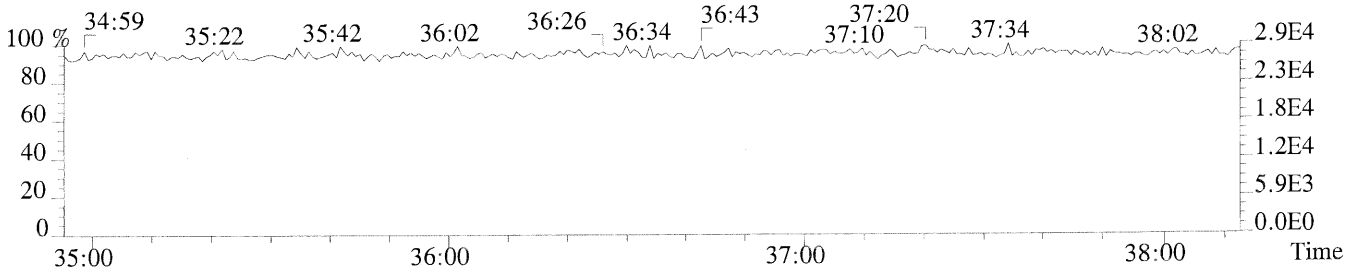
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.40%,F,T)



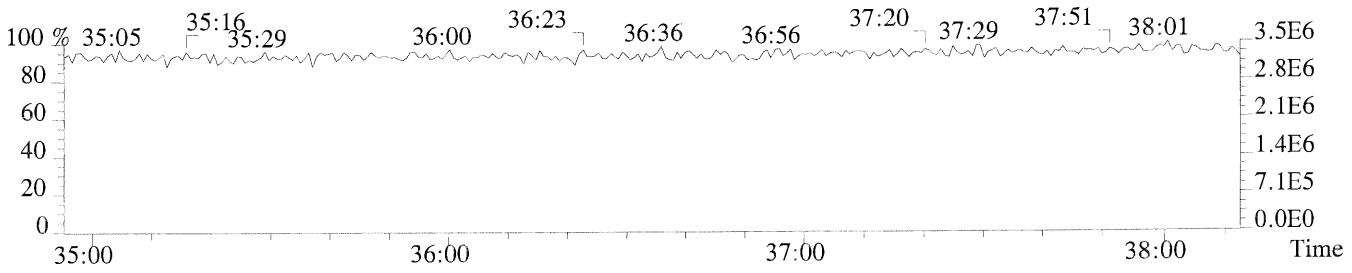
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2808.0,0.40%,F,T)



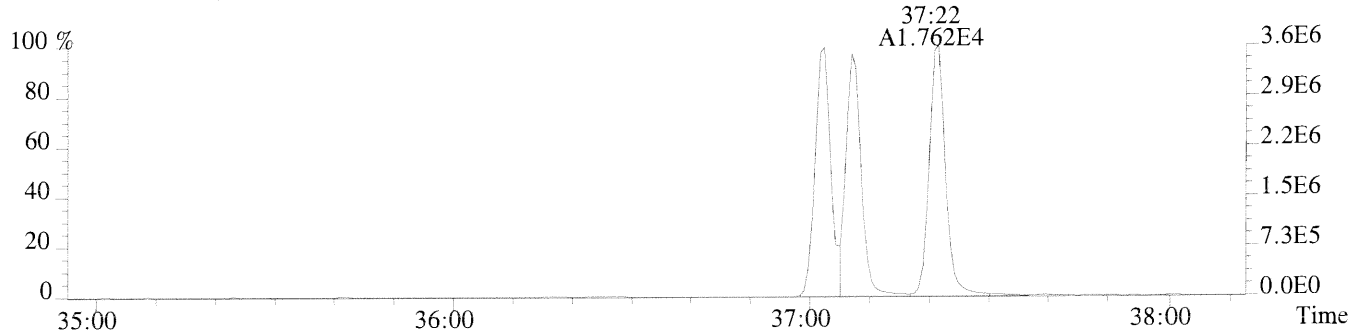
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



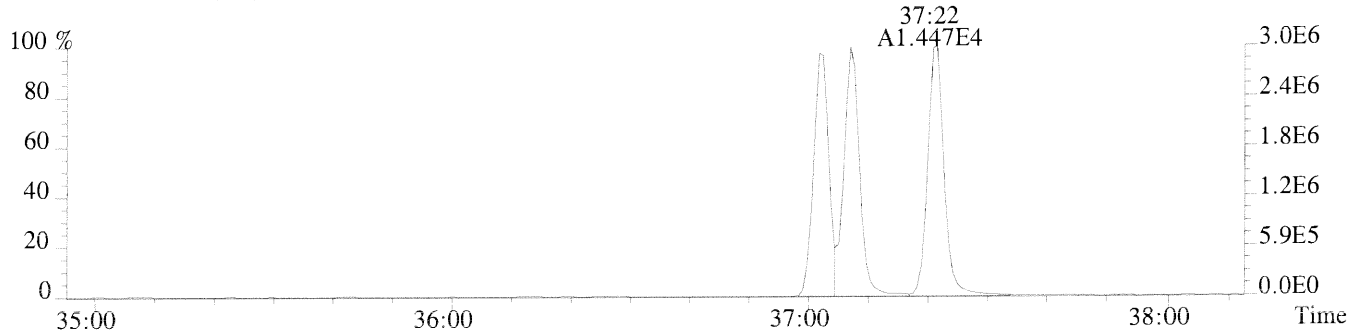
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



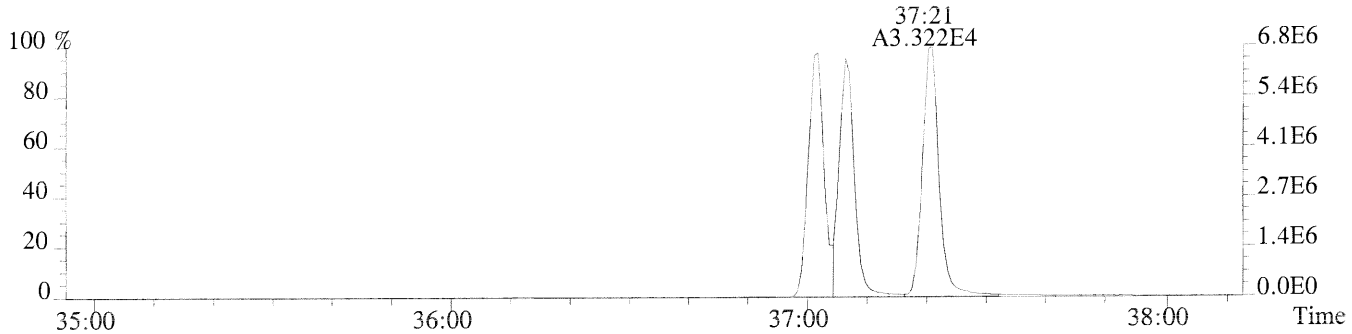
File:U149277 #1-299 Acq:28-MAY-2014 04:01:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3248.0,0.40%,F,T)



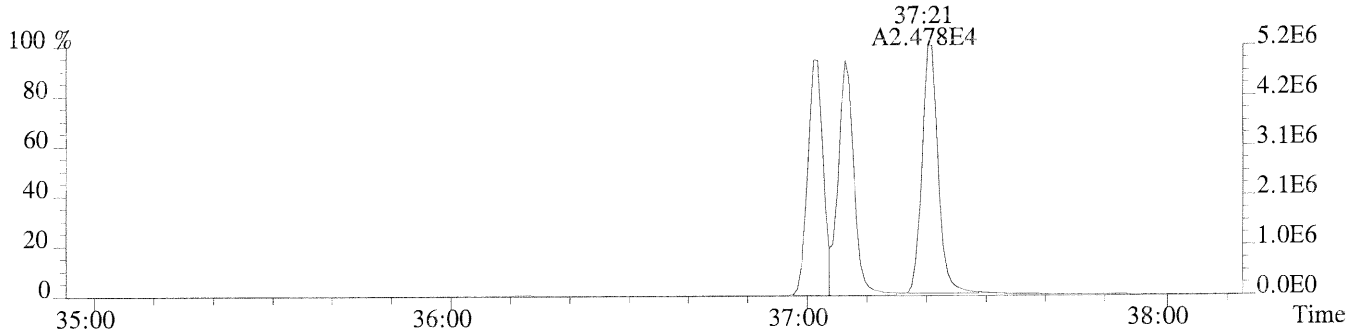
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3664.0,0.40%,F,T)



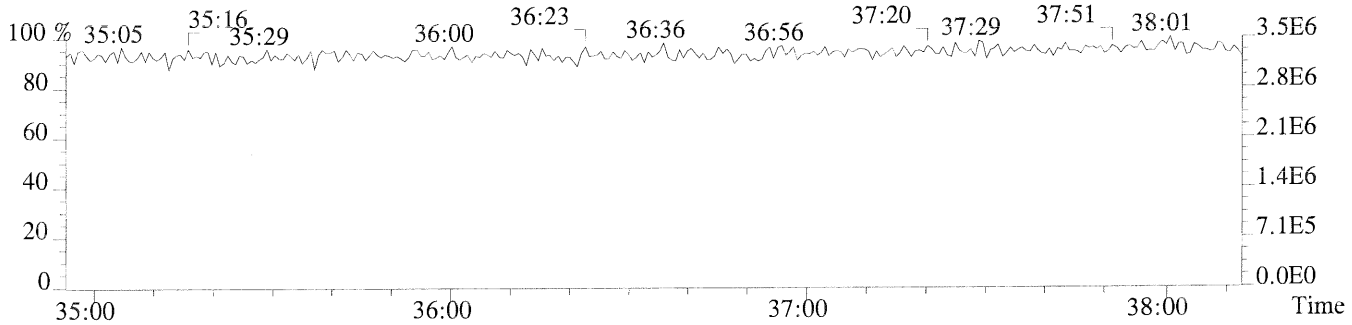
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,984.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.40%,F,T)

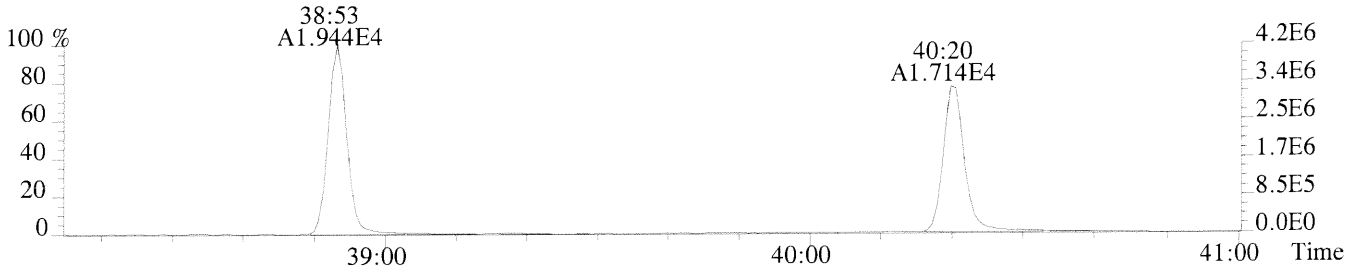


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

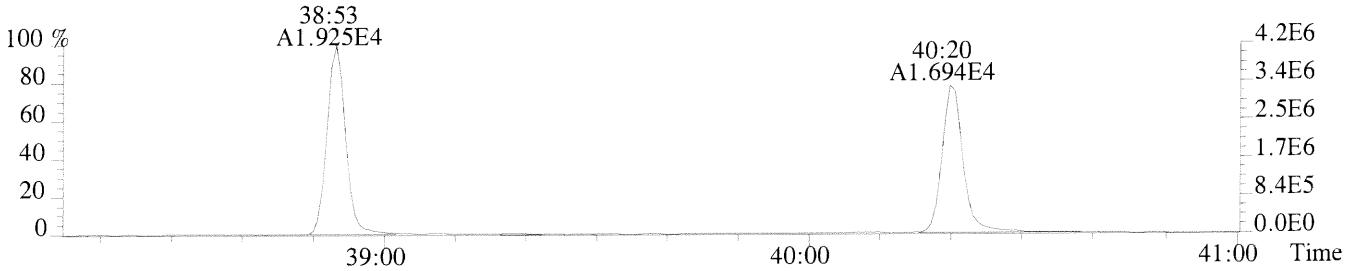


File:U149277 #1-251 Acq:28-MAY-2014 04:01:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

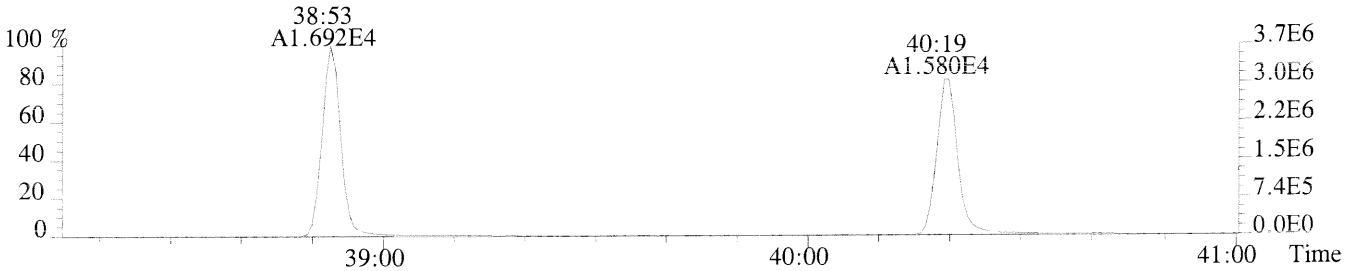
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8760.0,0.50%,F,T)



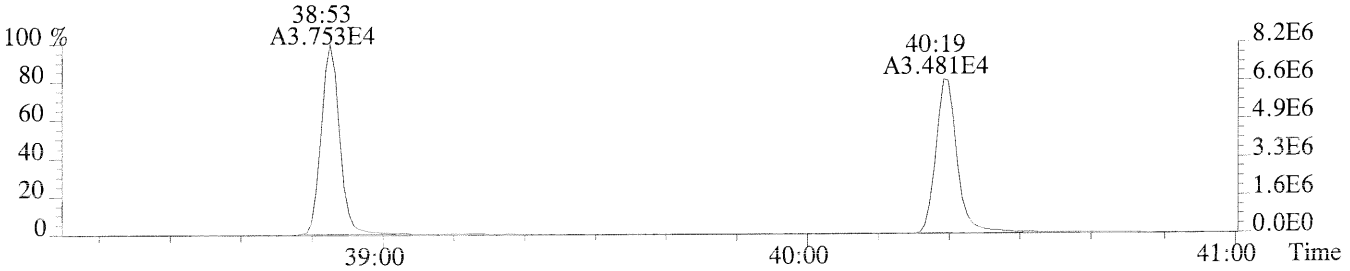
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11564.0,0.50%,F,T)



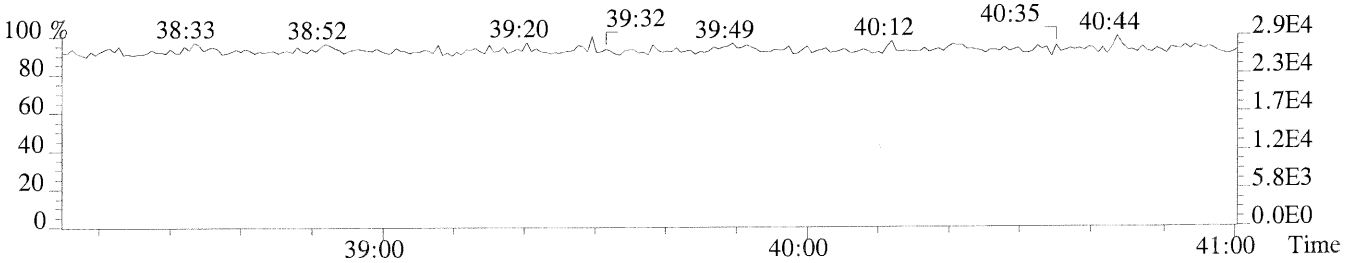
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1596.0,0.50%,F,T)



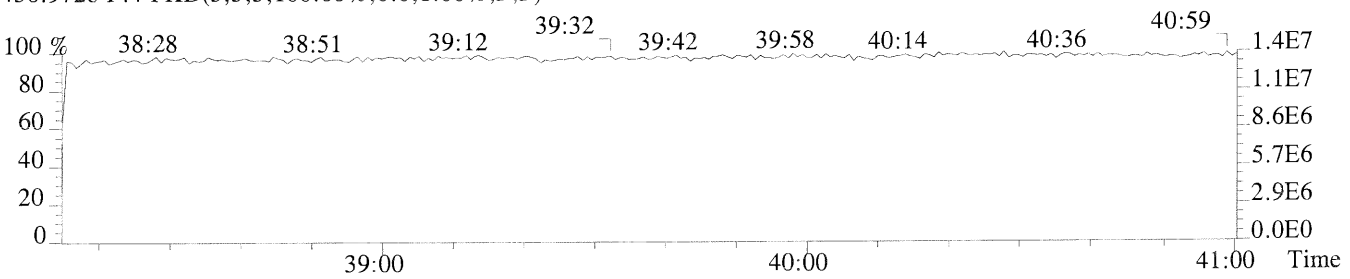
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9628.0,0.50%,F,T)



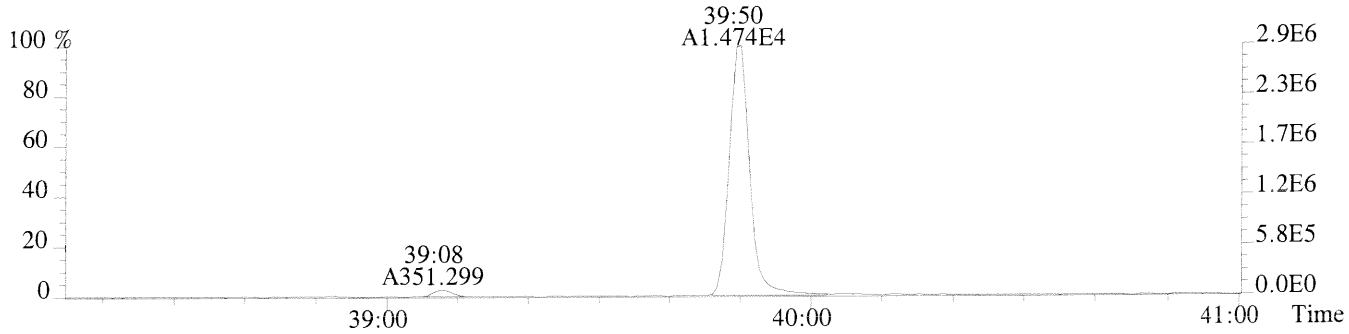
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



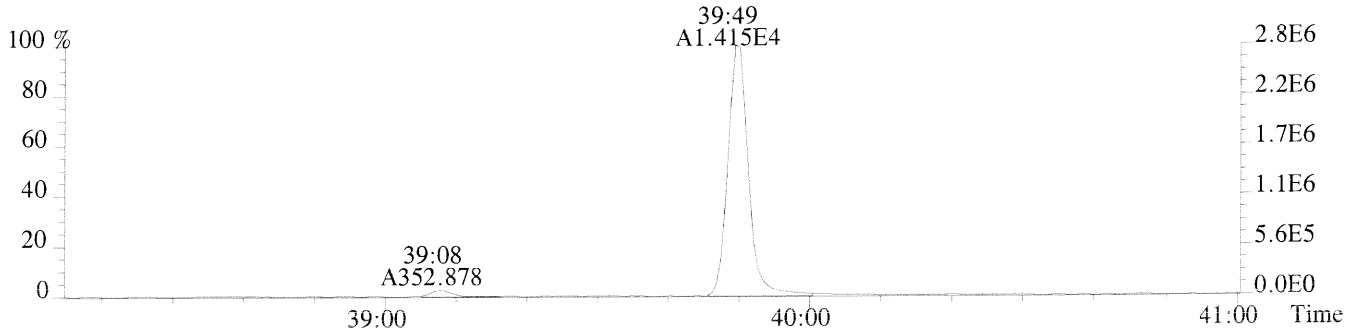
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



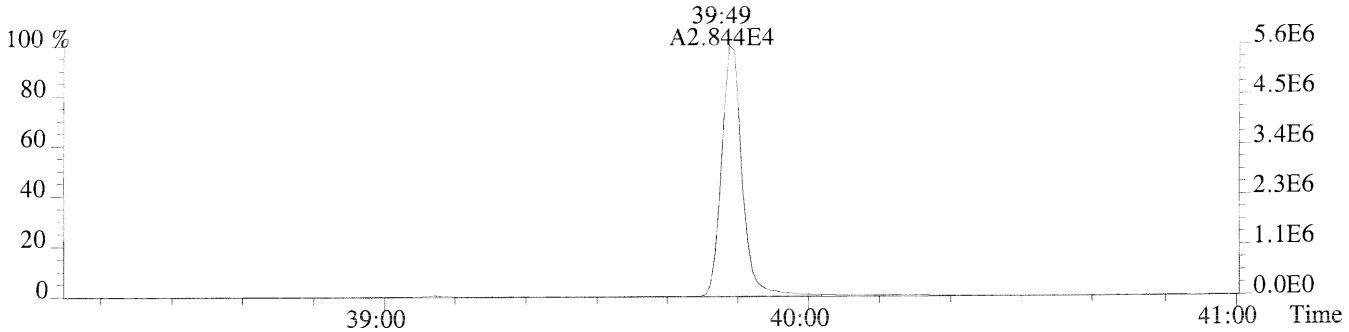
File:U149277 #1-251 Acq:28-MAY-2014 04:01:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7080.0,0.40%,F,T)



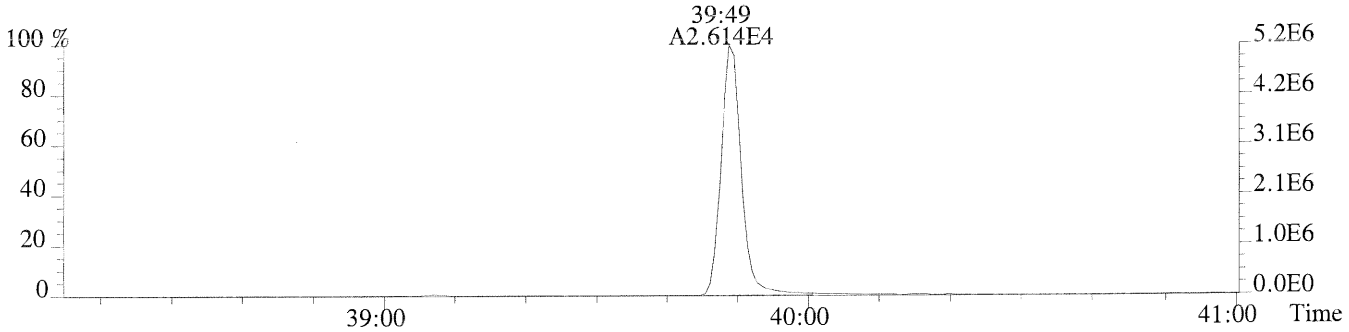
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4620.0,0.40%,F,T)



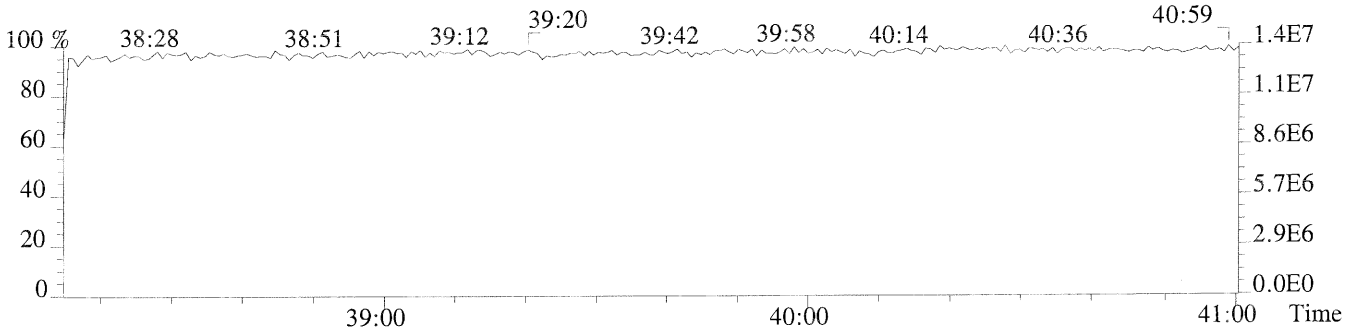
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1996.0,0.40%,F,T)



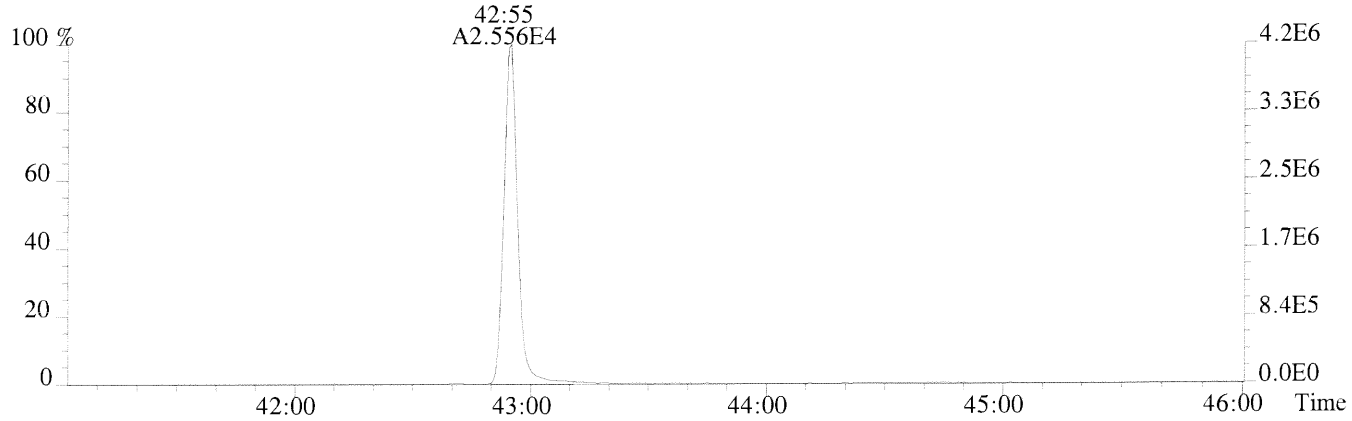
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1688.0,0.40%,F,T)



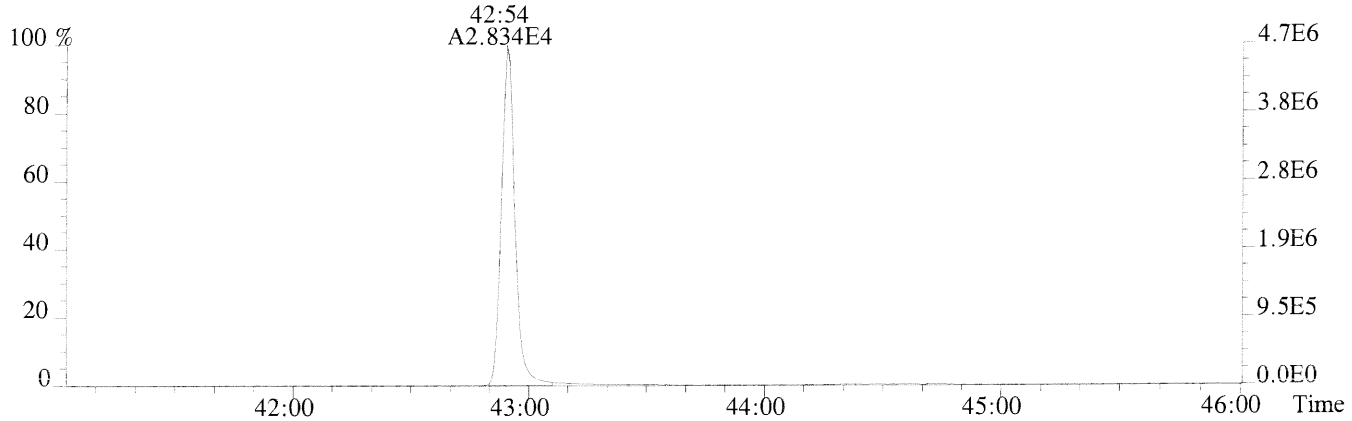
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



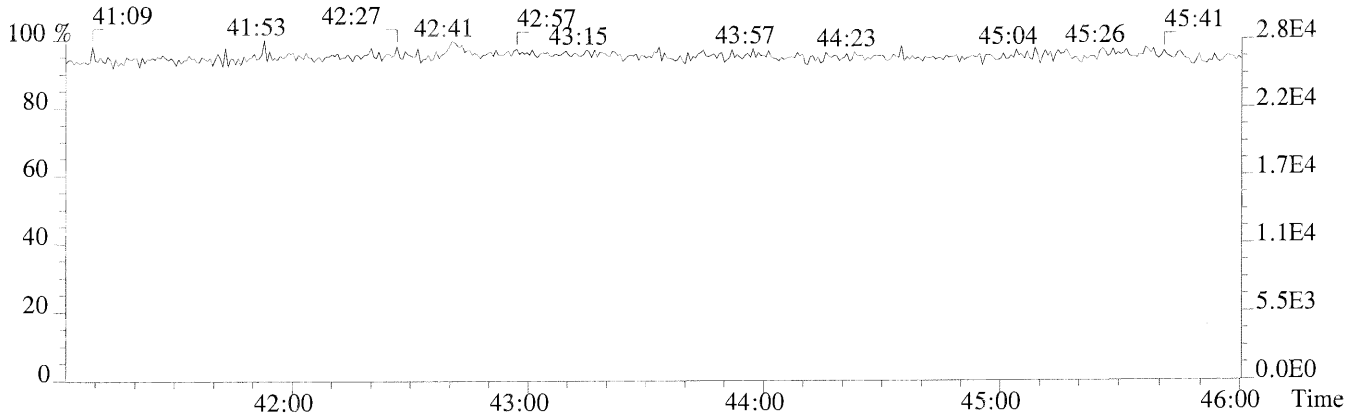
File:U149277 #1-451 Acq:28-MAY-2014 04:01:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2616.0,0.40%,F,T)



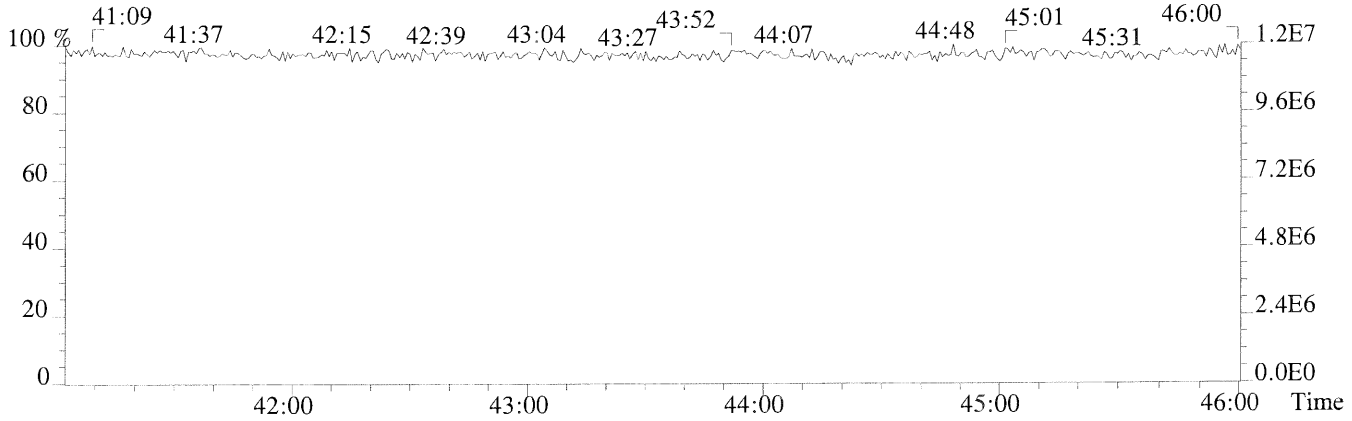
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1616.0,0.40%,F,T)



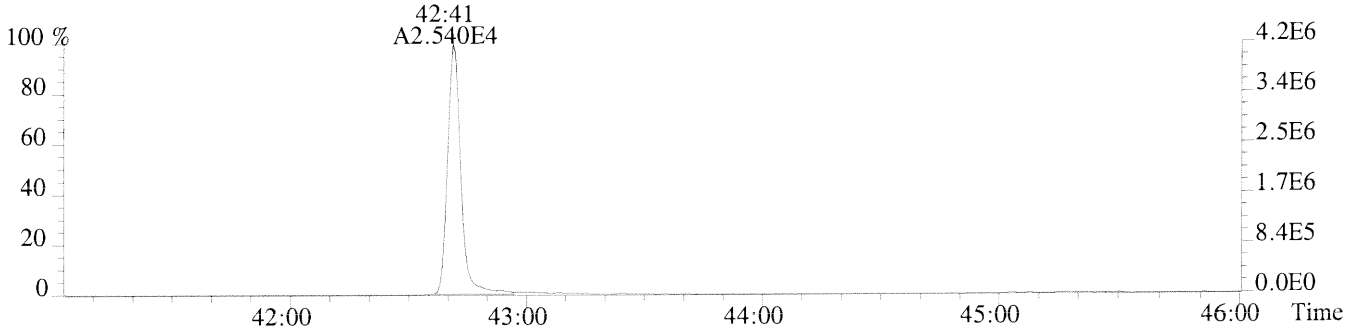
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



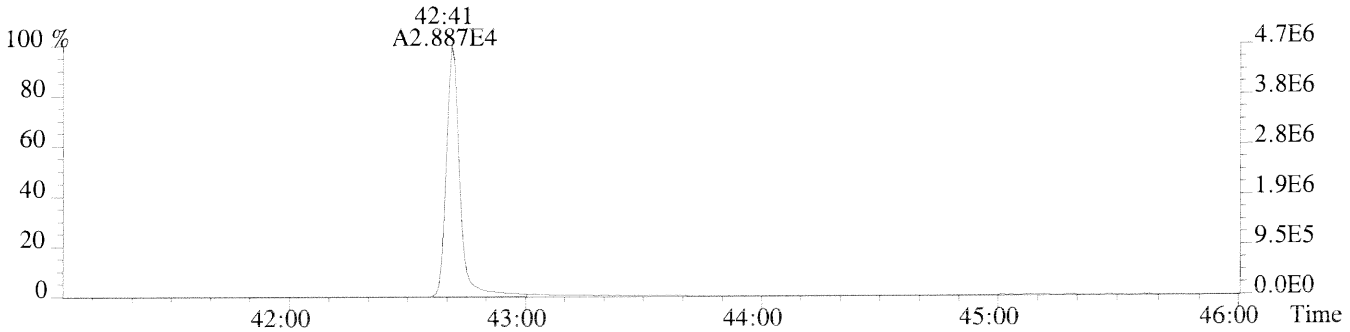
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



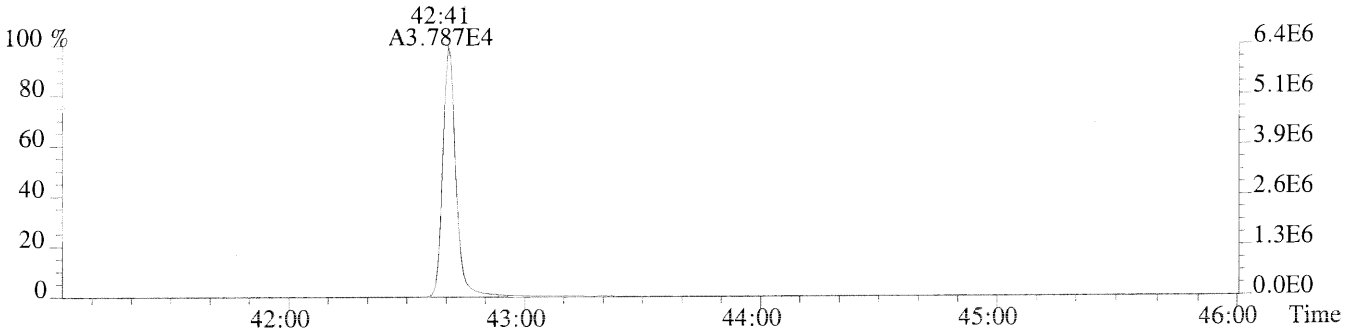
File:U149277 #1-451 Acq:28-MAY-2014 04:01:04 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3724.0,0.40%,F,T)



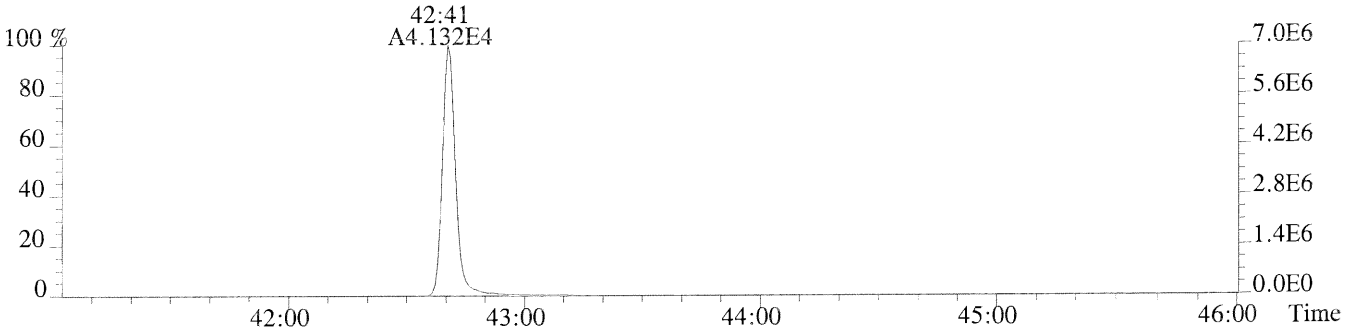
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3948.0,0.40%,F,T)



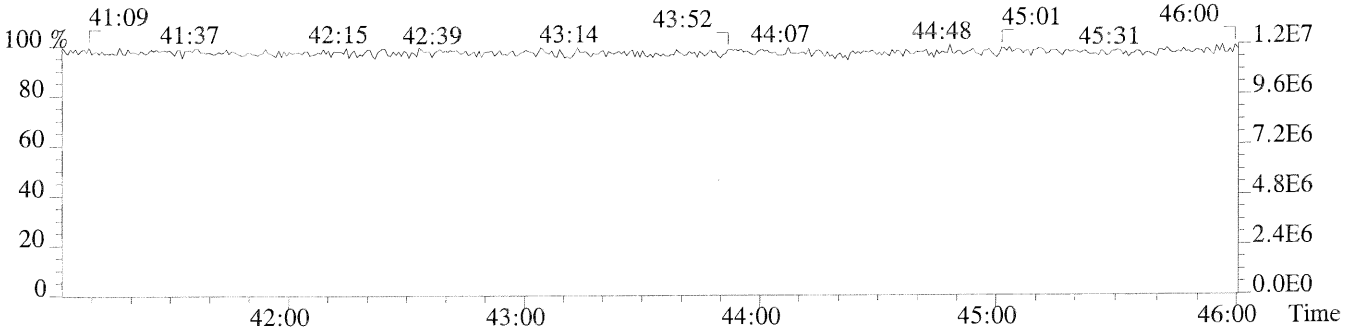
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1852.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1656.0,0.40%,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
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 05/21/2014

Instrument ID: E-HRMS-01 | GC Column ID: DB-5MSUI

VER Data Filename: U149284 | Analysis Date: 28-MAY-14 Time: 14:21:42

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	9.4	7.8 - 12.9	-6.0
1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	50	39 - 65	-0.3
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	51	39 - 64	1.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	52	39 - 64	3.3
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	51	41 - 61	2.7
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.02	0.88-1.20	49	43 - 58	-2.1
OCDD	M+2/M+4	0.88	0.76-1.02	105	79 - 126	4.9
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	10.0	8.4 - 12.0	0.5
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	50	41 - 60	0.1
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	49	41 - 61	-1.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	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	49	44 - 57	-1.2
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	50	45 - 56	0.9
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	49	44 - 57	-1.3
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	49	45 - 55	-1.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	48	43 - 58	-3.6
OCDF	M+2/M+4	0.90	0.76-1.02	101	63 - 159	1.1

(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 %D 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

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 05/21/2014

Instrument ID: E-HRMS-01 GC Column ID: DB-5MSUI

VER Data Filename: U149284 Analysis Date: 28-MAY-14 Time: 14:21:42

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	95	82 - 121	-4.8
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	92	62 - 160	-7.7
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	99	85 - 117	-0.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.31	1.05-1.43	97	85 - 118	-2.6
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	96	72 - 138	-3.9
13C-OCDD	M+2/M+4	0.92	0.76-1.02	178	96 - 415	-11.1
13C-2,3,7,8-TCDF	M/M+2	0.82	0.65-0.89	97	71 - 140	-3.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	92	76 - 130	-8.4
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	94	77 - 130	-6.3
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	96	76 - 131	-4.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	70 - 143	-3.3
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	99	74 - 135	-0.9
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	99	73 - 137	-0.8
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	95	78 - 129	-4.9
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	95	77 - 129	-4.8
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.7	7.8 - 12.7	-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.
(5) The beginnning CCAL %D 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)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66131

Run #13 Filename U149284 Samp: 1 Inj: 1 Acquired: 28-MAY-14 14:21:42
Processed: 28-MAY-14 14:22:32 Sample ID: CCAL HRCC3/CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:43	4.466e+03	5.835e+03	0.77	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:47	4.090e+04	2.633e+04	1.55	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:41	3.813e+04	2.504e+04	1.52	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:18	3.297e+04	2.674e+04	1.23	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:25	3.553e+04	2.884e+04	1.23	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:54	3.312e+04	2.713e+04	1.22	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	3.179e+04	2.567e+04	1.24	yes	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:53	2.835e+04	2.826e+04	1.00	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:20	2.415e+04	2.385e+04	1.01	yes	no	1.358
10	Unk	OCDF	42:54	3.703e+04	4.129e+04	0.90	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:28	3.303e+03	4.162e+03	0.79	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:57	2.816e+04	1.747e+04	1.61	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:02	2.403e+04	1.921e+04	1.25	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:07	2.578e+04	2.055e+04	1.25	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:21	2.721e+04	2.172e+04	1.25	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:49	2.072e+04	2.031e+04	1.02	yes	no	1.065
17	Unk	OCDD	42:41	3.323e+04	3.759e+04	0.88	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:41	4.886e+04	5.969e+04	0.82	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:46	8.434e+04	5.315e+04	1.59	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:40	8.412e+04	5.266e+04	1.60	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	3.341e+04	6.476e+04	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:24	3.870e+04	7.457e+04	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:54	3.653e+04	7.099e+04	0.51	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	3.380e+04	6.524e+04	0.52	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:53	2.491e+04	5.546e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:19	2.268e+04	5.065e+04	0.45	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:27	3.421e+04	4.420e+04	0.77	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:56	5.453e+04	3.473e+04	1.57	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:01	4.263e+04	3.287e+04	1.30	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	4.606e+04	3.509e+04	1.31	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:49	4.104e+04	3.768e+04	1.09	yes	no	0.936
32	IS	13C-OCDD	42:40	5.485e+04	5.992e+04	0.92	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:52	3.436e+04	4.381e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:20	4.981e+04	3.765e+04	1.32	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:28	7.898e+03				no	1.044

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
66131

Run #13 Filename U149284 Samp: 1 Inj: 1 Acquired: 28-MAY-14 14:21:42
Processed: 28-MAY-14 14:22:321 LAB. ID: CCAL HRCC3/CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.45e+05	7.52e+02	1.3e+03	1.25e+06	1.01e+03	1.2e+03
2	1,2,3,7,8-PeCDF	7.84e+06	1.01e+03	7.8e+03	5.10e+06	1.20e+03	4.3e+03
3	2,3,4,7,8-PeCDF	7.78e+06	1.01e+03	7.7e+03	5.09e+06	1.20e+03	4.3e+03
4	1,2,3,4,7,8-HxCDF	7.24e+06	1.90e+03	3.8e+03	5.86e+06	9.24e+02	6.3e+03
5	1,2,3,6,7,8-HxCDF	7.39e+06	1.90e+03	3.9e+03	5.98e+06	9.24e+02	6.5e+03
6	2,3,4,6,7,8-HxCDF	7.25e+06	1.90e+03	3.8e+03	5.90e+06	9.24e+02	6.4e+03
7	1,2,3,7,8,9-HxCDF	6.50e+06	1.90e+03	3.4e+03	5.29e+06	9.24e+02	5.7e+03
8	1,2,3,4,6,7,8-HpCDF	6.03e+06	2.46e+03	2.5e+03	5.93e+06	3.53e+03	1.7e+03
9	1,2,3,4,7,8,9-HpCDF	4.60e+06	2.46e+03	1.9e+03	4.51e+06	3.53e+03	1.3e+03
10	OCDF	6.00e+06	1.38e+03	4.4e+03	6.58e+06	1.86e+03	3.5e+03
11	2,3,7,8-TCDD	7.29e+05	7.52e+02	9.7e+02	9.40e+05	9.92e+02	9.5e+02
12	1,2,3,7,8-PeCDD	5.78e+06	1.22e+03	4.8e+03	3.58e+06	7.84e+02	4.6e+03
13	1,2,3,4,7,8-HxCDD	5.47e+06	2.28e+03	2.4e+03	4.34e+06	1.54e+03	2.8e+03
14	1,2,3,6,7,8-HxCDD	5.33e+06	2.28e+03	2.3e+03	4.31e+06	1.54e+03	2.8e+03
15	1,2,3,7,8,9-HxCDD	5.46e+06	2.28e+03	2.4e+03	4.44e+06	1.54e+03	2.9e+03
16	1,2,3,4,6,7,8-HpCDD	4.04e+06	2.30e+03	1.8e+03	3.96e+06	2.78e+03	1.4e+03
17	OCDD	5.34e+06	2.75e+03	1.9e+03	6.07e+06	3.22e+03	1.9e+03
18	13C-2,3,7,8-TCDF	1.03e+07	7.24e+02	1.4e+04	1.27e+07	6.88e+02	1.8e+04
19	13C-1,2,3,7,8-PeCDF	1.63e+07	7.16e+02	2.3e+04	1.04e+07	7.16e+02	1.4e+04
20	13C-2,3,4,7,8-PeCDF	1.70e+07	7.16e+02	2.4e+04	1.06e+07	7.16e+02	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	7.32e+06	5.76e+02	1.3e+04	1.41e+07	8.28e+02	1.7e+04
22	13C-1,2,3,6,7,8-HxCDF	8.08e+06	5.76e+02	1.4e+04	1.55e+07	8.28e+02	1.9e+04
23	13C-2,3,4,6,7,8-HxCDF	7.87e+06	5.76e+02	1.4e+04	1.52e+07	8.28e+02	1.8e+04
24	13C-1,2,3,7,8,9-HxCDF	6.87e+06	5.76e+02	1.2e+04	1.34e+07	8.28e+02	1.6e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.35e+06	2.94e+03	1.8e+03	1.18e+07	5.34e+03	2.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.28e+06	2.94e+03	1.5e+03	9.54e+06	5.34e+03	1.8e+03
27	13C-2,3,7,8-TCDD	7.59e+06	1.66e+03	4.6e+03	9.70e+06	8.44e+02	1.1e+04
28	13C-1,2,3,7,8-PeCDD	1.11e+07	7.24e+02	1.5e+04	7.10e+06	9.12e+02	7.8e+03
29	13C-1,2,3,4,7,8-HxCDD	9.63e+06	5.84e+02	1.6e+04	7.46e+06	5.60e+02	1.3e+04
30	13C-1,2,3,6,7,8-HxCDD	9.53e+06	5.84e+02	1.6e+04	7.32e+06	5.60e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	7.99e+06	1.26e+03	6.4e+03	7.35e+06	8.00e+02	9.2e+03
32	13C-OCDD	8.83e+06	6.28e+02	1.4e+04	9.71e+06	6.44e+02	1.5e+04
33	13C-1,2,3,4-TCDD	7.52e+06	1.66e+03	4.5e+03	9.51e+06	8.44e+02	1.1e+04
34	13C-1,2,3,7,8,9-HxCDD	1.00e+07	5.84e+02	1.7e+04	7.63e+06	5.60e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	1.78e+06	7.60e+02	2.3e+03			

ALS ENVIRONMENTAL
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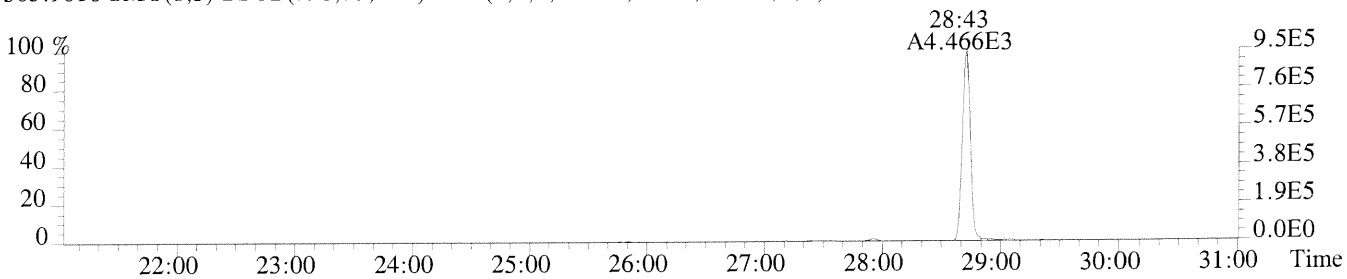
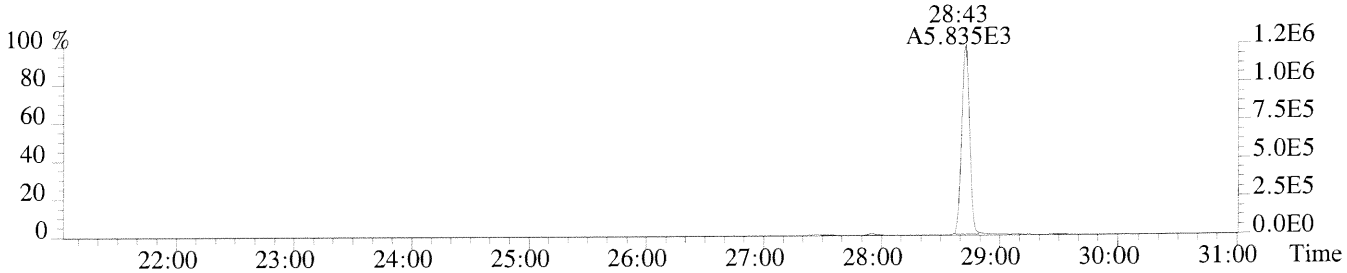
File:U149284 #1-627 Acq:28-MAY-2014 14:21:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

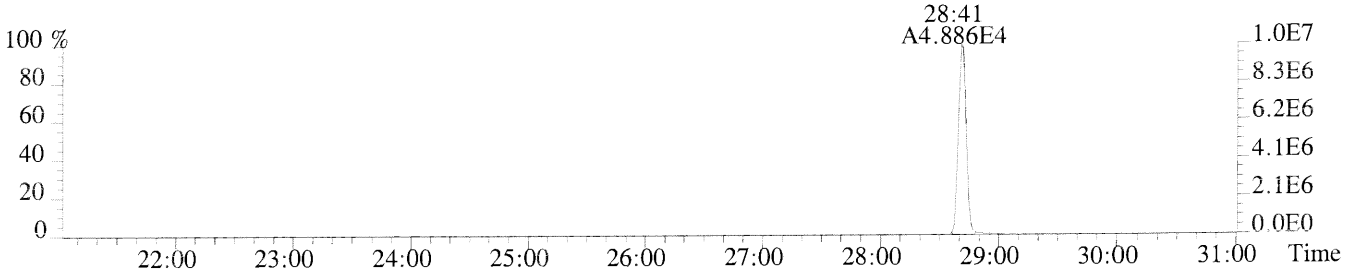
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



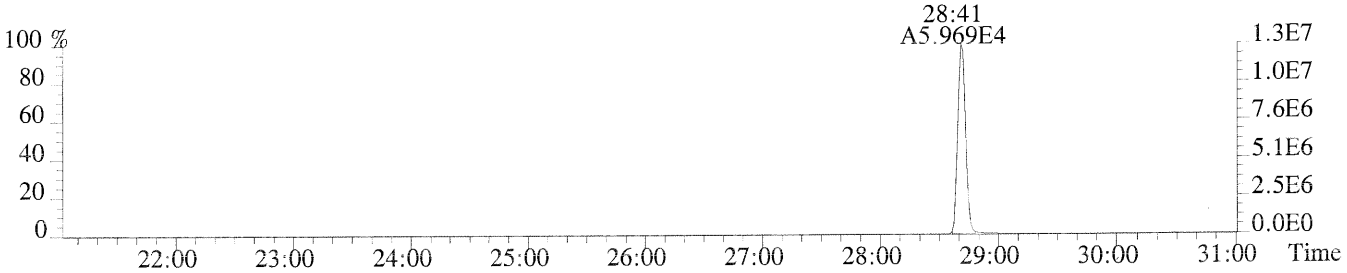
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



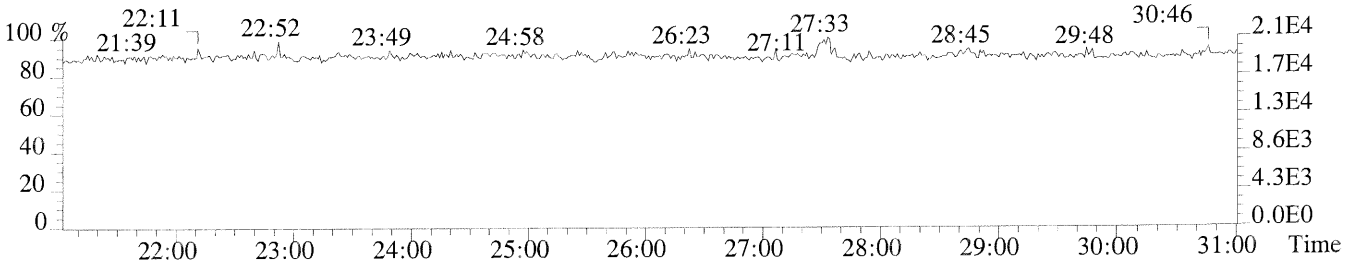
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



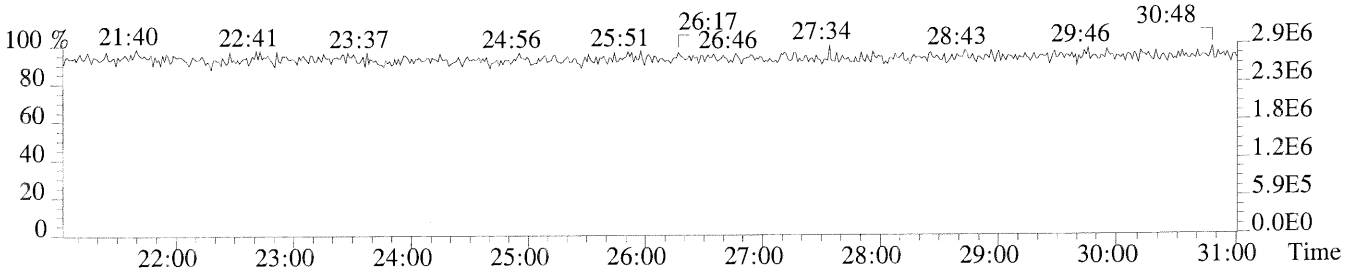
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

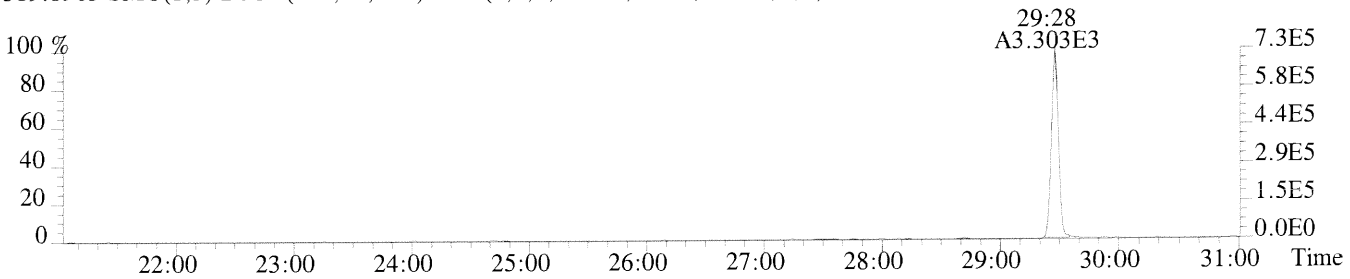


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

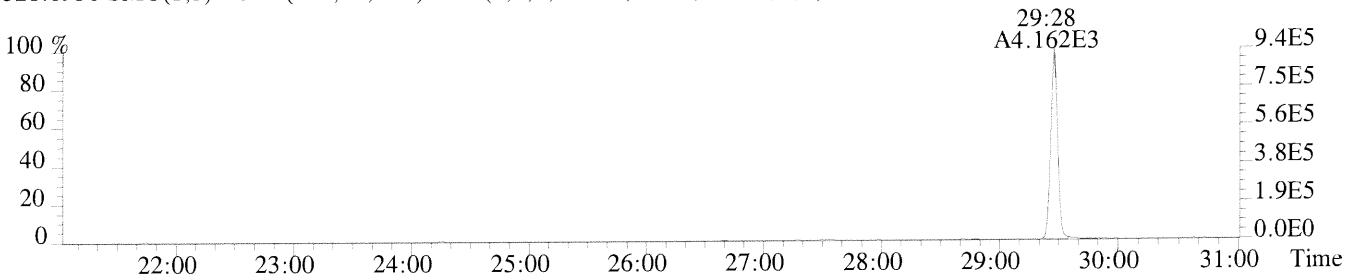


File:U149284 #1-627 Acq:28-MAY-2014 14:21:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

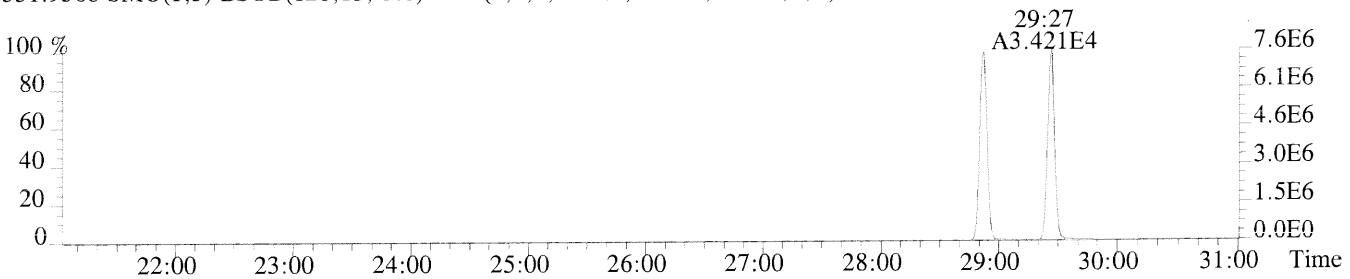
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



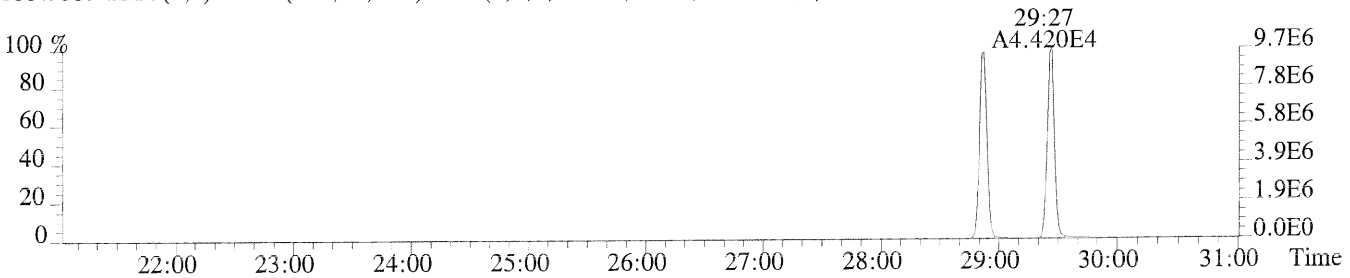
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



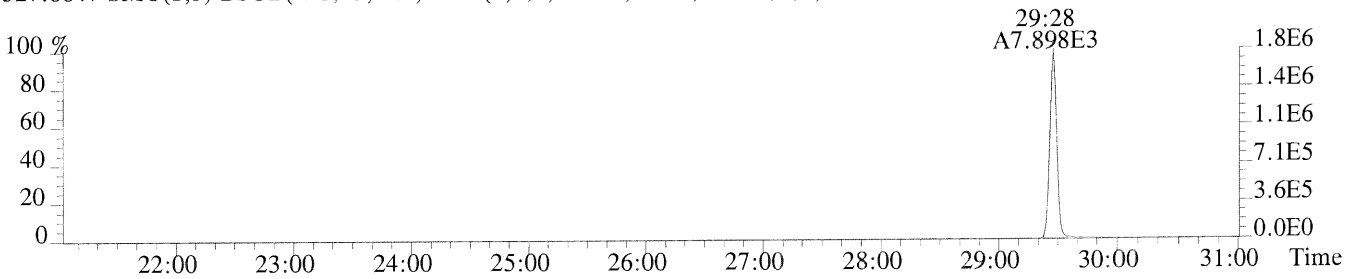
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



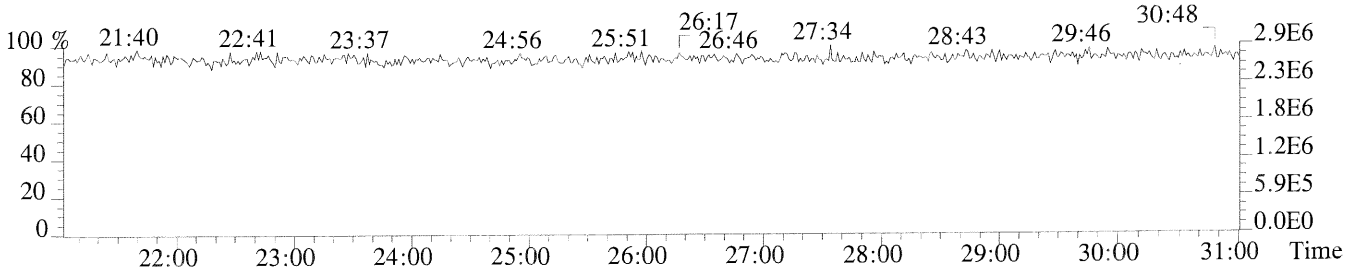
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)

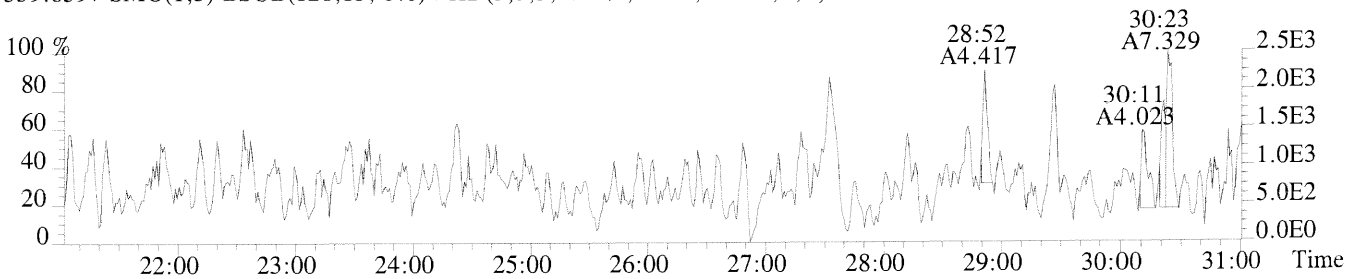


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

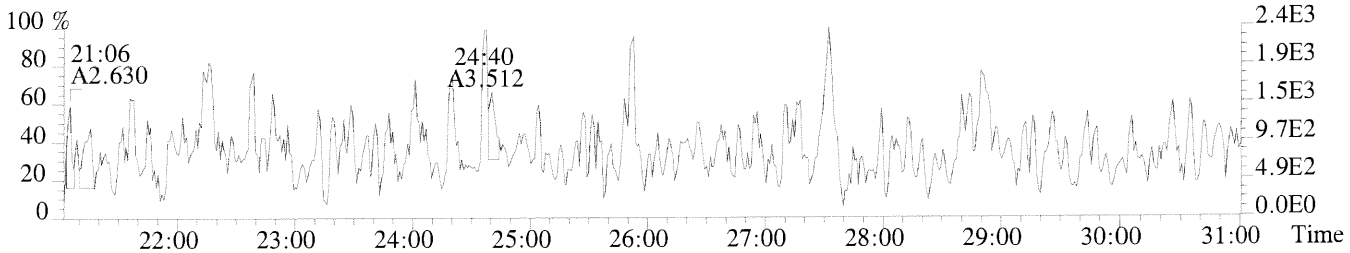


File:U149284 #1-627 Acq:28-MAY-2014 14:21:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

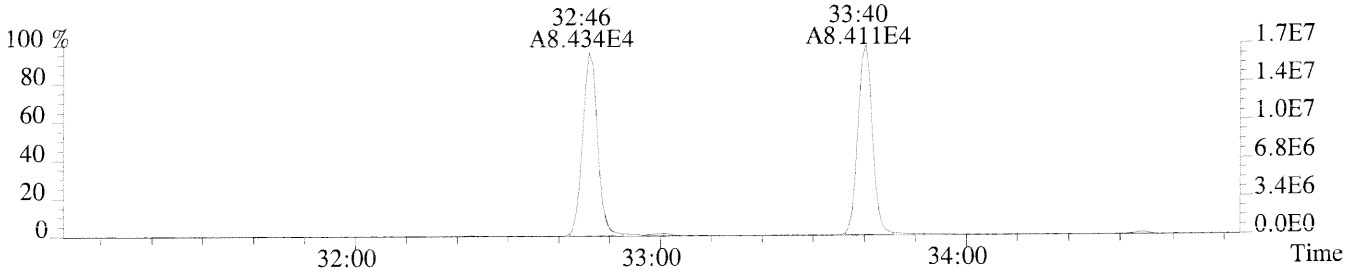
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,948.0,1.00%,F,T)



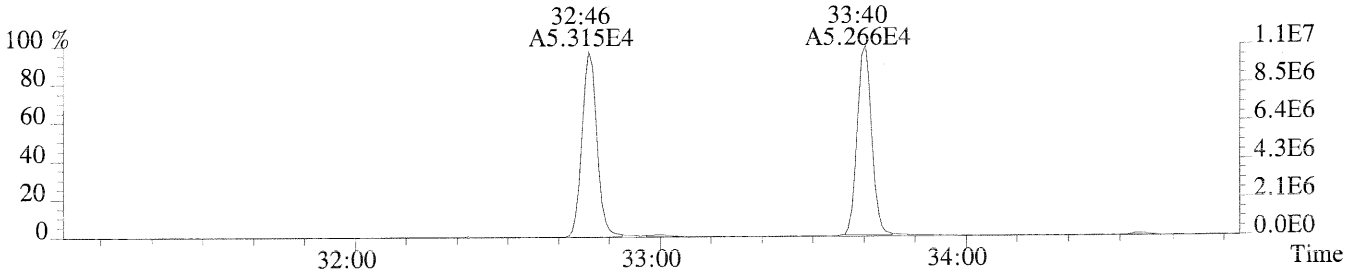
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



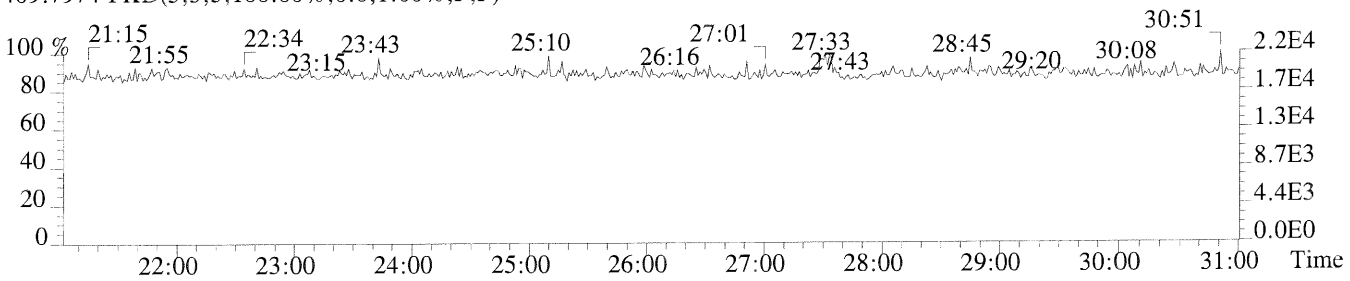
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



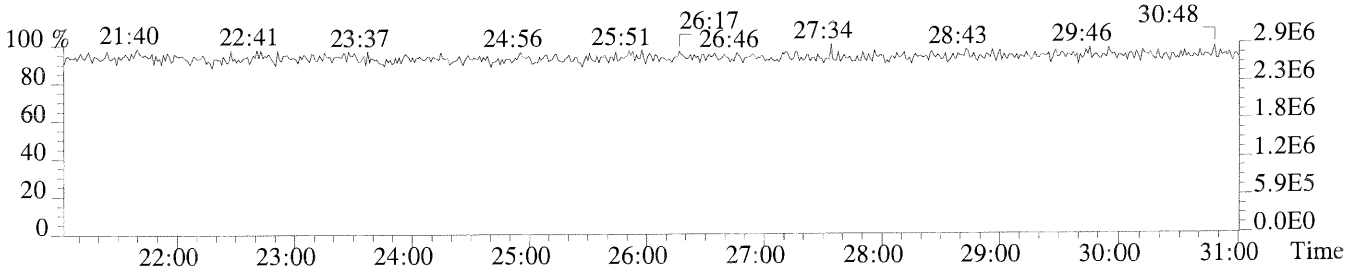
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

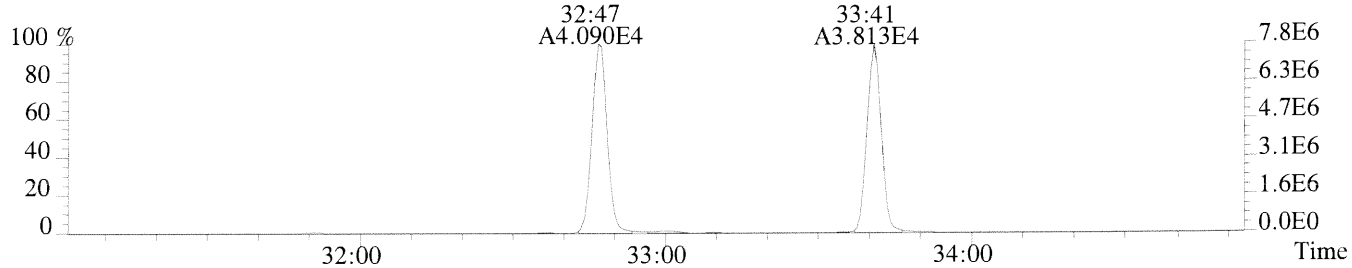


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

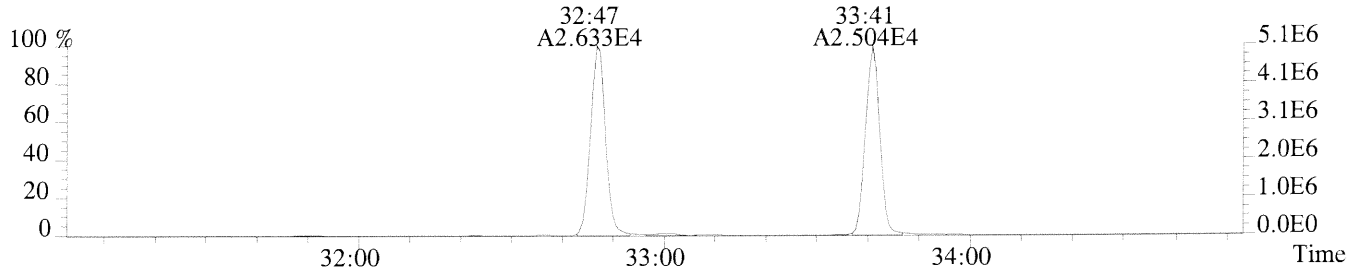


File:U149284 #1-349 Acq:28-MAY-2014 14:21:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

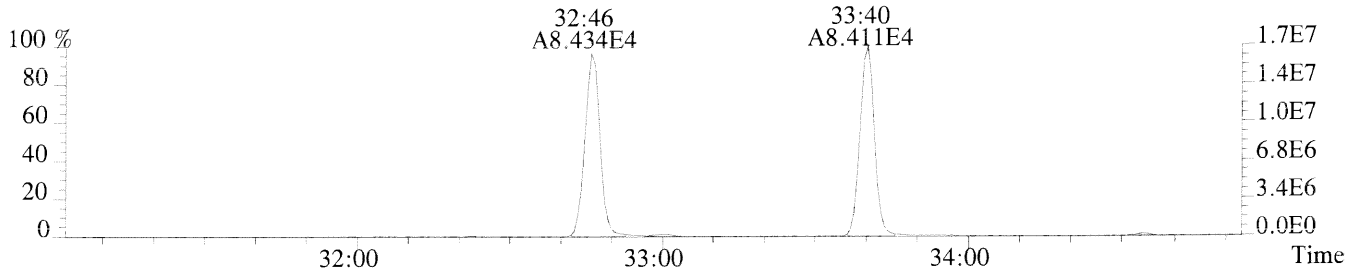
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



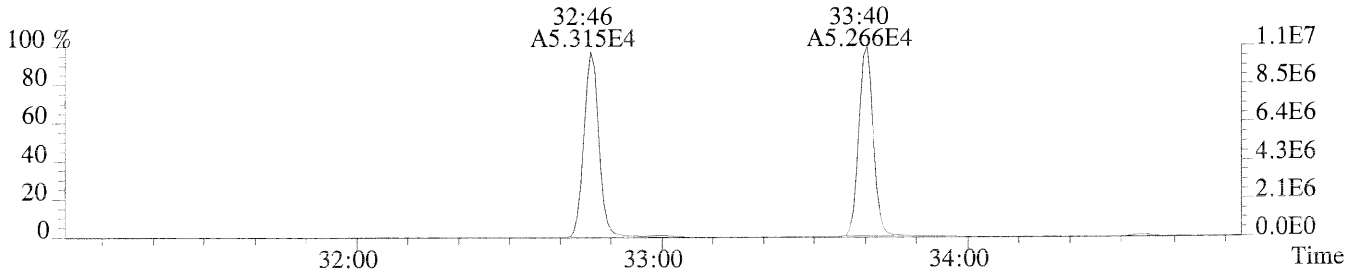
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



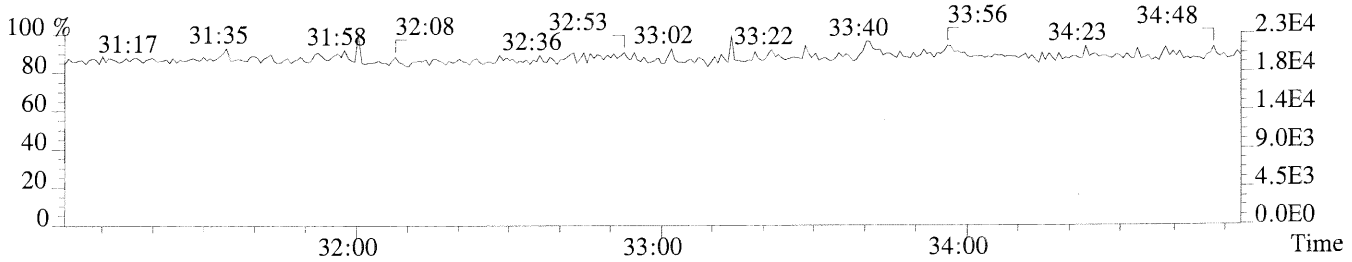
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



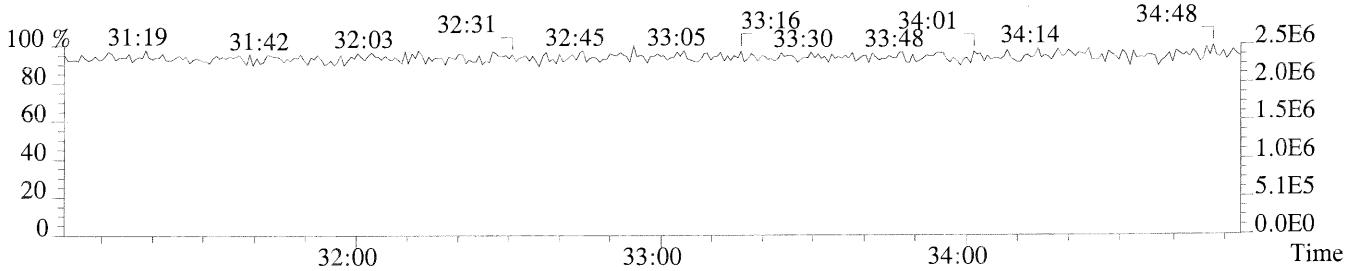
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



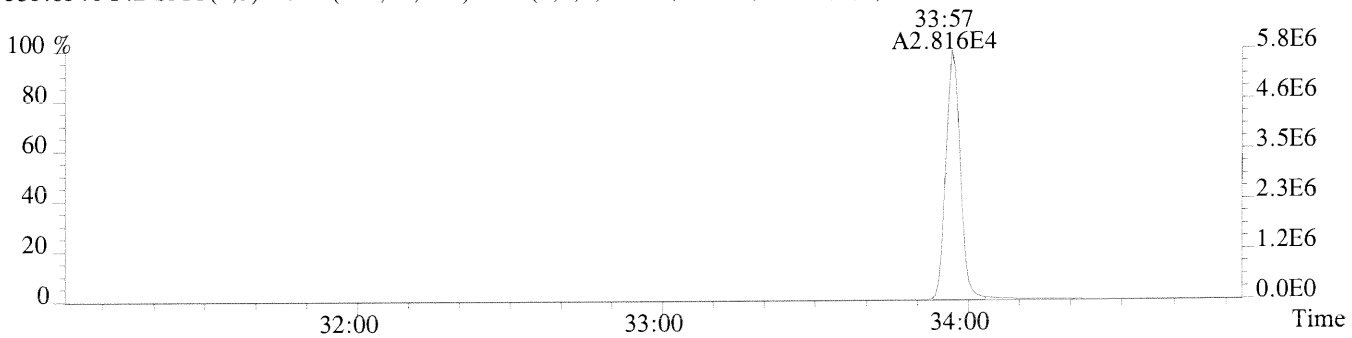
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



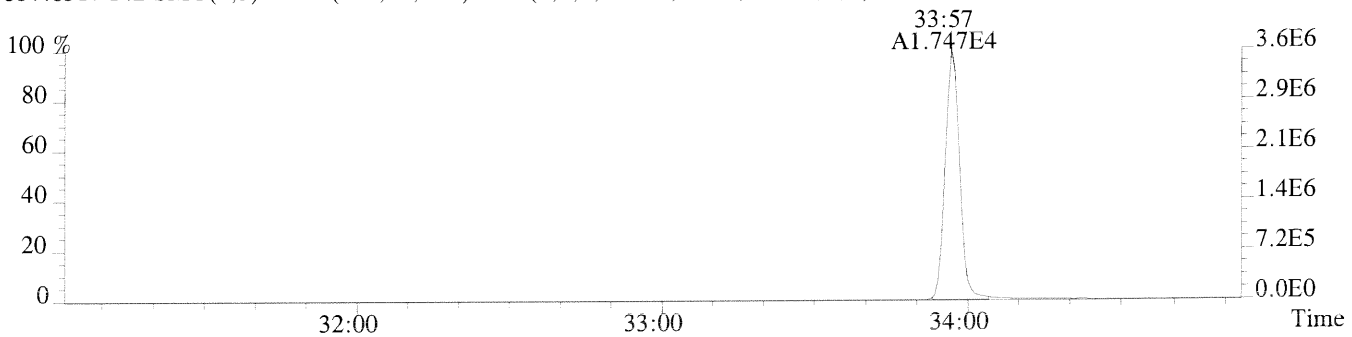
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



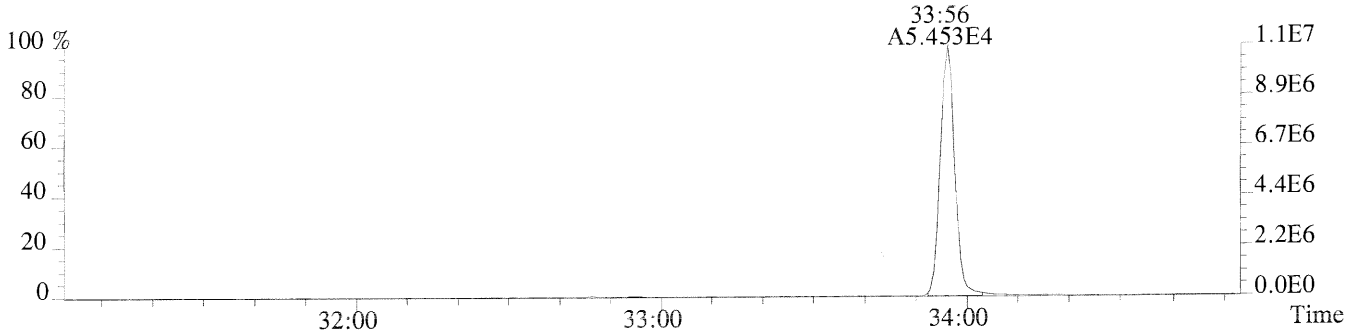
File:U149284 #1-349 Acq:28-MAY-2014 14:21:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



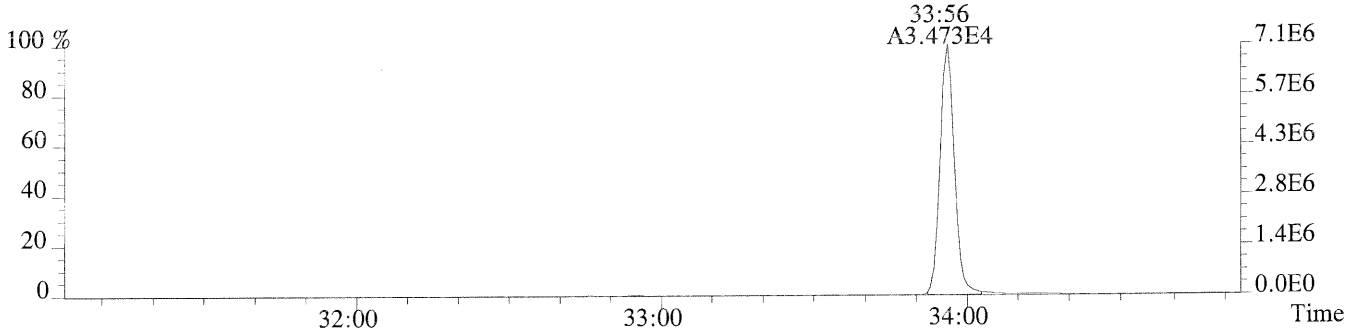
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



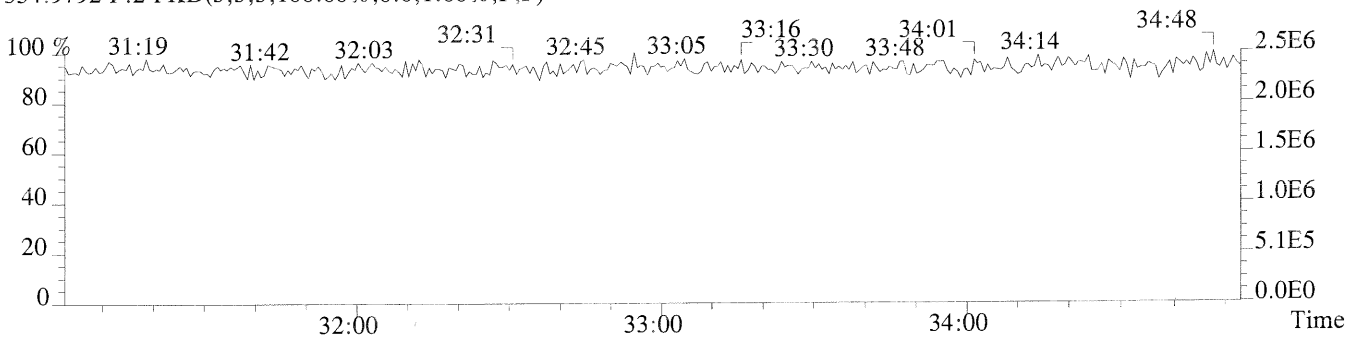
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)

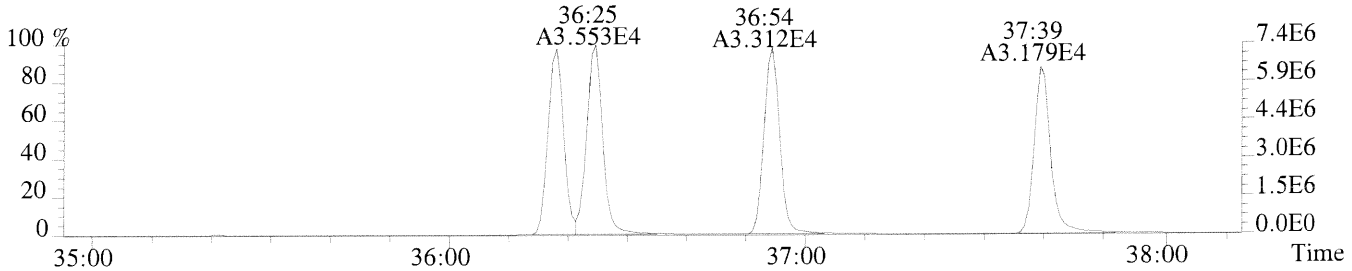


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

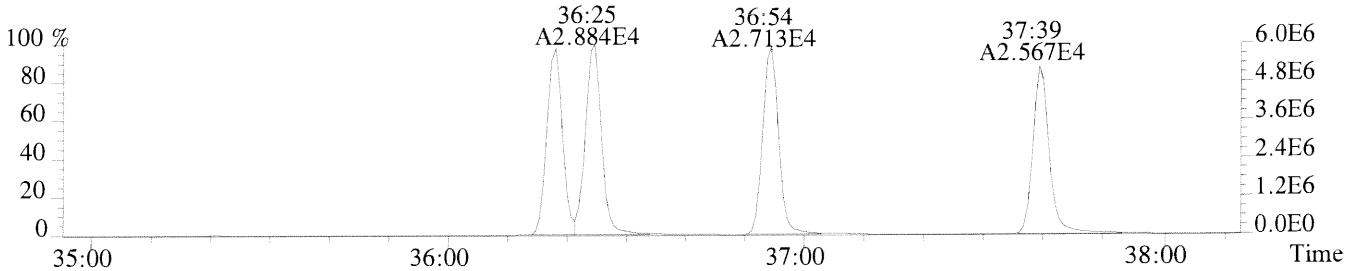


File:U149284 #1-299 Acq:28-MAY-2014 14:21:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

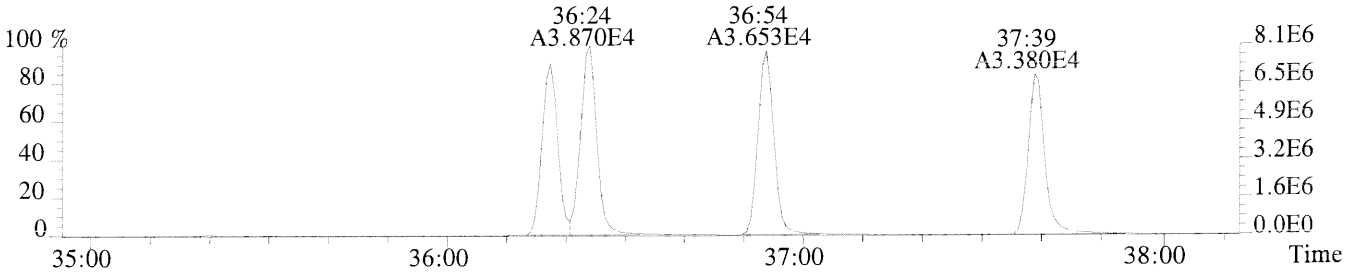
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1896.0,0.40%,F,T)



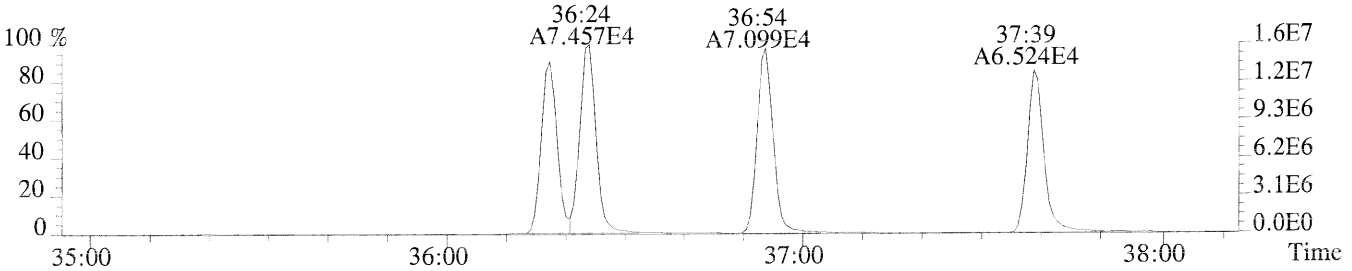
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)



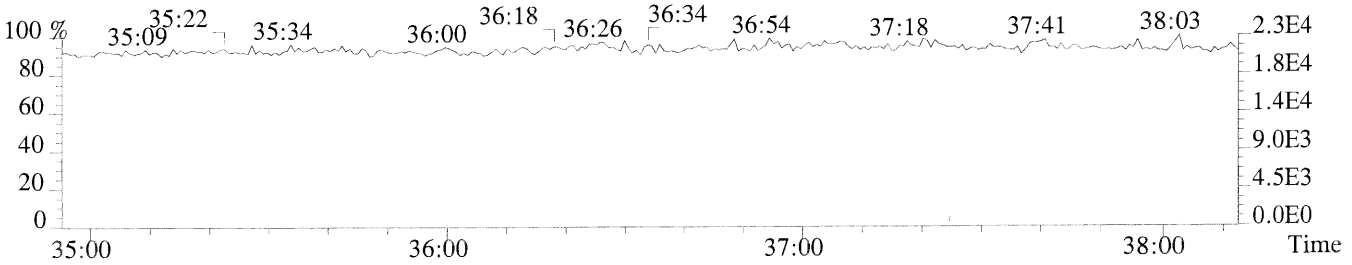
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



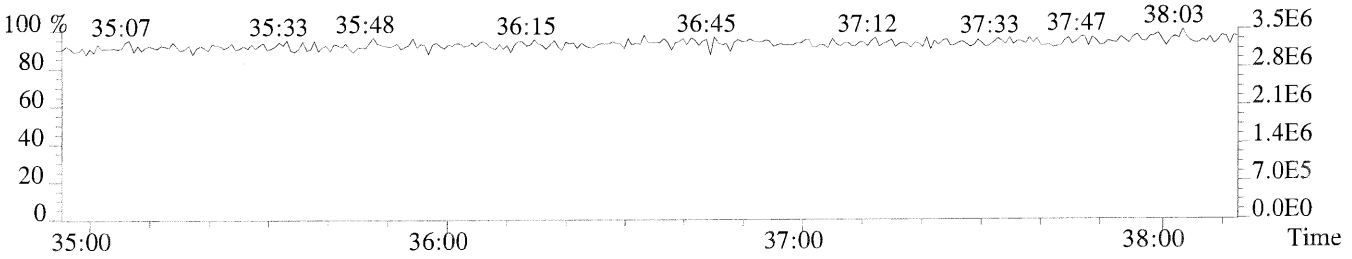
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)



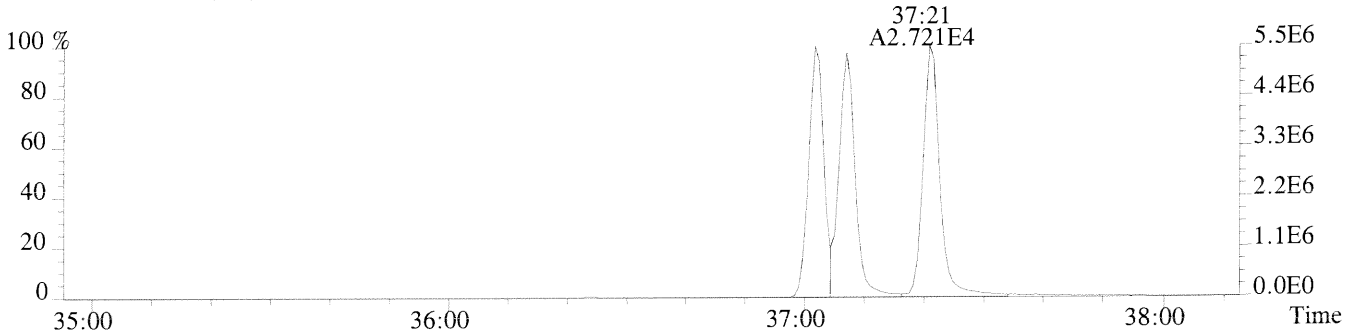
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



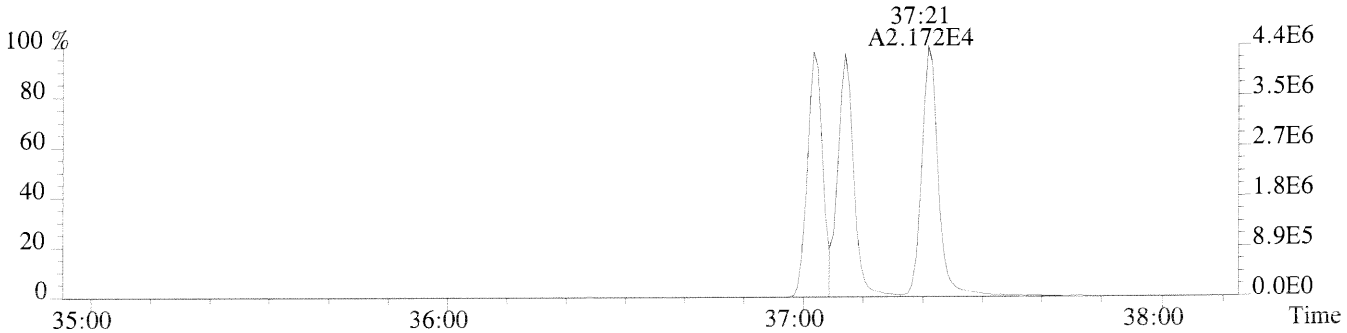
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



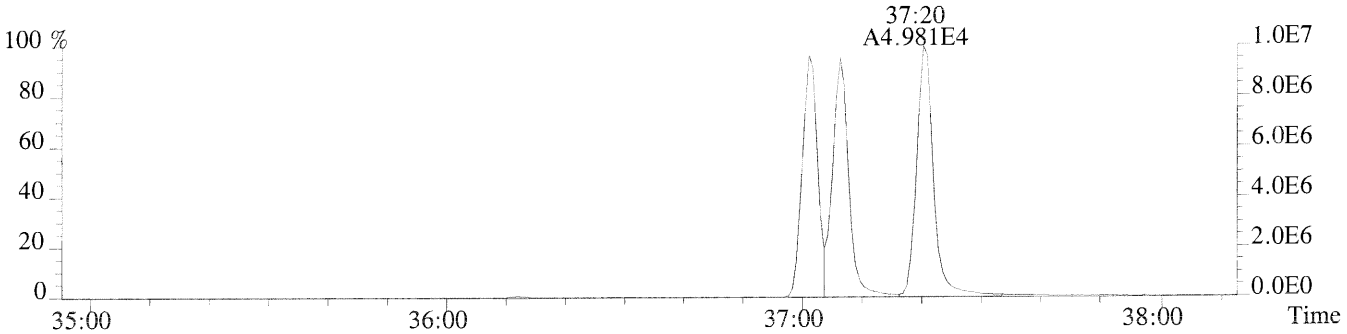
File:U149284 #1-299 Acq:28-MAY-2014 14:21:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2280.0,0.40%,F,T)



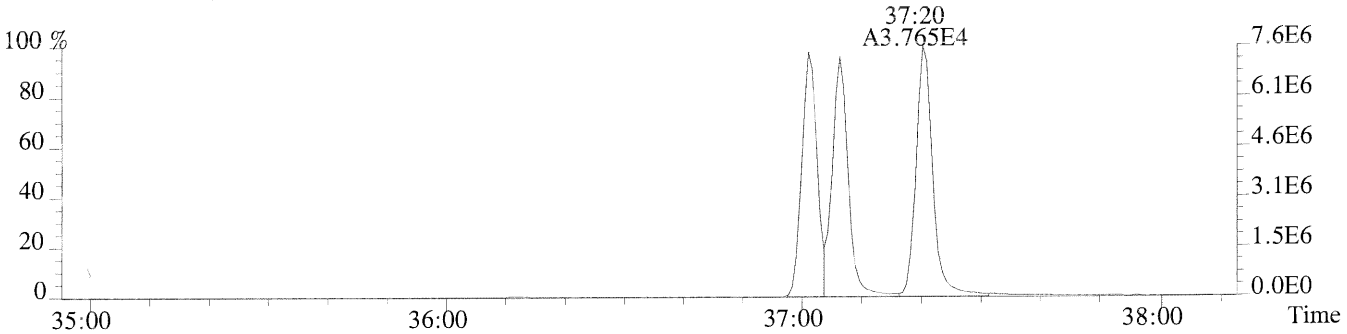
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1540.0,0.40%,F,T)



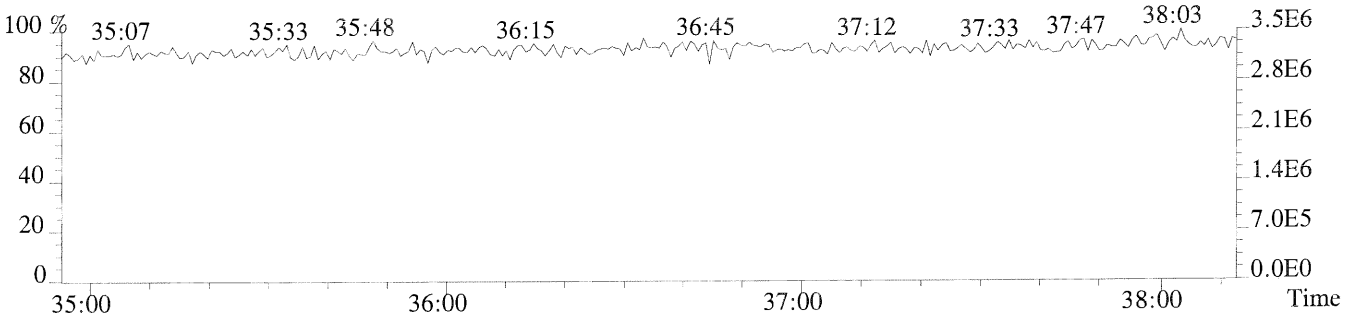
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)

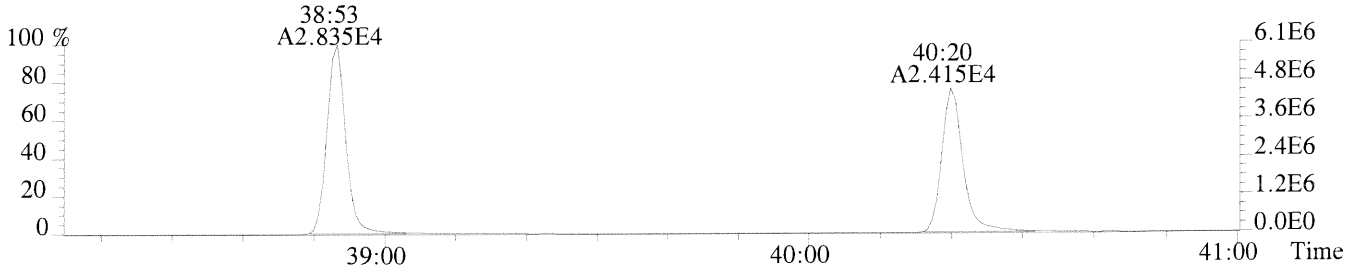


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

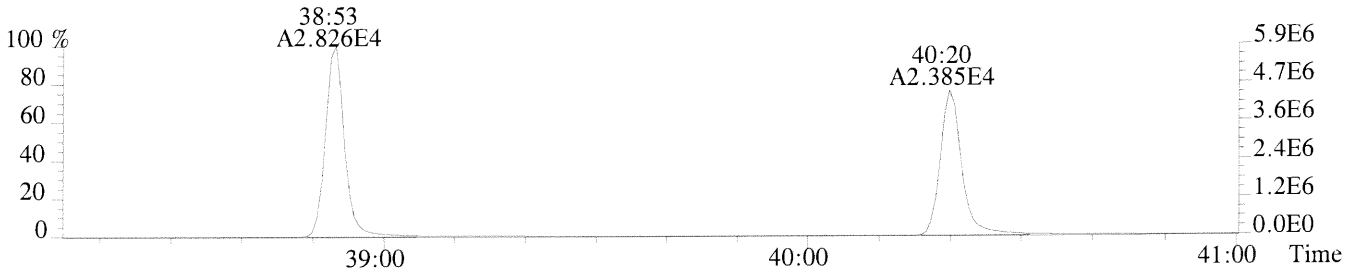


File:U149284 #1-251 Acq:28-MAY-2014 14:21:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

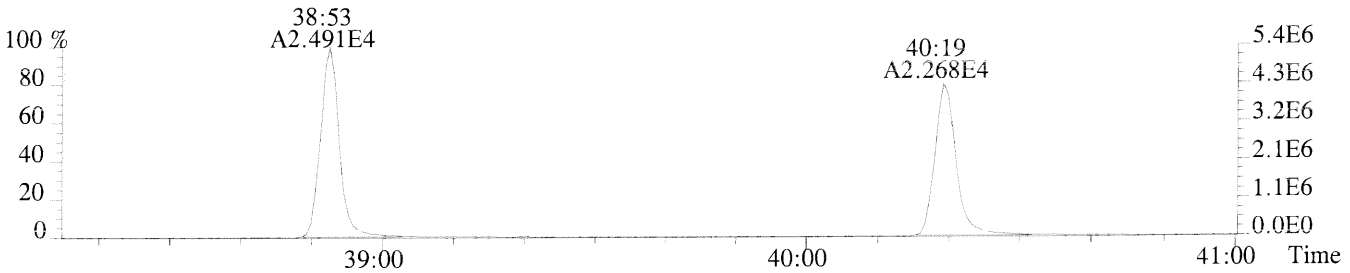
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2456.0,0.50%,F,T)



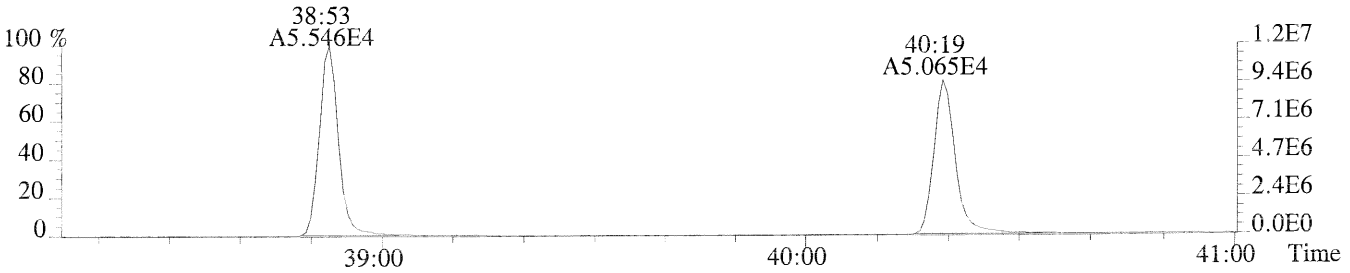
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3528.0,0.50%,F,T)



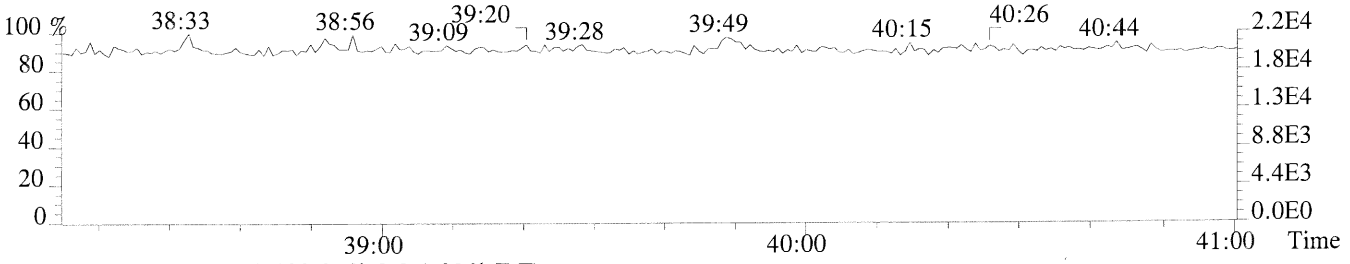
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2940.0,0.50%,F,T)



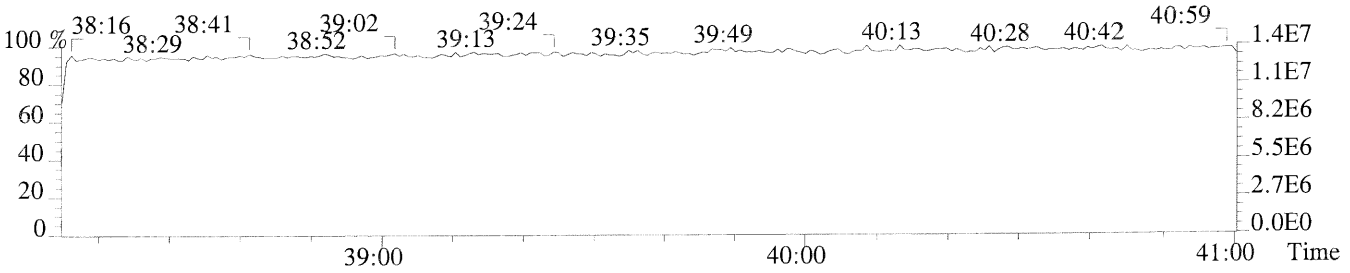
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5336.0,0.50%,F,T)



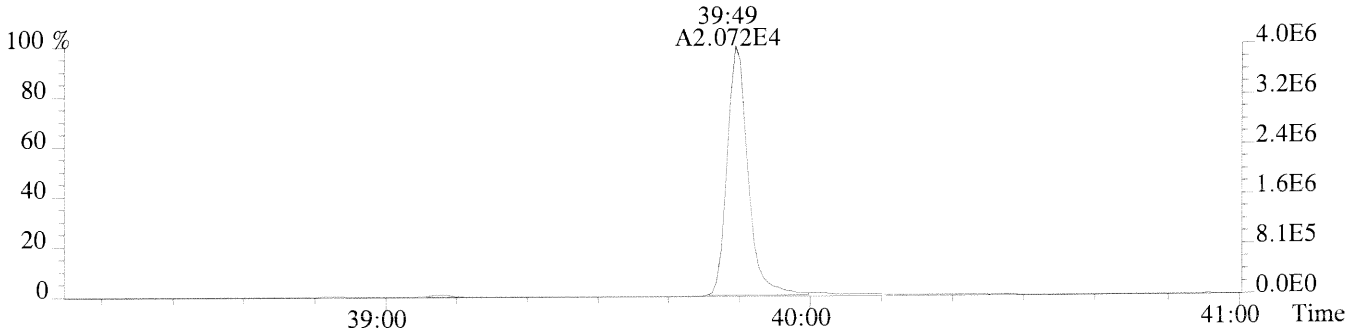
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



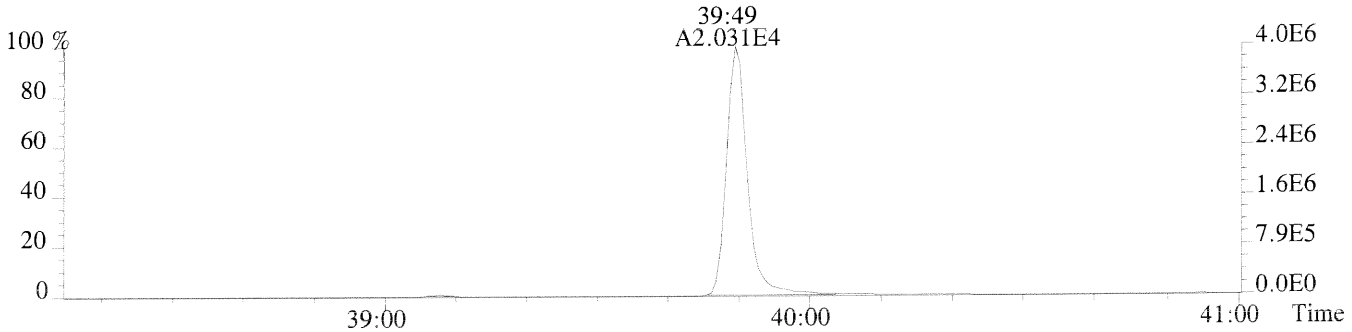
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



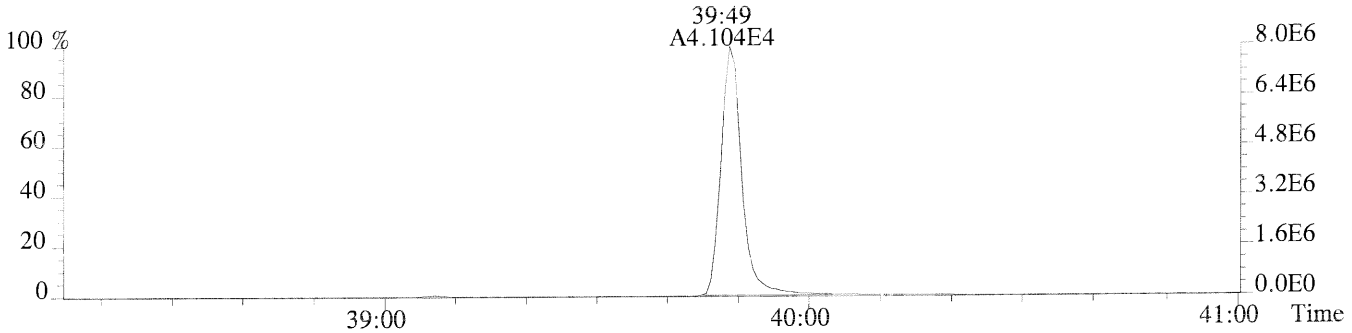
File:U149284 #1-251 Acq:28-MAY-2014 14:21:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2296.0,0.40%,F,T)



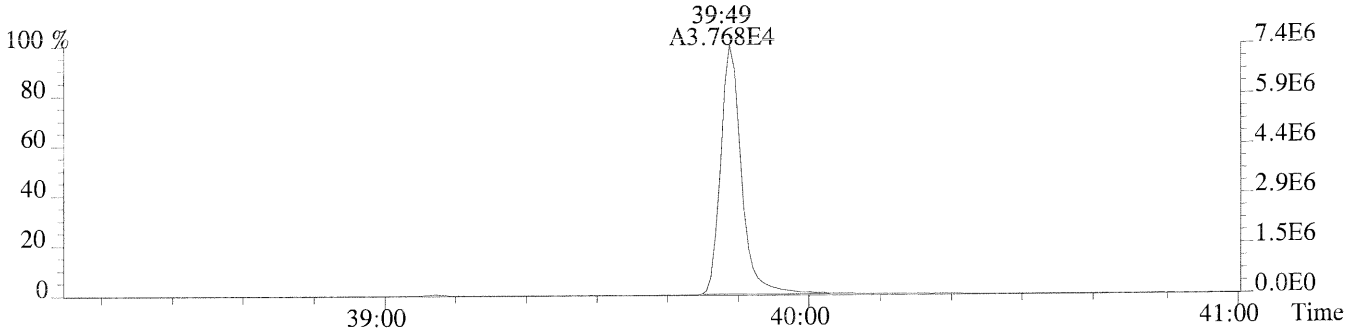
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2784.0,0.40%,F,T)



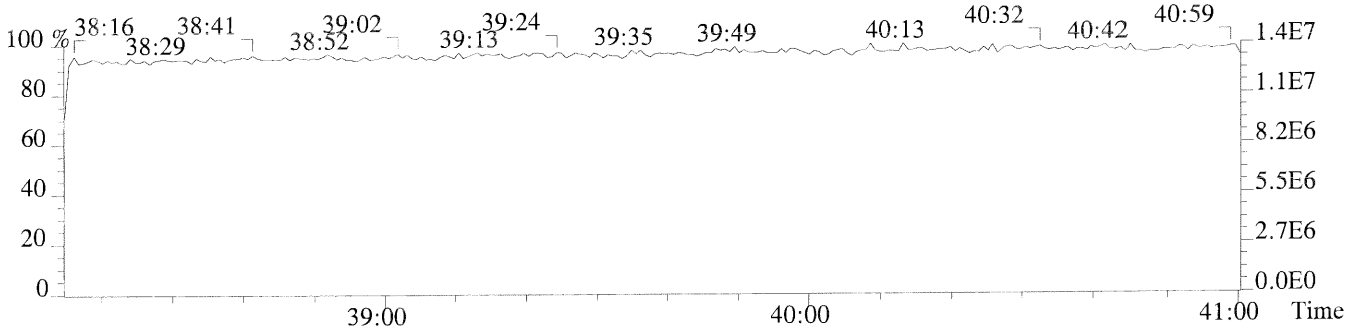
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1256.0,0.40%,F,T)



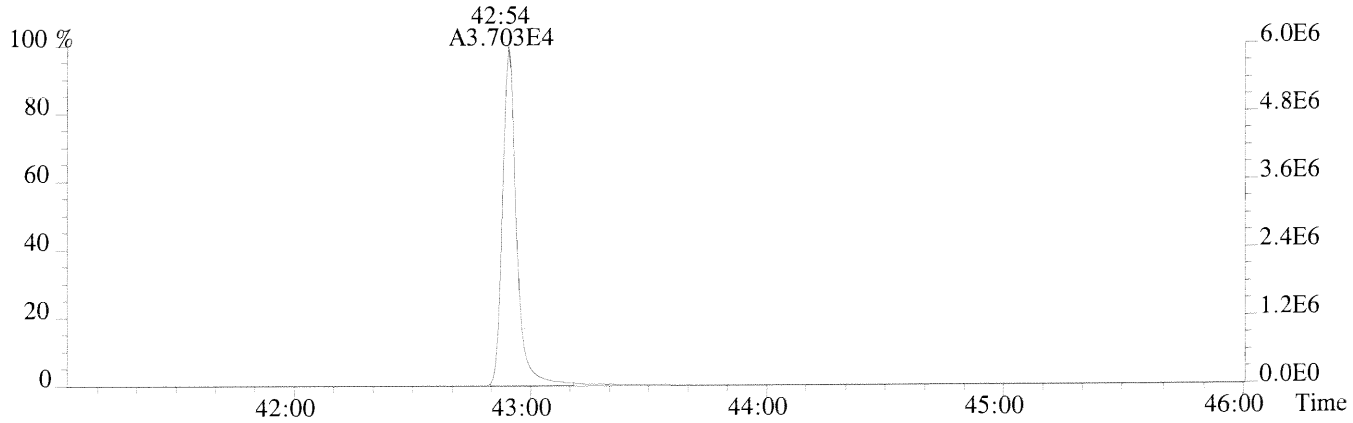
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



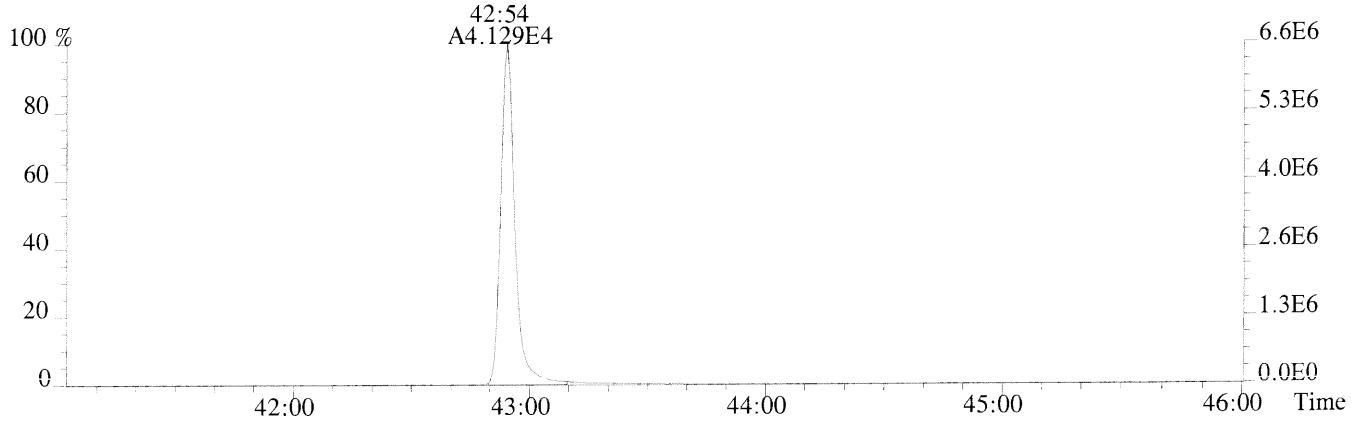
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



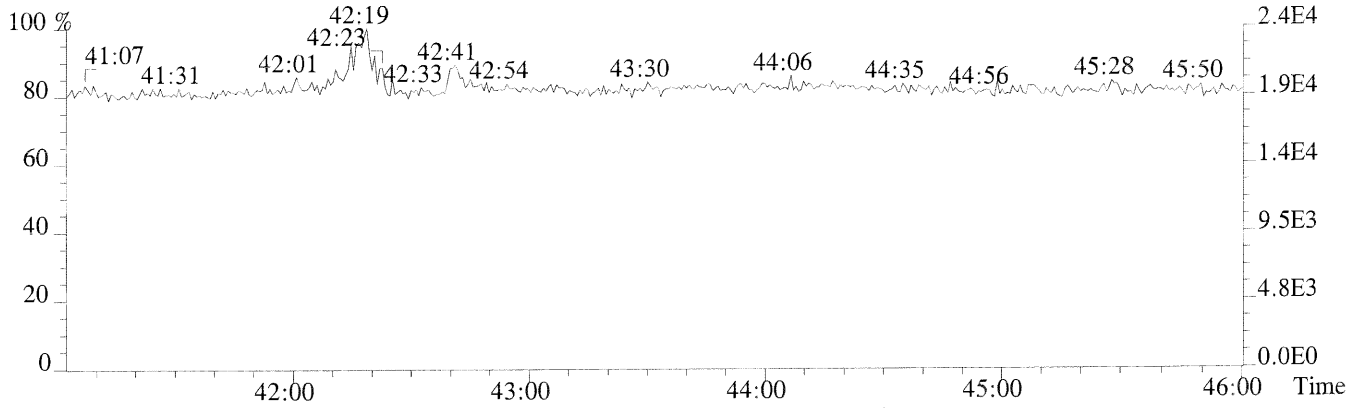
File:U149284 #1-451 Acq:28-MAY-2014 14:21:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1376.0,0.40%,F,T)



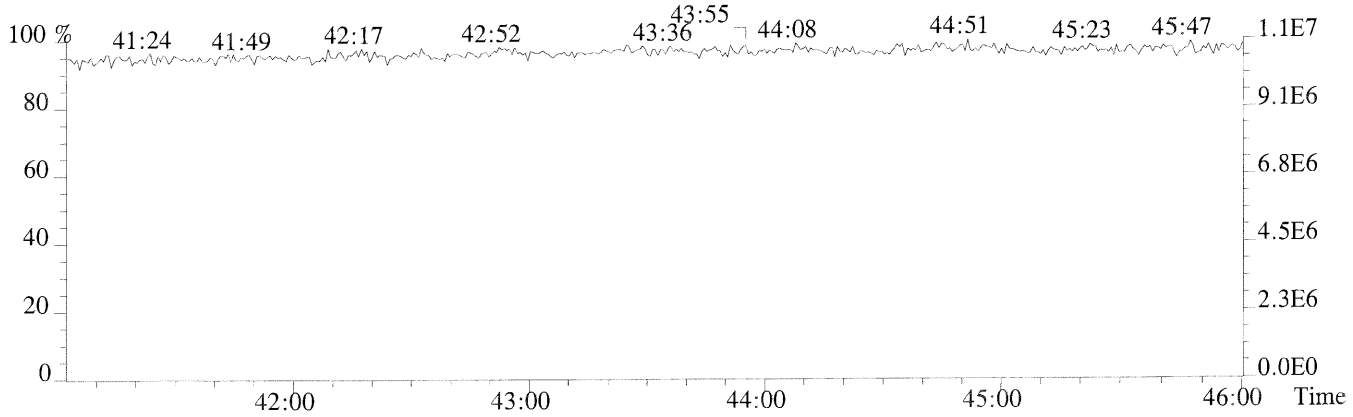
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1856.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

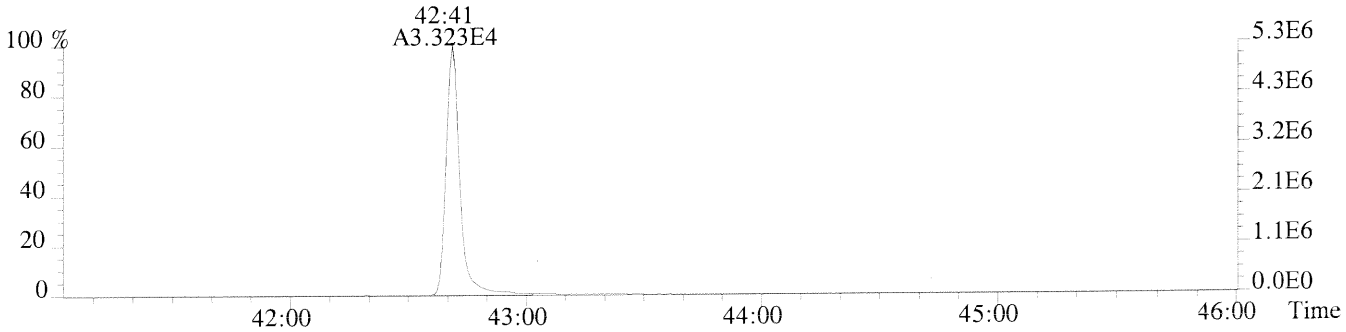


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

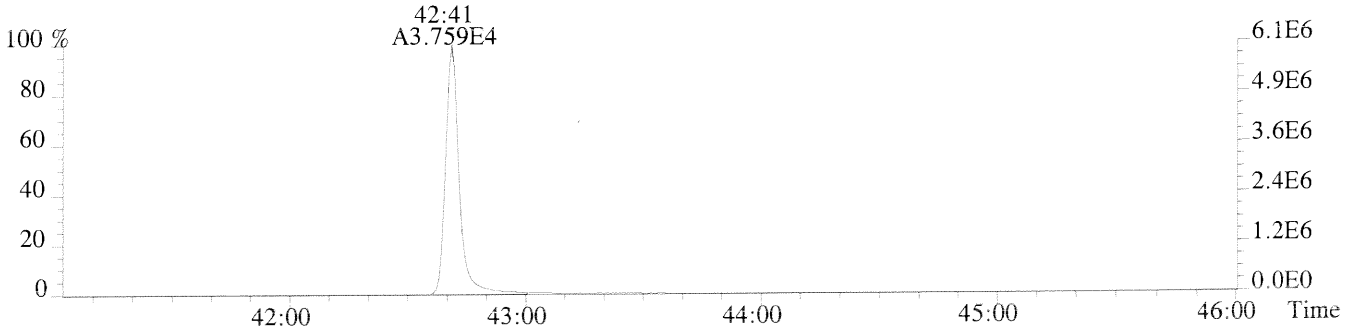


File:U149284 #1-451 Acq:28-MAY-2014 14:21:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

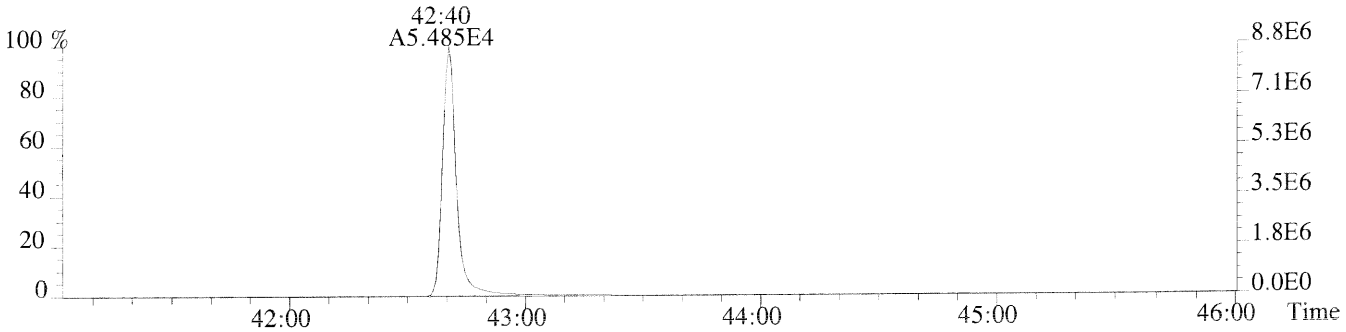
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2748.0,0.40%,F,T)



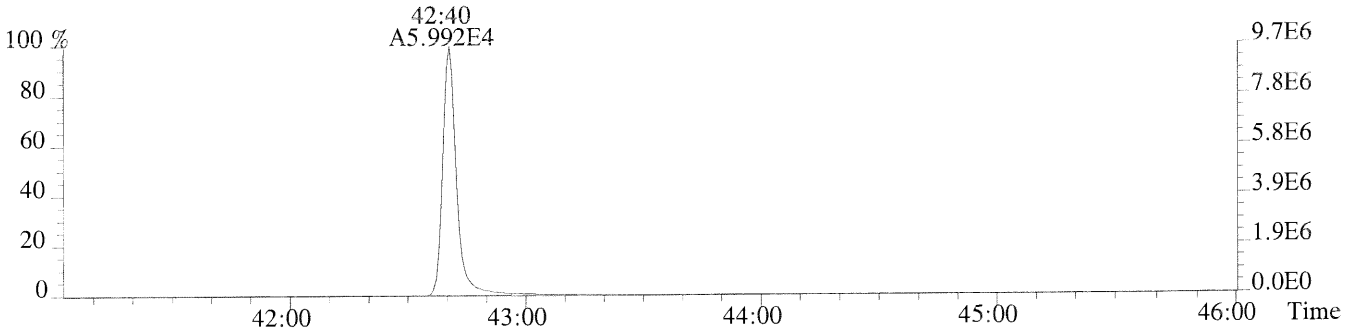
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3220.0,0.40%,F,T)



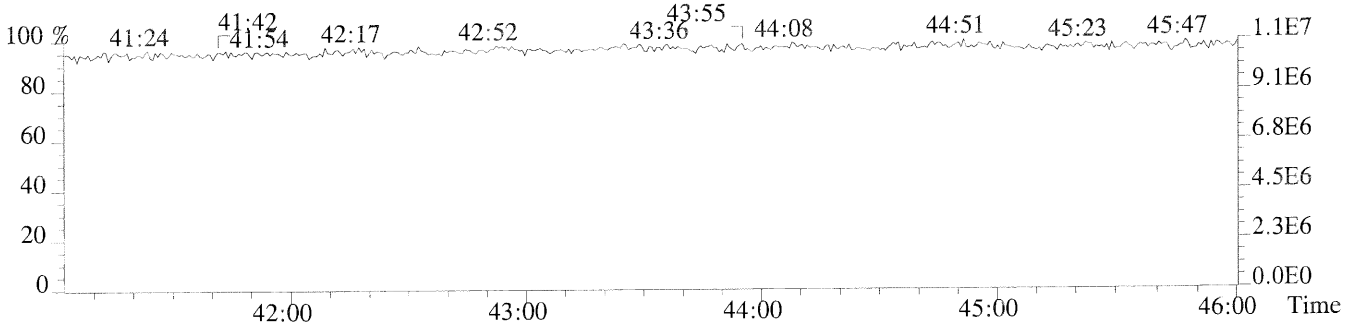
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,644.0,0.40%,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

Initial Calibration QC Checklist

ICAL Name: P140201161 3I

Date: 02/01/14

Method: 1613 / 8290 / Tetra / TCDD Only / TCDF Conf / 8280 / M23

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 it's closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or it's closest eluters	✓	✓

Initial Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20%	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 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%	✓	✓
All Manual Intergrations signed and dated and first and final copies of Ical summary included	✓	✓

Analyst: [signature] Second QC: LKL

icalqc.xls 10-30-2012

Laboratory Review Checklist: HRMS Initial Calibration

Method:	1613/8290	Process Date:	02/04/14
Instrument Name:	E-HRMS-04	Calibration File Name:	P140801163I
Processor Name:	JEREMIAH BECK	Reviewer Name:	LOAN LUONG

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?	✓				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	✓				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 02/04/14
Instrument Name: E-HRMS-04	Calibration File Name: P140201613I
Processor Name: JEREMIAH BECK	Reviewer Name: LOAN LUONG

Description	Yes	No	NA	NR	ER#
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: 02/04/14
Instrument Name: E-HRMS-04	Calibration File Name: P140201613I
Processor Name: JEREMIAH BECK	Reviewer Name: LOAN LUONG

ER#	Description
5	

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).

CAS HOUSTON INC.
5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY
HIGH RESOLUTION

Name: ALS Environmental, Houston Contract

Lab Code: TX01411 CASE No.: Client No: SDG No.:

GC Column: db5 MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-04

Init. Calib. Date: 02/01/14 02/10/14

Init. Calib.Times: 15:24:46 SR

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		P227257	1-FEB-14	15:24:46
ICAL HRCC0.5/CS0.5	66807	P227259	1-FEB-14	16:59:59
ICAL HRCC1/CS1	66798	P227260	1-FEB-14	17:48:05
ICAL HRCC2/CS2	D12-90-3B	P227261	1-FEB-14	18:36:13
ICAL HRCC3/CS3	63383	P227262	1-FEB-14	19:24:19
ICAL HRCC4/CS4	D12-90-3D	P227263	1-FEB-14	20:12:26
ICAL HRCC5/CS5	66799	P227264	1-FEB-14	21:00:32

Sample List Report

MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2140201.SPL

Last Modified: Saturday, February 01, 2014 15:24:32 Central Standard Time

Printed: Monday, February 03, 2014 10:27:45 Central Standard Time

02/04/14 D: P140201613I D: P140201M23I

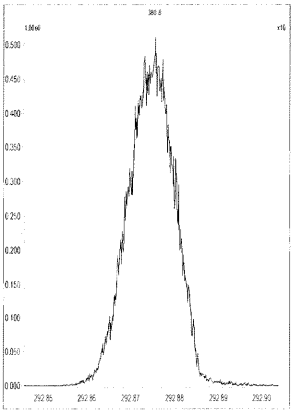
	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	02/01/14	15:24	P227257	WINDOW DEFINE	63680		HOMS CHECK 15:19	8290CAS
2		16:11	P227258	INST BLANK	INST BLANK			8290CAS
3		16:59	P227259	~~CS0.5~~ HRCC0.5/CS0.5	66807		ICAL0.5	8290CAS
4		17:48	P227260	~~CS1~~ HRCC1/CS1	66798		ICAL1	8290CAS
5		18:36	P227261	~~CS2~~ HRCC2/CS2	D12-90-3B		ICAL2	8290CAS
6		19:24	P227262	~~CS3~~ HRCC3/CS3	63383		ICAL3 02/04/14	8290CAS
7		20:18	P227263	~~CS4~~ HRCC4/CS4	D12-90-3D		ICAL4	8290CAS
8		21:00	P227264	~~CS5~~ HRCC5/CS5	66799		ICAL5	8290CAS
9		21:48	P227265	INST BLANK	INST BLANK		HOMS CHECK 10:22	8290CAS
10			---	---	---			8290CAS
11			---	---	---			8290CAS
12			---	---	---			8290CAS
13			---	---	---			8290CAS
14			---	---	---			8290CAS
15			---	---	---			8290CAS
16			---	---	---			8290CAS
17			---	---	---			8290CAS
18			---	---	---			8290CAS
19			---	---	---			8290CAS
20			---	---	---			8290CAS
21			---	---	---			8290CAS
22			---	---	---			8290CAS
23			---	---	---			8290CAS
24			---	---	---			8290CAS
25			---	---	---			8290CAS
26			---	---	---			8290CAS
27			---	---	---			8290CAS
28			---	---	---			---
29			---	---	---			---
30			---	---	---			TCDFCAS
31			---	---	---			TCDFCAS
32			---	---	---			8290CAS
33	---	---	---	---	---	---	---	8290CAS
34	---	---	---	---	REVIEWED BY:	---	---	8290CAS
35	---	---	---	---	---	---	---	8290CAS
36	---	---	---	---	---	---	---	8290CAS
37	---	---	---	---	---	---	---	TCDFCAS
38	---	---	---	---	---	---	---	TCDFCAS
39	---	---	---	---	---	---	---	TCDFCAS

02/04/14

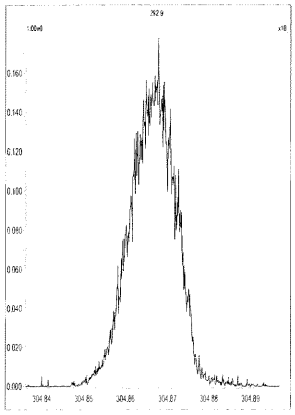
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, February 01, 2014 15:19:00 Central Standard Time

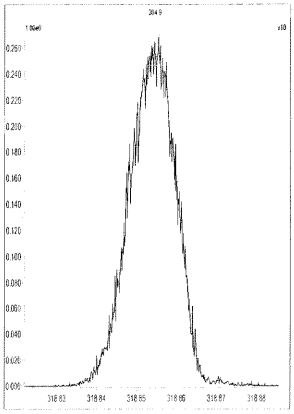
M 292.9824 R 12558



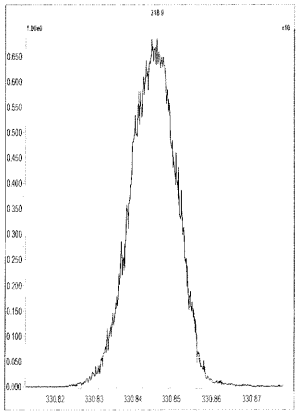
M 304.9824 R 12754



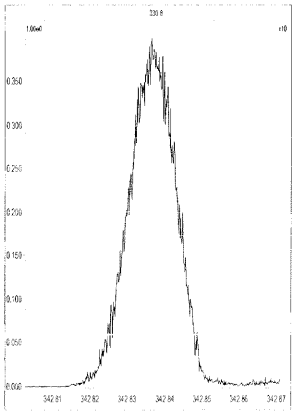
M 318.9792 R 12818



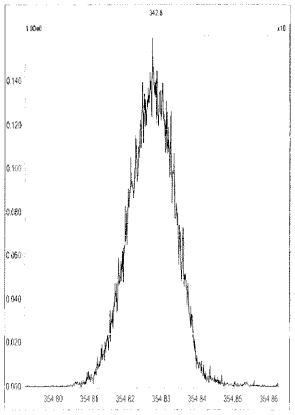
M 330.9792 R 12501



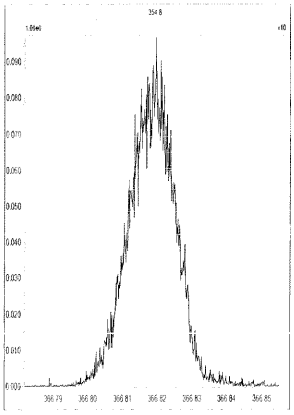
M 342.9792 R 12625



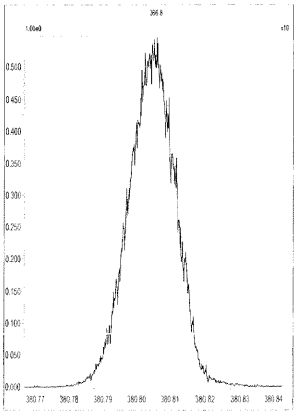
M 354.9792 R 12434



M 366.9792 R 12376



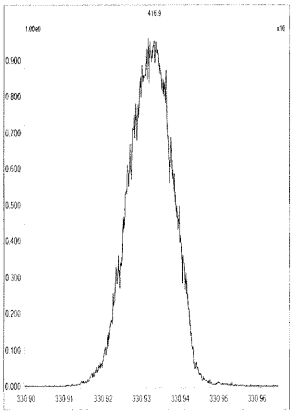
M 380.9760 R 11907



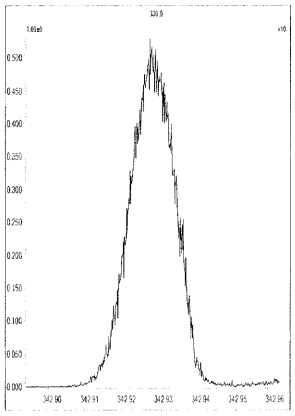
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, February 01, 2014 15:20:34 Central Standard Time

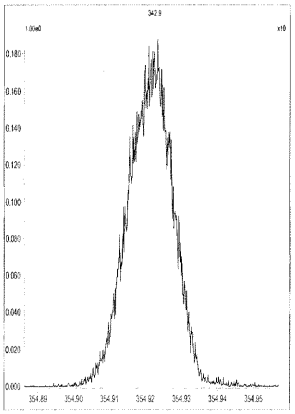
M 330.9792 R 12689



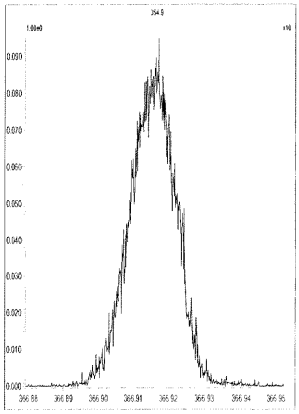
M 342.9792 R 12502



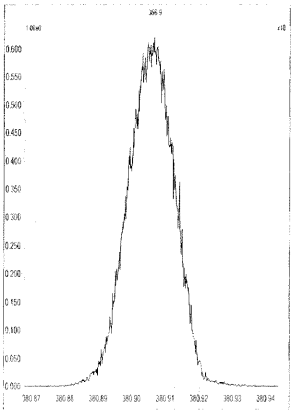
M 354.9792 R 12755



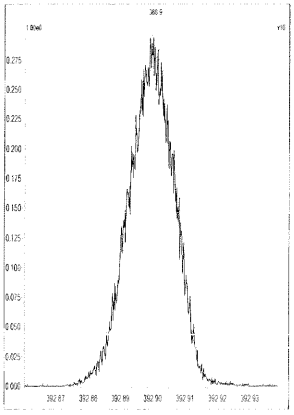
M 366.9792 R 12818



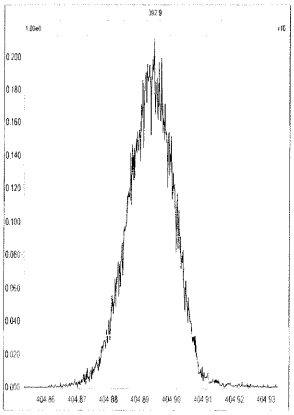
M 380.9760 R 12316



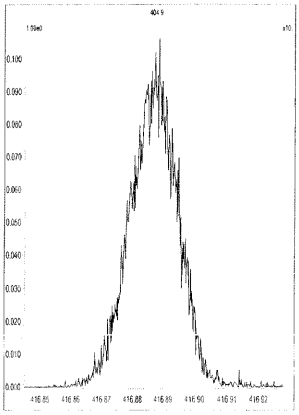
M 392.9760 R 12562



M 404.9760 R 12252



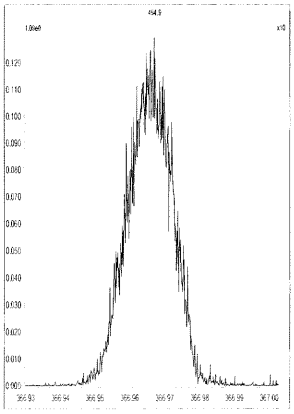
M 416.9760 R 12563



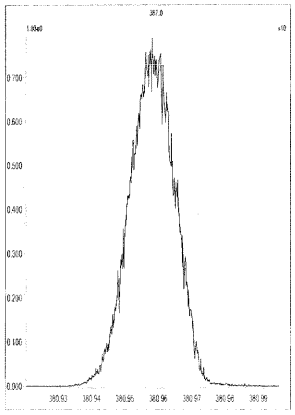
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, February 01, 2014 15:21:27 Central Standard Time

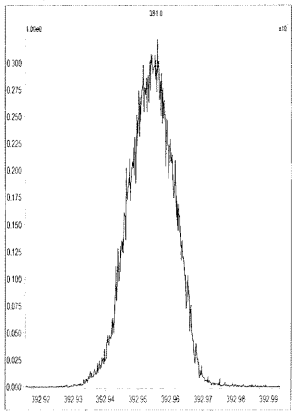
M 366.9792 R 13660



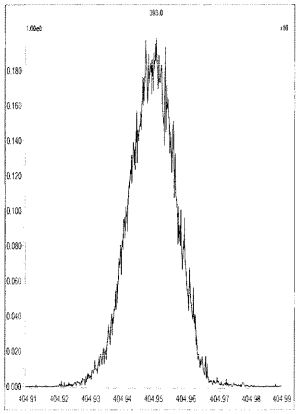
M 380.9760 R 12889



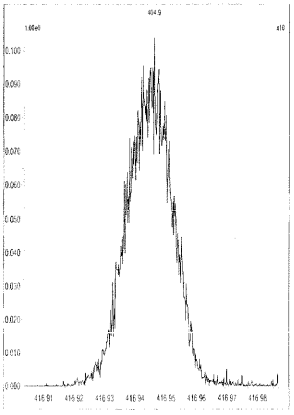
M 392.9760 R 12627



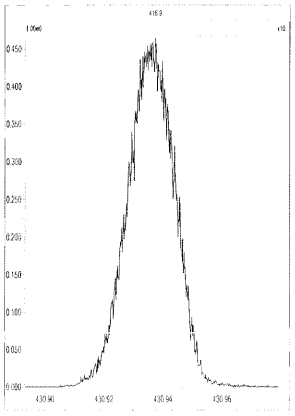
M 404.9760 R 12319



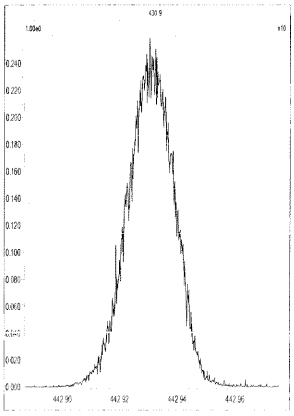
M 416.9760 R 13018



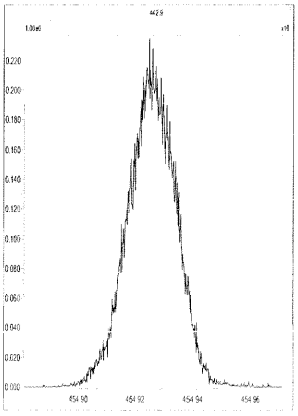
M 430.9728 R 12195



M 442.9728 R 12254



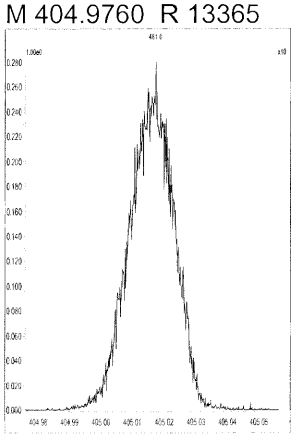
M 454.9728 R 12137



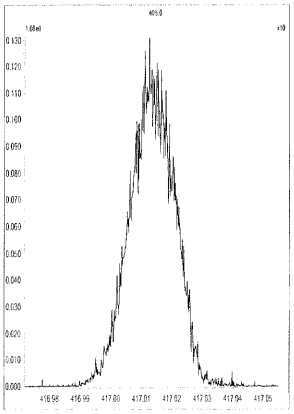
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, February 01, 2014 15:22:22 Central Standard Time

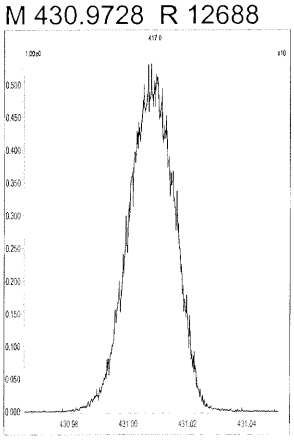
M 404.9760 R 13365



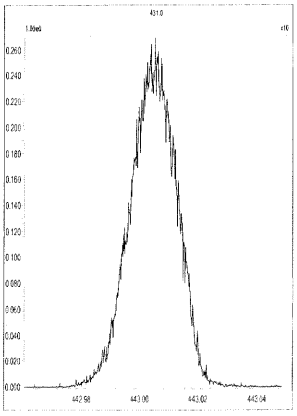
M 416.9760 R 13088



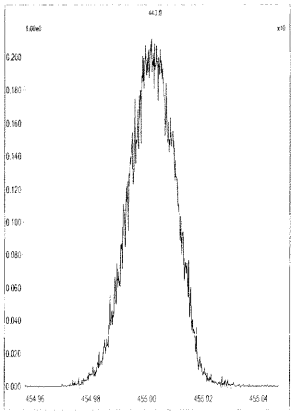
M 430.9728 R 12688



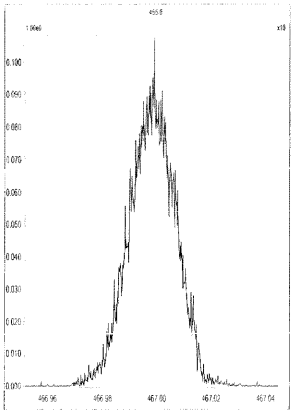
M 442.9728 R 12312



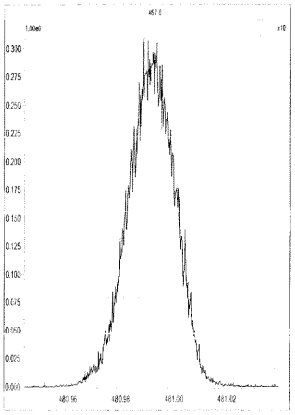
M 454.9728 R 12135



M 466.9728 R 12822



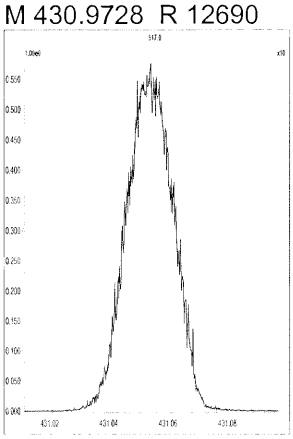
M 480.9696 R 12195



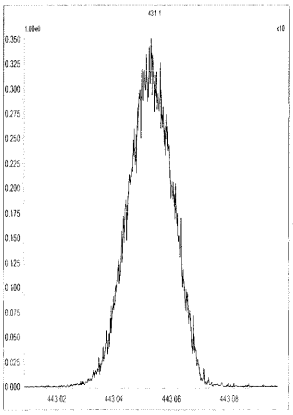
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, February 01, 2014 15:23:20 Central Standard Time

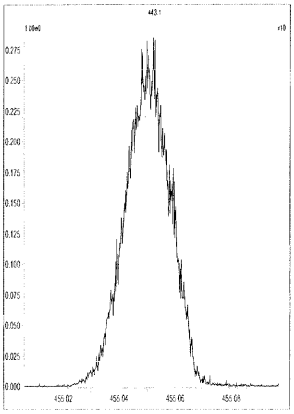
M 430.9728 R 12690



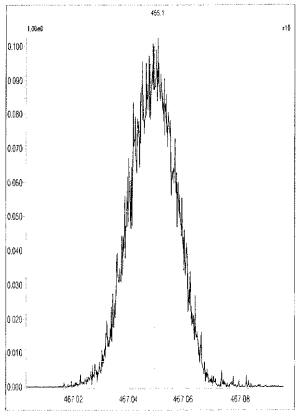
M 442.9728 R 12818



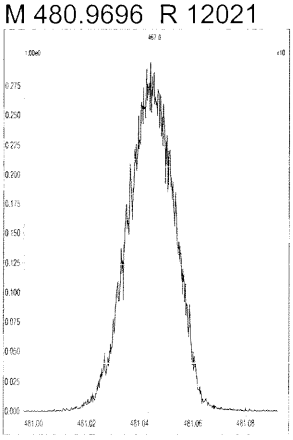
M 454.9728 R 13158



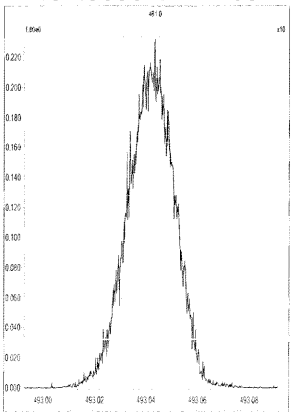
M 466.9728 R 12754



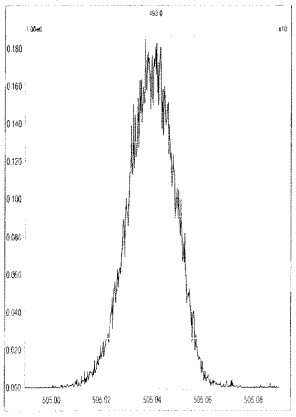
M 480.9696 R 12021



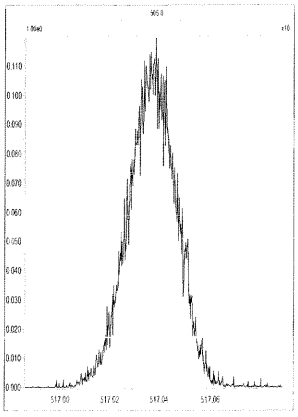
M 492.9696 R 12438



M 504.9696 R 12135



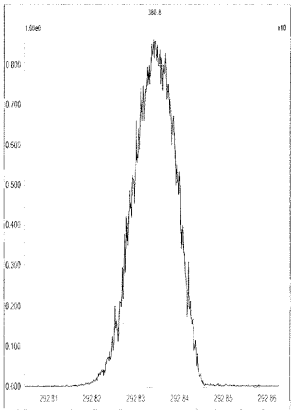
M 516.9697 R 11956



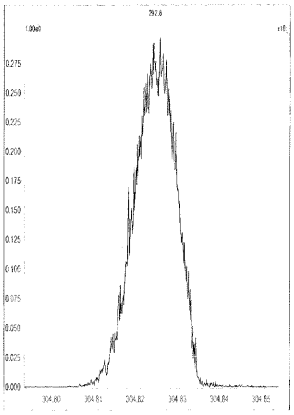
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, February 03, 2014 10:22:31 Central Standard Time

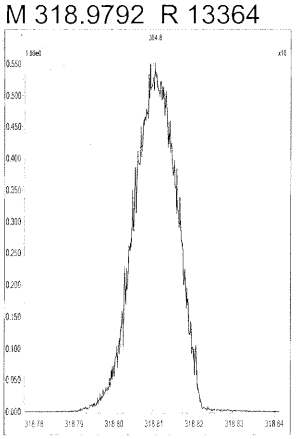
M 292.9824 R 13737



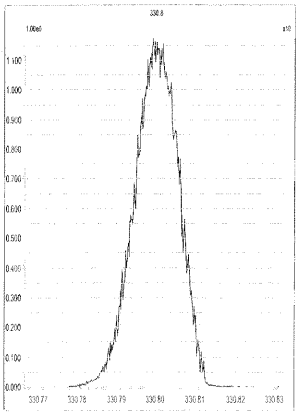
M 304.9824 R 14209



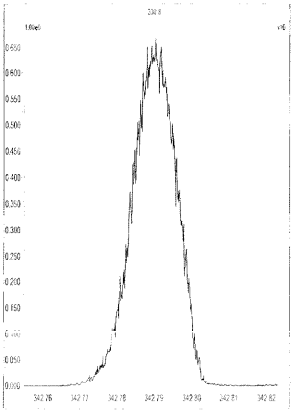
M 318.9792 R 13364



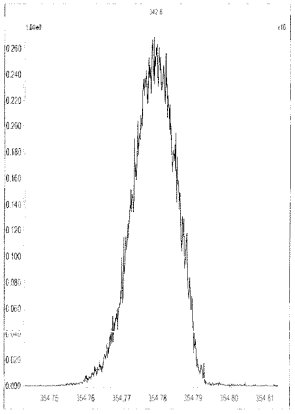
M 330.9792 R 13660



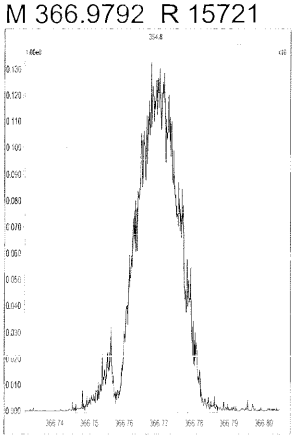
M 342.9792 R 12693



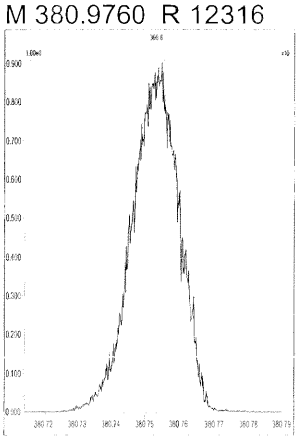
M 354.9792 R 13158



M 366.9792 R 15721



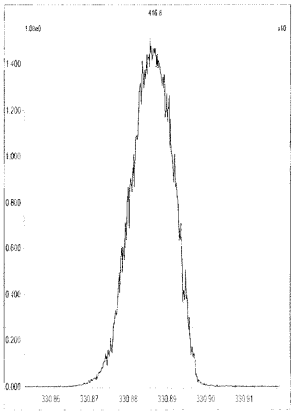
M 380.9760 R 12316



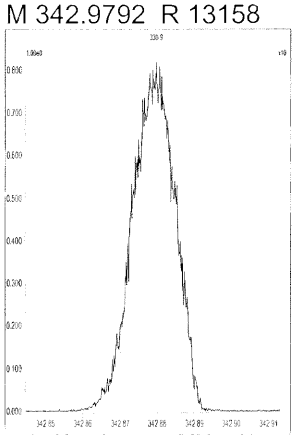
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Monday, February 03, 2014 10:23:19 Central Standard Time

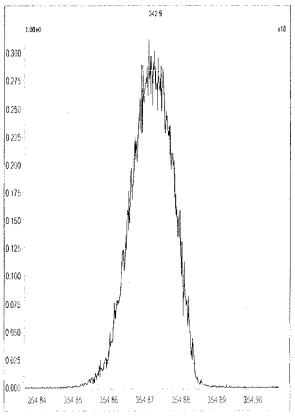
M 330.9792 R 13583



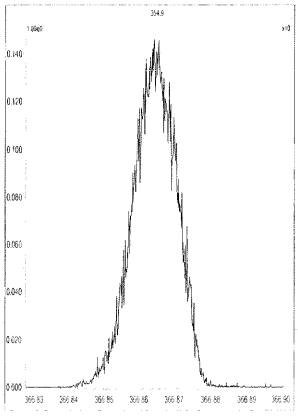
M 342.9792 R 13158



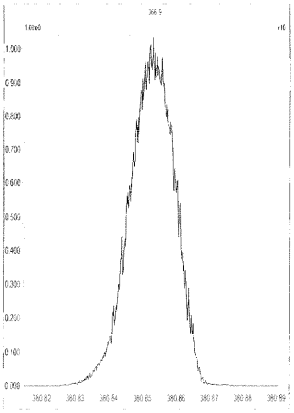
M 354.9792 R 13367



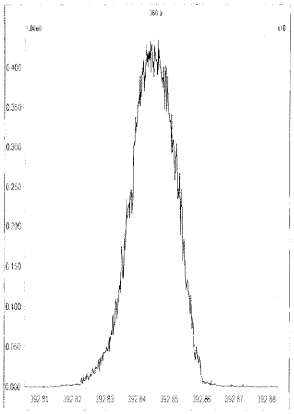
M 366.9792 R 13657



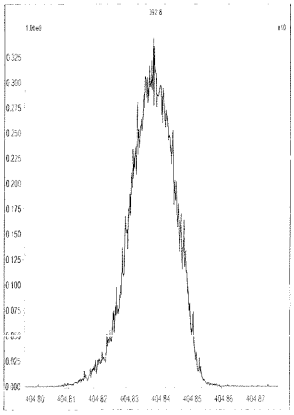
M 380.9760 R 12690



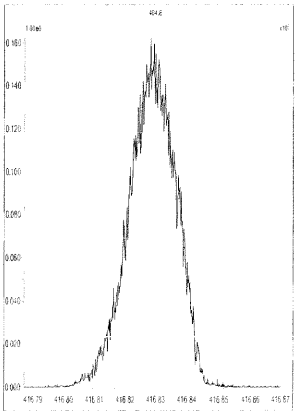
M 392.9760 R 12075



M 404.9760 R 12315



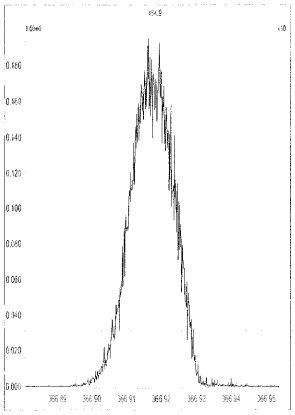
M 416.9760 R 12318



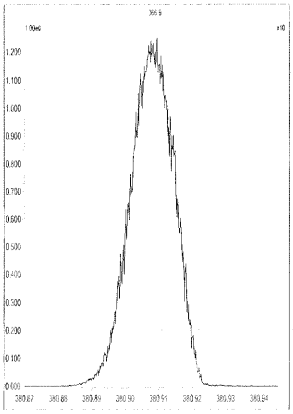
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Monday, February 03, 2014 10:24:02 Central Standard Time

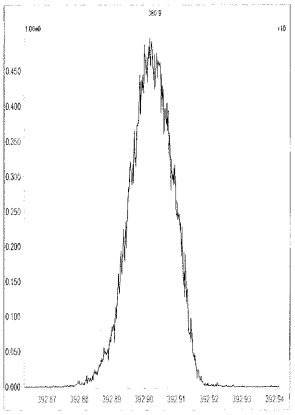
M 366.9792 R 13092



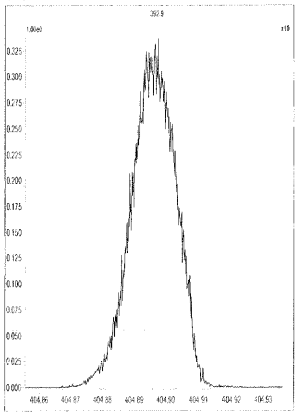
M 380.9760 R 13090



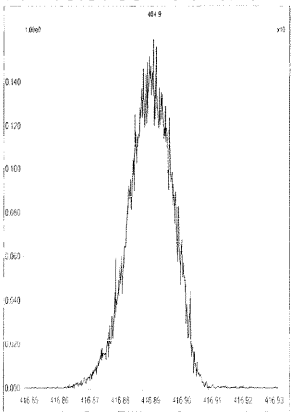
M 392.9760 R 12886



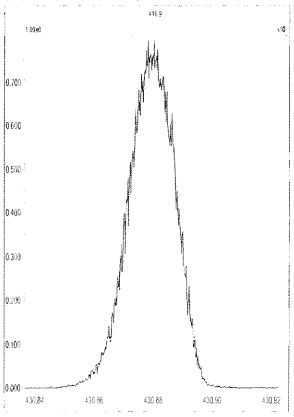
M 404.9760 R 12884



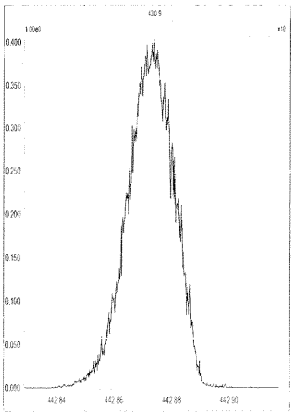
M 416.9760 R 12821



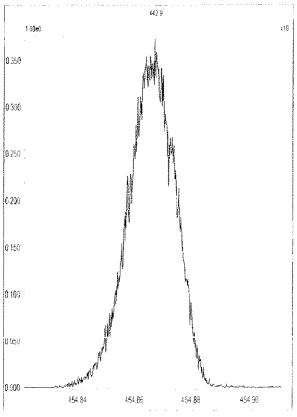
M 430.9728 R 12194



M 442.9728 R 12256



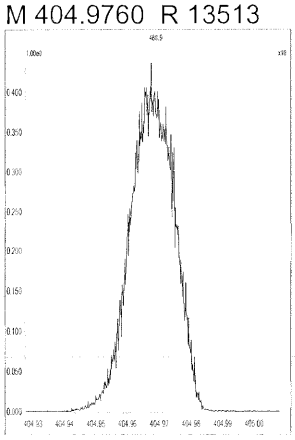
M 454.9728 R 11961



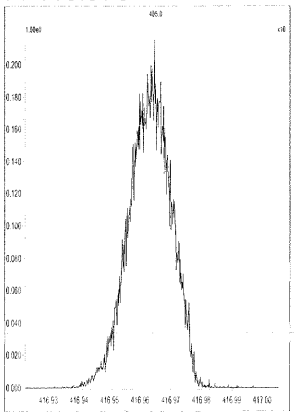
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, February 03, 2014 10:24:47 Central Standard Time

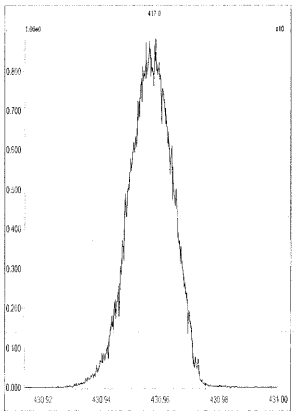
M 404.9760 R 13513



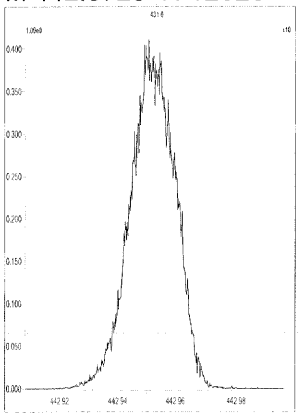
M 416.9760 R 14617



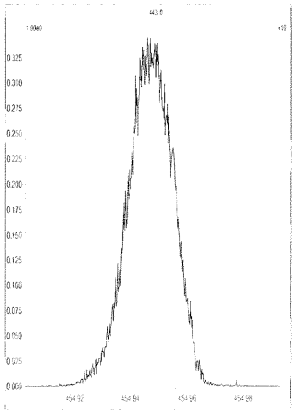
M 430.9728 R 12564



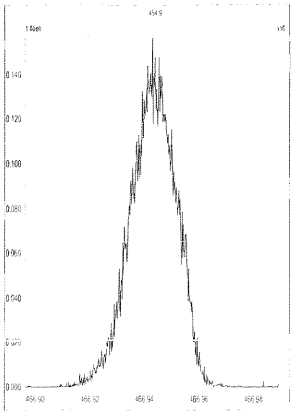
M 442.9728 R 12820



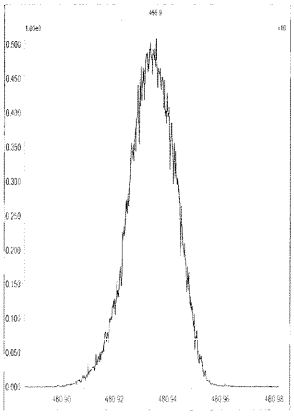
M 454.9728 R 12955



M 466.9728 R 12255



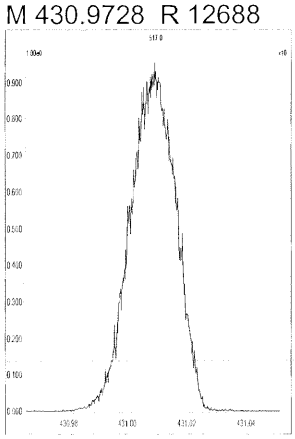
M 480.9696 R 11414



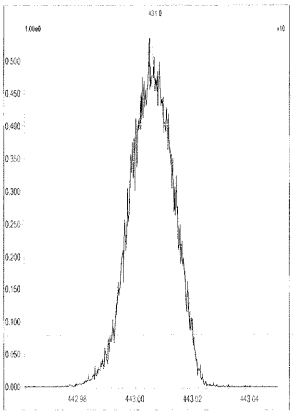
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Monday, February 03, 2014 10:25:40 Central Standard Time

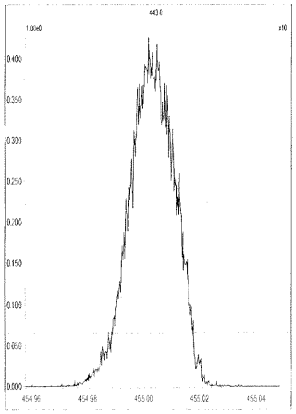
M 430.9728 R 12688



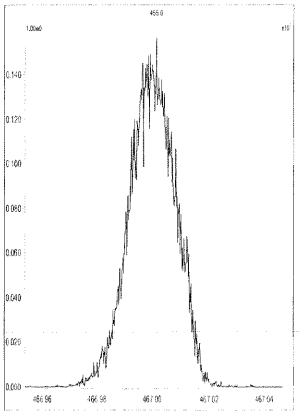
M 442.9728 R 12821



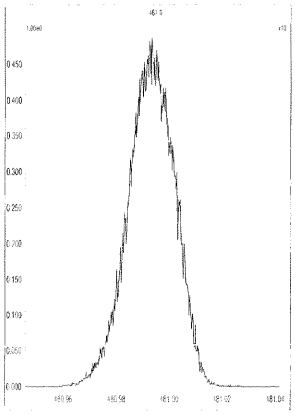
M 454.9728 R 12437



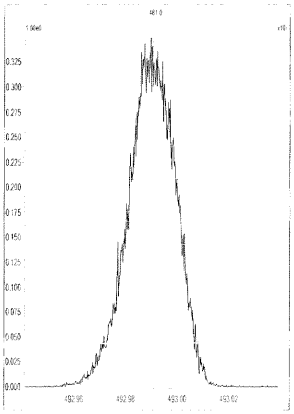
M 466.9728 R 12560



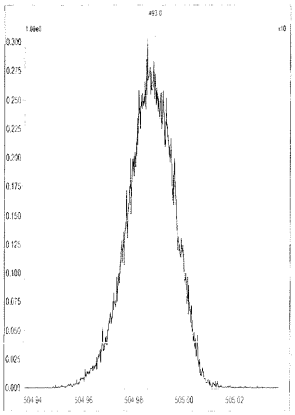
M 480.9696 R 12078



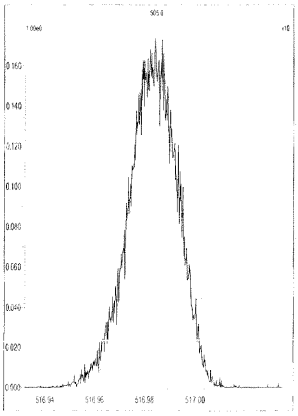
M 492.9696 R 12080



M 504.9696 R 11626



M 516.9697 R 11062



5DFC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Case No.: SDG No.:

GC Column: DB-5 MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-04

Init. Calib. Date: 02/01/14 02/10/14

Init. Calib.Times: 15:24:46

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		P227266	3-FEB-14	12:32:09
DO NOT USE	D12-4-1	P227267	3-FEB-14	13:33:28
2ND SOURCE VERIFICA	60287	P227268	3-FEB-14	15:16:53

Sample List Report

MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2140203.SFL
Last Modified: Tuesday, February 04, 2014 07:45:58 Central Standard Time
Printed: Tuesday, February 04, 2014 07:54:42 Central Standard Time

Page Position (1, 1)

D: P227267RES

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	02/03/14	12:32	P227266	WINDOW DEFINE	63680		HRMS Check 12:26	8290CAS
2		13:33	P227267	2ND SOURCE HRCC3/CS3	D12-4-1		DO NOT USE	8290CAS
3		15:16	P227268	2ND SOURCE HRCC3/CS3	60287			8290CAS
4		16:34	P227269	SYSTEM BLANK	SYSTEM BLANK		HRMS Check 07:40	8290CAS
5			---	---	---			8290CAS
6			---	---	---			8290CAS
7			---	---	---			8290CAS
8			---	---	---			8290CAS
9			---	---	---			8290CAS
10			---	---	---			8290CAS
11			---	---	---			8290CAS
12			---	---	---			8290CAS
13			---	---	---			8290CAS
14			---	---	---			8290CAS
15			---	---	---			8290CAS
16			---	---	---			8290CAS
17			---	---	---			8290CAS
18			---	---	---			8290CAS
19			---	---	---			8290CAS
20			---	---	---			8290CAS
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22			---	---	---			8290CAS
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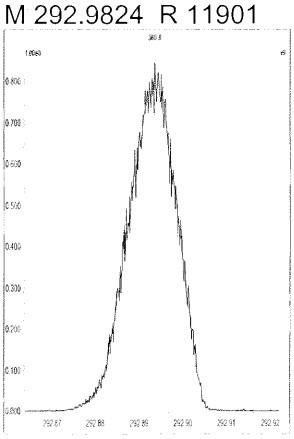
25			---	---	---			8290CAS
26			---	---	---			8290CAS
27			---	---	---			8290CAS
28			---	---	---			---
29			---	---	---			---
30			---	---	---			TCDFCAS
31			---	---	---			TCDFCAS
32			---	---	---			8290CAS
33	---	---	---	---	---	---	---	8290CAS
34	---	---	---	---	REVIEWED BY:	---	---	8290CAS
35	---	---	---	---	---	---	---	8290CAS
36	---	---	---	---	---	---	---	8290CAS
37	---	---	---	---	---	---	---	TCDFCAS
38	---	---	---	---	---	---	---	TCDFCAS
39	---	---	---	---	---	---	---	TCDFCAS

02/04/14

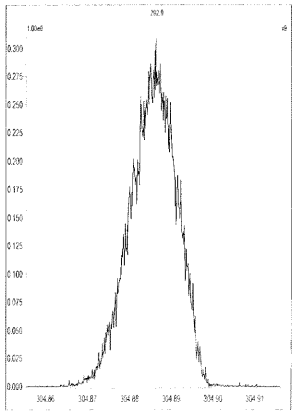
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, February 03, 2014 12:26:12 Central Standard Time

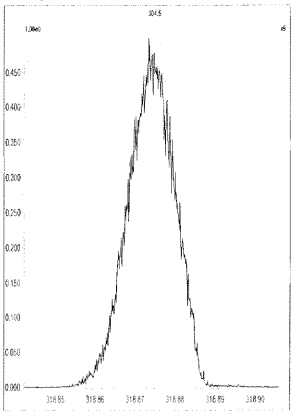
M 292.9824 R 11901



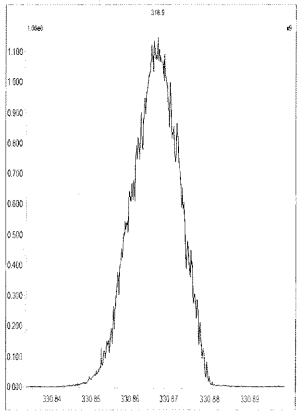
M 304.9824 R 12019



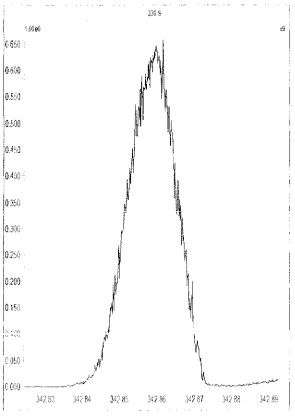
M 318.9792 R 12498



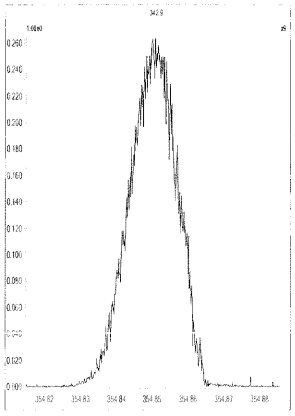
M 330.9792 R 12311



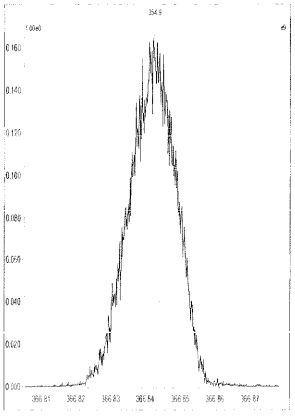
M 342.9792 R 11961



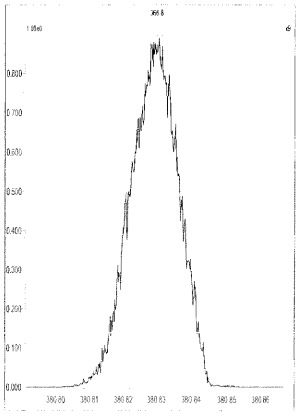
M 354.9792 R 12497



M 366.9792 R 12755



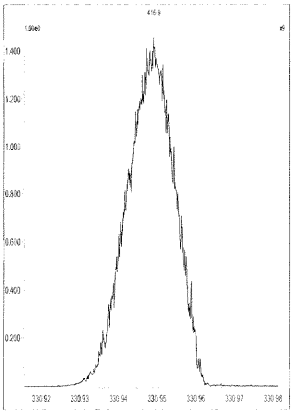
M 380.9760 R 12561



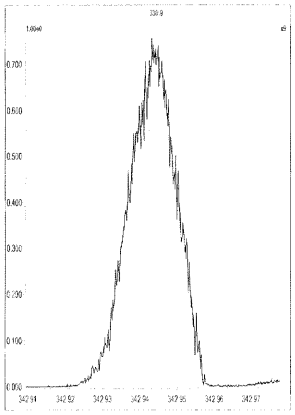
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Monday, February 03, 2014 12:27:08 Central Standard Time

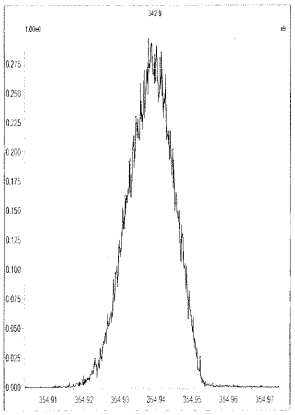
M 330.9792 R 12314



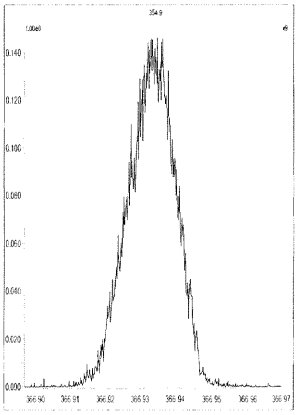
M 342.9792 R 12318



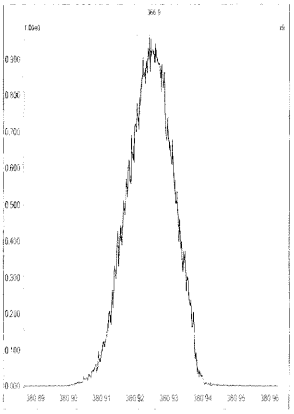
M 354.9792 R 12563



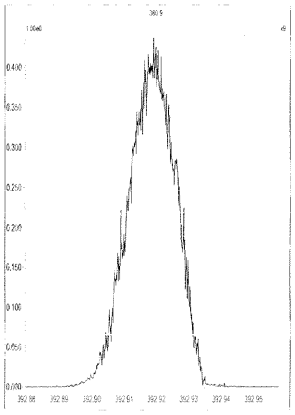
M 366.9792 R 12951



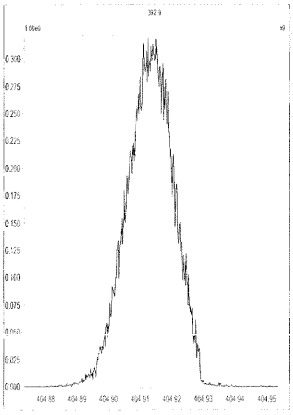
M 380.9760 R 12757



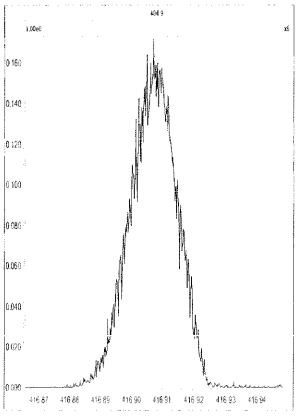
M 392.9760 R 12195



M 404.9760 R 12257



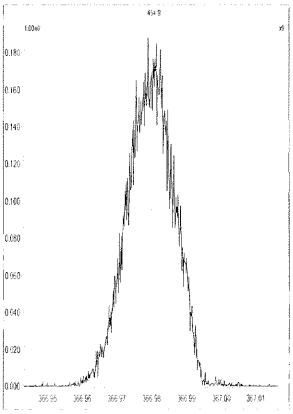
M 416.9760 R 12691



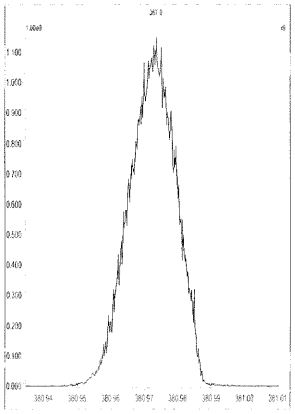
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Monday, February 03, 2014 12:28:13 Central Standard Time

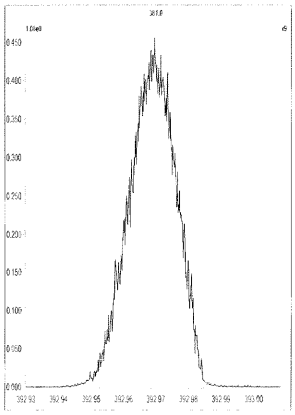
M 366.9792 R 12500



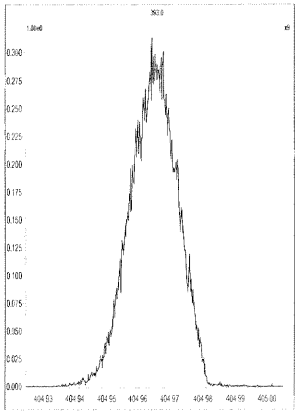
M 380.9760 R 12624



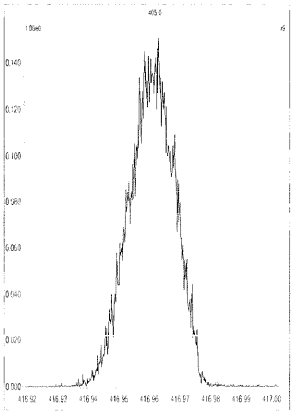
M 392.9760 R 12377



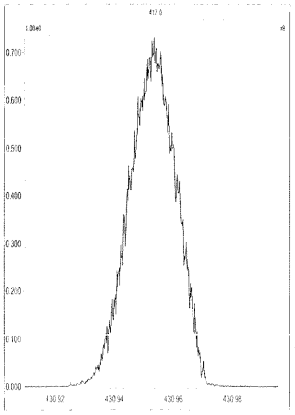
M 404.9760 R 12194



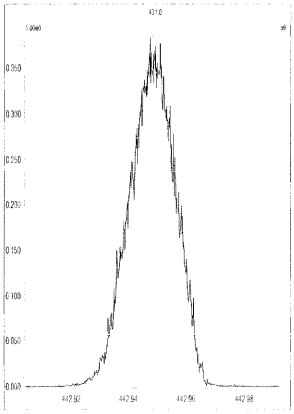
M 416.9760 R 12757



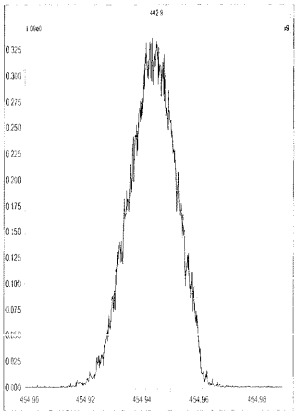
M 430.9728 R 12564



M 442.9728 R 12754



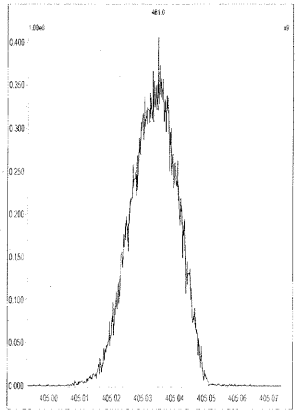
M 454.9728 R 12252



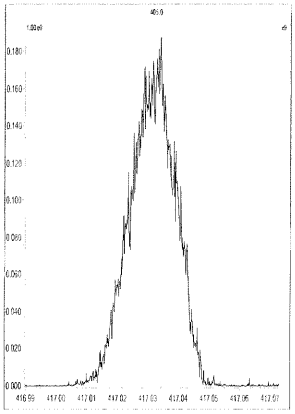
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, February 03, 2014 12:29:05 Central Standard Time

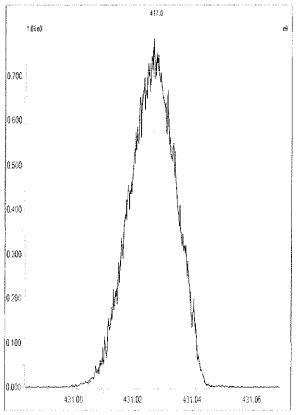
M 404.9760 R 12687



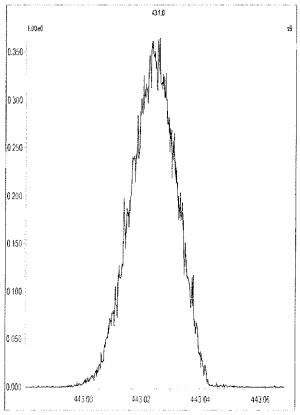
M 416.9760 R 12626



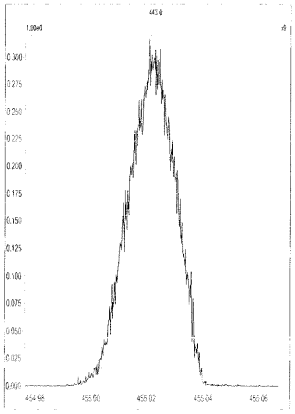
M 430.9728 R 12375



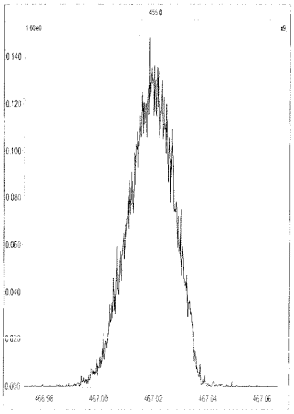
M 442.9728 R 12373



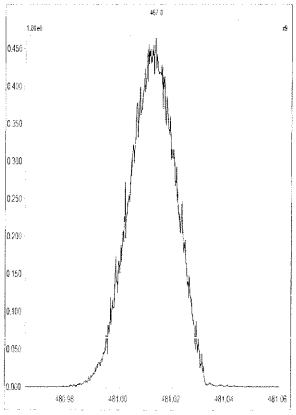
M 454.9728 R 12690



M 466.9728 R 12688



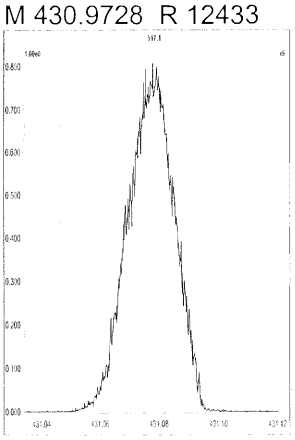
M 480.9696 R 11959



File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Monday, February 03, 2014 12:30:05 Central Standard Time

M 430.9728 R 12433



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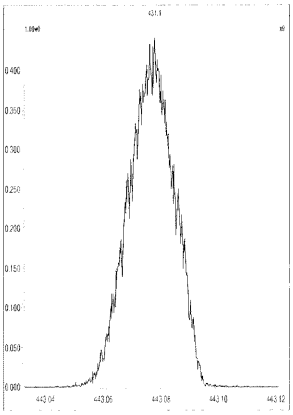

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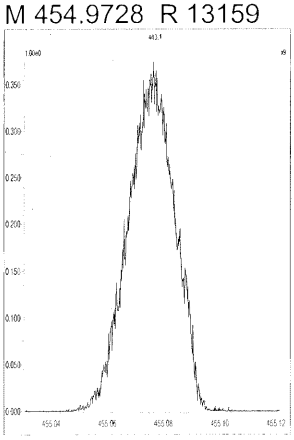
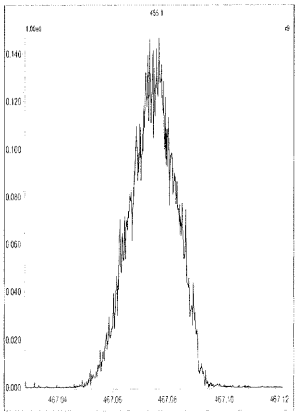
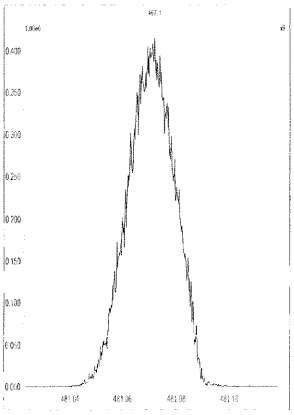


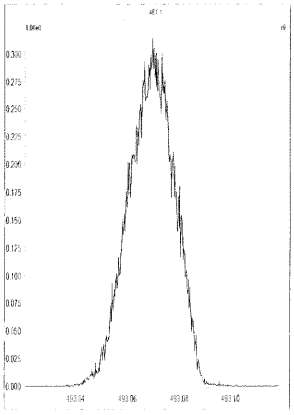
M 466.9728 R 12195



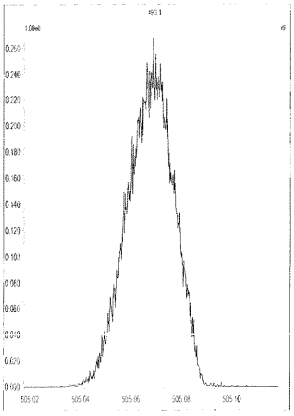
M 480.9696 R 12436



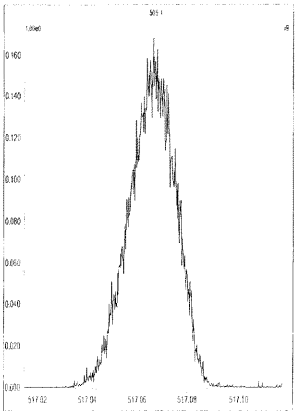
M 492.9696 R 12756



M 504.9696 R 12135



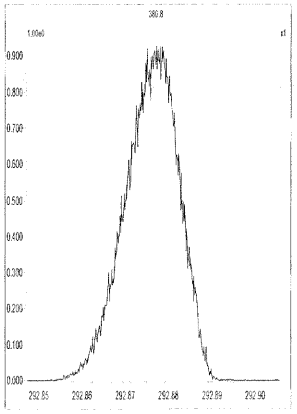
M 516.9697 R 12131



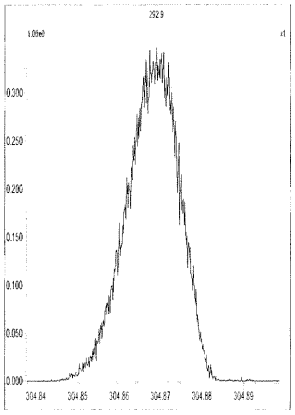
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, February 04, 2014 07:40:29 Central Standard Time

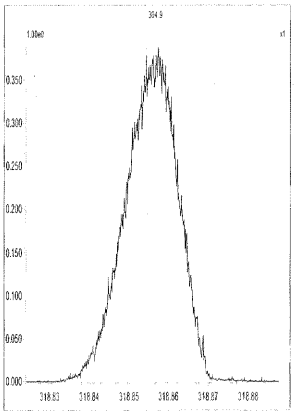
M 292.9824 R 10206



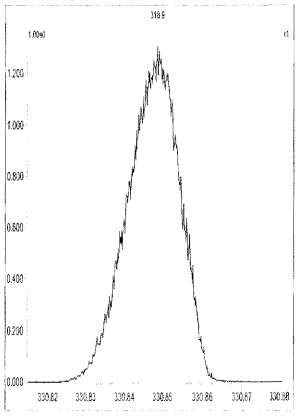
M 304.9824 R 10683



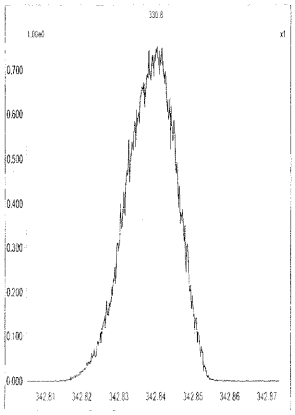
M 318.9792 R 10546



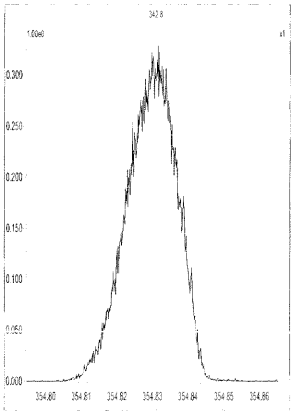
M 330.9792 R 10772



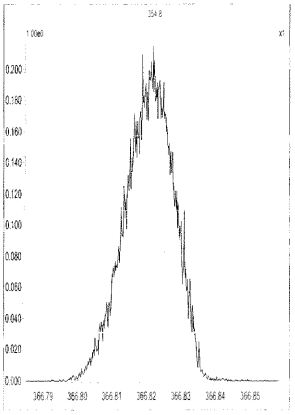
M 342.9792 R 10826



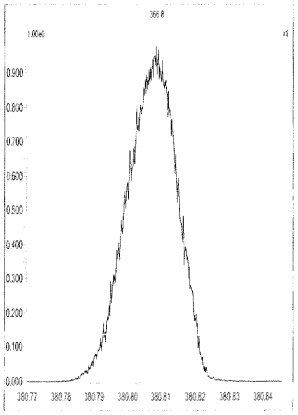
M 354.9792 R 10871



M 366.9792 R 11363



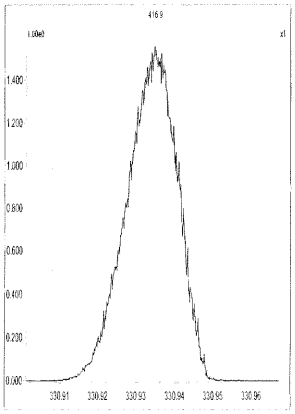
M 380.9760 R 11466



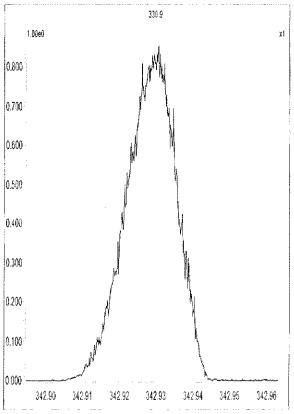
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, February 04, 2014 07:41:25 Central Standard Time

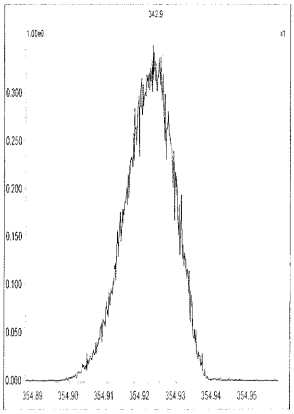
M 330.9792 R 10963



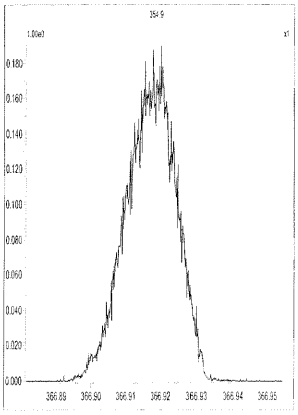
M 342.9792 R 11108



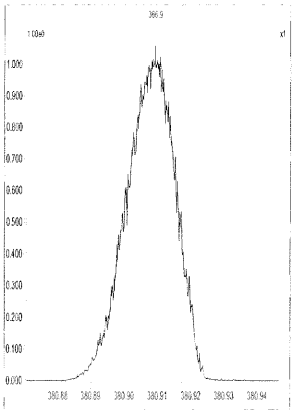
M 354.9792 R 11160



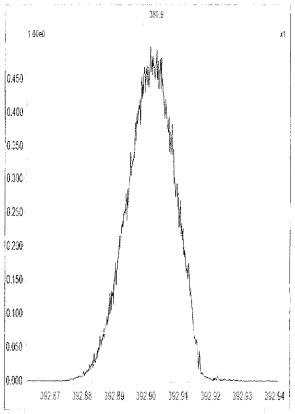
M 366.9792 R 11109



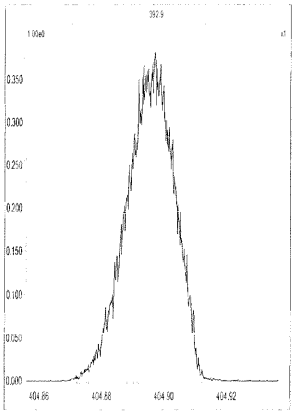
M 380.9760 R 11517



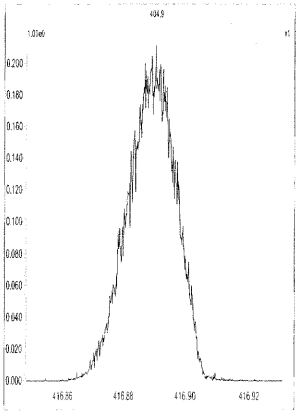
M 392.9760 R 11961



M 404.9760 R 11846



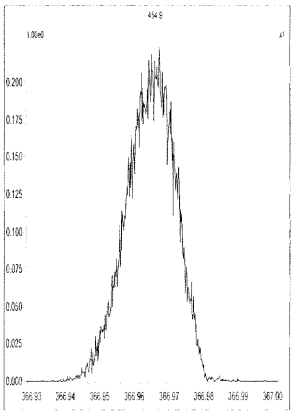
M 416.9760 R 12019



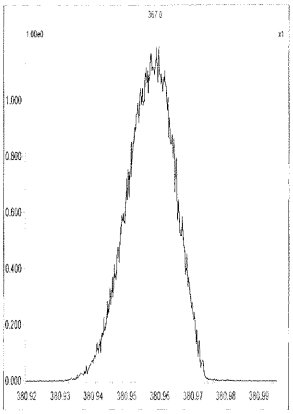
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, February 04, 2014 07:42:38 Central Standard Time

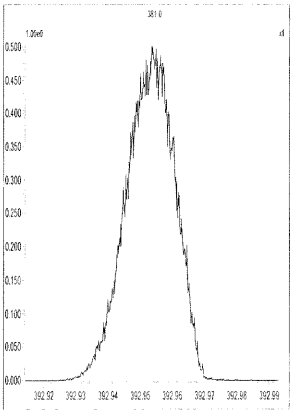
M 366.9792 R 11419



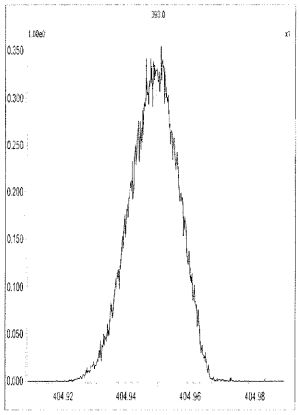
M 380.9760 R 11361



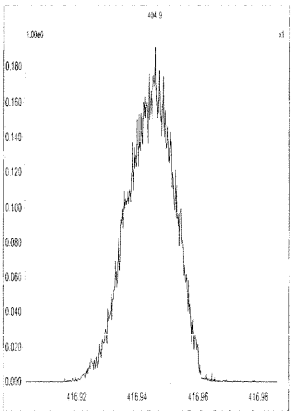
M 392.9760 R 11789



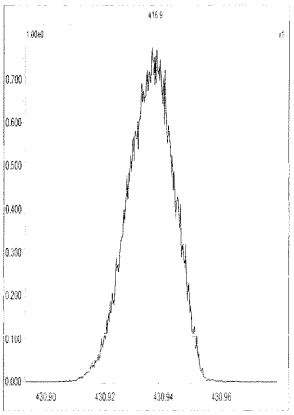
M 404.9760 R 11736



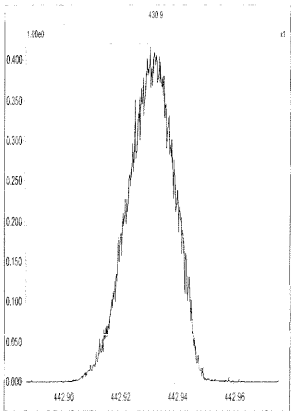
M 416.9760 R 12192



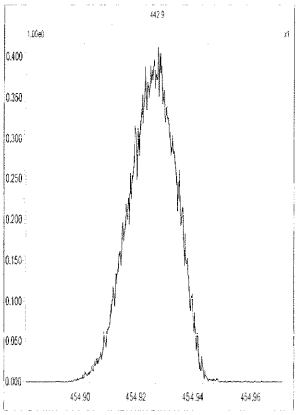
M 430.9728 R 11905



M 442.9728 R 11847



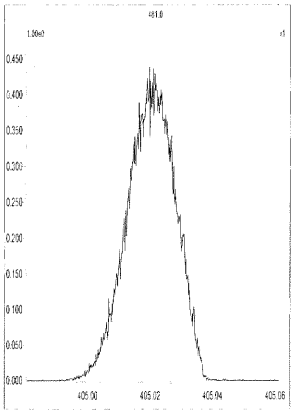
M 454.9728 R 12196



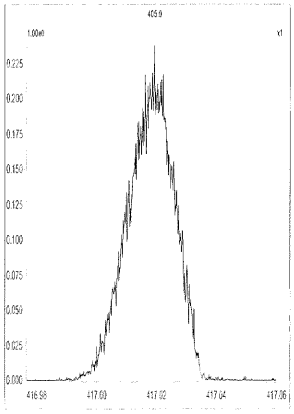
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, February 04, 2014 07:43:27 Central Standard Time

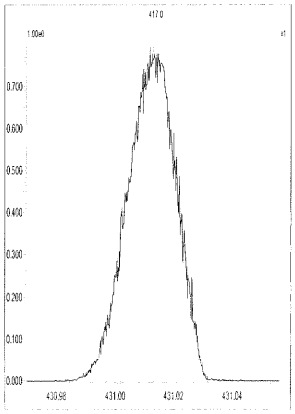
M 404.9760 R 11683



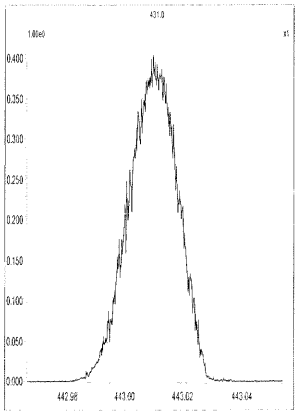
M 416.9760 R 12077



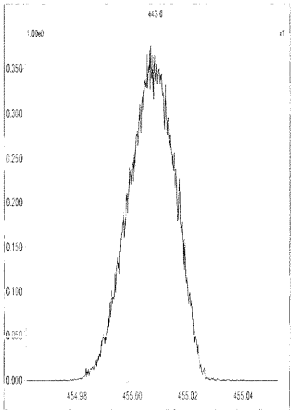
M 430.9728 R 11576



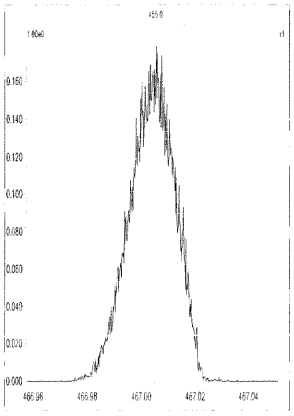
M 442.9728 R 11629



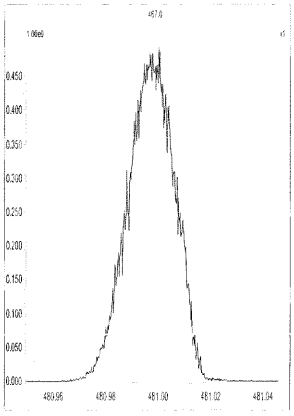
M 454.9728 R 12254



M 466.9728 R 12692



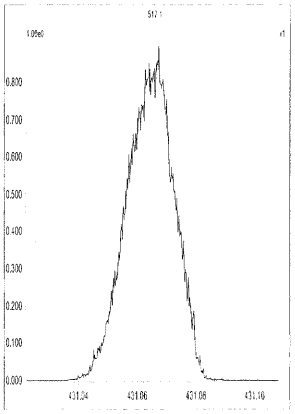
M 480.9696 R 12020



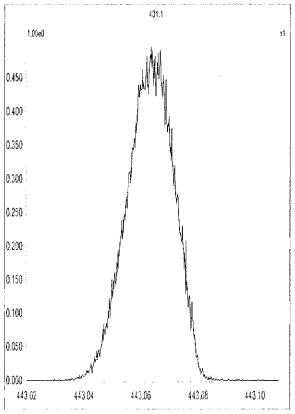
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, February 04, 2014 07:44:12 Central Standard Time

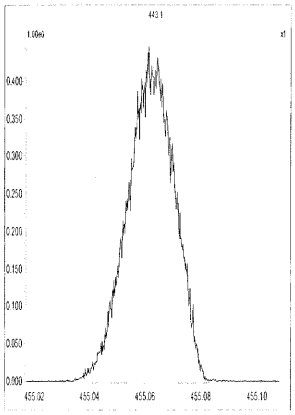
M 430.9728 R 11627



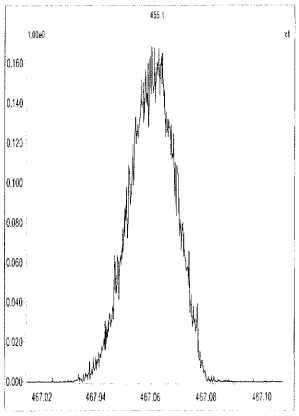
M 442.9728 R 12017



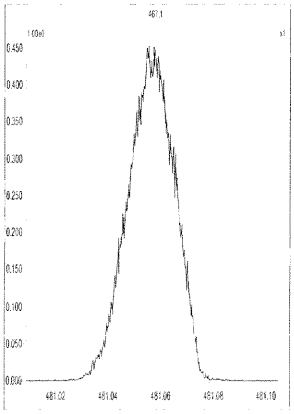
M 454.9728 R 11901



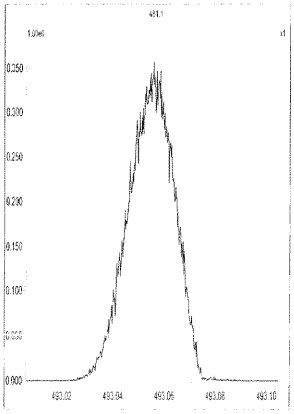
M 466.9728 R 12314



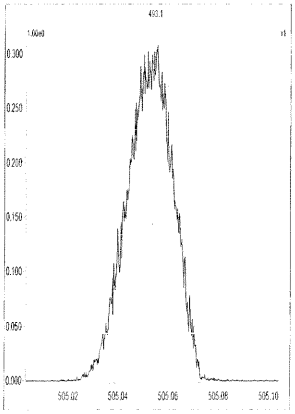
M 480.9696 R 12021



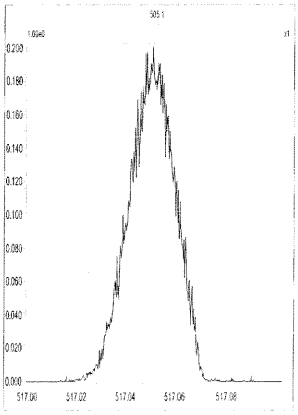
M 492.9696 R 12316



M 504.9696 R 12194



M 516.9697 R 12822



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

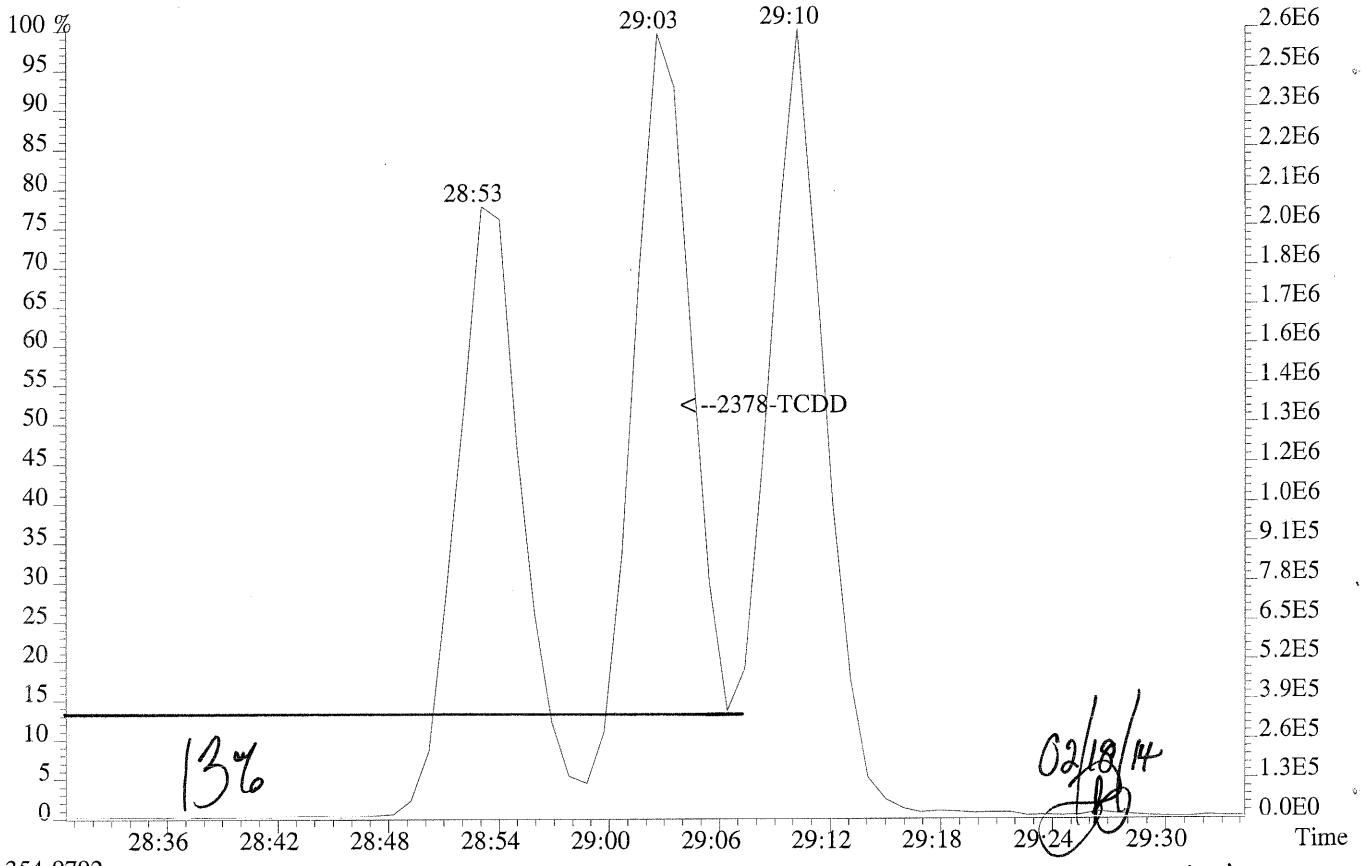
WDM

Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411 Case No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P227257
Date Analyzed: 1-FEB-2014
Time Analyzed: 15:24:46

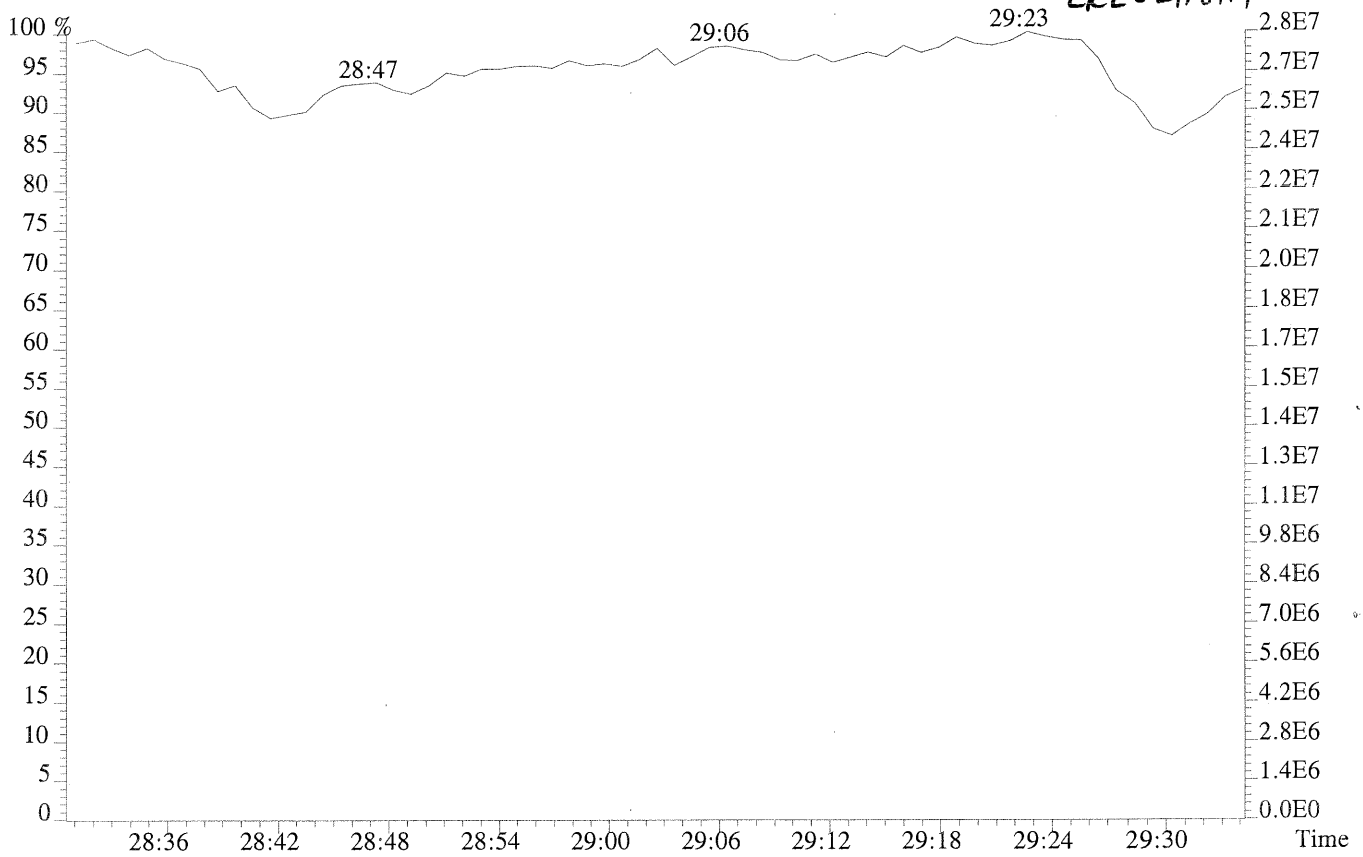
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:55	30:11
TCDD	25:48	30:02
PeCDF	30:08	34:19
PeCDD	31:38	34:04
HxCDF	34:58	37:27
HxCDD	35:29	37:04
HpCDF	38:40	40:04
HpCDD	38:55	39:35

% Valley 2378-TCDD: 13 %

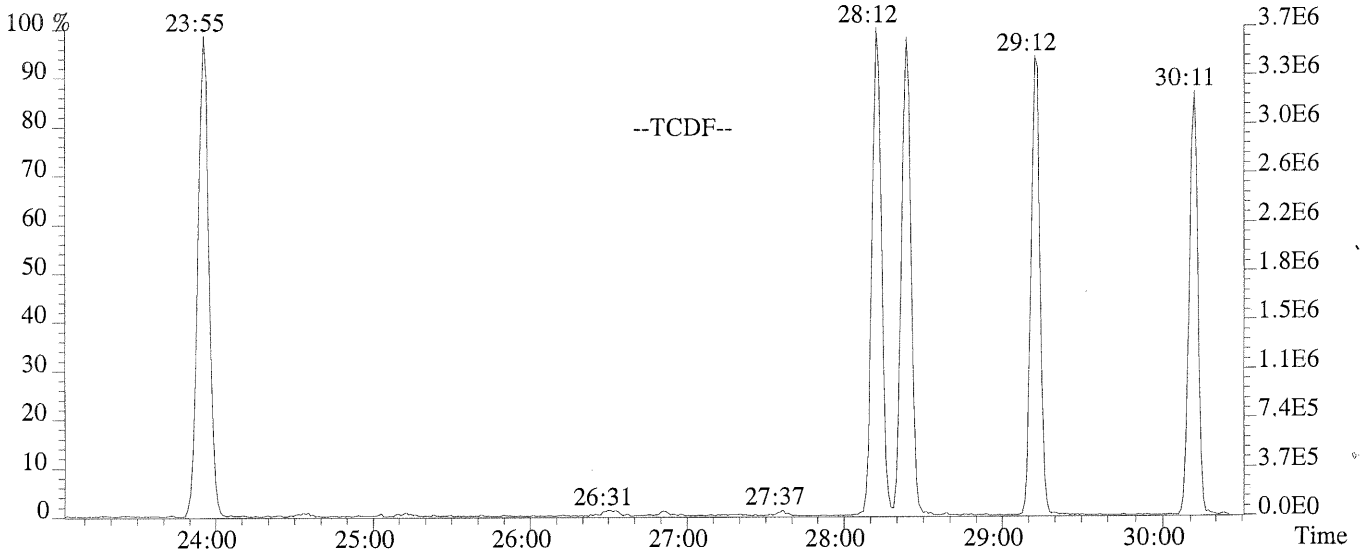
File:P227257 #1-464 Acq: 1-FEB-2014 15:24:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



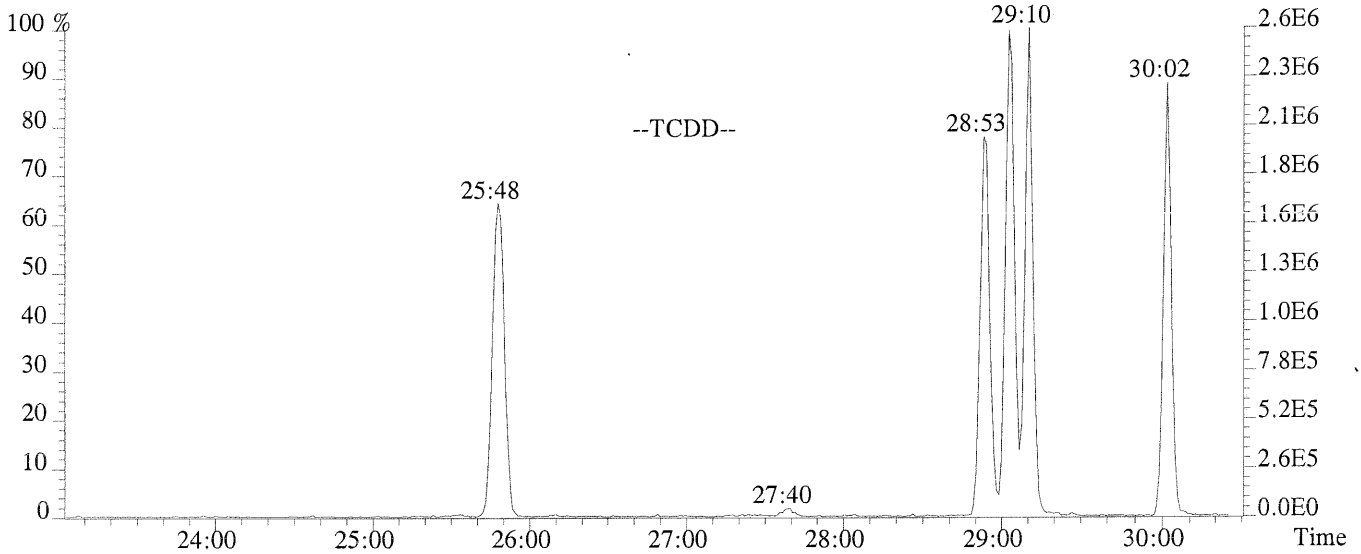
354.9792



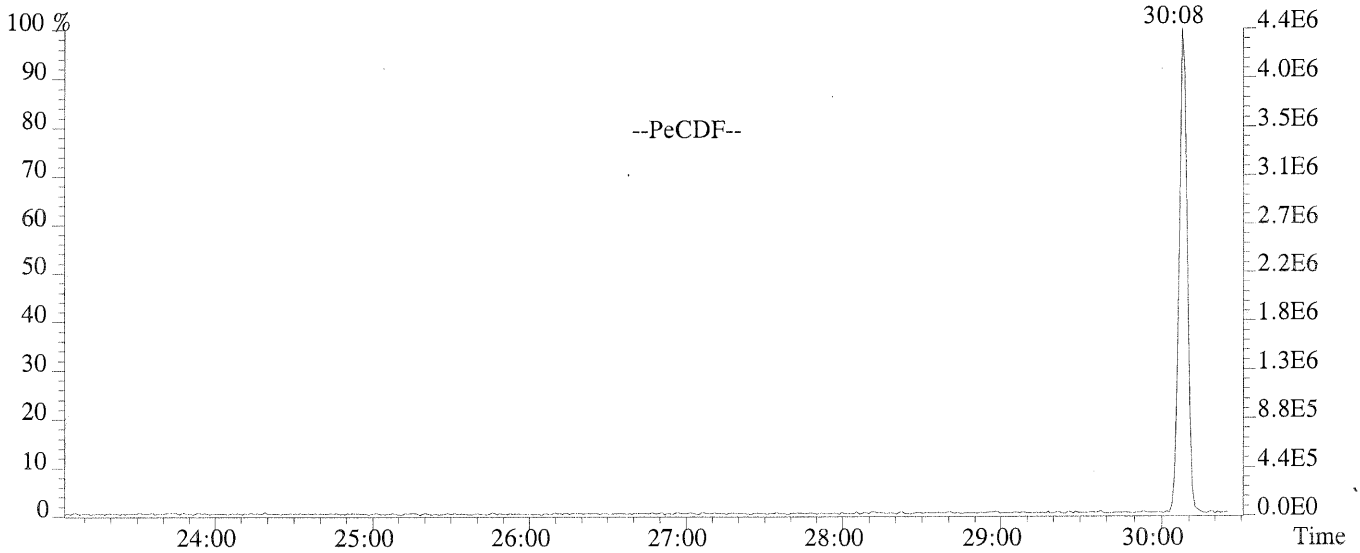
File:P227257 #1-464 Acq: 1-FEB-2014 15:24:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



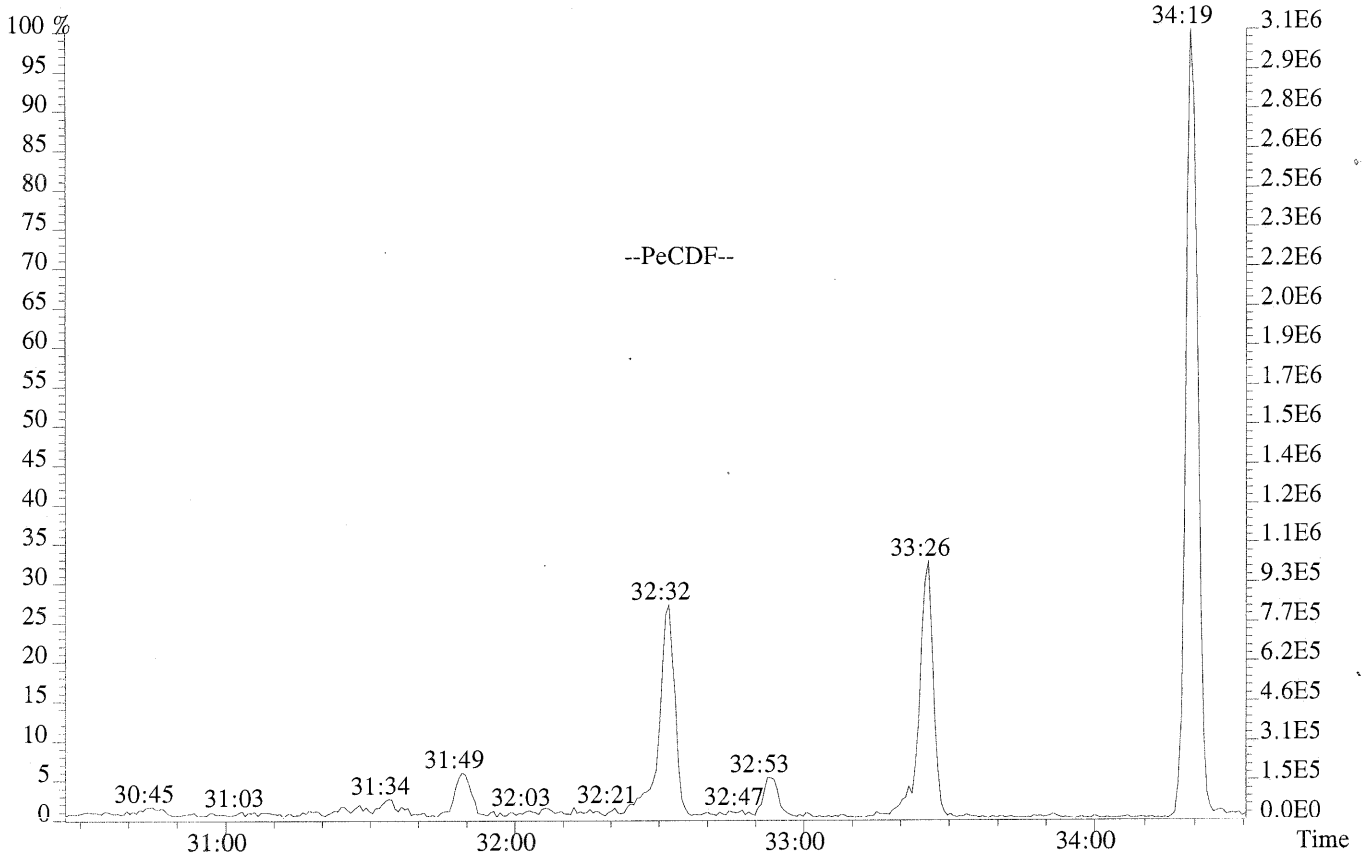
319.8965



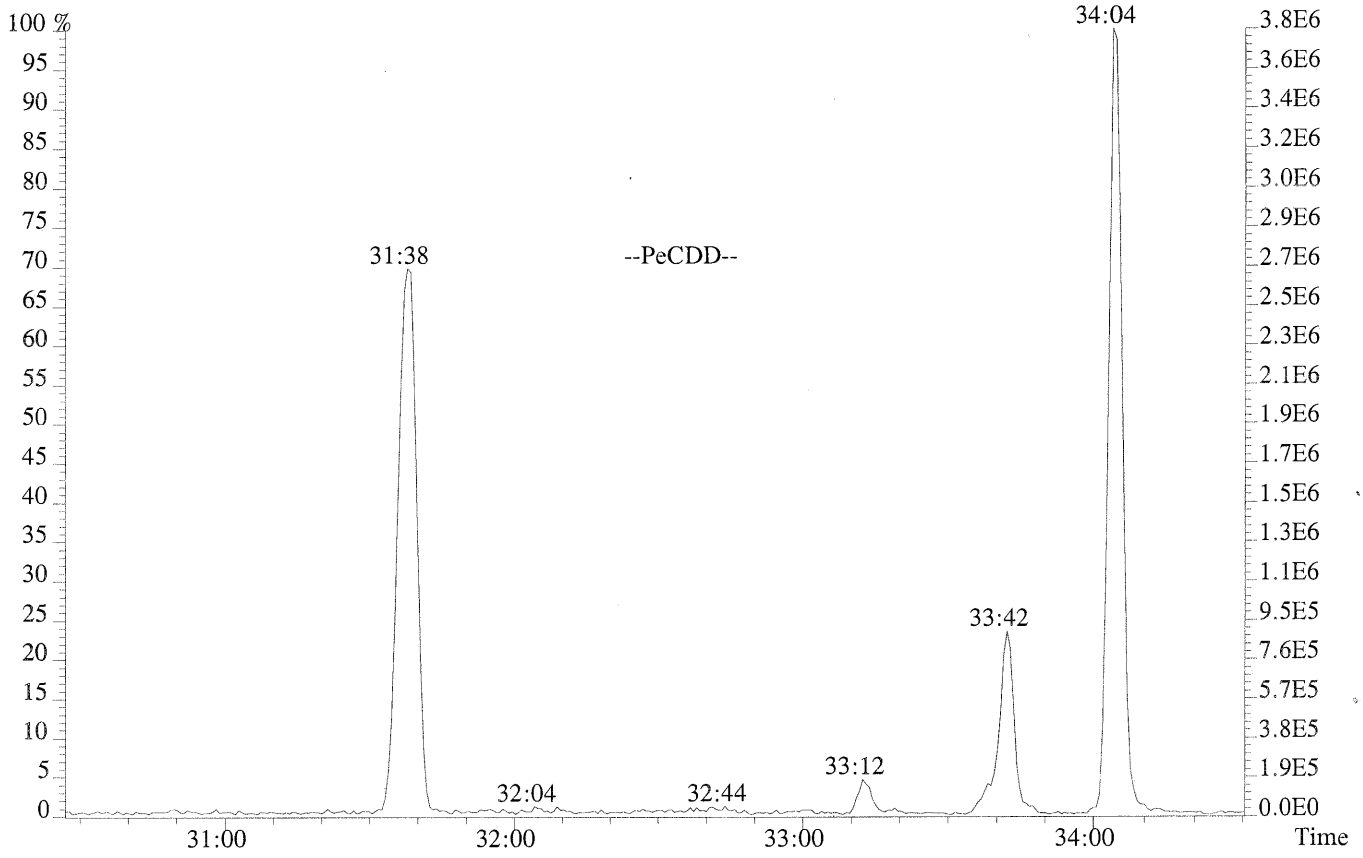
339.8597



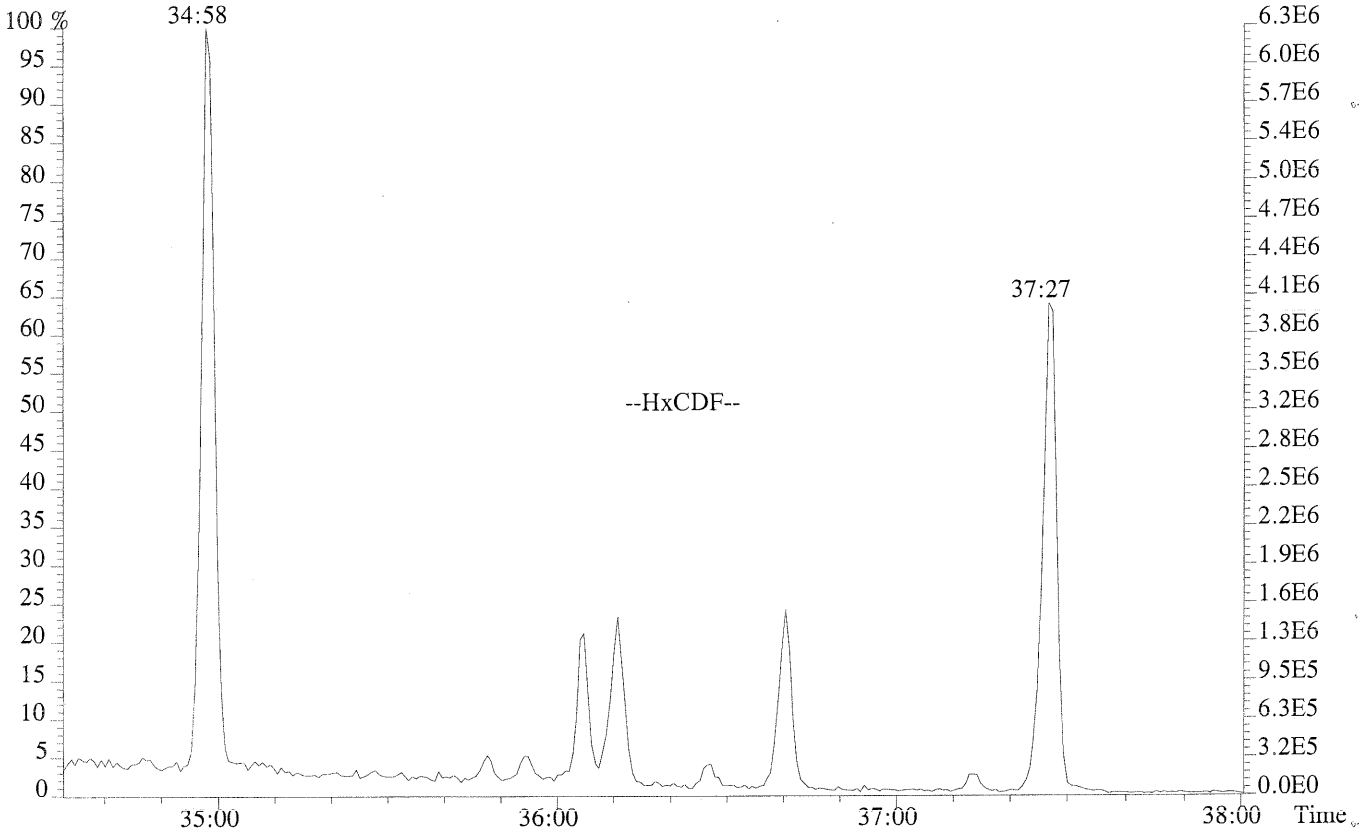
File:P227257 #1-369 Acq: 1-FEB-2014 15:24:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
341.8567 F:2



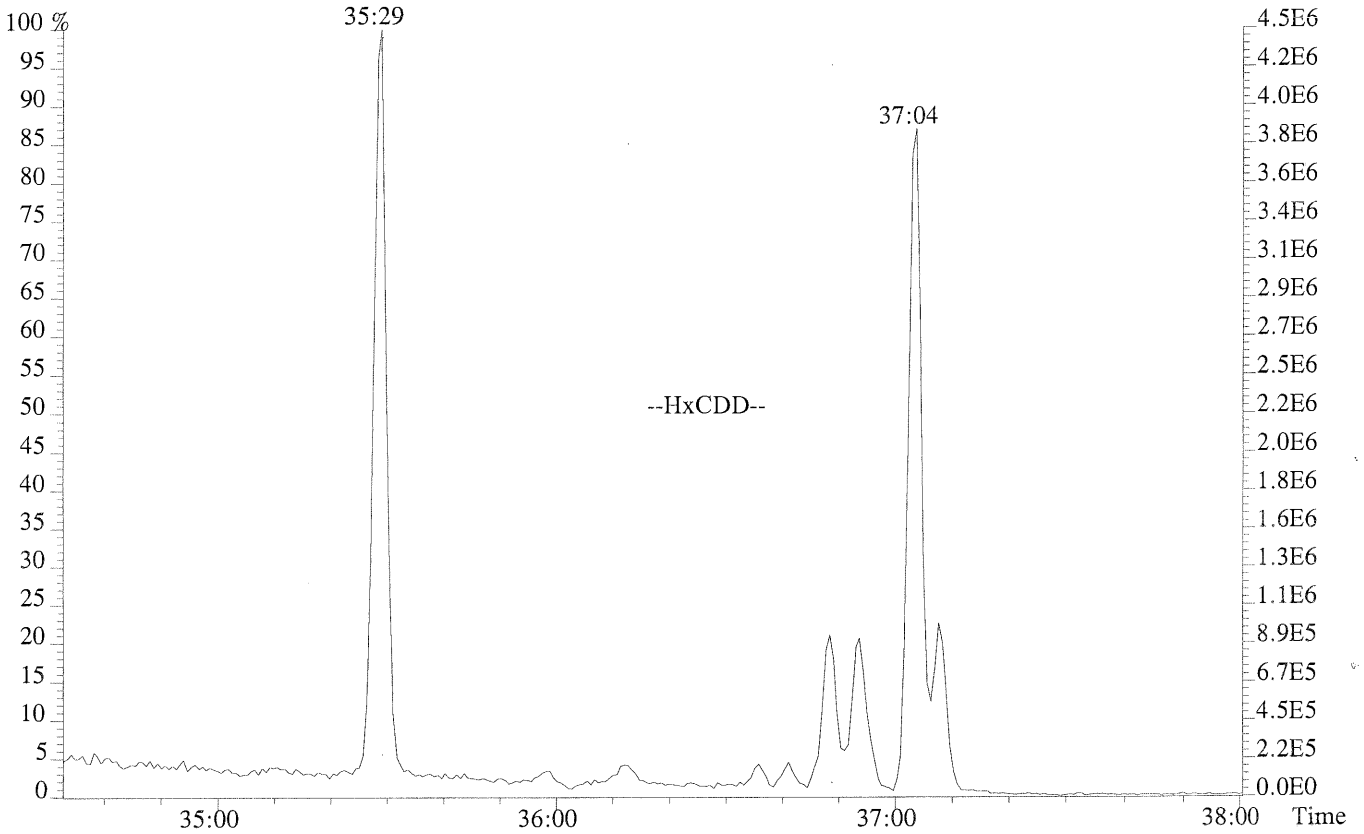
355.8546 F:2



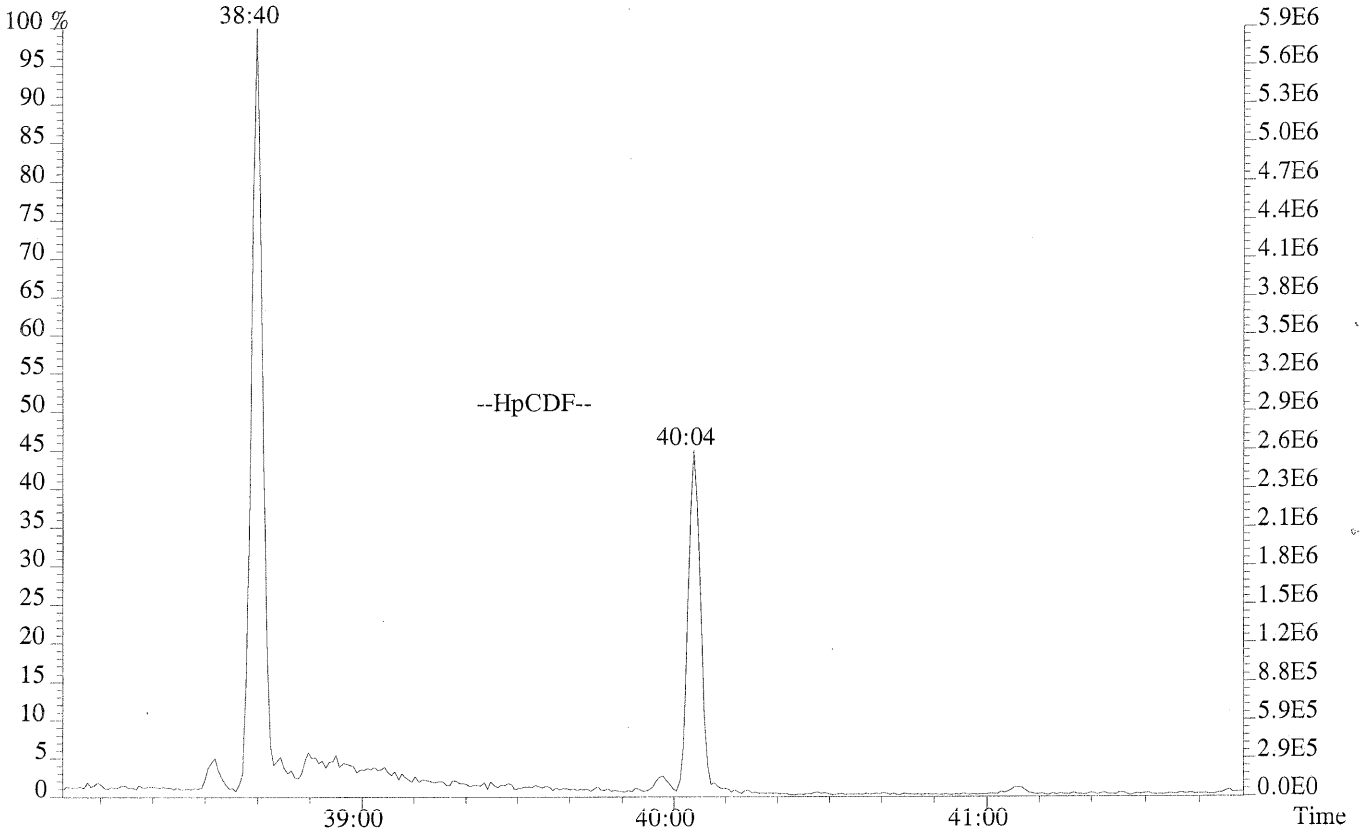
File:P227257 #1-315 Acq: 1-FEB-2014 15:24:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



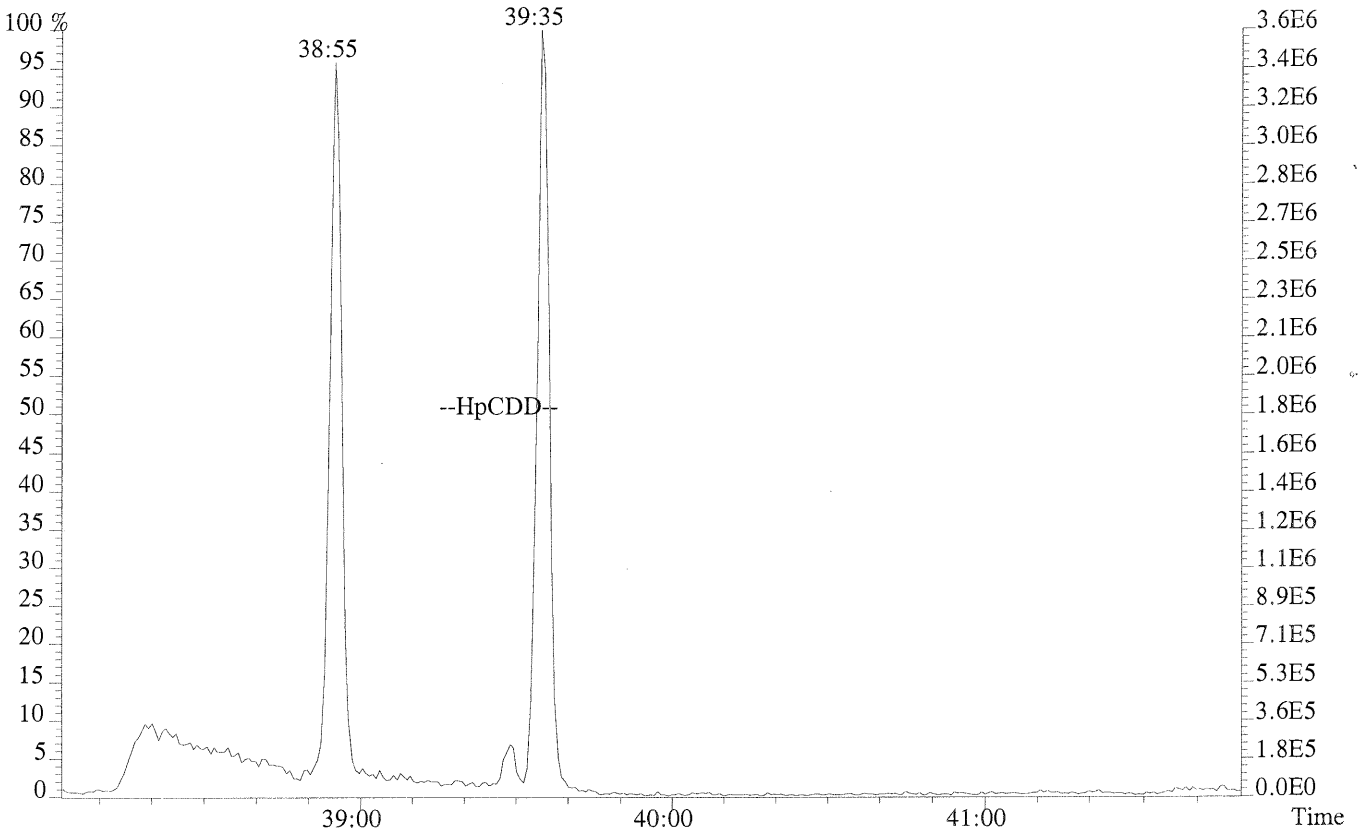
389.8157 F:3



File:P227257 #1-342 Acq: 1-FEB-2014 15:24:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

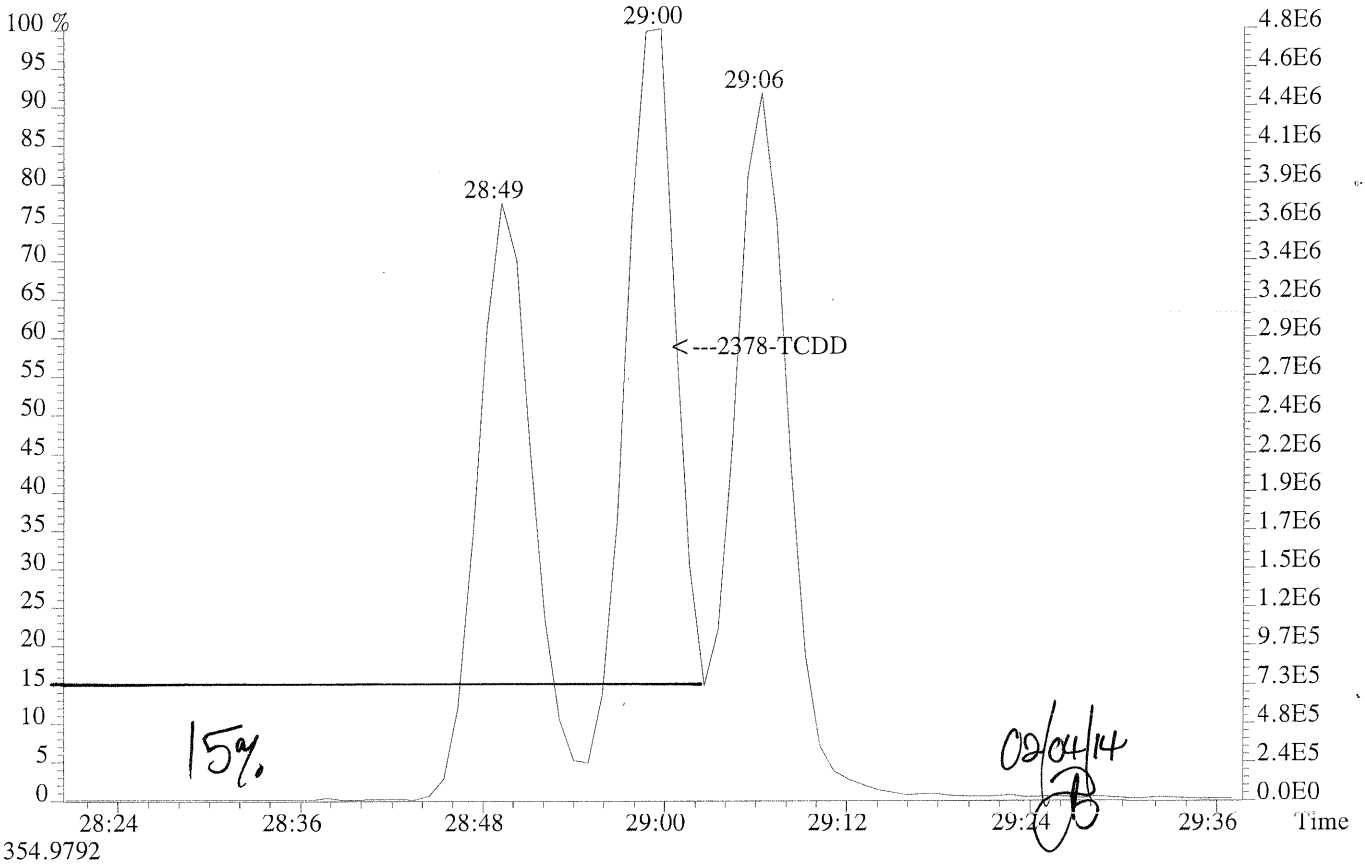
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P227266
Date Analyzed: 3-FEB-2014
Time Analyzed: 12:32:09

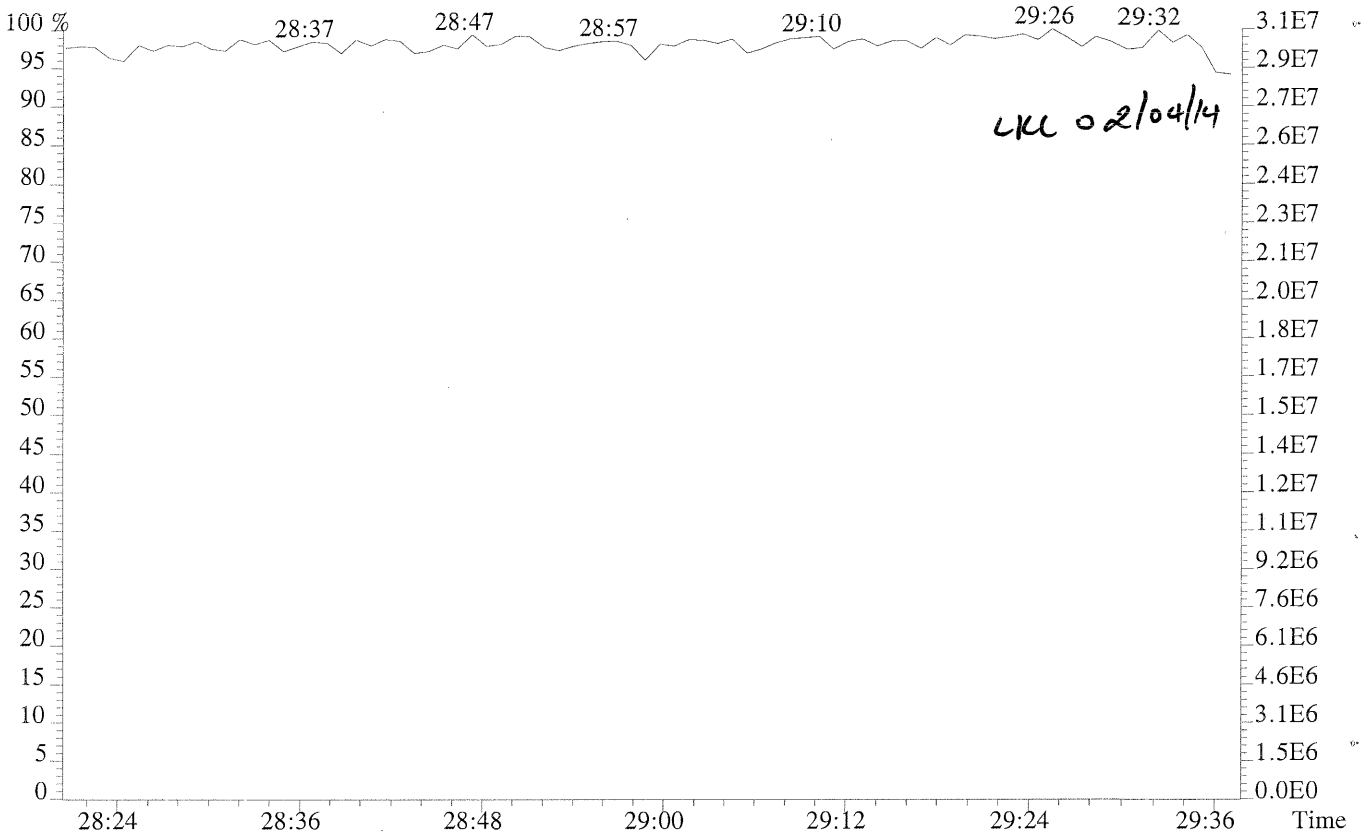
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:50	30:08
TCDD	25:43	29:58
PeCDF	30:05	34:17
PeCDD	31:35	34:01
HxCDF	34:55	37:25
HxCDD	35:26	37:00
HpCDF	38:37	40:02
HpCDD	38:52	39:33

% Valley 2378-TCDD: 15 %

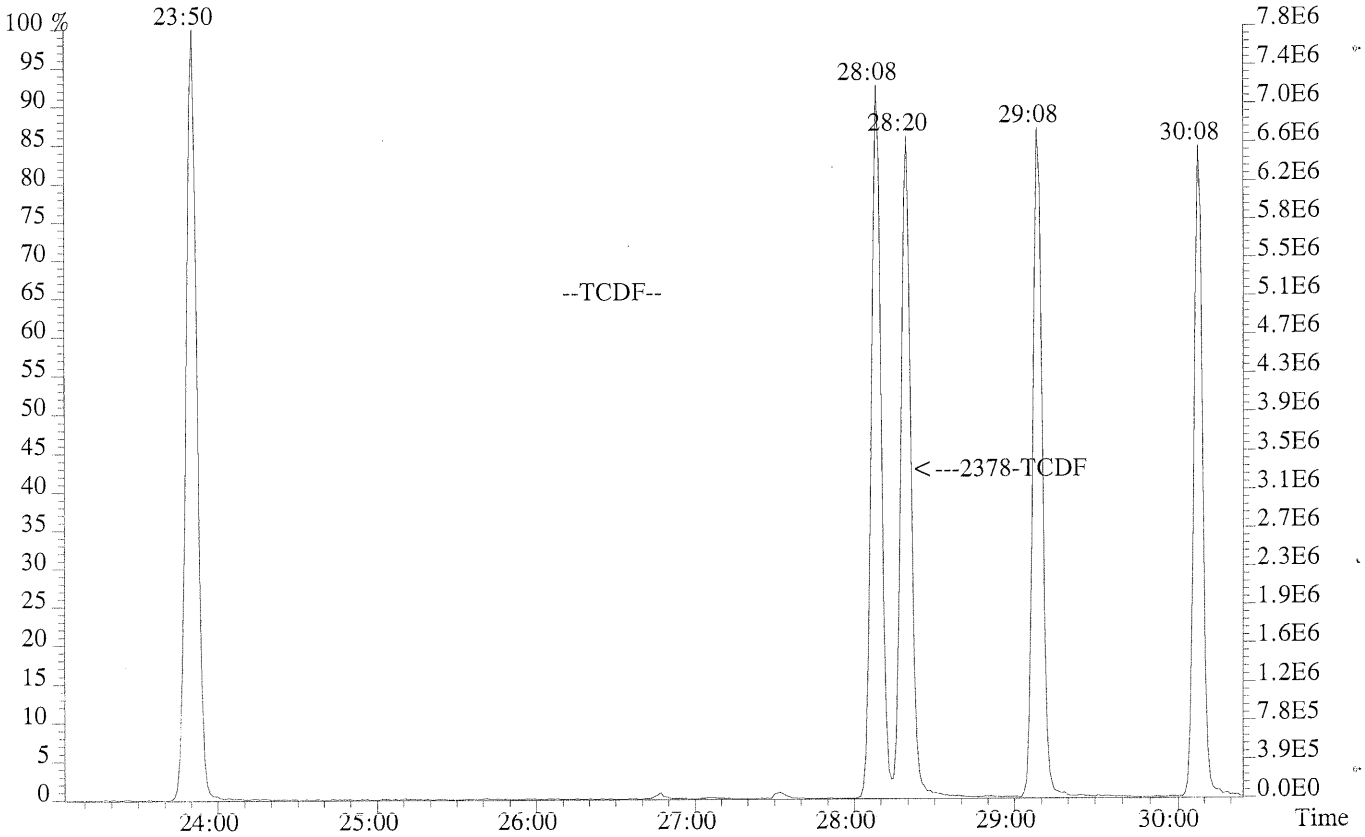
File:P227266 #1-464 Acq: 3-FEB-2014 12:32:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



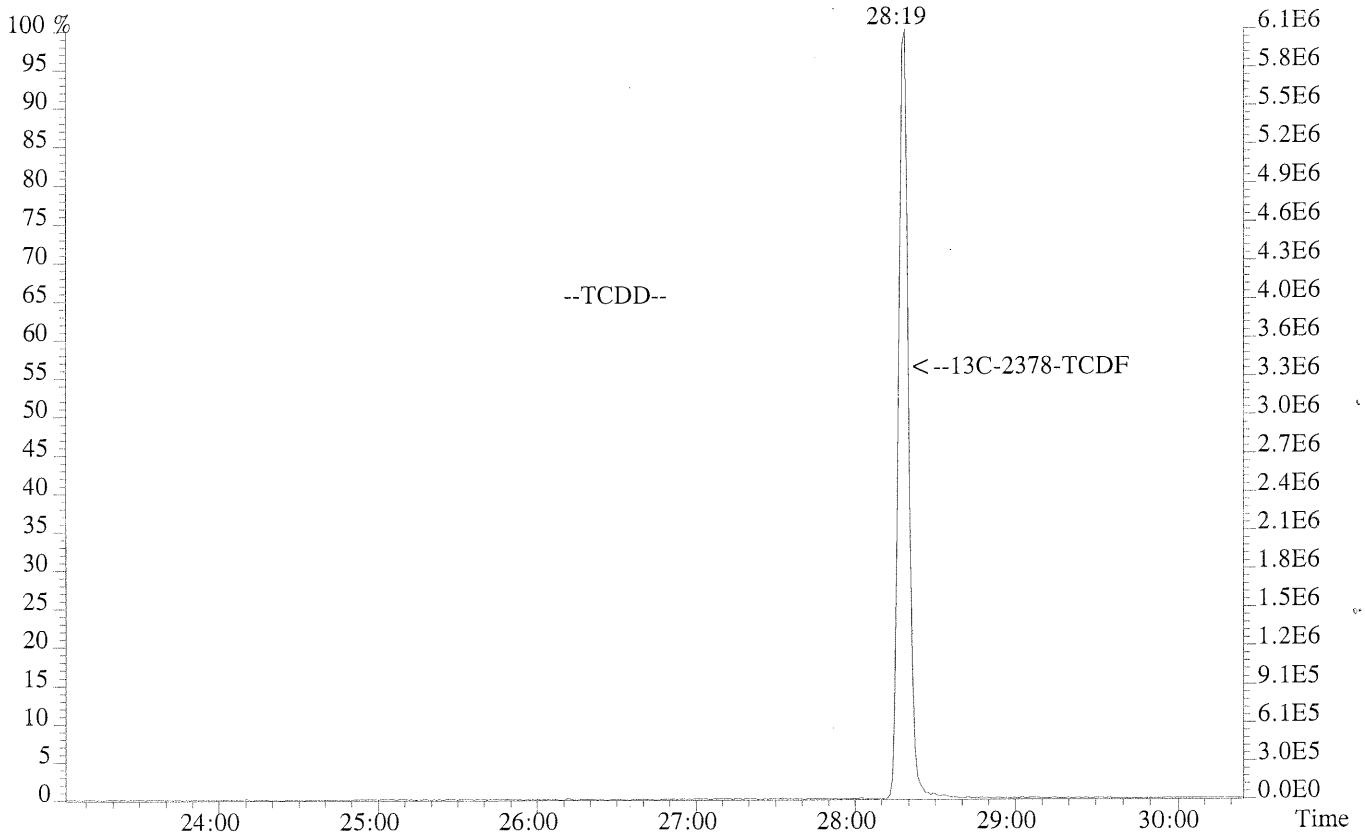
354.9792



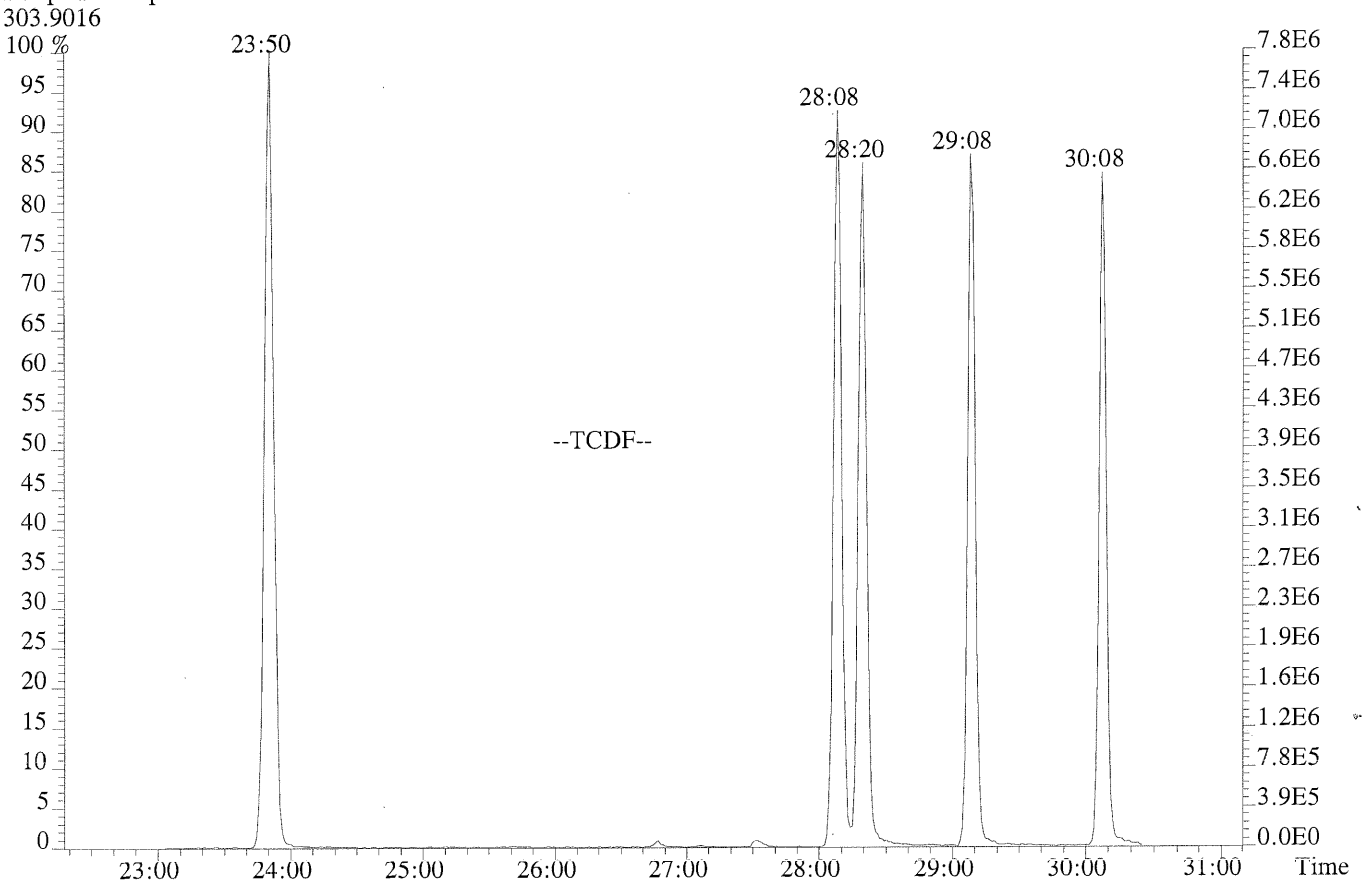
File:P227266 #1-464 Acq: 3-FEB-2014 12:32:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016

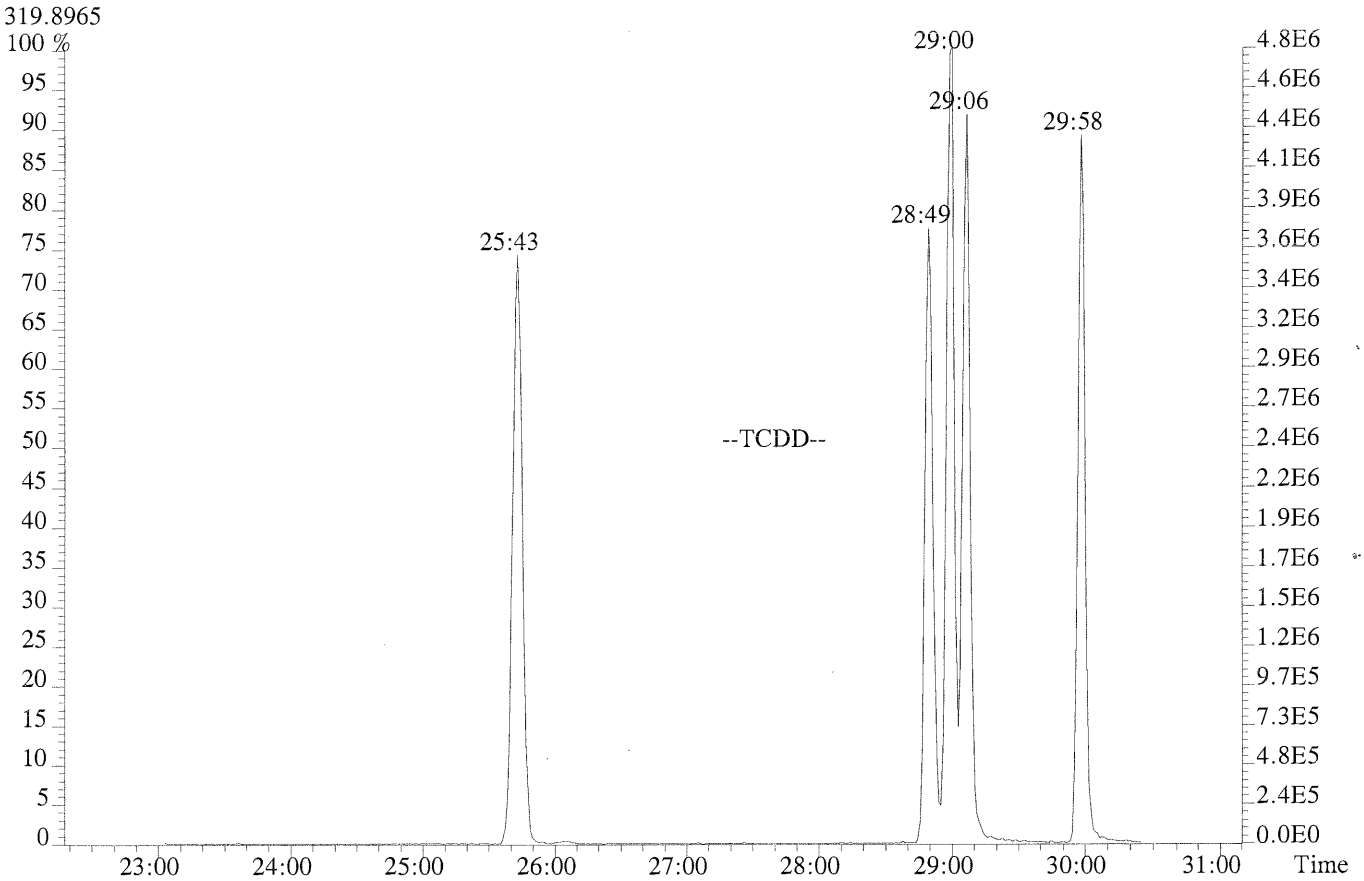


315.9419

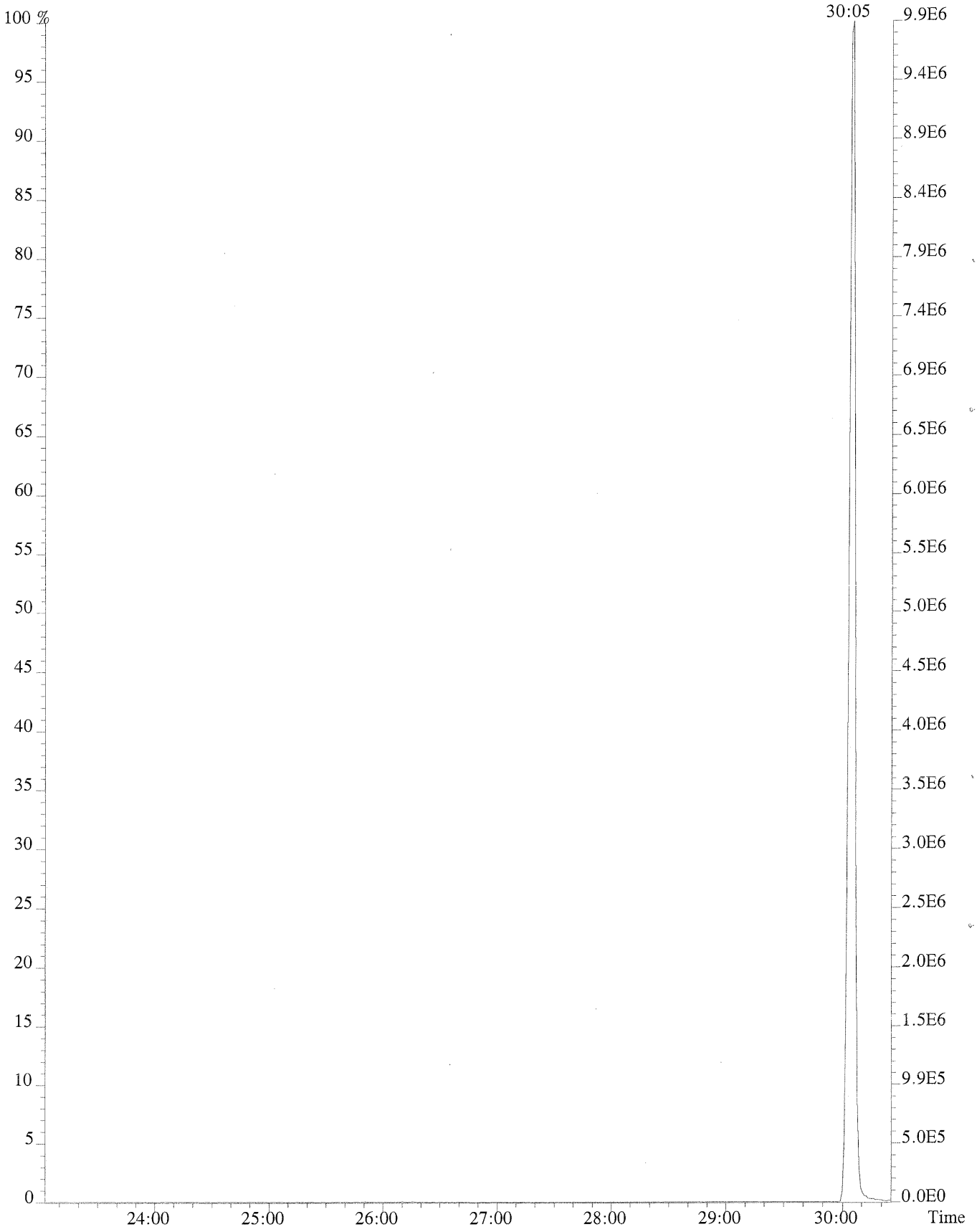


File:P227266 #1-464 Acq: 3-FEB-2014 12:32:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

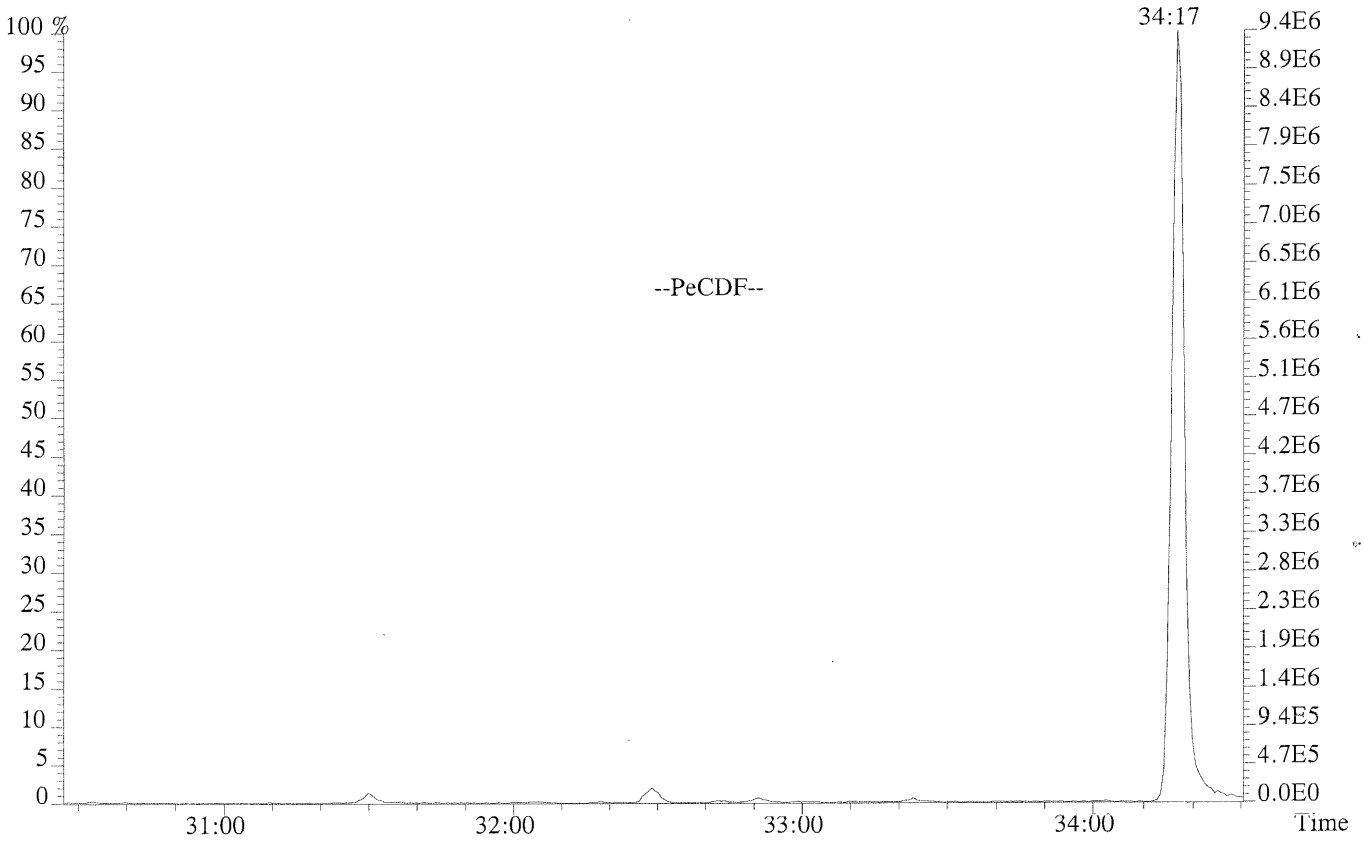




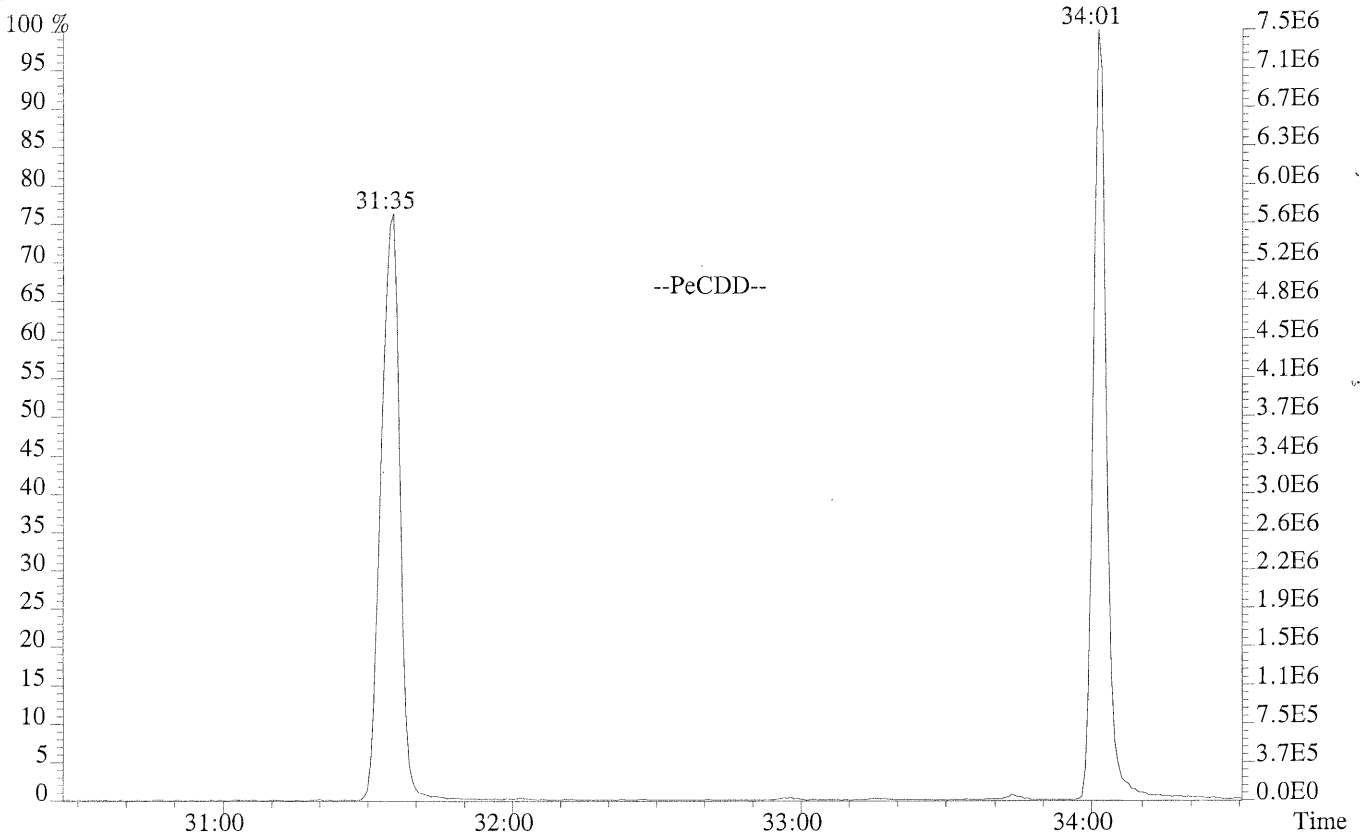
File:P227266 #1-464 Acq: 3-FEB-2014 12:32:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597



File:P227266 #1-464 Acq: 3-FEB-2014 12:32:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597 F:2



355.8546 F:2



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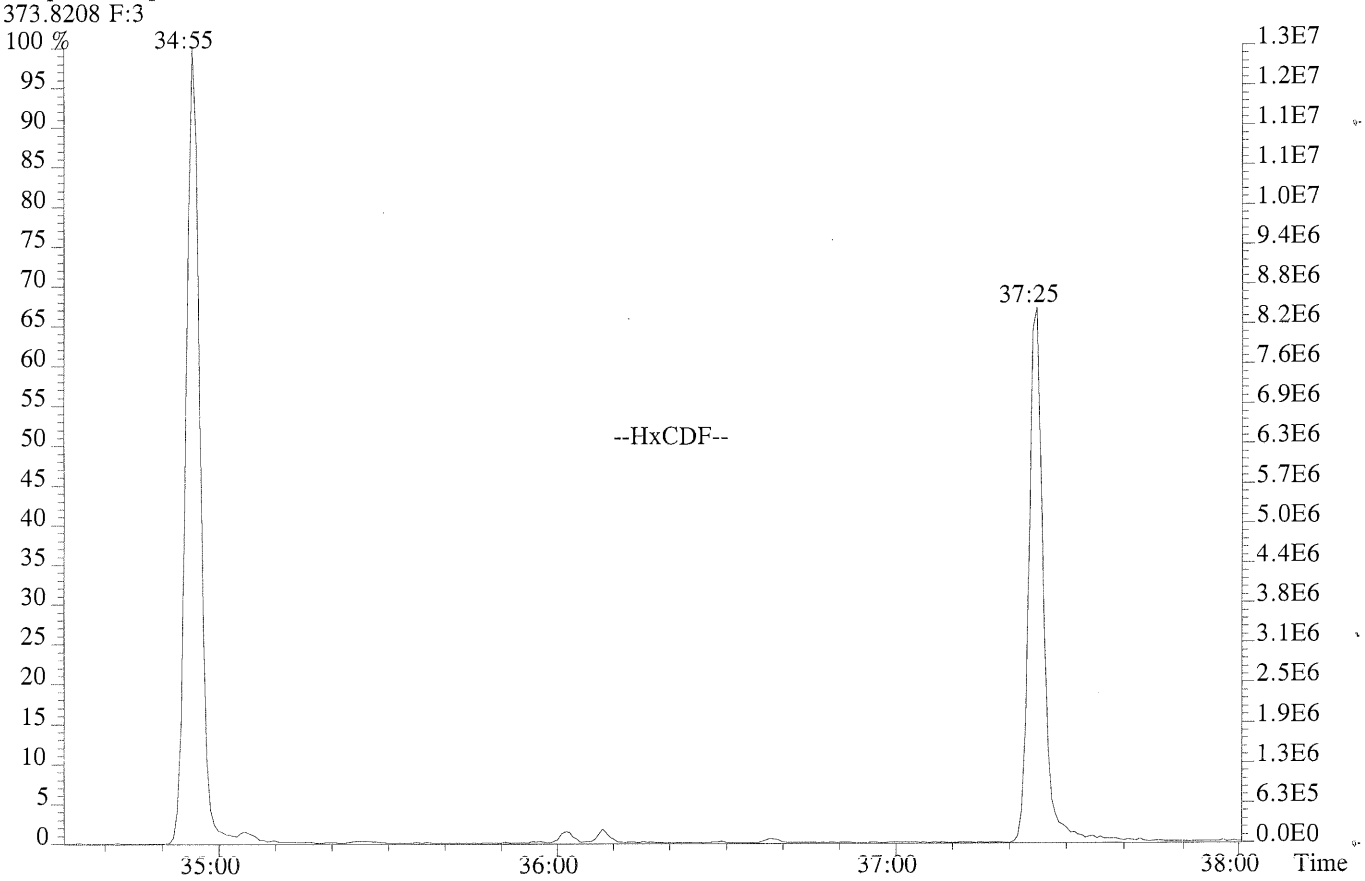
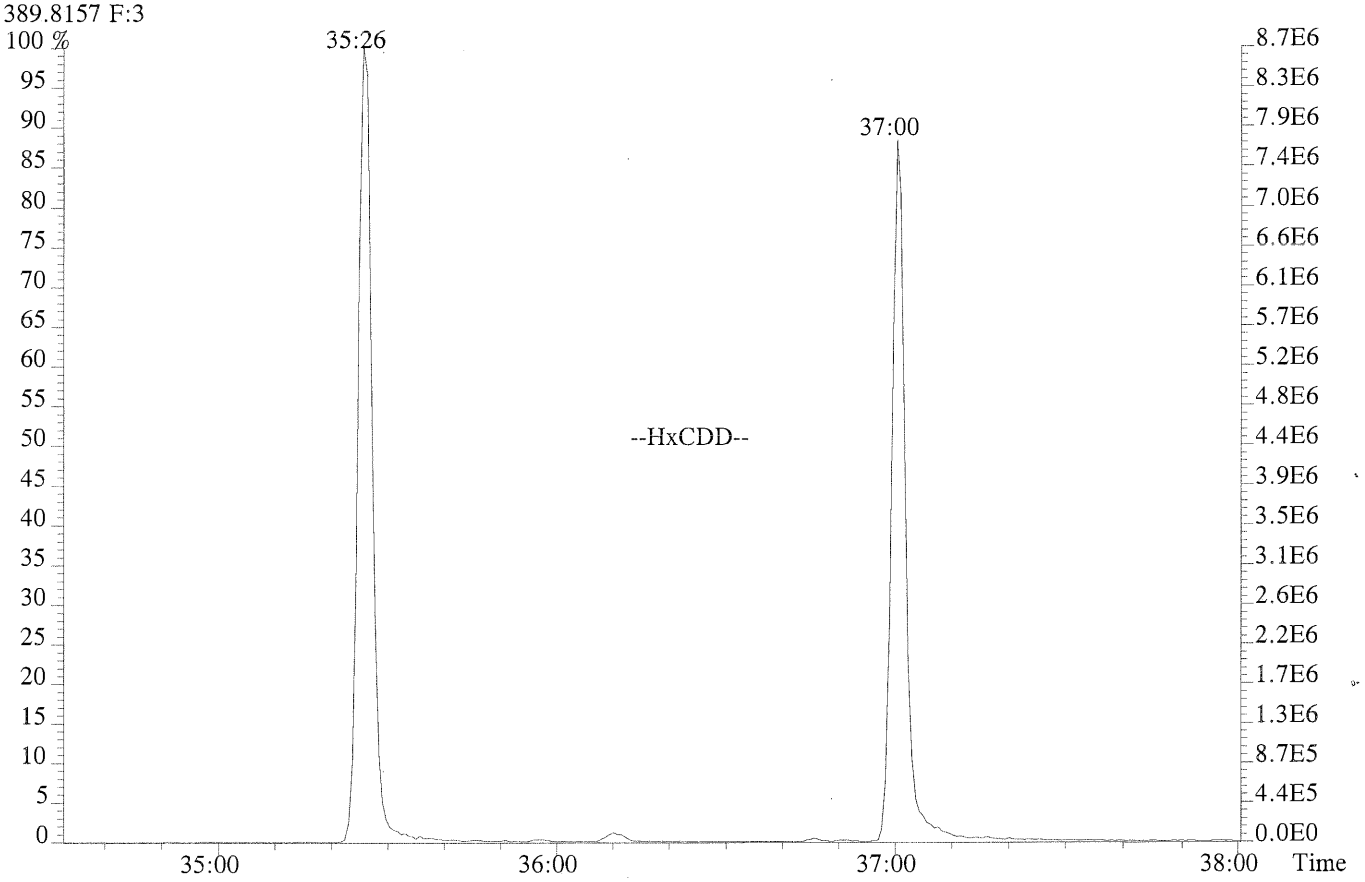
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3

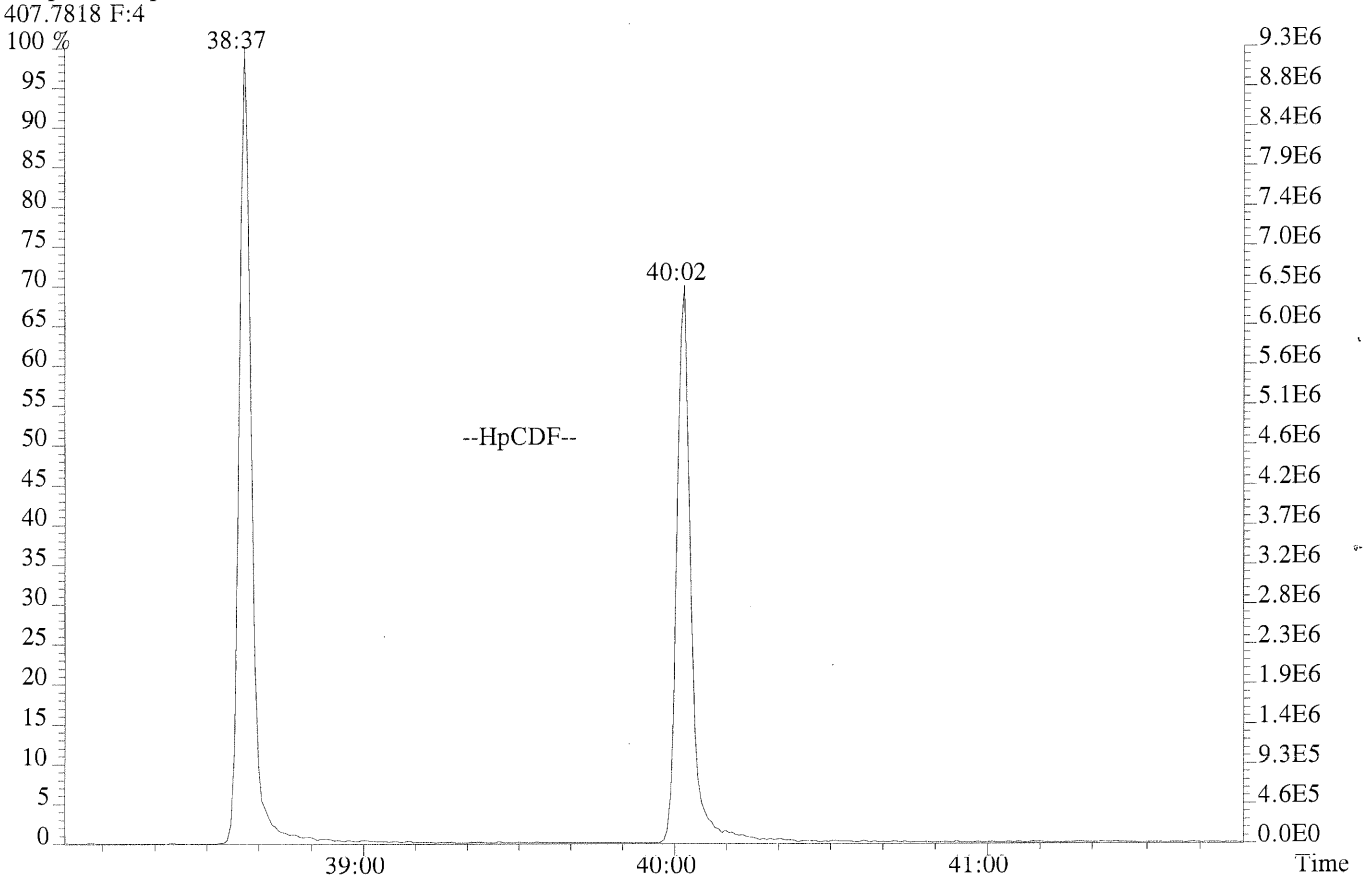


389.8157 F:3

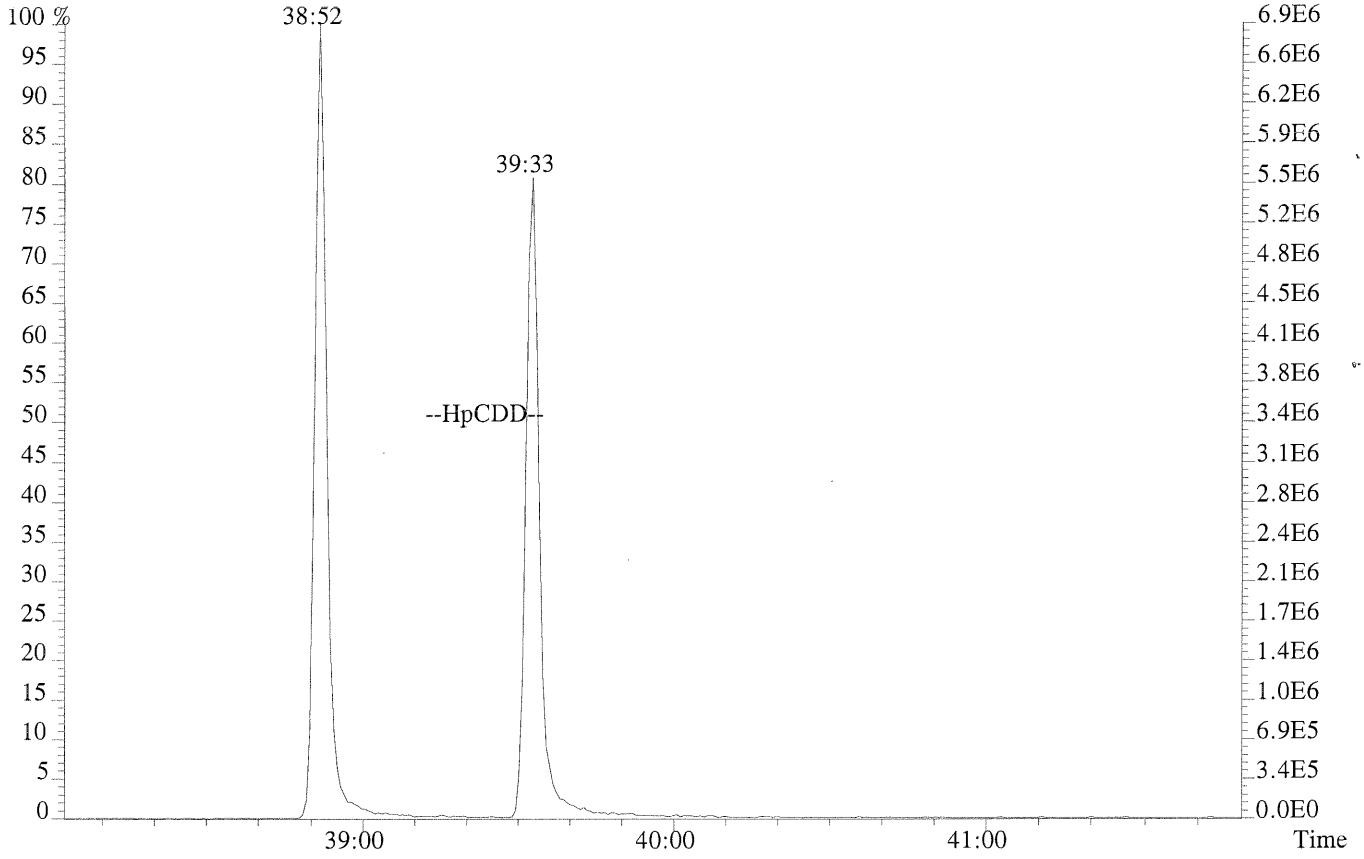


File:P227266 #1-342 Acq: 3-FEB-2014 12:32:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

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: Case No.: TO No.: SDG No.:
GC Column: db5 MSUI ID: 0.25(mm) Instrument ID: E-HRMS-04
Init. Calib. Date(s).: 02/01/14
Init. Calib. Time.: 15:24 2/1/14

Target Analytes	RR/RRF CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.23	0.97	0.99	1.03	1.06	1.04	1.05	8.76	+/-20%
2,3,7,8-TCDF	1.31	1.03	1.09	1.10	1.12	1.11	1.13	8.54	+/-20%
1,2,3,7,8-PeCDF	1.18	1.15	1.10	1.12	1.14	1.05	1.12	3.82	+/-20%
1,2,3,7,8-PeCDD	1.09	1.12	1.05	1.04	1.05	1.07	1.07	2.65	+/-20%
2,3,4,7,8-PeCDF	1.16	1.13	1.06	1.05	1.07	1.13	1.10	4.00	+/-20%
1,2,3,4,7,8-HxCDF	1.38	1.41	1.29	1.32	1.34	1.29	1.34	3.63	+/-20%
1,2,3,6,7,8-HxCDF	1.24	1.24	1.22	1.21	1.24	1.25	1.23	1.28	+/-20%
1,2,3,4,7,8-HxCDD	1.24	1.23	1.17	1.19	1.21	1.30	1.22	3.79	+/-20%
1,2,3,6,7,8-HxCDD	1.20	1.19	1.15	1.19	1.21	1.07	1.17	4.55	+/-20%
1,2,3,7,8,9-HxCDD	1.28	1.23	1.24	1.22	1.23	1.21	1.24	2.09	+/-20%
2,3,4,6,7,8-HxCDF	1.25	1.24	1.25	1.21	1.24	1.20	1.23	1.79	+/-20%
1,2,3,7,8,9-HxCDF	1.39	1.28	1.23	1.21	1.26	1.23	1.27	5.05	+/-20%
1,2,3,4,6,7,8-HpCDF	1.41	1.42	1.40	1.44	1.46	1.41	1.42	1.62	+/-20%
1,2,3,4,6,7,8-HpCDD	1.22	1.15	1.16	1.16	1.18	1.16	1.17	2.03	+/-20%
1,2,3,4,7,8,9-HpCDF	1.46	1.31	1.31	1.37	1.38	1.46	1.38	4.73	+/-20%
OCDD	1.34	1.36	1.30	1.27	1.30	1.15	1.29	5.73	+/-20%
OCDF	1.74	1.73	1.79	1.69	1.70	1.57	1.70	4.35	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.89	0.90	0.91	0.92	0.96	1.01	0.93	4.66	+/-35%
13C-1,2,3,7,8-PeCDD	1.01	1.05	1.06	1.07	1.23	1.22	1.11	8.58	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.97	0.94	0.93	0.90	0.91	0.92	0.93	2.58	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.97	0.95	0.96	0.98	0.97	1.08	0.98	4.86	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.90	0.91	0.93	0.92	0.94	1.01	0.94	4.19	+/-35%
13C-OCDD	0.66	0.66	0.74	0.63	0.69	0.74	0.69	6.86	+/-35%
13C-2,3,7,8-TCDF	1.34	1.36	1.38	1.38	1.41	1.46	1.39	3.09	+/-35%
13C-1,2,3,7,8-PeCDF	1.74	1.79	1.81	1.83	1.95	2.08	1.87	6.71	+/-35%
13C-2,3,4,7,8-PeCDF	1.67	1.70	1.74	1.77	2.01	1.93	1.80	7.47	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.46	1.44	1.38	1.39	1.38	1.47	1.42	2.85	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.67	1.64	1.61	1.65	1.63	1.63	1.64	1.18	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.48	1.45	1.42	1.42	1.40	1.49	1.44	2.30	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.22	1.21	1.24	1.21	1.26	1.31	1.24	3.08	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.19	1.21	1.17	1.17	1.20	1.24	1.20	2.24	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.97	0.99	1.02	0.97	1.03	1.01	1.00	2.52	+/-35%
37Cl-2,3,7,8-TCDD	0.88	0.93	0.89	0.93	1.00	1.04	0.95	6.83	+/-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

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS ENVIRONMENTAL Contract No.:
Lab Code: Case No.: TO No.: SDG No.:
GC Column: db5 MSUI ID: 0.25(mm) Instrument ID: E-HRMS-04
Init. Calib. Date(s).: 02/01/14
Init. Calib. Time.: 15:24 02/01/14

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	0.85	0.80	0.76	0.80	0.79	0.77		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.59	1.57	1.54	1.55	1.57	1.57		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.56	1.52	1.59	1.55	1.56	1.56		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.24	1.20	1.21	1.24	1.24	1.25		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.29	1.22	1.26	1.22	1.24	1.25		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.38	1.20	1.23	1.22	1.25	1.23		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.28	1.20	1.21	1.29	1.26	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.02	0.94	1.04	1.00	1.02	1.03		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.07	1.14	0.96	1.00	1.03	1.03		0.88-1.20
OCDF	442/444	0.88	0.87	0.79	0.89	0.91	0.91		0.76-1.02
2,3,7,8-TCDD	320/322	0.76	0.72	0.75	0.82	0.79	0.79		0.65-0.89
1,2,3,7,8-PeCDD	356/358	1.75	1.52	1.57	1.62	1.61	1.61		1.32-1.78
1,2,3,4,7,8-HxCDD	390/392	1.23	1.37	1.29	1.27	1.29	1.29		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.21	1.35	1.28	1.27	1.29	1.29		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.35	1.31	1.27	1.30	1.28	1.28		1.05-1.43
1,2,3,4,6,7,8-HpCDD	424/426	1.19	1.10	1.09	1.08	1.07	1.07		0.88-1.20
OCDD	458/460	0.93	0.89	0.93	0.89	0.91	0.92		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.82	0.83	0.82	0.83	0.82	0.82		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.63	1.65	1.65	1.63	1.64	1.63		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.63	1.62	1.63	1.65	1.65	1.64		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.54	0.54	0.52	0.53	0.54		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.54	0.53	0.53	0.53	0.52	0.54		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.54	0.53		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.53	0.54	0.52	0.53	0.53	0.54		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-2,3,7,8-TCDD	332/334	0.78	0.78	0.78	0.78	0.78	0.77		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.61	1.59	1.57	1.59	1.59	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.33	1.29	1.29	1.29	1.29	1.29		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.29	1.28	1.31	1.30	1.29	1.28		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.11	1.11	1.10	1.11	1.10	1.07		0.88-1.20
13C-OCDD	470/472	0.92	0.92	0.94	0.93	0.92	0.93		0.76-1.02
13C-1,2,3,4-TCDD	332/334	0.79	0.78	0.78	0.77	0.80	0.78		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.30	1.31	1.33	1.29	1.25	1.27		1.05-1.43
37Cl-2,3,7,8-TCDD	328								

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
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
ICAL HRCC0.5/CS0

Run #1 Filename p227259 #1 Samp: 1 Inj: 1 Acquired: 1-FEB-14 16:59:59
Processed: 6-FEB-14 13:55:24 LAB. ID: 66807

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:22	2.345e+02	2.736e+02	0.86	yes	yes	1.001
2	Unk	1,2,3,7,8-PeCDF	32:30	1.826e+03	1.145e+03	1.59	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:24	1.718e+03	1.101e+03	1.56	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:03	1.460e+03	1.174e+03	1.24	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:09	1.525e+03	1.183e+03	1.29	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:39	1.394e+03	1.014e+03	1.38	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:24	1.237e+03	9.649e+02	1.28	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	1.110e+03	1.084e+03	1.02	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	9.583e+02	8.947e+02	1.07	yes	no	1.000
10	Unk	OCDF	42:34	1.393e+03	1.580e+03	0.88	yes	no	1.005
11	Unk	2,3,7,8-TCDD	29:08	1.366e+02	1.804e+02	0.76	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:41	1.015e+03	5.786e+02	1.75	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:47	8.647e+02	7.003e+02	1.23	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:52	8.346e+02	6.887e+02	1.21	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:06	9.331e+02	6.902e+02	1.35	yes	no	1.006
16	Unk	1,2,3,4,6,7,8-HpCDD	39:33	7.767e+02	6.533e+02	1.19	yes	no	1.000
17	Unk	OCDD	42:22	1.111e+03	1.191e+03	0.93	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:20	7.011e+04	8.546e+04	0.82	yes	no	0.992
19	IS	13C-1,2,3,7,8-PeCDF	32:29	1.255e+05	7.675e+04	1.63	yes	no	1.138
20	IS	13C-2,3,4,7,8-PeCDF	33:23	1.203e+05	7.392e+04	1.63	yes	no	1.169
21	IS	13C-1,2,3,4,7,8-HxCDF	36:02	5.273e+04	9.949e+04	0.53	yes	no	0.971
22	IS	13C-1,2,3,6,7,8-HxCDF	36:09	6.093e+04	1.134e+05	0.54	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	5.350e+04	1.009e+05	0.53	yes	no	0.987
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	4.410e+04	8.298e+04	0.53	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	3.871e+04	8.607e+04	0.45	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:02	3.136e+04	7.041e+04	0.45	yes	no	1.079
27	IS	13C-2,3,7,8-TCDD	29:06	4.535e+04	5.779e+04	0.78	yes	no	1.019
28	IS	13C-1,2,3,7,8-PeCDD	33:40	7.238e+04	4.506e+04	1.61	yes	no	1.179
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	5.758e+04	4.344e+04	1.33	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:52	5.699e+04	4.426e+04	1.29	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:33	4.949e+04	4.461e+04	1.11	yes	no	1.066
32	IS	13C-OCDD	42:21	6.564e+04	7.137e+04	0.92	yes	no	1.142
33	RS/RT	13C-1,2,3,4-TCDD	28:33	5.107e+04	6.497e+04	0.79	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:06	5.896e+04	4.551e+04	1.30	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:08	2.548e+02				no	1.020

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XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL HRCC0.5/CS0

Run #1 Filename p227259 Samp: 1 Inj: 1 Acquired: 1-FEB-14 16:59:59
Processed: 6-FEB-14 13:55:241 LAB. ID: 66807

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.34e+04	5.52e+02	7.9e+01	5.39e+04	2.56e+03	2.1e+01
2	1,2,3,7,8-PeCDF	3.16e+05	9.32e+02	3.4e+02	2.09e+05	3.18e+03	6.6e+01
3	2,3,4,7,8-PeCDF	3.27e+05	9.32e+02	3.5e+02	2.06e+05	3.18e+03	6.5e+01
4	1,2,3,4,7,8-HxCDF	3.06e+05	1.21e+03	2.5e+02	2.46e+05	7.44e+02	3.3e+02
5	1,2,3,6,7,8-HxCDF	2.90e+05	1.21e+03	2.4e+02	2.30e+05	7.44e+02	3.1e+02
6	2,3,4,6,7,8-HxCDF	2.91e+05	1.21e+03	2.4e+02	2.07e+05	7.44e+02	2.8e+02
7	1,2,3,7,8,9-HxCDF	2.52e+05	1.21e+03	2.1e+02	2.00e+05	7.44e+02	2.7e+02
8	1,2,3,4,6,7,8-HpCDF	2.33e+05	1.42e+03	1.6e+02	2.19e+05	1.56e+03	1.4e+02
9	1,2,3,4,7,8,9-HpCDF	1.87e+05	1.42e+03	1.3e+02	1.71e+05	1.56e+03	1.1e+02
10	OCDF	2.27e+05	8.76e+02	2.6e+02	2.57e+05	1.82e+03	1.4e+02
11	2,3,7,8-TCDD	2.90e+04	9.76e+02	3.0e+01	3.65e+04	6.92e+02	5.3e+01
12	1,2,3,7,8-PeCDD	2.05e+05	1.90e+03	1.1e+02	1.03e+05	3.00e+02	3.4e+02
13	1,2,3,4,7,8-HxCDD	1.91e+05	8.04e+02	2.4e+02	1.47e+05	9.80e+02	1.5e+02
14	1,2,3,6,7,8-HxCDD	1.80e+05	8.04e+02	2.2e+02	1.44e+05	9.80e+02	1.5e+02
15	1,2,3,7,8,9-HxCDD	1.96e+05	8.04e+02	2.4e+02	1.43e+05	9.80e+02	1.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.57e+05	3.20e+02	4.9e+02	1.28e+05	4.08e+02	3.1e+02
17	OCDD	1.83e+05	1.20e+03	1.5e+02	2.11e+05	1.10e+03	1.9e+02
18	13C-2,3,7,8-TCDF	1.36e+07	1.96e+03	6.9e+03	1.67e+07	1.57e+03	1.1e+04
19	13C-1,2,3,7,8-PeCDF	2.23e+07	4.36e+02	5.1e+04	1.36e+07	7.72e+02	1.8e+04
20	13C-2,3,4,7,8-PeCDF	2.31e+07	4.36e+02	5.3e+04	1.40e+07	7.72e+02	1.8e+04
21	13C-1,2,3,4,7,8-HxCDF	1.11e+07	1.22e+03	9.0e+03	2.11e+07	2.07e+03	1.0e+04
22	13C-1,2,3,6,7,8-HxCDF	1.24e+07	1.22e+03	1.0e+04	2.30e+07	2.07e+03	1.1e+04
23	13C-2,3,4,6,7,8-HxCDF	1.12e+07	1.22e+03	9.2e+03	2.11e+07	2.07e+03	1.0e+04
24	13C-1,2,3,7,8,9-HxCDF	9.01e+06	1.22e+03	7.4e+03	1.69e+07	2.07e+03	8.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	8.36e+06	5.16e+03	1.6e+03	1.86e+07	8.23e+03	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.86e+06	5.16e+03	1.1e+03	1.33e+07	8.23e+03	1.6e+03
27	13C-2,3,7,8-TCDD	9.39e+06	7.01e+03	1.3e+03	1.20e+07	4.06e+03	3.0e+03
28	13C-1,2,3,7,8-PeCDD	1.35e+07	7.48e+02	1.8e+04	8.34e+06	5.84e+02	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	1.23e+07	2.17e+03	5.7e+03	9.31e+06	1.34e+03	6.9e+03
30	13C-1,2,3,6,7,8-HxCDD	1.17e+07	2.17e+03	5.4e+03	9.14e+06	1.34e+03	6.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.70e+06	9.76e+02	9.9e+03	8.99e+06	3.20e+02	2.8e+04
32	13C-OCDD	1.15e+07	2.06e+03	5.6e+03	1.23e+07	2.38e+03	5.2e+03
33	13C-1,2,3,4-TCDD	1.04e+07	7.01e+03	1.5e+03	1.31e+07	4.06e+03	3.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.20e+07	2.17e+03	5.5e+03	9.35e+06	1.34e+03	7.0e+03
35	37Cl-2,3,7,8-TCDD	5.07e+04	2.04e+03	2.5e+01			

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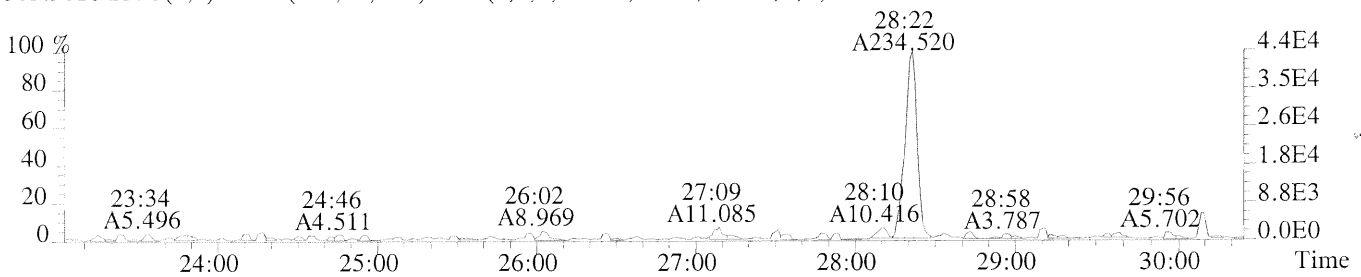
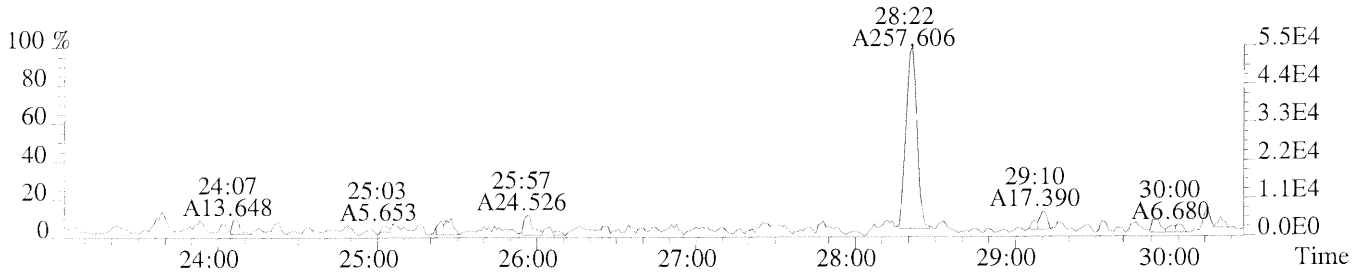
XLSN

File:P227259 #1-464 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

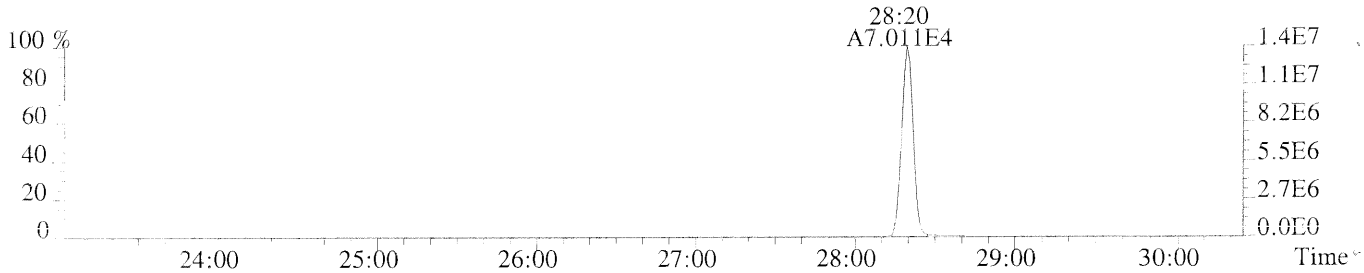
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



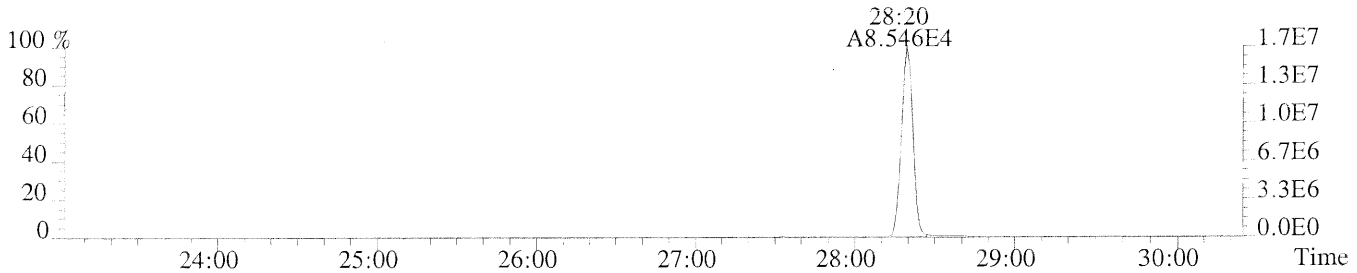
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2560.0,1.00%,F,T)



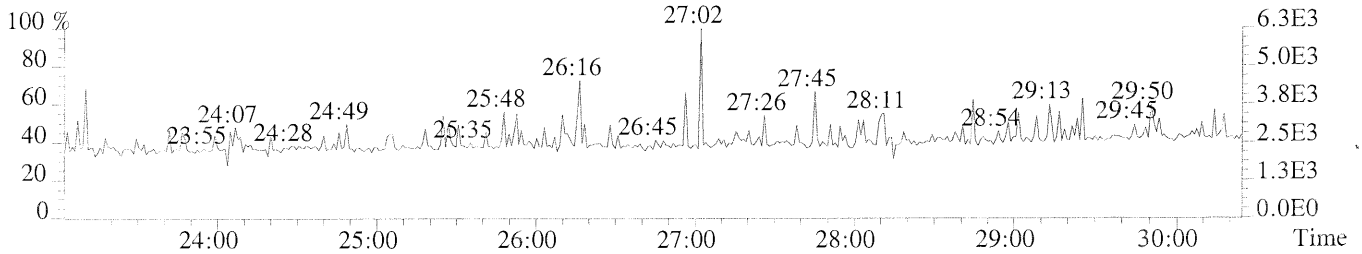
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1964.0,1.00%,F,T)



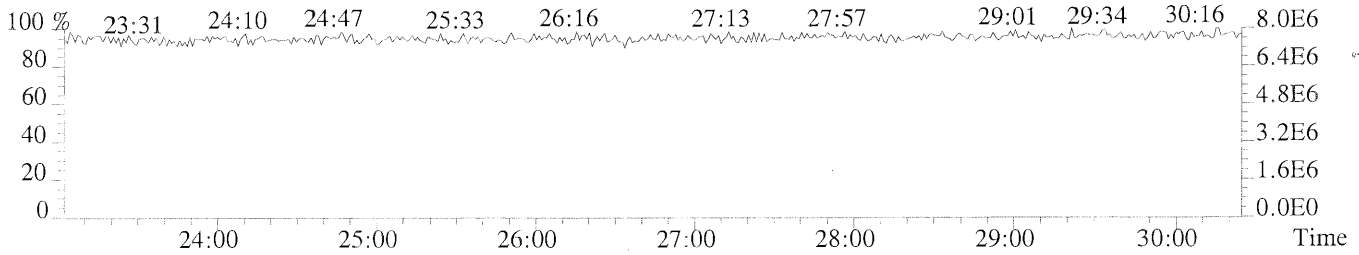
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1572.0,1.00%,F,T)



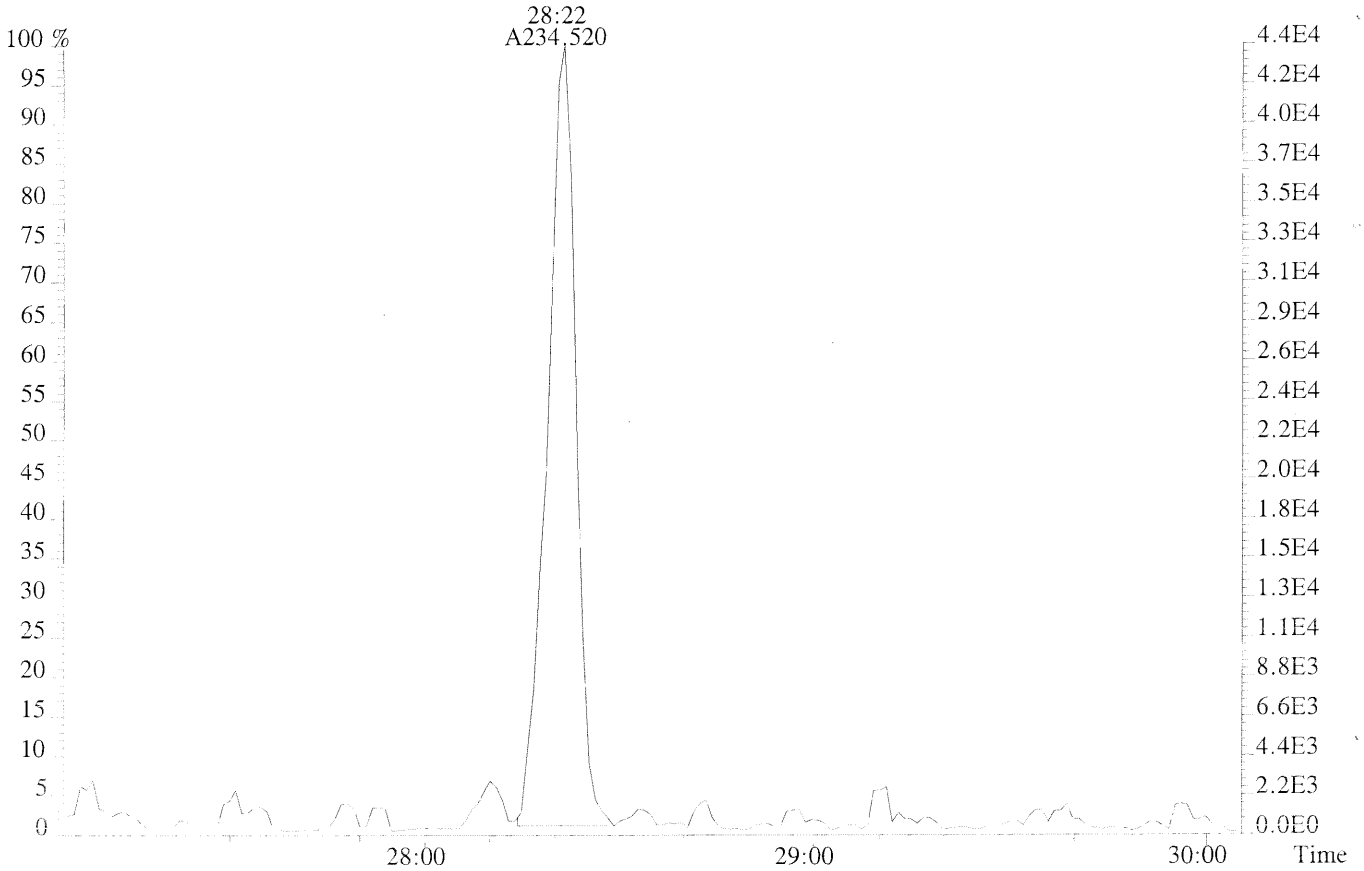
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



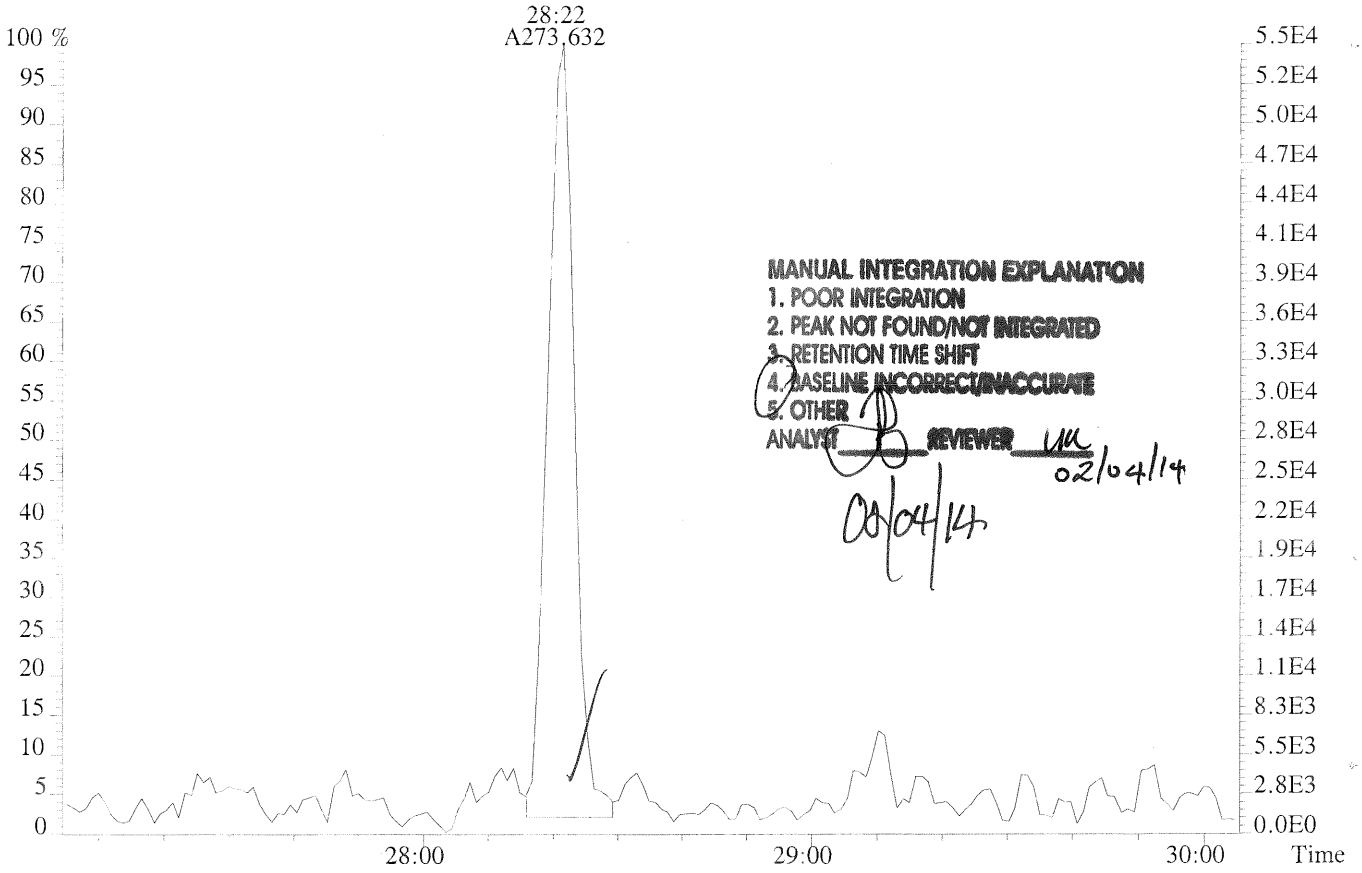
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P227259 #1-464 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0)



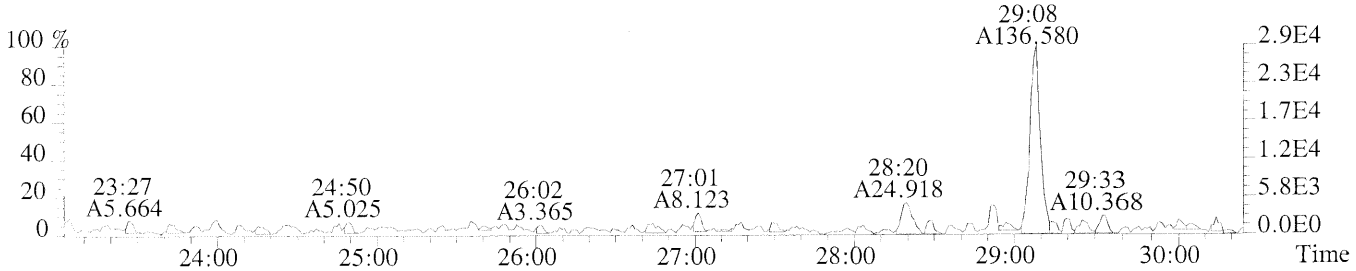
305.8987 SMO(1,3) BSUB(128,15,-3.0)



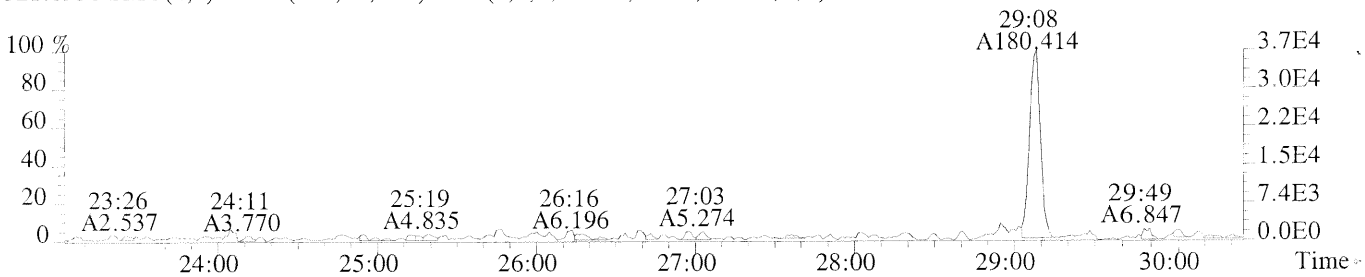
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST _____ REVIEWER _____
02/04/14
02/04/14

File:P227259 #1-464 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

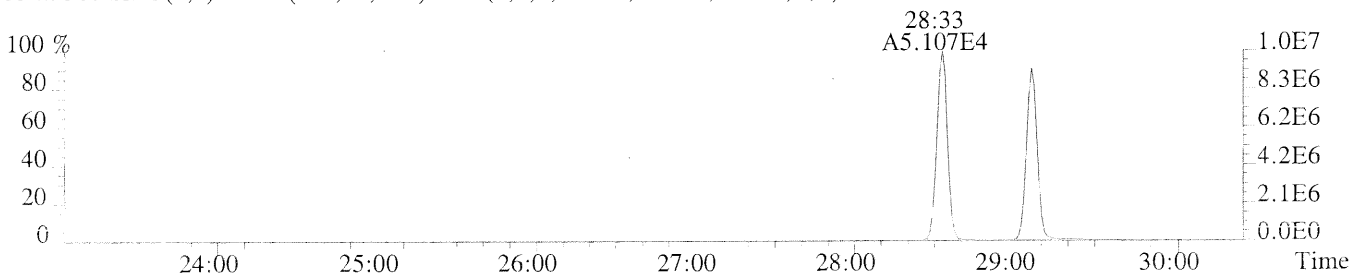
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



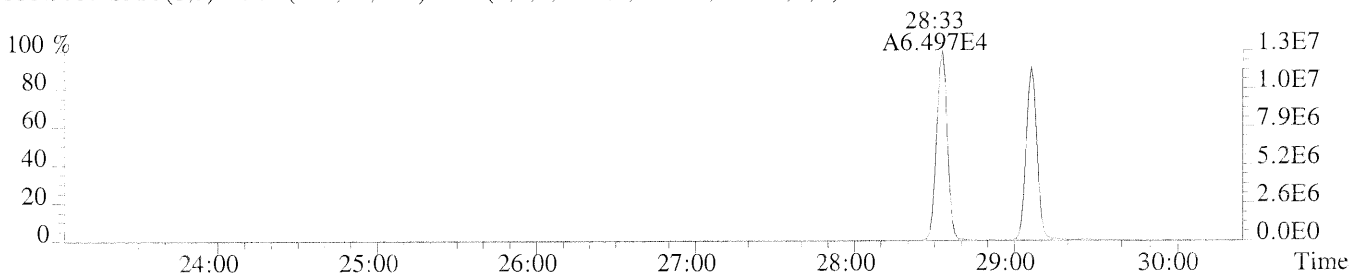
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



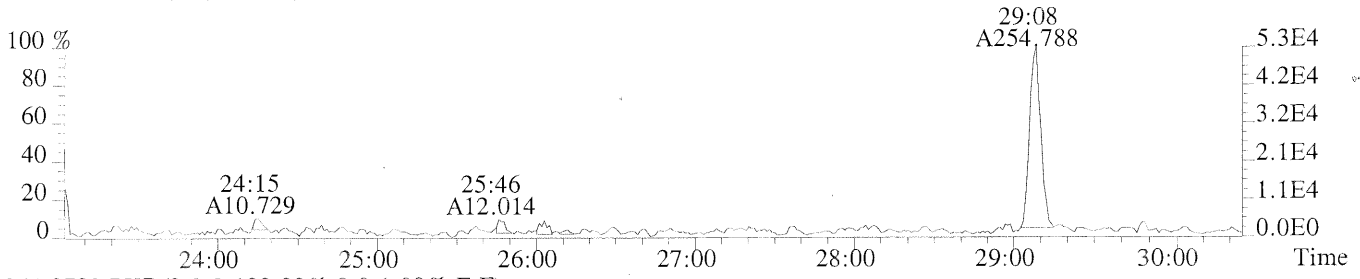
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7012.0,1.00%,F,T)



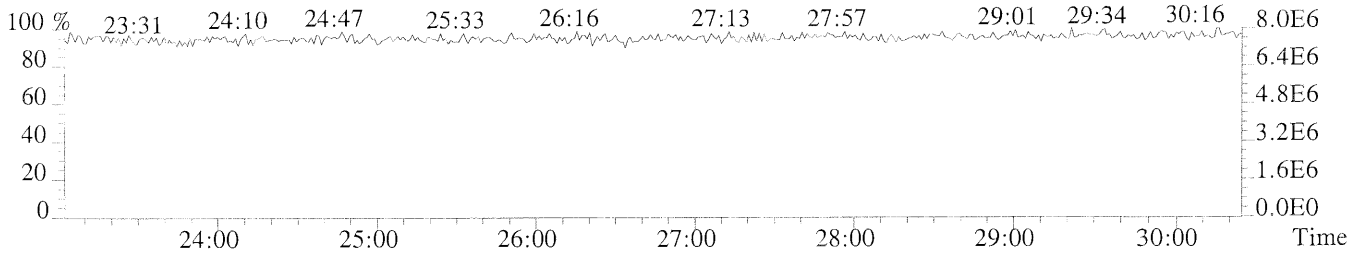
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4064.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)

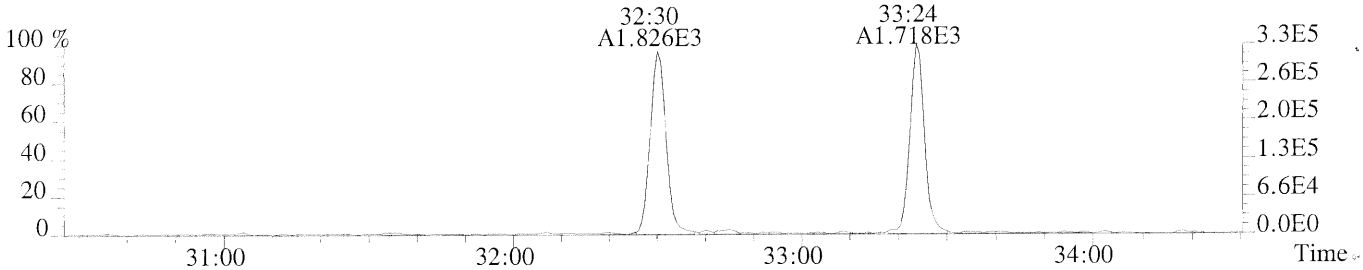


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

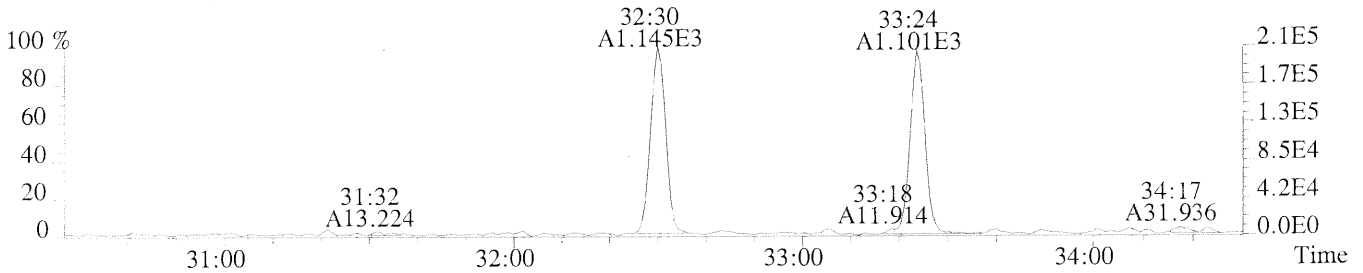


File:P227259 #1-369 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

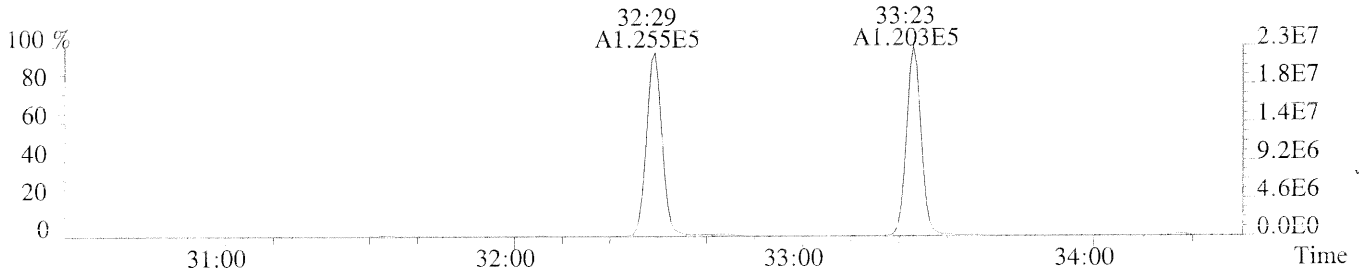
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



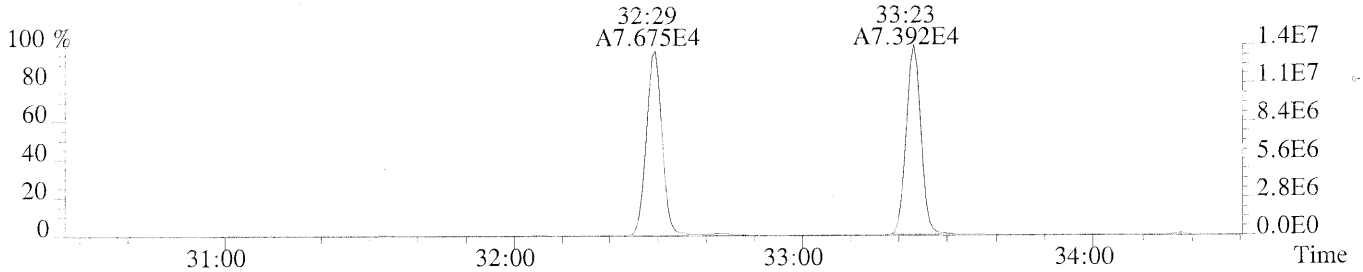
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3176.0,1.00%,F,T)



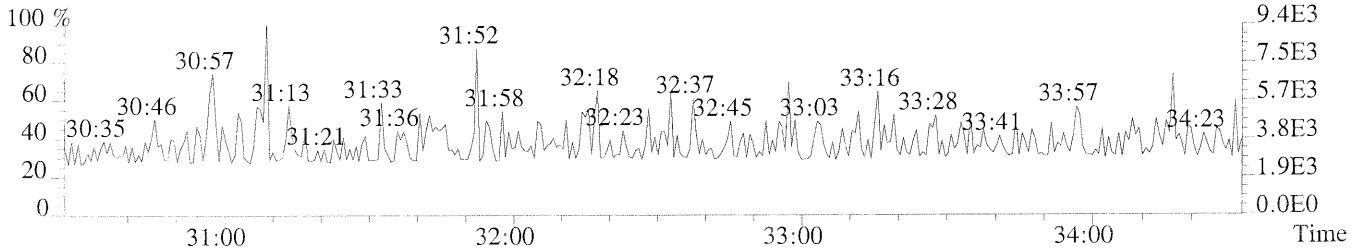
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



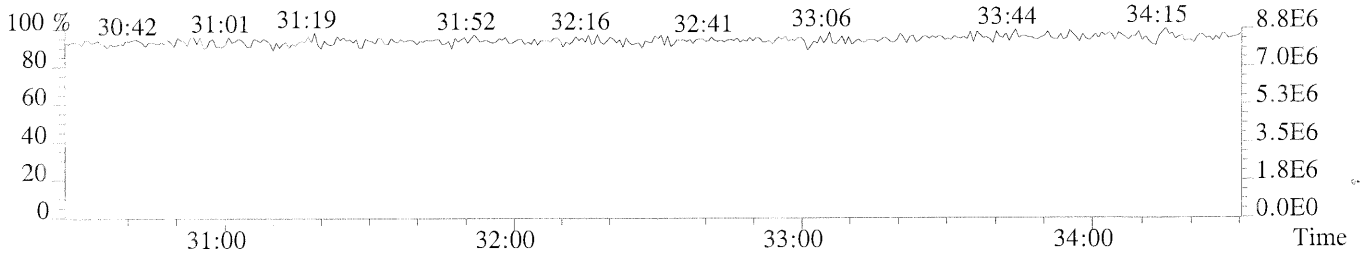
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



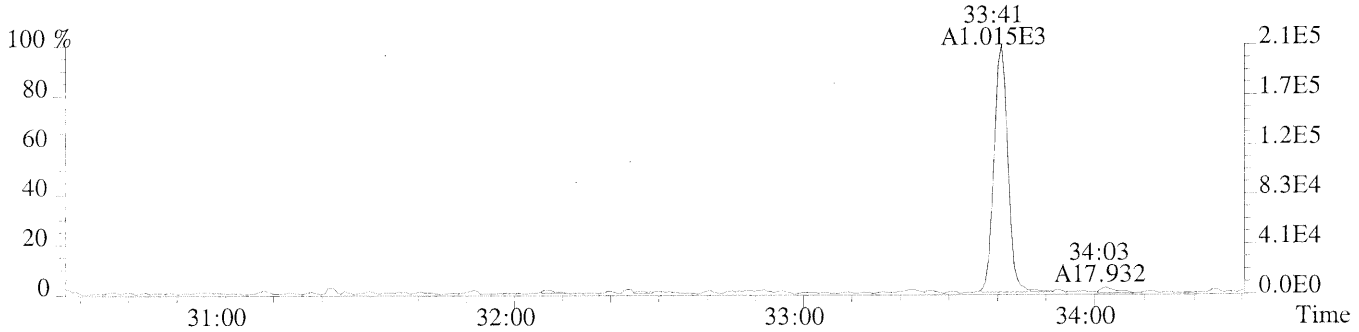
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



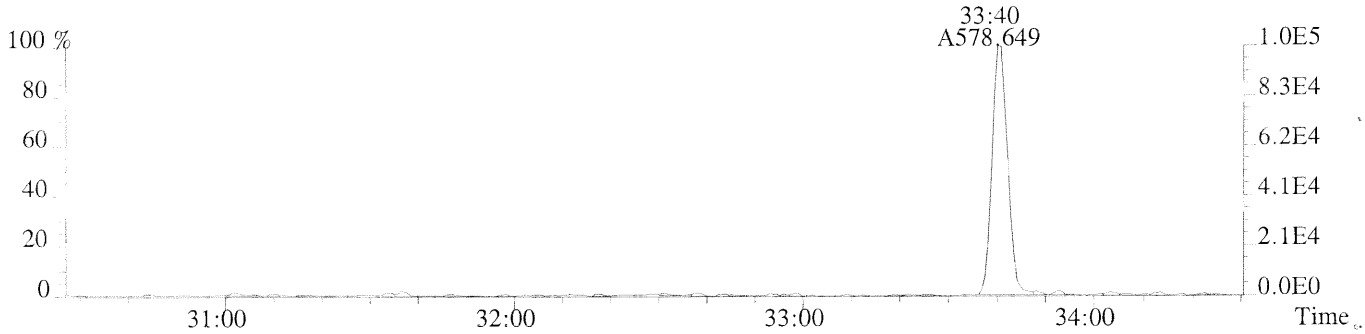
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



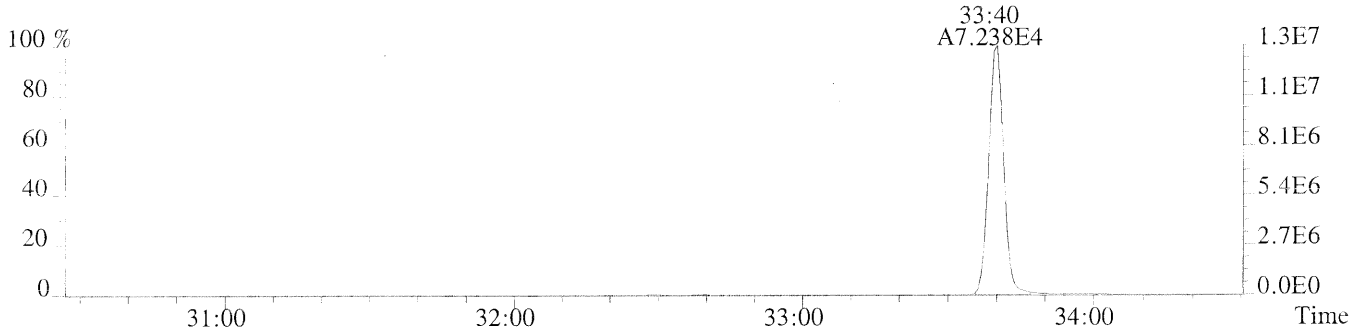
File:P227259 #1-369 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1904.0,1.00%,F,T)



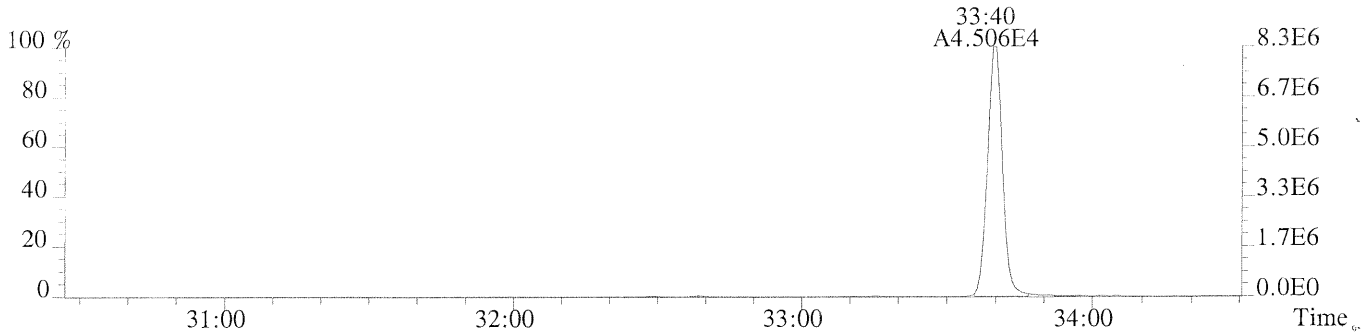
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



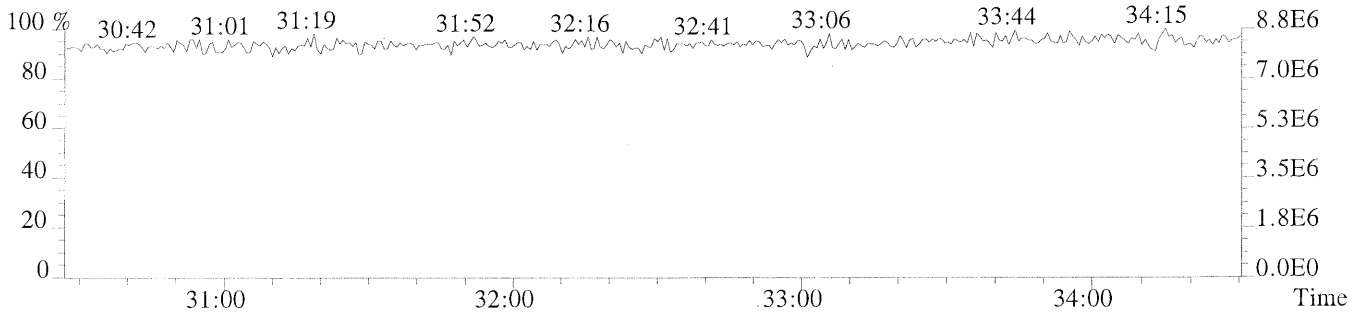
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)

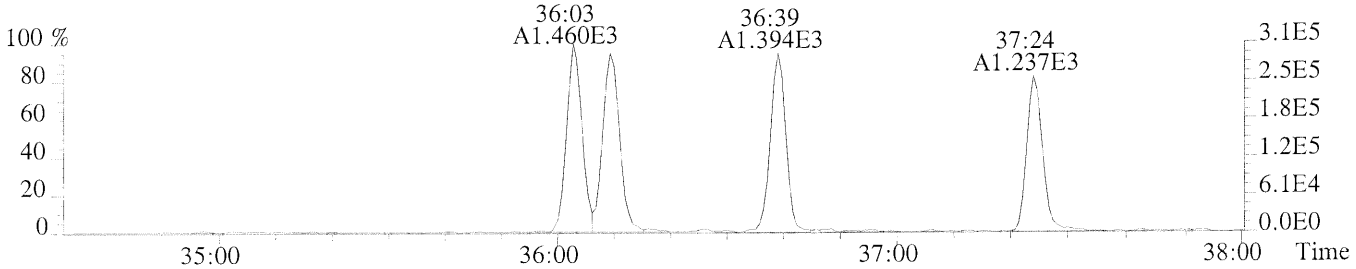


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

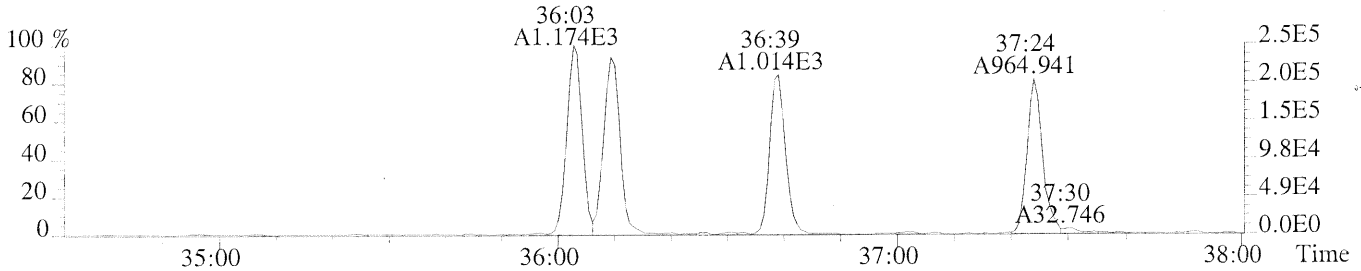


File:P227259 #1-315 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

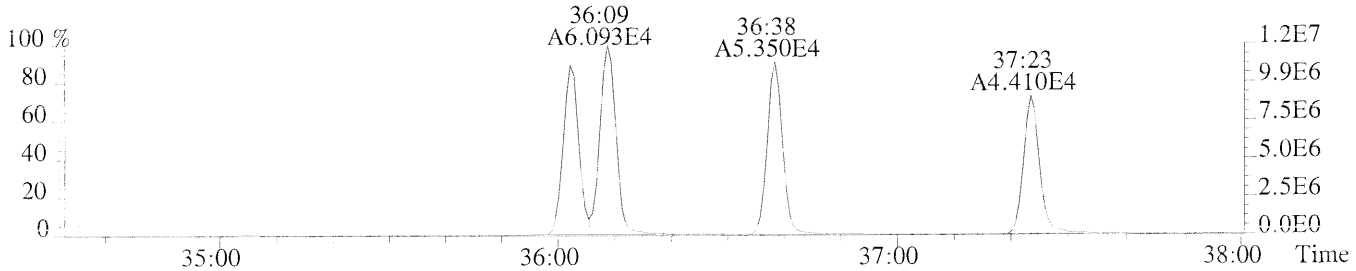
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1212.0,0.40%,F,T)



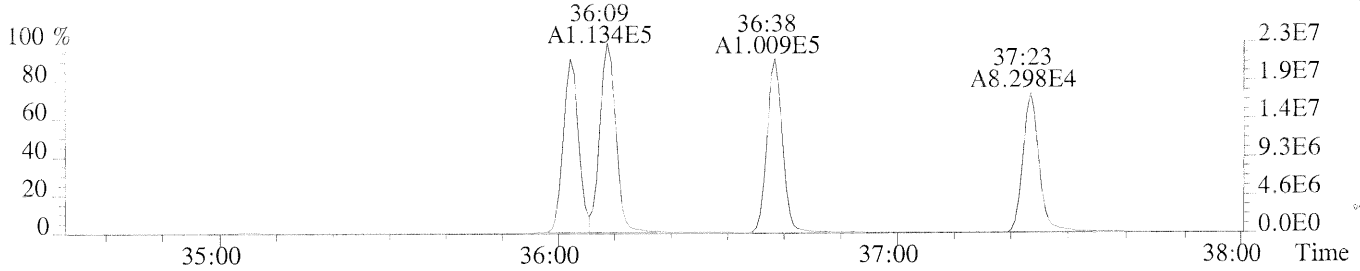
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



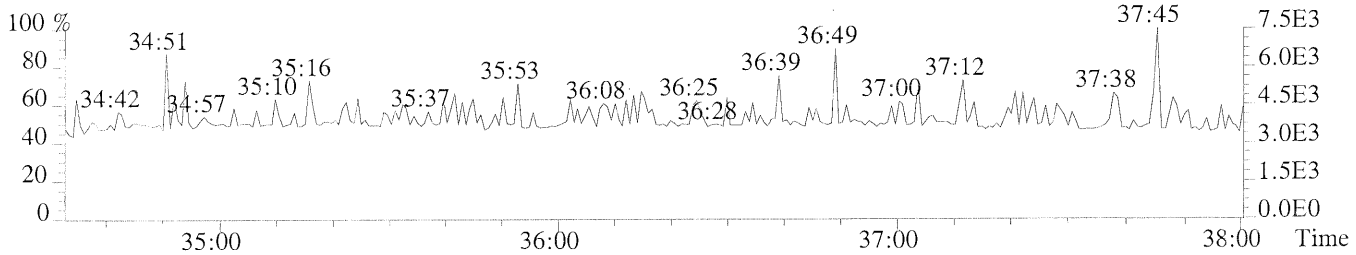
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



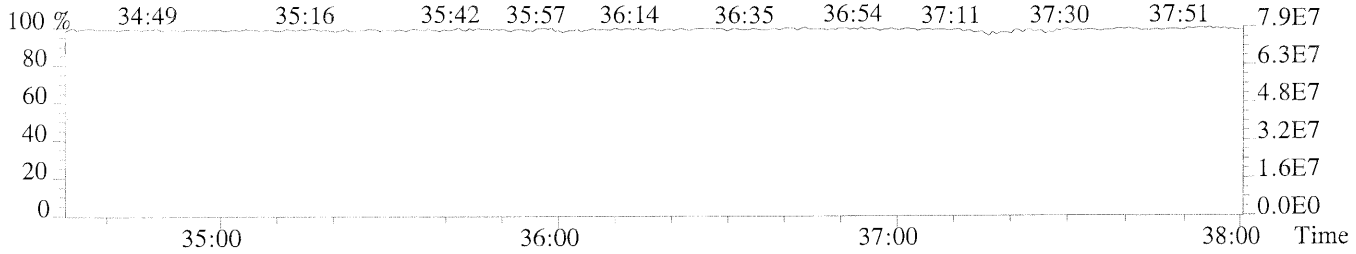
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2072.0,0.40%,F,T)



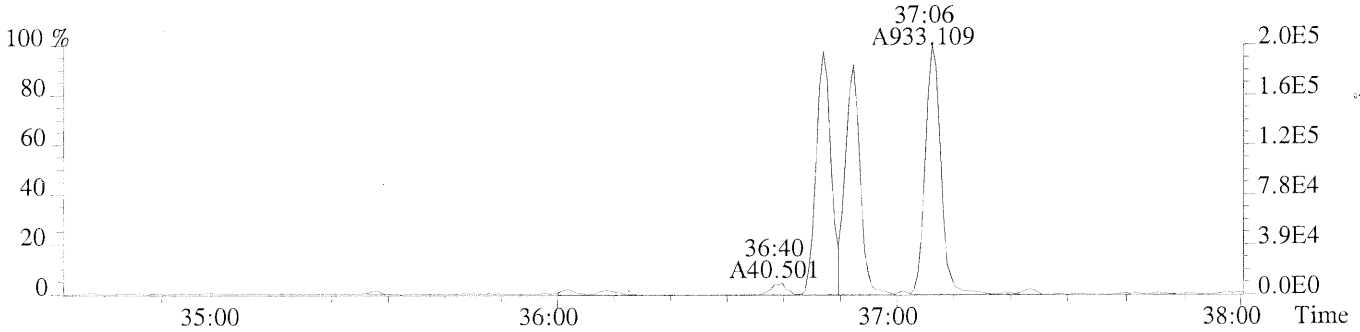
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



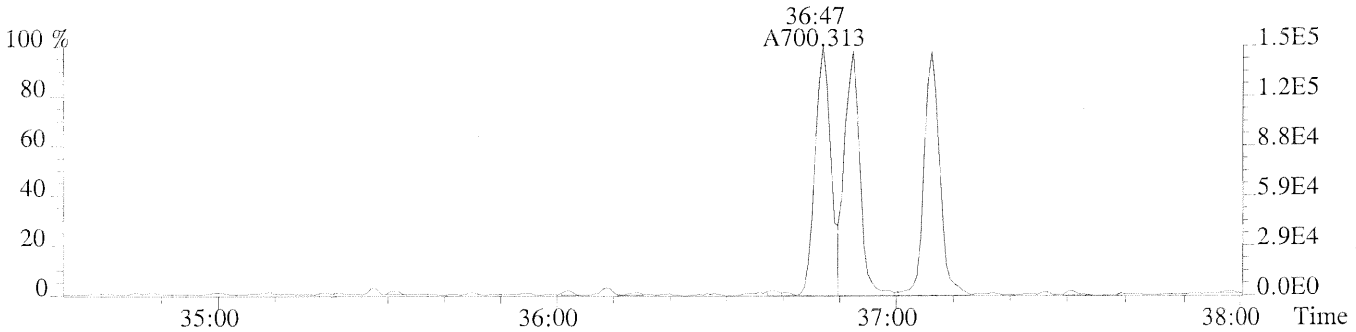
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



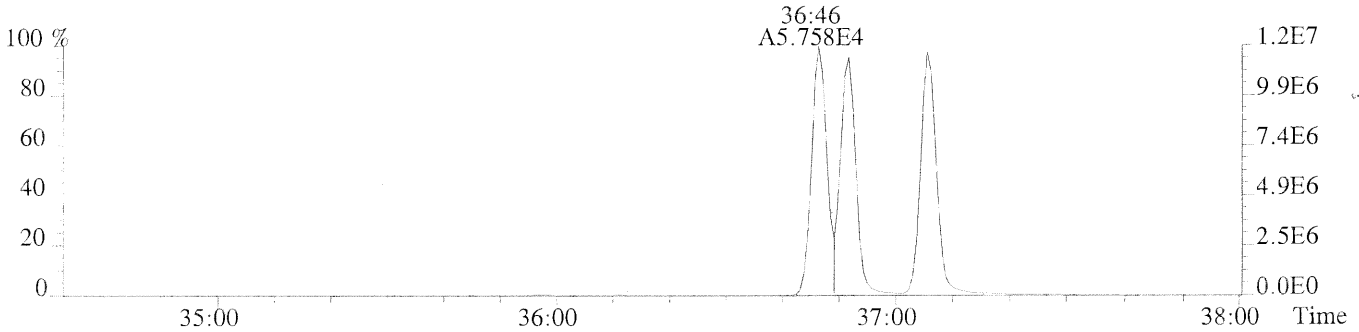
File:P227259 #1-315 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



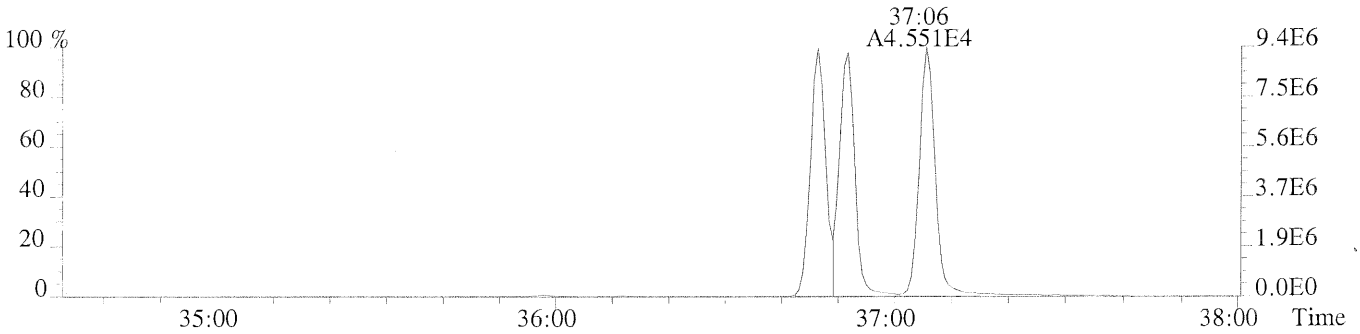
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



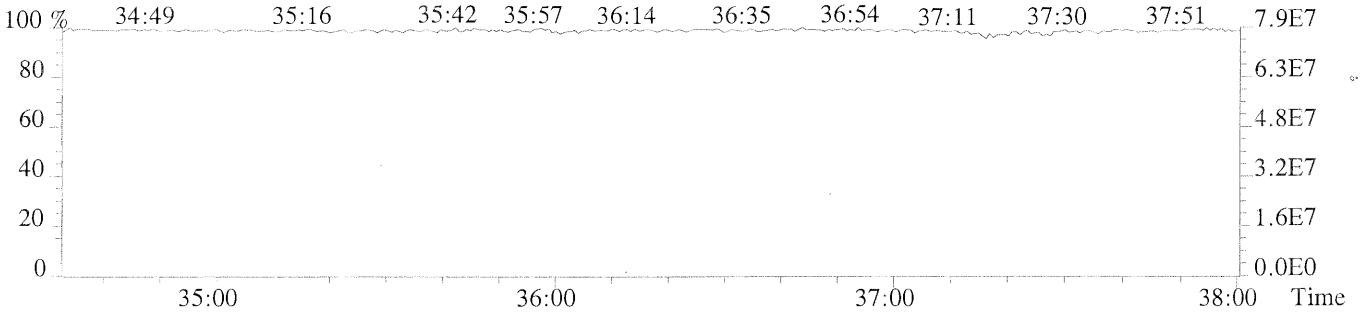
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2168.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1340.0,0.40%,F,T)

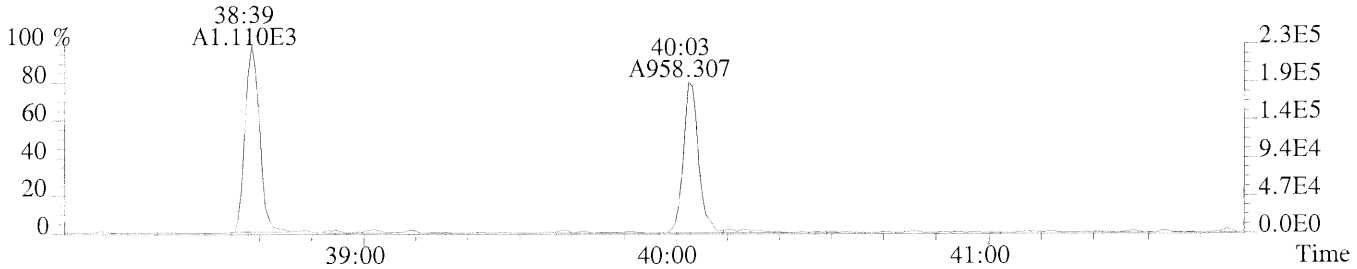


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

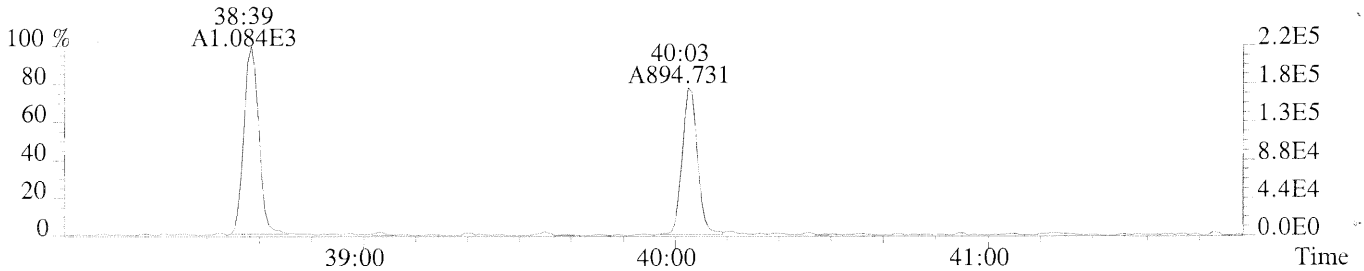


File:P227259 #1-342 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

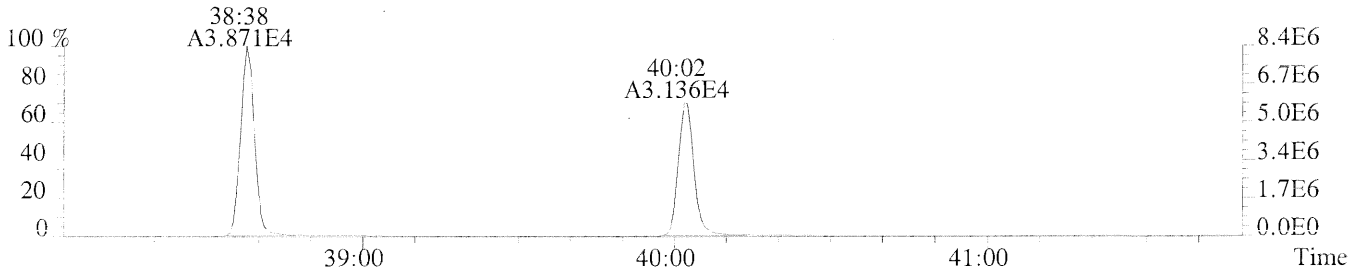
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1420.0,0.50%,F,T)



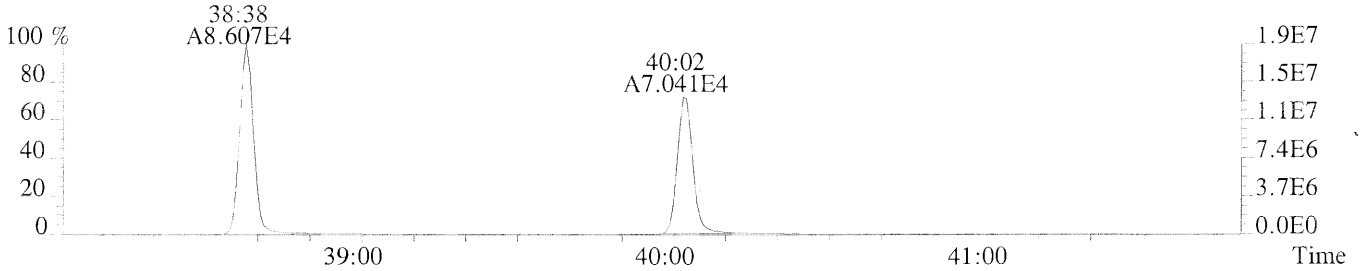
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.50%,F,T)



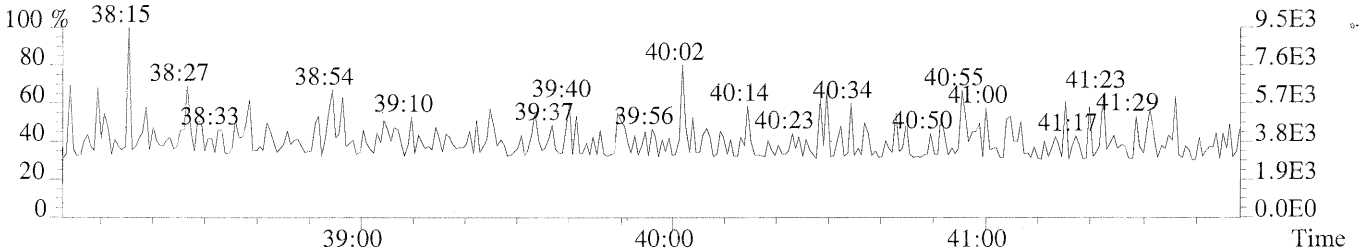
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5156.0,0.50%,F,T)



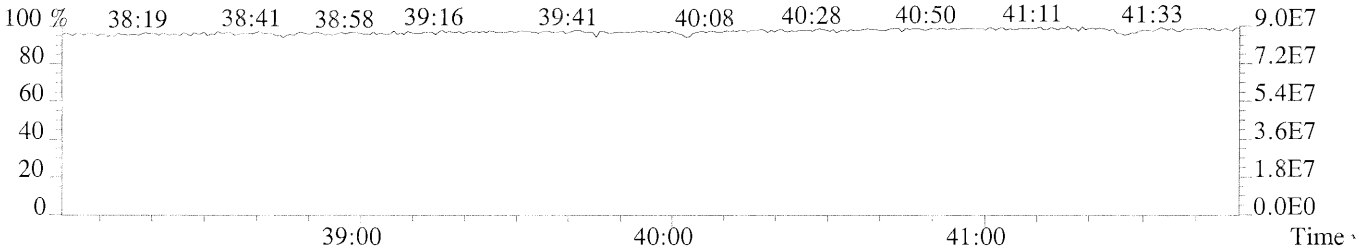
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8224.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

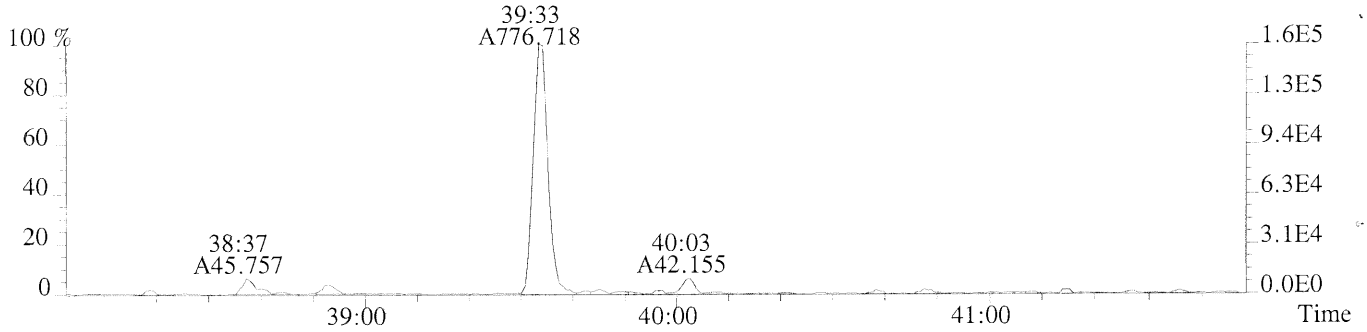


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

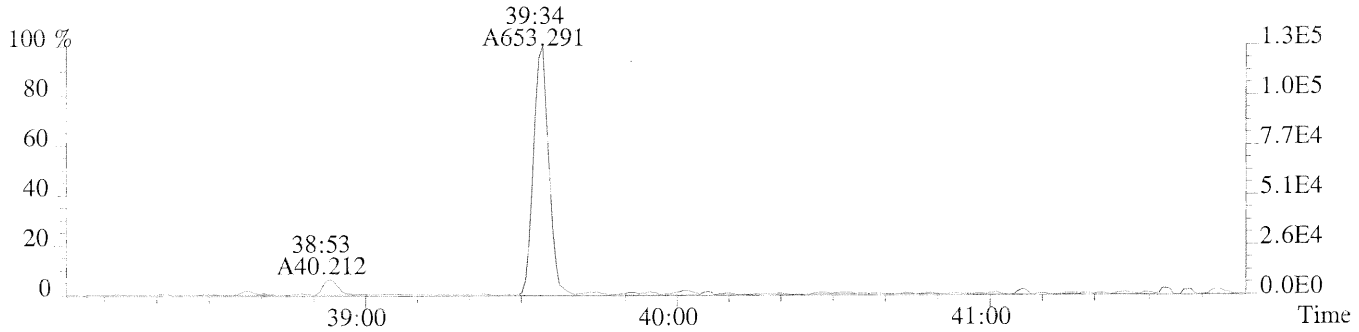


File:P227259 #1-342 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

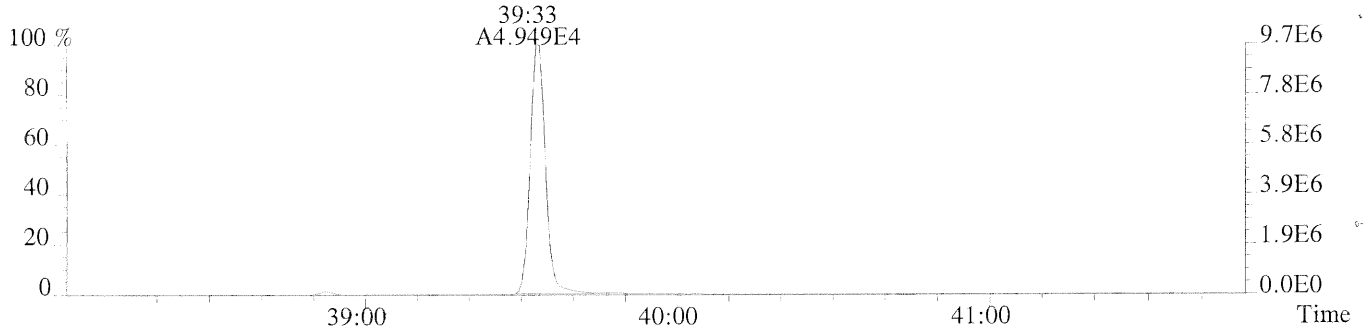
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



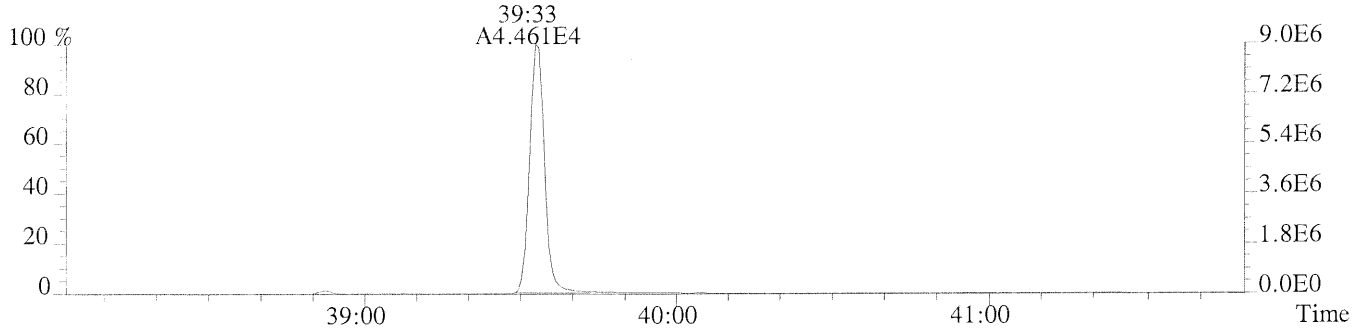
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



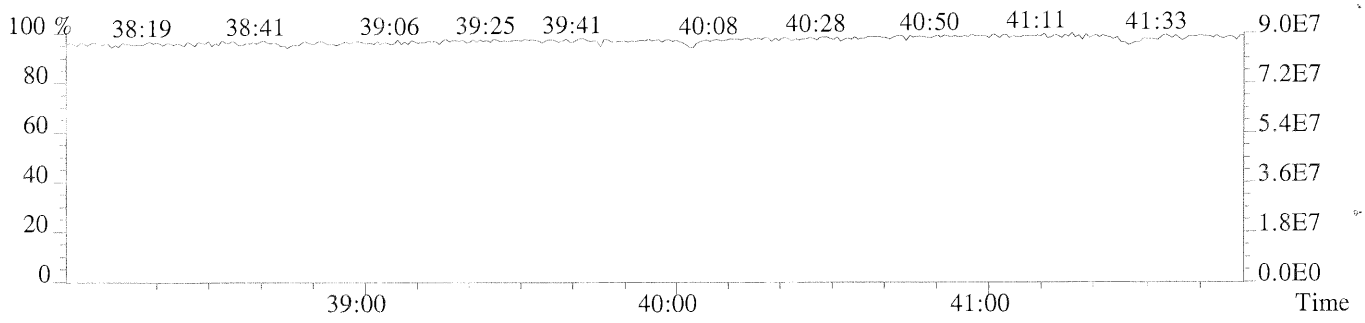
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)



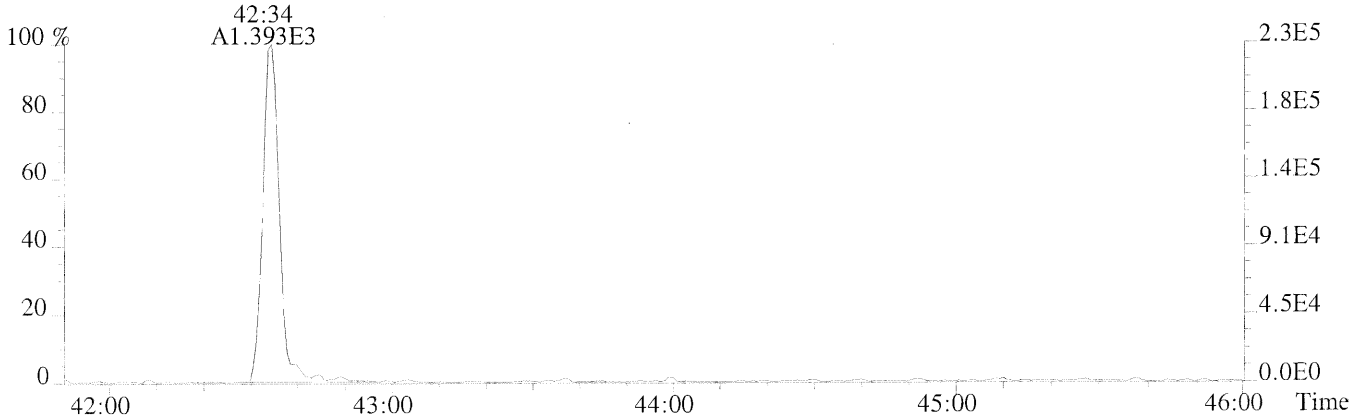
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



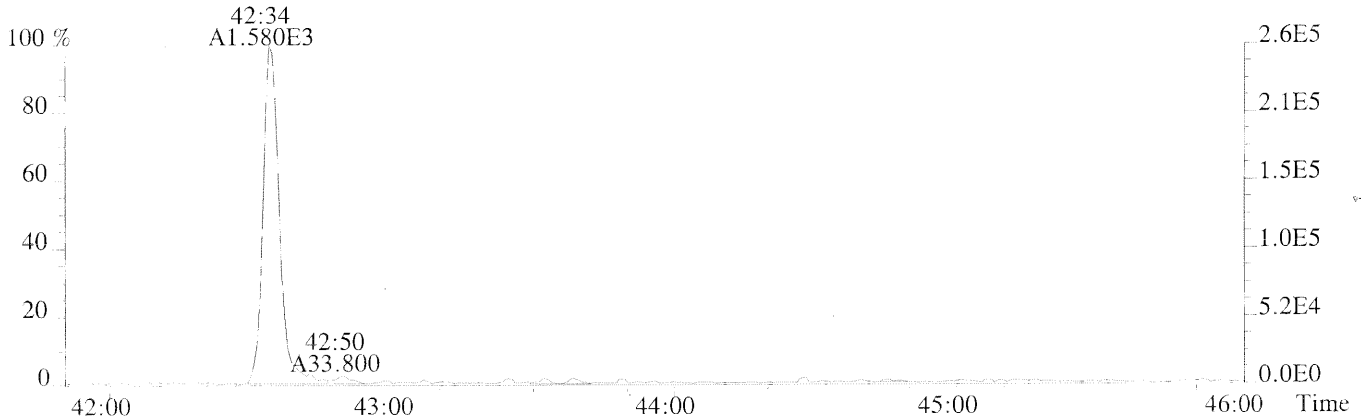
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



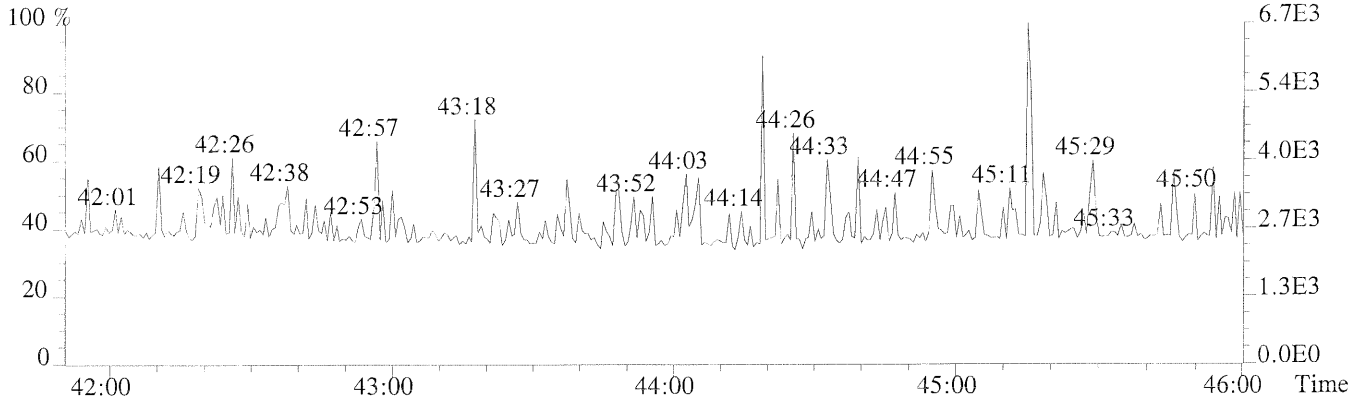
File:P227259 #1-383 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,876.0,0.40%,F,T)



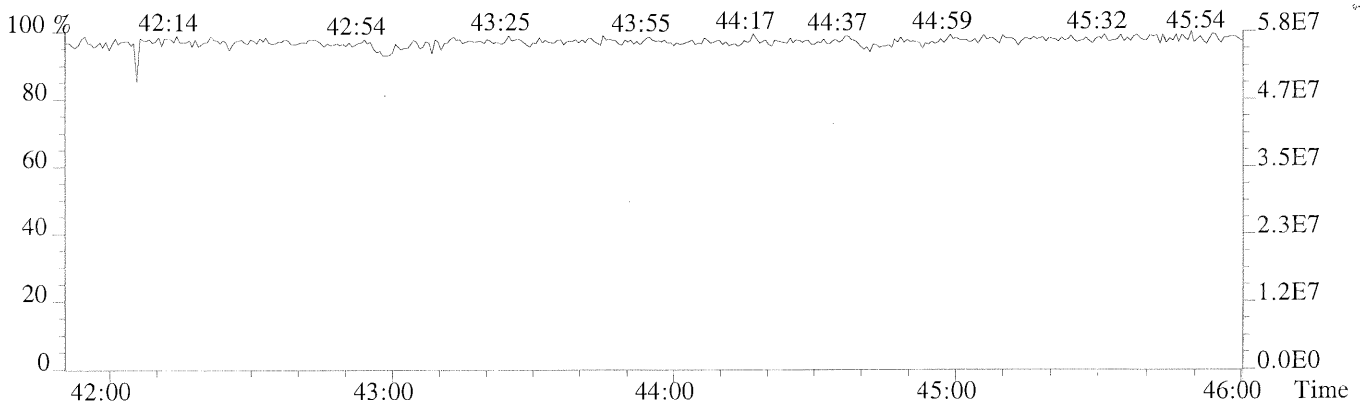
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

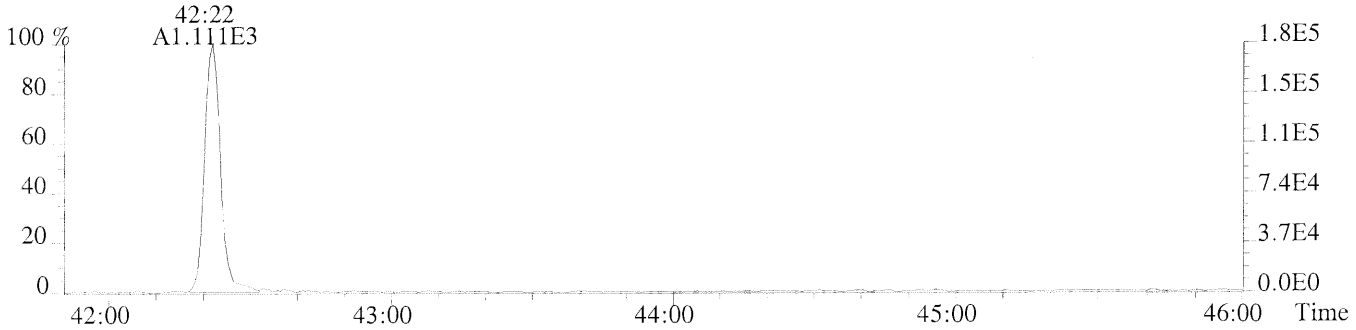


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

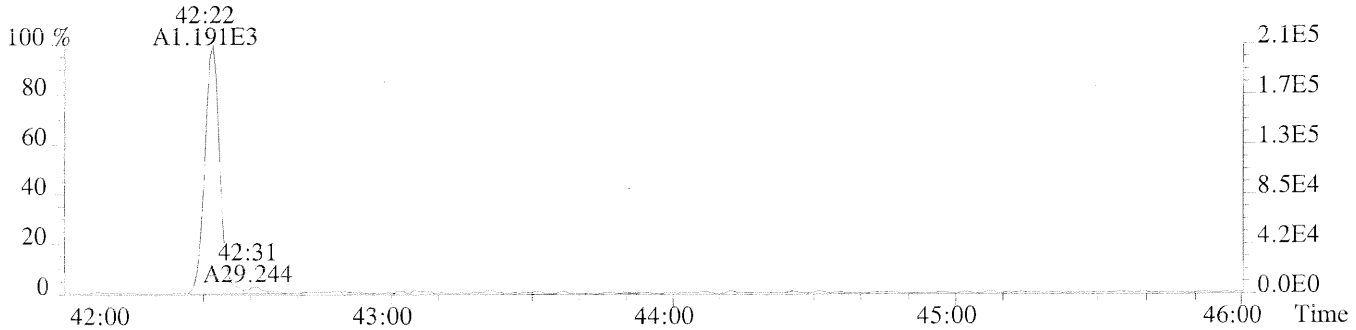


File:P227259 #1-383 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

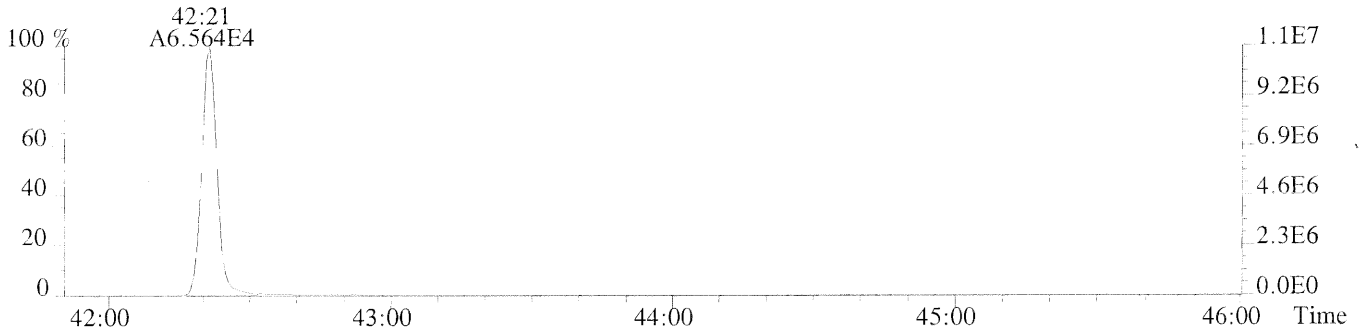
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1200.0,0.40%,F,T)



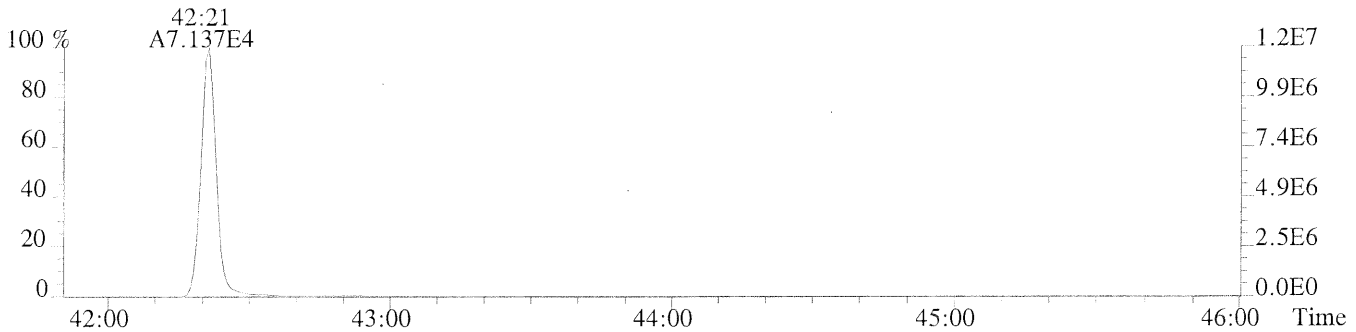
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1096.0,0.40%,F,T)



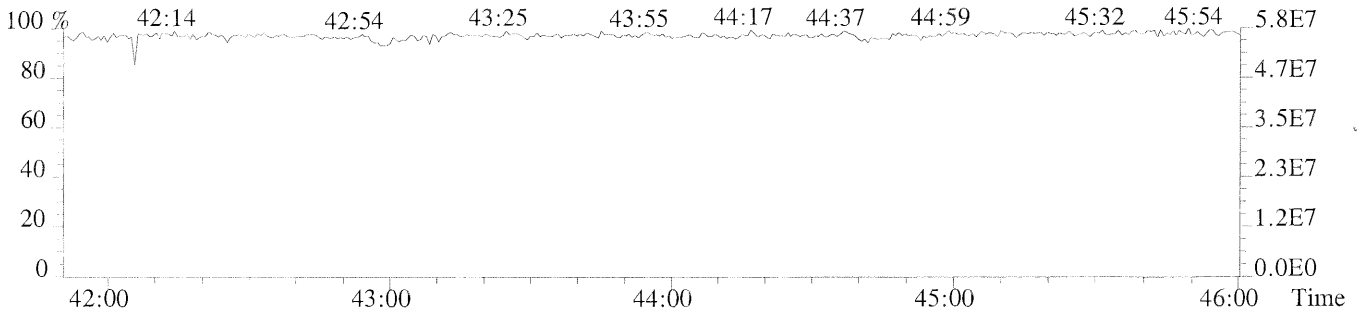
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2060.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2380.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
ICAL HRCC1/CS1

Run #2 Filename P227260 #1 Samp: 1 Inj: 1 Acquired: 1-FEB-14 17:48:05
Processed: 4-FEB-14 15:25:53 LAB. ID: 66798

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:20	3.619e+02	4.542e+02	0.80	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:29	3.645e+03	2.327e+03	1.57	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:23	3.362e+03	2.214e+03	1.52	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:02	3.004e+03	2.493e+03	1.20	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:09	3.031e+03	2.480e+03	1.22	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:38	2.668e+03	2.222e+03	1.20	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:23	2.301e+03	1.921e+03	1.20	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	2.253e+03	2.392e+03	0.94	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	1.863e+03	1.637e+03	1.14	yes	no	1.000
10	Unk	OCDF	42:33	2.899e+03	3.332e+03	0.87	yes	no	1.005
11	Unk	2,3,7,8-TCDD	29:06	2.138e+02	2.961e+02	0.72	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:40	2.053e+03	1.349e+03	1.52	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:46	1.818e+03	1.323e+03	1.37	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:52	1.761e+03	1.307e+03	1.35	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:06	1.795e+03	1.369e+03	1.31	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:33	1.489e+03	1.354e+03	1.10	yes	no	1.000
17	Unk	OCDD	42:21	2.317e+03	2.591e+03	0.89	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:19	7.155e+04	8.629e+04	0.83	yes	no	0.992
19	IS	13C-1,2,3,7,8-PeCDF	32:28	1.294e+05	7.833e+04	1.65	yes	no	1.138
20	IS	13C-2,3,4,7,8-PeCDF	33:22	1.225e+05	7.560e+04	1.62	yes	no	1.169
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	5.489e+04	1.015e+05	0.54	yes	no	0.971
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	6.176e+04	1.161e+05	0.53	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	5.460e+04	1.029e+05	0.53	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	4.584e+04	8.558e+04	0.54	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:37	4.043e+04	9.056e+04	0.45	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:02	3.311e+04	7.398e+04	0.45	yes	no	1.080
27	IS	13C-2,3,7,8-TCDD	29:05	4.615e+04	5.885e+04	0.78	yes	no	1.019
28	IS	13C-1,2,3,7,8-PeCDD	33:39	7.475e+04	4.705e+04	1.59	yes	no	1.179
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	5.774e+04	4.477e+04	1.29	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	5.785e+04	4.517e+04	1.28	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:33	5.178e+04	4.682e+04	1.11	yes	no	1.067
32	IS	13C-OCDD	42:20	6.911e+04	7.505e+04	0.92	yes	no	1.142
33	RS/RT	13C-1,2,3,4-TCDD	28:32	5.107e+04	6.514e+04	0.78	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	6.167e+04	4.696e+04	1.31	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:06	5.386e+02				no	1.020

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XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL HRCC1/CS1

Run #2 Filename P227260 Samp: 1 Inj: 1 Acquired: 1-FEB-14 17:48:05
Processed: 4-FEB-14 15:25:531 LAB. ID: 66798

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.92e+04	4.32e+02	1.6e+02	8.28e+04	2.99e+03	2.8e+01
2	1,2,3,7,8-PeCDF	6.68e+05	5.56e+02	1.2e+03	4.11e+05	2.67e+03	1.5e+02
3	2,3,4,7,8-PeCDF	6.28e+05	5.56e+02	1.1e+03	4.07e+05	2.67e+03	1.5e+02
4	1,2,3,4,7,8-HxCDF	6.15e+05	6.92e+02	8.9e+02	5.15e+05	4.56e+02	1.1e+03
5	1,2,3,6,7,8-HxCDF	5.83e+05	6.92e+02	8.4e+02	4.92e+05	4.56e+02	1.1e+03
6	2,3,4,6,7,8-HxCDF	5.54e+05	6.92e+02	8.0e+02	4.60e+05	4.56e+02	1.0e+03
7	1,2,3,7,8,9-HxCDF	4.69e+05	6.92e+02	6.8e+02	3.81e+05	4.56e+02	8.4e+02
8	1,2,3,4,6,7,8-HpCDF	4.76e+05	1.23e+03	3.9e+02	5.13e+05	1.98e+03	2.6e+02
9	1,2,3,4,7,8,9-HpCDF	3.36e+05	1.23e+03	2.7e+02	2.96e+05	1.98e+03	1.5e+02
10	OCDF	4.85e+05	2.21e+03	2.2e+02	5.56e+05	2.22e+03	2.5e+02
11	2,3,7,8-TCDD	4.46e+04	1.28e+03	3.5e+01	5.94e+04	8.60e+02	6.9e+01
12	1,2,3,7,8-PeCDD	3.60e+05	1.50e+03	2.4e+02	2.42e+05	5.32e+02	4.6e+02
13	1,2,3,4,7,8-HxCDD	3.97e+05	7.88e+02	5.0e+02	2.89e+05	8.24e+02	3.5e+02
14	1,2,3,6,7,8-HxCDD	3.60e+05	7.88e+02	4.6e+02	2.70e+05	8.24e+02	3.3e+02
15	1,2,3,7,8,9-HxCDD	3.51e+05	7.88e+02	4.5e+02	2.68e+05	8.24e+02	3.3e+02
16	1,2,3,4,6,7,8-HpCDD	2.86e+05	4.96e+02	5.8e+02	2.70e+05	2.52e+02	1.1e+03
17	OCDD	3.98e+05	8.64e+02	4.6e+02	4.46e+05	1.26e+03	3.5e+02
18	13C-2,3,7,8-TCDF	1.38e+07	1.37e+03	1.0e+04	1.67e+07	1.52e+03	1.1e+04
19	13C-1,2,3,7,8-PeCDF	2.25e+07	1.05e+03	2.2e+04	1.38e+07	1.27e+03	1.1e+04
20	13C-2,3,4,7,8-PeCDF	2.28e+07	1.05e+03	2.2e+04	1.42e+07	1.27e+03	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	1.15e+07	7.72e+02	1.5e+04	2.13e+07	1.41e+03	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	1.23e+07	7.72e+02	1.6e+04	2.31e+07	1.41e+03	1.6e+04
23	13C-2,3,4,6,7,8-HxCDF	1.12e+07	7.72e+02	1.5e+04	2.11e+07	1.41e+03	1.5e+04
24	13C-1,2,3,7,8,9-HxCDF	9.00e+06	7.72e+02	1.2e+04	1.68e+07	1.41e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	8.52e+06	2.64e+03	3.2e+03	1.90e+07	9.86e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.12e+06	2.64e+03	2.3e+03	1.34e+07	9.86e+03	1.4e+03
27	13C-2,3,7,8-TCDD	9.45e+06	7.75e+03	1.2e+03	1.20e+07	3.64e+03	3.3e+03
28	13C-1,2,3,7,8-PeCDD	1.39e+07	8.00e+02	1.7e+04	8.72e+06	8.00e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	1.23e+07	1.84e+03	6.7e+03	9.61e+06	1.05e+03	9.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.17e+07	1.84e+03	6.4e+03	9.10e+06	1.05e+03	8.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.01e+07	9.40e+02	1.1e+04	9.05e+06	6.40e+02	1.4e+04
32	13C-OCDD	1.15e+07	5.78e+03	2.0e+03	1.25e+07	5.86e+03	2.1e+03
33	13C-1,2,3,4-TCDD	1.03e+07	7.75e+03	1.3e+03	1.32e+07	3.64e+03	3.6e+03
34	13C-1,2,3,7,8,9-HxCDD	1.21e+07	1.84e+03	6.6e+03	9.31e+06	1.05e+03	8.9e+03
35	37Cl-2,3,7,8-TCDD	1.03e+05	1.88e+03	5.5e+01			

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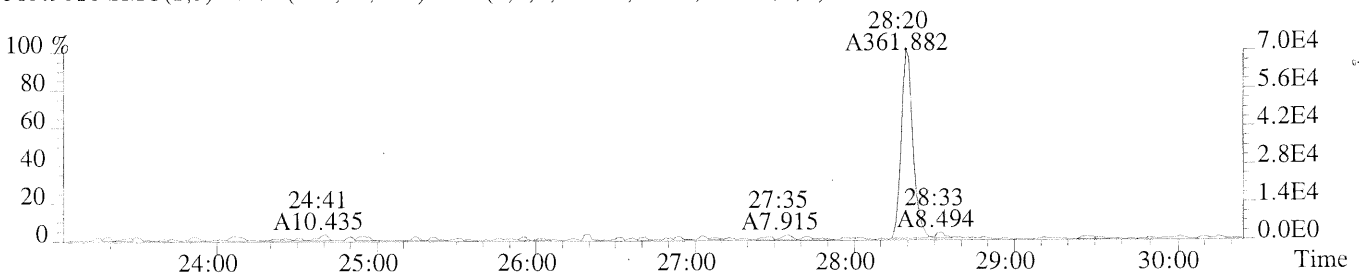
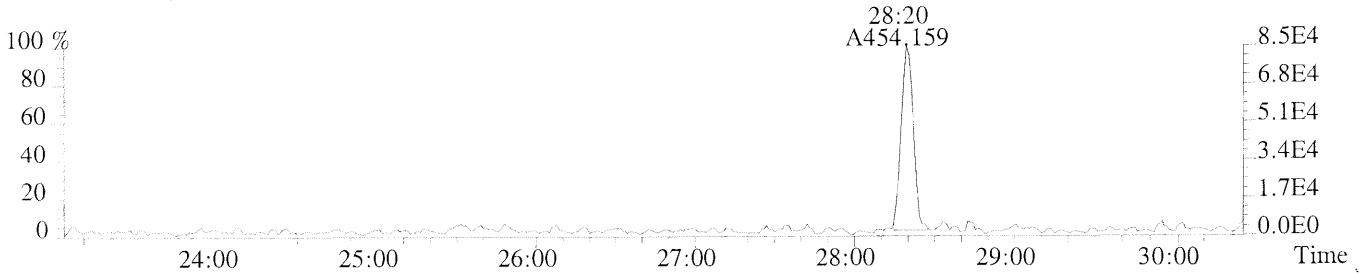
XLSN

File:P227260 #1-464 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

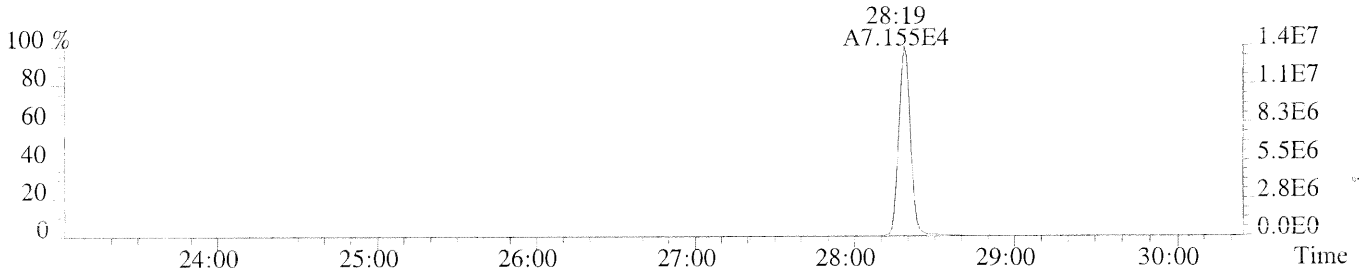
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



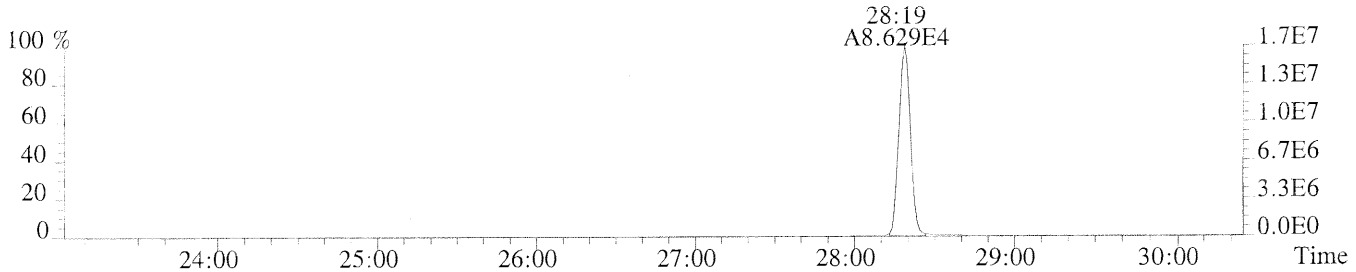
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2992.0,1.00%,F,T)



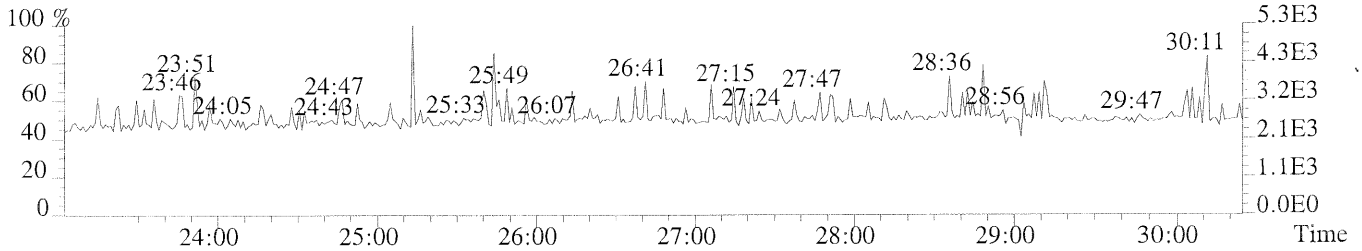
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



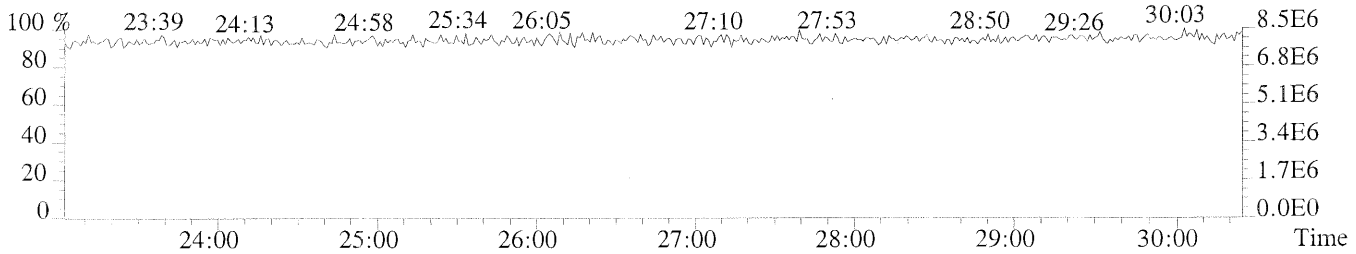
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

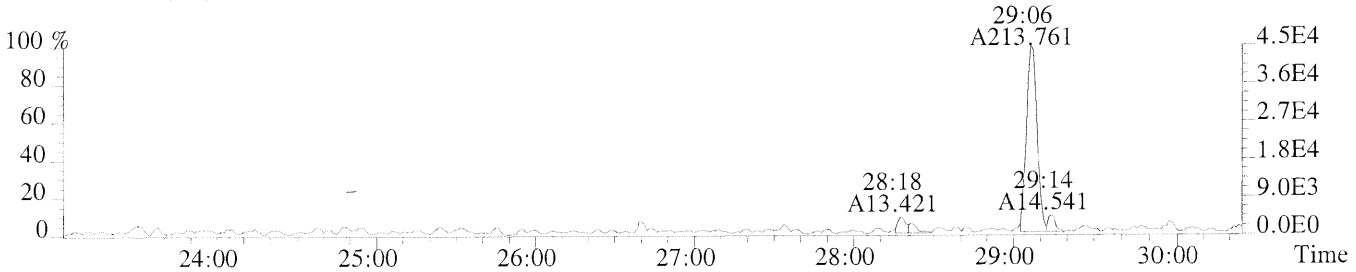


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

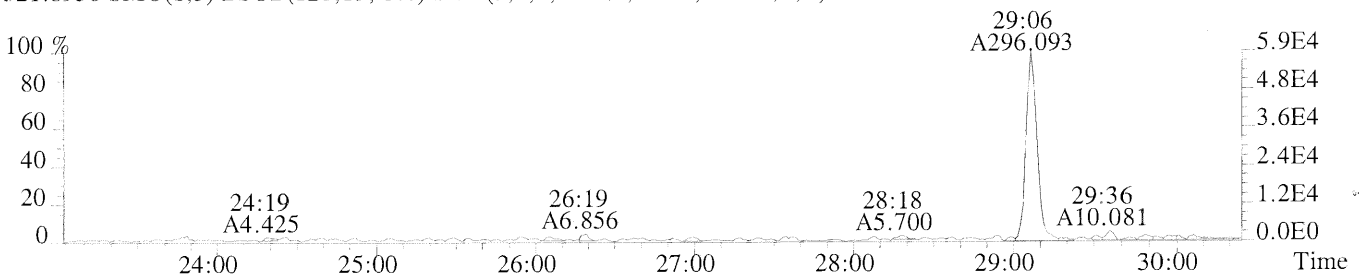


File:P227260 #1-464 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

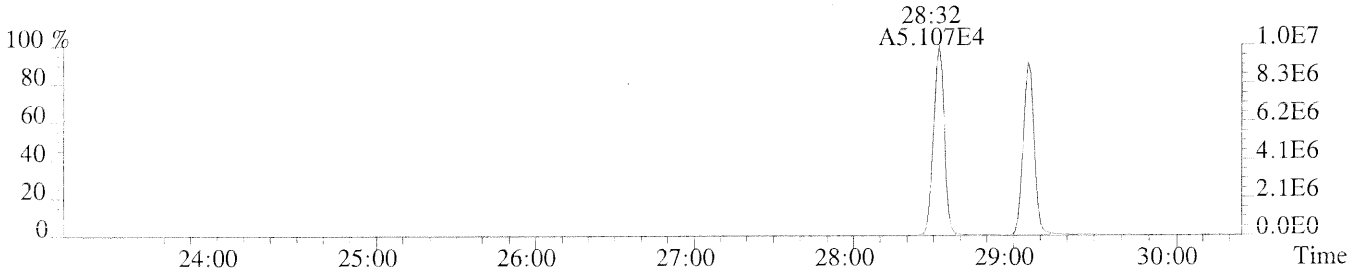
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



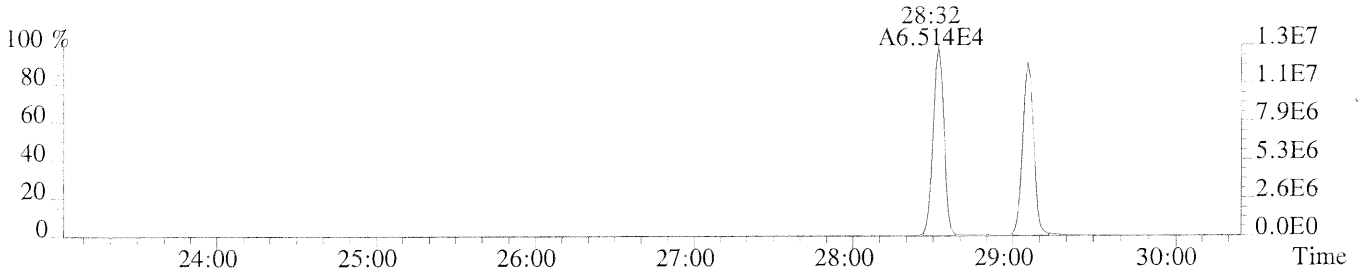
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



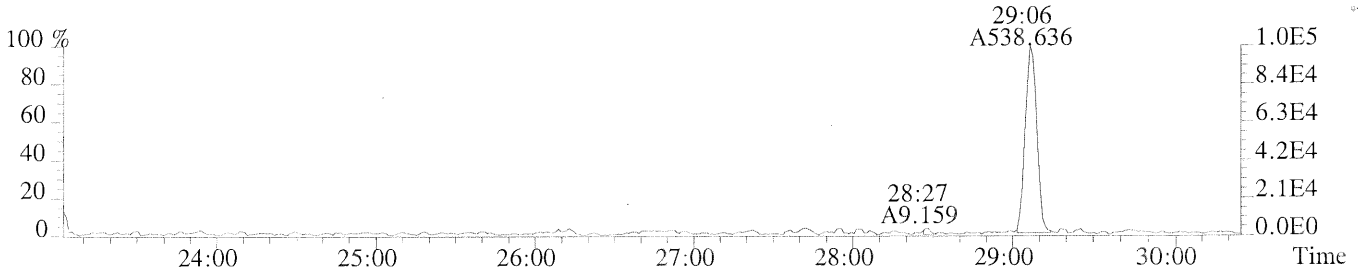
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7748.0,1.00%,F,T)



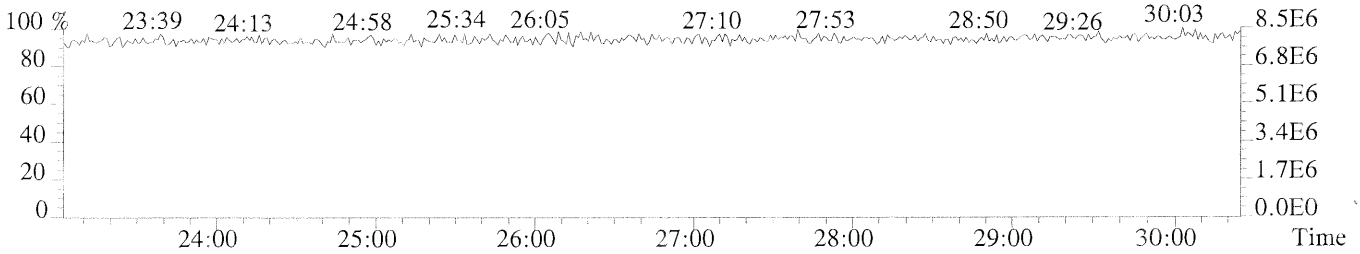
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3644.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1880.0,1.00%,F,T)

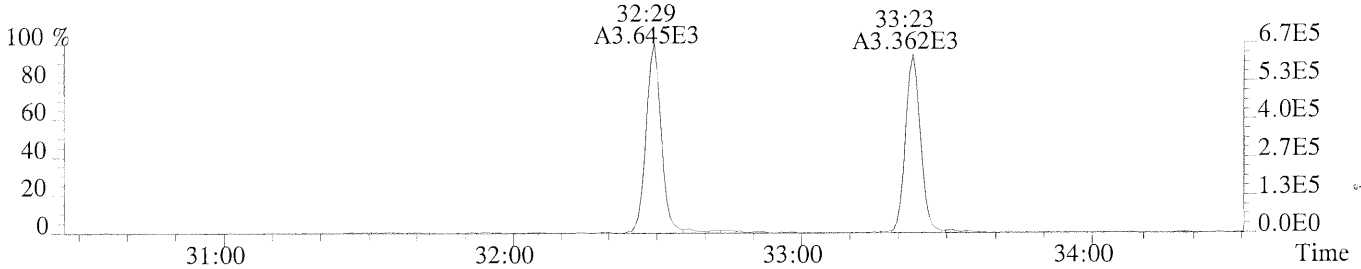


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

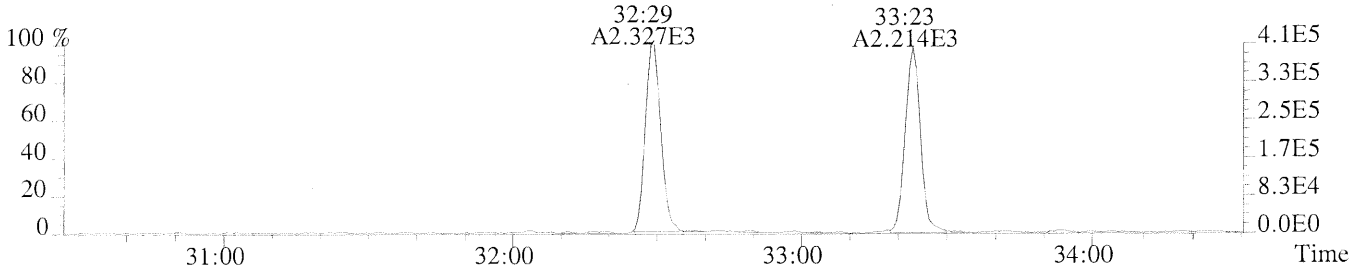


File:P227260 #1-369 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

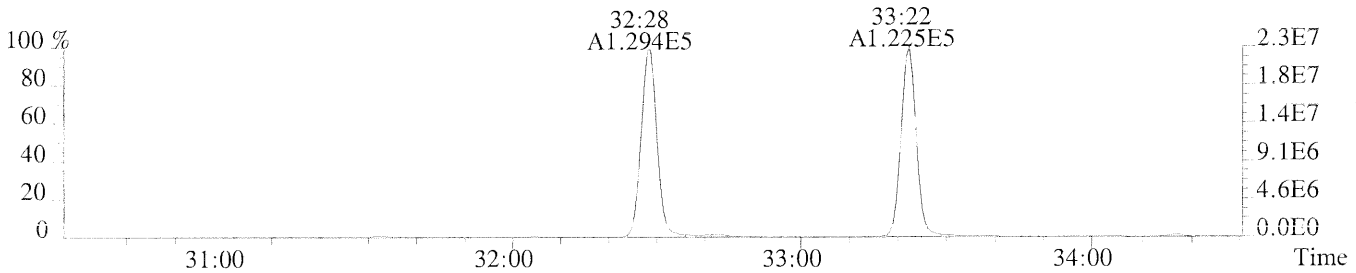
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



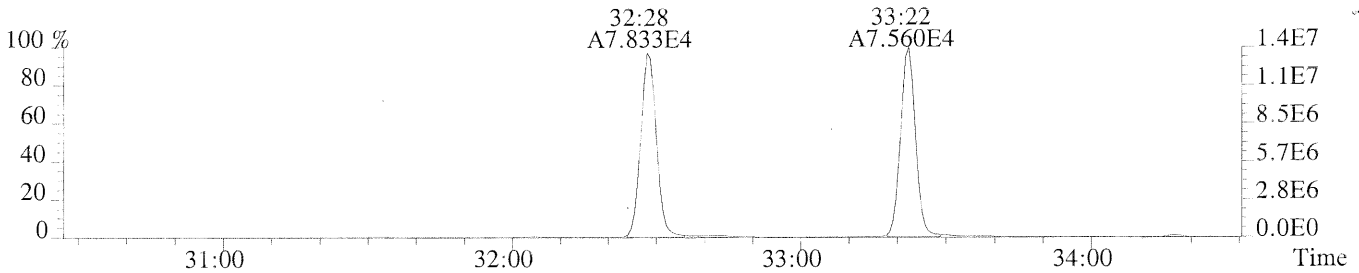
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2672.0,1.00%,F,T)



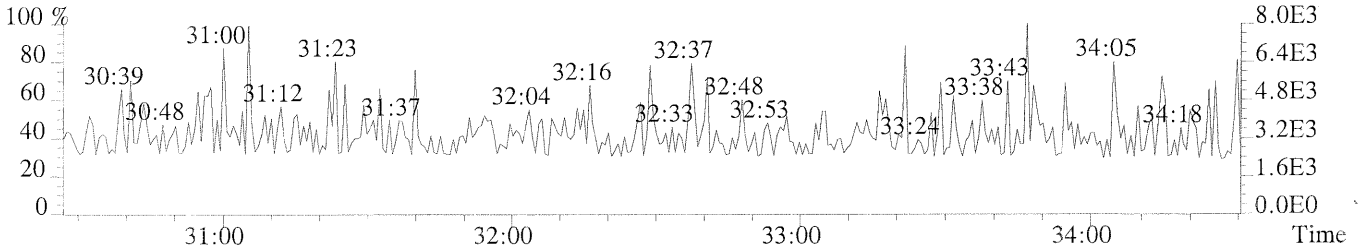
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



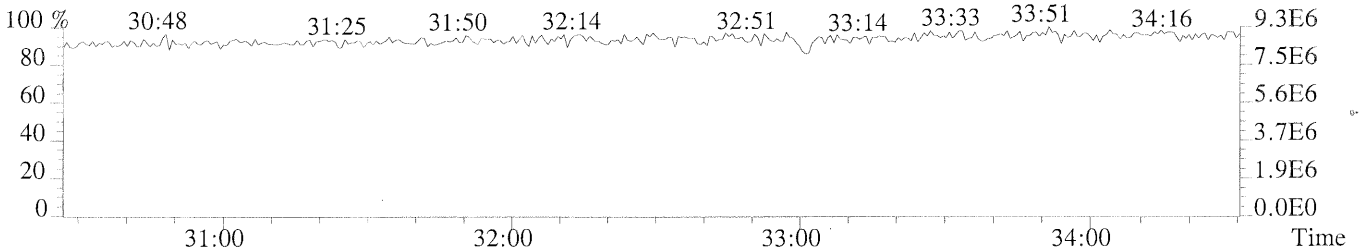
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1272.0,1.00%,F,T)



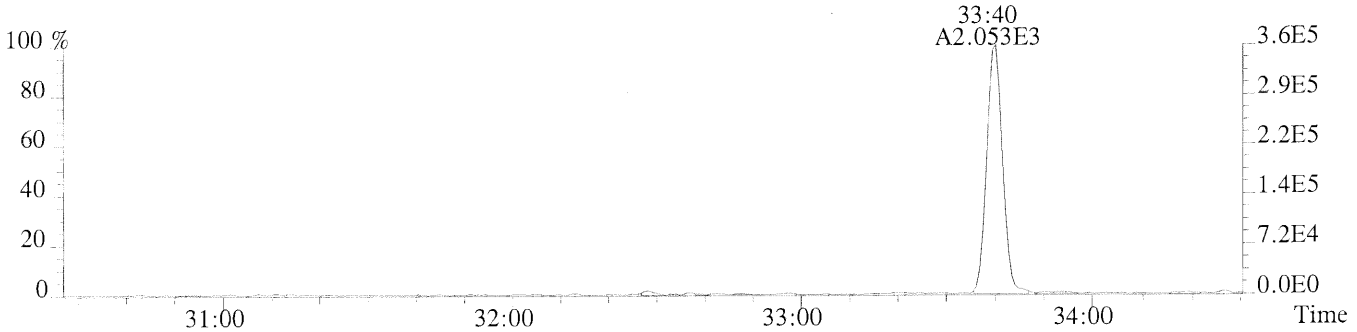
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



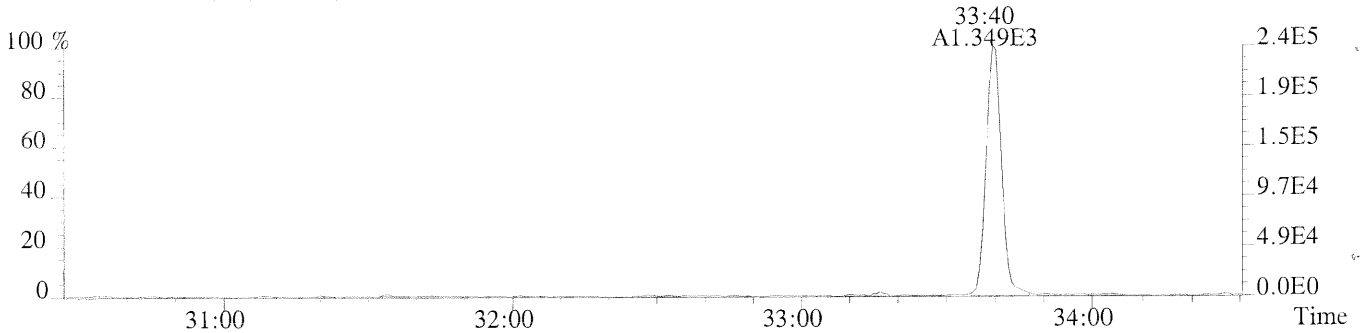
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



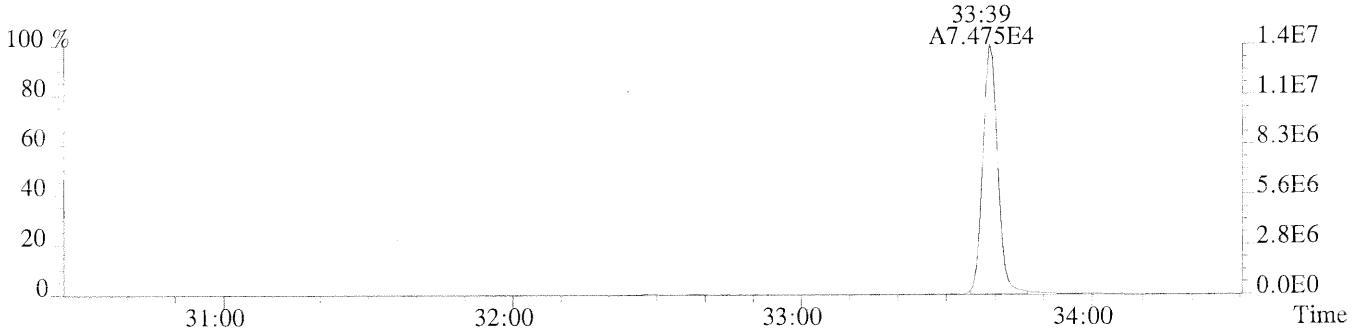
File:P227260 #1-369 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



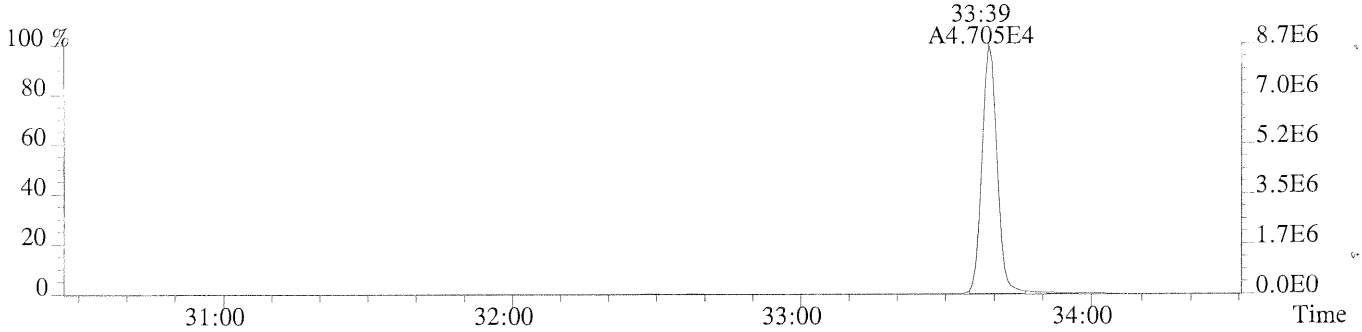
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



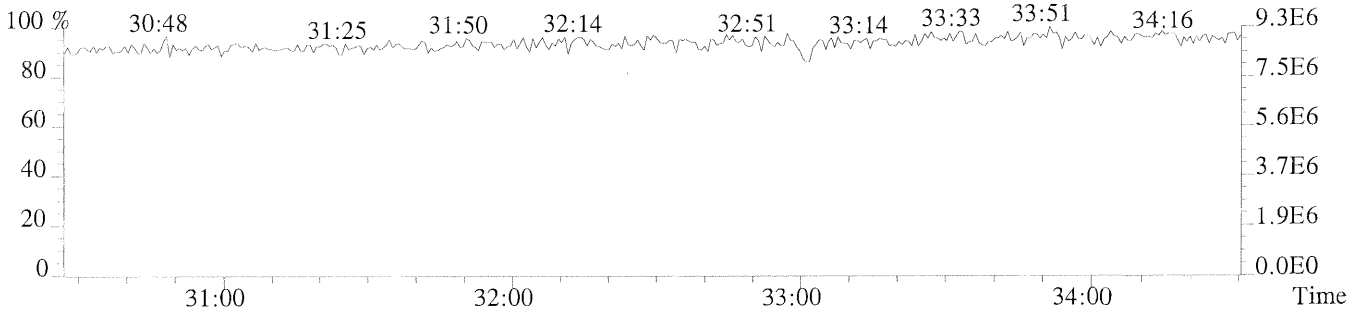
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)

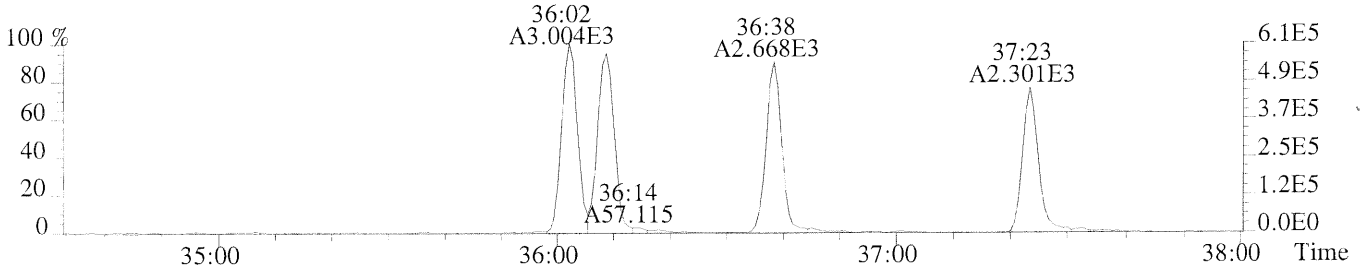


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

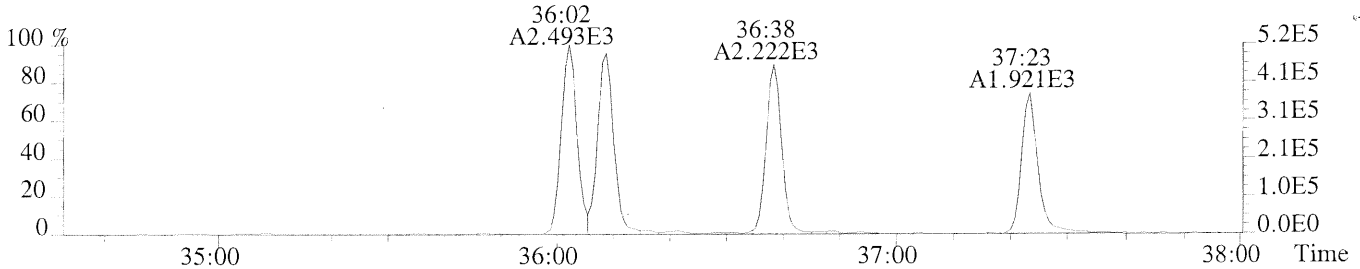


File:P227260 #1-315 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

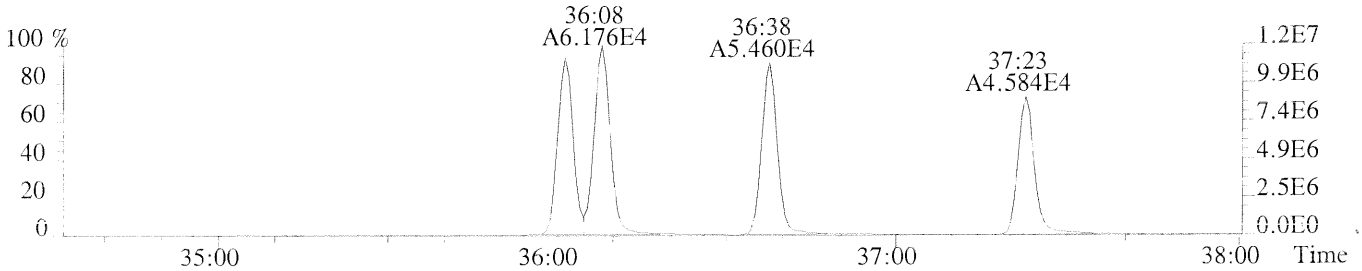
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



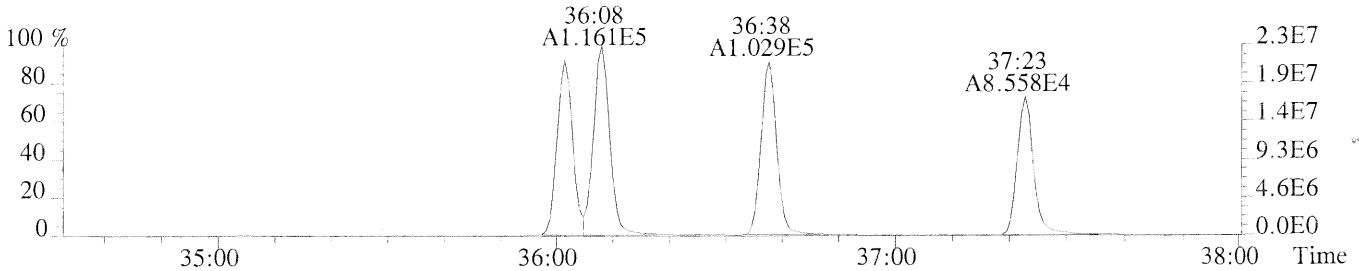
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



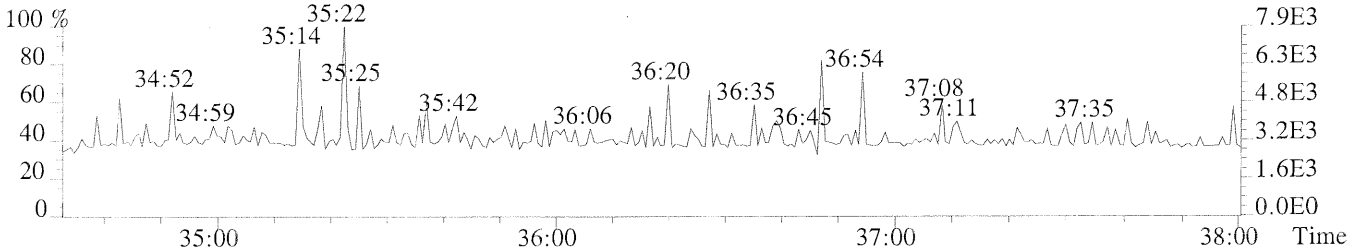
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



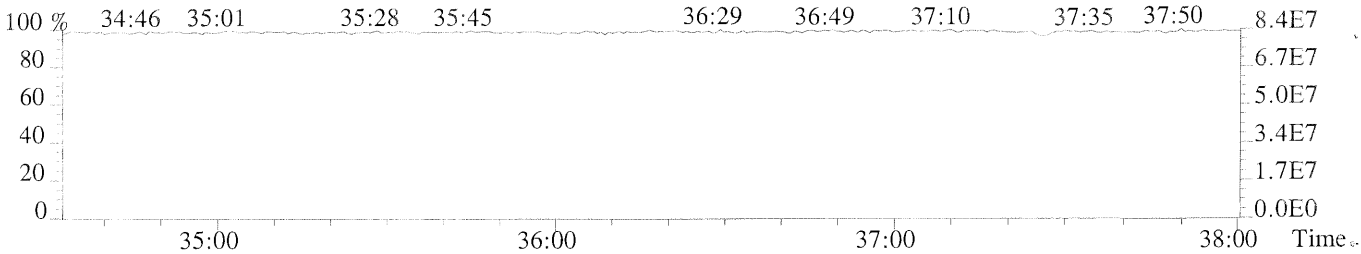
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

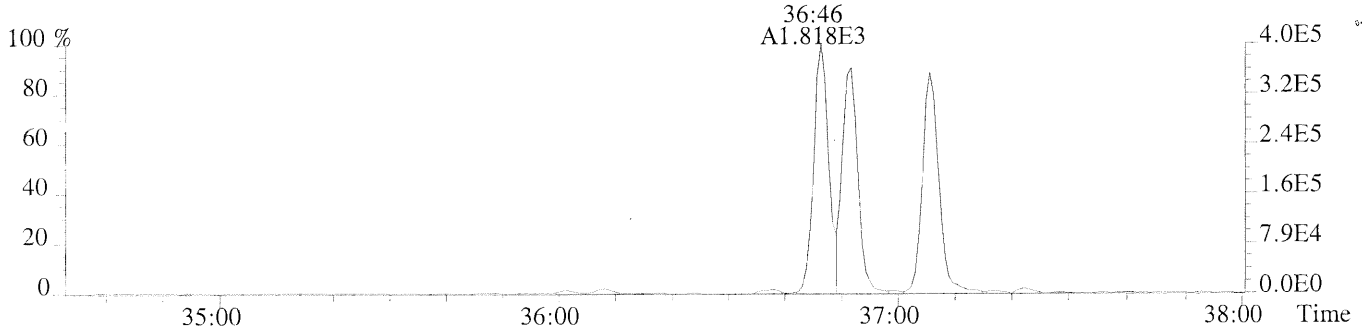


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

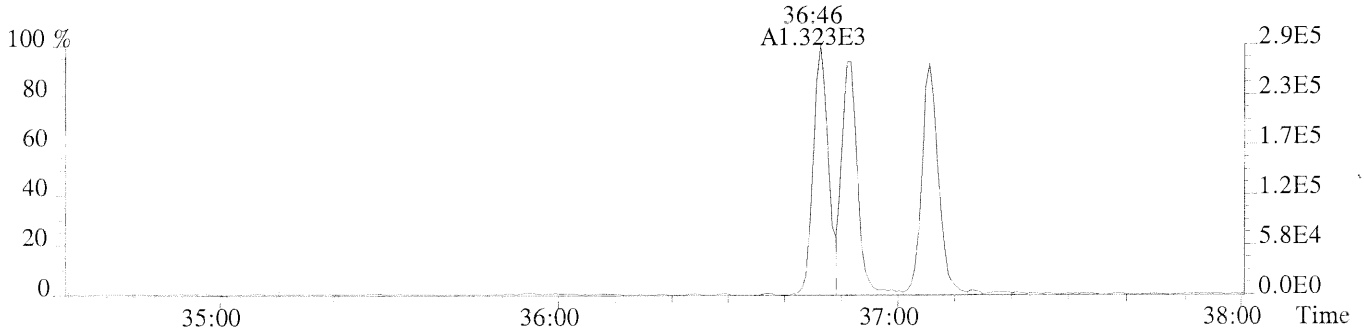


File:P227260 #1-315 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

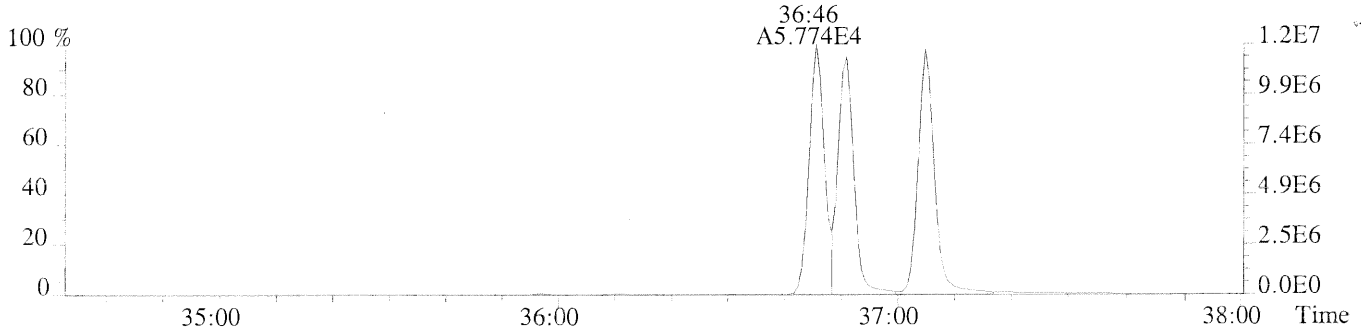
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,788.0,0.40%,F,T)



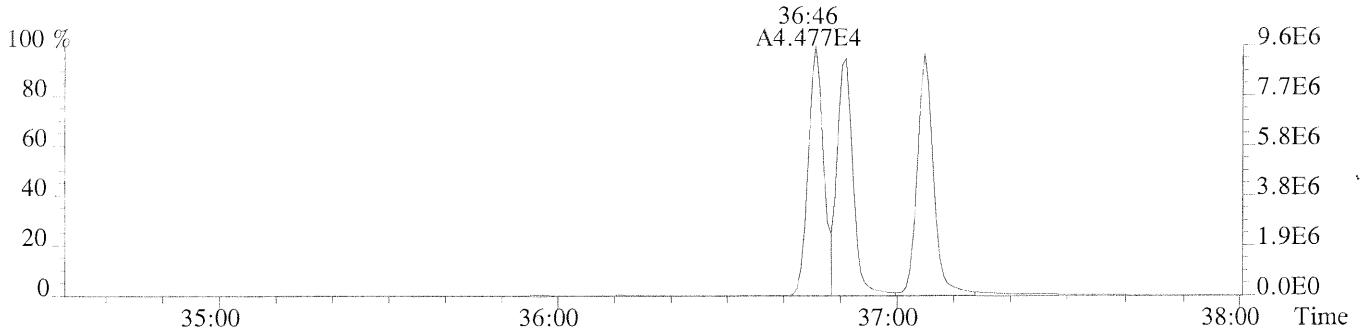
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



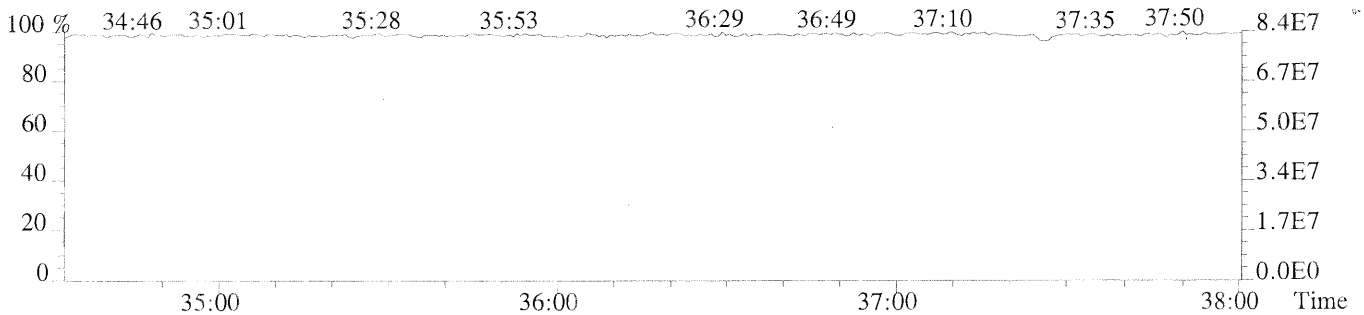
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1836.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)

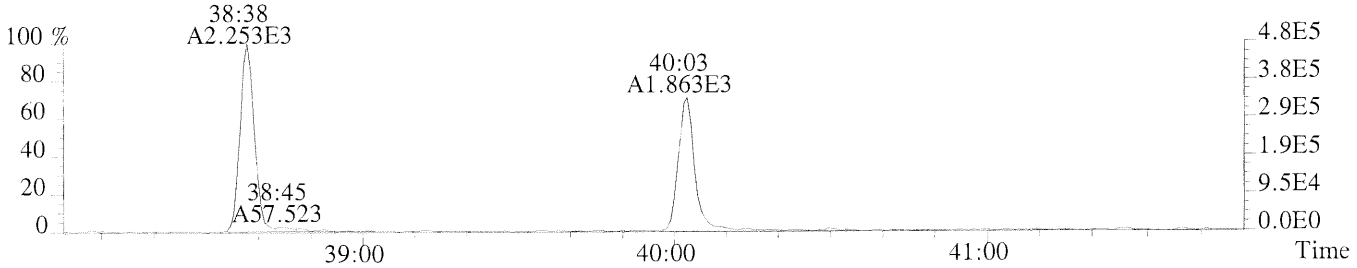


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

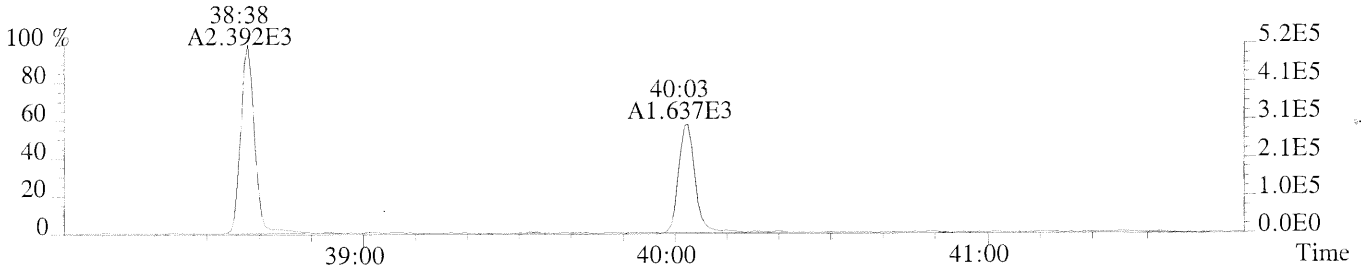


File:P227260 #1-342 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

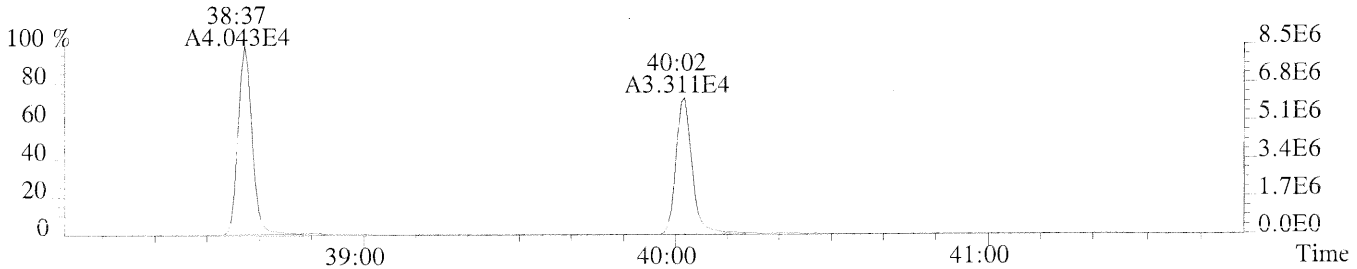
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.50%,F,T)



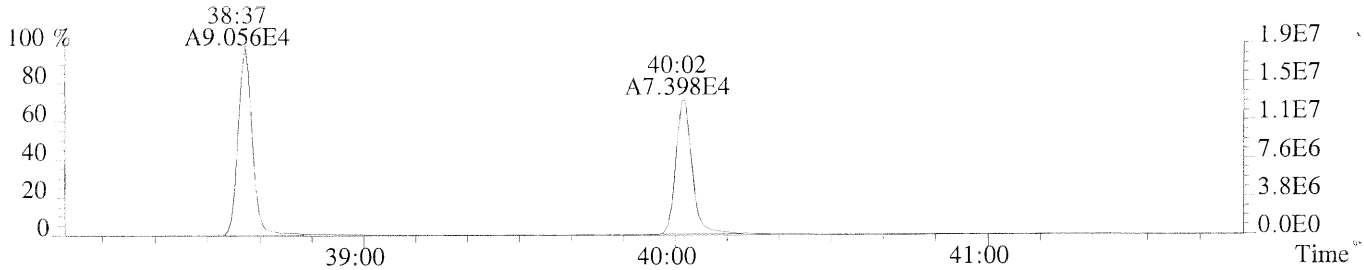
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1976.0,0.50%,F,T)



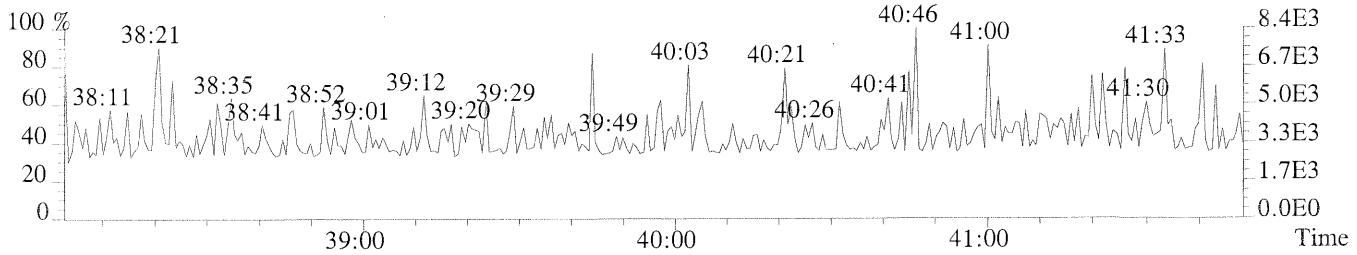
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2640.0,0.50%,F,T)



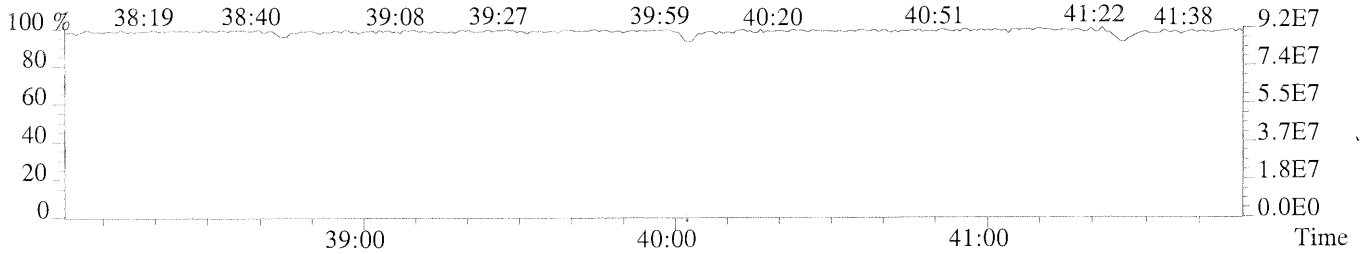
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9860.0,0.50%,F,T)



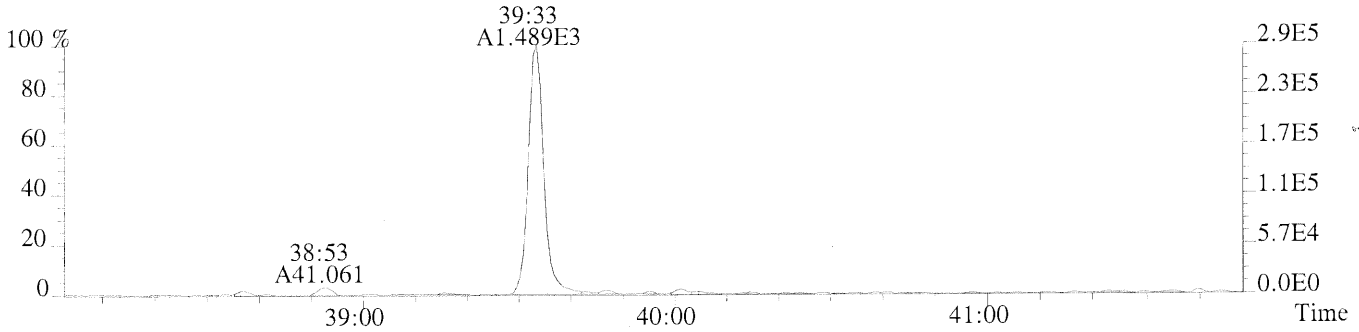
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



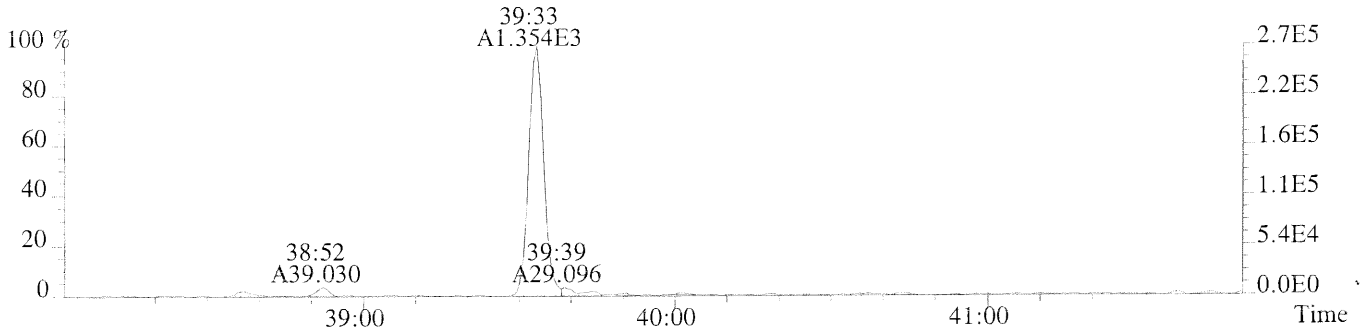
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



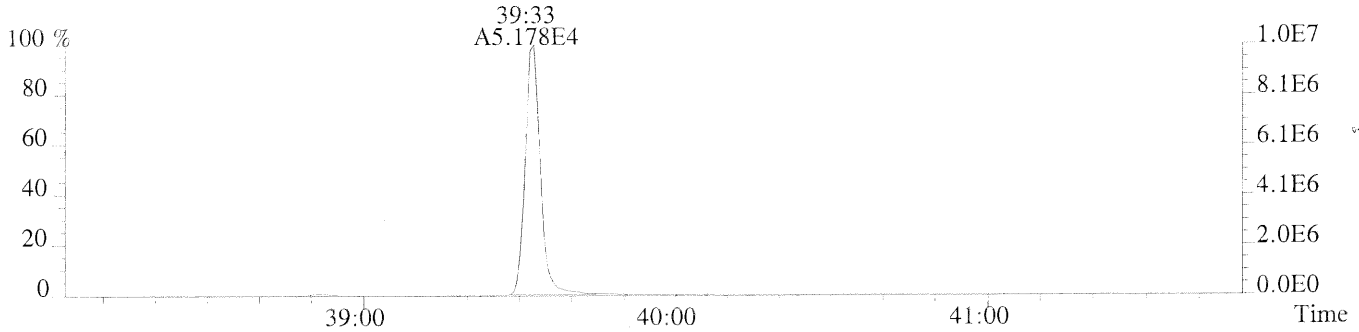
File:P227260 #1-342 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



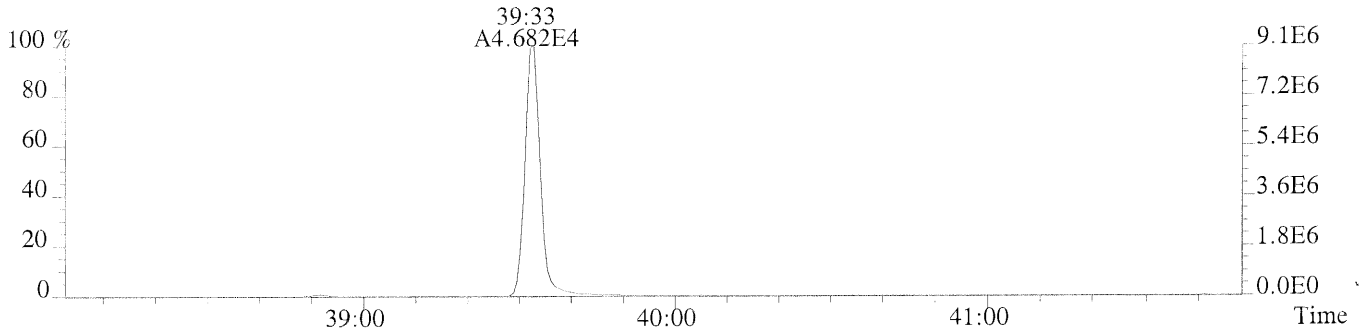
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



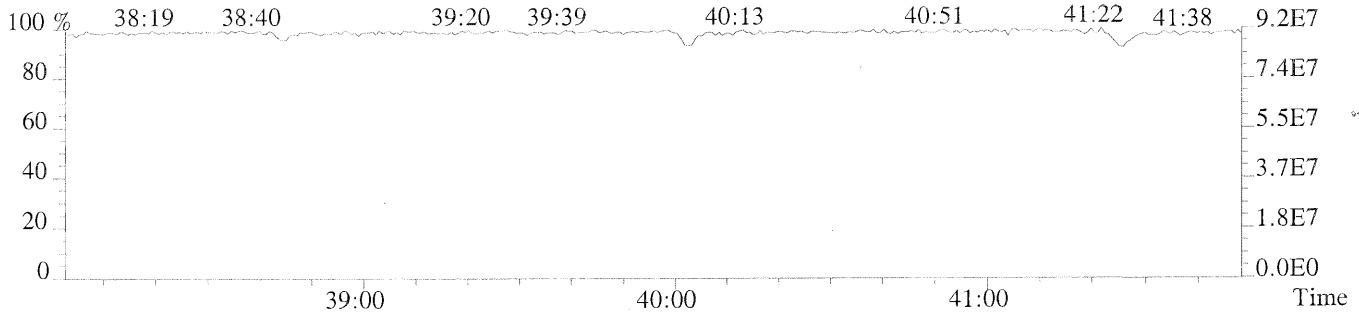
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,940.0,0.40%,F,T)



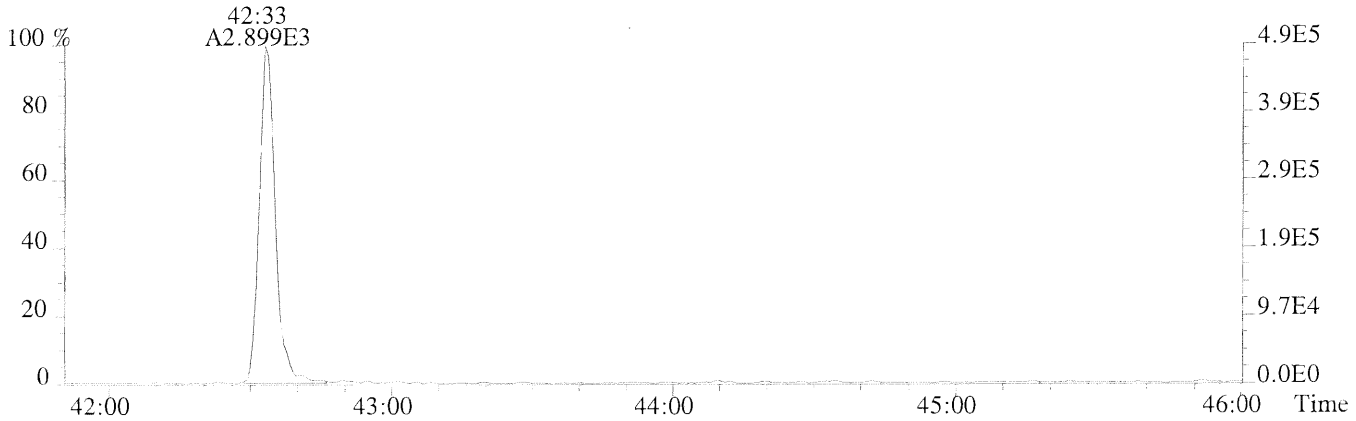
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



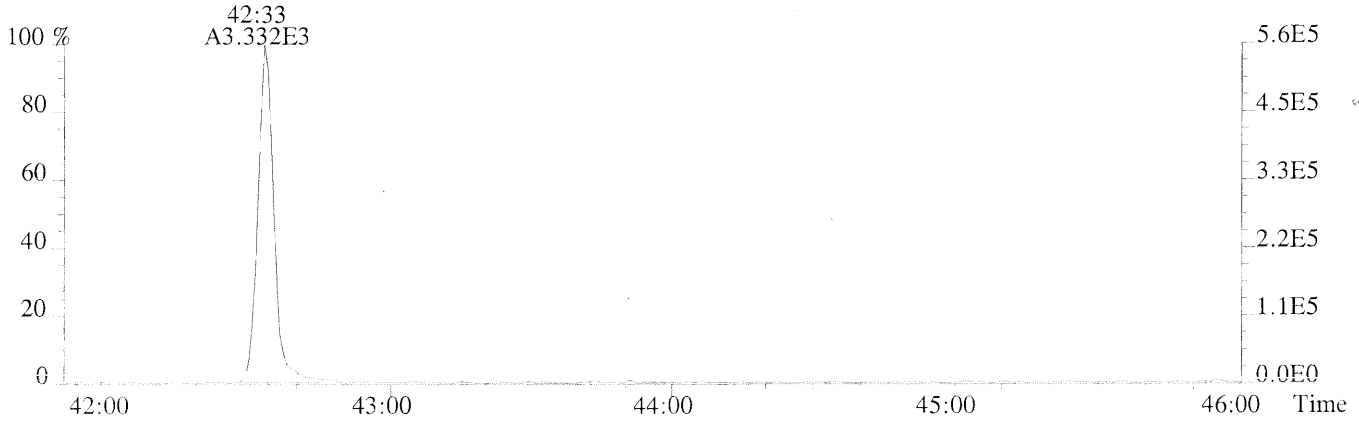
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



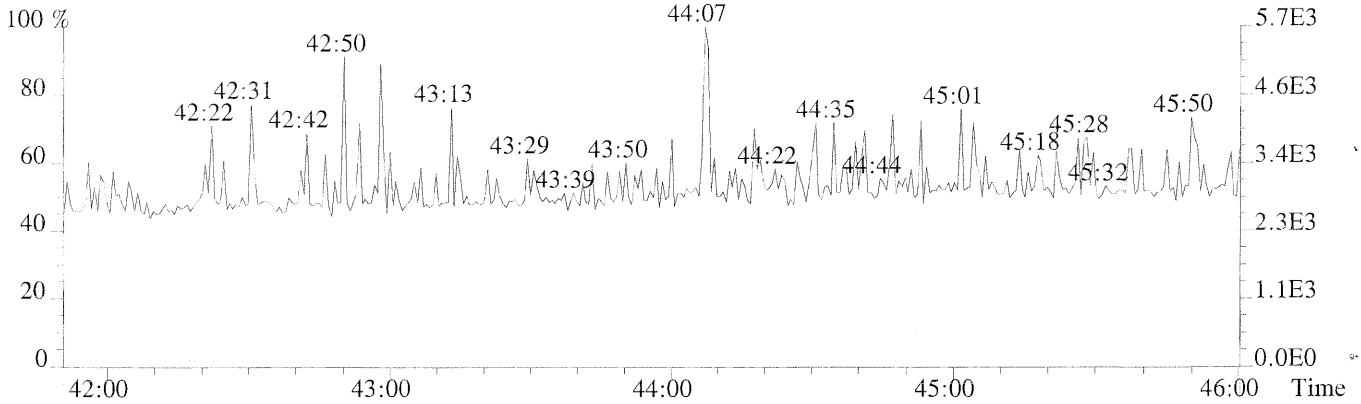
File:P227260 #1-383 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2212.0,0.40%,F,T)



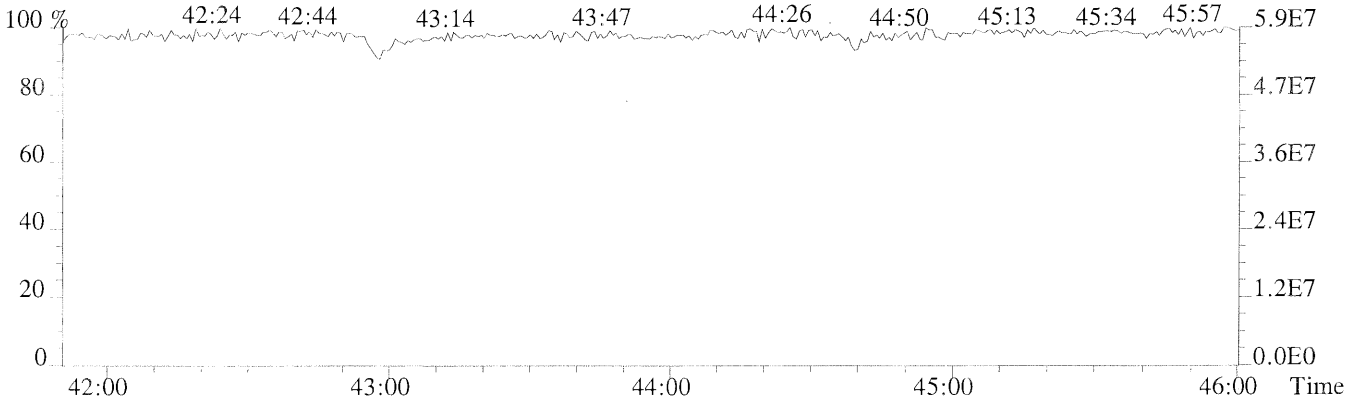
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2216.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

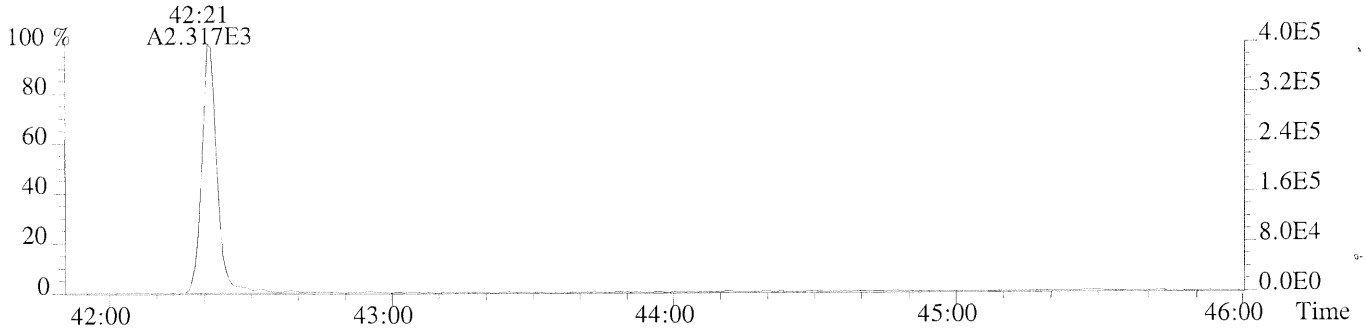


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

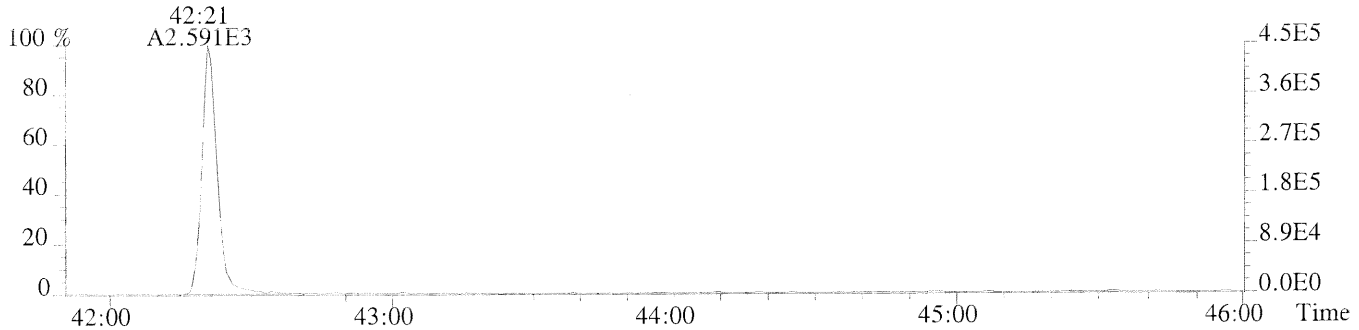


File:P227260 #1-383 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

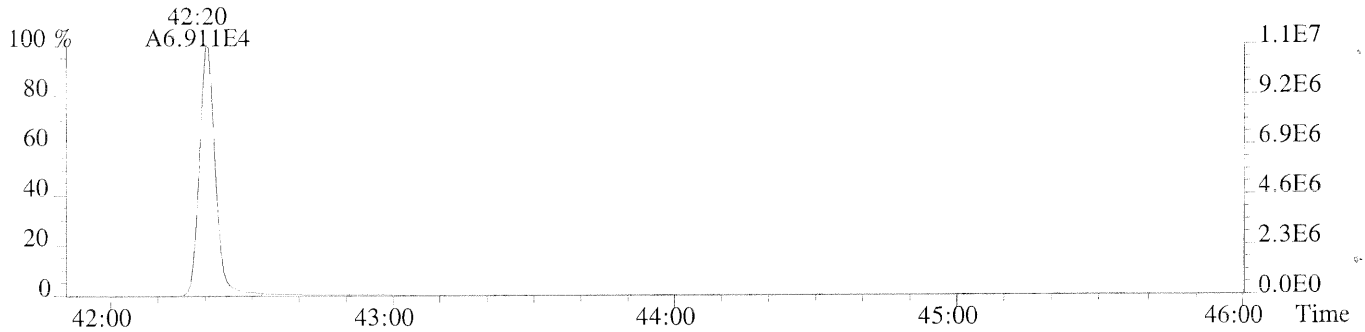
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,864.0,0.40%,F,T)



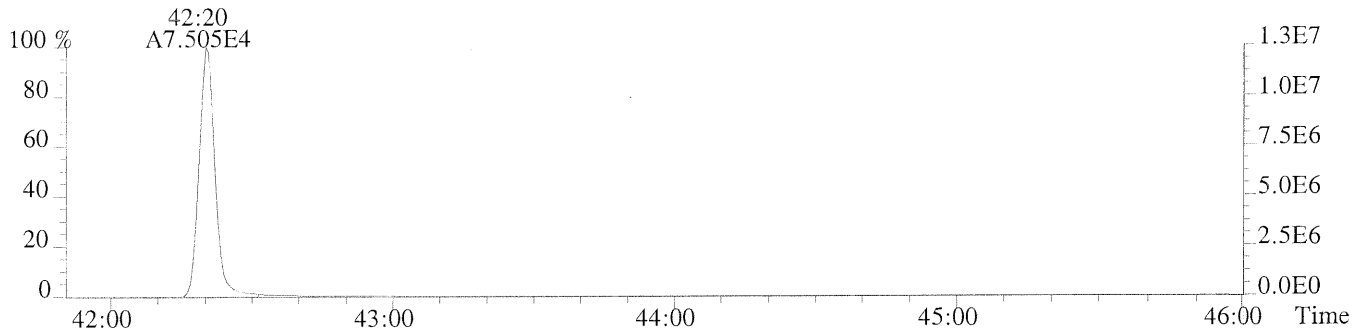
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1260.0,0.40%,F,T)



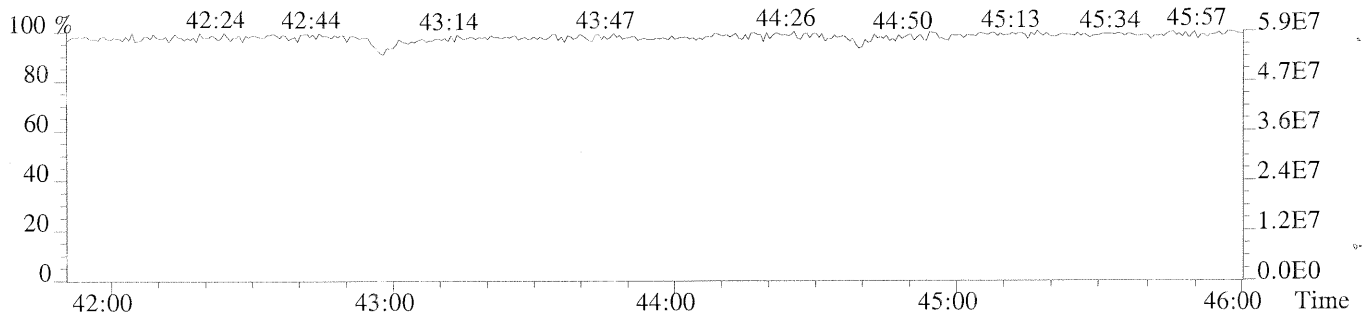
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5784.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5856.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
ICAL HRCC2/CS2

Run #3 Filename P227261 #1 Samp: 1 Inj: 1 Acquired: 1-FEB-14 18:36:13
Processed: 4-FEB-14 15:25:54 LAB. ID: D12-90-3B

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:20	1.457e+03	1.924e+03	0.76	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:29	1.368e+04	8.856e+03	1.54	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:23	1.278e+04	8.055e+03	1.59	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:02	1.107e+04	9.150e+03	1.21	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:09	1.244e+04	9.899e+03	1.26	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:38	1.114e+04	9.023e+03	1.23	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:23	9.423e+03	7.812e+03	1.21	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	9.415e+03	9.086e+03	1.04	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:02	7.398e+03	7.724e+03	0.96	yes	no	1.000
10	Unk	OCDF	42:33	1.320e+04	1.673e+04	0.79	yes	no	1.005
11	Unk	2,3,7,8-TCDD	29:07	8.691e+02	1.159e+03	0.75	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:40	7.650e+03	4.873e+03	1.57	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:46	6.965e+03	5.405e+03	1.29	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:52	6.967e+03	5.440e+03	1.28	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:06	7.401e+03	5.834e+03	1.27	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:33	6.330e+03	5.822e+03	1.09	yes	no	1.000
17	Unk	OCDD	42:21	1.048e+04	1.133e+04	0.93	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:19	6.998e+04	8.573e+04	0.82	yes	no	0.992
19	IS	13C-1,2,3,7,8-PeCDF	32:28	1.271e+05	7.723e+04	1.65	yes	no	1.138
20	IS	13C-2,3,4,7,8-PeCDF	33:22	1.217e+05	7.456e+04	1.63	yes	no	1.169
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	5.492e+04	1.015e+05	0.54	yes	no	0.971
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	6.357e+04	1.190e+05	0.53	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	5.609e+04	1.049e+05	0.53	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	4.821e+04	9.221e+04	0.52	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:37	4.136e+04	9.106e+04	0.45	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:01	3.574e+04	7.947e+04	0.45	yes	no	1.079
27	IS	13C-2,3,7,8-TCDD	29:05	4.489e+04	5.750e+04	0.78	yes	no	1.019
28	IS	13C-1,2,3,7,8-PeCDD	33:39	7.318e+04	4.657e+04	1.57	yes	no	1.179
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	5.940e+04	4.600e+04	1.29	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	6.130e+04	4.683e+04	1.31	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:32	5.515e+04	4.999e+04	1.10	yes	no	1.066
32	IS	13C-OCDD	42:20	8.090e+04	8.637e+04	0.94	yes	no	1.142
33	RS/RT	13C-1,2,3,4-TCDD	28:32	4.968e+04	6.330e+04	0.78	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	6.457e+04	4.857e+04	1.33	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:06	2.016e+03				no	1.020

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XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL HRCC2/CS2

Run #3 Filename P227261 Samp: 1 Inj: 1 Acquired: 1-FEB-14 18:36:13
Processed: 4-FEB-14 15:25:541 LAB. ID: D12-90-3B

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.84e+05	7.52e+02	3.8e+02	3.87e+05	2.98e+03	1.3e+02
2	1,2,3,7,8-PeCDF	2.45e+06	6.20e+02	4.0e+03	1.55e+06	3.08e+03	5.0e+02
3	2,3,4,7,8-PeCDF	2.41e+06	6.20e+02	3.9e+03	1.53e+06	3.08e+03	5.0e+02
4	1,2,3,4,7,8-HxCDF	2.32e+06	1.32e+03	1.8e+03	1.96e+06	5.68e+02	3.5e+03
5	1,2,3,6,7,8-HxCDF	2.52e+06	1.32e+03	1.9e+03	1.96e+06	5.68e+02	3.4e+03
6	2,3,4,6,7,8-HxCDF	2.31e+06	1.32e+03	1.7e+03	1.80e+06	5.68e+02	3.2e+03
7	1,2,3,7,8,9-HxCDF	1.86e+06	1.32e+03	1.4e+03	1.48e+06	5.68e+02	2.6e+03
8	1,2,3,4,6,7,8-HpCDF	1.97e+06	1.45e+03	1.4e+03	1.87e+06	3.36e+03	5.6e+02
9	1,2,3,4,7,8,9-HpCDF	1.40e+06	1.45e+03	9.6e+02	1.46e+06	3.36e+03	4.3e+02
10	OCDF	2.19e+06	1.75e+03	1.3e+03	3.02e+06	2.56e+03	1.2e+03
11	2,3,7,8-TCDD	1.78e+05	1.13e+03	1.6e+02	2.17e+05	6.84e+02	3.2e+02
12	1,2,3,7,8-PeCDD	1.40e+06	1.90e+03	7.4e+02	9.17e+05	4.56e+02	2.0e+03
13	1,2,3,4,7,8-HxCDD	1.51e+06	7.32e+02	2.1e+03	1.17e+06	1.00e+03	1.2e+03
14	1,2,3,6,7,8-HxCDD	1.41e+06	7.32e+02	1.9e+03	1.09e+06	1.00e+03	1.1e+03
15	1,2,3,7,8,9-HxCDD	1.47e+06	7.32e+02	2.0e+03	1.17e+06	1.00e+03	1.2e+03
16	1,2,3,4,6,7,8-HpCDD	1.24e+06	7.32e+02	1.7e+03	1.15e+06	7.56e+02	1.5e+03
17	OCDD	1.75e+06	6.08e+02	2.9e+03	1.89e+06	3.39e+03	5.6e+02
18	13C-2,3,7,8-TCDF	1.36e+07	1.64e+03	8.3e+03	1.66e+07	1.52e+03	1.1e+04
19	13C-1,2,3,7,8-PeCDF	2.21e+07	6.04e+02	3.7e+04	1.35e+07	6.80e+02	2.0e+04
20	13C-2,3,4,7,8-PeCDF	2.28e+07	6.04e+02	3.8e+04	1.40e+07	6.80e+02	2.1e+04
21	13C-1,2,3,4,7,8-HxCDF	1.16e+07	5.00e+02	2.3e+04	2.13e+07	1.73e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	1.27e+07	5.00e+02	2.5e+04	2.38e+07	1.73e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	1.15e+07	5.00e+02	2.3e+04	2.16e+07	1.73e+03	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	9.53e+06	5.00e+02	1.9e+04	1.77e+07	1.73e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	8.52e+06	4.71e+03	1.8e+03	1.87e+07	4.04e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.54e+06	4.71e+03	1.4e+03	1.48e+07	4.04e+03	3.7e+03
27	13C-2,3,7,8-TCDD	9.06e+06	7.82e+03	1.2e+03	1.17e+07	3.73e+03	3.1e+03
28	13C-1,2,3,7,8-PeCDD	1.35e+07	1.05e+03	1.3e+04	8.68e+06	8.28e+02	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	1.26e+07	2.56e+03	4.9e+03	9.75e+06	1.53e+03	6.4e+03
30	13C-1,2,3,6,7,8-HxCDD	1.22e+07	2.56e+03	4.8e+03	9.26e+06	1.53e+03	6.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.06e+07	1.32e+03	8.1e+03	9.63e+06	4.80e+02	2.0e+04
32	13C-OCDD	1.36e+07	3.70e+03	3.7e+03	1.45e+07	4.66e+03	3.1e+03
33	13C-1,2,3,4-TCDD	1.01e+07	7.82e+03	1.3e+03	1.28e+07	3.73e+03	3.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.27e+07	2.56e+03	4.9e+03	9.89e+06	1.53e+03	6.5e+03
35	37Cl-2,3,7,8-TCDD	4.00e+05	2.34e+03	1.7e+02			

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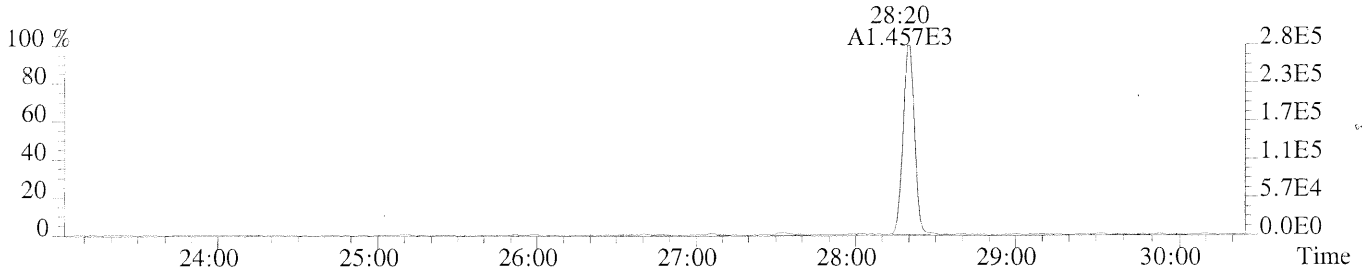
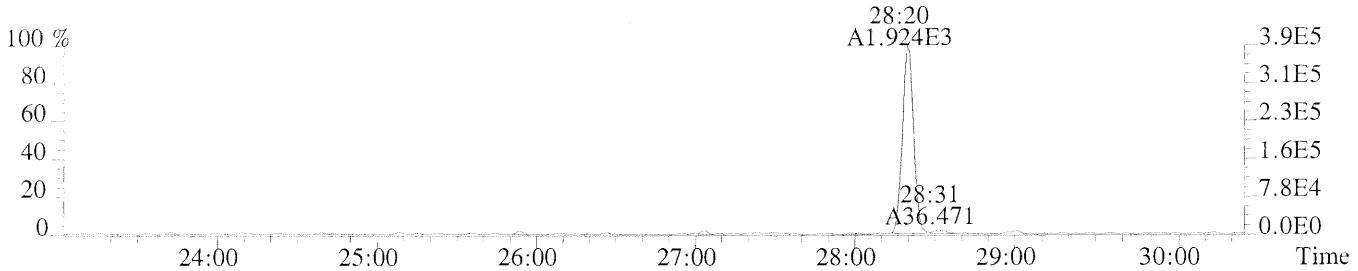
XLSN

File:P227261 #1-464 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

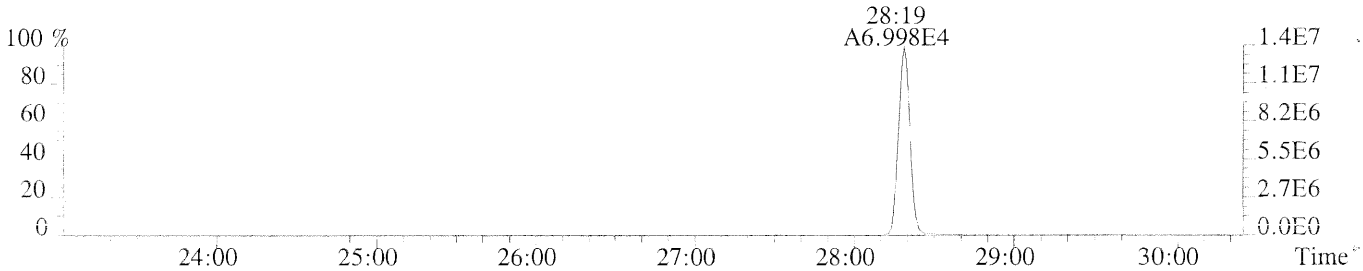
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



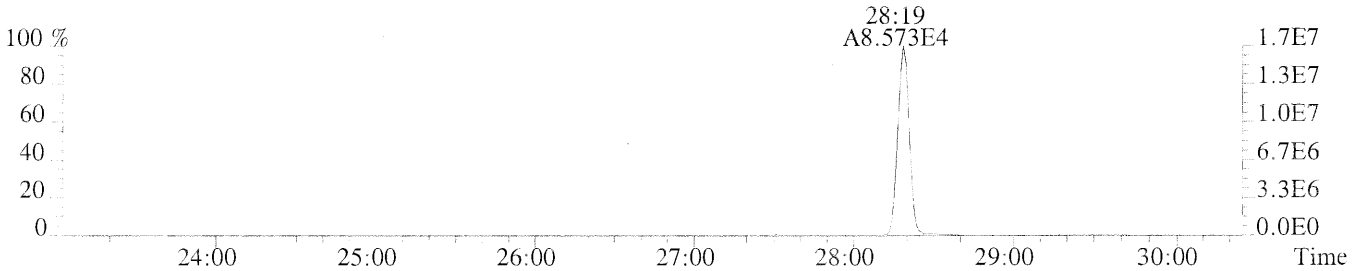
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2984.0,1.00%,F,T)



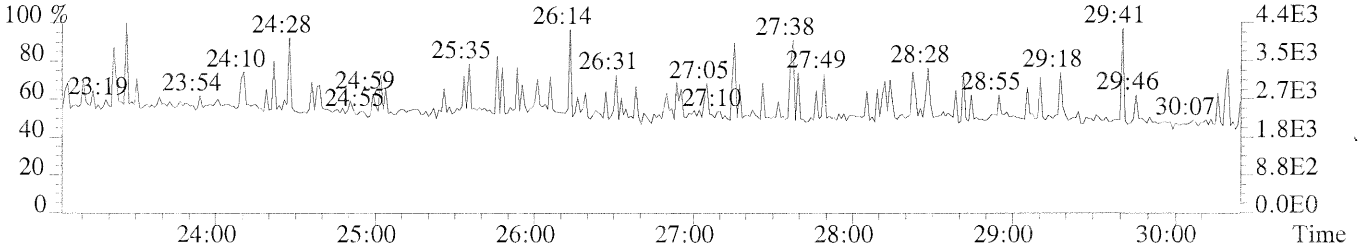
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)



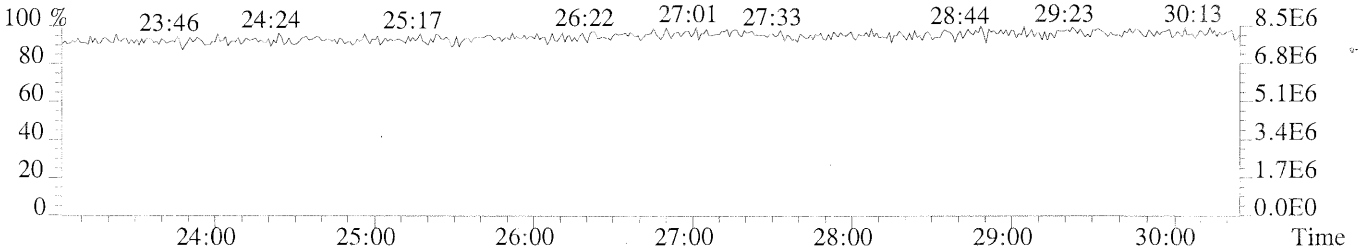
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

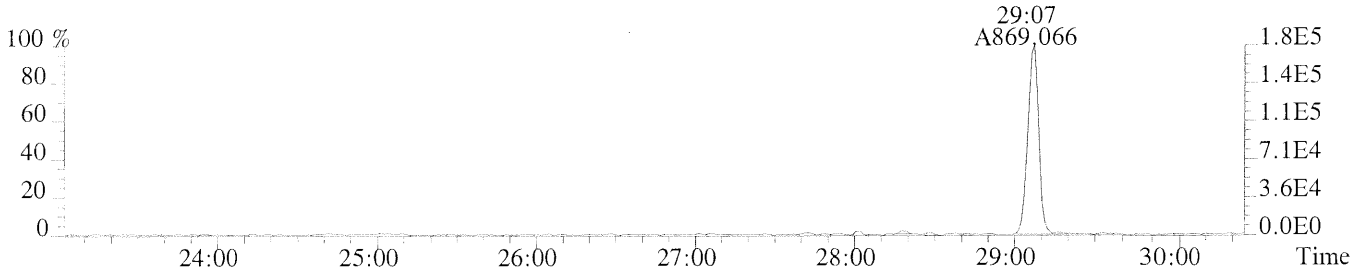


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

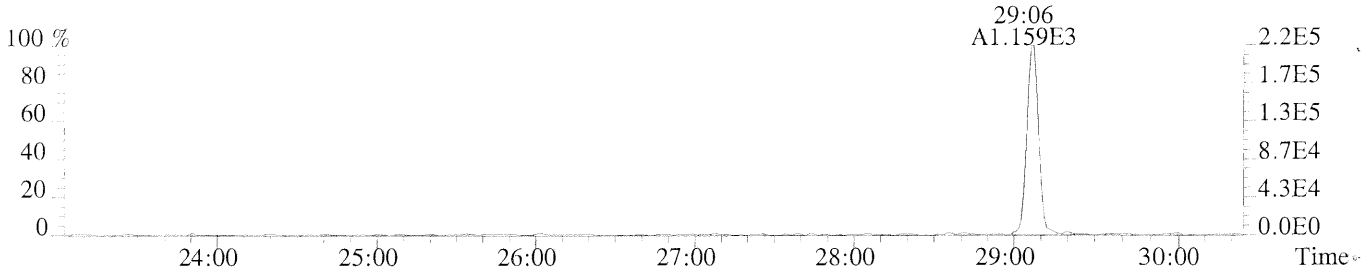


File:P227261 #1-464 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

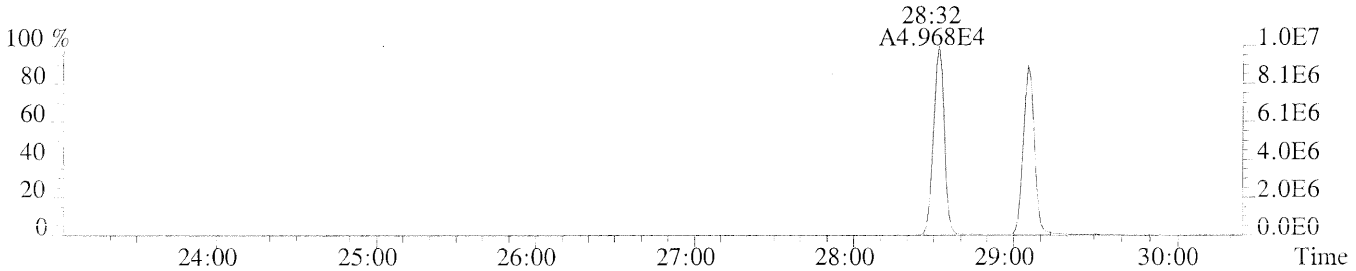
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



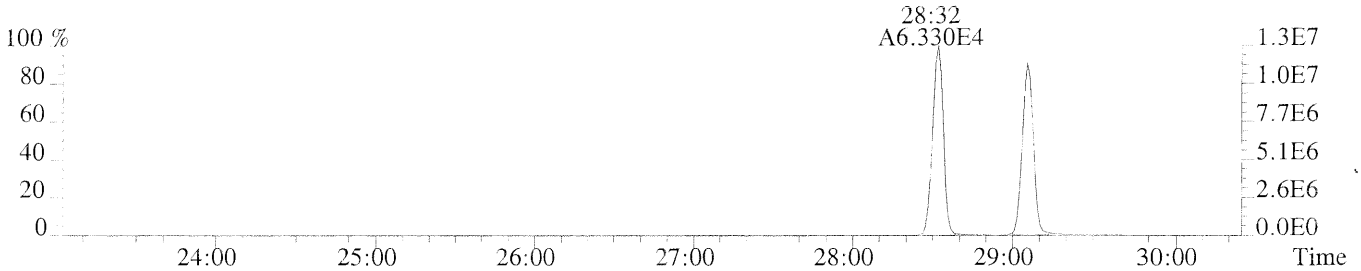
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



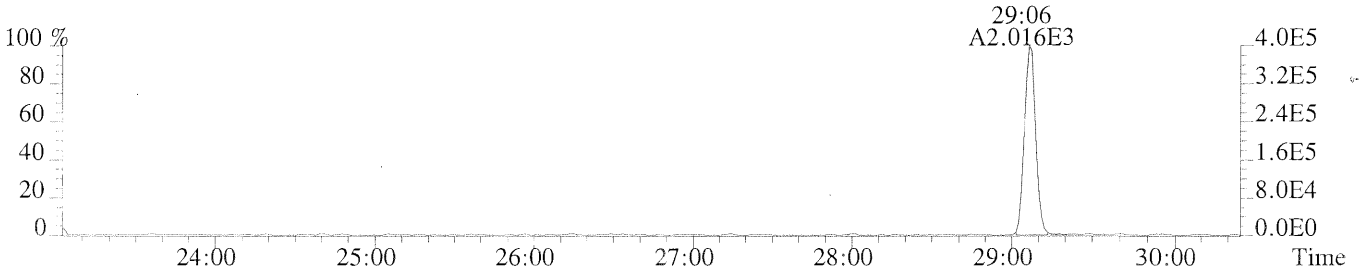
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7820.0,1.00%,F,T)



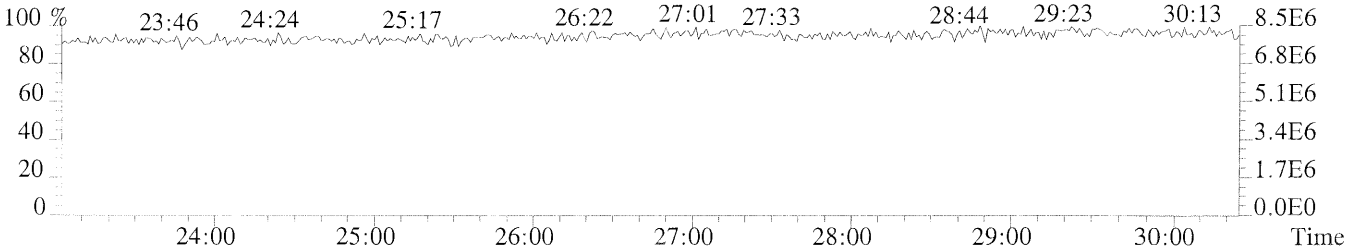
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3728.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2336.0,1.00%,F,T)

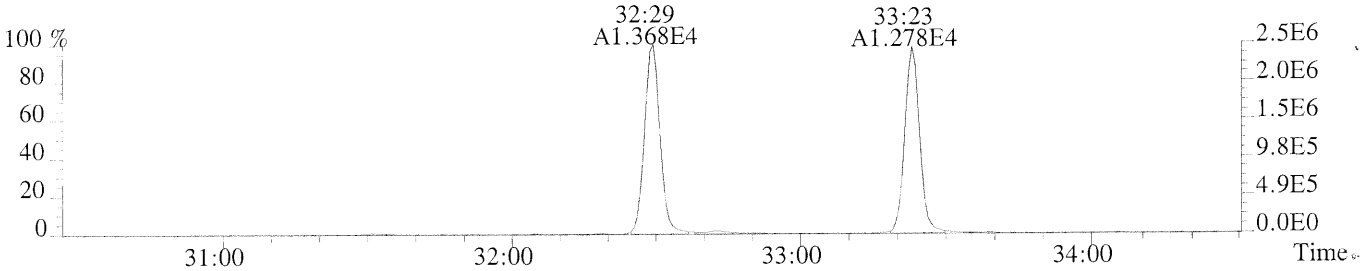


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

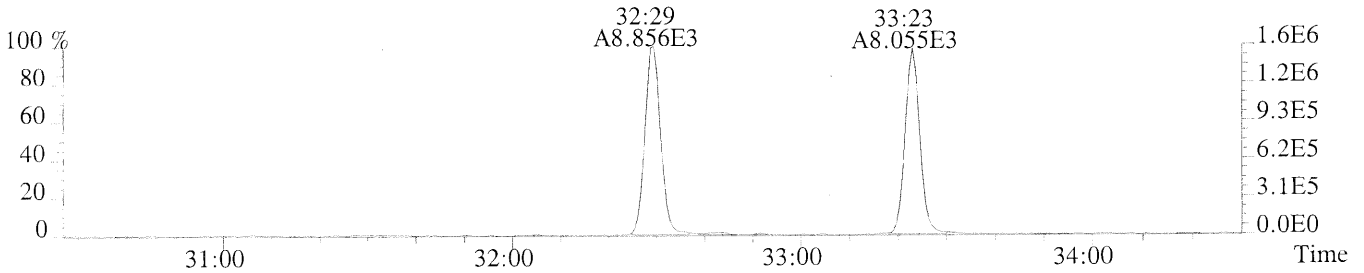


File:P227261 #1-369 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

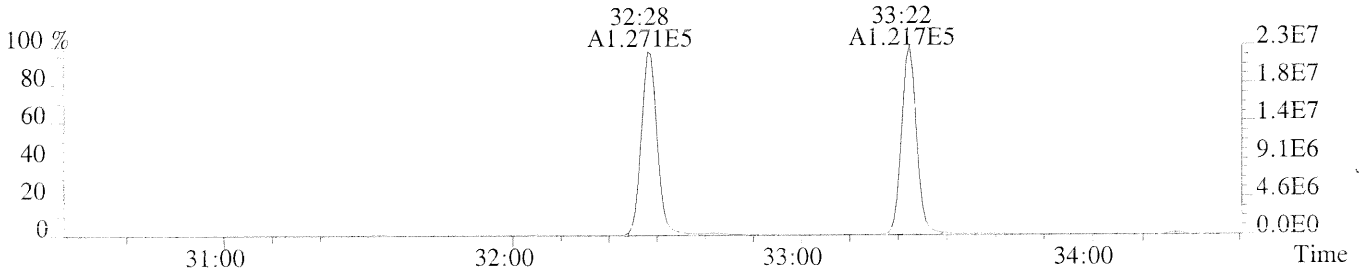
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



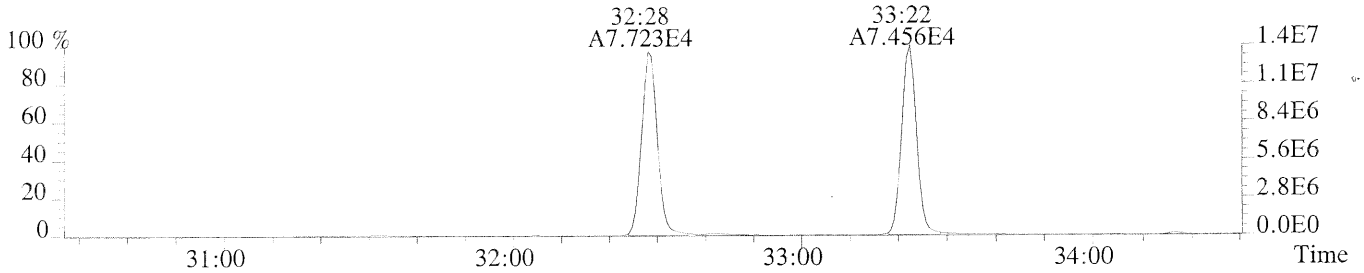
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



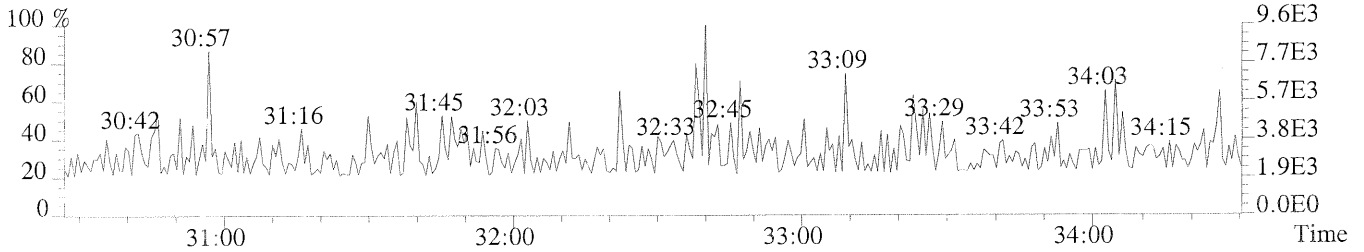
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



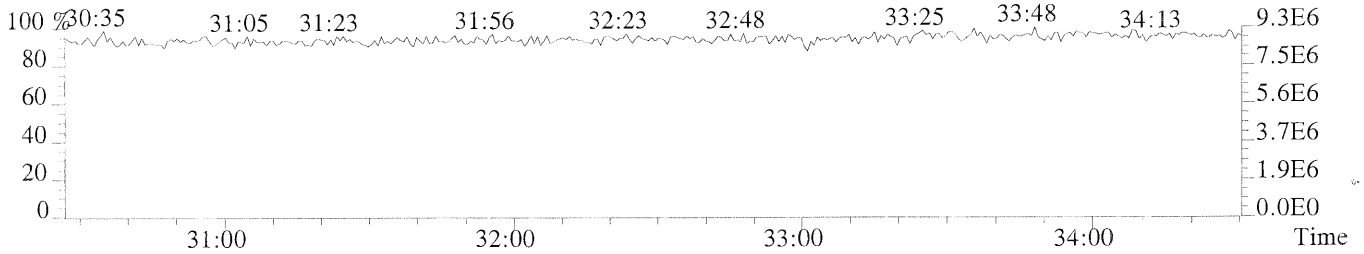
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



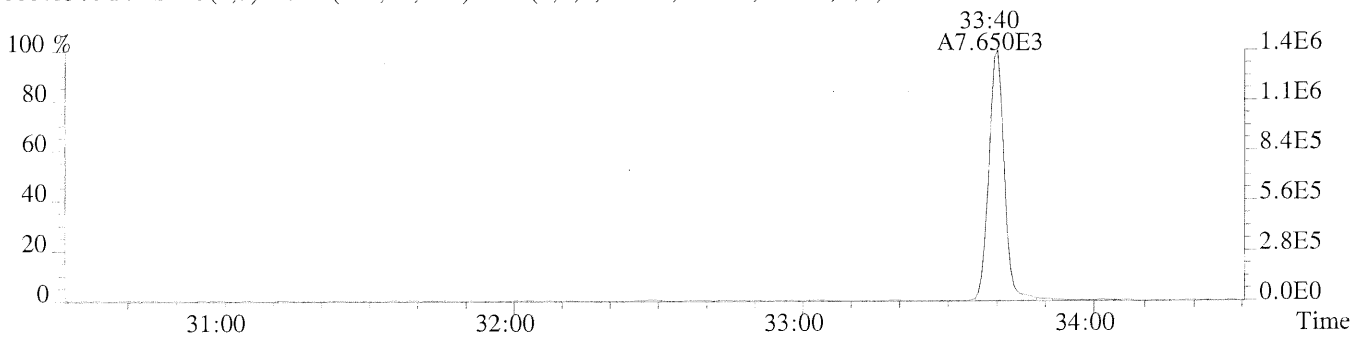
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



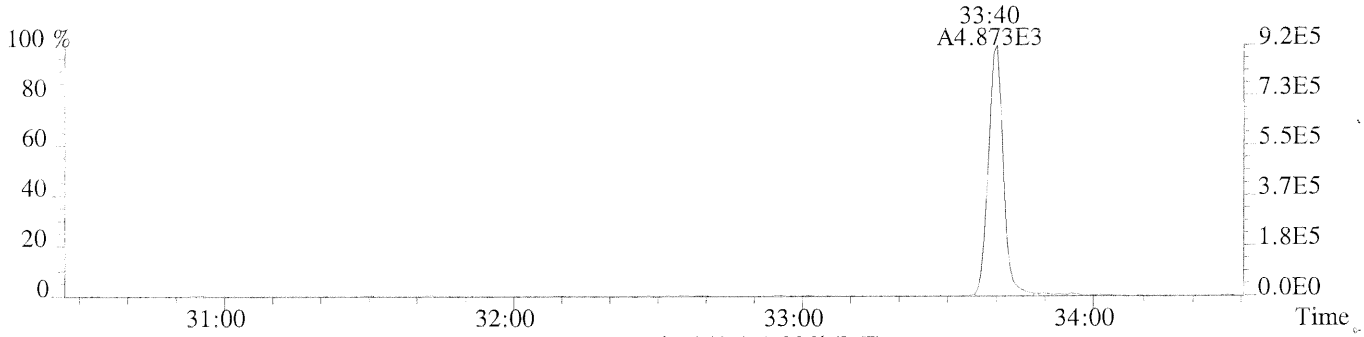
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



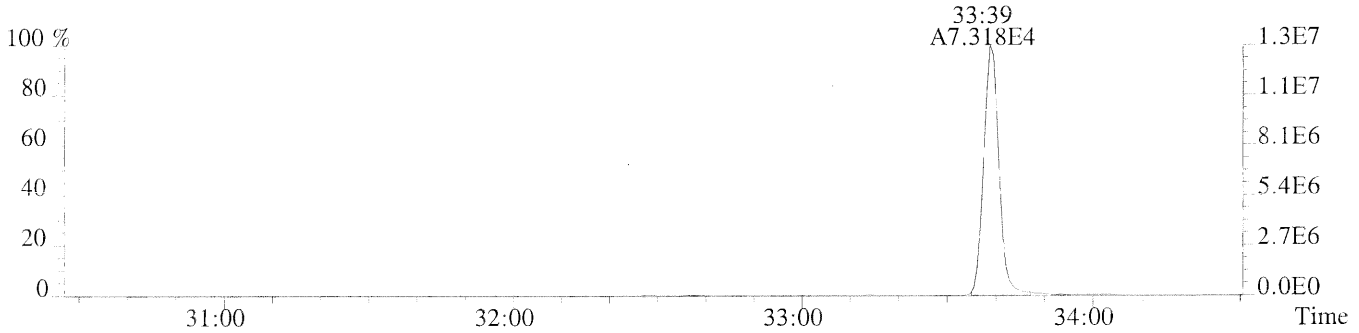
File:P227261 #1-369 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



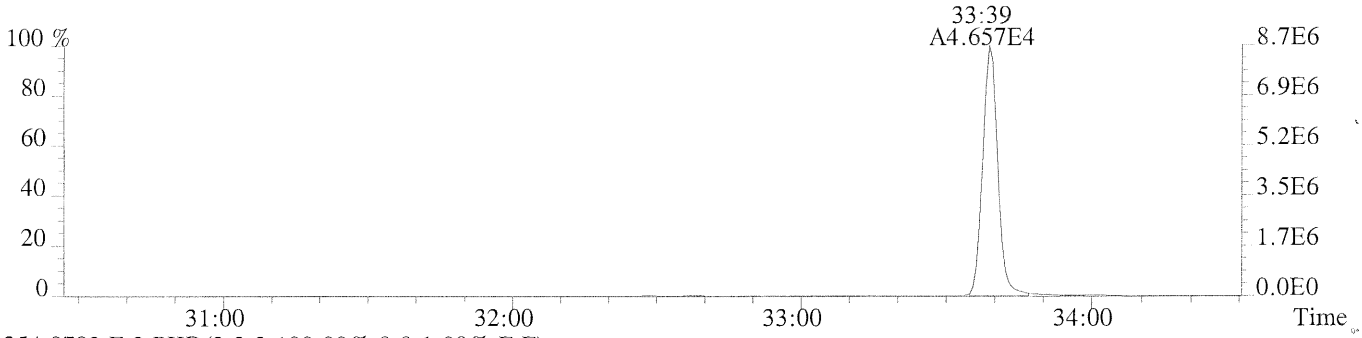
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



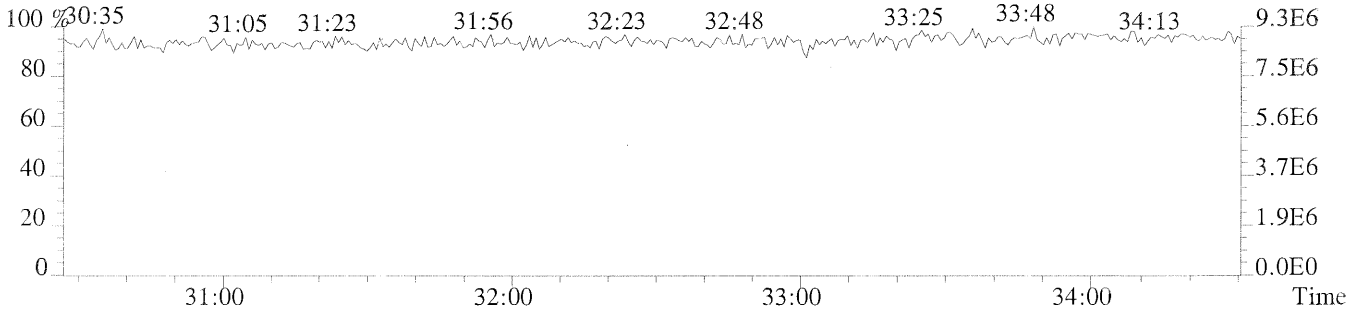
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)

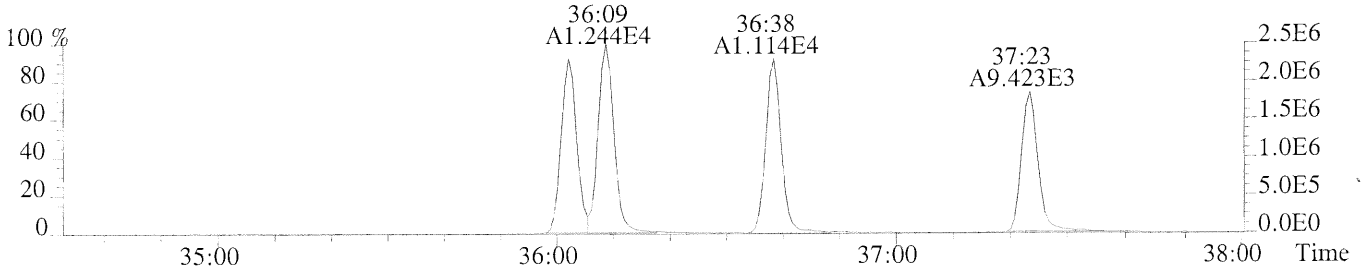


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

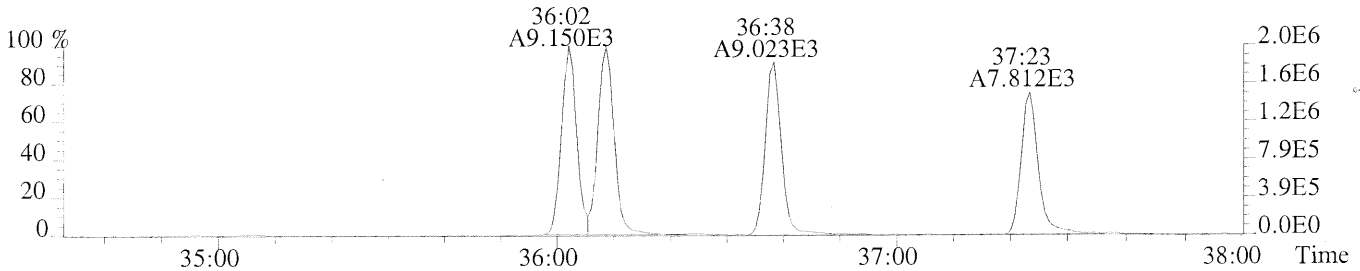


File:P227261 #1-315 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

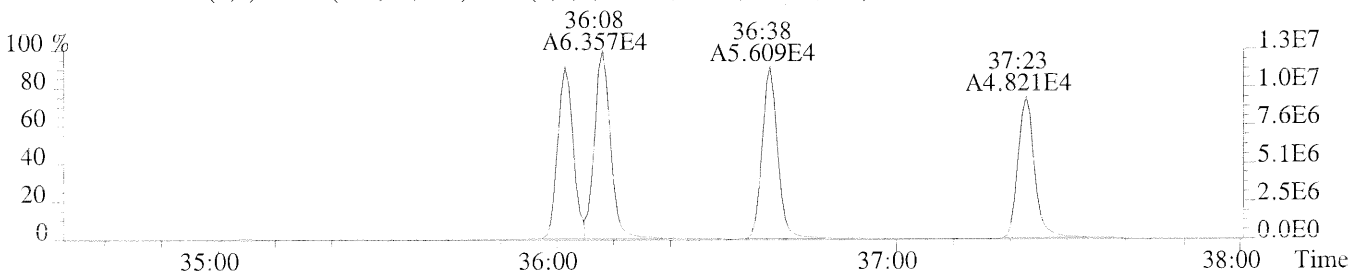
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



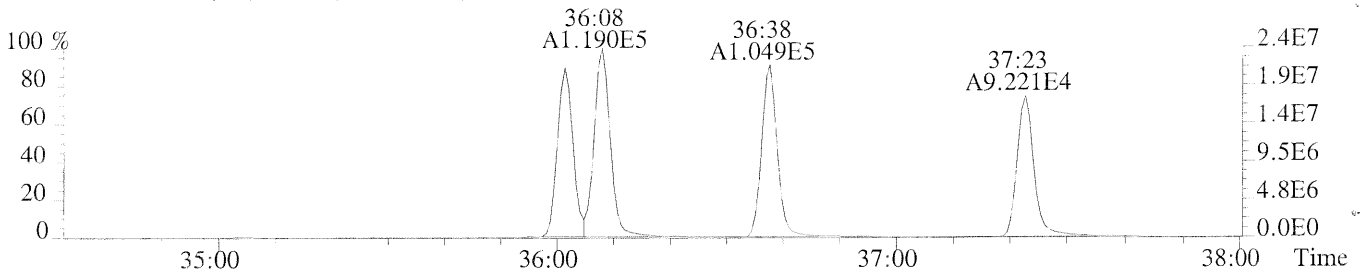
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



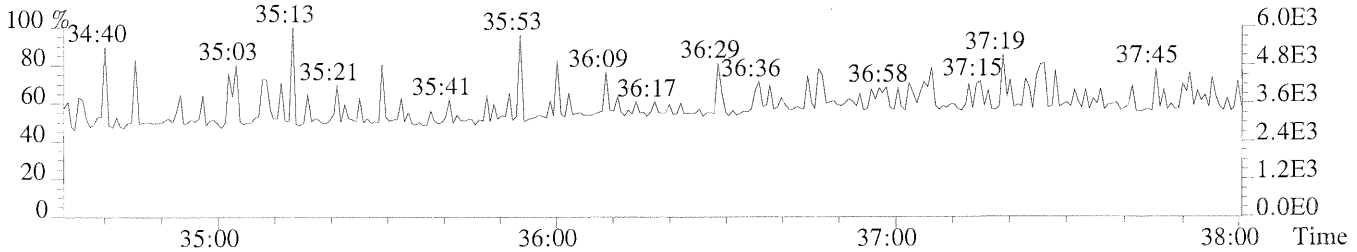
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



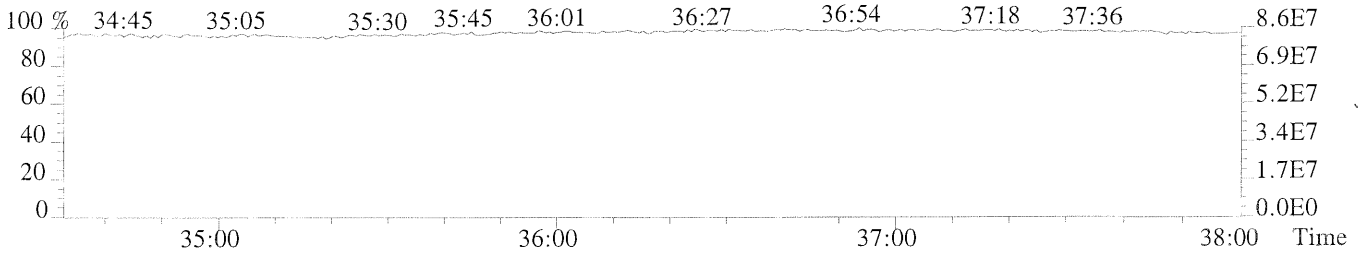
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1728.0,0.40%,F,T)



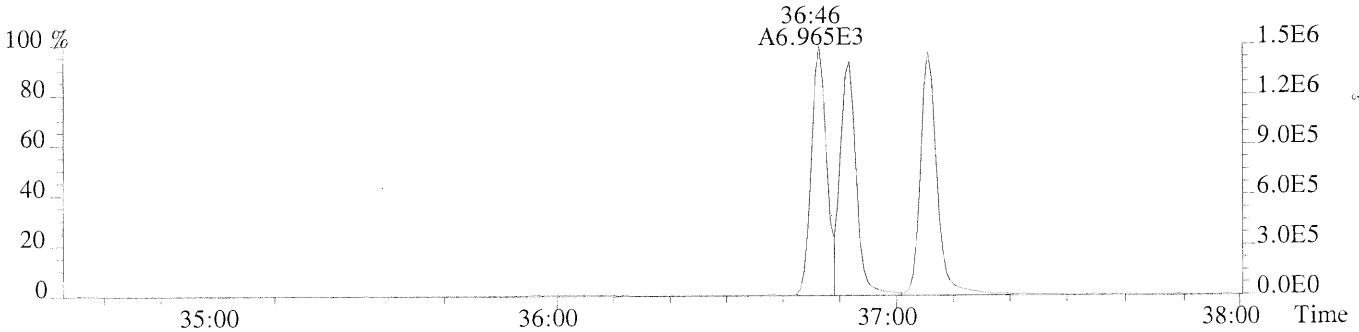
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



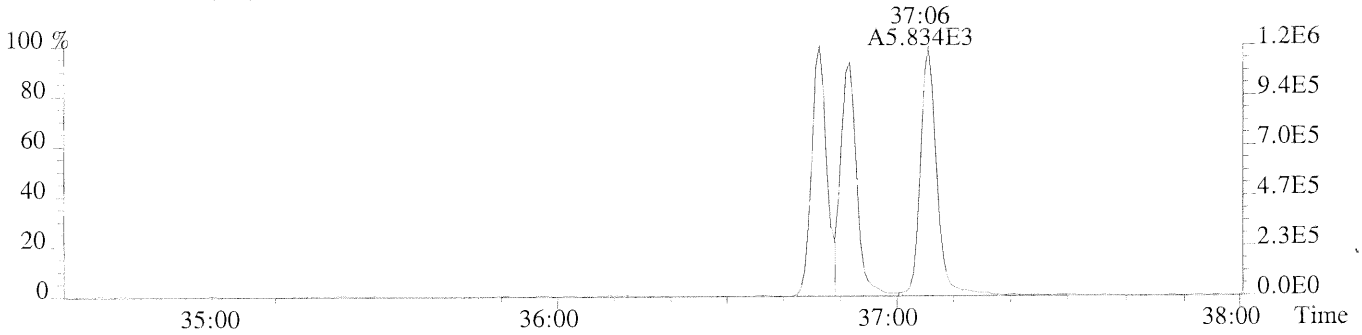
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



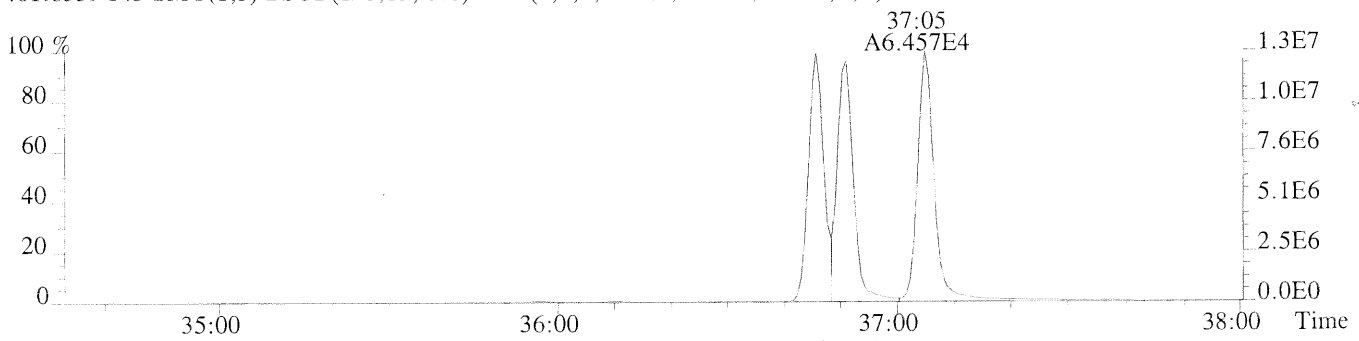
File:P227261 #1-315 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



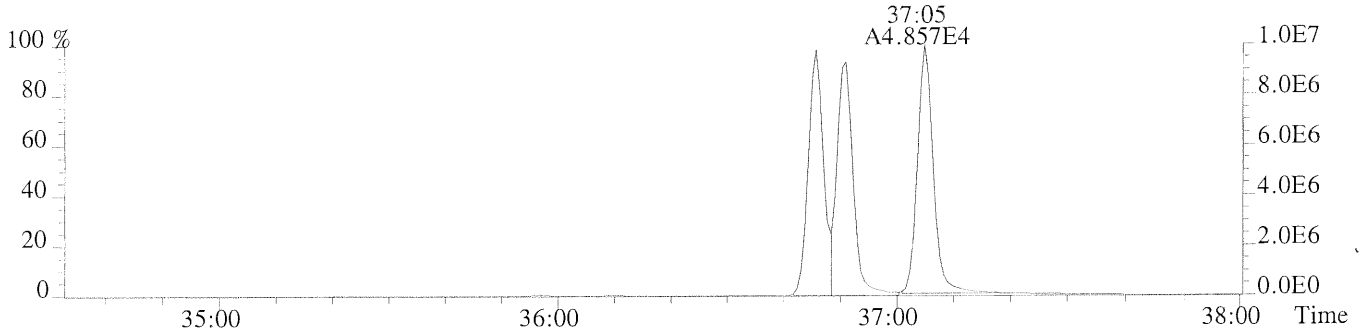
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1000.0,0.40%,F,T)



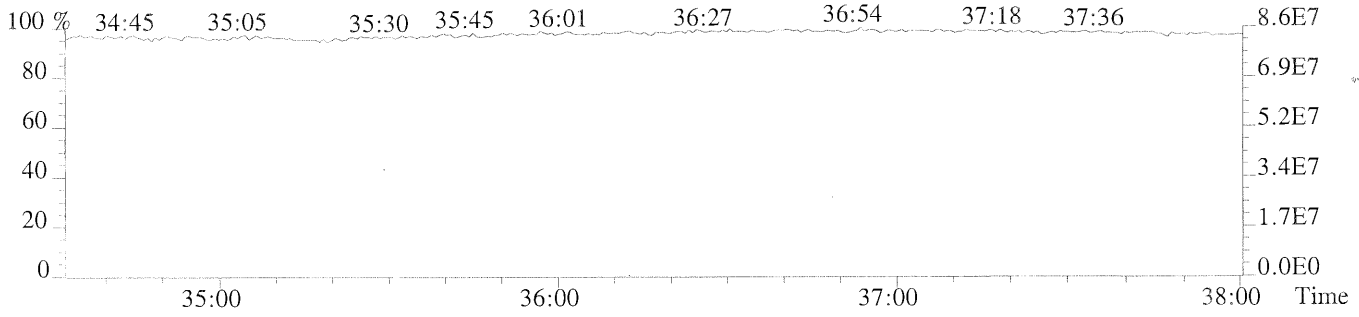
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2564.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)

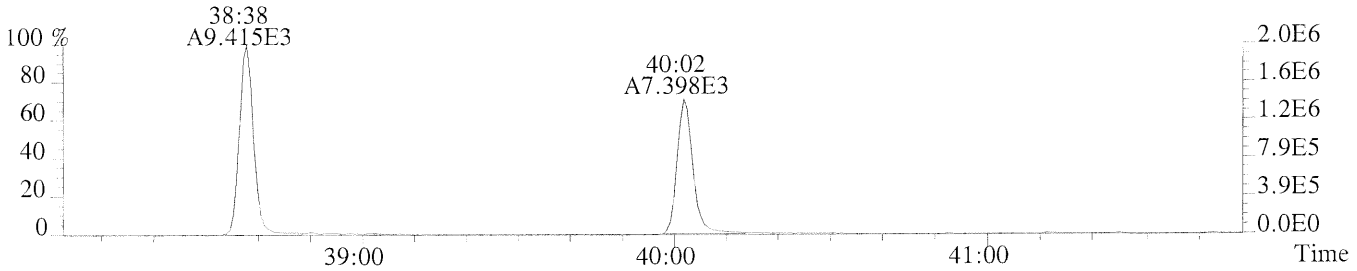


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

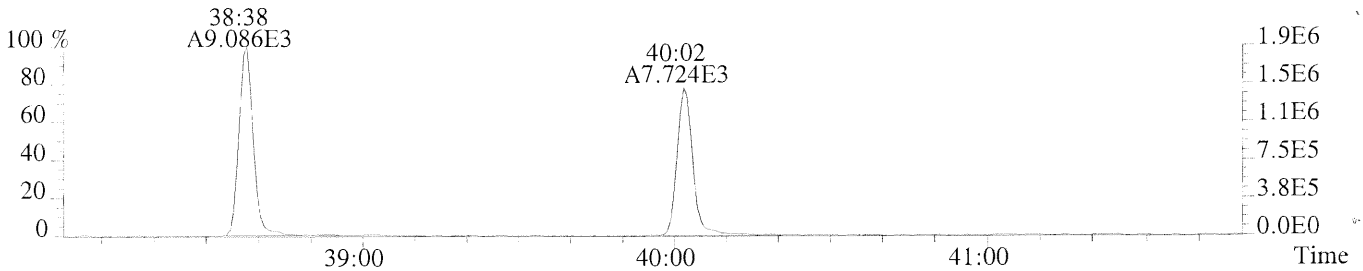


File:P227261 #1-342 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

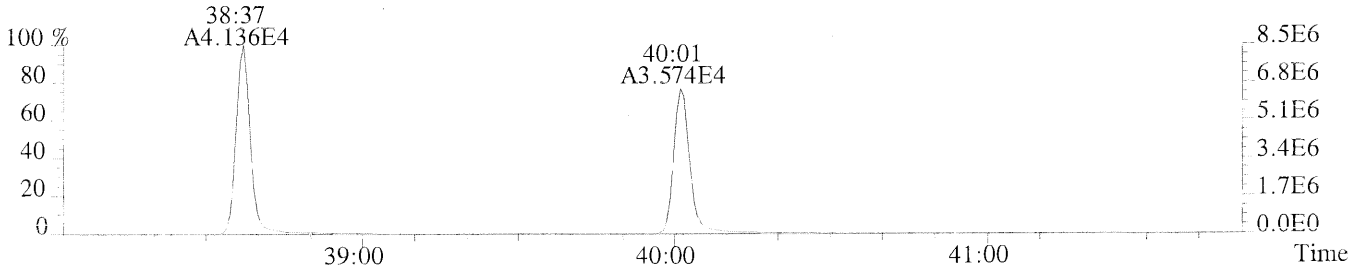
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1452.0,0.50%,F,T)



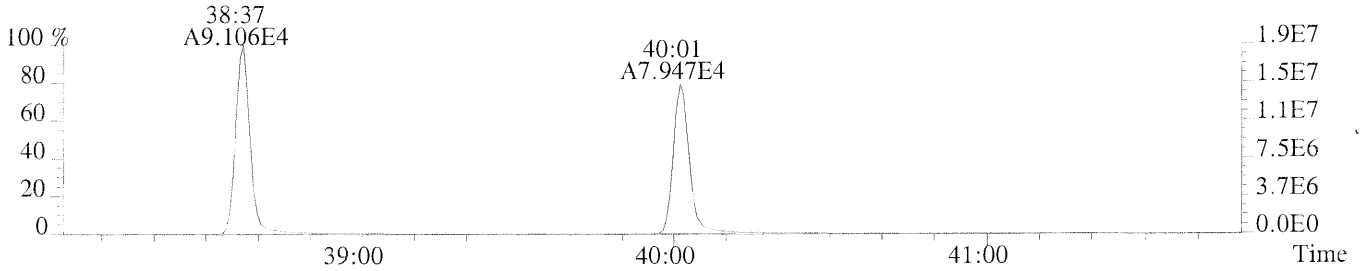
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3364.0,0.50%,F,T)



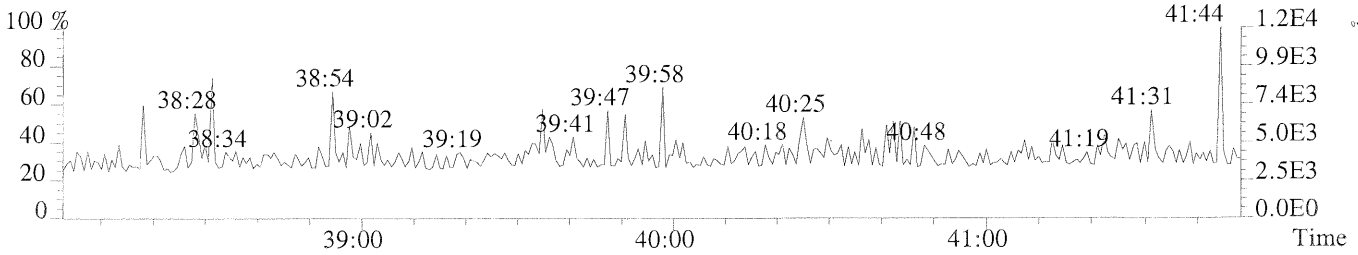
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4708.0,0.50%,F,T)



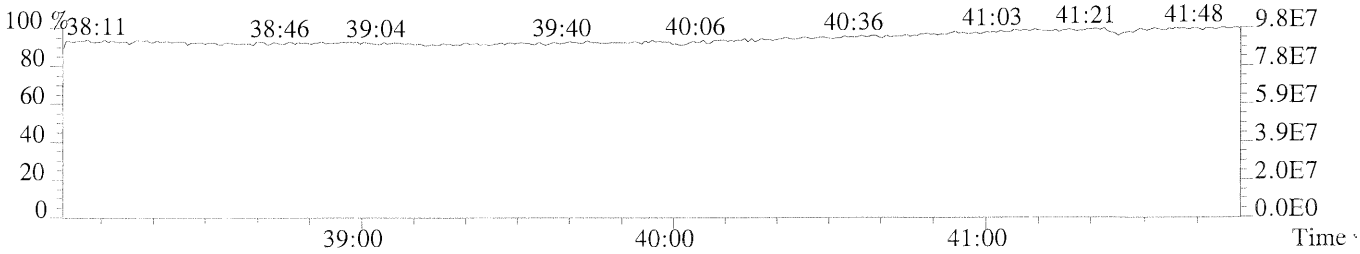
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4044.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

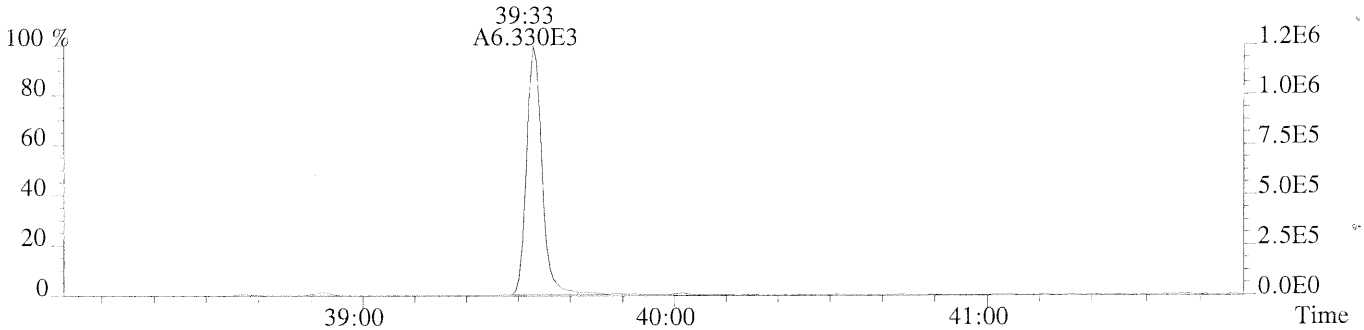


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

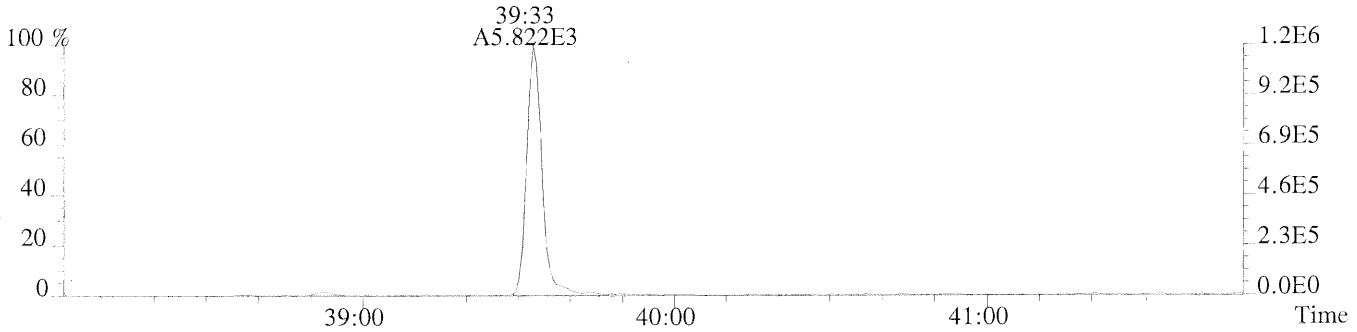


File:P227261 #1-342 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

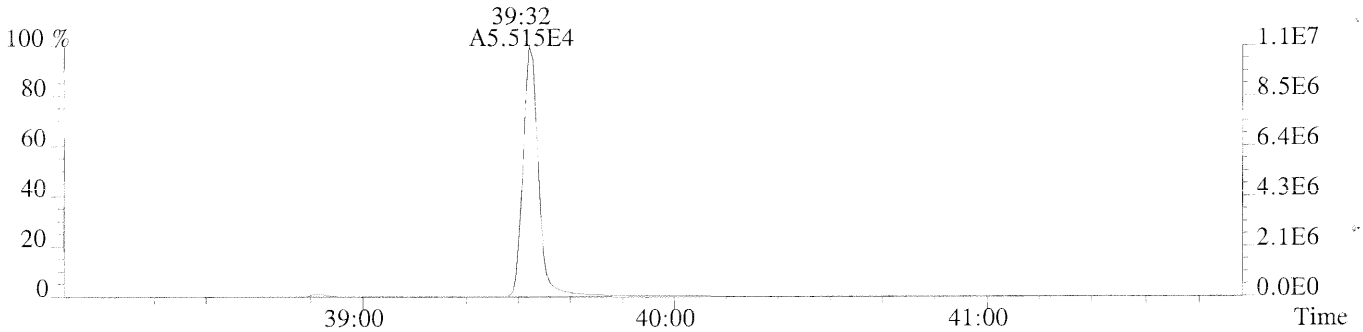
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



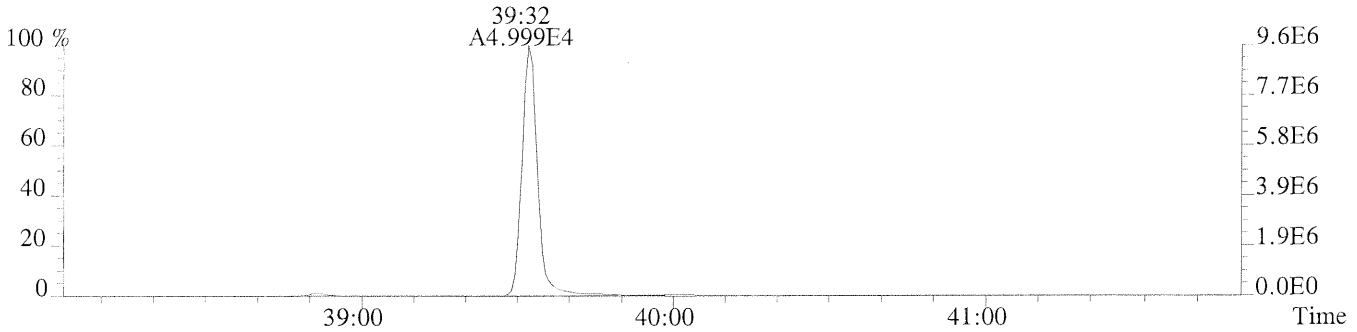
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



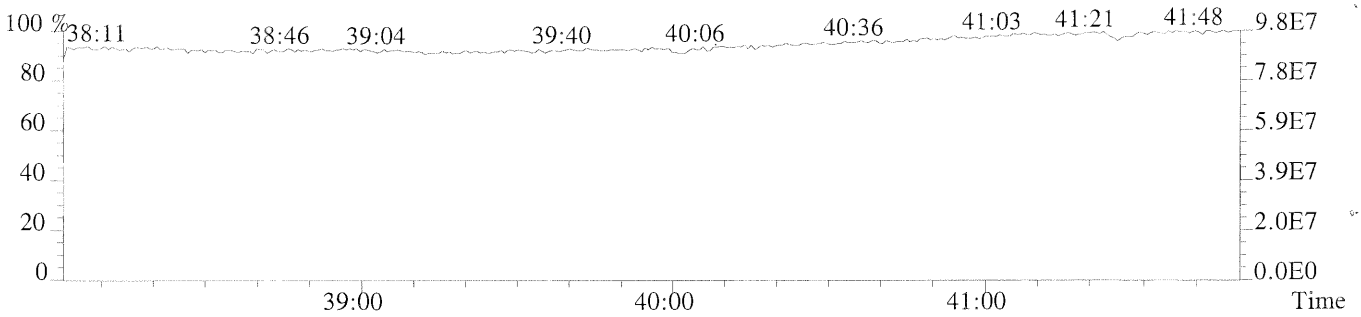
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)



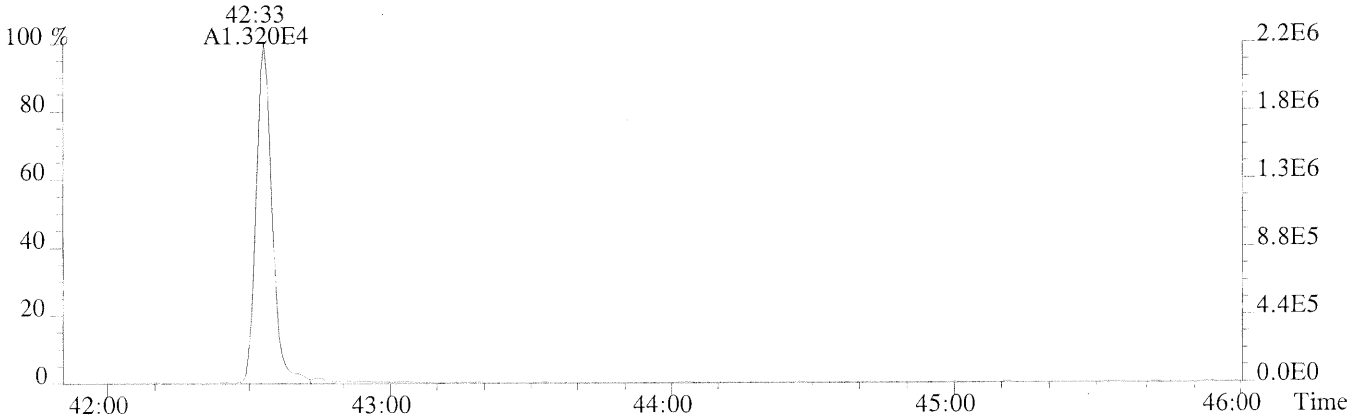
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



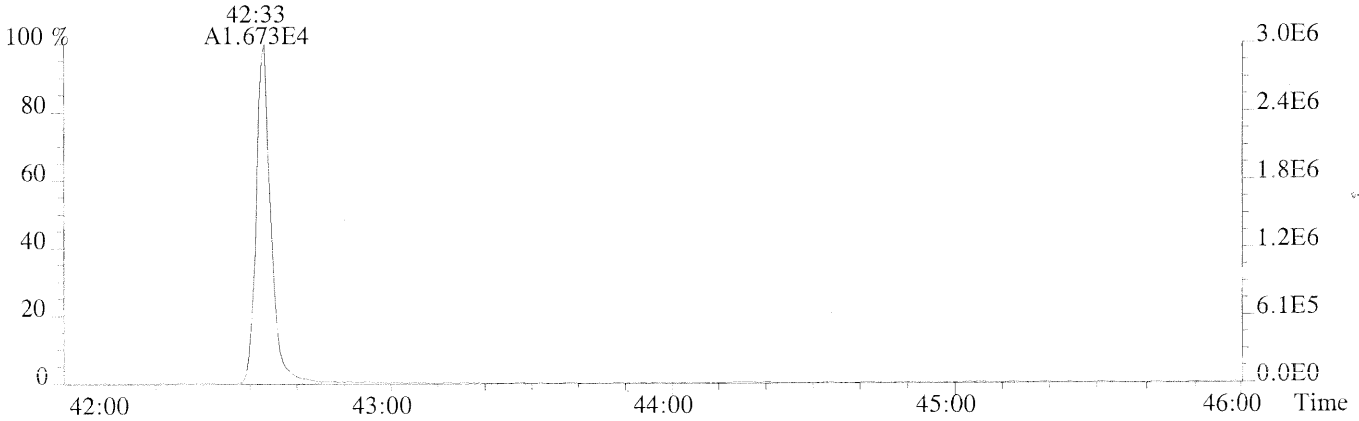
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



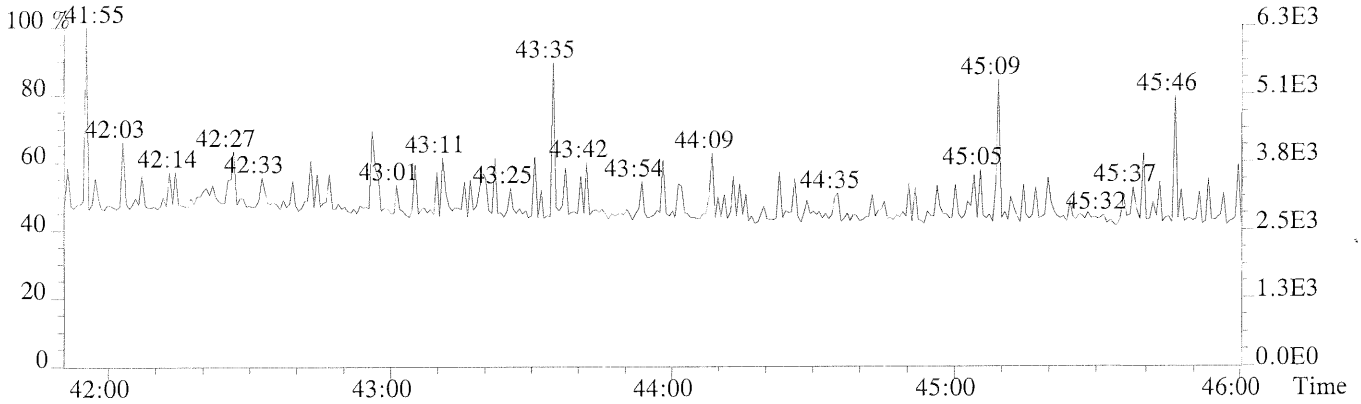
File:P227261 #1-383 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1752.0,0.40%,F,T)



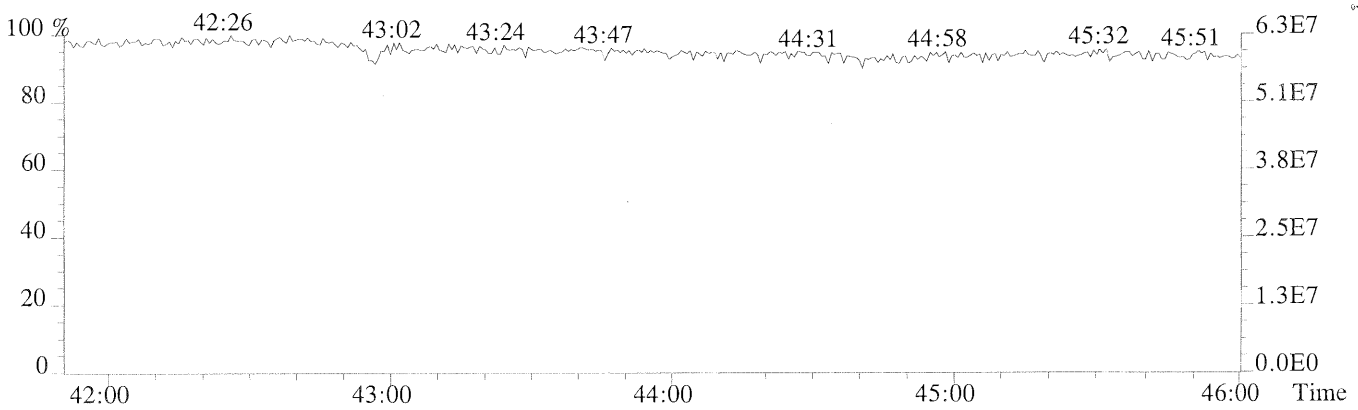
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2564.0,0.40%,F,T)



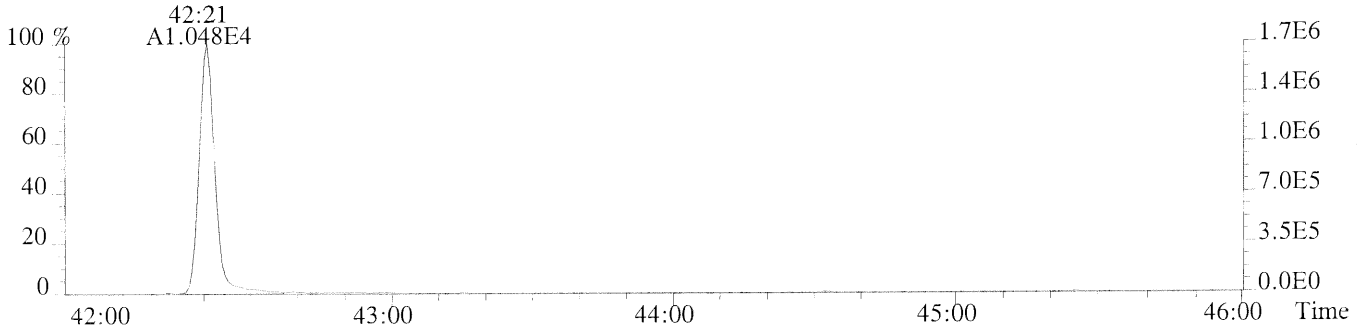
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



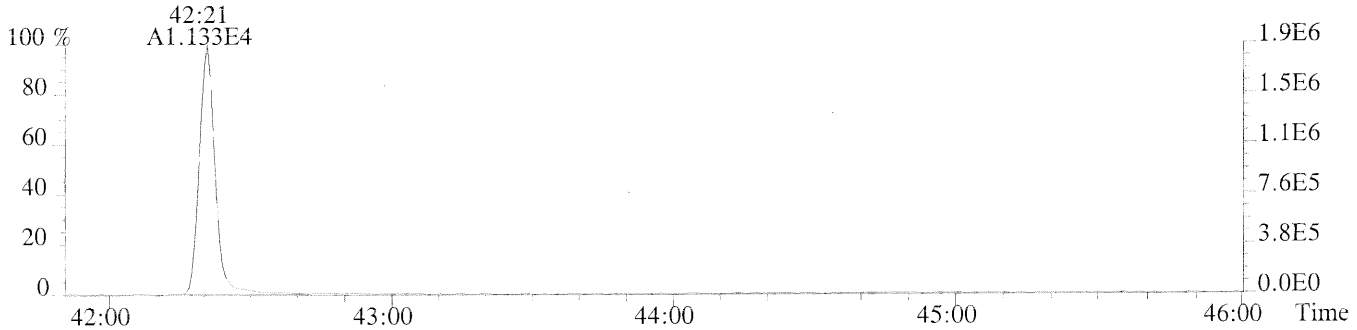
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



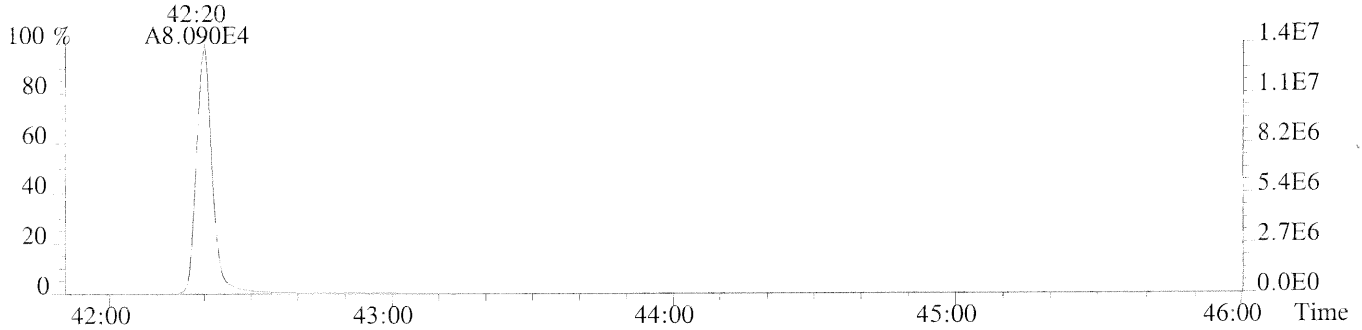
File:P227261 #1-383 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



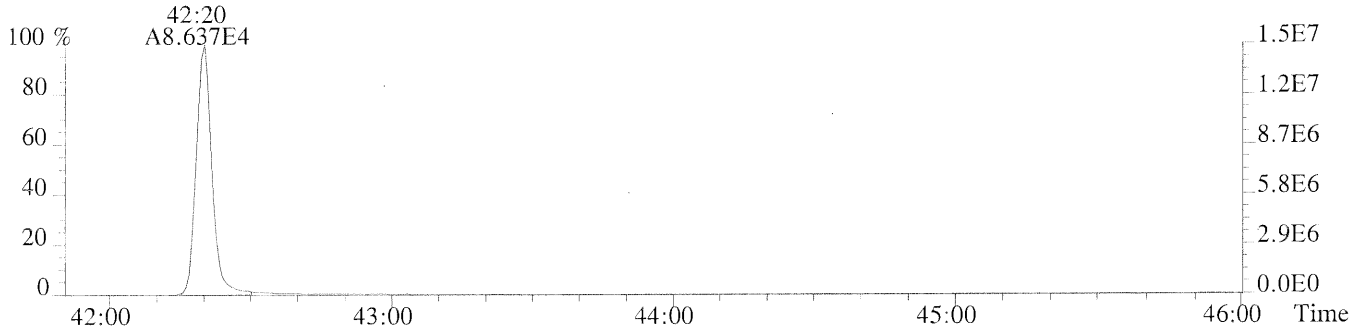
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3388.0,0.40%,F,T)



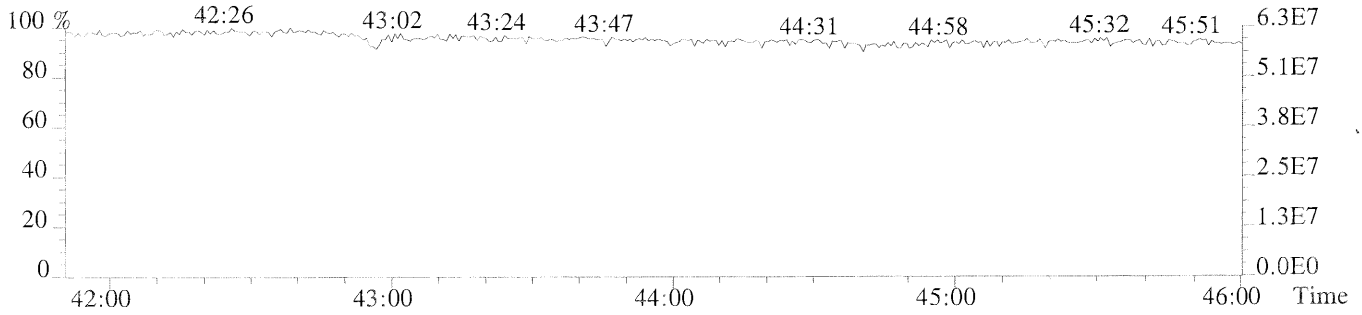
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3696.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4660.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
ICAL HRCC3/CS3

Run #4 Filename p227262 #1 Samp: 1 Inj: 1 Acquired: 1-FEB-14 19:24:19
Processed: 6-FEB-14 13:56:20 LAB. ID: 63383

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:22	7.677e+03	9.588e+03	0.80	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:30	7.027e+04	4.529e+04	1.55	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:24	6.433e+04	4.145e+04	1.55	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:03	5.613e+04	4.523e+04	1.24	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:09	6.092e+04	4.984e+04	1.22	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:39	5.264e+04	4.323e+04	1.22	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:24	4.589e+04	3.651e+04	1.26	yes	yes	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	4.695e+04	4.678e+04	1.00	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	3.674e+04	3.689e+04	1.00	yes	no	1.000
10	Unk	OCDF	42:35	5.546e+04	6.212e+04	0.89	yes	no	1.006
11	Unk	2,3,7,8-TCDD	29:07	4.837e+03	5.877e+03	0.82	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:41	3.911e+04	2.413e+04	1.62	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:47	3.316e+04	2.601e+04	1.27	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:52	3.614e+04	2.842e+04	1.27	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:06	3.591e+04	2.760e+04	1.30	yes	no	1.006
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	3.081e+04	2.853e+04	1.08	yes	no	1.000
17	Unk	OCDD	42:22	4.150e+04	4.666e+04	0.89	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:20	7.085e+04	8.584e+04	0.83	yes	no	0.992
19	IS	13C-1,2,3,7,8-PeCDF	32:29	1.285e+05	7.870e+04	1.63	yes	no	1.138
20	IS	13C-2,3,4,7,8-PeCDF	33:23	1.249e+05	7.581e+04	1.65	yes	no	1.169
21	IS	13C-1,2,3,4,7,8-HxCDF	36:02	5.294e+04	1.010e+05	0.52	yes	no	0.971
22	IS	13C-1,2,3,6,7,8-HxCDF	36:09	6.358e+04	1.197e+05	0.53	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	5.489e+04	1.030e+05	0.53	yes	no	0.987
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	4.657e+04	8.772e+04	0.53	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	4.043e+04	8.951e+04	0.45	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	3.330e+04	7.386e+04	0.45	yes	no	1.080
27	IS	13C-2,3,7,8-TCDD	29:06	4.566e+04	5.857e+04	0.78	yes	no	1.019
28	IS	13C-1,2,3,7,8-PeCDD	33:40	7.431e+04	4.679e+04	1.59	yes	no	1.179
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	5.612e+04	4.346e+04	1.29	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:52	6.141e+04	4.739e+04	1.30	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:33	5.361e+04	4.847e+04	1.11	yes	no	1.066
32	IS	13C-OCDD	42:21	6.711e+04	7.200e+04	0.93	yes	no	1.142
33	RS/RT	13C-1,2,3,4-TCDD	28:33	4.950e+04	6.402e+04	0.77	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:06	6.249e+04	4.837e+04	1.29	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:07	1.056e+04				no	1.020

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ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL HRCC3/CS3

Run #4 Filename p227262 Samp: 1 Inj: 1 Acquired: 1-FEB-14 19:24:19
Processed: 6-FEB-14 13:56:201 LAB. ID: 63383

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.50e+06	5.60e+02	2.7e+03	1.91e+06	3.65e+03	5.2e+02
2	1,2,3,7,8-PeCDF	1.29e+07	1.04e+03	1.2e+04	8.43e+06	3.44e+03	2.5e+03
3	2,3,4,7,8-PeCDF	1.23e+07	1.04e+03	1.2e+04	7.99e+06	3.44e+03	2.3e+03
4	1,2,3,4,7,8-HxCDF	1.16e+07	1.15e+03	1.0e+04	9.62e+06	1.74e+03	5.5e+03
5	1,2,3,6,7,8-HxCDF	1.22e+07	1.15e+03	1.1e+04	9.74e+06	1.74e+03	5.6e+03
6	2,3,4,6,7,8-HxCDF	1.10e+07	1.15e+03	9.6e+03	8.99e+06	1.74e+03	5.2e+03
7	1,2,3,7,8,9-HxCDF	8.95e+06	1.15e+03	7.8e+03	7.25e+06	1.74e+03	4.2e+03
8	1,2,3,4,6,7,8-HpCDF	9.90e+06	6.22e+03	1.6e+03	9.89e+06	7.07e+03	1.4e+03
9	1,2,3,4,7,8,9-HpCDF	6.99e+06	6.22e+03	1.1e+03	6.95e+06	7.07e+03	9.8e+02
10	OCDF	8.85e+06	4.50e+03	2.0e+03	9.97e+06	5.02e+03	2.0e+03
11	2,3,7,8-TCDD	1.02e+06	1.08e+03	9.5e+02	1.23e+06	7.32e+02	1.7e+03
12	1,2,3,7,8-PeCDD	7.65e+06	1.74e+03	4.4e+03	4.68e+06	4.84e+02	9.7e+03
13	1,2,3,4,7,8-HxCDD	7.38e+06	5.24e+02	1.4e+04	5.79e+06	6.76e+02	8.6e+03
14	1,2,3,6,7,8-HxCDD	7.45e+06	5.24e+02	1.4e+04	5.90e+06	6.76e+02	8.7e+03
15	1,2,3,7,8,9-HxCDD	7.08e+06	5.24e+02	1.4e+04	5.61e+06	6.76e+02	8.3e+03
16	1,2,3,4,6,7,8-HpCDD	6.09e+06	5.44e+02	1.1e+04	5.62e+06	1.00e+03	5.6e+03
17	OCDD	6.91e+06	4.06e+03	1.7e+03	7.68e+06	4.19e+03	1.8e+03
18	13C-2,3,7,8-TCDF	1.44e+07	1.76e+03	8.2e+03	1.74e+07	1.55e+03	1.1e+04
19	13C-1,2,3,7,8-PeCDF	2.38e+07	3.72e+02	6.4e+04	1.44e+07	9.44e+02	1.5e+04
20	13C-2,3,4,7,8-PeCDF	2.39e+07	3.72e+02	6.4e+04	1.47e+07	9.44e+02	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	1.12e+07	1.43e+03	7.8e+03	2.14e+07	1.82e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	1.27e+07	1.43e+03	8.9e+03	2.38e+07	1.82e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.13e+07	1.43e+03	7.9e+03	2.13e+07	1.82e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	9.00e+06	1.43e+03	6.3e+03	1.70e+07	1.82e+03	9.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	8.38e+06	8.36e+03	1.0e+03	1.86e+07	1.26e+04	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.30e+06	8.36e+03	7.5e+02	1.41e+07	1.26e+04	1.1e+03
27	13C-2,3,7,8-TCDD	9.66e+06	8.00e+03	1.2e+03	1.24e+07	4.06e+03	3.1e+03
28	13C-1,2,3,7,8-PeCDD	1.43e+07	8.16e+02	1.8e+04	8.92e+06	7.56e+02	1.2e+04
29	13C-1,2,3,4,7,8-HxCDD	1.24e+07	2.16e+03	5.7e+03	9.62e+06	1.01e+03	9.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.25e+07	2.16e+03	5.8e+03	9.62e+06	1.01e+03	9.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.04e+07	1.68e+03	6.2e+03	9.49e+06	7.60e+02	1.2e+04
32	13C-OCDD	1.10e+07	2.77e+03	4.0e+03	1.15e+07	1.09e+04	1.1e+03
33	13C-1,2,3,4-TCDD	1.05e+07	8.00e+03	1.3e+03	1.35e+07	4.06e+03	3.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.21e+07	2.16e+03	5.6e+03	9.45e+06	1.01e+03	9.3e+03
35	37Cl-2,3,7,8-TCDD	2.18e+06	2.30e+03	9.4e+02			

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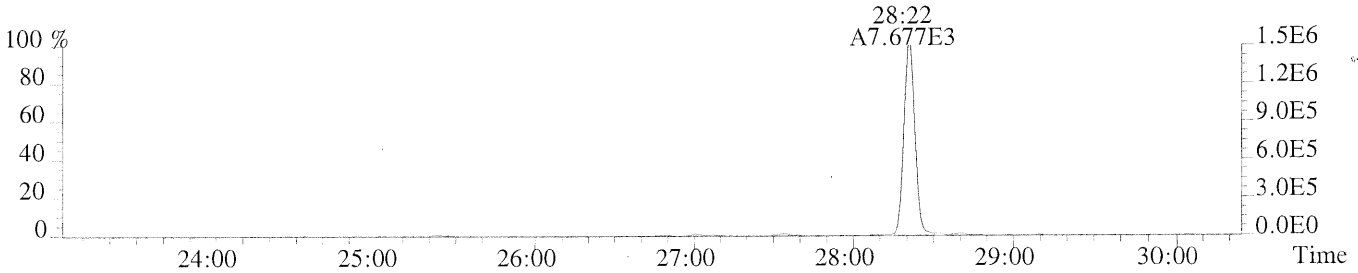
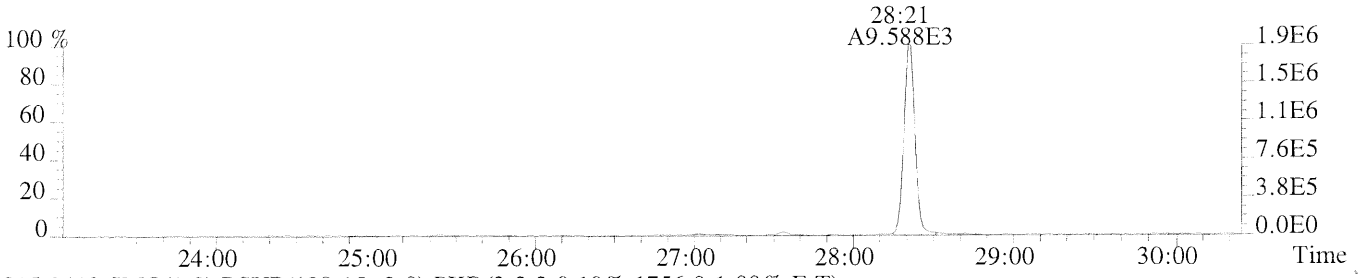
XLSN

File:P227262 #1-464 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

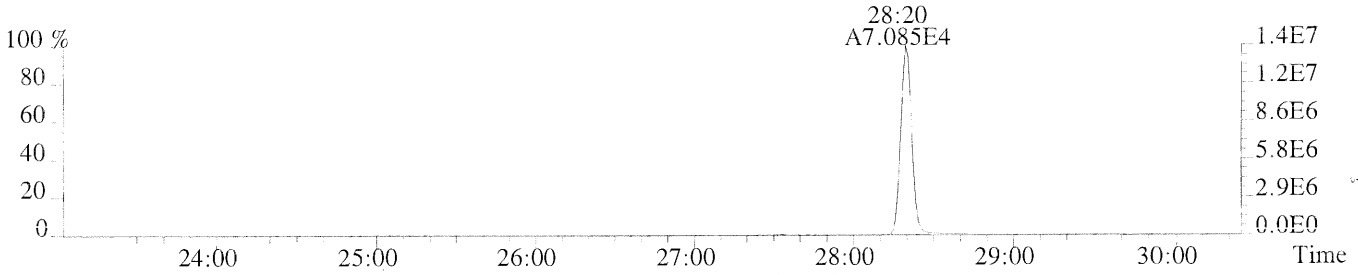
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



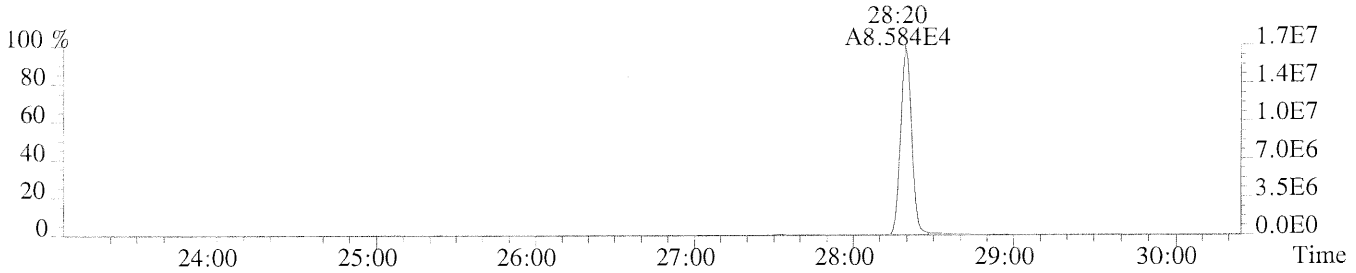
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3648.0,1.00%,F,T)



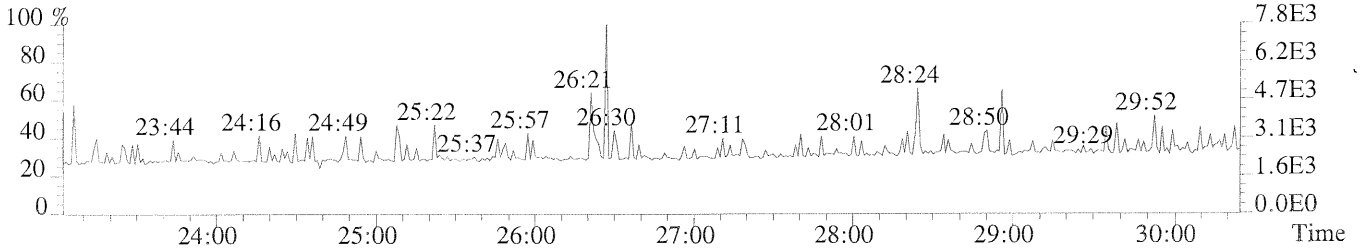
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1756.0,1.00%,F,T)



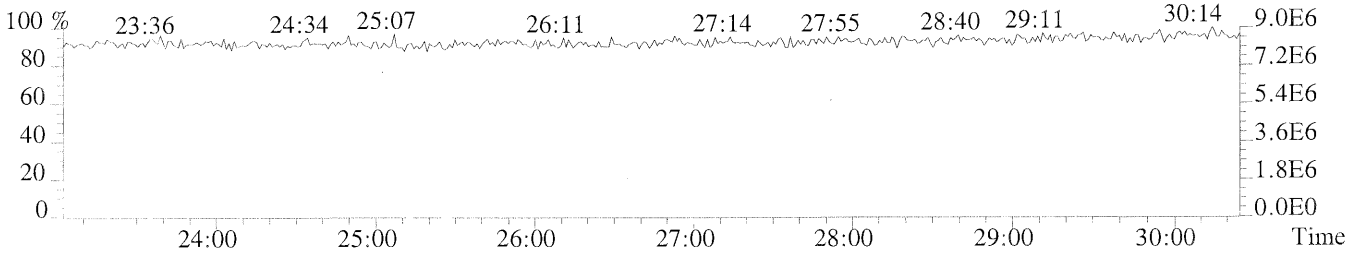
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1548.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

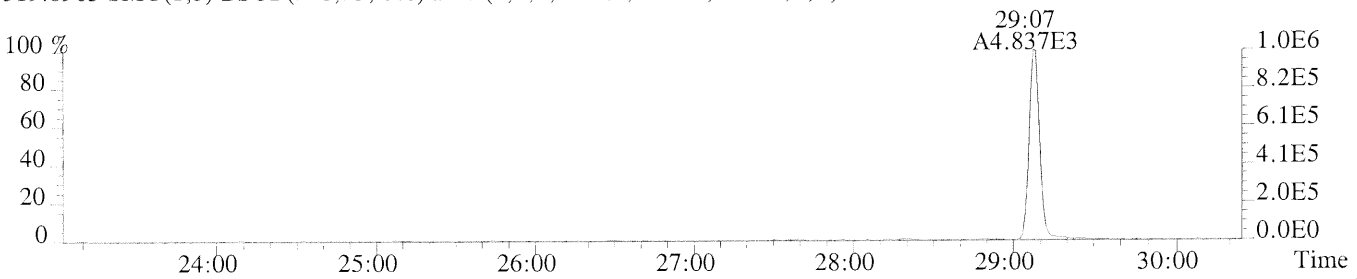


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

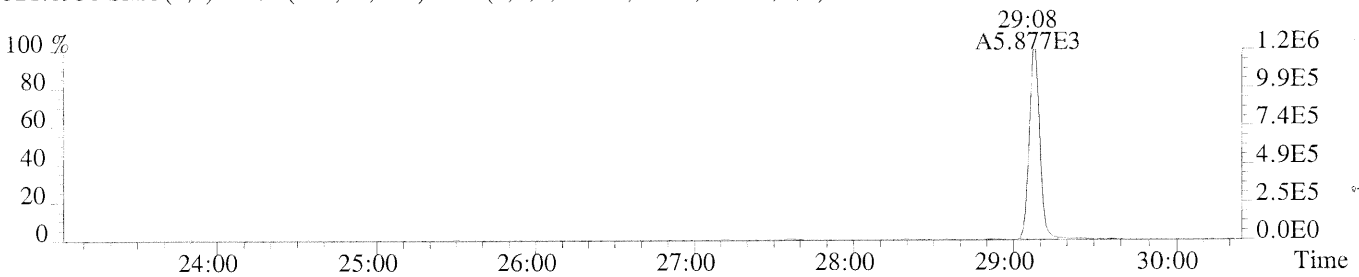


File:P227262 #1-464 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

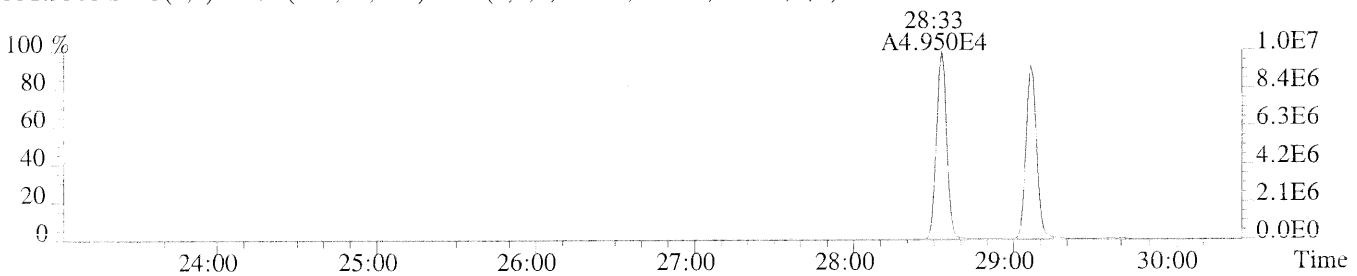
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



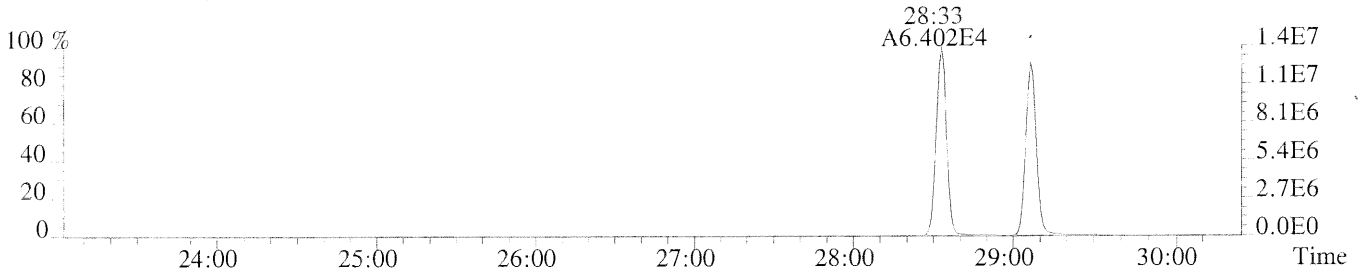
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



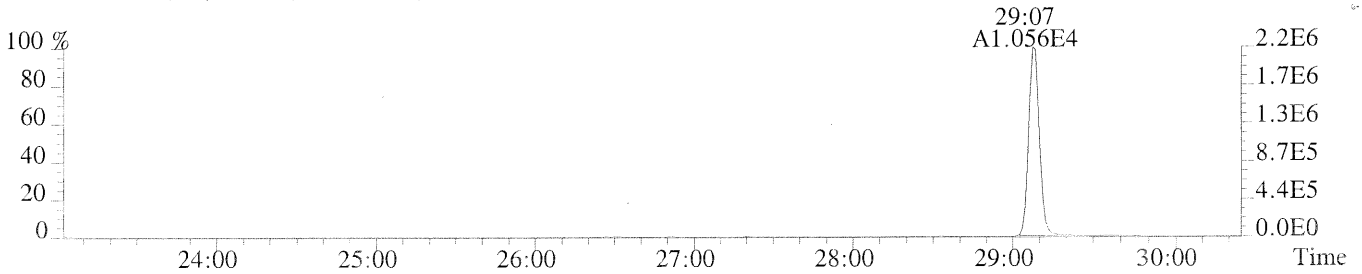
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8004.0,1.00%,F,T)



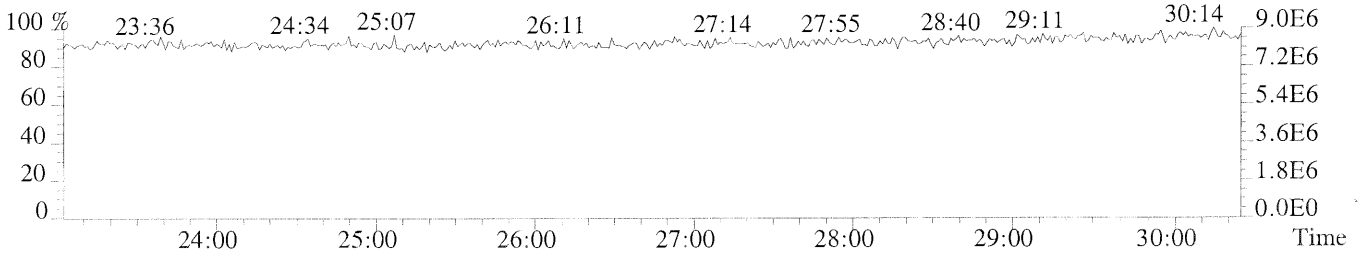
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4064.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2304.0,1.00%,F,T)

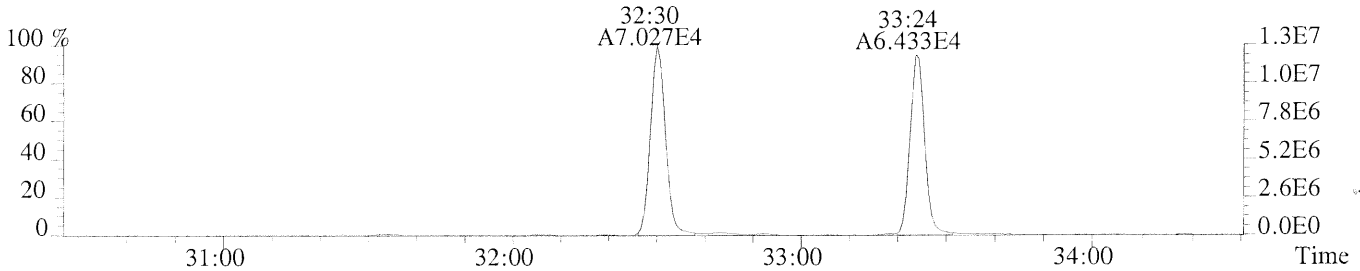


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

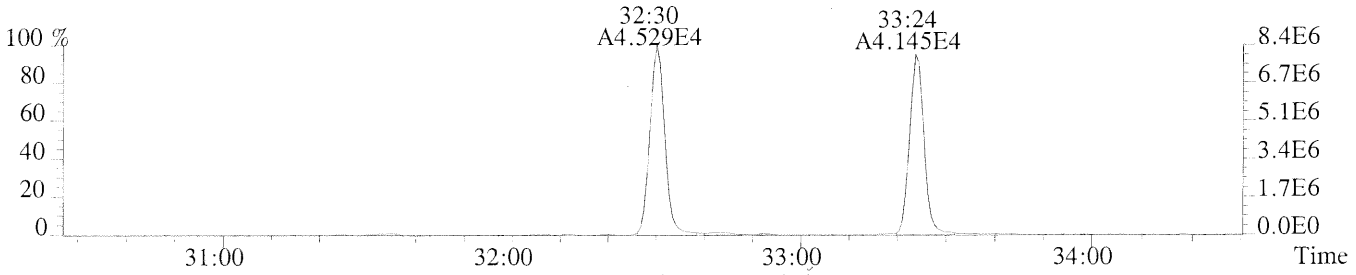


File:P227262 #1-369 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

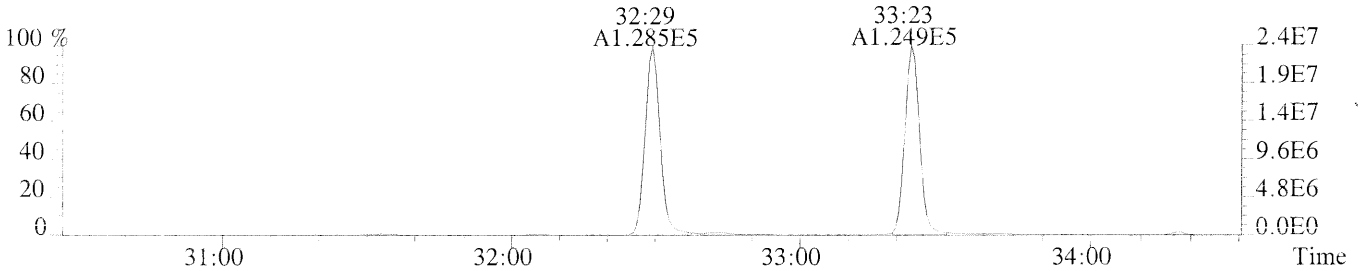
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



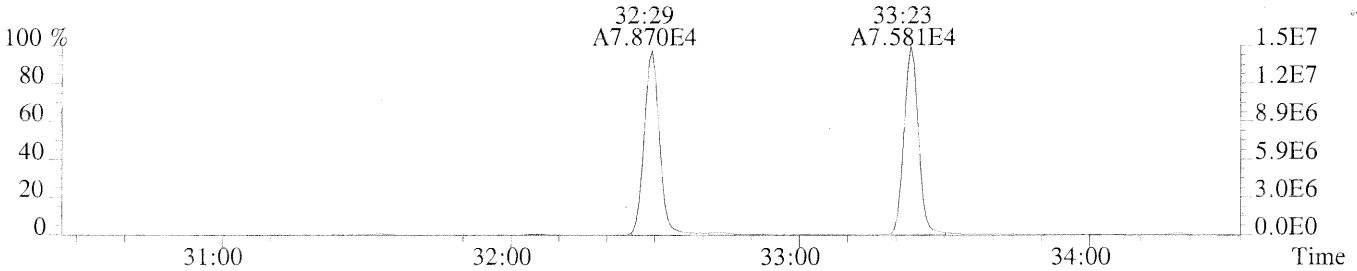
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



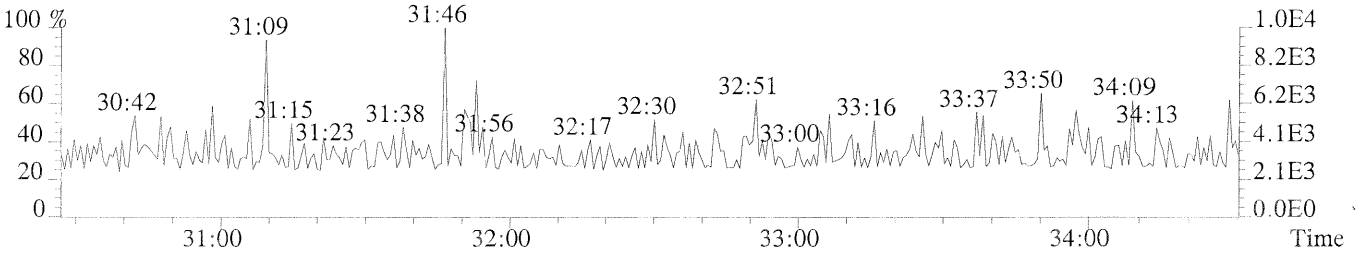
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



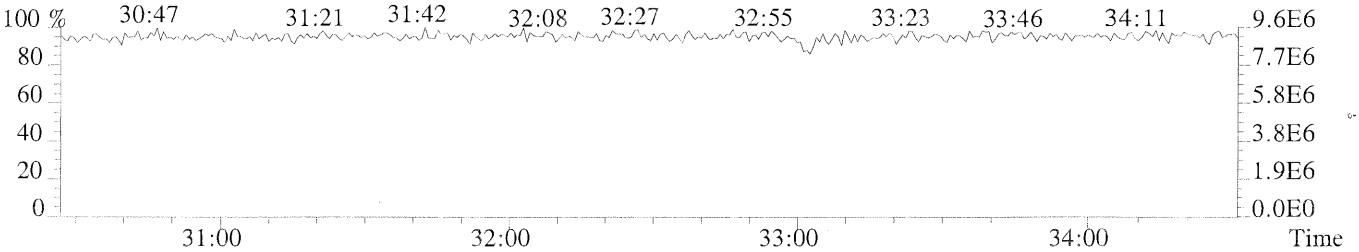
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



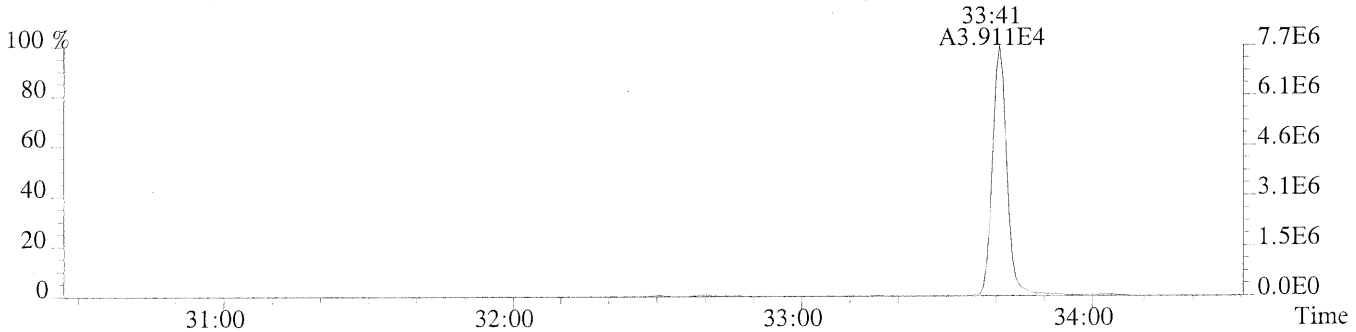
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



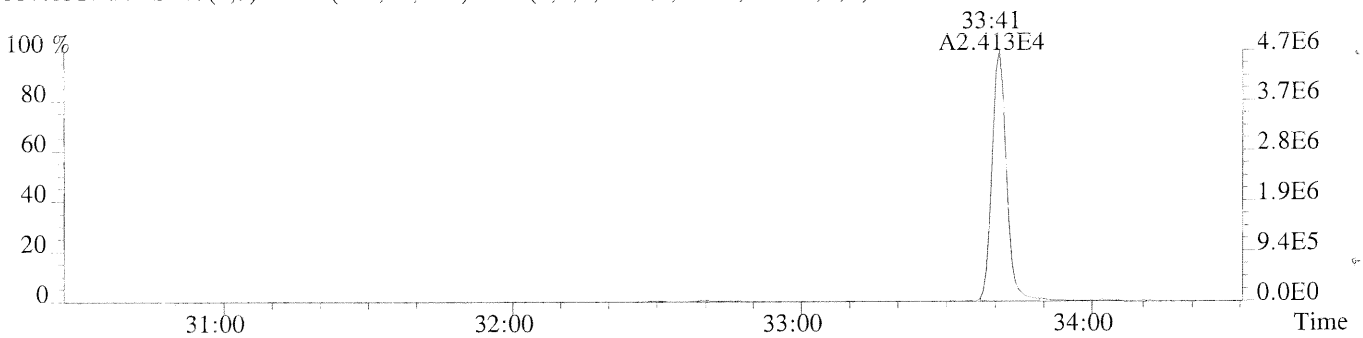
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



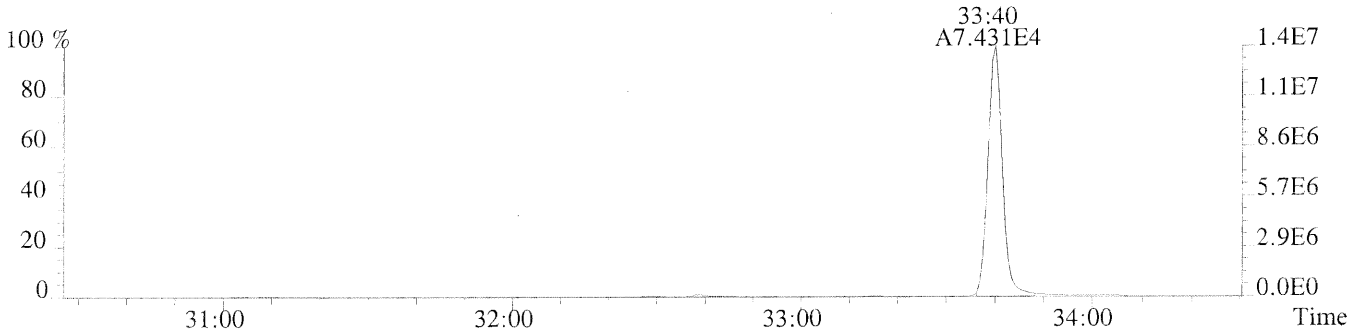
File:P227262 #1-369 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1744.0,1.00%,F,T)



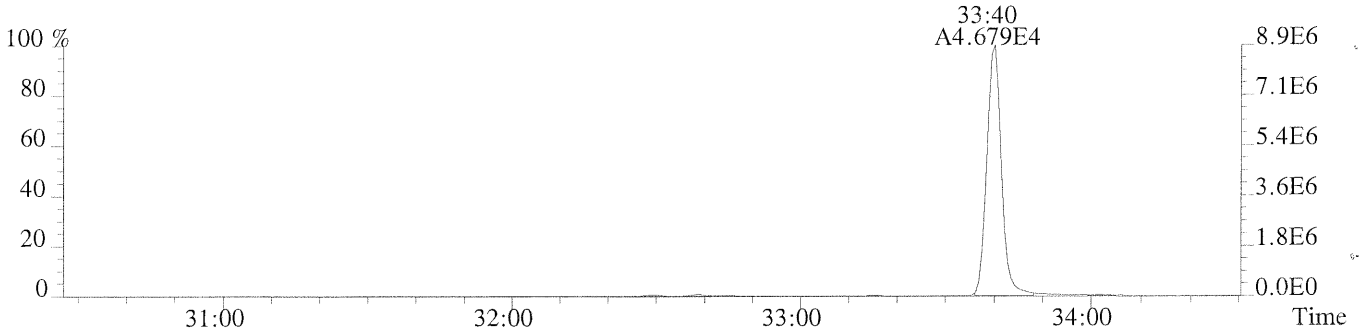
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



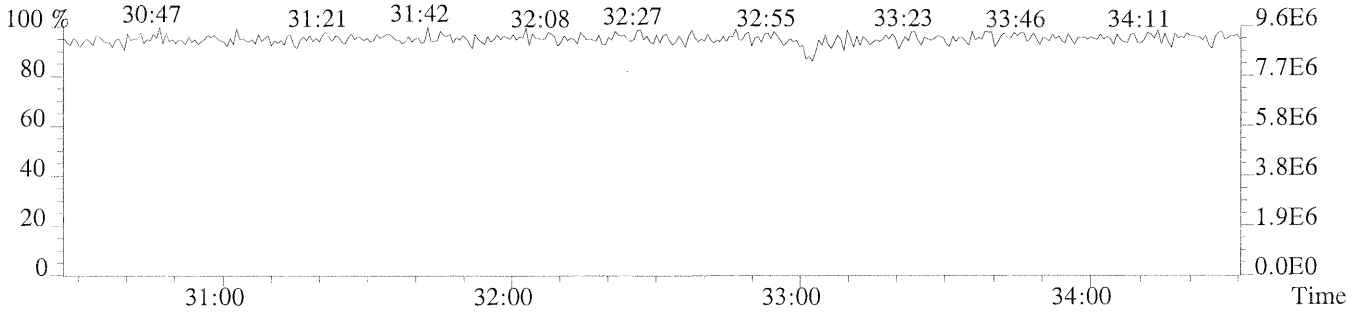
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)

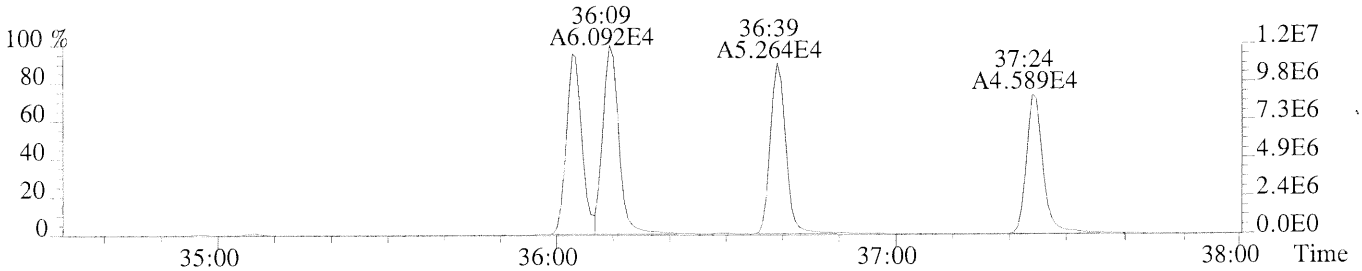


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

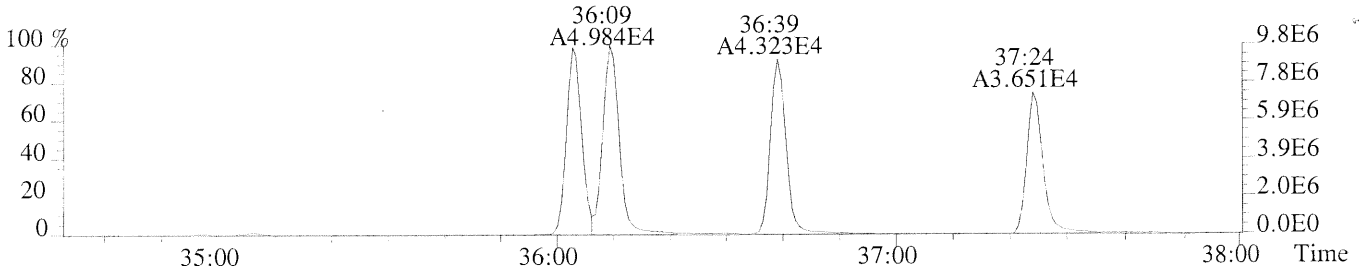


File:P227262 #1-315 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

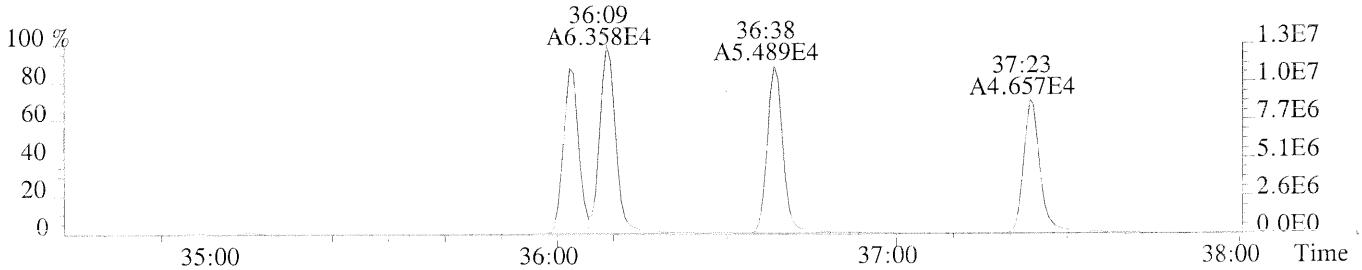
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



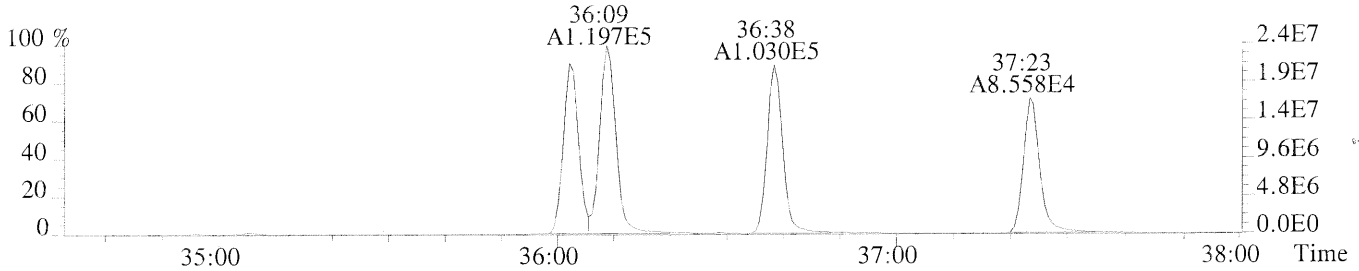
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1736.0,0.40%,F,T)



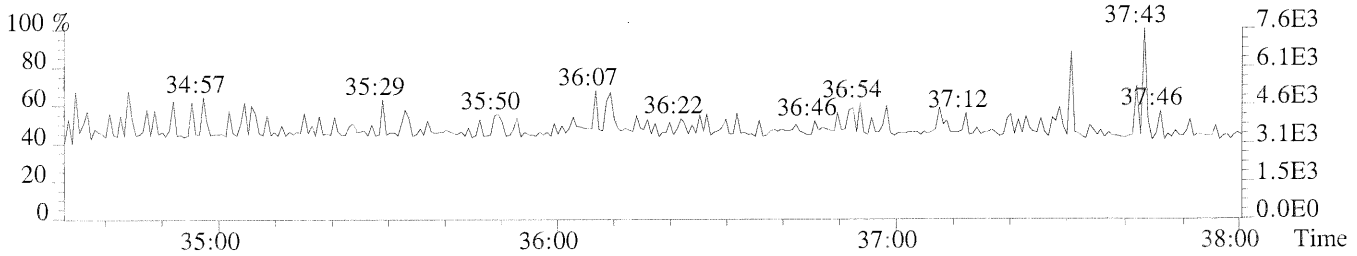
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



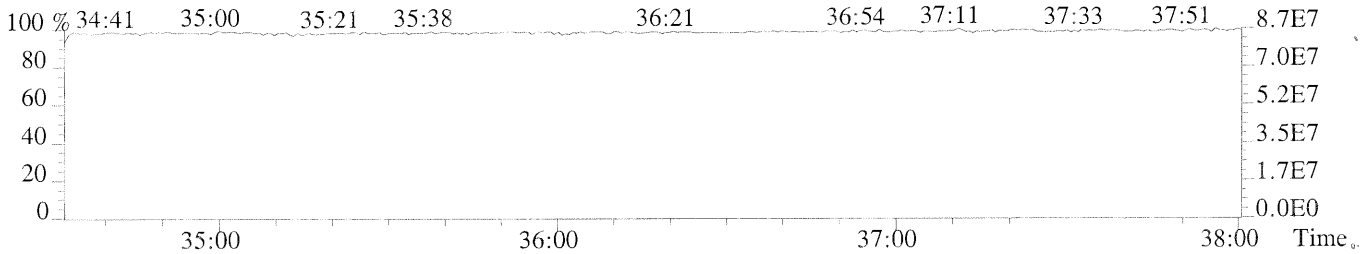
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1816.0,0.40%,F,T)



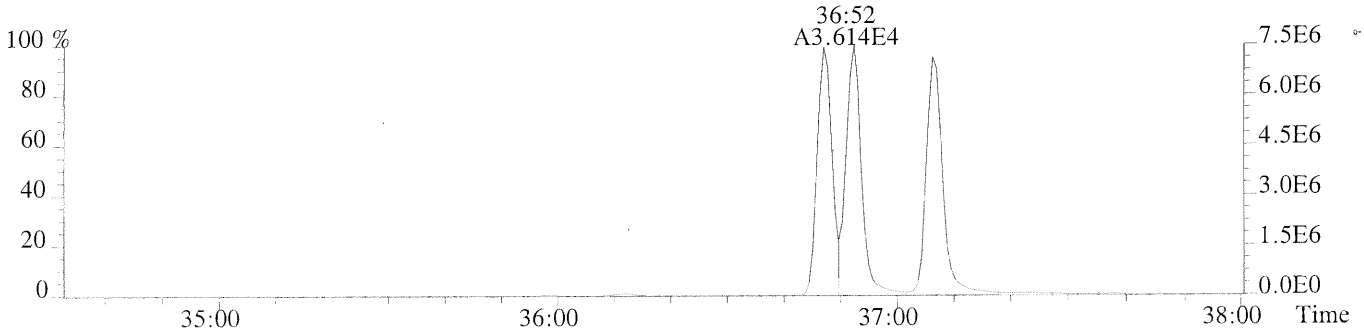
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



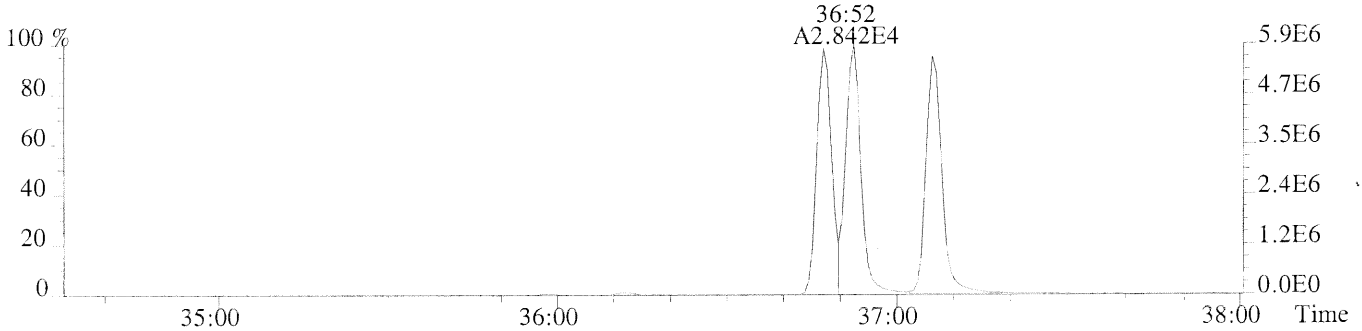
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



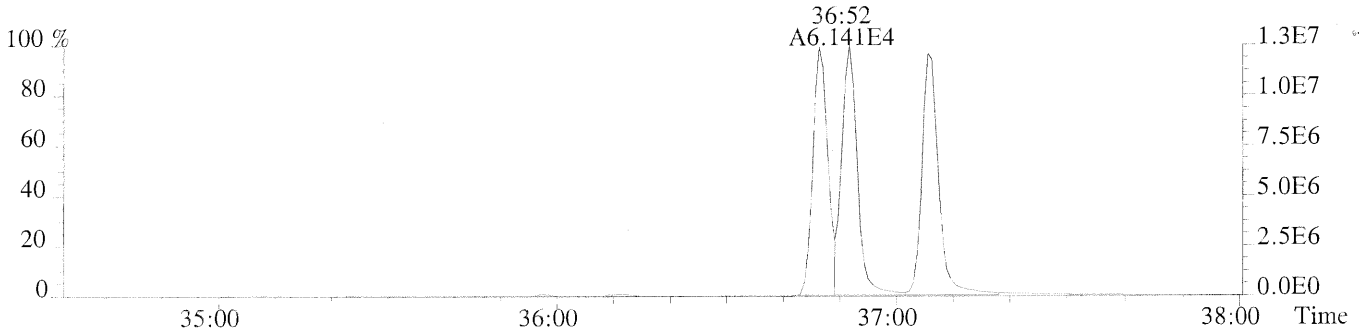
File:P227262 #1-315 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



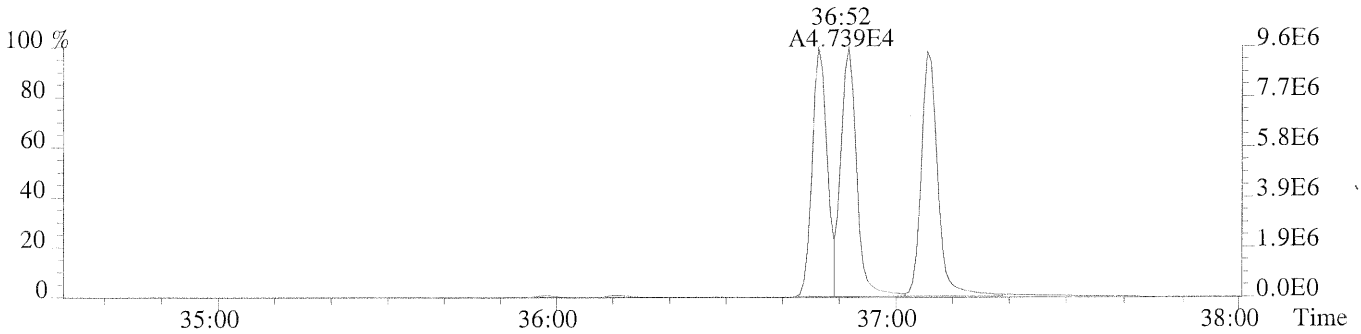
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



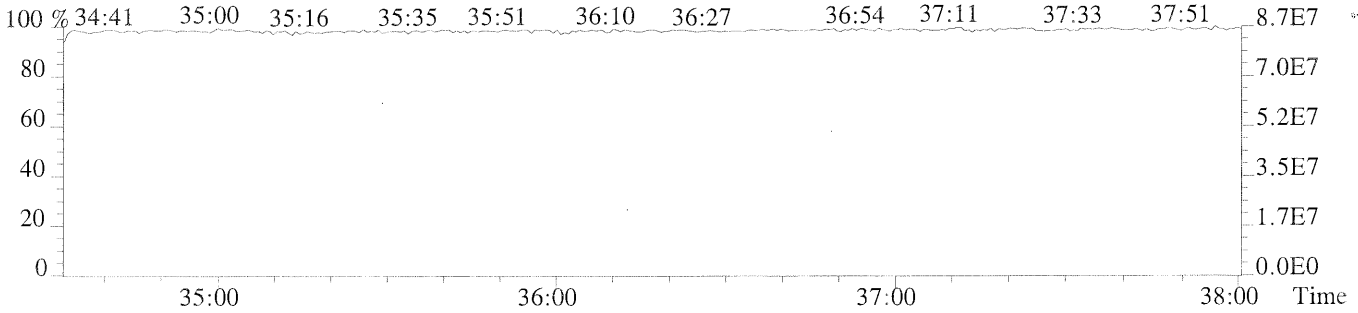
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2156.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1012.0,0.40%,F,T)

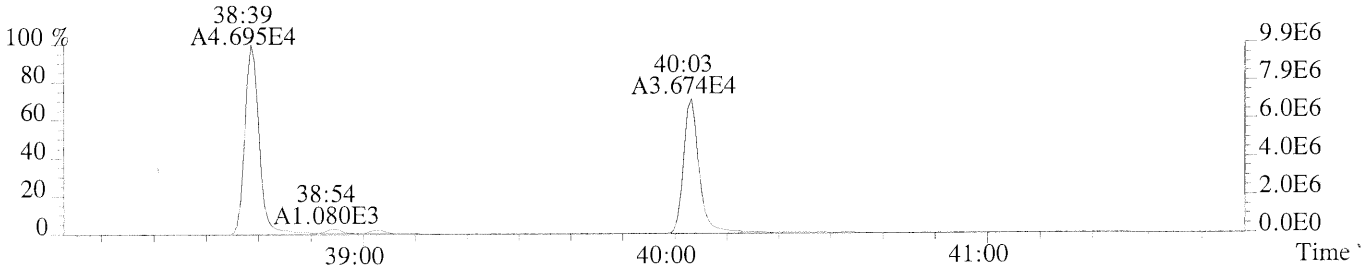


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

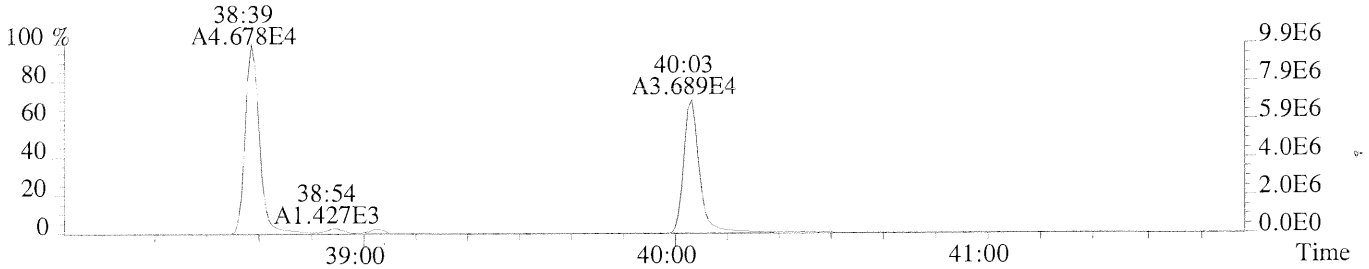


File:P227262 #1-342 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

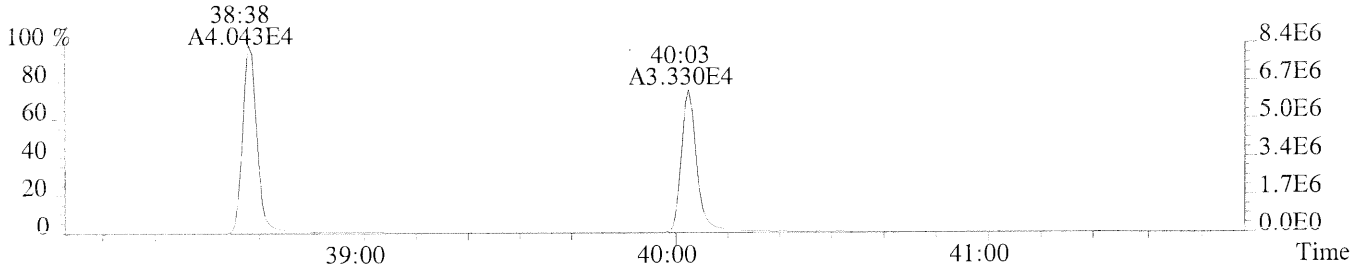
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6224.0,0.50%,F,T)



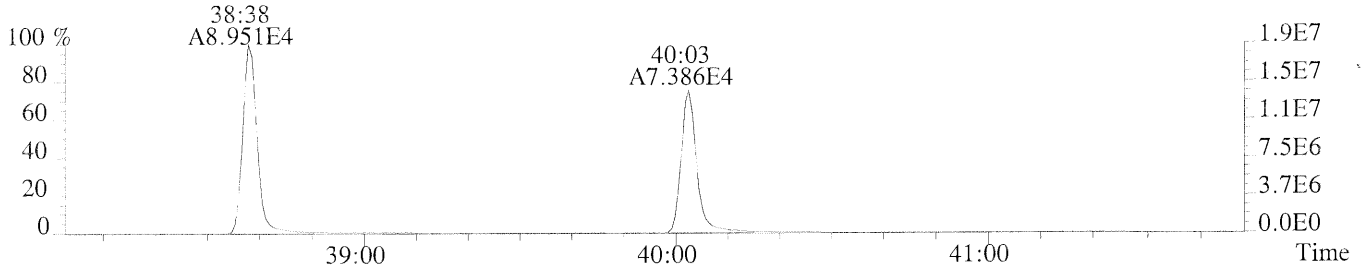
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7068.0,0.50%,F,T)



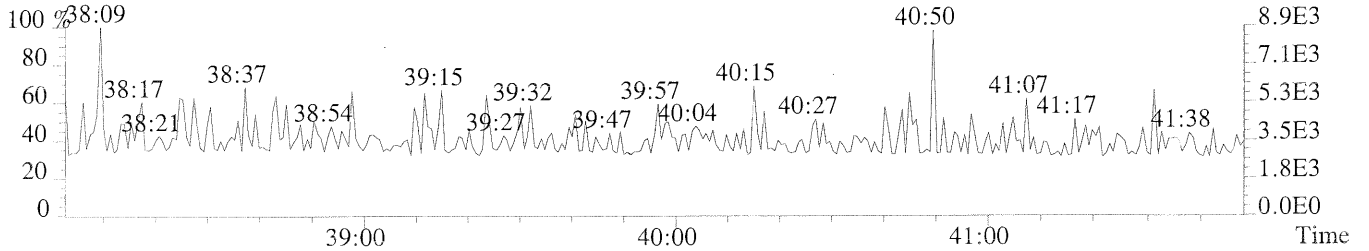
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8356.0,0.50%,F,T)



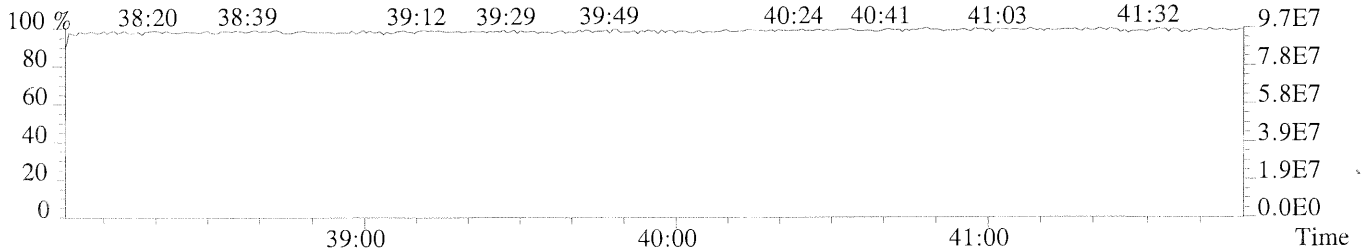
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12592.0,0.50%,F,T)



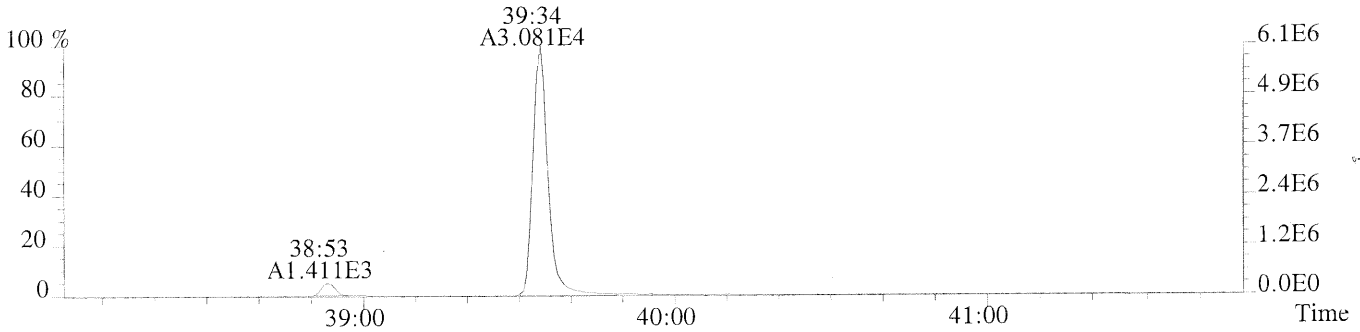
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



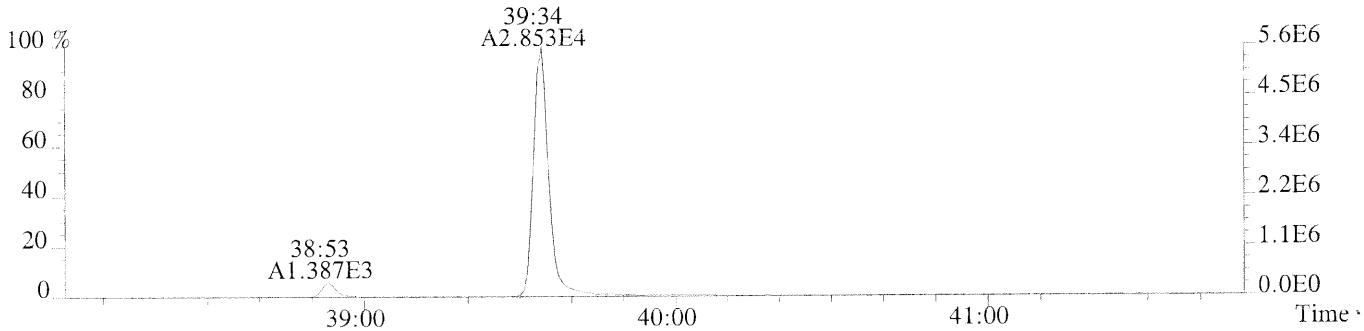
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



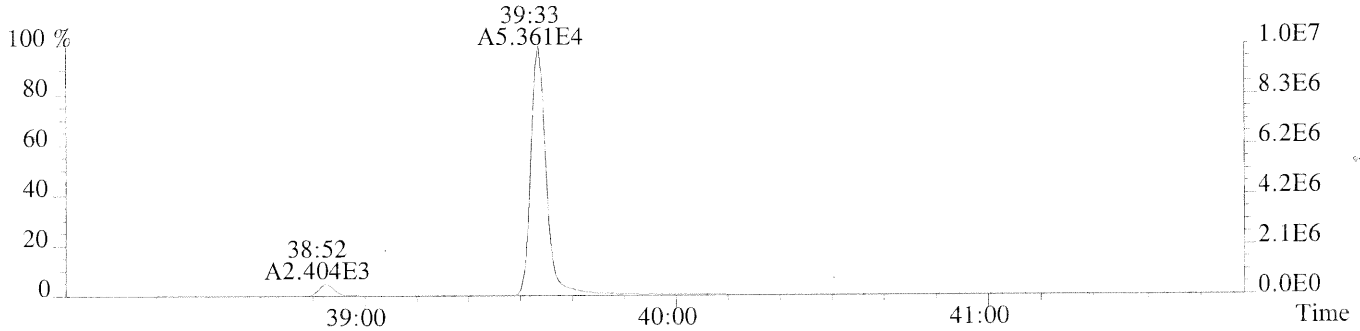
File:P227262 #1-342 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



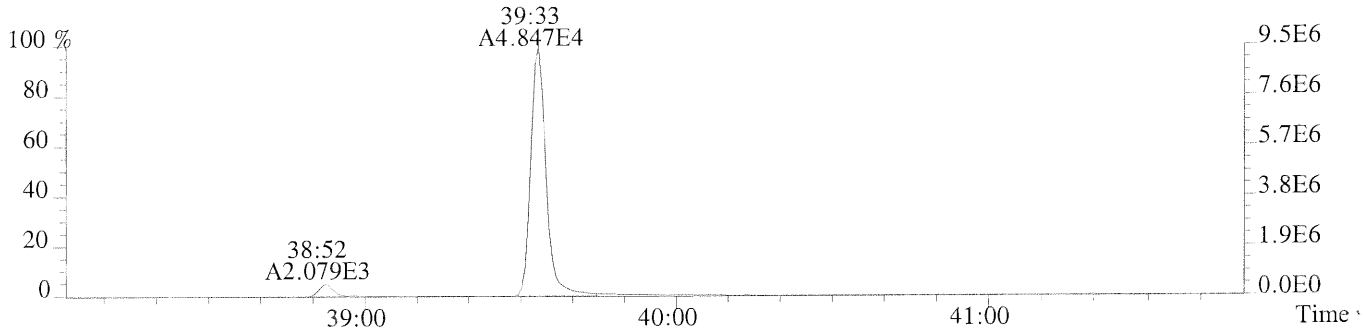
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.40%,F,T)



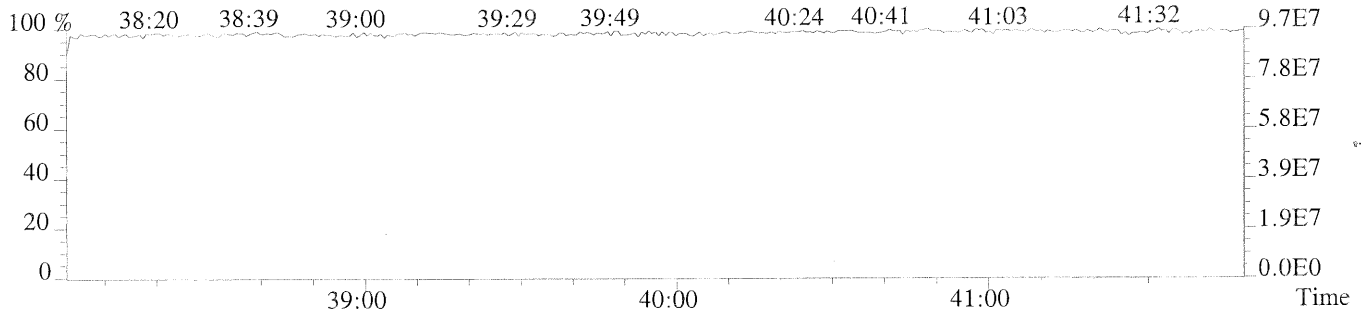
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



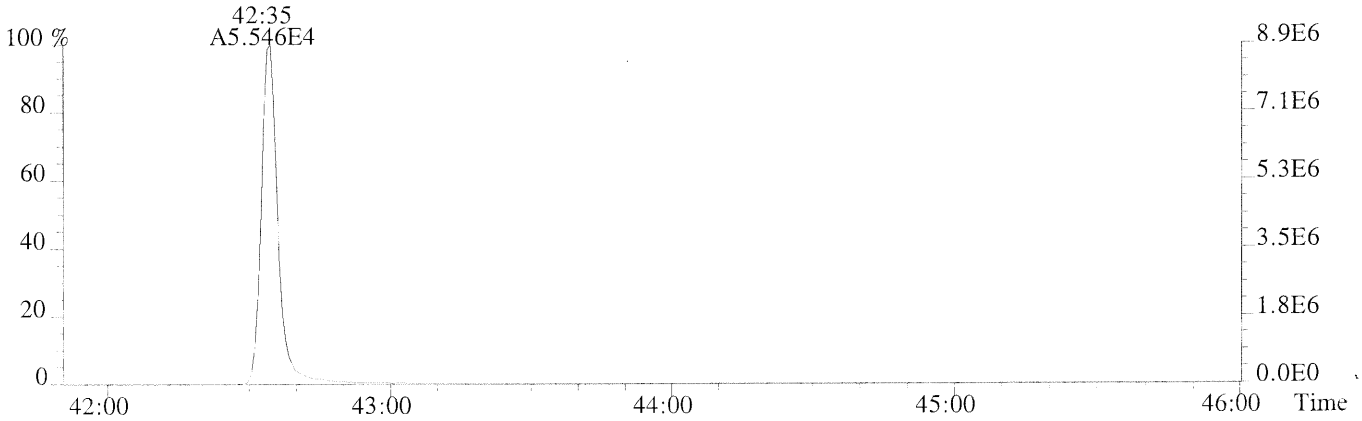
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



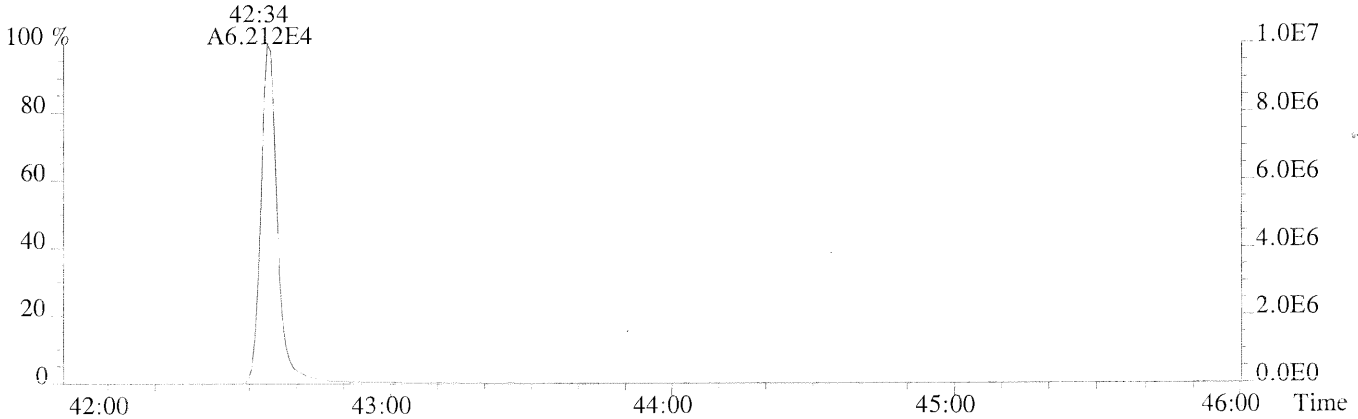
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



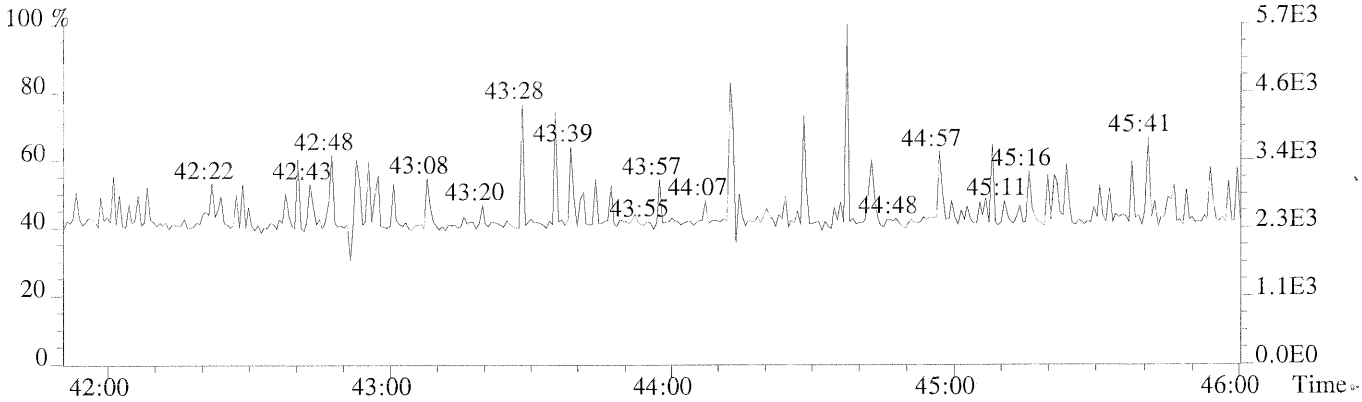
File:P227262 #1-383 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4500.0,0.40%,F,T)



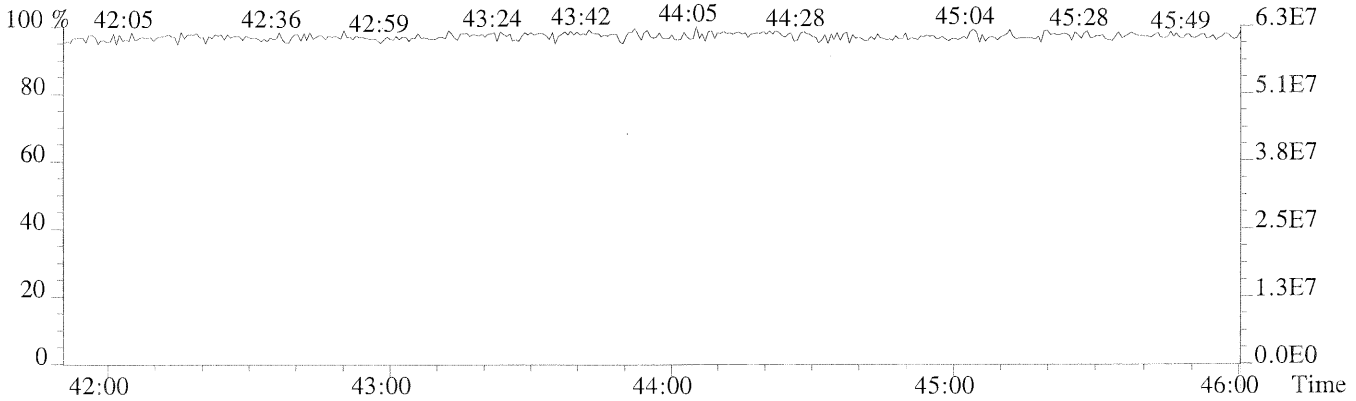
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5020.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

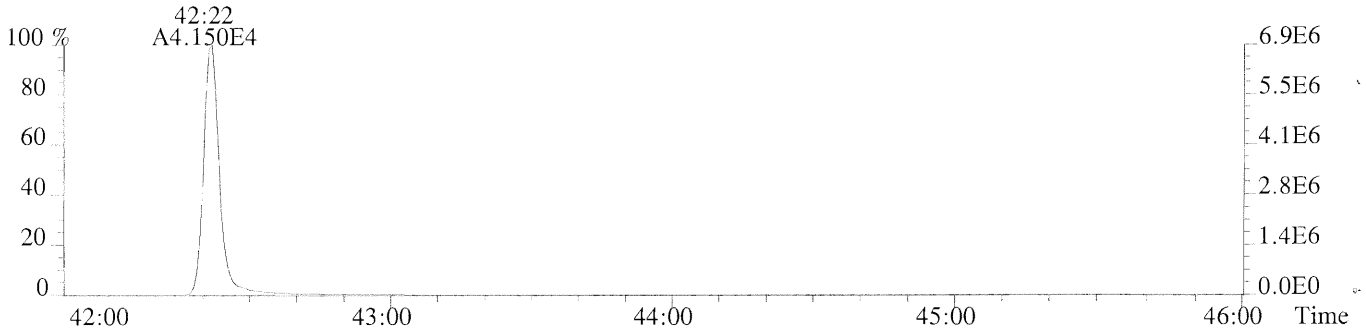


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

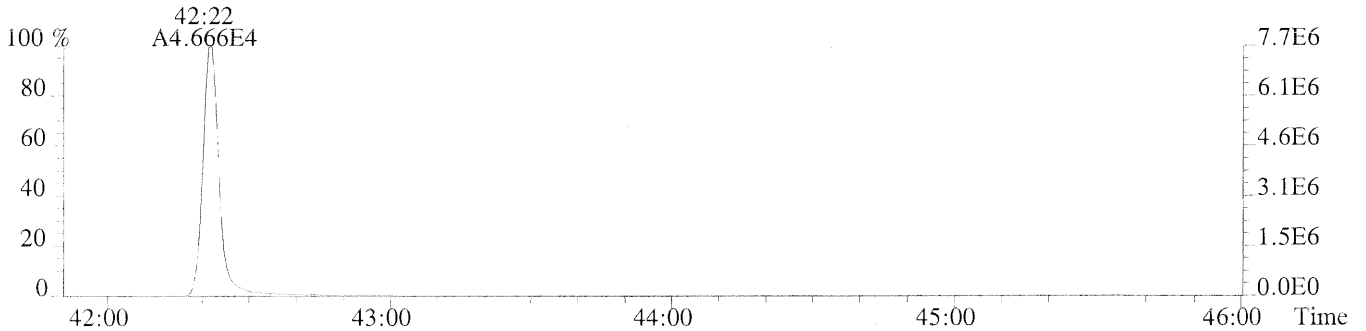


File:P227262 #1-383 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

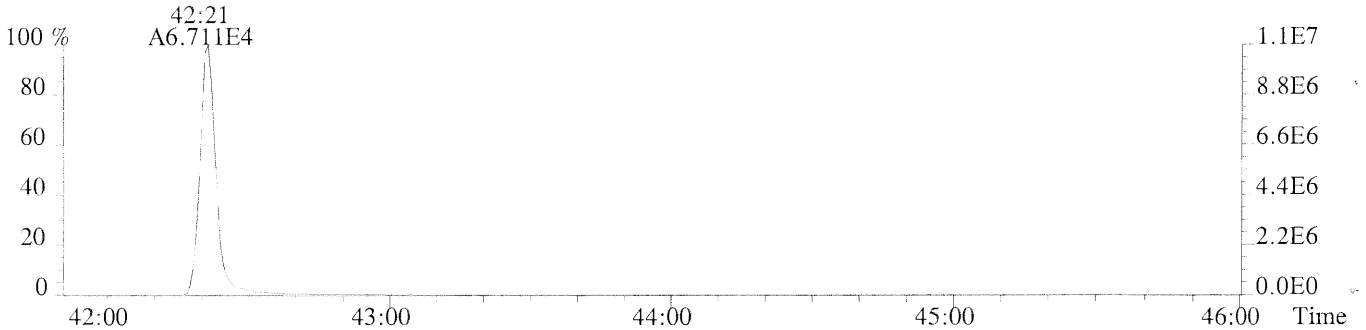
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4056.0,0.40%,F,T)



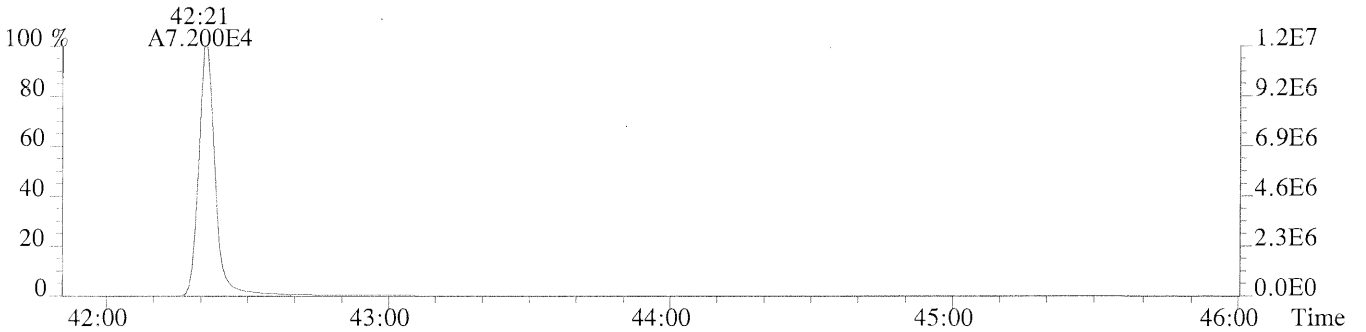
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4188.0,0.40%,F,T)



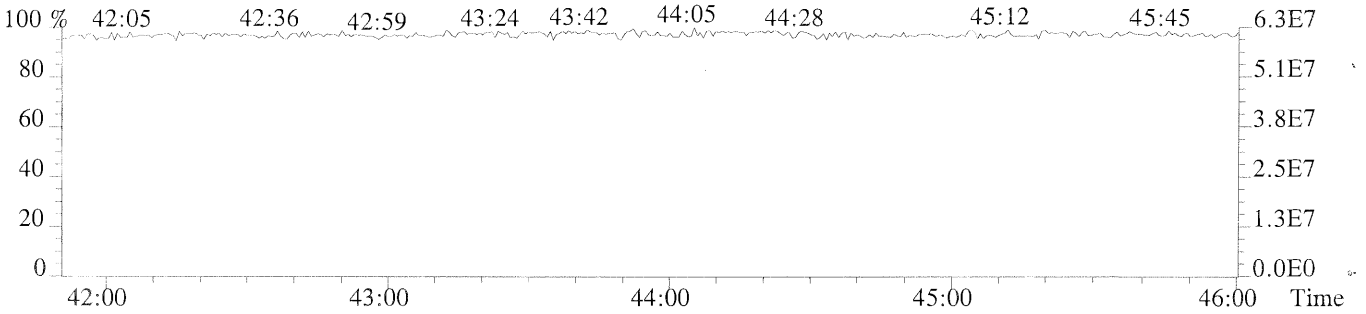
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2772.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,10868.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
ICAL HRCC4/CS4

Run #5 Filename P227263 #1 Samp: 1 Inj: 1 Acquired: 1-FEB-14 20:12:26
Processed: 4-FEB-14 15:25:58 LAB. ID: D12-90-3D

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:21	3.372e+04	4.294e+04	0.79	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:30	3.282e+05	2.088e+05	1.57	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:24	3.168e+05	2.036e+05	1.56	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:03	2.620e+05	2.108e+05	1.24	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:09	2.852e+05	2.300e+05	1.24	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:39	2.472e+05	1.981e+05	1.25	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:24	2.266e+05	1.795e+05	1.26	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	2.252e+05	2.208e+05	1.02	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	1.841e+05	1.788e+05	1.03	yes	no	1.000
10	Unk	OCDF	42:34	2.869e+05	3.163e+05	0.91	yes	no	1.005
11	Unk	2,3,7,8-TCDD	29:07	2.148e+04	2.723e+04	0.79	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:41	1.930e+05	1.199e+05	1.61	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:47	1.586e+05	1.228e+05	1.29	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:52	1.687e+05	1.306e+05	1.29	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:06	1.663e+05	1.301e+05	1.28	yes	no	1.006
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	1.462e+05	1.372e+05	1.07	yes	no	1.000
17	Unk	OCDD	42:22	2.190e+05	2.398e+05	0.91	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:20	7.681e+04	9.358e+04	0.82	yes	no	0.992
19	IS	13C-1,2,3,7,8-PeCDF	32:29	1.459e+05	8.896e+04	1.64	yes	no	1.138
20	IS	13C-2,3,4,7,8-PeCDF	33:23	1.507e+05	9.161e+04	1.65	yes	no	1.169
21	IS	13C-1,2,3,4,7,8-HxCDF	36:02	6.112e+04	1.154e+05	0.53	yes	no	0.971
22	IS	13C-1,2,3,6,7,8-HxCDF	36:09	7.171e+04	1.367e+05	0.52	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:39	6.281e+04	1.163e+05	0.54	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:24	5.580e+04	1.048e+05	0.53	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	4.751e+04	1.057e+05	0.45	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	4.066e+04	9.073e+04	0.45	yes	no	1.080
27	IS	13C-2,3,7,8-TCDD	29:06	5.064e+04	6.453e+04	0.78	yes	no	1.019
28	IS	13C-1,2,3,7,8-PeCDD	33:40	9.138e+04	5.730e+04	1.59	yes	no	1.179
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	6.584e+04	5.089e+04	1.29	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:52	6.948e+04	5.400e+04	1.29	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	6.318e+04	5.737e+04	1.10	yes	no	1.066
32	IS	13C-OCDD	42:22	8.486e+04	9.213e+04	0.92	yes	no	1.142
33	RS/RT	13C-1,2,3,4-TCDD	28:33	5.348e+04	6.711e+04	0.80	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:06	7.102e+04	5.666e+04	1.25	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:07	4.833e+04				no	1.020

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XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL HRCC4/CS4

Run #5 Filename P227263 Samp: 1 Inj: 1 Acquired: 1-FEB-14 20:12:26
Processed: 4-FEB-14 15:25:581 LAB. ID: D12-90-3D

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.70e+06	9.16e+02	7.3e+03	8.67e+06	3.83e+03	2.3e+03
2	1,2,3,7,8-PeCDF	6.07e+07	1.14e+03	5.3e+04	3.83e+07	3.10e+03	1.2e+04
3	2,3,4,7,8-PeCDF	6.06e+07	1.14e+03	5.3e+04	3.93e+07	3.10e+03	1.3e+04
4	1,2,3,4,7,8-HxCDF	5.58e+07	3.06e+03	1.8e+04	4.47e+07	3.12e+03	1.4e+04
5	1,2,3,6,7,8-HxCDF	5.67e+07	3.06e+03	1.9e+04	4.60e+07	3.12e+03	1.5e+04
6	2,3,4,6,7,8-HxCDF	5.25e+07	3.06e+03	1.7e+04	4.21e+07	3.12e+03	1.3e+04
7	1,2,3,7,8,9-HxCDF	4.44e+07	3.06e+03	1.4e+04	3.53e+07	3.12e+03	1.1e+04
8	1,2,3,4,6,7,8-HpCDF	4.79e+07	1.68e+04	2.9e+03	4.71e+07	1.38e+04	3.4e+03
9	1,2,3,4,7,8,9-HpCDF	3.40e+07	1.68e+04	2.0e+03	3.29e+07	1.38e+04	2.4e+03
10	OCDF	4.88e+07	1.43e+04	3.4e+03	5.41e+07	1.39e+04	3.9e+03
11	2,3,7,8-TCDD	4.44e+06	1.04e+03	4.3e+03	5.73e+06	5.20e+02	1.1e+04
12	1,2,3,7,8-PeCDD	3.70e+07	1.26e+03	2.9e+04	2.30e+07	4.52e+02	5.1e+04
13	1,2,3,4,7,8-HxCDD	3.54e+07	5.16e+02	6.9e+04	2.73e+07	7.56e+02	3.6e+04
14	1,2,3,6,7,8-HxCDD	3.46e+07	5.16e+02	6.7e+04	2.69e+07	7.56e+02	3.6e+04
15	1,2,3,7,8,9-HxCDD	3.42e+07	5.16e+02	6.6e+04	2.69e+07	7.56e+02	3.6e+04
16	1,2,3,4,6,7,8-HpCDD	2.93e+07	1.41e+03	2.1e+04	2.75e+07	7.36e+02	3.7e+04
17	OCDD	3.73e+07	4.74e+03	7.9e+03	4.02e+07	2.18e+04	1.8e+03
18	13C-2,3,7,8-TCDF	1.57e+07	1.25e+03	1.3e+04	1.90e+07	1.22e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	2.63e+07	7.92e+02	3.3e+04	1.60e+07	1.03e+03	1.5e+04
20	13C-2,3,4,7,8-PeCDF	2.91e+07	7.92e+02	3.7e+04	1.78e+07	1.03e+03	1.7e+04
21	13C-1,2,3,4,7,8-HxCDF	1.31e+07	1.59e+03	8.3e+03	2.45e+07	1.85e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	1.42e+07	1.59e+03	9.0e+03	2.73e+07	1.85e+03	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	1.34e+07	1.59e+03	8.4e+03	2.47e+07	1.85e+03	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	1.09e+07	1.59e+03	6.9e+03	2.06e+07	1.85e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.01e+07	6.83e+03	1.5e+03	2.24e+07	7.46e+03	3.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.55e+06	6.83e+03	1.1e+03	1.68e+07	7.46e+03	2.2e+03
27	13C-2,3,7,8-TCDD	1.06e+07	8.97e+03	1.2e+03	1.36e+07	3.57e+03	3.8e+03
28	13C-1,2,3,7,8-PeCDD	1.72e+07	1.20e+03	1.4e+04	1.07e+07	4.92e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	1.47e+07	1.06e+03	1.4e+04	1.12e+07	9.20e+02	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	1.42e+07	1.06e+03	1.3e+04	1.10e+07	9.20e+02	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.25e+07	9.56e+02	1.3e+04	1.12e+07	7.12e+02	1.6e+04
32	13C-OCDD	1.43e+07	3.78e+03	3.8e+03	1.55e+07	4.92e+03	3.1e+03
33	13C-1,2,3,4-TCDD	1.13e+07	8.97e+03	1.3e+03	1.40e+07	3.57e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.44e+07	1.06e+03	1.4e+04	1.12e+07	9.20e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	1.00e+07	1.49e+03	6.7e+03			

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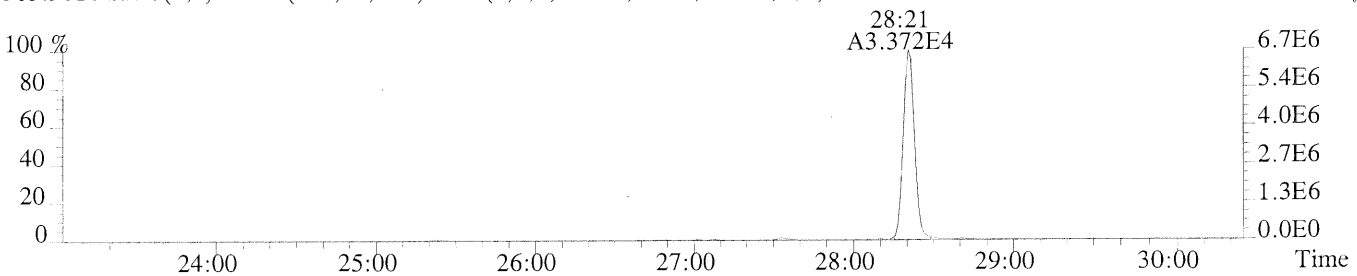
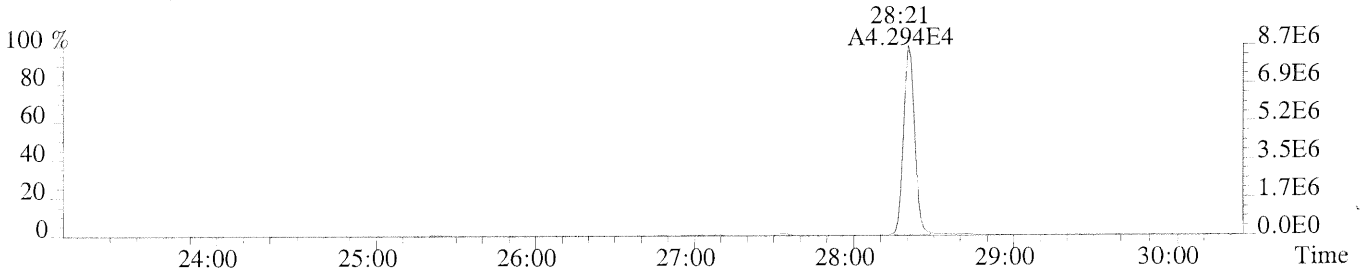
XLSN

File:P227263 #1-464 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

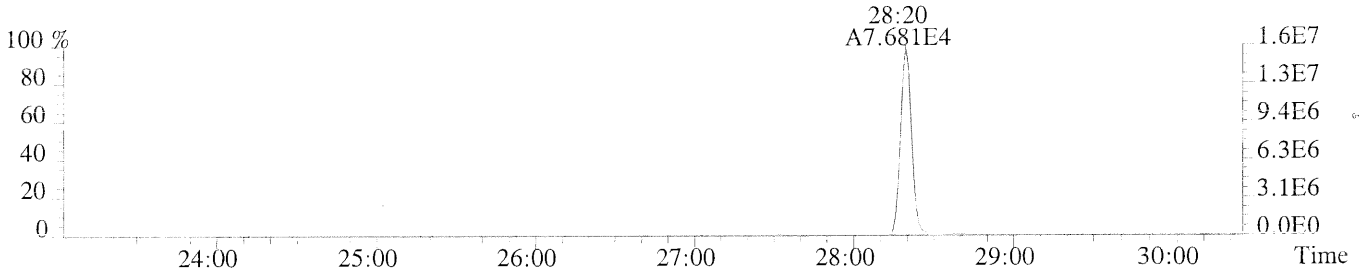
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



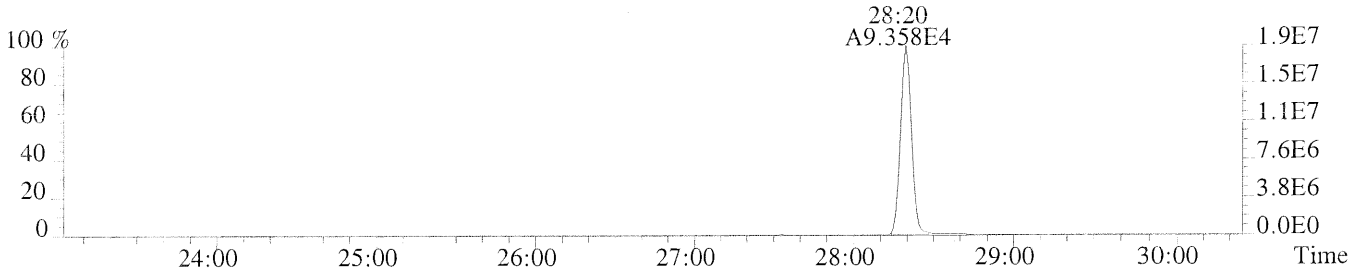
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3832.0,1.00%,F,T)



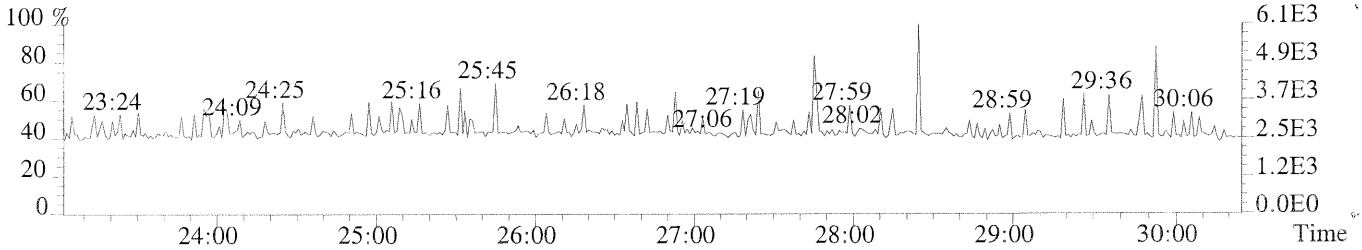
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



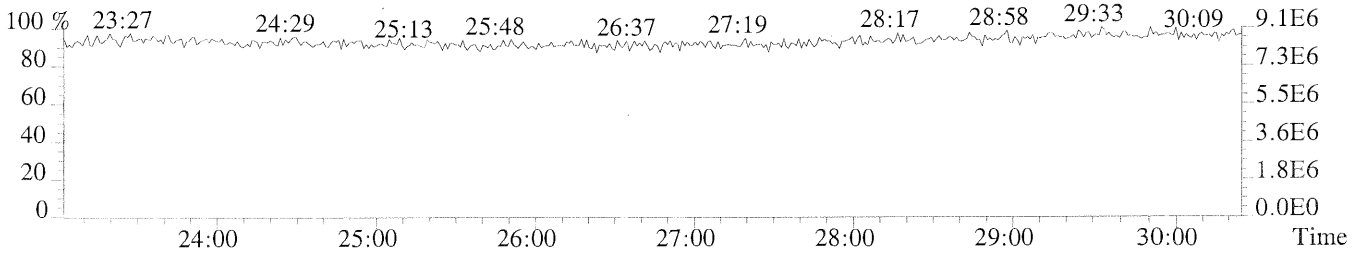
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

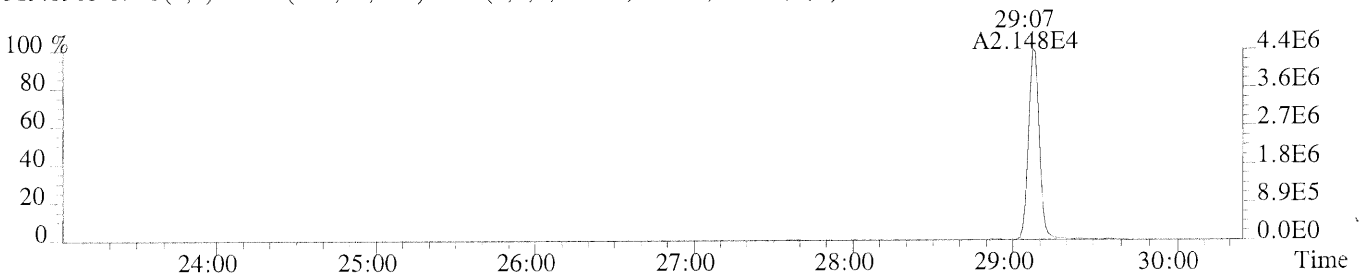


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

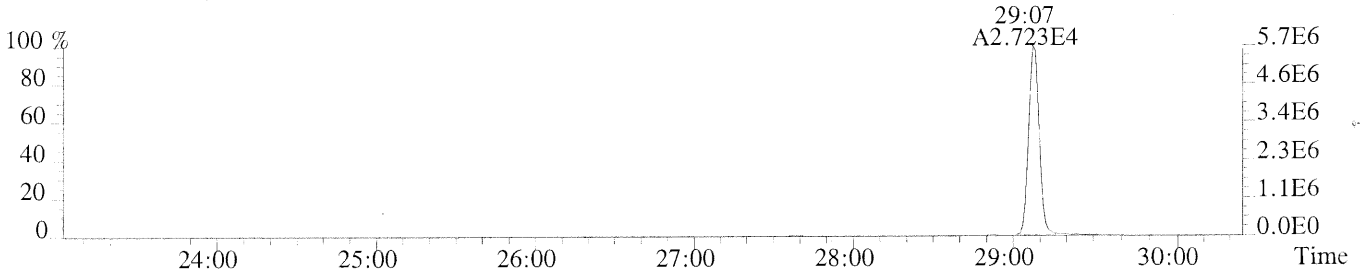


File:P227263 #1-464 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

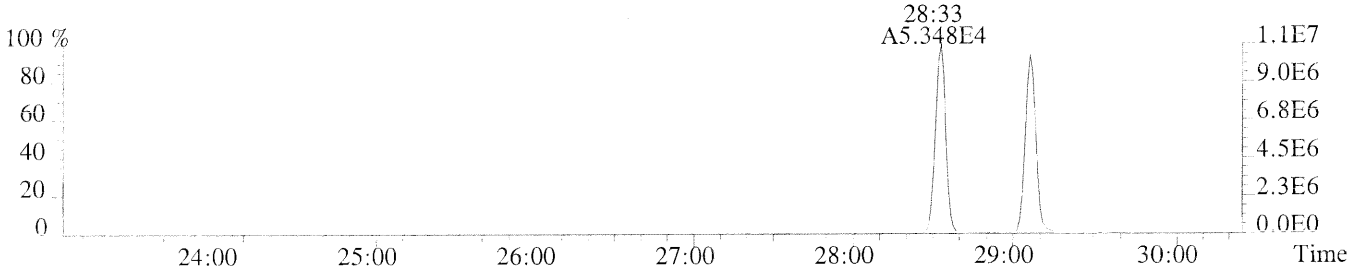
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



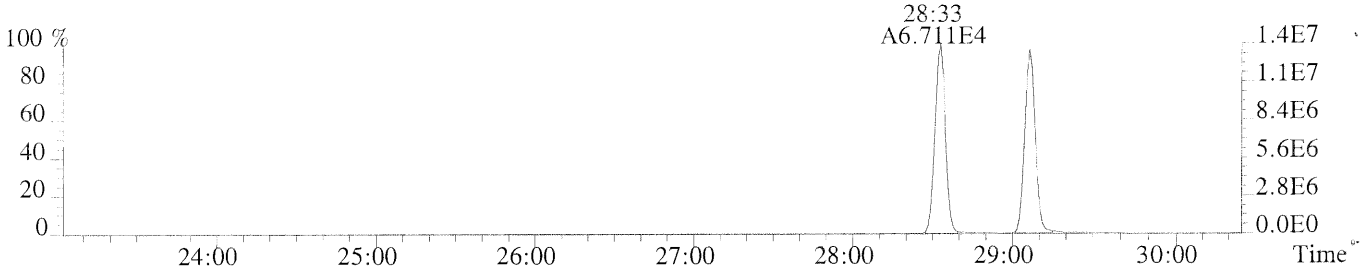
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



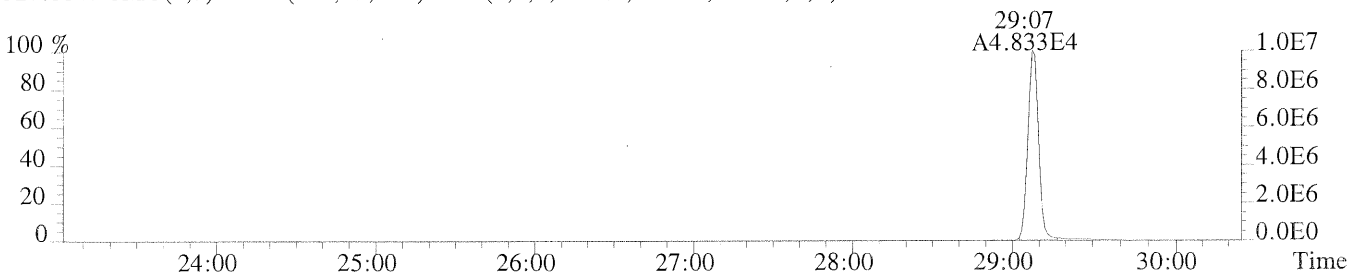
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8972.0,1.00%,F,T)



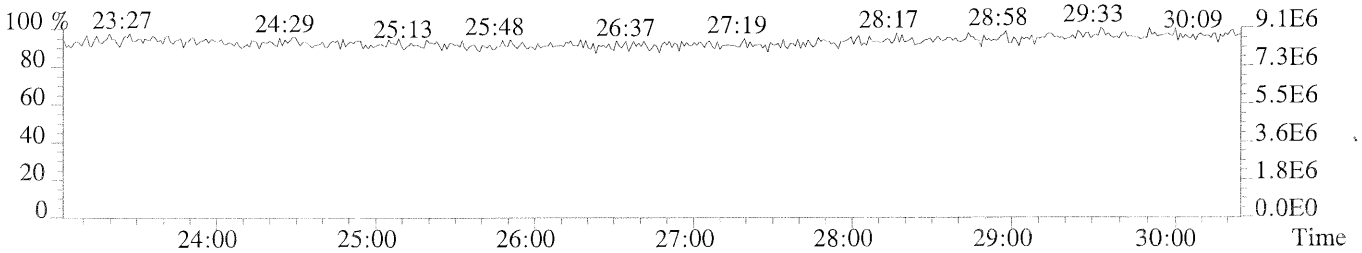
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3568.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1488.0,1.00%,F,T)

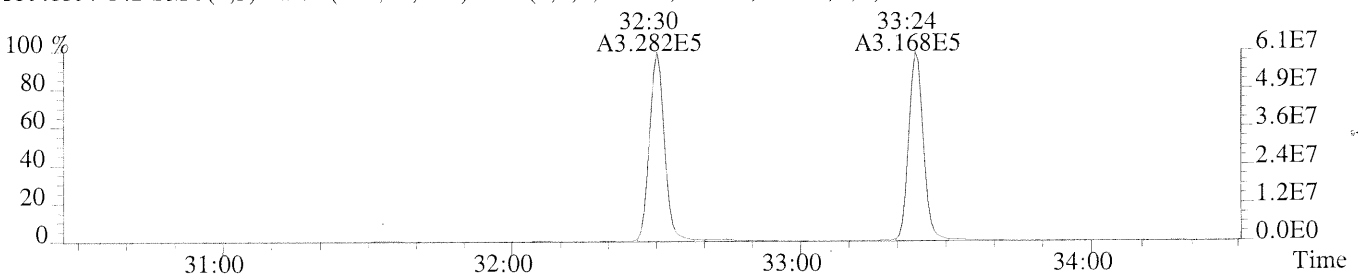


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

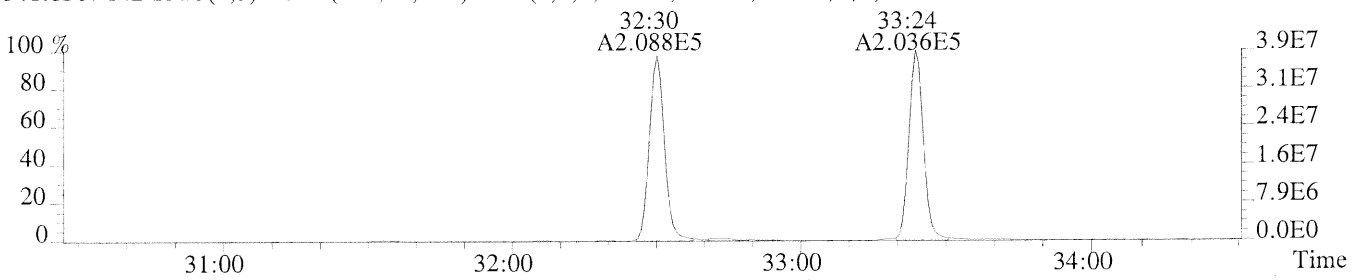


File:P227263 #1-369 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

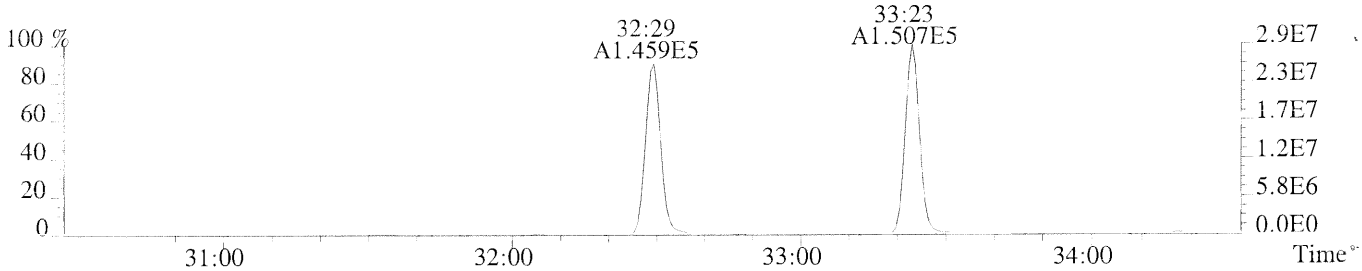
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



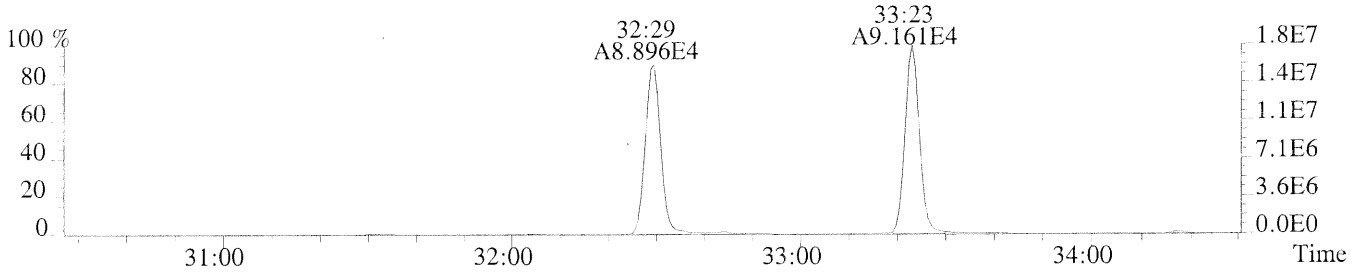
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3100.0,1.00%,F,T)



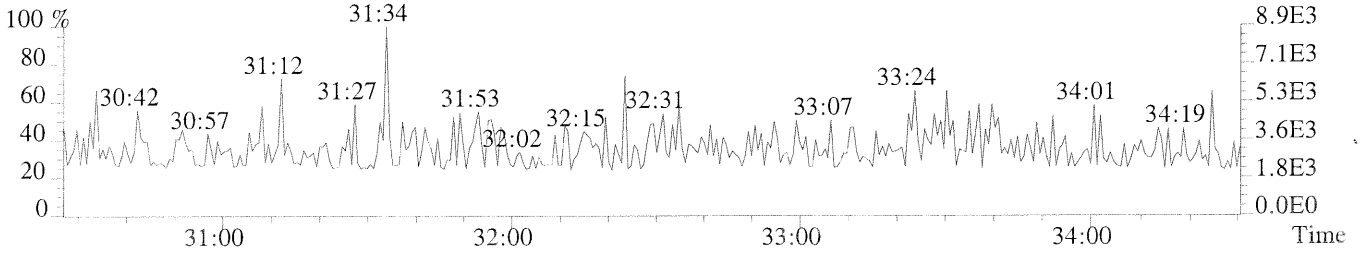
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



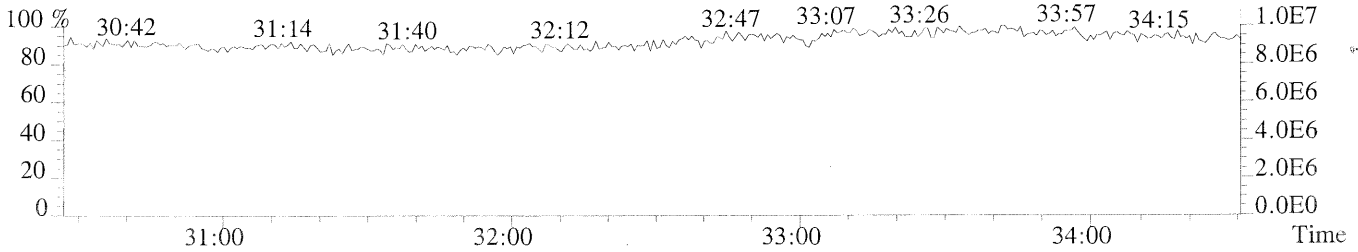
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



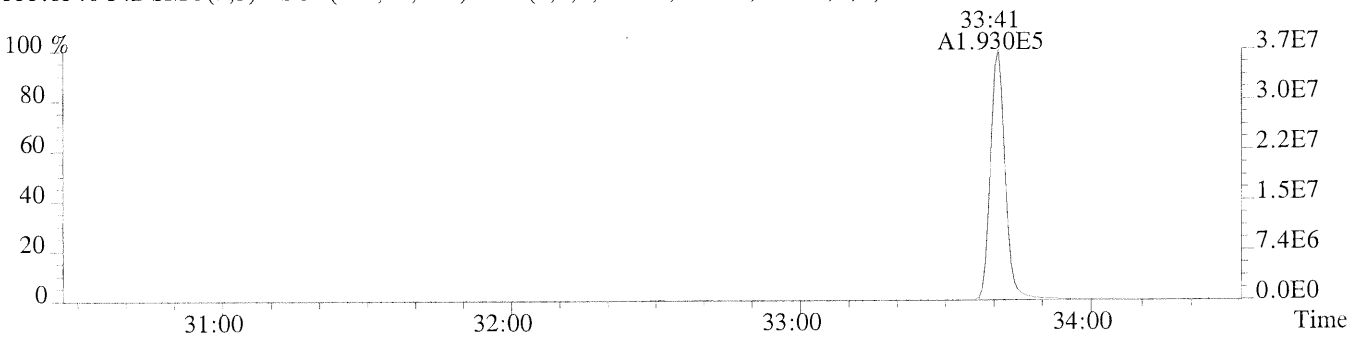
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



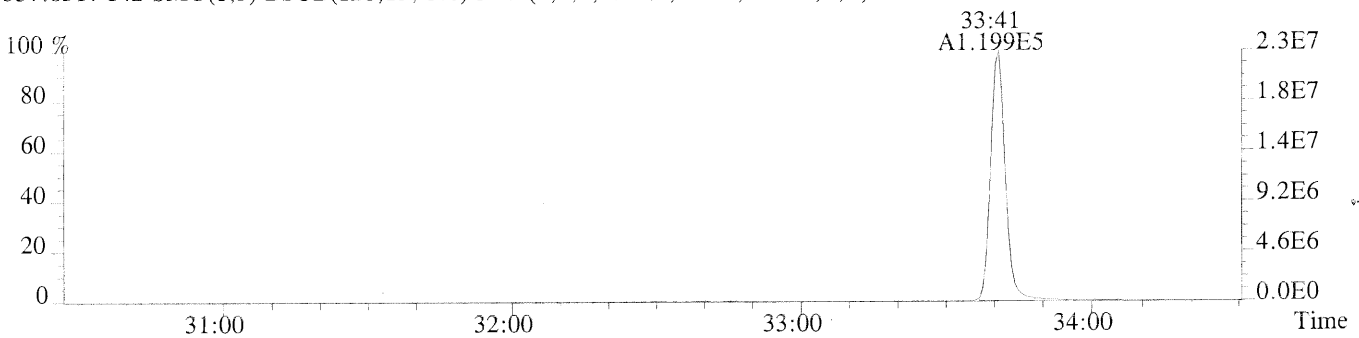
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



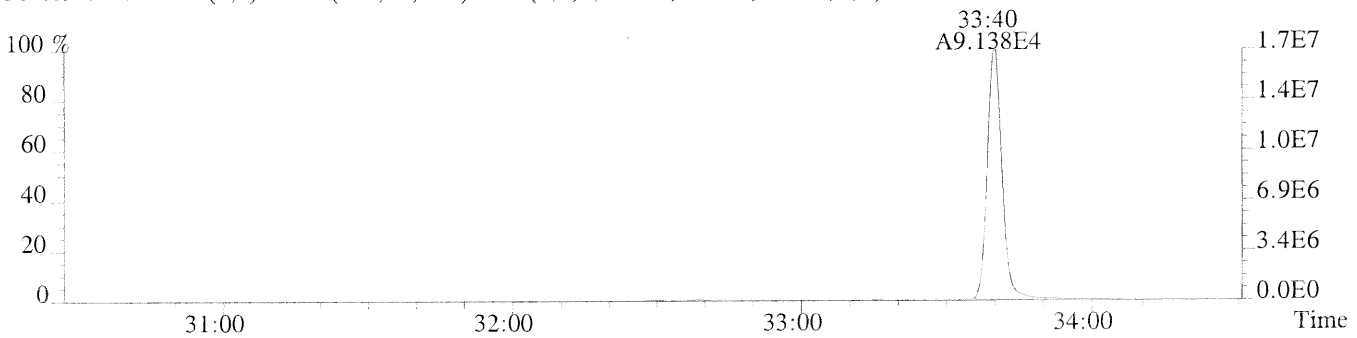
File:P227263 #1-369 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



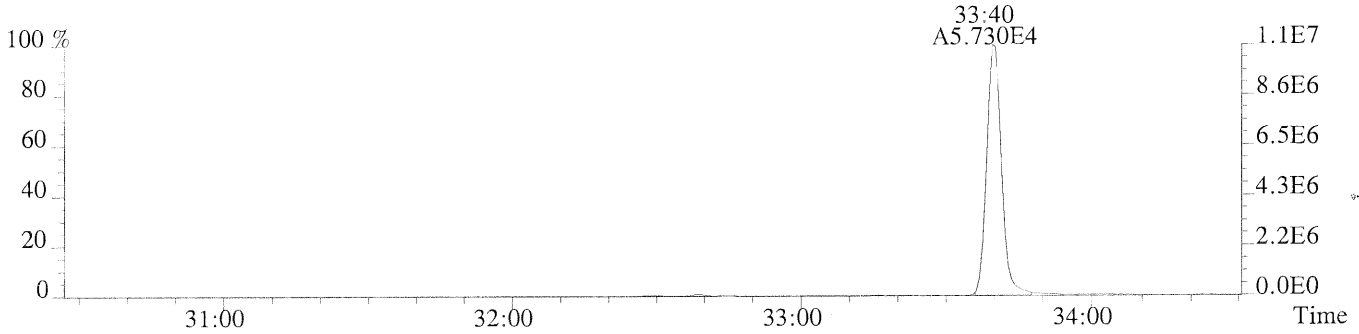
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



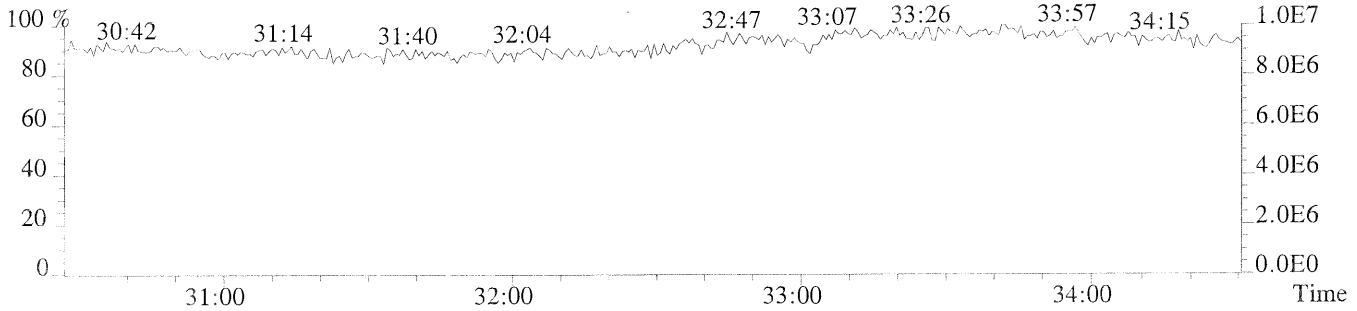
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)

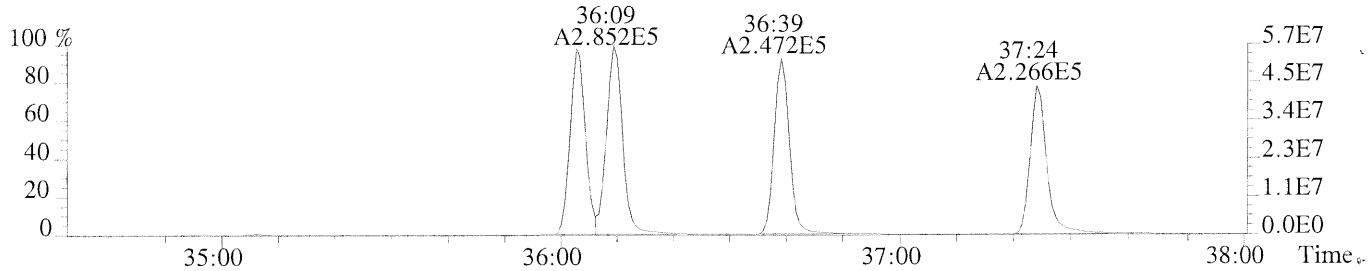


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

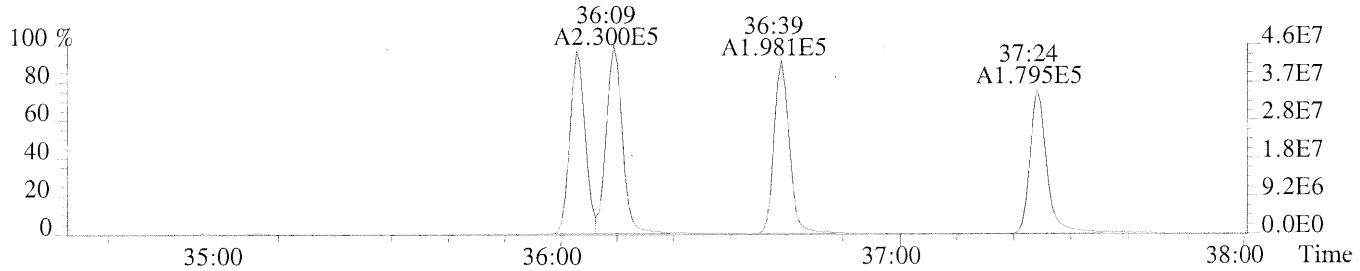


File:P227263 #1-315 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

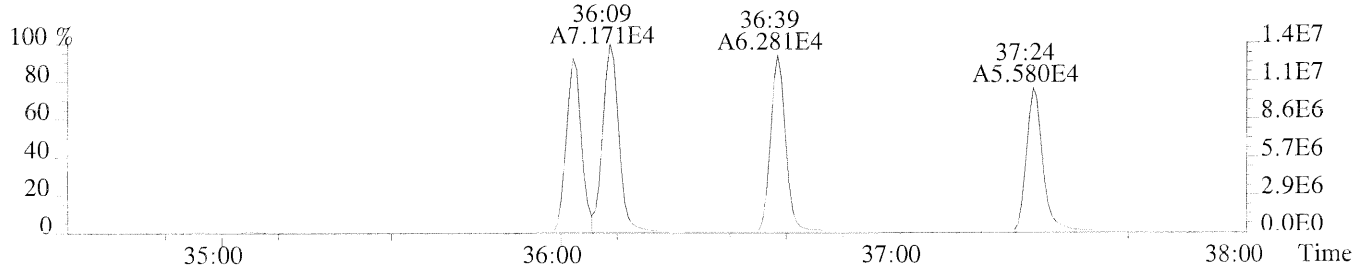
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3060.0,0.40%,F,T)



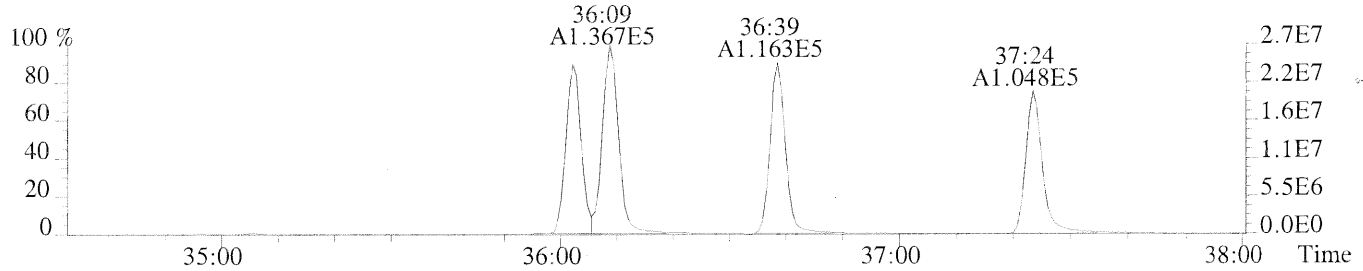
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3120.0,0.40%,F,T)



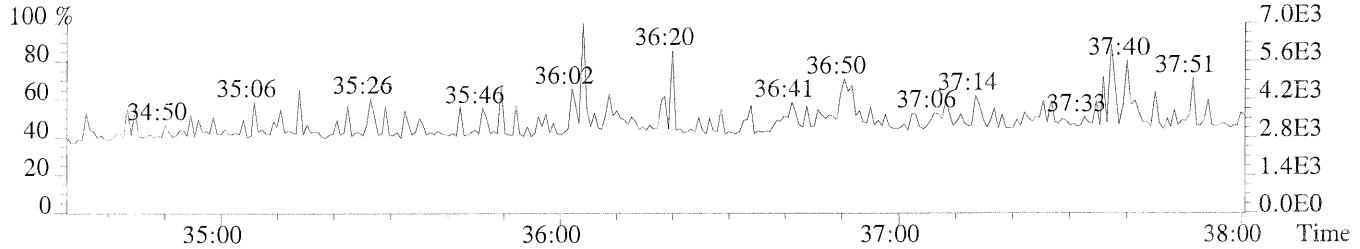
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1588.0,0.40%,F,T)



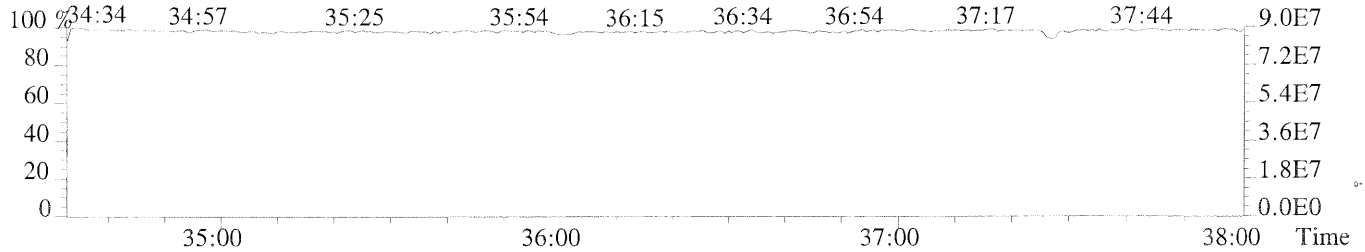
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

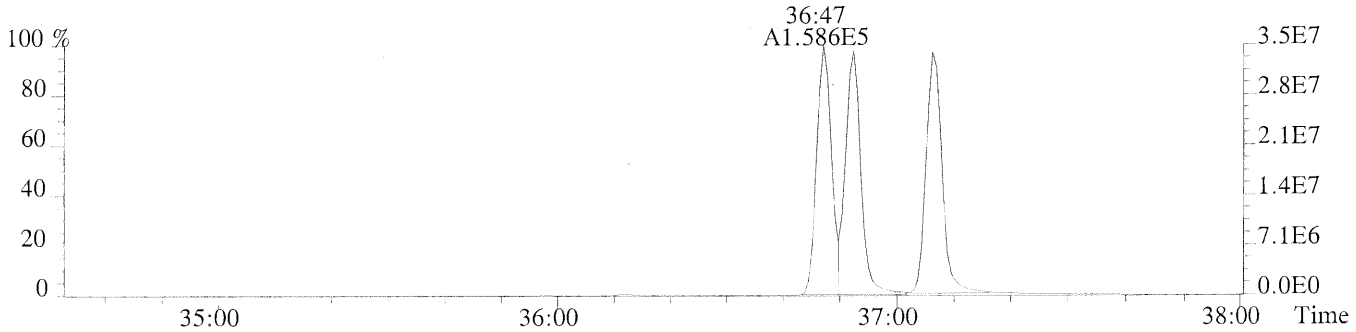


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

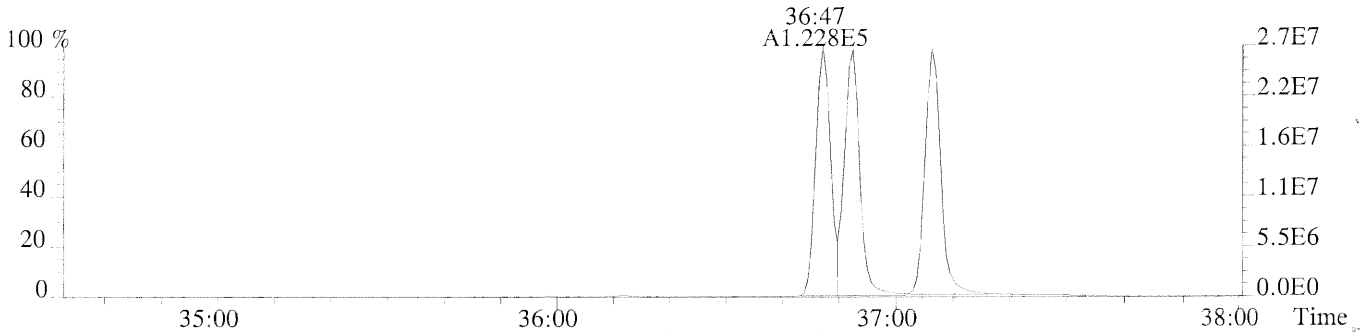


File:P227263 #1-315 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

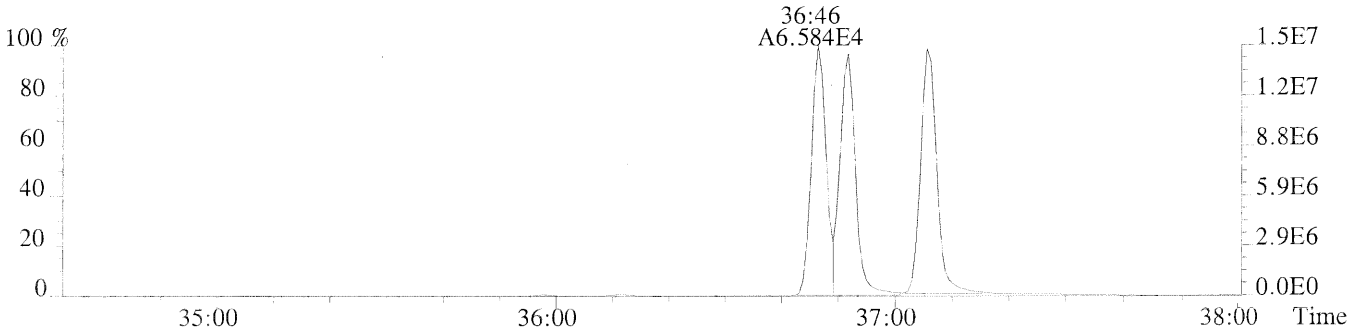
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



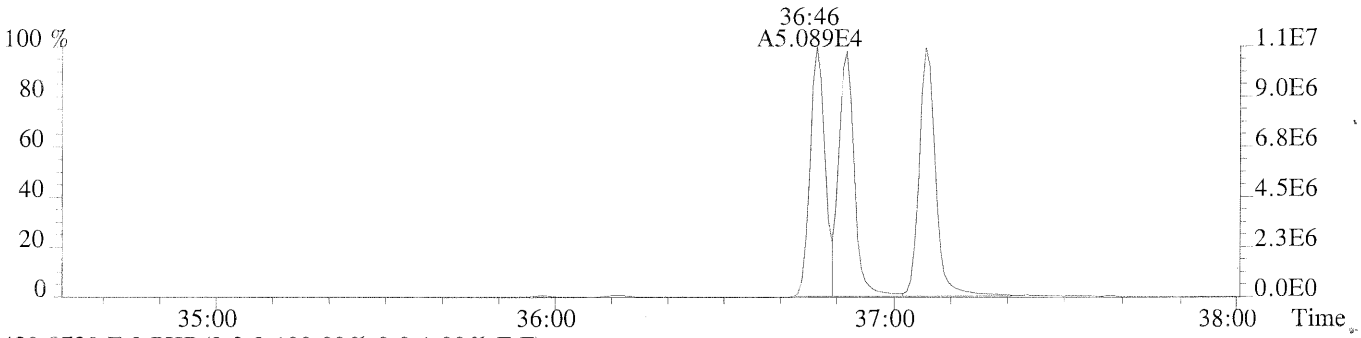
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



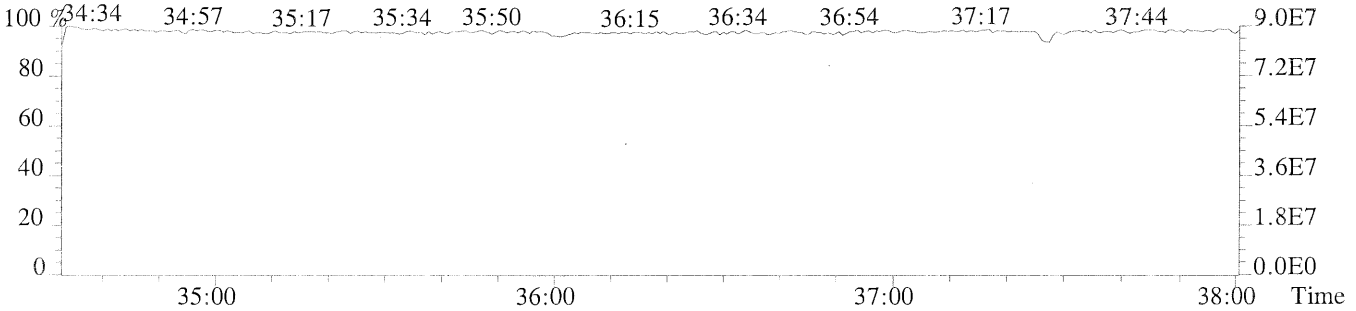
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)

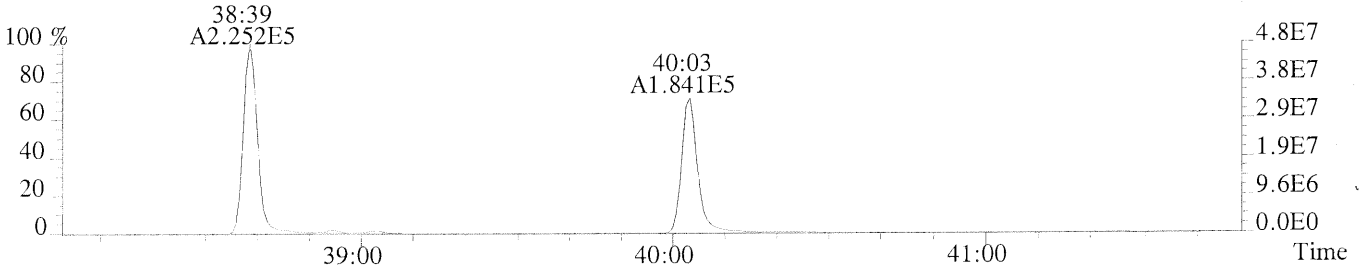


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

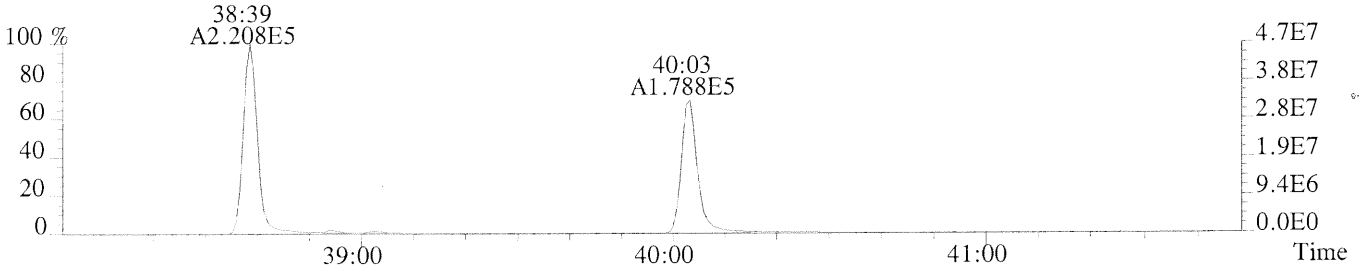


File:P227263 #1-342 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

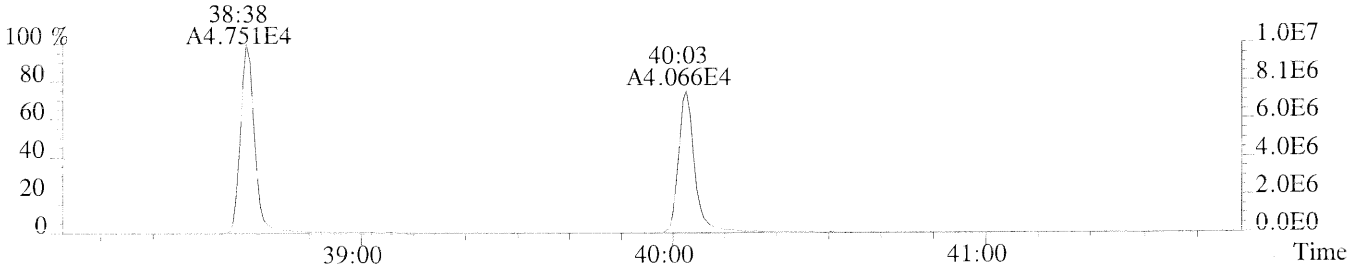
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16764.0,0.50%,F,T)



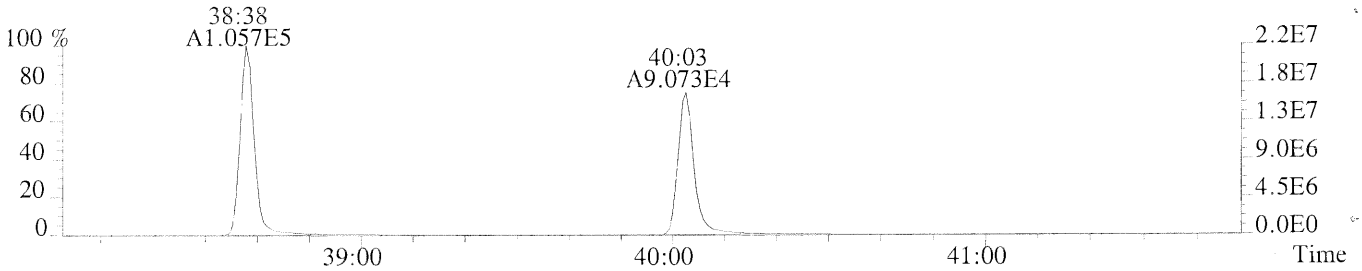
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13772.0,0.50%,F,T)



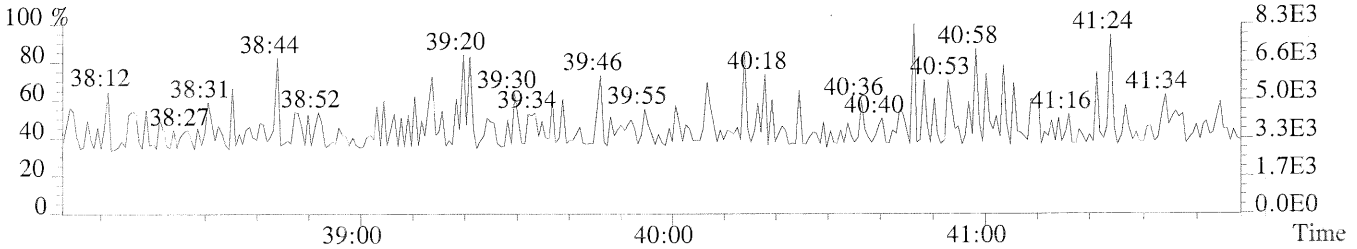
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6832.0,0.50%,F,T)



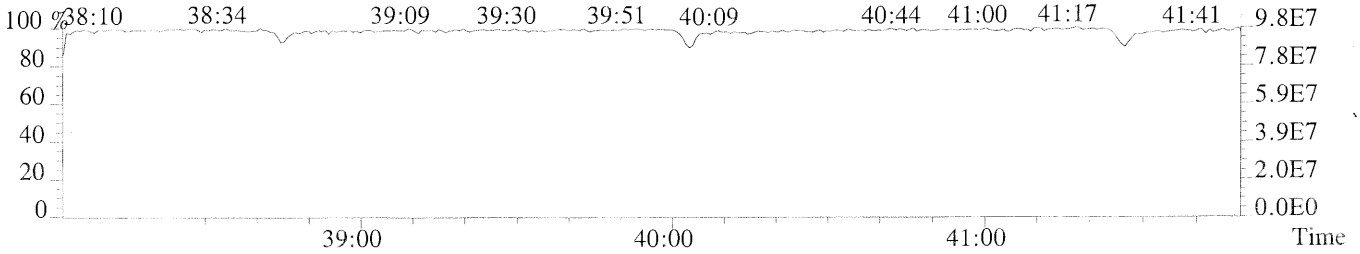
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7460.0,0.50%,F,T)



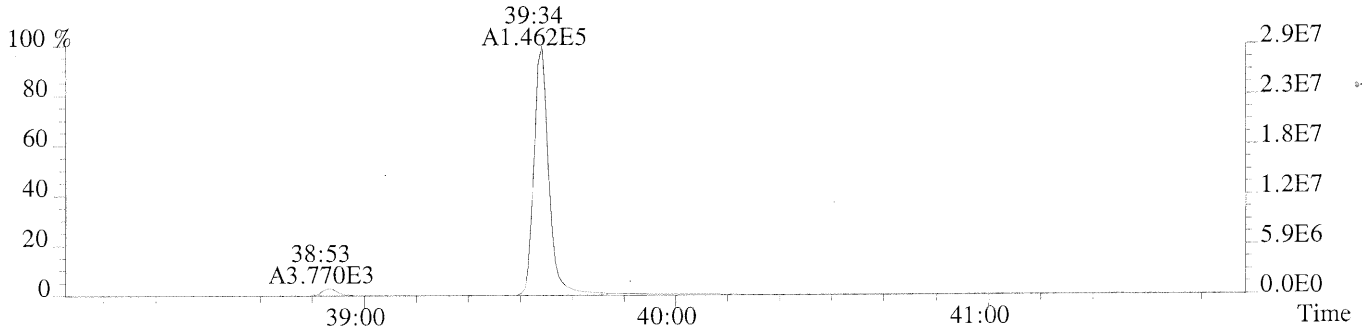
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



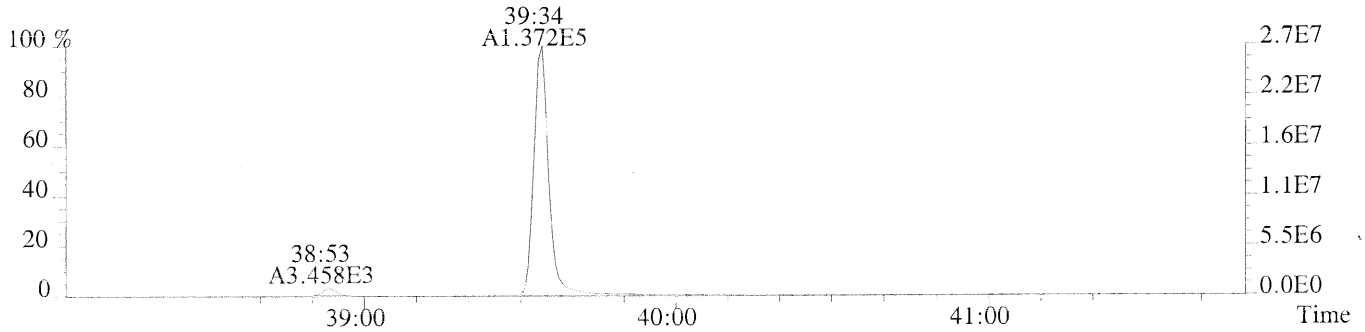
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



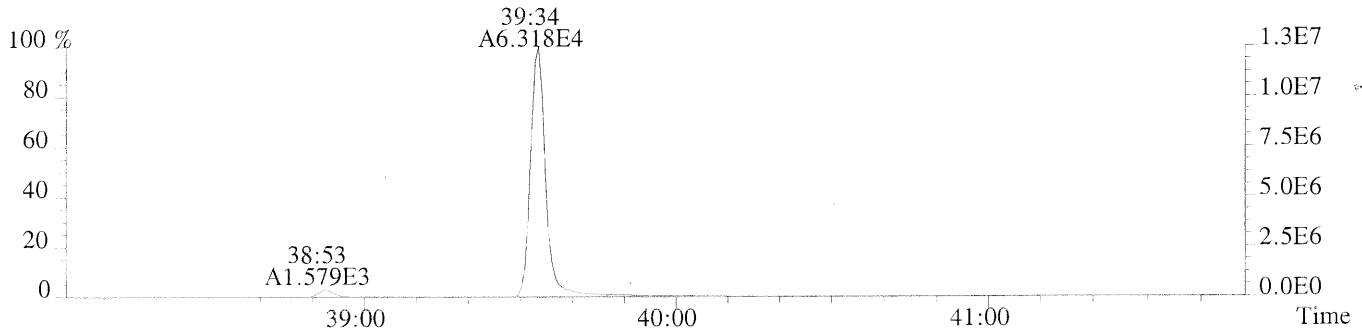
File:P227263 #1-342 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



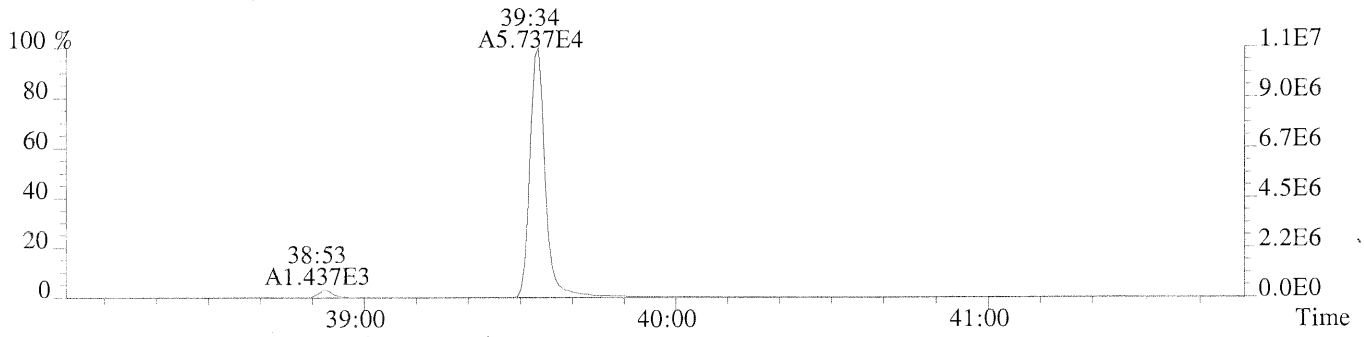
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



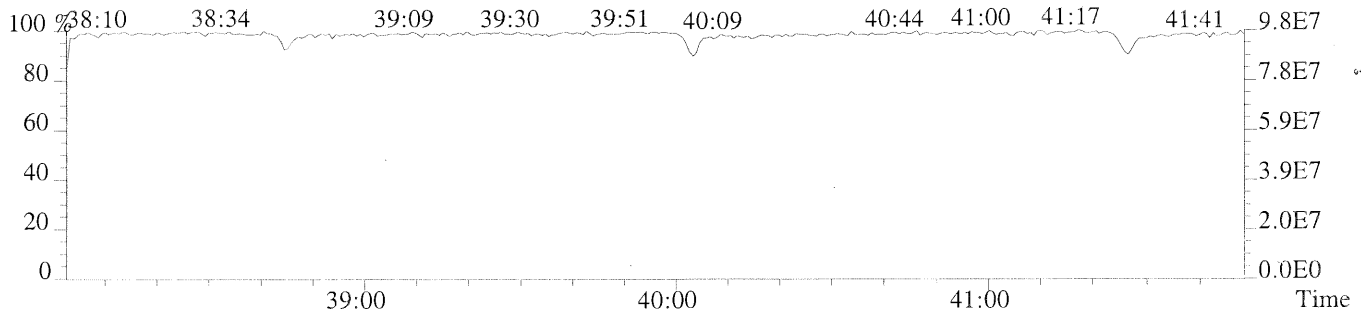
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



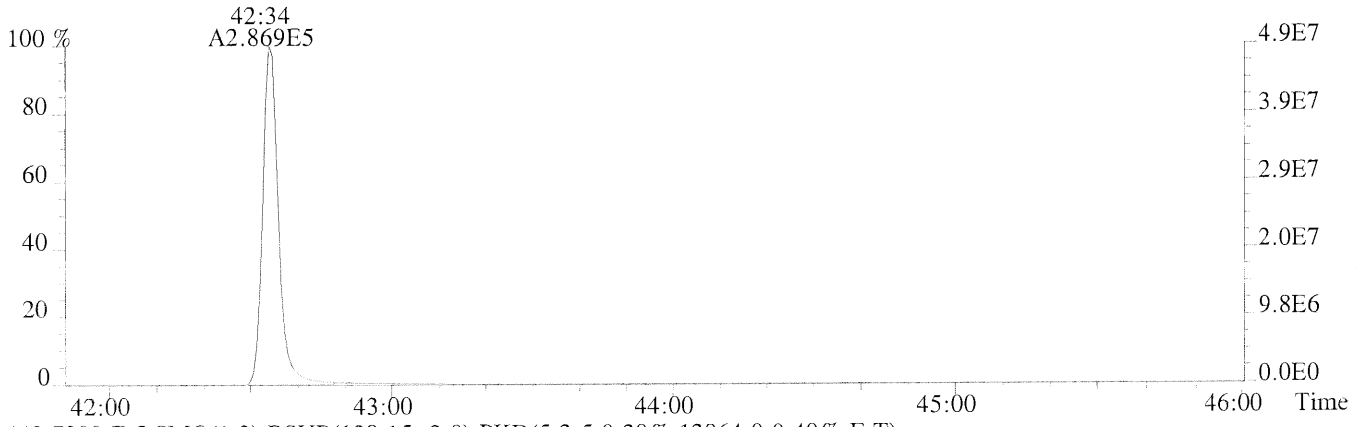
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



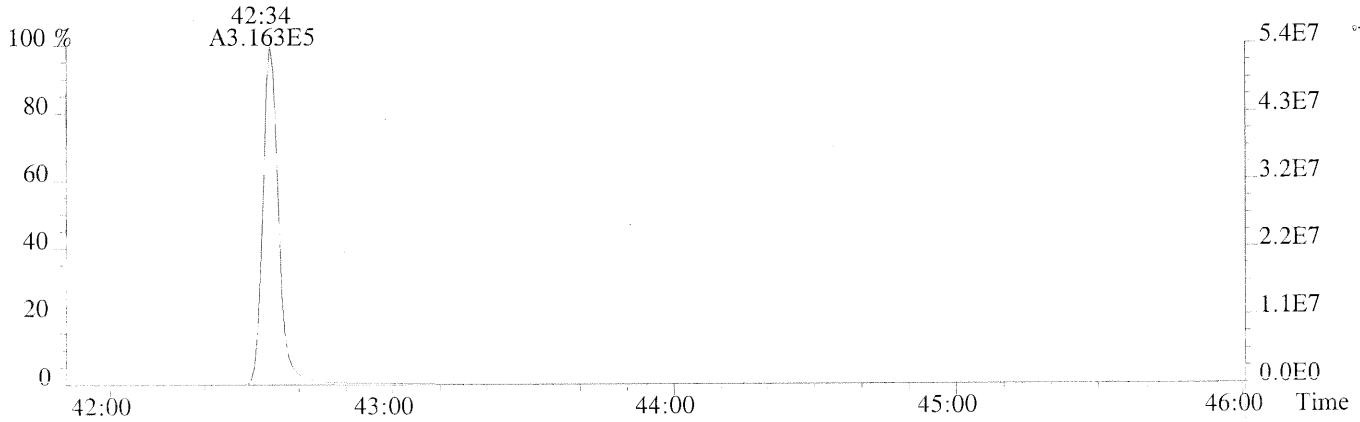
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



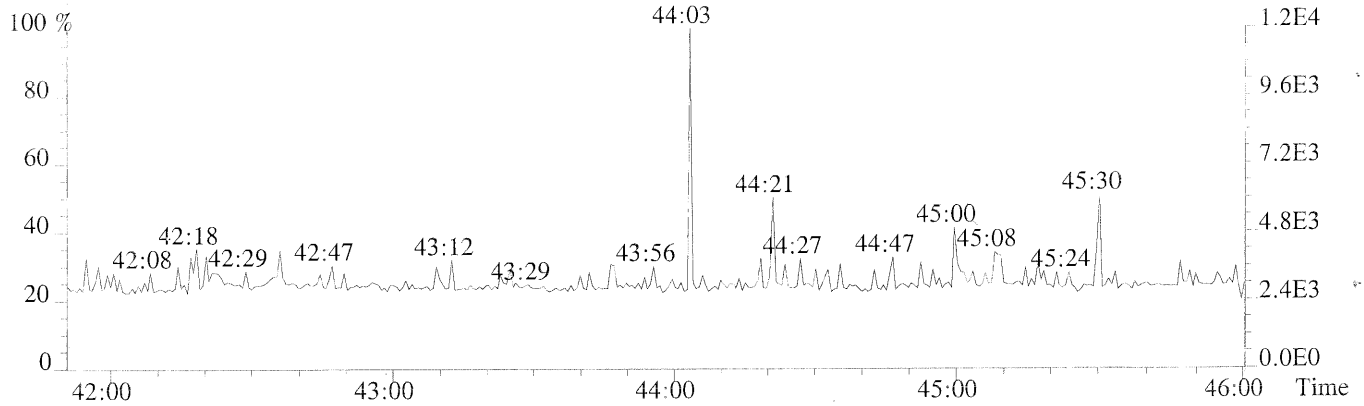
File:P227263 #1-383 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,14252.0,0.40%,F,T)



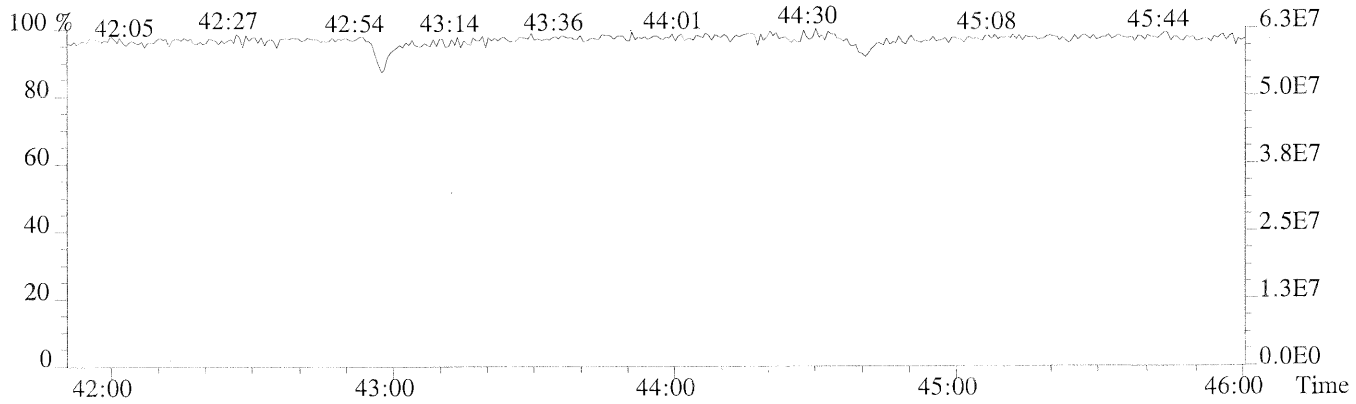
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,13864.0,0.40%,F,T)



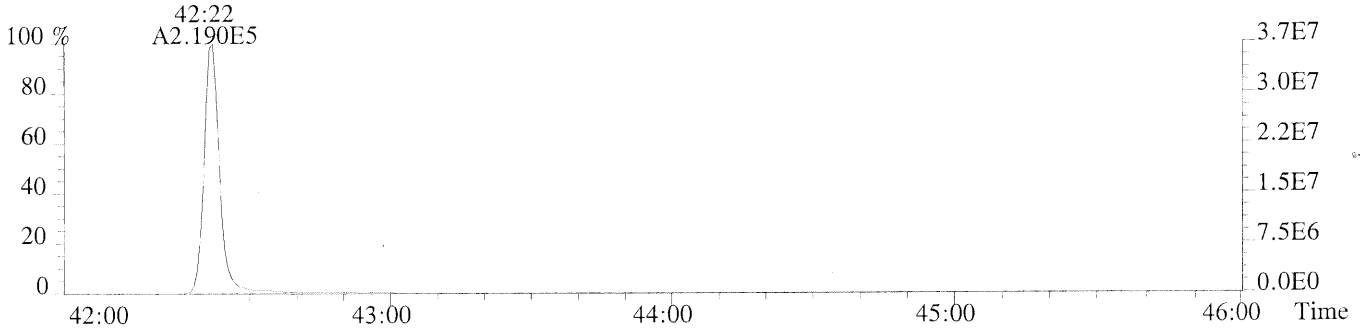
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



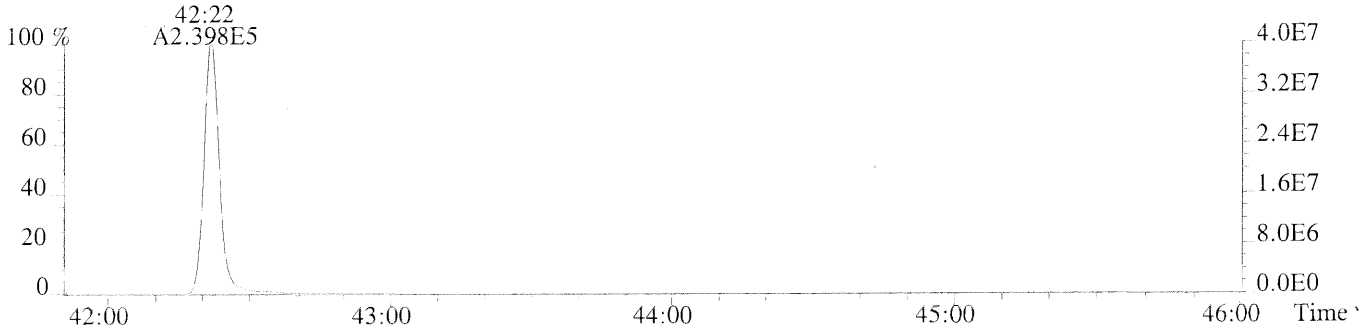
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



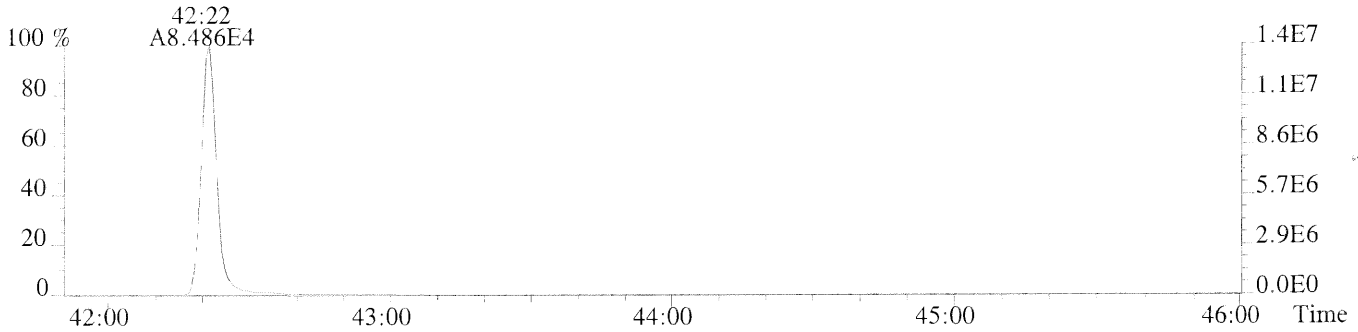
File:P227263 #1-383 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4744.0,0.40%,F,T)



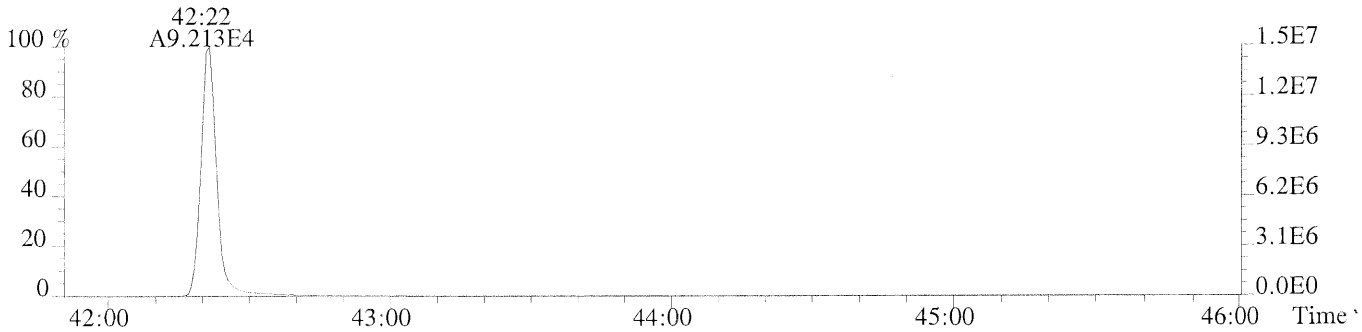
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,21844.0,0.40%,F,T)



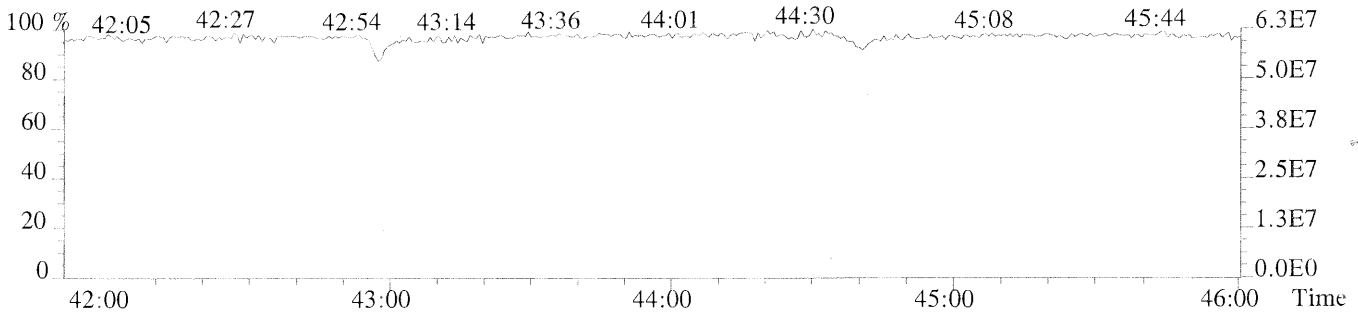
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3776.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4920.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
ICAL HRCC5/CS5

Run #6 Filename P227264 #1 Samp: 1 Inj: 1 Acquired: 1-FEB-14 21:00:32
Processed: 4-FEB-14 15:25:59 LAB. ID: 66799

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:21	1.847e+05	2.387e+05	0.77	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:29	1.745e+06	1.115e+06	1.57	yes	no	1.000
3	Unk	2,3,4,7,8-PeCDF	33:23	1.740e+06	1.112e+06	1.56	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:02	1.520e+06	1.221e+06	1.25	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:09	1.642e+06	1.311e+06	1.25	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:39	1.421e+06	1.151e+06	1.23	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:23	1.291e+06	1.032e+06	1.25	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	1.282e+06	1.248e+06	1.03	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	1.073e+06	1.044e+06	1.03	yes	no	1.000
10	Unk	OCDF	42:34	1.608e+06	1.766e+06	0.91	yes	no	1.005
11	Unk	2,3,7,8-TCDD	29:07	1.209e+05	1.523e+05	0.79	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:40	1.052e+06	6.549e+05	1.61	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:46	9.803e+05	7.589e+05	1.29	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:52	9.402e+05	7.274e+05	1.29	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:06	9.825e+05	7.666e+05	1.28	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:33	8.717e+05	8.165e+05	1.07	yes	no	1.000
17	Unk	OCDD	42:21	1.191e+06	1.293e+06	0.92	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:20	8.600e+04	1.048e+05	0.82	yes	no	0.993
19	IS	13C-1,2,3,7,8-PeCDF	32:29	1.685e+05	1.031e+05	1.63	yes	no	1.138
20	IS	13C-2,3,4,7,8-PeCDF	33:22	1.565e+05	9.554e+04	1.64	yes	no	1.169
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	7.432e+04	1.385e+05	0.54	yes	no	0.971
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	8.233e+04	1.531e+05	0.54	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	7.471e+04	1.402e+05	0.53	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	6.607e+04	1.231e+05	0.54	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:37	5.571e+04	1.241e+05	0.45	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:02	4.515e+04	1.003e+05	0.45	yes	no	1.080
27	IS	13C-2,3,7,8-TCDD	29:06	5.722e+04	7.410e+04	0.77	yes	no	1.020
28	IS	13C-1,2,3,7,8-PeCDD	33:40	9.769e+04	6.180e+04	1.58	yes	no	1.180
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	7.516e+04	5.824e+04	1.29	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	8.758e+04	6.830e+04	1.28	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:33	7.548e+04	7.038e+04	1.07	yes	no	1.067
32	IS	13C-OCDD	42:21	1.035e+05	1.116e+05	0.93	yes	no	1.142
33	RS/RT	13C-1,2,3,4-TCDD	28:32	5.743e+04	7.321e+04	0.78	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	8.088e+04	6.371e+04	1.27	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:07	2.728e+05				no	1.020

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XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL HRCC5/CS5

Run #6 Filename P227264 Samp: 1 Inj: 1 Acquired: 1-FEB-14 21:00:32
Processed: 4-FEB-14 15:25:591 LAB. ID: 66799

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.75e+07	9.04e+02	4.1e+04	4.81e+07	4.02e+03	1.2e+04
2	1,2,3,7,8-PeCDF	3.31e+08	6.64e+02	5.0e+05	2.11e+08	2.94e+03	7.2e+04
3	2,3,4,7,8-PeCDF	3.36e+08	6.64e+02	5.1e+05	2.16e+08	2.94e+03	7.4e+04
4	1,2,3,4,7,8-HxCDF	3.27e+08	3.53e+03	9.3e+04	2.64e+08	2.88e+03	9.2e+04
5	1,2,3,6,7,8-HxCDF	3.43e+08	3.53e+03	9.7e+04	2.75e+08	2.88e+03	9.5e+04
6	2,3,4,6,7,8-HxCDF	3.10e+08	3.53e+03	8.8e+04	2.51e+08	2.88e+03	8.7e+04
7	1,2,3,7,8,9-HxCDF	2.71e+08	3.53e+03	7.7e+04	2.19e+08	2.88e+03	7.6e+04
8	1,2,3,4,6,7,8-HpCDF	2.85e+08	6.12e+04	4.7e+03	2.77e+08	4.05e+04	6.8e+03
9	1,2,3,4,7,8,9-HpCDF	2.12e+08	6.12e+04	3.5e+03	2.04e+08	4.05e+04	5.0e+03
10	OCDF	2.86e+08	7.21e+04	4.0e+03	3.14e+08	5.21e+04	6.0e+03
11	2,3,7,8-TCDD	2.62e+07	1.22e+03	2.1e+04	3.26e+07	8.72e+02	3.7e+04
12	1,2,3,7,8-PeCDD	2.12e+08	1.42e+03	1.5e+05	1.32e+08	6.96e+02	1.9e+05
13	1,2,3,4,7,8-HxCDD	2.23e+08	5.12e+02	4.4e+05	1.73e+08	1.62e+03	1.1e+05
14	1,2,3,6,7,8-HxCDD	2.01e+08	5.12e+02	3.9e+05	1.56e+08	1.62e+03	9.6e+04
15	1,2,3,7,8,9-HxCDD	2.12e+08	5.12e+02	4.1e+05	1.66e+08	1.62e+03	1.0e+05
16	1,2,3,4,6,7,8-HpCDD	1.82e+08	1.18e+03	1.5e+05	1.69e+08	5.40e+02	3.1e+05
17	OCDD	2.13e+08	1.63e+04	1.3e+04	2.34e+08	2.03e+04	1.2e+04
18	13C-2,3,7,8-TCDF	1.72e+07	1.39e+03	1.2e+04	2.11e+07	1.52e+03	1.4e+04
19	13C-1,2,3,7,8-PeCDF	3.16e+07	6.28e+02	5.0e+04	1.94e+07	1.48e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	3.05e+07	6.28e+02	4.9e+04	1.87e+07	1.48e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	1.59e+07	1.57e+03	1.0e+04	2.97e+07	2.42e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	1.70e+07	1.57e+03	1.1e+04	3.18e+07	2.42e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.62e+07	1.57e+03	1.0e+04	3.03e+07	2.42e+03	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	1.57e+03	8.8e+03	2.58e+07	2.42e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.22e+07	1.59e+04	7.7e+02	2.71e+07	5.66e+03	4.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.87e+06	1.59e+04	5.6e+02	1.98e+07	5.66e+03	3.5e+03
27	13C-2,3,7,8-TCDD	1.19e+07	8.06e+03	1.5e+03	1.55e+07	2.91e+03	5.3e+03
28	13C-1,2,3,7,8-PeCDD	1.90e+07	1.06e+03	1.8e+04	1.20e+07	6.76e+02	1.8e+04
29	13C-1,2,3,4,7,8-HxCDD	1.70e+07	2.00e+03	8.5e+03	1.31e+07	1.10e+03	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	1.88e+07	2.00e+03	9.4e+03	1.46e+07	1.10e+03	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.57e+07	2.94e+03	5.3e+03	1.44e+07	1.75e+03	8.2e+03
32	13C-OCDD	1.85e+07	4.32e+03	4.3e+03	2.00e+07	5.09e+03	3.9e+03
33	13C-1,2,3,4-TCDD	1.21e+07	8.06e+03	1.5e+03	1.54e+07	2.91e+03	5.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.71e+07	2.00e+03	8.5e+03	1.36e+07	1.10e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	5.86e+07	1.70e+03	3.4e+04			

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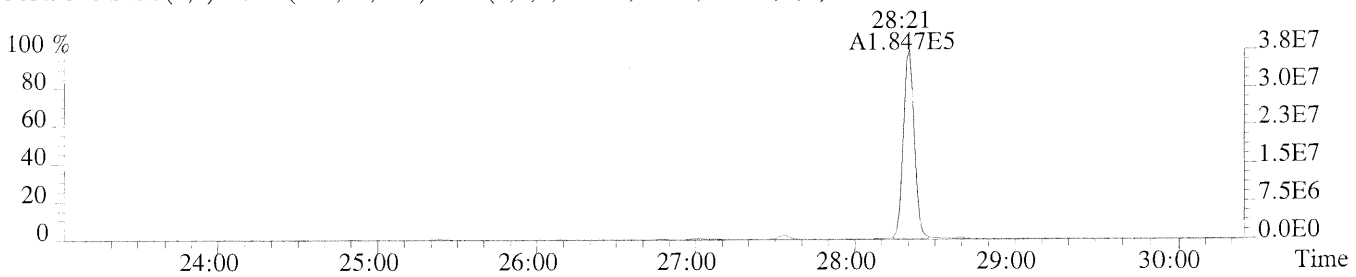
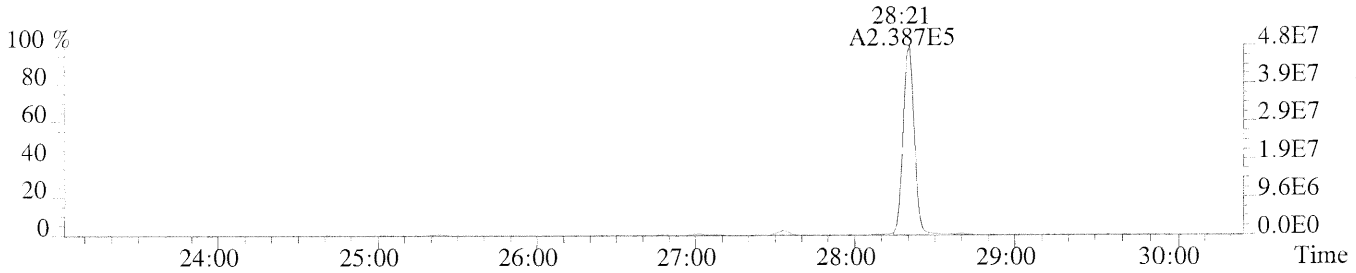
XLSN

File:P227264 #1-464 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

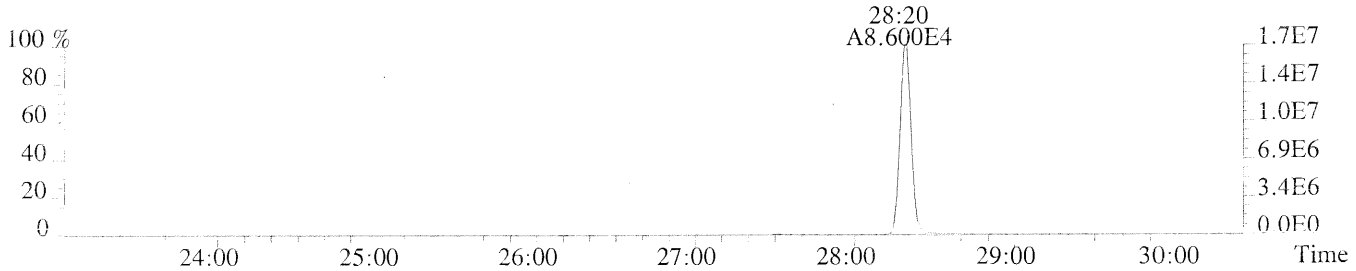
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



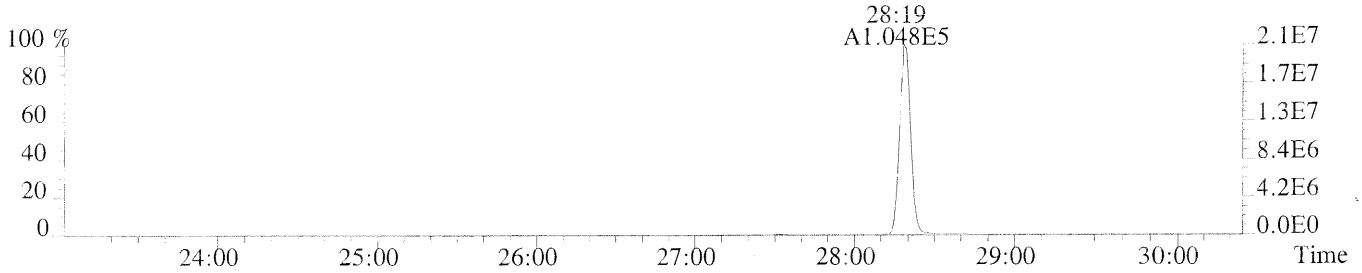
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4016.0,1.00%,F,T)



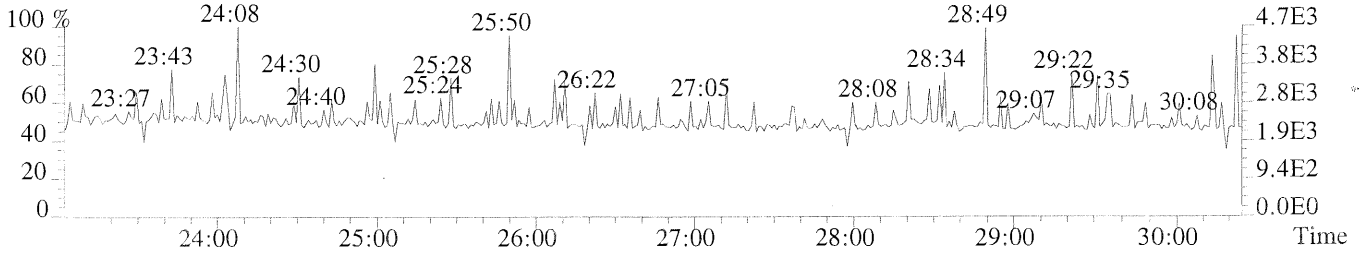
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1392.0,1.00%,F,T)



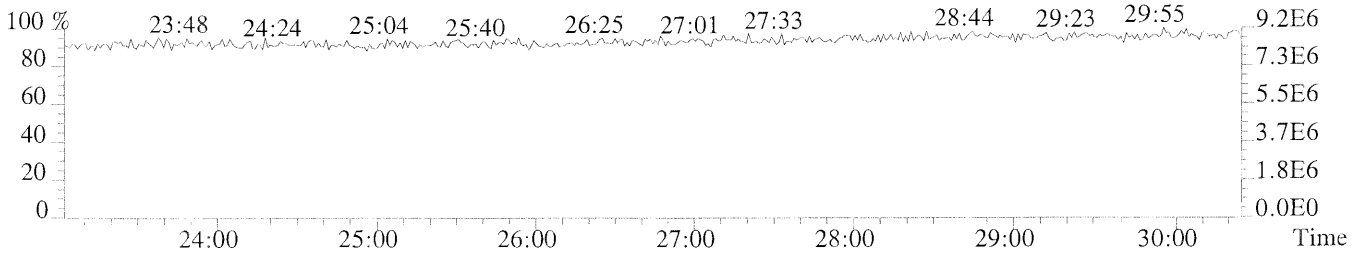
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

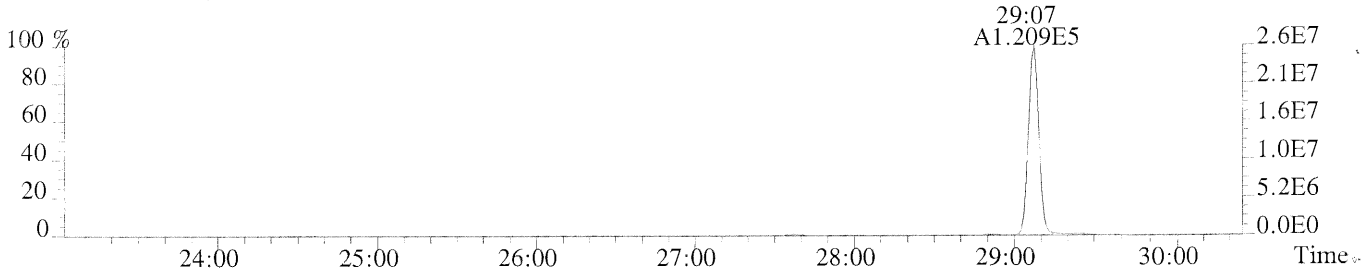


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

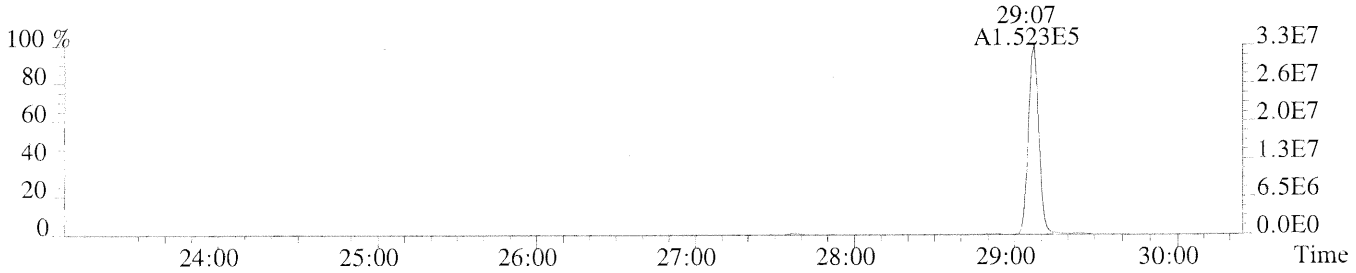


File:P227264 #1-464 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

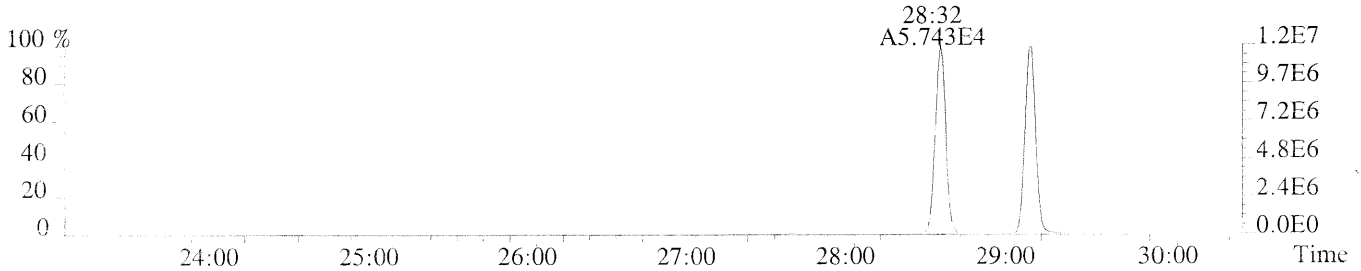
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1224.0,1.00%,F,T)



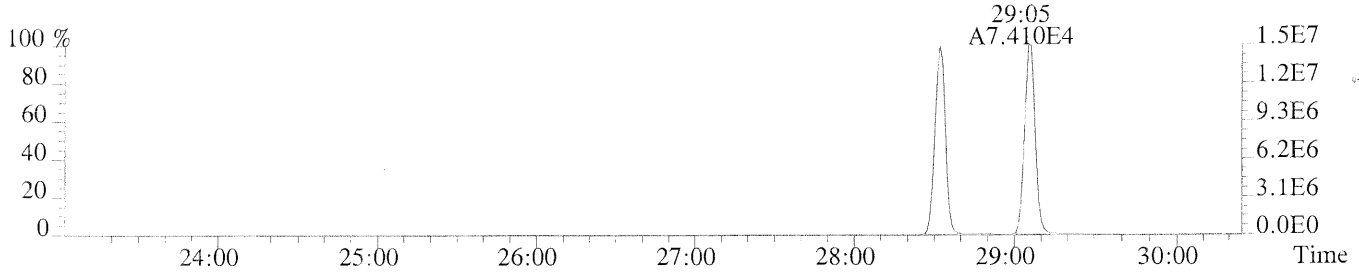
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



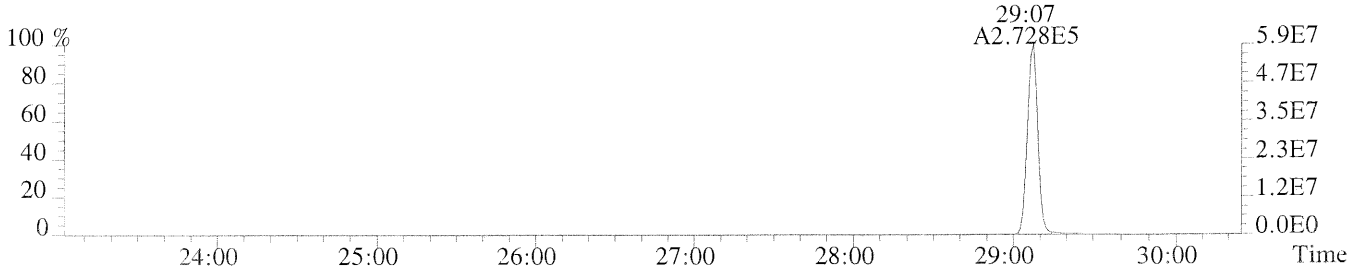
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8056.0,1.00%,F,T)



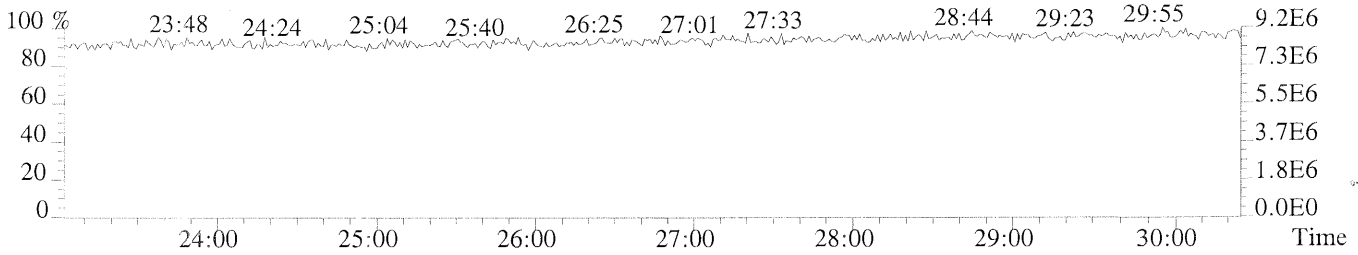
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2908.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1700.0,1.00%,F,T)

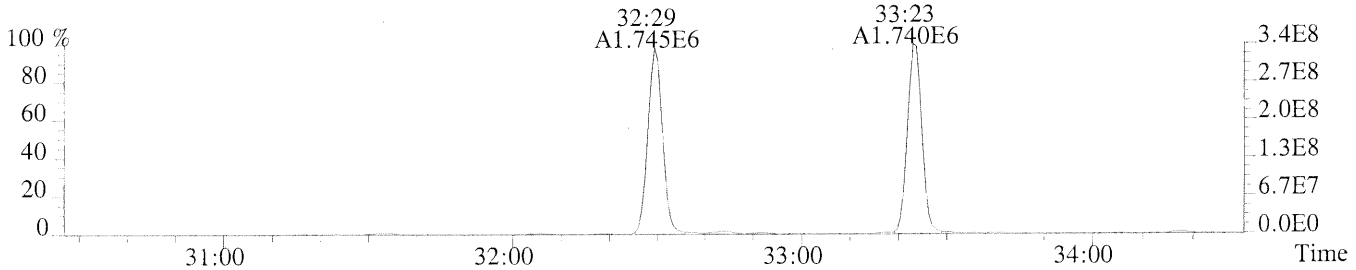


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

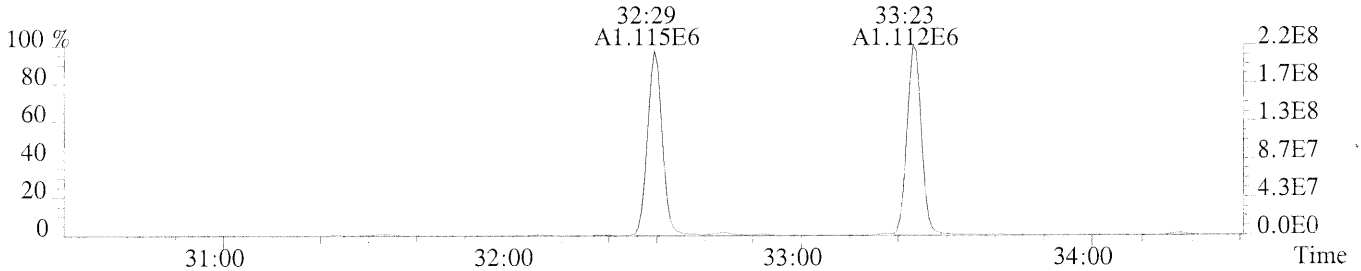


File:P227264 #1-369 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

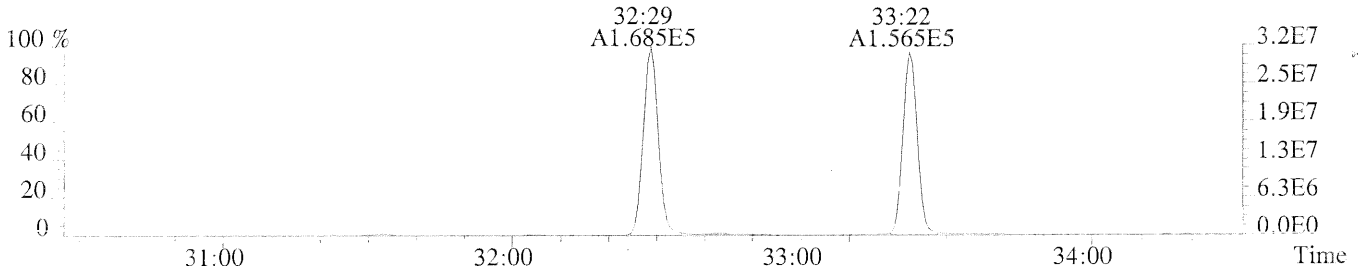
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



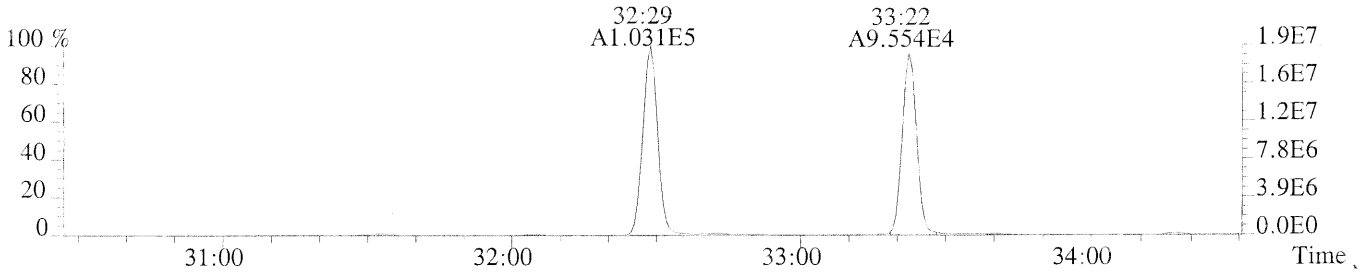
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2936.0,1.00%,F,T)



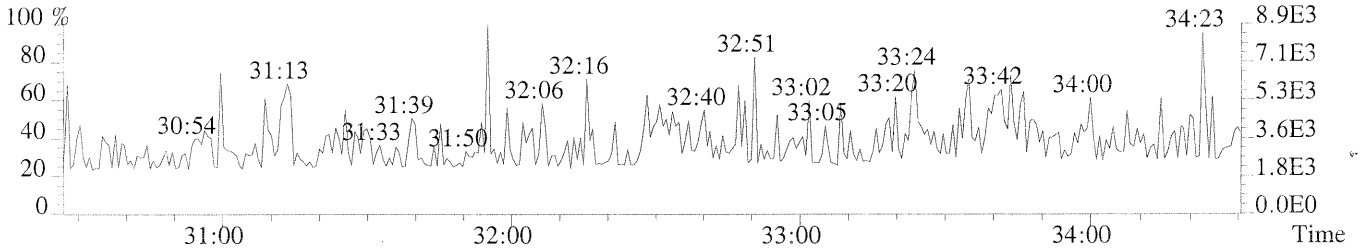
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



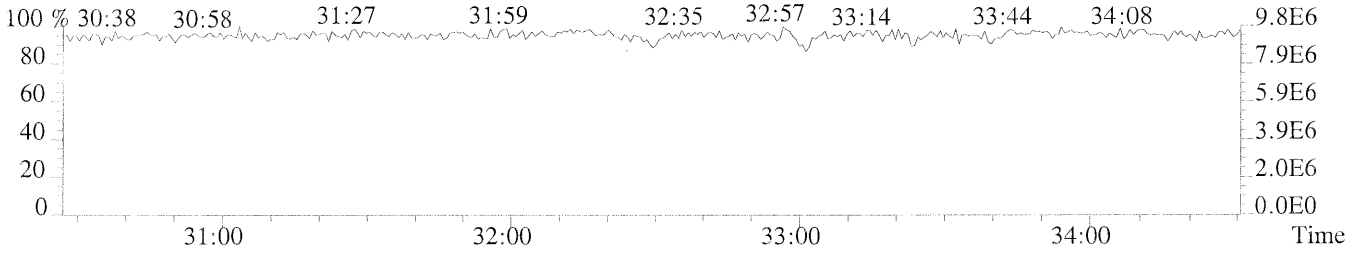
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



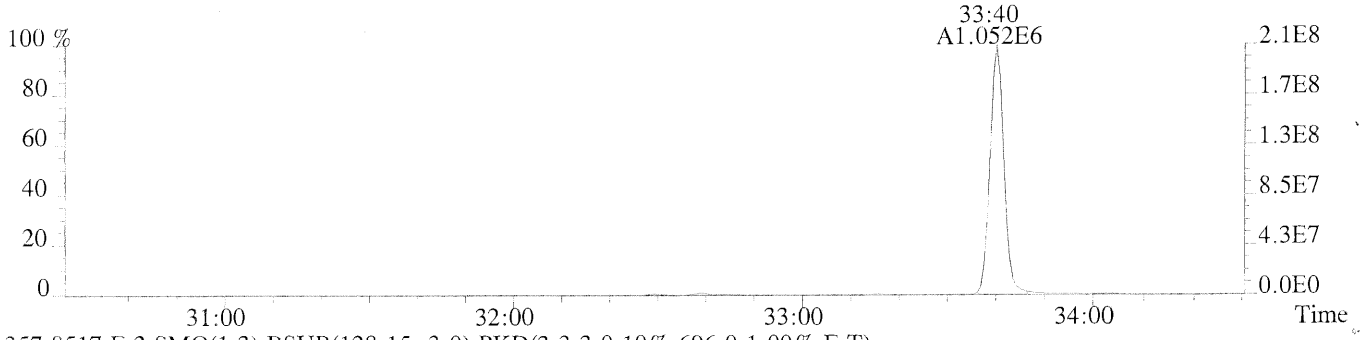
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



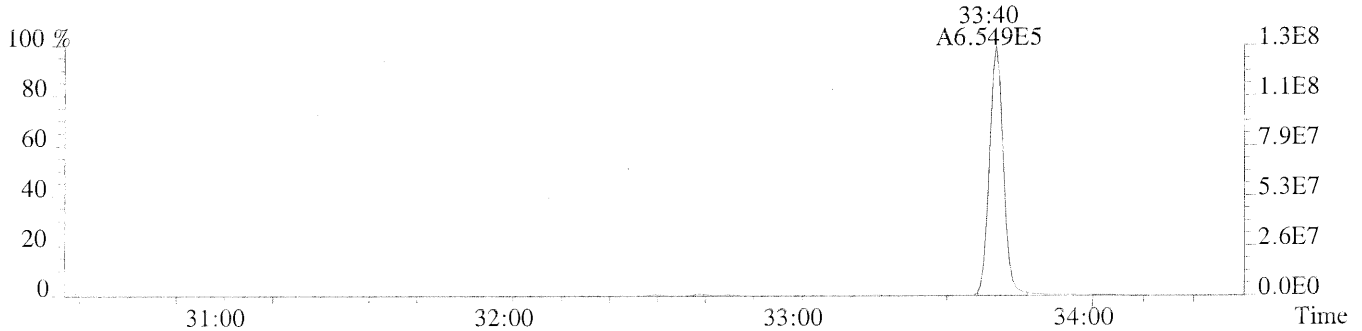
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



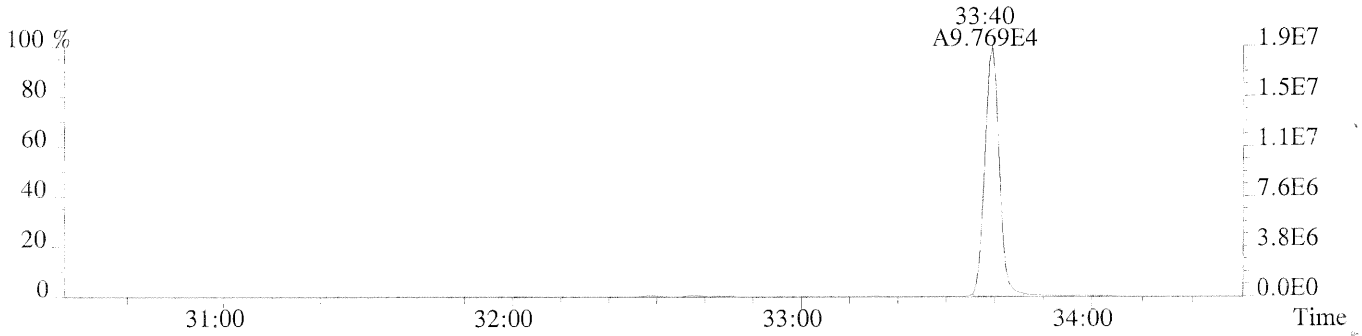
File:P227264 #1-369 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



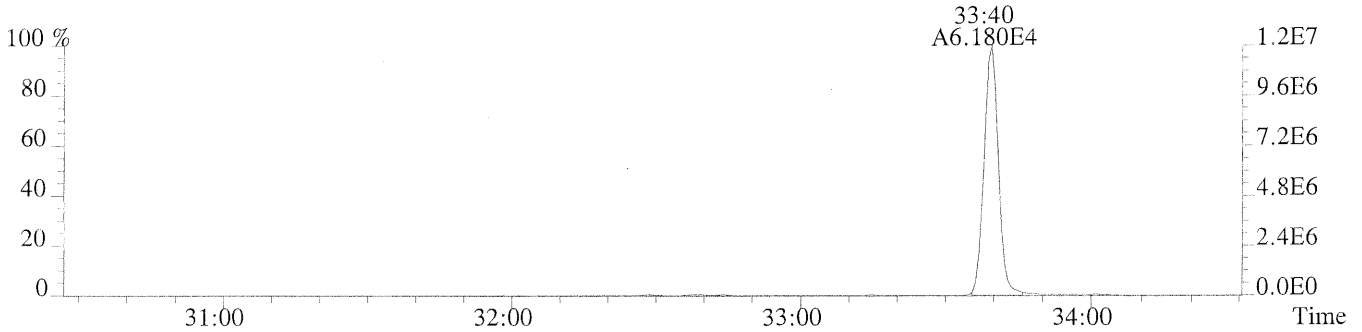
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



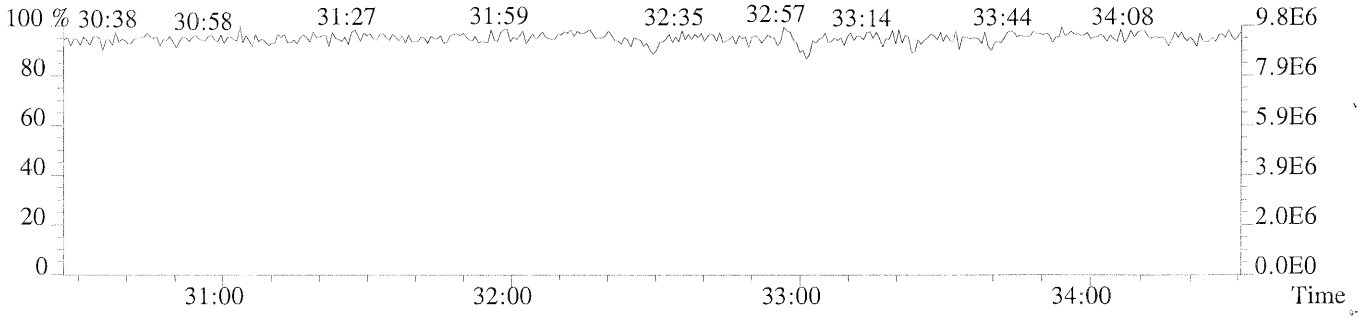
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)

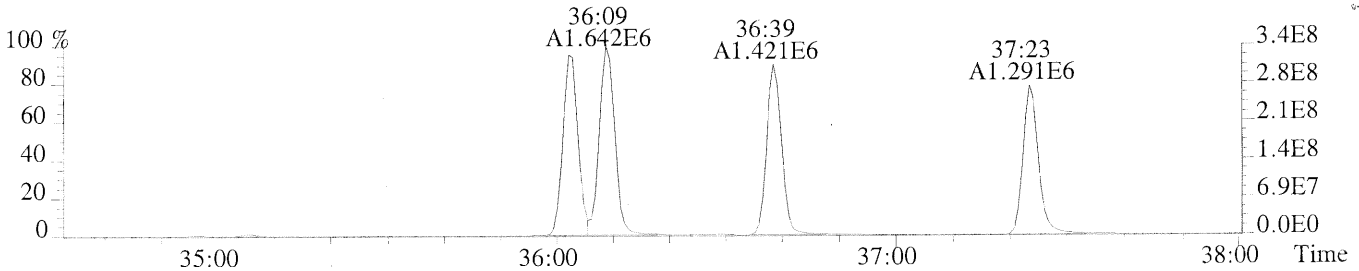


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

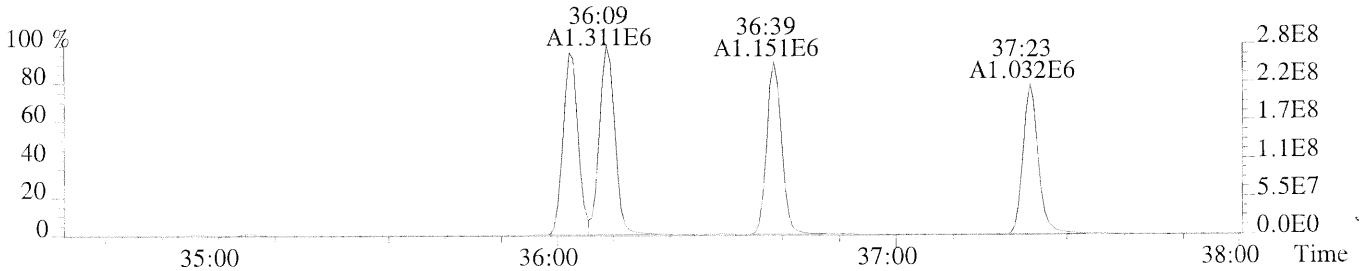


File:P227264 #1-315 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

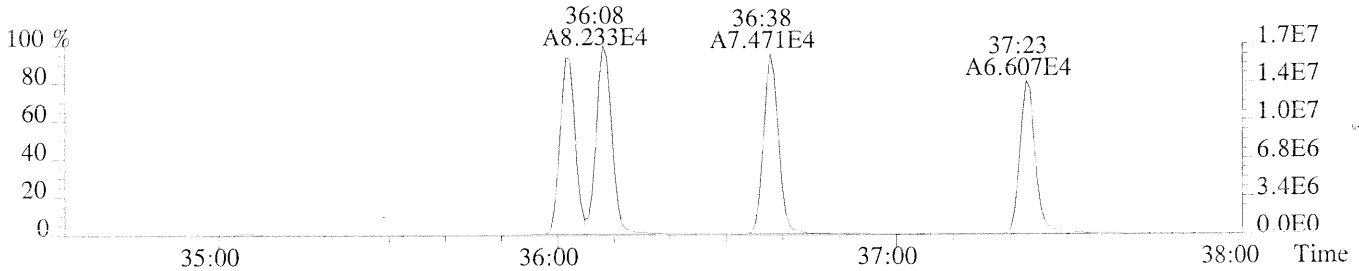
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3532.0,0.40%,F,T)



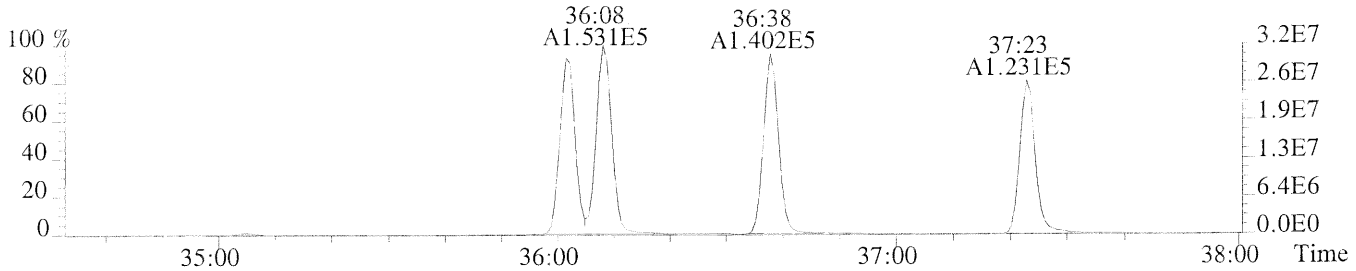
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2884.0,0.40%,F,T)



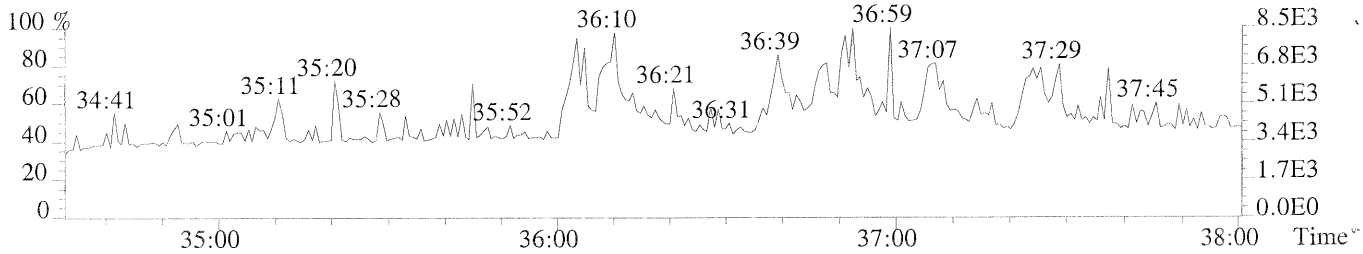
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



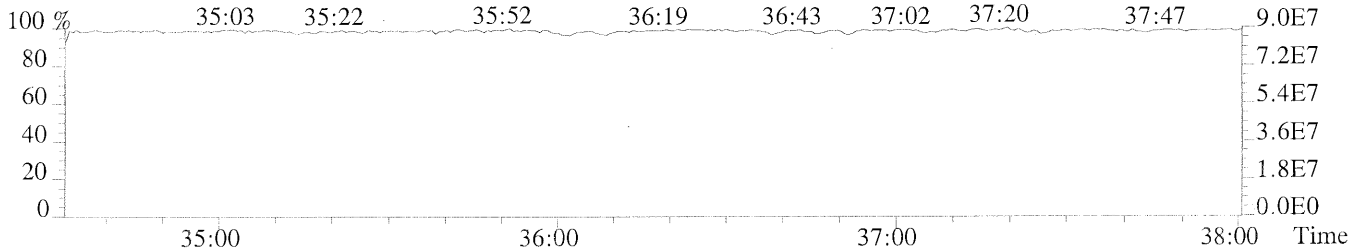
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2420.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

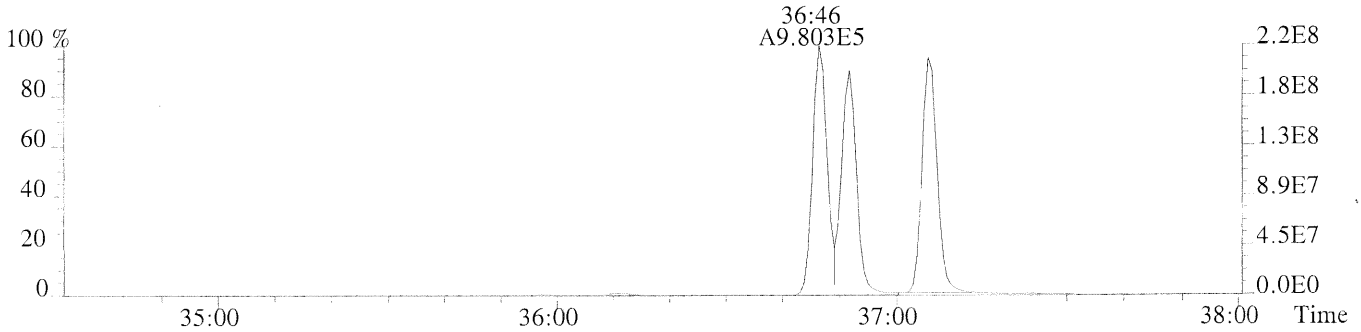


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

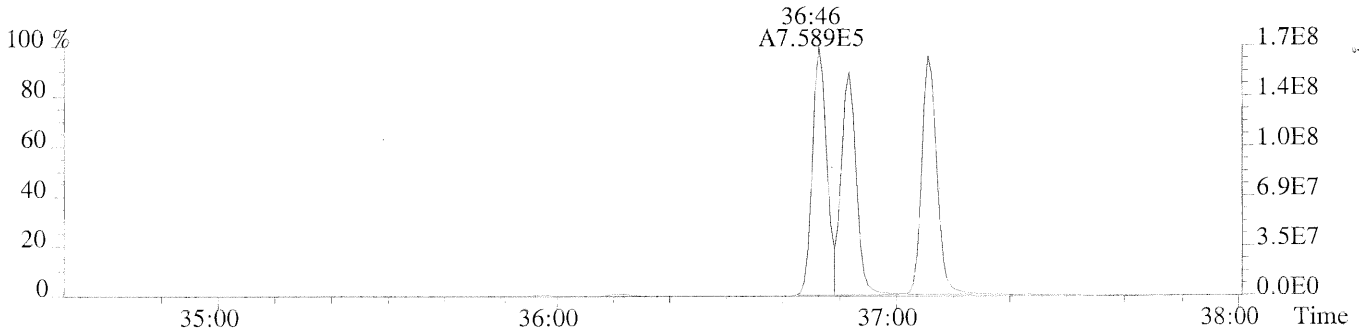


File:P227264 #1-315 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

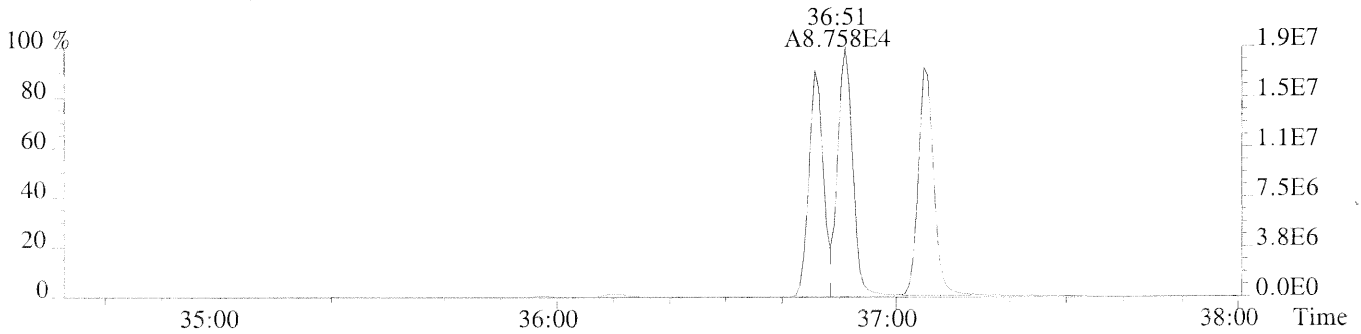
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



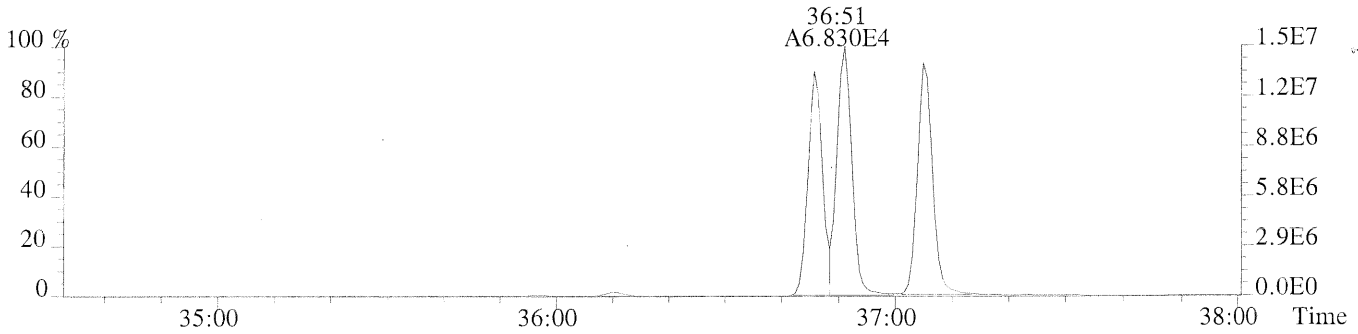
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1620.0,0.40%,F,T)



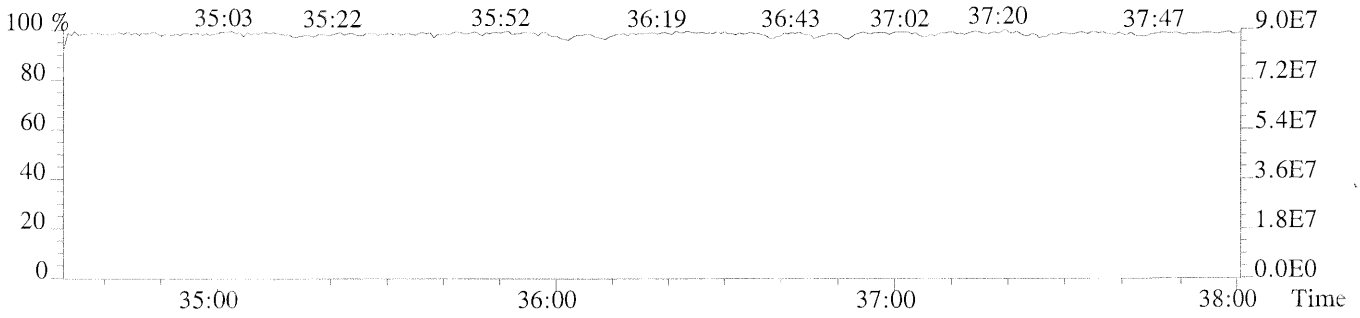
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)

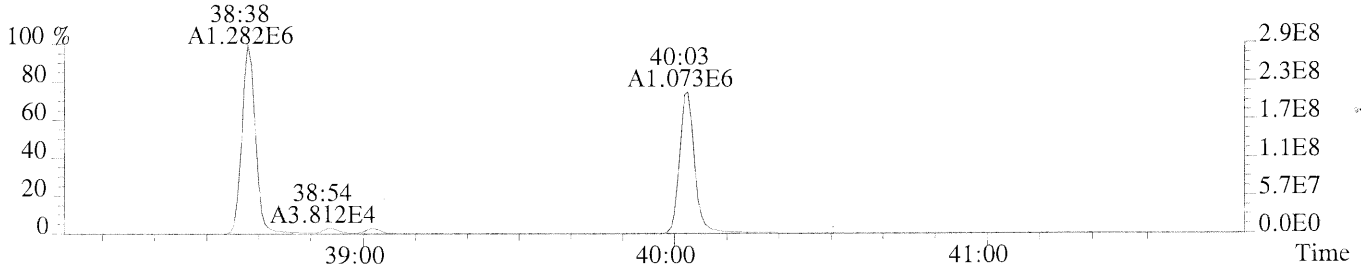


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

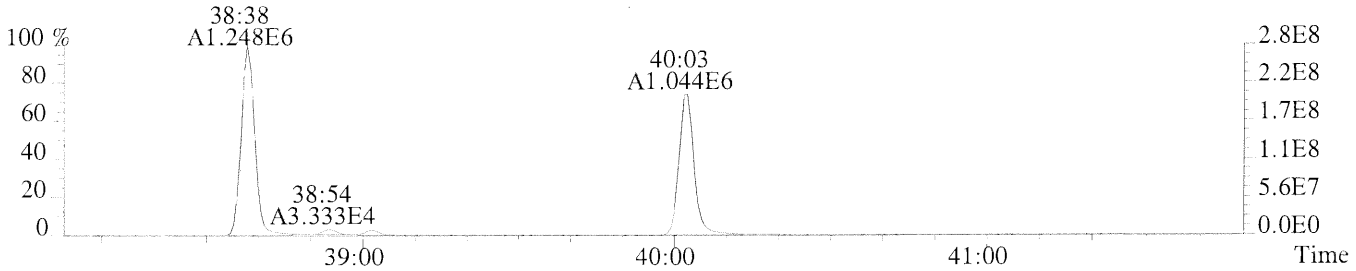


File:P227264 #1-342 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

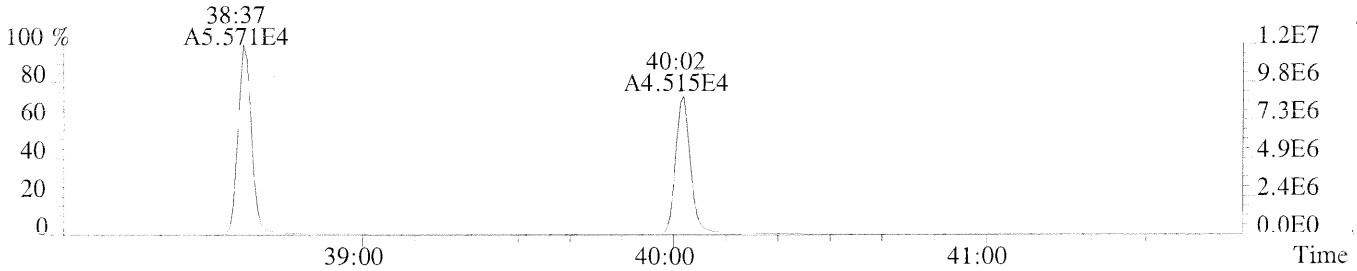
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,61184.0,0.50%,F,T)



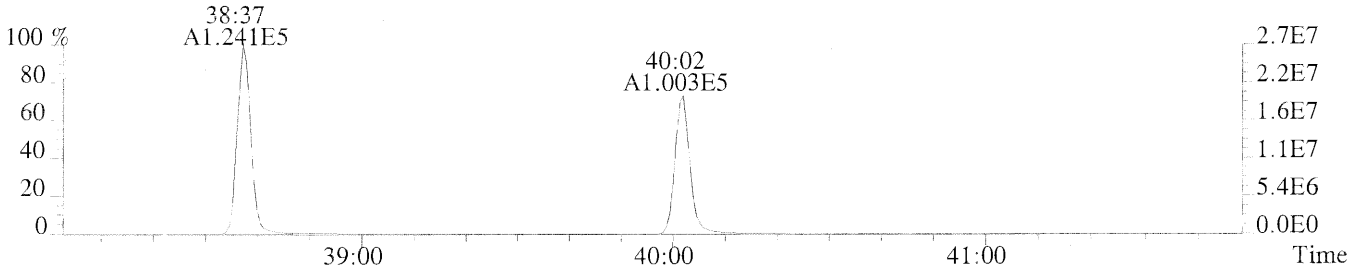
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,40532.0,0.50%,F,T)



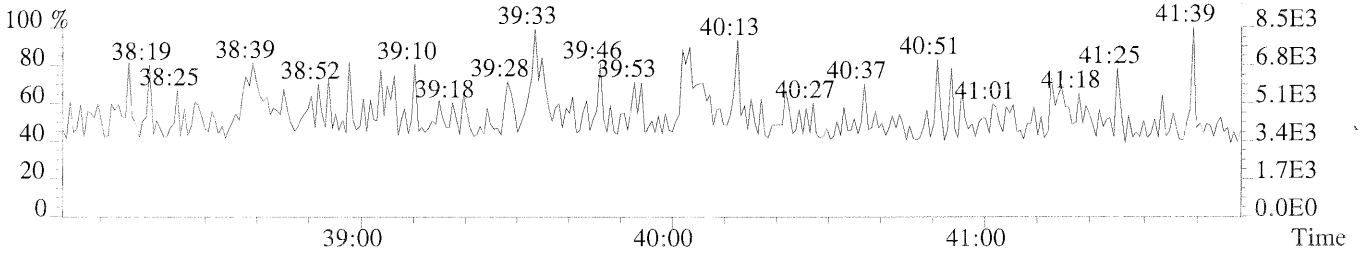
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,15884.0,0.50%,F,T)



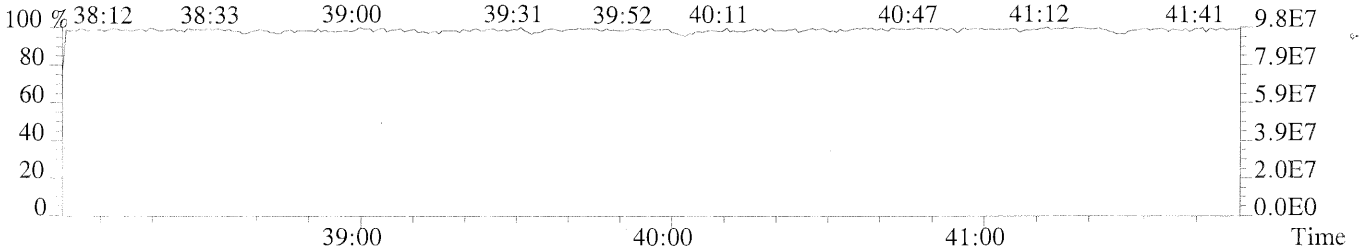
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5656.0,0.50%,F,T)



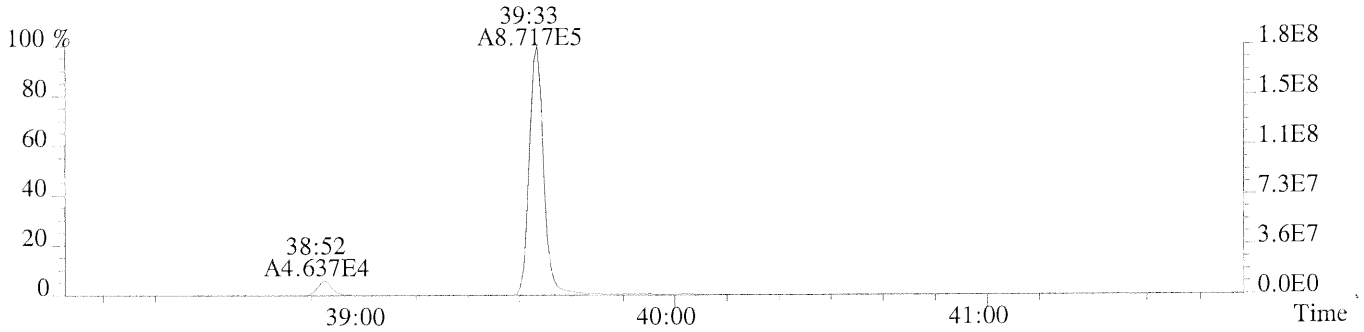
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



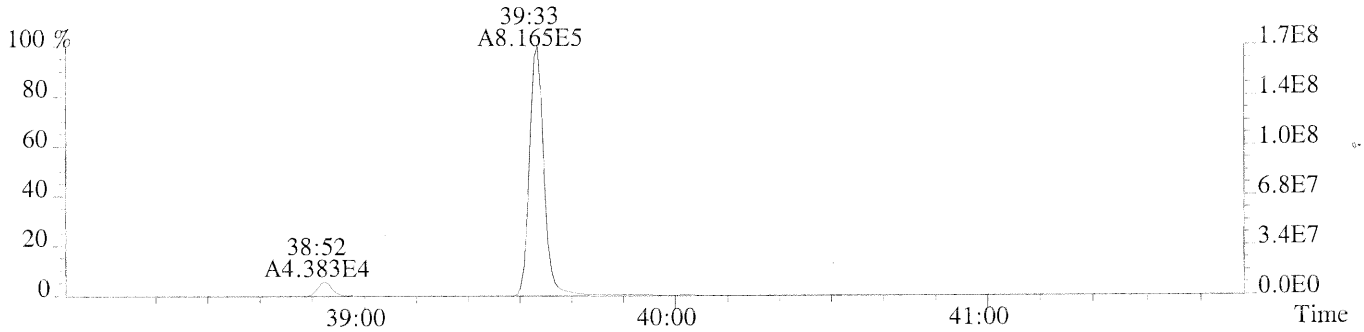
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



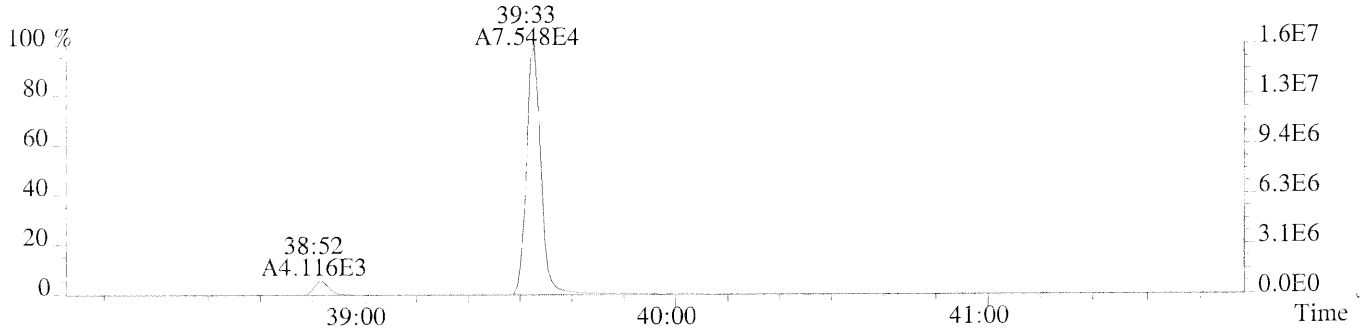
File:P227264 #1-342 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



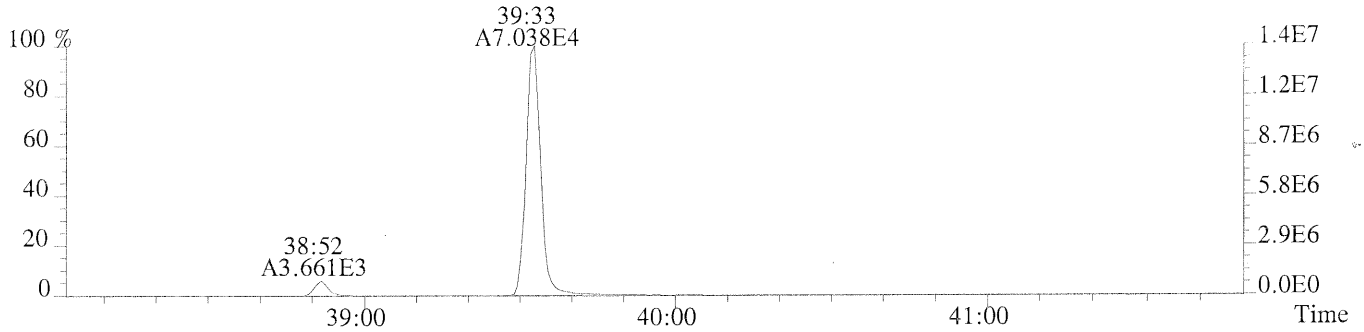
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



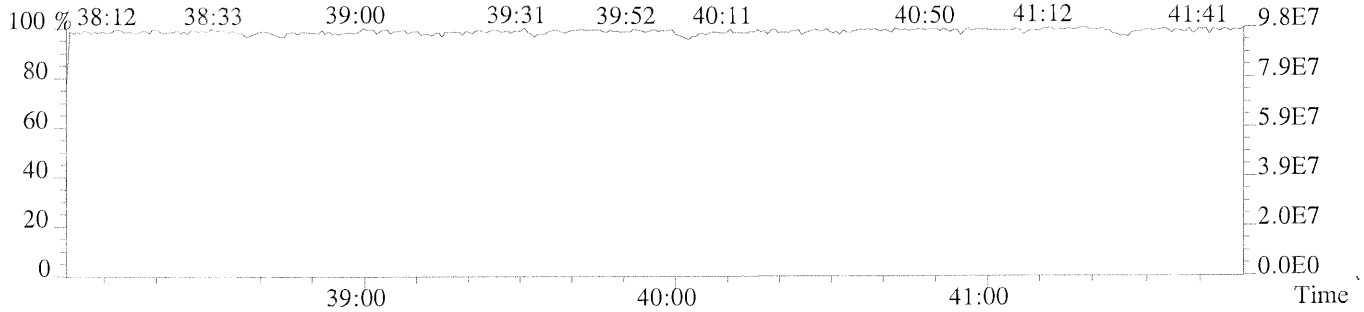
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2940.0,0.40%,F,T)



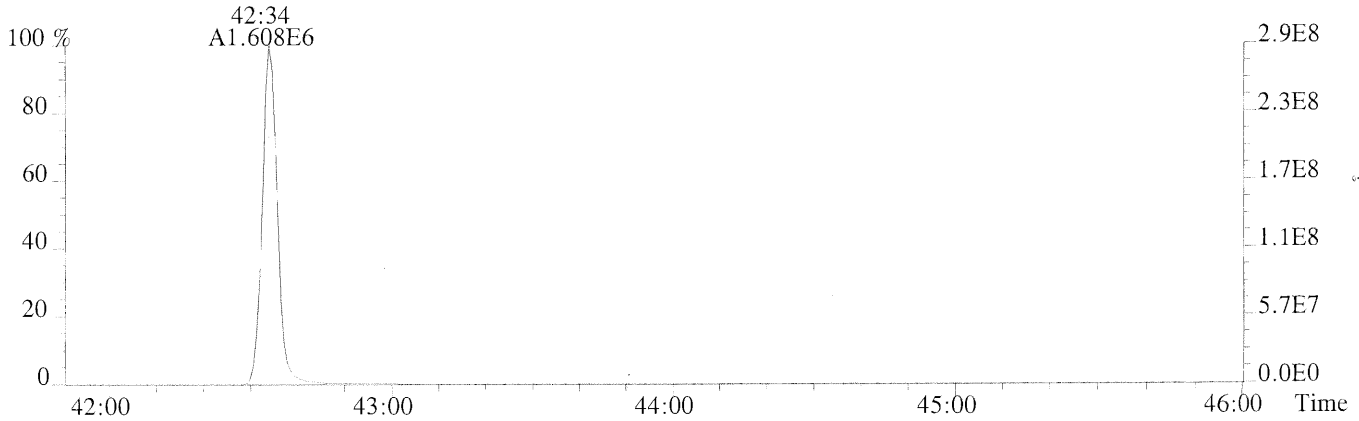
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



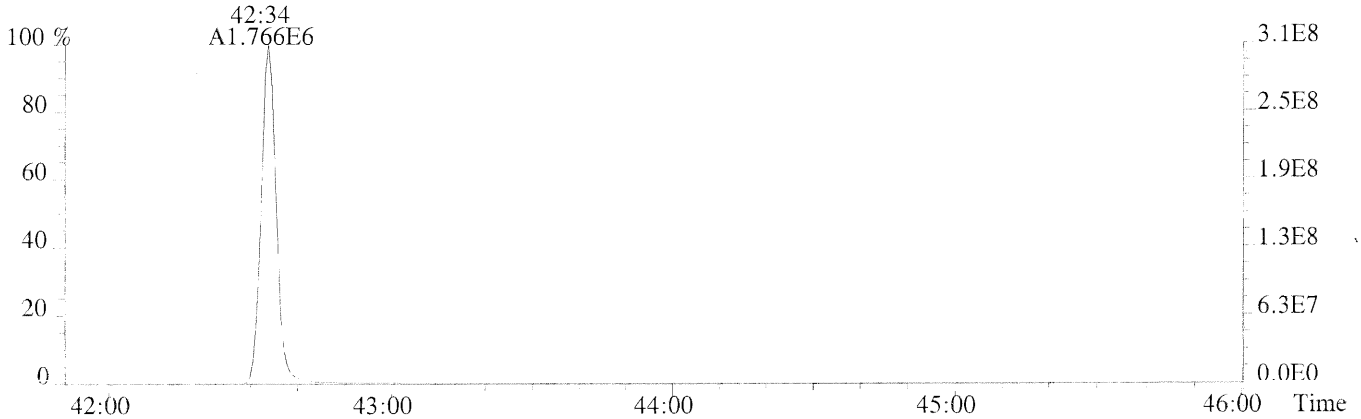
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



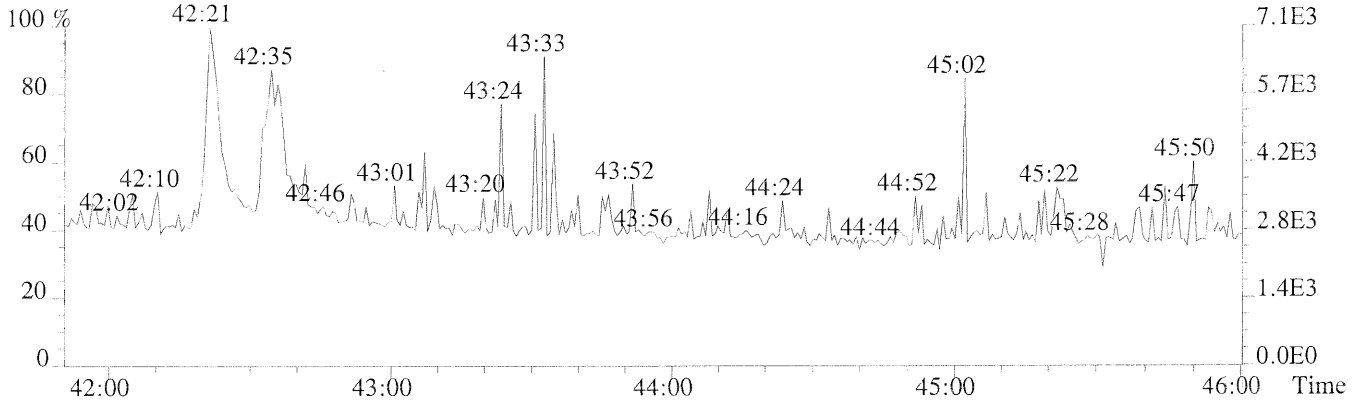
File:P227264 #1-383 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,72124.0,0.40%,F,T)



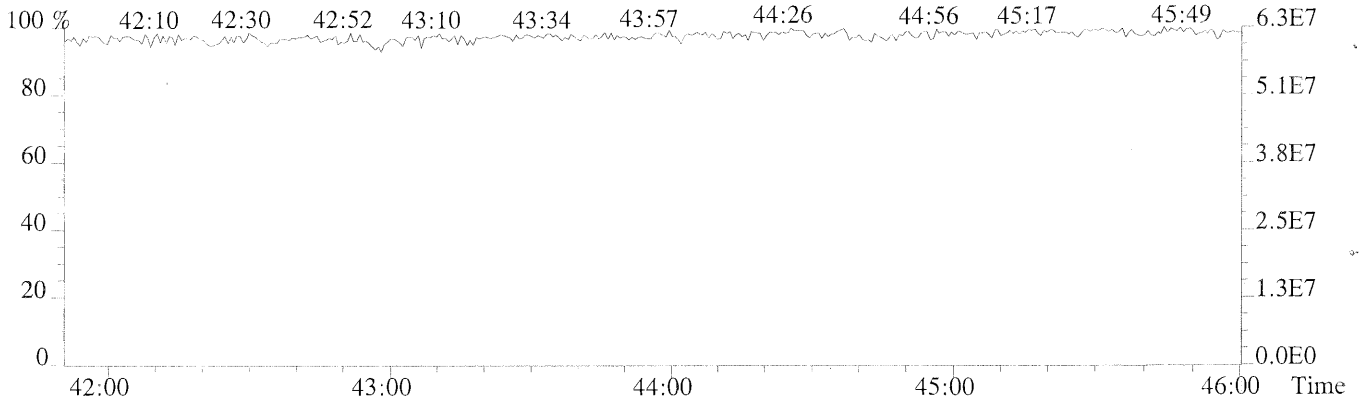
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,52060.0,0.40%,F,T)



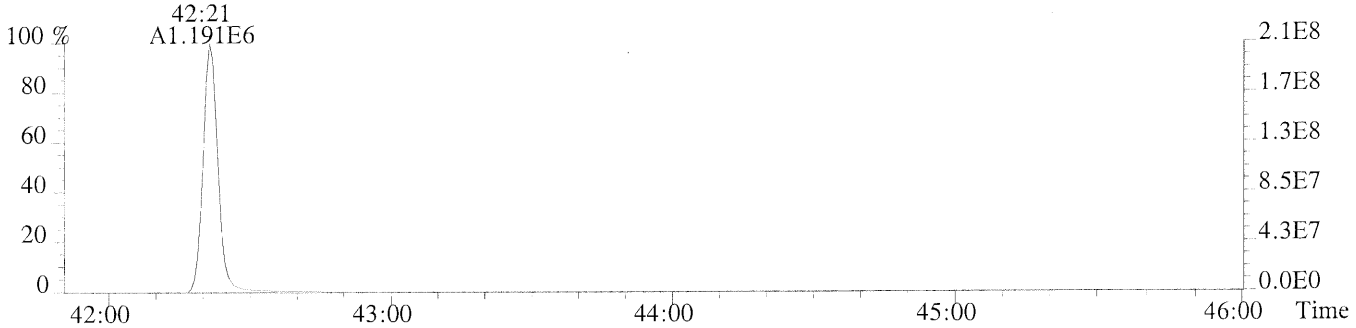
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



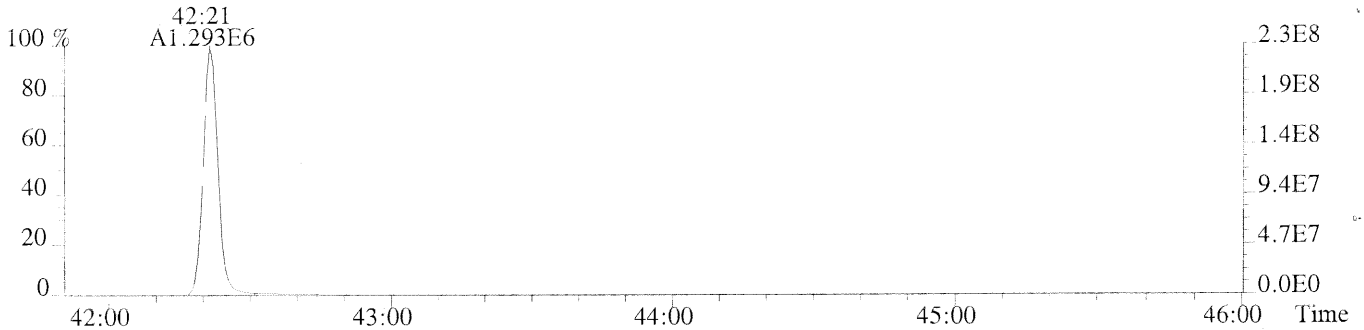
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



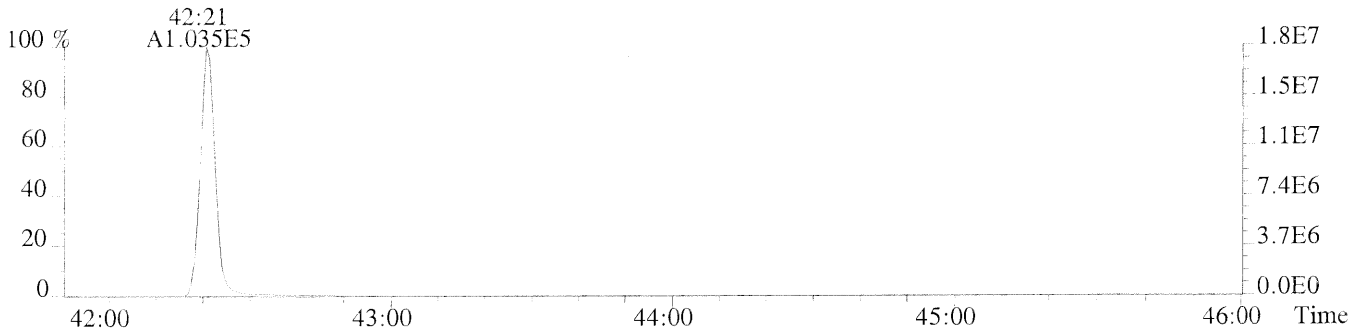
File:P227264 #1-383 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,16332.0,0.40%,F,T)



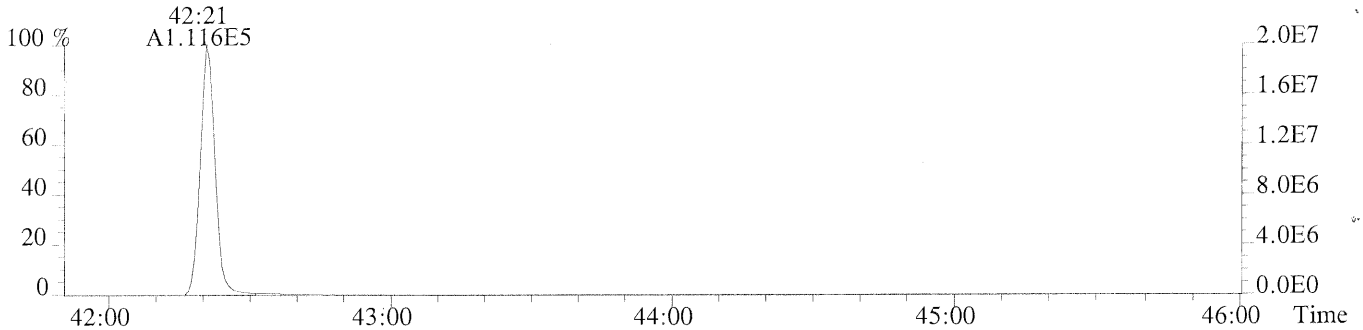
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,20312.0,0.40%,F,T)



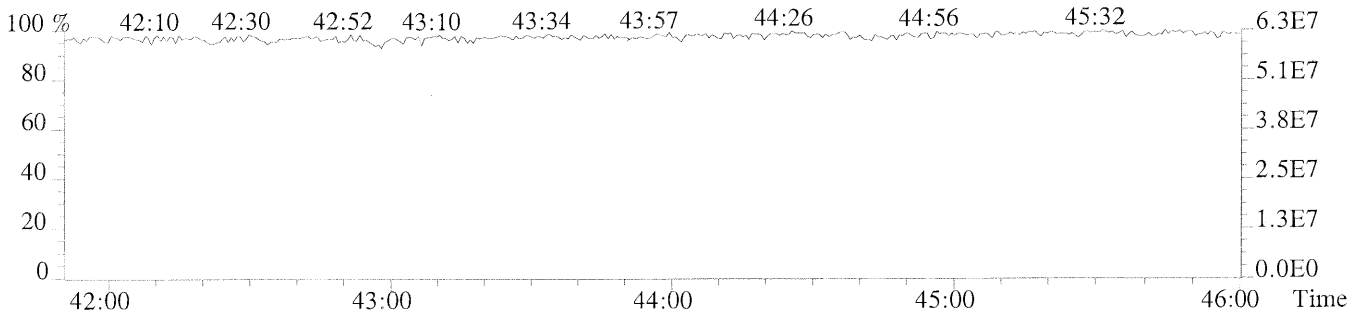
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4316.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5088.0,0.40%,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
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 | GC Column ID: DB-5

VER Data Filename: P227268 | Analysis Date: 3-FEB-14 Time: 15:16:53

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.4	7.8 - 12.9	-5.8
1,2,3,7,8-PeCDD	M+2/M+4	1.62	1.32-1.78	49	39 - 65	-2.6
1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	51	39 - 64	2.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	44	39 - 64	-12.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.31	1.05-1.43	48	41 - 61	-4.3
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	48	43 - 58	-4.9
OCDD	M+2/M+4	0.91	0.76-1.02	86	79 - 126	-13.9
2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	9.8	8.4 - 12.0	-1.6
1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	47	41 - 60	-7.0
2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	51	41 - 61	1.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	47	45 - 56	-5.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	50	44 - 57	-0.7
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	47	45 - 56	-5.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	48	44 - 57	-4.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	49	45 - 55	-2.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	51	43 - 58	1.7
OCDF	M+2/M+4	0.90	0.76-1.02	84	63 - 159	-15.5

(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 %D 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

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 GC Column ID: DB-5 MSUI 2/10/14

VER Data Filename: P227268 Analysis Date: 3-FEB-14 Time: 15:16:53

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	102	82 - 121	2.2
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	110	62 - 160	9.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	99	85 - 117	-1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	109	85 - 118	9.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	109	72 - 138	9.4
13C-OCDD	M+2/M+4	0.91	0.76-1.02	243	96 - 415	21.6
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	96	71 - 140	-3.9
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	106	76 - 130	5.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	102	77 - 130	2.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	99	76 - 131	-0.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	92	70 - 143	-7.5
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	0.53	0.43-0.59	99	73 - 137	-1.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	102	78 - 129	2.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	100	77 - 129	0.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.2	7.8 - 12.7	1.7

(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.
(5) The beginnning CCAL %D 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)

1613F4B.FRM

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
2ND SOURCE VERIF

Run #8 Filename P227268 #1 Samp: 1 Inj: 1 Acquired: 3-FEB-14 15:16:53
Processed: 4-FEB-14 16:51:12 LAB. ID: 60287

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:21	1.335e+04	1.697e+04	0.79	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:29	1.294e+05	8.176e+04	1.58	yes	no	1.000
3	Unk	2,3,4,7,8-PeCDF	33:24	1.293e+05	8.245e+04	1.57	yes	no	1.001
4	Unk	1,2,3,4,7,8-HxCDF	36:02	1.204e+05	9.523e+04	1.26	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:09	1.251e+05	1.007e+05	1.24	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:38	1.138e+05	9.098e+04	1.25	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:23	1.016e+05	8.119e+04	1.25	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	1.051e+05	1.013e+05	1.04	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	8.704e+04	8.345e+04	1.04	yes	no	1.000
10	Unk	OCDF	42:34	1.385e+05	1.538e+05	0.90	yes	no	1.005
11	Unk	2,3,7,8-TCDD	29:07	8.552e+03	1.073e+04	0.80	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:40	8.015e+04	4.938e+04	1.62	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:46	7.901e+04	6.131e+04	1.29	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:52	7.560e+04	5.844e+04	1.29	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:06	8.098e+04	6.203e+04	1.31	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:33	7.115e+04	6.731e+04	1.06	yes	no	1.000
17	Unk	OCDD	42:21	1.077e+05	1.177e+05	0.91	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:20	1.226e+05	1.506e+05	0.81	yes	no	0.992
19	IS	13C-1,2,3,7,8-PeCDF	32:29	2.485e+05	1.558e+05	1.59	yes	no	1.138
20	IS	13C-2,3,4,7,8-PeCDF	33:22	2.334e+05	1.445e+05	1.62	yes	no	1.169
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	1.185e+05	2.237e+05	0.53	yes	no	0.971
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	1.276e+05	2.409e+05	0.53	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	1.203e+05	2.274e+05	0.53	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.064e+05	1.994e+05	0.53	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:37	9.318e+04	2.047e+05	0.46	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:02	7.527e+04	1.674e+05	0.45	yes	no	1.080
27	IS	13C-2,3,7,8-TCDD	29:06	8.517e+04	1.093e+05	0.78	yes	no	1.019
28	IS	13C-1,2,3,7,8-PeCDD	33:40	1.520e+05	9.682e+04	1.57	yes	no	1.179
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	1.242e+05	9.874e+04	1.26	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	1.460e+05	1.147e+05	1.27	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:33	1.287e+05	1.202e+05	1.07	yes	no	1.067
32	IS	13C-OCDD	42:21	1.937e+05	2.128e+05	0.91	yes	no	1.142
33	RS/RT	13C-1,2,3,4-TCDD	28:33	8.980e+04	1.148e+05	0.78	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	1.357e+05	1.075e+05	1.26	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:07	1.968e+04				no	1.020

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XLRESP

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METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
2ND SOURCE VERIF

Run #8 Filename P227268 Samp: 1 Inj: 1 Acquired: 3-FEB-14 15:16:53
Processed: 4-FEB-14 16:51:121 LAB. ID: 60287

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.75e+06	1.23e+03	2.2e+03	3.50e+06	2.14e+03	1.6e+03
2	1,2,3,7,8-PeCDF	2.38e+07	1.88e+03	1.3e+04	1.51e+07	3.47e+03	4.4e+03
3	2,3,4,7,8-PeCDF	2.51e+07	1.88e+03	1.3e+04	1.60e+07	3.47e+03	4.6e+03
4	1,2,3,4,7,8-HxCDF	2.50e+07	2.50e+03	1.0e+04	2.02e+07	2.38e+03	8.5e+03
5	1,2,3,6,7,8-HxCDF	2.62e+07	2.50e+03	1.0e+04	2.10e+07	2.38e+03	8.8e+03
6	2,3,4,6,7,8-HxCDF	2.49e+07	2.50e+03	9.9e+03	1.99e+07	2.38e+03	8.4e+03
7	1,2,3,7,8,9-HxCDF	2.07e+07	2.50e+03	8.3e+03	1.67e+07	2.38e+03	7.0e+03
8	1,2,3,4,6,7,8-HpCDF	2.32e+07	3.74e+03	6.2e+03	2.24e+07	1.39e+04	1.6e+03
9	1,2,3,4,7,8,9-HpCDF	1.70e+07	3.74e+03	4.5e+03	1.60e+07	1.39e+04	1.2e+03
10	OCDF	2.31e+07	1.45e+04	1.6e+03	2.58e+07	1.50e+04	1.7e+03
11	2,3,7,8-TCDD	1.84e+06	1.20e+03	1.5e+03	2.35e+06	9.36e+02	2.5e+03
12	1,2,3,7,8-PeCDD	1.57e+07	2.02e+03	7.8e+03	9.64e+06	8.60e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	1.75e+07	9.88e+02	1.8e+04	1.37e+07	9.56e+02	1.4e+04
14	1,2,3,6,7,8-HxCDD	1.59e+07	9.88e+02	1.6e+04	1.23e+07	9.56e+02	1.3e+04
15	1,2,3,7,8,9-HxCDD	1.67e+07	9.88e+02	1.7e+04	1.31e+07	9.56e+02	1.4e+04
16	1,2,3,4,6,7,8-HpCDD	1.43e+07	1.39e+03	1.0e+04	1.37e+07	1.57e+03	8.7e+03
17	OCDD	1.86e+07	8.38e+03	2.2e+03	2.03e+07	1.05e+04	1.9e+03
18	13C-2,3,7,8-TCDF	2.49e+07	9.84e+02	2.5e+04	3.07e+07	1.80e+03	1.7e+04
19	13C-1,2,3,7,8-PeCDF	4.60e+07	8.96e+02	5.1e+04	2.87e+07	2.21e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	4.59e+07	8.96e+02	5.1e+04	2.84e+07	2.21e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.52e+07	2.92e+03	8.6e+03	4.81e+07	2.54e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	2.66e+07	2.92e+03	9.1e+03	5.07e+07	2.54e+03	2.0e+04
23	13C-2,3,4,6,7,8-HxCDF	2.62e+07	2.92e+03	9.0e+03	4.97e+07	2.54e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	2.14e+07	2.92e+03	7.3e+03	4.06e+07	2.54e+03	1.6e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.03e+07	5.32e+03	3.8e+03	4.49e+07	7.35e+03	6.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.46e+07	5.32e+03	2.7e+03	3.22e+07	7.35e+03	4.4e+03
27	13C-2,3,7,8-TCDD	1.83e+07	6.61e+03	2.8e+03	2.34e+07	2.42e+03	9.7e+03
28	13C-1,2,3,7,8-PeCDD	2.95e+07	1.24e+03	2.4e+04	1.87e+07	1.06e+03	1.8e+04
29	13C-1,2,3,4,7,8-HxCDD	2.74e+07	1.84e+03	1.5e+04	2.18e+07	1.94e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	3.07e+07	1.84e+03	1.7e+04	2.42e+07	1.94e+03	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	2.58e+07	1.88e+03	1.4e+04	2.43e+07	1.05e+03	2.3e+04
32	13C-OCDD	3.30e+07	9.63e+03	3.4e+03	3.61e+07	1.96e+04	1.8e+03
33	13C-1,2,3,4-TCDD	1.85e+07	6.61e+03	2.8e+03	2.36e+07	2.42e+03	9.7e+03
34	13C-1,2,3,7,8,9-HxCDD	2.80e+07	1.84e+03	1.5e+04	2.22e+07	1.94e+03	1.1e+04
35	37Cl-2,3,7,8-TCDD	4.27e+06	3.54e+03	1.2e+03			

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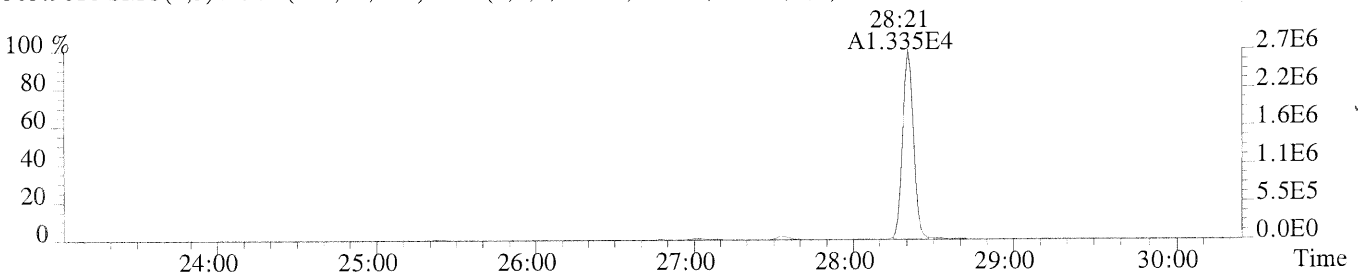
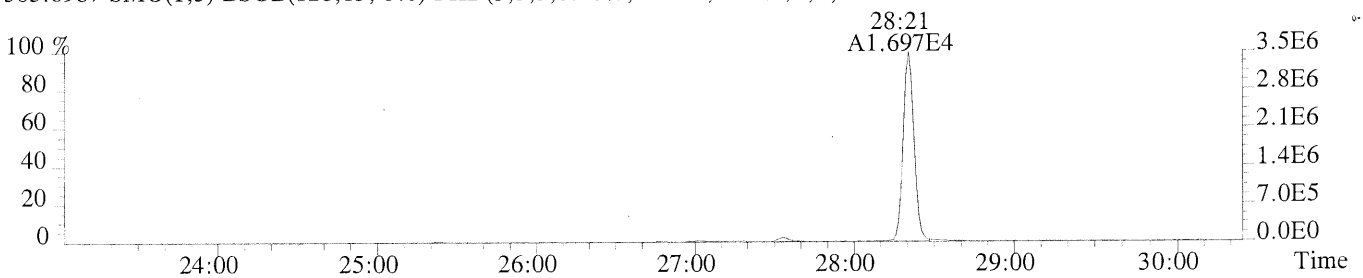
XLSN

File:P227268 #1-464 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3

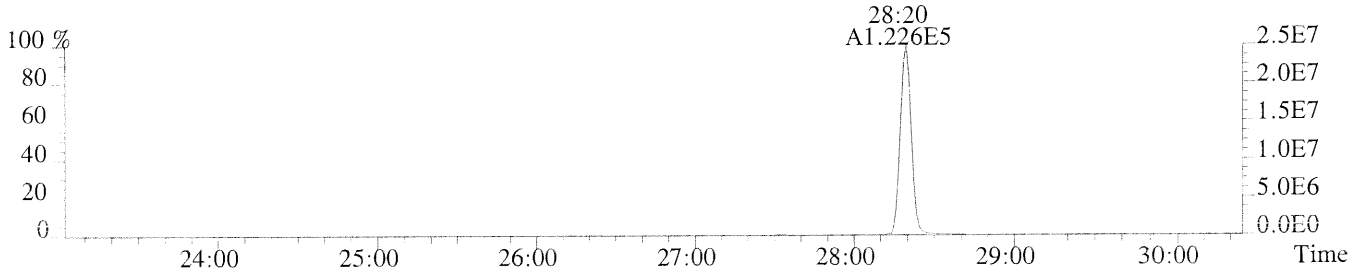
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)



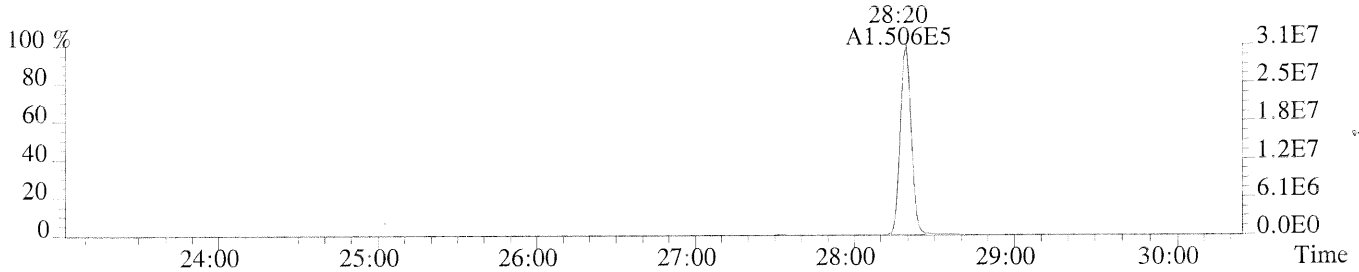
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



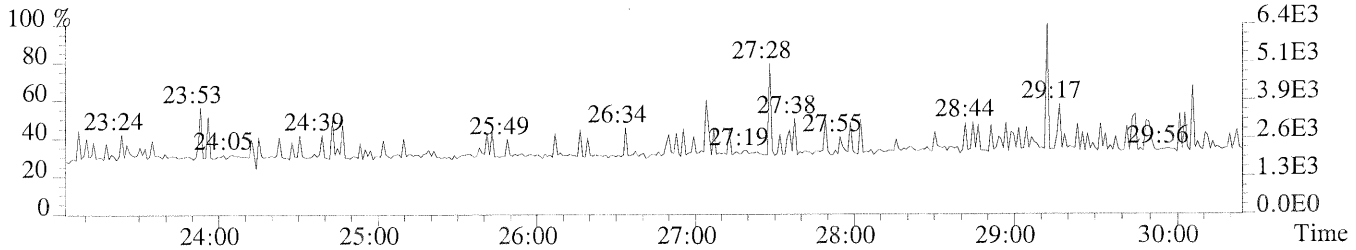
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



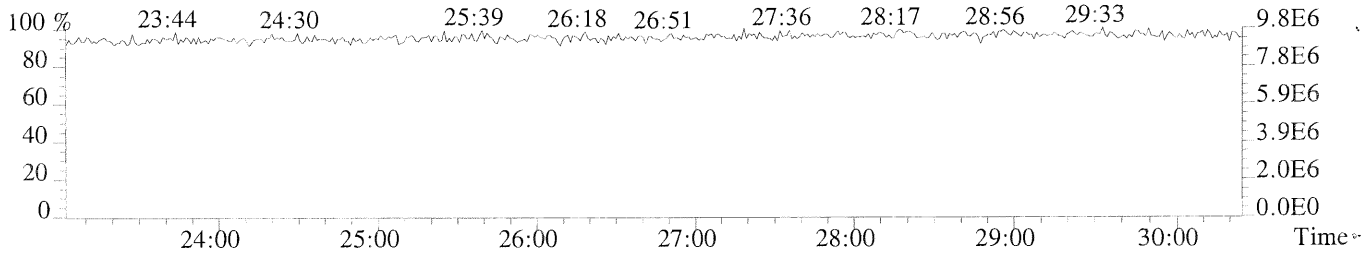
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1804.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

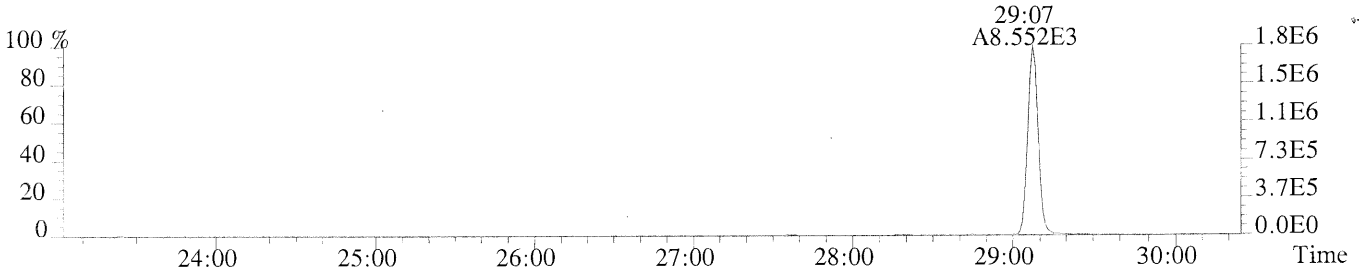


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

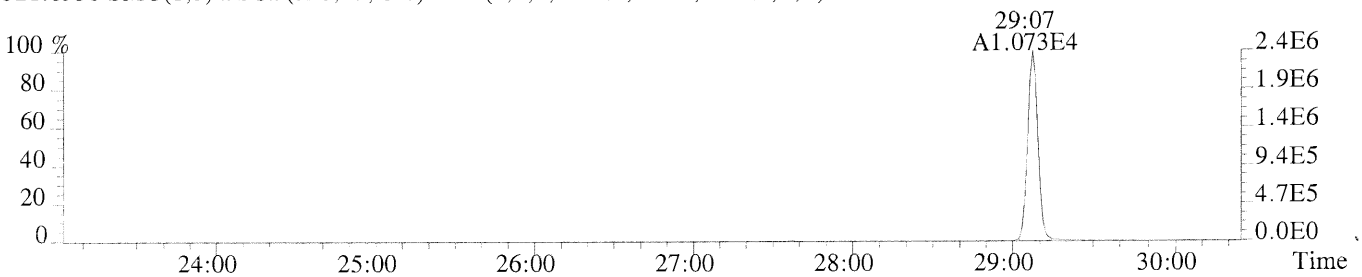


File:P227268 #1-464 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3

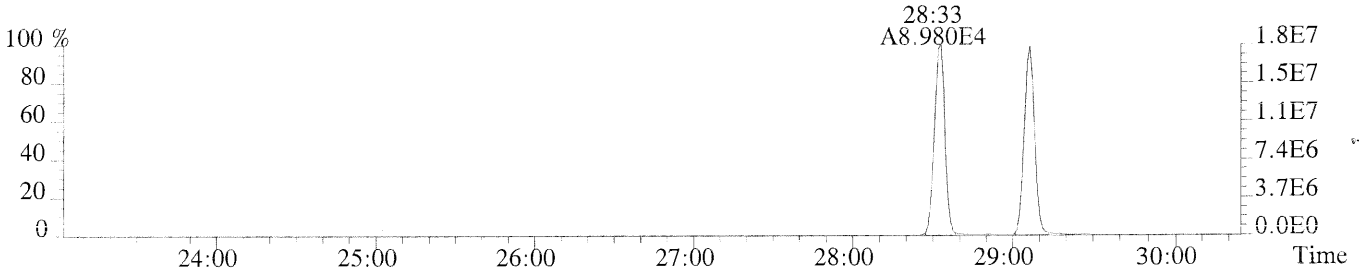
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



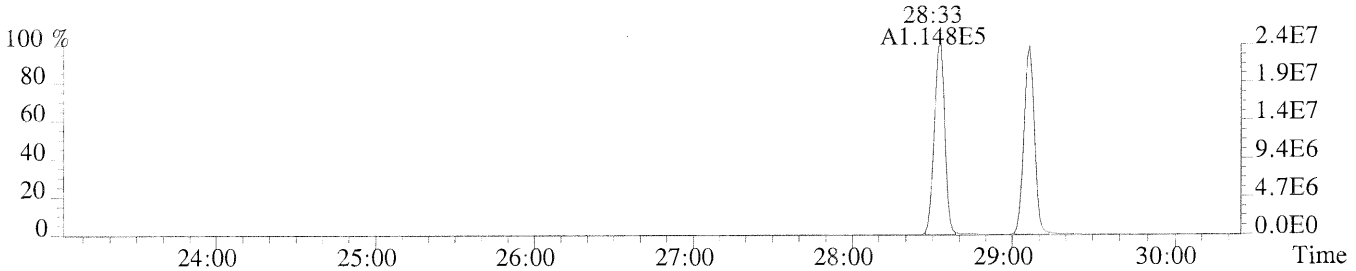
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



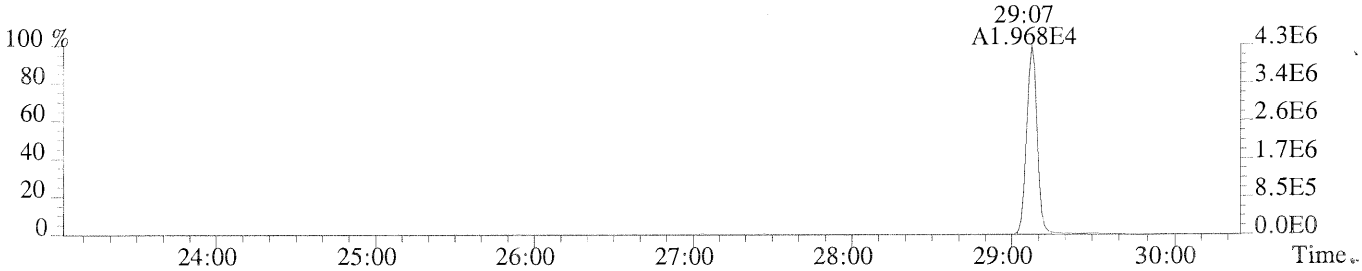
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6608.0,1.00%,F,T)



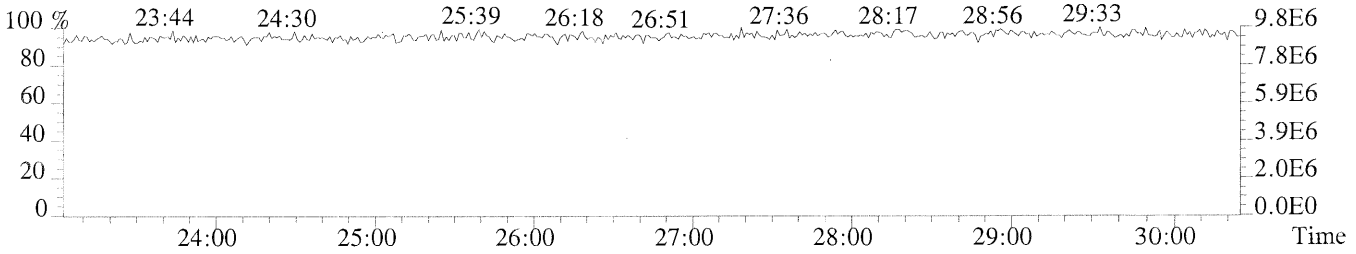
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3540.0,1.00%,F,T)

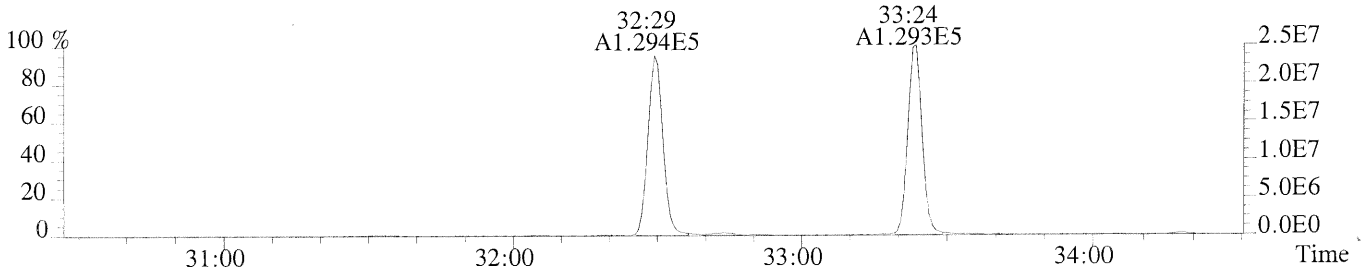


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

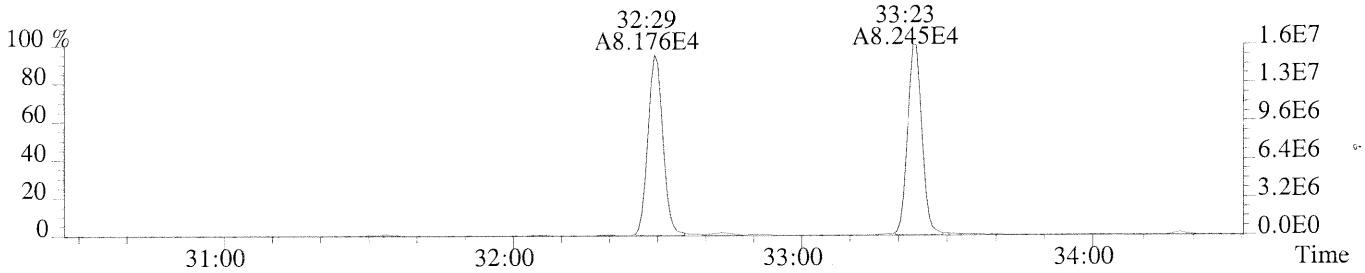


File:P227268 #1-369 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3

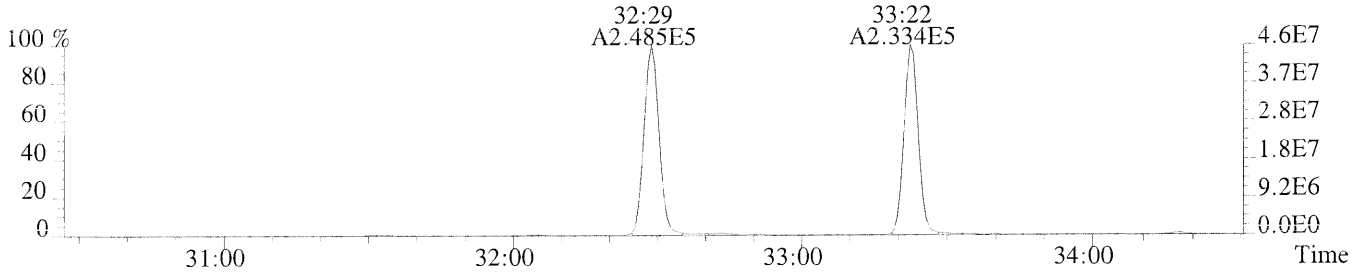
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1876.0,1.00%,F,T)



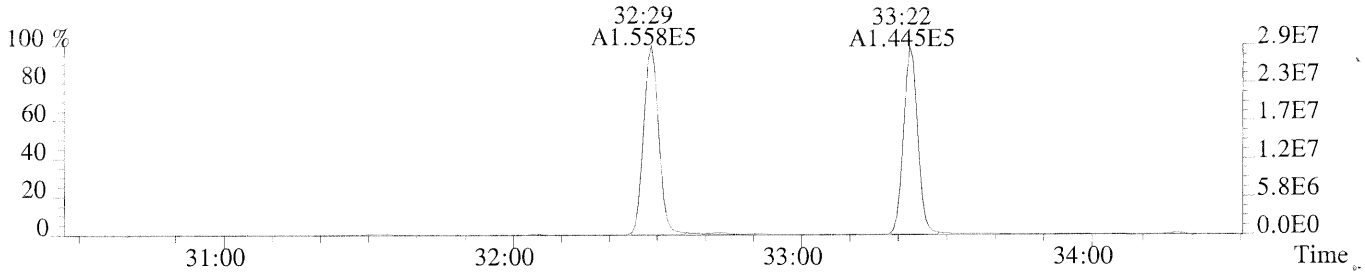
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3468.0,1.00%,F,T)



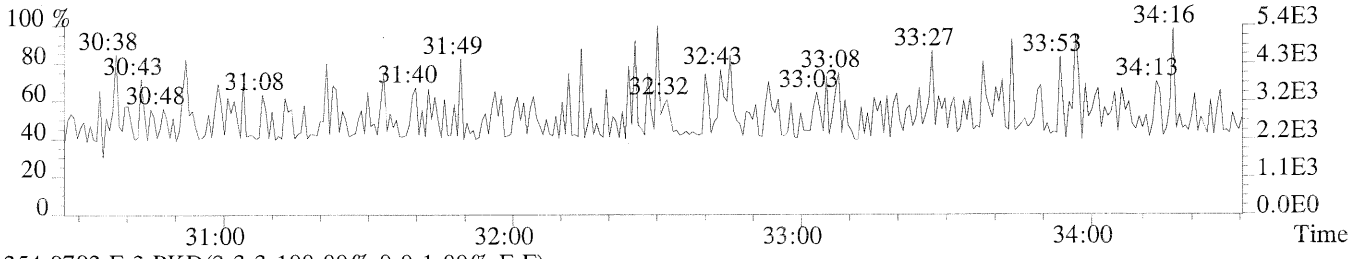
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



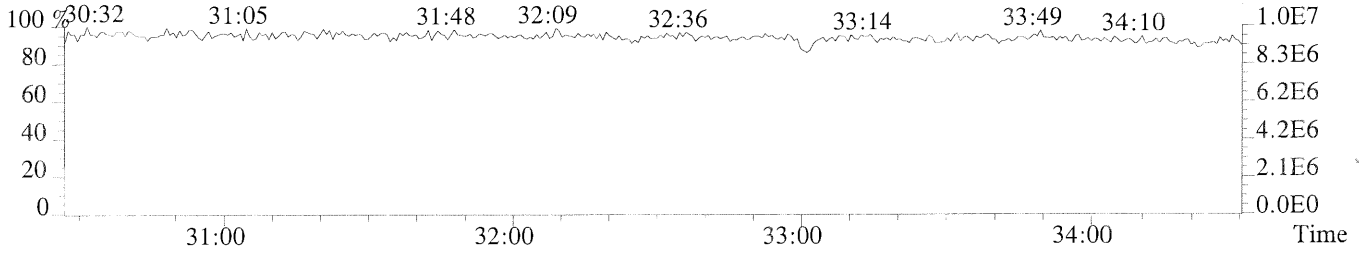
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2212.0,1.00%,F,T)



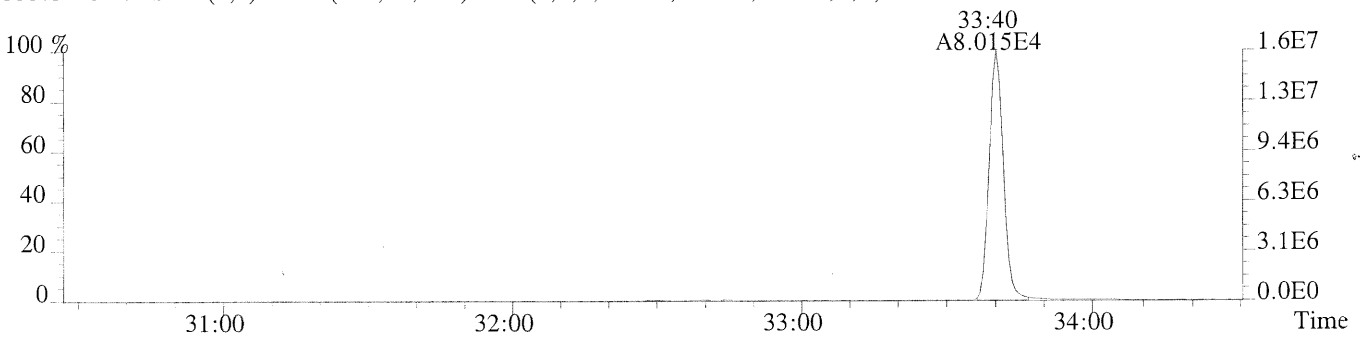
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



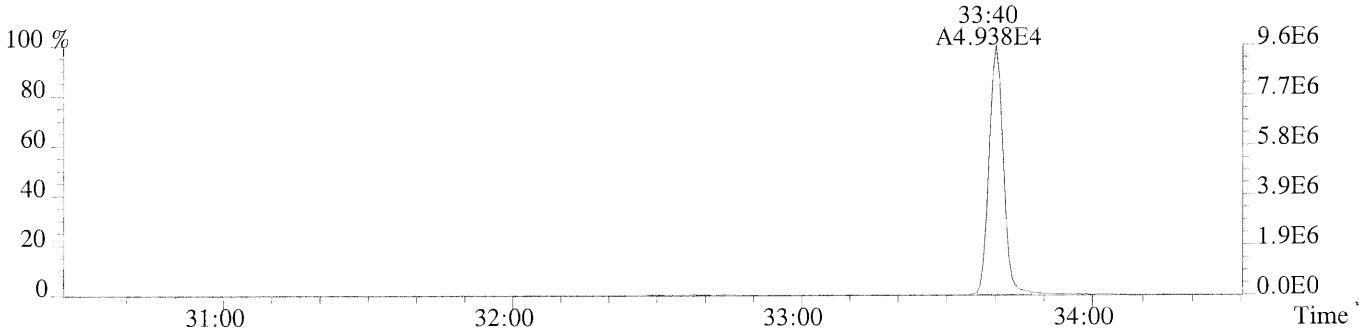
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



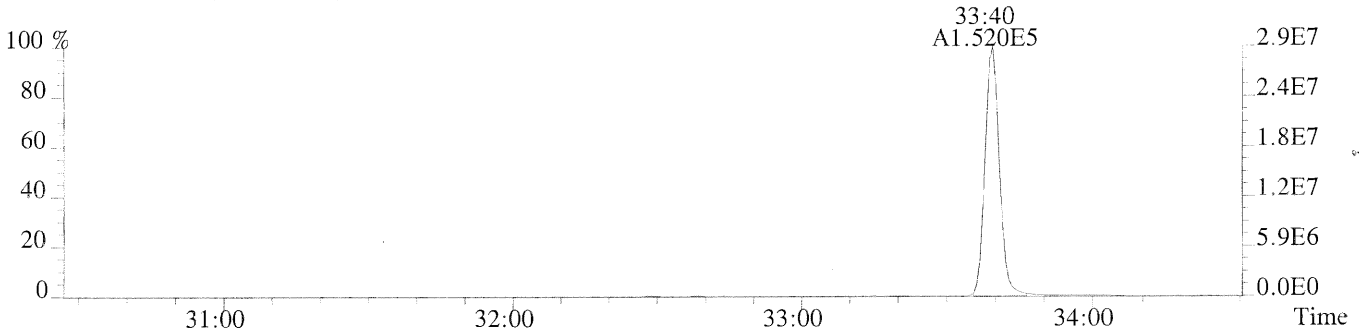
File:P227268 #1-369 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2016.0,1.00%,F,T)



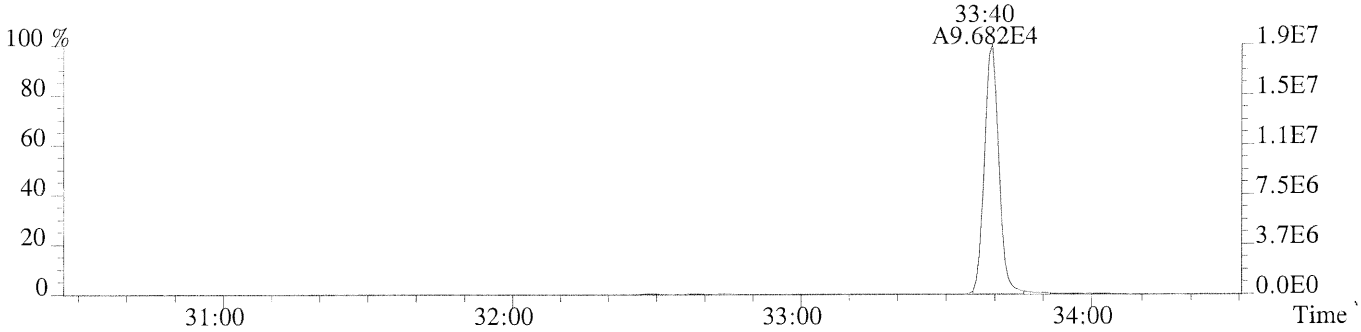
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



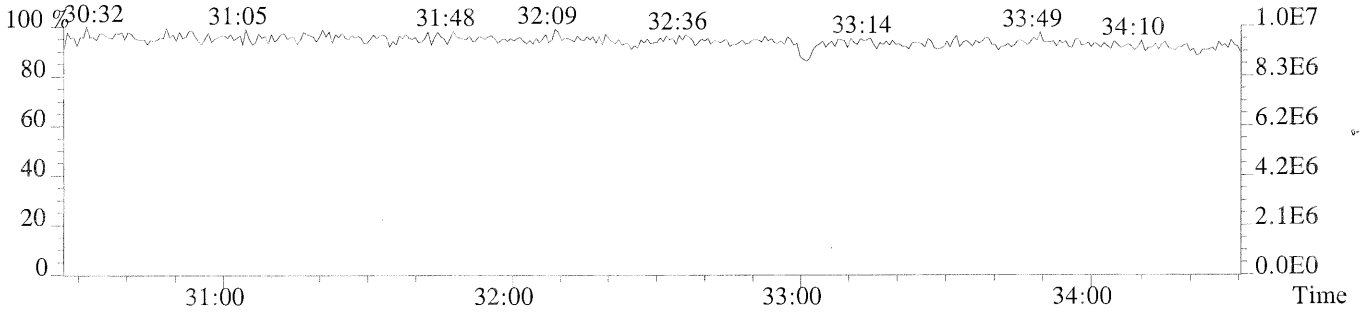
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)

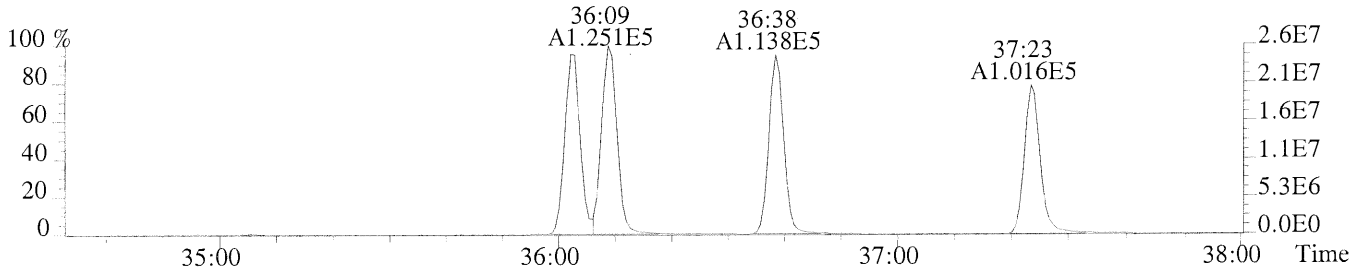


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

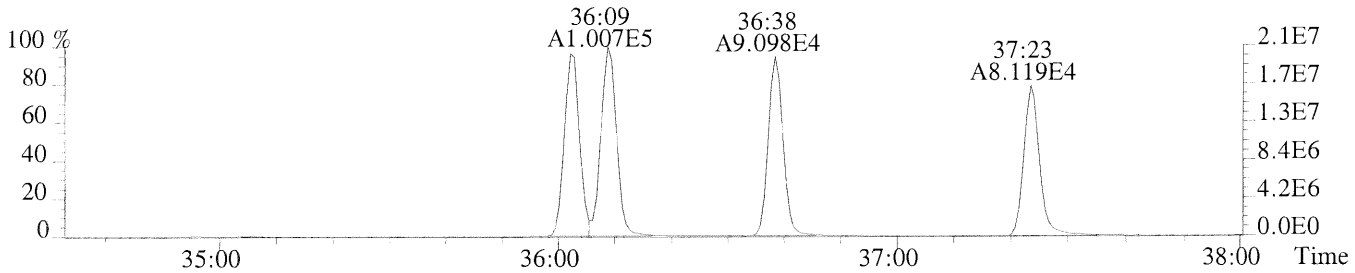


File:P227268 #1-315 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3

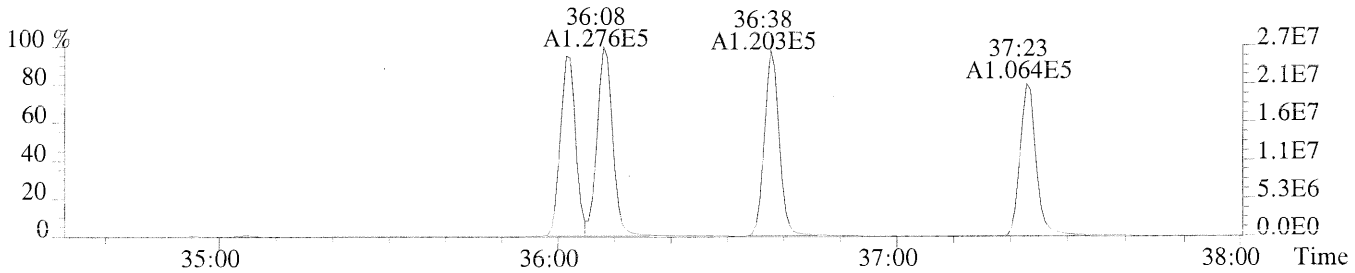
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2500.0,0.40%,F,T)



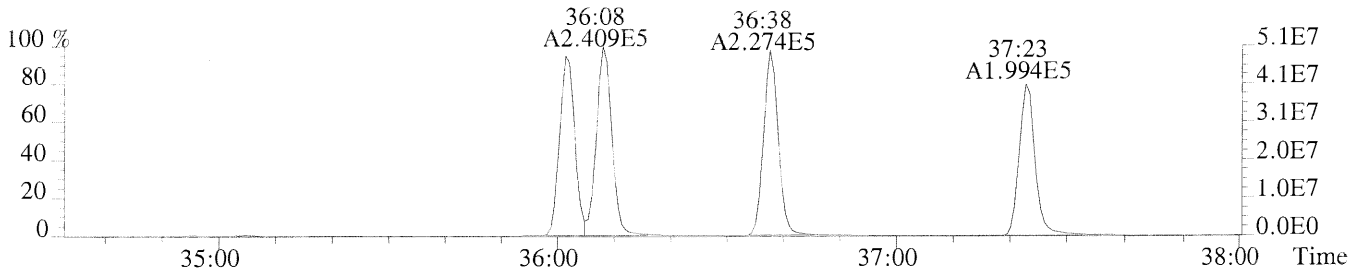
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2380.0,0.40%,F,T)



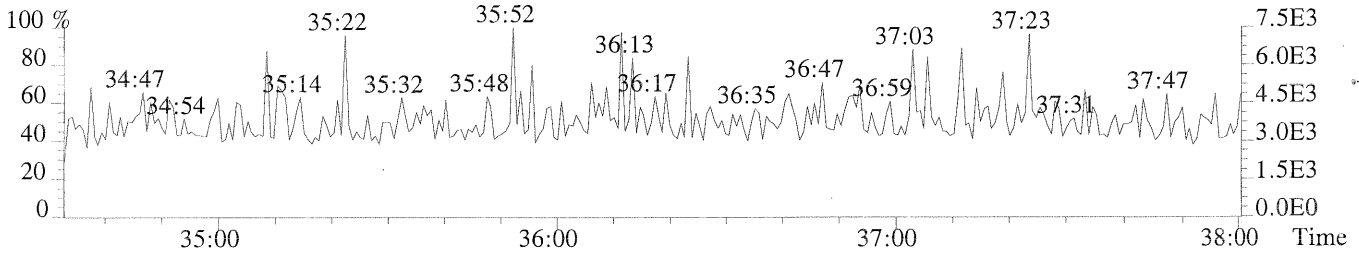
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.40%,F,T)



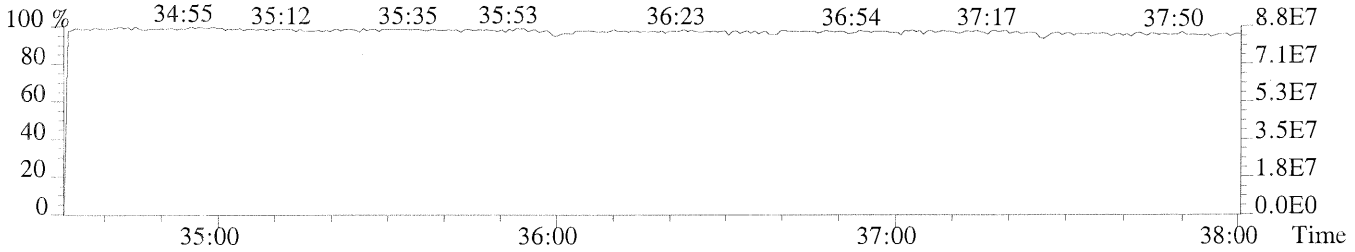
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2536.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

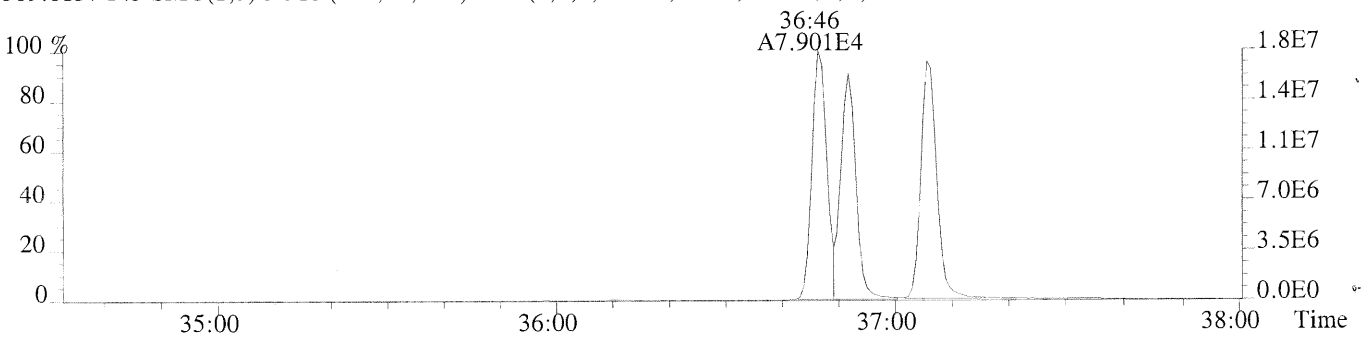


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

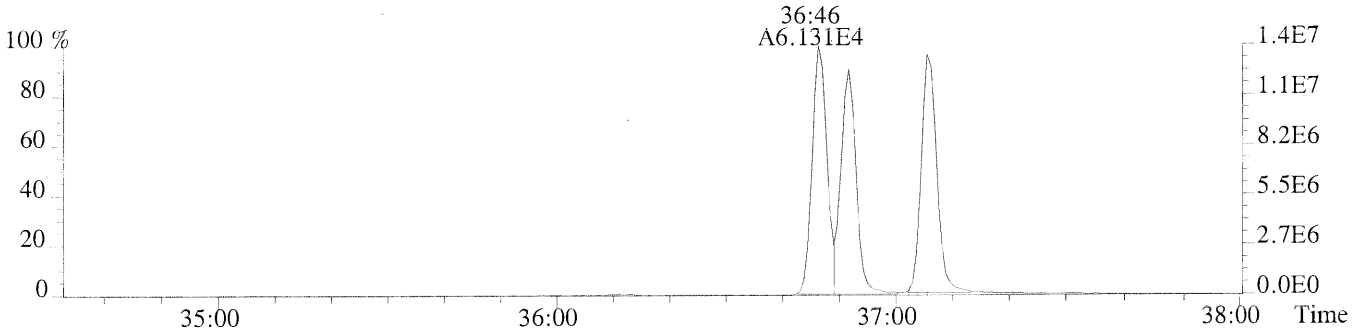


File:P227268 #1-315 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3

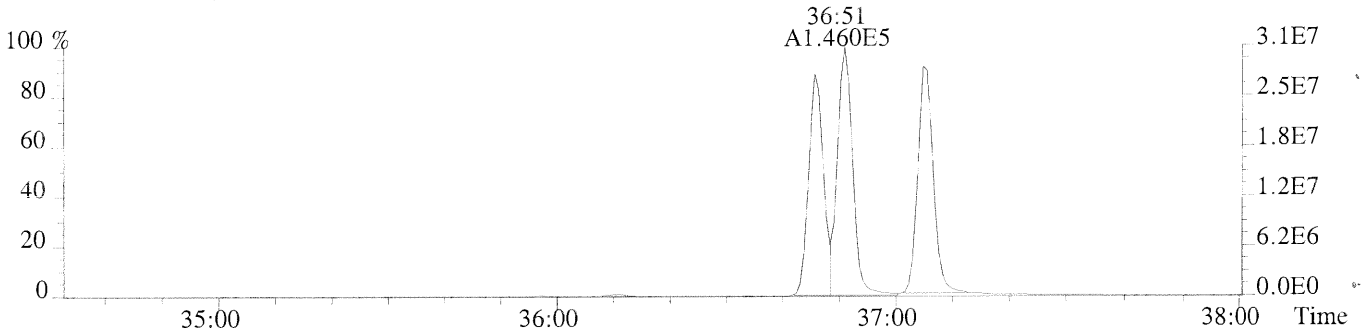
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



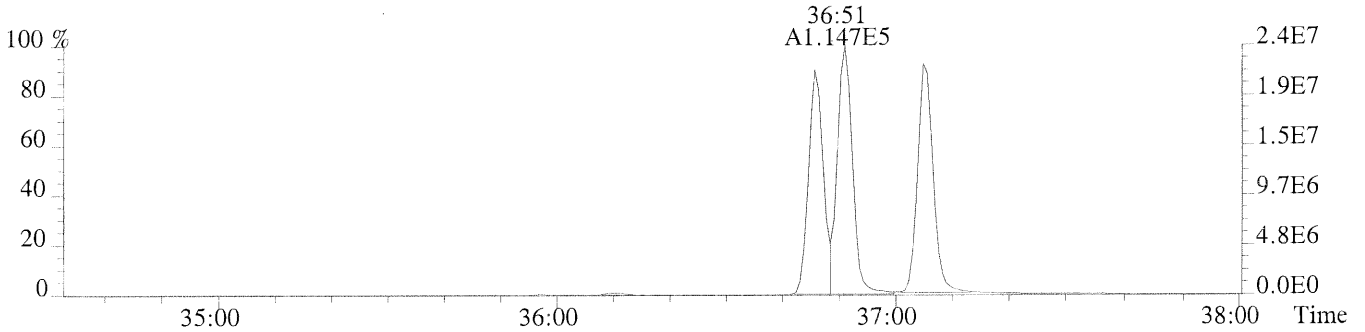
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



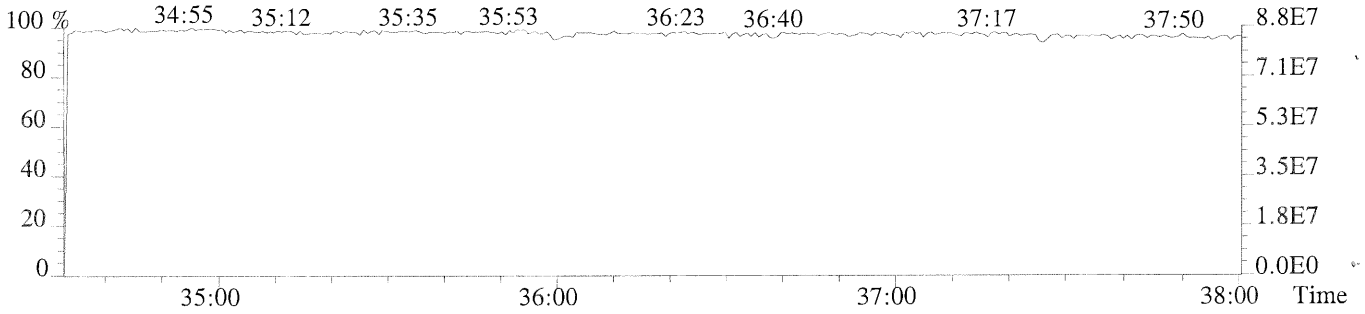
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1836.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)

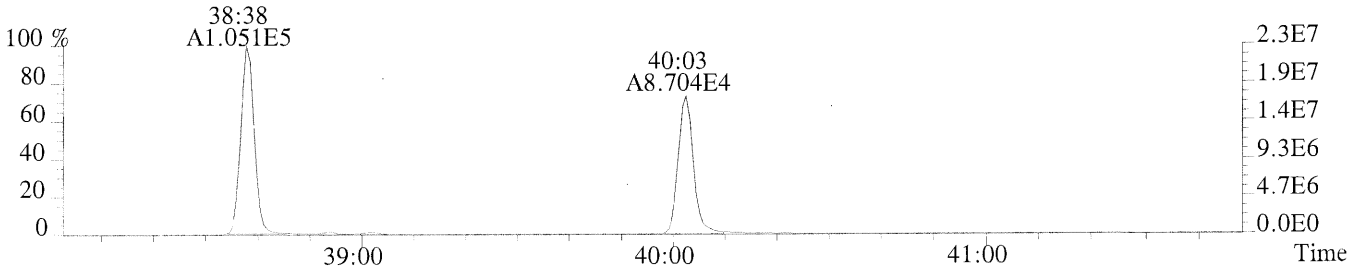


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

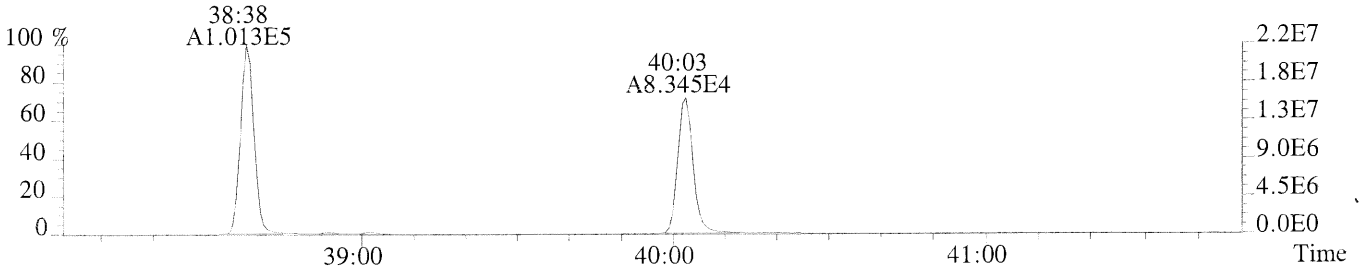


File:P227268 #1-342 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3

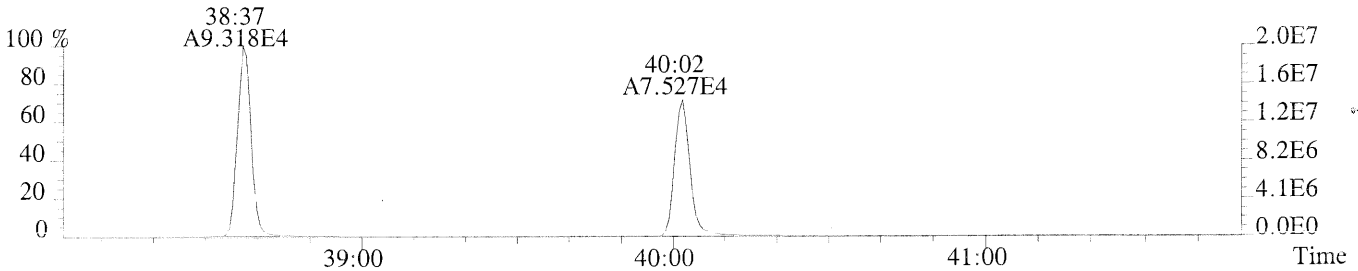
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3740.0,0.50%,F,T)



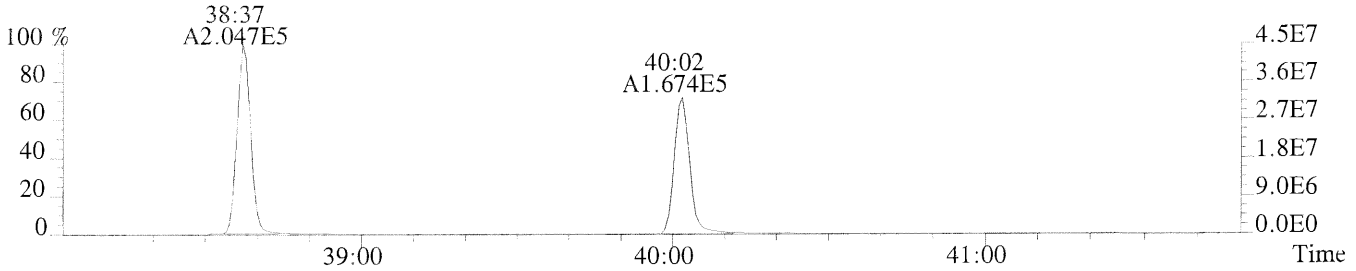
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13932.0,0.50%,F,T)



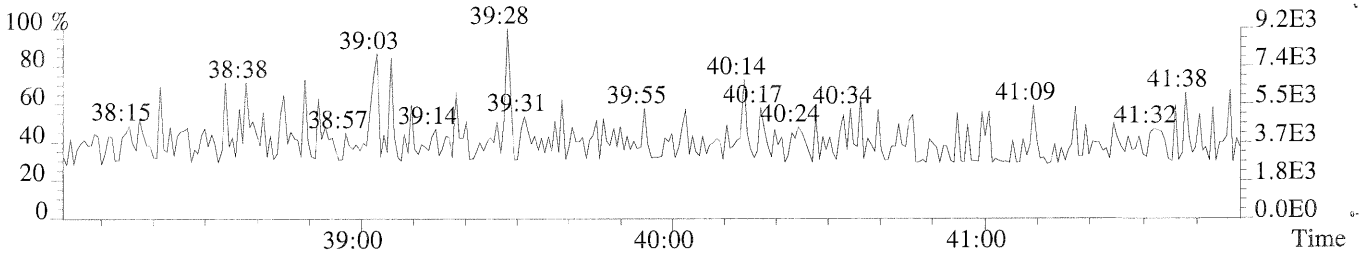
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5324.0,0.50%,F,T)



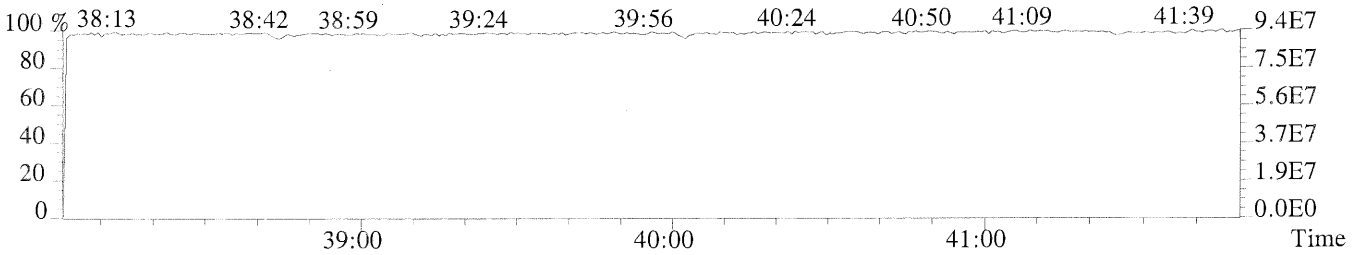
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7348.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

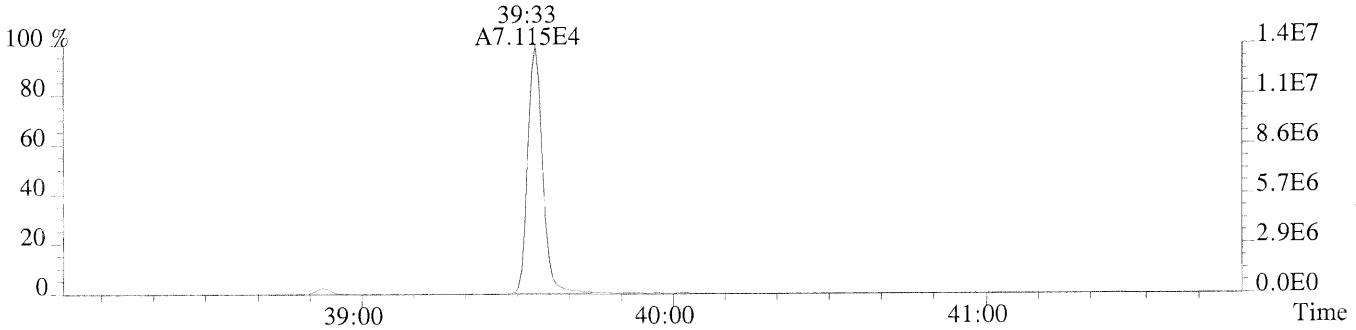


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

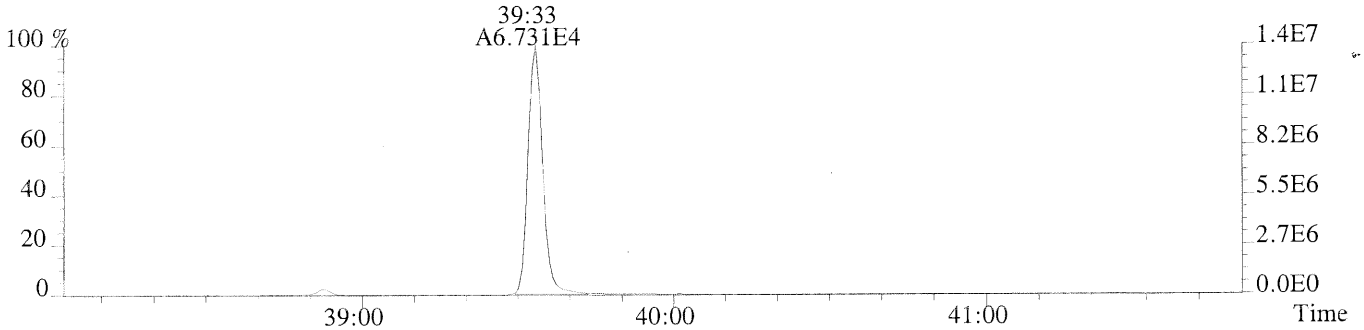


File:P227268 #1-342 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3

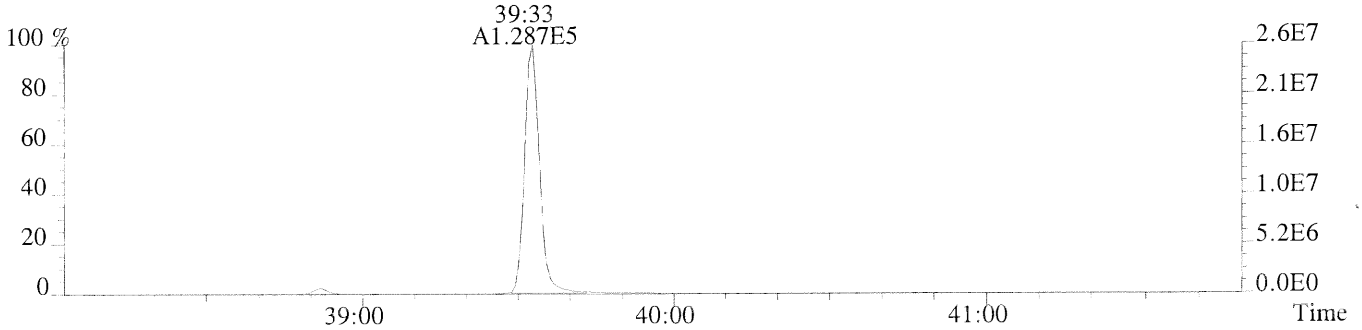
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1392.0,0.40%,F,T)



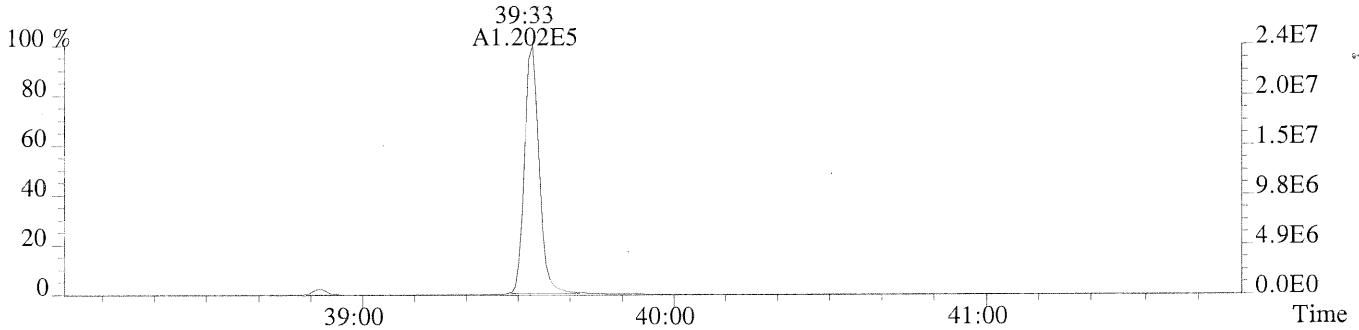
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1572.0,0.40%,F,T)



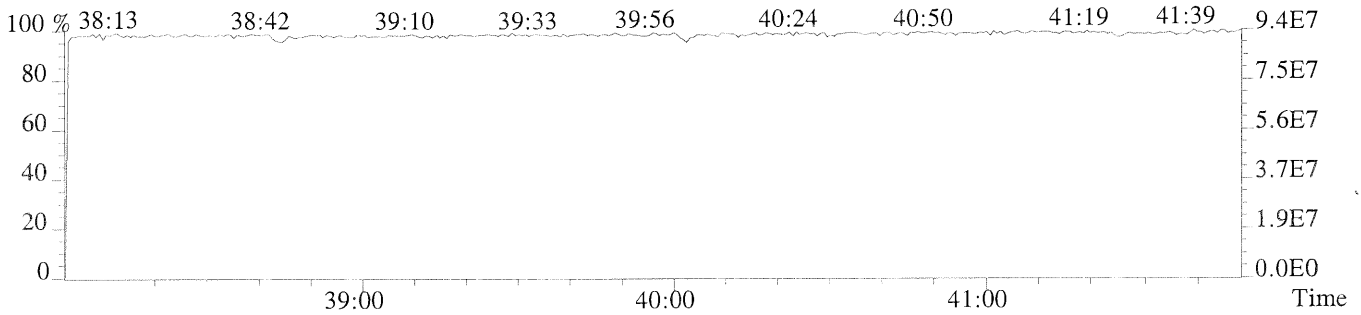
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1884.0,0.40%,F,T)



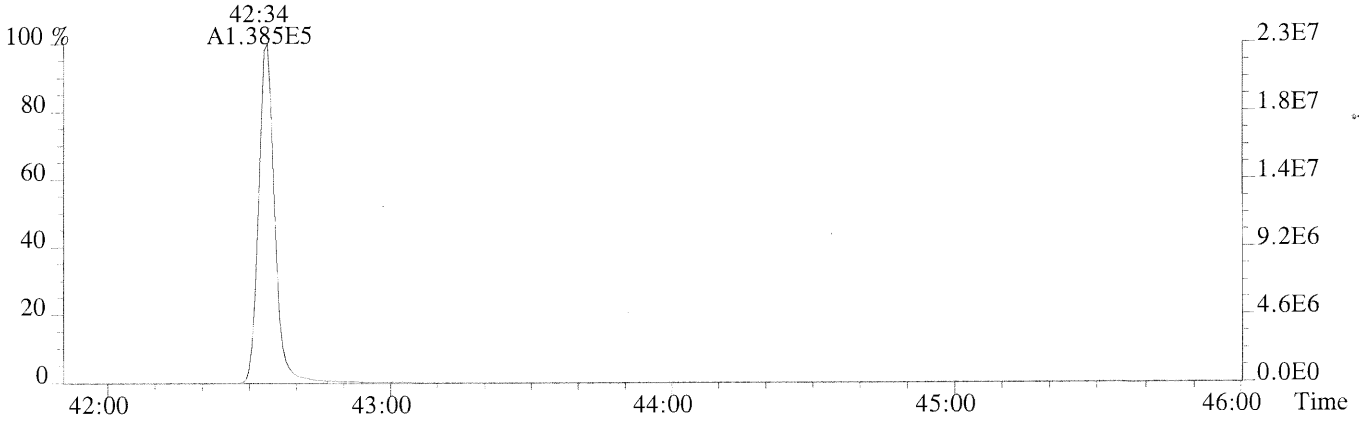
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)



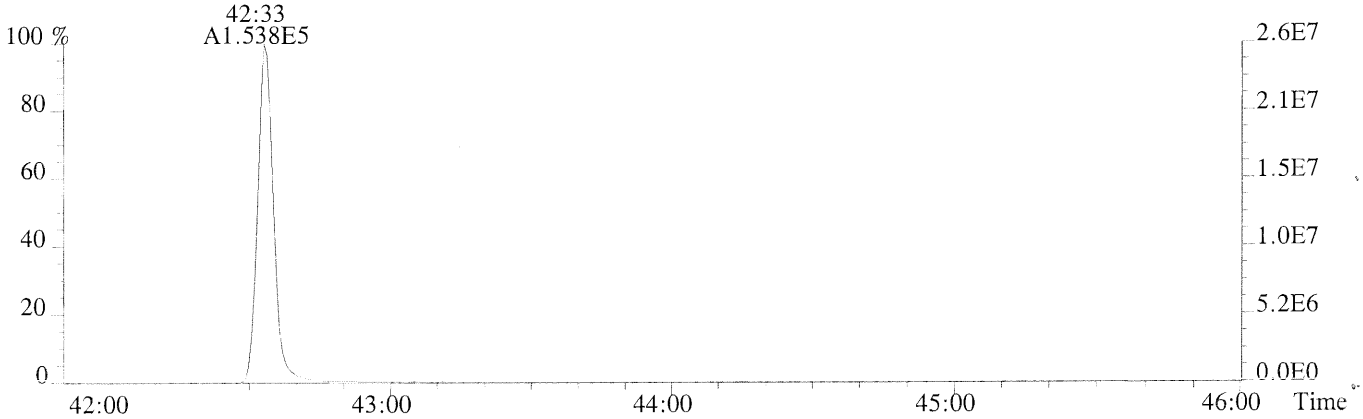
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



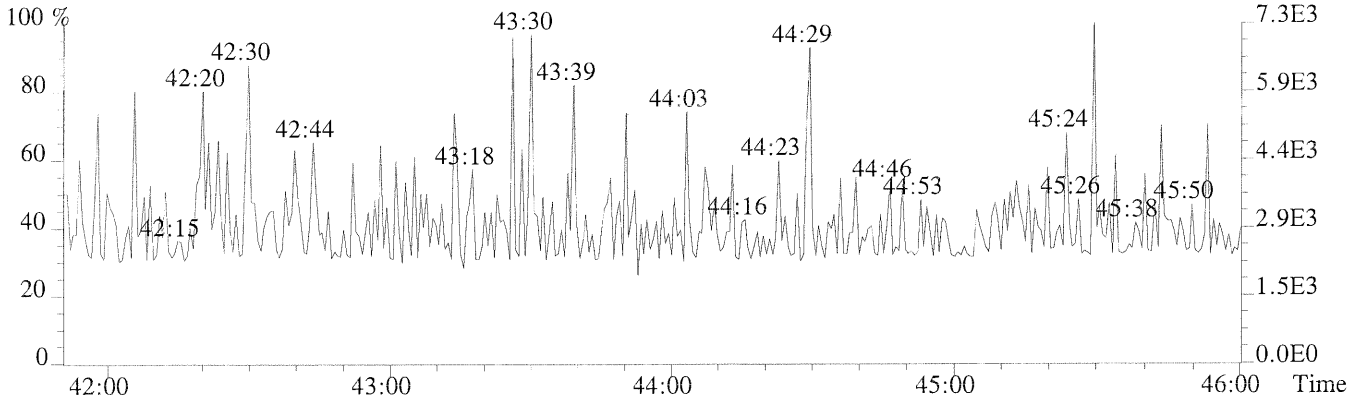
File:P227268 #1-383 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,14544.0,0.40%,F,T)



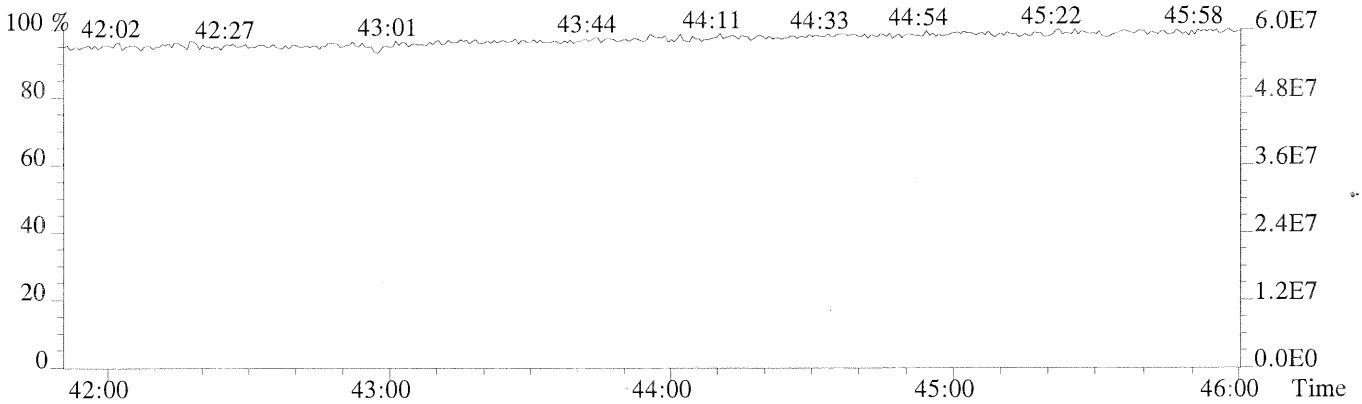
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,14972.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

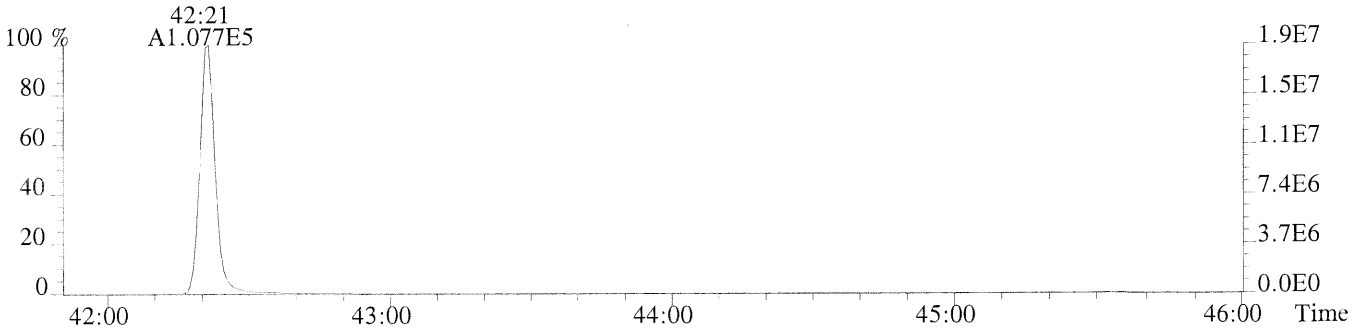


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

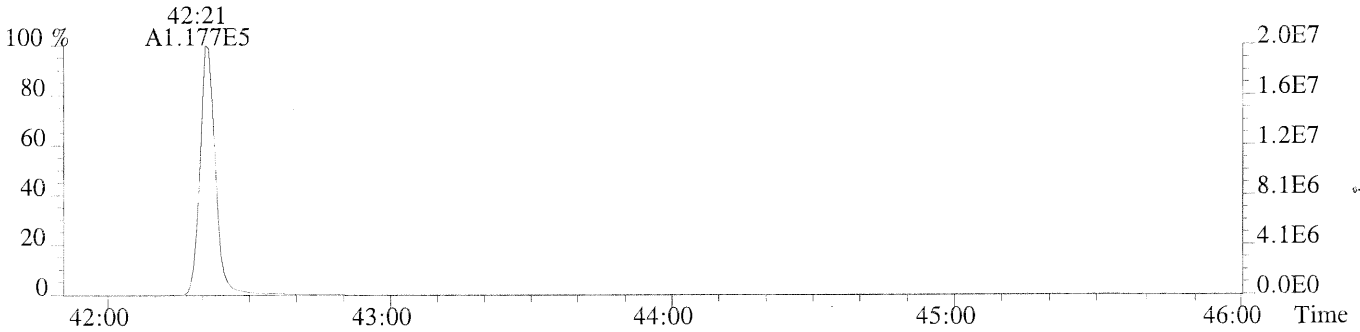


File:P227268 #1-383 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3

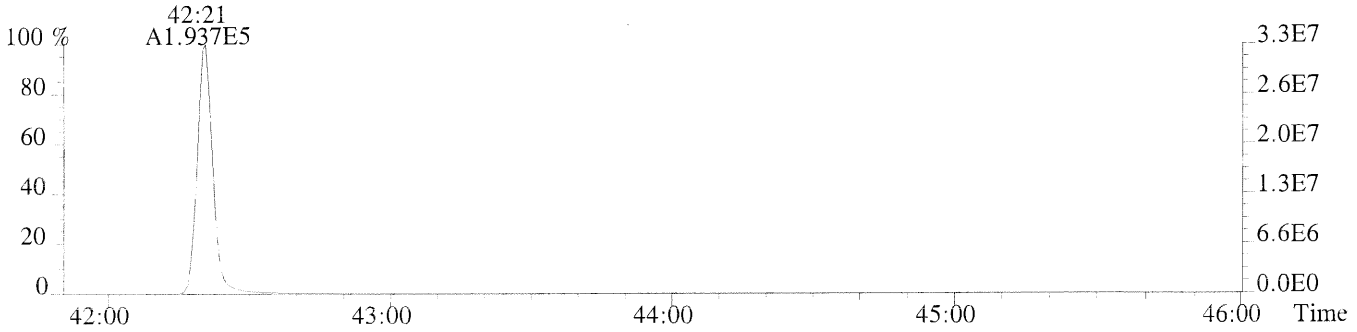
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,8384.0,0.40%,F,T)



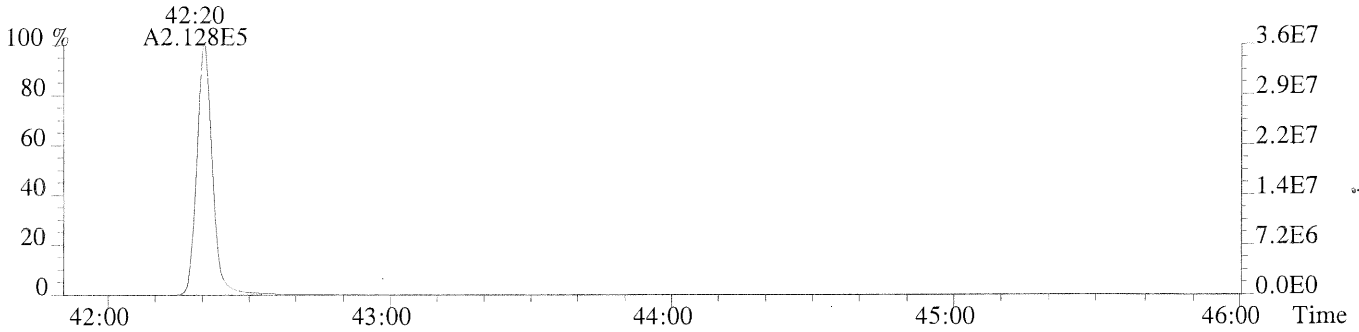
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,10456.0,0.40%,F,T)



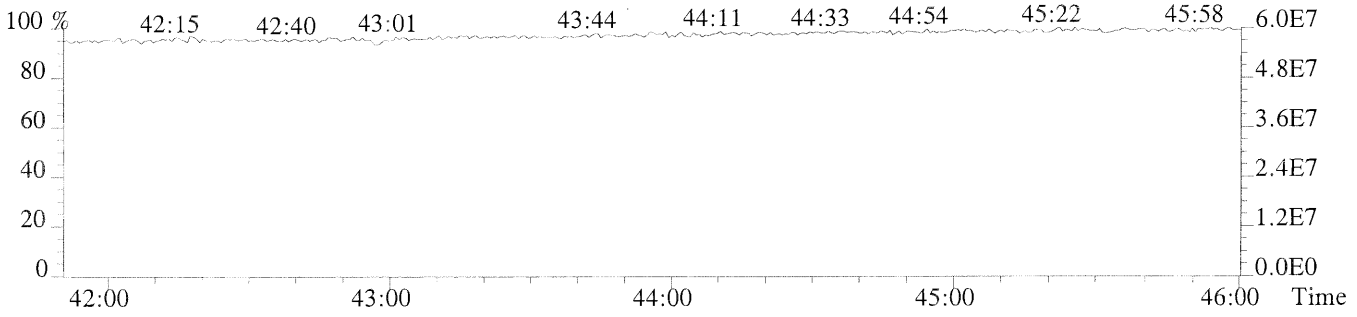
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,9628.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,19648.0,0.40%,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: 03/26/2014
Instrument Name: E-HRMS-03	Calibration File Name: P1403251613I
Processor Name: Chris Elhardt	Reviewer Name: Loan Luong

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	x				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	x				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	x				
Were all calibration standards analyzed only once?	x				
Was the ICV analyzed after the ICAL, before analyzing samples?	x				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	x				
Were all target masses >10,000 resolving power at the beginning of the sequence?	x				
Were all target masses >10,000 resolving power at the end of the sequence?	x				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			x		
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?			x		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	x				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	x				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	x				
Were all first and last eluters adequately resolved in each function?	x				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			x		
Was the retention time of PCB 209 >55 min?			x		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			x		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?					
Calibration Standards					
Were there at least 5 calibration standards analyzed?	x				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			x		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	x				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	x				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 03/26/2014
Instrument Name: E-HRMS-03	Calibration File Name: P1403251613I
Processor Name: Chris Elhardt	Reviewer Name: Loan Luong

Description	Yes	No	NA	NR	ER#
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	x				
Were area counts for the highest calibration standard below levels of saturation?	x				
Were manual integrations technically justified to correct for poor software integration?	x				1
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	x				
Were all calibration standards used in determining response factors?	x				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	x				
Did the RSD for RRFs for each native analyte meet method criteria?	x				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	x				
Were RFs for each labeled compound calculated for each calibration point?	x				
Did the RSD for RF for each labeled compound meet method criteria?	x				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	x				
Did all analytes meet method criteria for the ICV.	x				

Laboratory Review Checklist: Initial Calibration	
Method: 1613/8290	Process Date: 03/26/2014
Instrument Name: E-HRMS-03	Calibration File Name: P1403251613I
Processor Name: Chris Elhardt	Reviewer Name: Loan Luong

ER#[5]	Description
1	Manual Integration on CS0.5 in order to correct inconsistent baseline determinations between primary and secondary ions.

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).

Initial Calibration QC Checklist

ICAL Name: P1403251613I

Date: 03/25/14

Method: (1613) / (8290) / Tetra / TCDD Only / TCDF Conf / 8280 / 613 / M23 / TO-9

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 it's closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or it's closest eluters	✓	✓

Initial Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20%	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB_5MSVI	✓	✓
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%	N/A	N/A
All Manual Intergrations signed and dated and first and final copies of Ical summary included	✓	✓

Analyst: cl Second QC: UKL

icalqc.xls 02-23-00

5DBC
PCDD/PCDF 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-03

Init. Calib. Date: 03/25/14

Init. Calib.Times: 16:28:21

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	63680	P169969	25-MAR-14	16:28:21
66807	ICAL HRCC0.5/C$_{\neg}$	P169970	25-MAR-14	17:22:36
66798	ICAL HRCC1/CS1	P169971	25-MAR-14	18:10:10
D12-90-3B	ICAL HRCC2/CS2	P169972	25-MAR-14	18:58:18
63383	ICAL HRCC3/CS3	P169973	25-MAR-14	19:46:25
D12-90-3D	ICAL HRCC4/CS4	P169974	25-MAR-14	20:34:32
66799	ICAL HRCC5/CS5	P169975	25-MAR-14	21:22:40
60287	ICV 2ND SOURCE	P169976	25-MAR-14	22:10:47
D12-5-1B	STD	P169977	25-MAR-14	22:58:54

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P1140325.SPL
Last Modified: Wednesday, March 26, 2014 08:12:18 Central Daylight Time
Printed: Wednesday, March 26, 2014 11:19:50 Central Daylight Time

Page Position (1, 1)

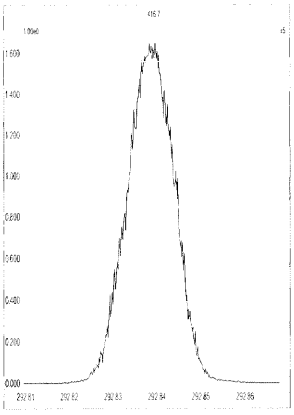
P140325161 3I / P140325 ~~16~~ M23I

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	03/25/14	15:03	P169968	WINDOW DEFINE	63680	LL	HRMS check 16:18	8290cas
2		16:28	P169969	WINDOW DEFINE	63680			8290cas
3		17:22	P169970	ICAL HRCC0.5/CS0.5	66807			8290cas
4		18:10	P169971	ICAL HRCC1/CS1	66798			8290cas
5		18:58	P169972	ICAL HRCC2/CS2	D12-90-3B			8290cas
6		19:46	P169973	ICAL HRCC3/CS3	63383			8290cas
7		20:34	P169974	ICAL HRCC4/CS4	D12-90-3D			8290cas
8		21:22	P169975	ICAL HRCC5/CS5	66799			8290cas
9		22:10	P169976	ICV2ND SOURCE	60287			8290cas
10		22:58	P169977	STD	D12-5-1B		HRMS check 07:35	8290cas
11			---	---	---			8290cas
12			---	---	---			8290cas
13			---	---	---			8290cas
14			---	---	---			8290cas
15			---	---	---			8290cas
16			---	---	---			8290cas
17			---	---	---			8290cas
18			---	---	---			8290cas
19			---	---	---			8290cas
20			---	---	---			8290cas
21			---	---	---			8290cas
22			---	---	---			8290cas
23			---	---	---			8290cas
24			---	---	---			8290cas
25			---	---	---			8290cas
26			---	---	---			8290cas
27			---	---	---			8290cas
28			---	---	---			8290cas
29			---	---	---			8290cas
30			---	---	---			8290cas
31			---	---	---			8290cas
32			---	---	---			8290cas
33			---	---	---			8290cas
34			---	---	---			8290cas
35	---	---	---	---	Reviewed By: LL	---	---	8290cas
36	---	---	---	---	---	---	---	8290cas
37	---	---	---	---	---	---	---	8290cas
38	---	---	---	---	---	---	---	8290cas
39	---	---	---	---	---	---	---	8290cas

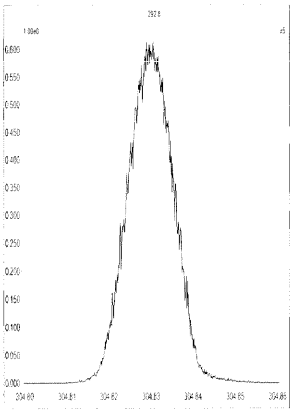
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, March 25, 2014 16:18:56 Central Daylight Time

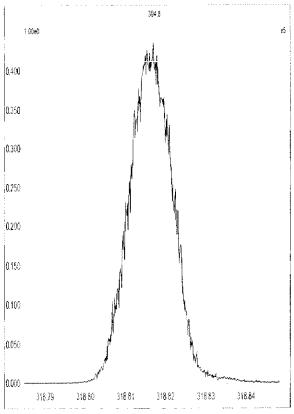
M 292.9824 R 12370



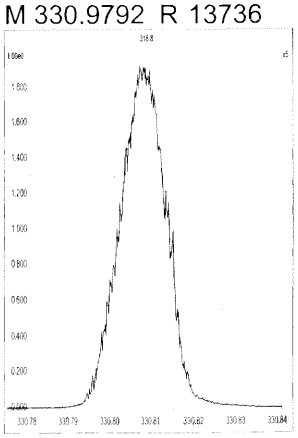
M 304.9824 R 12891



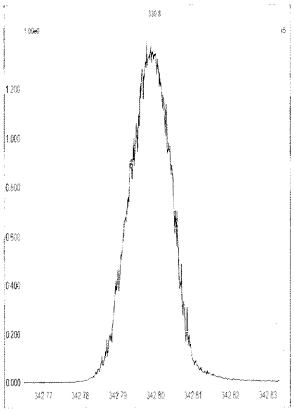
M 318.9792 R 13663



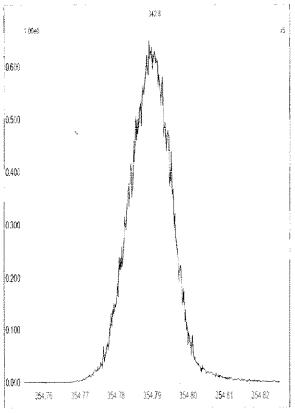
M 330.9792 R 13736



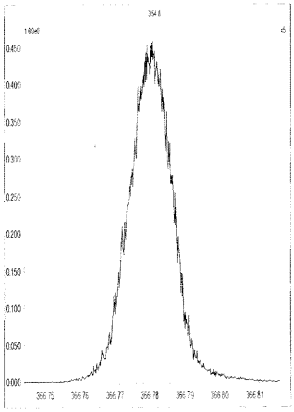
M 342.9792 R 13092



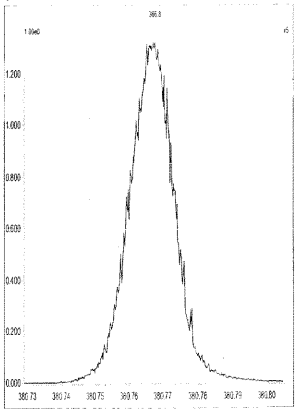
M 354.9792 R 13228



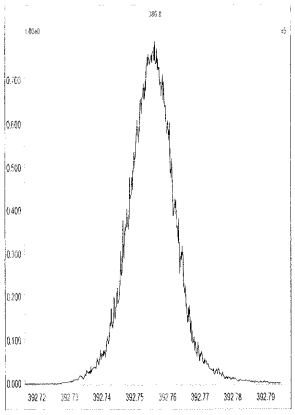
M 366.9792 R 12441



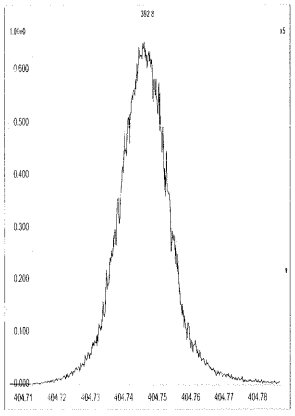
M 380.9760 R 12192



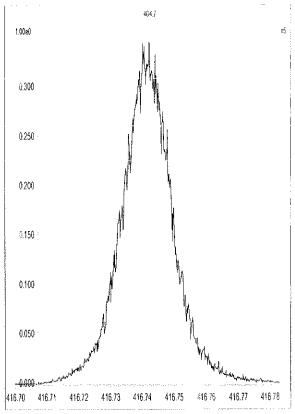
M 392.9760 R 11363



M 404.9760 R 10462



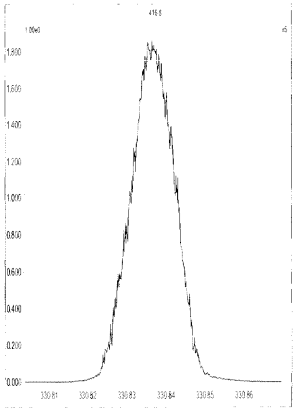
M 416.9760 R 10204



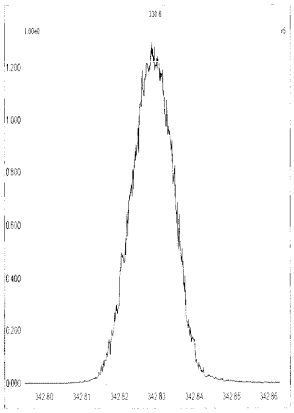
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, March 25, 2014 16:20:42 Central Daylight Time

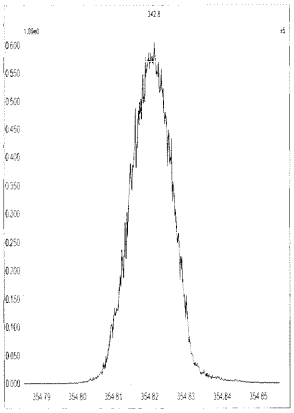
M 330.9792 R 13090



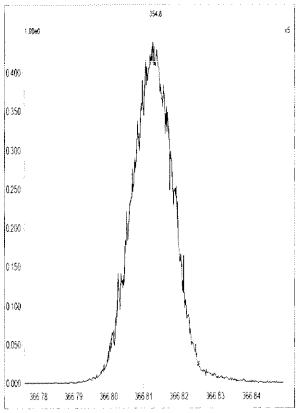
M 342.9792 R 13439



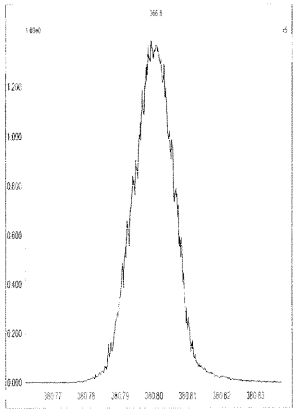
M 354.9792 R 13663



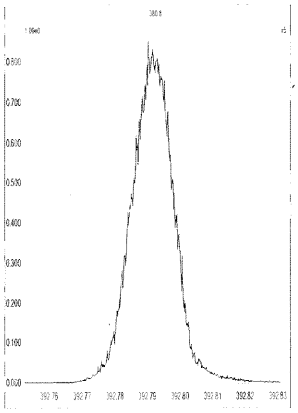
M 366.9792 R 13811



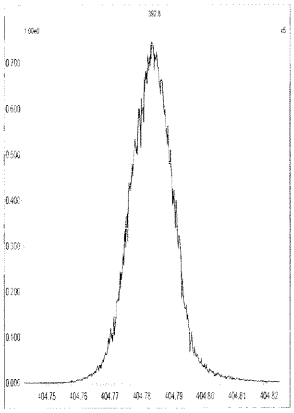
M 380.9760 R 14122



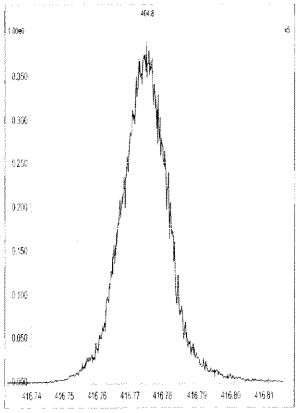
M 392.9760 R 13370



M 404.9760 R 12630



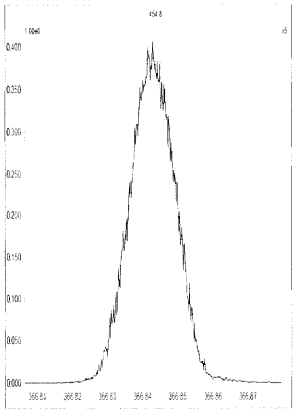
M 416.9760 R 11906



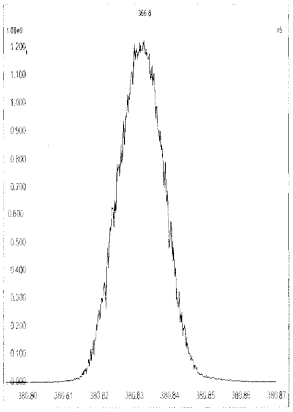
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, March 25, 2014 16:21:56 Central Daylight Time

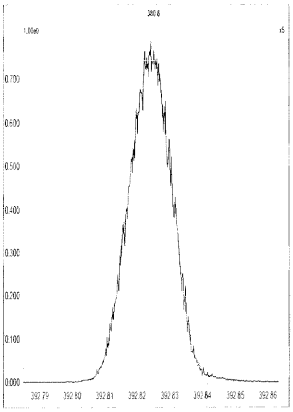
M 366.9792 R 12755



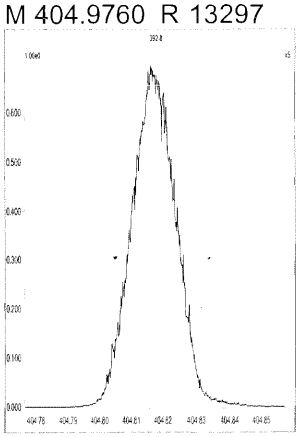
M 380.9760 R 13025



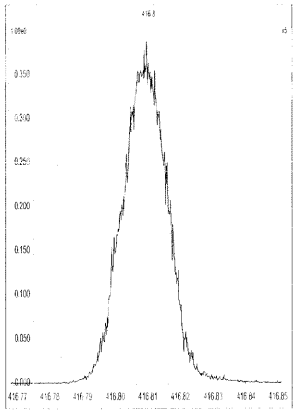
M 392.9760 R 13299



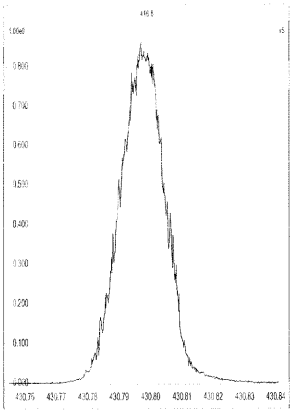
M 404.9760 R 13297



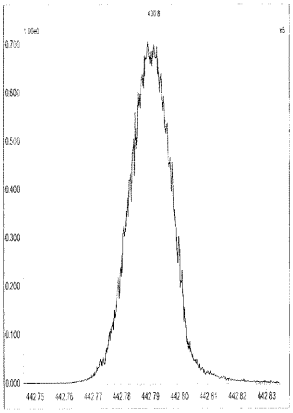
M 416.9760 R 13225



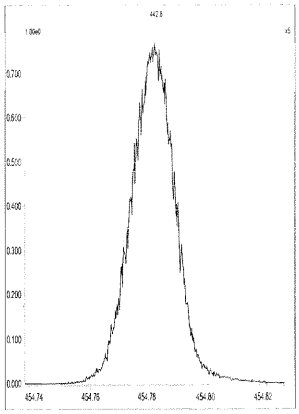
M 430.9728 R 13370



M 442.9728 R 12819



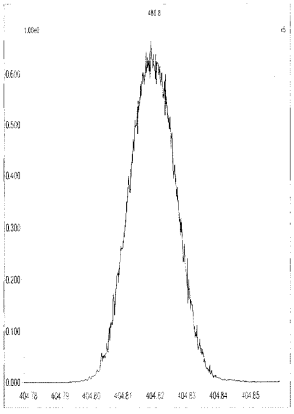
M 454.9728 R 13018



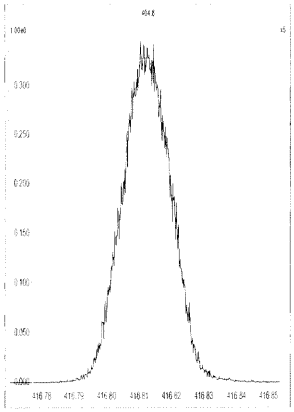
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, March 25, 2014 16:23:14 Central Daylight Time

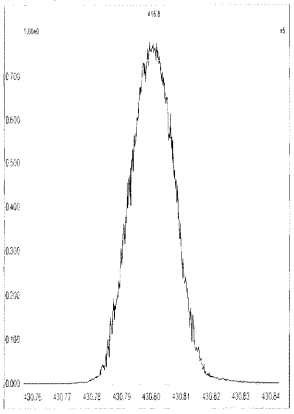
M 404.9760 R 12136



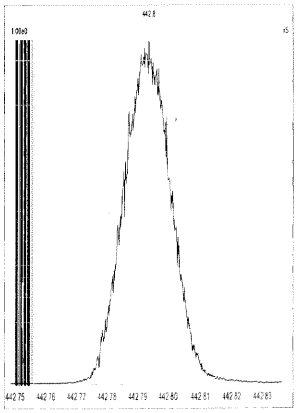
M 416.9760 R 12624



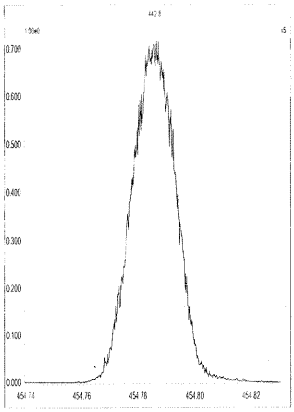
M 430.9728 R 13370



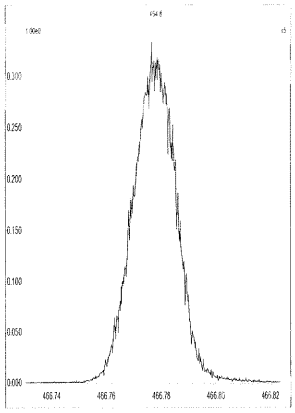
M 442.9728 R 13513



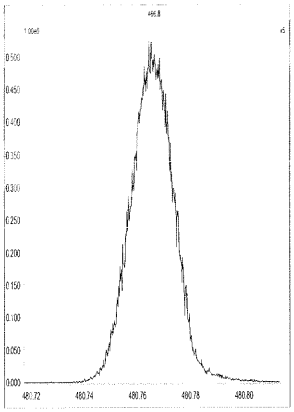
M 454.9728 R 13018



M 466.9728 R 13089



M 480.9696 R 13092

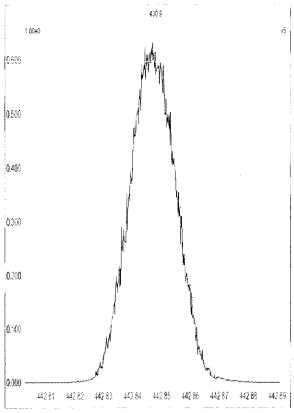


File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

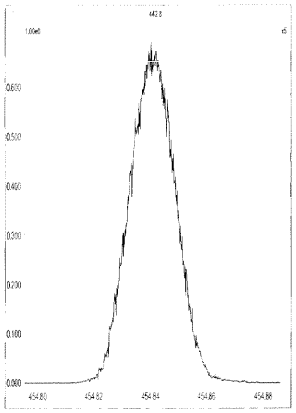
Printed: Tuesday, March 25, 2014 16:24:15 Central Daylight Time

M 430.9728 R 12021

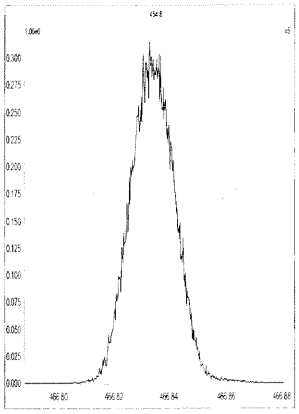
M 442.9728 R 12627



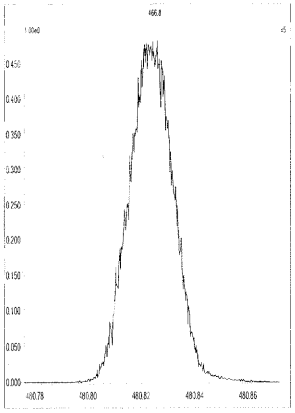
M 454.9728 R 12689



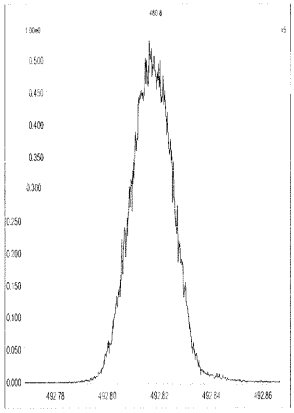
M 466.9728 R 12818



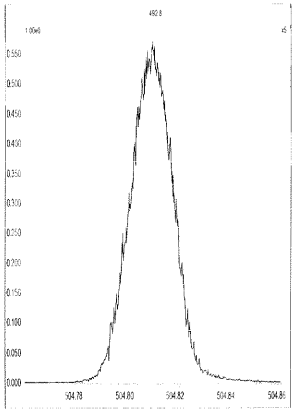
M 480.9696 R 13587



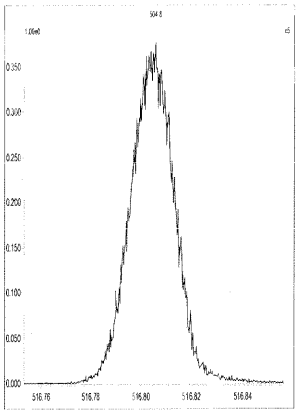
M 492.9696 R 13226



M 504.9696 R 12950



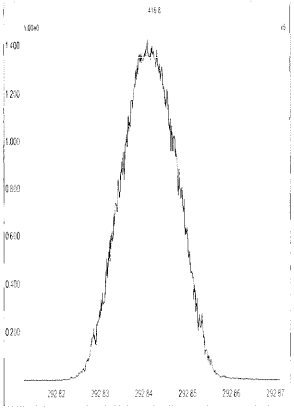
M 516.9697 R 13161



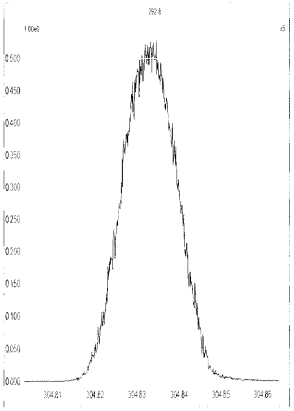
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, March 26, 2014 07:35:40 Central Daylight Time

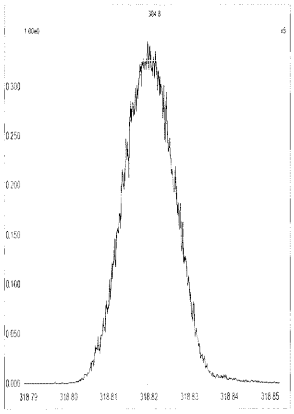
M 292.9824 R 10368



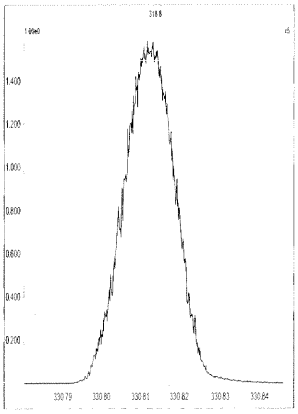
M 304.9824 R 10682



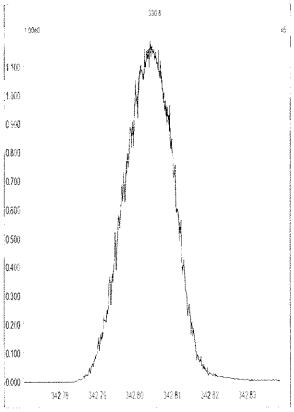
M 318.9792 R 11314



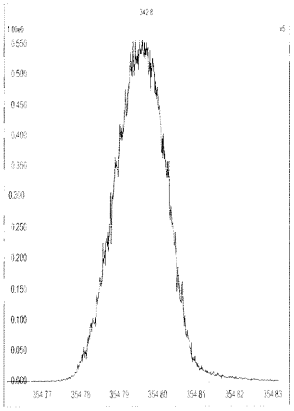
M 330.9792 R 11520



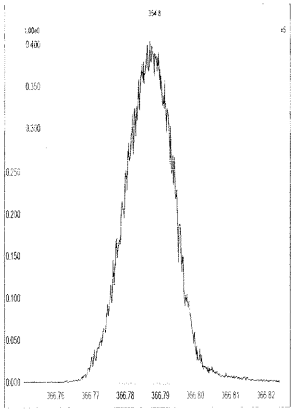
M 342.9792 R 11740



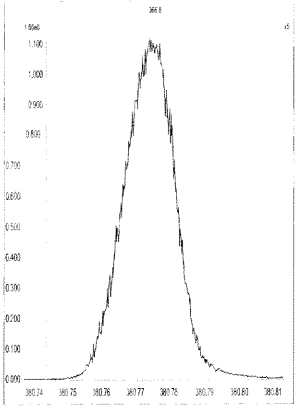
M 354.9792 R 11628



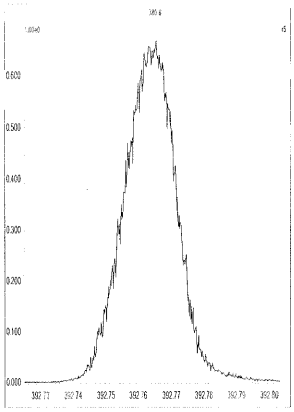
M 366.9792 R 11735



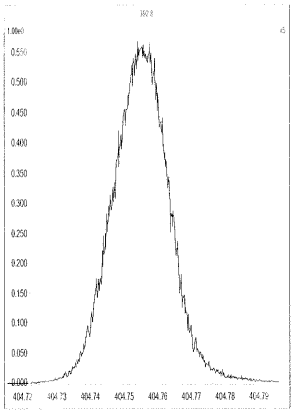
M 380.9760 R 11576



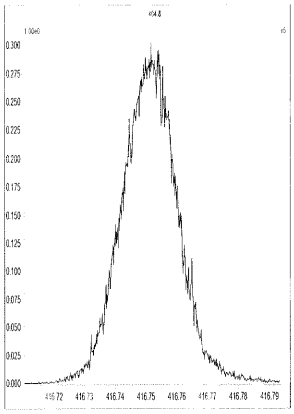
M 392.9760 R 11111



M 404.9760 R 10546



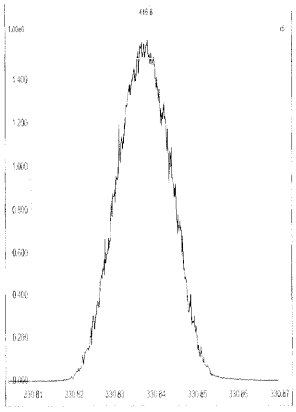
M 416.9760 R 10000



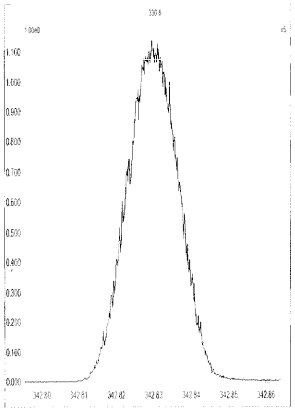
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, March 26, 2014 07:36:50 Central Daylight Time

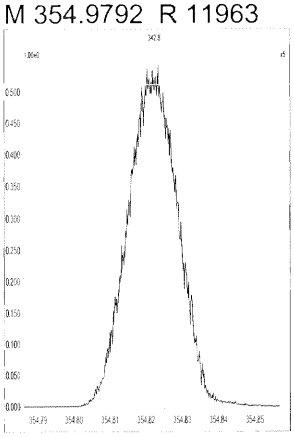
M 330.9792 R 10965



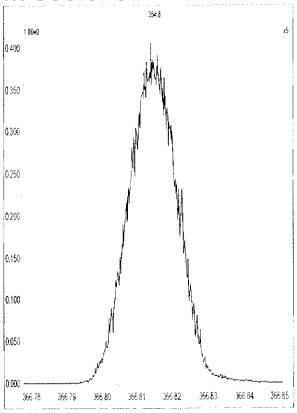
M 342.9792 R 11109



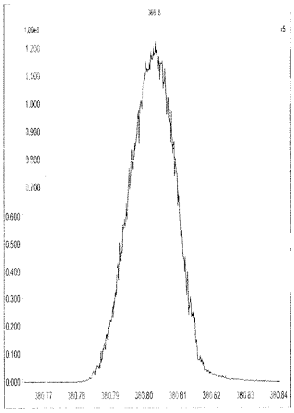
M 354.9792 R 11963



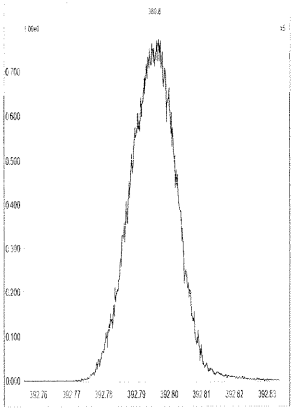
M 366.9792 R 11904



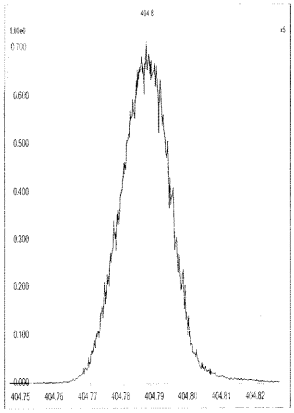
M 380.9760 R 12313



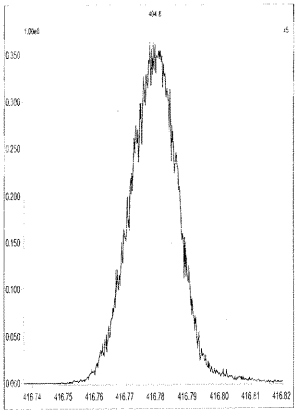
M 392.9760 R 12438



M 404.9760 R 12018



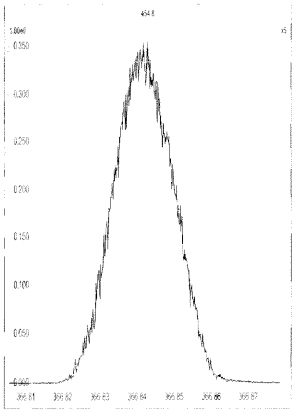
M 416.9760 R 11906



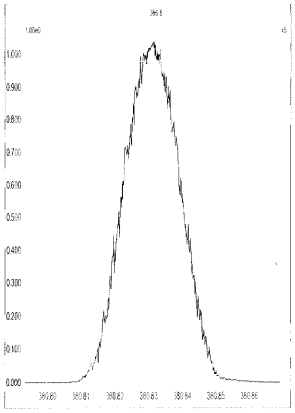
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, March 26, 2014 07:37:59 Central Daylight Time

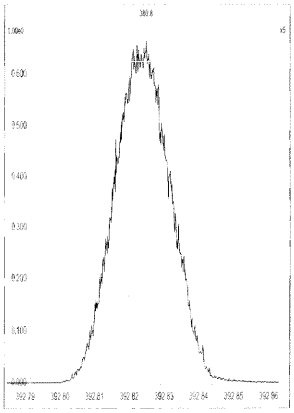
M 366.9792 R 10374



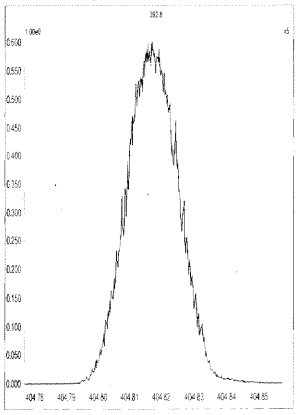
M 380.9760 R 10728



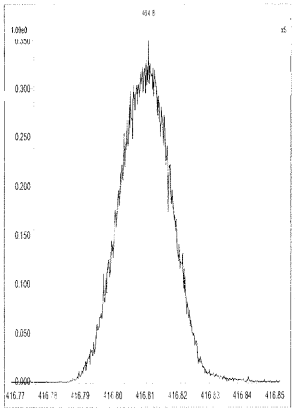
M 392.9760 R 11014



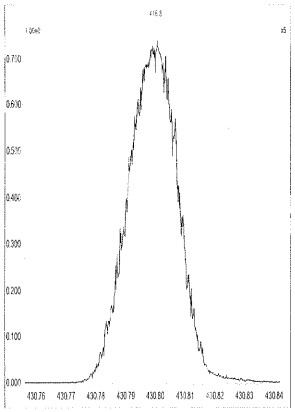
M 404.9760 R 11415



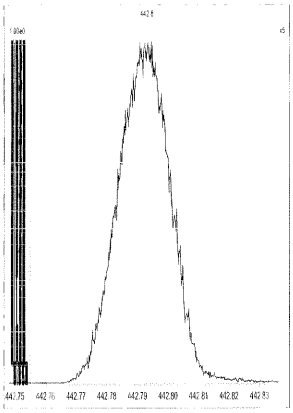
M 416.9760 R 11680



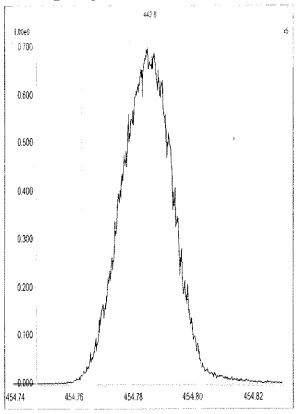
M 430.9728 R 11849



M 442.9728 R 12194



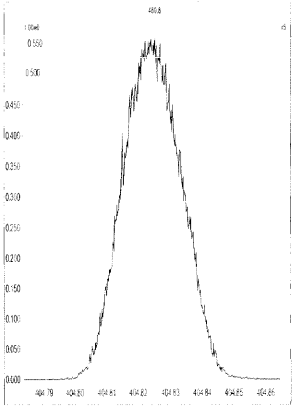
M 454.9728 R 12079



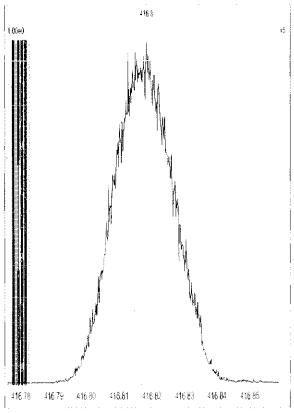
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, March 26, 2014 07:38:59 Central Daylight Time

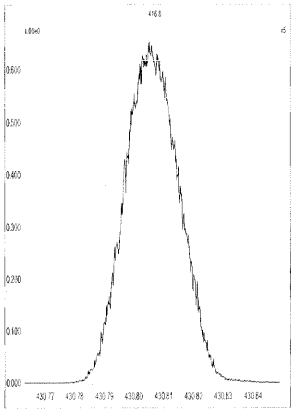
M 404.9760 R 10040



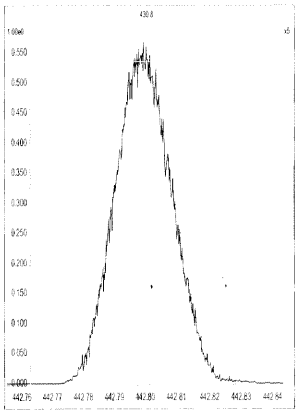
M 416.9760 R 10286



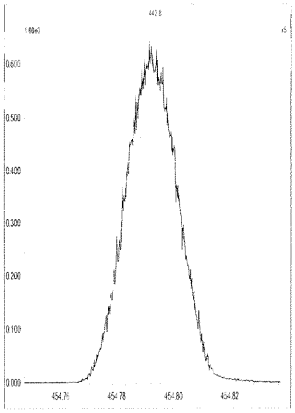
M 430.9728 R 10962



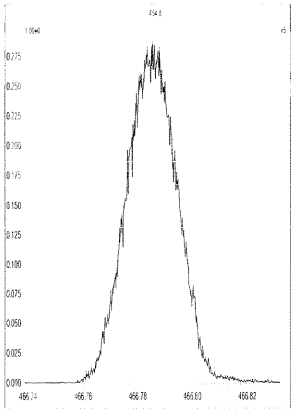
M 442.9728 R 10916



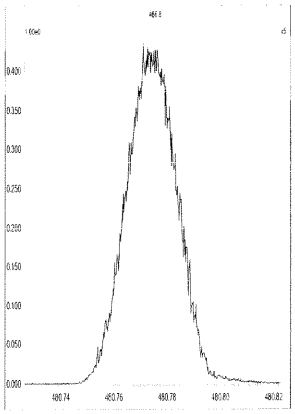
M 454.9728 R 11259



M 466.9728 R 11312



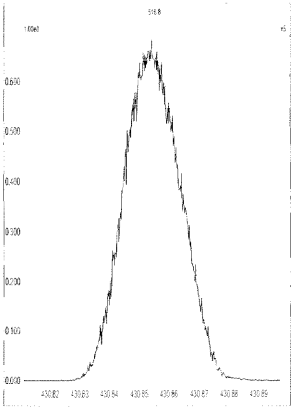
M 480.9696 R 11520



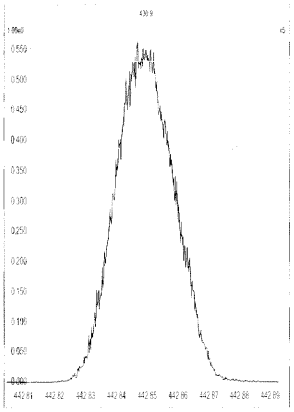
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, March 26, 2014 07:43:00 Central Daylight Time

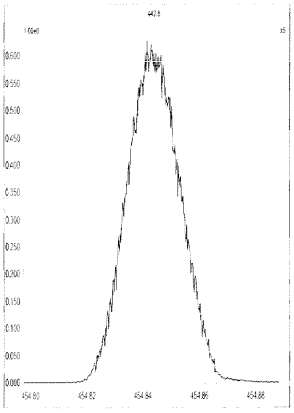
M 430.9728 R 10415



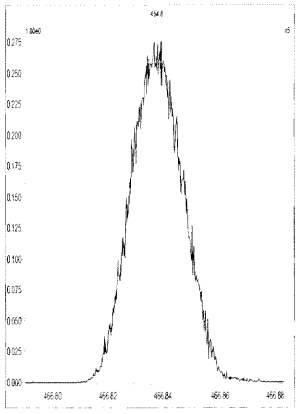
M 442.9728 R 10414



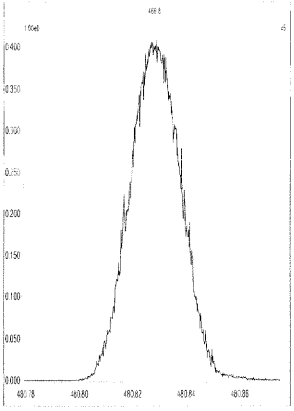
M 454.9728 R 10822



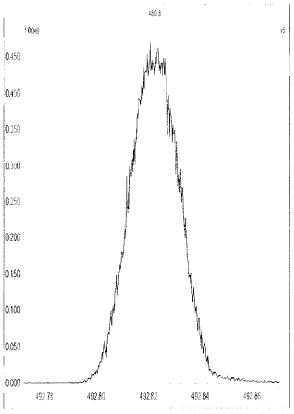
M 466.9728 R 11262



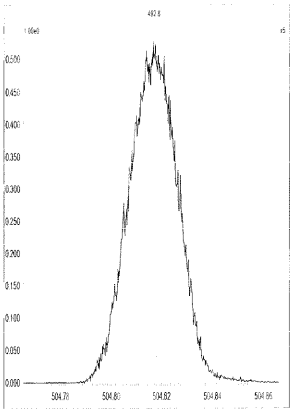
M 480.9696 R 11468



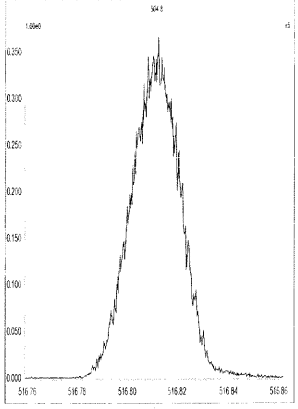
M 492.9696 R 11630



M 504.9696 R 11734



M 516.9697 R 11740



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

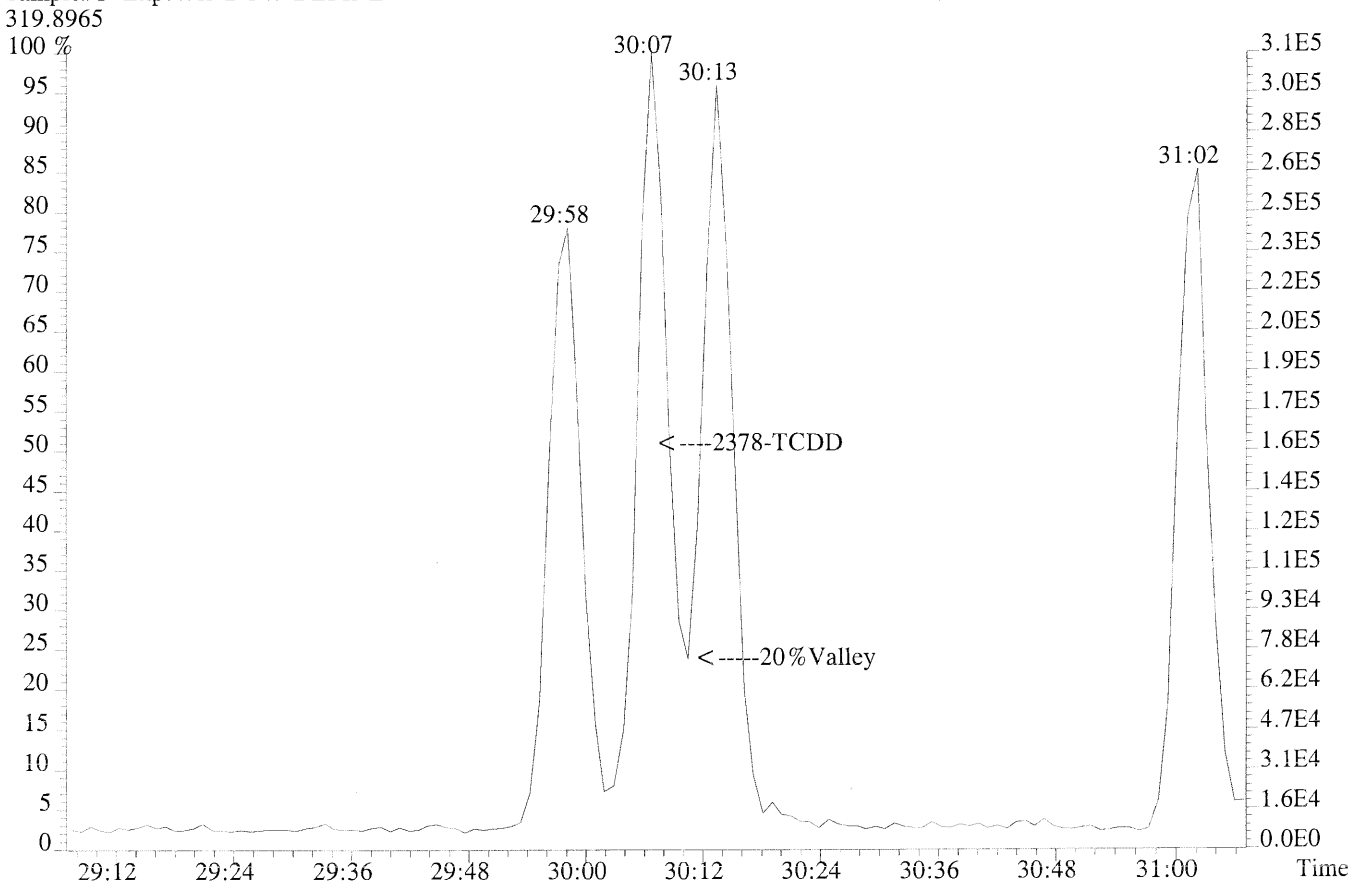
WDM

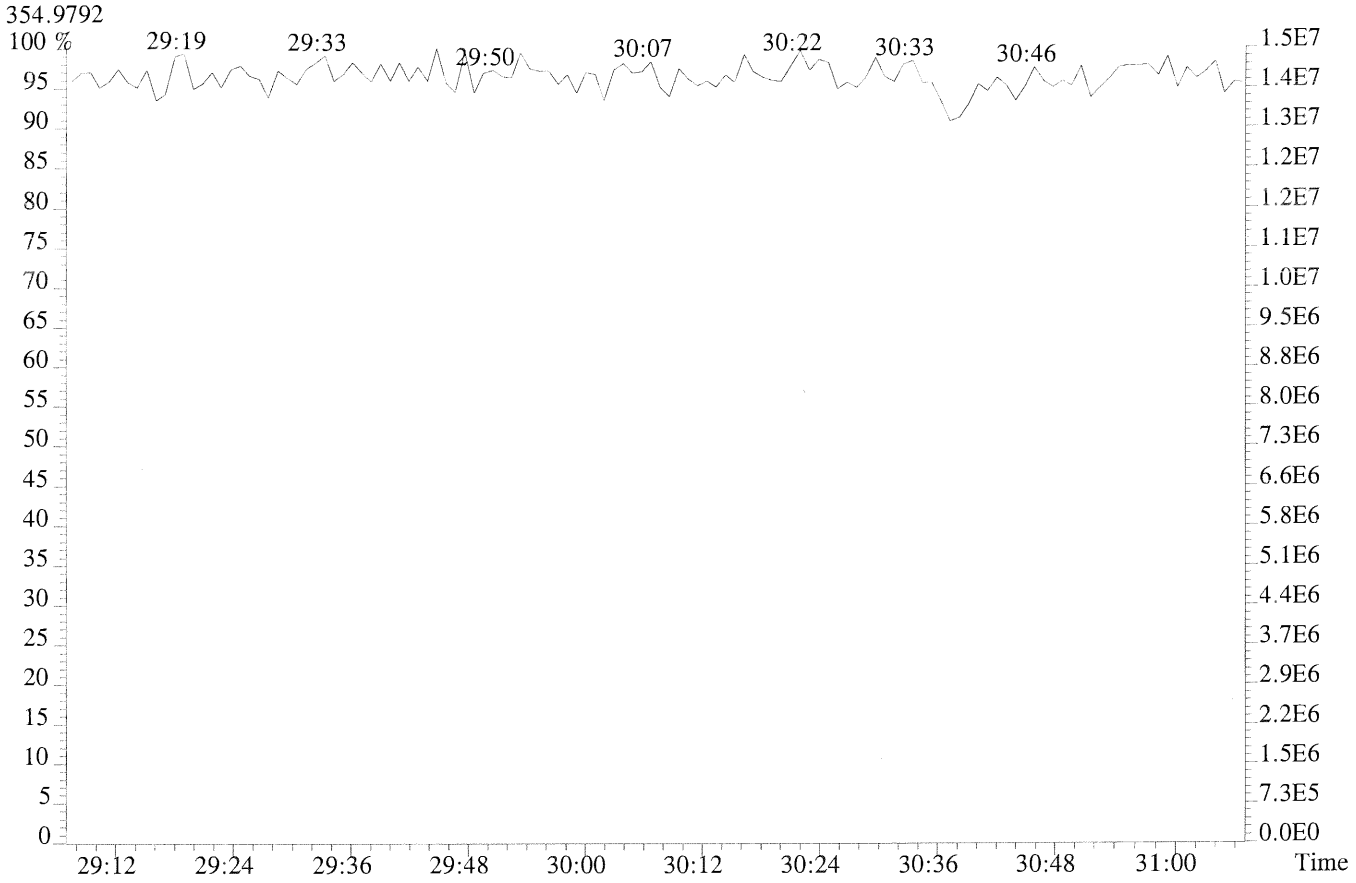
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411 Case No.: SDG No.:
GC Column: DB-5msUI ID: 0.25 (mm) Lab File ID: P169969
Date Analyzed: 25-MAR-2014
Time Analyzed: 16:28:21

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	25:24	31:11
TCDD	27:10	31:02
PeCDF	31:07	35:07
PeCDD	32:32	34:51
HxCDF	35:43	38:08
HxCDD	36:13	37:44
HpCDF	39:20	40:47
HpCDD	39:35	40:17

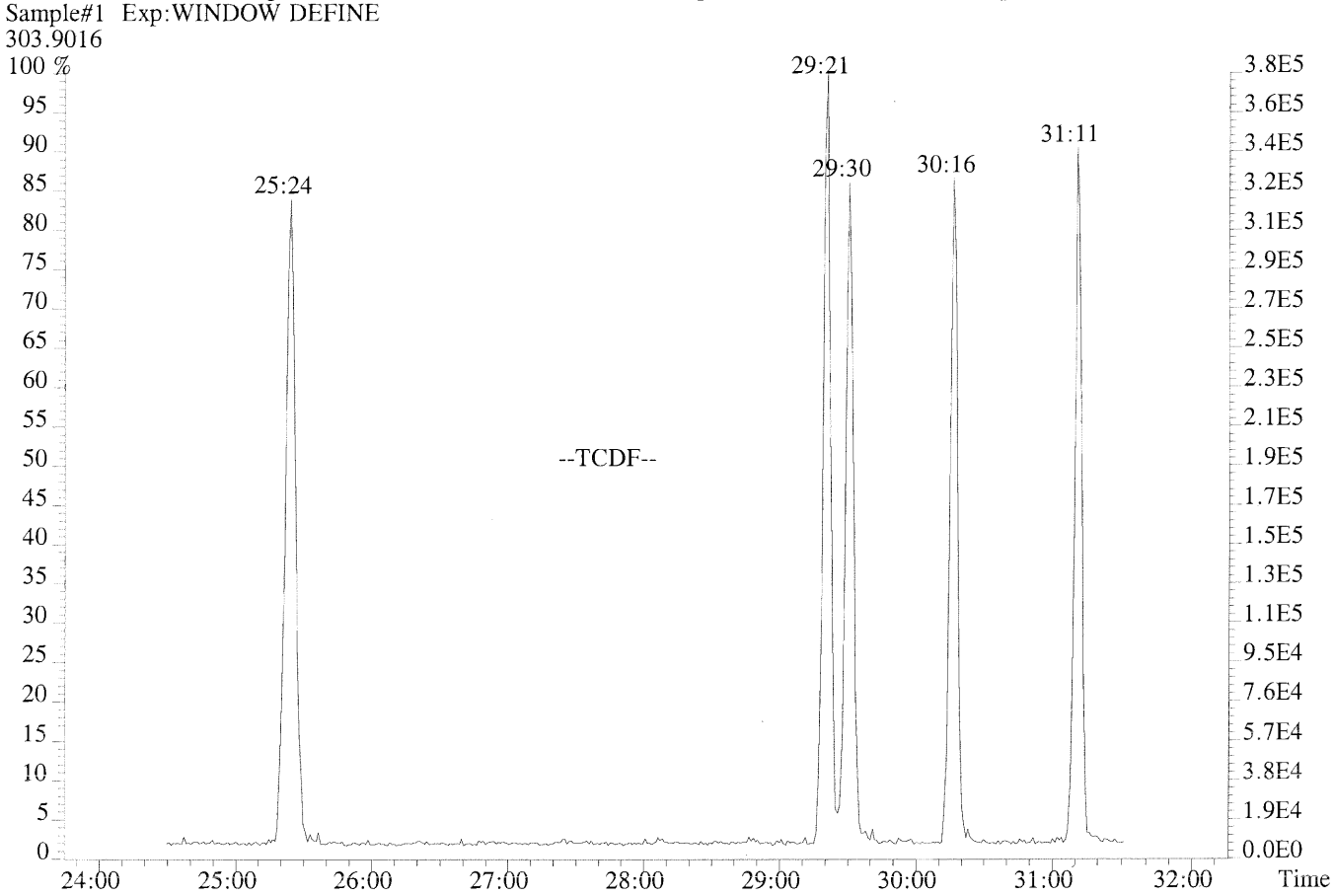
% Valley 2378-TCDD: 20 %

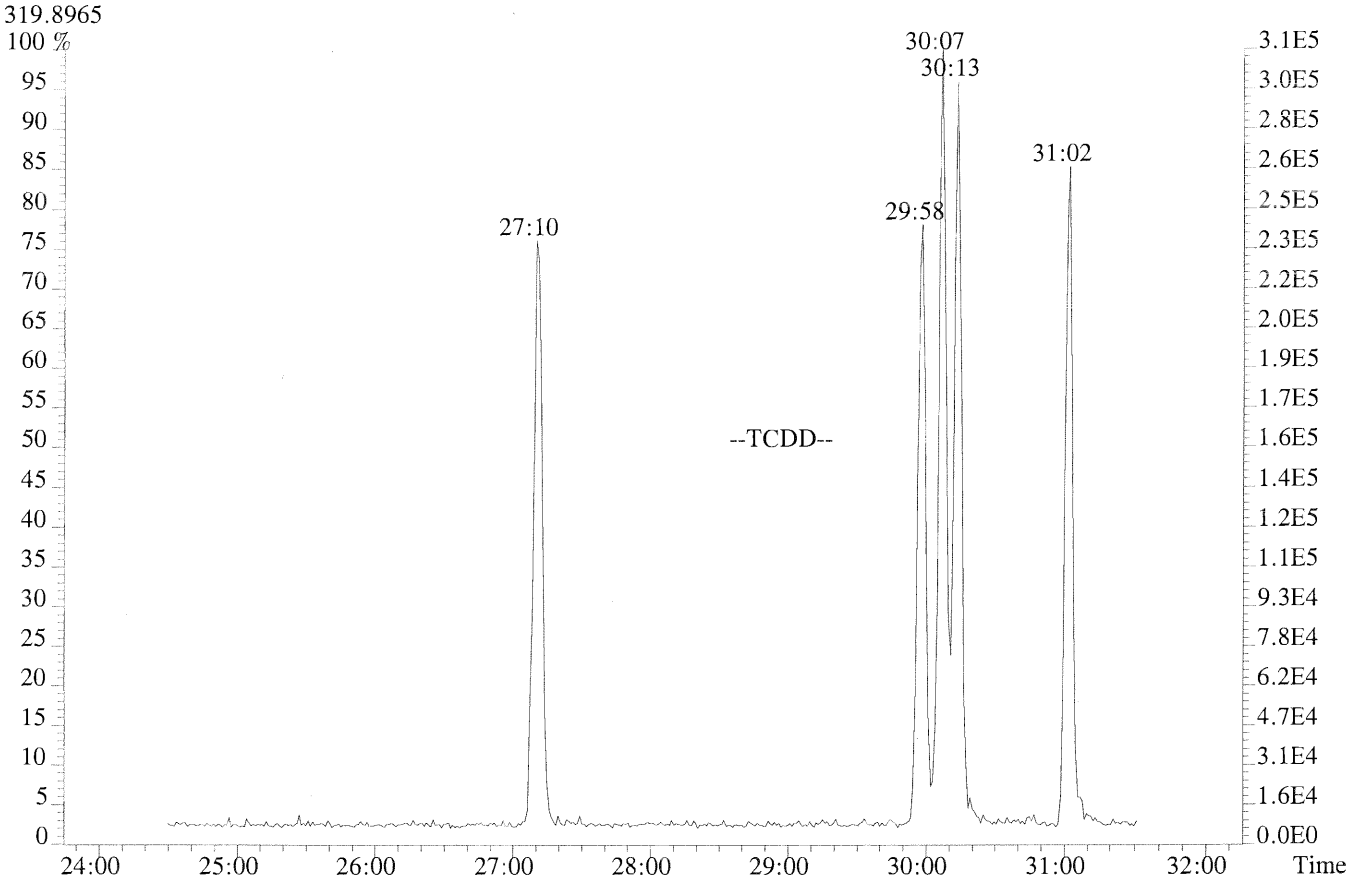
File:P169969 #1-442 Acq:25-MAR-2014 16:28:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



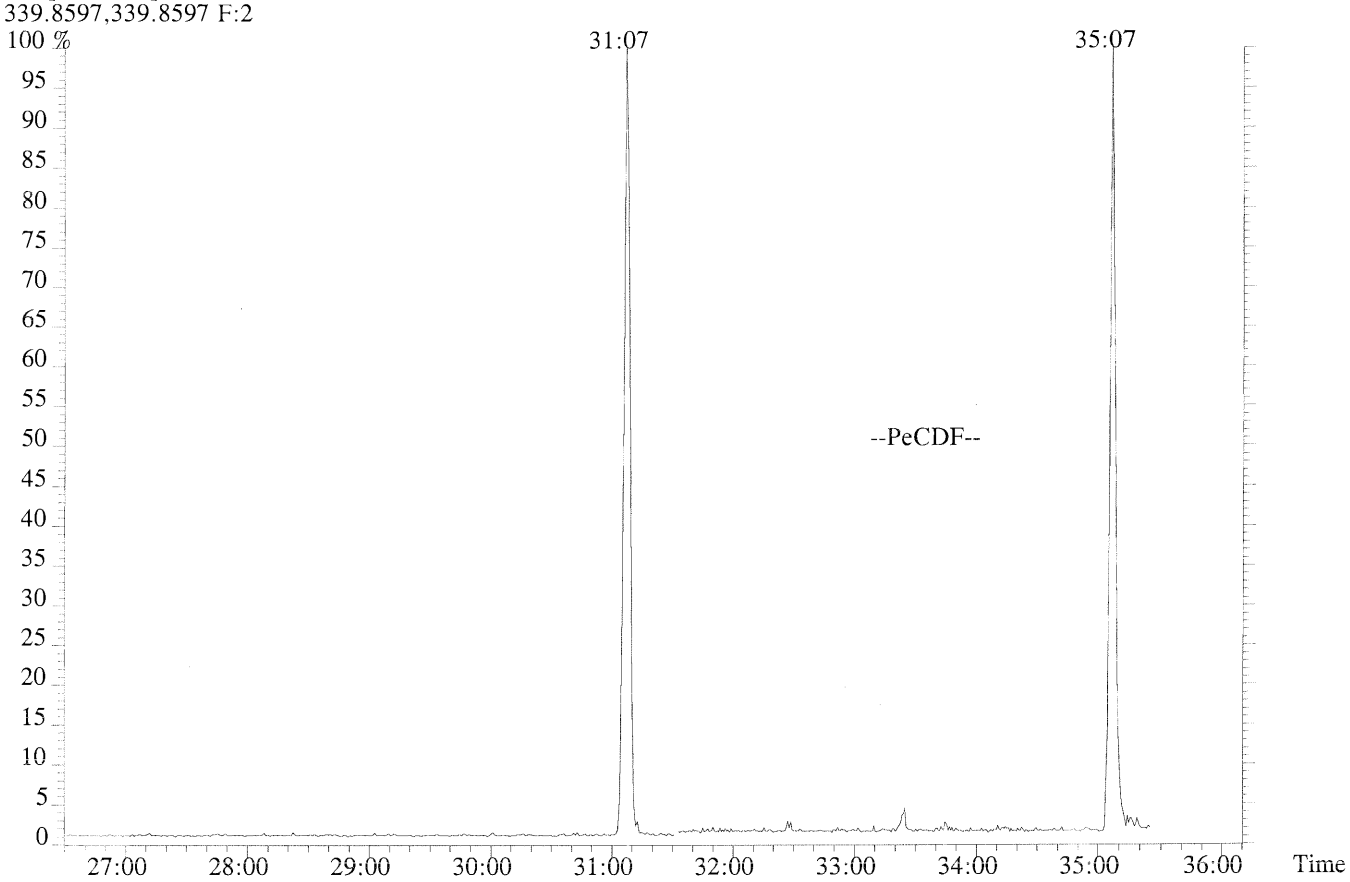


File:P169969 #1-442 Acq:25-MAR-2014 16:28:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

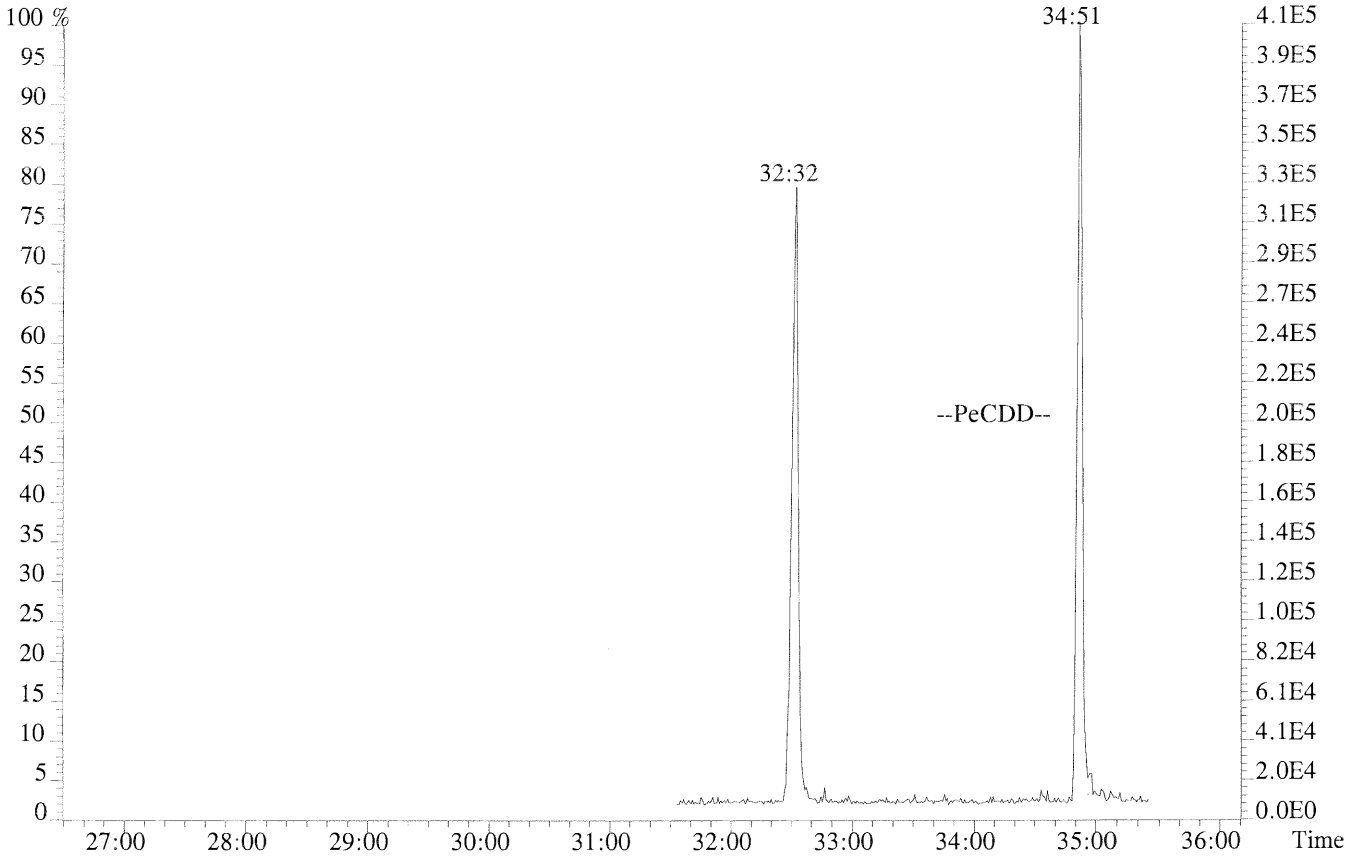




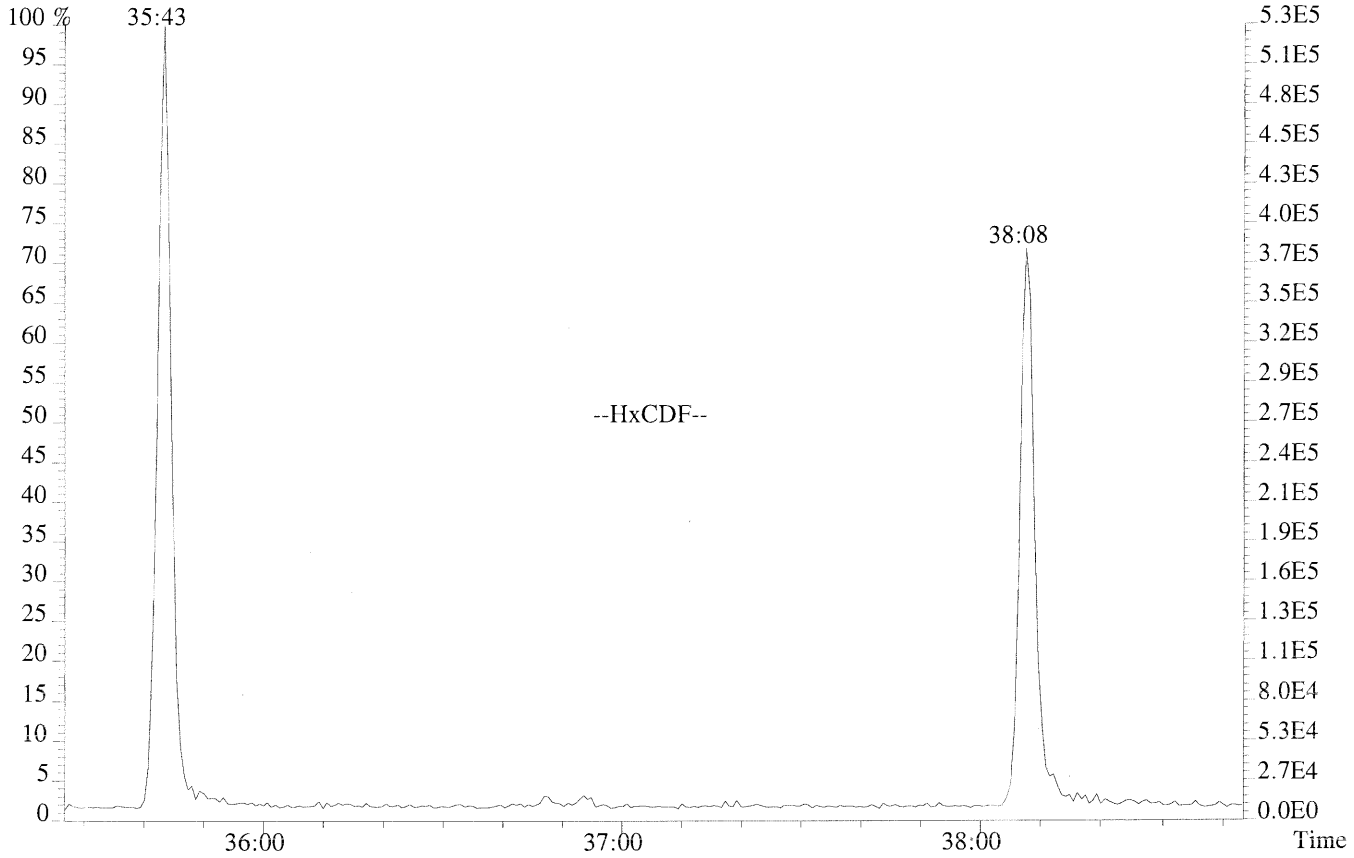
File:P169969 #1-442 Acq:25-MAR-2014 16:28:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



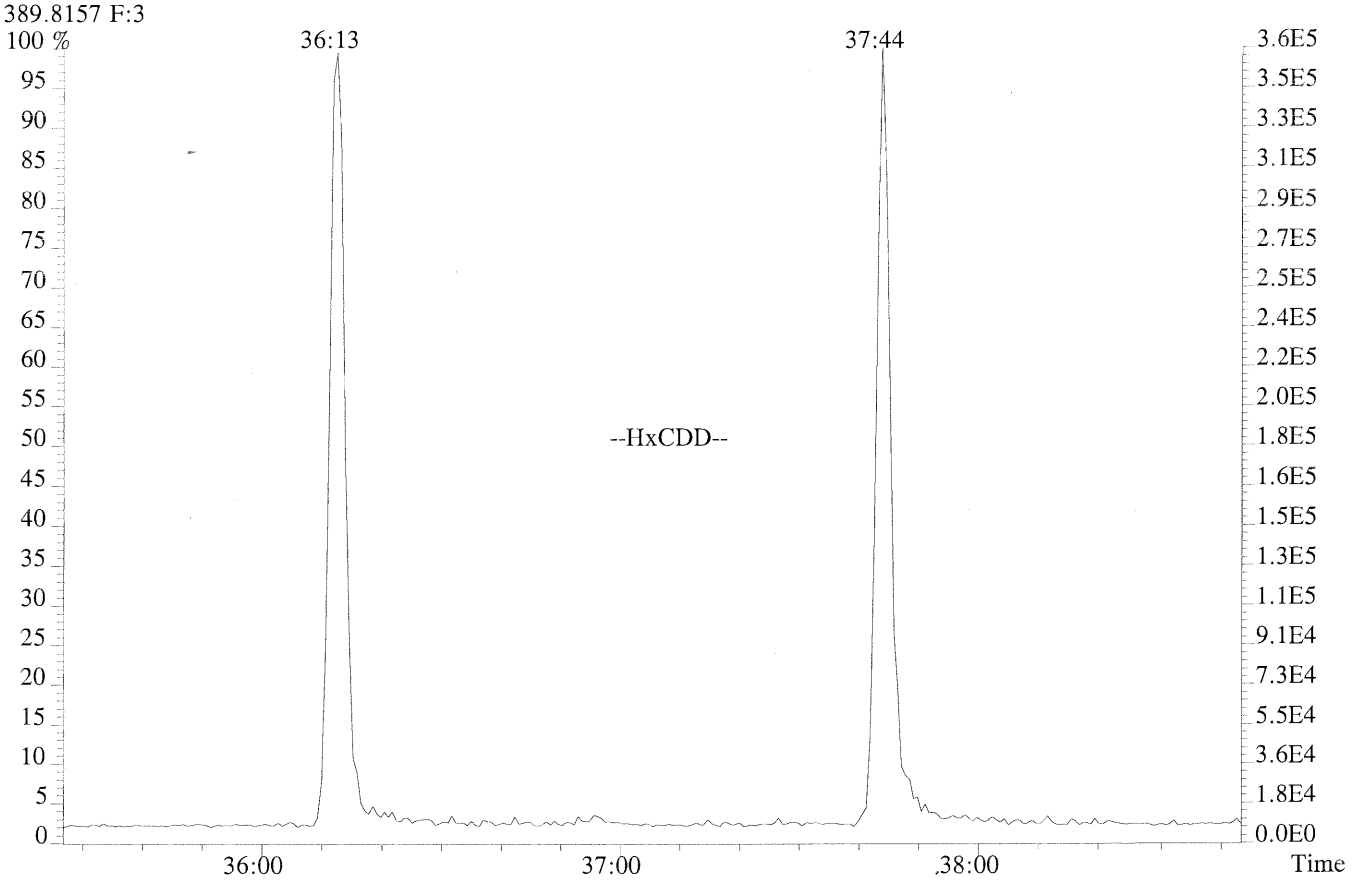
355.8546 F:2



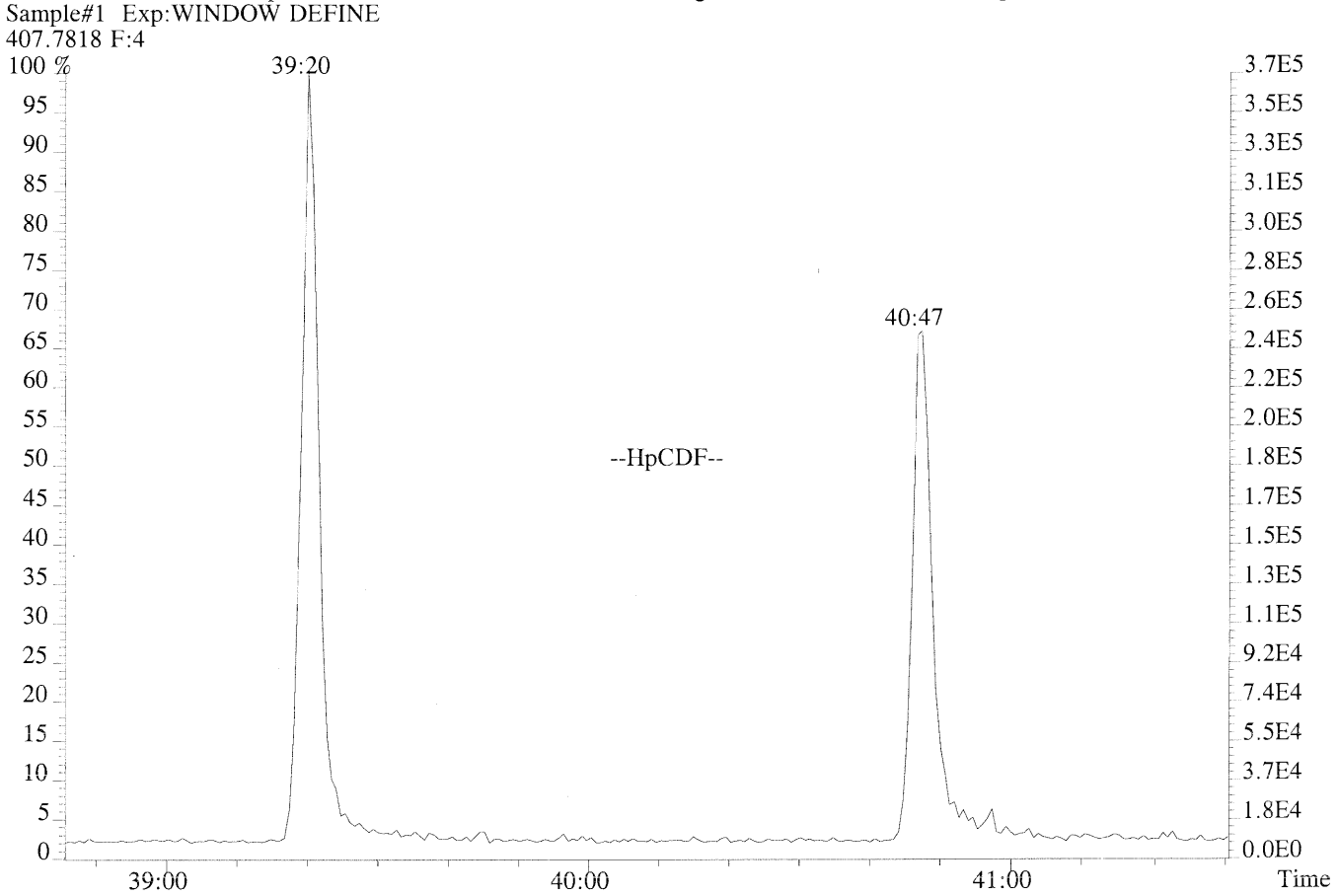
File:P169969 #1-298 Acq:25-MAR-2014 16:28:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3

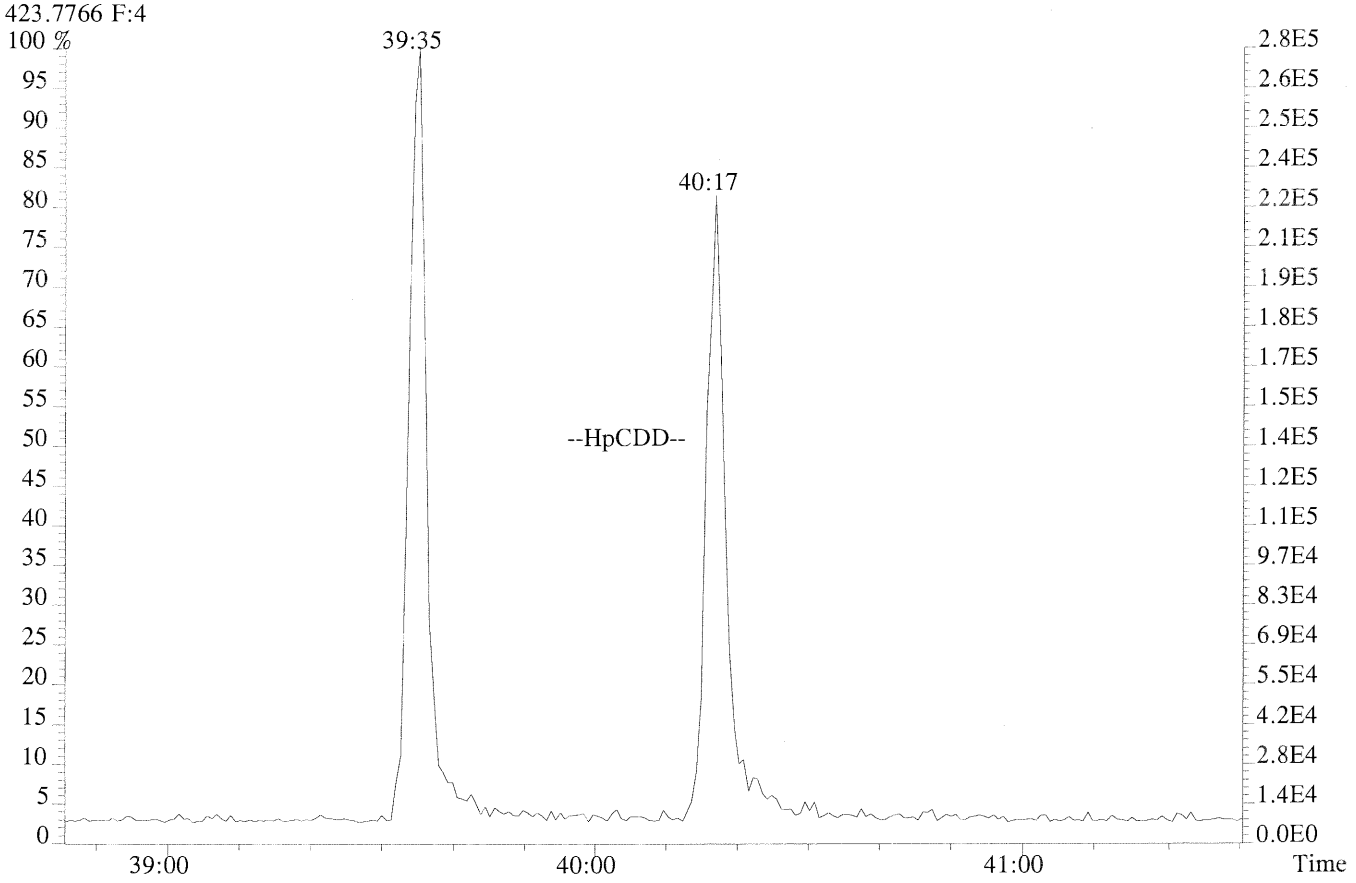


389.8157 F:3



File:P169969 #1-250 Acq:25-MAR-2014 16:28:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





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-03
Init. Calib. Date(s).: 03/25/14 Analyte Table: 1613P
Init. Calib. Time.: 16:28:21

Target Analytes	RR/RRF CS0.5	CS1	CS2	CS3	CS4	CS5	RR/RRF	MEAN %RSD	QC LIMITS
2,3,7,8-TCDF	0.95	1.00	0.87	0.91	0.96	0.98	0.95	4.91	+/-20%
1,2,3,7,8-PeCDF	1.01	1.01	1.02	1.03	1.04	0.99	1.02	1.64	+/-20%
2,3,4,7,8-PeCDF	0.91	0.97	0.96	0.97	0.99	1.06	0.98	5.08	+/-20%
1,2,3,4,7,8-HxCDF	1.16	1.27	1.25	1.26	1.26	1.24	1.24	3.16	+/-20%
1,2,3,6,7,8-HxCDF	1.17	1.17	1.17	1.16	1.18	1.21	1.18	1.60	+/-20%
2,3,4,6,7,8-HxCDF	1.11	1.17	1.12	1.15	1.18	1.17	1.15	2.25	+/-20%
1,2,3,7,8,9-HxCDF	1.06	1.16	1.14	1.17	1.20	1.19	1.15	4.31	+/-20%
1,2,3,4,6,7,8-HpCDF	1.39	1.41	1.37	1.42	1.43	1.39	1.40	1.56	+/-20%
1,2,3,4,7,8,9-HpCDF	1.21	1.33	1.32	1.33	1.34	1.42	1.32	5.16	+/-20%
OCDF	1.29	1.29	1.31	1.32	1.37	1.26	1.31	2.73	+/-20%
2,3,7,8-TCDD	1.06	1.04	1.00	1.02	1.05	1.07	1.04	2.55	+/-20%
1,2,3,7,8-PeCDD	0.95	0.91	0.91	0.93	0.95	0.99	0.94	3.15	+/-20%
1,2,3,4,7,8-HxCDD	1.03	1.02	1.00	1.02	1.04	1.14	1.04	4.72	+/-20%
1,2,3,6,7,8-HxCDD	0.97	1.01	1.00	1.00	1.03	0.93	0.99	3.43	+/-20%
1,2,3,7,8,9-HxCDD	1.07	1.14	1.07	1.09	1.12	1.06	1.09	2.98	+/-20%
1,2,3,4,6,7,8-HpCDD	0.98	1.03	1.01	1.03	1.03	1.01	1.02	2.05	+/-20%
OCDD	1.05	1.14	1.08	1.08	1.11	1.01	1.08	4.34	+/-20%
13C-2,3,7,8-TCDF	1.39	1.40	1.42	1.40	1.69	1.42	1.45	7.91	+/-35%
13C-1,2,3,7,8-PeCDF	1.61	1.64	1.66	1.73	2.55	1.91	1.85	19.37	+/-35%
13C-2,3,4,7,8-PeCDF	1.60	1.62	1.63	1.69	2.45	1.82	1.80	18.08	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.03	1.03	1.03	1.02	1.02	1.13	1.05	4.17	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.19	1.20	1.18	1.21	1.20	1.23	1.20	1.38	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.12	1.11	1.12	1.12	1.09	1.17	1.12	2.15	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.02	1.02	1.01	1.02	1.01	1.08	1.03	2.61	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	0.87	0.89	0.89	0.91	0.91	0.98	0.91	4.22	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.78	0.80	0.81	0.82	0.83	0.85	0.81	2.99	+/-35%
13C-2,3,7,8-TCDD	0.99	0.95	0.98	0.98	1.40	1.01	1.05	16.37	+/-35%
13C-1,2,3,7,8-PeCDD	1.17	1.17	1.18	1.23	1.83	1.33	1.32	19.72	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.88	0.87	0.85	0.85	0.83	0.89	0.86	2.47	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.89	0.91	0.93	0.94	0.94	1.06	0.95	6.27	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.83	0.84	0.85	0.85	0.86	0.94	0.86	4.39	+/-35%
13C-OCDD	0.69	0.72	0.74	0.75	0.76	0.89	0.76	8.98	+/-35%
13C-1,2,3,4-TCDD	-	-	-	-	-	-	-	-	
13C-1,2,3,7,8,9-HxCDD	-	-	-	-	-	-	-	-	
37Cl-2,3,7,8-TCDD	0.98	1.10	1.01	1.04	1.52	1.10	1.12	17.58	+/-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

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-03
Init. Calib. Date(s).: 03/25/14 Analyte Table: 1613P
Init. Calib. Time.: 16:28:21

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	0.73	0.80	0.75	0.75	0.76	0.78		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.45	1.53	1.61	1.59	1.58	1.56		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.47	1.67	1.52	1.55	1.59	1.57		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.33	1.28	1.23	1.26	1.23	1.25		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.20	1.16	1.22	1.22	1.23	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.16	1.27	1.28	1.22	1.26	1.24		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.34	1.24	1.19	1.22	1.24	1.24		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.08	1.09	1.01	1.04	1.04	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.16	1.02	1.04	1.03	1.04	1.04		0.88-1.20
OCDF	442/444	0.85	0.88	0.88	0.89	0.91	0.91		0.76-1.02
2,3,7,8-TCDD	320/322	0.82	0.80	0.83	0.78	0.78	0.78		0.65-0.89
1,2,3,7,8-PeCDD	356/358	1.52	1.42	1.59	1.55	1.56	1.58		1.32-1.78
1,2,3,4,7,8-HxCDD	390/392	1.17	1.40	1.24	1.24	1.24	1.25		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.16	1.25	1.24	1.24	1.24	1.25		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.23	1.24	1.21	1.21	1.23	1.26		1.05-1.43
1,2,3,4,6,7,8-HpCDD	424/426	0.98	1.14	0.99	1.06	1.04	1.05		0.88-1.20
OCDD	458/460	0.86	0.94	0.91	0.89	0.89	0.89		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.80	0.79	0.78	0.78	0.79	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.55	1.57	1.56	1.57	1.58	1.53		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.57	1.58	1.57	1.57	1.58	1.54		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.52	0.51	0.52	0.53	0.51	0.52		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.52	0.53	0.52	0.53	0.53	0.51		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.52	0.51	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	0.51	0.52	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.44	0.44	0.44	0.45	0.44	0.44		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.44	0.43	0.45	0.44	0.44	0.44		0.37-0.51
13C-2,3,7,8-TCDD	332/334	0.78	0.77	0.77	0.79	0.80	0.77		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.57	1.57	1.58	1.59	1.56	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.26	1.27	1.26	1.27	1.28	1.27		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.27	1.28	1.27	1.29	1.27	1.27		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.05	1.05	1.06	1.07	1.05	1.07		0.88-1.20
13C-OCDD	470/472	0.89	0.89	0.90	0.90	0.91	0.90		0.76-1.02
13C-1,2,3,4-TCDD	332/334	0.80	0.79	0.79	0.79	0.78	0.79		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.26	1.26	1.27	1.25	1.30	1.25		1.05-1.43
37Cl-2,3,7,8-TCDD	328								

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
Method 1613B/8290A

CLIENT ID.
66807

Run #1 Filename P169970 Samp: 1 Inj: 1 Acquired: 25-MAR-14 17:22:36
Processed: 26-MAR-14 10:00:38 Sample ID: ICAL HRCC0.5/CS0.5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:29	7.182e+01	9.880e+01	0.73	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:23	6.200e+02	4.274e+02	1.45	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	34:14	5.588e+02	3.809e+02	1.47	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:46	5.002e+02	3.763e+02	1.33	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:53	5.547e+02	4.624e+02	1.20	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:21	4.880e+02	4.206e+02	1.16	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	38:06	4.525e+02	3.374e+02	1.34	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:19	4.579e+02	4.253e+02	1.08	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:47	3.684e+02	3.176e+02	1.16	yes	no	1.324
10	Unk	OCDF	43:24	5.998e+02	7.078e+02	0.85	yes	no	1.307
11	Unk	2,3,7,8-TCDD	30:12	6.047e+01	7.399e+01	0.82	yes	yes	1.037
12	Unk	1,2,3,7,8-PeCDD	34:30	4.303e+02	2.825e+02	1.52	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:29	3.557e+02	3.030e+02	1.17	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:34	3.382e+02	2.927e+02	1.16	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:48	3.807e+02	3.104e+02	1.23	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	2.942e+02	3.004e+02	0.98	yes	no	1.016
17	Unk	OCDD	43:11	4.945e+02	5.743e+02	0.86	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:28	3.190e+04	3.976e+04	0.80	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:22	5.047e+04	3.247e+04	1.55	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	34:12	5.043e+04	3.212e+04	1.57	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:46	2.063e+04	3.961e+04	0.52	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:52	2.385e+04	4.588e+04	0.52	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:21	2.230e+04	4.304e+04	0.52	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	38:05	2.035e+04	3.912e+04	0.52	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:19	1.555e+04	3.539e+04	0.44	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	1.394e+04	3.151e+04	0.44	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	30:11	2.234e+04	2.847e+04	0.78	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:28	3.687e+04	2.346e+04	1.57	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:28	2.863e+04	2.265e+04	1.26	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:33	2.903e+04	2.291e+04	1.27	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:15	2.485e+04	2.369e+04	1.05	yes	no	0.862
32	IS	13C-OCDD	43:10	3.823e+04	4.282e+04	0.89	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:40	2.289e+04	2.865e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:47	3.259e+04	2.579e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:12	1.268e+02				no	1.125

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1613RESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
66807

Run #1 Filename P169970 Samp: 1 Inj: 1 Acquired: 25-MAR-14 17:22:36
Processed: 26-MAR-14 10:00:381 LAB. ID: ICAL HRCC0.5/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	1.57e+04	9.57e+02	1.6e+01	1.98e+04	1.56e+03	1.3e+01
2	1,2,3,7,8-PeCDF	1.21e+05	7.36e+02	1.6e+02	8.24e+04	1.31e+03	6.3e+01
3	2,3,4,7,8-PeCDF	1.06e+05	7.36e+02	1.4e+02	7.29e+04	1.31e+03	5.6e+01
4	1,2,3,4,7,8-HxCDF	1.14e+05	1.66e+03	6.9e+01	7.87e+04	1.25e+03	6.3e+01
5	1,2,3,6,7,8-HxCDF	1.05e+05	1.66e+03	6.3e+01	9.39e+04	1.25e+03	7.5e+01
6	2,3,4,6,7,8-HxCDF	1.07e+05	1.66e+03	6.5e+01	8.65e+04	1.25e+03	6.9e+01
7	1,2,3,7,8,9-HxCDF	9.38e+04	1.66e+03	5.7e+01	7.24e+04	1.25e+03	5.8e+01
8	1,2,3,4,6,7,8-HpCDF	9.01e+04	9.12e+02	9.9e+01	8.98e+04	1.59e+03	5.6e+01
9	1,2,3,4,7,8,9-HpCDF	6.66e+04	9.12e+02	7.3e+01	5.77e+04	1.59e+03	3.6e+01
10	OCDF	1.01e+05	1.29e+03	7.9e+01	1.03e+05	1.52e+03	6.8e+01
11	2,3,7,8-TCDD	1.37e+04	1.15e+03	1.2e+01	1.69e+04	1.26e+03	1.3e+01
12	1,2,3,7,8-PeCDD	8.11e+04	1.42e+03	5.7e+01	5.57e+04	9.88e+02	5.6e+01
13	1,2,3,4,7,8-HxCDD	7.98e+04	1.12e+03	7.1e+01	6.82e+04	1.10e+03	6.2e+01
14	1,2,3,6,7,8-HxCDD	6.99e+04	1.12e+03	6.2e+01	6.35e+04	1.10e+03	5.8e+01
15	1,2,3,7,8,9-HxCDD	8.12e+04	1.12e+03	7.2e+01	6.37e+04	1.10e+03	5.8e+01
16	1,2,3,4,6,7,8-HpCDD	5.92e+04	8.92e+02	6.6e+01	5.31e+04	7.72e+02	6.9e+01
17	OCDD	8.01e+04	7.84e+02	1.0e+02	8.83e+04	1.02e+03	8.6e+01
18	13C-2,3,7,8-TCDF	6.98e+06	1.91e+03	3.7e+03	8.69e+06	1.89e+03	4.6e+03
19	13C-1,2,3,7,8-PeCDF	9.61e+06	7.96e+02	1.2e+04	6.23e+06	1.13e+03	5.5e+03
20	13C-2,3,4,7,8-PeCDF	1.02e+07	7.96e+02	1.3e+04	6.48e+06	1.13e+03	5.7e+03
21	13C-1,2,3,4,7,8-HxCDF	4.46e+06	1.45e+03	3.1e+03	8.59e+06	2.18e+03	3.9e+03
22	13C-1,2,3,6,7,8-HxCDF	4.82e+06	1.45e+03	3.3e+03	9.31e+06	2.18e+03	4.3e+03
23	13C-2,3,4,6,7,8-HxCDF	4.72e+06	1.45e+03	3.3e+03	9.00e+06	2.18e+03	4.1e+03
24	13C-1,2,3,7,8,9-HxCDF	4.06e+06	1.45e+03	2.8e+03	7.75e+06	2.18e+03	3.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.19e+06	2.01e+03	1.6e+03	7.20e+06	3.46e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.53e+06	2.01e+03	1.3e+03	5.70e+06	3.46e+03	1.6e+03
27	13C-2,3,7,8-TCDD	4.97e+06	5.04e+03	9.9e+02	6.29e+06	1.67e+03	3.8e+03
28	13C-1,2,3,7,8-PeCDD	7.33e+06	1.40e+03	5.3e+03	4.71e+06	8.16e+02	5.8e+03
29	13C-1,2,3,4,7,8-HxCDD	6.37e+06	1.36e+03	4.7e+03	5.05e+06	1.49e+03	3.4e+03
30	13C-1,2,3,6,7,8-HxCDD	5.90e+06	1.36e+03	4.3e+03	4.73e+06	1.49e+03	3.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.72e+06	1.49e+03	3.2e+03	4.52e+06	7.08e+02	6.4e+03
32	13C-OCDD	6.11e+06	6.76e+02	9.0e+03	6.60e+06	1.12e+03	5.9e+03
33	13C-1,2,3,4-TCDD	5.02e+06	5.04e+03	1.0e+03	6.31e+06	1.67e+03	3.8e+03
34	13C-1,2,3,7,8,9-HxCDD	6.49e+06	1.36e+03	4.8e+03	5.09e+06	1.49e+03	3.4e+03
35	37Cl-2,3,7,8-TCDD	2.83e+04	1.46e+03	1.9e+01			

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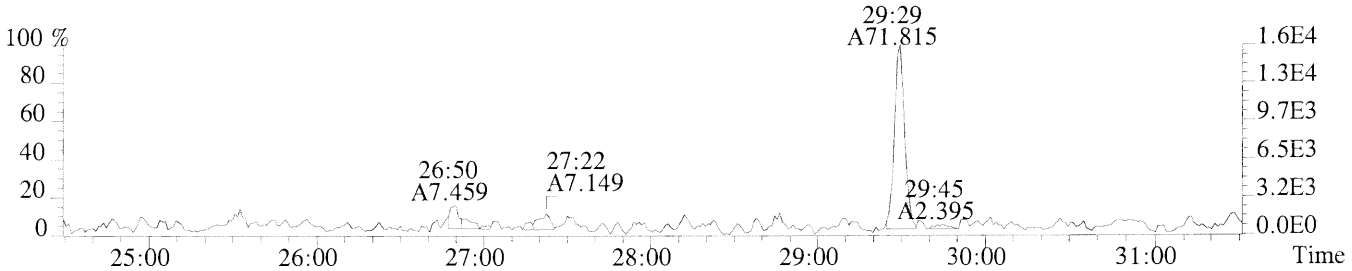
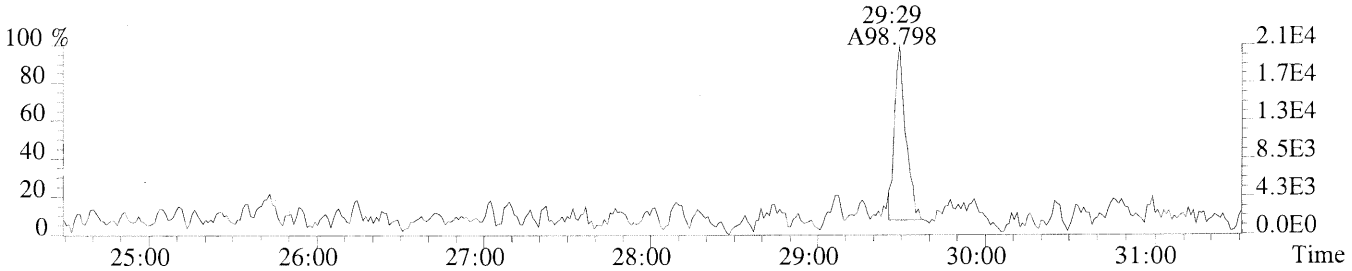
XLSN

File:P169970 #1-442 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5

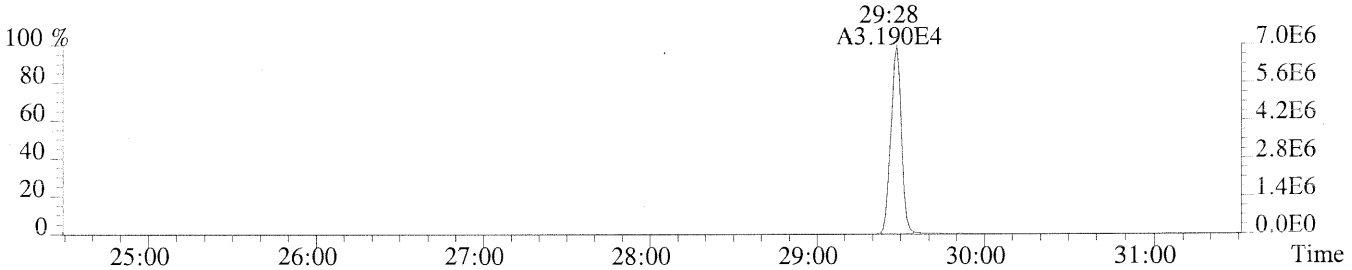
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



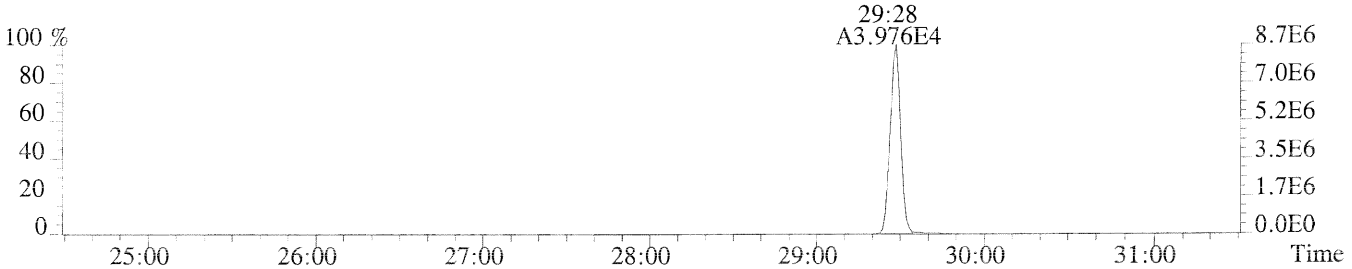
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2428.0,1.00%,F,T)



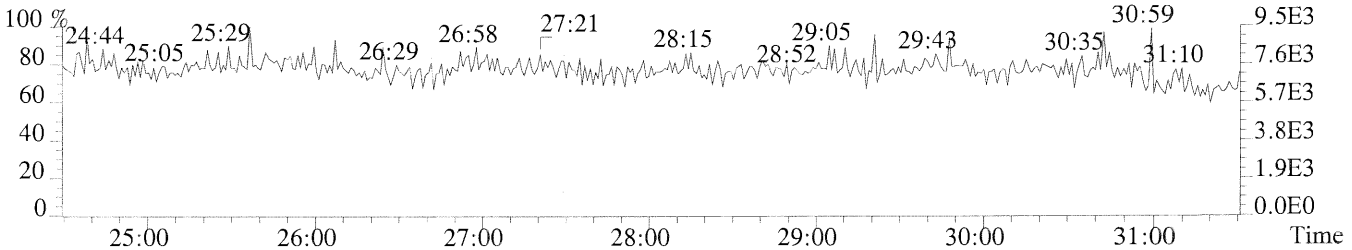
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1908.0,1.00%,F,T)



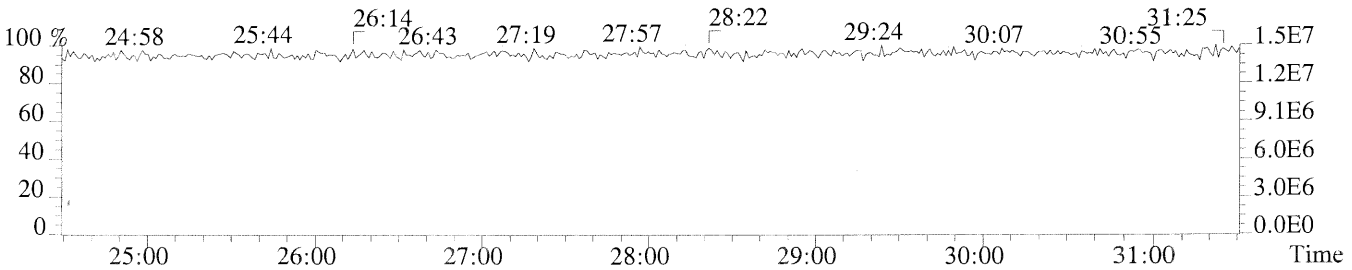
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1892.0,1.00%,F,T)



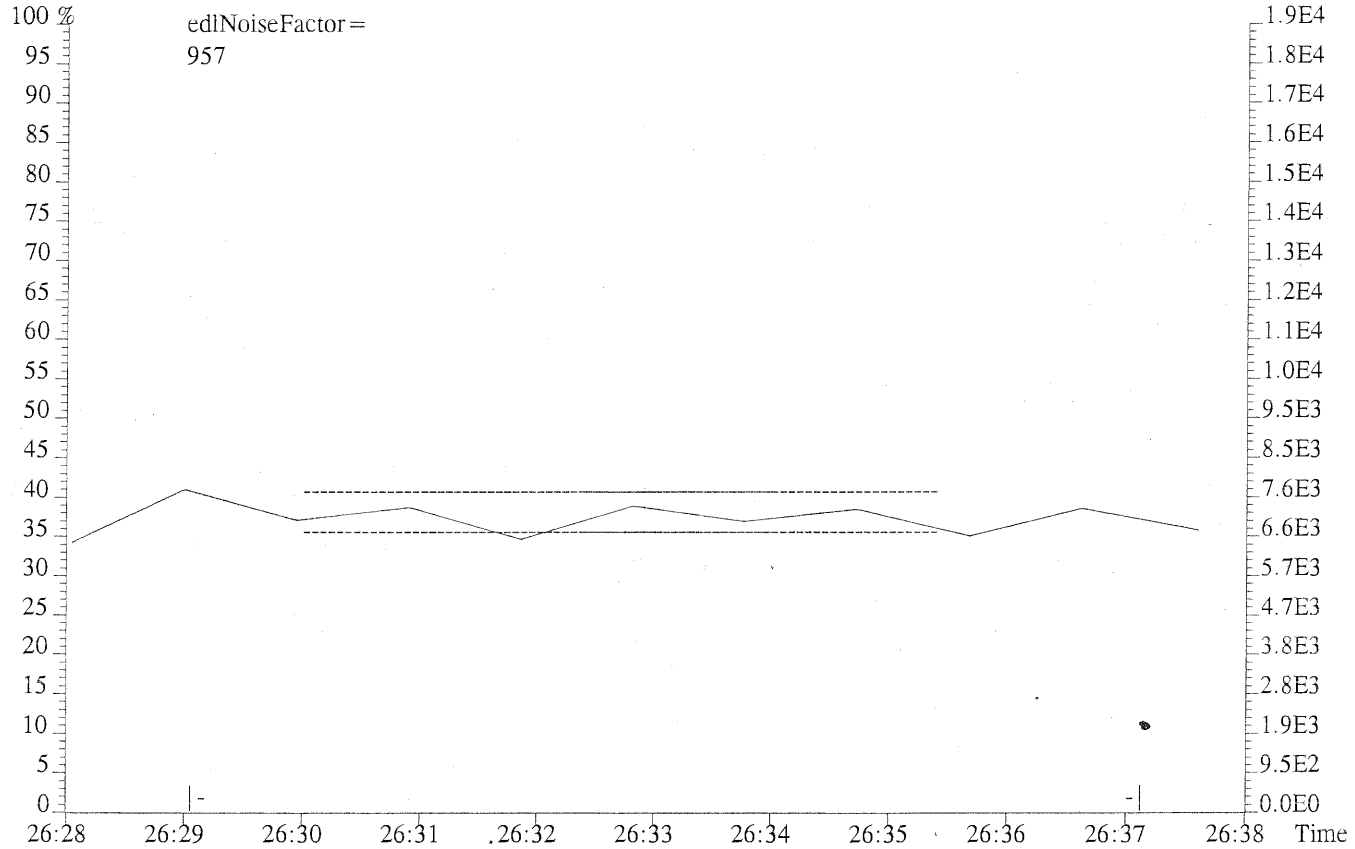
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



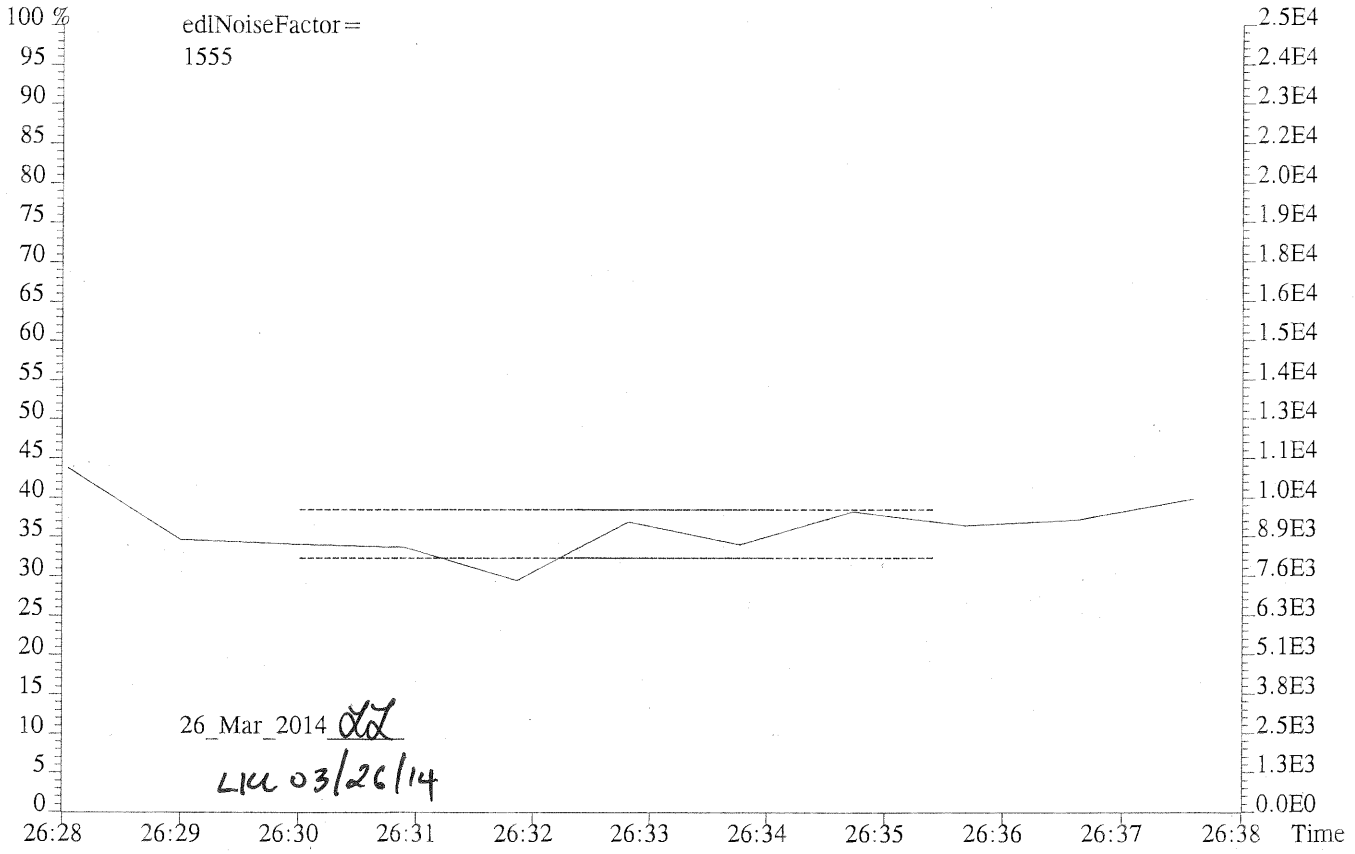
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P169970 #1-442 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5
303.9016

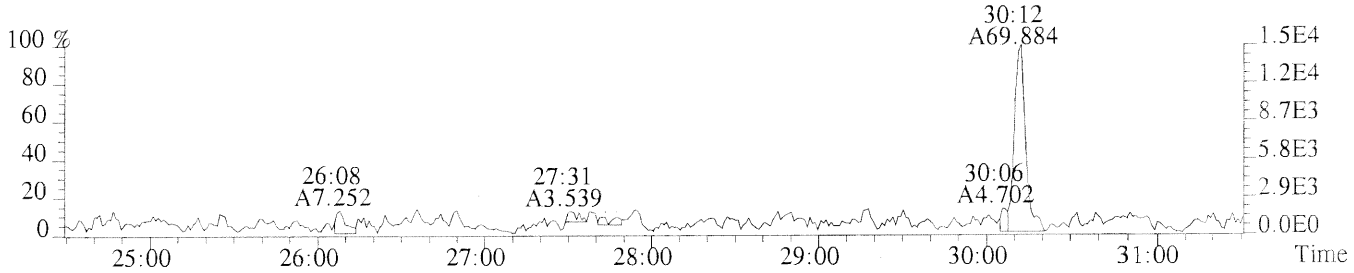


305.8987

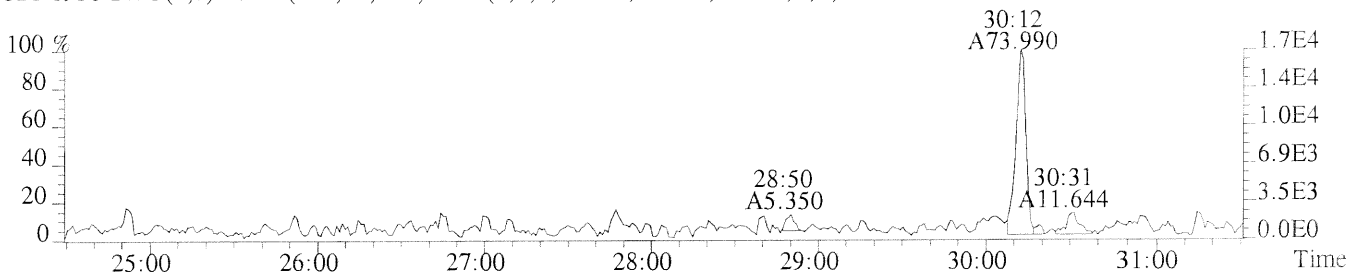


File:P169970 #1-442 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spectf
Sample#1 Exp:ICAL HRCC0.5/CS0.5

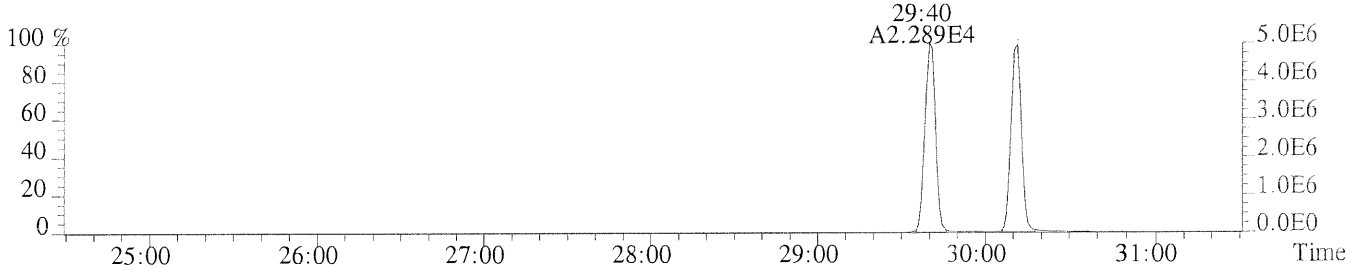
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



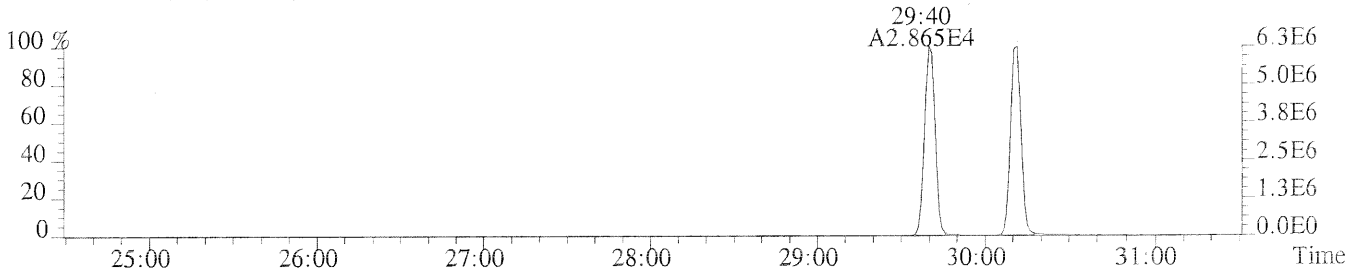
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



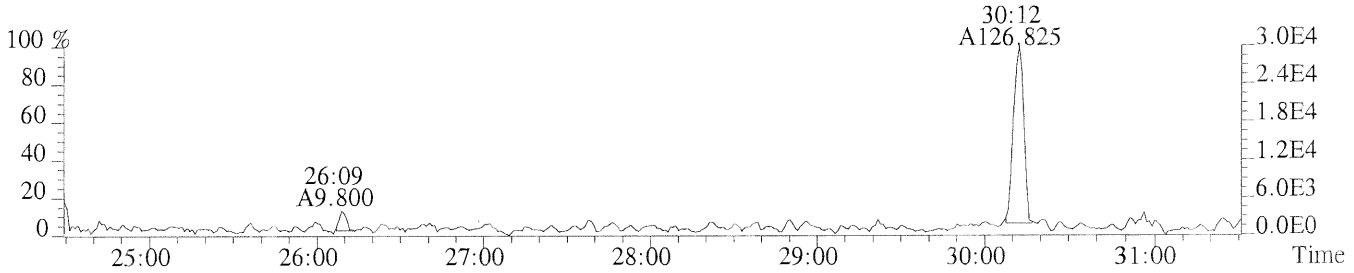
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5040.0,1.00%,F,T)



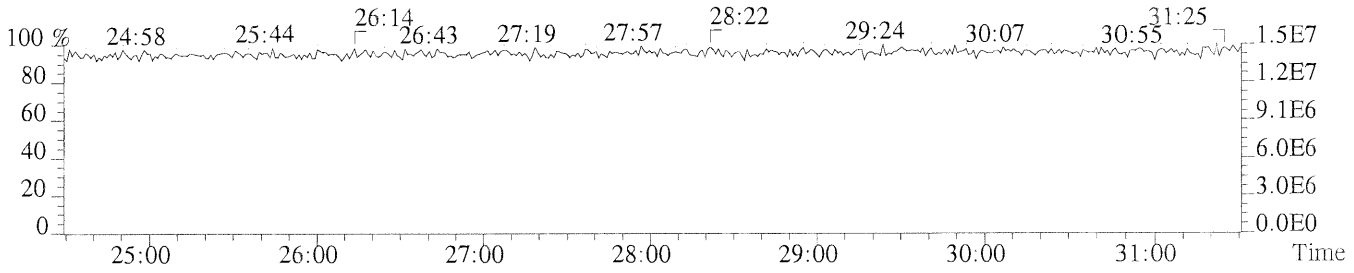
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1668.0,1.00%,F,T)



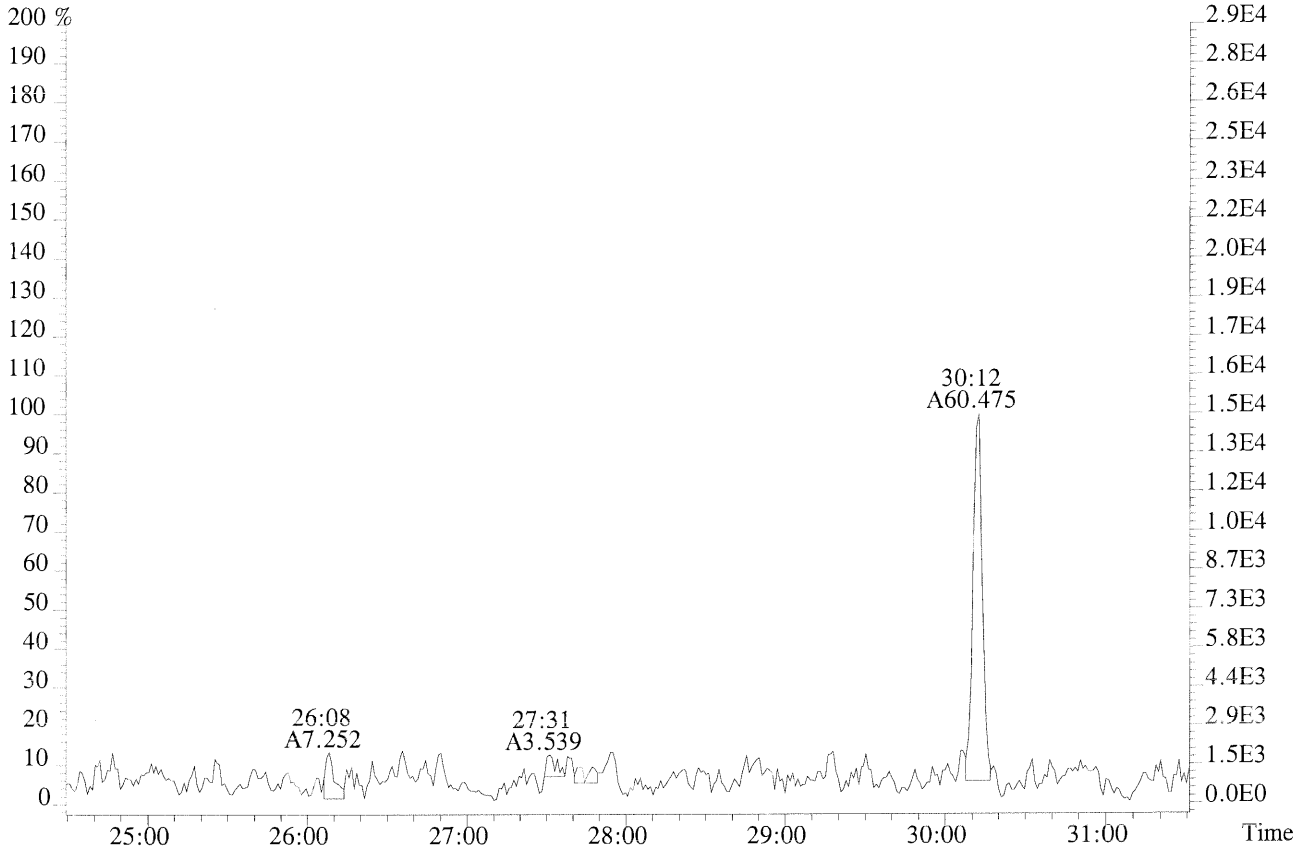
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



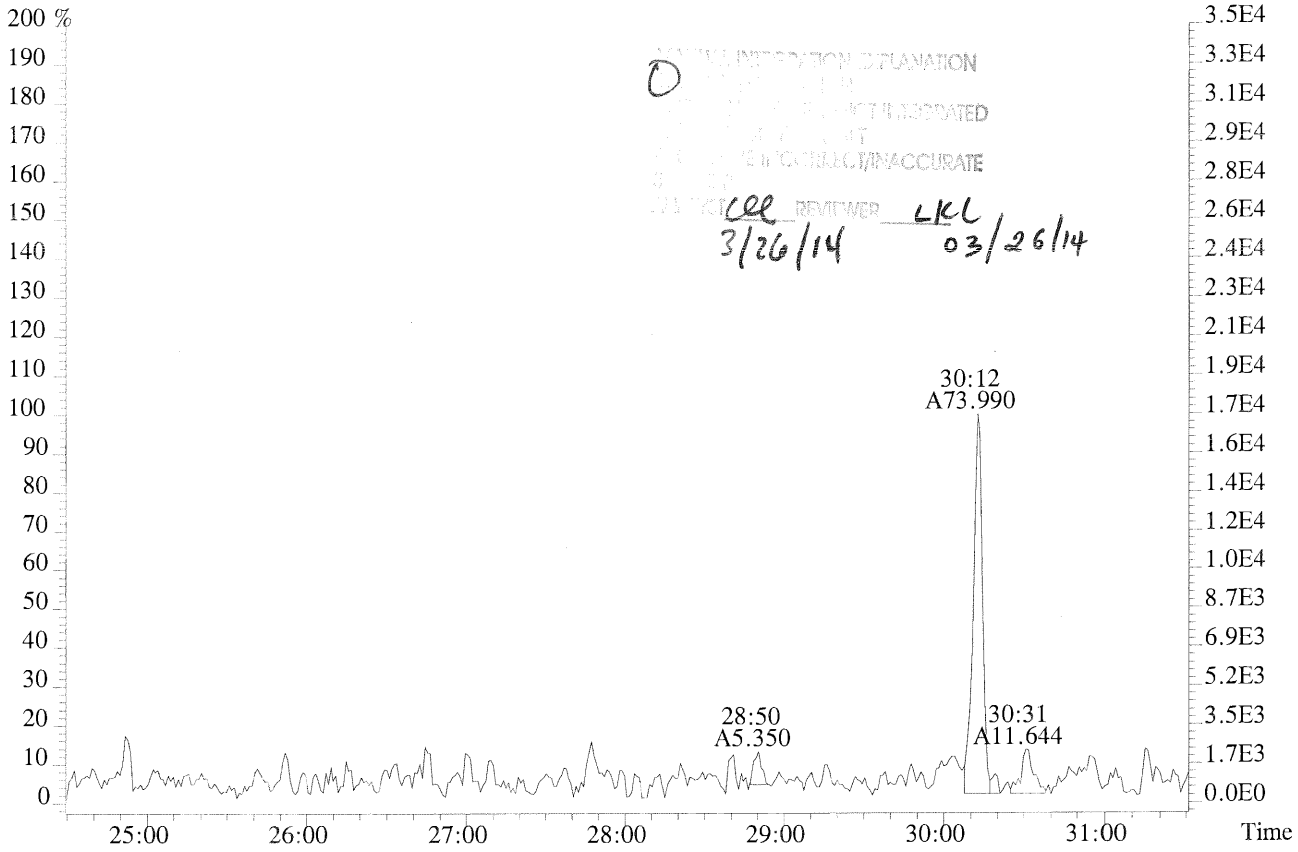
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P169970 #1-442 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass s£
Sample#1 Exp:ICAL HRCC0.5/CS0.5
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1148.0,1.00%,F,T)



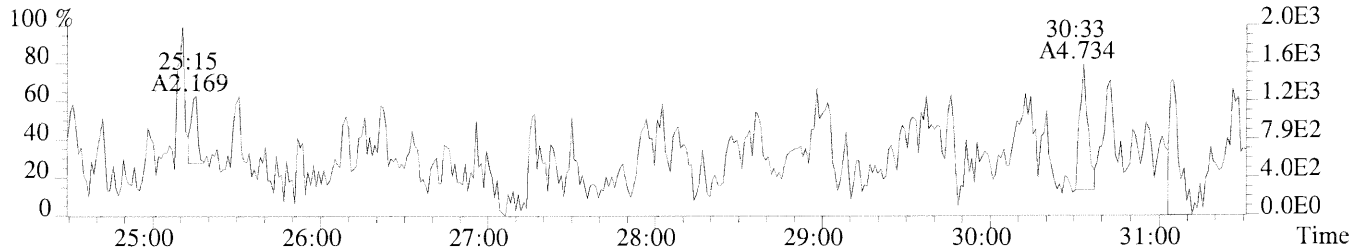
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



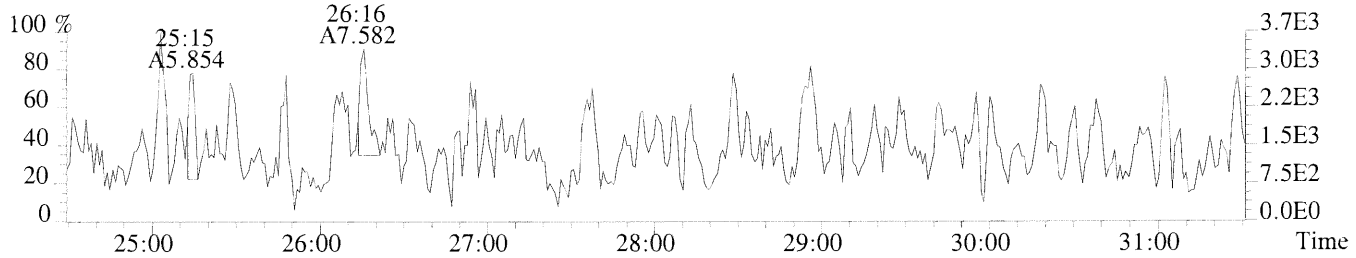
0

INTEGRATION EXPLANATION
INTEGRATED
INCORRECT/INACCURATE
REVIEWER LKL
3/26/14 03/26/14

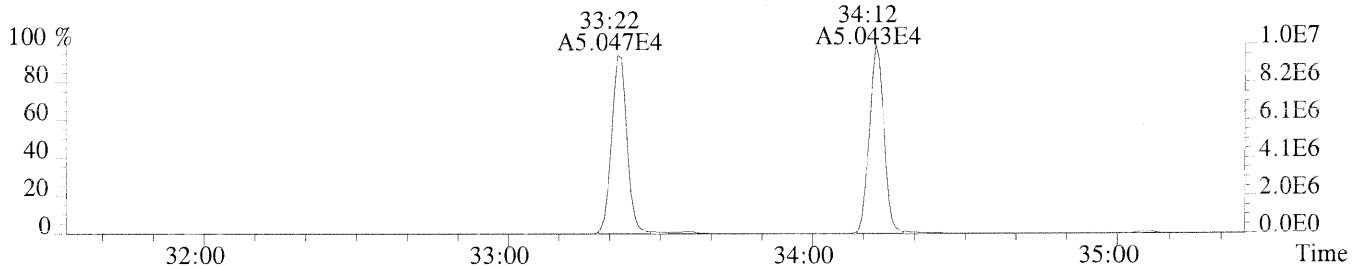
File:P169970 #1-442 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



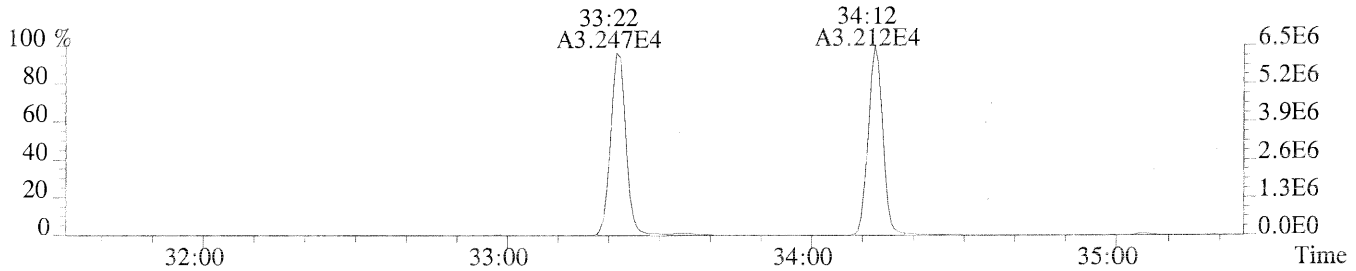
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1664.0,1.00%,F,T)



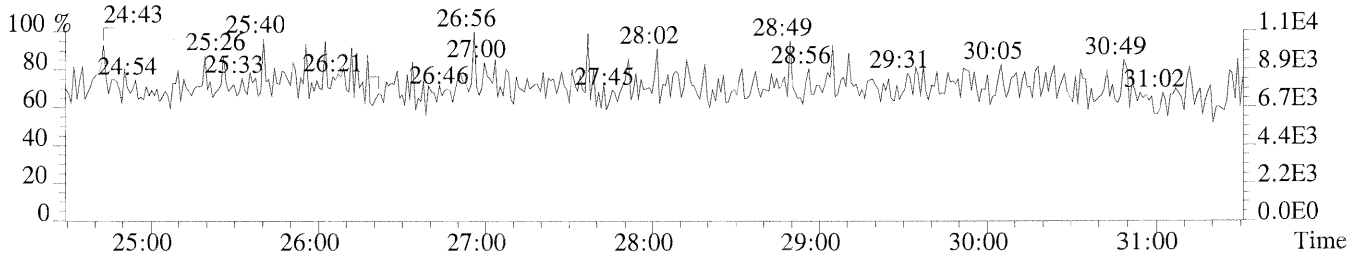
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



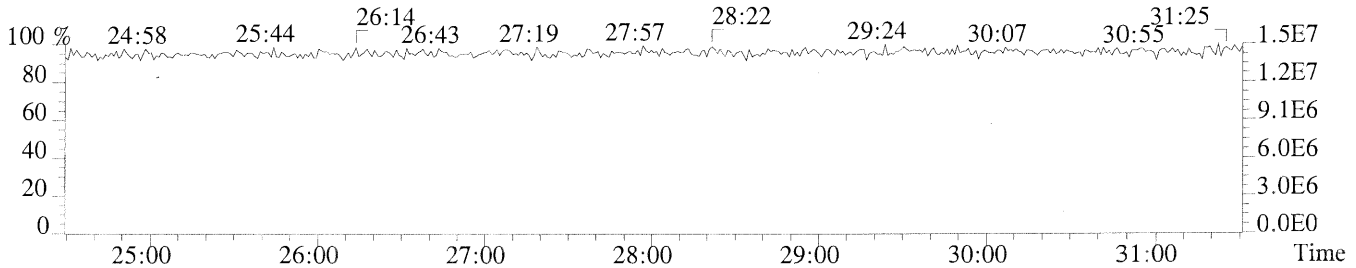
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

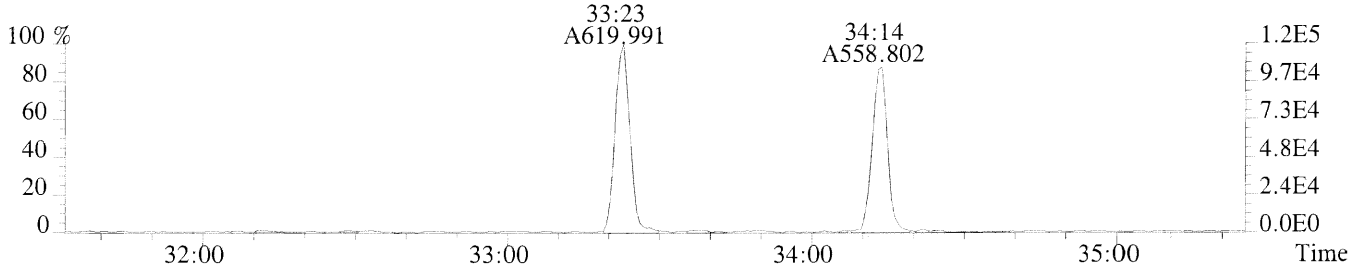


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

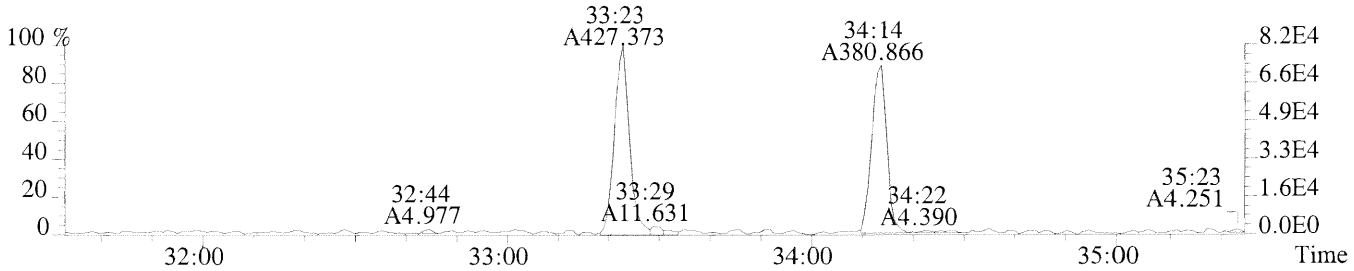


File:P169970 #1-351 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5

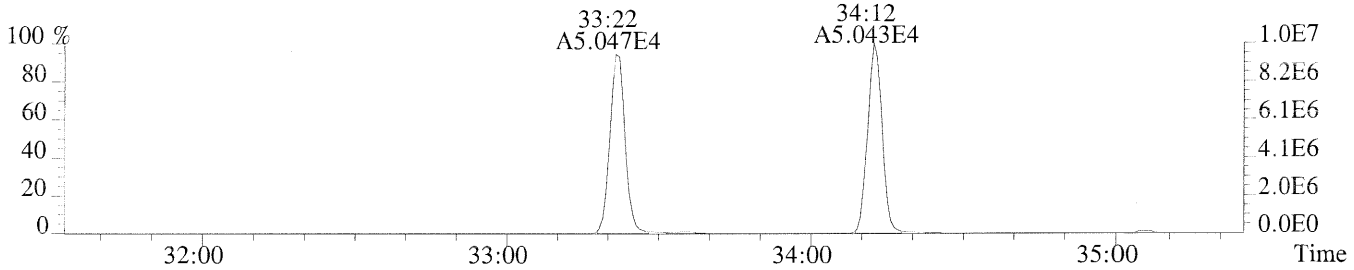
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



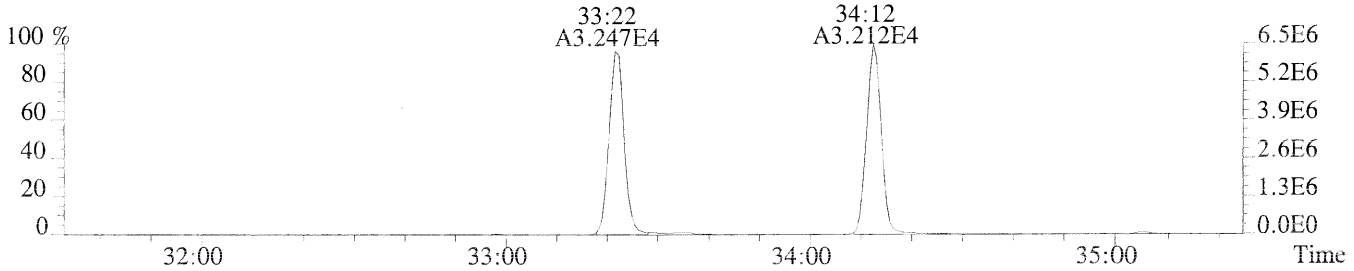
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



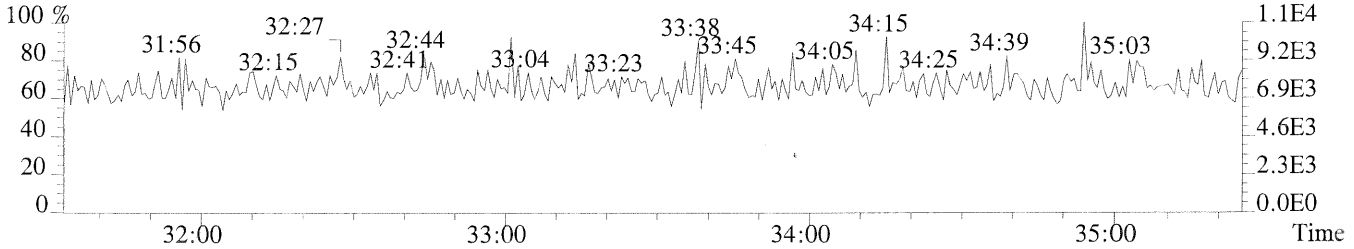
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



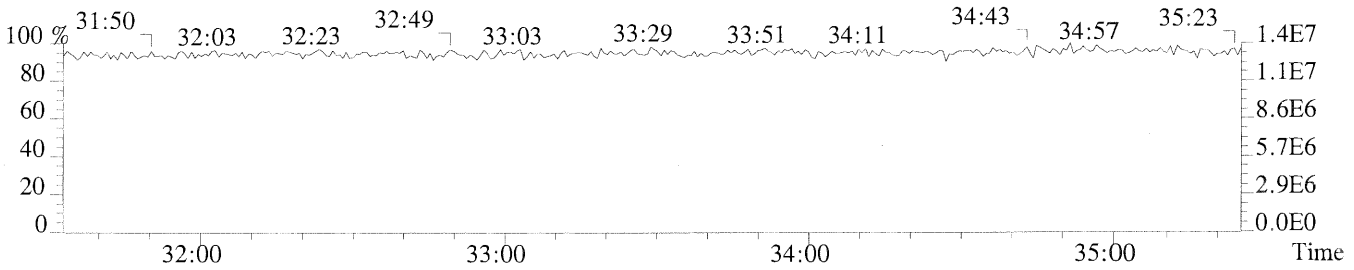
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



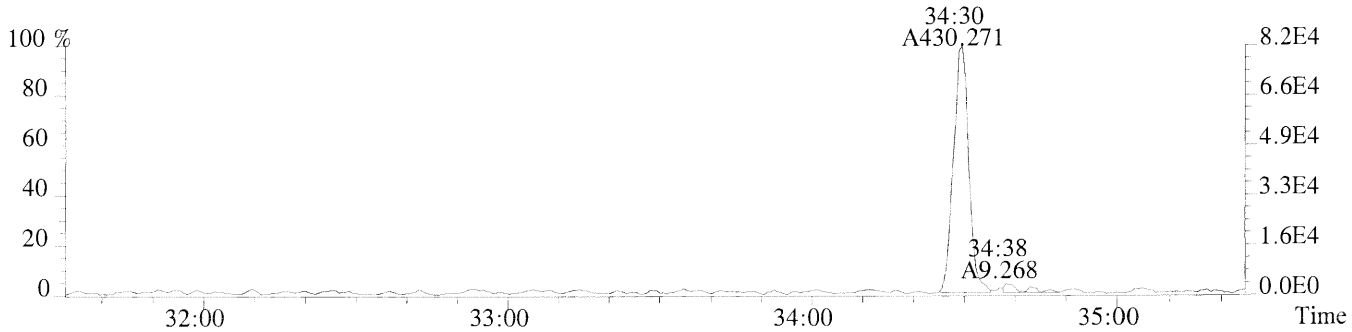
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



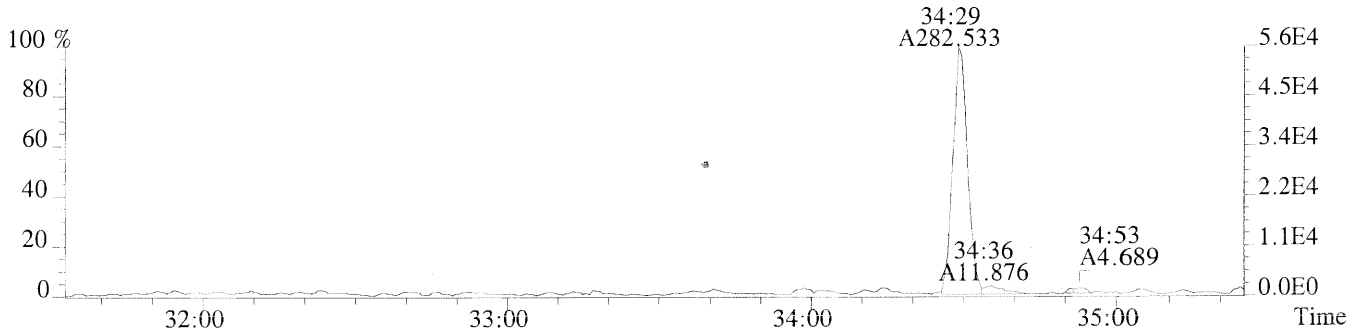
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



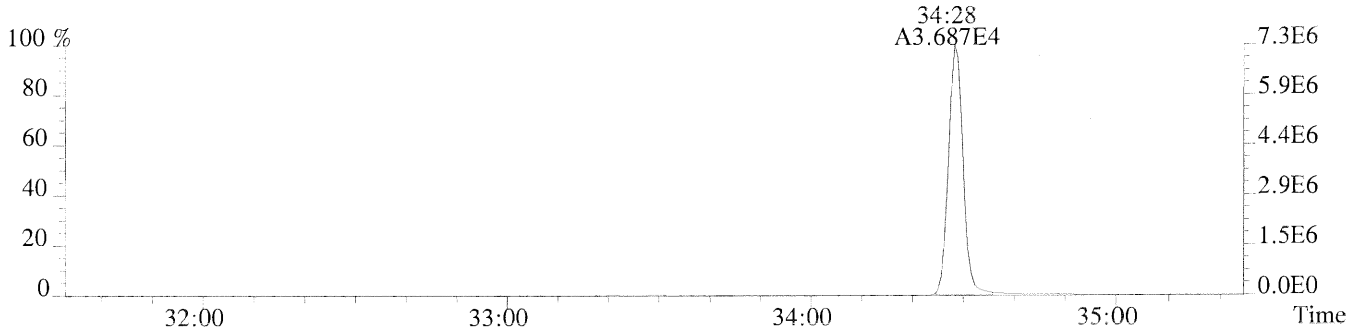
File:P169970 #1-351 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)



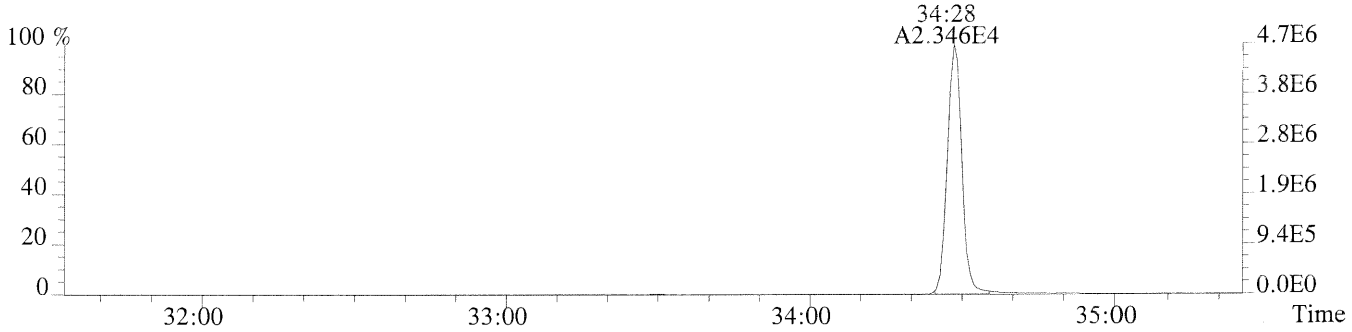
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



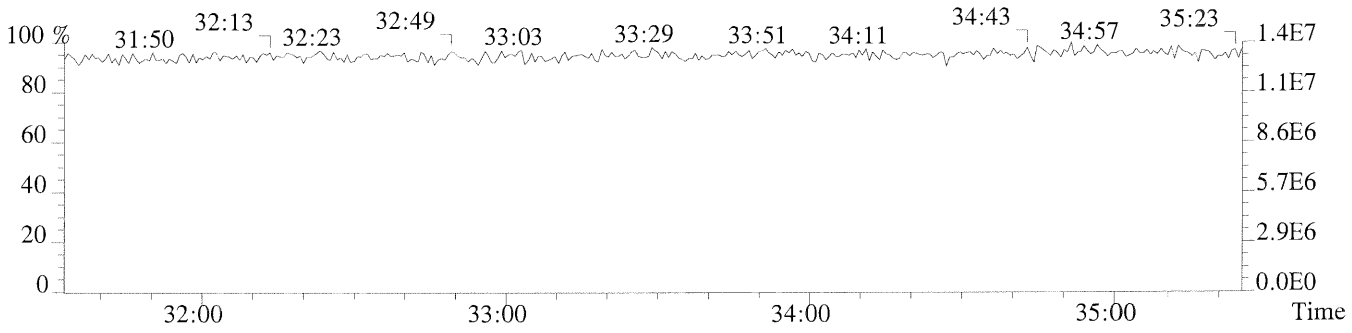
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)

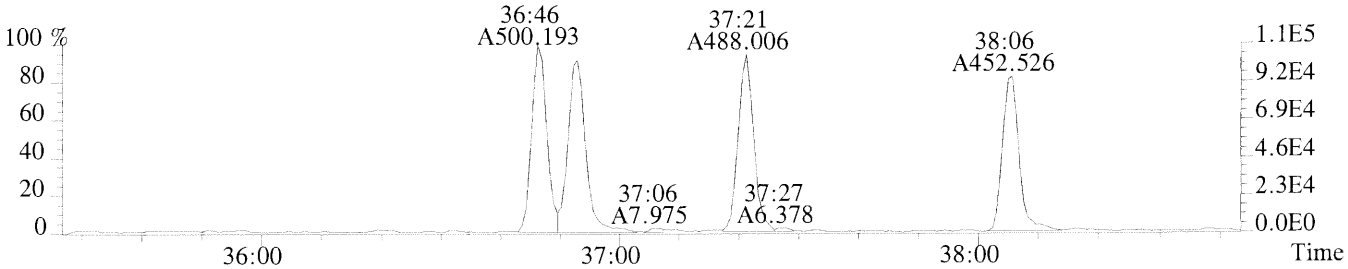


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

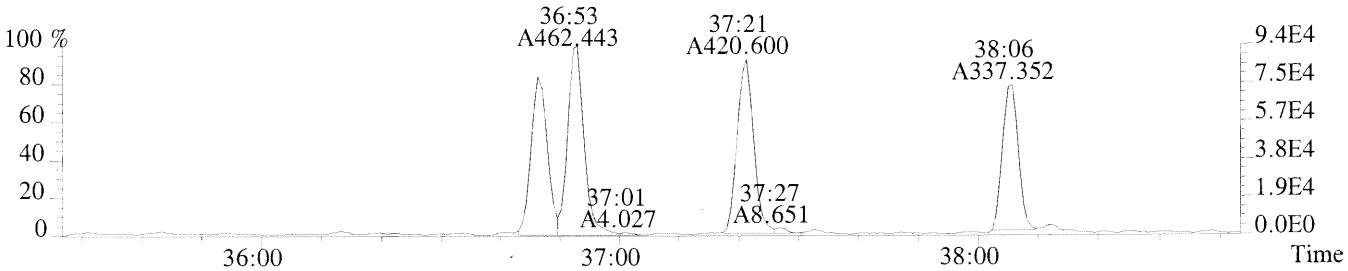


File:P169970 #1-298 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5

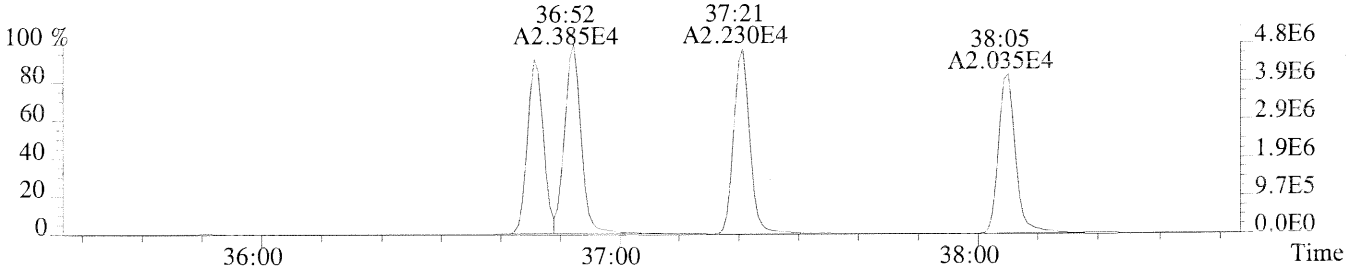
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1656.0,0.40%,F,T)



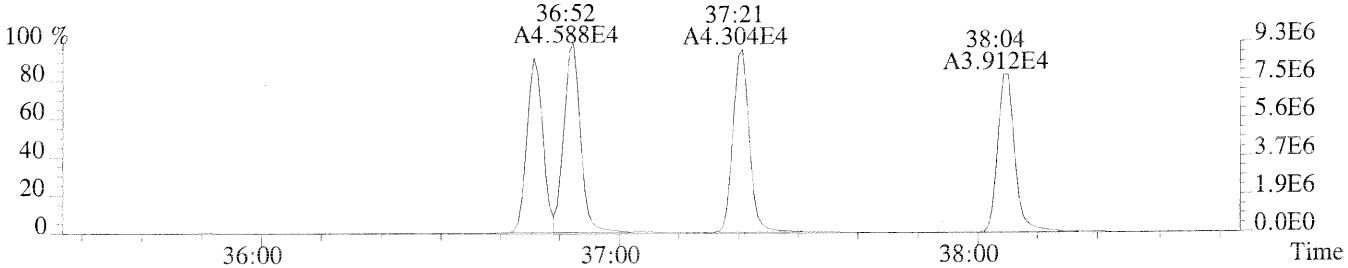
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)



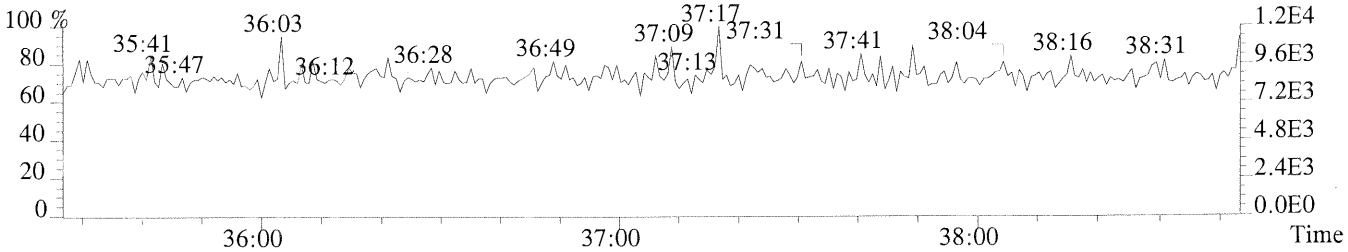
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1448.0,0.40%,F,T)



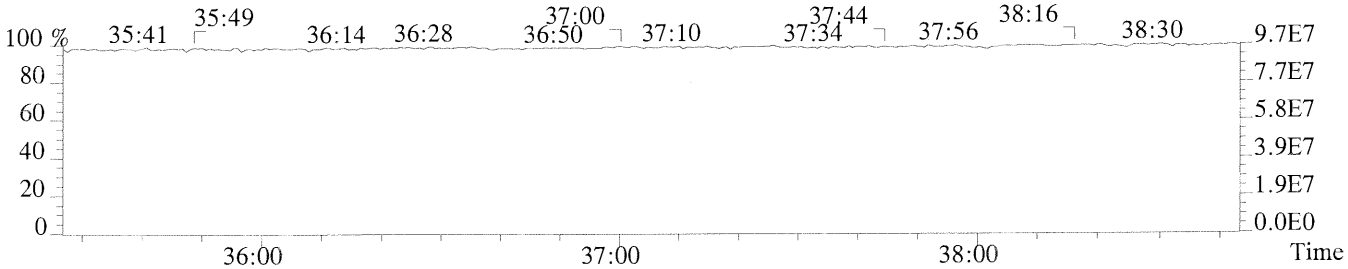
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2184.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

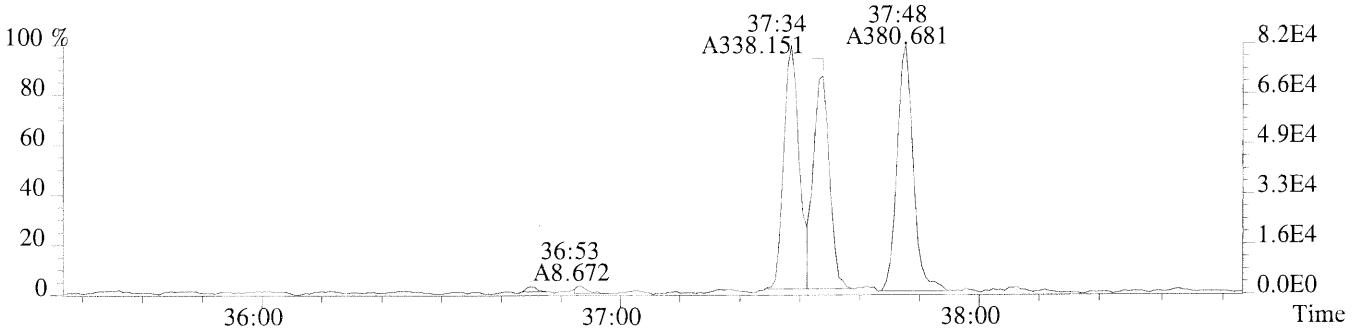


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

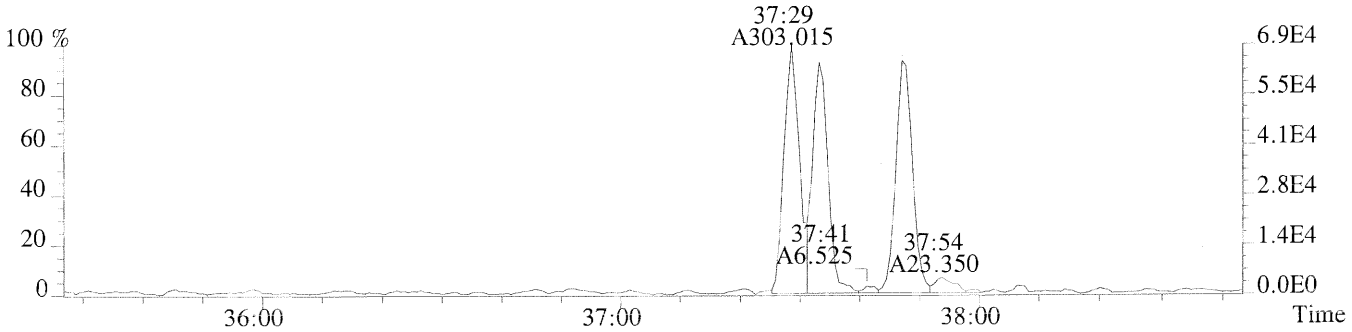


File:P169970 #1-298 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5

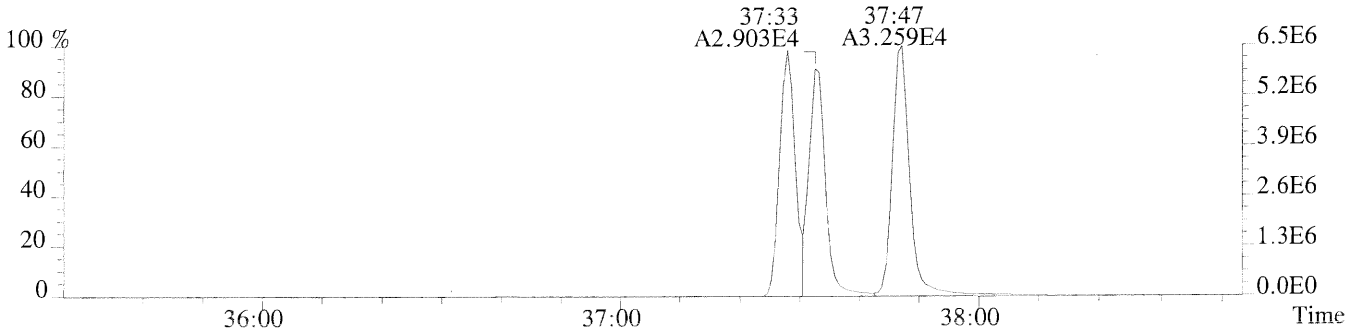
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.40%,F,T)



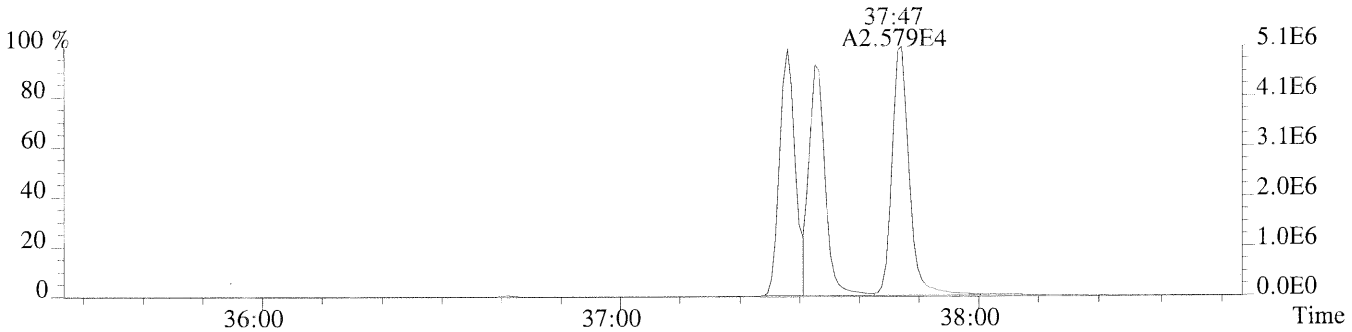
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



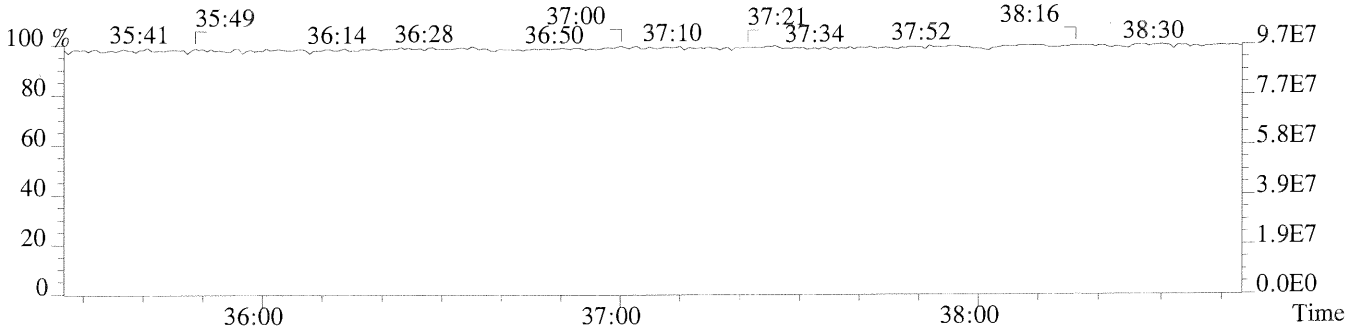
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1488.0,0.40%,F,T)

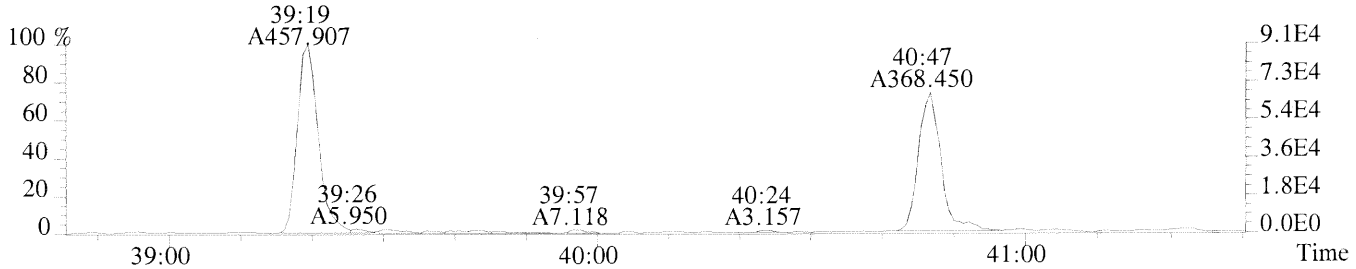


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

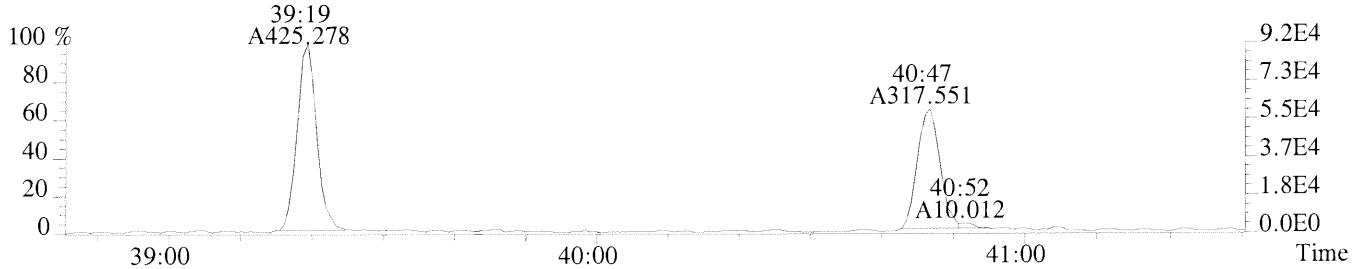


File:P169970 #1-250 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5

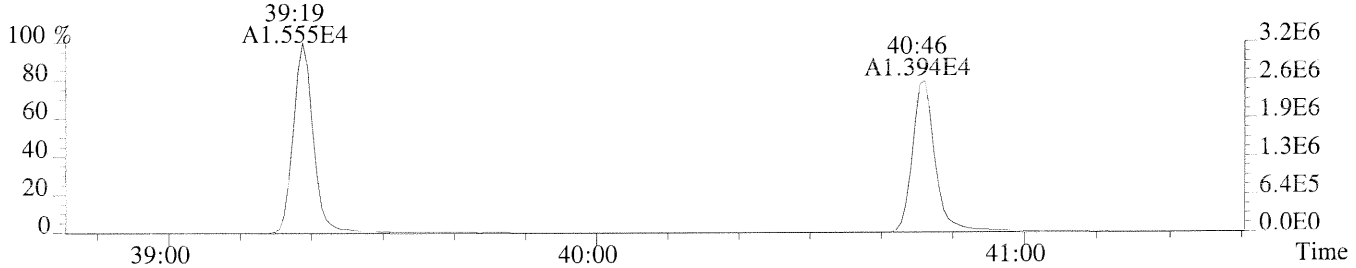
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,912.0,0.50%,F,T)



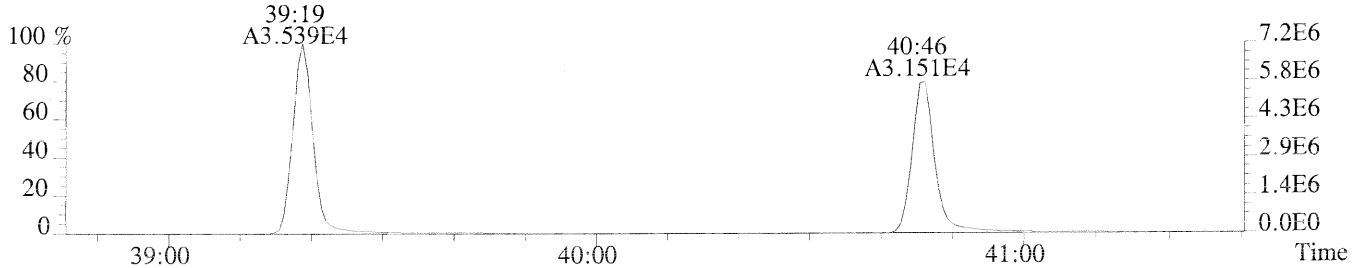
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1592.0,0.50%,F,T)



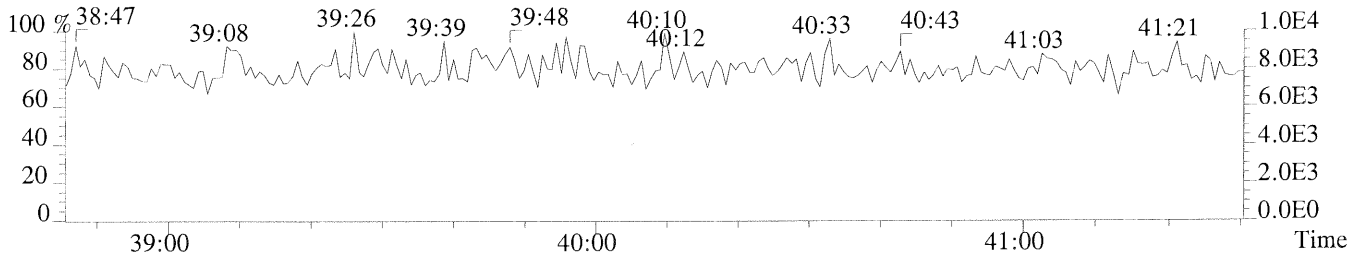
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2012.0,0.50%,F,T)



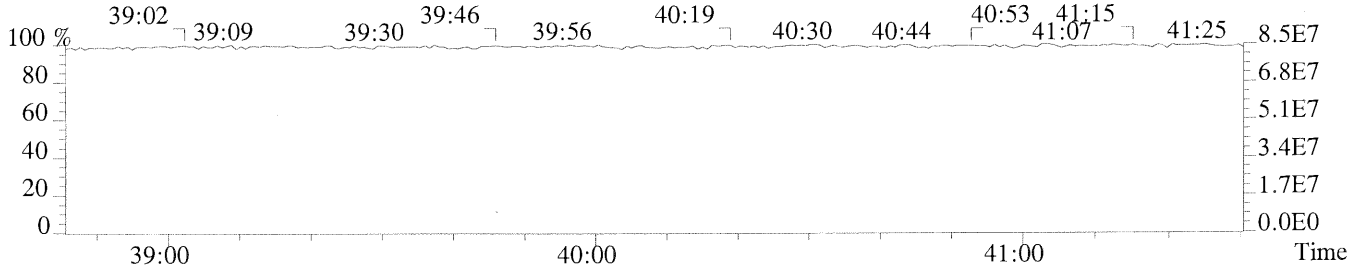
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3464.0,0.50%,F,T)



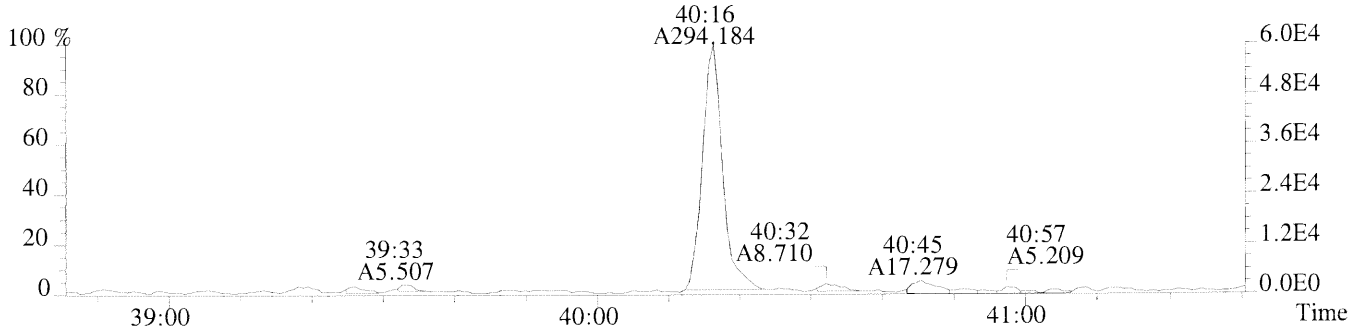
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



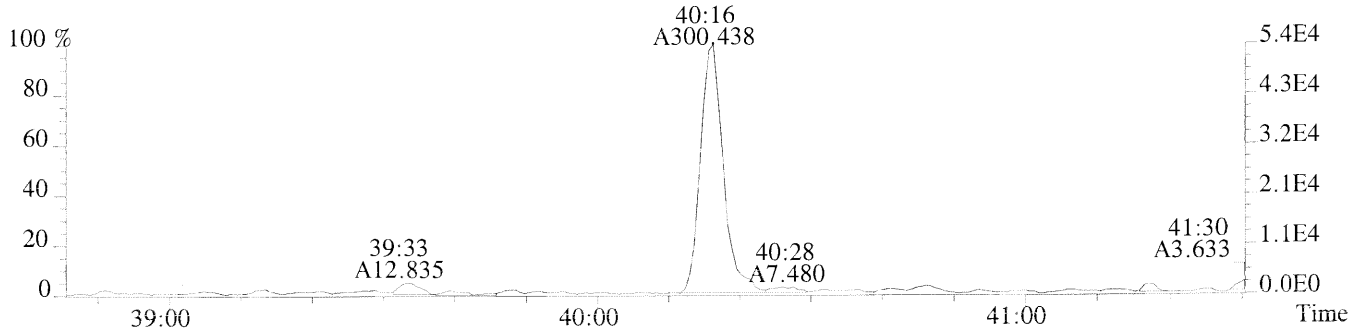
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



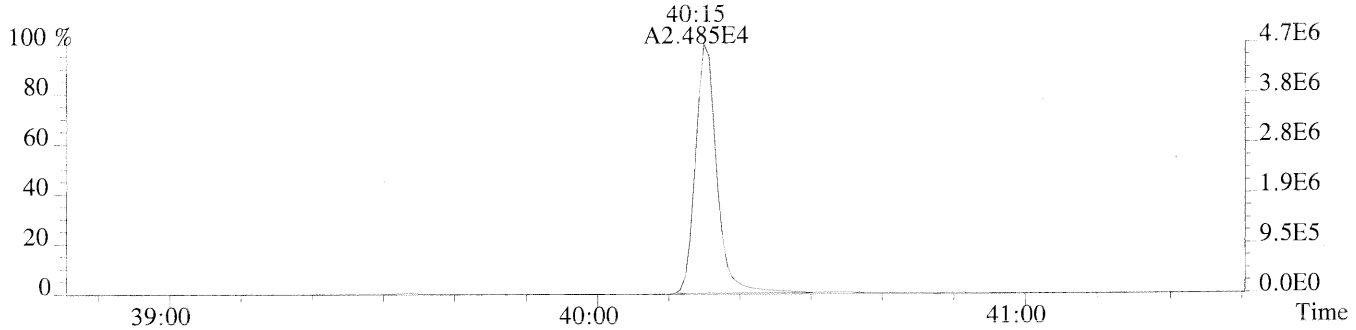
File:P169970 #1-250 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,892.0,0.40%,F,T)



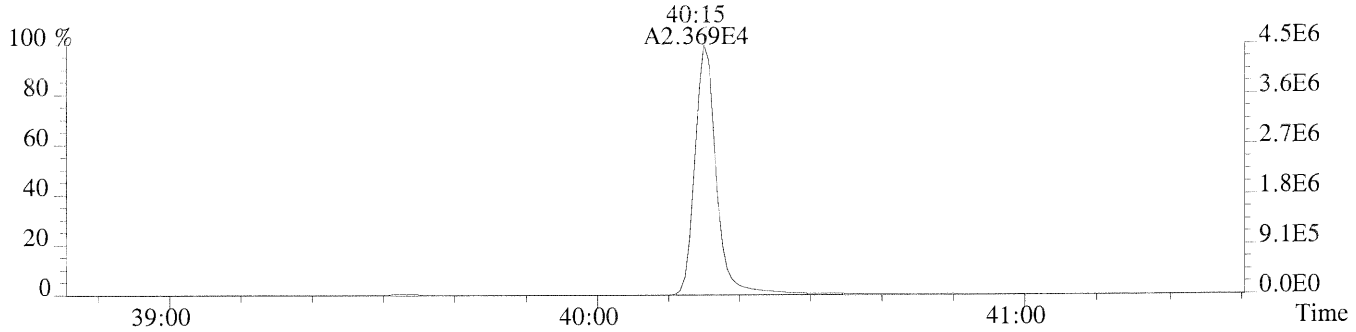
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



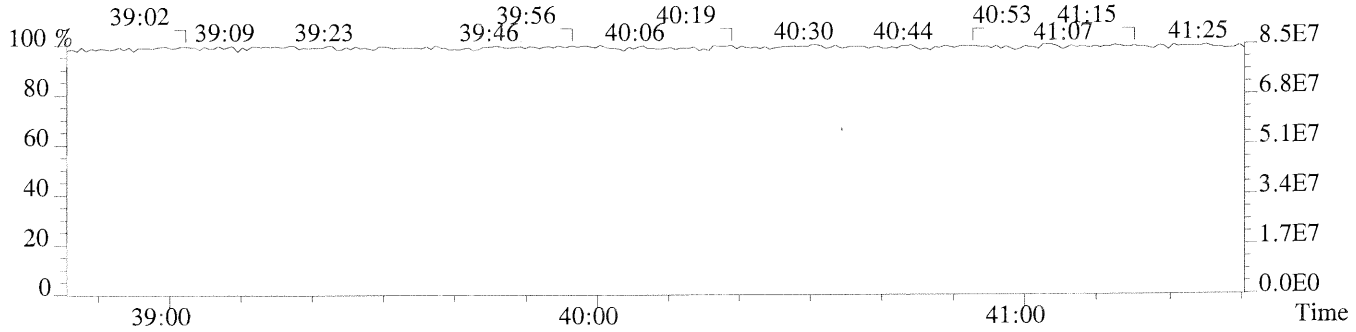
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1492.0,0.40%,F,T)



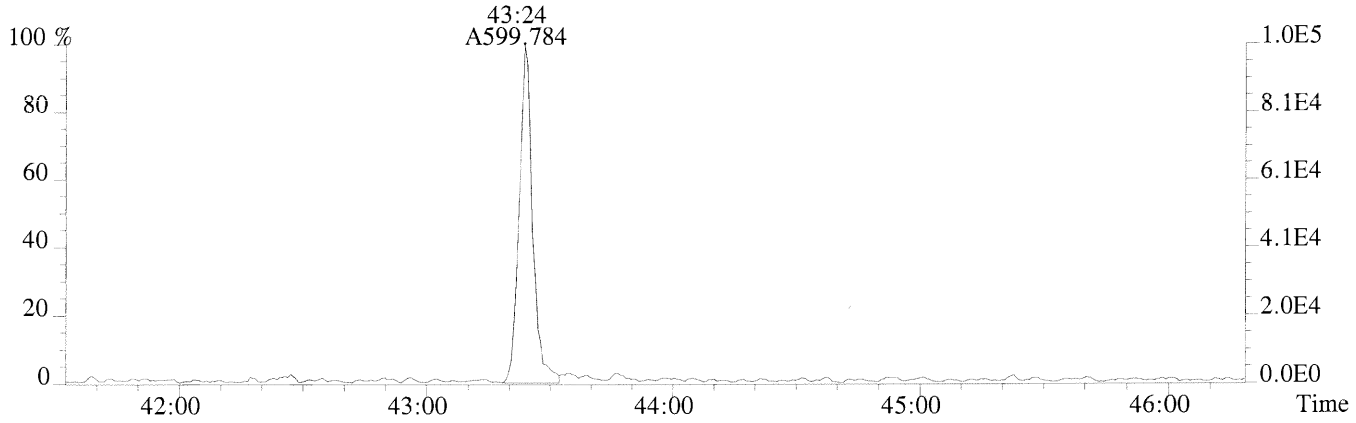
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



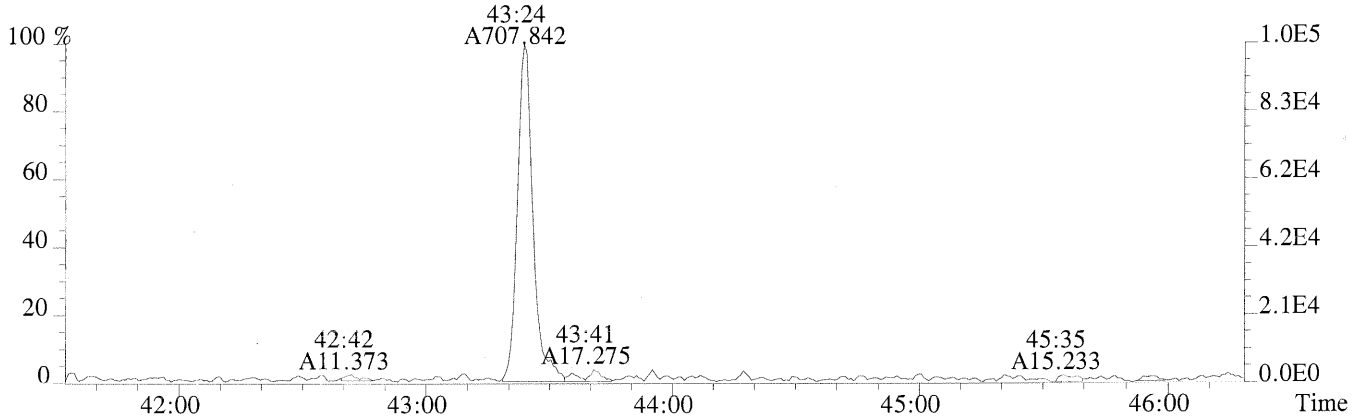
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



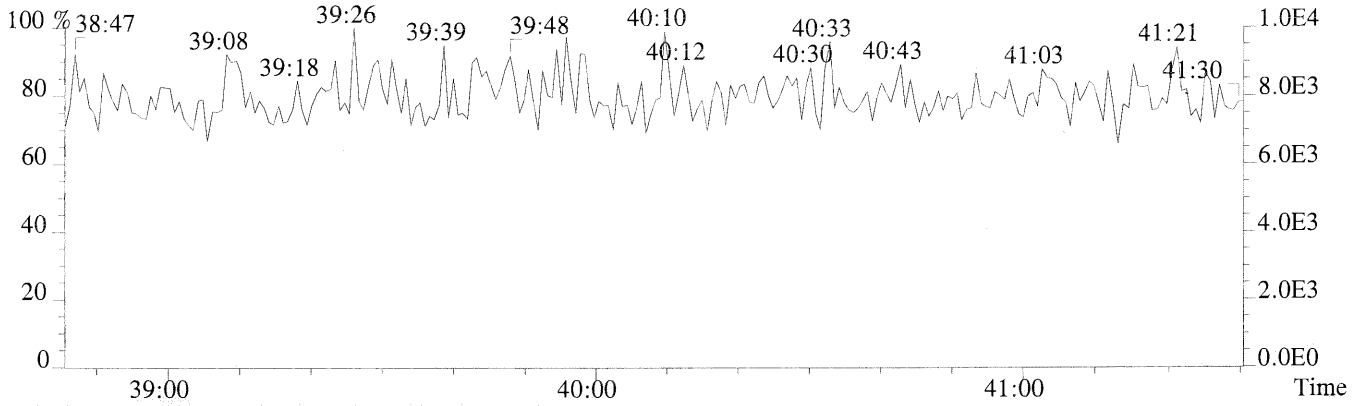
File:P169970 #1-438 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1288.0,0.40%,F,T)



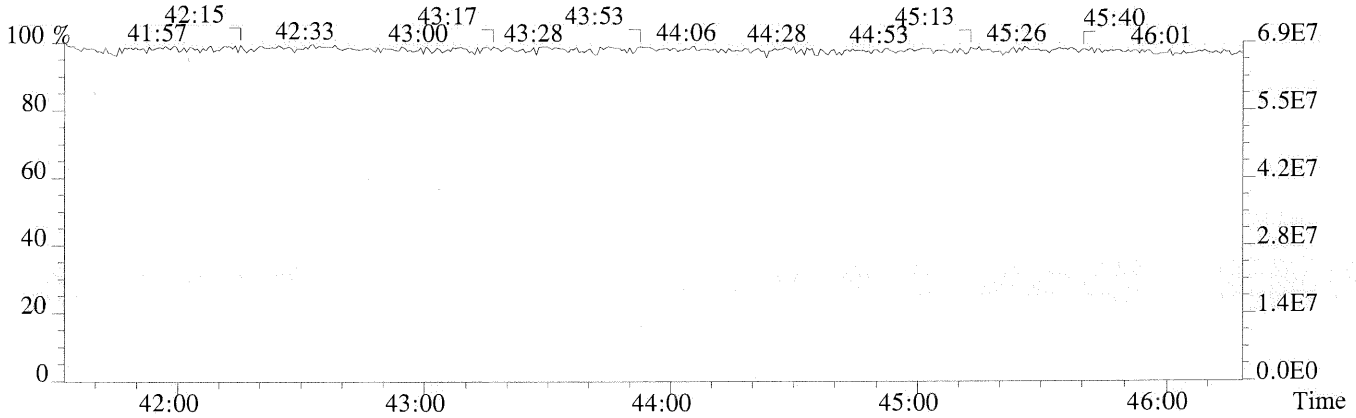
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1516.0,0.40%,F,T)



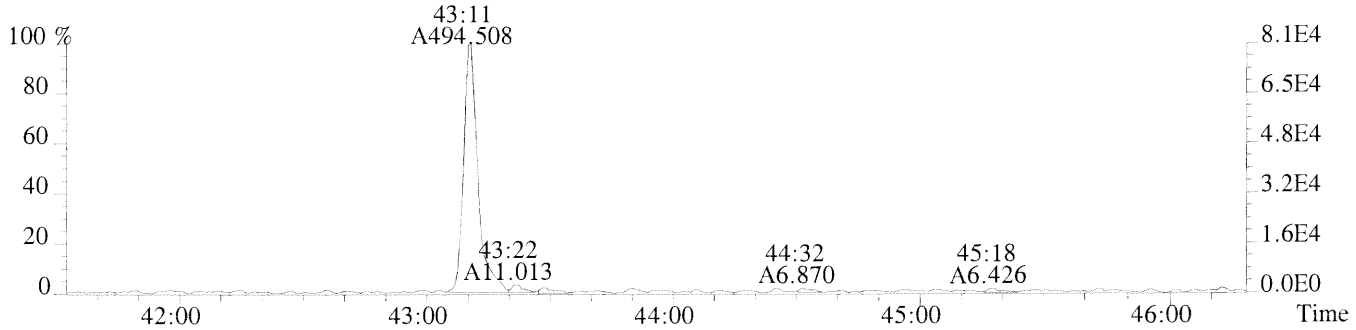
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



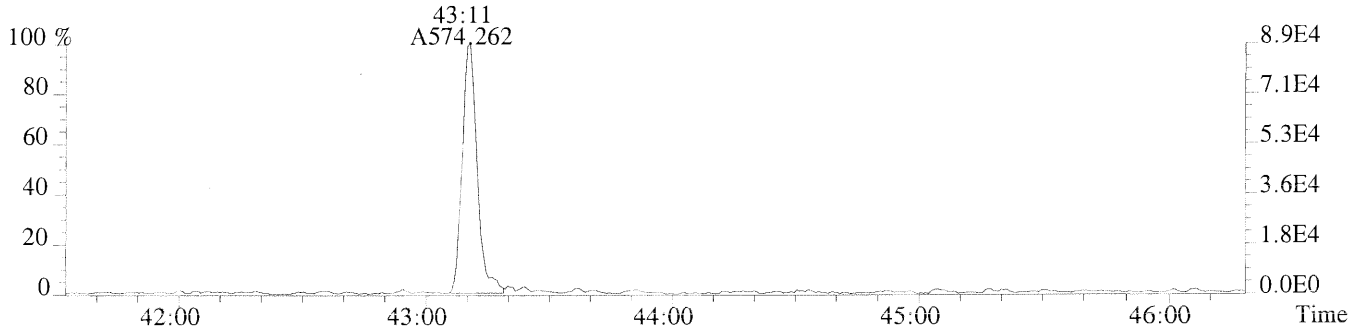
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



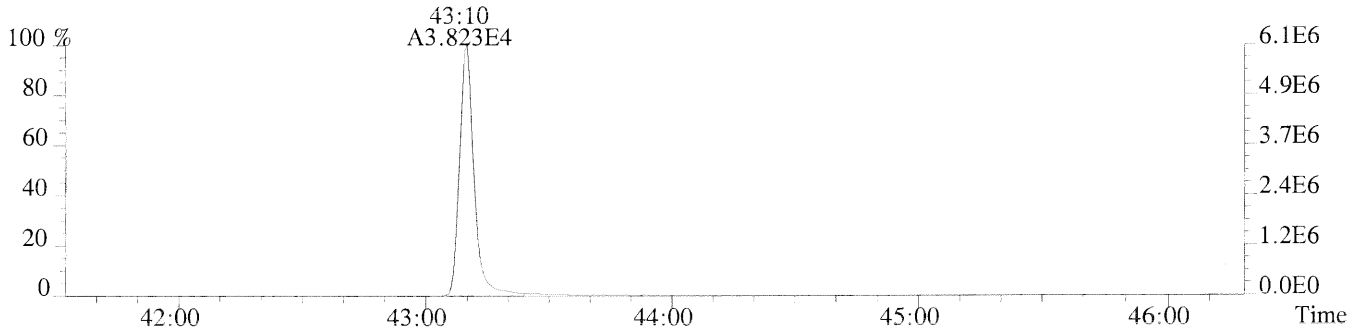
File:P169970 #1-438 Acq:25-MAR-2014 17:22:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC0.5/CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,784.0,0.40%,F,T)



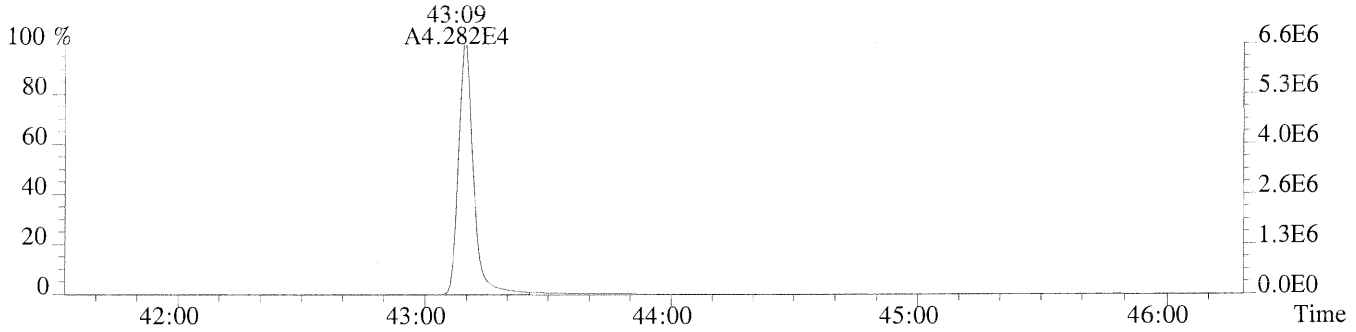
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1024.0,0.40%,F,T)



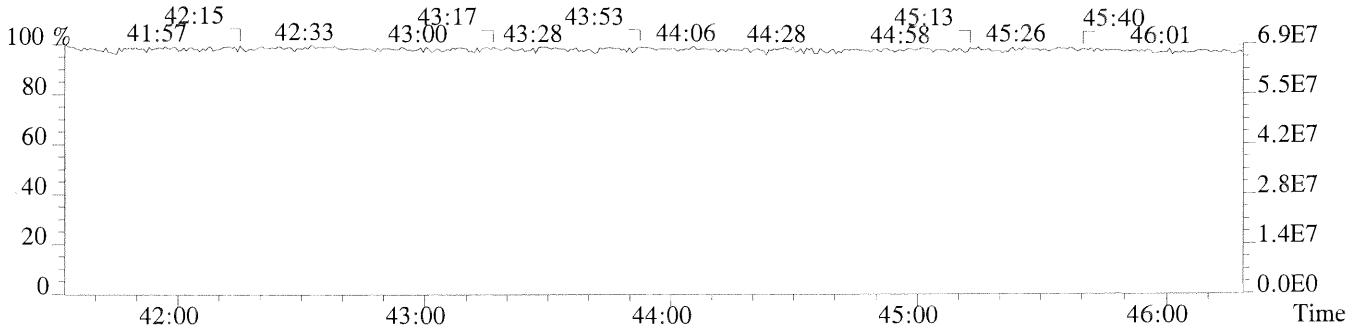
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,676.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1124.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66798

Run #2 Filename P169971 Samp: 1 Inj: 1 Acquired: 25-MAR-14 18:10:10
Processed: 26-MAR-14 10:00:48 Sample ID: ICAL HRCC1/CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:29	1.825e+02	2.294e+02	0.80	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:22	1.484e+03	9.711e+02	1.53	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	34:13	1.454e+03	8.707e+02	1.67	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:46	1.263e+03	9.849e+02	1.28	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:52	1.289e+03	1.113e+03	1.16	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:21	1.244e+03	9.781e+02	1.27	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	38:05	1.126e+03	9.103e+02	1.24	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:19	1.118e+03	1.025e+03	1.09	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:46	9.244e+02	9.085e+02	1.02	yes	no	1.324
10	Unk	OCDF	43:24	1.489e+03	1.685e+03	0.88	yes	no	1.307
11	Unk	2,3,7,8-TCDD	30:12	1.289e+02	1.615e+02	0.80	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:29	9.193e+02	6.461e+02	1.42	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:28	8.870e+02	6.322e+02	1.40	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:33	8.767e+02	7.018e+02	1.25	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:47	9.630e+02	7.762e+02	1.24	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	7.927e+02	6.981e+02	1.14	yes	no	1.016
17	Unk	OCDD	43:10	1.362e+03	1.444e+03	0.94	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:28	3.634e+04	4.618e+04	0.79	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:22	5.929e+04	3.768e+04	1.57	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	34:13	5.857e+04	3.706e+04	1.58	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:46	2.398e+04	4.685e+04	0.51	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:52	2.834e+04	5.372e+04	0.53	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:20	2.607e+04	4.999e+04	0.52	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	38:04	2.409e+04	4.594e+04	0.52	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:18	1.857e+04	4.219e+04	0.44	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	1.669e+04	3.841e+04	0.43	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	30:11	2.425e+04	3.162e+04	0.77	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:28	4.209e+04	2.680e+04	1.57	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:27	3.323e+04	2.614e+04	1.27	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:33	3.503e+04	2.746e+04	1.28	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:15	2.952e+04	2.817e+04	1.05	yes	no	0.862
32	IS	13C-OCDD	43:10	4.618e+04	5.200e+04	0.89	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:40	2.612e+04	3.298e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:47	3.818e+04	3.034e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:12	3.240e+02				no	1.125

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
66798

Run #2 Filename P169971 Samp: 1 Inj: 1 Acquired: 25-MAR-14 18:10:10
Processed: 26-MAR-14 08:19:501 LAB. ID: ICAL HRCC1/CS1

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.05e+04	9.84e+02	4.1e+01	4.87e+04	2.56e+03	1.9e+01
2	1,2,3,7,8-PeCDF	2.92e+05	8.60e+02	3.4e+02	1.92e+05	1.26e+03	1.5e+02
3	2,3,4,7,8-PeCDF	2.94e+05	8.60e+02	3.4e+02	1.77e+05	1.26e+03	1.4e+02
4	1,2,3,4,7,8-HxCDF	2.66e+05	1.16e+03	2.3e+02	2.07e+05	7.68e+02	2.7e+02
5	1,2,3,6,7,8-HxCDF	2.72e+05	1.16e+03	2.4e+02	2.24e+05	7.68e+02	2.9e+02
6	2,3,4,6,7,8-HxCDF	2.77e+05	1.16e+03	2.4e+02	2.16e+05	7.68e+02	2.8e+02
7	1,2,3,7,8,9-HxCDF	2.38e+05	1.16e+03	2.1e+02	1.90e+05	7.68e+02	2.5e+02
8	1,2,3,4,6,7,8-HpCDF	2.37e+05	8.32e+02	2.9e+02	2.11e+05	8.16e+02	2.6e+02
9	1,2,3,4,7,8,9-HpCDF	1.72e+05	8.32e+02	2.1e+02	1.70e+05	8.16e+02	2.1e+02
10	OCDF	2.38e+05	1.24e+03	1.9e+02	2.77e+05	1.90e+03	1.5e+02
11	2,3,7,8-TCDD	3.20e+04	1.28e+03	2.5e+01	3.66e+04	1.50e+03	2.4e+01
12	1,2,3,7,8-PeCDD	1.96e+05	1.47e+03	1.3e+02	1.31e+05	7.76e+02	1.7e+02
13	1,2,3,4,7,8-HxCDD	1.89e+05	6.40e+02	3.0e+02	1.41e+05	1.12e+03	1.3e+02
14	1,2,3,6,7,8-HxCDD	1.84e+05	6.40e+02	2.9e+02	1.45e+05	1.12e+03	1.3e+02
15	1,2,3,7,8,9-HxCDD	2.02e+05	6.40e+02	3.2e+02	1.65e+05	1.12e+03	1.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.64e+05	1.02e+03	1.6e+02	1.41e+05	8.28e+02	1.7e+02
17	OCDD	2.16e+05	6.80e+02	3.2e+02	2.35e+05	7.12e+02	3.3e+02
18	13C-2,3,7,8-TCDF	8.01e+06	1.09e+03	7.3e+03	1.02e+07	1.95e+03	5.2e+03
19	13C-1,2,3,7,8-PeCDF	1.14e+07	9.76e+02	1.2e+04	7.25e+06	9.68e+02	7.5e+03
20	13C-2,3,4,7,8-PeCDF	1.19e+07	9.76e+02	1.2e+04	7.41e+06	9.68e+02	7.7e+03
21	13C-1,2,3,4,7,8-HxCDF	5.24e+06	8.24e+02	6.4e+03	1.01e+07	1.60e+03	6.3e+03
22	13C-1,2,3,6,7,8-HxCDF	5.94e+06	8.24e+02	7.2e+03	1.12e+07	1.60e+03	7.0e+03
23	13C-2,3,4,6,7,8-HxCDF	5.71e+06	8.24e+02	6.9e+03	1.10e+07	1.60e+03	6.9e+03
24	13C-1,2,3,7,8,9-HxCDF	5.05e+06	8.24e+02	6.1e+03	9.55e+06	1.60e+03	6.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.82e+06	3.04e+03	1.3e+03	8.67e+06	5.60e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.17e+06	3.04e+03	1.0e+03	7.29e+06	5.60e+03	1.3e+03
27	13C-2,3,7,8-TCDD	5.59e+06	4.31e+03	1.3e+03	7.28e+06	1.98e+03	3.7e+03
28	13C-1,2,3,7,8-PeCDD	8.50e+06	1.25e+03	6.8e+03	5.36e+06	9.44e+02	5.7e+03
29	13C-1,2,3,4,7,8-HxCDD	7.41e+06	1.42e+03	5.2e+03	5.85e+06	1.40e+03	4.2e+03
30	13C-1,2,3,6,7,8-HxCDD	7.36e+06	1.42e+03	5.2e+03	5.74e+06	1.40e+03	4.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.64e+06	1.88e+03	3.0e+03	5.36e+06	1.14e+03	4.7e+03
32	13C-OCDD	7.52e+06	8.92e+02	8.4e+03	8.40e+06	1.00e+03	8.4e+03
33	13C-1,2,3,4-TCDD	6.01e+06	4.31e+03	1.4e+03	7.54e+06	1.98e+03	3.8e+03
34	13C-1,2,3,7,8,9-HxCDD	7.86e+06	1.42e+03	5.5e+03	6.28e+06	1.40e+03	4.5e+03
35	37Cl-2,3,7,8-TCDD	7.10e+04	1.99e+03	3.6e+01			

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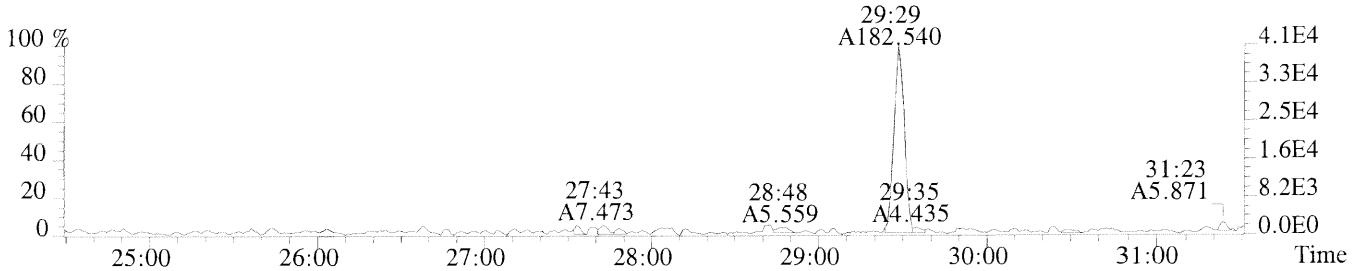
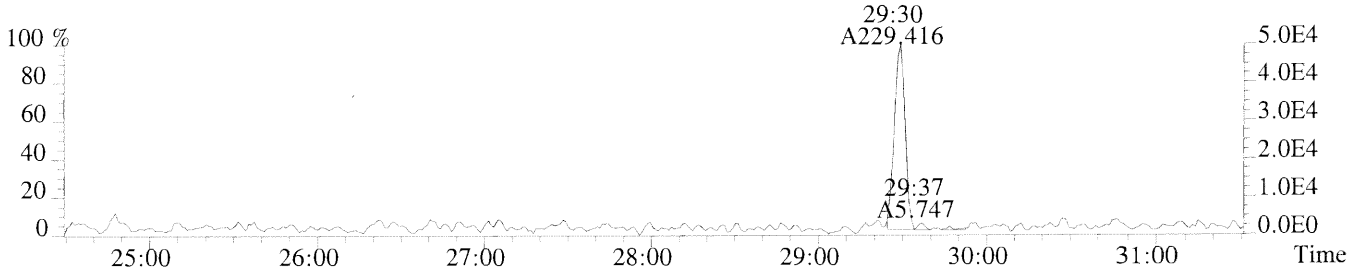
File:P169971 #1-442 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1

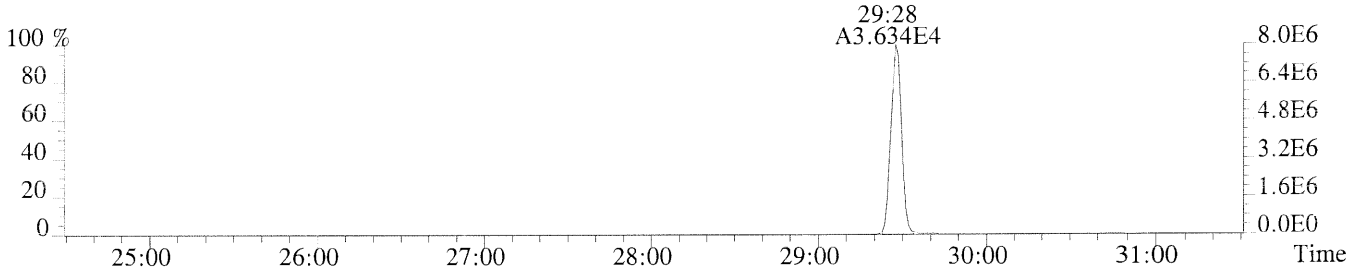
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



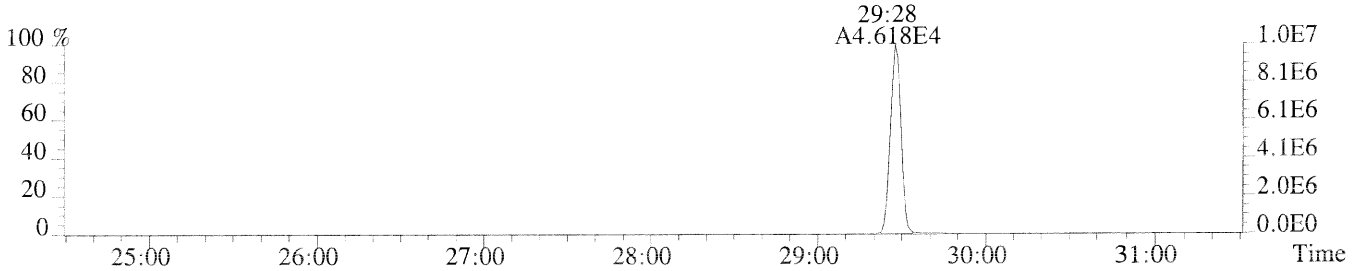
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2560.0,1.00%,F,T)



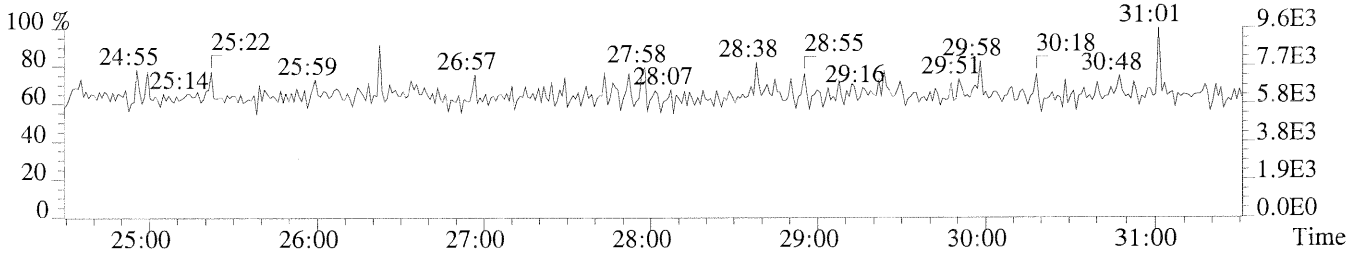
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



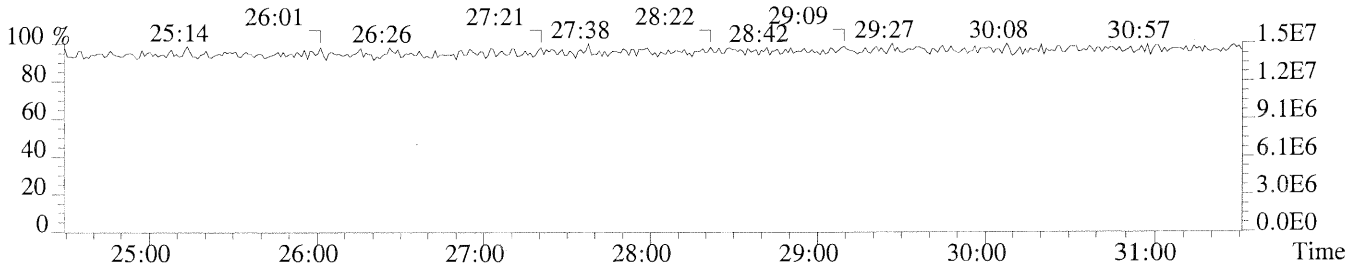
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1948.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

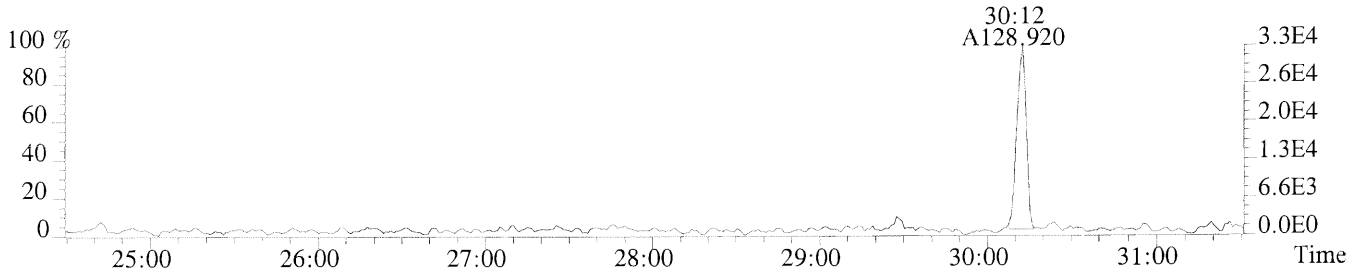


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

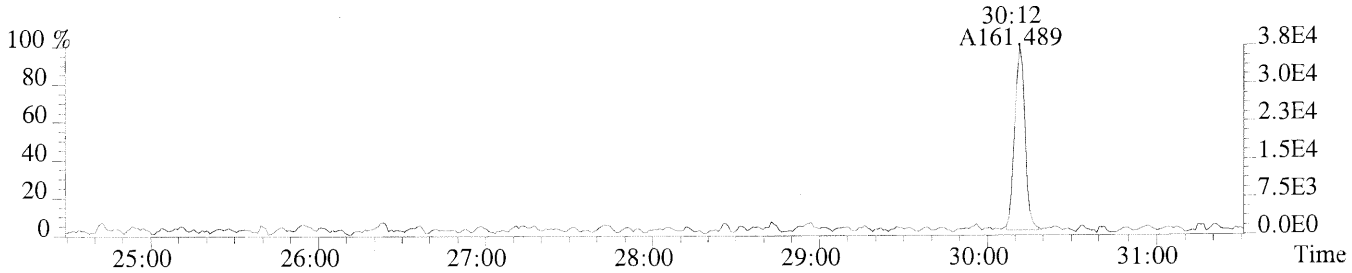


File:P169971 #1-442 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1

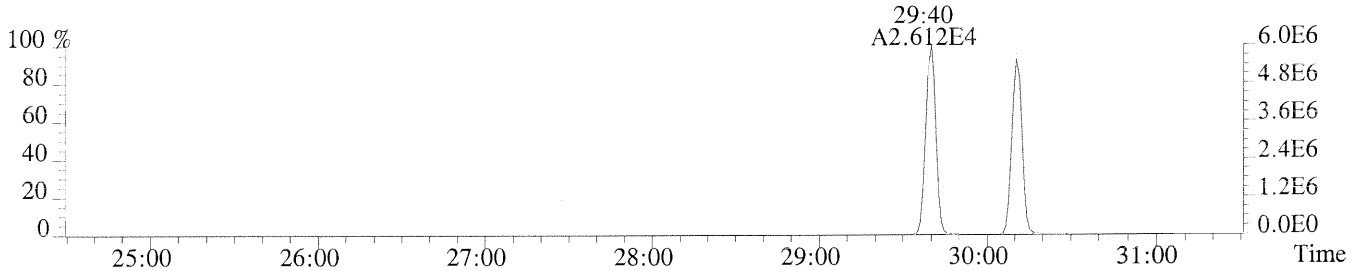
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1276.0,1.00%,F,T)



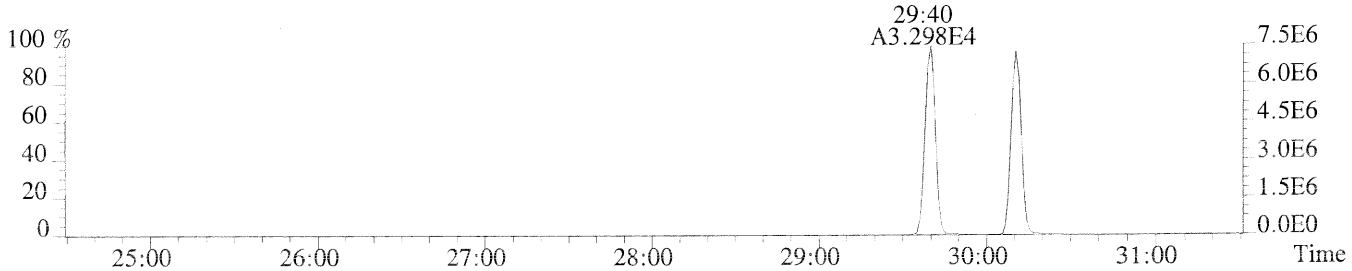
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1504.0,1.00%,F,T)



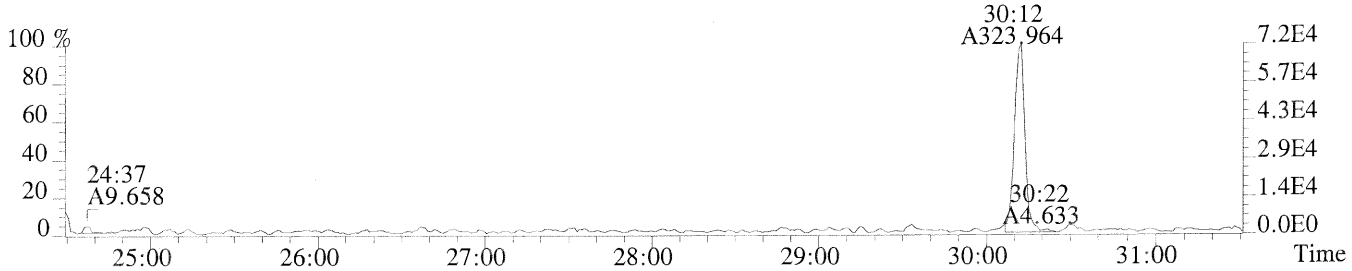
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4308.0,1.00%,F,T)



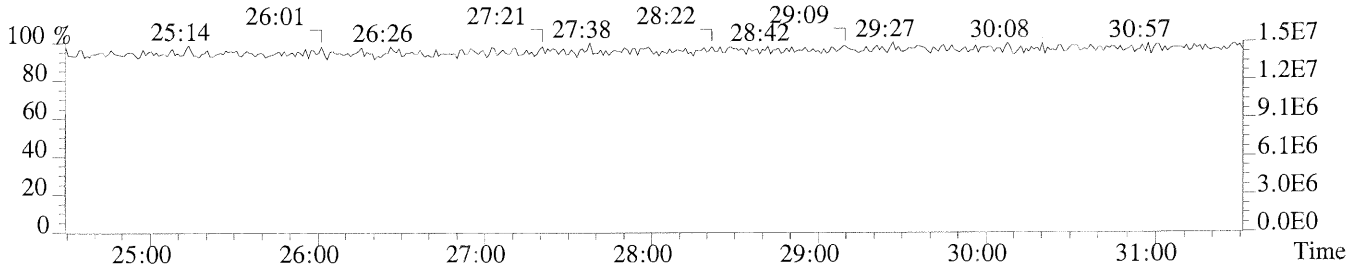
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1976.0,1.00%,F,T)



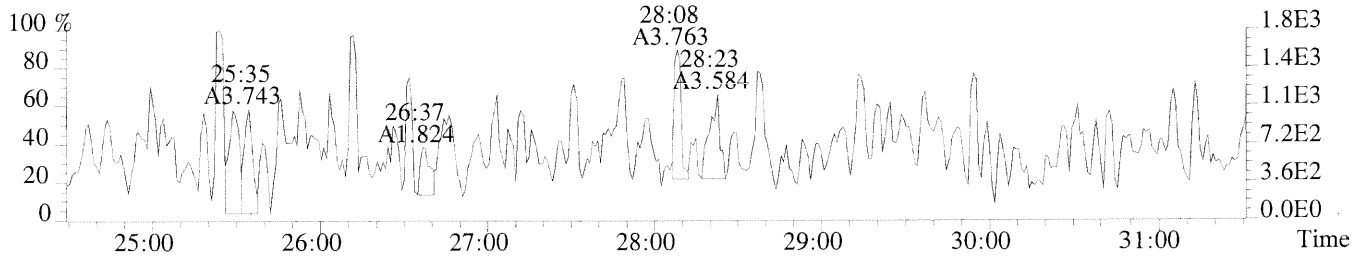
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1992.0,1.00%,F,T)



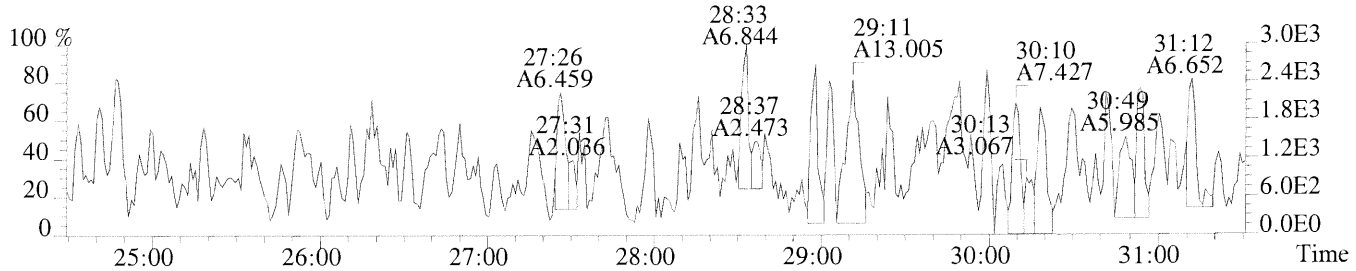
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



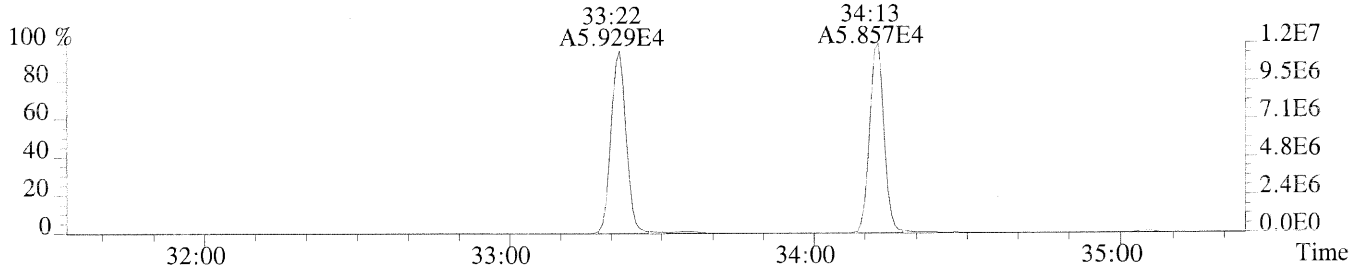
File:P169971 #1-442 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



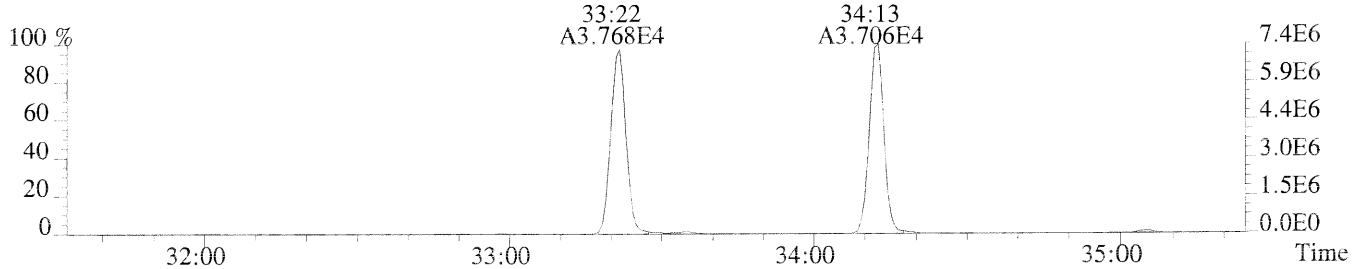
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1176.0,1.00%,F,T)



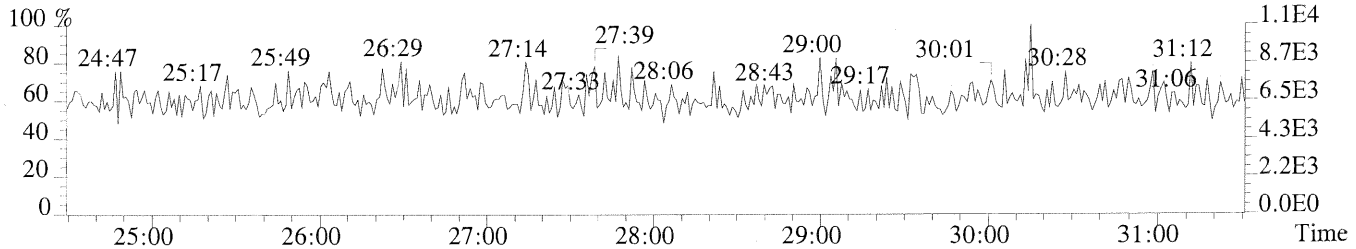
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



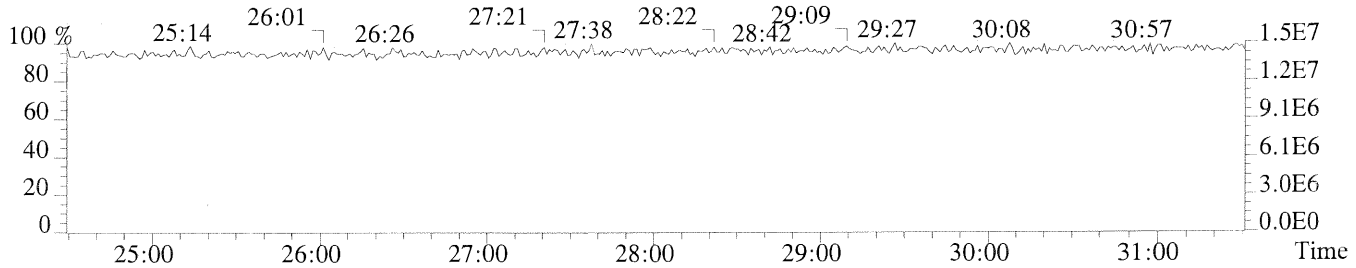
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,968.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

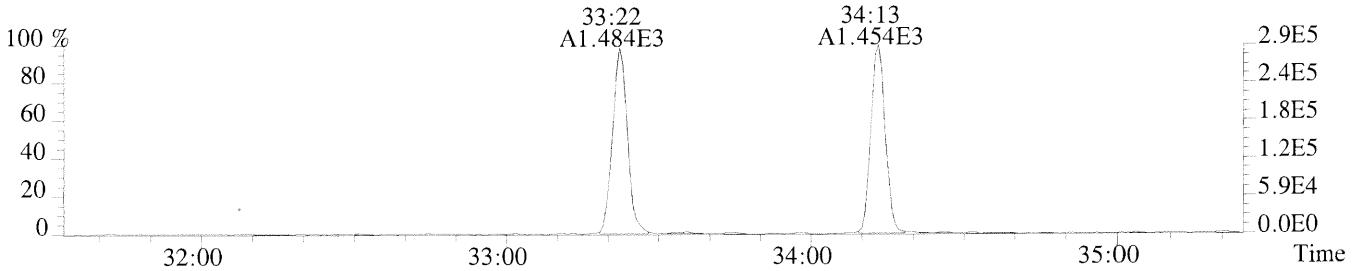


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

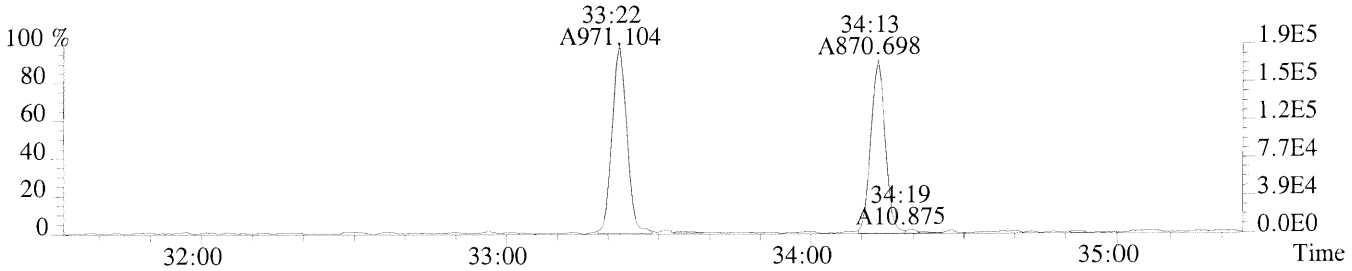


File:P169971 #1-350 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1

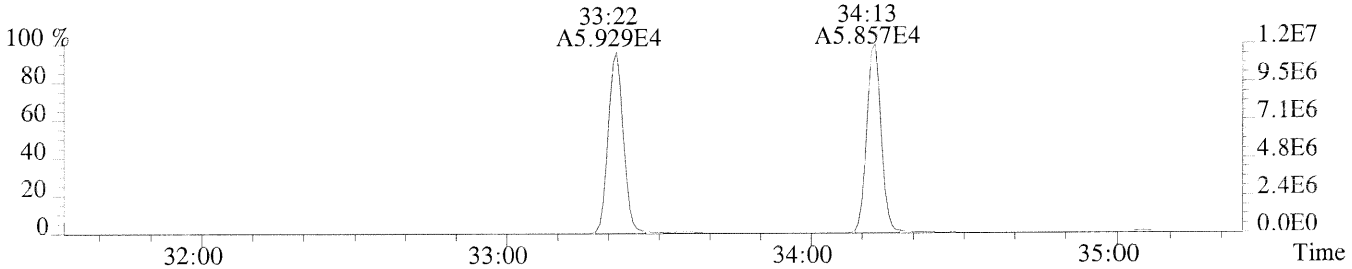
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



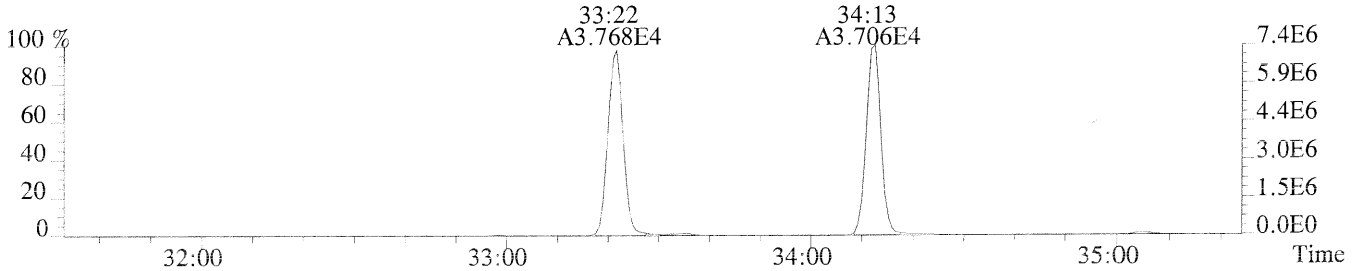
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



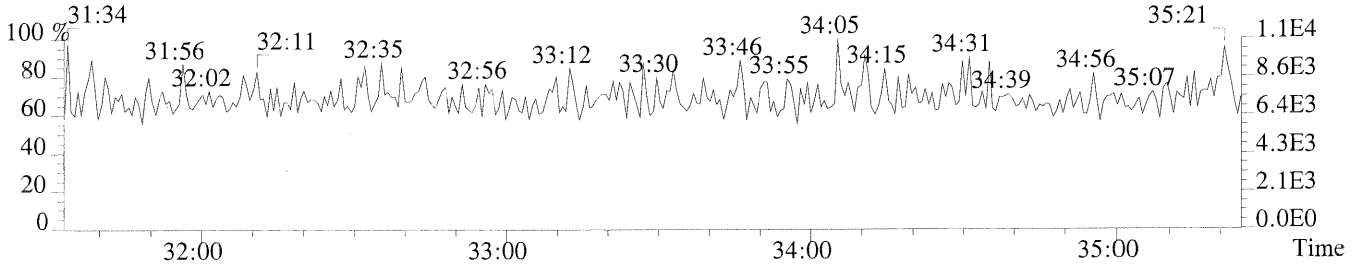
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



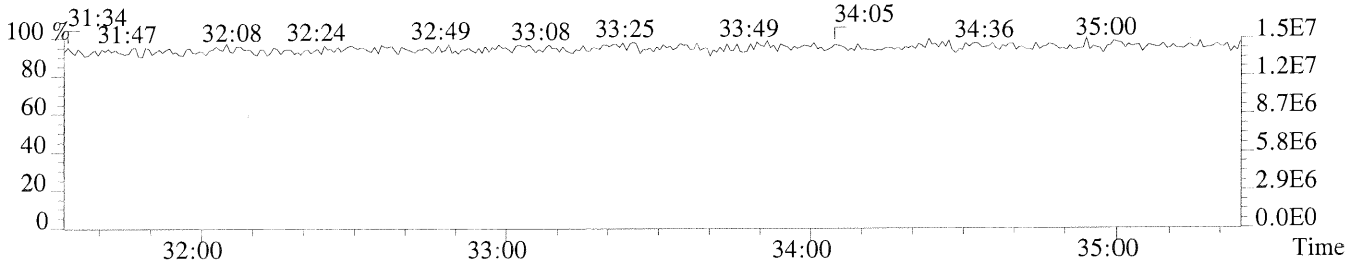
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,968.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

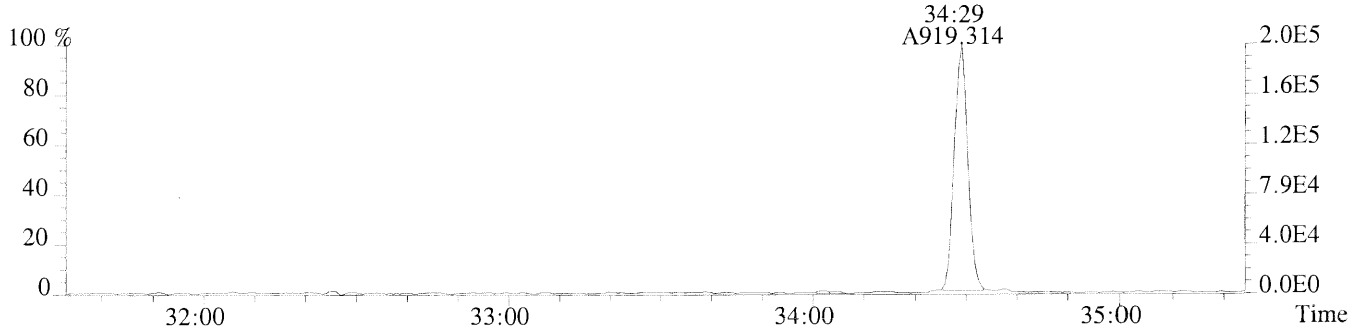


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

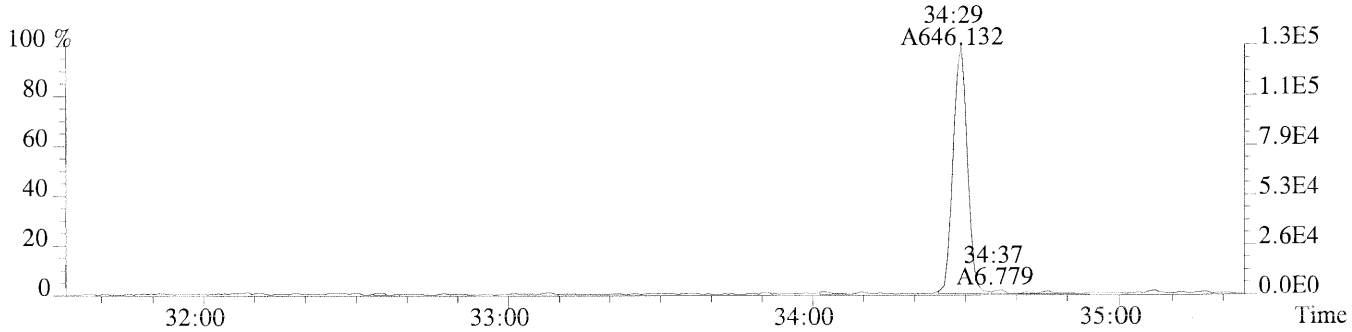


File:P169971 #1-350 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1

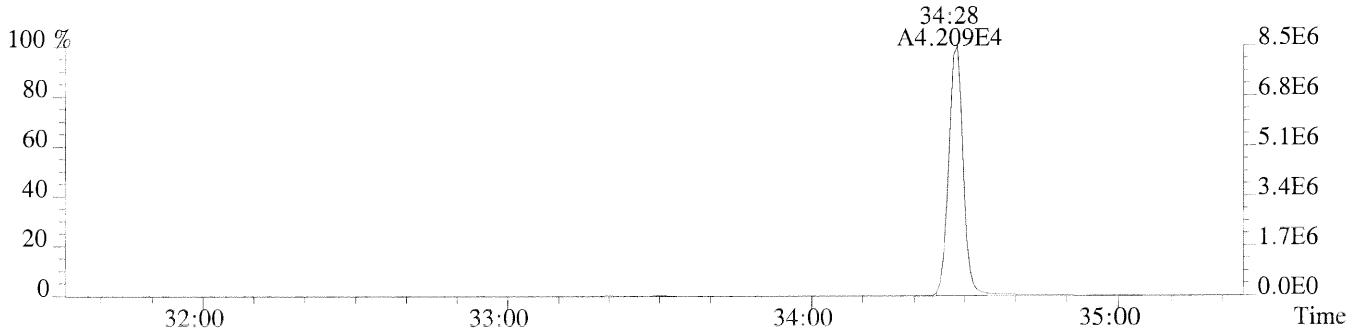
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



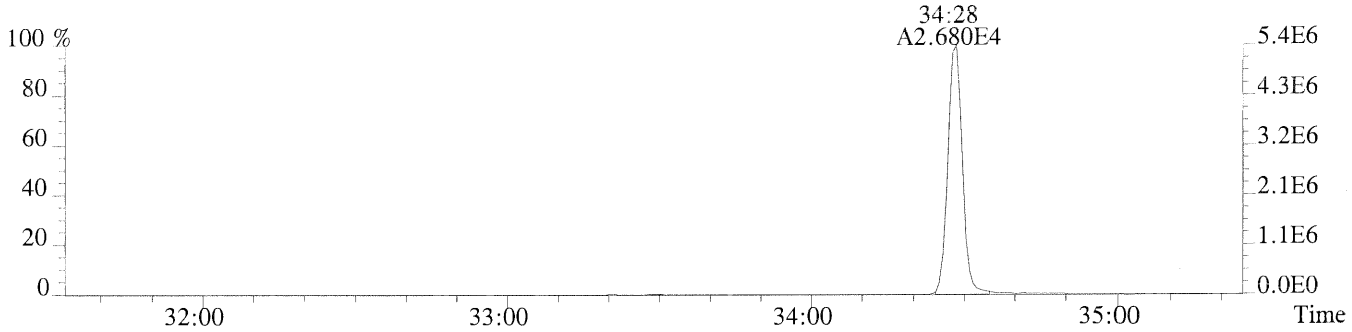
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



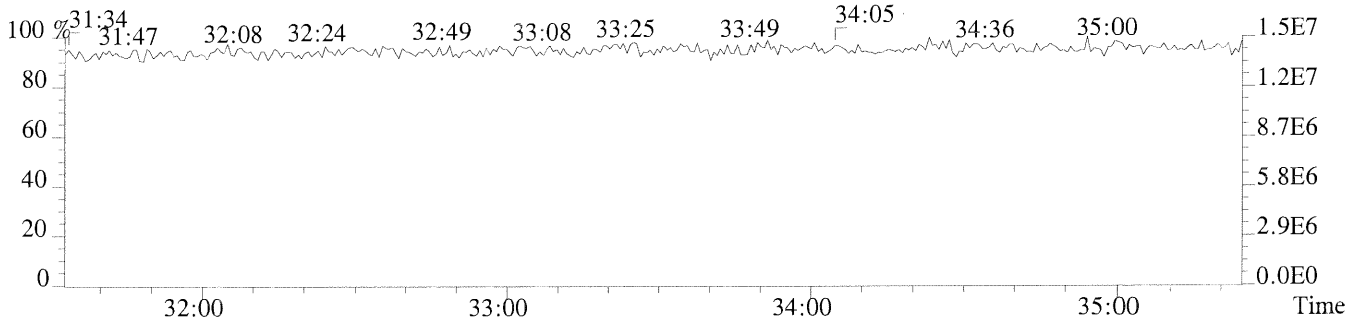
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)

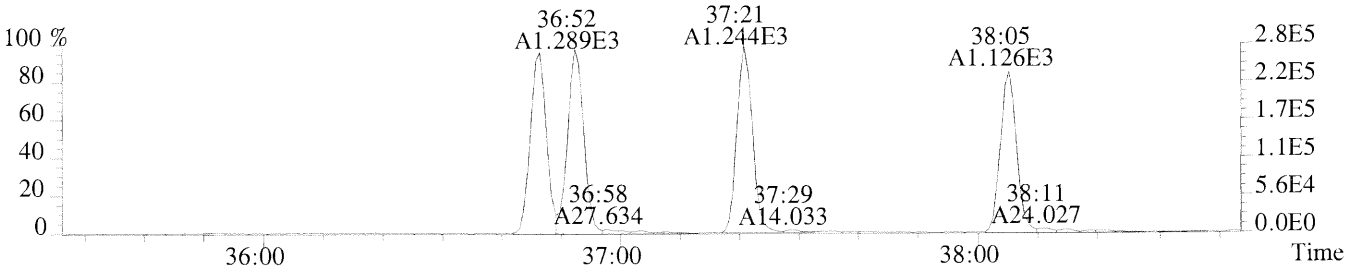


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

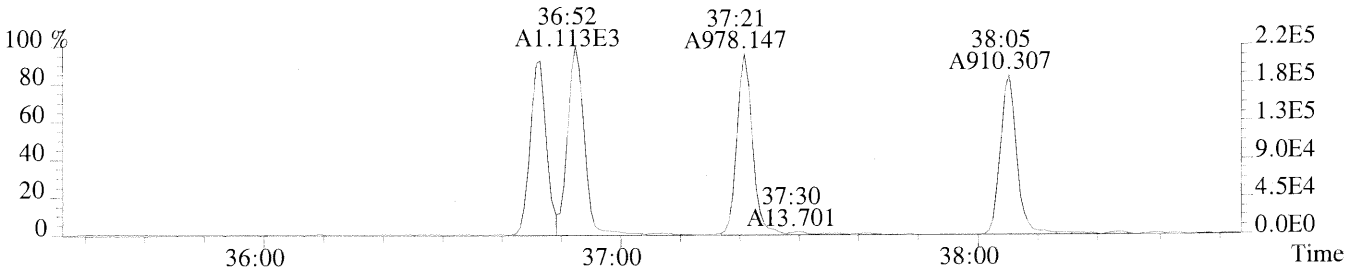


File:P169971 #1-299 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1

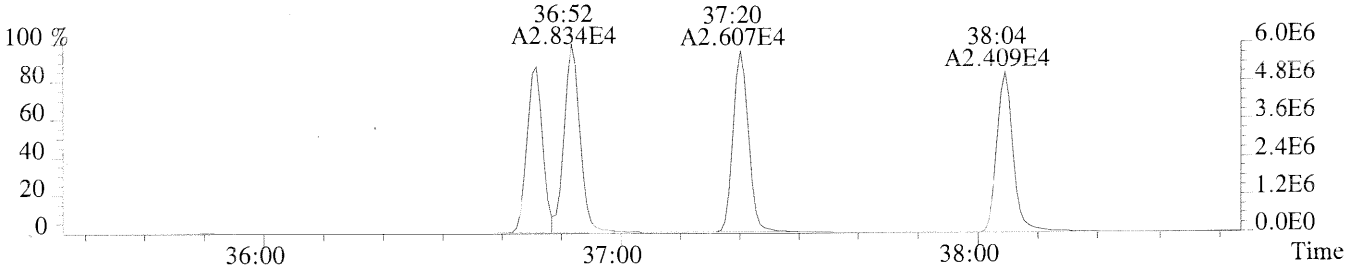
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



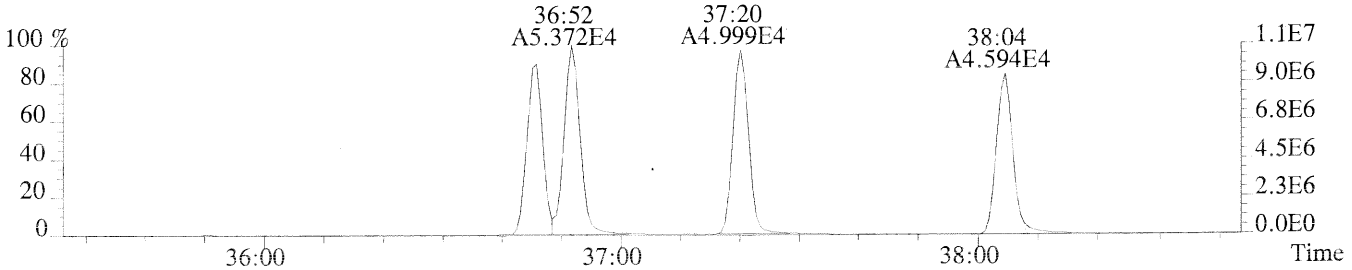
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.40%,F,T)



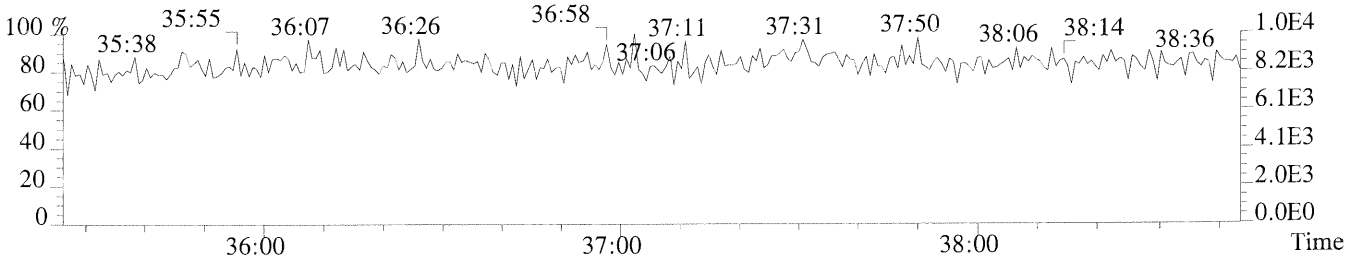
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



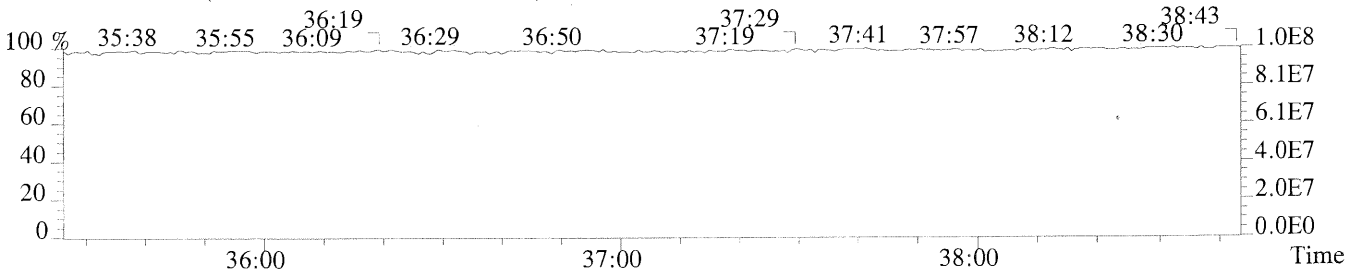
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

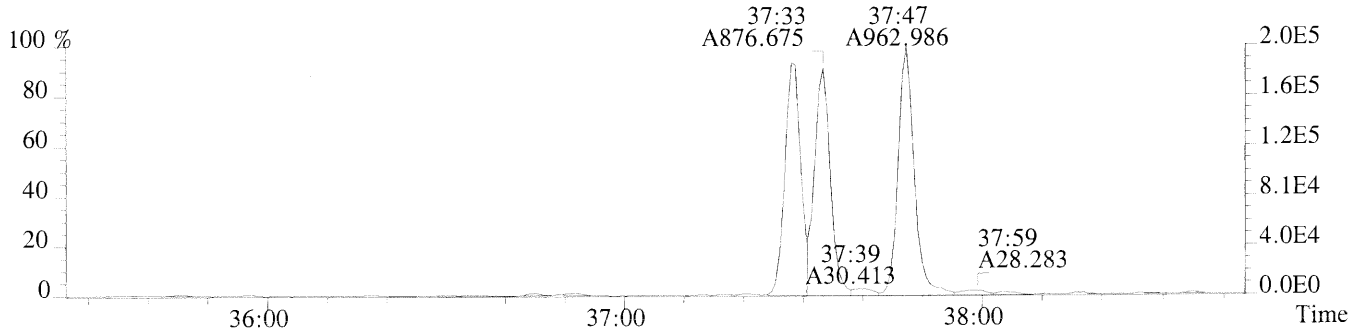


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

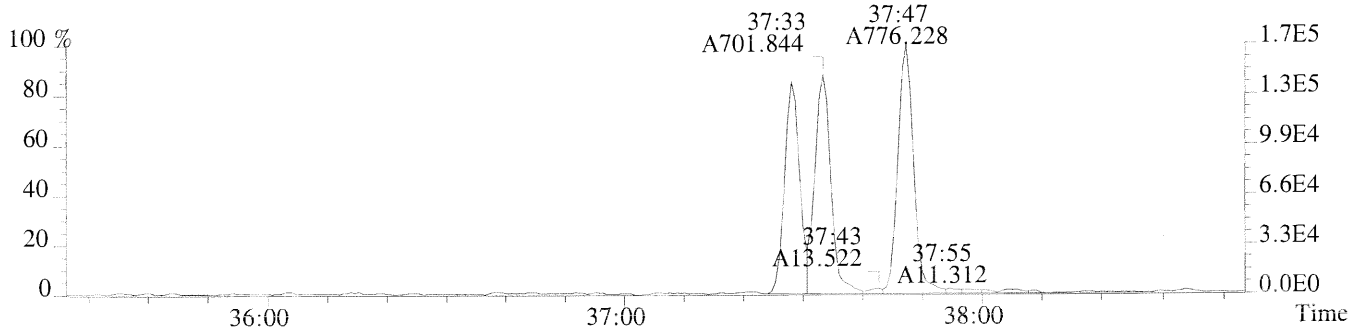


File:P169971 #1-299 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1

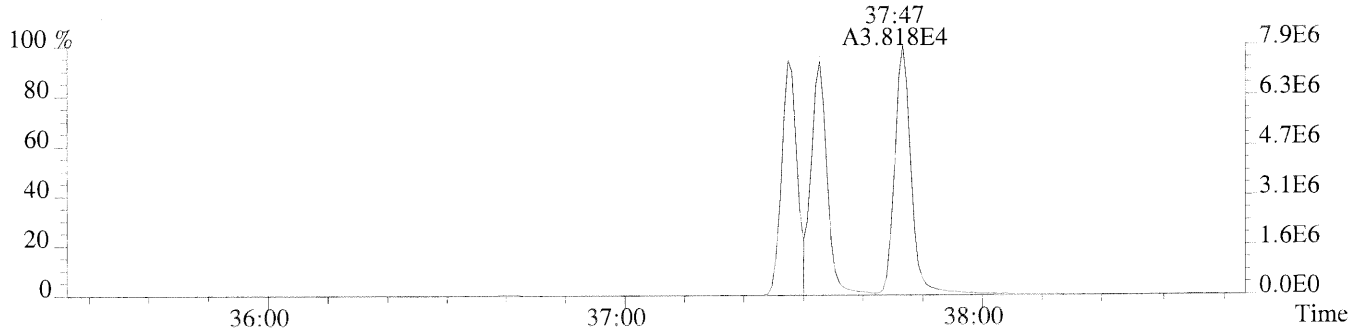
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



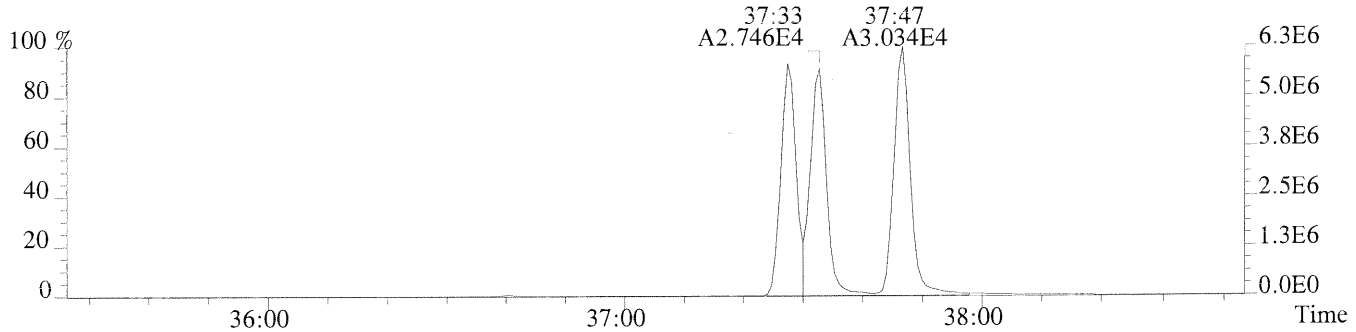
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



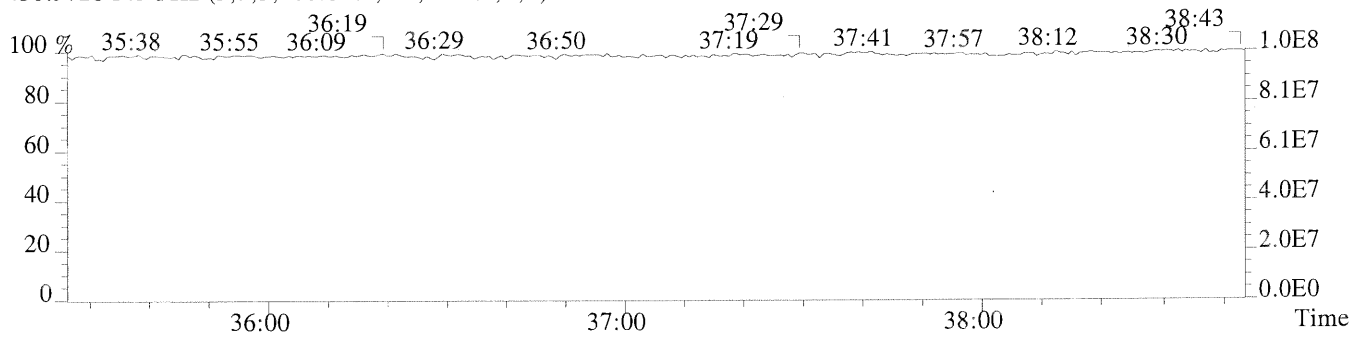
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1424.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)

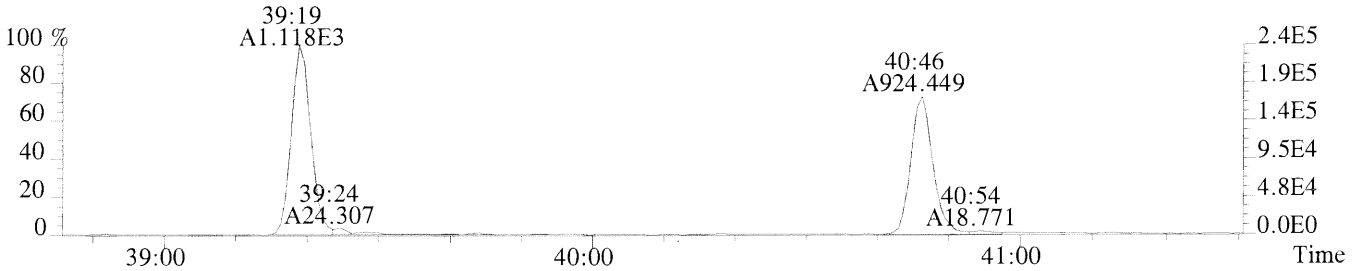


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

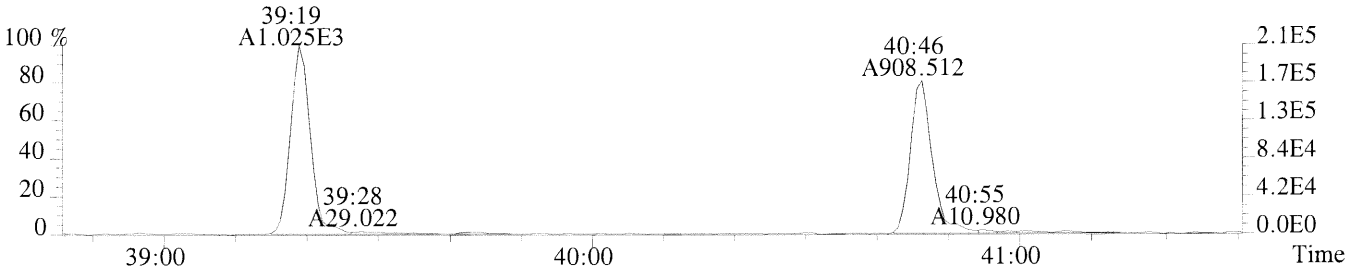


File:P169971 #1-250 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1

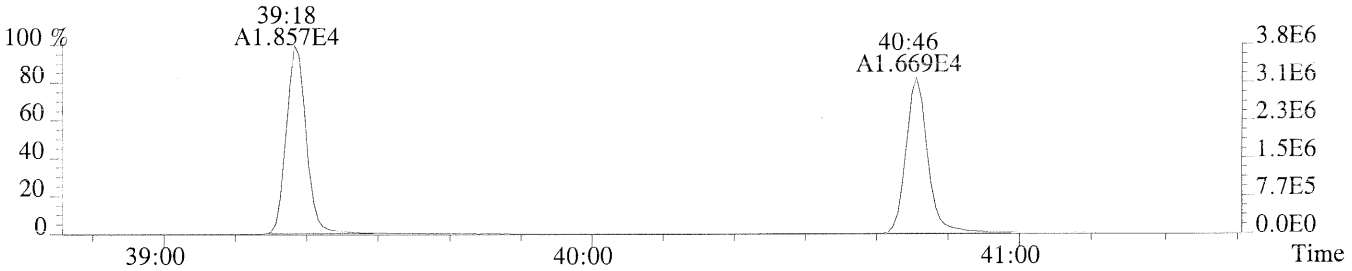
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.50%,F,T)



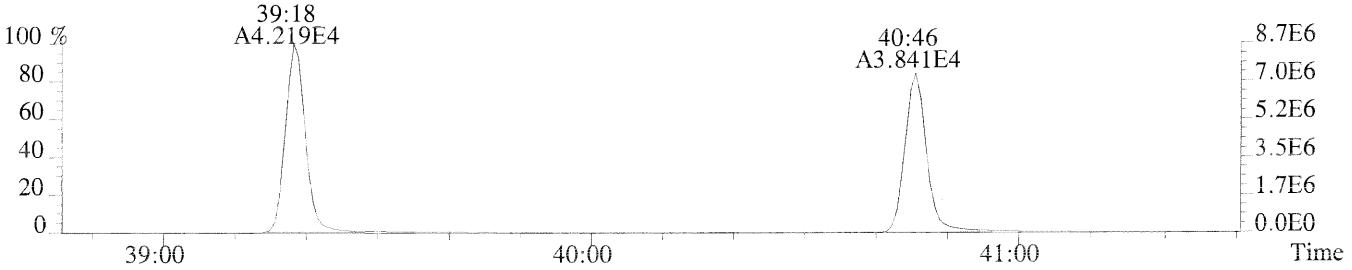
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.50%,F,T)



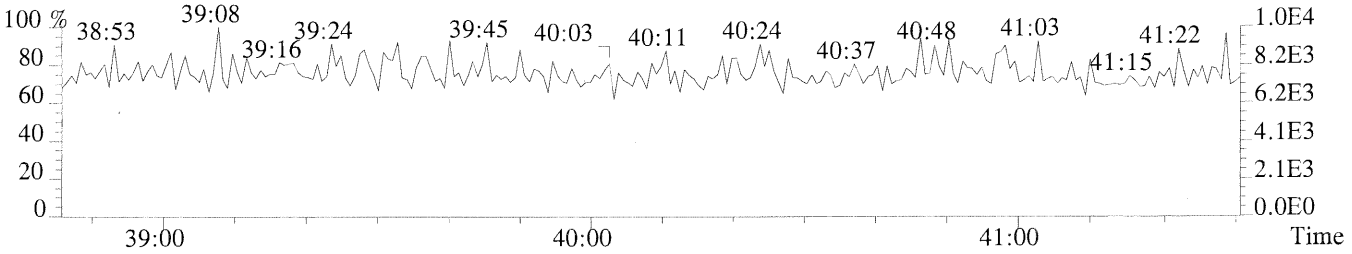
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3040.0,0.50%,F,T)



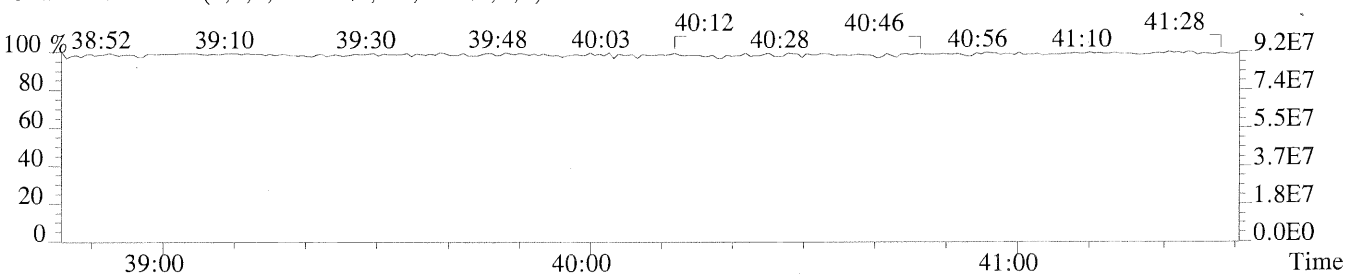
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5600.0,0.50%,F,T)



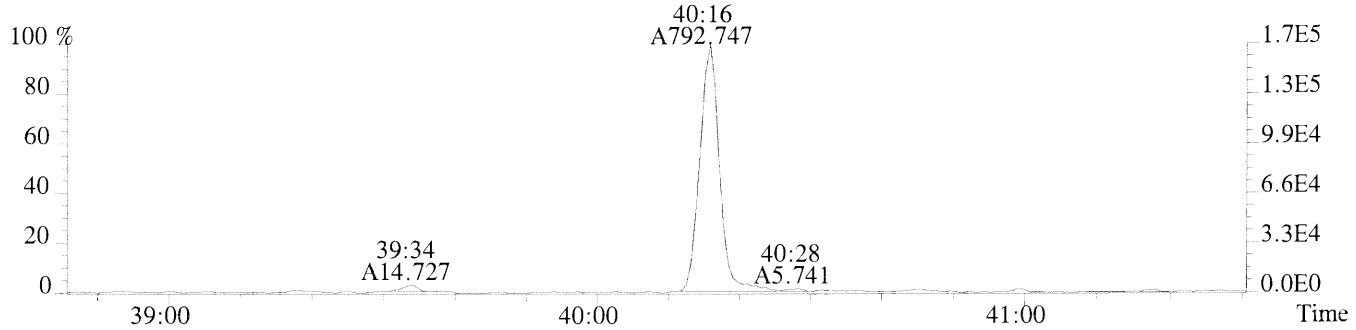
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



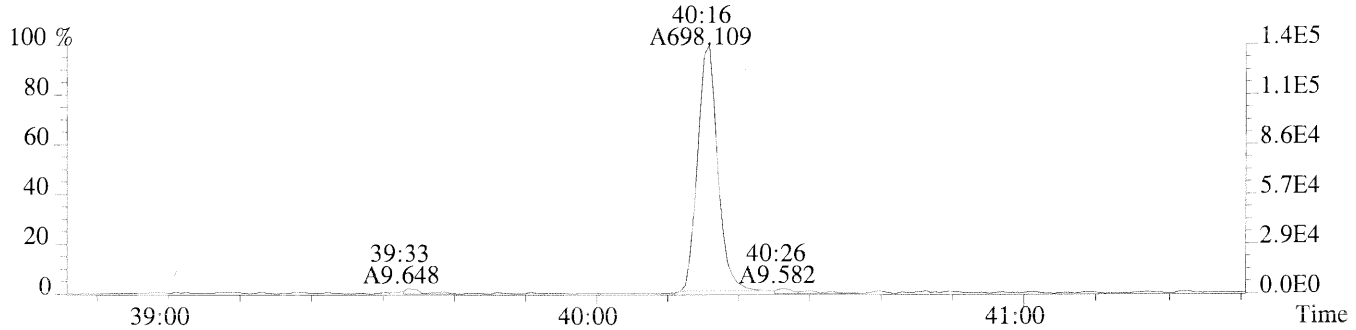
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



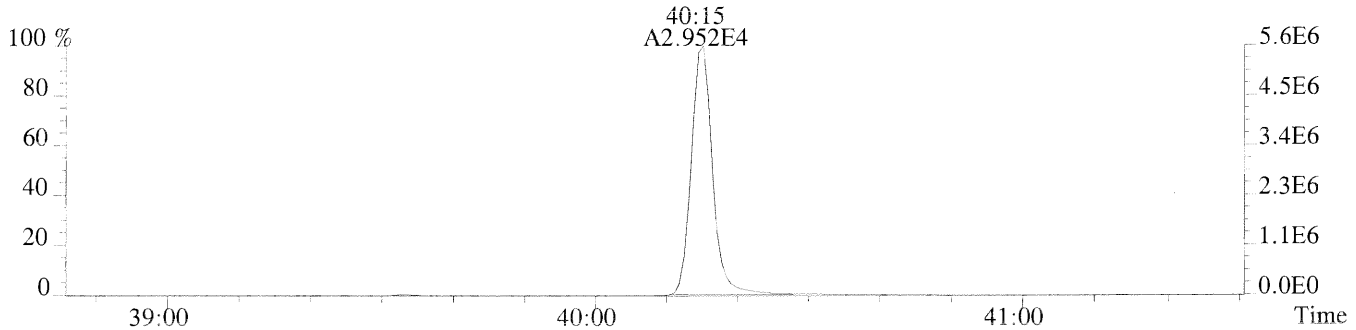
File:P169971 #1-250 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



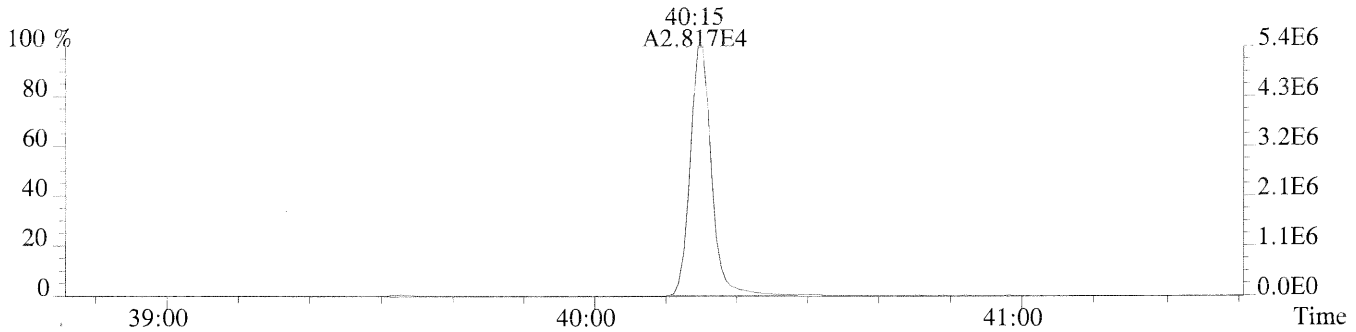
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)



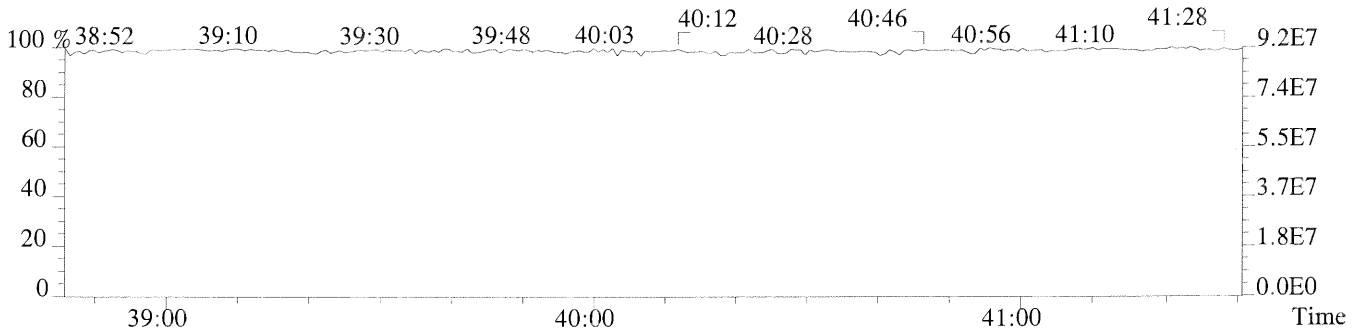
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1876.0,0.40%,F,T)



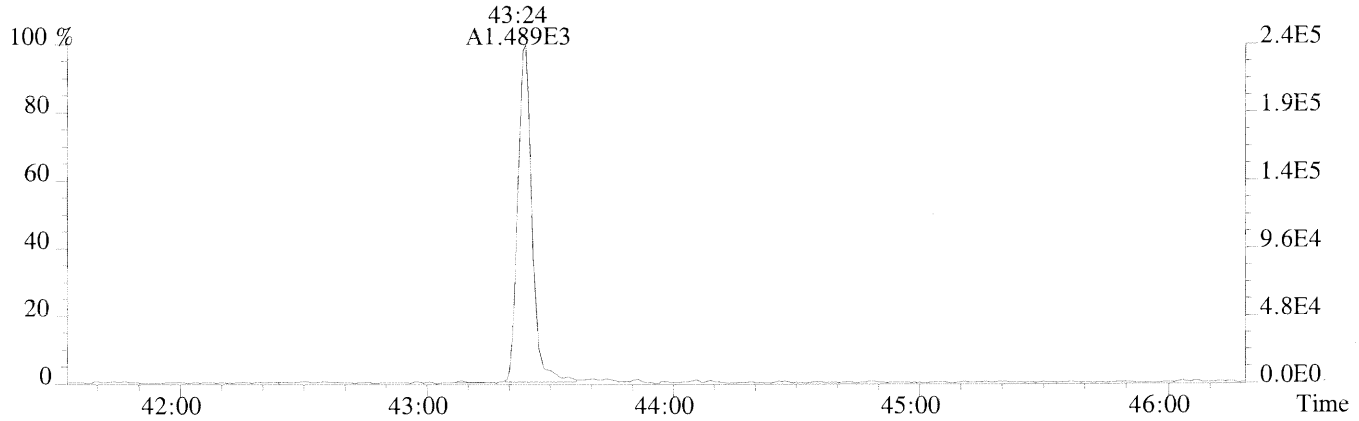
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



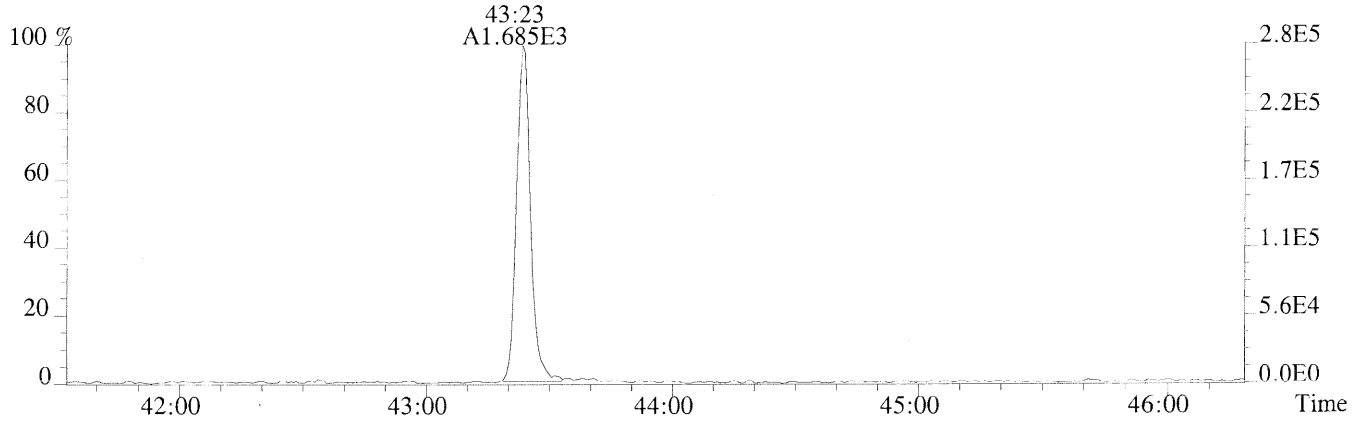
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



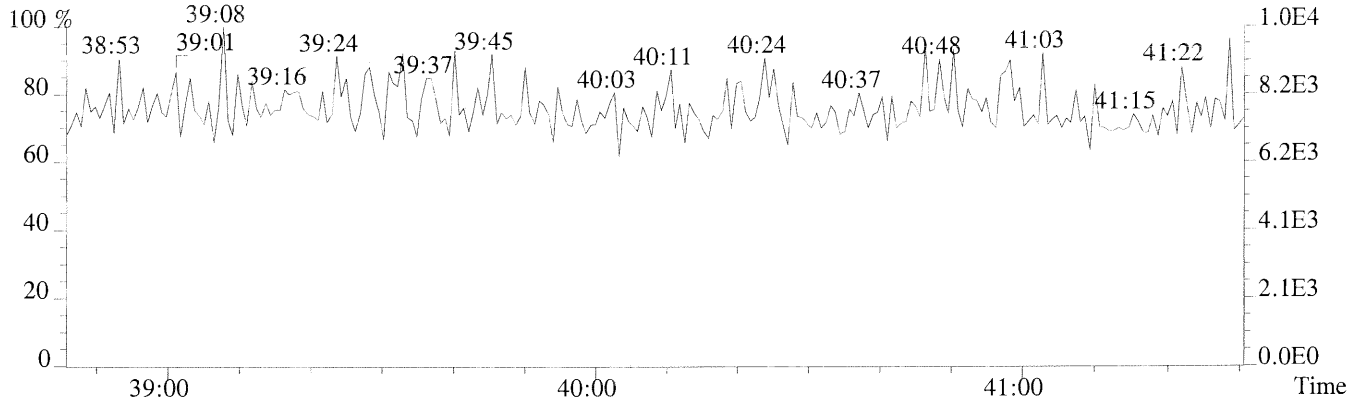
File:P169971 #1-438 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1236.0,0.40%,F,T)



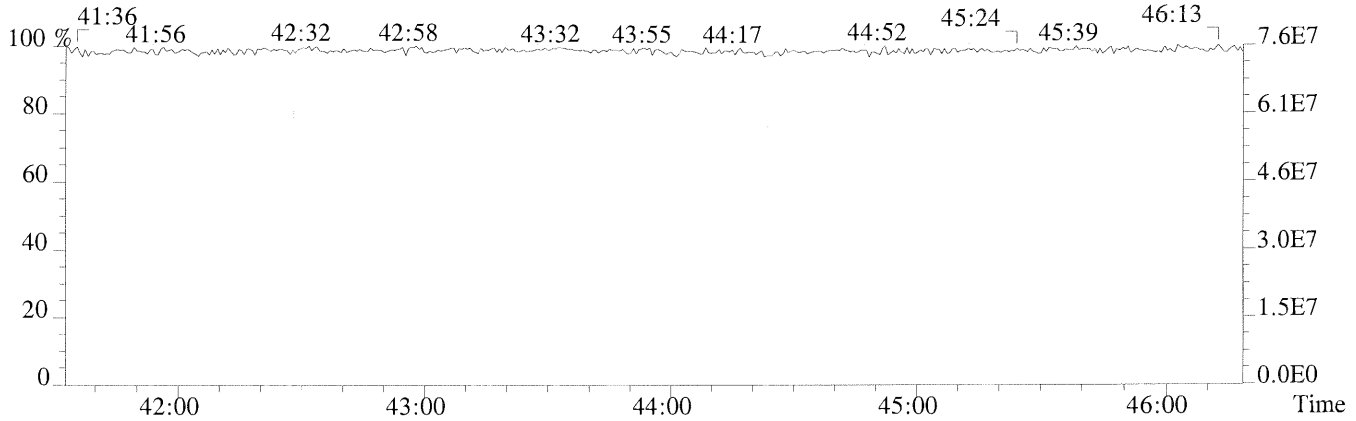
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1896.0,0.40%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

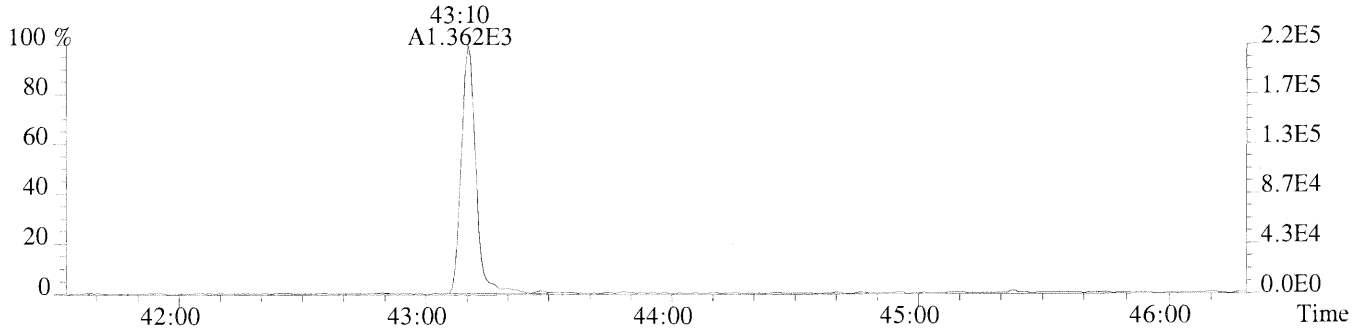


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

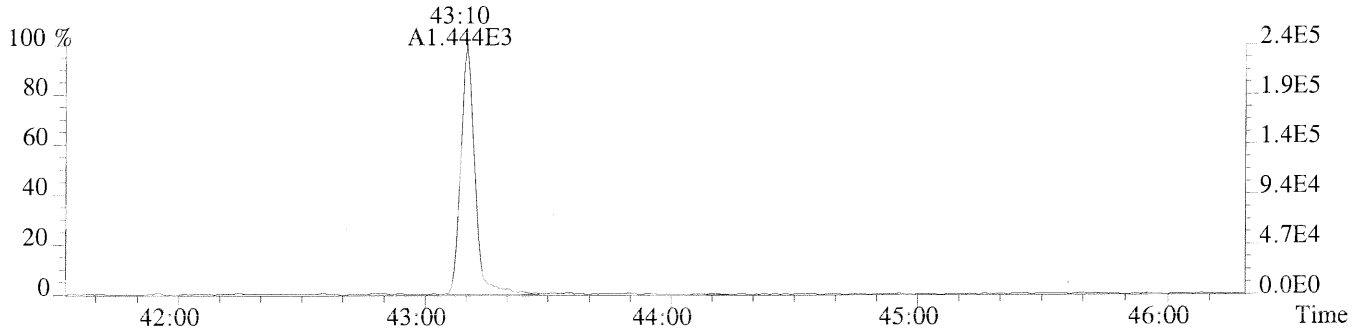


File:P169971 #1-438 Acq:25-MAR-2014 18:10:10 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC1/CS1

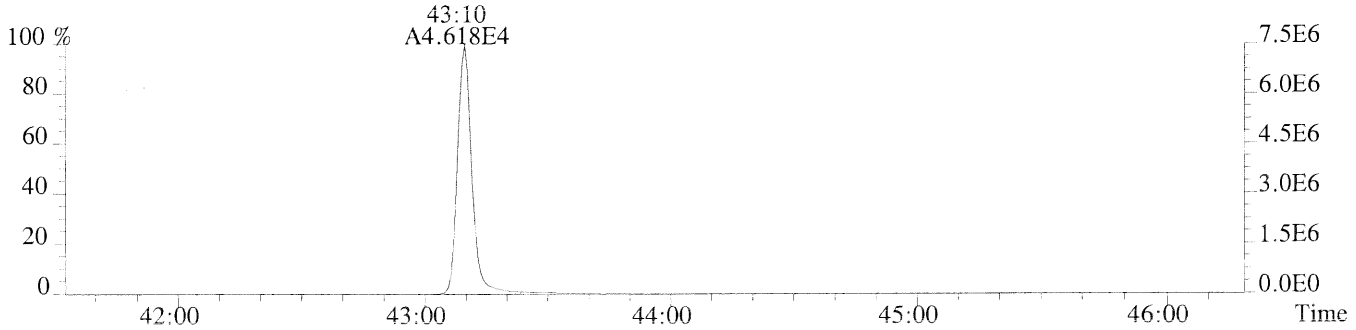
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



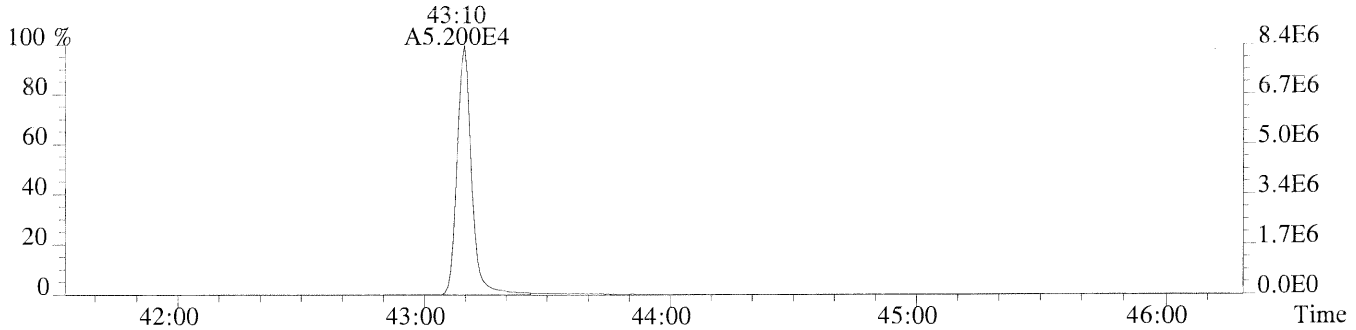
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,712.0,0.40%,F,T)



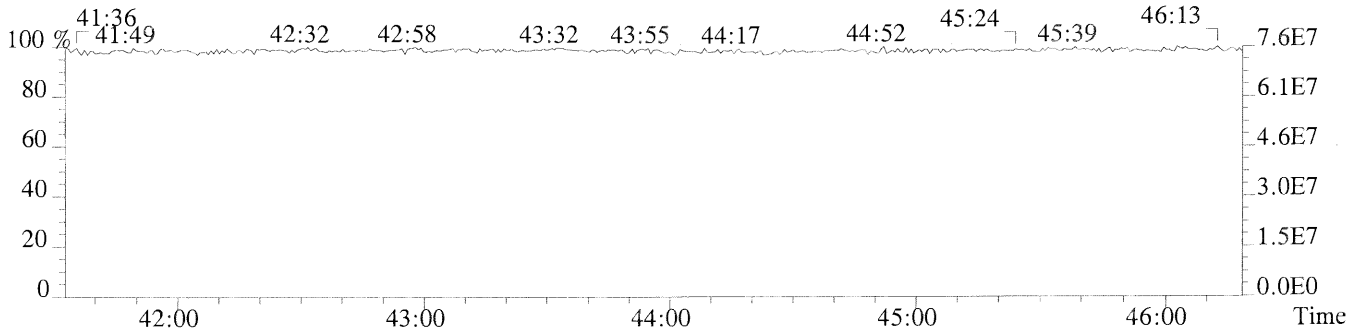
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,892.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1004.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
D12-90-3B

Run #3 Filename P169972 Samp: 1 Inj: 1 Acquired: 25-MAR-14 18:58:18
Processed: 26-MAR-14 10:00:58 Sample ID: ICAL HRCC2/CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:28	6.797e+02	9.093e+02	0.75	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:22	6.675e+03	4.151e+03	1.61	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	34:13	6.030e+03	3.973e+03	1.52	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:46	5.387e+03	4.372e+03	1.23	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:52	5.746e+03	4.693e+03	1.22	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:21	5.347e+03	4.181e+03	1.28	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	38:05	4.745e+03	3.974e+03	1.19	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:19	4.684e+03	4.630e+03	1.01	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:46	4.107e+03	3.950e+03	1.04	yes	no	1.324
10	Unk	OCDF	43:24	6.830e+03	7.744e+03	0.88	yes	no	1.307
11	Unk	2,3,7,8-TCDD	30:11	5.678e+02	6.819e+02	0.83	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:29	4.215e+03	2.657e+03	1.59	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:29	3.548e+03	2.868e+03	1.24	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:33	3.912e+03	3.143e+03	1.24	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:47	3.952e+03	3.273e+03	1.21	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	3.242e+03	3.272e+03	0.99	yes	no	1.016
17	Unk	OCDD	43:10	5.738e+03	6.315e+03	0.91	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:28	3.995e+04	5.114e+04	0.78	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:22	6.495e+04	4.159e+04	1.56	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	34:12	6.394e+04	4.078e+04	1.57	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:46	2.667e+04	5.143e+04	0.52	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:52	3.055e+04	5.878e+04	0.52	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:20	2.872e+04	5.600e+04	0.51	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	38:04	2.617e+04	5.040e+04	0.52	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:19	2.085e+04	4.695e+04	0.44	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:45	1.886e+04	4.228e+04	0.45	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	30:11	2.721e+04	3.548e+04	0.77	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:28	4.651e+04	2.939e+04	1.58	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:28	3.583e+04	2.833e+04	1.26	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:33	3.948e+04	3.114e+04	1.27	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:15	3.334e+04	3.141e+04	1.06	yes	no	0.862
32	IS	13C-OCDD	43:09	5.279e+04	5.889e+04	0.90	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:40	2.831e+04	3.594e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:46	4.249e+04	3.338e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:11	1.296e+03				no	1.125

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
D12-90-3B

Run #3 Filename P169972 Samp: 1 Inj: 1 Acquired: 25-MAR-14 18:58:18
Processed: 26-MAR-14 08:20:001 LAB. ID: ICAL HRCC2/CS2

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.48e+05	1.03e+03	1.4e+02	1.85e+05	3.37e+03	5.5e+01
2	1,2,3,7,8-PeCDF	1.28e+06	8.92e+02	1.4e+03	8.02e+05	2.07e+03	3.9e+02
3	2,3,4,7,8-PeCDF	1.22e+06	8.92e+02	1.4e+03	8.08e+05	2.07e+03	3.9e+02
4	1,2,3,4,7,8-HxCDF	1.17e+06	1.62e+03	7.2e+02	9.51e+05	1.22e+03	7.8e+02
5	1,2,3,6,7,8-HxCDF	1.18e+06	1.62e+03	7.3e+02	9.54e+05	1.22e+03	7.8e+02
6	2,3,4,6,7,8-HxCDF	1.15e+06	1.62e+03	7.1e+02	9.09e+05	1.22e+03	7.4e+02
7	1,2,3,7,8,9-HxCDF	1.01e+06	1.62e+03	6.2e+02	8.40e+05	1.22e+03	6.9e+02
8	1,2,3,4,6,7,8-HpCDF	9.55e+05	8.96e+02	1.1e+03	9.33e+05	1.52e+03	6.1e+02
9	1,2,3,4,7,8,9-HpCDF	7.48e+05	8.96e+02	8.3e+02	7.46e+05	1.52e+03	4.9e+02
10	OCDF	1.07e+06	9.00e+02	1.2e+03	1.20e+06	1.69e+03	7.1e+02
11	2,3,7,8-TCDD	1.21e+05	9.64e+02	1.3e+02	1.56e+05	1.27e+03	1.2e+02
12	1,2,3,7,8-PeCDD	8.78e+05	1.60e+03	5.5e+02	5.45e+05	1.14e+03	4.8e+02
13	1,2,3,4,7,8-HxCDD	8.11e+05	1.16e+03	7.0e+02	6.41e+05	1.16e+03	5.5e+02
14	1,2,3,6,7,8-HxCDD	8.05e+05	1.16e+03	7.0e+02	6.51e+05	1.16e+03	5.6e+02
15	1,2,3,7,8,9-HxCDD	8.28e+05	1.16e+03	7.2e+02	6.75e+05	1.16e+03	5.8e+02
16	1,2,3,4,6,7,8-HpCDD	6.26e+05	1.23e+03	5.1e+02	6.15e+05	9.48e+02	6.5e+02
17	OCDD	9.06e+05	7.60e+02	1.2e+03	9.87e+05	6.92e+02	1.4e+03
18	13C-2,3,7,8-TCDF	8.67e+06	1.52e+03	5.7e+03	1.11e+07	1.76e+03	6.3e+03
19	13C-1,2,3,7,8-PeCDF	1.24e+07	1.02e+03	1.2e+04	7.97e+06	1.64e+03	4.8e+03
20	13C-2,3,4,7,8-PeCDF	1.27e+07	1.02e+03	1.2e+04	8.10e+06	1.64e+03	4.9e+03
21	13C-1,2,3,4,7,8-HxCDF	5.77e+06	1.01e+03	5.7e+03	1.11e+07	1.74e+03	6.4e+03
22	13C-1,2,3,6,7,8-HxCDF	6.22e+06	1.01e+03	6.2e+03	1.21e+07	1.74e+03	6.9e+03
23	13C-2,3,4,6,7,8-HxCDF	6.03e+06	1.01e+03	6.0e+03	1.18e+07	1.74e+03	6.8e+03
24	13C-1,2,3,7,8,9-HxCDF	5.40e+06	1.01e+03	5.3e+03	1.04e+07	1.74e+03	6.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.16e+06	2.25e+03	1.8e+03	9.28e+06	3.43e+03	2.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.43e+06	2.25e+03	1.5e+03	7.76e+06	3.43e+03	2.3e+03
27	13C-2,3,7,8-TCDD	6.25e+06	4.83e+03	1.3e+03	8.14e+06	1.77e+03	4.6e+03
28	13C-1,2,3,7,8-PeCDD	9.48e+06	1.50e+03	6.3e+03	5.99e+06	9.28e+02	6.5e+03
29	13C-1,2,3,4,7,8-HxCDD	8.14e+06	1.26e+03	6.5e+03	6.35e+06	1.33e+03	4.8e+03
30	13C-1,2,3,6,7,8-HxCDD	7.96e+06	1.26e+03	6.3e+03	6.37e+06	1.33e+03	4.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.28e+06	1.04e+03	6.0e+03	5.94e+06	7.32e+02	8.1e+03
32	13C-OCDD	8.20e+06	1.08e+03	7.6e+03	9.19e+06	7.40e+02	1.2e+04
33	13C-1,2,3,4-TCDD	6.39e+06	4.83e+03	1.3e+03	8.22e+06	1.77e+03	4.6e+03
34	13C-1,2,3,7,8,9-HxCDD	8.51e+06	1.26e+03	6.8e+03	6.70e+06	1.33e+03	5.0e+03
35	37Cl-2,3,7,8-TCDD	3.03e+05	1.59e+03	1.9e+02			

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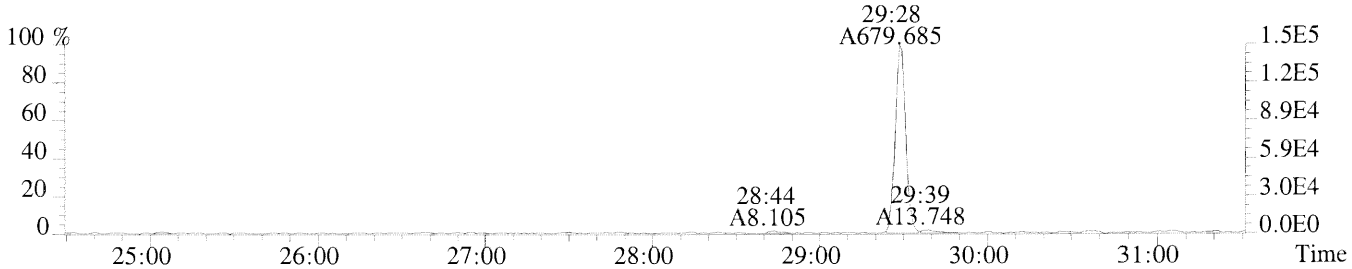
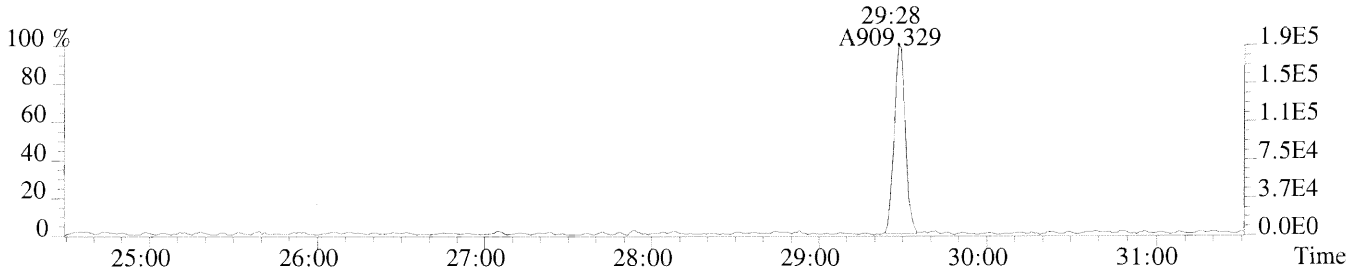
File:P169972 #1-442 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2

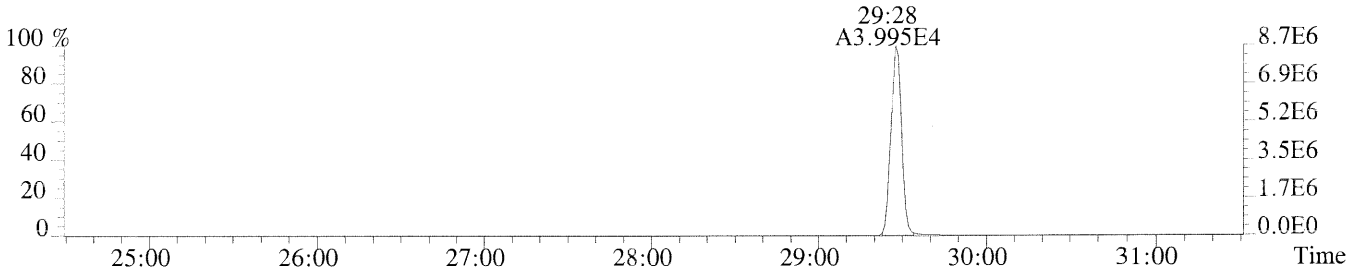
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



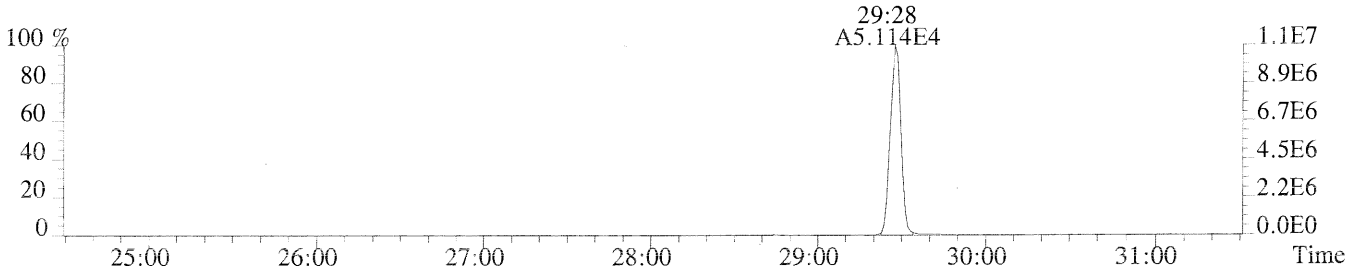
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3372.0,1.00%,F,T)



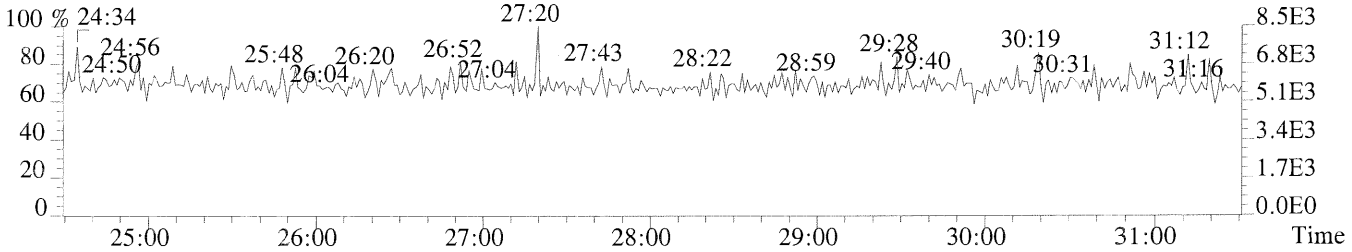
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



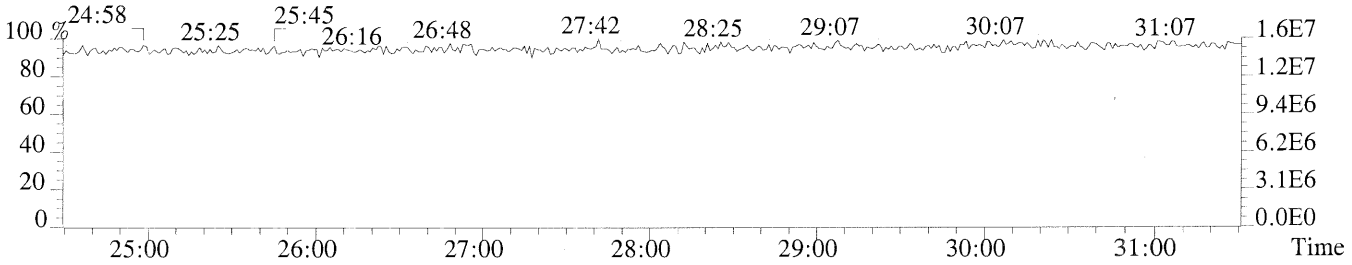
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1760.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

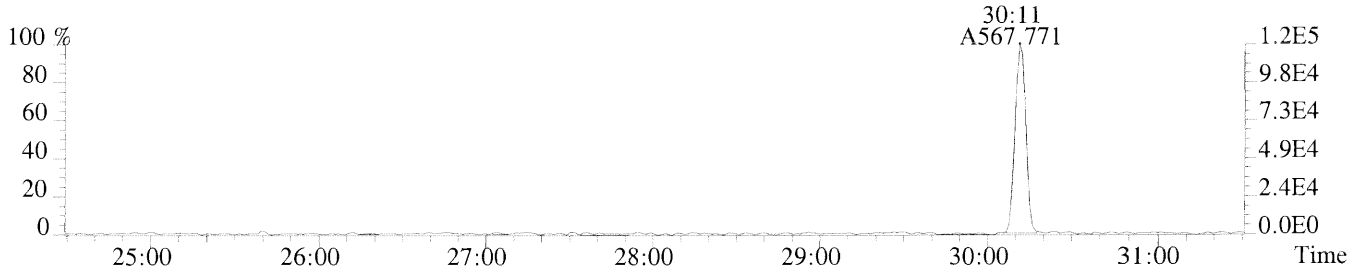


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

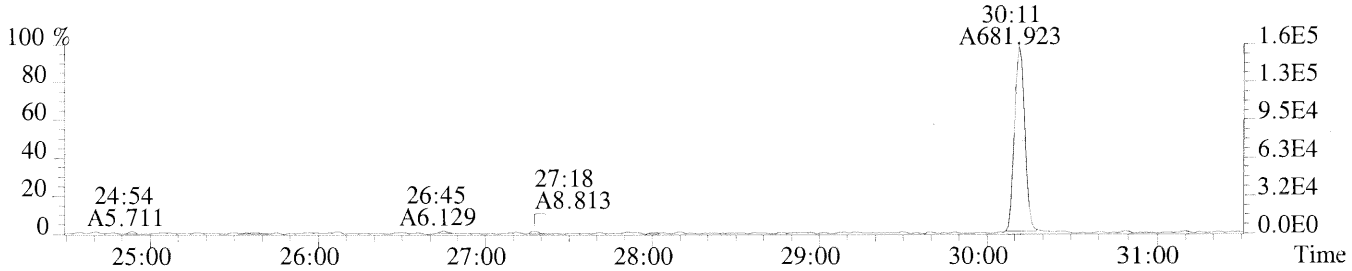


File:P169972 #1-442 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2

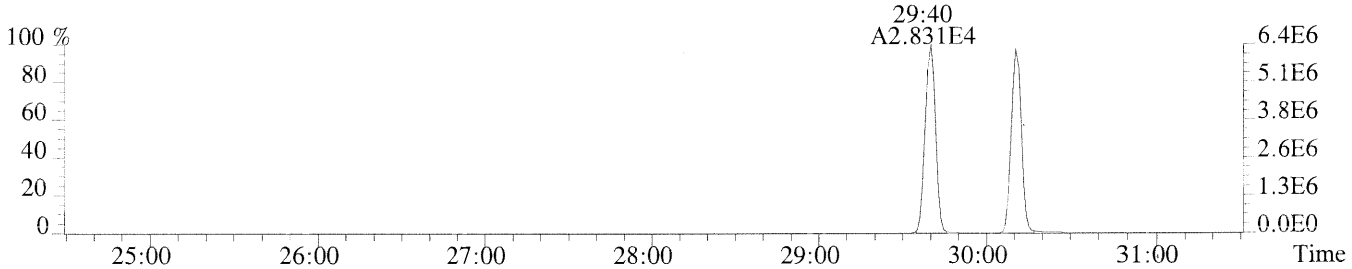
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



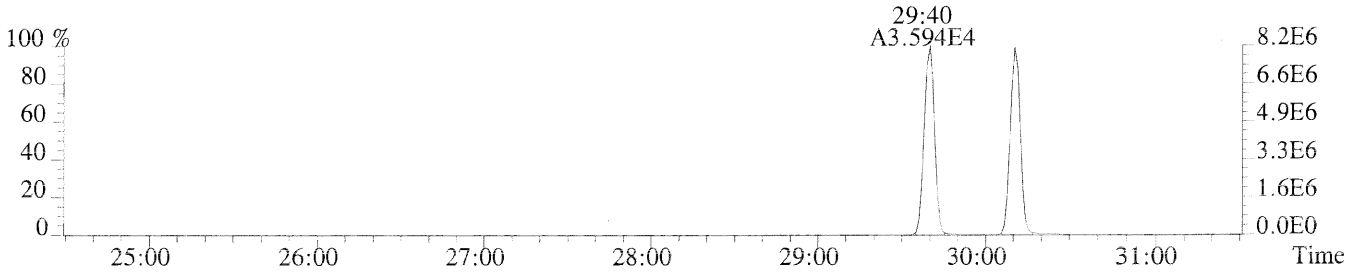
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1268.0,1.00%,F,T)



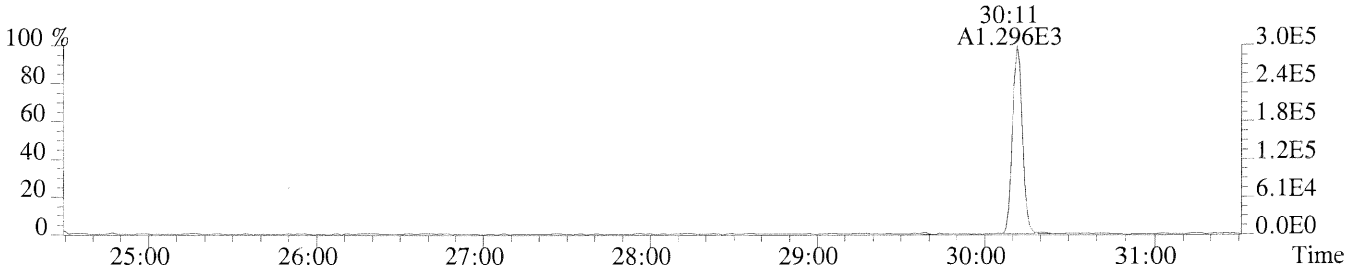
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4832.0,1.00%,F,T)



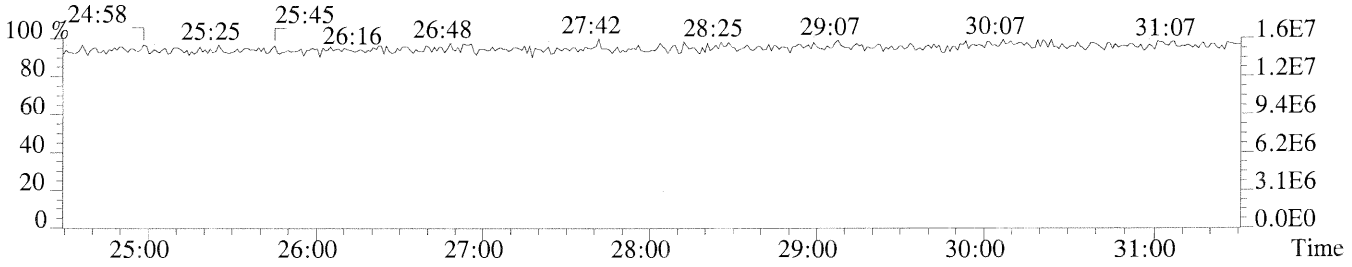
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1768.0,1.00%,F,T)



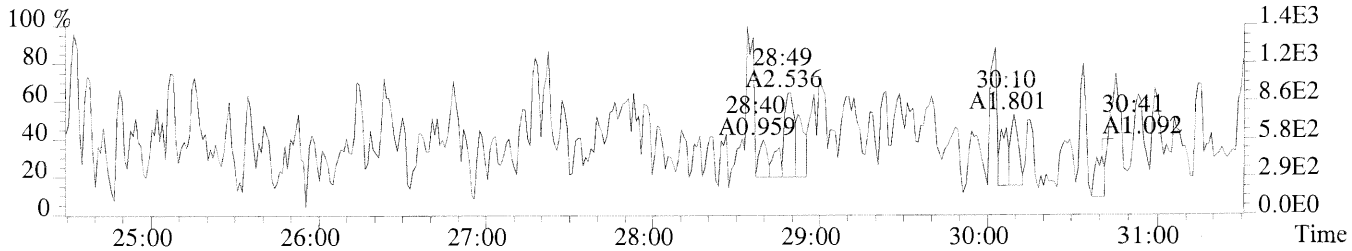
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1592.0,1.00%,F,T)



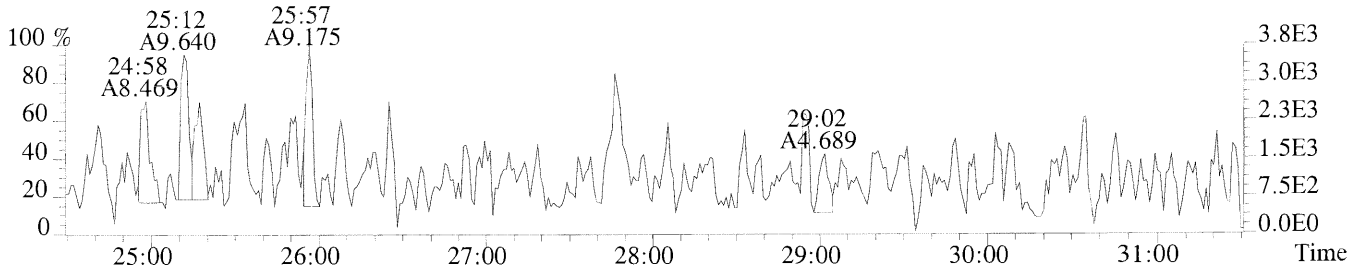
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



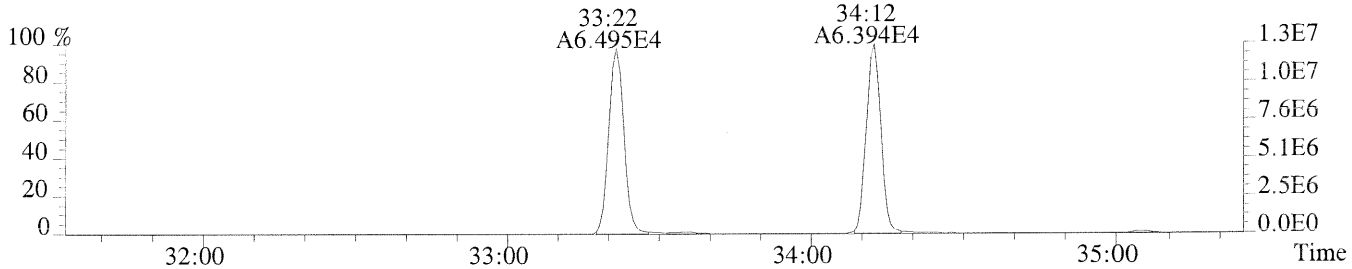
File:P169972 #1-442 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



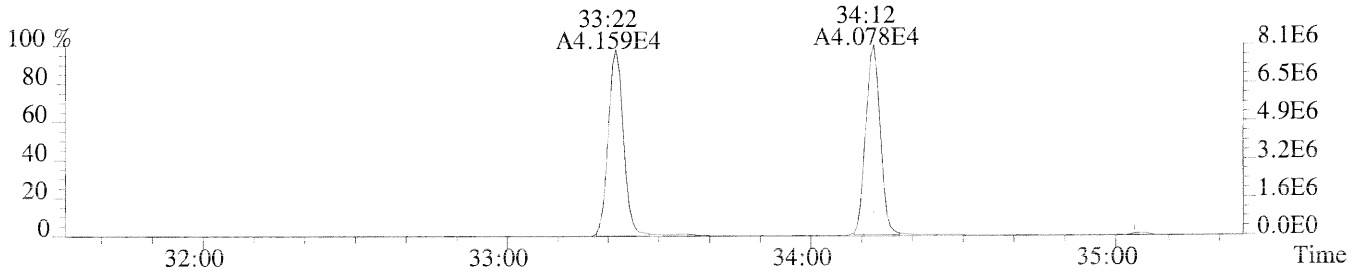
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1372.0,1.00%,F,T)



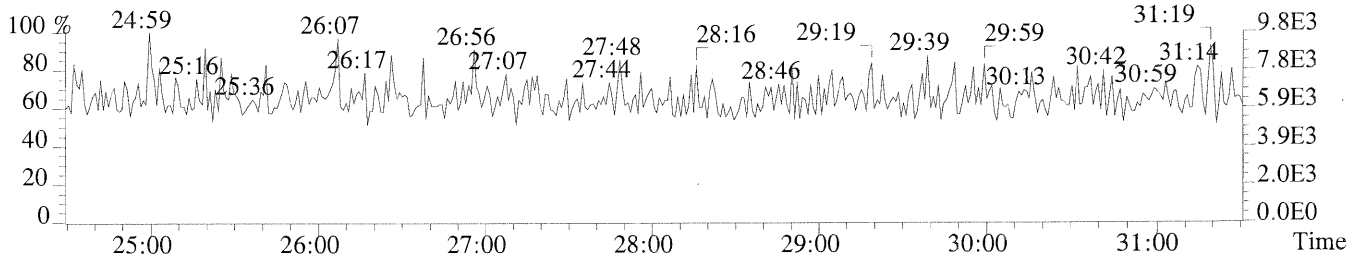
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



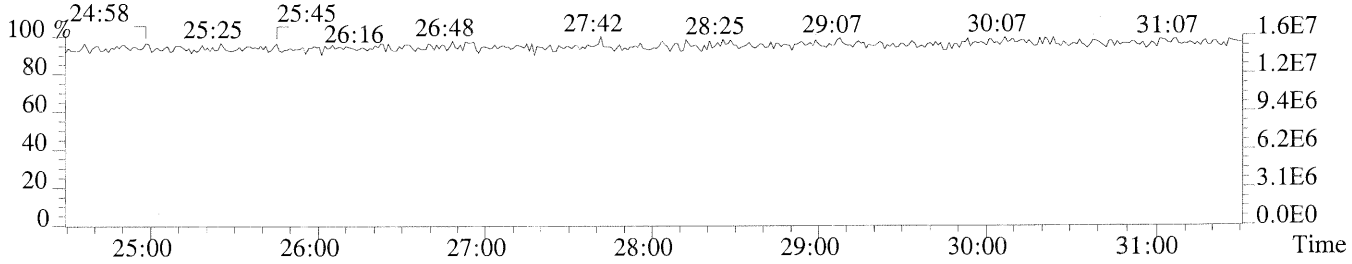
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1644.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

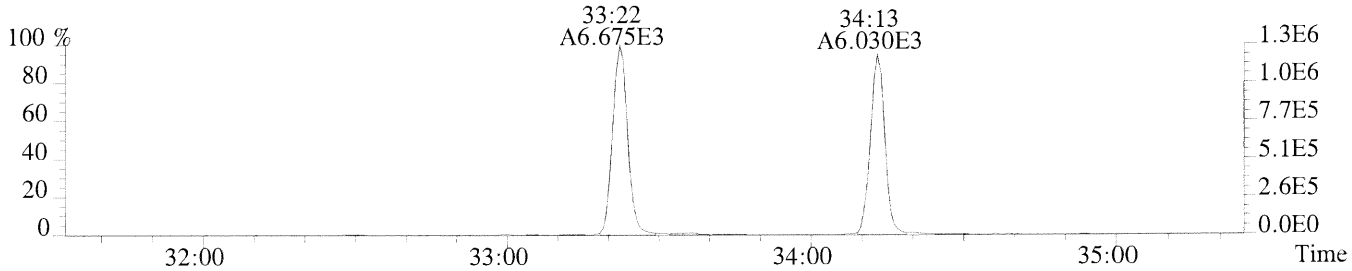


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

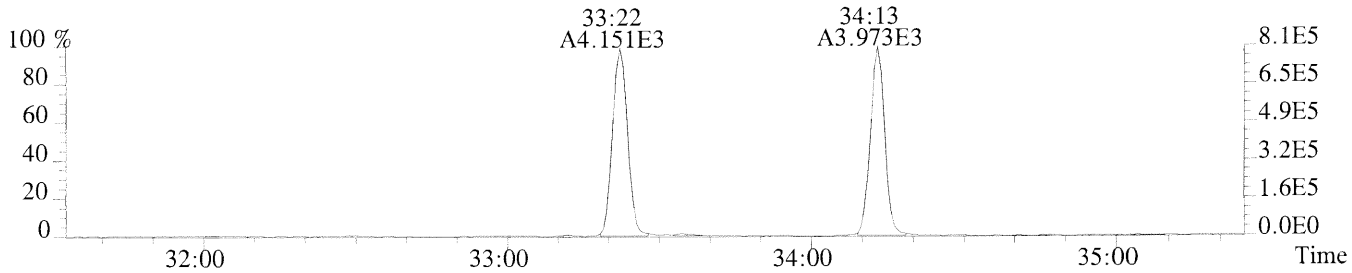


File:P169972 #1-351 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2

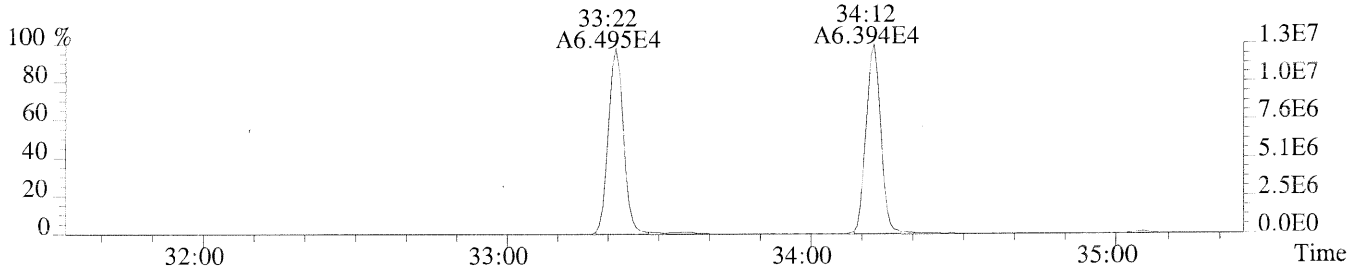
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



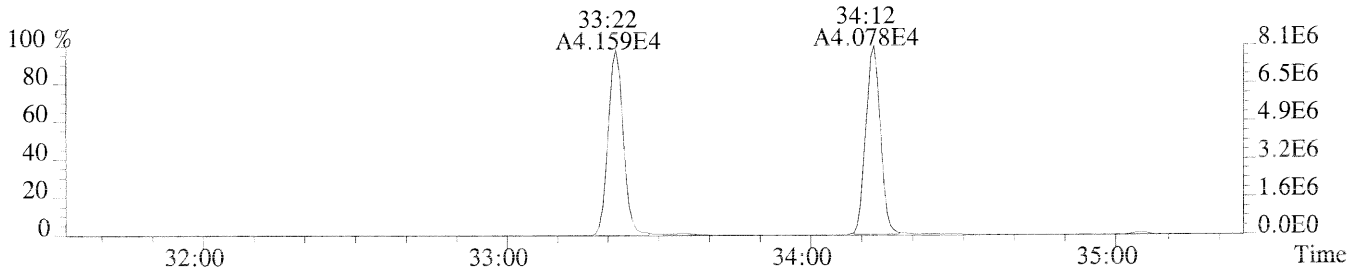
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2068.0,1.00%,F,T)



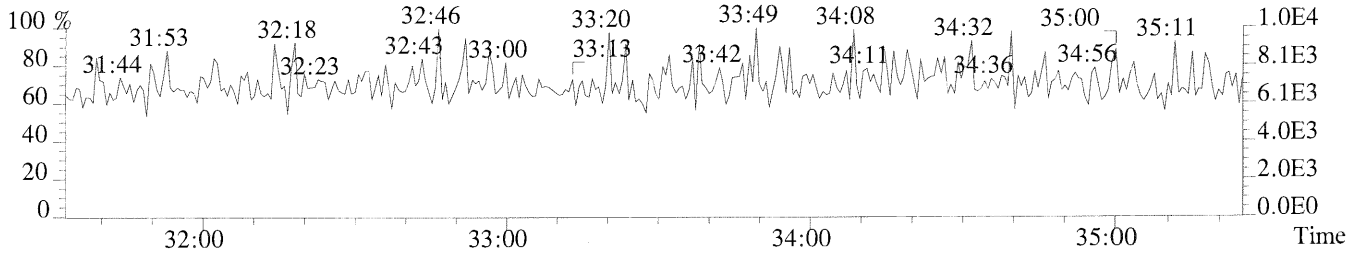
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



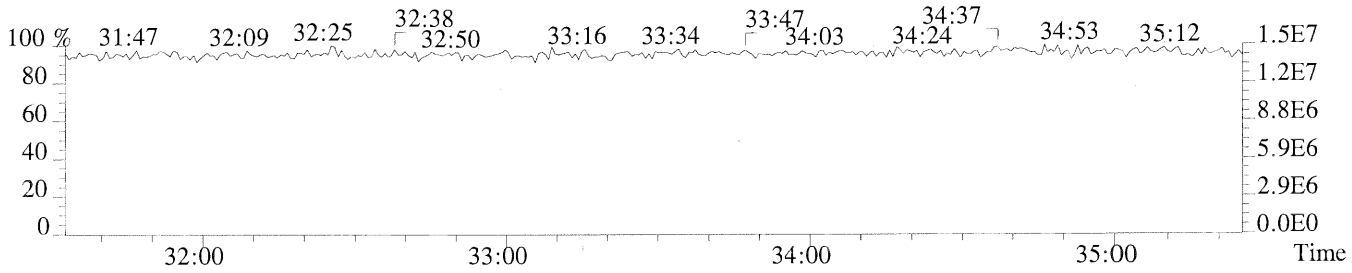
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1644.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

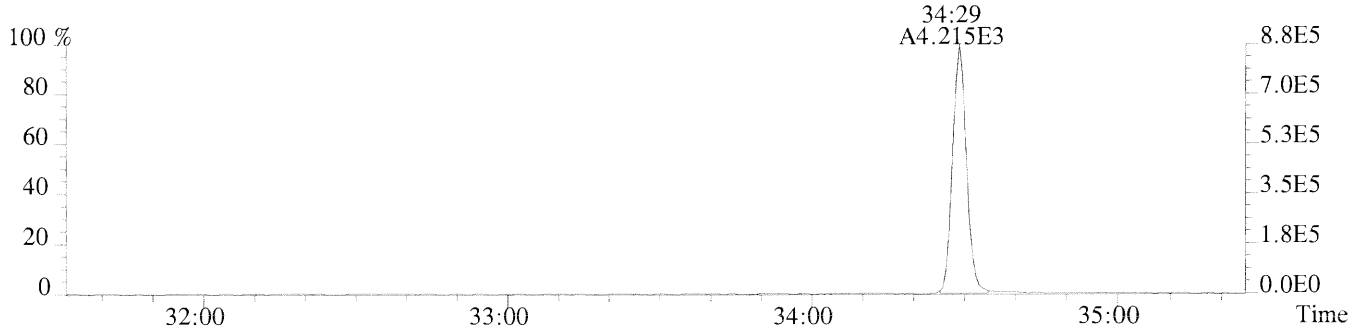


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

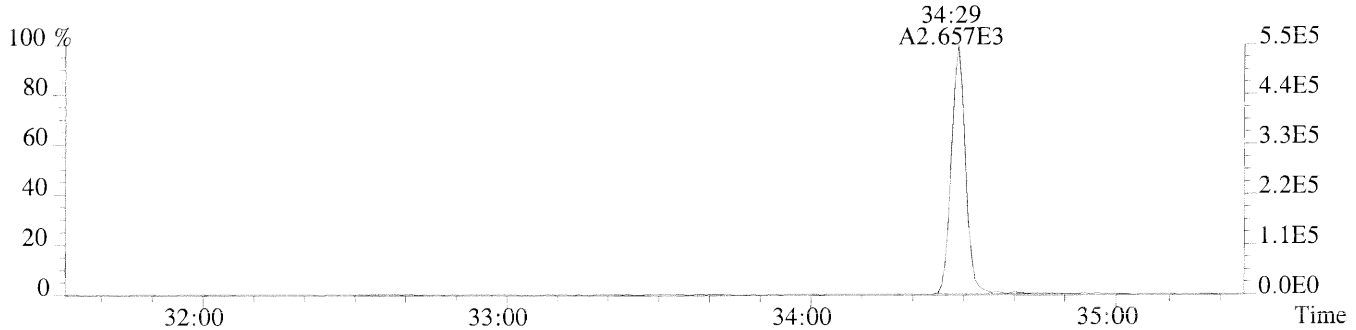


File:P169972 #1-351 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2

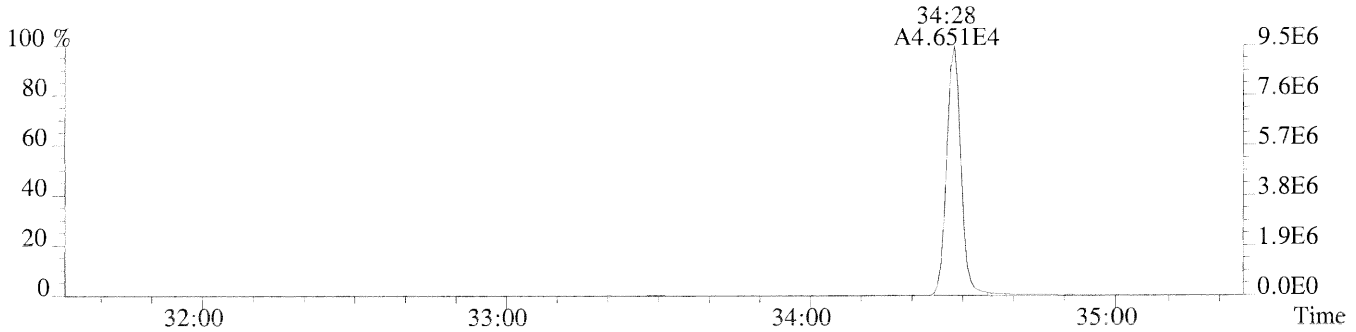
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1596.0,1.00%,F,T)



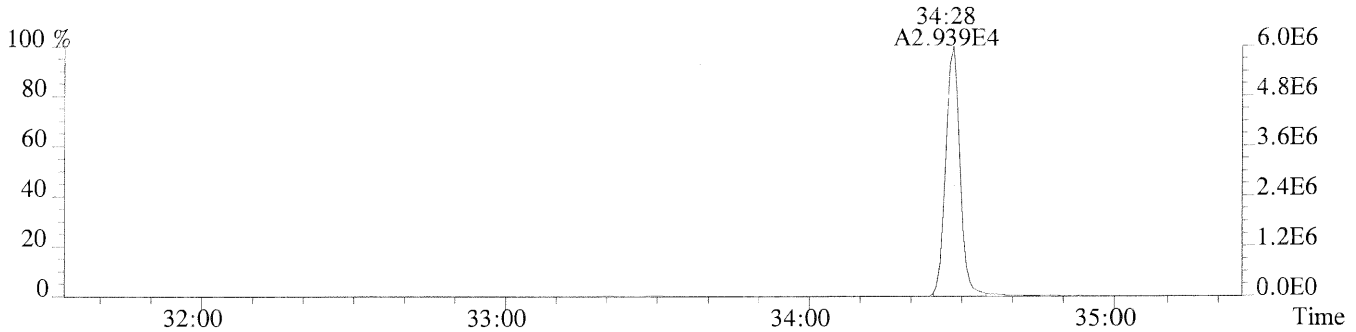
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



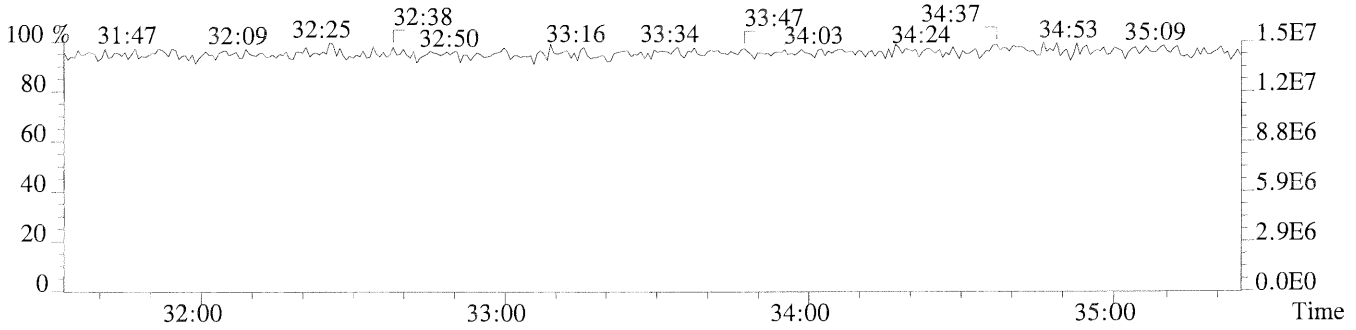
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)

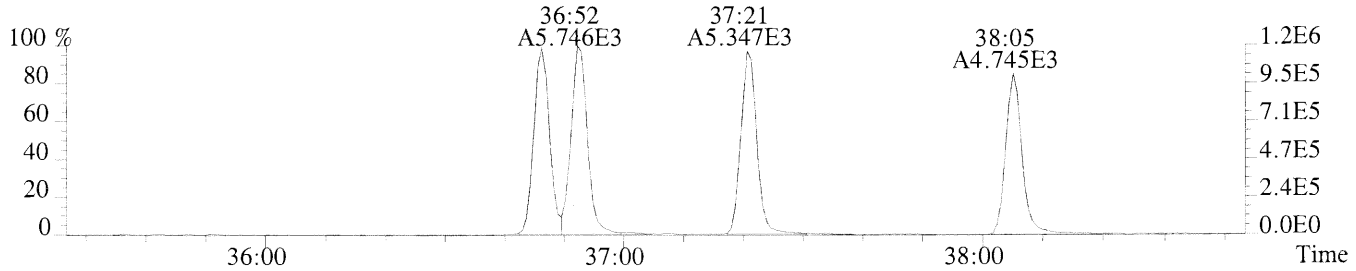


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

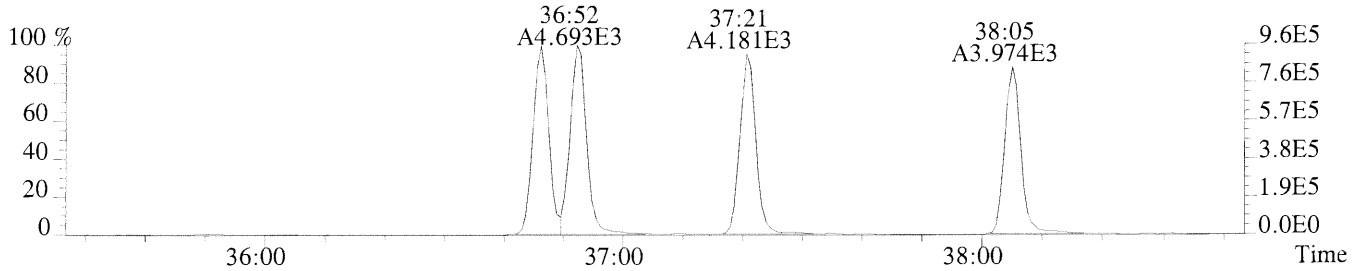


File:P169972 #1-298 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2

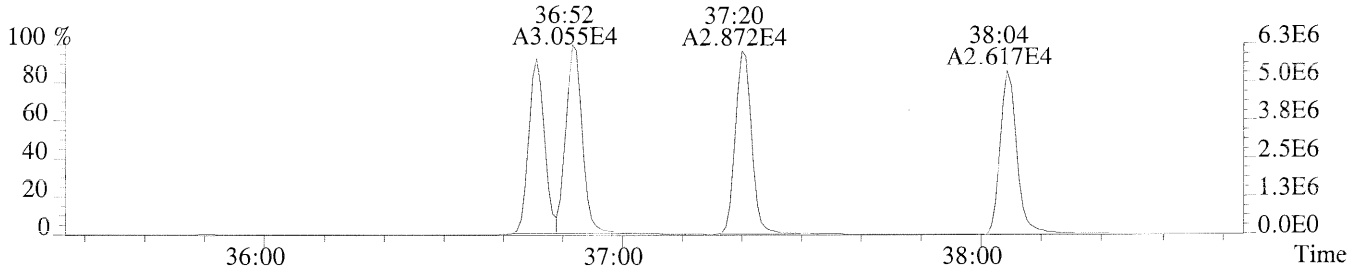
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1620.0,0.40%,F,T)



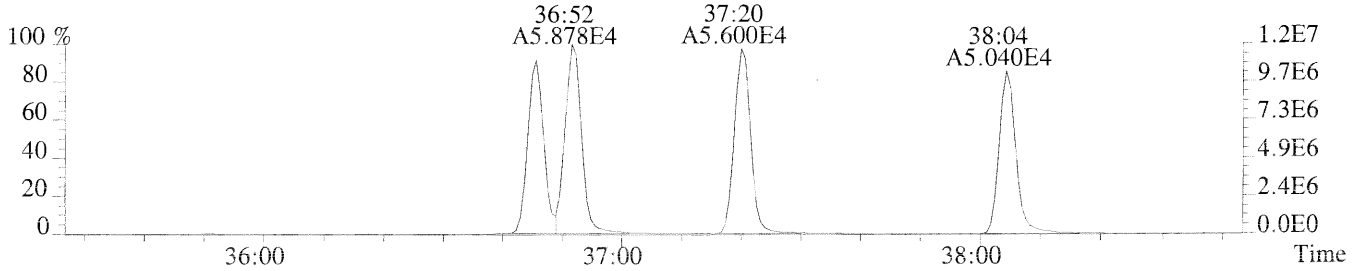
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



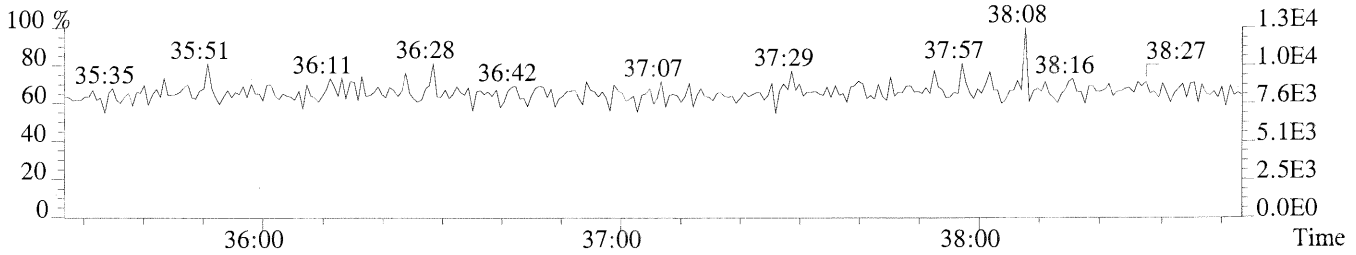
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1012.0,0.40%,F,T)



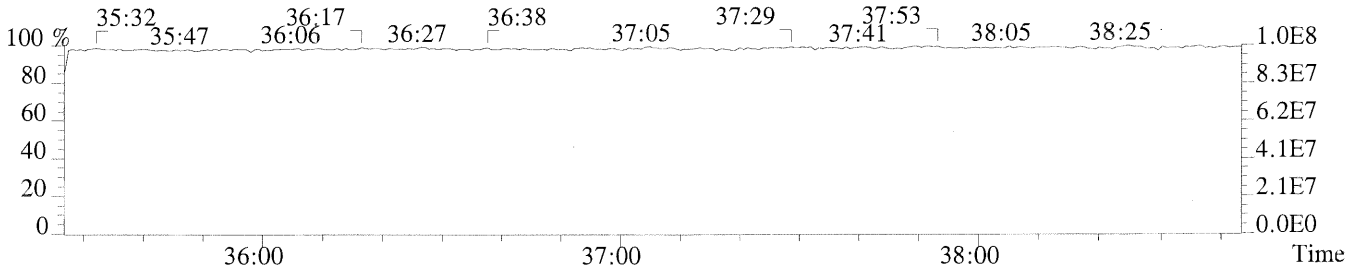
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1740.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

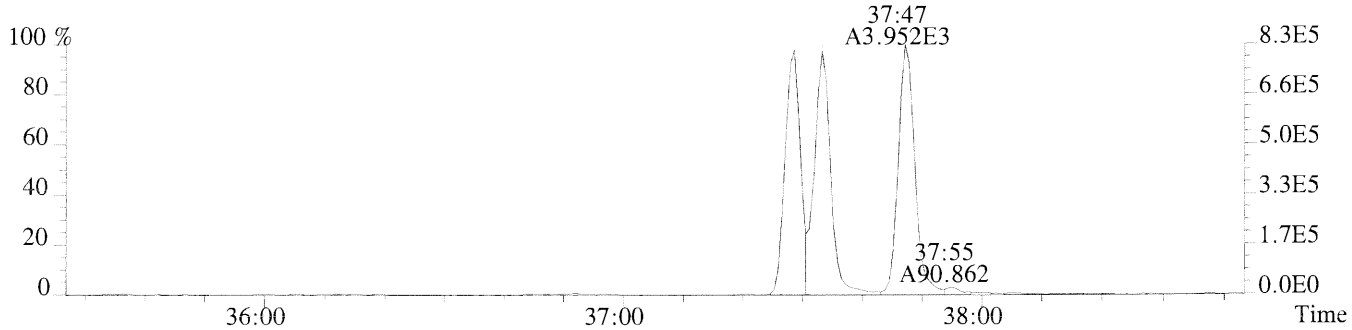


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

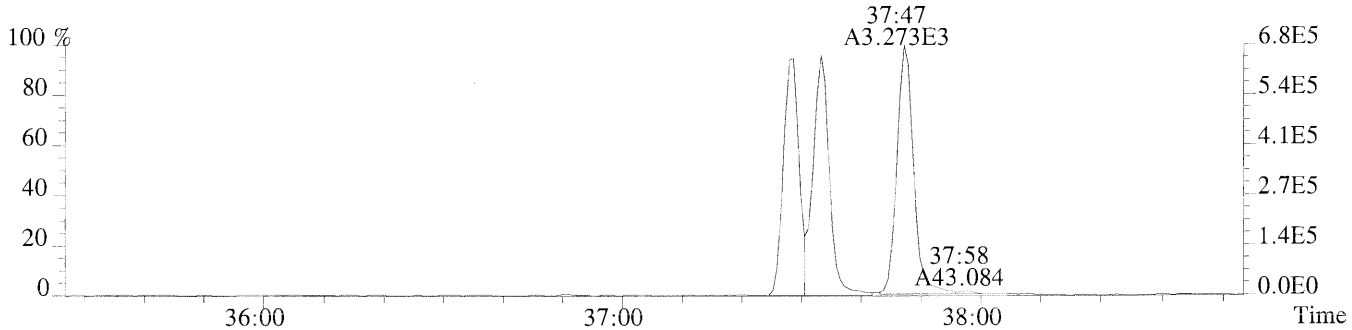


File:P169972 #1-298 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2

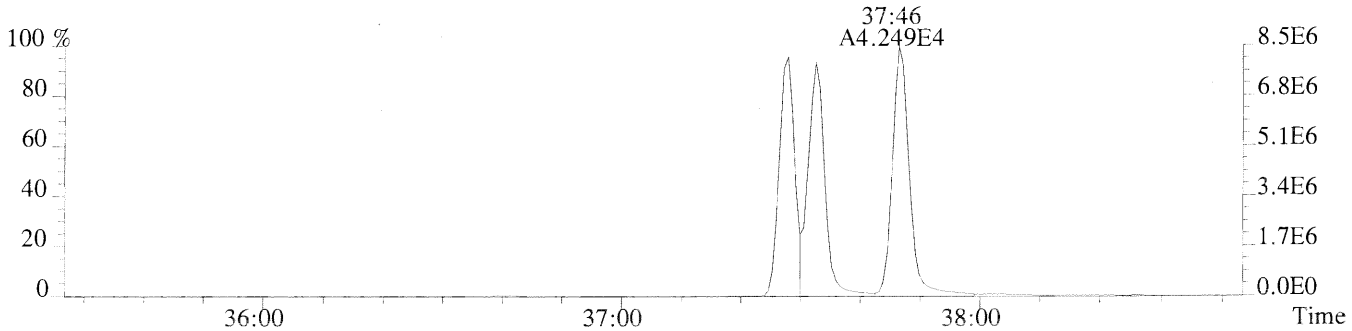
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



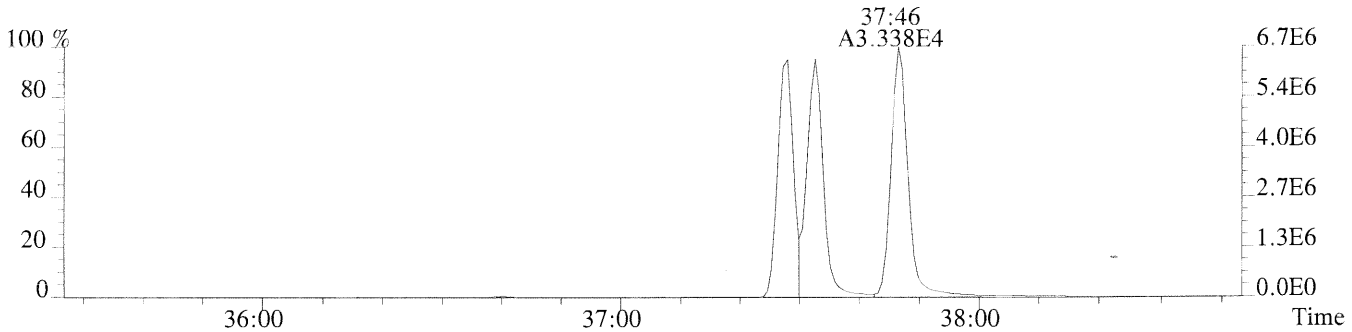
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



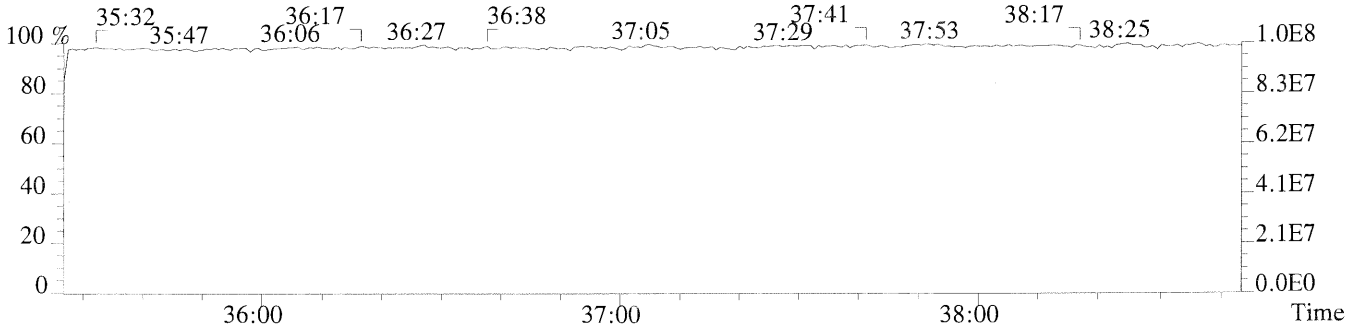
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1260.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1332.0,0.40%,F,T)

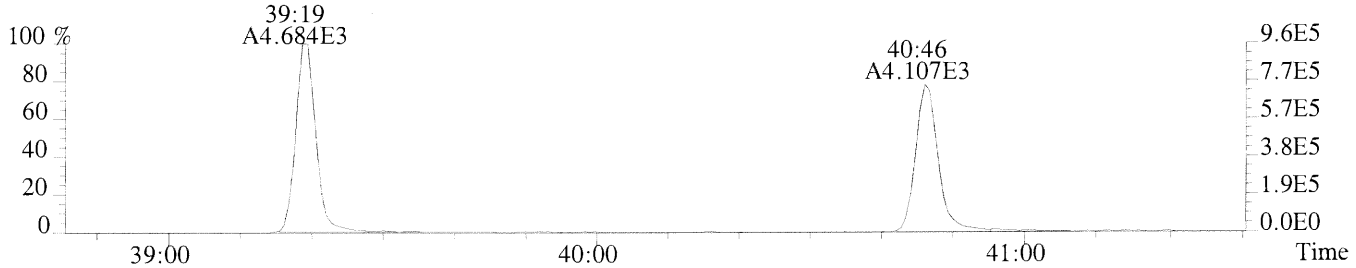


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

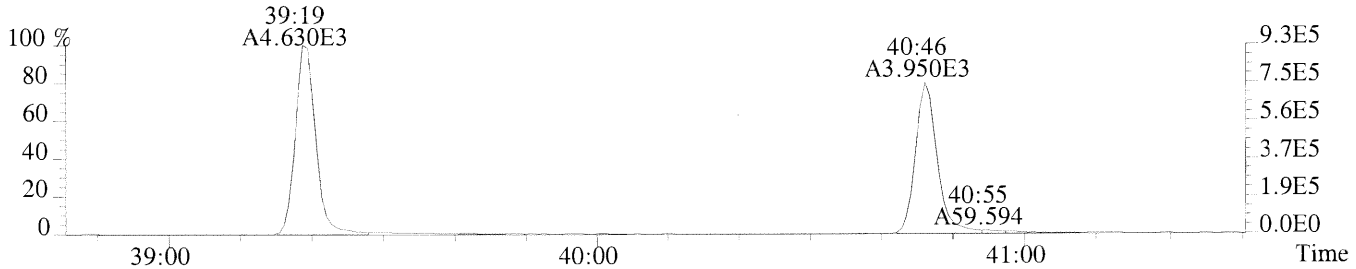


File:P169972 #1-250 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2

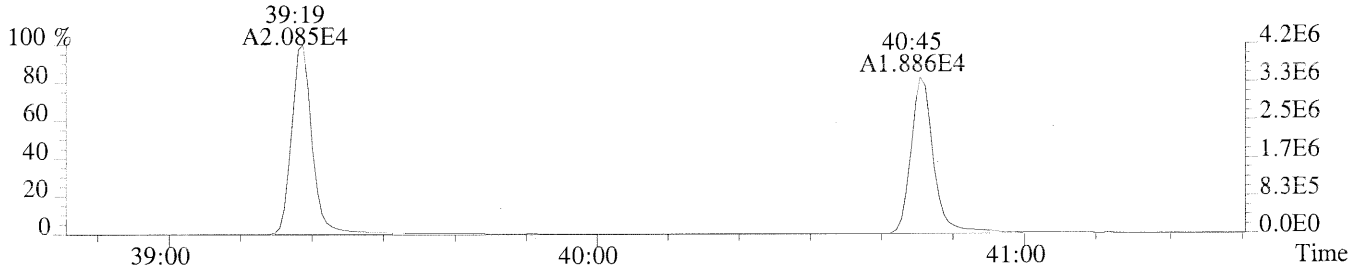
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,896.0,0.50%,F,T)



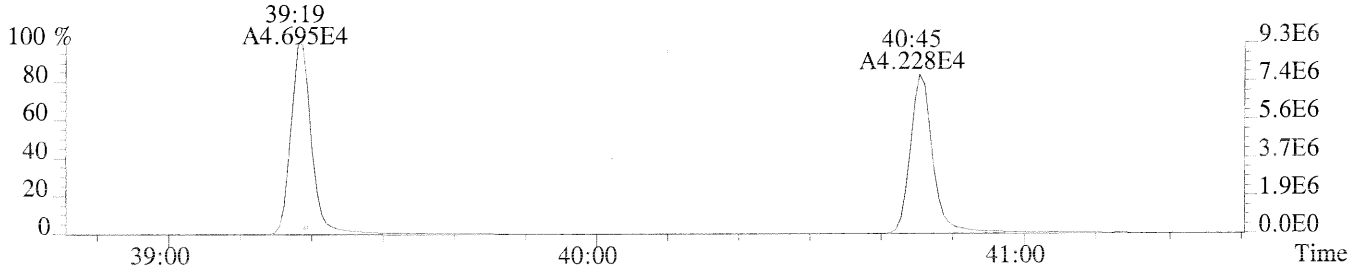
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1520.0,0.50%,F,T)



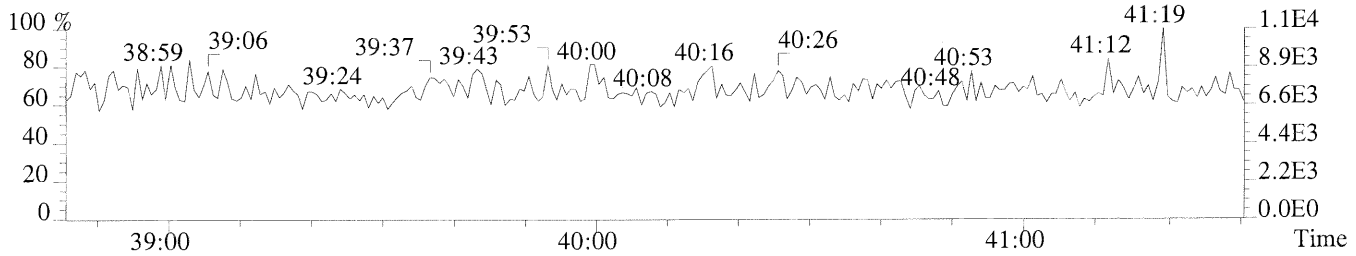
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2248.0,0.50%,F,T)



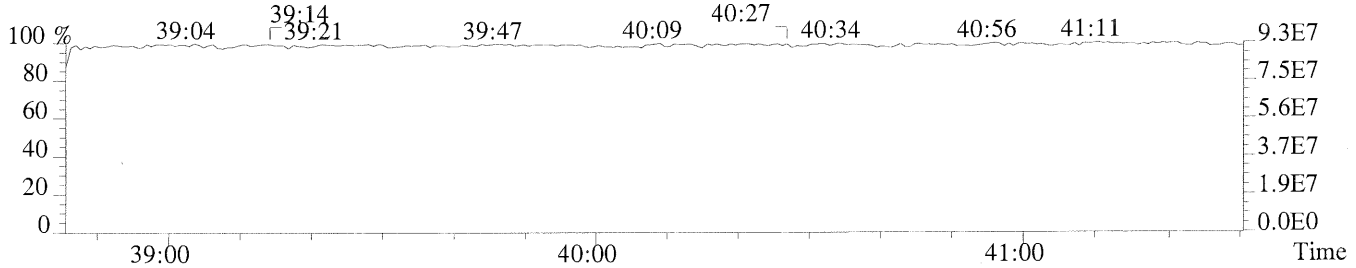
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3432.0,0.50%,F,T)



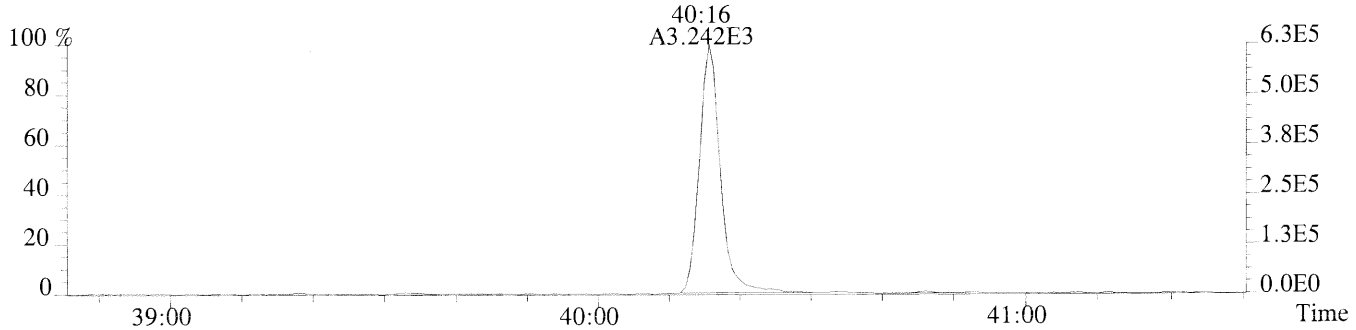
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



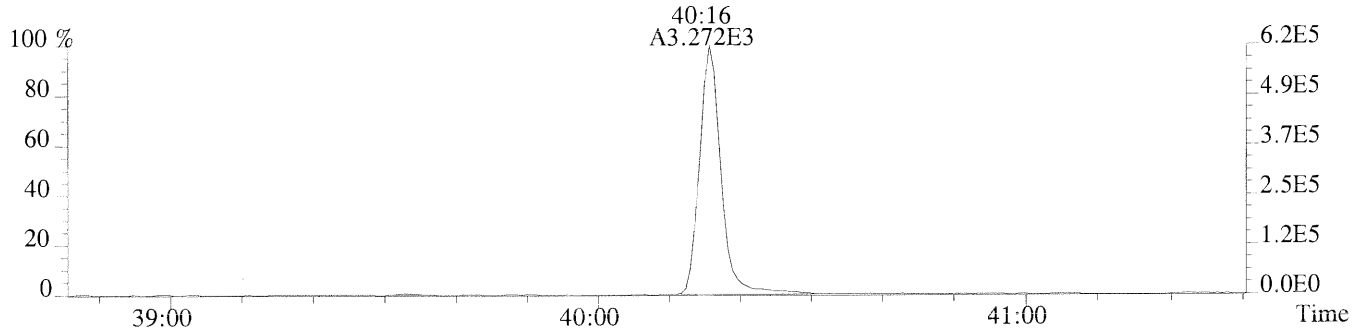
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



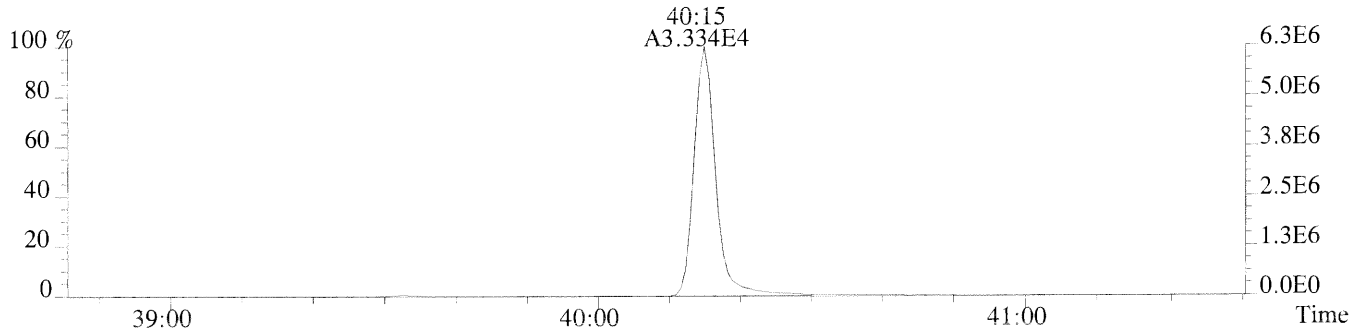
File:P169972 #1-250 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.40%,F,T)



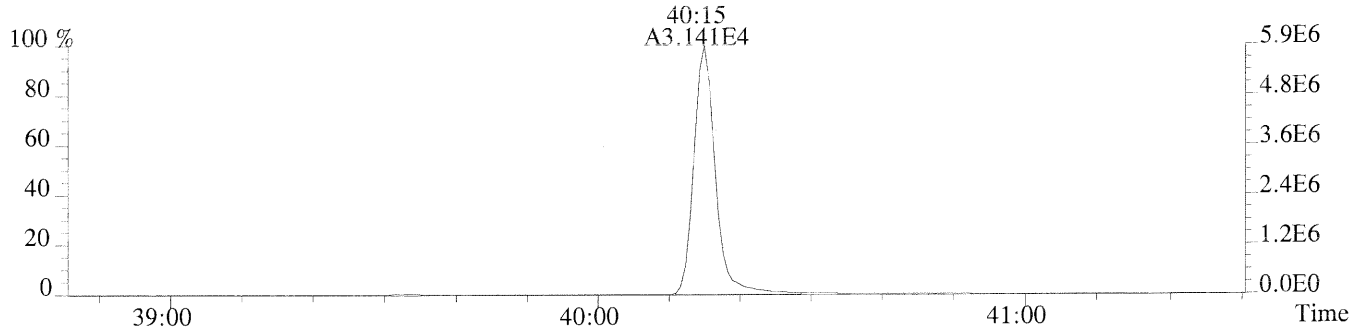
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



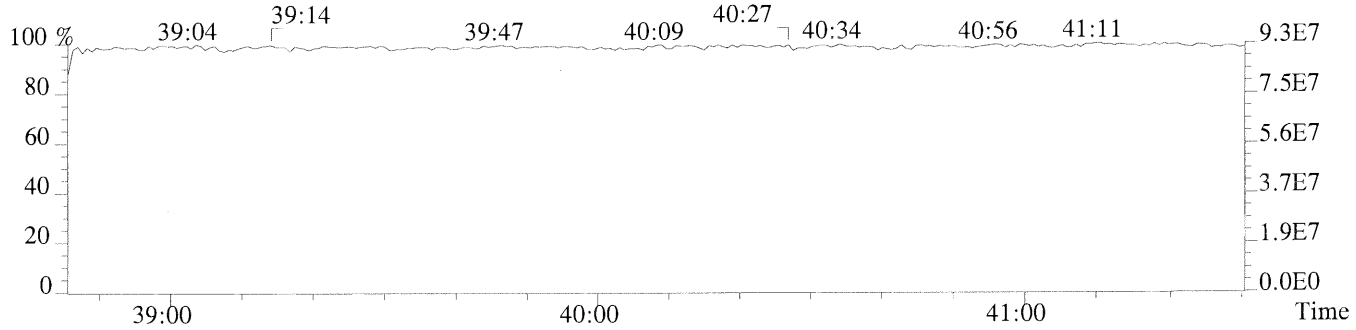
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1044.0,0.40%,F,T)



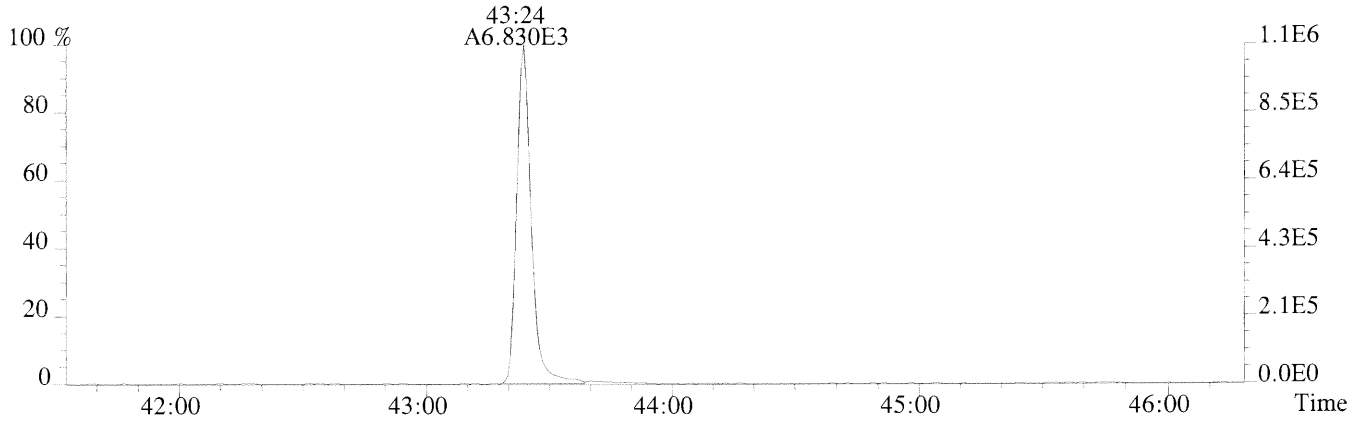
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



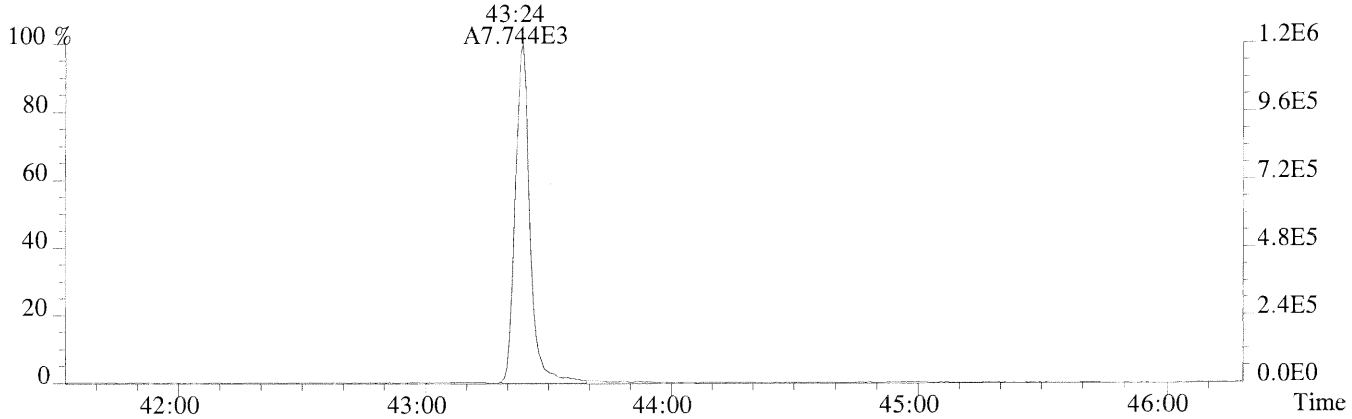
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



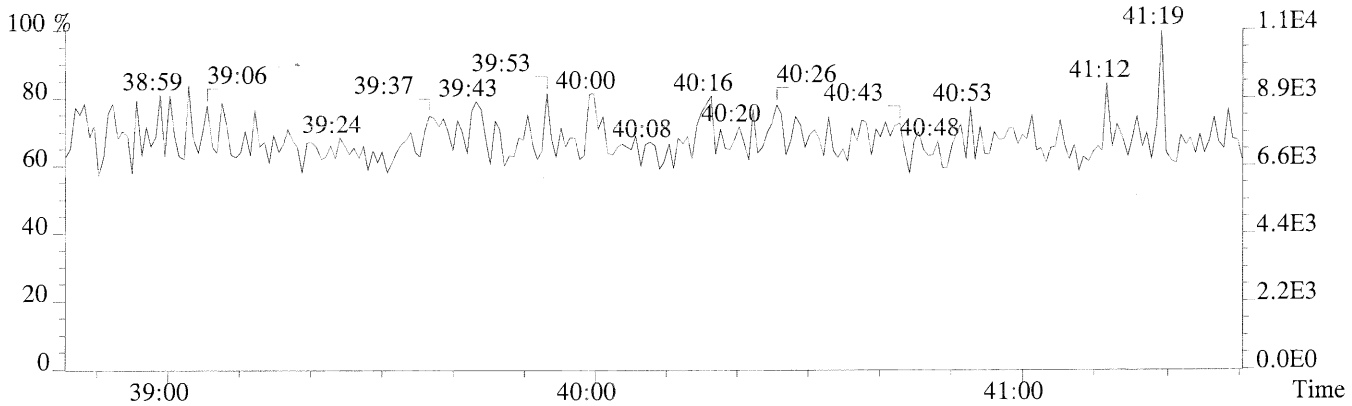
File:P169972 #1-438 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,900.0,0.40%,F,T)



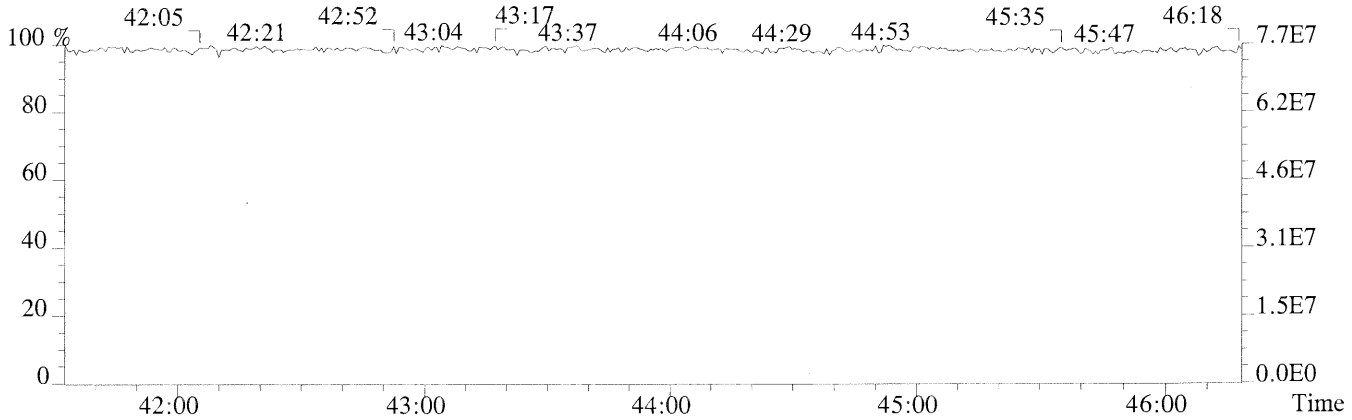
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1692.0,0.40%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

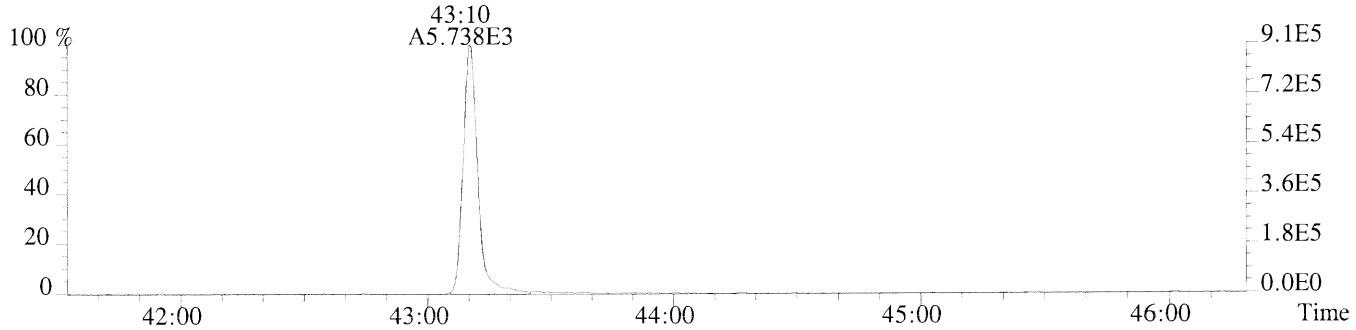


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

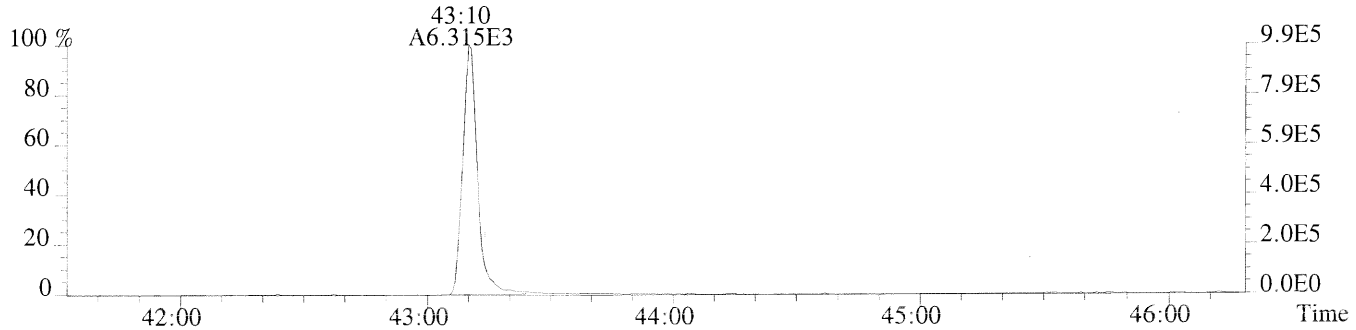


File:P169972 #1-438 Acq:25-MAR-2014 18:58:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC2/CS2

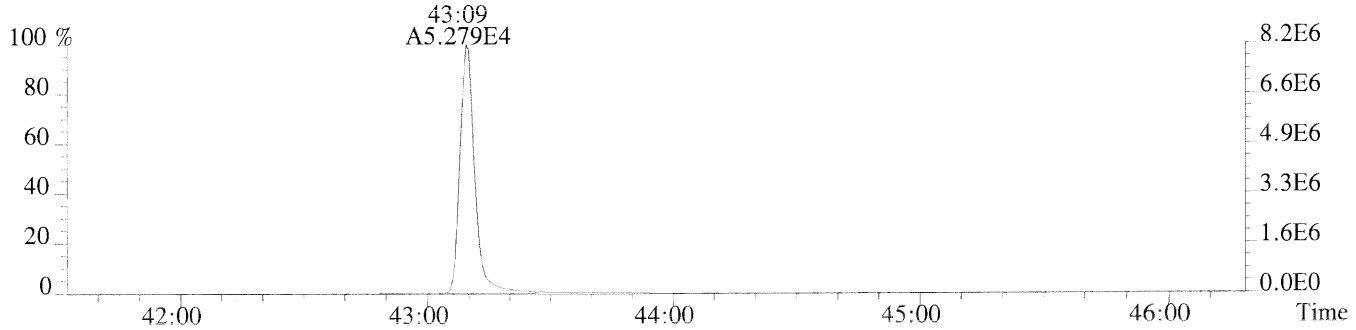
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,760.0,0.40%,F,T)



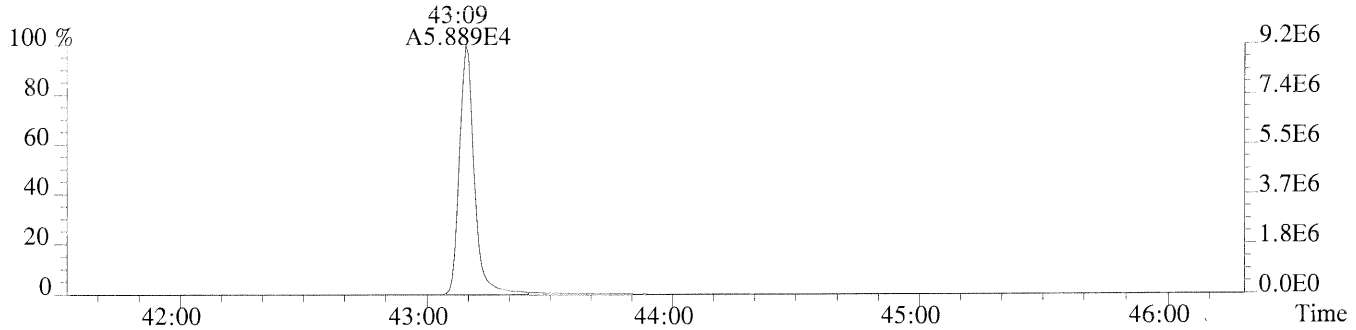
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



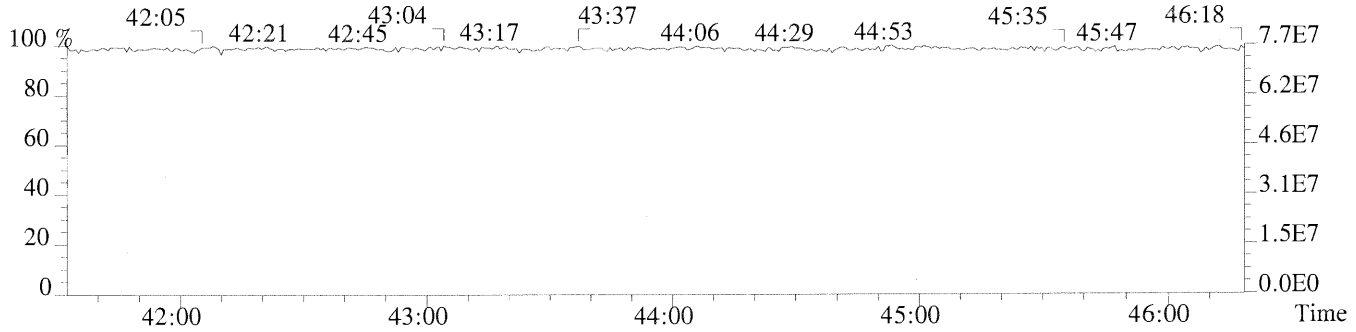
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1080.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
63383

Run #4 Filename P169973 Samp: 1 Inj: 1 Acquired: 25-MAR-14 19:46:25
Processed: 26-MAR-14 10:01:08 Sample ID: ICAL HRCC3/CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:29	4.466e+03	5.928e+03	0.75	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:23	4.454e+04	2.806e+04	1.59	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	34:14	4.060e+04	2.622e+04	1.55	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:47	3.600e+04	2.867e+04	1.26	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:53	3.885e+04	3.189e+04	1.22	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:21	3.550e+04	2.899e+04	1.22	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	38:06	3.295e+04	2.695e+04	1.22	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:19	3.278e+04	3.154e+04	1.04	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:47	2.769e+04	2.691e+04	1.03	yes	no	1.324
10	Unk	OCDF	43:24	4.694e+04	5.266e+04	0.89	yes	no	1.307
11	Unk	2,3,7,8-TCDD	30:12	3.554e+03	4.559e+03	0.78	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:30	2.837e+04	1.825e+04	1.55	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:29	2.386e+04	1.931e+04	1.24	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:34	2.616e+04	2.103e+04	1.24	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:48	2.680e+04	2.208e+04	1.21	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	2.267e+04	2.136e+04	1.06	yes	no	1.016
17	Unk	OCDD	43:11	3.869e+04	4.323e+04	0.89	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:28	5.017e+04	6.394e+04	0.78	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:22	8.620e+04	5.480e+04	1.57	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	34:13	8.411e+04	5.352e+04	1.57	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:46	3.538e+04	6.735e+04	0.53	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:52	4.206e+04	7.939e+04	0.53	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:21	3.836e+04	7.360e+04	0.52	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	38:05	3.471e+04	6.786e+04	0.51	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:19	2.809e+04	6.282e+04	0.45	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	2.528e+04	5.711e+04	0.44	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	30:11	3.517e+04	4.470e+04	0.79	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:29	6.149e+04	3.860e+04	1.59	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:29	4.747e+04	3.745e+04	1.27	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:33	5.313e+04	4.120e+04	1.29	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:16	4.414e+04	4.127e+04	1.07	yes	no	0.862
32	IS	13C-OCDD	43:10	7.159e+04	7.954e+04	0.90	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:41	3.582e+04	4.552e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:47	5.573e+04	4.463e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:12	8.444e+03				no	1.125

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
63383

Run #4 Filename P169973 Samp: 1 Inj: 1 Acquired: 25-MAR-14 19:46:25
Processed: 26-MAR-14 08:20:101 LAB. ID: ICAL HRCC3/CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.58e+05	6.96e+02	1.4e+03	1.28e+06	3.10e+03	4.1e+02
2	1,2,3,7,8-PeCDF	8.63e+06	9.72e+02	8.9e+03	5.44e+06	1.92e+03	2.8e+03
3	2,3,4,7,8-PeCDF	8.21e+06	9.72e+02	8.4e+03	5.33e+06	1.92e+03	2.8e+03
4	1,2,3,4,7,8-HxCDF	7.78e+06	1.23e+03	6.3e+03	6.10e+06	1.07e+03	5.7e+03
5	1,2,3,6,7,8-HxCDF	7.80e+06	1.23e+03	6.3e+03	6.46e+06	1.07e+03	6.0e+03
6	2,3,4,6,7,8-HxCDF	7.54e+06	1.23e+03	6.1e+03	6.19e+06	1.07e+03	5.8e+03
7	1,2,3,7,8,9-HxCDF	6.72e+06	1.23e+03	5.5e+03	5.52e+06	1.07e+03	5.1e+03
8	1,2,3,4,6,7,8-HpCDF	6.42e+06	3.31e+03	1.9e+03	6.30e+06	3.43e+03	1.8e+03
9	1,2,3,4,7,8,9-HpCDF	4.95e+06	3.31e+03	1.5e+03	4.80e+06	3.43e+03	1.4e+03
10	OCDF	7.28e+06	1.19e+03	6.1e+03	7.90e+06	1.71e+03	4.6e+03
11	2,3,7,8-TCDD	8.22e+05	1.05e+03	7.8e+02	1.05e+06	1.30e+03	8.1e+02
12	1,2,3,7,8-PeCDD	5.67e+06	1.51e+03	3.8e+03	3.65e+06	6.08e+02	6.0e+03
13	1,2,3,4,7,8-HxCDD	5.39e+06	1.35e+03	4.0e+03	4.26e+06	1.50e+03	2.8e+03
14	1,2,3,6,7,8-HxCDD	5.33e+06	1.35e+03	4.0e+03	4.23e+06	1.50e+03	2.8e+03
15	1,2,3,7,8,9-HxCDD	5.38e+06	1.35e+03	4.0e+03	4.43e+06	1.50e+03	2.9e+03
16	1,2,3,4,6,7,8-HpCDD	4.29e+06	1.05e+03	4.1e+03	4.00e+06	8.12e+02	4.9e+03
17	OCDD	6.18e+06	6.52e+02	9.5e+03	6.87e+06	8.92e+02	7.7e+03
18	13C-2,3,7,8-TCDF	1.09e+07	2.00e+03	5.4e+03	1.39e+07	1.75e+03	7.9e+03
19	13C-1,2,3,7,8-PeCDF	1.63e+07	1.00e+03	1.6e+04	1.04e+07	1.24e+03	8.4e+03
20	13C-2,3,4,7,8-PeCDF	1.69e+07	1.00e+03	1.7e+04	1.07e+07	1.24e+03	8.6e+03
21	13C-1,2,3,4,7,8-HxCDF	7.60e+06	1.03e+03	7.4e+03	1.44e+07	1.80e+03	8.0e+03
22	13C-1,2,3,6,7,8-HxCDF	8.55e+06	1.03e+03	8.3e+03	1.62e+07	1.80e+03	9.0e+03
23	13C-2,3,4,6,7,8-HxCDF	7.96e+06	1.03e+03	7.7e+03	1.55e+07	1.80e+03	8.6e+03
24	13C-1,2,3,7,8,9-HxCDF	7.01e+06	1.03e+03	6.8e+03	1.38e+07	1.80e+03	7.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.46e+06	3.52e+03	1.6e+03	1.23e+07	3.85e+03	3.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.47e+06	3.52e+03	1.3e+03	1.03e+07	3.85e+03	2.7e+03
27	13C-2,3,7,8-TCDD	7.98e+06	5.24e+03	1.5e+03	1.01e+07	2.82e+03	3.6e+03
28	13C-1,2,3,7,8-PeCDD	1.22e+07	1.42e+03	8.6e+03	7.62e+06	7.64e+02	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	1.07e+07	2.02e+03	5.3e+03	8.24e+06	1.43e+03	5.8e+03
30	13C-1,2,3,6,7,8-HxCDD	1.05e+07	2.02e+03	5.2e+03	8.19e+06	1.43e+03	5.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.11e+06	1.60e+03	5.1e+03	7.67e+06	8.72e+02	8.8e+03
32	13C-OCDD	1.12e+07	1.10e+03	1.0e+04	1.27e+07	9.48e+02	1.3e+04
33	13C-1,2,3,4-TCDD	7.91e+06	5.24e+03	1.5e+03	9.90e+06	2.82e+03	3.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.09e+07	2.02e+03	5.4e+03	8.87e+06	1.43e+03	6.2e+03
35	37Cl-2,3,7,8-TCDD	1.95e+06	1.38e+03	1.4e+03			

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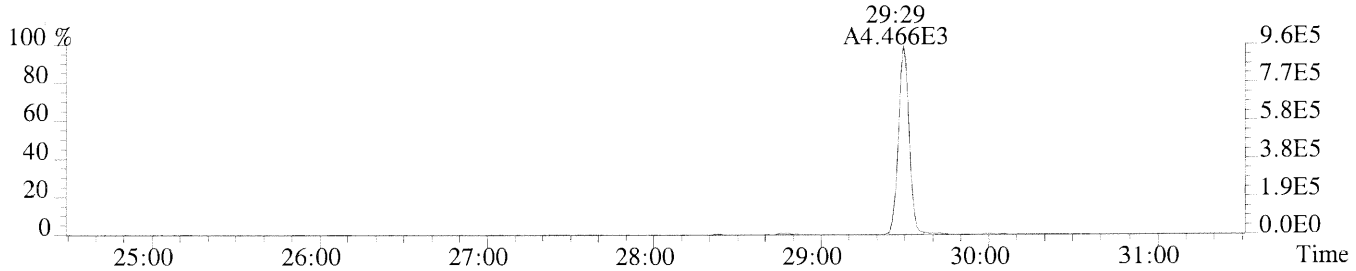
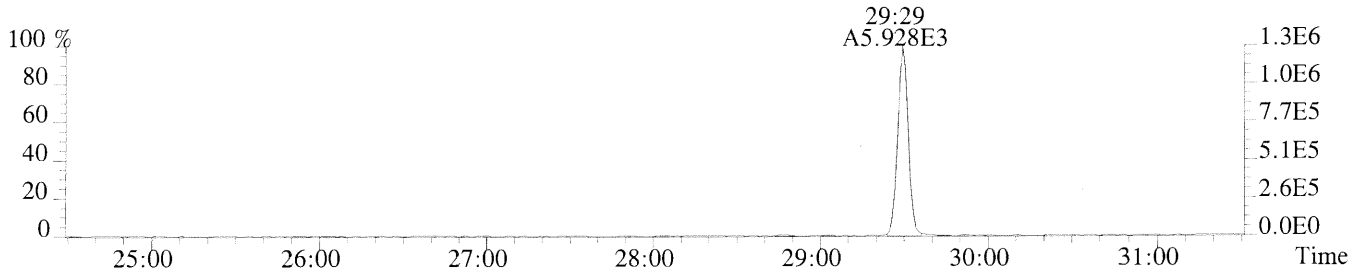
File:P169973 #1-442 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3

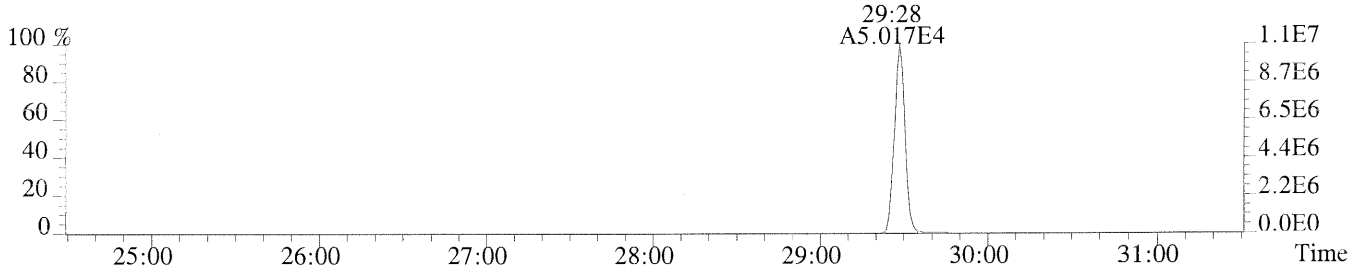
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



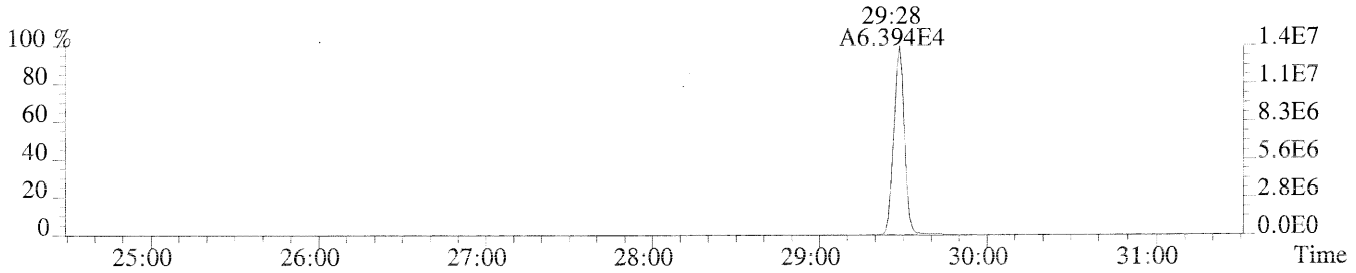
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3100.0,1.00%,F,T)



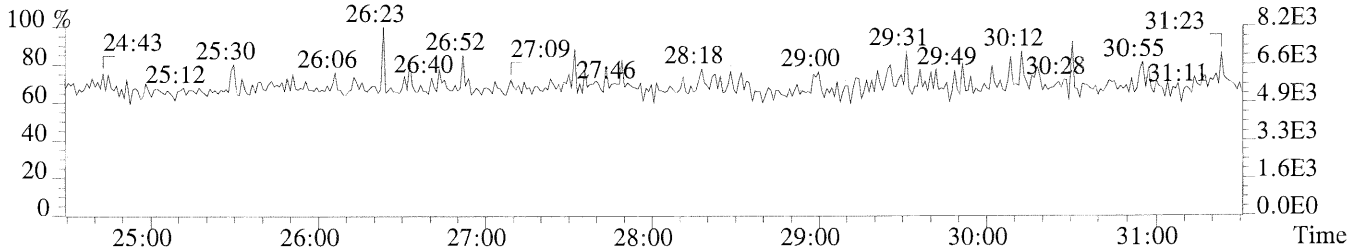
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2000.0,1.00%,F,T)



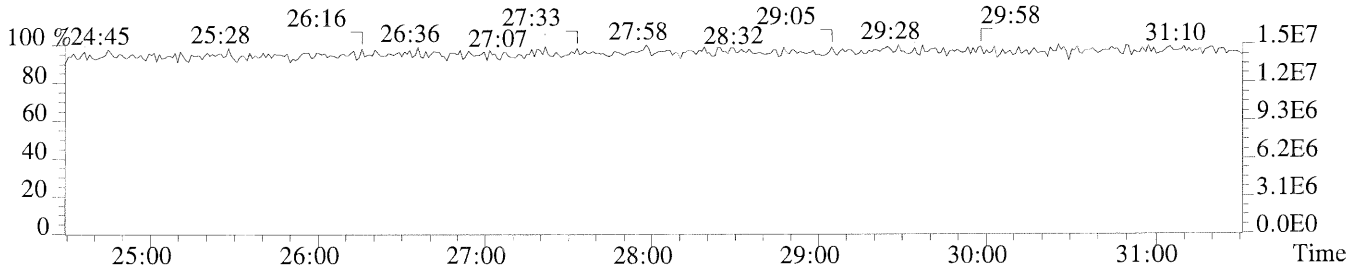
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1752.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

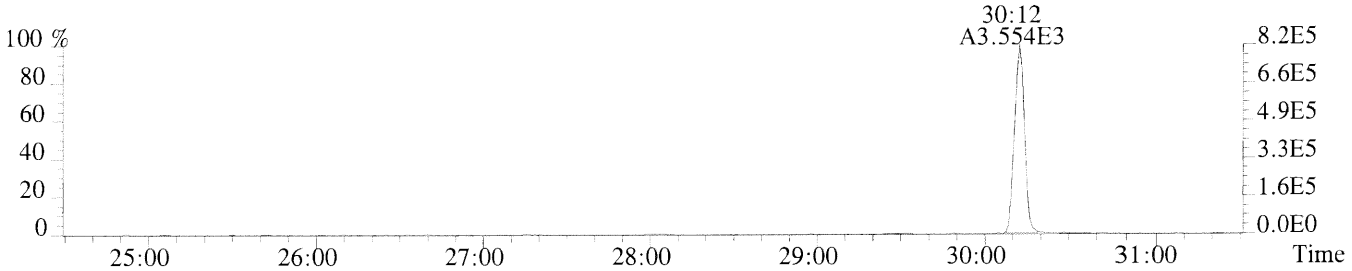


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

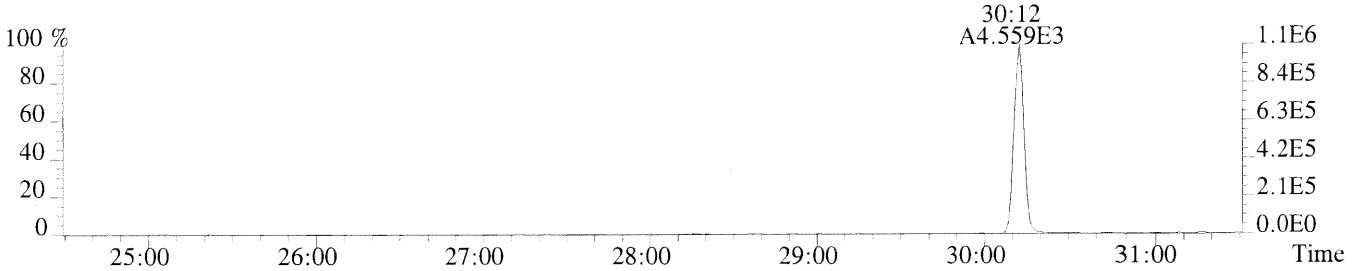


File:P169973 #1-442 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3

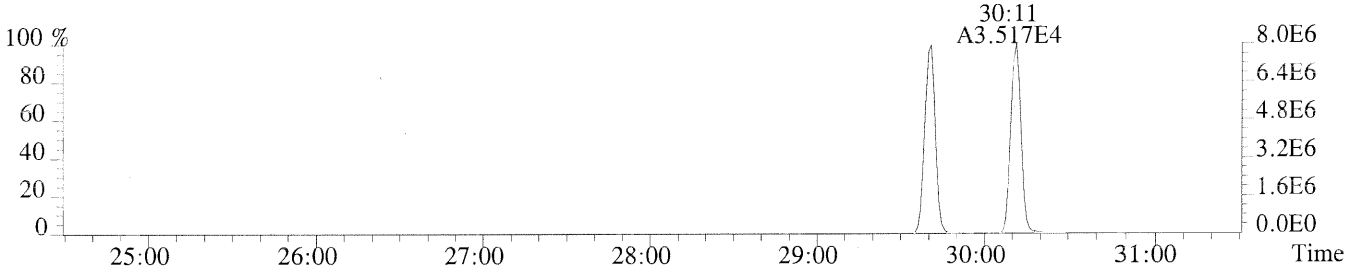
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



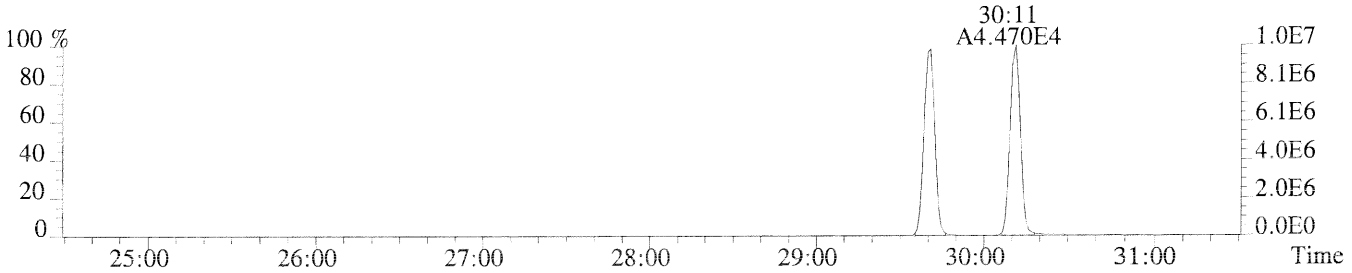
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



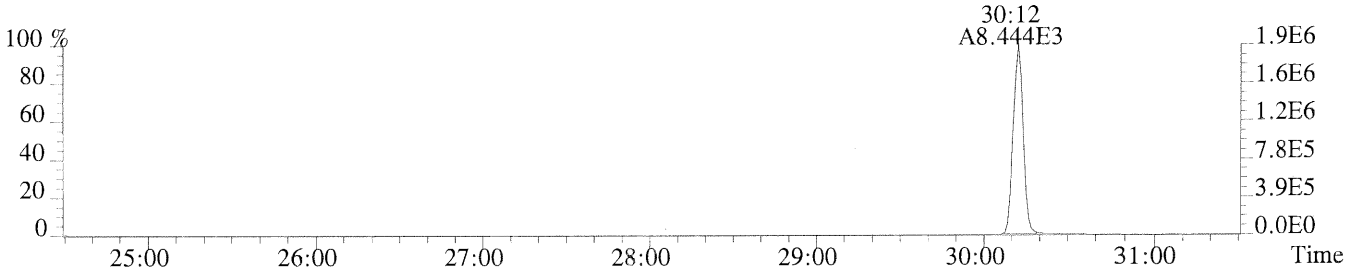
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5244.0,1.00%,F,T)



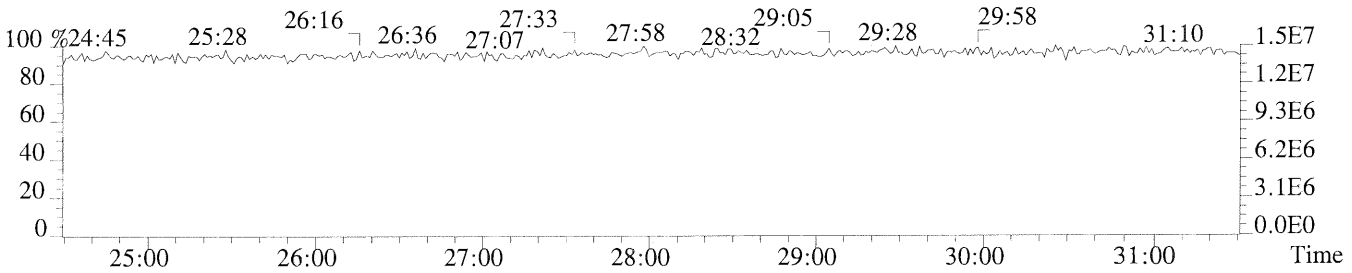
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2820.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)

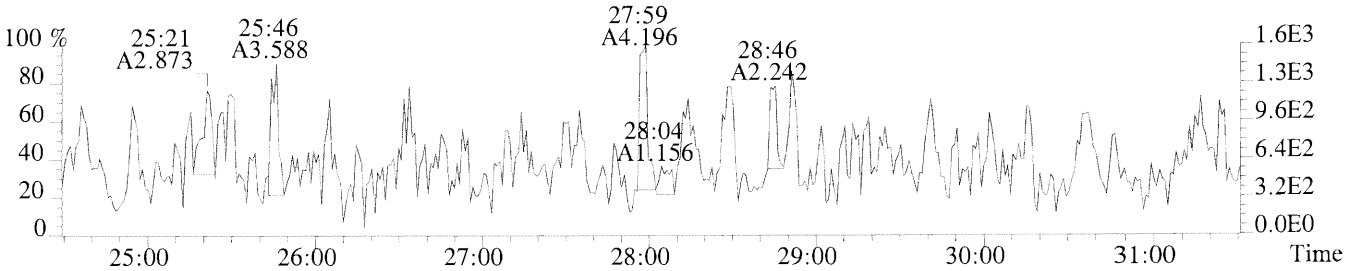


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

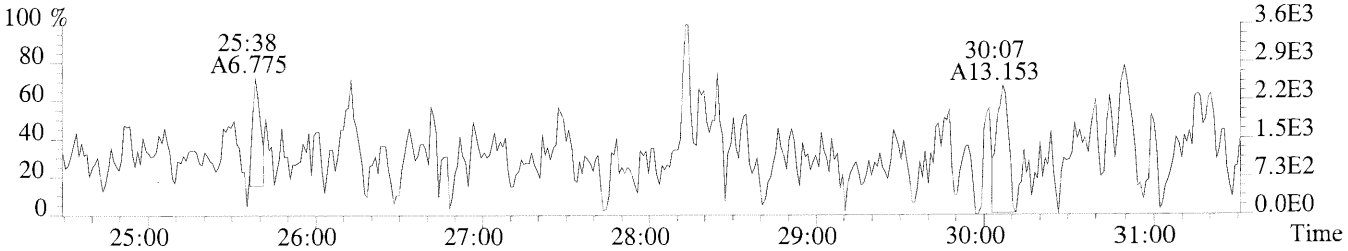


File:P169973 #1-442 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3

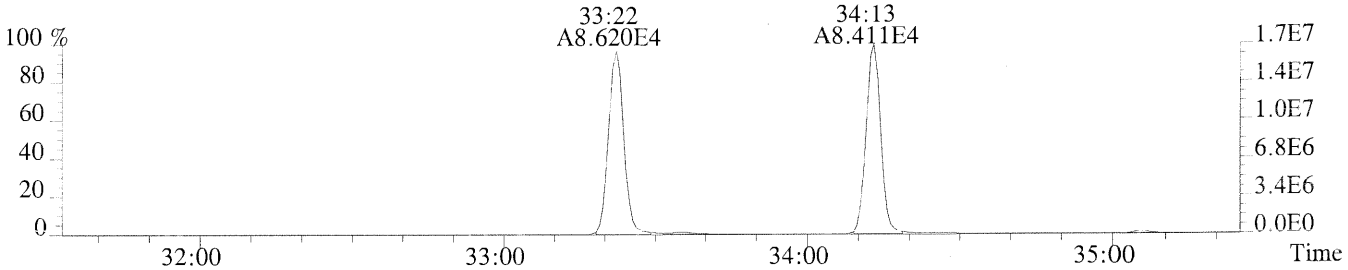
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



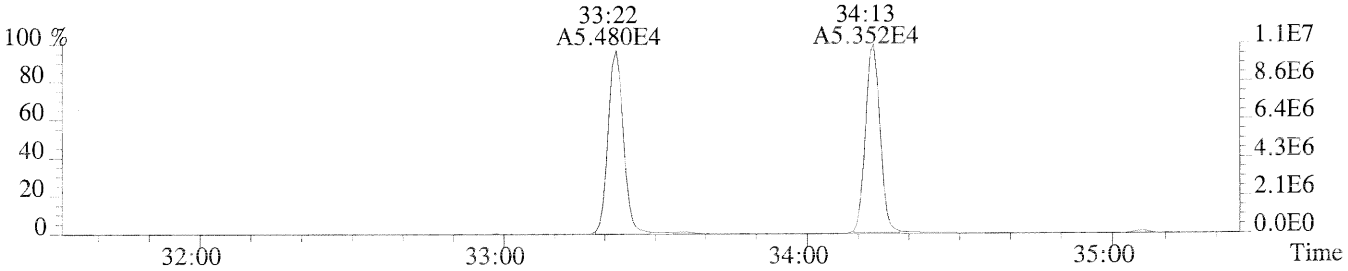
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1532.0,1.00%,F,T)



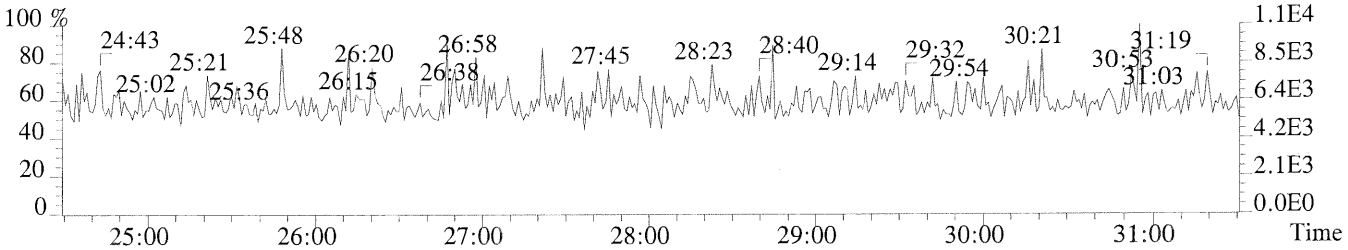
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



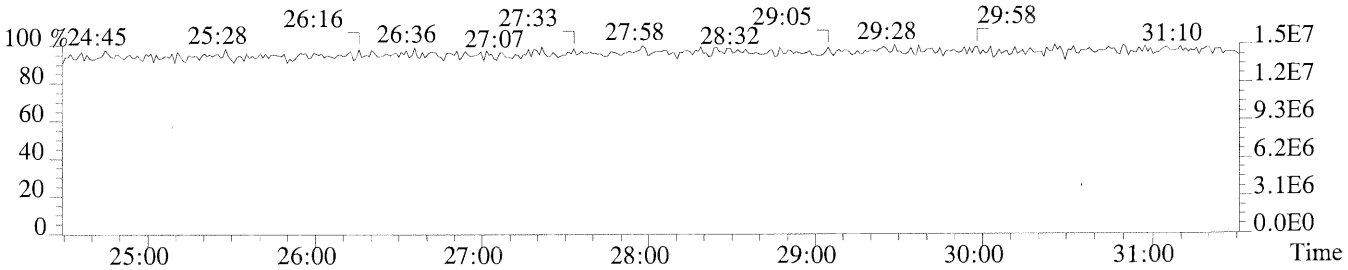
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

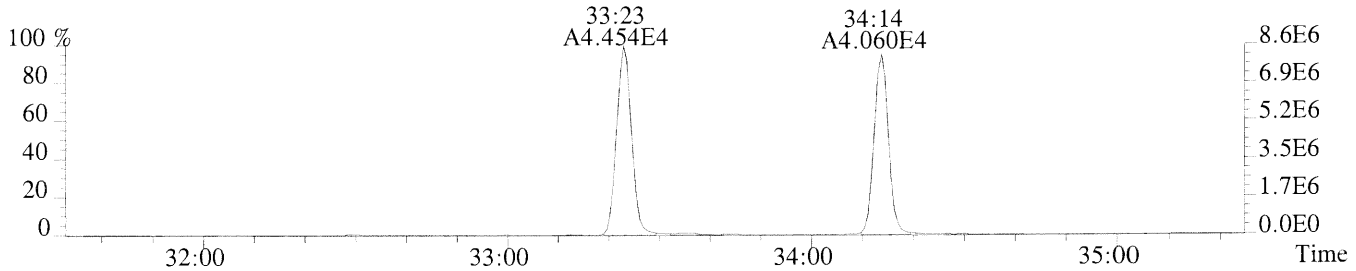


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

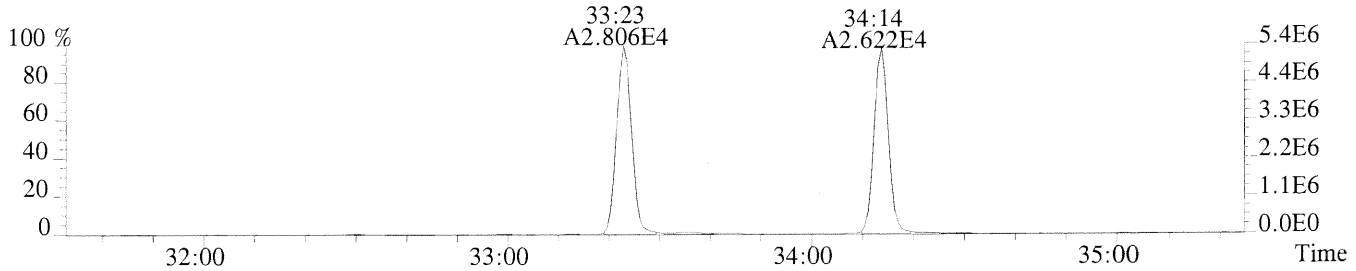


File:P169973 #1-351 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3

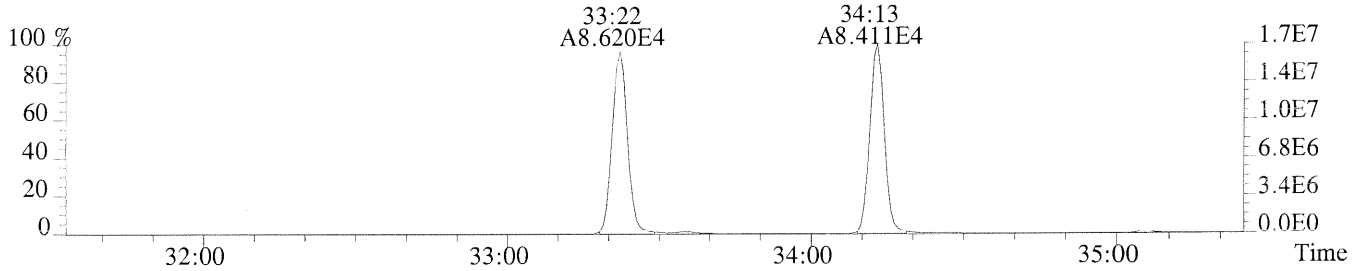
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



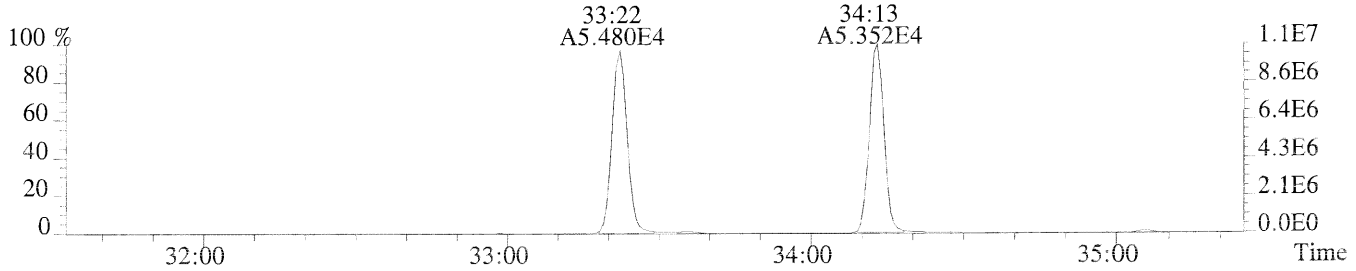
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1920.0,1.00%,F,T)



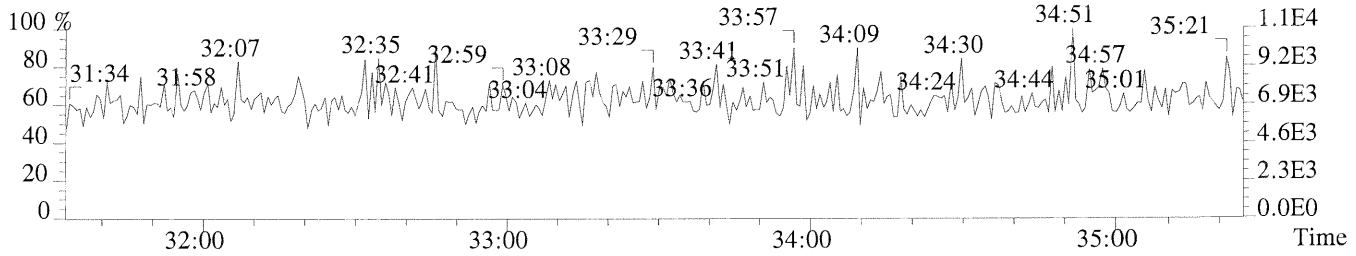
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



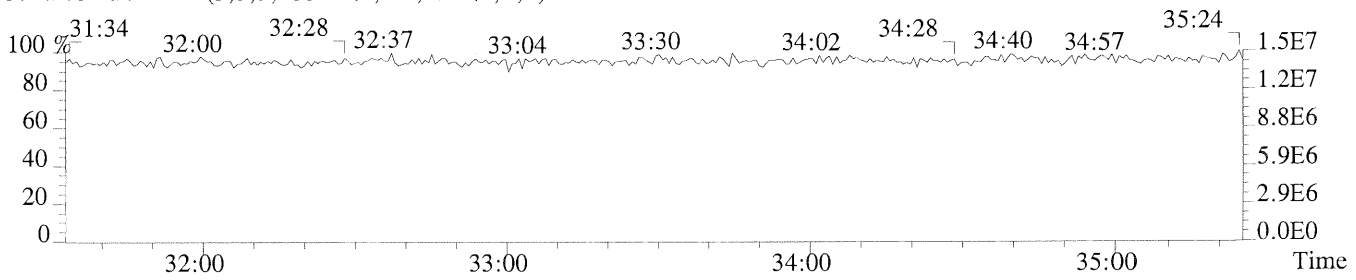
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1244.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

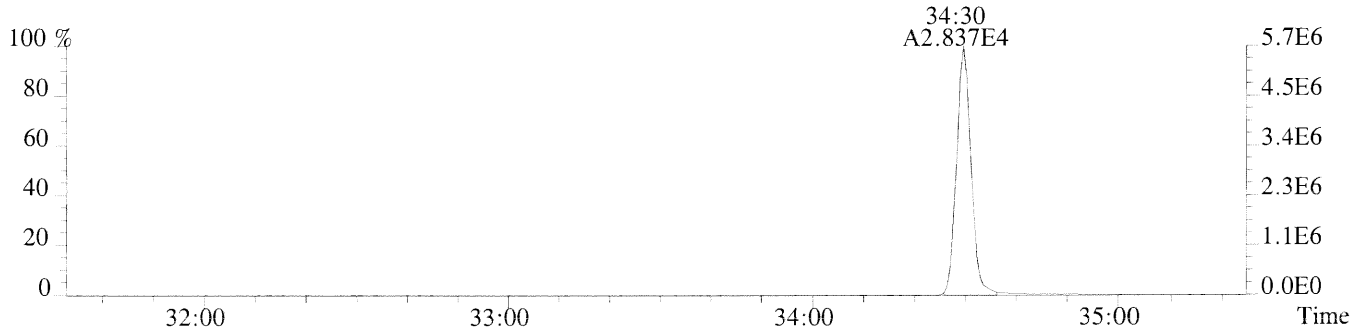


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

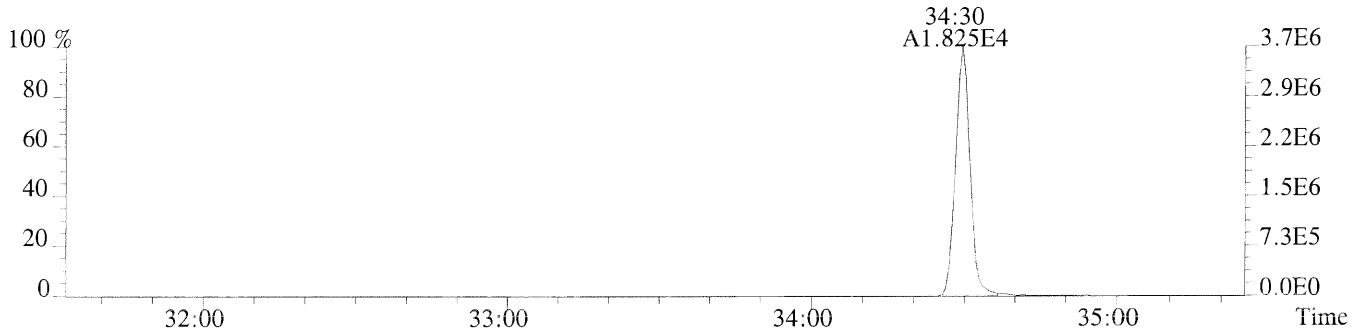


File:P169973 #1-351 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3

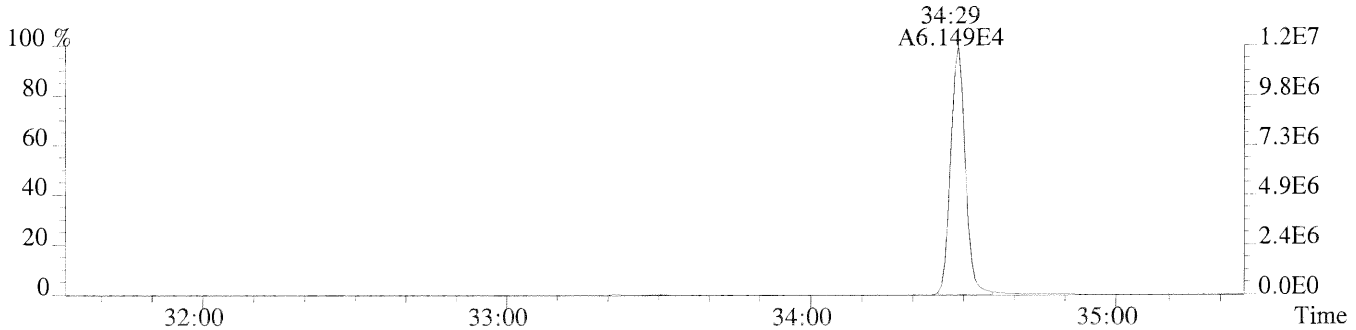
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1512.0,1.00%,F,T)



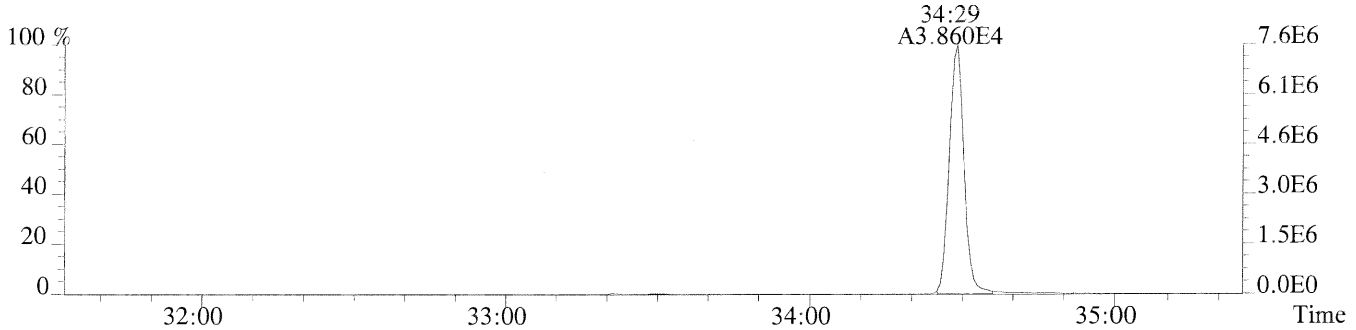
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



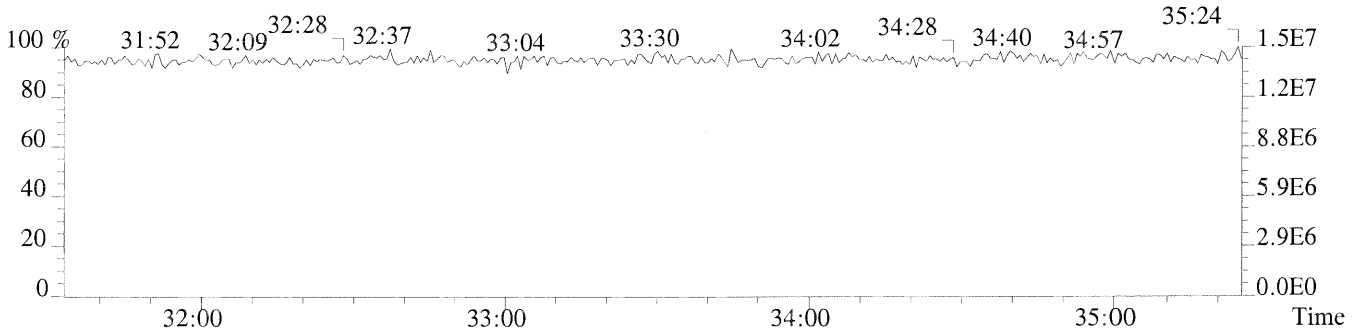
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1420.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)

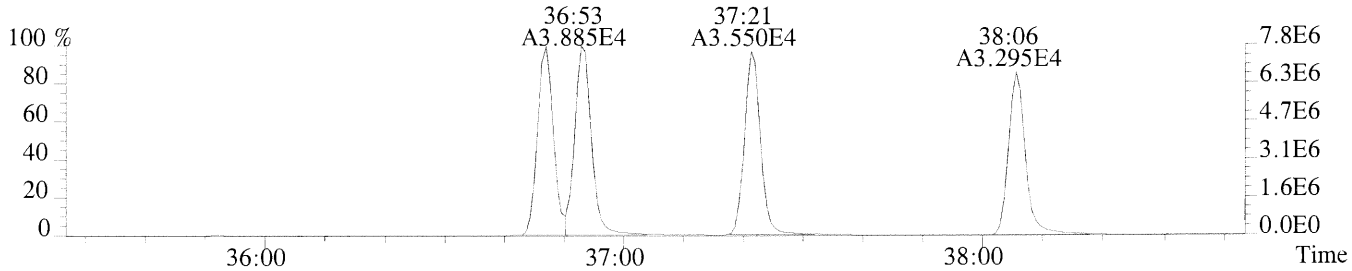


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

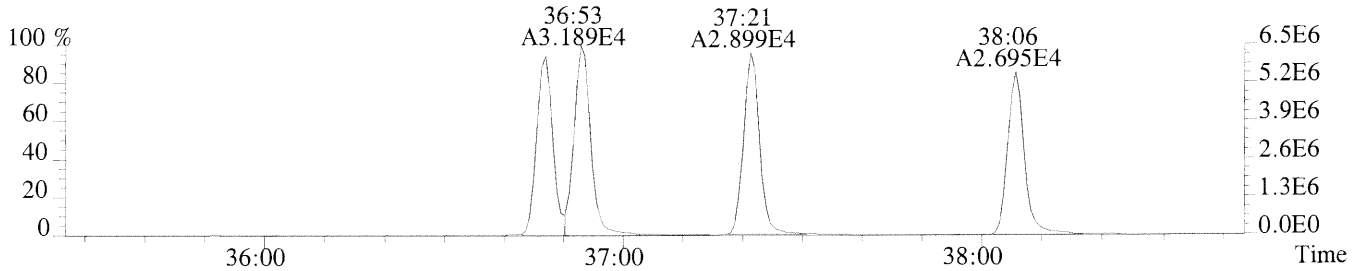


File:P169973 #1-298 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3

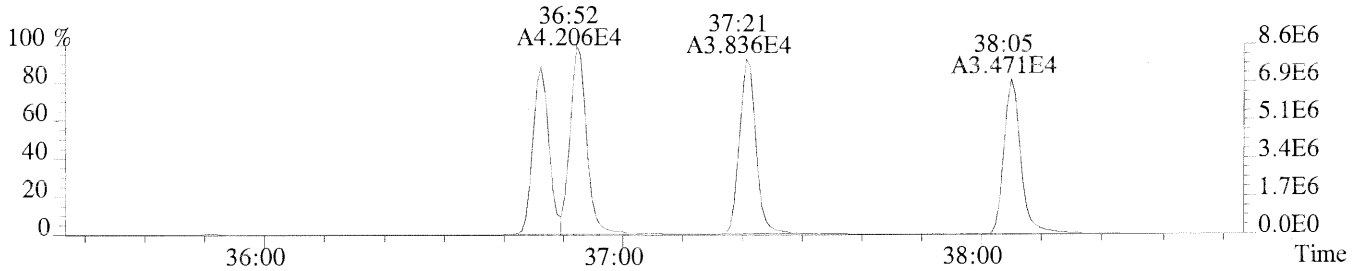
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1228.0,0.40%,F,T)



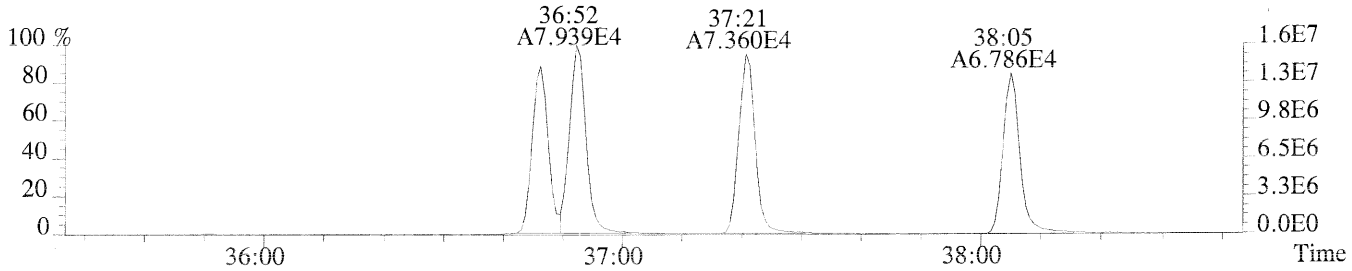
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1072.0,0.40%,F,T)



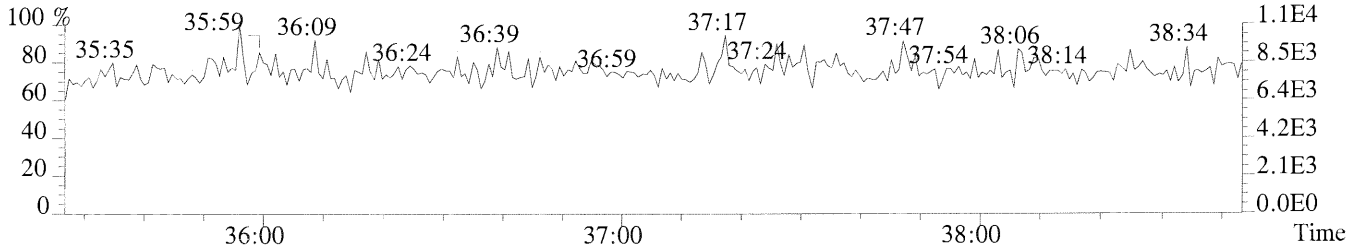
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



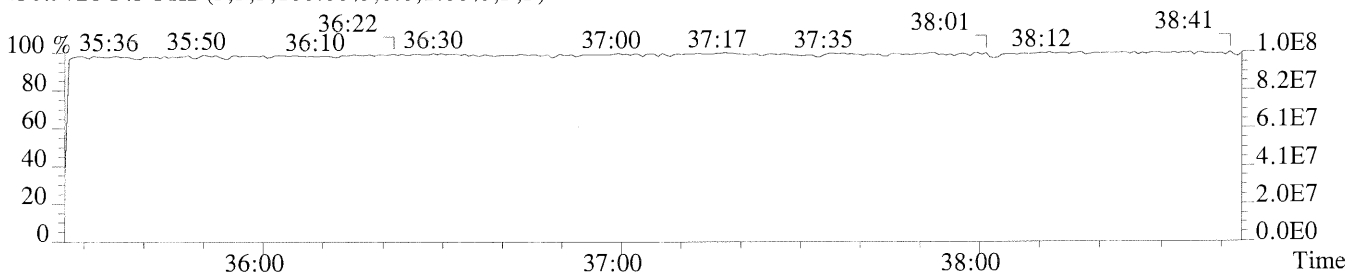
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1796.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

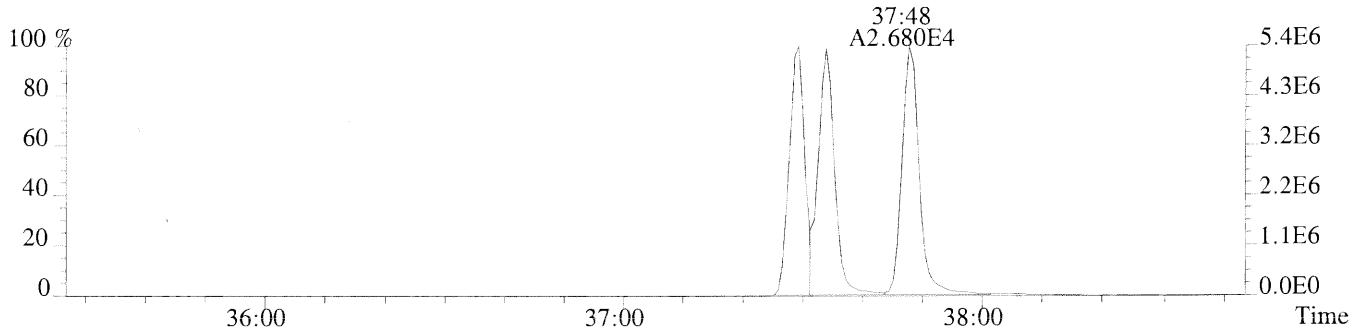


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

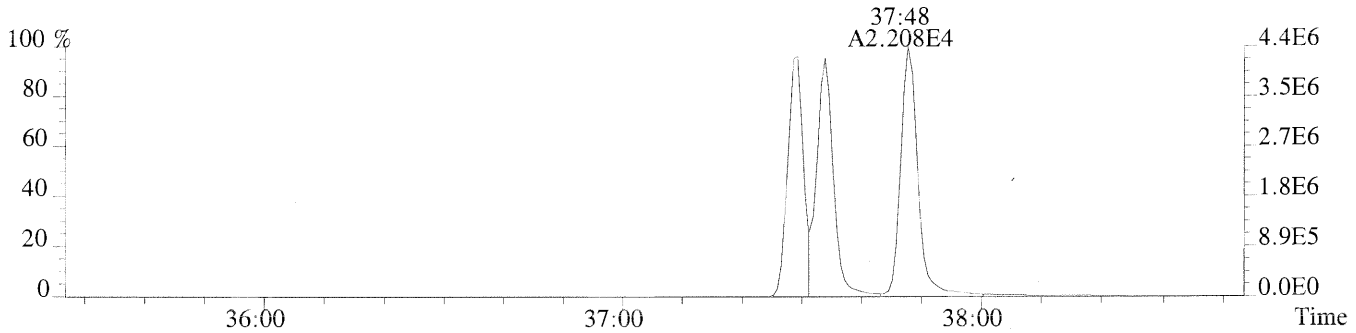


File:P169973 #1-298 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3

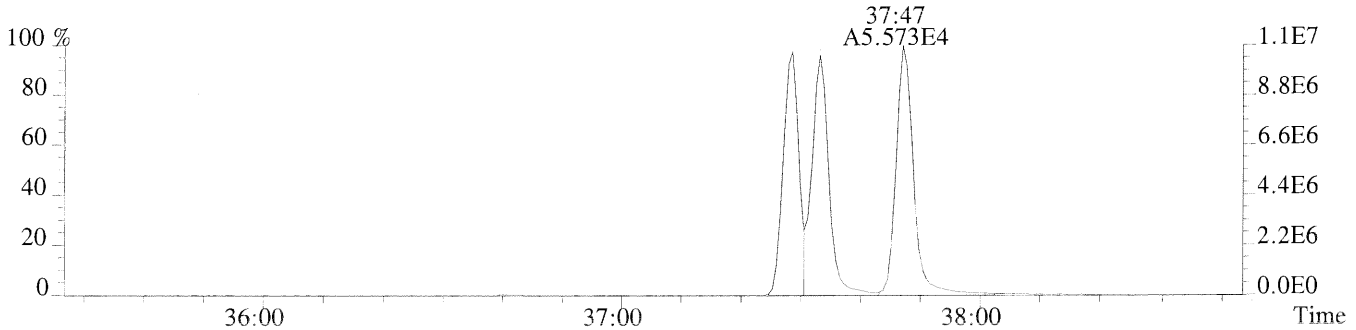
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1348.0,0.40%,F,T)



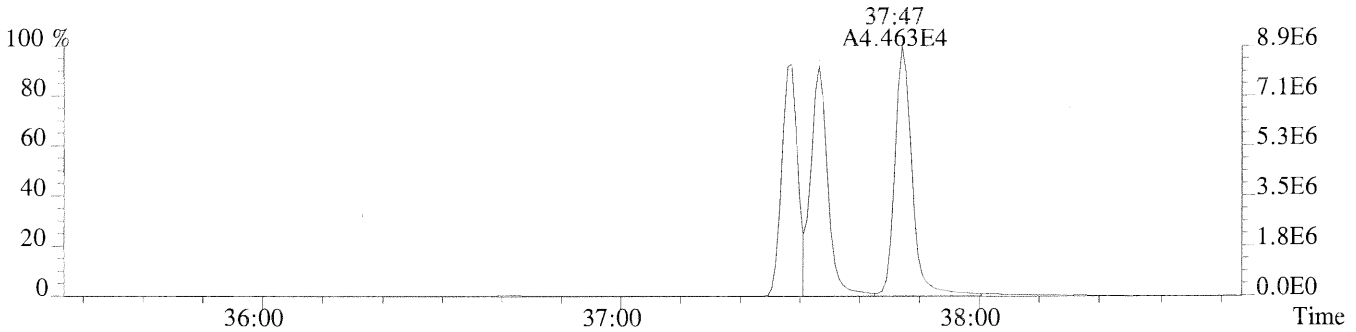
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1504.0,0.40%,F,T)



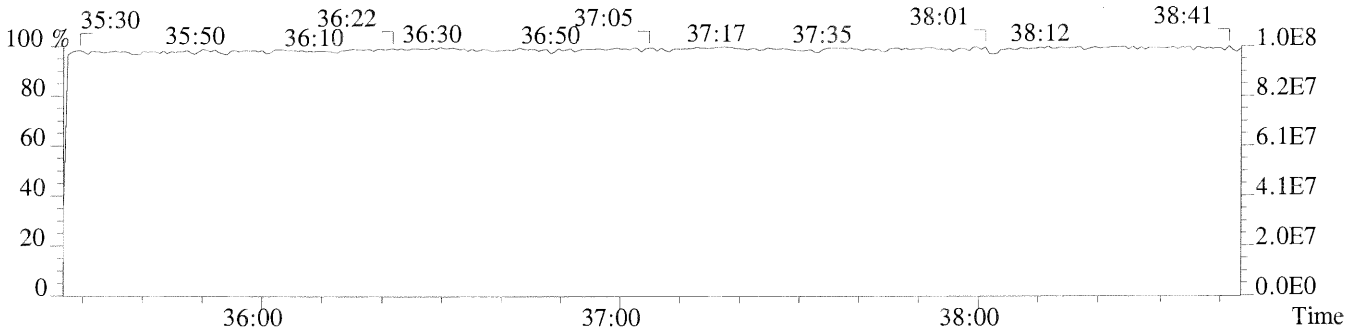
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2016.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)

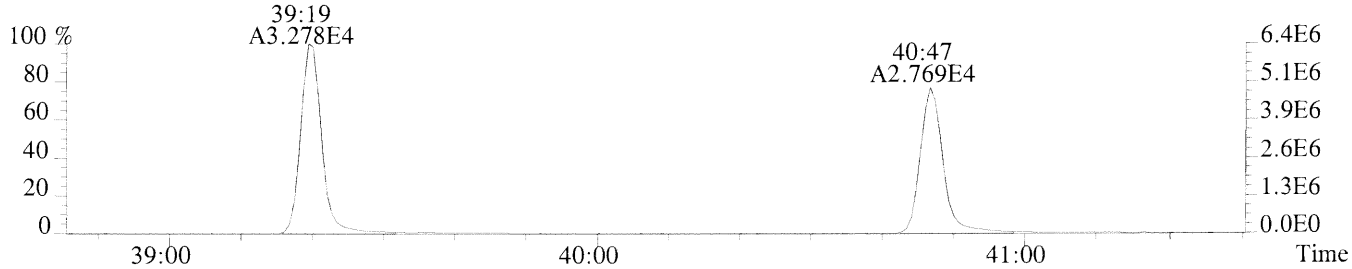


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

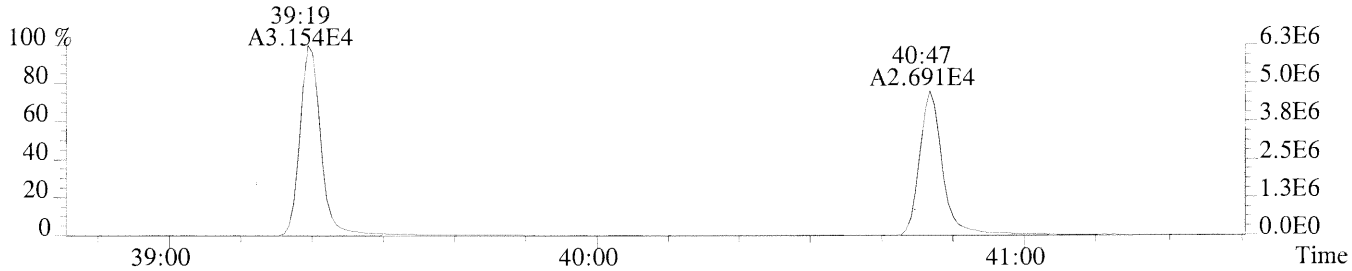


File:P169973 #1-250 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3

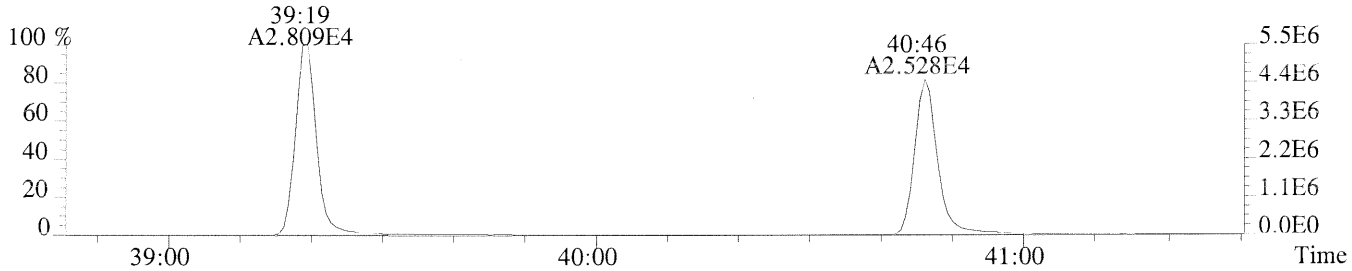
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3308.0,0.50%,F,T)



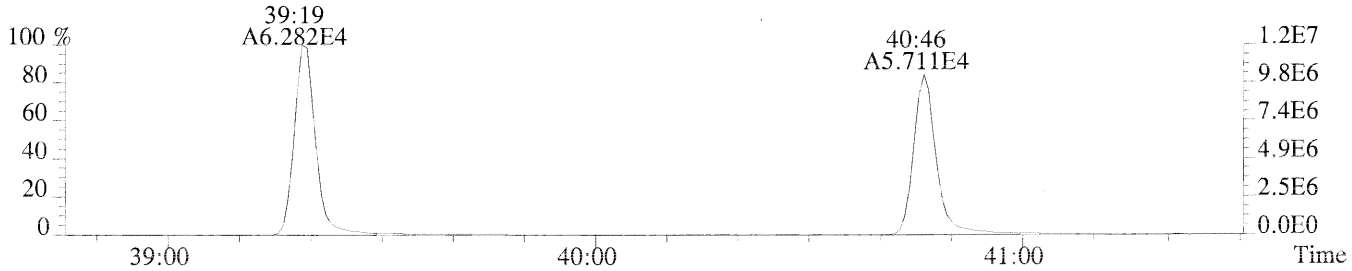
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3432.0,0.50%,F,T)



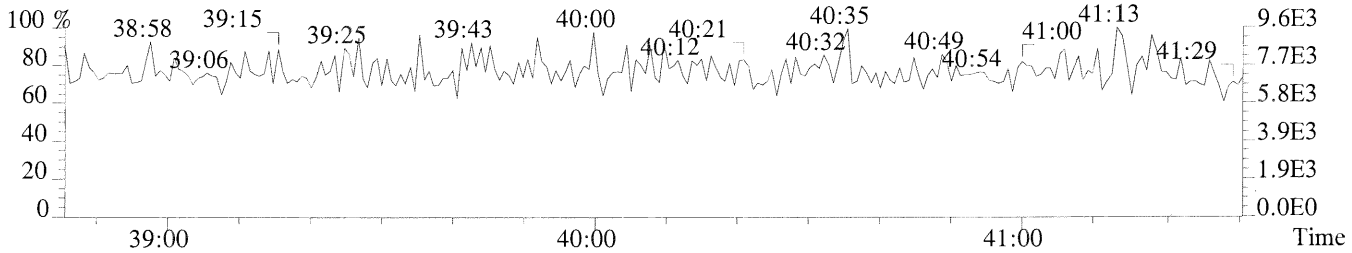
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3516.0,0.50%,F,T)



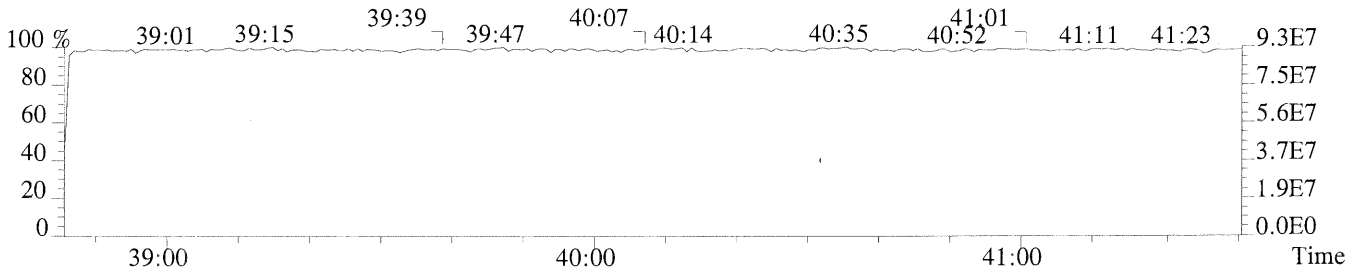
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3852.0,0.50%,F,T)



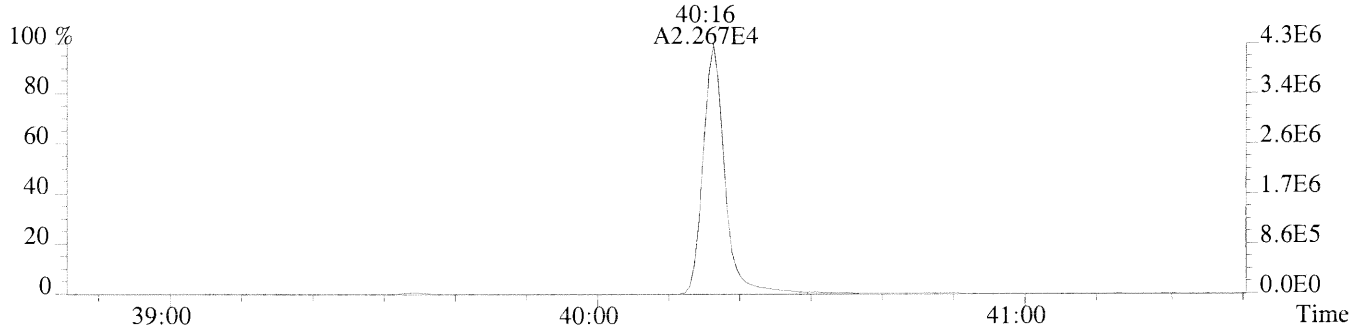
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



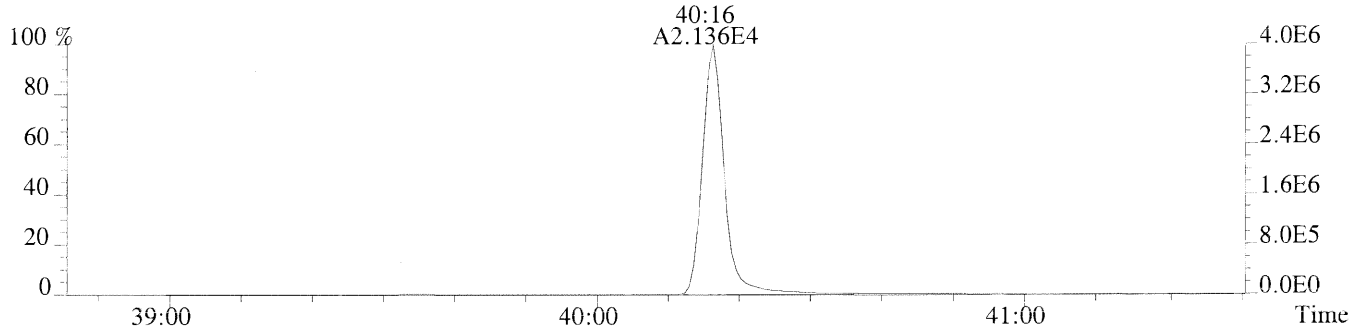
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



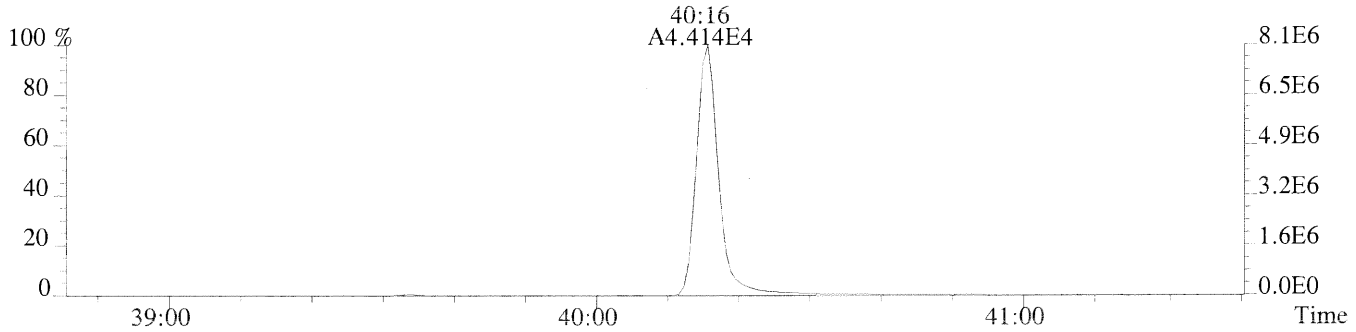
File:P169973 #1-250 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)



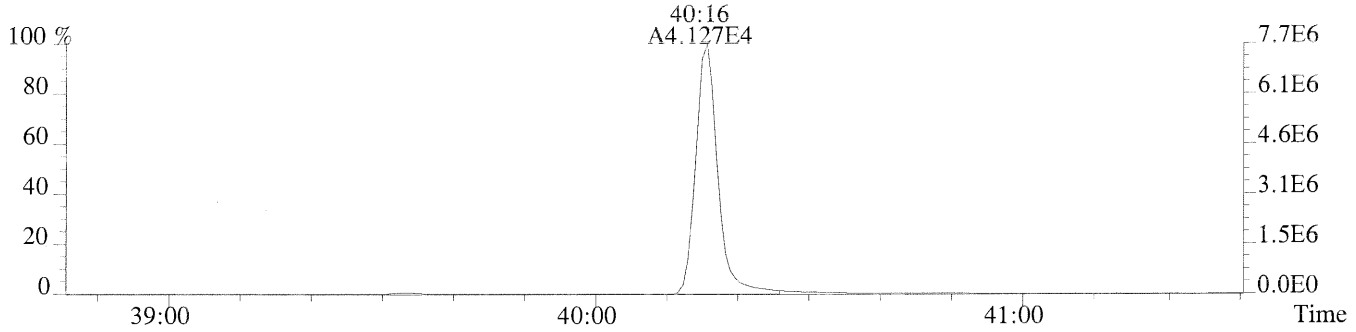
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,812.0,0.40%,F,T)



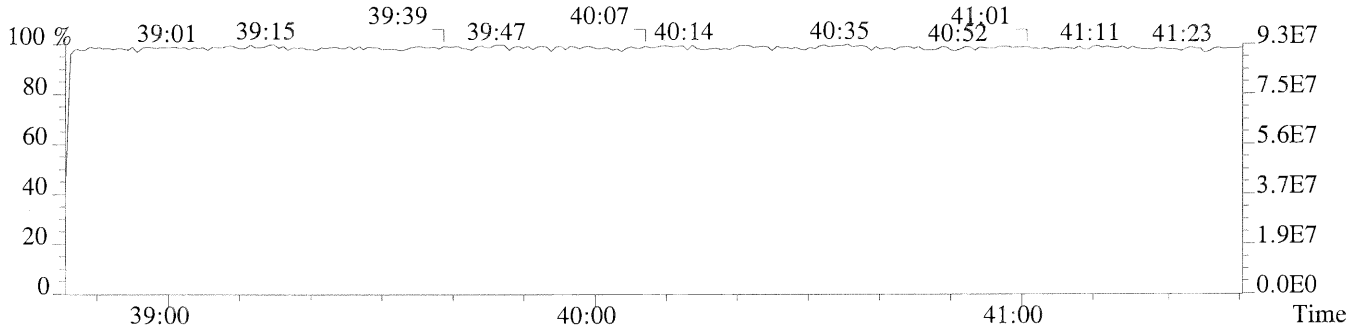
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1604.0,0.40%,F,T)



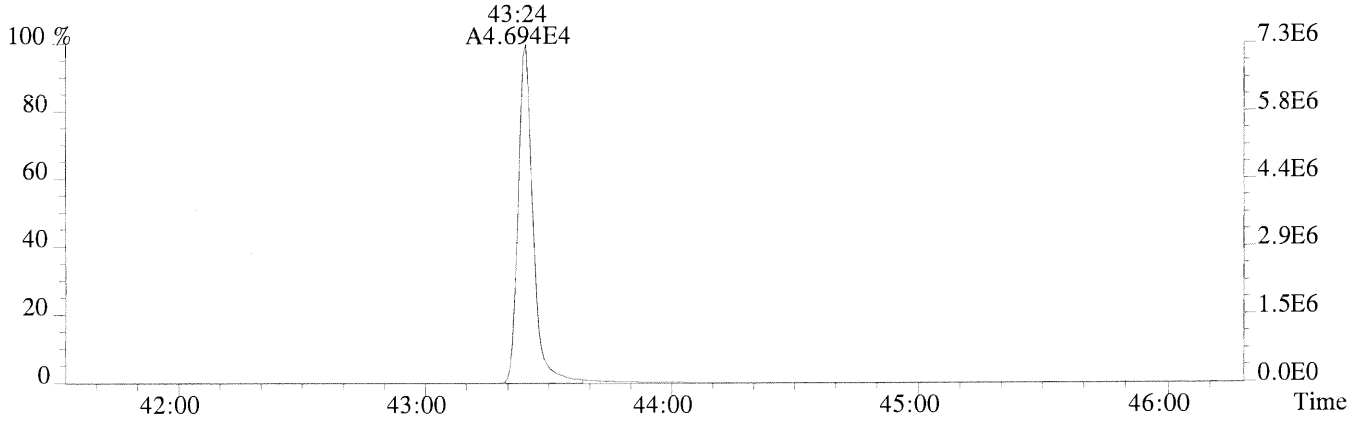
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



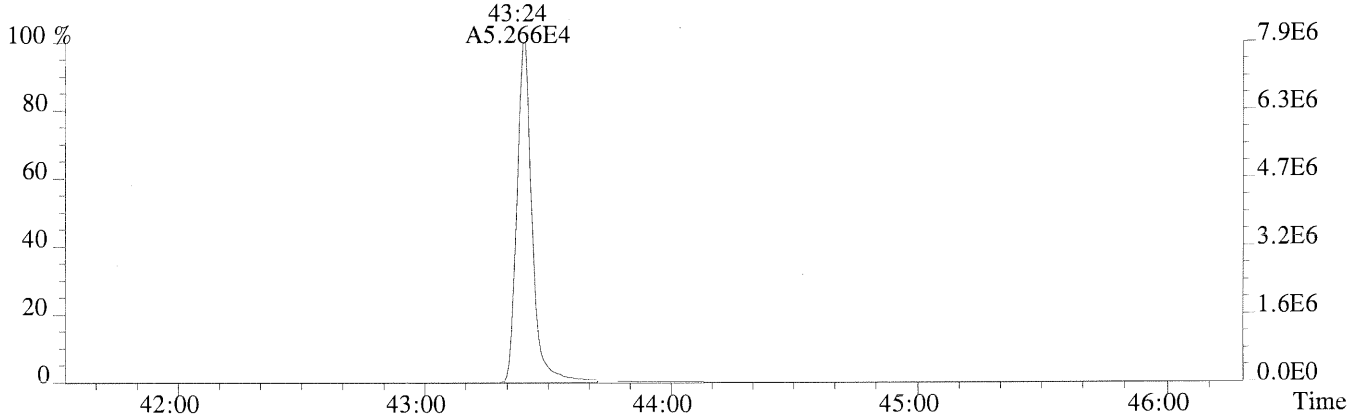
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



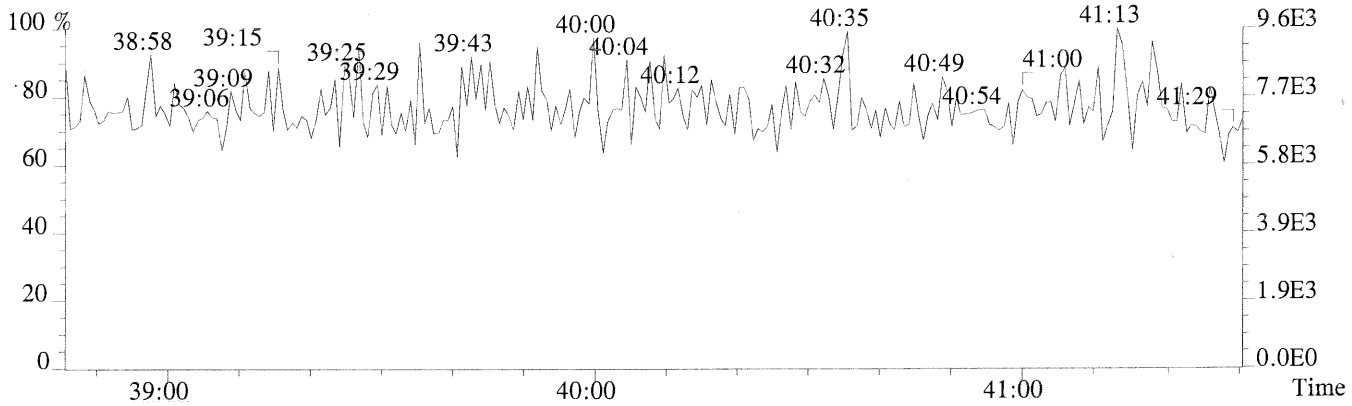
File:P169973 #1-438 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1192.0,0.40%,F,T)



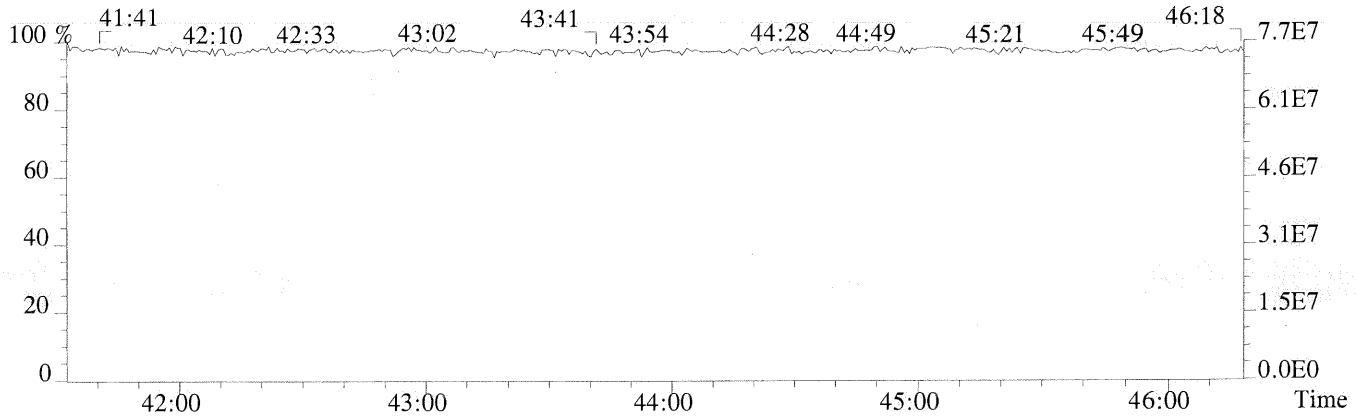
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1708.0,0.40%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

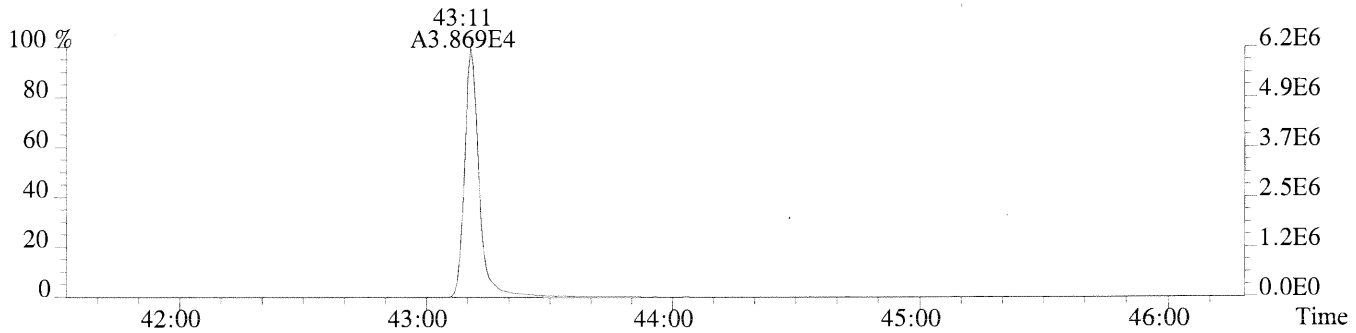


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

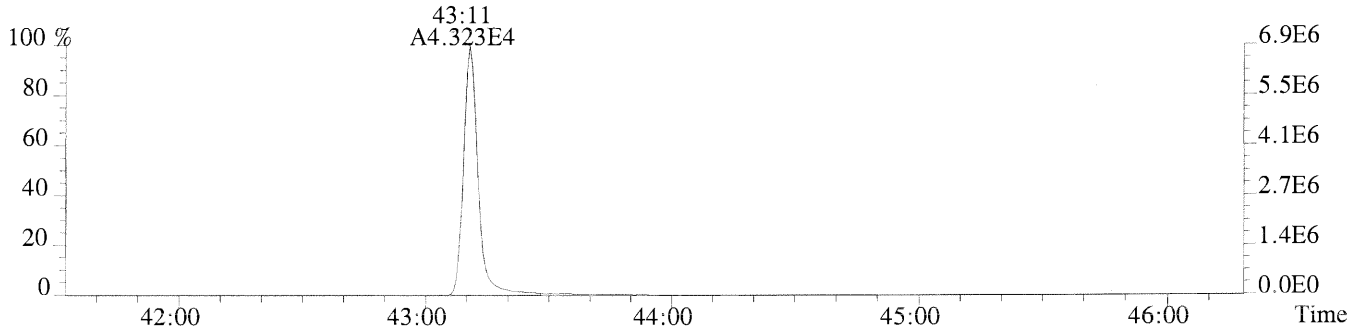


File:P169973 #1-438 Acq:25-MAR-2014 19:46:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC3/CS3

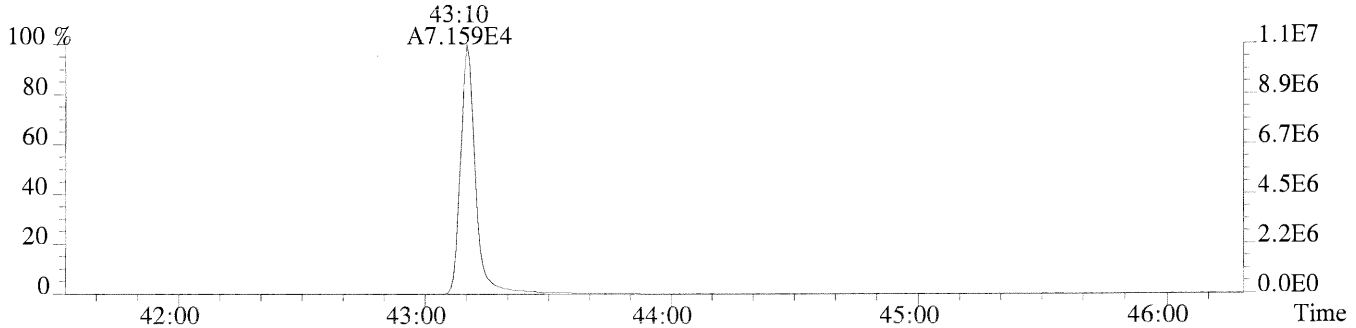
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



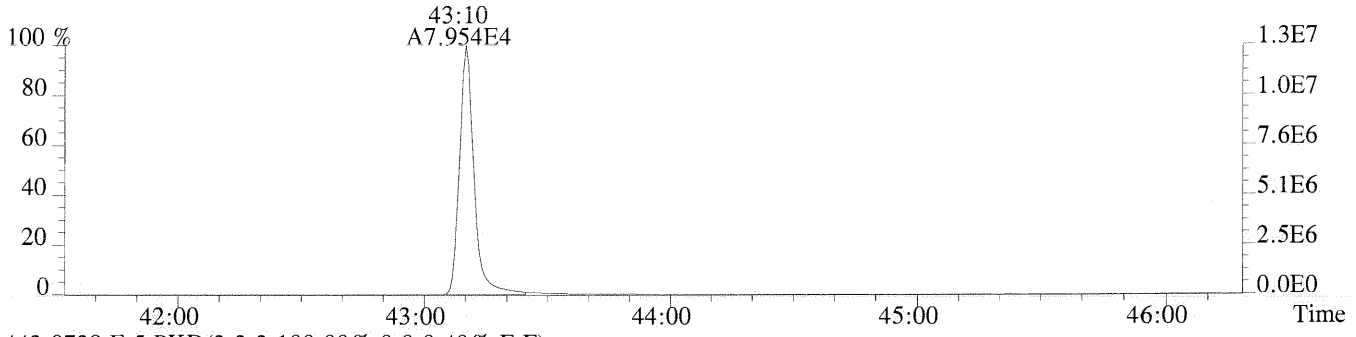
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,892.0,0.40%,F,T)



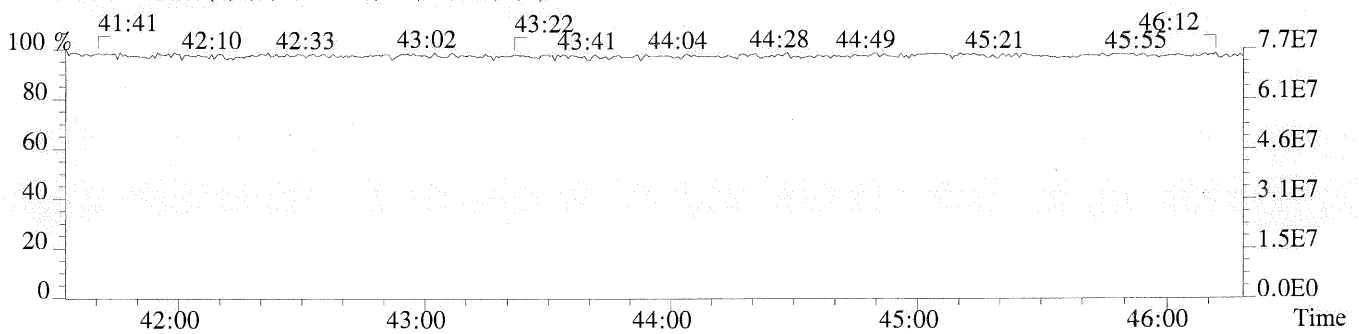
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1100.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,948.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
D12-90-3D

Run #5 Filename P169974 Samp: 1 Inj: 1 Acquired: 25-MAR-14 20:34:32
Processed: 26-MAR-14 10:01:18 Sample ID: ICAL HRCC4/CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:29	1.472e+04	1.928e+04	0.76	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:22	1.712e+05	1.086e+05	1.58	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	34:13	1.565e+05	9.864e+04	1.59	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:46	1.425e+05	1.159e+05	1.23	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:53	1.578e+05	1.280e+05	1.23	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:21	1.436e+05	1.141e+05	1.26	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	38:05	1.351e+05	1.093e+05	1.24	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:20	1.332e+05	1.282e+05	1.04	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:46	1.131e+05	1.092e+05	1.04	yes	no	1.324
10	Unk	OCDF	43:24	1.994e+05	2.180e+05	0.91	yes	no	1.307
11	Unk	2,3,7,8-TCDD	30:11	1.353e+04	1.731e+04	0.78	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:29	1.118e+05	7.182e+04	1.56	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:29	9.605e+04	7.716e+04	1.24	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:33	1.077e+05	8.695e+04	1.24	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:47	1.105e+05	8.977e+04	1.23	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	9.062e+04	8.715e+04	1.04	yes	no	1.016
17	Unk	OCDD	43:10	1.586e+05	1.788e+05	0.89	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:28	3.916e+04	4.978e+04	0.79	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:22	8.225e+04	5.218e+04	1.58	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	34:13	7.908e+04	4.998e+04	1.58	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:46	3.473e+04	6.744e+04	0.51	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:52	4.167e+04	7.900e+04	0.53	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:20	3.798e+04	7.164e+04	0.53	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	38:04	3.464e+04	6.692e+04	0.52	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:19	2.789e+04	6.320e+04	0.44	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	2.518e+04	5.760e+04	0.44	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	30:11	3.272e+04	4.102e+04	0.80	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:28	5.902e+04	3.779e+04	1.56	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:28	4.689e+04	3.653e+04	1.28	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:33	5.309e+04	4.165e+04	1.27	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:15	4.418e+04	4.198e+04	1.05	yes	no	0.862
32	IS	13C-OCDD	43:10	7.240e+04	7.997e+04	0.91	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:40	2.315e+04	2.962e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:47	5.677e+04	4.355e+04	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:11	3.201e+04				no	1.125

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
D12-90-3D

Run #5 Filename P169974 Samp: 1 Inj: 1 Acquired: 25-MAR-14 20:34:32
Processed: 26-MAR-14 08:20:201 LAB. ID: ICAL HRCC4/CS4

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.14e+06	8.52e+02	3.7e+03	4.09e+06	2.87e+03	1.4e+03
2	1,2,3,7,8-PeCDF	3.24e+07	5.88e+02	5.5e+04	2.07e+07	1.79e+03	1.2e+04
3	2,3,4,7,8-PeCDF	3.16e+07	5.88e+02	5.4e+04	2.01e+07	1.79e+03	1.1e+04
4	1,2,3,4,7,8-HxCDF	3.08e+07	1.60e+03	1.9e+04	2.47e+07	8.24e+02	3.0e+04
5	1,2,3,6,7,8-HxCDF	3.13e+07	1.60e+03	2.0e+04	2.53e+07	8.24e+02	3.1e+04
6	2,3,4,6,7,8-HxCDF	3.00e+07	1.60e+03	1.9e+04	2.39e+07	8.24e+02	2.9e+04
7	1,2,3,7,8,9-HxCDF	2.69e+07	1.60e+03	1.7e+04	2.18e+07	8.24e+02	2.6e+04
8	1,2,3,4,6,7,8-HpCDF	2.59e+07	8.95e+03	2.9e+03	2.50e+07	5.36e+03	4.7e+03
9	1,2,3,4,7,8,9-HpCDF	2.04e+07	8.95e+03	2.3e+03	1.97e+07	5.36e+03	3.7e+03
10	OCDF	3.09e+07	9.88e+02	3.1e+04	3.33e+07	1.71e+03	1.9e+04
11	2,3,7,8-TCDD	2.95e+06	1.30e+03	2.3e+03	3.85e+06	1.70e+03	2.3e+03
12	1,2,3,7,8-PeCDD	2.25e+07	1.22e+03	1.8e+04	1.45e+07	9.40e+02	1.5e+04
13	1,2,3,4,7,8-HxCDD	2.17e+07	8.72e+02	2.5e+04	1.72e+07	1.18e+03	1.5e+04
14	1,2,3,6,7,8-HxCDD	2.16e+07	8.72e+02	2.5e+04	1.75e+07	1.18e+03	1.5e+04
15	1,2,3,7,8,9-HxCDD	2.21e+07	8.72e+02	2.5e+04	1.78e+07	1.18e+03	1.5e+04
16	1,2,3,4,6,7,8-HpCDD	1.69e+07	1.24e+03	1.4e+04	1.62e+07	1.18e+03	1.4e+04
17	OCDD	2.45e+07	8.36e+02	2.9e+04	2.75e+07	7.96e+02	3.5e+04
18	13C-2,3,7,8-TCDF	8.39e+06	1.81e+03	4.6e+03	1.06e+07	1.78e+03	6.0e+03
19	13C-1,2,3,7,8-PeCDF	1.55e+07	6.88e+02	2.3e+04	9.98e+06	1.62e+03	6.1e+03
20	13C-2,3,4,7,8-PeCDF	1.59e+07	6.88e+02	2.3e+04	9.98e+06	1.62e+03	6.1e+03
21	13C-1,2,3,4,7,8-HxCDF	7.48e+06	1.33e+03	5.6e+03	1.44e+07	2.28e+03	6.3e+03
22	13C-1,2,3,6,7,8-HxCDF	8.24e+06	1.33e+03	6.2e+03	1.56e+07	2.28e+03	6.8e+03
23	13C-2,3,4,6,7,8-HxCDF	7.77e+06	1.33e+03	5.8e+03	1.48e+07	2.28e+03	6.5e+03
24	13C-1,2,3,7,8,9-HxCDF	6.76e+06	1.33e+03	5.1e+03	1.31e+07	2.28e+03	5.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.47e+06	2.08e+03	2.6e+03	1.23e+07	3.44e+03	3.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.54e+06	2.08e+03	2.2e+03	1.03e+07	3.44e+03	3.0e+03
27	13C-2,3,7,8-TCDD	7.31e+06	4.25e+03	1.7e+03	9.26e+06	2.48e+03	3.7e+03
28	13C-1,2,3,7,8-PeCDD	1.17e+07	1.26e+03	9.3e+03	7.48e+06	9.96e+02	7.5e+03
29	13C-1,2,3,4,7,8-HxCDD	1.06e+07	1.52e+03	7.0e+03	8.16e+06	1.59e+03	5.1e+03
30	13C-1,2,3,6,7,8-HxCDD	1.05e+07	1.52e+03	6.9e+03	8.39e+06	1.59e+03	5.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.24e+06	1.69e+03	4.9e+03	7.72e+06	1.04e+03	7.4e+03
32	13C-OCDD	1.09e+07	1.13e+03	9.7e+03	1.23e+07	9.00e+02	1.4e+04
33	13C-1,2,3,4-TCDD	5.19e+06	4.25e+03	1.2e+03	6.68e+06	2.48e+03	2.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.09e+07	1.52e+03	7.1e+03	8.62e+06	1.59e+03	5.4e+03
35	37Cl-2,3,7,8-TCDD	7.04e+06	1.79e+03	3.9e+03			

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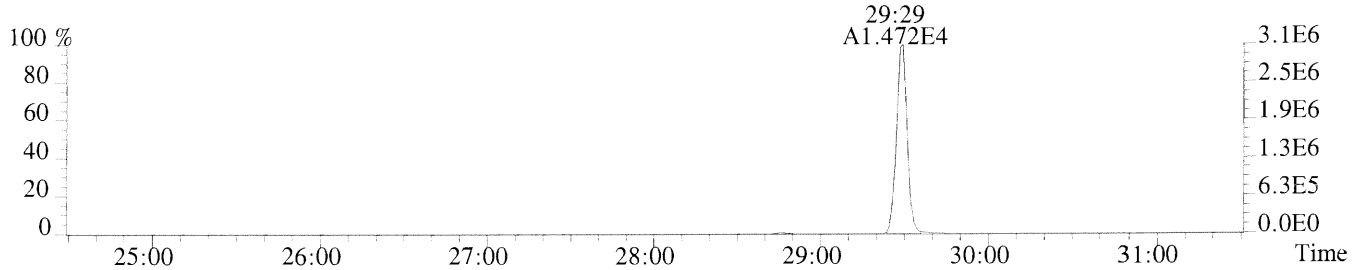
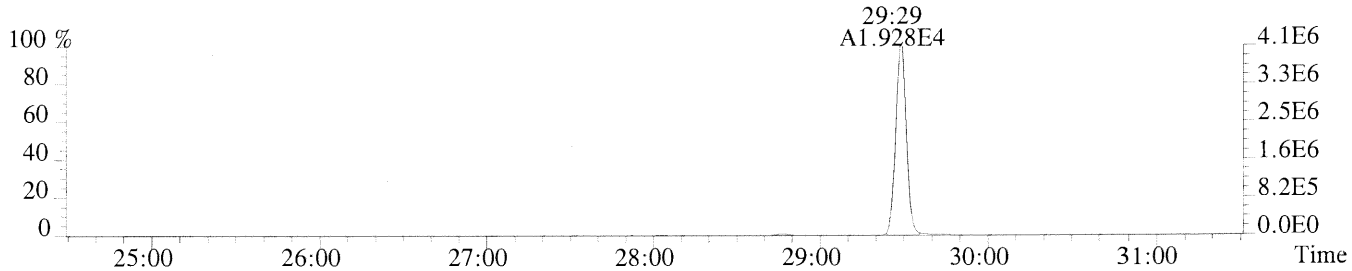
File:P169974 #1-442 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4

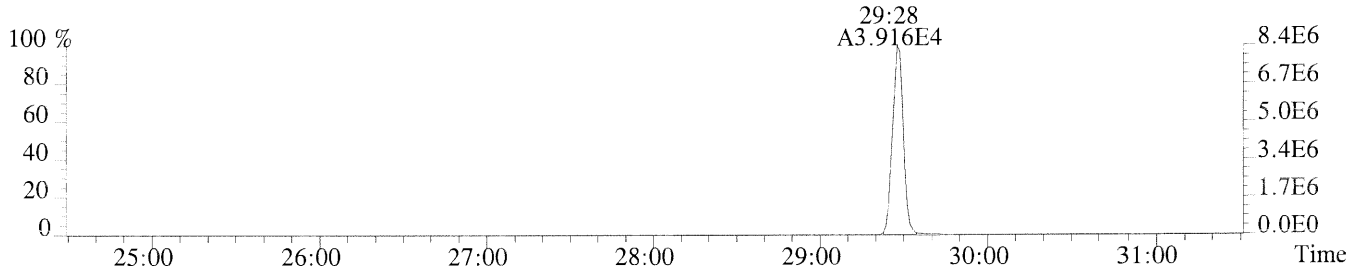
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



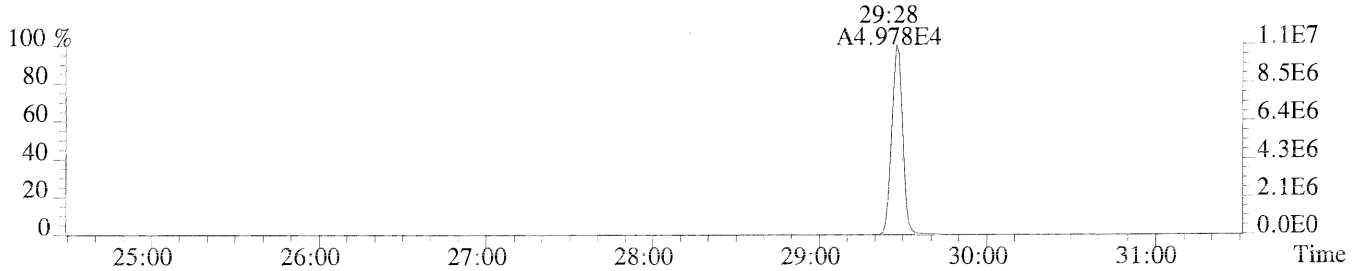
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2872.0,1.00%,F,T)



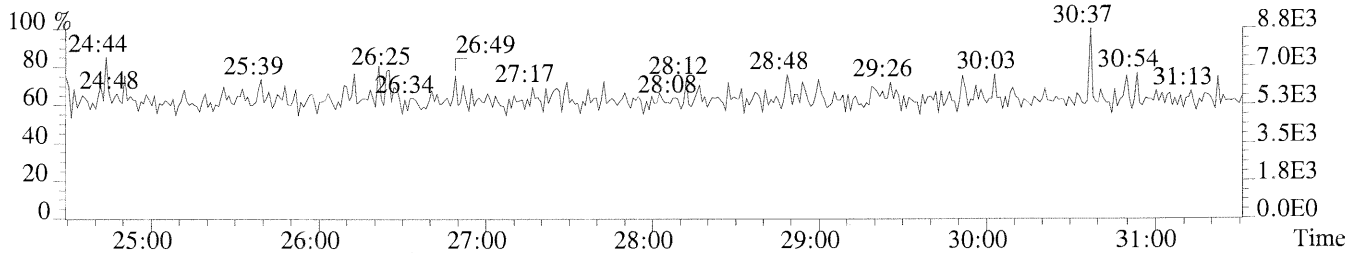
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1812.0,1.00%,F,T)



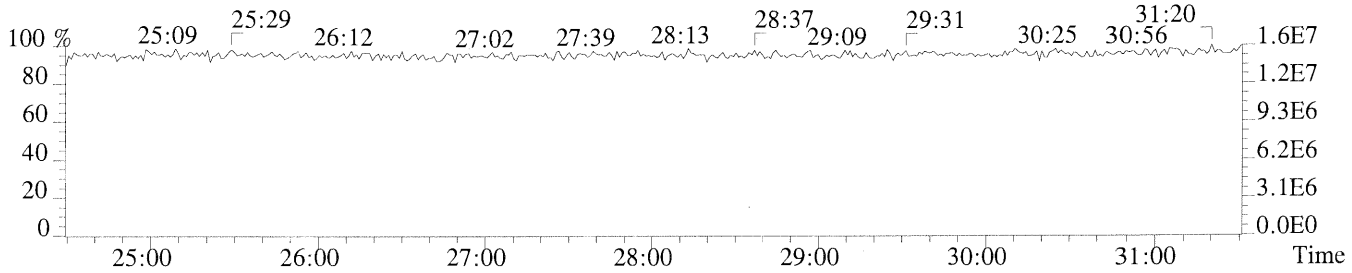
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1784.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

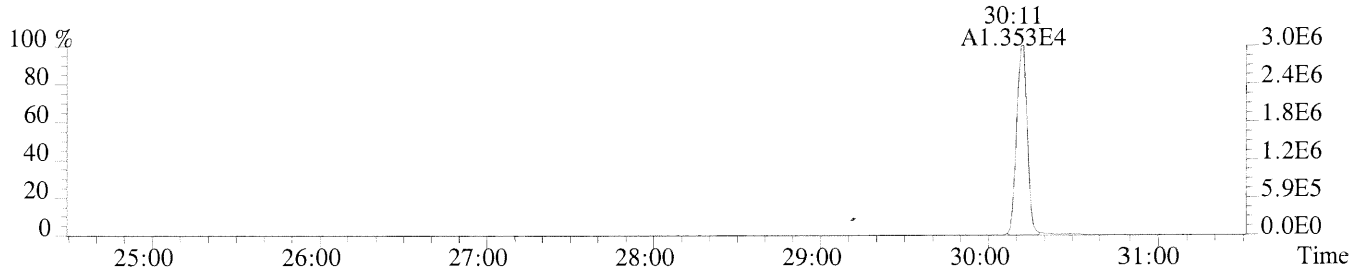


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

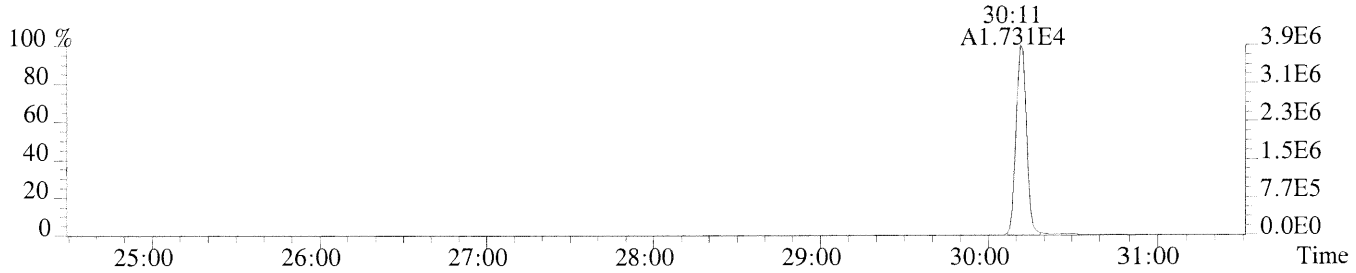


File:P169974 #1-442 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4

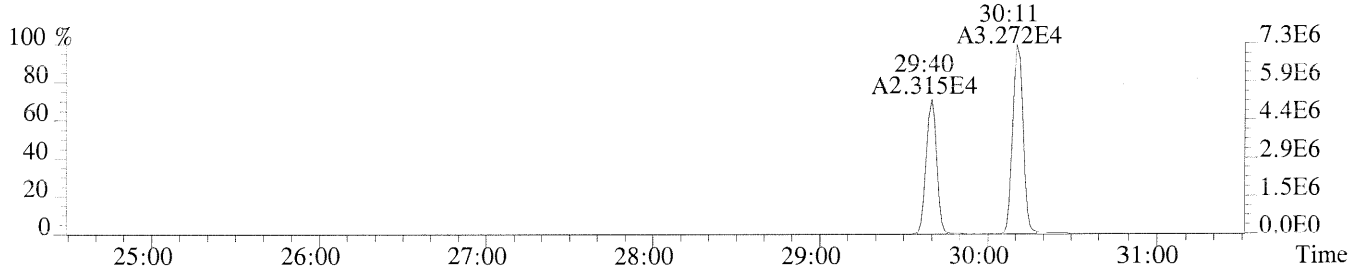
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1304.0,1.00%,F,T)



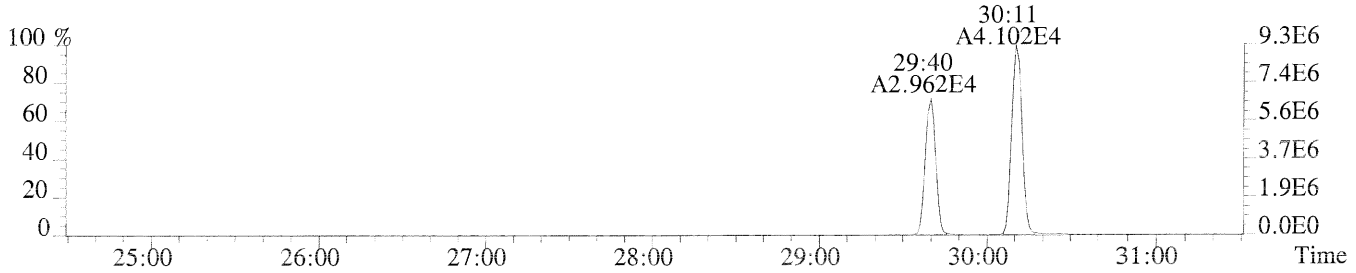
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1700.0,1.00%,F,T)



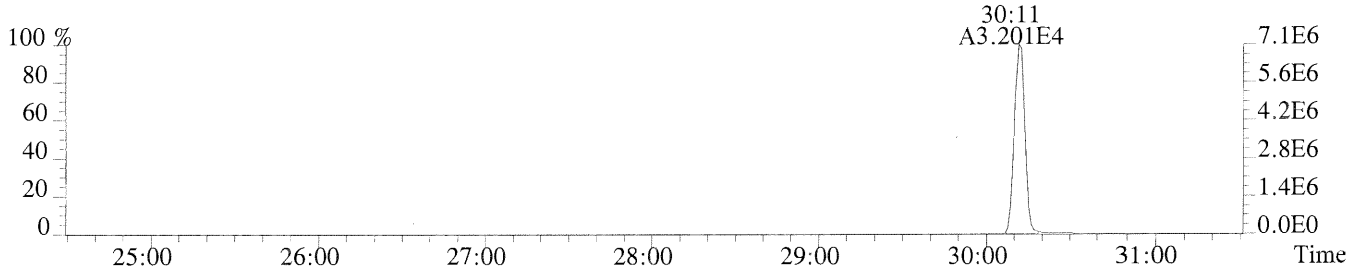
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4252.0,1.00%,F,T)



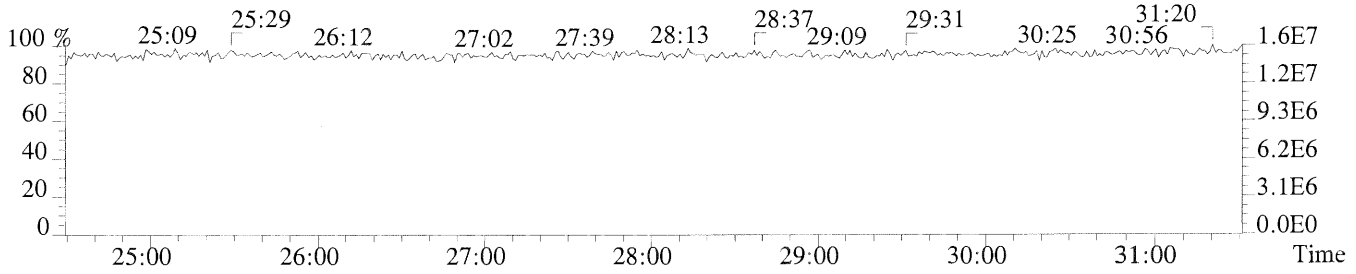
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2484.0,1.00%,F,T)



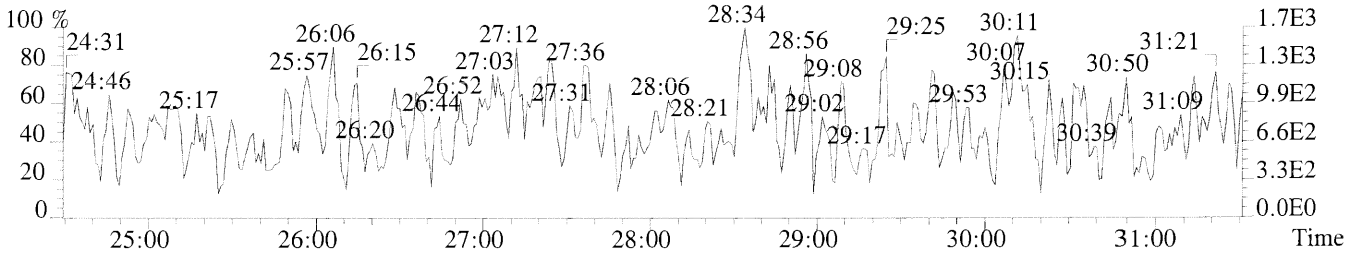
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1792.0,1.00%,F,T)



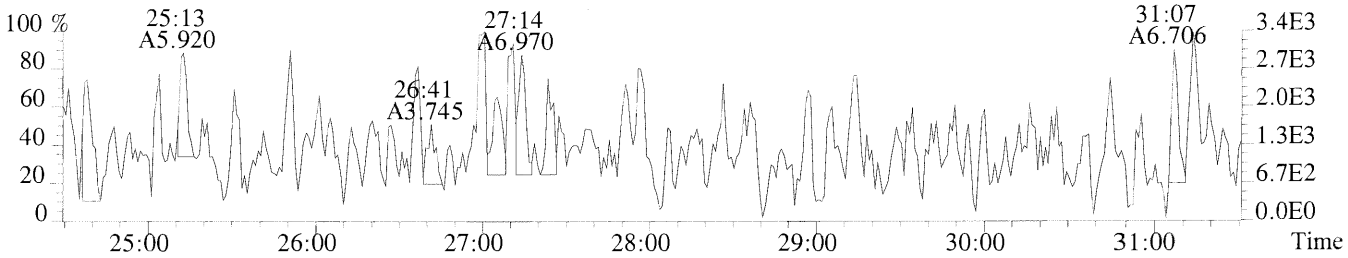
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



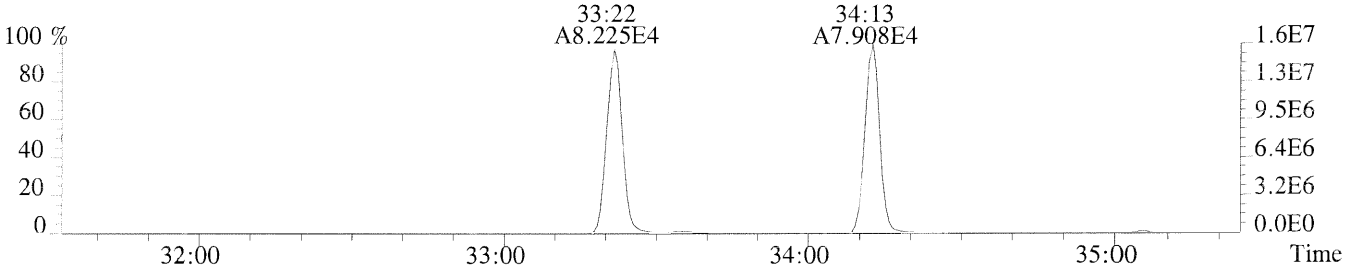
File:P169974 #1-442 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



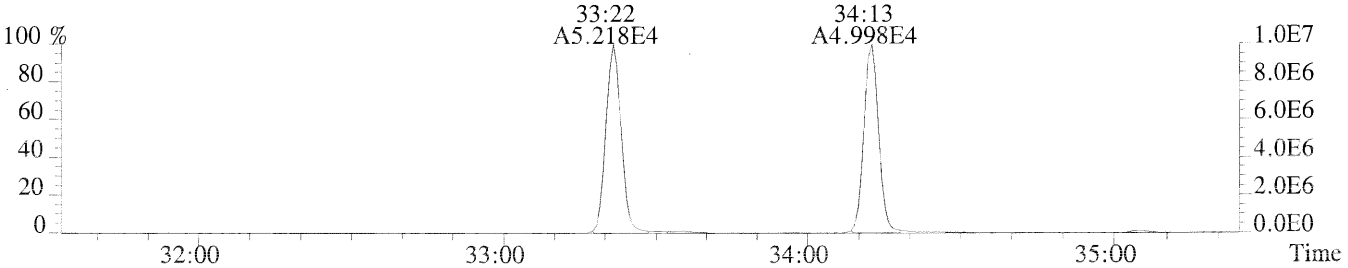
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1552.0,1.00%,F,T)



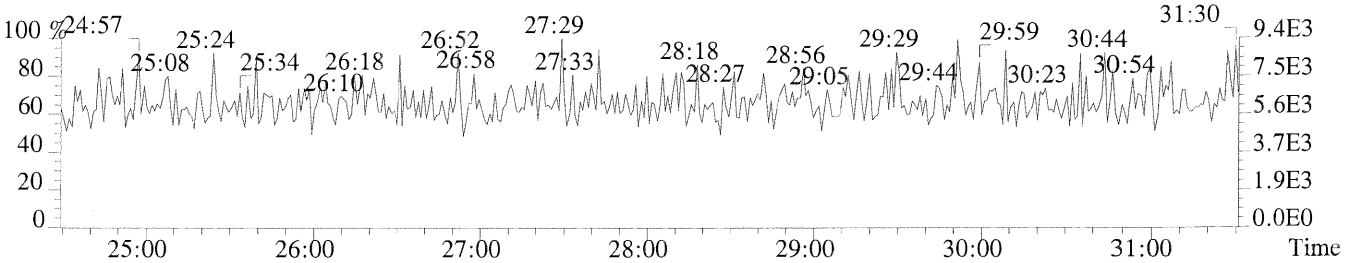
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



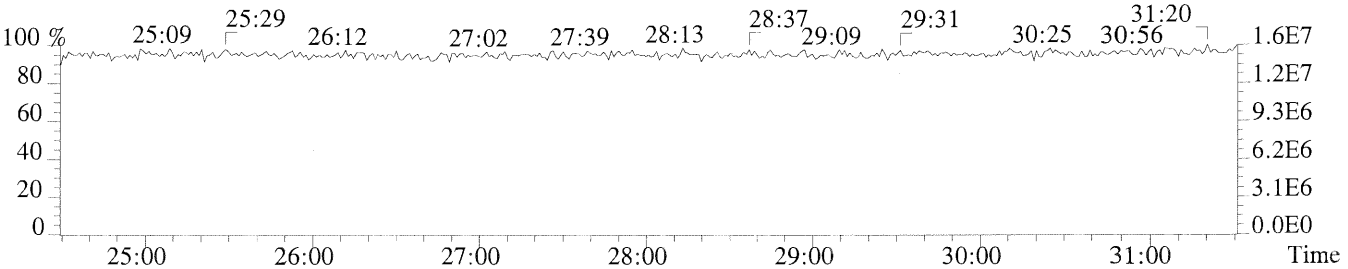
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

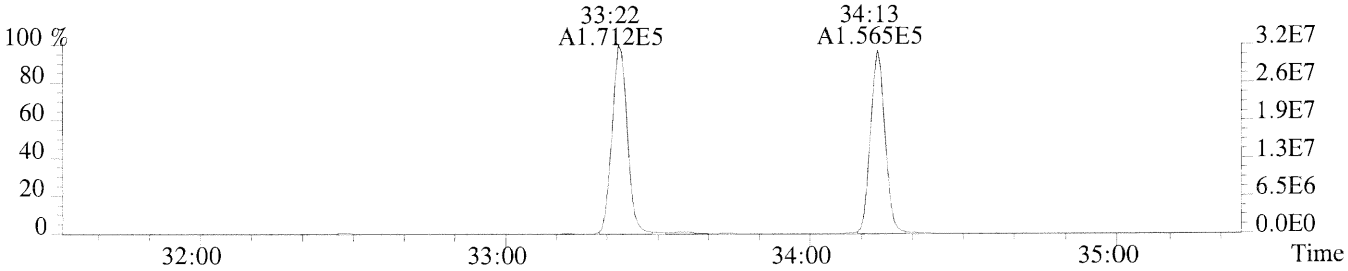


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

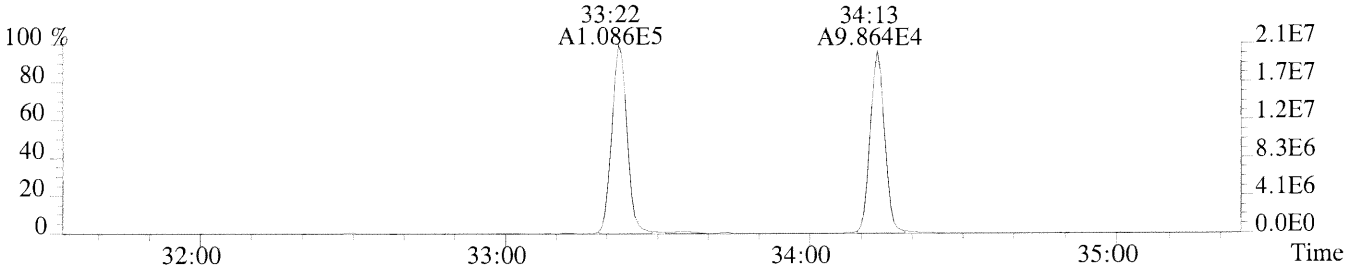


File:P169974 #1-350 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4

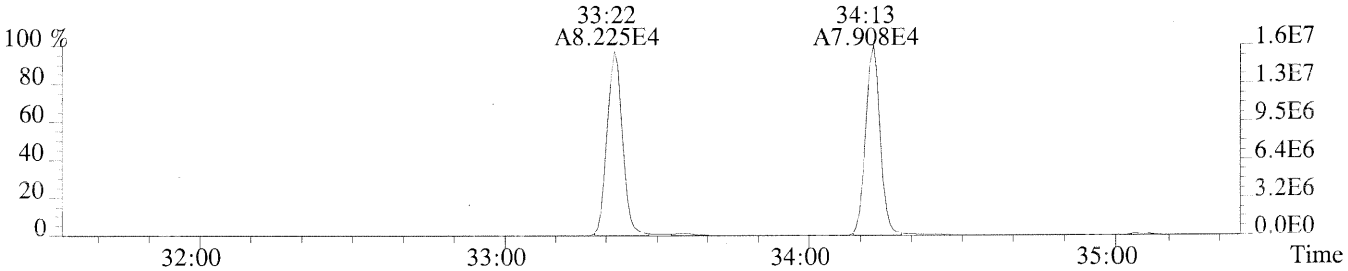
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



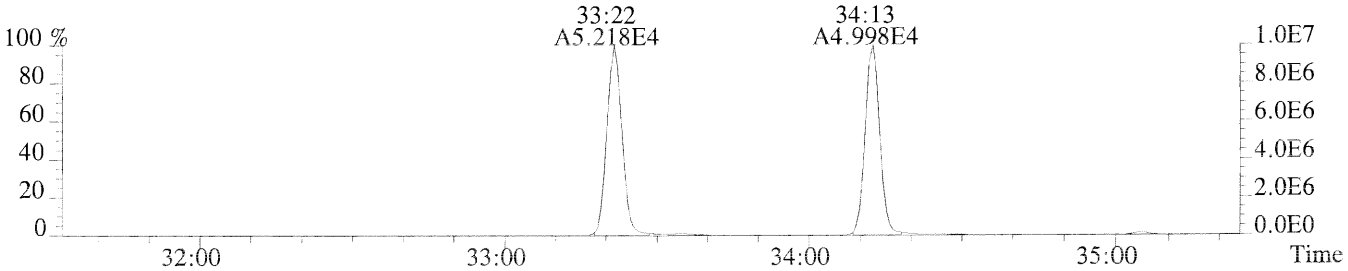
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1788.0,1.00%,F,T)



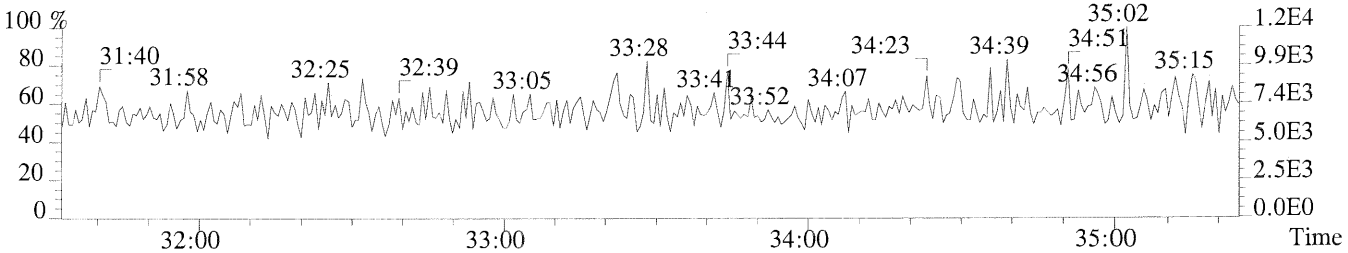
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



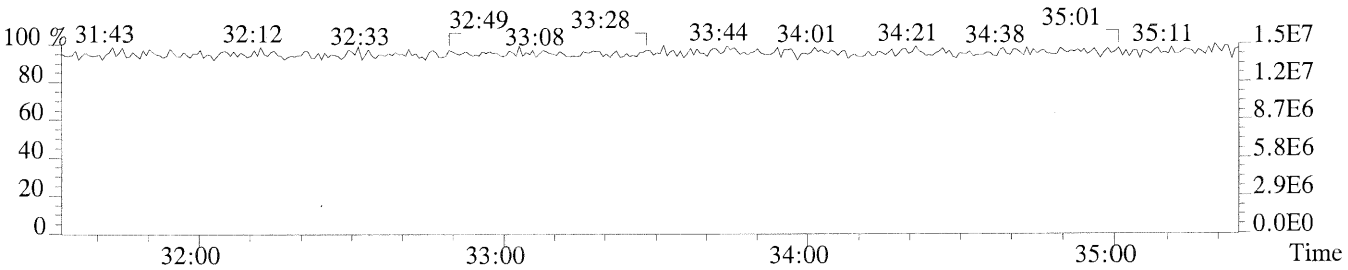
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

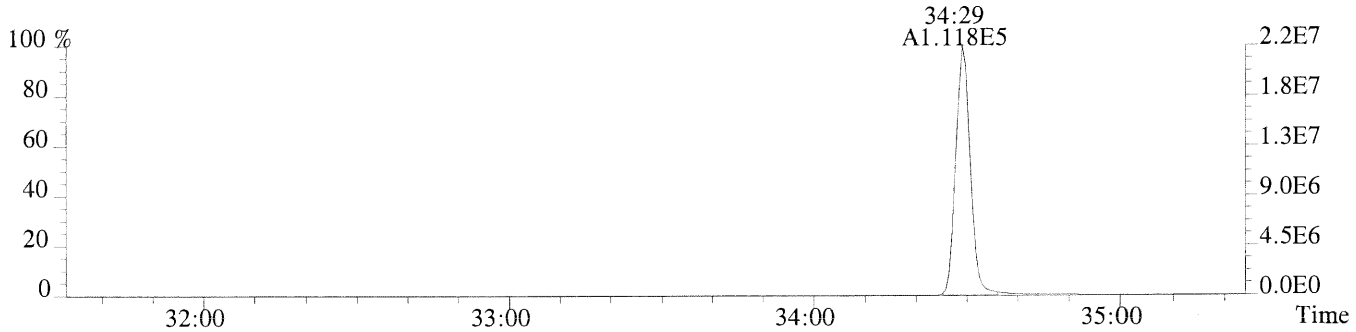


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

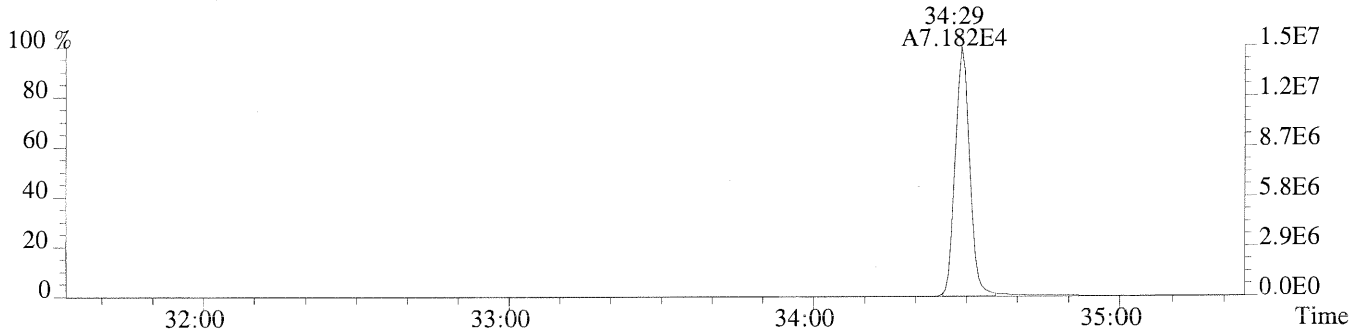


File:P169974 #1-350 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4

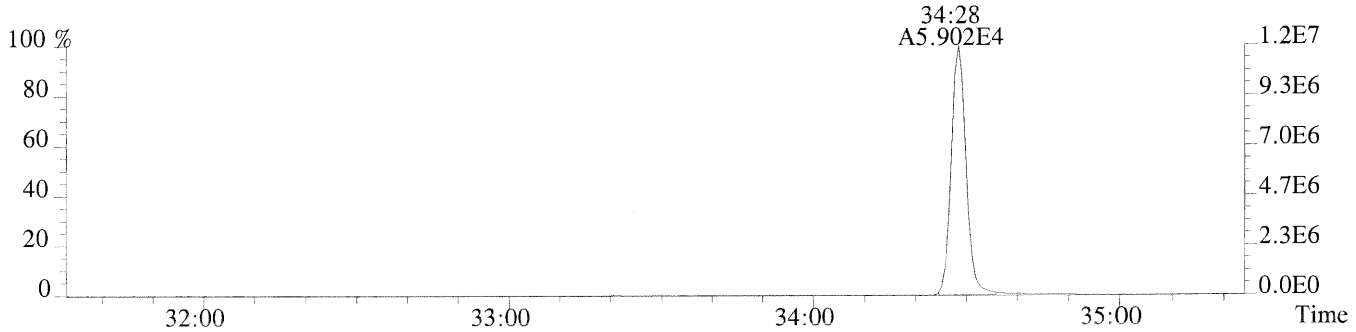
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



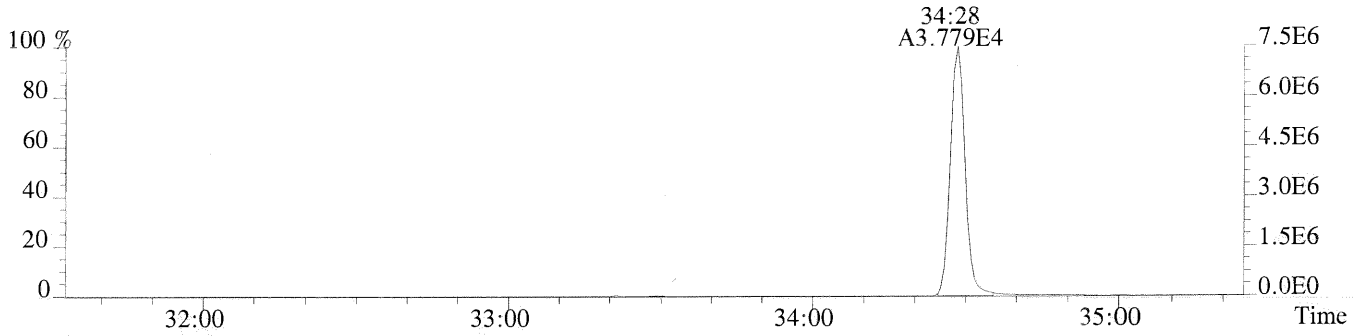
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



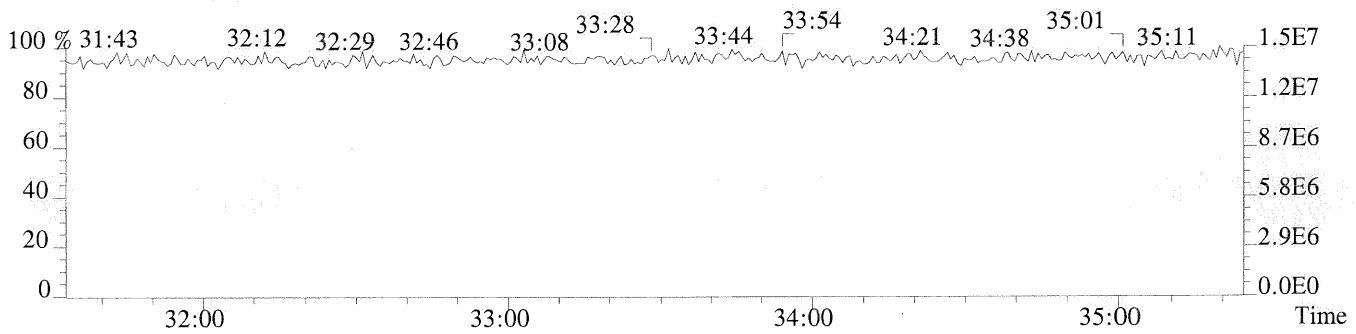
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,996.0,1.00%,F,T)

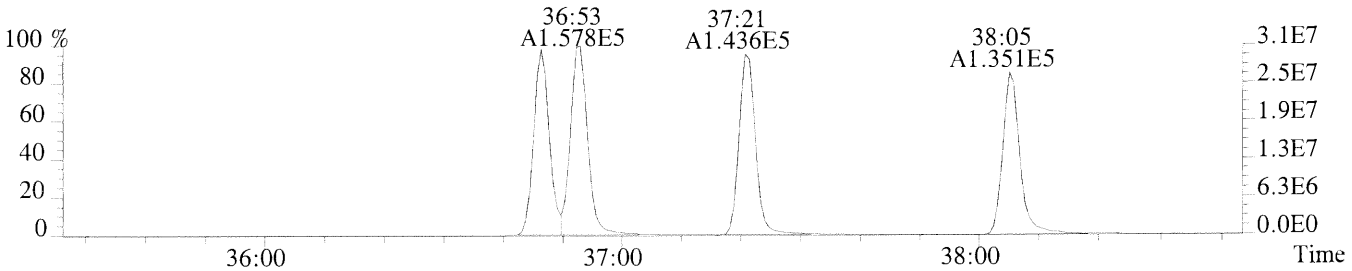


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

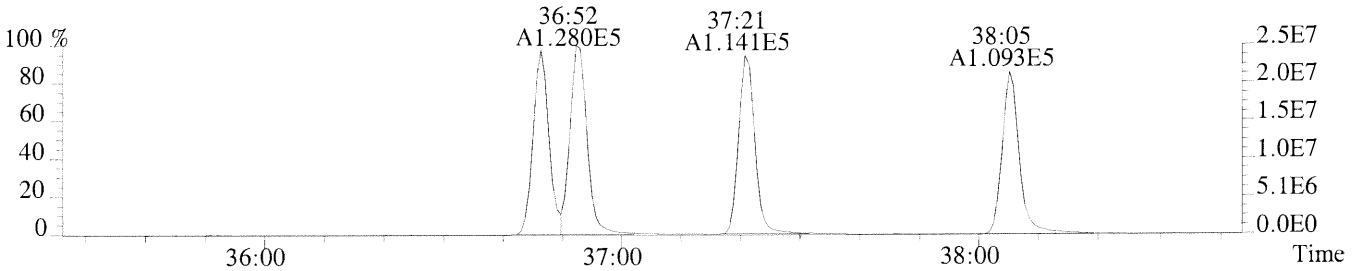


File:P169974 #1-299 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4

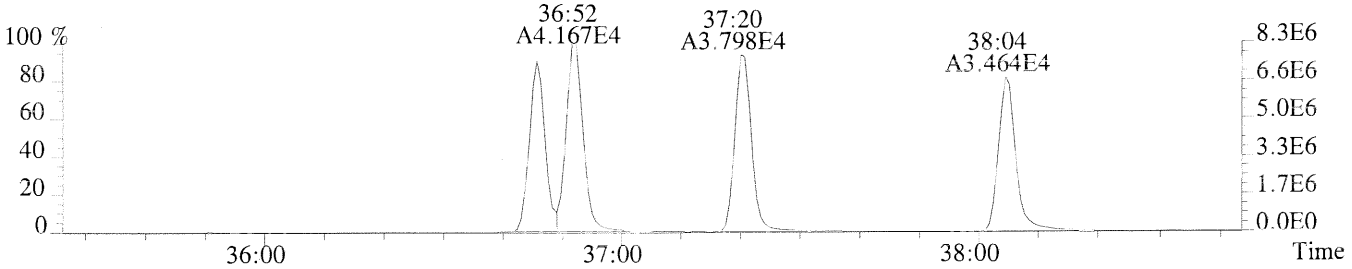
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1596.0,0.40%,F,T)



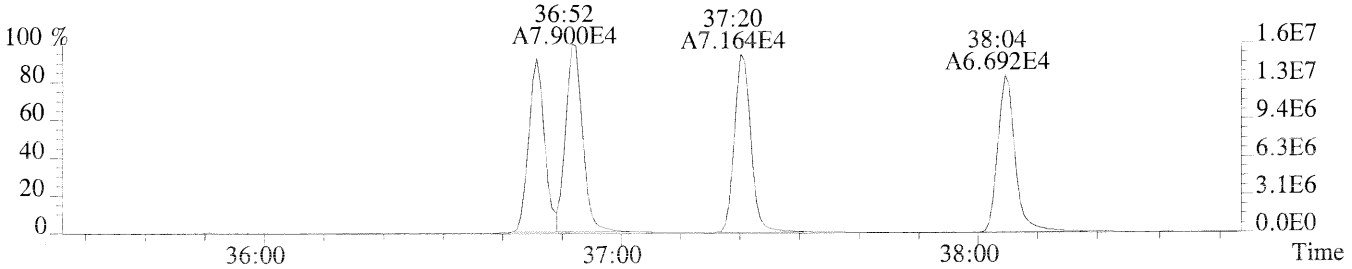
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



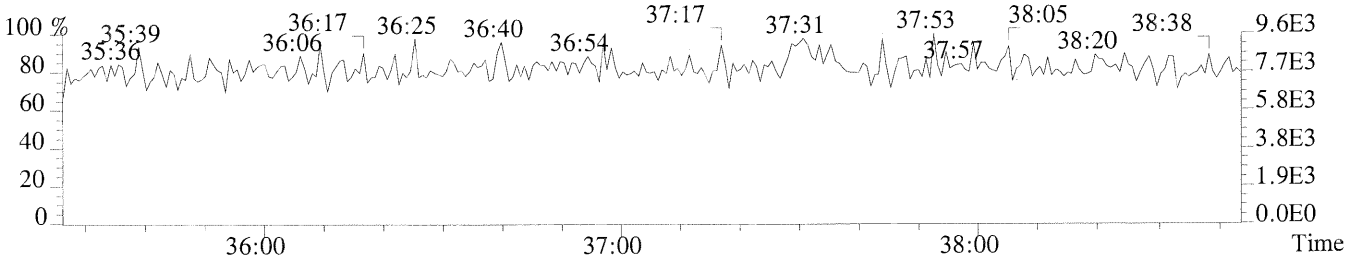
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



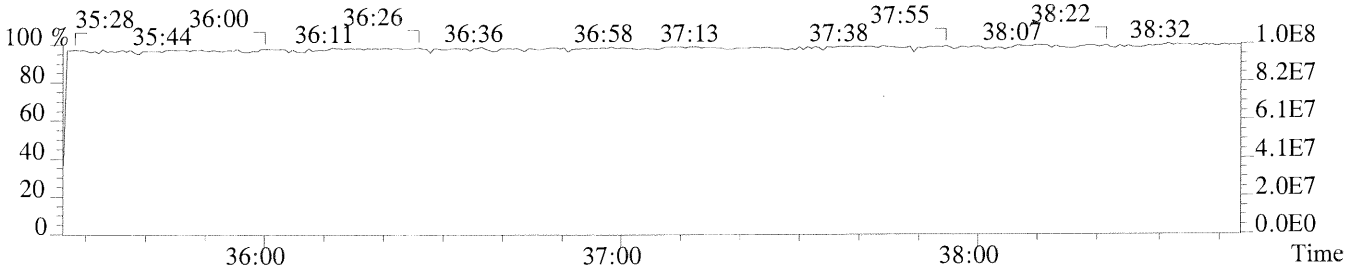
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2284.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

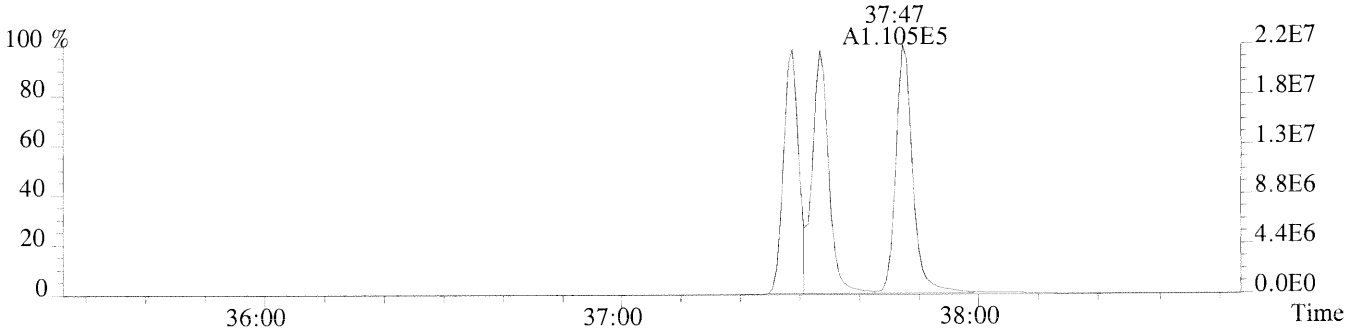


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

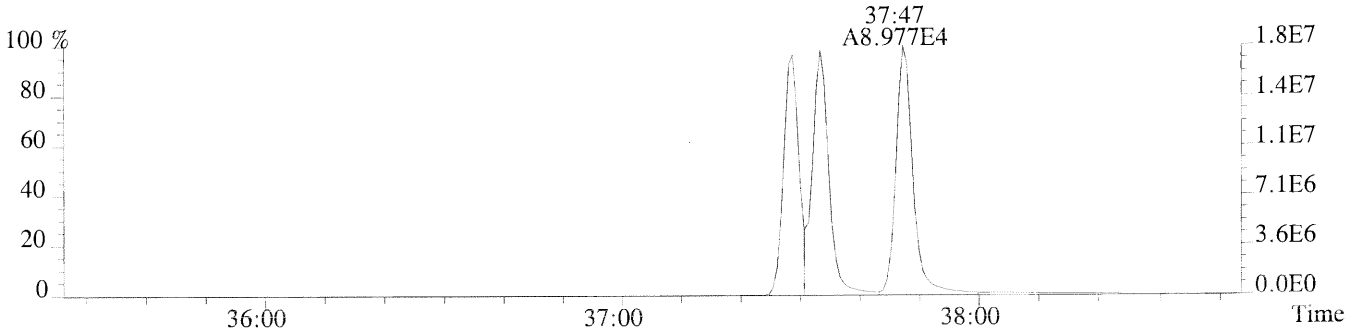


File:P169974 #1-299 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4

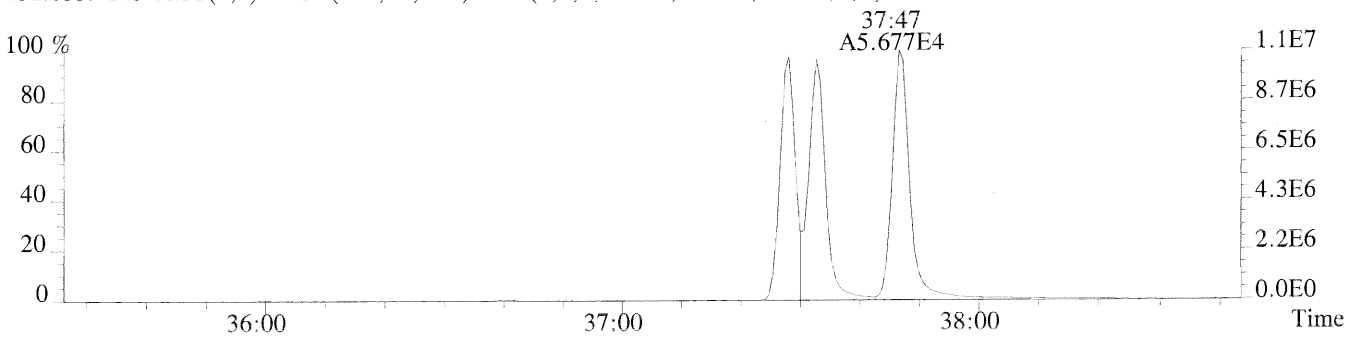
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



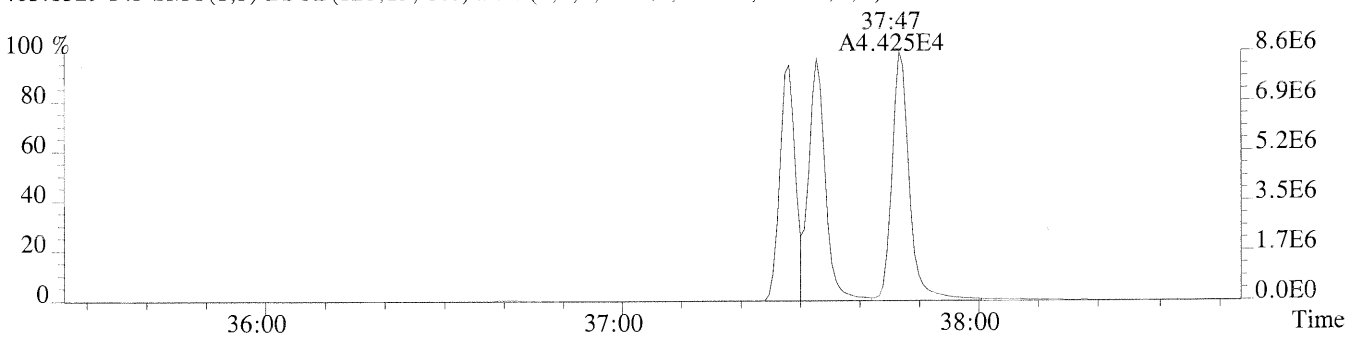
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



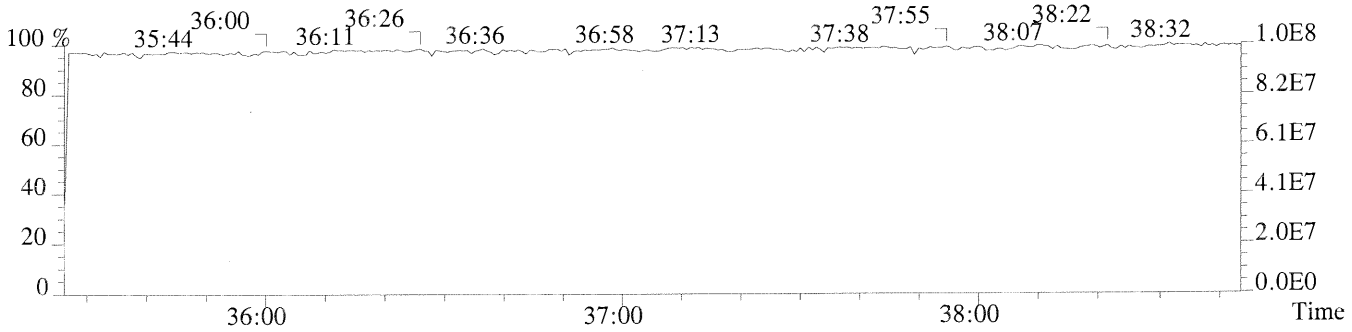
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1520.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1588.0,0.40%,F,T)

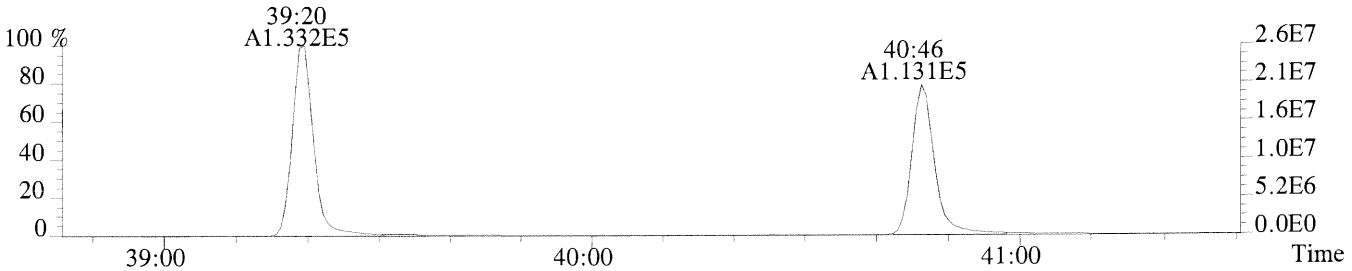


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

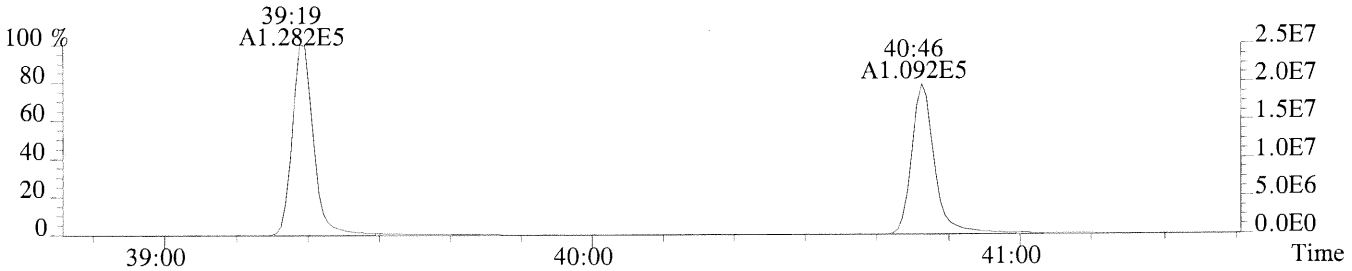


File:P169974 #1-250 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4

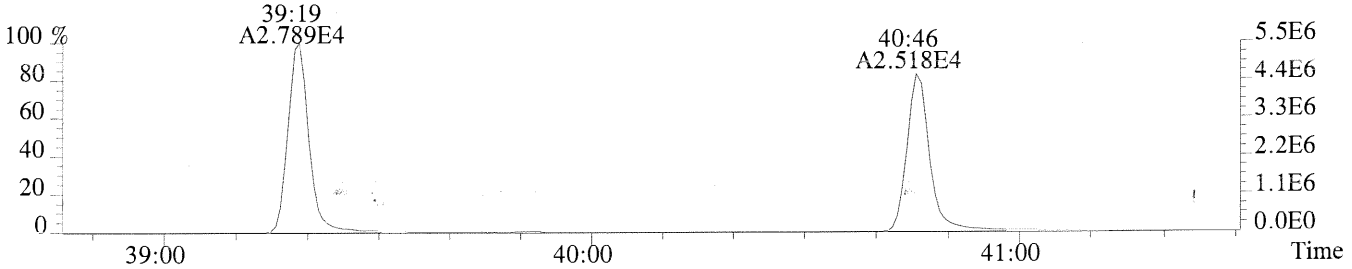
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8952.0,0.50%,F,T)



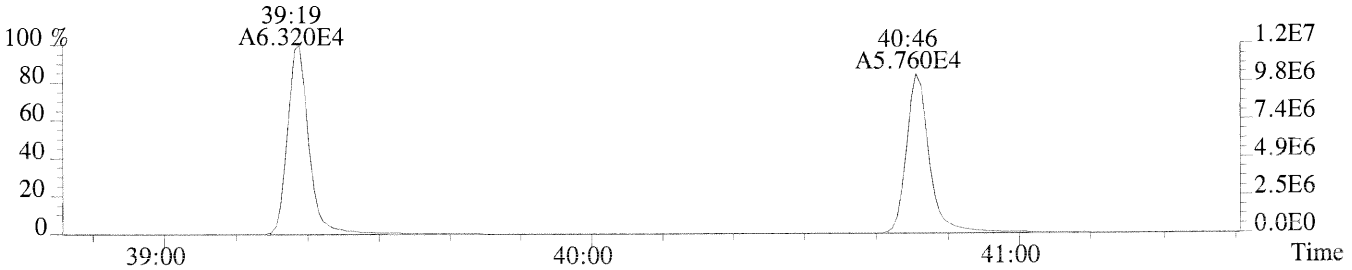
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5364.0,0.50%,F,T)



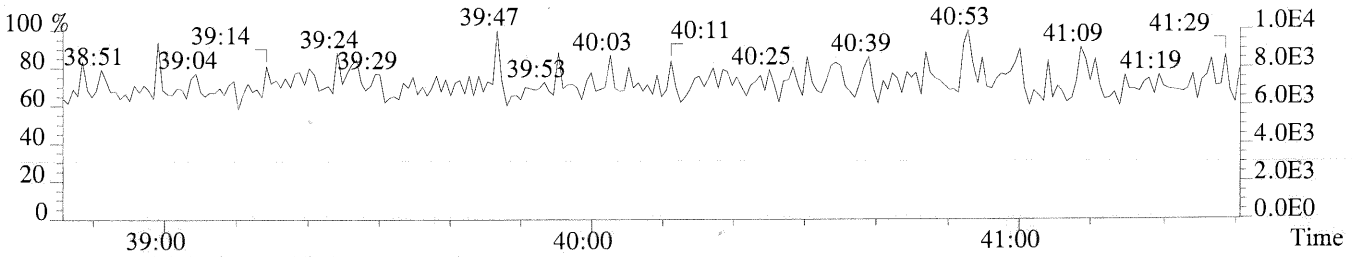
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2080.0,0.50%,F,T)



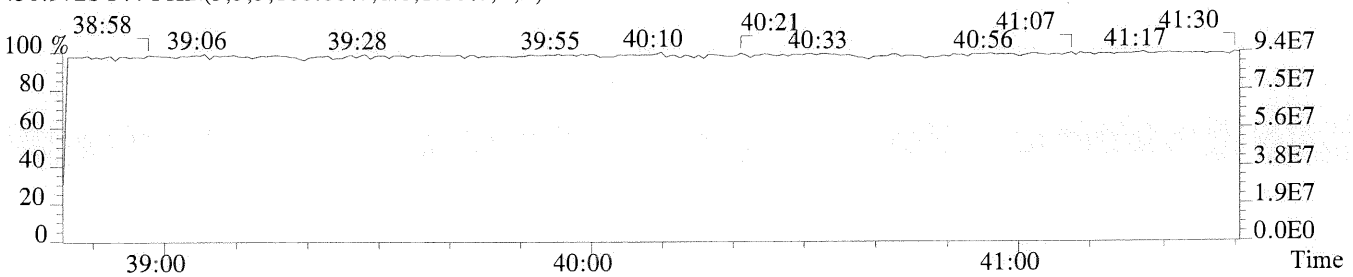
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3444.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

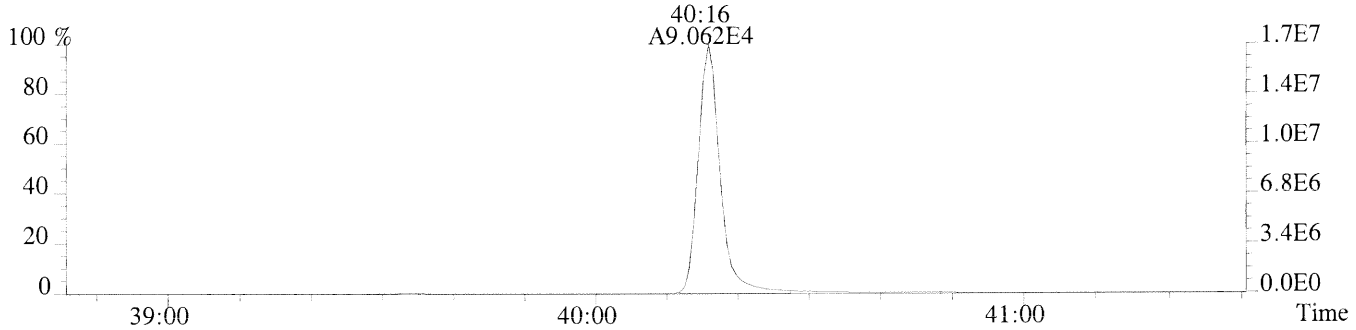


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

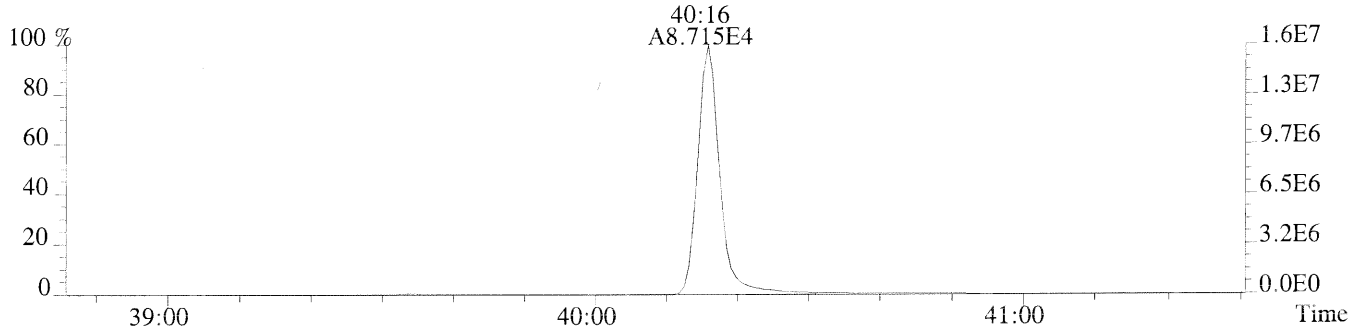


File:P169974 #1-250 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4

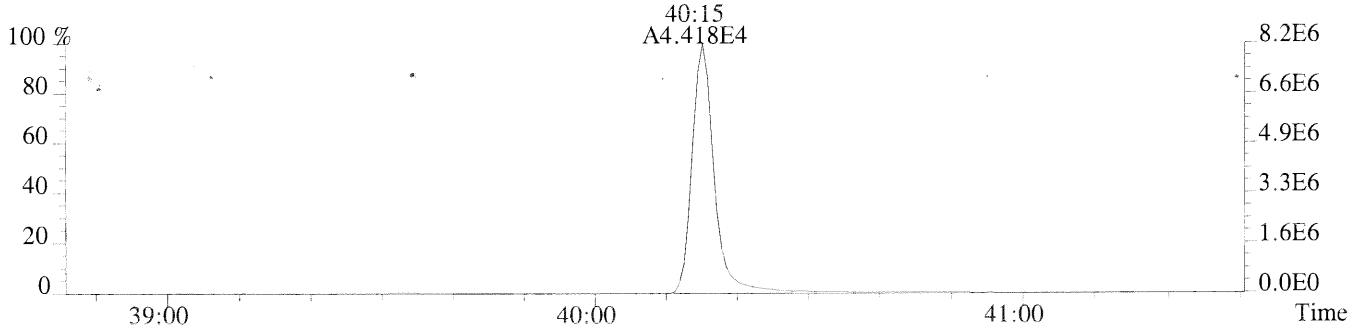
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1236.0,0.40%,F,T)



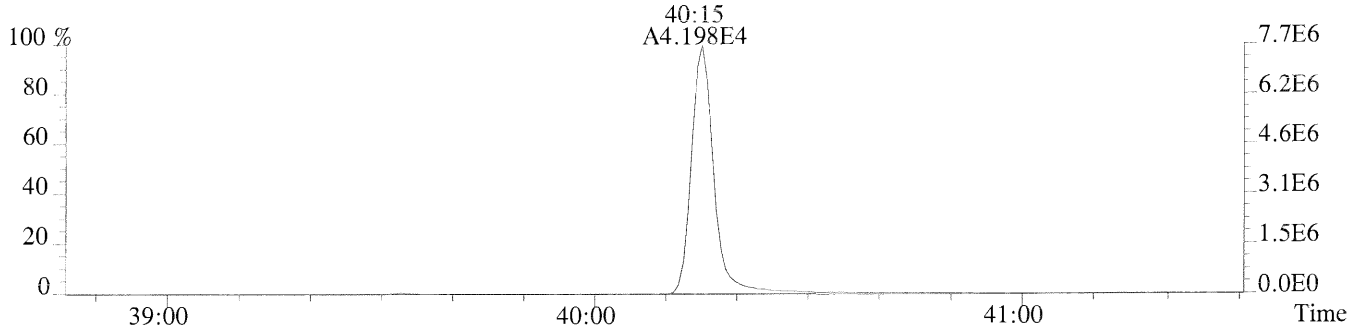
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



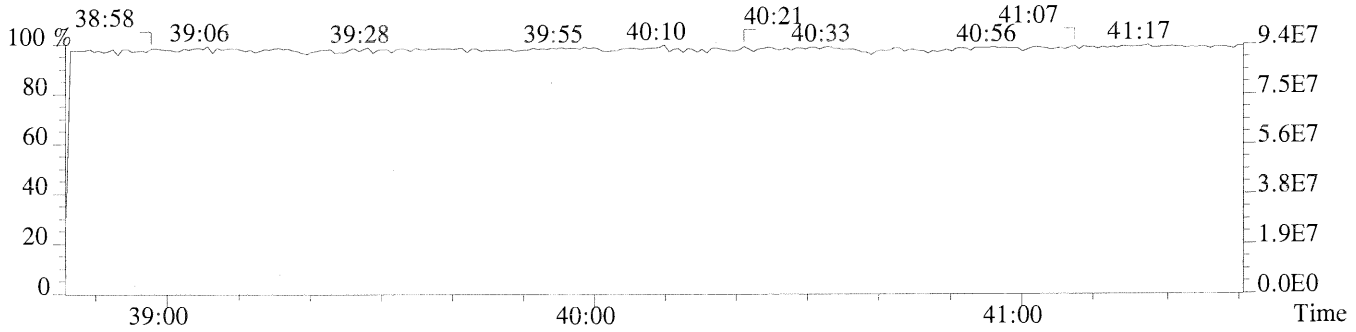
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1688.0,0.40%,F,T)



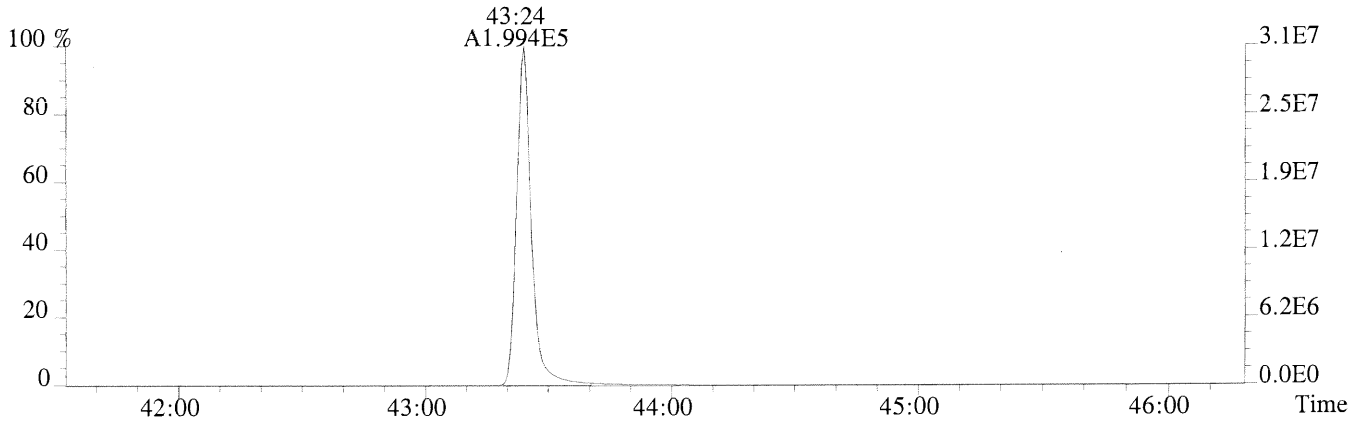
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.40%,F,T)



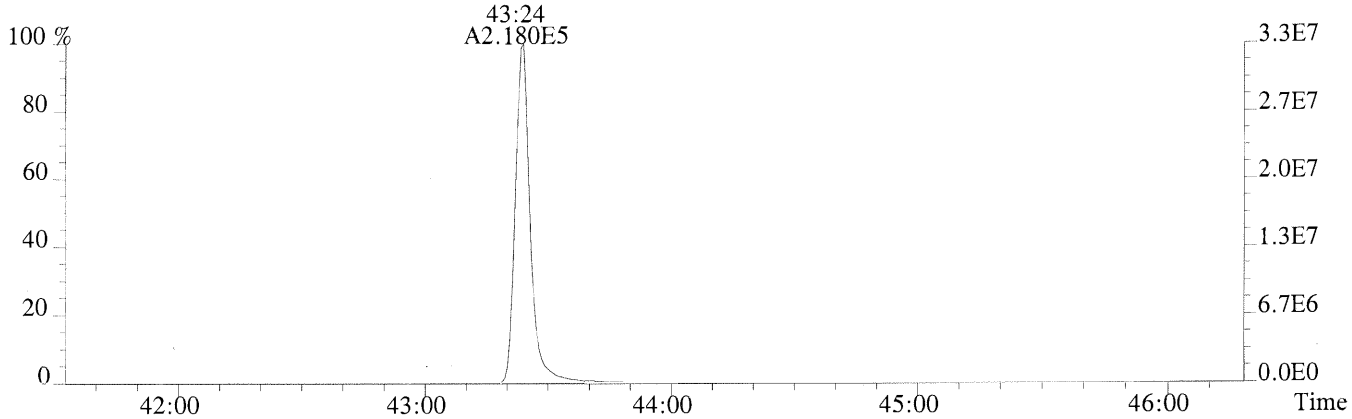
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



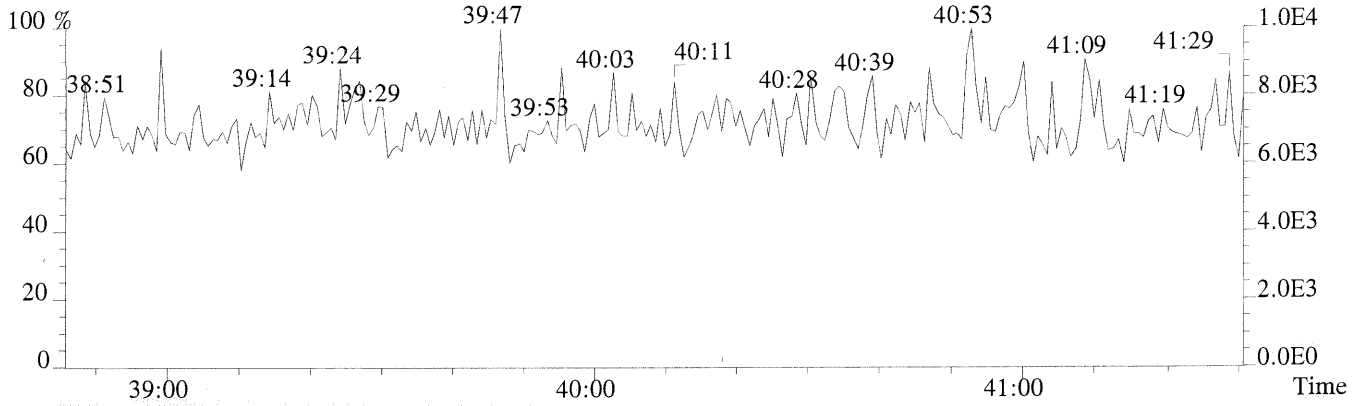
File:P169974 #1-438 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,988.0,0.40%,F,T)



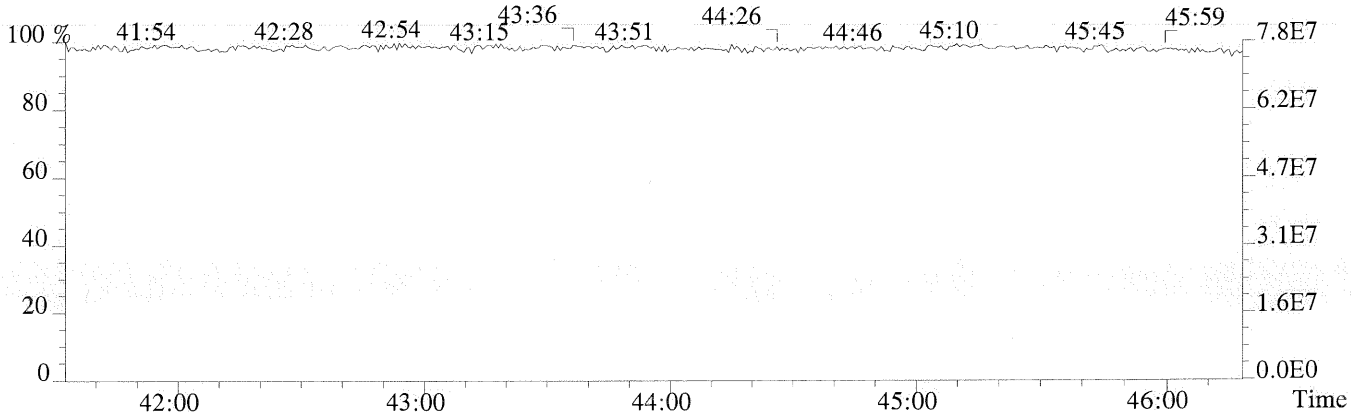
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1708.0,0.40%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

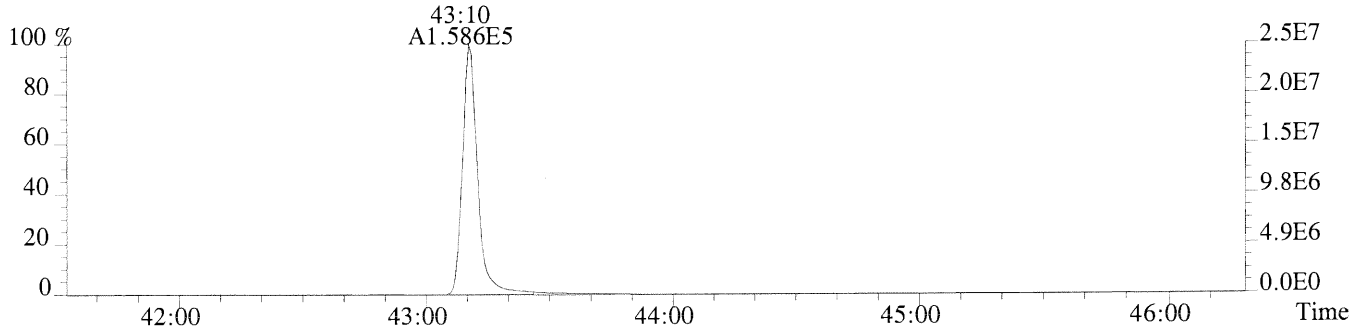


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

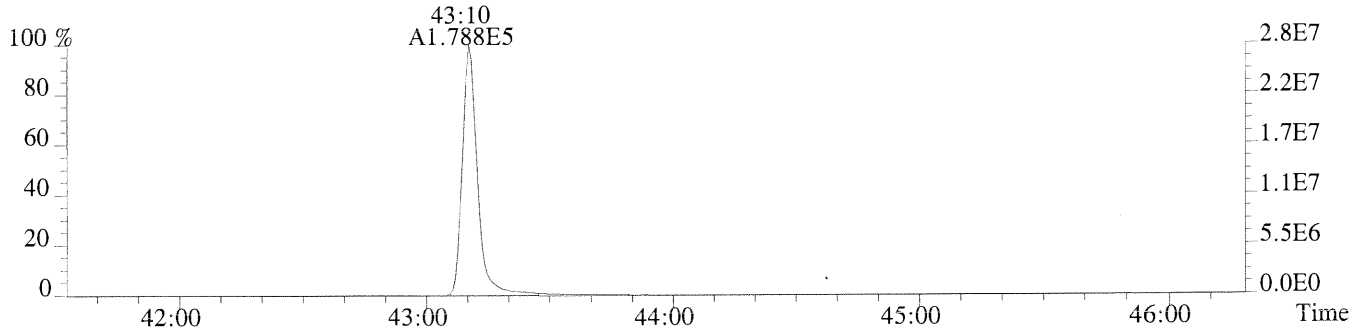


File:P169974 #1-438 Acq:25-MAR-2014 20:34:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC4/CS4

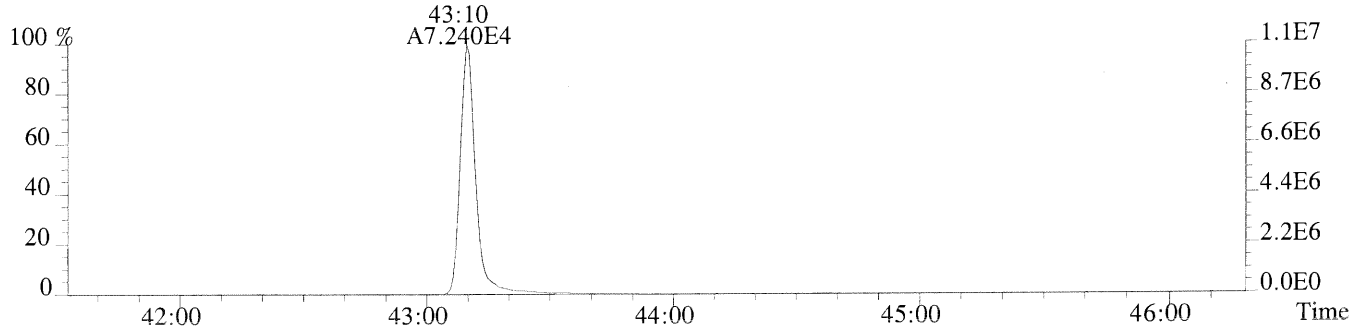
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



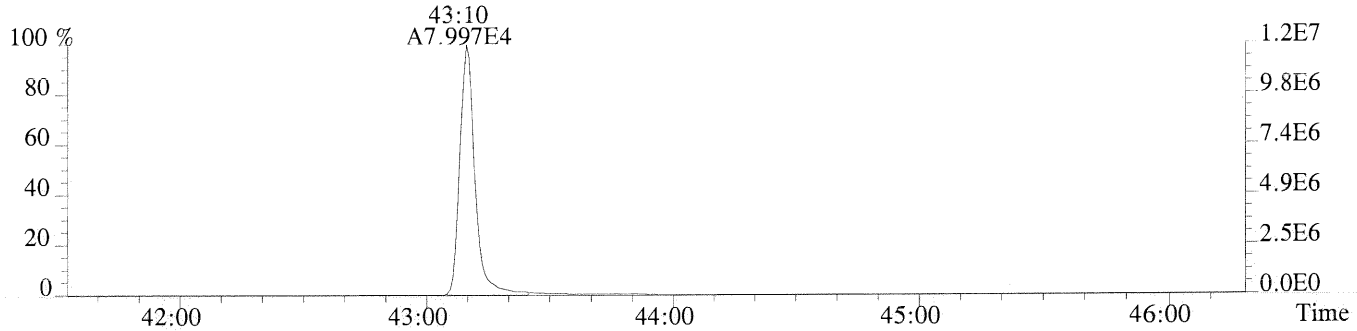
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,796.0,0.40%,F,T)



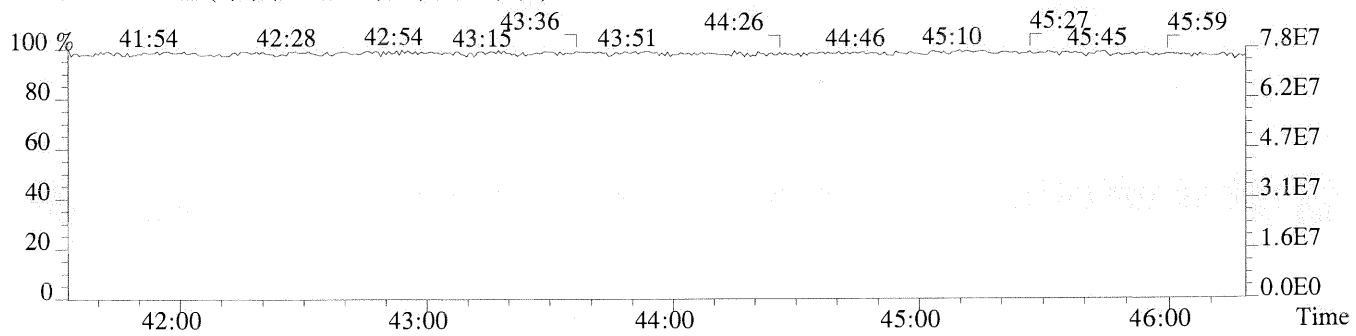
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1132.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,900.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66799

Run #6 Filename P169975 Samp: 1 Inj: 1 Acquired: 25-MAR-14 21:22:40
Processed: 26-MAR-14 10:01:28 Sample ID: ICAL HRCC5/CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:28	8.188e+04	1.055e+05	0.78	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:22	7.766e+05	4.971e+05	1.56	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	34:13	7.914e+05	5.056e+05	1.57	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:46	7.146e+05	5.738e+05	1.25	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:52	7.545e+05	6.106e+05	1.24	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:21	6.900e+05	5.567e+05	1.24	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	38:05	6.508e+05	5.243e+05	1.24	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:19	6.387e+05	6.158e+05	1.04	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:46	5.649e+05	5.430e+05	1.04	yes	no	1.324
10	Unk	OCDF	43:24	9.816e+05	1.075e+06	0.91	yes	no	1.307
11	Unk	2,3,7,8-TCDD	30:11	6.336e+04	8.144e+04	0.78	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:29	5.413e+05	3.436e+05	1.58	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:29	5.124e+05	4.111e+05	1.25	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:33	5.033e+05	4.016e+05	1.25	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:47	5.264e+05	4.195e+05	1.26	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	4.462e+05	4.247e+05	1.05	yes	no	1.016
17	Unk	OCDD	43:11	7.710e+05	8.645e+05	0.89	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:28	4.236e+04	5.314e+04	0.80	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:22	7.762e+04	5.068e+04	1.53	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	34:12	7.411e+04	4.801e+04	1.54	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:46	3.551e+04	6.835e+04	0.52	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:52	3.796e+04	7.448e+04	0.51	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:20	3.665e+04	7.012e+04	0.52	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	38:04	3.399e+04	6.512e+04	0.52	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:19	2.760e+04	6.236e+04	0.44	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:45	2.384e+04	5.416e+04	0.44	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	30:11	2.962e+04	3.826e+04	0.77	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:28	5.501e+04	3.479e+04	1.58	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:28	4.546e+04	3.573e+04	1.27	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:33	5.440e+04	4.276e+04	1.27	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:15	4.441e+04	4.147e+04	1.07	yes	no	0.862
32	IS	13C-OCDD	43:10	7.722e+04	8.549e+04	0.90	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:40	2.973e+04	3.755e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:46	5.100e+04	4.065e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:11	1.487e+05				no	1.125

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
66799

Run #6 Filename P169975 Samp: 1 Inj: 1 Acquired: 25-MAR-14 21:22:40
Processed: 26-MAR-14 08:20:301 LAB. ID: ICAL HRCC5/CS5

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.79e+07	8.24e+02	2.2e+04	2.33e+07	2.75e+03	8.5e+03
2	1,2,3,7,8-PeCDF	1.53e+08	1.22e+03	1.3e+05	9.84e+07	2.28e+03	4.3e+04
3	2,3,4,7,8-PeCDF	1.64e+08	1.22e+03	1.4e+05	1.04e+08	2.28e+03	4.6e+04
4	1,2,3,4,7,8-HxCDF	1.55e+08	2.35e+03	6.6e+04	1.24e+08	2.10e+03	5.9e+04
5	1,2,3,6,7,8-HxCDF	1.61e+08	2.35e+03	6.8e+04	1.31e+08	2.10e+03	6.3e+04
6	2,3,4,6,7,8-HxCDF	1.51e+08	2.35e+03	6.4e+04	1.22e+08	2.10e+03	5.8e+04
7	1,2,3,7,8,9-HxCDF	1.37e+08	2.35e+03	5.8e+04	1.11e+08	2.10e+03	5.3e+04
8	1,2,3,4,6,7,8-HpCDF	1.30e+08	2.47e+04	5.3e+03	1.26e+08	2.03e+04	6.2e+03
9	1,2,3,4,7,8,9-HpCDF	1.08e+08	2.47e+04	4.4e+03	1.04e+08	2.03e+04	5.1e+03
10	OCDF	1.64e+08	1.15e+03	1.4e+05	1.80e+08	1.61e+03	1.1e+05
11	2,3,7,8-TCDD	1.45e+07	1.45e+03	1.0e+04	1.87e+07	1.56e+03	1.2e+04
12	1,2,3,7,8-PeCDD	1.12e+08	1.41e+03	7.9e+04	7.08e+07	8.96e+02	7.9e+04
13	1,2,3,4,7,8-HxCDD	1.14e+08	8.72e+02	1.3e+05	9.09e+07	1.51e+03	6.0e+04
14	1,2,3,6,7,8-HxCDD	1.06e+08	8.72e+02	1.2e+05	8.54e+07	1.51e+03	5.7e+04
15	1,2,3,7,8,9-HxCDD	1.14e+08	8.72e+02	1.3e+05	9.12e+07	1.51e+03	6.0e+04
16	1,2,3,4,6,7,8-HpCDD	8.92e+07	2.64e+03	3.4e+04	8.45e+07	1.13e+03	7.5e+04
17	OCDD	1.27e+08	1.18e+03	1.1e+05	1.41e+08	1.09e+03	1.3e+05
18	13C-2,3,7,8-TCDF	9.42e+06	1.72e+03	5.5e+03	1.18e+07	1.63e+03	7.3e+03
19	13C-1,2,3,7,8-PeCDF	1.50e+07	8.88e+02	1.7e+04	9.80e+06	1.01e+03	9.7e+03
20	13C-2,3,4,7,8-PeCDF	1.50e+07	8.88e+02	1.7e+04	9.64e+06	1.01e+03	9.5e+03
21	13C-1,2,3,4,7,8-HxCDF	7.67e+06	1.67e+03	4.6e+03	1.46e+07	1.75e+03	8.3e+03
22	13C-1,2,3,6,7,8-HxCDF	7.97e+06	1.67e+03	4.8e+03	1.58e+07	1.75e+03	9.0e+03
23	13C-2,3,4,6,7,8-HxCDF	7.93e+06	1.67e+03	4.7e+03	1.52e+07	1.75e+03	8.7e+03
24	13C-1,2,3,7,8,9-HxCDF	7.01e+06	1.67e+03	4.2e+03	1.33e+07	1.75e+03	7.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.54e+06	3.09e+03	1.8e+03	1.25e+07	3.97e+03	3.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.50e+06	3.09e+03	1.5e+03	1.02e+07	3.97e+03	2.6e+03
27	13C-2,3,7,8-TCDD	6.83e+06	3.83e+03	1.8e+03	8.75e+06	1.57e+03	5.6e+03
28	13C-1,2,3,7,8-PeCDD	1.11e+07	1.32e+03	8.4e+03	6.92e+06	8.68e+02	8.0e+03
29	13C-1,2,3,4,7,8-HxCDD	1.00e+07	1.23e+03	8.2e+03	7.76e+06	1.40e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.15e+07	1.23e+03	9.3e+03	9.04e+06	1.40e+03	6.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.70e+06	1.57e+03	5.5e+03	8.14e+06	8.16e+02	1.0e+04
32	13C-OCDD	1.23e+07	1.36e+03	9.0e+03	1.37e+07	1.03e+03	1.3e+04
33	13C-1,2,3,4-TCDD	6.73e+06	3.83e+03	1.8e+03	8.40e+06	1.57e+03	5.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.08e+07	1.23e+03	8.7e+03	8.66e+06	1.40e+03	6.2e+03
35	37Cl-2,3,7,8-TCDD	3.42e+07	1.85e+03	1.8e+04			

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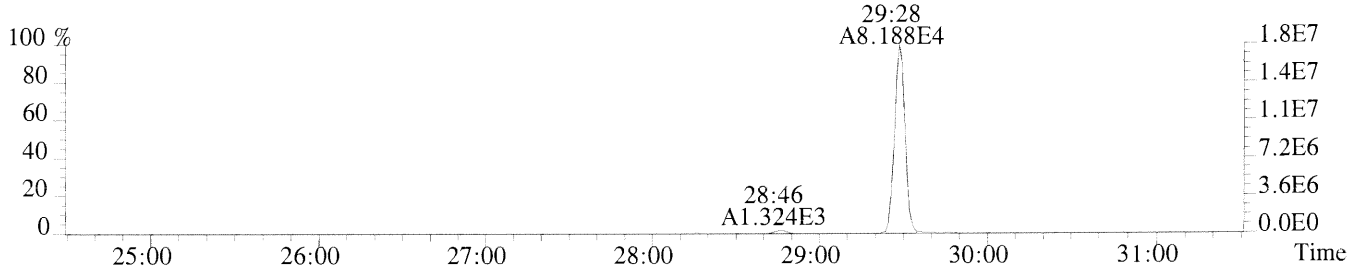
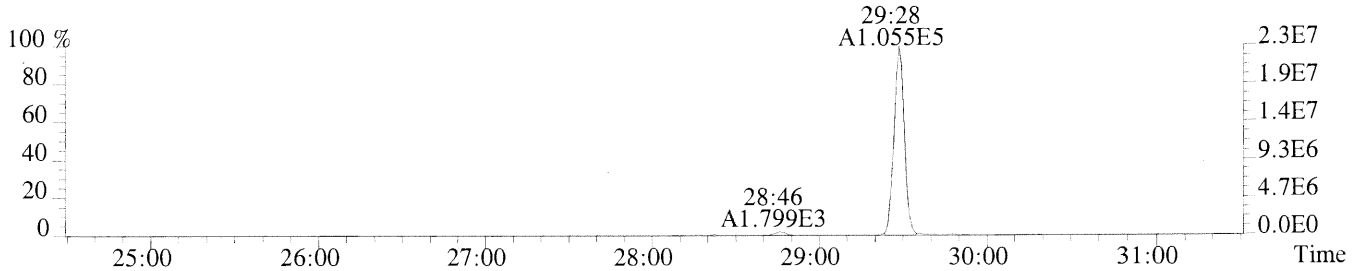
File:P169975 #1-442 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5

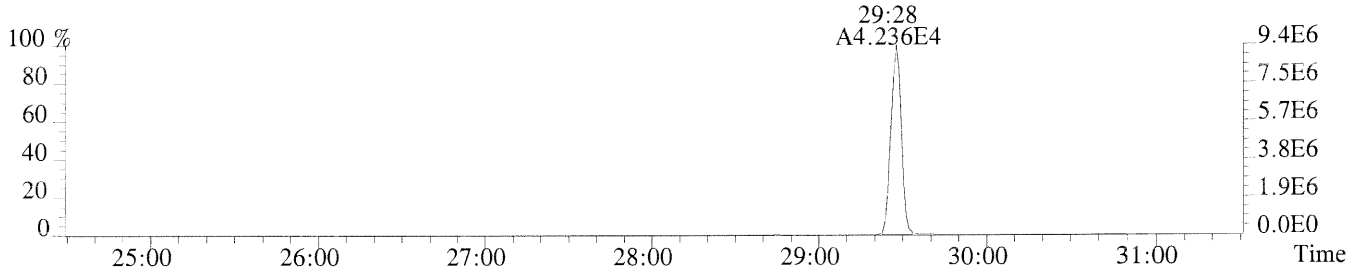
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



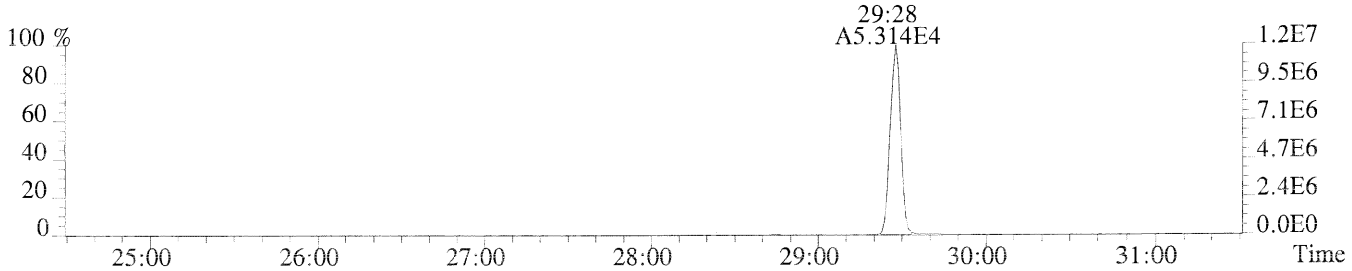
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2748.0,1.00%,F,T)



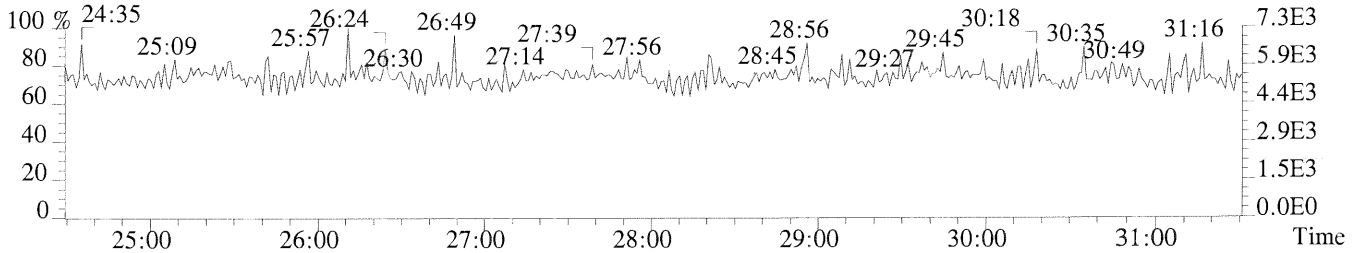
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1716.0,1.00%,F,T)



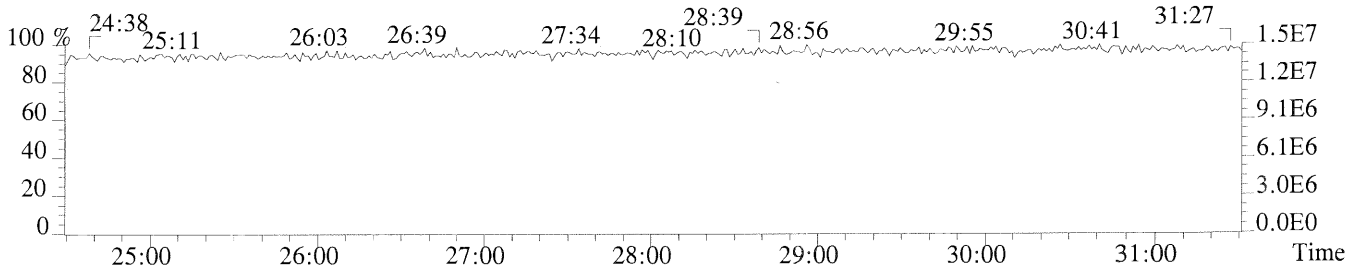
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1628.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

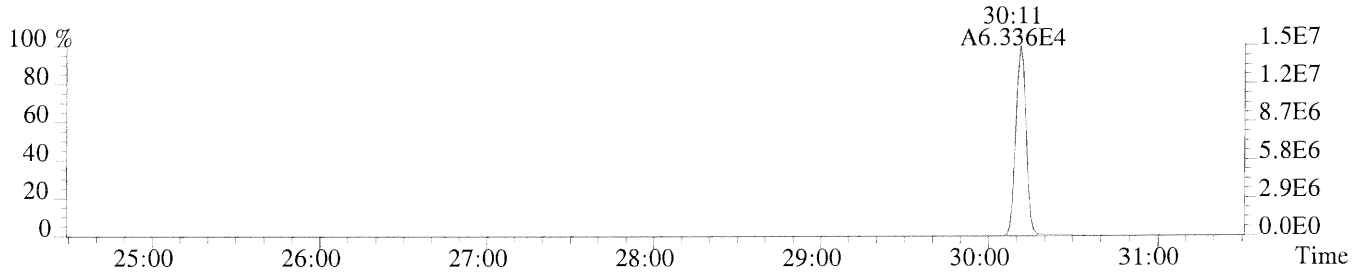


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

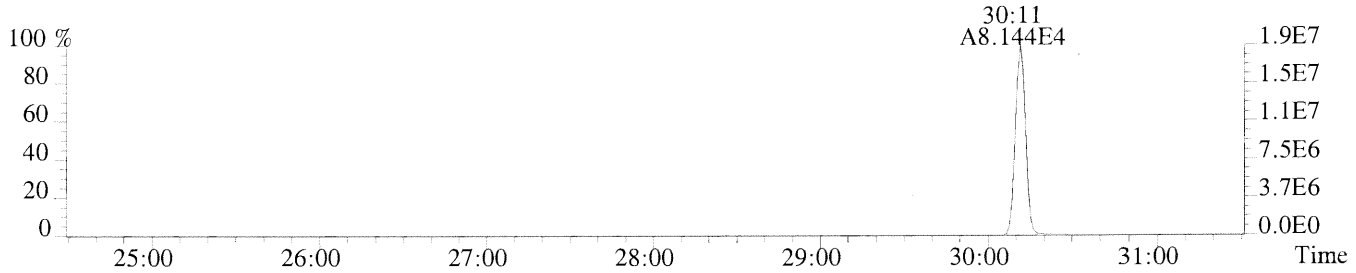


File:P169975 #1-442 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5

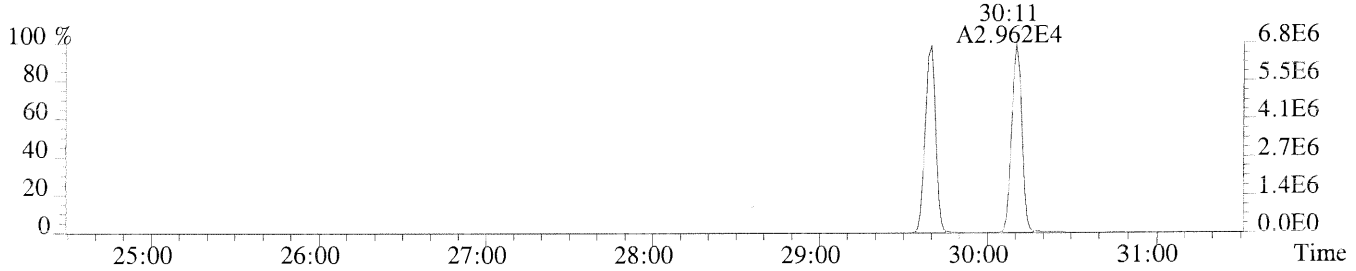
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1448.0,1.00%,F,T)



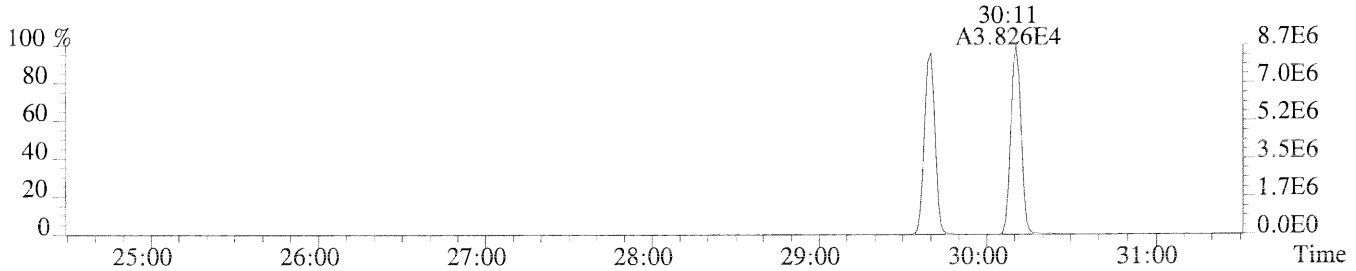
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



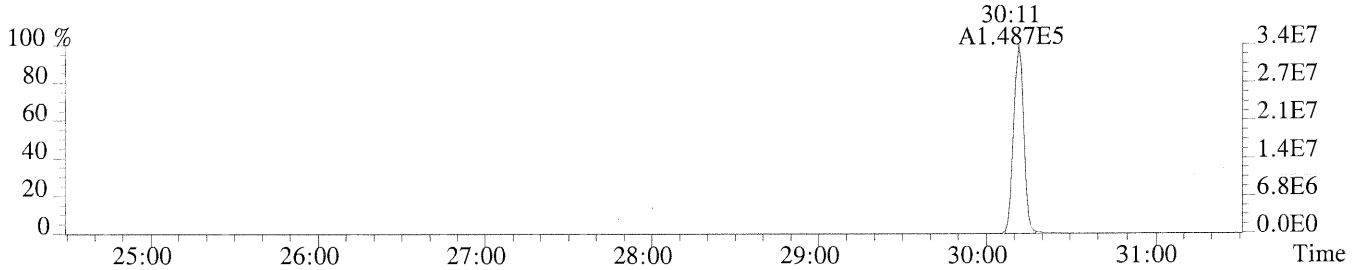
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3828.0,1.00%,F,T)



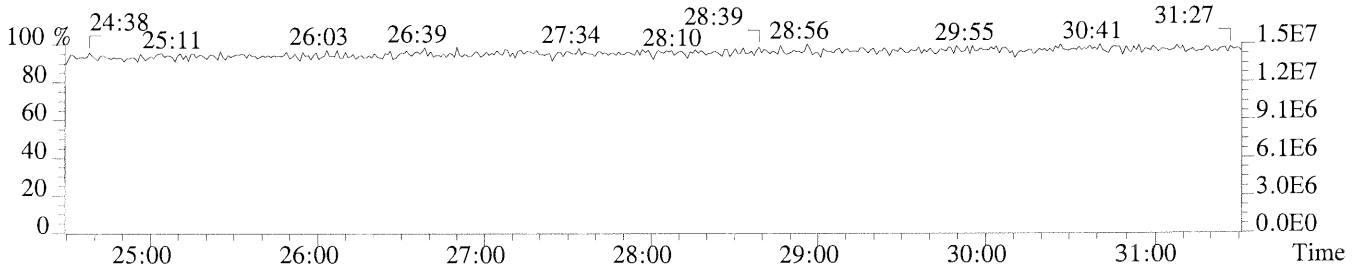
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1852.0,1.00%,F,T)

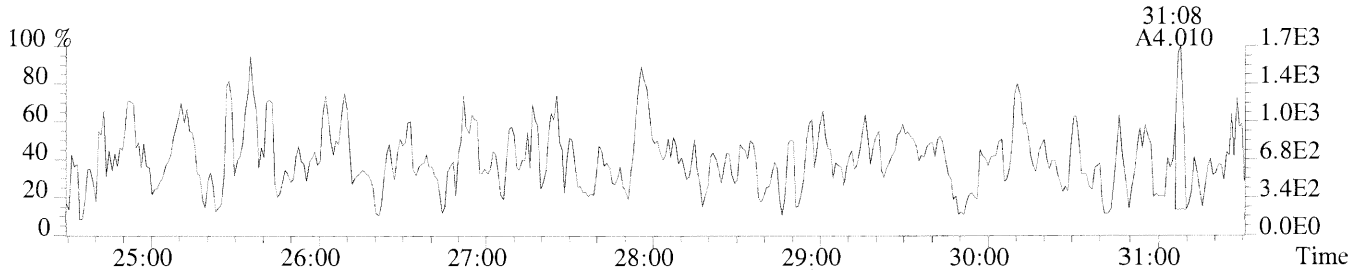


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

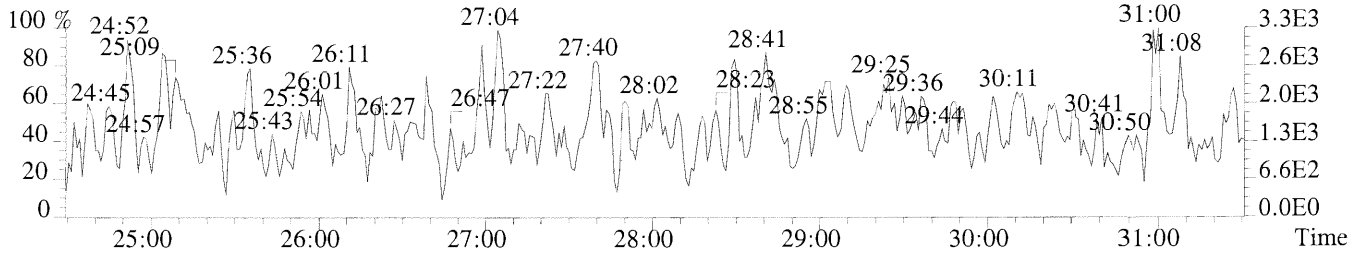


File:P169975 #1-442 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5

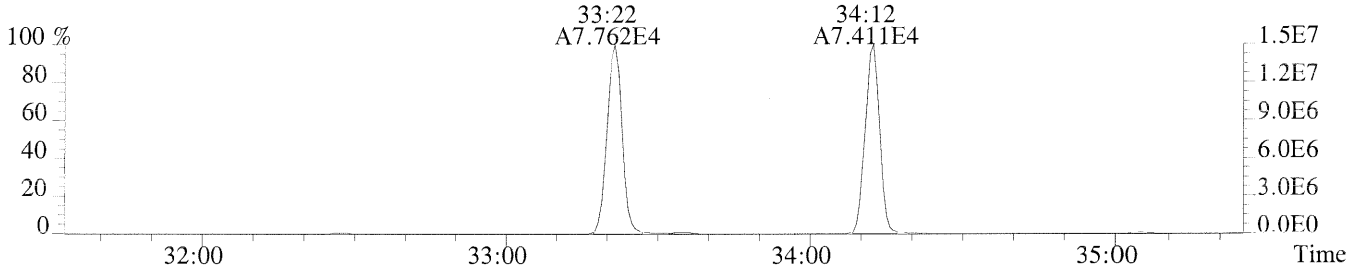
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



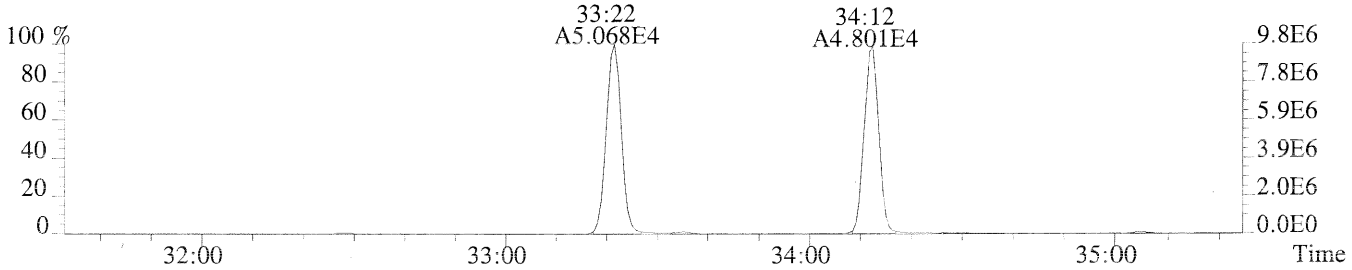
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1872.0,1.00%,F,T)



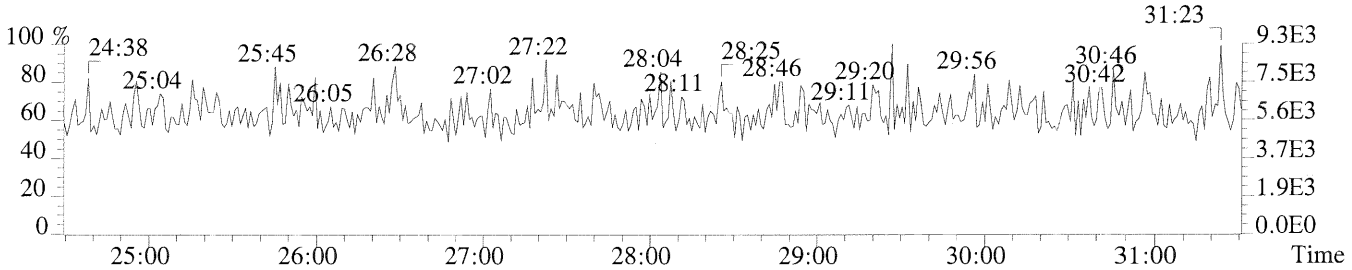
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



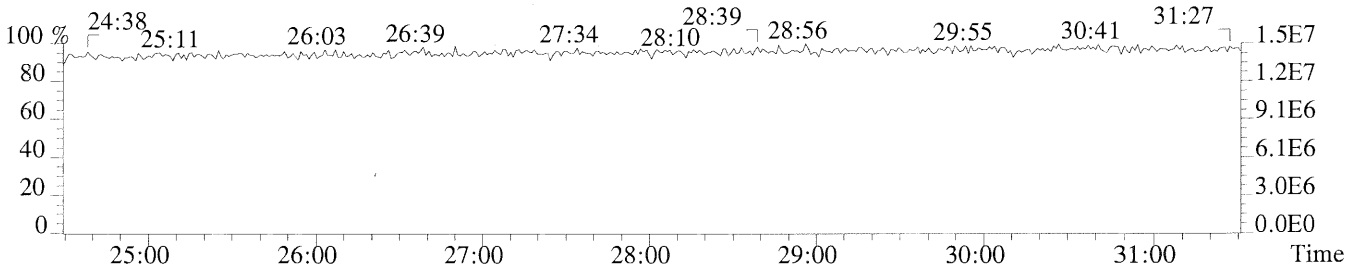
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

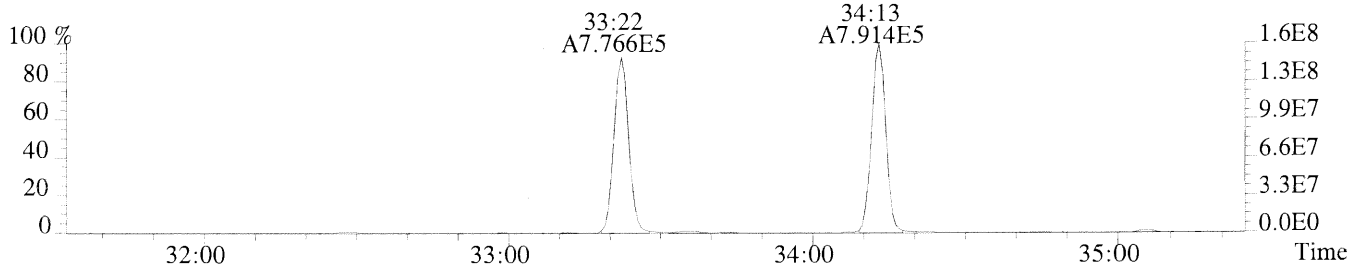


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

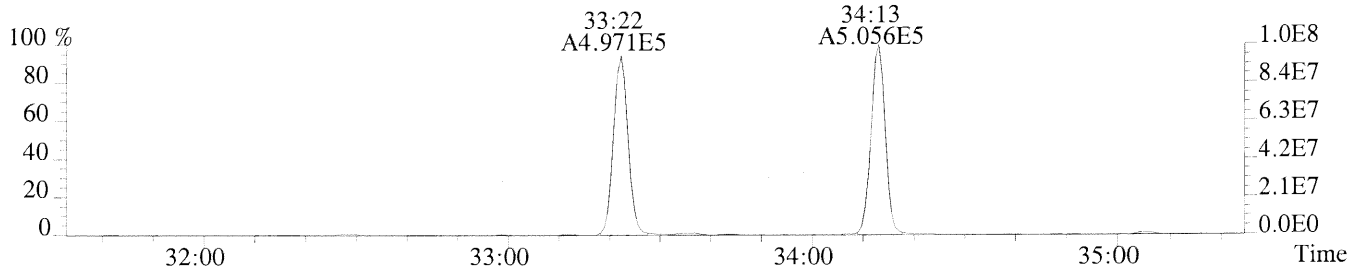


File:P169975 #1-351 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5

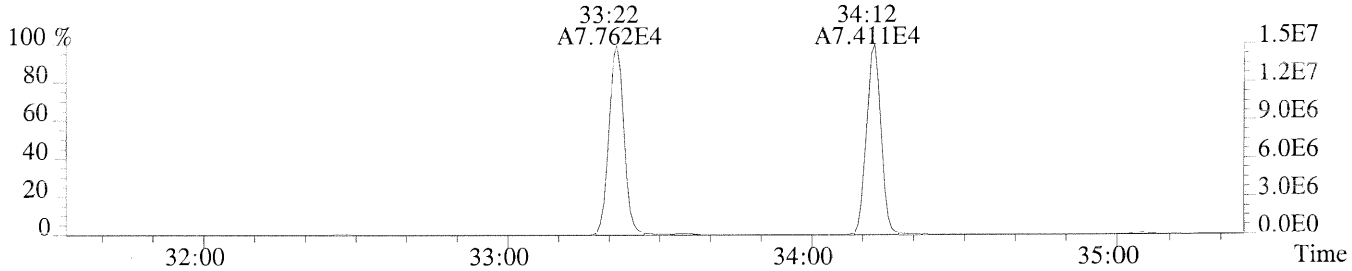
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



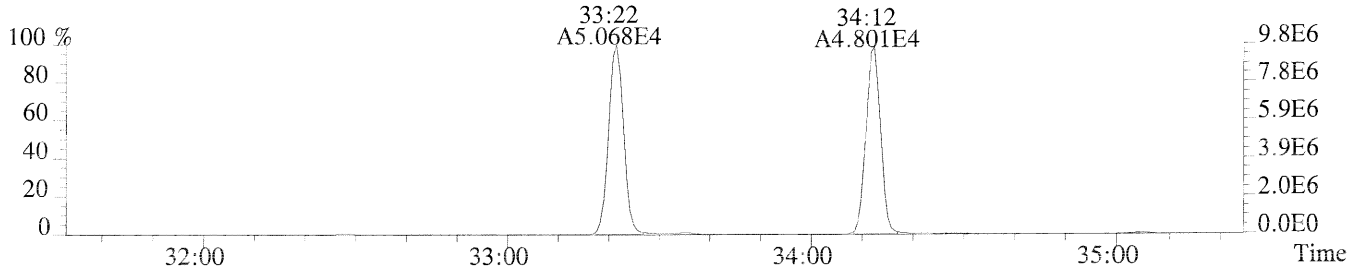
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2276.0,1.00%,F,T)



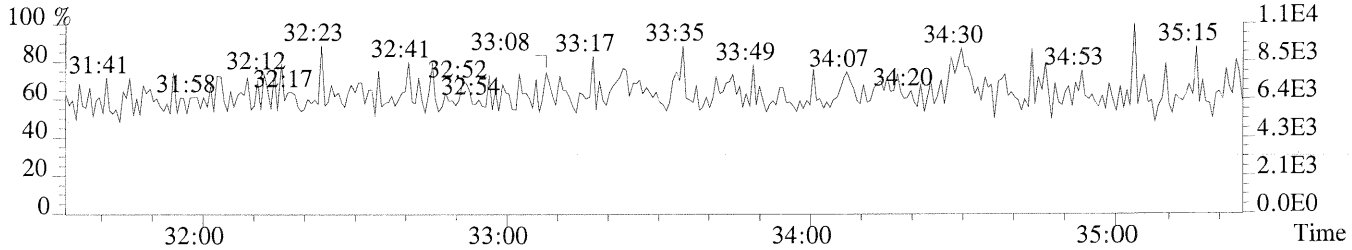
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



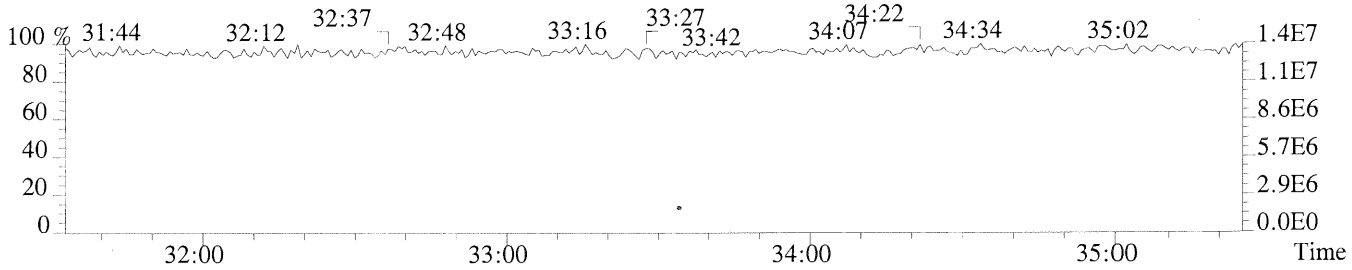
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

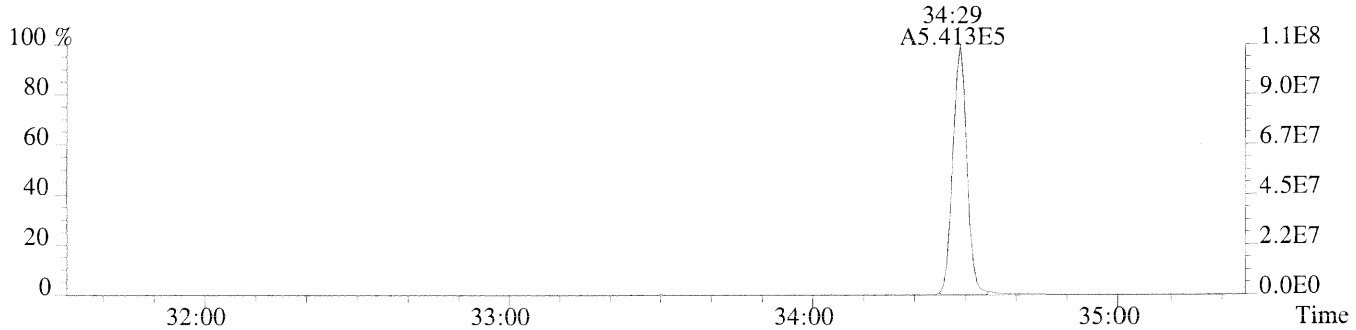


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

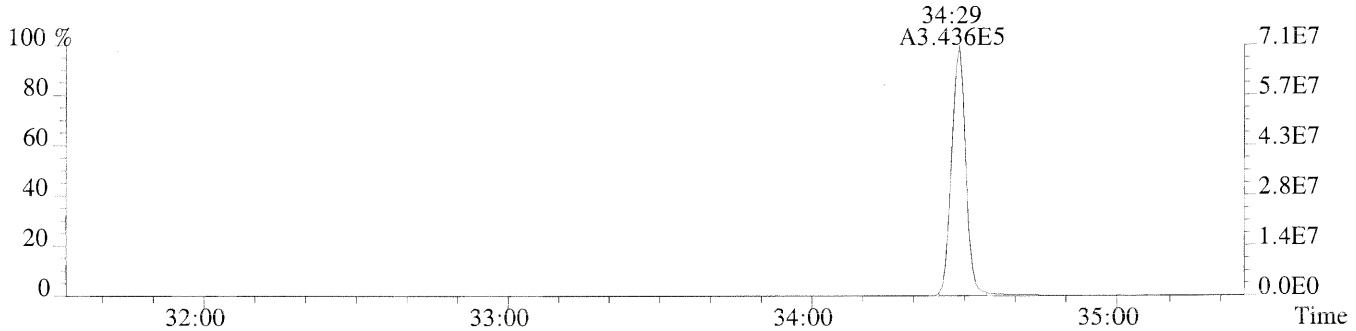


File:P169975 #1-351 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5

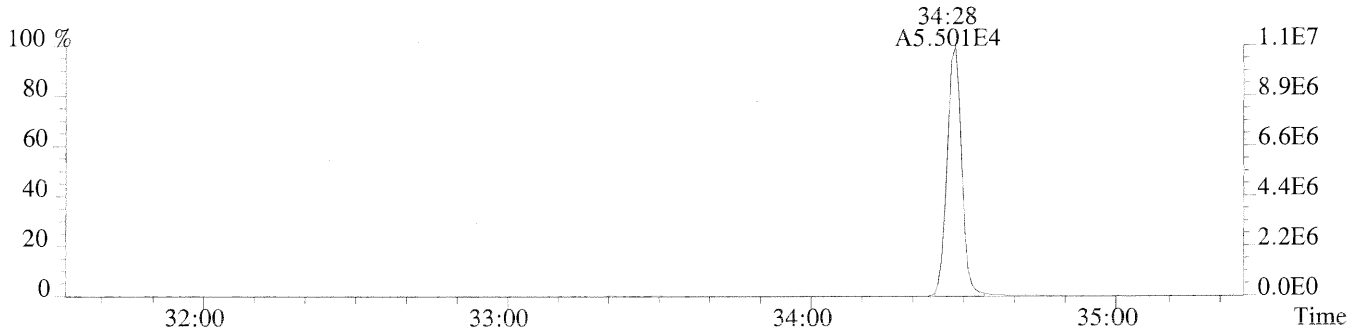
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1412.0,1.00%,F,T)



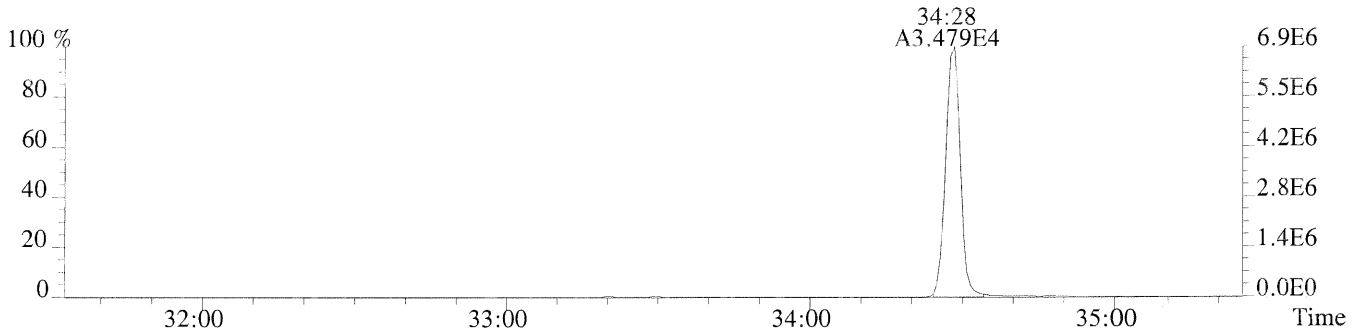
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



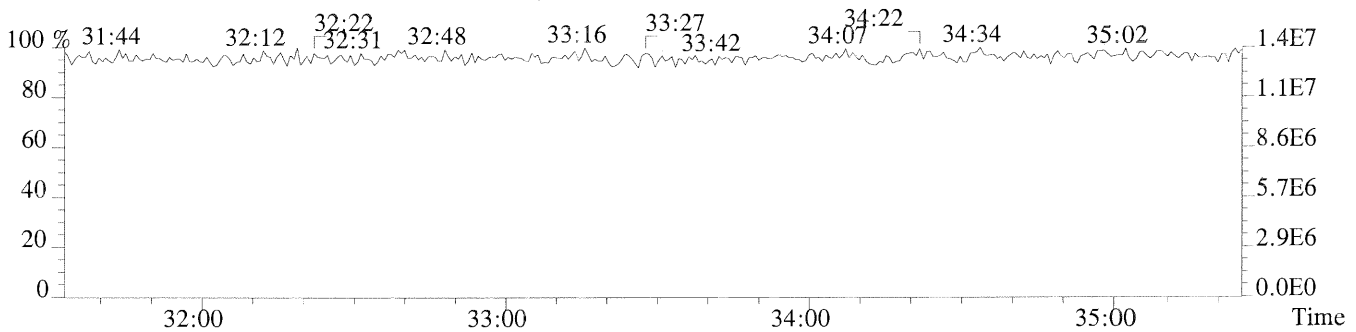
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)

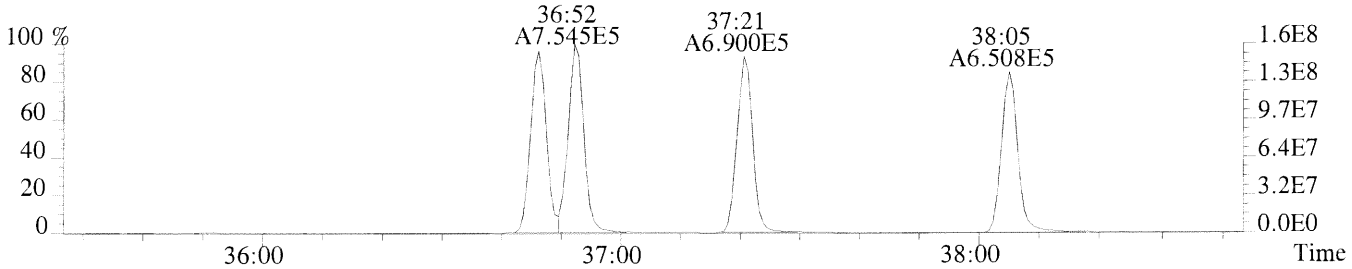


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

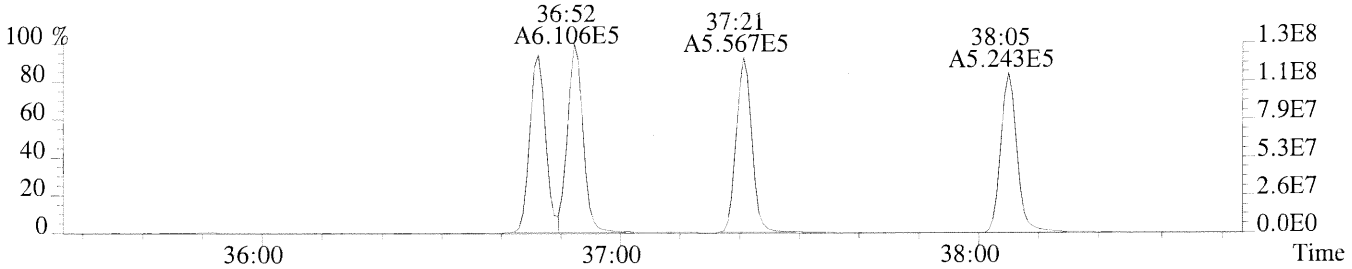


File:P169975 #1-298 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5

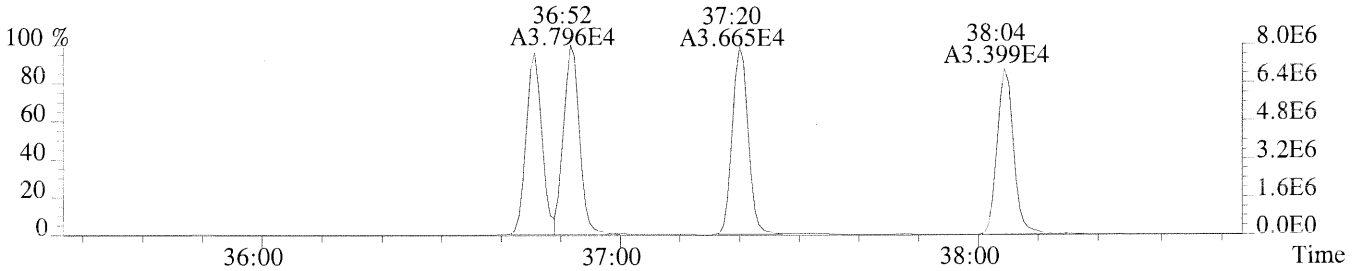
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2348.0,0.40%,F,T)



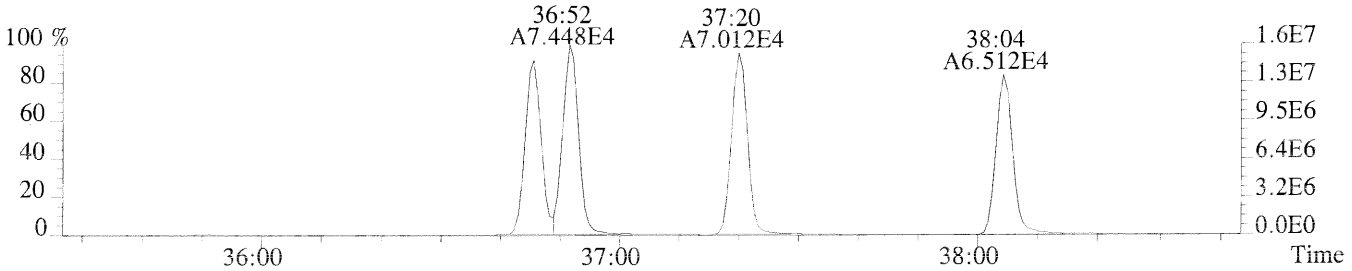
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2096.0,0.40%,F,T)



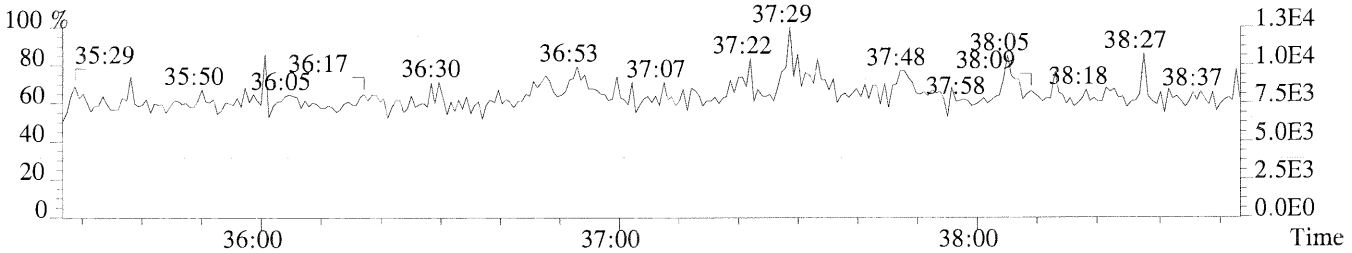
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1672.0,0.40%,F,T)



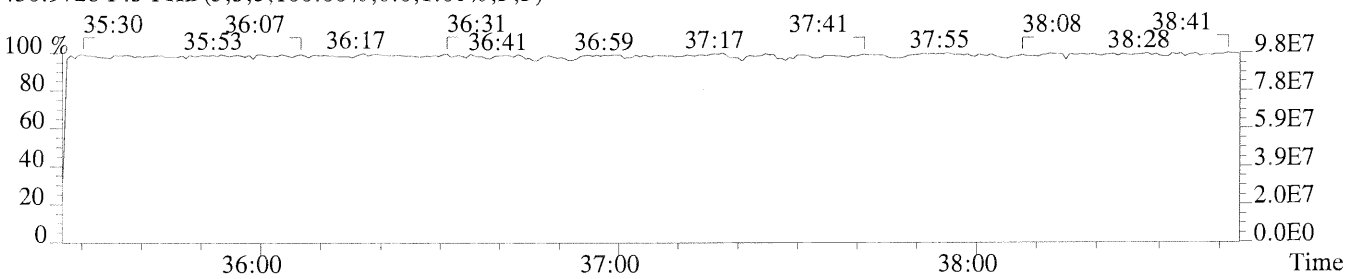
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

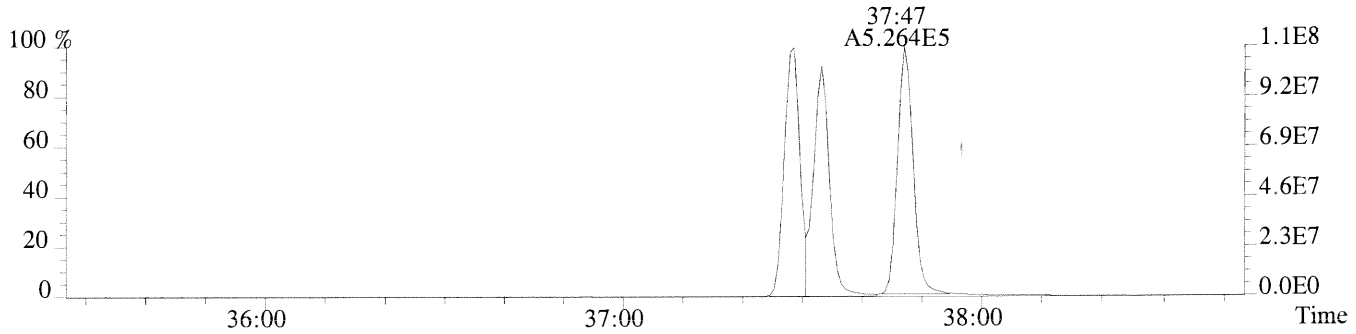


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

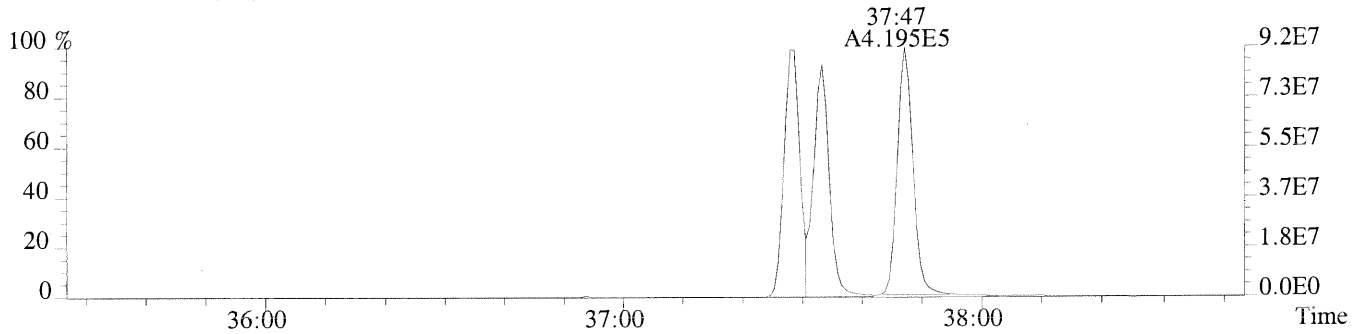


File:P169975 #1-298 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5

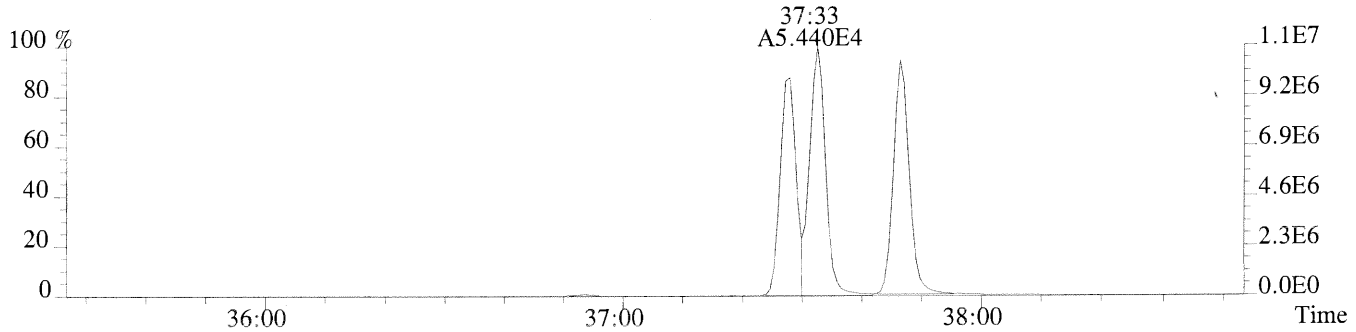
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,872.0,0.40%,F,T)



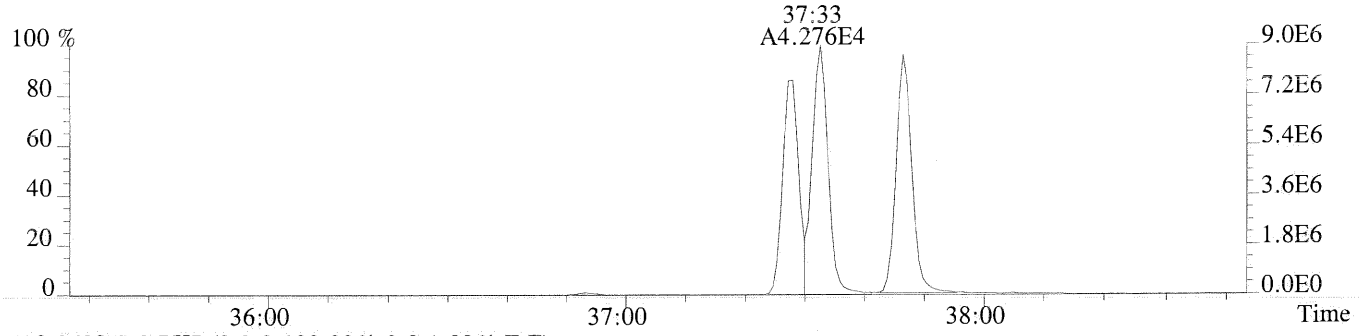
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1508.0,0.40%,F,T)



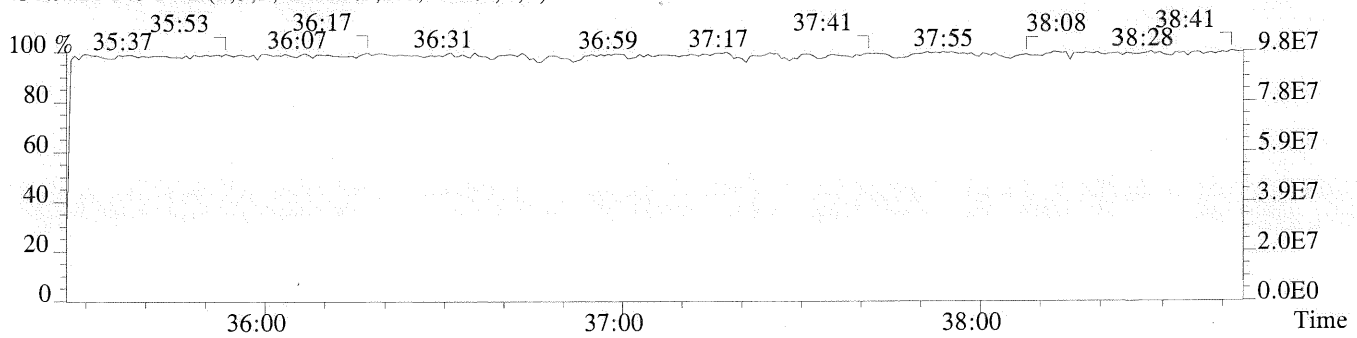
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1400.0,0.40%,F,T)

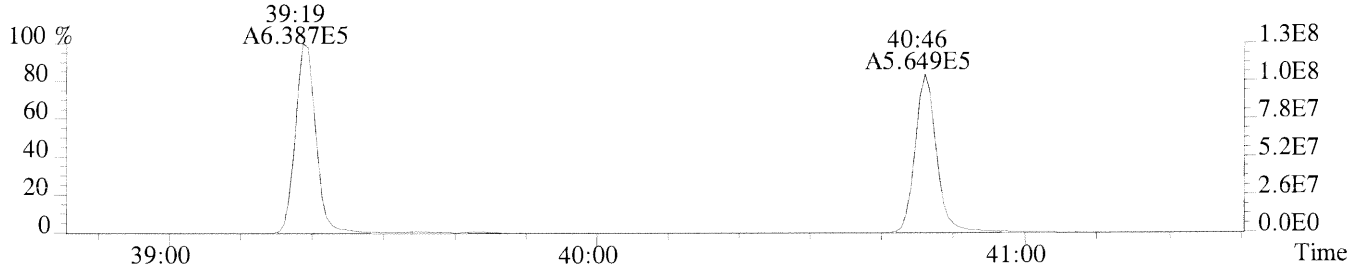


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

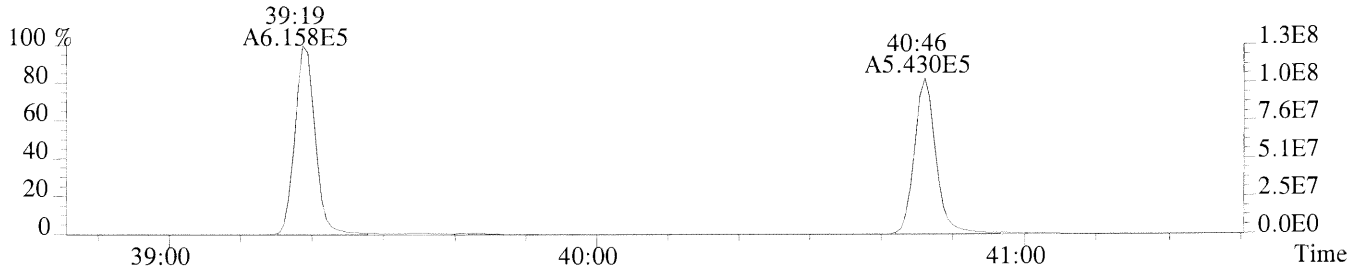


File:P169975 #1-250 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5

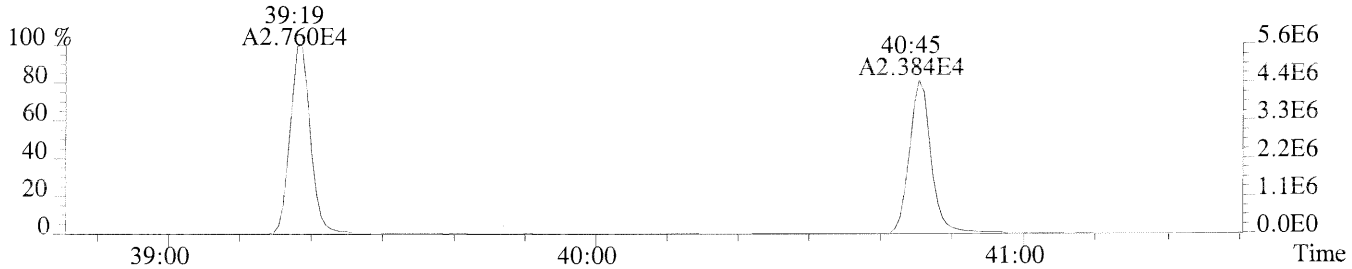
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,24704.0,0.50%,F,T)



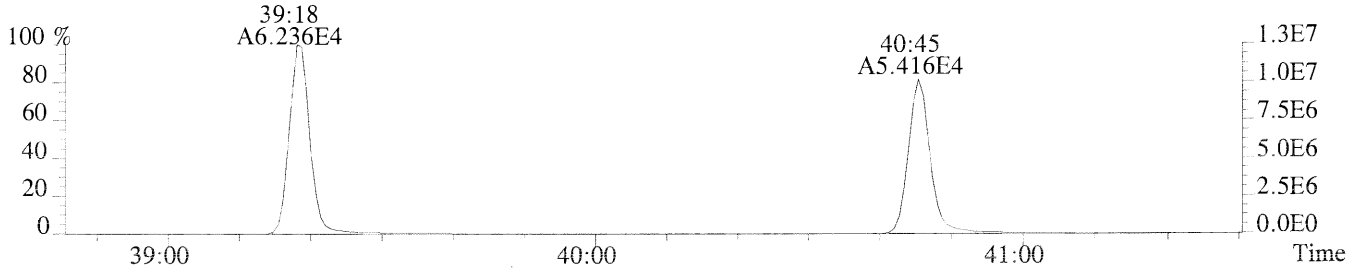
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,20332.0,0.50%,F,T)



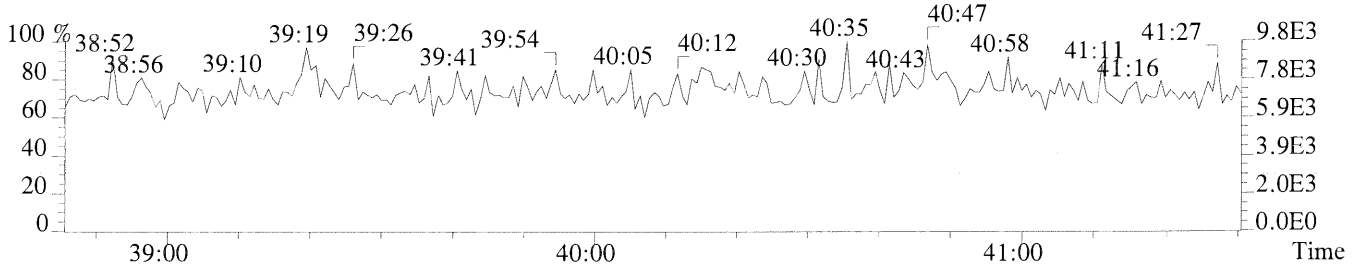
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3092.0,0.50%,F,T)



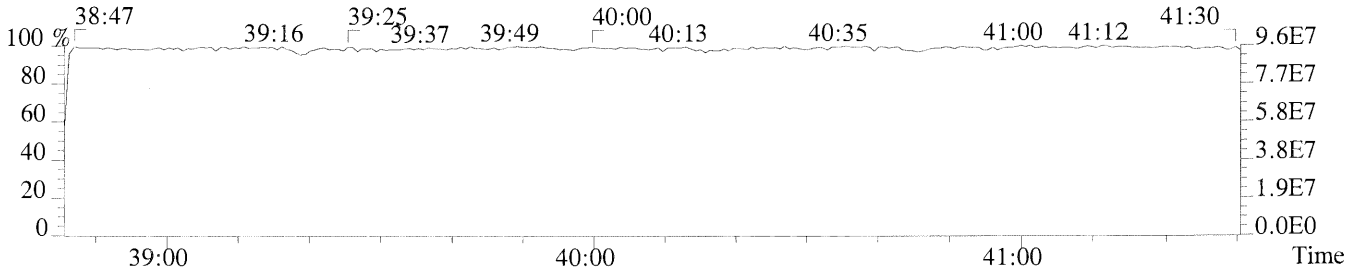
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3968.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

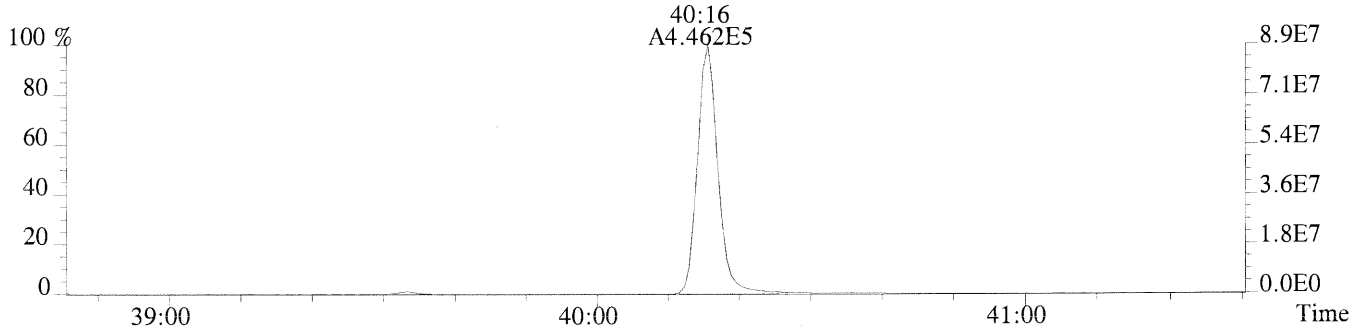


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

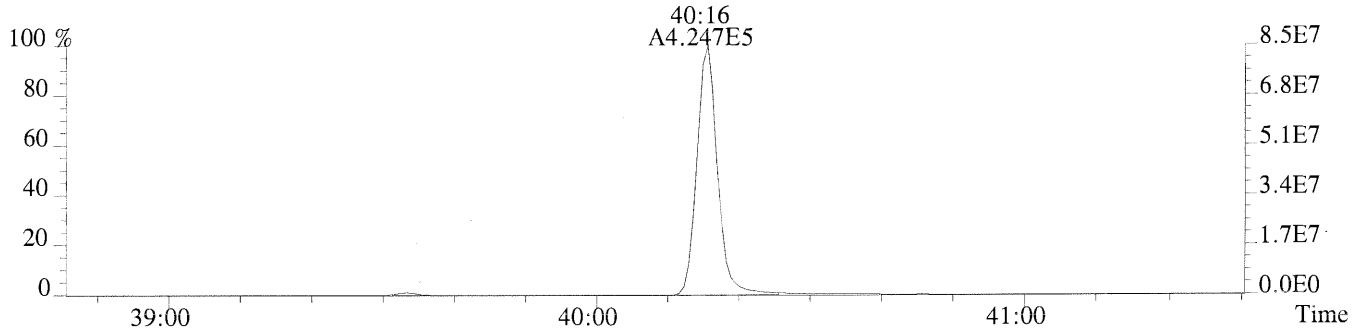


File:P169975 #1-250 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5

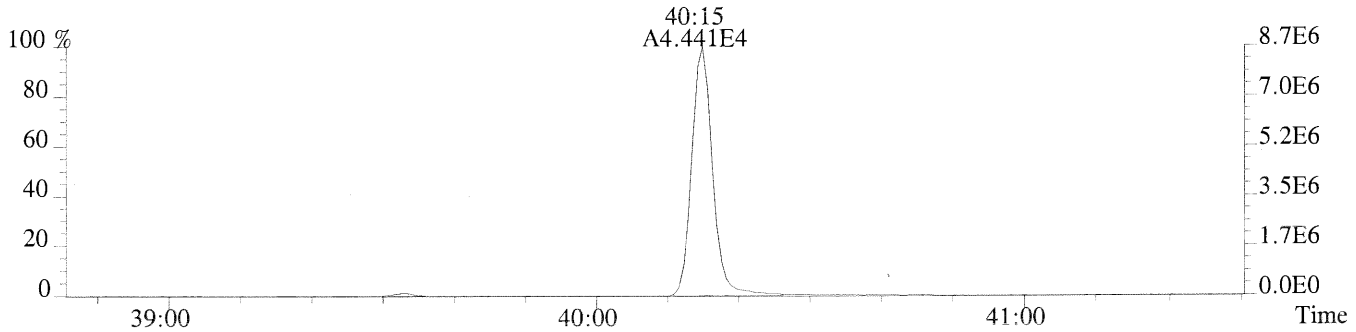
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2640.0,0.40%,F,T)



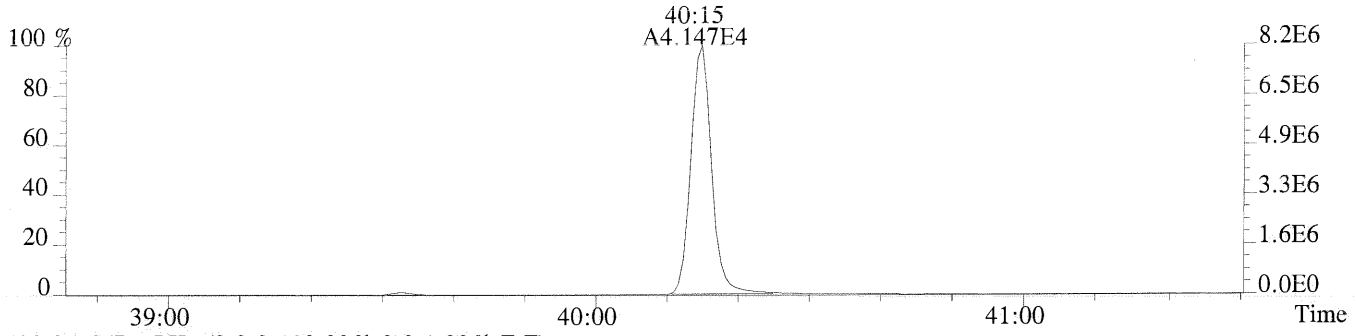
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1128.0,0.40%,F,T)



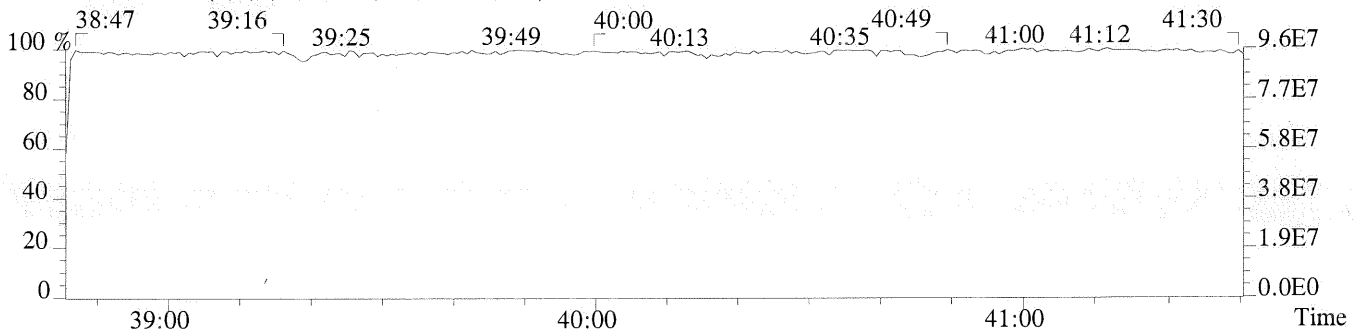
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



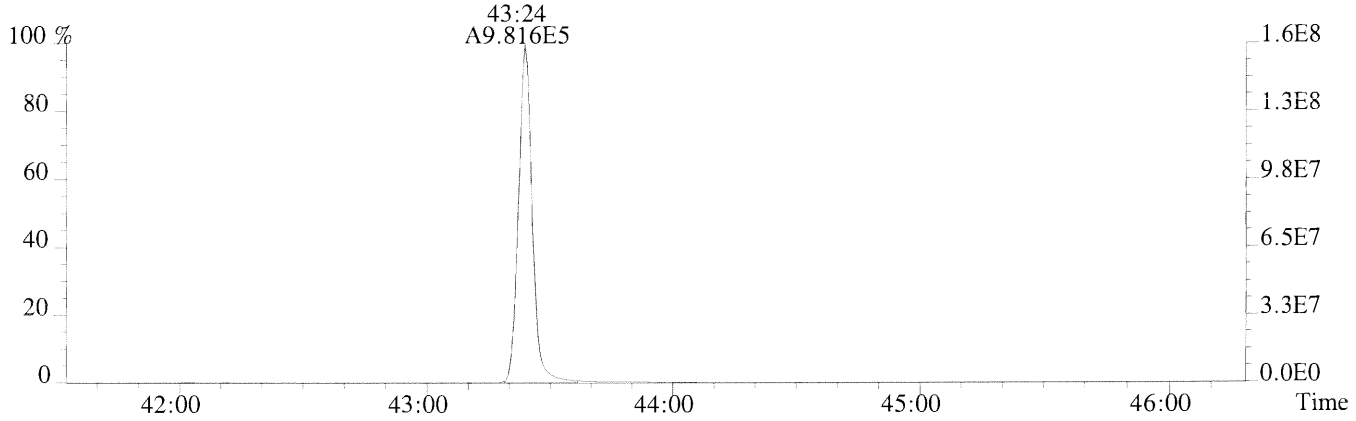
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



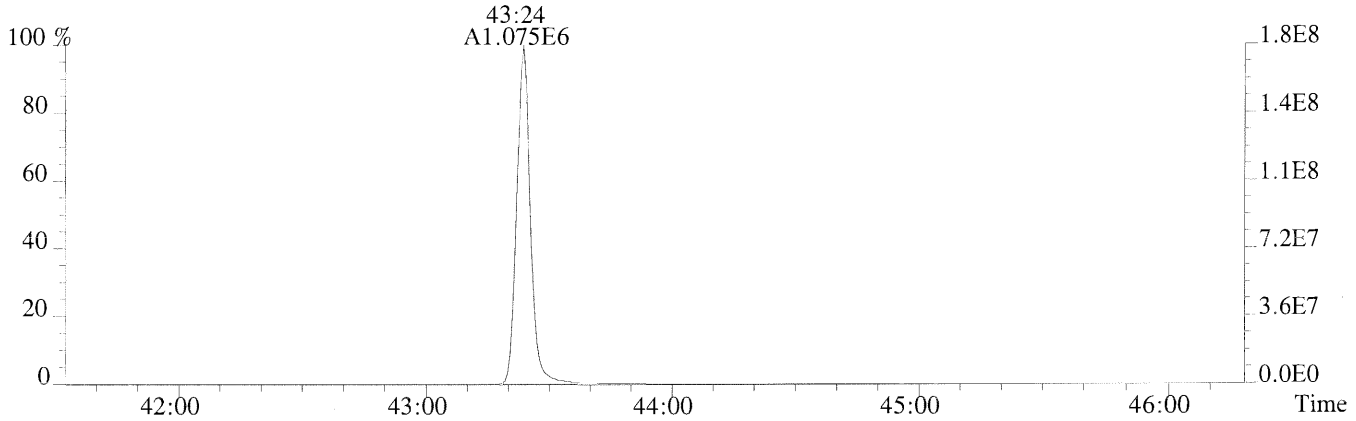
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



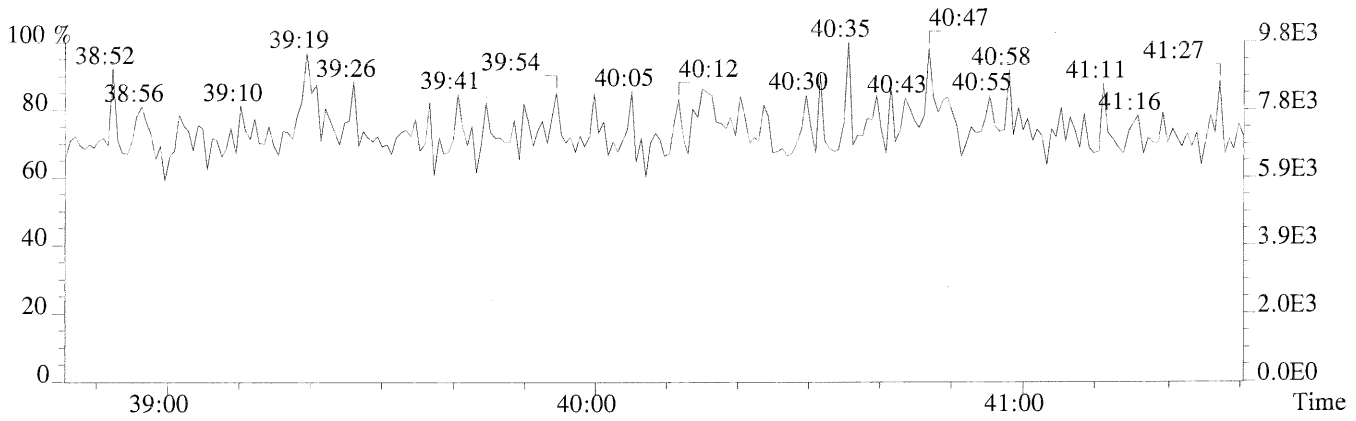
File:P169975 #1-438 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1148.0,0.40%,F,T)



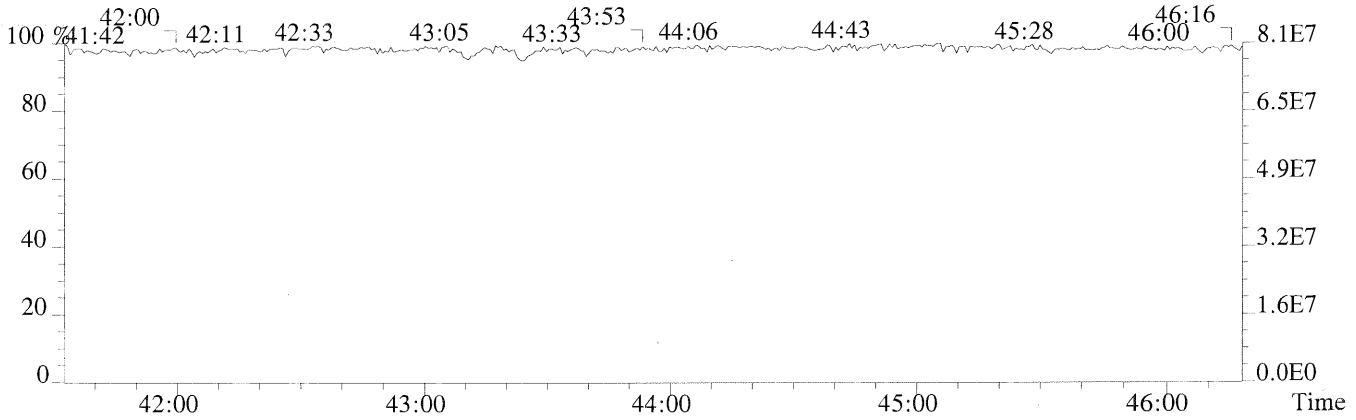
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1612.0,0.40%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

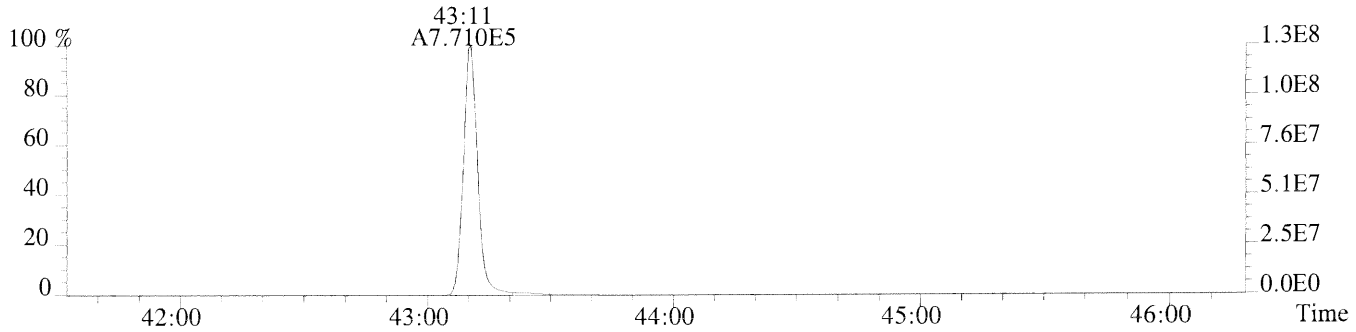


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

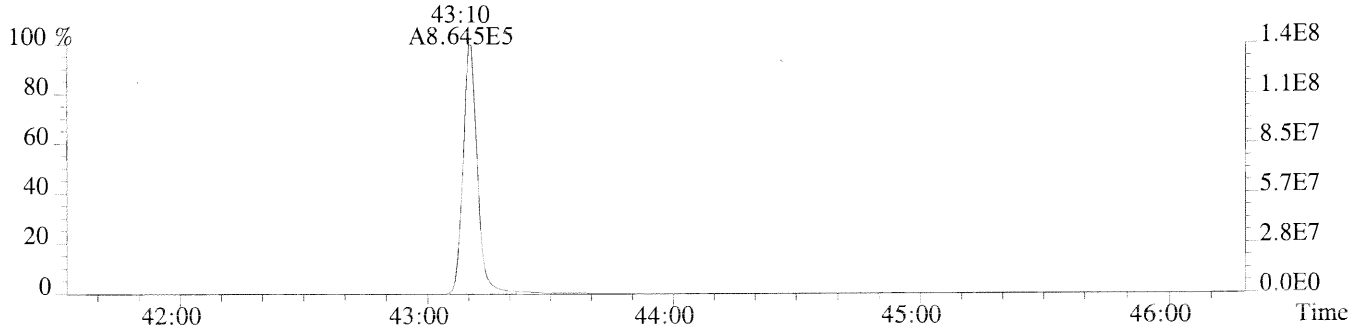


File:P169975 #1-438 Acq:25-MAR-2014 21:22:40 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL HRCC5/CS5

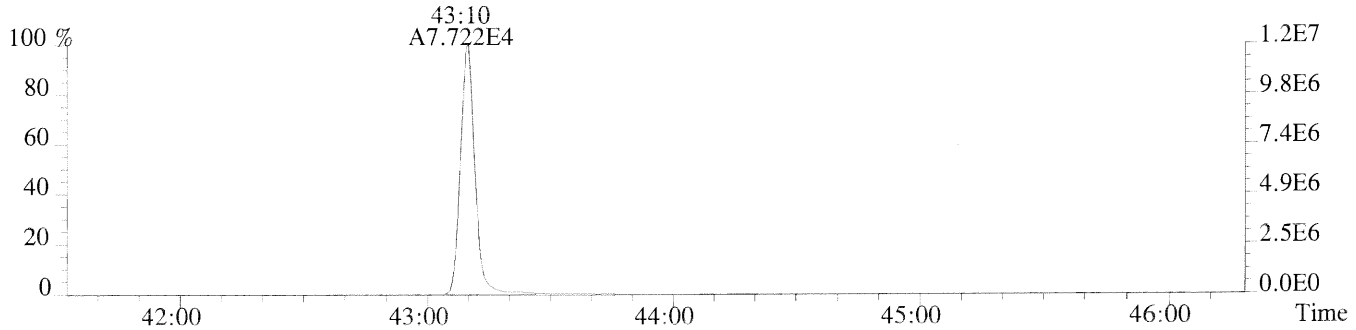
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1180.0,0.40%,F,T)



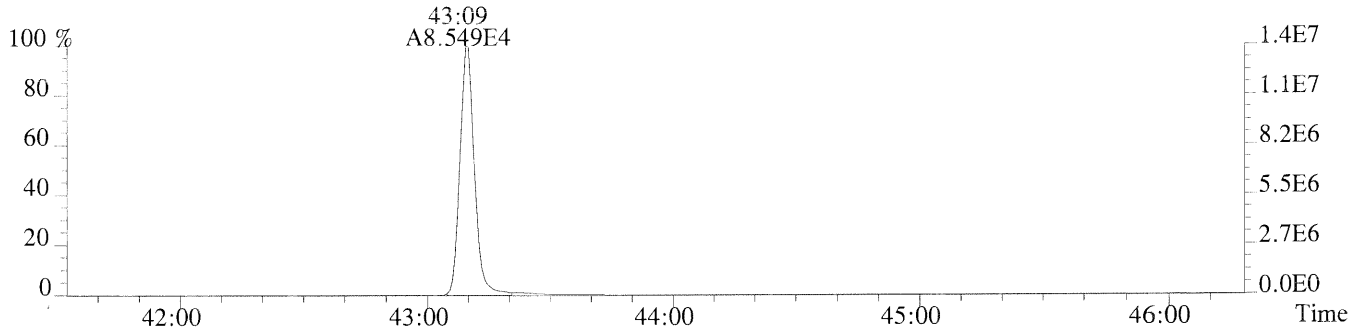
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1092.0,0.40%,F,T)



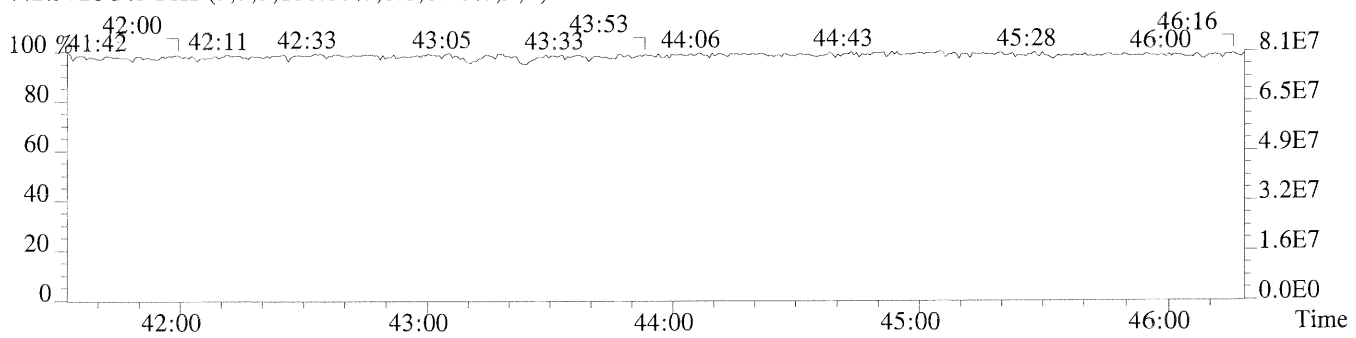
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1360.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1028.0,0.40%,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
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 | GC Column ID: DB-5MSUI

VER Data Filename: P169976 | Analysis Date: 25-MAR-14 Time: 22:10:47

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	10.1	7.8 - 12.9	0.6
1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	51	39 - 65	2.3
1,2,3,4,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	54	39 - 64	7.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	46	39 - 64	-7.4
1,2,3,7,8,9-HxCDD	M+2/M+4	1.23	1.05-1.43	48	41 - 61	-3.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	-0.9
OCDD	M+2/M+4	0.90	0.76-1.02	93	79 - 126	-7.4
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	10.1	8.4 - 12.0	1.2
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	48	41 - 60	-4.2
2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	53	41 - 61	6.3
1,2,3,4,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	48	45 - 56	-3.5
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	50	44 - 57	-0.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	50	45 - 56	-0.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	49	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	-0.7
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	53	43 - 58	6.5
OCDF	M+2/M+4	0.90	0.76-1.02	91	63 - 159	-9.2

(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 %D 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

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 GC Column ID: DB-5MSUI

VER Data Filename: P169976 Analysis Date: 25-MAR-14 Time: 22:10:47

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	94	82 - 121	-5.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	101	62 - 160	0.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	102	85 - 117	2.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	113	85 - 118	12.6
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	114	72 - 138	13.7
13C-OCDD	M+2/M+4	0.90	0.76-1.02	244	96 - 415	22.1
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	100	71 - 140	-0.3
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	106	76 - 130	6.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	101	77 - 130	1.3
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	113	76 - 131	12.5
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	104	70 - 143	4.2
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	110	74 - 135	10.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	106	73 - 137	5.9
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	113	78 - 129	13.2
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	110	77 - 129	10.3
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.
(5) The beginnning CCAL %D 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)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
60287

Run #7 Filename P169976 Samp: 1 Inj: 1 Acquired: 25-MAR-14 22:10:47
Processed: 26-MAR-14 12:20:58 Sample ID: ICV 2ND SOURCE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:29	1.292e+04	1.680e+04	0.77	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:23	1.254e+05	8.021e+04	1.56	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	34:14	1.245e+05	7.893e+04	1.58	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:47	1.176e+05	9.354e+04	1.26	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:53	1.224e+05	9.868e+04	1.24	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:21	1.109e+05	9.037e+04	1.23	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	38:06	1.080e+05	8.761e+04	1.23	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:19	1.096e+05	1.051e+05	1.04	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:47	9.714e+04	9.290e+04	1.05	yes	no	1.324
10	Unk	OCDF	43:24	1.560e+05	1.732e+05	0.90	yes	no	1.307
11	Unk	2,3,7,8-TCDD	30:12	9.732e+03	1.241e+04	0.78	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:30	8.363e+04	5.308e+04	1.58	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:29	8.188e+04	6.562e+04	1.25	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:34	8.182e+04	6.465e+04	1.27	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:48	8.494e+04	6.881e+04	1.23	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:16	7.550e+04	7.271e+04	1.04	yes	no	1.016
17	Unk	OCDD	43:11	1.311e+05	1.463e+05	0.90	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:28	1.383e+05	1.725e+05	0.80	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:22	2.579e+05	1.642e+05	1.57	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	34:13	2.396e+05	1.521e+05	1.58	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:46	1.211e+05	2.317e+05	0.52	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:52	1.297e+05	2.461e+05	0.53	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:21	1.225e+05	2.333e+05	0.52	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	38:05	1.162e+05	2.243e+05	0.52	yes	no	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:19	9.505e+04	2.133e+05	0.45	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:46	8.242e+04	1.871e+05	0.44	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	30:11	9.381e+04	1.185e+05	0.79	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:29	1.744e+05	1.106e+05	1.58	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:29	1.467e+05	1.161e+05	1.26	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:33	1.793e+05	1.402e+05	1.28	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:16	1.515e+05	1.427e+05	1.06	yes	no	0.862
32	IS	13C-OCDD	43:10	2.622e+05	2.929e+05	0.90	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:40	9.586e+04	1.188e+05	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:47	1.676e+05	1.324e+05	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:12	2.289e+04				no	1.125

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
60287

Run #13 Filename P169976 Samp: 1 Inj: 1 Acquired: 25-MAR-14 22:10:47
Processed: 26-MAR-14 09:09:411 LAB. ID: ICV 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	2.93e+06	1.12e+03	2.6e+03	3.78e+06	3.11e+03	1.2e+03
2	1,2,3,7,8-PeCDF	2.49e+07	1.00e+03	2.5e+04	1.57e+07	1.90e+03	8.3e+03
3	2,3,4,7,8-PeCDF	2.56e+07	1.00e+03	2.5e+04	1.62e+07	1.90e+03	8.5e+03
4	1,2,3,4,7,8-HxCDF	2.58e+07	2.42e+03	1.1e+04	2.03e+07	2.06e+03	9.9e+03
5	1,2,3,6,7,8-HxCDF	2.58e+07	2.42e+03	1.1e+04	2.11e+07	2.06e+03	1.0e+04
6	2,3,4,6,7,8-HxCDF	2.44e+07	2.42e+03	1.0e+04	2.01e+07	2.06e+03	9.8e+03
7	1,2,3,7,8,9-HxCDF	2.28e+07	2.42e+03	9.4e+03	1.86e+07	2.06e+03	9.0e+03
8	1,2,3,4,6,7,8-HpCDF	2.27e+07	3.71e+03	6.1e+03	2.19e+07	5.87e+03	3.7e+03
9	1,2,3,4,7,8,9-HpCDF	1.85e+07	3.71e+03	5.0e+03	1.78e+07	5.87e+03	3.0e+03
10	OCDF	2.51e+07	1.56e+03	1.6e+04	2.78e+07	2.25e+03	1.2e+04
11	2,3,7,8-TCDD	2.26e+06	1.25e+03	1.8e+03	2.89e+06	1.17e+03	2.5e+03
12	1,2,3,7,8-PeCDD	1.74e+07	1.83e+03	9.5e+03	1.10e+07	6.48e+02	1.7e+04
13	1,2,3,4,7,8-HxCDD	1.83e+07	1.36e+03	1.3e+04	1.46e+07	1.78e+03	8.2e+03
14	1,2,3,6,7,8-HxCDD	1.73e+07	1.36e+03	1.3e+04	1.38e+07	1.78e+03	7.7e+03
15	1,2,3,7,8,9-HxCDD	1.86e+07	1.36e+03	1.4e+04	1.49e+07	1.78e+03	8.4e+03
16	1,2,3,4,6,7,8-HpCDD	1.52e+07	1.32e+03	1.2e+04	1.46e+07	1.93e+03	7.6e+03
17	OCDD	2.19e+07	1.28e+03	1.7e+04	2.45e+07	1.60e+03	1.5e+04
18	13C-2,3,7,8-TCDF	3.06e+07	2.20e+03	1.4e+04	3.82e+07	1.92e+03	2.0e+04
19	13C-1,2,3,7,8-PeCDF	5.04e+07	8.96e+02	5.6e+04	3.21e+07	8.20e+02	3.9e+04
20	13C-2,3,4,7,8-PeCDF	4.82e+07	8.96e+02	5.4e+04	3.03e+07	8.20e+02	3.7e+04
21	13C-1,2,3,4,7,8-HxCDF	2.63e+07	1.22e+03	2.2e+04	5.01e+07	2.64e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	2.74e+07	1.22e+03	2.3e+04	5.21e+07	2.64e+03	2.0e+04
23	13C-2,3,4,6,7,8-HxCDF	2.67e+07	1.22e+03	2.2e+04	5.11e+07	2.64e+03	1.9e+04
24	13C-1,2,3,7,8,9-HxCDF	2.43e+07	1.22e+03	2.0e+04	4.71e+07	2.64e+03	1.8e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.94e+07	7.31e+03	2.7e+03	4.35e+07	1.16e+04	3.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.57e+07	7.31e+03	2.1e+03	3.58e+07	1.16e+04	3.1e+03
27	13C-2,3,7,8-TCDD	2.13e+07	4.16e+03	5.1e+03	2.70e+07	2.20e+03	1.2e+04
28	13C-1,2,3,7,8-PeCDD	3.55e+07	1.31e+03	2.7e+04	2.25e+07	8.64e+02	2.6e+04
29	13C-1,2,3,4,7,8-HxCDD	3.27e+07	1.46e+03	2.2e+04	2.56e+07	1.57e+03	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	3.82e+07	1.46e+03	2.6e+04	3.01e+07	1.57e+03	1.9e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.01e+07	1.44e+03	2.1e+04	2.82e+07	1.33e+03	2.1e+04
32	13C-OCDD	4.32e+07	7.24e+02	6.0e+04	4.82e+07	1.14e+03	4.2e+04
33	13C-1,2,3,4-TCDD	2.10e+07	4.16e+03	5.0e+03	2.63e+07	2.20e+03	1.2e+04
34	13C-1,2,3,7,8,9-HxCDD	3.60e+07	1.46e+03	2.5e+04	2.86e+07	1.57e+03	1.8e+04
35	37Cl-2,3,7,8-TCDD	5.28e+06	1.78e+03	3.0e+03			

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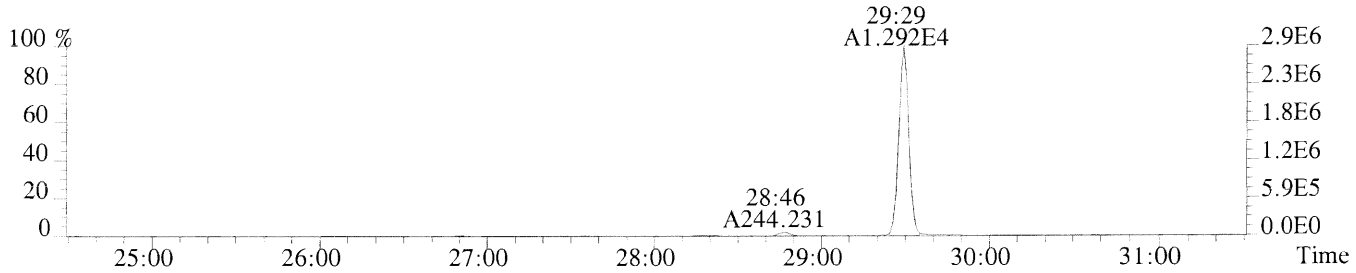
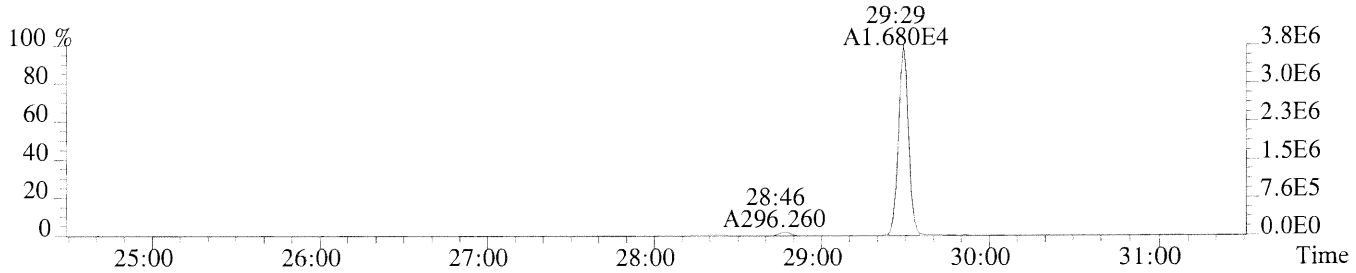
File:P169976 #1-442 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

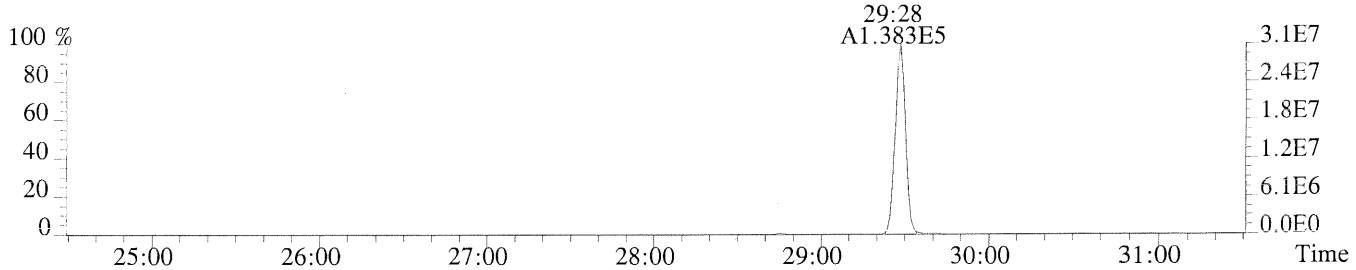
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1124.0,1.00%,F,T)



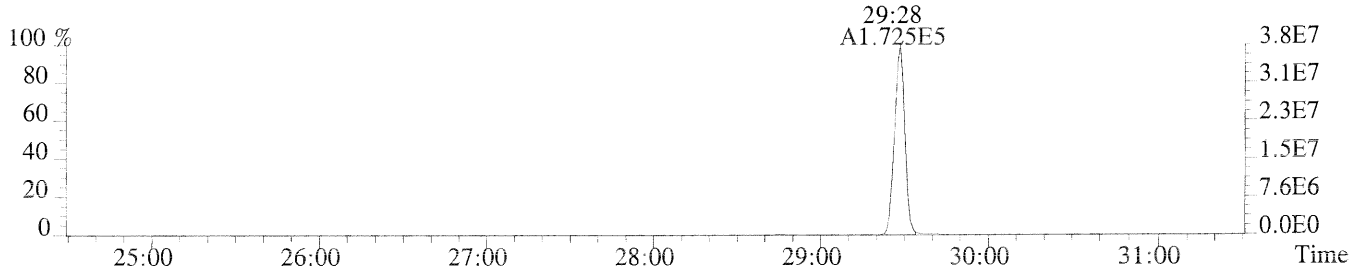
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3112.0,1.00%,F,T)



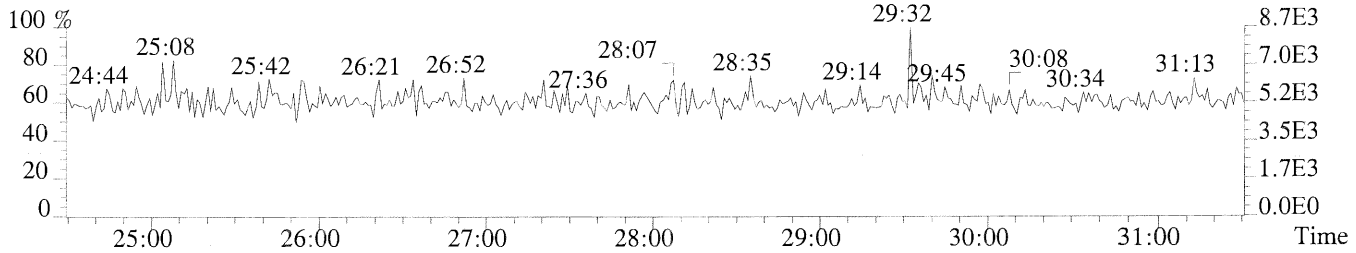
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2204.0,1.00%,F,T)



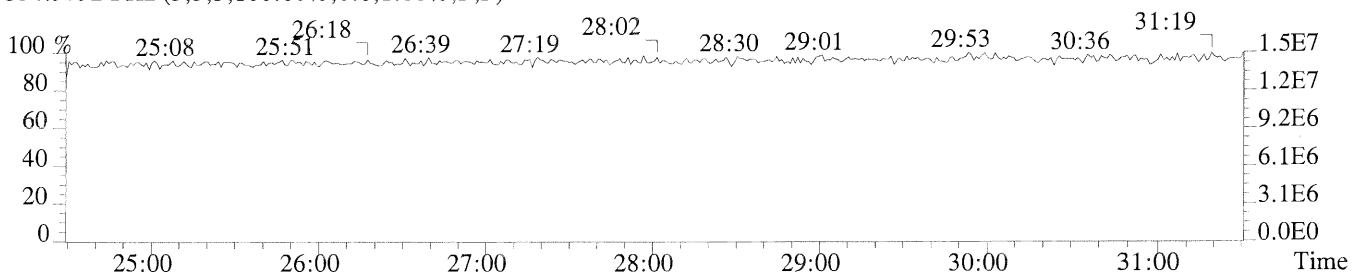
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

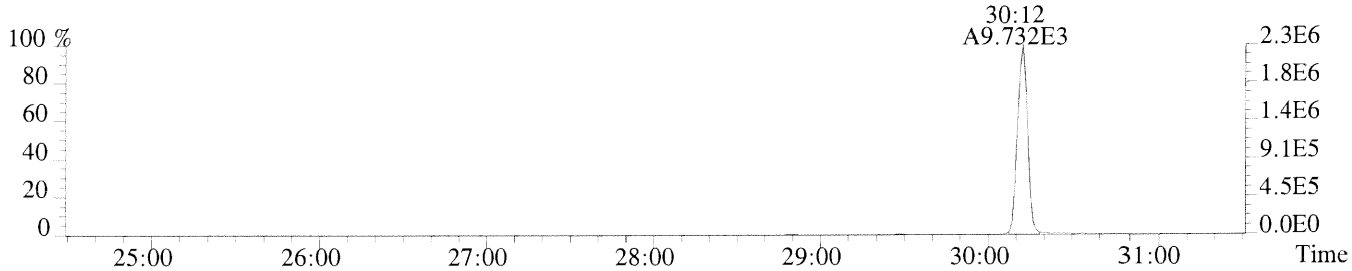


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

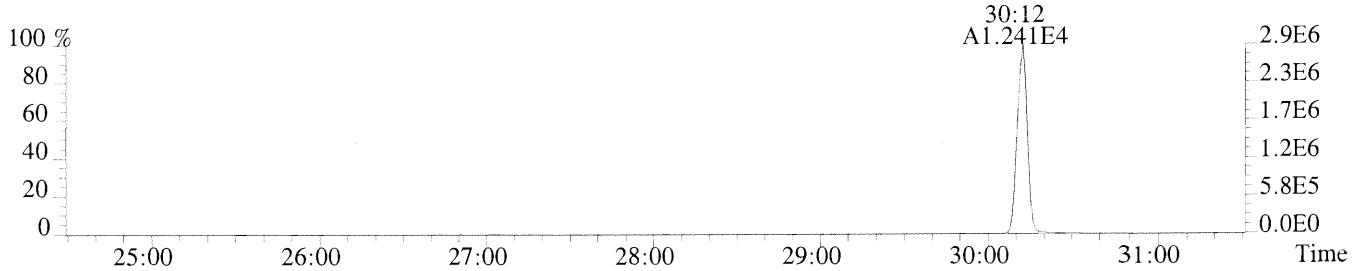


File:P169976 #1-442 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

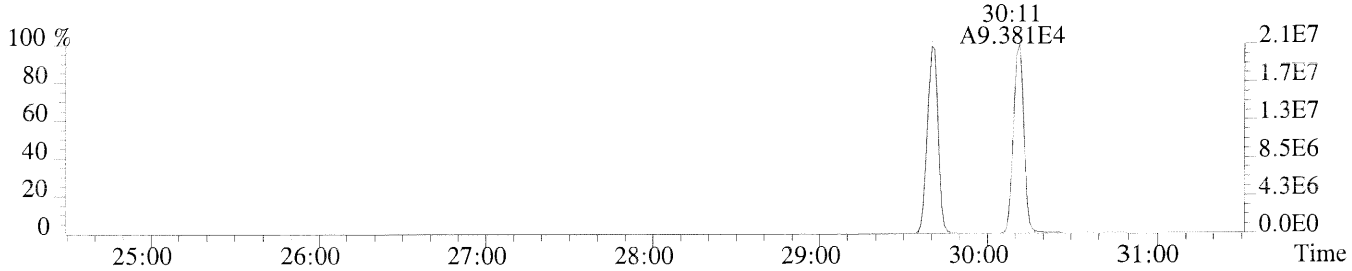
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1248.0,1.00%,F,T)



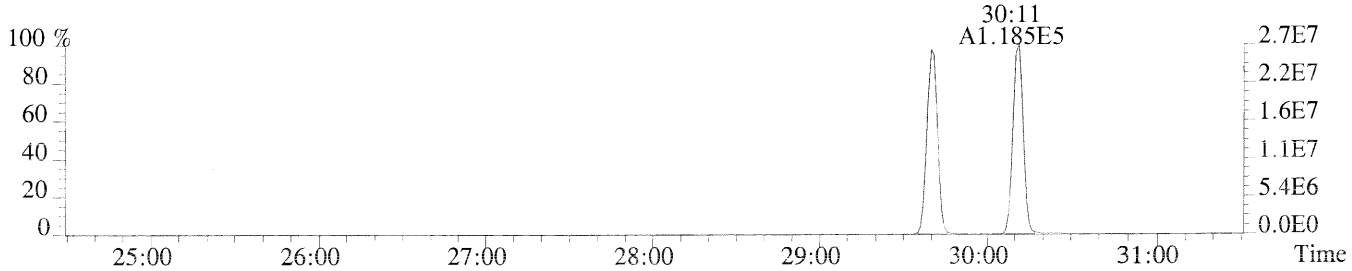
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1168.0,1.00%,F,T)



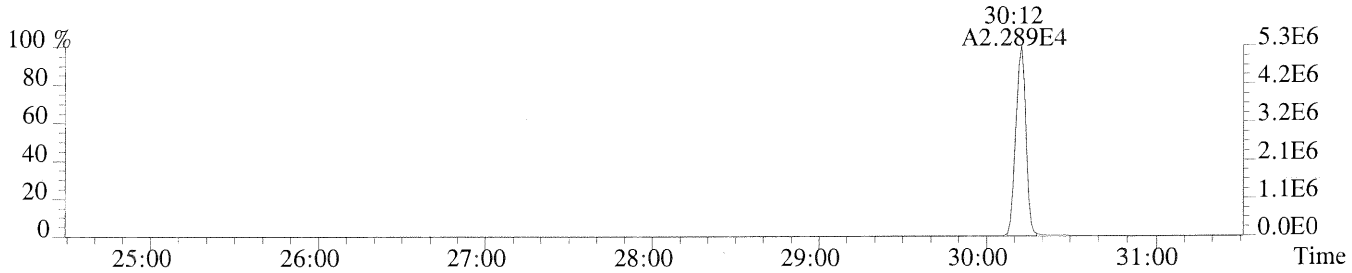
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4164.0,1.00%,F,T)



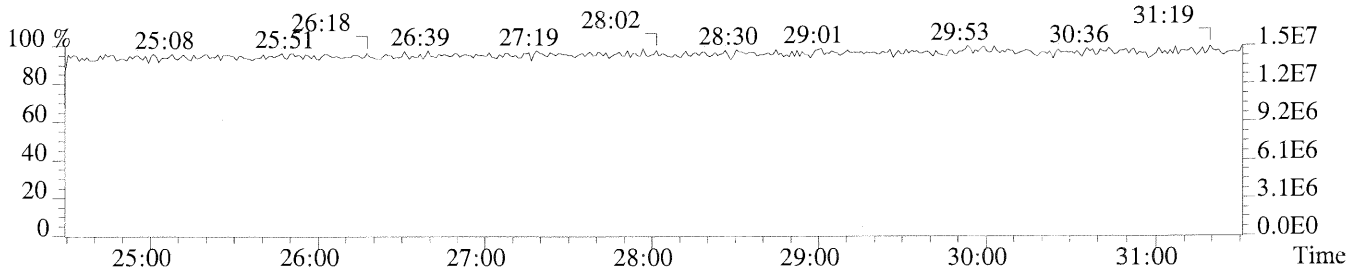
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2196.0,1.00%,F,T)



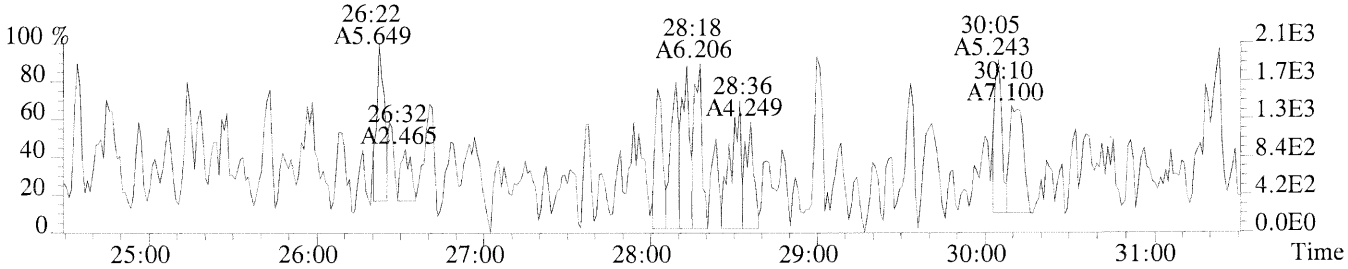
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1776.0,1.00%,F,T)



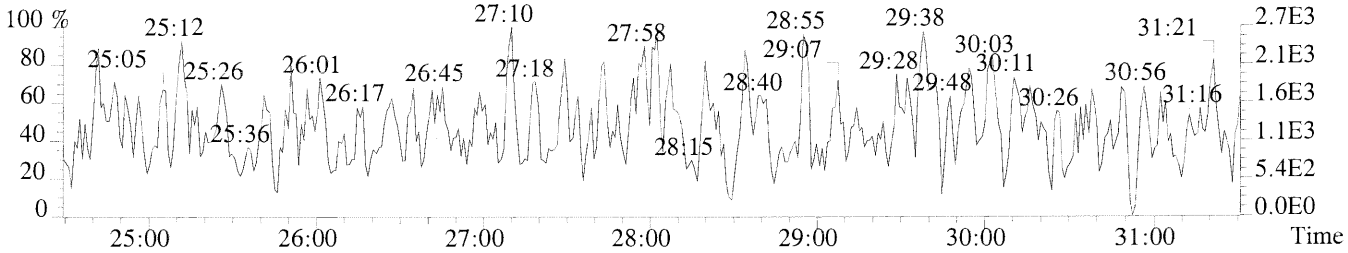
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



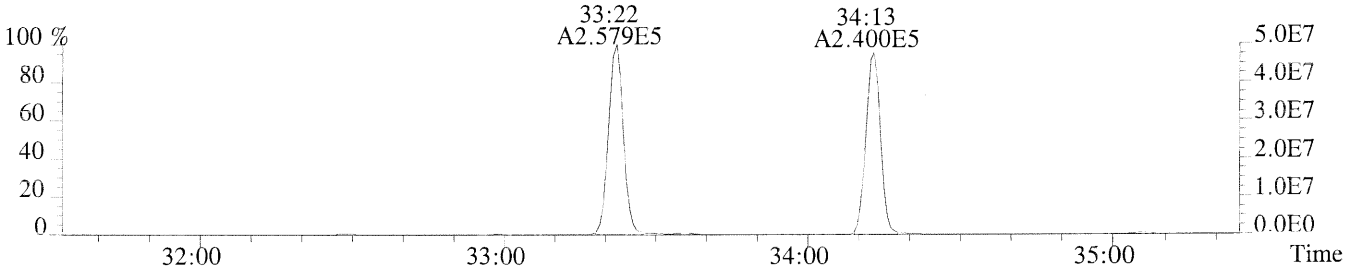
File:P169976 #1-442 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



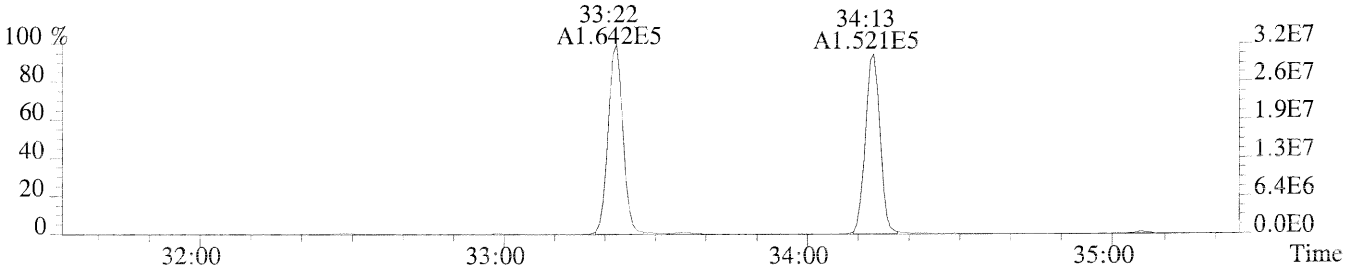
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1576.0,1.00%,F,T)



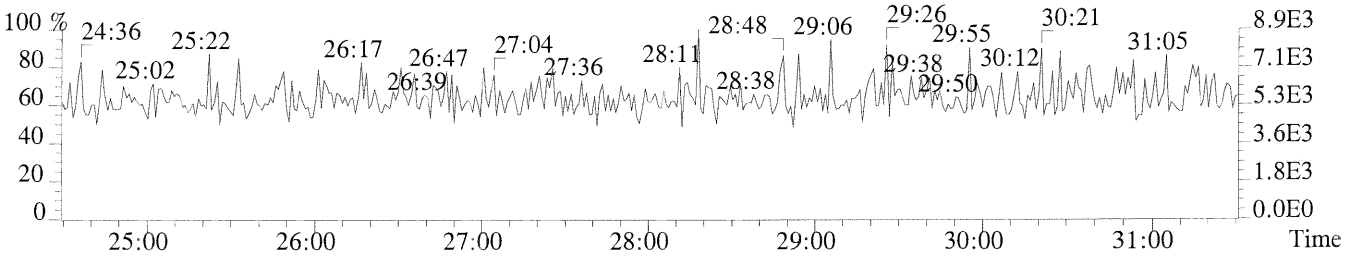
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



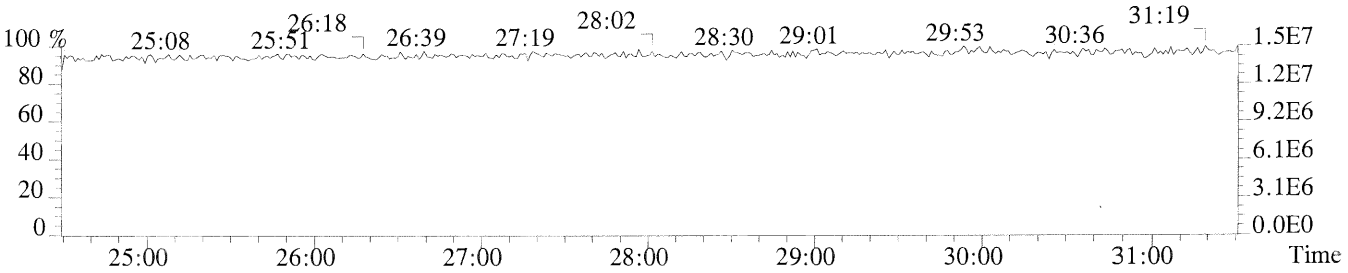
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

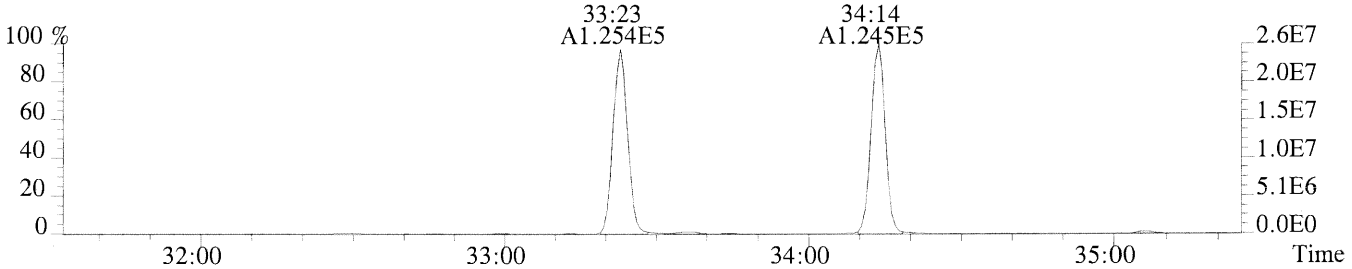


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

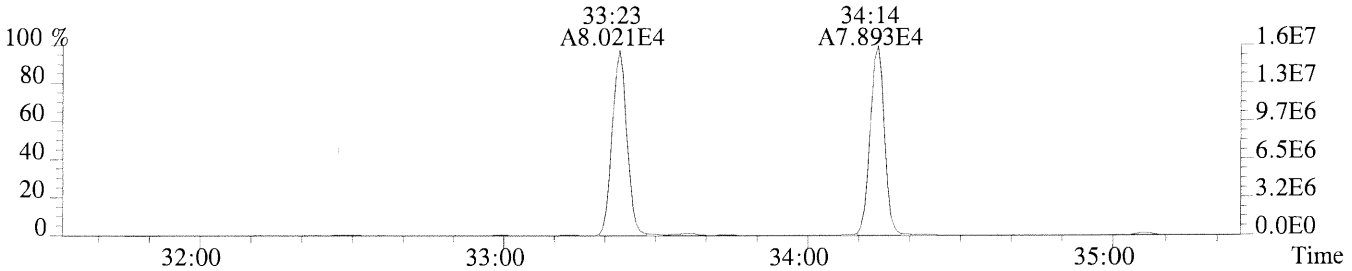


File:P169976 #1-351 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

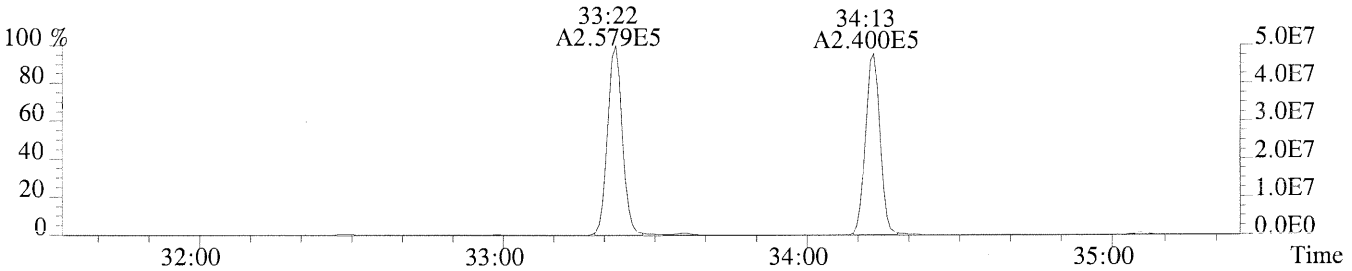
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



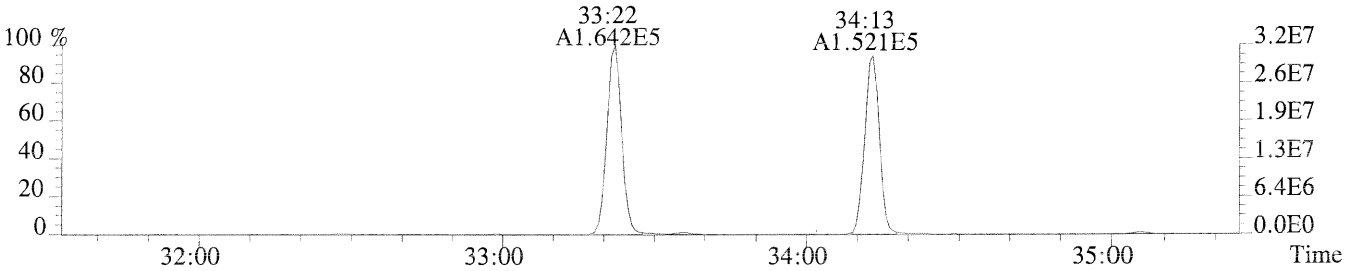
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



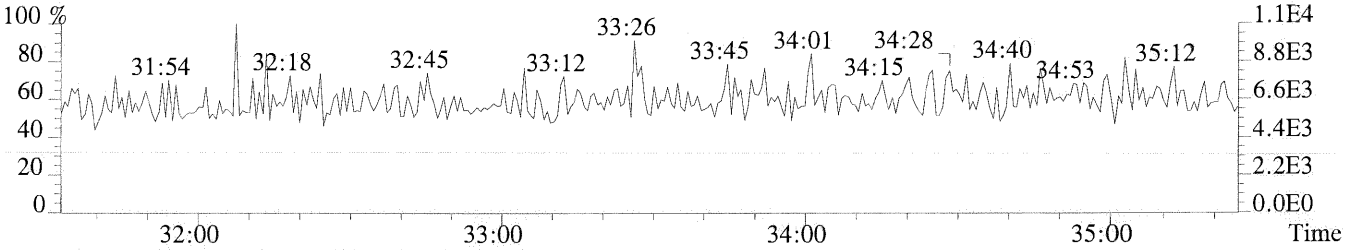
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



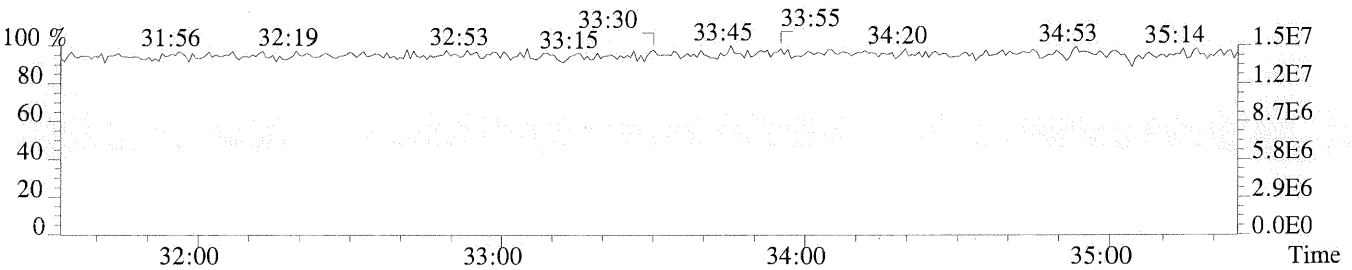
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



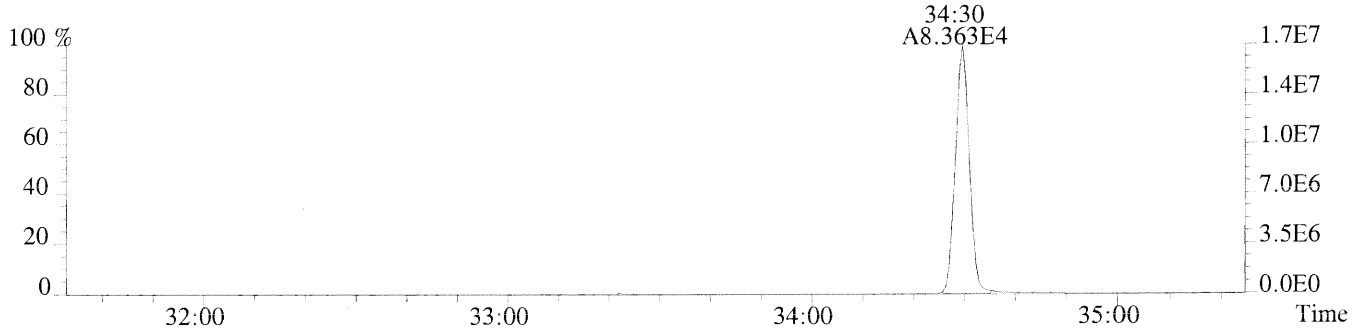
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



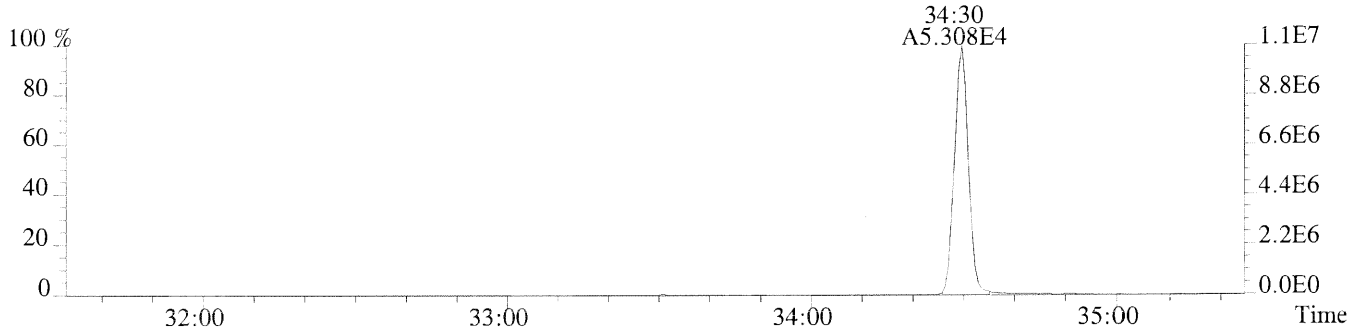
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



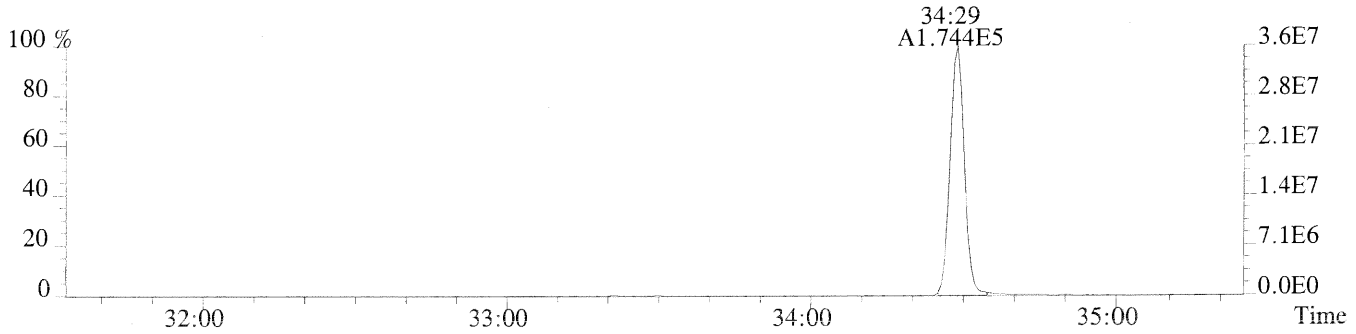
File:P169976 #1-351 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1832.0,1.00%,F,T)



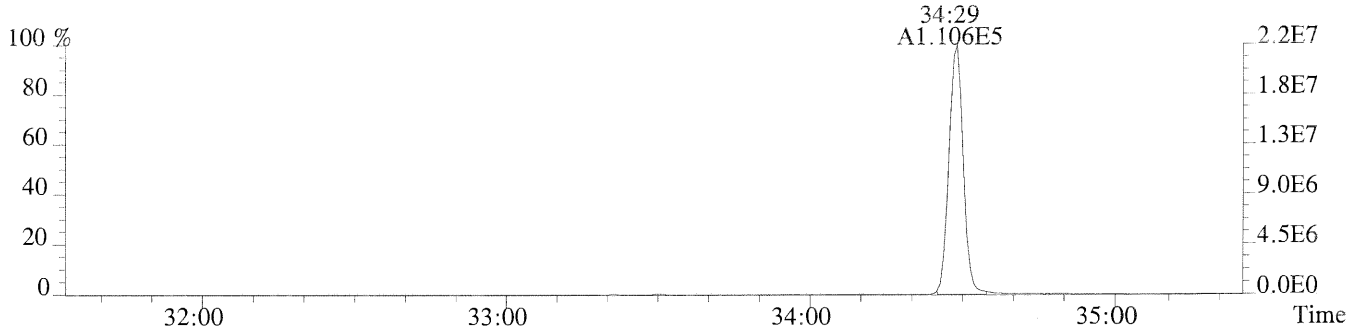
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



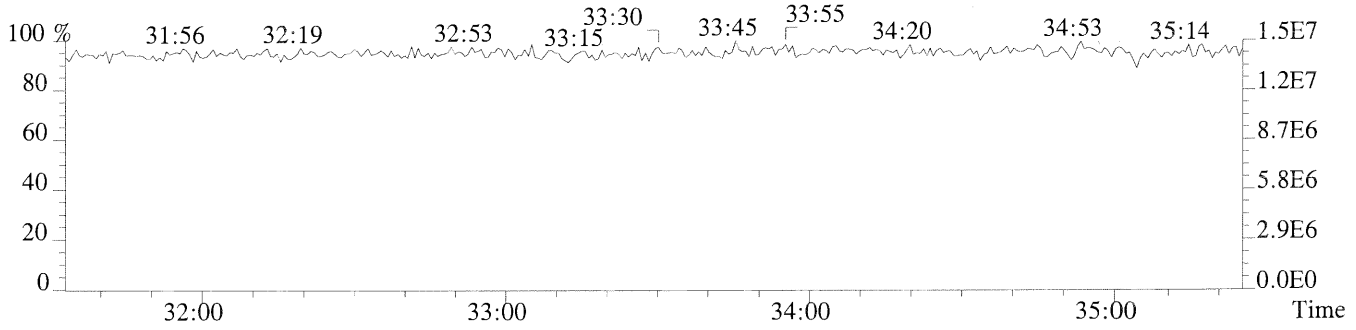
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)

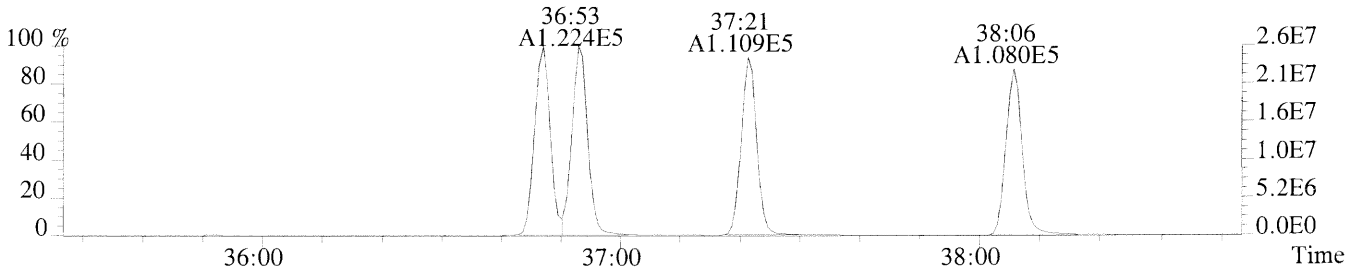


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

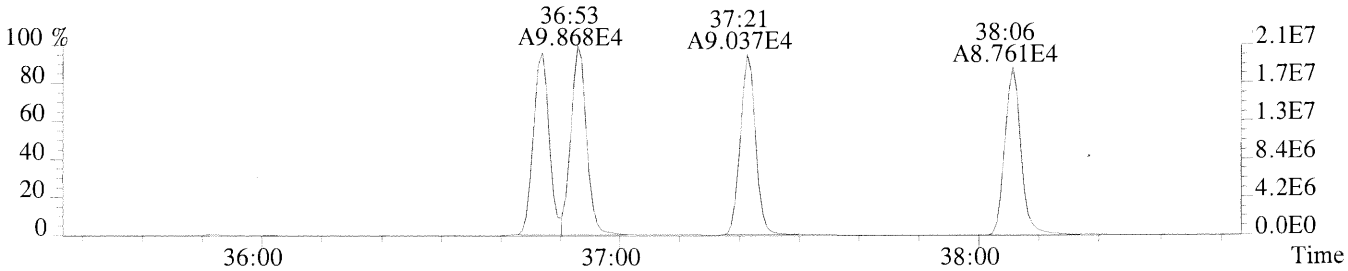


File:P169976 #1-298 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

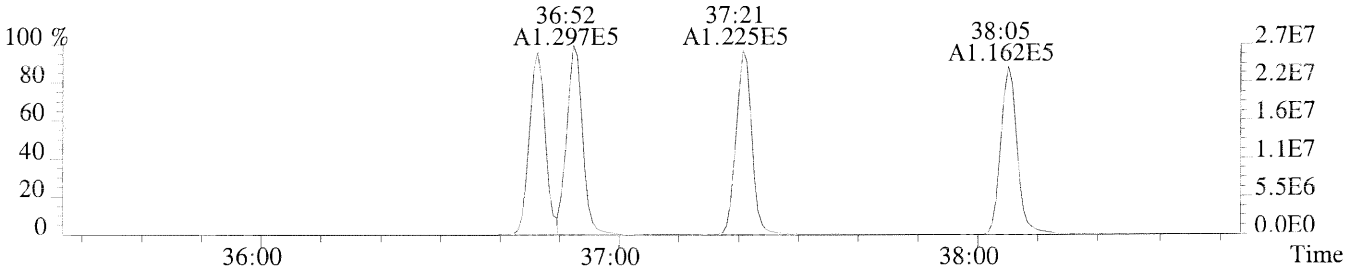
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2420.0,0.40%,F,T)



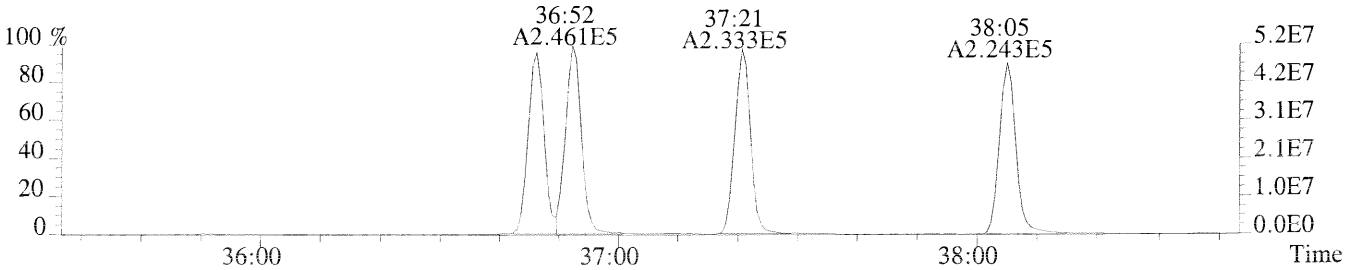
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2056.0,0.40%,F,T)



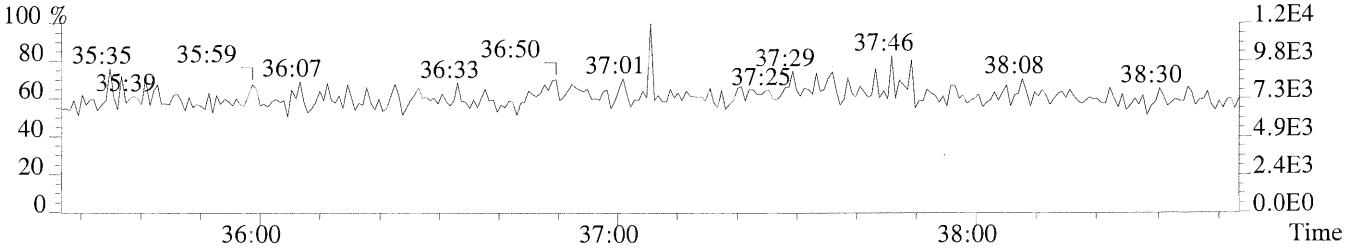
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1216.0,0.40%,F,T)



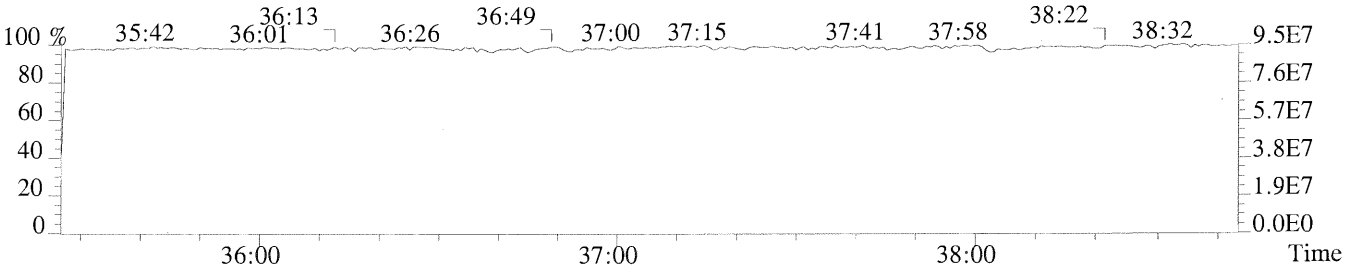
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2644.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

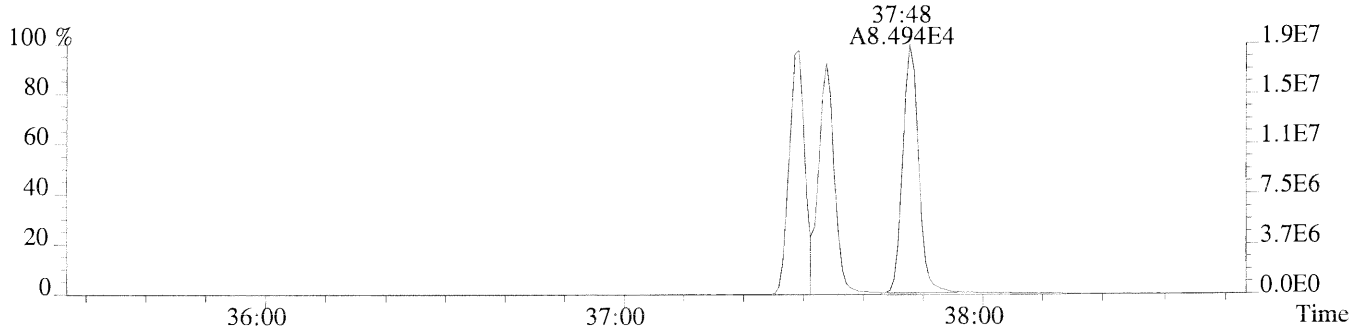


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

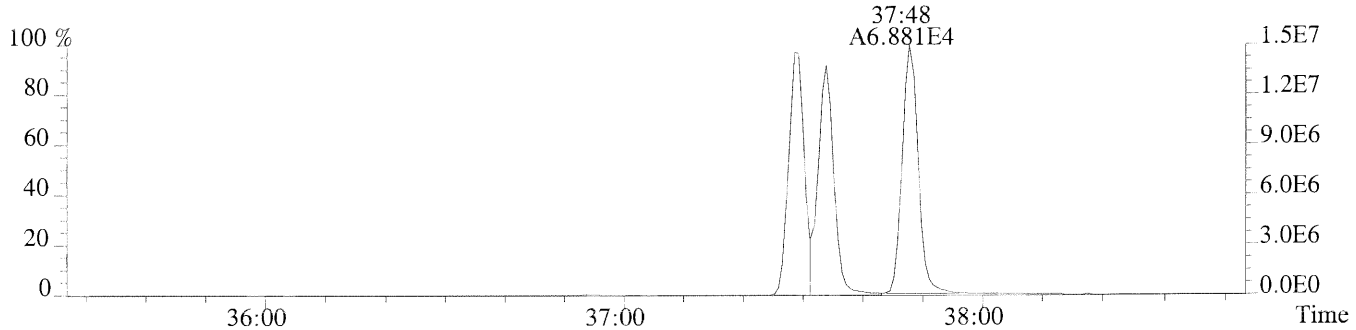


File:P169976 #1-298 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

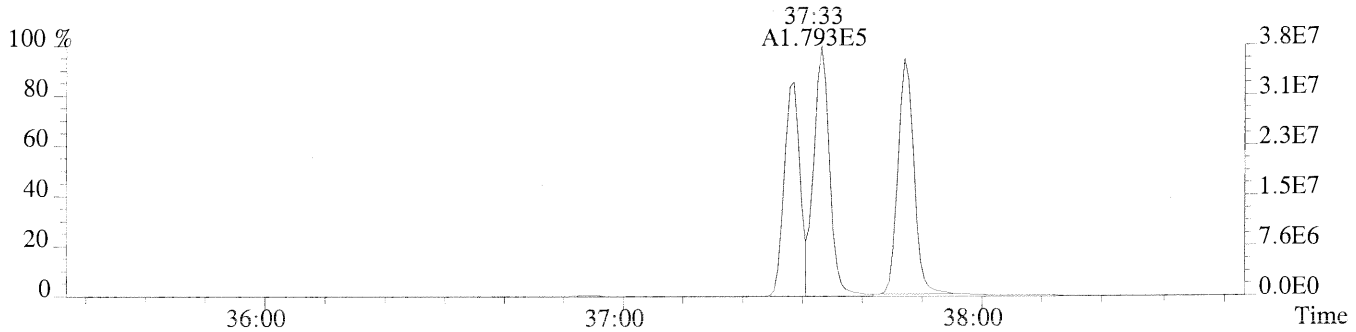
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1360.0,0.40%,F,T)



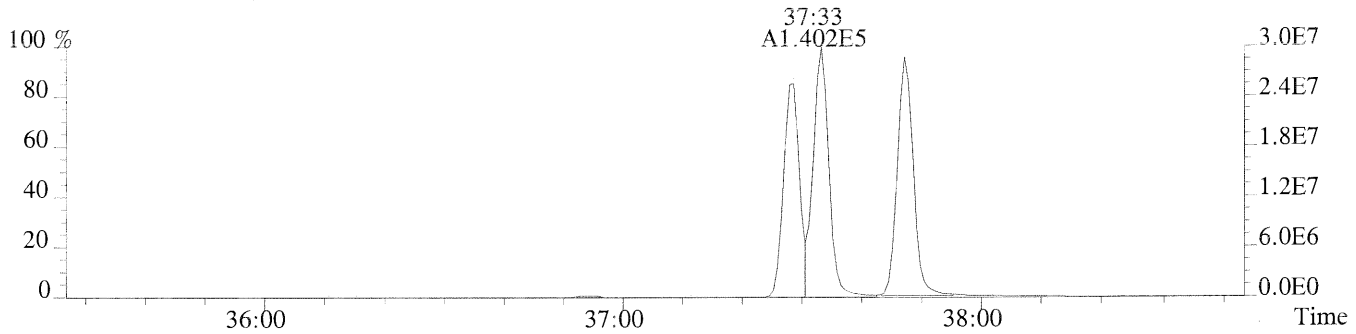
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1780.0,0.40%,F,T)



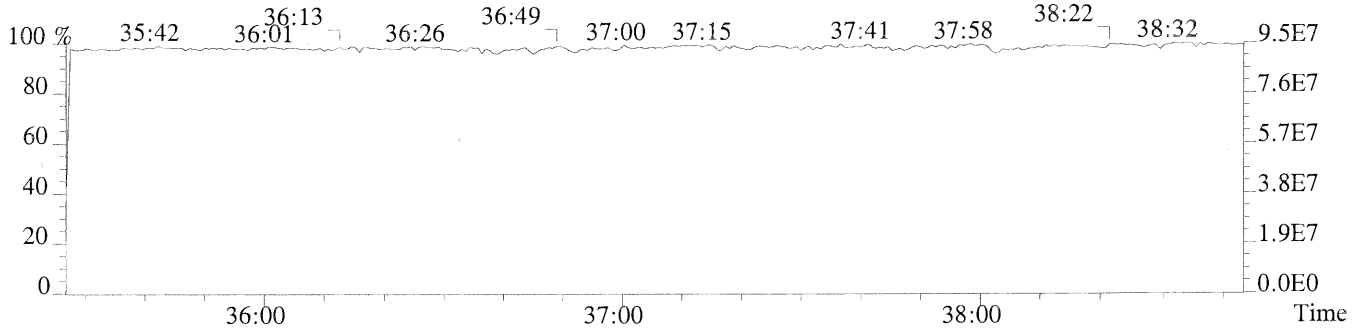
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1464.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)

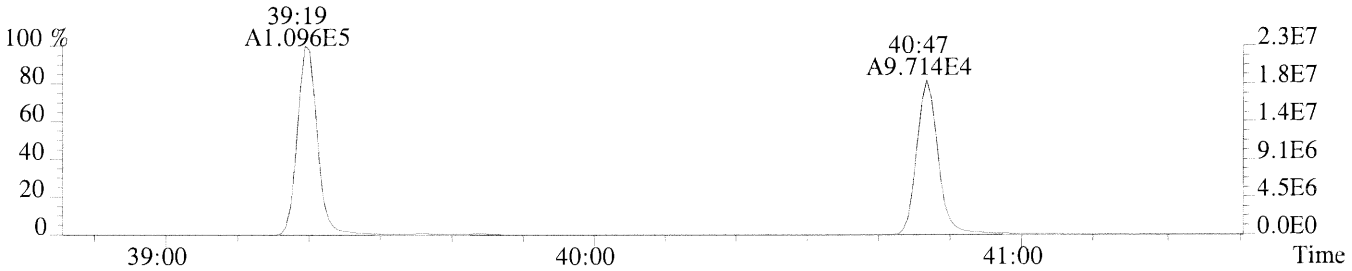


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

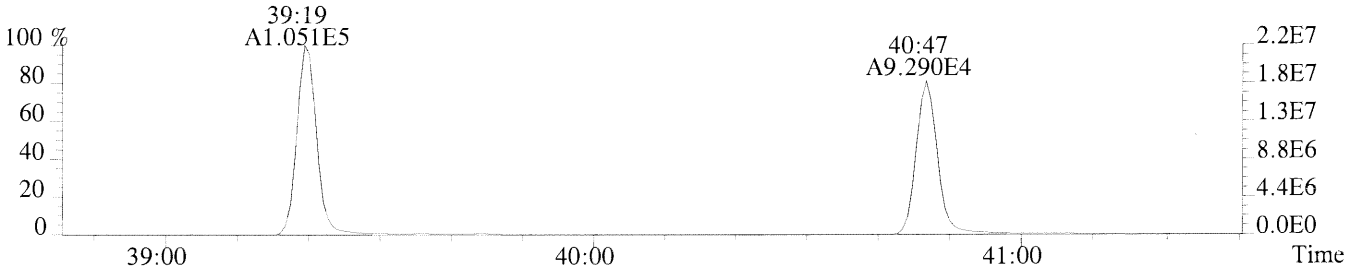


File:P169976 #1-250 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

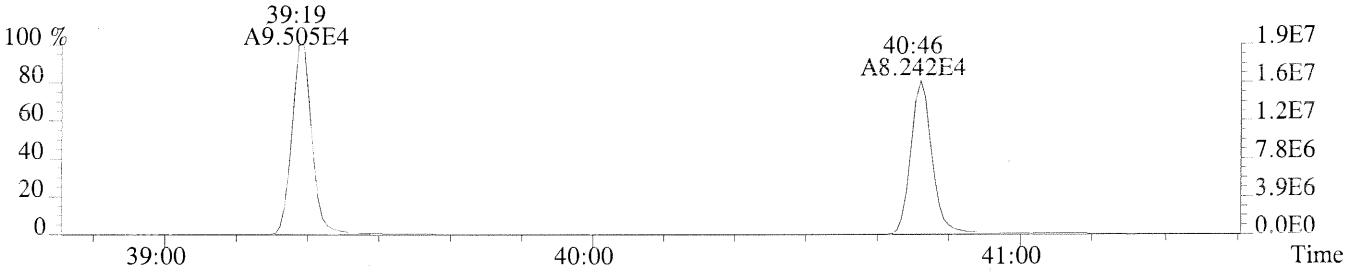
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3708.0,0.50%,F,T)



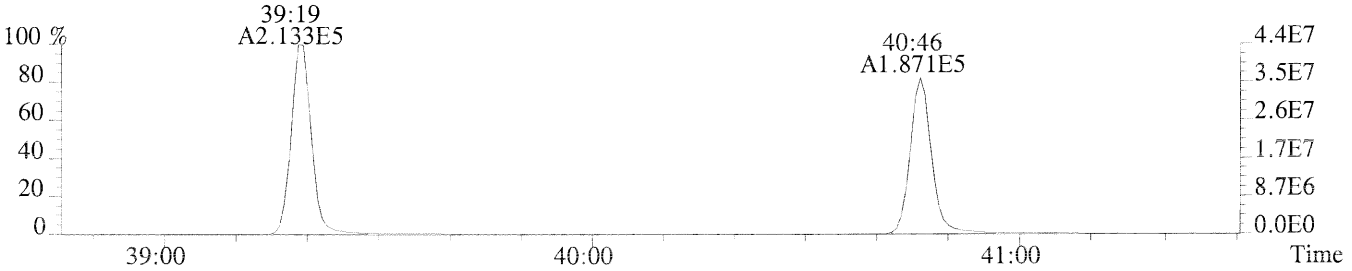
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5868.0,0.50%,F,T)



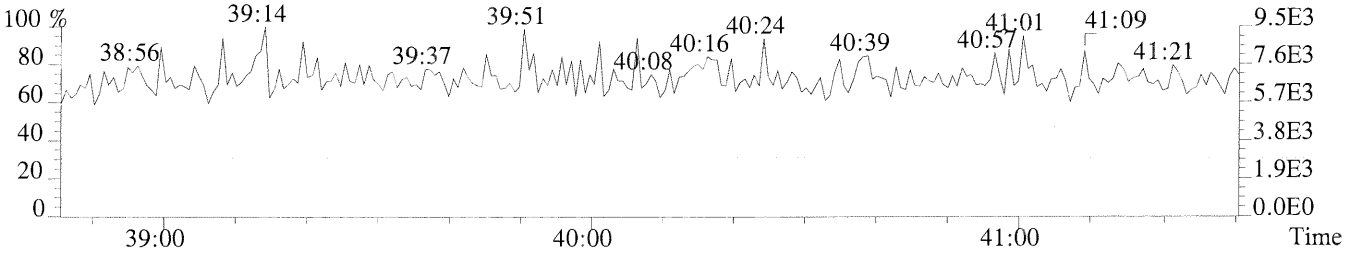
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7308.0,0.50%,F,T)



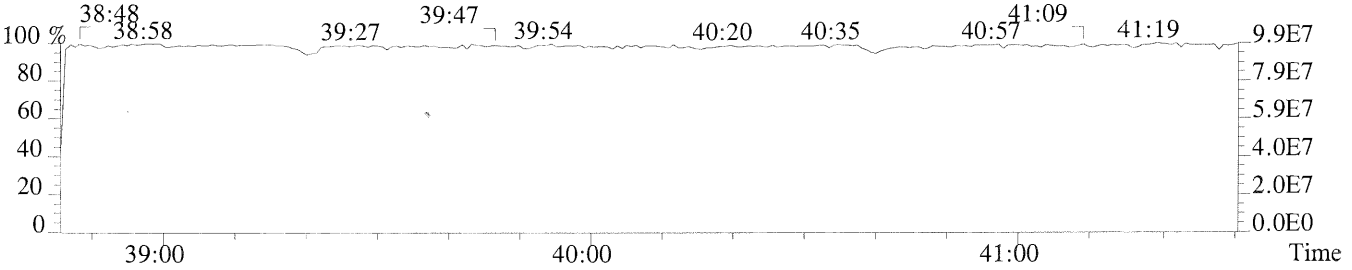
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,11564.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

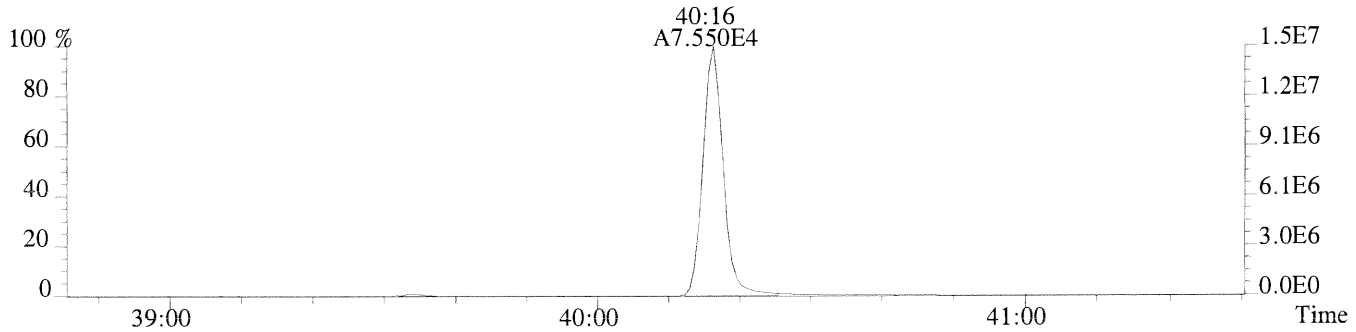


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

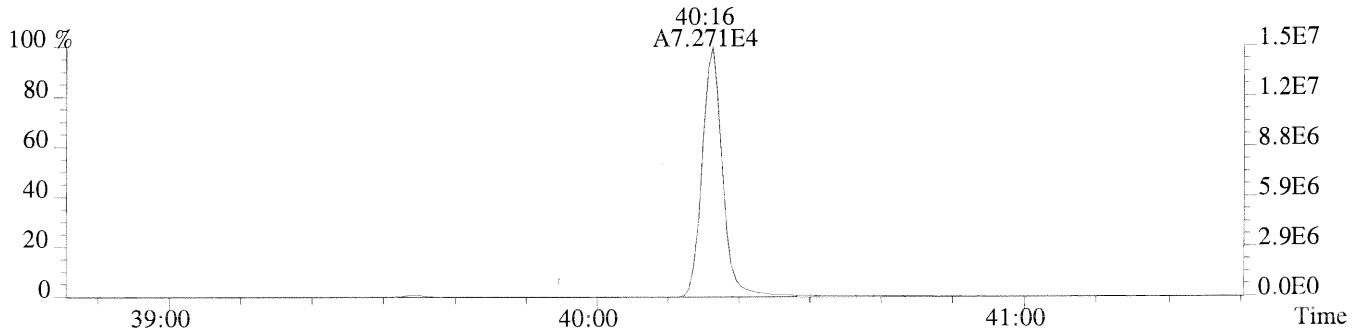


File:P169976 #1-250 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

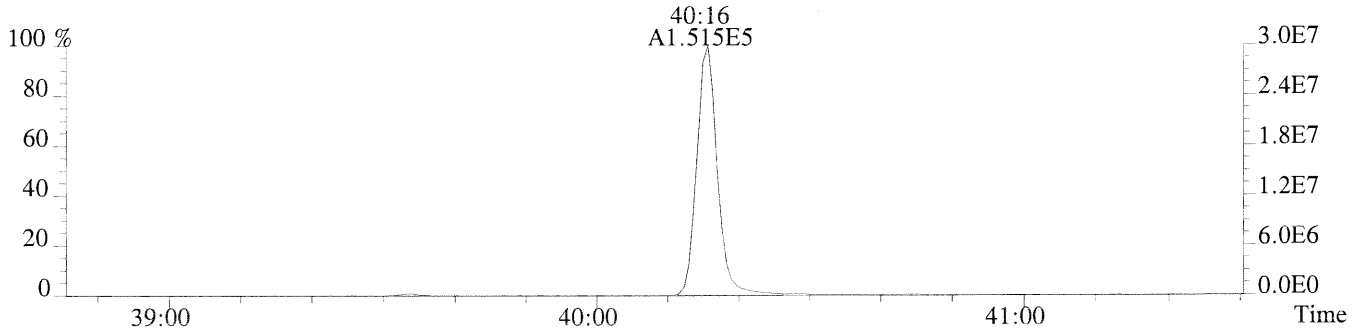
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)



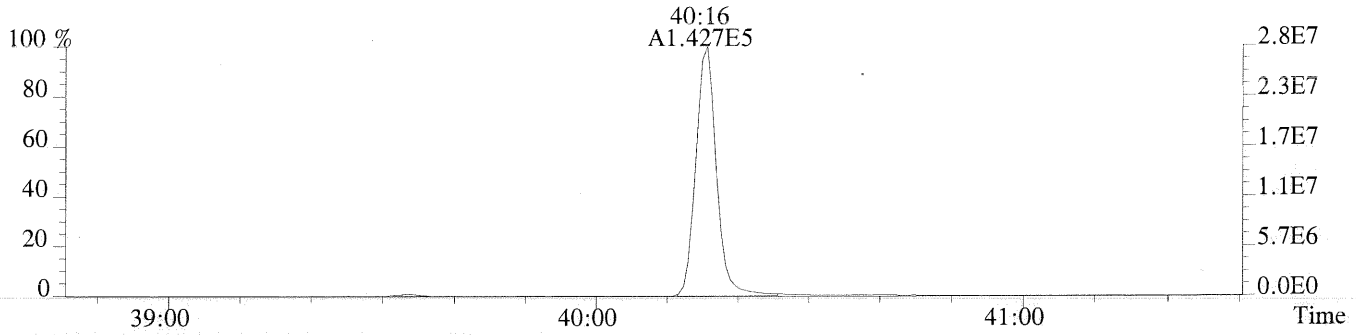
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1928.0,0.40%,F,T)



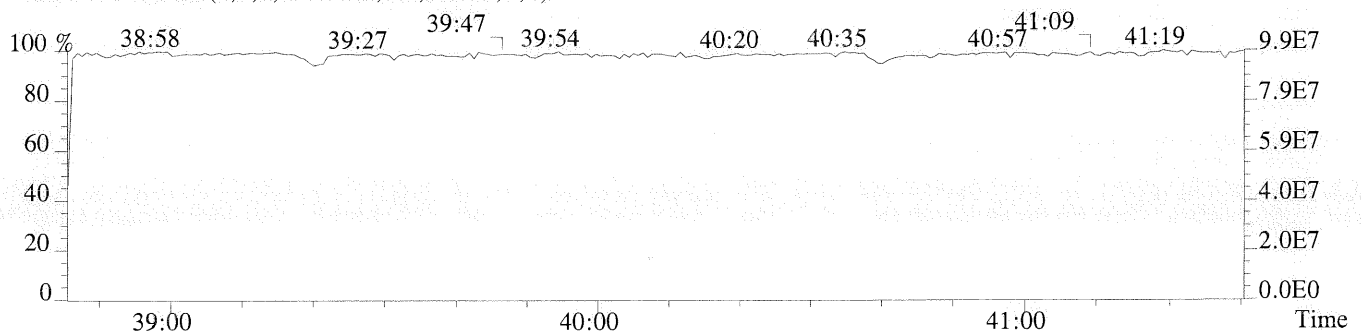
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)



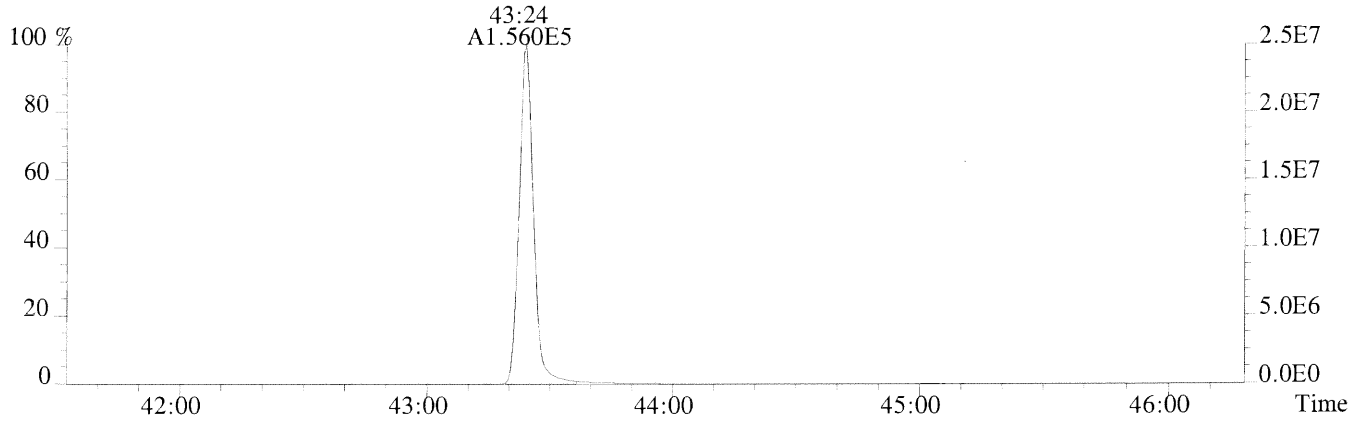
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1328.0,0.40%,F,T)



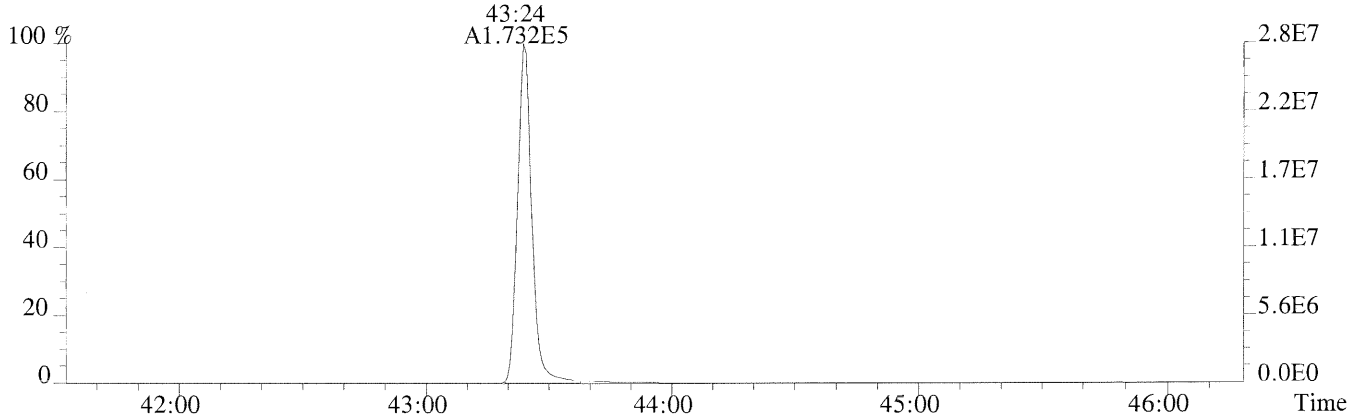
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



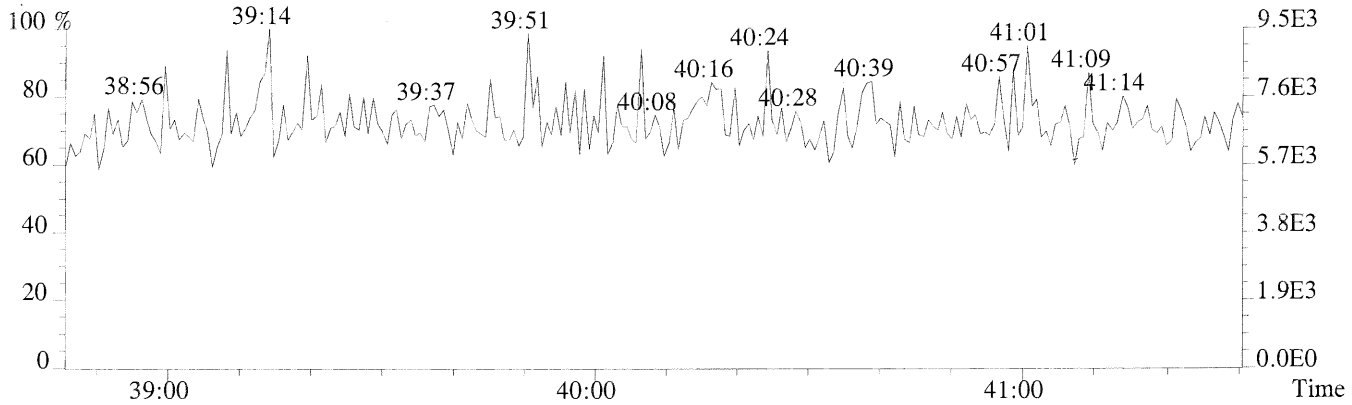
File:P169976 #1-438 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1564.0,0.40%,F,T)



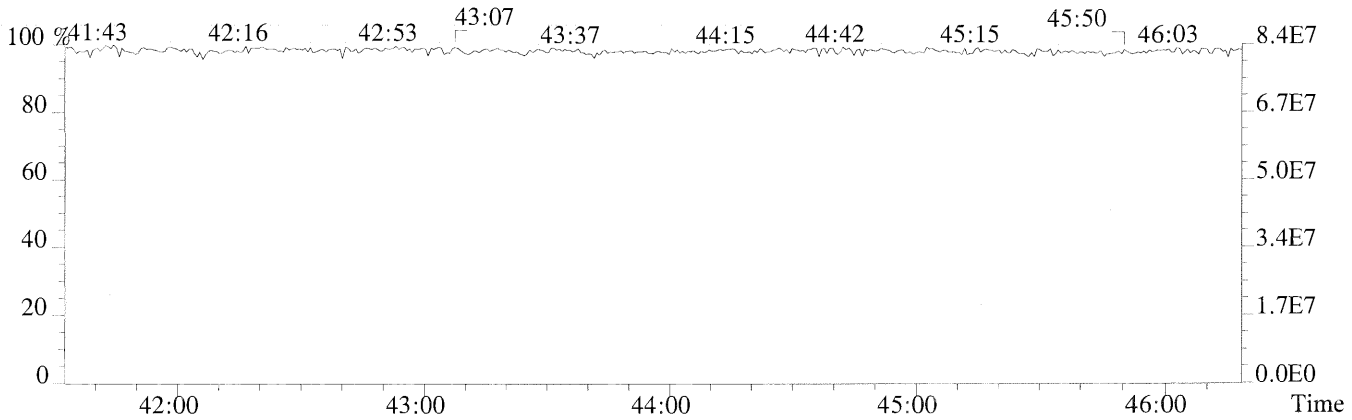
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2252.0,0.40%,F,T)



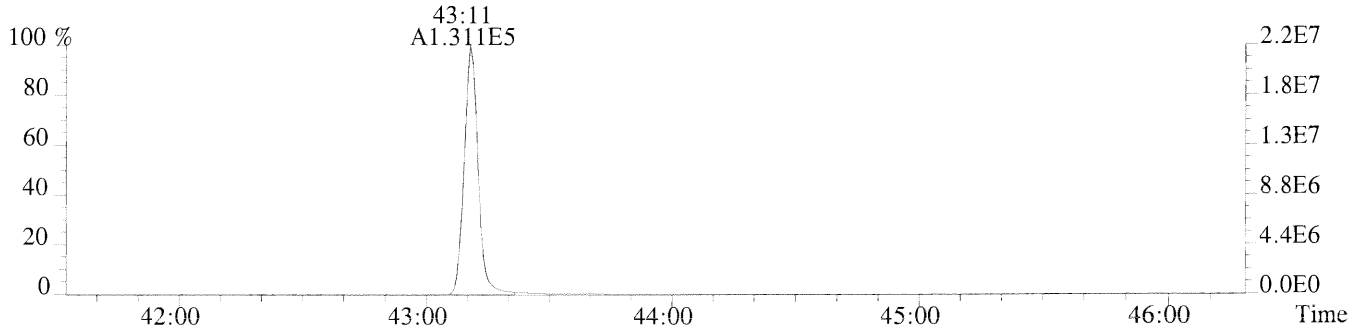
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



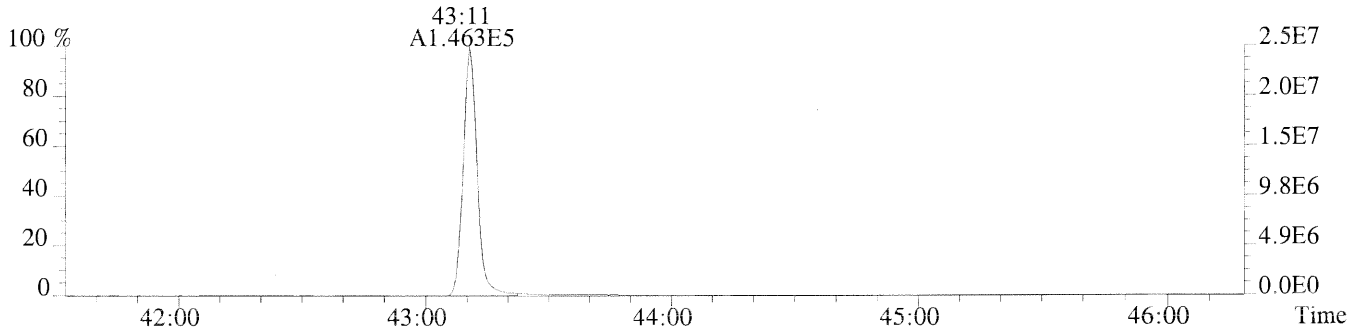
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



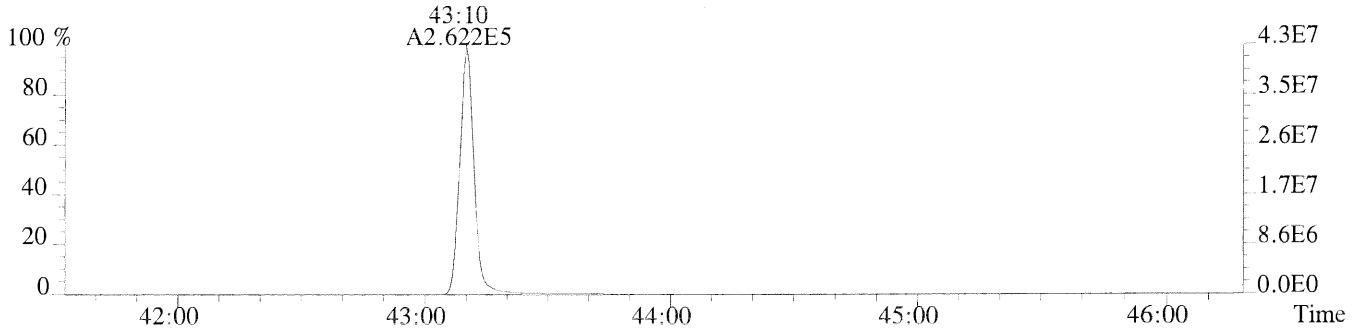
File:P169976 #1-438 Acq:25-MAR-2014 22:10:47 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1276.0,0.40%,F,T)



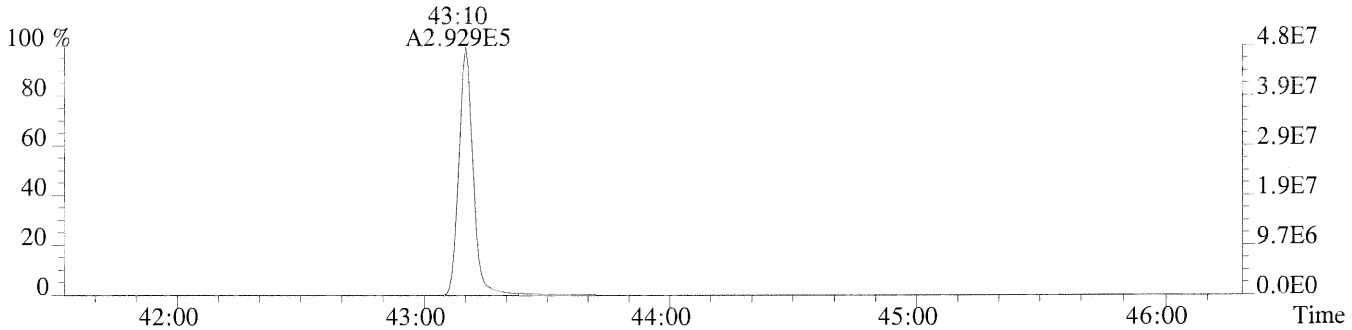
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1600.0,0.40%,F,T)



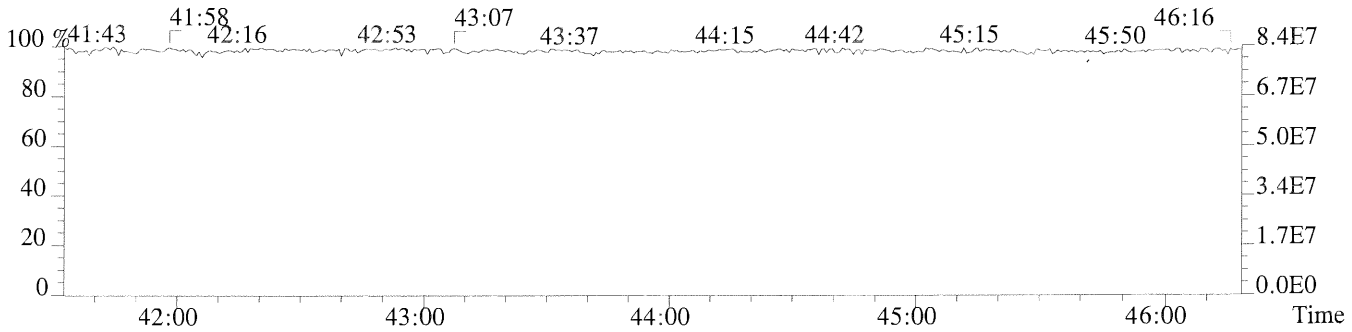
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,724.0,0.40%,F,T)



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)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 | GC Column ID: DB-5MSUI

VER Data Filename: P169977 | Analysis Date: 25-MAR-14 Time: 22:58:54

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	10.4	7.8 - 12.9	3.9
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	55	39 - 65	9.8
1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	48	39 - 64	-4.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	48	39 - 64	-3.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	45	41 - 61	-9.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	51	43 - 58	1.7
OCDD	M+2/M+4	0.91	0.76-1.02	95	79 - 126	-5.2
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	9.6	8.4 - 12.0	-3.9
1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	47	41 - 60	-6.2
2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	51	41 - 61	3.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	47	45 - 56	-6.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.30	1.05-1.43	47	44 - 57	-5.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	46	45 - 56	-8.8
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	49	44 - 57	-1.3
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	49	45 - 55	-2.4
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	52	43 - 58	3.5
OCDF	M+2/M+4	0.91	0.76-1.02	97	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 %D 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

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 03/25/14

Instrument ID: E-HRMS-03 GC Column ID: DB-5MSUI

VER Data Filename: P169977 Analysis Date: 25-MAR-14 Time: 22:58:54

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	91	82 - 121	-8.7
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	98	62 - 160	-2.1
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	109	85 - 117	9.3
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	106	85 - 118	6.5
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	102	72 - 138	2.0
13C-OCDD	M+2/M+4	0.89	0.76-1.02	218	96 - 415	9.1
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	114	71 - 140	14.4
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	114	76 - 130	14.3
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	115	77 - 130	14.7
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	110	76 - 131	10.2
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	106	70 - 143	6.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	113	74 - 135	12.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	110	73 - 137	10.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.43	0.37-0.51	114	78 - 129	14.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	107	77 - 129	6.9
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.6	7.8 - 12.7	-4.5

(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.
(5) The beginnning CCAL %D 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)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
D12-5-1B

Run #8 Filename P169977 Samp: 1 Inj: 1 Acquired: 25-MAR-14 22:58:54
Processed: 26-MAR-14 12:21:08 Sample ID: STD

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	29:29	2.486e+03	3.274e+03	0.76	yes	no	0.945
2	Unk	1,2,3,7,8-PeCDF	33:22	2.372e+04	1.480e+04	1.60	yes	no	1.017
3	Unk	2,3,4,7,8-PeCDF	34:13	2.424e+04	1.543e+04	1.57	yes	no	0.977
4	Unk	1,2,3,4,7,8-HxCDF	36:46	2.173e+04	1.742e+04	1.25	yes	no	1.241
5	Unk	1,2,3,6,7,8-HxCDF	36:52	2.365e+04	1.826e+04	1.30	yes	no	1.178
6	Unk	2,3,4,6,7,8-HxCDF	37:21	2.283e+04	1.848e+04	1.24	yes	no	1.150
7	Unk	1,2,3,7,8,9-HxCDF	38:05	1.992e+04	1.588e+04	1.25	yes	no	1.154
8	Unk	1,2,3,4,6,7,8-HpCDF	39:19	2.136e+04	2.036e+04	1.05	yes	no	1.403
9	Unk	1,2,3,4,7,8,9-HpCDF	40:46	1.795e+04	1.714e+04	1.05	yes	no	1.324
10	Unk	OCDF	43:23	2.928e+04	3.222e+04	0.91	yes	no	1.307
11	Unk	2,3,7,8-TCDD	30:11	1.748e+03	2.191e+03	0.80	yes	no	1.037
12	Unk	1,2,3,7,8-PeCDD	34:28	1.557e+04	9.818e+03	1.59	yes	no	0.938
13	Unk	1,2,3,4,7,8-HxCDD	37:28	1.549e+04	1.206e+04	1.28	yes	no	1.041
14	Unk	1,2,3,6,7,8-HxCDD	37:33	1.576e+04	1.264e+04	1.25	yes	no	0.990
15	Unk	1,2,3,7,8,9-HxCDD	37:47	1.580e+04	1.252e+04	1.26	yes	no	1.094
16	Unk	1,2,3,4,6,7,8-HpCDD	40:15	1.363e+04	1.312e+04	1.04	yes	no	1.016
17	Unk	OCDD	43:10	2.366e+04	2.610e+04	0.91	yes	no	1.079
18	IS	13C-2,3,7,8-TCDF	29:28	2.789e+04	3.550e+04	0.79	yes	no	1.452
19	IS	13C-1,2,3,7,8-PeCDF	33:21	4.915e+04	3.157e+04	1.56	yes	no	1.849
20	IS	13C-2,3,4,7,8-PeCDF	34:12	4.813e+04	3.076e+04	1.56	yes	no	1.800
21	IS	13C-1,2,3,4,7,8-HxCDF	36:45	2.293e+04	4.480e+04	0.51	yes	no	1.045
22	IS	13C-1,2,3,6,7,8-HxCDF	36:52	2.579e+04	4.914e+04	0.52	yes	no	1.202
23	IS	13C-2,3,4,6,7,8-HxCDF	37:20	2.460e+04	4.815e+04	0.51	yes	no	1.120
24	IS	13C-1,2,3,7,8,9-HxCDF	38:04	2.346e+04	4.459e+04	0.53	yes	yes	1.028
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:18	1.842e+04	4.255e+04	0.43	yes	no	0.908
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:45	1.538e+04	3.585e+04	0.43	yes	no	0.814
27	IS	13C-2,3,7,8-TCDD	30:11	1.597e+04	2.060e+04	0.78	yes	no	1.049
28	IS	13C-1,2,3,7,8-PeCDD	34:28	3.020e+04	1.913e+04	1.58	yes	no	1.320
29	IS	13C-1,2,3,4,7,8-HxCDD	37:27	3.055e+04	2.469e+04	1.24	yes	no	0.859
30	IS	13C-1,2,3,6,7,8-HxCDD	37:32	3.293e+04	2.634e+04	1.25	yes	no	0.946
31	IS	13C-1,2,3,4,6,7,8-HpCDD	40:14	2.674e+04	2.501e+04	1.07	yes	no	0.862
32	IS	13C-OCDD	43:09	4.571e+04	5.158e+04	0.89	yes	no	0.758
33	RS/RT	13C-1,2,3,4-TCDD	29:39	1.684e+04	2.135e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:47	3.283e+04	2.600e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	30:11	4.103e+03				no	1.125

ALS ENVIRONMENTAL
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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
D12-5-1B

Run #14 Filename P169977 Samp: 1 Inj: 1 Acquired: 25-MAR-14 22:58:54
Processed: 26-MAR-14 09:09:511 LAB. ID: STD

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	5.49e+05	9.80e+02	5.6e+02	7.28e+05	2.03e+03	3.6e+02
2	1,2,3,7,8-PeCDF	4.48e+06	1.36e+03	3.3e+03	2.77e+06	1.61e+03	1.7e+03
3	2,3,4,7,8-PeCDF	4.93e+06	1.36e+03	3.6e+03	3.15e+06	1.61e+03	2.0e+03
4	1,2,3,4,7,8-HxCDF	4.68e+06	1.03e+03	4.5e+03	3.81e+06	1.32e+03	2.9e+03
5	1,2,3,6,7,8-HxCDF	4.88e+06	1.03e+03	4.7e+03	3.70e+06	1.32e+03	2.8e+03
6	2,3,4,6,7,8-HxCDF	4.85e+06	1.03e+03	4.7e+03	3.87e+06	1.32e+03	2.9e+03
7	1,2,3,7,8,9-HxCDF	3.98e+06	1.03e+03	3.9e+03	3.22e+06	1.32e+03	2.4e+03
8	1,2,3,4,6,7,8-HpCDF	4.33e+06	2.69e+03	1.6e+03	4.08e+06	3.18e+03	1.3e+03
9	1,2,3,4,7,8,9-HpCDF	3.26e+06	2.69e+03	1.2e+03	3.15e+06	3.18e+03	9.9e+02
10	OCDF	4.63e+06	1.52e+03	3.1e+03	5.02e+06	2.10e+03	2.4e+03
11	2,3,7,8-TCDD	4.01e+05	8.52e+02	4.7e+02	5.02e+05	1.30e+03	3.9e+02
12	1,2,3,7,8-PeCDD	3.15e+06	1.31e+03	2.4e+03	1.95e+06	7.12e+02	2.7e+03
13	1,2,3,4,7,8-HxCDD	3.47e+06	1.07e+03	3.2e+03	2.64e+06	1.20e+03	2.2e+03
14	1,2,3,6,7,8-HxCDD	3.28e+06	1.07e+03	3.1e+03	2.64e+06	1.20e+03	2.2e+03
15	1,2,3,7,8,9-HxCDD	3.18e+06	1.07e+03	3.0e+03	2.49e+06	1.20e+03	2.1e+03
16	1,2,3,4,6,7,8-HpCDD	2.63e+06	1.46e+03	1.8e+03	2.52e+06	7.12e+02	3.5e+03
17	OCDD	3.83e+06	1.06e+03	3.6e+03	4.24e+06	1.95e+03	2.2e+03
18	13C-2,3,7,8-TCDF	6.18e+06	1.46e+03	4.2e+03	7.80e+06	1.76e+03	4.4e+03
19	13C-1,2,3,7,8-PeCDF	9.28e+06	8.80e+02	1.1e+04	6.09e+06	1.20e+03	5.1e+03
20	13C-2,3,4,7,8-PeCDF	9.80e+06	8.80e+02	1.1e+04	6.30e+06	1.20e+03	5.3e+03
21	13C-1,2,3,4,7,8-HxCDF	4.90e+06	1.50e+03	3.3e+03	9.64e+06	1.57e+03	6.2e+03
22	13C-1,2,3,6,7,8-HxCDF	5.20e+06	1.50e+03	3.5e+03	9.86e+06	1.57e+03	6.3e+03
23	13C-2,3,4,6,7,8-HxCDF	5.25e+06	1.50e+03	3.5e+03	1.02e+07	1.57e+03	6.5e+03
24	13C-1,2,3,7,8,9-HxCDF	4.64e+06	1.50e+03	3.1e+03	8.80e+06	1.57e+03	5.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.78e+06	3.35e+03	1.1e+03	8.63e+06	3.47e+03	2.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.88e+06	3.35e+03	8.6e+02	6.68e+06	3.47e+03	1.9e+03
27	13C-2,3,7,8-TCDD	3.56e+06	4.38e+03	8.1e+02	4.60e+06	2.35e+03	2.0e+03
28	13C-1,2,3,7,8-PeCDD	6.22e+06	1.57e+03	4.0e+03	3.97e+06	8.08e+02	4.9e+03
29	13C-1,2,3,4,7,8-HxCDD	6.79e+06	1.86e+03	3.6e+03	5.45e+06	1.46e+03	3.7e+03
30	13C-1,2,3,6,7,8-HxCDD	6.84e+06	1.86e+03	3.7e+03	5.55e+06	1.46e+03	3.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.17e+06	1.69e+03	3.1e+03	4.89e+06	9.76e+02	5.0e+03
32	13C-OCDD	7.33e+06	1.22e+03	6.0e+03	8.30e+06	1.23e+03	6.8e+03
33	13C-1,2,3,4-TCDD	3.71e+06	4.38e+03	8.5e+02	4.71e+06	2.35e+03	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	6.54e+06	1.86e+03	3.5e+03	5.22e+06	1.46e+03	3.6e+03
35	37Cl-2,3,7,8-TCDD	9.27e+05	1.92e+03	4.8e+02			

ALS ENVIRONMENTAL
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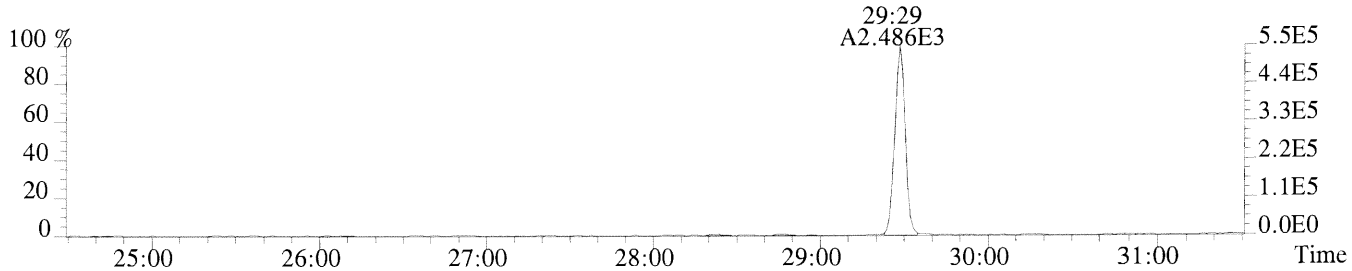
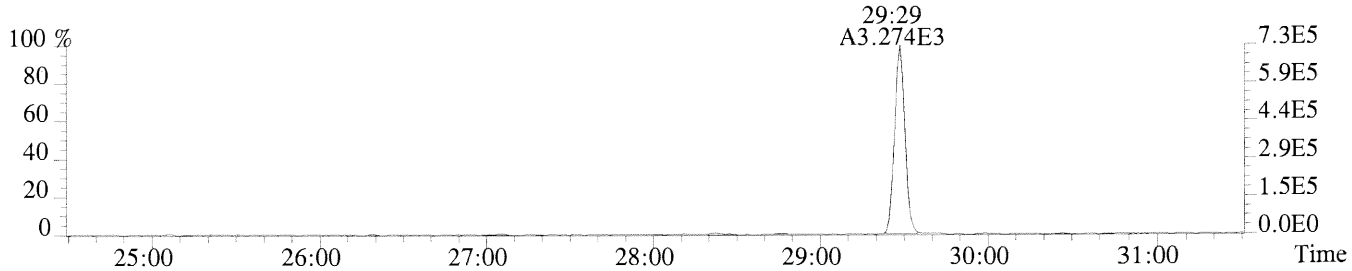
File:P169977 #1-442 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD

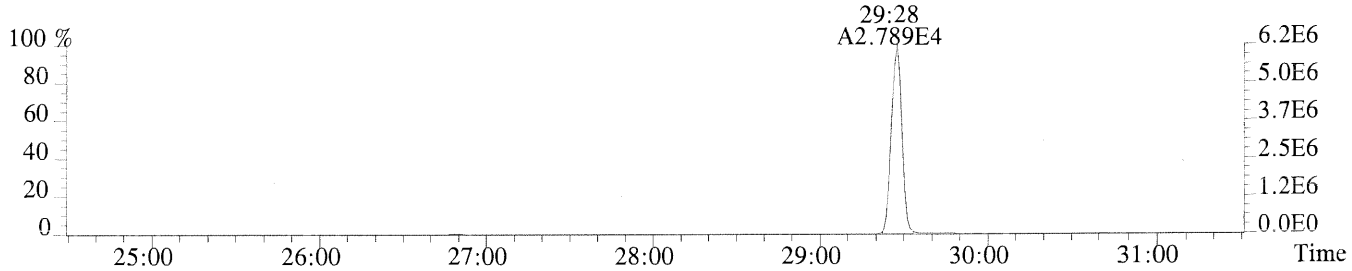
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



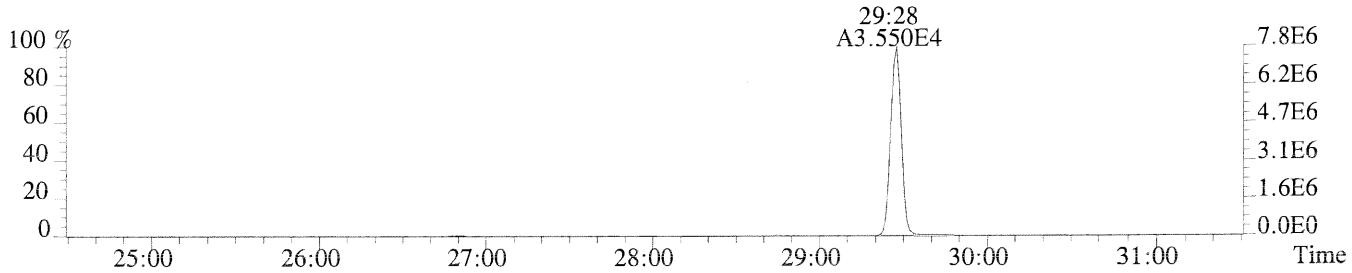
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2032.0,1.00%,F,T)



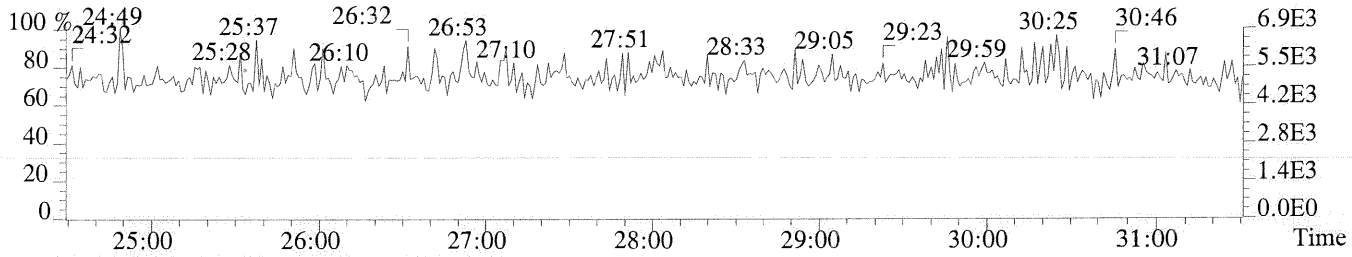
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1456.0,1.00%,F,T)



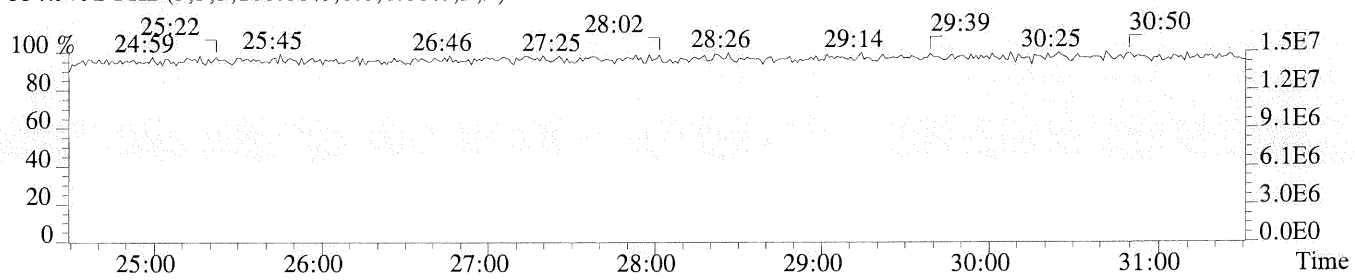
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1764.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

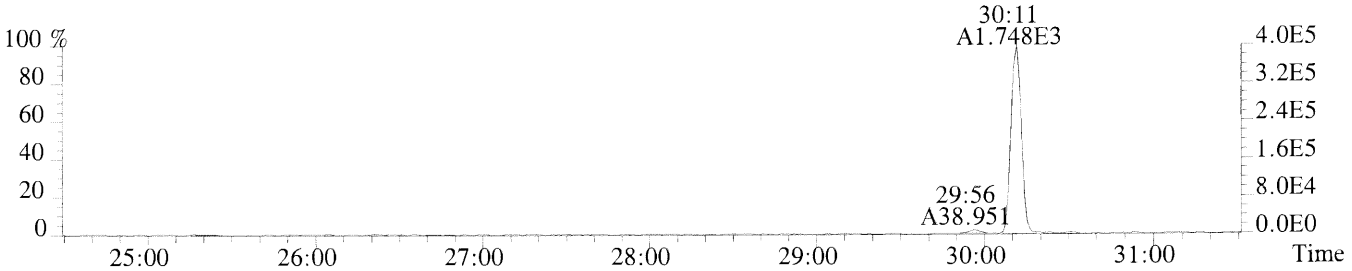


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

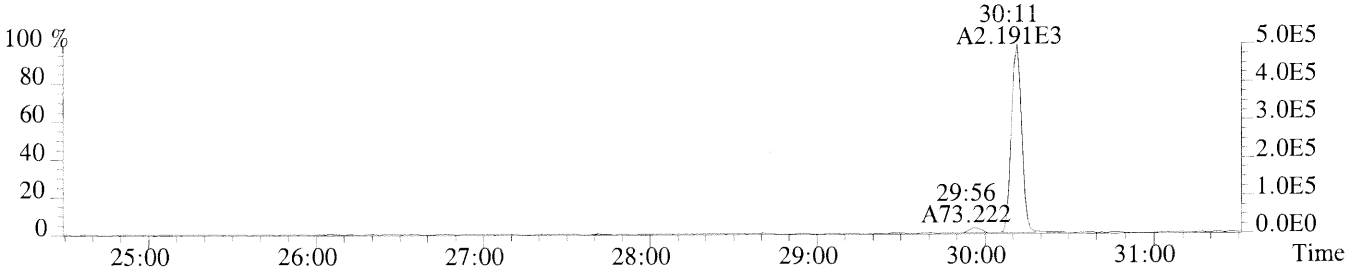


File:P169977 #1-442 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD

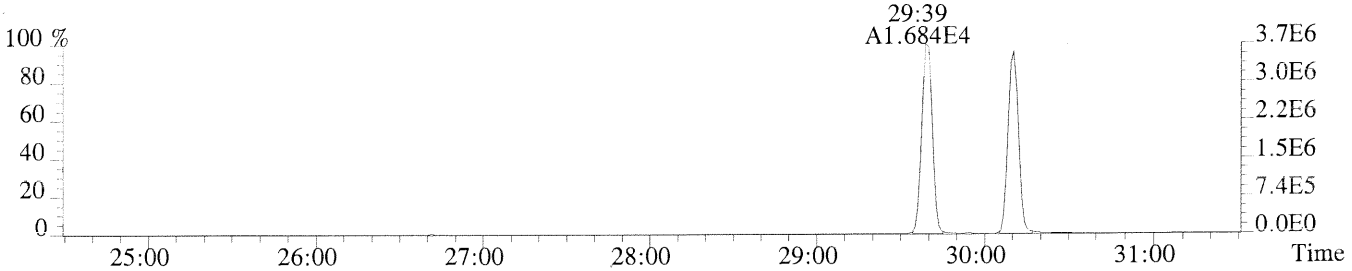
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



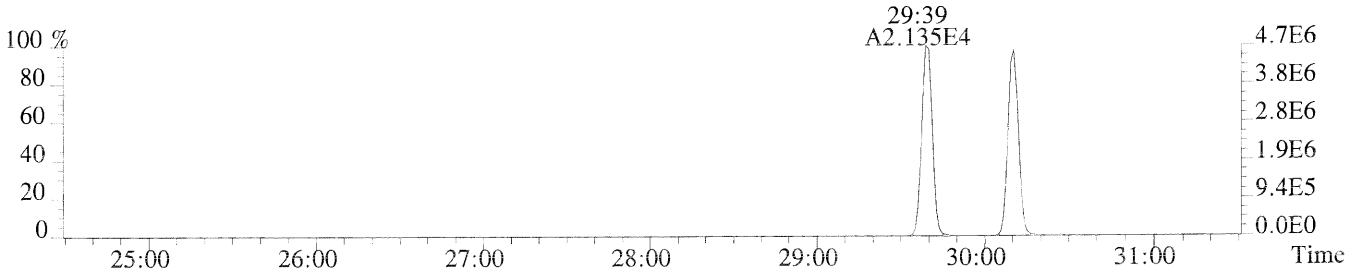
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



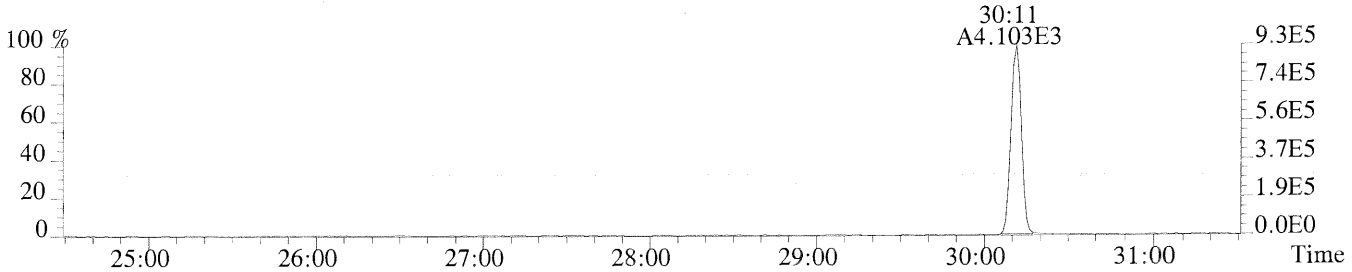
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4384.0,1.00%,F,T)



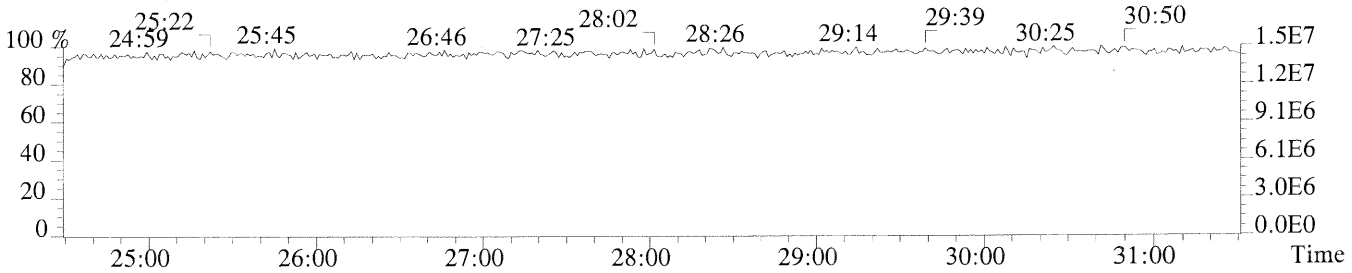
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2348.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1924.0,1.00%,F,T)

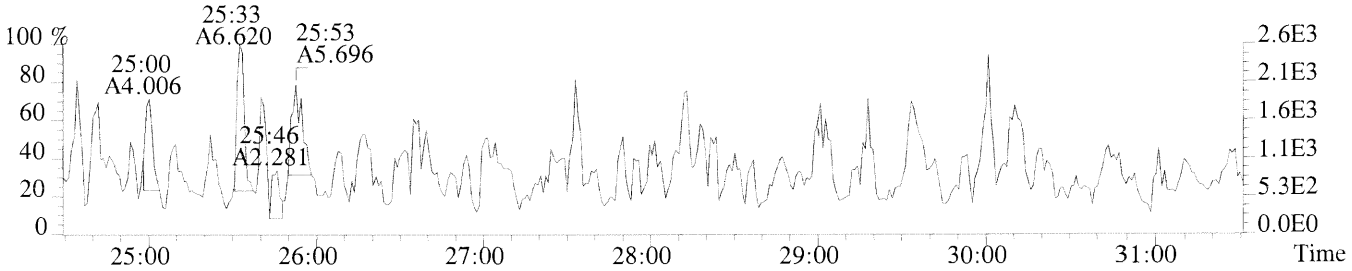


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

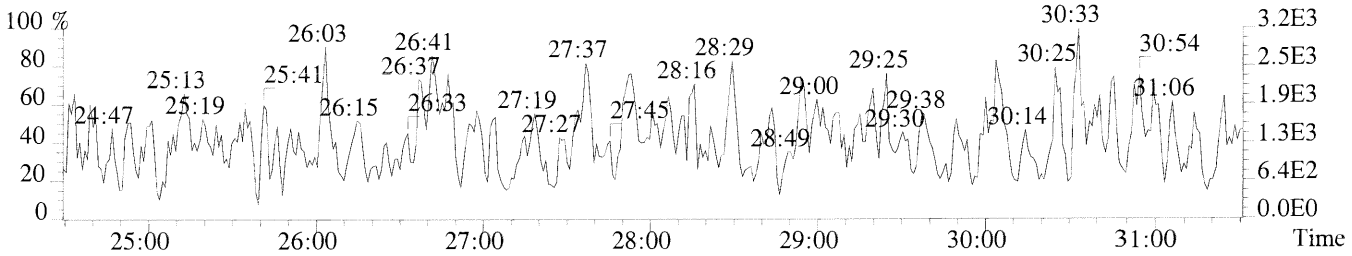


File:P169977 #1-442 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD

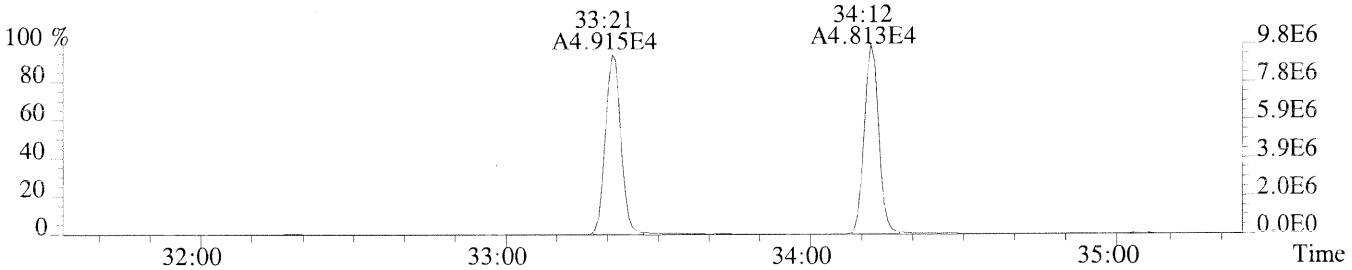
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



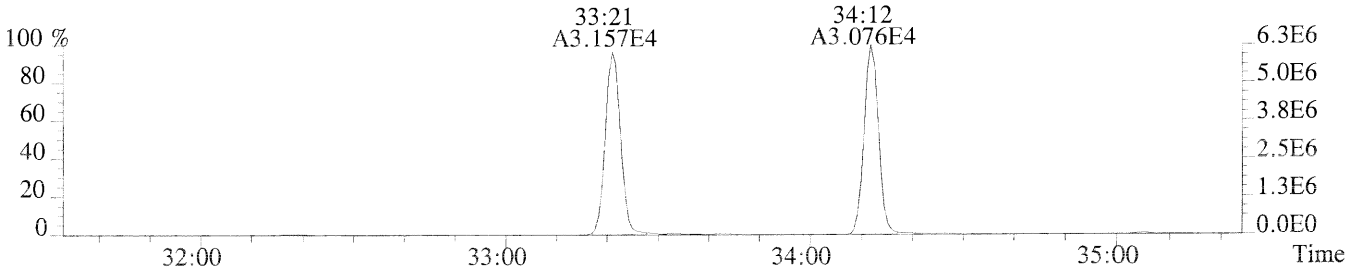
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1564.0,1.00%,F,T)



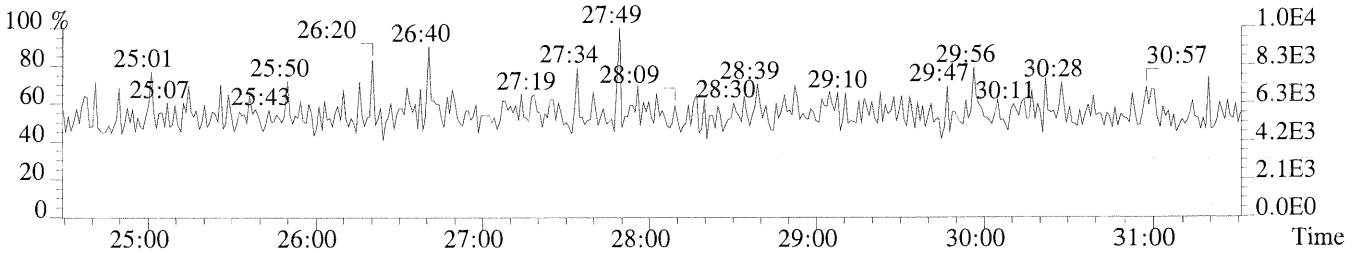
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



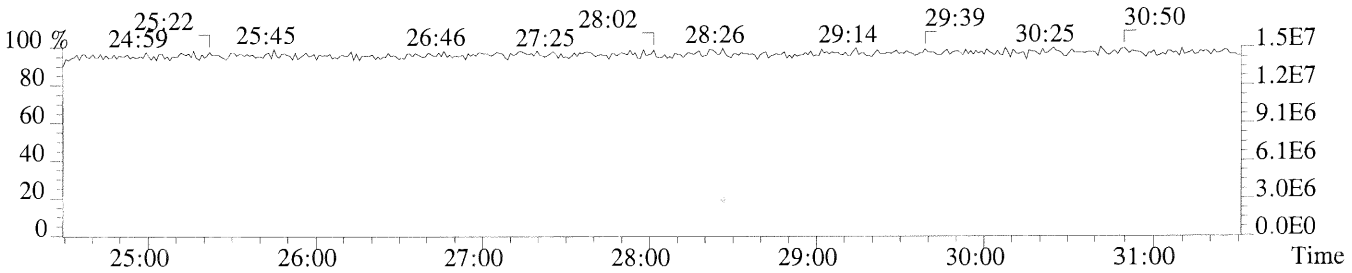
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

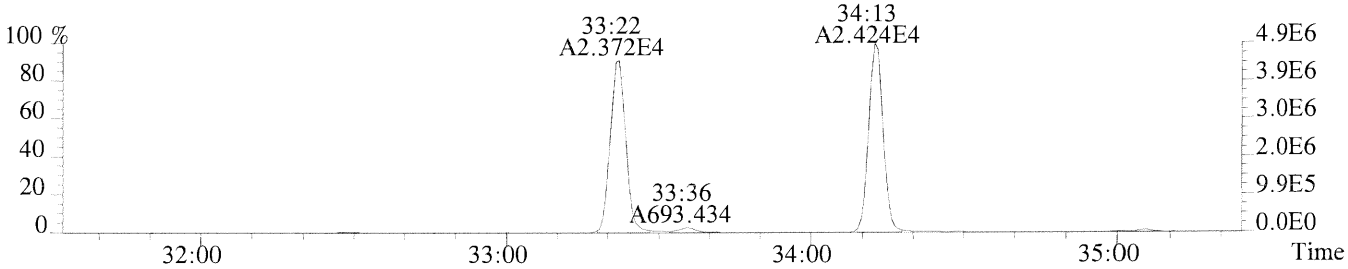


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

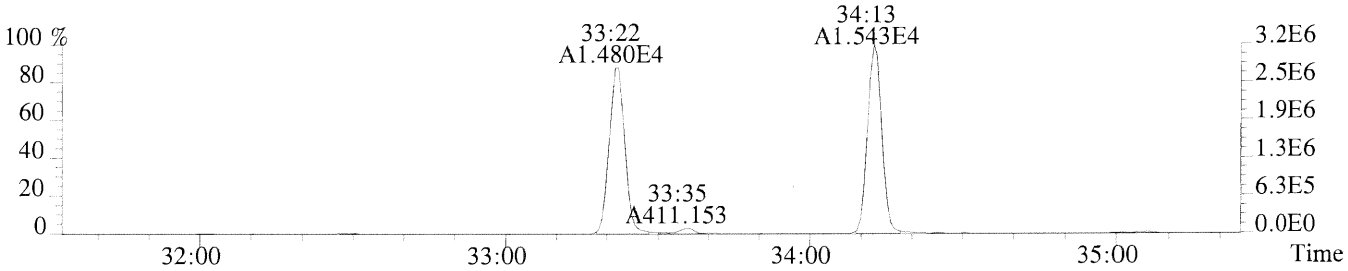


File:P169977 #1-350 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD

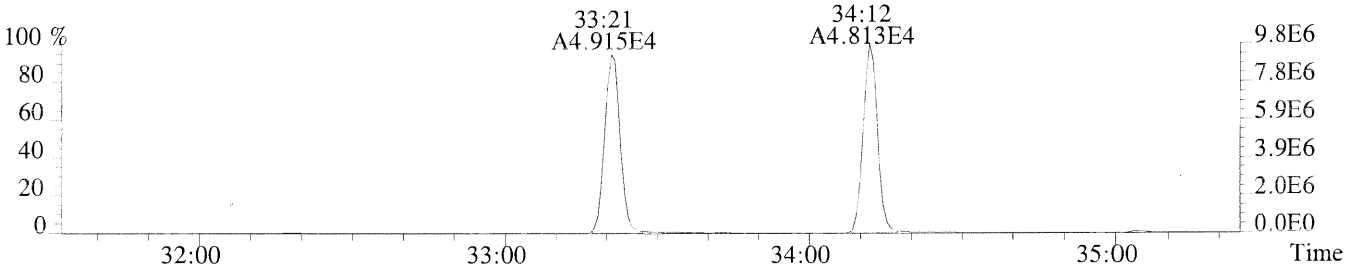
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



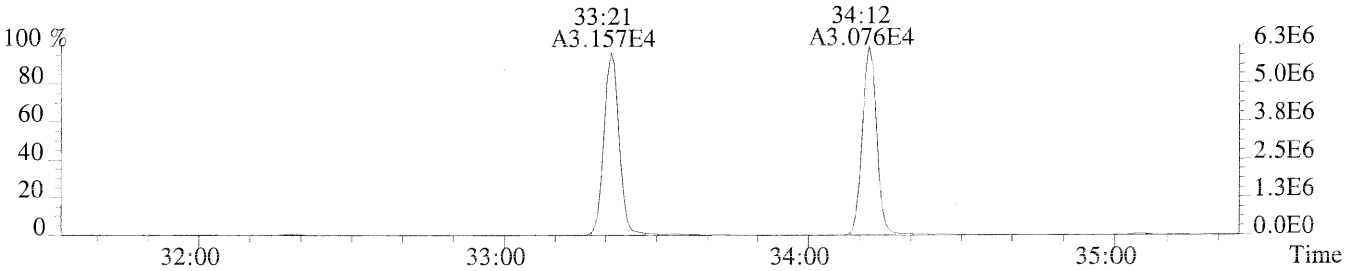
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



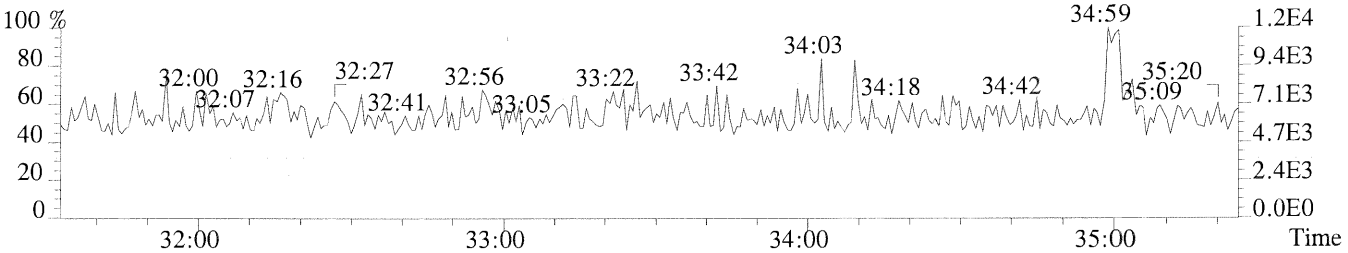
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



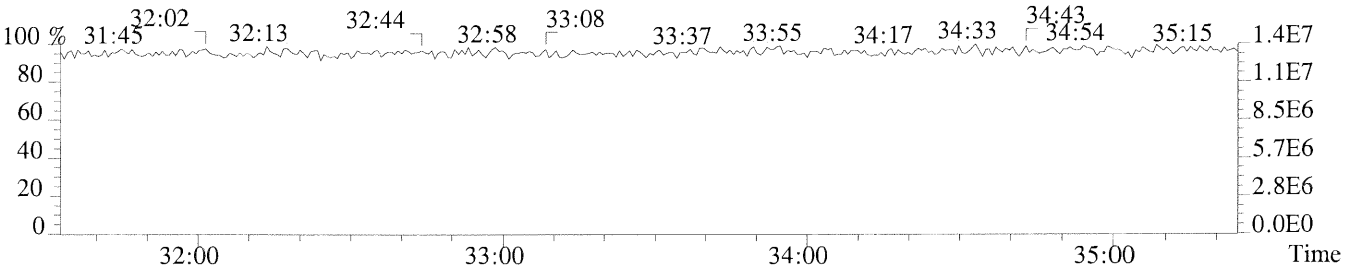
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1196.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

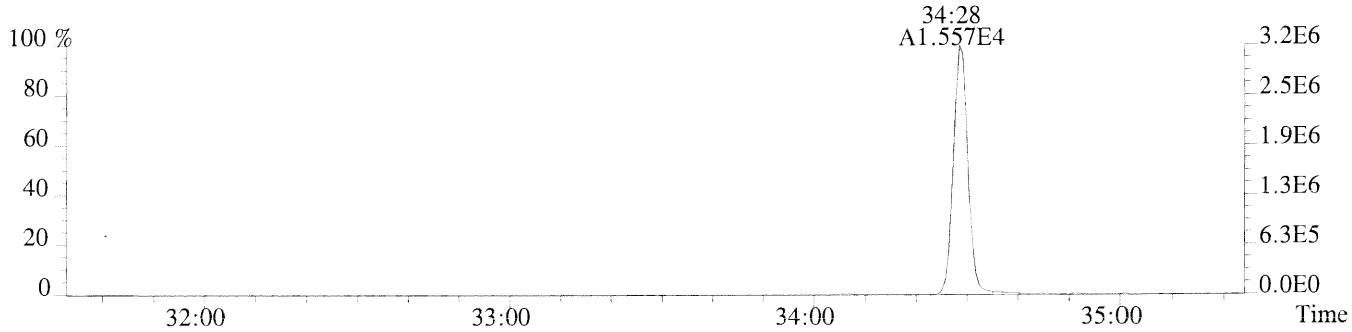


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

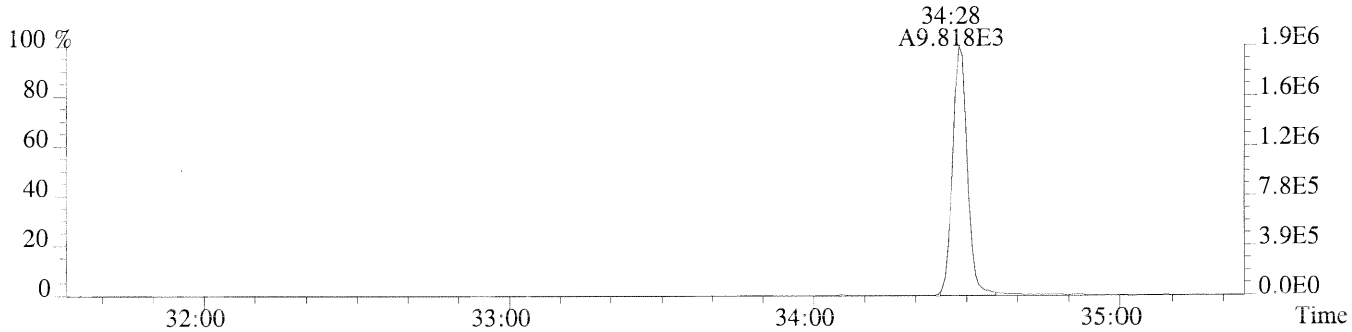


File:P169977 #1-350 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD

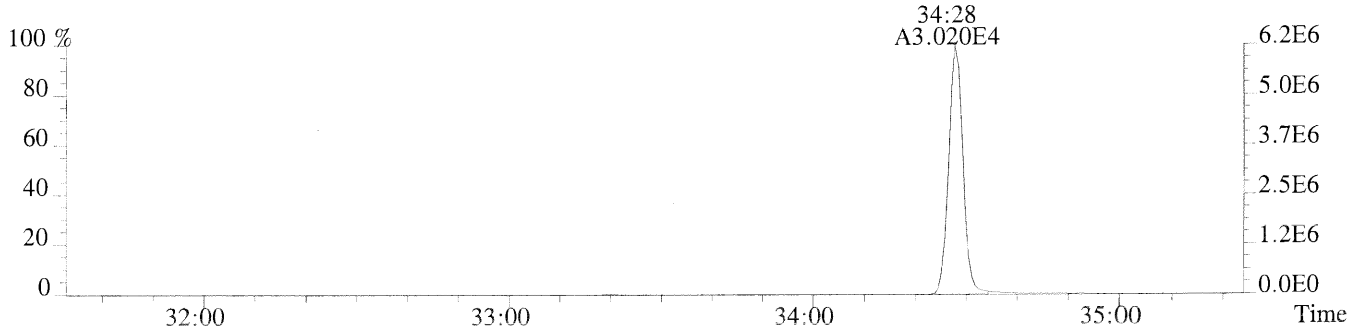
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1308.0,1.00%,F,T)



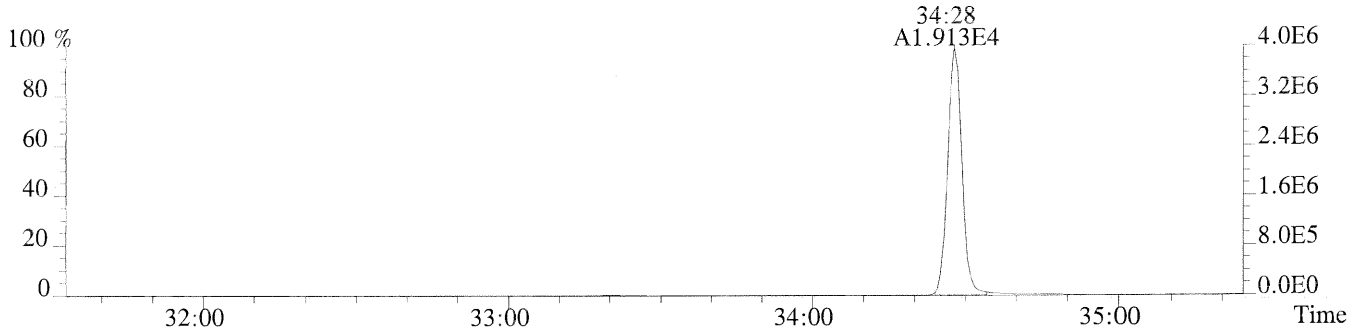
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



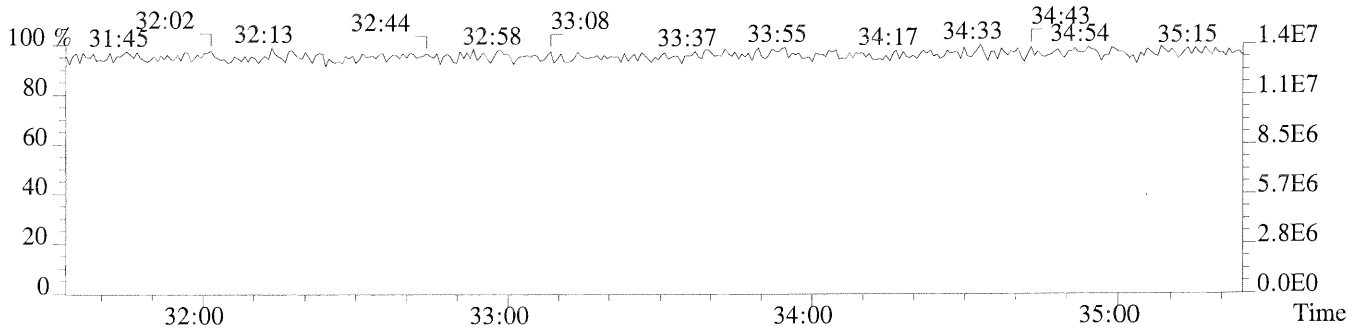
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1568.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)

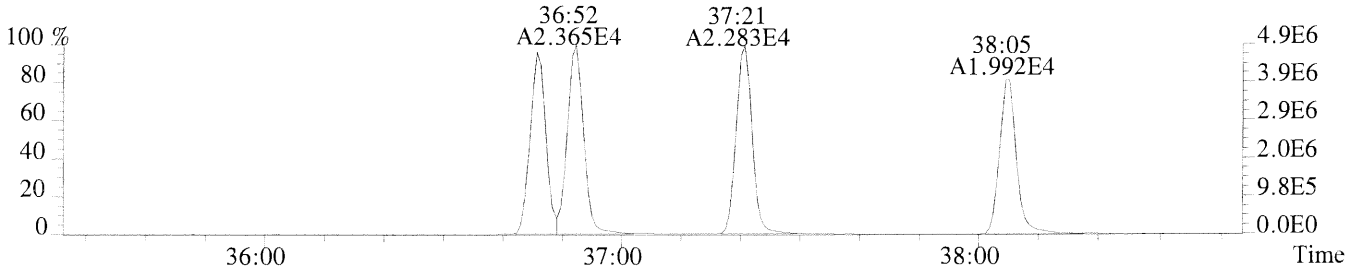


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

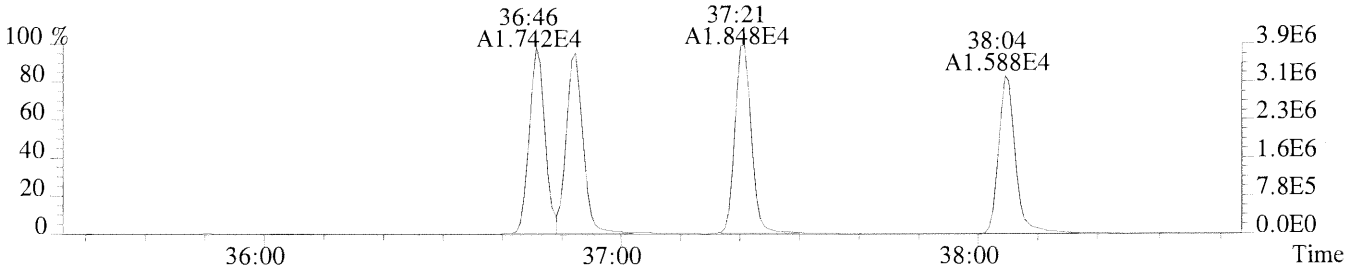


File:P169977 #1-299 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD

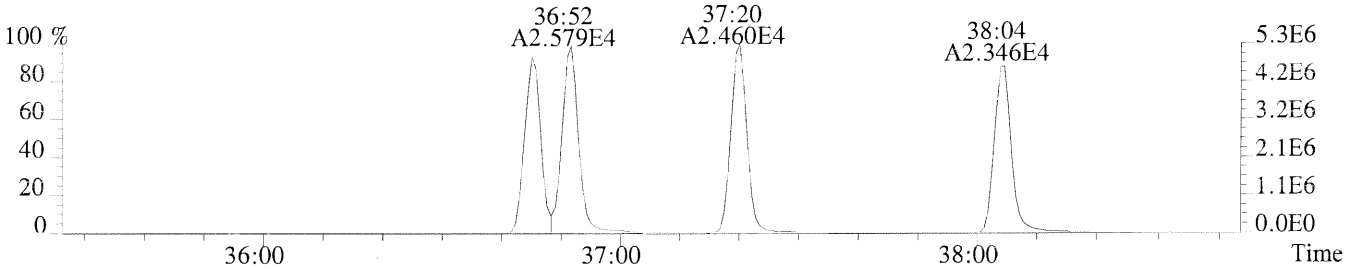
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



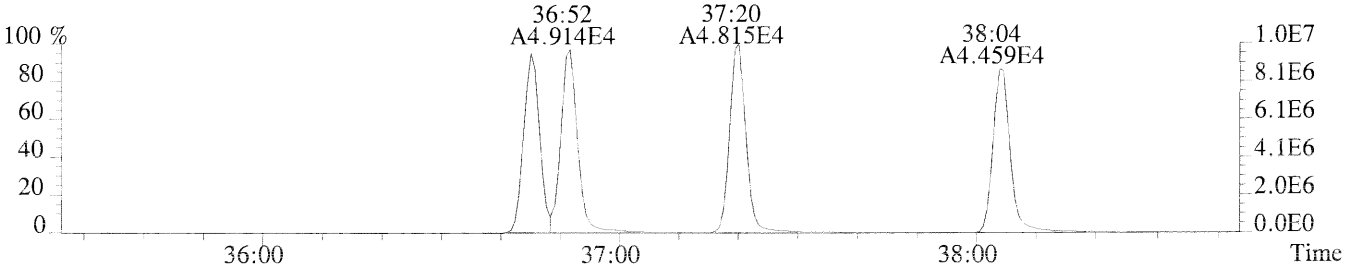
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.40%,F,T)



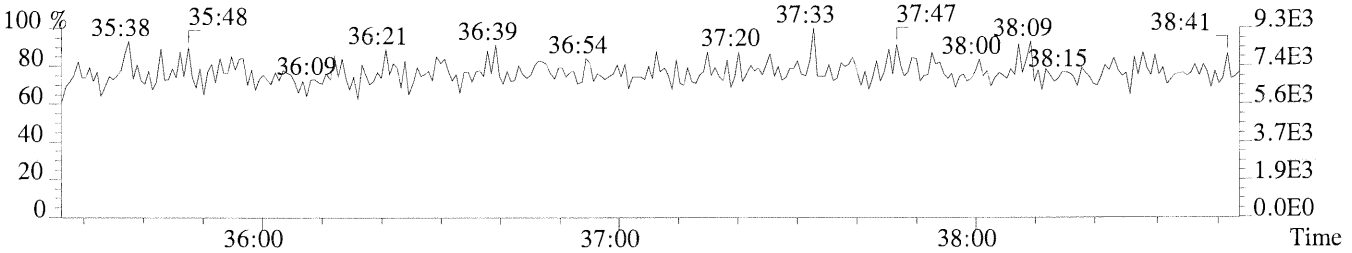
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1500.0,0.40%,F,T)



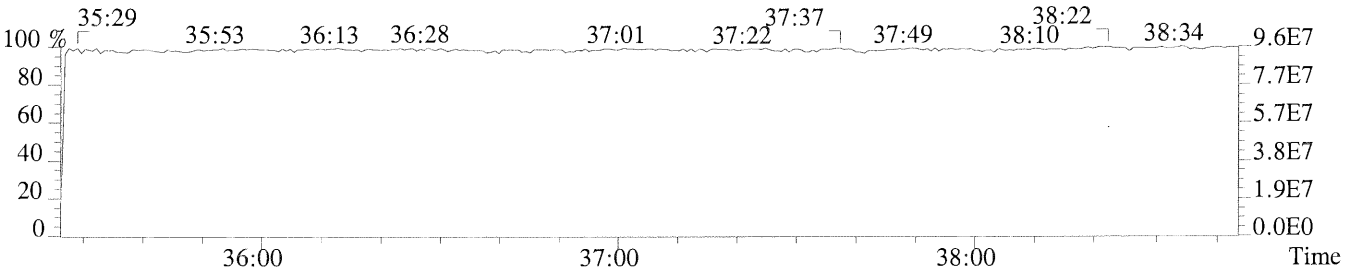
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



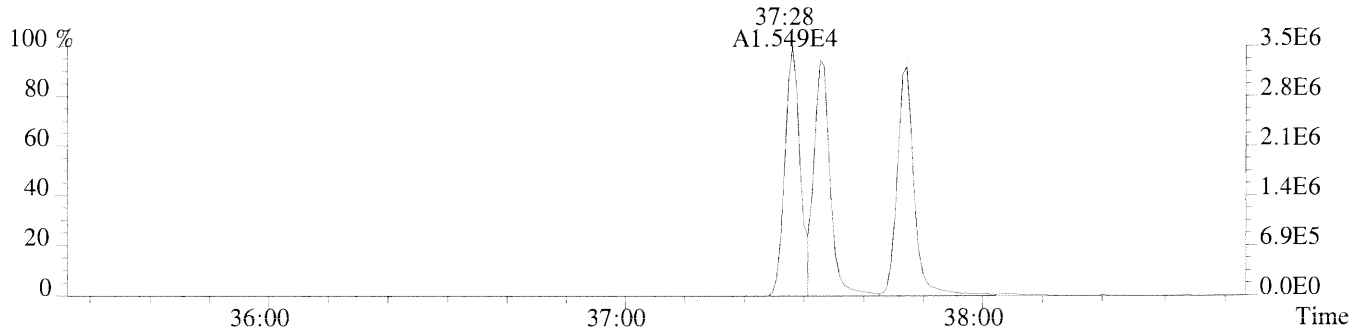
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



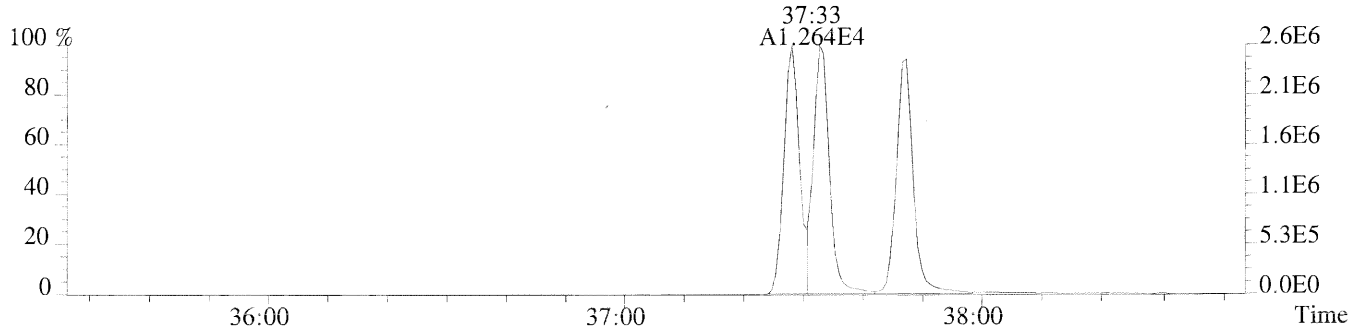
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



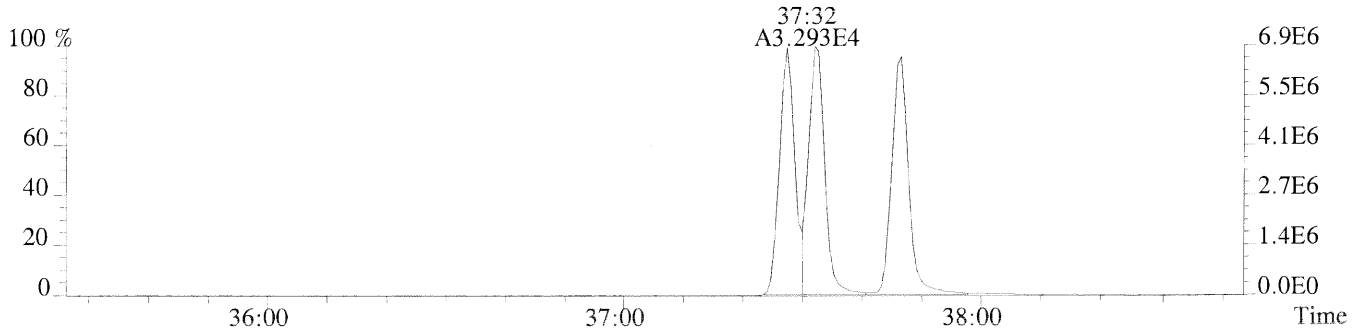
File:P169977 #1-299 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1072.0,0.40%,F,T)



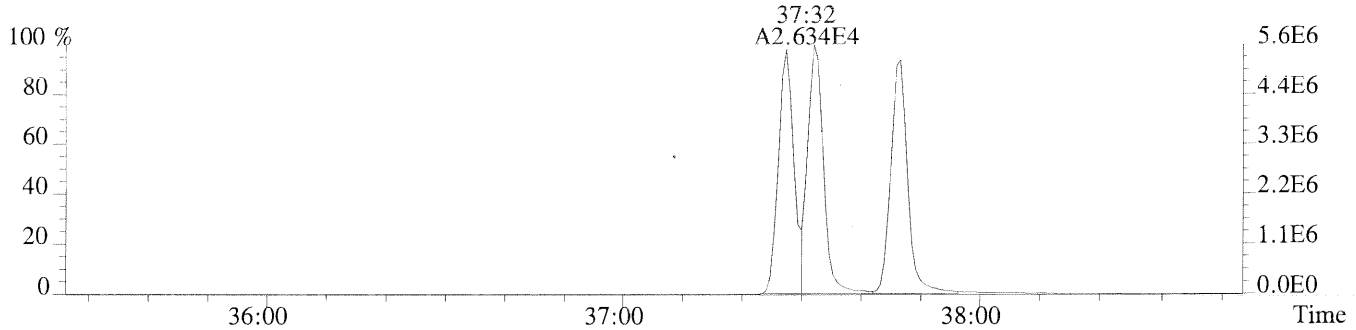
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



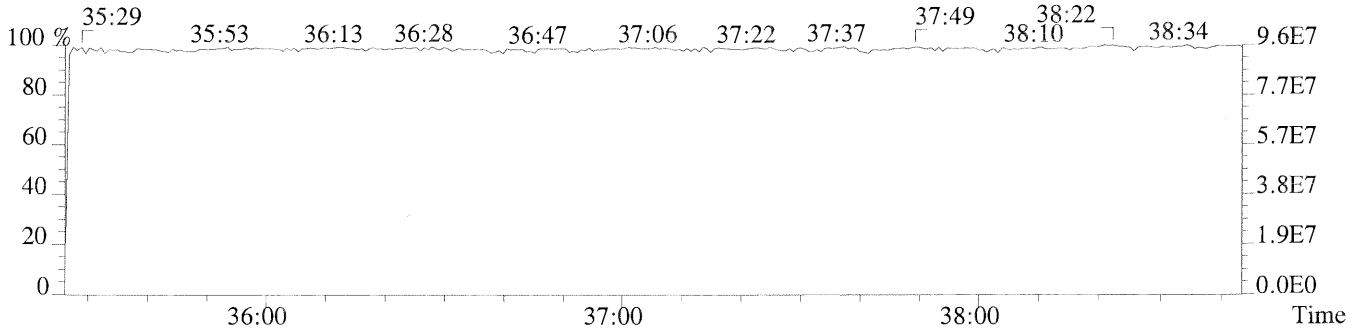
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1860.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.40%,F,T)

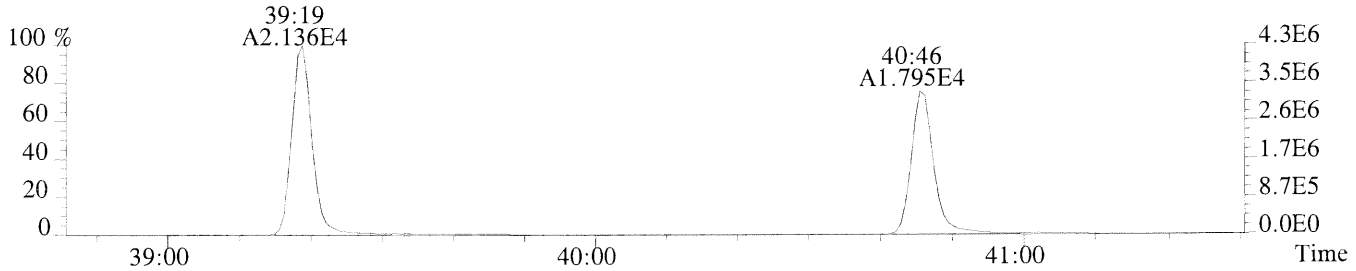


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

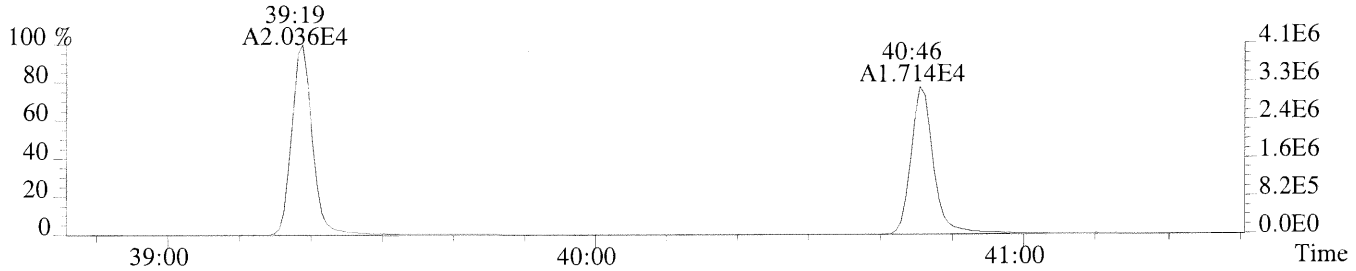


File:P169977 #1-250 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD

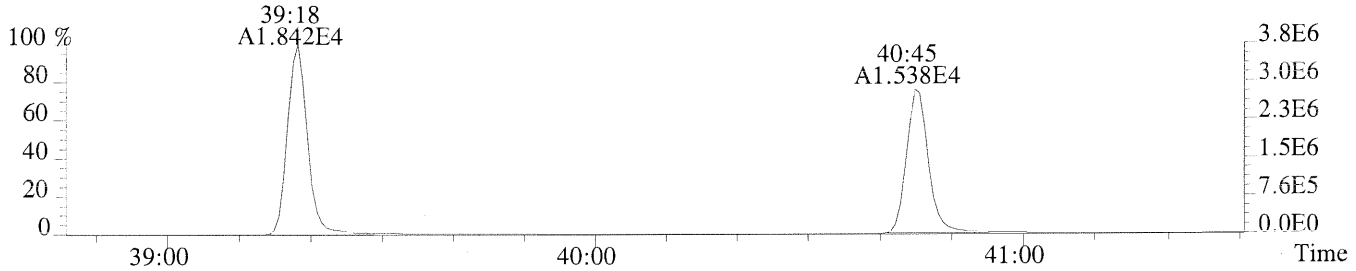
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2692.0,0.50%,F,T)



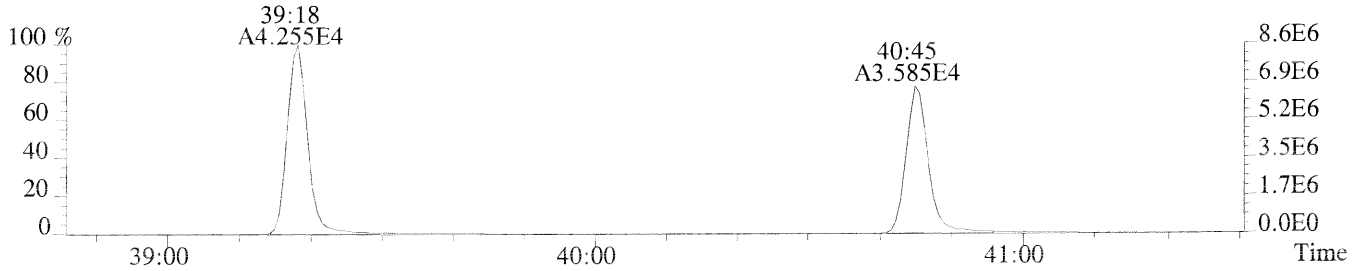
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3180.0,0.50%,F,T)



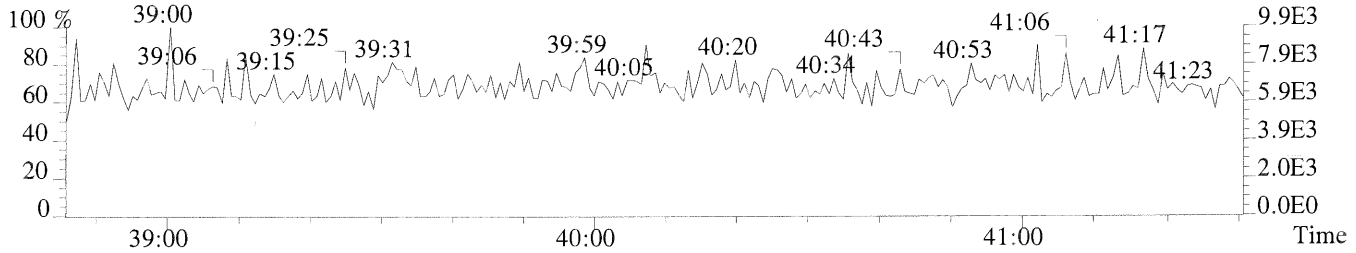
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3348.0,0.50%,F,T)



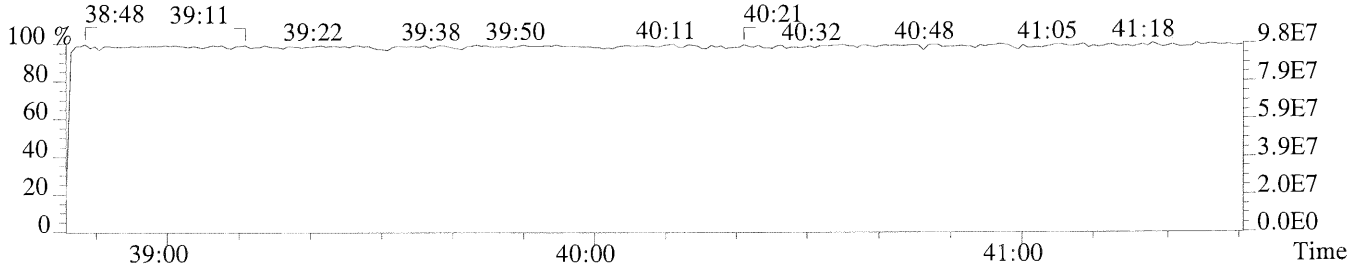
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3472.0,0.50%,F,T)



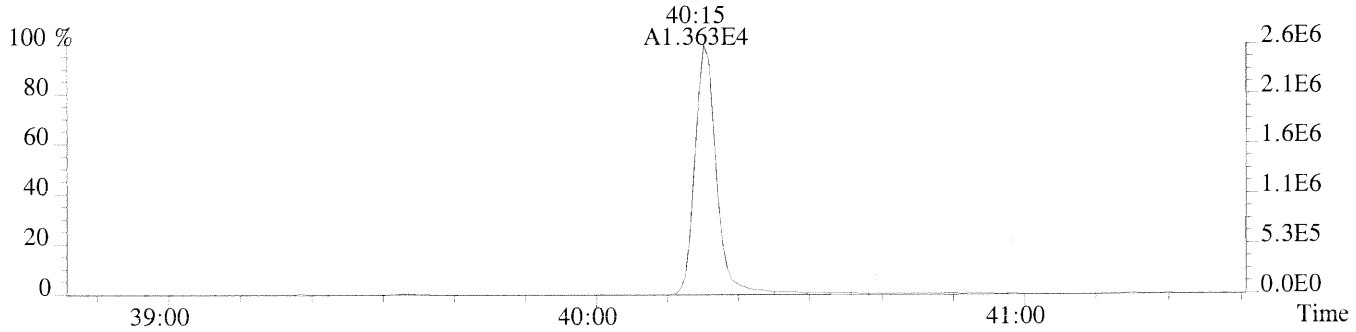
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



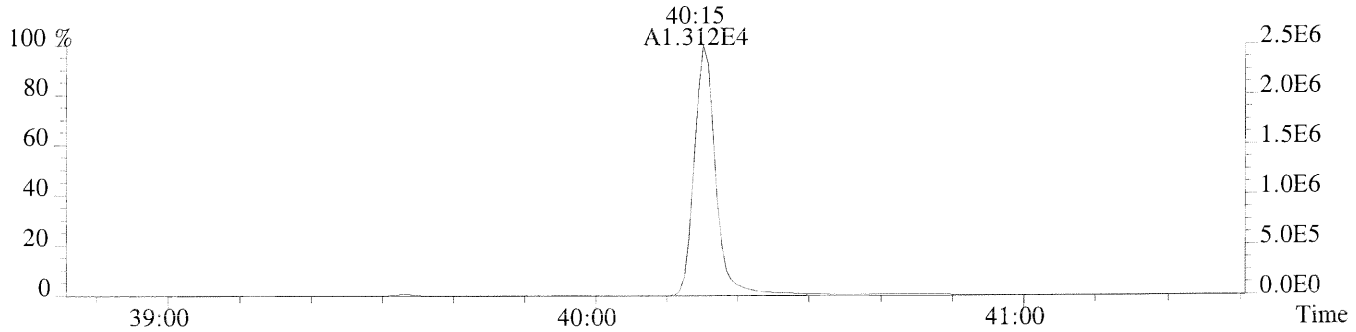
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



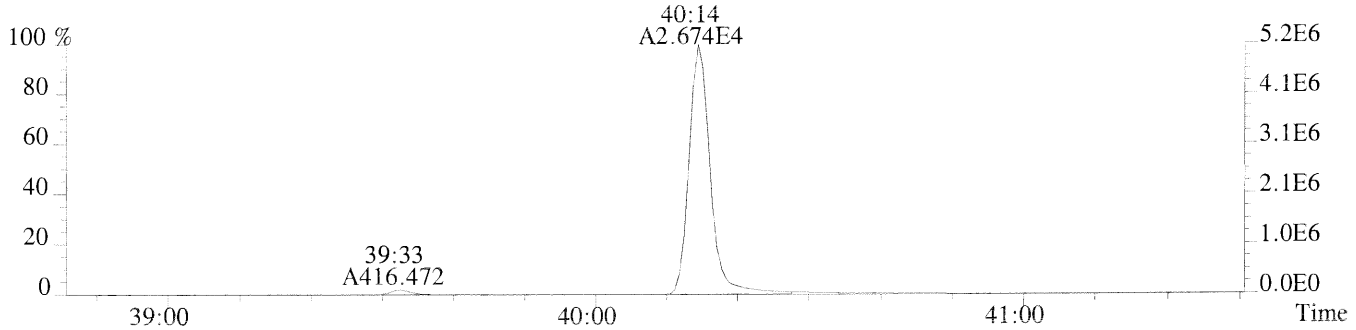
File:P169977 #1-250 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1456.0,0.40%,F,T)



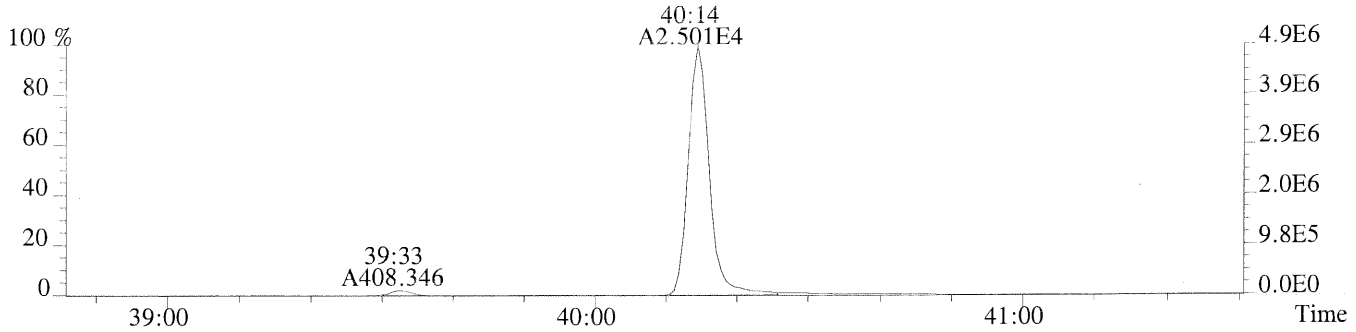
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



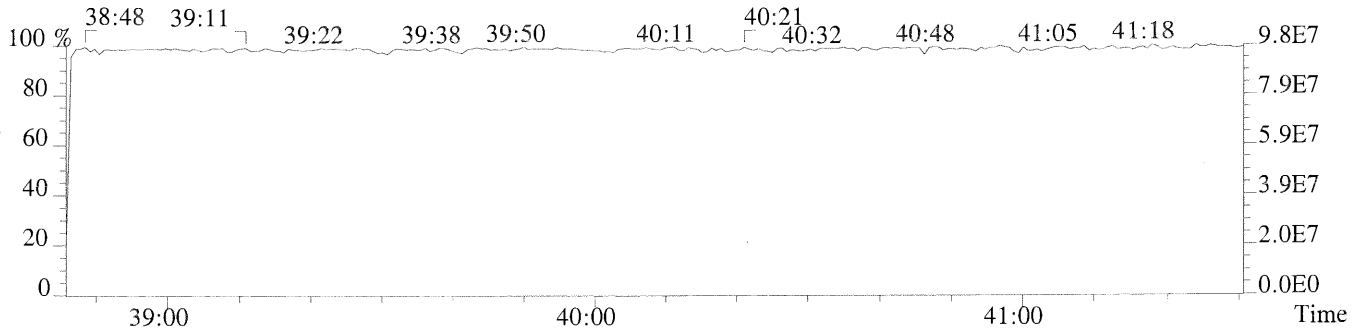
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1688.0,0.40%,F,T)



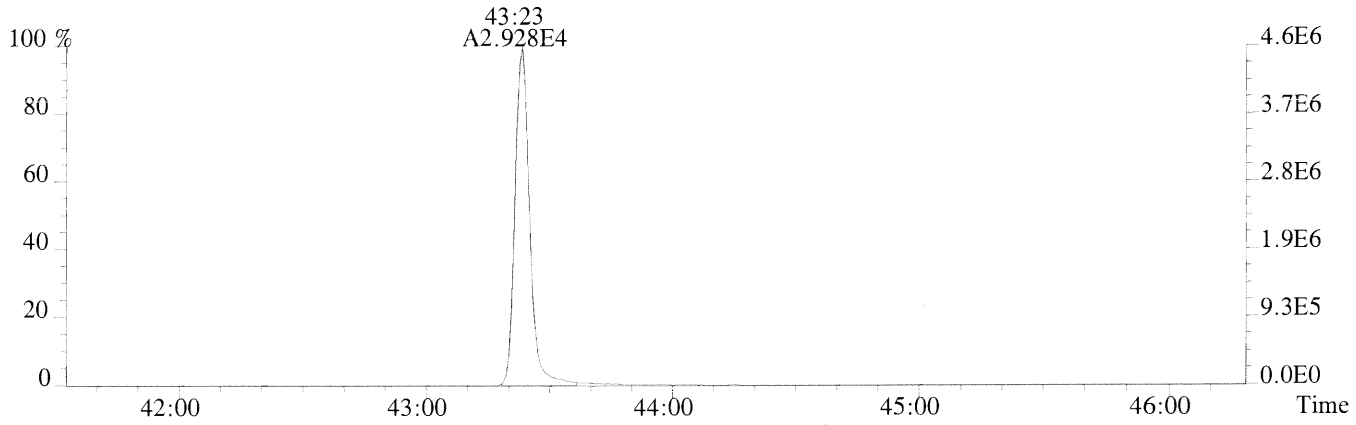
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)



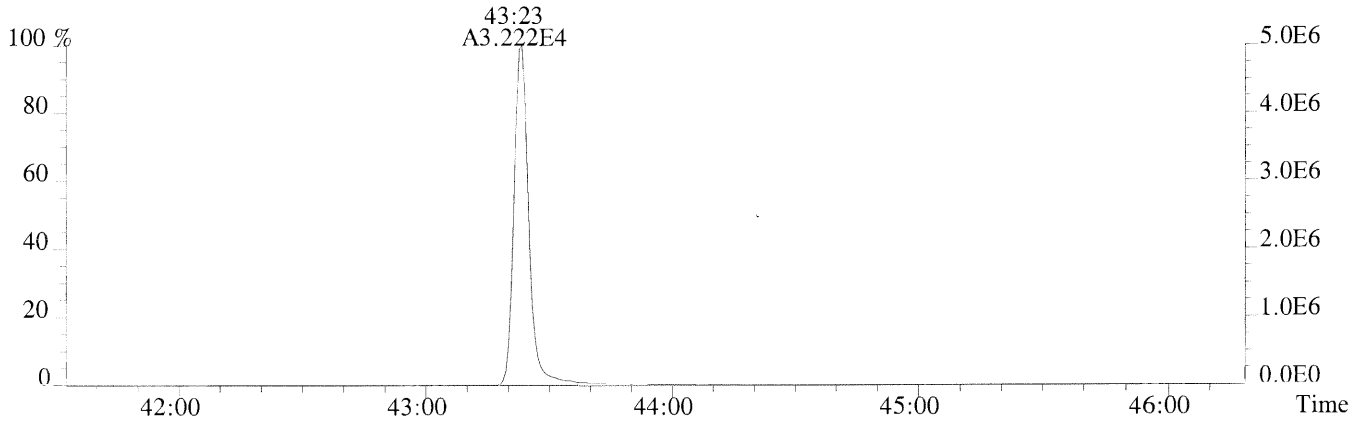
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



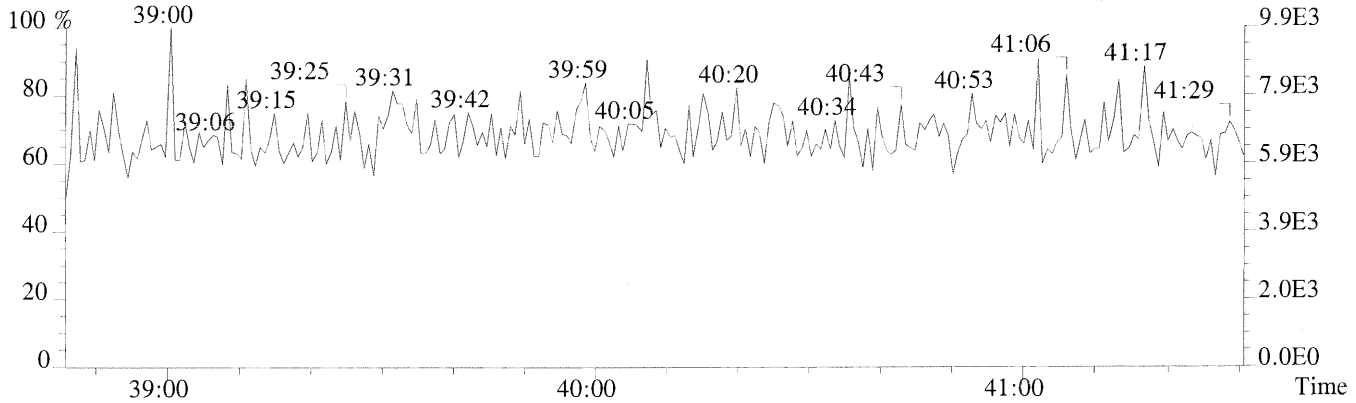
File:P169977 #1-438 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1516.0,0.40%,F,T)



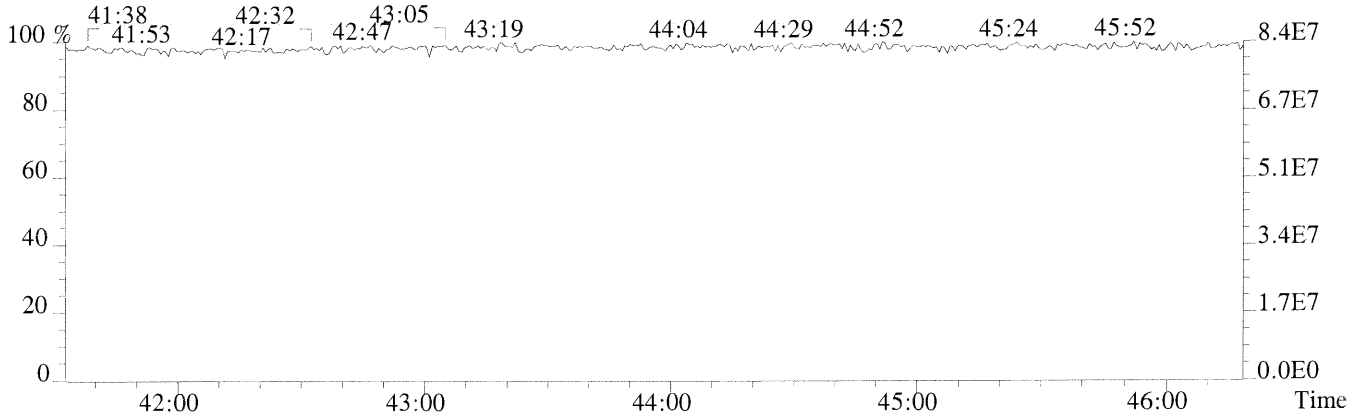
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2104.0,0.40%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

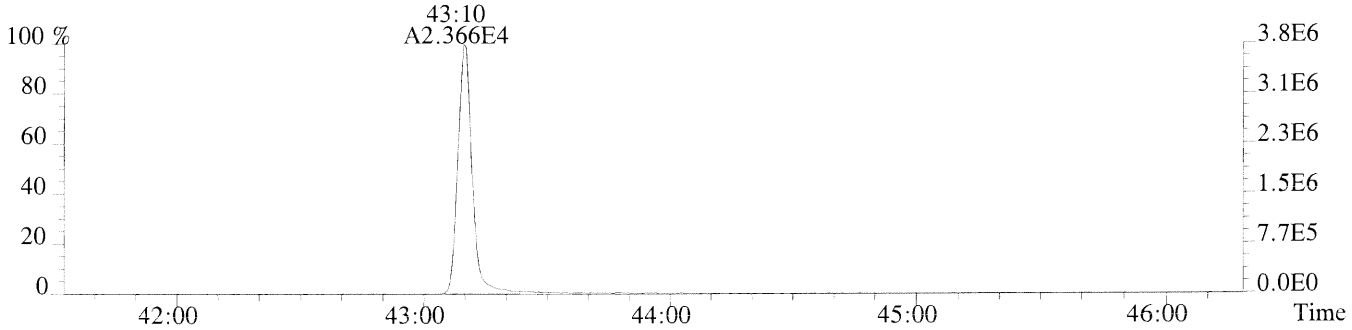


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

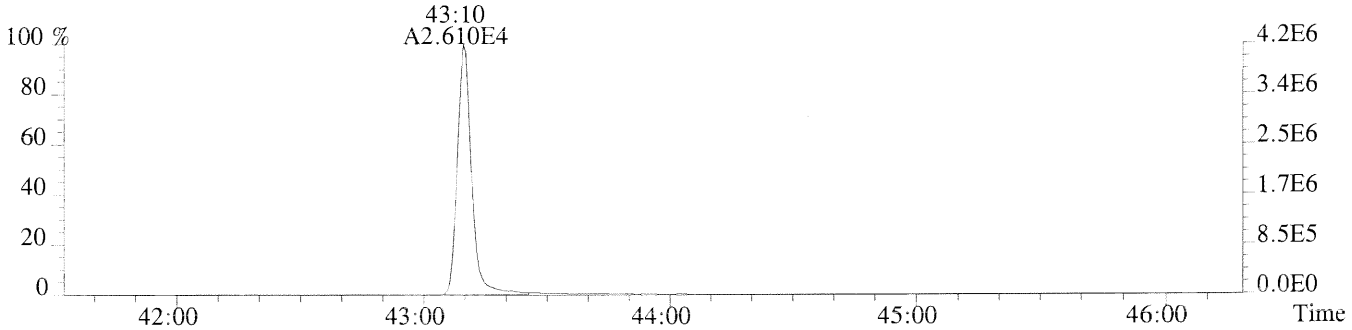


File:P169977 #1-438 Acq:25-MAR-2014 22:58:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:STD

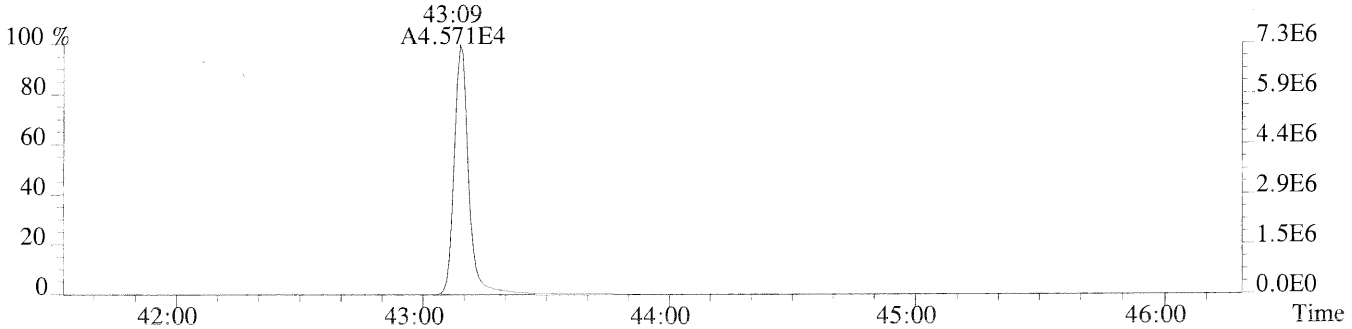
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1060.0,0.40%,F,T)



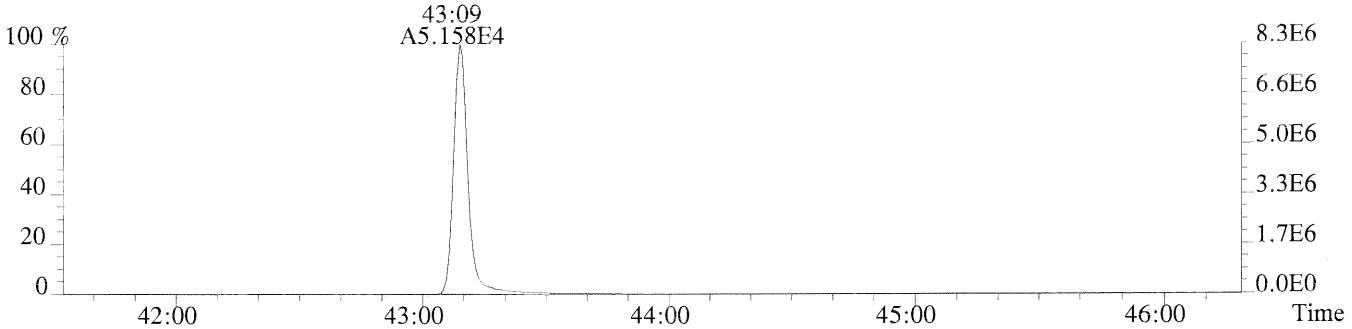
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1952.0,0.40%,F,T)



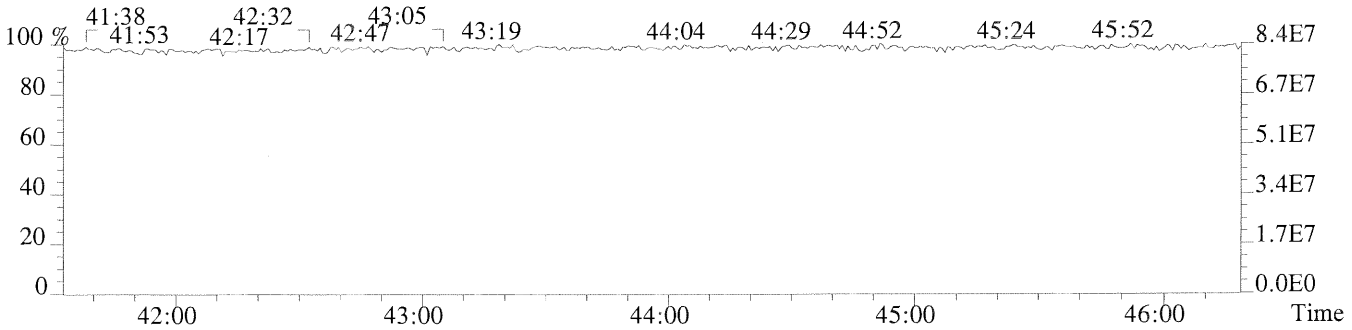
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1216.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1228.0,0.40%,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: 05/22/2014
Instrument Name: E-HRMS-01	Calibration File Name: U1405211613I
Processor Name: Chris Elhardt	Reviewer Name: Loan Luong

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	x				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	x				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	x				
Were all calibration standards analyzed only once?	x				
Was the ICV analyzed after the ICAL, before analyzing samples?	x				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	x				
Were all target masses >10,000 resolving power at the beginning of the sequence?	X				
Were all target masses >10,000 resolving power at the end of the sequence?	X				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			X		
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?			X		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	X				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	X				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	X				
Were all first and last eluters adequately resolved in each function?	X				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			X		
Was the retention time of PCB 209 >55 min?			X		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			X		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			X		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	X				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			X		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	X				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?		X			1

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 05/22/2014
Instrument Name: E-HRMS-01	Calibration File Name: U1405211613I
Processor Name: Chris Elhardt	Reviewer Name: Loan Luong

Description	Yes	No	NA	NR	ER#
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	X				
Were area counts for the highest calibration standard below levels of saturation?	X				
Were manual integrations technically justified to correct for poor software integration?			X		
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	X				
Were all calibration standards used in determining response factors?	X				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	X				
Did the RSD for RRFs for each native analyte meet method criteria?	X				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	X				
Were RFs for each labeled compound calculated for each calibration point?	X				
Did the RSD for RF for each labeled compound meet method criteria?	X				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	X				
Did all analytes meet method criteria for the ICV.	X				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 05/22/2014
Instrument Name: E-HRMS-01	Calibration File Name: U1405211613I
Processor Name: Chris Elhardt	Reviewer Name: Loan Luong

ER# 5	Description
1	Ion Abundance Ratio for TCDF CS 0.5 did not meet method criteria.

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).

Initial Calibration QC Checklist

ICAL Name: U140521 1613 I

Date: 21 May 14

Method: 1613 / 8290 / Tetra / TCDD Only / TCDF Conf / 8280 / M23

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 it's closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or it's closest eluters	✓	✓

Initial Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	x TCDF CS0.5	x TCDF CS0.5
No QC ion deflections of greater than 20%	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 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%	NA	N/A
All Manual Intergrations signed and dated and first and final copies of Ical summary included	✓	✓

Analyst: CR Second QC: LKL

icalqc.xls 10-30-2012

5DFC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: TX01411 Case No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-01

Init. Calib. Date: 05/21/2014

Init. Calib.Times: 13:12:29

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	63680	U149170	21-MAY-14	13:12:29
CS0.5	66807	U149172	21-MAY-14	14:47:46
CS1	66798	U149173	21-MAY-14	15:39:21
CS2	D12-90-3B	U149174	21-MAY-14	16:26:42
CS3	63383	U149175	21-MAY-14	17:15:15
CS4	D12-90-3D	U149176	21-MAY-14	18:03:46
CS5	66799	U149177	21-MAY-14	18:52:20
INST BLANK	INST BLANK	U149178	21-MAY-14	19:40:54
ICV 2ND SOURCE	60287	U149179	21-MAY-14	20:29:24

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\U1140521.SPL

Last Modified: Wednesday, May 21, 2014 16:50:51 Central Daylight Time

Printed: Thursday, May 22, 2014 08:36:34 Central Daylight Time

c: U140521 1613I
C: U140521 M23I

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	05/21/14	08:05	U149168	CS0.5 HRCC0.5/CS0.5	66807	JWP	DO NOT USE	8290cas
2		12:05	U149169	CS0.5 HRCC0.5/CS0.5	66807			8290cas
3		13:12	U149170	WINDOW DEFINE	63680		HRMS Check 13:06	8290cas
4		13:59	U149171	INST BLANK	INST BLANK			8290cas
5		14:47	U149172	CS0.5 HRCC0.5/CS0.5	66807			8290cas
6		15:39	U149173	CS1 HRCC1/CS1	66798			8290cas
7		16:26	U149174	CS2 HRCC2/CS2	D12-90-3B			8290cas
8		17:15	U149175	CS3 HRCC3/CS3	63383			8290cas
9		18:03	U149176	CS4 HRCC4/CS4	D12-90-3D			8290cas
10		18:52	U149177	CS5 HRCC5/CS5	66799			8290cas
11		19:40	U149178	INST BLANK	INST BLANK			8290cas
12		20:29	U149179	ICV 2ND SOURCE	60287		HRMS Check 08:30	8290cas
13			---	---	---			8290cas
14			---	---	---			8290cas
15			---	---	---			1668EPA
16			---	---	---			1668EPA
17			---	---	---			1668EPA
18			---	---	---			1668EPA
19			---	---	---			1668EPA
20			---	---	---			1668EPA
21			---	---	---			1668EPA
22			---	---	---			1668EPA
23			---	---	---			---
24			---	---	---			---
25			---	---	---			TCDFCAS
26			---	---	---			TCDFCAS
27			---	---	---			TCDFCAS
28			---	---	---			TCDFCAS
29			---	---	---			TCDFCAS
30			---	---	---			TCDFCAS
31			---	---	---			TCDFCAS
32			---	---	---			TCDFCAS
33			---	---	---			TCDFCAS
34			---	---	---			TCDFCAS
35			---	---	---			TCDFCAS
36			---	---	---			---
37			---	---	---			1668EPA
38			---	---	---			1668EPA
39			---	---	---			---

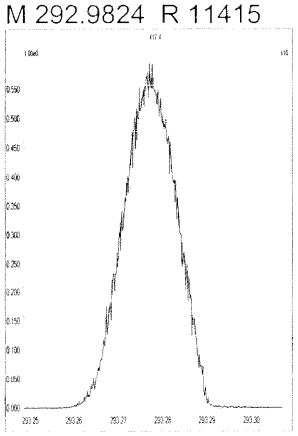
CEL
5/22/14

Experiment Calibration Report **MassLynx 4.1**

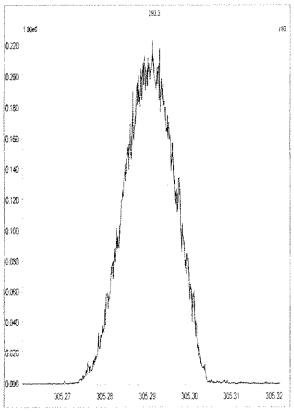
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, May 21, 2014 13:06:44 Central Daylight Time

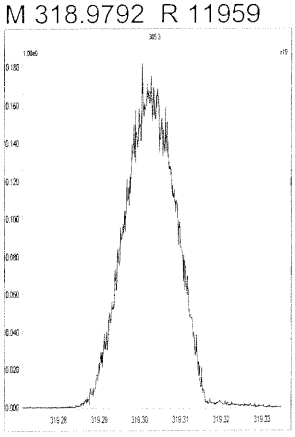
M 292.9824 R 11415



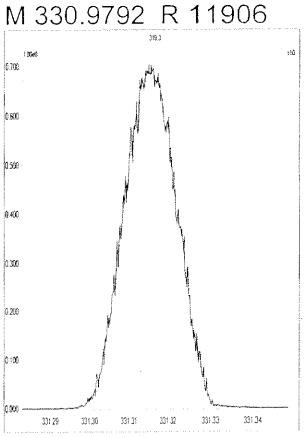
M 304.9824 R 11519



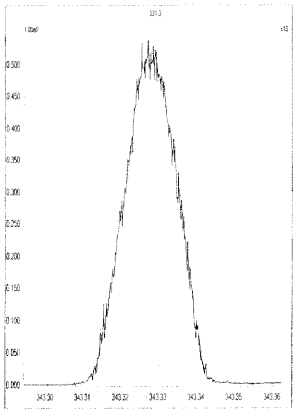
M 318.9792 R 11959



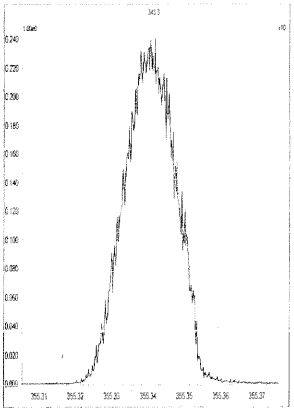
M 330.9792 R 11906



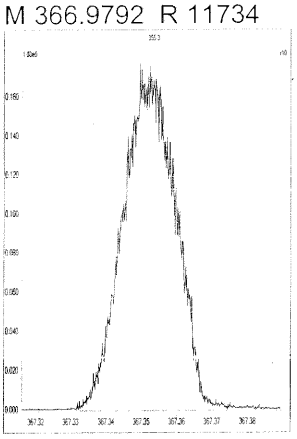
M 342.9792 R 12195



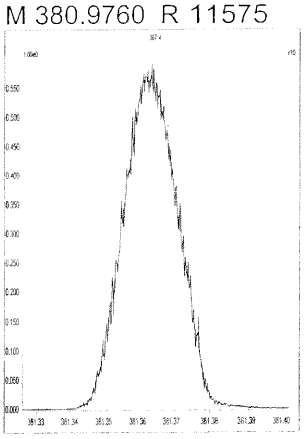
M 354.9792 R 12081



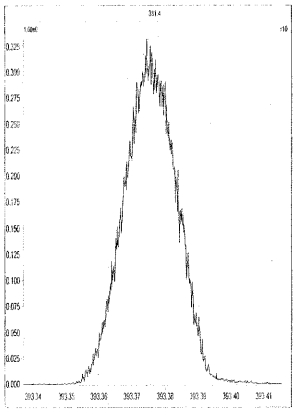
M 366.9792 R 11734



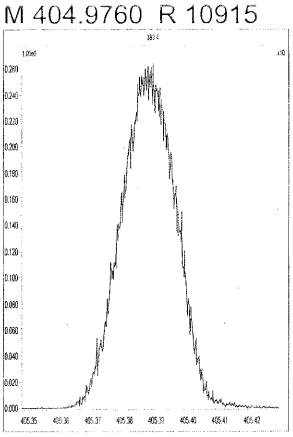
M 380.9760 R 11575



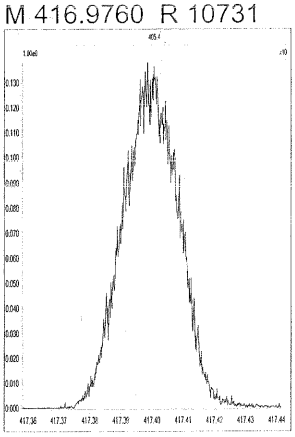
M 392.9760 R 11415



M 404.9760 R 10915



M 416.9760 R 10731

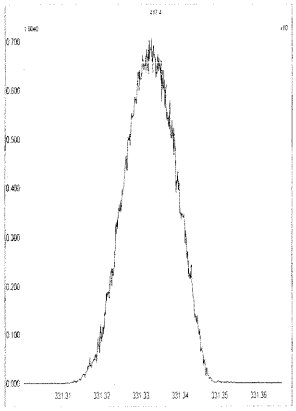


Experiment Calibration Report **MassLynx 4.1**

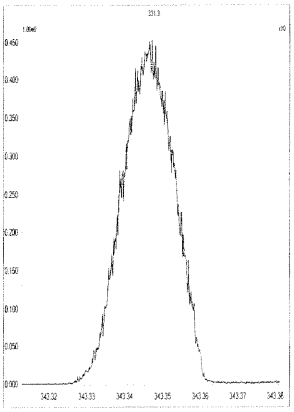
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, May 21, 2014 13:07:33 Central Daylight Time

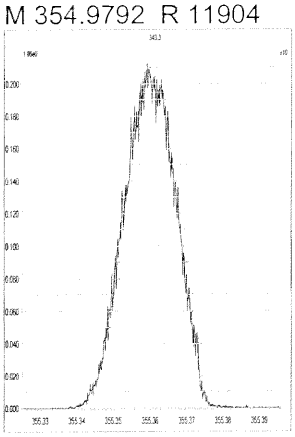
M 330.9792 R 11517



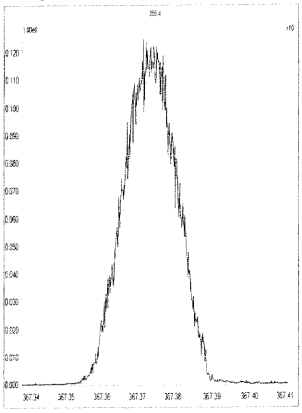
M 342.9792 R 11683



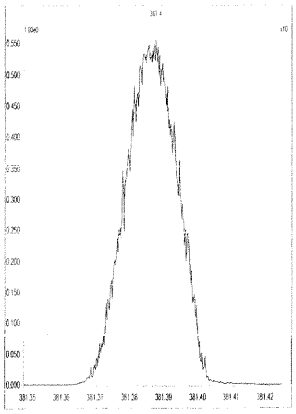
M 354.9792 R 11904



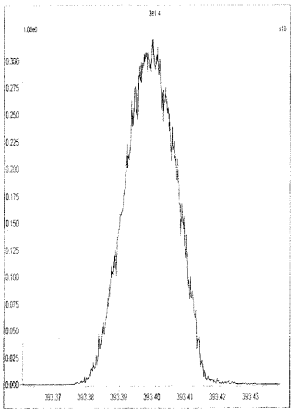
M 366.9792 R 11846



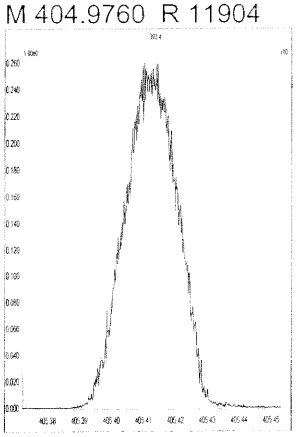
M 380.9760 R 12138



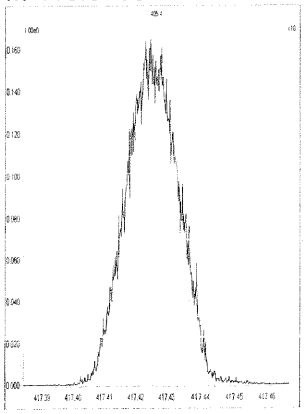
M 392.9760 R 11962



M 404.9760 R 11904



M 416.9760 R 12075

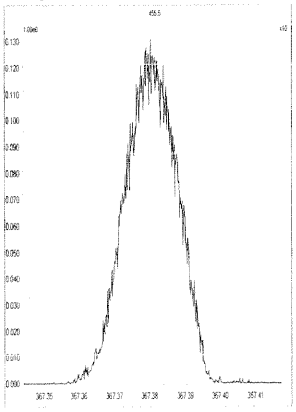


Experiment Calibration Report **MassLynx 4.1**

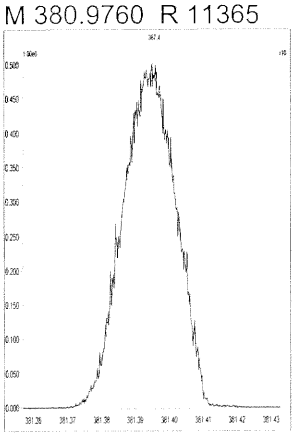
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, May 21, 2014 13:08:08 Central Daylight Time

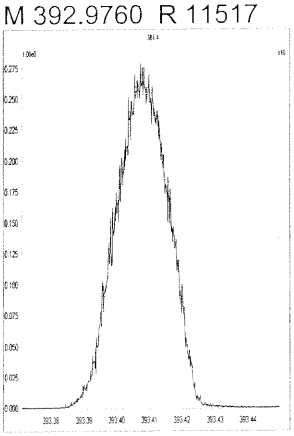
M 366.9792 R 11310



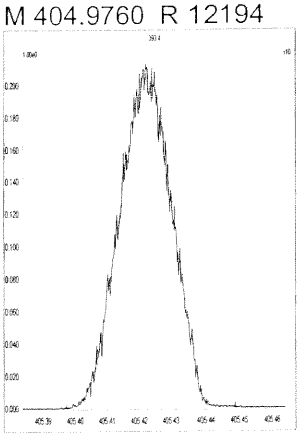
M 380.9760 R 11365



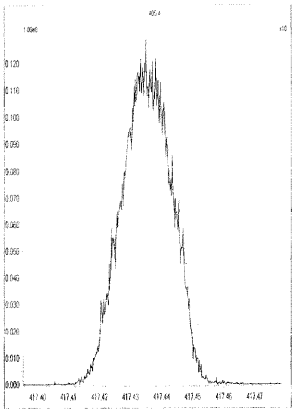
M 392.9760 R 11517



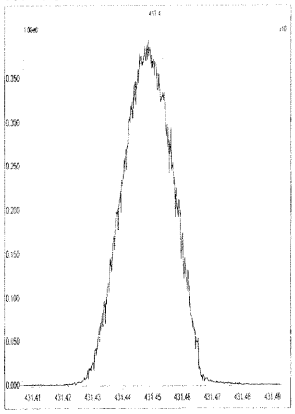
M 404.9760 R 12194



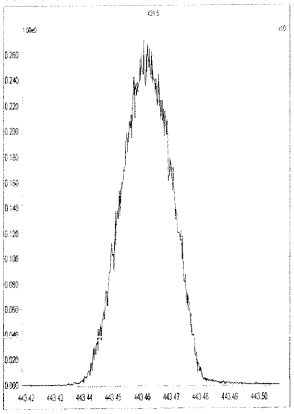
M 416.9760 R 12253



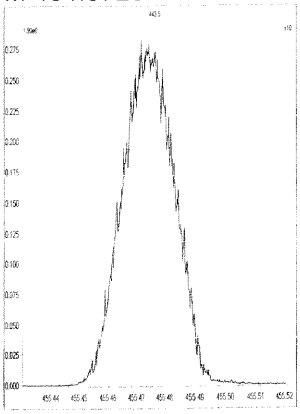
M 430.9728 R 12193



M 442.9728 R 12196



M 454.9728 R 12254

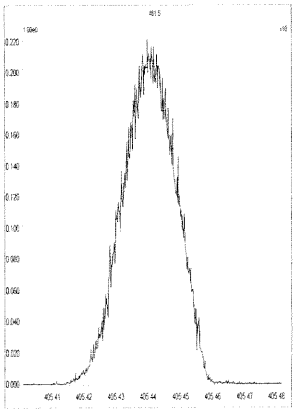


Experiment Calibration Report **MassLynx 4.1**

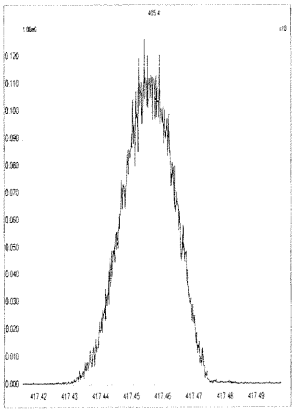
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, May 21, 2014 13:08:42 Central Daylight Time

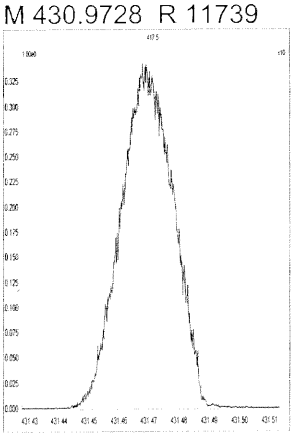
M 404.9760 R 11211



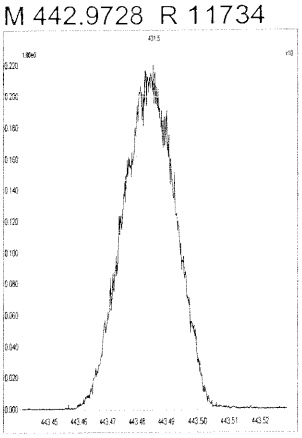
M 416.9760 R 11160



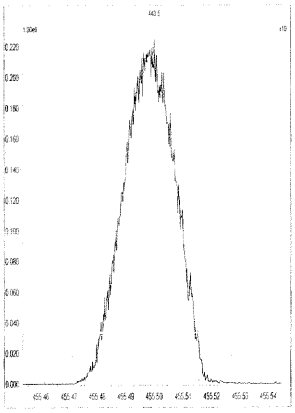
M 430.9728 R 11739



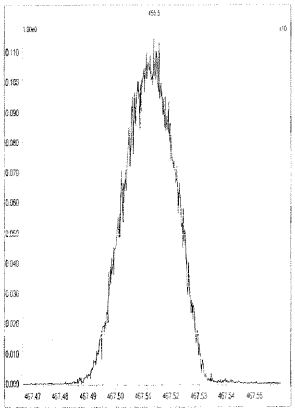
M 442.9728 R 11734



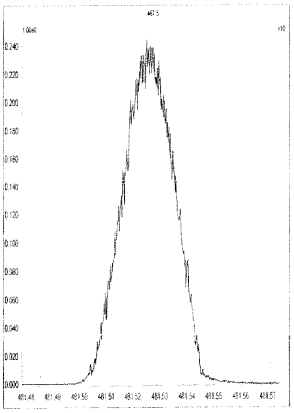
M 454.9728 R 12019



M 466.9728 R 12018



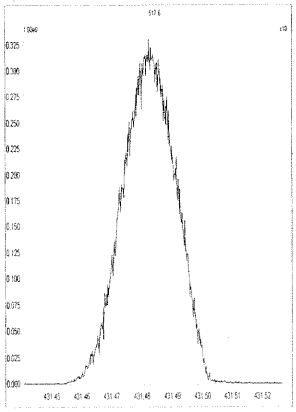
M 480.9696 R 12080



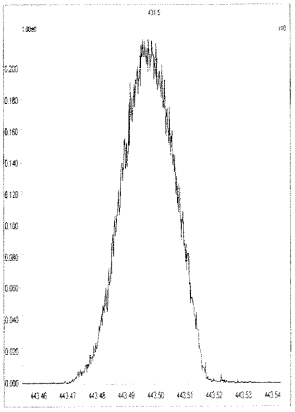
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, May 21, 2014 13:09:07 Central Daylight Time

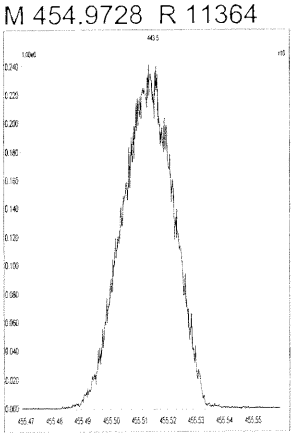
M 430.9728 R 11209



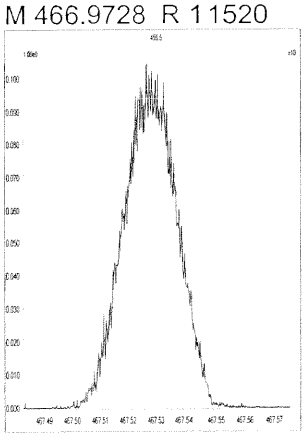
M 442.9728 R 11522



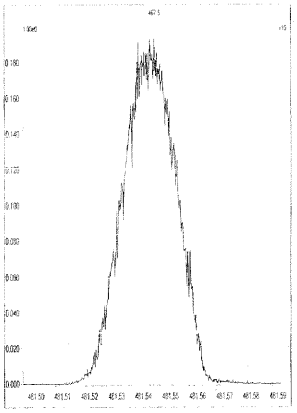
M 454.9728 R 11364



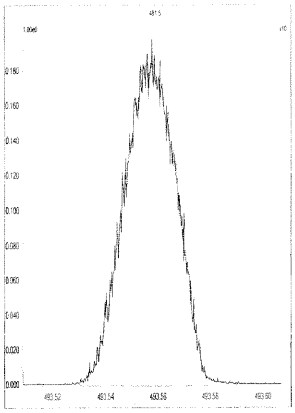
M 466.9728 R 11520



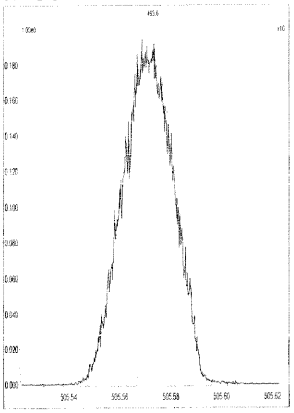
M 480.9696 R 11740



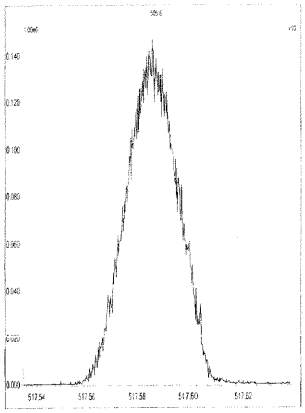
M 492.9696 R 11906



M 504.9696 R 11962



M 516.9697 R 11848

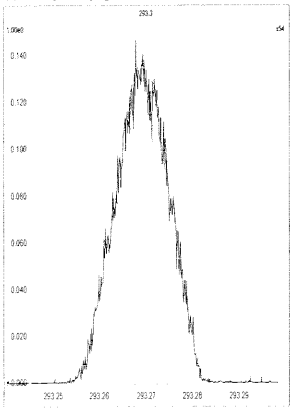


Experiment Calibration Report **MassLynx 4.1**

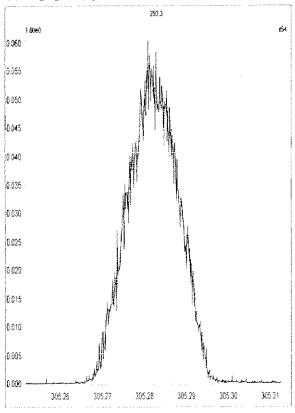
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, May 22, 2014 08:30:22 Central Daylight Time

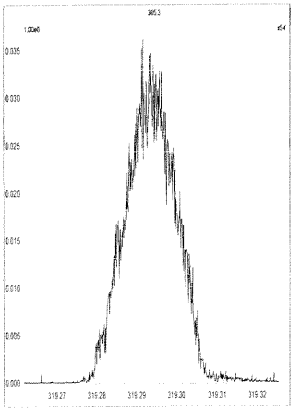
M 292.9824 R 12135



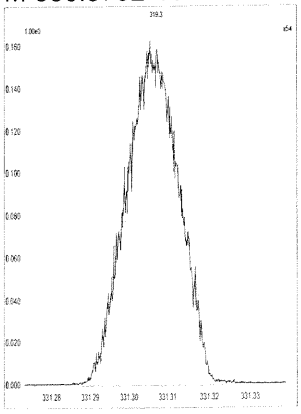
M 304.9824 R 11846



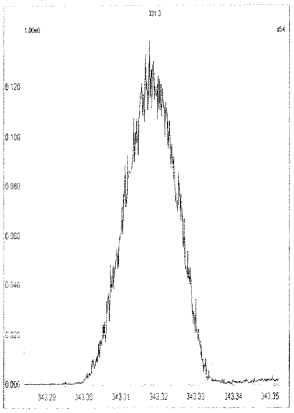
M 318.9792 R 12074



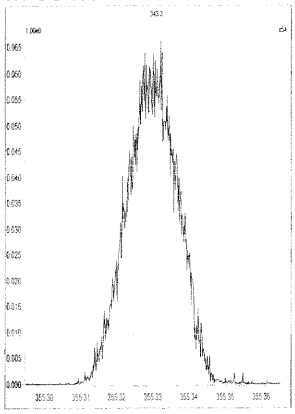
M 330.9792 R 11683



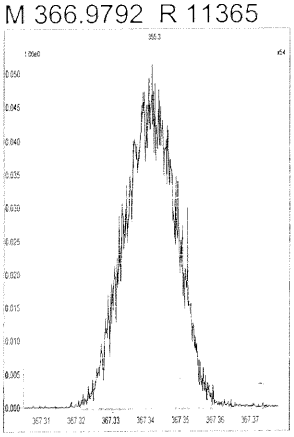
M 342.9792 R 11520



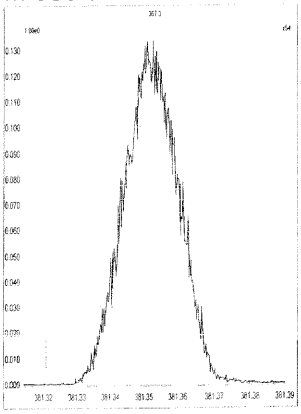
M 354.9792 R 11626



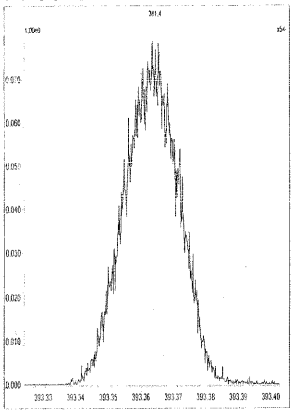
M 366.9792 R 11365



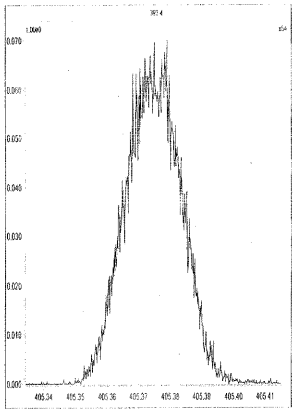
M 380.9760 R 10965



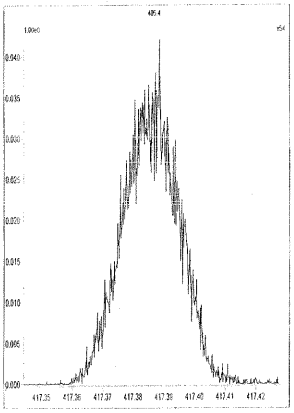
M 392.9760 R 10964



M 404.9760 R 10415



M 416.9760 R 10374

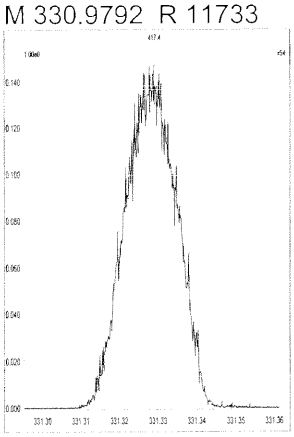


Experiment Calibration Report **MassLynx 4.1**

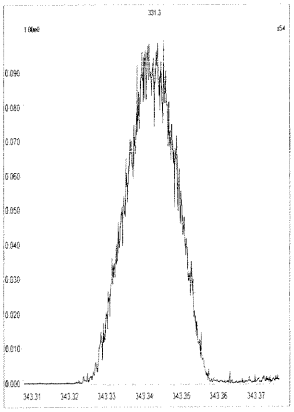
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, May 22, 2014 08:31:35 Central Daylight Time

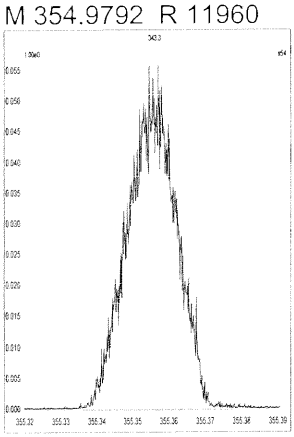
M 330.9792 R 11733



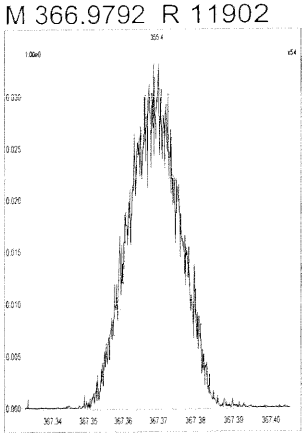
M 342.9792 R 11962



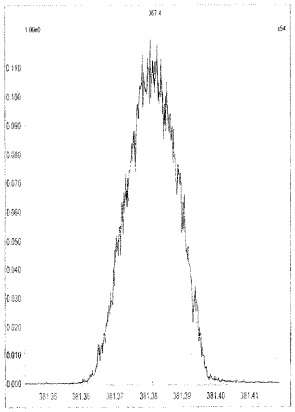
M 354.9792 R 11960



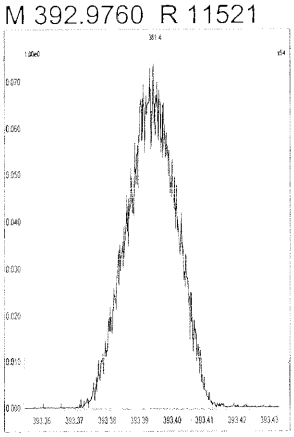
M 366.9792 R 11902



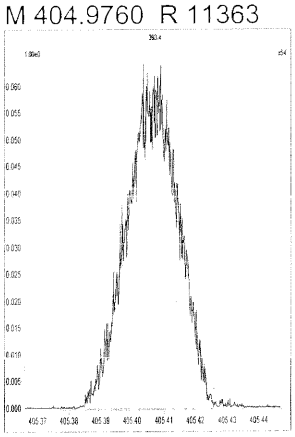
M 380.9760 R 11789



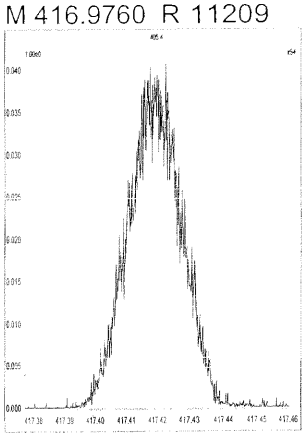
M 392.9760 R 11521



M 404.9760 R 11363



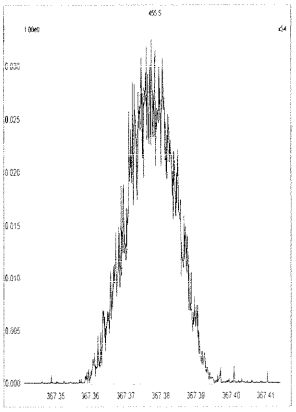
M 416.9760 R 11209



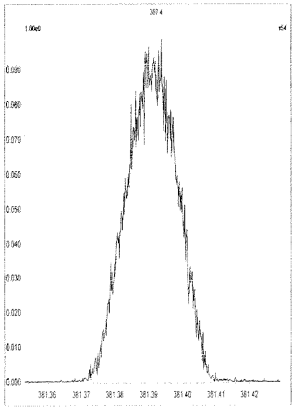
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, May 22, 2014 08:32:39 Central Daylight Time

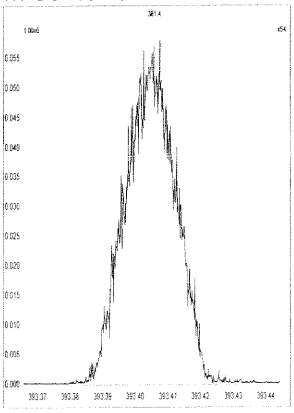
M 366.9792 R 12253



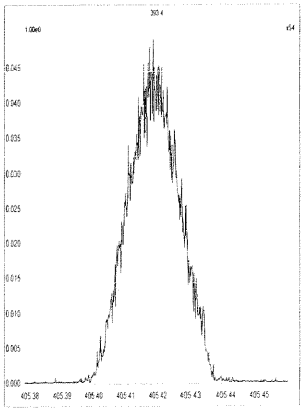
M 380.9760 R 12257



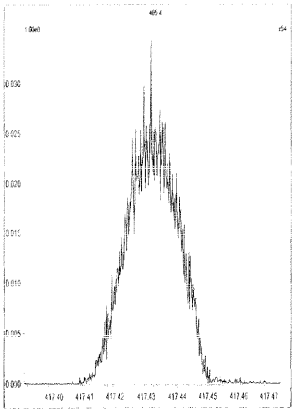
M 392.9760 R 11962



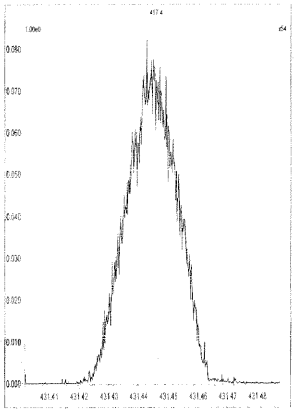
M 404.9760 R 11792



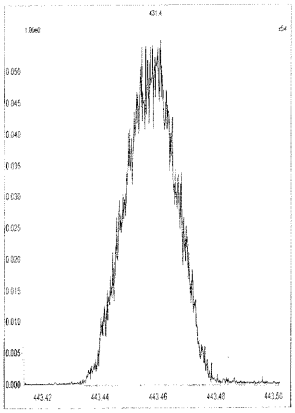
M 416.9760 R 11960



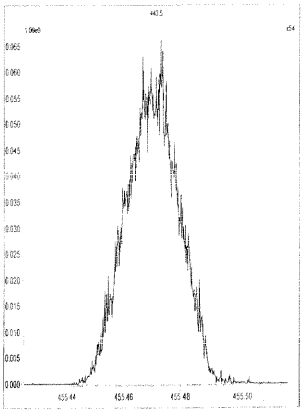
M 430.9728 R 11259



M 442.9728 R 11738



M 454.9728 R 11682

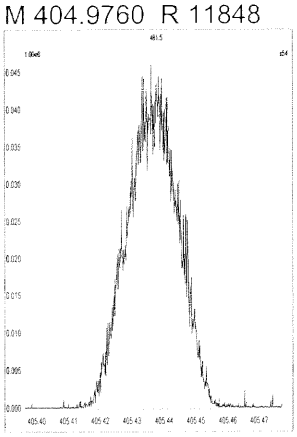


Experiment Calibration Report **MassLynx 4.1**

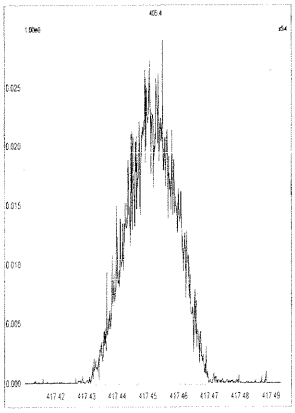
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, May 22, 2014 08:33:36 Central Daylight Time

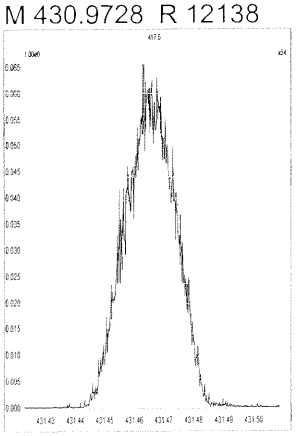
M 404.9760 R 11848



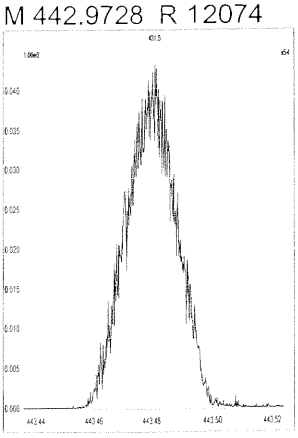
M 416.9760 R 12258



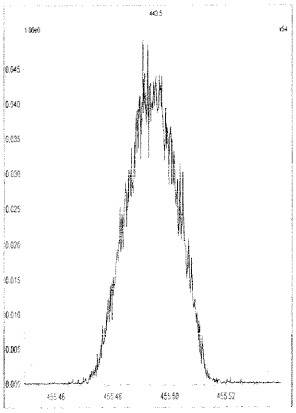
M 430.9728 R 12138



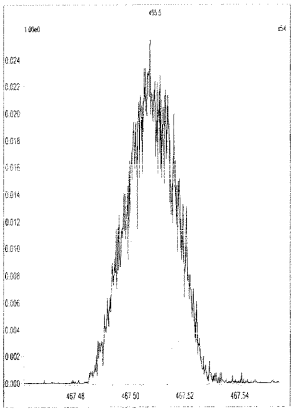
M 442.9728 R 12074



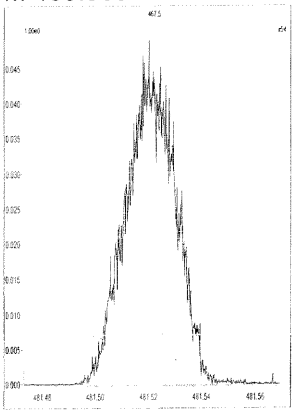
M 454.9728 R 11905



M 466.9728 R 12018



M 480.9696 R 12253

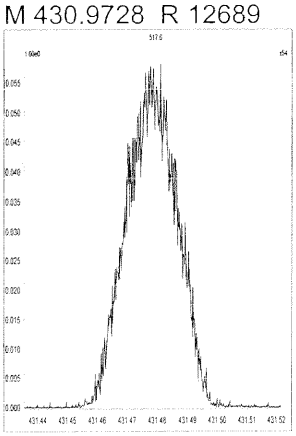


Experiment Calibration Report **MassLynx 4.1**

File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, May 22, 2014 08:34:33 Central Daylight Time

M 430.9728 R 12689



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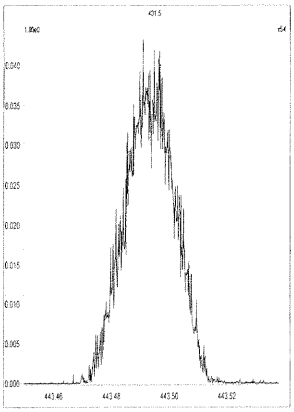

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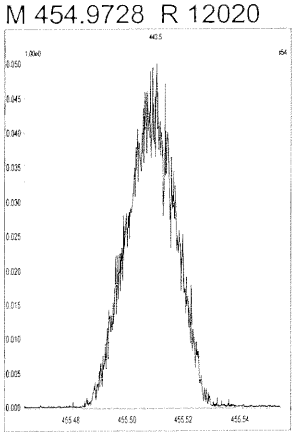

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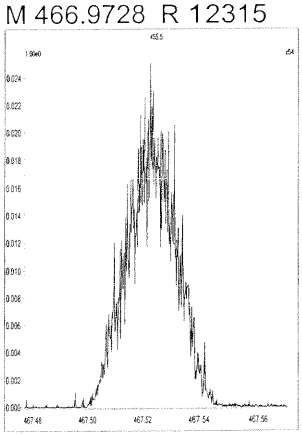

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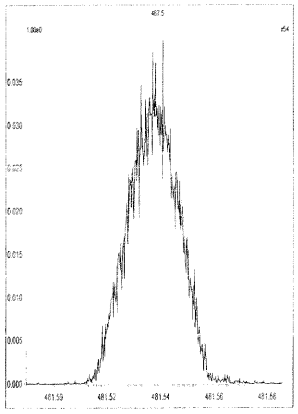
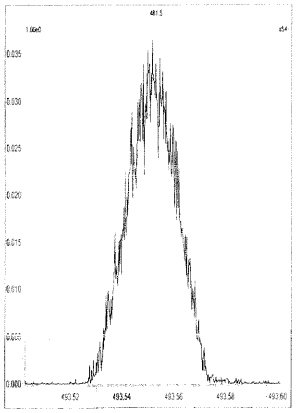
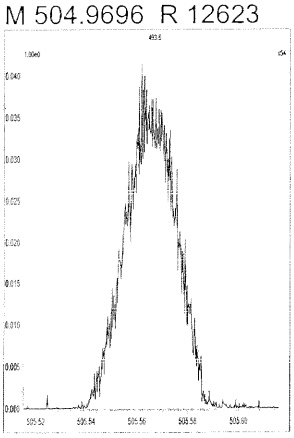


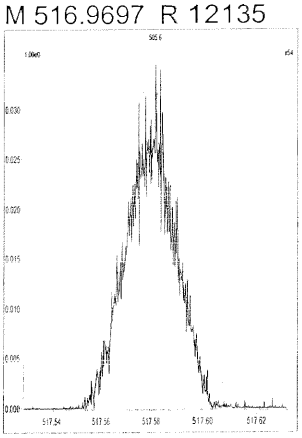
M 492.9696 R 12628



M 504.9696 R 12623



M 516.9697 R 12135



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-01
Init. Calib. Date(s).: 05/21/2014 Analyte Table: 1613u
Init. Calib. Time.: 13:12:29

Target Analytes	RR/RRF CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDF	1.02	0.94	0.90	0.92	0.94	0.94	0.94	3.98	+/-20%
1,2,3,7,8-PeCDF	0.97	1.01	0.98	0.98	0.99	0.93	0.98	2.76	+/-20%
2,3,4,7,8-PeCDF	0.92	0.93	0.93	0.93	0.94	0.99	0.94	2.83	+/-20%
1,2,3,4,7,8-HxCDF	1.20	1.29	1.21	1.22	1.24	1.20	1.23	2.81	+/-20%
1,2,3,6,7,8-HxCDF	1.13	1.16	1.14	1.14	1.16	1.17	1.15	1.47	+/-20%
2,3,4,6,7,8-HxCDF	1.11	1.17	1.12	1.14	1.16	1.12	1.14	1.92	+/-20%
1,2,3,7,8,9-HxCDF	1.08	1.16	1.18	1.16	1.18	1.14	1.15	3.27	+/-20%
1,2,3,4,6,7,8-HpCDF	1.45	1.47	1.38	1.43	1.44	1.39	1.43	2.31	+/-20%
1,2,3,4,7,8,9-HpCDF	1.38	1.32	1.34	1.32	1.37	1.42	1.36	2.72	+/-20%
OCDF	1.34	1.40	1.32	1.36	1.40	1.29	1.35	3.53	+/-20%
2,3,7,8-TCDD	1.01	1.17	0.95	0.98	0.99	0.98	1.01	7.68	+/-20%
1,2,3,7,8-PeCDD	0.98	1.04	1.01	1.03	1.03	1.05	1.03	2.27	+/-20%
1,2,3,4,7,8-HxCDD	1.08	1.11	1.11	1.12	1.15	1.24	1.13	4.92	+/-20%
1,2,3,6,7,8-HxCDD	1.07	1.17	1.11	1.12	1.16	1.00	1.11	5.44	+/-20%
1,2,3,7,8,9-HxCDD	1.19	1.25	1.21	1.23	1.25	1.18	1.22	2.53	+/-20%
1,2,3,4,6,7,8-HpCDD	1.16	1.12	1.04	1.03	1.03	1.02	1.07	5.49	+/-20%
OCDD	1.22	1.23	1.17	1.18	1.19	1.07	1.18	4.76	+/-20%
13C-2,3,7,8-TCDF	1.38	1.38	1.39	1.37	1.69	1.39	1.43	8.64	+/-35%
13C-1,2,3,7,8-PeCDF	1.74	1.74	1.73	1.78	2.63	1.90	1.92	18.44	+/-35%
13C-2,3,4,7,8-PeCDF	1.72	1.71	1.71	1.75	2.52	1.81	1.87	17.14	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.19	1.15	1.15	1.13	1.18	1.23	1.17	3.14	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.35	1.33	1.35	1.31	1.37	1.32	1.34	1.79	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.25	1.23	1.23	1.21	1.26	1.26	1.24	1.62	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.15	1.13	1.12	1.12	1.17	1.16	1.14	1.87	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.00	0.96	0.88	0.95	1.00	1.01	0.97	5.01	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.90	0.88	0.82	0.88	0.93	0.87	0.88	4.20	+/-35%
13C-2,3,7,8-TCDD	0.96	0.96	0.98	0.99	1.40	1.03	1.05	16.26	+/-35%
13C-1,2,3,7,8-PeCDD	1.11	1.11	1.11	1.13	1.73	1.22	1.24	19.79	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.88	0.85	0.88	0.85	0.88	0.88	0.87	1.87	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.95	0.93	0.92	0.93	0.96	1.03	0.95	4.35	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.96	0.92	0.87	0.91	0.97	0.98	0.94	4.51	+/-35%
13C-OCDD	0.72	0.71	0.68	0.72	0.76	0.84	0.74	7.74	+/-35%
13C-1,2,3,4-TCDD	-	-	-	-	-	-	-	-	
13C-1,2,3,7,8,9-HxCDD	-	-	-	-	-	-	-	-	
37Cl-2,3,7,8-TCDD	0.92	0.91	0.98	1.00	1.43	1.04	1.04	18.58	+/-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

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-01
Init. Calib. Date(s).: 05/21/2014 Analyte Table: 1613u
Init. Calib. Time.: 13:12:29

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	0.60	0.70	0.78	0.76	0.76	0.76		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.52	1.54	1.57	1.55	1.57	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.53	1.54	1.55	1.55	1.55	1.54		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.33	1.26	1.24	1.21	1.25	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.23	1.23	1.21	1.24	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.10	1.19	1.23	1.22	1.23	1.21		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.27	1.30	1.28	1.26	1.21	1.27		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.99	1.05	1.02	1.04	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.08	1.07	1.02	1.04	1.03	1.03		0.88-1.20
OCDF	442/444	0.89	0.95	0.89	0.90	0.90	0.91		0.76-1.02
2,3,7,8-TCDD	320/322	0.75	0.81	0.83	0.80	0.80	0.80		0.65-0.89
1,2,3,7,8-PeCDD	356/358	1.69	1.61	1.60	1.57	1.60	1.59		1.32-1.78
1,2,3,4,7,8-HxCDD	390/392	1.28	1.33	1.23	1.25	1.25	1.25		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.26	1.29	1.24	1.26	1.25	1.25		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.15	1.21	1.26	1.24	1.24	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDD	424/426	0.99	0.93	1.02	1.05	1.04	1.05		0.88-1.20
OCDD	458/460	0.81	0.91	0.87	0.89	0.89	0.88		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.81	0.82	0.81	0.82	0.80	0.81		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.58	1.58	1.59	1.58	1.56		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.59	1.60	1.58	1.57	1.58	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.51	0.51	0.52	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.52	0.51	0.52	0.53	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	0.53	0.52	0.52	0.51	0.51	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.46		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.46	0.46	0.46	0.46	0.46		0.37-0.51
13C-2,3,7,8-TCDD	332/334	0.77	0.79	0.78	0.78	0.77	0.78		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.58	1.56	1.58	1.58	1.57	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.33	1.32	1.32	1.30	1.31	1.29		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.30	1.30	1.31	1.30	1.31	1.29		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.07	1.09	1.07	1.07	1.08	1.07		0.88-1.20
13C-OCDD	470/472	0.90	0.92	0.92	0.92	0.92	0.92		0.76-1.02
13C-1,2,3,4-TCDD	332/334	0.78	0.78	0.78	0.79	0.78	0.78		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.24	1.29	1.29	1.29	1.26	1.26		1.05-1.43
37Cl-2,3,7,8-TCDD	328								

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.

5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

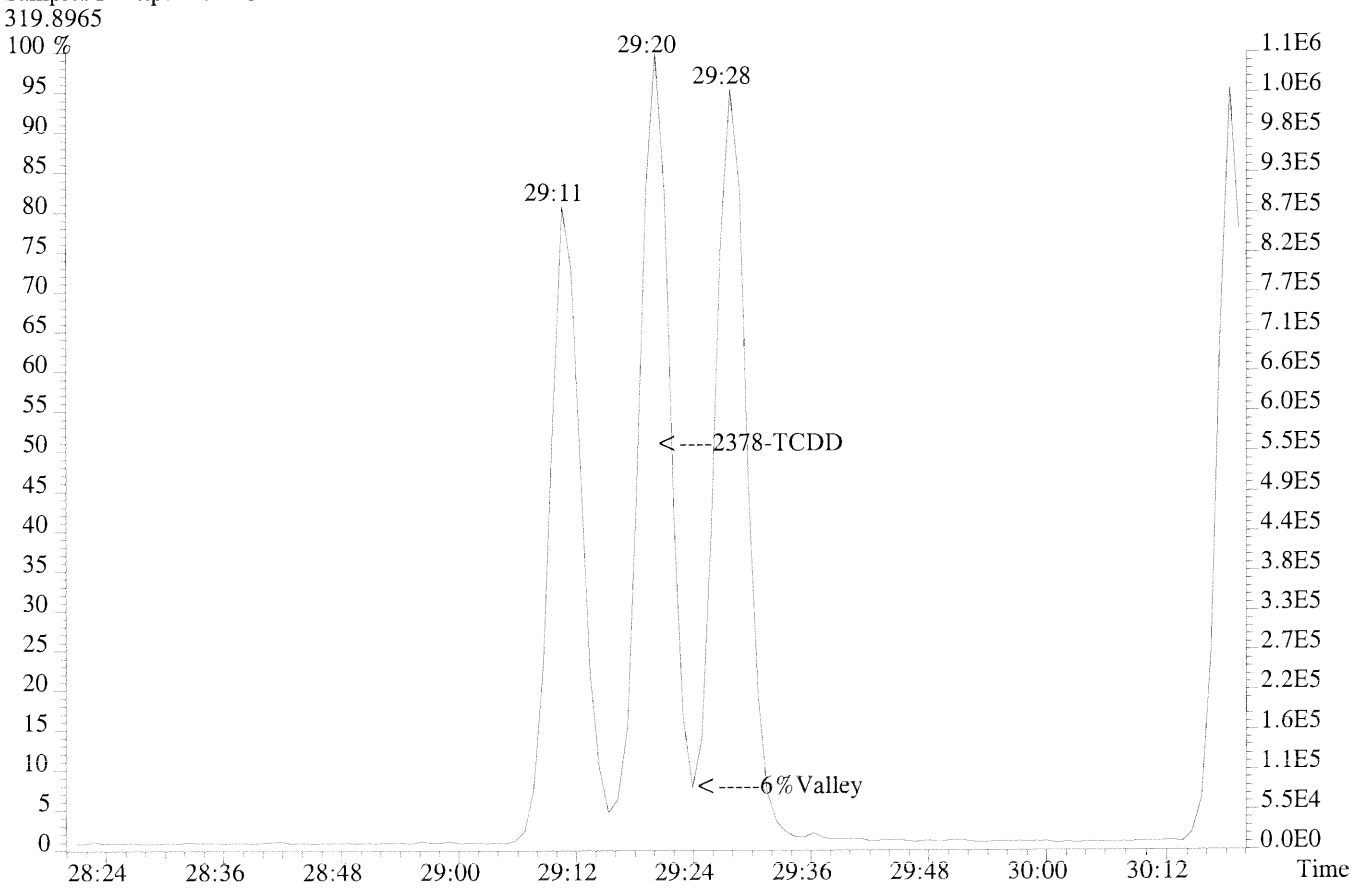
WDM

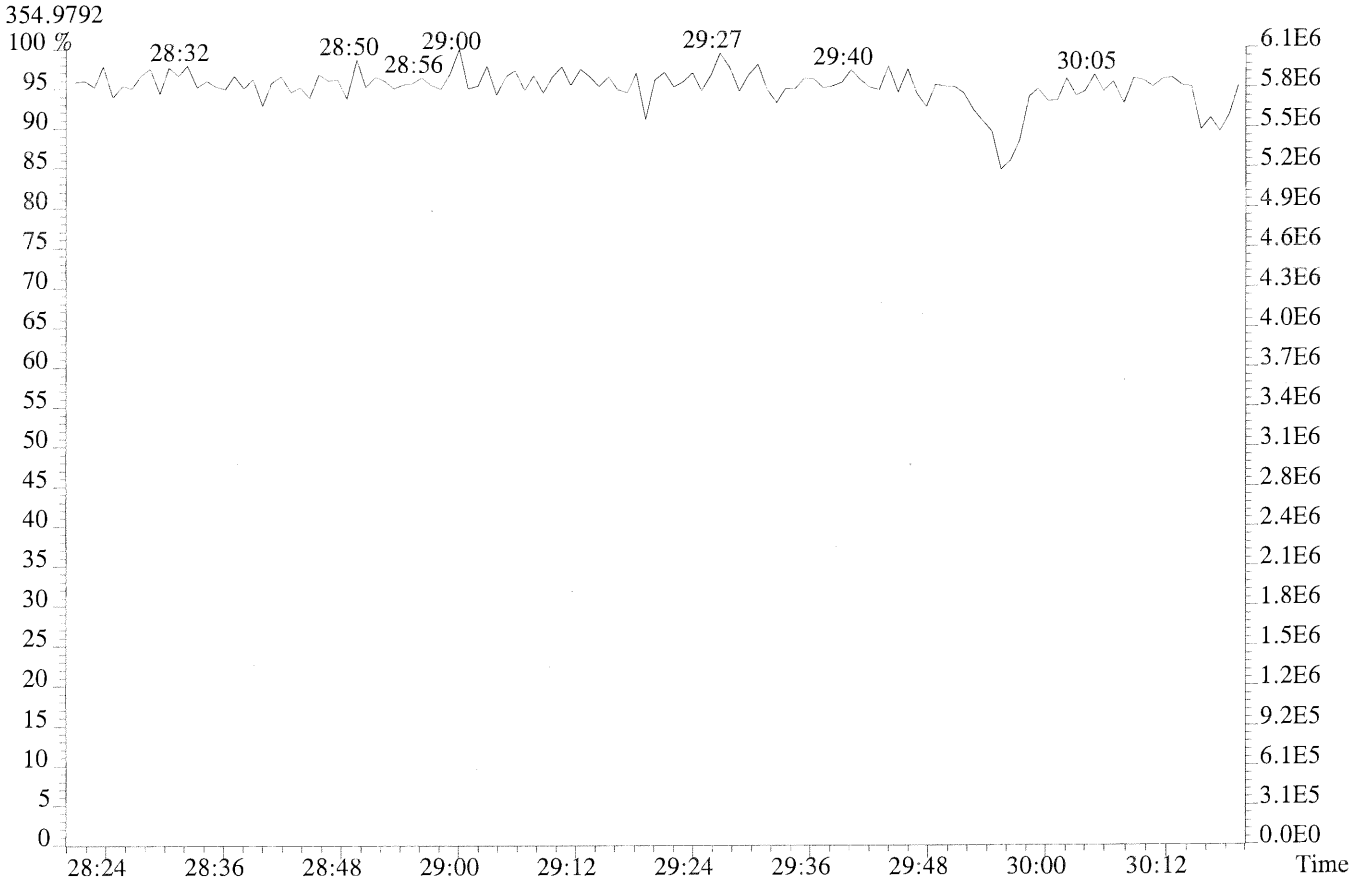
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411 Case No.: SDG No.:
GC Column: DB-5msUI ID: 0.25 (mm) Lab File ID: U149170
Date Analyzed: 21-MAY-2014
Time Analyzed: 13:12:29

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:15	30:29
TCDD	26:08	30:18
PeCDF	30:23	34:34
PeCDD	31:53	34:18
HxCDF	35:11	37:41
HxCDD	35:42	37:16
HpCDF	38:52	40:19
HpCDD	39:07	39:49

% Valley 2378-TCDD: 6 %

File:U149170 #1-627 Acq:21-MAY-2014 13:12:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





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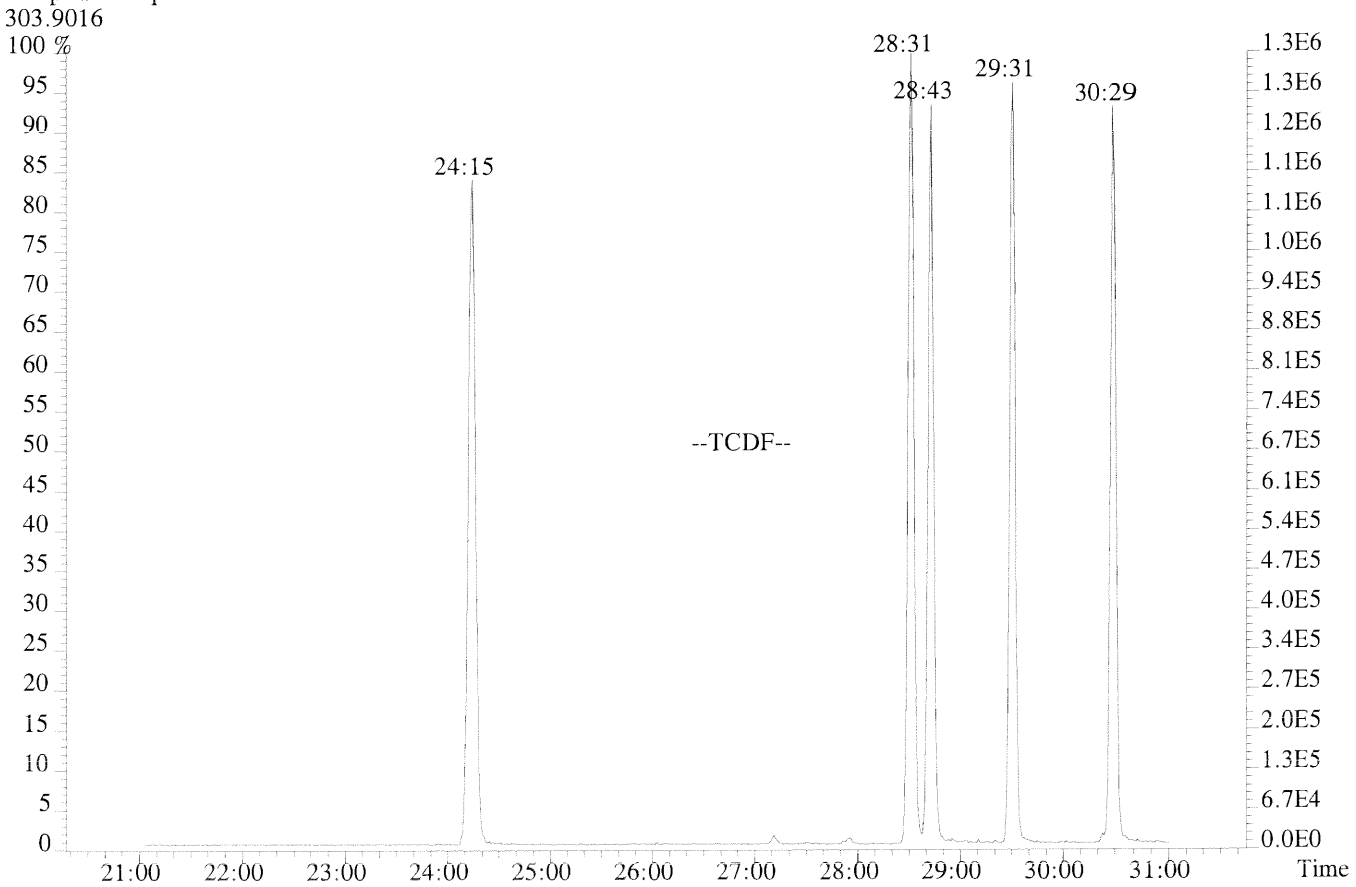
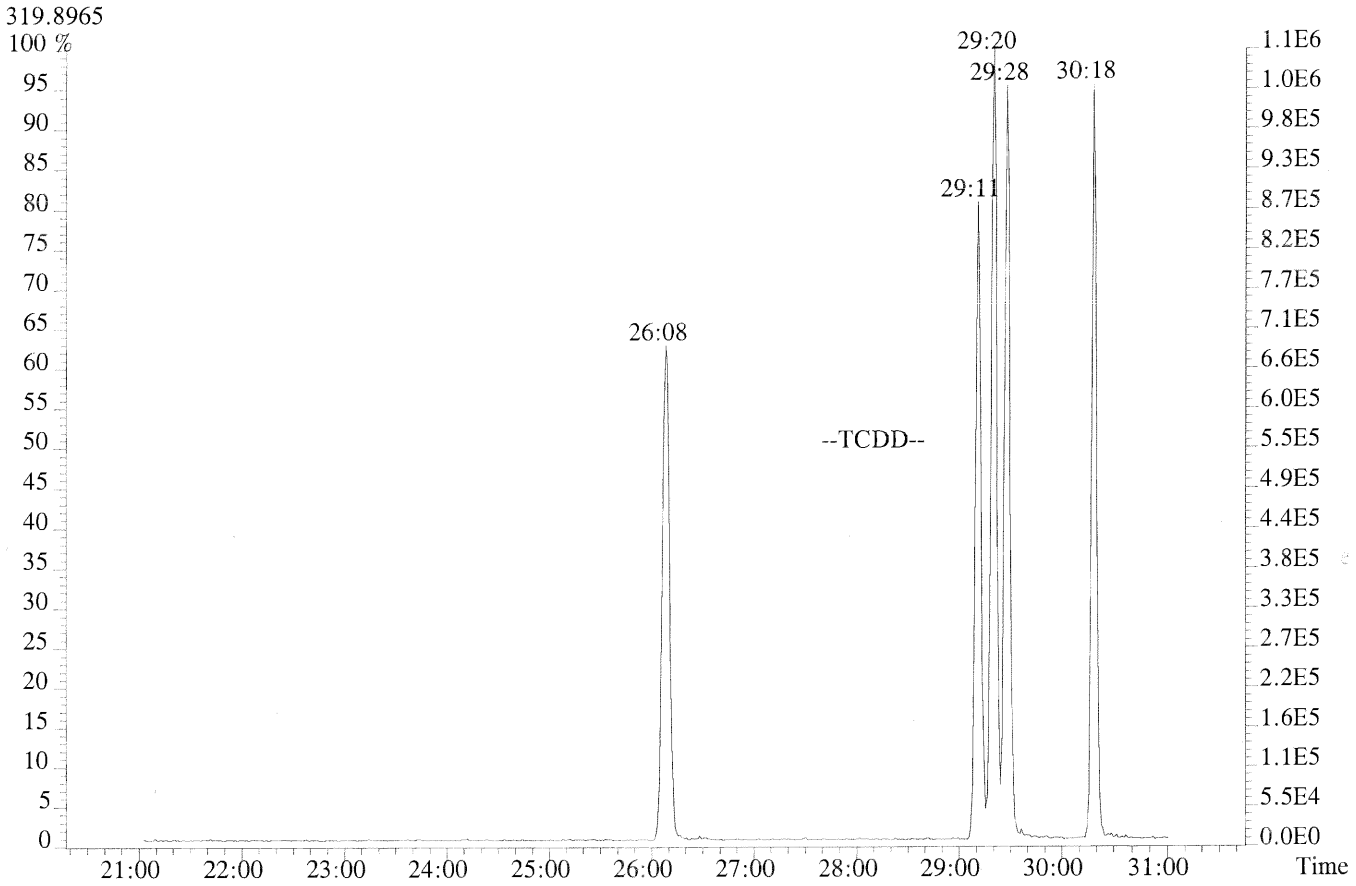
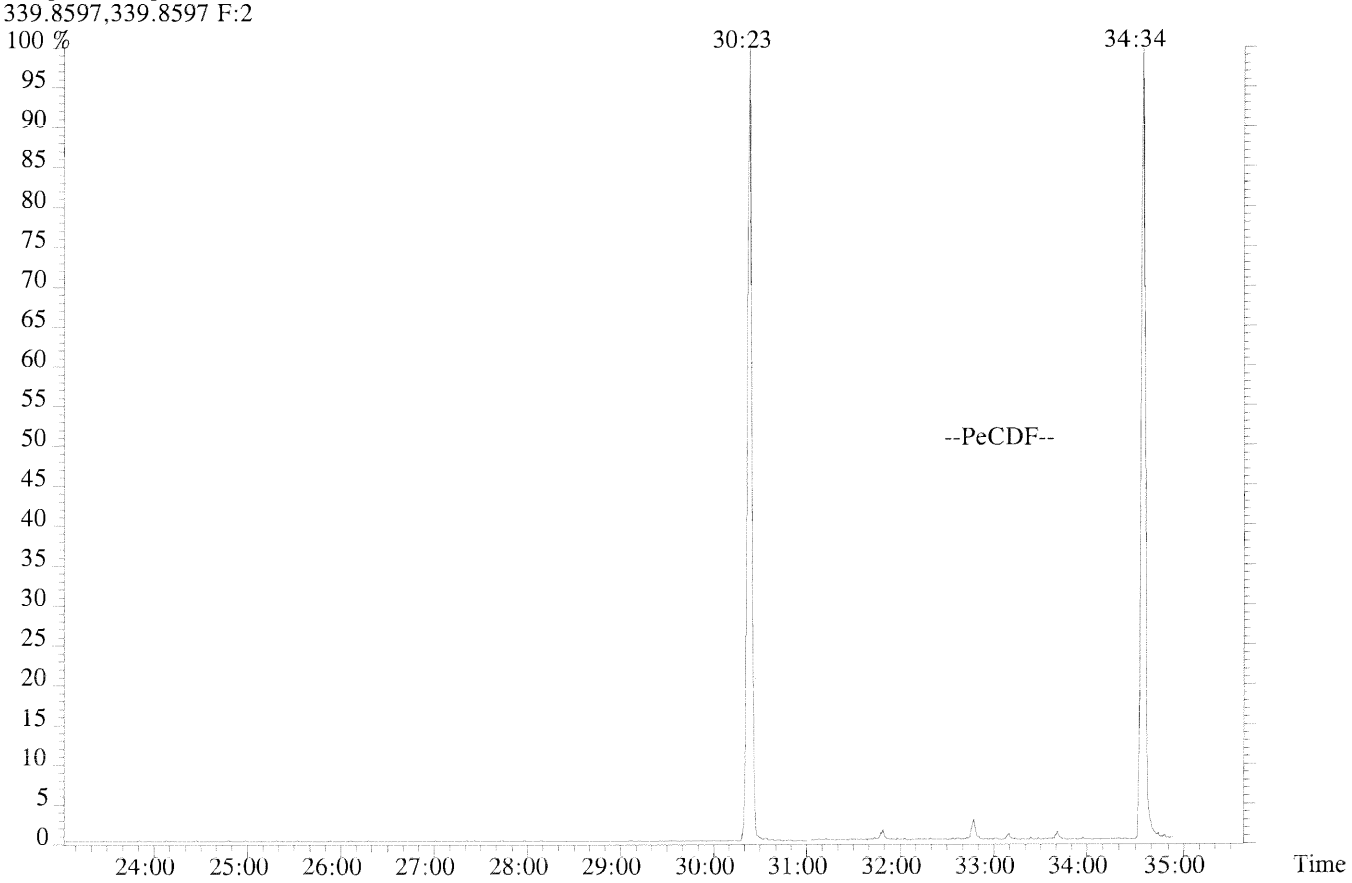
Sample#1 Exp:WINDOW DEFINE

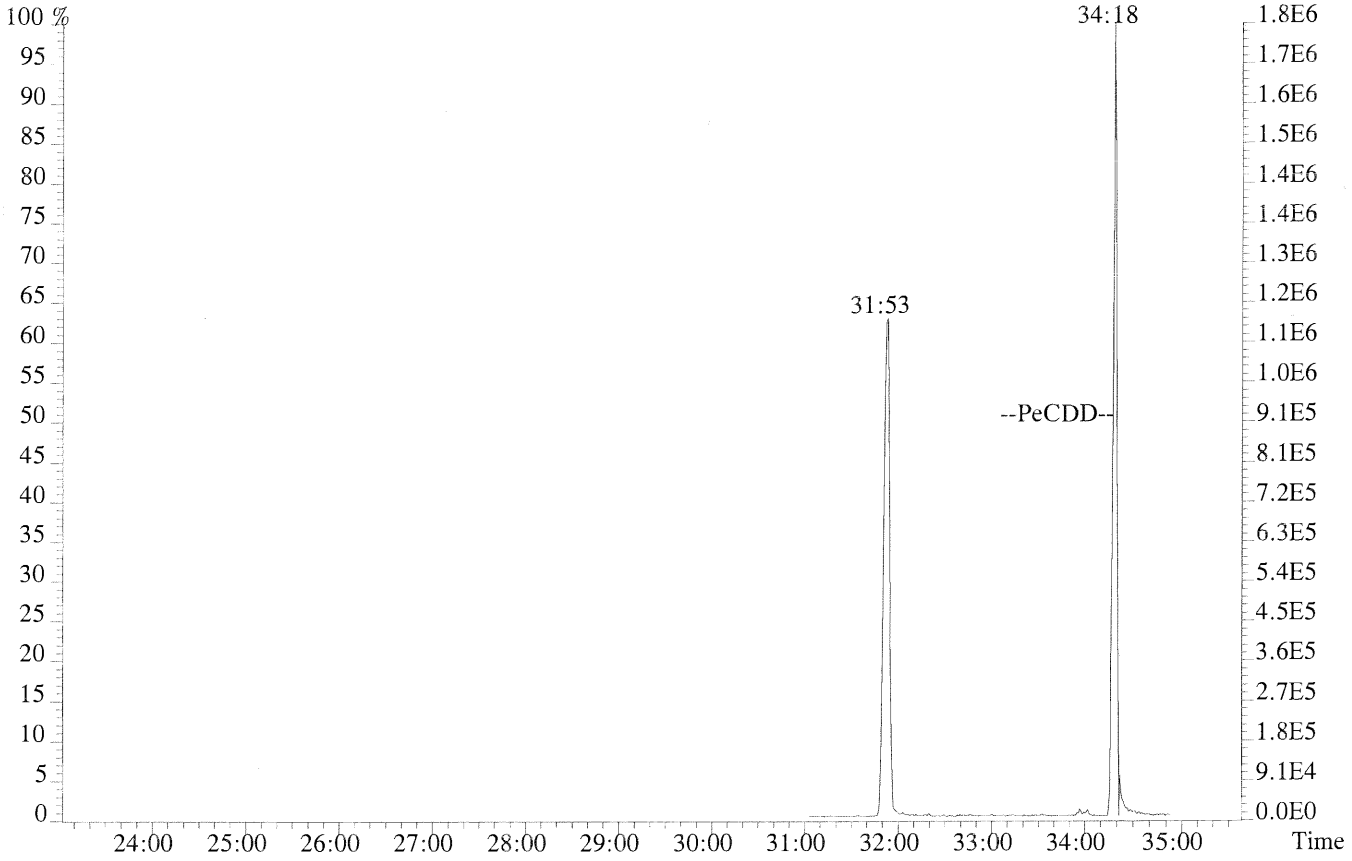




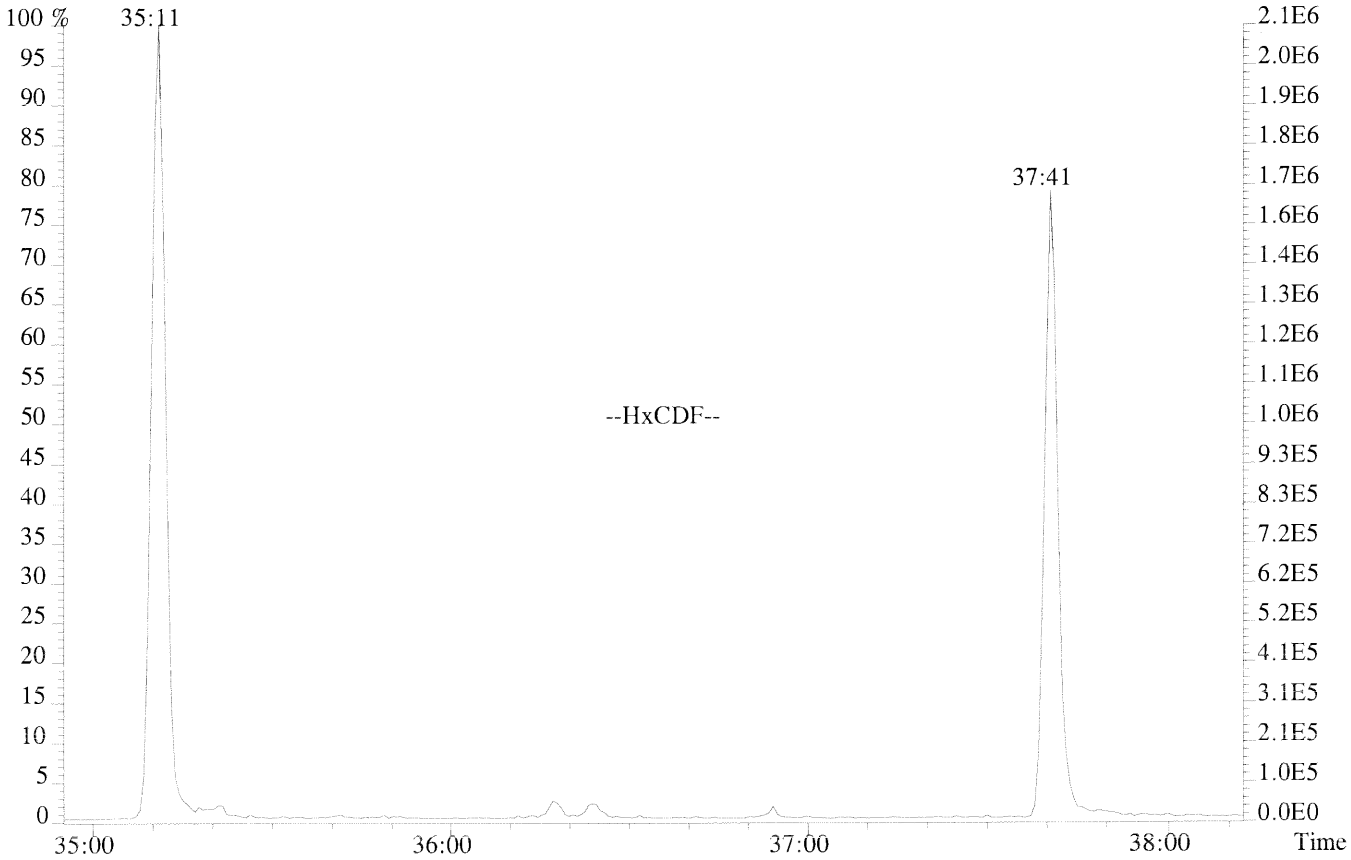
File:U149170 #1-627 Acq:21-MAY-2014 13:12:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



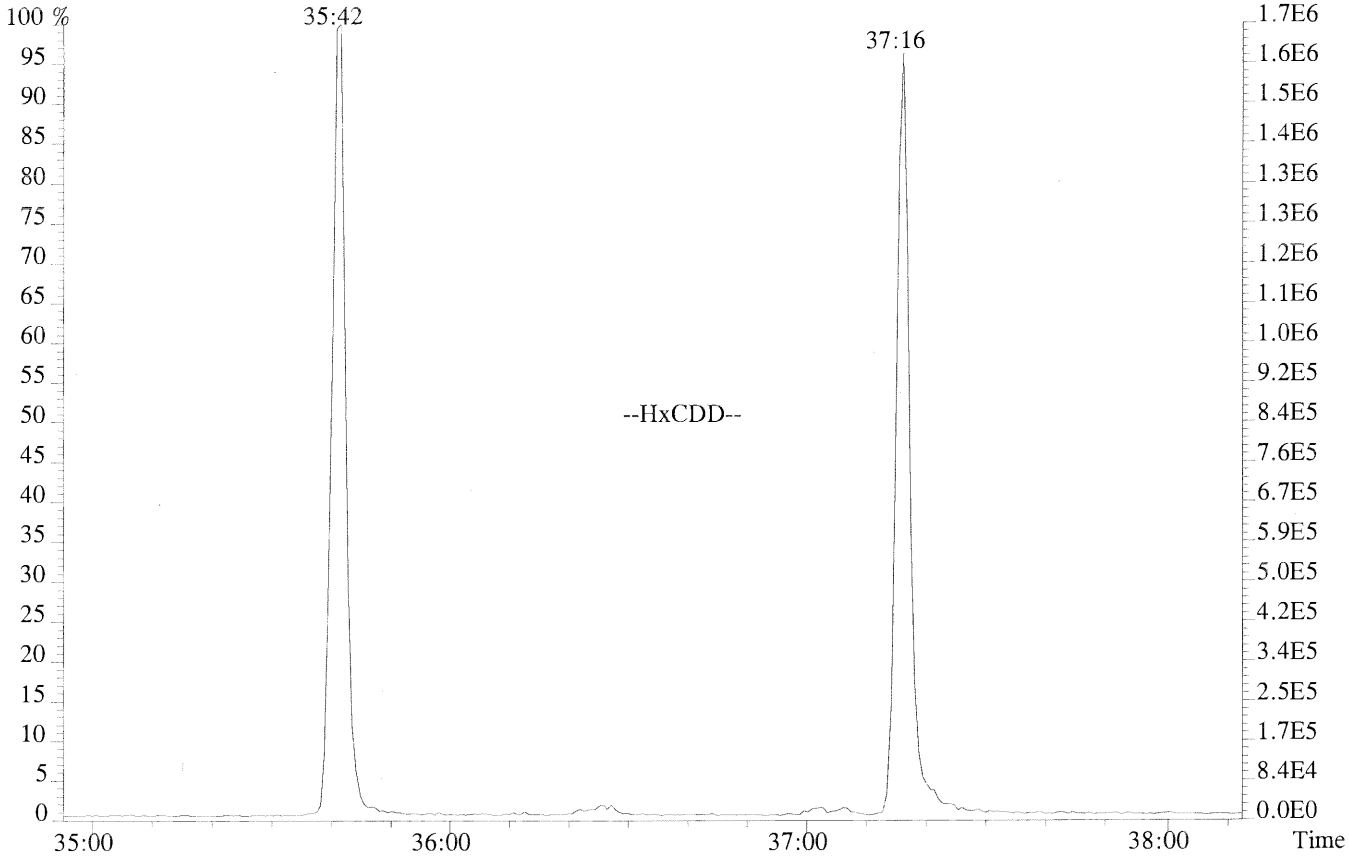
355.8546 F:2



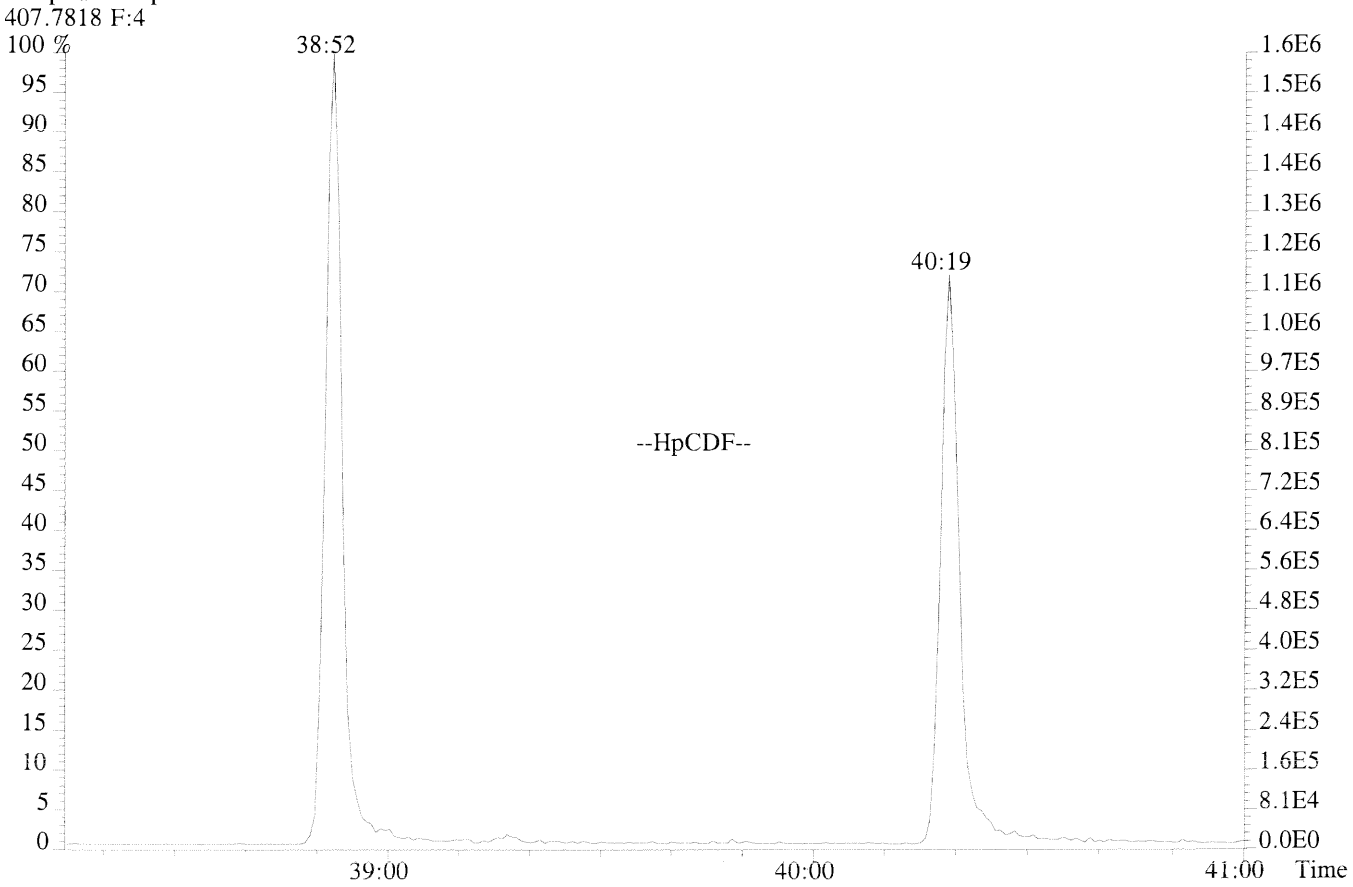
File:U149170 #1-299 Acq:21-MAY-2014 13:12:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3

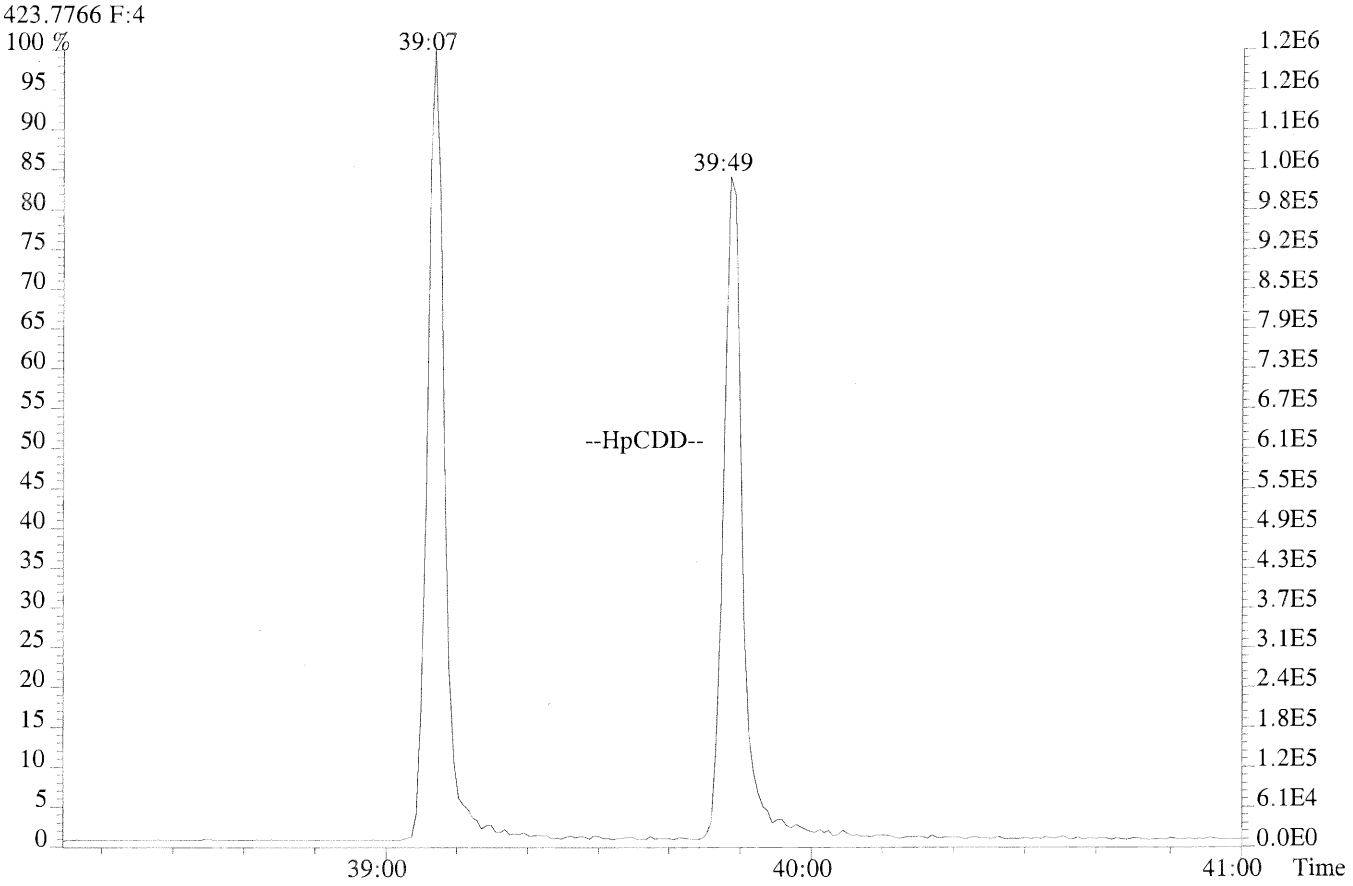


389.8157 F:3



File:U149170 #1-251 Acq:21-MAY-2014 13:12:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
CS0.5

Run #1 Filename U149172 Samp: 1 Inj: 1 Acquired: 21-MAY-14 14:47:46
Processed: 23-MAY-14 08:49:33 Sample ID: 66807

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	5.557e+01	9.248e+01	0.60	no	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:47	5.363e+02	3.535e+02	1.52	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:40	5.041e+02	3.294e+02	1.53	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:17	4.616e+02	3.470e+02	1.33	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:24	4.816e+02	3.775e+02	1.28	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:54	4.119e+02	3.741e+02	1.10	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	3.911e+02	3.086e+02	1.27	yes	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	4.070e+02	4.094e+02	0.99	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:19	3.646e+02	3.384e+02	1.08	yes	no	1.359
10	Unk	OCDF	42:53	5.092e+02	5.736e+02	0.89	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:28	4.397e+01	5.843e+01	0.75	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:57	3.638e+02	2.152e+02	1.69	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:01	3.015e+02	2.353e+02	1.28	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:06	3.210e+02	2.554e+02	1.26	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:20	3.285e+02	2.863e+02	1.15	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:49	3.125e+02	3.172e+02	0.99	yes	no	1.065
17	Unk	OCDD	42:40	4.443e+02	5.457e+02	0.81	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:41	2.605e+04	3.228e+04	0.81	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:45	4.494e+04	2.836e+04	1.58	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:39	4.447e+04	2.806e+04	1.59	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	1.819e+04	3.557e+04	0.51	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.074e+04	4.017e+04	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:53	1.933e+04	3.716e+04	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	1.796e+04	3.394e+04	0.53	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:51	1.408e+04	3.112e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	1.269e+04	2.801e+04	0.45	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:26	1.771e+04	2.294e+04	0.77	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:55	2.878e+04	1.824e+04	1.58	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	2.272e+04	1.714e+04	1.33	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	2.428e+04	1.869e+04	1.30	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:48	2.247e+04	2.096e+04	1.07	yes	no	0.936
32	IS	13C-OCDD	42:38	3.077e+04	3.409e+04	0.90	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:51	1.846e+04	2.375e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.499e+04	2.020e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	9.659e+01				no	1.044

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
CS0.5

Run #1 Filename U149172 Samp: 1 Inj: 1 Acquired: 21-MAY-14 14:47:46
Processed: 22-MAY-14 12:57:491 LAB. ID: 66807

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	1.26e+04	5.92e+02	2.1e+01	2.02e+04	8.76e+02	2.3e+01
	1,2,3,7,8-PeCDF	1.03e+05	7.84e+02	1.3e+02	6.62e+04	1.22e+03	5.4e+01
3	2,3,4,7,8-PeCDF	1.04e+05	7.84e+02	1.3e+02	6.34e+04	1.22e+03	5.2e+01
	1,2,3,4,7,8-HxCDF	1.03e+05	1.12e+03	9.2e+01	7.37e+04	1.03e+03	7.1e+01
5	1,2,3,6,7,8-HxCDF	9.85e+04	1.12e+03	8.8e+01	8.12e+04	1.03e+03	7.9e+01
6	2,3,4,6,7,8-HxCDF	8.70e+04	1.12e+03	7.8e+01	7.98e+04	1.03e+03	7.7e+01
7	1,2,3,7,8,9-HxCDF	7.90e+04	1.12e+03	7.1e+01	6.50e+04	1.03e+03	6.3e+01
8	1,2,3,4,6,7,8-HpCDF	8.08e+04	1.71e+03	4.7e+01	8.82e+04	8.56e+02	1.0e+02
	1,2,3,4,7,8,9-HpCDF	6.85e+04	1.71e+03	4.0e+01	6.29e+04	8.56e+02	7.3e+01
10	OCDF	8.40e+04	8.20e+02	1.0e+02	9.04e+04	8.60e+02	1.1e+02
11	2,3,7,8-TCDD	1.02e+04	8.48e+02	1.2e+01	1.22e+04	7.12e+02	1.7e+01
12	1,2,3,7,8-PeCDD	7.43e+04	1.07e+03	6.9e+01	4.58e+04	8.60e+02	5.3e+01
13	1,2,3,4,7,8-HxCDD	6.75e+04	6.80e+02	9.9e+01	5.33e+04	6.84e+02	7.8e+01
	1,2,3,6,7,8-HxCDD	6.54e+04	6.80e+02	9.6e+01	5.48e+04	6.84e+02	8.0e+01
	1,2,3,7,8,9-HxCDD	6.66e+04	6.80e+02	9.8e+01	5.83e+04	6.84e+02	8.5e+01
	1,2,3,4,6,7,8-HpCDD	6.21e+04	1.22e+03	5.1e+01	6.08e+04	1.15e+03	5.3e+01
	OCDD	7.04e+04	7.12e+02	9.9e+01	9.07e+04	7.24e+02	1.3e+02
	13C-2,3,7,8-TCDF	5.72e+06	1.02e+03	5.6e+03	7.12e+06	9.44e+02	7.5e+03
	13C-1,2,3,7,8-PeCDF	8.73e+06	5.76e+02	1.5e+04	5.60e+06	1.02e+03	5.5e+03
	13C-2,3,4,7,8-PeCDF	9.27e+06	5.76e+02	1.6e+04	5.79e+06	1.02e+03	5.7e+03
21	13C-1,2,3,4,7,8-HxCDF	3.95e+06	5.76e+02	6.9e+03	7.62e+06	1.25e+03	6.1e+03
22	13C-1,2,3,6,7,8-HxCDF	4.33e+06	5.76e+02	7.5e+03	8.36e+06	1.25e+03	6.7e+03
23	13C-2,3,4,6,7,8-HxCDF	4.16e+06	5.76e+02	7.2e+03	7.89e+06	1.25e+03	6.3e+03
24	13C-1,2,3,7,8,9-HxCDF	3.62e+06	5.76e+02	6.3e+03	6.96e+06	1.25e+03	5.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.89e+06	1.77e+03	1.6e+03	6.51e+06	4.66e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.33e+06	1.77e+03	1.3e+03	5.16e+06	4.66e+03	1.1e+03
	13C-2,3,7,8-TCDD	4.02e+06	2.86e+03	1.4e+03	5.20e+06	1.56e+03	3.3e+03
	13C-1,2,3,7,8-PeCDD	5.89e+06	7.80e+02	7.6e+03	3.75e+06	6.16e+02	6.1e+03
	13C-1,2,3,4,7,8-HxCDD	5.13e+06	7.84e+02	6.5e+03	3.91e+06	8.56e+02	4.6e+03
	13C-1,2,3,6,7,8-HxCDD	5.09e+06	7.84e+02	6.5e+03	3.96e+06	8.56e+02	4.6e+03
	13C-1,2,3,4,6,7,8-HpCDD	4.33e+06	1.01e+03	4.3e+03	3.96e+06	7.36e+02	5.4e+03
	13C-OCDD	5.12e+06	5.04e+02	1.0e+04	5.59e+06	6.36e+02	8.8e+03
	13C-1,2,3,4-TCDD	4.11e+06	2.86e+03	1.4e+03	5.30e+06	1.56e+03	3.4e+03
34	13C-1,2,3,7,8,9-HxCDD	5.20e+06	7.84e+02	6.6e+03	4.03e+06	8.56e+02	4.7e+03
	37Cl-2,3,7,8-TCDD	2.11e+04	9.04e+02	2.3e+01			

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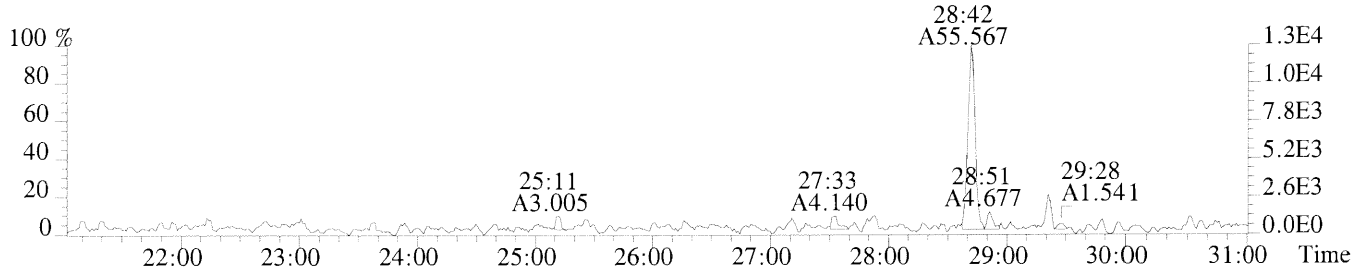
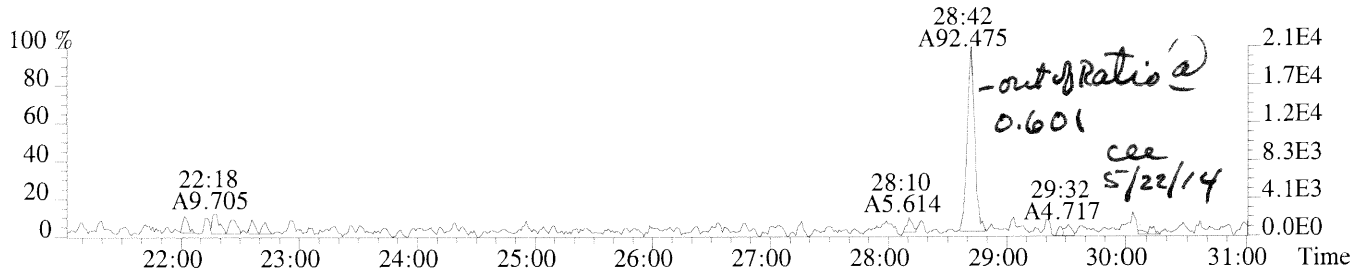
File:U149172 #1-627 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)

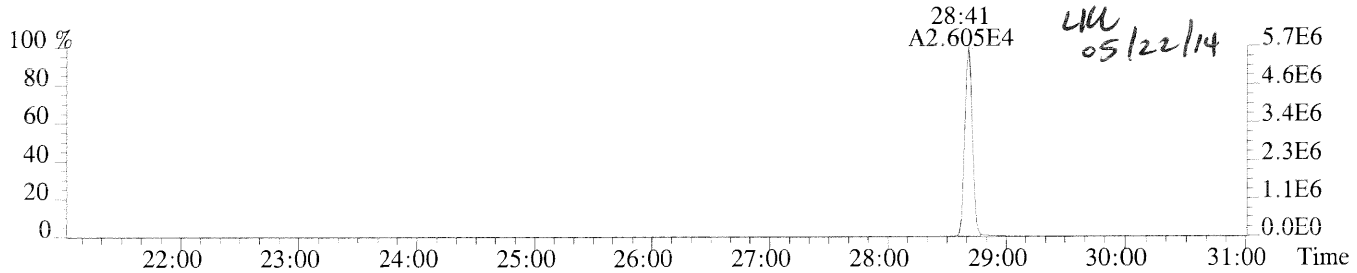


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,876.0,1.00%,F,T)



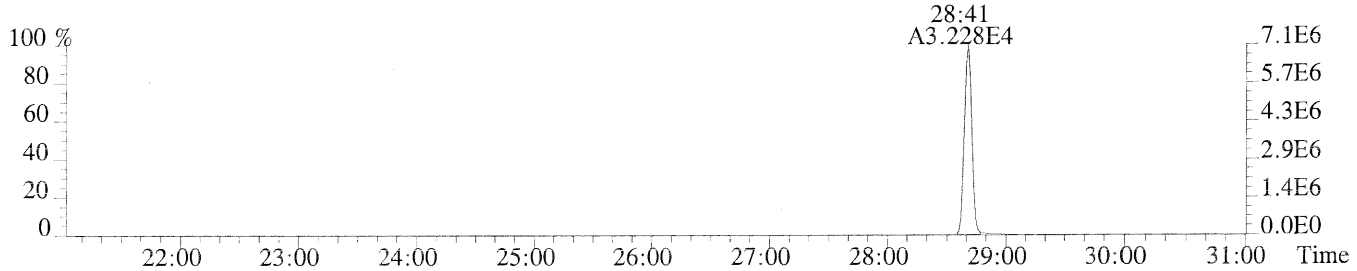
-out of Ratio @ 0.601
cee 5/22/14

315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)

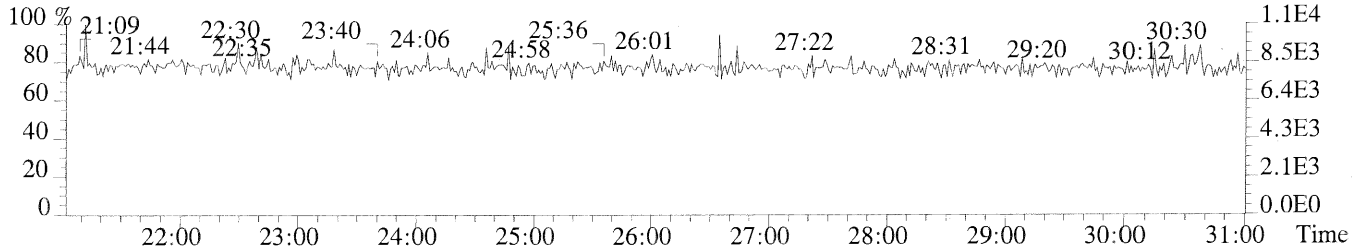


LM 05/22/14

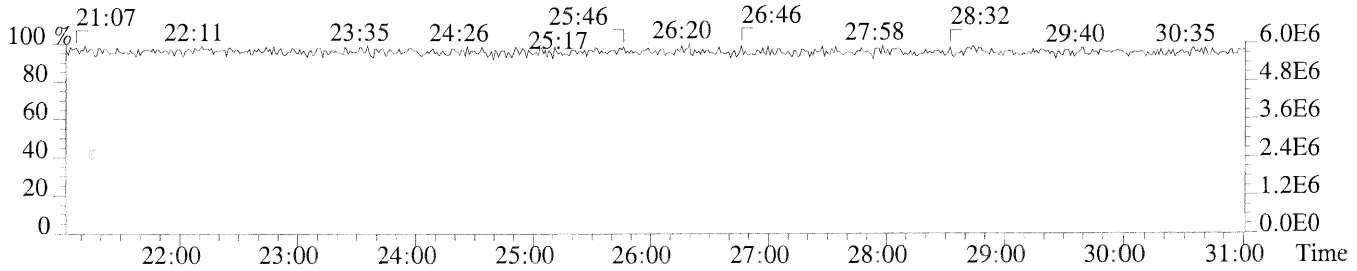
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

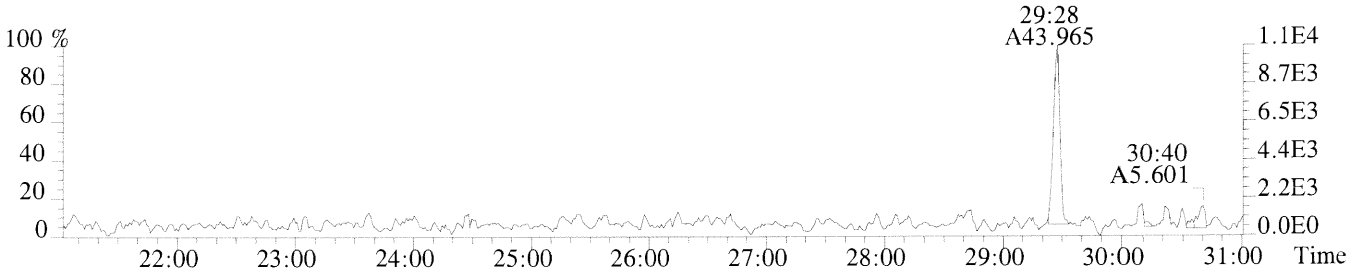


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

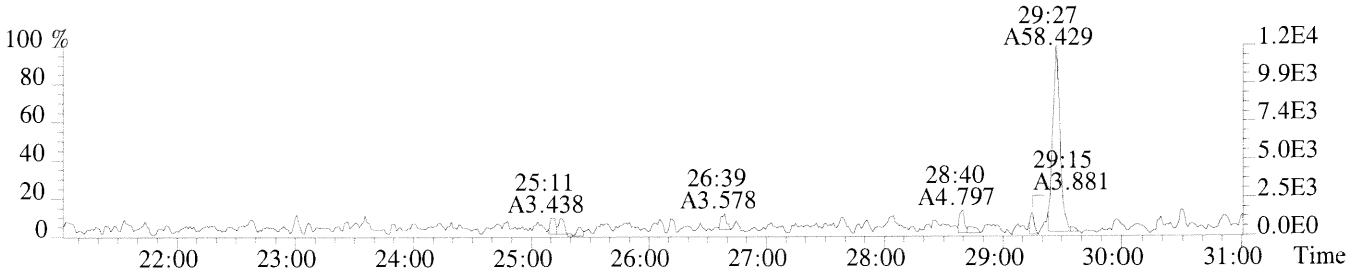


File:U149172 #1-627 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

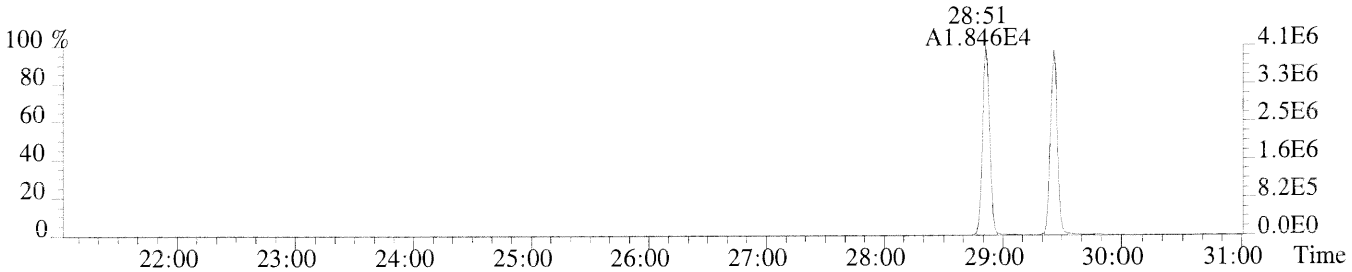
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



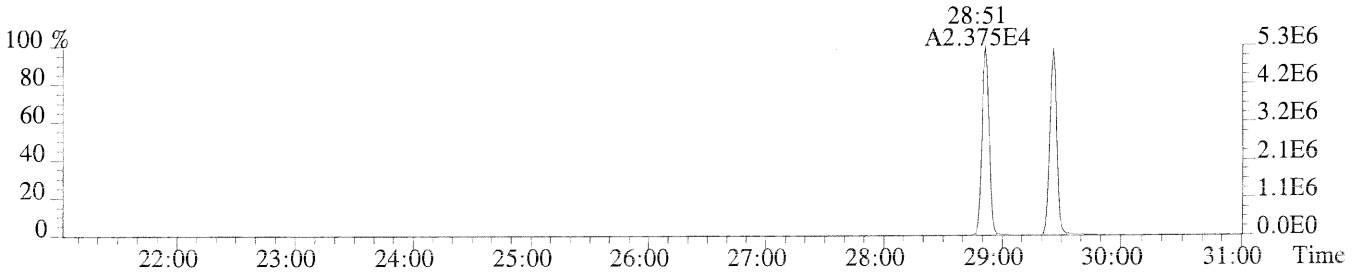
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



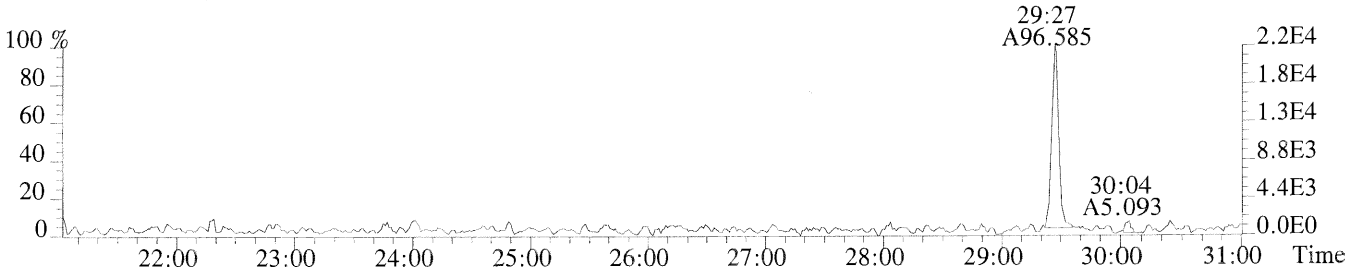
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2856.0,1.00%,F,T)



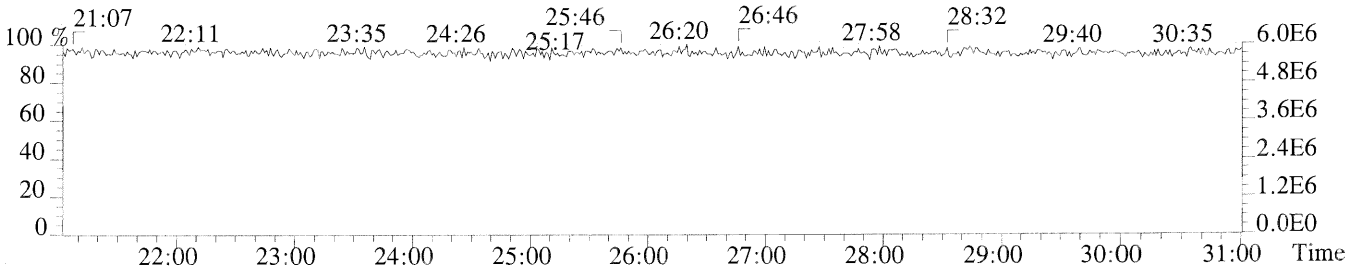
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1560.0,1.00%,F,T)



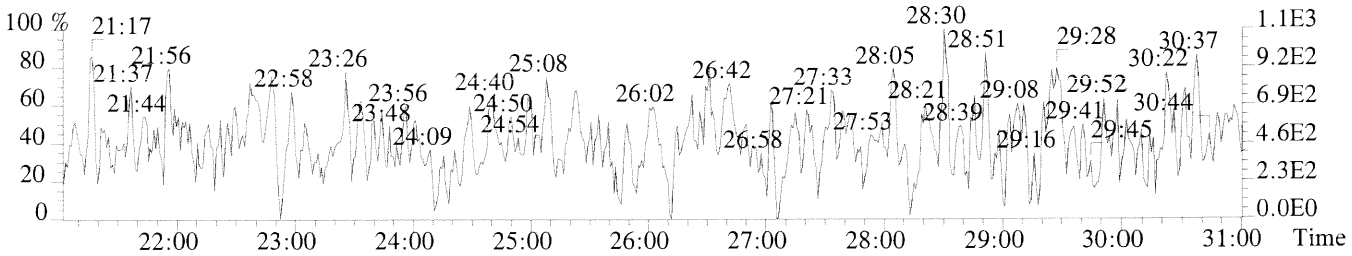
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



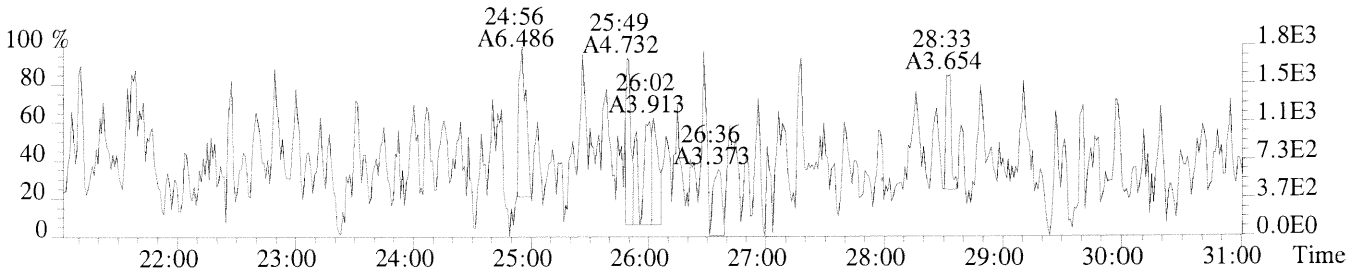
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



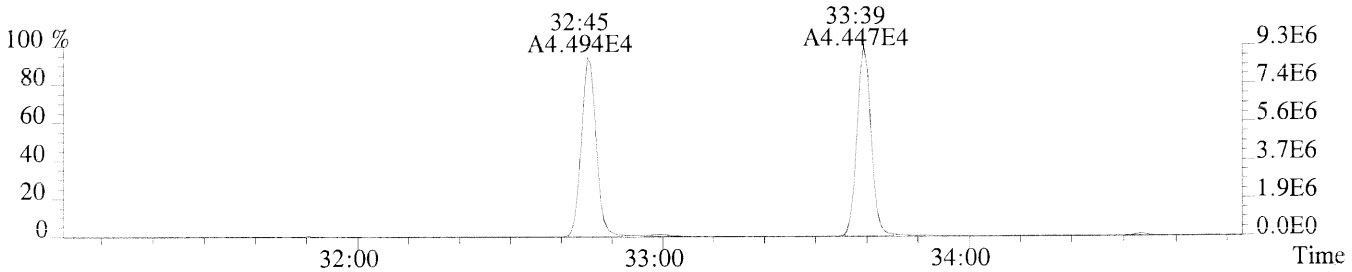
File:U149172 #1-627 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



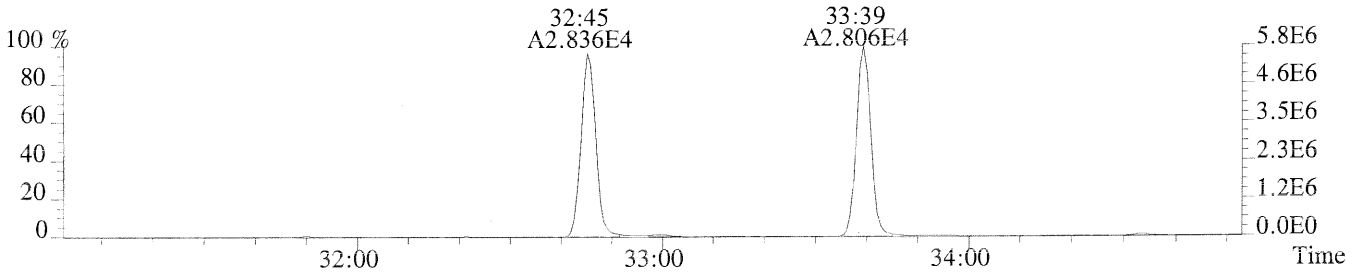
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



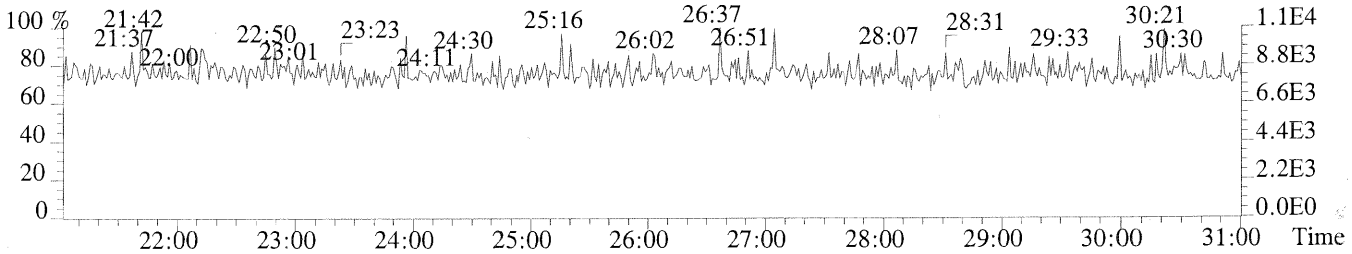
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



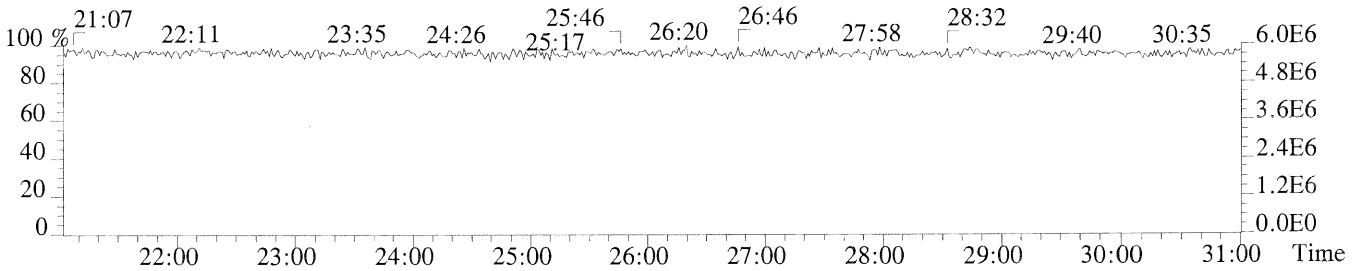
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

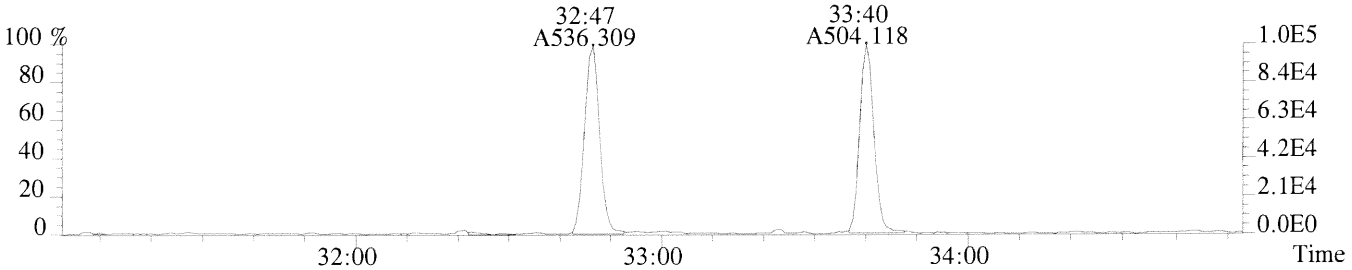


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

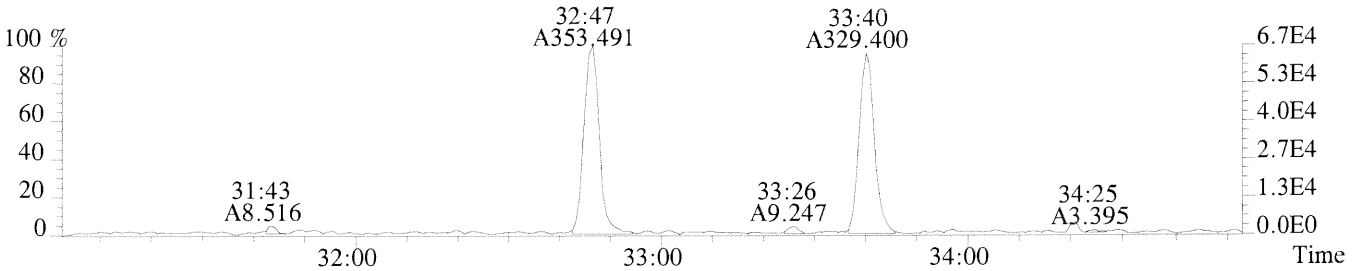


File:U149172 #1-349 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

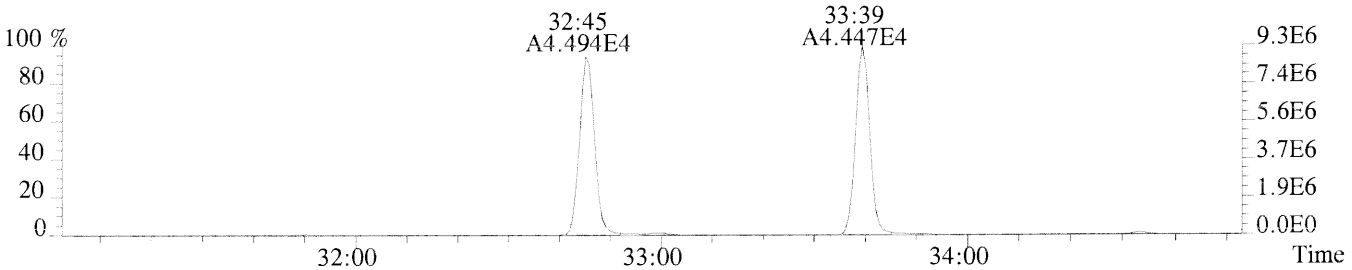
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



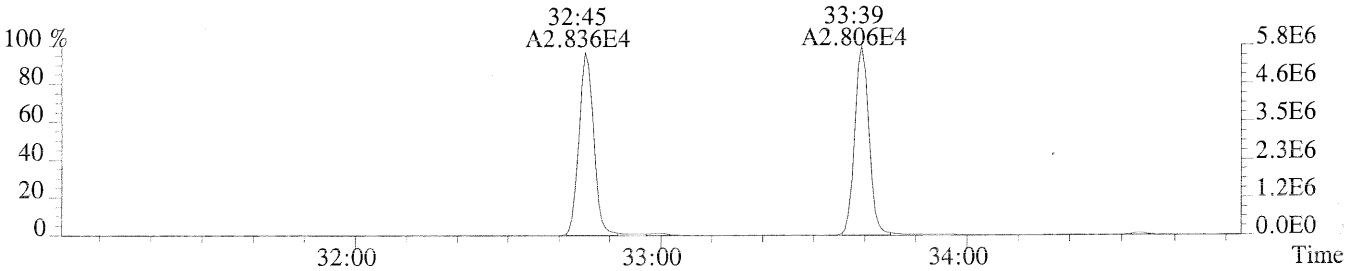
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1224.0,1.00%,F,T)



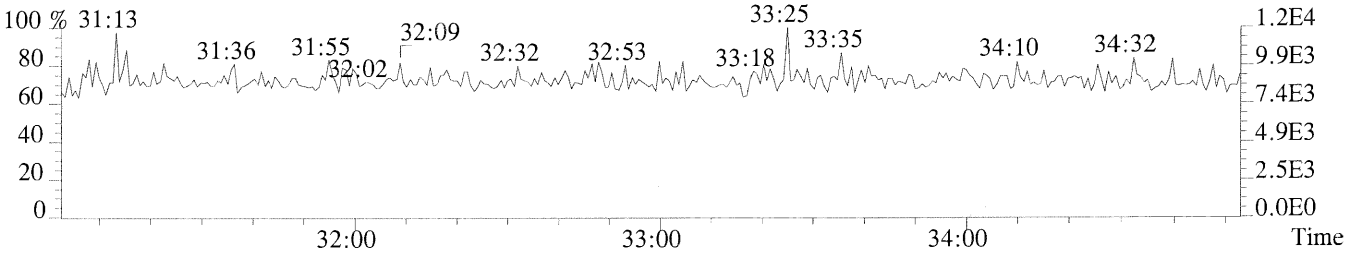
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



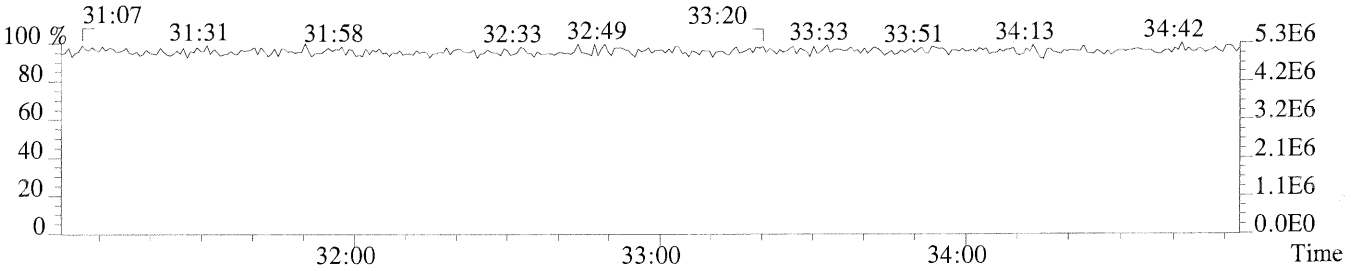
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

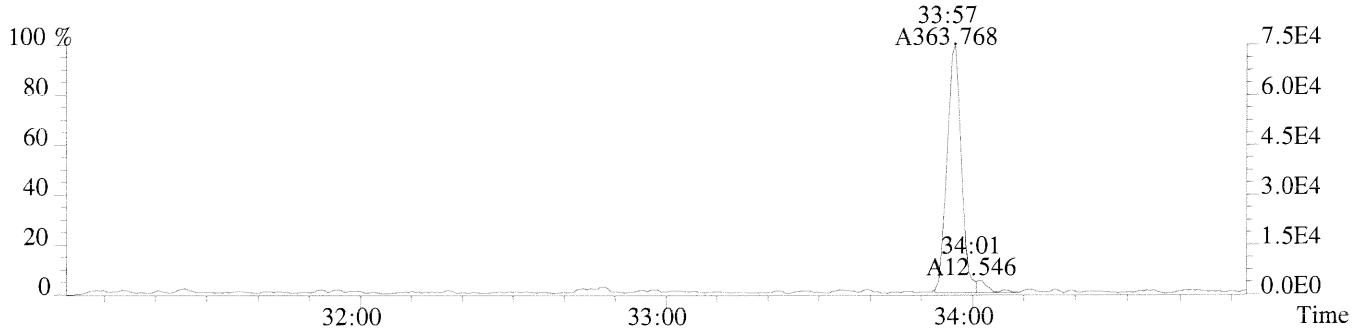


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

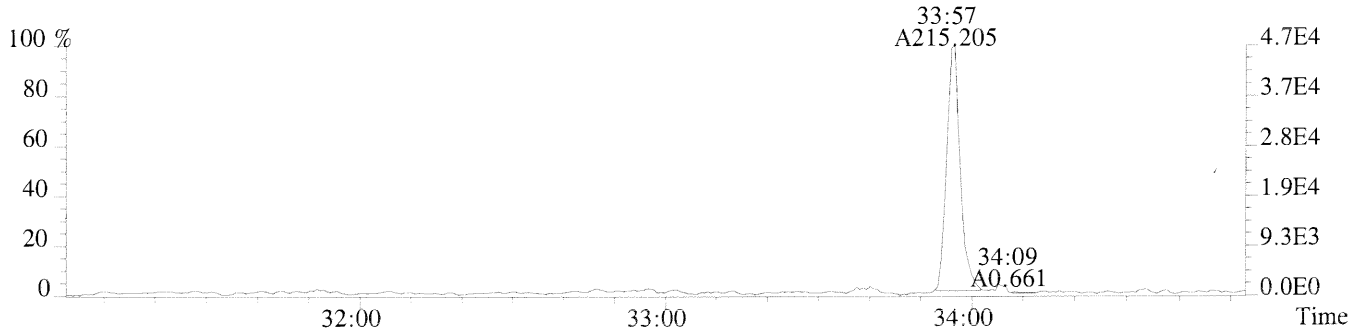


File:U149172 #1-349 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

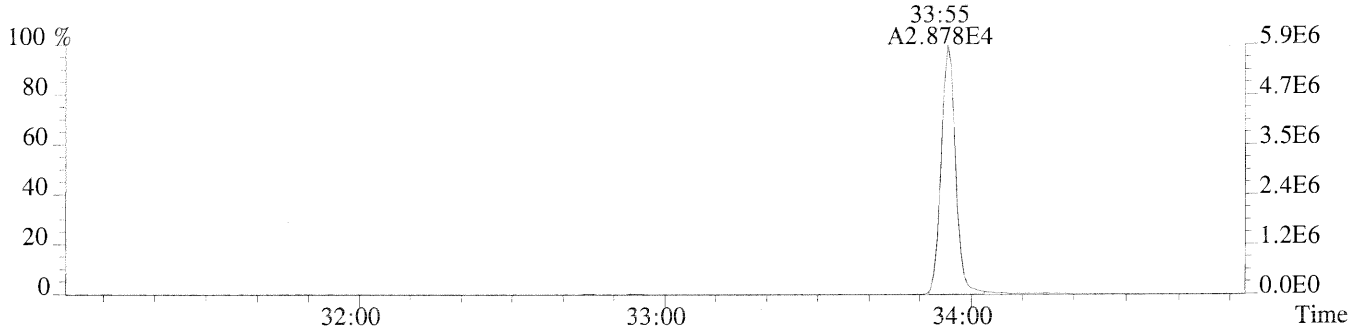
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



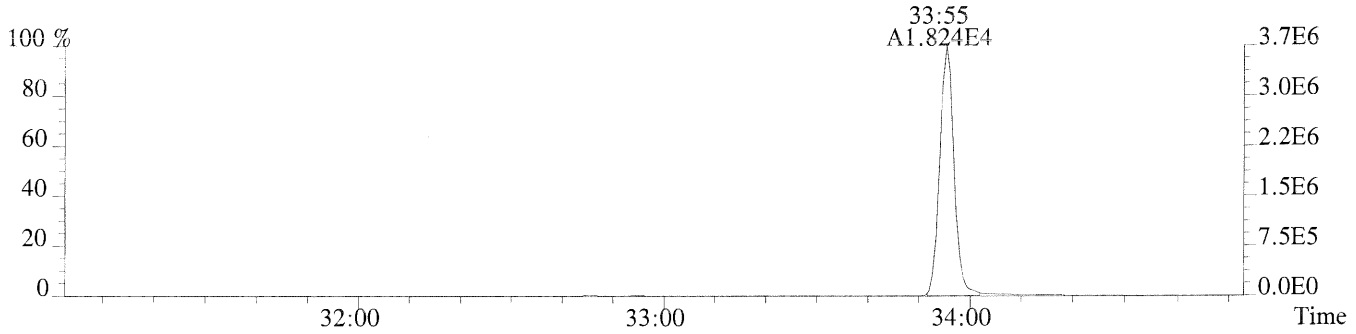
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



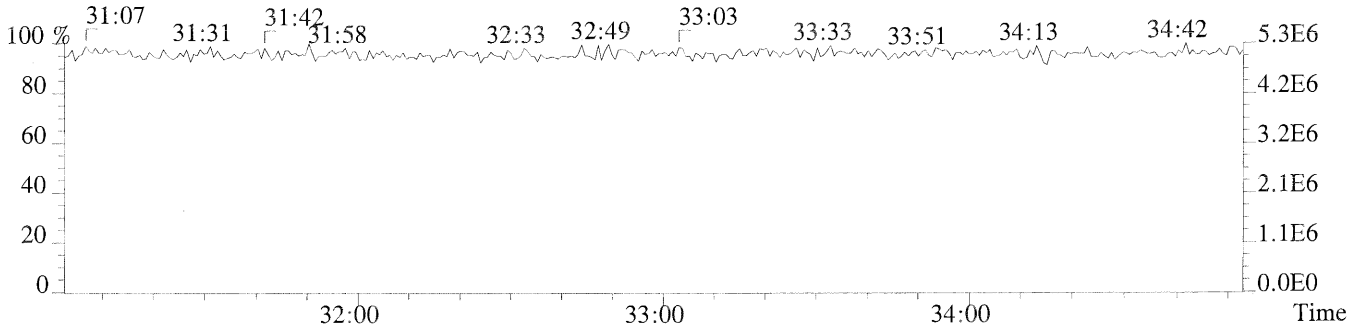
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)

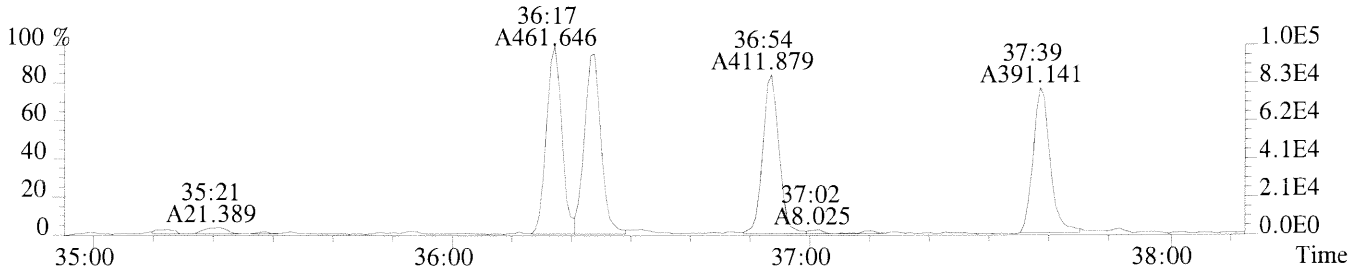


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

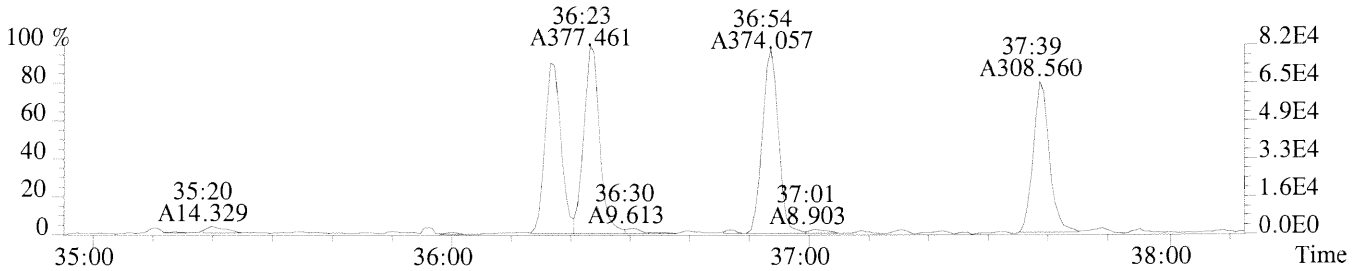


File:U149172 #1-299 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

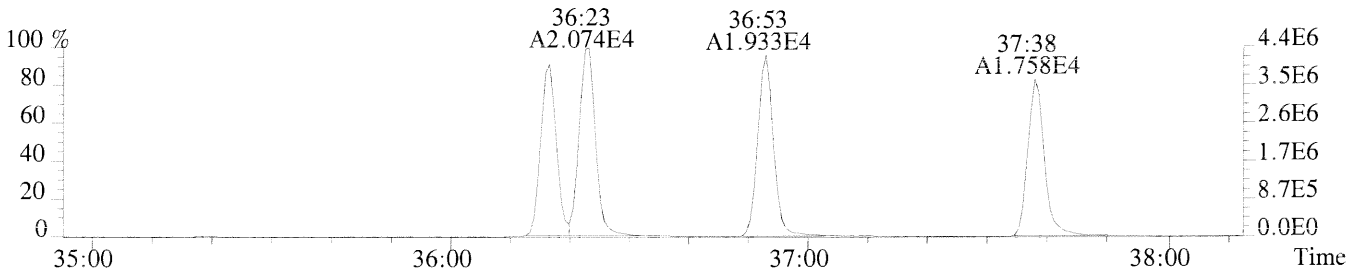
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.40%,F,T)



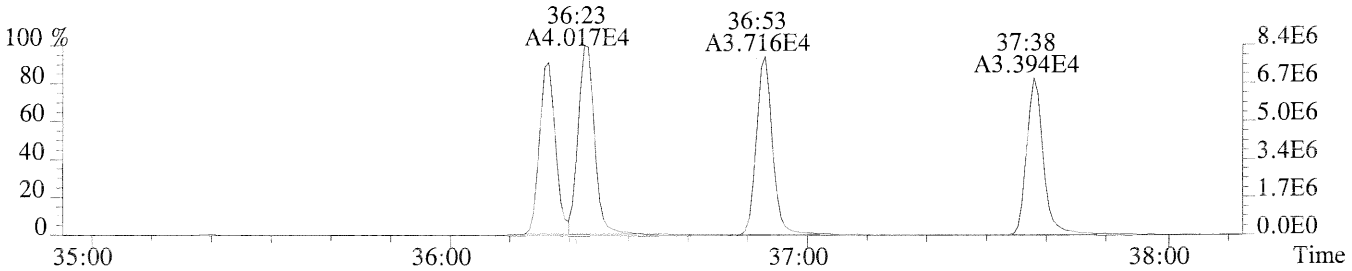
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



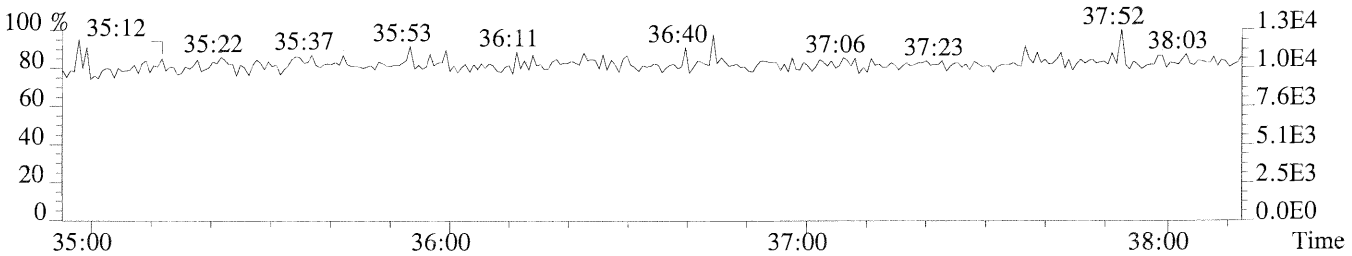
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



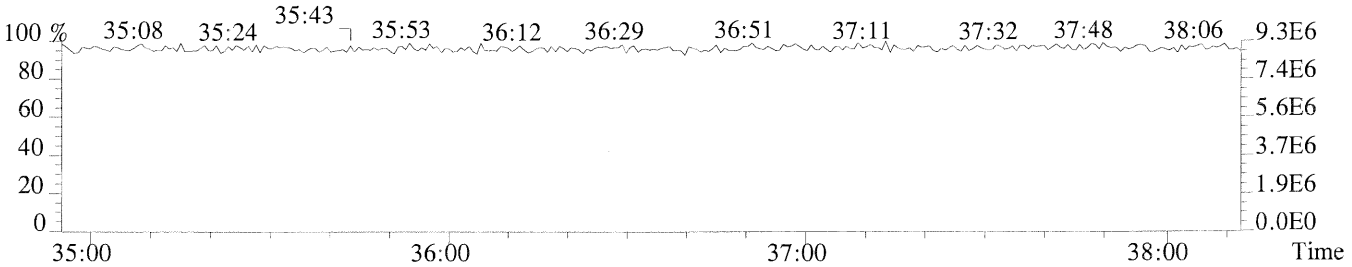
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)



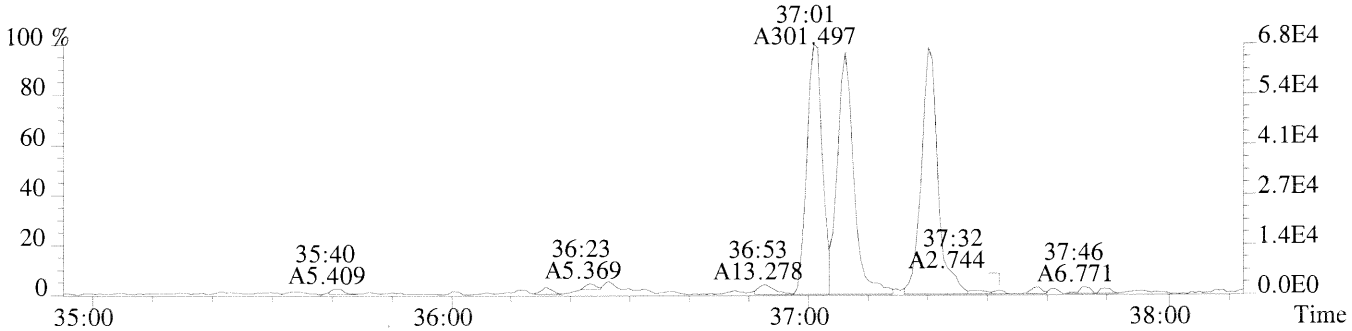
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



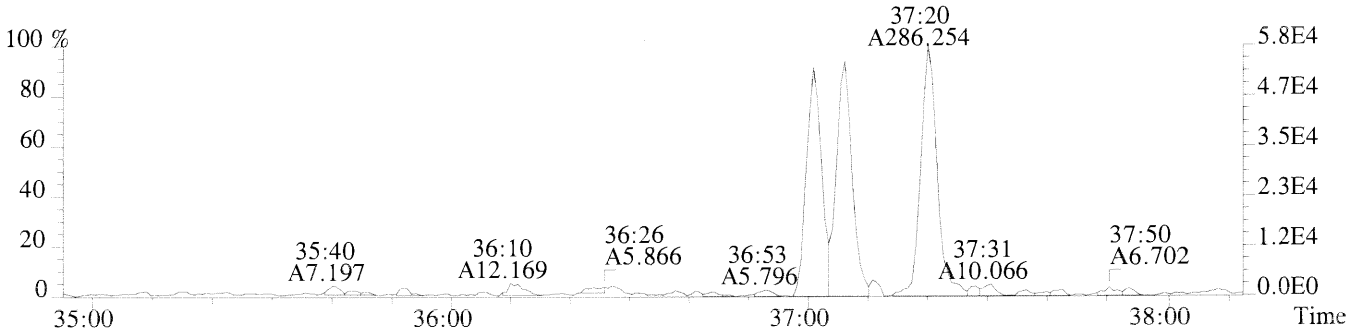
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



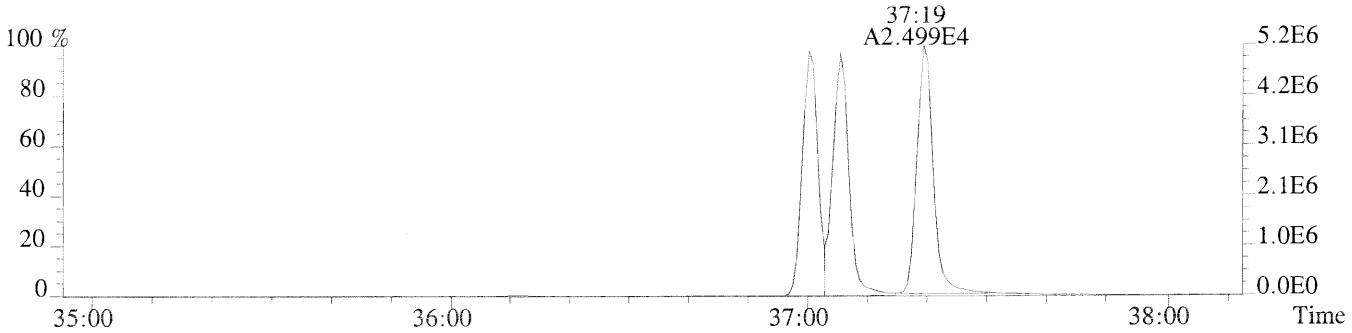
File:U149172 #1-299 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)



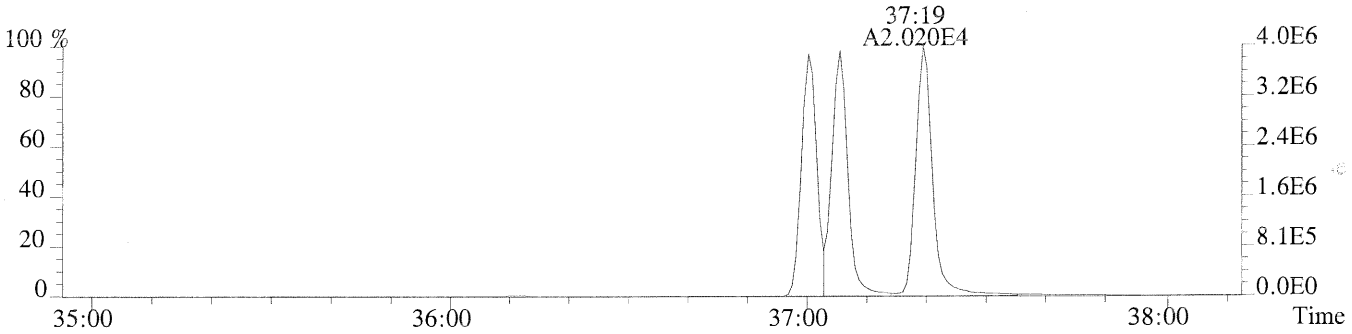
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



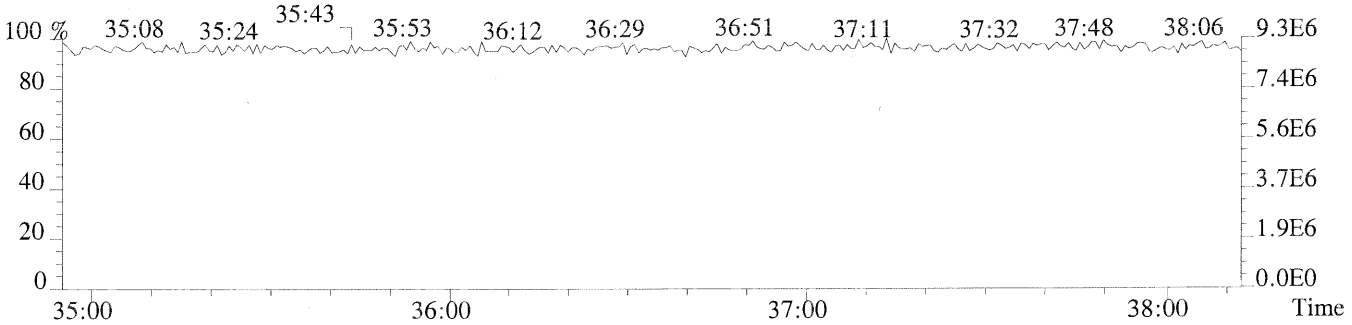
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)

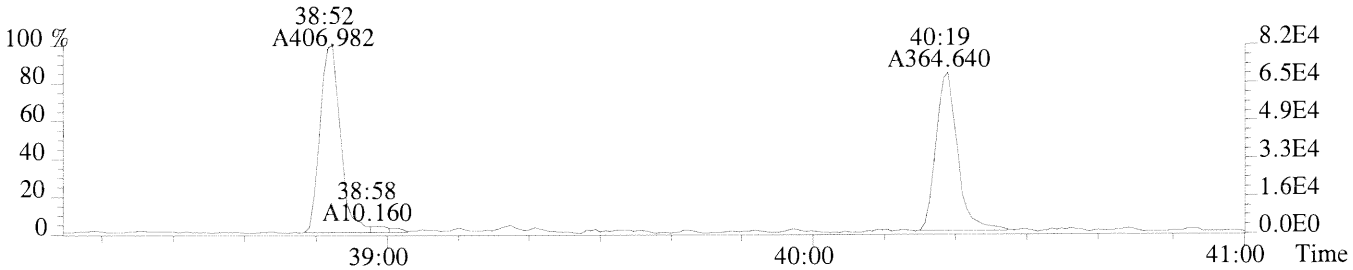


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

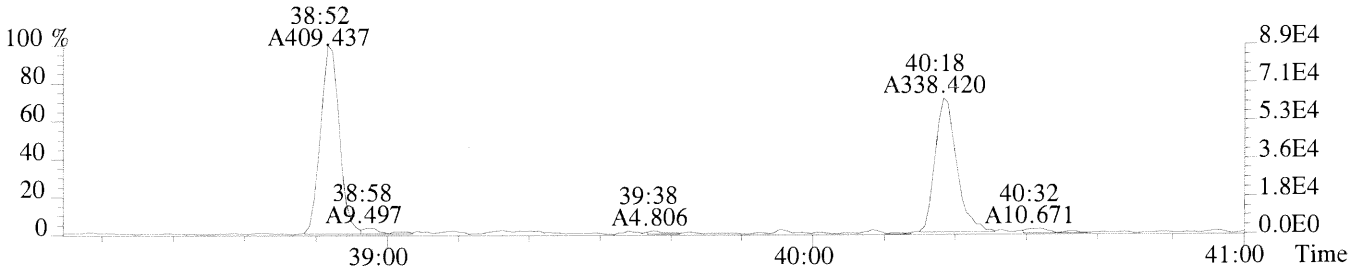


File:U149172 #1-251 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

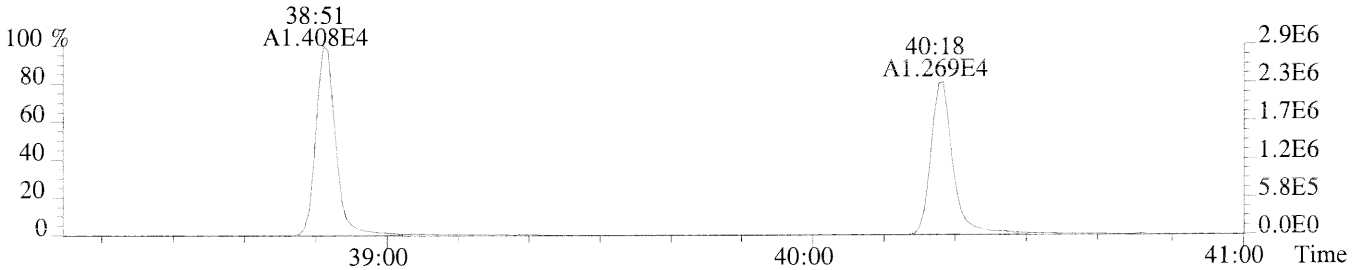
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.50%,F,T)



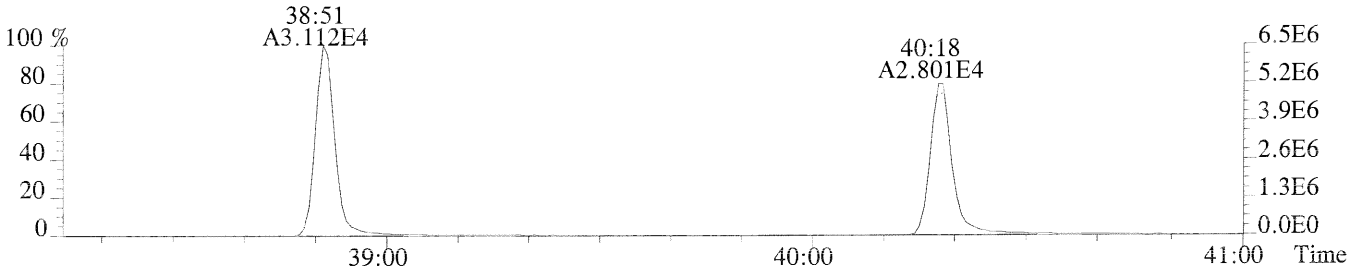
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.50%,F,T)



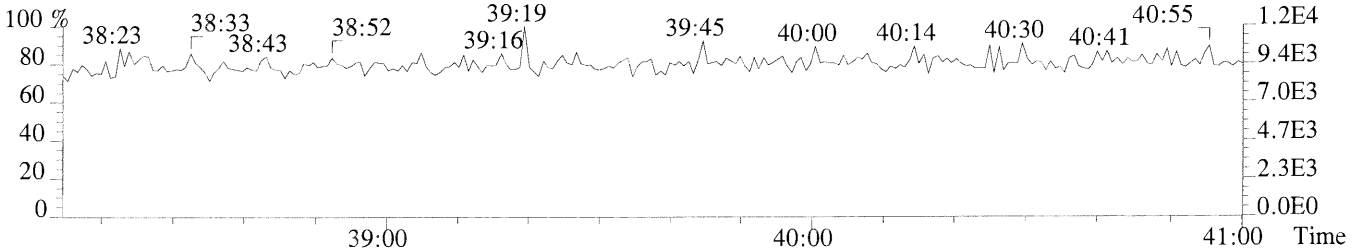
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1772.0,0.50%,F,T)



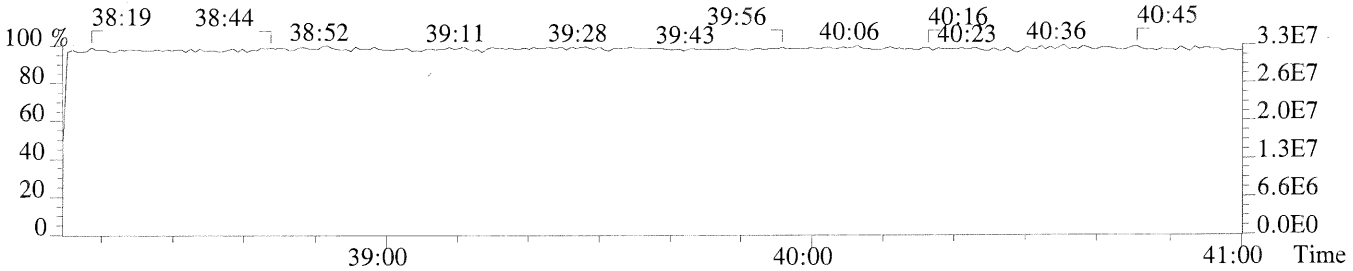
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4656.0,0.50%,F,T)



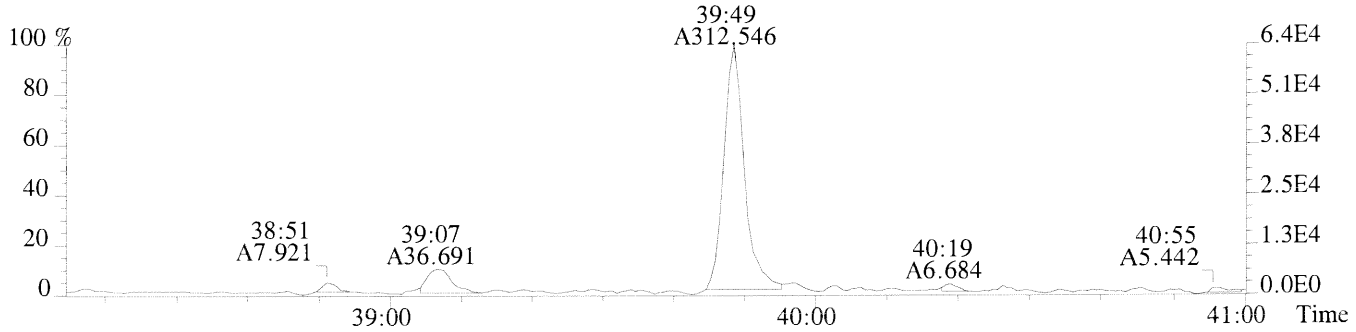
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



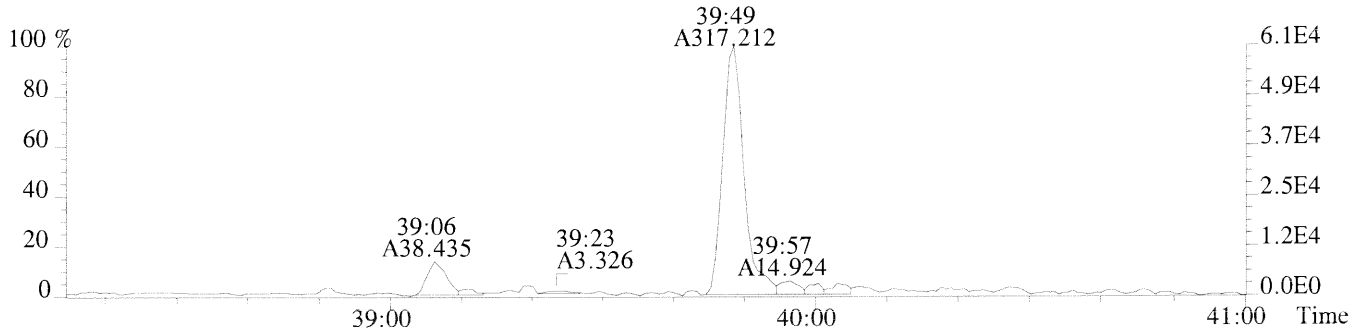
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



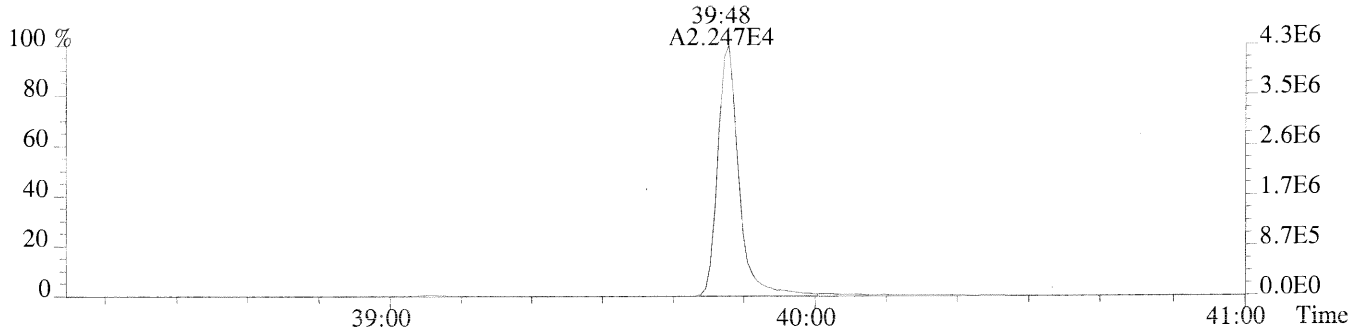
File:U149172 #1-251 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1220.0,0.40%,F,T)



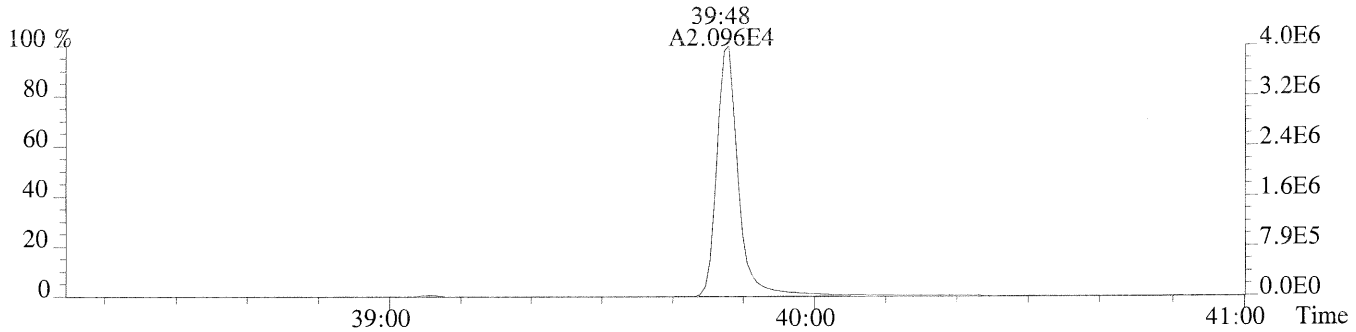
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1152.0,0.40%,F,T)



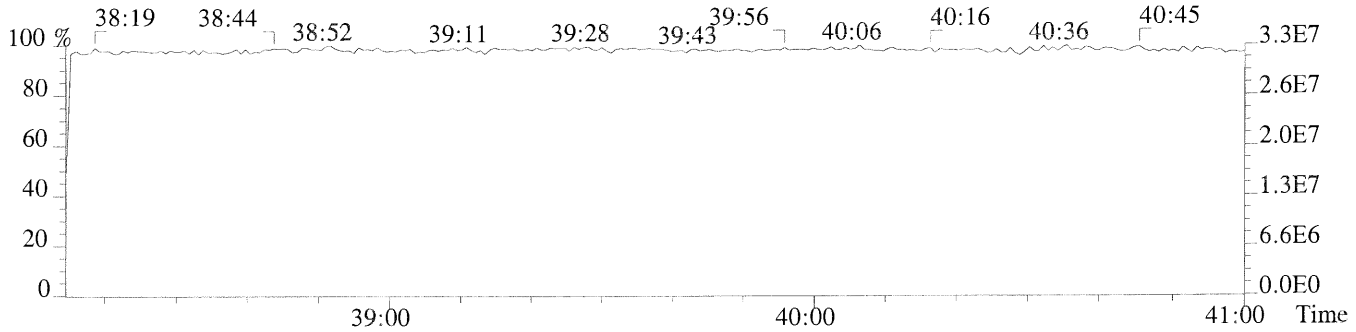
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



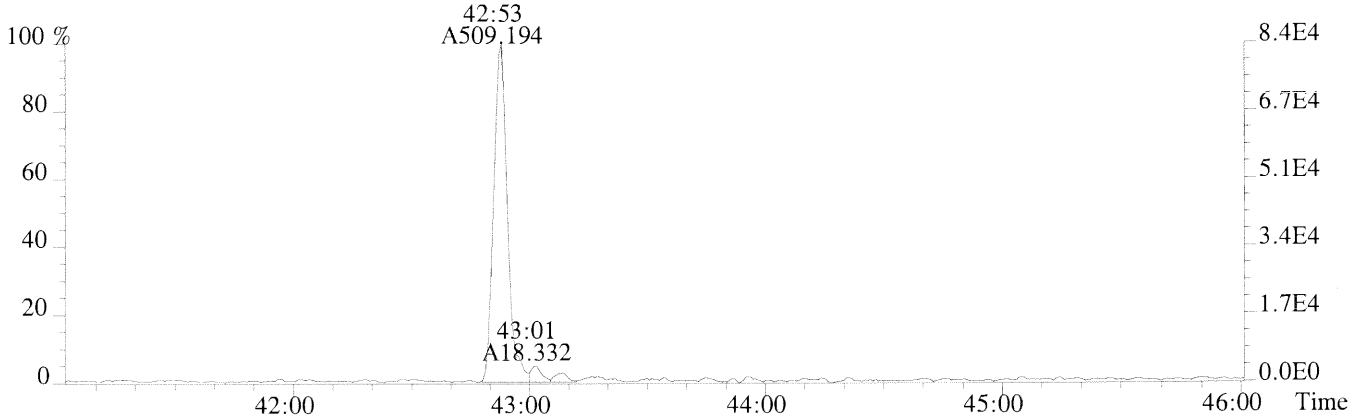
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



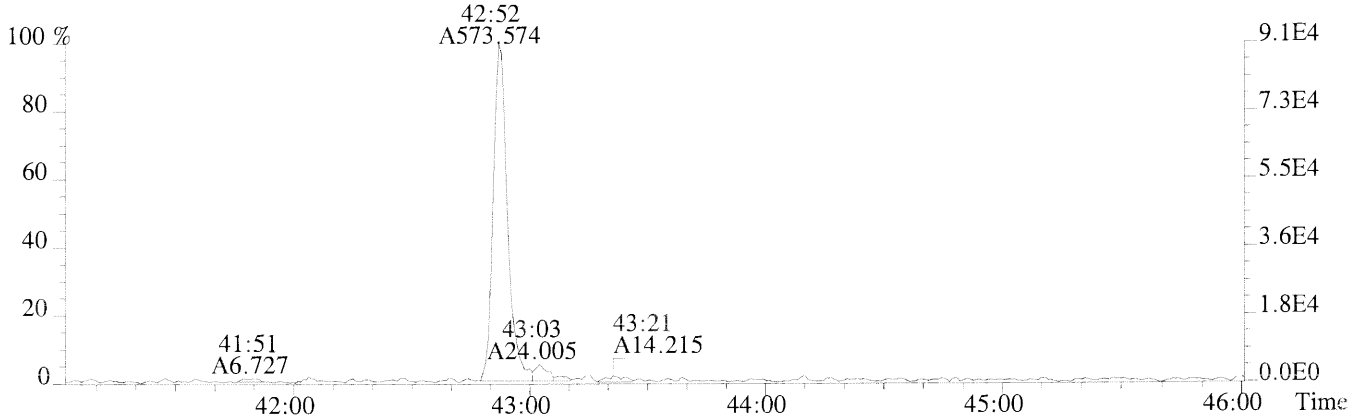
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



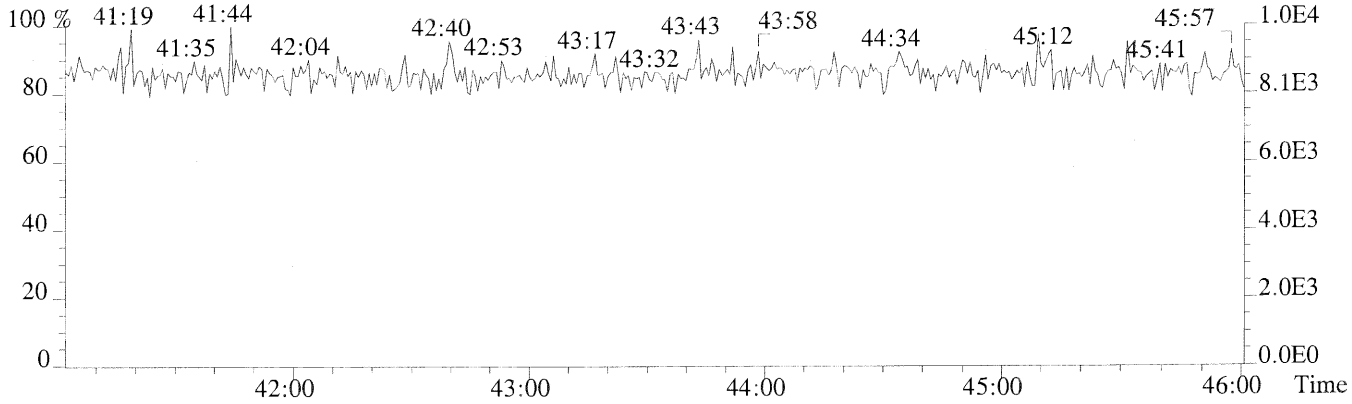
File:U149172 #1-452 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



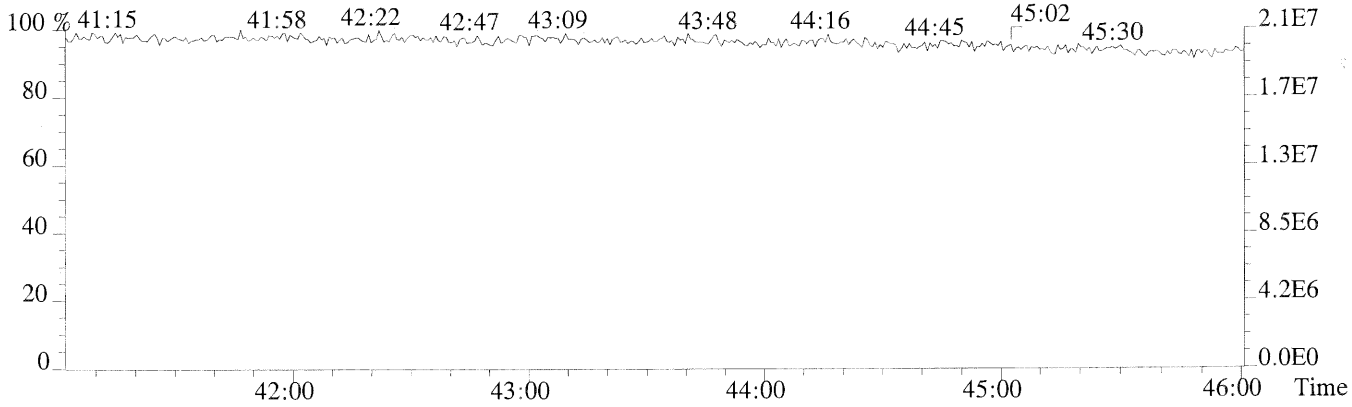
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,860.0,0.40%,F,T)



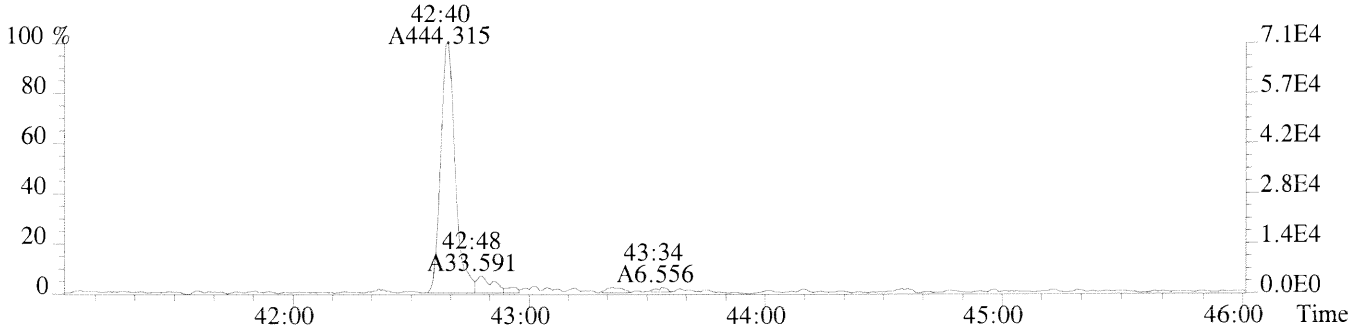
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



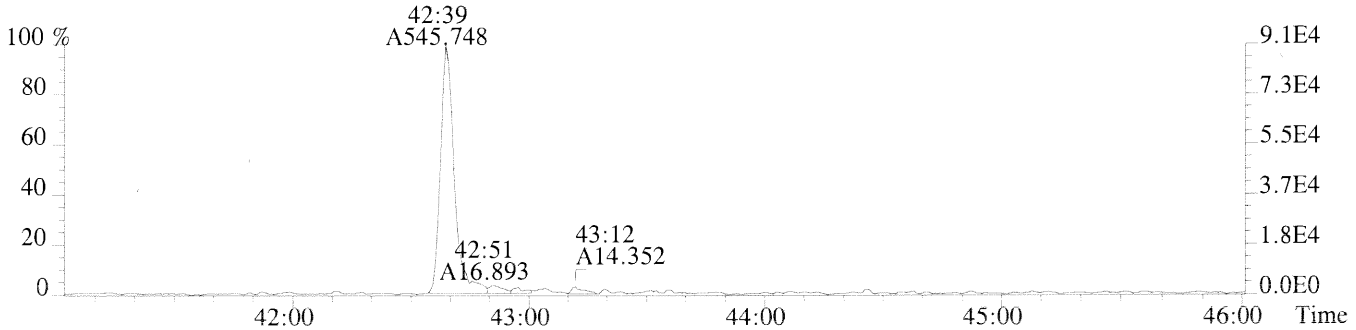
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



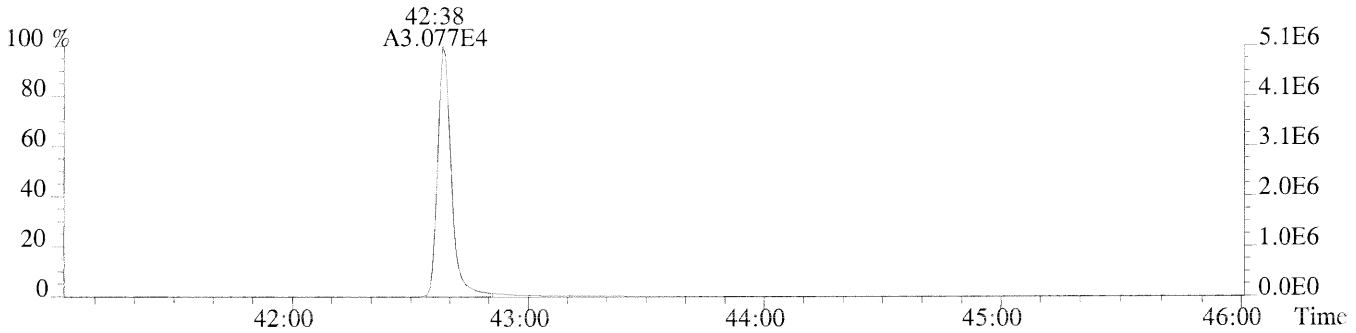
File:U149172 #1-452 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,712.0,0.40%,F,T)



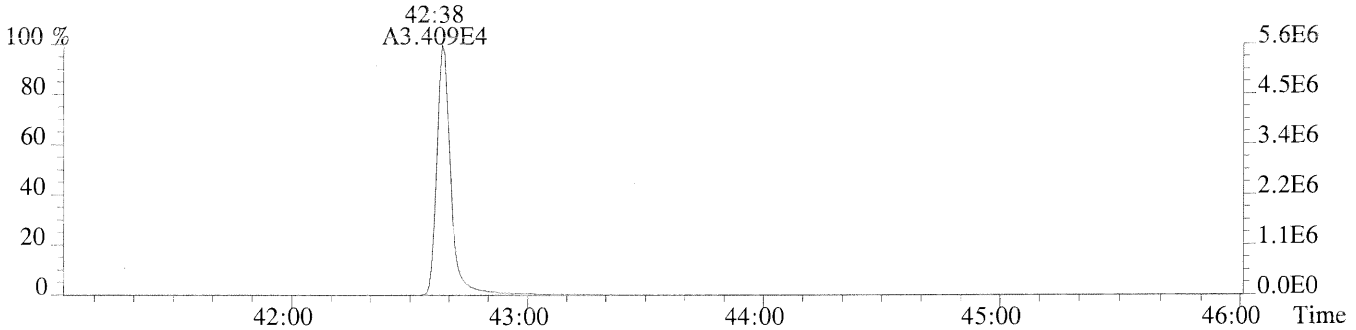
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,724.0,0.40%,F,T)



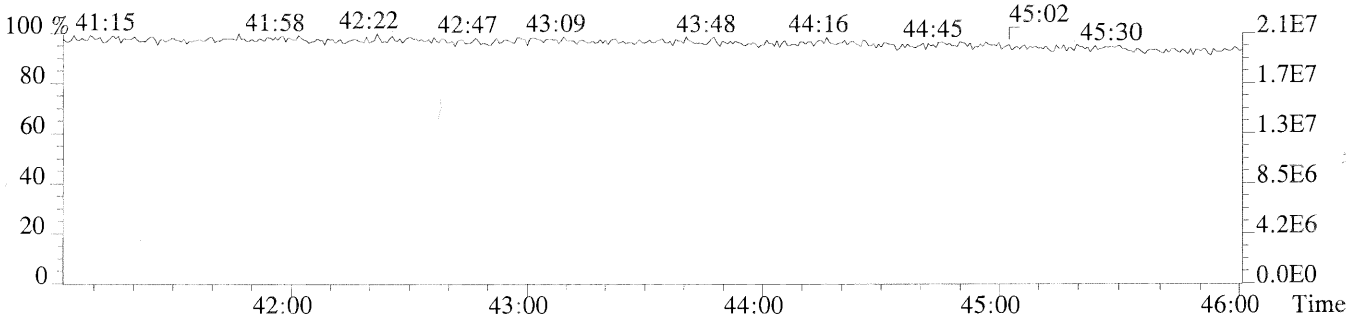
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,636.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
CS1

Run #2 Filename U149173 Samp: 1 Inj: 1 Acquired: 21-MAY-14 15:39:21
Processed: 23-MAY-14 08:49:33 Sample ID: 66798

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	1.179e+02	1.687e+02	0.70	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:47	1.169e+03	7.600e+02	1.54	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:40	1.062e+03	6.910e+02	1.54	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:17	9.883e+02	7.868e+02	1.26	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:24	1.026e+03	8.352e+02	1.23	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:54	9.387e+02	7.880e+02	1.19	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	8.906e+02	6.832e+02	1.30	yes	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	8.672e+02	8.273e+02	1.05	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:18	7.275e+02	6.813e+02	1.07	yes	no	1.359
10	Unk	OCDF	42:53	1.164e+03	1.227e+03	0.95	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:27	1.098e+02	1.361e+02	0.81	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:56	7.820e+02	4.871e+02	1.61	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:01	6.500e+02	4.886e+02	1.33	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:06	7.367e+02	5.730e+02	1.29	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:20	7.324e+02	6.057e+02	1.21	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:48	5.920e+02	6.400e+02	0.93	yes	no	1.065
17	Unk	OCDD	42:39	9.958e+02	1.092e+03	0.91	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:41	2.728e+04	3.345e+04	0.82	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:45	4.674e+04	2.954e+04	1.58	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:39	4.622e+04	2.881e+04	1.60	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	1.865e+04	3.642e+04	0.51	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.168e+04	4.244e+04	0.51	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:53	1.992e+04	3.926e+04	0.51	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	1.854e+04	3.569e+04	0.52	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:51	1.438e+04	3.176e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	1.345e+04	2.910e+04	0.46	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:26	1.855e+04	2.355e+04	0.79	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:55	2.963e+04	1.903e+04	1.56	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	2.338e+04	1.772e+04	1.32	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.540e+04	1.947e+04	1.30	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	2.299e+04	2.118e+04	1.09	yes	no	0.936
32	IS	13C-OCDD	42:38	3.268e+04	3.542e+04	0.92	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:51	1.925e+04	2.464e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.713e+04	2.096e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	1.988e+02				no	1.044

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
CS1

Run #2 Filename U149173 Samp: 1 Inj: 1 Acquired: 21-MAY-14 15:39:21
Processed: 22-MAY-14 12:57:501 LAB. ID: 66798

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.34e+04	7.16e+02	3.3e+01	3.42e+04	1.43e+03	2.4e+01
2	1,2,3,7,8-PeCDF	2.23e+05	6.84e+02	3.3e+02	1.41e+05	1.22e+03	1.2e+02
3	2,3,4,7,8-PeCDF	2.09e+05	6.84e+02	3.1e+02	1.42e+05	1.22e+03	1.2e+02
4	1,2,3,4,7,8-HxCDF	2.08e+05	1.06e+03	2.0e+02	1.66e+05	8.60e+02	1.9e+02
5	1,2,3,6,7,8-HxCDF	2.10e+05	1.06e+03	2.0e+02	1.65e+05	8.60e+02	1.9e+02
6	2,3,4,6,7,8-HxCDF	1.91e+05	1.06e+03	1.8e+02	1.62e+05	8.60e+02	1.9e+02
7	1,2,3,7,8,9-HxCDF	1.85e+05	1.06e+03	1.7e+02	1.33e+05	8.60e+02	1.5e+02
8	1,2,3,4,6,7,8-HpCDF	1.73e+05	1.26e+03	1.4e+02	1.73e+05	1.41e+03	1.2e+02
9	1,2,3,4,7,8,9-HpCDF	1.40e+05	1.26e+03	1.1e+02	1.24e+05	1.41e+03	8.8e+01
10	OCDF	1.75e+05	7.28e+02	2.4e+02	1.87e+05	6.88e+02	2.7e+02
11	2,3,7,8-TCDD	2.37e+04	7.12e+02	3.3e+01	3.04e+04	7.36e+02	4.1e+01
12	1,2,3,7,8-PeCDD	1.60e+05	9.40e+02	1.7e+02	9.26e+04	7.28e+02	1.3e+02
13	1,2,3,4,7,8-HxCDD	1.36e+05	7.56e+02	1.8e+02	1.06e+05	8.40e+02	1.3e+02
14	1,2,3,6,7,8-HxCDD	1.44e+05	7.56e+02	1.9e+02	1.17e+05	8.40e+02	1.4e+02
15	1,2,3,7,8,9-HxCDD	1.44e+05	7.56e+02	1.9e+02	1.26e+05	8.40e+02	1.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.17e+05	9.92e+02	1.2e+02	1.12e+05	6.72e+02	1.7e+02
17	OCDD	1.56e+05	5.52e+02	2.8e+02	1.69e+05	7.40e+02	2.3e+02
18	13C-2,3,7,8-TCDF	5.98e+06	6.88e+02	8.7e+03	7.27e+06	9.56e+02	7.6e+03
19	13C-1,2,3,7,8-PeCDF	8.87e+06	5.88e+02	1.5e+04	5.66e+06	8.20e+02	6.9e+03
20	13C-2,3,4,7,8-PeCDF	9.39e+06	5.88e+02	1.6e+04	5.93e+06	8.20e+02	7.2e+03
21	13C-1,2,3,4,7,8-HxCDF	4.00e+06	8.76e+02	4.6e+03	7.63e+06	1.10e+03	7.0e+03
22	13C-1,2,3,6,7,8-HxCDF	4.42e+06	8.76e+02	5.0e+03	8.53e+06	1.10e+03	7.8e+03
23	13C-2,3,4,6,7,8-HxCDF	4.18e+06	8.76e+02	4.8e+03	8.17e+06	1.10e+03	7.5e+03
24	13C-1,2,3,7,8,9-HxCDF	3.60e+06	8.76e+02	4.1e+03	7.21e+06	1.10e+03	6.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.86e+06	3.00e+03	9.5e+02	6.40e+06	4.20e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.39e+06	3.00e+03	8.0e+02	5.23e+06	4.20e+03	1.2e+03
27	13C-2,3,7,8-TCDD	4.18e+06	2.69e+03	1.6e+03	5.24e+06	1.72e+03	3.0e+03
28	13C-1,2,3,7,8-PeCDD	5.90e+06	7.20e+02	8.2e+03	3.79e+06	7.04e+02	5.4e+03
29	13C-1,2,3,4,7,8-HxCDD	5.26e+06	1.18e+03	4.4e+03	4.03e+06	7.80e+02	5.2e+03
30	13C-1,2,3,6,7,8-HxCDD	5.12e+06	1.18e+03	4.3e+03	3.96e+06	7.80e+02	5.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.22e+06	7.96e+02	5.3e+03	3.94e+06	8.48e+02	4.6e+03
32	13C-OCDD	5.18e+06	8.40e+02	6.2e+03	5.67e+06	6.00e+02	9.4e+03
33	13C-1,2,3,4-TCDD	4.21e+06	2.69e+03	1.6e+03	5.42e+06	1.72e+03	3.1e+03
34	13C-1,2,3,7,8,9-HxCDD	5.28e+06	1.18e+03	4.5e+03	4.11e+06	7.80e+02	5.3e+03
35	37Cl-2,3,7,8-TCDD	4.49e+04	1.12e+03	4.0e+01			

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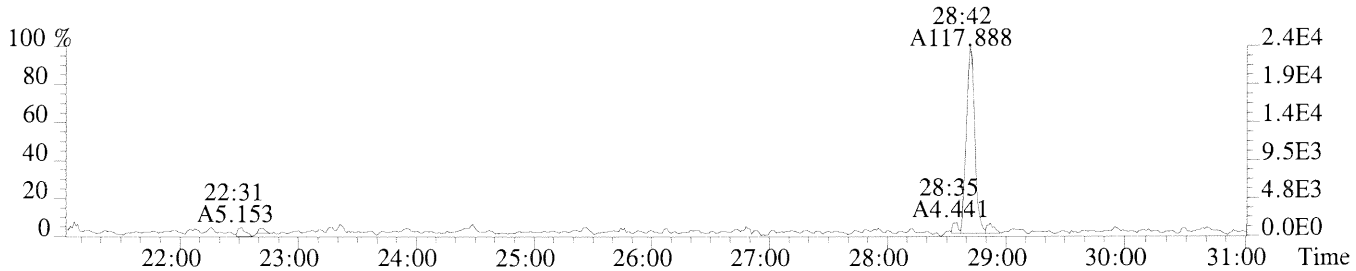
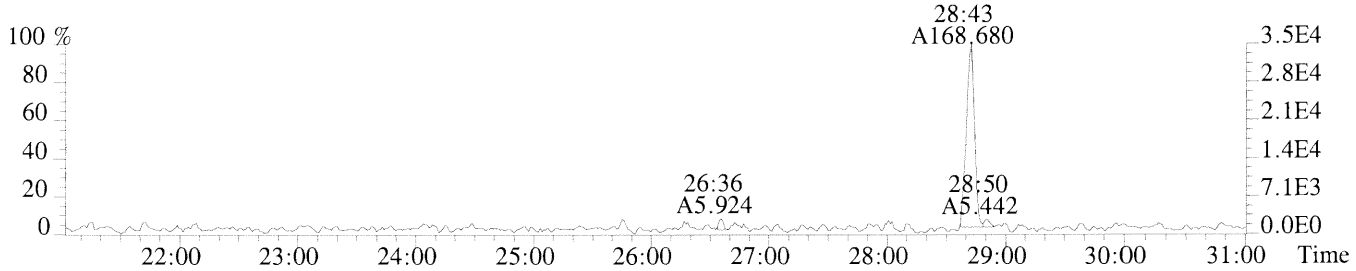
File:U149173 #1-627 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

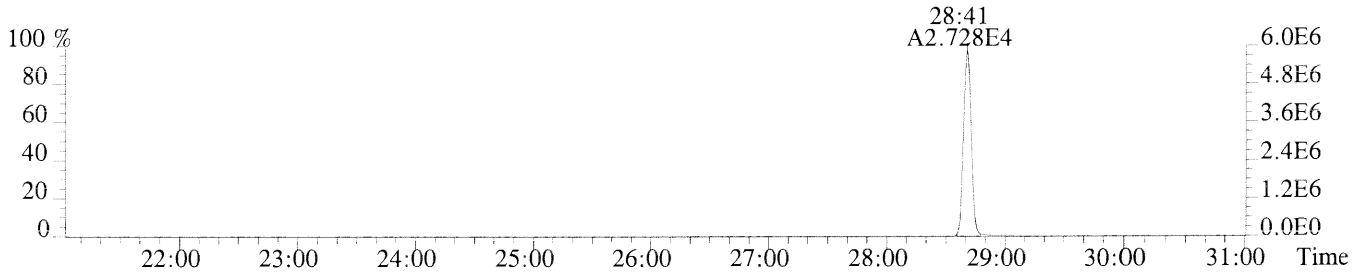
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



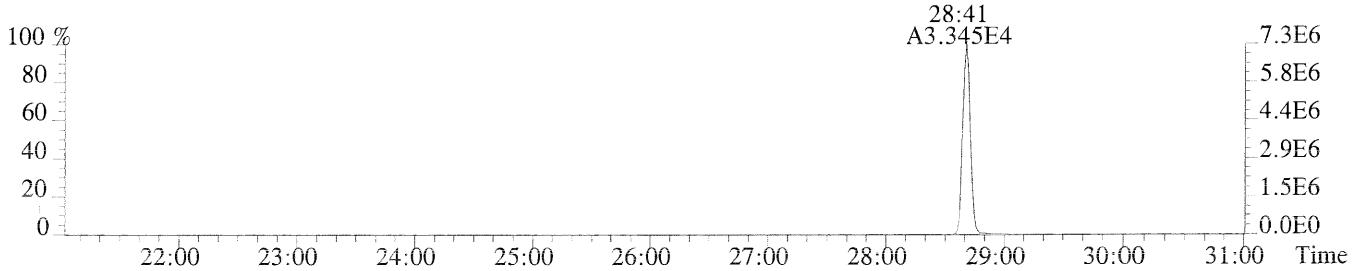
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



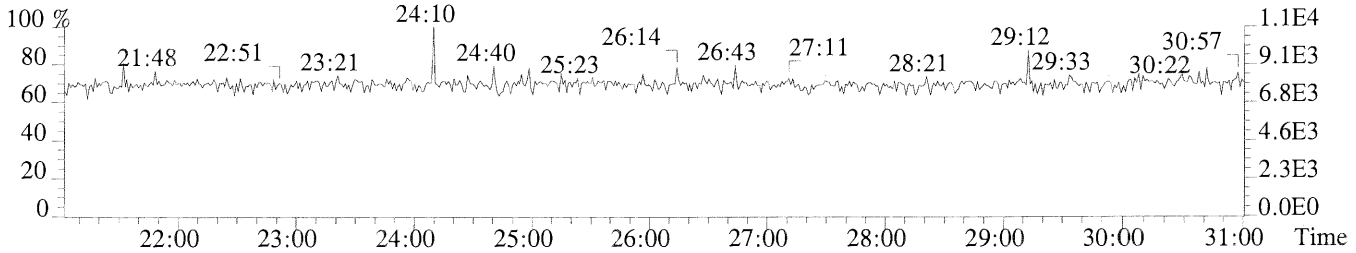
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



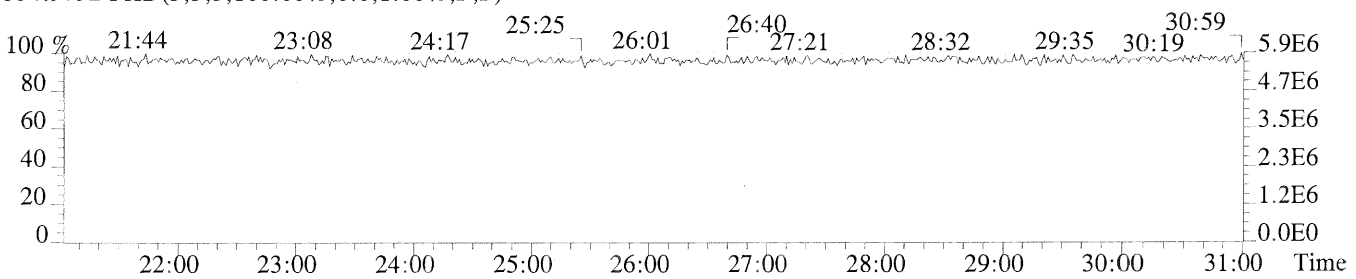
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

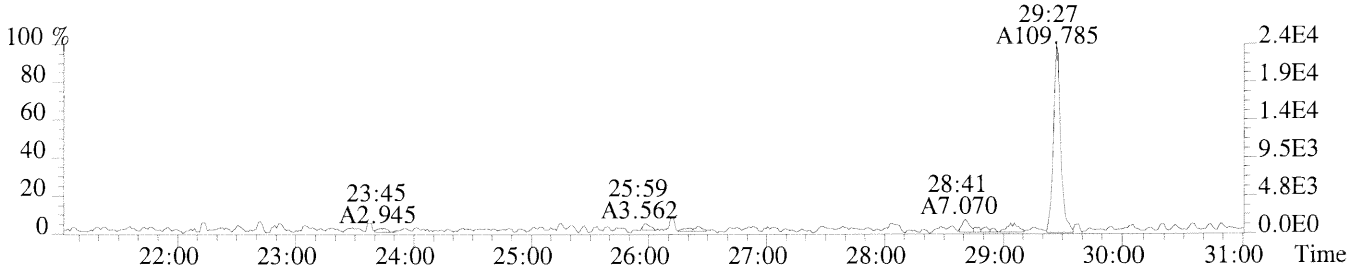


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

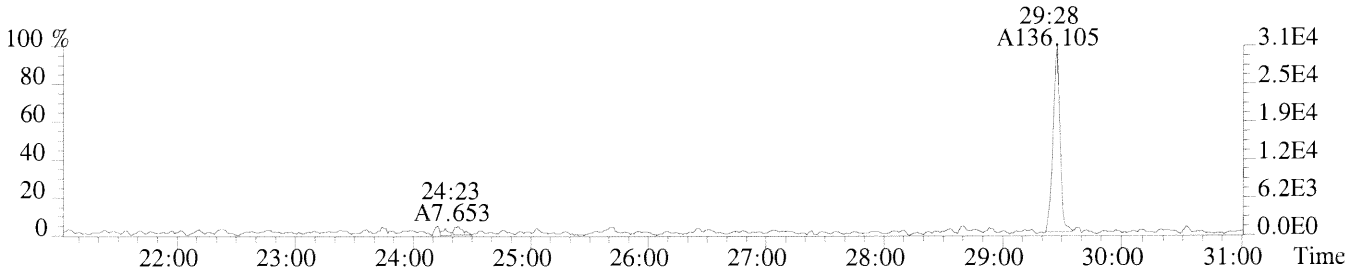


File:U149173 #1-627 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

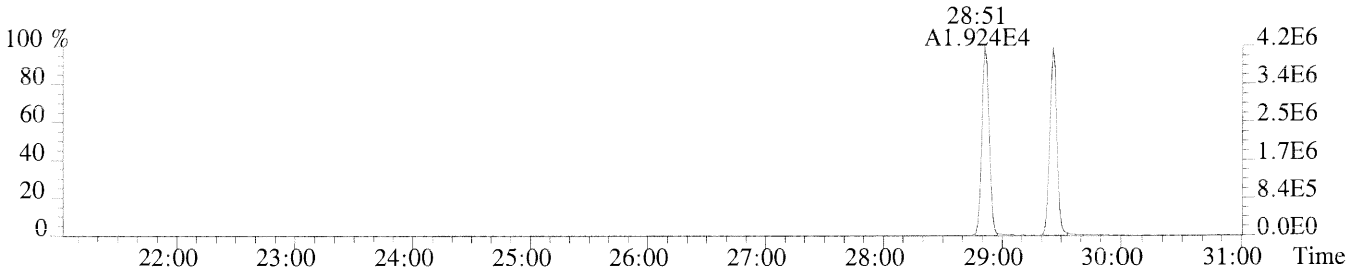
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



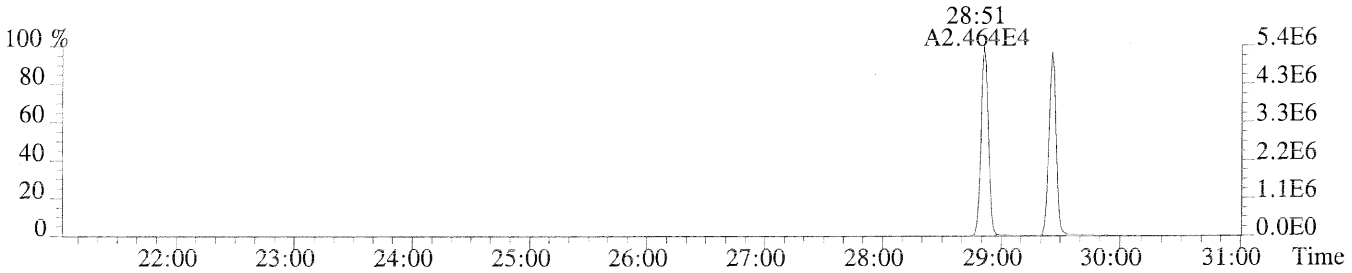
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



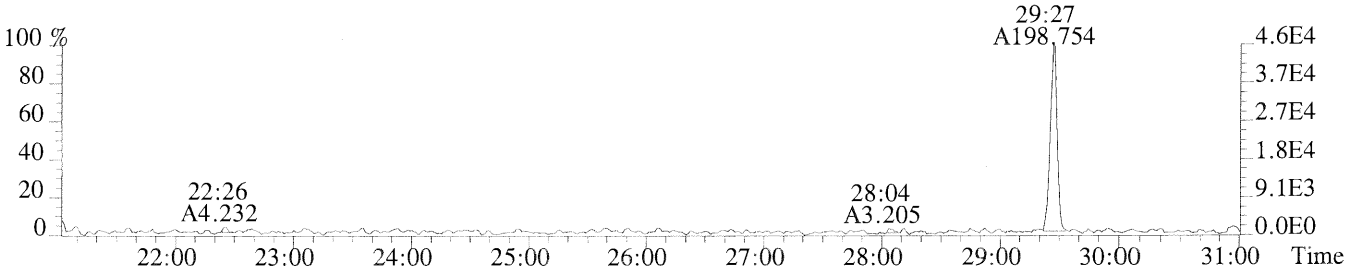
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2692.0,1.00%,F,T)



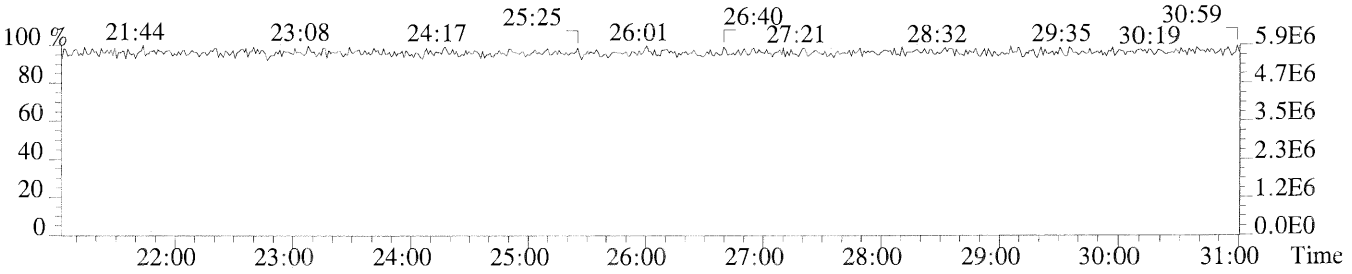
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



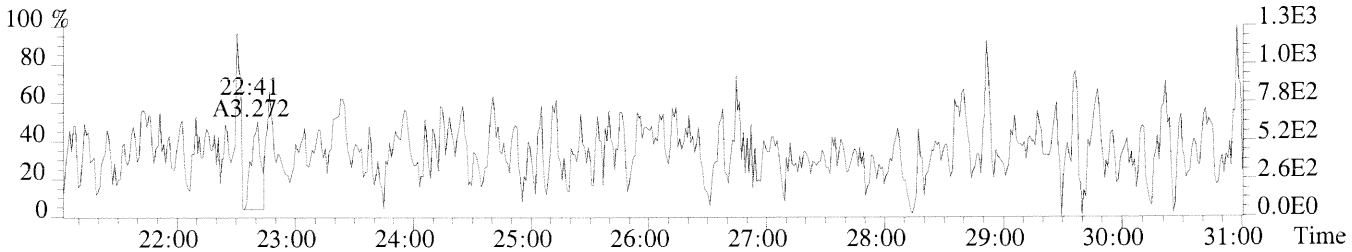
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



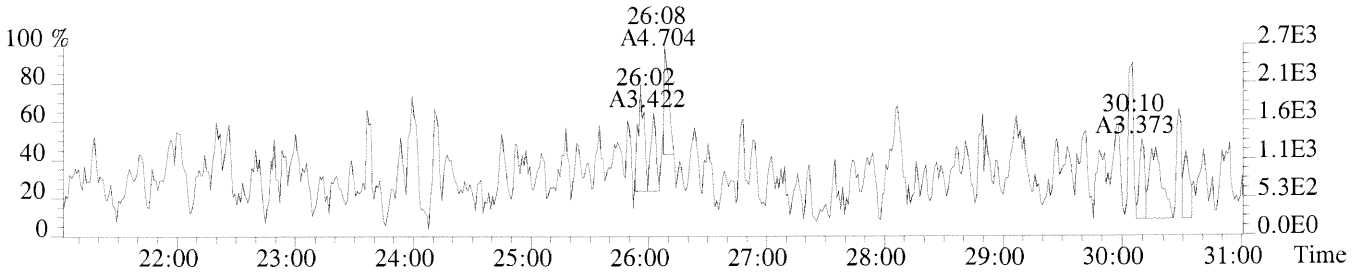
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



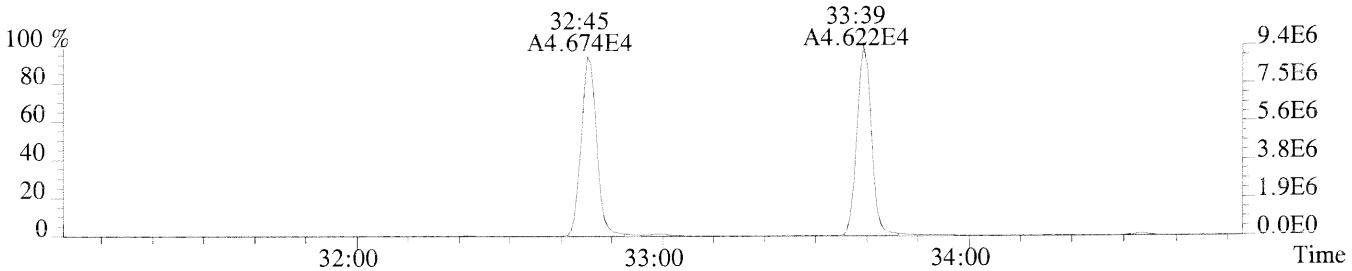
File:U149173 #1-627 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



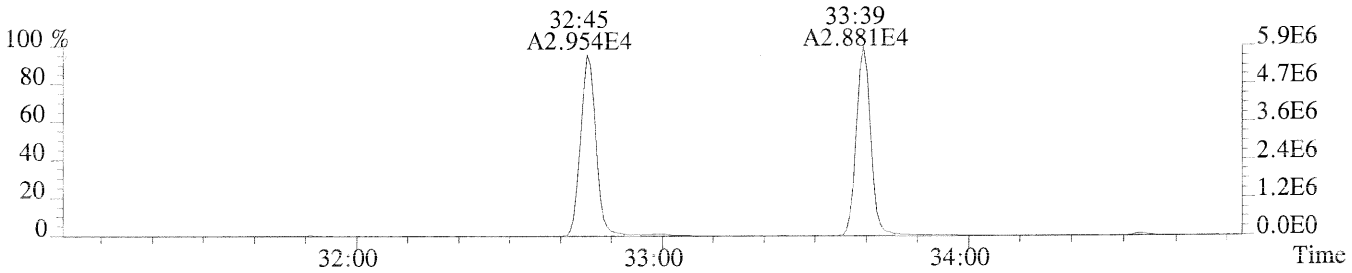
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



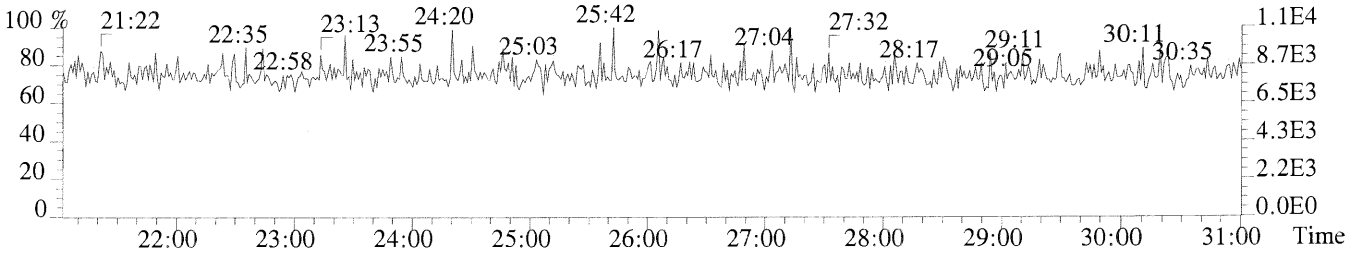
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



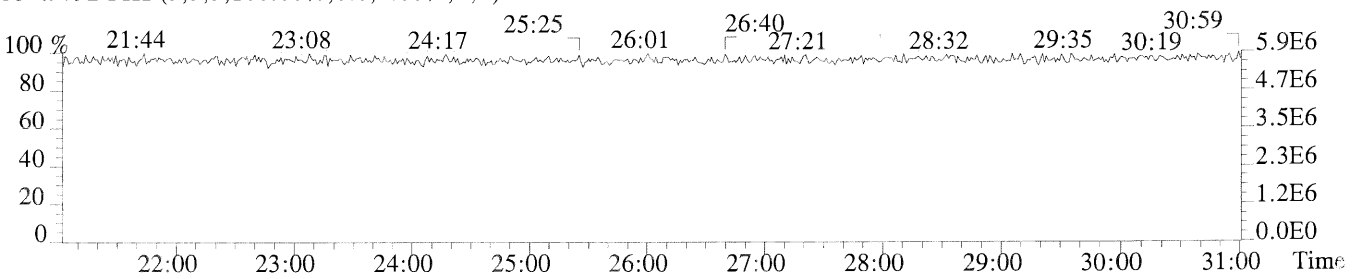
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

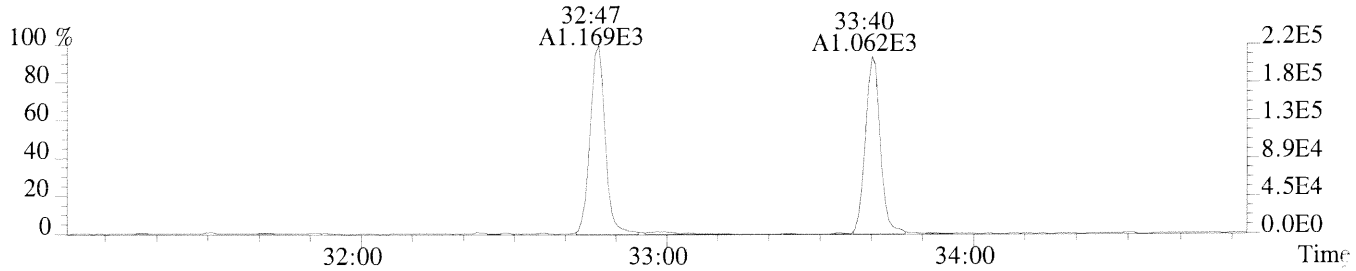


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

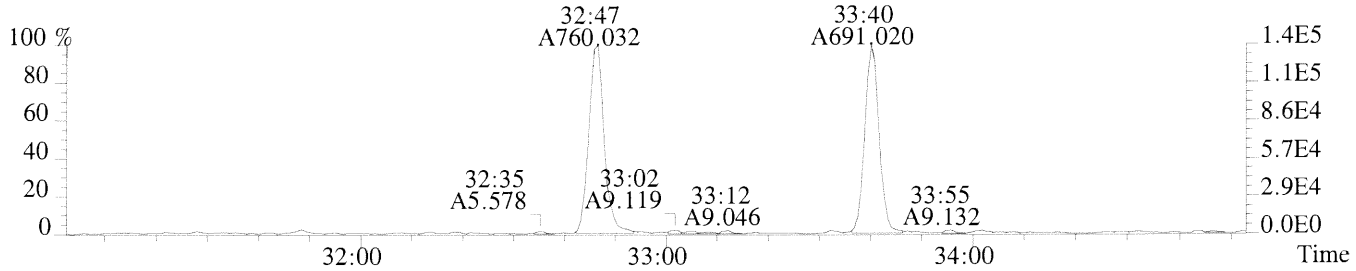


File:U149173 #1-349 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

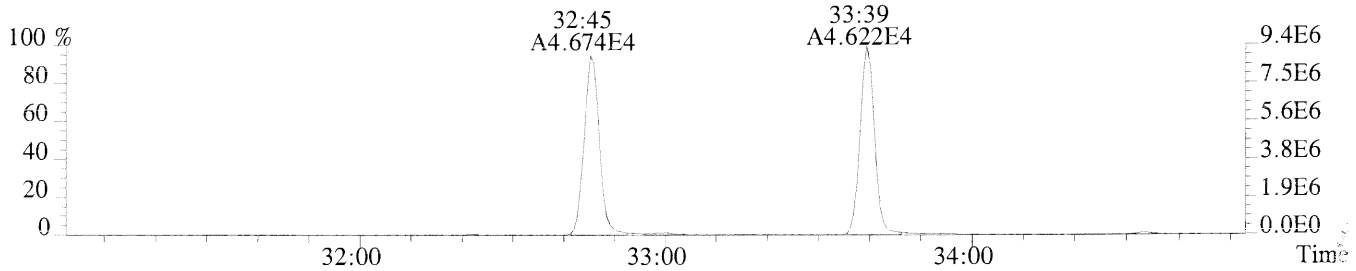
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



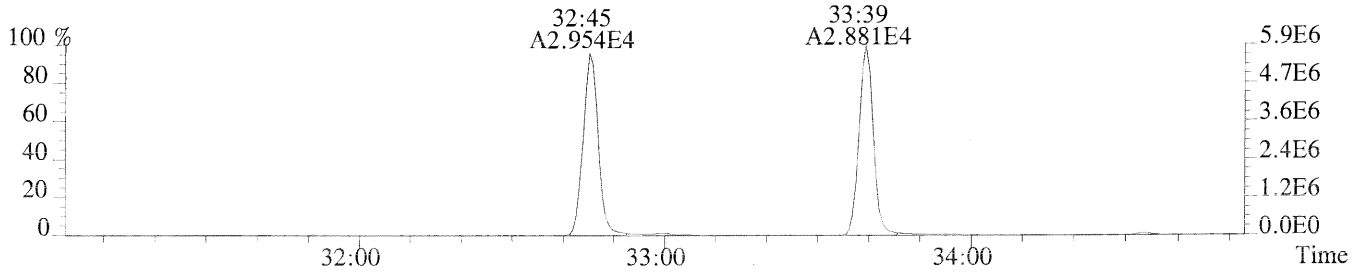
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1224.0,1.00%,F,T)



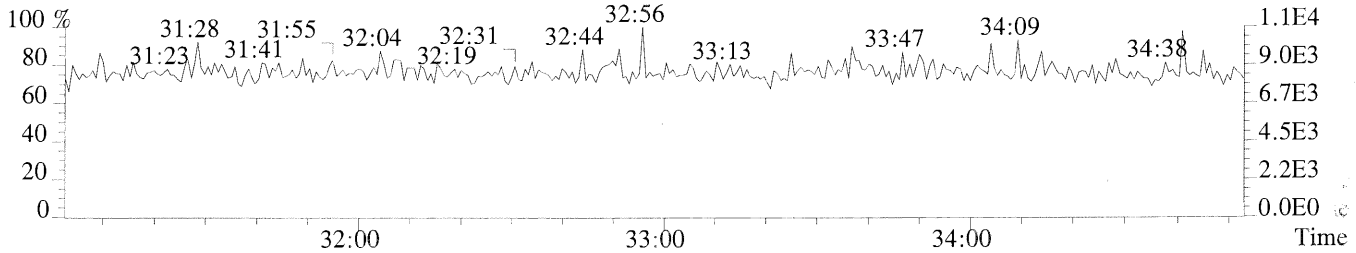
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



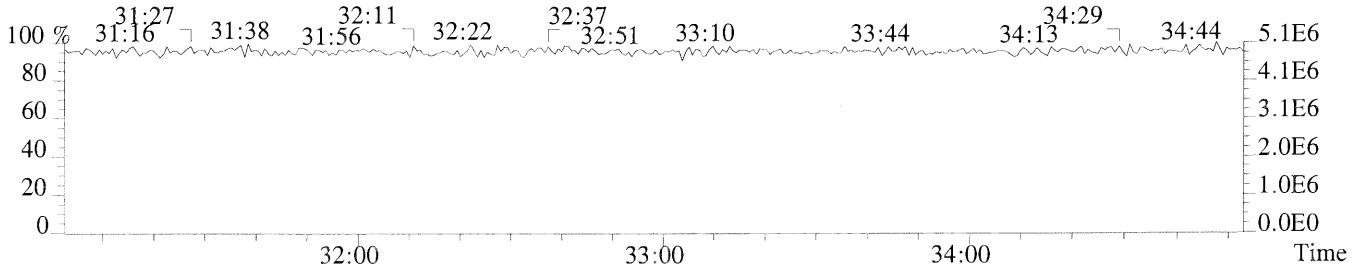
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

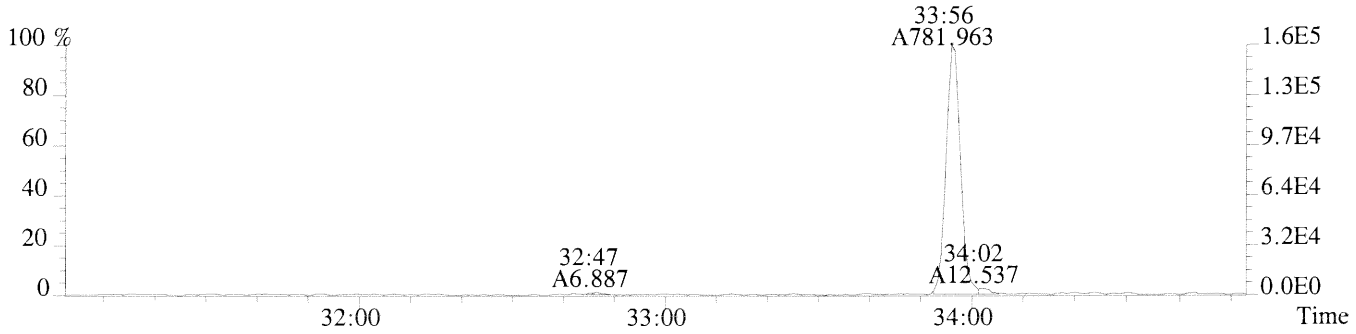


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

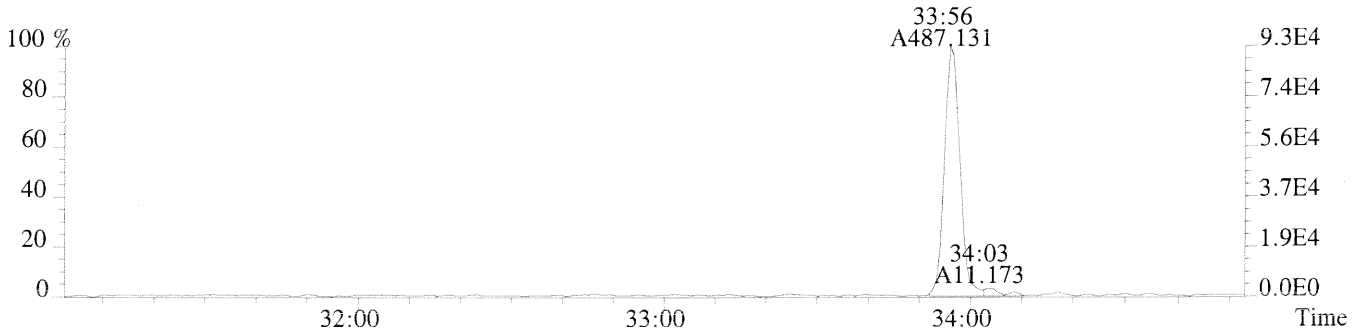


File:U149173 #1-349 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

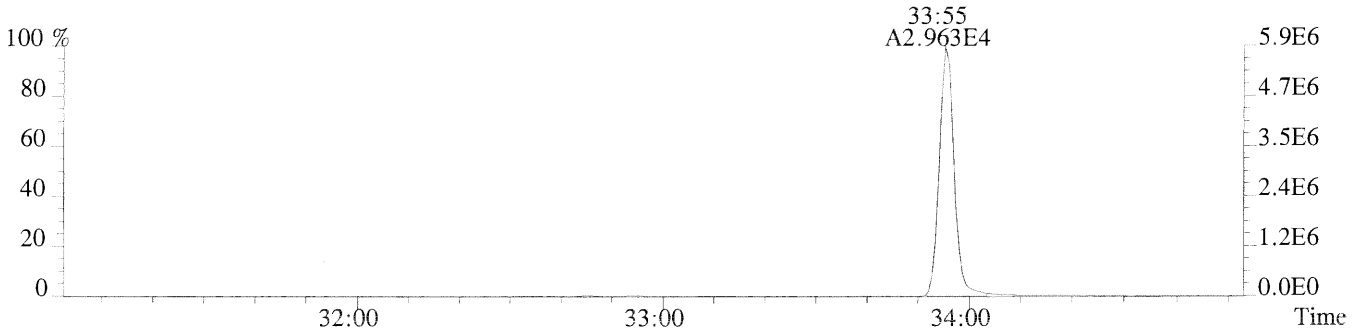
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



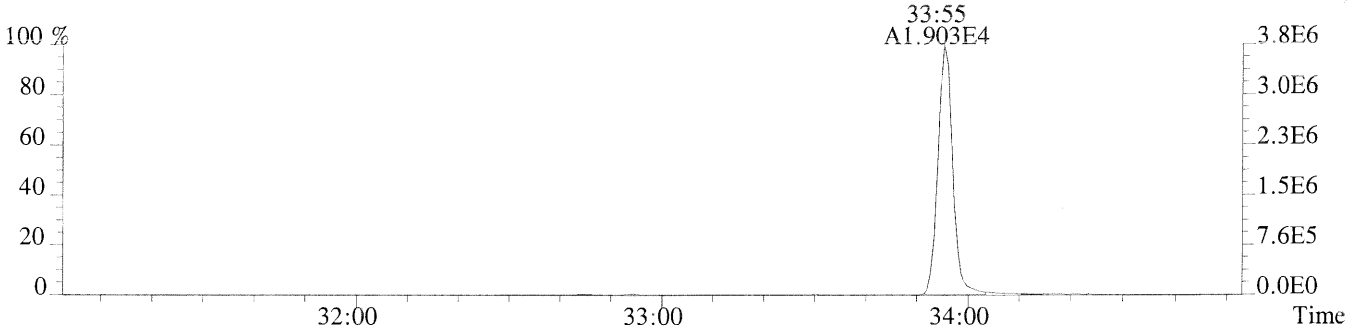
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



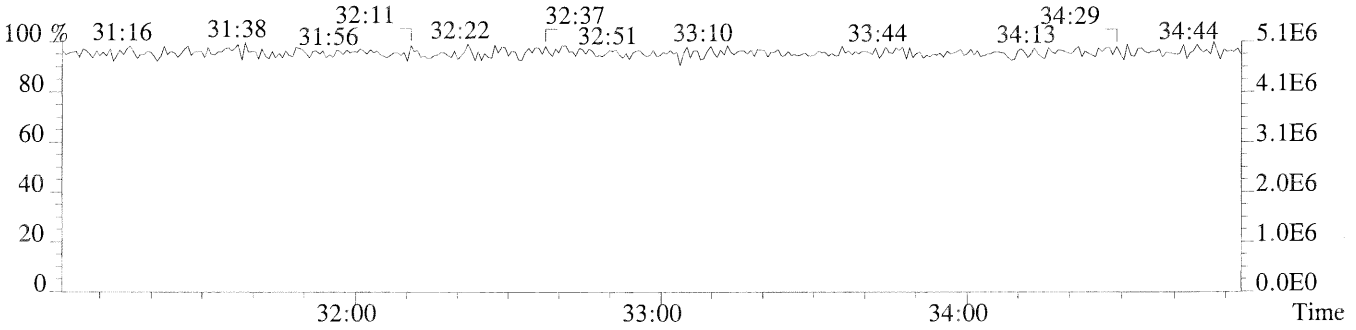
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)

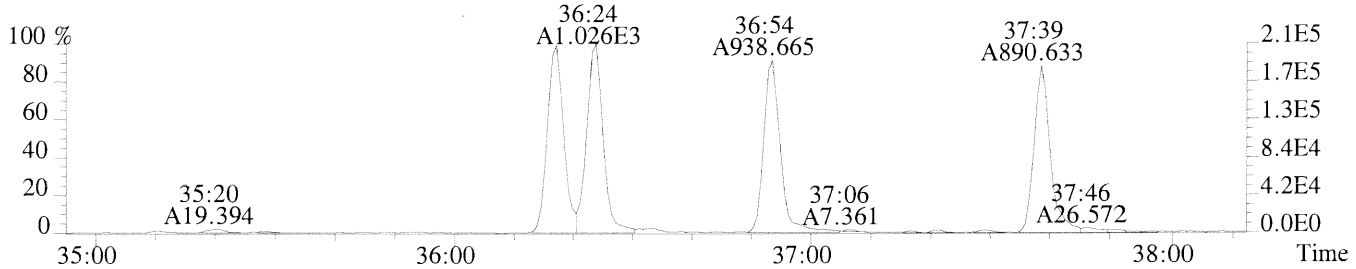


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

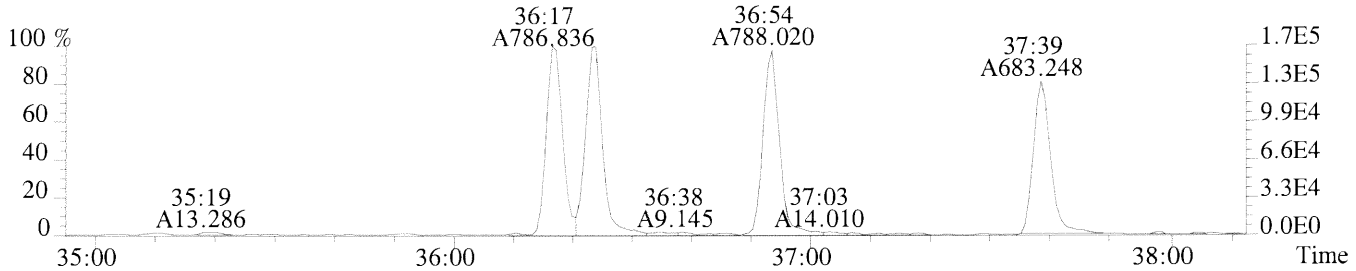


File:U149173 #1-299 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

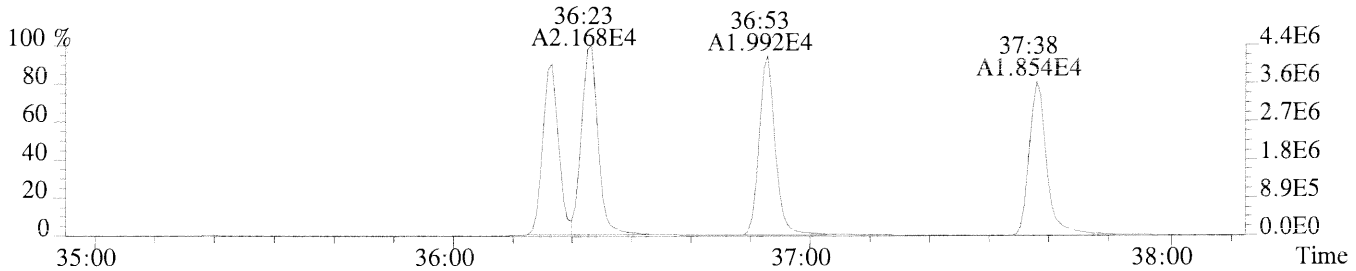
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1064.0,0.40%,F,T)



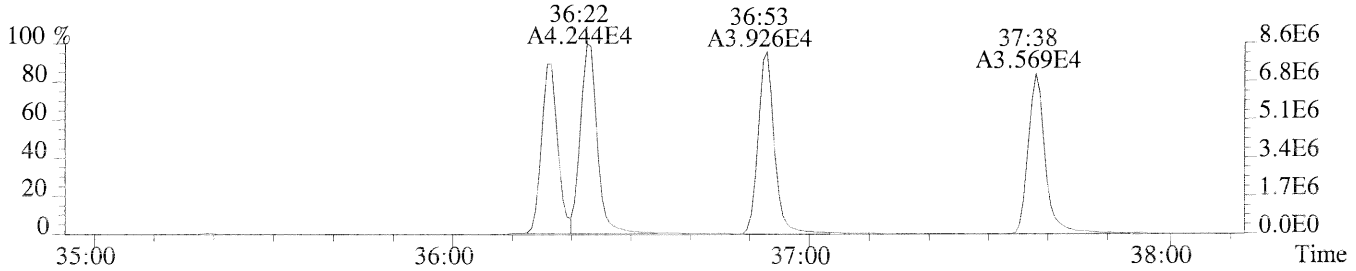
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.40%,F,T)



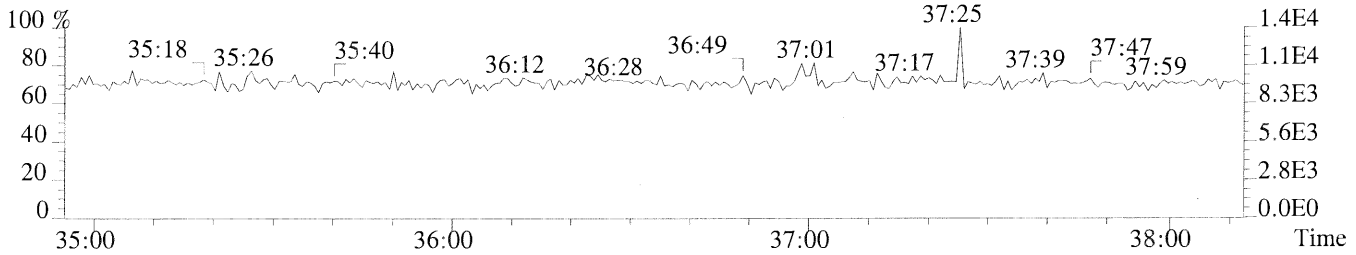
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



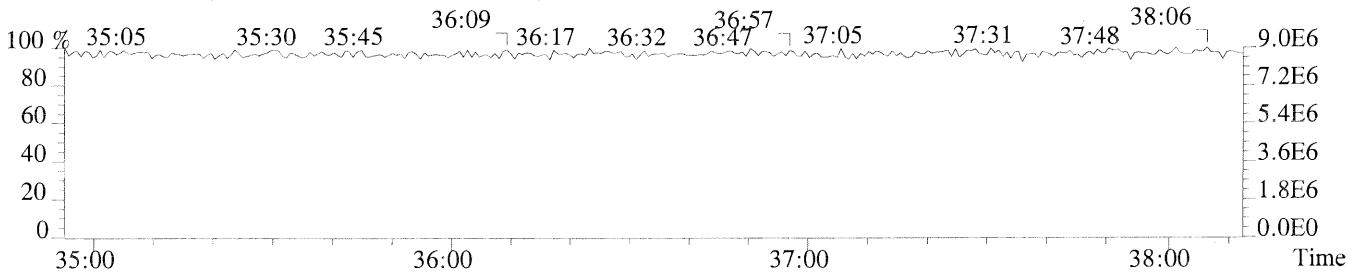
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)



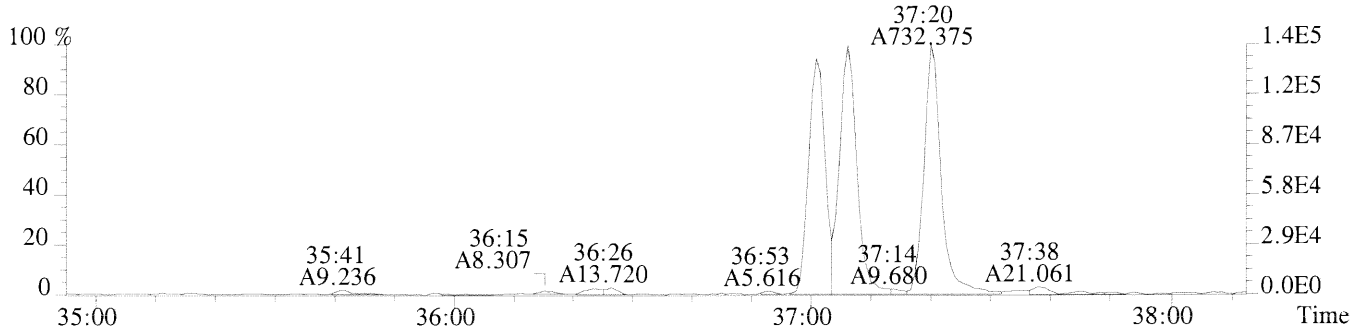
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



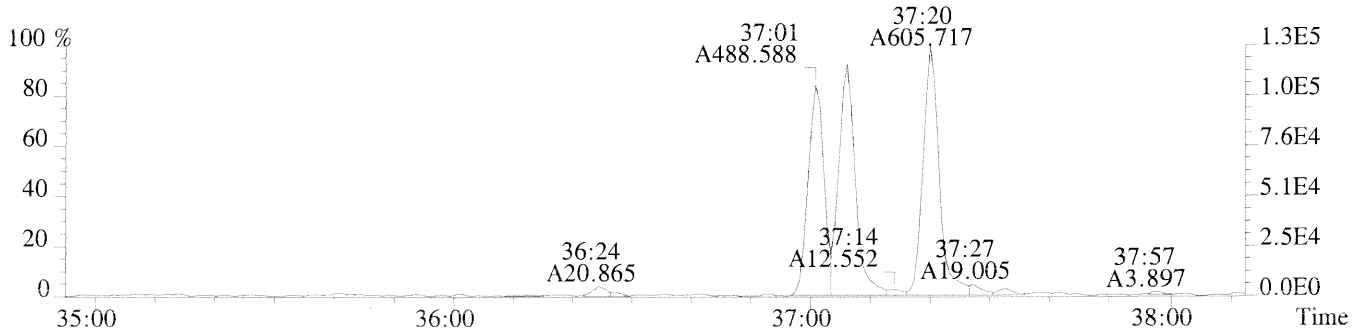
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



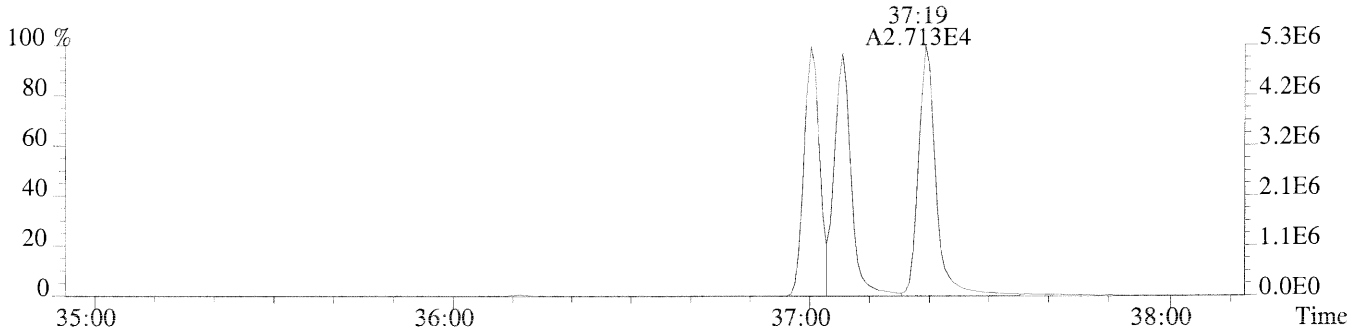
File:U149173 #1-299 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



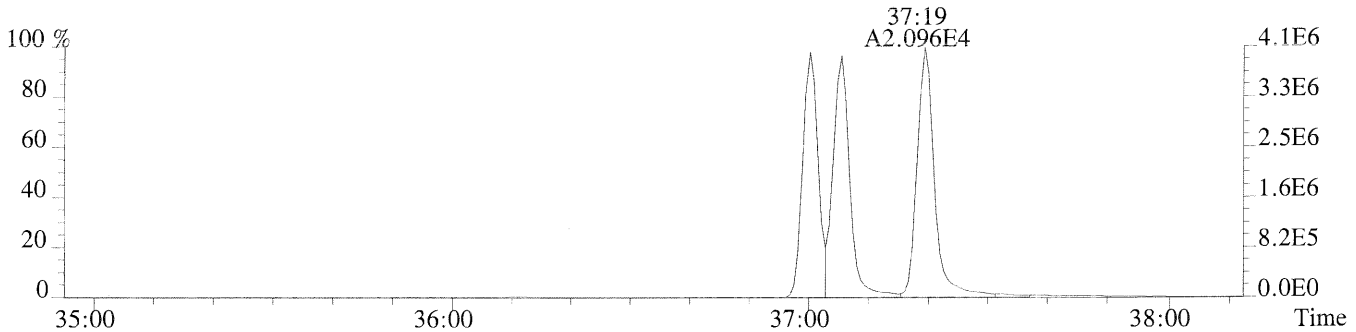
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



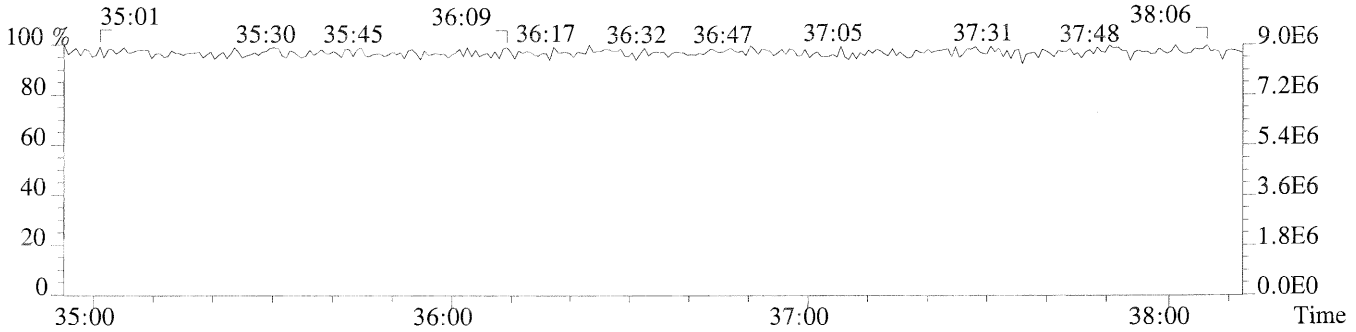
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1184.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)

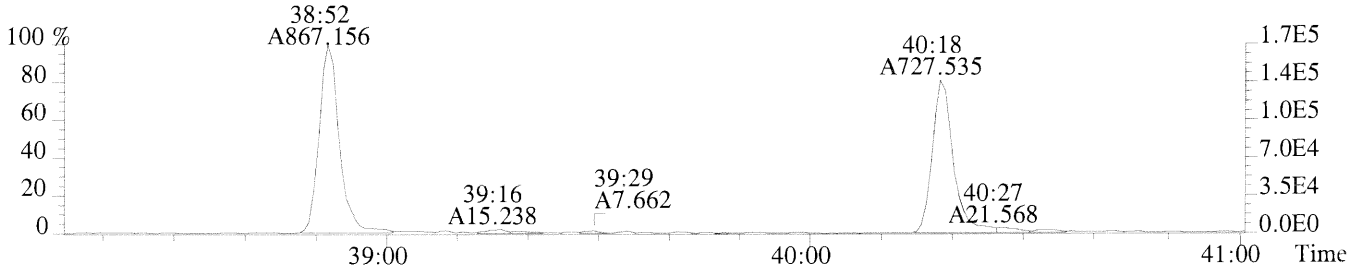


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

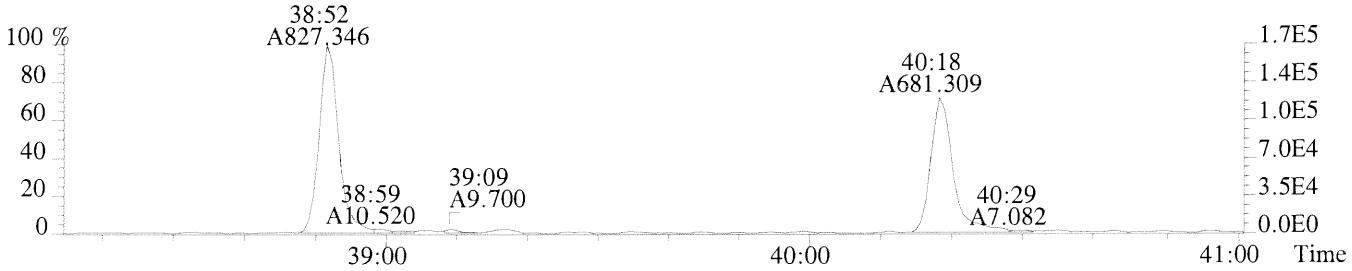


File:U149173 #1-252 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

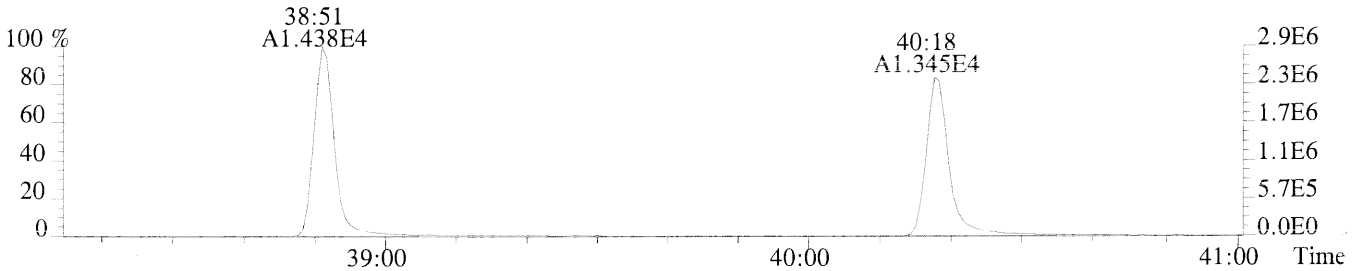
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1264.0,0.50%,F,T)



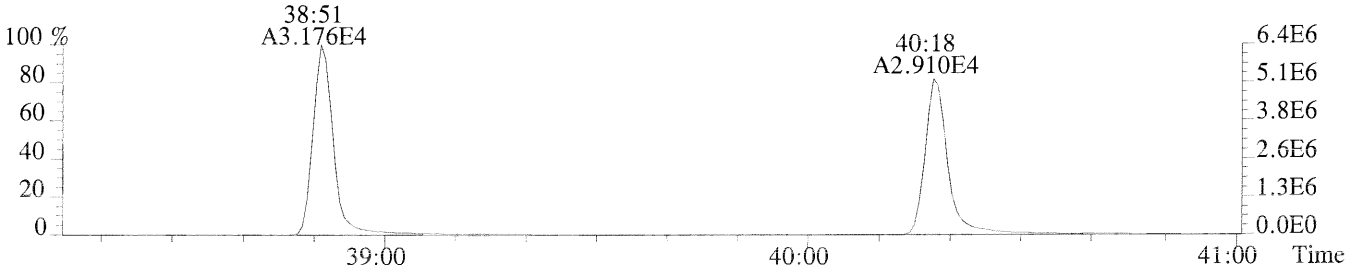
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1408.0,0.50%,F,T)



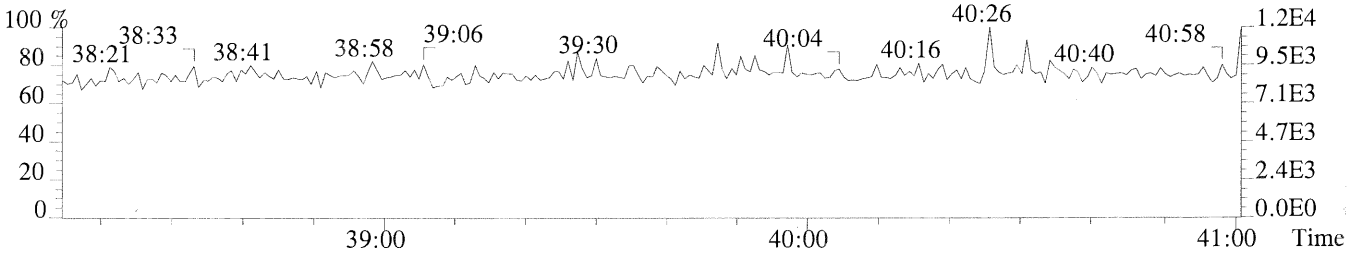
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3000.0,0.50%,F,T)



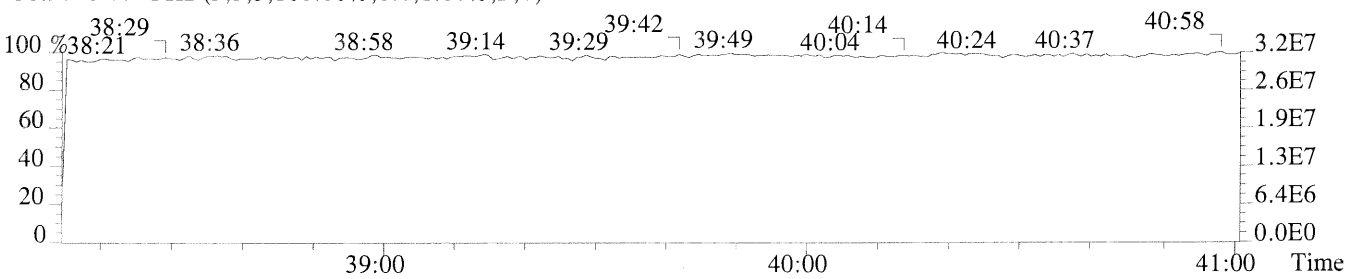
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4196.0,0.50%,F,T)



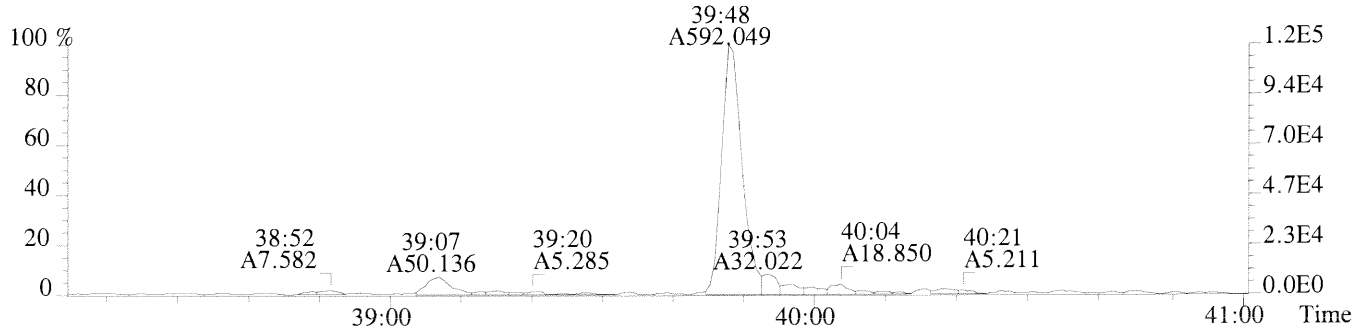
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



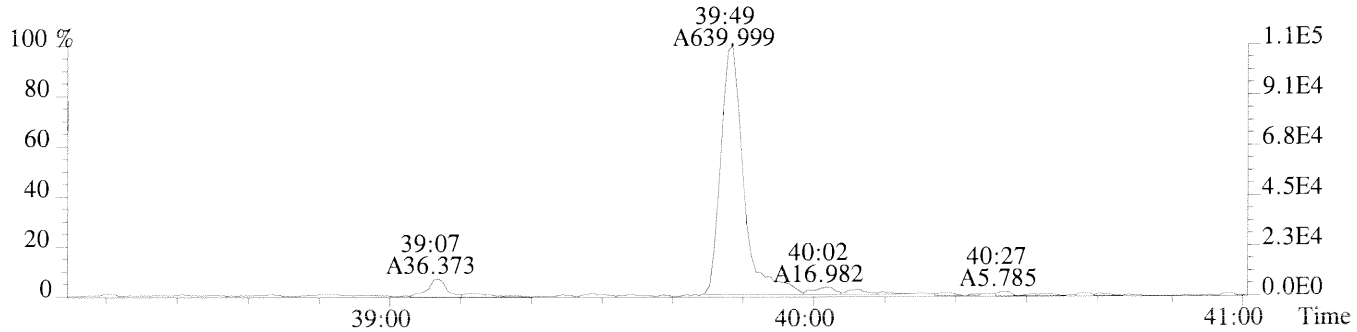
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



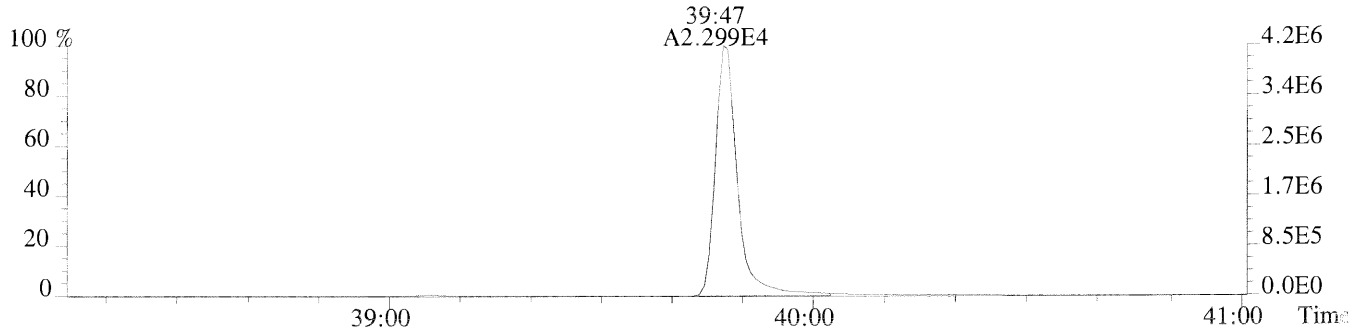
File:U149173 #1-252 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



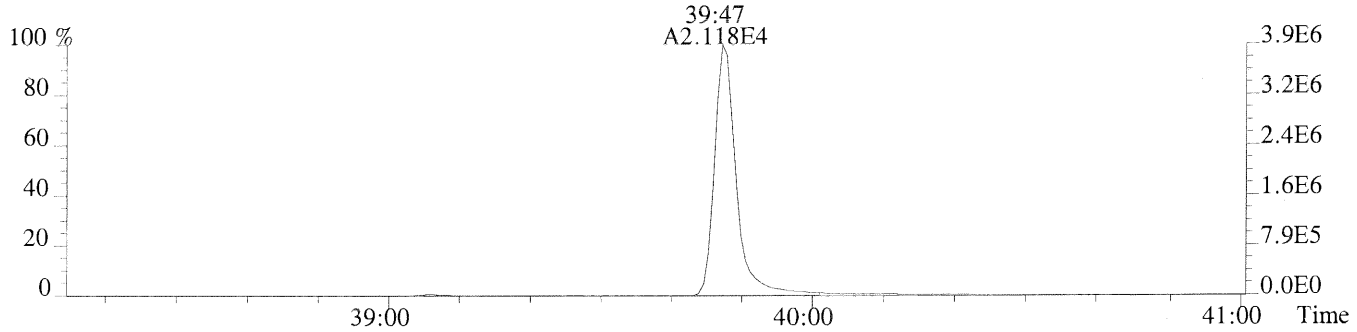
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



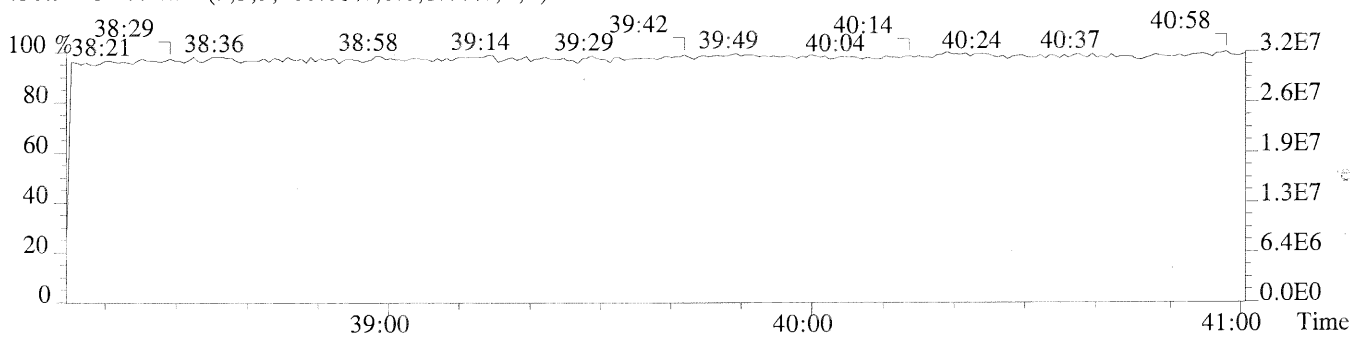
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



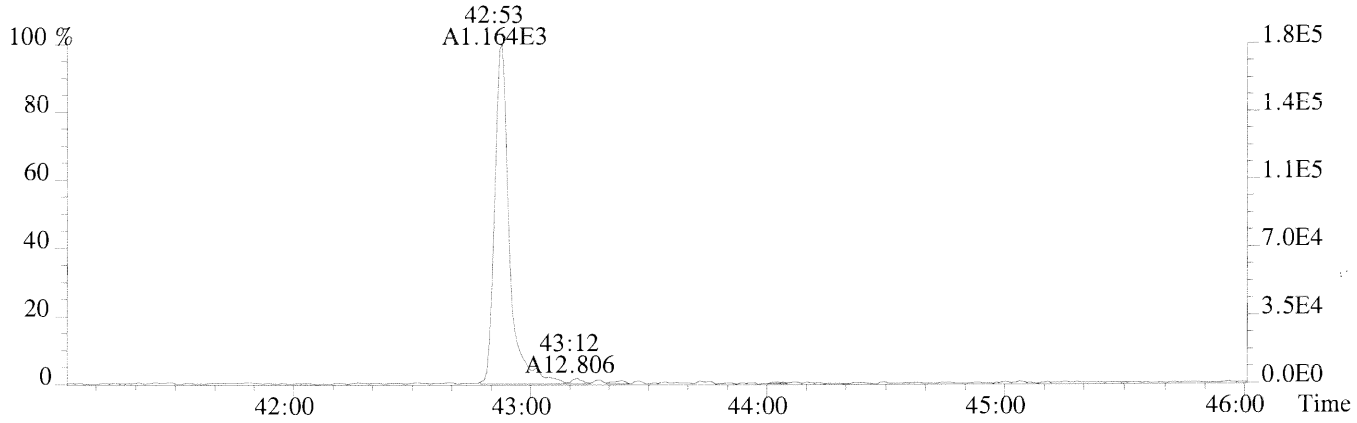
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



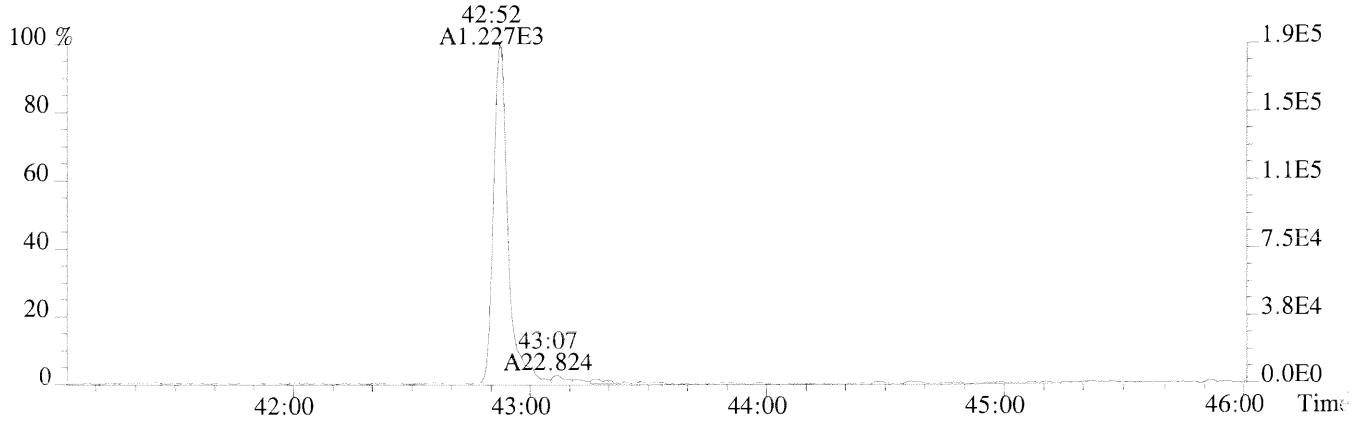
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



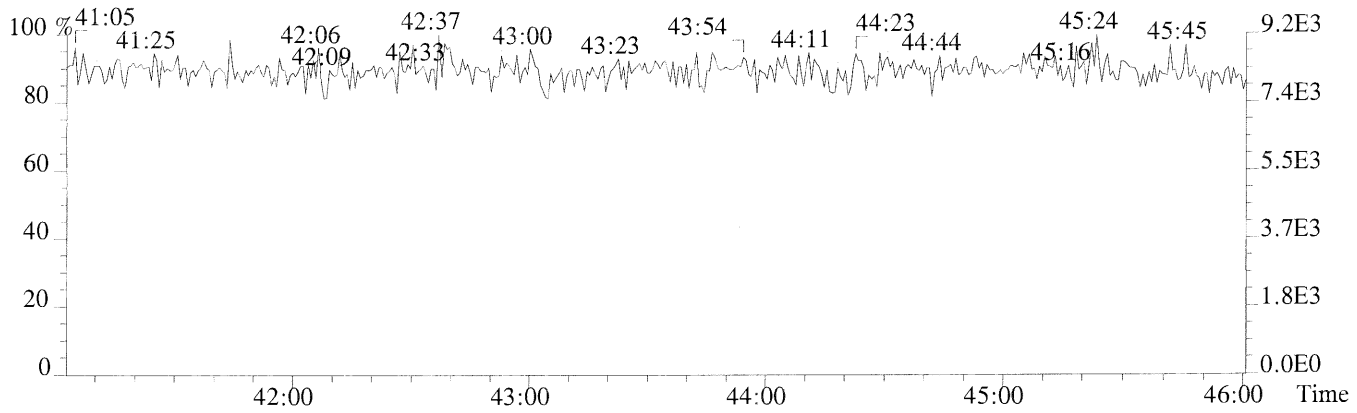
File:U149173 #1-451 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,728.0,0.40%,F,T)



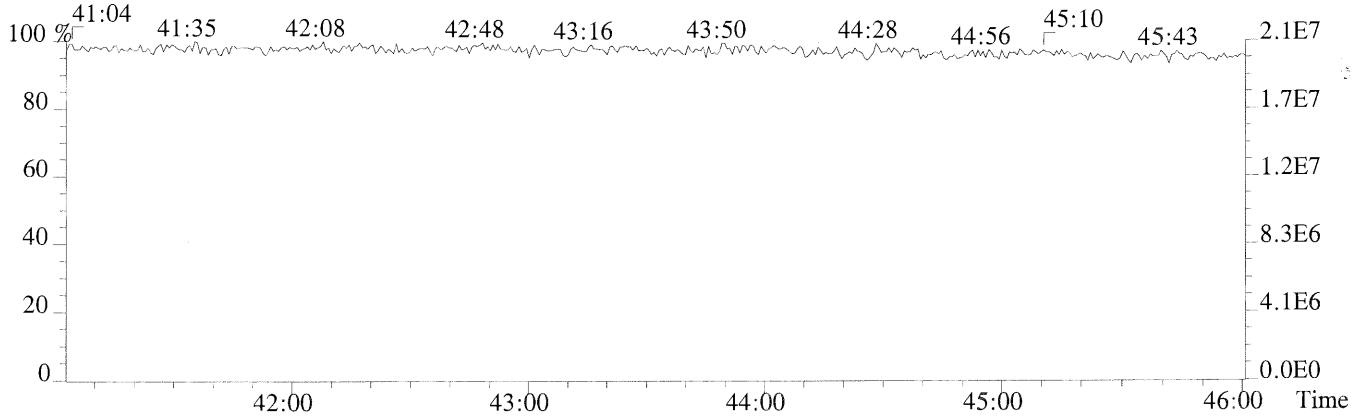
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



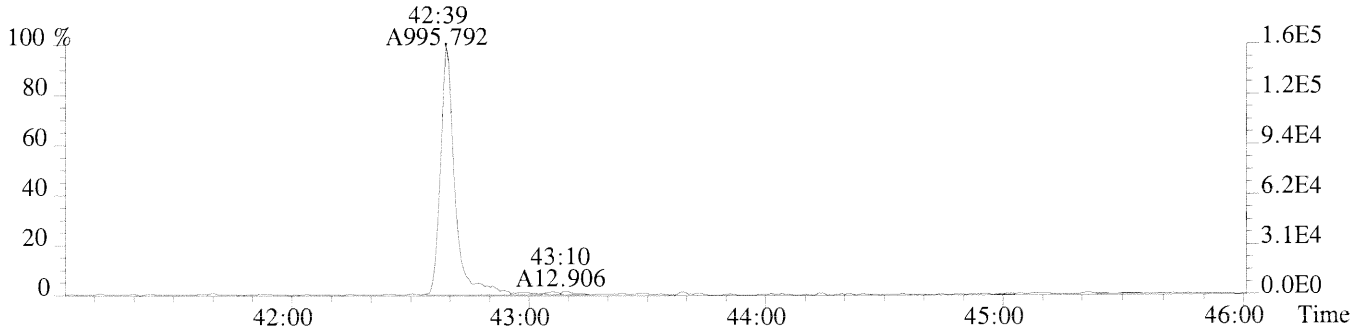
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



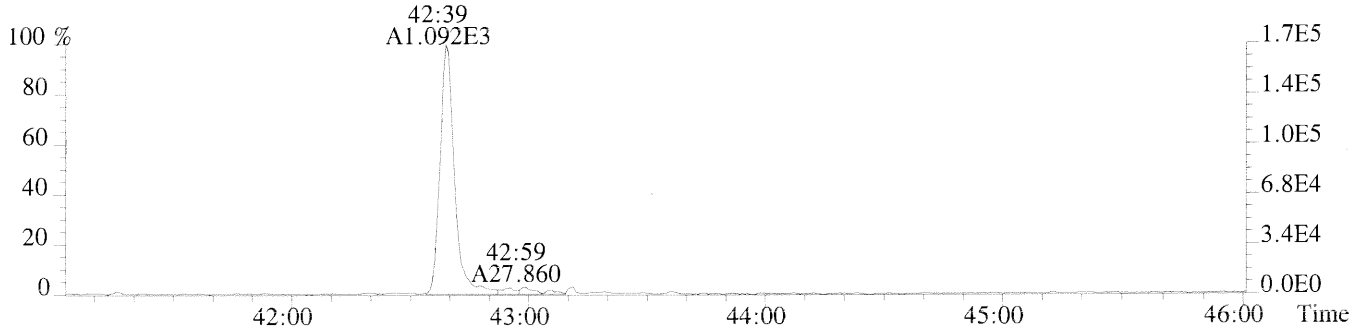
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



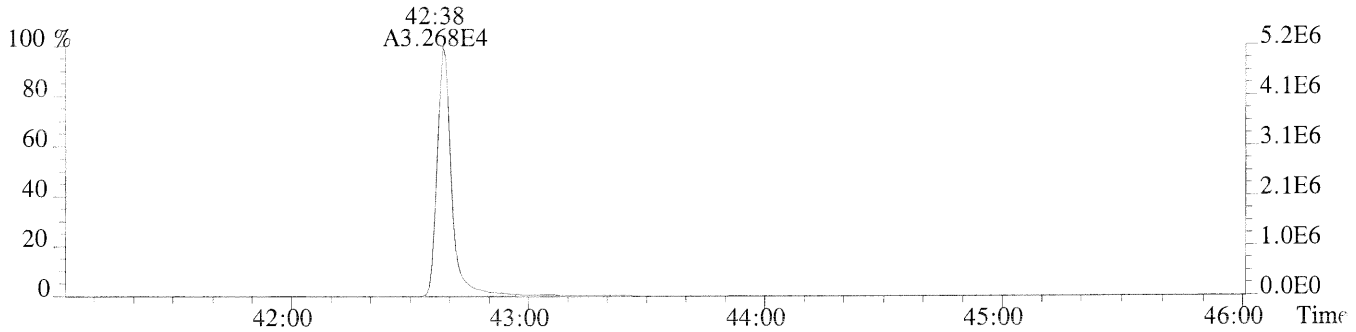
File:U149173 #1-451 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,552.0,0.40%,F,T)



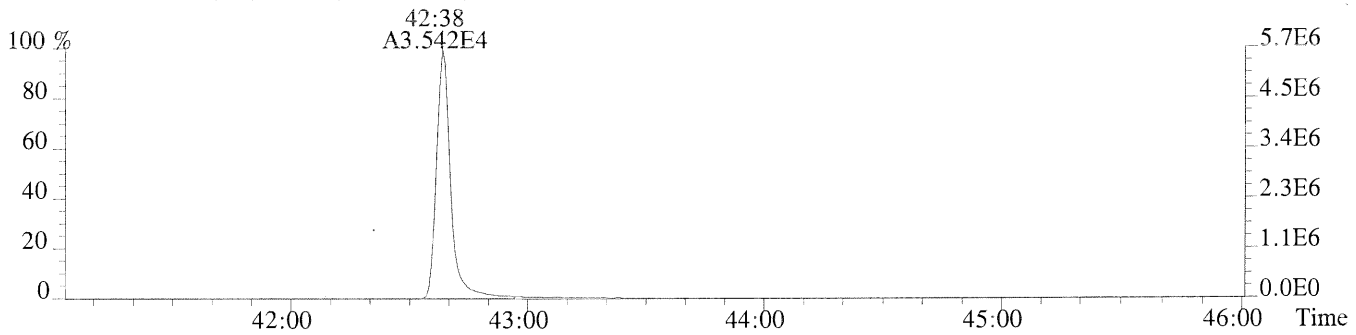
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)



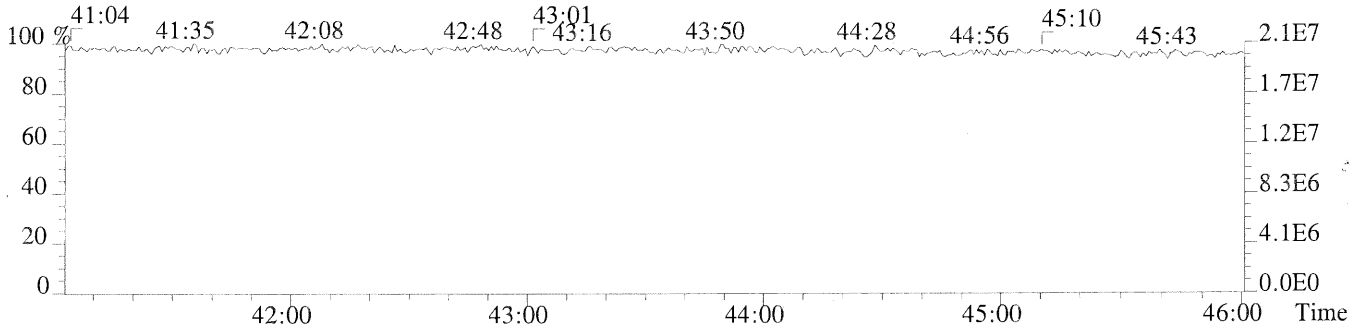
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,840.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,600.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
CS2

Run #3 Filename U149174 Samp: 1 Inj: 1 Acquired: 21-MAY-14 16:26:42
Processed: 23-MAY-14 08:49:33 Sample ID: D12-90-3B

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	7.173e+02	9.138e+02	0.78	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:46	6.731e+03	4.287e+03	1.57	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:40	6.261e+03	4.040e+03	1.55	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:17	5.431e+03	4.389e+03	1.24	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:23	6.018e+03	4.904e+03	1.23	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:53	5.417e+03	4.397e+03	1.23	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	5.268e+03	4.113e+03	1.28	yes	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	4.368e+03	4.263e+03	1.02	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:18	3.945e+03	3.863e+03	1.02	yes	no	1.359
10	Unk	OCDF	42:52	5.979e+03	6.721e+03	0.89	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:27	5.507e+02	6.624e+02	0.83	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:56	4.497e+03	2.804e+03	1.60	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:01	3.801e+03	3.101e+03	1.23	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:06	3.984e+03	3.207e+03	1.24	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:20	4.289e+03	3.414e+03	1.26	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:48	3.234e+03	3.185e+03	1.02	yes	no	1.065
17	Unk	OCDD	42:39	5.245e+03	6.029e+03	0.87	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:41	4.031e+04	4.984e+04	0.81	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:45	6.882e+04	4.355e+04	1.58	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:39	6.783e+04	4.301e+04	1.58	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	2.780e+04	5.354e+04	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.286e+04	6.308e+04	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	2.954e+04	5.780e+04	0.51	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	2.714e+04	5.261e+04	0.52	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:51	1.941e+04	4.308e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	1.824e+04	3.992e+04	0.46	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:26	2.783e+04	3.573e+04	0.78	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:55	4.407e+04	2.796e+04	1.58	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	3.544e+04	2.678e+04	1.32	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	3.681e+04	2.812e+04	1.31	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	3.203e+04	2.985e+04	1.07	yes	no	0.936
32	IS	13C-OCDD	42:38	4.619e+04	5.030e+04	0.92	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:51	2.848e+04	3.637e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	3.996e+04	3.100e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	1.272e+03				no	1.044

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
CS2

Run #3 Filename U149174 Samp: 1 Inj: 1 Acquired: 21-MAY-14 16:26:42
Processed: 22-MAY-14 12:57:501 LAB. ID: D12-90-3B

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.57e+05	6.52e+02	2.4e+02	1.92e+05	1.14e+03	1.7e+02
2	1,2,3,7,8-PeCDF	1.31e+06	8.68e+02	1.5e+03	8.58e+05	1.04e+03	8.2e+02
3	2,3,4,7,8-PeCDF	1.27e+06	8.68e+02	1.5e+03	8.17e+05	1.04e+03	7.9e+02
4	1,2,3,4,7,8-HxCDF	1.18e+06	8.80e+02	1.3e+03	9.47e+05	8.52e+02	1.1e+03
5	1,2,3,6,7,8-HxCDF	1.25e+06	8.80e+02	1.4e+03	1.03e+06	8.52e+02	1.2e+03
6	2,3,4,6,7,8-HxCDF	1.13e+06	8.80e+02	1.3e+03	9.32e+05	8.52e+02	1.1e+03
7	1,2,3,7,8,9-HxCDF	1.06e+06	8.80e+02	1.2e+03	8.19e+05	8.52e+02	9.6e+02
8	1,2,3,4,6,7,8-HpCDF	8.92e+05	1.52e+03	5.9e+02	8.68e+05	1.02e+03	8.5e+02
9	1,2,3,4,7,8,9-HpCDF	7.27e+05	1.52e+03	4.8e+02	7.32e+05	1.02e+03	7.2e+02
10	OCDF	9.02e+05	5.12e+02	1.8e+03	1.03e+06	7.16e+02	1.4e+03
11	2,3,7,8-TCDD	1.21e+05	4.56e+02	2.7e+02	1.52e+05	8.08e+02	1.9e+02
12	1,2,3,7,8-PeCDD	9.12e+05	9.12e+02	1.0e+03	5.86e+05	6.92e+02	8.5e+02
13	1,2,3,4,7,8-HxCDD	8.45e+05	7.20e+02	1.2e+03	6.82e+05	1.06e+03	6.4e+02
14	1,2,3,6,7,8-HxCDD	8.18e+05	7.20e+02	1.1e+03	6.59e+05	1.06e+03	6.2e+02
15	1,2,3,7,8,9-HxCDD	8.47e+05	7.20e+02	1.2e+03	6.69e+05	1.06e+03	6.3e+02
16	1,2,3,4,6,7,8-HpCDD	6.21e+05	8.52e+02	7.3e+02	6.02e+05	5.44e+02	1.1e+03
17	OCDD	8.52e+05	6.56e+02	1.3e+03	9.85e+05	6.04e+02	1.6e+03
18	13C-2,3,7,8-TCDF	8.51e+06	1.32e+03	6.4e+03	1.05e+07	7.32e+02	1.4e+04
19	13C-1,2,3,7,8-PeCDF	1.33e+07	6.48e+02	2.1e+04	8.51e+06	7.24e+02	1.2e+04
20	13C-2,3,4,7,8-PeCDF	1.37e+07	6.48e+02	2.1e+04	8.54e+06	7.24e+02	1.2e+04
21	13C-1,2,3,4,7,8-HxCDF	6.07e+06	9.28e+02	6.5e+03	1.17e+07	9.32e+02	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	6.79e+06	9.28e+02	7.3e+03	1.31e+07	9.32e+02	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	6.19e+06	9.28e+02	6.7e+03	1.21e+07	9.32e+02	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	5.49e+06	9.28e+02	5.9e+03	1.05e+07	9.32e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.97e+06	2.66e+03	1.5e+03	8.82e+06	2.68e+03	3.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.37e+06	2.66e+03	1.3e+03	7.46e+06	2.68e+03	2.8e+03
27	13C-2,3,7,8-TCDD	6.31e+06	2.53e+03	2.5e+03	8.08e+06	1.46e+03	5.5e+03
28	13C-1,2,3,7,8-PeCDD	8.97e+06	6.88e+02	1.3e+04	5.66e+06	7.00e+02	8.1e+03
29	13C-1,2,3,4,7,8-HxCDD	7.90e+06	9.72e+02	8.1e+03	5.86e+06	1.07e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	7.46e+06	9.72e+02	7.7e+03	5.64e+06	1.07e+03	5.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.11e+06	7.72e+02	7.9e+03	5.68e+06	8.00e+02	7.1e+03
32	13C-OCDD	7.33e+06	6.72e+02	1.1e+04	7.97e+06	5.92e+02	1.3e+04
33	13C-1,2,3,4-TCDD	6.32e+06	2.53e+03	2.5e+03	8.05e+06	1.46e+03	5.5e+03
34	13C-1,2,3,7,8,9-HxCDD	8.10e+06	9.72e+02	8.3e+03	6.21e+06	1.07e+03	5.8e+03
35	37Cl-2,3,7,8-TCDD	2.84e+05	1.29e+03	2.2e+02			

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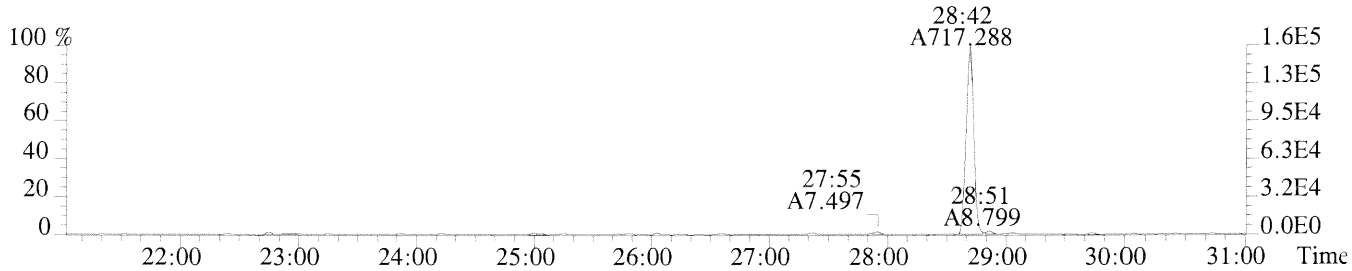
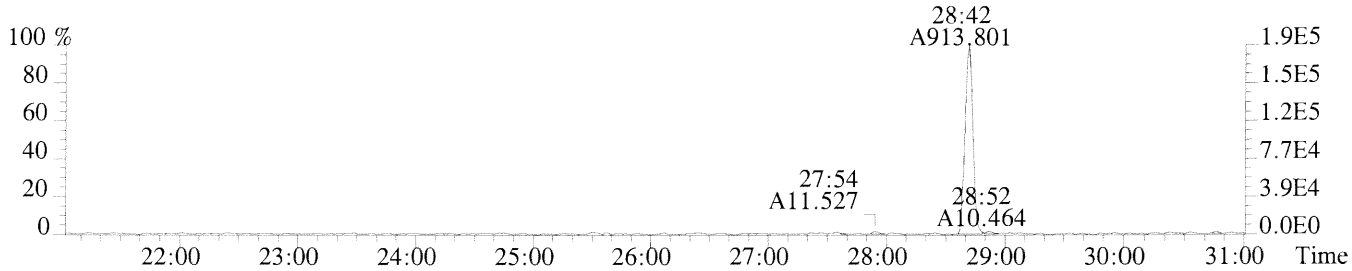
File:U149174 #1-627 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

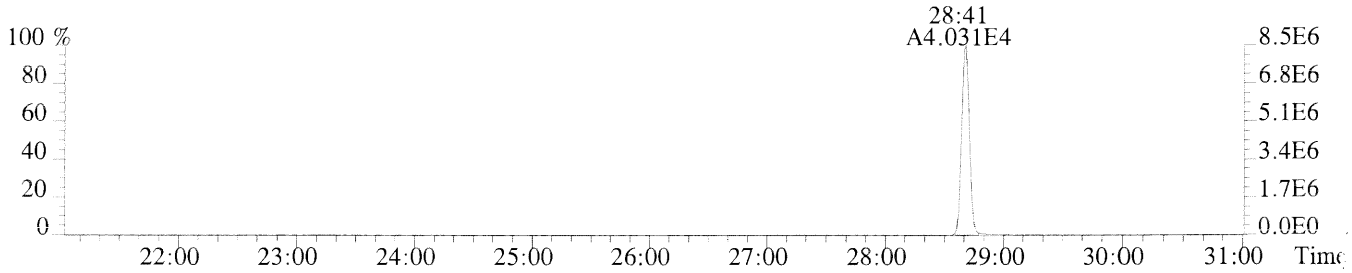
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



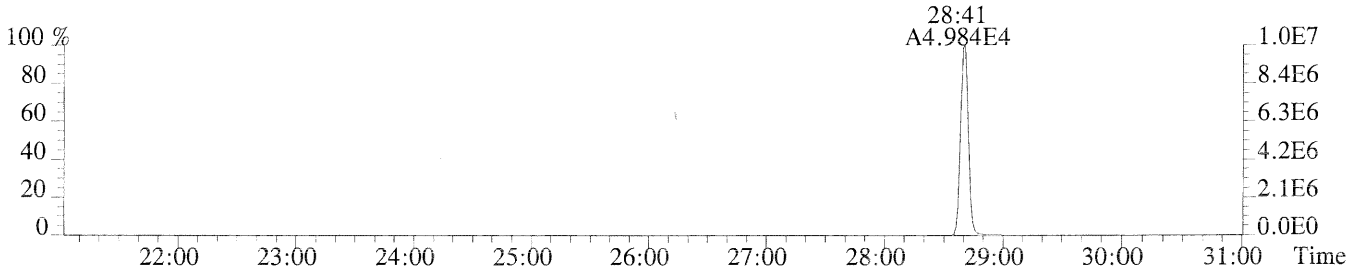
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



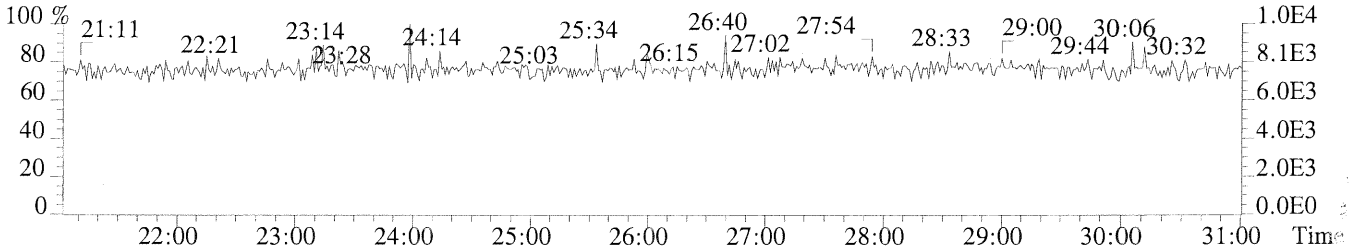
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1320.0,1.00%,F,T)



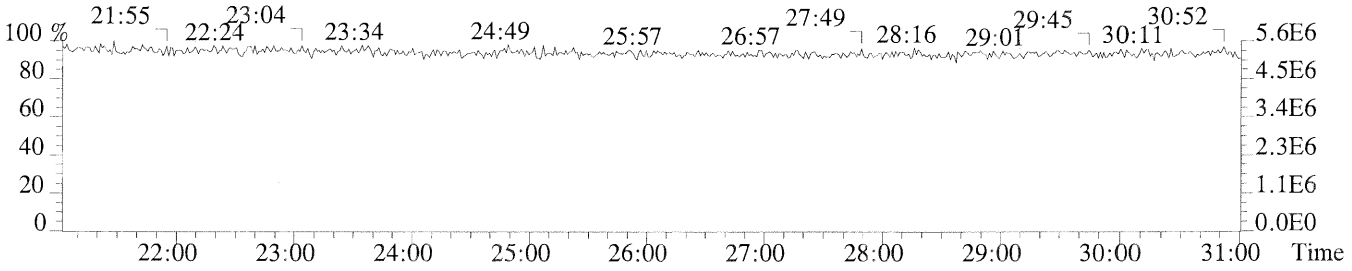
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

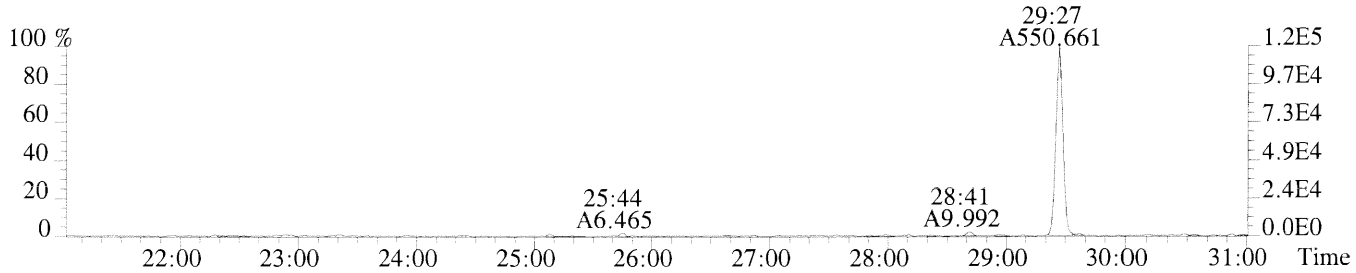


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

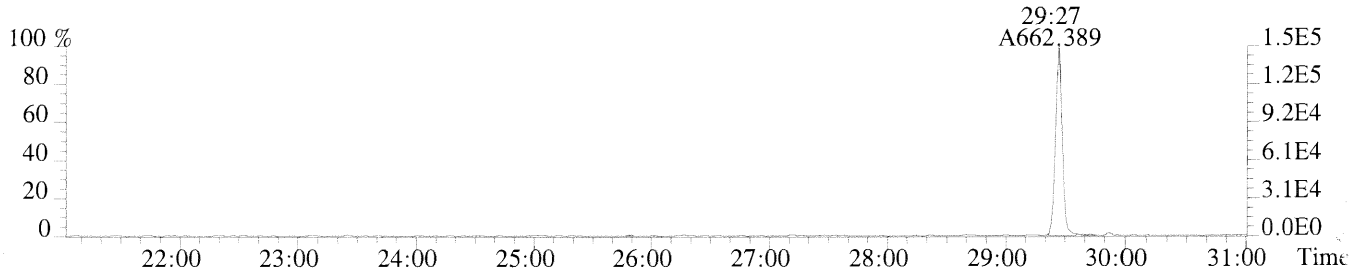


File:U149174 #1-627 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

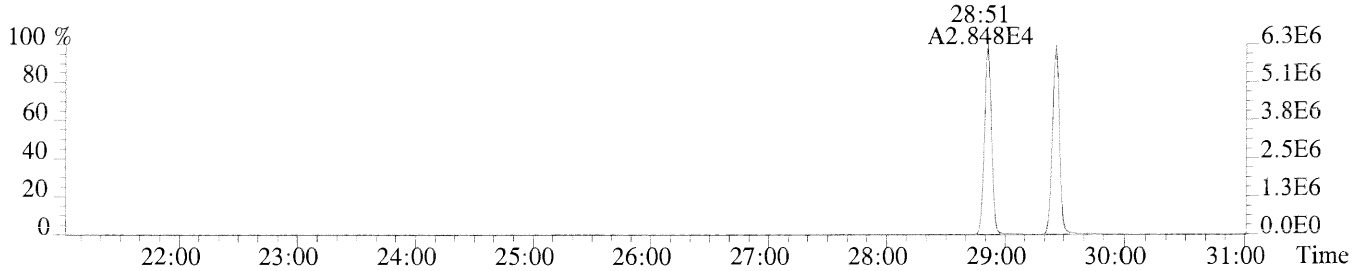
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



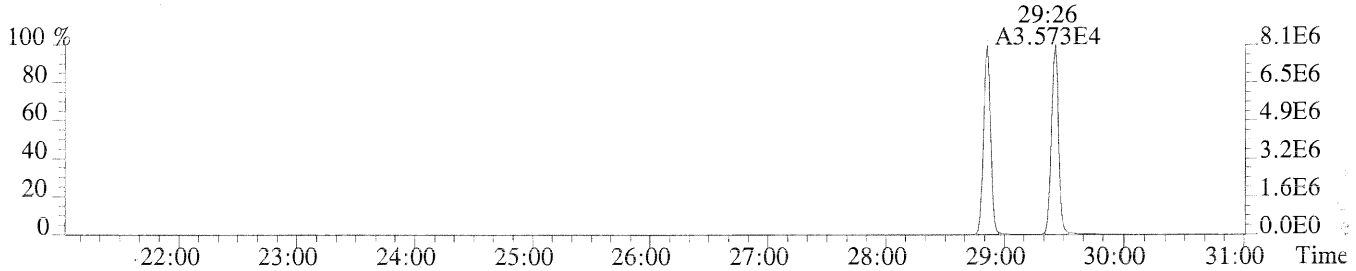
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



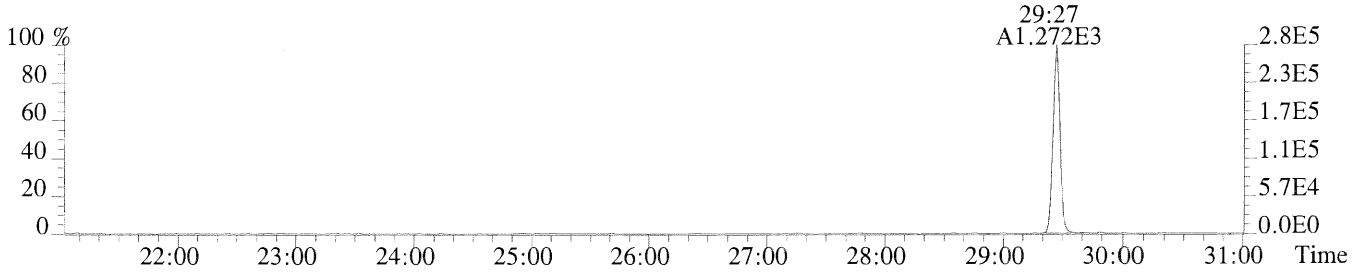
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2528.0,1.00%,F,T)



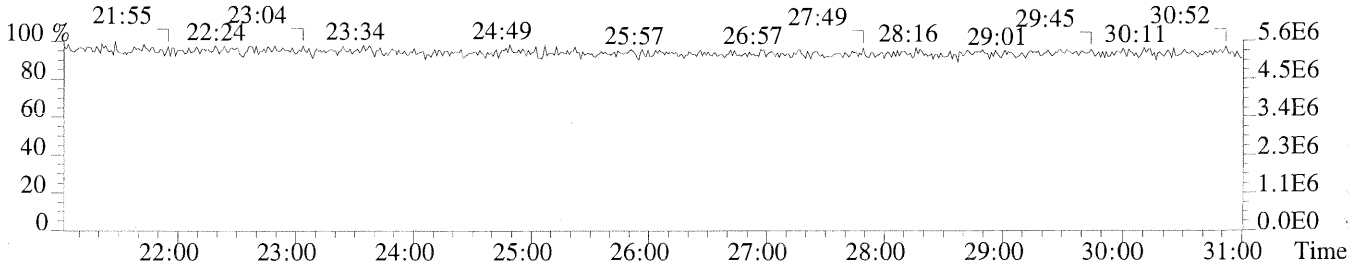
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)

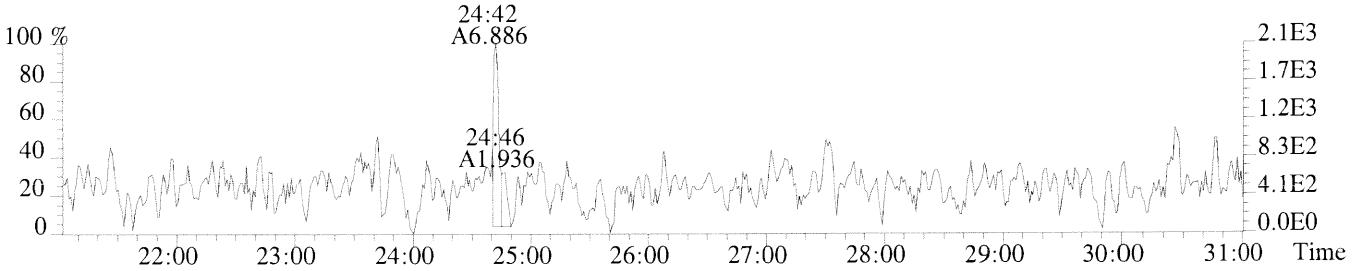


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

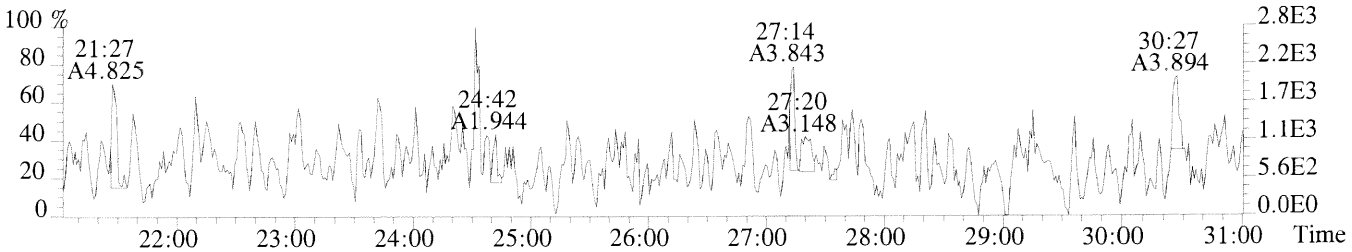


File:U149174 #1-627 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

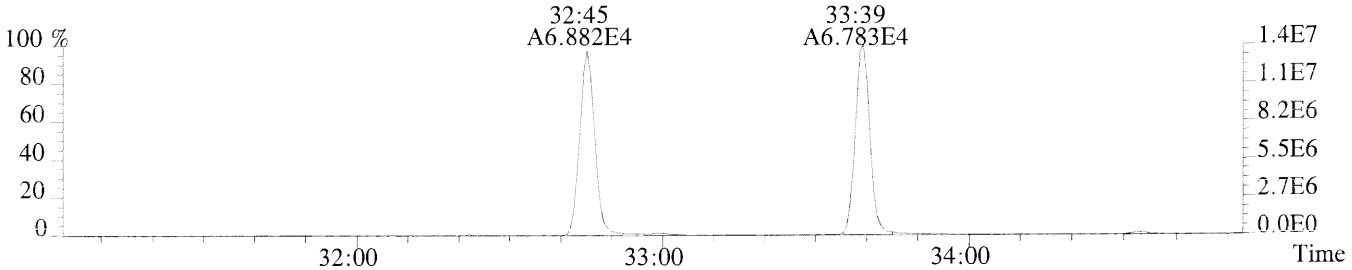
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



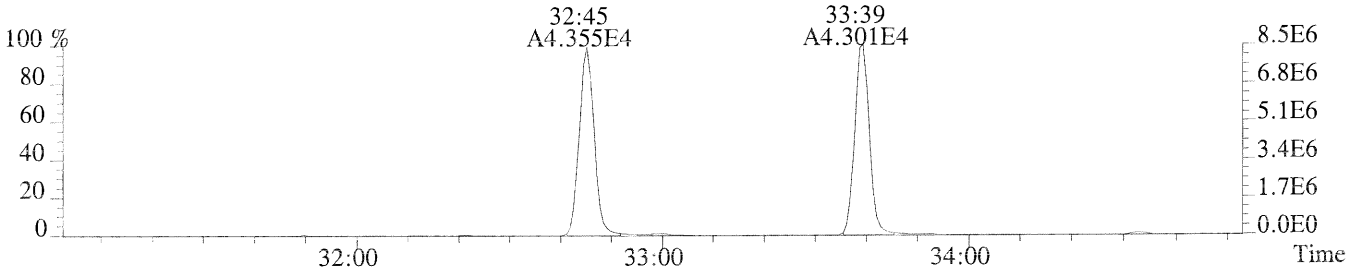
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



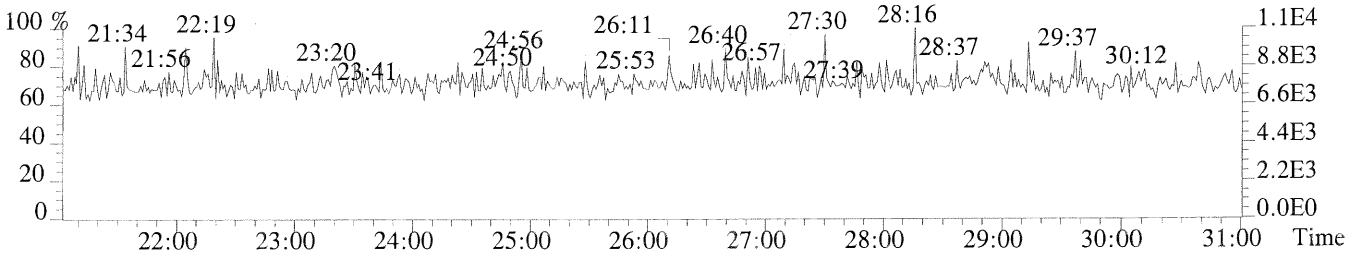
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



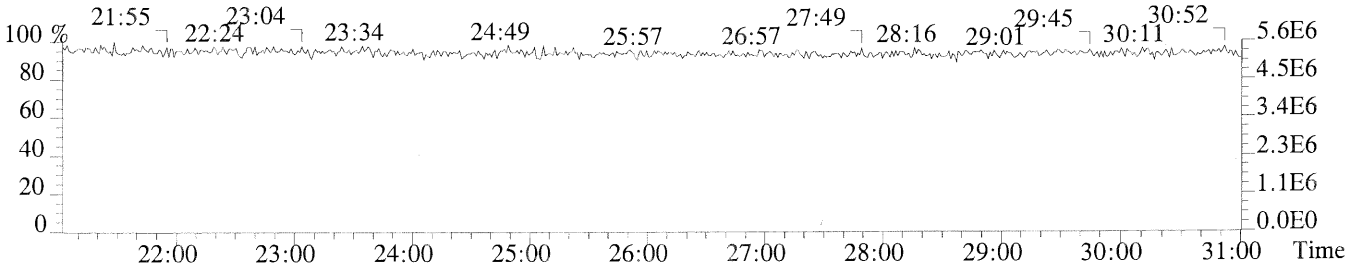
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

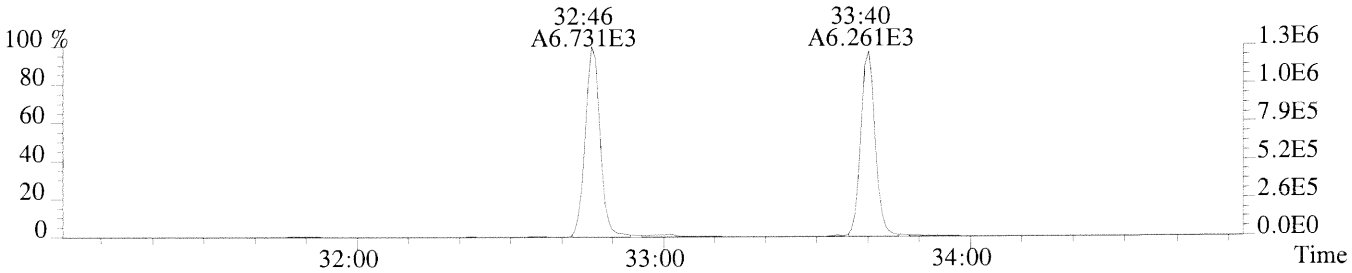


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

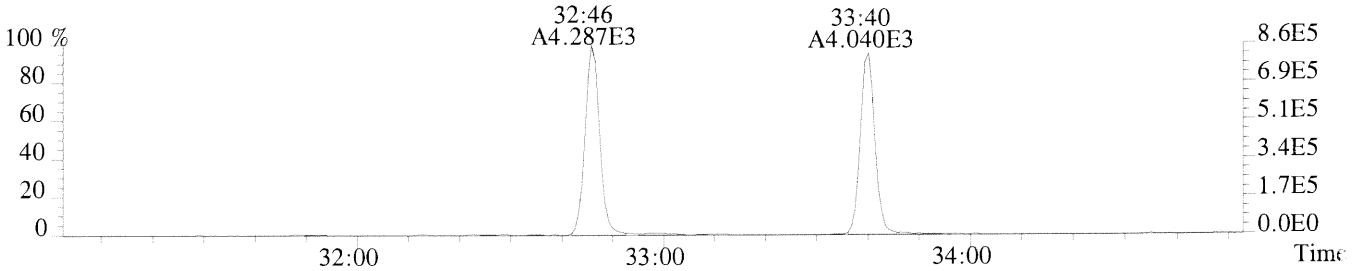


File:U149174 #1-349 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

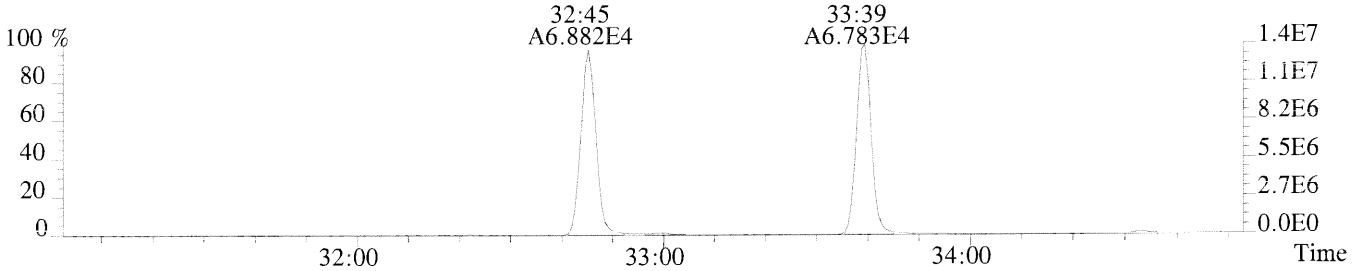
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



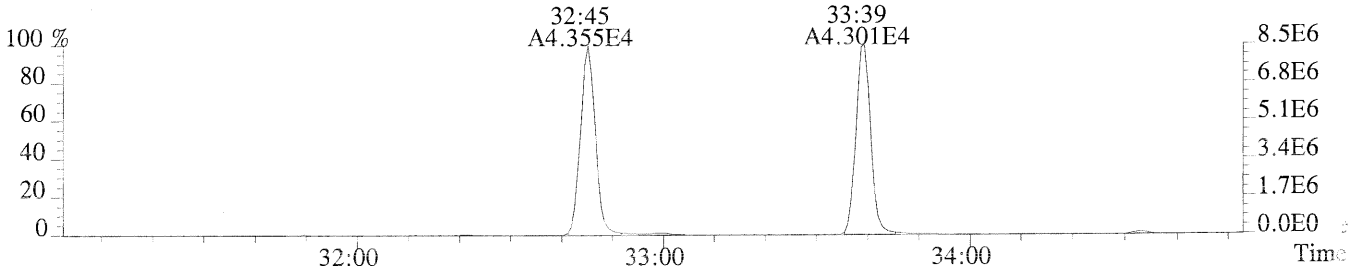
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



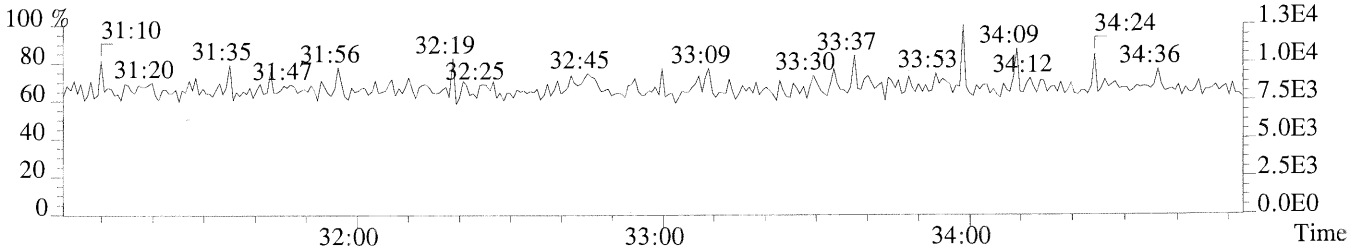
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



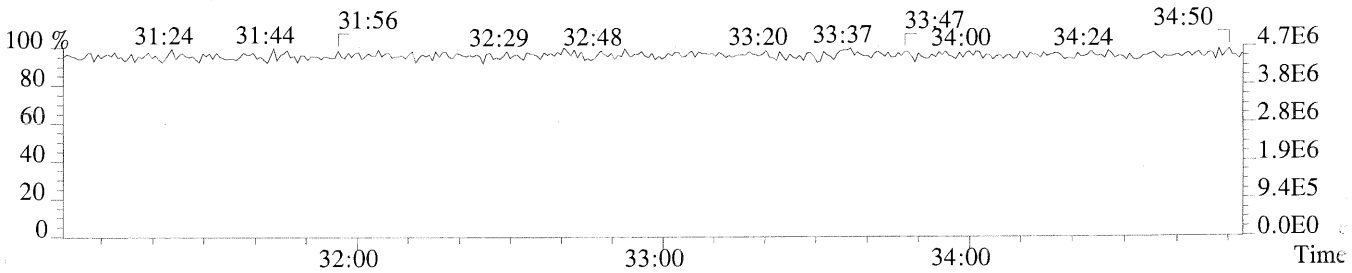
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

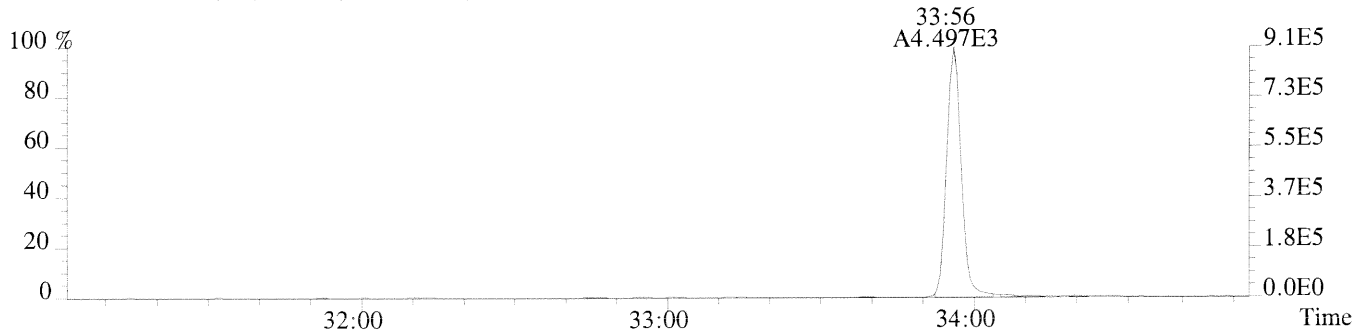


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

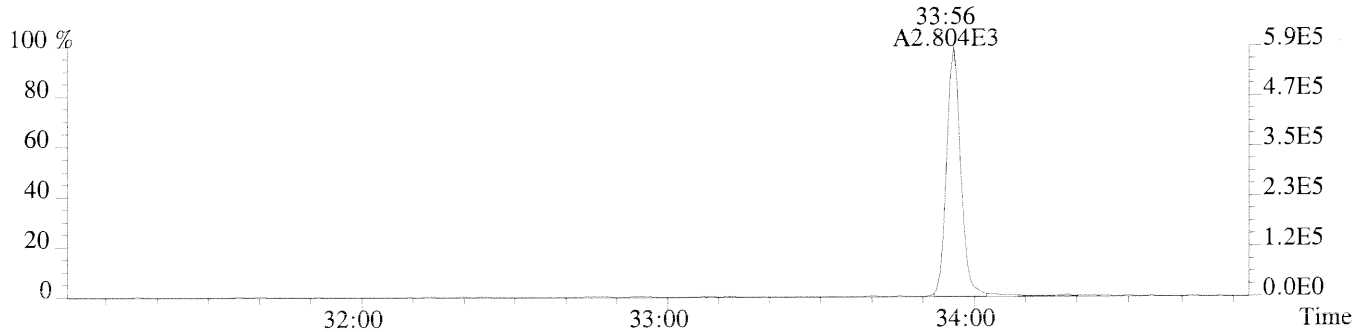


File:U149174 #1-349 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

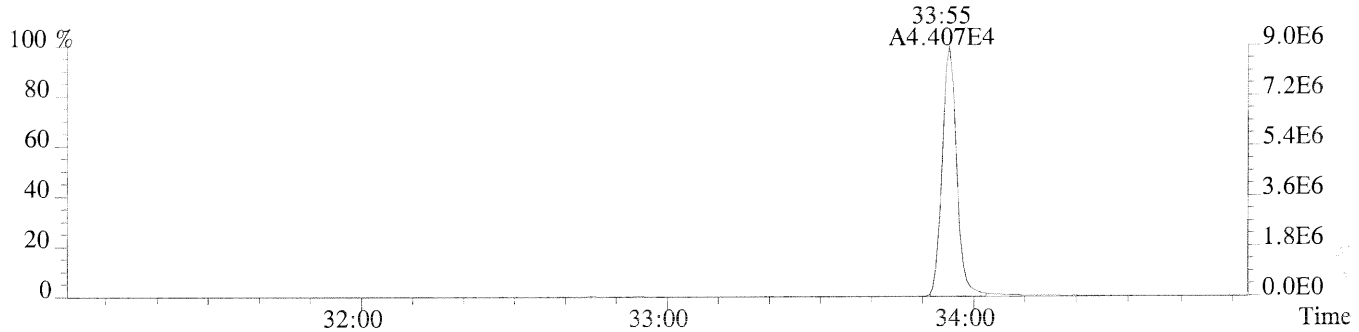
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



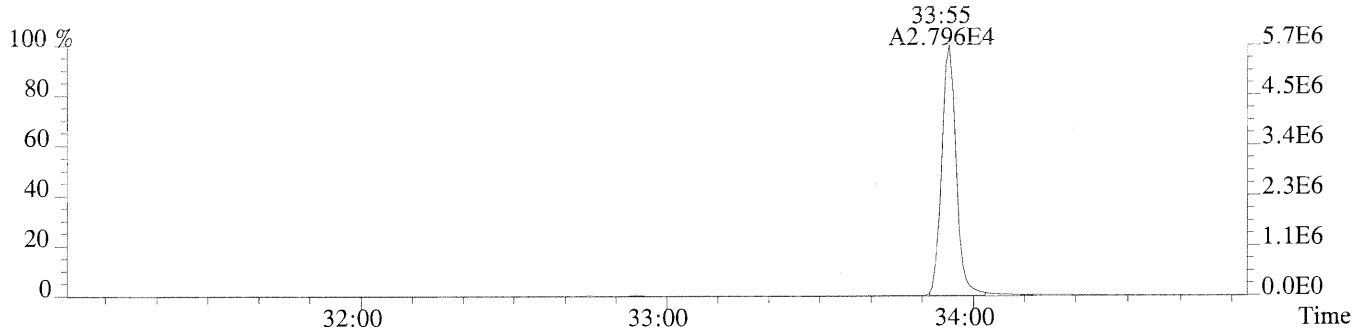
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



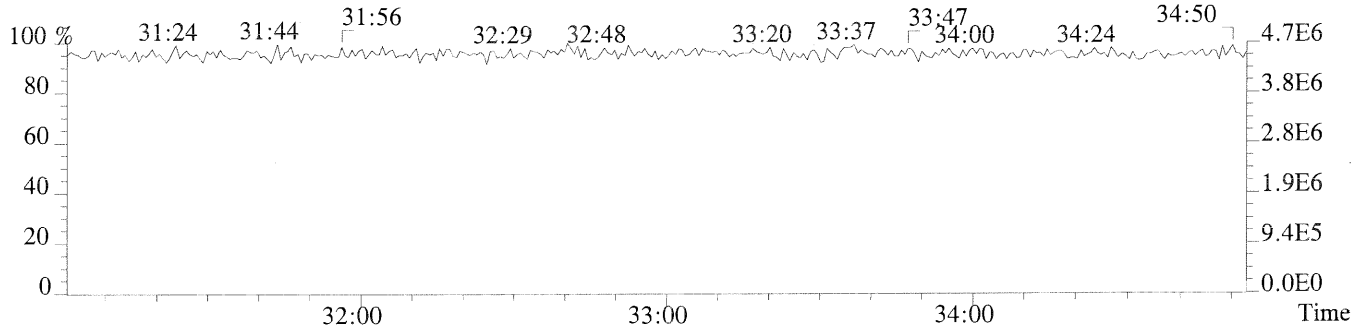
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)

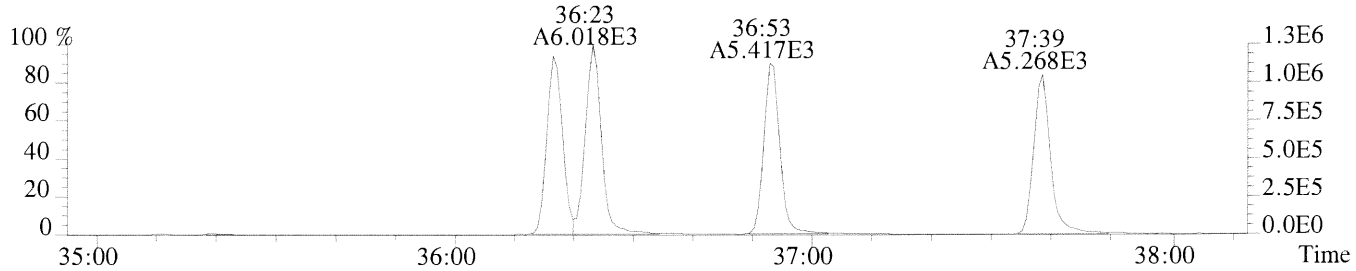


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

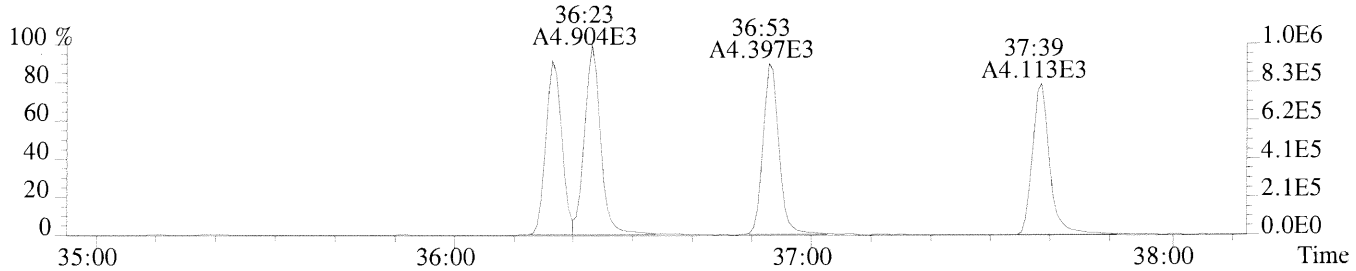


File:U149174 #1-299 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

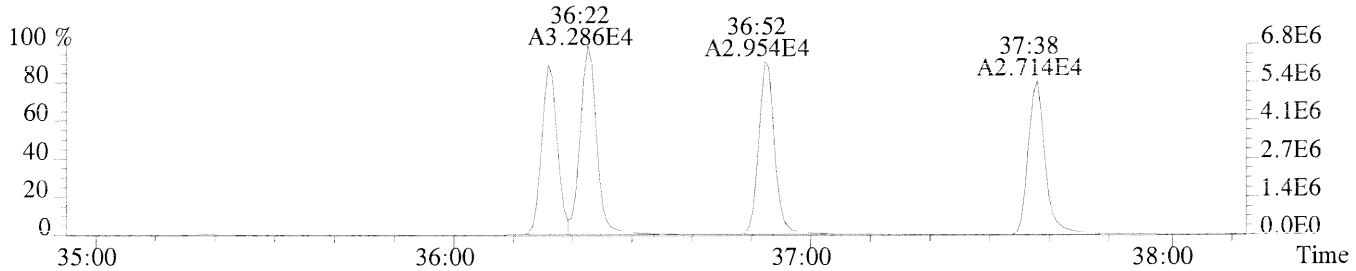
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



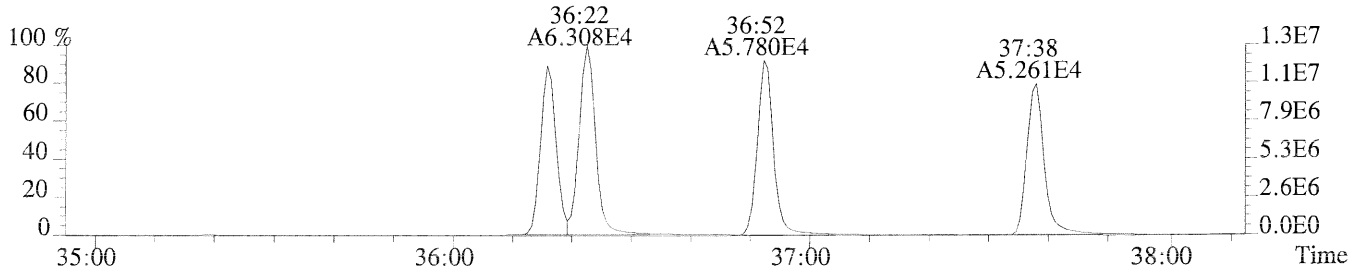
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



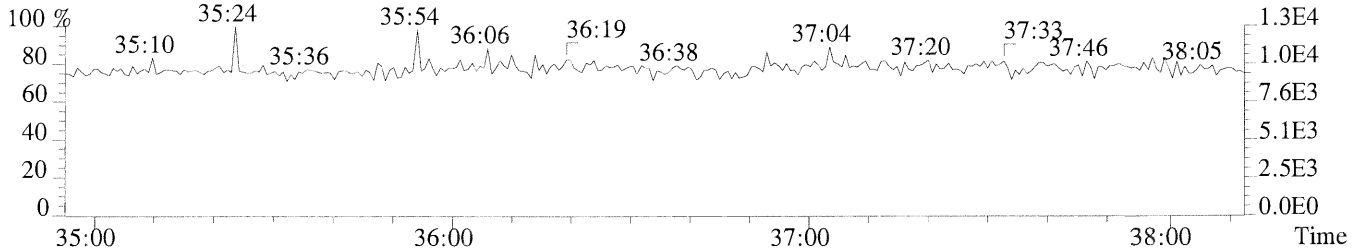
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)



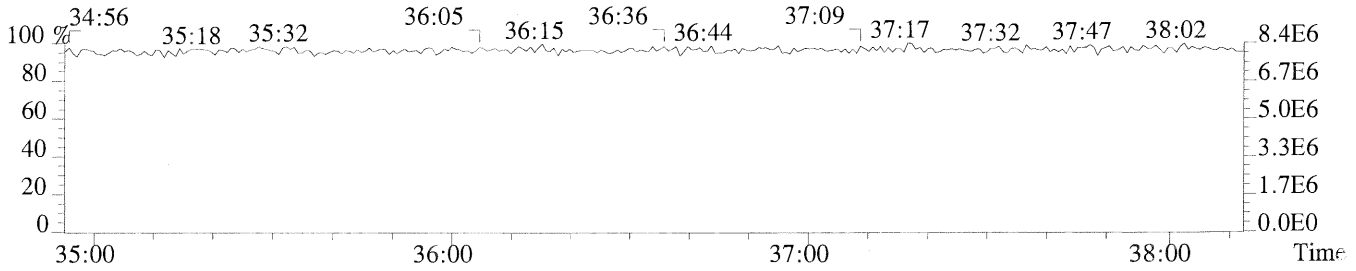
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

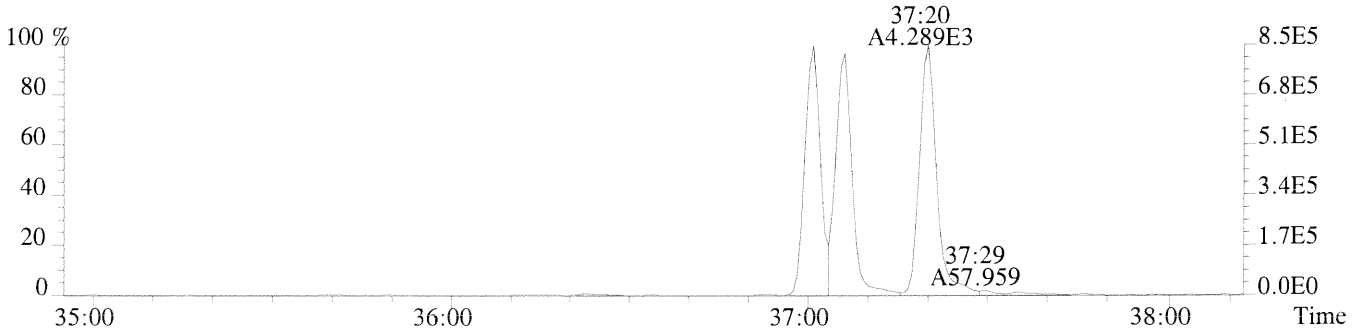


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

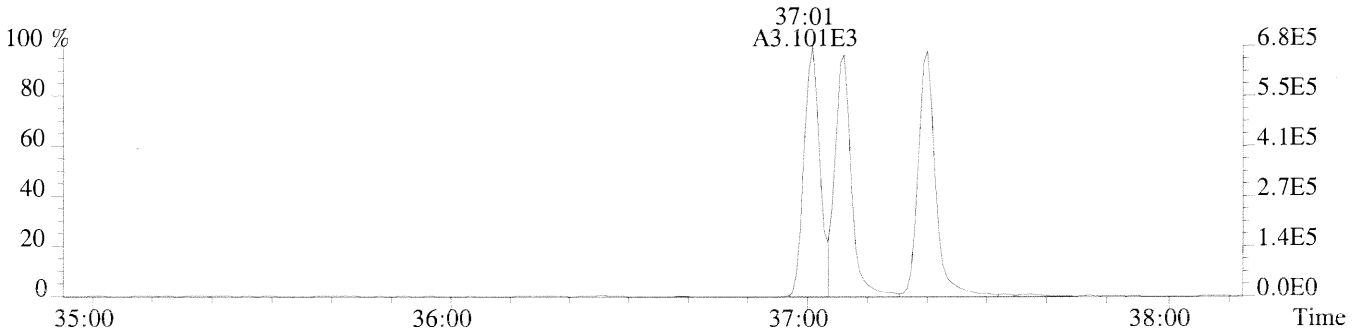


File:U149174 #1-299 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

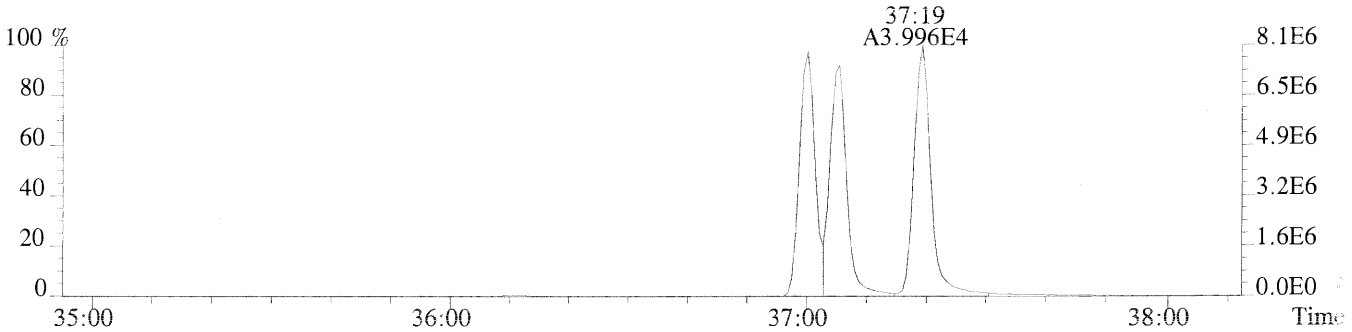
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



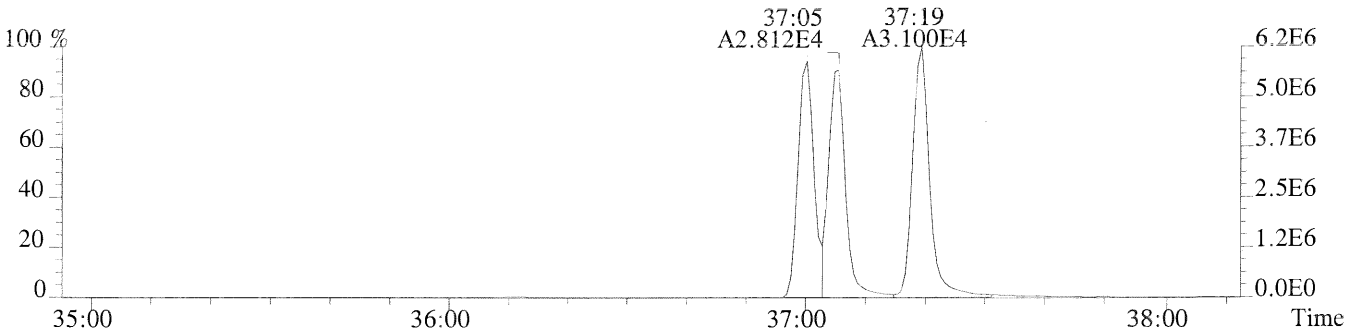
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.40%,F,T)



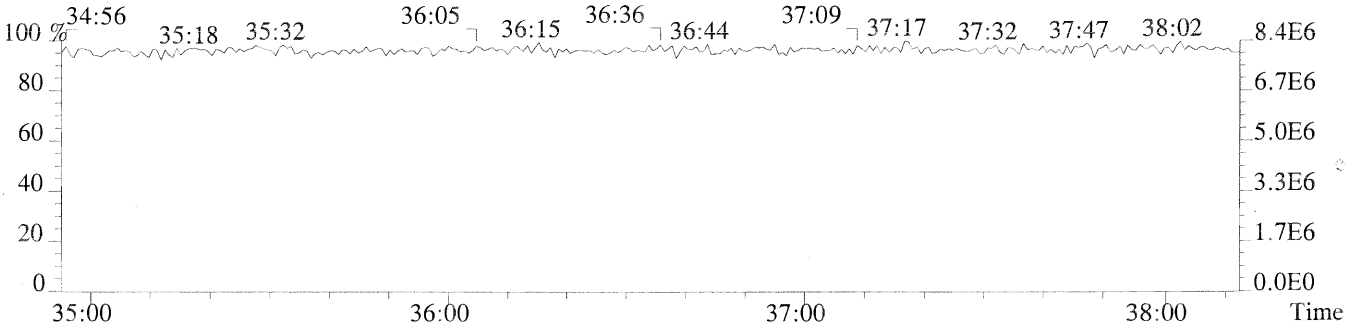
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1068.0,0.40%,F,T)

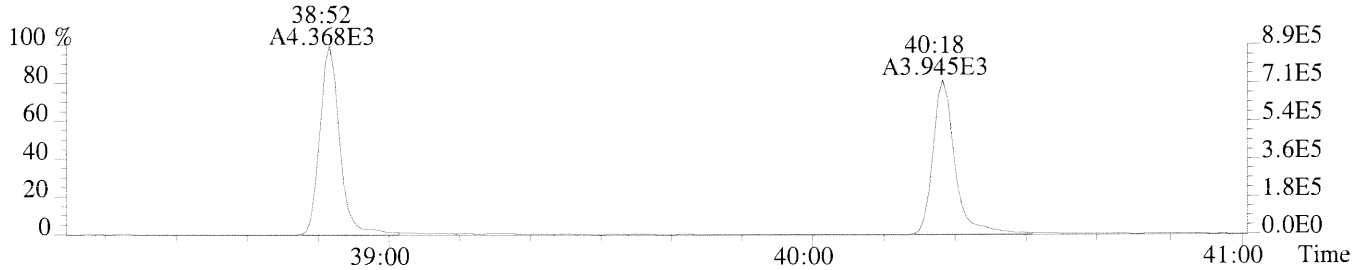


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

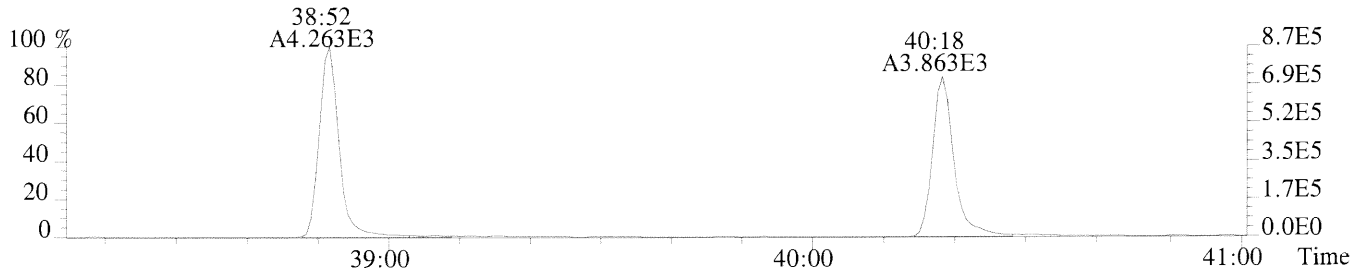


File:U149174 #1-252 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

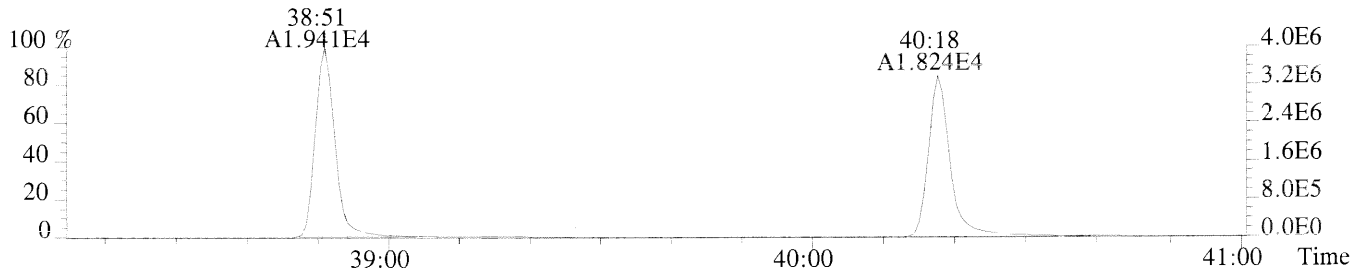
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1524.0,0.50%,F,T)



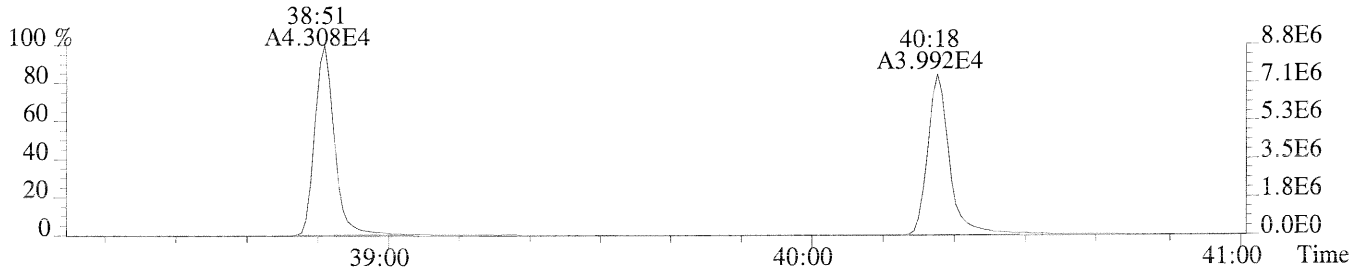
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.50%,F,T)



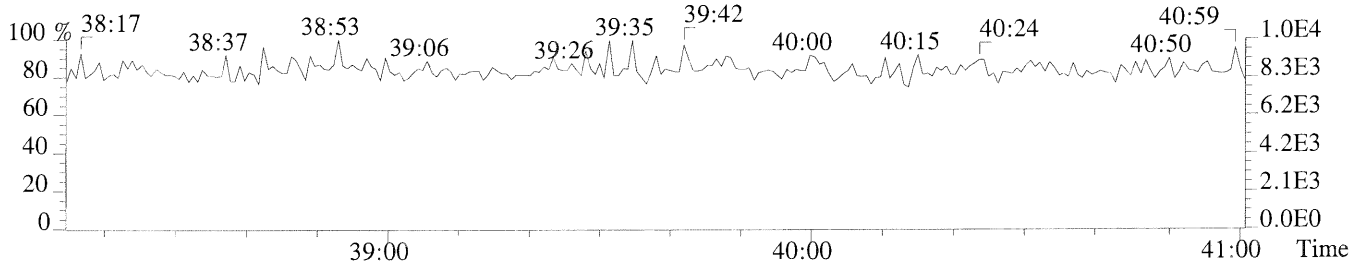
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2664.0,0.50%,F,T)



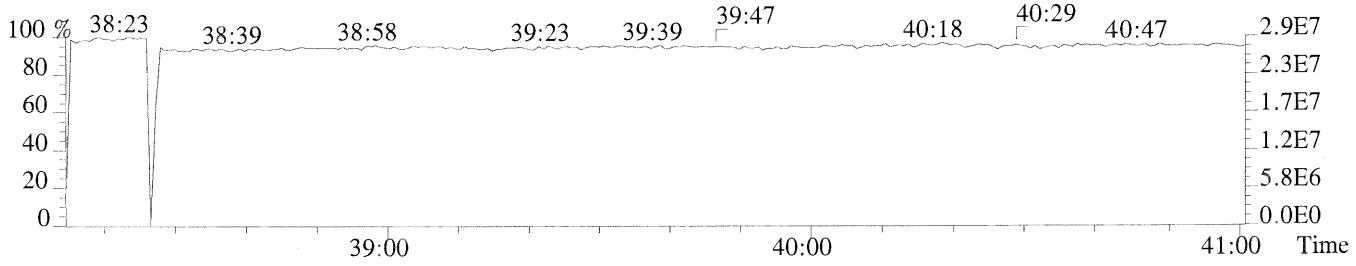
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2676.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

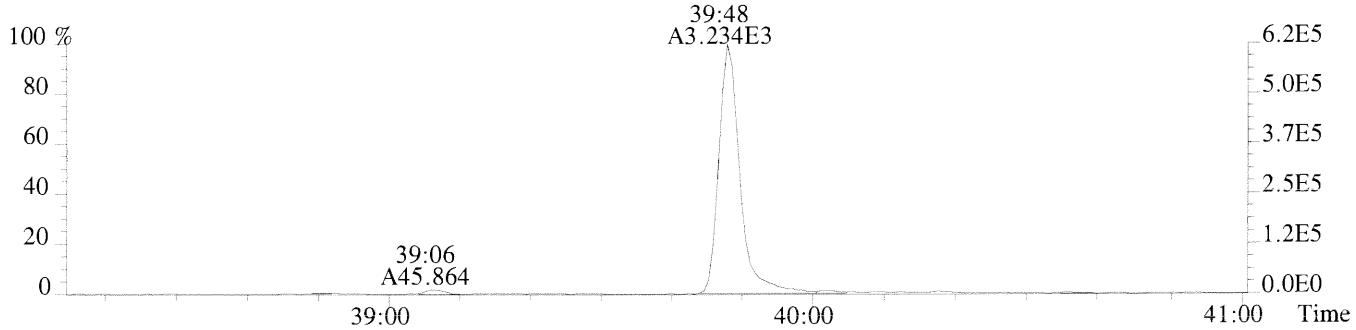


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

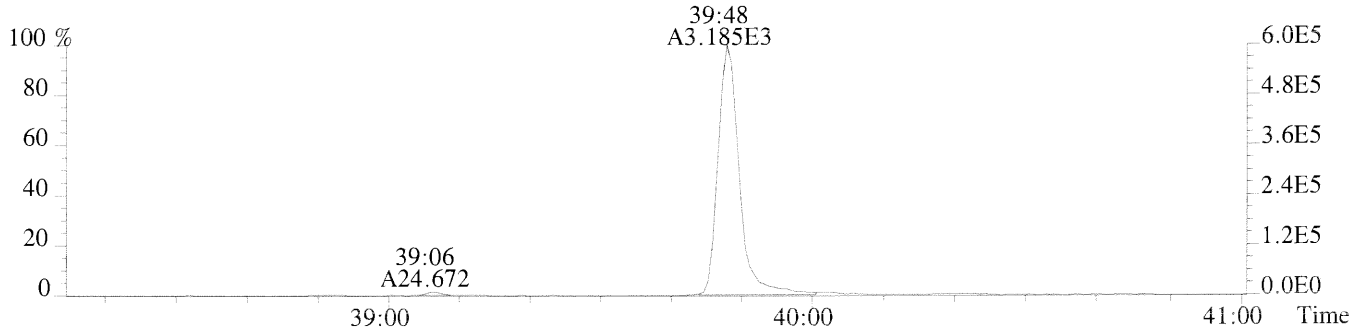


File:U149174 #1-252 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

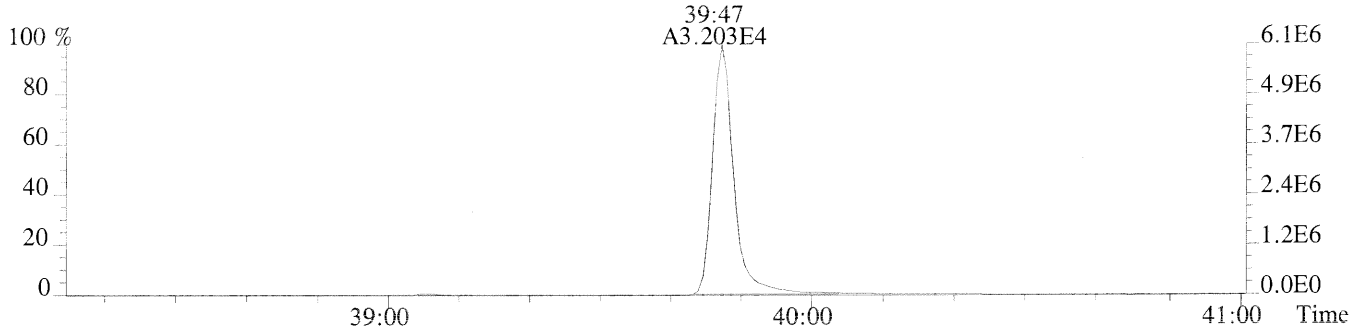
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



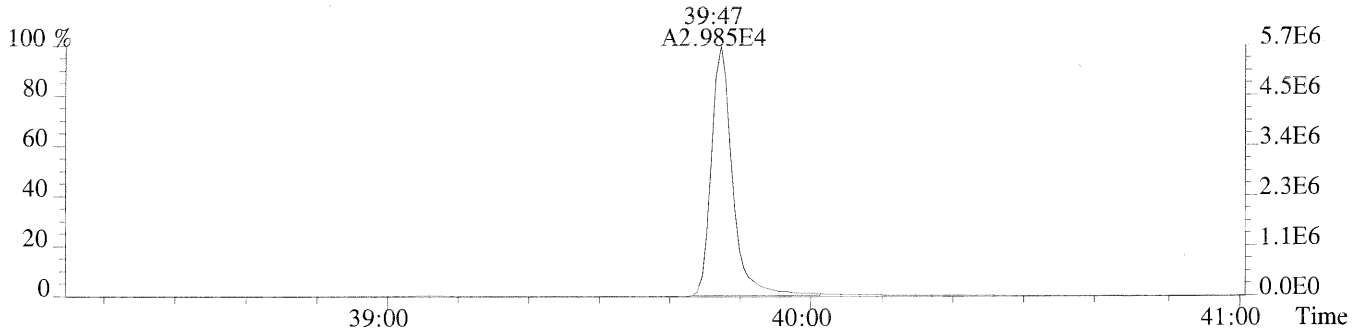
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



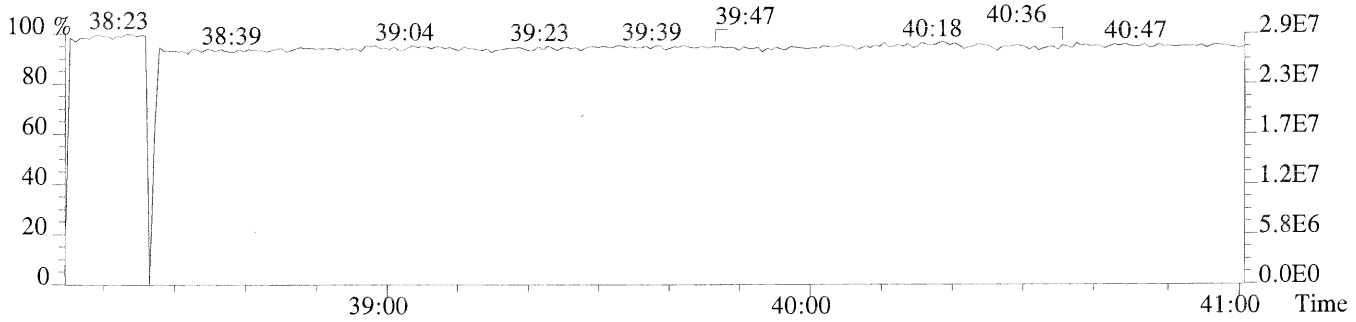
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



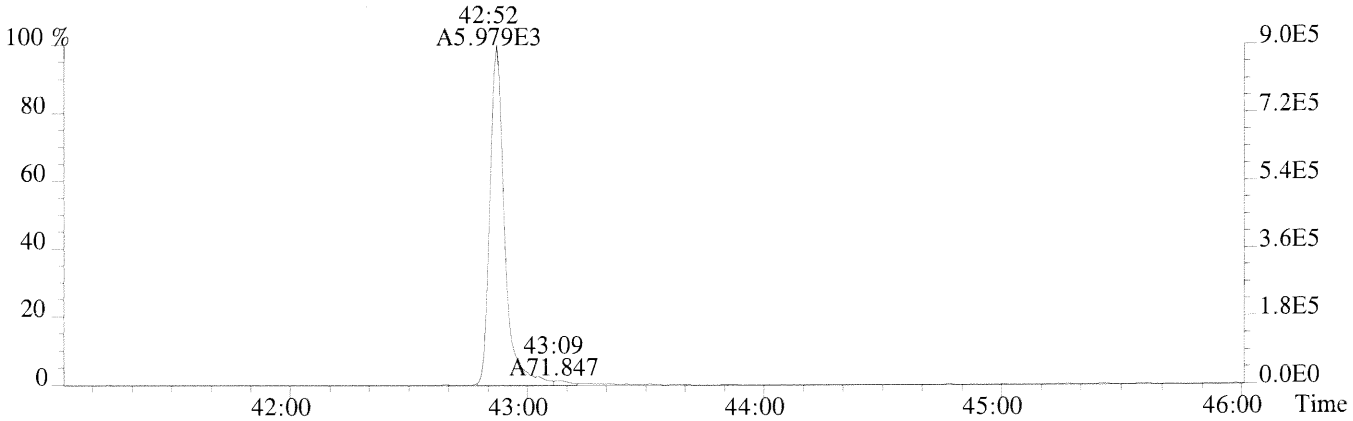
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



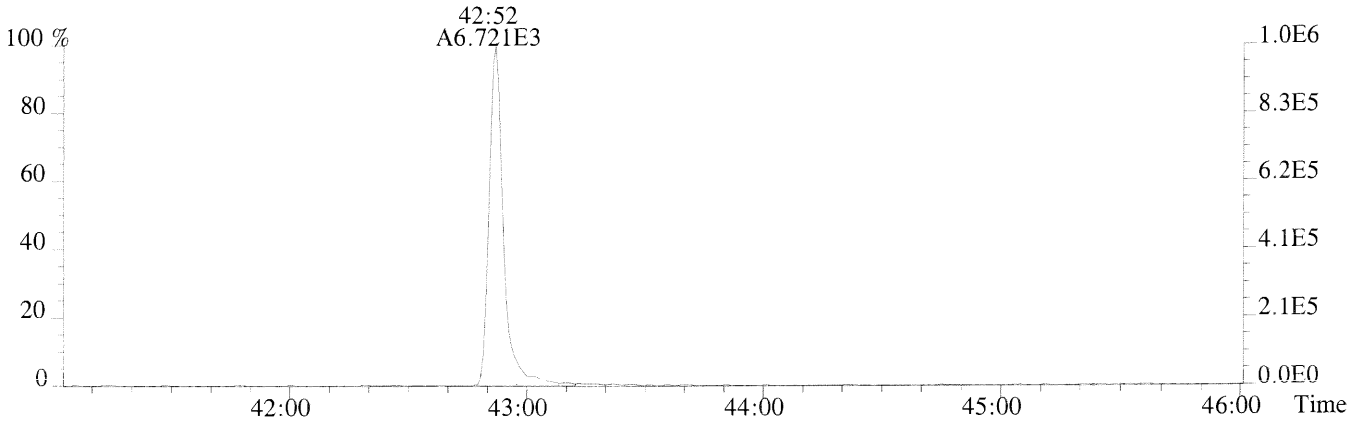
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



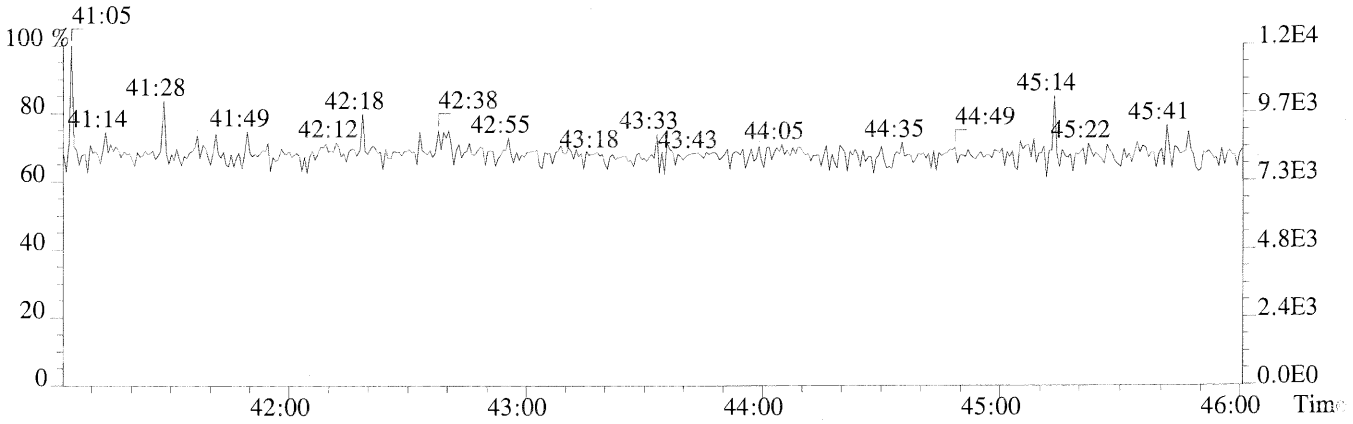
File:U149174 #1-451 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,512.0,0.40%,F,T)



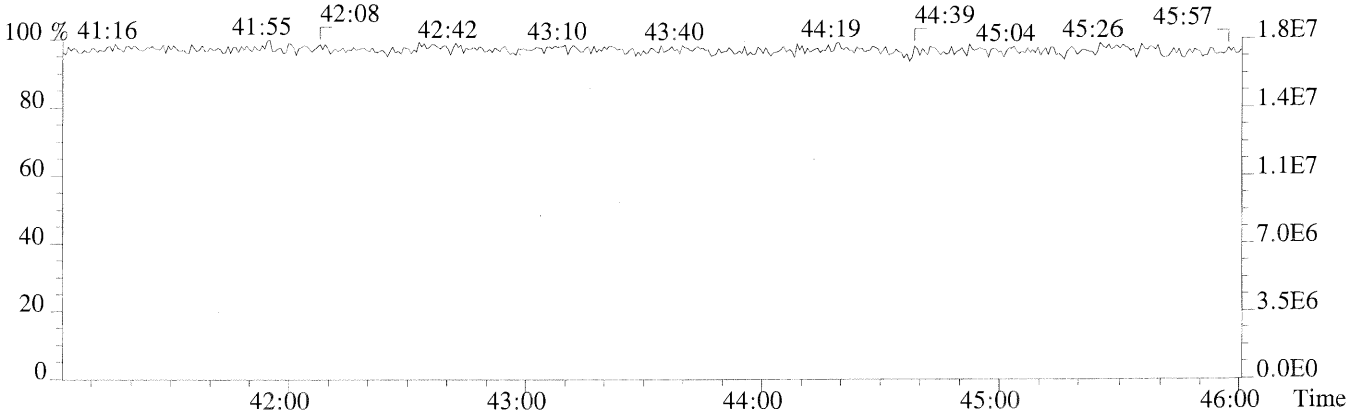
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,716.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

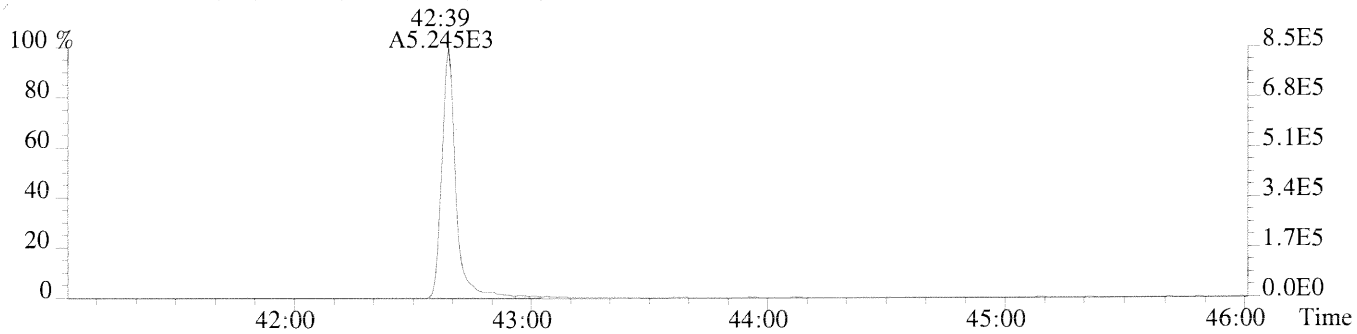


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

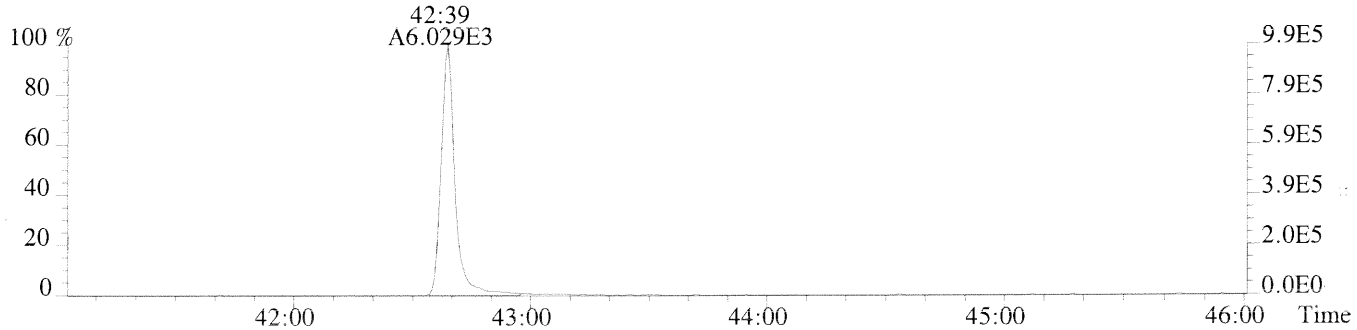


File:U149174 #1-451 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

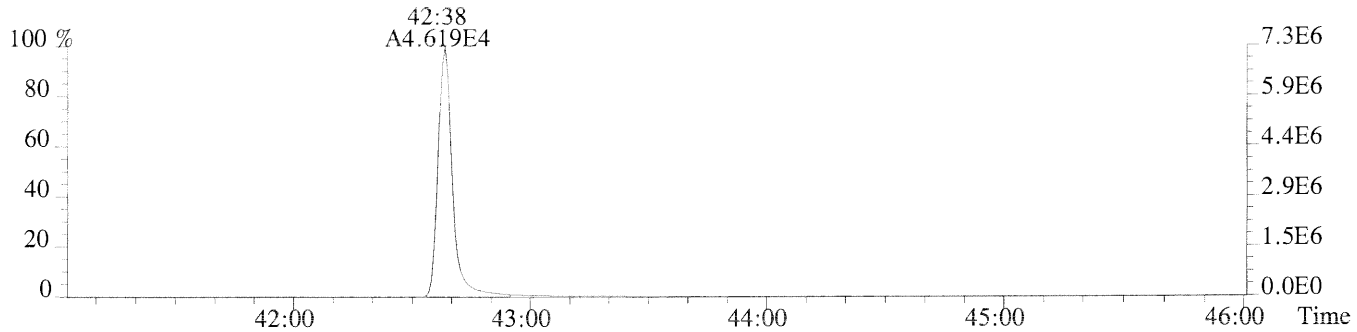
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



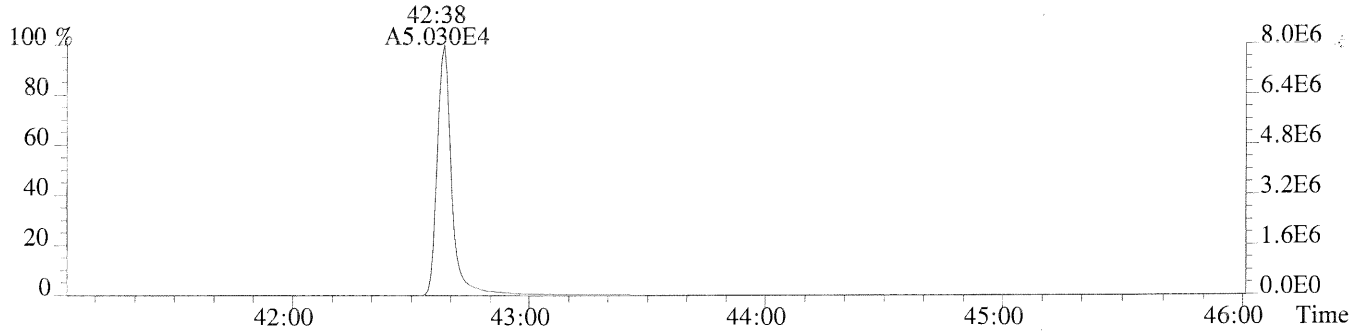
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



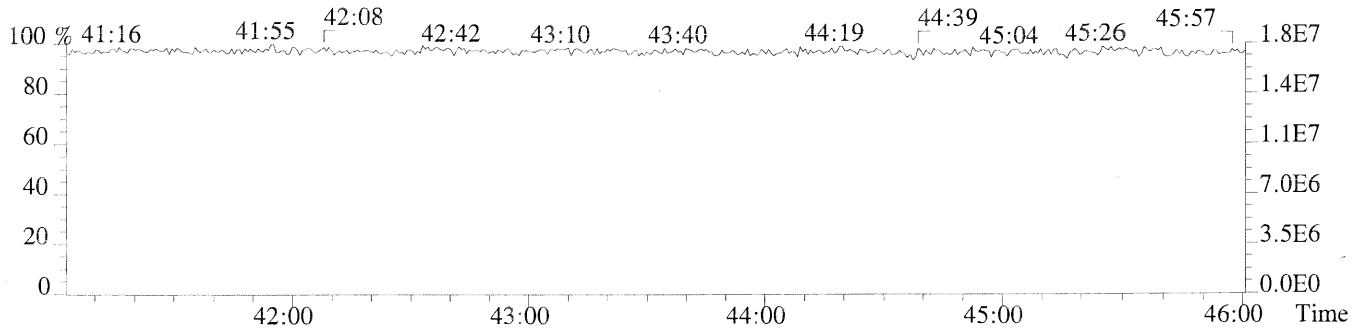
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,672.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
CS3

Run #4 Filename U149175 Samp: 1 Inj: 1 Acquired: 21-MAY-14 17:15:15
Processed: 23-MAY-14 08:49:34 Sample ID: 63383

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	3.971e+03	5.230e+03	0.76	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:47	3.840e+04	2.475e+04	1.55	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:40	3.562e+04	2.299e+04	1.55	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:17	3.153e+04	2.597e+04	1.21	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:24	3.393e+04	2.809e+04	1.21	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:54	3.144e+04	2.571e+04	1.22	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	3.024e+04	2.392e+04	1.26	yes	yes	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	2.875e+04	2.777e+04	1.04	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:19	2.464e+04	2.360e+04	1.04	yes	no	1.359
10	Unk	OCDF	42:53	3.841e+04	4.248e+04	0.90	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:27	3.140e+03	3.908e+03	0.80	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:57	2.584e+04	1.642e+04	1.57	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:01	2.186e+04	1.747e+04	1.25	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:06	2.412e+04	1.910e+04	1.26	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:20	2.508e+04	2.018e+04	1.24	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:49	2.005e+04	1.902e+04	1.05	yes	no	1.065
17	Unk	OCDD	42:39	3.313e+04	3.722e+04	0.89	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:41	4.479e+04	5.480e+04	0.82	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:45	7.925e+04	4.989e+04	1.59	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:39	7.732e+04	4.928e+04	1.57	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	3.244e+04	6.145e+04	0.53	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	3.750e+04	7.115e+04	0.53	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:53	3.446e+04	6.596e+04	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	3.163e+04	6.162e+04	0.51	yes	no	1.147
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	2.454e+04	5.436e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	2.289e+04	5.021e+04	0.46	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:26	3.148e+04	4.044e+04	0.78	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:55	5.038e+04	3.187e+04	1.58	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	3.969e+04	3.060e+04	1.30	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	4.358e+04	3.347e+04	1.30	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:48	3.934e+04	3.661e+04	1.07	yes	no	0.936
32	IS	13C-OCDD	42:38	5.722e+04	6.193e+04	0.92	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:51	3.188e+04	4.060e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	4.682e+04	3.637e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	7.264e+03				no	1.044

ALS ENVIRONMENTAL
10450 Stancliff Road, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
CS3

Run #4 Filename U149175 Samp: 1 Inj: 1 Acquired: 21-MAY-14 17:15:15
Processed: 22-MAY-14 12:57:511 LAB. ID: 63383

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	8.79e+05	7.76e+02	1.1e+03	1.14e+06	1.31e+03	8.7e+02
	1,2,3,7,8-PeCDF	7.43e+06	5.40e+02	1.4e+04	4.75e+06	1.38e+03	3.4e+03
	2,3,4,7,8-PeCDF	7.18e+06	5.40e+02	1.3e+04	4.64e+06	1.38e+03	3.4e+03
4	1,2,3,4,7,8-HxCDF	6.88e+06	9.20e+02	7.5e+03	5.61e+06	8.48e+02	6.6e+03
5	1,2,3,6,7,8-HxCDF	6.93e+06	9.20e+02	7.5e+03	5.69e+06	8.48e+02	6.7e+03
6	2,3,4,6,7,8-HxCDF	6.89e+06	9.20e+02	7.5e+03	5.58e+06	8.48e+02	6.6e+03
7	1,2,3,7,8,9-HxCDF	6.10e+06	9.20e+02	6.6e+03	4.91e+06	8.48e+02	5.8e+03
8	1,2,3,4,6,7,8-HpCDF	5.94e+06	3.42e+03	1.7e+03	5.81e+06	2.42e+03	2.4e+03
9	1,2,3,4,7,8,9-HpCDF	4.55e+06	3.42e+03	1.3e+03	4.40e+06	2.42e+03	1.8e+03
10	OCDF	6.12e+06	6.12e+02	1.0e+04	6.69e+06	6.24e+02	1.1e+04
11	2,3,7,8-TCDD	7.00e+05	7.44e+02	9.4e+02	8.73e+05	8.40e+02	1.0e+03
12	1,2,3,7,8-PeCDD	5.13e+06	6.52e+02	7.9e+03	3.27e+06	6.64e+02	4.9e+03
13	1,2,3,4,7,8-HxCDD	4.97e+06	8.56e+02	5.8e+03	3.97e+06	1.32e+03	3.0e+03
14	1,2,3,6,7,8-HxCDD	4.99e+06	8.56e+02	5.8e+03	3.98e+06	1.32e+03	3.0e+03
15	1,2,3,7,8,9-HxCDD	5.02e+06	8.56e+02	5.9e+03	4.05e+06	1.32e+03	3.1e+03
16	1,2,3,4,6,7,8-HpCDD	3.88e+06	7.40e+02	5.2e+03	3.66e+06	1.05e+03	3.5e+03
17	OCDD	5.38e+06	7.80e+02	6.9e+03	6.18e+06	6.04e+02	1.0e+04
18	13C-2,3,7,8-TCDF	9.70e+06	1.06e+03	9.1e+03	1.19e+07	9.32e+02	1.3e+04
19	13C-1,2,3,7,8-PeCDF	1.50e+07	7.76e+02	1.9e+04	9.54e+06	7.48e+02	1.3e+04
20	13C-2,3,4,7,8-PeCDF	1.56e+07	7.76e+02	2.0e+04	1.00e+07	7.48e+02	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	7.06e+06	8.36e+02	8.4e+03	1.32e+07	1.12e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	7.57e+06	8.36e+02	9.1e+03	1.44e+07	1.12e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	7.50e+06	8.36e+02	9.0e+03	1.43e+07	1.12e+03	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	6.33e+06	8.36e+02	7.6e+03	1.23e+07	1.12e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.05e+06	3.49e+03	1.4e+03	1.11e+07	3.25e+03	3.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.19e+06	3.49e+03	1.2e+03	9.20e+06	3.25e+03	2.8e+03
27	13C-2,3,7,8-TCDD	7.05e+06	2.57e+03	2.7e+03	9.12e+06	1.34e+03	6.8e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	7.32e+02	1.4e+04	6.43e+06	4.80e+02	1.3e+04
29	13C-1,2,3,4,7,8-HxCDD	8.91e+06	8.88e+02	1.0e+04	6.95e+06	7.36e+02	9.4e+03
30	13C-1,2,3,6,7,8-HxCDD	8.89e+06	8.88e+02	1.0e+04	6.85e+06	7.36e+02	9.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.46e+06	8.60e+02	8.7e+03	6.90e+06	7.96e+02	8.7e+03
32	13C-OCDD	9.15e+06	5.68e+02	1.6e+04	1.02e+07	6.72e+02	1.5e+04
33	13C-1,2,3,4-TCDD	7.06e+06	2.57e+03	2.7e+03	9.04e+06	1.34e+03	6.8e+03
34	13C-1,2,3,7,8,9-HxCDD	9.14e+06	8.88e+02	1.0e+04	7.20e+06	7.36e+02	9.8e+03
35	37Cl-2,3,7,8-TCDD	1.63e+06	1.16e+03	1.4e+03			

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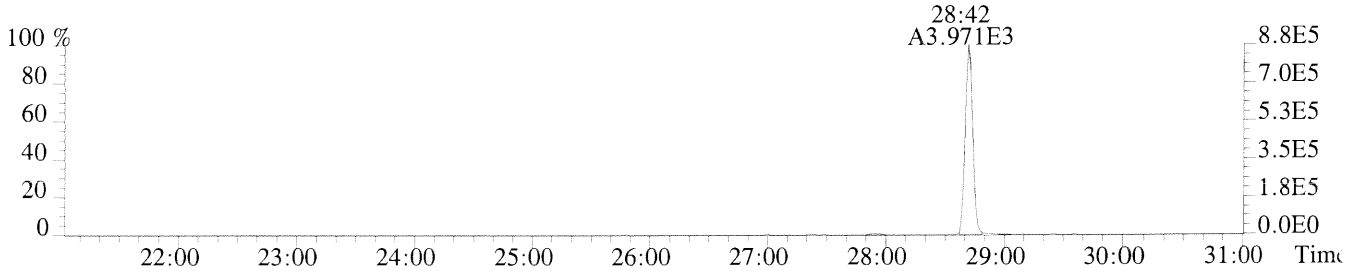
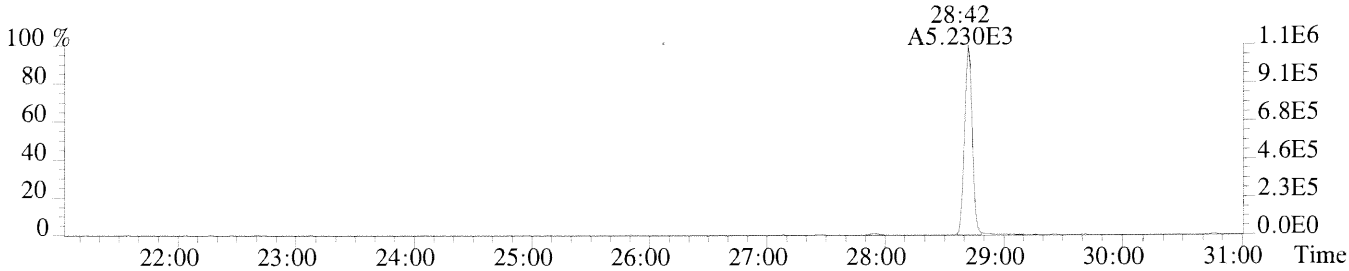
File:U149175 #1-627 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

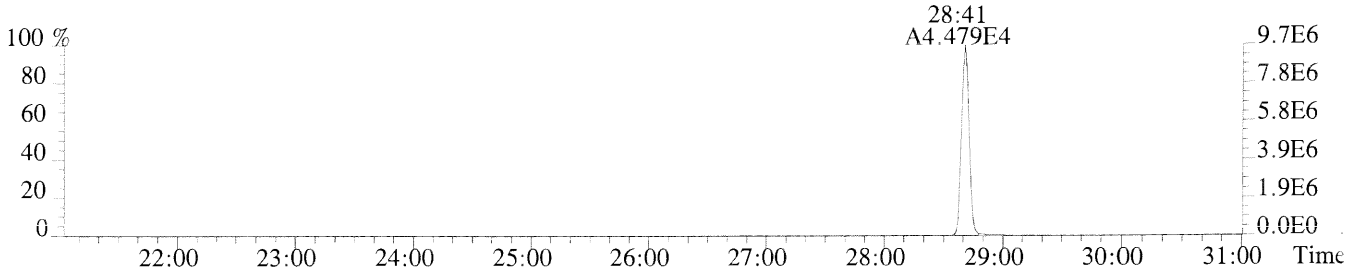
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



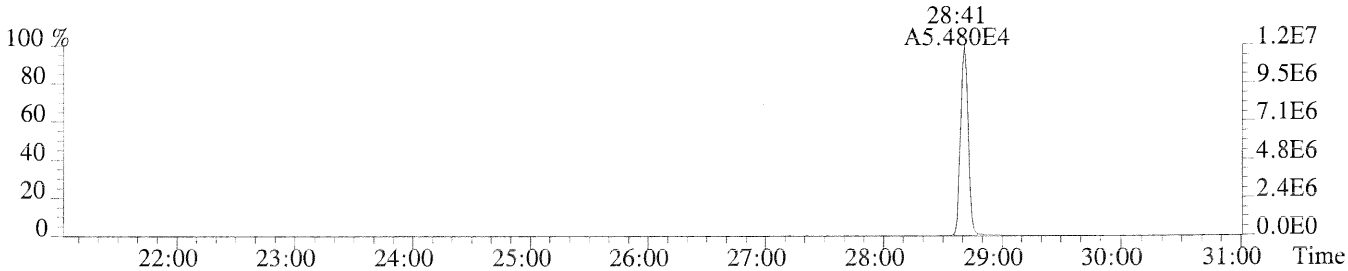
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



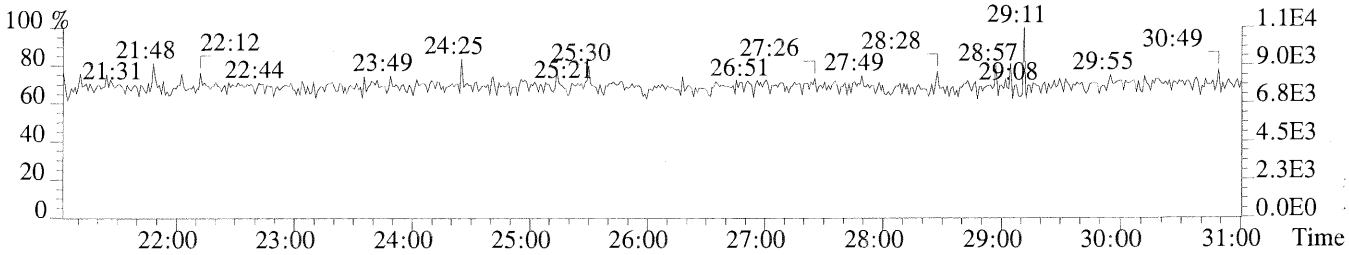
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



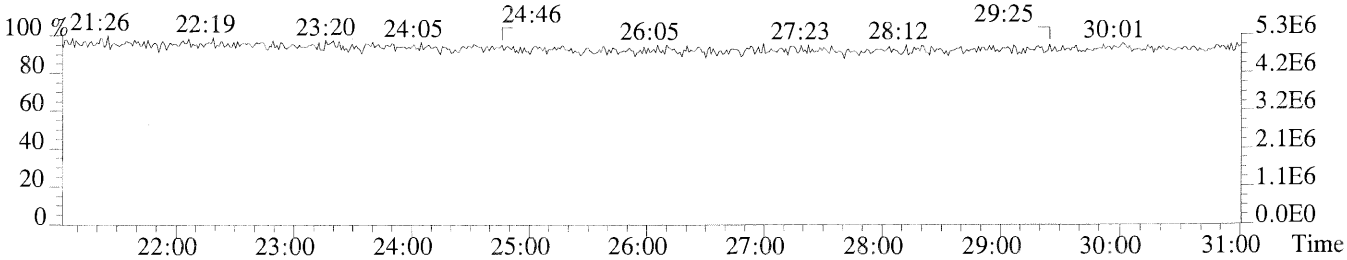
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

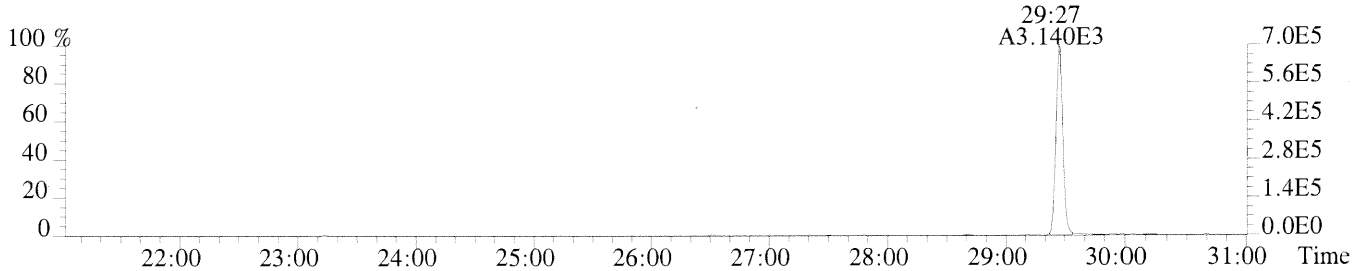


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

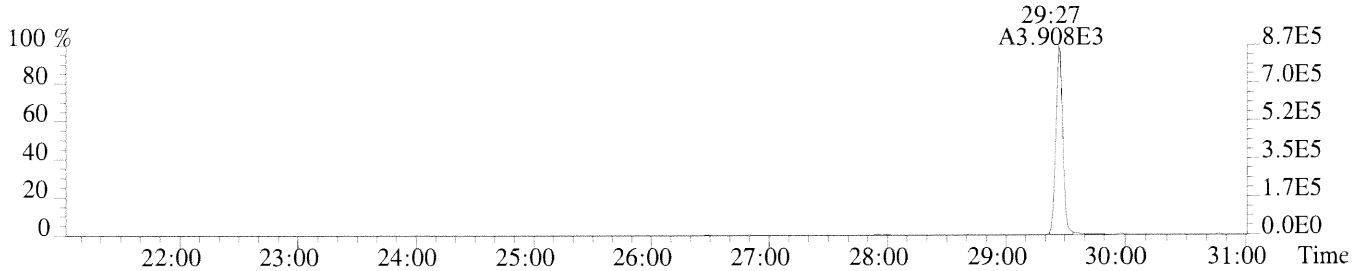


File:U149175 #1-627 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

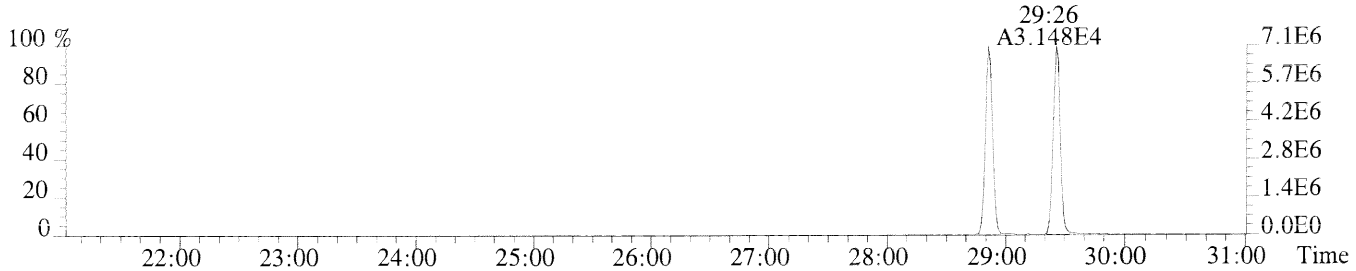
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



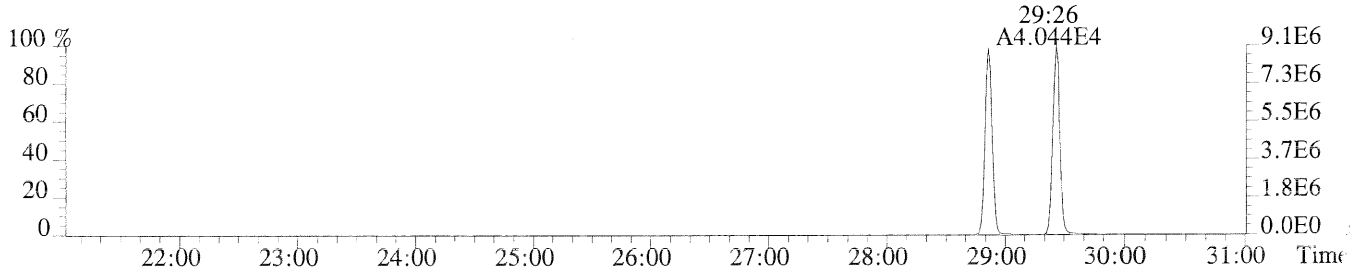
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



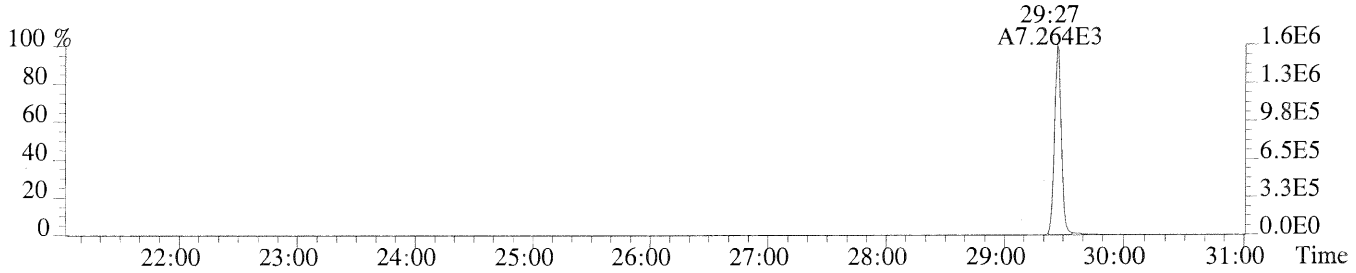
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2572.0,1.00%,F,T)



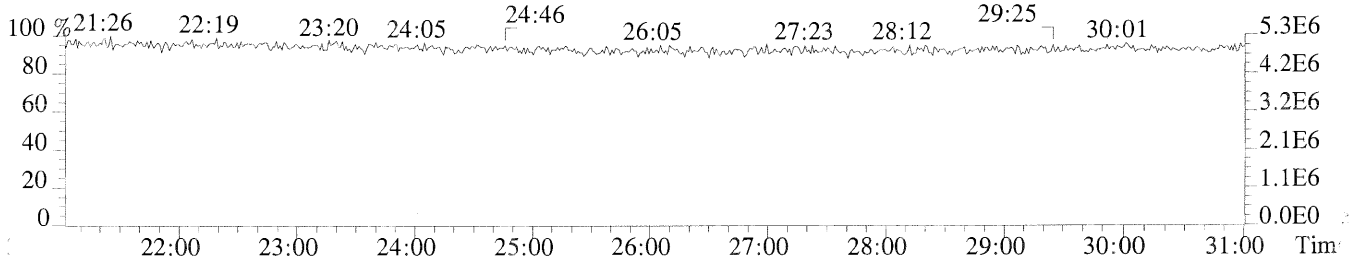
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



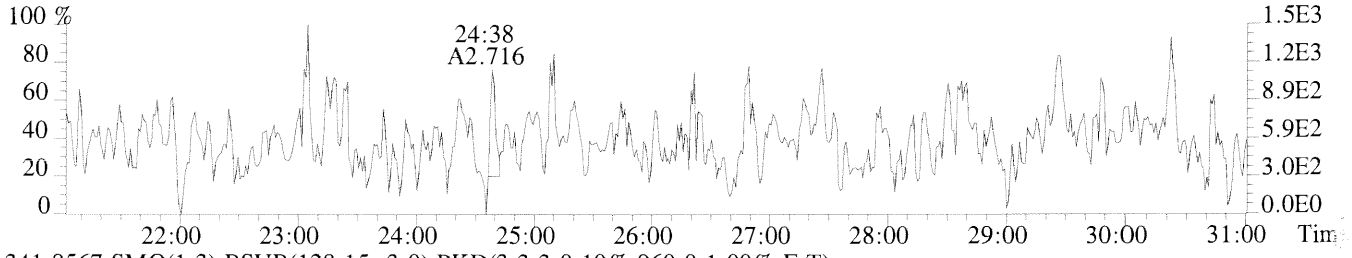
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



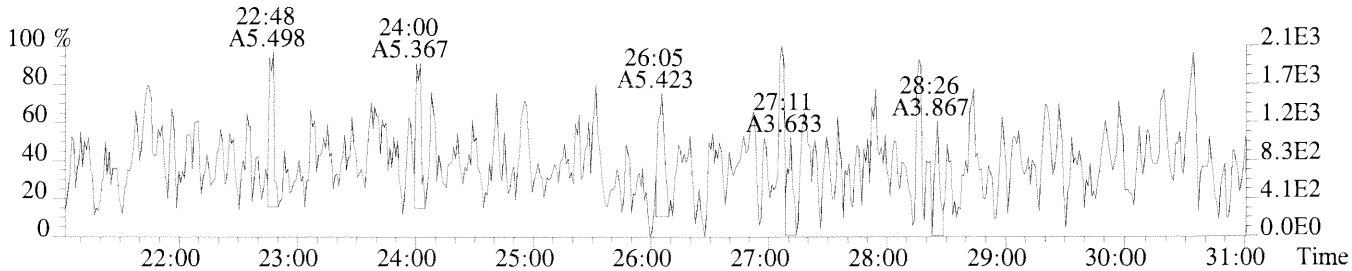
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



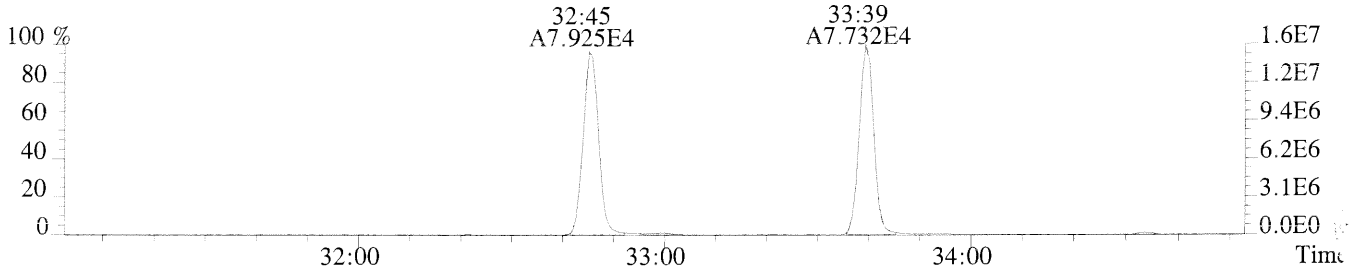
File:U149175 #1-627 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



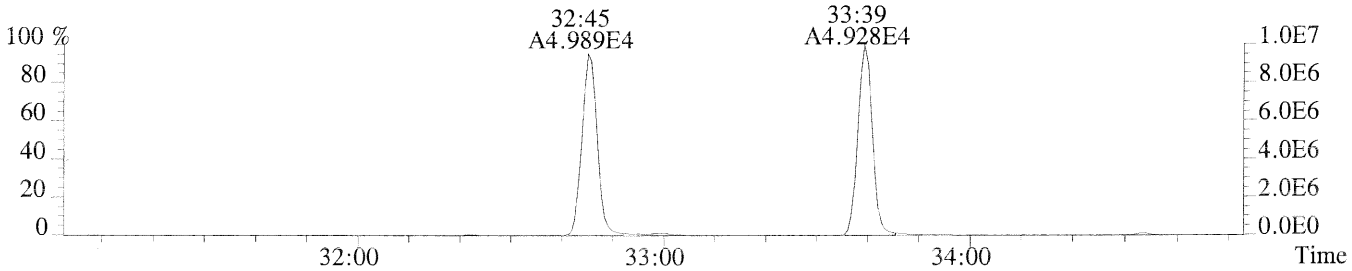
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



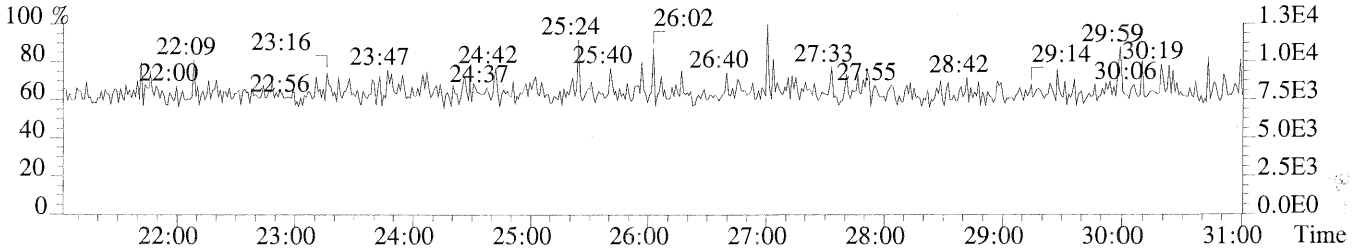
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



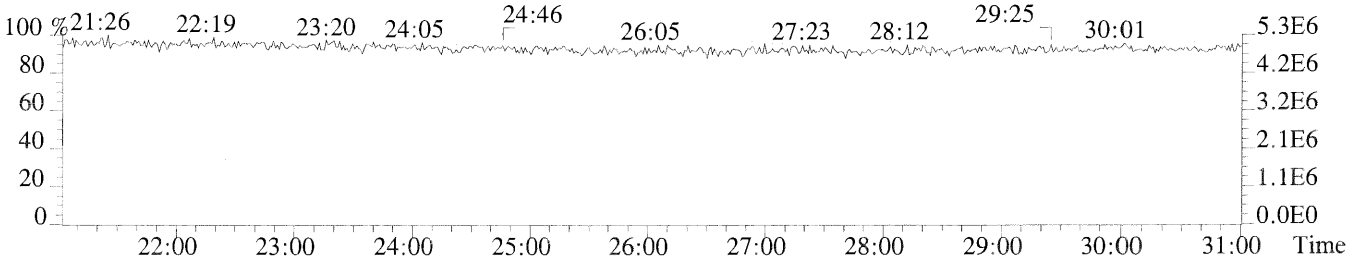
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

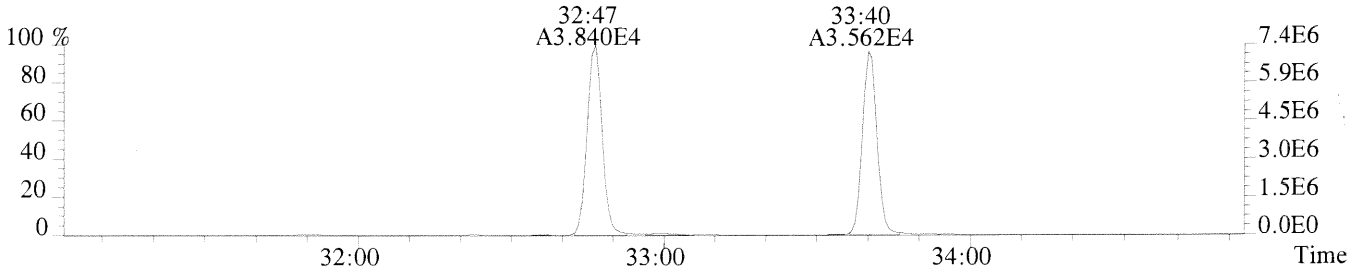


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

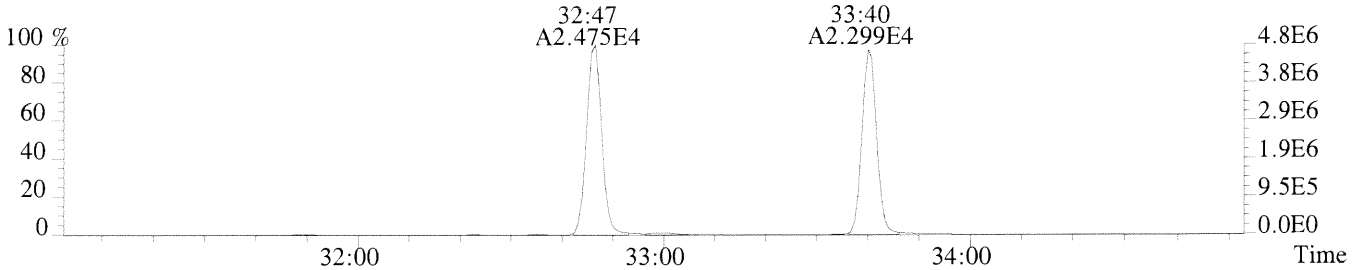


File:U149175 #1-349 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

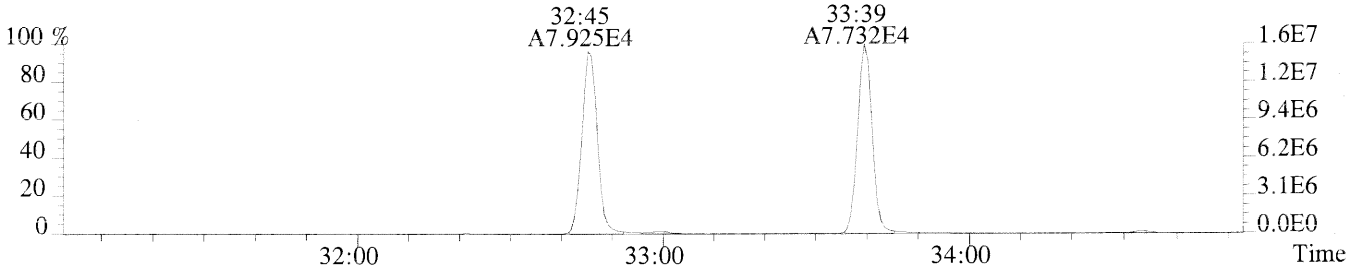
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



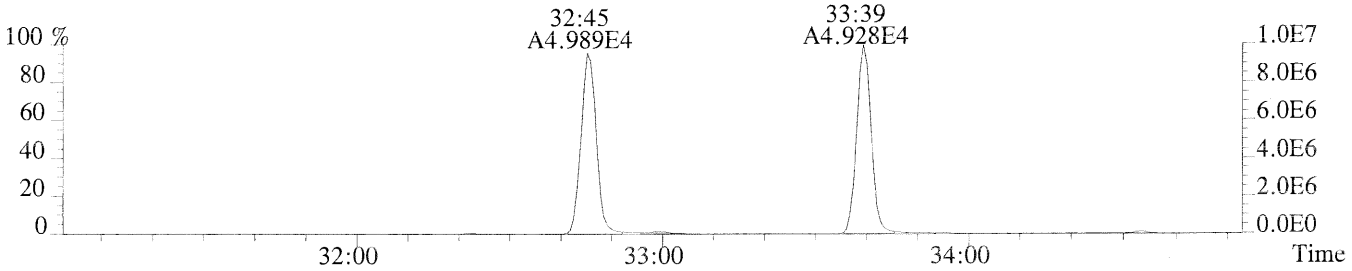
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



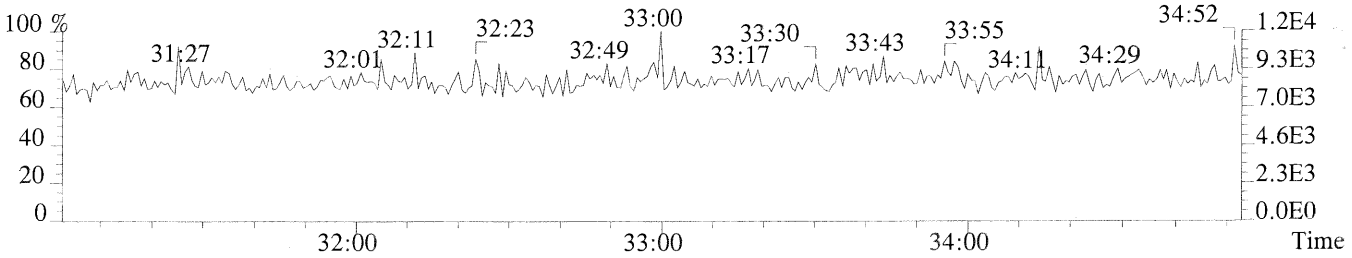
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



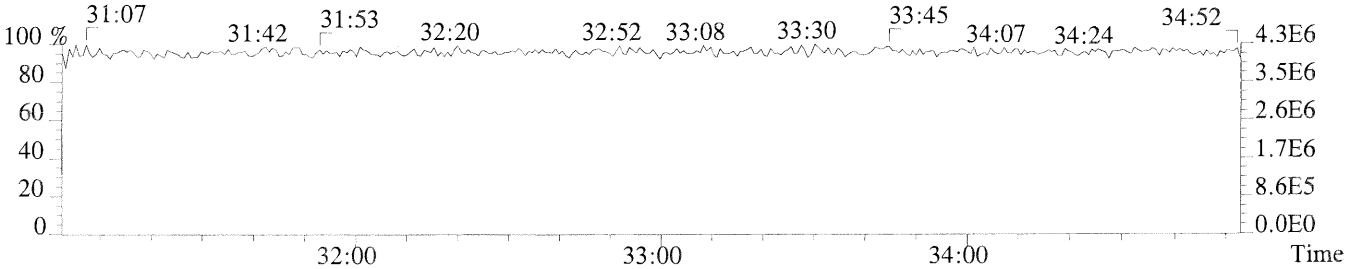
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

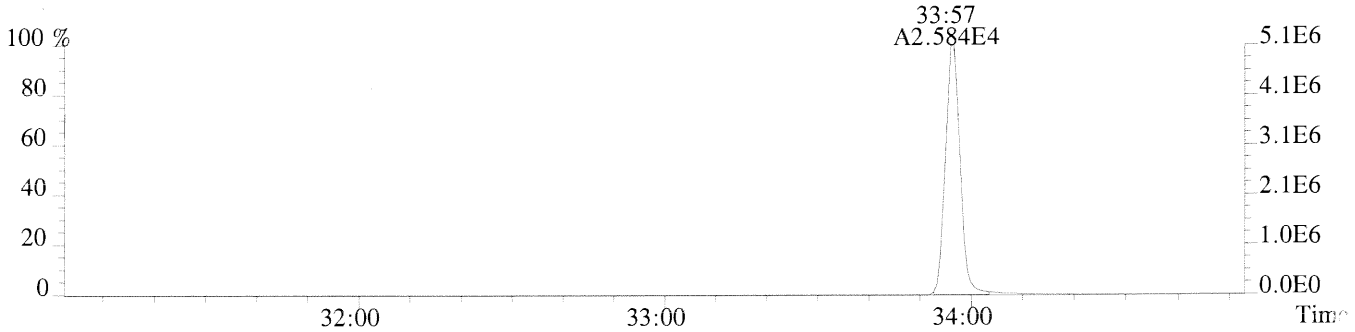


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

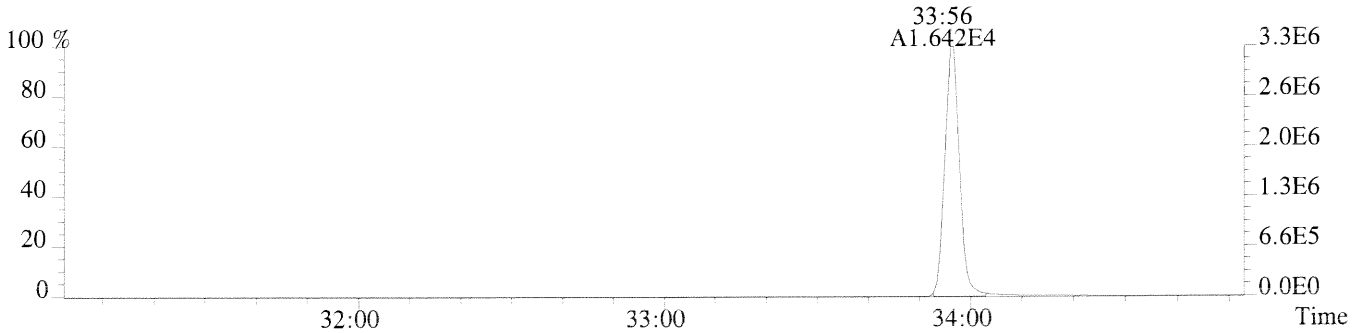


File:U149175 #1-349 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

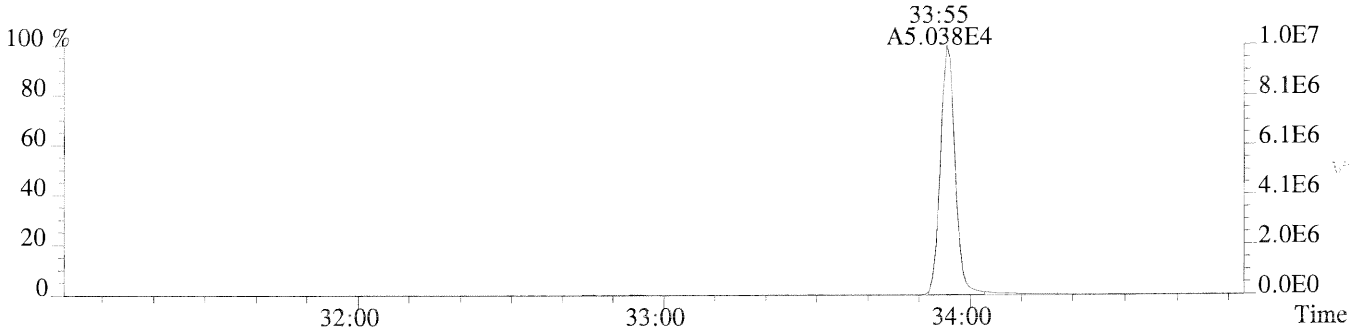
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



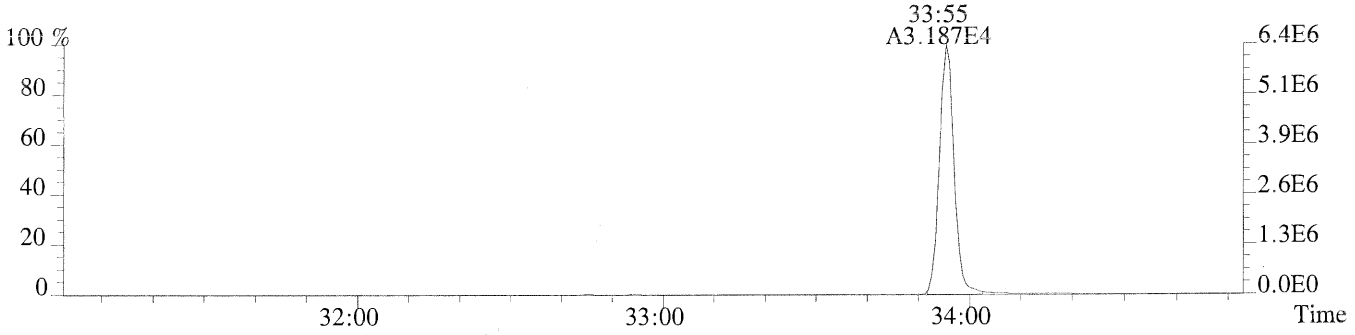
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



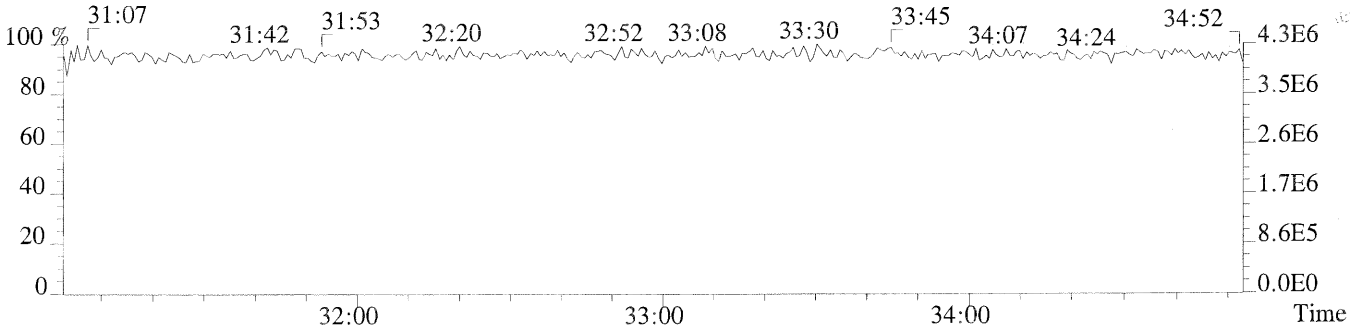
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)

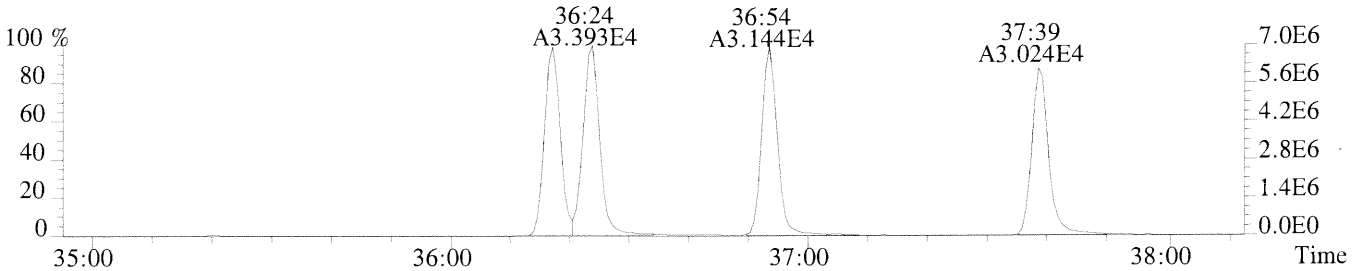


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

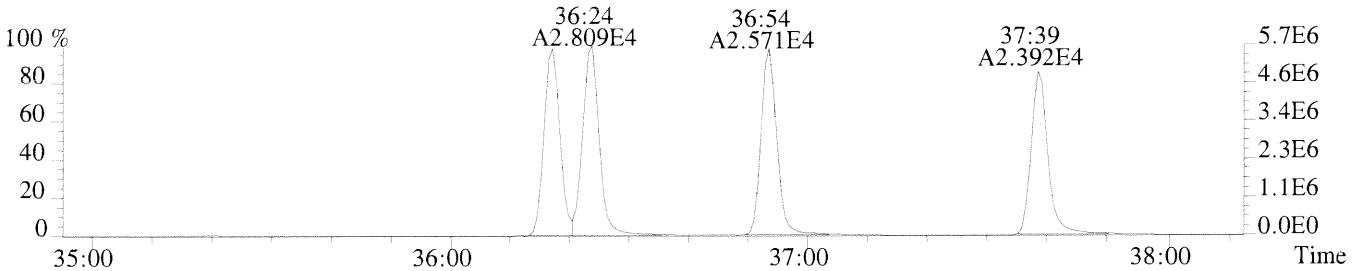


File:U149175 #1-299 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

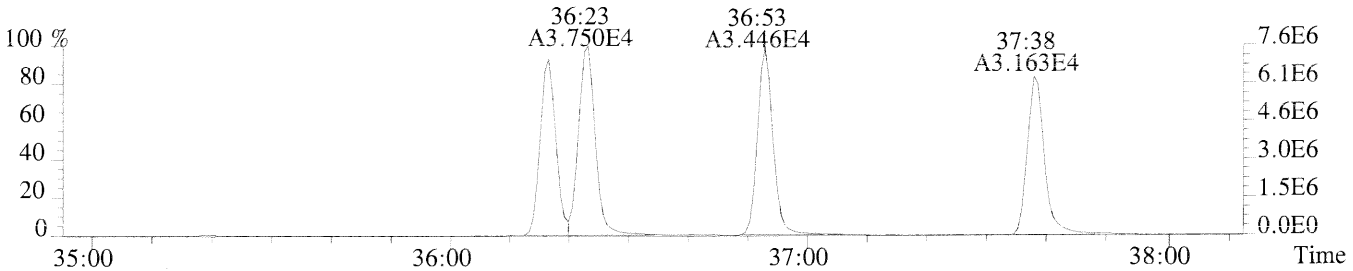
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



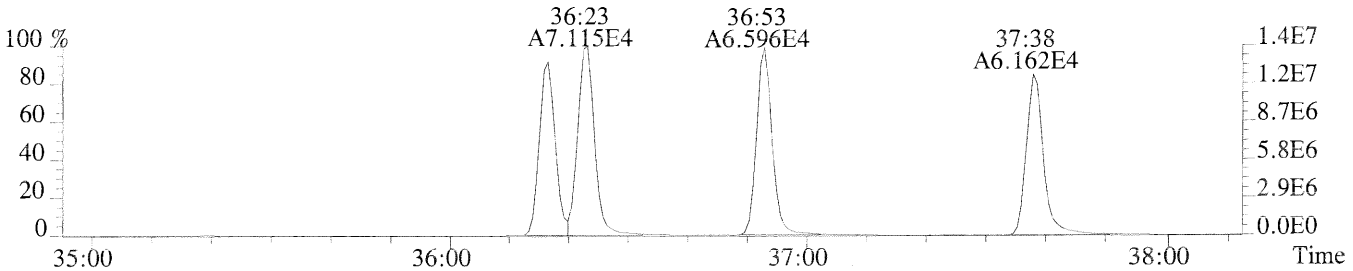
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



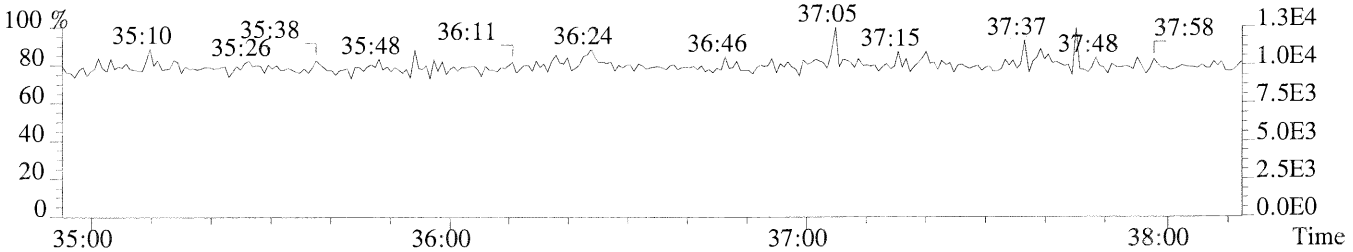
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



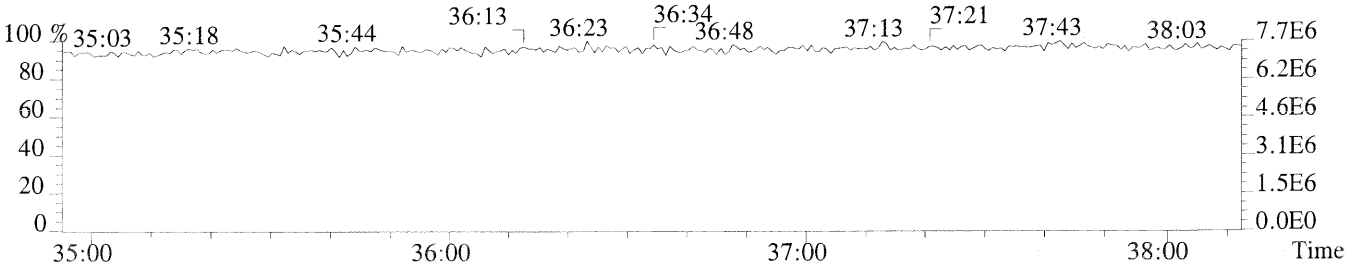
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

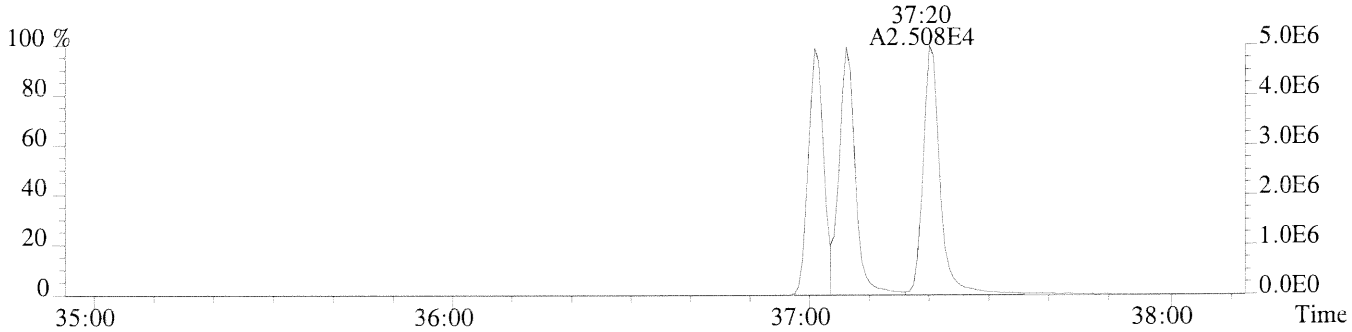


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

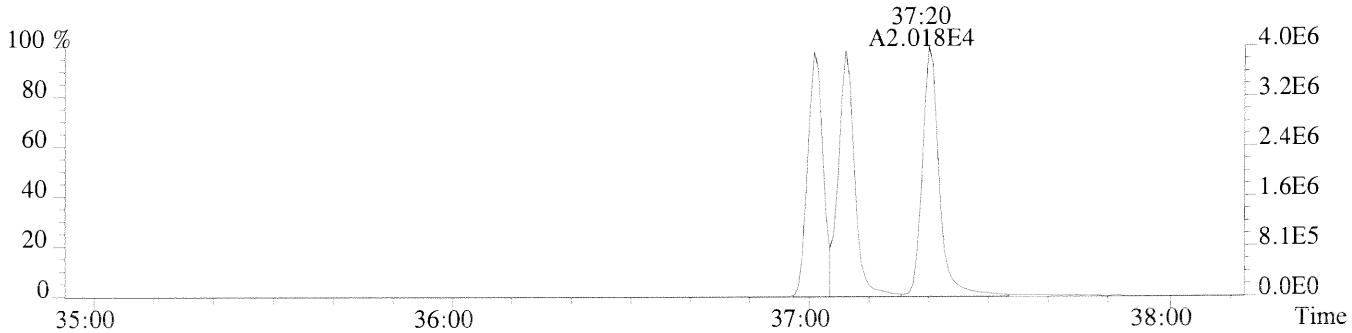


File:U149175 #1-299 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

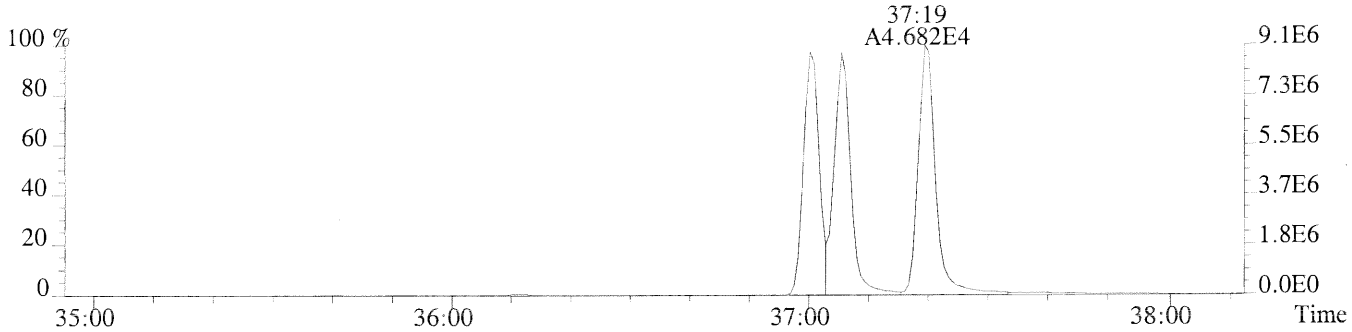
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



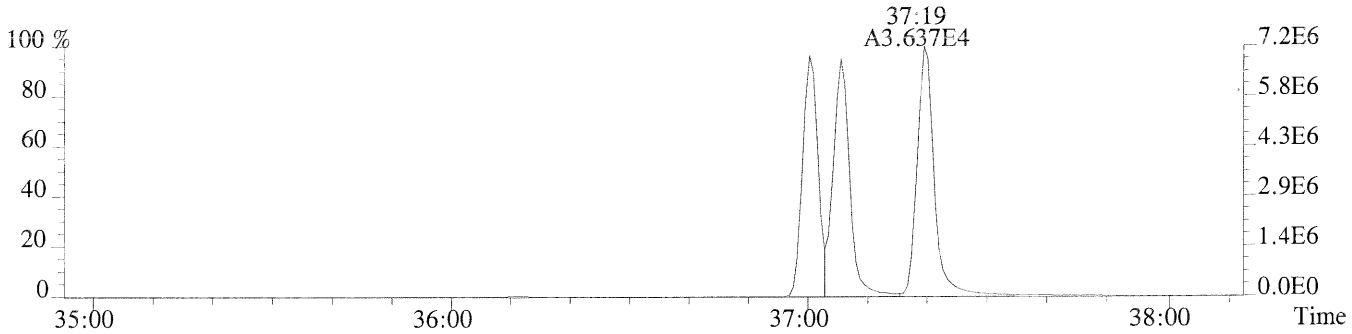
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



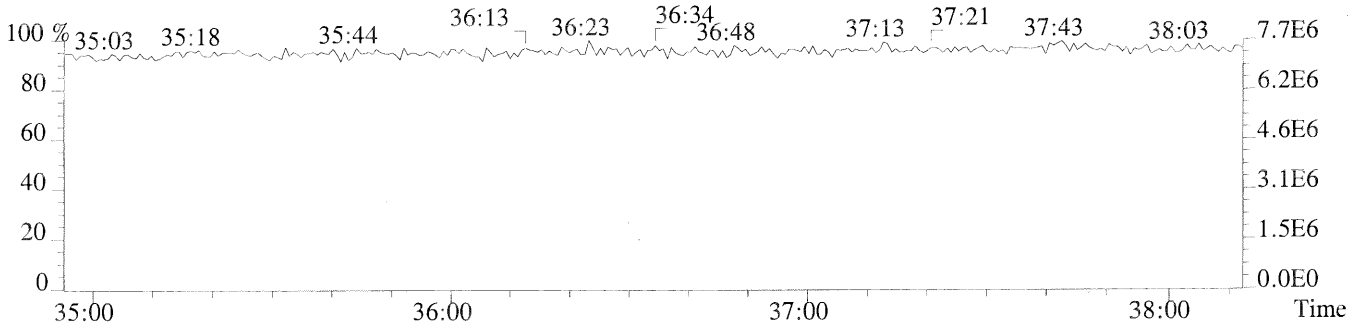
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)

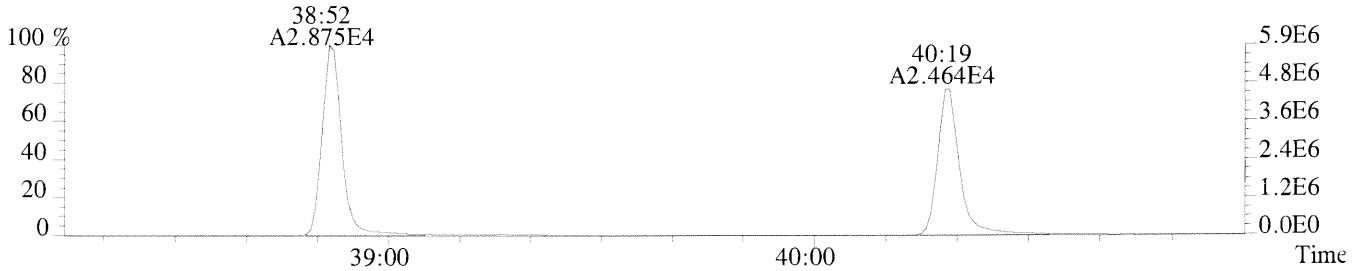


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

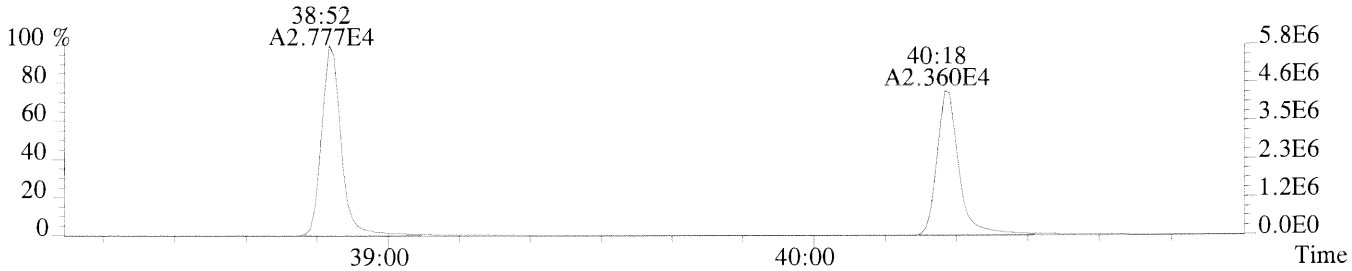


File:U149175 #1-251 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

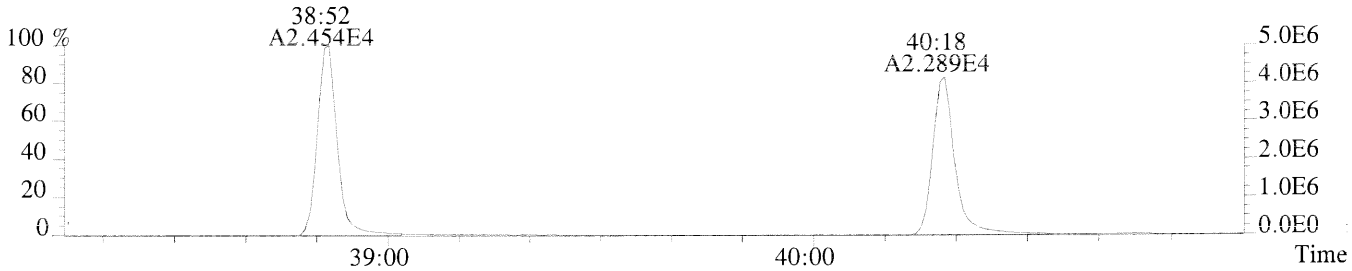
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3420.0,0.50%,F,T)



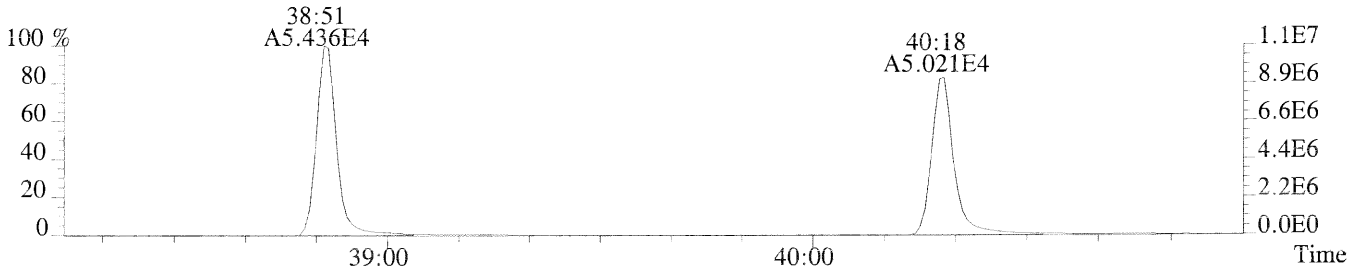
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2416.0,0.50%,F,T)



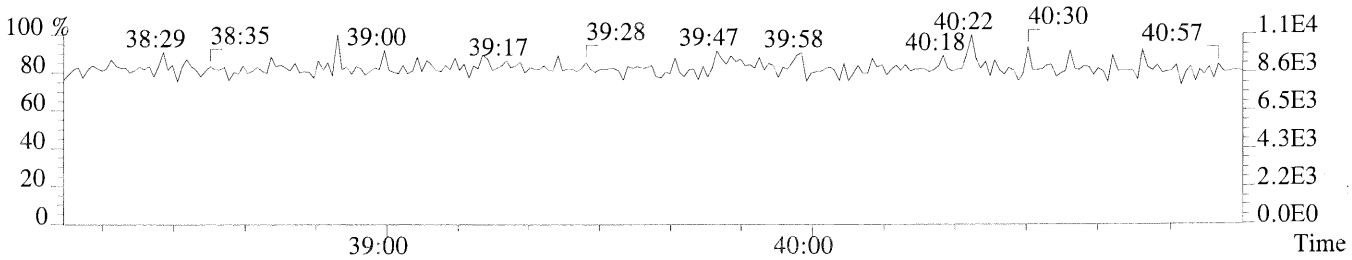
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3492.0,0.50%,F,T)



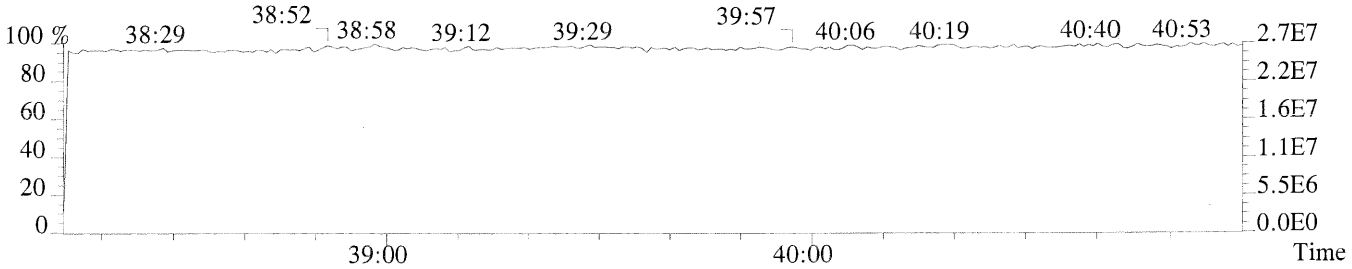
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3248.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

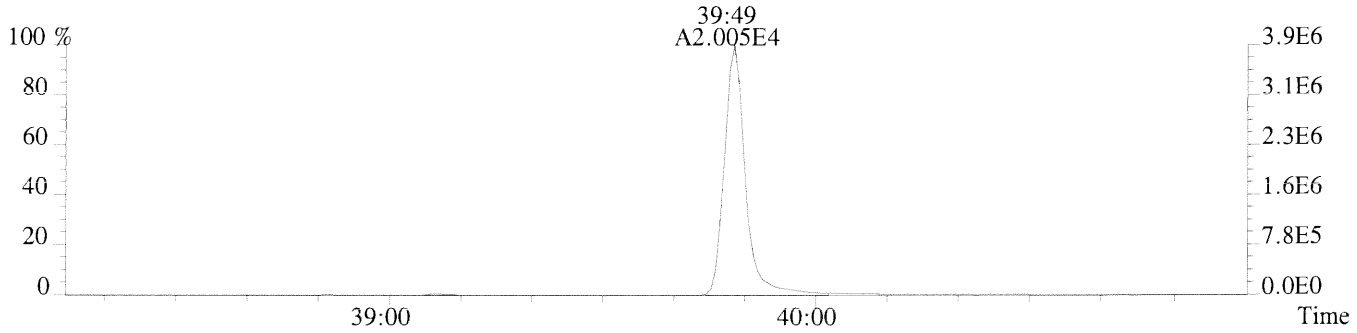


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

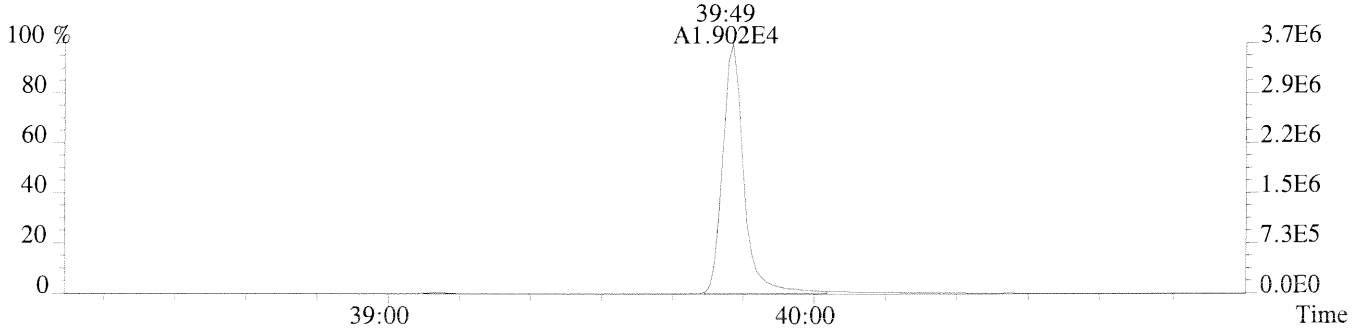


File:U149175 #1-251 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

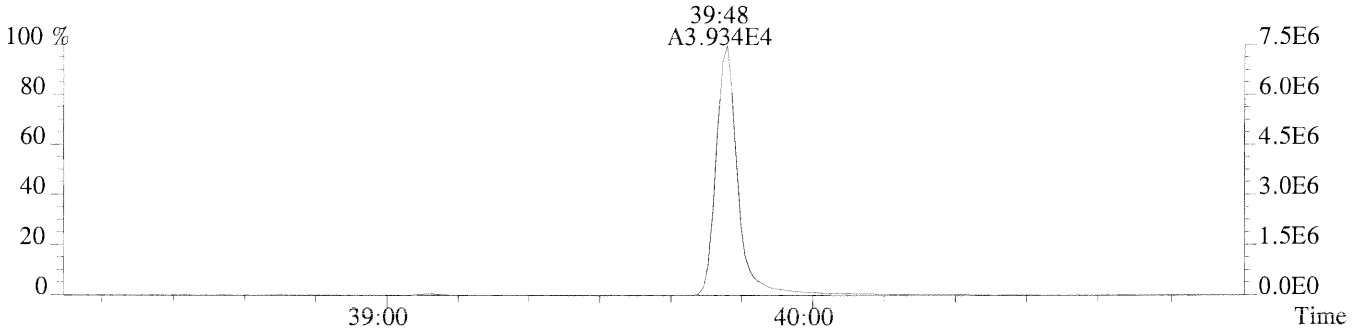
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



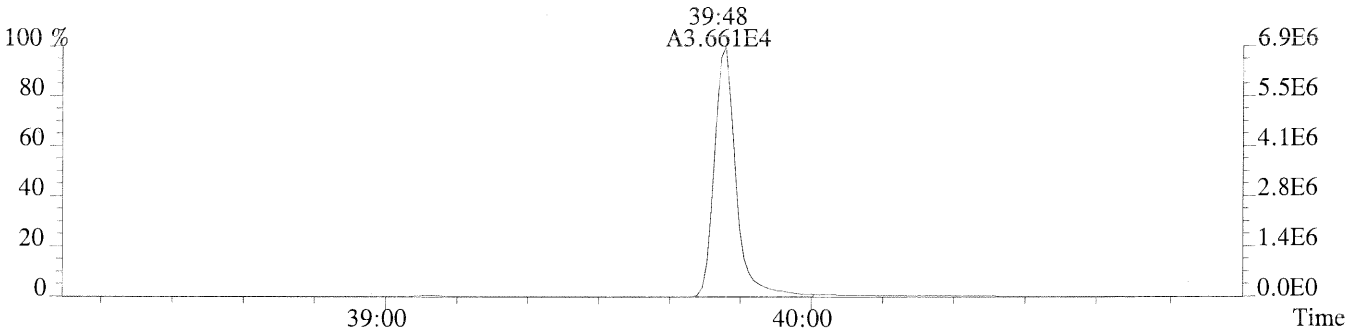
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



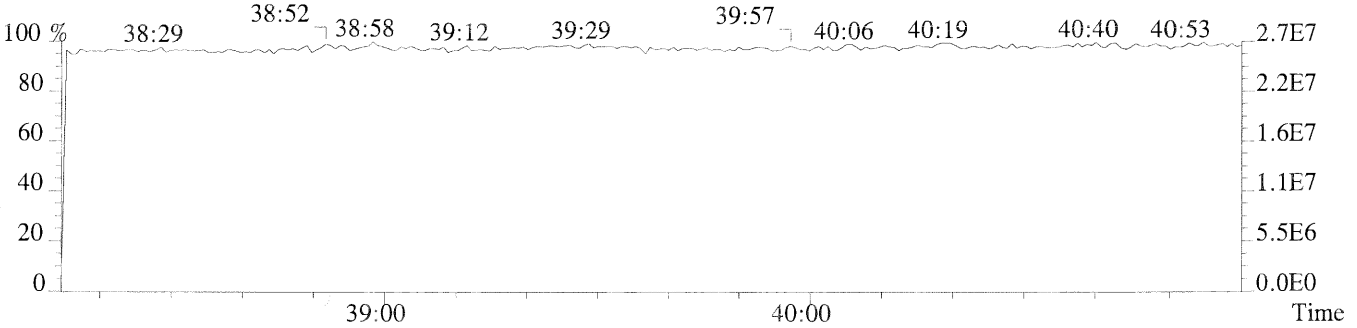
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.40%,F,T)



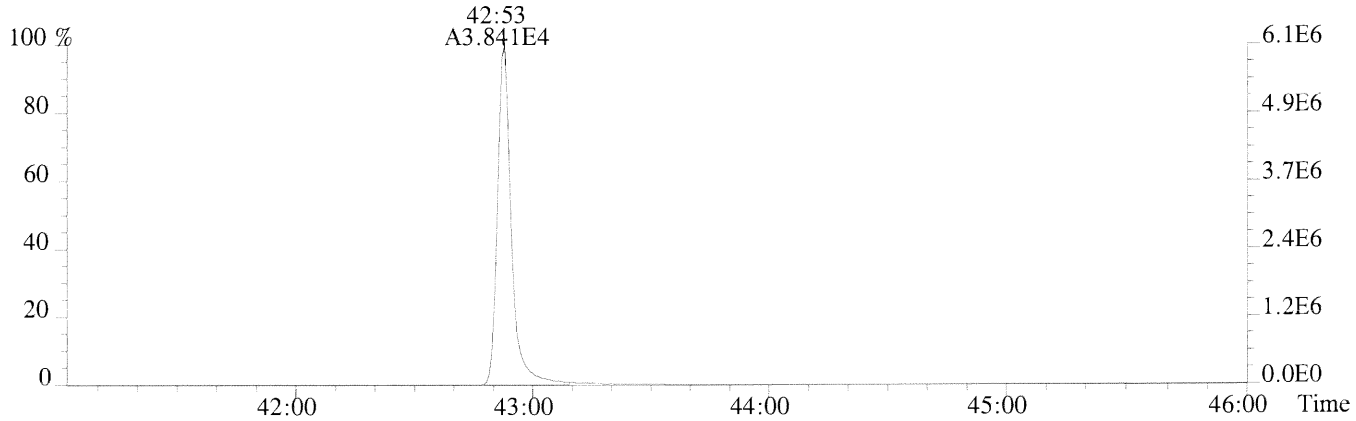
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



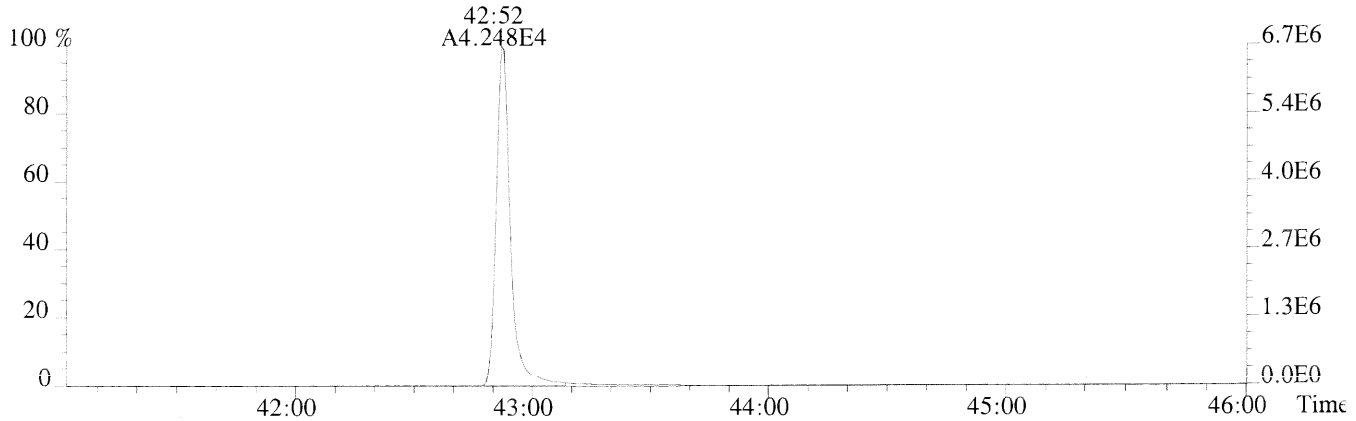
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



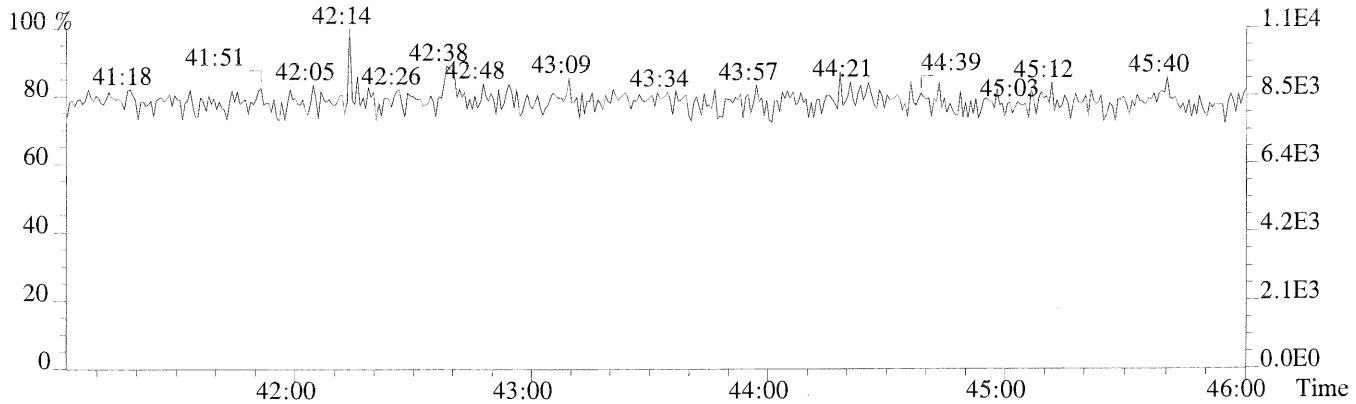
File:U149175 #1-451 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,612.0,0.40%,F,T)



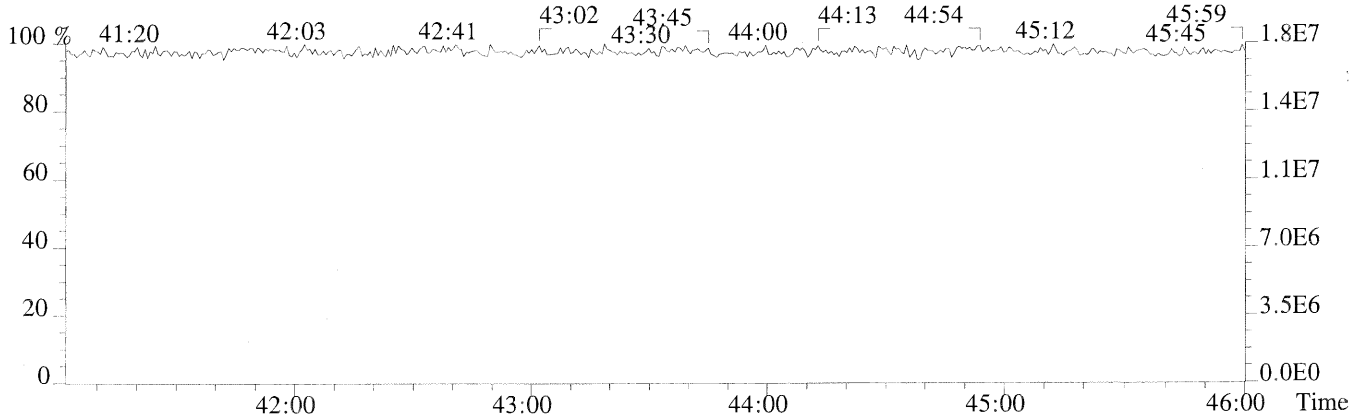
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

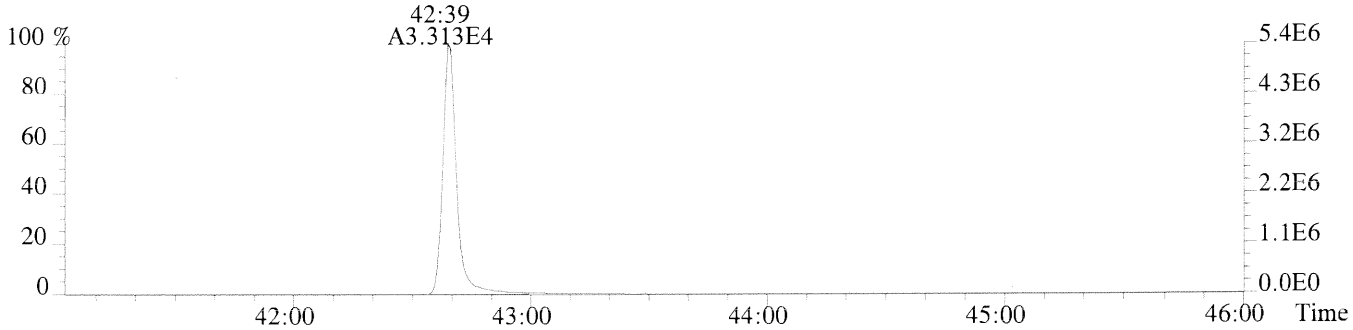


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

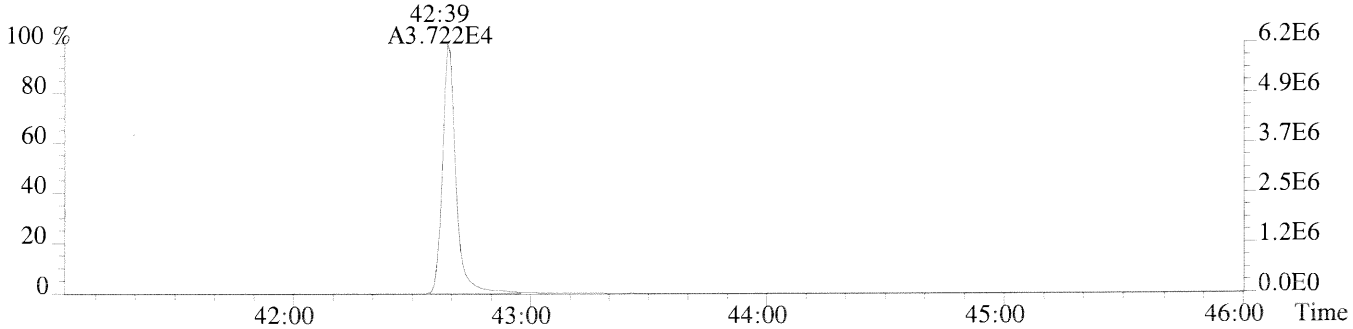


File:U149175 #1-451 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

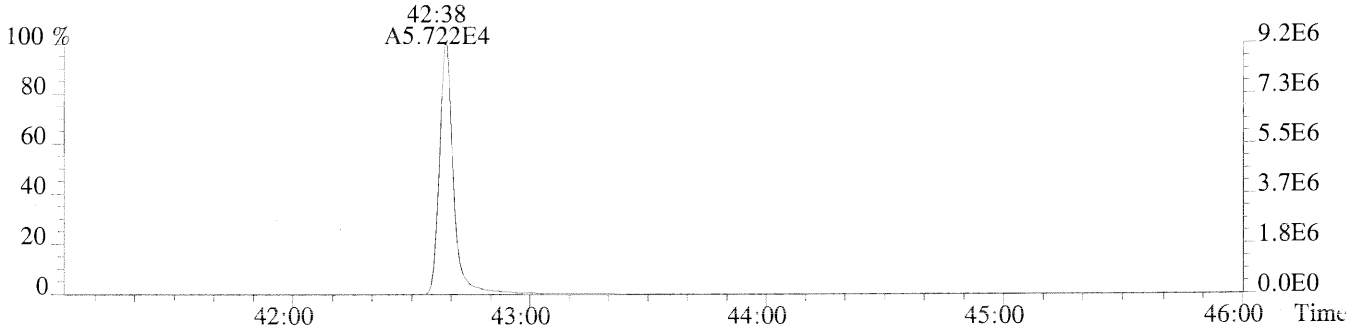
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,780.0,0.40%,F,T)



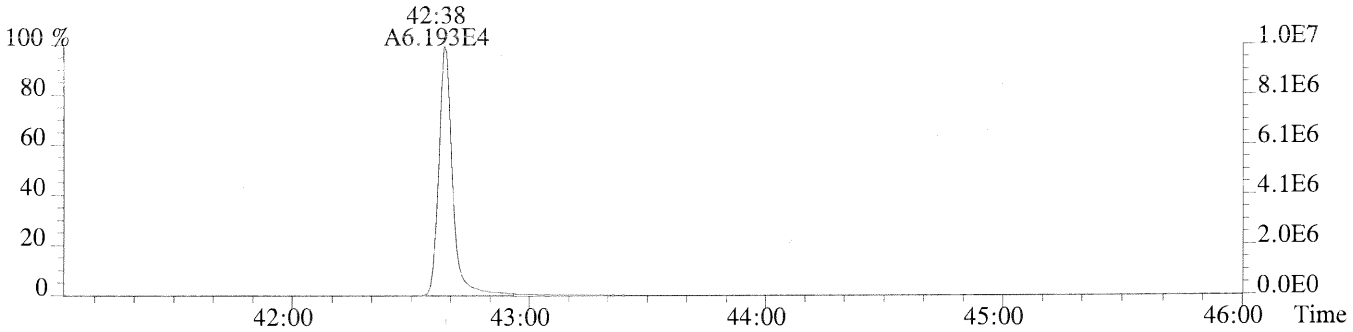
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



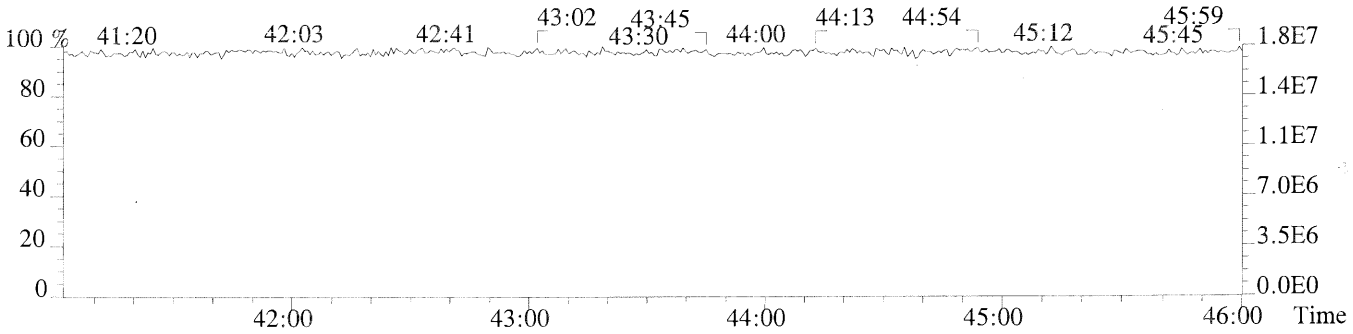
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,672.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
CS4

Run #5 Filename U149176 Samp: 1 Inj: 1 Acquired: 21-MAY-14 18:03:46
Processed: 23-MAY-14 08:49:34 Sample ID: D12-90-3D

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	1.281e+04	1.683e+04	0.76	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:46	1.486e+05	9.488e+04	1.57	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:40	1.343e+05	8.695e+04	1.55	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.275e+05	1.018e+05	1.25	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.386e+05	1.120e+05	1.24	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.262e+05	1.025e+05	1.23	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	1.191e+05	9.858e+04	1.21	yes	yes	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	1.152e+05	1.116e+05	1.03	yes	yes	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:18	1.018e+05	9.893e+04	1.03	yes	yes	1.359
10	Unk	OCDF	42:52	1.600e+05	1.777e+05	0.90	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:27	1.155e+04	1.438e+04	0.80	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:56	1.029e+05	6.424e+04	1.60	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:00	8.824e+04	7.079e+04	1.25	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:05	9.700e+04	7.789e+04	1.25	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:20	1.003e+05	8.079e+04	1.24	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:48	8.069e+04	7.758e+04	1.04	yes	no	1.065
17	Unk	OCDD	42:39	1.347e+05	1.520e+05	0.89	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:40	3.514e+04	4.374e+04	0.80	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:45	7.529e+04	4.771e+04	1.58	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:39	7.208e+04	4.560e+04	1.58	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	3.172e+04	6.087e+04	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.706e+04	7.109e+04	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	3.377e+04	6.515e+04	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	3.111e+04	6.109e+04	0.51	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:51	2.455e+04	5.440e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	2.310e+04	5.027e+04	0.46	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:26	2.837e+04	3.705e+04	0.77	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:55	4.941e+04	3.137e+04	1.57	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	3.923e+04	2.993e+04	1.31	yes	yes	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	4.286e+04	3.276e+04	1.31	yes	yes	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	3.985e+04	3.688e+04	1.08	yes	no	0.936
32	IS	13C-OCDD	42:38	5.752e+04	6.284e+04	0.92	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:51	2.043e+04	2.631e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	4.399e+04	3.478e+04	1.26	yes	yes	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	2.668e+04				no	1.044

ALS ENVIRONMENTAL
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Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
CS4

#5 Filename U149176 Samp: 1 Inj: 1 Acquired: 21-MAY-14 18:03:46
Processed: 22-MAY-14 12:57:511 LAB. ID: D12-90-3D

Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
2,3,7,8-TCDF	2.72e+06	7.76e+02	3.5e+03	3.55e+06	1.07e+03	3.3e+03
1,2,3,7,8-PeCDF	2.96e+07	6.16e+02	4.8e+04	1.89e+07	1.46e+03	1.3e+04
2,3,4,7,8-PeCDF	2.67e+07	6.16e+02	4.3e+04	1.74e+07	1.46e+03	1.2e+04
1,2,3,4,7,8-HxCDF	2.81e+07	1.45e+03	1.9e+04	2.23e+07	1.00e+03	2.2e+04
1,2,3,6,7,8-HxCDF	2.93e+07	1.45e+03	2.0e+04	2.37e+07	1.00e+03	2.4e+04
2,3,4,6,7,8-HxCDF	2.80e+07	1.45e+03	1.9e+04	2.28e+07	1.00e+03	2.3e+04
1,2,3,7,8,9-HxCDF	2.45e+07	1.45e+03	1.7e+04	2.01e+07	1.00e+03	2.0e+04
1,2,3,4,6,7,8-HpCDF	2.41e+07	5.82e+03	4.1e+03	2.31e+07	1.34e+04	1.7e+03
1,2,3,4,7,8,9-HpCDF	1.96e+07	5.82e+03	3.4e+03	1.89e+07	1.34e+04	1.4e+03
OCDF	2.73e+07	5.88e+02	4.6e+04	3.00e+07	9.52e+02	3.1e+04
2,3,7,8-TCDD	2.60e+06	8.56e+02	3.0e+03	3.24e+06	6.52e+02	5.0e+03
1,2,3,7,8-PeCDD	2.11e+07	5.16e+02	4.1e+04	1.30e+07	7.04e+02	1.9e+04
1,2,3,4,7,8-HxCDD	2.00e+07	8.08e+02	2.5e+04	1.63e+07	7.00e+02	2.3e+04
1,2,3,6,7,8-HxCDD	2.00e+07	8.08e+02	2.5e+04	1.63e+07	7.00e+02	2.3e+04
1,2,3,7,8,9-HxCDD	2.02e+07	8.08e+02	2.5e+04	1.62e+07	7.00e+02	2.3e+04
1,2,3,4,6,7,8-HpCDD	1.62e+07	8.44e+02	1.9e+04	1.56e+07	1.16e+03	1.4e+04
OCDD	2.26e+07	7.00e+02	3.2e+04	2.53e+07	6.48e+02	3.9e+04
13C-2,3,7,8-TCDF	7.46e+06	1.03e+03	7.3e+03	9.29e+06	7.28e+02	1.3e+04
13C-1,2,3,7,8-PeCDF	1.45e+07	1.14e+03	1.3e+04	9.16e+06	9.92e+02	9.2e+03
13C-2,3,4,7,8-PeCDF	1.46e+07	1.14e+03	1.3e+04	9.28e+06	9.92e+02	9.4e+03
13C-1,2,3,4,7,8-HxCDF	6.96e+06	8.00e+02	8.7e+03	1.33e+07	4.80e+02	2.8e+04
13C-1,2,3,6,7,8-HxCDF	7.93e+06	8.00e+02	9.9e+03	1.51e+07	4.80e+02	3.2e+04
13C-2,3,4,6,7,8-HxCDF	7.38e+06	8.00e+02	9.2e+03	1.43e+07	4.80e+02	3.0e+04
13C-1,2,3,7,8,9-HxCDF	6.36e+06	8.00e+02	8.0e+03	1.21e+07	4.80e+02	2.5e+04
13C-1,2,3,4,6,7,8-HpCDF	5.23e+06	2.16e+03	2.4e+03	1.14e+07	3.80e+03	3.0e+03
13C-1,2,3,4,7,8,9-HpCDF	4.42e+06	2.16e+03	2.0e+03	9.58e+06	3.80e+03	2.5e+03
13C-2,3,7,8-TCDD	6.25e+06	2.46e+03	2.5e+03	8.07e+06	1.19e+03	6.8e+03
13C-1,2,3,7,8-PeCDD	9.86e+06	8.40e+02	1.2e+04	6.33e+06	8.04e+02	7.9e+03
13C-1,2,3,4,7,8-HxCDD	8.86e+06	1.16e+03	7.6e+03	6.89e+06	6.20e+02	1.1e+04
13C-1,2,3,6,7,8-HxCDD	8.86e+06	1.16e+03	7.6e+03	6.89e+06	6.20e+02	1.1e+04
13C-1,2,3,4,6,7,8-HpCDD	7.80e+06	8.20e+02	9.5e+03	7.25e+06	5.76e+02	1.3e+04
13C-OCDD	9.51e+06	6.88e+02	1.4e+04	1.04e+07	5.40e+02	1.9e+04
13C-1,2,3,4-TCDD	4.49e+06	2.46e+03	1.8e+03	5.73e+06	1.19e+03	4.8e+03
13C-1,2,3,7,8,9-HxCDD	9.11e+06	1.16e+03	7.9e+03	7.06e+06	6.20e+02	1.1e+04
37Cl-2,3,7,8-TCDD	5.98e+06	9.12e+02	6.6e+03			

ENVIRONMENTAL
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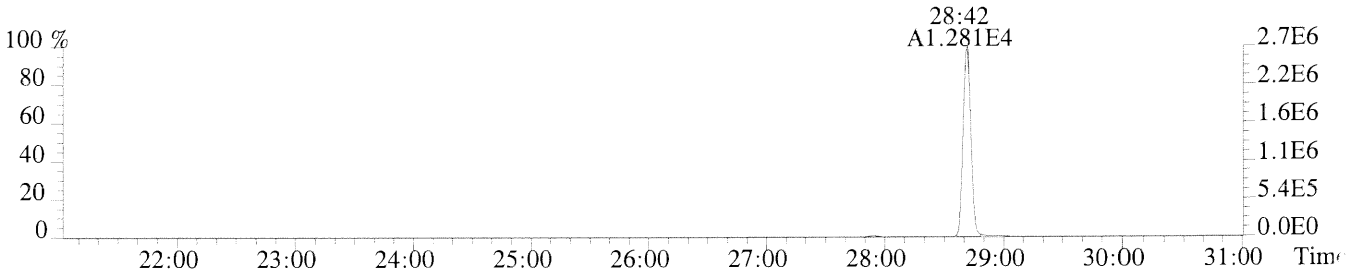
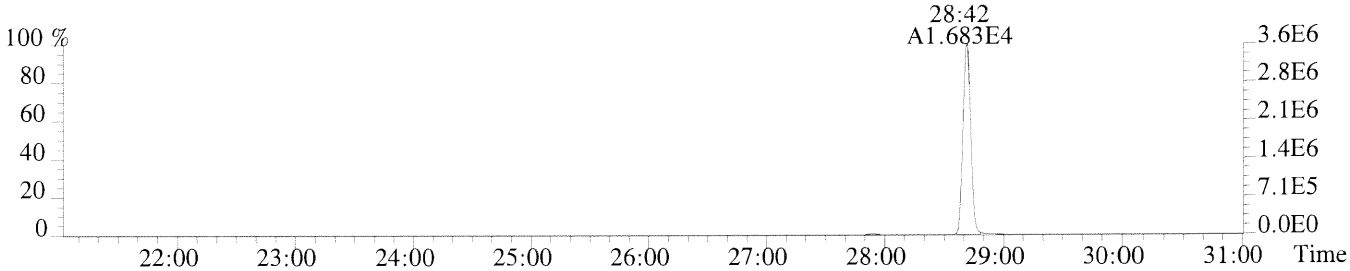
File:U149176 #1-627 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

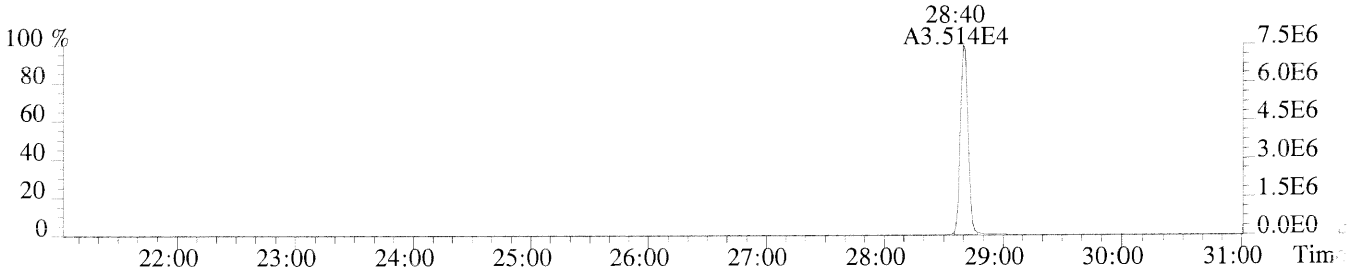
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



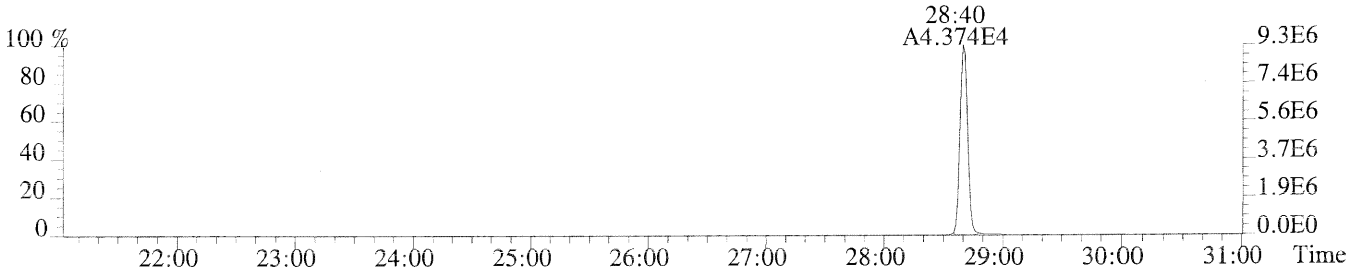
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



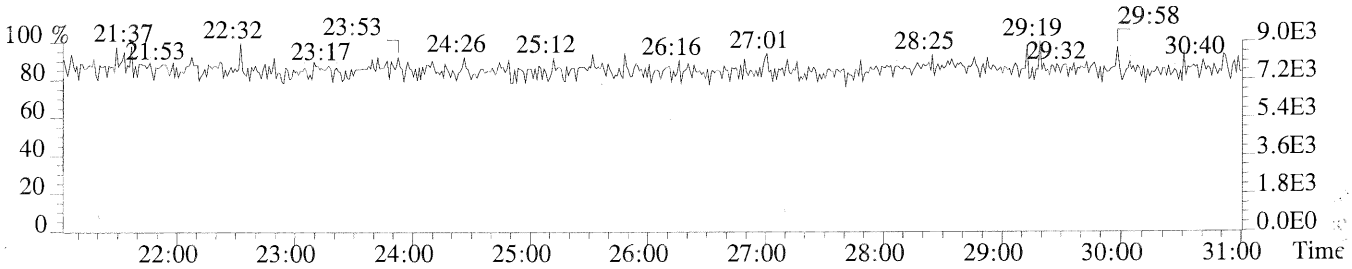
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



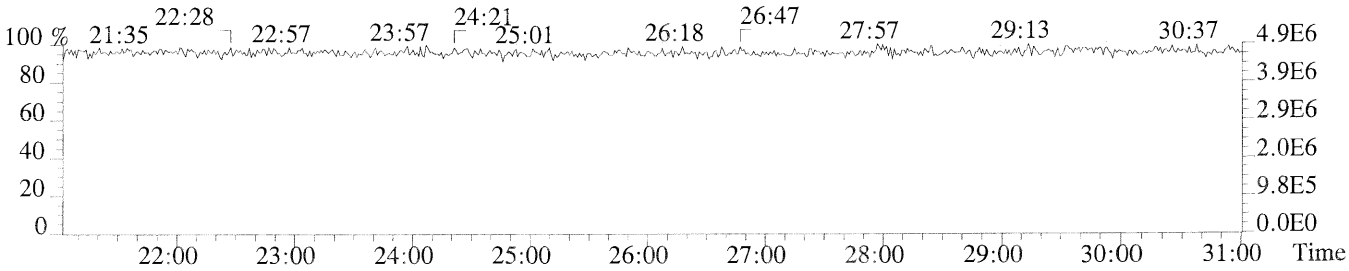
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

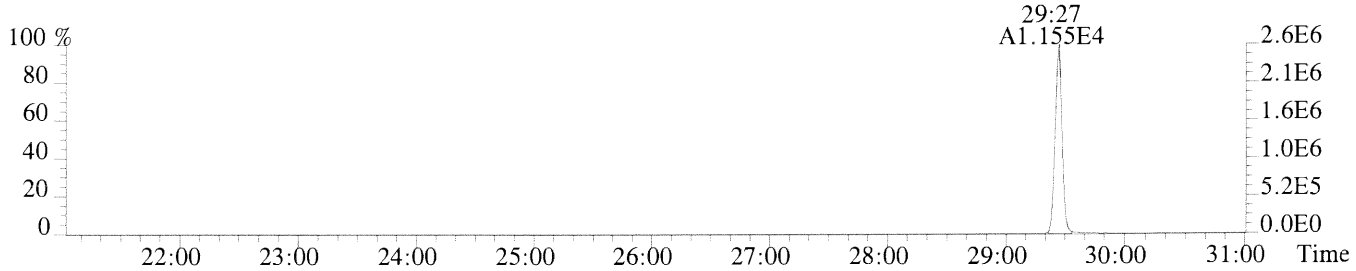


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

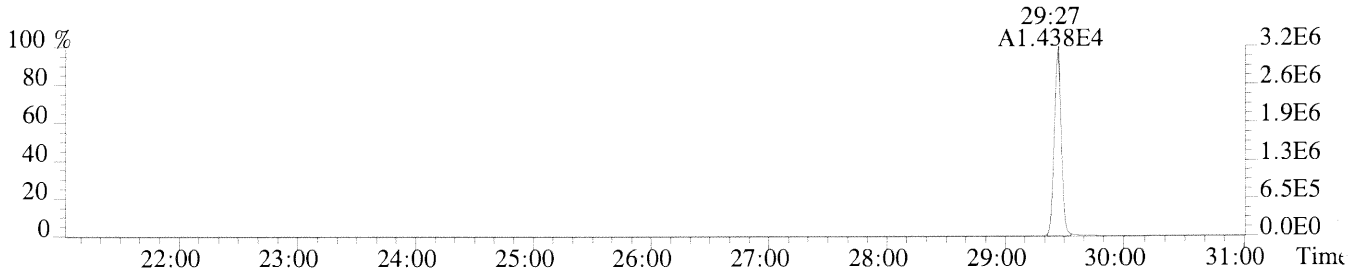


File:U149176 #1-627 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

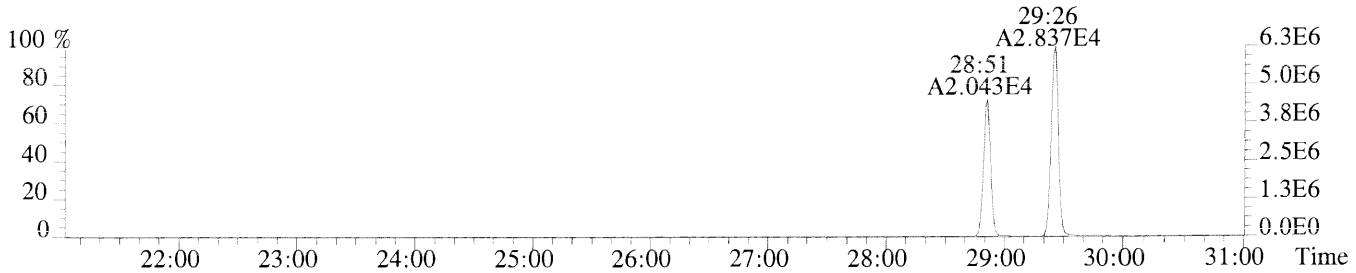
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



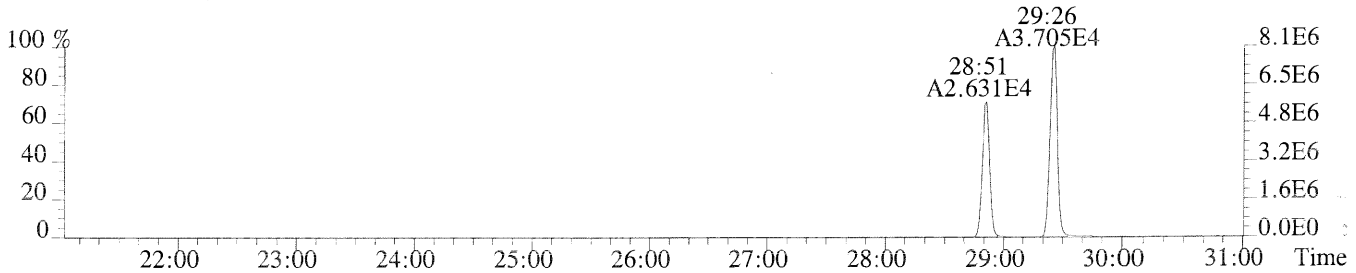
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



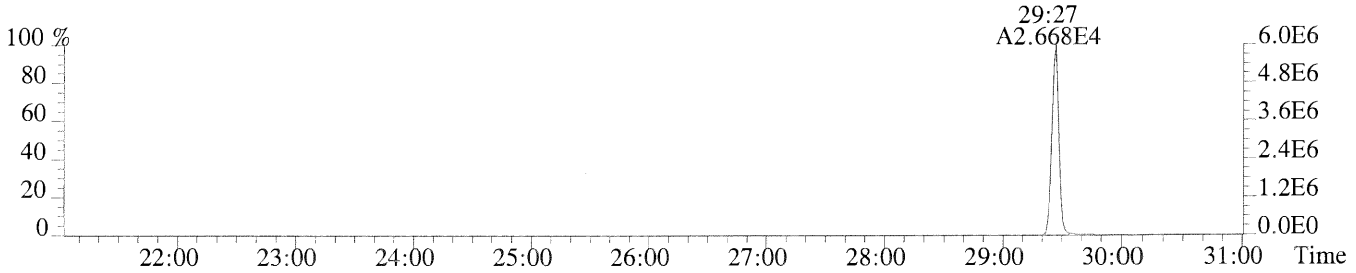
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2456.0,1.00%,F,T)



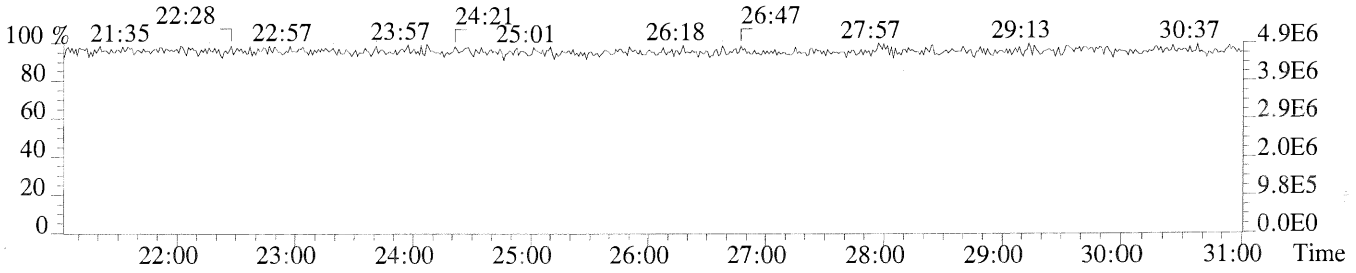
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1192.0,1.00%,F,T)



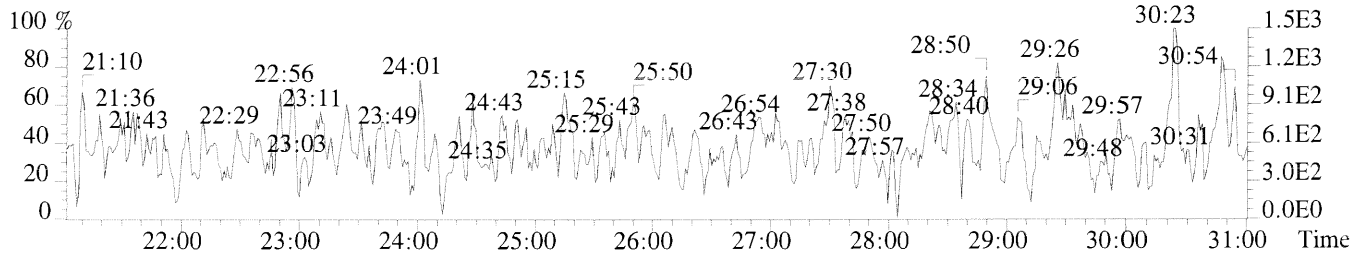
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



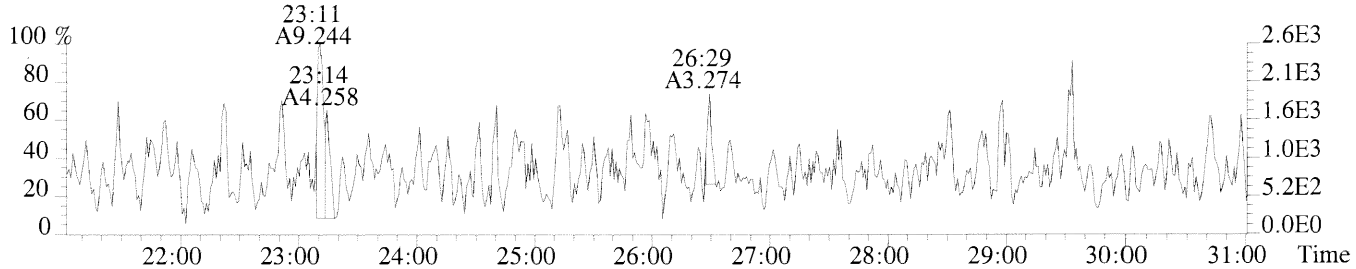
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



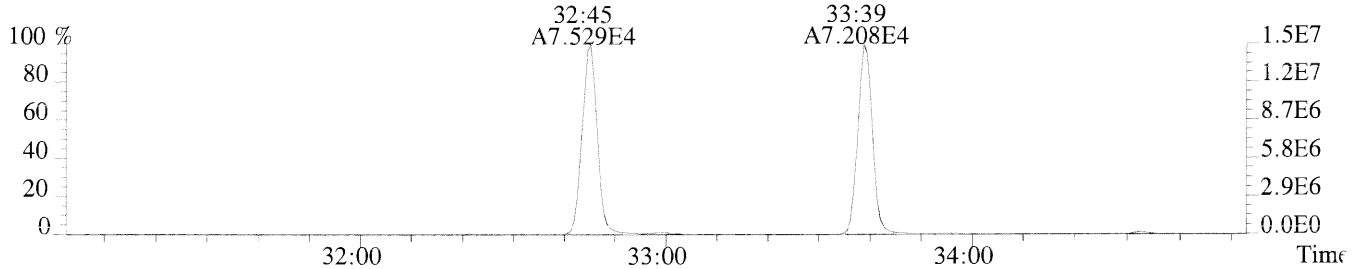
File:U149176 #1-627 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



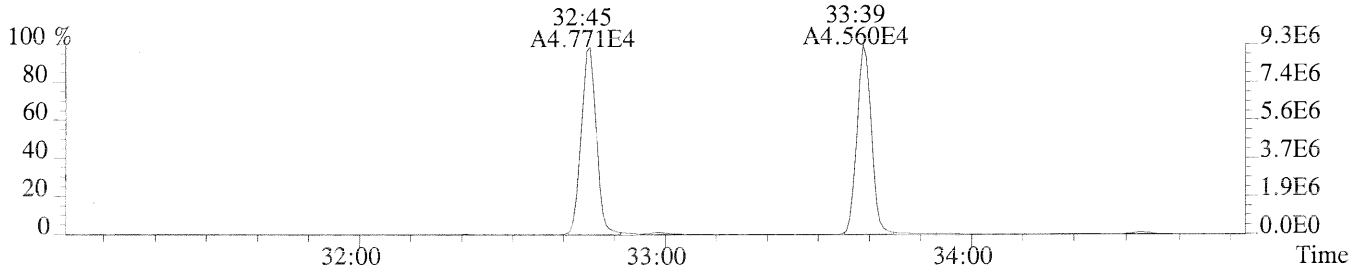
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



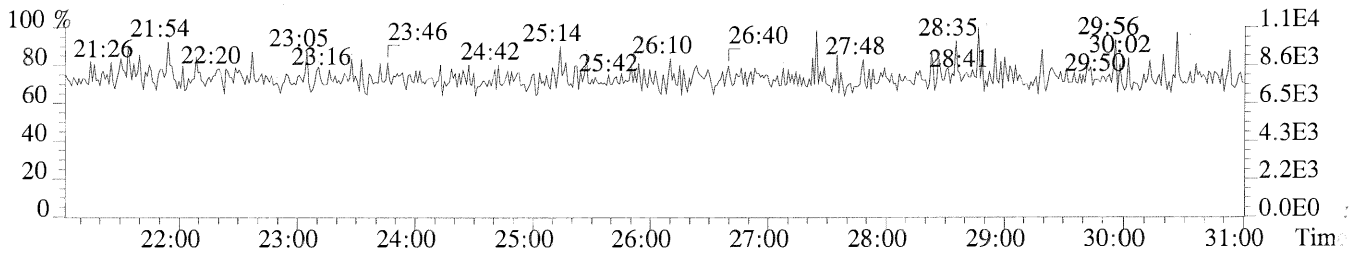
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



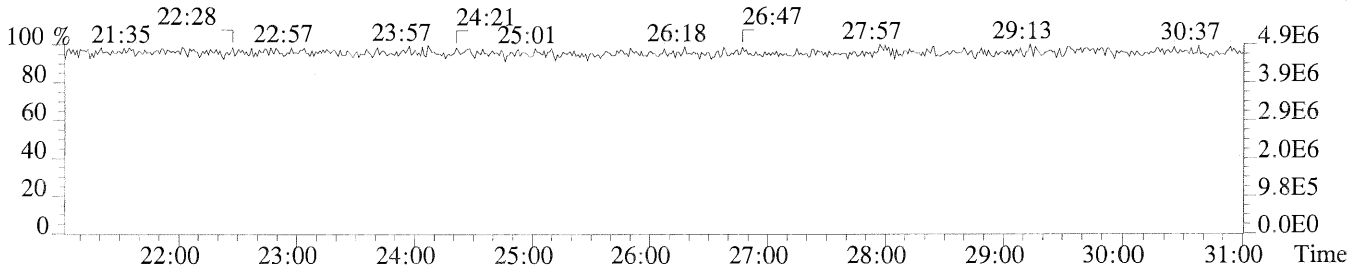
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

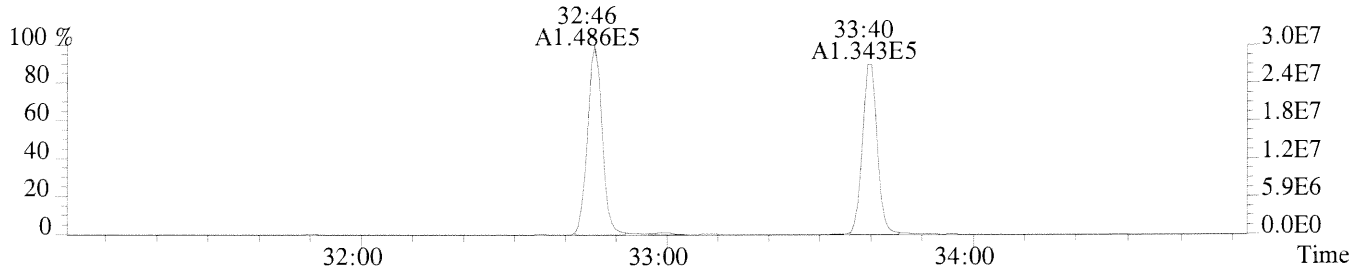


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

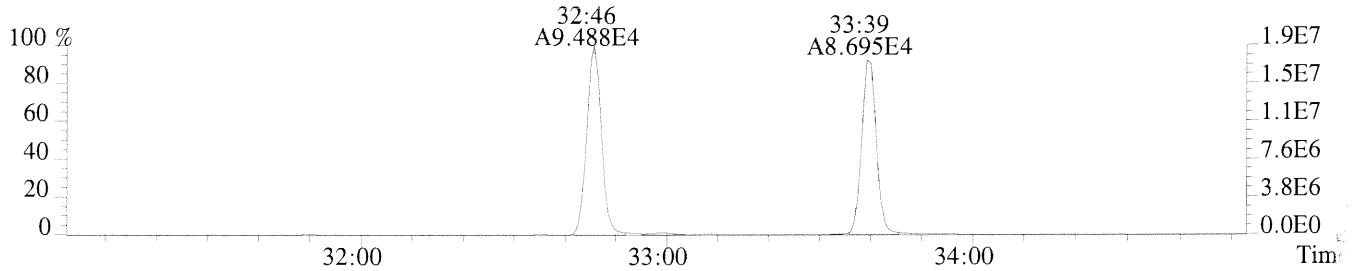


File:U149176 #1-349 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

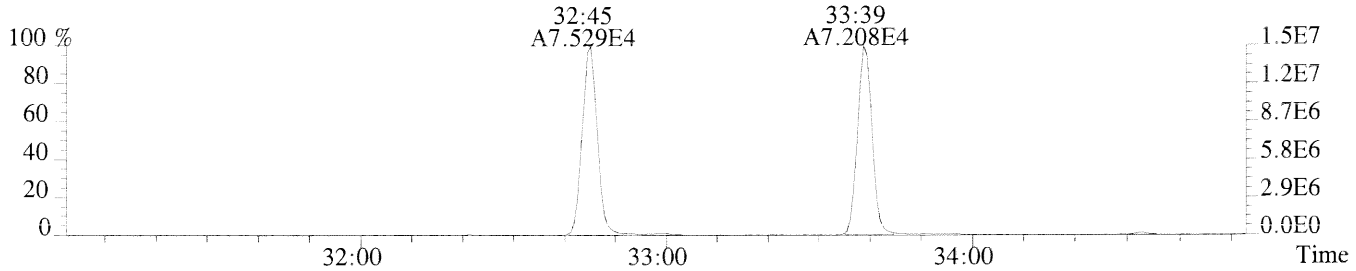
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



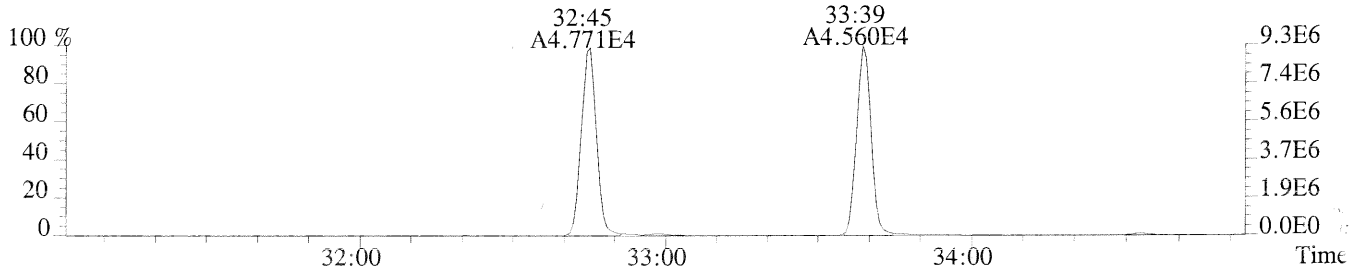
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



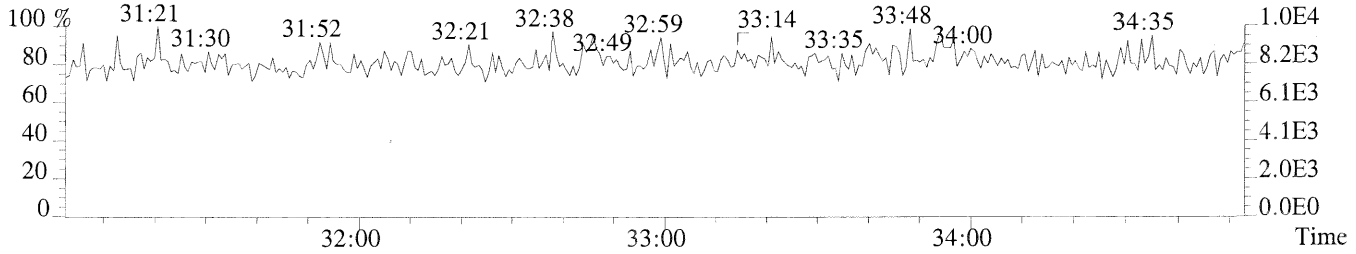
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



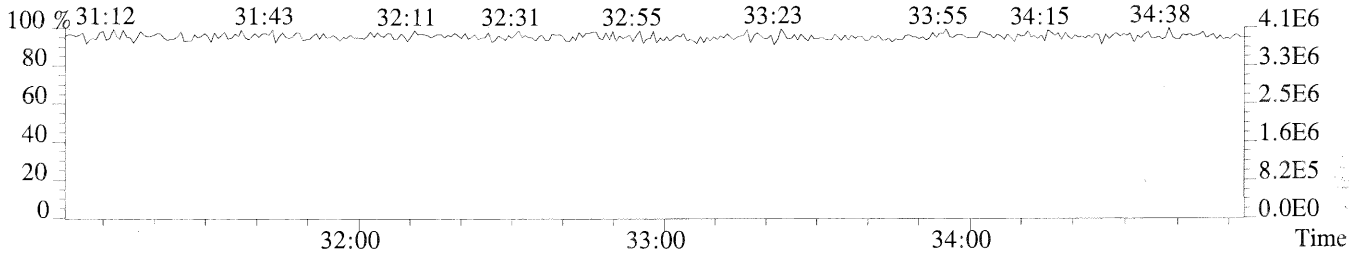
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

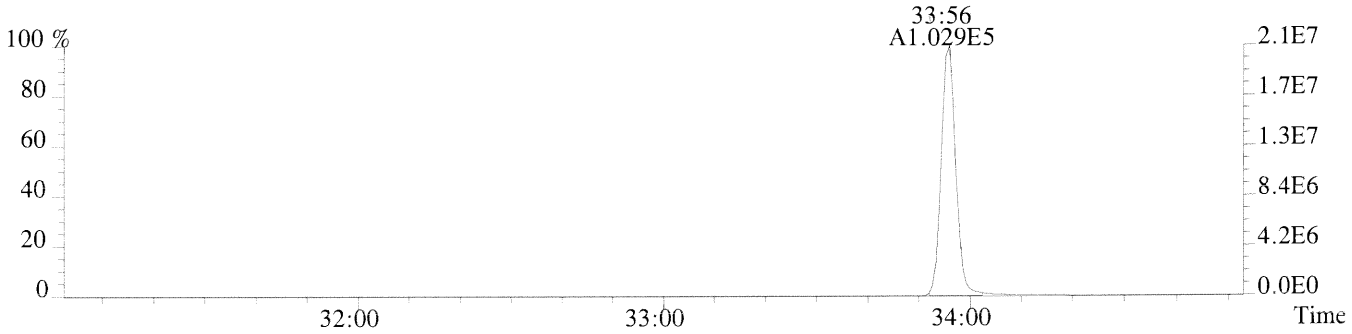


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

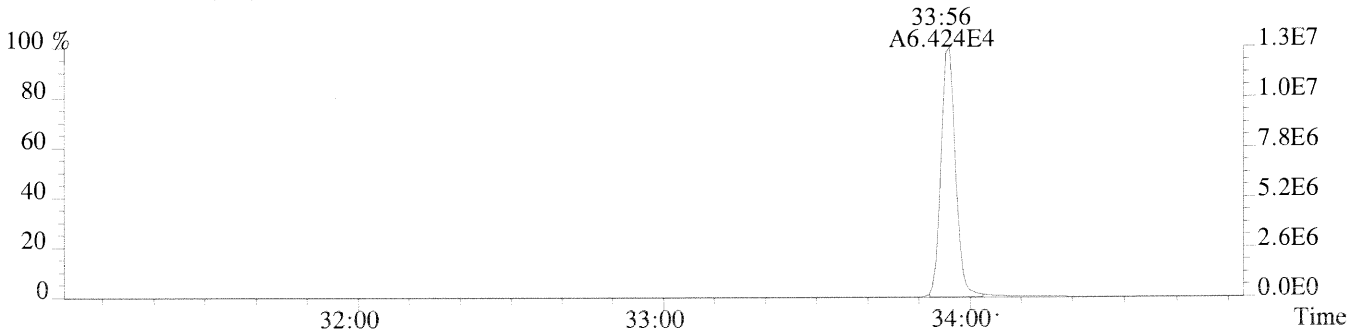


File:U149176 #1-349 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

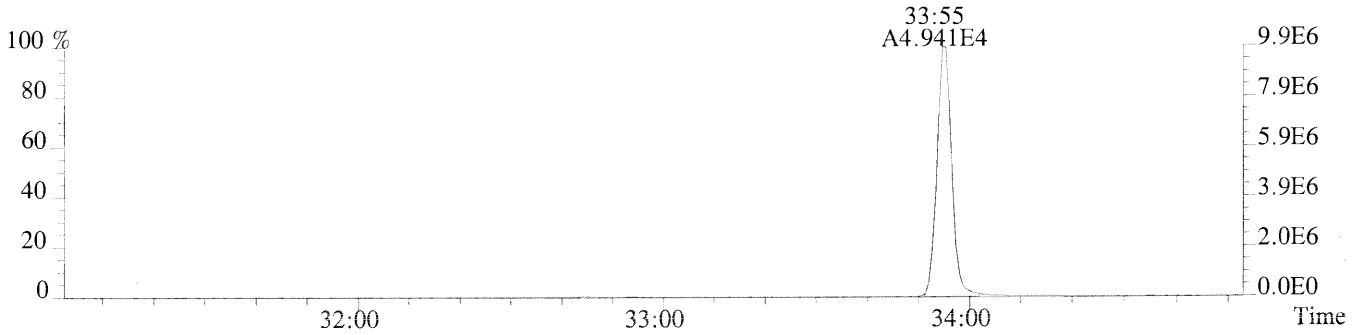
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



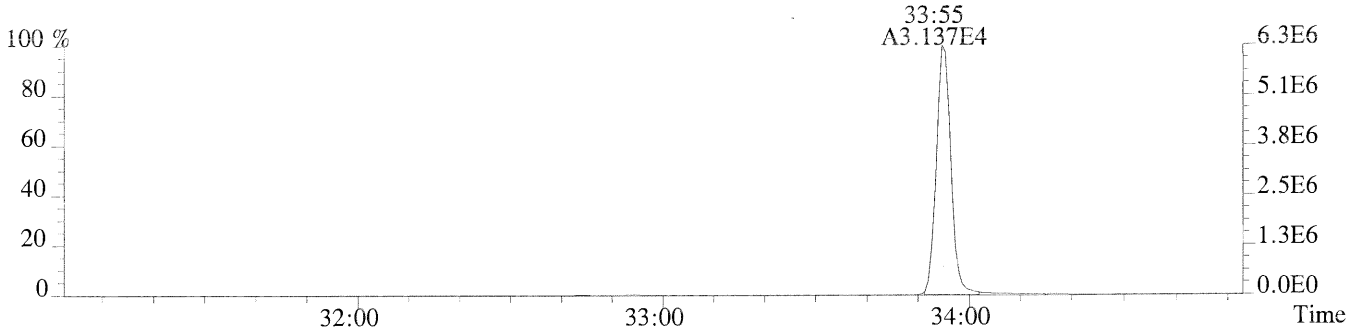
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



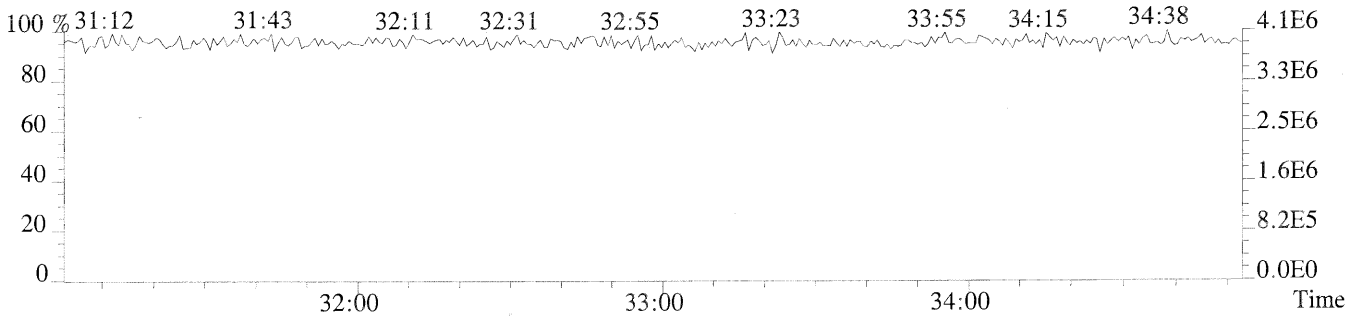
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)

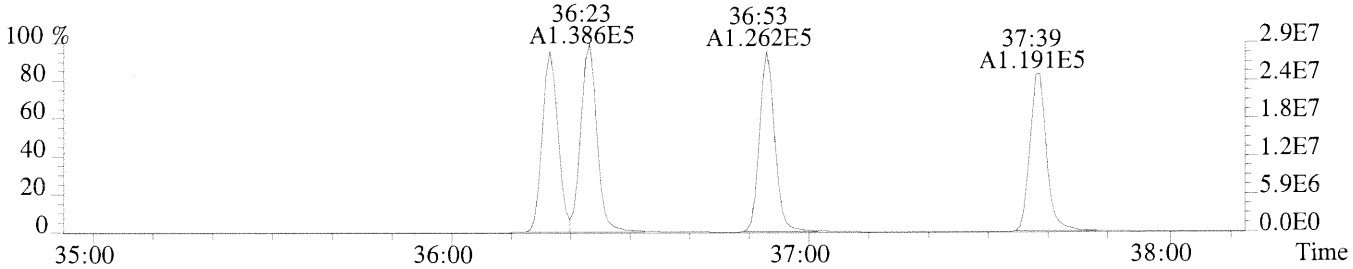


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

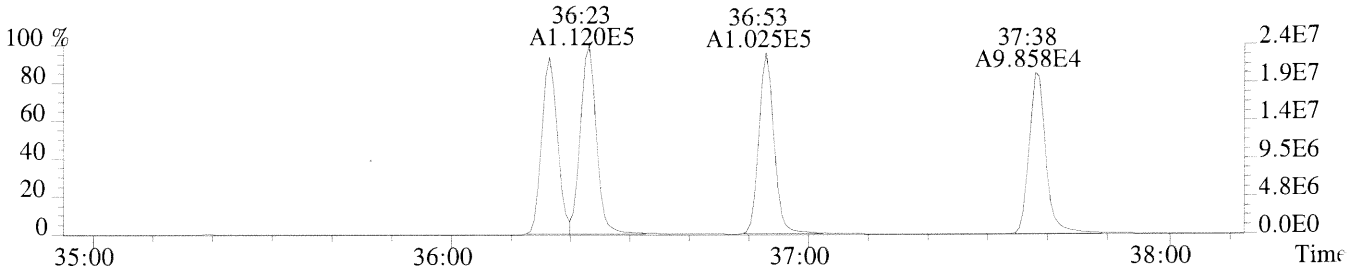


File:U149176 #1-299 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

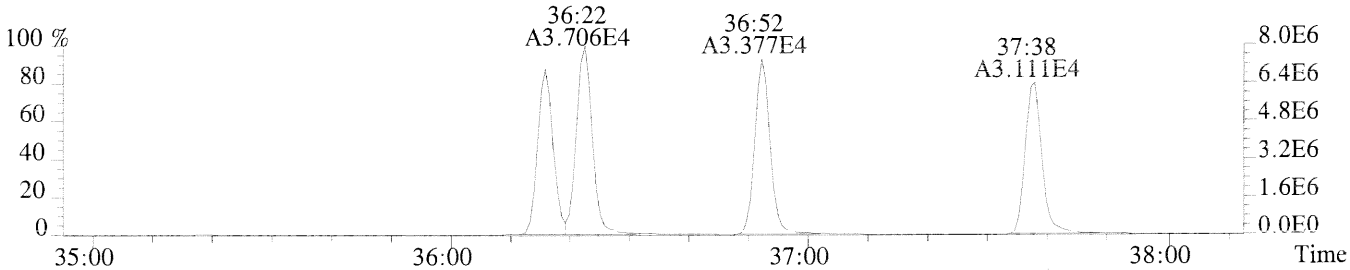
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1448.0,0.40%,F,T)



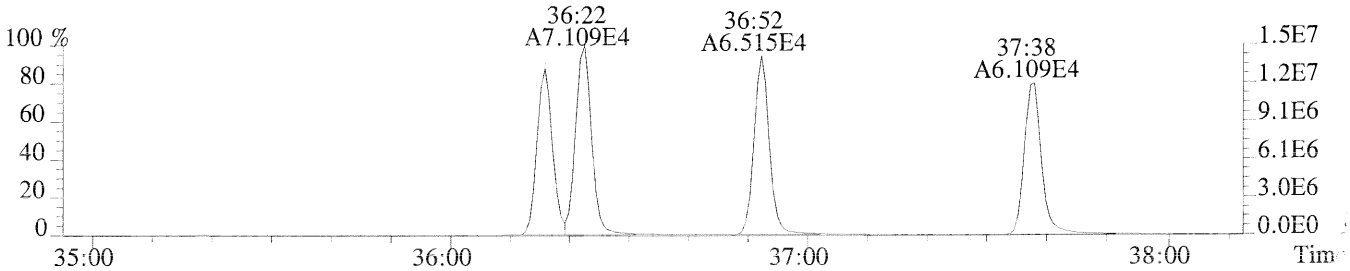
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1000.0,0.40%,F,T)



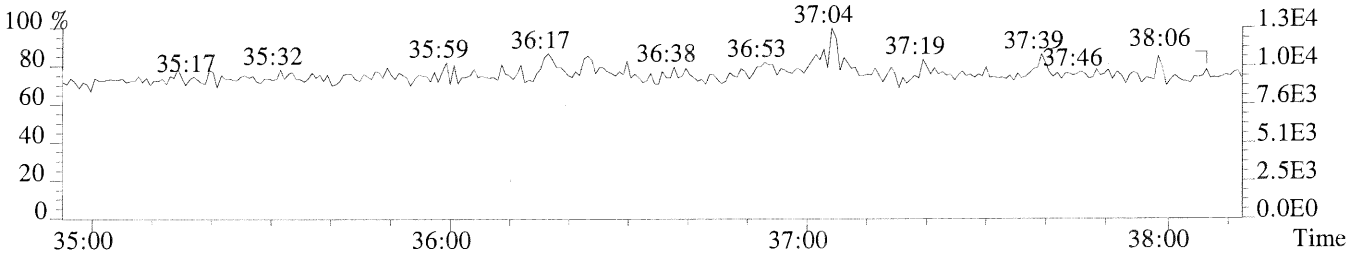
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



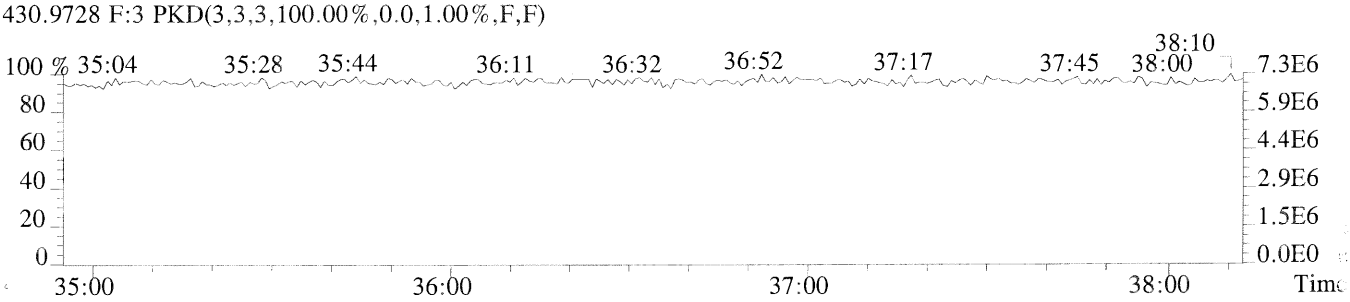
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

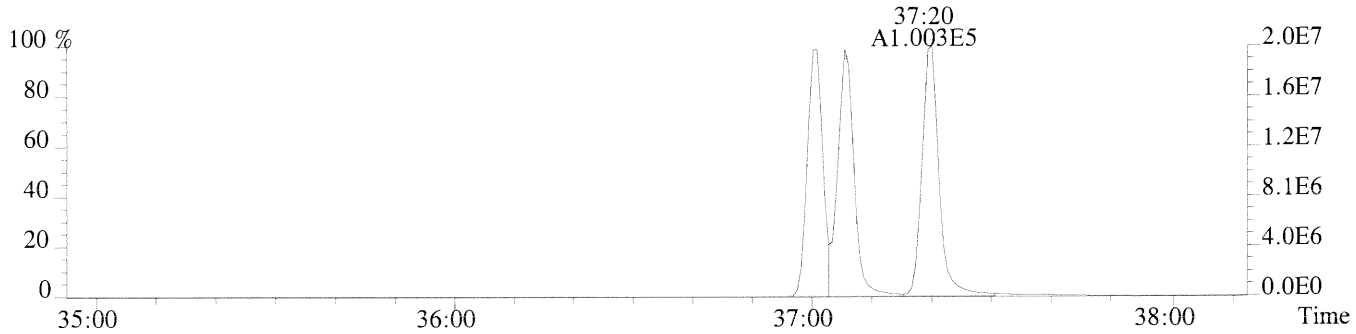


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

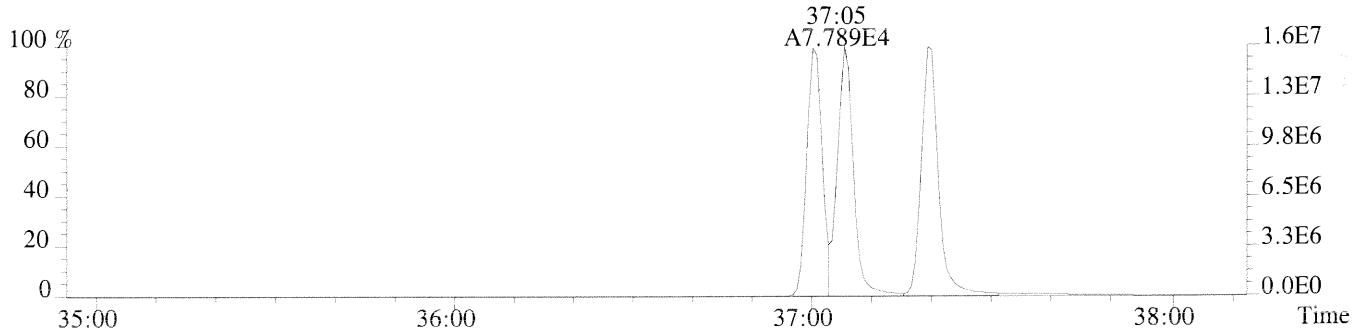


File:U149176 #1-299 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

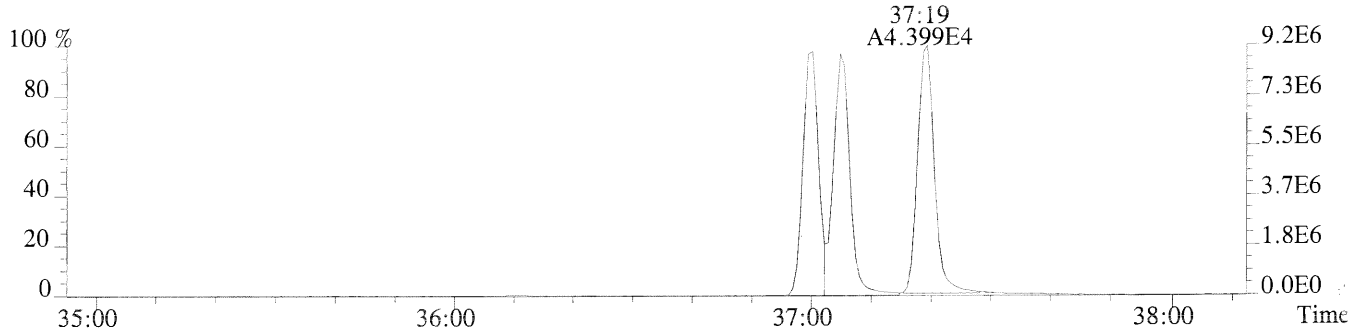
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



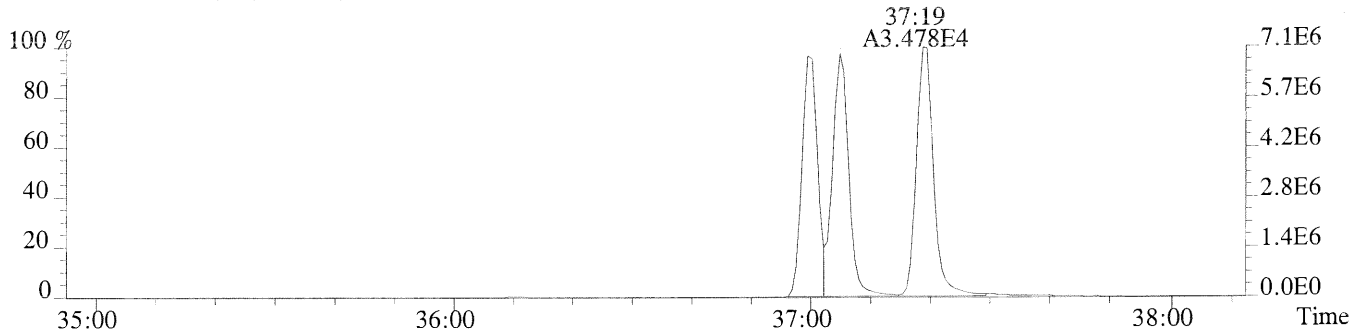
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



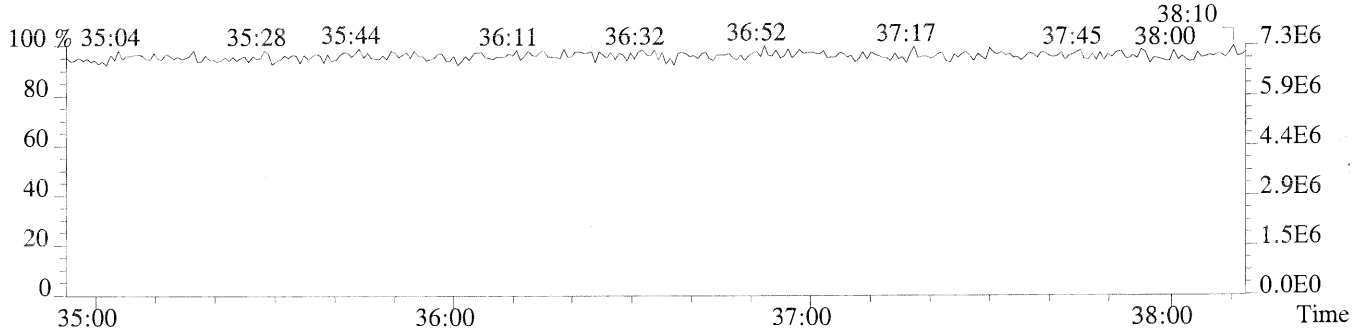
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1160.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)

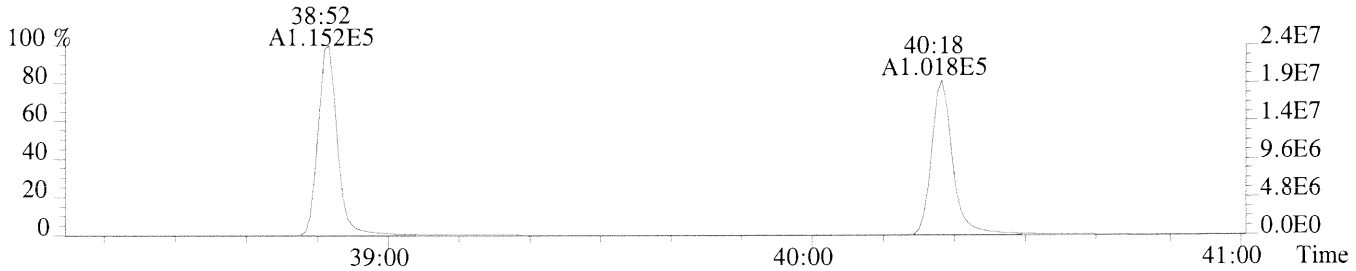


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

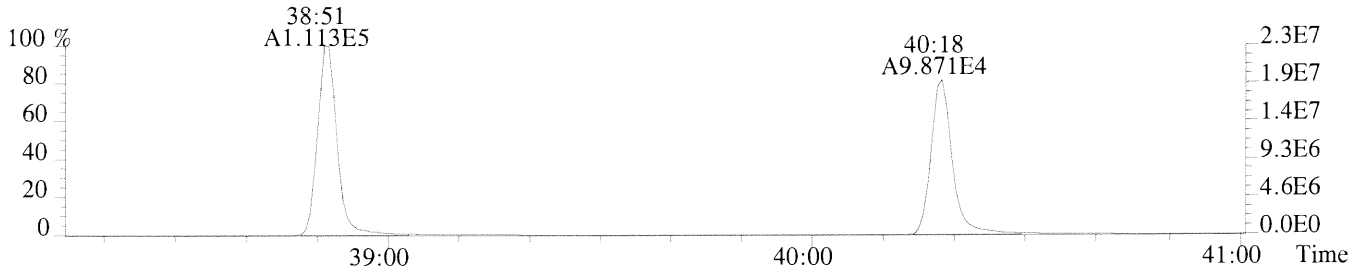


File:U149176 #1-252 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

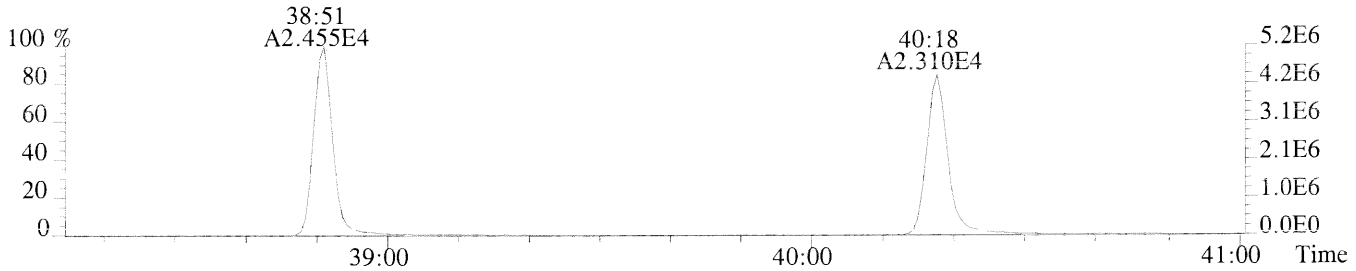
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5824.0,0.50%,F,T)



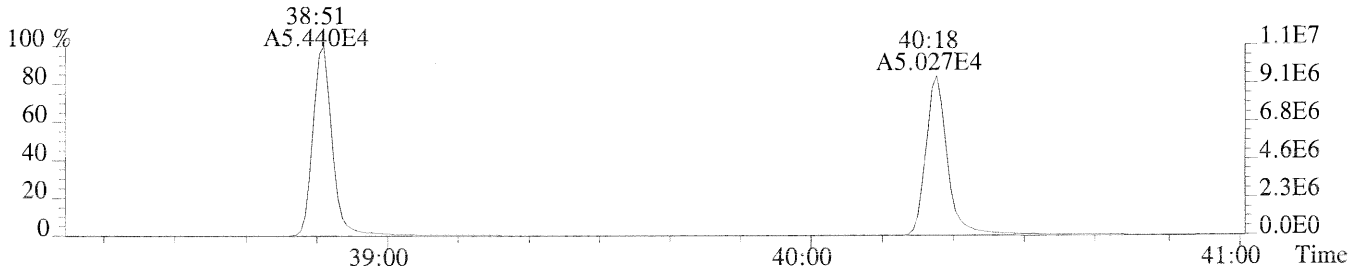
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13432.0,0.50%,F,T)



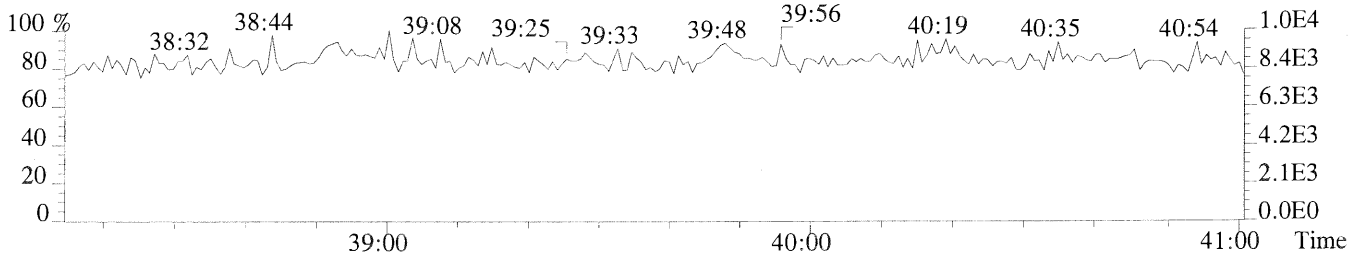
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2160.0,0.50%,F,T)



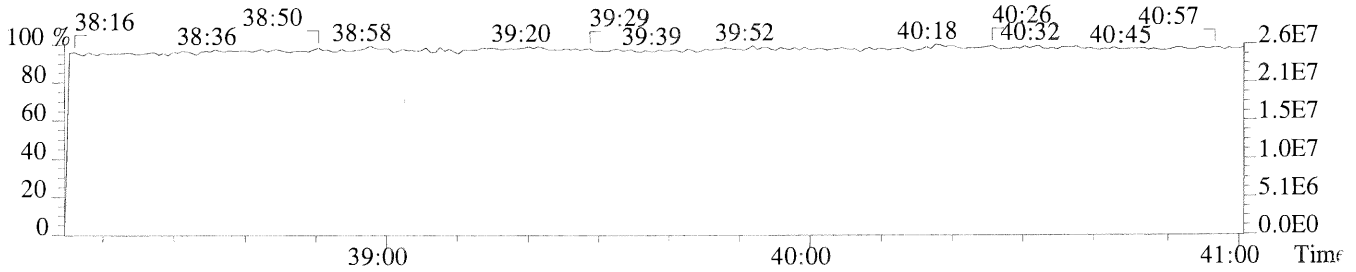
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3800.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

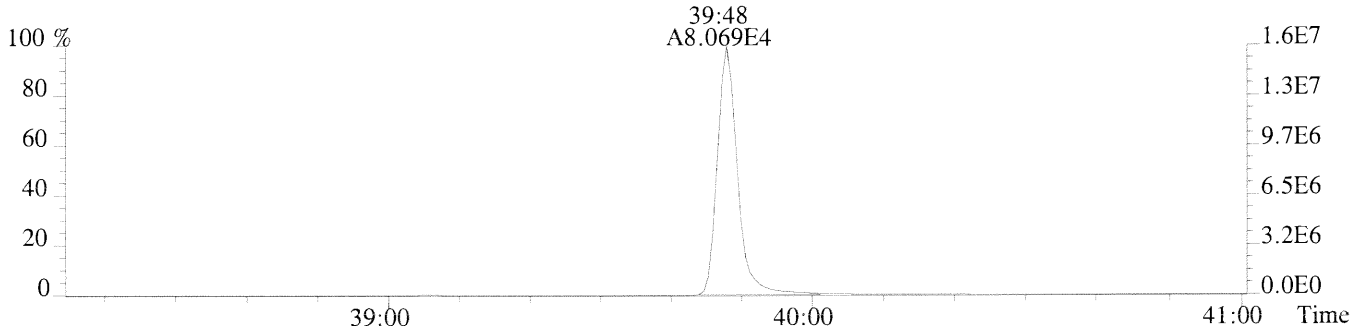


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

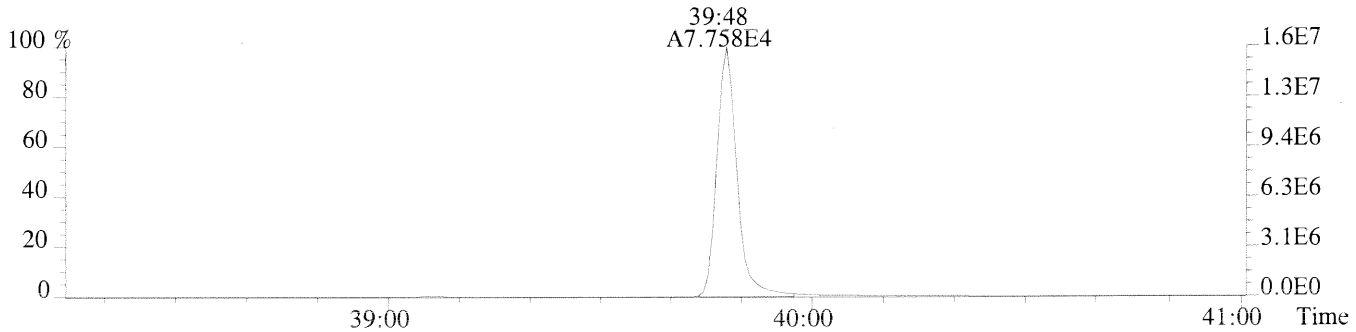


File:U149176 #1-252 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

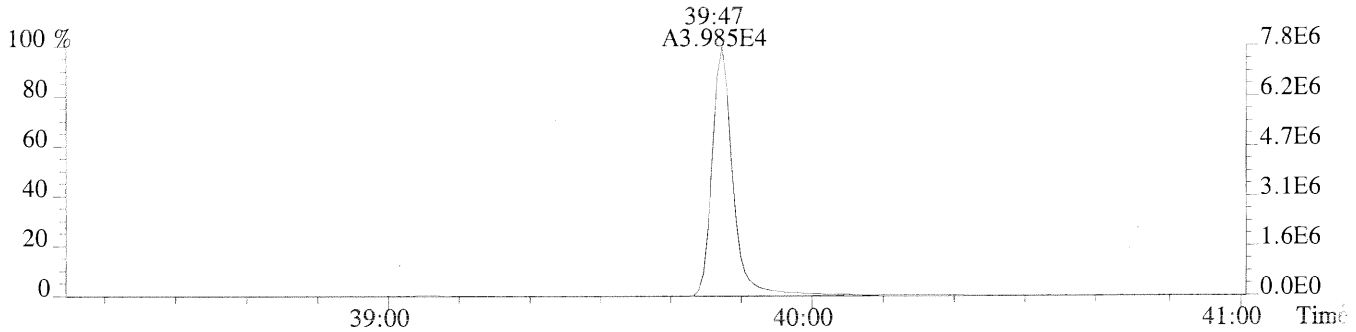
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



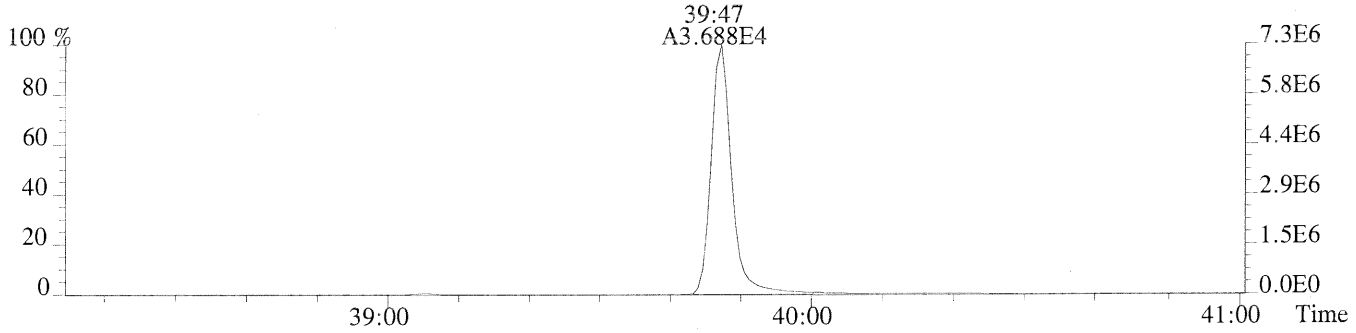
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



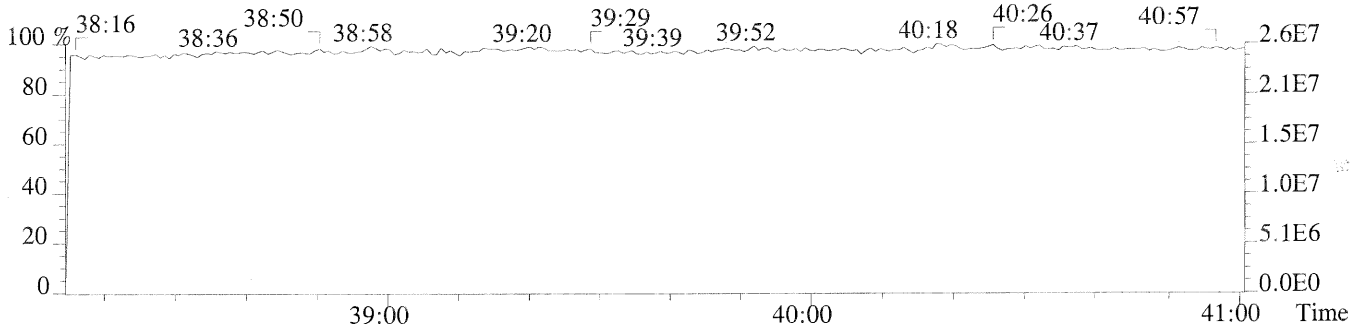
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



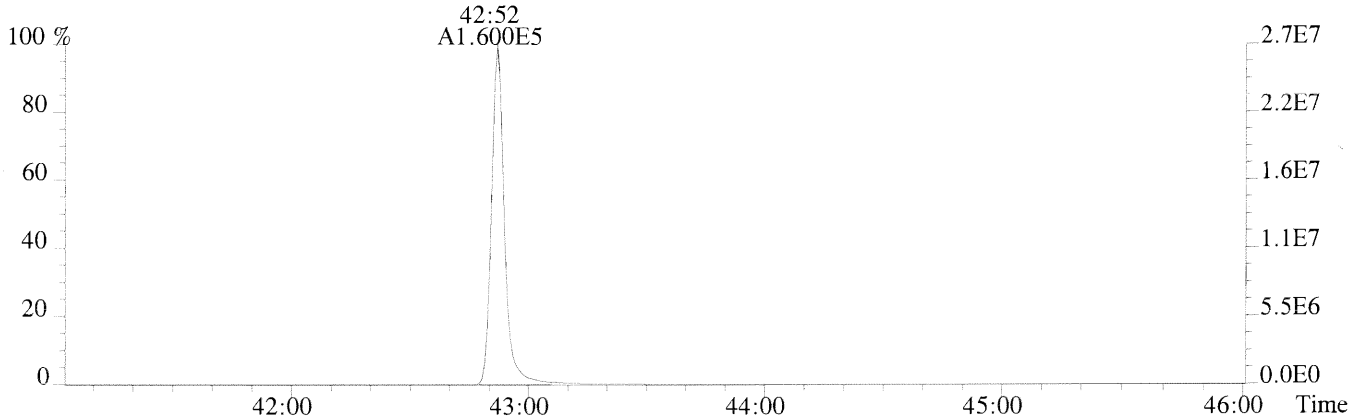
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



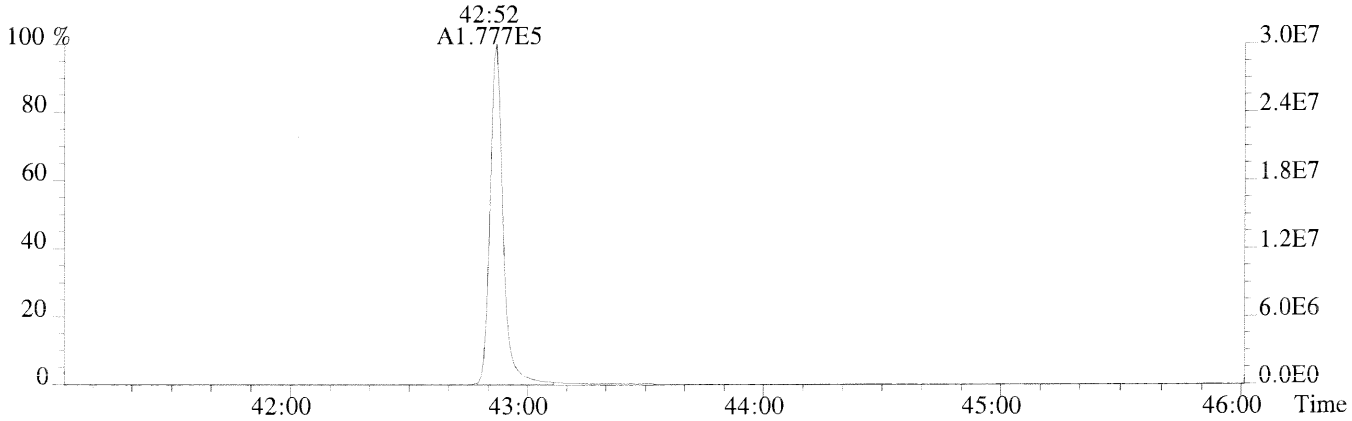
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



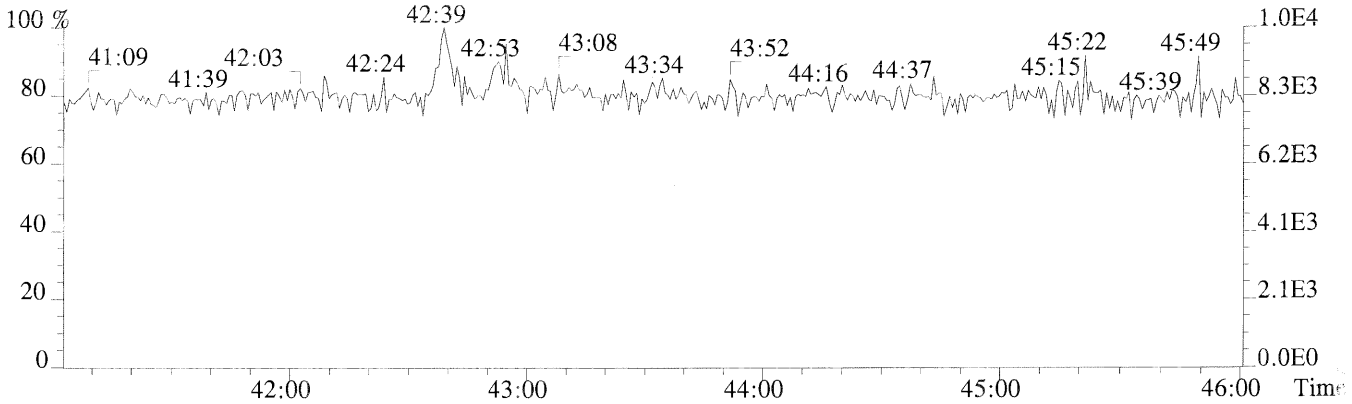
File:U149176 #1-451 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



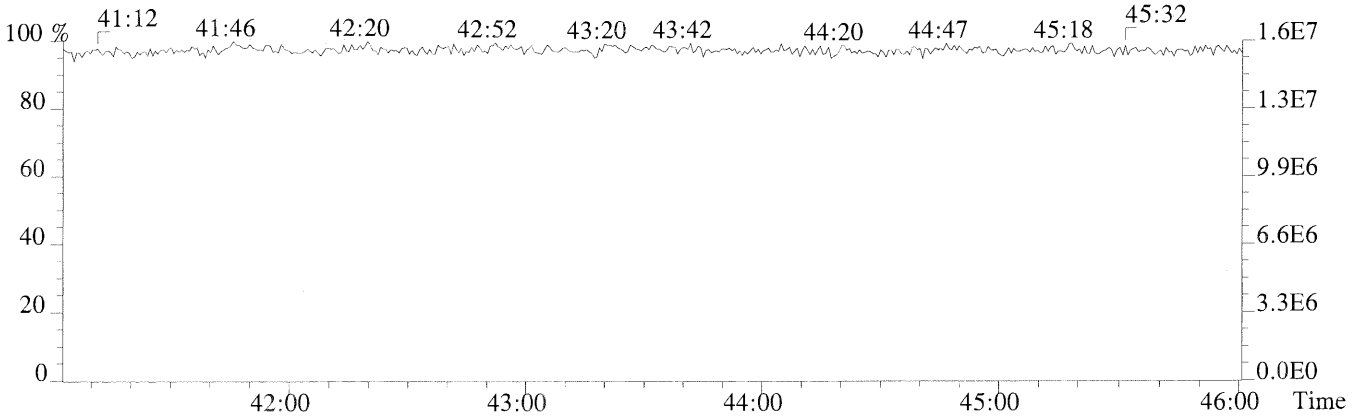
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,952.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

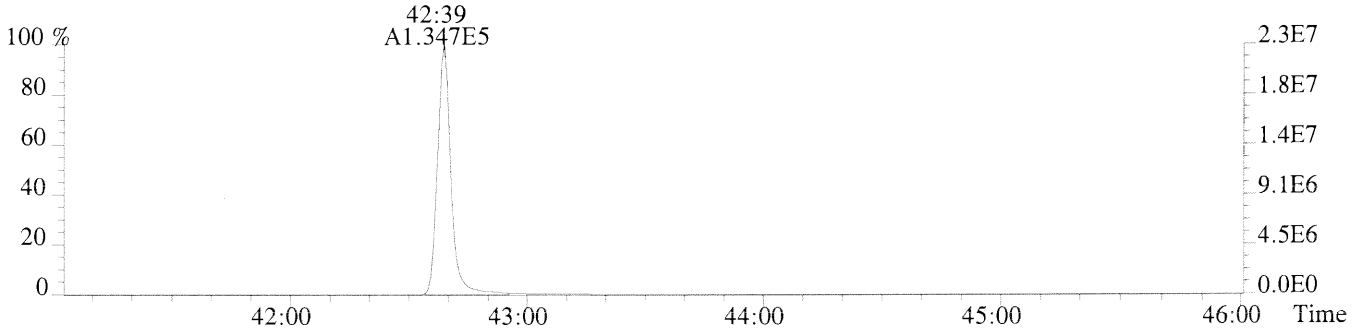


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

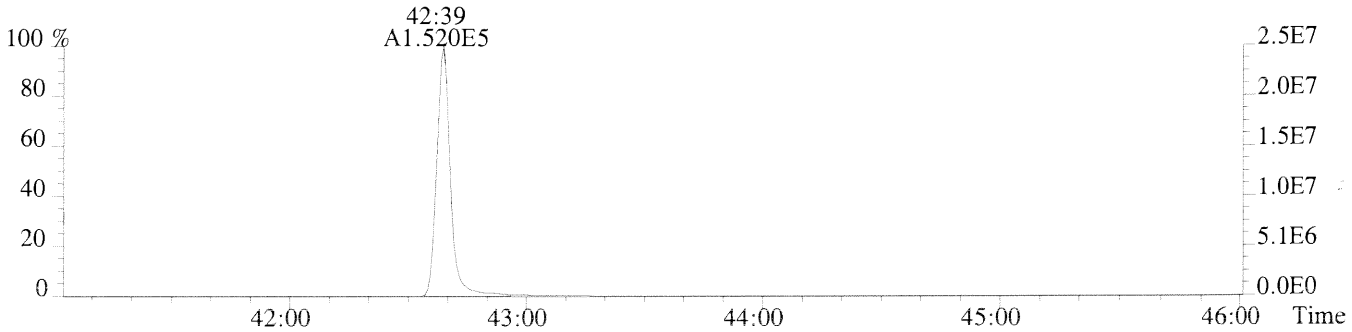


File:U149176 #1-451 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

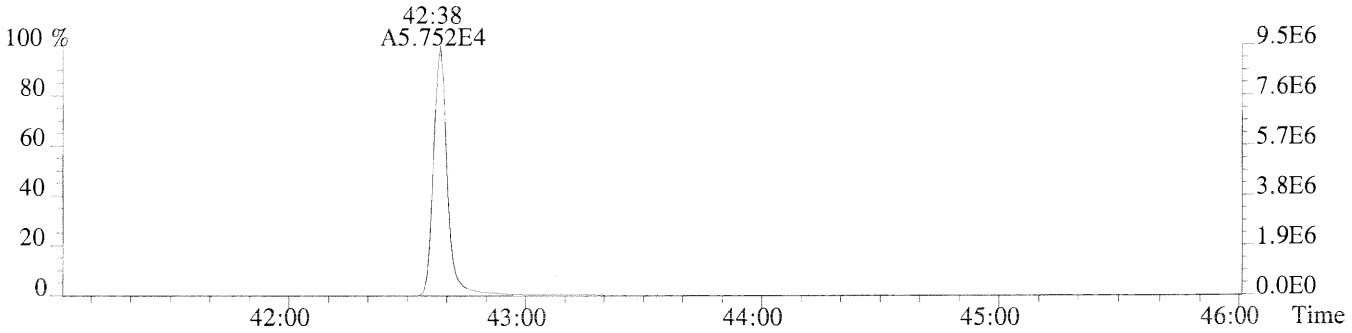
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,700.0,0.40%,F,T)



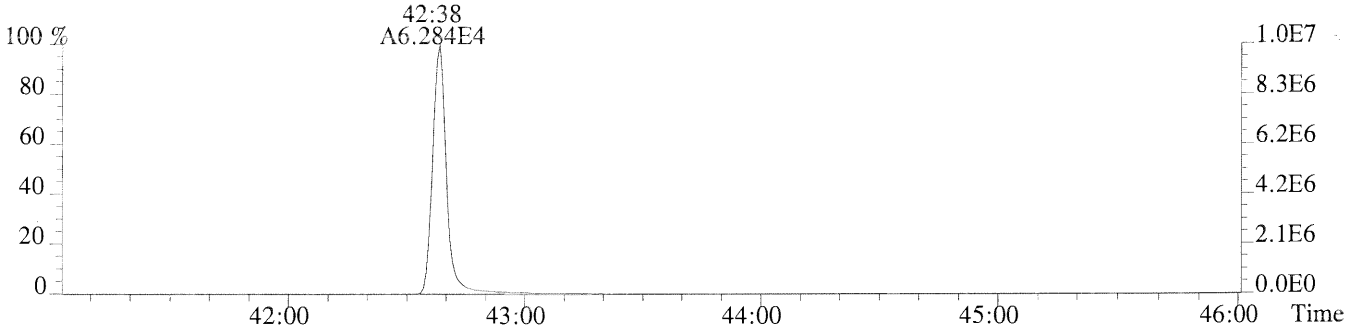
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



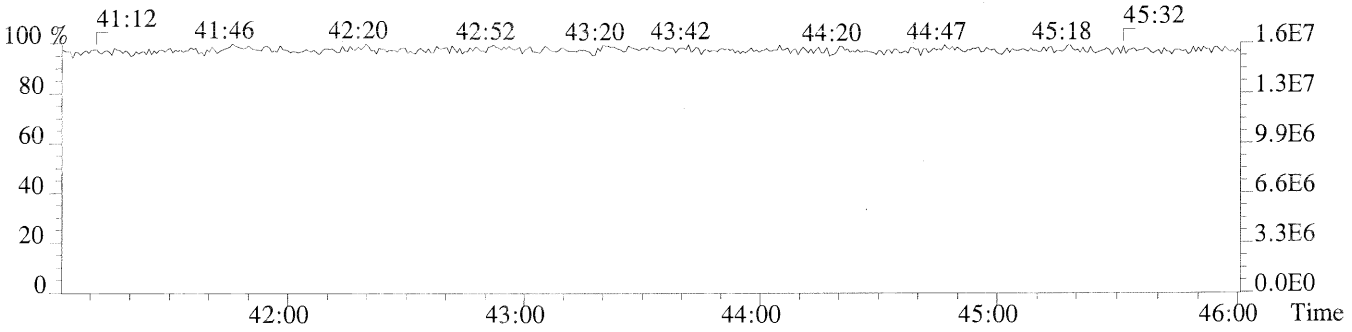
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,540.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
CS5

Run #6 Filename U149177 Samp: 1 Inj: 1 Acquired: 21-MAY-14 18:52:20
Processed: 23-MAY-14 08:49:35 Sample ID: 66799

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	6.477e+04	8.559e+04	0.76	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:47	6.184e+05	3.977e+05	1.55	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:40	6.261e+05	4.054e+05	1.54	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:17	5.594e+05	4.532e+05	1.23	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:23	5.909e+05	4.768e+05	1.24	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:54	5.328e+05	4.390e+05	1.21	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	5.117e+05	4.037e+05	1.27	yes	yes	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	4.911e+05	4.744e+05	1.04	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:18	4.314e+05	4.178e+05	1.03	yes	no	1.359
10	Unk	OCDF	42:53	7.080e+05	7.806e+05	0.91	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:27	5.122e+04	6.435e+04	0.80	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:56	4.515e+05	2.846e+05	1.59	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:01	4.188e+05	3.355e+05	1.25	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:06	3.956e+05	3.174e+05	1.25	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:20	4.304e+05	3.452e+05	1.25	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:49	3.517e+05	3.351e+05	1.05	yes	no	1.065
17	Unk	OCDD	42:40	5.810e+05	6.606e+05	0.88	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:41	3.569e+04	4.429e+04	0.81	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:45	6.665e+04	4.263e+04	1.56	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:39	6.356e+04	4.036e+04	1.57	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	2.895e+04	5.572e+04	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	3.123e+04	5.975e+04	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:53	2.948e+04	5.742e+04	0.51	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	2.751e+04	5.265e+04	0.52	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:51	2.168e+04	4.763e+04	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	1.879e+04	4.117e+04	0.46	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:26	2.591e+04	3.312e+04	0.78	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:55	4.302e+04	2.721e+04	1.58	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	3.438e+04	2.660e+04	1.29	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	3.994e+04	3.108e+04	1.29	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:48	3.490e+04	3.262e+04	1.07	yes	no	0.936
32	IS	13C-OCDD	42:39	5.549e+04	6.033e+04	0.92	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:51	2.515e+04	3.233e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	3.836e+04	3.056e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	1.191e+05				no	1.044

ALS ENVIRONMENTAL
10450 Stancliff Road, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
CS5

#6 Filename U149177 Samp: 1 Inj: 1 Acquired: 21-MAY-14 18:52:20
Processed: 22-MAY-14 12:57:511 LAB. ID: 66799

Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
2,3,7,8-TCDF	1.42e+07	6.76e+02	2.1e+04	1.87e+07	9.88e+02	1.9e+04
1,2,3,7,8-PeCDF	1.24e+08	5.76e+02	2.1e+05	7.92e+07	1.09e+03	7.3e+04
2,3,4,7,8-PeCDF	1.32e+08	5.76e+02	2.3e+05	8.60e+07	1.09e+03	7.9e+04
1,2,3,4,7,8-HxCDF	1.23e+08	3.77e+03	3.3e+04	9.91e+07	1.85e+03	5.4e+04
1,2,3,6,7,8-HxCDF	1.27e+08	3.77e+03	3.4e+04	1.04e+08	1.85e+03	5.6e+04
2,3,4,6,7,8-HxCDF	1.21e+08	3.77e+03	3.2e+04	9.81e+07	1.85e+03	5.3e+04
1,2,3,7,8,9-HxCDF	1.14e+08	3.77e+03	3.0e+04	9.22e+07	1.85e+03	5.0e+04
1,2,3,4,6,7,8-HpCDF	1.10e+08	2.34e+04	4.7e+03	1.07e+08	2.15e+04	5.0e+03
1,2,3,4,7,8,9-HpCDF	8.73e+07	2.34e+04	3.7e+03	8.51e+07	2.15e+04	4.0e+03
OCDF	1.29e+08	6.48e+02	2.0e+05	1.43e+08	8.08e+02	1.8e+05
2,3,7,8-TCDD	1.17e+07	7.08e+02	1.6e+04	1.48e+07	7.56e+02	2.0e+04
1,2,3,7,8-PeCDD	9.48e+07	7.92e+02	1.2e+05	6.00e+07	7.32e+02	8.2e+04
1,2,3,4,7,8-HxCDD	9.93e+07	7.00e+02	1.4e+05	7.93e+07	6.88e+02	1.2e+05
1,2,3,6,7,8-HxCDD	8.75e+07	7.00e+02	1.2e+05	7.03e+07	6.88e+02	1.0e+05
1,2,3,7,8,9-HxCDD	9.60e+07	7.00e+02	1.4e+05	7.74e+07	6.88e+02	1.1e+05
1,2,3,4,6,7,8-HpCDD	7.26e+07	4.12e+03	1.8e+04	6.82e+07	2.00e+03	3.4e+04
OCDD	1.06e+08	7.60e+02	1.4e+05	1.20e+08	4.76e+02	2.5e+05
13C-2,3,7,8-TCDF	7.76e+06	6.64e+02	1.2e+04	9.62e+06	9.56e+02	1.0e+04
13C-1,2,3,7,8-PeCDF	1.32e+07	6.44e+02	2.0e+04	8.50e+06	8.96e+02	9.5e+03
13C-2,3,4,7,8-PeCDF	1.33e+07	6.44e+02	2.1e+04	8.48e+06	8.96e+02	9.5e+03
13C-1,2,3,4,7,8-HxCDF	6.34e+06	9.56e+02	6.6e+03	1.21e+07	1.38e+03	8.8e+03
13C-1,2,3,6,7,8-HxCDF	6.72e+06	9.56e+02	7.0e+03	1.28e+07	1.38e+03	9.3e+03
13C-2,3,4,6,7,8-HxCDF	6.63e+06	9.56e+02	6.9e+03	1.28e+07	1.38e+03	9.3e+03
13C-1,2,3,7,8,9-HxCDF	5.98e+06	9.56e+02	6.3e+03	1.15e+07	1.38e+03	8.4e+03
13C-1,2,3,4,6,7,8-HpCDF	4.70e+06	1.58e+03	3.0e+03	1.04e+07	2.46e+03	4.2e+03
13C-1,2,3,4,7,8,9-HpCDF	3.72e+06	1.58e+03	2.4e+03	8.08e+06	2.46e+03	3.3e+03
13C-2,3,7,8-TCDD	5.86e+06	1.95e+03	3.0e+03	7.48e+06	1.45e+03	5.2e+03
13C-1,2,3,7,8-PeCDD	9.00e+06	9.24e+02	9.7e+03	5.71e+06	6.76e+02	8.5e+03
13C-1,2,3,4,7,8-HxCDD	7.98e+06	1.38e+03	5.8e+03	6.23e+06	1.05e+03	5.9e+03
13C-1,2,3,6,7,8-HxCDD	8.82e+06	1.38e+03	6.4e+03	6.89e+06	1.05e+03	6.6e+03
13C-1,2,3,4,6,7,8-HpCDD	7.14e+06	1.31e+03	5.5e+03	6.58e+06	9.60e+02	6.8e+03
13C-OCDD	9.90e+06	6.80e+02	1.5e+04	1.08e+07	6.36e+02	1.7e+04
13C-1,2,3,4-TCDD	5.58e+06	1.95e+03	2.9e+03	7.16e+06	1.45e+03	4.9e+03
13C-1,2,3,7,8,9-HxCDD	8.34e+06	1.38e+03	6.0e+03	6.53e+06	1.05e+03	6.2e+03
37Cl-2,3,7,8-TCDD	2.73e+07	1.06e+03	2.6e+04			

ENVIRONMENTAL
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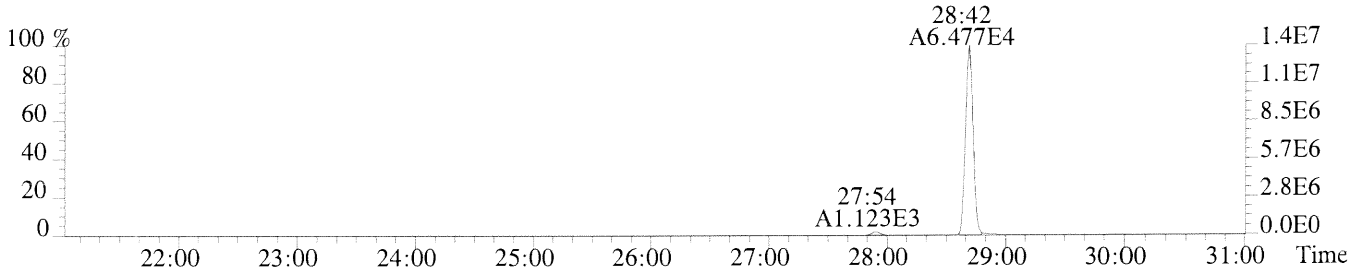
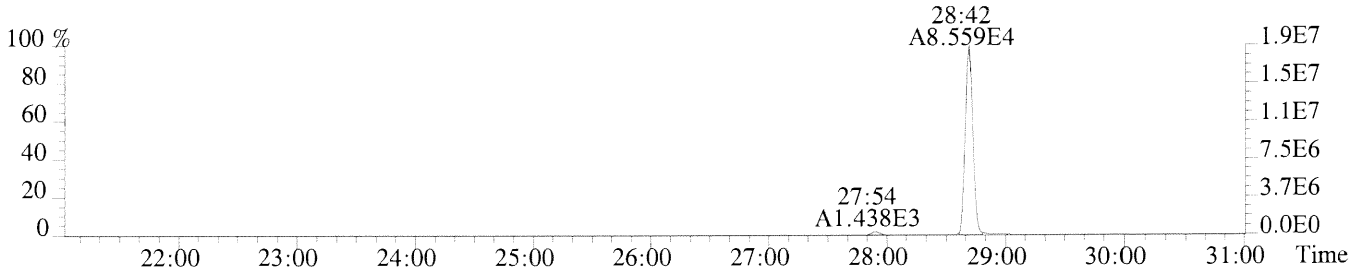
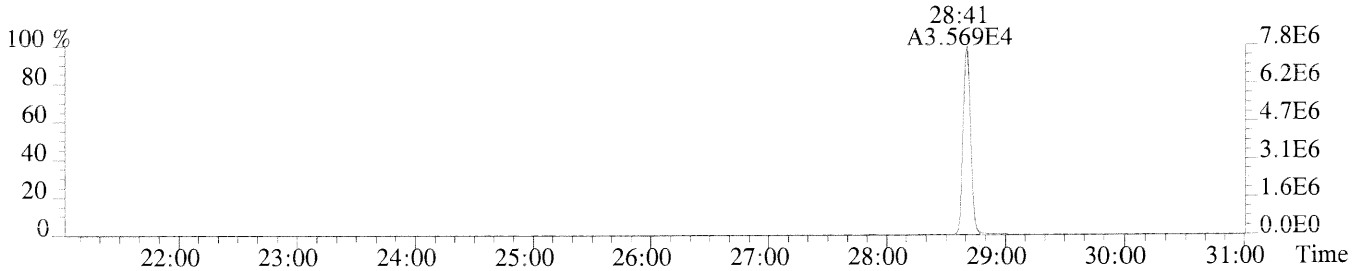
File:U149177 #1-627 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



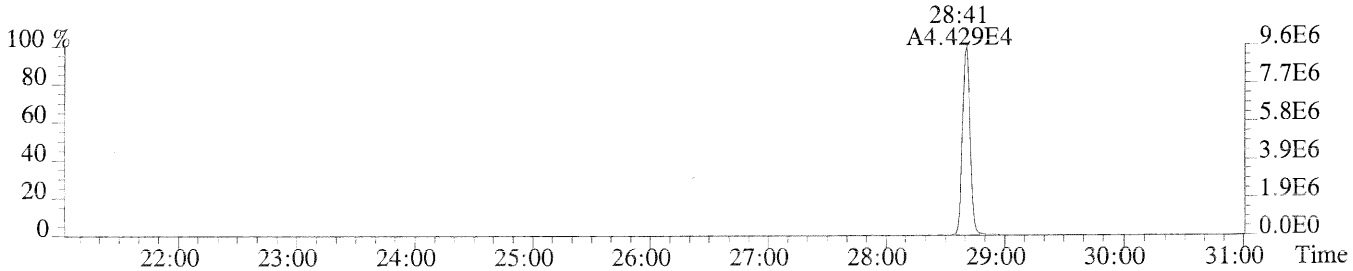
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



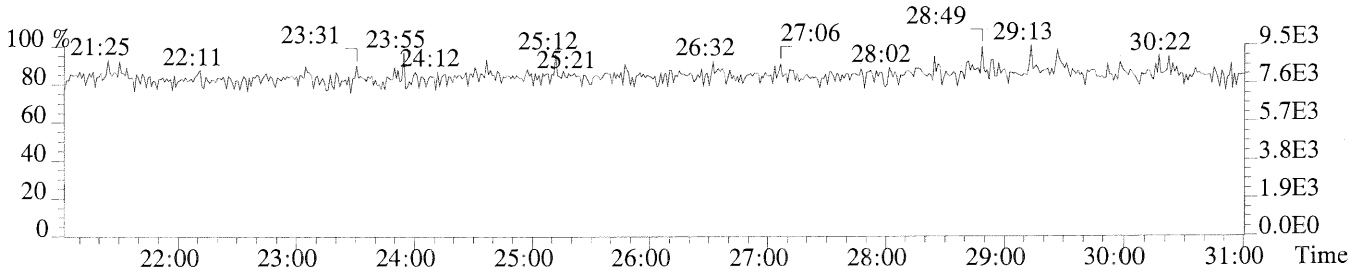
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



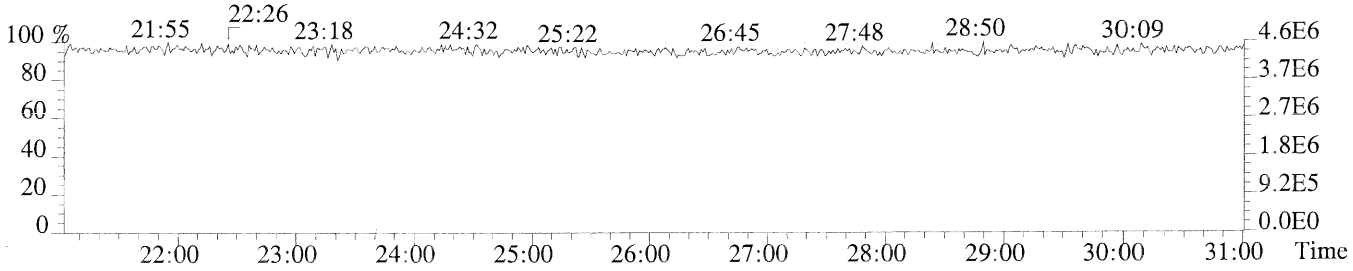
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

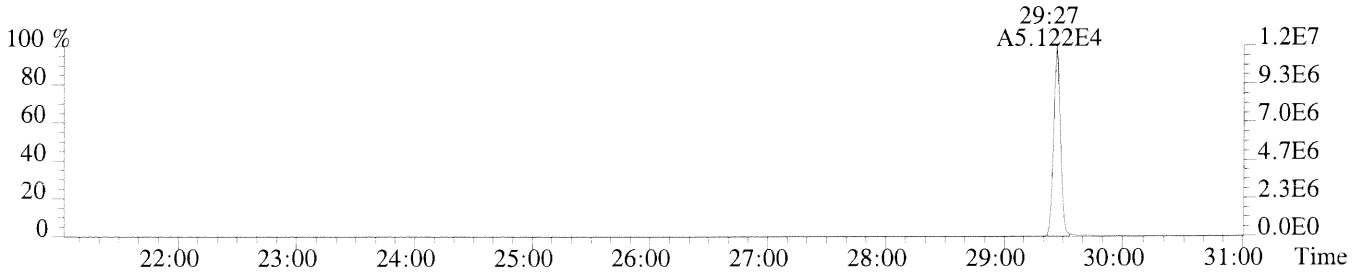


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

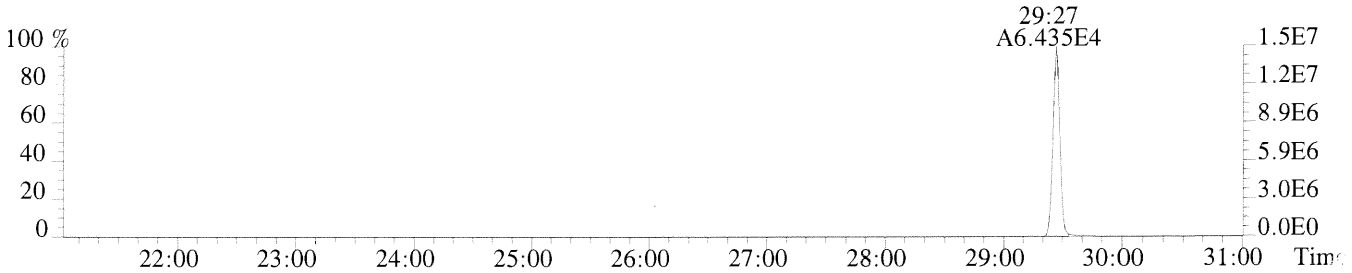


File:U149177 #1-627 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

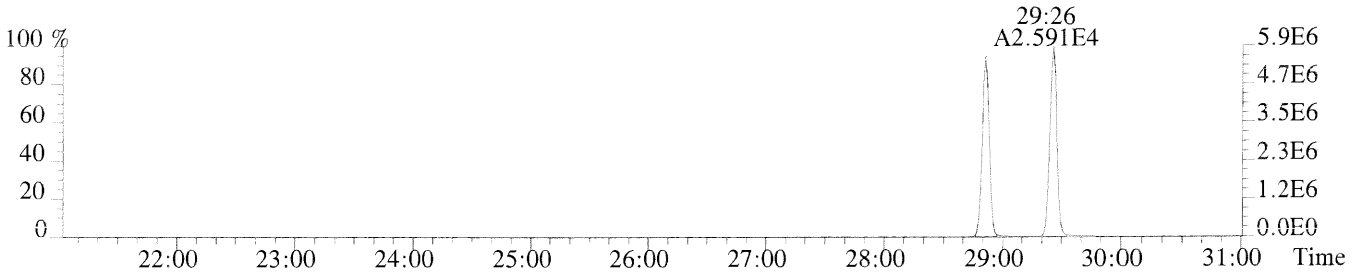
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



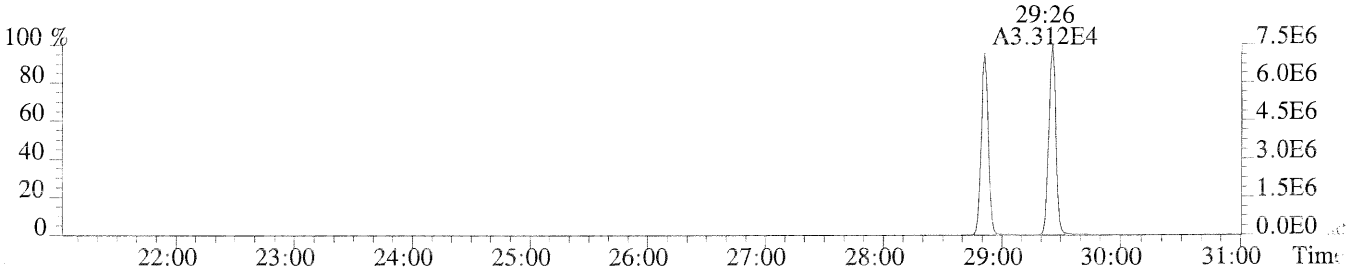
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



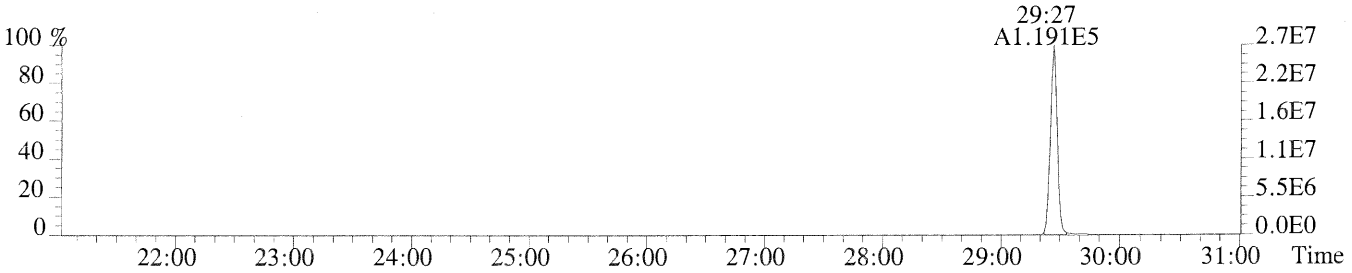
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1952.0,1.00%,F,T)



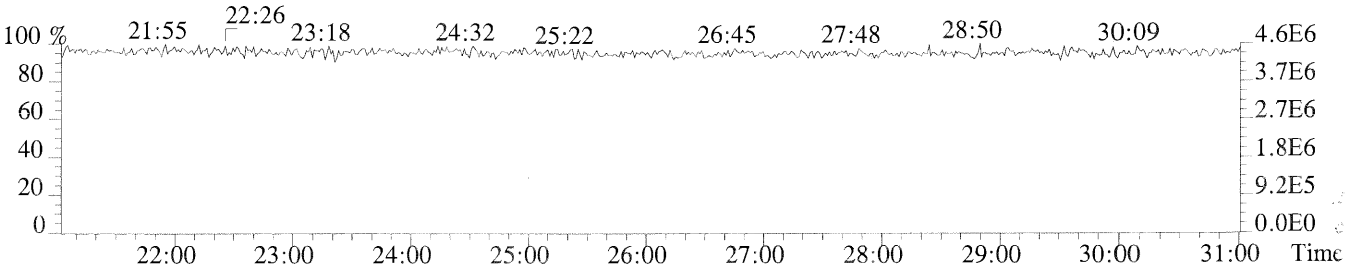
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)

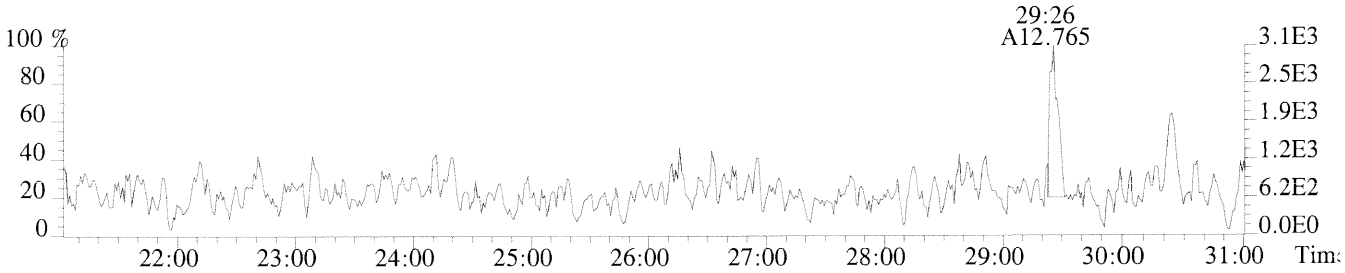


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

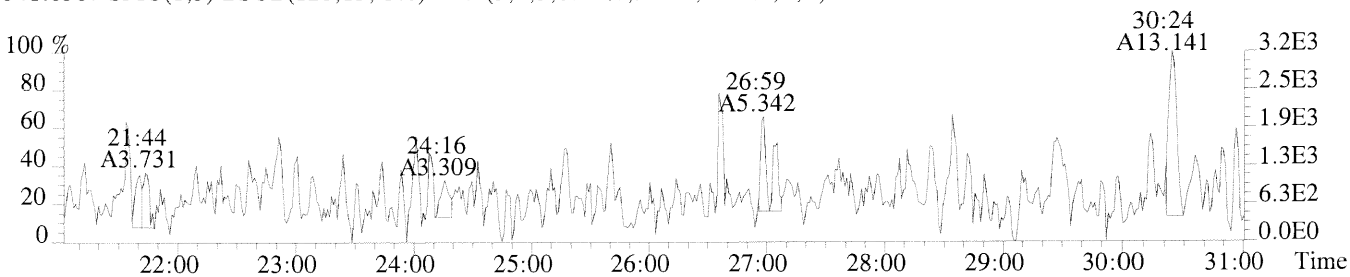


File:U149177 #1-627 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

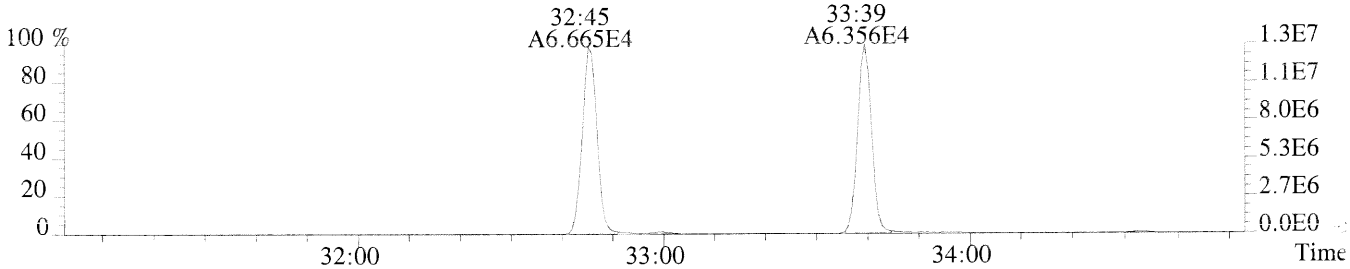
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



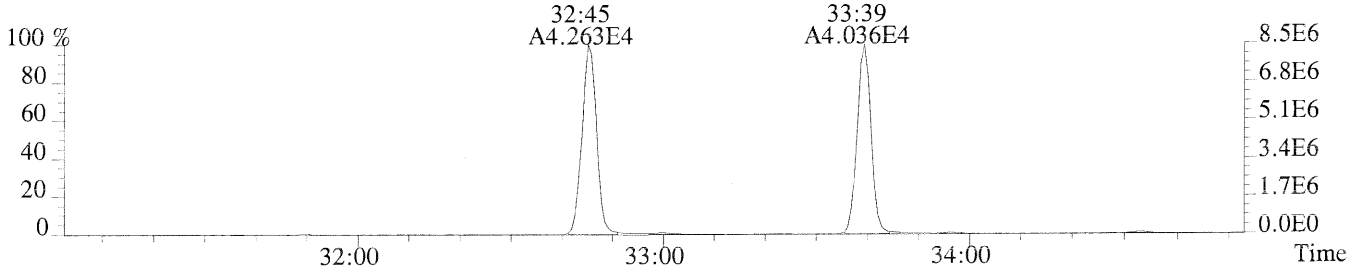
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



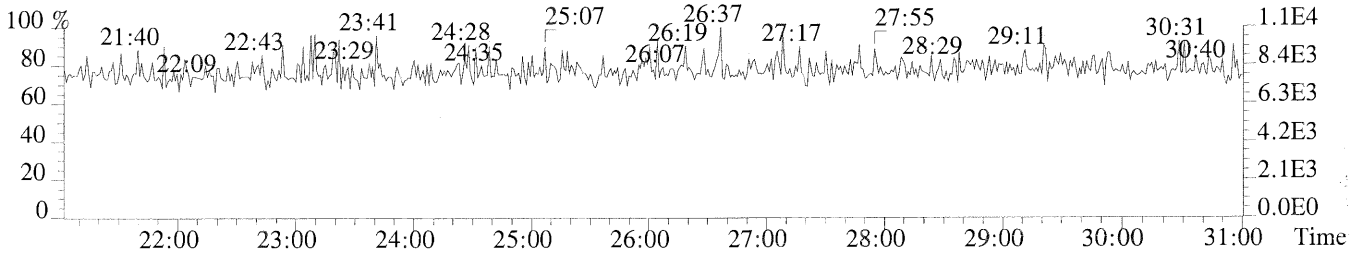
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



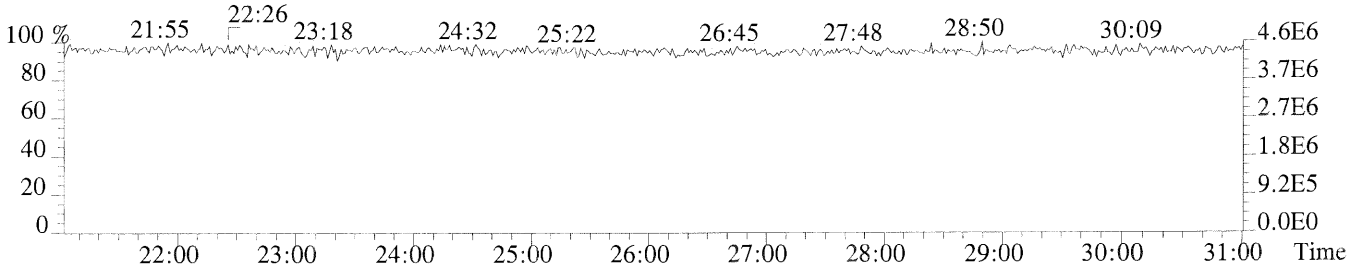
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

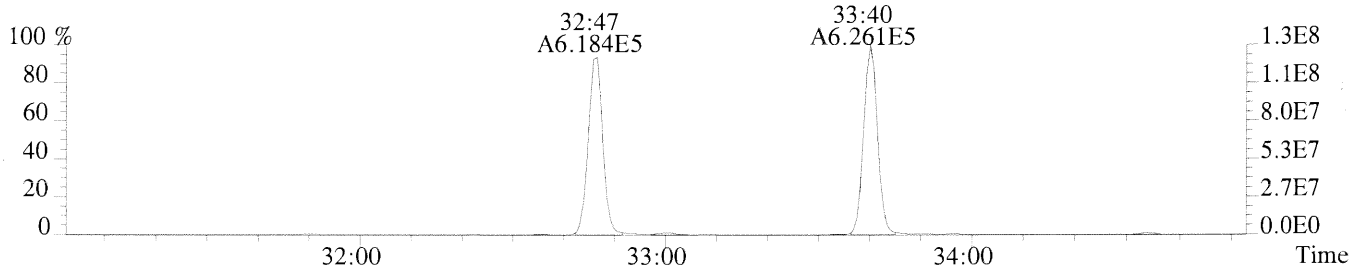


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

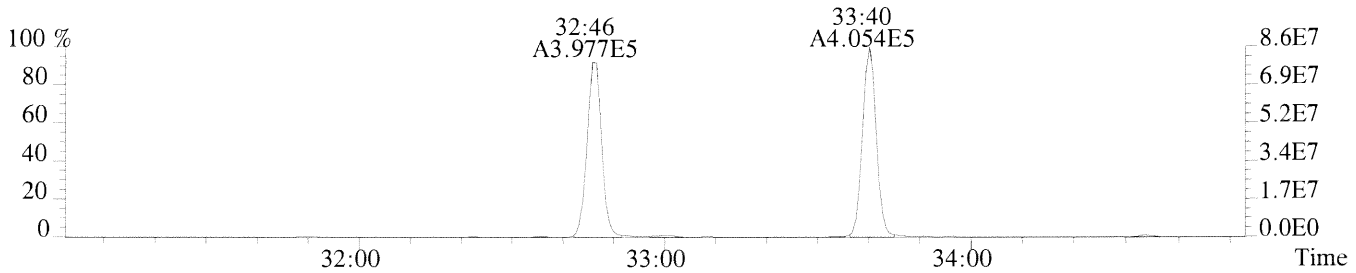


File:U149177 #1-349 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

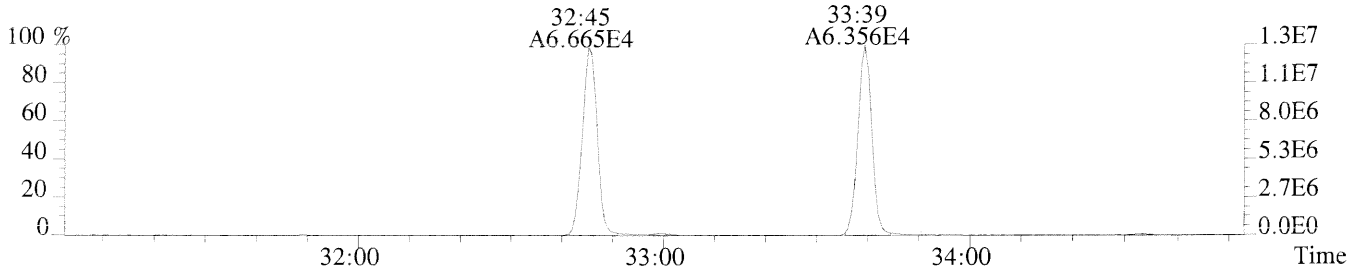
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



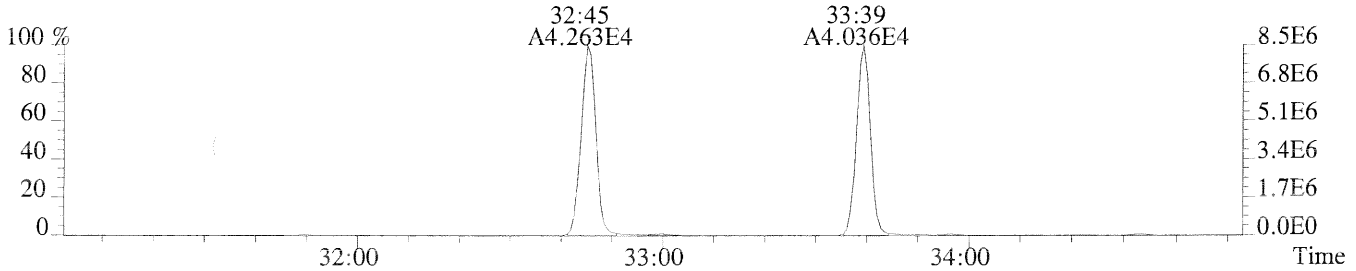
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



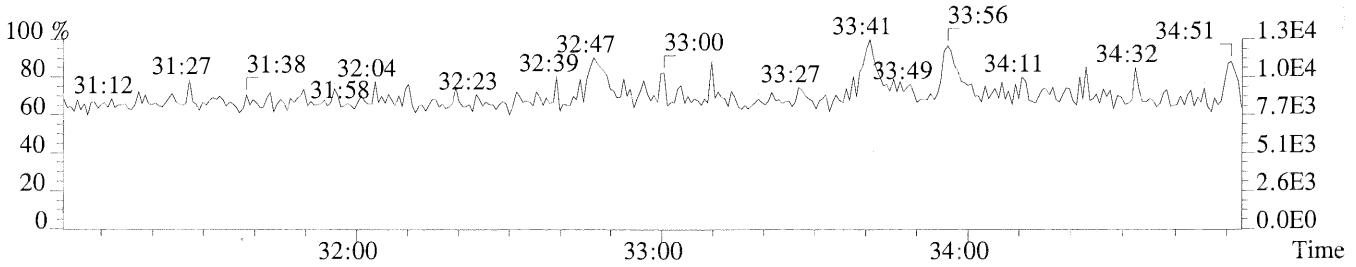
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



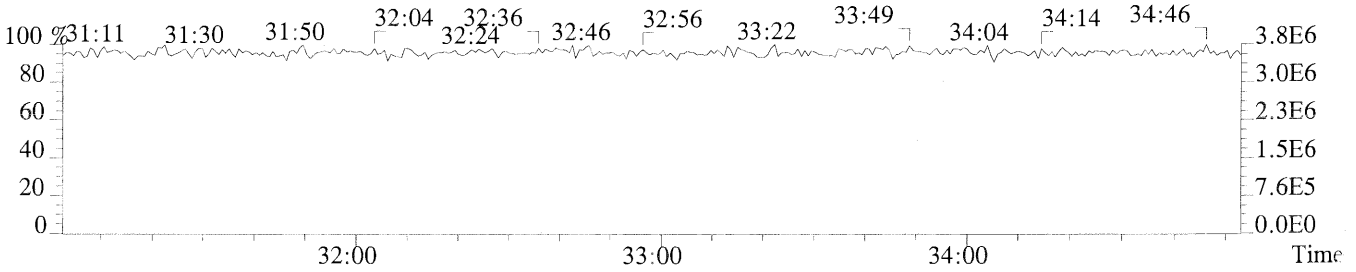
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

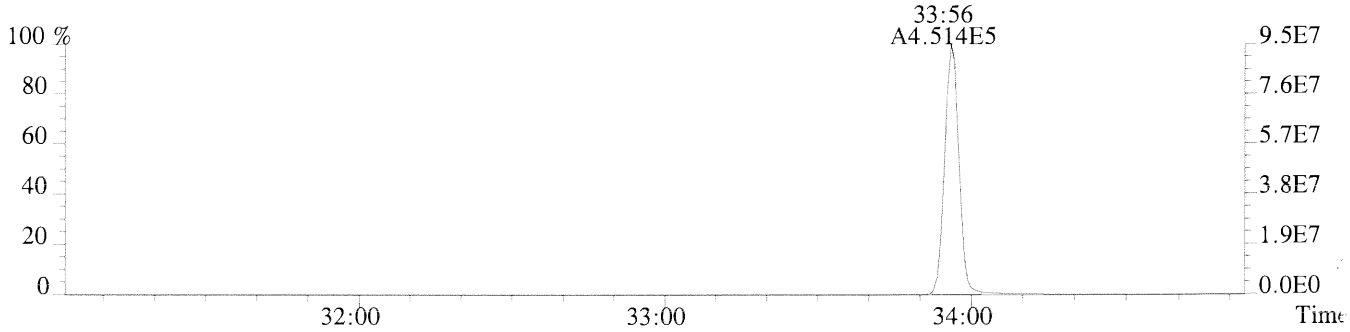


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

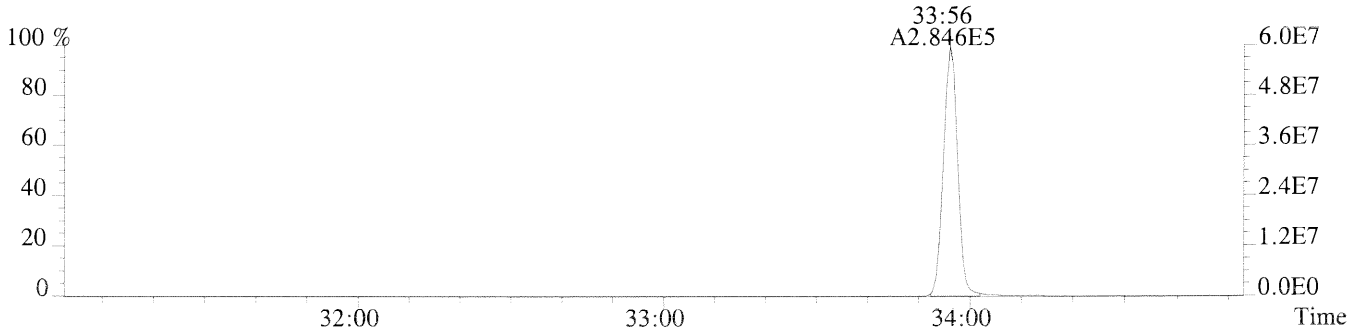


File:U149177 #1-349 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

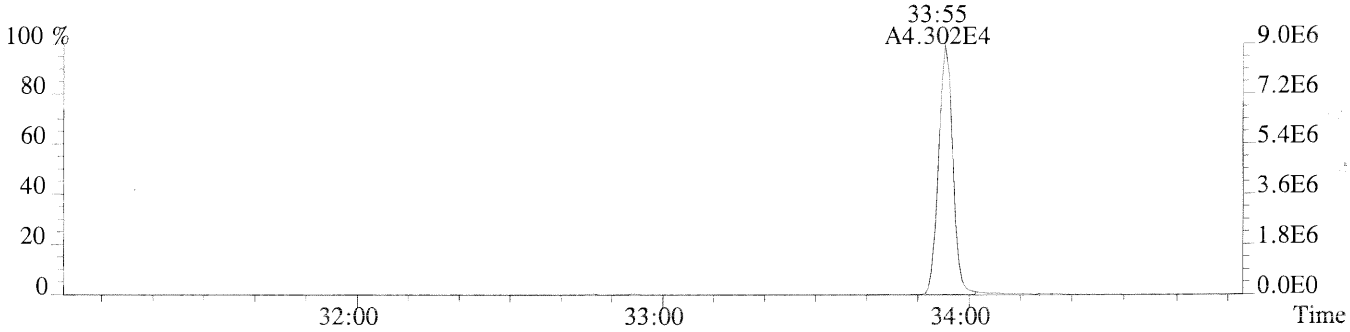
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



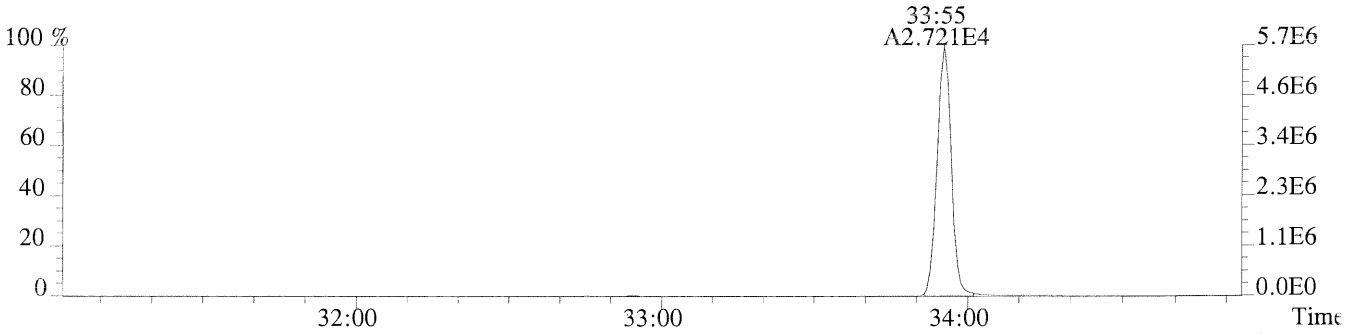
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



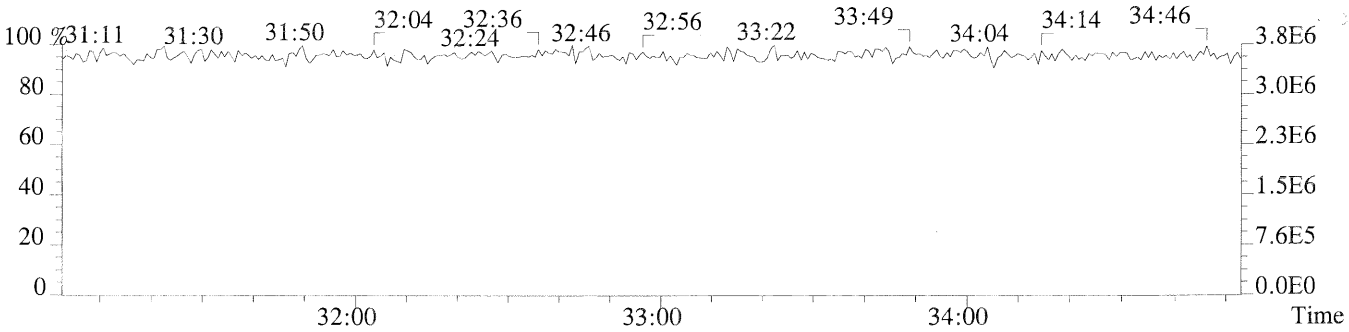
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)

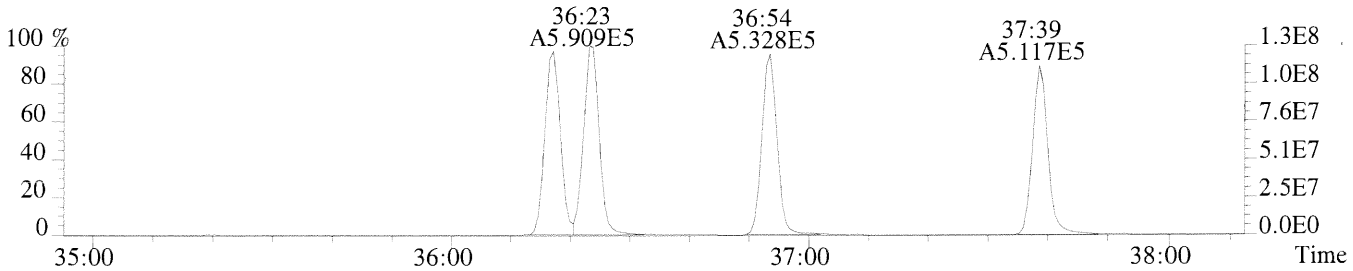


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

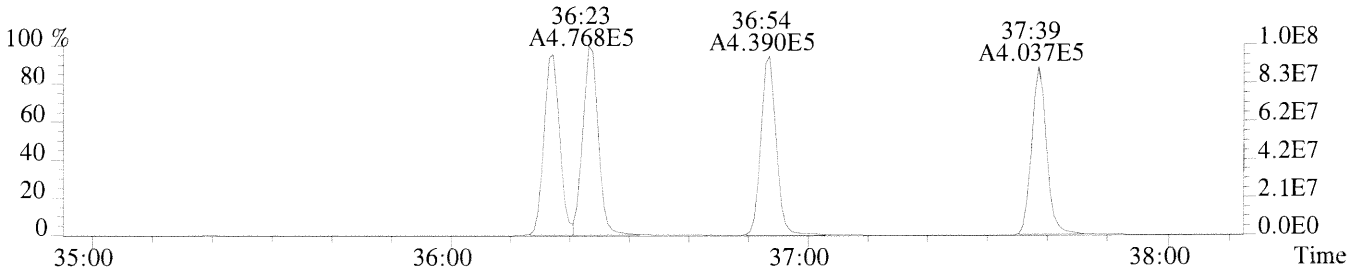


File:U149177 #1-299 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

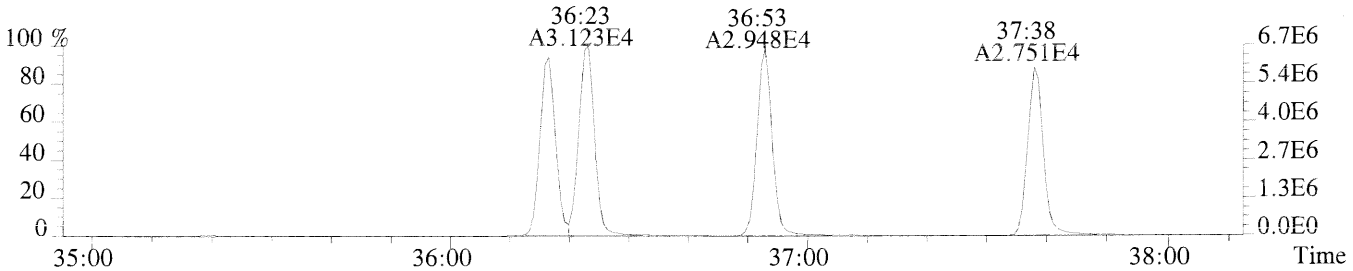
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3772.0,0.40%,F,T)



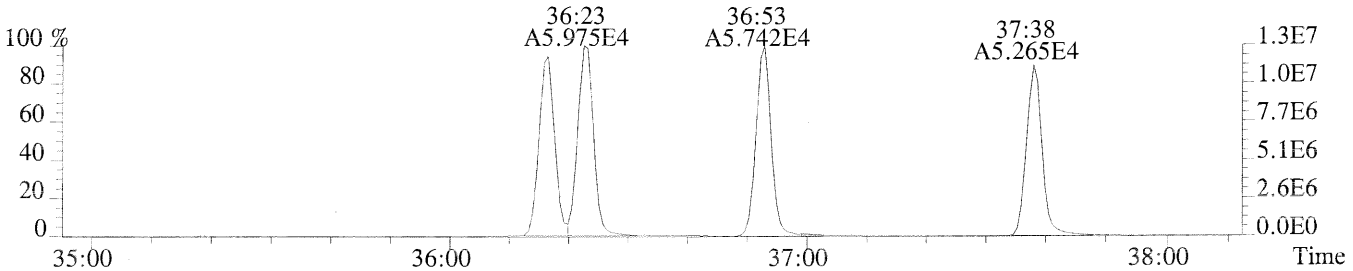
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1852.0,0.40%,F,T)



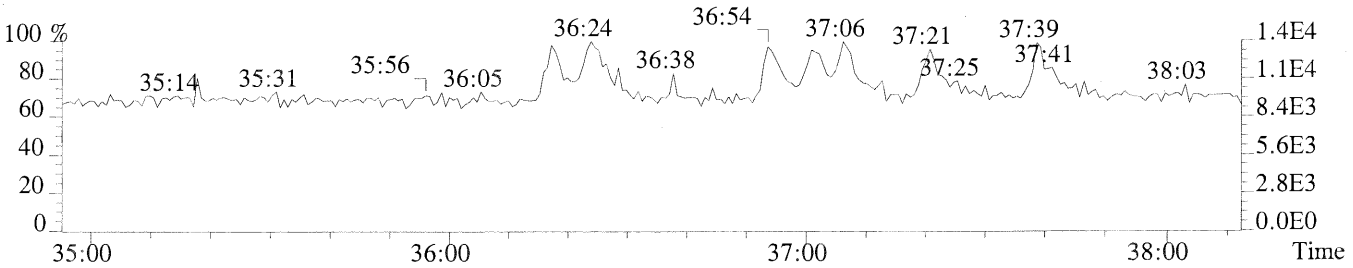
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



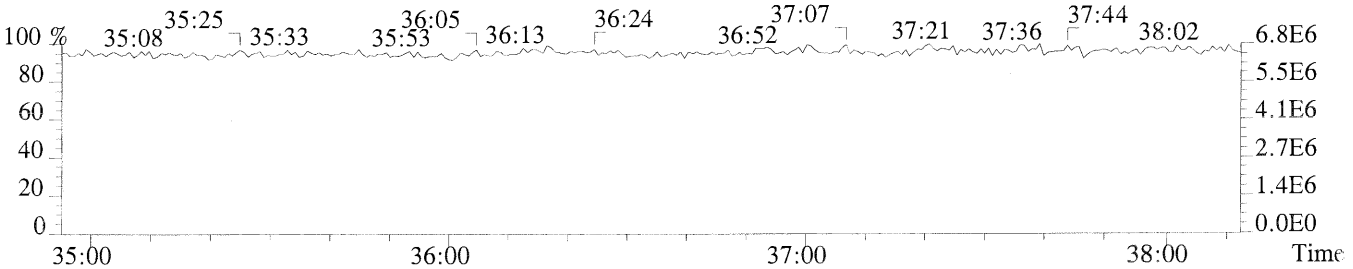
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1380.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

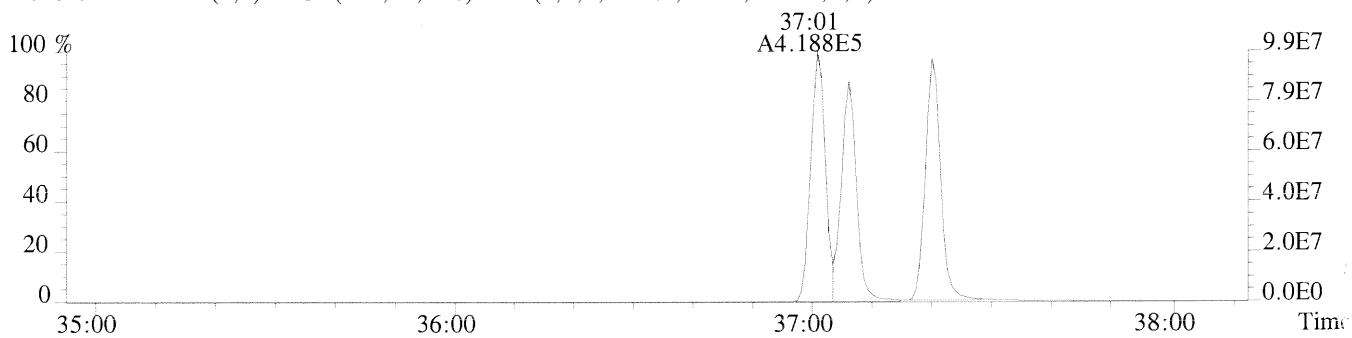


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

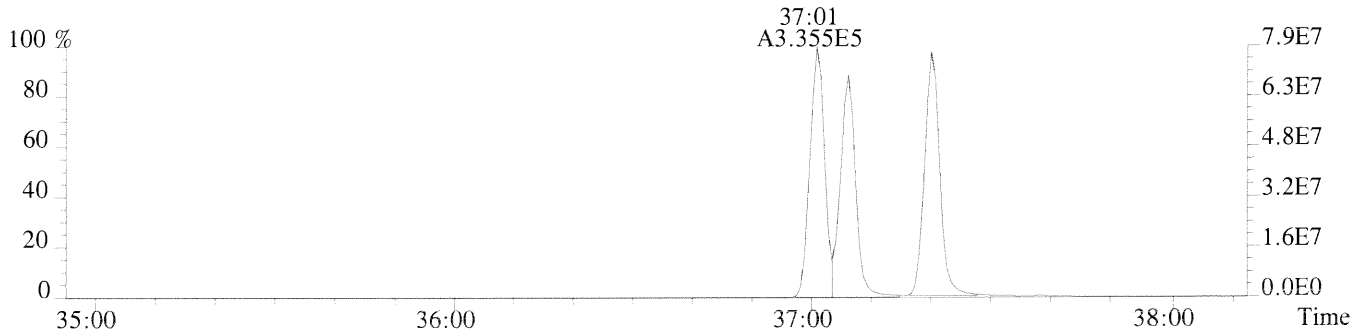


File:U149177 #1-299 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

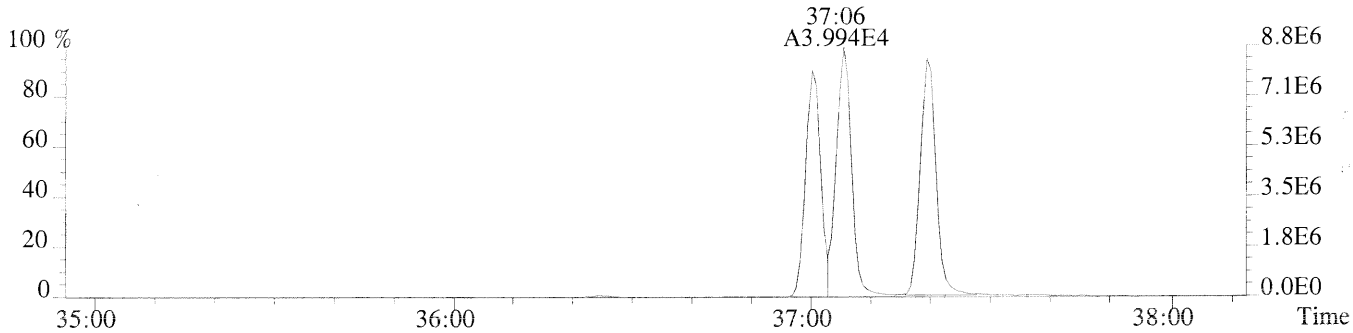
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



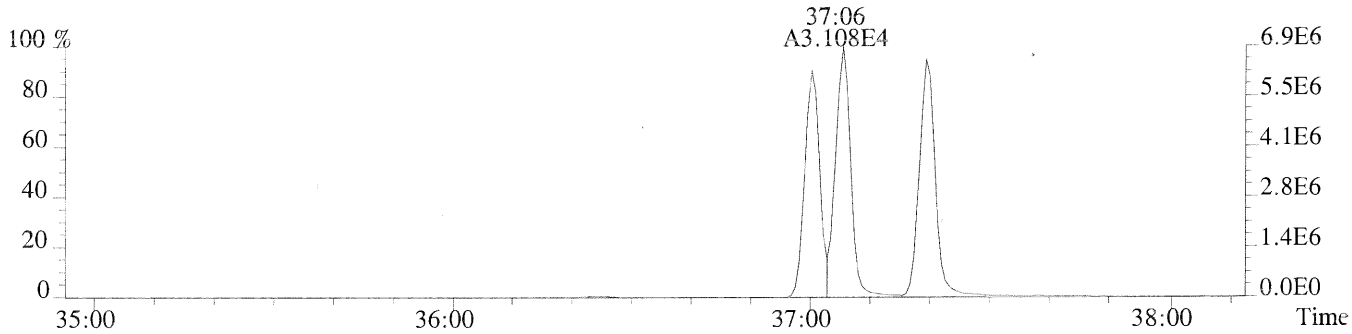
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



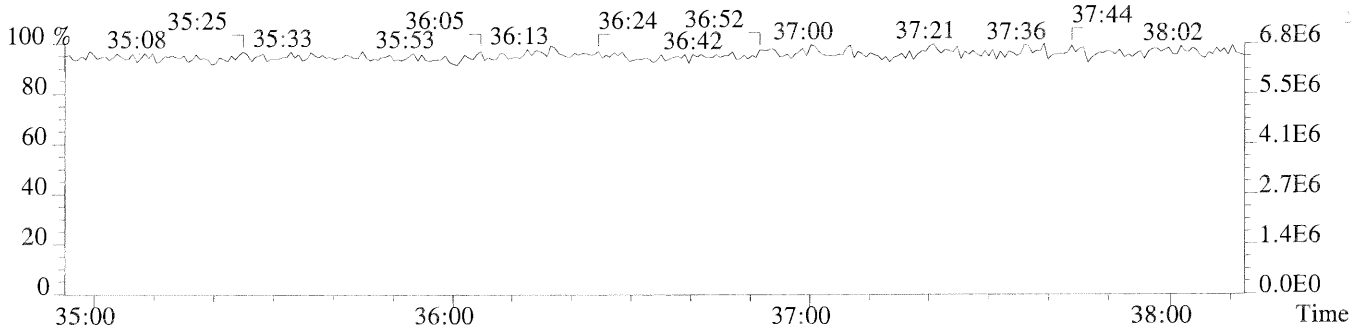
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1380.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)

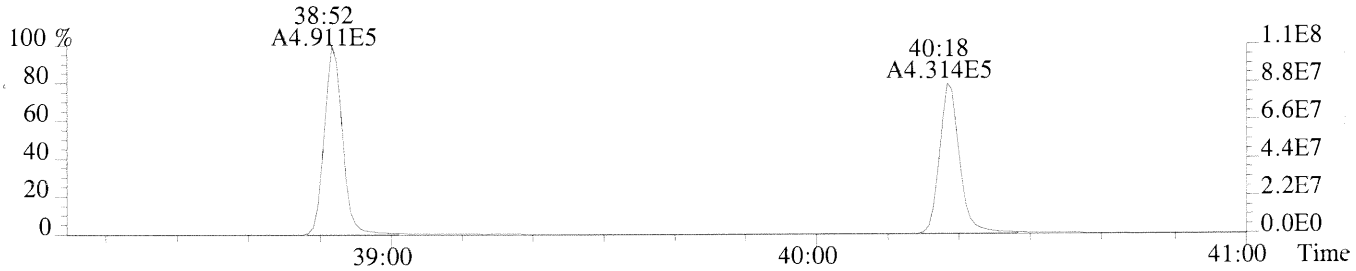


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

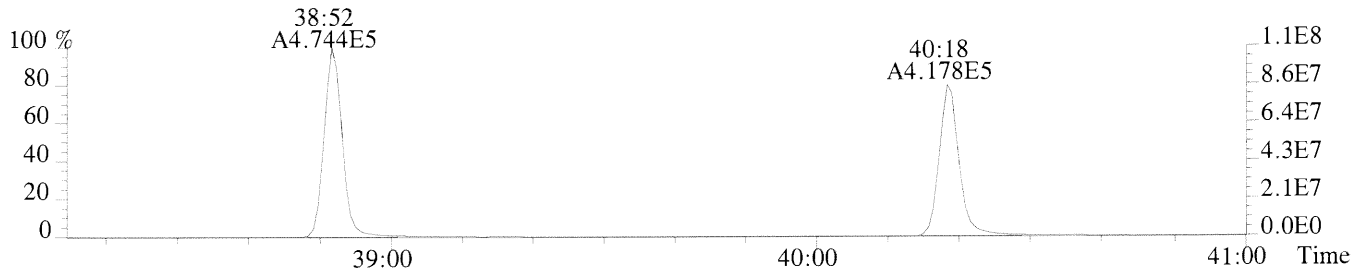


File:U149177 #1-251 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

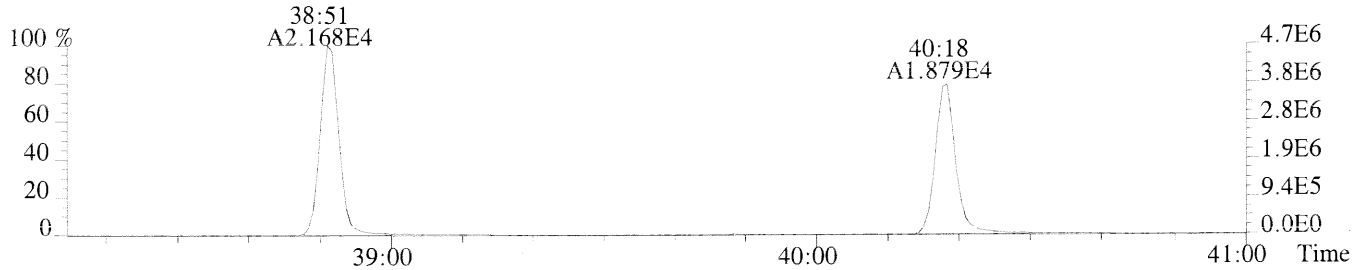
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,23428.0,0.50%,F,T)



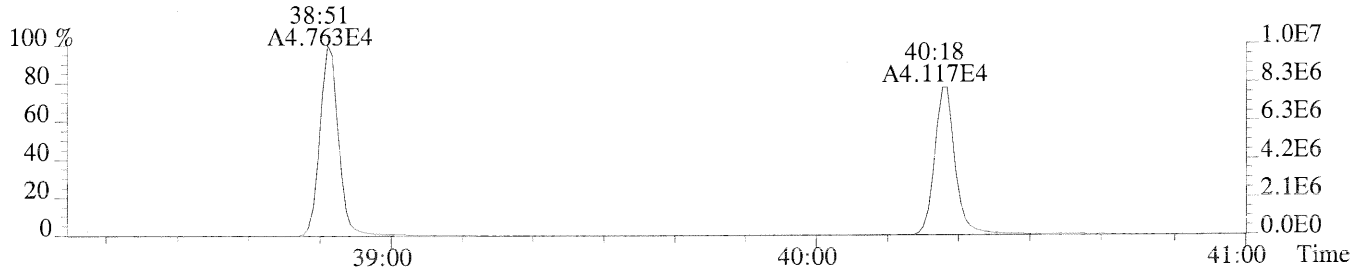
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,21516.0,0.50%,F,T)



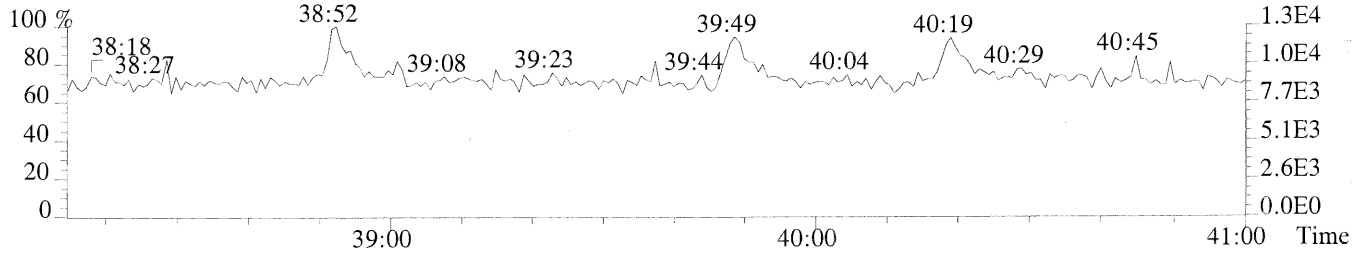
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.50%,F,T)



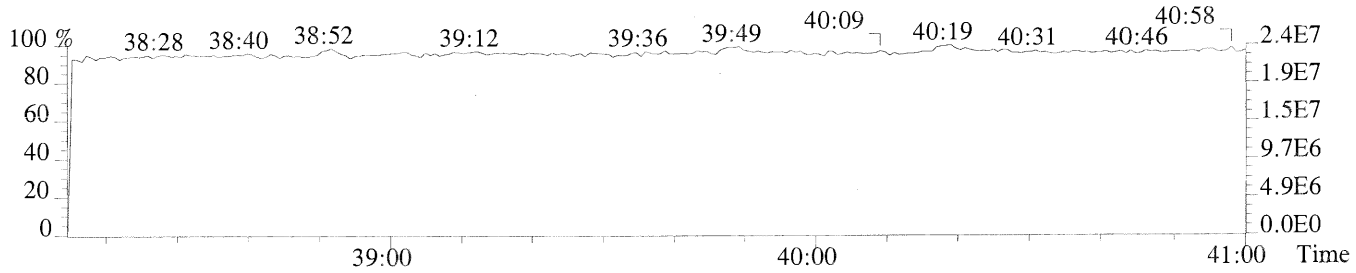
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2460.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

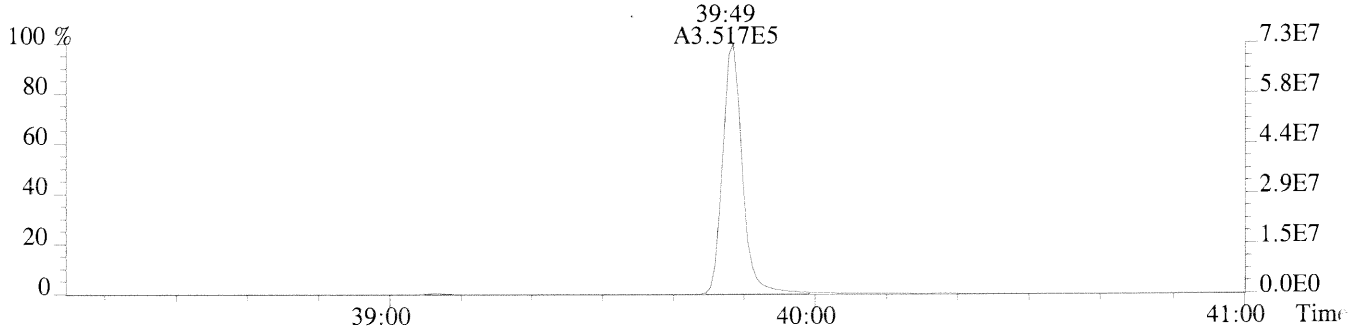


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

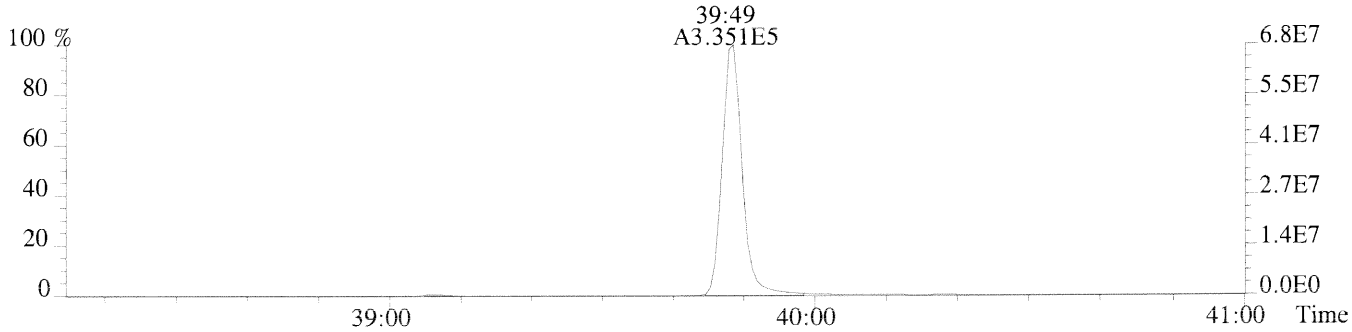


File:U149177 #1-251 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

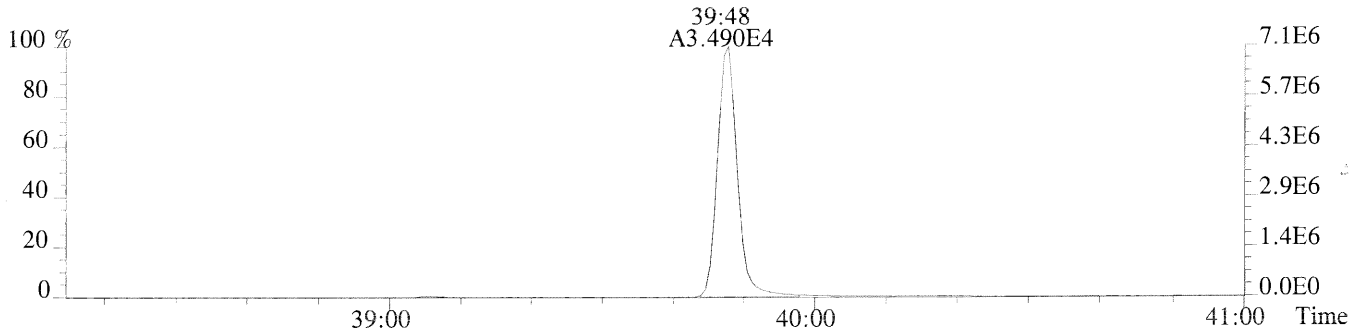
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4124.0,0.40%,F,T)



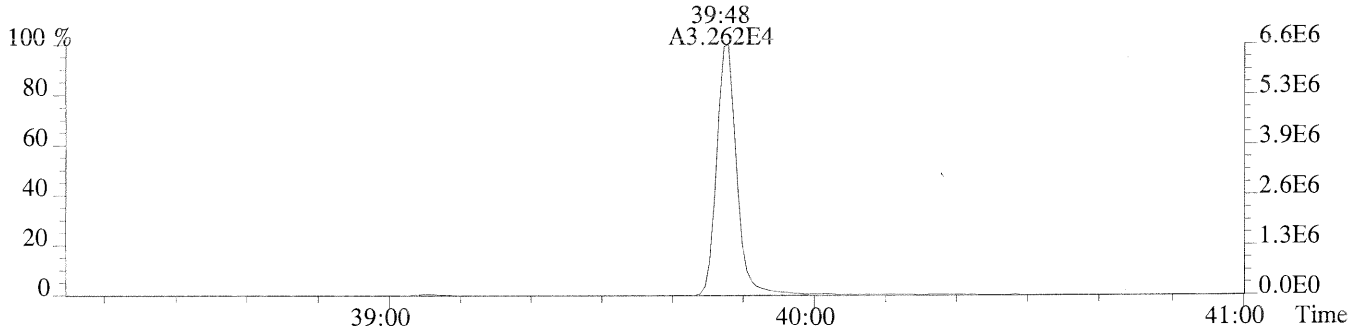
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1996.0,0.40%,F,T)



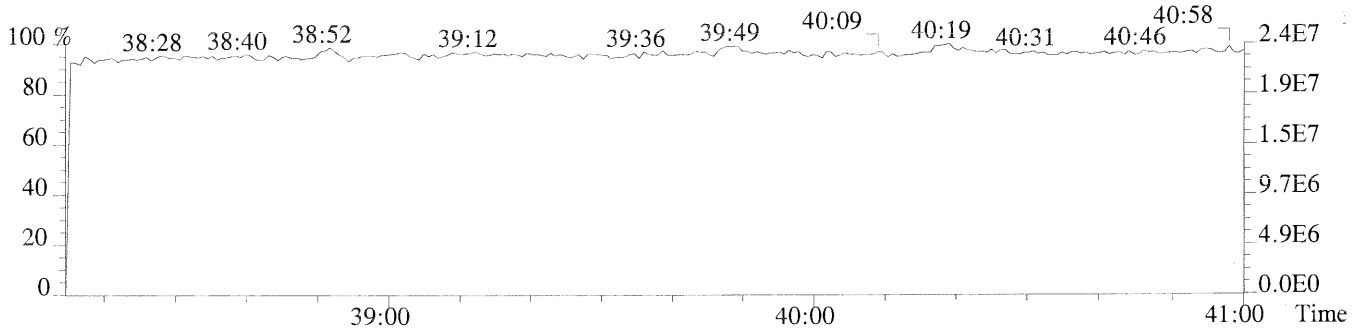
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1308.0,0.40%,F,T)



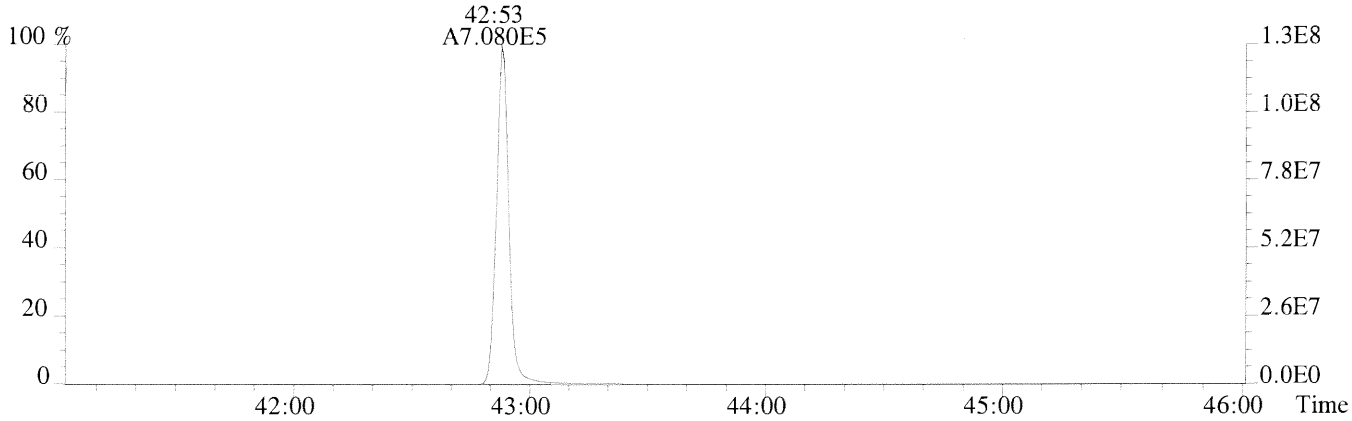
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



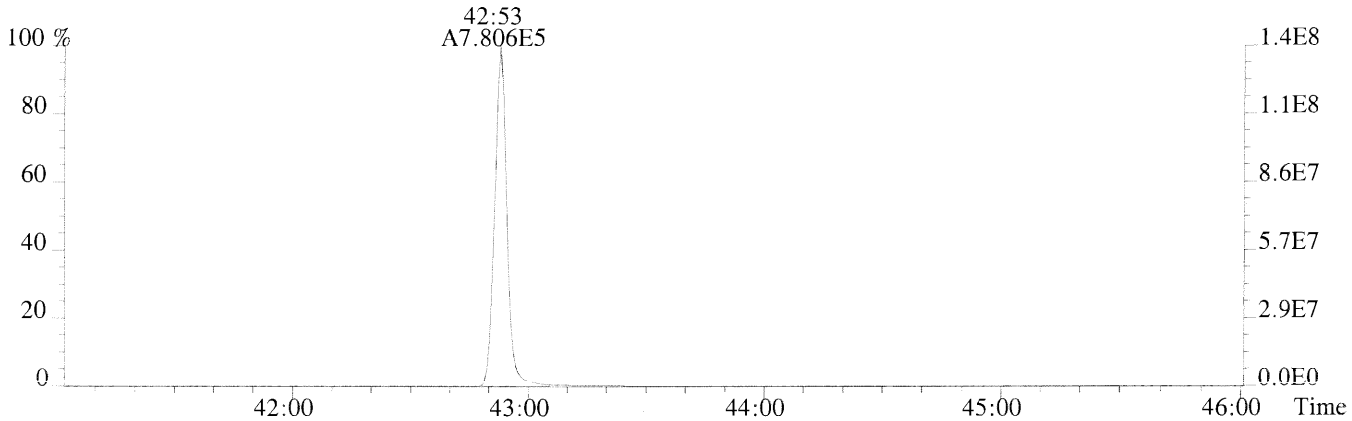
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



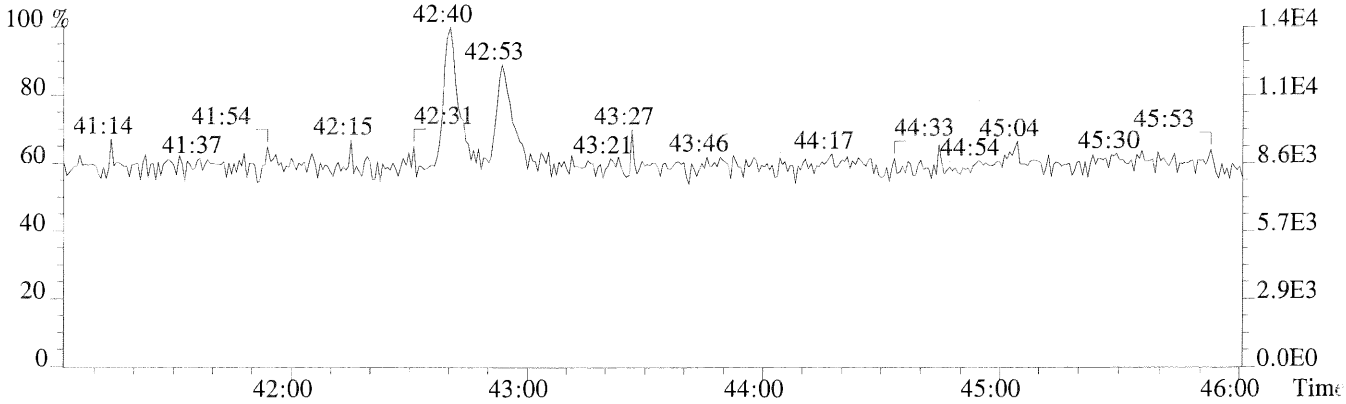
File:U149177 #1-452 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



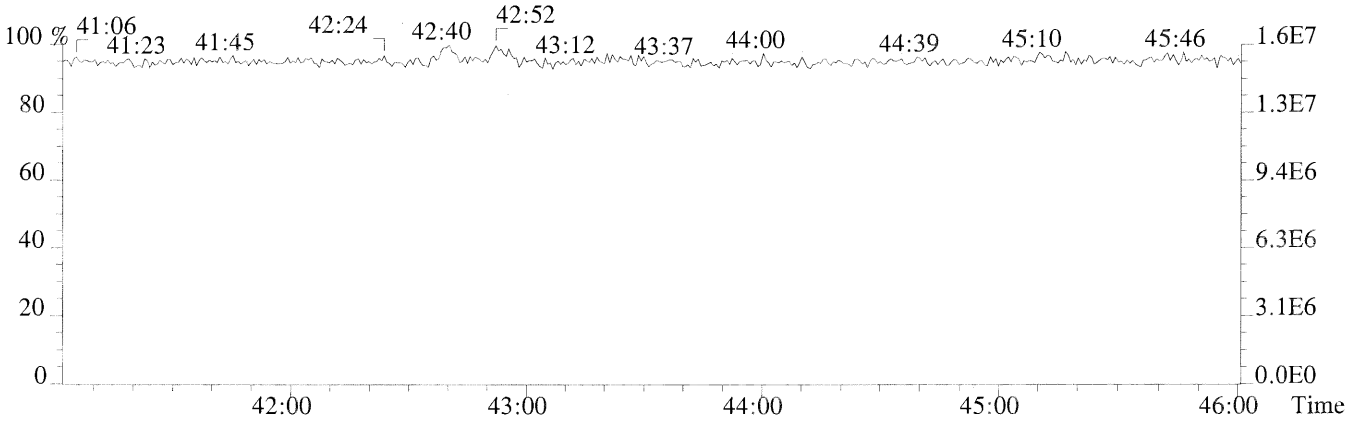
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,808.0,0.40%,F,T)



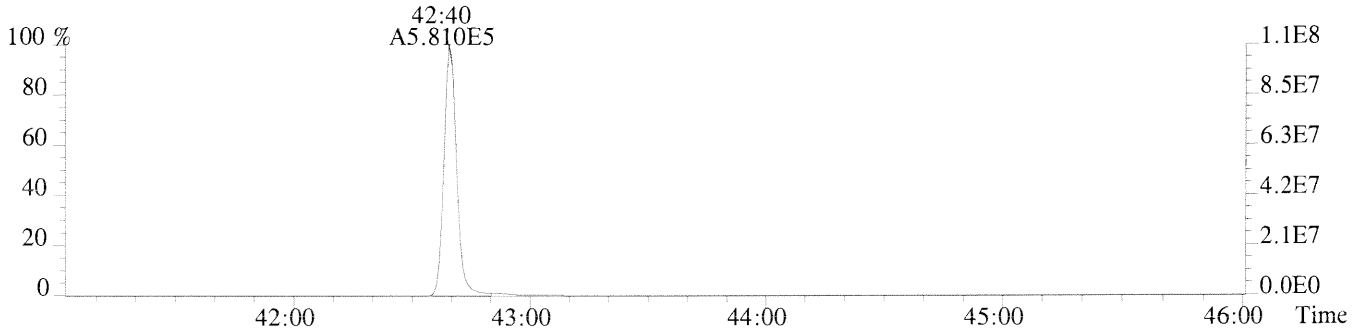
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



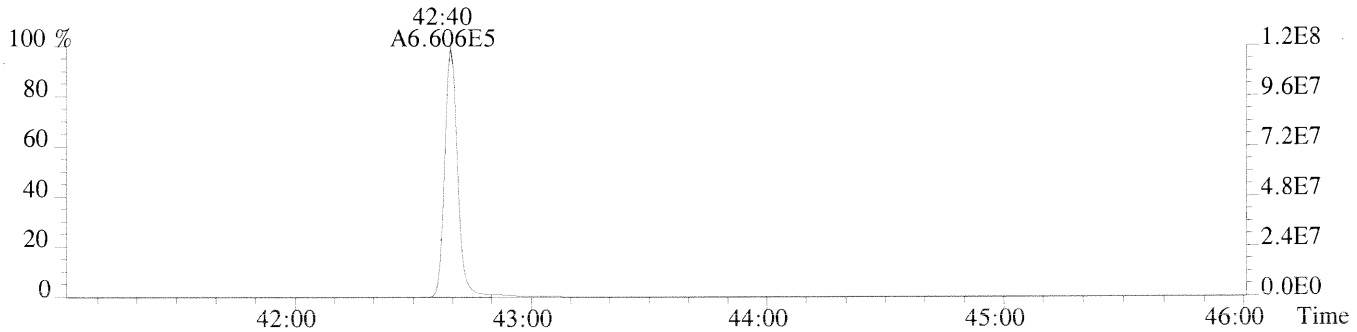
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



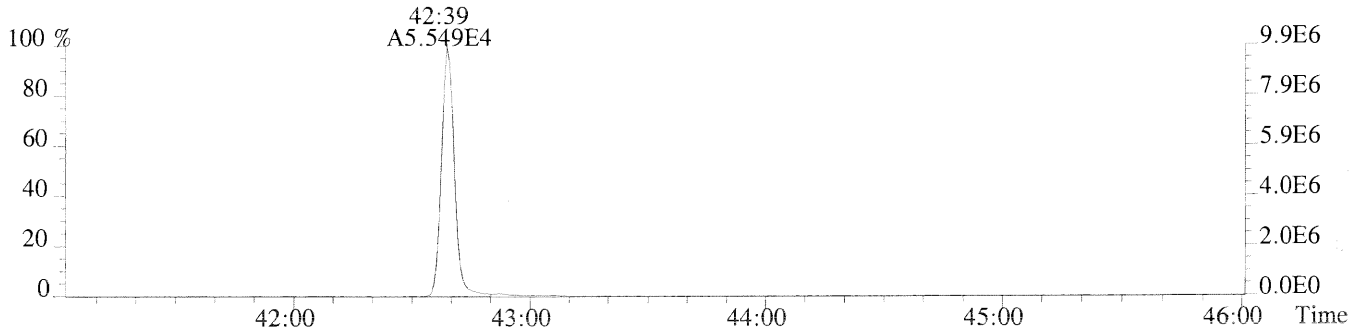
File:U149177 #1-452 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,760.0,0.40%,F,T)



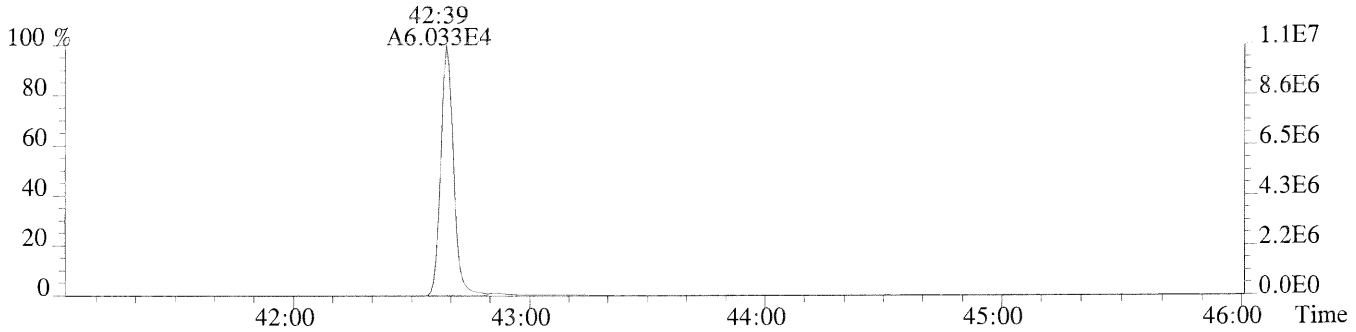
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,476.0,0.40%,F,T)



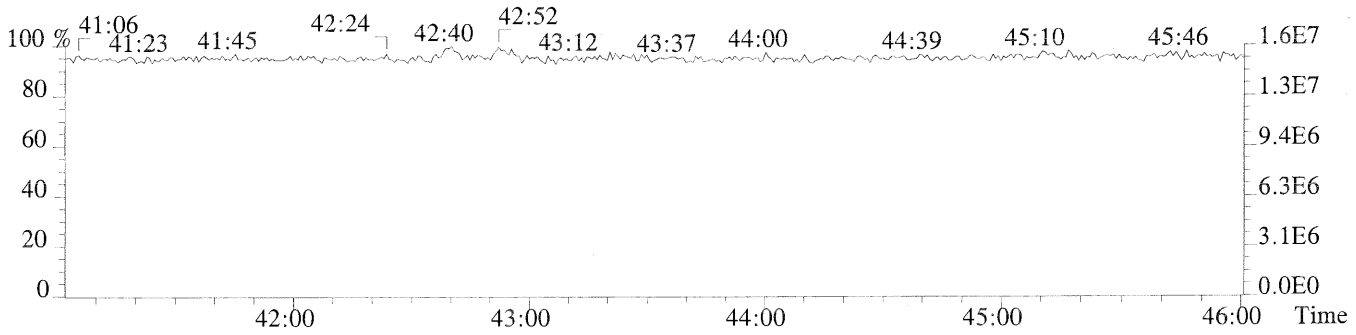
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,636.0,0.40%,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
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 05/21/2014

Instrument ID: E-HRMS-01 | GC Column ID: DB-5MSUI

VER Data Filename: U149179 | Analysis Date: 21-MAY-14 Time: 20:29:24

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.84	0.65-0.89	9.5	7.8 - 12.9	-4.7
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	53	39 - 65	5.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	48	39 - 64	-4.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	46	39 - 64	-7.3
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	44	41 - 61	-11.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	48	43 - 58	-4.4
OCDD	M+2/M+4	0.89	0.76-1.02	92	79 - 126	-8.4
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.2	8.4 - 12.0	-8.1
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	46	41 - 60	-8.9
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	49	41 - 61	-2.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	45	45 - 56	-10.2
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	46	44 - 57	-7.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.26	1.05-1.43	46	45 - 56	-8.2
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	48	44 - 57	-4.1
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	46	45 - 55	-7.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	50	43 - 58	-0.7
OCDF	M+2/M+4	0.92	0.76-1.02	92	63 - 159	-7.8

(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) The beginning CCAL %D 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

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 05/21/2014

IInstrument ID: E-HRMS-01 GC Column ID: DB-5MSUI

VER Data Filename: U149179 Analysis Date: 21-MAY-14 Time: 20:29:24

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	93	82 - 121	-6.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	93	62 - 160	-7.1
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	103	85 - 117	2.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	112	85 - 118	11.9
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	99	72 - 138	-1.2
13C-OCDD	M+2/M+4	0.90	0.76-1.02	211	96 - 415	5.4
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	110	71 - 140	9.9
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	104	76 - 130	4.2
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	104	77 - 130	4.3
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	106	76 - 131	5.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	2.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	107	74 - 135	7.1
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	104	73 - 137	4.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	111	78 - 129	10.5
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	101	77 - 129	0.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.8	7.8 - 12.7	-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.
(5) The beginnning CCAL %D 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)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
ICV 2ND SOURCE

Run #7 Filename U149179 Samp: 1 Inj: 1 Acquired: 21-MAY-14 20:29:24
Processed: 23-MAY-14 09:02:35 Sample ID: 60287

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	2.175e+03	2.910e+03	0.75	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:47	2.020e+04	1.286e+04	1.57	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:40	2.030e+04	1.303e+04	1.56	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.738e+04	1.402e+04	1.24	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:24	1.842e+04	1.501e+04	1.23	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:54	1.777e+04	1.478e+04	1.20	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	1.660e+04	1.323e+04	1.26	yes	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	1.653e+04	1.611e+04	1.03	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:19	1.413e+04	1.349e+04	1.05	yes	no	1.359
10	Unk	OCDF	42:53	2.136e+04	2.333e+04	0.92	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:28	1.608e+03	1.909e+03	0.84	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:57	1.419e+04	8.895e+03	1.59	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:02	1.236e+04	9.928e+03	1.24	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:06	1.399e+04	1.121e+04	1.25	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:21	1.351e+04	1.088e+04	1.24	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:49	1.111e+04	1.062e+04	1.05	yes	no	1.065
17	Unk	OCDD	42:40	1.819e+04	2.051e+04	0.89	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:41	2.617e+04	3.242e+04	0.81	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:45	4.557e+04	2.877e+04	1.58	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:39	4.424e+04	2.815e+04	1.57	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	1.947e+04	3.753e+04	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.160e+04	4.149e+04	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:53	2.049e+04	3.924e+04	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	1.937e+04	3.711e+04	0.52	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	1.527e+04	3.402e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	1.278e+04	2.817e+04	0.45	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:26	1.576e+04	2.066e+04	0.76	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:55	2.618e+04	1.649e+04	1.59	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:01	2.319e+04	1.812e+04	1.28	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	2.761e+04	2.161e+04	1.28	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:48	2.225e+04	2.044e+04	1.09	yes	no	0.936
32	IS	13C-OCDD	42:39	3.403e+04	3.773e+04	0.90	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:51	1.629e+04	2.085e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:20	2.634e+04	1.982e+04	1.33	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	3.793e+03				no	1.044

ALS ENVIRONMENTAL
10450 Stancliff Road, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
ICV 2ND SOURCE

Run #7 Filename U149179 Samp: 1 Inj: 1 Acquired: 21-MAY-14 20:29:24
Processed: 23-MAY-14 09:02:351 LAB. ID: 60287

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.62e+05	7.40e+02	6.2e+02	6.24e+05	1.23e+03	5.1e+02
2	1,2,3,7,8-PeCDF	3.94e+06	7.36e+02	5.3e+03	2.48e+06	8.36e+02	3.0e+03
3	2,3,4,7,8-PeCDF	4.12e+06	7.36e+02	5.6e+03	2.64e+06	8.36e+02	3.2e+03
4	1,2,3,4,7,8-HxCDF	3.76e+06	1.53e+03	2.5e+03	3.08e+06	1.28e+03	2.4e+03
5	1,2,3,6,7,8-HxCDF	3.86e+06	1.53e+03	2.5e+03	3.10e+06	1.28e+03	2.4e+03
6	2,3,4,6,7,8-HxCDF	3.84e+06	1.53e+03	2.5e+03	3.18e+06	1.28e+03	2.5e+03
7	1,2,3,7,8,9-HxCDF	3.33e+06	1.53e+03	2.2e+03	2.60e+06	1.28e+03	2.0e+03
8	1,2,3,4,6,7,8-HpCDF	3.49e+06	2.08e+03	1.7e+03	3.31e+06	1.44e+03	2.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.68e+06	2.08e+03	1.3e+03	2.52e+06	1.44e+03	1.7e+03
10	OCDF	3.43e+06	6.24e+02	5.5e+03	3.76e+06	8.48e+02	4.4e+03
11	2,3,7,8-TCDD	3.47e+05	6.32e+02	5.5e+02	4.10e+05	5.88e+02	7.0e+02
12	1,2,3,7,8-PeCDD	2.86e+06	7.08e+02	4.0e+03	1.79e+06	5.56e+02	3.2e+03
13	1,2,3,4,7,8-HxCDD	2.86e+06	7.40e+02	3.9e+03	2.24e+06	1.23e+03	1.8e+03
14	1,2,3,6,7,8-HxCDD	2.75e+06	7.40e+02	3.7e+03	2.25e+06	1.23e+03	1.8e+03
15	1,2,3,7,8,9-HxCDD	2.65e+06	7.40e+02	3.6e+03	2.13e+06	1.23e+03	1.7e+03
16	1,2,3,4,6,7,8-HpCDD	2.16e+06	1.08e+03	2.0e+03	2.04e+06	1.25e+03	1.6e+03
17	OCDD	2.97e+06	5.52e+02	5.4e+03	3.34e+06	7.92e+02	4.2e+03
18	13C-2,3,7,8-TCDF	5.77e+06	7.48e+02	7.7e+03	7.09e+06	8.00e+02	8.9e+03
19	13C-1,2,3,7,8-PeCDF	8.63e+06	7.96e+02	1.1e+04	5.51e+06	8.28e+02	6.7e+03
20	13C-2,3,4,7,8-PeCDF	9.07e+06	7.96e+02	1.1e+04	5.80e+06	8.28e+02	7.0e+03
21	13C-1,2,3,4,7,8-HxCDF	4.24e+06	7.24e+02	5.9e+03	8.14e+06	9.04e+02	9.0e+03
22	13C-1,2,3,6,7,8-HxCDF	4.43e+06	7.24e+02	6.1e+03	8.46e+06	9.04e+02	9.4e+03
23	13C-2,3,4,6,7,8-HxCDF	4.38e+06	7.24e+02	6.0e+03	8.41e+06	9.04e+02	9.3e+03
24	13C-1,2,3,7,8,9-HxCDF	3.85e+06	7.24e+02	5.3e+03	7.31e+06	9.04e+02	8.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.21e+06	3.34e+03	9.6e+02	7.04e+06	2.44e+03	2.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.37e+06	3.34e+03	7.1e+02	5.32e+06	2.44e+03	2.2e+03
27	13C-2,3,7,8-TCDD	3.50e+06	2.24e+03	1.6e+03	4.61e+06	1.42e+03	3.3e+03
28	13C-1,2,3,7,8-PeCDD	5.21e+06	6.64e+02	7.8e+03	3.34e+06	7.32e+02	4.6e+03
29	13C-1,2,3,4,7,8-HxCDD	5.30e+06	7.64e+02	6.9e+03	4.08e+06	8.20e+02	5.0e+03
30	13C-1,2,3,6,7,8-HxCDD	5.42e+06	7.64e+02	7.1e+03	4.27e+06	8.20e+02	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.34e+06	7.44e+02	5.8e+03	3.98e+06	7.48e+02	5.3e+03
32	13C-OCDD	5.56e+06	5.68e+02	9.8e+03	6.16e+06	6.76e+02	9.1e+03
33	13C-1,2,3,4-TCDD	3.54e+06	2.24e+03	1.6e+03	4.52e+06	1.42e+03	3.2e+03
34	13C-1,2,3,7,8,9-HxCDD	5.21e+06	7.64e+02	6.8e+03	4.02e+06	8.20e+02	4.9e+03
35	37Cl-2,3,7,8-TCDD	8.24e+05	9.76e+02	8.4e+02			

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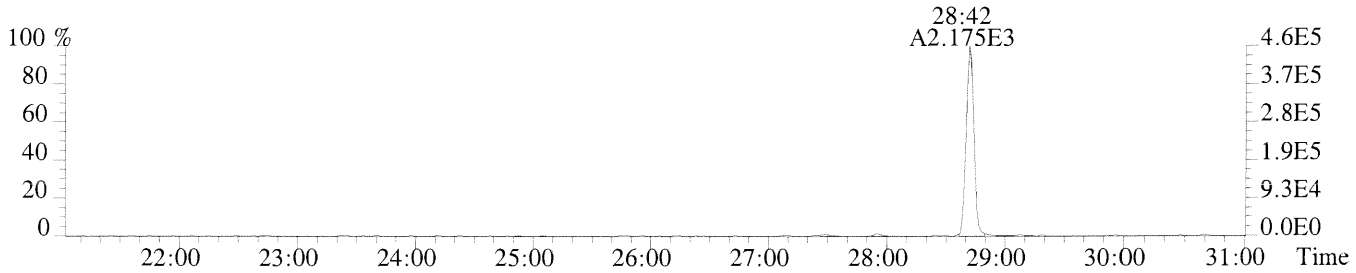
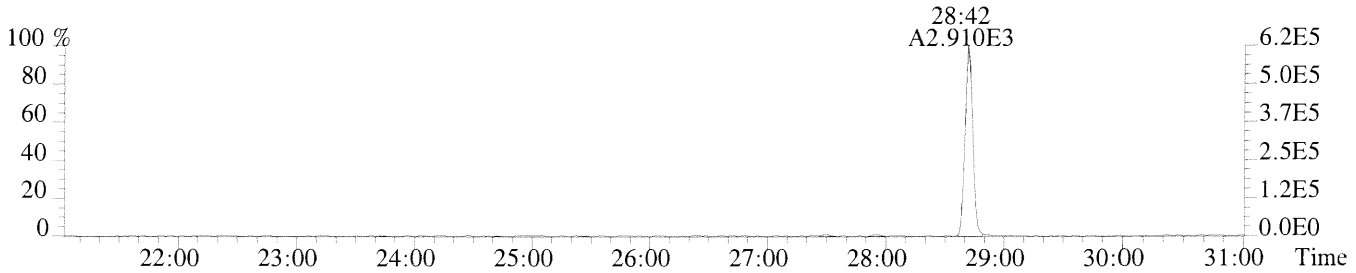
File:U149179 #1-627 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

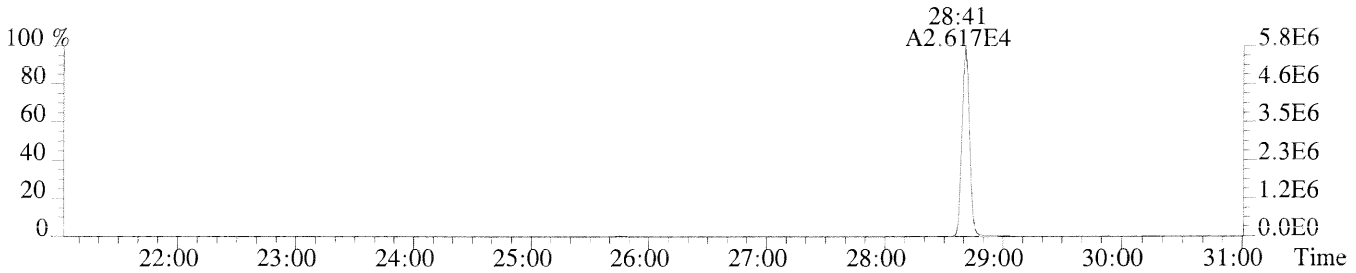
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



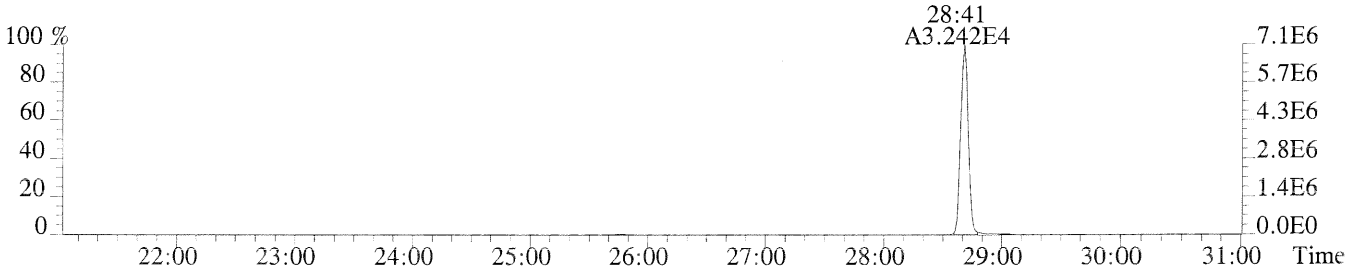
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1232.0,1.00%,F,T)



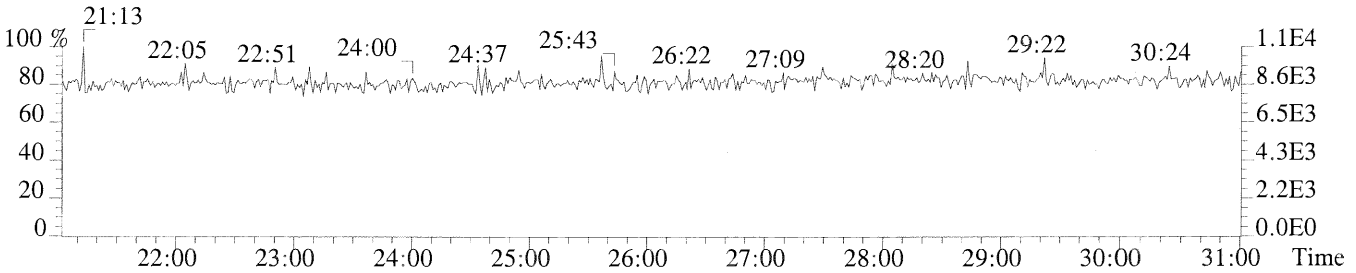
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



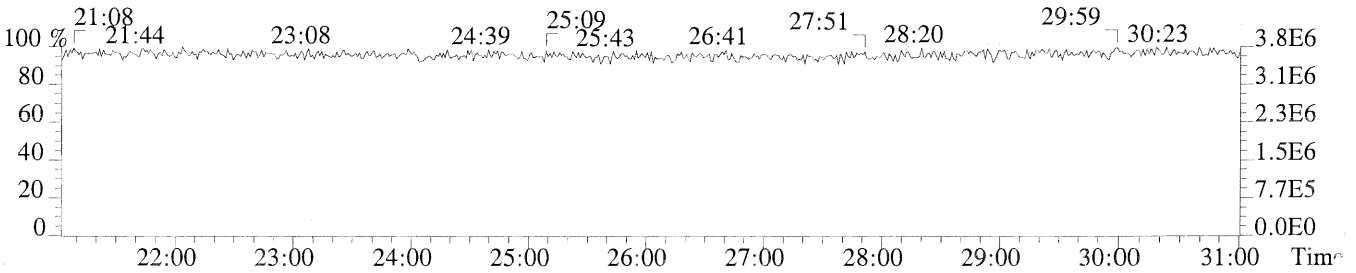
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

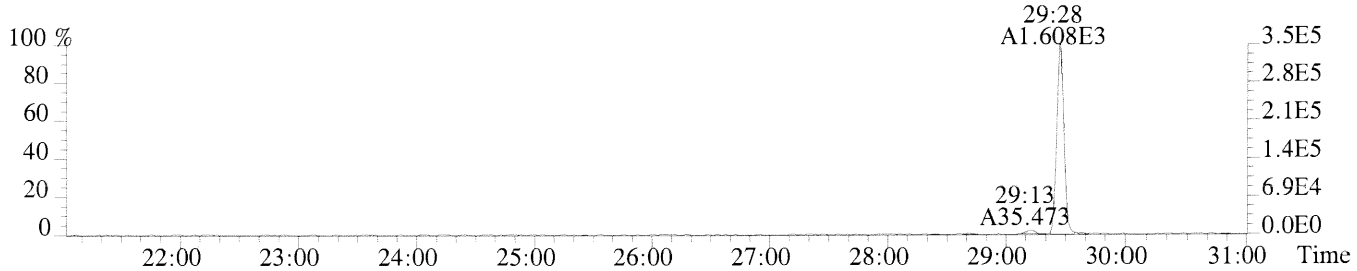


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

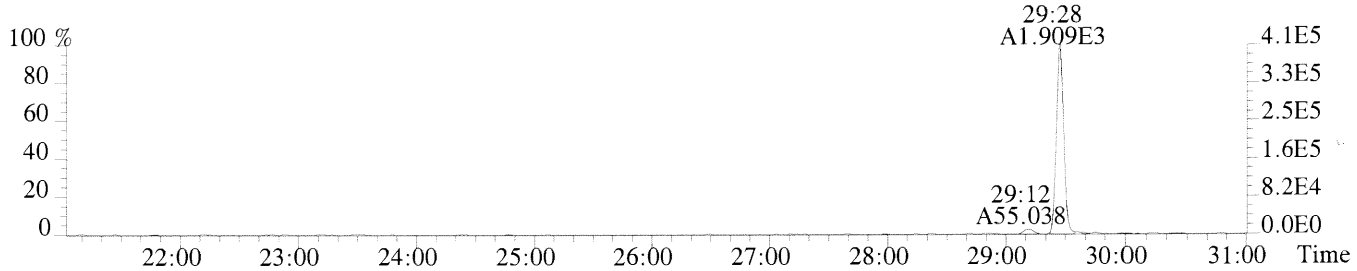


File:U149179 #1-627 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

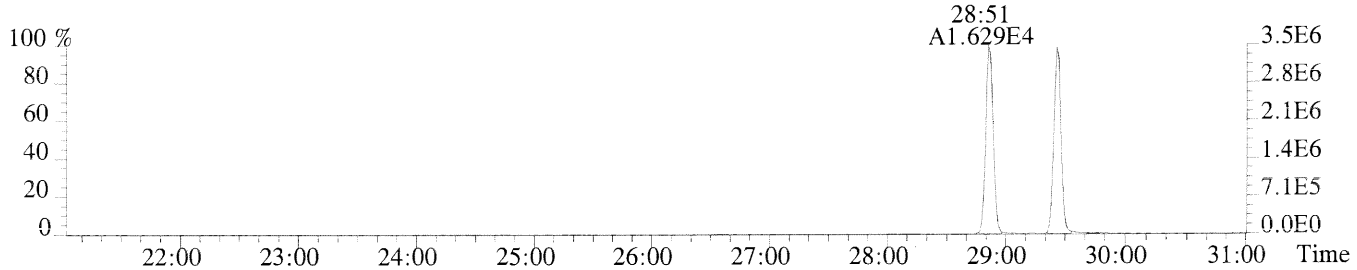
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



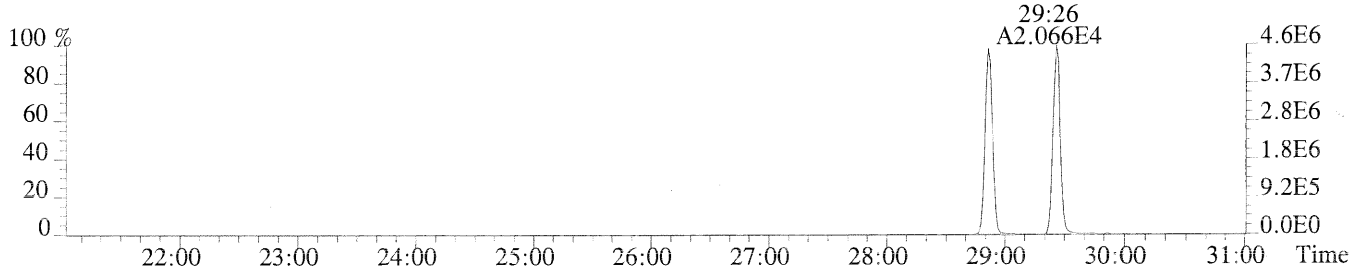
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



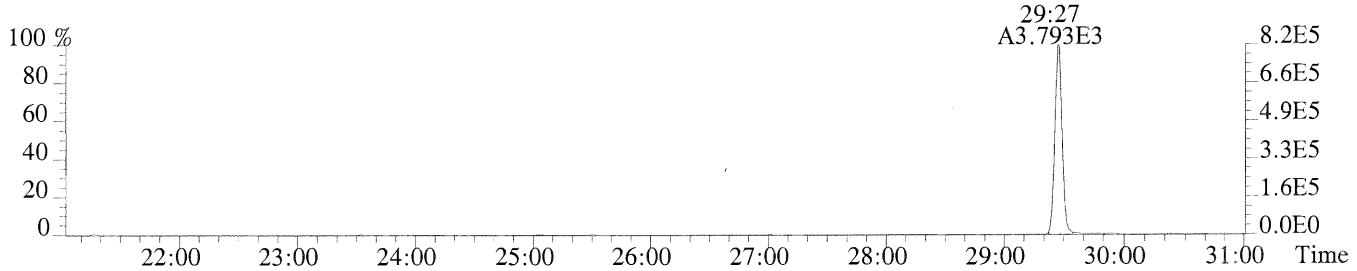
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2236.0,1.00%,F,T)



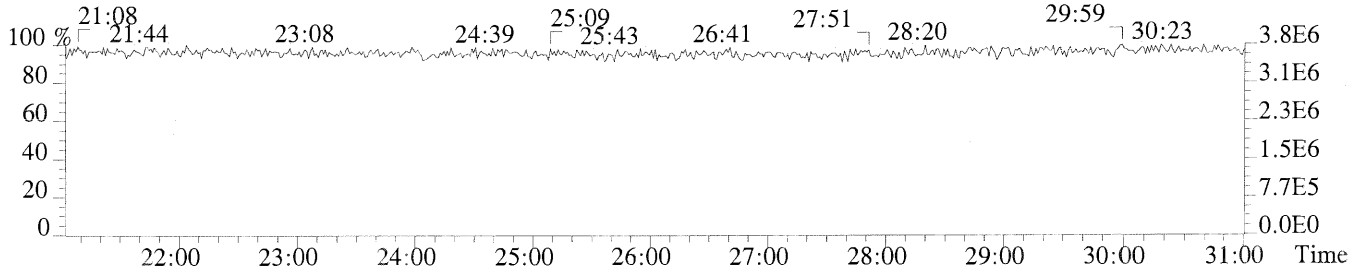
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)

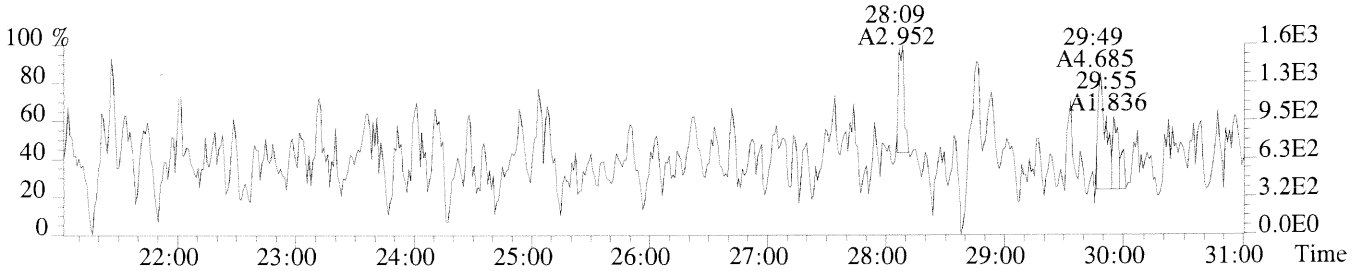


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

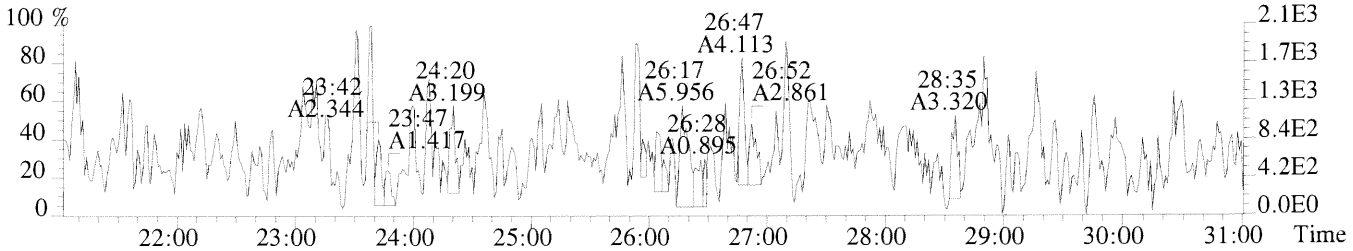


File:U149179 #1-627 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

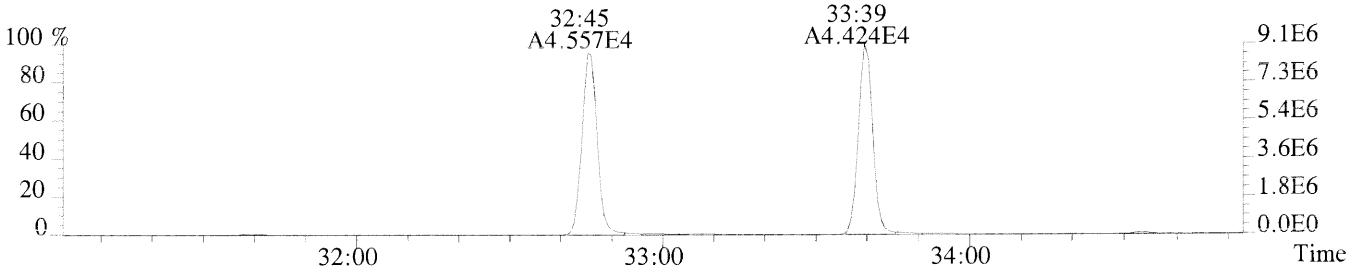
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



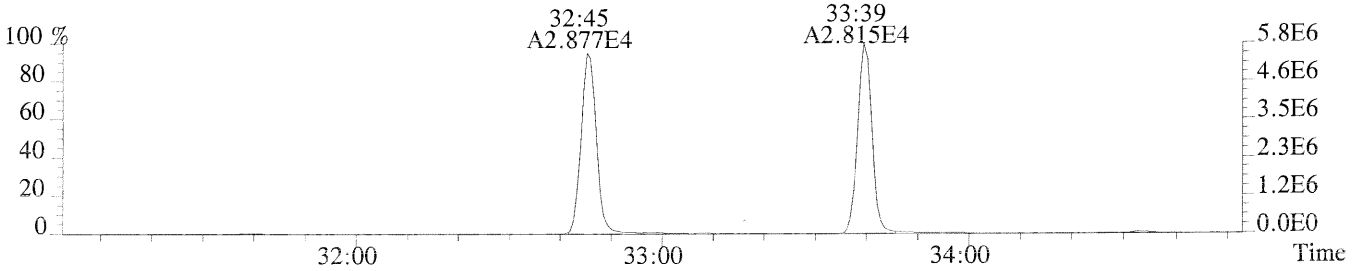
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



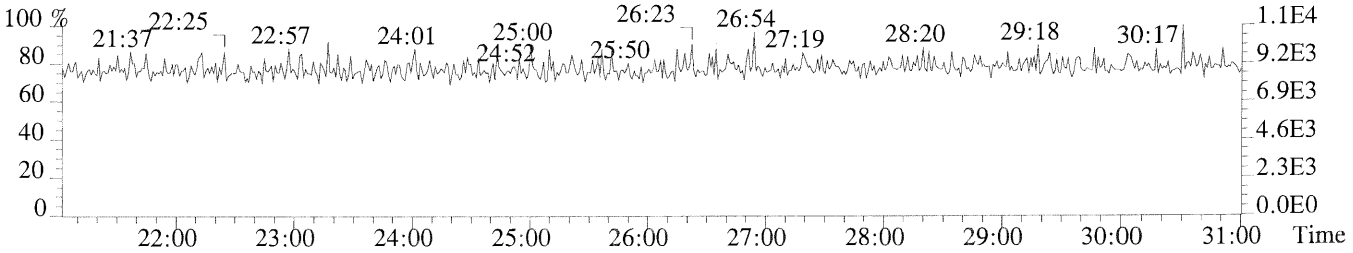
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



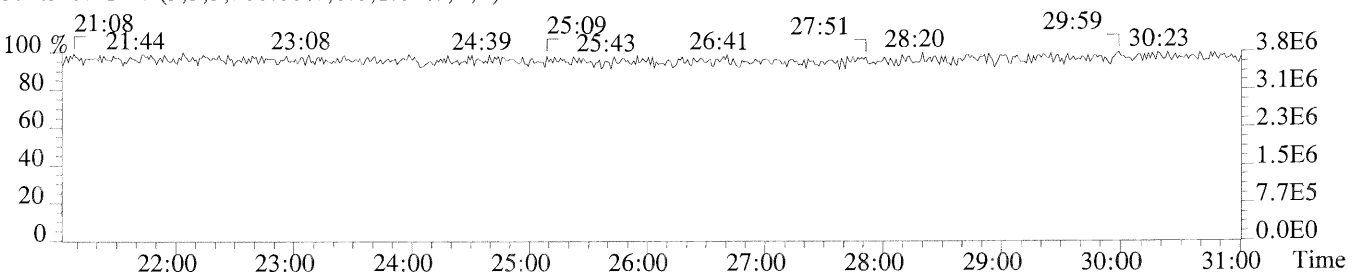
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

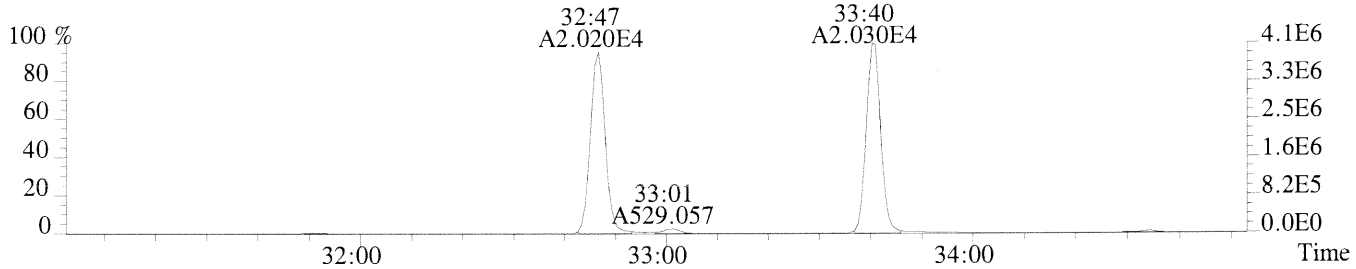


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

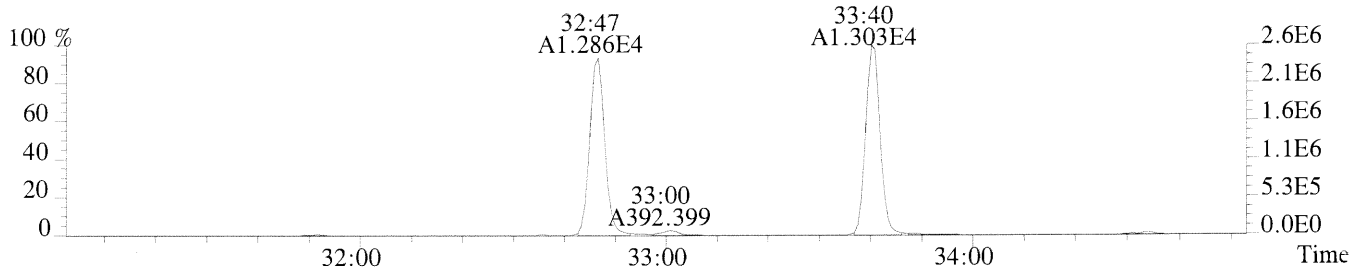


File:U149179 #1-349 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

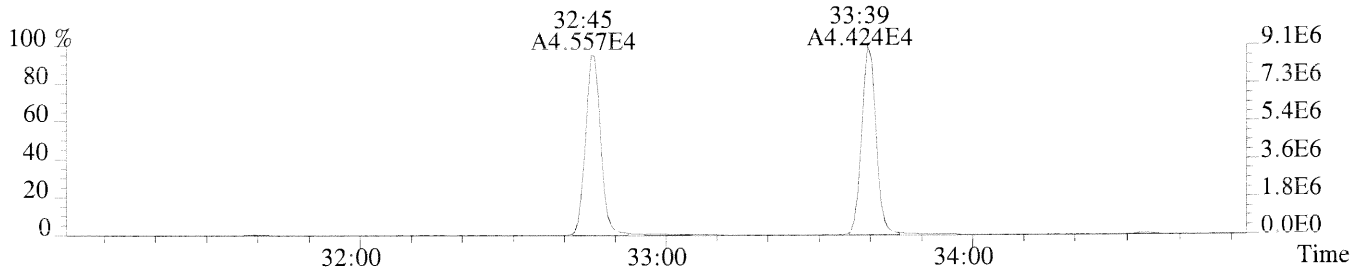
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



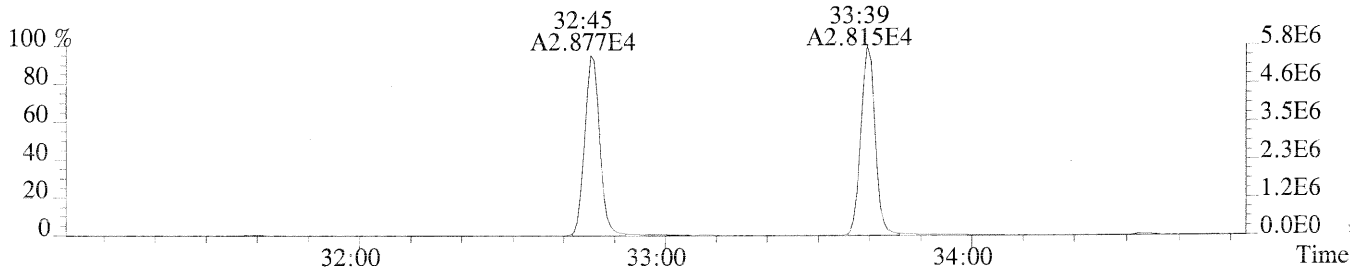
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



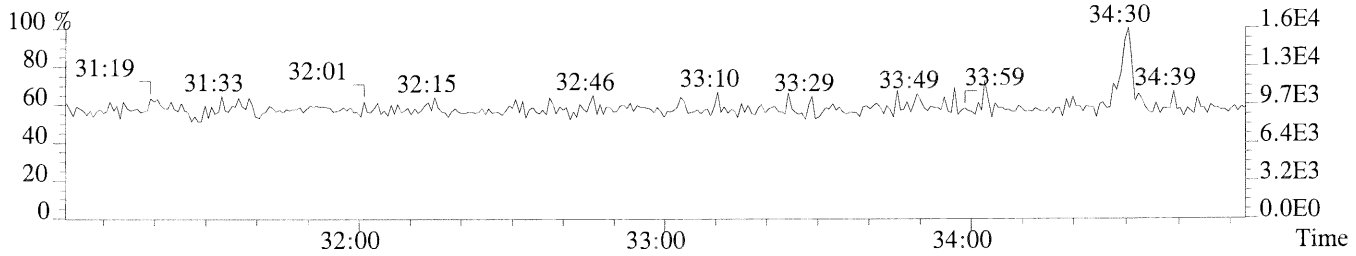
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



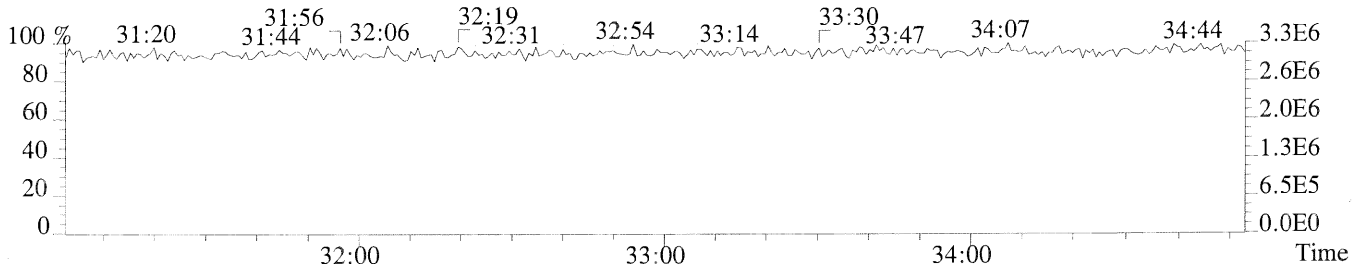
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

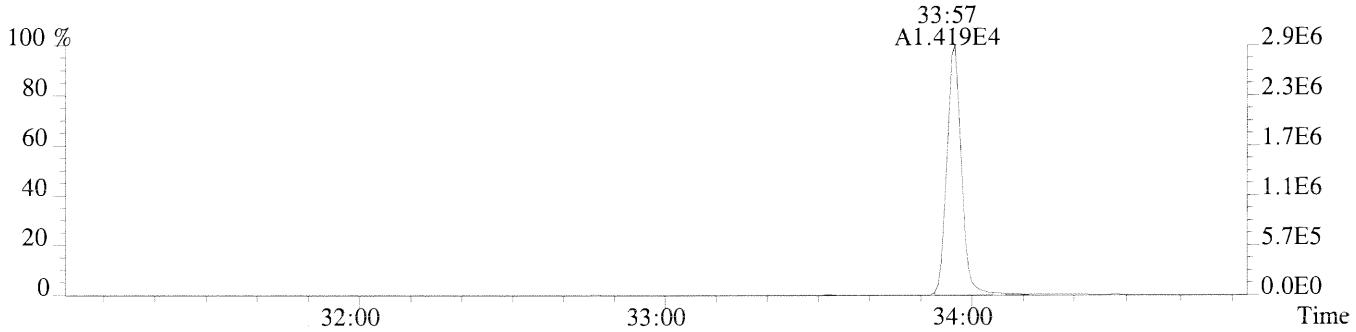


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

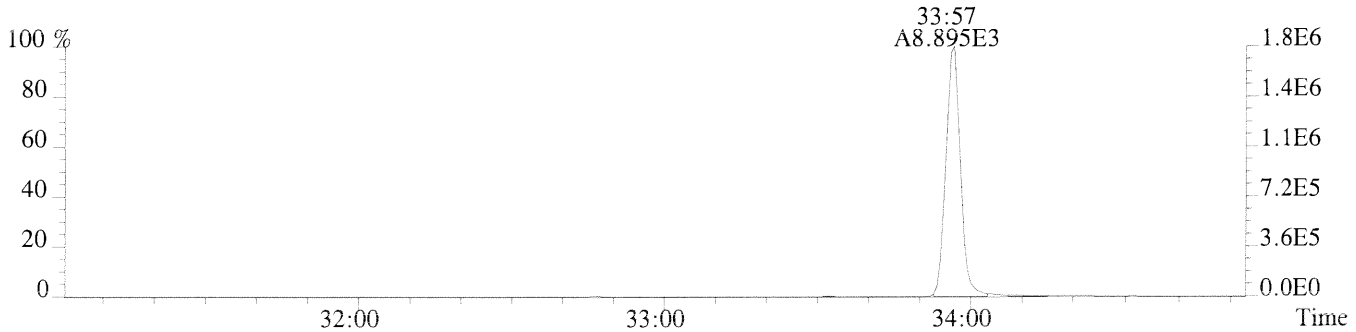


File:U149179 #1-349 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

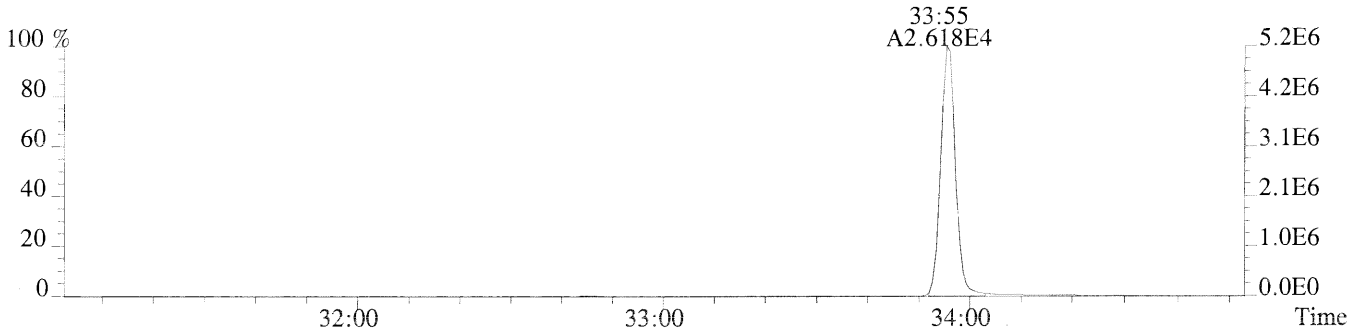
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



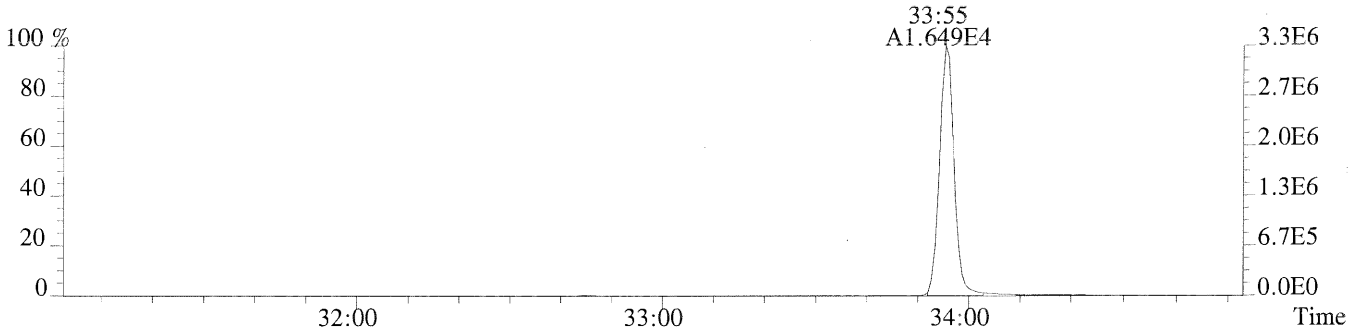
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



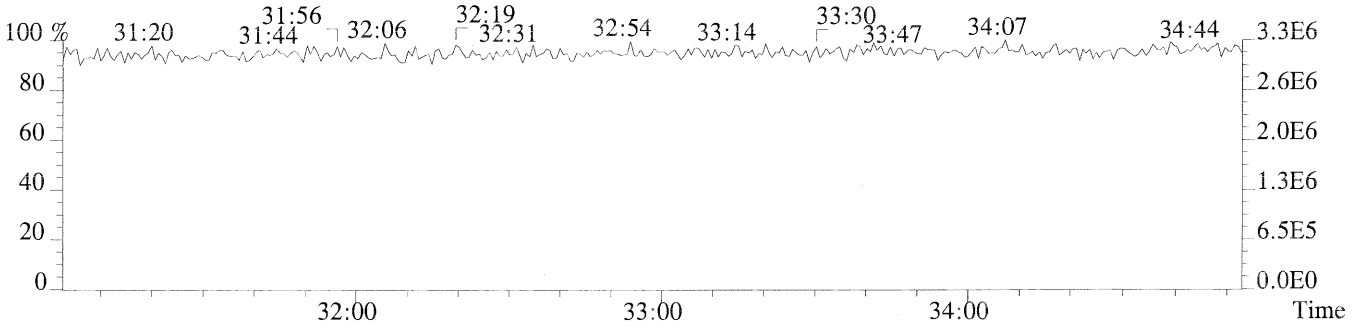
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)

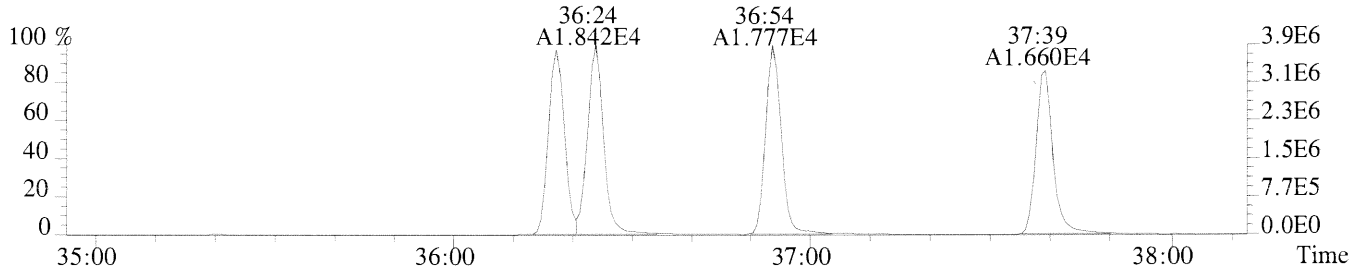


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

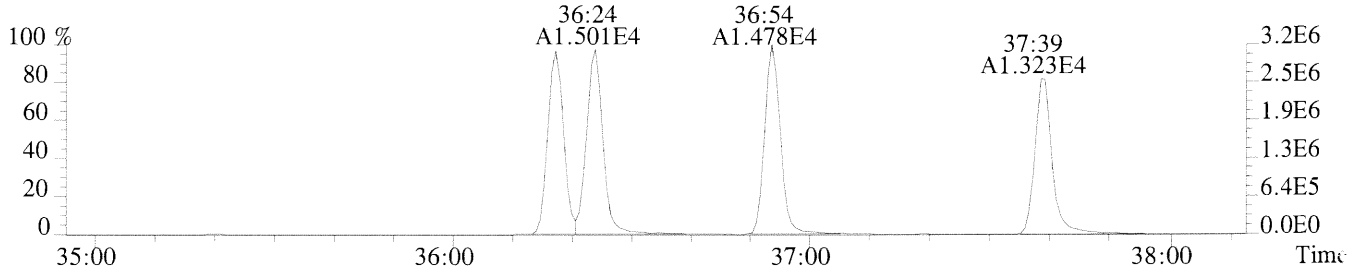


File:U149179 #1-299 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

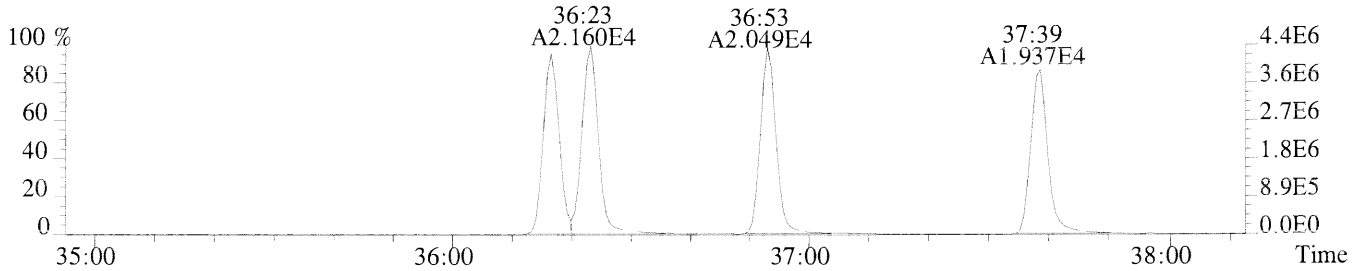
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



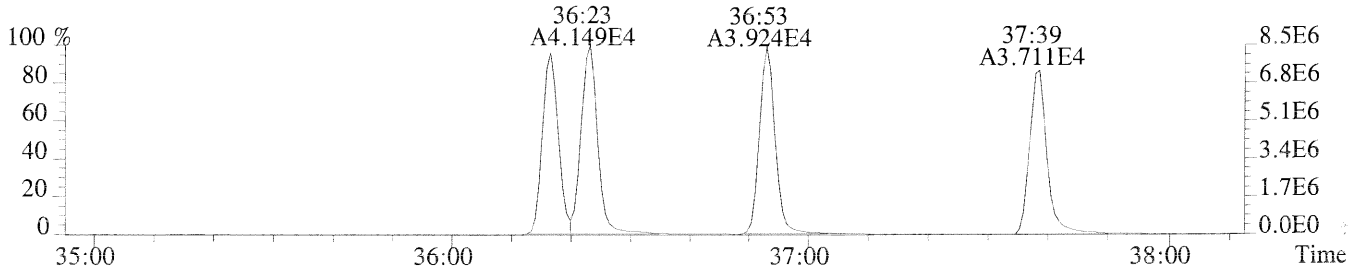
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1280.0,0.40%,F,T)



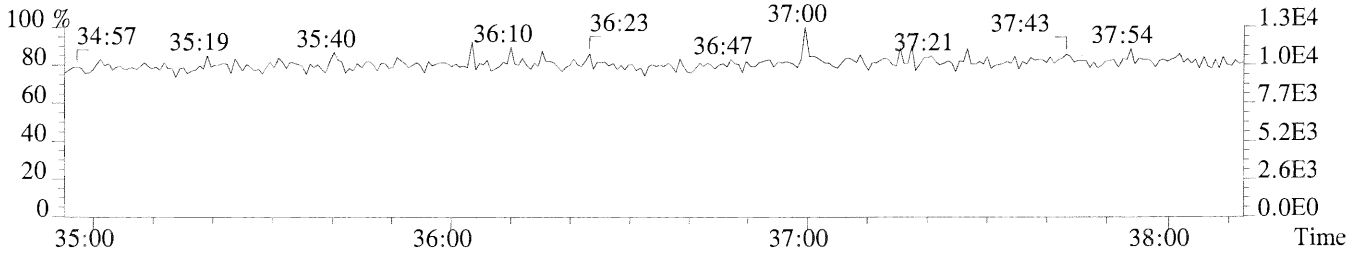
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



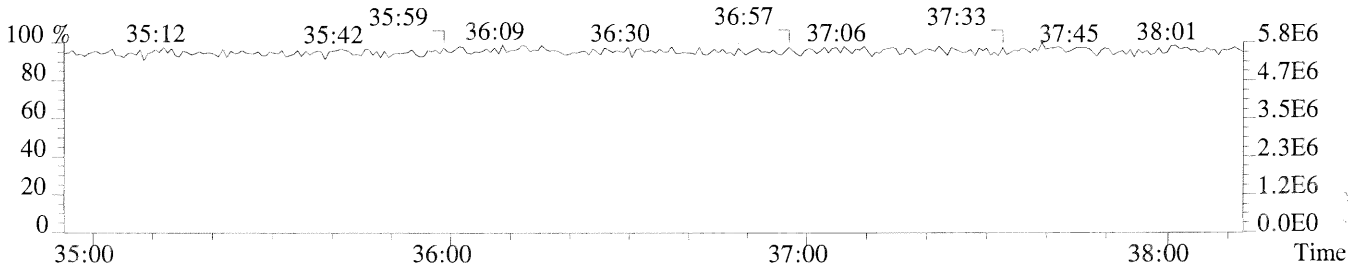
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

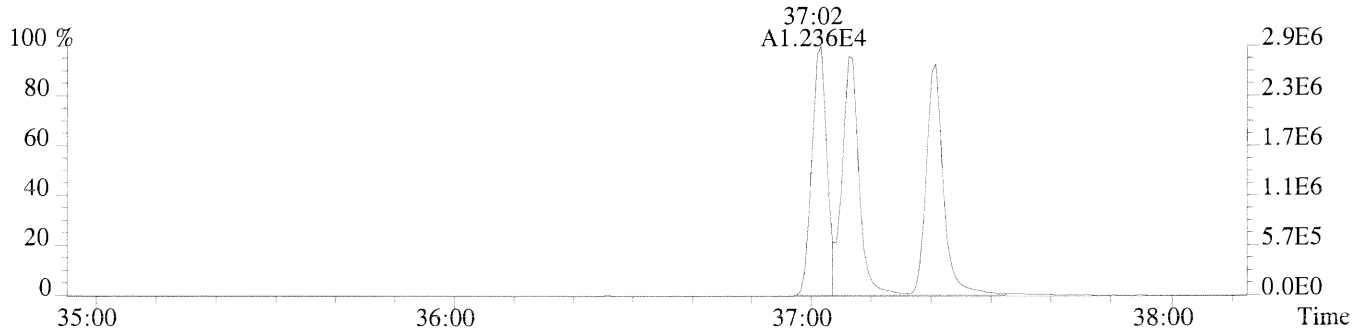


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

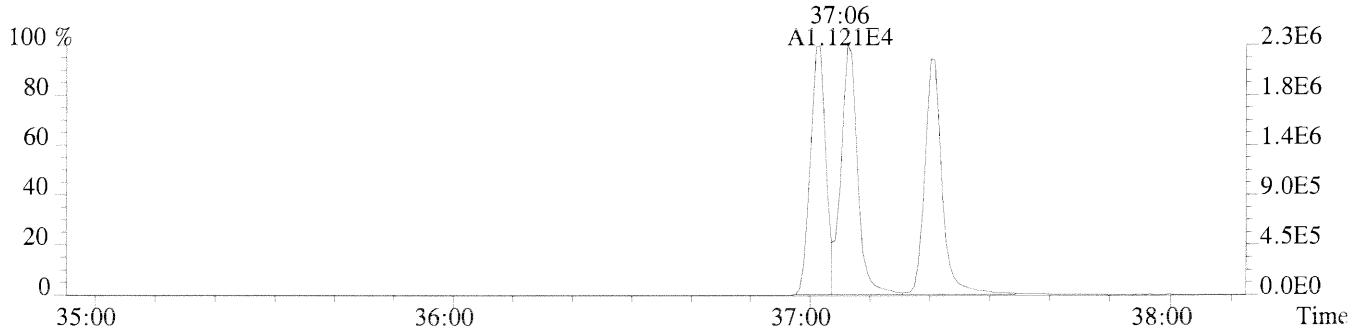


File:U149179 #1-299 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

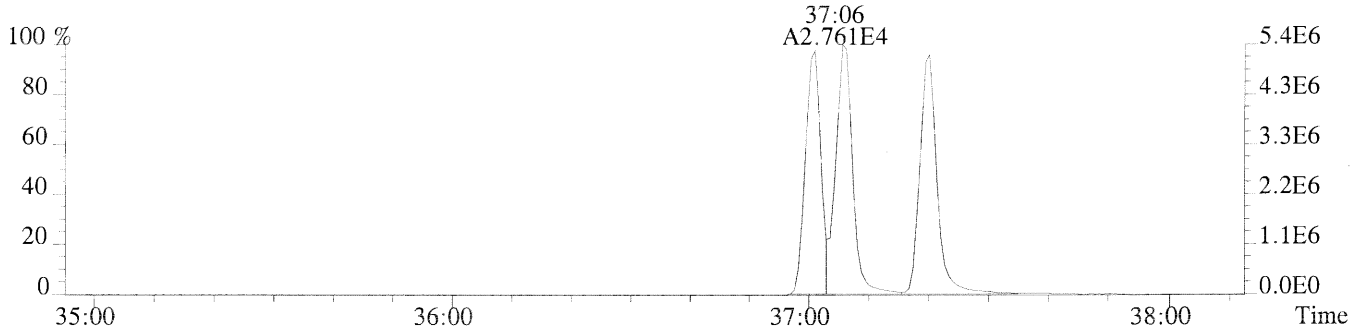
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



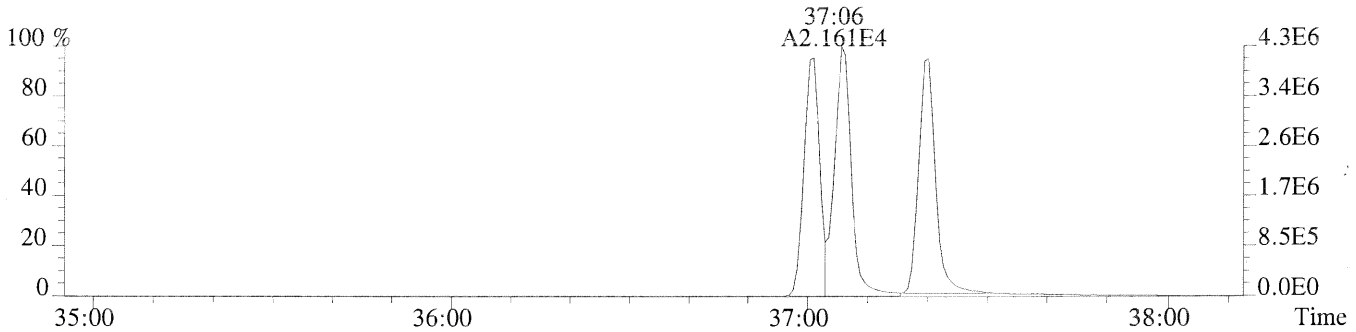
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.40%,F,T)



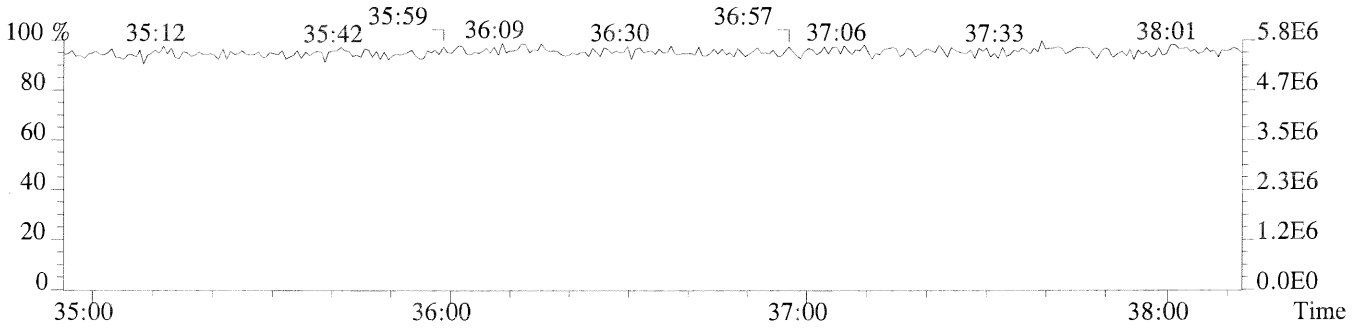
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)

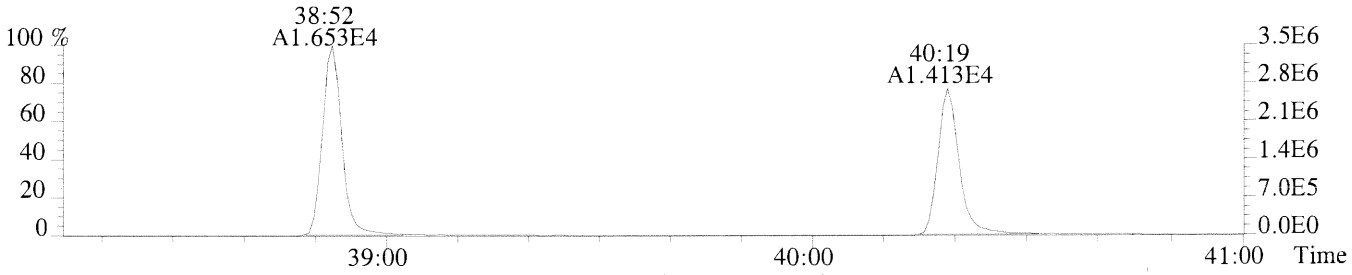


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

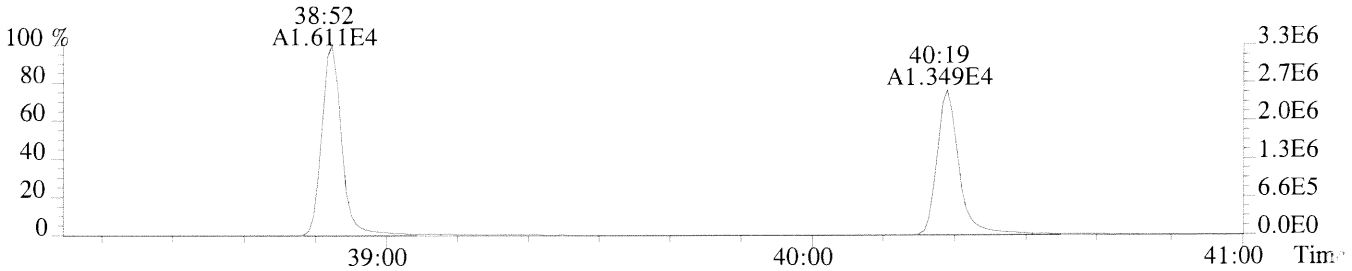


File:U149179 #1-251 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

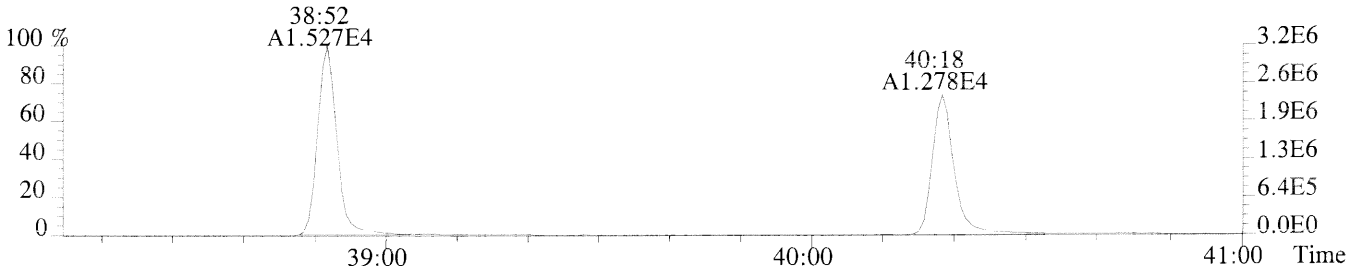
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2076.0,0.50%,F,T)



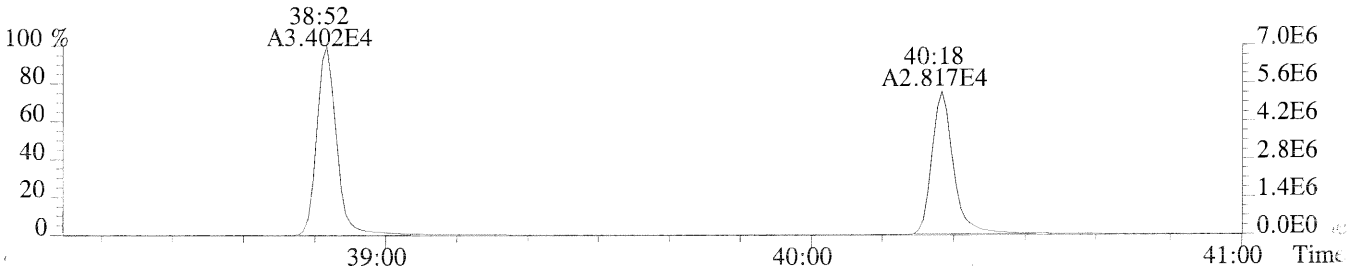
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.50%,F,T)



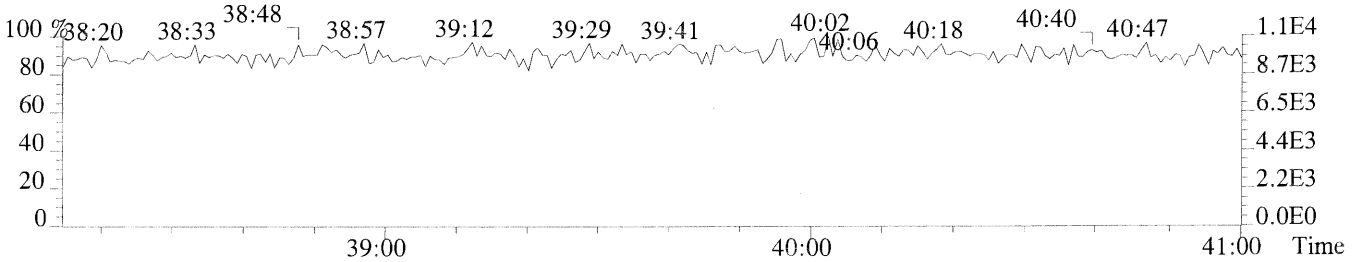
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3340.0,0.50%,F,T)



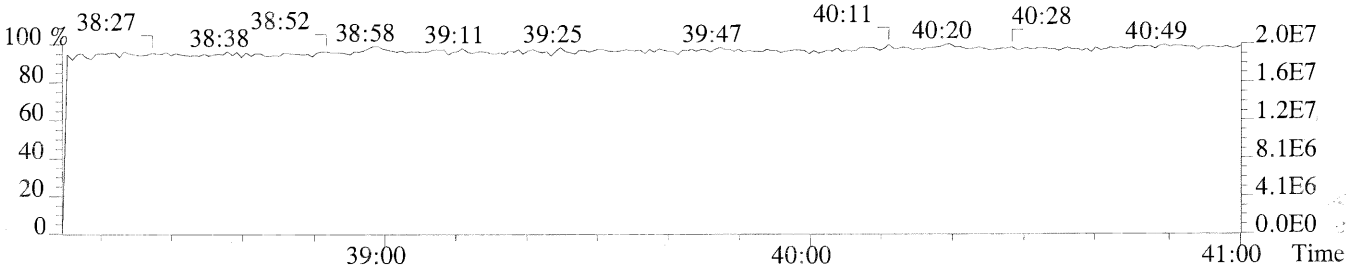
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2444.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

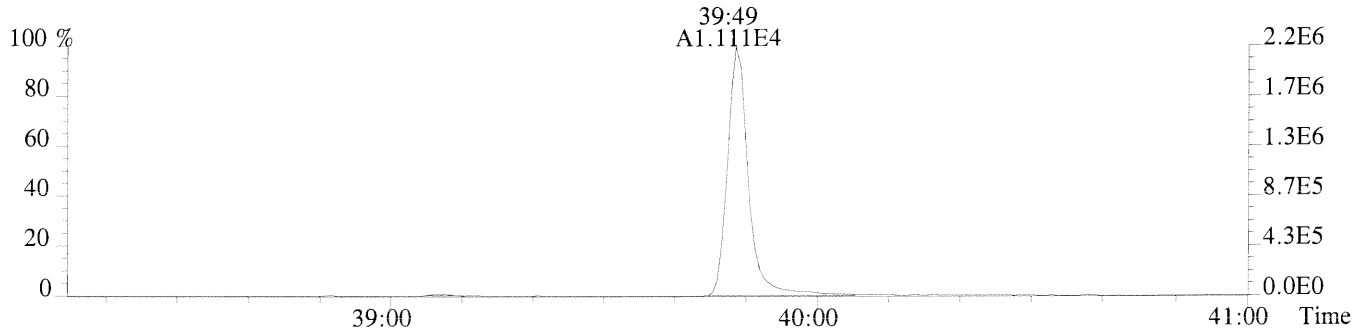


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

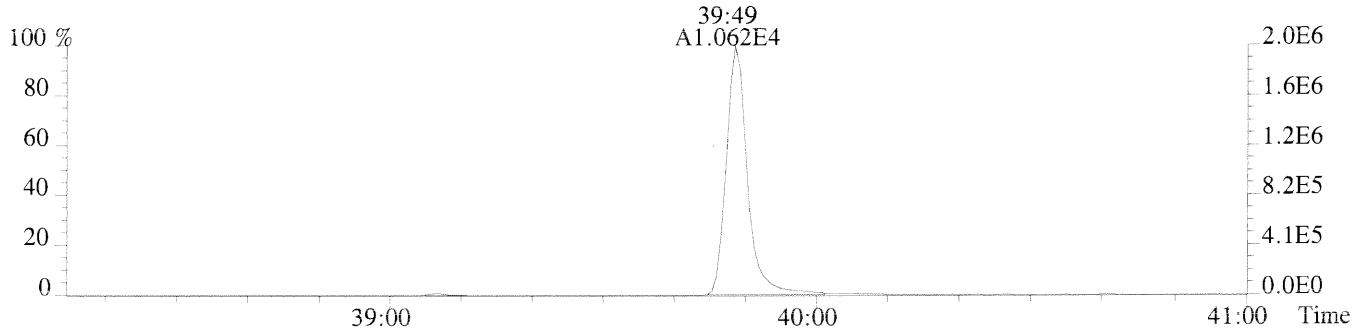


File:U149179 #1-251 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

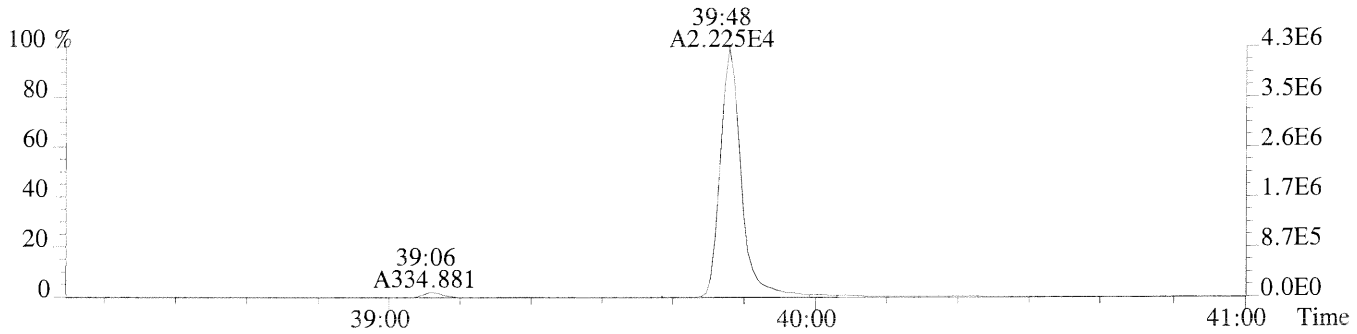
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1080.0,0.40%,F,T)



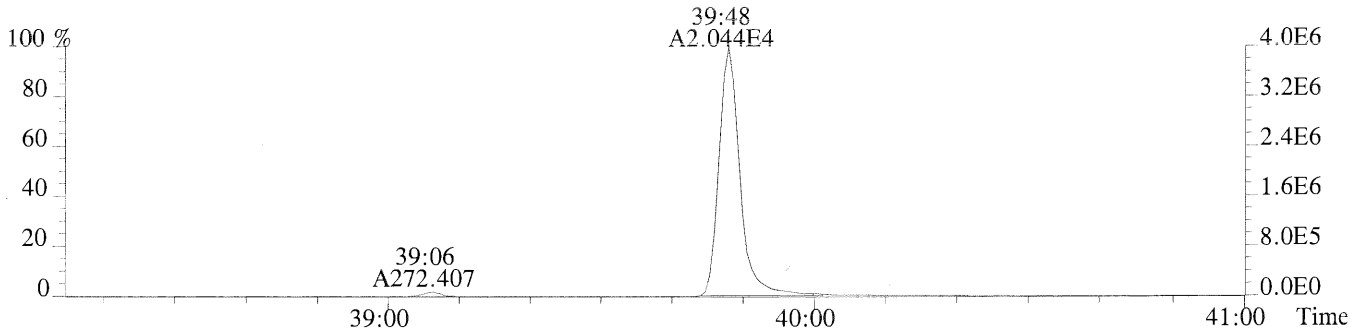
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)



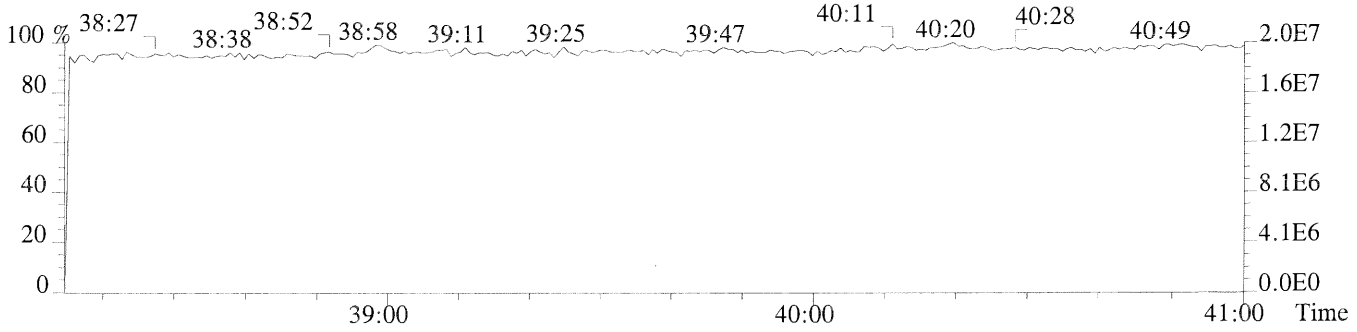
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



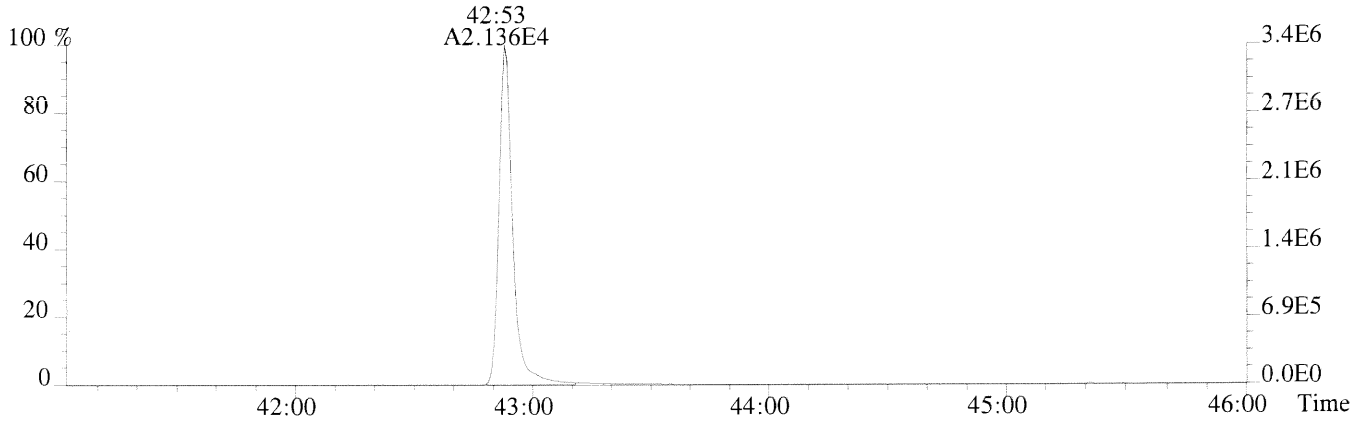
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



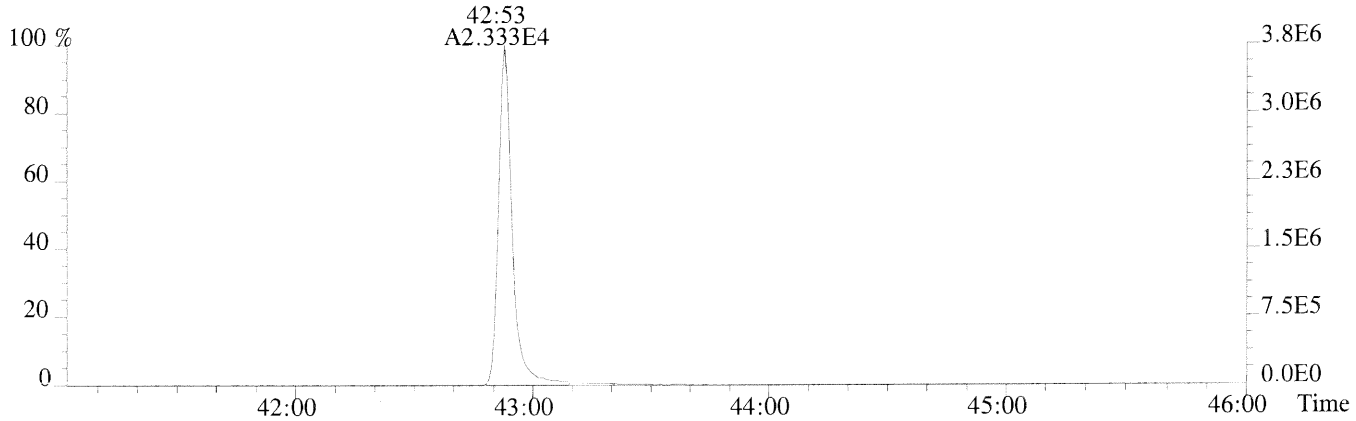
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



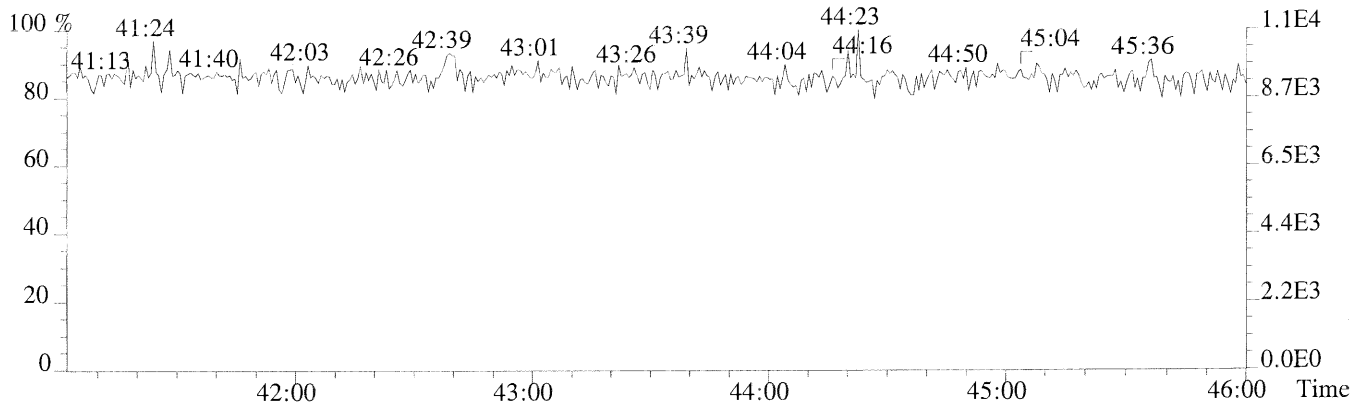
File:U149179 #1-451 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



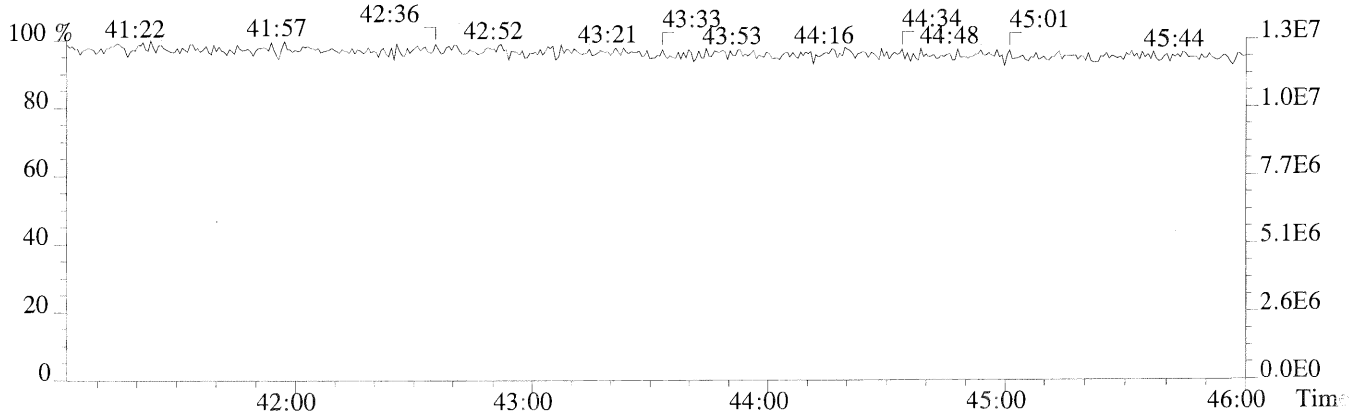
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



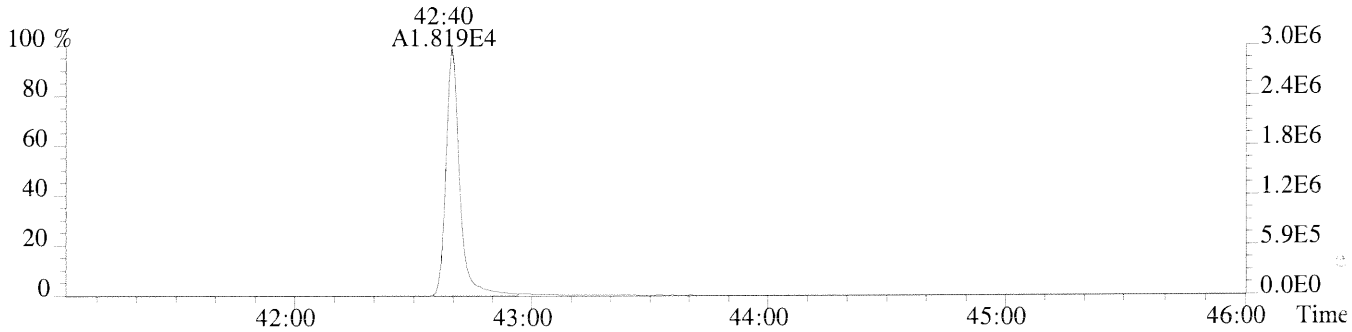
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



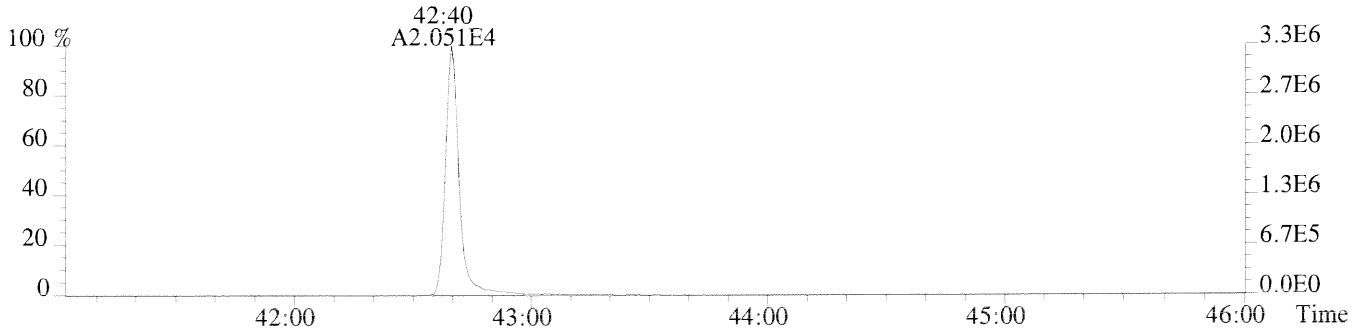
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



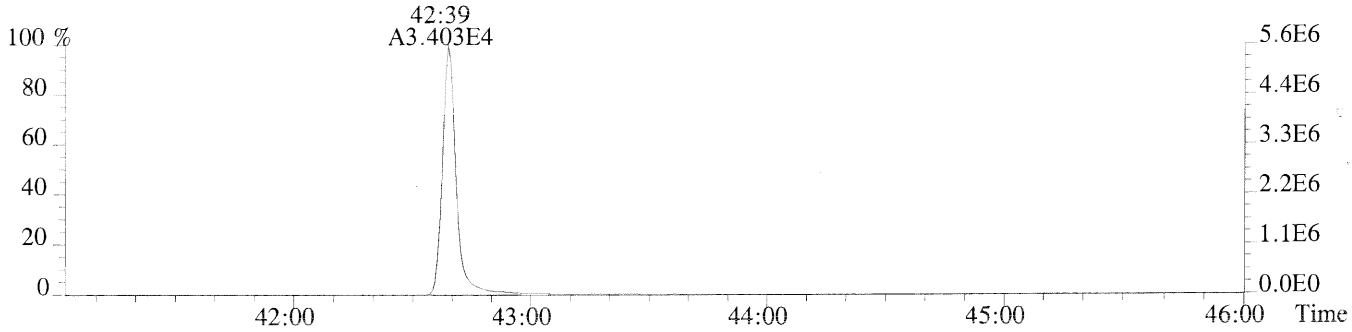
File:U149179 #1-451 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,552.0,0.40%,F,T)



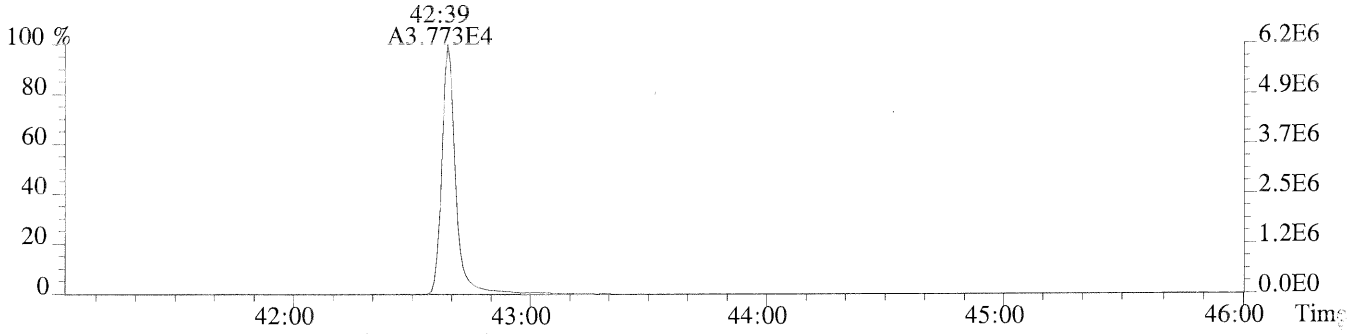
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,792.0,0.40%,F,T)



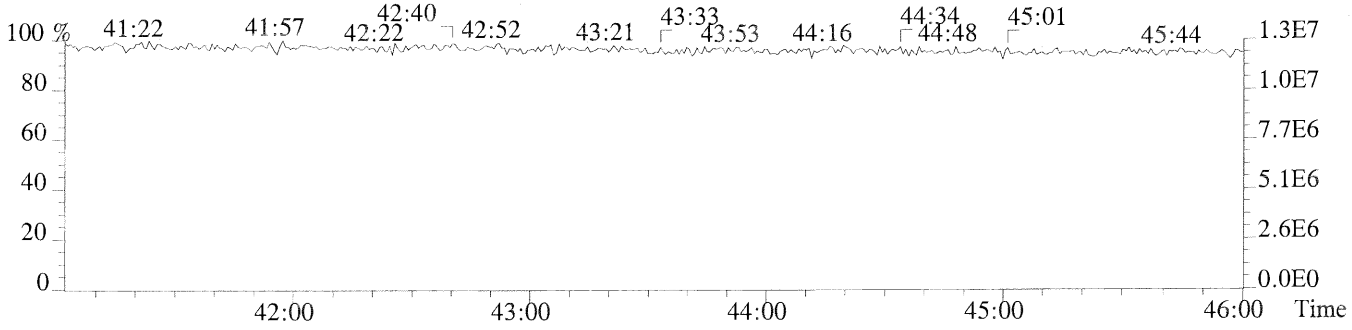
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,676.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALRECO METALS
BENTON HARBOR, MICHIGAN
DATA VALIDATION REPORT

Date: June 4, 2014
Laboratory: ALS Environmental (ALS), Houston, Texas
Laboratory Project #: E1400541
Data Validation Performed By: Lisa Graczyk, Weston Solutions, Inc. (WESTON®) Superfund Technical Assessment and Response Team (START)
Weston Analytical Work Order #/TDD #: 20405.016.001.2323.77/S05-0001-1404-007

This data validation report has been prepared by WESTON START under the START III Region V contract. This report documents the data validation of two solid samples collected for the Alreco Metals Site that were analyzed for dioxin/furans U.S. Environmental Protection Agency SW-846 method 8290.

A Level II data package was requested from ALS. The data validation was conducted in general accordance with the EPA "Contract Laboratory Program National Functional Guidance for Chlorinated Dibenzo-p-Dioxins and Chlorinated Dibenzofurans Data Review" dated September 2011. The attachment contains the results summary data sheets with any hand-written qualifiers applied during data validation.

DIOXIN/FURANS BY EPA SW-846 METHOD 8290

1. Samples

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab Id	Matrix	Date Collected	Date Analyzed
AM-WS01-04242014	E1400541-001	Solid	4/24/2014	5/27/2014
AM-WS01-04242014	E1400541-002	Solid	4/24/2014	5/27/2014

2. Holding Times

The samples were analyzed within the required holding time limit of 30 days from sample collection to extraction and 45 days from extraction to analysis.

3. Calibration Results

The percent relative standard deviation was less than 20 percent as required for the initial calibration. The continuing calibration standard was within 20 percent of the true value.

4. Labeled Standard Recoveries

The percent recoveries of the labeled internal standards were within the quality control (QC) limits specified in the method of 40 to 135 percent except for as follows.

In sample AM-WS01-04242014, the following labeled standards had low percent recoveries: 13C-1,2,3,4,6,7,8-HpCDD; 13C-OCDD; 13C-2,3,7,8-TCDF; 13C-1,2,3,4,6,7,8-HpCDF; and 37Cl-2,3,7,8-TCDD. In sample AM-WS01-042414, the corresponding results for these five labeled standards were flagged "J" as estimated.

In sample AM-WS02-04242014, the following labeled standard had a low percent recovery: 13C-OCDD. In sample AM-WS02-042414, the result for OCDD was flagged "J" as estimated.

5. Blanks

The method blank contained several detections of target compounds both below and above the reporting limits. The sample concentrations were much greater than the blnak concentration and no qualifications were required.

6. Laboratory Control Sample (LCS) Results

The LCS recoveries were within QC limits except for OCDD which was detected high in the LCS. The OCDD results were flagged "J" as estimated.

7. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

An MS and MSD were analyzed using a sample from a different site; therefore, the MS and MSD could not be used to determine matrix interference. However, the MS and MSD that were analyzed had acceptable results. Some recoveries were outside QC limits but the spike was much lower than the sample concentration and no qualifications are required in these instances.

8. Overall Assessment

ALS flagged some results with a "P" to indicate that there were interfering substances associated with the determination of these compounds. These results should be considered estimated.

The dioxin/furan results are acceptable for use as qualified based on the information received.

ATTACHMENT

ALS ENVIRONMENTAL
RESULTS SUMMARY

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	4/24/14 1535
Sample Matrix:	Misc. Solid	**Date Received:**	5/13/14
Sample Name:	AM-WS01-04242014	**Units:**	ng/Kg
Lab Code:	E1400541-001	**Basis:**	Dry
		Percent Solids:	86.4

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	5/27/14 1329
Prep Method:	Method	**Date Extracted:**	5/20/14
Sample Amount:	3.147g	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P171052	**Blank File Name:**	P229279
ICAL Date:	03/25/14	**Cal Ver. File Name:**	P171046

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**37.1**	J	1.05	1.84	0.80	1.001	1
1,2,3,7,8-PeCDD	**95.3**		4.84	9.19	1.49	1.000	1
1,2,3,4,7,8-HxCDD	**73.3**		5.43	9.19	1.33	1.000	1
1,2,3,6,7,8-HxCDD	**128**		6.15	9.19	1.28	1.000	1
1,2,3,7,8,9-HxCDD	**90.0**		5.38	9.19	1.30	1.007	1
1,2,3,4,6,7,8-HpCDD	**934**	J	6.63	9.19	1.09	1.000	1
OCDD	**5240**	J	2.54	18.4	0.88	1.000	1
2,3,7,8-TCDF	**1270**	J	2.01	2.01	0.77	1.001	1
1,2,3,7,8-PeCDF	**671**		37.7	37.7	1.55	1.001	1
2,3,4,7,8-PeCDF	**1480**	P	39.7	39.7	1.61	1.000	1
1,2,3,4,7,8-HxCDF	**888**		30.8	30.8	1.27	1.000	1
1,2,3,6,7,8-HxCDF	**681**	P	25.7	25.7	1.23	1.000	1
1,2,3,7,8,9-HxCDF	**292**		30.2	30.2	1.30	1.001	1
2,3,4,6,7,8-HxCDF	**985**		29.9	29.9	1.21	1.000	1
1,2,3,4,6,7,8-HpCDF	**2310**	J	13.9	13.9	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	**270**		16.7	16.7	0.95	1.000	1
OCDF	**1850**		15.8	18.4	0.90	1.005	1
Total Tetra-Dioxins	**1110**		1.05	1.84	0.72		1
Total Penta-Dioxins	**2140**		4.84	9.19	1.56		1
Total Hexa-Dioxins	**2340**		5.65	9.19	1.26		1
Total Hepta-Dioxins	**2310**		6.63	9.19	1.05		1
Total Tetra-Furans	**20500**		2.01	2.01	0.75		1
Total Penta-Furans	**15000**		0.352	9.19	1.56		1
Total Hexa-Furans	**8600**		28.9	28.9	1.25		1
Total Hepta-Furans	**3770**		15.3	15.3	1.03		1

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6-4-14

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	4/24/14 1535
Sample Matrix:	Misc. Solid	**Date Received:**	5/13/14
Sample Name:	AM-WS01-04242014	**Units:**	Percent
Lab Code:	E1400541-001	**Basis:**	Dry
		Percent Solids:	86.4

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	5/27/14 1329
Prep Method:	Method	**Date Extracted:**	5/20/14
Sample Amount:	3.147g	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P171052	**Blank File Name:**	P229279
ICAL Date:	03/25/14	**Cal Ver. File Name:**	P171046

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	954.909	48		40-135	0.77	1.019
13C-1,2,3,7,8-PeCDD	2000	985.028	49		40-135	1.55	1.168
13C-1,2,3,4,7,8-HxCDD	2000	1167.827	58		40-135	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1123.225	56		40-135	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	783.464	39	Y	40-135	1.06	1.065
13C-OCDD	4000	995.382	25	Y	40-135	0.90	1.141
13C-2,3,7,8-TCDF	2000	788.380	39	Y	40-135	0.77	0.993
13C-1,2,3,7,8-PeCDF	2000	908.273	45		40-135	1.56	1.129
13C-2,3,4,7,8-PeCDF	2000	874.459	44		40-135	1.57	1.159
13C-1,2,3,4,7,8-HxCDF	2000	1088.858	54		40-135	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1269.602	63		40-135	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1204.927	60		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1169.393	58		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	785.755	39	Y	40-135	0.44	1.040
13C-1,2,3,4,7,8,9-HpCDF	2000	904.711	45		40-135	0.42	1.078
37Cl-2,3,7,8-TCDD	800	298.501	37	Y	40-135	NA	1.019

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	4/24/14 1535
Sample Matrix:	Misc. Solid	**Date Received:**	5/13/14
Sample Name:	AM-WS01-04242014	**Units:**	ng/Kg
Lab Code:	E1400541-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**37.1**	1.05	1.84	1	1	37.1
1,2,3,7,8-PeCDD	**95.3**	4.84	9.19	1	1	95.3
1,2,3,4,7,8-HxCDD	**73.3**	5.43	9.19	1	0.1	7.33
1,2,3,6,7,8-HxCDD	**128**	6.15	9.19	1	0.1	12.8
1,2,3,7,8,9-HxCDD	**90.0**	5.38	9.19	1	0.1	9.00
1,2,3,4,6,7,8-HpCDD	**934**	6.63	9.19	1	0.01	9.34
OCDD	**5240**	2.54	18.4	1	0.0003	1.57
2,3,7,8-TCDF	**1270**	2.01	2.01	1	0.1	127
1,2,3,7,8-PeCDF	**671**	37.7	37.7	1	0.03	20.1
2,3,4,7,8-PeCDF	**1480**	39.7	39.7	1	0.3	444
1,2,3,4,7,8-HxCDF	**888**	30.8	30.8	1	0.1	88.8
1,2,3,6,7,8-HxCDF	**681**	25.7	25.7	1	0.1	68.1
1,2,3,7,8,9-HxCDF	**292**	30.2	30.2	1	0.1	29.2
2,3,4,6,7,8-HxCDF	**985**	29.9	29.9	1	0.1	98.5
1,2,3,4,6,7,8-HpCDF	**2310**	13.9	13.9	1	0.01	23.1
1,2,3,4,7,8,9-HpCDF	**270**	16.7	16.7	1	0.01	2.70
OCDF	**1850**	15.8	18.4	1	0.0003	0.555
		Total TEQ				1070

2005 WHO TEFs, ND = 0.5*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	4/24/14 1535
Sample Matrix:	Misc. Solid	**Date Received:**	5/13/14
		Date Analyzed:	5/22/14 07:24
Sample Name:	AM-WS01-04242014	**Units:**	Percent
Lab Code:	E1400541-001	**Basis:**	NA

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	393296
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	86.4				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	4/24/14 1540
Sample Matrix:	Misc. Solid	**Date Received:**	5/13/14
Sample Name:	AM-WS02-04242014	**Units:**	ng/Kg
Lab Code:	E1400541-002	**Basis:**	Dry
		Percent Solids:	87.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	5/27/14 1417
Prep Method:	Method	**Date Extracted:**	5/22/14
Sample Amount:	3.016g	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P171053	**Blank File Name:**	P229237
ICAL Date:	03/25/14	**Cal Ver. File Name:**	P171046

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**33.6**		2.19	2.19	0.67	1.001	1
1,2,3,7,8-PeCDD	**77.2**		5.20	9.45	1.60	1.000	1
1,2,3,4,7,8-HxCDD	**59.3**		3.88	9.45	1.30	1.000	1
1,2,3,6,7,8-HxCDD	**112**		4.53	9.45	1.22	1.000	1
1,2,3,7,8,9-HxCDD	**72.8**		3.90	9.45	1.20	1.007	1
1,2,3,4,6,7,8-HpCDD	**667**		6.24	9.45	1.03	1.001	1
OCDD	**1910**	J	3.74	18.9	0.90	1.000	1
2,3,7,8-TCDF	**1110**		1.04	1.89	0.77	1.001	1
1,2,3,7,8-PeCDF	**636**		33.6	33.6	1.58	1.001	1
2,3,4,7,8-PeCDF	**1370**		34.2	34.2	1.60	1.000	1
1,2,3,4,7,8-HxCDF	**835**		19.2	19.2	1.24	1.000	1
1,2,3,6,7,8-HxCDF	**650**	P	15.9	15.9	1.22	1.000	1
1,2,3,7,8,9-HxCDF	**267**		18.7	18.7	1.29	1.000	1
2,3,4,6,7,8-HxCDF	**872**		18.4	18.4	1.22	1.000	1
1,2,3,4,6,7,8-HpCDF	**2210**		10.2	10.2	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	**273**		11.9	11.9	1.12	1.000	1
OCDF	**2520**		8.33	18.9	0.89	1.005	1
Total Tetra-Dioxins	**1560**		2.19	2.19	0.76		1
Total Penta-Dioxins	**1790**		5.20	9.45	1.64		1
Total Hexa-Dioxins	**1990**		4.09	9.45	1.21		1
Total Hepta-Dioxins	**1510**		6.24	9.45	1.04		1
Total Tetra-Furans	**28000**		1.04	1.89	0.73		1
Total Penta-Furans	**14900**		0.300	9.45	1.57		1
Total Hexa-Furans	**8070**		17.9	17.9	1.25		1
Total Hepta-Furans	**3610**		11.0	11.0	1.04		1

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	4/24/14 1540
Sample Matrix:	Misc. Solid	**Date Received:**	5/13/14
Sample Name:	AM-WS02-04242014	**Units:**	Percent
Lab Code:	E1400541-002	**Basis:**	Dry
		Percent Solids:	87.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290	**Date Analyzed:**	5/27/14 1417
Prep Method:	Method	**Date Extracted:**	5/22/14
Sample Amount:	3.016g	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5MSUI
Data File Name:	P171053	**Blank File Name:**	P229237
ICAL Date:	03/25/14	**Cal Ver. File Name:**	P171046

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	1017.399	51		40-135	0.76	1.019
13C-1,2,3,7,8-PeCDD	2000	1050.432	53		40-135	1.58	1.168
13C-1,2,3,4,7,8-HxCDD	2000	1332.054	67		40-135	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1239.304	62		40-135	1.24	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	839.083	42		40-135	1.05	1.064
13C-OCDD	4000	971.740	24	Y	40-135	0.88	1.140
13C-2,3,7,8-TCDF	2000	1028.061	51		40-135	0.76	0.993
13C-1,2,3,7,8-PeCDF	2000	972.192	49		40-135	1.56	1.129
13C-2,3,4,7,8-PeCDF	2000	973.084	49		40-135	1.57	1.159
13C-1,2,3,4,7,8-HxCDF	2000	1198.700	60		40-135	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1416.744	71		40-135	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1215.950	61		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1327.315	66		40-135	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	833.854	42		40-135	0.44	1.039
13C-1,2,3,4,7,8,9-HpCDF	2000	934.374	47		40-135	0.45	1.078
37Cl-2,3,7,8-TCDD	800	326.008	41		40-135	NA	1.019

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	4/24/14 1540
Sample Matrix:	Misc. Solid	**Date Received:**	5/13/14
Sample Name:	AM-WS02-04242014	**Units:**	ng/Kg
Lab Code:	E1400541-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**33.6**	2.19	2.19	1	1	33.6
1,2,3,7,8-PeCDD	**77.2**	5.20	9.45	1	1	77.2
1,2,3,4,7,8-HxCDD	**59.3**	3.88	9.45	1	0.1	5.93
1,2,3,6,7,8-HxCDD	**112**	4.53	9.45	1	0.1	11.2
1,2,3,7,8,9-HxCDD	**72.8**	3.90	9.45	1	0.1	7.28
1,2,3,4,6,7,8-HpCDD	**667**	6.24	9.45	1	0.01	6.67
OCDD	**1910**	3.74	18.9	1	0.0003	0.573
2,3,7,8-TCDF	**1110**	1.04	1.89	1	0.1	111
1,2,3,7,8-PeCDF	**636**	33.6	33.6	1	0.03	19.1
2,3,4,7,8-PeCDF	**1370**	34.2	34.2	1	0.3	411
1,2,3,4,7,8-HxCDF	**835**	19.2	19.2	1	0.1	83.5
1,2,3,6,7,8-HxCDF	**650**	15.9	15.9	1	0.1	65.0
1,2,3,7,8,9-HxCDF	**267**	18.7	18.7	1	0.1	26.7
2,3,4,6,7,8-HxCDF	**872**	18.4	18.4	1	0.1	87.2
1,2,3,4,6,7,8-HpCDF	**2210**	10.2	10.2	1	0.01	22.1
1,2,3,4,7,8,9-HpCDF	**273**	11.9	11.9	1	0.01	2.73
OCDF	**2520**	8.33	18.9	1	0.0003	0.756
		Total TEQ				972

2005 WHO TEFs, ND = 0.5*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Weston Solutions, Incorporated	**Service Request:**	E1400541
Project:	Alreco Metals Dioxins Furans Analysis	**Date Collected:**	4/24/14 1540
Sample Matrix:	Misc. Solid	**Date Received:**	5/13/14
		Date Analyzed:	5/23/14 12:56
Sample Name:	AM-WS02-04242014	**Units:**	Percent
Lab Code:	E1400541-002	**Basis:**	NA

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	393699
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	87.7				

Data Qualifier Flags – Dioxin/Furans

B Indicates the associated analyte is found in the method blank, as well as in the sample

C 2378-TCDF is detected on the DB-5 column above the MRL, confirmation analysis was performed on a second column (DB-225.) The results from both the DB-5 column and the DB-225 column are included in this data package. The results from the DB-225 analyses should be used to evaluate the 2378-TCDF in the samples. The confirmed result are used in determining the TEQ value for TCDF.

E The reported result is above the instrument calibration range and is an estimated value.

J Indicates an estimated value – used when the analyte concentration is below the method reporting limit (MRL) and above the estimated detection limit (EDL)

K Ion abundance ratios between the primary and secondary ions were outside of theoretical acceptance limits. The reported result is an estimated maximum possible concentration (EMPC)

i The associated MRL/MDL has been elevated due to matrix interference.

U Indicates the compound was analyzed for, but not detected (ND)

Y C13-Labeled standard percent recoveries are outside of method acceptance limits

S Peak is saturated; data not reportable

P Indicates chlorodiphenyl ether interference present at the retention time of the target compound.

X See case narrative