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20 September 2013

Kevin Krueger, P.E.
Unisys Corporate Environmental Affairs
3199 Pilot Knob Road
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Eagan, MN 55121

Subject: HVAC Evaluation Findings
Southside High School Room 127
Elmira, New York

Dear Kevin:

At Unisys request, Geosyntec Consultants (Geosyntec) continued the evaluation of the heating, ventilation and air conditioning (HVAC) system at Southside High School (SSHS) in Elmira New York in accordance with our August 15, 2013 proposal. The purpose of the evaluation was to assess the ability of the existing HVAC system to achieve positive building pressures and to analyze for the potential presence of select compounds, including trichloroethene (TCE) in Room 127 with the HVAC system in operating and non-operating mode. This work has been completed in coordination with, and in response to, New York State Department of Environmental Conservation (NYSDEC) inquiry regarding indoor air quality at SSHS. This letter presents findings of our evaluation.

BACKGROUND

On July 22, 2013, Mr. William Wertz, Ph.D. of Geosyntec and Mr. Frederick McKnight, P.E. of Turner Building Science & Design, LLC (TBS) conducted an initial assessment of the effects of the HVAC operation on the pressure differences between the indoor, subslab and ambient (outdoor) pressures in Room 127 of SSHS. During the site visit, a blower door was installed temporarily to manipulate the air pressure within the room. Pressure meters were also installed to monitor differential pressures between Room 127 and the subslab, between Room 127 and the outdoor air, and between Room 127 and the adjoining rooms (Rooms 126 and 128). Differential pressures were monitored during blower door operations and then during operation of the SSHS HVAC system with the blower door fan off. Based on the observed differential pressures, operation of the HVAC system associated with Room 127 results in positive pressurization of the room with respect to both the subslab and the outdoor air. Although subslab to indoor, or outdoor to indoor pressure differences in the adjoining rooms were not measured directly, comparison of the Room 127 pressures to the

pressures inside those rooms suggest that they too are positively pressurized when their respective HVAC systems are operating. In contrast to those pressure fields associated with periods of HVAC operation, the pressure differences between Room 127 and the subslab point were substantially smaller when the HVAC units were shut off. During those times, there appeared to be little difference in pressure between the indoor and the subslab points.

In order to assess whether the pressure-HVAC relationships that were observed on July 22, 2013 were representative of longer-term relationships, Geosyntec and TBS recommended monitoring the differential pressures in Room 127 for a one-week period of HVAC system operation. With Unisys approval and agreement of Elmira City School District (ECSD), TBS provided ECSD with a differential pressure meter and logging device that ECSD deployed in Room 127 for a period of a week (July 29, 2013 to August 5, 2013). During Monday through Wednesday of that period (July 29-31), the Room 127 HVAC system was operated as it normally would be if classes were in session, during Thursday and Friday of that period, the HVAC system was operated to simulate a maximum heating and a maximum cooling condition, respectively. The HVAC system was set to run on a normal summer schedule over the weekend of the deployment period. The results of that weeklong monitoring event are consistent with the results observed on July 22, 2013. When the HVAC system is running in Room 127, the room is positively pressurized (by approximately 5 pascals) with respect to the subslab, and is also positively pressurized with respect to the outdoors. During mid-afternoon through early morning periods and on weekends when the HVAC system is not running, the pressure difference between Room 127 and the subslab hovers around neutral (i.e. there is little to no pressure difference), and the room is under-pressurized relative to the outdoors. A copy of a report by TBS that includes additional discussion of the building's characteristics and pressure-HVAC relationships, and a plot of the weeklong monitoring results is attached (see attached Final Report on Building Enclosure Air Pressure Monitoring of Room 127 at the Southside High School in Elmira, NY TBS Project S1094-01).

FOLLOW UP STUDY

The initial assessment was limited to operation of the HVAC system that served Room 127 and the surrounding rooms and corridor. It did not include an analysis of the effects of the operation of the entire HVAC system of the school, nor did it include any chemical sampling.

At Unisys request, Geosyntec also (i) evaluated effects of "entire-school" HVAC operation on Room 127 pressures and (ii) analyzed air quality for select compounds in Room 127 during HVAC operation and non-operation modes. On the morning of

August 27, 2013 Mr. William Wertz, Ph.D. of Geosyntec, with the assistance of Mr. Anthony Lasorte of the ECSD, deployed an Omniguard 4 differential pressure meter to measure and record the pressure differential between the interior of Room 127 and the subslab below using the sample port that had previously been used to monitor the differential pressure. The meter was used to record the differential pressure from 06:53 August 27, 2013 to 06:39 August 28, 2013. In addition, two sets of air samples were collected to assess air quality based on HVAC operations in Room 127. The air samples were collected in 6-liter Summa canisters that were individually certified by Air Toxics, Inc. of Folsom, CA (Air Toxics). The flow controllers were also individually certified by the laboratory. The collection periods of the air samples were designed to correspond with periods when the school HVAC system was operating, and when the HVAC system was in unoccupied mode.

Altogether, four air samples were collected as follows:

HVAC System in Occupied Mode (Fans Running)

- Indoor Air Sample #1 - Summa placed on a desktop near the center of Room 127 (Photo 1, attached). The sample collection period ran from 07:02 – 15:28 August 27, 2013.
- Outdoor Air Sample #1 - Summa placed at a rooftop location above Room 127 (Photo 2, attached). The sample collection period ran from 07:21 – 15:41 August 27, 2013.

During the time period when those samples were collected, the school building HVAC system was running as if the building was occupied. The kitchen exhaust fan was also running (Photo 3, attached) as recommended by Turner Building Sciences.

HVAC System in Unoccupied Mode (Fans Not Running)

- Indoor Air Sample #2 - Same location as Indoor Air Sample #1. The sample collection period ran from 15:32 August 27, 2013 to 06:30 August 28, 2013.
- Outdoor Air Sample #2 - Same location as Outdoor Air Sample #1. The sample collection period ran from 15:35 August 27, 2013 to 06:35 August 28, 2013.

During the time period when those samples were collected, the school building HVAC system was off as if the building was unoccupied.

The Summa canister samples were shipped to Air Toxics on August 28, 2013.

RESULTS

Differential Pressure

The pressure monitoring results are consistent with those that were observed on July 22, 2013 and during the July 29 to August 5, 2013 pressure monitoring study. When the HVAC system was running in occupied mode, the air pressure in Room 127 exceeded the air pressure in the subslab by five to six Pascals. When the HVAC system was off, the differential pressure was measured to have dropped to zero. The pressure monitoring data are attached as Table 1.

Air Monitoring

Air samples were analyzed by Air Toxics on August 29, 2013 using Modified EPA TO-15 SIM (Selective Ion Monitoring). Geosyntec has validated the analytical data. Those results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%. Table 2 is a summary that presents the results of detected compounds. A comprehensive package that includes chemical monitoring results and the Geosyntec data validation report is attached (see attached Air Toxics analytical report and Geosyntec data validation report, respectively).

DISCUSSION

Chemical monitoring results indicate that there are two types of volatile organic compounds (VOCs) present in air samples:

- non-chlorinated hydrocarbons including benzene, toluene, ethyl benzene, m,p-xylene and o-xylene; and
- chlorinated VOCs including TCE, cis-1,2-dichloroethene (a daughter product of TCE), and 1,2-dichloroethane (1,2-DCA).

Non-chlorinated hydrocarbons are present at low concentrations in indoor and outdoor air samples. They are considered background constituents, and their presence in air is not considered by Geosyntec to be due to vapor intrusion.

Chlorinated compounds are present at low concentrations in indoor samples but not in outdoor air samples. Measured concentrations of TCE in those two indoor air samples were below the New York State Guideline Value of 5 micrograms per cubic meter ($\mu g/m^3$). It is noteworthy that the concentration of both TCE and cis-1,2-dichloroethene (cis-DCE) differ substantially between the two indoor air samples. The concentration of TCE in the indoor sample collected during the period when the HVAC system was

running in occupied mode is more than 40% less than the concentration of TCE in the sample collected during the period when the HVAC system was off. The ratios of TCE to cis-DCE are similar in both indoor samples, suggesting that the two compounds share a similar source.

Figure 1 depicts the changes in pressure and TCE concentration that were observed over the course of the sampling program. Those data support the hypothesis that operation of the HVAC system is responsible for substantially reducing the concentrations of TCE and cis-DCE in the indoor air in Room 127.

The presence of 1,2-DCA in the indoor air samples is most likely not related to vapor intrusion. That compound was not detected in either the indoor air or the sub-slab at concentrations above the reporting limit in samples collected during the December 2009 sampling event at the school (NYSDOH, 2010). A detailed investigation of the presence of 1,2-DCA at homes in Layton Utah, in the vicinity of Hill Air Force Base, found that molded plastic Christmas decorations emitted substantial concentrations of the compound. A copy of the study is attached. There were no Christmas ornaments visible in Room 127 during the air sampling program, but there were a number of plastic decorations on tables in the room that may be potential sources of 1,2-DCA.

CONCLUSIONS

1. During three separate events in July and August 2013 the differential pressure between Room 127 and the subslab was monitored to evaluate the effect of HVAC operation on the pressurization of the room. In each case, Room 127 was positively pressurized with respect to the subslab when the HVAC system was running in occupied mode (i.e. 7:00 AM to 3:30 PM). Outside of those times, there is little pressure difference between indoor air and the subslab.

2. Chemical monitoring data support the hypothesis that operation of the HVAC system in occupied mode is responsible for substantially reducing the concentrations of TCE and cis-DCE in the indoor air in Room 127. Given observed relationships between the operation of the Room 127 HVAC system and the differential pressure between the subslab and indoor air space, air samples collected during any time periods (or parts thereof) when the classroom is not normally occupied (i.e., mid-afternoon through early morning, or weekends) will not be representative of conditions that exist when the room is occupied.

RECOMMENDATIONS

In order to evaluate whether the magnitude of building pressurization and the concomitant reduction in TCE concentrations that were observed during the summer months are comparable during the heating season, Geosyntec recommends additional pressure monitoring and air sampling take place this fall or winter. In addition, Geosyntec recommends that any air monitoring performed to evaluate TCE in indoor air take place during time periods that coincide with the occupation of the room (or the operation of the HVAC system as if the room were occupied). Any time chemical air samples are collected; coincidental differential pressure monitoring between the room and the subslab should be performed.

Thank you for the opportunity to assist you with this project. Should you have any questions regarding this letter or have additional questions please contact the undersigned at 518.477.5499 or 410.381.4333.

Sincerely,

William E Wertz, Ph.D.
Senior Consultant

Aron Krasnopoler, Ph.D., P.E.
Project Manager

Attachments: Table 1 – Indoor/Subslab Differential Pressure Log, Room 127, Southside High School, Elmira, New York
Table 2 – August 2013 Air Sampling Results Summary, Southside High School, Elmira, New York
Figure 1 – Room 127 Differential Pressure Monitoring and Indoor Air Analyses, Southside High School, Elmira, New York
Final Report on Building Enclosure Air Pressure Monitoring of Room 127 at the Southside High School in Elmira, NY TBS Project S1094-01. TBS, September 2013.
Photographic Record, Southside High School, Elmira, New York
Complete Validation Package. Work Order 13089654. Air Toxics, 3 September 2013.
Stage 4 Data Validation - Level IV Data Deliverable
Letter Health Consultation: Air Quality in Layton Homes, Davis County, Utah. Utah Department of Health. 15 May 2009

Copies: Paul Brookner MBA, P.G. Geosyntec

Table 1
Indoor/Subslab Differential Pressure Log
Room 127, Southside High School
Elmira, New York

Omniguard 4 Differential Pressure Monitoring Meter

Negative values indicatre that the room air pressure is greater than that in the subslab

Date and Time	Time	Serial Date	Differential Pressure (Pa)		
			Max	Min	Avg
8/27/13 6:53	6:53 AM	41513.2868	0.00	0.00	0.00
8/27/13 6:58	6:58 AM	41513.2903	0.00	-3.50	-1.75
8/27/13 7:03	7:03 AM	41513.2938	-3.00	-3.50	-3.25
8/27/13 7:08	7:08 AM	41513.2972	-3.00	-6.00	-4.50
8/27/13 7:13	7:13 AM	41513.3007	-3.00	-6.00	-4.50
8/27/13 7:18	7:18 AM	41513.3042	-4.50	-6.00	-5.25
8/27/13 7:23	7:23 AM	41513.3076	-5.50	-6.00	-5.75
8/27/13 7:28	7:28 AM	41513.3111	-3.50	-6.00	-4.75
8/27/13 7:33	7:33 AM	41513.3146	-3.50	-6.00	-4.75
8/27/13 7:38	7:38 AM	41513.3181	-5.50	-6.00	-5.75
8/27/13 7:43	7:43 AM	41513.3215	-5.50	-6.00	-5.75
8/27/13 7:48	7:48 AM	41513.3250	-5.50	-6.00	-5.75
8/27/13 7:53	7:53 AM	41513.3285	-5.50	-6.00	-5.75
8/27/13 7:58	7:58 AM	41513.3319	-4.50	-6.00	-5.25
8/27/13 8:03	8:03 AM	41513.3354	-3.00	-6.00	-4.50
8/27/13 8:08	8:08 AM	41513.3389	-5.50	-6.00	-5.75
8/27/13 8:13	8:13 AM	41513.3424	-5.50	-6.00	-5.75
8/27/13 8:18	8:18 AM	41513.3458	-5.50	-5.50	-5.50
8/27/13 8:23	8:23 AM	41513.3493	-5.50	-5.50	-5.50
8/27/13 8:28	8:28 AM	41513.3528	-5.50	-5.50	-5.50
8/27/13 8:33	8:33 AM	41513.3563	-5.50	-5.50	-5.50
8/27/13 8:38	8:38 AM	41513.3597	-5.50	-5.50	-5.50
8/27/13 8:43	8:43 AM	41513.3632	-5.50	-6.00	-5.75
8/27/13 8:48	8:48 AM	41513.3667	-5.50	-6.00	-5.75
8/27/13 8:53	8:53 AM	41513.3701	-5.50	-6.00	-5.75
8/27/13 8:58	8:58 AM	41513.3736	-5.50	-6.00	-5.75
8/27/13 9:03	9:03 AM	41513.3771	-5.50	-6.00	-5.75
8/27/13 9:08	9:08 AM	41513.3806	-5.50	-6.00	-5.75
8/27/13 9:13	9:13 AM	41513.3840	-5.50	-6.00	-5.75
8/27/13 9:18	9:18 AM	41513.3875	-5.50	-6.00	-5.75
8/27/13 9:23	9:23 AM	41513.3910	-6.00	-6.00	-6.00
8/27/13 9:28	9:28 AM	41513.3944	-5.50	-6.00	-5.75
8/27/13 9:33	9:33 AM	41513.3979	-5.50	-6.00	-5.75
8/27/13 9:38	9:38 AM	41513.4014	-5.50	-6.00	-5.75
8/27/13 9:43	9:43 AM	41513.4049	-5.50	-6.00	-5.75
8/27/13 9:48	9:48 AM	41513.4083	-5.50	-6.00	-5.75
8/27/13 9:53	9:53 AM	41513.4118	-6.00	-6.00	-6.00

Table 1
Indoor/Subslab Differential Pressure Log
Room 127, Southside High School
Elmira, New York

Omniguard 4 Differential Pressure Monitoring Meter

Negative values indicatre that the room air pressure is greater than that in the subslab

Date and Time	Time	Serial Date	Differential Pressure (Pa)		
			Max	Min	Avg
8/27/13 9:58	9:58 AM	41513.4153	-5.50	-6.00	-5.75
8/27/13 10:03	10:03 AM	41513.4188	-5.50	-6.00	-5.75
8/27/13 10:08	10:08 AM	41513.4222	-6.00	-6.00	-6.00
8/27/13 10:13	10:13 AM	41513.4257	-6.00	-6.00	-6.00
8/27/13 10:18	10:18 AM	41513.4292	-5.50	-6.00	-5.75
8/27/13 10:23	10:23 AM	41513.4326	-6.00	-6.00	-6.00
8/27/13 10:28	10:28 AM	41513.4361	-5.50	-6.00	-5.75
8/27/13 10:33	10:33 AM	41513.4396	-5.50	-6.00	-5.75
8/27/13 10:38	10:38 AM	41513.4431	-5.50	-6.00	-5.75
8/27/13 10:43	10:43 AM	41513.4465	-5.50	-6.00	-5.75
8/27/13 10:48	10:48 AM	41513.4500	-5.50	-6.00	-5.75
8/27/13 10:53	10:53 AM	41513.4535	-6.00	-6.00	-6.00
8/27/13 10:58	10:58 AM	41513.4569	-6.00	-6.00	-6.00
8/27/13 11:03	11:03 AM	41513.4604	-6.00	-6.00	-6.00
8/27/13 11:08	11:08 AM	41513.4639	-6.00	-6.00	-6.00
8/27/13 11:13	11:13 AM	41513.4674	-6.00	-6.00	-6.00
8/27/13 11:18	11:18 AM	41513.4708	-6.00	-6.00	-6.00
8/27/13 11:23	11:23 AM	41513.4743	-5.50	-6.00	-5.75
8/27/13 11:28	11:28 AM	41513.4778	-6.00	-6.00	-6.00
8/27/13 11:33	11:33 AM	41513.4813	-6.00	-6.00	-6.00
8/27/13 11:38	11:38 AM	41513.4847	-5.50	-6.00	-5.75
8/27/13 11:43	11:43 AM	41513.4882	-5.50	-6.00	-5.75
8/27/13 11:48	11:48 AM	41513.4917	-4.00	-6.00	-5.00
8/27/13 11:53	11:53 AM	41513.4951	-6.00	-6.00	-6.00
8/27/13 11:58	11:58 AM	41513.4986	-5.50	-6.00	-5.75
8/27/13 12:03	12:03 PM	41513.5021	-5.50	-6.00	-5.75
8/27/13 12:08	12:08 PM	41513.5056	-6.00	-6.00	-6.00
8/27/13 12:13	12:13 PM	41513.5090	-6.00	-6.00	-6.00
8/27/13 12:18	12:18 PM	41513.5125	-6.00	-6.00	-6.00
8/27/13 12:23	12:23 PM	41513.5160	-6.00	-6.00	-6.00
8/27/13 12:28	12:28 PM	41513.5194	-6.00	-6.00	-6.00
8/27/13 12:33	12:33 PM	41513.5229	-5.50	-6.00	-5.75
8/27/13 12:38	12:38 PM	41513.5264	-6.00	-6.50	-6.25
8/27/13 12:43	12:43 PM	41513.5299	-6.00	-6.50	-6.25
8/27/13 12:48	12:48 PM	41513.5333	-5.50	-6.00	-5.75
8/27/13 12:53	12:53 PM	41513.5368	-5.50	-6.00	-5.75
8/27/13 12:58	12:58 PM	41513.5403	-6.00	-6.00	-6.00

Table 1
Indoor/Subslab Differential Pressure Log
Room 127, Southside High School
Elmira, New York

Omniguard 4 Differential Pressure Monitoring Meter

Negative values indicatre that the room air pressure is greater than that in the subslab

Date and Time	Time	Serial Date	Differential Pressure (Pa)		
			Max	Min	Avg
8/27/13 13:03	1:03 PM	41513.5438	-6.00	-6.00	-6.00
8/27/13 13:08	1:08 PM	41513.5472	-6.00	-6.50	-6.25
8/27/13 13:13	1:13 PM	41513.5507	-6.00	-6.50	-6.25
8/27/13 13:18	1:18 PM	41513.5542	-6.00	-6.00	-6.00
8/27/13 13:23	1:23 PM	41513.5576	-5.50	-6.00	-5.75
8/27/13 13:28	1:28 PM	41513.5611	-5.50	-6.00	-5.75
8/27/13 13:33	1:33 PM	41513.5646	-6.00	-6.00	-6.00
8/27/13 13:38	1:38 PM	41513.5681	-6.00	-6.50	-6.25
8/27/13 13:43	1:43 PM	41513.5715	-6.00	-6.00	-6.00
8/27/13 13:48	1:48 PM	41513.5750	-6.00	-6.50	-6.25
8/27/13 13:53	1:53 PM	41513.5785	-6.00	-6.50	-6.25
8/27/13 13:58	1:58 PM	41513.5819	-6.00	-6.50	-6.25
8/27/13 14:03	2:03 PM	41513.5854	-5.50	-6.00	-5.75
8/27/13 14:08	2:08 PM	41513.5889	-6.00	-6.00	-6.00
8/27/13 14:13	2:13 PM	41513.5924	-5.50	-6.50	-6.00
8/27/13 14:18	2:18 PM	41513.5958	-6.00	-6.00	-6.00
8/27/13 14:23	2:23 PM	41513.5993	-2.50	-6.00	-4.25
8/27/13 14:28	2:28 PM	41513.6028	-5.00	-6.00	-5.50
8/27/13 14:33	2:33 PM	41513.6063	-5.50	-6.50	-6.00
8/27/13 14:38	2:38 PM	41513.6097	-5.50	-6.50	-6.00
8/27/13 14:43	2:43 PM	41513.6132	-5.50	-6.00	-5.75
8/27/13 14:48	2:48 PM	41513.6167	-5.00	-6.00	-5.50
8/27/13 14:53	2:53 PM	41513.6201	-5.50	-6.00	-5.75
8/27/13 14:58	2:58 PM	41513.6236	-5.50	-6.50	-6.00
8/27/13 15:03	3:03 PM	41513.6271	-3.50	-6.00	-4.75
8/27/13 15:09	3:09 PM	41513.6313	-3.50	-6.00	-4.75
8/27/13 15:14	3:14 PM	41513.6347	-6.00	-6.50	-6.25
8/27/13 15:19	3:19 PM	41513.6382	-3.00	-6.50	-4.75
8/27/13 15:24	3:24 PM	41513.6417	-5.50	-6.50	-6.00
8/27/13 15:29	3:29 PM	41513.6451	0.00	-6.00	-3.00
8/27/13 15:34	3:34 PM	41513.6486	0.00	0.00	0.00
8/27/13 15:39	3:39 PM	41513.6521	0.00	0.00	0.00
8/27/13 15:44	3:44 PM	41513.6556	0.00	0.00	0.00
8/27/13 15:49	3:49 PM	41513.6590	0.00	0.00	0.00
8/27/13 15:54	3:54 PM	41513.6625	0.00	0.00	0.00
8/27/13 15:59	3:59 PM	41513.6660	0.00	0.00	0.00
8/27/13 16:04	4:04 PM	41513.6694	0.00	0.00	0.00

Table 1
Indoor/Subslab Differential Pressure Log
Room 127, Southside High School
Elmira, New York

Omniguard 4 Differential Pressure Monitoring Meter

Negative values indicatre that the room air pressure is greater than that in the subslab

Date and Time	Time	Serial Date	Differential Pressure (Pa)		
			Max	Min	Avg
8/27/13 16:09	4:09 PM	41513.6729	0.00	0.00	0.00
8/27/13 16:14	4:14 PM	41513.6764	0.00	0.00	0.00
8/27/13 16:19	4:19 PM	41513.6799	0.00	0.00	0.00
8/27/13 16:24	4:24 PM	41513.6833	0.00	0.00	0.00
8/27/13 16:29	4:29 PM	41513.6868	0.00	0.00	0.00
8/27/13 16:34	4:34 PM	41513.6903	0.00	0.00	0.00
8/27/13 16:39	4:39 PM	41513.6938	0.00	0.00	0.00
8/27/13 16:44	4:44 PM	41513.6972	0.00	0.00	0.00
8/27/13 16:49	4:49 PM	41513.7007	0.00	-0.50	-0.25
8/27/13 16:54	4:54 PM	41513.7042	0.00	0.00	0.00
8/27/13 16:59	4:59 PM	41513.7076	0.00	0.00	0.00
8/27/13 17:04	5:04 PM	41513.7111	0.00	0.00	0.00
8/27/13 17:09	5:09 PM	41513.7146	0.00	0.00	0.00
8/27/13 17:14	5:14 PM	41513.7181	0.00	-0.50	-0.25
8/27/13 17:19	5:19 PM	41513.7215	0.00	0.00	0.00
8/27/13 17:24	5:24 PM	41513.7250	0.00	0.00	0.00
8/27/13 17:29	5:29 PM	41513.7285	0.00	0.00	0.00
8/27/13 17:34	5:34 PM	41513.7319	0.00	0.00	0.00
8/27/13 17:39	5:39 PM	41513.7354	0.00	0.00	0.00
8/27/13 17:44	5:44 PM	41513.7389	0.00	-0.50	-0.25
8/27/13 17:49	5:49 PM	41513.7424	0.00	0.00	0.00
8/27/13 17:54	5:54 PM	41513.7458	0.00	0.00	0.00
8/27/13 17:59	5:59 PM	41513.7493	0.00	0.00	0.00
8/27/13 18:04	6:04 PM	41513.7528	0.00	0.00	0.00
8/27/13 18:09	6:09 PM	41513.7563	0.00	0.00	0.00
8/27/13 18:14	6:14 PM	41513.7597	0.00	0.00	0.00
8/27/13 18:19	6:19 PM	41513.7632	0.00	0.00	0.00
8/27/13 18:24	6:24 PM	41513.7667	0.00	0.00	0.00
8/27/13 18:29	6:29 PM	41513.7701	0.00	0.00	0.00
8/27/13 18:34	6:34 PM	41513.7736	0.00	0.00	0.00
8/27/13 18:39	6:39 PM	41513.7771	0.00	0.00	0.00
8/27/13 18:44	6:44 PM	41513.7806	0.00	0.00	0.00
8/27/13 18:49	6:49 PM	41513.7840	0.00	0.00	0.00
8/27/13 18:54	6:54 PM	41513.7875	0.00	0.00	0.00
8/27/13 18:59	6:59 PM	41513.7910	0.00	0.00	0.00
8/27/13 19:04	7:04 PM	41513.7944	0.00	0.00	0.00
8/27/13 19:09	7:09 PM	41513.7979	0.00	0.00	0.00

Table 1
Indoor/Subslab Differential Pressure Log
Room 127, Southside High School
Elmira, New York

Omniguard 4 Differential Pressure Monitoring Meter

Negative values indicatre that the room air pressure is greater than that in the subslab

Date and Time	Time	Serial Date	Differential Pressure (Pa)		
			Max	Min	Avg
8/27/13 19:14	7:14 PM	41513.8014	0.00	0.00	0.00
8/27/13 19:19	7:19 PM	41513.8049	0.00	-0.50	-0.25
8/27/13 19:24	7:24 PM	41513.8083	0.00	0.00	0.00
8/27/13 19:29	7:29 PM	41513.8118	0.00	0.00	0.00
8/27/13 19:34	7:34 PM	41513.8153	0.00	-0.50	-0.25
8/27/13 19:39	7:39 PM	41513.8188	0.00	0.00	0.00
8/27/13 19:44	7:44 PM	41513.8222	0.00	-0.50	-0.25
8/27/13 19:49	7:49 PM	41513.8257	0.00	0.00	0.00
8/27/13 19:54	7:54 PM	41513.8292	0.00	0.00	0.00
8/27/13 19:59	7:59 PM	41513.8326	0.00	0.00	0.00
8/27/13 20:04	8:04 PM	41513.8361	0.00	0.00	0.00
8/27/13 20:09	8:09 PM	41513.8396	0.00	0.00	0.00
8/27/13 20:14	8:14 PM	41513.8431	0.00	0.00	0.00
8/27/13 20:19	8:19 PM	41513.8465	0.00	0.00	0.00
8/27/13 20:24	8:24 PM	41513.8500	0.00	0.00	0.00
8/27/13 20:29	8:29 PM	41513.8535	0.00	0.00	0.00
8/27/13 20:34	8:34 PM	41513.8569	0.00	0.00	0.00
8/27/13 20:39	8:39 PM	41513.8604	0.00	0.00	0.00
8/27/13 20:44	8:44 PM	41513.8639	0.00	0.00	0.00
8/27/13 20:49	8:49 PM	41513.8674	0.00	0.00	0.00
8/27/13 20:54	8:54 PM	41513.8708	0.00	0.00	0.00
8/27/13 20:59	8:59 PM	41513.8743	0.00	0.00	0.00
8/27/13 21:04	9:04 PM	41513.8778	0.00	0.00	0.00
8/27/13 21:09	9:09 PM	41513.8813	0.00	0.00	0.00
8/27/13 21:14	9:14 PM	41513.8847	0.00	0.00	0.00
8/27/13 21:19	9:19 PM	41513.8882	0.00	0.00	0.00
8/27/13 21:24	9:24 PM	41513.8917	0.00	0.00	0.00
8/27/13 21:29	9:29 PM	41513.8951	0.00	0.00	0.00
8/27/13 21:34	9:34 PM	41513.8986	0.00	0.00	0.00
8/27/13 21:39	9:39 PM	41513.9021	0.00	0.00	0.00
8/27/13 21:44	9:44 PM	41513.9056	0.00	0.00	0.00
8/27/13 21:49	9:49 PM	41513.9090	0.00	0.00	0.00
8/27/13 21:54	9:54 PM	41513.9125	0.00	0.00	0.00
8/27/13 21:59	9:59 PM	41513.9160	0.00	0.00	0.00
8/27/13 22:04	10:04 PM	41513.9194	0.00	0.00	0.00
8/27/13 22:09	10:09 PM	41513.9229	0.00	0.00	0.00
8/27/13 22:14	10:14 PM	41513.9264	0.00	0.00	0.00

Table 1
Indoor/Subslab Differential Pressure Log
Room 127, Southside High School
Elmira, New York

Omniguard 4 Differential Pressure Monitoring Meter

Negative values indicatre that the room air pressure is greater than that in the subslab

Date and Time	Time	Serial Date	Differential Pressure (Pa)		
			Max	Min	Avg
8/27/13 22:19	10:19 PM	41513.9299	0.00	0.00	0.00
8/27/13 22:24	10:24 PM	41513.9333	0.00	0.00	0.00
8/27/13 22:29	10:29 PM	41513.9368	0.00	0.00	0.00
8/27/13 22:34	10:34 PM	41513.9403	0.00	0.00	0.00
8/27/13 22:39	10:39 PM	41513.9438	0.00	0.00	0.00
8/27/13 22:44	10:44 PM	41513.9472	0.00	0.00	0.00
8/27/13 22:49	10:49 PM	41513.9507	0.00	0.00	0.00
8/27/13 22:54	10:54 PM	41513.9542	0.00	0.00	0.00
8/27/13 22:59	10:59 PM	41513.9576	0.00	0.00	0.00
8/27/13 23:04	11:04 PM	41513.9611	0.00	0.00	0.00
8/27/13 23:09	11:09 PM	41513.9646	0.00	0.00	0.00
8/27/13 23:14	11:14 PM	41513.9681	0.00	0.00	0.00
8/27/13 23:19	11:19 PM	41513.9715	0.00	0.00	0.00
8/27/13 23:24	11:24 PM	41513.9750	0.00	0.00	0.00
8/27/13 23:29	11:29 PM	41513.9785	0.00	0.00	0.00
8/27/13 23:34	11:34 PM	41513.9819	0.00	0.00	0.00
8/27/13 23:39	11:39 PM	41513.9854	0.00	0.00	0.00
8/27/13 23:44	11:44 PM	41513.9889	0.00	0.00	0.00
8/27/13 23:49	11:49 PM	41513.9924	0.00	0.00	0.00
8/27/13 23:54	11:54 PM	41513.9958	0.00	0.00	0.00
8/27/13 23:59	11:59 PM	41513.9993	0.00	0.00	0.00
8/28/13 0:04	12:04 AM	41514.0028	0.00	0.00	0.00
8/28/13 0:09	12:09 AM	41514.0063	0.00	0.00	0.00
8/28/13 0:14	12:14 AM	41514.0097	0.00	0.00	0.00
8/28/13 0:19	12:19 AM	41514.0132	0.00	0.00	0.00
8/28/13 0:24	12:24 AM	41514.0167	0.00	0.00	0.00
8/28/13 0:29	12:29 AM	41514.0201	0.00	0.00	0.00
8/28/13 0:34	12:34 AM	41514.0236	0.00	0.00	0.00
8/28/13 0:39	12:39 AM	41514.0271	0.00	0.00	0.00
8/28/13 0:44	12:44 AM	41514.0306	0.00	0.00	0.00
8/28/13 0:49	12:49 AM	41514.0340	0.00	0.00	0.00
8/28/13 0:54	12:54 AM	41514.0375	0.00	0.00	0.00
8/28/13 0:59	12:59 AM	41514.0410	0.00	0.00	0.00
8/28/13 1:04	1:04 AM	41514.0444	0.00	0.00	0.00
8/28/13 1:09	1:09 AM	41514.0479	0.00	0.00	0.00
8/28/13 1:14	1:14 AM	41514.0514	0.00	0.00	0.00
8/28/13 1:19	1:19 AM	41514.0549	0.00	0.00	0.00

Table 1
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Room 127, Southside High School
Elmira, New York

Omniguard 4 Differential Pressure Monitoring Meter

Negative values indicatre that the room air pressure is greater than that in the subslab

Date and Time	Time	Serial Date	Differential Pressure (Pa)		
			Max	Min	Avg
8/28/13 1:24	1:24 AM	41514.0583	0.00	0.00	0.00
8/28/13 1:29	1:29 AM	41514.0618	0.00	0.00	0.00
8/28/13 1:34	1:34 AM	41514.0653	0.00	0.00	0.00
8/28/13 1:39	1:39 AM	41514.0688	0.00	0.00	0.00
8/28/13 1:44	1:44 AM	41514.0722	0.00	0.00	0.00
8/28/13 1:49	1:49 AM	41514.0757	0.00	0.00	0.00
8/28/13 1:54	1:54 AM	41514.0792	0.00	0.00	0.00
8/28/13 1:59	1:59 AM	41514.0826	0.00	0.00	0.00
8/28/13 2:04	2:04 AM	41514.0861	0.00	0.00	0.00
8/28/13 2:09	2:09 AM	41514.0896	0.00	0.00	0.00
8/28/13 2:14	2:14 AM	41514.0931	0.00	0.00	0.00
8/28/13 2:19	2:19 AM	41514.0965	0.00	0.00	0.00
8/28/13 2:24	2:24 AM	41514.1000	0.00	0.00	0.00
8/28/13 2:29	2:29 AM	41514.1035	0.00	0.00	0.00
8/28/13 2:34	2:34 AM	41514.1069	0.00	0.00	0.00
8/28/13 2:39	2:39 AM	41514.1104	0.00	0.00	0.00
8/28/13 2:44	2:44 AM	41514.1139	0.00	0.00	0.00
8/28/13 2:49	2:49 AM	41514.1174	0.00	0.00	0.00
8/28/13 2:54	2:54 AM	41514.1208	0.00	0.00	0.00
8/28/13 2:59	2:59 AM	41514.1243	0.00	0.00	0.00
8/28/13 3:04	3:04 AM	41514.1278	0.00	0.00	0.00
8/28/13 3:09	3:09 AM	41514.1313	0.00	0.00	0.00
8/28/13 3:14	3:14 AM	41514.1347	0.00	0.00	0.00
8/28/13 3:19	3:19 AM	41514.1382	0.00	0.00	0.00
8/28/13 3:24	3:24 AM	41514.1417	0.00	0.00	0.00
8/28/13 3:29	3:29 AM	41514.1451	0.00	0.00	0.00
8/28/13 3:34	3:34 AM	41514.1486	0.00	0.00	0.00
8/28/13 3:39	3:39 AM	41514.1521	0.00	0.00	0.00
8/28/13 3:44	3:44 AM	41514.1556	0.00	0.00	0.00
8/28/13 3:49	3:49 AM	41514.1590	0.00	0.00	0.00
8/28/13 3:54	3:54 AM	41514.1625	0.00	0.00	0.00
8/28/13 3:59	3:59 AM	41514.1660	0.00	0.00	0.00
8/28/13 4:04	4:04 AM	41514.1694	0.00	0.00	0.00
8/28/13 4:09	4:09 AM	41514.1729	0.00	0.00	0.00
8/28/13 4:14	4:14 AM	41514.1764	0.00	0.00	0.00
8/28/13 4:19	4:19 AM	41514.1799	0.00	0.00	0.00
8/28/13 4:24	4:24 AM	41514.1833	0.00	0.00	0.00

Table 1
Indoor/Subslab Differential Pressure Log
Room 127, Southside High School
Elmira, New York

Omniguard 4 Differential Pressure Monitoring Meter

Negative values indicatre that the room air pressure is greater than that in the subslab

Date and Time	Time	Serial Date	Differential Pressure (Pa)		
			Max	Min	Avg
8/28/13 4:29	4:29 AM	41514.1868	0.00	0.00	0.00
8/28/13 4:34	4:34 AM	41514.1903	0.00	0.00	0.00
8/28/13 4:39	4:39 AM	41514.1938	0.00	0.00	0.00
8/28/13 4:44	4:44 AM	41514.1972	0.00	0.00	0.00
8/28/13 4:49	4:49 AM	41514.2007	0.00	0.00	0.00
8/28/13 4:54	4:54 AM	41514.2042	0.00	0.00	0.00
8/28/13 4:59	4:59 AM	41514.2076	0.00	0.00	0.00
8/28/13 5:04	5:04 AM	41514.2111	0.00	0.00	0.00
8/28/13 5:09	5:09 AM	41514.2146	0.00	0.00	0.00
8/28/13 5:14	5:14 AM	41514.2181	0.00	0.00	0.00
8/28/13 5:19	5:19 AM	41514.2215	0.00	0.00	0.00
8/28/13 5:24	5:24 AM	41514.2250	0.00	0.00	0.00
8/28/13 5:29	5:29 AM	41514.2285	0.00	0.00	0.00
8/28/13 5:34	5:34 AM	41514.2319	0.00	0.00	0.00
8/28/13 5:39	5:39 AM	41514.2354	0.00	0.00	0.00
8/28/13 5:44	5:44 AM	41514.2389	0.00	0.00	0.00
8/28/13 5:49	5:49 AM	41514.2424	0.00	0.00	0.00
8/28/13 5:54	5:54 AM	41514.2458	0.00	0.00	0.00
8/28/13 5:59	5:59 AM	41514.2493	0.00	0.00	0.00
8/28/13 6:04	6:04 AM	41514.2528	0.00	0.00	0.00
8/28/13 6:09	6:09 AM	41514.2563	0.00	0.00	0.00
8/28/13 6:14	6:14 AM	41514.2597	0.00	0.00	0.00
8/28/13 6:19	6:19 AM	41514.2632	0.00	0.00	0.00
8/28/13 6:24	6:24 AM	41514.2667	0.00	0.00	0.00
8/28/13 6:29	6:29 AM	41514.2701	0.00	0.00	0.00
8/28/13 6:34	6:34 AM	41514.2736	0.00	0.00	0.00
8/28/13 6:39	6:39 AM	41514.2771	0.00	0.00	0.00

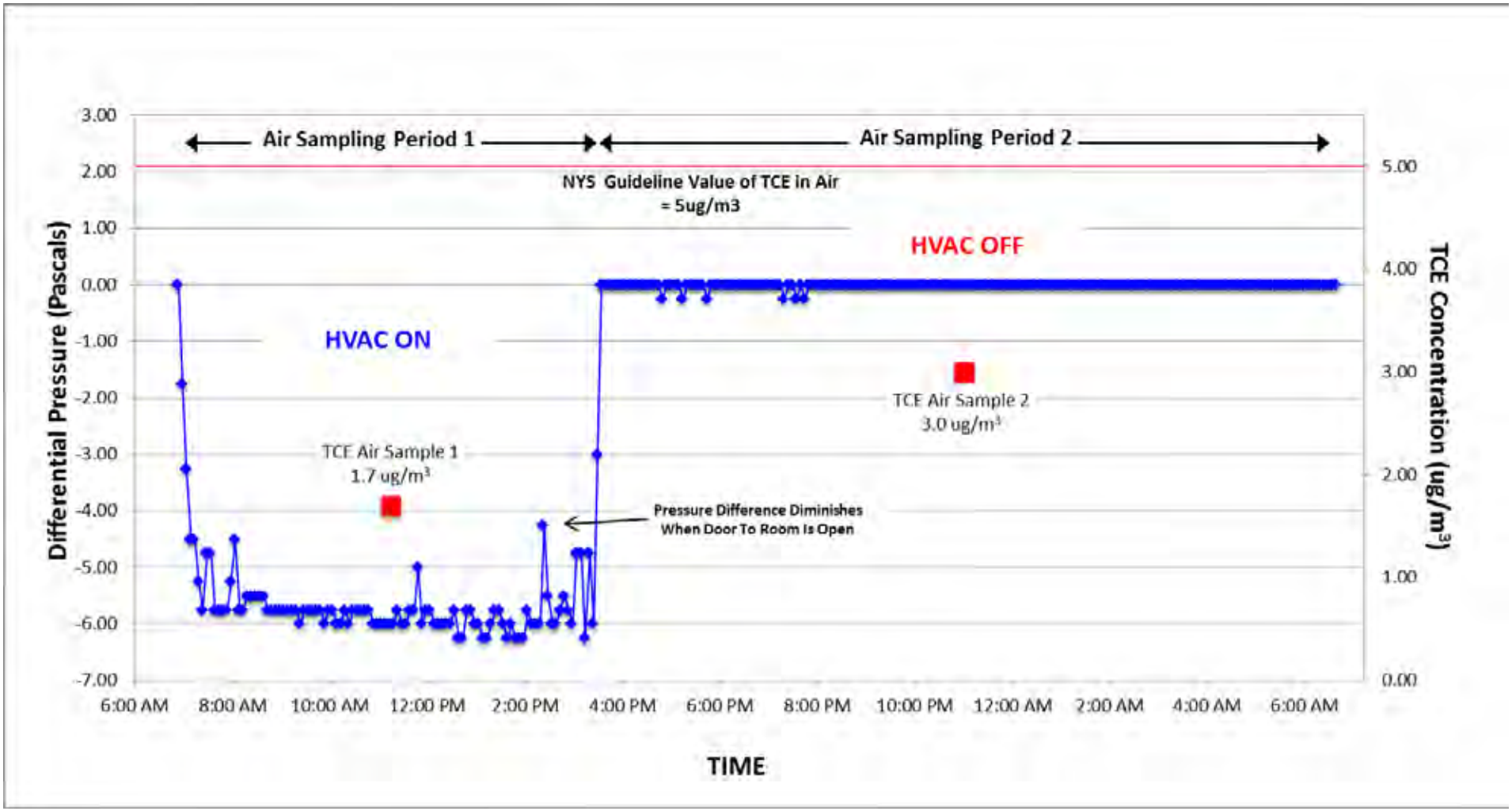
Table 2
August 2013 Air Sampling Results Summary
Southside High School
Elmira, New York

Sample Location	Concentration (ug/m3)							
	TCE	cis-1,2-DCE	1,2-DCA	Benzene	Toluene	Ethyl Benzene	m,p-Xylene	o-Xylene
Indoor Air Sample # 1	1.7	0.20	0.51	0.4	2.3	0.39	1.4	4.9
Indoor Air Sample # 2	3.0	0.34	7.3	0.36	2.7	0.48	1.7	0.6
Outdoor Air Sample #1	ND (<0.18)	ND (<0.14)	ND (<0.14)	ND (<0.27)	0.99	0.25	0.85	0.29
Outdoor Air Sample #2	ND (<0.16)	ND (<0.12)	ND (<0.12)	0.25	0.65	ND (<0.13)	0.42	0.15

Note: TCE concentrations are below the New York State DOH Guideline Value of 5 ug/m3 for TCE in Air

Notes

TCE	Trichloroethene
cis-1,2-DCE	cis-1,2-Dichloroethene
1,2-DCA	1,2-Dichloroethene
ug/m3	micrograms per cubic meter
ND	Not Detected
DOH	Department of Health



Notes

TCE – Trichloroethene

ug/m3 – micrograms per cubic meter

Room 127 Differential Pressure Monitoring and Indoor Air Analyses

Southside High School

Elmira, New York

Geosyntec consultants

Minneapolis	September 2013

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MN0832/Southside HS Rm 127 Figure 1.pptx

TURNER GROUP

TURNER BUILDING SCIENCE & DESIGN, LLC

P.O. BOX 1365, 75 SOUTH STREET, LYNDONVILLE, VERMONT 05851-1365 TEL. (802) 626-8233

www.turnerbuildingscience.com

September 10, 2013

Mr. William Wertz. via Email WWertz@Geosyntec.com
Geosyntec

Dear Mr. Wertz:

Subject: Final Report on Building Enclosure Air Pressure Monitoring of Room 127 at the Southside High School in Elmira, NY
TBS Project S1094-01

In accordance with our approved scope of services we are pleased to provide the following final report of our building enclosure monitoring efforts at the Southside High School in Elmira, NY. Our observations were collected during a site visit on July 22, 2013 and our monitoring included recording the pressure difference across the building enclosure at two locations within Room 127 of the Southside High School while operating the HVAC system under a select set of operating conditions.

We are pleased to have served you as professional consultants. If requested, we are available to assist you with additional services. Please do not hesitate to contact our offices if there are any questions or subjects presented that need further clarification. You can reach me at our Vermont office at (802) 626-8233, or (802) 684.2134 cell or alternatively contact, Mr. William Turner at our Harrison, Maine office at (207) 583-4571, ext 311.

Sincerely,
TURNER BUILDING SCIENCE & DESIGN, LLC

Frederick T. McKnight, P.E.
Senior Vice President

William A. Turner, P.E.
President & CEO

FTM/
Enclosures
cc: WAT, file

Building Operating Pressure Evaluation Of the South Side High School

Elmira, New York

TBS S1094-01

Prepared for:
Geosyntec Consultants
100 Washington Ave S
Suite 1330
Minneapolis, MN 55401

TABLE OF CONTENTS

TURNER GROUP

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BACKGROUND:

At the request of Mr. William Wertz and Mr. Paul Brookner of Geosyntec Consultants, Turner Building Science & Design, LLC (TBS) conducted on site observations and measurements at the South Side High School (SSHS) in Elmira, NY which resulted in a long term (1 week) building enclosure pressure monitoring assessment to obtain a set of enclosure pressure difference measurements. Our initial site observations were conducted on July 22, 2013 and on-site pressure monitoring was conducted the week of July 29, 2013 through August 5, 2013. School was out of session during our monitoring period and during our site observations.

MONITORING SITE DESCRIPTION:

Room 127 of the SSHS is a slab on grade space with an external wall on one side and internal walls on three sides. The finish floor is a tile type, reportedly over a concrete slab. A pressure monitoring port was installed by others through the floor some 6 feet or more away from the exterior wall. The exterior wall, i.e. enclosure wall, is a brick façade concrete masonry unit (CMU) wall with two major wall penetrations for aluminum framed windows. One window frame was fitted with a port, installed by others, to measure the pressure difference across the exterior wall without having to open the window. Depending on function, the interior walls that enclose Room 127 are a combination of gypsum sheathed cavity framed walls and CMU block walls The wall common to the corridor wall is completely CMU , while the wall common to Room 126 is completely gypsum sheathing and the wall common to Room 128 is a combination of both wall types. The interior wall separating the classroom from the corridor is assumed to be fairly well sealed due to its fire rating requirements. The two interior walls that separate Room 127 from room 128 and 126 are thought to be less tightly sealed.

The finished ceiling is a suspended type with a plenum space above. The top of the plenum is the floor above and is a steel pan with a layer of concrete above it. The supporting structure is steel joists. Utilities such as HVAC distribution ductwork, plumbing piping, and electrical cable etc. run in the plenum space above the dropped ceiling. The penetrations in the wall made for the utilities and the fit of the wall to the steel floor pan are typically the major air leakage points between rooms with this type of construction. Note: These penetrations are likely sealed with fire rated putty and other material where fire rating is required (between the corridor and the classroom).

The room is served by a ceiling mounted unit ventilator (UV) and an exhaust fan. The UV (UV-4) is dedicated to Room 127 and the exhaust fan (EF 112) serves three classrooms (125, 126, and 127). An economizer control system varies the quantity of

outdoor air (OA) that flows through the UV depending on the space cooling load. The UV flow varies from a minimum of 450 cubic feet per minute (CFM) outdoor air to 100% of the UV capacity, assumed to be about 1500 CFM being outdoor air. When the HVAC system is set to run in the "occupied" mode, the UV supplies the minimum rate to meet minimum ventilation requirements of the occupants in the room. The 100% OA flow is utilized when the HVAC system is in full economizer cooling mode. The exhaust fan reportedly runs only in economizer mode. Outdoor air for the UV is provided from a wall mounted louver near Room 125. The OA louver is the supply point for the UVs serving Room 127 and two nearby rooms. The exhaust fan discharges in to a wall mounted exhaust louver. The exhaust fan serves two other room as well as room 127.

VADOSE ZONE AIR LEAKAGE INTO BUILDINGS OF THIS TYPE

Typically, the largest portion of vapor migration from the vadose zone under a building to the air space within buildings like SSHS is associated with advective flow from the vadose zone to the space within the building enclosure. Air pressure differences between the vadose zone and the enclosed space is the driving force behind the flow. The air pressure in the enclosed space must be lower than the pressure of the vadose zone in order for vapor flow from the vadose zone into the enclosed space to occur. Usually buildings run at a lower pressure than the ambient due to the stack effect and the inclination for the HVAC system to exhaust more air than it introduces.

To limit the migration of vapors from the vadose zone, the air pressure of the enclosure must be higher than the air pressure of the vadose zone. A buildings HVAC system normally introduces some quantity of OA for ventilation. If the amount of OA being introduced into the enclosure by the HVAC system is greater than the amount being extracted by the HVAC system and the enclosure walls, roof, and floor are relatively air tight, the enclosure can be driven to an air pressure that is above the air pressure of the vadose zone and the ambient. When the enclosure air pressure is above the vadose zone air pressure the migration of vapors from the vadose zone into the enclosure is dramatically limited.

SUMMARY FINDINGS:

Observations and Site Measurements:

Based on observations made during our July 22nd site visit, we determined that, when running in occupied mode, the HVAC system provides enough OA to Room 127 to place the room at a higher air pressure than the air pressure of the vadose zone and the ambient (i.e. outside) air pressure. Additionally, we observed that when the HVAC system is not operational, such as when it is in unoccupied mode (off), the building enclosure pressure difference with respect to the ambient or the vadose zone is close to

zero Pascal (Pa).

We initially set up a blower door to measure the leakage rate through Room 127. For the initial test, all fans that served the space were off and the doors to adjourning spaces were closed. The blower door measurement revealed that 1160 CFM of excess air (from the outside) would be required to pressurize room 127 to 10 Pa. See data tables in Appendix A. A series of measurements were taken with the blower door on. The averages of these readings indicate that at an average flow of 993 CFM could maintain the classroom at an average pressure of 6.3 Pa above the pressure of the sub slab.

A second set of pressure readings were taken with the Room 127 unit ventilator (UV-4) turned on, and in normal economizer operation. The UV fan was capable of pressurizing the classroom with respect to the sub slab. The associated exhaust fan (EF-112) was also turned on for part of the time that this data set was collected. Even when the exhaust fan was running, Room 127 remained at a higher pressure than the sub slab pressure. The data table can be reviewed in Appendix A.

A third set of readings were collected with UV-4 and the associated exhaust fan (EF-112) off while the air handler serving the corridor outside Room 127 remained on. The collected readings under these operating conditions revealed that the Room 127 and the surround spaces had very small pressure differences, less than a Pascal, between each other, the sub slab, and the ambient. The UV serving Room 126 remained on during this test and provided a 6.5 Pa pressure difference between Room 126 and Room 127 indicating that the UVs are key to maintaining a positive pressure (a pressure higher in the space than the surrounding spaces). Rooms where the UVs are turned off are likely not to have a pressure differential that could be significantly above that of the sub slab pressure. The data table is in Appendix A.

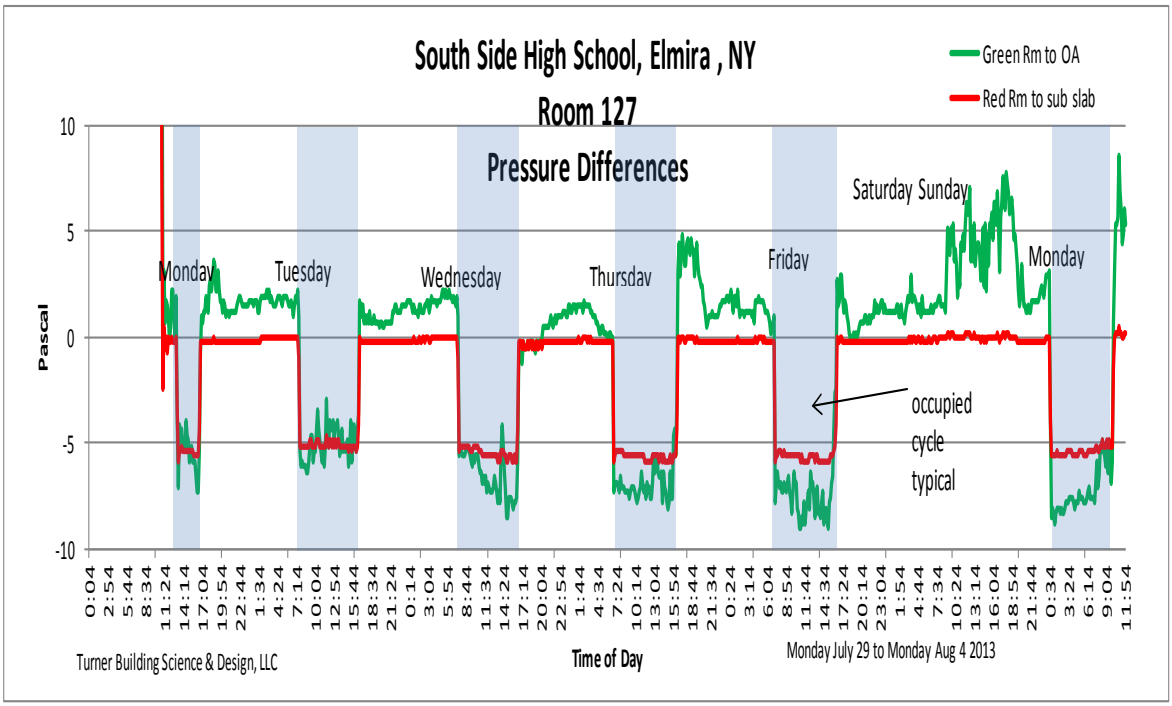
After the site visit of July 22nd, we verbally recommended and received permission from the school officials to set up a system of pressure monitors and data loggers to track the building enclosure operating pressure with respect to the ambient air and the vadose zone for a week. We also arranged, with the assistance of the building operators, to have the building HVAC systems that served Room 127 and the surrounding spaces operate under as during a normal occupied week control sequence, with respect to HVAC occupied / unoccupied schedules. Additionally, we had the building operators adjust the room thermostat set points to place the HVAC system in heating mode on Thursday (Aug 1, 2013) and in the cooling mode on Friday (Aug 2, 2013). Heating mode would limit the OA being introduced by the UV to the minimum quantity and the exhaust fan would be off, while cooling mode would reset the OA quantity to approximately 100% and turn on the exhaust fan and run it at approximately 100%. Either of these conditions would represent the most likely opportunity for the space pressure to fall below the ambient air and vadose zone pressures because the net

amount of OA for ventilation introduced by the UV would be less than it would under any other "occupied mode" conditions. Note: There may be other sources within the building that could also adversely affect the room pressure. Common sources include the kitchen exhaust hoods, especially if associated make-up air systems are not functional. Other large fans that are not balanced properly or do not have functioning make-up air systems could also be a source that would adversely affect the enclosure pressure difference in Room 127.

Monitoring Results:

The chart below (Figure 1) is a record of the building pressure difference between Room 127 and the subslab (vadose zone) and Room 127 and the outside (ambient). Room 127 is the reference and the pressure differences across the sub slab and the wall to the outside are the inputs. When the inputs are at a lower pressure than the reference, the pressure value, in Pascal, is recorded as a negative number. The negative values indicate the inputs are at a lower pressure than the reference (i.e. the room is positively pressurized with respect to those locations). When the inputs are at a higher pressure than the reference, the pressure difference is recorded as a positive number, which indicates the room is at a lower pressure than the ambient air or the vadose zone, (i.e. the room is negatively pressurized with respect to those locations).

Figure 1 Pressure Differences at Room 127



The chart indicates that while the HVAC system is running, the enclosure pressure (reference pressure inside Room 127) is higher than the subslab or the ambient (input pressures) by approximately 5 Pascals. The chart shows that the subslab and the ambient (outside) are lower in pressure than the room by about -5 Pa. On Thursday (Aug 1, 2013) and Friday (Aug 2, 2013) the pressure difference is somewhat greater (approximately -6 Pa) due in part to the heating and cooling mode of operation of the HVAC system. During the unoccupied cycle (late afternoon through early morning), the room and the subslab pressure difference approaches zero while the room to ambient pressure difference goes somewhat positive (i.e. the ambient pressure is greater than the room pressure so the room is negative) and therefore air leaks into the room from the ambient (outside) during the time the "Rm to OA" pressure is indicated as a positive value. The positive ambient pressures occur during the time of unoccupied mode of operation of the HVAC system, reportedly, the unoccupied mode of operation extends from about 3:30 pm until about 7:00 am daily, and all of Saturday (Aug 3, 2013) and Sunday (Aug 4, 2013).

The slightly greater pressure differences between the room and the slab and between the room and the ambient on Thursday (Aug 1, 2013) and Friday (Aug 2, 2013) during occupied times as compared to those recorded earlier in the week indicates that the HVAC system serving the room is not the only driver of the recorded pressure differences. Other HVAC systems are also driving the room pressure differences as

well as the stack effect. Our measurements and interpretation leaves open the question of what the effect of other fans in the building may have on the pressures differences in Room 127. Other fan systems that may affect the pressure differences include the kitchen exhaust hood and any associated make up air system or other large volume exhaust systems or unbalanced exhaust systems. Because the school was not in normal operating conditions during the recent long term monitoring event, the impact of operation of those fans on the Room 127 pressure differentials could not be assessed using the recent long term data set.

APPENDIX A

Data sets from July 22 site observations

1st test series
All fans off (as found)
All doors & windows closed
Blower door used to pressurize Room 127

Table 1a
Baseline measurements

Base line		
Room closed , HVAC Off		
Blower door fan off & sealed		
		△P Pa
Fan to OA		-0.4
Floor port to OA		-0.2
Floor port to rm 127		0.1

Pressures are normal to building with all fans off with summer conditions

Table 1b
Initial fan pressurization

Initial Pressurization Trial	
Fan CFM	Room △P
1160	10

Table 2
Blower Door Test Data

	1	2	3	4	AVG
Blower Door Ring A	CFM	CFM	CFM	CFM	CFM
Fan CFM	991	982	1005	992	993
△P Pa	△P Pa	△P Pa	△P Pa	△P Pa	△P Pa
Rm 127 w/r to Corridor	6.2	6.6	6.1	6.1	6.3
Floor port w/r to Rm 127	-2.8	-2.9	-2.9	-2.7	-2.8
Floor port w/r to OA	1.2	1.6	1.1	1.2	1.3
Rm 128 w/r to Rm 127	-7.2	-5.8	-5.7	-6.1	-6.2
Rm 126 w/r to Rm 127	-4.2	-4.4	-4.3	-4.5	-4.4
Note: Input w/r to reference					

NOTE
Input = input port of pressure meter
Reference = reference port of pressure meter
Example: "Rm 127 w/r to Corridor", Rm127 is connected to the meter input port and the Corridor is connected to the reference port on the meter.
A positive value indicates that the input is at a greater pressure than the reference and a negative number indicates that the input is at a lower pressure than the reference.

2nd test series
UV-4 fan on
No blower door
EF-112 is off except as noted
All doors & windows closed

Table 3
Classroom UV and EF active

	1	2	3	4	5	6
UV-4 on , EF-112 off*	CFM	CFM	CFM	CFM	CFM	CFM
UV Fan CFM	1500?	1500?	1500?	1500?	1500?	1500?
△P Pa	△P Pa	△P Pa	△P Pa	△P Pa	△P Pa	△P Pa
Rm 127 w/r to corridor	11.5	11.1	11.1	11.2	11.3	11.1
Floor port w/r to rm 127	-7.5	-7.3	-7.3	-7.2	-7.3	-7.2
Floor port w/r to OA	1.9	0.4	0.9	1.2	1.8	2.3
Rm 128 w/r to rm 127	-8.1	-9.2	-8.6	-11.2	-11.3	-10.7
Rm 126 w/r to rm 127	-11.3	-11.3	-11	10.6	-10.8	-10.6
Note: * EF off except for col 4 & 5						
Input w/r to reference						

3rd test series
UV-4 fan off
No blower door
EF-112 is off
AHU serving corridor on
UV serving room 126 on
All doors & windows closed

Table 4
Corridor AHU on Classroom UV & EF off

	1	2	3	
UV-4 off ,EF off	CFM	CFM	CFM	CFM
Corr AHU on	?	?	?	?
△P Pa	△P Pa	△P Pa	△P Pa	△P Pa
Rm 127 w/r to corridor	-0.4	-0.2	-0.5	
Floor port w/r to rm 127	-0.1	-0.1	-0.1	
Floor port w/r to OA	0.6	0.8	0.8	
Rm 128 w/r to rm 127	0.1	0.3	0.3	
Rm 126 w/r to rm 127	6.4	6.6	6.6	
Note: UV in room 126 on				
Input w/r to reference				

GEOSYNTEC CONSULTANTS
Photographic Record

Client: Unisys Corporation	**Project Number: MN0832**
Site Name: Southside High School	**Site Location: Elmira, New York**

Photograph 1

Date: 27 September 2013

Comments:
Omniguard 4 connected to subslab port in Room 127

Photograph 2

Date: 27 September 2013

Comments:
View of Summa canister placement for indoor air samples in Room 127

GEOSYNTEC CONSULTANTS
Photographic Record

Client: Unisys Corporation	**Project Number: MN0832**
Site Name: Southside High School	**Site Location: Elmira, New York**

Photograph 3

Date: 27 September 2013

Comments:
View of Summa canister placement for outdoor air samples.

Electronic Comprehensive Validation Package (eCVP)

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COMPREHENSIVE VALIDATION PACKAGE

Modified TO-15 SIM

INVENTORY SHEET

Work Order #: 1308654

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b. Target Compound Raw Data		
-Internal Standard Area and Retention Time Summary		
-Surrogate Recovery Summary (If Applicable)		
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Comments:

Completed by:

Vera Belitsky Vera Belitsky / Document Control 9/3/13

(Signature) (Print Name & Title) (Date)

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WORK ORDER #: 1308654

Work Order Summary

CLIENT:	Mr. William Wertz GeoSyntec Consultants 26 Century Hill Drive Suite 205 Latham, NY 12110	**BILL TO:**	Ms. Hester Groenevelt GeoSyntec Consultants 130 Research Lane Suite 2 Guelph, Ontario N1G5G3
PHONE:	518-785-0800	**P.O. #**	
FAX:		**PROJECT #**	MN0832-99 Southside High School
DATE RECEIVED:	08/29/2013	**CONTACT:**	Karen Stempson
DATE COMPLETED:	08/29/2013		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SSHS-08-27-13-IA-1	Modified TO-15 SIM	3.3 "Hg	5.3 psi
02A	SSHS-08-27-13-OA-1	Modified TO-15 SIM	6.7 "Hg	4.8 psi
03A	SSHS-08-27-13-IA-2	Modified TO-15 SIM	4.3 "Hg	4.8 psi
04A	SSHS-08-27-13-OA-2	Modified TO-15 SIM	4.1 "Hg	4.7 psi
05A	Lab Blank	Modified TO-15 SIM	NA	NA
06A	CCV	Modified TO-15 SIM	NA	NA
07A	LCS	Modified TO-15 SIM	NA	NA
07AA	LCSD	Modified TO-15 SIM	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 08/29/13

Technical Director

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-12-5, UT NELAP CA009332012-3, VA NELAP - 460197, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2012, Expiration date: 10/17/2013.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15 SIM
GeoSyntec Consultants
Workorder# 1308654

Four 6 Liter Summa Canister (SIM Certified) samples were received on August 29, 2013. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the SIM acquisition mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***TO-15***	***ATL Modifications***
ICAL %RSD acceptance criteria	</=30% RSD with 2 compounds allowed out to < 40% RSD	Project specific; default criteria is </=30% RSD with 10% of compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	Project specific; default criteria is </= 30% Difference with 10% of compounds allowed out up to </=40%.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

Sample collection date was not provided on the Chain of Custody (COC) for samples SSHS-08-27-13-IA-2 and SSHS-08-27-13-OA-2. The sampling date was taken from the tag.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

Table 1

Client Sample ID	Lab Sample ID	Date Collected	Date Received	Date Extracted	Sample Holding Time (Days)	Sample Extract Date Analyzed	Sample Extract Holding Time (Days)	Sample Condition
SSHS-08-27-13-IA-1	1308654-01A	8/27/2013	8/29/2013	NA	2	8/29/2013	NA	Good
SSHS-08-27-13-OA-1	1308654-02A	8/27/2013	8/29/2013	NA	2	8/29/2013	NA	Good
SSHS-08-27-13-IA-2	1308654-03A	8/28/2013	8/29/2013	NA	1	8/29/2013	NA	Good
SSHS-08-27-13-OA-2	1308654-04A	8/28/2013	8/29/2013	NA	1	8/29/2013	NA	Good
Lab Blank	1308654-05A	NA	NA	NA	NA	8/28/2013	NA	Good
CCV	1308654-06A	NA	NA	NA	NA	8/28/2013	NA	Good
LCS	1308654-07A	NA	NA	NA	NA	8/28/2013	NA	Good
LCSD	1308654-07AA	NA	NA	NA	NA	8/28/2013	NA	Good

Sample Results and Raw Data

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: SSHS-08-27-13-IA-1

Lab ID#: 1308654-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.031	0.051	0.12	0.20
Benzene	0.076	0.12	0.24	0.40
1,2-Dichloroethane	0.031	0.13	0.12	0.51
Trichloroethene	0.031	0.32	0.16	1.7
Toluene	0.031	0.60	0.12	2.3
Ethyl Benzene	0.031	0.090	0.13	0.39
m,p-Xylene	0.061	0.32	0.26	1.4
o-Xylene	0.031	0.11	0.13	0.49

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Client Sample ID: SSHS-08-27-13-IA-1

Lab ID#: 1308654-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**e082815sim**	**Date of Collection:**	**8/27/13 3:28:00 PM**
Dil. Factor:	**1.53**	**Date of Analysis:**	**8/29/13 11:11 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.015	Not Detected	0.039	Not Detected
1,1-Dichloroethene	0.015	Not Detected	0.061	Not Detected
1,1-Dichloroethane	0.031	Not Detected	0.12	Not Detected
cis-1,2-Dichloroethene	0.031	0.051	0.12	0.20
1,1,1-Trichloroethane	0.031	Not Detected	0.17	Not Detected
Benzene	0.076	0.12	0.24	0.40
1,2-Dichloroethane	0.031	0.13	0.12	0.51
Trichloroethene	0.031	0.32	0.16	1.7
Toluene	0.031	0.60	0.12	2.3
1,1,2-Trichloroethane	0.031	Not Detected	0.17	Not Detected
Tetrachloroethene	0.031	Not Detected	0.21	Not Detected
Ethyl Benzene	0.031	0.090	0.13	0.39
m,p-Xylene	0.061	0.32	0.26	1.4
o-Xylene	0.031	0.11	0.13	0.49
1,1,2,2-Tetrachloroethane	0.031	Not Detected	0.21	Not Detected
trans-1,2-Dichloroethene	0.15	Not Detected	0.61	Not Detected
Methyl tert-butyl ether	0.15	Not Detected	0.55	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	101	70-130

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EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/28Aug2013.b/e082815sim.d
Lab Smp Id: 1308654-01A
Inj Date : 29-AUG-2013 11:11
Operator : sab Inst ID: msde.i
Smp Info : 250mL #34446
Misc Info : 3.3"Hg --> 5.3psi
Comment : SIM/ GC-MS
Method : /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Meth Date : 29-Aug-2013 14:40 lover Quant Type: ISTD
Cal Date : 27-AUG-2013 09:01 Cal File: e082616sim.d
Als bottle: 31
Dil Factor: 1.53000
Integrator: HP RTE Compound Sublist: Std17.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				CONCENTRATIONS ON-COL	FINAL		
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE	RATIO
* 31 Bromochloromethane						CAS #: 74-97-5	
16.060	16.060 (1.000)	130	77342	5.00000		80.00- 120.00	100.00
16.060	16.060 (1.000)	128	60171			0.00- 30.00	77.80
16.060	16.060 (1.000)	49	153651			0.00- 30.00	198.66
$ 37 1,2-Dichloroethane-d4						CAS #: 17060-07-0	
16.915	16.914 (1.053)	65	122317	5.10593	5.106	80.00- 120.00	100.00
16.915	16.914 (1.053)	67	58792			0.00- 30.00	48.07
* 40 1,4-Difluorobenzene						CAS #: 540-36-3	
17.492	17.492 (1.000)	114	353453	5.00000		80.00- 120.00	100.00
17.492	17.492 (1.000)	88	55341			0.00- 45.94	15.66
$ 47 Toluene-d8						CAS #: 2037-26-5	
20.260	20.260 (1.158)	98	288721	5.06377	5.064	80.00- 120.00	100.00
20.260	20.260 (1.158)	70	36107			0.00- 41.61	12.51
20.260	20.260 (1.158)	100	200512			40.17- 100.17	69.45
* 56 Chlorobenzene-d5						CAS #: 3114-55-4	
22.846	22.846 (1.000)	117	287963	5.00000		80.00- 120.00	100.00

RT	EXP RT (REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	CONCENTRATIONS FINAL (PPBV)	TARGET RANGE	RATIO
* 56 Chlorobenzene-d5 (continued)							
22.846	22.846 (1.000)	82	148905			0.00- 30.00	51.71
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.440	24.440 (1.070)	174	161840	5.05497	5.055	80.00- 120.00	100.00
24.440	24.440 (1.070)	95	186758			86.00- 146.00	115.40
24.466	24.440 (1.071)	176	154639			66.32- 126.32	95.55
28 cis-1,2-Dichloroethene					CAS #: 156-59-2		
15.708	15.708 (0.978)	98	620	0.03310	0.05064	80.00- 120.00	100.00
15.708	15.708 (0.978)	61	3708			0.00- 30.00	598.06
15.708	15.708 (0.978)	96	949			0.00- 30.00	153.06
36 Benzene					CAS #: 71-43-2		
16.915	16.914 (0.967)	78	8114	0.08098	0.1239	80.00- 120.00	100.00
16.915	16.914 (0.967)	77	2319			0.00- 30.00	28.58
38 1,2-Dichloroethane					CAS #: 107-06-2		
17.031	17.031 (0.974)	62	3700	0.08247	0.1262	80.00- 120.00	100.00
17.031	17.031 (0.974)	64	823			0.00- 30.00	22.24
41 Trichloroethene					CAS #: 79-01-6		
17.932	17.931 (1.025)	130	9613	0.20906	0.3199	80.00- 120.00	100.00
17.932	17.904 (1.025)	95	9216			64.83- 124.83	95.87
17.932	17.931 (1.025)	97	5766			31.17- 91.17	59.98
48 Toluene					CAS #: 108-88-3		
20.417	20.394 (1.167)	91	40589	0.39418	0.6031	80.00- 120.00	100.00
20.417	20.394 (1.167)	92	24137			29.84- 89.84	59.47
58 Ethyl Benzene					CAS #: 100-41-4		
22.967	22.967 (1.005)	106	2401	0.05892	0.09014	80.00- 120.00	100.00
22.967	22.967 (1.005)	91	7717			0.00- 30.00	321.41
59 m,p-Xylene					CAS #: 108-38-3		
23.135	23.135 (1.013)	106	9241	0.20698	0.3167	80.00- 120.00	100.00
23.135	23.135 (1.013)	91	18662			0.00- 30.00	201.95
61 o-Xylene					CAS #: 95-47-6		
23.714	23.714 (1.038)	106	3220	0.07445	0.1139	80.00- 120.00	100.00
23.714	23.714 (1.038)	91	6612			177.04- 237.04	205.34

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INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082815sim.d
Lab Smp Id: 1308654-01A
Analysis Type: VOA
Quant Type: ISTD
Operator: sab
Method File: /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Misc Info: 3.3"Hg --> 5.3psi

Calibration Date: 28-AUG-2013
Calibration Time: 14:14
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	82006	49204	114808	77342	-5.69
40 1,4-Difluorobenze	379974	227984	531964	353453	-6.98
56 Chlorobenzene-d5	304786	182872	426700	287963	-5.52

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.06	15.73	16.39	16.06	0.00
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Report Date: 29-Aug-2013 14:40

Eurofins Air Toxics Inc.

RECOVERY REPORT

Client Name: Client SDG: 27Aug2013
Sample Matrix: GAS Fraction: VOA
Lab Smp Id: 1308654-01A
Level: LOW Operator: sab
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: AT09.spk Quant Type: ISTD
Sublist File: Std17.sub
Method File: /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Misc Info: 3.3"Hg --> 5.3psi

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED	LIMITS
$ 37 1,2-Dichloroethane	5.000	5.106	102.12	70-130
$ 47 Toluene-d8	5.000	5.064	101.28	70-130
$ 65 Bromofluorobenzene	5.000	5.055	101.10	70-130

Data File: /chem/msde.i/28Aug2013.b/e082815sim.d

Date : 29-AUG-2013 11:11

Client ID:

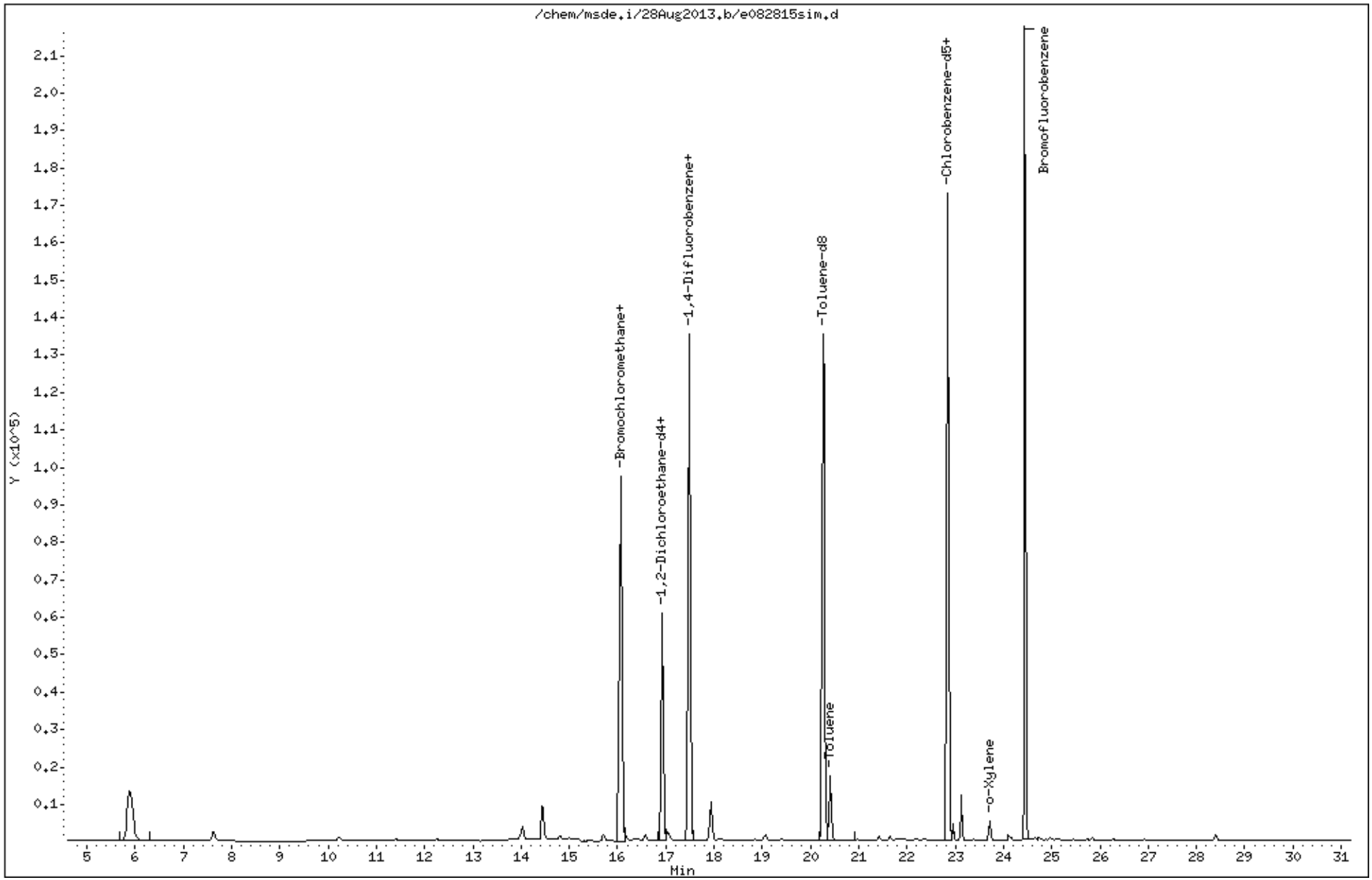
Instrument: msde.i

Sample Info: 250mL #34446

Operator: sab

Column phase: RTx-624

Column diameter: 0.53



Data File: /chem/msde.i/28Aug2013.b/e082815sim.d

Date : 29-AUG-2013 11:11

Client ID:

Instrument: msde.i

Sample Info: 250mL #34446

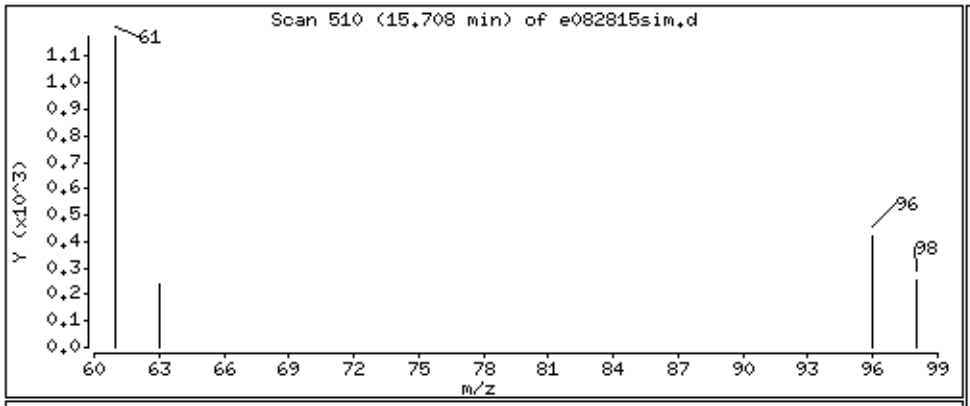
Operator: sab

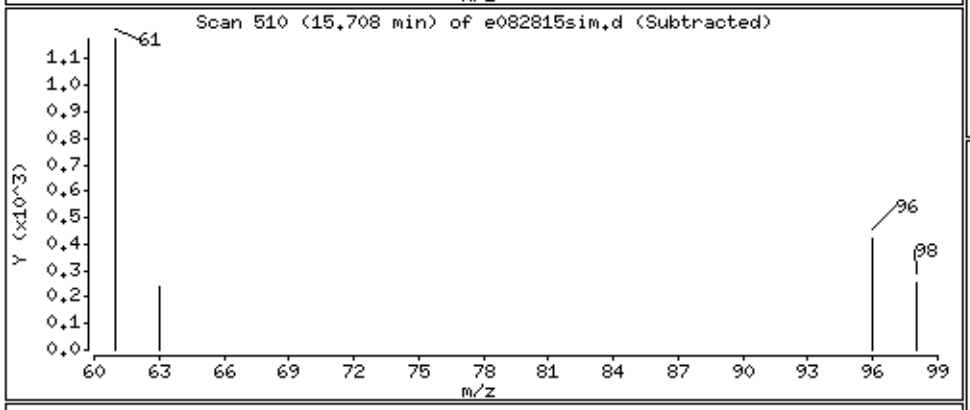
Column phase: RTx-624

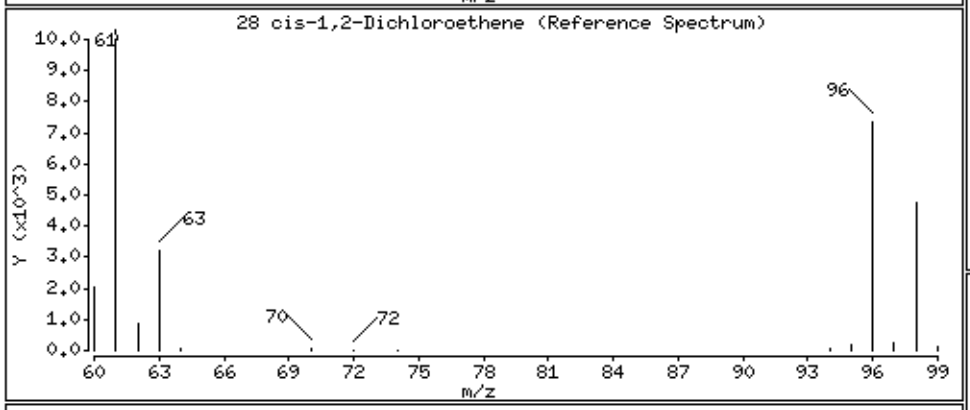
Column diameter: 0.53

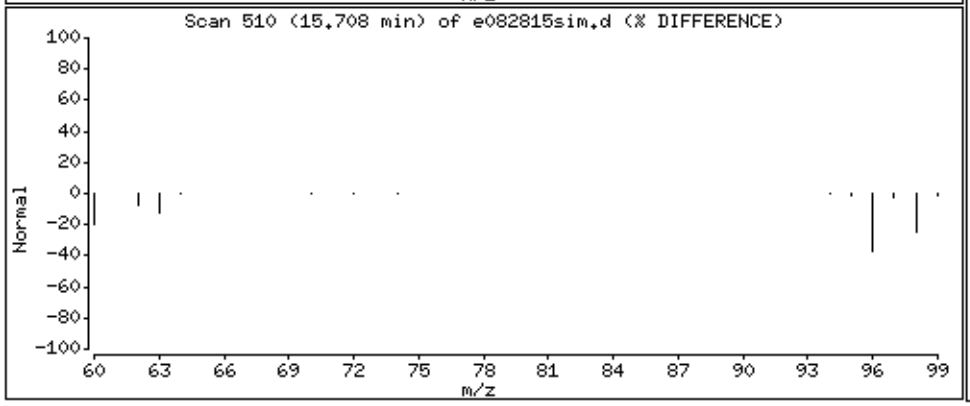
28 cis-1,2-Dichloroethene

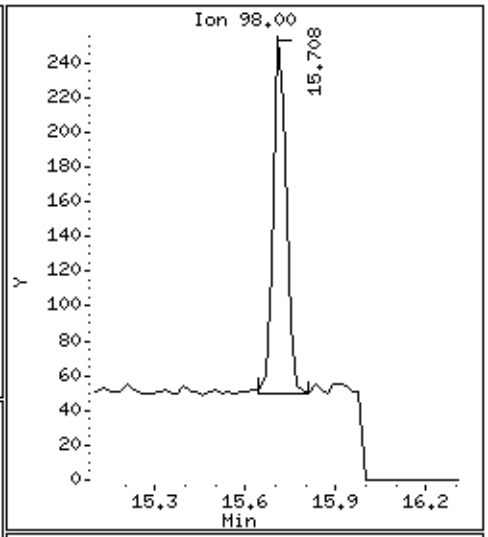
Concentration: 0.05064 PPBV

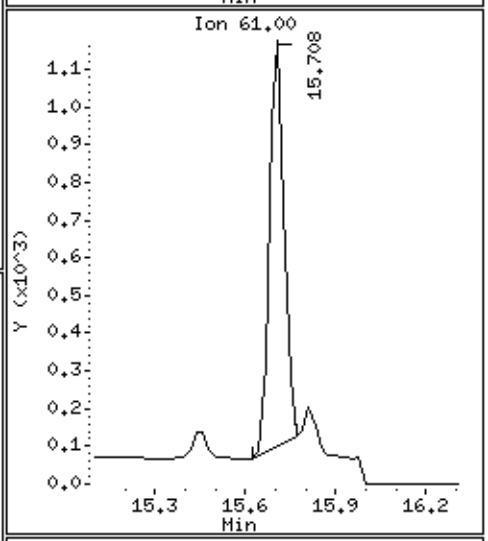


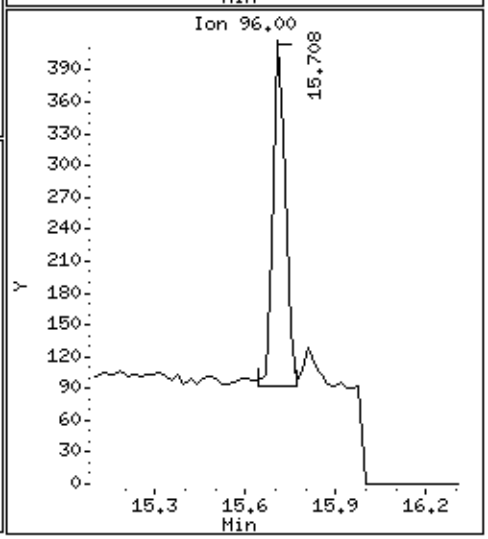












Data File: /chem/msde.i/28Aug2013.b/e082815sim.d

Date : 29-AUG-2013 11:11

Client ID:

Instrument: msde.i

Sample Info: 250mL #34446

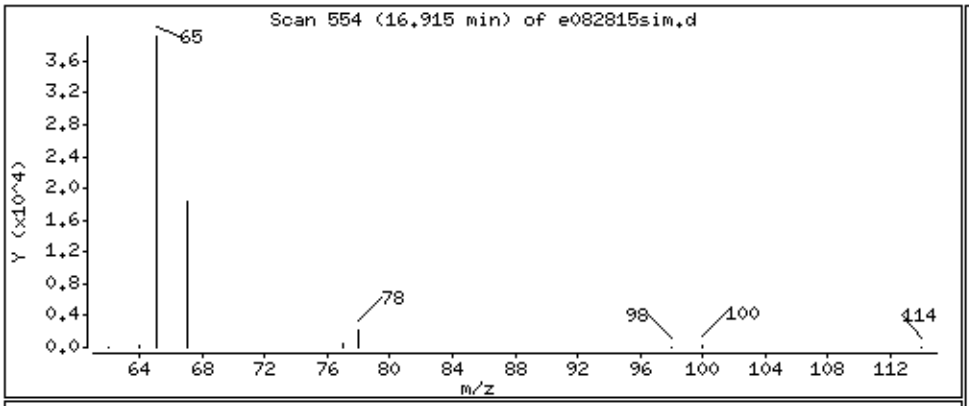
Operator: sab

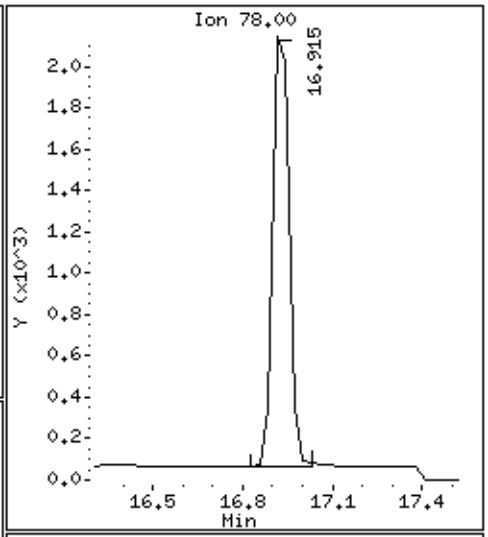
Column phase: RTx-624

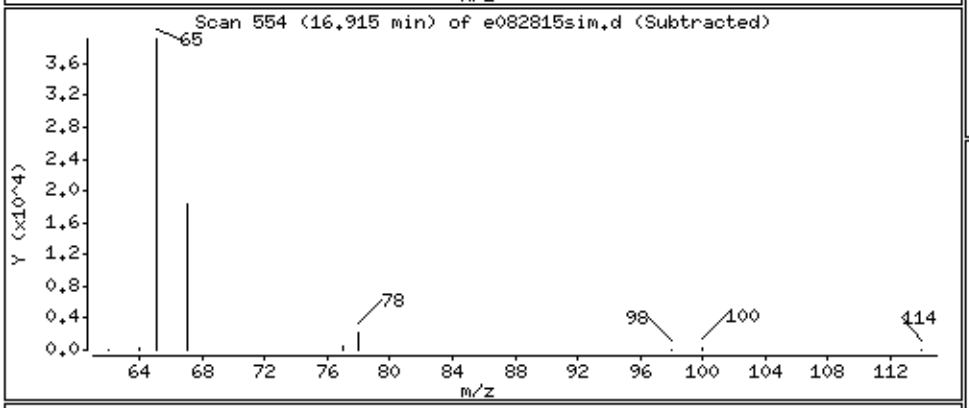
Column diameter: 0.53

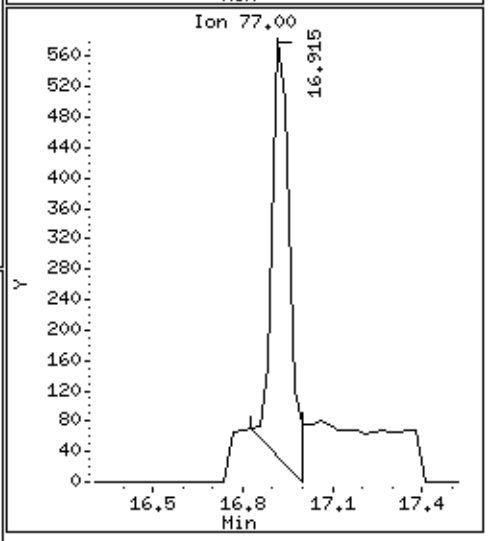
36 Benzene

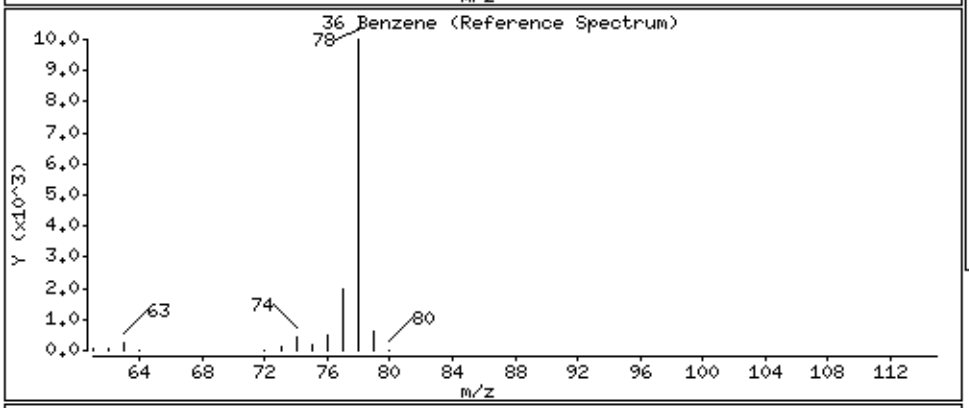
Concentration: 0.1239 PPBV

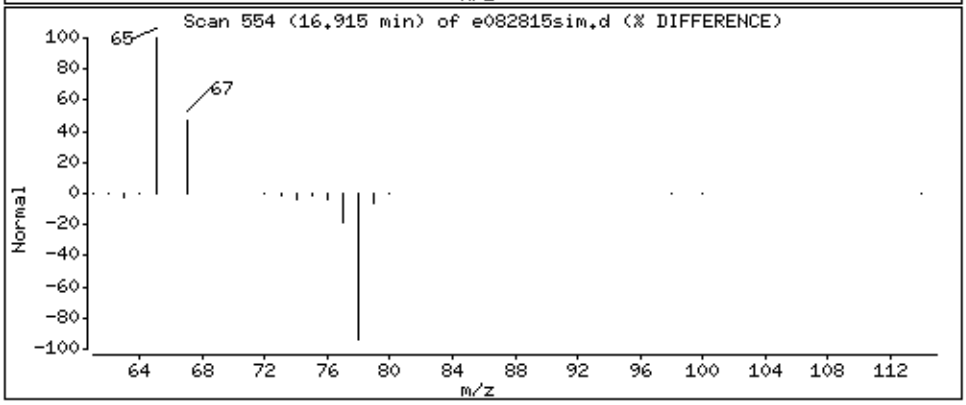












Data File: /chem/msde.i/28Aug2013.b/e082815sim.d

Date : 29-AUG-2013 11:11

Client ID:

Instrument: msde.i

Sample Info: 250mL #34446

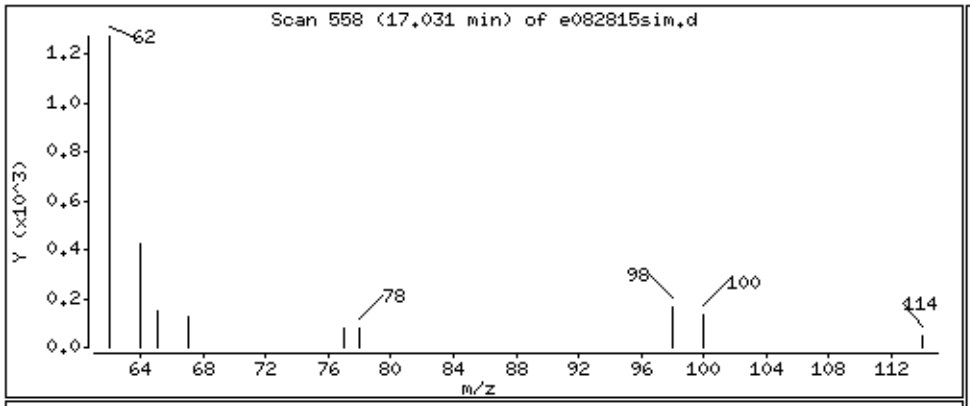
Operator: sab

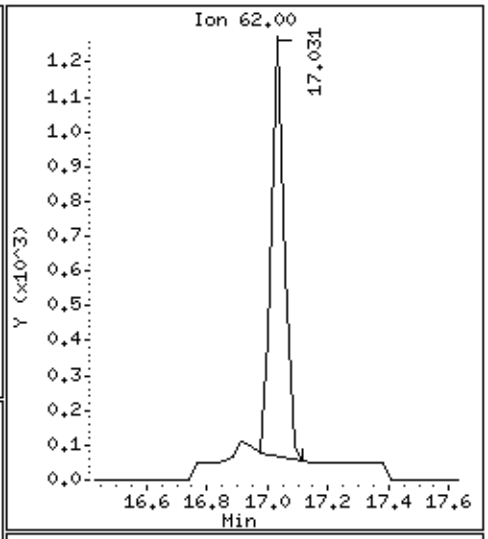
Column phase: RTx-624

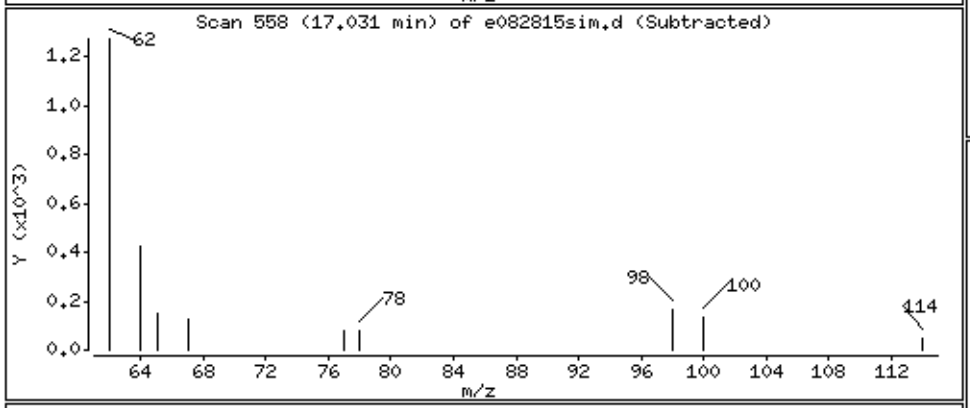
Column diameter: 0.53

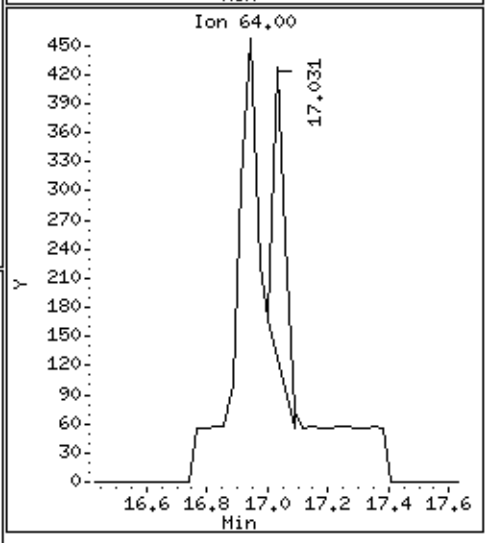
38 1,2-Dichloroethane

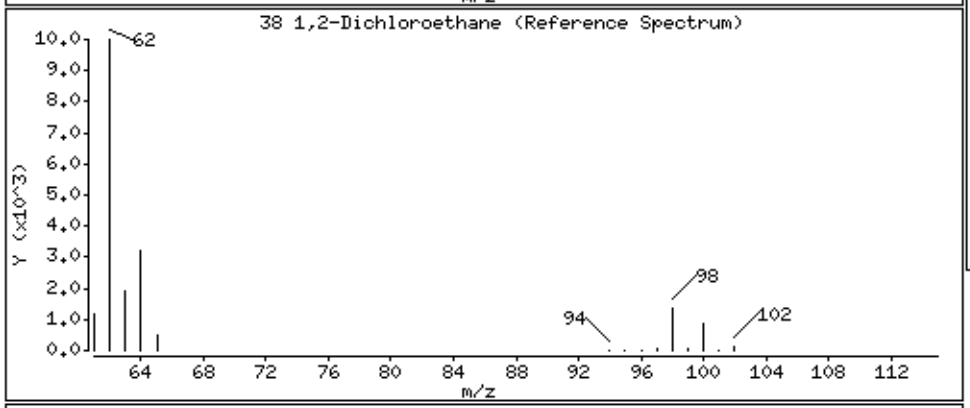
Concentration: 0.1262 PPBV

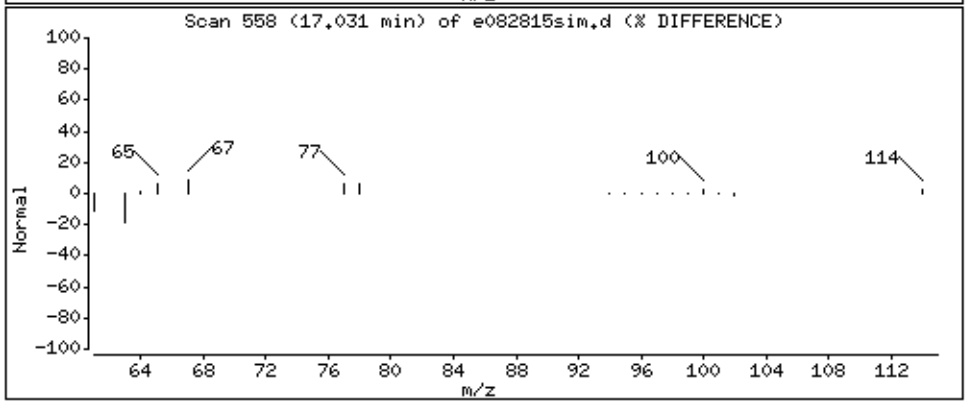












Data File: /chem/msde.i/28Aug2013.b/e082815sim.d

Date : 29-AUG-2013 11:11

Client ID:

Instrument: msde.i

Sample Info: 250mL #34446

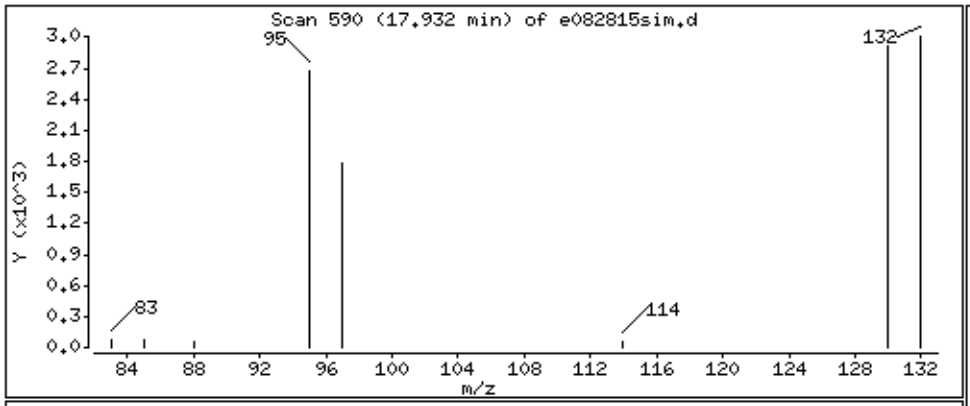
Operator: sab

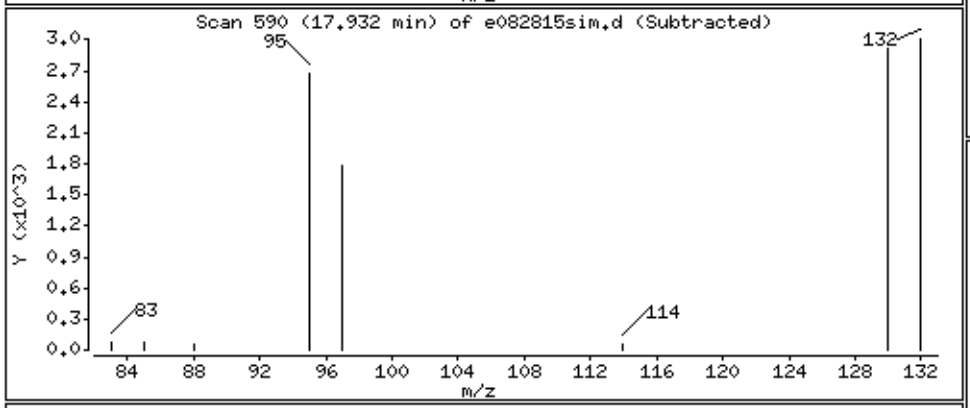
Column phase: RTx-624

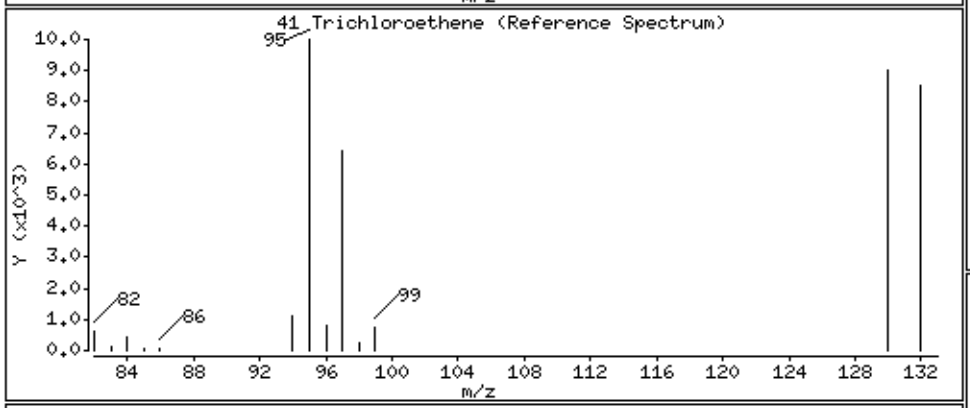
Column diameter: 0.53

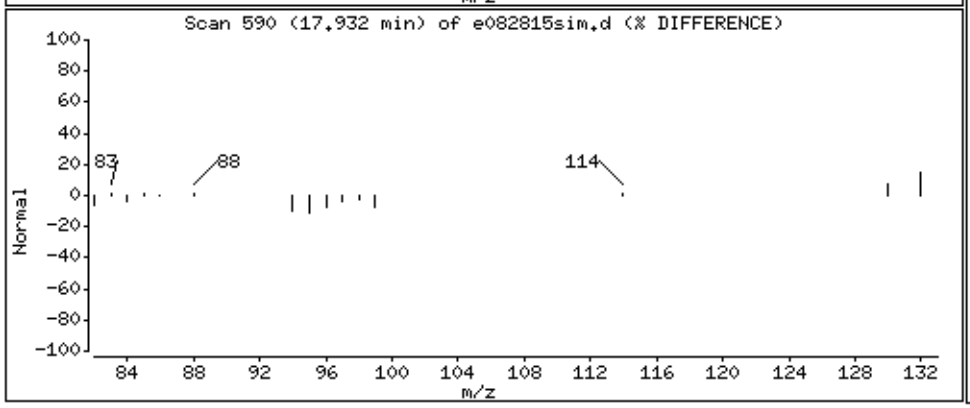
41 Trichloroethene

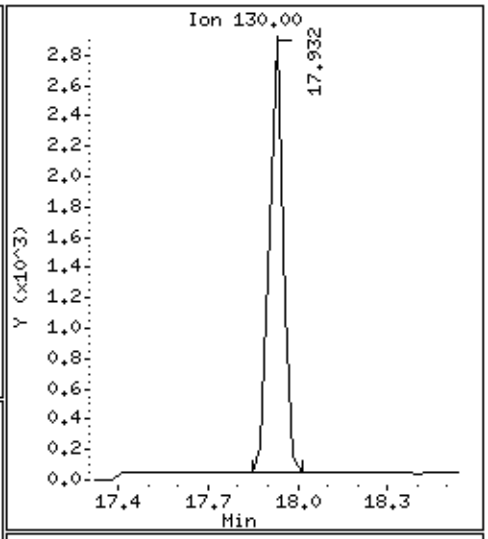
Concentration: 0.3199 PPBV

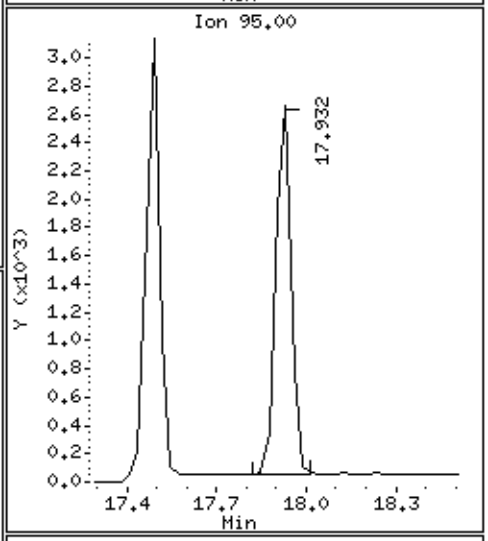


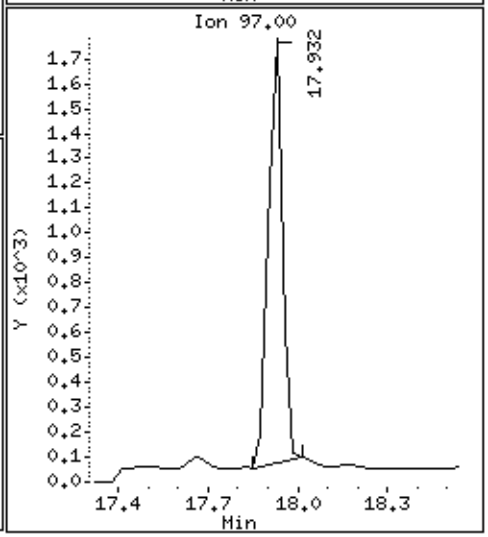












Data File: /chem/msde.i/28Aug2013.b/e082815sim.d

Date : 29-AUG-2013 11:11

Client ID:

Instrument: msde.i

Sample Info: 250mL #34446

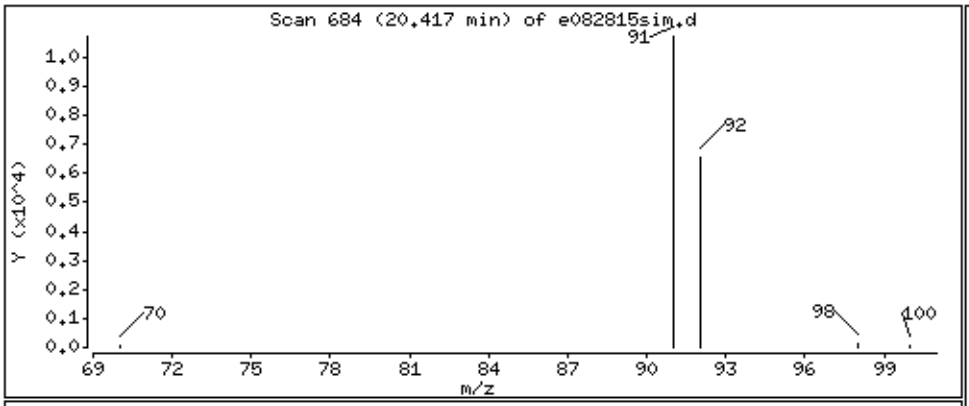
Operator: sab

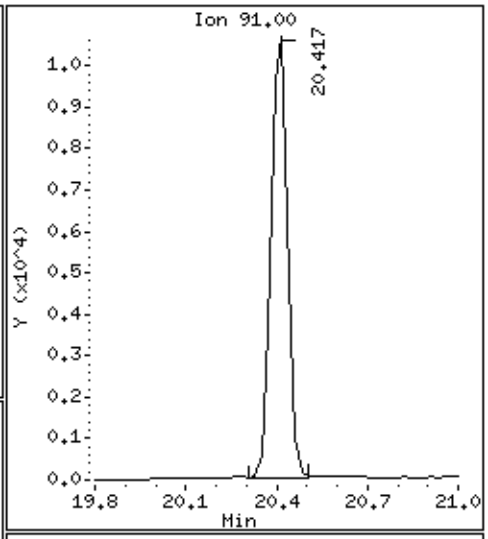
Column phase: RTx-624

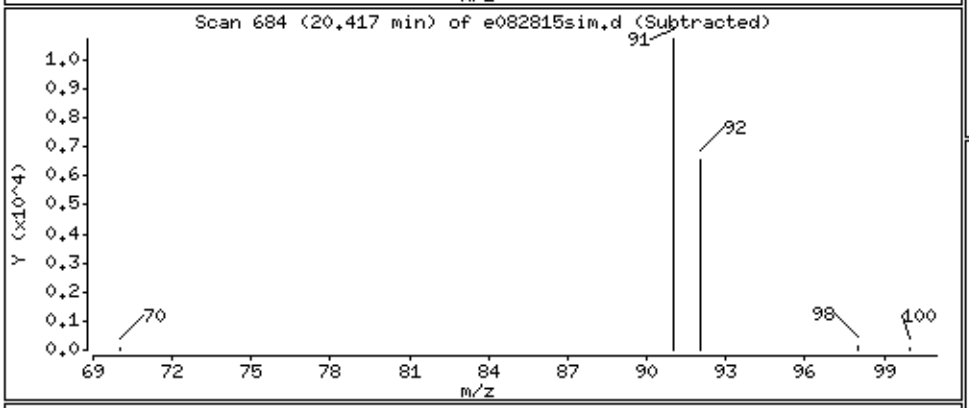
Column diameter: 0.53

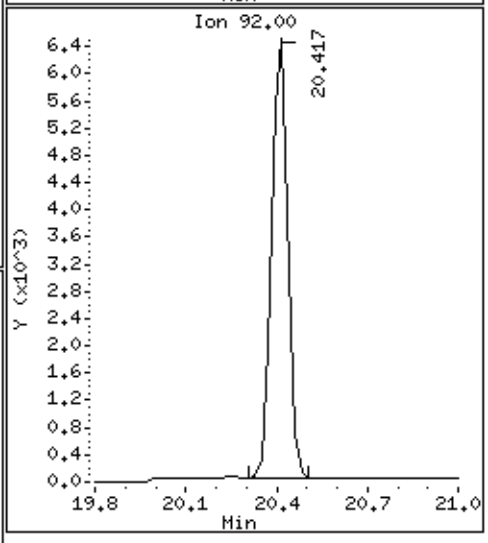
48 Toluene

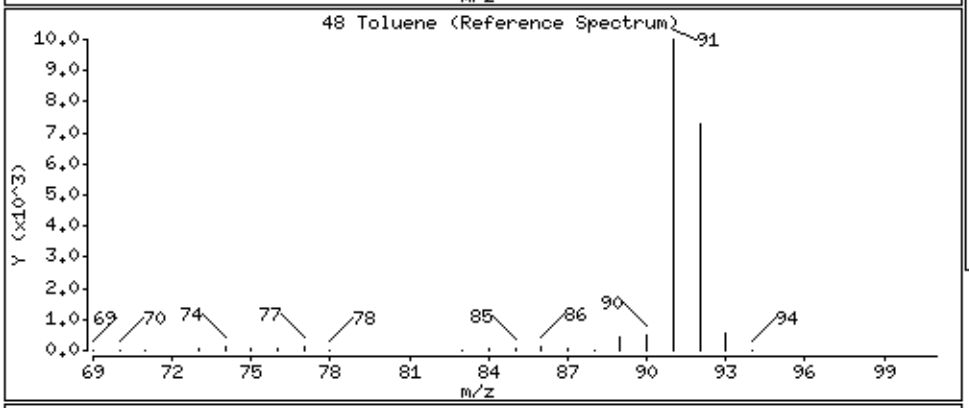
Concentration: 0.6031 PPBV

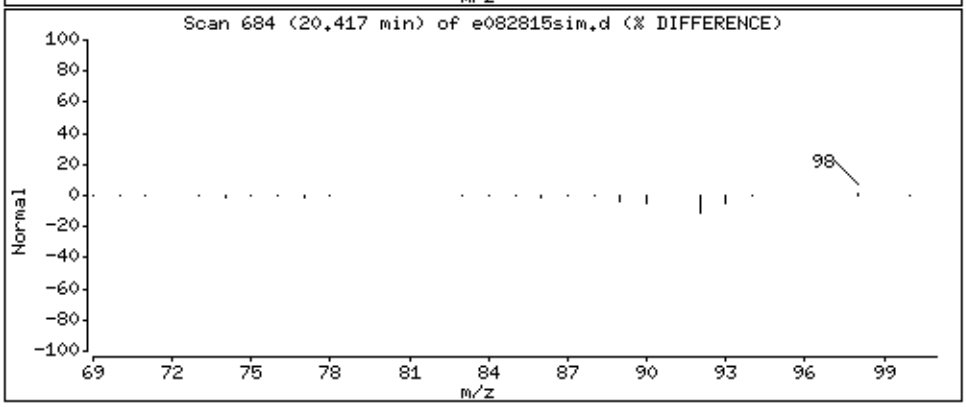












Data File: /chem/msde.i/28Aug2013.b/e082815sim.d

Date : 29-AUG-2013 11:11

Client ID:

Instrument: msde.i

Sample Info: 250mL #34446

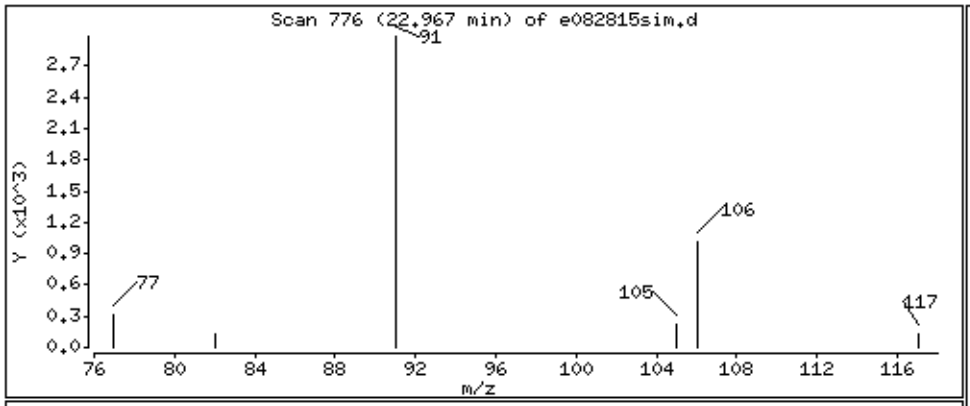
Operator: sab

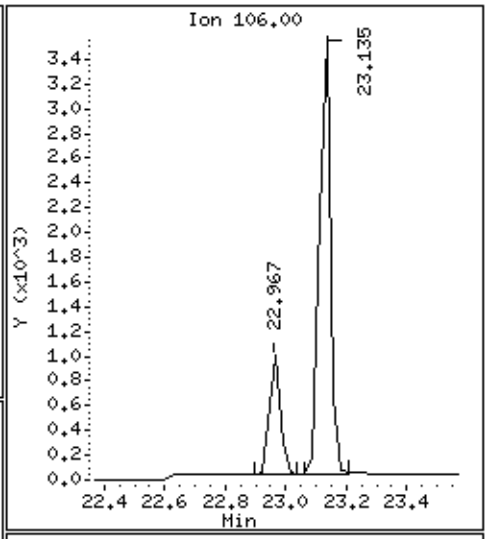
Column phase: RTx-624

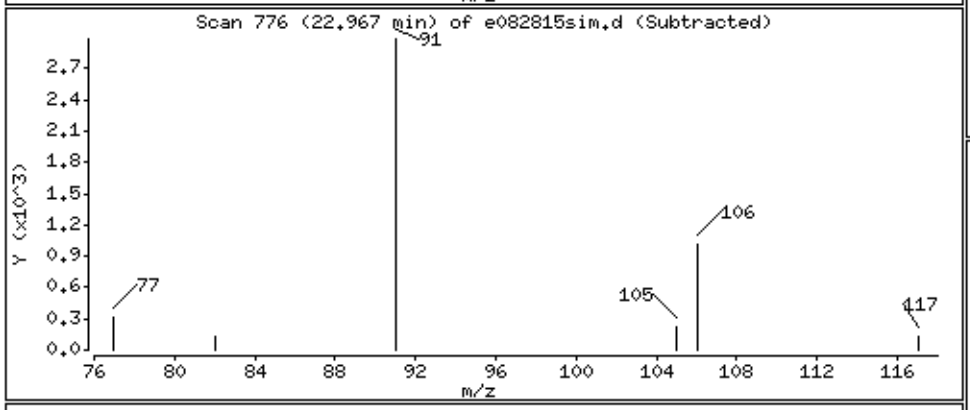
Column diameter: 0.53

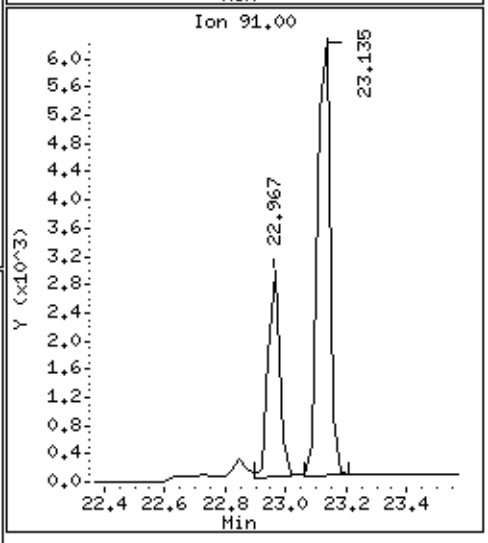
58 Ethyl Benzene

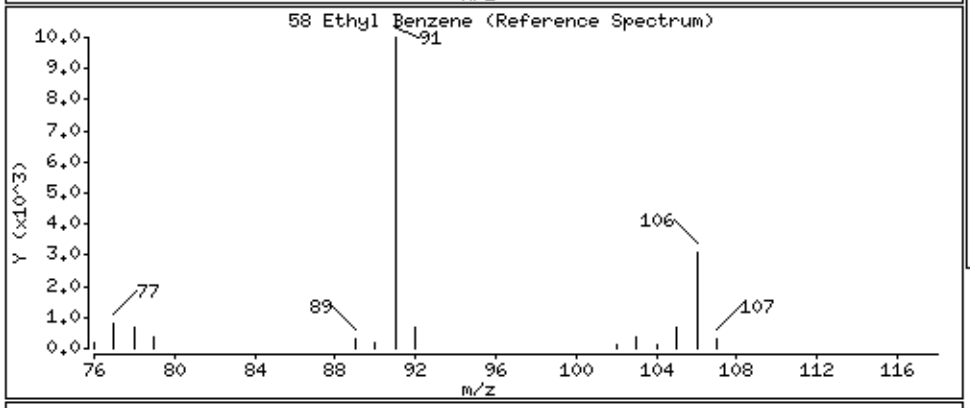
Concentration: 0.09014 PPBV

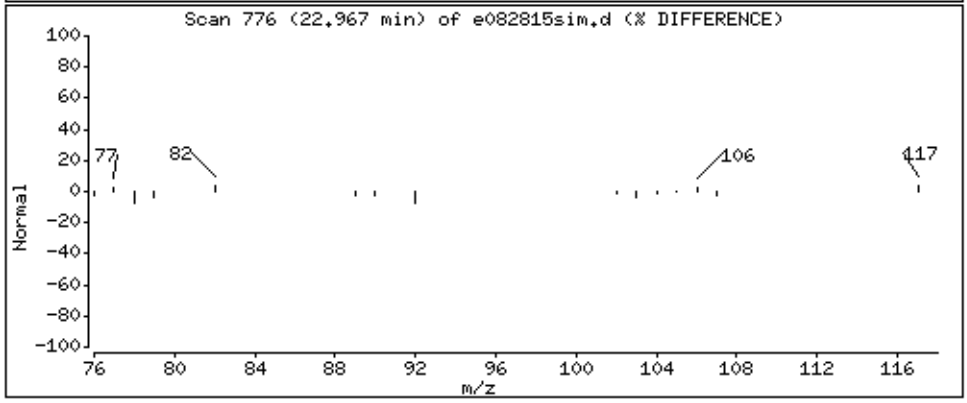












Data File: /chem/msde.i/28Aug2013.b/e082815sim.d

Date : 29-AUG-2013 11:11

Client ID:

Instrument: msde.i

Sample Info: 250mL #34446

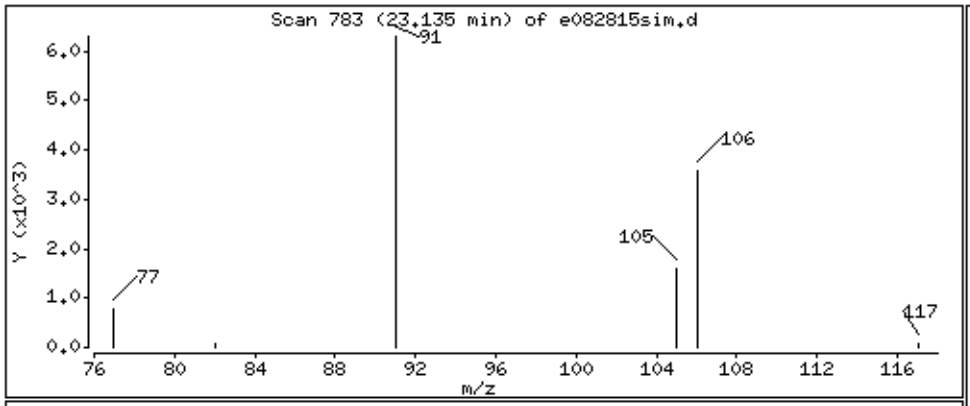
Operator: sab

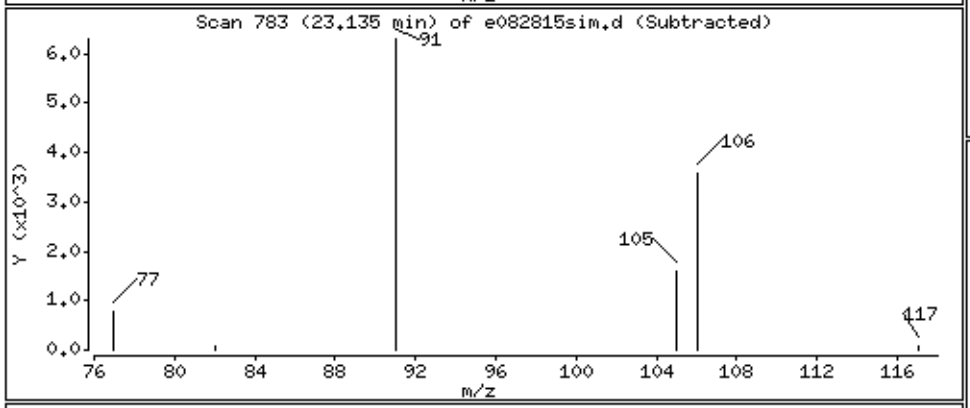
Column phase: RTx-624

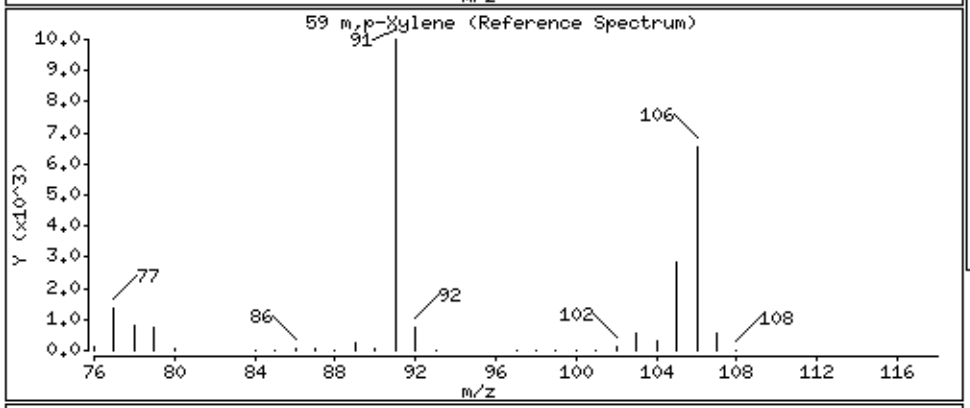
Column diameter: 0.53

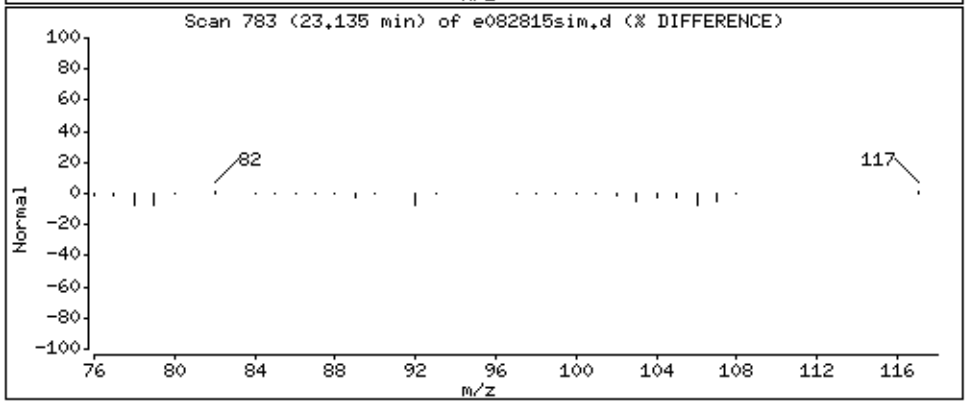
59 m,p-Xylene

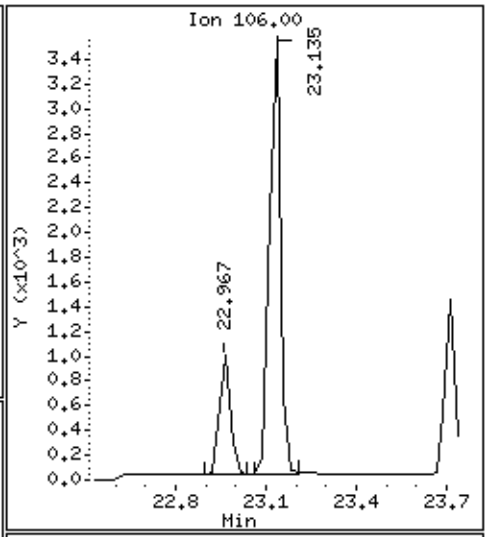
Concentration: 0.3167 PPBV

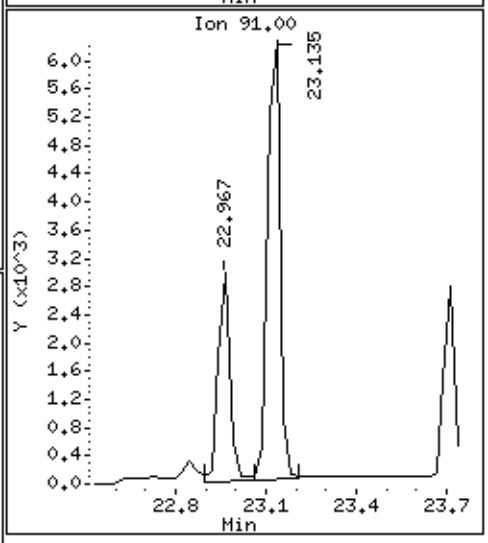












Data File: /chem/msde.i/28Aug2013.b/e082815sim.d

Date : 29-AUG-2013 11:11

Client ID:

Instrument: msde.i

Sample Info: 250mL #34446

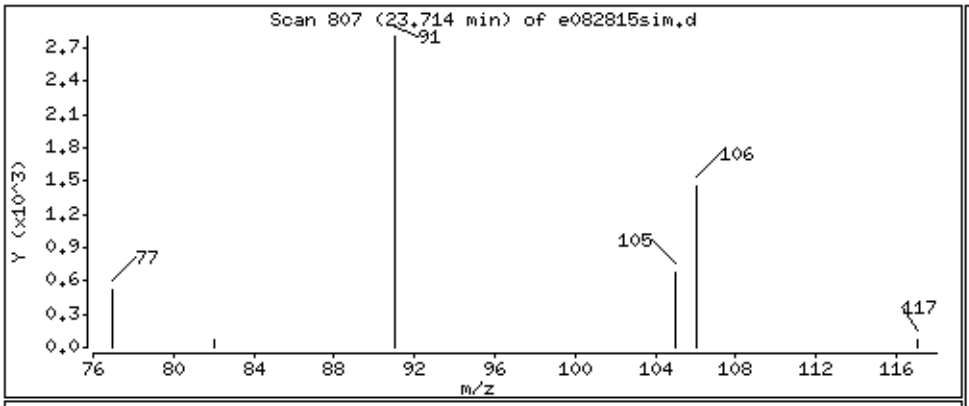
Operator: sab

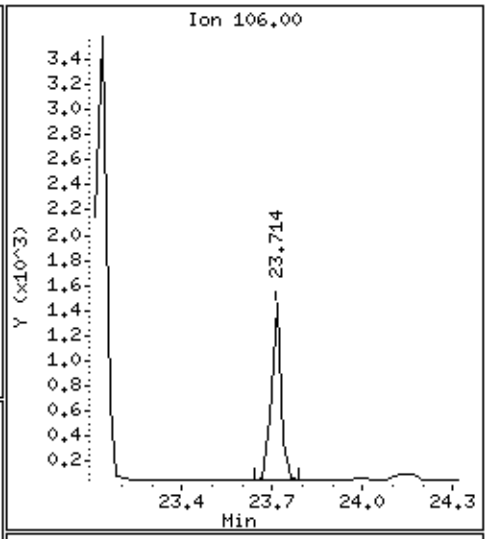
Column phase: RTx-624

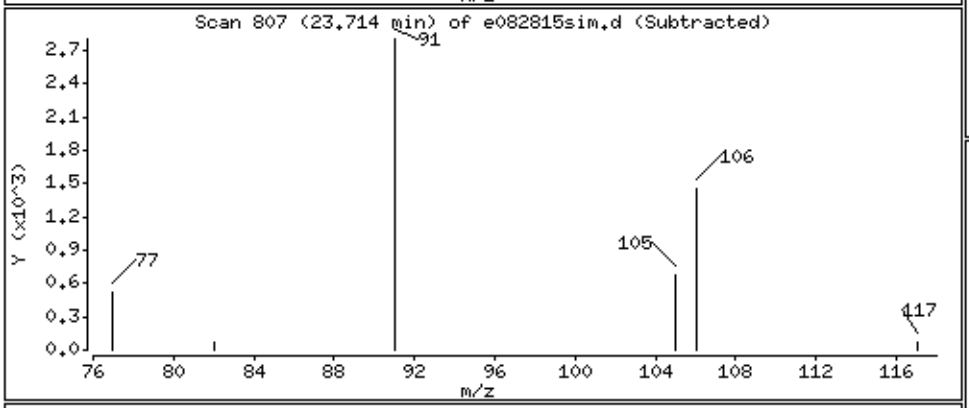
Column diameter: 0.53

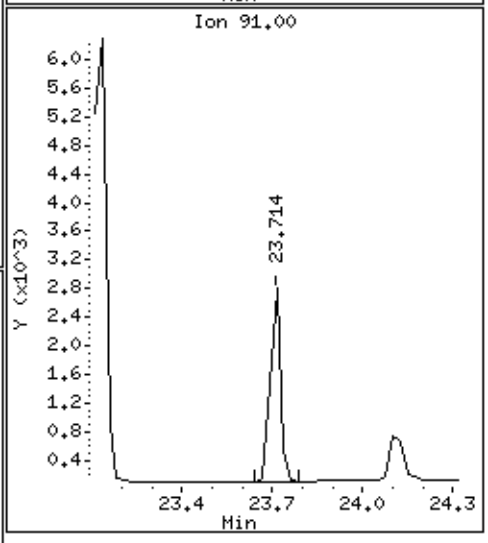
61 o-Xylene

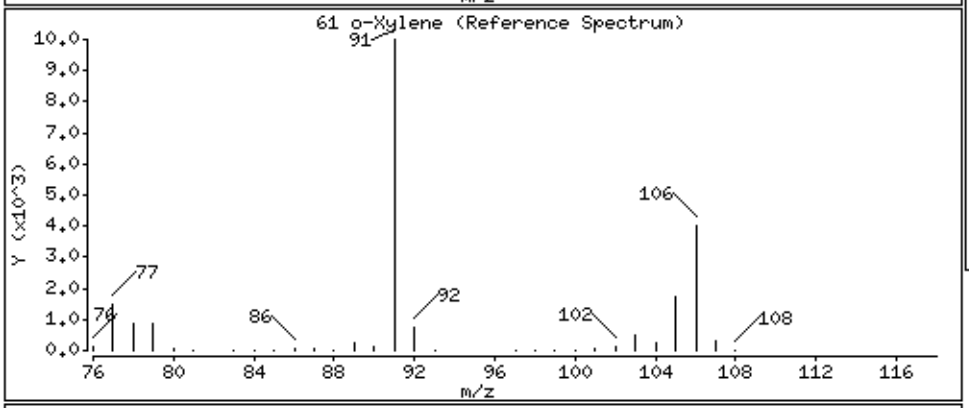
Concentration: 0.1139 PPBV

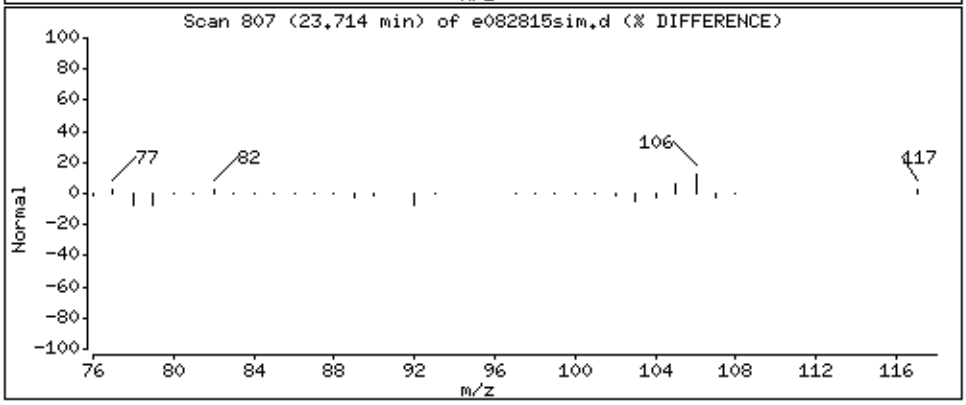












eurofins | Air Toxics

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: SSHS-08-27-13-OA-1

Lab ID#: 1308654-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	0.034	0.26	0.13	0.99
Ethyl Benzene	0.034	0.058	0.15	0.25
m,p-Xylene	0.068	0.20	0.30	0.85
o-Xylene	0.034	0.066	0.15	0.29

eurofins | Air Toxics

Client Sample ID: SSHS-08-27-13-OA-1

Lab ID#: 1308654-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**e082816sim**	**Date of Collection:**	**8/27/13 3:41:00 AM**
Dil. Factor:	**1.71**	**Date of Analysis:**	**8/29/13 12:01 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.044	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.068	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.14	Not Detected
1,1,1-Trichloroethane	0.034	Not Detected	0.19	Not Detected
Benzene	0.086	Not Detected	0.27	Not Detected
1,2-Dichloroethane	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	Not Detected	0.18	Not Detected
Toluene	0.034	0.26	0.13	0.99
1,1,2-Trichloroethane	0.034	Not Detected	0.19	Not Detected
Tetrachloroethene	0.034	Not Detected	0.23	Not Detected
Ethyl Benzene	0.034	0.058	0.15	0.25
m,p-Xylene	0.068	0.20	0.30	0.85
o-Xylene	0.034	0.066	0.15	0.29
1,1,2,2-Tetrachloroethane	0.034	Not Detected	0.23	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected
Methyl tert-butyl ether	0.17	Not Detected	0.62	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	100	70-130

Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/28Aug2013.b/e082816sim.d
Lab Smp Id: 1308654-02A
Inj Date : 29-AUG-2013 12:01
Operator : sab Inst ID: msde.i
Smp Info : 250mL #34187
Misc Info : 6.7"Hg --> 4.8psi
Comment : SIM/ GC-MS
Method : /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Meth Date : 29-Aug-2013 14:40 lover Quant Type: ISTD
Cal Date : 27-AUG-2013 09:01 Cal File: e082616sim.d
Als bottle: 31
Dil Factor: 1.71000
Integrator: HP RTE Compound Sublist: Std17.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				CONCENTRATIONS ON-COL	FINAL		
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE	RATIO
* 31 Bromochloromethane						CAS #: 74-97-5	
16.060	16.060 (1.000)	130	77386	5.00000		80.00- 120.00	100.00
16.060	16.060 (1.000)	128	57670			0.00- 30.00	74.52
16.060	16.060 (1.000)	49	152345			0.00- 30.00	196.86
$ 37 1,2-Dichloroethane-d4						CAS #: 17060-07-0	
16.914	16.914 (1.053)	65	121691	5.07691	5.077	80.00- 120.00	100.00
16.914	16.914 (1.053)	67	58637			0.00- 30.00	48.19
* 40 1,4-Difluorobenzene						CAS #: 540-36-3	
17.492	17.492 (1.000)	114	349963	5.00000		80.00- 120.00	100.00
17.492	17.492 (1.000)	88	54563			0.00- 45.94	15.59
$ 47 Toluene-d8						CAS #: 2037-26-5	
20.260	20.260 (1.158)	98	284673	5.04256	5.042	80.00- 120.00	100.00
20.260	20.260 (1.158)	70	34063			0.00- 41.61	11.97
20.260	20.260 (1.158)	100	197792			40.17- 100.17	69.48
* 56 Chlorobenzene-d5						CAS #: 3114-55-4	
22.846	22.846 (1.000)	117	283549	5.00000		80.00- 120.00	100.00

				CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
RT	EXP RT (REL RT)	MASS	RESPONSE				
* 56 Chlorobenzene-d5 (continued)							
22.846	22.846 (1.000)	82	147104			0.00- 30.00	51.88
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.440	24.440 (1.070)	174	158432	5.02555	5.026	80.00- 120.00	100.00
24.440	24.440 (1.070)	95	183268			86.00- 146.00	115.68
24.440	24.440 (1.070)	176	151672			66.32- 126.32	95.73
48 Toluene					CAS #: 108-88-3		
20.417	20.394 (1.167)	91	15690	0.15389	0.2632	80.00- 120.00	100.00
20.417	20.394 (1.167)	92	9514			29.84- 89.84	60.64
58 Ethyl Benzene					CAS #: 100-41-4		
22.967	22.967 (1.005)	106	1350	0.03364	0.05753	80.00- 120.00	100.00
22.967	22.967 (1.005)	91	4007			0.00- 30.00	296.81
59 m,p-Xylene					CAS #: 108-38-3		
23.135	23.135 (1.013)	106	5054	0.11496	0.1966	80.00- 120.00	100.00
23.135	23.135 (1.013)	91	9981			0.00- 30.00	197.49
61 o-Xylene					CAS #: 95-47-6		
23.714	23.714 (1.038)	106	1650	0.03874	0.06625	80.00- 120.00	100.00
23.714	23.714 (1.038)	91	3546			177.04- 237.04	214.91

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082816sim.d
Lab Smp Id: 1308654-02A
Analysis Type: VOA
Quant Type: ISTD
Operator: sab
Method File: /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Misc Info: 6.7"Hg --> 4.8psi

Calibration Date: 28-AUG-2013
Calibration Time: 14:14
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	82006	49204	114808	77386	-5.63
40 1,4-Difluorobenze	379974	227984	531964	349963	-7.90
56 Chlorobenzene-d5	304786	182872	426700	283549	-6.97

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.06	15.73	16.39	16.06	0.00
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Report Date: 29-Aug-2013 14:40

Eurofins Air Toxics Inc.

RECOVERY REPORT

Client Name: Client SDG: 27Aug2013
Sample Matrix: GAS Fraction: VOA
Lab Smp Id: 1308654-02A
Level: LOW Operator: sab
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: AT09.spk Quant Type: ISTD
Sublist File: Std17.sub
Method File: /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Misc Info: 6.7"Hg --> 4.8psi

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED	LIMITS
$ 37 1,2-Dichloroethane	5.000	5.077	101.54	70-130
$ 47 Toluene-d8	5.000	5.042	100.85	70-130
$ 65 Bromofluorobenzene	5.000	5.026	100.51	70-130

Data File: /chem/msde.i/28Aug2013.b/e082816sim.d

Date : 29-AUG-2013 12:01

Client ID:

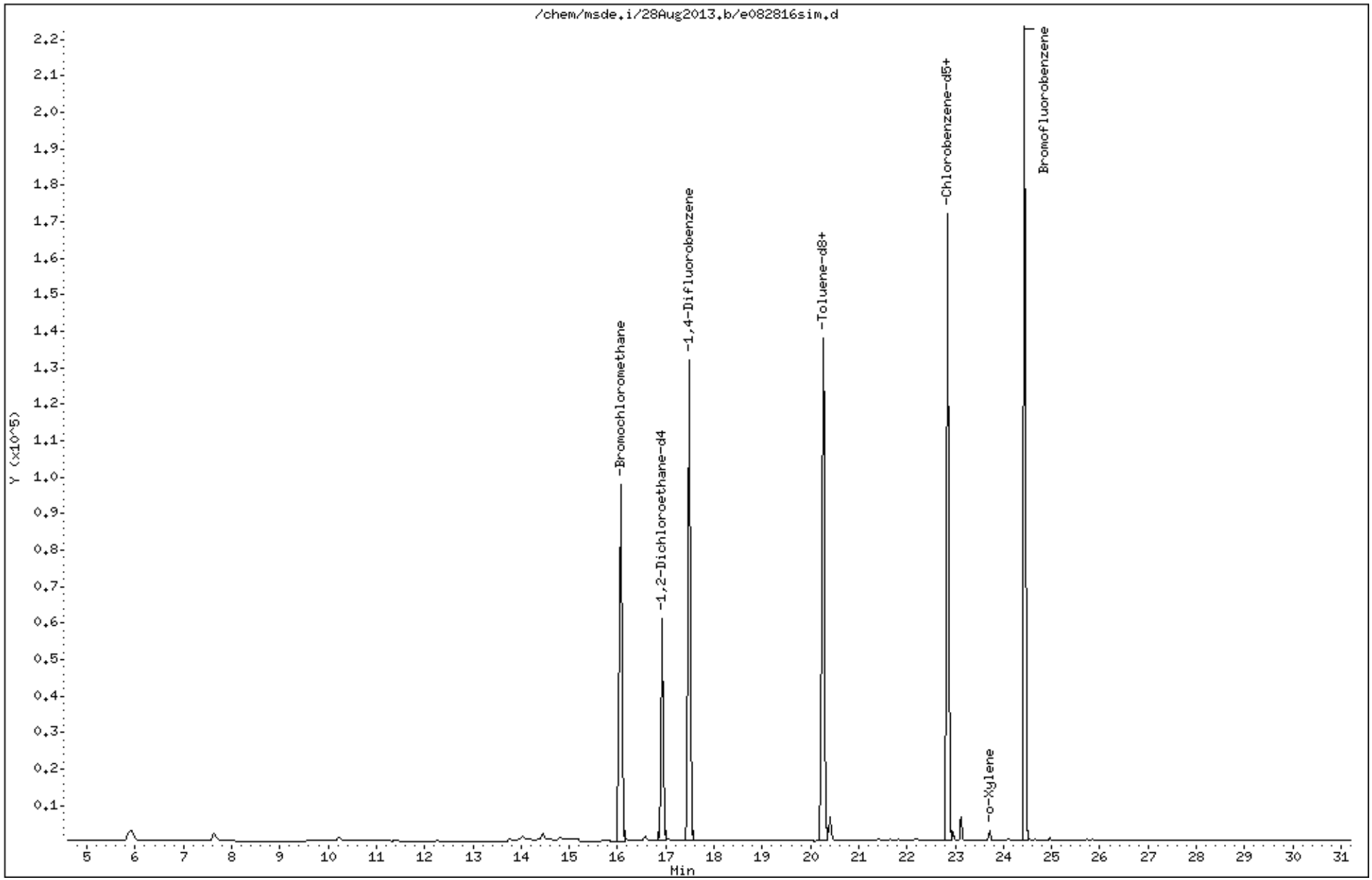
Instrument: msde.i

Sample Info: 250mL #34187

Operator: sab

Column phase: RTx-624

Column diameter: 0.53



Data File: /chem/msde.i/28Aug2013.b/e082816sim.d

Date : 29-AUG-2013 12:01

Client ID:

Instrument: msde.i

Sample Info: 250mL #34187

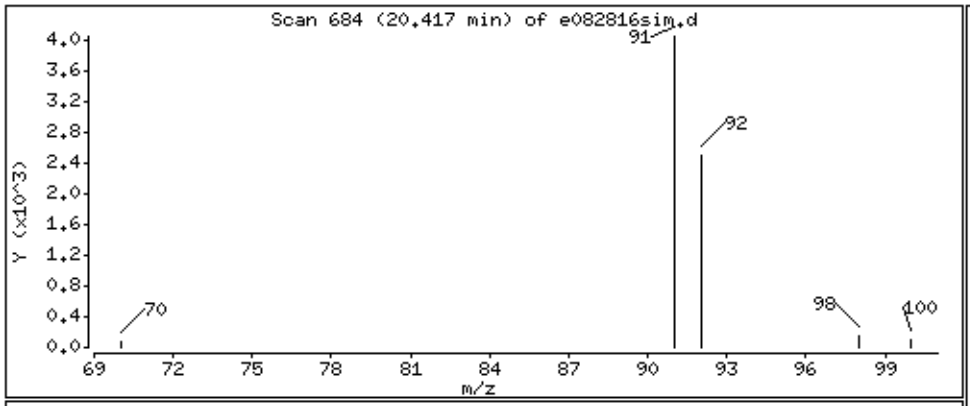
Operator: sab

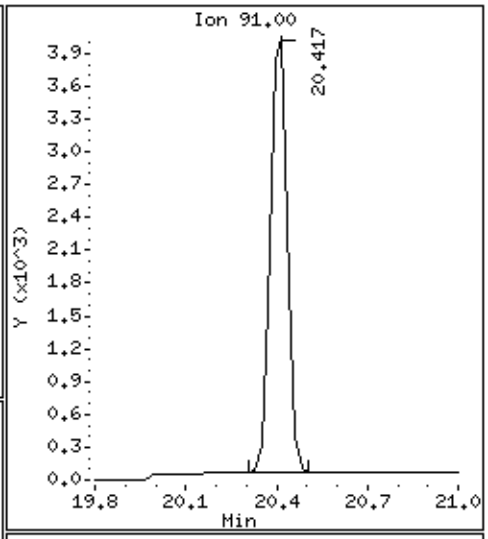
Column phase: RTx-624

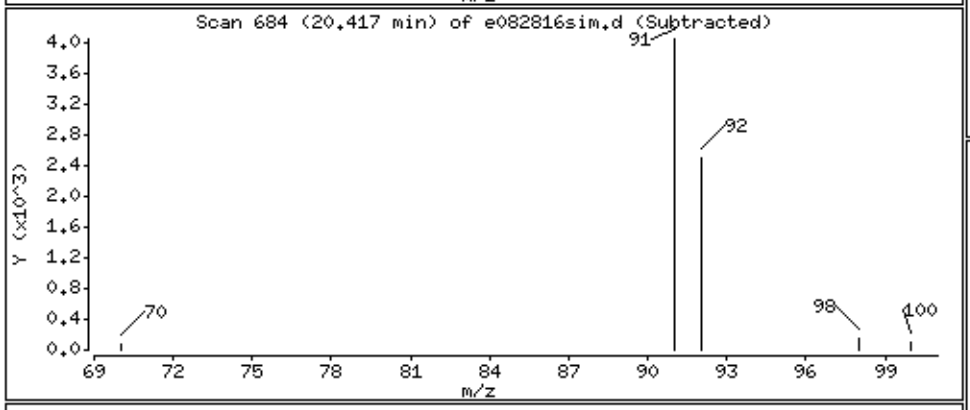
Column diameter: 0.53

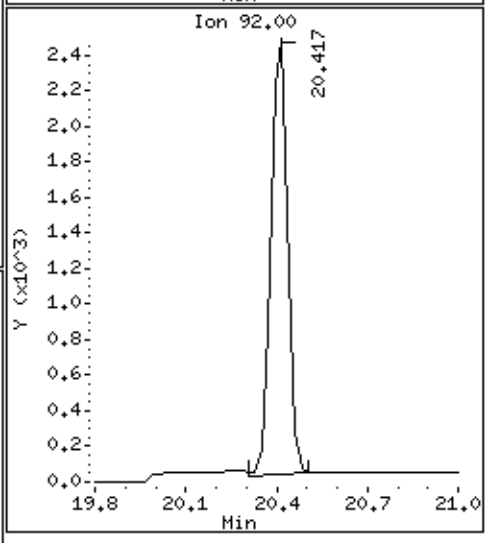
48 Toluene

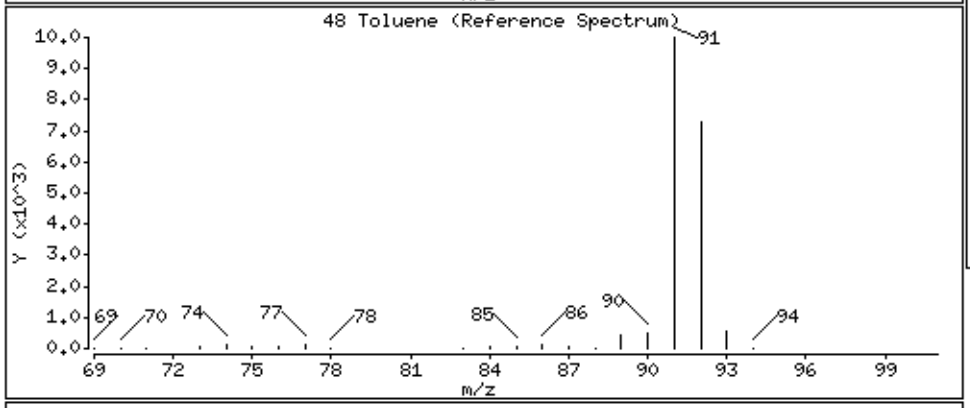
Concentration: 0.2632 PPBV

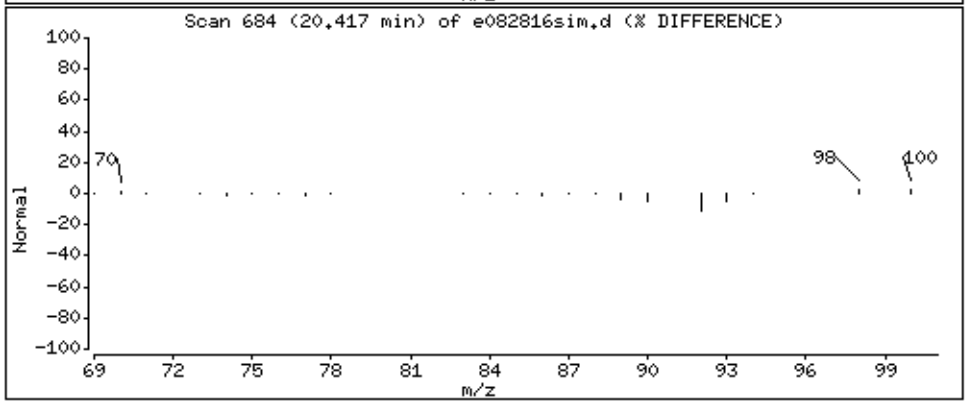












Data File: /chem/msde.i/28Aug2013.b/e082816sim.d

Date : 29-AUG-2013 12:01

Client ID:

Instrument: msde.i

Sample Info: 250mL #34187

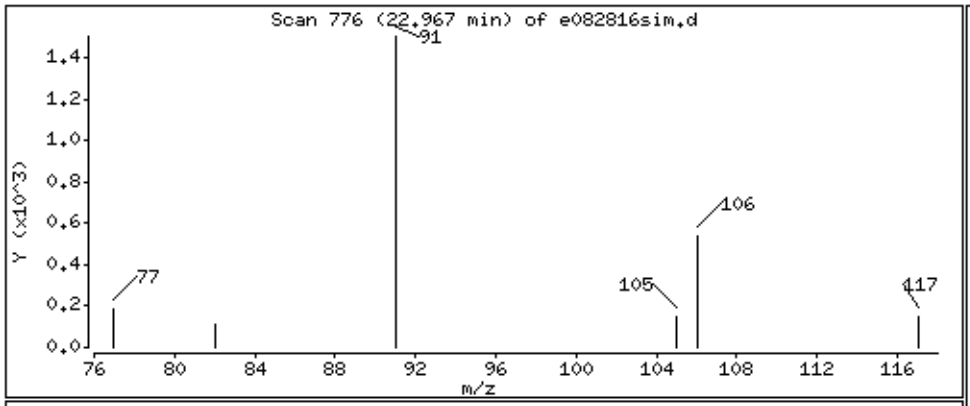
Operator: sab

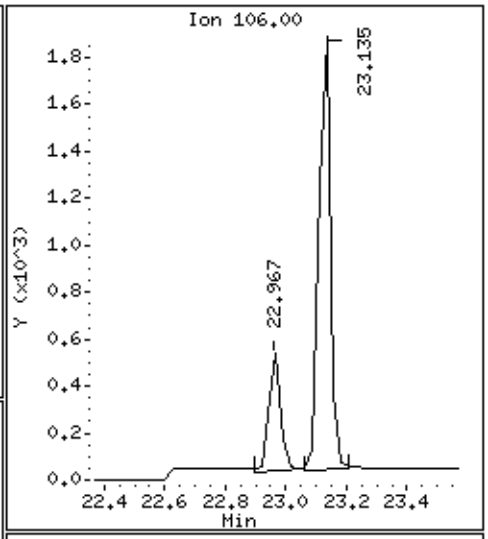
Column phase: RTx-624

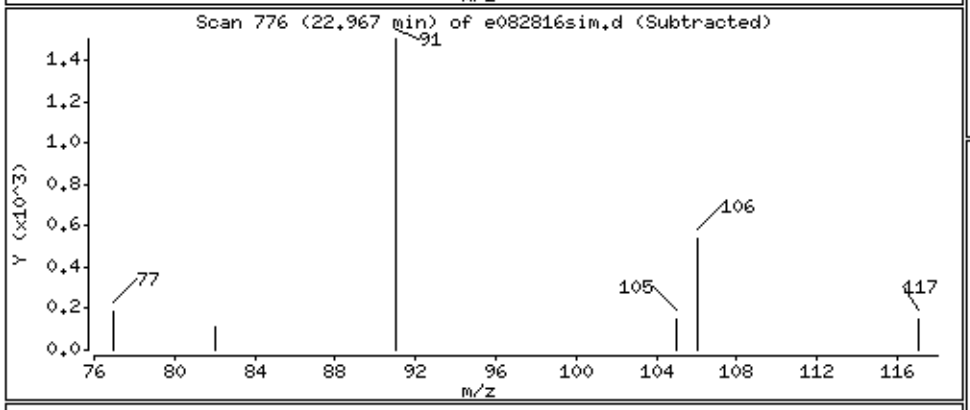
Column diameter: 0.53

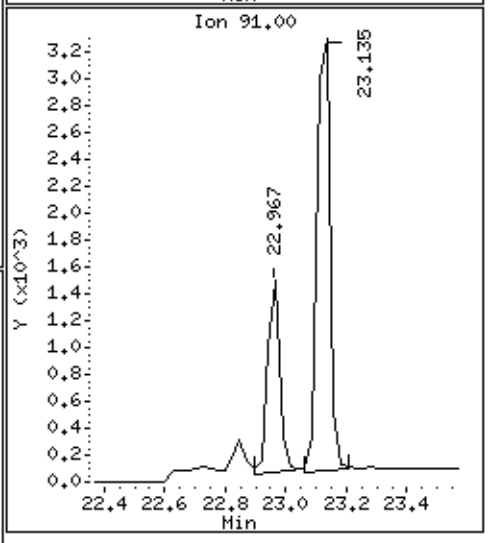
58 Ethyl Benzene

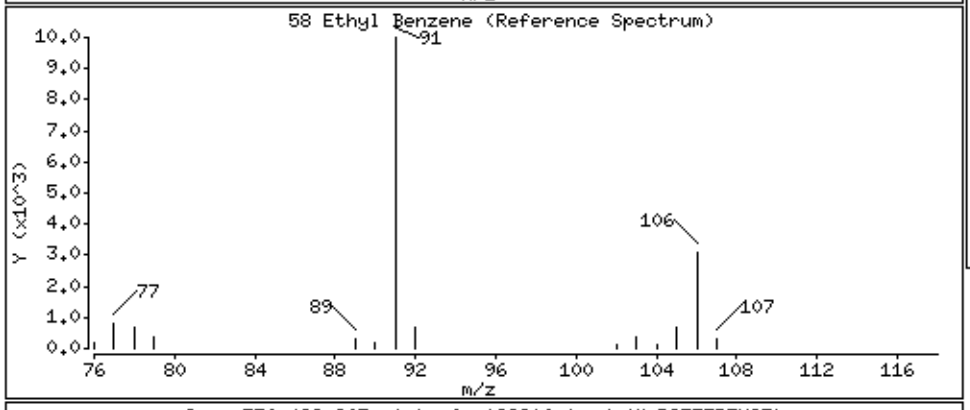
Concentration: 0.05753 PPBV

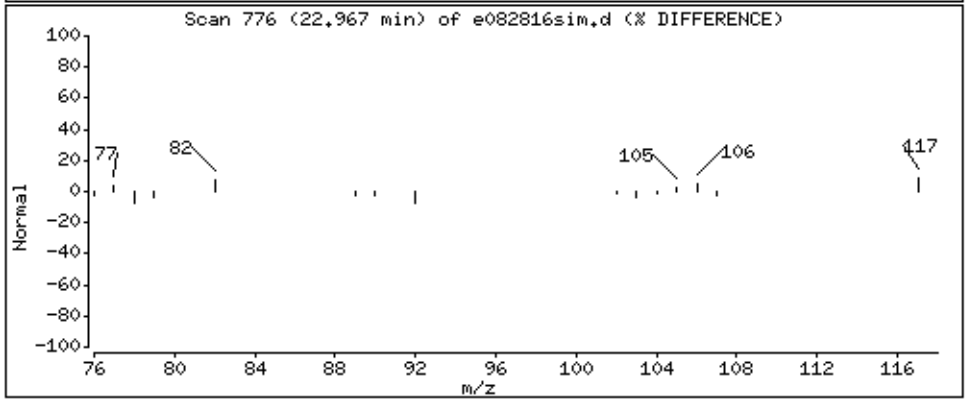












Data File: /chem/msde.i/28Aug2013.b/e082816sim.d

Date : 29-AUG-2013 12:01

Client ID:

Instrument: msde.i

Sample Info: 250mL #34187

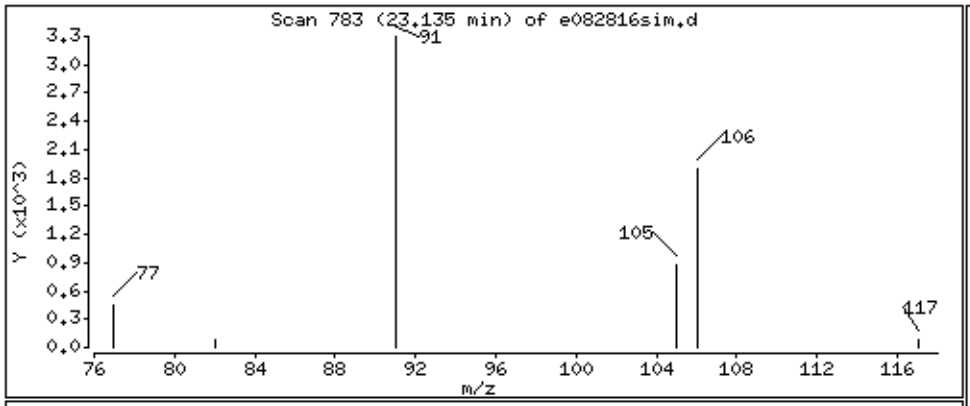
Operator: sab

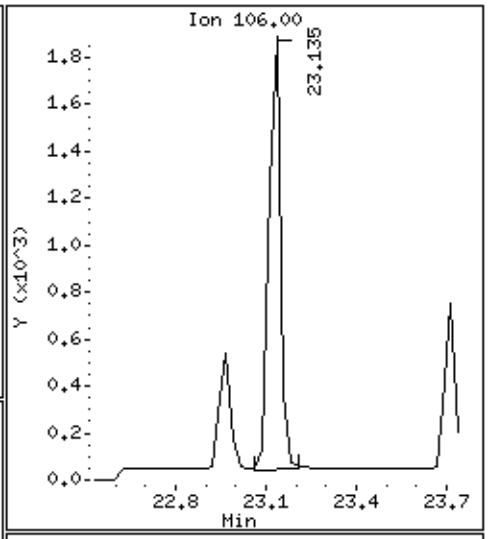
Column phase: RTx-624

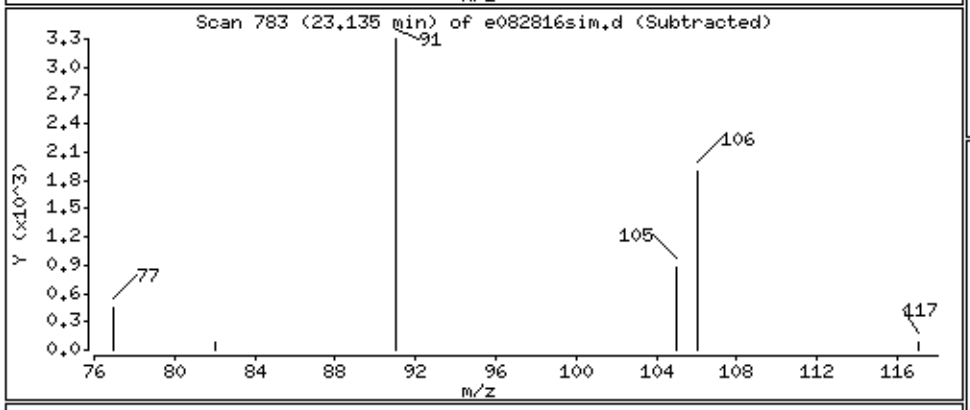
Column diameter: 0.53

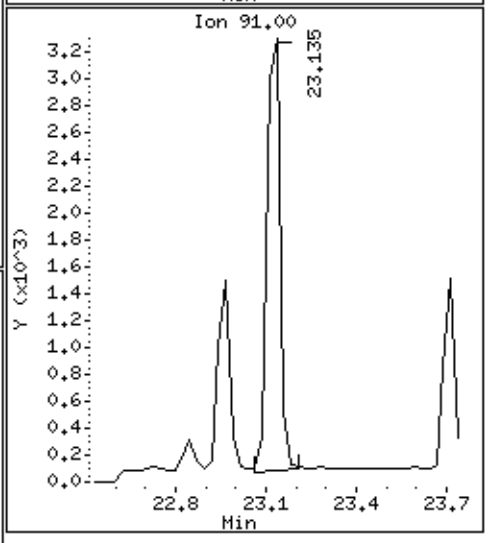
59 m,p-Xylene

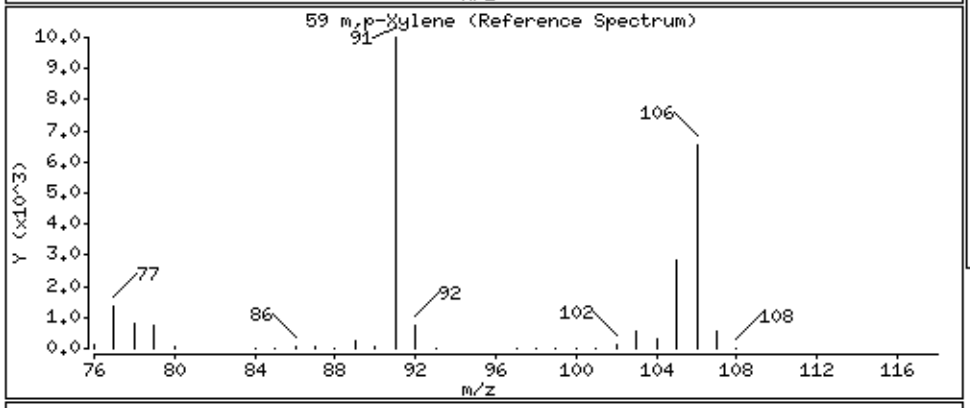
Concentration: 0.1966 PPBV

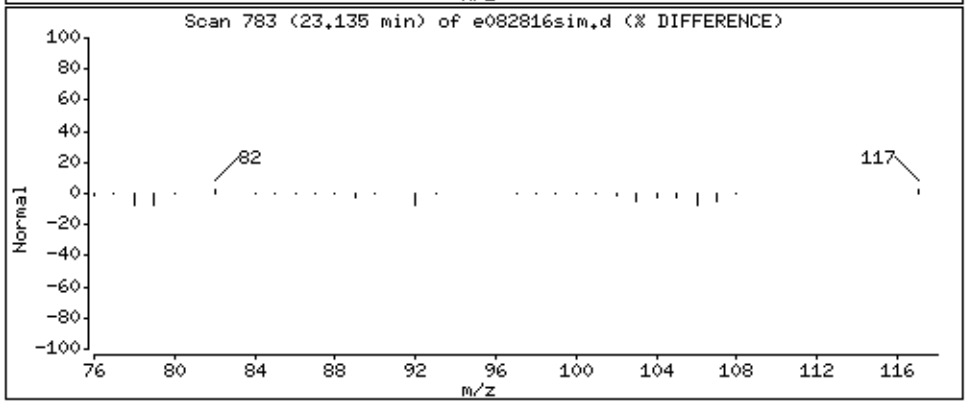












Data File: /chem/msde.i/28Aug2013.b/e082816sim.d

Date : 29-AUG-2013 12:01

Client ID:

Instrument: msde.i

Sample Info: 250mL #34187

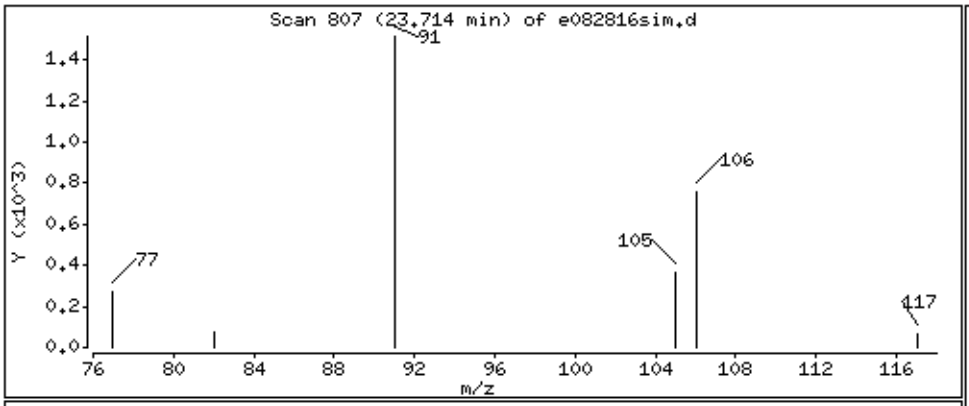
Operator: sab

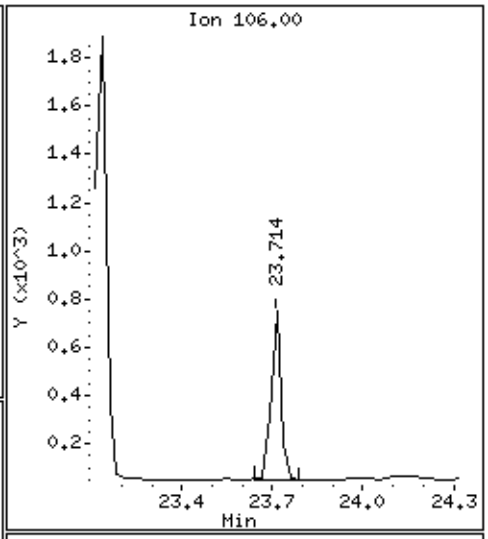
Column phase: RTx-624

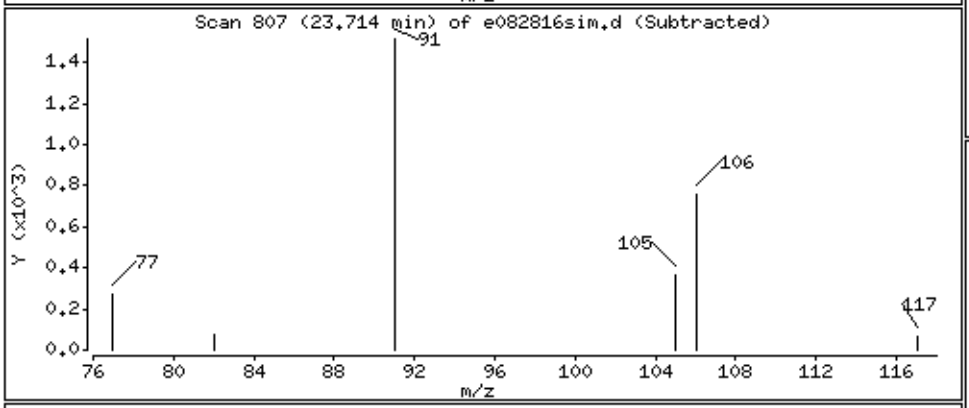
Column diameter: 0.53

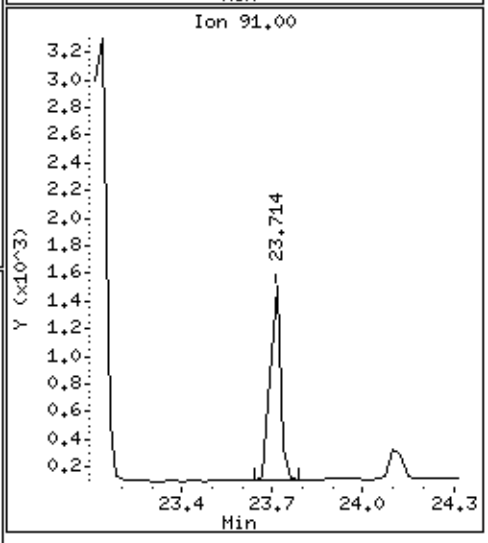
61 o-Xylene

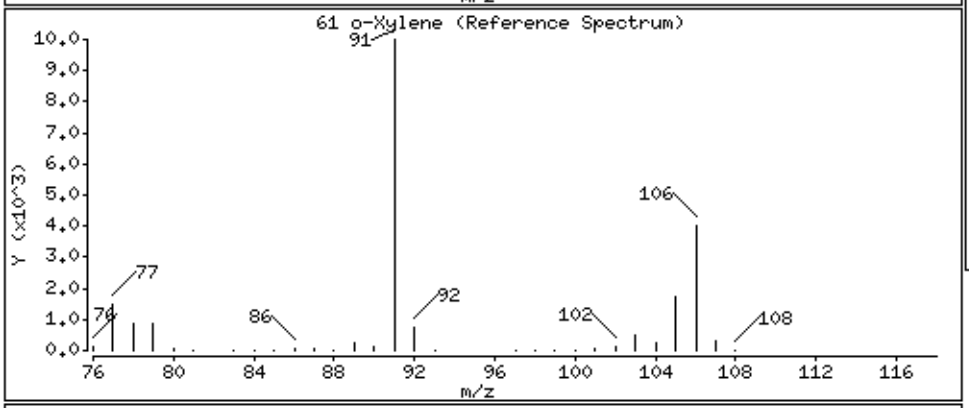
Concentration: 0.06625 PPBV

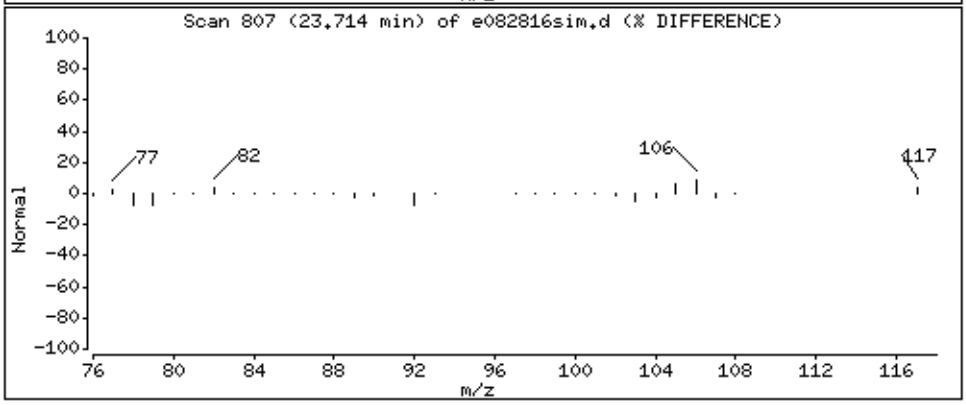












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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: SSHS-08-27-13-IA-2

Lab ID#: 1308654-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.031	0.085	0.12	0.34
Benzene	0.078	0.11	0.25	0.36
1,2-Dichloroethane	0.031	1.8	0.12	7.3
Trichloroethene	0.031	0.55	0.17	3.0
Toluene	0.031	0.72	0.12	2.7
Ethyl Benzene	0.031	0.11	0.13	0.48
m,p-Xylene	0.062	0.40	0.27	1.7
o-Xylene	0.031	0.14	0.13	0.60

eurofins | Air Toxics

Client Sample ID: SSHS-08-27-13-IA-2

Lab ID#: 1308654-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**e082817sim**	**Date of Collection:**	**8/28/13 6:30:00 AM**
Dil. Factor:	**1.55**	**Date of Analysis:**	**8/29/13 12:48 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.016	Not Detected	0.040	Not Detected
1,1-Dichloroethene	0.016	Not Detected	0.061	Not Detected
1,1-Dichloroethane	0.031	Not Detected	0.12	Not Detected
cis-1,2-Dichloroethene	0.031	0.085	0.12	0.34
1,1,1-Trichloroethane	0.031	Not Detected	0.17	Not Detected
Benzene	0.078	0.11	0.25	0.36
1,2-Dichloroethane	0.031	1.8	0.12	7.3
Trichloroethene	0.031	0.55	0.17	3.0
Toluene	0.031	0.72	0.12	2.7
1,1,2-Trichloroethane	0.031	Not Detected	0.17	Not Detected
Tetrachloroethene	0.031	Not Detected	0.21	Not Detected
Ethyl Benzene	0.031	0.11	0.13	0.48
m,p-Xylene	0.062	0.40	0.27	1.7
o-Xylene	0.031	0.14	0.13	0.60
1,1,2,2-Tetrachloroethane	0.031	Not Detected	0.21	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.61	Not Detected
Methyl tert-butyl ether	0.16	Not Detected	0.56	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	100	70-130

Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/28Aug2013.b/e082817sim.d
Lab Smp Id: 1308654-03A
Inj Date : 29-AUG-2013 12:48
Operator : sab Inst ID: msde.i
Smp Info : 250mL #25306
Misc Info : 4.3"Hg --> 4.8psi
Comment : SIM/ GC-MS
Method : /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Meth Date : 29-Aug-2013 14:40 lover Quant Type: ISTD
Cal Date : 27-AUG-2013 09:01 Cal File: e082616sim.d
Als bottle: 31
Dil Factor: 1.55000
Integrator: HP RTE Compound Sublist: Std17.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				CONCENTRATIONS ON-COL	FINAL		
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE	RATIO
* 31 Bromochloromethane						CAS #: 74-97-5	
16.060	16.060 (1.000)	130	73218	5.00000		80.00- 120.00	100.00
16.060	16.060 (1.000)	128	57303			0.00- 30.00	78.26
16.060	16.060 (1.000)	49	150787			0.00- 30.00	205.94
$ 37 1,2-Dichloroethane-d4						CAS #: 17060-07-0	
16.915	16.914 (1.053)	65	120943	5.33294	5.333	80.00- 120.00	100.00
16.915	16.914 (1.053)	67	58065			0.00- 30.00	48.01
* 40 1,4-Difluorobenzene						CAS #: 540-36-3	
17.492	17.492 (1.000)	114	349833	5.00000		80.00- 120.00	100.00
17.492	17.492 (1.000)	88	56238			0.00- 45.94	16.08
$ 47 Toluene-d8						CAS #: 2037-26-5	
20.260	20.260 (1.158)	98	285201	5.05379	5.054	80.00- 120.00	100.00
20.260	20.260 (1.158)	70	34008			0.00- 41.61	11.92
20.260	20.260 (1.158)	100	197860			40.17- 100.17	69.38
* 56 Chlorobenzene-d5						CAS #: 3114-55-4	
22.846	22.846 (1.000)	117	282501	5.00000		80.00- 120.00	100.00

RT	EXP RT (REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	CONCENTRATIONS FINAL (PPBV)	TARGET RANGE	RATIO
* 56 Chlorobenzene-d5 (continued)							
22.846	22.846 (1.000)	82	146021			0.00- 30.00	51.69
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.440	24.440 (1.070)	174	157208	5.00523	5.005	80.00- 120.00	100.00
24.440	24.440 (1.070)	95	182742			86.00- 146.00	116.24
24.440	24.440 (1.070)	176	150366			66.32- 126.32	95.65
28 cis-1,2-Dichloroethene					CAS #: 156-59-2		
15.708	15.708 (0.978)	98	977	0.05510	0.08540	80.00- 120.00	100.00
15.708	15.708 (0.978)	61	4227			0.00- 30.00	432.65
15.708	15.708 (0.978)	96	1486			0.00- 30.00	152.10
36 Benzene					CAS #: 71-43-2		
16.915	16.914 (0.967)	78	7276	0.07337	0.1137	80.00- 120.00	100.00
16.915	16.914 (0.967)	77	2249			0.00- 30.00	30.91
38 1,2-Dichloroethane					CAS #: 107-06-2		
17.031	17.031 (0.974)	62	51574	1.16149	1.800	80.00- 120.00	100.00
17.031	17.031 (0.974)	64	14826			0.00- 30.00	28.75
41 Trichloroethene					CAS #: 79-01-6		
17.932	17.931 (1.025)	130	16177	0.35545	0.5510	80.00- 120.00	100.00
17.932	17.904 (1.025)	95	15561			64.83- 124.83	96.19
17.932	17.931 (1.025)	97	9703			31.17- 91.17	59.98
48 Toluene					CAS #: 108-88-3		
20.394	20.394 (1.166)	91	47152	0.46266	0.7171	80.00- 120.00	100.00
20.417	20.394 (1.167)	92	27908			29.84- 89.84	59.19
58 Ethyl Benzene					CAS #: 100-41-4		
22.967	22.967 (1.005)	106	2870	0.07179	0.1113	80.00- 120.00	100.00
22.967	22.967 (1.005)	91	8911			0.00- 30.00	310.49
59 m,p-Xylene					CAS #: 108-38-3		
23.135	23.135 (1.013)	106	11260	0.25707	0.3985	80.00- 120.00	100.00
23.111	23.135 (1.012)	91	22328			0.00- 30.00	198.29
61 o-Xylene					CAS #: 95-47-6		
23.714	23.714 (1.038)	106	3774	0.08894	0.1378	80.00- 120.00	100.00
23.714	23.714 (1.038)	91	7836			177.04- 237.04	207.63

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082817sim.d
Lab Smp Id: 1308654-03A
Analysis Type: VOA
Quant Type: ISTD
Operator: sab
Method File: /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Misc Info: 4.3"Hg --> 4.8psi

Calibration Date: 28-AUG-2013
Calibration Time: 14:14
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	82006	49204	114808	73218	-10.72
40 1,4-Difluorobenze	379974	227984	531964	349833	-7.93
56 Chlorobenzene-d5	304786	182872	426700	282501	-7.31

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.06	15.73	16.39	16.06	0.00
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Report Date: 29-Aug-2013 14:40

Eurofins Air Toxics Inc.

RECOVERY REPORT

Client Name: Client SDG: 27Aug2013
Sample Matrix: GAS Fraction: VOA
Lab Smp Id: 1308654-03A
Level: LOW Operator: sab
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: AT09.spk Quant Type: ISTD
Sublist File: Std17.sub
Method File: /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Misc Info: 4.3"Hg --> 4.8psi

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED	LIMITS
$ 37 1,2-Dichloroethane	5.000	5.333	106.66	70-130
$ 47 Toluene-d8	5.000	5.054	101.08	70-130
$ 65 Bromofluorobenzene	5.000	5.005	100.10	70-130

Data File: /chem/msde.i/28Aug2013.b/e082817sim.d

Date : 29-AUG-2013 12:48

Client ID:

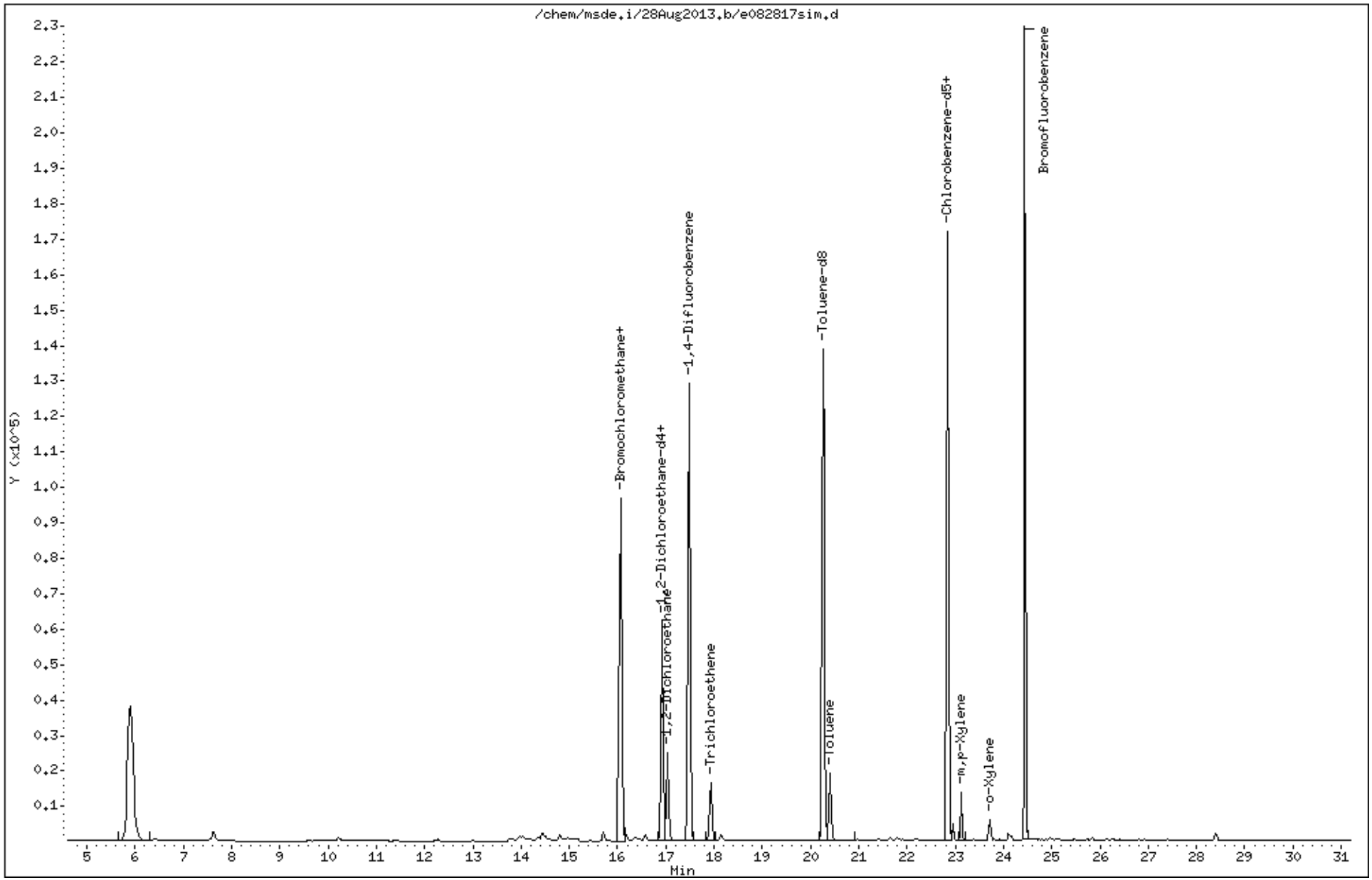
Instrument: msde.i

Sample Info: 250mL #25306

Operator: sab

Column phase: RTx-624

Column diameter: 0.53



Data File: /chem/msde.i/28Aug2013.b/e082817sim.d

Date : 29-AUG-2013 12:48

Client ID:

Instrument: msde.i

Sample Info: 250mL #25306

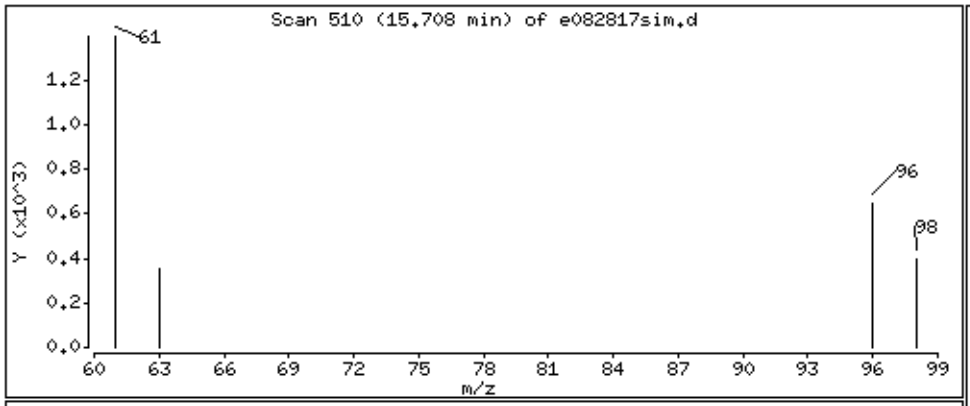
Operator: sab

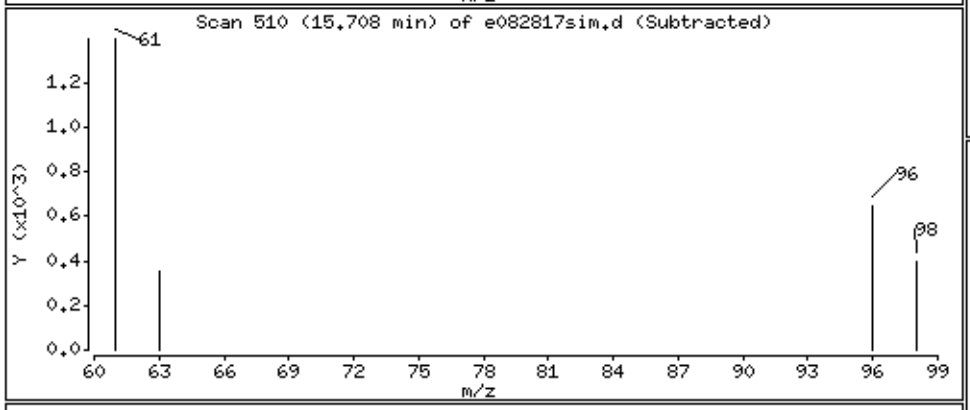
Column phase: RTx-624

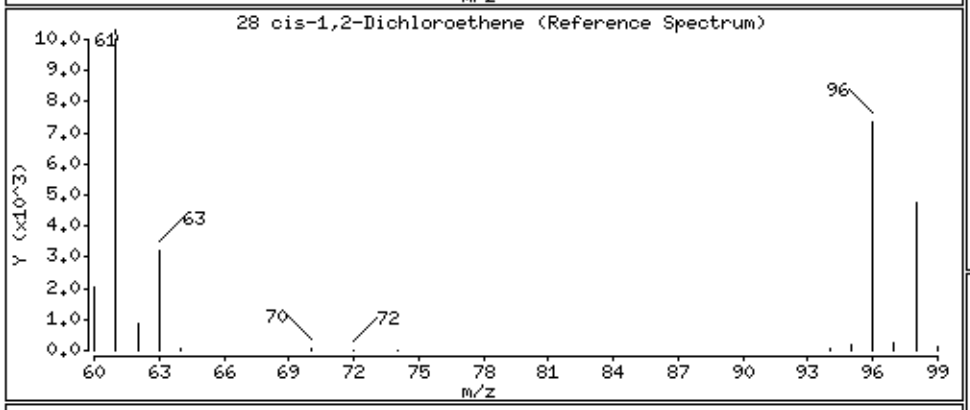
Column diameter: 0.53

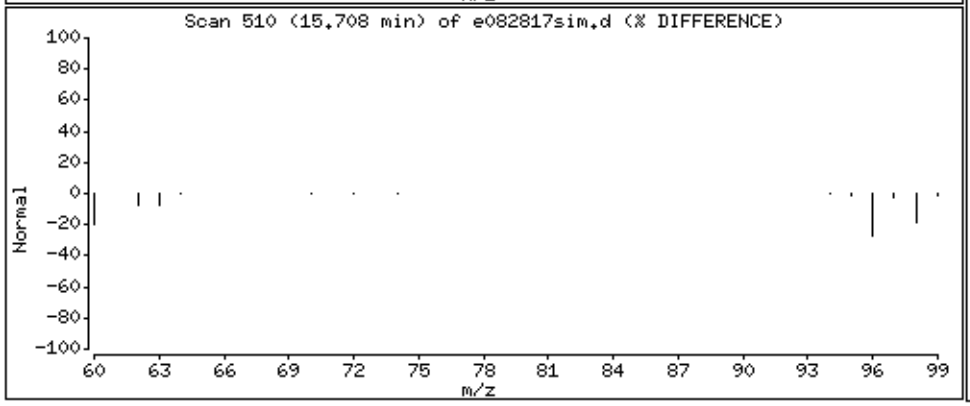
28 cis-1,2-Dichloroethene

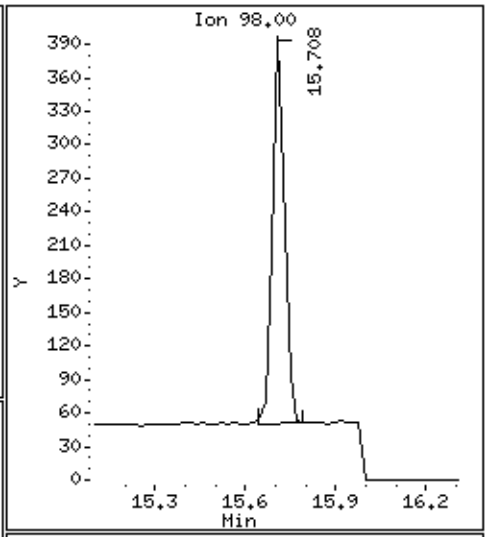
Concentration: 0.08540 PPBV

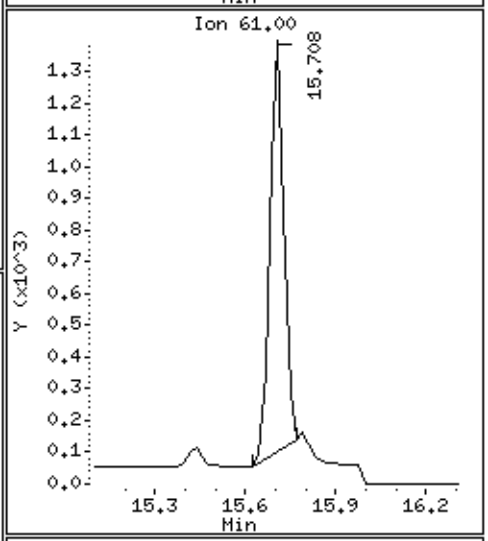


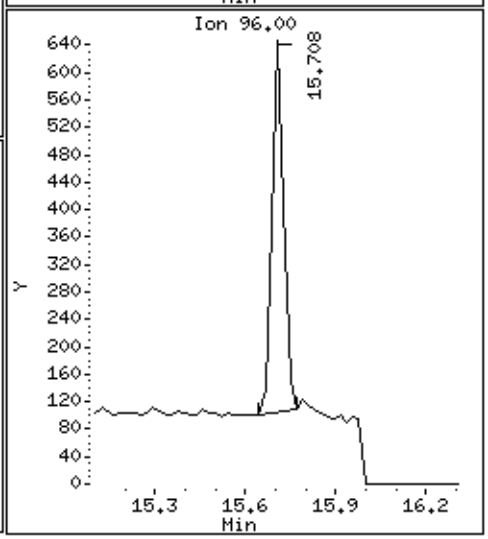












Data File: /chem/msde.i/28Aug2013.b/e082817sim.d

Date : 29-AUG-2013 12:48

Client ID:

Instrument: msde.i

Sample Info: 250mL #25306

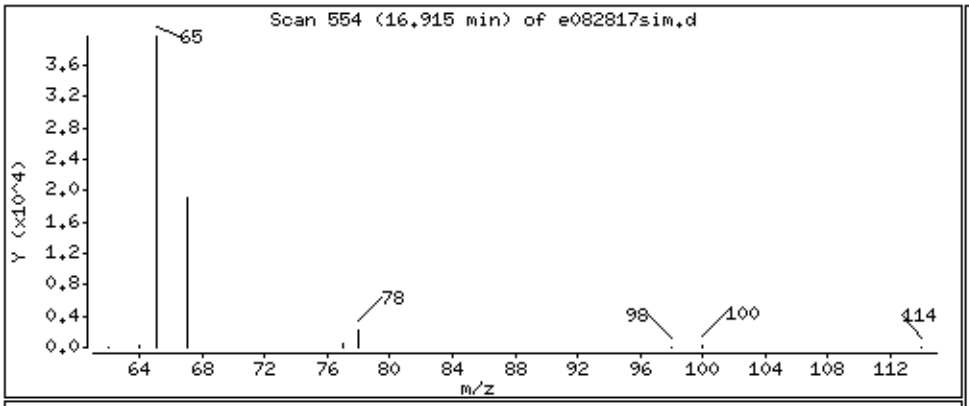
Operator: sab

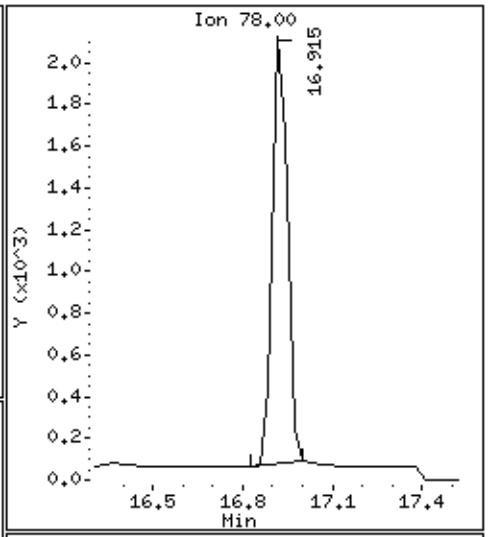
Column phase: RTx-624

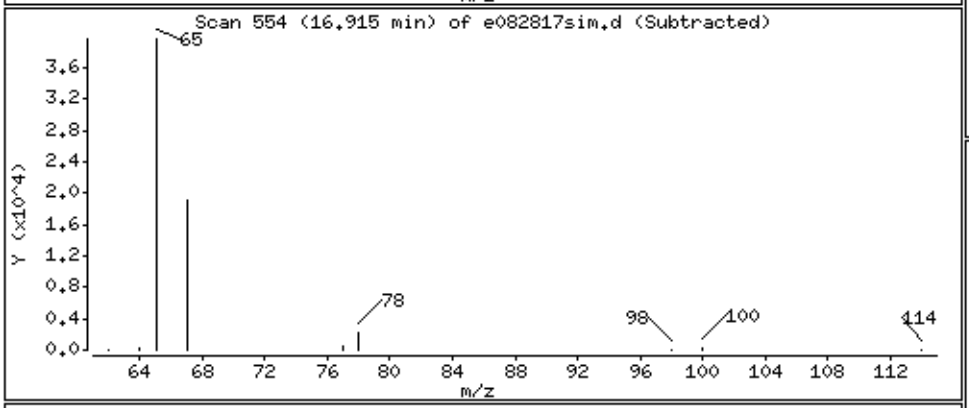
Column diameter: 0.53

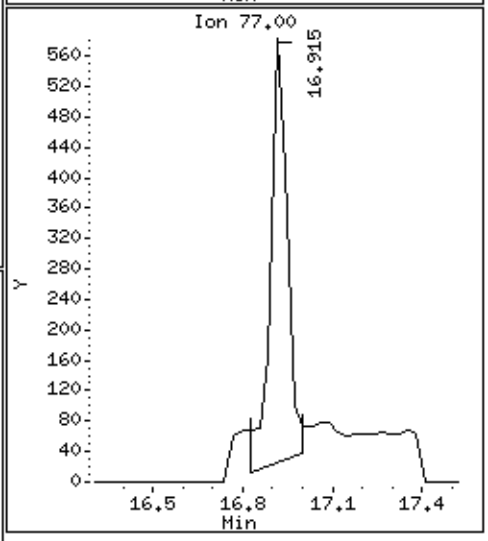
36 Benzene

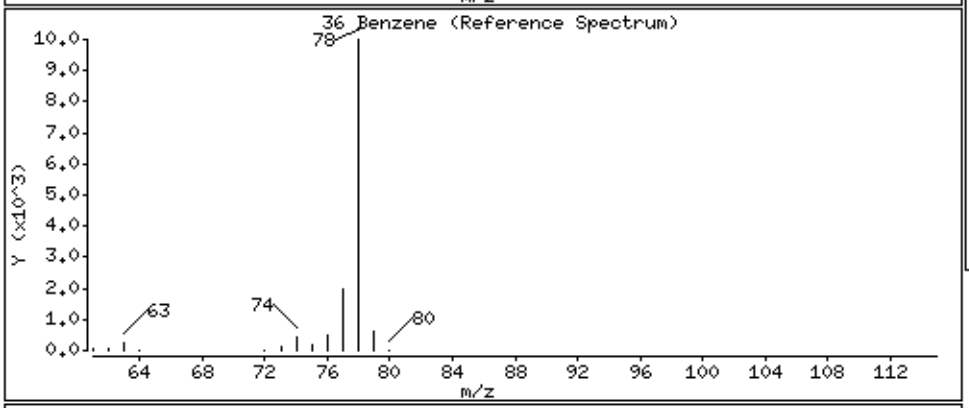
Concentration: 0.1137 PPBV

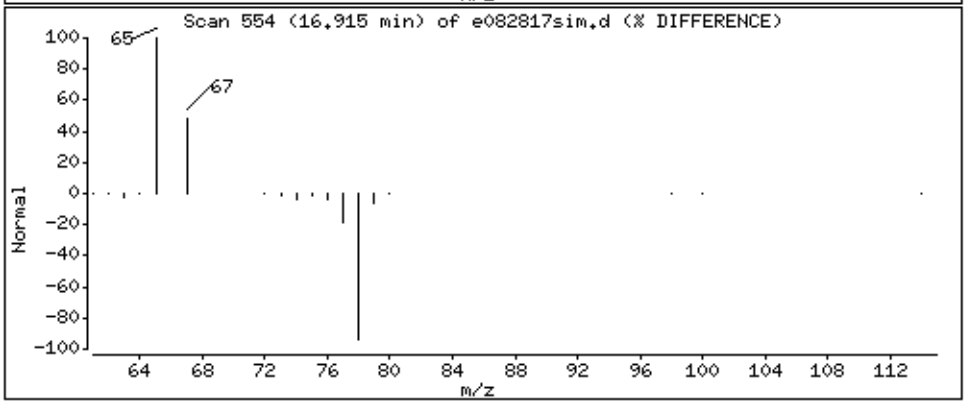












Data File: /chem/msde.i/28Aug2013.b/e082817sim.d

Date : 29-AUG-2013 12:48

Client ID:

Instrument: msde.i

Sample Info: 250mL #25306

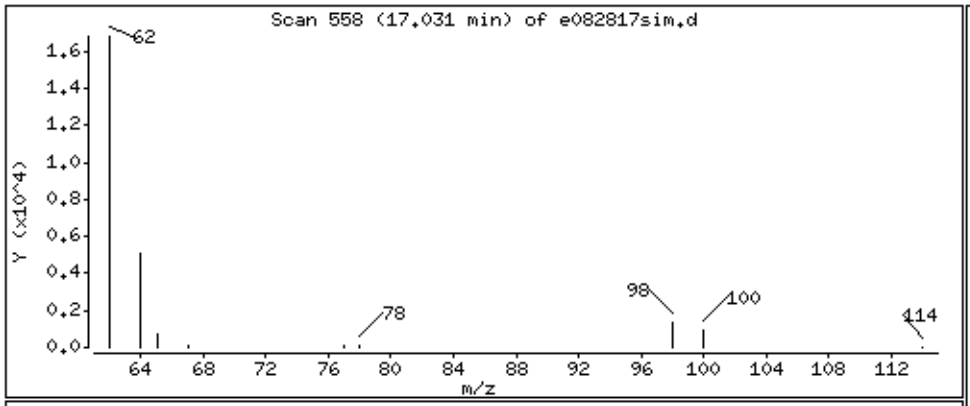
Operator: sab

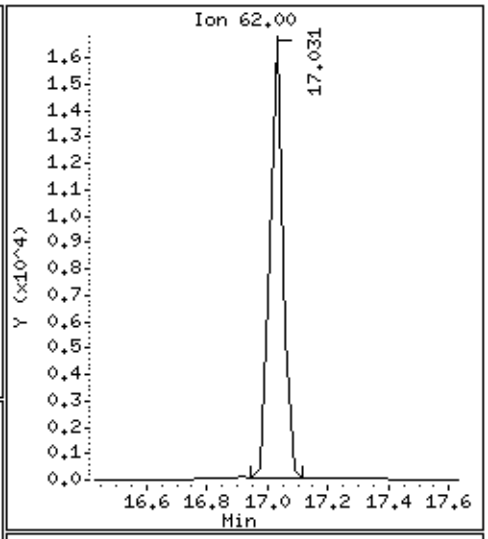
Column phase: RTx-624

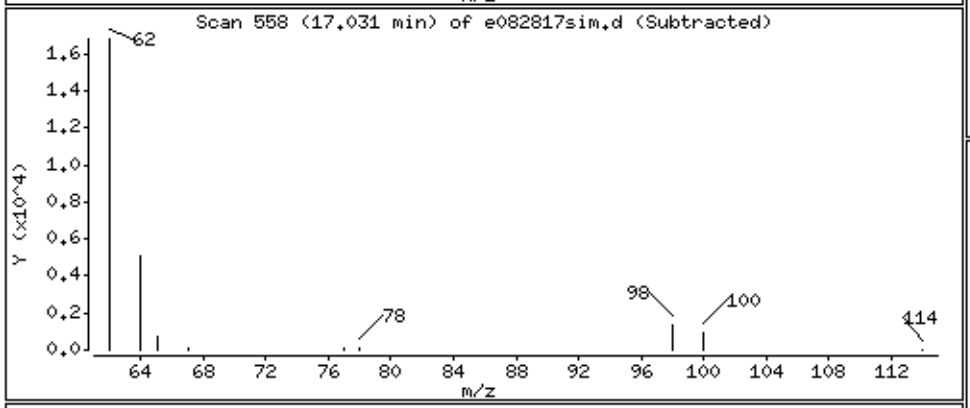
Column diameter: 0.53

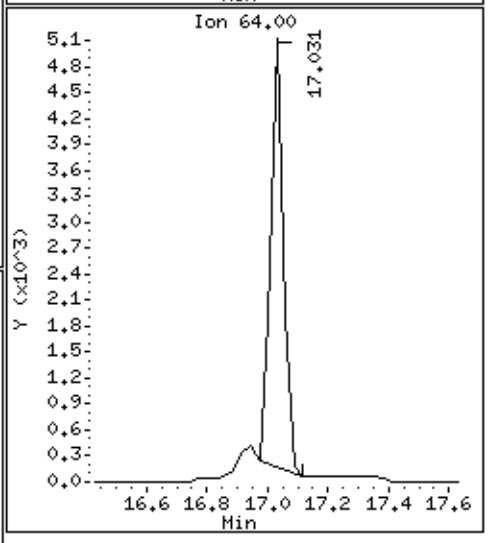
38 1,2-Dichloroethane

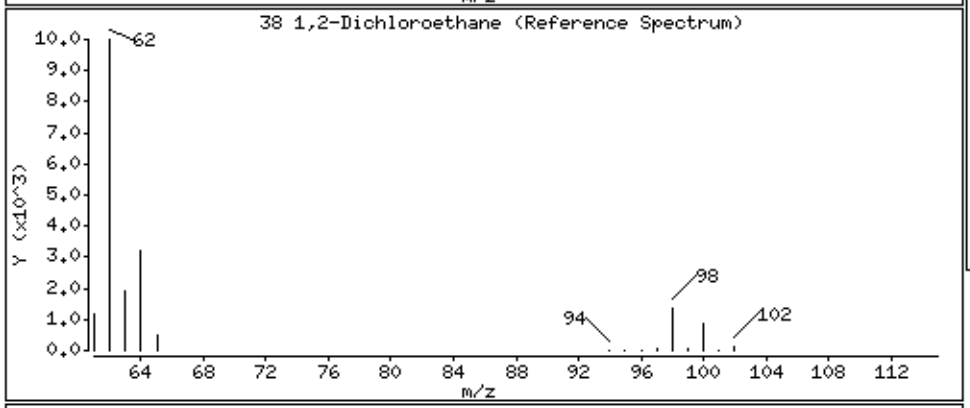
Concentration: 1.800 PPBV

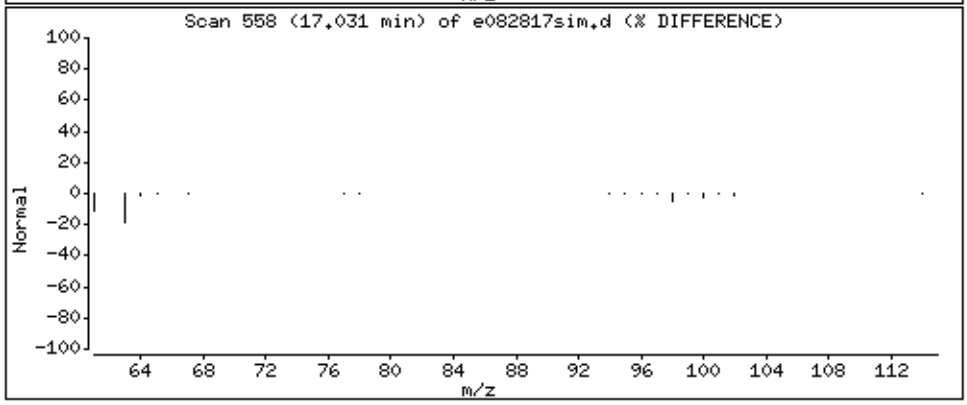












Data File: /chem/msde.i/28Aug2013.b/e082817sim.d

Date : 29-AUG-2013 12:48

Client ID:

Instrument: msde.i

Sample Info: 250mL #25306

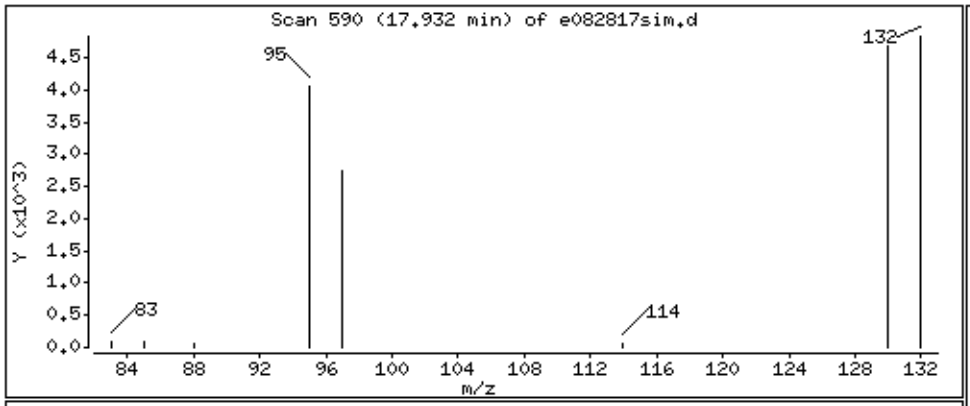
Operator: sab

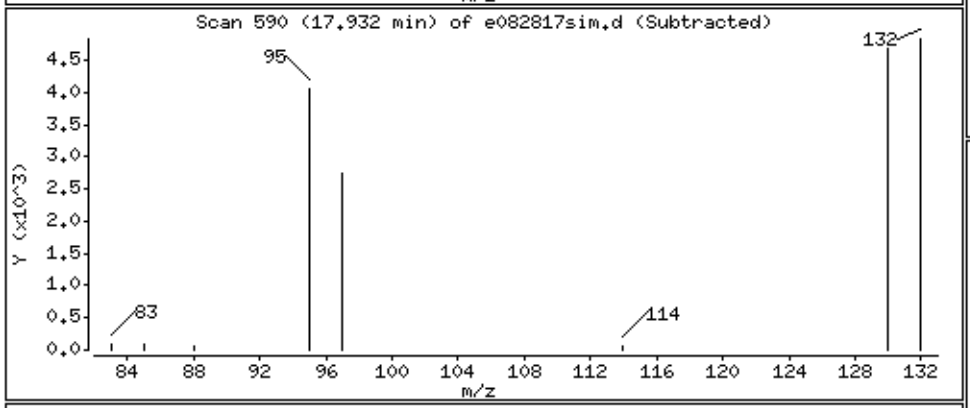
Column phase: RTx-624

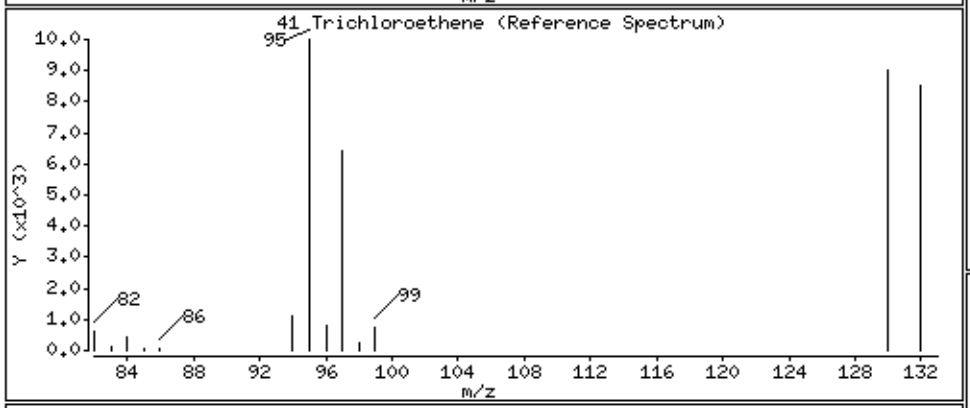
Column diameter: 0.53

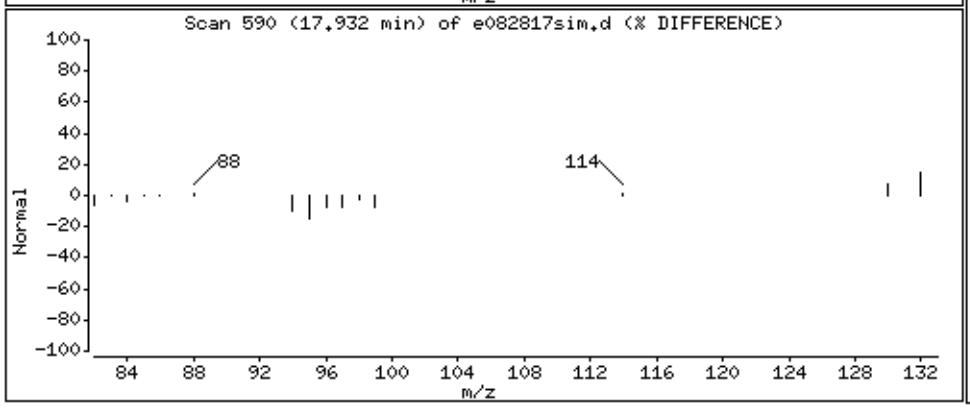
41 Trichloroethene

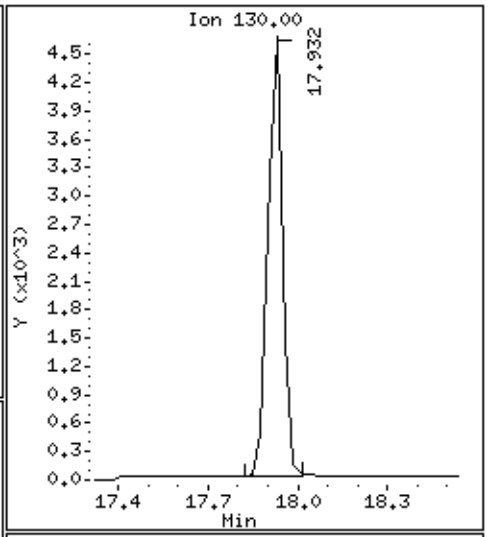
Concentration: 0.5510 PPBV

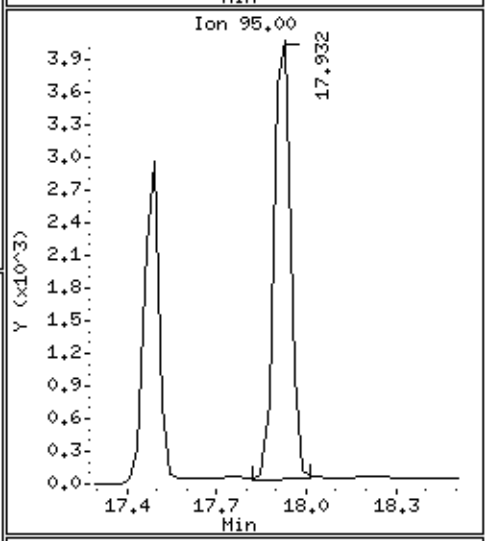


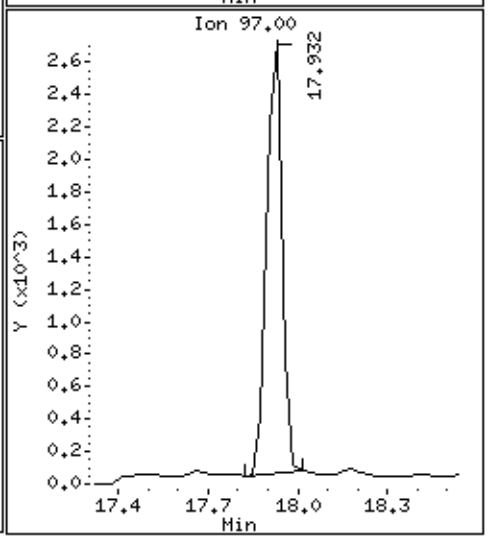












Data File: /chem/msde.i/28Aug2013.b/e082817sim.d

Date : 29-AUG-2013 12:48

Client ID:

Instrument: msde.i

Sample Info: 250mL #25306

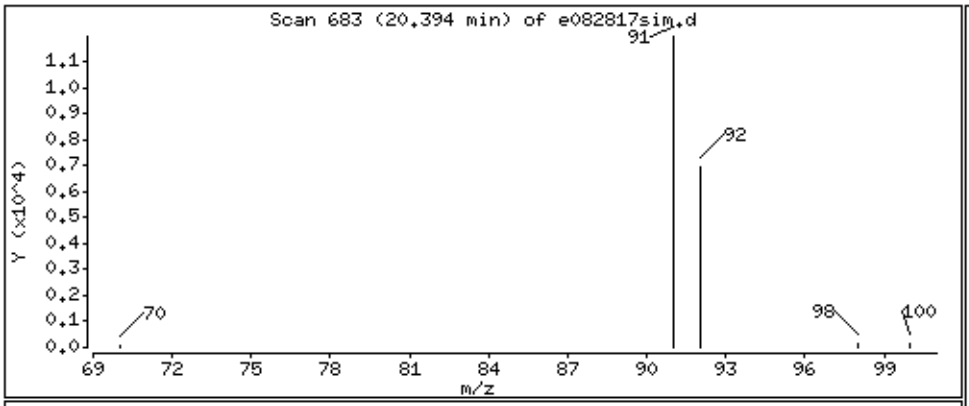
Operator: sab

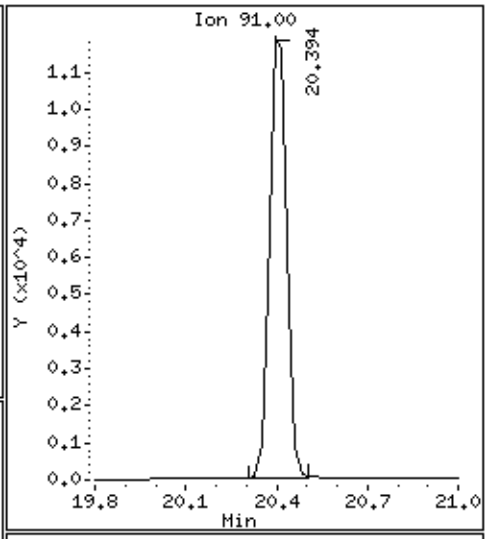
Column phase: RTx-624

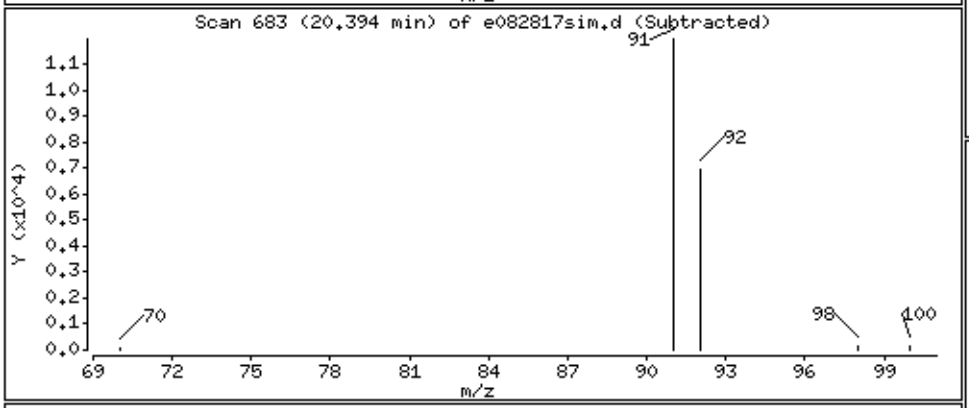
Column diameter: 0.53

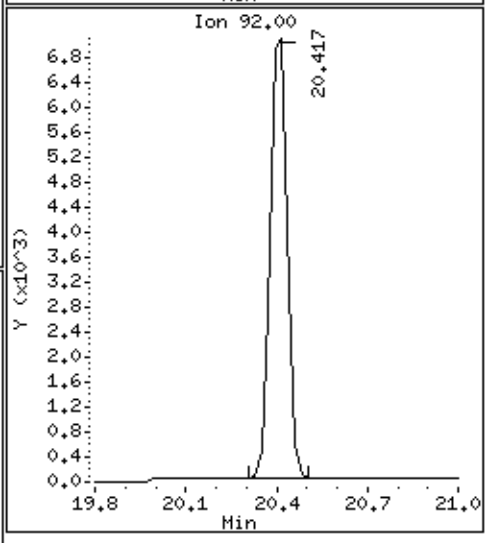
48 Toluene

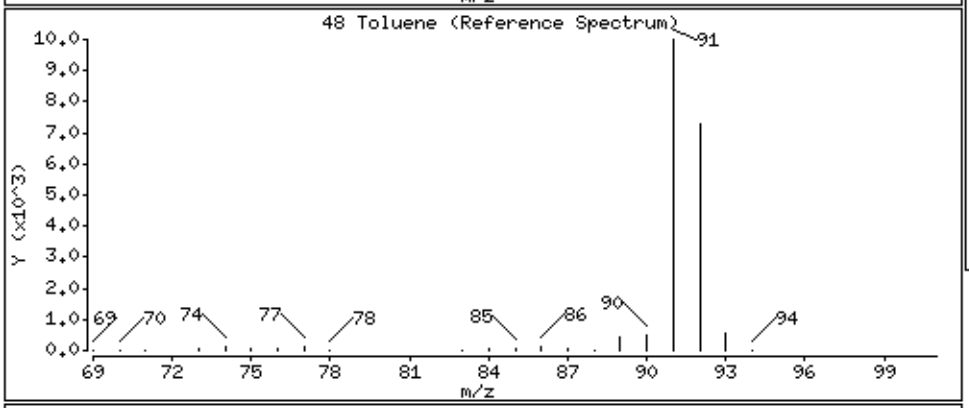
Concentration: 0.7171 PPBV

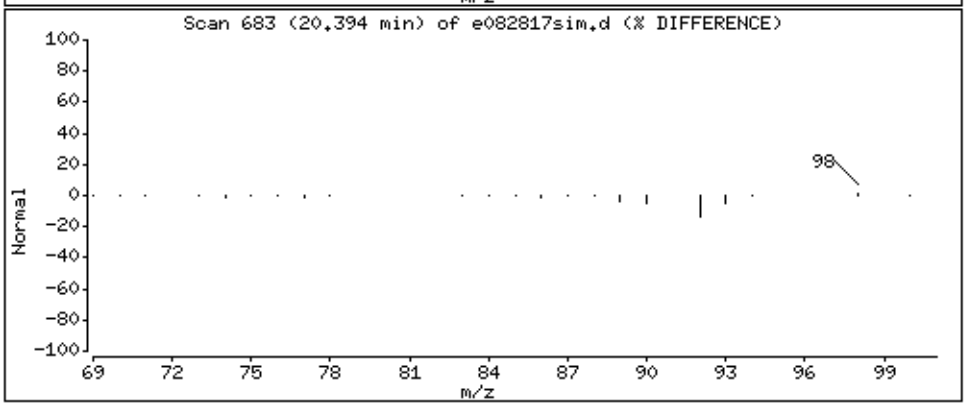












Data File: /chem/msde.i/28Aug2013.b/e082817sim.d

Date : 29-AUG-2013 12:48

Client ID:

Instrument: msde.i

Sample Info: 250mL #25306

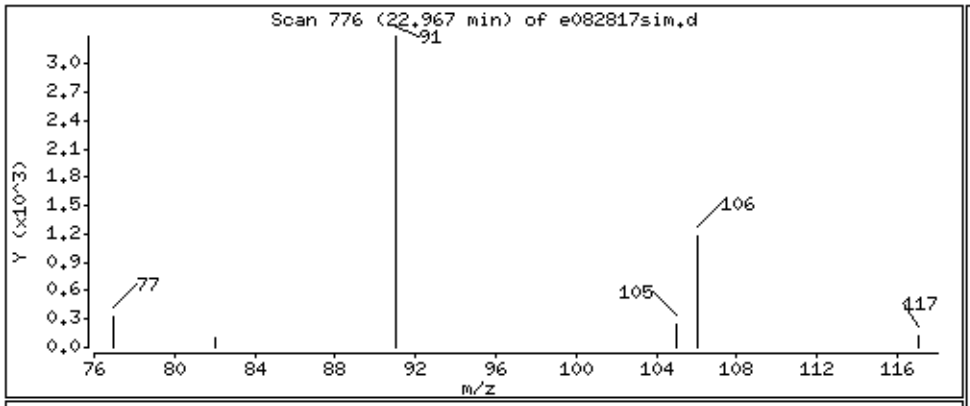
Operator: sab

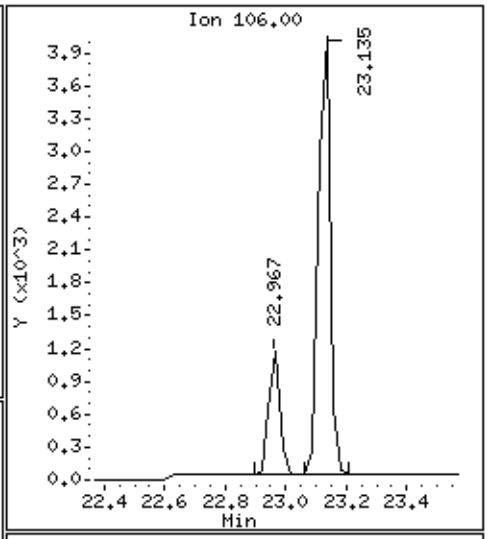
Column phase: RTx-624

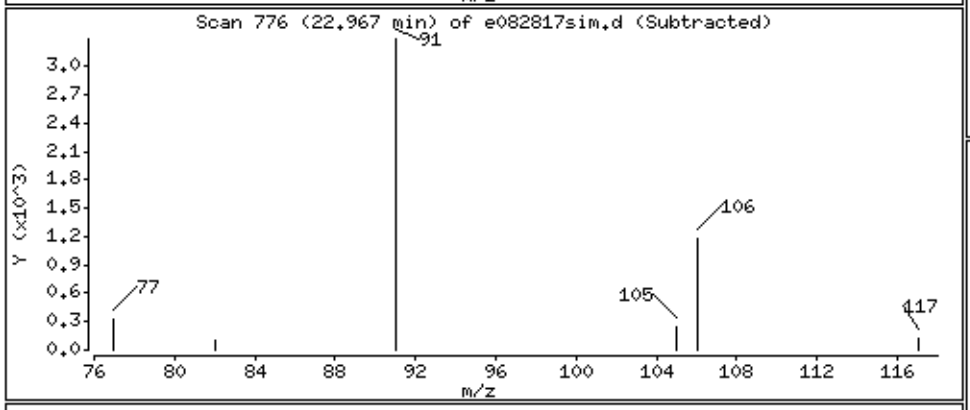
Column diameter: 0.53

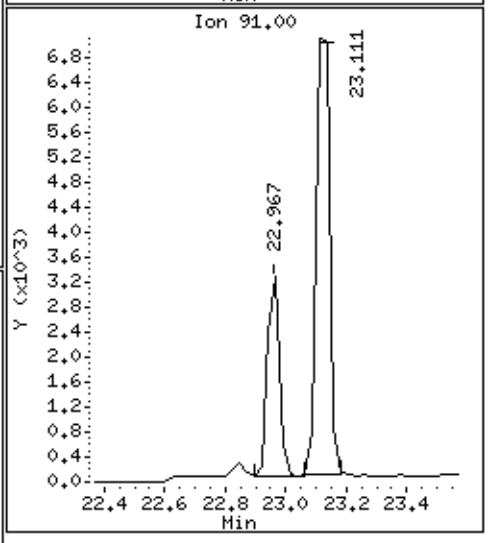
58 Ethyl Benzene

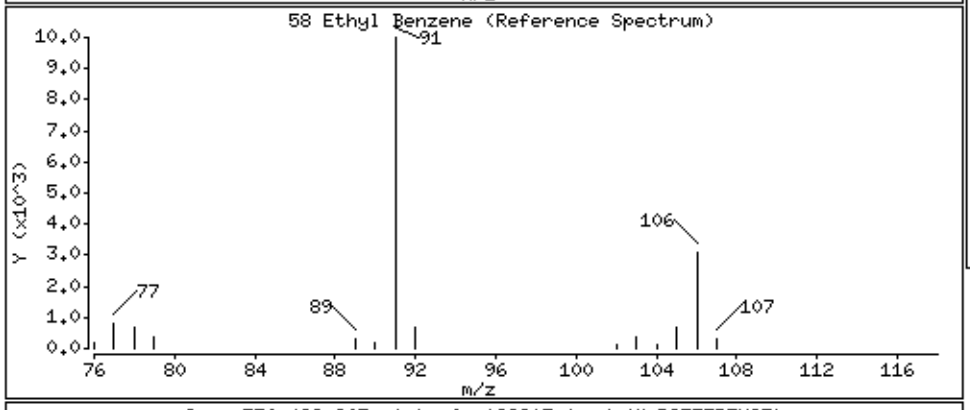
Concentration: 0.1113 PPBV

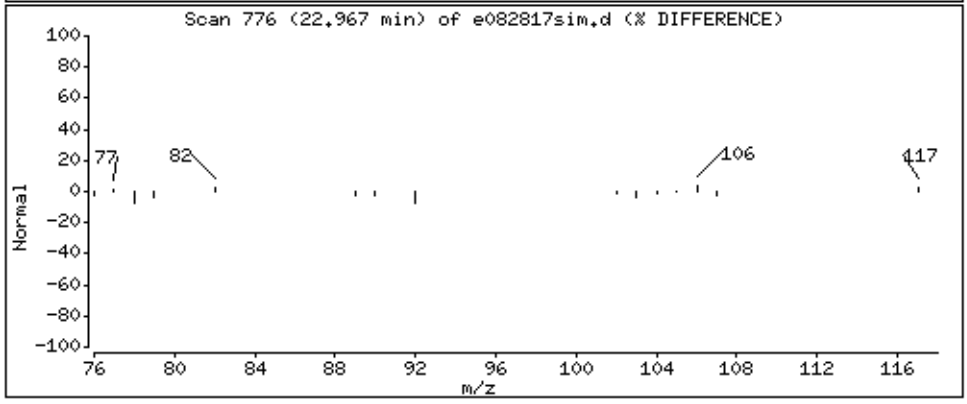












Data File: /chem/msde.i/28Aug2013.b/e082817sim.d

Date : 29-AUG-2013 12:48

Client ID:

Instrument: msde.i

Sample Info: 250mL #25306

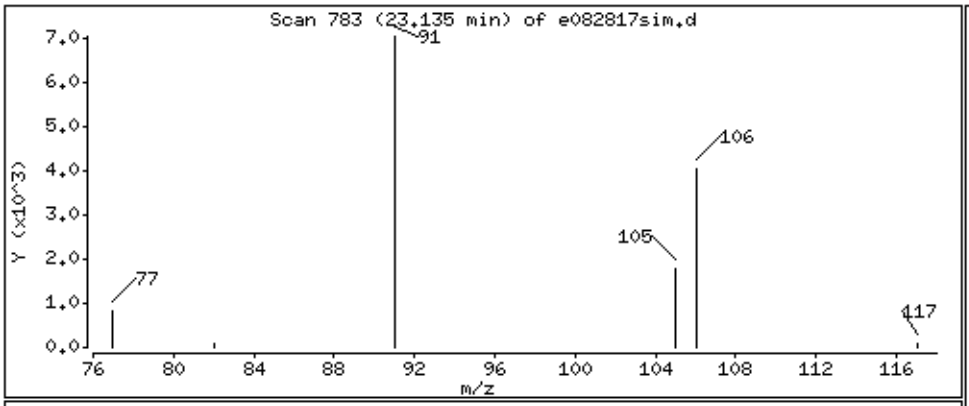
Operator: sab

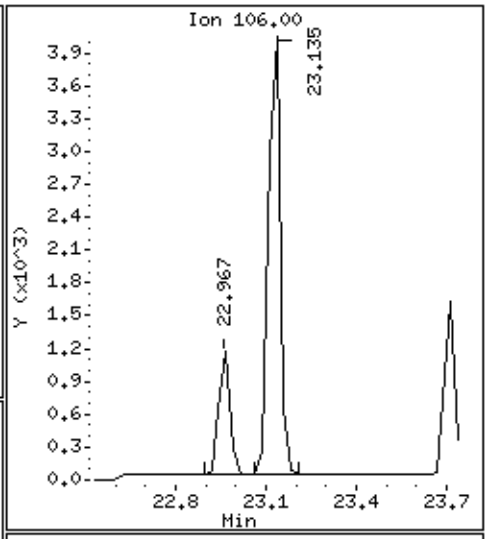
Column phase: RTx-624

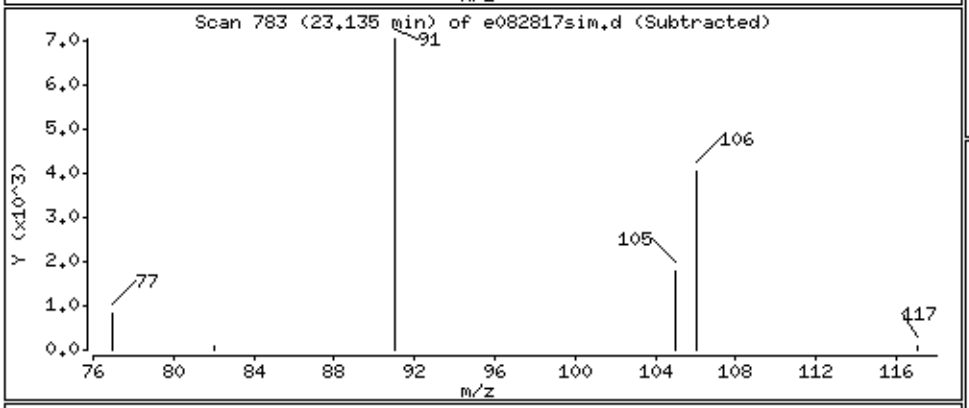
Column diameter: 0.53

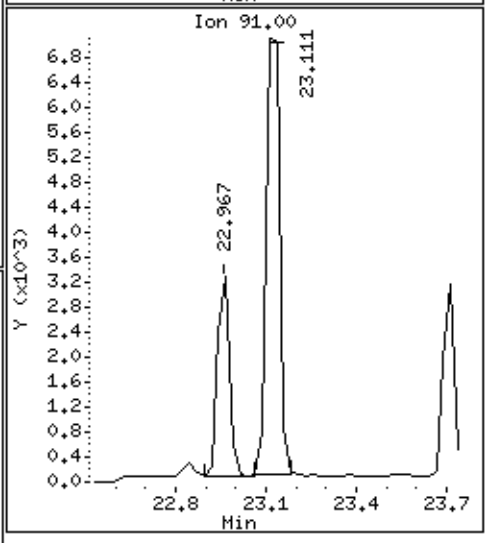
59 m,p-Xylene

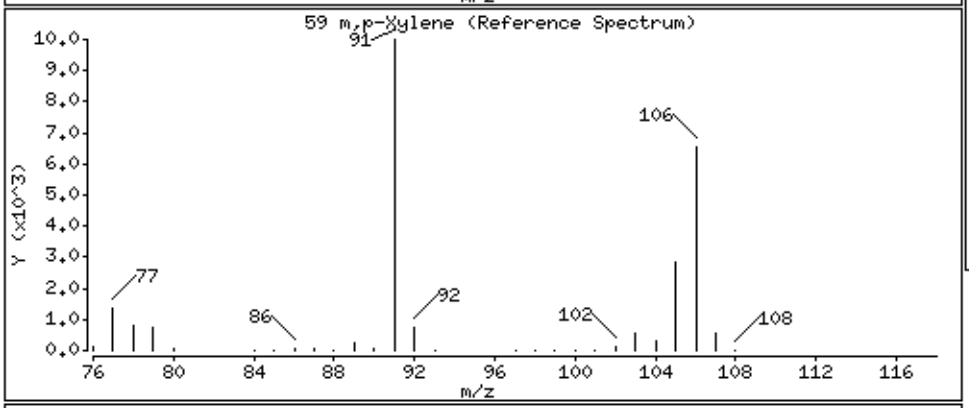
Concentration: 0.3985 PPBV

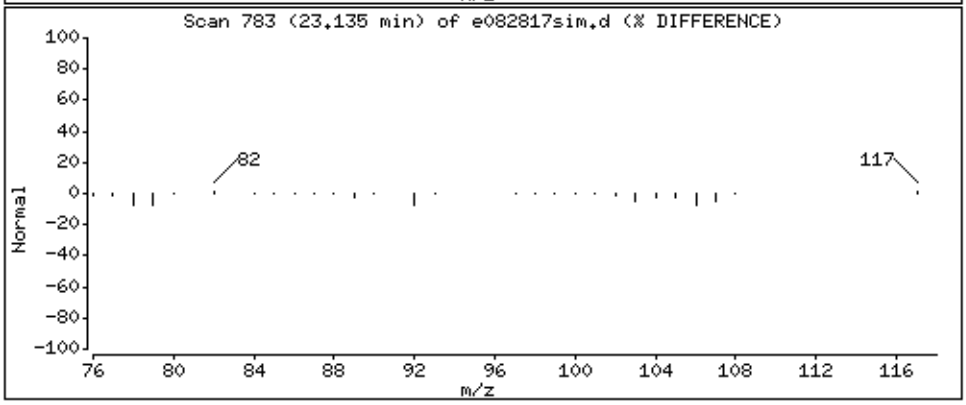












Data File: /chem/msde.i/28Aug2013.b/e082817sim.d

Date : 29-AUG-2013 12:48

Client ID:

Instrument: msde.i

Sample Info: 250mL #25306

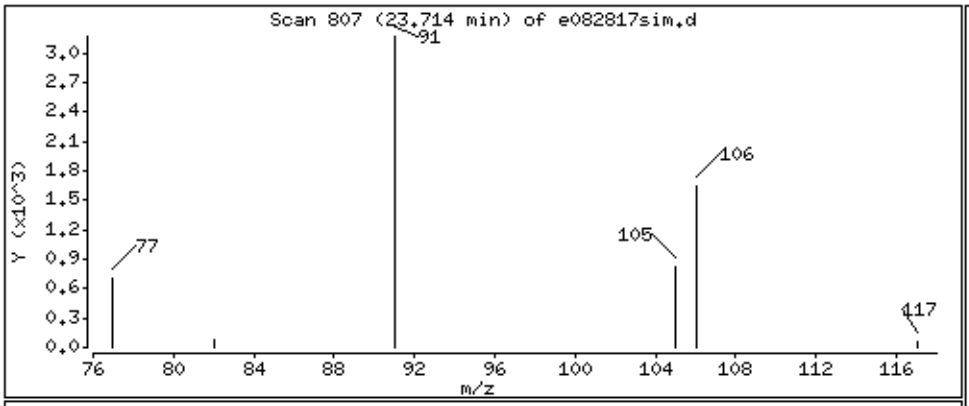
Operator: sab

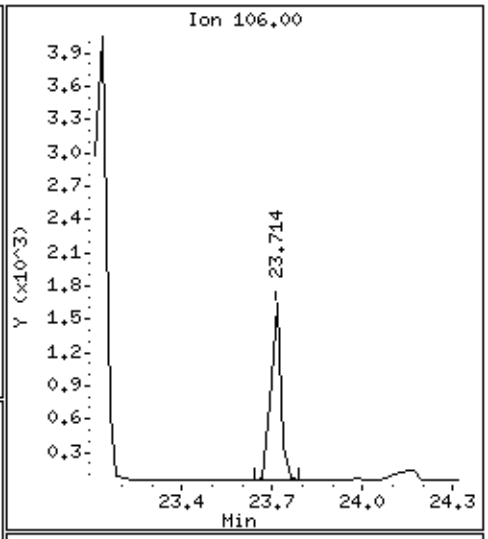
Column phase: RTx-624

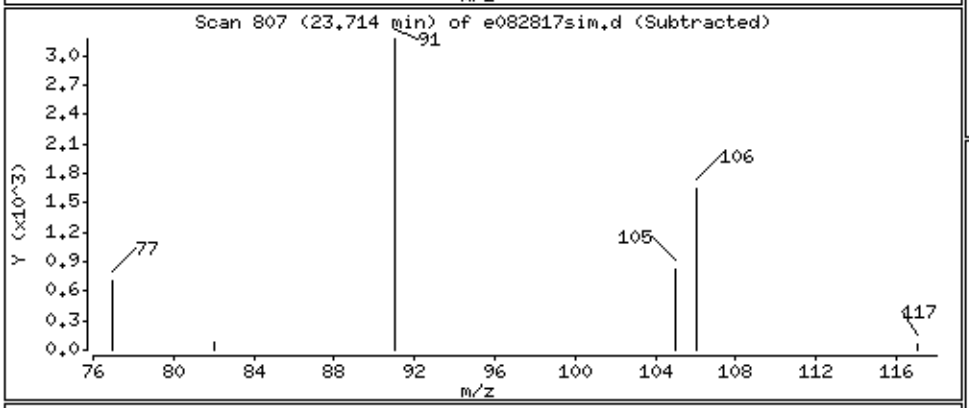
Column diameter: 0.53

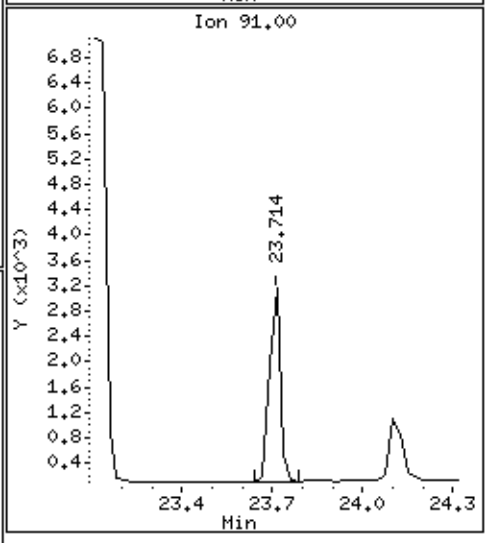
61 o-Xylene

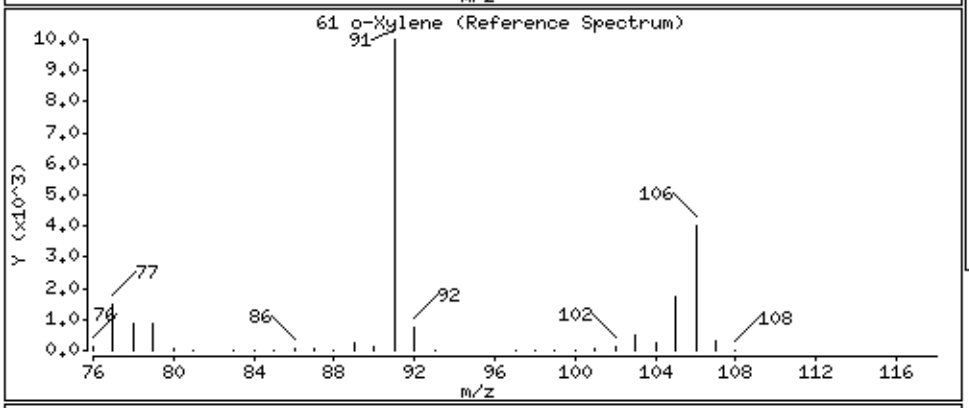
Concentration: 0.1378 PPBV

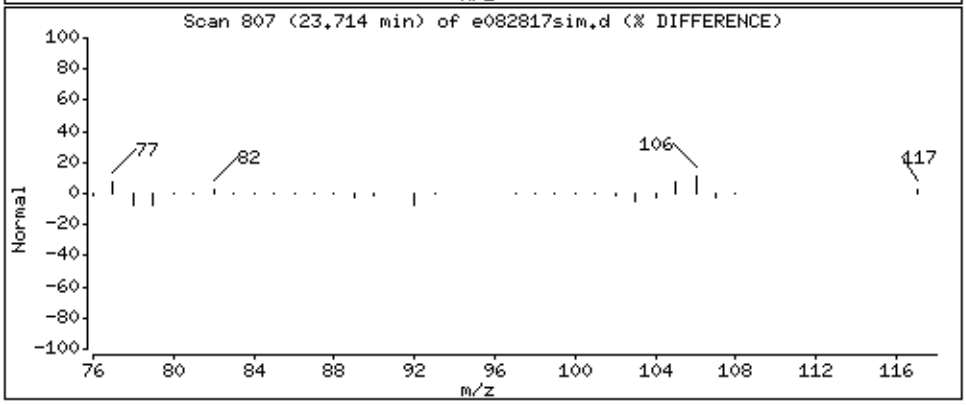












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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: SSHS-08-27-13-OA-2

Lab ID#: 1308654-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.076	0.079	0.24	0.25
Toluene	0.031	0.17	0.12	0.65
m,p-Xylene	0.061	0.098	0.26	0.42
o-Xylene	0.031	0.036	0.13	0.15

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Client Sample ID: SSHS-08-27-13-OA-2

Lab ID#: 1308654-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**e082818sim**	**Date of Collection:**	**8/28/13 6:35:00 AM**
Dil. Factor:	**1.53**	**Date of Analysis:**	**8/29/13 01:37 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.015	Not Detected	0.039	Not Detected
1,1-Dichloroethene	0.015	Not Detected	0.061	Not Detected
1,1-Dichloroethane	0.031	Not Detected	0.12	Not Detected
cis-1,2-Dichloroethene	0.031	Not Detected	0.12	Not Detected
1,1,1-Trichloroethane	0.031	Not Detected	0.17	Not Detected
Benzene	0.076	0.079	0.24	0.25
1,2-Dichloroethane	0.031	Not Detected	0.12	Not Detected
Trichloroethene	0.031	Not Detected	0.16	Not Detected
Toluene	0.031	0.17	0.12	0.65
1,1,2-Trichloroethane	0.031	Not Detected	0.17	Not Detected
Tetrachloroethene	0.031	Not Detected	0.21	Not Detected
Ethyl Benzene	0.031	Not Detected	0.13	Not Detected
m,p-Xylene	0.061	0.098	0.26	0.42
o-Xylene	0.031	0.036	0.13	0.15
1,1,2,2-Tetrachloroethane	0.031	Not Detected	0.21	Not Detected
trans-1,2-Dichloroethene	0.15	Not Detected	0.61	Not Detected
Methyl tert-butyl ether	0.15	Not Detected	0.55	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	100	70-130

Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/28Aug2013.b/e082818sim.d
Lab Smp Id: 1308654-04A
Inj Date : 29-AUG-2013 13:37
Operator : sab Inst ID: msde.i
Smp Info : 250mL #12085
Misc Info : 4.1"Hg --> 4.7psi
Comment : SIM/ GC-MS
Method : /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Meth Date : 29-Aug-2013 14:40 lover Quant Type: ISTD
Cal Date : 27-AUG-2013 09:01 Cal File: e082616sim.d
Als bottle: 31
Dil Factor: 1.53000
Integrator: HP RTE Compound Sublist: Std17.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				CONCENTRATIONS ON-COL	FINAL		
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE	RATIO
* 31 Bromochloromethane						CAS #: 74-97-5	
16.060	16.060 (1.000)	130	71583	5.00000		80.00- 120.00	100.00
16.060	16.060 (1.000)	128	56037			0.00- 30.00	78.28
16.060	16.060 (1.000)	49	147606			0.00- 30.00	206.20
$ 37 1,2-Dichloroethane-d4						CAS #: 17060-07-0	
16.914	16.914 (1.053)	65	119037	5.36878	5.369	80.00- 120.00	100.00
16.914	16.914 (1.053)	67	57504			0.00- 30.00	48.31
* 40 1,4-Difluorobenzene						CAS #: 540-36-3	
17.492	17.492 (1.000)	114	343544	5.00000		80.00- 120.00	100.00
17.492	17.492 (1.000)	88	54801			0.00- 45.94	15.95
$ 47 Toluene-d8						CAS #: 2037-26-5	
20.260	20.260 (1.158)	98	280768	5.06632	5.066	80.00- 120.00	100.00
20.260	20.260 (1.158)	70	32754			0.00- 41.61	11.67
20.260	20.260 (1.158)	100	194605			40.17- 100.17	69.31
* 56 Chlorobenzene-d5						CAS #: 3114-55-4	
22.846	22.846 (1.000)	117	279895	5.00000		80.00- 120.00	100.00

RT	EXP RT (REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	CONCENTRATIONS FINAL (PPBV)	TARGET RANGE	RATIO
* 56 Chlorobenzene-d5 (continued)							
22.846	22.846 (1.000)	82	144044			0.00- 30.00	51.46
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.440	24.440 (1.070)	174	155250	4.98891	4.989	80.00- 120.00	100.00
24.440	24.440 (1.070)	95	180279			86.00- 146.00	116.12
24.440	24.440 (1.070)	176	147750			66.32- 126.32	95.17
36 Benzene					CAS #: 71-43-2		
16.914	16.914 (0.967)	78	5014	0.05148	0.07877	80.00- 120.00	100.00
16.914	16.914 (0.967)	77	1471			0.00- 30.00	29.34
48 Toluene					CAS #: 108-88-3		
20.394	20.394 (1.166)	91	11350	0.11341	0.1735	80.00- 120.00	100.00
20.417	20.394 (1.167)	92	6841			29.84- 89.84	60.27
59 m,p-Xylene					CAS #: 108-38-3		
23.135	23.135 (1.013)	106	2781	0.06408	0.09805	80.00- 120.00	100.00
23.135	23.135 (1.013)	91	5424			0.00- 30.00	195.04
61 o-Xylene					CAS #: 95-47-6		
23.714	23.714 (1.038)	106	978	0.02326	0.03559	80.00- 120.00	100.00
23.714	23.714 (1.038)	91	1988			177.04- 237.04	203.27

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082818sim.d
Lab Smp Id: 1308654-04A
Analysis Type: VOA
Quant Type: ISTD
Operator: sab
Method File: /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Misc Info: 4.1"Hg --> 4.7psi

Calibration Date: 28-AUG-2013
Calibration Time: 14:14
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	82006	49204	114808	71583	-12.71
40 1,4-Difluorobenze	379974	227984	531964	343544	-9.59
56 Chlorobenzene-d5	304786	182872	426700	279895	-8.17

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.06	15.73	16.39	16.06	0.00
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Report Date: 29-Aug-2013 14:40

Eurofins Air Toxics Inc.

RECOVERY REPORT

Client Name: Client SDG: 27Aug2013
Sample Matrix: GAS Fraction: VOA
Lab Smp Id: 1308654-04A
Level: LOW Operator: sab
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: AT09.spk Quant Type: ISTD
Sublist File: Std17.sub
Method File: /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Misc Info: 4.1"Hg --> 4.7psi

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED	LIMITS
$ 37 1,2-Dichloroethane	5.000	5.369	107.38	70-130
$ 47 Toluene-d8	5.000	5.066	101.33	70-130
$ 65 Bromofluorobenzene	5.000	4.989	99.78	70-130

Data File: /chem/msde.i/28Aug2013.b/e082818sim.d

Date : 29-AUG-2013 13:37

Client ID:

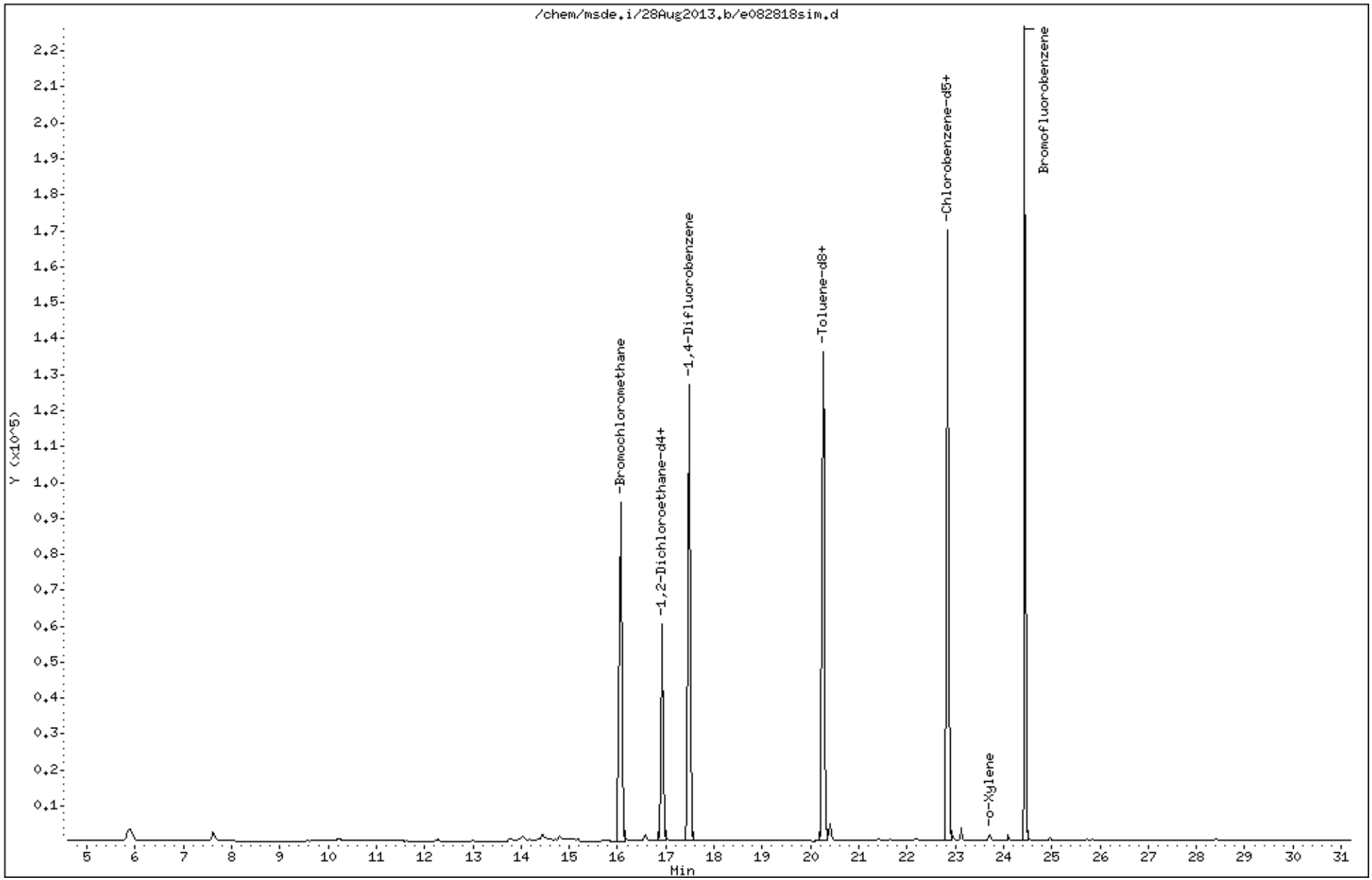
Instrument: msde.i

Sample Info: 250mL #12085

Operator: sab

Column phase: RTx-624

Column diameter: 0.53



Data File: /chem/msde.i/28Aug2013.b/e082818sim.d

Date : 29-AUG-2013 13:37

Client ID:

Instrument: msde.i

Sample Info: 250mL #12085

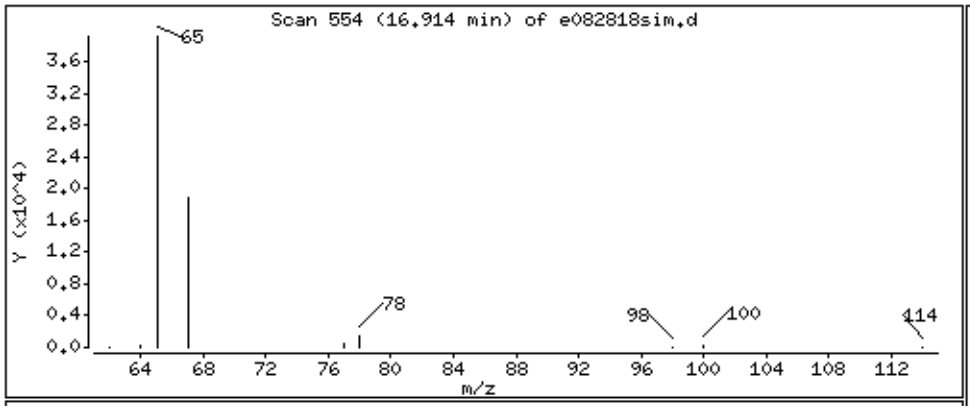
Operator: sab

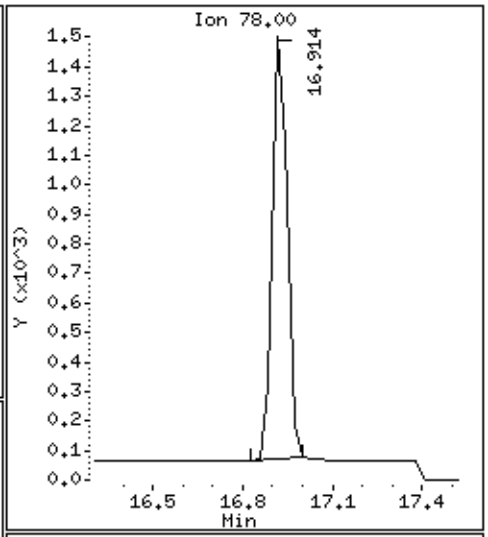
Column phase: RTx-624

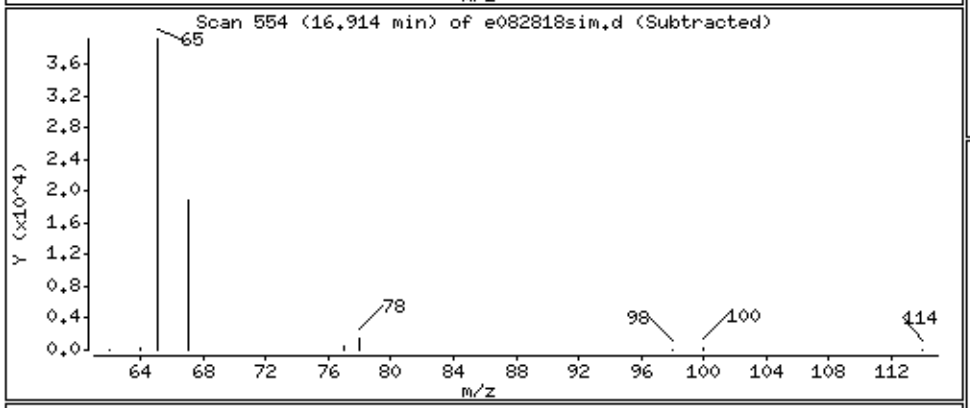
Column diameter: 0.53

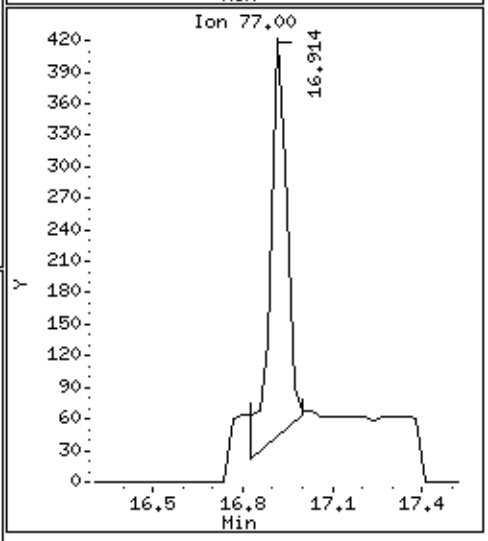
36 Benzene

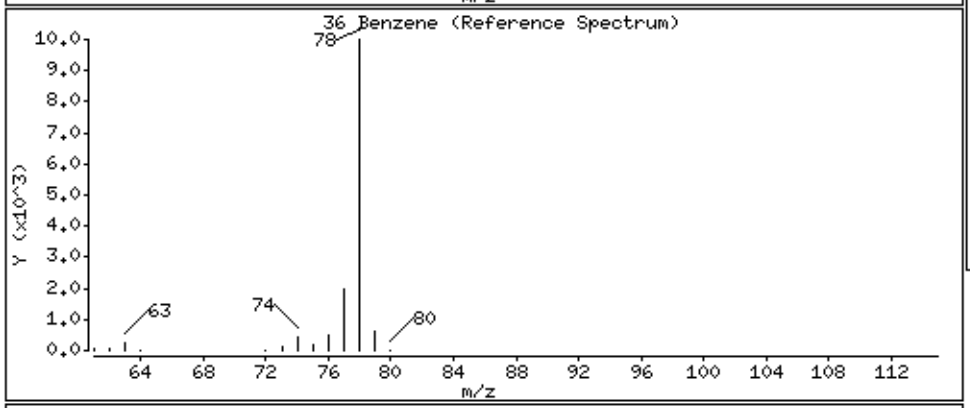
Concentration: 0.07877 PPBV

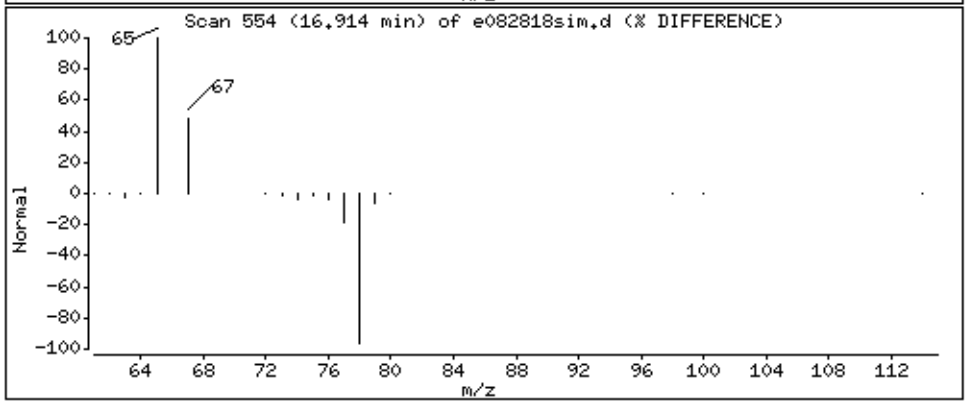












Data File: /chem/msde.i/28Aug2013.b/e082818sim.d

Date : 29-AUG-2013 13:37

Client ID:

Instrument: msde.i

Sample Info: 250mL #12085

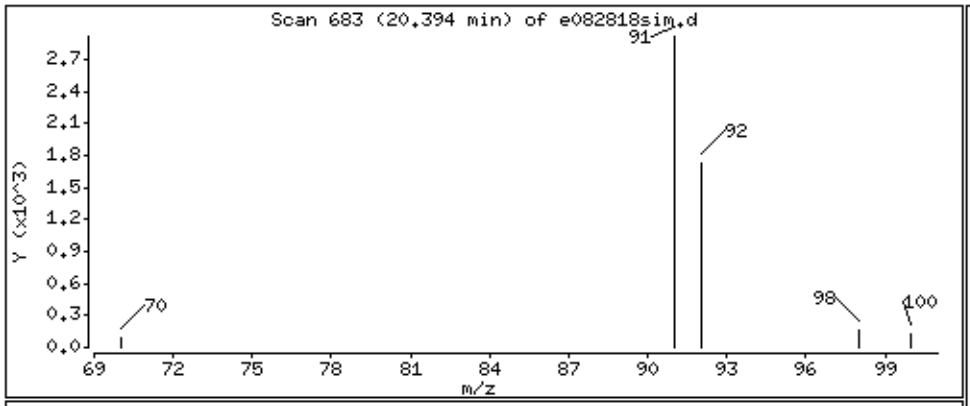
Operator: sab

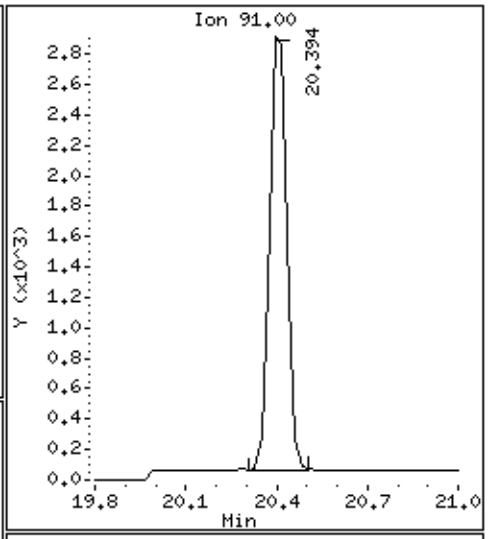
Column phase: RTx-624

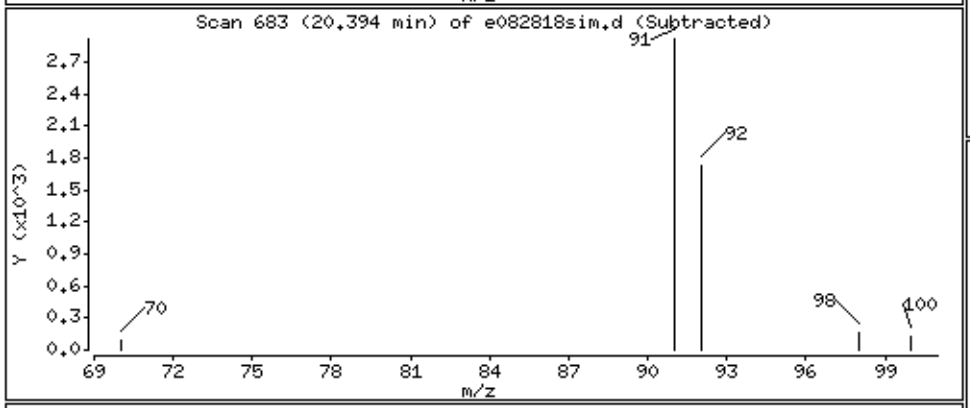
Column diameter: 0.53

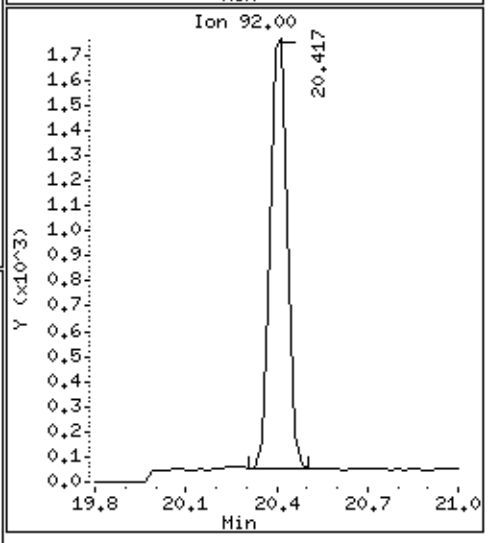
48 Toluene

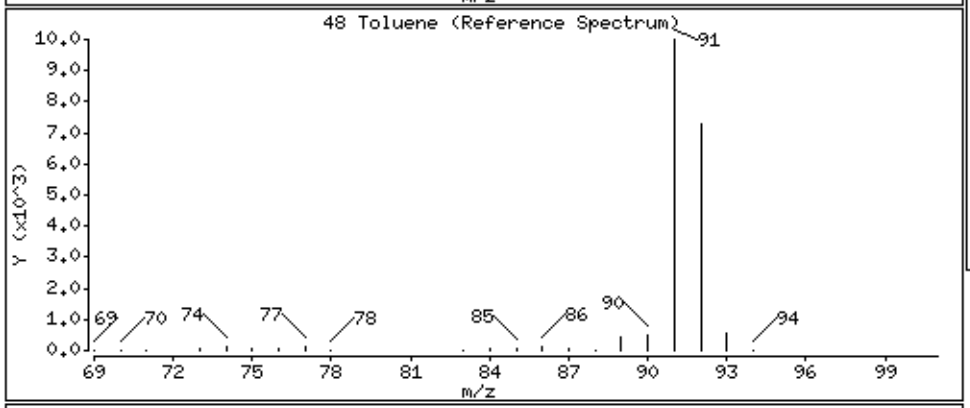
Concentration: 0.1735 PPBV

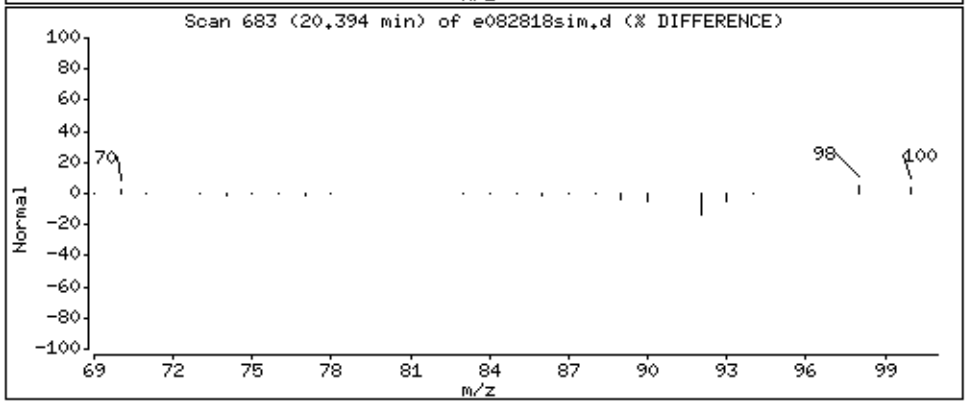












Data File: /chem/msde.i/28Aug2013.b/e082818sim.d

Date : 29-AUG-2013 13:37

Client ID:

Instrument: msde.i

Sample Info: 250mL #12085

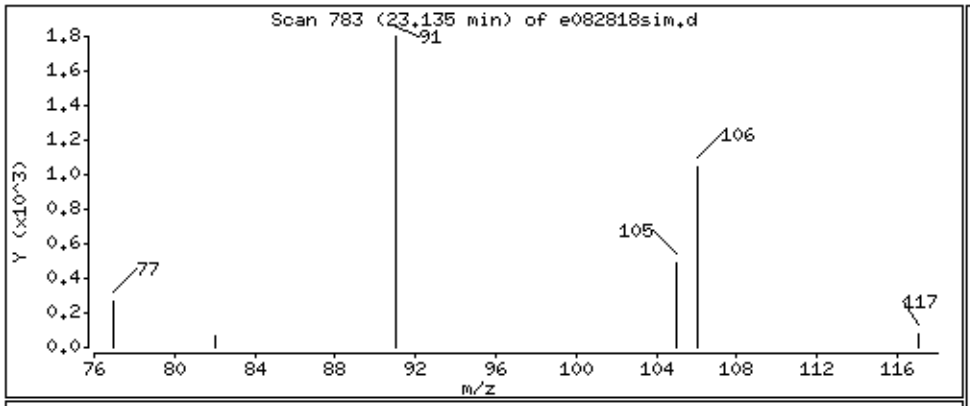
Operator: sab

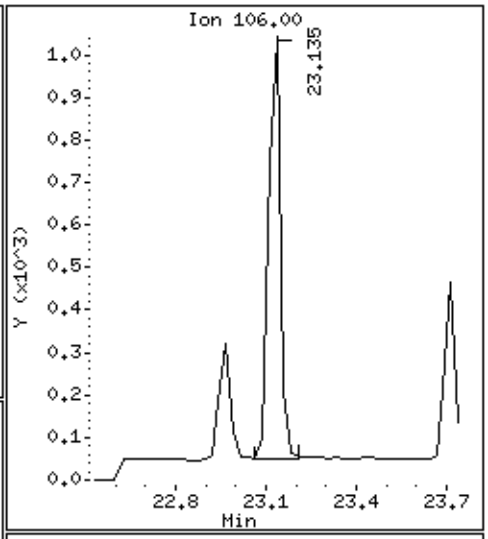
Column phase: RTx-624

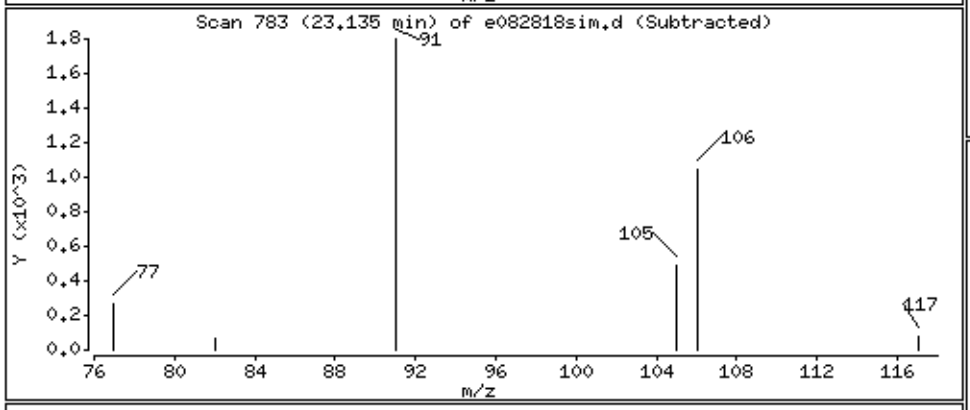
Column diameter: 0.53

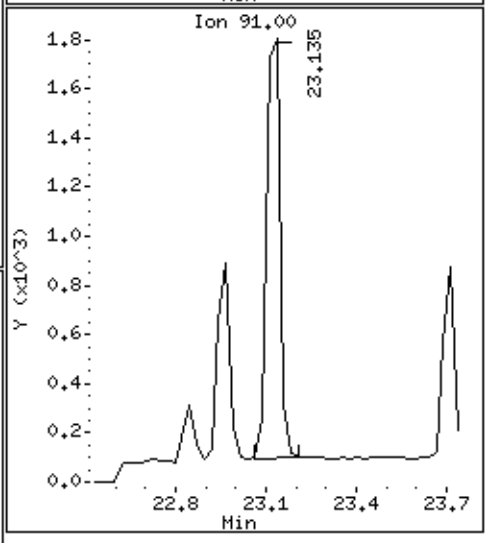
59 m,p-Xylene

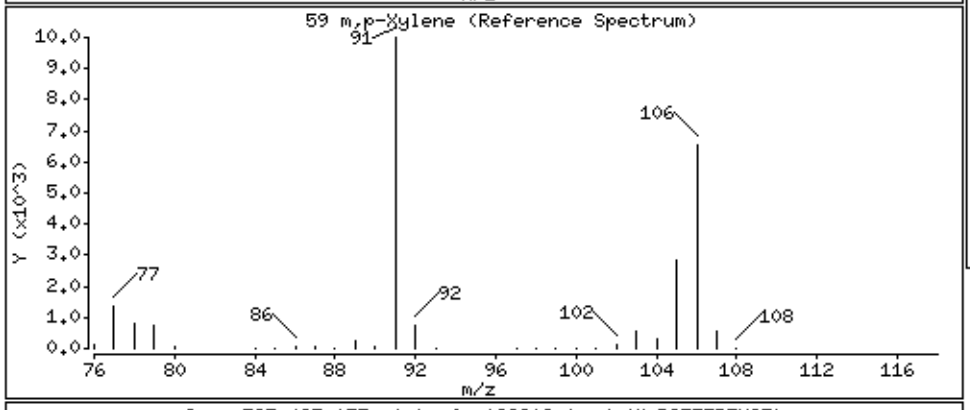
Concentration: 0.09805 PPBV

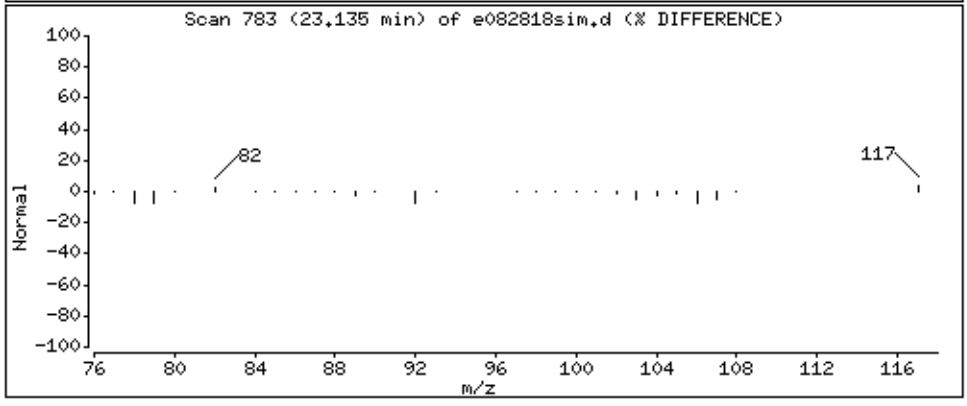












Data File: /chem/msde.i/28Aug2013.b/e082818sim.d

Date : 29-AUG-2013 13:37

Client ID:

Instrument: msde.i

Sample Info: 250mL #12085

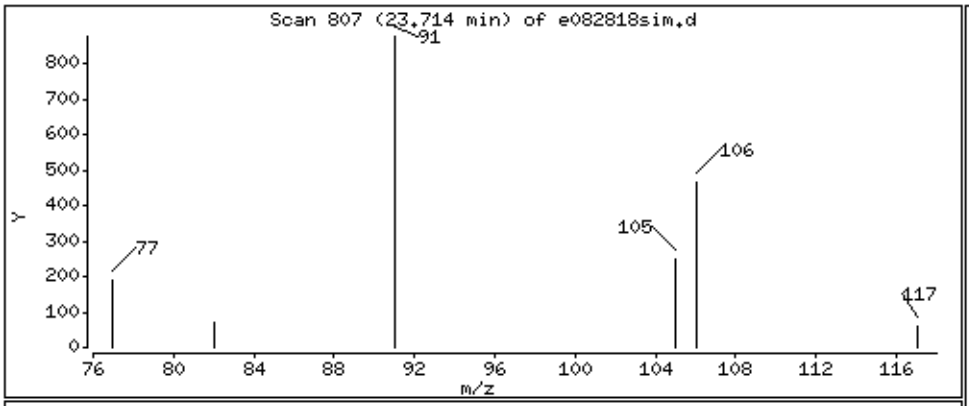
Operator: sab

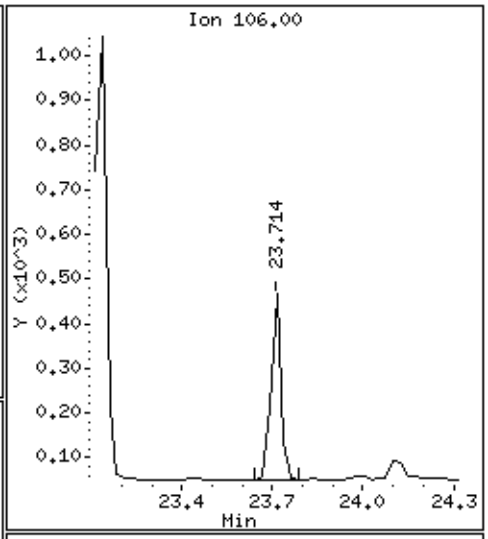
Column phase: RTx-624

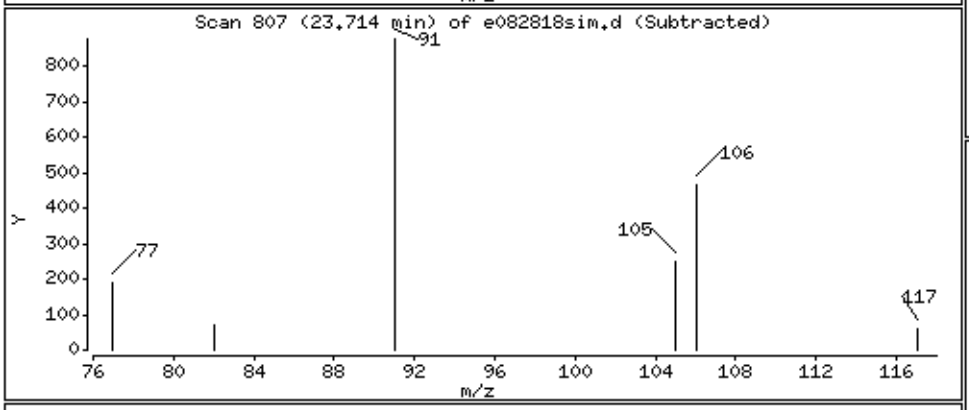
Column diameter: 0.53

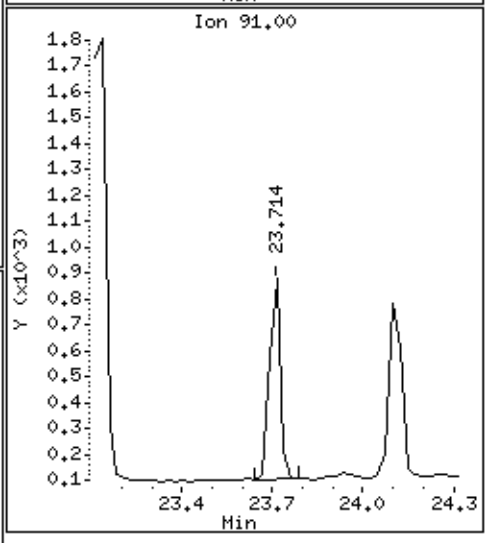
61 o-Xylene

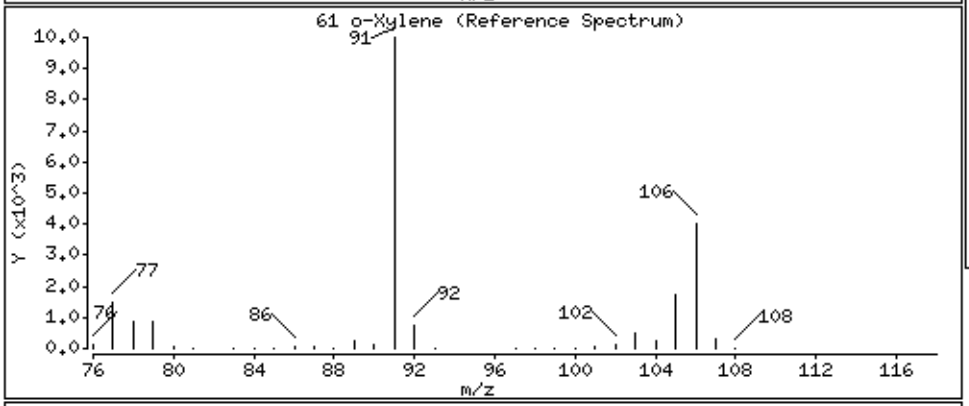
Concentration: 0.03559 PPBV

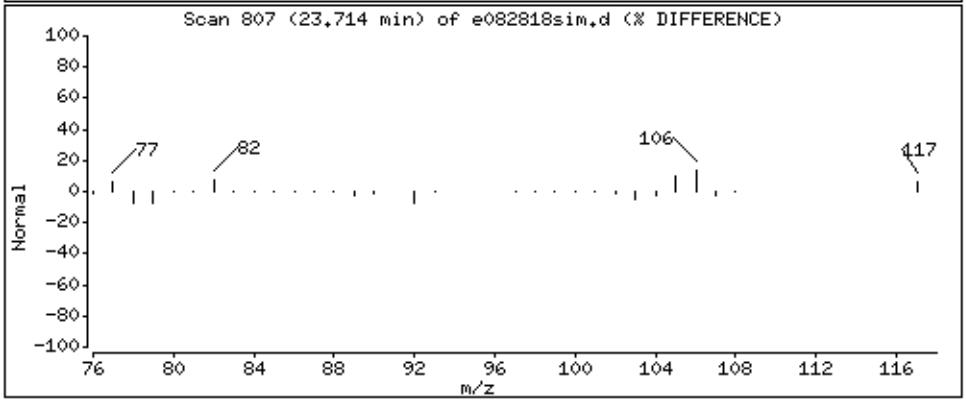












QC Results and Raw Data

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1308654-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**e082808sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/28/13 07:32 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Benzene	0.050	Not Detected	0.16	Not Detected
1,2-Dichloroethane	0.020	Not Detected	0.081	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Toluene	0.020	Not Detected	0.075	Not Detected
1,1,2-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
Ethyl Benzene	0.020	Not Detected	0.087	Not Detected
m,p-Xylene	0.040	Not Detected	0.17	Not Detected
o-Xylene	0.020	Not Detected	0.087	Not Detected
1,1,2,2-Tetrachloroethane	0.020	Not Detected	0.14	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Methyl tert-butyl ether	0.10	Not Detected	0.36	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	97	70-130

Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/28Aug2013.b/e082808sim.d
Lab Smp Id: lab blank Client Smp ID: lab blank
Inj Date : 28-AUG-2013 19:32
Operator : sn Inst ID: msde.i
Smp Info : 250mL #34008; lab blank;lab blank
Misc Info : humid
Comment : SIM/ GC-MS
Method : /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Meth Date : 28-Aug-2013 17:13 sblack Quant Type: ISTD
Cal Date : 27-AUG-2013 09:01 Cal File: e082616sim.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: AT09.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor

				CONCENTRATIONS ON-COL	CONCENTRATIONS FINAL		
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE	RATIO
* 31 Bromochloromethane					CAS #: 74-97-5		
16.060	16.060 (1.000)	130	73756	5.00000		80.00- 120.00	100.00
16.060	16.060 (1.000)	128	57679			0.00- 30.00	78.20
16.060	16.060 (1.000)	49	150040			0.00- 30.00	203.43
* 40 1,4-Difluorobenzene					CAS #: 540-36-3		
17.492	17.492 (1.000)	114	348790	5.00000		80.00- 120.00	100.00
17.492	17.492 (1.000)	88	55911			0.00- 45.94	16.03
* 56 Chlorobenzene-d5					CAS #: 3114-55-4		
22.846	22.846 (1.000)	117	282289	5.00000		80.00- 120.00	100.00
22.846	22.846 (1.000)	82	145030			0.00- 30.00	51.38
$ 37 1,2-Dichloroethane-d4					CAS #: 17060-07-0		
16.914	16.914 (1.053)	65	119375	5.22534	5.225	80.00- 120.00	100.00
16.914	16.914 (1.053)	67	57720			0.00- 30.00	48.35

RT	EXP RT (REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	CONCENTRATIONS FINAL (PPBV)	TARGET RANGE	RATIO
$ 47 Toluene-d8					CAS #: 2037-26-5		
20.260	20.260 (1.158)	98	283976	5.04714	5.047	80.00- 120.00	100.00
20.260	20.260 (1.158)	70	32655			0.00- 41.61	11.50
20.260	20.260 (1.158)	100	197254			40.17- 100.17	69.46
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.440	24.440 (1.070)	174	151806	4.83686	4.837	80.00- 120.00	100.00
24.440	24.440 (1.070)	95	175464			86.00- 146.00	115.58
24.466	24.440 (1.071)	176	145172			66.32- 126.32	95.63

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082808sim.d
Lab Smp Id: lab blank
Analysis Type: VOA
Quant Type: ISTD
Operator: sn
Method File: /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Misc Info: humid

Calibration Date: 28-AUG-2013
Calibration Time: 14:14
Client Smp ID: lab blank
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	82006	49204	114808	73756	-10.06
40 1,4-Difluorobenze	379974	227984	531964	348790	-8.21
56 Chlorobenzene-d5	304786	182872	426700	282289	-7.38

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.06	15.73	16.39	16.06	0.00
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Report Date: 28-Aug-2013 20:07

Eurofins Air Toxics Inc.

RECOVERY REPORT

Client Name: Client SDG: 28Aug2013
Sample Matrix: GAS Fraction: VOA
Lab Smp Id: lab blank Client Smp ID: lab blank
Level: LOW Operator: sn
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: AT09.spk Quant Type: ISTD
Sublist File: AT09.sub
Method File: /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Misc Info: humid

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED	LIMITS
$ 37 1,2-Dichloroethane	5.000	5.225	104.51	70-130
$ 47 Toluene-d8	5.000	5.047	100.94	70-130
$ 65 Bromofluorobenzene	5.000	4.837	96.74	70-130

Data File: /chem/msde.i/28Aug2013.b/e082808sim.d

Date : 28-AUG-2013 19:32

Client ID: lab blank

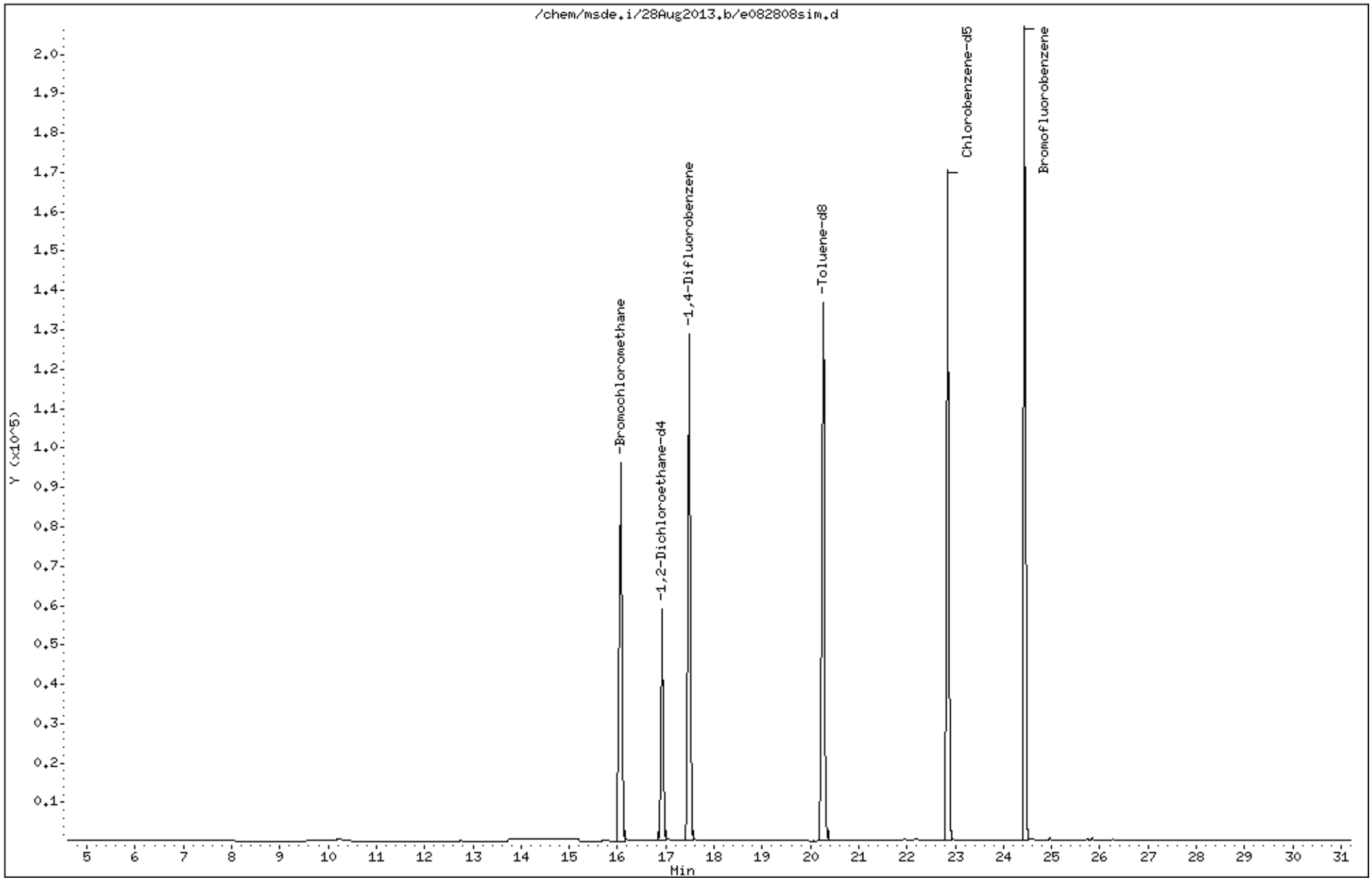
Instrument: msde.i

Sample Info: 250mL #34008; lab blank;lab blank

Operator: sn

Column phase: RTx-624

Column diameter: 0.32



LEVEL-IV VALIDATABLE

MODIFIED EPA METHOD TO-15 GC/MS SIM

SURROGATE RECOVERY FORM

Lab Name: AIR TOXICS LIMITED. SDG No.: 1308654

	CLIENT SAMPLE NO.	SURROGATE % RECOVERY								
		1,2-Dichloroethane-d4	#	Toluene-d8	#	4-Bromofluorobenzene	#		#	TOTAL OUT
01	SSHS-08-27-13-IA-1	102		101		101				0
02	SSHS-08-27-13-OA-1	102		101		100				0
03	SSHS-08-27-13-IA-2	107		101		100				0
04	SSHS-08-27-13-OA-2	107		101		100				0
05	Lab Blank	104		101		97				0
06	CCV	97		101		96				0
07	LCS	96		101		96				0
08	LCSD	96		101		96				0
09										0
10										0
11										0
12										0
13										0
14										0
15										0
16										0
17										0
18										0
19										0
20										0
21										0
22										0
23										0
24										0

Surrogate Recovery Limits

1,2-Dichloroethane-d4 70 - 130
Toluene-d8 70 - 130
4-Bromofluorobenzene 70 - 130

* Designates values outside of QC limits

LEVEL-IV VALIDATABLE

Modified EPA Method TO-15 GC/MS SIM

INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: AIR TOXICS, LTD | SDG No: 1308654

Lab File ID: e082802sim.d | Date Analyzed: 08/28/2013

Instrument ID: msde.i | Time Analyzed: 02:14 PM

		Chlorobenzene-d5 Area	#	RT	#	1,4-Difluorobenzene Area	#	RT	#	Bromochloromethane Area	#	RT	#
	24-HOUR STD	304786		22.85		379974		17.49		82006		16.06	
	UPPER LIMIT	426700		23.18		531964		17.82		114808		16.39	
	LOWER LIMIT	182872		22.52		227984		17.16		49204		15.73	
	CLIENT SAMPLE NO												
01	SSHS-08-27-13-IA-1	287963		22.85		353453		17.49		77342		16.06	
02	SSHS-08-27-13-OA-1	283549		22.85		349963		17.49		77386		16.06	
03	SSHS-08-27-13-IA-2	282501		22.85		349833		17.49		73218		16.06	
04	SSHS-08-27-13-OA-2	279895		22.85		343544		17.49		71583		16.06	
05	Lab Blank	282289		22.85		348790		17.49		73756		16.06	
06	CCV	304786		22.85		379974		17.49		82006		16.06	
07	LCS	299182		22.85		376687		17.49		81050		16.06	
08	LCSD	302466		22.85		376641		17.49		81090		16.06	
09													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													

'Area Upper Limit=+40% of internal standard area'

'Area Lower Limit=-40% of internal standard area'

RT Upper Limit=+0.33 minutes of internal standard RT

RT Lower Limit=-0.33 minutes of internal standard RT

* Designates values outside of QC limits

SAMPLE RESULTS/SAMPLE RESULTS DUPLICATE

Lab Name: Air Toxics Ltd.

Lab File ID: e082804sim.d & e082803sim.d

Lab Sample ID: &

Dilution: 1.00 & 1.00

Client Sample ID: LCS & LCSD

Date Analyzed: 8/28/13 & 8/28/13

CAS Number	Compound	Original Amount	Original Flags	Duplicate Amount	Duplicate Flags	RPD	Result Less Than 5X RL
71-55-6	1,1,1-Trichloroethane	95		93		2.1	
79-34-5	1,1,2,2-Tetrachloroethane	85		83		2.4	
79-00-5	1,1,2-Trichloroethane	92		89		3.3	
75-34-3	1,1-Dichloroethane	98		96		2.1	
75-35-4	1,1-Dichloroethene	96		94		2.1	
107-06-2	1,2-Dichloroethane	98		97		1.0	
71-43-2	Benzene	81		80		1.2	
156-59-2	cis-1,2-Dichloroethene	96		95		1.0	
100-41-4	Ethyl Benzene	92		89		3.3	
108-38-3	m,p-Xylene	92		90		2.2	
1634-04-4	Methyl tert-butyl ether	99		96		3.1	
95-47-6	o-Xylene	91		89		2.2	
127-18-4	Tetrachloroethene	82		80		2.5	
108-88-3	Toluene	90		89		1.1	
156-60-5	trans-1,2-Dichloroethene	109		107		1.8	
79-01-6	Trichloroethene	83		81		2.4	
75-01-4	Vinyl Chloride	96		93		3.2	

Note: The results appearing in the Amount columns are the raw, unrounded numbers acquired from the instrument.

Eurofins Air Toxics Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 26-AUG-2013 16:34
End Cal Date : 27-AUG-2013 09:01
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem/msde.i/27Aug2013.b/e13l0826a.m/e13s0826a.m
Cal Date : 28-Aug-2013 08:45 sblack
Curve Type : Average

Calibration File Names:
Level 1: /chem/msde.i/26Aug2013a.b/e082606sim.d
Level 2: /chem/msde.i/26Aug2013a.b/e082607sim.d
Level 3: /chem/msde.i/26Aug2013a.b/e082608sim.d
Level 4: /chem/msde.i/26Aug2013a.b/e082609sim.d
Level 5: /chem/msde.i/26Aug2013a.b/e082610sim.d
Level 6: /chem/msde.i/26Aug2013a.b/e082611sim.d
Level 7: /chem/msde.i/26Aug2013a.b/e082612sim.d
Level 8: /chem/msde.i/26Aug2013a.b/e082613sim.d
Level 9: /chem/msde.i/26Aug2013a.b/e082614sim.d
Level 10: /chem/msde.i/26Aug2013a.b/e082615sim.d
Level 11: /chem/msde.i/26Aug2013a.b/e082616sim.d

Compound	0.00300 Level 1	0.00500 Level 2	0.01000 Level 3	0.02000 Level 4	0.05000 Level 5	0.10000 Level 6	RRF	% RSD
	0.50000 Level 7	1.000 Level 8	5.000 Level 9	10.000 Level 10	20.000 Level 11			
1 Propylene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
2 Dichlorodifluoromethane/Fr12	+++++	+++++	+++++	4.52553	4.31009	5.29172		
	4.30047	4.08232	4.51603	3.86557	3.78302		4.33434	10.944
3 Freon 114	+++++	+++++	+++++	3.71213	3.56683	4.27364		
	3.56175	3.44117	3.74347	3.24148	3.19498		3.59193	9.452
4 Chloromethane	+++++	+++++	+++++	2.82101	2.45348	2.95973		
	2.30836	2.16202	2.40528	2.04535	1.98000		2.39190	14.655
5 Vinyl Chloride	+++++	+++++	2.66260	2.24593	2.20401	2.67879		
	2.15871	2.05682	2.33070	1.98654	1.93630		2.25116	11.922
6 1,3-Butadiene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++

Eurofins Air Toxics Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 26-AUG-2013 16:34
End Cal Date : 27-AUG-2013 09:01
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem/msde.i/27Aug2013.b/e13l0826a.m/e13s0826a.m
Cal Date : 28-Aug-2013 08:45 sblack
Curve Type : Average

Compound	0.00300 Level 1	0.00500 Level 2	0.01000 Level 3	0.02000 Level 4	0.05000 Level 5	0.10000 Level 6	RRF	% RSD
	0.50000 Level 7	1.000 Level 8	5.000 Level 9	10.000 Level 10	20.000 Level 11			
7 Freon 22	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
8 Dimethyl Ether	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
9 Bromomethane	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
10 Chloroethane	+++++	+++++	+++++	+++++	1.11747	1.39303		
	1.11912	1.04412	1.21914	1.02145	0.98746		1.12883	12.364
11 Trichlorofluoromethane/Fr11	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
12 Acrolein	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
13 Ethanol	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
14 1-Pentene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
15 Freon 113	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
16 1,1-Dichloroethene	+++++	1.38302	1.21587	1.11390	1.04015	1.22946		
	1.04911	0.98751	1.11659	0.96354	0.95126		1.10504	12.440

Eurofins Air Toxics Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 26-AUG-2013 16:34
End Cal Date : 27-AUG-2013 09:01
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem/msde.i/27Aug2013.b/e13l0826a.m/e13s0826a.m
Cal Date : 28-Aug-2013 08:45 sblack
Curve Type : Average

Compound	0.00300 Level 1	0.00500 Level 2	0.01000 Level 3	0.02000 Level 4	0.05000 Level 5	0.10000 Level 6	RRF	% RSD
	0.50000 Level 7	1.000 Level 8	5.000 Level 9	10.000 Level 10	20.000 Level 11			
17 Pentane	#####	#####	#####	#####	#####	#####		
	#####	#####	#####	#####	#####		#####	#####
18 Acetone	#####	#####	#####	#####	#####	#####		
	#####	#####	#####	#####	#####		#####	#####
19 Carbon Disulfide	#####	#####	#####	#####	#####	#####		
	#####	#####	#####	#####	#####		#####	#####
20 2-Propanol	#####	#####	#####	#####	#####	#####		
	#####	#####	#####	#####	#####		#####	#####
21 Methylene Chloride	#####	#####	#####	#####	#####	#####		
	#####	#####	#####	#####	#####		#####	#####
22 MTBE	#####	#####	#####	5.38038	4.68842	5.66667		
	4.69280	4.55248	5.25332	4.58748	4.41489		4.90456	9.390
23 trans-1,2-Dichloroethene	#####	#####	#####	1.06468	1.01954	1.21300		
	1.04691	1.01072	1.14536	0.97392	0.95102		1.05314	8.329
24 Hexane	#####	#####	#####	#####	#####	#####		
	#####	#####	#####	#####	#####		#####	#####
25 1,1-Dichloroethane	#####	#####	#####	4.07479	3.80187	4.63637		
	3.85895	3.77492	4.23208	3.59825	3.49373		3.93387	9.399
26 Vinyl Acetate	#####	#####	#####	#####	#####	#####		
	#####	#####	#####	#####	#####		#####	#####

Eurofins Air Toxics Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 26-AUG-2013 16:34
End Cal Date : 27-AUG-2013 09:01
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem/msde.i/27Aug2013.b/e13l0826a.m/e13s0826a.m
Cal Date : 28-Aug-2013 08:45 sblack
Curve Type : Average

Compound	0.00300 Level 1	0.00500 Level 2	0.01000 Level 3	0.02000 Level 4	0.05000 Level 5	0.10000 Level 6	RRF	% RSD
	0.50000 Level 7	1.000 Level 8	5.000 Level 9	10.000 Level 10	20.000 Level 11			
27 1-Hexene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
28 cis-1,2-Dichloroethene	+++++	+++++	+++++	1.29005	1.16592	1.41746		
	1.17888	1.15565	1.29741	1.10381	1.07808		1.21091	9.448
29 2-Butanone	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
30 Tetrahydrofuran	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
32 Chloroform	+++++	3.16402	2.60617	2.39358	2.73800	2.80891		
	2.38130	2.32793	2.54245	2.15171	2.11097		2.52251	12.734
33 Cyclohexane	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
34 1,1,1-Trichloroethane	+++++	+++++	+++++	4.49704	3.94206	4.55139		
	3.86481	3.77649	4.13182	3.51014	3.39829		3.95901	10.582
35 Carbon Tetrachloride	+++++	3.82071	3.62196	3.41422	3.31529	4.73143		
	3.86398	3.77218	4.28163	3.63828	3.55084		3.80105	11.122
36 Benzene	+++++	+++++	+++++	2.13360	1.80315	1.48167		
	1.19571	1.17499	1.28011	1.14546	1.12466		1.41742	26.022
38 1,2-Dichloroethane	+++++	0.68411	0.62108	0.59388	0.58965	0.70781		
	0.61941	0.63083	0.68600	0.61075	0.60285		0.63464	6.672

Eurofins Air Toxics Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 26-AUG-2013 16:34
End Cal Date : 27-AUG-2013 09:01
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem/msde.i/27Aug2013.b/e13l0826a.m/e13s0826a.m
Cal Date : 28-Aug-2013 08:45 sblack
Curve Type : Average

Compound	0.00300 Level 1	0.00500 Level 2	0.01000 Level 3	0.02000 Level 4	0.05000 Level 5	0.10000 Level 6	RRF	% RSD
	0.50000 Level 7	1.000 Level 8	5.000 Level 9	10.000 Level 10	20.000 Level 11			
39 Heptane	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
41 Trichloroethene	1.05061	0.72764	0.62745	0.65327	0.58899	0.67089		
	0.57354	0.56290	0.60916	0.54789	0.54276		0.65046	22.184
42 1,2-Dichloropropane	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
43 1,4-Dioxane	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
44 Bromodichloromethane	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
45 cis-1,3-Dichloropropene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
46 4-Methyl-2-pentanone	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
48 Toluene	+++++	+++++	+++++	1.58222	1.47479	1.73166		
	1.40772	1.35375	1.48625	1.30711	1.30952		1.45663	10.036
49 trans-1,3-Dichloropropene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
50 1,1,2-Trichloroethane	+++++	+++++	0.68234	0.68629	0.64709	0.78304		
	0.64478	0.63646	0.69034	0.62981	0.60999		0.66780	7.685

Eurofins Air Toxics Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 26-AUG-2013 16:34
End Cal Date : 27-AUG-2013 09:01
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem/msde.i/27Aug2013.b/e13l0826a.m/e13s0826a.m
Cal Date : 28-Aug-2013 08:45 sblack
Curve Type : Average

Compound	0.00300 Level 1	0.00500 Level 2	0.01000 Level 3	0.02000 Level 4	0.05000 Level 5	0.10000 Level 6	RRF	% RSD
	0.50000 Level 7	1.000 Level 8	5.000 Level 9	10.000 Level 10	20.000 Level 11			
51 Tetrachloroethene	1.32662	1.16870	1.31875	1.11345	1.04563	1.17532		
	0.99695	0.97886	1.06537	0.95585	0.93470		1.09820	12.462
52 Octane	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
53 2-Hexanone	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
54 Dibromochloromethane	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
55 1,2-Dibromoethane	+++++	1.16105	1.15079	1.01425	0.98874	1.12708		
	1.00979	1.00106	1.10750	0.99760	0.97827		1.05361	6.970
57 Chlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
58 Ethyl Benzene	+++++	+++++	+++++	0.73623	0.70725	0.81718		
	0.69583	0.67488	0.73280	0.65199	0.64456		0.70759	7.876
59 m,p-Xylene	+++++	+++++	+++++	0.80439	0.80416	0.90786		
	0.74910	0.72868	0.80339	0.69944	0.70481		0.77523	8.940
60 1,3-Dichloropropane	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
61 o-Xylene	+++++	+++++	+++++	0.79291	0.76142	0.86943		
	0.72443	0.70786	0.77794	0.68195	0.69215		0.75101	8.333

Eurofins Air Toxics Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 26-AUG-2013 16:34
End Cal Date : 27-AUG-2013 09:01
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem/msde.i/27Aug2013.b/e13l0826a.m/e13s0826a.m
Cal Date : 28-Aug-2013 08:45 sblack
Curve Type : Average

Compound	0.00300 Level 1	0.00500 Level 2	0.01000 Level 3	0.02000 Level 4	0.05000 Level 5	0.10000 Level 6	RRF	% RSD
	0.50000 Level 7	1.000 Level 8	5.000 Level 9	10.000 Level 10	20.000 Level 11			
62 Styrene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
63 Bromoform	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
64 Cumene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
66 Dibromomethane	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
67 1,1,2,2-Tetrachloroethane	+++++	1.63057	1.68878	1.50620	1.42022	1.61654		
	1.34200	1.31177	1.33961	1.18481	1.19089		1.42314	12.713
68 Propylbenzene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
69 4-Ethyltoluene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
70 1,3,5-Trimethylbenzene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
71 1,2,4-Trimethylbenzene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
72 1,3-Dichlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++

Eurofins Air Toxics Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 26-AUG-2013 16:34
End Cal Date : 27-AUG-2013 09:01
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem/msde.i/27Aug2013.b/e13l0826a.m/e13s0826a.m
Cal Date : 28-Aug-2013 08:45 sblack
Curve Type : Average

Compound	0.00300 Level 1	0.00500 Level 2	0.01000 Level 3	0.02000 Level 4	0.05000 Level 5	0.10000 Level 6	RRF	% RSD
	0.50000 Level 7	1.000 Level 8	5.000 Level 9	10.000 Level 10	20.000 Level 11			
73 1,4-Dichlorobenzene	+++++	1.52339	1.38829	1.26866	1.23483	1.36898		
	1.09121	1.06187	1.11229	0.95788	1.02372		1.20311	15.244
74 alpha-Chlorotoluene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
75 1,2-Dichlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
76 1,2,4-Trichlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
77 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
78 Naphthalene	+++++	+++++	+++++	+++++	1.92738	2.17980		
	1.52289	1.33408	1.19747	1.06557	1.12574		1.47899	28.819
$ 37 1,2-Dichloroethane-d4	1.55458	1.55660	1.55600	1.54842	1.55136	1.55804		
	1.56005	1.57008	1.53325	1.50767	1.53961		1.54870	1.087
$ 47 Toluene-d8	0.81621	0.81523	0.81418	0.81129	0.80790	0.81177		
	0.79855	0.78808	0.80179	0.79952	0.80777		0.80657	1.079
$ 65 Bromofluorobenzene	0.55023	0.55782	0.55842	0.56081	0.56293	0.56377		
	0.55698	0.55524	0.54896	0.54417	0.55564		0.55591	1.087

Calibration History

Method : /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Start Cal Date: 26-AUG-2013 16:34
End Cal Date : 27-AUG-2013 09:01

Initial Calibration

Injection Date	Sublist	Calibration File
Cal Level: 1 , Cal Amount: 0.00300		
26-AUG-2013 16:34	3tcepce	/chem/msde.i/26Aug2013a.b/e082606sim.d
Cal Level: 2 , Cal Amount: 0.00500		
26-AUG-2013 17:15	5pptv	/chem/msde.i/26Aug2013a.b/e082607sim.d
Cal Level: 3 , Cal Amount: 0.01000		
26-AUG-2013 17:58	10	/chem/msde.i/26Aug2013a.b/e082608sim.d
Cal Level: 4 , Cal Amount: 0.02000		
26-AUG-2013 18:40	20	/chem/msde.i/26Aug2013a.b/e082609sim.d
Cal Level: 5 , Cal Amount: 0.05000		
26-AUG-2013 19:28	HILOcrv	/chem/msde.i/26Aug2013a.b/e082610sim.d
Cal Level: 6 , Cal Amount: 0.10000		
26-AUG-2013 20:20	HILOcrv	/chem/msde.i/26Aug2013a.b/e082611sim.d
Cal Level: 7 , Cal Amount: 0.50000		
26-AUG-2013 21:07	HILOcrv	/chem/msde.i/26Aug2013a.b/e082612sim.d
Cal Level: 8 , Cal Amount: 1.00000		

|26-AUG-2013 22:01 |HILOcrv |/chem/msde.i/26Aug2013a.b/e082613sim.d |

Cal Level: 9 , Cal Amount: 5.00000
26-AUG-2013 22:58 |HILOcrv |/chem/msde.i/26Aug2013a.b/e082614sim.d

Cal Level: 10, Cal Amount: 10.00000
27-AUG-2013 08:15 |HILOcrv |/chem/msde.i/26Aug2013a.b/e082615sim.d

Cal Level: 11, Cal Amount: 20.00000
27-AUG-2013 09:01 |HILOcrv |/chem/msde.i/26Aug2013a.b/e082616sim.d

Continuing Calibration
Ccal Level Mode: GLOBAL LEVEL 10

Ccal Level: 10, Ccal Amount: 10.000
27-AUG-2013 08:15 |HILOcrv |/chem/msde.i/26Aug2013a.b/e082615sim.d

Eurofins Air Toxics Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 26-AUG-2013 16:34
End Cal Date : 27-AUG-2013 09:01
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Cal Date : 27-Aug-2013 17:05 snguyen
Curve Type : Average

Calibration File Names:
Level 1: /chem/msde.i/26Aug2013a.b/e082606sim.d
Level 2: /chem/msde.i/26Aug2013a.b/e082607sim.d
Level 3: /chem/msde.i/26Aug2013a.b/e082608sim.d
Level 4: /chem/msde.i/26Aug2013a.b/e082609sim.d
Level 5: /chem/msde.i/26Aug2013a.b/e082610sim.d
Level 6: /chem/msde.i/26Aug2013a.b/e082611sim.d
Level 7: /chem/msde.i/26Aug2013a.b/e082612sim.d
Level 8: /chem/msde.i/26Aug2013a.b/e082613sim.d
Level 9: /chem/msde.i/26Aug2013a.b/e082614sim.d
Level 10: /chem/msde.i/26Aug2013a.b/e082615sim.d
Level 11: /chem/msde.i/26Aug2013a.b/e082616sim.d

Please see Calibration History page(s) for all the calibration files.

8/28/13
8/28/13

~~Please see Calibration History page(s) for all the calibration files.~~
8/29/13

Compound	0.00300 Level 1	0.00500 Level 2	0.01000 Level 3	0.02000 Level 4	0.05000 Level 5	0.10000 Level 6	RRF	% RSD
	0.50000 Level 7	1.000 Level 8	5.000 Level 9	10.000 Level 10	20.000 Level 11			
1 Propylene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++
2 Dichlorodifluoromethane/Fr12	+++++	+++++	+++++	4.52553	4.31009	5.29172		
	4.30047	4.08232	4.51603	3.86557	3.78302		4.33434	10.944
3 Freon 114	+++++	+++++	+++++	3.71213	3.56683	4.27364		
	3.56175	3.44117	3.74347	3.24148	3.19498		3.59193	9.452
4 Chloromethane	+++++	+++++	+++++	2.82101	2.45348	2.95973		
	2.30836	2.16202	2.40528	2.04535	1.98000		2.39190	14.655
5 Vinyl Chloride	+++++	+++++	2.66260	2.24593	2.20401	2.67879		
	2.15871	2.05682	2.33070	1.98654	1.93630		2.25116	11.922
6 1,3-Butadiene	+++++	+++++	+++++	+++++	+++++	+++++		
	+++++	+++++	+++++	+++++	+++++		+++++	+++++

Curve Name: E13$_S$0826A

Initial Calibration Narrative

An initial calibration curve was analyzed on 8/26/13 on MSD-E.

The instrument was set up to do Full Scan and Selective Ion Monitoring (SIM) simultaneously.

ICAL: Zero (0) out.

ICV: Zero (0) out File #E082620; 50mL load; Standard #2588-79; 10ppbv (50ppbv).

DOD: Met 70-130% criteria. In house Control Limits: 0 Out.

Naphthalene was calibrated at .005ppbv, 0.01 ppbv, 0.05ppbv, 0.1ppbv, 0.5ppbv, 1.0ppbv, & 2.0ppbv.

The following compound is good for special RL of 0.003ppbv:

- Trichloroethene, Tetrachloroethene

The following compounds are good for special RL of 0.005ppbv:

- Chloroform
- Carbon tetrachloride
- 1,2-Dibromoethane
- 1,2-Dichloroethane*
- 1,1-Dichloroethene
- 1,1,2,2-Tetrachloroethane
- 1,4-Dichlorobenzene

---

*The quantitation ion peak (62 amu) is sufficiently resolved for accurate quantification of 1,2-Dichloroethane (1,2-DCA) at the SIM reporting limit of 0.005 ppbv. However, the confirmation mass ion peak (64 amu) for 1,2-DCA is not baseline-resolved from the surrogate 1,2-Dichloroethane-d4 peak. Identification of 1,2-DCA based on the presence and abundance ratio of confirmation ion is less reliable at the lowest concentrations due to this interference with the surrogate's mass ion 64 peak.

MDL was analyzed on 10/12/12

Eurofins Air Toxics, Inc. | MSD-E | Logbook #: 2577

BFB Verification of 176/174 m/z Ratio:	679,616 / 706,240 x100 = 96.23
Tekmar Purge Flow:	
Vacuum:	8/26/13

IS/S Std. #: 2588-62	Exp. Date: 10/24/13
BCM LL: 137973	SIM: 112630
1,4-DFB 597490	493036
CB-d5 363057	385996

Verified CCV IS vs ICAL mid-point (-40%D): GH

File ID:	E082615
Compound:	tol d8
Initials:	GH

Calculation Check:

ppbv of compound = $\frac{Area_{Sample}}{Area_{IS}} \times \frac{Conc_{IS}}{RRF}$ = (399685 / 597490) x (5.000 / 0.65811) = 5.082

SOP#:(Circle one): 6 / (83) / (38) / 91 / 109 Method (Circle one): (TO-14A/TO-15)/TO-17 Reported Result: 5.082

Method Name: E13LD826A / E13SD8264.m

	Use	File	Lab ID#	Can#	Pressure	Amt. Loaded	DF	Loaded By Initials	Date Analyzed	Time Analyzed	Reviewed By Initials	Comments/Standard Expiration Date
1	✓	E082605	BFB TUNE CHECK	2299-416	50ng	2.0ul	1.00	[initials]	8/26/13	1558	[initials]	
2	✓	06	ICAL LV #1	2588-160	~~0.0025~~ 0.003 ppbv [initials] 8/26/13	15ml	↓	[initials]	↓	1634	[initials]	(0.03, ...) Exp: 10/9/13, CORRECTION: 0.003 ppbv
3	✓	07	ICAL LV #2	↓	0.005 ppbv	25ml	↓	[initials]	↓	1715	[initials]	↓
4	✓	08	ICAL LV #3	↓	0.01 ppbv	50ml	↓	[initials]	↓	1758	[initials]	↓
5	✓	09	ICAL LV #4	↓	0.02 ppbv	100ml	↓	[initials]	↓	1840	[initials]	↓
6	✓	10	ICAL LV #5	↓	0.05 ppbv	250ml	↓	[initials]	↓	1928	[initials]	↓
7	✓	11	ICAL LV #6	2588-161	0.10 ppbv	25ml	↓	[initials]	↓	2020	[initials]	Exp: 10/9/13, 1.0 ppbv CAN
8	✓	12	ICAL LV #7	↓	0.50 ppbv	125ml	↓	[initials]	↓	2107	[initials]	↓
9	✓	13	ICAL LV #8	↓	1.0 ppbv	250ml	↓	[initials]	↓	2201	[initials]	↓
10	✓	14	ICAL LV #9	2588-148	5.0 ppbv	25ml	↓	[initials]	↓	2258	GH/[initials]	Exp: 10/9/13, 50 ppbv CAN
11	✓	15	ICAL LV # 10	↓	10 ppbv	50mL	1.00	[initials]	8/27/13	0815	GH/[initials]	↓
12	✓	16	ICal level #11	↓	20 ppbv	100mL	1.00	GH	↓	0901	GH/[initials]	↓
13	✓	17	ICal level #12	↓	40 ppbv	200mL	1.00	GH	↓	0953	GH/[initials]	↓
14	X	18	System blank	99948	humid	250mL	1.00	GH	↓	1050	GH/[initials]	[initials] 8/27/13

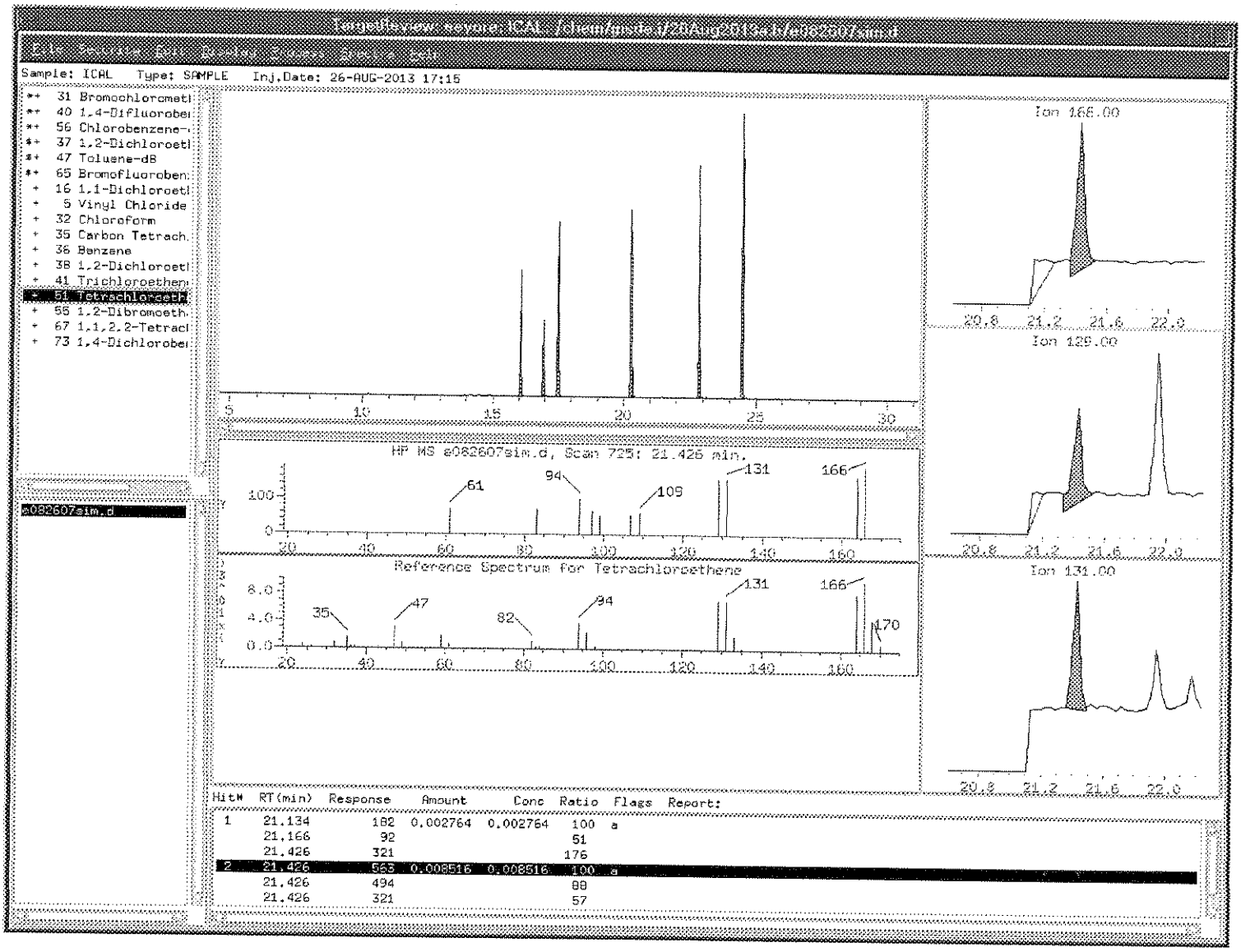
Reviewed: [signature] Date: 8/26/13

	Use	File	Lab ID#	Can#	Pressure	Amt. Loaded	DF	Loaded By Initials	Date Analyzed	Time Analyzed	Reviewed By Initials	Comments/Standard Expiration Date
15	✓	E082619	System blank	94948	humid	250mL	1.00	GH	8-27-13	1143	GH/[illegible]	
16	✓	↓ 20	ICV (50ppbv)	2588-79	10ppbv	50mL	1.00	GH	↓	1229	GH/[illegible]	Ø 005 Exp: 10/26/13
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
32												
33												
34												
35												
36										GH 8/27/13		

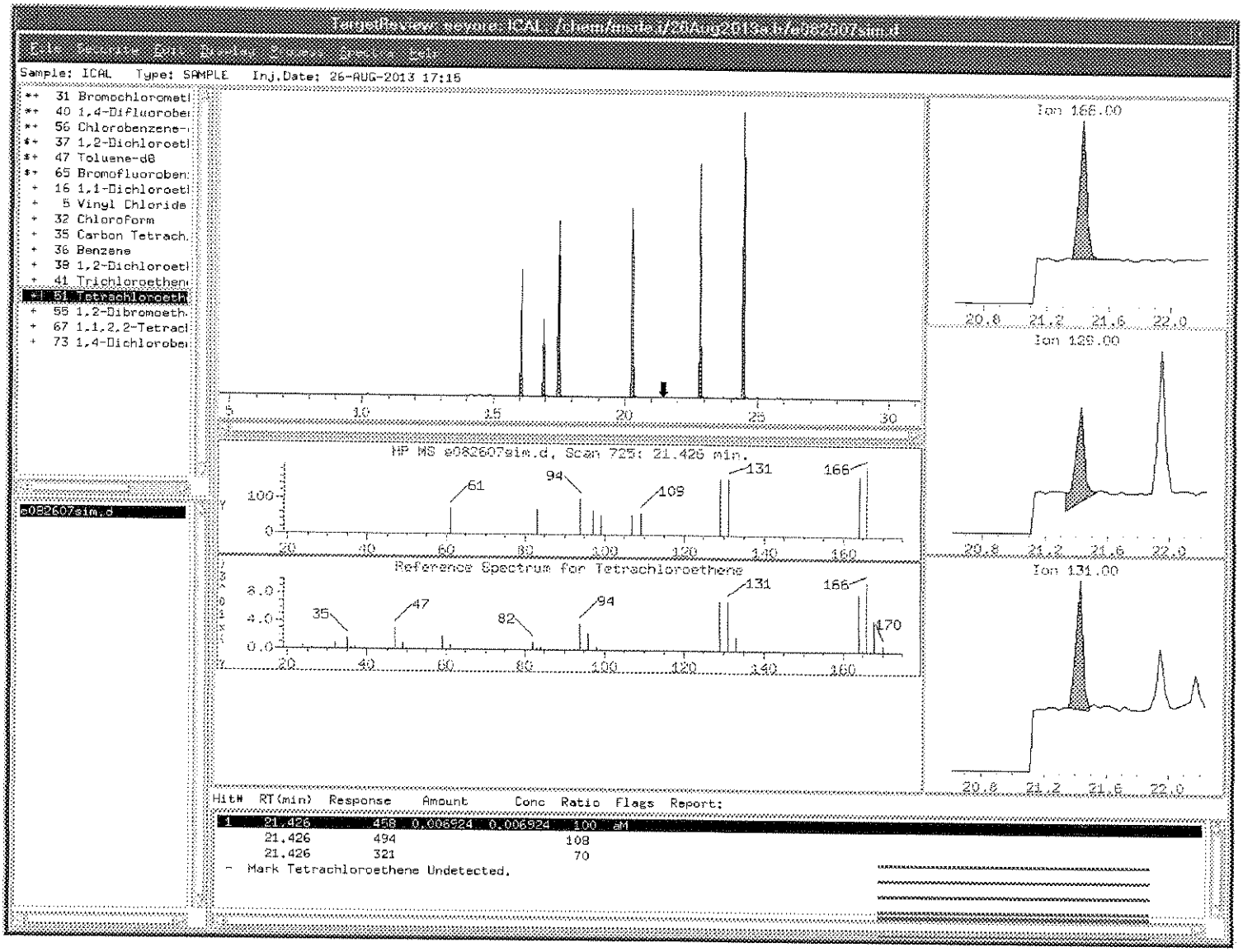
0082 of 0249

[illegible]
Reviewed

8/26/13
Date


TargetReview session: ICAL - /chem/gcms.i/26Aug2013.i/a082607sim.d
Sample: ICAL Type: SAMPLE Inj.Date: 26-AUG-2013 17:15
31 Bromochlorometh
40 1,4-Difluorober
56 Chlorobenzene-
37 1,2-Dichloroeth
47 Toluene-d8
65 Bromofluorober
16 1,1-Dichloroeth
5 Vinyl Chloride
32 Chloroform
35 Carbon Tetrach
36 Benzene
38 1,2-Dichloroeth
41 Trichloroethen
81 Tetrachloroeth
55 1,2-Dibromoeth
67 1,1,2,2-Tetrach
73 1,4-Dichlorober
a082607sim.d
HP MS a082607sim.d, Scan 725: 21.426 min.
Reference Spectrum for Tetrachloroethene
Ion 166.00
Ion 129.00
Ion 131.00
Hit# RT(min) Response Amount Conc Ratio Flags Report:
1 21.134 182 0.002764 0.002764 100 a
21.166 92 51
21.426 321 176
2 21.426 565 0.008516 0.008516 100 a
21.426 494 88
21.426 321 57

BEFORE



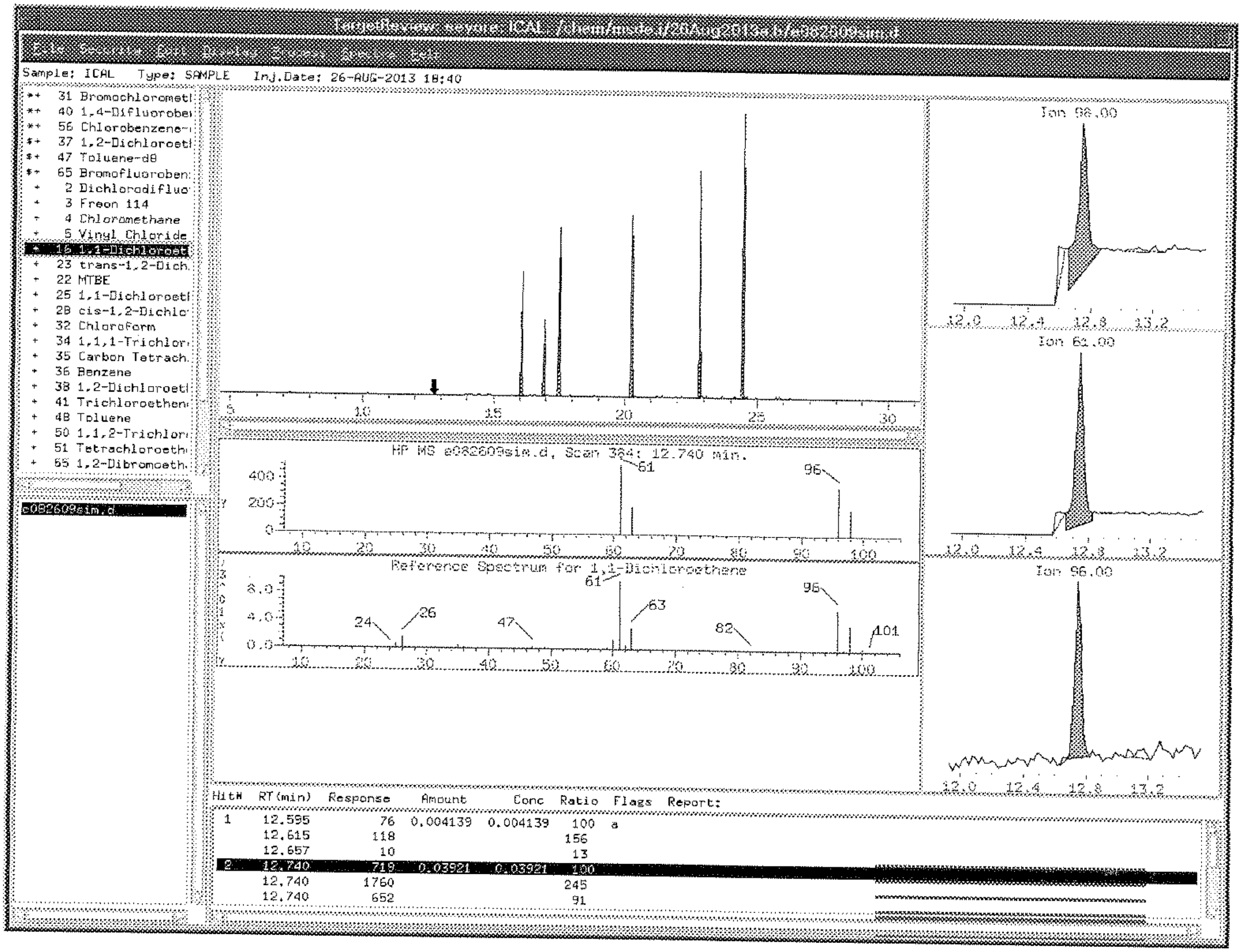
AFTER

SJ 8/26/13

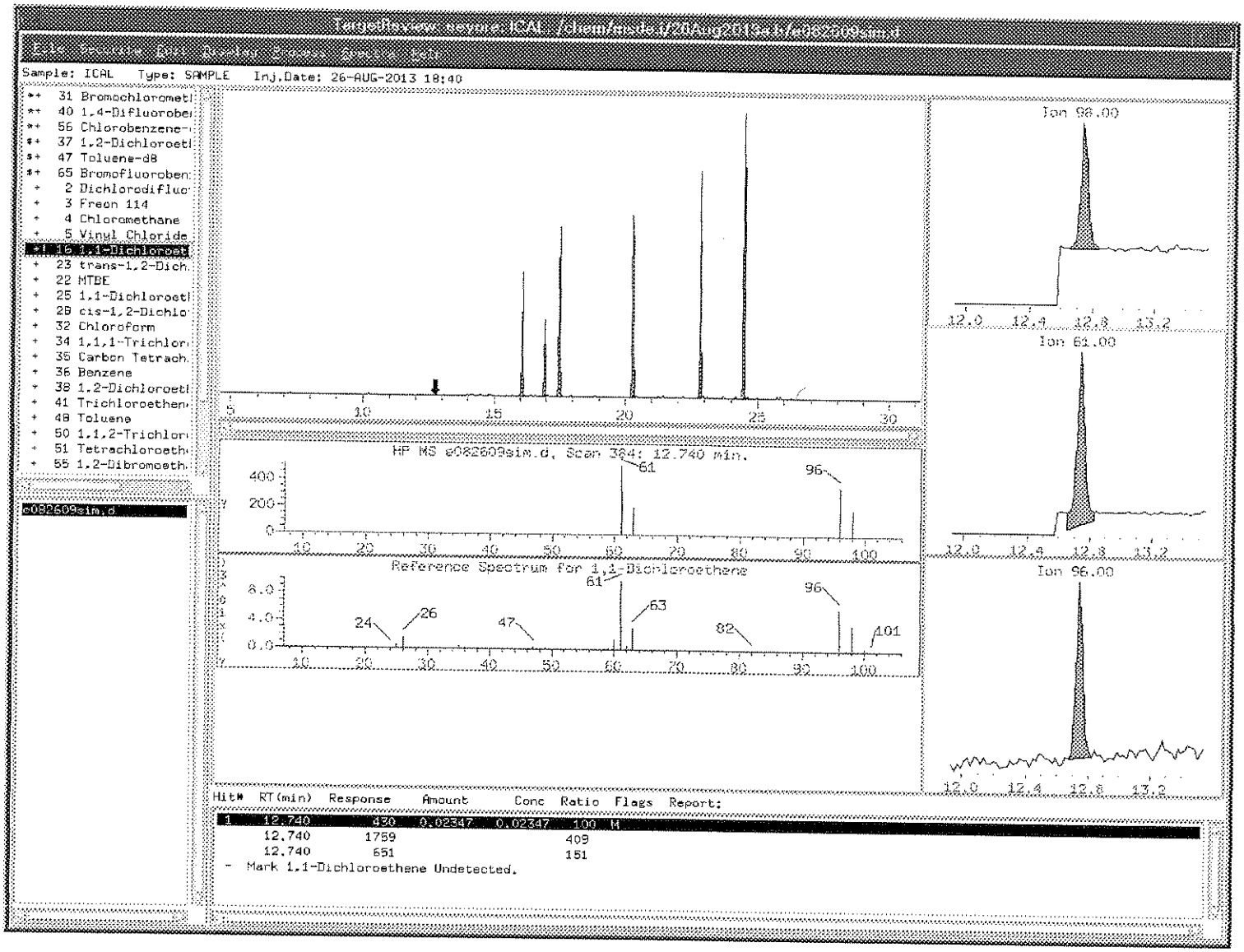
After

Correct Baseline	
Split Peak	
Merge Peak	
Zoom In	
Change Parameter	
System Peak Subtraction	
Peak Misidentified	
Corrected Peak Integration	✓

LO 8/27/13


Sample: ICAL Type: SAMPLE Inj.Date: 26-AUG-2013 18:40
*+ 31 Bromochlorometl
*+ 40 1,4-Difluorobe
*+ 56 Chlorobenzene-
$+ 37 1,2-Dichloroetl
$+ 47 Toluene-d8
$+ 65 Bromofluoroben
+ 2 Dichlorodifluo
+ 3 Freon 114
+ 4 Chloromethane
+ 5 Vinyl Chloride
+ 16 1,1-Dichloroet
+ 23 trans-1,2-Dich
+ 22 MTBE
+ 25 1,1-Dichloroetl
+ 28 cis-1,2-Dichlo
+ 32 Chloroform
+ 34 1,1,1-Trichlor
+ 35 Carbon Tetrach
+ 36 Benzene
+ 38 1,2-Dichloroetl
+ 41 Trichloroethen
+ 48 Toluene
+ 50 1,1,2-Trichlor
+ 51 Tetrachloroeth
+ 55 1,2-Dibromoeth
e082609sim.d
HP MS e082609sim.d, Scan 384: 12.740 min.
Reference Spectrum for 1,1-Dichloroethene
Ion 96.00
Ion 61.00
Ion 96.00
Hit# RT(min) Response Amount Conc Ratio Flags Report:
1 12.595 76 0.004139 0.004139 100 a
12.615 118 156
12.657 10 13
2 12.740 719 0.03921 0.03921 100
12.740 1760 245
12.740 652 91

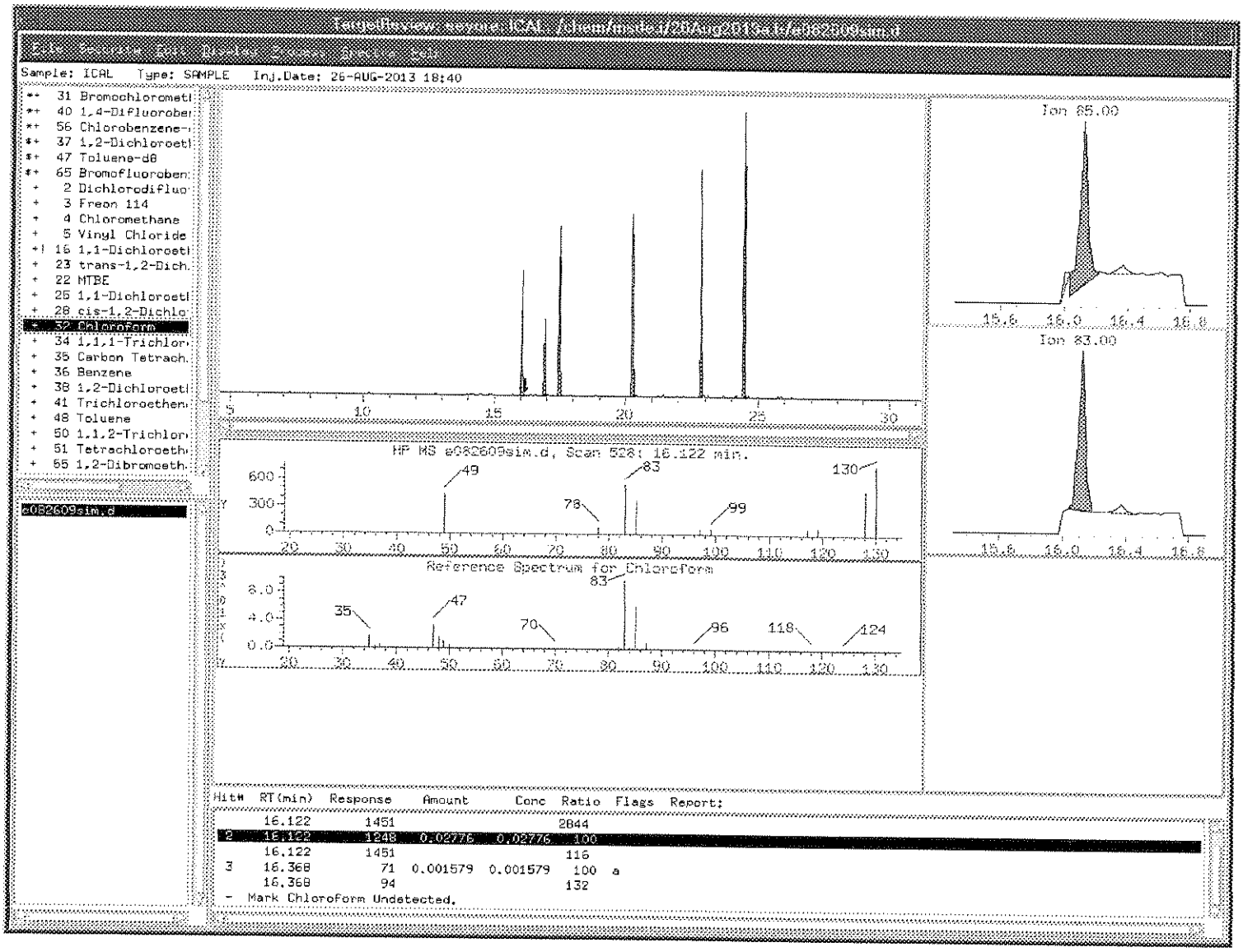
BEFORE



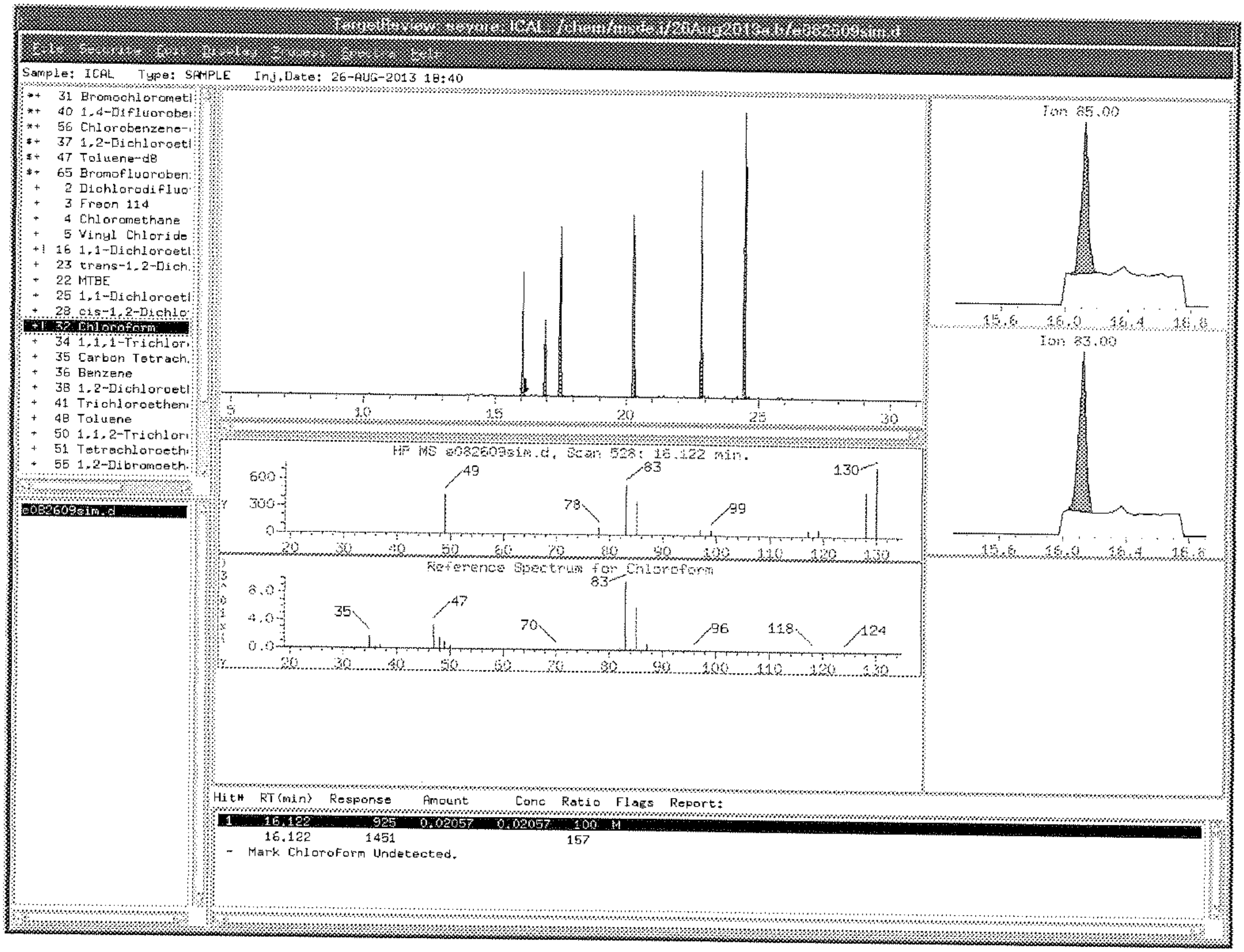
After

Correct Baseline	
Split Peak	
Merge Peak	
Zoom In	
Change Parameter	
System Peak Subtraction	
Peak Misidentified	
Corrected Peak Integration	✓

8/28/13 LO 8/27/13

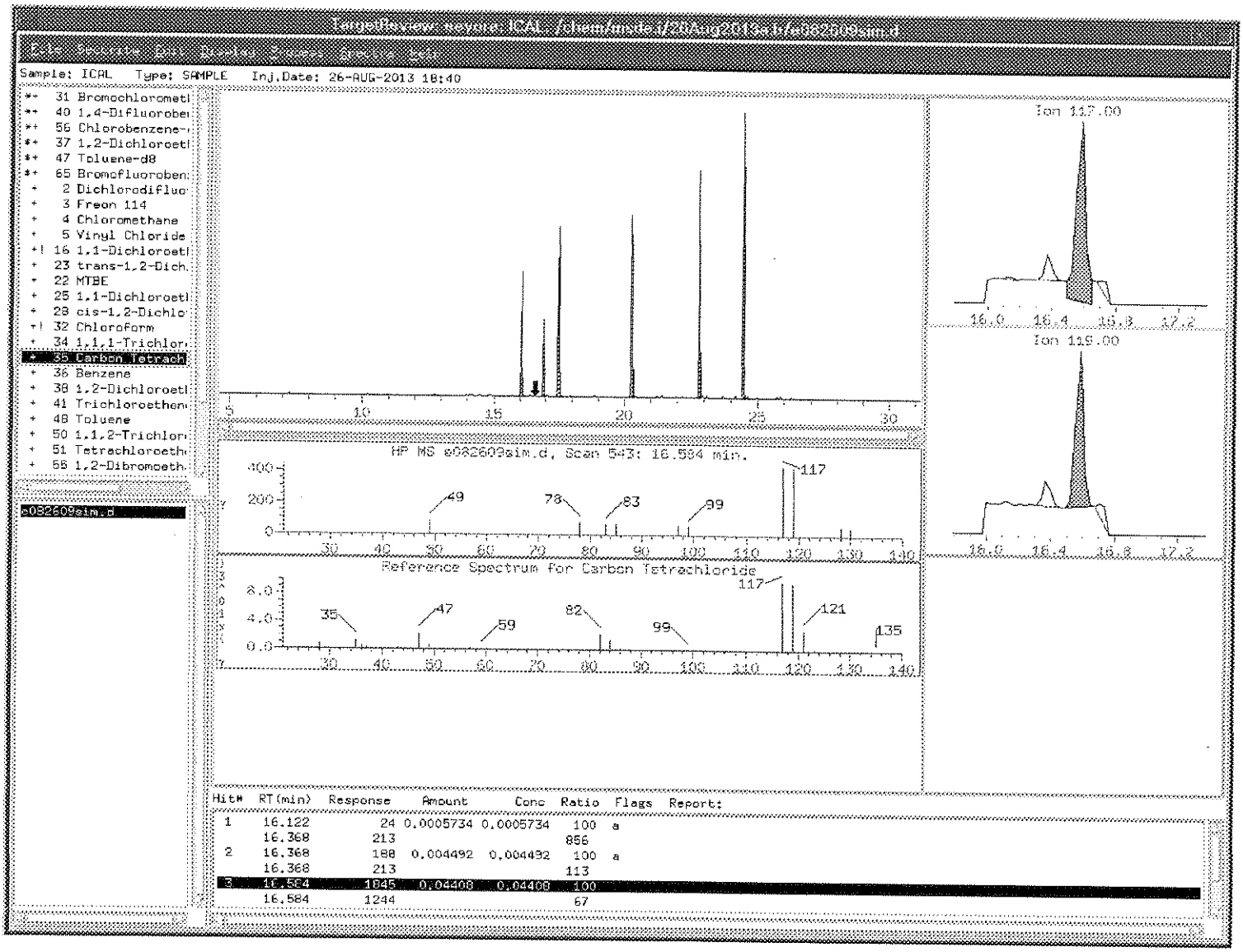

Sample: ICAL Type: SAMPLE Inj.Date: 26-AUG-2013 18:40
Ion 85.00
Ion 83.00
HP MS e082609sim.d, Scan 528: 16.122 min.
Reference Spectrum for Chloroform
Hit# RT(min) Response Amount Conc Ratio Flags Report:
16.122 1451 2844
2 16.122 1248 0.02776 0.02776 100
16.122 1451 116
3 16.368 71 0.001579 0.001579 100 a
16.368 94 132
- Mark Chloroform Undetected.

BEFORE

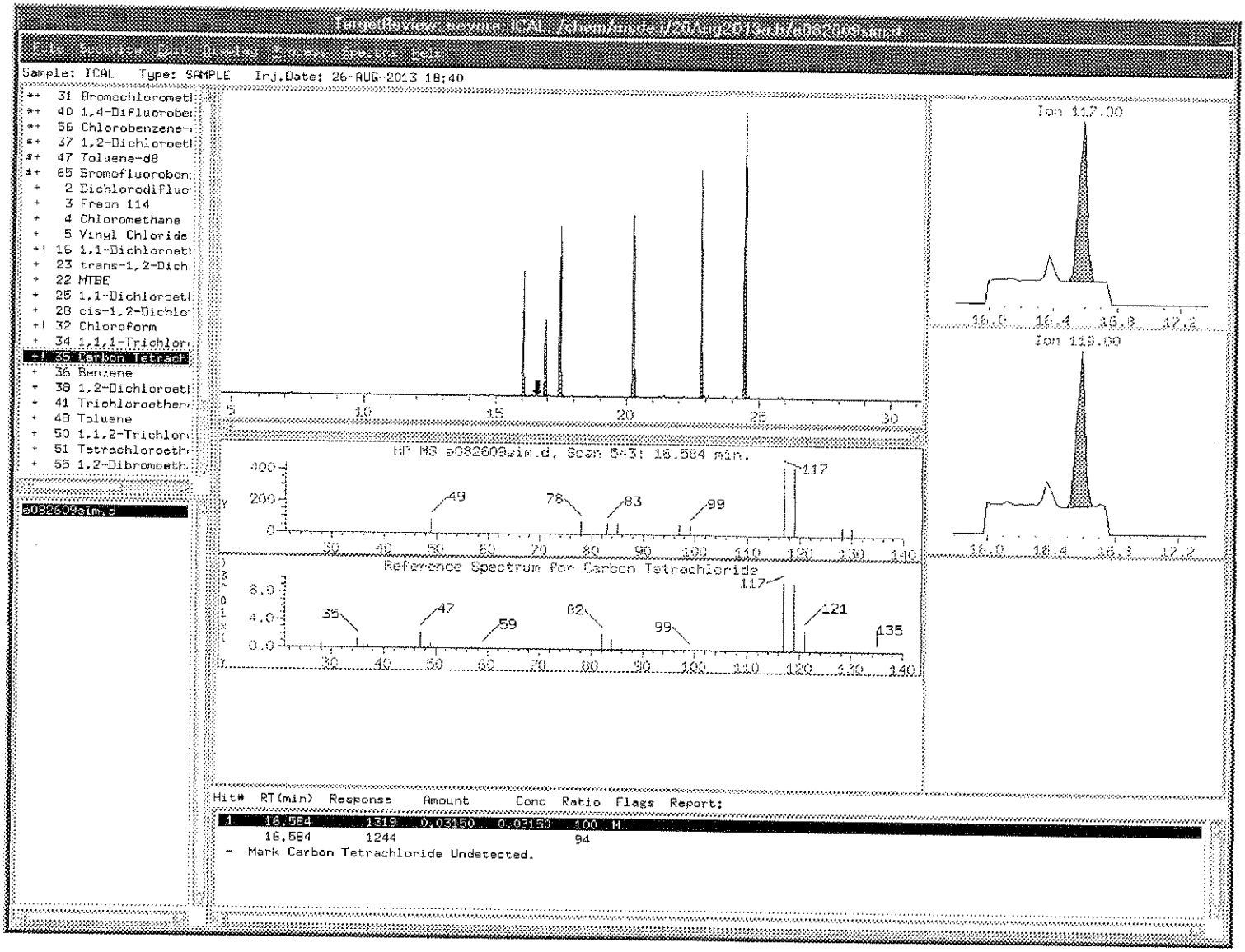


After &-8/26/13 &08/27/13

Correct Baseline	
Split Peak	
Merge Peak	
Zoom In	
Change Parameter	
System Peak Subtraction	
Peak Misidentified	
Corrected Peak Integration	✓

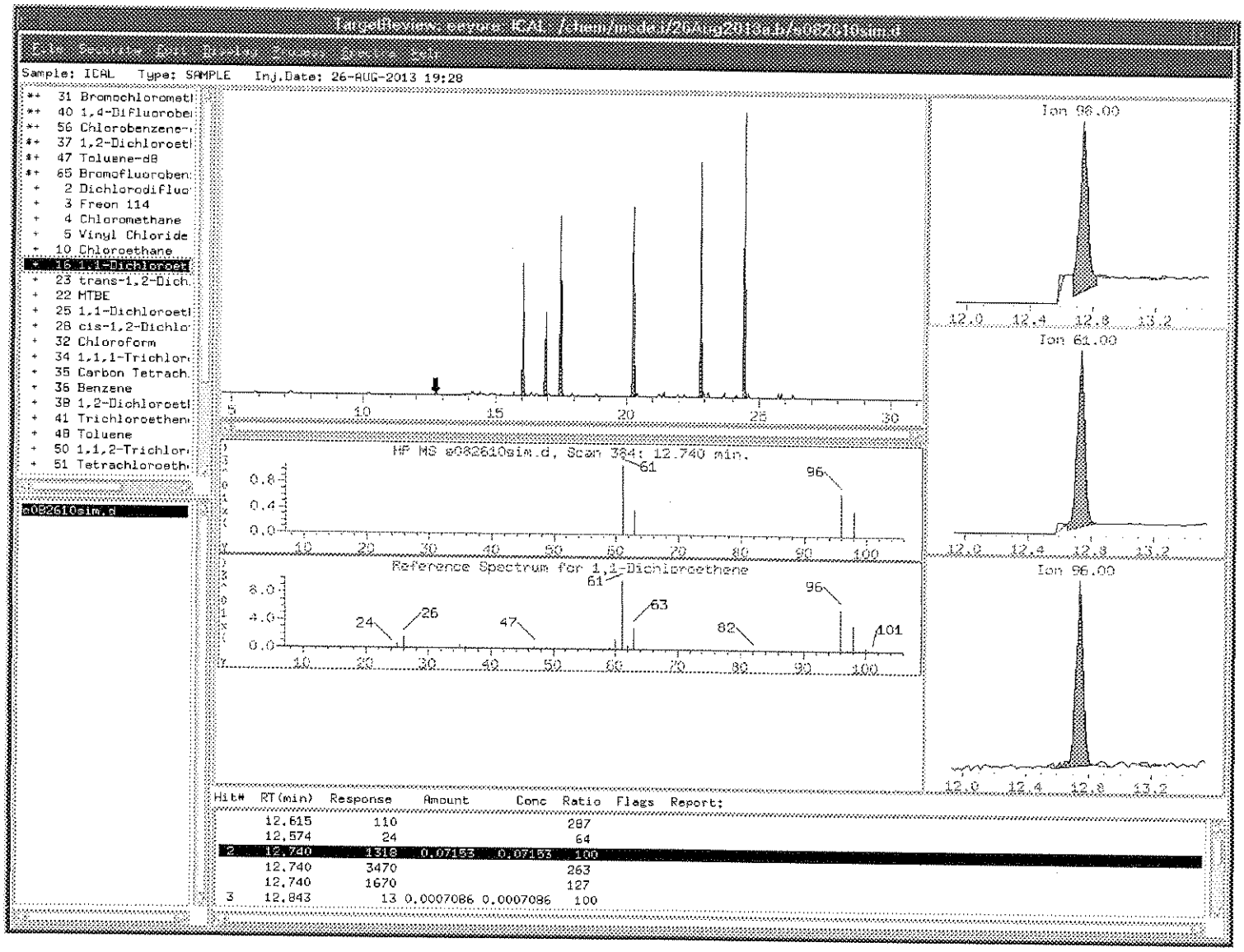

TargetReview: Review: ICAL ./chem/mside.i/20Aug2013a.b/e082609sim.d
Sample: ICAL Type: SAMPLE Inj.Date: 26-AUG-2013 18:40
31 Bromochlorometh
40 1,4-Difluorober
56 Chlorobenzene-
37 1,2-Dichloroeth
47 Toluene-d8
65 Bromofluoroben
2 Dichlorodifluo
3 Freon 114
4 Chloromethane
5 Vinyl Chloride
16 1,1-Dichloroeth
23 trans-1,2-Dich
22 MTBE
25 1,1-Dichloroeth
28 cis-1,2-Dichlo
32 Chloroform
34 1,1,1-Trichlor
35 Carbon Tetrach
36 Benzene
38 1,2-Dichloroeth
41 Trichloroethen
48 Toluene
50 1,1,2-Trichlor
51 Tetrachloroeth
58 1,2-Dibromoeth
e082609sim.d
Ion 117.00
Ion 119.00
HP MS e082609sim.d, Scan 543: 16.584 min.
Reference Spectrum for Carbon Tetrachloride
Hit# RT(min) Response Amount Conc Ratio Flags Report:
1 16.122 24 0.0005734 0.0005734 100 a
16.368 213 856
2 16.368 188 0.004492 0.004492 100 a
16.368 213 113
3 16.584 1845 0.04408 0.04408 100
16.584 1244 67

BEFORE

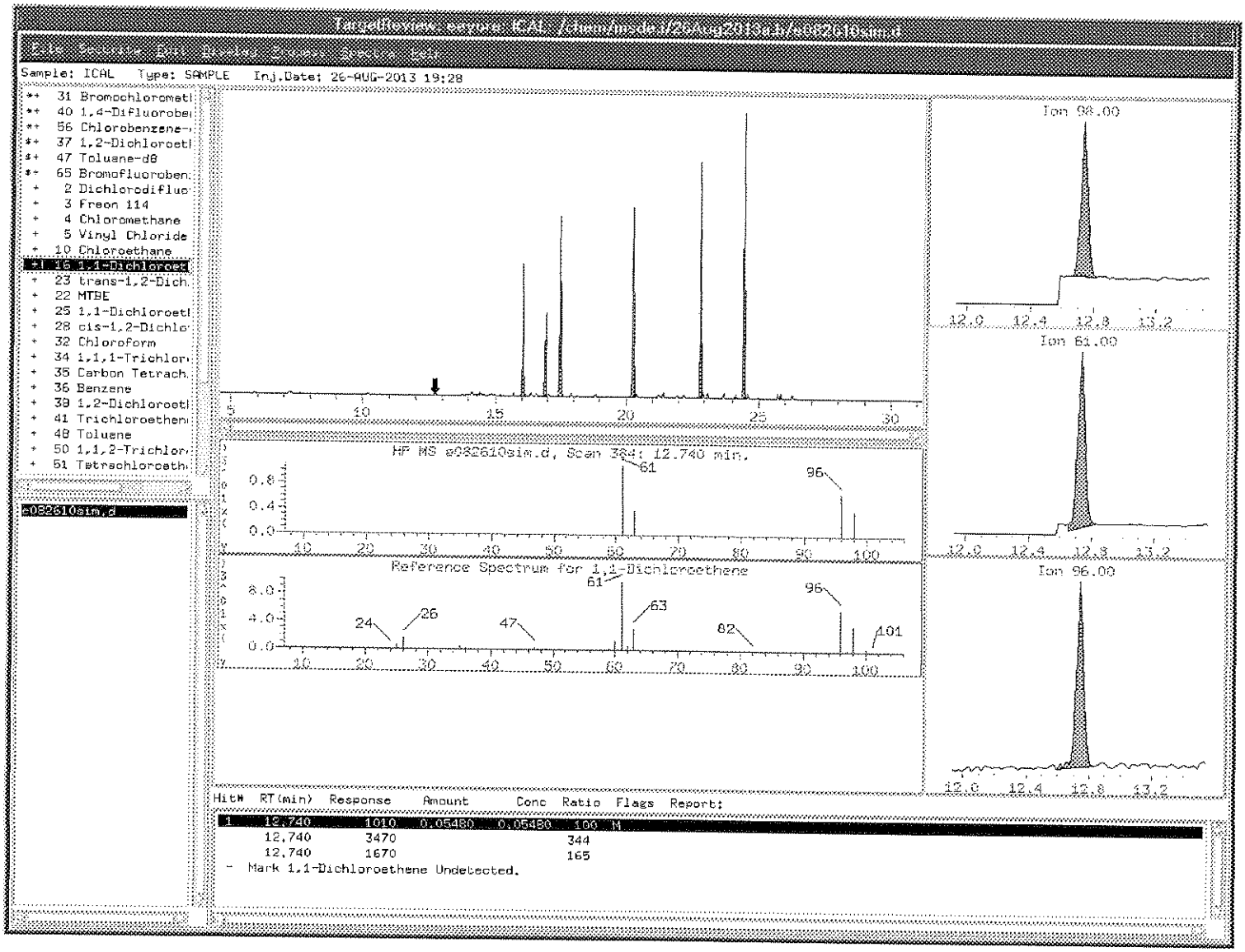


After 8/28/13 8/27/13

Correct Baseline	
Split Peak	
Merge Peak	
Zoom In	
Change Parameter	
System Peak Subtraction	
Peak Misidentified	
Corrected Peak Integration	✓

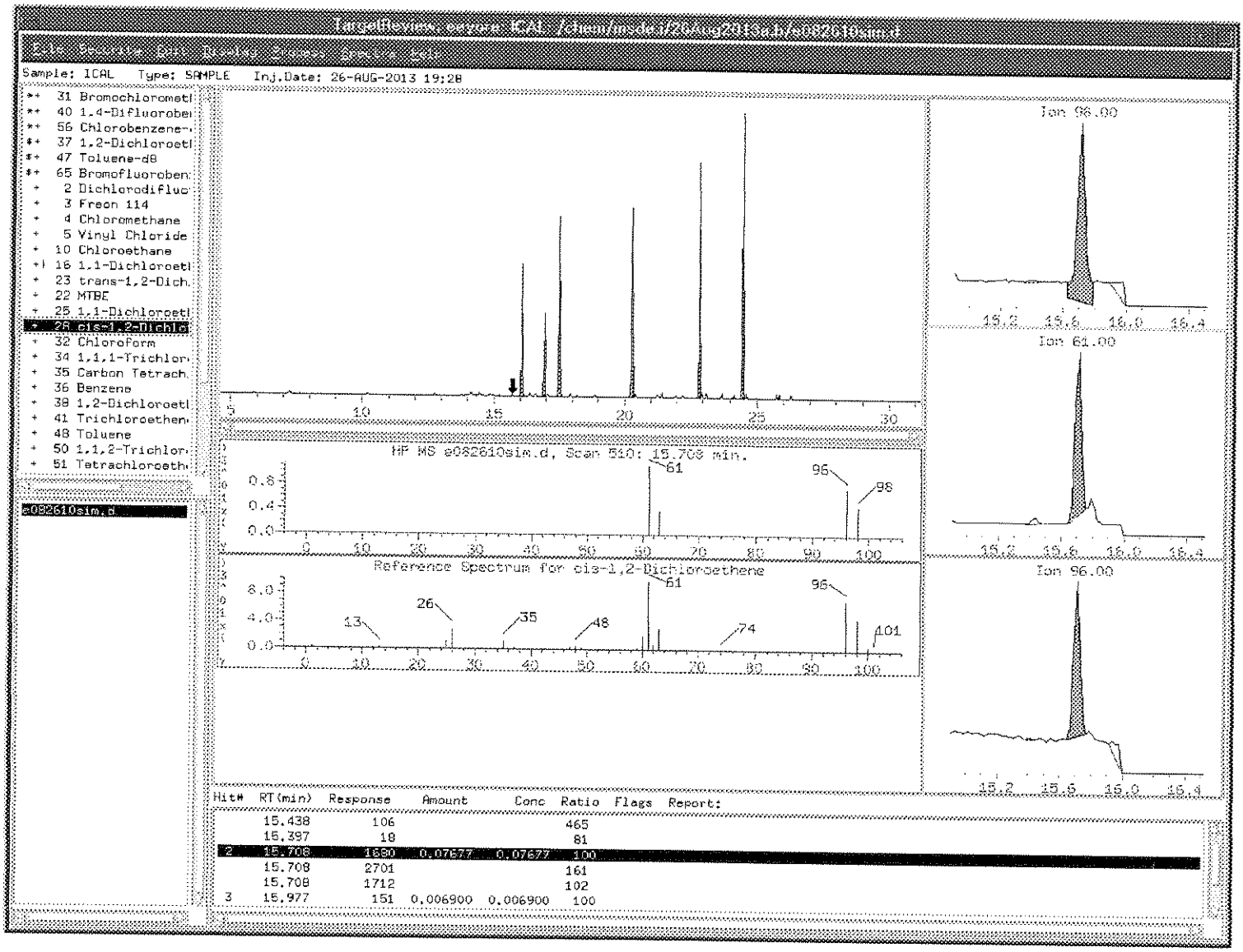

Sample: ICAL Type: SAMPLE Inj.Date: 26-AUG-2013 19:28
31 Bromochlorometh
40 1,4-Difluorober
56 Chlorobenzene-
37 1,2-Dichloroeth
47 Toluene-d8
65 Bromofluoroben
2 Dichlorodifluo
3 Freon 114
4 Chloromethane
5 Vinyl Chloride
10 Chloroethane
16 1,1-Dichloroet
23 trans-1,2-Dich
22 MTBE
25 1,1-Dichloroeth
28 cis-1,2-Dichlo
32 Chloroform
34 1,1,1-Trichlor
35 Carbon Tetrach
36 Benzene
38 1,2-Dichloroeth
41 Trichloroethen
48 Toluene
50 1,1,2-Trichlor
51 Tetrachloroeth
e0826I0sim.d
HP MS e0826I0sim.d, Scan 384: 12.740 min.
Reference Spectrum for 1,1-Dichloroethene
Ion 96.00
Ion 61.00
Ion 96.00
Hit# RT(min) Response Amount Conc Ratio Flags Report:
12.615 110 287
12.574 24 64
2 12.740 1318 0.07153 0.07153 100
12.740 3470 263
12.740 1670 127
3 12.843 13 0.0007086 0.0007086 100

BEFORE

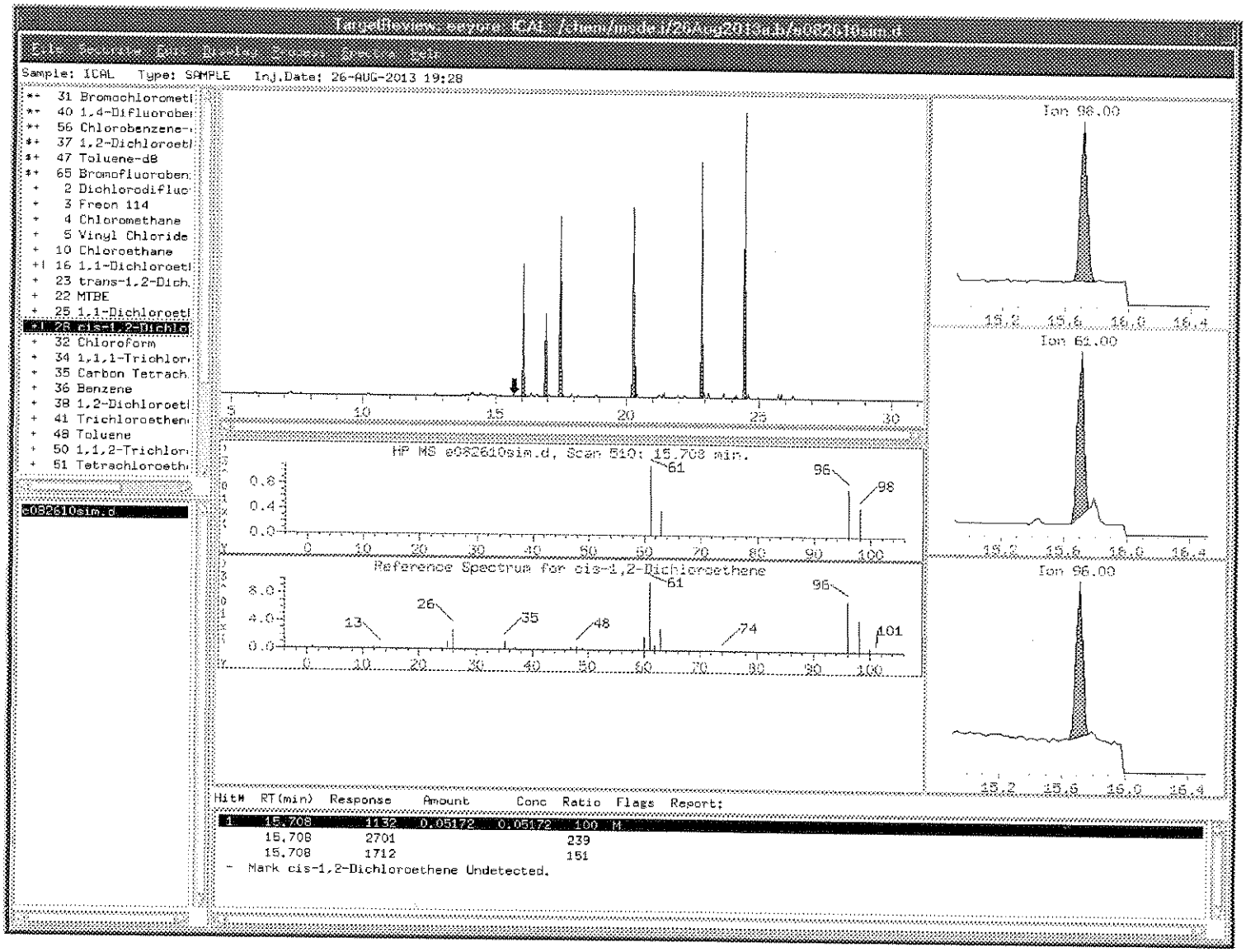


After 8/26/13 8/27/13

Correct Baseline	
Split Peak	
Merge Peak	
Zoom In	
Change Parameter	
System Peak Subtraction	
Peak Misidentified	
Corrected Peak Integration	✓


Sample: ICAL Type: SAMPLE Inj.Date: 26-AUG-2013 19:28
31 Bromochlorometh
40 1,4-Difluorobe
56 Chlorobenzene-
37 1,2-Dichloroeth
47 Toluene-d8
65 Bromofluoroben
2 Dichlorodifluo
3 Freon 114
4 Chloromethane
5 Vinyl Chloride
10 Chloroethane
16 1,1-Dichloroeth
23 trans-1,2-Dich
22 MTBE
25 1,1-Dichloroeth
28 cis-1,2-Dichlo
32 Chloroform
34 1,1,1-Trichlor
35 Carbon Tetrach
36 Benzene
38 1,2-Dichloroeth
41 Trichloroethen
48 Toluene
50 1,1,2-Trichlor
51 Tetrachloroeth
e082610sim.d
HP MS e082610sim.d, Scan 510: 15.708 min.
Reference Spectrum for cis-1,2-Dichloroethene
Ion 96.00
Ion 61.00
Ion 96.00
Hit# RT(min) Response Amount Conc Ratio Flags Report:
15.438 106 465
15.397 18 81
2 15.708 1880 0.07677 0.07677 100
15.708 2701 161
15.708 1712 102
3 15.977 151 0.006900 0.006900 100

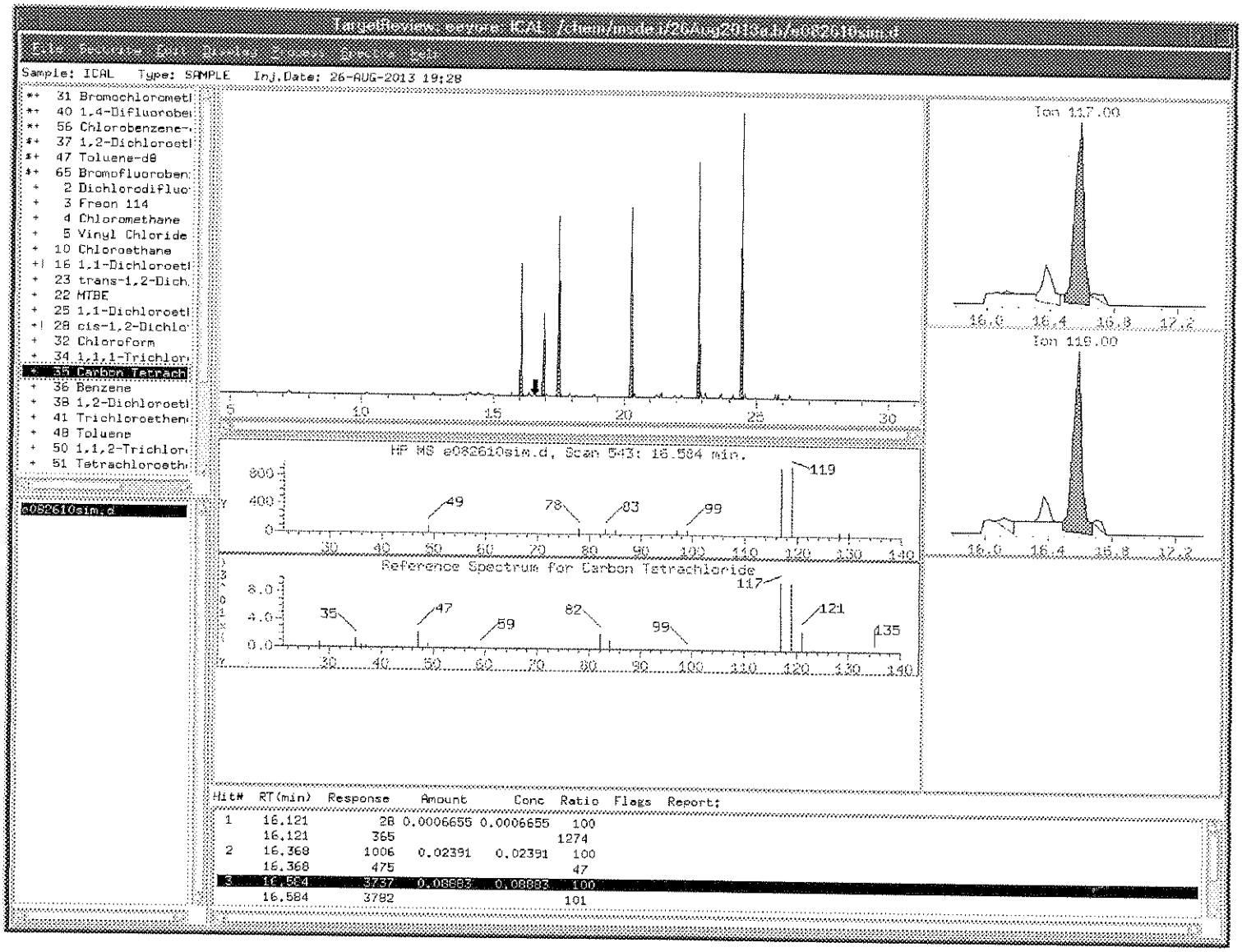
BEFORE



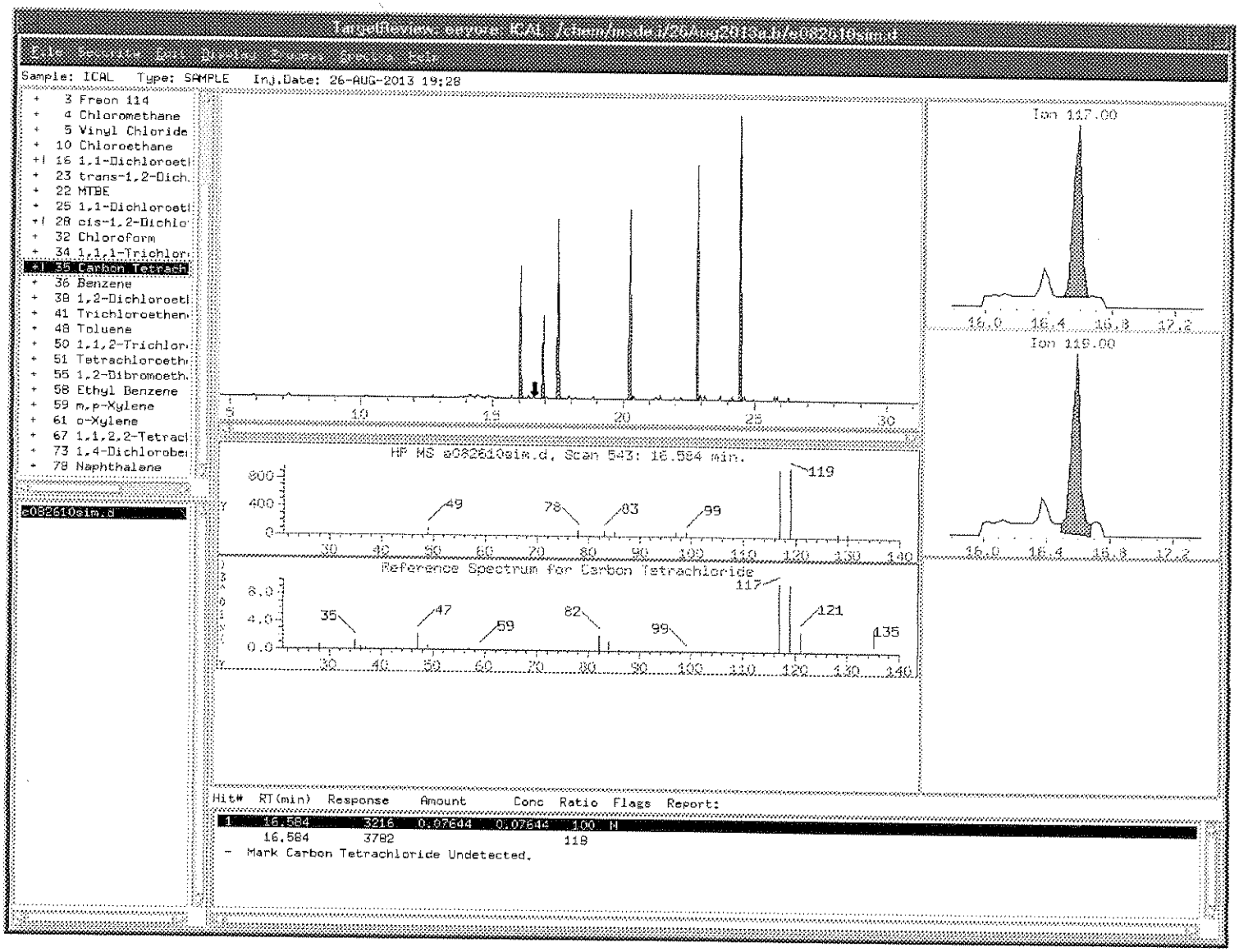
8/26/13 8/27/13

After

Correct Baseline	
Split Peak	
Merge Peak	
Zoom In	
Change Parameter	
System Peak Subtraction	
Peak Misidentified	
Corrected Peak Integration	✓


Sample: ICAL Type: SAMPLE Inj.Date: 26-AUG-2013 19:28
31 Bromochlorometl
40 1,4-Difluorobe
56 Chlorobenzene-
37 1,2-Dichloroetl
47 Toluene-d8
65 Bromofluoroben
2 Dichlorodifluo
3 Freon 114
4 Chloromethane
5 Vinyl Chloride
10 Chloroethane
16 1,1-Dichloroetl
23 trans-1,2-Dich
22 MTBE
25 1,1-Dichloroetl
28 cis-1,2-Dichlo
32 Chloroform
34 1,1,1-Trichlor
35 Carbon Tetrach
36 Benzene
38 1,2-Dichloroetl
41 Trichloroethen
48 Toluene
50 1,1,2-Trichlor
51 Tetrachloroeth
Ion 117.00
Ion 119.00
HP MS e082610sim.d, Scan 543: 16.584 min.
Reference Spectrum for Carbon Tetrachloride
Hit# RT(min) Response Amount Conc Ratio Flags Report;
1 16.121 28 0.0006655 0.0006655 100
16.121 365 1274
2 16.368 1006 0.02391 0.02391 100
16.368 475 47
3 16.584 3737 0.08883 0.08883 100
16.584 3782 101

BEFORE



8s 8/26/13 fo 8/27/13

After

Correct Baseline	
Split Peak	
Merge Peak	
Zoom In	
Change Parameter	
System Peak Subtraction	
Peak Misidentified	
Corrected Peak Integration	✓

Modified EPA Methods TO-14A/TO-15 SIM

Internal Standard and Associated Target Compounds and Surrogates

Bromochloromethane
Target Compounds:
Vinyl Chloride
1,1-Dichloroethene
1,1-Dichloroethane
Methyl tert-butyl ether
trans-1,2-Dichloroethene
cis-1,2-Dichloroethene
1,1,1-Trichloroethane
Surrogates:
1,2-Dichloroethane-d4

1,4-Difluorobenzene
Target Compounds:
Benzene
1,2-Dichloroethane
Trichloroethene
Toluene
Surrogates:
Toluene-d8

Chlorobenzene-d5
Target Compounds:
1,1,2-Trichloroethane
Tetrachloroethene
Ethyl Benzene
m,p-Xylene
o-Xylene
1,1,2,2-Tetrachloroethane
Surrogates:
Bromofluorobenzene

Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/26Aug2013a.b/e082620sim.d
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 27-AUG-2013 12:29
Operator : gh Inst ID: msde.i
Smp Info : 50mL #2588-79; ICV; ICV
Misc Info : 10ppbv (50ppbv)
Comment : SIM/ GC-MS
Method : /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Meth Date : 28-Aug-2013 08:45 sblack Quant Type: ISTD
Cal Date : 27-AUG-2013 09:01 Cal File: e082616sim.d
Als bottle: 4 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: AT09.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				CONCENTRATIONS ON-COL	CONCENTRATIONS FINAL		
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE	RATIO
* 31 Bromochloromethane						CAS #: 74-97-5	
16.060	16.060 (1.000)	130	91179	5.00000		70.00- 130.00	100.00
16.060	16.060 (1.000)	128	71363			0.00- 30.00	78.27
16.060	16.060 (1.000)	49	257935			0.00- 30.00	282.89
* 40 1,4-Difluorobenzene						CAS #: 540-36-3	
17.492	17.492 (1.000)	114	423084	5.00000		70.00- 130.00	100.00
17.492	17.492 (1.000)	88	67403			0.00- 45.47	15.93
* 56 Chlorobenzene-d5						CAS #: 3114-55-4	
22.846	22.846 (1.000)	117	335253	5.00000		70.00- 130.00	100.00
22.846	22.846 (1.000)	82	173378			0.00- 30.00	51.72
$ 37 1,2-Dichloroethane-d4						CAS #: 17060-07-0	
16.915	16.914 (1.053)	65	145856	5.16456	5.164	70.00- 130.00	100.00
16.915	16.914 (1.053)	67	62704			0.00- 30.00	42.99
$ 47 Toluene-d8						CAS #: 2037-26-5	
20.260	20.260 (1.158)	98	343888	5.03869	5.039	70.00- 130.00	100.00
20.260	20.260 (1.158)	70	40019			0.00- 41.47	11.64

RT	EXP RT (REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
$ 47 Toluene-d8 (continued)							
20.260	20.282 (1.158)	100	240262			40.11- 100.11	69.87
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.440	24.466 (1.070)	174	179173	4.80694	4.807	70.00- 130.00	100.00
24.440	24.440 (1.070)	95	207472			79.71- 139.71	115.79
24.440	24.466 (1.070)	176	172232			66.55- 126.55	96.13
2 Dichlorodifluoromethane/Fr12					CAS #: 75-71-8		
5.903	5.927 (0.368)	85	758491	9.59626	9.596	70.00- 130.00	100.00
5.903	5.927 (0.368)	87	244269			0.00- 30.00	32.20
3 Freon 114					CAS #: 76-14-2		
7.253	7.277 (0.452)	135	608957	9.29681	9.297	70.00- 130.00	100.00
7.253	7.277 (0.452)	137	195309			0.00- 30.00	32.07
4 Chloromethane					CAS #: 74-87-3		
7.638	7.638 (0.476)	50	418682	9.59877	9.599	70.00- 130.00	100.00
7.638	7.638 (0.476)	52	134675			0.00- 30.00	32.17
5 Vinyl Chloride					CAS #: 75-01-4		
8.489	8.489 (0.529)	62	395178	9.62637	9.626	70.00- 130.00	100.00
8.489	8.489 (0.529)	64	116056			0.00- 59.23	29.37
10 Chloroethane					CAS #: 75-00-3		
10.646	10.667 (0.663)	64	206056	10.0100	10.010	70.00- 130.00	100.00
10.646	10.667 (0.663)	66	59587			0.00- 30.00	28.92
16 1,1-Dichloroethene					CAS #: 75-35-4		
12.740	12.740 (0.793)	98	195229	9.68816	9.688	70.00- 130.00	100.00
12.740	12.740 (0.793)	61	664808			0.00- 30.00	340.53
12.740	12.740 (0.793)	96	309742			0.00- 30.00	158.66
23 trans-1,2-Dichloroethene					CAS #: 156-60-5		
14.167	14.167 (0.882)	98	210641	10.9681	10.968	70.00- 130.00	100.00
14.167	14.167 (0.882)	61	626641			0.00- 30.00	297.49
14.167	14.167 (0.882)	96	330905			0.00- 30.00	157.09
22 MTBE					CAS #: 1634-04-4		
14.112	14.112 (0.879)	73	894281	9.99884	9.999	70.00- 130.00	100.00
14.112	14.112 (0.879)	57	303168			0.00- 30.00	33.90
14.112	14.112 (0.879)	41	254665			0.00- 30.00	28.48
25 1,1-Dichloroethane					CAS #: 75-34-3		
14.881	14.881 (0.927)	63	713565	9.94692	9.947	70.00- 130.00	100.00
14.881	14.881 (0.927)	65	208595			0.00- 59.33	29.23

RT	EXP RT (REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	CONCENTRATIONS FINAL (PPBV)	TARGET RANGE	RATIO
28 cis-1,2-Dichloroethene					CAS #: 156-59-2		
15.708	15.708 (0.978)	98	215044	9.73849	9.738	70.00- 130.00	100.00
15.708	15.708 (0.978)	61	583388			0.00- 30.00	271.29
15.708	15.708 (0.978)	96	337425			0.00- 30.00	156.91
32 Chloroform					CAS #: 67-66-3		
16.122	16.121 (1.004)	85	427456	9.29254	9.292	70.00- 130.00	100.00
16.122	16.121 (1.004)	83	659690			124.09- 184.09	154.33
34 1,1,1-Trichloroethane					CAS #: 71-55-6		
16.368	16.368 (1.019)	97	692519	9.59226	9.592	70.00- 130.00	100.00
16.368	16.368 (1.019)	99	445448			34.43- 94.43	64.32
35 Carbon Tetrachloride					CAS #: 56-23-5		
16.584	16.584 (1.033)	117	550332	7.93955	7.940	70.00- 130.00	100.00
16.584	16.584 (1.033)	119	531949			66.38- 126.38	96.66
36 Benzene					CAS #: 71-43-2		
16.915	16.944 (0.967)	78	984055	8.20473	8.205	70.00- 130.00	100.00
16.915	16.944 (0.967)	77	228842			0.00- 30.00	23.26
38 1,2-Dichloroethane					CAS #: 107-06-2		
17.031	17.031 (0.974)	62	536054	9.98221	9.982	70.00- 130.00	100.00
17.031	17.031 (0.974)	64	160265			0.00- 30.00	29.90
41 Trichloroethene					CAS #: 79-01-6		
17.932	17.931 (1.025)	130	460999	8.37569	8.376	70.00- 130.00	100.00
17.932	17.931 (1.025)	95	436522			62.73- 122.73	94.69
17.932	17.931 (1.025)	97	281769			29.94- 89.94	61.12
48 Toluene					CAS #: 108-88-3		
20.394	20.417 (1.166)	91	1118133	9.07169	9.072	70.00- 130.00	100.00
20.417	20.417 (1.167)	92	670775			30.04- 90.04	59.99
50 1,1,2-Trichloroethane					CAS #: 79-00-5		
21.264	21.264 (0.931)	97	416037	9.29151	9.292	70.00- 130.00	100.00
21.264	21.264 (0.931)	99	259939			32.57- 92.57	62.48
21.264	21.264 (0.931)	83	348124			53.31- 113.31	83.68
51 Tetrachloroethene					CAS #: 127-18-4		
21.426	21.426 (0.938)	166	614481	8.34495	8.345	70.00- 130.00	100.00
21.426	21.426 (0.938)	129	419496			36.83- 96.83	68.27
21.426	21.426 (0.938)	131	426771			37.96- 97.96	69.45
55 1,2-Dibromoethane					CAS #: 106-93-4		
22.207	22.207 (0.972)	107	667715	9.45164	9.452	70.00- 130.00	100.00

RT	EXP RT (REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
55 1,2-Dibromoethane (continued)							
22.207	22.207 (0.972)	109	629070			64.59- 124.59	94.21
58 Ethyl Benzene					CAS #: 100-41-4		
22.967	22.967 (1.005)	106	437428	9.21978	9.220	70.00- 130.00	100.00
22.967	22.967 (1.005)	91	1362080			0.00- 30.00	311.38
59 m,p-Xylene					CAS #: 108-38-3		
23.135	23.135 (1.013)	106	480281	9.23981	9.240	70.00- 130.00	100.00
23.135	23.135 (1.013)	91	940737			0.00- 30.00	195.87
61 o-Xylene					CAS #: 95-47-6		
23.714	23.714 (1.038)	106	461014	9.15512	9.155	70.00- 130.00	100.00
23.714	23.714 (1.038)	91	953527			174.80- 234.80	206.83
67 1,1,2,2-Tetrachloroethane					CAS #: 79-34-5		
24.620	24.620 (1.078)	83	836241	8.76358	8.764	70.00- 130.00	100.00
24.620	24.620 (1.078)	85	543255			34.66- 94.66	64.96
73 1,4-Dichlorobenzene					CAS #: 106-46-7		
25.838	25.838 (1.131)	146	658135	8.15842	8.158	70.00- 130.00	100.00
25.838	25.838 (1.131)	148	420710			0.00- 30.00	63.92
25.838	25.838 (1.131)	111	246718			0.00- 30.00	37.49
78 Naphthalene					CAS #: 91-20-3		
28.394	28.416 (1.243)	128	76441	0.77083	0.7708	70.00- 130.00	100.00
28.394	28.416 (1.243)	127	9612			0.00- 30.00	12.57

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082620sim.d
Lab Smp Id: ICV
Analysis Type: VOA
Quant Type: ISTD
Operator: gh
Method File: /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Misc Info: 10ppbv (50ppbv)

Calibration Date: 27-AUG-2013
Calibration Time: 08:15
Client Smp ID: ICV
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	112630	67578	157682	91179	-19.05
40 1,4-Difluorobenze	493076	295846	690306	423084	-14.19
56 Chlorobenzene-d5	385996	231598	540394	335253	-13.15

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.09	15.76	16.42	16.06	-0.19
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Eurofins Air Toxics Inc.

RECOVERY REPORT

Client Name: Client SDG: 26Aug2013a
Sample Matrix: GAS Fraction: VOA
Lab Smp Id: ICV Client Smp ID: ICV
Level: LOW Operator: gh
Data Type: MS DATA SampleType: LCS
SpikeList File: AT09.spk Quant Type: ISTD
Sublist File: AT09.sub
Method File: /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Misc Info: 10ppbv (50ppbv)

SPIKE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED	LIMITS
2 Dichlorodifluorome	10.000	9.596	95.96	60-140
3 Freon 114	10.000	9.297	92.97	60-140
4 Chloromethane	10.000	9.599	95.99	60-140
5 Vinyl Chloride	10.000	9.626	96.26	70-130
10 Chloroethane	10.000	10.010	100.10	60-140
16 1,1-Dichloroethene	10.000	9.688	96.88	70-130
22 MTBE	10.000	9.999	99.99	70-130
23 trans-1,2-Dichloro	10.000	10.968	109.68	70-130
25 1,1-Dichloroethane	10.000	9.947	99.47	70-130
28 cis-1,2-Dichloroet	10.000	9.738	97.38	70-130
32 Chloroform	10.000	9.292	92.93	60-140
34 1,1,1-Trichloroeth	10.000	9.592	95.92	70-130
35 Carbon Tetrachlori	10.000	7.940	79.40	60-140
36 Benzene	10.000	8.205	82.05	70-130
38 1,2-Dichloroethane	10.000	9.982	99.82	70-130
41 Trichloroethene	10.000	8.376	83.76	70-130
48 Toluene	10.000	9.072	90.72	70-130
50 1,1,2-Trichloroeth	10.000	9.292	92.92	70-130
51 Tetrachloroethene	10.000	8.345	83.45	70-130
55 1,2-Dibromoethane	10.000	9.452	94.52	60-140
58 Ethyl Benzene	10.000	9.220	92.20	70-130
59 m,p-Xylene	10.000	9.240	92.40	70-130
61 o-Xylene	10.000	9.155	91.55	70-130
67 1,1,2,2-Tetrachlor	10.000	8.764	87.64	70-130
73 1,4-Dichlorobenzen	10.000	8.158	81.58	70-130
78 Naphthalene	1.000	0.7708	77.08	60-140

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED	LIMITS
$ 37 1,2-Dichloroethane	5.000	5.164	103.29	70-130

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED	LIMITS
$ 47 Toluene-d8	5.000	5.039	100.77	70-130
$ 65 Bromofluorobenzene	5.000	4.807	96.14	70-130

Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

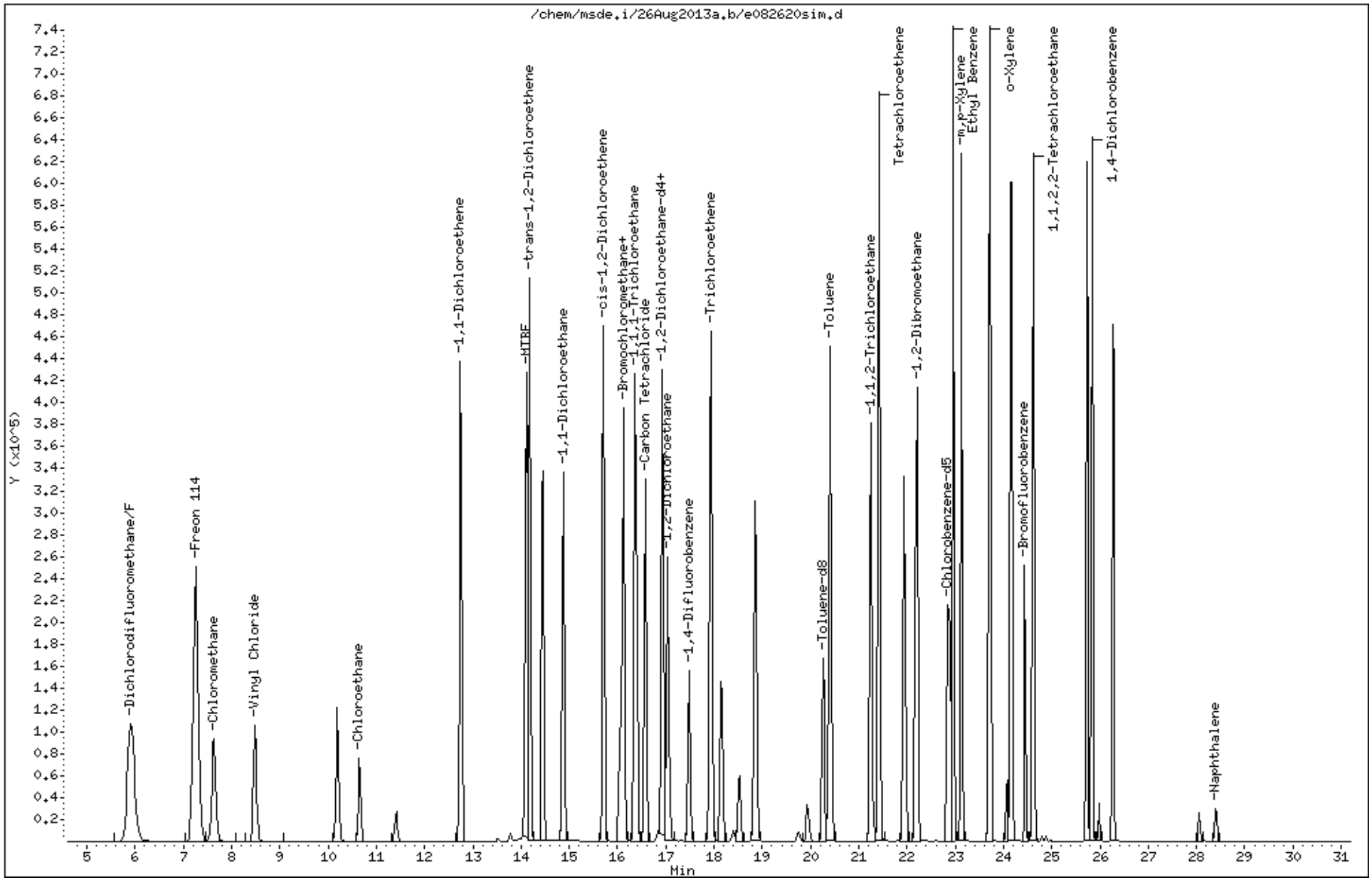
Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

Operator: gh

Column phase: RTx-624

Column diameter: 0.53



Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

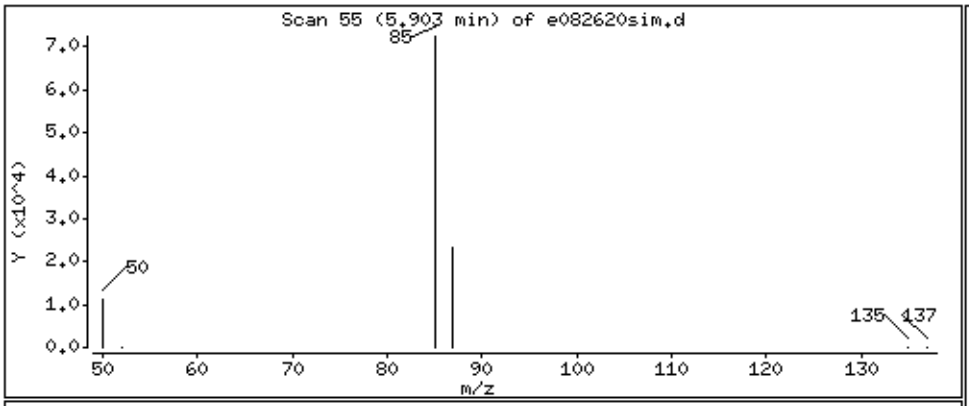
Operator: gh

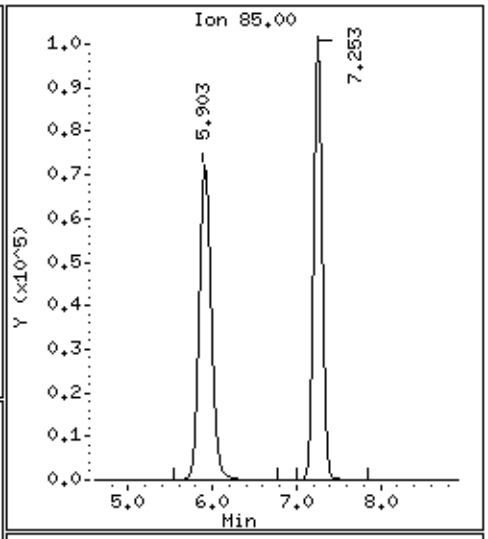
Column phase: RTx-624

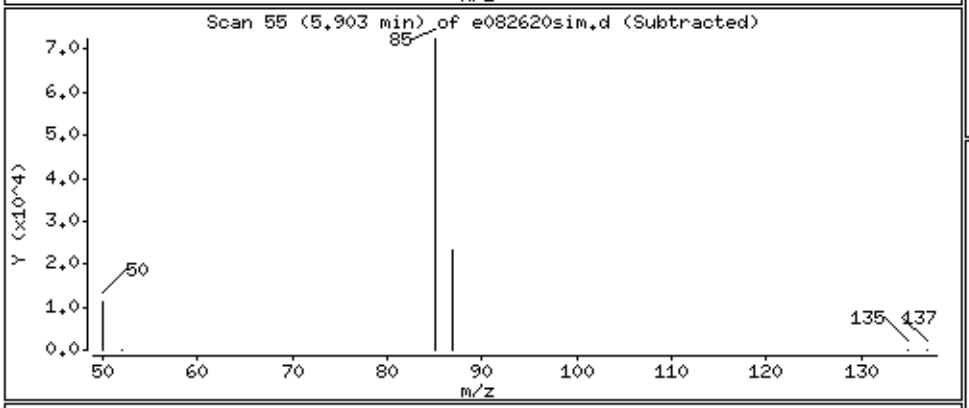
Column diameter: 0.53

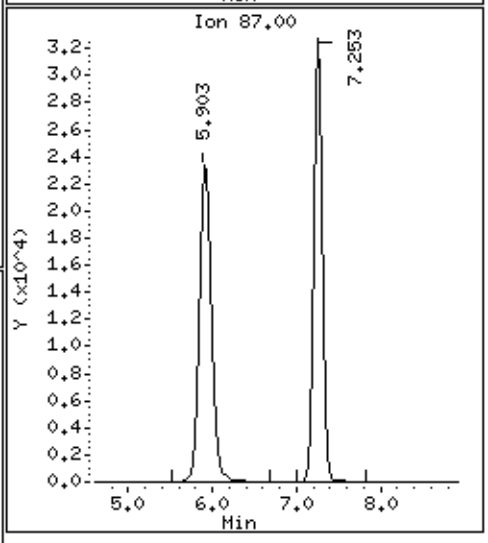
2 Dichlorodifluoromethane/Fr12

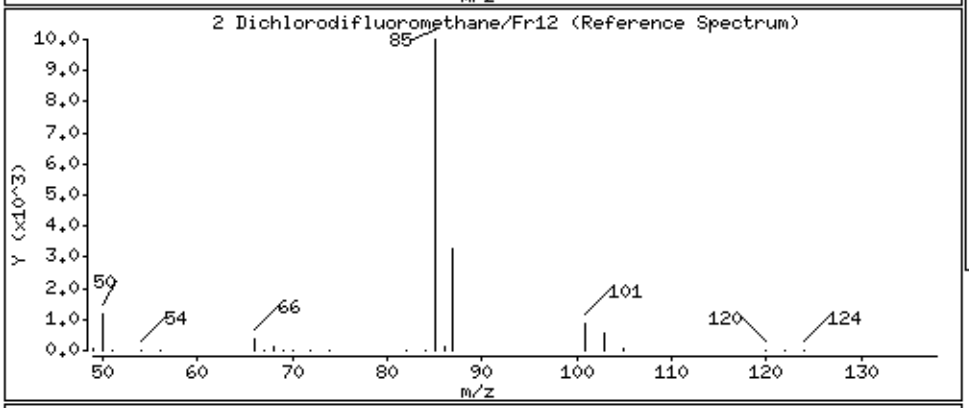
Concentration: 9.596 PPBV

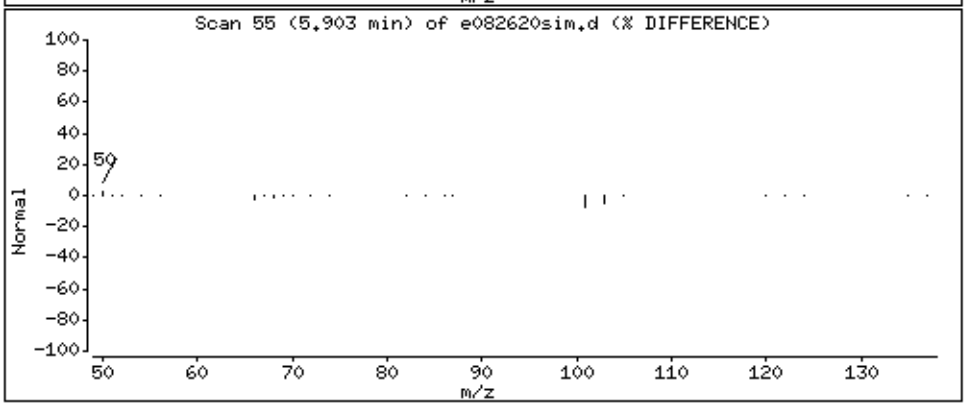












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

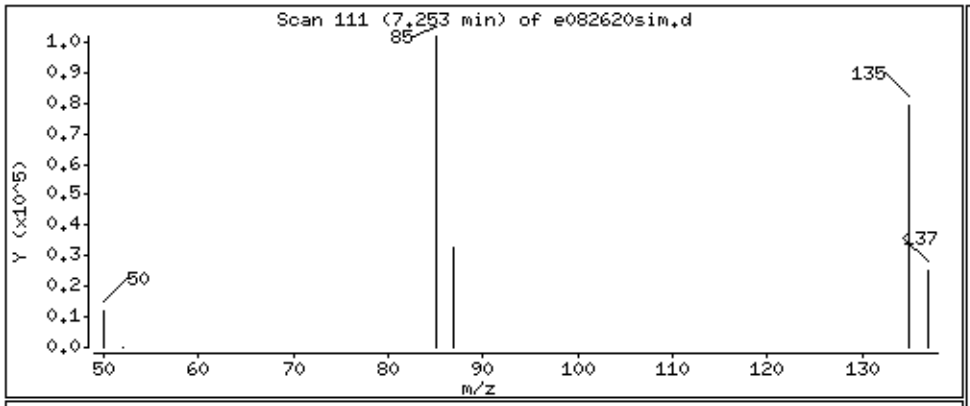
Operator: gh

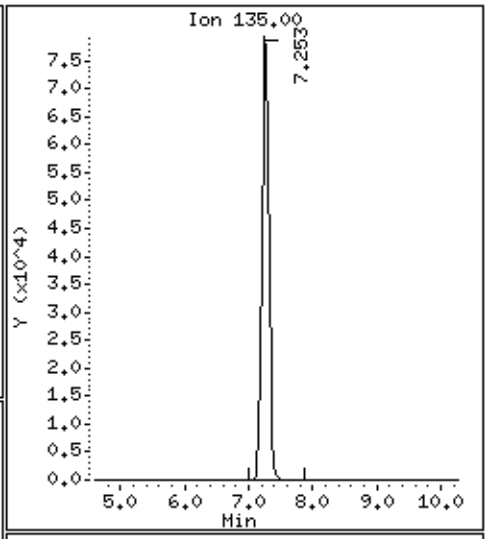
Column phase: RTx-624

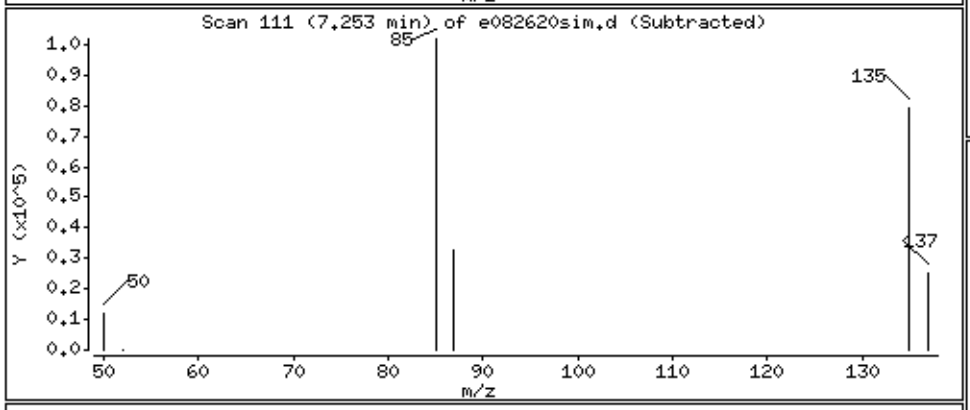
Column diameter: 0.53

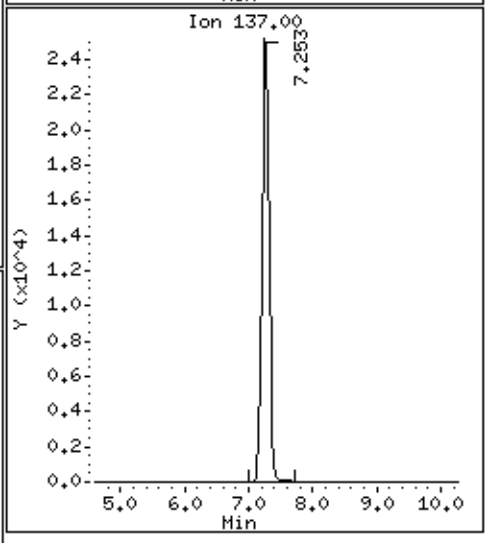
3 Freon 114

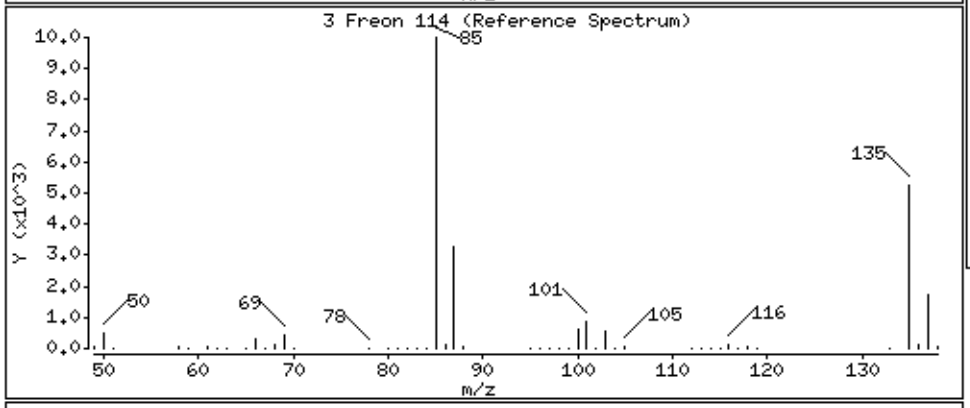
Concentration: 9.297 PPBV

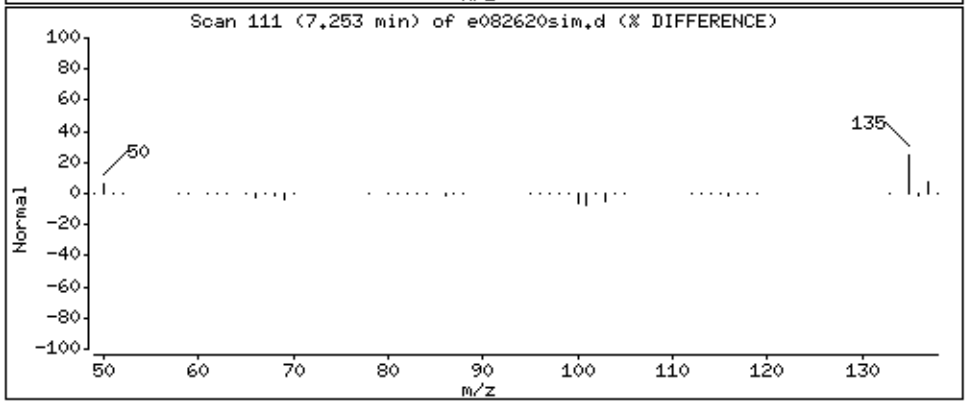












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

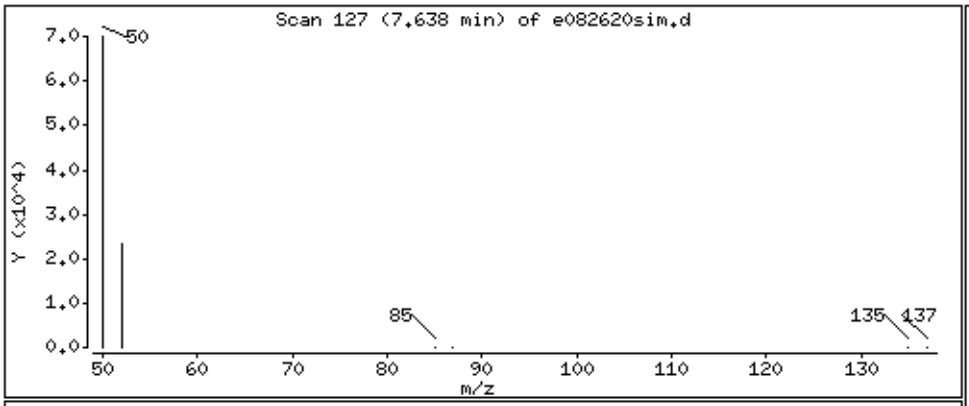
Operator: gh

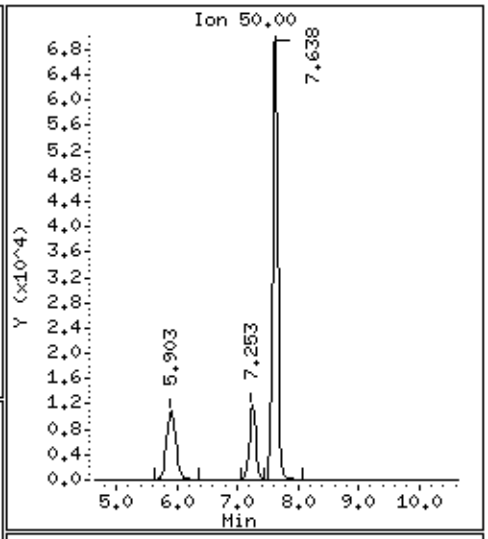
Column phase: RTx-624

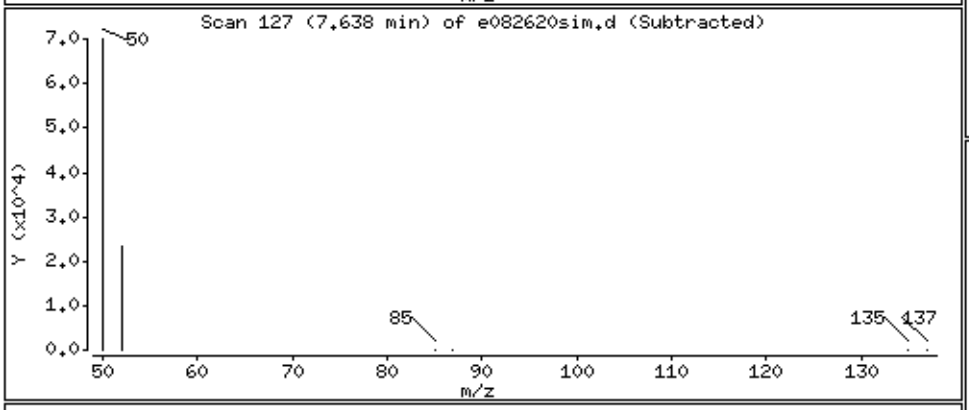
Column diameter: 0.53

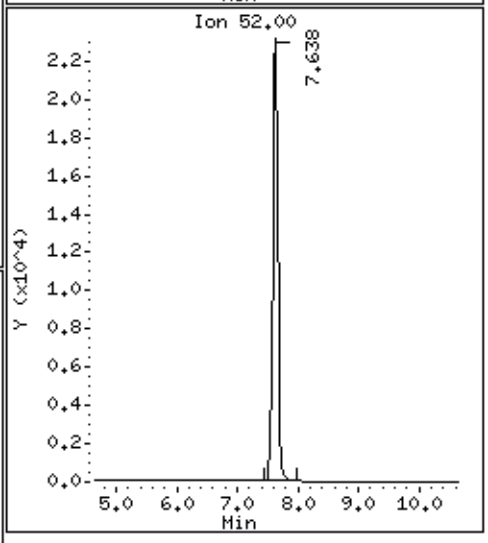
4 Chloromethane

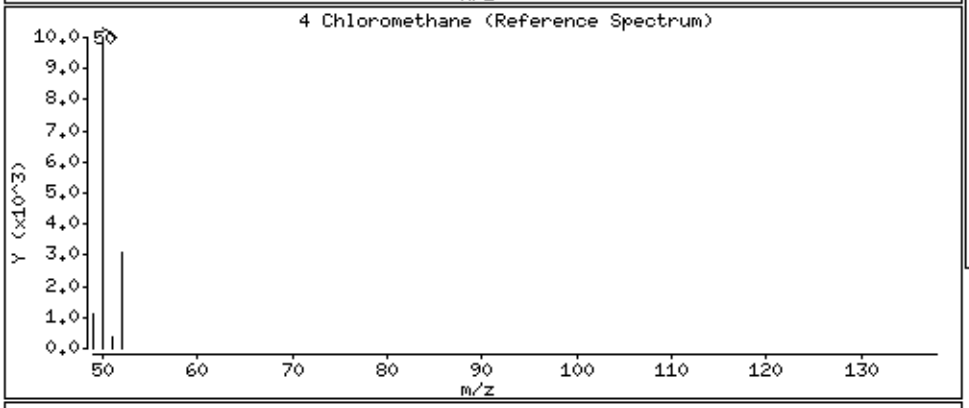
Concentration: 9.599 PPBV

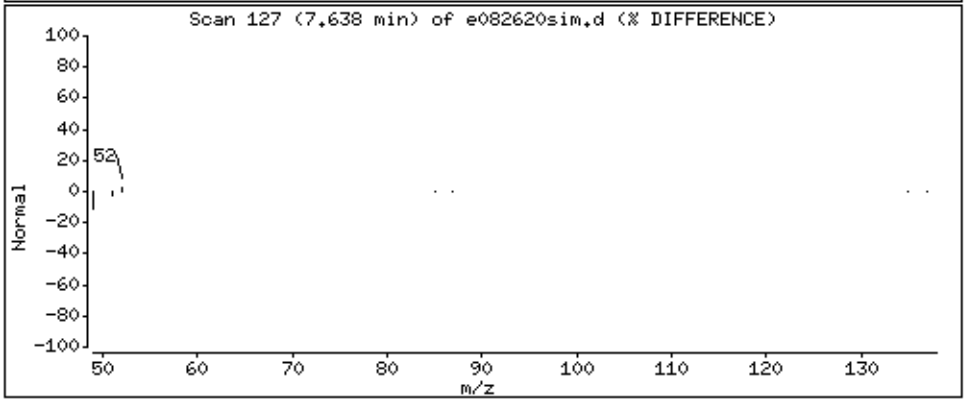












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

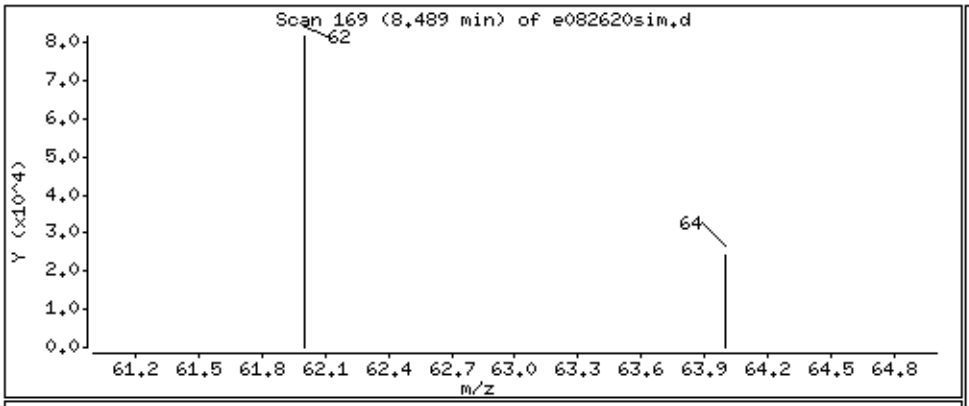
Operator: gh

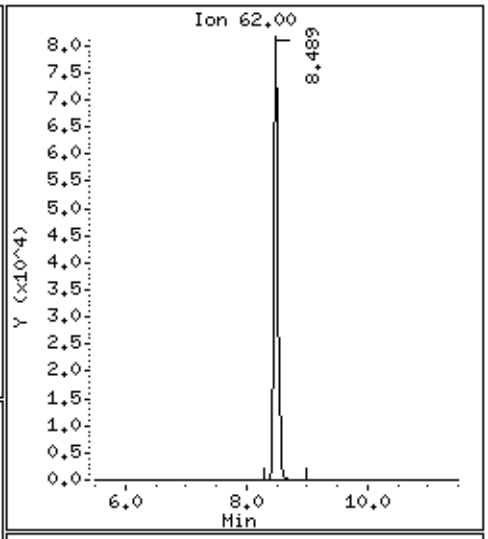
Column phase: RTx-624

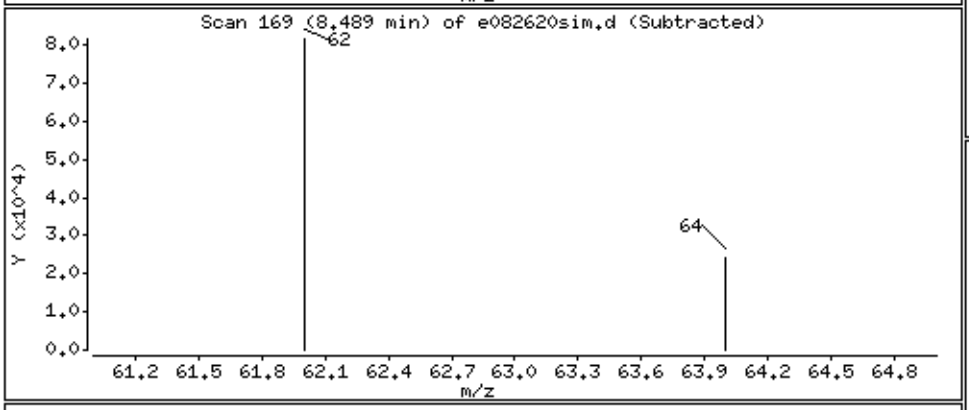
Column diameter: 0.53

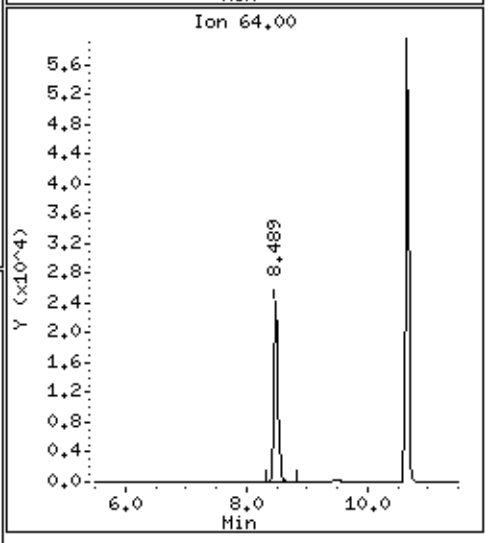
5 Vinyl Chloride

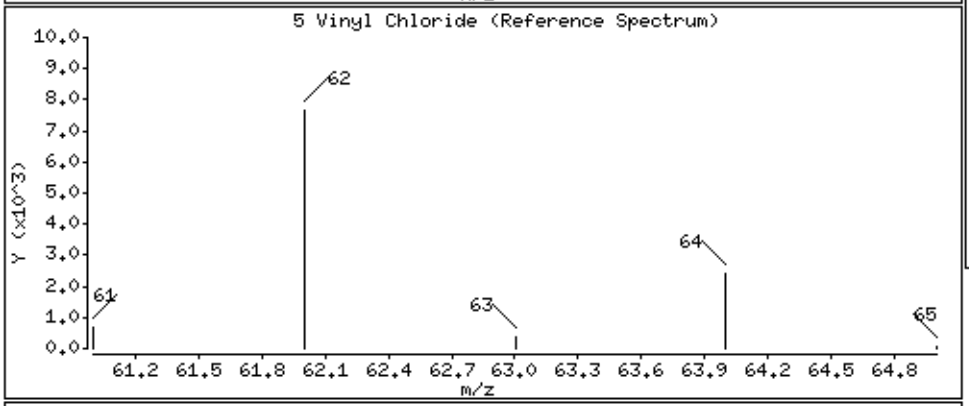
Concentration: 9.626 PPBV

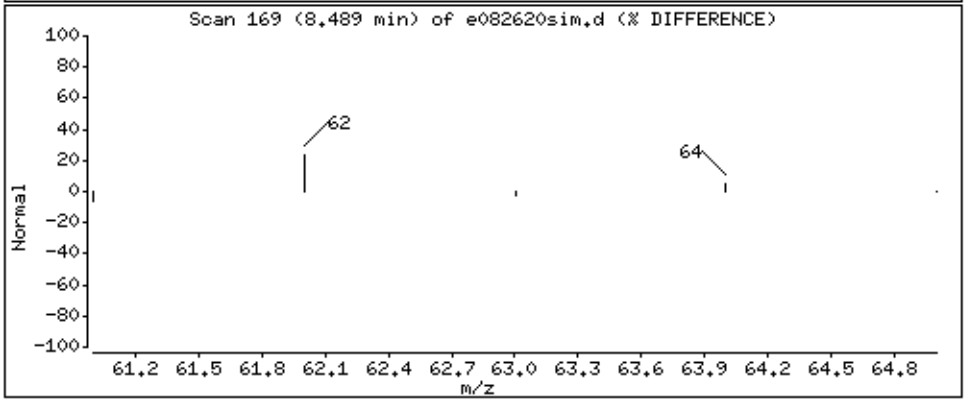












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

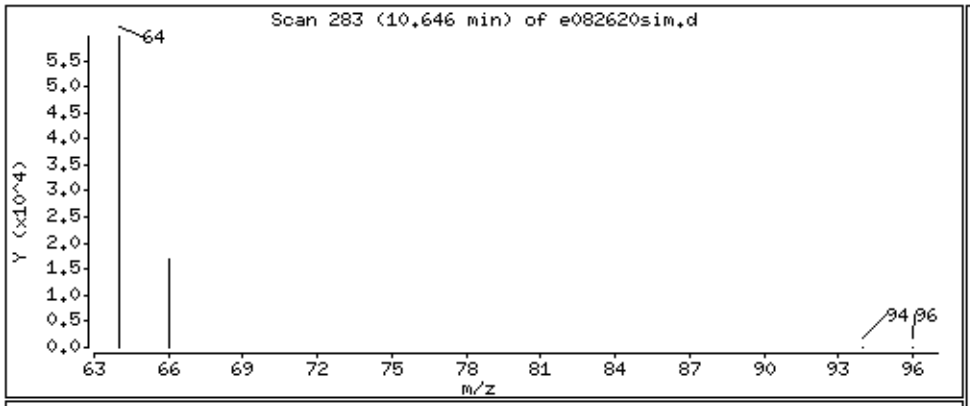
Operator: gh

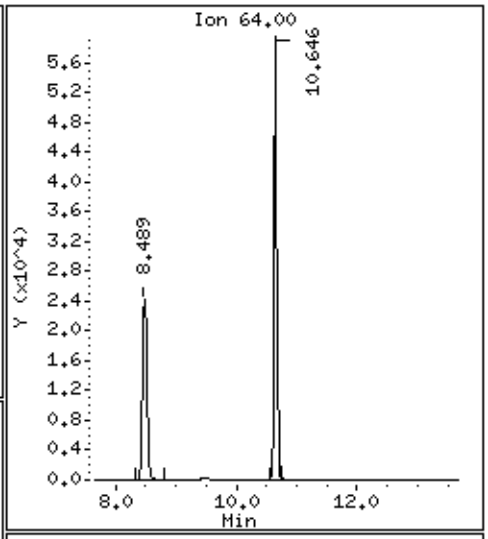
Column phase: RTx-624

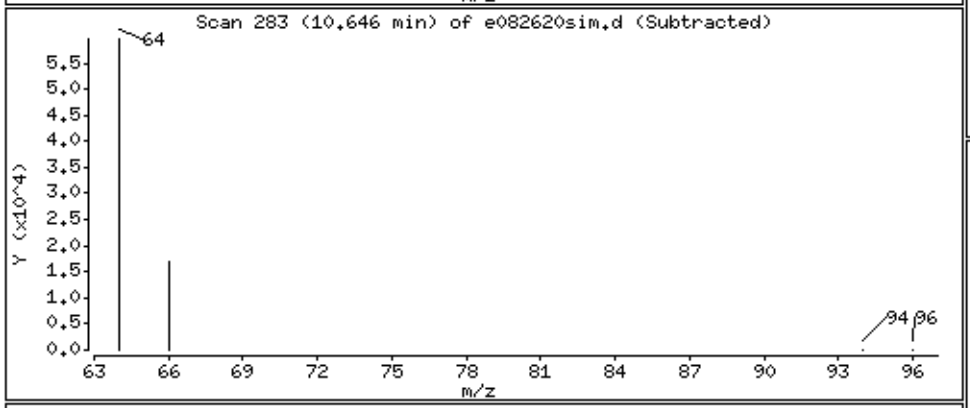
Column diameter: 0.53

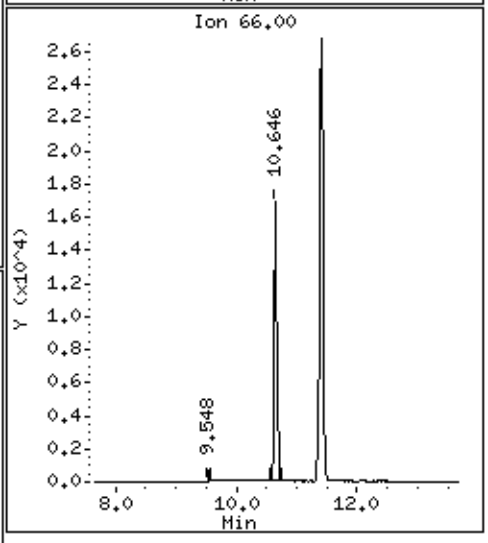
10 Chloroethane

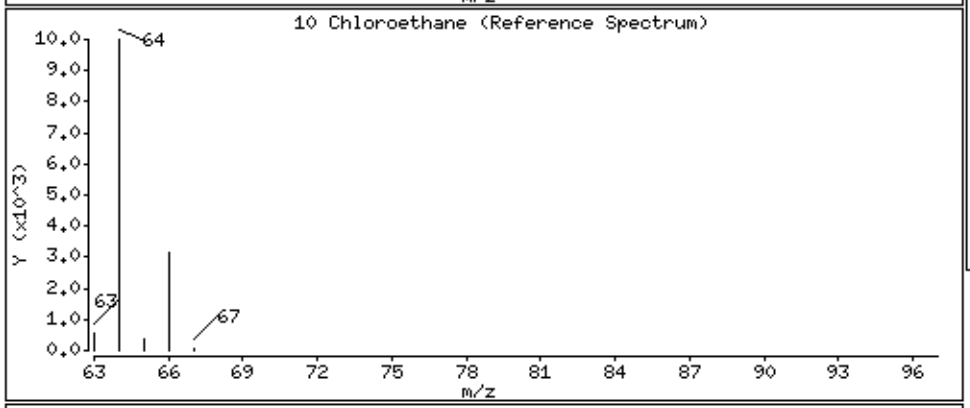
Concentration: 10.010 PPBV

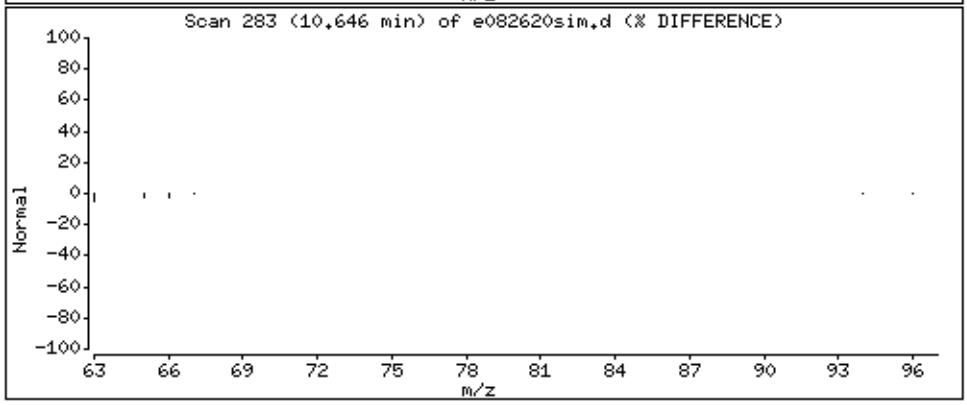












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

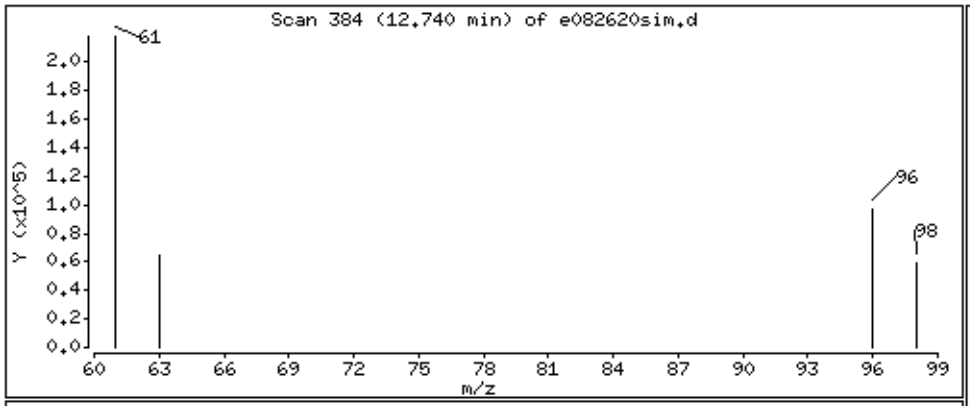
Operator: gh

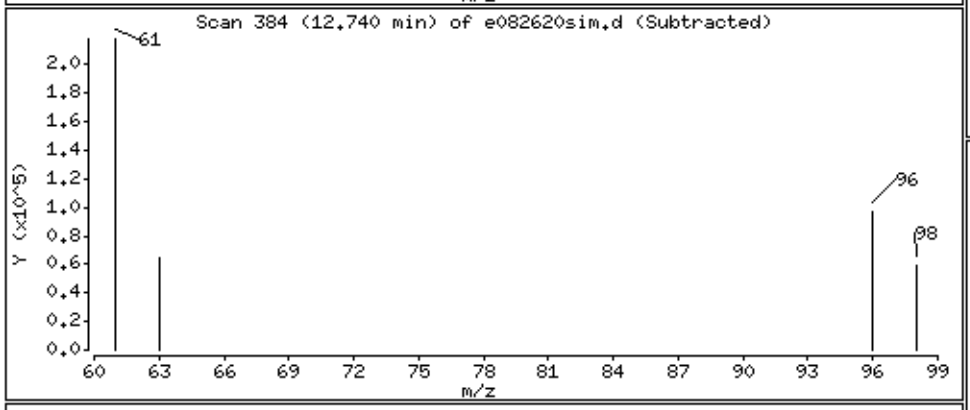
Column phase: RTx-624

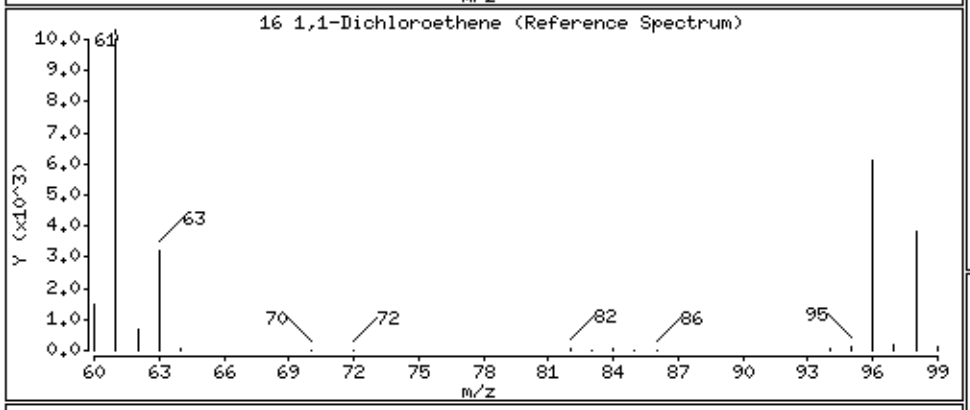
Column diameter: 0.53

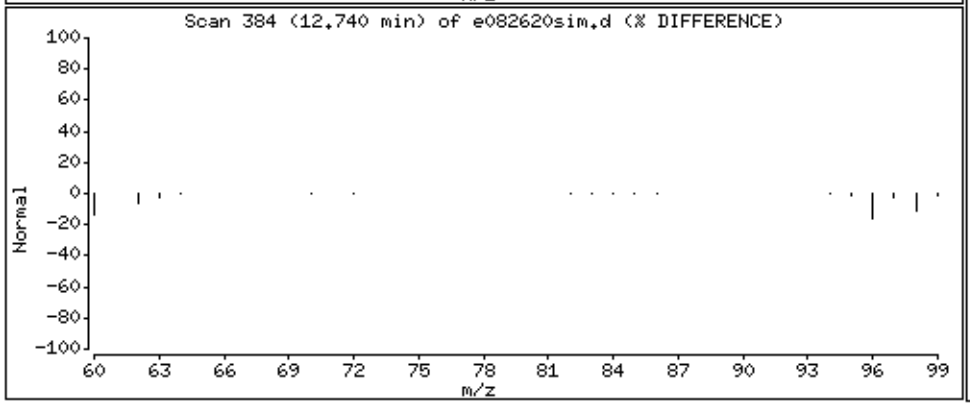
16 1,1-Dichloroethene

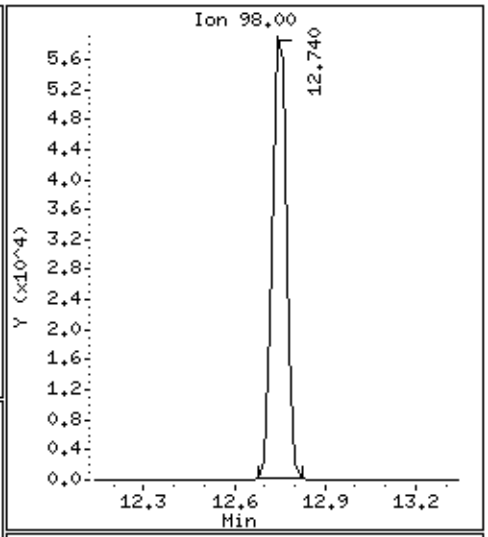
Concentration: 9.688 PPBV

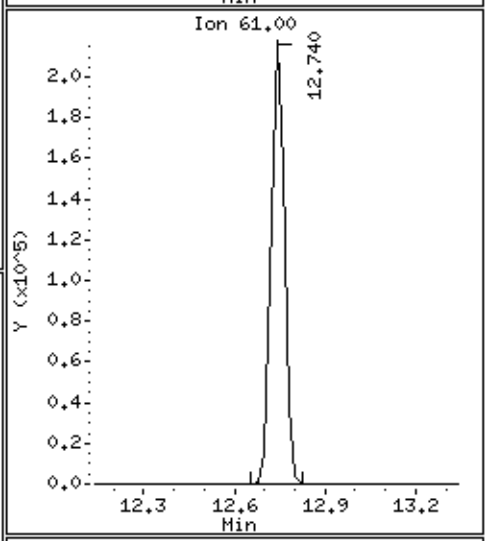


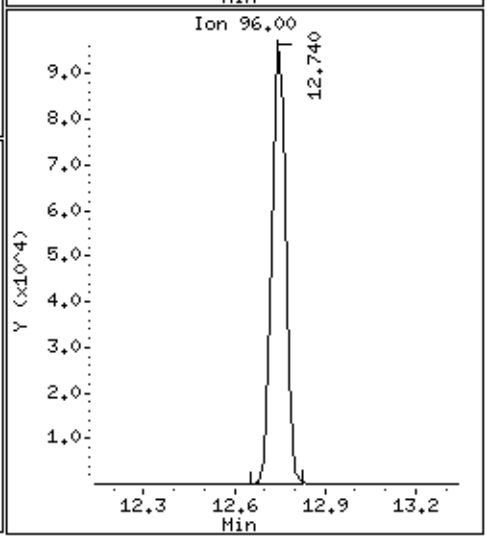












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

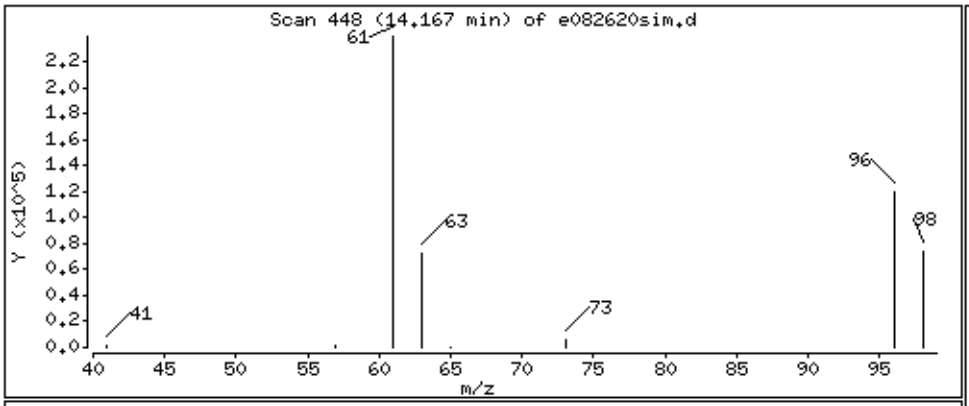
Operator: gh

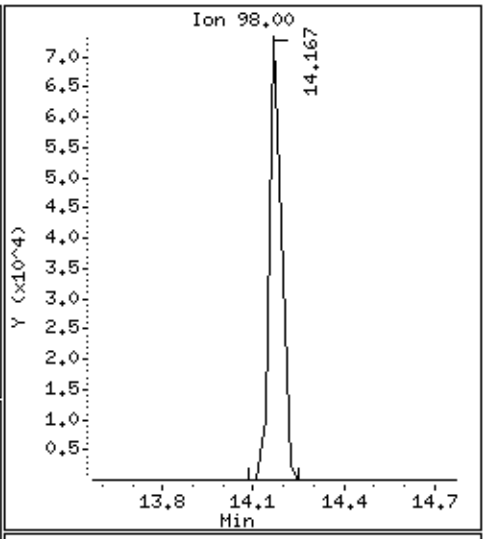
Column phase: RTx-624

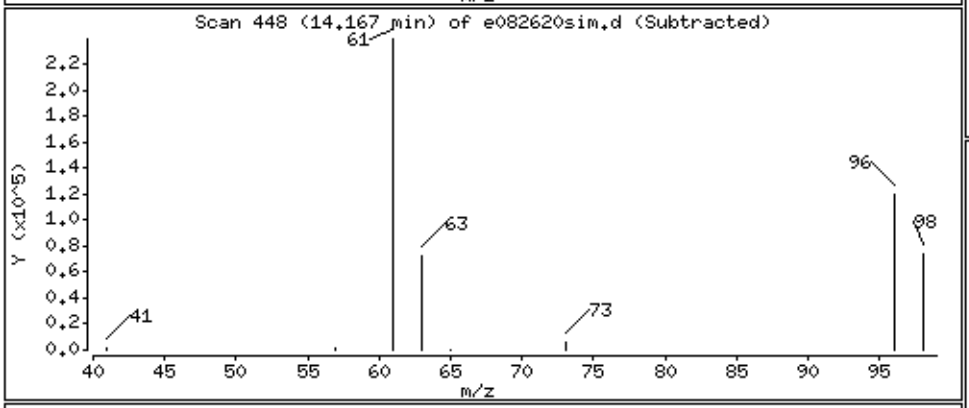
Column diameter: 0.53

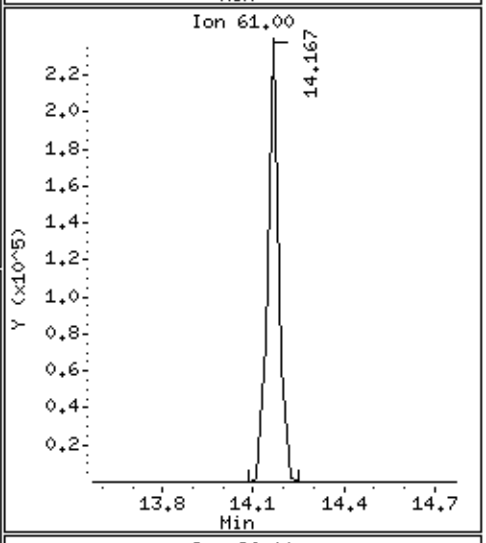
23 trans-1,2-Dichloroethene

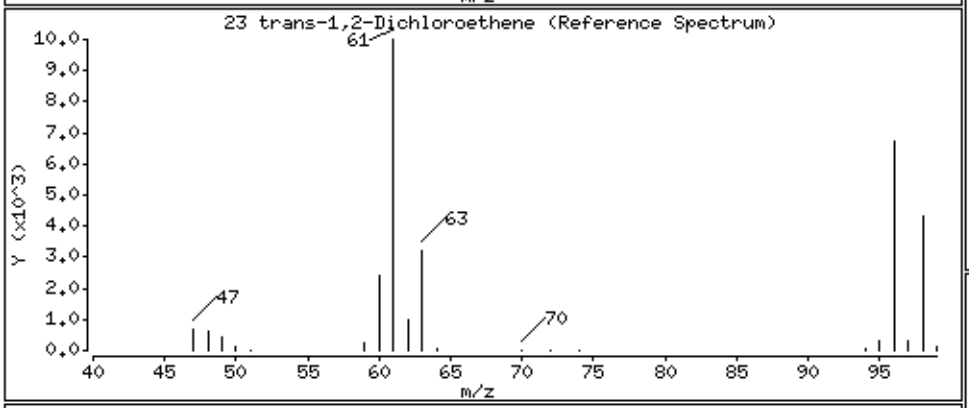
Concentration: 10.968 PPBV

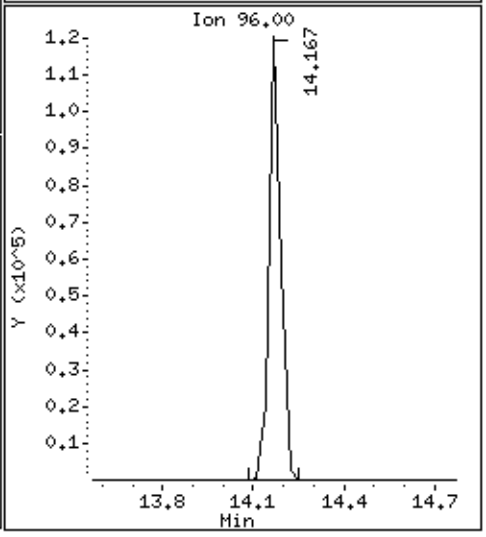


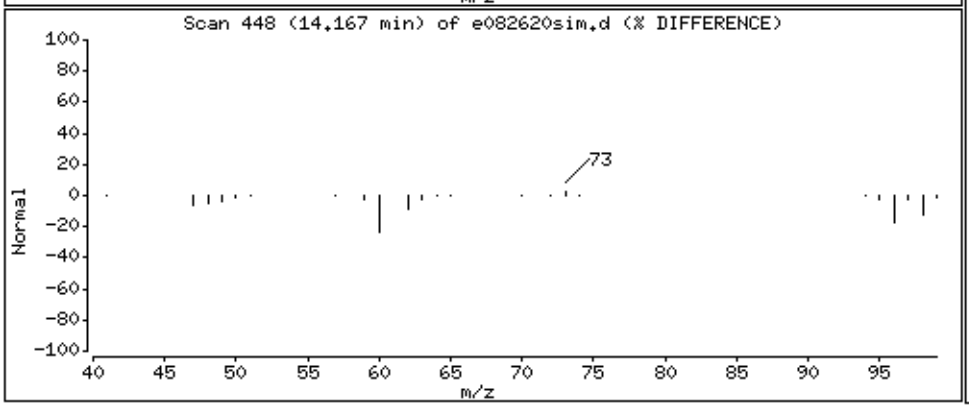












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

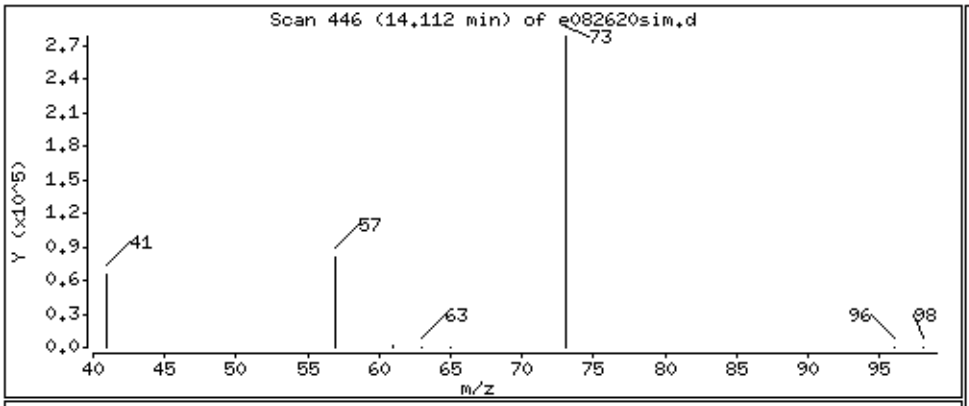
Operator: gh

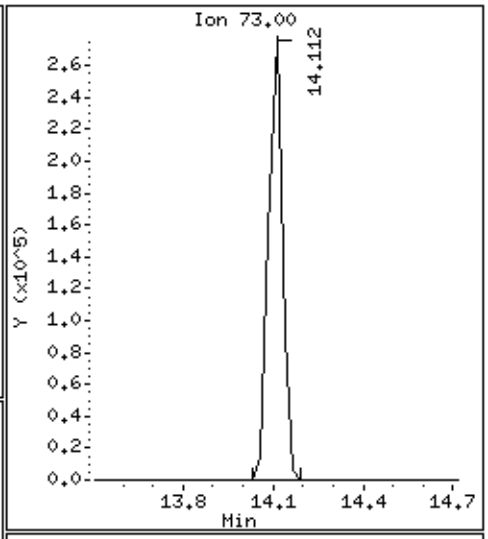
Column phase: RTx-624

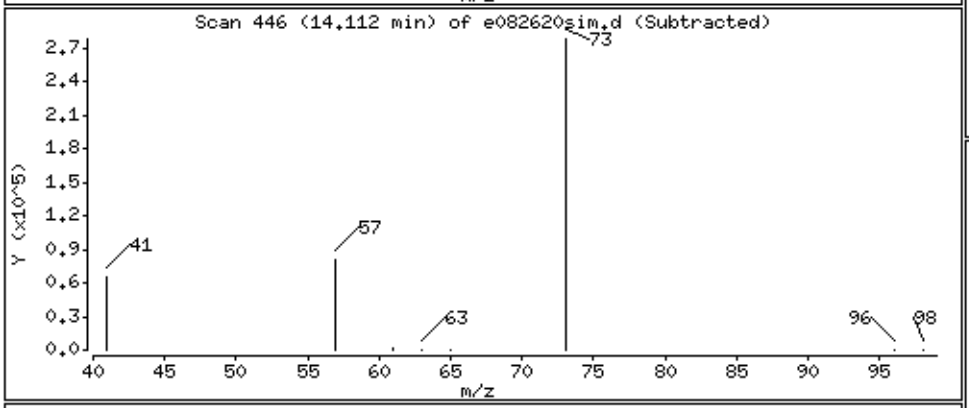
Column diameter: 0.53

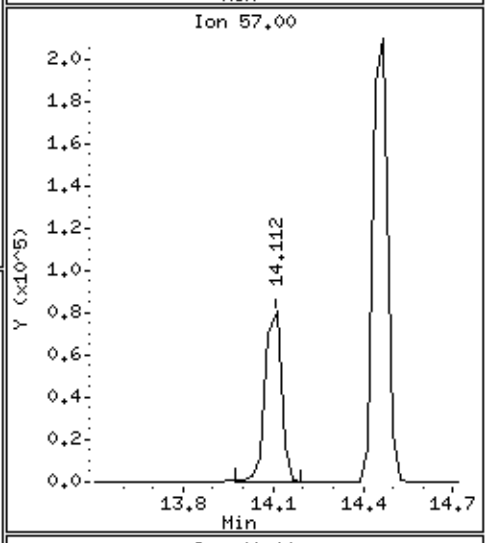
22 MTBE

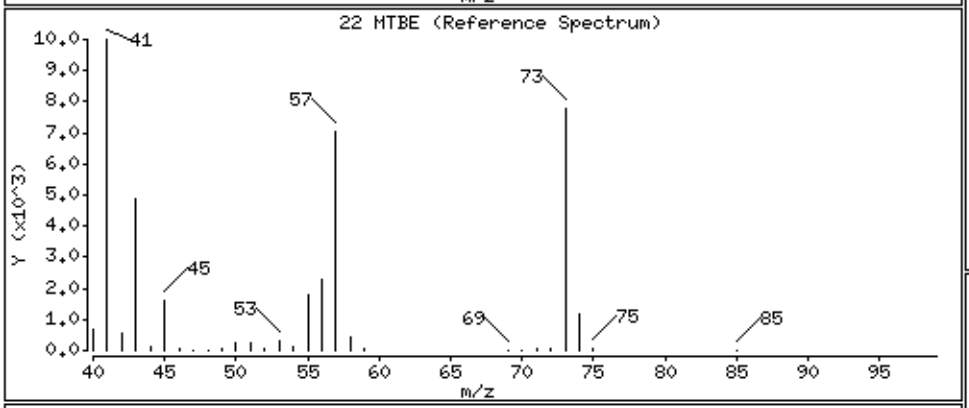
Concentration: 9.999 PPBV

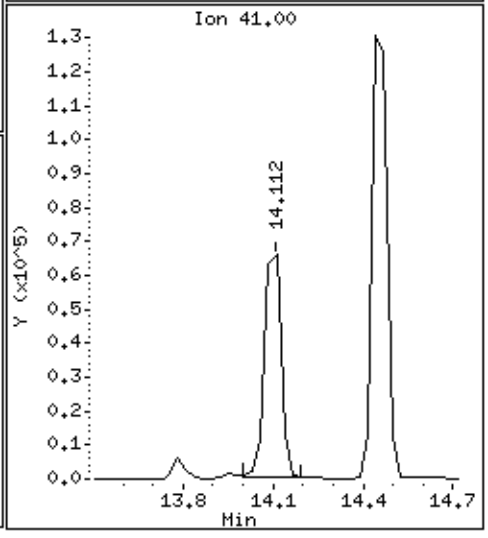


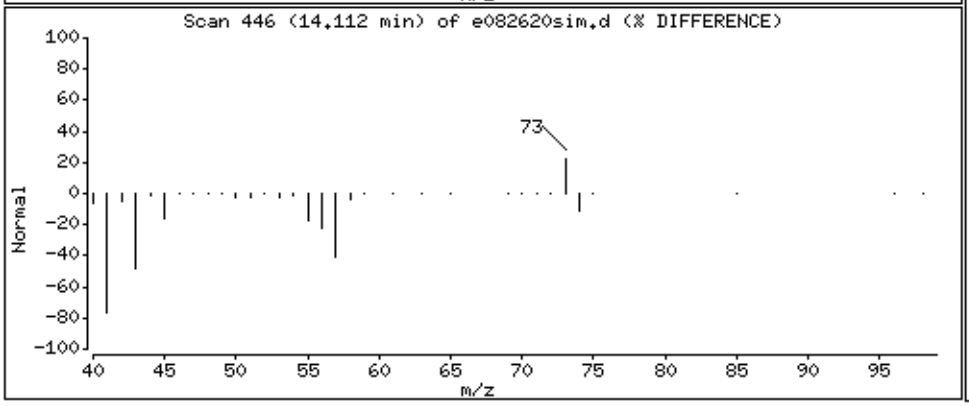












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

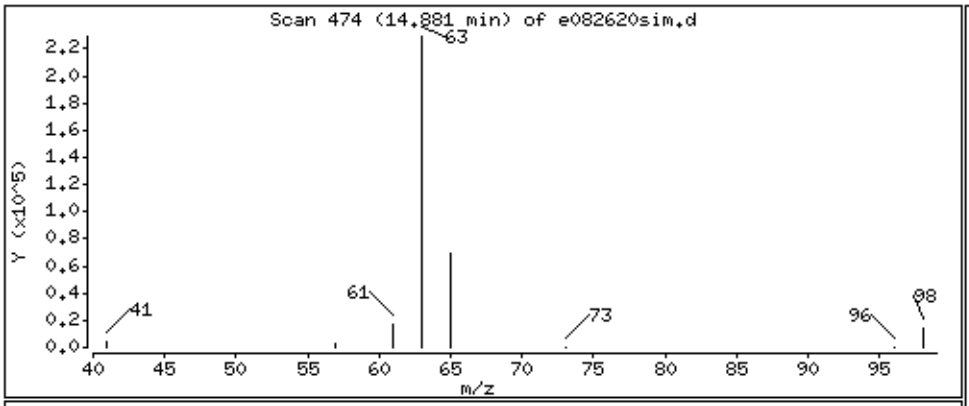
Operator: gh

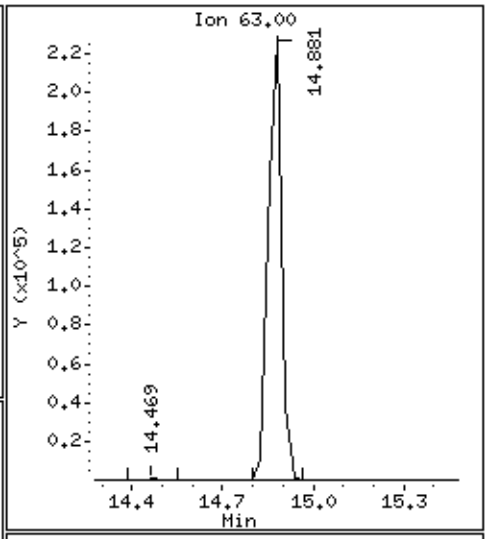
Column phase: RTx-624

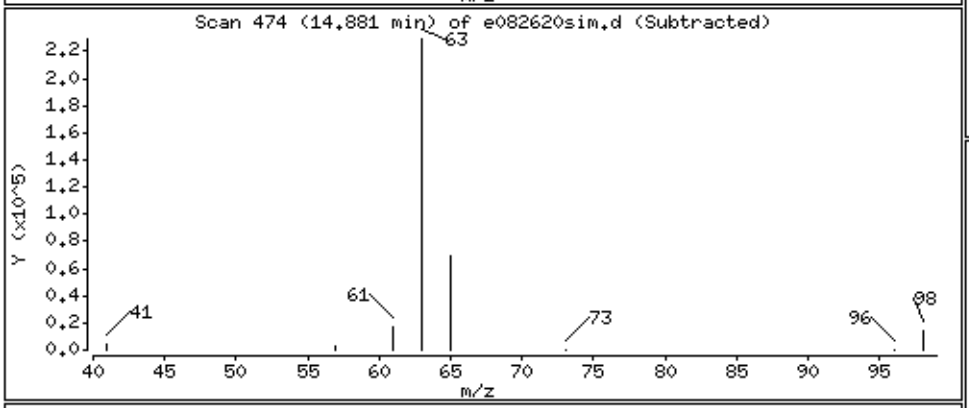
Column diameter: 0.53

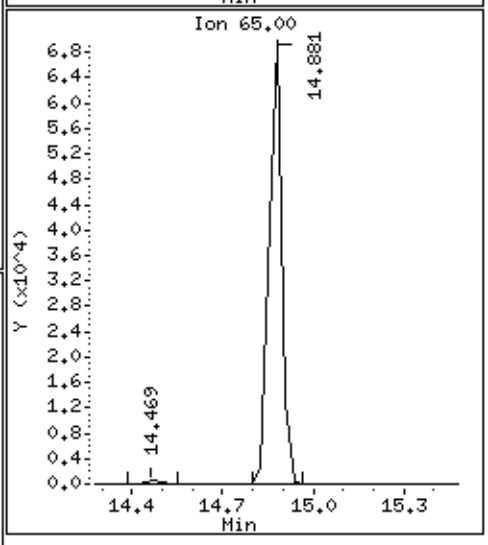
25 1,1-Dichloroethane

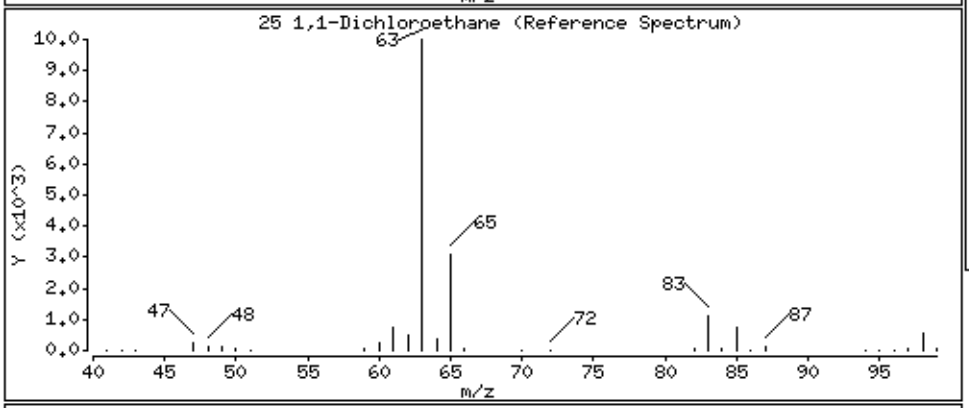
Concentration: 9.947 PPBV

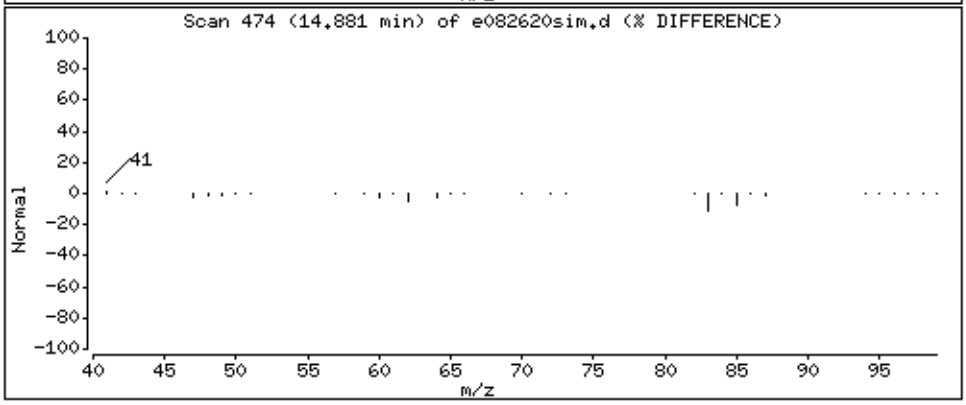












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

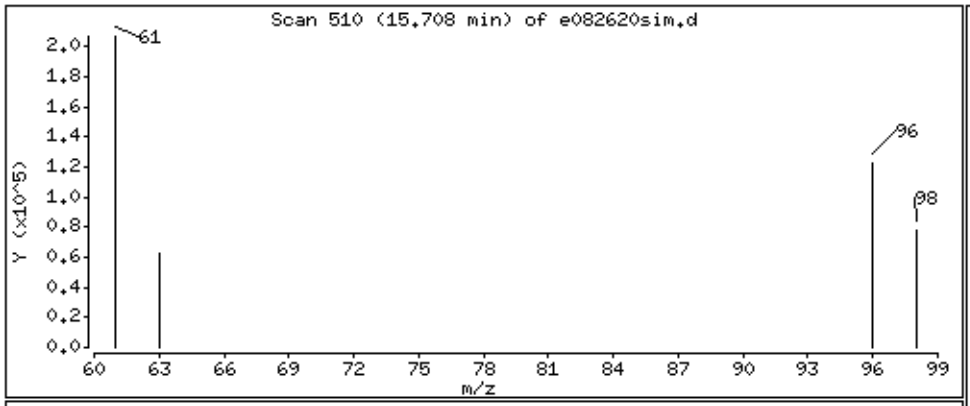
Operator: gh

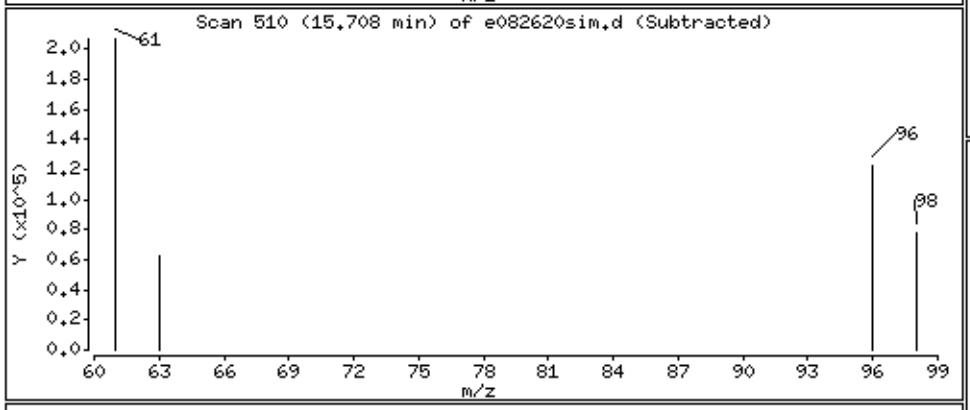
Column phase: RTx-624

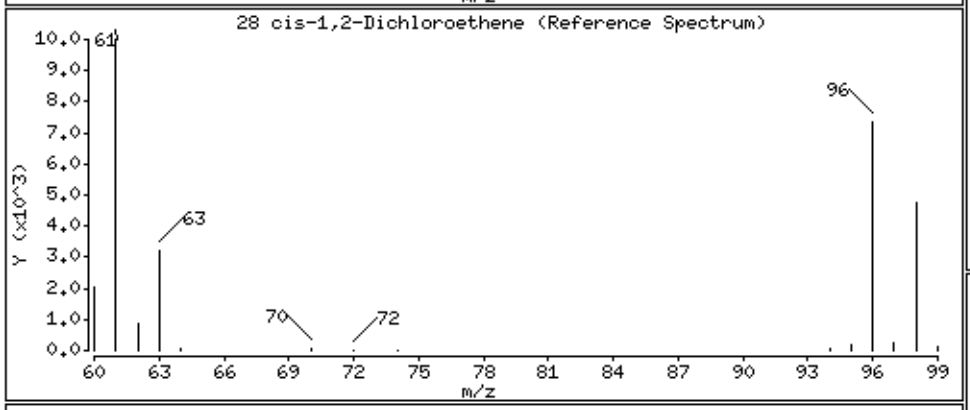
Column diameter: 0.53

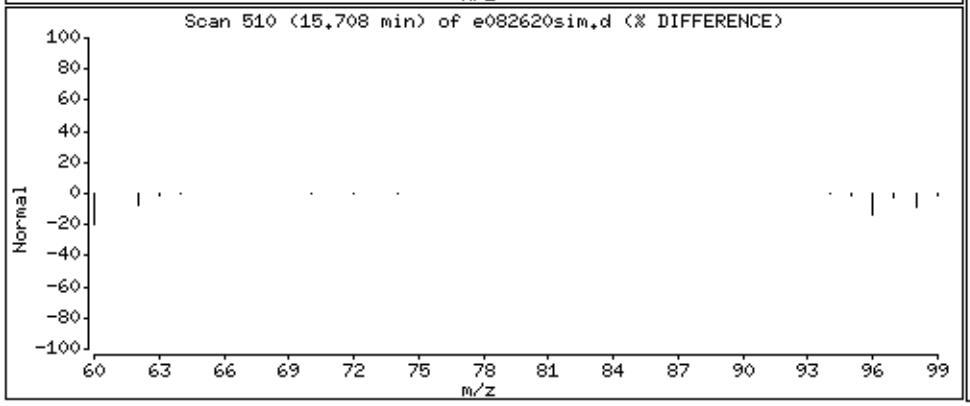
28 cis-1,2-Dichloroethene

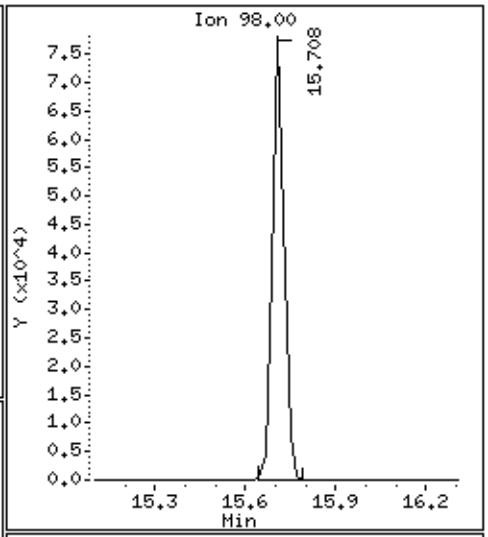
Concentration: 9.738 PPBV

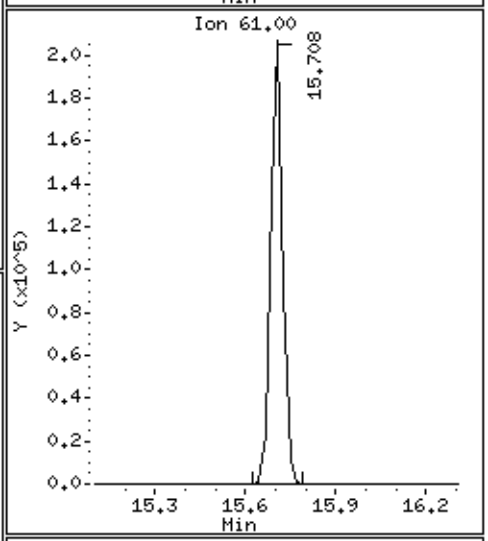


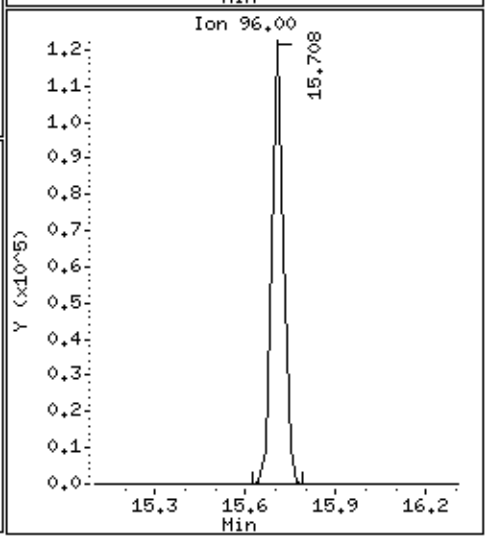












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

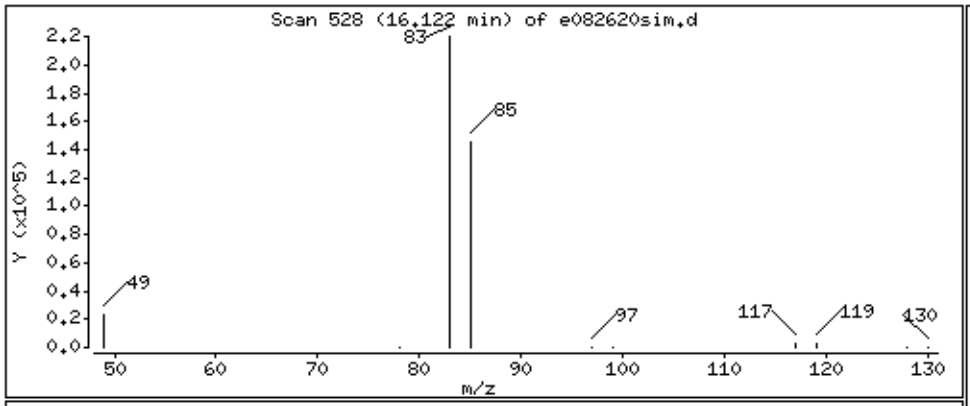
Operator: gh

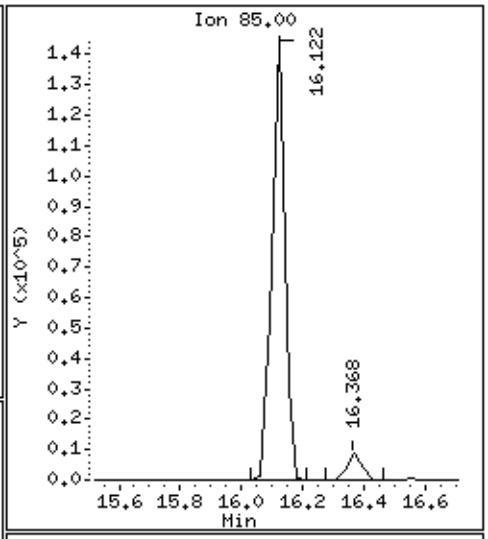
Column phase: RTx-624

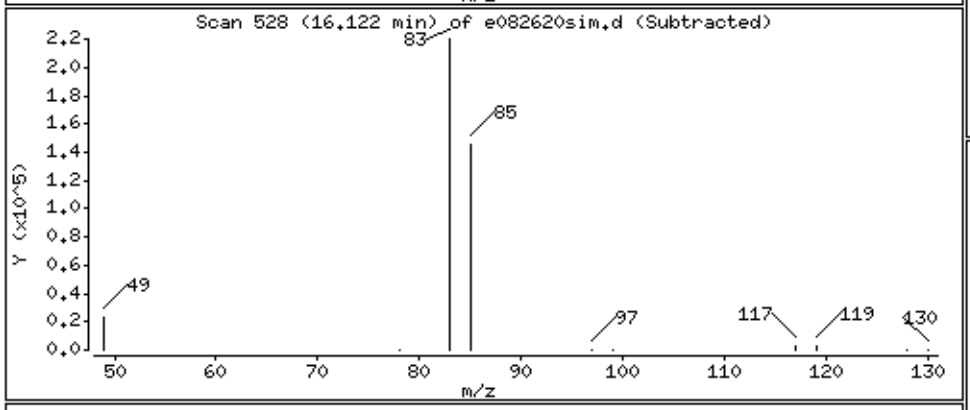
Column diameter: 0.53

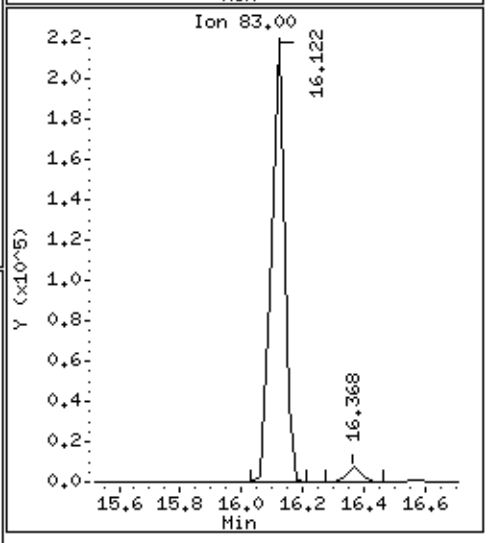
32 Chloroform

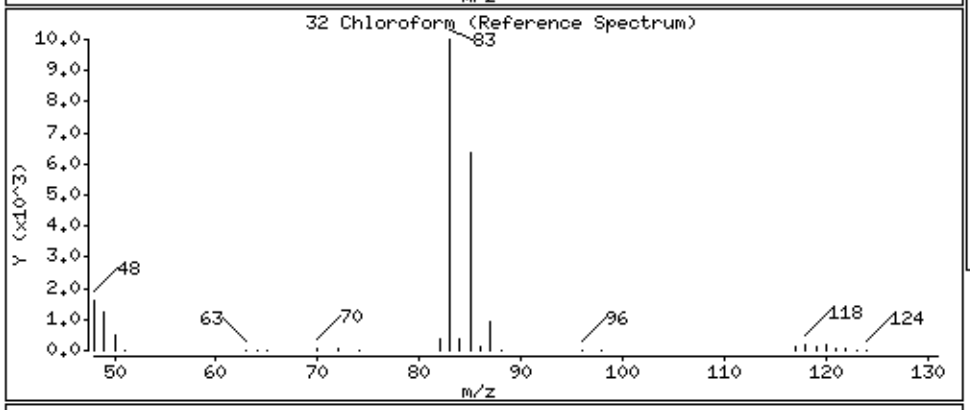
Concentration: 9.292 PPBV

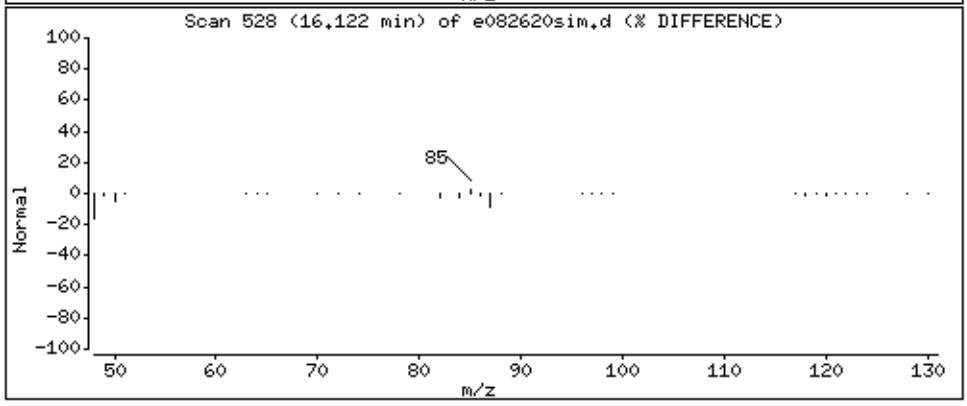












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

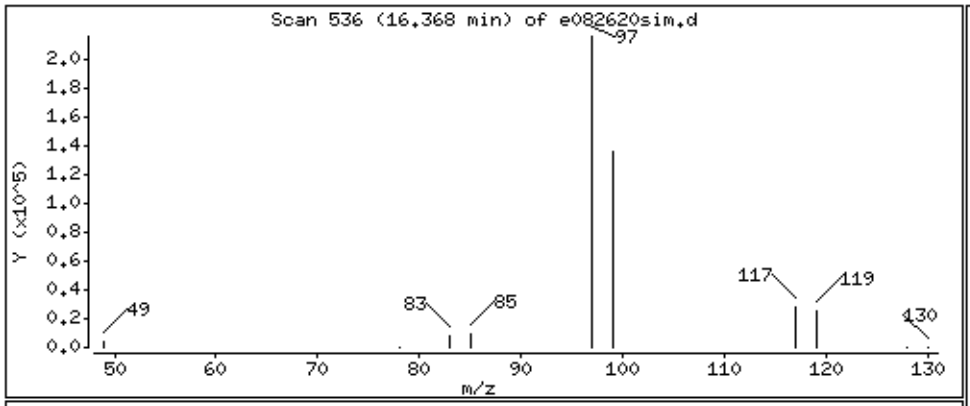
Operator: gh

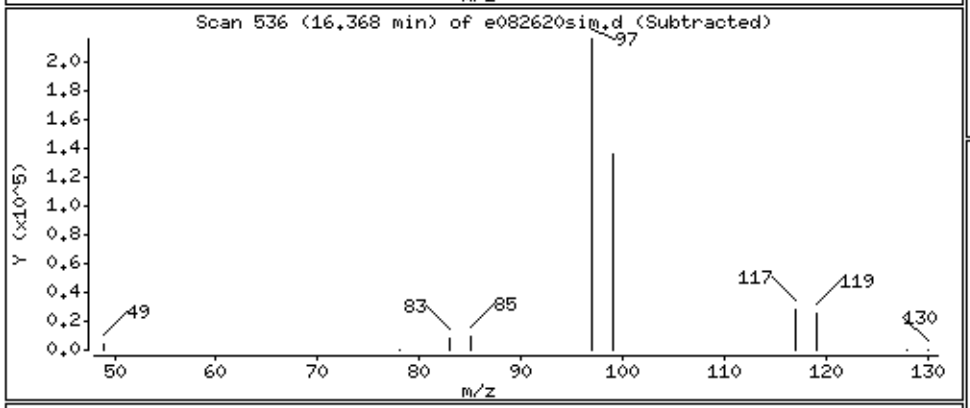
Column phase: RTx-624

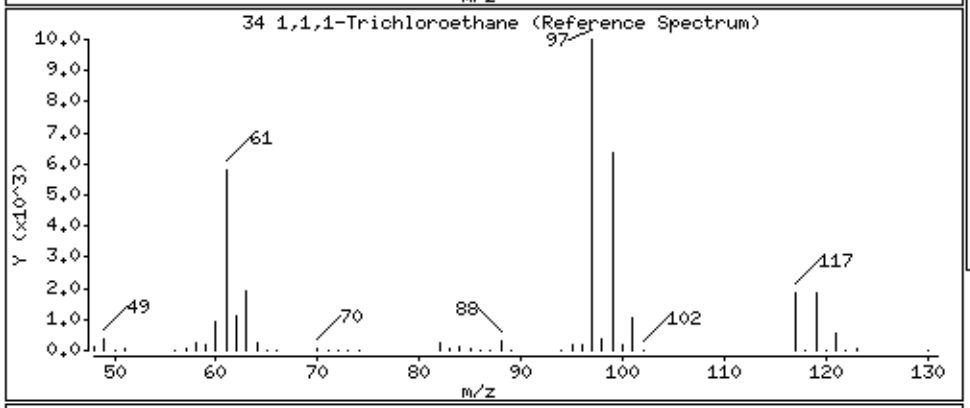
Column diameter: 0.53

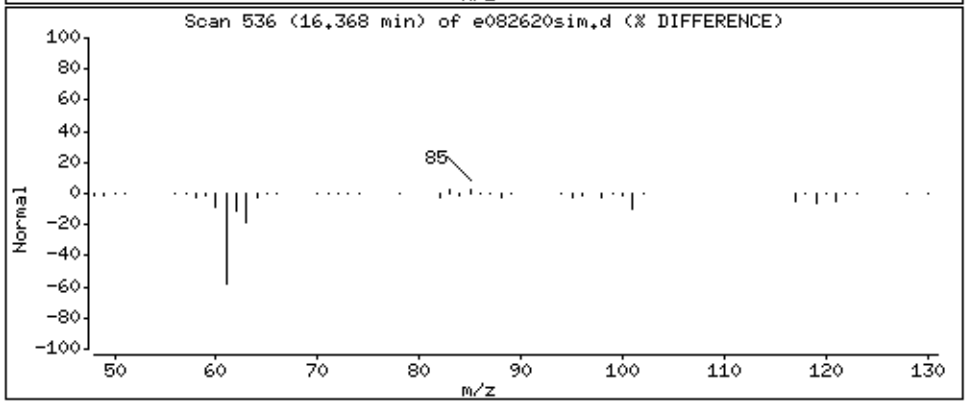
34 1,1,1-Trichloroethane

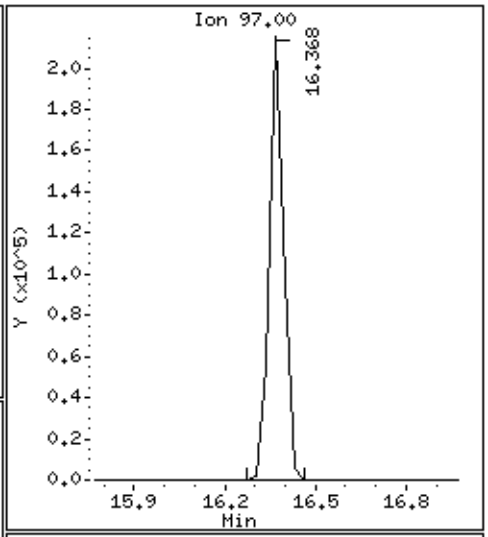
Concentration: 9.592 PPBV

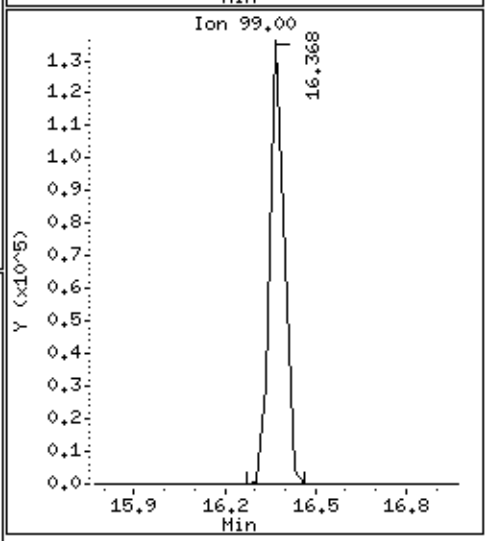












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

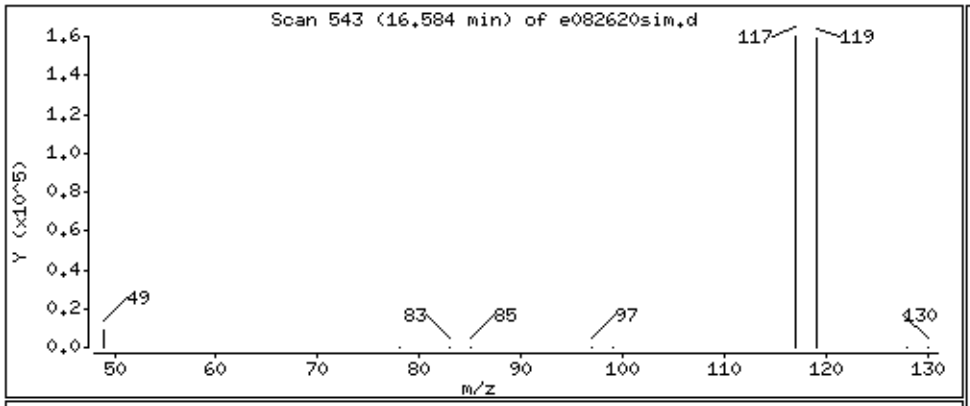
Operator: gh

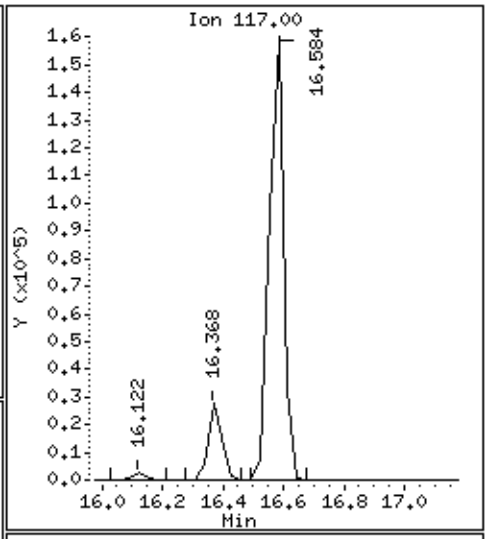
Column phase: RTx-624

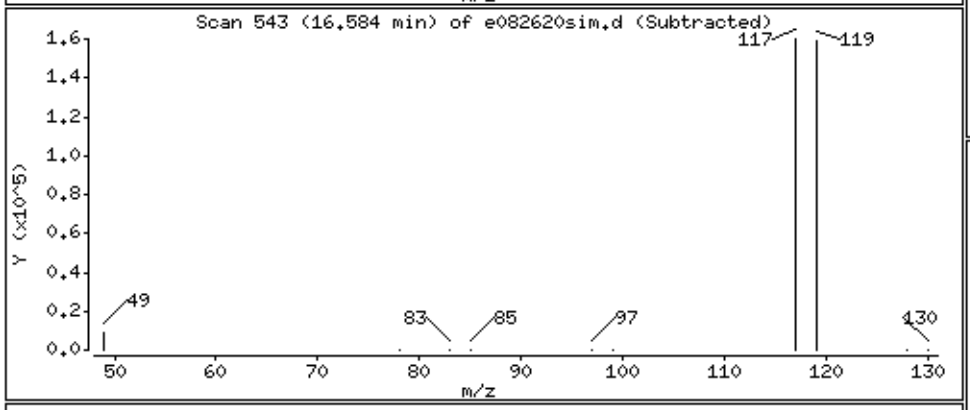
Column diameter: 0.53

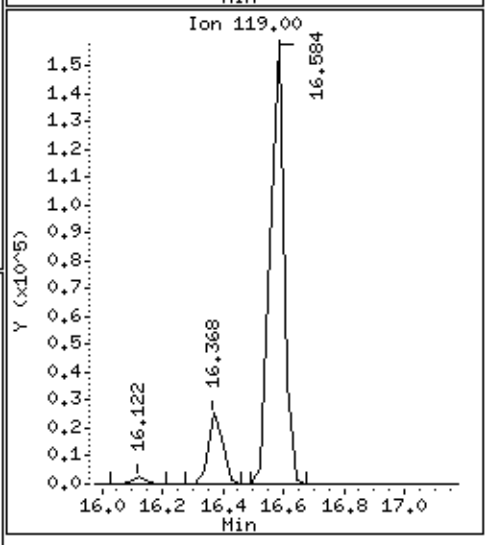
35 Carbon Tetrachloride

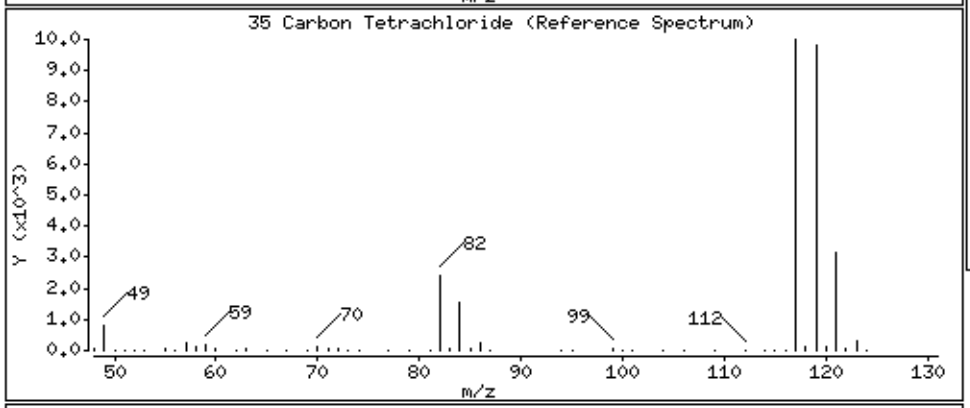
Concentration: 7.940 PPBV

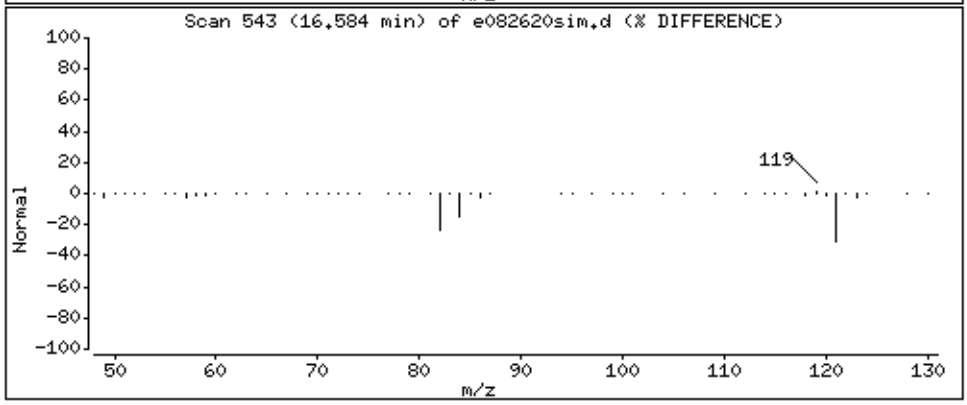












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

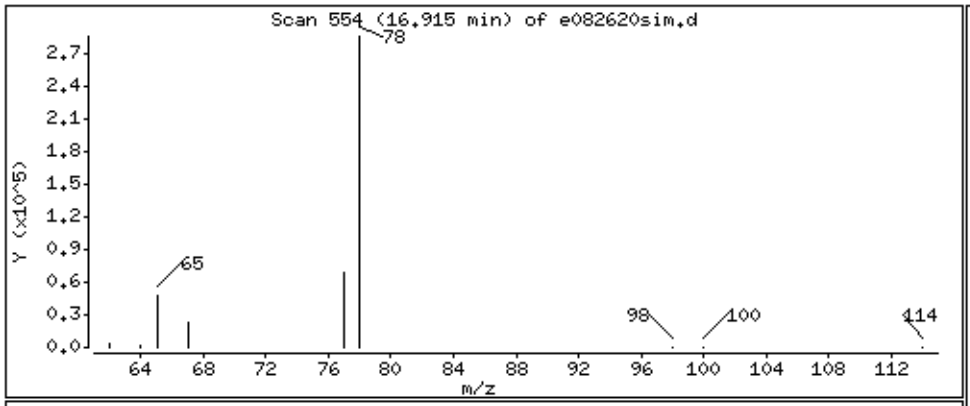
Operator: gh

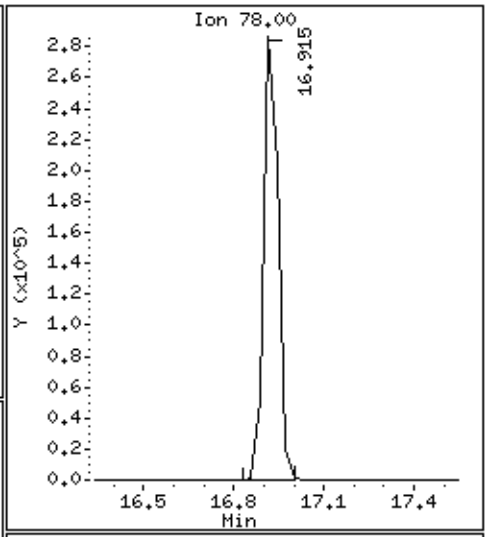
Column phase: RTx-624

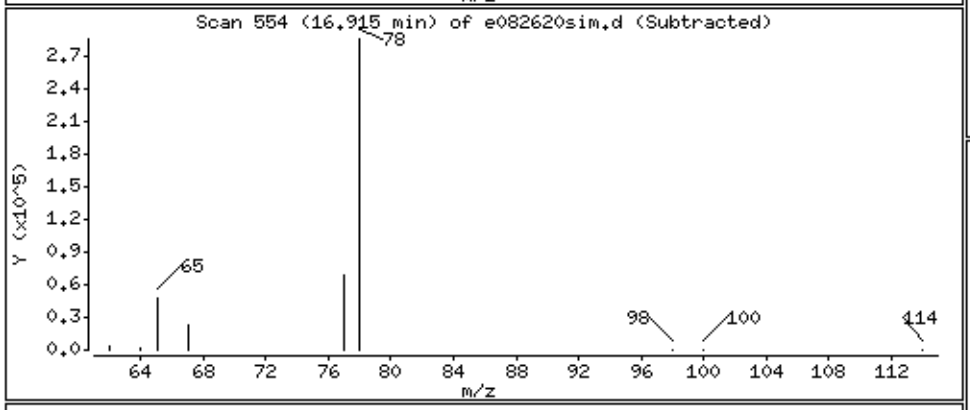
Column diameter: 0.53

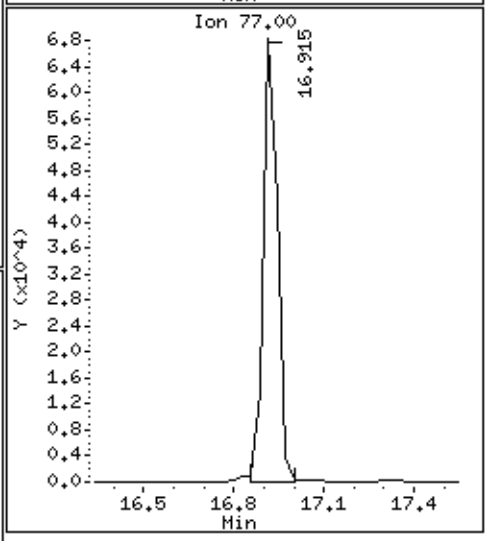
36 Benzene

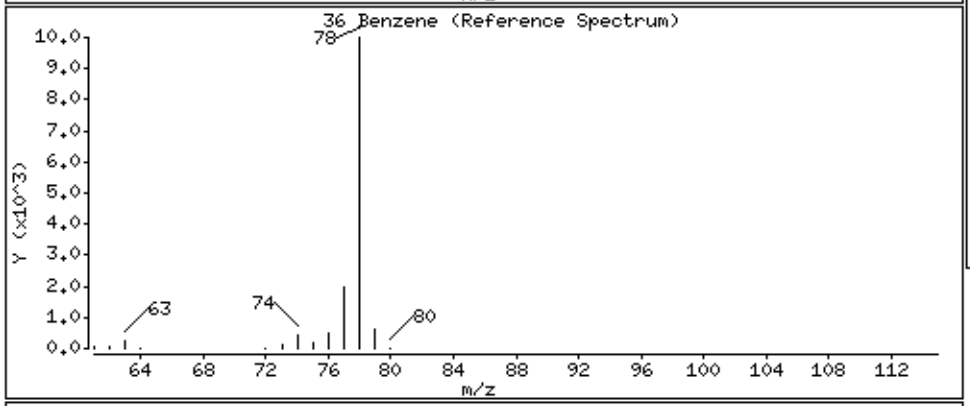
Concentration: 8.205 PPBV

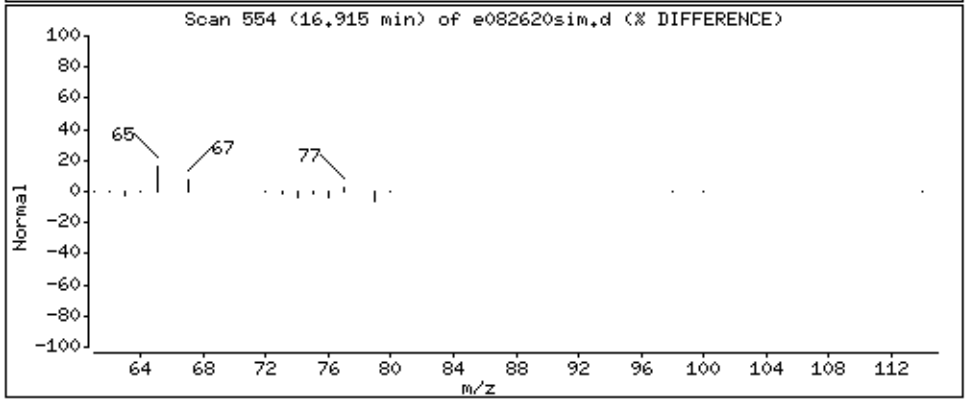












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

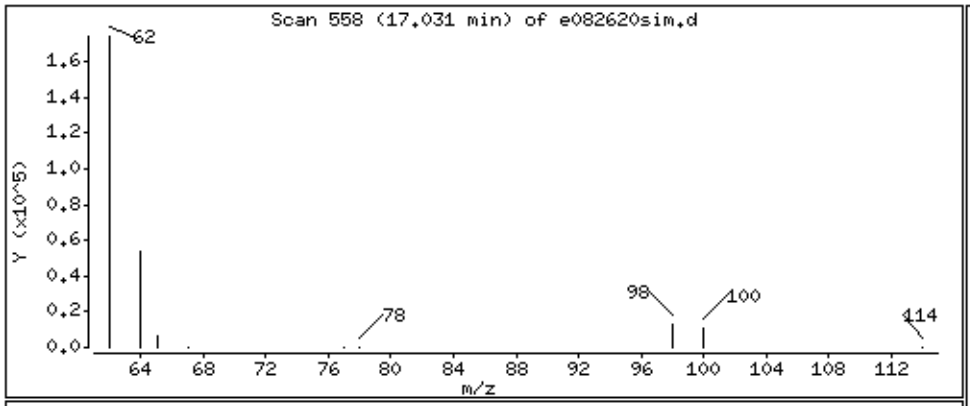
Operator: gh

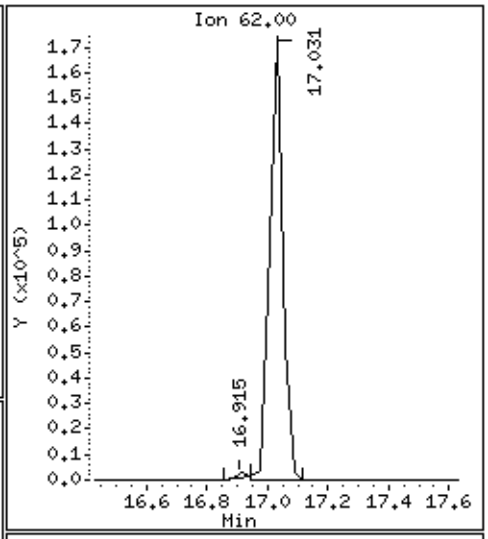
Column phase: RTx-624

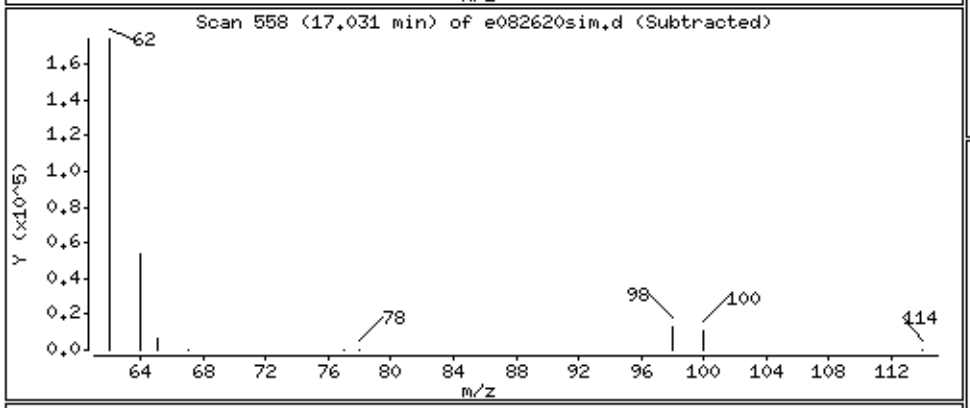
Column diameter: 0.53

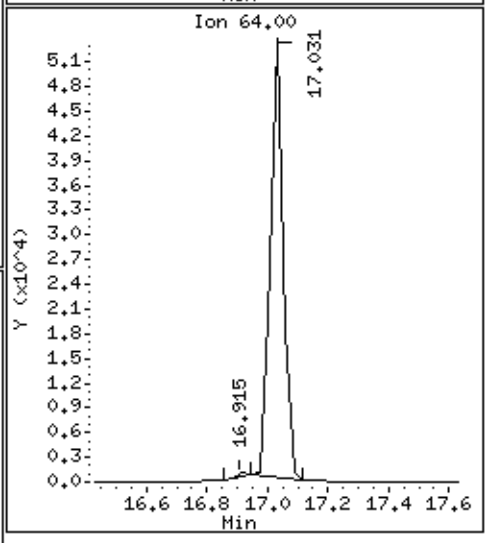
38 1,2-Dichloroethane

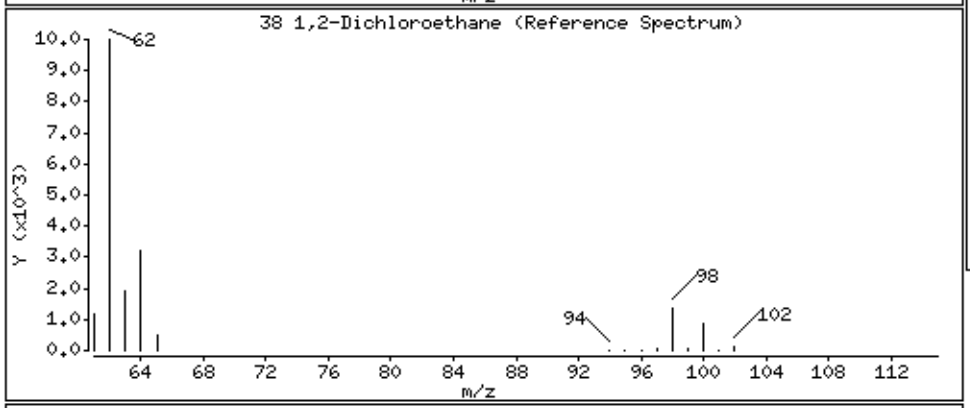
Concentration: 9.982 PPBV

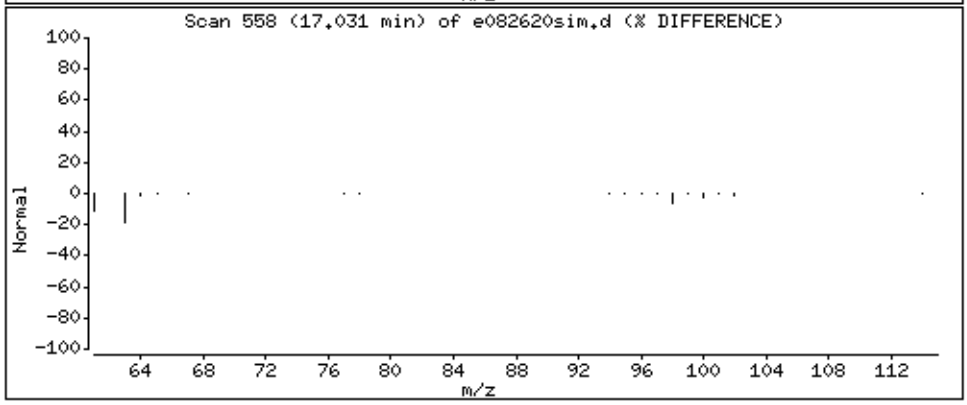












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

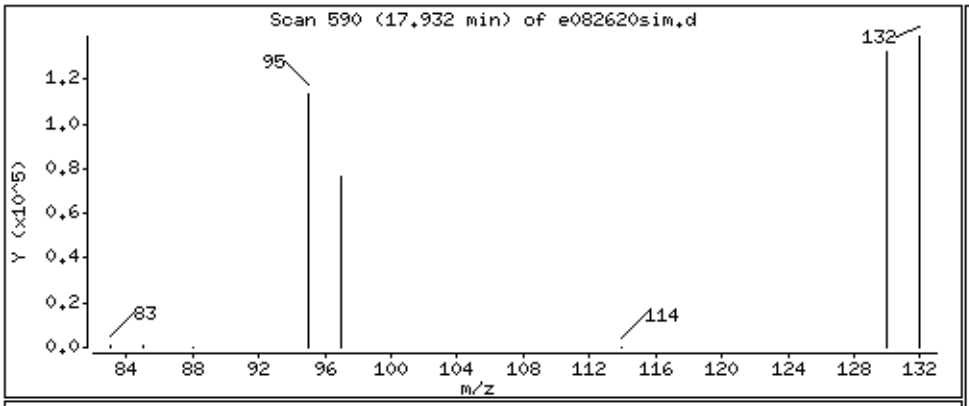
Operator: gh

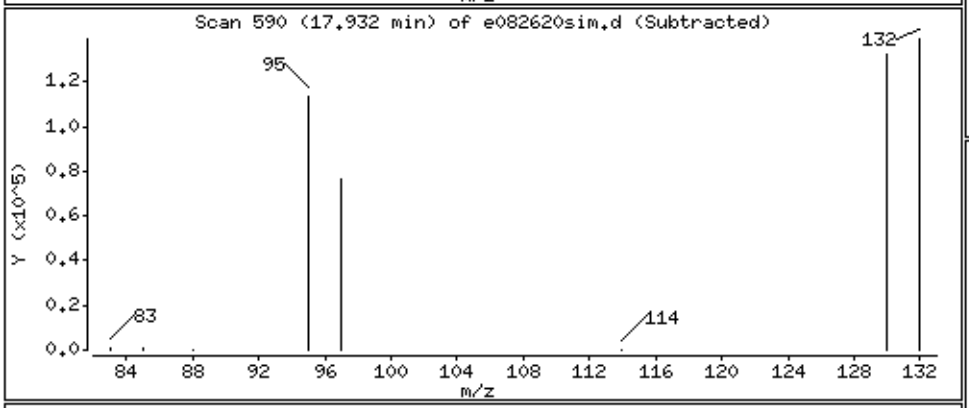
Column phase: RTx-624

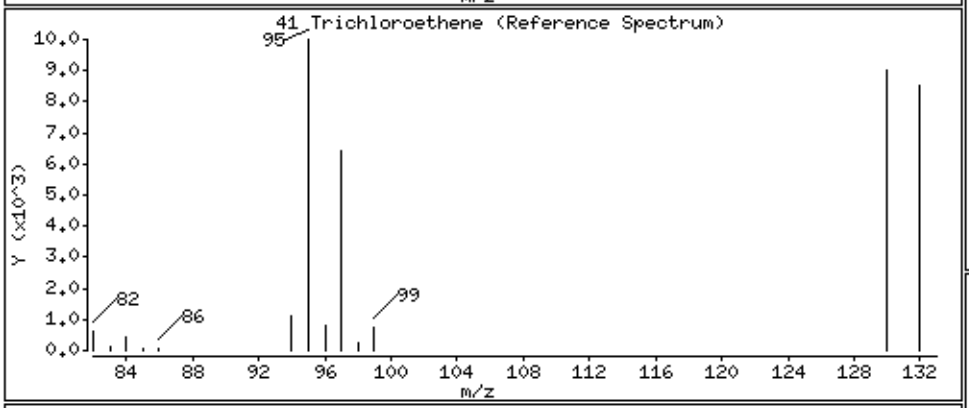
Column diameter: 0.53

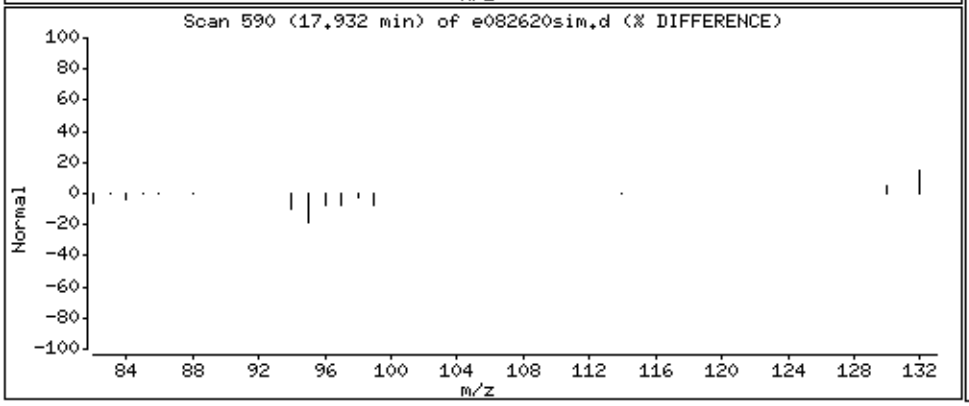
41 Trichloroethene

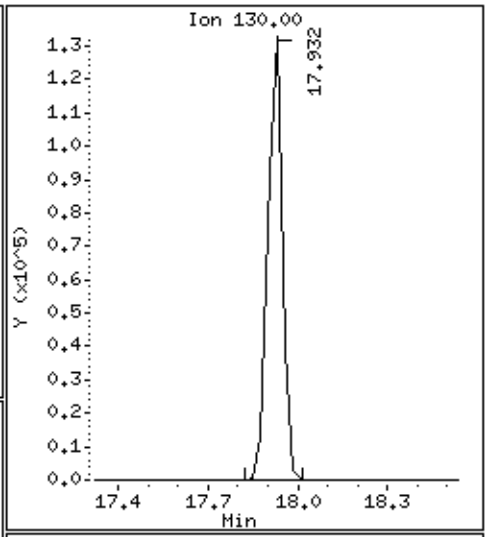
Concentration: 8.376 PPBV

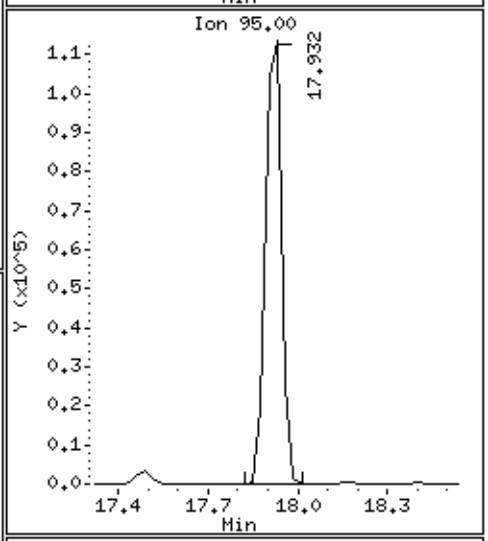


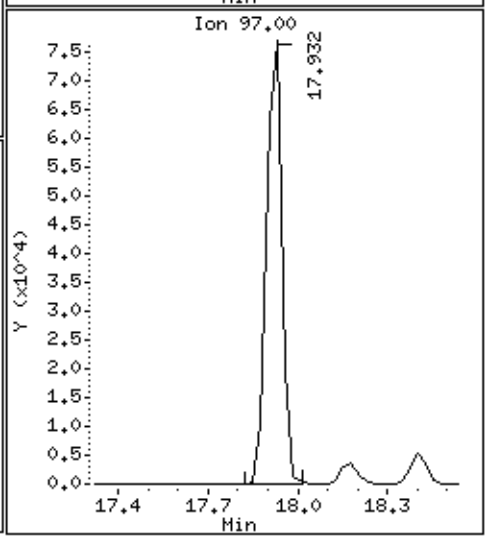












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

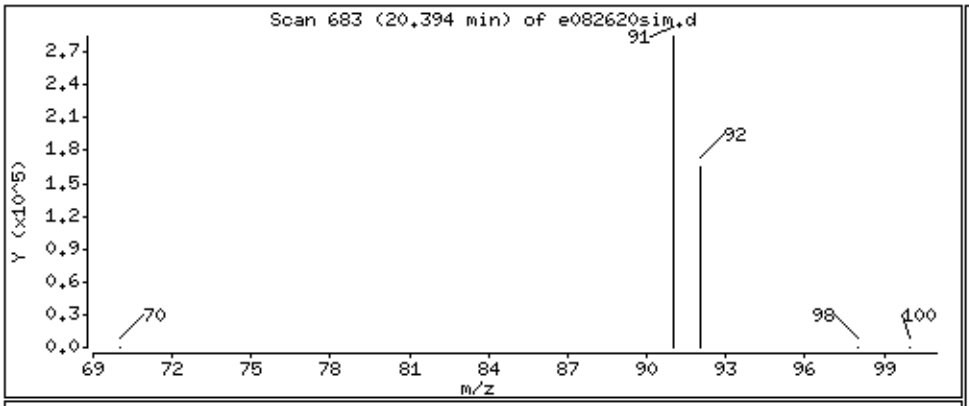
Operator: gh

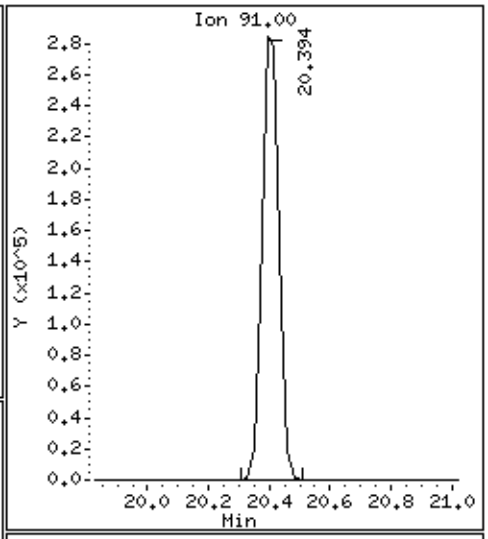
Column phase: RTx-624

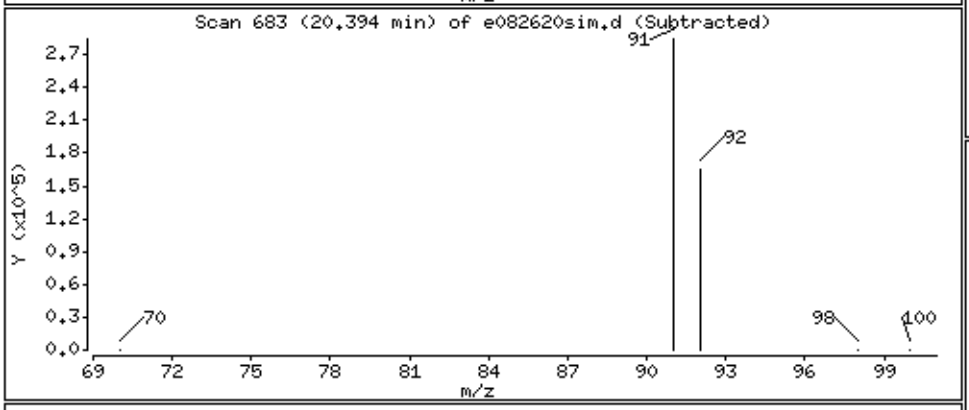
Column diameter: 0.53

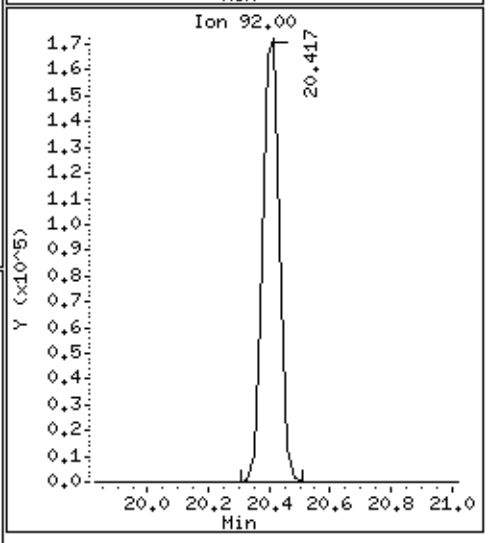
48 Toluene

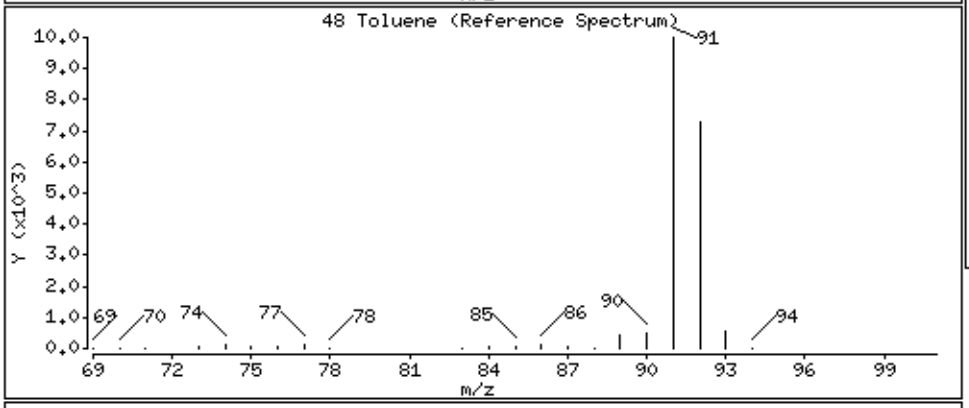
Concentration: 9.072 PPBV

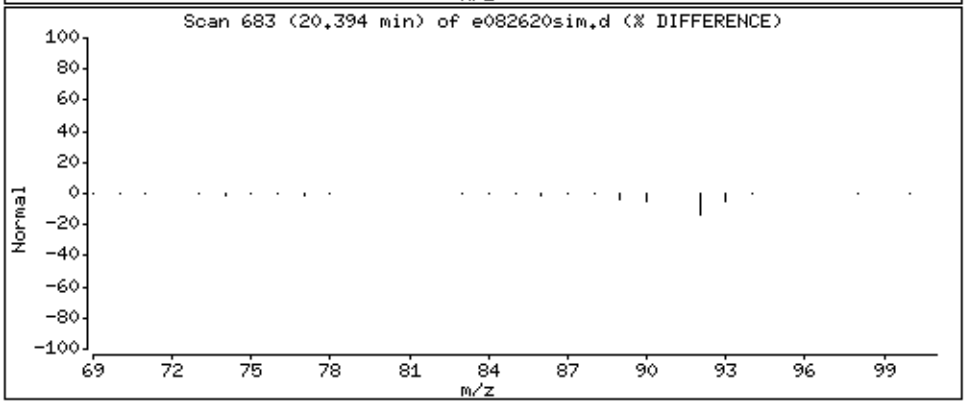












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

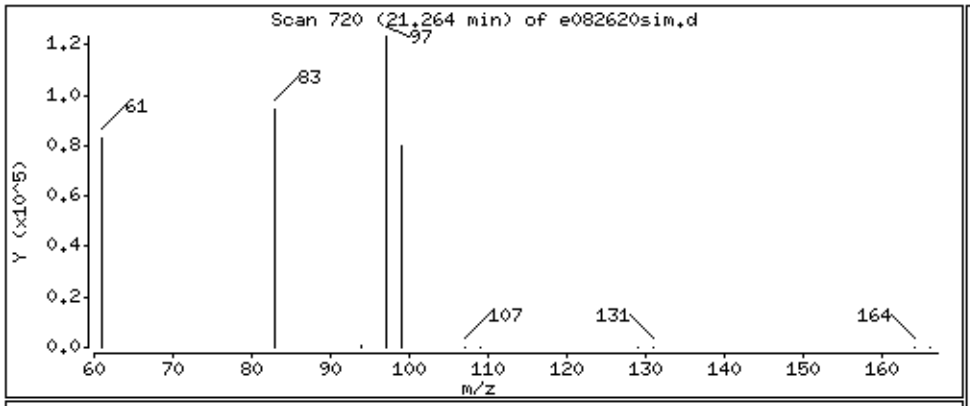
Operator: gh

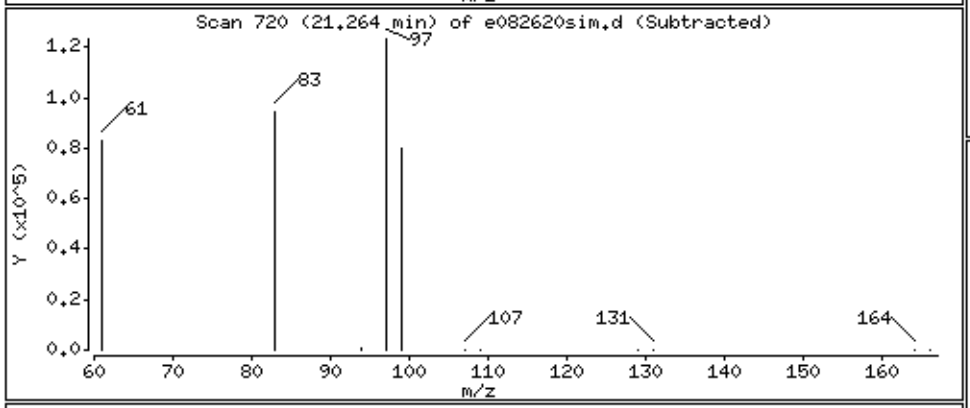
Column phase: RTx-624

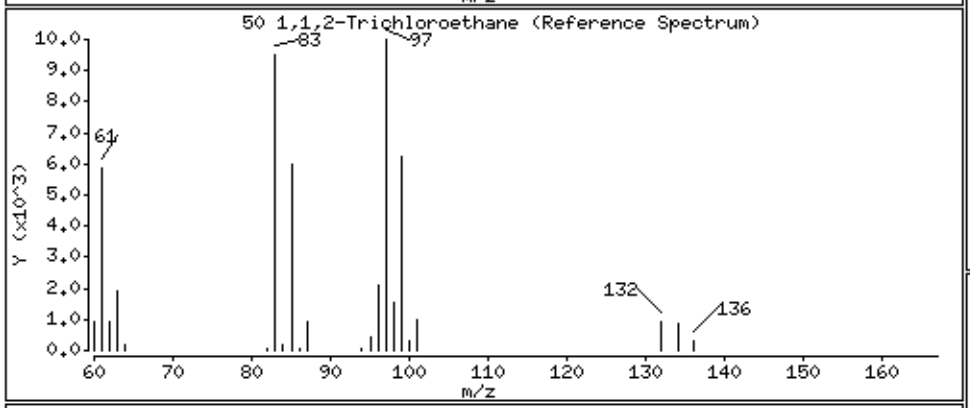
Column diameter: 0.53

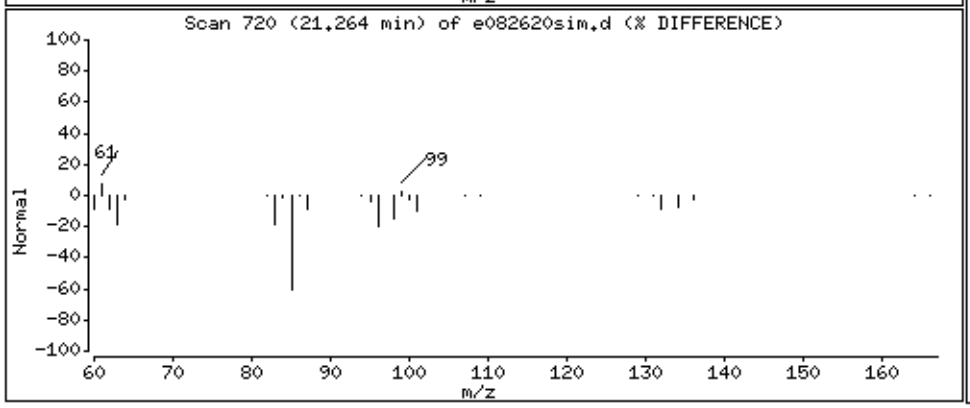
50 1,1,2-Trichloroethane

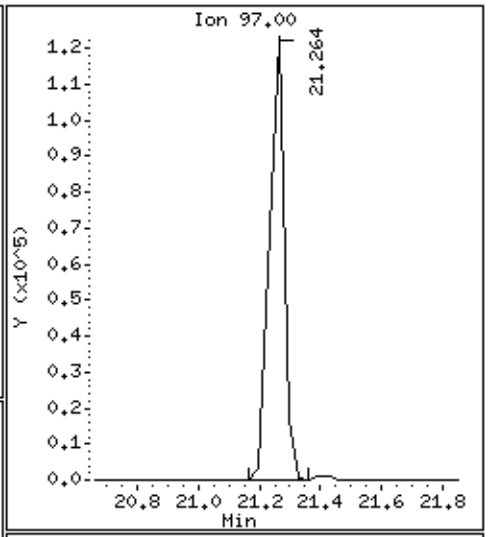
Concentration: 9.292 PPBV

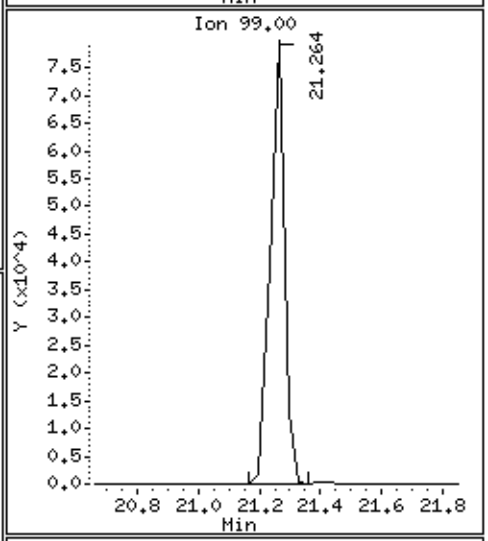


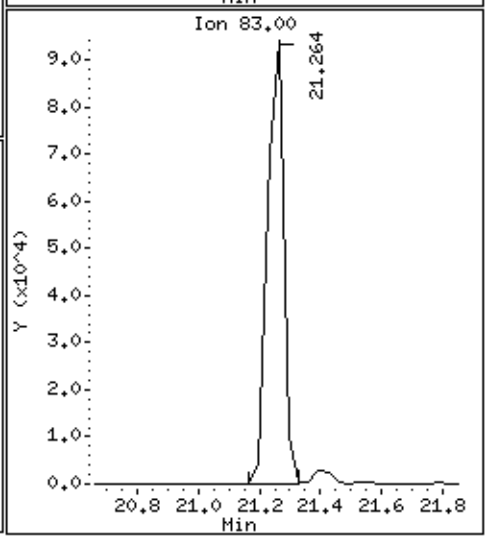












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

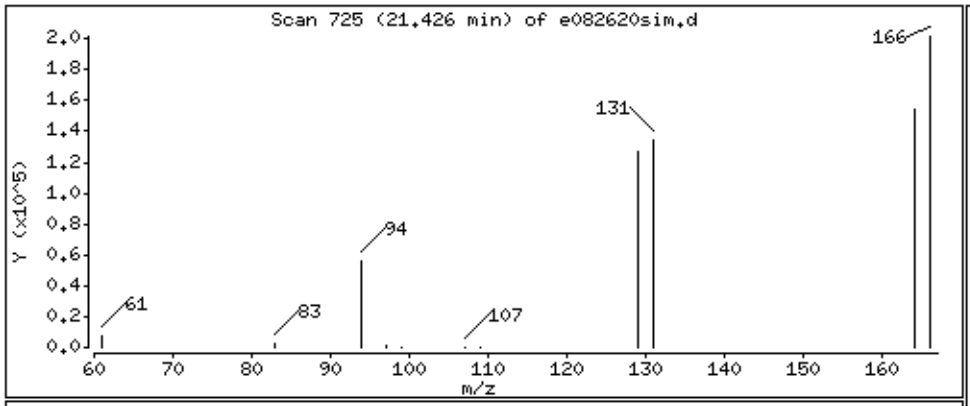
Operator: gh

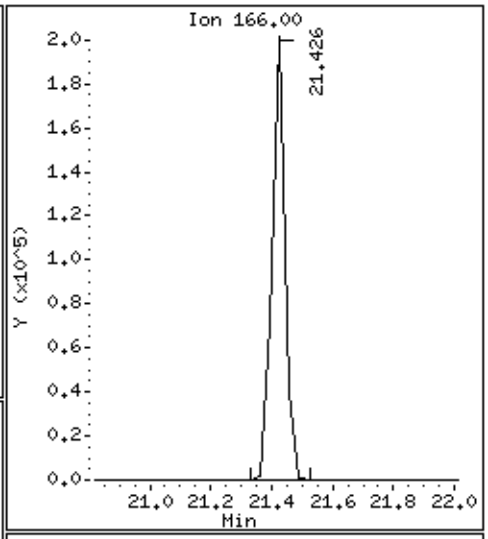
Column phase: RTx-624

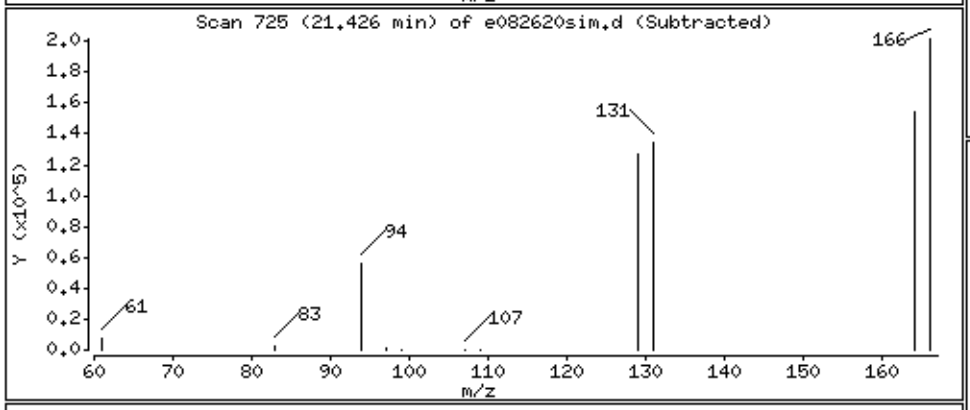
Column diameter: 0.53

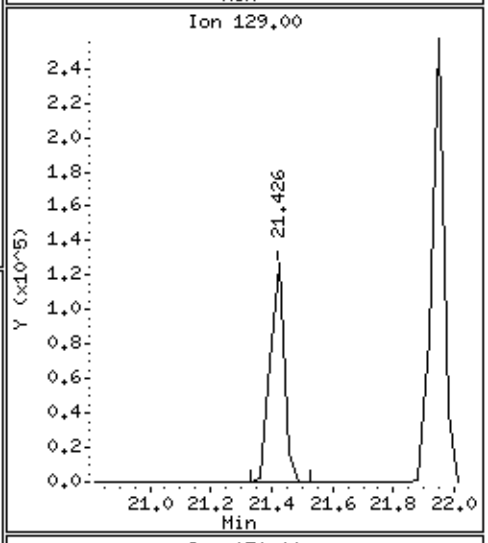
51 Tetrachloroethene

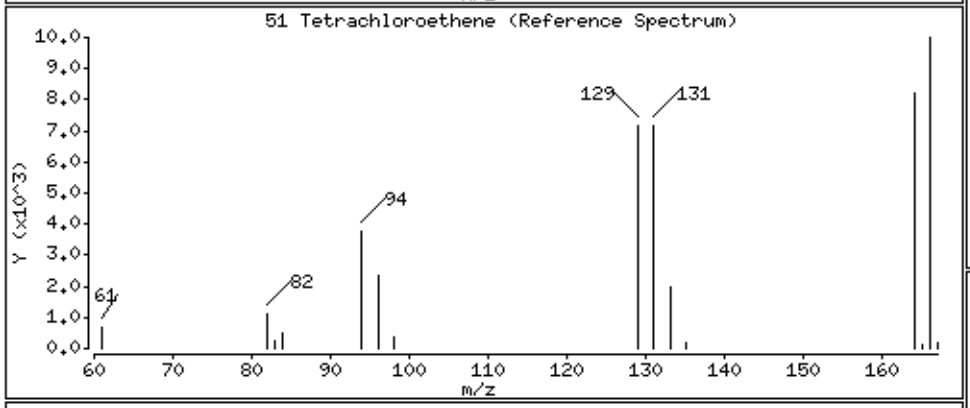
Concentration: 8.345 PPBV

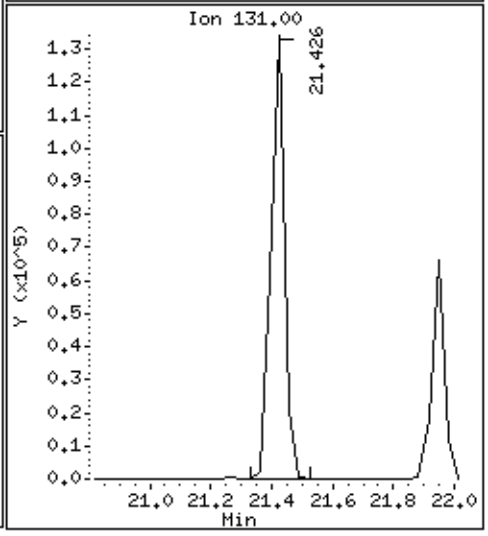


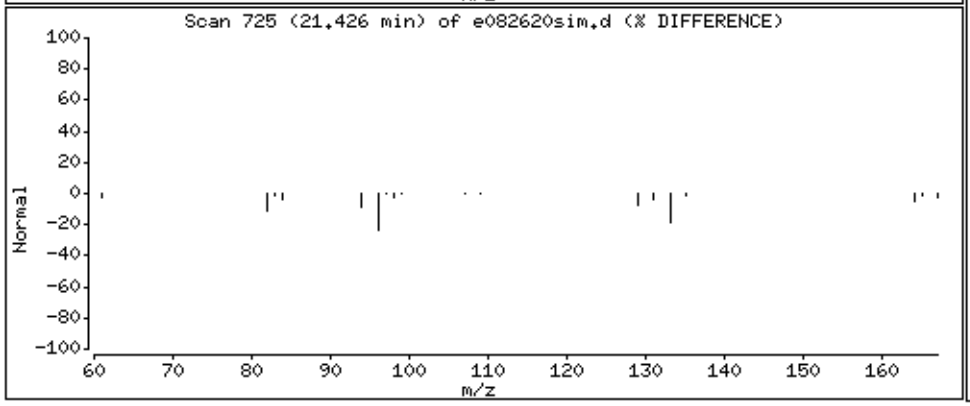












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

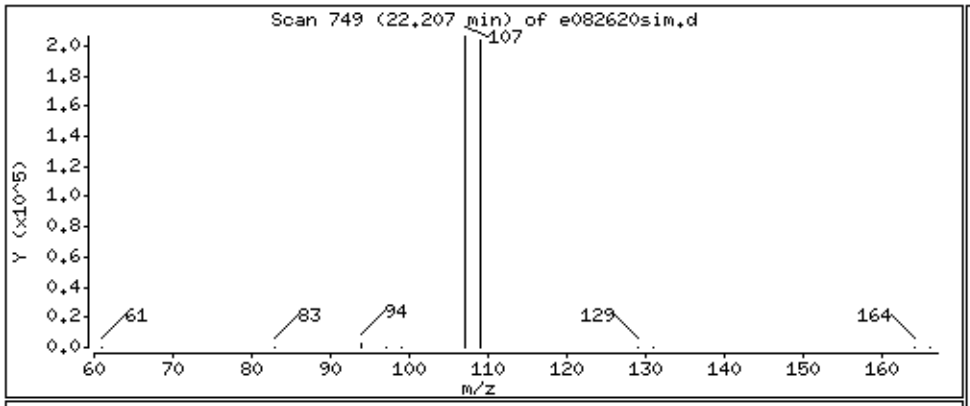
Operator: gh

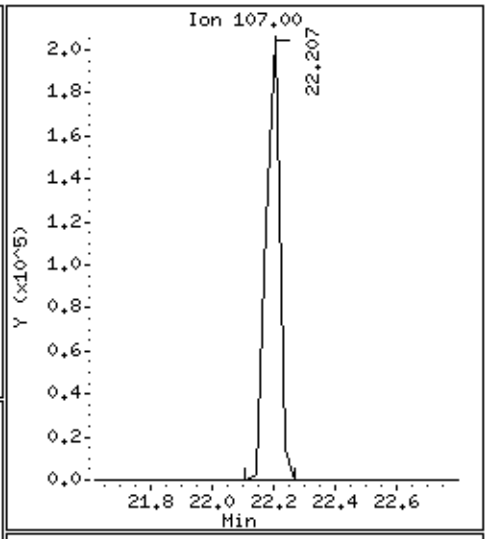
Column phase: RTx-624

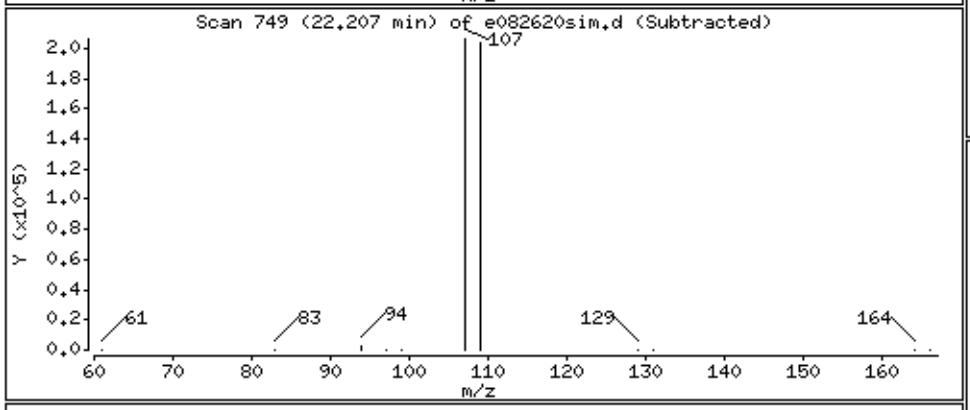
Column diameter: 0.53

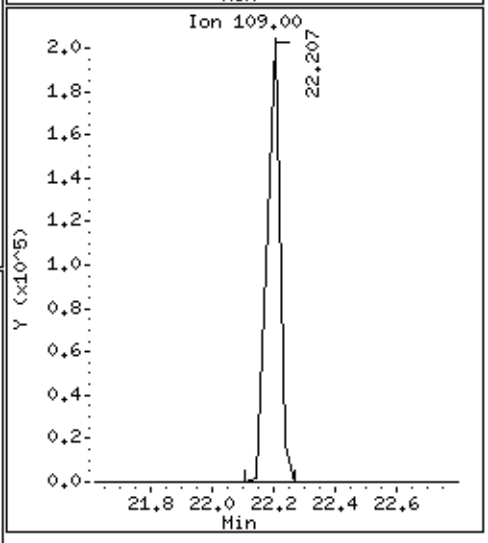
55 1,2-Dibromoethane

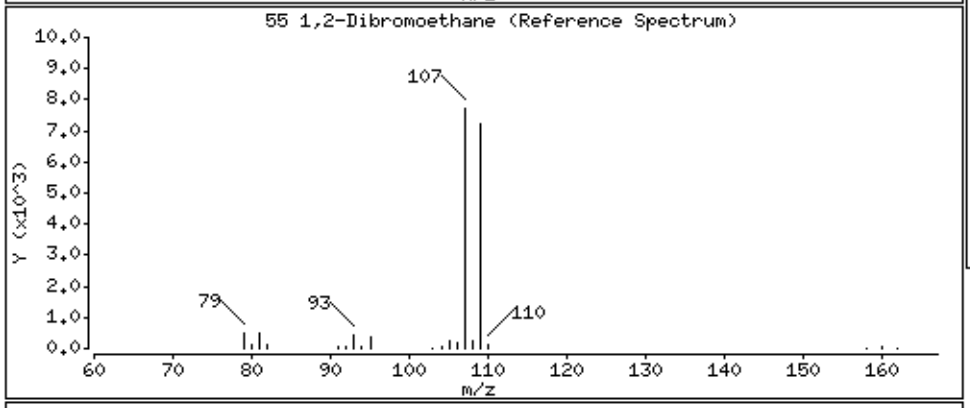
Concentration: 9.452 PPBV

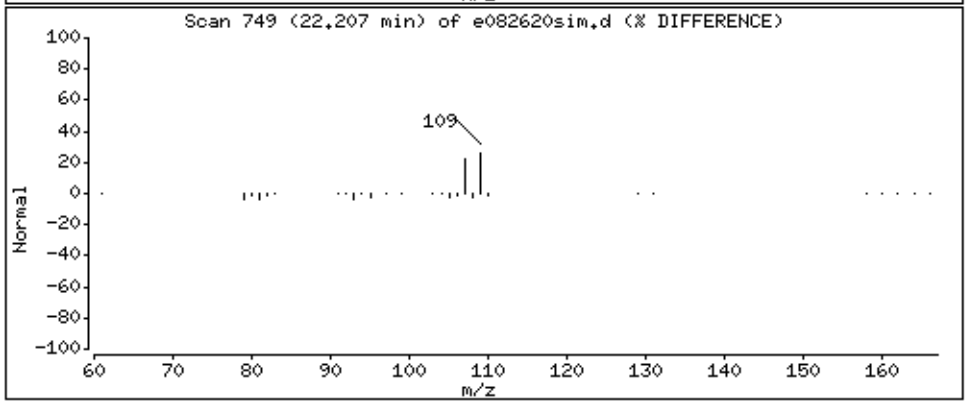












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

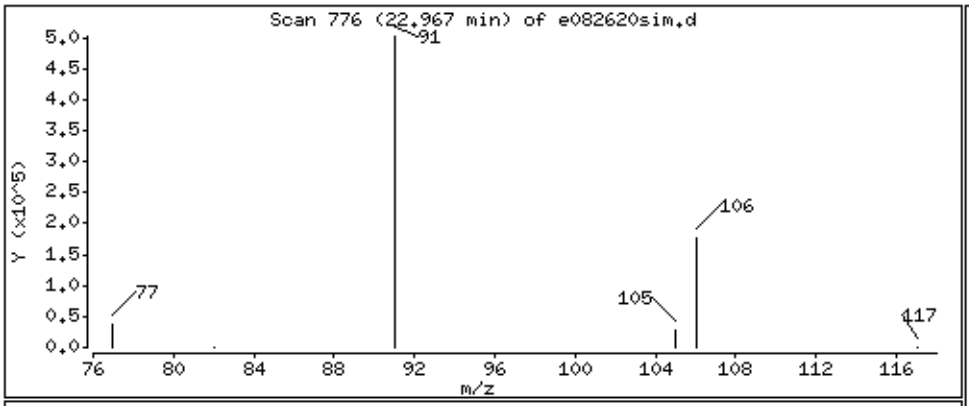
Operator: gh

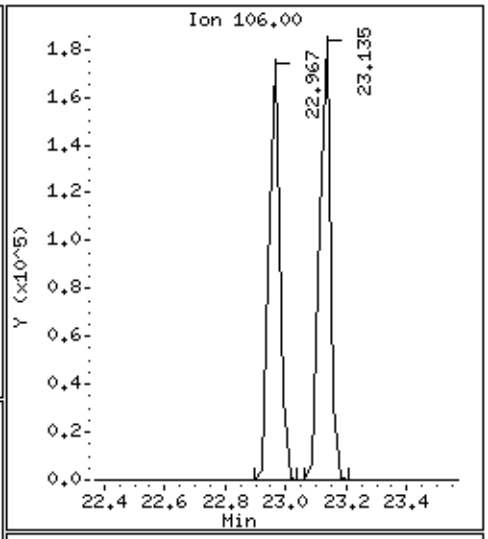
Column phase: RTx-624

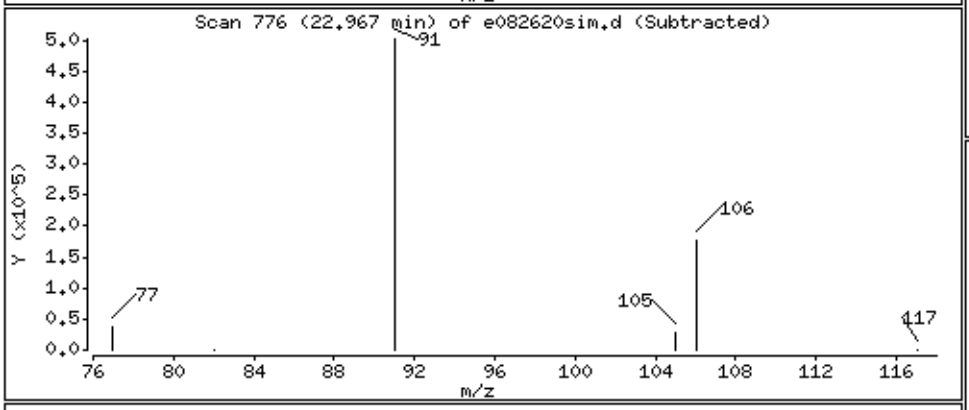
Column diameter: 0.53

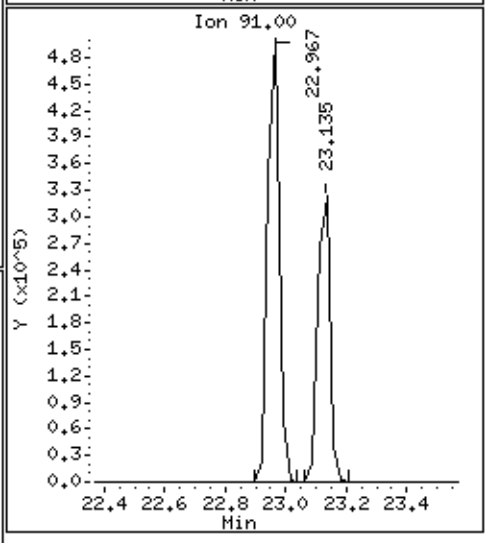
58 Ethyl Benzene

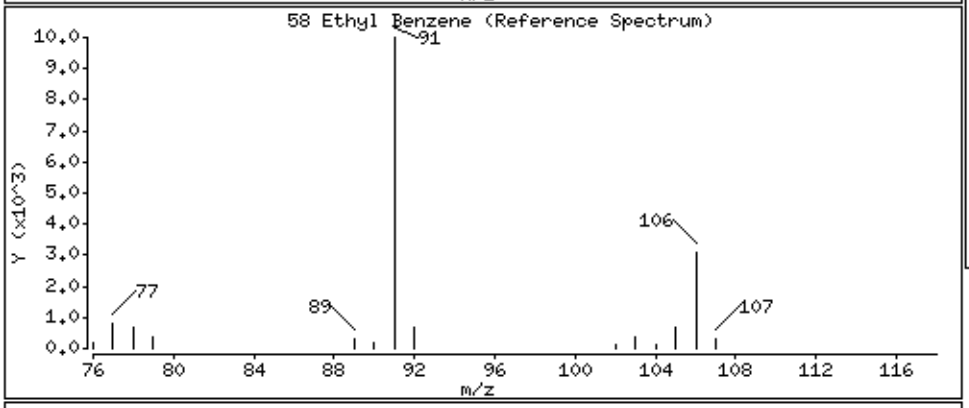
Concentration: 9.220 PPBV

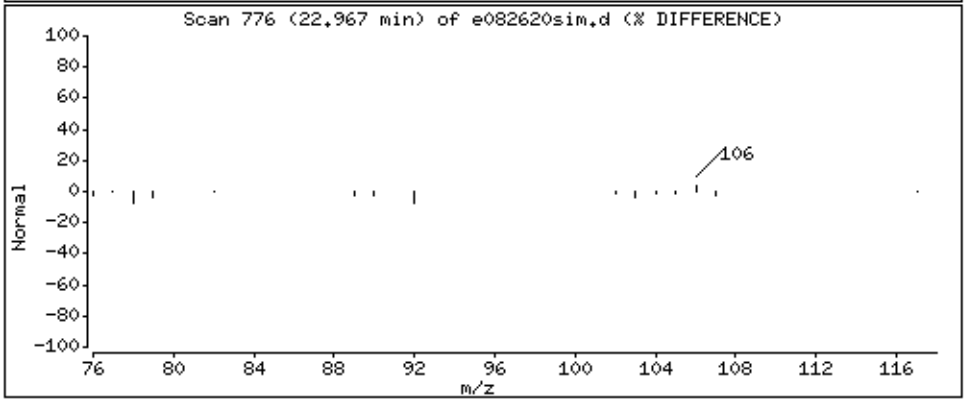












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

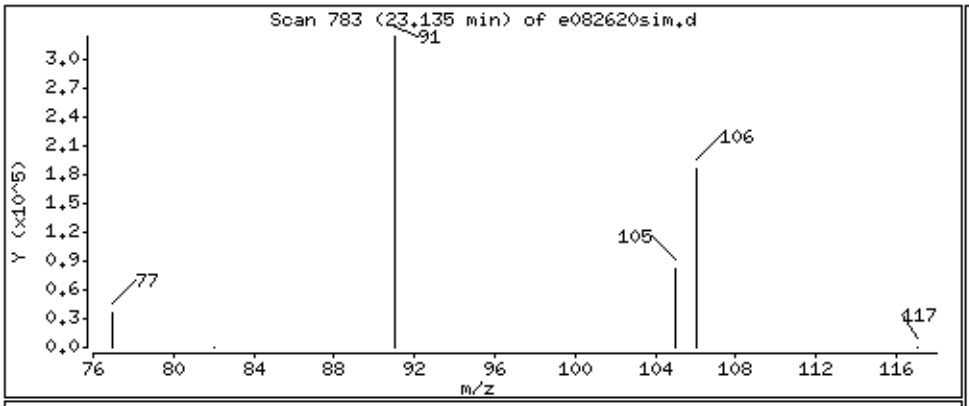
Operator: gh

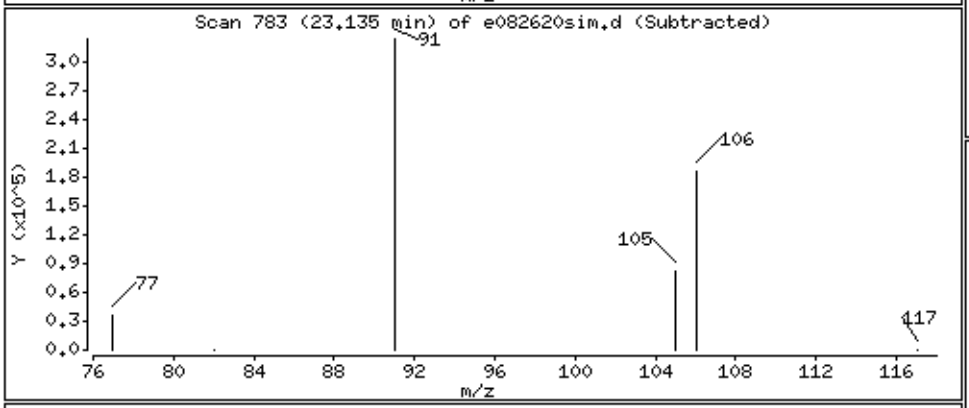
Column phase: RTx-624

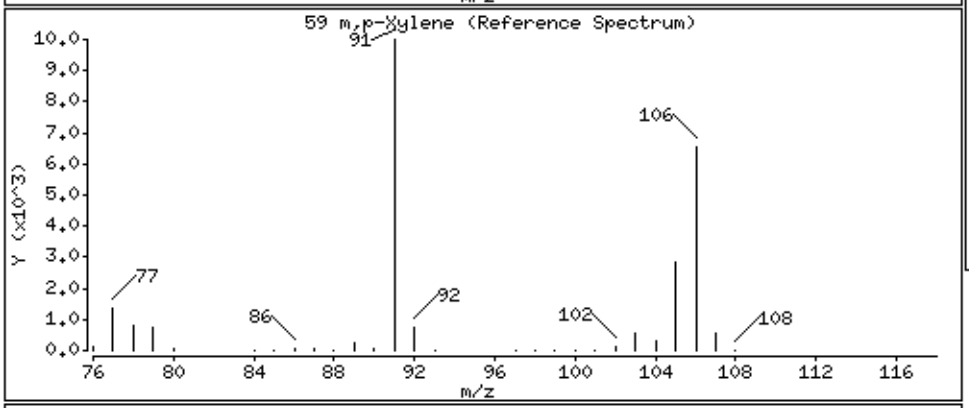
Column diameter: 0.53

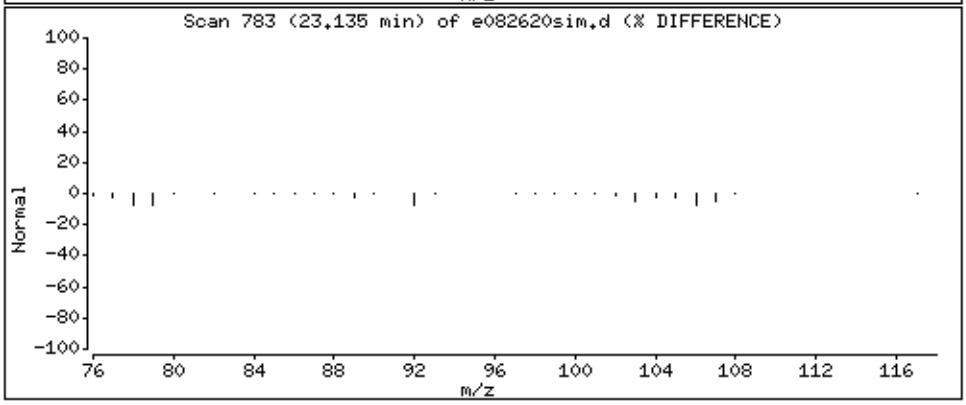
59 m,p-Xylene

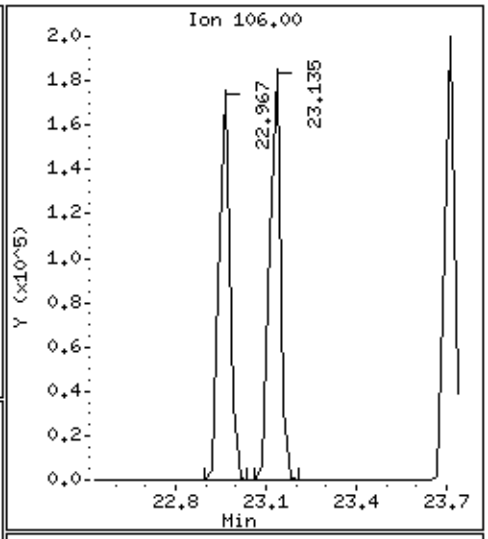
Concentration: 9.240 PPBV

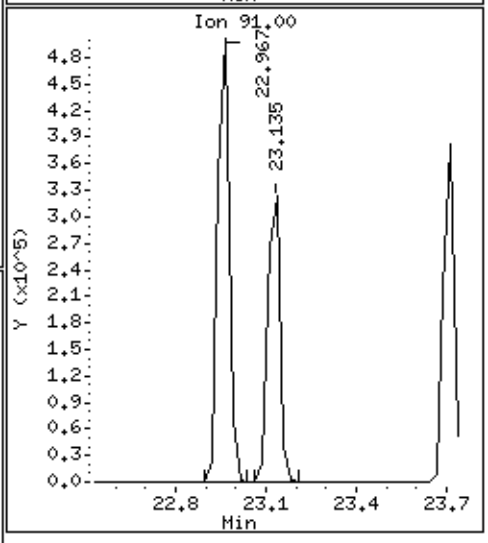












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

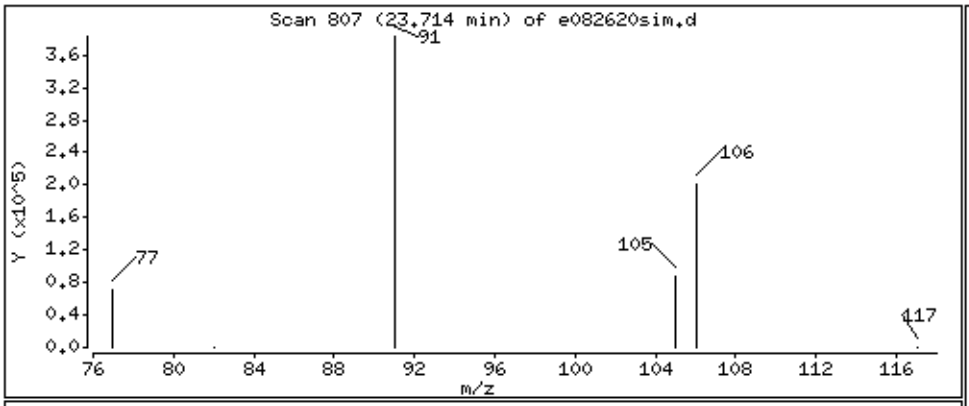
Operator: gh

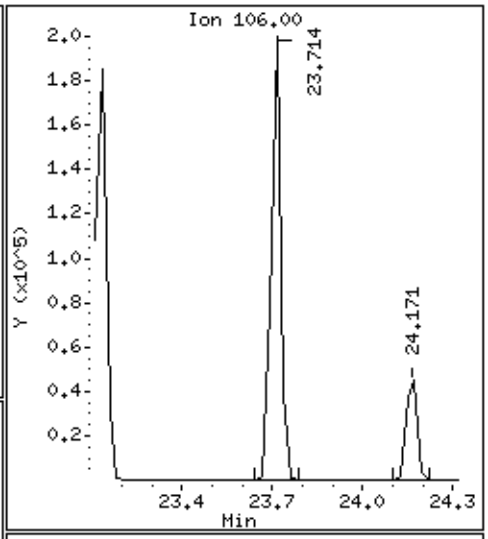
Column phase: RTx-624

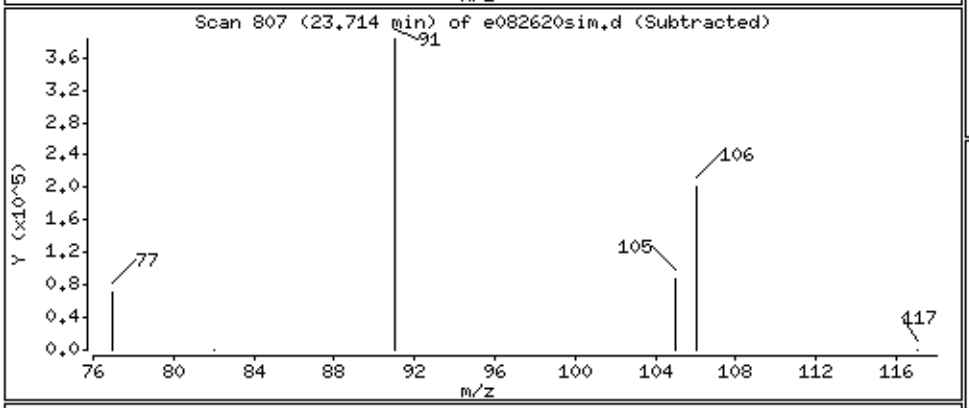
Column diameter: 0.53

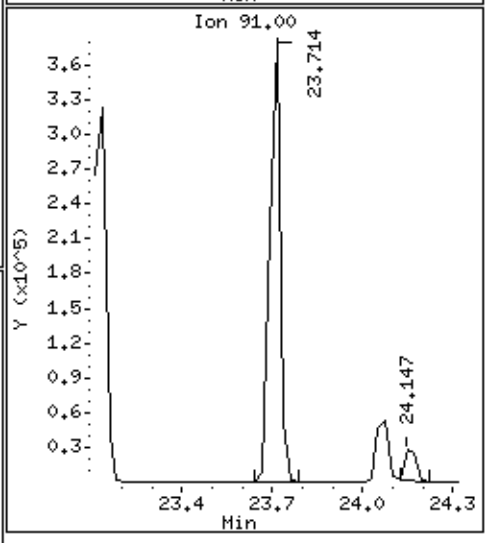
61 o-Xylene

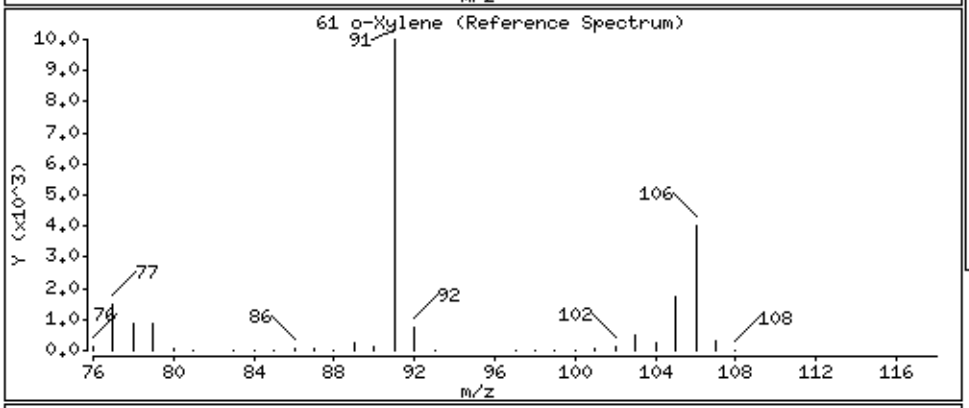
Concentration: 9.155 PPBV

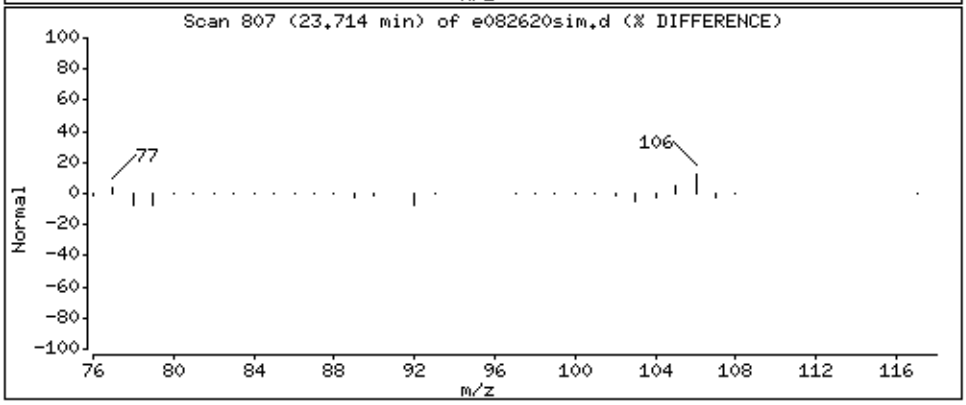












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

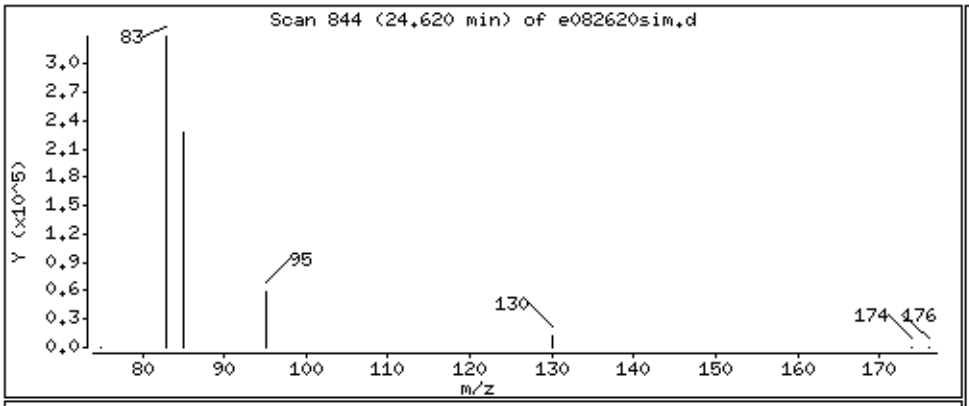
Operator: gh

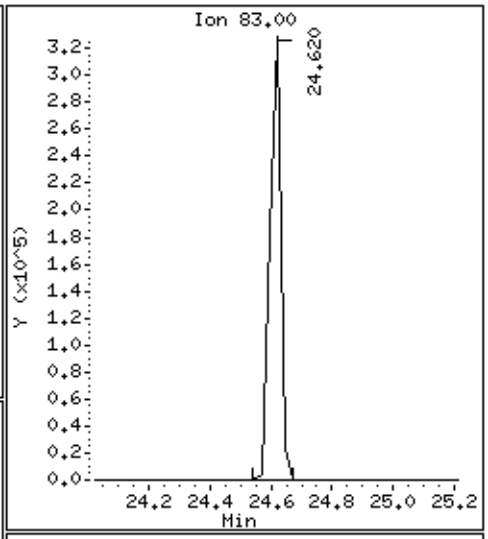
Column phase: RTx-624

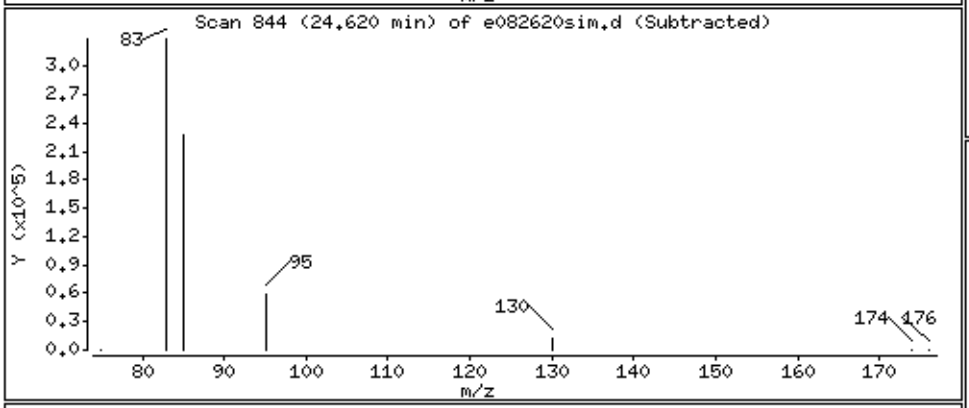
Column diameter: 0.53

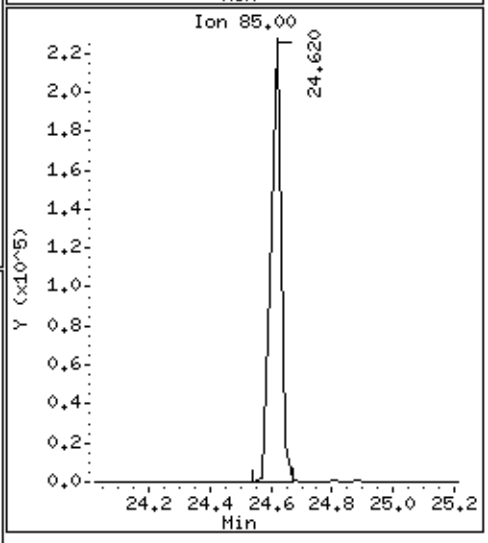
67 1,1,2,2-Tetrachloroethane

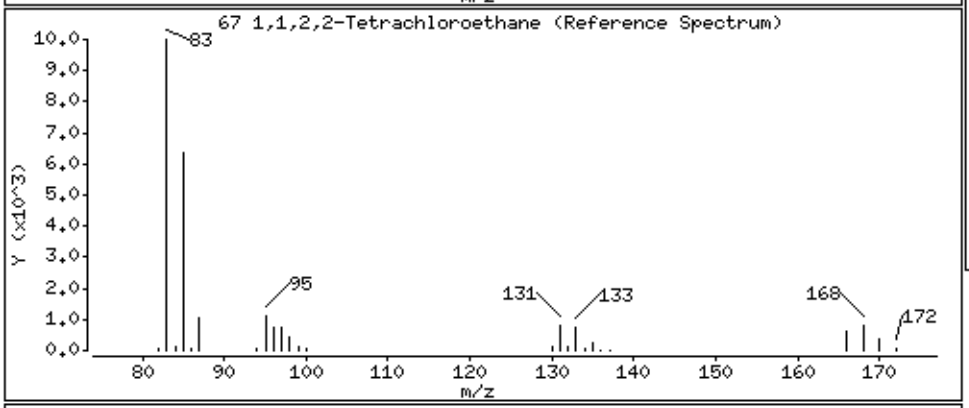
Concentration: 8.764 PPBV

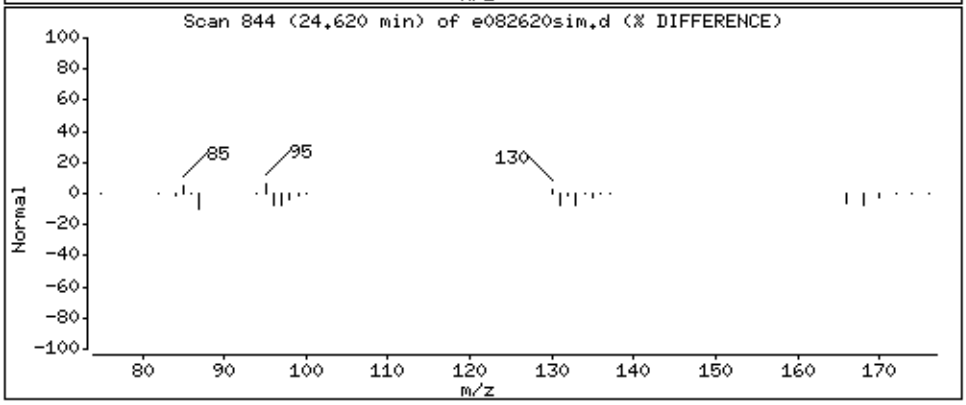












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

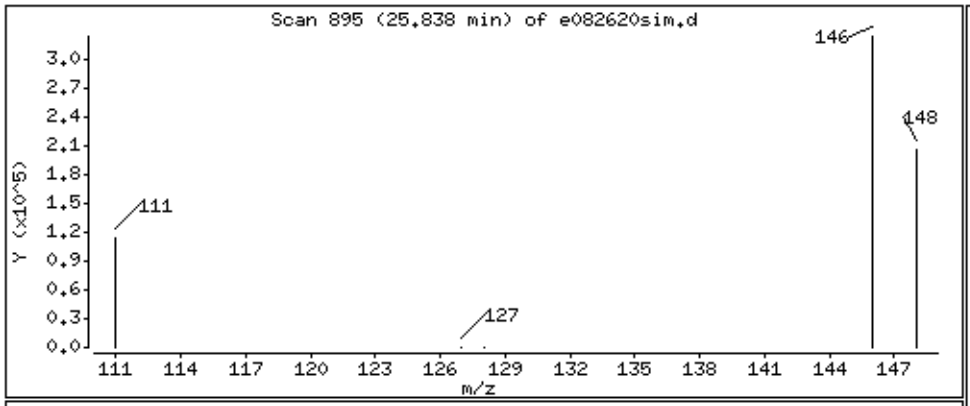
Operator: gh

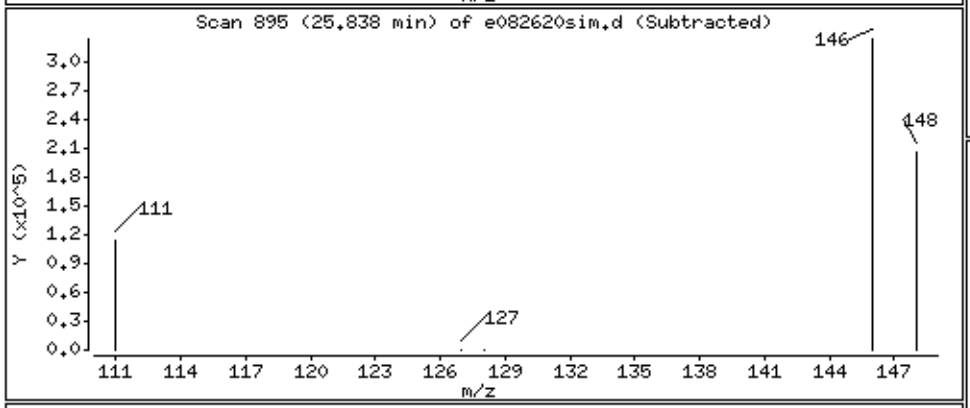
Column phase: RTx-624

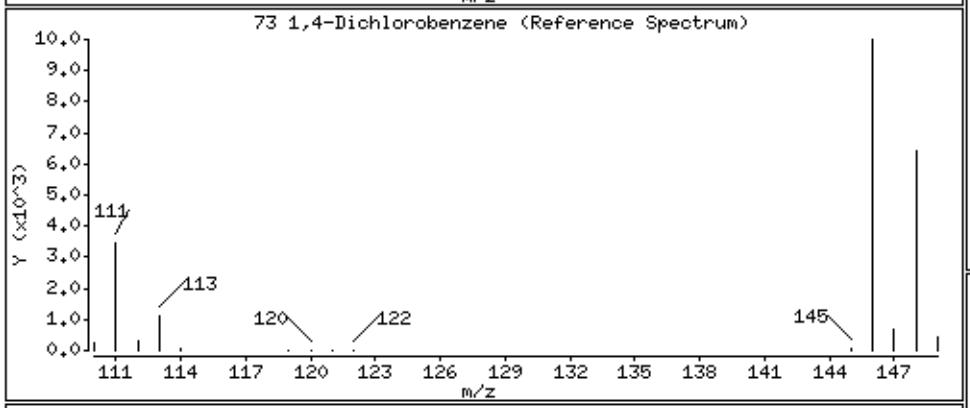
Column diameter: 0.53

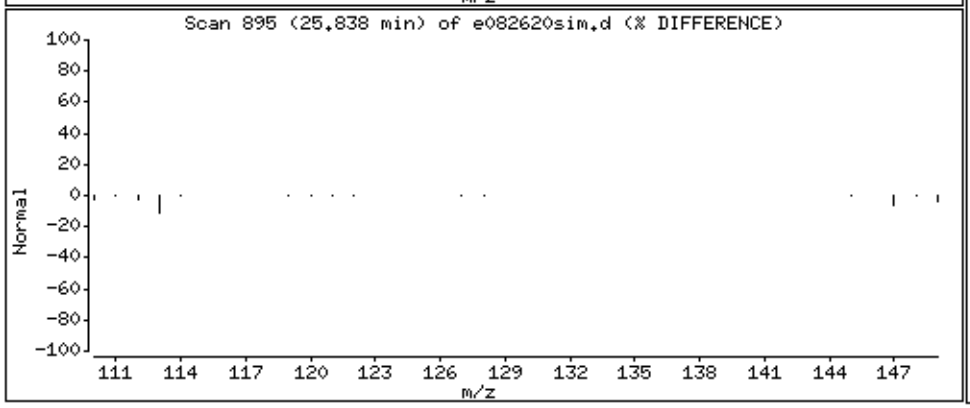
73 1,4-Dichlorobenzene

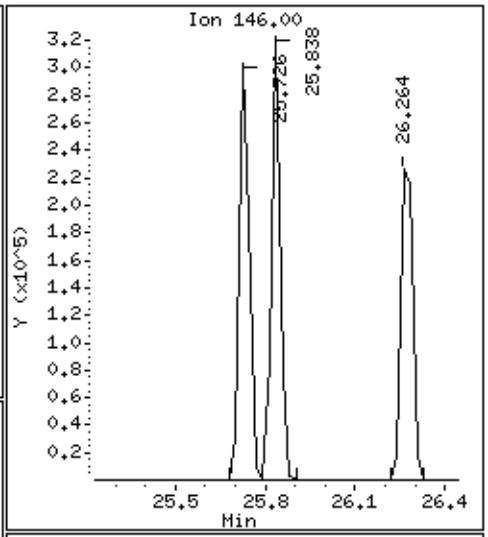
Concentration: 8.158 PPBV

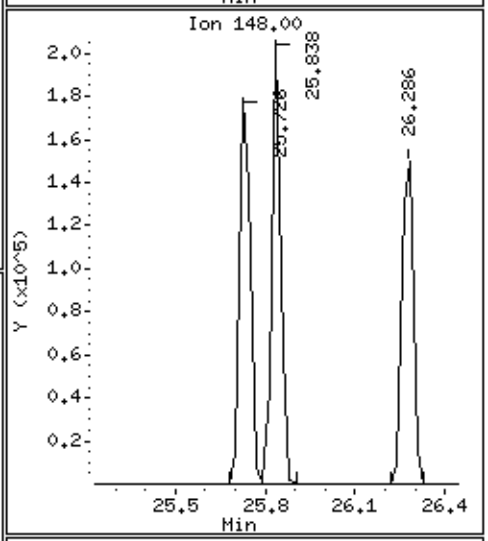


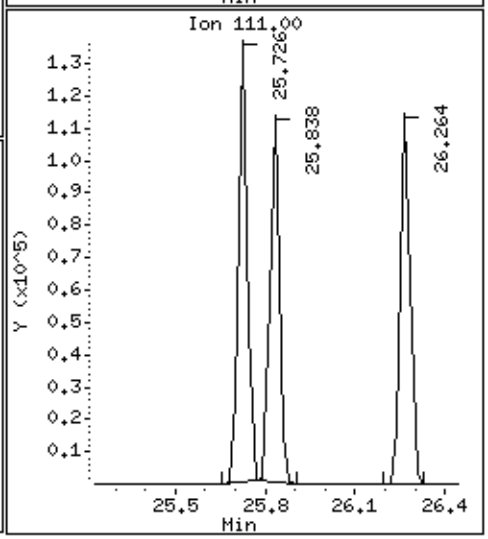












Data File: /chem/msde.i/26Aug2013a.b/e082620sim.d

Date : 27-AUG-2013 12:29

Client ID: ICV

Instrument: msde.i

Sample Info: 50mL #2588-79; ICV; ICV

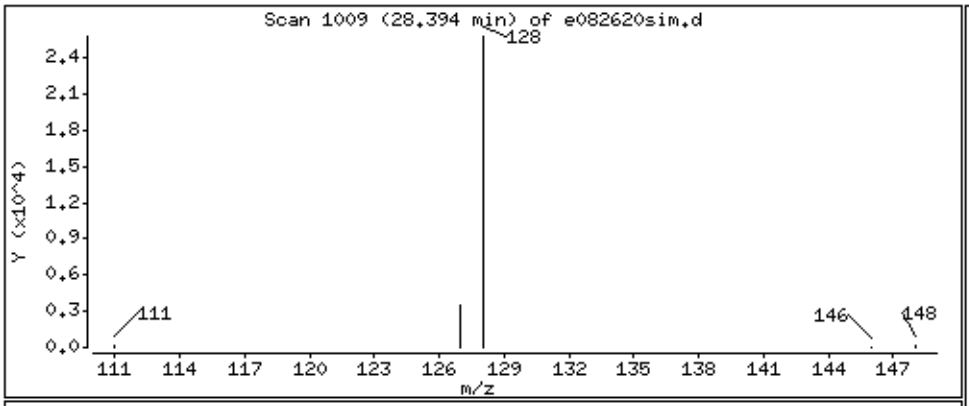
Operator: gh

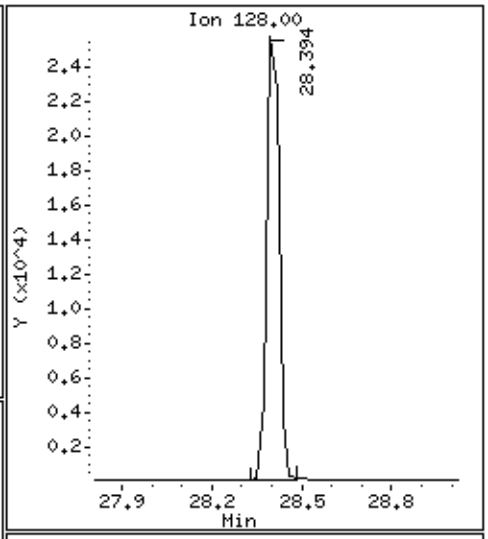
Column phase: RTx-624

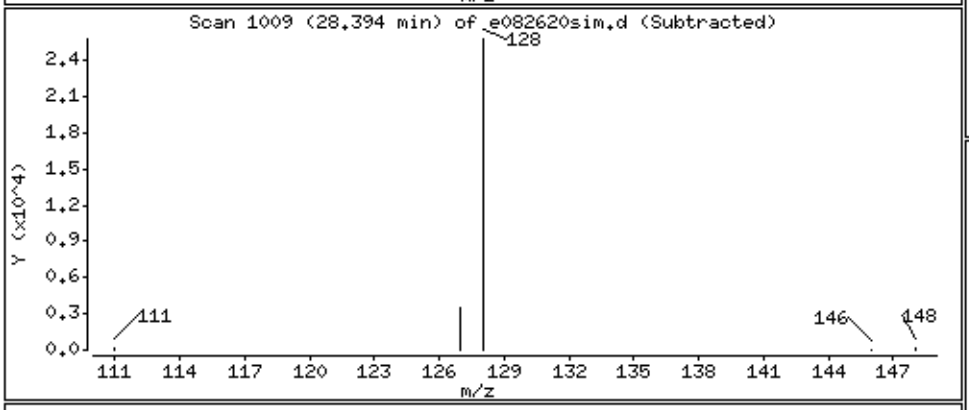
Column diameter: 0.53

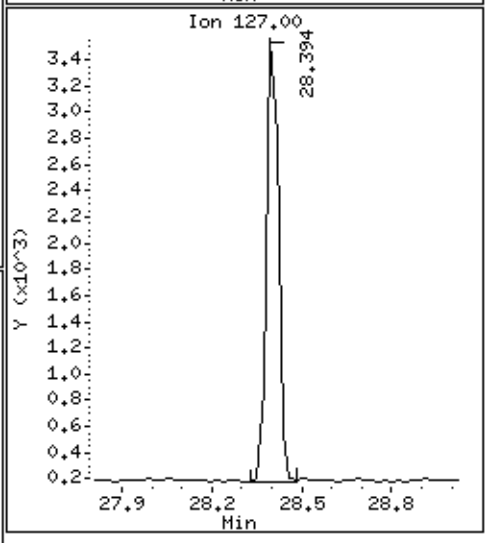
78 Naphthalene

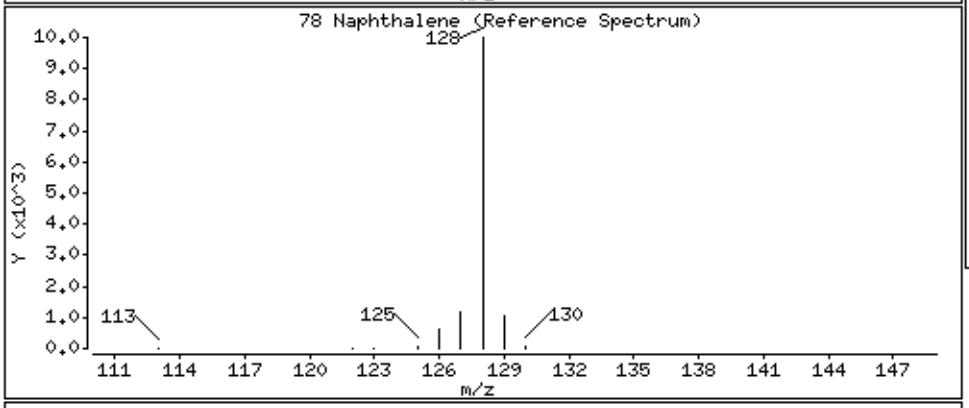
Concentration: 0.7708 PPBV

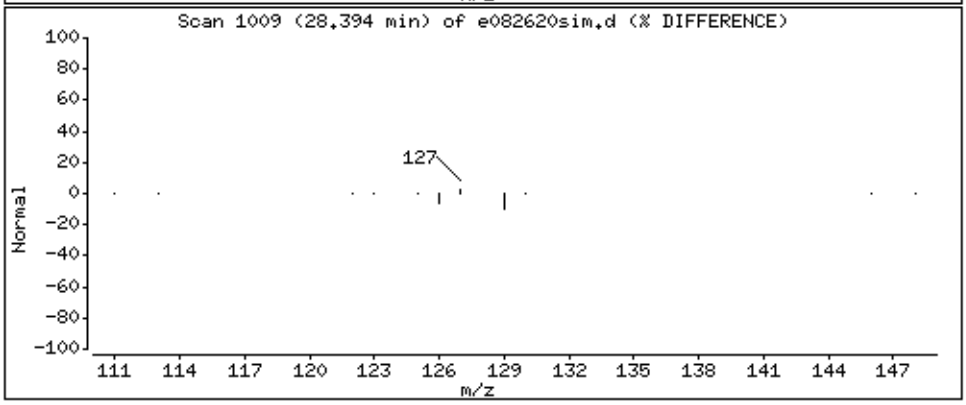












Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/26Aug2013a.b/e082606sim.d
Lab Smp Id: ICAL Client Smp ID: Level 1
Inj Date : 26-AUG-2013 16:34
Operator : sn Inst ID: msde.i
Smp Info : 15mL #2588-160
Misc Info : 0.003ppbv (0.05ppbv)
Comment : SIM/ GC-MS
Method : /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Meth Date : 28-Aug-2013 08:45 sblack Quant Type: ISTD
Cal Date : 26-AUG-2013 16:34 Cal File: e082606sim.d
Als bottle: 1 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 3tcepce.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				AMOUNTS			
				CAL-AMT	ON-COL		
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE	RATIO
==	====== ========	====	========	=======	=======	==========	=====
* 31 Bromochloromethane						CAS #: 74-97-5	
16.060	16.060 (1.000)	130	102589	5.00000		70.00- 130.00	100.00
16.060	16.060 (1.000)	128	79997			0.00- 30.00	77.98
16.060	16.060 (1.000)	49	197466			0.00- 30.00	192.48
* 40 1,4-Difluorobenzene						CAS #: 540-36-3	
17.492	17.492 (1.000)	114	493365	5.00000		70.00- 130.00	100.00
17.492	17.492 (1.000)	88	78202			0.00- 45.47	15.85
* 56 Chlorobenzene-d5						CAS #: 3114-55-4	
22.846	22.846 (1.000)	117	398255	5.00000		70.00- 130.00	100.00
22.846	22.846 (1.000)	82	201982			0.00- 30.00	50.72
$ 37 1,2-Dichloroethane-d4						CAS #: 17060-07-0	
16.915	16.915 (1.053)	65	159483	5.00000	5.019	70.00- 130.00	100.00
16.915	16.915 (1.053)	67	77775			0.00- 30.00	48.77
$ 47 Toluene-d8						CAS #: 2037-26-5	
20.260	20.260 (1.158)	98	402689	5.00000	5.060	70.00- 130.00	100.00
20.260	20.260 (1.158)	70	46258			0.00- 41.47	11.49

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
$ 47 Toluene-d8 (continued)							
20.260	20.260 (1.158)	100	280643			40.11- 100.11	69.69
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.440	24.440 (1.070)	174	219130	5.00000	4.949	70.00- 130.00	100.00
24.440	24.440 (1.070)	95	244044			79.71- 139.71	111.37
24.466	24.466 (1.071)	176	210458			66.55- 126.55	96.04
41 Trichloroethene					CAS #: 79-01-6		
17.932	17.932 (1.025)	130	311	0.00300	0.004846	70.00- 130.00	100.00
17.932	17.932 (1.025)	95	314			62.73- 122.73	100.96
17.932	17.932 (1.025)	97	158			29.94- 89.94	50.80
51 Tetrachloroethene					CAS #: 127-18-4		
21.426	21.426 (0.938)	166	317	0.00300	0.003624	70.00- 130.00	100.00
21.426	21.426 (0.938)	129	215			36.83- 96.83	67.82
21.426	21.426 (0.938)	131	218			37.96- 97.96	68.77

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082606sim.d
Lab Smp Id: ICAL
Analysis Type: VOA
Quant Type: ISTD
Operator: sn
Method File: /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Misc Info: 0.003ppbv (0.05ppbv)

Calibration Date: 27-AUG-2013
Calibration Time: 08:15
Client Smp ID: Level 1
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	112630	67578	157682	102589	-8.92
40 1,4-Difluorobenze	493076	295846	690306	493365	0.06
56 Chlorobenzene-d5	385996	231598	540394	398255	3.18

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.09	15.76	16.42	16.06	-0.19
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msde.i/26Aug2013a.b/e082606sim.d

Date : 26-AUG-2013 16:34

Client ID: Level 1

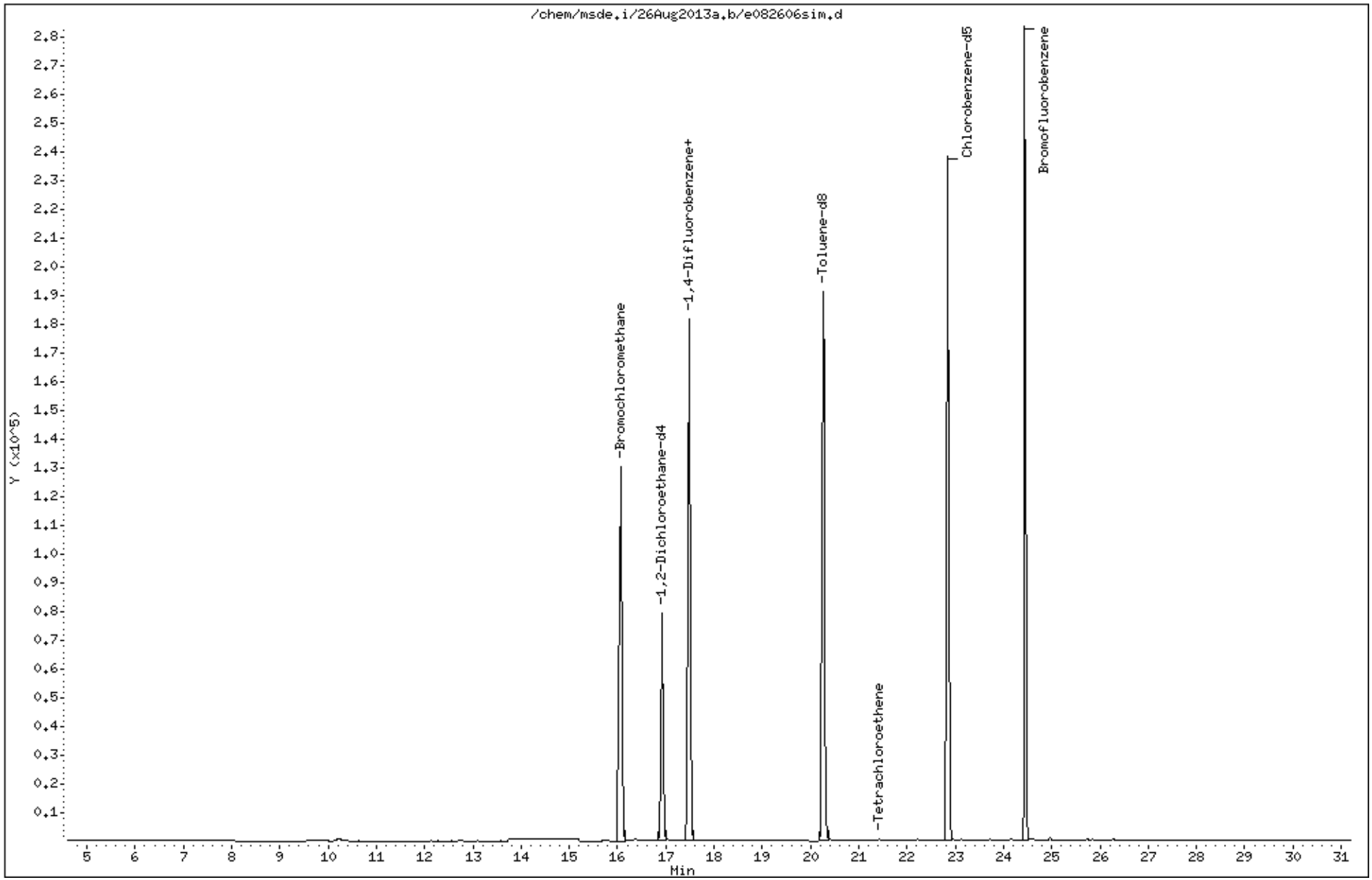
Instrument: msde.i

Sample Info: 15mL #2588-160

Operator: sn

Column phase: RTx-624

Column diameter: 0.53



Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/26Aug2013a.b/e082607sim.d
Lab Smp Id: ICAL Client Smp ID: Level 2
Inj Date : 26-AUG-2013 17:15
Operator : sn Inst ID: msde.i
Smp Info : 25mL #2588-160
Misc Info : 0.005ppbv (0.05ppbv)
Comment : SIM/ GC-MS
Method : /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Meth Date : 28-Aug-2013 08:45 sblack Quant Type: ISTD
Cal Date : 26-AUG-2013 17:15 Cal File: e082607sim.d
Als bottle: 1 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 5pptv.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				AMOUNTS			
				CAL-AMT	ON-COL		
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE	RATIO
==	====== ========	====	========	=======	=======	==========	=====
* 31 Bromochloromethane						CAS #: 74-97-5	
16.060	16.060 (1.000)	130	100505	5.00000		70.00- 130.00	100.00
16.060	16.060 (1.000)	128	78612			0.00- 30.00	78.22
16.060	16.060 (1.000)	49	193217			0.00- 30.00	192.25
* 40 1,4-Difluorobenzene						CAS #: 540-36-3	
17.492	17.492 (1.000)	114	482379	5.00000		70.00- 130.00	100.00
17.492	17.492 (1.000)	88	76708			0.00- 45.47	15.90
* 56 Chlorobenzene-d5						CAS #: 3114-55-4	
22.846	22.846 (1.000)	117	391888	5.00000		70.00- 130.00	100.00
22.846	22.846 (1.000)	82	199094			0.00- 30.00	50.80
$ 37 1,2-Dichloroethane-d4						CAS #: 17060-07-0	
16.915	16.915 (1.053)	65	156446	5.00000	5.026	70.00- 130.00	100.00
16.915	16.915 (1.053)	67	75823			0.00- 30.00	48.47
$ 47 Toluene-d8						CAS #: 2037-26-5	
20.260	20.260 (1.158)	98	393252	5.00000	5.054	70.00- 130.00	100.00
20.260	20.260 (1.158)	70	45880			0.00- 41.47	11.67

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
$ 47 Toluene-d8 (continued)							
20.260	20.260 (1.158)	100	273891			40.11- 100.11	69.65
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.440	24.440 (1.070)	174	218602	5.00000	5.017	70.00- 130.00	100.00
24.440	24.440 (1.070)	95	245088			79.71- 139.71	112.12
24.466	24.466 (1.071)	176	210721			66.55- 126.55	96.39
16 1,1-Dichloroethene					CAS #: 75-35-4		
12.740	12.740 (0.793)	98	139	0.00500	0.006258	70.00- 130.00	100.00
12.740	12.740 (0.793)	61	626			0.00- 30.00	450.36
12.740	12.740 (0.793)	96	174			0.00- 30.00	125.18
32 Chloroform					CAS #: 67-66-3		
16.122	16.122 (1.004)	85	318	0.00500	0.006272	70.00- 130.00	100.00(a)
16.122	16.122 (1.004)	83	939			124.09- 184.09	295.28
35 Carbon Tetrachloride					CAS #: 56-23-5		
16.584	16.584 (1.033)	117	384	0.00500	0.005026	70.00- 130.00	100.00
16.584	16.584 (1.033)	119	1009			66.38- 126.38	262.76
36 Benzene					CAS #: 71-43-2		
16.915	16.915 (0.967)	78	1952	0.00500	0.01427	70.00- 130.00	100.00
16.915	16.915 (0.967)	77	465			0.00- 30.00	23.82
38 1,2-Dichloroethane					CAS #: 107-06-2		
17.031	17.031 (0.974)	62	330	0.00500	0.005390	70.00- 130.00	100.00
17.031	17.031 (0.974)	64	75			0.00- 30.00	22.73
41 Trichloroethene					CAS #: 79-01-6		
17.932	17.932 (1.025)	130	351	0.00500	0.005593	70.00- 130.00	100.00(a)
17.932	17.932 (1.025)	95	344			62.73- 122.73	98.01
17.932	17.932 (1.025)	97	195			29.94- 89.94	55.56
51 Tetrachloroethene					CAS #: 127-18-4		
21.426	21.426 (0.938)	166	458	0.00500	0.005321	70.00- 130.00	100.00(aM)
21.426	21.426 (0.938)	129	494			36.83- 96.83	107.86
21.426	21.426 (0.938)	131	321			37.96- 97.96	70.09
55 1,2-Dibromoethane					CAS #: 106-93-4		
22.207	22.207 (0.972)	107	455	0.00500	0.005510	70.00- 130.00	100.00(a)
22.207	22.207 (0.972)	109	491			64.59- 124.59	107.91
67 1,1,2,2-Tetrachloroethane					CAS #: 79-34-5		
24.620	24.620 (1.078)	83	639	0.00500	0.005729	70.00- 130.00	100.00
24.620	24.620 (1.078)	85	399			34.66- 94.66	62.44

				AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)		
RT	EXP RT (REL RT)	MASS	RESPONSE			TARGET RANGE	RATIO
73 1,4-Dichlorobenzene					CAS #: 106-46-7		
25.838	25.838 (1.131)	146	597	0.00500	0.006331	70.00- 130.00	100.00
25.838	25.838 (1.131)	148	372			0.00- 30.00	62.31
25.838	25.838 (1.131)	111	235			0.00- 30.00	39.36

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082607sim.d
Lab Smp Id: ICAL
Analysis Type: VOA
Quant Type: ISTD
Operator: sn
Method File: /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Misc Info: 0.005ppbv (0.05ppbv)

Calibration Date: 27-AUG-2013
Calibration Time: 08:15
Client Smp ID: Level 2
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	112630	67578	157682	100505	-10.77
40 1,4-Difluorobenze	493076	295846	690306	482379	-2.17
56 Chlorobenzene-d5	385996	231598	540394	391888	1.53

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.09	15.76	16.42	16.06	-0.19
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msde.i/26Aug2013a.b/e082607sim.d

Date : 26-AUG-2013 17:15

Client ID: Level 2

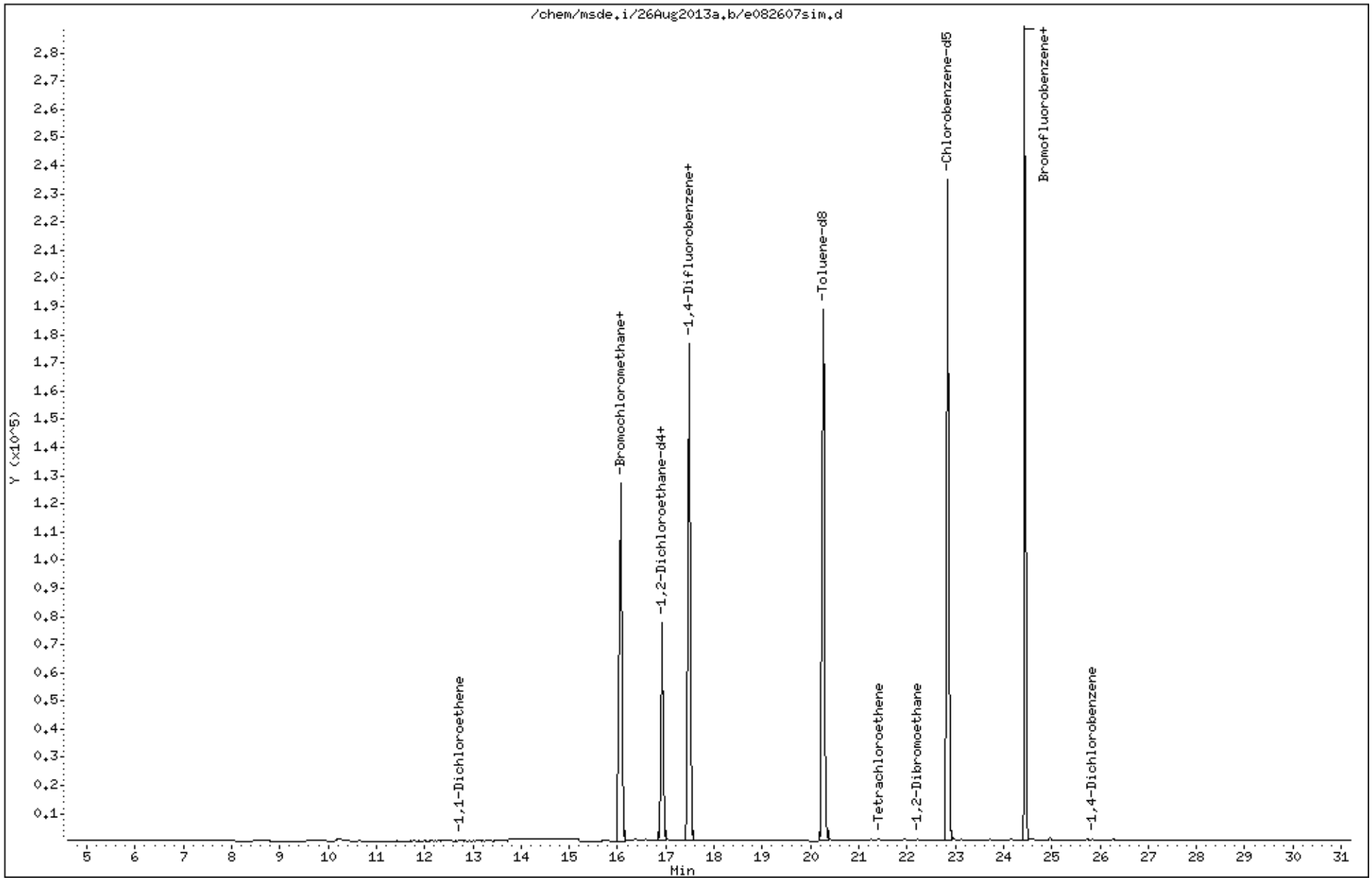
Instrument: msde.i

Sample Info: 25mL #2588-160

Operator: sn

Column phase: RTx-624

Column diameter: 0.53



Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/26Aug2013a.b/e082608sim.d
Lab Smp Id: ICAL Client Smp ID: Level 3
Inj Date : 26-AUG-2013 17:58
Operator : sn Inst ID: msde.i
Smp Info : 50mL #2588-160
Misc Info : 0.01ppbv (0.05ppbv)
Comment : SIM/ GC-MS
Method : /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Meth Date : 28-Aug-2013 08:45 sblack Quant Type: ISTD
Cal Date : 26-AUG-2013 17:58 Cal File: e082608sim.d
Als bottle: 1 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 10.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				AMOUNTS			
				CAL-AMT	ON-COL		
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE	RATIO
==	====== ========	====	========	=======	=======	==========	=====
* 31 Bromochloromethane					CAS #: 74-97-5		
16.060	16.060 (1.000)	130	97461	5.00000		70.00- 130.00	100.00
16.060	16.060 (1.000)	128	76189			0.00- 30.00	78.17
16.060	16.060 (1.000)	49	187288			0.00- 30.00	192.17
* 40 1,4-Difluorobenzene					CAS #: 540-36-3		
17.492	17.492 (1.000)	114	470955	5.00000		70.00- 130.00	100.00
17.492	17.492 (1.000)	88	75144			0.00- 45.47	15.96
* 56 Chlorobenzene-d5					CAS #: 3114-55-4		
22.846	22.846 (1.000)	117	381044	5.00000		70.00- 130.00	100.00
22.846	22.846 (1.000)	82	193978			0.00- 30.00	50.91
$ 37 1,2-Dichloroethane-d4					CAS #: 17060-07-0		
16.914	16.914 (1.053)	65	151649	5.00000	5.024	70.00- 130.00	100.00
16.914	16.914 (1.053)	67	73908			0.00- 30.00	48.74
$ 47 Toluene-d8					CAS #: 2037-26-5		
20.260	20.260 (1.158)	98	383441	5.00000	5.047	70.00- 130.00	100.00
20.260	20.260 (1.158)	70	43955			0.00- 41.47	11.46

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
$ 47 Toluene-d8 (continued)							
20.260	20.260 (1.158)	100	267110			40.11- 100.11	69.66
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.440	24.440 (1.070)	174	212784	5.00000	5.023	70.00- 130.00	100.00
24.440	24.440 (1.070)	95	237513			79.71- 139.71	111.62
24.465	24.465 (1.071)	176	204221			66.55- 126.55	95.98
5 Vinyl Chloride					CAS #: 75-01-4		
8.437	8.437 (0.525)	62	519	0.01000	0.01183	70.00- 130.00	100.00
8.454	8.454 (0.526)	64	52			0.00- 59.23	10.02
16 1,1-Dichloroethene					CAS #: 75-35-4		
12.740	12.740 (0.793)	98	237	0.01000	0.01100	70.00- 130.00	100.00
12.740	12.740 (0.793)	61	925			0.00- 30.00	390.30
12.740	12.740 (0.793)	96	373			0.00- 30.00	157.38
32 Chloroform					CAS #: 67-66-3		
16.121	16.121 (1.004)	85	508	0.01000	0.01033	70.00- 130.00	100.00(a)
16.121	16.121 (1.004)	83	758			124.09- 184.09	149.21
35 Carbon Tetrachloride					CAS #: 56-23-5		
16.584	16.584 (1.033)	117	706	0.01000	0.009529	70.00- 130.00	100.00(a)
16.584	16.584 (1.033)	119	675			66.38- 126.38	95.61
36 Benzene					CAS #: 71-43-2		
16.914	16.914 (0.967)	78	2656	0.01000	0.01989	70.00- 130.00	100.00
16.914	16.914 (0.967)	77	1437			0.00- 30.00	54.10
38 1,2-Dichloroethane					CAS #: 107-06-2		
17.031	17.031 (0.974)	62	585	0.01000	0.009786	70.00- 130.00	100.00(a)
16.944	16.944 (0.969)	64	1711			0.00- 30.00	292.48
41 Trichloroethene					CAS #: 79-01-6		
17.931	17.931 (1.025)	130	591	0.01000	0.009646	70.00- 130.00	100.00(a)
17.931	17.931 (1.025)	95	710			62.73- 122.73	120.14
17.931	17.931 (1.025)	97	336			29.94- 89.94	56.85
50 1,1,2-Trichloroethane					CAS #: 79-00-5		
21.264	21.264 (0.931)	97	520	0.01000	0.01022	70.00- 130.00	100.00
21.264	21.264 (0.931)	99	335			32.57- 92.57	64.42
21.264	21.264 (0.931)	83	442			53.31- 113.31	85.00
51 Tetrachloroethene					CAS #: 127-18-4		
21.426	21.426 (0.938)	166	1005	0.01000	0.01201	70.00- 130.00	100.00(a)
21.426	21.426 (0.938)	129	706			36.83- 96.83	70.25

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
51 Tetrachloroethene (continued)							
21.426	21.426 (0.938)	131	751			37.96- 97.96	74.73
55 1,2-Dibromoethane					CAS #: 106-93-4		
22.207	22.207 (0.972)	107	877	0.01000	0.01092	70.00- 130.00	100.00
22.207	22.207 (0.972)	109	774			64.59- 124.59	88.26
67 1,1,2,2-Tetrachloroethane					CAS #: 79-34-5		
24.620	24.620 (1.078)	83	1287	0.01000	0.01187	70.00- 130.00	100.00
24.620	24.620 (1.078)	85	719			34.66- 94.66	55.87
73 1,4-Dichlorobenzene					CAS #: 106-46-7		
25.841	25.841 (1.131)	146	1058	0.01000	0.01154	70.00- 130.00	100.00
25.841	25.841 (1.131)	148	657			0.00- 30.00	62.10
25.841	25.841 (1.131)	111	405			0.00- 30.00	38.28

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082608sim.d
Lab Smp Id: ICAL
Analysis Type: VOA
Quant Type: ISTD
Operator: sn
Method File: /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Misc Info: 0.01ppbv (0.05ppbv)

Calibration Date: 27-AUG-2013
Calibration Time: 08:15
Client Smp ID: Level 3
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	112630	67578	157682	97461	-13.47
40 1,4-Difluorobenze	493076	295846	690306	470955	-4.49
56 Chlorobenzene-d5	385996	231598	540394	381044	-1.28

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.09	15.76	16.42	16.06	-0.19
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msde.i/26Aug2013a.b/e082608sim.d

Date : 26-AUG-2013 17:58

Client ID: Level 3

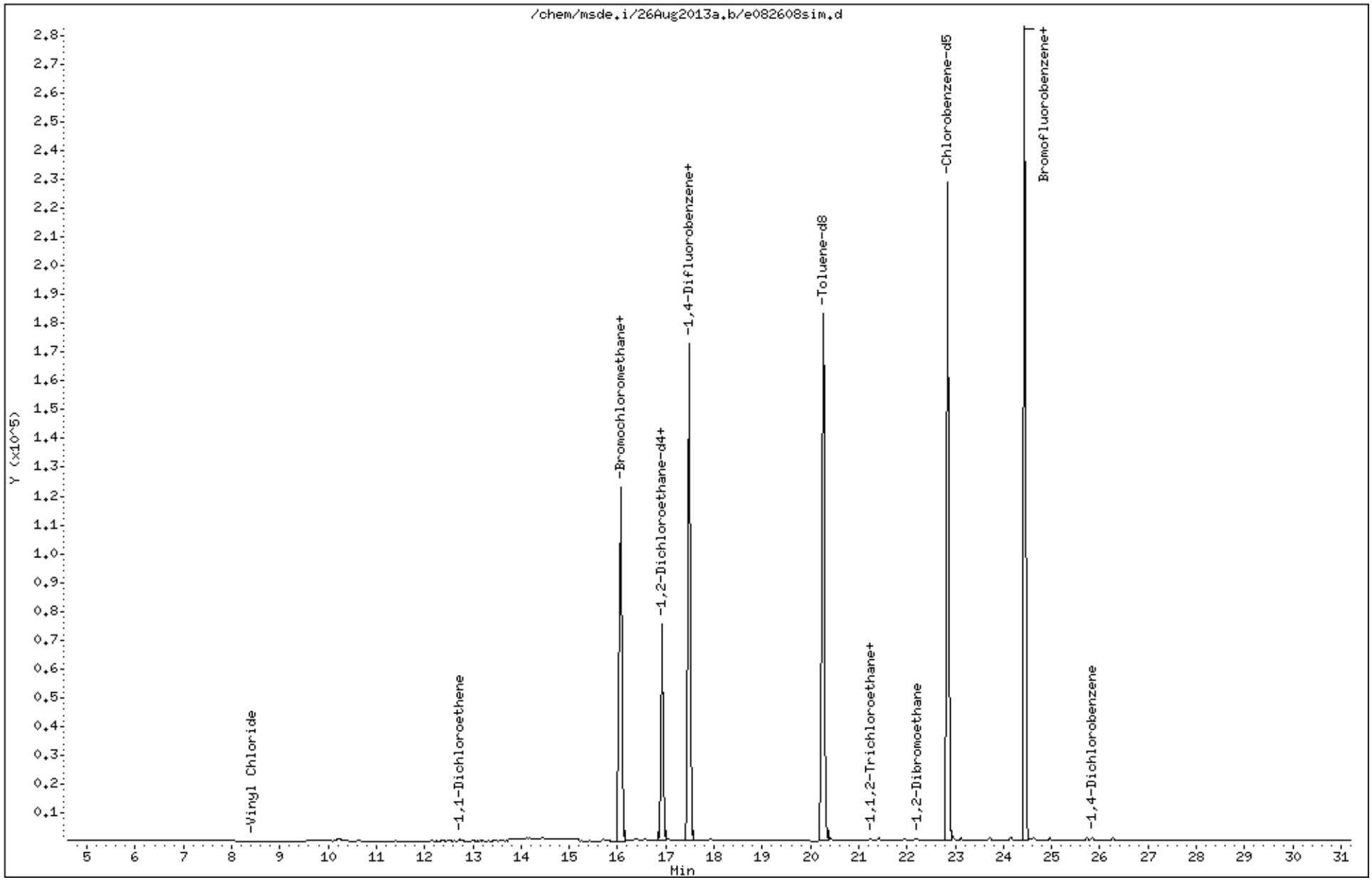
Instrument: msde.i

Sample Info: 50mL #2588-160

Operator: sn

Column phase: RTx-624

Column diameter: 0.53



Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/26Aug2013a.b/e082609sim.d
Lab Smp Id: ICAL Client Smp ID: Level 4
Inj Date : 26-AUG-2013 18:40
Operator : sn Inst ID: msde.i
Smp Info : 100mL #2588-160
Misc Info : 0.02ppbv (0.05ppbv)
Comment : SIM/ GC-MS
Method : /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Meth Date : 28-Aug-2013 08:45 sblack Quant Type: ISTD
Cal Date : 26-AUG-2013 18:40 Cal File: e082609sim.d
Als bottle: 1 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 20.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				AMOUNTS			
				CAL-AMT	ON-COL		
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE	RATIO
==	====== ========	====	========	=======	=======	==========	=====
* 31 Bromochloromethane					CAS #: 74-97-5		
16.060	16.060 (1.000)	130	96508	5.00000		70.00- 130.00	100.00
16.060	16.060 (1.000)	128	75250			0.00- 30.00	77.97
16.060	16.060 (1.000)	49	185442			0.00- 30.00	192.15
* 40 1,4-Difluorobenzene					CAS #: 540-36-3		
17.492	17.492 (1.000)	114	458848	5.00000		70.00- 130.00	100.00
17.492	17.492 (1.000)	88	72956			0.00- 45.47	15.90
* 56 Chlorobenzene-d5					CAS #: 3114-55-4		
22.846	22.846 (1.000)	117	370469	5.00000		70.00- 130.00	100.00
22.846	22.846 (1.000)	82	188234			0.00- 30.00	50.81
$ 37 1,2-Dichloroethane-d4					CAS #: 17060-07-0		
16.915	16.915 (1.053)	65	149435	5.00000	4.999	70.00- 130.00	100.00
16.915	16.915 (1.053)	67	73346			0.00- 30.00	49.08
$ 47 Toluene-d8					CAS #: 2037-26-5		
20.260	20.260 (1.158)	98	372260	5.00000	5.029	70.00- 130.00	100.00
20.260	20.260 (1.158)	70	42978			0.00- 41.47	11.55

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
$ 47 Toluene-d8 (continued)							
20.260	20.260 (1.158)	100	258481			40.11- 100.11	69.44
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.440	24.440 (1.070)	174	207761	5.00000	5.044	70.00- 130.00	100.00
24.440	24.440 (1.070)	95	229965			79.71- 139.71	110.69
24.440	24.440 (1.070)	176	199145			66.55- 126.55	95.85
2 Dichlorodifluoromethane/Fr12					CAS #: 75-71-8		
5.903	5.903 (0.368)	85	1747	0.02000	0.02088	70.00- 130.00	100.00
5.903	5.903 (0.368)	87	555			0.00- 30.00	31.77
3 Freon 114					CAS #: 76-14-2		
7.253	7.253 (0.452)	135	1433	0.02000	0.02067	70.00- 130.00	100.00
7.229	7.229 (0.450)	137	465			0.00- 30.00	32.45
4 Chloromethane					CAS #: 74-87-3		
7.614	7.614 (0.474)	50	1089	0.02000	0.02359	70.00- 130.00	100.00(a)
7.614	7.614 (0.474)	52	289			0.00- 30.00	26.54
5 Vinyl Chloride					CAS #: 75-01-4		
8.454	8.454 (0.526)	62	867	0.02000	0.01995	70.00- 130.00	100.00
8.471	8.471 (0.527)	64	276			0.00- 59.23	31.83
16 1,1-Dichloroethene					CAS #: 75-35-4		
12.740	12.740 (0.793)	98	430	0.02000	0.02016	70.00- 130.00	100.00(M)
12.740	12.740 (0.793)	61	1759			0.00- 30.00	409.07
12.740	12.740 (0.793)	96	651			0.00- 30.00	151.40
23 trans-1,2-Dichloroethene					CAS #: 156-60-5		
14.167	14.167 (0.882)	98	411	0.02000	0.02022	70.00- 130.00	100.00(a)
14.167	14.167 (0.882)	61	1181			0.00- 30.00	287.35
14.167	14.167 (0.882)	96	624			0.00- 30.00	151.82
22 MTBE					CAS #: 1634-04-4		
14.112	14.112 (0.879)	73	2077	0.02000	0.02194	70.00- 130.00	100.00(a)
14.112	14.112 (0.879)	57	576			0.00- 30.00	27.73
14.112	14.112 (0.879)	41	516			0.00- 30.00	24.84
25 1,1-Dichloroethane					CAS #: 75-34-3		
14.881	14.881 (0.927)	63	1573	0.02000	0.02072	70.00- 130.00	100.00
14.881	14.881 (0.927)	65	450			0.00- 59.33	28.61
28 cis-1,2-Dichloroethene					CAS #: 156-59-2		
15.708	15.708 (0.978)	98	498	0.02000	0.02131	70.00- 130.00	100.00
15.708	15.708 (0.978)	61	1069			0.00- 30.00	214.66

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
28 cis-1,2-Dichloroethene (continued)							
15.708	15.708 (0.978)	96	651			0.00- 30.00	130.72
32 Chloroform					CAS #: 67-66-3		
16.122	16.122 (1.004)	85	924	0.02000	0.01898	70.00- 130.00	100.00(aM)
16.122	16.122 (1.004)	83	1451			124.09- 184.09	157.03
34 1,1,1-Trichloroethane					CAS #: 71-55-6		
16.368	16.368 (1.019)	97	1736	0.02000	0.02272	70.00- 130.00	100.00
16.368	16.368 (1.019)	99	1046			34.43- 94.43	60.25
35 Carbon Tetrachloride					CAS #: 56-23-5		
16.584	16.584 (1.033)	117	1318	0.02000	0.01796	70.00- 130.00	100.00(M)
16.584	16.584 (1.033)	119	1244			66.38- 126.38	94.39
36 Benzene					CAS #: 71-43-2		
16.915	16.915 (0.967)	78	3916	0.02000	0.03010	70.00- 130.00	100.00
16.915	16.915 (0.967)	77	931			0.00- 30.00	23.77
38 1,2-Dichloroethane					CAS #: 107-06-2		
17.031	17.031 (0.974)	62	1090	0.02000	0.01872	70.00- 130.00	100.00(a)
17.031	17.031 (0.974)	64	162			0.00- 30.00	14.86
41 Trichloroethene					CAS #: 79-01-6		
17.932	17.932 (1.025)	130	1199	0.02000	0.02009	70.00- 130.00	100.00
17.932	17.932 (1.025)	95	1107			62.73- 122.73	92.33
17.932	17.932 (1.025)	97	967			29.94- 89.94	80.65
48 Toluene					CAS #: 108-88-3		
20.417	20.417 (1.167)	91	2904	0.02000	0.02172	70.00- 130.00	100.00
20.417	20.417 (1.167)	92	1682			30.04- 90.04	57.92
50 1,1,2-Trichloroethane					CAS #: 79-00-5		
21.264	21.264 (0.931)	97	1017	0.02000	0.02055	70.00- 130.00	100.00
21.264	21.264 (0.931)	99	571			32.57- 92.57	56.15
21.264	21.264 (0.931)	83	810			53.31- 113.31	79.65
51 Tetrachloroethene					CAS #: 127-18-4		
21.426	21.426 (0.938)	166	1650	0.02000	0.02028	70.00- 130.00	100.00
21.426	21.426 (0.938)	129	1227			36.83- 96.83	74.36
21.426	21.426 (0.938)	131	1169			37.96- 97.96	70.85
55 1,2-Dibromoethane					CAS #: 106-93-4		
22.207	22.207 (0.972)	107	1503	0.02000	0.01925	70.00- 130.00	100.00
22.207	22.207 (0.972)	109	1470			64.59- 124.59	97.80

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
58 Ethyl Benzene					CAS #: 100-41-4		
22.967	22.967 (1.005)	106	1091	0.02000	0.02081	70.00- 130.00	100.00
22.967	22.967 (1.005)	91	3374			0.00- 30.00	309.26
59 m,p-Xylene					CAS #: 108-38-3		
23.135	23.135 (1.013)	106	1192	0.02000	0.02075	70.00- 130.00	100.00(a)
23.135	23.135 (1.013)	91	2469			0.00- 30.00	207.13
61 o-Xylene					CAS #: 95-47-6		
23.714	23.714 (1.038)	106	1175	0.02000	0.02112	70.00- 130.00	100.00
23.714	23.714 (1.038)	91	2307			174.80- 234.80	196.34
67 1,1,2,2-Tetrachloroethane					CAS #: 79-34-5		
24.620	24.620 (1.078)	83	2232	0.02000	0.02117	70.00- 130.00	100.00
24.620	24.620 (1.078)	85	1493			34.66- 94.66	66.89
73 1,4-Dichlorobenzene					CAS #: 106-46-7		
25.838	25.838 (1.131)	146	1880	0.02000	0.02109	70.00- 130.00	100.00
25.838	25.838 (1.131)	148	1170			0.00- 30.00	62.23
25.838	25.838 (1.131)	111	708			0.00- 30.00	37.66

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082609sim.d
Lab Smp Id: ICAL
Analysis Type: VOA
Quant Type: ISTD
Operator: sn
Method File: /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Misc Info: 0.02ppbv (0.05ppbv)

Calibration Date: 27-AUG-2013
Calibration Time: 08:15
Client Smp ID: Level 4
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	112630	67578	157682	96508	-14.31
40 1,4-Difluorobenze	493076	295846	690306	458848	-6.94
56 Chlorobenzene-d5	385996	231598	540394	370469	-4.02

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.09	15.76	16.42	16.06	-0.19
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msde.i/26Aug2013a.b/e082609sim.d

Date : 26-AUG-2013 18:40

Client ID: Level 4

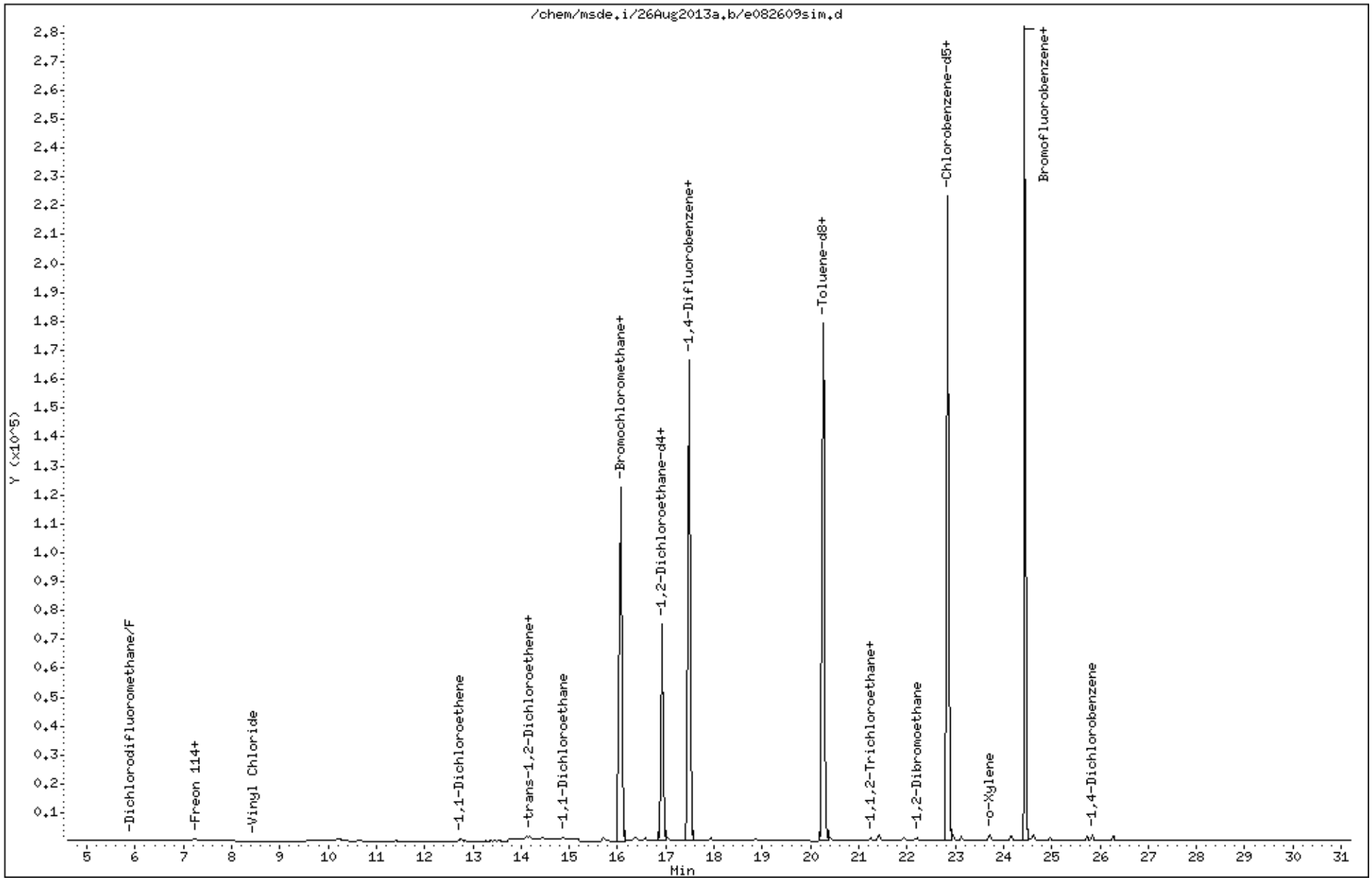
Instrument: msde.i

Sample Info: 100mL #2588-160

Operator: sn

Column phase: RTx-624

Column diameter: 0.53



Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/26Aug2013a.b/e082610sim.d
Lab Smp Id: ICAL Client Smp ID: Level 5
Inj Date : 26-AUG-2013 19:28
Operator : sn Inst ID: msde.i
Smp Info : 250mL #2588-160
Misc Info : 0.05ppbv (0.05ppbv)
Comment : SIM/ GC-MS
Method : /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Meth Date : 28-Aug-2013 08:45 sblack Quant Type: ISTD
Cal Date : 26-AUG-2013 19:28 Cal File: e082610sim.d
Als bottle: 1 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: HILOcrv.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				AMOUNTS			
				CAL-AMT	ON-COL		
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE	RATIO
* 31 Bromochloromethane						CAS #: 74-97-5	
16.060	16.060 (1.000)	130	97005	5.00000		70.00- 130.00	100.00
16.060	16.060 (1.000)	128	75599			0.00- 30.00	77.93
16.060	16.060 (1.000)	49	186886			0.00- 30.00	192.66
* 40 1,4-Difluorobenzene						CAS #: 540-36-3	
17.492	17.492 (1.000)	114	456202	5.00000		70.00- 130.00	100.00
17.492	17.492 (1.000)	88	72385			0.00- 45.47	15.87
* 56 Chlorobenzene-d5						CAS #: 3114-55-4	
22.846	22.846 (1.000)	117	367338	5.00000		70.00- 130.00	100.00
22.846	22.846 (1.000)	82	186703			0.00- 30.00	50.83
$ 37 1,2-Dichloroethane-d4						CAS #: 17060-07-0	
16.914	16.914 (1.053)	65	150490	5.00000	5.009	70.00- 130.00	100.00
16.914	16.914 (1.053)	67	72874			0.00- 30.00	48.42
$ 47 Toluene-d8						CAS #: 2037-26-5	
20.260	20.260 (1.158)	98	368565	5.00000	5.008	70.00- 130.00	100.00
20.260	20.260 (1.158)	70	42793			0.00- 41.47	11.61

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
$ 47 Toluene-d8 (continued)							
20.260	20.260 (1.158)	100	256537			40.11- 100.11	69.60
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.440	24.440 (1.070)	174	206785	5.00000	5.063	70.00- 130.00	100.00
24.440	24.440 (1.070)	95	230700			79.71- 139.71	111.57
24.465	24.465 (1.071)	176	198319			66.55- 126.55	95.91
2 Dichlorodifluoromethane/Fr12					CAS #: 75-71-8		
5.903	5.903 (0.368)	85	4181	0.05000	0.04972	70.00- 130.00	100.00
5.903	5.903 (0.368)	87	1439			0.00- 30.00	34.42
3 Freon 114					CAS #: 76-14-2		
7.228	7.228 (0.450)	135	3460	0.05000	0.04965	70.00- 130.00	100.00
7.228	7.228 (0.450)	137	1172			0.00- 30.00	33.87
4 Chloromethane					CAS #: 74-87-3		
7.614	7.614 (0.474)	50	2380	0.05000	0.05129	70.00- 130.00	100.00
7.614	7.614 (0.474)	52	718			0.00- 30.00	30.17
5 Vinyl Chloride					CAS #: 75-01-4		
8.454	8.454 (0.526)	62	2138	0.05000	0.04895	70.00- 130.00	100.00
8.454	8.454 (0.526)	64	612			0.00- 59.23	28.62
10 Chloroethane					CAS #: 75-00-3		
10.646	10.646 (0.663)	64	1084	0.05000	0.04950	70.00- 130.00	100.00
10.646	10.646 (0.663)	66	299			0.00- 30.00	27.58
16 1,1-Dichloroethene					CAS #: 75-35-4		
12.740	12.740 (0.793)	98	1009	0.05000	0.04706	70.00- 130.00	100.00(M)
12.740	12.740 (0.793)	61	3470			0.00- 30.00	343.90
12.740	12.740 (0.793)	96	1670			0.00- 30.00	165.51
23 trans-1,2-Dichloroethene					CAS #: 156-60-5		
14.167	14.167 (0.882)	98	989	0.05000	0.04840	70.00- 130.00	100.00
14.167	14.167 (0.882)	61	2927			0.00- 30.00	295.96
14.167	14.167 (0.882)	96	1774			0.00- 30.00	179.37
22 MTBE					CAS #: 1634-04-4		
14.112	14.112 (0.879)	73	4548	0.05000	0.04780	70.00- 130.00	100.00
14.112	14.112 (0.879)	57	1398			0.00- 30.00	30.74
14.112	14.112 (0.879)	41	1228			0.00- 30.00	27.00
25 1,1-Dichloroethane					CAS #: 75-34-3		
14.881	14.881 (0.927)	63	3688	0.05000	0.04832	70.00- 130.00	100.00
14.881	14.881 (0.927)	65	1111			0.00- 59.33	30.12

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
28 cis-1,2-Dichloroethene					CAS #: 156-59-2		
15.708	15.708 (0.978)	98	1131	0.05000	0.04814	70.00- 130.00	100.00(M)
15.708	15.708 (0.978)	61	2701			0.00- 30.00	238.82
15.708	15.708 (0.978)	96	1712			0.00- 30.00	151.37
32 Chloroform					CAS #: 67-66-3		
16.121	16.121 (1.004)	85	2656	0.05000	0.05427	70.00- 130.00	100.00
16.121	16.121 (1.004)	83	3532			124.09- 184.09	132.98
34 1,1,1-Trichloroethane					CAS #: 71-55-6		
16.368	16.368 (1.019)	97	3824	0.05000	0.04979	70.00- 130.00	100.00
16.368	16.368 (1.019)	99	2446			34.43- 94.43	63.96
35 Carbon Tetrachloride					CAS #: 56-23-5		
16.584	16.584 (1.033)	117	3216	0.05000	0.04361	70.00- 130.00	100.00(M)
16.584	16.584 (1.033)	119	3782			66.38- 126.38	117.60
36 Benzene					CAS #: 71-43-2		
16.914	16.914 (0.967)	78	8226	0.05000	0.06361	70.00- 130.00	100.00
16.914	16.914 (0.967)	77	1861			0.00- 30.00	22.62
38 1,2-Dichloroethane					CAS #: 107-06-2		
17.031	17.031 (0.974)	62	2690	0.05000	0.04646	70.00- 130.00	100.00
17.031	17.031 (0.974)	64	519			0.00- 30.00	19.29
41 Trichloroethene					CAS #: 79-01-6		
17.931	17.931 (1.025)	130	2687	0.05000	0.04527	70.00- 130.00	100.00
17.931	17.931 (1.025)	95	2412			62.73- 122.73	89.77
17.931	17.931 (1.025)	97	1957			29.94- 89.94	72.83
48 Toluene					CAS #: 108-88-3		
20.417	20.417 (1.167)	91	6728	0.05000	0.05062	70.00- 130.00	100.00
20.417	20.417 (1.167)	92	4274			30.04- 90.04	63.53
50 1,1,2-Trichloroethane					CAS #: 79-00-5		
21.264	21.264 (0.931)	97	2377	0.05000	0.04845	70.00- 130.00	100.00
21.264	21.264 (0.931)	99	1480			32.57- 92.57	62.26
21.264	21.264 (0.931)	83	2245			53.31- 113.31	94.45
51 Tetrachloroethene					CAS #: 127-18-4		
21.426	21.426 (0.938)	166	3841	0.05000	0.04761	70.00- 130.00	100.00
21.426	21.426 (0.938)	129	2634			36.83- 96.83	68.58
21.426	21.426 (0.938)	131	2662			37.96- 97.96	69.30
55 1,2-Dibromoethane					CAS #: 106-93-4		
22.207	22.207 (0.972)	107	3632	0.05000	0.04692	70.00- 130.00	100.00

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
55 1,2-Dibromoethane (continued)							
22.207	22.207 (0.972)	109	3585			64.59- 124.59	98.71
58 Ethyl Benzene					CAS #: 100-41-4		
22.967	22.967 (1.005)	106	2598	0.05000	0.04998	70.00- 130.00	100.00
22.967	22.967 (1.005)	91	8374			0.00- 30.00	322.32
59 m,p-Xylene					CAS #: 108-38-3		
23.135	23.135 (1.013)	106	2954	0.05000	0.05187	70.00- 130.00	100.00
23.135	23.135 (1.013)	91	5754			0.00- 30.00	194.79
61 o-Xylene					CAS #: 95-47-6		
23.714	23.714 (1.038)	106	2797	0.05000	0.05069	70.00- 130.00	100.00
23.714	23.714 (1.038)	91	5773			174.80- 234.80	206.40
67 1,1,2,2-Tetrachloroethane					CAS #: 79-34-5		
24.620	24.620 (1.078)	83	5217	0.05000	0.04990	70.00- 130.00	100.00
24.620	24.620 (1.078)	85	3331			34.66- 94.66	63.85
73 1,4-Dichlorobenzene					CAS #: 106-46-7		
25.841	25.841 (1.131)	146	4536	0.05000	0.05132	70.00- 130.00	100.00
25.841	25.841 (1.131)	148	2872			0.00- 30.00	63.32
25.841	25.841 (1.131)	111	1666			0.00- 30.00	36.73
78 Naphthalene					CAS #: 91-20-3		
28.397	28.397 (1.243)	128	708	0.00500	0.006516	70.00- 130.00	100.00
28.397	28.397 (1.243)	127	63			0.00- 30.00	8.90

QC Flag Legend

M - Compound response manually integrated.

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082610sim.d
Lab Smp Id: ICAL
Analysis Type: VOA
Quant Type: ISTD
Operator: sn
Method File: /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Misc Info: 0.05ppbv (0.05ppbv)

Calibration Date: 27-AUG-2013
Calibration Time: 08:15
Client Smp ID: Level 5
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	112630	67578	157682	97005	-13.87
40 1,4-Difluorobenze	493076	295846	690306	456202	-7.48
56 Chlorobenzene-d5	385996	231598	540394	367338	-4.83

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.09	15.76	16.42	16.06	-0.19
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msde.i/26Aug2013a.b/e082610sim.d

Date : 26-AUG-2013 19:28

Client ID: Level 5

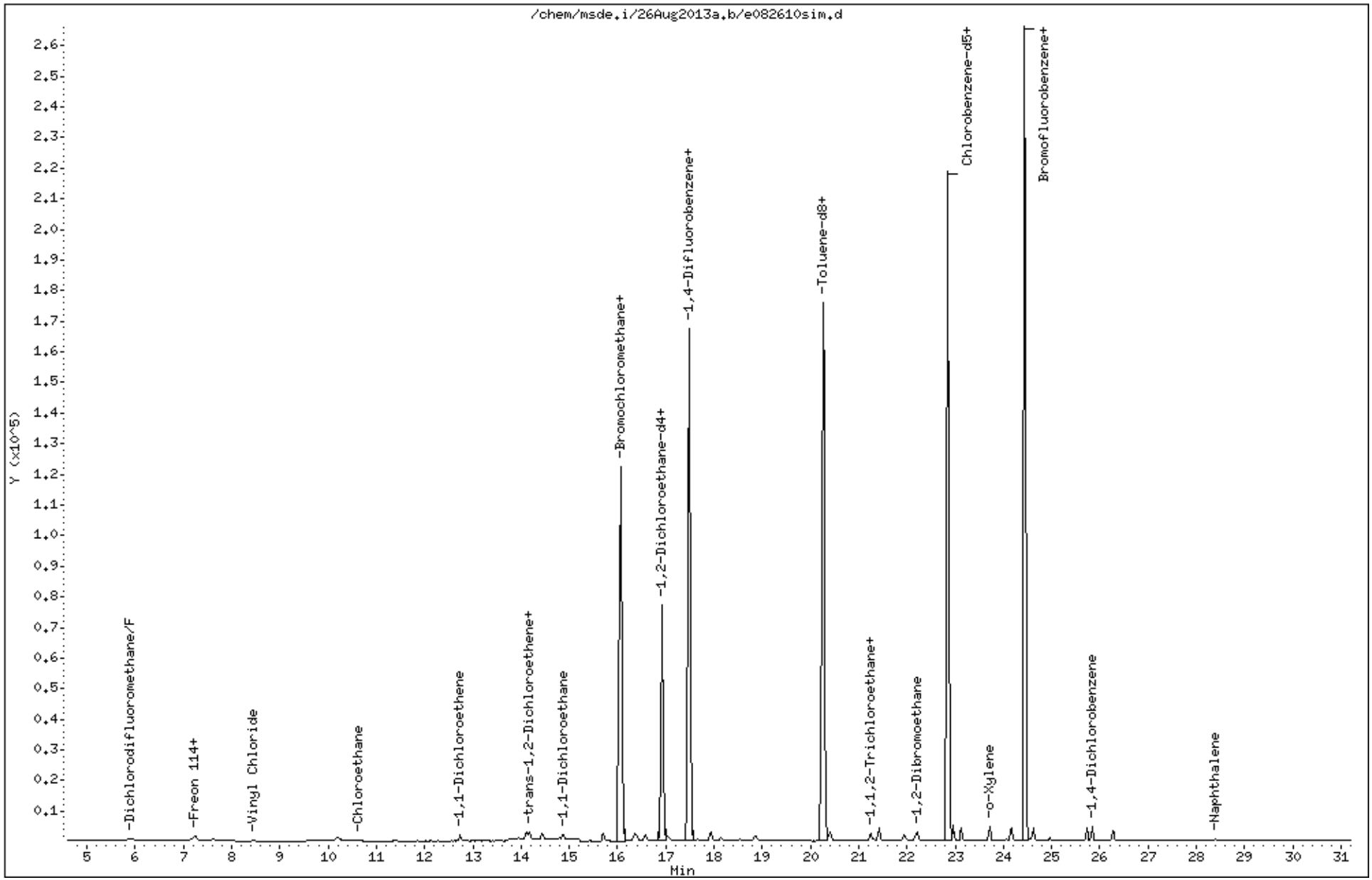
Instrument: msde.i

Sample Info: 250mL #2588-160

Operator: sn

Column phase: RTx-624

Column diameter: 0.53



Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/26Aug2013a.b/e082611sim.d
Lab Smp Id: ICAL Client Smp ID: Level 6
Inj Date : 26-AUG-2013 20:20
Operator : sn Inst ID: msde.i
Smp Info : 25mL #2588-161
Misc Info : 0.10ppbv (1.0ppbv)
Comment : SIM/ GC-MS
Method : /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Meth Date : 28-Aug-2013 08:45 sblack Quant Type: ISTD
Cal Date : 26-AUG-2013 20:20 Cal File: e082611sim.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: HILOcrv.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				AMOUNTS			
				CAL-AMT	ON-COL		
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE	RATIO
==	====== ========	====	========	=======	=======	==========	=====
* 31 Bromochloromethane					CAS #: 74-97-5		
16.060	16.060 (1.000)	130	94147	5.00000		70.00- 130.00	100.00
16.060	16.060 (1.000)	128	73758			0.00- 30.00	78.34
16.060	16.060 (1.000)	49	181885			0.00- 30.00	193.19
* 40 1,4-Difluorobenzene					CAS #: 540-36-3		
17.492	17.492 (1.000)	114	449627	5.00000		70.00- 130.00	100.00
17.492	17.492 (1.000)	88	71170			0.00- 45.47	15.83
* 56 Chlorobenzene-d5					CAS #: 3114-55-4		
22.846	22.846 (1.000)	117	361730	5.00000		70.00- 130.00	100.00
22.846	22.846 (1.000)	82	185061			0.00- 30.00	51.16
$ 37 1,2-Dichloroethane-d4					CAS #: 17060-07-0		
16.915	16.915 (1.053)	65	146685	5.00000	5.030	70.00- 130.00	100.00
16.915	16.915 (1.053)	67	71188			0.00- 30.00	48.53
$ 47 Toluene-d8					CAS #: 2037-26-5		
20.260	20.260 (1.158)	98	364993	5.00000	5.032	70.00- 130.00	100.00
20.260	20.260 (1.158)	70	41997			0.00- 41.47	11.51

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
$ 47 Toluene-d8 (continued)							
20.260	20.260 (1.158)	100	253432			40.11- 100.11	69.43
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.440	24.440 (1.070)	174	203931	5.00000	5.071	70.00- 130.00	100.00
24.440	24.440 (1.070)	95	226845			79.71- 139.71	111.24
24.466	24.466 (1.071)	176	195578			66.55- 126.55	95.90
2 Dichlorodifluoromethane/Fr12					CAS #: 75-71-8		
5.879	5.879 (0.366)	85	9964	0.10000	0.1221	70.00- 130.00	100.00
5.903	5.903 (0.368)	87	3262			0.00- 30.00	32.74
3 Freon 114					CAS #: 76-14-2		
7.229	7.229 (0.450)	135	8047	0.10000	0.1190	70.00- 130.00	100.00
7.229	7.229 (0.450)	137	2626			0.00- 30.00	32.63
4 Chloromethane					CAS #: 74-87-3		
7.614	7.614 (0.474)	50	5573	0.10000	0.1237	70.00- 130.00	100.00
7.614	7.614 (0.474)	52	1793			0.00- 30.00	32.17
5 Vinyl Chloride					CAS #: 75-01-4		
8.454	8.454 (0.526)	62	5044	0.10000	0.1190	70.00- 130.00	100.00
8.454	8.454 (0.526)	64	1273			0.00- 59.23	25.24
10 Chloroethane					CAS #: 75-00-3		
10.646	10.646 (0.663)	64	2623	0.10000	0.1234	70.00- 130.00	100.00
10.646	10.646 (0.663)	66	762			0.00- 30.00	29.05
16 1,1-Dichloroethene					CAS #: 75-35-4		
12.740	12.740 (0.793)	98	2315	0.10000	0.1112	70.00- 130.00	100.00
12.740	12.740 (0.793)	61	7836			0.00- 30.00	338.49
12.740	12.740 (0.793)	96	3656			0.00- 30.00	157.93
23 trans-1,2-Dichloroethene					CAS #: 156-60-5		
14.167	14.167 (0.882)	98	2284	0.10000	0.1152	70.00- 130.00	100.00
14.167	14.167 (0.882)	61	6811			0.00- 30.00	298.20
14.167	14.167 (0.882)	96	3573			0.00- 30.00	156.44
22 MTBE					CAS #: 1634-04-4		
14.112	14.112 (0.879)	73	10670	0.10000	0.1155	70.00- 130.00	100.00
14.112	14.112 (0.879)	57	3380			0.00- 30.00	31.68
14.112	14.112 (0.879)	41	2854			0.00- 30.00	26.75
25 1,1-Dichloroethane					CAS #: 75-34-3		
14.881	14.881 (0.927)	63	8730	0.10000	0.1178	70.00- 130.00	100.00
14.881	14.881 (0.927)	65	3077			0.00- 59.33	35.25

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
28 cis-1,2-Dichloroethene					CAS #: 156-59-2		
15.708	15.708 (0.978)	98	2669	0.10000	0.1170	70.00- 130.00	100.00
15.708	15.708 (0.978)	61	6622			0.00- 30.00	248.11
15.708	15.708 (0.978)	96	4038			0.00- 30.00	151.29
32 Chloroform					CAS #: 67-66-3		
16.122	16.122 (1.004)	85	5289	0.10000	0.1114	70.00- 130.00	100.00
16.122	16.122 (1.004)	83	8153			124.09- 184.09	154.15
34 1,1,1-Trichloroethane					CAS #: 71-55-6		
16.368	16.368 (1.019)	97	8570	0.10000	0.1150	70.00- 130.00	100.00
16.368	16.368 (1.019)	99	5435			34.43- 94.43	63.42
35 Carbon Tetrachloride					CAS #: 56-23-5		
16.584	16.584 (1.033)	117	8909	0.10000	0.1245	70.00- 130.00	100.00
16.584	16.584 (1.033)	119	8651			66.38- 126.38	97.10
36 Benzene					CAS #: 71-43-2		
16.915	16.915 (0.967)	78	13324	0.10000	0.1045	70.00- 130.00	100.00
16.915	16.915 (0.967)	77	3022			0.00- 30.00	22.68
38 1,2-Dichloroethane					CAS #: 107-06-2		
17.031	17.031 (0.974)	62	6365	0.10000	0.1115	70.00- 130.00	100.00
17.031	17.031 (0.974)	64	1643			0.00- 30.00	25.81
41 Trichloroethene					CAS #: 79-01-6		
17.932	17.932 (1.025)	130	6033	0.10000	0.1031	70.00- 130.00	100.00
17.932	17.932 (1.025)	95	5578			62.73- 122.73	92.46
17.932	17.932 (1.025)	97	3685			29.94- 89.94	61.08
48 Toluene					CAS #: 108-88-3		
20.417	20.417 (1.167)	91	15572	0.10000	0.1189	70.00- 130.00	100.00
20.417	20.417 (1.167)	92	8980			30.04- 90.04	57.67
50 1,1,2-Trichloroethane					CAS #: 79-00-5		
21.264	21.264 (0.931)	97	5665	0.10000	0.1172	70.00- 130.00	100.00
21.264	21.264 (0.931)	99	3672			32.57- 92.57	64.82
21.264	21.264 (0.931)	83	4845			53.31- 113.31	85.53
51 Tetrachloroethene					CAS #: 127-18-4		
21.426	21.426 (0.938)	166	8503	0.10000	0.1070	70.00- 130.00	100.00
21.426	21.426 (0.938)	129	5820			36.83- 96.83	68.45
21.426	21.426 (0.938)	131	5914			37.96- 97.96	69.55
55 1,2-Dibromoethane					CAS #: 106-93-4		
22.207	22.207 (0.972)	107	8154	0.10000	0.1070	70.00- 130.00	100.00

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
55 1,2-Dibromoethane (continued)							
22.207	22.207 (0.972)	109	7885			64.59- 124.59	96.70
58 Ethyl Benzene					CAS #: 100-41-4		
22.967	22.967 (1.005)	106	5912	0.10000	0.1155	70.00- 130.00	100.00
22.967	22.967 (1.005)	91	18748			0.00- 30.00	317.12
59 m,p-Xylene					CAS #: 108-38-3		
23.135	23.135 (1.013)	106	6568	0.10000	0.1171	70.00- 130.00	100.00
23.135	23.135 (1.013)	91	12847			0.00- 30.00	195.60
61 o-Xylene					CAS #: 95-47-6		
23.714	23.714 (1.038)	106	6290	0.10000	0.1158	70.00- 130.00	100.00
23.714	23.714 (1.038)	91	13077			174.80- 234.80	207.90
67 1,1,2,2-Tetrachloroethane					CAS #: 79-34-5		
24.620	24.620 (1.078)	83	11695	0.10000	0.1136	70.00- 130.00	100.00
24.620	24.620 (1.078)	85	7543			34.66- 94.66	64.50
73 1,4-Dichlorobenzene					CAS #: 106-46-7		
25.838	25.838 (1.131)	146	9904	0.10000	0.1138	70.00- 130.00	100.00
25.838	25.838 (1.131)	148	6371			0.00- 30.00	64.33
25.838	25.838 (1.131)	111	3679			0.00- 30.00	37.15
78 Naphthalene					CAS #: 91-20-3		
28.416	28.416 (1.244)	128	1577	0.01000	0.01474	70.00- 130.00	100.00
28.416	28.416 (1.244)	127	255			0.00- 30.00	16.17

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082611sim.d
Lab Smp Id: ICAL
Analysis Type: VOA
Quant Type: ISTD
Operator: sn
Method File: /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Misc Info: 0.10ppbv (1.0ppbv)

Calibration Date: 27-AUG-2013
Calibration Time: 08:15
Client Smp ID: Level 6
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	112630	67578	157682	94147	-16.41
40 1,4-Difluorobenze	493076	295846	690306	449627	-8.81
56 Chlorobenzene-d5	385996	231598	540394	361730	-6.29

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.09	15.76	16.42	16.06	-0.19
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msde.i/26Aug2013a.b/e082611sim.d

Date : 26-AUG-2013 20:20

Client ID: Level 6

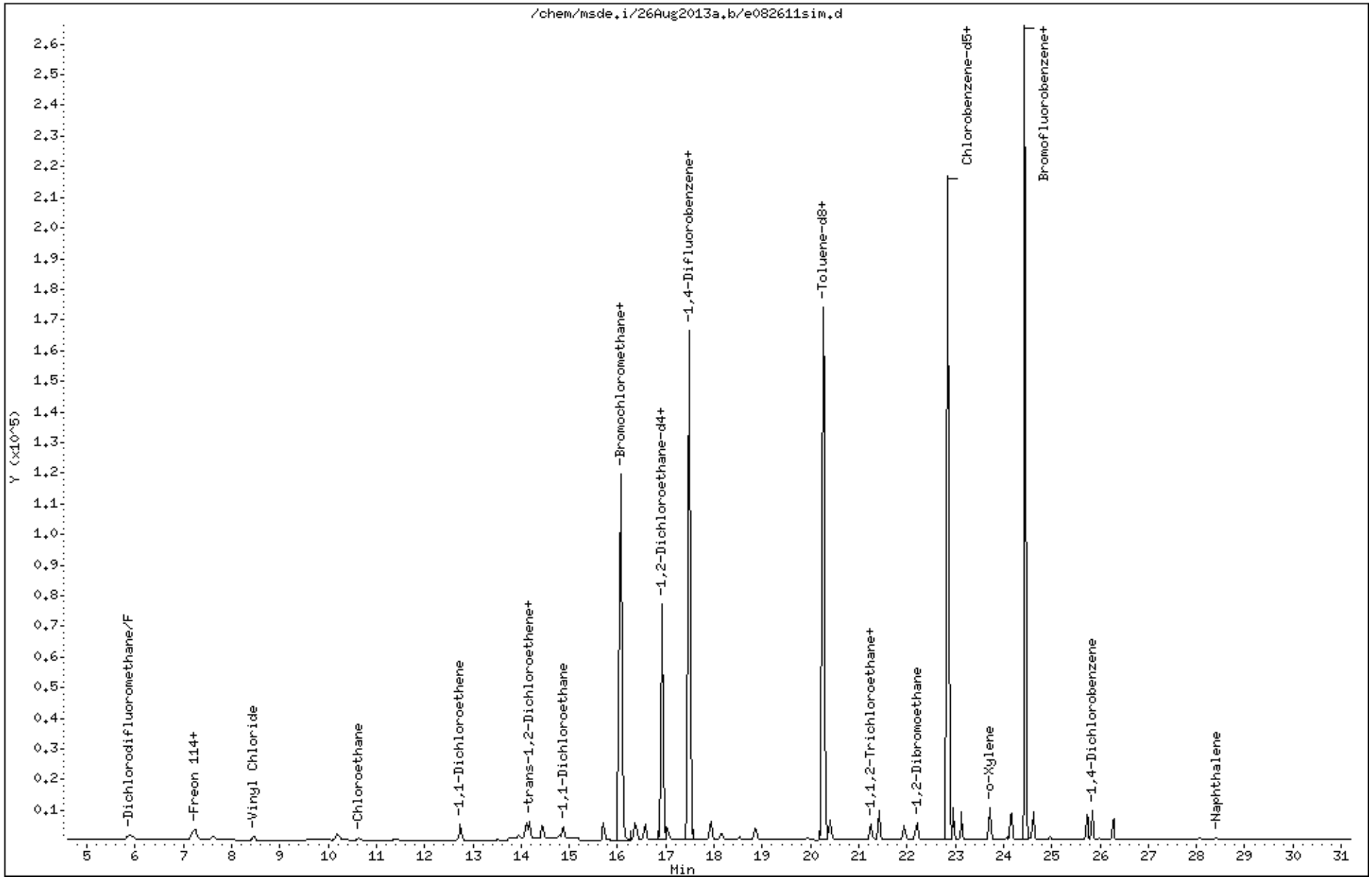
Instrument: msde.i

Sample Info: 25mL #2588-161

Operator: sn

Column phase: RTx-624

Column diameter: 0.53



Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/26Aug2013a.b/e082612sim.d
Lab Smp Id: ICAL Client Smp ID: Level 7
Inj Date : 26-AUG-2013 21:07
Operator : sn Inst ID: msde.i
Smp Info : 125mL #2588-161
Misc Info : 0.50ppbv (1.0ppbv)
Comment : SIM/ GC-MS
Method : /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Meth Date : 28-Aug-2013 08:45 sblack Quant Type: ISTD
Cal Date : 26-AUG-2013 21:07 Cal File: e082612sim.d
Als bottle: 1 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: HILOcrv.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				AMOUNTS			
				CAL-AMT	ON-COL		
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE	RATIO
==	====== ========	====	========	=======	=======	==========	=====
* 31 Bromochloromethane						CAS #: 74-97-5	
16.060	16.060 (1.000)	130	95557	5.00000		70.00- 130.00	100.00
16.060	16.060 (1.000)	128	74639			0.00- 30.00	78.11
16.060	16.060 (1.000)	49	193434			0.00- 30.00	202.43
* 40 1,4-Difluorobenzene						CAS #: 540-36-3	
17.492	17.492 (1.000)	114	453606	5.00000		70.00- 130.00	100.00
17.492	17.492 (1.000)	88	72006			0.00- 45.47	15.87
* 56 Chlorobenzene-d5						CAS #: 3114-55-4	
22.846	22.846 (1.000)	117	361222	5.00000		70.00- 130.00	100.00
22.846	22.846 (1.000)	82	184708			0.00- 30.00	51.13
$ 37 1,2-Dichloroethane-d4						CAS #: 17060-07-0	
16.915	16.915 (1.053)	65	149074	5.00000	5.037	70.00- 130.00	100.00
16.915	16.915 (1.053)	67	72395			0.00- 30.00	48.56
$ 47 Toluene-d8						CAS #: 2037-26-5	
20.260	20.260 (1.158)	98	362227	5.00000	4.950	70.00- 130.00	100.00
20.260	20.260 (1.158)	70	42185			0.00- 41.47	11.65

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
$ 47 Toluene-d8 (continued)							
20.260	20.260 (1.158)	100	251684			40.11- 100.11	69.48
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.440	24.440 (1.070)	174	201192	5.00000	5.010	70.00- 130.00	100.00
24.440	24.440 (1.070)	95	221921			79.71- 139.71	110.30
24.466	24.466 (1.071)	176	193734			66.55- 126.55	96.29
2 Dichlorodifluoromethane/Fr12					CAS #: 75-71-8		
5.903	5.903 (0.368)	85	41094	0.50000	0.4961	70.00- 130.00	100.00
5.903	5.903 (0.368)	87	13263			0.00- 30.00	32.27
3 Freon 114					CAS #: 76-14-2		
7.229	7.229 (0.450)	135	34035	0.50000	0.4958	70.00- 130.00	100.00
7.229	7.229 (0.450)	137	10868			0.00- 30.00	31.93
4 Chloromethane					CAS #: 74-87-3		
7.614	7.614 (0.474)	50	22058	0.50000	0.4825	70.00- 130.00	100.00
7.614	7.614 (0.474)	52	7040			0.00- 30.00	31.92
5 Vinyl Chloride					CAS #: 75-01-4		
8.454	8.454 (0.526)	62	20628	0.50000	0.4795	70.00- 130.00	100.00
8.454	8.454 (0.526)	64	6053			0.00- 59.23	29.34
10 Chloroethane					CAS #: 75-00-3		
10.646	10.646 (0.663)	64	10694	0.50000	0.4957	70.00- 130.00	100.00
10.646	10.646 (0.663)	66	3439			0.00- 30.00	32.16
16 1,1-Dichloroethene					CAS #: 75-35-4		
12.740	12.740 (0.793)	98	10025	0.50000	0.4747	70.00- 130.00	100.00
12.740	12.740 (0.793)	61	32323			0.00- 30.00	322.42
12.740	12.740 (0.793)	96	15372			0.00- 30.00	153.34
23 trans-1,2-Dichloroethene					CAS #: 156-60-5		
14.167	14.167 (0.882)	98	10004	0.50000	0.4970	70.00- 130.00	100.00
14.167	14.167 (0.882)	61	28993			0.00- 30.00	289.81
14.167	14.167 (0.882)	96	15636			0.00- 30.00	156.30
22 MTBE					CAS #: 1634-04-4		
14.112	14.112 (0.879)	73	44843	0.50000	0.4784	70.00- 130.00	100.00
14.112	14.112 (0.879)	57	14430			0.00- 30.00	32.18
14.085	14.085 (0.877)	41	12306			0.00- 30.00	27.44
25 1,1-Dichloroethane					CAS #: 75-34-3		
14.881	14.881 (0.927)	63	36875	0.50000	0.4905	70.00- 130.00	100.00
14.881	14.881 (0.927)	65	10766			0.00- 59.33	29.20

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
28 cis-1,2-Dichloroethene						CAS #: 156-59-2	
15.708	15.708 (0.978)	98	11265	0.50000	0.4868	70.00- 130.00	100.00
15.708	15.708 (0.978)	61	29262			0.00- 30.00	259.76
15.708	15.708 (0.978)	96	17809			0.00- 30.00	158.09
32 Chloroform						CAS #: 67-66-3	
16.122	16.122 (1.004)	85	22755	0.50000	0.4720	70.00- 130.00	100.00
16.122	16.122 (1.004)	83	34785			124.09- 184.09	152.87
34 1,1,1-Trichloroethane						CAS #: 71-55-6	
16.368	16.368 (1.019)	97	36931	0.50000	0.4881	70.00- 130.00	100.00
16.368	16.368 (1.019)	99	23705			34.43- 94.43	64.19
35 Carbon Tetrachloride						CAS #: 56-23-5	
16.584	16.584 (1.033)	117	36923	0.50000	0.5083	70.00- 130.00	100.00
16.584	16.584 (1.033)	119	35499			66.38- 126.38	96.14
36 Benzene						CAS #: 71-43-2	
16.915	16.915 (0.967)	78	54238	0.50000	0.4218	70.00- 130.00	100.00
16.915	16.915 (0.967)	77	12478			0.00- 30.00	23.01
38 1,2-Dichloroethane						CAS #: 107-06-2	
17.031	17.031 (0.974)	62	28097	0.50000	0.4880	70.00- 130.00	100.00
17.031	17.031 (0.974)	64	8052			0.00- 30.00	28.66
41 Trichloroethene						CAS #: 79-01-6	
17.932	17.932 (1.025)	130	26016	0.50000	0.4409	70.00- 130.00	100.00
17.932	17.932 (1.025)	95	24202			62.73- 122.73	93.03
17.932	17.932 (1.025)	97	15767			29.94- 89.94	60.61
48 Toluene						CAS #: 108-88-3	
20.417	20.417 (1.167)	91	63855	0.50000	0.4832	70.00- 130.00	100.00
20.417	20.417 (1.167)	92	38087			30.04- 90.04	59.65
50 1,1,2-Trichloroethane						CAS #: 79-00-5	
21.264	21.264 (0.931)	97	23291	0.50000	0.4828	70.00- 130.00	100.00
21.264	21.264 (0.931)	99	14989			32.57- 92.57	64.36
21.264	21.264 (0.931)	83	19904			53.31- 113.31	85.46
51 Tetrachloroethene						CAS #: 127-18-4	
21.426	21.426 (0.938)	166	36012	0.50000	0.4539	70.00- 130.00	100.00
21.426	21.426 (0.938)	129	24414			36.83- 96.83	67.79
21.426	21.426 (0.938)	131	24785			37.96- 97.96	68.82
55 1,2-Dibromoethane						CAS #: 106-93-4	
22.207	22.207 (0.972)	107	36476	0.50000	0.4792	70.00- 130.00	100.00

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
55 1,2-Dibromoethane (continued)							
22.207	22.207 (0.972)	109	34410			64.59- 124.59	94.34
58 Ethyl Benzene					CAS #: 100-41-4		
22.967	22.967 (1.005)	106	25135	0.50000	0.4917	70.00- 130.00	100.00
22.967	22.967 (1.005)	91	77765			0.00- 30.00	309.39
59 m,p-Xylene					CAS #: 108-38-3		
23.135	23.135 (1.013)	106	27059	0.50000	0.4831	70.00- 130.00	100.00
23.135	23.135 (1.013)	91	53115			0.00- 30.00	196.29
61 o-Xylene					CAS #: 95-47-6		
23.714	23.714 (1.038)	106	26168	0.50000	0.4823	70.00- 130.00	100.00
23.714	23.714 (1.038)	91	54200			174.80- 234.80	207.12
67 1,1,2,2-Tetrachloroethane					CAS #: 79-34-5		
24.620	24.620 (1.078)	83	48476	0.50000	0.4715	70.00- 130.00	100.00
24.620	24.620 (1.078)	85	31364			34.66- 94.66	64.70
73 1,4-Dichlorobenzene					CAS #: 106-46-7		
25.838	25.838 (1.131)	146	39417	0.50000	0.4535	70.00- 130.00	100.00
25.838	25.838 (1.131)	148	25235			0.00- 30.00	64.02
25.838	25.838 (1.131)	111	15025			0.00- 30.00	38.12
78 Naphthalene					CAS #: 91-20-3		
28.416	28.416 (1.244)	128	5501	0.05000	0.05148	70.00- 130.00	100.00
28.393	28.393 (1.243)	127	687			0.00- 30.00	12.49

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082612sim.d
Lab Smp Id: ICAL
Analysis Type: VOA
Quant Type: ISTD
Operator: sn
Method File: /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Misc Info: 0.50ppbv (1.0ppbv)

Calibration Date: 27-AUG-2013
Calibration Time: 08:15
Client Smp ID: Level 7
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	112630	67578	157682	95557	-15.16
40 1,4-Difluorobenze	493076	295846	690306	453606	-8.00
56 Chlorobenzene-d5	385996	231598	540394	361222	-6.42

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.09	15.76	16.42	16.06	-0.19
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msde.i/26Aug2013a.b/e082612sim.d

Date : 26-AUG-2013 21:07

Client ID: Level 7

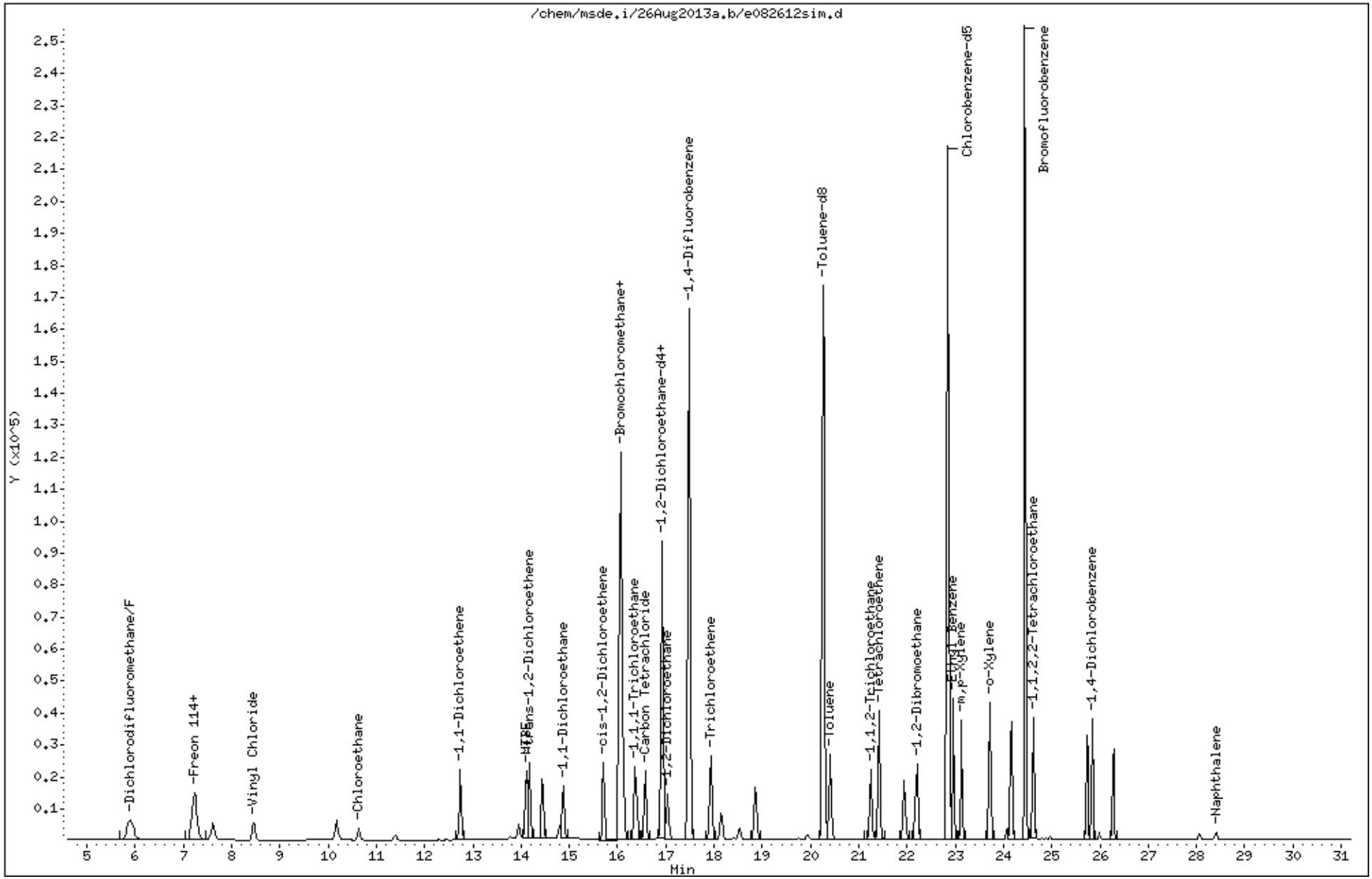
Instrument: msde.i

Sample Info: 125mL #2588-161

Operator: sn

Column phase: RTx-624

Column diameter: 0.53



Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/26Aug2013a.b/e082613sim.d
Lab Smp Id: ICAL Client Smp ID: Level 8
Inj Date : 26-AUG-2013 22:01
Operator : sn Inst ID: msde.i
Smp Info : 250mL #2588-161
Misc Info : 1.0ppbv (1.0ppbv)
Comment : SIM/ GC-MS
Method : /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Meth Date : 28-Aug-2013 08:45 sblack Quant Type: ISTD
Cal Date : 26-AUG-2013 22:01 Cal File: e082613sim.d
Als bottle: 1 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: HILOcrv.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				AMOUNTS			
				CAL-AMT	ON-COL		
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE	RATIO
==	====== ========	====	========	=======	=======	==========	=====
* 31 Bromochloromethane						CAS #: 74-97-5	
16.060	16.060 (1.000)	130	98667	5.00000		70.00- 130.00	100.00
16.060	16.060 (1.000)	128	77049			0.00- 30.00	78.09
16.060	16.060 (1.000)	49	200917			0.00- 30.00	203.63
* 40 1,4-Difluorobenzene						CAS #: 540-36-3	
17.492	17.492 (1.000)	114	463771	5.00000		70.00- 130.00	100.00
17.492	17.492 (1.000)	88	73246			0.00- 45.47	15.79
* 56 Chlorobenzene-d5						CAS #: 3114-55-4	
22.846	22.846 (1.000)	117	364782	5.00000		70.00- 130.00	100.00
22.846	22.846 (1.000)	82	184649			0.00- 30.00	50.62
$ 37 1,2-Dichloroethane-d4						CAS #: 17060-07-0	
16.915	16.915 (1.053)	65	154915	5.00000	5.069	70.00- 130.00	100.00
16.915	16.915 (1.053)	67	74209			0.00- 30.00	47.90
$ 47 Toluene-d8						CAS #: 2037-26-5	
20.260	20.260 (1.158)	98	365487	5.00000	4.885	70.00- 130.00	100.00
20.260	20.260 (1.158)	70	42220			0.00- 41.47	11.55

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
$ 47 Toluene-d8 (continued)							
20.260	20.260 (1.158)	100	254090			40.11- 100.11	69.52
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.466	24.466 (1.071)	174	202542	5.00000	4.994	70.00- 130.00	100.00
24.440	24.440 (1.070)	95	223501			79.71- 139.71	110.35
24.466	24.466 (1.071)	176	194741			66.55- 126.55	96.15
2 Dichlorodifluoromethane/Fr12					CAS #: 75-71-8		
5.903	5.903 (0.368)	85	80558	1.00000	0.9418	70.00- 130.00	100.00
5.903	5.903 (0.368)	87	26187			0.00- 30.00	32.51
3 Freon 114					CAS #: 76-14-2		
7.229	7.229 (0.450)	135	67906	1.00000	0.9580	70.00- 130.00	100.00
7.229	7.229 (0.450)	137	21823			0.00- 30.00	32.14
4 Chloromethane					CAS #: 74-87-3		
7.614	7.614 (0.474)	50	42664	1.00000	0.9039	70.00- 130.00	100.00
7.614	7.614 (0.474)	52	13820			0.00- 30.00	32.39
5 Vinyl Chloride					CAS #: 75-01-4		
8.454	8.454 (0.526)	62	40588	1.00000	0.9137	70.00- 130.00	100.00
8.454	8.454 (0.526)	64	12250			0.00- 59.23	30.18
10 Chloroethane					CAS #: 75-00-3		
10.625	10.625 (0.662)	64	20604	1.00000	0.9250	70.00- 130.00	100.00
10.625	10.625 (0.662)	66	5996			0.00- 30.00	29.10
16 1,1-Dichloroethene					CAS #: 75-35-4		
12.740	12.740 (0.793)	98	19487	1.00000	0.8936	70.00- 130.00	100.00
12.740	12.740 (0.793)	61	64311			0.00- 30.00	330.02
12.740	12.740 (0.793)	96	30761			0.00- 30.00	157.85
23 trans-1,2-Dichloroethene					CAS #: 156-60-5		
14.167	14.167 (0.882)	98	19945	1.00000	0.9597	70.00- 130.00	100.00
14.167	14.167 (0.882)	61	58144			0.00- 30.00	291.52
14.167	14.167 (0.882)	96	31439			0.00- 30.00	157.63
22 MTBE					CAS #: 1634-04-4		
14.112	14.112 (0.879)	73	89836	1.00000	0.9282	70.00- 130.00	100.00
14.085	14.085 (0.877)	57	28783			0.00- 30.00	32.04
14.085	14.085 (0.877)	41	24724			0.00- 30.00	27.52
25 1,1-Dichloroethane					CAS #: 75-34-3		
14.881	14.881 (0.927)	63	74492	1.00000	0.9596	70.00- 130.00	100.00
14.881	14.881 (0.927)	65	21919			0.00- 59.33	29.42

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
28 cis-1,2-Dichloroethene					CAS #: 156-59-2		
15.708	15.708 (0.978)	98	22805	1.00000	0.9544	70.00- 130.00	100.00
15.708	15.708 (0.978)	61	60599			0.00- 30.00	265.73
15.708	15.708 (0.978)	96	35873			0.00- 30.00	157.30
32 Chloroform					CAS #: 67-66-3		
16.122	16.122 (1.004)	85	45938	1.00000	0.9229	70.00- 130.00	100.00
16.122	16.122 (1.004)	83	70885			124.09- 184.09	154.31
34 1,1,1-Trichloroethane					CAS #: 71-55-6		
16.368	16.368 (1.019)	97	74523	1.00000	0.9539	70.00- 130.00	100.00
16.368	16.368 (1.019)	99	47851			34.43- 94.43	64.21
35 Carbon Tetrachloride					CAS #: 56-23-5		
16.584	16.584 (1.033)	117	74438	1.00000	0.9924	70.00- 130.00	100.00
16.584	16.584 (1.033)	119	71759			66.38- 126.38	96.40
36 Benzene					CAS #: 71-43-2		
16.915	16.915 (0.967)	78	108985	1.00000	0.8290	70.00- 130.00	100.00
16.915	16.915 (0.967)	77	25045			0.00- 30.00	22.98
38 1,2-Dichloroethane					CAS #: 107-06-2		
17.031	17.031 (0.974)	62	58512	1.00000	0.9940	70.00- 130.00	100.00
17.031	17.031 (0.974)	64	16789			0.00- 30.00	28.69
41 Trichloroethene					CAS #: 79-01-6		
17.932	17.932 (1.025)	130	52211	1.00000	0.8654	70.00- 130.00	100.00
17.932	17.932 (1.025)	95	48431			62.73- 122.73	92.76
17.932	17.932 (1.025)	97	31228			29.94- 89.94	59.81
48 Toluene					CAS #: 108-88-3		
20.417	20.417 (1.167)	91	125566	1.00000	0.9294	70.00- 130.00	100.00
20.417	20.417 (1.167)	92	74835			30.04- 90.04	59.60
50 1,1,2-Trichloroethane					CAS #: 79-00-5		
21.264	21.264 (0.931)	97	46434	1.00000	0.9531	70.00- 130.00	100.00
21.264	21.264 (0.931)	99	29153			32.57- 92.57	62.78
21.264	21.264 (0.931)	83	39008			53.31- 113.31	84.01
51 Tetrachloroethene					CAS #: 127-18-4		
21.426	21.426 (0.938)	166	71414	1.00000	0.8913	70.00- 130.00	100.00
21.426	21.426 (0.938)	129	48345			36.83- 96.83	67.70
21.426	21.426 (0.938)	131	48847			37.96- 97.96	68.40
55 1,2-Dibromoethane					CAS #: 106-93-4		
22.207	22.207 (0.972)	107	73034	1.00000	0.9501	70.00- 130.00	100.00

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
55 1,2-Dibromoethane (continued)							
22.207	22.207 (0.972)	109	68979			64.59- 124.59	94.45
58 Ethyl Benzene					CAS #: 100-41-4		
22.967	22.967 (1.005)	106	49237	1.00000	0.9538	70.00- 130.00	100.00
22.967	22.967 (1.005)	91	152832			0.00- 30.00	310.40
59 m,p-Xylene					CAS #: 108-38-3		
23.135	23.135 (1.013)	106	53162	1.00000	0.9400	70.00- 130.00	100.00
23.135	23.135 (1.013)	91	103910			0.00- 30.00	195.46
61 o-Xylene					CAS #: 95-47-6		
23.714	23.714 (1.038)	106	51643	1.00000	0.9425	70.00- 130.00	100.00
23.714	23.714 (1.038)	91	106554			174.80- 234.80	206.33
67 1,1,2,2-Tetrachloroethane					CAS #: 79-34-5		
24.620	24.620 (1.078)	83	95702	1.00000	0.9217	70.00- 130.00	100.00
24.620	24.620 (1.078)	85	61567			34.66- 94.66	64.33
73 1,4-Dichlorobenzene					CAS #: 106-46-7		
25.838	25.838 (1.131)	146	77470	1.00000	0.8826	70.00- 130.00	100.00
25.838	25.838 (1.131)	148	49086			0.00- 30.00	63.36
25.838	25.838 (1.131)	111	29064			0.00- 30.00	37.52
78 Naphthalene					CAS #: 91-20-3		
28.416	28.416 (1.244)	128	9733	0.10000	0.09020	70.00- 130.00	100.00
28.416	28.416 (1.244)	127	1215			0.00- 30.00	12.48

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082613sim.d
Lab Smp Id: ICAL
Analysis Type: VOA
Quant Type: ISTD
Operator: sn
Method File: /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Misc Info: 1.0ppbv (1.0ppbv)

Calibration Date: 27-AUG-2013
Calibration Time: 08:15
Client Smp ID: Level 8
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	112630	67578	157682	98667	-12.40
40 1,4-Difluorobenze	493076	295846	690306	463771	-5.94
56 Chlorobenzene-d5	385996	231598	540394	364782	-5.50

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.09	15.76	16.42	16.06	-0.19
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msde.i/26Aug2013a.b/e082613sim.d

Date : 26-AUG-2013 22:01

Client ID: Level 8

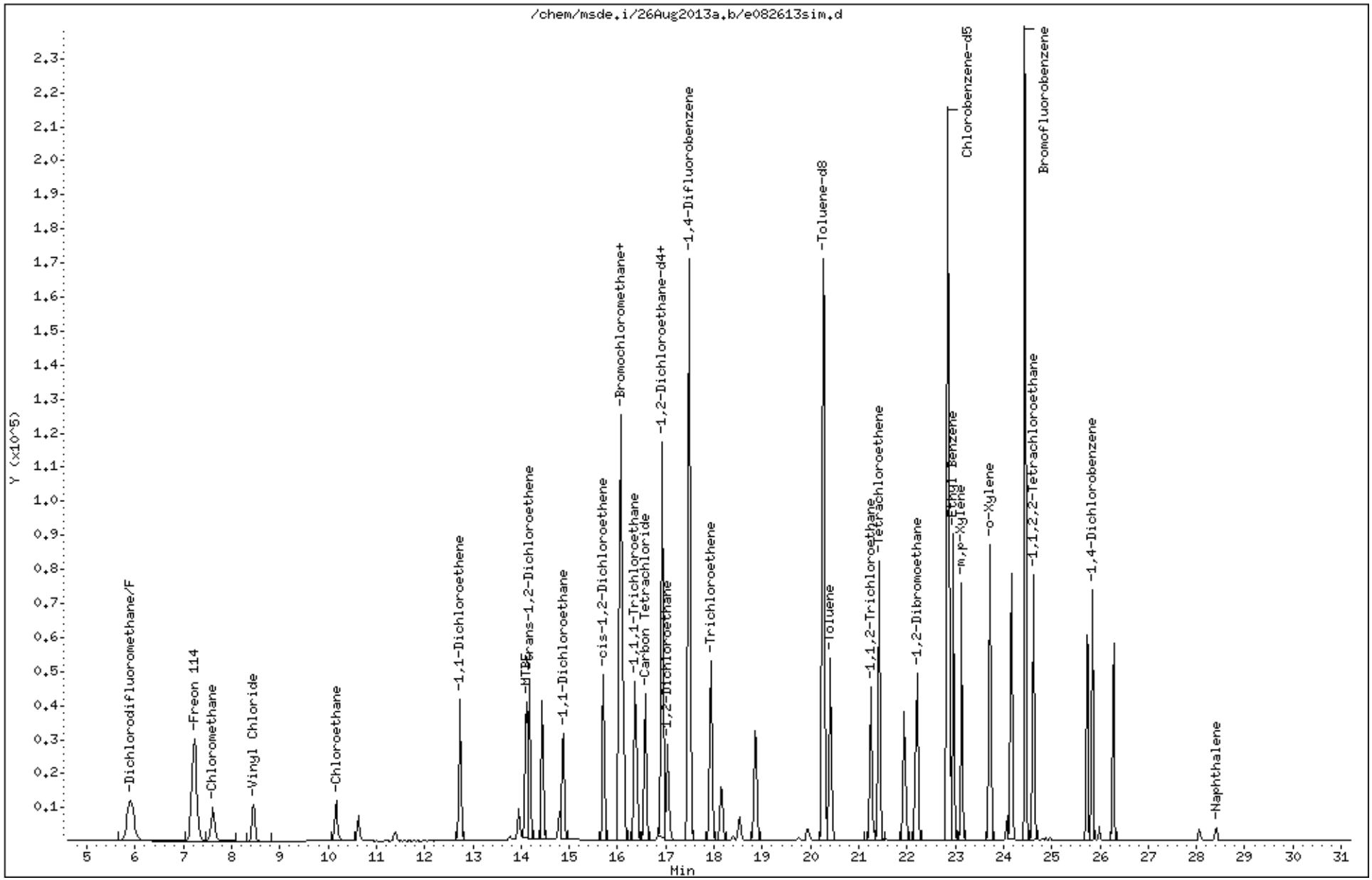
Instrument: msde.i

Sample Info: 250mL #2588-161

Operator: sn

Column phase: RTx-624

Column diameter: 0.53



Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/26Aug2013a.b/e082614sim.d
Lab Smp Id: ICAL Client Smp ID: Level 9
Inj Date : 26-AUG-2013 22:58
Operator : sn Inst ID: msde.i
Smp Info : 25mL #2588-148
Misc Info : 5.0ppbv (50ppbv)
Comment : SIM/ GC-MS
Method : /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Meth Date : 28-Aug-2013 08:45 sblack Quant Type: ISTD
Cal Date : 26-AUG-2013 22:58 Cal File: e082614sim.d
Als bottle: 1 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: HILOcrv.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				AMOUNTS			
				CAL-AMT	ON-COL		
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE	RATIO
* 31 Bromochloromethane						CAS #: 74-97-5	
16.060	16.060 (1.000)	130	104937	5.00000		70.00- 130.00	100.00
16.060	16.060 (1.000)	128	81922			0.00- 30.00	78.07
16.060	16.060 (1.000)	49	248135			0.00- 30.00	236.46
* 40 1,4-Difluorobenzene						CAS #: 540-36-3	
17.492	17.492 (1.000)	114	485706	5.00000		70.00- 130.00	100.00
17.492	17.492 (1.000)	88	74979			0.00- 45.47	15.44
* 56 Chlorobenzene-d5						CAS #: 3114-55-4	
22.846	22.846 (1.000)	117	386439	5.00000		70.00- 130.00	100.00
22.846	22.846 (1.000)	82	196263			0.00- 30.00	50.79
$ 37 1,2-Dichloroethane-d4						CAS #: 17060-07-0	
16.915	16.915 (1.053)	65	160895	5.00000	4.950	70.00- 130.00	100.00
16.915	16.915 (1.053)	67	74448			0.00- 30.00	46.27
$ 47 Toluene-d8						CAS #: 2037-26-5	
20.260	20.260 (1.158)	98	389435	5.00000	4.970	70.00- 130.00	100.00
20.260	20.260 (1.158)	70	44931			0.00- 41.47	11.54

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
$ 47 Toluene-d8 (continued)							
20.260	20.260 (1.158)	100	272250			40.11- 100.11	69.91
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.440	24.440 (1.070)	174	212140	5.00000	4.938	70.00- 130.00	100.00
24.440	24.440 (1.070)	95	235249			79.71- 139.71	110.89
24.466	24.466 (1.071)	176	205742			66.55- 126.55	96.98
2 Dichlorodifluoromethane/Fr12					CAS #: 75-71-8		
5.903	5.903 (0.368)	85	473899	5.00000	5.210	70.00- 130.00	100.00
5.903	5.903 (0.368)	87	153093			0.00- 30.00	32.30
3 Freon 114					CAS #: 76-14-2		
7.253	7.253 (0.452)	135	392828	5.00000	5.211	70.00- 130.00	100.00
7.253	7.253 (0.452)	137	125344			0.00- 30.00	31.91
4 Chloromethane					CAS #: 74-87-3		
7.614	7.614 (0.474)	50	252403	5.00000	5.028	70.00- 130.00	100.00
7.614	7.614 (0.474)	52	81782			0.00- 30.00	32.40
5 Vinyl Chloride					CAS #: 75-01-4		
8.471	8.471 (0.527)	62	244577	5.00000	5.177	70.00- 130.00	100.00
8.471	8.471 (0.527)	64	71244			0.00- 59.23	29.13
10 Chloroethane					CAS #: 75-00-3		
10.646	10.646 (0.663)	64	127933	5.00000	5.400	70.00- 130.00	100.00
10.646	10.646 (0.663)	66	37159			0.00- 30.00	29.05
16 1,1-Dichloroethene					CAS #: 75-35-4		
12.740	12.740 (0.793)	98	117172	5.00000	5.052	70.00- 130.00	100.00
12.740	12.740 (0.793)	61	389104			0.00- 30.00	332.08
12.740	12.740 (0.793)	96	185132			0.00- 30.00	158.00
23 trans-1,2-Dichloroethene					CAS #: 156-60-5		
14.167	14.167 (0.882)	98	120191	5.00000	5.438	70.00- 130.00	100.00
14.167	14.167 (0.882)	61	349569			0.00- 30.00	290.84
14.167	14.167 (0.882)	96	188893			0.00- 30.00	157.16
22 MTBE					CAS #: 1634-04-4		
14.112	14.112 (0.879)	73	551268	5.00000	5.356	70.00- 130.00	100.00
14.112	14.112 (0.879)	57	178088			0.00- 30.00	32.31
14.112	14.112 (0.879)	41	153707			0.00- 30.00	27.88
25 1,1-Dichloroethane					CAS #: 75-34-3		
14.881	14.881 (0.927)	63	444102	5.00000	5.379	70.00- 130.00	100.00
14.881	14.881 (0.927)	65	130691			0.00- 59.33	29.43

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
28 cis-1,2-Dichloroethene					CAS #: 156-59-2		
15.708	15.708 (0.978)	98	136146	5.00000	5.357	70.00- 130.00	100.00
15.708	15.708 (0.978)	61	361840			0.00- 30.00	265.77
15.708	15.708 (0.978)	96	214717			0.00- 30.00	157.71
32 Chloroform					CAS #: 67-66-3		
16.122	16.122 (1.004)	85	266797	5.00000	5.040	70.00- 130.00	100.00
16.122	16.122 (1.004)	83	411924			124.09- 184.09	154.40
34 1,1,1-Trichloroethane					CAS #: 71-55-6		
16.368	16.368 (1.019)	97	433581	5.00000	5.218	70.00- 130.00	100.00
16.368	16.368 (1.019)	99	279344			34.43- 94.43	64.43
35 Carbon Tetrachloride					CAS #: 56-23-5		
16.584	16.584 (1.033)	117	449301	5.00000	5.632	70.00- 130.00	100.00
16.584	16.584 (1.033)	119	433910			66.38- 126.38	96.57
36 Benzene					CAS #: 71-43-2		
16.915	16.915 (0.967)	78	621758	5.00000	4.516	70.00- 130.00	100.00
16.915	16.915 (0.967)	77	145327			0.00- 30.00	23.37
38 1,2-Dichloroethane					CAS #: 107-06-2		
17.031	17.031 (0.974)	62	333193	5.00000	5.405	70.00- 130.00	100.00
17.031	17.031 (0.974)	64	98261			0.00- 30.00	29.49
41 Trichloroethene					CAS #: 79-01-6		
17.932	17.932 (1.025)	130	295874	5.00000	4.682	70.00- 130.00	100.00
17.932	17.932 (1.025)	95	276880			62.73- 122.73	93.58
17.932	17.932 (1.025)	97	178613			29.94- 89.94	60.37
48 Toluene					CAS #: 108-88-3		
20.417	20.417 (1.167)	91	721880	5.00000	5.102	70.00- 130.00	100.00
20.417	20.417 (1.167)	92	430621			30.04- 90.04	59.65
50 1,1,2-Trichloroethane					CAS #: 79-00-5		
21.264	21.264 (0.931)	97	266776	5.00000	5.169	70.00- 130.00	100.00
21.264	21.264 (0.931)	99	166756			32.57- 92.57	62.51
21.264	21.264 (0.931)	83	223202			53.31- 113.31	83.67
51 Tetrachloroethene					CAS #: 127-18-4		
21.427	21.427 (0.938)	166	411701	5.00000	4.850	70.00- 130.00	100.00
21.427	21.427 (0.938)	129	276835			36.83- 96.83	67.24
21.427	21.427 (0.938)	131	282223			37.96- 97.96	68.55
55 1,2-Dibromoethane					CAS #: 106-93-4		
22.207	22.207 (0.972)	107	427980	5.00000	5.256	70.00- 130.00	100.00

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
55 1,2-Dibromoethane (continued)							
22.207	22.207 (0.972)	109	404117			64.59- 124.59	94.42
58 Ethyl Benzene					CAS #: 100-41-4		
22.967	22.967 (1.005)	106	283184	5.00000	5.178	70.00- 130.00	100.00
22.967	22.967 (1.005)	91	879811			0.00- 30.00	310.69
59 m,p-Xylene					CAS #: 108-38-3		
23.135	23.135 (1.013)	106	310462	5.00000	5.182	70.00- 130.00	100.00
23.135	23.135 (1.013)	91	602809			0.00- 30.00	194.17
61 o-Xylene					CAS #: 95-47-6		
23.714	23.714 (1.038)	106	300627	5.00000	5.179	70.00- 130.00	100.00
23.714	23.714 (1.038)	91	618743			174.80- 234.80	205.82
67 1,1,2,2-Tetrachloroethane					CAS #: 79-34-5		
24.620	24.620 (1.078)	83	517678	5.00000	4.706	70.00- 130.00	100.00
24.620	24.620 (1.078)	85	333746			34.66- 94.66	64.47
73 1,4-Dichlorobenzene					CAS #: 106-46-7		
25.838	25.838 (1.131)	146	429832	5.00000	4.622	70.00- 130.00	100.00
25.838	25.838 (1.131)	148	273630			0.00- 30.00	63.66
25.838	25.838 (1.131)	111	160645			0.00- 30.00	37.37
78 Naphthalene					CAS #: 91-20-3		
28.416	28.416 (1.244)	128	46275	0.50000	0.4048	70.00- 130.00	100.00
28.394	28.394 (1.243)	127	5732			0.00- 30.00	12.39

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082614sim.d
Lab Smp Id: ICAL
Analysis Type: VOA
Quant Type: ISTD
Operator: sn
Method File: /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Misc Info: 5.0ppbv (50ppbv)

Calibration Date: 27-AUG-2013
Calibration Time: 08:15
Client Smp ID: Level 9
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	112630	67578	157682	104937	-6.83
40 1,4-Difluorobenze	493076	295846	690306	485706	-1.49
56 Chlorobenzene-d5	385996	231598	540394	386439	0.11

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.09	15.76	16.42	16.06	-0.19
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msde.i/26Aug2013a.b/e082614sim.d

Date : 26-AUG-2013 22:58

Client ID: Level 9

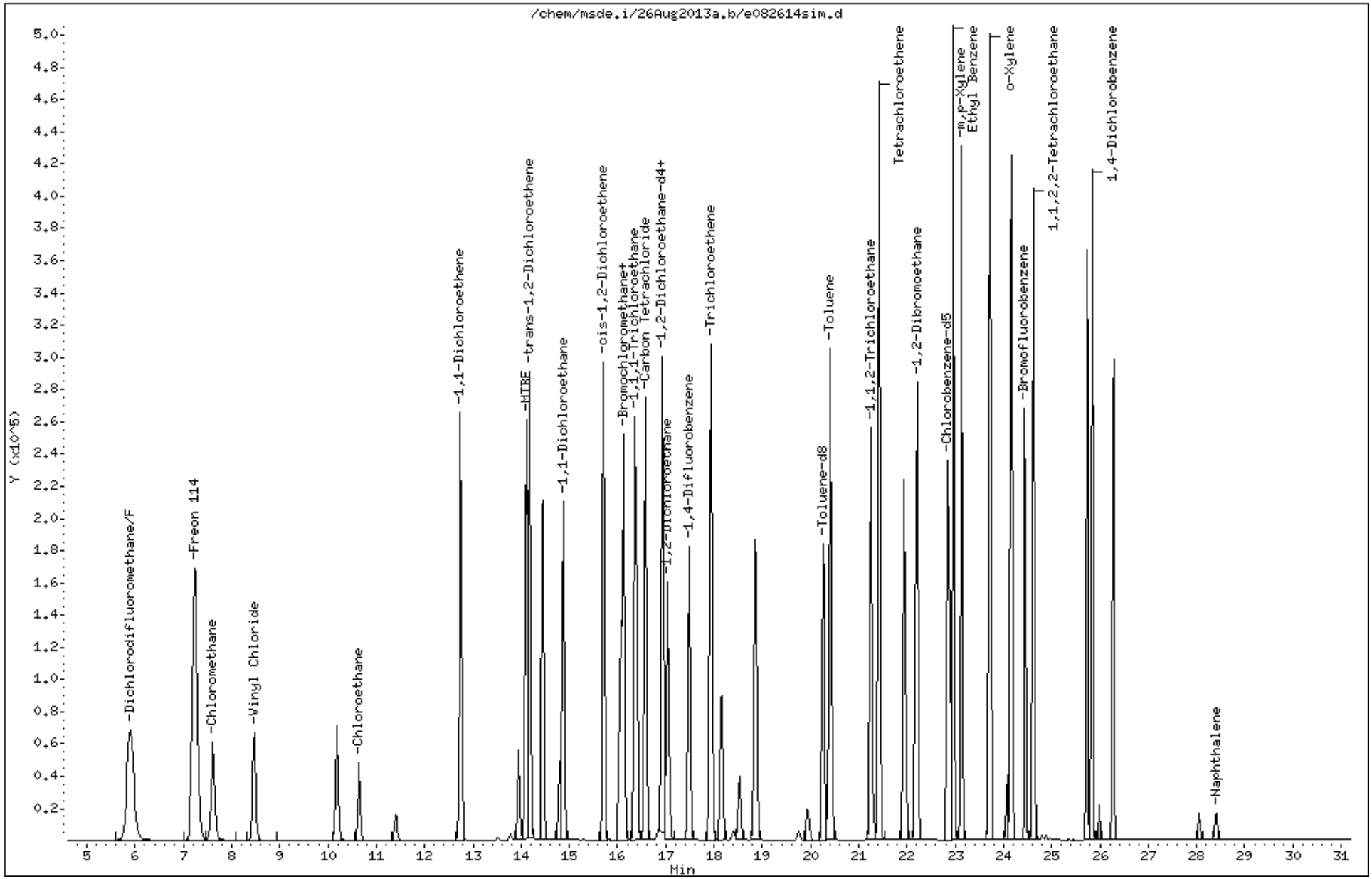
Sample Info: 25mL #2588-148

Column phase: RTx-624

Instrument: msde.i

Operator: sn

Column diameter: 0.53



Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/26Aug2013a.b/e082615sim.d
Lab Smp Id: ICAL Client Smp ID: Level 10
Inj Date : 27-AUG-2013 08:15
Operator : sab Inst ID: msde.i
Smp Info : 50mL #2588-148
Misc Info : 10ppbv (50ppbv)
Comment : SIM/ GC-MS
Method : /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Meth Date : 28-Aug-2013 08:45 sblack Quant Type: ISTD
Cal Date : 27-AUG-2013 08:15 Cal File: e082615sim.d
Als bottle: 1 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: HILOcrv.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				AMOUNTS			
				CAL-AMT	ON-COL		
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE	RATIO
* 31 Bromochloromethane						CAS #: 74-97-5	
16.091	16.091 (1.000)	130	112630	5.00000		80.00- 120.00	100.00
16.060	16.060 (1.000)	128	87596			47.77- 107.77	77.77
16.060	16.060 (1.000)	49	289431			226.98- 286.98	256.98
* 40 1,4-Difluorobenzene						CAS #: 540-36-3	
17.492	17.492 (1.000)	114	493076	5.00000		80.00- 120.00	100.00
17.492	17.492 (1.000)	88	76271			0.00- 45.47	15.47
* 56 Chlorobenzene-d5						CAS #: 3114-55-4	
22.846	22.846 (1.000)	117	385996	5.00000		80.00- 120.00	100.00
22.846	22.846 (1.000)	82	195363			20.61- 80.61	50.61
$ 37 1,2-Dichloroethane-d4						CAS #: 17060-07-0	
16.915	16.915 (1.051)	65	169809	5.00000	4.868	80.00- 120.00	100.00
16.915	16.915 (1.051)	67	71188			11.92- 71.92	41.92
$ 47 Toluene-d8						CAS #: 2037-26-5	
20.282	20.282 (1.159)	98	394222	5.00000	4.956	80.00- 120.00	100.00
20.260	20.260 (1.158)	70	45232			0.00- 41.47	11.47

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
$ 47 Toluene-d8 (continued)							
20.282	20.282 (1.159)	100	276393			40.11- 100.11	70.11
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.466	24.466 (1.071)	174	210049	5.00000	4.894	80.00- 120.00	100.00
24.466	24.466 (1.071)	95	230446			79.71- 139.71	109.71
24.466	24.466 (1.071)	176	202808			66.55- 126.55	96.55
2 Dichlorodifluoromethane/Fr12					CAS #: 75-71-8		
5.927	5.927 (0.368)	85	870759	10.0000	8.918	80.00- 120.00	100.00
5.927	5.927 (0.368)	87	281186			2.29- 62.29	32.29
3 Freon 114					CAS #: 76-14-2		
7.253	7.253 (0.451)	135	730175	10.0000	9.024	80.00- 120.00	100.00
7.253	7.253 (0.451)	137	233428			1.97- 61.97	31.97
4 Chloromethane					CAS #: 74-87-3		
7.614	7.614 (0.473)	50	460735	10.0000	8.551	80.00- 120.00	100.00
7.638	7.638 (0.475)	52	149183			2.38- 62.38	32.38
5 Vinyl Chloride					CAS #: 75-01-4		
8.471	8.471 (0.526)	62	447489	10.0000	8.824	80.00- 120.00	100.00
8.471	8.471 (0.526)	64	130818			0.00- 59.23	29.23
10 Chloroethane					CAS #: 75-00-3		
10.646	10.646 (0.662)	64	230092	10.0000	9.049	80.00- 120.00	100.00
10.646	10.646 (0.662)	66	67248			0.00- 59.23	29.23
16 1,1-Dichloroethene					CAS #: 75-35-4		
12.761	12.761 (0.793)	98	217046	10.0000	8.719	80.00- 120.00	100.00
12.740	12.740 (0.792)	61	718979			301.26- 361.26	331.26
12.740	12.740 (0.792)	96	340466			126.86- 186.86	156.86
23 trans-1,2-Dichloroethene					CAS #: 156-60-5		
14.167	14.167 (0.880)	98	219385	10.0000	9.248	80.00- 120.00	100.00
14.167	14.167 (0.880)	61	635781			259.80- 319.80	289.80
14.167	14.167 (0.880)	96	343446			126.55- 186.55	156.55
22 MTBE					CAS #: 1634-04-4		
14.112	14.112 (0.877)	73	1033376	10.0000	9.354	80.00- 120.00	100.00
14.112	14.112 (0.877)	57	338802			2.79- 62.79	32.79
14.112	14.112 (0.877)	41	286074			0.00- 57.68	27.68
25 1,1-Dichloroethane					CAS #: 75-34-3		
14.881	14.881 (0.925)	63	810542	10.0000	9.147	80.00- 120.00	100.00
14.881	14.881 (0.925)	65	237738			0.00- 59.33	29.33

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
28 cis-1,2-Dichloroethene					CAS #: 156-59-2		
15.708	15.708 (0.976)	98	248645	10.0000	9.116	80.00- 120.00	100.00
15.708	15.708 (0.976)	61	653464			232.81- 292.81	262.81
15.708	15.708 (0.976)	96	389273			126.56- 186.56	156.56
32 Chloroform					CAS #: 67-66-3		
16.122	16.122 (1.002)	85	484695	10.0000	8.530	80.00- 120.00	100.00
16.122	16.122 (1.002)	83	746845			124.09- 184.09	154.09
34 1,1,1-Trichloroethane					CAS #: 71-55-6		
16.368	16.368 (1.017)	97	790694	10.0000	8.866	80.00- 120.00	100.00
16.368	16.368 (1.017)	99	509422			34.43- 94.43	64.43
35 Carbon Tetrachloride					CAS #: 56-23-5		
16.584	16.584 (1.031)	117	819559	10.0000	9.572	80.00- 120.00	100.00
16.584	16.584 (1.031)	119	789901			66.38- 126.38	96.38
36 Benzene					CAS #: 71-43-2		
16.944	16.944 (0.969)	78	1129602	10.0000	8.081	80.00- 120.00	100.00
16.944	16.944 (0.969)	77	256801			0.00- 52.73	22.73
38 1,2-Dichloroethane					CAS #: 107-06-2		
17.031	17.031 (0.974)	62	602295	10.0000	9.624	80.00- 120.00	100.00
17.031	17.031 (0.974)	64	184578			0.65- 60.65	30.65
41 Trichloroethene					CAS #: 79-01-6		
17.932	17.932 (1.025)	130	540302	10.0000	8.423	80.00- 120.00	100.00
17.932	17.932 (1.025)	95	501043			62.73- 122.73	92.73
17.932	17.932 (1.025)	97	323869			29.94- 89.94	59.94
48 Toluene					CAS #: 108-88-3		
20.417	20.417 (1.167)	91	1289011	10.0000	8.974	80.00- 120.00	100.00
20.417	20.417 (1.167)	92	773924			30.04- 90.04	60.04
50 1,1,2-Trichloroethane					CAS #: 79-00-5		
21.264	21.264 (0.931)	97	486212	10.0000	9.431	80.00- 120.00	100.00
21.264	21.264 (0.931)	99	304213			32.57- 92.57	62.57
21.264	21.264 (0.931)	83	405086			53.31- 113.31	83.31
51 Tetrachloroethene					CAS #: 127-18-4		
21.427	21.427 (0.938)	166	737912	10.0000	8.704	80.00- 120.00	100.00
21.427	21.427 (0.938)	129	493176			36.83- 96.83	66.83
21.427	21.427 (0.938)	131	501513			37.96- 97.96	67.96
55 1,2-Dibromoethane					CAS #: 106-93-4		
22.207	22.207 (0.972)	107	770138	10.0000	9.468	80.00- 120.00	100.00

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
55 1,2-Dibromoethane (continued)							
22.207	22.207 (0.972)	109	728509			64.59- 124.59	94.59
58 Ethyl Benzene					CAS #: 100-41-4		
22.967	22.967 (1.005)	106	503333	10.0000	9.214	80.00- 120.00	100.00
22.967	22.967 (1.005)	91	1550363			278.02- 338.02	308.02
59 m,p-Xylene					CAS #: 108-38-3		
23.135	23.135 (1.013)	106	539960	10.0000	9.022	80.00- 120.00	100.00
23.135	23.135 (1.013)	91	1045108			163.55- 223.55	193.55
61 o-Xylene					CAS #: 95-47-6		
23.714	23.714 (1.038)	106	526461	10.0000	9.080	80.00- 120.00	100.00
23.714	23.714 (1.038)	91	1078183			174.80- 234.80	204.80
67 1,1,2,2-Tetrachloroethane					CAS #: 79-34-5		
24.620	24.620 (1.078)	83	914663	10.0000	8.325	80.00- 120.00	100.00
24.620	24.620 (1.078)	85	591460			34.66- 94.66	64.66
73 1,4-Dichlorobenzene					CAS #: 106-46-7		
25.838	25.838 (1.131)	146	739479	10.0000	7.962	80.00- 120.00	100.00
25.838	25.838 (1.131)	148	471735			33.79- 93.79	63.79
25.838	25.838 (1.131)	111	276889			7.44- 67.44	37.44
78 Naphthalene					CAS #: 91-20-3		
28.416	28.416 (1.244)	128	82261	1.00000	0.7205	80.00- 120.00	100.00
28.416	28.416 (1.244)	127	10321			0.00- 42.55	12.55

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082615sim.d
Lab Smp Id: ICAL
Analysis Type: VOA
Quant Type: ISTD
Operator: sab
Method File: /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Misc Info: 10ppbv (50ppbv)

Calibration Date: 27-AUG-2013
Calibration Time: 08:15
Client Smp ID: Level 10
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	112630	67578	157682	112630	0.00
40 1,4-Difluorobenze	493076	295846	690306	493076	0.00
56 Chlorobenzene-d5	385996	231598	540394	385996	0.00

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.09	15.76	16.42	16.09	0.00
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msde.i/26Aug2013a.b/e082615sim.d

Date : 27-AUG-2013 08:15

Client ID: Level 10

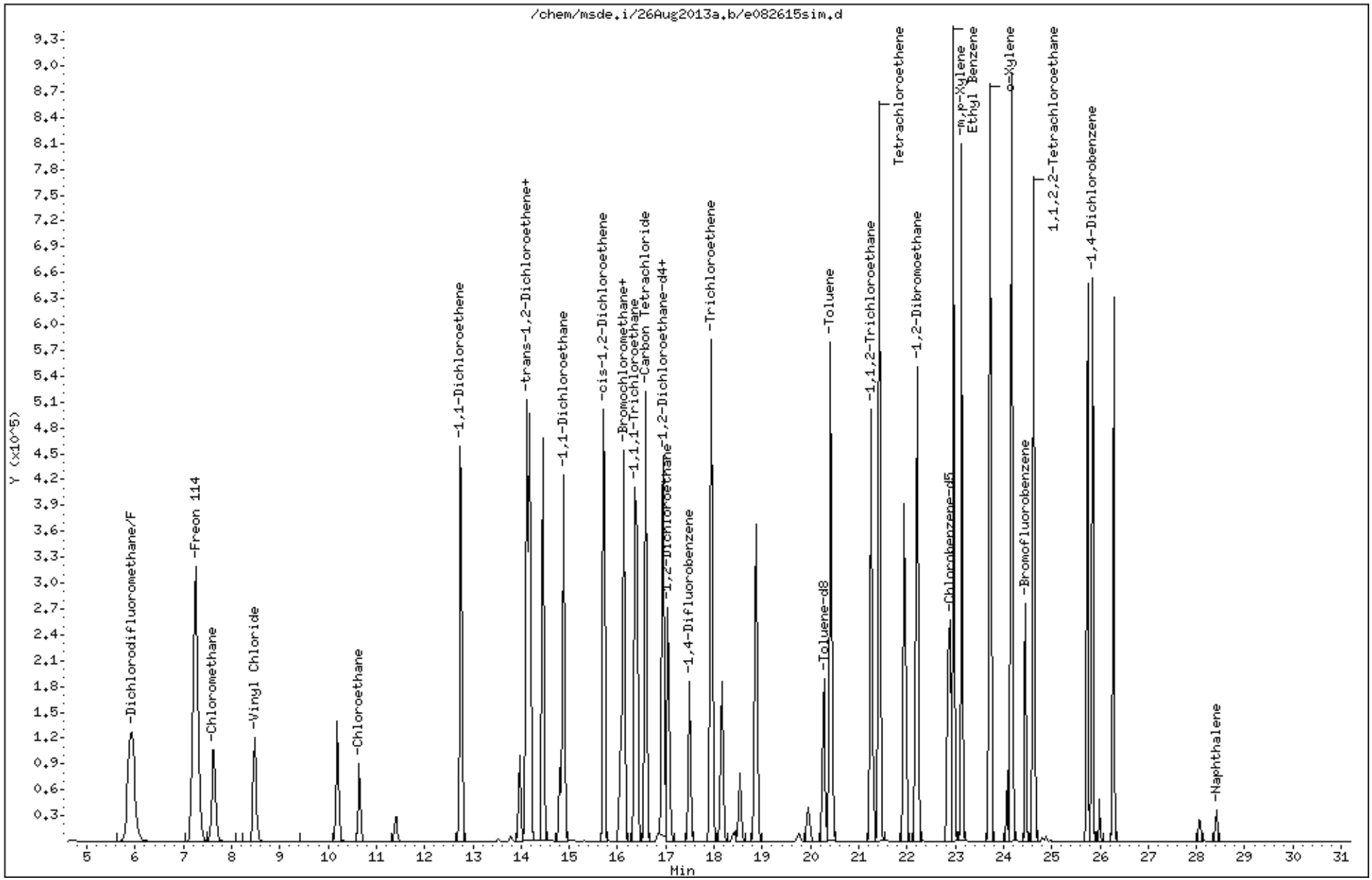
Instrument: msde.i

Sample Info: 50mL #2588-148

Operator: sab

Column phase: RTx-624

Column diameter: 0.53



Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/26Aug2013a.b/e082616sim.d
Lab Smp Id: ICAL Client Smp ID: Level 11
Inj Date : 27-AUG-2013 09:01
Operator : gh Inst ID: msde.i
Smp Info : 100mL #2588-148
Misc Info : 20ppbv (50ppbv)
Comment : SIM/ GC-MS
Method : /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Meth Date : 28-Aug-2013 08:45 sblack Quant Type: ISTD
Cal Date : 27-AUG-2013 09:01 Cal File: e082616sim.d
Als bottle: 1 Calibration Sample, Level: 11
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: HILOcrv.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				AMOUNTS				
				CAL-AMT	ON-COL			
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE		RATIO
==	====== ========	====	========	=======	=======	==========		=====
* 31 Bromochloromethane						CAS #: 74-97-5		
16.060	16.060 (1.000)	130	108979	5.00000		70.00- 130.00		100.00
16.060	16.060 (1.000)	128	84822			0.00- 30.00		77.83
16.060	16.060 (1.000)	49	351585			0.00- 30.00		322.62
* 40 1,4-Difluorobenzene						CAS #: 540-36-3		
17.492	17.492 (1.000)	114	468598	5.00000		70.00- 130.00		100.00
17.492	17.492 (1.000)	88	72605			0.00- 45.47		15.49
* 56 Chlorobenzene-d5						CAS #: 3114-55-4		
22.846	22.846 (1.000)	117	375608	5.00000		70.00- 130.00		100.00
22.846	22.846 (1.000)	82	189133			0.00- 30.00		50.35
$ 37 1,2-Dichloroethane-d4						CAS #: 17060-07-0		
16.914	16.914 (1.053)	65	167785	5.00000	4.971	70.00- 130.00		100.00
16.914	16.914 (1.053)	67	61006			0.00- 30.00		36.36
$ 47 Toluene-d8						CAS #: 2037-26-5		
20.260	20.260 (1.158)	98	378519	5.00000	5.007	70.00- 130.00		100.00
20.260	20.260 (1.158)	70	43356			0.00- 41.47		11.45

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
$ 47 Toluene-d8 (continued)							
20.282	20.282 (1.159)	100	264154			40.11- 100.11	69.79
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.466	24.466 (1.071)	174	208703	5.00000	4.998	70.00- 130.00	100.00
24.440	24.440 (1.070)	95	229699			79.71- 139.71	110.06
24.466	24.466 (1.071)	176	201830			66.55- 126.55	96.71
2 Dichlorodifluoromethane/Fr12					CAS #: 75-71-8		
5.927	5.927 (0.369)	85	1649078	20.0000	17.456	70.00- 130.00	100.00
5.927	5.927 (0.369)	87	533012			0.00- 30.00	32.32
3 Freon 114					CAS #: 76-14-2		
7.277	7.277 (0.453)	135	1392742	20.0000	17.790	70.00- 130.00	100.00
7.277	7.277 (0.453)	137	445066			0.00- 30.00	31.96
4 Chloromethane					CAS #: 74-87-3		
7.638	7.638 (0.476)	50	863115	20.0000	16.556	70.00- 130.00	100.00
7.638	7.638 (0.476)	52	279506			0.00- 30.00	32.38
5 Vinyl Chloride					CAS #: 75-01-4		
8.489	8.489 (0.529)	62	844062	20.0000	17.203	70.00- 130.00	100.00
8.489	8.489 (0.529)	64	247040			0.00- 59.23	29.27
10 Chloroethane					CAS #: 75-00-3		
10.667	10.667 (0.664)	64	430449	20.0000	17.495	70.00- 130.00	100.00
10.667	10.667 (0.664)	66	126196			0.00- 30.00	29.32
16 1,1-Dichloroethene					CAS #: 75-35-4		
12.740	12.740 (0.793)	98	414669	20.0000	17.217	70.00- 130.00	100.00
12.740	12.740 (0.793)	61	1372188			0.00- 30.00	330.91
12.740	12.740 (0.793)	96	654912			0.00- 30.00	157.94
23 trans-1,2-Dichloroethene					CAS #: 156-60-5		
14.167	14.167 (0.882)	98	414567	20.0000	18.061	70.00- 130.00	100.00
14.167	14.167 (0.882)	61	1198748			0.00- 30.00	289.16
14.167	14.167 (0.882)	96	649423			0.00- 30.00	156.65
22 MTBE					CAS #: 1634-04-4		
14.112	14.112 (0.879)	73	1924522	20.0000	18.003	70.00- 130.00	100.00
14.112	14.112 (0.879)	57	610623			0.00- 30.00	31.73
14.112	14.112 (0.879)	41	498749			0.00- 30.00	25.92
25 1,1-Dichloroethane					CAS #: 75-34-3		
14.881	14.881 (0.927)	63	1522971	20.0000	17.762	70.00- 130.00	100.00
14.881	14.881 (0.927)	65	448976			0.00- 59.33	29.48

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
28 cis-1,2-Dichloroethene						CAS #: 156-59-2	
15.708	15.708 (0.978)	98	469951	20.0000	17.806	70.00- 130.00	100.00
15.708	15.708 (0.978)	61	1231739			0.00- 30.00	262.10
15.708	15.708 (0.978)	96	733908			0.00- 30.00	156.17
32 Chloroform						CAS #: 67-66-3	
16.121	16.121 (1.004)	85	920206	20.0000	16.737	70.00- 130.00	100.00
16.121	16.121 (1.004)	83	1414312			124.09- 184.09	153.70
34 1,1,1-Trichloroethane						CAS #: 71-55-6	
16.368	16.368 (1.019)	97	1481367	20.0000	17.167	70.00- 130.00	100.00
16.368	16.368 (1.019)	99	955176			34.43- 94.43	64.48
35 Carbon Tetrachloride						CAS #: 56-23-5	
16.584	16.584 (1.033)	117	1547869	20.0000	18.683	70.00- 130.00	100.00
16.584	16.584 (1.033)	119	1495191			66.38- 126.38	96.60
36 Benzene						CAS #: 71-43-2	
16.944	16.944 (0.969)	78	2108047	20.0000	15.869	70.00- 130.00	100.00
16.944	16.944 (0.969)	77	478937			0.00- 30.00	22.72
38 1,2-Dichloroethane						CAS #: 107-06-2	
17.031	17.031 (0.974)	62	1129980	20.0000	18.998	70.00- 130.00	100.00
17.031	17.031 (0.974)	64	346571			0.00- 30.00	30.67
41 Trichloroethene						CAS #: 79-01-6	
17.931	17.931 (1.025)	130	1017351	20.0000	16.688	70.00- 130.00	100.00
17.931	17.931 (1.025)	95	944383			62.73- 122.73	92.83
17.931	17.931 (1.025)	97	609694			29.94- 89.94	59.93
48 Toluene						CAS #: 108-88-3	
20.417	20.417 (1.167)	91	2454562	20.0000	17.980	70.00- 130.00	100.00
20.417	20.417 (1.167)	92	1469799			30.04- 90.04	59.88
50 1,1,2-Trichloroethane						CAS #: 79-00-5	
21.264	21.264 (0.931)	97	916471	20.0000	18.269	70.00- 130.00	100.00
21.264	21.264 (0.931)	99	574028			32.57- 92.57	62.63
21.264	21.264 (0.931)	83	766040			53.31- 113.31	83.59
51 Tetrachloroethene						CAS #: 127-18-4	
21.426	21.426 (0.938)	166	1404327	20.0000	17.022	70.00- 130.00	100.00
21.426	21.426 (0.938)	129	934927			36.83- 96.83	66.57
21.426	21.426 (0.938)	131	952489			37.96- 97.96	67.83
55 1,2-Dibromoethane						CAS #: 106-93-4	
22.207	22.207 (0.972)	107	1469787	20.0000	18.570	70.00- 130.00	100.00

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
55 1,2-Dibromoethane (continued)							
22.207	22.207 (0.972)	109	1393082			64.59- 124.59	94.78
58 Ethyl Benzene					CAS #: 100-41-4		
22.967	22.967 (1.005)	106	968414	20.0000	18.218	70.00- 130.00	100.00
22.967	22.967 (1.005)	91	2989198			0.00- 30.00	308.67
59 m,p-Xylene					CAS #: 108-38-3		
23.135	23.135 (1.013)	106	1058934	20.0000	18.183	70.00- 130.00	100.00
23.135	23.135 (1.013)	91	2054299			0.00- 30.00	194.00
61 o-Xylene					CAS #: 95-47-6		
23.714	23.714 (1.038)	106	1039902	20.0000	18.432	70.00- 130.00	100.00
23.714	23.714 (1.038)	91	2115522			174.80- 234.80	203.43
67 1,1,2,2-Tetrachloroethane					CAS #: 79-34-5		
24.620	24.620 (1.078)	83	1789237	20.0000	16.736	70.00- 130.00	100.00
24.620	24.620 (1.078)	85	1159816			34.66- 94.66	64.82
73 1,4-Dichlorobenzene					CAS #: 106-46-7		
25.838	25.838 (1.131)	146	1538068	20.0000	17.018	70.00- 130.00	100.00
25.838	25.838 (1.131)	148	983966			0.00- 30.00	63.97
25.838	25.838 (1.131)	111	576359			0.00- 30.00	37.47
78 Naphthalene					CAS #: 91-20-3		
28.416	28.416 (1.244)	128	169135	2.00000	1.522	70.00- 130.00	100.00
28.416	28.416 (1.244)	127	21259			0.00- 30.00	12.57

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082616sim.d
Lab Smp Id: ICAL
Analysis Type: VOA
Quant Type: ISTD
Operator: gh
Calibration Date: 27-AUG-2013
Calibration Time: 08:15
Client Smp ID: Level 11
Level: LOW
Sample Type: AIR
Method File: /chem/msde.i/26Aug2013a.b/e13l0826a.m/e13s0826a.m
Misc Info: 20ppbv (50ppbv)

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	112630	67578	157682	108979	-3.24
40 1,4-Difluorobenze	493076	295846	690306	468598	-4.96
56 Chlorobenzene-d5	385996	231598	540394	375608	-2.69

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.09	15.76	16.42	16.06	-0.19
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msde.i/26Aug2013a.b/e082616sim.d

Date : 27-AUG-2013 09:01

Client ID: Level 11

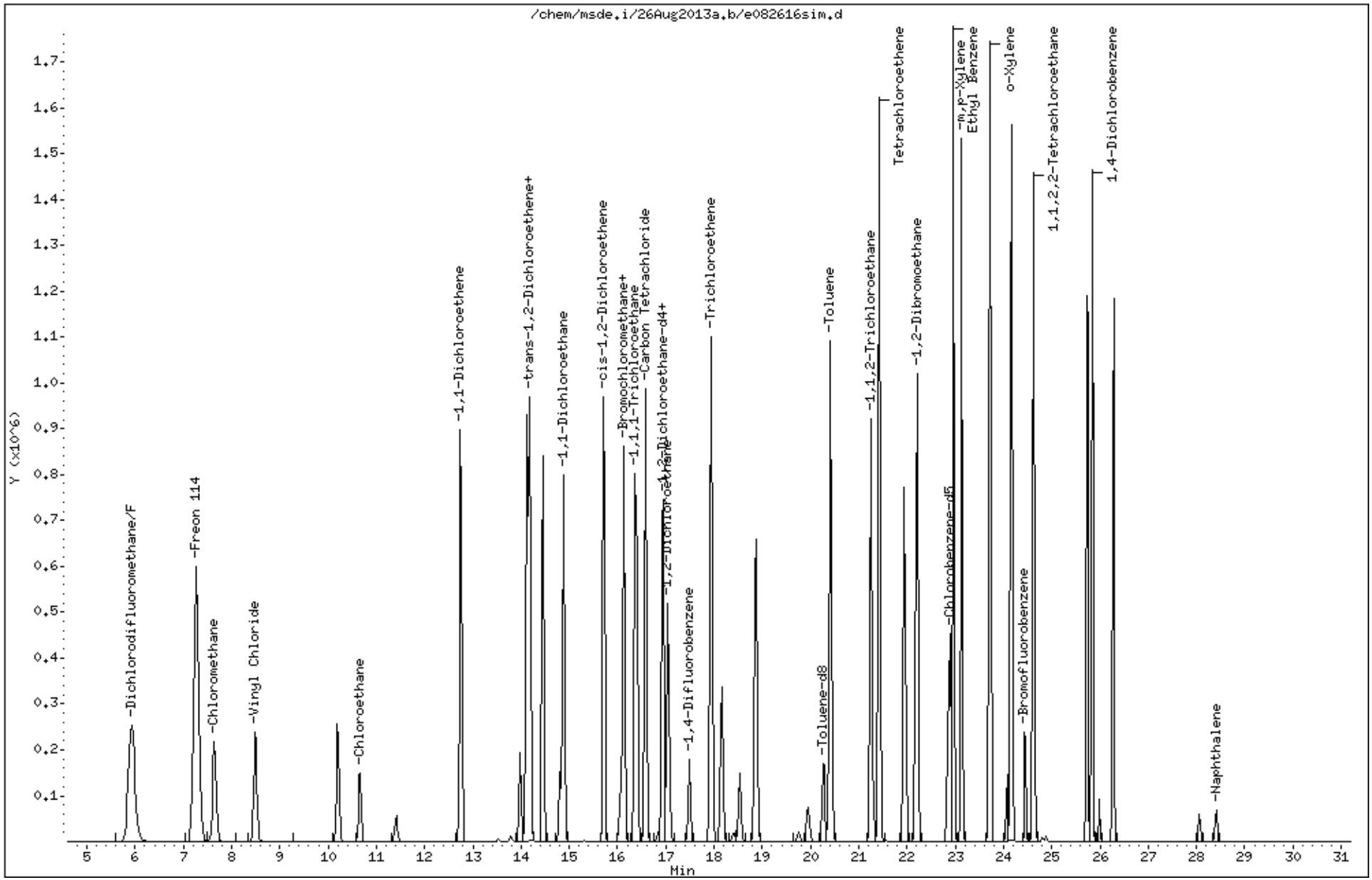
Instrument: msde.i

Sample Info: 100mL #2588-148

Operator: gh

Column phase: RTx-624

Column diameter: 0.53



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Client Sample ID: CCV

Lab ID#: 1308654-06A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**e082802sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/28/13 02:14 PM**	

Compound	%Recovery
Vinyl Chloride	96
1,1-Dichloroethene	93
1,1-Dichloroethane	100
cis-1,2-Dichloroethene	98
1,1,1-Trichloroethane	96
Benzene	82
1,2-Dichloroethane	100
Trichloroethene	84
Toluene	93
1,1,2-Trichloroethane	93
Tetrachloroethene	84
Ethyl Benzene	94
m,p-Xylene	93
o-Xylene	94
1,1,2,2-Tetrachloroethane	85
trans-1,2-Dichloroethene	99
Methyl tert-butyl ether	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	96	70-130

Eurofins Air Toxics Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msde.i Injection Date: 28-AUG-2013 14:14
Lab File ID: e082802sim.d Init. Cal. Date(s): 26-AUG-2013 27-AUG-2013
Analysis Type: AIR Init. Cal. Times: 16:34 09:01
Lab Sample ID: CCV Quant Type: ISTD
Method: /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m

COMPOUND	RRF / AMOUNT	RF10	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
$ 37 1,2-Dichloroethane-d4	1.54870	1.50078	0.010	3.09401	30.00000	Averaged
$ 47 Toluene-d8	0.80657	0.81322	0.010	-0.82385	30.00000	Averaged
$ 65 Bromofluorobenzene	0.55591	0.53633	0.010	3.52128	30.00000	Averaged
2 Dichlorodifluoromethane/Fr1	4.33434	4.22553	0.010	2.51046	30.00000	Averaged
3 Freon 114	3.59193	3.42012	0.010	4.78314	30.00000	Averaged
4 Chloromethane	2.39190	2.26211	0.010	5.42646	30.00000	Averaged
5 Vinyl Chloride	2.25116	2.16229	0.010	3.94743	30.00000	Averaged
10 Chloroethane	1.12883	1.14602	0.010	-1.52301	30.00000	Averaged
16 1,1-Dichloroethene	1.10504	1.02497	0.010	7.24564	30.00000	Averaged
23 trans-1,2-Dichloroethene	1.05314	1.04256	0.010	1.00523	30.00000	Averaged
22 MTBE	4.90456	4.88886	0.010	0.32013	30.00000	Averaged
25 1,1-Dichloroethane	3.93387	3.91541	0.010	0.46913	30.00000	Averaged
28 cis-1,2-Dichloroethene	1.21091	1.18179	0.010	2.40499	30.00000	Averaged
32 Chloroform	2.52251	2.33257	0.010	7.52974	30.00000	Averaged
34 1,1,1-Trichloroethane	3.95901	3.80525	0.010	3.88364	30.00000	Averaged
35 Carbon Tetrachloride	3.80105	3.91247	0.010	-2.93123	30.00000	Averaged
36 Benzene	1.41742	1.16953	0.010	17.48895	30.00000	Averaged
38 1,2-Dichloroethane	0.63464	0.63694	0.010	-0.36323	30.00000	Averaged
41 Trichloroethene	0.65046	0.54449	0.010	16.29161	30.00000	Averaged
48 Toluene	1.45663	1.35258	0.010	7.14318	30.00000	Averaged
50 1,1,2-Trichloroethane	0.66780	0.62108	0.010	6.99590	30.00000	Averaged
51 Tetrachloroethene	1.09820	0.92145	0.010	16.09462	30.00000	Averaged
55 1,2-Dibromoethane	1.05361	0.98299	0.010	6.70297	30.00000	Averaged
58 Ethyl Benzene	0.70759	0.66384	0.010	6.18265	30.00000	Averaged
59 m,p-Xylene	0.77523	0.72340	0.010	6.68547	30.00000	Averaged
61 o-Xylene	0.75101	0.70388	0.010	6.27534	30.00000	Averaged
67 1,1,2,2-Tetrachloroethane	1.42314	1.20882	0.010	15.05944	30.00000	Averaged
73 1,4-Dichlorobenzene	1.20311	0.97058	0.010	19.32723	30.00000	Averaged
78 Naphthalene	1.47899	1.06406	0.010	28.05512	40.00000	Averaged

Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/28Aug2013.b/e082802sim.d
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 28-AUG-2013 14:14
Operator : sab Inst ID: msde.i
Smp Info : 50mL# 2588-148
Misc Info : 10ppbv (50ppbv)
Comment : SIM/ GC-MS
Method : /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Meth Date : 29-Aug-2013 14:40 lover Quant Type: ISTD
Cal Date : 27-AUG-2013 09:01 Cal File: e082616sim.d
Als bottle: 31 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: AT09.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				AMOUNTS				
				CAL-AMT	ON-COL			
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE		RATIO
==	====== ========	====	========	=======	=======	==========		=====
* 31 Bromochloromethane						CAS #: 74-97-5		
16.060	16.060 (1.000)	130	82006	5.00000		80.00- 120.00		100.00
16.060	16.060 (1.000)	128	64082			0.00- 30.00		78.14
16.060	16.060 (1.000)	49	230576			0.00- 30.00		281.17
* 40 1,4-Difluorobenzene						CAS #: 540-36-3		
17.492	17.492 (1.000)	114	379974	5.00000		80.00- 120.00		100.00
17.492	17.492 (1.000)	88	60566			0.00- 45.94		15.94
* 56 Chlorobenzene-d5						CAS #: 3114-55-4		
22.846	22.846 (1.000)	117	304786	5.00000		80.00- 120.00		100.00
22.846	22.846 (1.000)	82	156602			0.00- 30.00		51.38
$ 37 1,2-Dichloroethane-d4						CAS #: 17060-07-0		
16.914	16.914 (1.053)	65	123073	5.00000	4.845	80.00- 120.00		100.00
16.914	16.914 (1.053)	67	58608			0.00- 30.00		47.62
$ 47 Toluene-d8						CAS #: 2037-26-5		
20.260	20.260 (1.158)	98	309001	5.00000	5.041	80.00- 120.00		100.00
20.260	20.260 (1.158)	70	35884			0.00- 41.61		11.61

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
$ 47 Toluene-d8 (continued)							
20.260	20.260 (1.158)	100	216832			40.17- 100.17	70.17
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.440	24.440 (1.070)	174	163466	5.00000	4.824	80.00- 120.00	100.00
24.440	24.440 (1.070)	95	189613			86.00- 146.00	116.00
24.440	24.440 (1.070)	176	157448			66.32- 126.32	96.32
2 Dichlorodifluoromethane/Fr12					CAS #: 75-71-8		
5.879	5.879 (0.366)	85	693038	10.0000	9.749	80.00- 120.00	100.00
5.879	5.879 (0.366)	87	224075			0.00- 30.00	32.33
3 Freon 114					CAS #: 76-14-2		
7.228	7.228 (0.450)	135	560941	10.0000	9.522	80.00- 120.00	100.00
7.228	7.228 (0.450)	137	178918			0.00- 30.00	31.90
4 Chloromethane					CAS #: 74-87-3		
7.614	7.614 (0.474)	50	371013	10.0000	9.457	80.00- 120.00	100.00
7.614	7.614 (0.474)	52	120028			0.00- 30.00	32.35
5 Vinyl Chloride					CAS #: 75-01-4		
8.454	8.454 (0.526)	62	354642	10.0000	9.605	80.00- 120.00	100.00
8.454	8.454 (0.526)	64	103423			0.00- 59.16	29.16
10 Chloroethane					CAS #: 75-00-3		
10.646	10.646 (0.663)	64	187961	10.0000	10.152	80.00- 120.00	100.00
10.646	10.646 (0.663)	66	54887			0.00- 30.00	29.20
16 1,1-Dichloroethene					CAS #: 75-35-4		
12.740	12.740 (0.793)	98	168108	10.0000	9.275	80.00- 120.00	100.00
12.740	12.740 (0.793)	61	569834			0.00- 30.00	338.97
12.740	12.740 (0.793)	96	264810			0.00- 30.00	157.52
23 trans-1,2-Dichloroethene					CAS #: 156-60-5		
14.167	14.167 (0.882)	98	170992	10.0000	9.899	80.00- 120.00	100.00
14.167	14.167 (0.882)	61	505948			0.00- 30.00	295.89
14.167	14.167 (0.882)	96	268463			0.00- 30.00	157.00
22 MTBE					CAS #: 1634-04-4		
14.112	14.112 (0.879)	73	801831	10.0000	9.968	80.00- 120.00	100.00
14.085	14.085 (0.877)	57	260715			0.00- 30.00	32.51
14.085	14.085 (0.877)	41	224389			0.00- 30.00	27.98
25 1,1-Dichloroethane					CAS #: 75-34-3		
14.881	14.881 (0.927)	63	642175	10.0000	9.953	80.00- 120.00	100.00
14.881	14.881 (0.927)	65	188636			0.00- 59.37	29.37

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
28 cis-1,2-Dichloroethene					CAS #: 156-59-2		
15.708	15.708 (0.978)	98	193827	10.0000	9.760	80.00- 120.00	100.00
15.708	15.708 (0.978)	61	523460			0.00- 30.00	270.07
15.708	15.708 (0.978)	96	303686			0.00- 30.00	156.68
32 Chloroform					CAS #: 67-66-3		
16.121	16.121 (1.004)	85	382569	10.0000	9.247	80.00- 120.00	100.00
16.121	16.121 (1.004)	83	590414			124.33- 184.33	154.33
34 1,1,1-Trichloroethane					CAS #: 71-55-6		
16.368	16.368 (1.019)	97	624107	10.0000	9.612	80.00- 120.00	100.00
16.368	16.368 (1.019)	99	401405			34.32- 94.32	64.32
35 Carbon Tetrachloride					CAS #: 56-23-5		
16.584	16.584 (1.033)	117	641692	10.0000	10.293	80.00- 120.00	100.00
16.584	16.584 (1.033)	119	617603			66.25- 126.25	96.25
36 Benzene					CAS #: 71-43-2		
16.914	16.914 (0.967)	78	888780	10.0000	8.251	80.00- 120.00	100.00
16.914	16.914 (0.967)	77	202302			0.00- 30.00	22.76
38 1,2-Dichloroethane					CAS #: 107-06-2		
17.031	17.031 (0.974)	62	484043	10.0000	10.036	80.00- 120.00	100.00
17.031	17.031 (0.974)	64	144583			0.00- 30.00	29.87
41 Trichloroethene					CAS #: 79-01-6		
17.931	17.931 (1.025)	130	413786	10.0000	8.371	80.00- 120.00	100.00
17.904	17.904 (1.024)	95	392401			64.83- 124.83	94.83
17.931	17.931 (1.025)	97	253112			31.17- 91.17	61.17
48 Toluene					CAS #: 108-88-3		
20.394	20.394 (1.166)	91	1027889	10.0000	9.286	80.00- 120.00	100.00
20.394	20.394 (1.166)	92	615093			29.84- 89.84	59.84
50 1,1,2-Trichloroethane					CAS #: 79-00-5		
21.264	21.264 (0.931)	97	378591	10.0000	9.300	80.00- 120.00	100.00
21.264	21.264 (0.931)	99	236964			32.59- 92.59	62.59
21.264	21.264 (0.931)	83	316577			53.62- 113.62	83.62
51 Tetrachloroethene					CAS #: 127-18-4		
21.426	21.426 (0.938)	166	561690	10.0000	8.390	80.00- 120.00	100.00
21.426	21.426 (0.938)	129	382241			38.05- 98.05	68.05
21.426	21.426 (0.938)	131	389319			39.31- 99.31	69.31
55 1,2-Dibromoethane					CAS #: 106-93-4		
22.207	22.207 (0.972)	107	599203	10.0000	9.330	80.00- 120.00	100.00

RT	EXP RT (REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	ON-COL (PPBV)	TARGET RANGE	RATIO
55 1,2-Dibromoethane (continued)							
22.207	22.207 (0.972)	109	566842			64.60- 124.60	94.60
58 Ethyl Benzene					CAS #: 100-41-4		
22.967	22.967 (1.005)	106	404661	10.0000	9.382	80.00- 120.00	100.00
22.967	22.967 (1.005)	91	1259804			0.00- 30.00	311.32
59 m,p-Xylene					CAS #: 108-38-3		
23.135	23.135 (1.013)	106	440965	10.0000	9.331	80.00- 120.00	100.00
23.135	23.135 (1.013)	91	863824			0.00- 30.00	195.89
61 o-Xylene					CAS #: 95-47-6		
23.714	23.714 (1.038)	106	429068	10.0000	9.372	80.00- 120.00	100.00
23.714	23.714 (1.038)	91	888324			177.04- 237.04	207.04
67 1,1,2,2-Tetrachloroethane					CAS #: 79-34-5		
24.620	24.620 (1.078)	83	736864	10.0000	8.494	80.00- 120.00	100.00
24.620	24.620 (1.078)	85	475789			34.57- 94.57	64.57
73 1,4-Dichlorobenzene					CAS #: 106-46-7		
25.841	25.841 (1.131)	146	591641	10.0000	8.067	80.00- 120.00	100.00
25.841	25.841 (1.131)	148	376231			0.00- 30.00	63.59
25.841	25.841 (1.131)	111	230409			0.00- 30.00	38.94
78 Naphthalene					CAS #: 91-20-3		
28.397	28.397 (1.243)	128	64862	1.00000	0.7194	80.00- 120.00	100.00
28.397	28.397 (1.243)	127	8101			0.00- 30.00	12.49

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082802sim.d
Lab Smp Id: CCV
Analysis Type: VOA
Quant Type: ISTD
Operator: sab
Method File: /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Misc Info: 10ppbv (50ppbv)

Calibration Date: 28-AUG-2013
Calibration Time: 14:14
Client Smp ID: CCV
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	82006	49204	114808	82006	0.00
40 1,4-Difluorobenze	379974	227984	531964	379974	0.00
56 Chlorobenzene-d5	304786	182872	426700	304786	0.00

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.06	15.73	16.39	16.06	0.00
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msde.i/28Aug2013.b/e082802sim.d

Date : 28-AUG-2013 14:14

Client ID: CCV

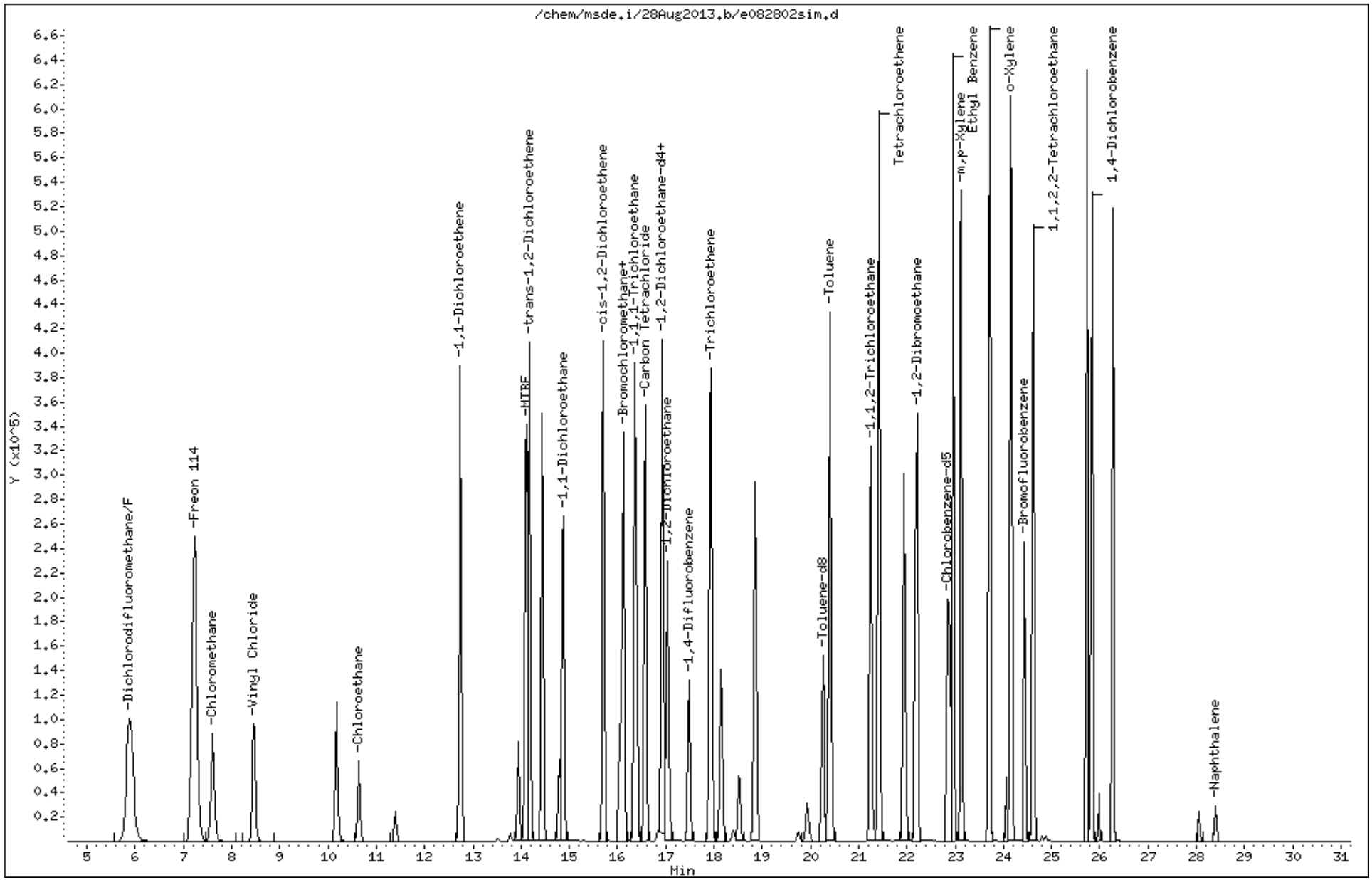
Instrument: msde.i

Sample Info: 50mL# 2588-148

Operator: sab

Column phase: RTx-624

Column diameter: 0.53



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Client Sample ID: LCS

Lab ID#: 1308654-07A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**e082803sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/28/13 02:59 PM**	

Compound	%Recovery	Method Limits
Vinyl Chloride	96	70-130
1,1-Dichloroethene	96	70-130
1,1-Dichloroethane	98	70-130
cis-1,2-Dichloroethene	96	70-130
1,1,1-Trichloroethane	95	70-130
Benzene	81	70-130
1,2-Dichloroethane	98	70-130
Trichloroethene	83	70-130
Toluene	90	70-130
1,1,2-Trichloroethane	92	70-130
Tetrachloroethene	82	70-130
Ethyl Benzene	92	70-130
m,p-Xylene	92	70-130
o-Xylene	91	70-130
1,1,2,2-Tetrachloroethane	85	70-130
trans-1,2-Dichloroethene	109	70-130
Methyl tert-butyl ether	99	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	96	70-130

Eurofins Air Toxics Inc.

RECOVERY REPORT

Client Name: Client SDG: 28Aug2013
Sample Matrix: GAS Fraction: VOA
Lab Smp Id: LCS Client Smp ID: LCS
Level: LOW Operator: sab
Data Type: MS DATA SampleType: LCS
SpikeList File: AT09.spk Quant Type: ISTD
Sublist File: AT09.sub
Method File: /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Misc Info: 10ppbv (50ppbv)

SPIKE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED	LIMITS
2 Dichlorodifluorome	10.000	9.642	96.42	60-140
3 Freon 114	10.000	9.316	93.16	60-140
4 Chloromethane	10.000	9.480	94.80	60-140
5 Vinyl Chloride	10.000	9.600	96.00	70-130
10 Chloroethane	10.000	9.894	98.94	60-140
16 1,1-Dichloroethene	10.000	9.610	96.10	70-130
22 MTBE	10.000	9.907	99.07	70-130
23 trans-1,2-Dichloro	10.000	10.877	108.77	70-130
25 1,1-Dichloroethane	10.000	9.798	97.99	70-130
28 cis-1,2-Dichloroet	10.000	9.633	96.33	70-130
32 Chloroform	10.000	9.190	91.90	60-140
34 1,1,1-Trichloroeth	10.000	9.529	95.29	70-130
35 Carbon Tetrachlori	10.000	7.794	77.94	60-140
36 Benzene	10.000	8.132	81.32	70-130
38 1,2-Dichloroethane	10.000	9.836	98.36	70-130
41 Trichloroethene	10.000	8.268	82.68	70-130
48 Toluene	10.000	8.989	89.89	70-130
50 1,1,2-Trichloroeth	10.000	9.194	91.94	70-130
51 Tetrachloroethene	10.000	8.230	82.30	70-130
55 1,2-Dibromoethane	10.000	9.309	93.09	60-140
58 Ethyl Benzene	10.000	9.181	91.81	70-130
59 m,p-Xylene	10.000	9.182	91.82	70-130
61 o-Xylene	10.000	9.099	90.99	70-130
67 1,1,2,2-Tetrachlor	10.000	8.521	85.21	70-130
73 1,4-Dichlorobenzen	10.000	7.664	76.64	70-130
78 Naphthalene	1.000	0.7631	76.31	60-140

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED	LIMITS
$ 37 1,2-Dichloroethane	5.000	4.802	96.04	70-130

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED	LIMITS
$ 47 Toluene-d8	5.000	5.037	100.73	70-130
$ 65 Bromofluorobenzene	5.000	4.790	95.81	70-130

Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/28Aug2013.b/e082803sim.d
Lab Smp Id: LCS Client Smp ID: LCS
Inj Date : 28-AUG-2013 14:59
Operator : sab Inst ID: msde.i
Smp Info : 50mL #2588-79; LCS; LCS
Misc Info : 10ppbv (50ppbv)
Comment : SIM/ GC-MS
Method : /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Meth Date : 28-Aug-2013 15:54 sblack Quant Type: ISTD
Cal Date : 27-AUG-2013 09:01 Cal File: e082616sim.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: AT09.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				CONCENTRATIONS ON-COL	FINAL		
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE	RATIO
* 31 Bromochloromethane						CAS #: 74-97-5	
16.060	16.060 (1.000)	130	81050	5.00000		80.00- 120.00	100.00
16.060	16.060 (1.000)	128	63424			0.00- 30.00	78.25
16.060	16.060 (1.000)	49	226362			0.00- 30.00	279.29
* 40 1,4-Difluorobenzene						CAS #: 540-36-3	
17.492	17.492 (1.000)	114	376687	5.00000		80.00- 120.00	100.00
17.492	17.492 (1.000)	88	60255			0.00- 45.94	16.00
* 56 Chlorobenzene-d5						CAS #: 3114-55-4	
22.846	22.846 (1.000)	117	299182	5.00000		80.00- 120.00	100.00
22.846	22.846 (1.000)	82	154463			0.00- 30.00	51.63
$ 37 1,2-Dichloroethane-d4						CAS #: 17060-07-0	
16.914	16.914 (1.053)	65	120557	4.80223	4.802	80.00- 120.00	100.00
16.914	16.914 (1.053)	67	56875			0.00- 30.00	47.18
$ 47 Toluene-d8						CAS #: 2037-26-5	
20.260	20.260 (1.158)	98	306050	5.03662	5.037	80.00- 120.00	100.00
20.260	20.260 (1.158)	70	35371			0.00- 41.61	11.56

RT	EXP RT (REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
$ 47 Toluene-d8 (continued)							
20.260	20.260 (1.158)	100	213301			40.17- 100.17	69.69
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.440	24.440 (1.070)	174	159342	4.79031	4.790	80.00- 120.00	100.00
24.440	24.440 (1.070)	95	184619			86.00- 146.00	115.86
24.440	24.440 (1.070)	176	153237			66.32- 126.32	96.17
2 Dichlorodifluoromethane/Fr12					CAS #: 75-71-8		
5.903	5.879 (0.368)	85	677465	9.64230	9.642	80.00- 120.00	100.00
5.903	5.879 (0.368)	87	218276			0.00- 30.00	32.22
3 Freon 114					CAS #: 76-14-2		
7.228	7.228 (0.450)	135	542446	9.31635	9.316	80.00- 120.00	100.00
7.253	7.228 (0.452)	137	173168			0.00- 30.00	31.92
4 Chloromethane					CAS #: 74-87-3		
7.614	7.614 (0.474)	50	367565	9.47998	9.480	80.00- 120.00	100.00
7.614	7.614 (0.474)	52	119209			0.00- 30.00	32.43
5 Vinyl Chloride					CAS #: 75-01-4		
8.471	8.454 (0.527)	62	350333	9.60047	9.600	80.00- 120.00	100.00
8.471	8.454 (0.527)	64	102768			0.00- 59.16	29.33
10 Chloroethane					CAS #: 75-00-3		
10.646	10.646 (0.663)	64	181041	9.89387	9.894	80.00- 120.00	100.00
10.646	10.646 (0.663)	66	52404			0.00- 30.00	28.95
16 1,1-Dichloroethene					CAS #: 75-35-4		
12.740	12.740 (0.793)	98	172147	9.61032	9.610	80.00- 120.00	100.00
12.740	12.740 (0.793)	61	583399			0.00- 30.00	338.90
12.740	12.740 (0.793)	96	271182			0.00- 30.00	157.53
23 trans-1,2-Dichloroethene					CAS #: 156-60-5		
14.167	14.167 (0.882)	98	185683	10.8768	10.877	80.00- 120.00	100.00
14.167	14.167 (0.882)	61	548583			0.00- 30.00	295.44
14.167	14.167 (0.882)	96	291756			0.00- 30.00	157.13
22 MTBE					CAS #: 1634-04-4		
14.112	14.112 (0.879)	73	787631	9.90695	9.907	80.00- 120.00	100.00
14.085	14.085 (0.877)	57	268406			0.00- 30.00	34.08
14.085	14.085 (0.877)	41	224146			0.00- 30.00	28.46
25 1,1-Dichloroethane					CAS #: 75-34-3		
14.881	14.881 (0.927)	63	624834	9.79855	9.798	80.00- 120.00	100.00
14.881	14.881 (0.927)	65	182697			0.00- 59.37	29.24

RT	EXP RT (REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	CONCENTRATIONS FINAL (PPBV)	TARGET RANGE	RATIO
28 cis-1,2-Dichloroethene					CAS #: 156-59-2		
15.708	15.708 (0.978)	98	189084	9.63298	9.633	80.00- 120.00	100.00
15.708	15.708 (0.978)	61	511682			0.00- 30.00	270.61
15.708	15.708 (0.978)	96	296301			0.00- 30.00	156.70
32 Chloroform					CAS #: 67-66-3		
16.121	16.121 (1.004)	85	375782	9.19011	9.190	80.00- 120.00	100.00
16.121	16.121 (1.004)	83	578902			124.33- 184.33	154.05
34 1,1,1-Trichloroethane					CAS #: 71-55-6		
16.368	16.368 (1.019)	97	611507	9.52867	9.529	80.00- 120.00	100.00
16.368	16.368 (1.019)	99	392402			34.32- 94.32	64.17
35 Carbon Tetrachloride					CAS #: 56-23-5		
16.584	16.584 (1.033)	117	480239	7.79418	7.794	80.00- 120.00	100.00
16.584	16.584 (1.033)	119	462466			66.25- 126.25	96.30
36 Benzene					CAS #: 71-43-2		
16.914	16.914 (0.967)	78	868363	8.13191	8.132	80.00- 120.00	100.00
16.914	16.914 (0.967)	77	202761			0.00- 30.00	23.35
38 1,2-Dichloroethane					CAS #: 107-06-2		
17.031	17.031 (0.974)	62	470293	9.83632	9.836	80.00- 120.00	100.00
17.031	17.031 (0.974)	64	140938			0.00- 30.00	29.97
41 Trichloroethene					CAS #: 79-01-6		
17.931	17.931 (1.025)	130	405155	8.26776	8.268	80.00- 120.00	100.00
17.904	17.904 (1.024)	95	384651			64.83- 124.83	94.94
17.931	17.931 (1.025)	97	248232			31.17- 91.17	61.27
48 Toluene					CAS #: 108-88-3		
20.394	20.394 (1.166)	91	986413	8.98876	8.989	80.00- 120.00	100.00
20.394	20.394 (1.166)	92	590879			29.84- 89.84	59.90
50 1,1,2-Trichloroethane					CAS #: 79-00-5		
21.264	21.264 (0.931)	97	367361	9.19357	9.194	80.00- 120.00	100.00
21.264	21.264 (0.931)	99	228704			32.59- 92.59	62.26
21.264	21.264 (0.931)	83	308316			53.62- 113.62	83.93
51 Tetrachloroethene					CAS #: 127-18-4		
21.426	21.426 (0.938)	166	540800	8.22980	8.230	80.00- 120.00	100.00
21.426	21.426 (0.938)	129	371578			38.05- 98.05	68.71
21.426	21.426 (0.938)	131	376809			39.31- 99.31	69.68
55 1,2-Dibromoethane					CAS #: 106-93-4		
22.207	22.207 (0.972)	107	586907	9.30942	9.309	80.00- 120.00	100.00

RT	EXP RT (REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
55 1,2-Dibromoethane (continued)							
22.207	22.207 (0.972)	109	554493			64.60- 124.60	94.48
58 Ethyl Benzene					CAS #: 100-41-4		
22.967	22.967 (1.005)	106	388725	9.18108	9.181	80.00- 120.00	100.00
22.967	22.967 (1.005)	91	1206509			0.00- 30.00	310.38
59 m,p-Xylene					CAS #: 108-38-3		
23.135	23.135 (1.013)	106	425935	9.18223	9.182	80.00- 120.00	100.00
23.135	23.135 (1.013)	91	831175			0.00- 30.00	195.14
61 o-Xylene					CAS #: 95-47-6		
23.714	23.714 (1.038)	106	408873	9.09862	9.099	80.00- 120.00	100.00
23.714	23.714 (1.038)	91	845723			177.04- 237.04	206.84
67 1,1,2,2-Tetrachloroethane					CAS #: 79-34-5		
24.620	24.620 (1.078)	83	725618	8.52109	8.521	80.00- 120.00	100.00
24.620	24.620 (1.078)	85	469397			34.57- 94.57	64.69
73 1,4-Dichlorobenzene					CAS #: 106-46-7		
25.841	25.841 (1.131)	146	551721	7.66386	7.664	80.00- 120.00	100.00
25.841	25.841 (1.131)	148	360056			0.00- 30.00	65.26
25.841	25.841 (1.131)	111	216032			0.00- 30.00	39.16
78 Naphthalene					CAS #: 91-20-3		
28.397	28.397 (1.243)	128	67535	0.76313	0.7631	80.00- 120.00	100.00
28.397	28.397 (1.243)	127	8527			0.00- 30.00	12.63

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082803sim.d
Lab Smp Id: LCS
Analysis Type: VOA
Quant Type: ISTD
Operator: sab
Method File: /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Misc Info: 10ppbv (50ppbv)

Calibration Date: 28-AUG-2013
Calibration Time: 14:14
Client Smp ID: LCS
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	82006	49204	114808	81050	-1.17
40 1,4-Difluorobenze	379974	227984	531964	376687	-0.87
56 Chlorobenzene-d5	304786	182872	426700	299182	-1.84

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.06	15.73	16.39	16.06	0.00
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msde.i/28Aug2013.b/e082803sim.d

Date : 28-AUG-2013 14:59

Client ID: LCS

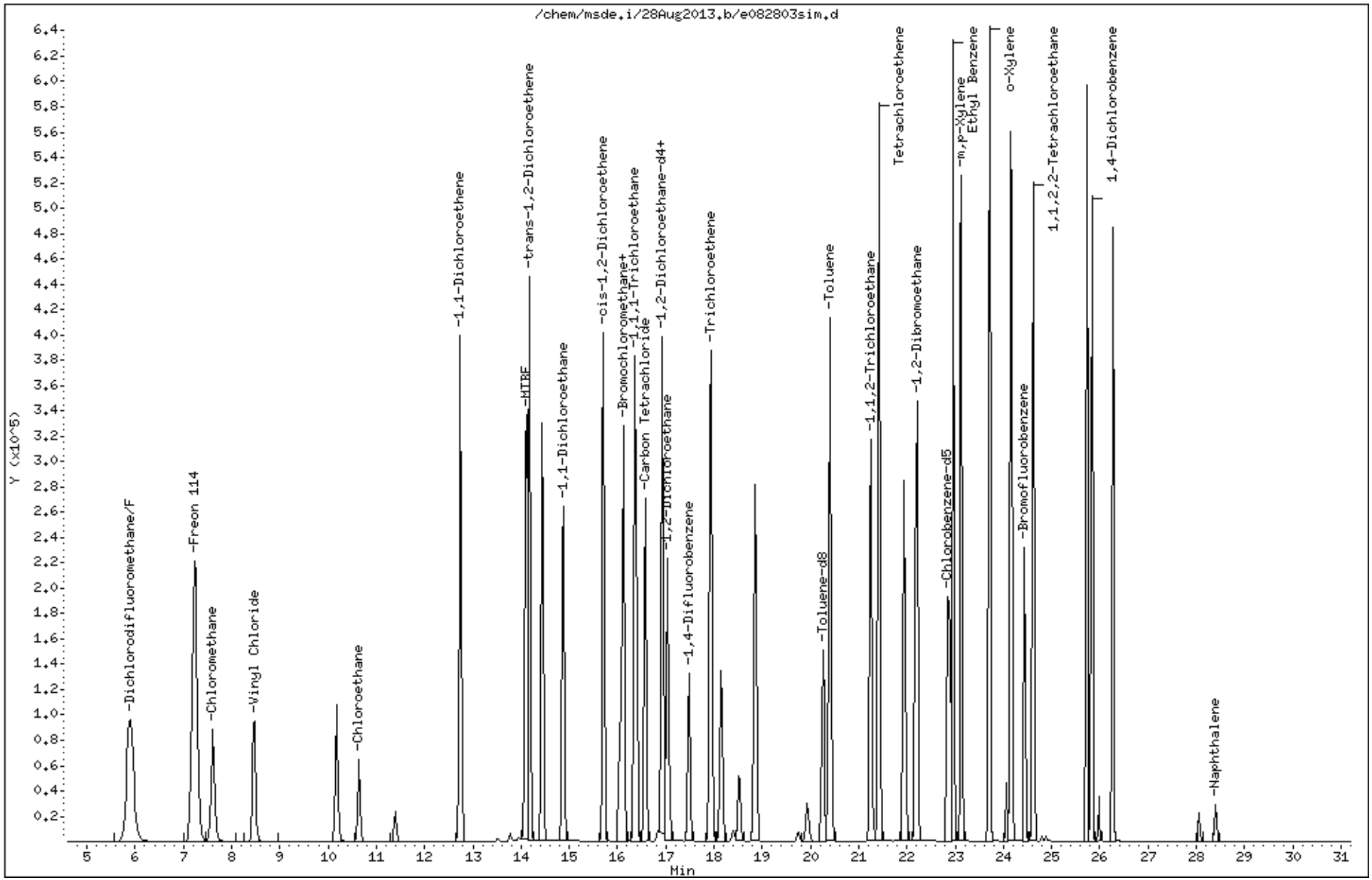
Instrument: msde.i

Sample Info: 50mL #2588-79; LCS; LCS

Operator: sab

Column phase: RTx-624

Column diameter: 0.53



eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 1308654-07AA

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**e082804sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/28/13 03:40 PM**	

Compound	%Recovery	Method Limits
Vinyl Chloride	93	70-130
1,1-Dichloroethene	94	70-130
1,1-Dichloroethane	96	70-130
cis-1,2-Dichloroethene	95	70-130
1,1,1-Trichloroethane	93	70-130
Benzene	80	70-130
1,2-Dichloroethane	97	70-130
Trichloroethene	81	70-130
Toluene	89	70-130
1,1,2-Trichloroethane	89	70-130
Tetrachloroethene	80	70-130
Ethyl Benzene	89	70-130
m,p-Xylene	90	70-130
o-Xylene	89	70-130
1,1,2,2-Tetrachloroethane	83	70-130
trans-1,2-Dichloroethene	107	70-130
Methyl tert-butyl ether	96	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	96	70-130

Eurofins Air Toxics Inc.

RECOVERY REPORT

Client Name: Client SDG: 28Aug2013
Sample Matrix: GAS Fraction: VOA
Lab Smp Id: LCSD Client Smp ID: LCSD
Level: LOW Operator: sab
Data Type: MS DATA SampleType: LCSD
SpikeList File: AT09.spk Quant Type: ISTD
Sublist File: AT09.sub
Method File: /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Misc Info: 10ppbv (50ppbv)

SPIKE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED	LIMITS
2 Dichlorodifluorome	10.000	9.346	93.46	60-140
3 Freon 114	10.000	9.063	90.63	60-140
4 Chloromethane	10.000	9.212	92.12	60-140
5 Vinyl Chloride	10.000	9.349	93.49	70-130
10 Chloroethane	10.000	9.649	96.49	60-140
16 1,1-Dichloroethene	10.000	9.423	94.23	70-130
22 MTBE	10.000	9.644	96.45	70-130
23 trans-1,2-Dichloro	10.000	10.692	106.92	70-130
25 1,1-Dichloroethane	10.000	9.599	95.99	70-130
28 cis-1,2-Dichloroet	10.000	9.464	94.64	70-130
32 Chloroform	10.000	9.011	90.11	60-140
34 1,1,1-Trichloroeth	10.000	9.334	93.34	70-130
35 Carbon Tetrachlori	10.000	7.658	76.58	60-140
36 Benzene	10.000	7.971	79.71	70-130
38 1,2-Dichloroethane	10.000	9.689	96.89	70-130
41 Trichloroethene	10.000	8.114	81.14	70-130
48 Toluene	10.000	8.872	88.72	70-130
50 1,1,2-Trichloroeth	10.000	8.896	88.96	70-130
51 Tetrachloroethene	10.000	8.001	80.01	70-130
55 1,2-Dibromoethane	10.000	9.072	90.72	60-140
58 Ethyl Benzene	10.000	8.931	89.31	70-130
59 m,p-Xylene	10.000	8.951	89.51	70-130
61 o-Xylene	10.000	8.901	89.01	70-130
67 1,1,2,2-Tetrachlor	10.000	8.335	83.35	70-130
73 1,4-Dichlorobenzen	10.000	7.636	76.36	70-130
78 Naphthalene	1.000	0.7568	75.68	60-140

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED	LIMITS
$ 37 1,2-Dichloroethane	5.000	4.778	95.56	70-130

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED	LIMITS
$ 47 Toluene-d8	5.000	5.038	100.77	70-130
$ 65 Bromofluorobenzene	5.000	4.805	96.09	70-130

Eurofins Air Toxics Inc.

EPA TO-15/ Modified EPA TO-14A

Data file : /chem/msde.i/28Aug2013.b/e082804sim.d
Lab Smp Id: LCSD Client Smp ID: LCSD
Inj Date : 28-AUG-2013 15:40
Operator : sab Inst ID: msde.i
Smp Info : 50mL #2588-79; LCSD; LCSD
Misc Info : 10ppbv (50ppbv)
Comment : SIM/ GC-MS
Method : /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Meth Date : 28-Aug-2013 15:54 sblack Quant Type: ISTD
Cal Date : 27-AUG-2013 09:01 Cal File: e082616sim.d
Als bottle: 1 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: AT09.sub
Target Version: 3.50 Sample Matrix: AIR
Processing Host: eeyore

Concentration Formula: Amt * DF * 0 * CpndVariable

Cpnd Variable Local Compound Variable

				CONCENTRATIONS ON-COL	FINAL		
RT	EXP RT (REL RT)	MASS	RESPONSE	(PPBV)	(PPBV)	TARGET RANGE	RATIO
* 31 Bromochloromethane						CAS #: 74-97-5	
16.060	16.060 (1.000)	130	81090	5.00000		80.00- 120.00	100.00
16.060	16.060 (1.000)	128	63505			0.00- 30.00	78.31
16.060	16.060 (1.000)	49	225301			0.00- 30.00	277.84
* 40 1,4-Difluorobenzene						CAS #: 540-36-3	
17.492	17.492 (1.000)	114	376641	5.00000		80.00- 120.00	100.00
17.492	17.492 (1.000)	88	60315			0.00- 45.94	16.01
* 56 Chlorobenzene-d5						CAS #: 3114-55-4	
22.846	22.846 (1.000)	117	302466	5.00000		80.00- 120.00	100.00
22.846	22.846 (1.000)	82	154883			0.00- 30.00	51.21
$ 37 1,2-Dichloroethane-d4						CAS #: 17060-07-0	
16.914	16.914 (1.053)	65	120007	4.77796	4.778	80.00- 120.00	100.00
16.914	16.914 (1.053)	67	55712			0.00- 30.00	46.42
$ 47 Toluene-d8						CAS #: 2037-26-5	
20.260	20.260 (1.158)	98	306125	5.03847	5.038	80.00- 120.00	100.00
20.260	20.260 (1.158)	70	35615			0.00- 41.61	11.63

RT	EXP RT (REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
$ 47 Toluene-d8 (continued)							
20.260	20.260 (1.158)	100	213902			40.17- 100.17	69.87
$ 65 Bromofluorobenzene					CAS #: 460-00-4		
24.440	24.440 (1.070)	174	161574	4.80468	4.805	80.00- 120.00	100.00
24.440	24.440 (1.070)	95	186697			86.00- 146.00	115.55
24.440	24.440 (1.070)	176	155058			66.32- 126.32	95.97
2 Dichlorodifluoromethane/Fr12					CAS #: 75-71-8		
5.903	5.879 (0.368)	85	656988	9.34624	9.346	80.00- 120.00	100.00
5.903	5.879 (0.368)	87	211415			0.00- 30.00	32.18
3 Freon 114					CAS #: 76-14-2		
7.253	7.228 (0.452)	135	527971	9.06327	9.063	80.00- 120.00	100.00
7.253	7.228 (0.452)	137	169207			0.00- 30.00	32.05
4 Chloromethane					CAS #: 74-87-3		
7.614	7.614 (0.474)	50	357333	9.21153	9.212	80.00- 120.00	100.00
7.614	7.614 (0.474)	52	117672			0.00- 30.00	32.93
5 Vinyl Chloride					CAS #: 75-01-4		
8.471	8.454 (0.527)	62	341321	9.34889	9.349	80.00- 120.00	100.00
8.471	8.454 (0.527)	64	100107			0.00- 59.16	29.33
10 Chloroethane					CAS #: 75-00-3		
10.646	10.646 (0.663)	64	176651	9.64920	9.649	80.00- 120.00	100.00
10.646	10.646 (0.663)	66	51023			0.00- 30.00	28.88
16 1,1-Dichloroethene					CAS #: 75-35-4		
12.740	12.740 (0.793)	98	168882	9.42340	9.423	80.00- 120.00	100.00
12.740	12.740 (0.793)	61	573284			0.00- 30.00	339.46
12.740	12.740 (0.793)	96	266431			0.00- 30.00	157.76
23 trans-1,2-Dichloroethene					CAS #: 156-60-5		
14.167	14.167 (0.882)	98	182623	10.6923	10.692	80.00- 120.00	100.00
14.167	14.167 (0.882)	61	540797			0.00- 30.00	296.13
14.167	14.167 (0.882)	96	287298			0.00- 30.00	157.32
22 MTBE					CAS #: 1634-04-4		
14.112	14.112 (0.879)	73	767151	9.64459	9.644	80.00- 120.00	100.00
14.085	14.085 (0.877)	57	260622			0.00- 30.00	33.97
14.085	14.085 (0.877)	41	217733			0.00- 30.00	28.38
25 1,1-Dichloroethane					CAS #: 75-34-3		
14.881	14.881 (0.927)	63	612437	9.59940	9.599	80.00- 120.00	100.00
14.881	14.881 (0.927)	65	179402			0.00- 59.37	29.29

RT	EXP RT (REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	CONCENTRATIONS FINAL (PPBV)	TARGET RANGE	RATIO
28 cis-1,2-Dichloroethene					CAS #: 156-59-2		
15.708	15.708 (0.978)	98	185868	9.46447	9.464	80.00- 120.00	100.00
15.708	15.708 (0.978)	61	503291			0.00- 30.00	270.78
15.708	15.708 (0.978)	96	291526			0.00- 30.00	156.85
32 Chloroform					CAS #: 67-66-3		
16.122	16.121 (1.004)	85	368655	9.01137	9.011	80.00- 120.00	100.00
16.122	16.121 (1.004)	83	569523			124.33- 184.33	154.49
34 1,1,1-Trichloroethane					CAS #: 71-55-6		
16.368	16.368 (1.019)	97	599289	9.33368	9.334	80.00- 120.00	100.00
16.368	16.368 (1.019)	99	386045			34.32- 94.32	64.42
35 Carbon Tetrachloride					CAS #: 56-23-5		
16.584	16.584 (1.033)	117	472088	7.65811	7.658	80.00- 120.00	100.00
16.584	16.584 (1.033)	119	453825			66.25- 126.25	96.13
36 Benzene					CAS #: 71-43-2		
16.914	16.914 (0.967)	78	851082	7.97105	7.971	80.00- 120.00	100.00
16.914	16.914 (0.967)	77	193875			0.00- 30.00	22.78
38 1,2-Dichloroethane					CAS #: 107-06-2		
17.031	17.031 (0.974)	62	463201	9.68917	9.689	80.00- 120.00	100.00
17.031	17.031 (0.974)	64	138467			0.00- 30.00	29.89
41 Trichloroethene					CAS #: 79-01-6		
17.932	17.931 (1.025)	130	397590	8.11437	8.114	80.00- 120.00	100.00
17.904	17.904 (1.024)	95	377460			64.83- 124.83	94.94
17.932	17.931 (1.025)	97	243774			31.17- 91.17	61.31
48 Toluene					CAS #: 108-88-3		
20.394	20.394 (1.166)	91	973448	8.87170	8.872	80.00- 120.00	100.00
20.394	20.394 (1.166)	92	581881			29.84- 89.84	59.78
50 1,1,2-Trichloroethane					CAS #: 79-00-5		
21.264	21.264 (0.931)	97	359374	8.89604	8.896	80.00- 120.00	100.00
21.264	21.264 (0.931)	99	224232			32.59- 92.59	62.40
21.264	21.264 (0.931)	83	300497			53.62- 113.62	83.62
51 Tetrachloroethene					CAS #: 127-18-4		
21.426	21.426 (0.938)	166	531568	8.00148	8.001	80.00- 120.00	100.00
21.426	21.426 (0.938)	129	362938			38.05- 98.05	68.28
21.426	21.426 (0.938)	131	369644			39.31- 99.31	69.54
55 1,2-Dibromoethane					CAS #: 106-93-4		
22.207	22.207 (0.972)	107	578242	9.07239	9.072	80.00- 120.00	100.00

RT	EXP RT (REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	CONCENTRATIONS FINAL (PPBV)	TARGET RANGE	RATIO
55 1,2-Dibromoethane (continued)							
22.207	22.207 (0.972)	109	546856			64.60- 124.60	94.57
58 Ethyl Benzene					CAS #: 100-41-4		
22.967	22.967 (1.005)	106	382289	8.93104	8.931	80.00- 120.00	100.00
22.967	22.967 (1.005)	91	1188962			0.00- 30.00	311.01
59 m,p-Xylene					CAS #: 108-38-3		
23.135	23.135 (1.013)	106	419758	8.95081	8.951	80.00- 120.00	100.00
23.135	23.135 (1.013)	91	824203			0.00- 30.00	196.35
61 o-Xylene					CAS #: 95-47-6		
23.714	23.714 (1.038)	106	404374	8.90081	8.901	80.00- 120.00	100.00
23.714	23.714 (1.038)	91	835738			177.04- 237.04	206.67
67 1,1,2,2-Tetrachloroethane					CAS #: 79-34-5		
24.620	24.620 (1.078)	83	717581	8.33522	8.335	80.00- 120.00	100.00
24.620	24.620 (1.078)	85	462955			34.57- 94.57	64.52
73 1,4-Dichlorobenzene					CAS #: 106-46-7		
25.841	25.841 (1.131)	146	555757	7.63611	7.636	80.00- 120.00	100.00
25.841	25.841 (1.131)	148	361562			0.00- 30.00	65.06
25.841	25.841 (1.131)	111	216009			0.00- 30.00	38.87
78 Naphthalene					CAS #: 91-20-3		
28.397	28.397 (1.243)	128	67706	0.75675	0.7568	80.00- 120.00	100.00
28.397	28.397 (1.243)	127	8520			0.00- 30.00	12.58

Eurofins Air Toxics Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msde.i
Lab File ID: e082804sim.d
Lab Smp Id: LCSD
Analysis Type: VOA
Quant Type: ISTD
Operator: sab
Method File: /chem/msde.i/28Aug2013.b/e13l0826a.m/e13s0826a.m
Misc Info: 10ppbv (50ppbv)

Calibration Date: 28-AUG-2013
Calibration Time: 14:14
Client Smp ID: LCSD
Level: LOW
Sample Type: AIR

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	82006	49204	114808	81090	-1.12
40 1,4-Difluorobenze	379974	227984	531964	376641	-0.88
56 Chlorobenzene-d5	304786	182872	426700	302466	-0.76

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Bromochloromethan	16.06	15.73	16.39	16.06	0.00
40 1,4-Difluorobenze	17.49	17.16	17.82	17.49	0.00
56 Chlorobenzene-d5	22.85	22.52	23.18	22.85	0.00

AREA UPPER LIMIT = + 40% of internal standard area.
AREA LOWER LIMIT = - 40% of internal standard area.
RT UPPER LIMIT = + 0.33 minutes of internal standard RT.
RT LOWER LIMIT = - 0.33 minutes of internal standard RT.

Data File: /chem/msde.i/28Aug2013.b/e082804sim.d

Date : 28-AUG-2013 15:40

Client ID: LCSD

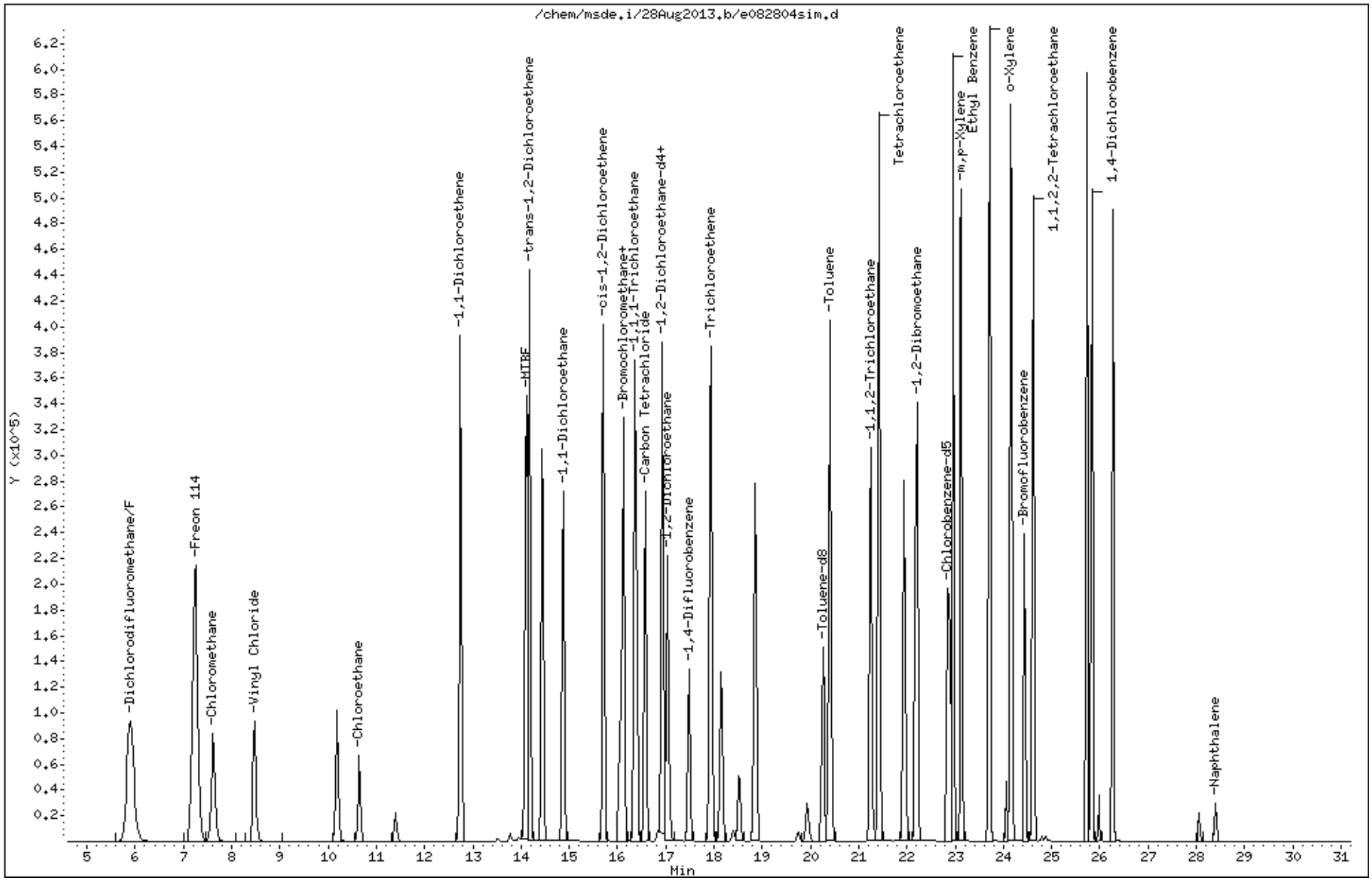
Instrument: msde.i

Sample Info: 50mL #2588-79; LCSD; LCSD

Operator: sab

Column phase: RTx-624

Column diameter: 0.53



Eurofins Air Toxics, Inc. **MSD-E** **Logbook #: 2577**

BFB Verification of 176/174 m/z Ratio:	(404373/416320)100 = 97.13%
Tekmar Purge Flow:	
Vacuum:	8/28/13 83

IS/S Std. #: 2588-62	Exp. Date: 10/24/13
BCM LL: 104352	SIM 82006
1,4-DFB 480505	379971
CB-d5 282345	304786

Verified CCV IS vs ICAL mid-point (-40%D): 83

File ID:	E082802
Compound:	Toluene08
Initials:	83

Calculation Check:

ppbv of compound = $\frac{\text{Area}_{\text{Sample}}}{\text{Area}_{\text{IS}}} \times \frac{\text{Conc}_{\text{IS}}}{\text{RRF}}$ = (314445)(5.000) / (480505)(0.65811) = 4.972

SOP#:(Circle one): 6 / 83 / 38 / 91 / 109 Method (Circle one): TO-14A/TO-15/TO-17 Reported Result: 4.972

Method Name: E13(0826A/E13508261)

	Use	File	Lab ID#	Can#	Pressure	Amt. Loaded	DF	Loaded By Initials	Date Analyzed	Time Analyzed	Reviewed By Initials	Comments/Standard Expiration Date
1	✓	E082801	BFB Tune Check	2299-416	50ng	2ul	1.00	83	8/28/13	1347	83	
2	✓	02	CCV (50ppbv)	2588-148	10ppbv	50mL	1.00	83		1414	83	EXP 10/9/13 Ø out
3	✓	03	LCS (50ppbv)	2588-78	10ppbv	50mL	1.00	83		1459	83	EXP 10/26/13 Ø out
4	✓	04	LCSD (50ppbv)	↓	10ppbv	50mL	1.00	83		1540	83	↓
5	X	05	TEST STD (10ppbv)	2588-164	2.0ppbv	50ml	1.00	[illegible]		1623	[illegible]	EXP: 11/28/13 ICV sg
6	X	06	MANIFOLD CERT	M10102-8-28-13-1240	N/A	250ml	1.00	[illegible]		1728	[illegible]	CAN# 904 Dev SIM
7	✓	07	|	|	|	|	|	[illegible]		1843	[illegible]	↓
8	✓	08	Lab Blank	34008	Humid	|	|	EA		1932	[illegible]	
9	✓	09	1308393A-04A	9910	5.5"Hg-4.9psi	250ml	1.63	[illegible]		2028	[illegible]	
10	✓	10	1308451A-03A	5655	6.1"Hg-4.7psi	250ml	1.66	[illegible]		2125	[illegible]	
11	✓	11	-04A	3149	5.1"Hg-5.1psi	250ml	1.62	[illegible]		2223	83	
12	✓	12	02A	14012	4.6"Hg-5.2psi (8/29/13 83)	250mL	1.60	83	8/29/13	0843	83	
13	✓	13	06A	32129	4.5"Hg-5.4psi	250mL	1.61	83		0941	83	
14	✓	14	08A	12667	7.1"Hg-5.5psi	100mL	4.50	83	↓	1024	83	Dil TC

Reviewed: [signature] Date: 8/29/13

Revision 03/12/13

Eurofins Air Toxics, Inc. MSD-E Logbook #: 2577

0221 of 0249

	Use	File	Lab ID#	Can#	Pressure	Amt. Loaded	DF	Loaded By Initials	Date Analyzed	Time Analyzed	Reviewed By Initials	Comments/Standard Expiration Date
15	✓	E082815	1308654-01A	34446	3.3"Hg-5.3psi	250mL	1.53	83	8/29/13	1111	83	
16	✓	16	02A	34187	6.7"Hg-4.8psi	250mL	1.71	83	↓	1201	83	
17	✓	17	03A	25306	4.3"Hg-4.8psi	250mL	1.55	83		1248	83	
18	✓	18	04A	12085	4.1"Hg-4.7psi	250mL	1.53	83		1337	83	
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
32												
33												
34												
35												
36												8/29/13 83

Reviewed

8/29/13
Date

Eurofins Air Toxics Inc.

Data file : /chem/msde.i/26Aug2013a.b/e082605.d
Lab Smp Id: BFB Client Smp ID: BFB
Inj Date : 26-AUG-2013 15:58
Operator : sn Inst ID: msde.i
Smp Info : 2.0ul #2299-416; BFB Tune Check
Misc Info : 50ng
Comment :
Method : /chem/msde.i/26Aug2013a.b/bfb60.m
Meth Date : 26-Aug-2013 08:23 Quant Type: ESTD
Cal Date : Cal File:
Als bottle: 31 QC Sample: BFB
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: all.sub
Target Version: 3.50 Sample Matrix: WATER

Concentration Formula: Amt * DF * Uf * Vf * Vi * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Uf	1.00000	ng unit correction factor
Vf	1.00000	Volumetric correction factor
Vi	1.00000	Injection Volume

Cpnd Variable Local Compound Variable

RT	EXP RT	DLT RT	MASS	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	CONCENTRATIONS FINAL (ug/L)	TARGET RANGE	RATIO
1 bfb						CAS #: 460-00-4		
6.518	7.100	-0.582	95	765162			100.00- 100.00	100.00
6.518	7.100	-0.582	50	189780			8.00- 40.00	24.80
6.518	7.100	-0.582	75	367545			30.00- 66.00	48.03
6.518	7.100	-0.582	96	49957			5.00- 9.00	6.53
6.518	7.100	-0.582	173	3384			0.00- 1.99	0.48
6.518	7.100	-0.582	174	706240			50.00- 120.00	92.30
6.518	7.100	-0.582	175	51528			4.00- 9.00	7.30
6.518	7.100	-0.582	176	679616			93.00- 101.00	96.23
6.518	7.100	-0.582	177	43398			5.00- 9.00	6.39

Data File: /chem/msde.i/26Aug2013a.b/e082605.d

Date : 26-AUG-2013 15:58

Client ID: BFB

Instrument: msde.i

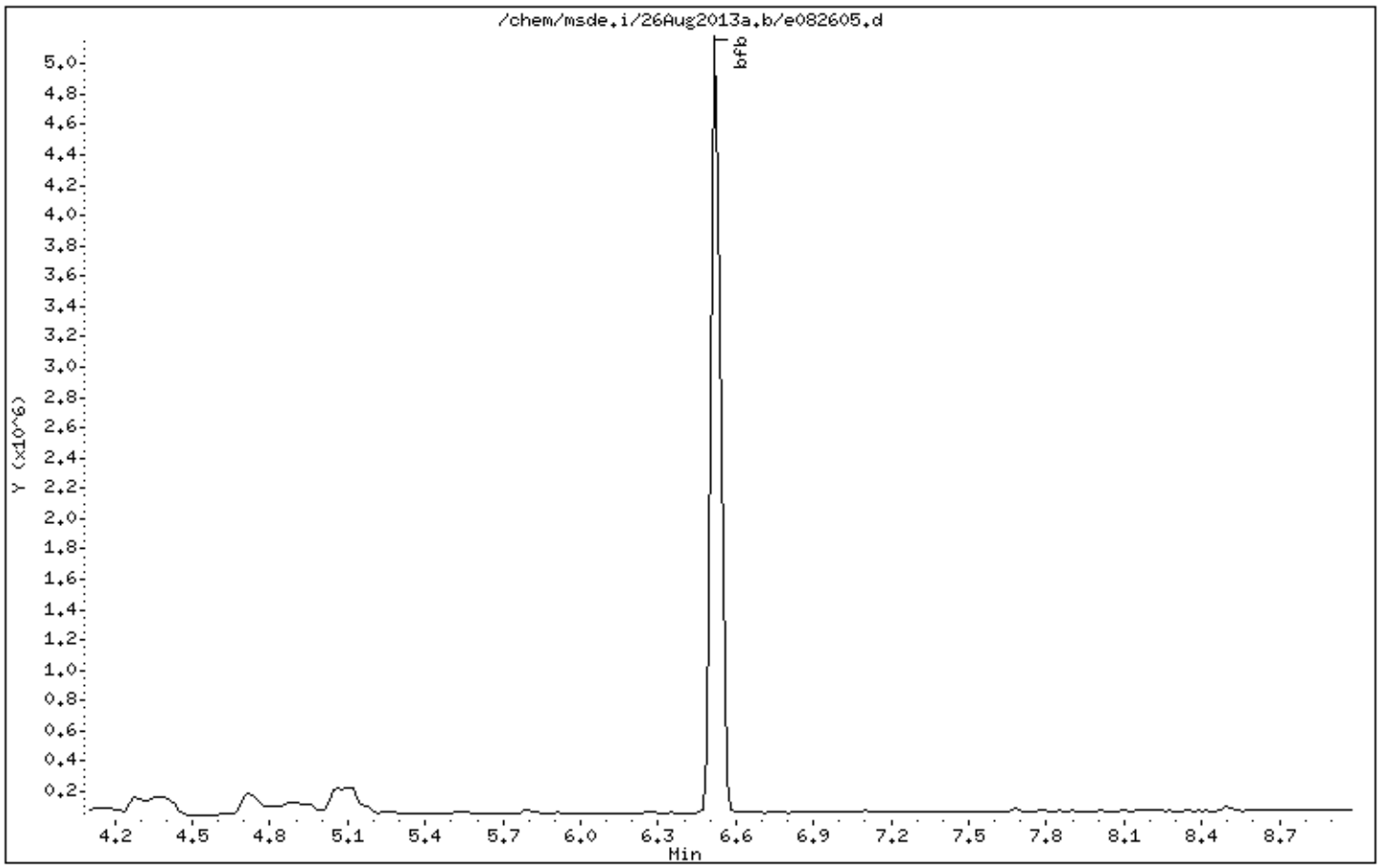
Sample Info: 2.0ul #2299-416; BFB Tune Check

Volume Injected (uL): 1.0

Operator: sn

Column phase:

Column diameter: 2.00



Data File: /chem/msde.i/26Aug2013a.b/e082605.d

Date : 26-AUG-2013 15:58

Client ID: BFB

Instrument: msde.i

Sample Info: 2.0ul #2299-416; BFB Tune Check

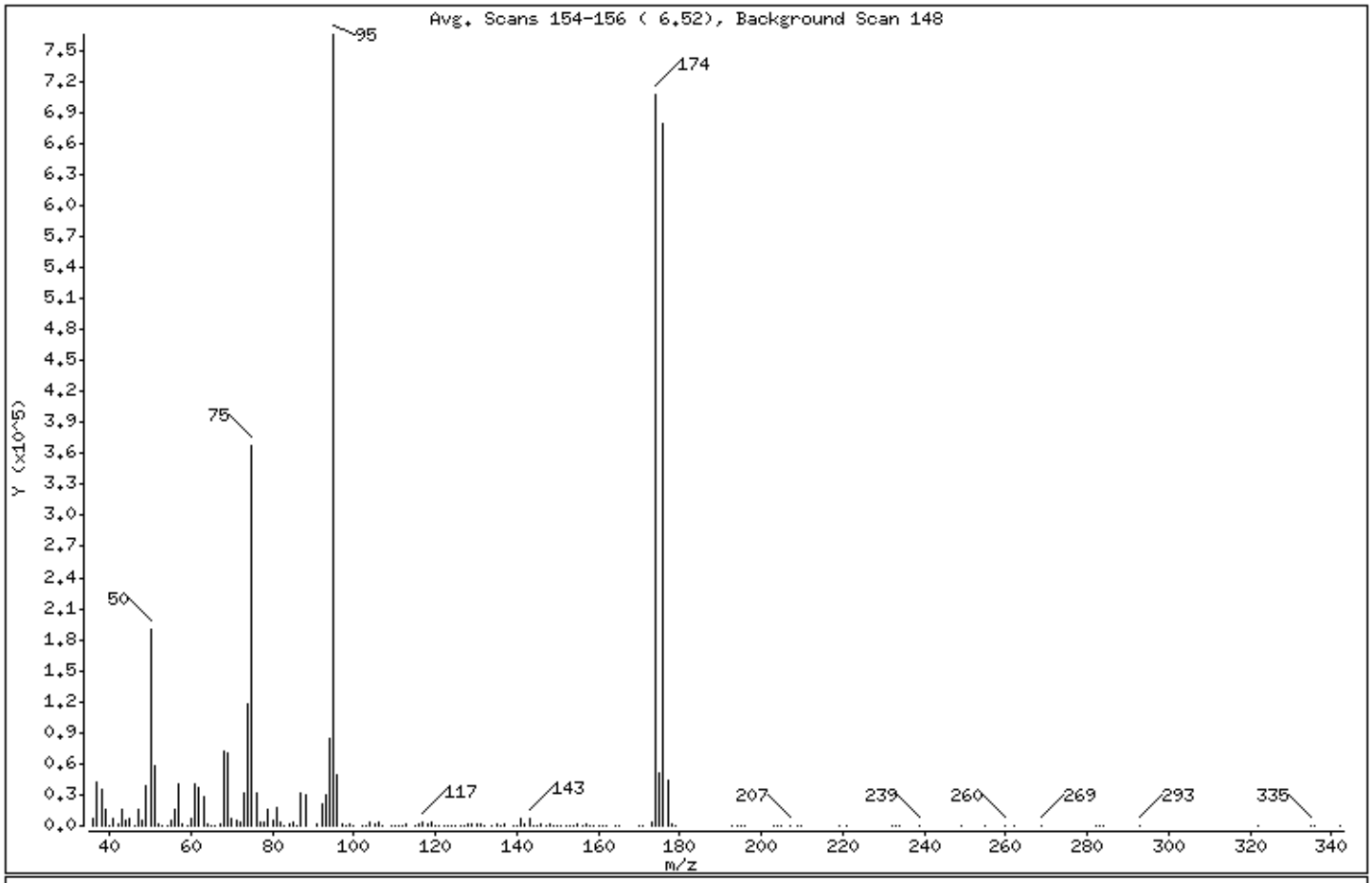
Volume Injected (uL): 1.0

Operator: sn

Column phase:

Column diameter: 2.00

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	8.00 - 40.00% of mass 95	24.80
75	30.00 - 66.00% of mass 95	48.03
96	5.00 - 9.00% of mass 95	6.53
173	Less than 1.99% of mass 174	0.44 (0.48)
174	50.00 - 120.00% of mass 95	92.30
175	4.00 - 9.00% of mass 174	6.73 (7.30)
176	93.00 - 101.00% of mass 174	88.82 (96.23)
177	5.00 - 9.00% of mass 176	5.67 (6.39)

Date : 26-AUG-2013 15:58

Client ID: BFB Instrument: msde.i

Sample Info: 2.0ul #2299-416; BFB Tune Check

Volume Injected (uL): 1.0 Operator: sn

Column phase: Column diameter: 2.00

Data File: e082605.d
Spectrum: Avg. Scans 154-156 (6.52), Background Scan 148
Location of Maximum: 95.00
Number of points: 160

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	7290	77.00	4059	123.00	311	171.00	141
37.00	41928	78.00	2887	124.00	432	173.00	3384
38.00	36048	79.00	16640	125.00	120	174.00	706240
39.00	15475	80.00	5133	126.00	359	175.00	51528
40.00	656	81.00	17232	127.00	347	176.00	679616
41.00	6876	82.00	3470	128.00	2491	177.00	43392
42.00	2245	83.00	541	129.00	1292	178.00	1319
43.00	15675	84.00	1435	130.00	2513	179.00	103
44.00	4451	85.00	3738	131.00	972	193.00	92
45.00	7465	86.00	303	132.00	217	194.00	53
46.00	94	87.00	31584	134.00	255	195.00	15
47.00	15505	88.00	30728	135.00	984	196.00	42
48.00	6012	91.00	2261	136.00	311	203.00	38
49.00	39512	92.00	20328	137.00	1113	204.00	44
50.00	189760	93.00	29496	139.00	393	205.00	82
51.00	58640	94.00	84264	140.00	620	207.00	571
52.00	2452	95.00	765120	141.00	7053	209.00	145
53.00	524	96.00	49952	142.00	1819	210.00	49
54.00	286	97.00	1382	143.00	7718	219.00	137
55.00	4891	98.00	742	144.00	499	221.00	48
56.00	15879	99.00	967	145.00	759	232.00	31
57.00	41008	100.00	107	146.00	1094	233.00	23
58.00	1743	102.00	45	147.00	488	234.00	85
59.00	187	103.00	418	148.00	2066	239.00	144
60.00	7555	104.00	2981	149.00	568	249.00	65
61.00	40224	105.00	998	150.00	852	255.00	40
62.00	37296	106.00	2811	151.00	129	260.00	121
63.00	27400	107.00	678	152.00	374	262.00	21
64.00	2457	109.00	96	153.00	627	269.00	317
65.00	372	110.00	388	154.00	493	282.00	82
66.00	123	111.00	645	155.00	1813	283.00	57
67.00	1364	112.00	484	156.00	331	284.00	30
68.00	72032	113.00	1024	157.00	1399	293.00	83
69.00	70832	115.00	655	158.00	210	322.00	145
70.00	7133	116.00	2561	159.00	808	335.00	161

Date : 26-AUG-2013 15:58

Client ID: BFB Instrument: msde.i

Sample Info: 2.0ul #2299-416; BFB Tune Check

Volume Injected (uL): 1.0 Operator: sn

Column phase: Column diameter: 2.00

Data File: e082605.d
Spectrum: Avg. Scans 154-156 (6.52), Background Scan 148
Location of Maximum: 95.00
Number of points: 160

m/z	Y	m/z	Y	m/z	Y	m/z	Y
71.00	4864	117.00	4046	160.00	103	336.00	34
72.00	3928	118.00	2390	161.00	829	342.00	85
73.00	30992	119.00	3358	162.00	97		
74.00	117920	120.00	222	164.00	16		
75.00	367488	121.00	57	165.00	7		
76.00	31696	122.00	195	170.00	86		

Eurofins Air Toxics Inc.

Data file : /var/chem/msde.i/28Aug2013.b/e082801.d
Lab Smp Id: BFB Client Smp ID: BFB
Inj Date : 28-AUG-2013 13:47
Operator : sab Inst ID: msde.i
Smp Info : 2.0ul #2299-416; BFB Tune Check
Misc Info : 50ng
Comment :
Method : /var/chem/msde.i/28Aug2013.b/bfb60.m
Meth Date : 28-Aug-2013 13:58 Quant Type: ESTD
Cal Date : Cal File:
Als bottle: 31 QC Sample: BFB
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: all.sub
Target Version: 3.50 Sample Matrix: WATER
Processing Host: eeyore

Concentration Formula: Amt * DF * Uf * Vf * Vi * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Uf	1.00000	ng unit correction factor
Vf	1.00000	Volumetric correction factor
Vi	1.00000	Injection Volume

Cpnd Variable Local Compound Variable

					CONCENTRATIONS ON-COL (ug/L)	CONCENTRATIONS FINAL (ug/L)	TARGET RANGE	RATIO
1 bfb							CAS #: 460-00-4	
6.518	7.100	-0.582	95	470293			100.00- 100.00	100.00
6.518	7.100	-0.582	50	122074			8.00- 40.00	25.96
6.518	7.100	-0.582	75	231937			30.00- 66.00	49.32
6.518	7.100	-0.582	96	31028			5.00- 9.00	6.60
6.518	7.100	-0.582	173	2041			0.00- 1.99	0.49
6.518	7.100	-0.582	174	416320			50.00- 120.00	88.52
6.518	7.100	-0.582	175	30516			4.00- 9.00	7.33
6.518	7.100	-0.582	176	404373			93.00- 101.00	97.13
6.518	7.100	-0.582	177	26117			5.00- 9.00	6.46

Data File: /var/chem/msde.i/28Aug2013.b/e082801.d

Date : 28-AUG-2013 13:47

Client ID: BFB

Instrument: msde.i

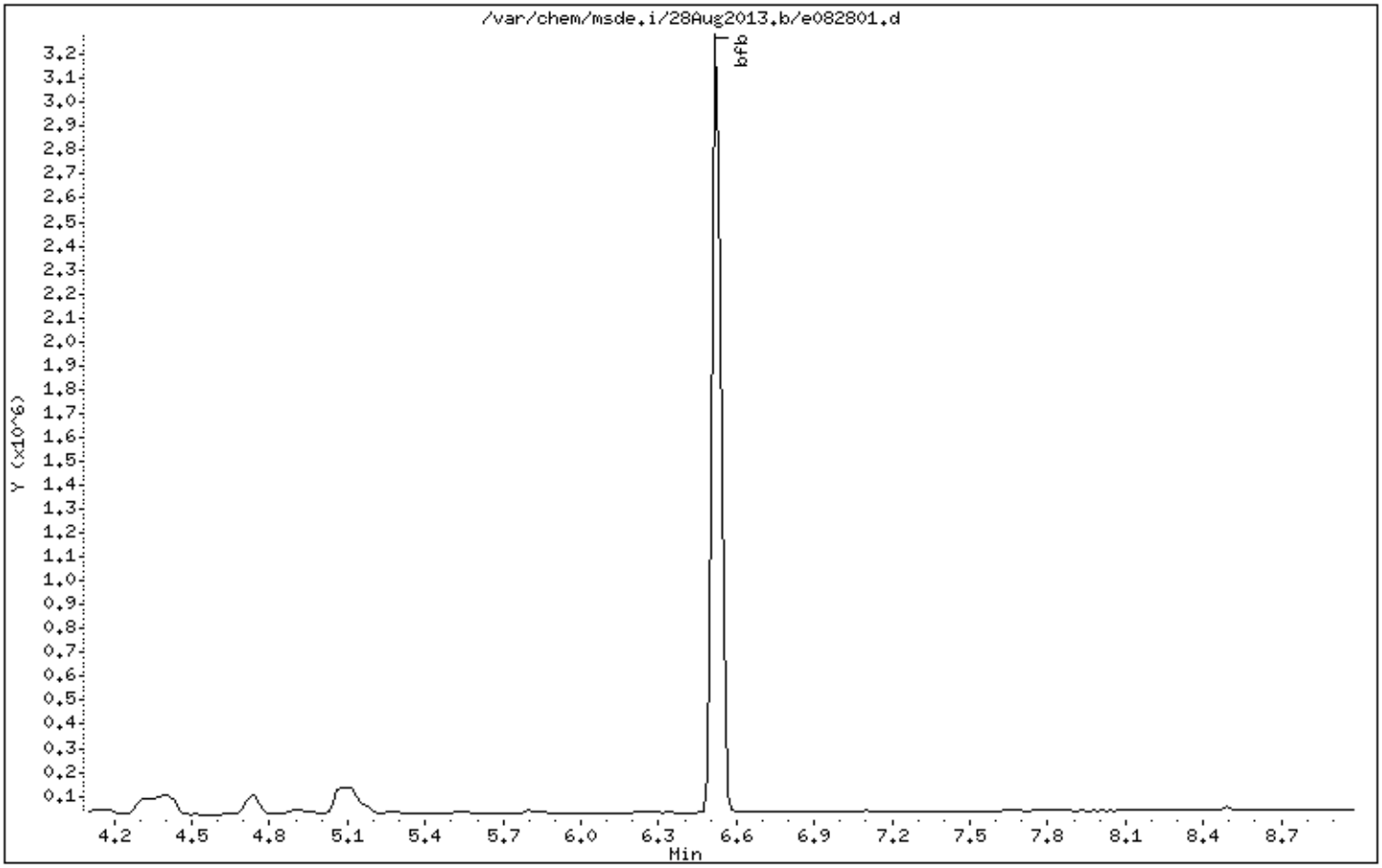
Sample Info: 2.0ul #2299-416; BFB Tune Check

Volume Injected (uL): 1.0

Operator: sab

Column phase:

Column diameter: 2.00



Data File: /var/chem/msde.i/28Aug2013.b/e082801.d

Date : 28-AUG-2013 13:47

Client ID: BFB

Instrument: msde.i

Sample Info: 2.0ul #2299-416; BFB Tune Check

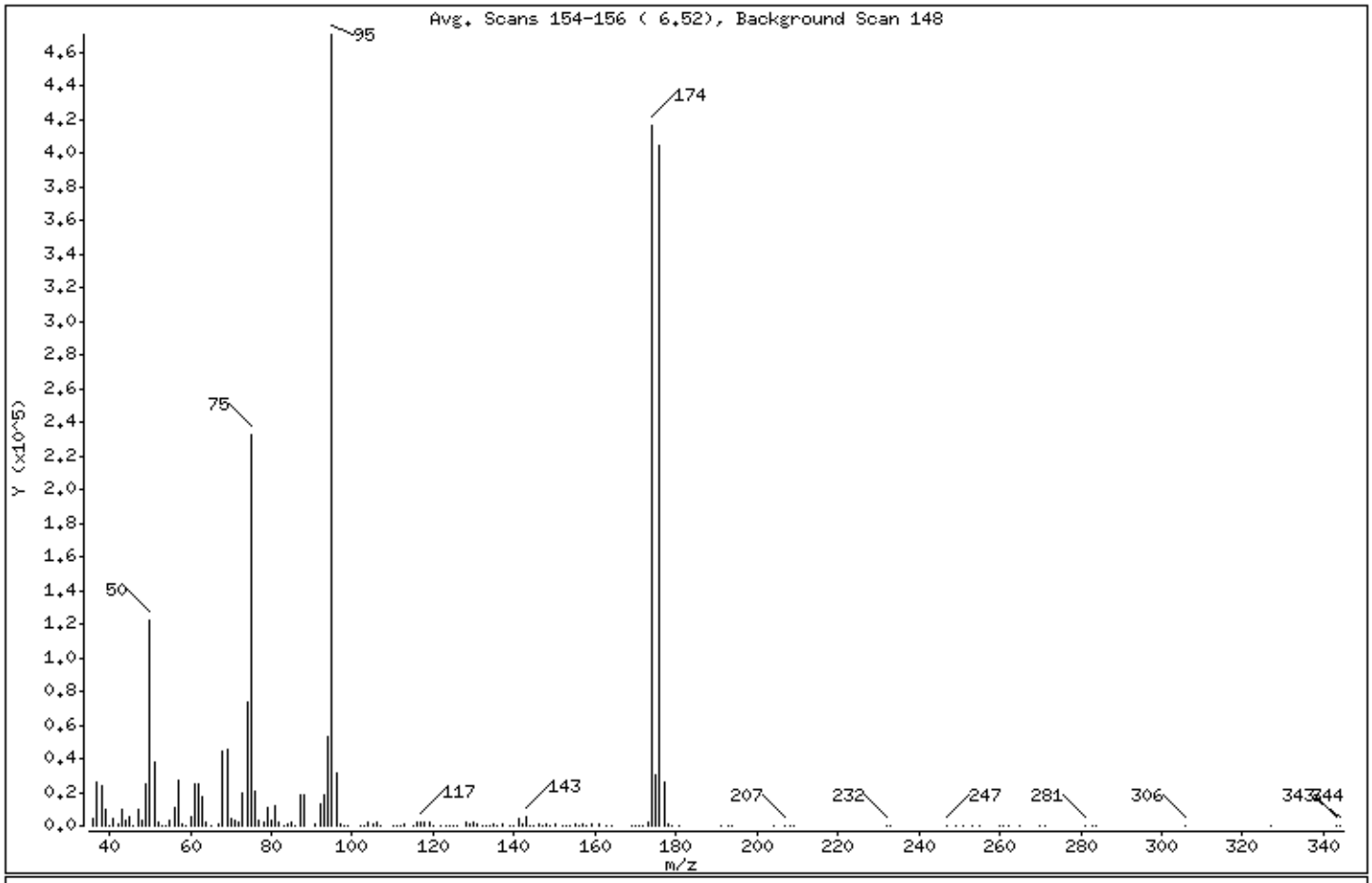
Volume Injected (uL): 1.0

Operator: sab

Column phase:

Column diameter: 2.00

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	8.00 - 40.00% of mass 95	25.96
75	30.00 - 66.00% of mass 95	49.32
96	5.00 - 9.00% of mass 95	6.60
173	Less than 1.99% of mass 174	0.43 (0.49)
174	50.00 - 120.00% of mass 95	88.52
175	4.00 - 9.00% of mass 174	6.49 (7.33)
176	93.00 - 101.00% of mass 174	85.98 (97.13)
177	5.00 - 9.00% of mass 176	5.55 (6.46)

Date : 28-AUG-2013 13:47

Client ID: BFB Instrument: msde.i

Sample Info: 2.0ul #2299-416; BFB Tune Check

Volume Injected (uL): 1.0 Operator: sab

Column phase: Column diameter: 2.00

Data File: e082801.d
Spectrum: Avg. Scans 154-156 (6.52), Background Scan 148
Location of Maximum: 95.00
Number of points: 154

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	4674	76.00	20048	123.00	173	171.00	53
37.00	26048	77.00	2770	124.00	281	172.00	438
38.00	23792	78.00	1867	125.00	212	173.00	2041
39.00	10002	79.00	11016	126.00	366	174.00	416320
40.00	279	80.00	3337	128.00	1809	175.00	30512
41.00	4069	81.00	11528	129.00	783	176.00	404352
42.00	1347	82.00	2573	130.00	1637	177.00	26112
43.00	9619	83.00	366	131.00	628	178.00	818
44.00	2915	84.00	786	132.00	157	179.00	162
45.00	5104	85.00	2252	133.00	101	181.00	34
46.00	192	86.00	489	134.00	102	191.00	66
47.00	10082	87.00	18752	135.00	720	193.00	177
48.00	3644	88.00	18616	136.00	182	194.00	85
49.00	25264	91.00	1524	137.00	822	204.00	34
50.00	122072	92.00	12837	139.00	179	207.00	478
51.00	37880	93.00	18656	140.00	344	208.00	57
52.00	1659	94.00	53416	141.00	4784	209.00	136
53.00	326	95.00	470272	142.00	1107	232.00	74
54.00	242	96.00	31024	143.00	4885	233.00	40
55.00	3043	97.00	991	144.00	312	247.00	142
56.00	10336	98.00	505	145.00	463	249.00	53
57.00	26488	99.00	523	146.00	619	251.00	119
58.00	1156	102.00	34	147.00	64	253.00	69
59.00	121	103.00	237	148.00	1206	255.00	125
60.00	5255	104.00	1906	149.00	372	260.00	135
61.00	25344	105.00	637	150.00	603	261.00	2
62.00	24816	106.00	1851	152.00	186	262.00	38
63.00	17280	107.00	453	153.00	371	265.00	9
64.00	1678	110.00	312	154.00	335	270.00	21
65.00	396	111.00	316	155.00	1157	271.00	20
67.00	1287	112.00	417	156.00	261	281.00	53
68.00	44816	113.00	650	157.00	926	283.00	20
69.00	45032	115.00	457	158.00	173	284.00	42
70.00	4447	116.00	1628	159.00	612	306.00	45
71.00	2846	117.00	2677	161.00	599	327.00	8

Date : 28-AUG-2013 13:47

Client ID: BFB Instrument: msde.i

Sample Info: 2.0ul #2299-416; BFB Tune Check

Volume Injected (uL): 1.0 Operator: sab

Column phase: Column diameter: 2.00

Data File: e082801.d
Spectrum: Avg. Scans 154-156 (6.52), Background Scan 148
Location of Maximum: 95.00
Number of points: 154

m/z	Y	m/z	Y	m/z	Y	m/z	Y
72.00	2543	118.00	1662	163.00	80	343.00	67
73.00	19504	119.00	2218	164.00	13	344.00	24
74.00	73776	120.00	86	169.00	34		
75.00	231936	122.00	83	170.00	48		

Shipping/ Receiving Documents

Air Toxics Ltd. Sample Receipt Confirmation Cover Page

Thank you for choosing Air Toxics Ltd. We have received your samples and have listed any Sample Receipt Descrepancies below.

In order to expedite analysis and reporting, please review the attached information for

For corrections ca **Karen Stempson at 916-985-1000**

ATL will proceed with the analysis as specified on the Chain of Custody and Sample Receipt Summary page.

Please note : The Sample Receipt Confirmation, including the total workorder charge, is subject to change upon secondary review. Our aim is to provide a confirmation to you in a timely manner. Sample Receipt Discrepancies, if any, may not include discrepancies regarding sample receipt pressure(s). Additionally, the Chain of Custody (COC) will be provided with the final report.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 .FAX (916) 985-1020
Hours 6:30 A.M to 5:30 P.M. PST

Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Page ____ of ____

Project Manager William Wertz

Collected by: (Print and Sign) William E Wertz

Company Geosyntec Email wwertz@geosyntec.com

Address 2739 Doselle Cle City Castleton State NY Zip 12033

Phone 518 477 5499 Fax

Project Info: Geosyntec Bill through Guelph
P.O. #
Project # MN 0832-99
Project Name Southside High School

Turn Around Time:
☐ Normal
☑ Rush
Same Day
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	SSHS-08-27-13-IA-1	34446	8/27/13	7:02 → 15:29	TO-15 SIM	27.32	2.75		
02A	SSHS-08-27-13-OA-1	34187	8/27/13	7:21 → 3:41	TO-15 SIM	29.0	5.67		
03A	SSHS-08-27-13-IA-2	25306	8/27 → 8/28	15:52 → 06:30	TO 15 SIM	28.76	3.94		
04A	SSHS-08-27-13-OA-2	12085	8/27 → 8/28	15:35 → 06:35	TO 15 SIM	28.87	4.04		

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
William E Wertz	8/28/13 8:40	BL Whitaker ATC	8/29/13 0740
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time

Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fedex		N/A	Good	Yes No (None)	1308654

Form 1293 rev.11

eurofins | Air Toxics

SAMPLE RECEIPT SUMMARY

WORKORDER 1308654

Client

Mr. William Wertz
GeoSyntec Consultants
26 Century Hill Drive
Suite 205
Latham, NY 12110

Sales Rep: JAS

Phone

518-785-0800

Fax

Date Promised: 08/29/13 2:00 pm
Date Completed: 8/29/13
Date Received: 8/29/13
PO#:
Project#: MN0832-99 Southside High School

Total $: $ 2,060.00
Logged By: KAD

Fraction	Sample #	Analysis	Collected	Receipt Vac./Pres.	Amount$
01A	SSHS-08-27-13-IA-1	Modified TO-15 SIM	8/27/2013	3.3 "Hg	$420.00
02A	SSHS-08-27-13-OA-1	Modified TO-15 SIM	8/27/2013	6.7 "Hg	$420.00
03A	SSHS-08-27-13-IA-2	Modified TO-15 SIM	8/28/2013	4.3 "Hg	$420.00
04A	SSHS-08-27-13-OA-2	Modified TO-15 SIM	8/28/2013	4.1 "Hg	$420.00
05A	Lab Blank	Modified TO-15 SIM	NA	NA	$0.00
06A	CCV	Modified TO-15 SIM	NA	NA	$0.00
07A	LCS	Modified TO-15 SIM	NA	NA	$0.00
07AA	LCSD	Modified TO-15 SIM	NA	NA	$0.00

Misc. Charges	6 Liter Summa Canister (SIM Certified) (4) @ $65.00 each., Shipmen	$260.00
	Flow Controller-Adjustable (SIM Certified) (4) @ $20.00 each., Shipm	$80.00
	Client Specific EDD (4) @ $5.00 each.	$20.00
	eCVP (4) @ $5.00 each.	$20.00

Note: Samples received after 3 P.M. PST are considered to be received on the following work day.
Atlas Project Name/Profile#: Southside High School/18516

BILL TO: Ms. Hester Groenevelt
GeoSyntec Consultants
130 Research Lane
Suite 2
Guelph, Ontario N1G5G3

Analysis Code: pptv

REMARKS: A 200% surcharge is applied for a same day turnaround time.

MN0832.99

TERMS:

Reporting Method: Modified TO-15 SIM (Sh)-Std 17

Sample Discrepancy Report

Identification

Initiated By: KAD **Project ID:**18516 **PM**: KS **Date:** 8/29/2013 **Discrepancy Type:** ☒ **1.** ☐ **2.** ☐ **3.**

Workorder(s) affected:1308654 **Sample(s) affected:** 03A & 04A

1. Sample Receipt Discrepancies

Narration Not Required:

1.1. ☐ Sample container (cartridge/tube/VOA vial) was received broken, however sample was intact.
1.2. ☐ No brass cap on canister.
1.3. ☐ Date of Collection noted on first sample, but no arrow down to indicate all samples.

Notify Lab for further determination:

1.4. ☐ Tedlar bag received with minimal volume.

Initials: _____ Date: _____

Narration Required in Lab Narrative and Sample Confirmation:

1.5. ☐ COC was not filled out in ink.
1.6. ☐ COC improperly relinquished / received.
1.7. ☐ Sample tags / can numbers do not match the COC.
1.8. ☒ Sample date ☐ error / ☒ missing on COC but noted on sample tag (check one).
1.9. ☐ Custody Seal on the outside of the container was ☐ broken / ☐ improperly placed (check one).
1.10. ☐ ID-none on the sample Tag/Blank
1.11. ☐ Other (describe below).

Describe the Discrepancy: The year was missing on the DOC for both samples 03A & 04A. Year will be taken from sample tag.

2. Sample Receipt/Screening Discrepancies requiring PM notification

Document on Cover Page of Sample Receipt Confirmation and in Receiving Notes of Lab Narrative

If Section II. is filled out PM must be notified within 24 hrs of initiation

2.1. ☐ COC was not received with samples.
2.2. ☐ Analysis method(s) is ☐ not specified / ☐ incorrectly specified (check one) on the COC.
2.3. ☐ Incorrect sampling media / container for analysis requested.
2.4. ☐ Number of samples on the COC does not match the number of samples that were received.
2.5. ☐ Samples were received expired.
2.6. ☐ Sampling date (time for sulfur) is not documented for ☐ *some* / ☐ *any* samples (check one).
2.7. ☐ Sample received with amount of H_2O in the Tedlar Bag.
2.8. ☐ Sample cannot be analyzed. Container was ☐ received broken / ☐ leaking / ☐ flat / ☐ defective.
2.9. ☐ Tedlar bag / canister received emitting a strong odor; Sample ☐ can / ☐ cannot (check one) be analyzed.
2.10. ☐ Tedlar Bag for Sulfur analysis has metal fitting.
2.11. ☐ Environmental Supply Company valves
2.12. ☐ Sorbent samples-sampling volume was not provided
2.13. ☐ Flow controller used – canister samples received at ambient or under pressure.
2.14. ☐ Canister was at ambient pressure at time of pressurization and (check all that apply):
- ☐ Canister failed leak check on two manifolds,
- ☐ Canister valve was open,
- ☐ Brass nut was loose/not present.
- ☐ Sample can be analyzed
- ☐ Cannot be analyzed

2.15. ☐ Canister sample received with a vacuum difference >5.0"Hg between the receipt vac. And the final vac. reported on the COC, indicating loss of vacuum.
2.16. ☐ Canister sample received at >15"Hg (*not* identified as a Trip/Field Blank).
2.17. ☐ Canister Trip Blank received at low vacuum (<25"Hg).
2.18. ☐ Sorbent Sample received outside method required temperature of 2°C to 6°C; ☐ ice / ☐ blue ice (check one) was present. A temp. Blank ☐ was / ☐ was not present (check one).
2.19. ☐ Flow Controller RPD of = 20% was not met.
2.20. ☐ Other (describe below)

Initials: _____ **Date:** _____ **Notify Receiving:** ☐ **Notify PM:** ☐

Describe the Discrepancy:

3. Lab Discrepancies requiring Team Leader/PM notification

Document in Analytical Notes of Lab Narrative

If Section III. is filled out PM must be notified within 24 hrs of initiation

3.1. ☐ Tedlar Bag found to be leaking at the time of analysis; sample ☐ can / ☐ cannot (check one) be analyzed.

3.2. ☐ Tedlar Bag found to be flat/low volume; sample cannot be analyzed.

3.3. ☐ Sulfur samples received with insufficient time to analyze prior to expiration.

3.4. ☐ Canister found to be leaking at the time of analysis.

3.5. ☐ VOST tube saturated; bag dilution necessary.

3.6. ☐ Sample loss due to instrument malfunction / broken glassware.

3.7. ☐ Low/high surrogate recoveries noted in QC/sample(s) for extractable samples.

3.8. ☐ Reporting Limit was raised.

3.9. ☐ Post weight > Pre weight in field/lab Blank for PM10/TSP samples.

3.10. ☐ Other (describe below).

Initials: _____ **Date:** _____ **Notify Receiving:** ☐ **Notify PM:** ☐ _____

Team Lead Initials: _____ **Date:** _____

Describe the Discrepancy: _____

_____

_____

How Does this Affect Client: _____

_____

_____

Project Manager Use Only

Project Manager Notification ☐ **Section 2 Complete** ☐ **Section 3 Complete**

Action:

☐ It is not necessary to notify the client. Narrate the discrepancy in Receiving Notes/Analytical Notes of Lab Narrative.

PM Initials:_____ Date: _____

☐ Client notification required. See attached client contact / email, or comments below:

Client Notification:

PM Initials:_____ Person notified: _____ Date: _____

☐ Waiting for Client Reply

Comments: _____

_____

☐ Notify Lab Name: _____ Date: _____ **Notify Receiving:** ☐

☐ **Additional notifications attached.**

Additional Comments:

_____

Other Records

DILUTION FACTORS

$$\text{Dilution Factor} = \frac{\text{Final Pressure}}{\text{Initial Vacuum}} = \frac{14.7 \text{ psi} + \text{Final Pressure (psi)}}{14.7 \text{ psi} - [(\text{Initial Pressure ("Hg)}) (14.7 \text{ psi} / 30 \text{ "Hg})]}$$

$$\text{Dilution Factor} = \frac{\text{Final Pressure}}{\text{Initial Pressure}} = \frac{14.7 \text{ psi} + \text{Final Pressure (psi)}}{14.7 \text{ psi} + \text{Initial Pressure (psi)}}$$

Initial Vacuum ("Hg)	**5 psi** Final Press. Dil. Factor	**10 psi** Final Press. Dil. Factor	**15 psi** Final Press. Dil. Factor
0.0	1.34	1.68	2.02
0.5	1.36	1.71	2.05
1.0	1.39	1.74	2.09
1.5	1.41	1.77	2.13
2.0	1.44	1.80	2.16
2.5	1.46	1.83	2.20
3.0	1.49	1.87	2.24
3.5	1.52	1.90	2.29
4.0	1.55	1.94	2.33
4.5	1.58	1.98	2.38
5.0	1.61	2.02	2.42
5.5	1.64	2.06	2.47
6.0	1.68	2.10	2.53
6.5	1.71	2.15	2.58
7.0	1.75	2.19	2.64
7.5	1.79	2.24	2.69
8.0	1.83	2.29	2.76
8.5	1.87	2.34	2.82
9.0	1.91	2.40	2.89
9.5	1.96	2.46	2.96
10.0	2.01	2.52	3.03
10.5	2.06	2.59	3.11
11.0	2.12	2.65	3.19
11.5	2.17	2.72	3.28
12.0	2.23	2.80	3.37
12.5	2.30	2.88	3.46
13.0	2.36	2.97	3.57
13.5	2.44	3.06	3.67
14.0	2.51	3.15	3.79
14.5	2.59	3.25	3.91
15.0	2.68	3.36	4.04
15.5	2.77	3.48	4.18
16.0	2.87	3.60	4.33
16.5	2.98	3.73	4.49
17.0	3.09	3.88	4.66
17.5	3.22	4.03	4.85
18.0	3.35	4.20	5.05
18.5	3.50	4.38	5.27
19.0	3.65	4.58	5.51
19.5	3.83	4.80	5.77
20.0	4.02	5.04	6.06
20.5	4.23	5.31	6.38

Initial Vacuum ("Hg)	**5 psi** Final Press. Dil. Factor	**10 psi** Final Press. Dil. Factor	**15 psi** Final Press. Dil. Factor
21.0	4.47	5.60	6.73
21.5	4.73	5.93	7.13
22.0	5.03	6.30	7.58
22.5	5.36	6.72	8.08
23.0	5.74	7.20	8.66
23.5	6.19	7.76	9.32
24.0	6.70	8.40	10.10
24.5	7.31	9.17	11.02
25.0	8.04	10.08	12.12
25.5	8.93	11.20	13.47
26.0	10.05	12.60	15.15
26.5	11.49	14.40	17.32
27.0	13.40	16.80	20.20
27.5	16.08	20.16	24.24
28.0	20.10	25.20	30.31
28.5	26.80	33.61	40.41
29.0	40.20	50.41	60.61

Initial Pressure (psi)	**5 psi** Final Press. Dil. Factor	**10 psi** Final Press. Dil. Factor	**15 psi** Final Press. Dil. Factor
0.0	1.34	1.68	2.02
0.2	1.32	1.66	1.99
0.4	1.30	1.64	1.97
0.6	1.29	1.61	1.94
0.8	1.27	1.59	1.92
1.0	1.25	1.57	1.89
1.2	1.24	1.55	1.87
1.4	1.22	1.53	1.84
1.6	1.21	1.52	1.82
1.8	1.19	1.50	1.80
2.0	1.18	1.48	1.78
2.2	1.17	1.46	1.76
2.4	1.15	1.44	1.74
2.6	1.14	1.43	1.72
2.8	1.13	1.41	1.70
3.0	1.11	1.40	1.68
3.2	1.10	1.38	1.66
3.4	1.09	1.36	1.64
3.6	1.08	1.35	1.62
3.8	1.06	1.34	1.61
4.0	1.05	1.32	1.59

DILUTION FACTORS

$$\text{Dilution Factor} = \frac{\text{Final Pressure}}{\text{Initial Pressure}} = \frac{\text{14.7 psi + Final Pressure (psi)}}{\text{14.7 psi + Initial Pressure (psi)}}$$

Initial Pressure (psi)	**5 psi** Final Press. Dil. Factor	**10 psi** Final Press. Dil. Factor	**15 psi** Final Press. Dil. Factor
0.0	1.34	1.68	2.02
0.2	1.32	1.66	1.99
0.4	1.30	1.64	1.97
0.6	1.29	1.61	1.94
0.8	1.27	1.59	1.92
1.0	1.25	1.57	1.89
1.2	1.24	1.55	1.87
1.4	1.22	1.53	1.84
1.6	1.21	1.52	1.82
1.8	1.19	1.50	1.80
2.0	1.18	1.48	1.78
2.2	1.17	1.46	1.76
2.4	1.15	1.44	1.74
2.6	1.14	1.43	1.72
2.8	1.13	1.41	1.70
3.0	1.11	1.40	1.68
3.2	1.10	1.38	1.66
3.4	1.09	1.36	1.64
3.6	1.08	1.35	1.62
3.8	1.06	1.34	1.61
4.0	1.05	1.32	1.59
4.2	1.04	1.31	1.57
4.4	1.03	1.29	1.55
4.6	1.02	1.28	1.54
4.8	1.01	1.27	1.52
5.0	1.00	1.25	1.51
5.2	NA	1.24	1.49
5.4	NA	1.23	1.48
5.6	NA	1.22	1.46
5.8	NA	1.20	1.45
6.0	NA	1.19	1.43
6.2	NA	1.18	1.42
6.4	NA	1.17	1.41
6.6	NA	1.16	1.39
6.8	NA	1.15	1.38
7.0	NA	1.14	1.37
7.2	NA	1.13	1.36
7.4	NA	1.12	1.34

Initial Pressure (psi)	**5 psi** Final Press. Dil. Factor	**10 psi** Final Press. Dil. Factor	**15 psi** Final Press. Dil. Factor
7.6	NA	1.11	1.33
7.8	NA	1.10	1.32
8.0	NA	1.09	1.31
8.2	NA	1.08	1.30
8.4	NA	1.07	1.29
8.6	NA	1.06	1.27
8.8	NA	1.05	1.26
9.0	NA	1.04	1.25
9.2	NA	1.03	1.24
9.4	NA	1.02	1.23
9.6	NA	1.02	1.22
9.8	NA	1.01	1.21
10.0	NA	1.00	1.20
10.2	NA	NA	1.19
10.4	NA	NA	1.18
10.6	NA	NA	1.17
10.8	NA	NA	1.16
11.0	NA	NA	1.16
11.2	NA	NA	1.15
11.4	NA	NA	1.14
11.6	NA	NA	1.13
11.8	NA	NA	1.12
12.0	NA	NA	1.11
12.2	NA	NA	1.10
12.4	NA	NA	1.10
12.6	NA	NA	1.09
12.8	NA	NA	1.08
13.0	NA	NA	1.07
13.2	NA	NA	1.06
13.4	NA	NA	1.06
13.6	NA	NA	1.05
13.8	NA	NA	1.04
14.0	NA	NA	1.03
14.2	NA	NA	1.03
14.4	NA	NA	1.02
14.6	NA	NA	1.01
14.8	NA	NA	1.01

Compound List

Modified TO-15 SIM (Sh)-Std 17

CAS Number	Compound	Detection Limit ppbv	Type
75-01-4	Vinyl Chloride	0.010	
75-35-4	1,1-Dichloroethene	0.010	
75-34-3	1,1-Dichloroethane	0.020	
156-59-2	cis-1,2-Dichloroethene	0.020	
71-55-6	1,1,1-Trichloroethane	0.020	
71-43-2	Benzene	0.050	
107-06-2	1,2-Dichloroethane	0.020	
79-01-6	Trichloroethene	0.020	
108-88-3	Toluene	0.020	
79-00-5	1,1,2-Trichloroethane	0.020	
127-18-4	Tetrachloroethene	0.020	
100-41-4	Ethyl Benzene	0.020	
108-38-3	m,p-Xylene	0.040	
95-47-6	o-Xylene	0.020	
79-34-5	1,1,2,2-Tetrachloroethane	0.020	
156-60-5	trans-1,2-Dichloroethene	0.10	
1634-04-4	Methyl tert-butyl ether	0.10	
17060-07-0	1,2-Dichloroethane-d4		
2037-26-5	Toluene-d8		
460-00-4	4-Bromofluorobenzene		

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Media Certification Report

Canister Number: 6L# 34446 w/5.95mL# 40699
Can#: 92485-34446
Date : 08/20/13 19:22
Data File: d082018sim.d

www.airtoxics.com
1-800-985-5955

Name	CAS	Conc.	Units
Ethyl Benzene	100-41-4	ND	ppbv
1,2-Dichloroethane	107-06-2	ND	ppbv
m,p-Xylene	108-38-3	ND	ppbv
Toluene	108-88-3	ND	ppbv
Tetrachloroethene	127-18-4	ND	ppbv
cis-1,2-Dichloroethene	156-59-2	ND	ppbv
trans-1,2-Dichloroethene	156-60-5	ND	ppbv
Methyl tert-butyl ether	1634-04-4	ND	ppbv
Benzene	71-43-2	ND	ppbv
1,1,1-Trichloroethane	71-55-6	ND	ppbv
Vinyl Chloride	75-01-4	ND	ppbv
1,1-Dichloroethane	75-34-3	ND	ppbv
1,1-Dichloroethene	75-35-4	ND	ppbv
1,1,2-Trichloroethane	79-00-5	ND	ppbv
Trichloroethene	79-01-6	ND	ppbv
1,1,2,2-Tetrachloroethane	79-34-5	ND	ppbv
o-Xylene	95-47-6	ND	ppbv
1,2-Dichloroethane-d4	17060-07-0	101.00	% Recovery
Toluene-d8	2037-26-5	104.00	% Recovery
4-Bromofluorobenzene	460-00-4	94.00	% Recovery

eurofins | Air Toxics

www.airtoxics.com
1-800-985-5955

Media Certification Report

Canister Number: 6L# 34187 w/5.95mL# 40263
Can#: 92485-34187
Date : 08/20/13 18:46
Data File: d082017sim.d

Name	CAS	Conc.	Units
Ethyl Benzene	100-41-4	ND	ppbv
1,2-Dichloroethane	107-06-2	ND	ppbv
m,p-Xylene	108-38-3	ND	ppbv
Toluene	108-88-3	ND	ppbv
Tetrachloroethene	127-18-4	ND	ppbv
cis-1,2-Dichloroethene	156-59-2	ND	ppbv
trans-1,2-Dichloroethene	156-60-5	ND	ppbv
Methyl tert-butyl ether	1634-04-4	ND	ppbv
Benzene	71-43-2	ND	ppbv
1,1,1-Trichloroethane	71-55-6	ND	ppbv
Vinyl Chloride	75-01-4	ND	ppbv
1,1-Dichloroethane	75-34-3	ND	ppbv
1,1-Dichloroethene	75-35-4	ND	ppbv
1,1,2-Trichloroethane	79-00-5	ND	ppbv
Trichloroethene	79-01-6	ND	ppbv
1,1,2,2-Tetrachloroethane	79-34-5	ND	ppbv
o-Xylene	95-47-6	ND	ppbv
1,2-Dichloroethane-d4	17060-07-0	102.00	% Recovery
Toluene-d8	2037-26-5	105.00	% Recovery
4-Bromofluorobenzene	460-00-4	100.00	% Recovery

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Media Certification Report

Canister Number: 6L# 25306 w/5.95mL# 40110
Can#: 92485-25306
Date : 08/20/13 19:57
Data File: d082019sim.d

www.airtoxics.com
1-800-985-5955

Name	CAS	Conc.	Units
Ethyl Benzene	100-41-4	ND	ppbv
1,2-Dichloroethane	107-06-2	ND	ppbv
m,p-Xylene	108-38-3	ND	ppbv
Toluene	108-88-3	ND	ppbv
Tetrachloroethene	127-18-4	ND	ppbv
cis-1,2-Dichloroethene	156-59-2	ND	ppbv
trans-1,2-Dichloroethene	156-60-5	ND	ppbv
Methyl tert-butyl ether	1634-04-4	ND	ppbv
Benzene	71-43-2	ND	ppbv
1,1,1-Trichloroethane	71-55-6	ND	ppbv
Vinyl Chloride	75-01-4	ND	ppbv
1,1-Dichloroethane	75-34-3	ND	ppbv
1,1-Dichloroethene	75-35-4	ND	ppbv
1,1,2-Trichloroethane	79-00-5	ND	ppbv
Trichloroethene	79-01-6	ND	ppbv
1,1,2,2-Tetrachloroethane	79-34-5	ND	ppbv
o-Xylene	95-47-6	ND	ppbv
1,2-Dichloroethane-d4	17060-07-0	62.00	% Recovery
Toluene-d8	2037-26-5	182.00	% Recovery
4-Bromofluorobenzene	460-00-4	62.00	% Recovery

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www.airtoxics.com
1-800-985-5955

Media Certification Report

Canister Number: 6L# 12085 w/5.95mL# 6533
Can#: 92485-12085
Date : 08/20/13 20:32
Data File: d082020sim.d

Name	CAS	Conc.	Units
Ethyl Benzene	100-41-4	ND	ppbv
1,2-Dichloroethane	107-06-2	ND	ppbv
m,p-Xylene	108-38-3	ND	ppbv
Toluene	108-88-3	ND	ppbv
Tetrachloroethene	127-18-4	ND	ppbv
cis-1,2-Dichloroethene	156-59-2	ND	ppbv
trans-1,2-Dichloroethene	156-60-5	ND	ppbv
Methyl tert-butyl ether	1634-04-4	ND	ppbv
Benzene	71-43-2	ND	ppbv
1,1,1-Trichloroethane	71-55-6	ND	ppbv
Vinyl Chloride	75-01-4	ND	ppbv
1,1-Dichloroethane	75-34-3	ND	ppbv
1,1-Dichloroethene	75-35-4	ND	ppbv
1,1,2-Trichloroethane	79-00-5	ND	ppbv
Trichloroethene	79-01-6	ND	ppbv
1,1,2,2-Tetrachloroethane	79-34-5	ND	ppbv
o-Xylene	95-47-6	ND	ppbv
1,2-Dichloroethane-d4	17060-07-0	100.00	% Recovery
Toluene-d8	2037-26-5	107.00	% Recovery
4-Bromofluorobenzene	460-00-4	101.00	% Recovery

Eurofins Air Toxics, Inc	Data Review Checklist			Release Date 6/14/13
Workorder # 1308654	Form F 1.27	Revision #6	Revision date 6/14/13	Page 1 of 2

S1	S2	S3	S4	W	**Section 1 – Spec Out** *Please check all the appropriate boxes. Indicate "NA" for any statement that doesn't apply*
✓					Daily QC and ICAL met Criteria
✓					Lumen QC and ICAL evaluation report initialed and in folder
NA				✓	Manual Integrations included and approved
✓				✓	Chain of Custody verified for special comments (add comments below)
NA					Non standard Target sublist printed

Document all profile analyses, reporting, special notes and unusual circumstances in the section below:

Out QC

A1	A2	A3	A4	W	**Section 2 – Sample Analysis**
✓				✓	Dilution Factors, Load Volumes, Initial/Final Pressures, and Canister #s Verified
NA				NA	Manual Integrations/Bag or Can Dilution Forms/Re-pressurization Forms/Bag-Can Transfer Forms present (circle all that apply)
✓					12/24 Hr clock time & Hold Time met for all samples
✓				✓	Re-analysis of sample(s) have been evaluated for comparability and/or samples have been checked for trends (Inf/Eff).

Analytical and special notes:

01A-04A OK

W	T	3T	**Section 3 – Write Up**
NA			CAR # *(if applicable)*
✓			Sample Discrepancy Report (SDR) complete and approved *(if applicable)*
✓			Spectra Verified *(documentation of spectral defense included if applicable)*
NA			Manually entered results are checked
✓			TICs resemble reference spectra/ TICs between sample dups. are consistent *(if applicable)*
✓			At least one result per sample is verified against Target quant sheets
✓			Lab Narrative is correct
✓			Appropriate data qualifier flags are applied
✓			Final Invoice is correct
			Final PDF report, COC and EDD reviewed and correct

Analytical and special notes:

Spec - out Review (Initials/Instrument/Date)	**S1:** 8/29/13 SS MSD-E	**S2:**	**S3:**	**S4:**
Analysis Review (Initials/Date)	**A1:** SS 8/29/13	**A2:**	**A3:**	**A4:**
Write Up/ Tech Review/ 3rd Tier Review (Initials/Date)	**W:** JO 8/29/13	**T:**	*** 3rd Tier:**	** 3rd Tier Report Review is for DoD & Client Specific projects only*

Note (1) *Please check all the appropriate boxes. Indicate "NA" for any statement that doesn't apply*
Note (2) 3rd Tier Report Reviewer and Write Up Reviewer must be separate individuals for DoD & Client Specific Projects

Workorder # :				Reason for Reissue:
W	T	3T	Q	
				Reissue Request form Present
				Client or QA or Lab contact present with reason for reissue
				Review all affected data
				Report header has correct R1, R2 etc
				The Lab Narrative clearly explains the reissue (Date, Reason and whether client requested)
				Date for Reissue in Report Header matches date in Lab Narrative
				Check Project Profile for correct reporting instructions (multiple clients, # hardcopies, etc)
				Corrective Action issued - #
				The reissued workorder has been approved by QA Manager or a Technical Director
Additional Comments:				

Write Up (Initials/Date)	**Tech Review** (Initials/Date)	***3rd Tier Review** * 3rd Tier Report Review is for DoD & Client Specific projects only* (Initials/Date)	**QA Review** (Initials/Date)

Workorder # :				Reason for Reissue:
W	T	3T	Q	
				Reissue Request form Present
				Client or QA or Lab contact present with reason for reissue
				Review all affected data
				Report header has correct R1, R2 etc
				The Lab Narrative clearly explains the reissue (Date, Reason and whether client requested)
				Date for Reissue in Report Header matches date in Lab Narrative
				Check Project Profile for correct reporting instructions (multiple clients, # hardcopies, etc)
				Corrective Action issued - #
				The reissued workorder has been approved by QA Manager or a Technical Director
Additional Comments:				

Write Up (Initials/Date)	**Tech Review** (Initials/Date)	***3rd Tier Review** * 3rd Tier Report Review is for DoD & Client Specific projects only* (Initials/Date)	**QA Review** (Initials/Date)

Note (1) *Please check all the appropriate boxes. Indicate "NA" for any statement that doesn't apply*
Note (2) 3rd Tier Report Reviewer and Write Up Reviewer must be separate individuals for DoD & Client Specific Projects

Not Applicable

Geosyntec consultants

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Memorandum

Date: 5 September 2013

To: William Wertz

Aron Krasnopoler

From: Mary Tyler

CC: J. Caprio

Subject: Stage 4 Data Validation - Level IV Data Deliverable – Selected Volatile Organic Compounds by EPA Method TO-15 Using Selected Ion Monitoring – Eurofins Air Toxics, Inc. Work Order #1308654

SITE: Southside High School

INTRODUCTION

This report summarizes the findings of the Stage 4 data validation of four air samples, collected on August 27, 2013 in support of the Southside High School sampling event. Air Toxics, Inc., Folsom, California analyzed the samples. The samples were analyzed for the following test:

- EPA Method TO-15 Using Selected Ion Monitoring (SIM) – Selected Volatile Organic Compounds (VOCs)

EXECUTIVE SUMMARY

The samples were handled, prepared, and measured in the same manner under similar prescribed conditions.

Overall, based on this Stage 4 data validation covering the quality control (QC) parameters listed below, the data are usable for meeting project objectives.

The organic data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008 (USEPA-540-R-08-01), as well as by the pertinent method referenced by the data package and professional judgment.

The following samples were analyzed and validated at a Stage 4 level in the data set:

Lab ID	Client ID
1308654-01A	SSHS-08-27-13-IA-1
1308654-02A	SSHS-08-27-13-OA-1
1308654-03A	SSHS-08-27-13-IA-2

Lab ID	Client ID
1308654-04A	SSHS-08-27-13-OA-2

The laboratory report narrative indicated there were no collection dates listed on the chain of custody (COC) for samples SSHS-08-27-13-IA-2 and SSHS-08-27-13-OA-2; the sampling dates were taken from the sample tags. The copy of the COC in the laboratory report listed sample collection dates for all of the samples.

1.0 VOLATILE ORGANIC COMPOUNDS

Four air samples were analyzed for selected VOCs per EPA Method TO-15 SIM. The following compounds were reported: Vinyl chloride, 1,1-dichloroethene, 1,1-dichloroethane, cis-1,2-dichloroethene, 1,1,1-trichloroethane, benzene, 1,2-dichloroethane, trichloroethene, toluene, 1,1,2-trichloroethane, tetrachloroethene, ethyl benzene, m,p-xylene, o-xylene, 1,1,2,2-tetrachloroethane, trans-1,2-dichloroethene and methyl tert-butyl ether.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Instrument Performance Check
- ✓ Initial Calibration
- ✓ Continuing Calibration Verification
- ✓ Method Blank
- ✓ Laboratory Control Sample
- ✓ Surrogates
- ✓ Sensitivity
- ✓ Field Duplicate
- ✓ Internal Standards
- ✓ Target Compound Identifications
- ✓ Target Compound Quantitations
- ✓ Electronic Data Deliverable Review

1.1 Overall Assessment

The VOC data reported in this package are considered to be usable for meeting project objectives. The results are considered to be valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the project is 100%.

1.2 Holding Times

The holding time for an air sample is 30 days from collection to analysis. The holding times were met for the sample analyses.

1.3 Instrument Performance Check

Instrument performance check samples (tune standards) were analyzed at the beginning of each 24-hour period during sample analysis. The samples were analyzed within the 24-hour period. . The method TO-15 ion abundance criteria were met for bromofluorobenzene (BFB).

1.4 Initial Calibration

Appropriate initial calibrations were performed for each analyte. Based on the method of calibration, the laboratory calculated percent relative standard deviation (%RSD) of the relative response factors (RRFs). The %RSDs of the compounds met the method specified acceptance criteria of less than or equal to 30%RSD, with two exceptions up to a limit of 40% RSD.

1.5 Continuing Calibration Verification (CCV)

For the target analytes, the CCVs were performed at the required frequency. The percent differences (%Ds) between the RRFs in the initial and continuing calibration standards for the compounds were within the method specified acceptance criteria of less than or equal to 30%D.

1.6 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported with the data. VOCs were not detected in the method blanks above the reporting limits (RLs).

1.7 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS/LCS duplicate (LCSD) pair was reported. The recovery and relative percent difference (RPD) results reported for the LCS/LCSD pair were within the method specified acceptance criteria.

1.8 Surrogates

The surrogate recoveries were within the laboratory specified acceptance criteria.

1.9 Sensitivity

The samples were reported to the RLs. Elevated non-detect results were reported for the samples due to the dilutions analyzed.

1.10 Field Duplicate

A field duplicate sample was not collected with the sample set.

1.11 Internal Standards

The internal standard areas and retention times were within the method specified acceptance limits.

1.12 Target Compound Identifications

The target compound identifications were within the validation criteria.

1.13 Target Compound Quantitation

The compound quantitations were within the validation criteria.

1.14 Electronic Data Deliverable (EDD) Review

Results and sample IDs in the EDD were reviewed against the information provided by the associated level IV report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level IV report and the EDD.

* * * * *

ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference.

J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference

Letter Health Consultation

AIR QUALITY IN LAYTON HOMES

DAVIS COUNTY, UTAH

Prepared by the
Utah Department of Health

MAY 15, 2009

Prepared under a Cooperative Agreement with the
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

A health consultation is a verbal or written response from ATSDR or ATSDR's Cooperative Agreement Partners to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR or ATSDR's Cooperative Agreement Partner which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

You May Contact ATSDR Toll Free at
1-800-CDC-INFO
or
Visit our Home Page at: http://www.atsdr.cdc.gov

LETTER HEALTH CONSULTATION

AIR QUALITY IN LAYTON HOMES

DAVIS COUNTY, UTAH

Prepared By:

Utah Department of Health
Environmental Epidemiology Program
Under Cooperative Agreement with the
U.S. Department of Health and Human Services
Agency for Toxic Substances and Disease Registry

State of Utah
JON M. HUNTSMAN, JR.
Governor

Utah Department of Health
David N. Sundwall, M.D.
Executive Director
Epidemiology and Laboratory Services
Teresa Garrett, R.N., M.S.
Acting Director
Robert T. Rolfs, M.D., M.P.H.
State Epidemiologist

May 13, 2009

Mr. Kyle Gorder
75 CEG/CEVR
7274 Wardleigh Road
Hill Air Force Base, Utah 84056-5137

Dear Mr. Gorder:

At the request of Hill Air Force Base, the Utah Department of Health, Environmental Epidemiology Program (EEP) evaluated the current data collected on 1,2-dichloroethane (1,2-DCA) from a number of homes in Layton, Utah to determine if the concentrations detected in indoor air posed a public health hazard and required further action.

Contaminant/Site History

Hill Air Force Base (Hill AFB), in Davis and Weber Counties, was the subject of a Public Health Assessment (PHA) in 2003 for contamination. Part of the recommendations from the original PHA was the continued monitoring of Operable Unit 8 (OU-8), which extended from Hill AFB south into the cities of Layton and Clearfield. OU-8 was established in 1993 as part of a plan to consolidate all groundwater contamination under the base's industrial complex. Although the Agency for Toxic Substances and Disease Registry (ATSDR) stated in the original Public Health Assessment (PHA) that no public health hazard existed as a result of OU-8 due to the inaccessibility of groundwater and soil, indoor air in homes residing above the plume was found to contain low levels of volatile organic contaminants (VOCs) that had volatilized from the groundwater plumes. Although the VOC concentrations detected at the time were below levels that would pose a public health hazard, continued indoor air sampling was recommended for homes residing above the plume, both in Layton and Clearfield (ATSDR 1989; UDOH 2003).

The indoor air monitoring for homes surrounding the base began in 2003 and currently continues. Both homes residing directly over the plume as well as homes outside of the plume boundaries were sampled. During the routine sampling, indoor air samples were collected and analyzed for VOCs. One of the contaminants routinely detected in indoor air samples is 1,2-DCA; it has been detected in approximately 90 homes in Layton. Measured concentrations in the homes ranged from 6×10^{-5} to 0.127 milligrams per cubic

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meter (mg/m^3) with an average of 3.2×10^{-3} mg/m^3 (personal communication with Kyle Gorder, Hill AFB, February 5, 2009). Although vapor intrusion into homes is possible, indoor sources of 1,2-DCA have been suspected because:

- 1,2-DCA has been detected in many homes that do not reside above groundwater contaminated with 1,2-DCA; and,
- Vapor removal systems have been ineffective at successfully removing 1,2-DCA from homes.

At the time, Hill AFB was not aware of any specific products that were known to contain concentrations of 1,2-DCA high enough to warrant the increase in detected measurements. In an effort to identify a source, an indoor source study was conducted in 2007 and 2008 in an attempt to identify items in homes that contained 1,2-DCA. The results of the study confirmed that 1,2-DCA was detected in several home decorations made of molded plastics. Upon further examination, many of these items were Christmas decorations. Since the initial study, both items found in residences and new items purchased from local stores have been shown to contain 1,2-DCA (Hall 2008).

To date, molded plastics emitting 1,2-DCA have been found in six homes that have had previous 1,2-DCA detections as part of the Basewide Indoor Air Sampling Program. The concentration of 1,2-DCA in the initial item, a molded plastic gingerbread man Christmas ornament/decoration (see Appendix, Figure 2), was measured by Utah State University (USU) using Gas Chromatography/Mass Spectroscopy (GC/MS) according to EPA standard testing method TO17 (Hall 2008); subsequent sampling in the additional five homes has used a portable HAPSITE GC/MS. The portable device has been run using the Selected Ion Monitoring (SIM) mode and results have been confirmed to the initial sample using both a retention time and three ion match. In addition to the items found in the home, several molded plastic items similar to those found in residences were purchased from local retailers and also found to emit 1,2-DCA with both the portable and lab-based GC/MS at USU.

In addition to the current study, two additional independent studies were conducted that corroborate the current findings in this study. The first was performed by a graduate student at USU. The focus of the thesis was developing a test strategy for quantifying sources of trichloroethylene (TCE), 1,2-DCA, and perchloroethylene (PCE) in the indoor air of eight residences near Hill Air Force Base. In cases where elevated levels of chlorinated solvents were detected, the suspected source material(s) were removed and the indoor air re-sampled. If removal of the materials resulted in a reduction or elimination of air contamination, the items were placed into an emission chamber to accurately quantify emission rates from the materials. Source items were identified in three of the sampled residences and consisted of molded plastic decorative items that emitted 1,2-DCA and a wedding dress that emitted detectable levels of PCE. Although the concentration of PCE emitted from the wedding dress was below the method detection limit of the analytical equipment (GC/MS), 1,2-DCA is a natural breakdown product of PCE; therefore, contributions of 1,2-DCA would be made to overall indoor air quality concentrations over time from the storage of the wedding dress (Hall 2008).

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In another study conducted on the Redfield site in Denver, Colorado, over 9,300 indoor air samples have been collected since 1998 as part of a routine air quality study. The contaminants detected in the plume include 1,1-Dichloroethene (1,1-DCE), trichloroethene (TCE), 1,1,1-Trichloroethane (1,1,1-TCA), 1,2-Dichloroethane (1,2-DCA), Percholorethylene (PCE), Methylene chloride and Benzene. Although all of the contaminants were detected in the plume, concentrations ranged from below detection levels to approximately 1 ppm. Being that the concentrations of contaminants measured were extremely low, it was hypothesized that the concentrations of 1,2-DCA being detected in indoor air in homes overlaying the plume was greater than that which would be a product of the vapor intrusion of the plume contaminants over time. Therefore, another source of 1,2-DCA must be contributing to the concentrations measured. Of the 9,374 samples collected, 31% (2,904) have measured detectable concentrations of 1,2-DCA. The mean concentrations of 1,2-DCA range from a low of 7.2×10^{-4} mg/m^3 in 1999 to a high of 0.027 mg/m^3 in 2008. The data collected from this 11 year study show that measured concentrations of 1,2-DCA continue to increase in indoor air.

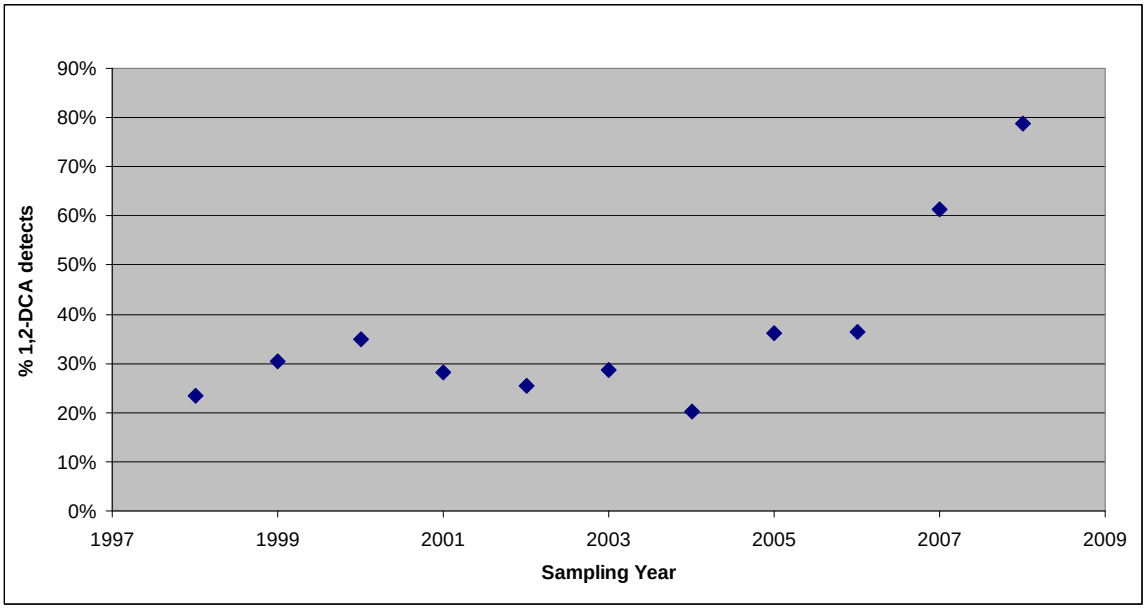

Figure 1. Percent detection of 1,2-DCA in indoor air vs. time for the Redfield, Colorado site (RL = 8×10^{-5} mg/m^3) (data obtained through personal communication with J. Kurtz, EnviroGroup Limited).

1,2-DCA Emission Calculations

Results based on mass release rate measurements conducted by USU show that the amount of 1,2-DCA being emitted from these items is sufficient to account for 1,2-DCA levels greater than Hill AFB management action levels (9.4×10^{-4} mg/m^3), which is based on a 10^{-5} health based risk level. The plastic material used in the design of the gingerbread man decoration was analyzed by USU and found to contain 1,2-DCA at 2.3 milligrams per gram (mg/g). The calculated indoor 1,2-DCA concentrations from this

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decoration range from 1 x 10-4 mg/m3 to 1.7 x 10-3 mg/m3 (Personal communication with Kyle Gorder, Hill AFB, February 5, 2009).

Three smaller items purchased from a local retailer were found to emit 1,2-DCA by the USU researchers, albeit at lower rates than the gingerbread man. Emission rates are correlated to the surface area of an item. Thus larger items would be expected to have higher emission rates.

In addition, if a large number of molded plastic decorations containing 1,2-DCA are displayed in homes, the combined contribution to indoor air from 1,2-DCA concentrations could be sufficient to exceed both the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA) Preliminary Remediation Goal Standards. Even with the degradation of the compound over time, this could result in adverse health effects from prolonged, chronic exposure to 1,2-DCA in indoor air.

Health Concerns

1,2-DCA, also called ethylene dichloride, is a manufactured chemical that is not found naturally in the environment. It is a clear liquid and has a pleasant smell and sweet taste. Commonly, 1,2-DCA is used in the production of vinyl chloride which is used to make a variety of plastics and vinyl products including polyvinyl chloride (PVC) pipes, furniture and automobile upholstery, wall coverings, house wares and automobile parts (ATSDR 2001).

When 1,2-DCA is released to the environment, it generally evaporates into the air. In the air, it can be broken down through photolysis; however, it can remain in the atmosphere up to five months before being broken down and converted to other chemicals (Nobre and Nobre 2004). In water, 1,2-DCA breaks down slowly allowing the majority to be evaporated into the air. In soil, it will either evaporate into the air or travel through the soil and enter groundwater (ATSDR 2001).

Human studies examining whether 1,2-DCA can cause cancer have been considered inadequate. In animals, increases in stomach, mammary gland, liver, lung and endometrium cancers have been observed following exposure through inhalation, oral and dermal absorption routes. The Department of Health and Human Services (DHHS) has determined that 1,2-DCA may reasonably be expected to cause cancer. The EPA has determined that 1,2-DCA is a probable human carcinogen and the International Agency for Cancer Research (IARC) also considers it to be a human carcinogen (ATSDR 2001).

A variety of adverse health conditions have been reported following ingestion or inhalation exposure to 1,2-DCA in humans; these include, nervous system disorders, liver and kidney diseases and decreased lung function. These observations have caused the EPA to set a limit of 0.005 milligram per liter (mg/L) for 1,2-DCA in drinking water. OSHA has also set a limit of 50 parts per million (ppm) (202.37 mg/m^3) of 1,2-DCA in workplace air for 8-hour shifts and 40-hour work weeks (ATSDR 2001). EPA Region 9

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has set a Preliminary Remediation Goal (PRG) for 1,2-DCA in ambient air of 7.4×10^{-5} mg/m^3 (EPA 2002). In addition, ATSDR has set a Minimum Risk Level (MRL) for inhalation of 1,2-DCA and a Cancer Risk Evaluation Guide (CREG) of 600 ppb (2.43 mg/m^3) and 0.01 ppb (4.05×10^{-5} mg/m^3), respectively. The MRL value is a non-cancer value, whereas the CREG value takes into account a 10^{-6} excess cancer risk (ATSDR 2001). Although numerous items would need to be displayed and off-gassing at the same time for the concentrations of 1,2-DCA to reach or exceed the MRL for inhalation, the concentration range estimated from calculations of indoor air (1×10^{-4} mg/m^3 to 1.7×10^{-3} mg/m^3) as well as the actual concentration ranges measured in homes (6×10^{-5} to 0.127 mg/m^3) both exceed the CREG level for exposure. Therefore, exposure to concentrations of 1,2-DCA in this range could increase the development of cancer from exposure over the lifetime of an individual. A CREG assumes a lifetime exposure of 70 years being exposed to a constant concentration of the contaminant 24 hours a day; although this is not likely to occur in this situation, the concentrations that could result in a home with various decorations left on display could increase indoor air concentrations enough to exceed this cancer risk. Additionally, if molded plastic items other than Christmas decorations are found to off-gas similar concentrations of 1,2-DCA, then the duration of the exposure would be much greater.

A comparison of the concentrations of 1,2-DCA found to off-gas from specific molded plastic items with the CREG value could result in a theoretical cancer risk that exceeds the ATSDR value, especially if other inputs of 1,2-DCA are present in the home (such as volatilization into the sub-slab from a groundwater contamination plume). Although each case would need to be examined on an individual basis, exposure to these decorations could result in a moderately increased risk to 1,2-DCA from exposure to indoor air. Currently, it is homes already being monitored for indoor air quality that have the potential to exceed this standard. Additional homes may be at risk as well, depending on the number and amount of decorations identified to emit 1,2-DCA. Additional research to identify the types of items shown to emit 1,2-DCA, coupled with the average number of items found in a typical home, would help to better quantify the risk associated with exposure to these items.

One of the most challenging aspects to determining the types of items containing 1,2-DCA is that the chemical can only be quantified using chemical analysis. However, USU has tested a variety of items and have found similar characteristics among many of the items. These include:

- The items are lightweight (as compared to ceramics);
- The items have a plastic sound when tapped (rather than a glass or ceramic-type sound);
- All items have a country of manufacture label present on the underside; and,
- All the items identified to date have been manufactured in China.

Although all items tested thus far have these general characteristics in common, it is important to note that other household items may be identified in the future as off-gassing 1,2-DCA.

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Exposure Evaluation

Although indoor air quality is routinely monitored in the area directly above the plume boundaries, the problem may be much larger than the homes tested in this study. The emission rate of 1,2-DCA from these ceramic-type decorations may raise the risk for cancer from inhaling air with 1,2-DCA if exposure occurs over a long period of time in numerous homes across the country. The more items found to be made from 1,2-DCA, the higher the emission rate of these items collectively, which could negatively impact any person residing in the home. Also, concentrations would have the tendency to be higher in homes that are not well ventilated or are closed up in winter months due to outside weather conditions. In these types of homes, 1,2-DCA concentrations will have the ability to increase over time.

Although the number of items found to off-gas 1,2-DCA may contribute to the increased concentrations of the compound detected in indoor air, it is important to note that these concentrations will degrade over time; therefore, a resident in the home would not experience the same level of exposure over time. As the product ages, the level of 1,2-DCA will decrease. The degradation of 1,2-DCA in indoor air is a slow process; the estimated half-life of 1,2-DCA in indoor air is approximately 29 days (WHO 2000) and would need to be taken into consideration in the calculation of exposure levels for individuals residing in the homes. Numerous factors can contribute to the indoor air exposure to 1,2-DCA for residents in homes displaying such items; however, it is difficult to accurately assess each person's exposure due to a variety of changing factors (i.e., air flow through the home, average time spent in the home, ventilation, etc.).

Conclusions and Recommendations

The levels of 1,2-DCA found in some homes in Layton could cause a theoretical increased cancer risk if residents were exposed to certain off-gassing products for a long period of time. It is unknown if the levels of 1,2-DCA that are currently in homes will remain at that level. It is more likely that they will decrease with time if the same products are retained in the homes. However, adding more off-gassing products could keep the level more steady or increase the level of 1,2-DCA. Many factors will influence the concentration of 1,2-DCA from off-gassing products in the home:

- Age of off-gassing product,
- Size/surface area of off-gassing product,
- Number of off-gassing products,
- Ventilation of indoor space,
- Area where off-gassing product is displayed in the home, and
- Atmospheric conditions at the time.

Due to the uncertainties and varying exposure concentrations of 1,2-DCA, it is difficult to determine possible health effects. None of the levels currently measured are high enough to cause any non-cancer adverse health effects. However, UDOH is concerned that some

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high levels of 1,2-DCA found in homes contributes to an increased cancer risk if residents would breathe that level of 1,2-DCA for a long period of time.

Because of the uncertainty, and the potential for increased cancer risks, UDOH recommends that any concerned residents remove the off-gassing products from their homes. As part of best public health practice for healthy indoor air quality, homes should always be well ventilated (e.g., periodically open windows or run an HVAC system with an outdoor air intake).

UDOH recommends continued air monitoring of the homes identified with detections of 1,2-DCA to ensure that vapor intrusion does not become an additional source of 1,2-DCA in the homes.

UDOH also recommends that this information be provided to the Consumer Products Safety Commission for follow-up on these off-gassing consumer products because these products are not isolated to this community or the state of Utah.

If you have additional questions or need further clarification, please contact me at (801) 538-6191.

Sincerely,

Christina McNaughton, Ph.D.
Environmental Toxicologist/Health Program Manager
Utah Department of Health
Environmental Epidemiology Program

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CERTIFICATION

This Letter Health Consultation, **Air Quality in Layton Homes, Davis County, Utah**, was prepared by the Utah Department of Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the health consultation was begun. Editorial review was completed by the Cooperative Agreement partner.

Jennifer Freed
Technical Project Officer, DHAC, ATSDR

The Division of Health Assessment and Consultation, ATSDR, has reviewed this health consultation and concurs with its findings.

Alan Yarbrough
Cooperative Agreement Team Leader, DHAC, ATSDR

APPENDIX

Figure 2. Gingerbread man Christmas decoration; first item identified by Utah State University to off-gas 1,2-DCA. Currently, more products are being tested for 1,2-DCA off gassing; identification of these items will occur at a later date.