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Electronic Comprehensive Validation Package (eCVP)

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Amended 2-28-19

COMPREHENSIVE VALIDATION PACKAGE

Modified TO-15 SIM

INVENTORY SHEET

Work Order #: 1902183AR1

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Comments: The eCVP was amended and re-submitted on 2-28-19 due to laboratory error. The initial calibration data files included in section 3.f were ~~updated to match the data files associated with the calibration curve~~. (See Corrective Action #J2T9494895). Additionally, sample log-in sheet 4.c was not included in the amended eCVP.

Completed by:

Vera Belitsky	Vera Belitsky / Document Control	2/28/19
(Signature)	(Print Name & Title)	(Date)

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WORK ORDER #: 1902183AR1

Work Order Summary

CLIENT:	Mr. Robert DeMott Ramboll Environ 10150 Highland Manor Drive Suite 440 Tampa, FL 33610	**BILL TO:**	Accounts Payable Ramboll Environ 10150 Highland Manor Drive Suite 440 Tampa, FL 33610
PHONE:	813-628-4325	**P.O. #**	
FAX:	813-628-4983	**PROJECT #**	1690010629 SAL
DATE RECEIVED:	02/11/2019	**CONTACT:**	Ausha Scott
DATE COMPLETED:	02/15/2019		
DATE REISSUED:	02/20/2019		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	PD-D-020819	Modified TO-15 SIM	8.5 "Hg	5 psi
02A	DUP-D-0208189	Modified TO-15 SIM	14.0 "Hg	5 psi
03A	WH-D-020819	Modified TO-15 SIM	11.0 "Hg	5 psi
04A	Lab Blank	Modified TO-15 SIM	NA	NA
05A	CCV	Modified TO-15 SIM	NA	NA
06A	LCS	Modified TO-15 SIM	NA	NA
06AA	LCSD	Modified TO-15 SIM	NA	NA

CERTIFIED BY: Heidi Hayes

Technical Director

DATE: 02/20/19

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LABORATORY NARRATIVE
EPA TO-15 Ethylene oxide (SIM)
Ramboll Environ
Workorder# 1902183AR1

Three 6 Liter Summa Canister (100% Certified) samples were received on February 11, 2019. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the SIM acquisition mode for the measurement of Ethylene oxide in ambient air.

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.

Receiving Notes

Sample identification for sample WH-D-020819 was not provided on the sample tag. Therefore the information on the Chain of Custody was used to process and report the sample.

The Chain of Custody (COC) was not relinquished properly. A time was not provided by the field sampler.

There was a difference (greater than or equal to 5.0" Hg) between the measured canister receipt vacuum and that which was reported on the Chain of Custody (COC) for sample PD-D-020819. A leak test indicated that the valve was functioning properly.

Analytical Notes

Ethylene Oxide is not included on the laboratory's NELAP scope of accreditation for TO-15 SIM. However, TO-15 method and NELAP quality requirements were met.

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. All The canisters used for this project have been certified to the Reporting Limit for Ethylene Oxide. Concentrations that are below the level at which the canister was certified may be false positives.

The compound 2,5-Dimethylfuran is reported as a semi-quantitative concentration using a three-point calibration with the lowest calibration level of 0.05 ppbv used to establish the reporting limit. No second source verification of the calibration was performed, and no method detection limit study was conducted.

The reported CCV is derived from more than one analytical file due to the client's request for non-standard compounds.

The workorder was reissued on 2-20-19 using the report template displaying the Method Detection Limit (MDL) value for each sample. In order to display the MDL value, the reissued report provides results in units of ug/m3 only.

Definition of Data Qualifying Flags

Nine 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.

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.

CN - See Case Narrative

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)	Date Analyzed	Sample Extract Holding Time (Days)	Sample Condition
PD-D-020819	1902183AR1-01	2/ 8/2019	2/11/2019	NA	6	2/14/2019	NA	Good
DUP-D-0208189	1902183AR1-02	2/ 8/2019	2/11/2019	NA	6	2/14/2019	NA	Good
WH-D-020819	1902183AR1-03	2/ 8/2019	2/11/2019	NA	6	2/14/2019	NA	Good
Lab Blank	1902183AR1-04	NA	NA	NA	NA	2/14/2019	NA	Good
CCV	1902183AR1-05	NA	NA	NA	NA	2/14/2019	NA	Good
LCS	1902183AR1-06	NA	NA	NA	NA	2/14/2019	NA	Good
LCSD	1902183AR1-06	NA	NA	NA	NA	2/14/2019	NA	Good

Sample Results and Raw Data

MODIFIED EPA METHOD TO-15 GC/MS SIM
SAL

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Client ID:	PD-D-020819		
Lab ID:	1902183AR1-01A	**Date/Time Analyzed:**	2/14/19 05:03 PM
Date/Time Collected:	2/8/19 10:05 PM	**Dilution Factor:**	1.87
Media:	6 Liter Summa Canister (100% Certified)	**Instrument/Filename:**	msd2.i / 2021411sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.37	Not Detected
Ethylene Oxide	75-21-8	0.092	D	0.17	0.12 J

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/14FEB19.b/2021411sim.d
Lab Smp Id: 1902183A-01A
Inj Date : 14-FEB-2019 17:03
Operator : db Inst ID: msd2.i
Smp Info : 200ml O0334
Misc Info : 8.5 Hg->5 psi
Comment : SIM - GC/MS
Method : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 15:33 udib Quant Type: ISTD
Cal Date : 14-FEB-2019 12:10 Cal File: 2021405sim.d
Als bottle: 6
Dil Factor: 1.87000
Integrator: HP RTE Compound Sublist: Samples.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.102	12.174	(0.790)	44	397	0.03583	0.06700	80.00- 120.00	100.00(a)
12.102	12.174	(0.790)	43	111			0.00- 55.01	28.08
12.102	12.174	(0.790)	29	2257			59.74- 119.74	567.75
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	201520	5.97513	5.975	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	207638			73.24- 133.24	103.04
14.335	14.335	(0.936)	83	163039			63.25- 123.25	80.90
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	290345	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	95406			3.63- 63.63	32.86
15.319	15.319	(1.000)	61	85858			3.78- 63.78	29.57
* 7 Fluorobenzene						CAS #: 462-06-6		
19.138	19.081	(1.000)	96	385834	6.00000		80.00- 120.00	100.00
19.119	19.081	(1.000)	70	70876			0.00- 49.55	18.37
$ 10 Toluene-d8						CAS #: 2037-26-5		
20.331	20.207	(1.062)	98	285827	5.81948	5.819	80.00- 120.00	100.00

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
$ 10 Toluene-d8 (continued)								
20.312	20.207	(1.061)	70	34152			0.00- 45.38	11.95
20.331	20.207	(1.062)	100	180942			31.22- 91.22	63.30

QC Flag Legend

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

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021411sim.d
Lab Smp Id: 1902183A-01A
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 8.5 Hg->5 psi

Calibration Date: 14-FEB-2019
Calibration Time: 13:42

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	288480	173088	403872	290345	0.65
7 Fluorobenzene	415327	249196	581458	385834	-7.10

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.14	18.81	19.47	19.14	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: 15-Feb-2019 17:49

US32APPTV002

RECOVERY REPORT

Client Name: Client SDG: 14FEB19
Sample Matrix: GAS Fraction: VOA
Lab Smp Id: 1902183A-01A
Level: LOW Operator: db
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: AT12.spk Quant Type: ISTD
Sublist File: Samples.sub
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 8.5 Hg->5 psi

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
$ 3 2-Bromo-1,1,1-Trifluoroethane	6.000	5.975	99.59
$ 10 Toluene-d8	6.000	5.819	96.99

Data File: /chem/msd2.i/14FEB19.b/2021411sim.d

Date : 14-FEB-2019 17:03

Client ID:

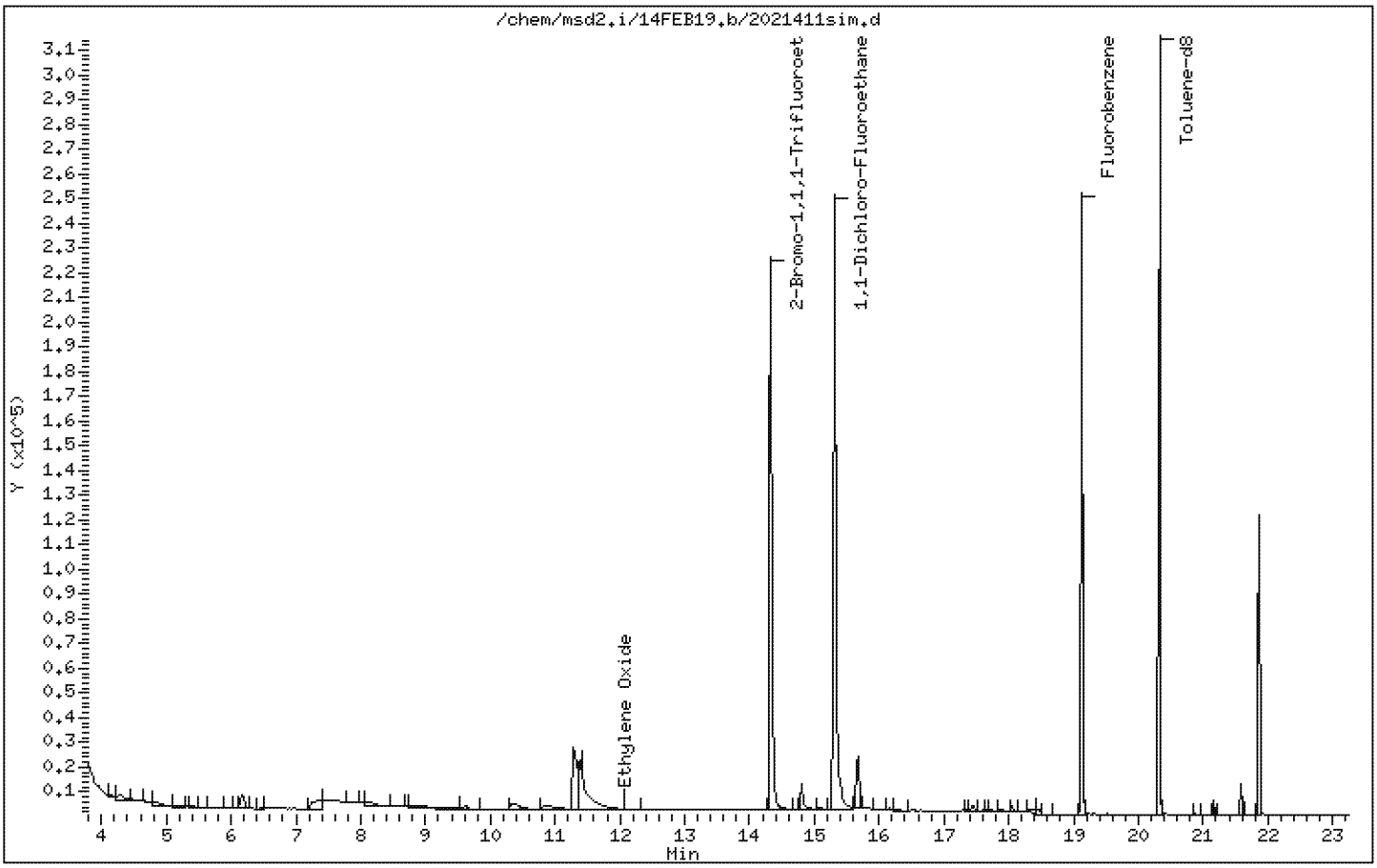
Instrument: msd2.i

Sample Info: 200ml 00334

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/14FEB19.b/2021411sim.d

Date : 14-FEB-2019 17:03

Client ID:

Instrument: msd2.i

Sample Info: 200ml 00334

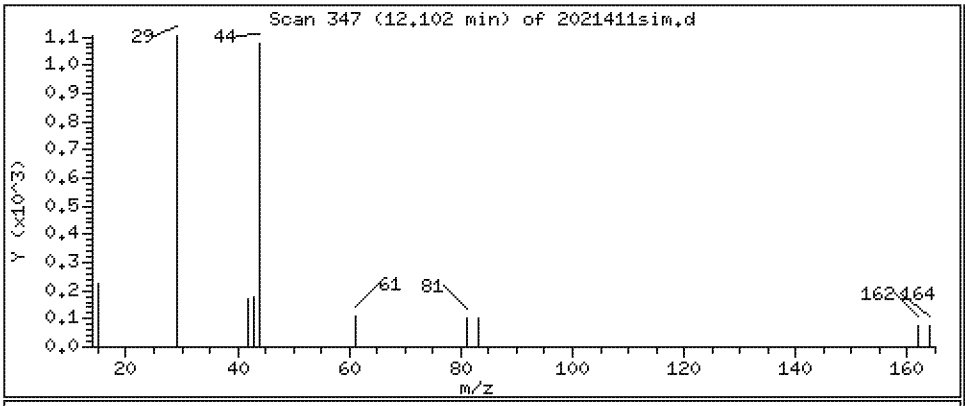
Operator: db

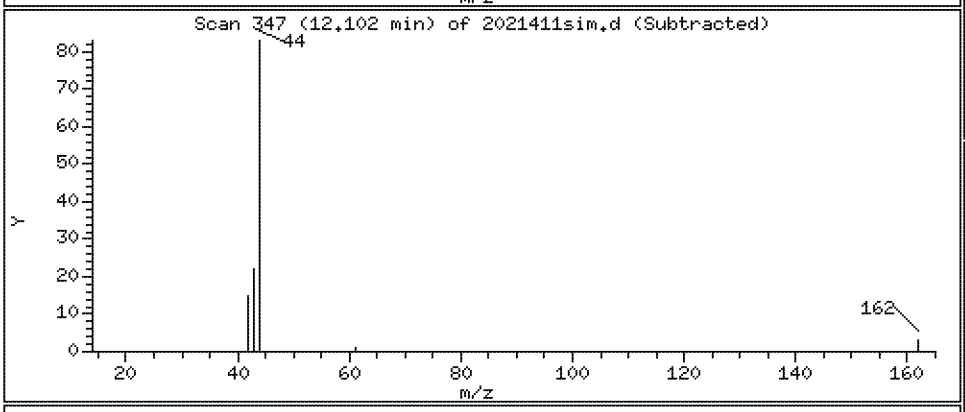
Column phase: RTX-624

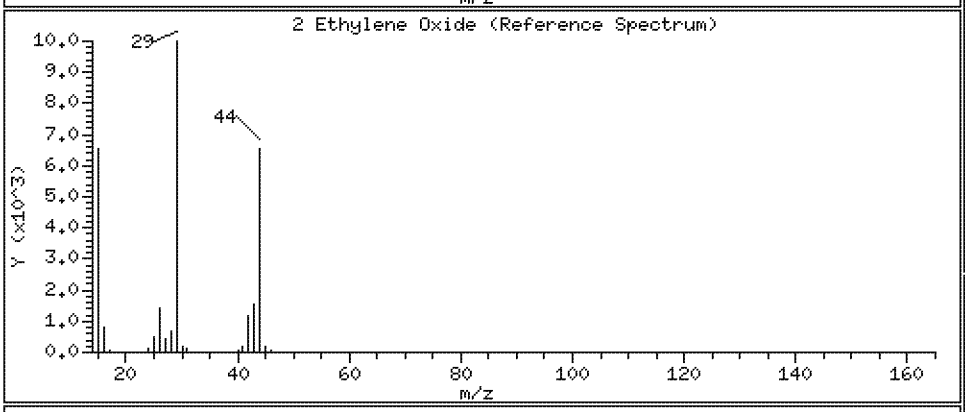
Column diameter: 0.32

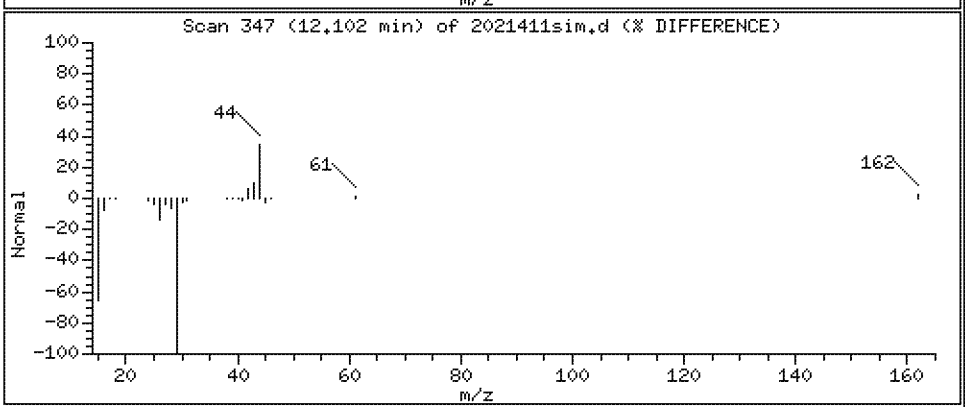
2 Ethylene Oxide

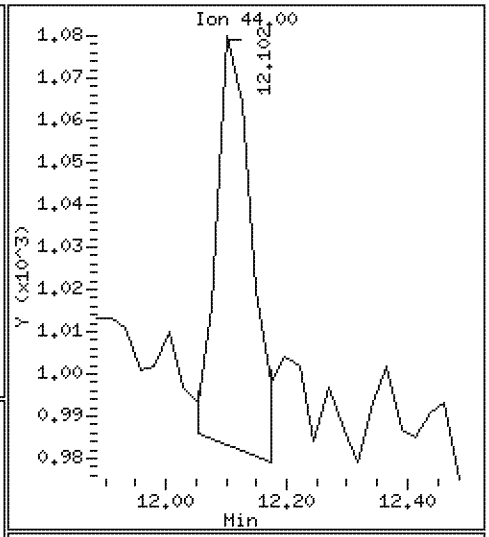
Concentration: 0.06700 PPBV

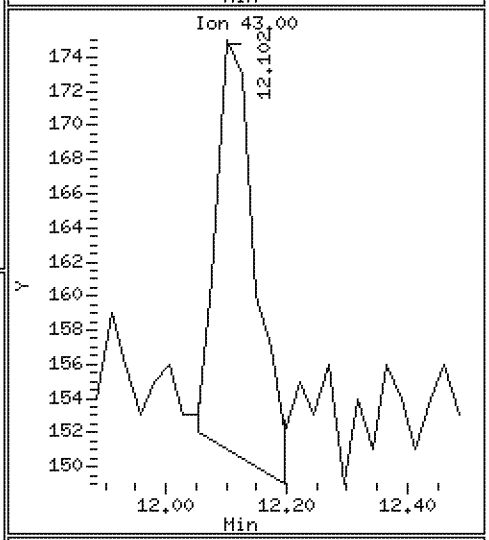


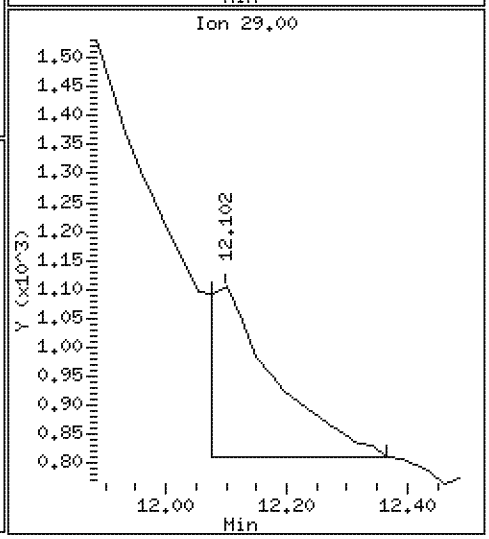












MODIFIED EPA METHOD TO-15 GC/MS SIM
SAL

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Client ID:	DUP-D-0208189		
Lab ID:	1902183AR1-02A	**Date/Time Analyzed:**	2/14/19 05:39 PM
Date/Time Collected:	2/8/19 10:08 PM	**Dilution Factor:**	2.51
Media:	6 Liter Summa Canister (100% Certified)	**Instrument/Filename:**	msd2.i / 2021412sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.49	Not Detected
Ethylene Oxide	75-21-8	0.12	D	0.23	0.14 J

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/14FEB19.b/2021412sim.d
Lab Smp Id: 1902183A-02A
Inj Date : 14-FEB-2019 17:39
Operator : db Inst ID: msd2.i
Smp Info : 200ml O0114
Misc Info : 14.0 Hg->5 psi
Comment : SIM - GC/MS
Method : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 15:33 udib Quant Type: ISTD
Cal Date : 14-FEB-2019 12:10 Cal File: 2021405sim.d
Als bottle: 7
Dil Factor: 2.51000
Integrator: HP RTE Compound Sublist: Samples.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.318	12.174	(0.804)	44	350	0.03174	0.07967	80.00- 120.00	100.00(a)
12.294	12.174	(0.803)	43	57			0.00- 55.01	16.46
12.294	12.174	(0.803)	29	246			59.74- 119.74	70.38
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	200910	5.99597	5.996	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	206991			73.24- 133.24	103.03
14.335	14.335	(0.936)	83	162168			63.25- 123.25	80.72
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	288461	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	94790			3.63- 63.63	32.86
15.319	15.319	(1.000)	61	85538			3.78- 63.78	29.65
* 7 Fluorobenzene						CAS #: 462-06-6		
19.138	19.081	(1.000)	96	379416	6.00000		80.00- 120.00	100.00
19.119	19.081	(1.000)	70	69800			0.00- 49.55	18.40
$ 10 Toluene-d8						CAS #: 2037-26-5		
20.331	20.207	(1.062)	98	278543	5.76710	5.767	80.00- 120.00	100.00

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
$ 10 Toluene-d8 (continued)								
20.312	20.207	(1.061)	70	34576			0.00- 45.38	12.41
20.331	20.207	(1.062)	100	175636			31.22- 91.22	63.06

QC Flag Legend

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

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021412sim.d
Lab Smp Id: 1902183A-02A
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 14.0 Hg->5 psi

Calibration Date: 14-FEB-2019
Calibration Time: 13:42

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	288480	173088	403872	288461	-0.01
7 Fluorobenzene	415327	249196	581458	379416	-8.65

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.14	18.81	19.47	19.14	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: 15-Feb-2019 18:03

US32APPTV002

RECOVERY REPORT

Client Name:
Client SDG: 14FEB19
Sample Matrix: GAS
Fraction: VOA
Lab Smp Id: 1902183A-02A
Level: LOW
Operator: db
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: AT12.spk
Quant Type: ISTD
Sublist File: Samples.sub
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 14.0 Hg->5 psi

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
$ 3 2-Bromo-1,1,1-Trifluoroethane	6.000	5.996	99.93
$ 10 Toluene-d8	6.000	5.767	96.12

Data File: /chem/msd2.i/14FEB19.b/2021412sim.d

Date : 14-FEB-2019 17:39

Client ID:

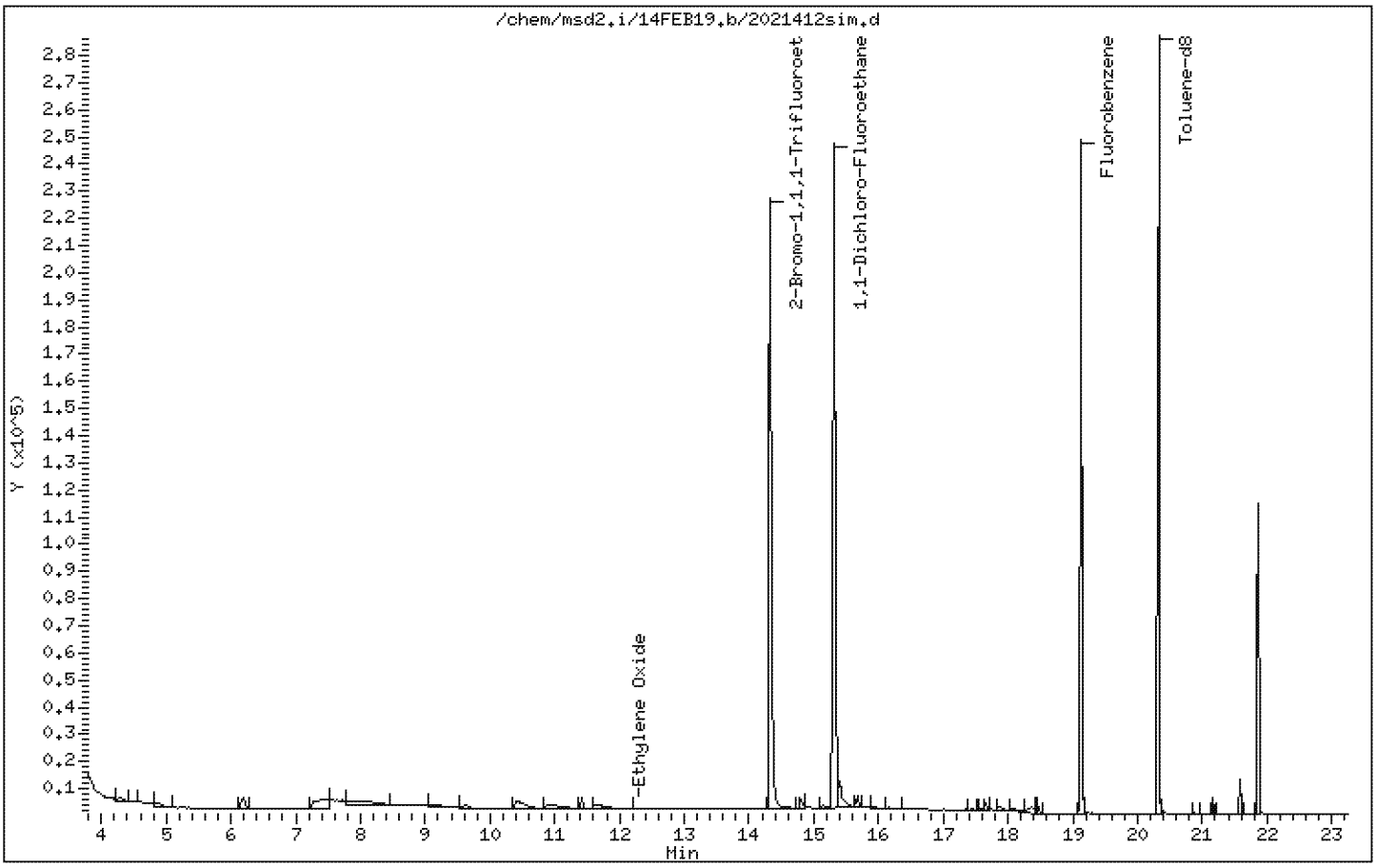
Instrument: msd2.i

Sample Info: 200ml 00114

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/14FEB19.b/2021412sim.d

Date : 14-FEB-2019 17:39

Client ID:

Instrument: msd2.i

Sample Info: 200ml 00114

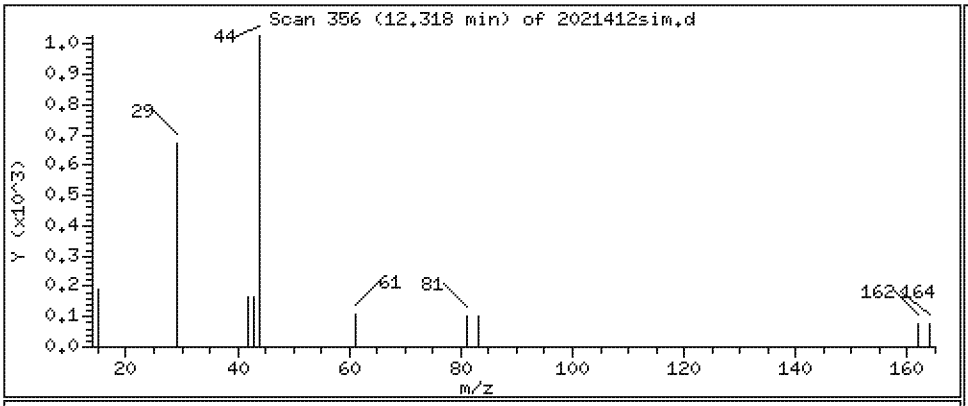
Operator: db

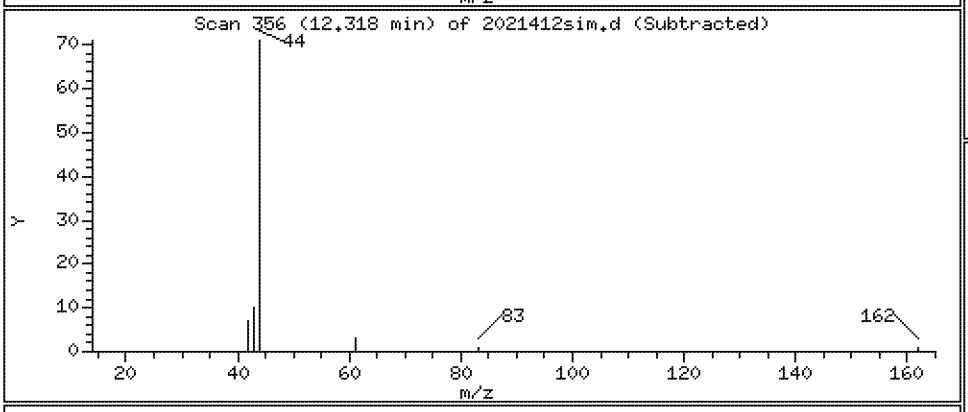
Column phase: RTX-624

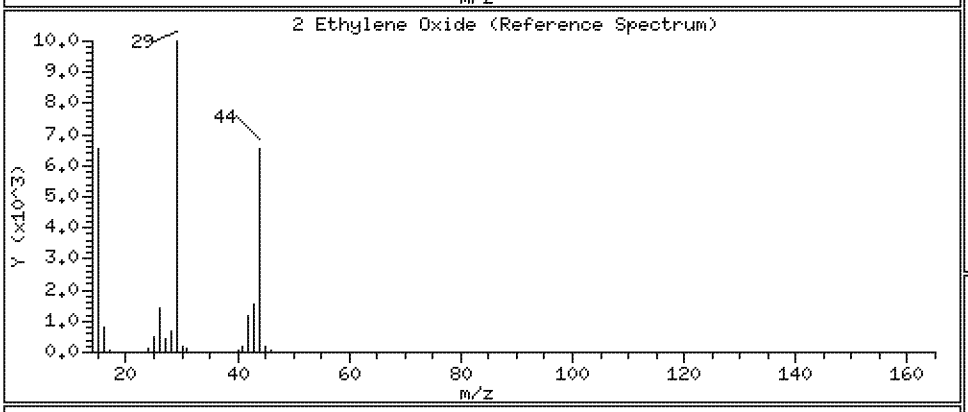
Column diameter: 0.32

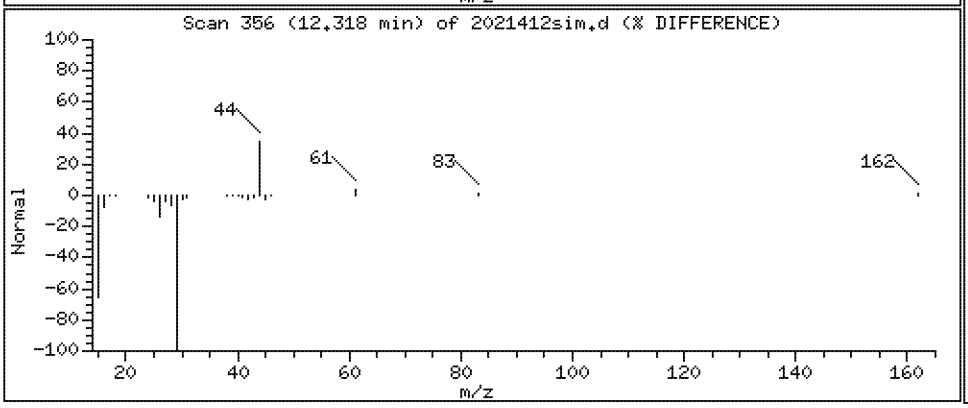
2 Ethylene Oxide

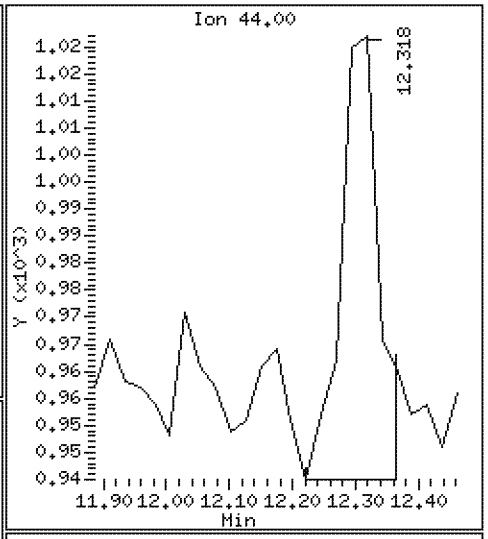
Concentration: 0.07967 PPBV

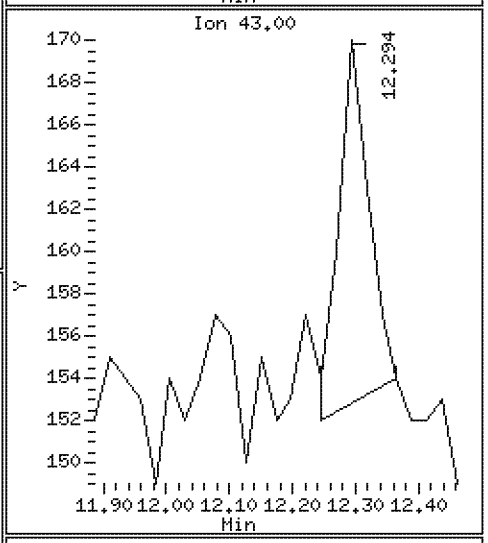


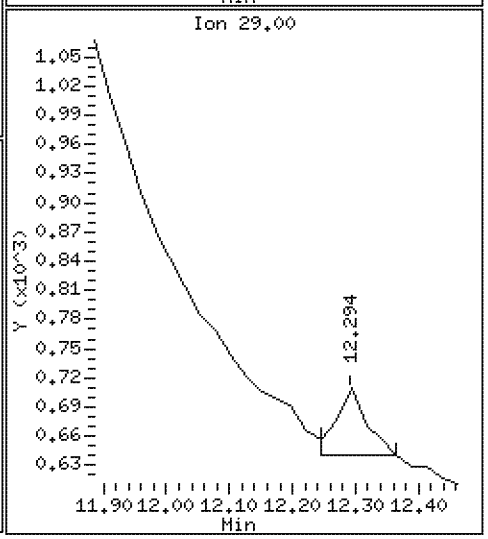












MODIFIED EPA METHOD TO-15 GC/MS SIM
SAL

eurofins | Air Toxics

Client ID:	WH-D-020819		
Lab ID:	1902183AR1-03A	**Date/Time Analyzed:**	2/14/19 06:16 PM
Date/Time Collected:	2/8/19 09:50 PM	**Dilution Factor:**	2.12
Media:	6 Liter Summa Canister (100% Certified)	**Instrument/Filename:**	msd2.i / 2021413sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.42	Not Detected
Ethylene Oxide	75-21-8	0.10	D	0.19	0.55

D: Analyte not within the DoD scope of accreditation.

US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/14FEB19.b/2021413sim.d
Lab Smp Id: 1902183A-03A
Inj Date : 14-FEB-2019 18:16
Operator : db Inst ID: msd2.i
Smp Info : 200ml N1772
Misc Info : 11.0 Hg->5 psi
Comment : SIM - GC/MS
Method : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 15:33 udib Quant Type: ISTD
Cal Date : 14-FEB-2019 12:10 Cal File: 2021405sim.d
Als bottle: 9
Dil Factor: 2.12000
Integrator: HP RTE Compound Sublist: Samples.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.198	12.174	(0.796)	44	1587	0.14371	0.3047	80.00- 120.00	100.00
12.198	12.174	(0.796)	43	386			0.00- 55.01	24.32
12.198	12.174	(0.796)	29	1705			59.74- 119.74	107.44
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	202767	6.04024	6.040	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	208832			73.24- 133.24	102.99
14.335	14.335	(0.936)	83	163786			63.25- 123.25	80.78
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	288994	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	95013			3.63- 63.63	32.88
15.319	15.319	(1.000)	61	85990			3.78- 63.78	29.76
* 7 Fluorobenzene						CAS #: 462-06-6		
19.138	19.081	(1.000)	96	399395	6.00000		80.00- 120.00	100.00
19.119	19.081	(1.000)	70	73183			0.00- 49.55	18.32
$ 10 Toluene-d8						CAS #: 2037-26-5		
20.331	20.207	(1.062)	98	288357	5.67164	5.672	80.00- 120.00	100.00

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
$ 10 Toluene-d8 (continued)								
20.312	20.207	(1.061)	70	38148			0.00- 45.38	13.23
20.331	20.207	(1.062)	100	179854			31.22- 91.22	62.37

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021413sim.d
Lab Smp Id: 1902183A-03A
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 11.0 Hg->5 psi

Calibration Date: 14-FEB-2019
Calibration Time: 13:42

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	288480	173088	403872	288994	0.18
7 Fluorobenzene	415327	249196	581458	399395	-3.84

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.14	18.81	19.47	19.14	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: 15-Feb-2019 17:49

US32APPTV002

RECOVERY REPORT

Client Name: Client SDG: 14FEB19
Sample Matrix: GAS Fraction: VOA
Lab Smp Id: 1902183A-03A
Level: LOW Operator: db
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: AT12.spk Quant Type: ISTD
Sublist File: Samples.sub
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 11.0 Hg->5 psi

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
$ 3 2-Bromo-1,1,1-Trifluoroethane	6.000	6.040	100.67
$ 10 Toluene-d8	6.000	5.672	94.53

Data File: /chem/msd2.i/14FEB19.b/2021413sim.d

Date : 14-FEB-2019 18:16

Client ID:

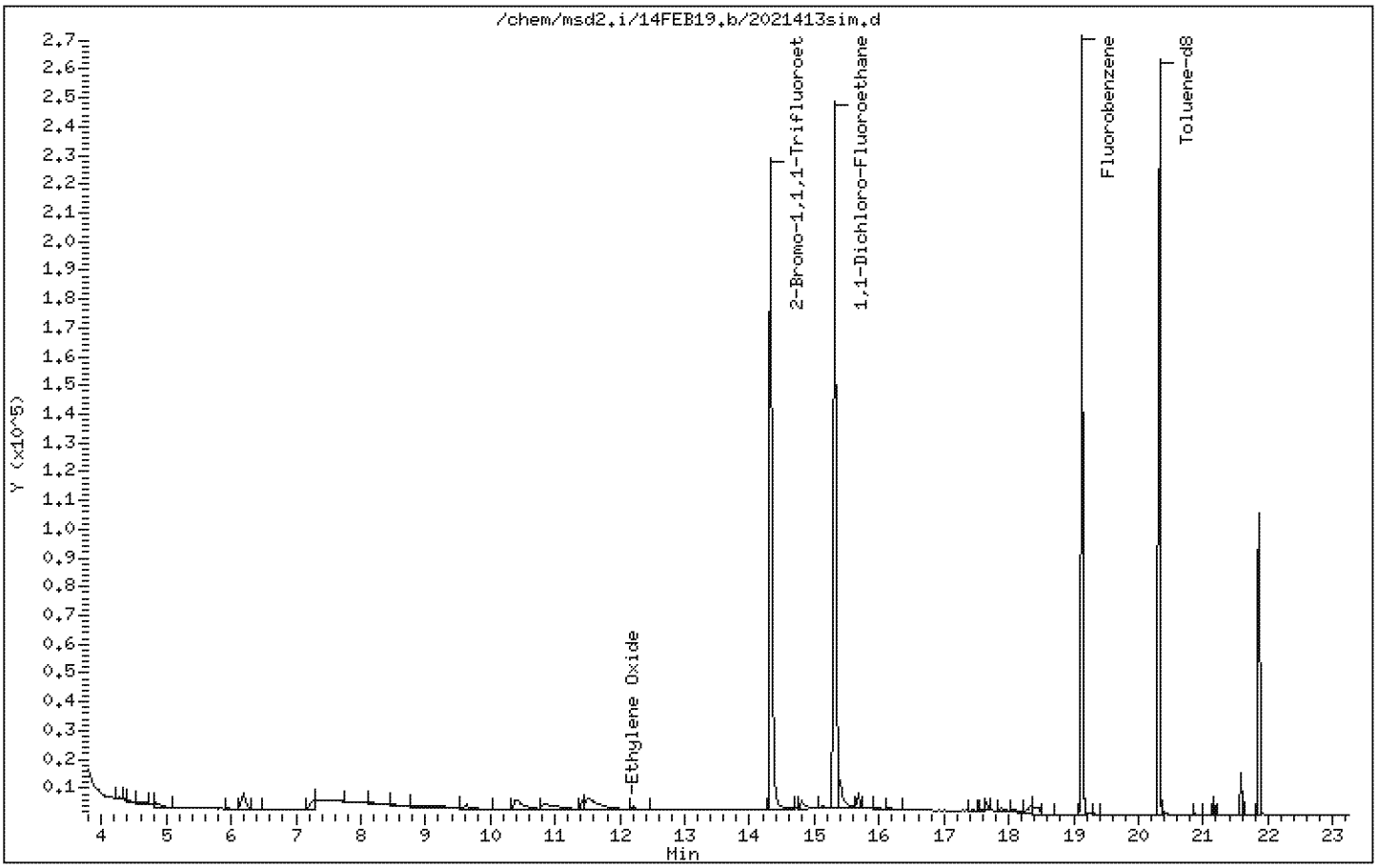
Instrument: msd2.i

Sample Info: 200ml N1772

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/14FEB19.b/2021413sim.d

Date : 14-FEB-2019 18:16

Client ID:

Instrument: msd2.i

Sample Info: 200ml N1772

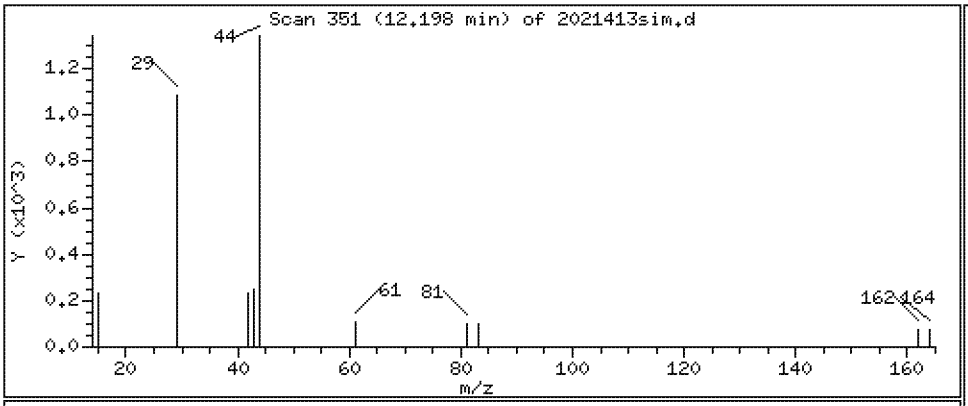
Operator: db

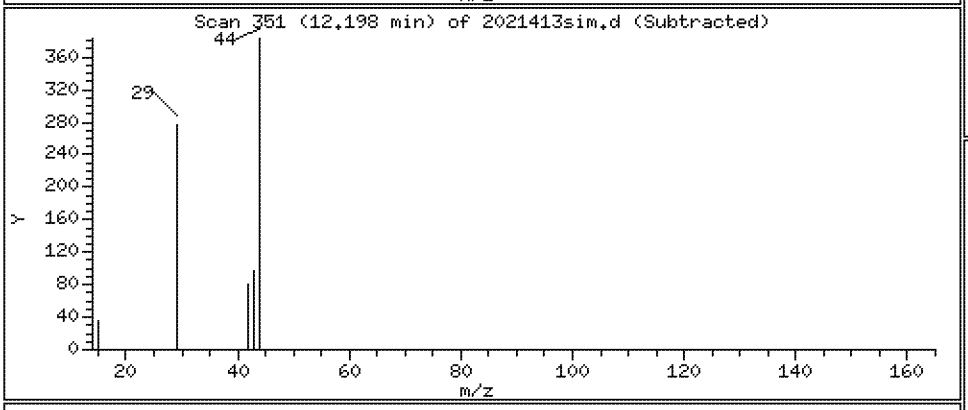
Column phase: RTX-624

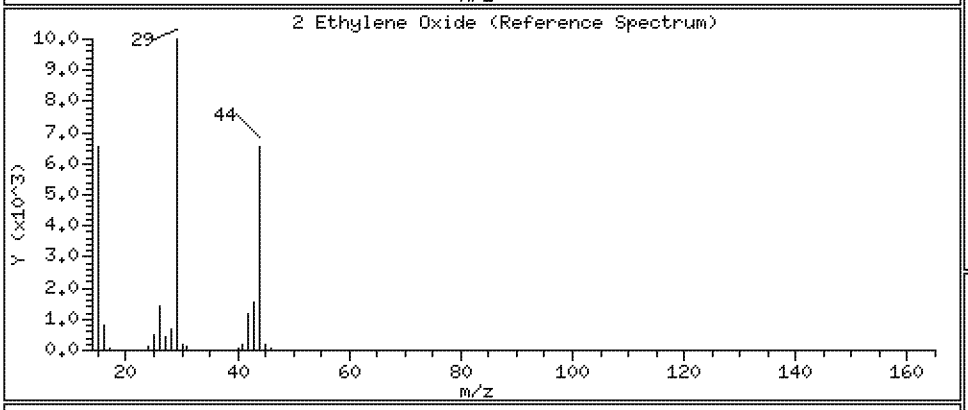
Column diameter: 0.32

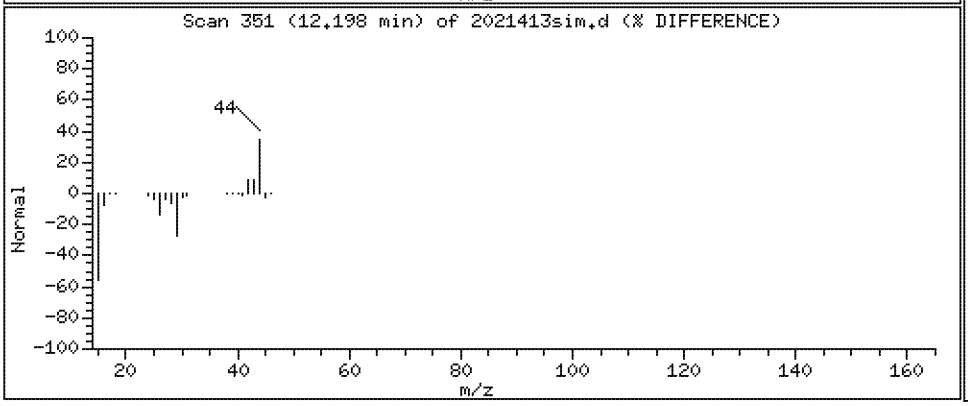
2 Ethylene Oxide

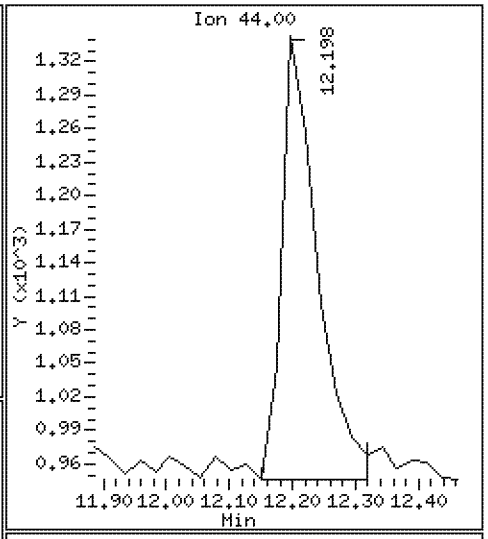
Concentration: 0.3047 PPBV

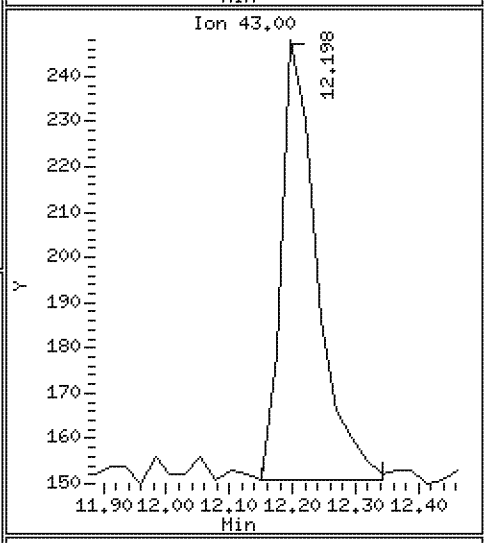


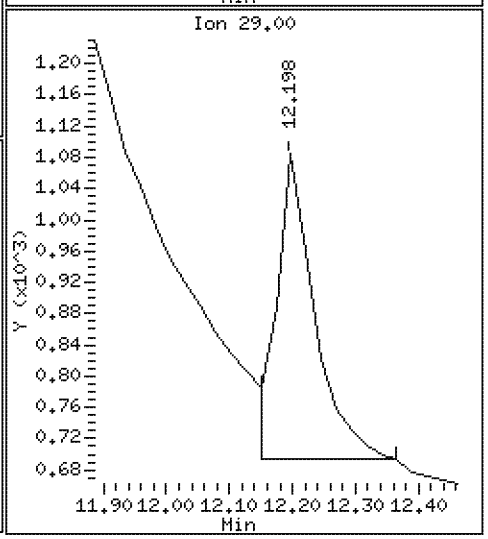












QC Results and Raw Data

MODIFIED EPA METHOD TO-15 GC/MS SIM
SAL

eurofins | Air Toxics

Client ID:	Lab Blank		
Lab ID:	1902183AR1-04A	**Date/Time Analyzed:**	2/14/19 04:26 PM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd2.i / 2021410sima

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2,5-Dimethylfuran	625-86-5	NA	D	0.20	Not Detected
Ethylene Oxide	75-21-8	0.049	D	0.090	Not Detected

D: Analyte not within the DoD scope of accreditation.

US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/14FEB19.b/2021410sima.d
Lab Smp Id: Lab Blank
Inj Date : 14-FEB-2019 16:26
Operator : db Inst ID: msd2.i
Smp Info : 200ml 5411
Misc Info : Humid
Comment : SIM - GC/MS
Method : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 15:33 udib Quant Type: ISTD
Cal Date : 14-FEB-2019 12:10 Cal File: 2021405sim.d
Als bottle: 16
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: Samples.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	200765	5.95086	5.951	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	207145			73.24- 133.24	103.18
14.335	14.335	(0.936)	83	162641			63.25- 123.25	81.01
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	290437	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	95287			3.63- 63.63	32.81
15.319	15.319	(1.000)	61	86211			3.78- 63.78	29.68
* 7 Fluorobenzene						CAS #: 462-06-6		
19.138	19.081	(1.000)	96	403282	6.00000		80.00- 120.00	100.00
19.119	19.081	(1.000)	70	76066			0.00- 49.55	18.86
$ 10 Toluene-d8						CAS #: 2037-26-5		
20.331	20.207	(1.062)	98	275542	5.36735	5.367	80.00- 120.00	100.00
20.312	20.207	(1.061)	70	35492			0.00- 45.38	12.88
20.331	20.207	(1.062)	100	172581			31.22- 91.22	62.63

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021410sima.d
Lab Smp Id: Lab Blank
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: Humid

Calibration Date: 14-FEB-2019
Calibration Time: 13:42

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	288480	173088	403872	290437	0.68
7 Fluorobenzene	415327	249196	581458	403282	-2.90

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.14	18.81	19.47	19.14	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: 15-Feb-2019 17:52

US32APPTV002

RECOVERY REPORT

Client Name:
Client SDG: 14FEB19
Sample Matrix: GAS
Fraction: VOA
Lab Smp Id: Lab Blank
Level: LOW
Operator: db
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: AT12.spk
Quant Type: ISTD
Sublist File: Samples.sub
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: Humid

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
$ 3 2-Bromo-1,1,1-Trifluoroethane	6.000	5.951	99.18
$ 10 Toluene-d8	6.000	5.367	89.46

Data File: /chem/msd2.i/14FEB19.b/2021410sima.d

Date : 14-FEB-2019 16:26

Client ID:

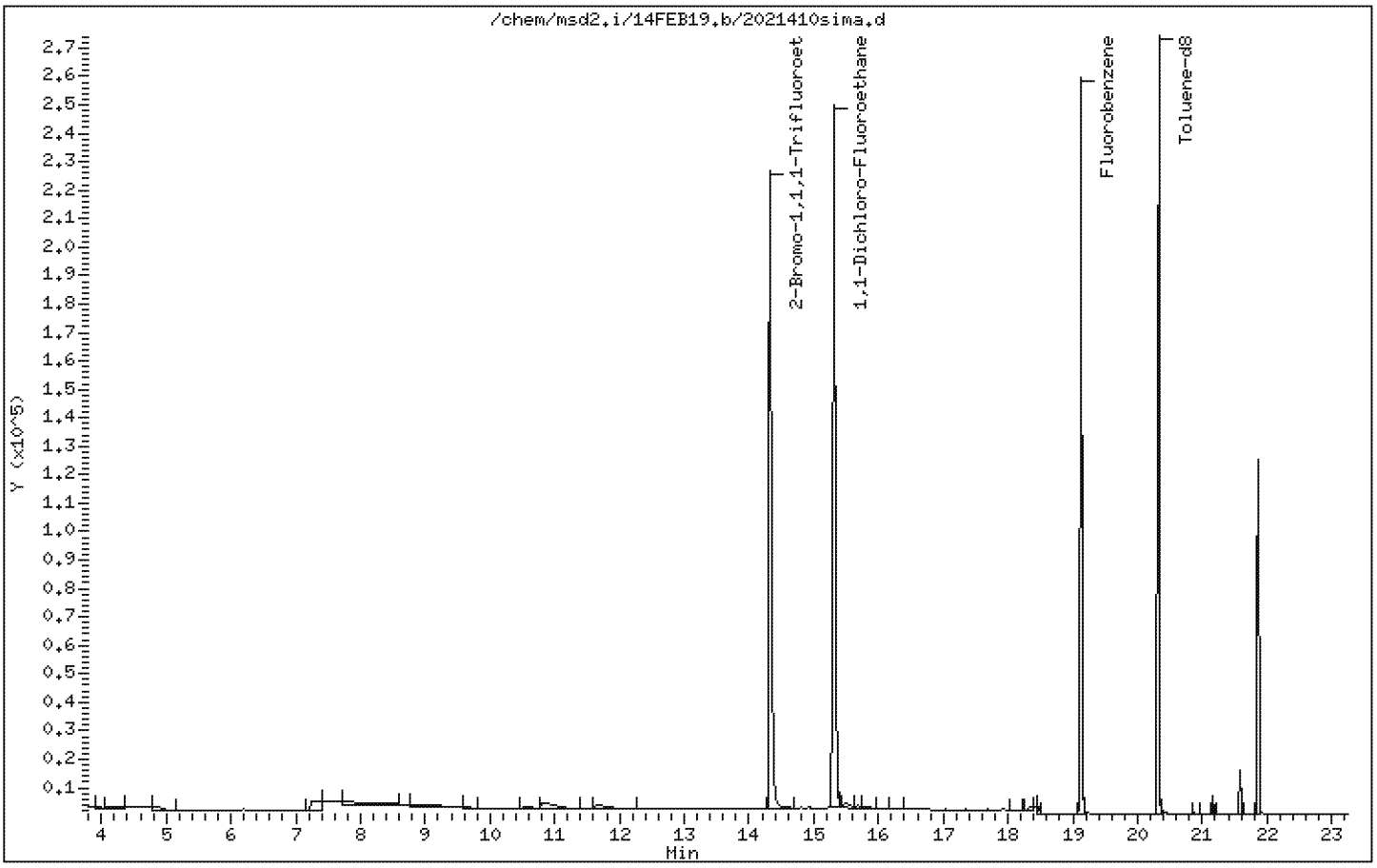
Instrument: msd2.i

Sample Info: 200ml 5411

Operator: db

Column phase: RTX-624

Column diameter: 0.32



LEVEL-IV VALIDATABLE

Modified EPA Method TO-15 GC/MS SIM

INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name:	AIR TOXICS, LTD	SDG No:	1902183AR1
Lab File ID:	2021406sim.d	Date Analyzed:	02/14/2019
Instrument ID:	msd2.i	Time Analyzed:	01:42 PM

		Freon 141b Area	#	RT	#	Fluorobenzene Area	#	RT	#	Area	#	RT	#
	24-HOUR STD	288480		15.32		415327		19.14					
	UPPER LIMIT	403872		15.65		581458		19.47					
	LOWER LIMIT	173088		14.99		249196		18.81					
	CLIENT SAMPLE NO												
01	PD-D-020819	290345		15.32		385834		19.14					
02	DUP-D-0208189	288461		15.32		379416		19.14					
03	WH-D-020819	288994		15.32		399395		19.14					
04	Lab Blank	290437		15.32		403282		19.14					
05	CCV	288480		15.32		415327		19.14					
06	LCS	292830		15.32		413285		19.14					
07	LCSD	288950		15.32		384723		18.97					
08													
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: 2021408sim.d & 2021407sim.d

Lab Sample ID: &

Dilution: 1.00 & 1.00

Client Sample ID: &

Date Analyzed: 2/14/19 & 2/14/19

CAS Number	Compound	Original Amount	Original Flags	Duplicate Amount	Duplicate Flags	RPD	Result Less Than 5X RL
625-86-5	2,5-Dimethylfuran	ND		ND		0	
75-21-8	Ethylene Oxide	96		99		3.1	

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

US32APPTV002

INITIAL CALIBRATION DATA

Start Cal Date : 13-FEB-2019 11:01
End Cal Date : 14-FEB-2019 12:10
Quant Method : ISTD
Origin : Disabled
Target Version : 3.60
Integrator : HP RTE
Method file : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Cal Date : 14-Feb-2019 15:33 udib
Curve Type : Average

Calibration File Names:
Level 5: /chem/msd2.i/14FEB19.b/2021402sim.d
Level 6: /chem/msd2.i/14FEB19.b/2021403sim.d
Level 7: /chem/msd2.i/14FEB19.b/2021404sim.d
Level 8: /chem/msd2.i/14FEB19.b/2021405sim.d
Level 12: /chem/msd2.i/13FEB19.b/2021307sim.d
Level 15: /chem/msd2.i/13FEB19.b/2021308sim.d

Compound	0.05000 Level 5	0.10000 Level 6	0.50000 Level 7	1.000 Level 8	5.000 Level 12	20.000 Level 15	RRF	% RSD
1 Acetaldehyde	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
2 Ethylene Oxide	0.29716	0.27973	0.18952	0.19692	0.22550	0.18723	0.22934	20.970
9 2,5-Dimethylfuran	0.28912	0.27252	0.29660	0.27425	+++++	+++++	0.28312	4.123
$ 3 2-Bromo-1,1,1-Trifluoroethane	0.69125	0.69903	0.69574	0.70279	0.69345	0.69948	0.69696	0.612
$ 6 1,2-Dichloroethane-d4	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 10 Toluene-d8	0.72349	0.72171	0.75445	0.85548	+++++	+++++	0.76378	8.242
$ 12 4-Bromofluorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++

Calibration History

Method : /chem/msd2.i/14FEB19.b/219s10213eo.m
Start Cal Date: 13-FEB-2019 11:01
End Cal Date : 14-FEB-2019 12:10

Initial Calibration

Injection Date	Sublist	Calibration File
Cal Level: 5 , Cal Amount: 0.05000		
14-FEB-2019 10:20	25df	/chem/msd2.i/14FEB19.b/2021402sim.d
13-FEB-2019 11:01	eocrv	/chem/msd2.i/13FEB19.b/2021303sim.d

Injection Date	Sublist	Calibration File
Cal Level: 6 , Cal Amount: 0.10000		
14-FEB-2019 10:58	25df	/chem/msd2.i/14FEB19.b/2021403sim.d
13-FEB-2019 11:39	eocrv	/chem/msd2.i/13FEB19.b/2021304sim.d

Injection Date	Sublist	Calibration File
Cal Level: 7 , Cal Amount: 0.50000		
14-FEB-2019 11:33	25df	/chem/msd2.i/14FEB19.b/2021404sim.d
13-FEB-2019 12:14	eocrv	/chem/msd2.i/13FEB19.b/2021305sim.d

Injection Date	Sublist	Calibration File
Cal Level: 8 , Cal Amount: 1.00000		
14-FEB-2019 12:10	25df	/chem/msd2.i/14FEB19.b/2021405sim.d
13-FEB-2019 12:51	eocrv	/chem/msd2.i/13FEB19.b/2021306sim.d

Injection Date	Sublist	Calibration File
Cal Level: 12, Cal Amount: 5.00000		
13-FEB-2019 13:28	eocrv	/chem/msd2.i/13FEB19.b/2021307sim.d

Injection Date	Sublist	Calibration File
Cal Level: 15, Cal Amount: 20.00000		
13-FEB-2019 14:04	eocrv	/chem/msd2.i/13FEB19.b/2021308sim.d

Initial Calibration Narrative
219s0213eo.m

A six point initial calibration was analyzed on MSD-2 on 02/13/19 for Ethylene Oxide. A four point initial calibration was analyzed on MSD-2 on 02/14/19 for 2,5-Dimethylfuran.

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

ICAL: 0 out.

ICV: 0 out

File: 2021311sim; 200ml: #3018-613 (1.0ppbv->1.0ppbv);

BFB tune file:
1. 2021301
2. 2021401

The MDL study was analyzed on 10/15/18, 10/16/18 and 10/17/18.

Initial Calibration Narrative
219l0213eo.m

A one-point calibration was analyzed on MSD-2 on 02/13/19 for trans-2-Butene.

US32APPTV002

INITIAL CALIBRATION DATA

Start Cal Date : 13-FEB-2019 11:01
End Cal Date : 14-FEB-2019 12:10
Quant Method : ISTD
Origin : Disabled
Target Version : 3.60
Integrator : HP RTE
Method file : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Cal Date : 14-Feb-2019 15:33 udib
Curve Type : Average

Calibration File Names:
Level 5: /chem/msd2.i/14FEB19.b/2021402sim.d
Level 6: /chem/msd2.i/14FEB19.b/2021403sim.d
Level 7: /chem/msd2.i/14FEB19.b/2021404sim.d
Level 8: /chem/msd2.i/14FEB19.b/2021405sim.d
Level 12: /chem/msd2.i/13FEB19.b/2021307sim.d
Level 15: /chem/msd2.i/13FEB19.b/2021308sim.d

OB 2/15/19

2/15/19

	Compound	0.05000 Level 5	0.10000 Level 6	0.50000 Level 7	1.000 Level 8	5.000 Level 12	20.000 Level 15	RRF	% RSD
	1 Acetaldehyde	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	2 Ethylene Oxide	0.29716	0.27973	0.18952	0.19692	0.22550	0.18723	0.22934	20.970
	9 2,5-Dimethylfuran	0.28912	0.27252	0.23660	0.27425	+++++	+++++	0.28312	4.123
$	3 2-Bromo-1,1,1-Trifluoroethane	0.69125	0.69903	0.69574	0.70279	0.69345	0.69948	0.69696	0.612
$	6 1,2-Dichloroethane-d4	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$	10 Toluene-d8	0.72349	0.72171	0.75445	0.85548	+++++	+++++	0.76378	8.242
$	12 4-Bromofluorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++

ED_002475_00000019-00042

MSD2

BFB verification of 176/174 ratio: (100,366/104,416)*100%=96.09%				Method TO-15/TO-14
				SOP# 132
IS/S Std.#:	2810-905	Exp. Date:	5/9/19	Vacuum: NA
1,1-Dichloro-Flouroethane: 300,829				Please check all standards
Chlorobenzene-d5: NA				

Surrogate# 2810-905	Exp. Date:	5/9/19	Surrogate# NA	Exp. Date:	NA
CCV# 3018-601	Exp. Date:	3/1/19	LCS# 3	Exp. Date:	
CCV# NA	Exp. Date:	NA	LCS# NA	Exp. Date:	
CCV sp2# NA	Exp. Date:	NA	LCS sp2# NA	Exp. Date:	NA
CCV sp3# NA	Exp. Date:	NA	LCS sp3# NA	Exp. Date:	NA

Verified CCV vs ICAL mid-point(~40%): db

Method: 219l0213eo.m / 219s0213eo.m

Use	File #	Enter/Scan Sample IDs	Canister# or Std ID	Cart Pos.	Pressure	ml	DF	Verify Load	Loaded Init	Date Analyzed	Time Analyzed	Review Init	Comments
√	2021301	BFB	#2810-905	16	7.0ng	200ml	1.00	db	db	2/13/19	0935	db	exp. 05/09/19.
X	2021302	ICAL Level 4	#3084-18	1	0.02ppbv(0.1ppbv)	40ml	1.00	db	db	2/13/19	1026	db	exp. 3/7/19;
√	2021303	ICAL Level 5	#3084-18	1	0.05ppbv(0.1ppbv)	100ml	1.00	db	db	2/13/19	1101	db	EO
√	2021304	ICAL Level 6	#3084-18	1	0.1ppbv(0.1ppbv)	200ml	1.00	db	db	2/13/19	1139	db	
√	2021305	ICAL Level 7	#3018-601	6	0.5ppbv(1.0ppbv)	100ml	1.00	db	db	2/13/19	1214	db	exp. 3/1/19
√	2021306	ICAL Level 8	#3018-601	6	1.0ppbv(1.0ppbv)	200ml	1.00	db	db	2/13/19	1251	db	
√	2021307	ICAL Level 12	#3018-608	3	5.0ppbv(25ppbv)	40ml	1.00	db	db	2/13/19	1328	db	exp. 3/7/19;
√	2021308	ICAL Level 15	#3018-608	3	20ppbv(25ppbv)	160ml	1.00	db	db	2/13/19	1404	db	
X	2021309	System Blank	5411	16	Humid	200ml	1.00	db	db	2/13/19	1514	db	
√	2021310	System Blank	5411	16	Humid	200ml	1.00	db	db	2/13/19	1551	db	
√	2021311	ICV	#3018-613	6	1.0ppbv(1.0ppbv)	200ml	1.00	db	db	2/13/19	1628	db	exp. 3/12/19 EO ICV
X	2021312	ICAL Level 5	#3045-195	5	0.05ppbv(0.5ppbv)	20ml	1.00	db	db	2/13/19	1702	db	exp. 3/16/19
X	2021313	ICAL Level 7	#3045-195	5	0.5ppbv(0.5ppbv)	200ml	1.00	db	db	2/13/19	1739	db	
X	2021314	ICAL Level 9	#3018-529	8	2.0ppbv(2.0ppbv)	200ml	1.00	db	db	2/13/19	1816	db	
X	2021315	System Blank	5411	16	Humid	200ml	1.00	db	db	2/13/19	1853	db	
√	2021316	Lab Blank	5411	16	Humid	200ml	1.00	db	db	2/13/19	1930	db	
√	2021317	6L Cert	a0603	7	E.O.	200ml	1.00	db	db	2/13/19	2006	db	
T	2021318	Test Std.	#3084-18	1	0.05ppbv(0.1ppbv)	100ml	1.00	db	db	2/13/19	2041	db	
√	2021319	ICAL Level 12	#3084-578	1	5.0ppbv(5.0ppbv)	200ml	1.00	db	db	2/14/19	0813	db	trans-2-Butene only

2/14/19

MSD2

Method TO-15/TO-14	
SOP# 132	
Vacuum:	NA

BFB verification of 176/174 ratio: (109,784/114,968)*100%=95.49%

IS/S Std.#:	2810-905	Exp. Date:		5/9/19
1,1-Dichloro-Flouroethane: 288,480				
Fluorobenzene: 415,327				

Please check all standards

Surrogate# 2810-905	Exp. Date:	5/9/19	Surrogate# NA	Exp. Date:	NA
CCV# 3018-601	Exp. Date:	3/1/19	LCS# 3	Exp. Date:	
CCV# NA	Exp. Date:	NA	LCS# NA	Exp. Date:	
CCV sp2# NA	Exp. Date:	NA	LCS sp2# NA	Exp. Date:	NA
CCV sp3# NA	Exp. Date:	NA	LCS sp3# NA	Exp. Date:	NA

Verified CCV vs ICAL mid-point(-40%): db

Method: 21910213eo.m / 21960213eo.m

Use	File #	Enter/Scan Sample IDs	Canister# or Std ID	Cart Pos.	Pressure	ml	DF	Verify Load	Loaded Init	Date Analyzed	Time Analyzed	Review init	Comments
√	2021401	BFB	#2810-905	16	7.0ng	200ml	1.00	db	db	2/14/19	0937	db	exp. 05/09/19.
√	2021402	ICAL Level 5	#3045-195	5	0.05ppbv(0.5ppbv)	20ml	1.00	db	db	2/14/19	1020	db	exp. 2/16/19;
√	2021403	ICAL Level 6	#3045-195	5	0.1ppbv(0.5ppbv)	40ml	1.00	db	db	2/14/19	1058	db	
√	2021404	ICAL Level 7	#3045-195	5	0.25ppbv(0.5ppbv)	100ml	1.00	db	db	2/14/19	1133	db	
√	2021405	ICAL Level 8	#3045-195	5	0.5ppbv(0.5ppbv)	200ml	1.00	db	db	2/14/19	1210	db	
√	2021406	CCV	#3018-601	3	1.0ppbv(1.0ppbv)	100ml	1.00	db	db	2/14/19	1342	db	exp. 3/1/19
√	2021407	LCS	#3018-613	4	1.0ppbv(1.0ppbv)	200ml	1.00	db	db	2/14/19	1419	db	exp. 3/12/19
√	2021408	LCSD	#3018-613	4	1.0ppbv(1.0ppbv)	200ml	1.00	db	db	2/14/19	1456	db	
X	2021409	System Blank	5411	16	Humid	200ml	1.00	db	db	2/14/19	1549	db	
√	2021410	Lab Blank	5411	16	Humid	200ml	1.00	db	db	2/14/19	1626	db	
√	2021411	1902183-01A	O0334	6	8.5 Hg->5 psi	200ml	1.87	db	db	2/14/19	1703	db	
√	2021412	1902183-02A	O0114	7	14.0 Hg->5 psi	200ml	2.51	db	db	2/14/19	1739	db	
√	2021413	1902183-03A	N1772	9	11.0 Hg->5 psi	200ml	2.12	db	db	2/14/19	1816	db	
√	2021414	1902185-01A	N3478	10	8.5 Hg->5 psi	200ml	1.87	db	db	2/14/19	1853	db	
√	2021415	1902185-02A	O0385	11	1.5 Hg->5 psi	200ml	1.41	db	db	2/14/19	1930	db	
√	2021416	1902185-03A	N1744	12	4.5 Hg->5 psi	200ml	1.58	db	db	2/14/19	2007	db	
P	2021417	Manifold Cert	N2841	6	M012	200ml	1.00	db	db	2/15/19	0918	db	Zero Air

GA

2/15/19

US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/13FEB19.b/2021311sim.d
Lab Smp Id:
Inj Date : 13-FEB-2019 16:28
Operator : db Inst ID: msd2.i
Smp Info : 200ml #3018-613;ICV
Misc Info : 1.0ppbv(1.0ppbv) ;notics
Comment : SIM - GC/MS
Method : /chem/msd2.i/13FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 08:24 udib Quant Type: ISTD
Cal Date : 13-FEB-2019 14:04 Cal File: 2021308sim.d
Als bottle: 6 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.174	12.170	(0.795)	44	10812	0.91202	0.9120	80.00- 120.00	100.00
12.174	12.170	(0.795)	43	2693			0.00- 55.01	24.91
12.174	12.158	(0.795)	29	8469			59.74- 119.74	78.33
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	212011	5.88487	5.885	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	217815			73.24- 133.24	102.74
14.335	14.335	(0.936)	83	172411			63.25- 123.25	81.32
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	310146	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	101596			3.63- 63.63	32.76
15.319	15.319	(1.000)	61	95340			3.78- 63.78	30.74
* 7 Fluorobenzene						CAS #: 462-06-6		
19.138	19.109	(1.000)	96	424616	6.00000		80.00- 120.00	100.00
19.119	19.093	(1.000)	70	78277			0.00- 49.55	18.43

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021311sim.d
Lab Smp Id:
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Calibration Date: 13-FEB-2019
Calibration Time: 12:51
Level: LOW
Sample Type: AIR
Method File: /chem/msd2.i/13FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 1.0ppbv(1.0ppbv) ;notics

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	300829	180497	421161	310146	3.10
7 Fluorobenzene	420806	252484	589128	424616	0.91

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	-0.00
7 Fluorobenzene	19.14	18.81	19.47	19.14	-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: 15-Feb-2019 11:38

US32APPTV002

RECOVERY REPORT

Client Name:
Sample Matrix: GAS
Lab Smp Id:
Level: LOW
Data Type: MS DATA
SpikeList File: LCS.spk
Sublist File: eocrv.sub
Method File: /chem/msd2.i/13FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 1.0ppbv(1.0ppbv) ;notics

Client SDG: 13FEB19
Fraction: VOA
Operator: db
SampleType: LCS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
2 Ethylene Oxide	1.000	0.9120	91.20

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
$ 3 2-Bromo-1,1,1-Trifluoroethane	6.000	5.885	98.08

Data File: /chem/msd2.i/13FEB19.b/2021311sim.d

Date : 13-FEB-2019 16:28

Client ID:

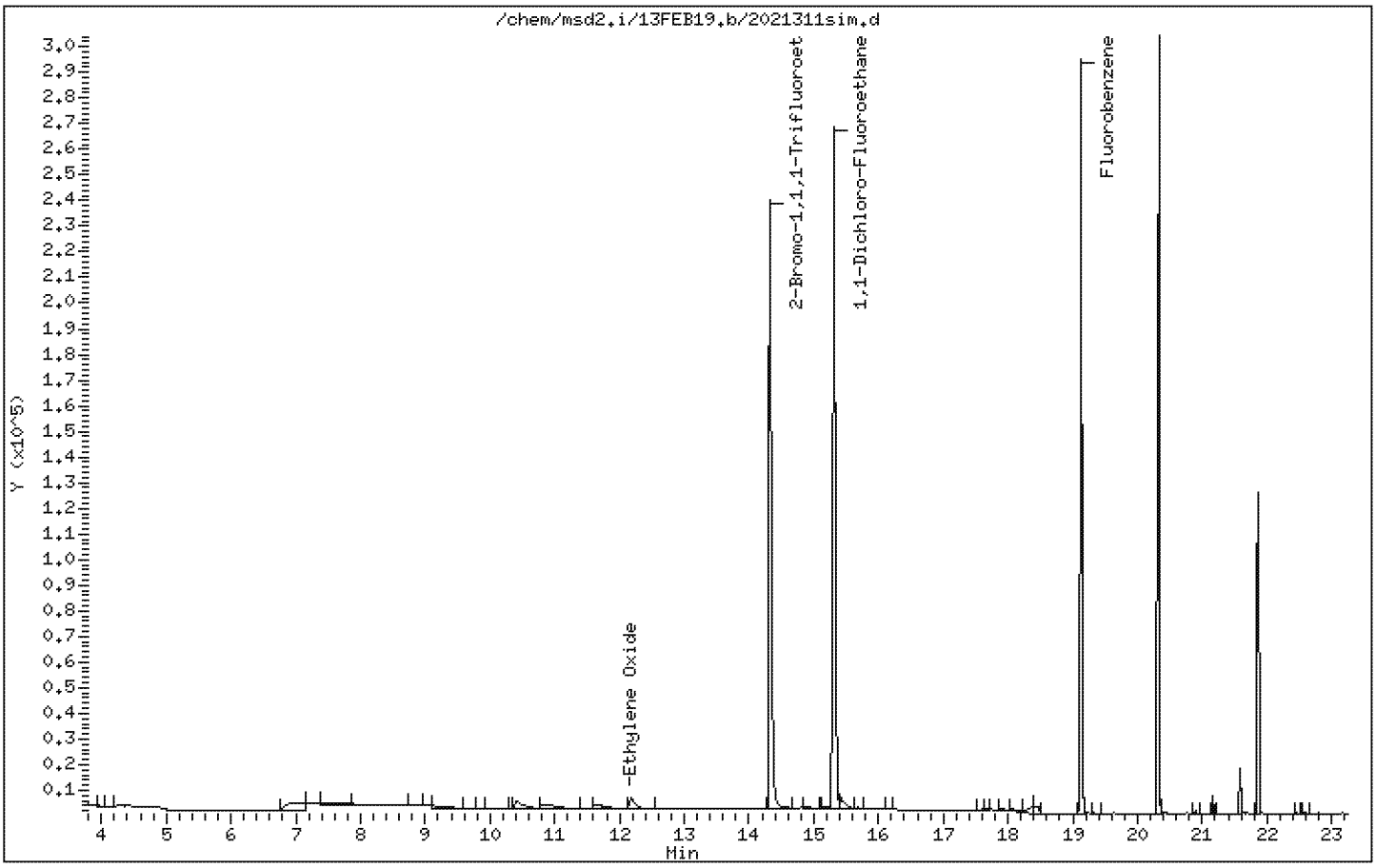
Instrument: msd2.i

Sample Info: 200ml #3018-613;ICV

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/13FEB19.b/2021311sim.d

Date : 13-FEB-2019 16:28

Client ID:

Instrument: msd2.i

Sample Info: 200ml #3018-613;ICV

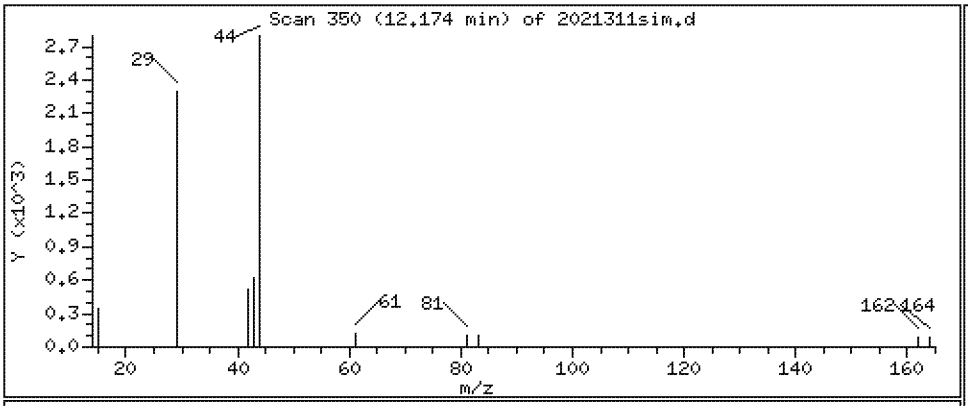
Operator: db

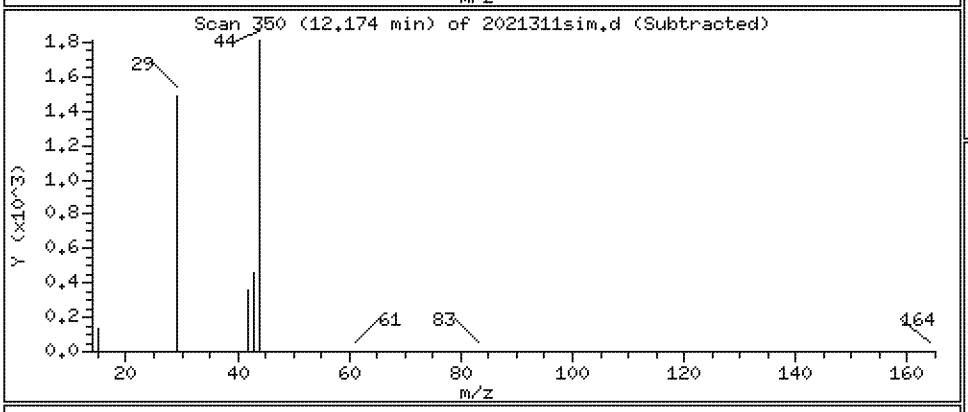
Column phase: RTX-624

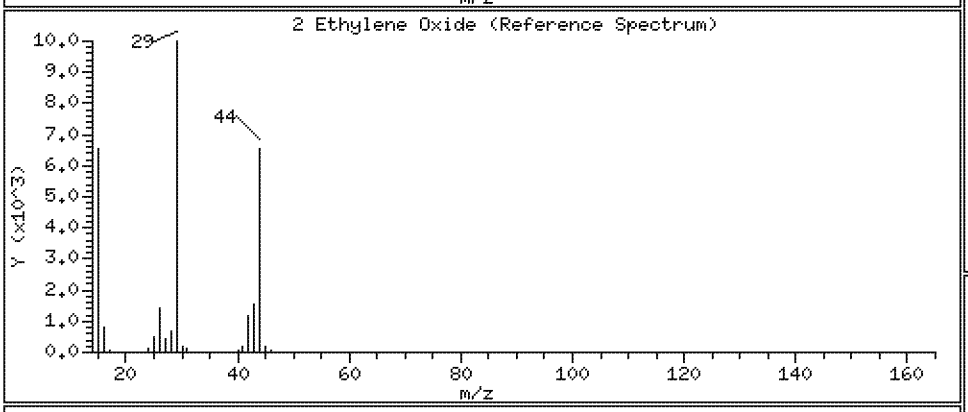
Column diameter: 0.32

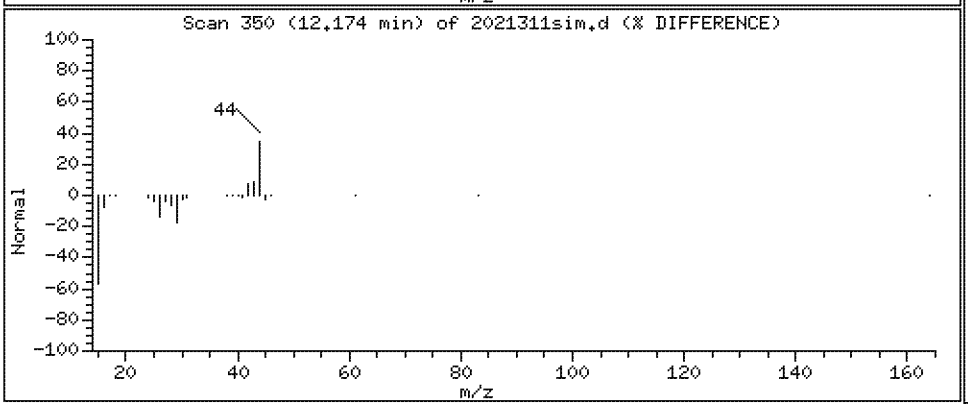
2 Ethylene Oxide

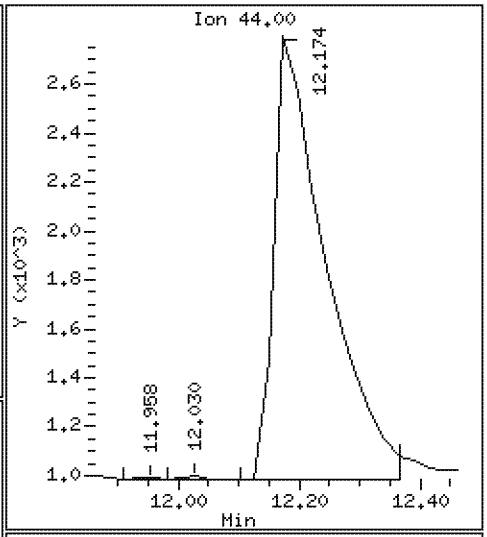
Concentration: 0.9120 PPBV

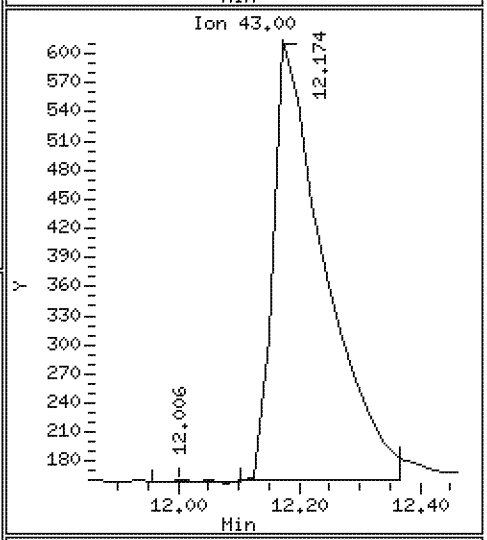


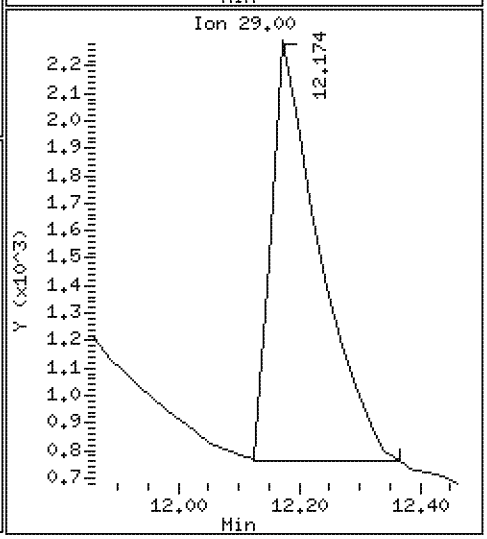












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/14FEB19.b/2021402sim.d
Lab Smp Id: ICAL Level 5
Inj Date : 14-FEB-2019 10:20
Operator : db Inst ID: msd2.i
Smp Info : 20ml #3045-195
Misc Info : 0.05ppbv(0.5ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 27-Feb-2019 12:33 ueja Quant Type: ISTD
Cal Date : 14-FEB-2019 10:20 Cal File: 2021402sim.d
Als bottle: 5 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 25df.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
* 7 Fluorobenzene						CAS #: 462-06-6		
19.138	19.081	(1.000)	96	418376	6.00000		80.00- 120.00	100.00
19.119	19.068	(1.000)	70	79127			0.00- 49.55	18.91
9 2,5-Dimethylfuran						CAS #: 625-86-5		
19.592	19.443	(1.024)	96	1008	0.05000	0.05106	80.00- 120.00	100.00(T)
19.592	19.549	(1.024)	95	870			61.88- 121.88	86.31
19.592	19.549	(1.024)	53	607			70.24- 130.24	60.22
$ 10 Toluene-d8						CAS #: 2037-26-5		
20.331	20.215	(1.062)	98	302689	6.00000	5.683	80.00- 120.00	100.00(T)
20.312	20.279	(1.061)	70	38694			0.00- 45.38	12.78
20.331	20.298	(1.062)	100	190361			31.22- 91.22	62.89

QC Flag Legend

T - Target compound detected outside RT window.

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021402sim.d
Lab Smp Id: ICAL Level 5
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 0.05ppbv(0.5ppbv)

Calibration Date: 14-FEB-2019
Calibration Time: 11:33

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
7 Fluorobenzene	406443	243866	569020	418376	2.94

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
7 Fluorobenzene	19.14	18.81	19.47	19.14	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/msd2.i/14FEB19.b/2021402sim.d

Date : 14-FEB-2019 10:20

Client ID:

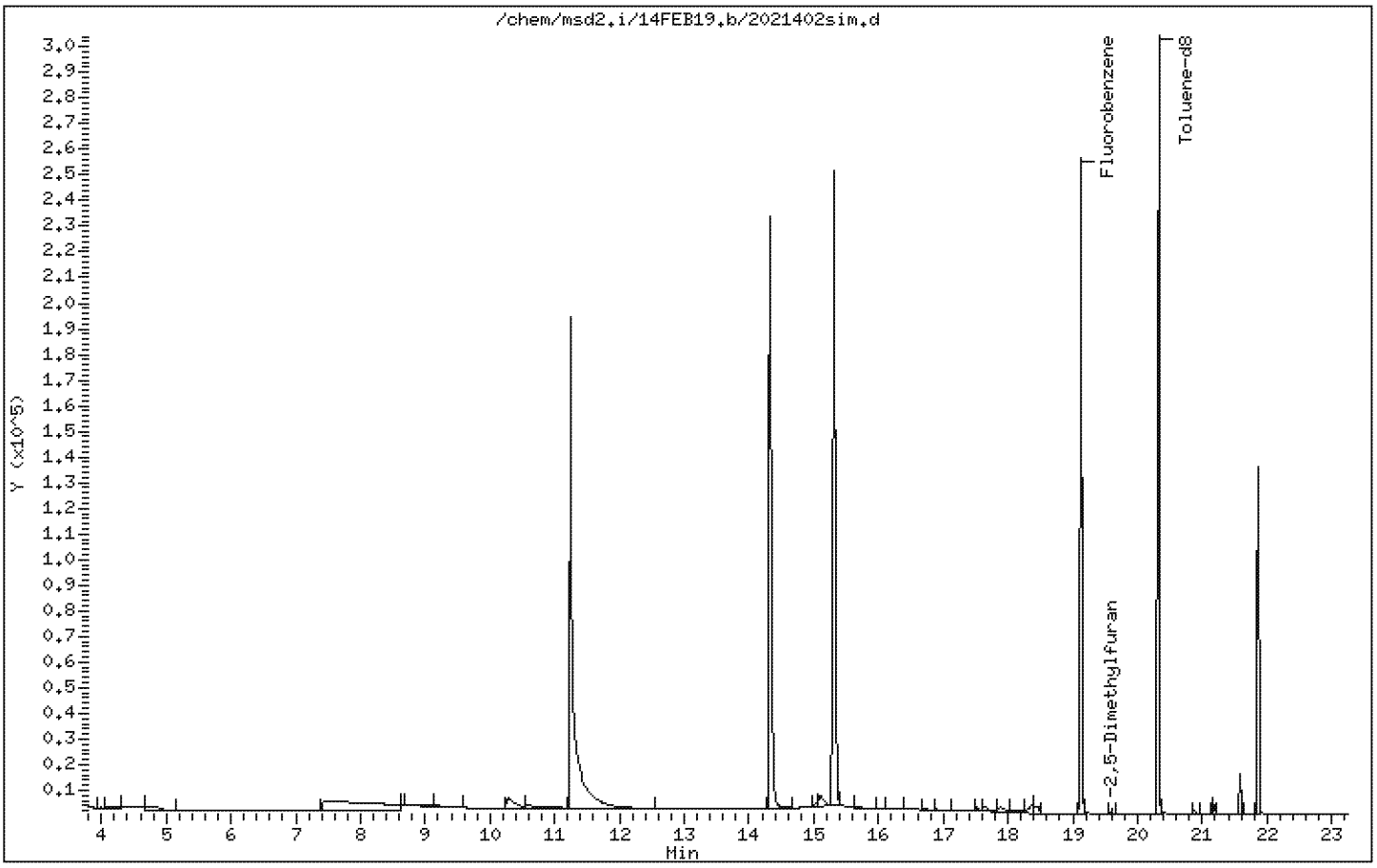
Instrument: msd2.i

Sample Info: 20ml #3045-195

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/14FEB19.b/2021402sim.d

Date : 14-FEB-2019 10:20

Client ID:

Instrument: msd2.i

Sample Info: 20ml #3045-195

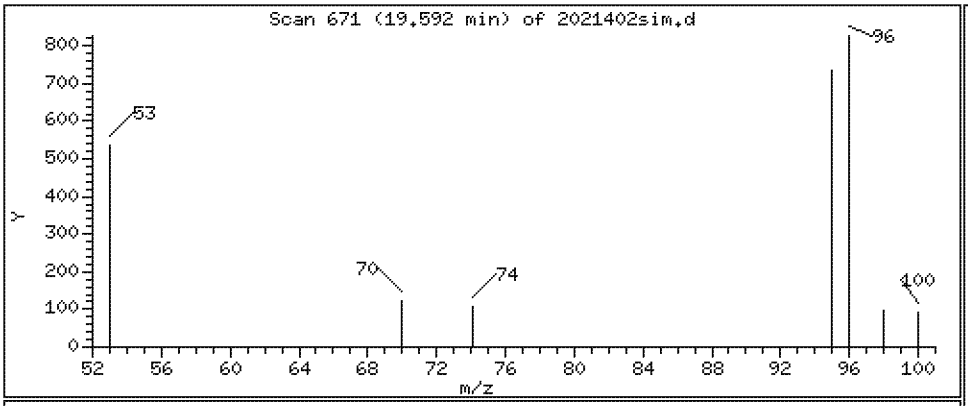
Operator: db

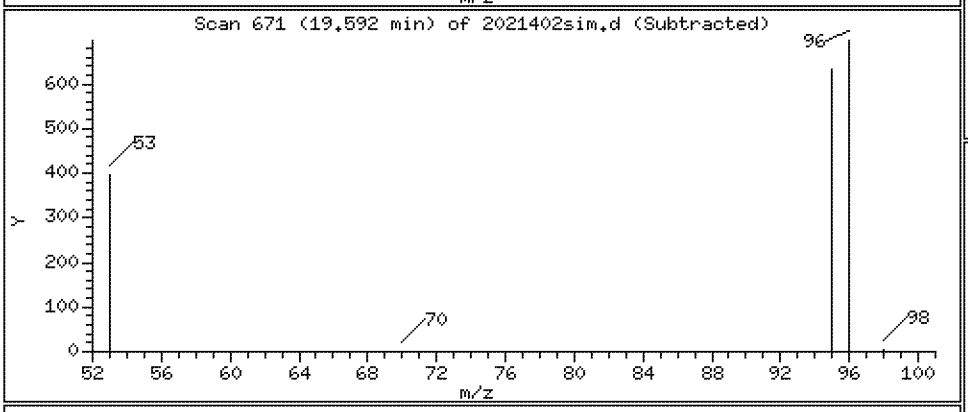
Column phase: RTX-624

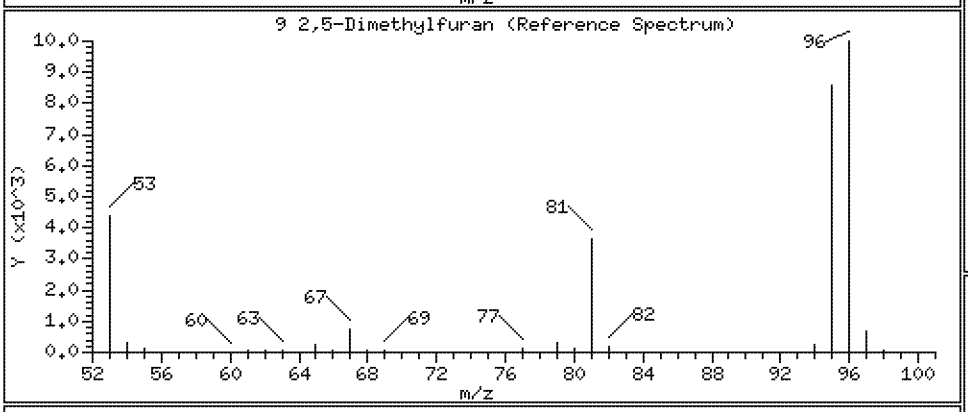
Column diameter: 0.32

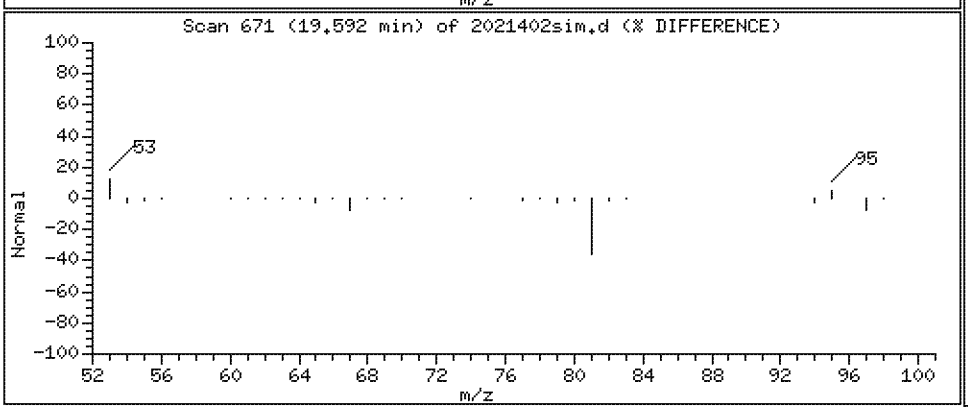
9 2,5-Dimethylfuran

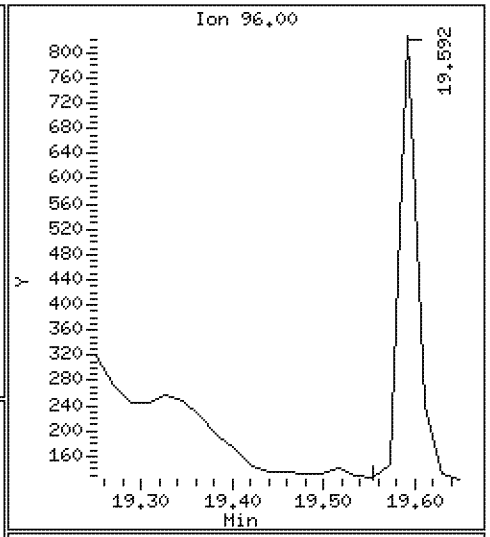
Concentration: 0.05106 PPBV

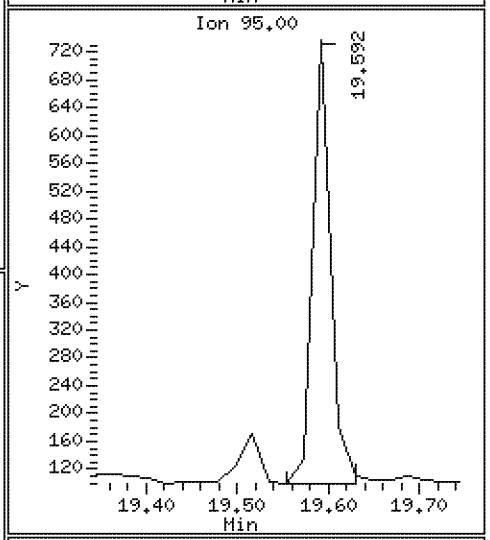


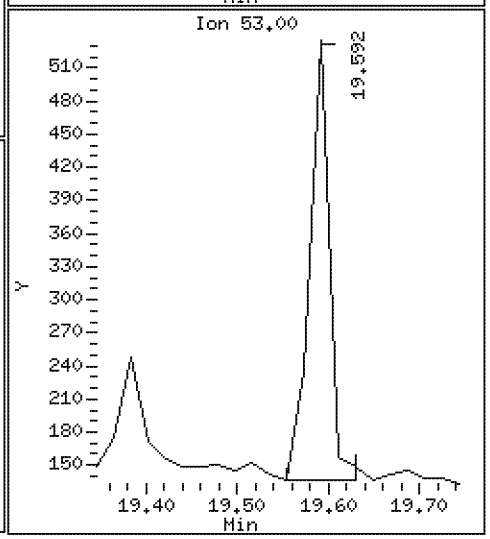












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/13FEB19.b/2021303sim.d
Lab Smp Id:
Inj Date : 13-FEB-2019 11:01
Operator : db Inst ID: msd2.i
Smp Info : 100ml #3084-18;ICAL Level 5
Misc Info : 0.05ppbv (0.1ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/13FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 08:24 udib Quant Type: ISTD
Cal Date : 13-FEB-2019 11:01 Cal File: 2021303sim.d
Als bottle: 1 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.246	12.222	(0.799)	44	752	0.05000	0.06014	80.00- 120.00	100.00
12.246	12.222	(0.799)	43	184			0.00- 55.01	24.47
12.222	12.198	(0.798)	29	1230			59.74- 119.74	163.56
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	209914	6.00000	5.950	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	215266			73.24- 133.24	102.55
14.335	14.335	(0.936)	83	170520			63.25- 123.25	81.23
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	303671	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	99618			3.63- 63.63	32.80
15.319	15.319	(1.000)	61	93296			3.78- 63.78	30.72
* 7 Fluorobenzene						CAS #: 462-06-6		
19.138	19.138	(1.000)	96	412906	6.00000		80.00- 120.00	100.00
19.119	19.119	(1.000)	70	76596			0.00- 49.55	18.55

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021303sim.d
Lab Smp Id:
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/13FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 0.05ppbv (0.1ppbv)

Calibration Date: 13-FEB-2019
Calibration Time: 12:51

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	300829	180497	421161	303671	0.94
7 Fluorobenzene	420806	252484	589128	412906	-1.88

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.14	18.81	19.47	19.14	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/msd2.i/13FEB19.b/2021303sim.d

Date : 13-FEB-2019 11:01

Client ID:

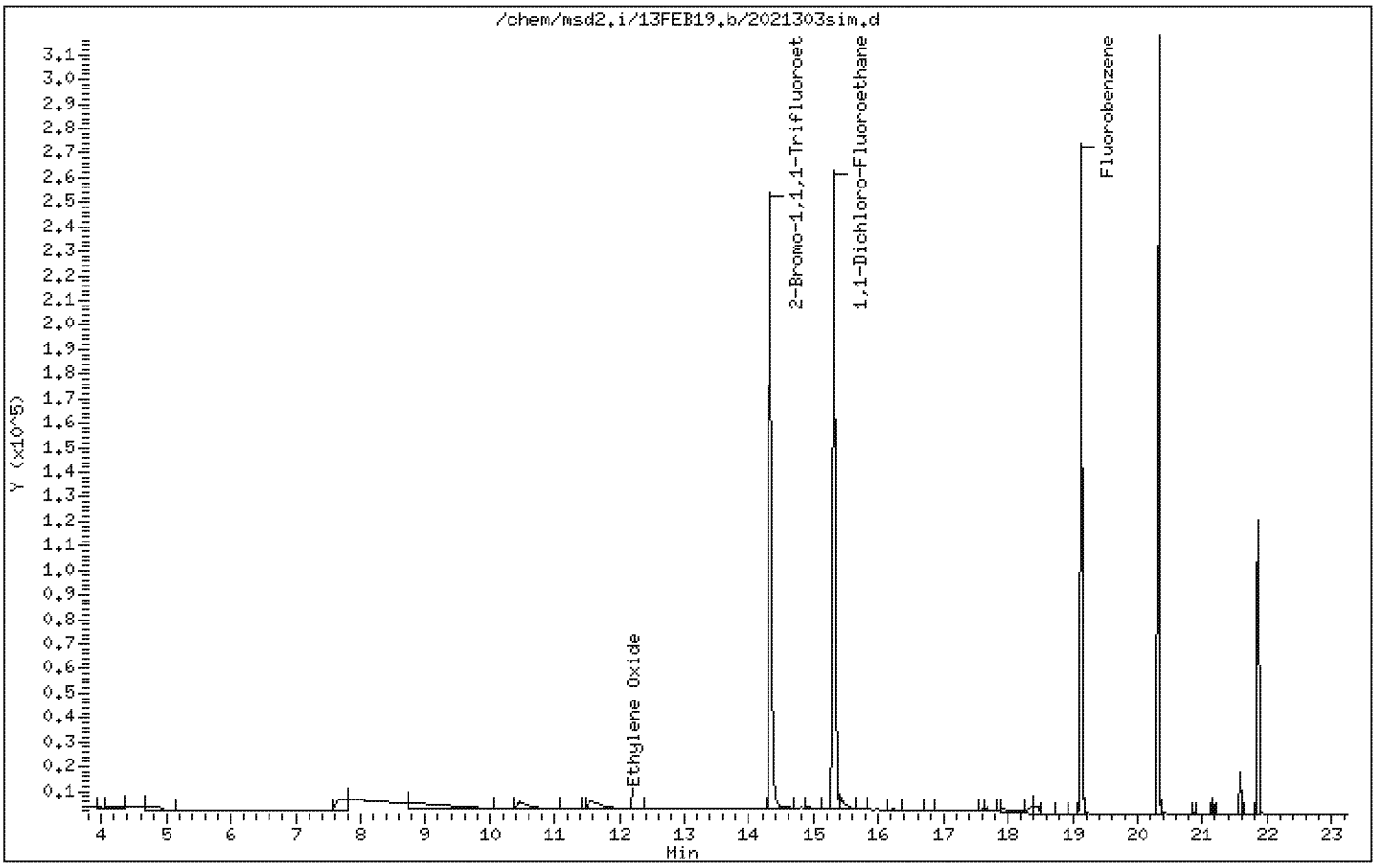
Instrument: msd2.i

Sample Info: 100ml #3084-18;ICAL Level 5

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/13FEB19.b/2021303sim.d

Date : 13-FEB-2019 11:01

Client ID:

Instrument: msd2.i

Sample Info: 100ml #3084-18;ICAL Level 5

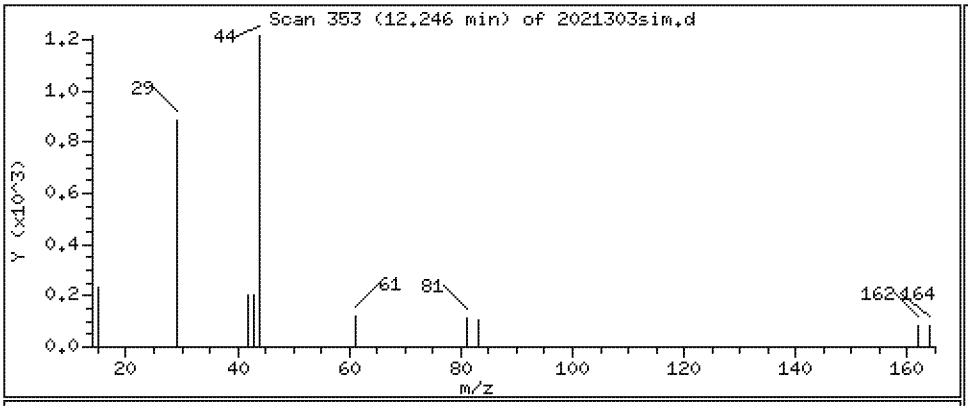
Operator: db

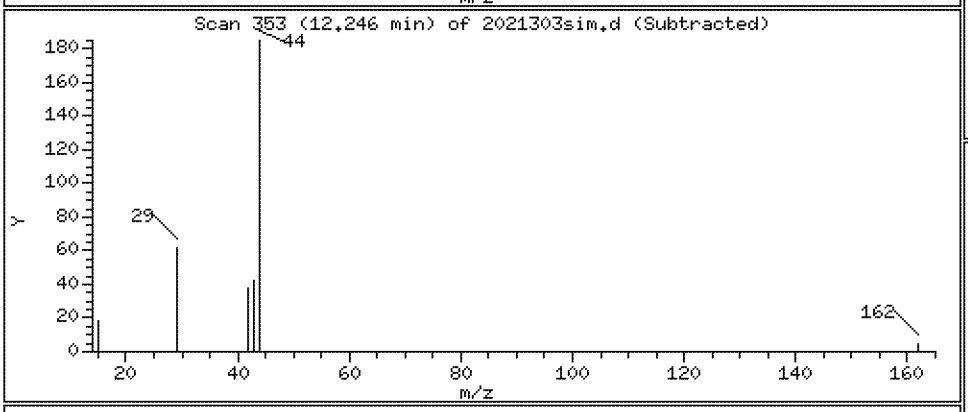
Column phase: RTX-624

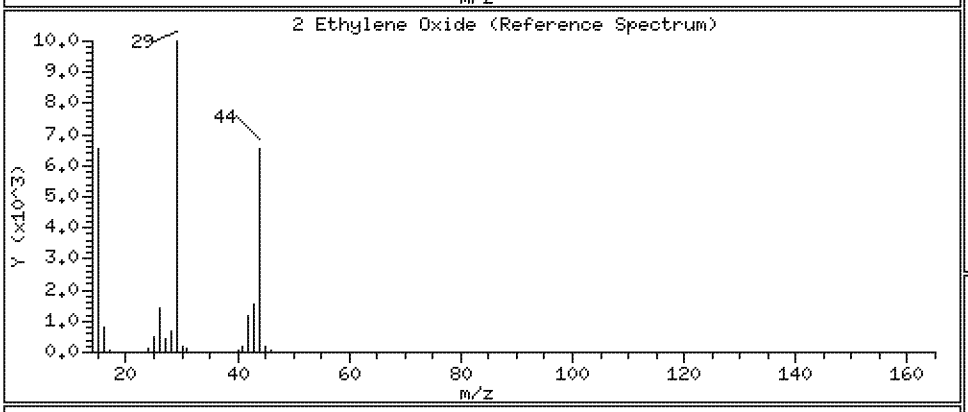
Column diameter: 0.32

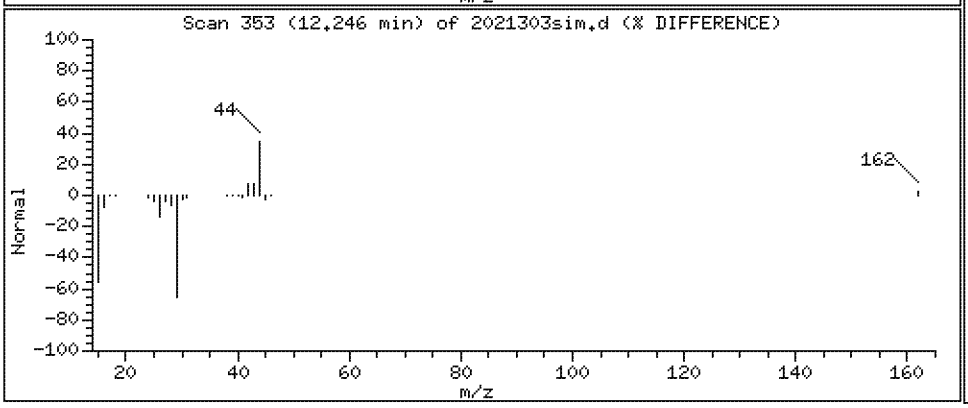
2 Ethylene Oxide

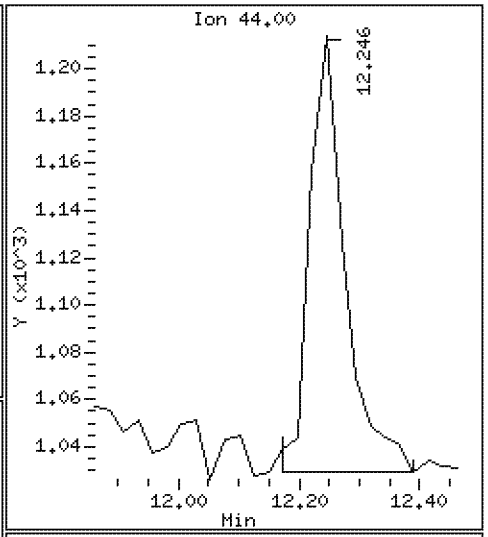
Concentration: 0.06014 PPBV

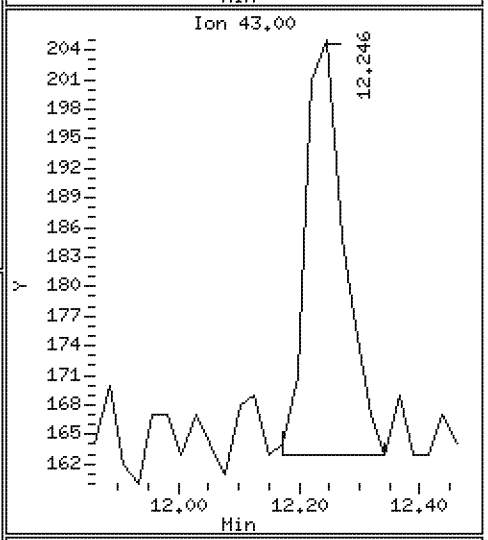


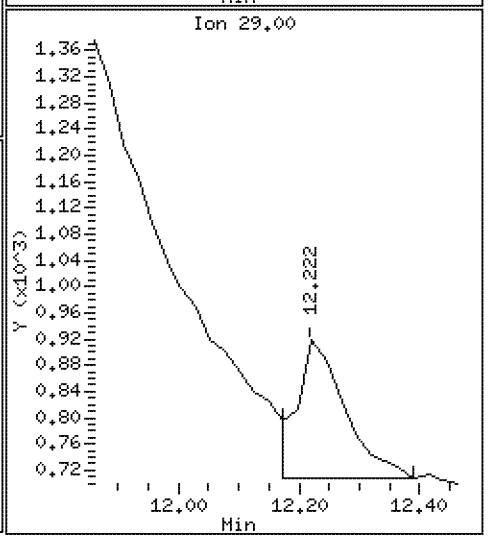












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/14FEB19.b/2021403sim.d
Lab Smp Id: ICAL Level 6
Inj Date : 14-FEB-2019 10:58
Operator : db Inst ID: msd2.i
Smp Info : 40ml #3045-195
Misc Info : 0.1ppbv(0.5ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 27-Feb-2019 12:33 ueja Quant Type: ISTD
Cal Date : 14-FEB-2019 10:58 Cal File: 2021403sim.d
Als bottle: 5 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 25df.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
* 7 Fluorobenzene						CAS #: 462-06-6		
19.137	19.081	(1.000)	96	422065	6.00000		80.00- 120.00	100.00
19.119	19.068	(1.000)	70	79626			0.00- 49.55	18.87
9 2,5-Dimethylfuran						CAS #: 625-86-5		
19.592	19.454	(1.024)	96	1917	0.10000	0.09625	80.00- 120.00	100.00(T)
19.592	19.549	(1.024)	95	1668			61.88- 121.88	87.01
19.592	19.549	(1.024)	53	1159			70.24- 130.24	60.46
$ 10 Toluene-d8						CAS #: 2037-26-5		
20.331	20.223	(1.062)	98	304610	6.00000	5.670	80.00- 120.00	100.00(T)
20.312	20.279	(1.061)	70	37838			0.00- 45.38	12.42
20.331	20.298	(1.062)	100	192504			31.22- 91.22	63.20

QC Flag Legend

T - Target compound detected outside RT window.

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021403sim.d
Lab Smp Id: ICAL Level 6
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 0.1ppbv(0.5ppbv)

Calibration Date: 14-FEB-2019
Calibration Time: 11:33

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
7 Fluorobenzene	406443	243866	569020	422065	3.84

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
7 Fluorobenzene	19.14	18.81	19.47	19.14	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/msd2.i/14FEB19.b/2021403sim.d

Date : 14-FEB-2019 10:58

Client ID:

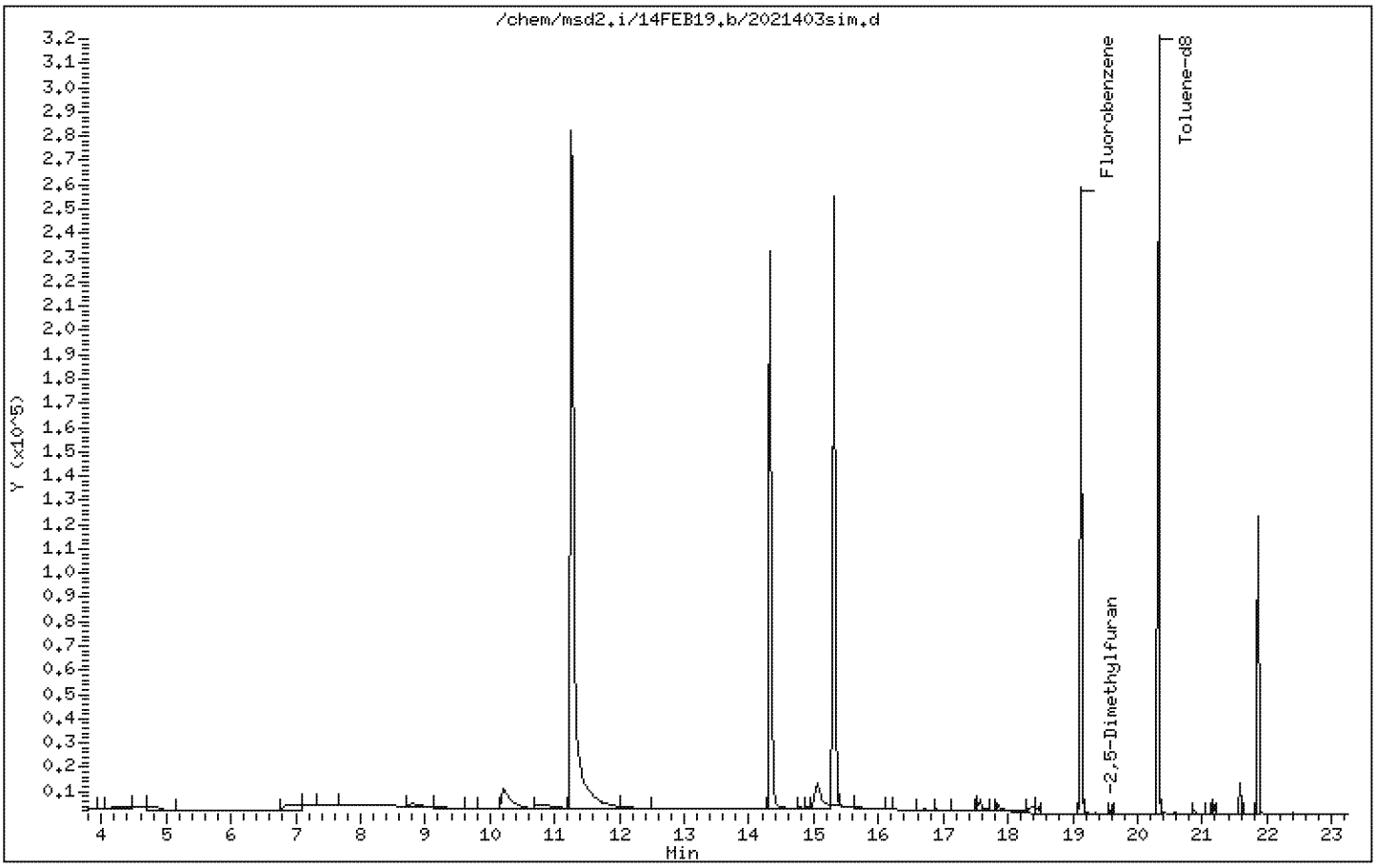
Instrument: msd2.i

Sample Info: 40ml #3045-195

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/14FEB19.b/2021403sim.d

Date : 14-FEB-2019 10:58

Client ID:

Instrument: msd2.i

Sample Info: 40ml #3045-195

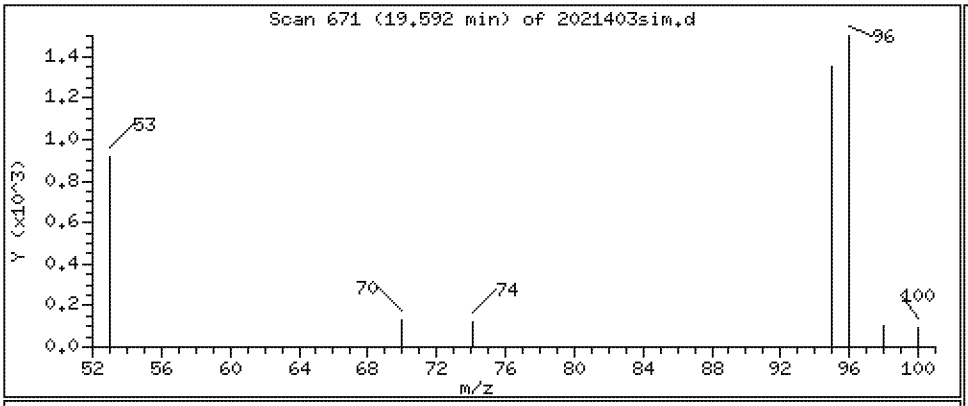
Operator: db

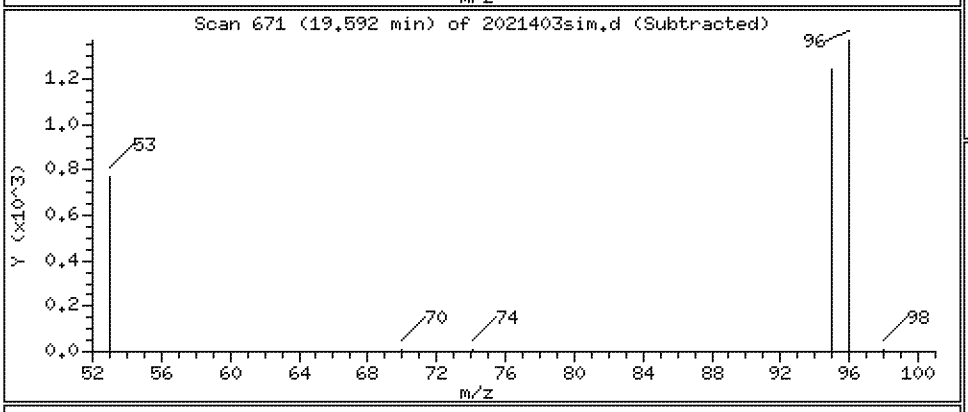
Column phase: RTX-624

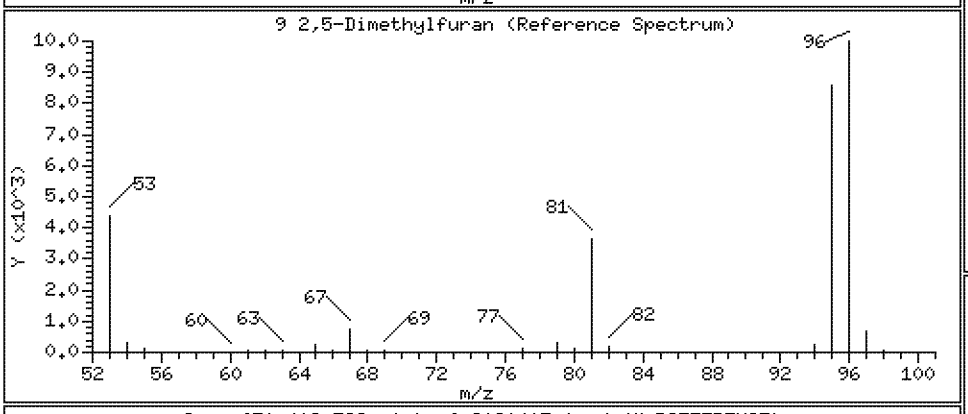
Column diameter: 0.32

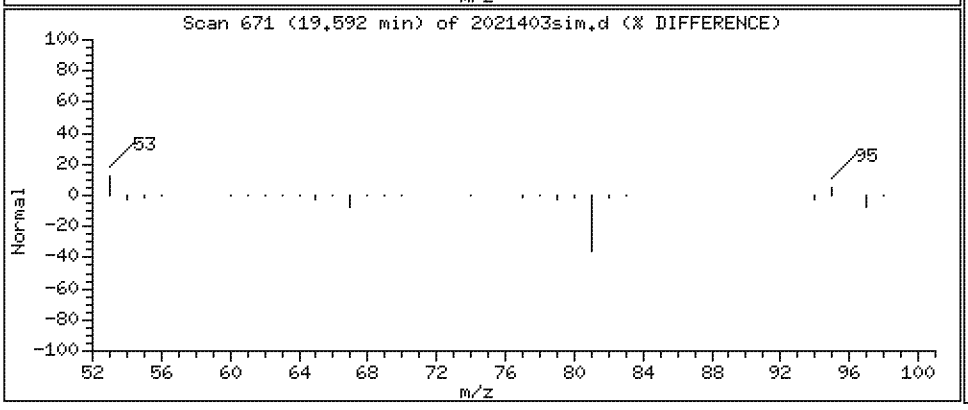
9 2,5-Dimethylfuran

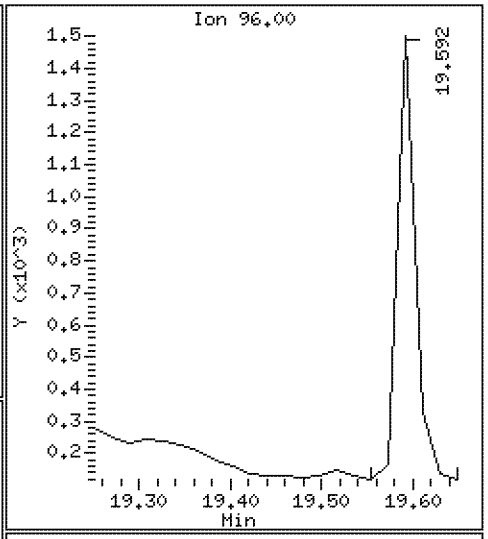
Concentration: 0.09625 PPBV

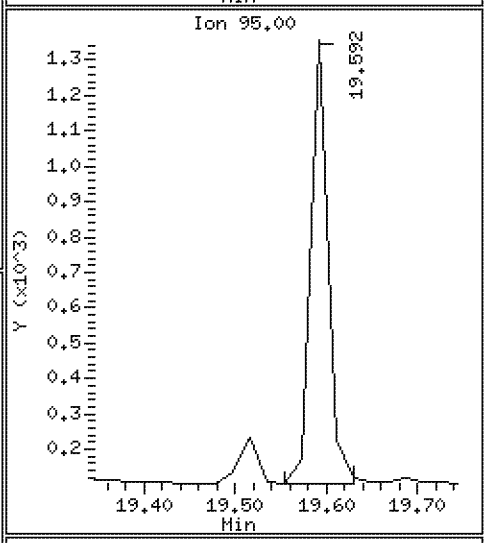


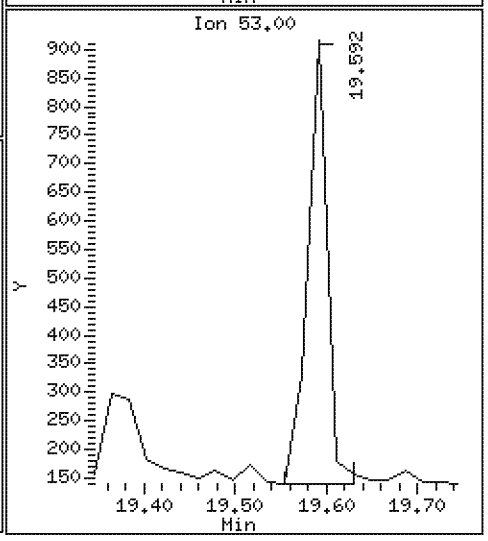












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/13FEB19.b/2021304sim.d
Lab Smp Id:
Inj Date : 13-FEB-2019 11:39
Operator : db Inst ID: msd2.i
Smp Info : 200ml #3084-18;ICAL Level 6
Misc Info : 0.1ppbv (0.1ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/13FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 08:24 udib Quant Type: ISTD
Cal Date : 13-FEB-2019 11:39 Cal File: 2021304sim.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.270	12.238	(0.801)	44	1396	0.10000	0.1084	80.00- 120.00	100.00
12.270	12.238	(0.801)	43	328			0.00- 55.01	23.50
12.270	12.222	(0.801)	29	1596			59.74- 119.74	114.33
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	209313	6.00000	6.012	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	214972			73.24- 133.24	102.70
14.335	14.335	(0.936)	83	170536			63.25- 123.25	81.47
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	299433	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	97916			3.63- 63.63	32.70
15.319	15.319	(1.000)	61	92676			3.78- 63.78	30.95
* 7 Fluorobenzene						CAS #: 462-06-6		
19.138	19.138	(1.000)	96	406219	6.00000		80.00- 120.00	100.00
19.119	19.119	(1.000)	70	74578			0.00- 49.55	18.36

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021304sim.d
Lab Smp Id:
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/13FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 0.1ppbv (0.1ppbv)

Calibration Date: 13-FEB-2019
Calibration Time: 12:51

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	300829	180497	421161	299433	-0.46
7 Fluorobenzene	420806	252484	589128	406219	-3.47

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.14	18.81	19.47	19.14	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/msd2.i/13FEB19.b/2021304sim.d

Date : 13-FEB-2019 11:39

Client ID:

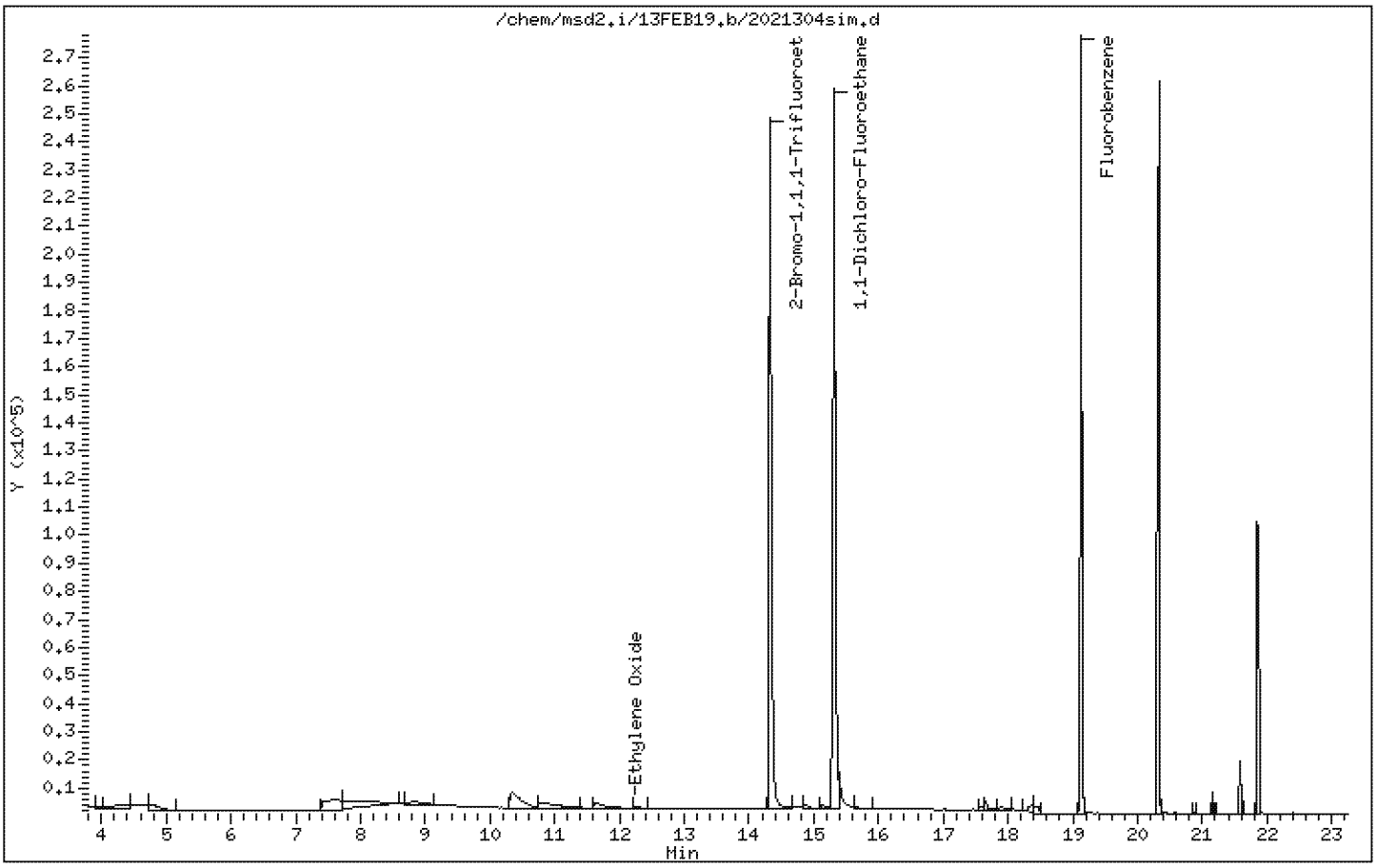
Instrument: msd2.i

Sample Info: 200ml #3084-18;ICAL Level 6

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/13FEB19.b/2021304sim.d

Date : 13-FEB-2019 11:39

Client ID:

Instrument: msd2.i

Sample Info: 200ml #3084-18;ICAL Level 6

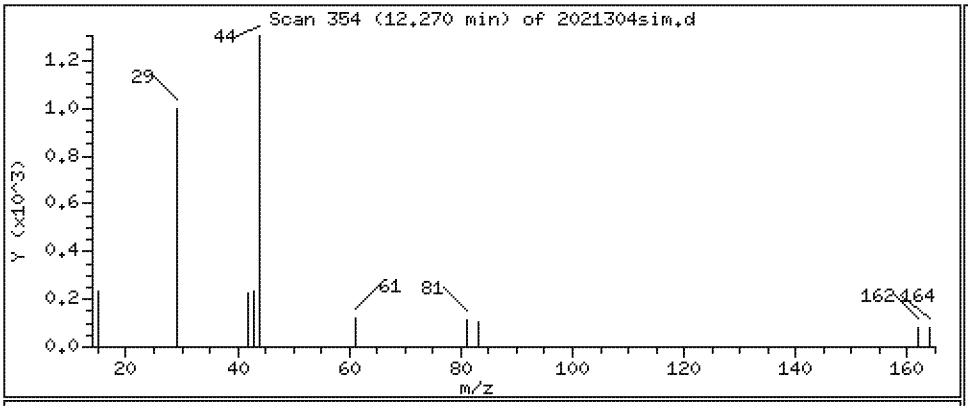
Operator: db

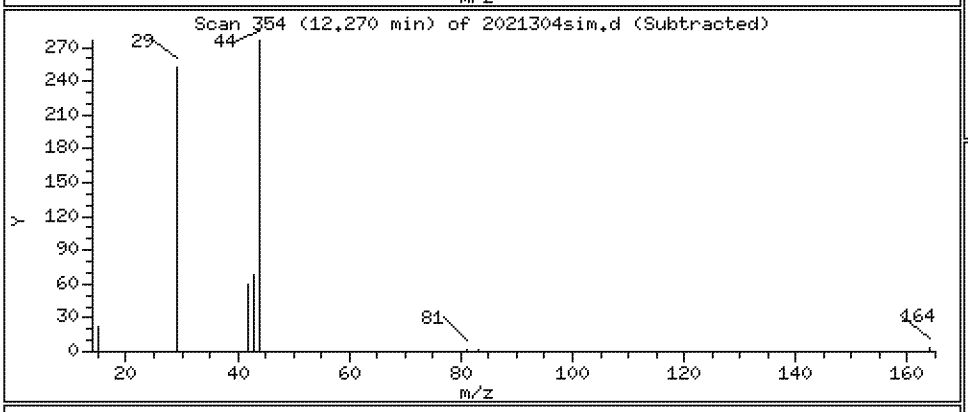
Column phase: RTX-624

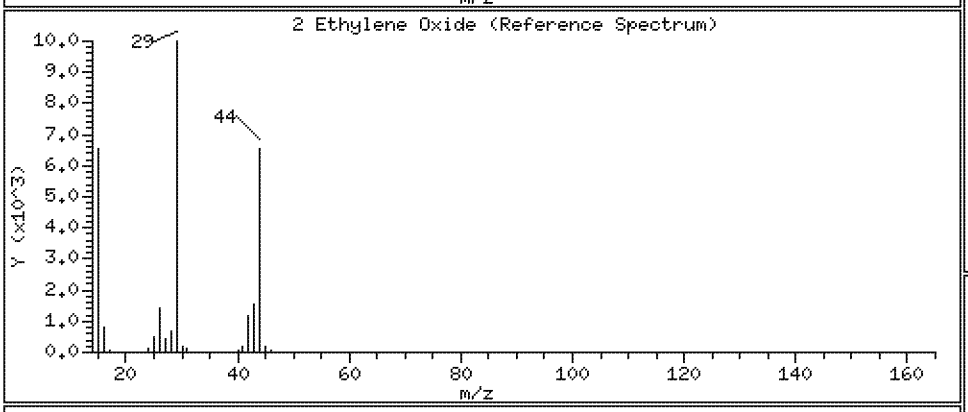
Column diameter: 0.32

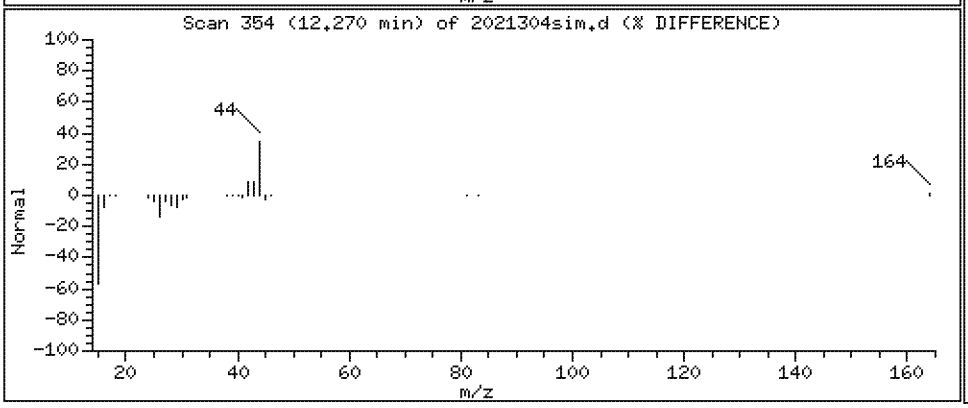
2 Ethylene Oxide

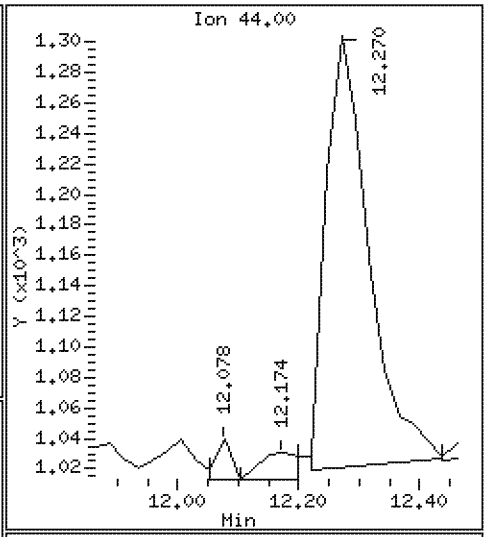
Concentration: 0.1084 PPBV

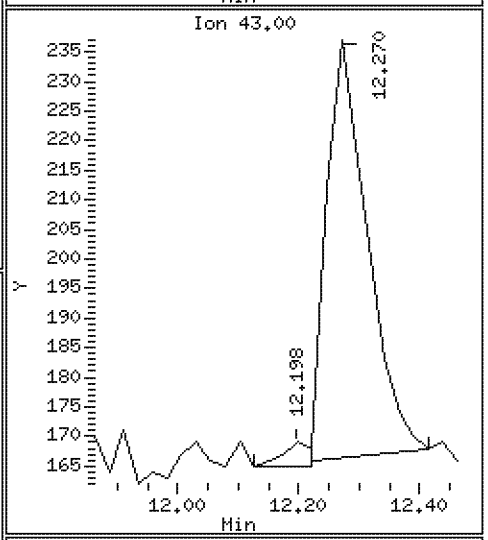


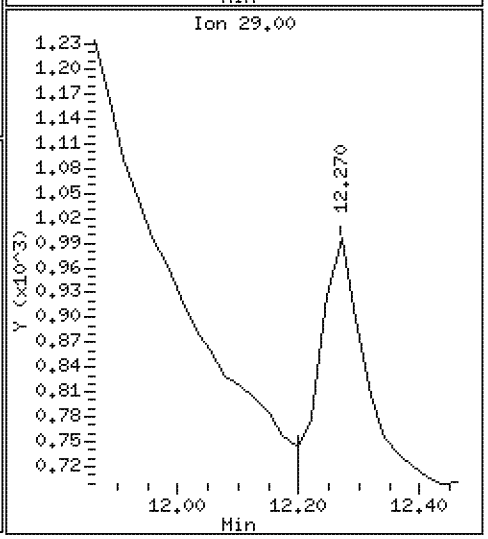












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/14FEB19.b/2021404sim.d
Lab Smp Id: ICAL Level 7
Inj Date : 14-FEB-2019 11:33
Operator : db Inst ID: msd2.i
Smp Info : 100ml #3045-195
Misc Info : 0.25ppbv(0.5ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 27-Feb-2019 12:33 ueja Quant Type: ISTD
Cal Date : 14-FEB-2019 11:33 Cal File: 2021404sim.d
Als bottle: 5 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 25df.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
* 7 Fluorobenzene						CAS #: 462-06-6		
19.137	19.081	(1.000)	96	406443	6.00000		80.00- 120.00	100.00
19.119	19.068	(1.000)	70	76643			0.00- 49.55	18.86
9 2,5-Dimethylfuran						CAS #: 625-86-5		
19.592	19.454	(1.024)	96	5023	0.25000	0.2619	80.00- 120.00	100.00(T)
19.592	19.549	(1.024)	95	4502			61.88- 121.88	89.63
19.592	19.549	(1.024)	53	3065			70.24- 130.24	61.02
$ 10 Toluene-d8						CAS #: 2037-26-5		
20.331	20.223	(1.062)	98	306642	6.00000	5.927	80.00- 120.00	100.00(T)
20.312	20.279	(1.061)	70	39012			0.00- 45.38	12.72
20.331	20.298	(1.062)	100	193123			31.22- 91.22	62.98

QC Flag Legend

T - Target compound detected outside RT window.

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021404sim.d
Lab Smp Id: ICAL Level 7
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 0.25ppbv(0.5ppbv)

Calibration Date: 14-FEB-2019
Calibration Time: 11:33

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
7 Fluorobenzene	406443	243866	569020	406443	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
7 Fluorobenzene	19.14	18.81	19.47	19.14	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/msd2.i/14FEB19.b/2021404sim.d

Date : 14-FEB-2019 11:33

Client ID:

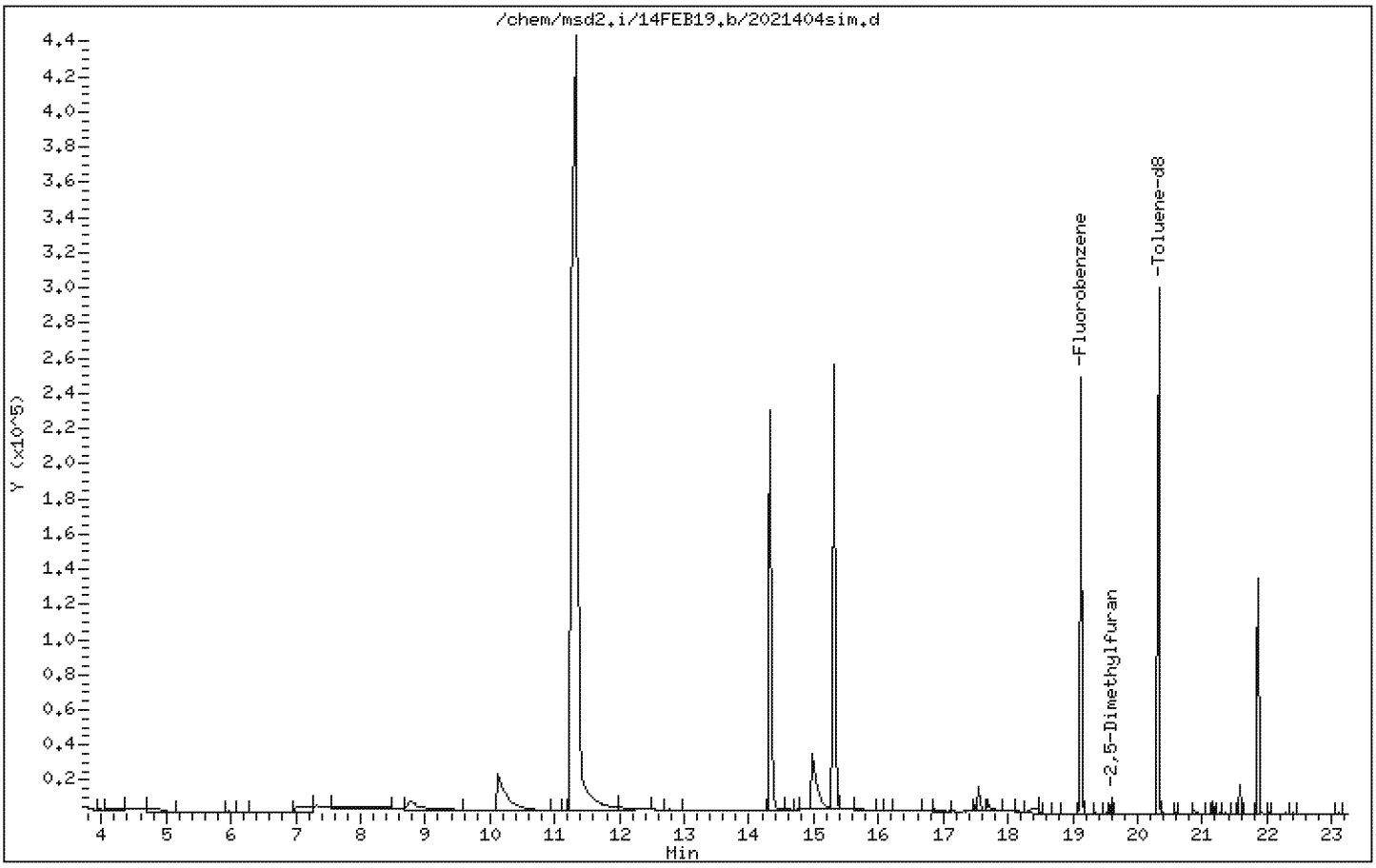
Instrument: msd2.i

Sample Info: 100ml #3045-195

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/14FEB19.b/2021404sim.d

Date : 14-FEB-2019 11:33

Client ID:

Instrument: msd2.i

Sample Info: 100ml #3045-195

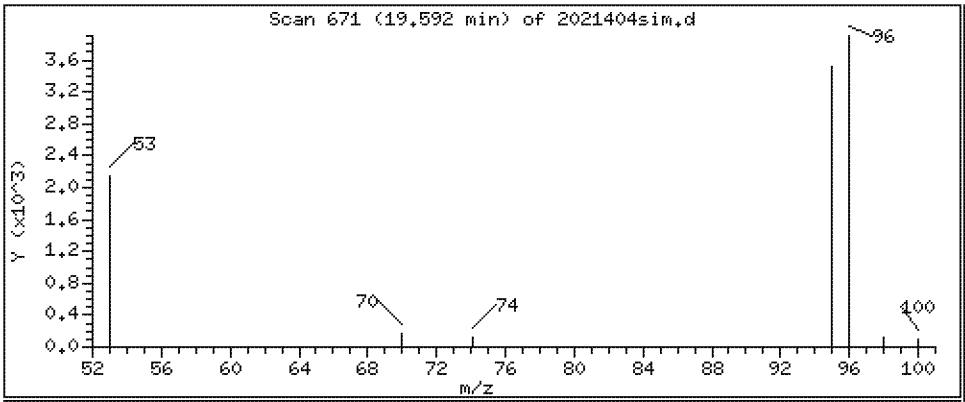
Operator: db

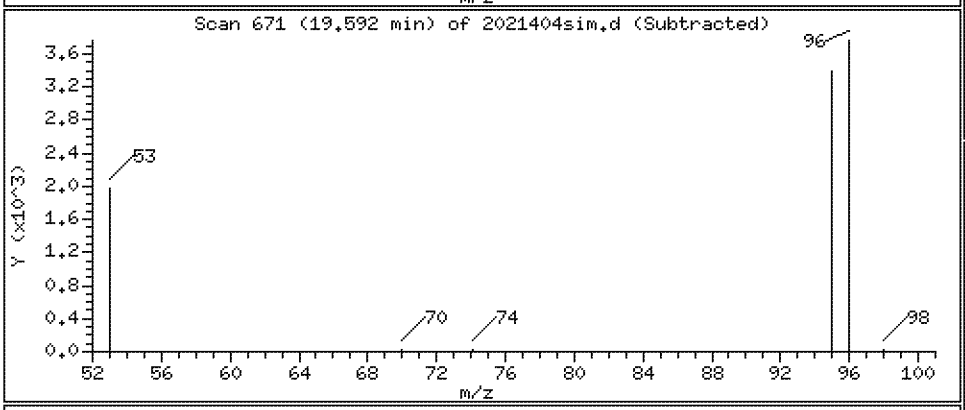
Column phase: RTX-624

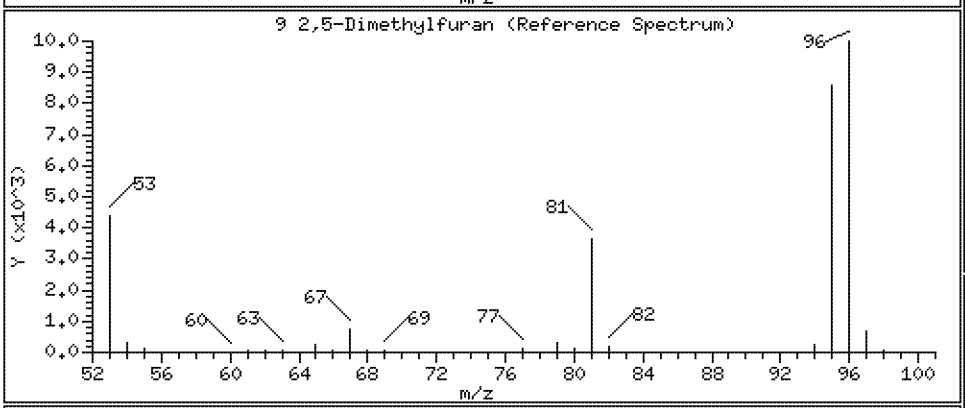
Column diameter: 0.32

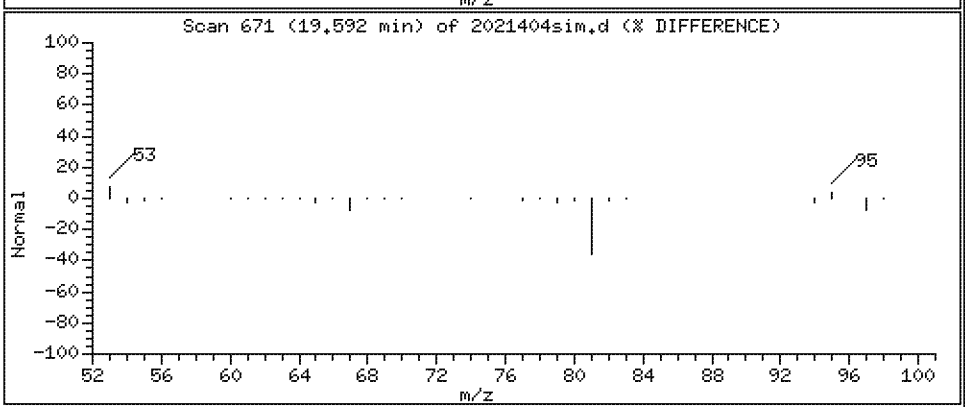
9 2,5-Dimethylfuran

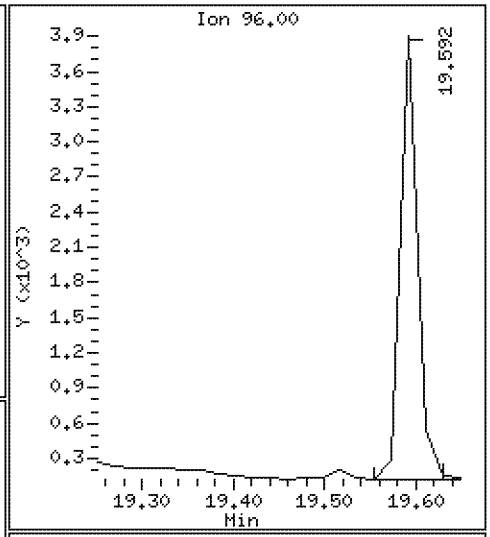
Concentration: 0.2619 PPBV

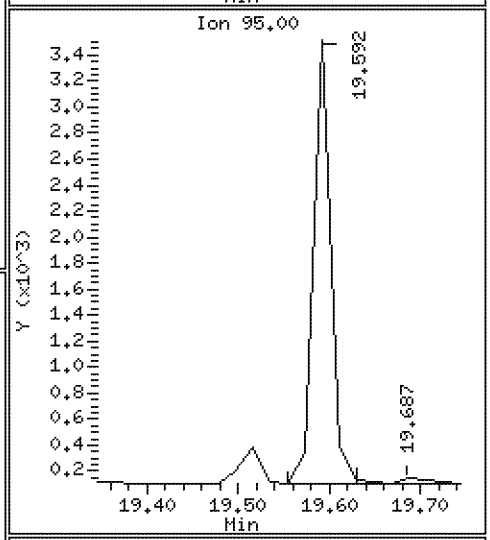


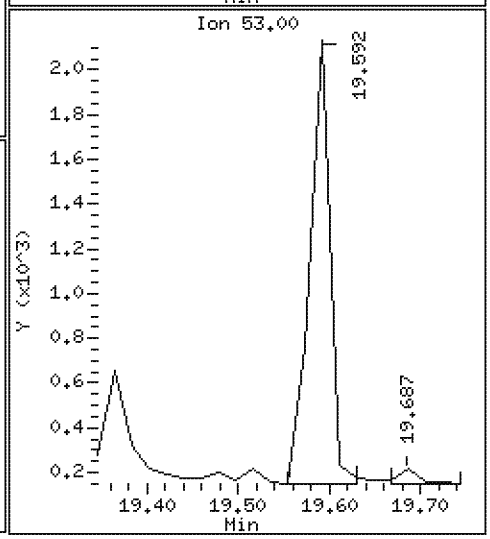












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/13FEB19.b/2021305sim.d
Lab Smp Id:
Inj Date : 13-FEB-2019 12:14
Operator : db Inst ID: msd2.i
Smp Info : 100ml #3018-601;ICAL Level 7
Misc Info : 1.0ppbv (1.0ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/13FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 08:24 udib Quant Type: ISTD
Cal Date : 13-FEB-2019 12:14 Cal File: 2021305sim.d
Als bottle: 6 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.198	12.228	(0.796)	44	4701	0.50000	0.3935	80.00- 120.00	100.00
12.198	12.228	(0.796)	43	1230			0.00- 55.01	26.16
12.198	12.216	(0.796)	29	4952			59.74- 119.74	105.34
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	207095	6.00000	5.987	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	213324			73.24- 133.24	103.01
14.335	14.335	(0.936)	83	168845			63.25- 123.25	81.53
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	297663	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	97407			3.63- 63.63	32.72
15.319	15.319	(1.000)	61	92545			3.78- 63.78	31.09
* 7 Fluorobenzene						CAS #: 462-06-6		
19.138	19.138	(1.000)	96	394596	6.00000		80.00- 120.00	100.00
19.119	19.119	(1.000)	70	74615			0.00- 49.55	18.91

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021305sim.d
Lab Smp Id:
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/13FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 1.0ppbv (1.0ppbv)

Calibration Date: 13-FEB-2019
Calibration Time: 12:51

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	300829	180497	421161	297663	-1.05
7 Fluorobenzene	420806	252484	589128	394596	-6.23

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	-0.00
7 Fluorobenzene	19.14	18.81	19.47	19.14	-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/msd2.i/13FEB19.b/2021305sim.d

Date : 13-FEB-2019 12:14

Client ID:

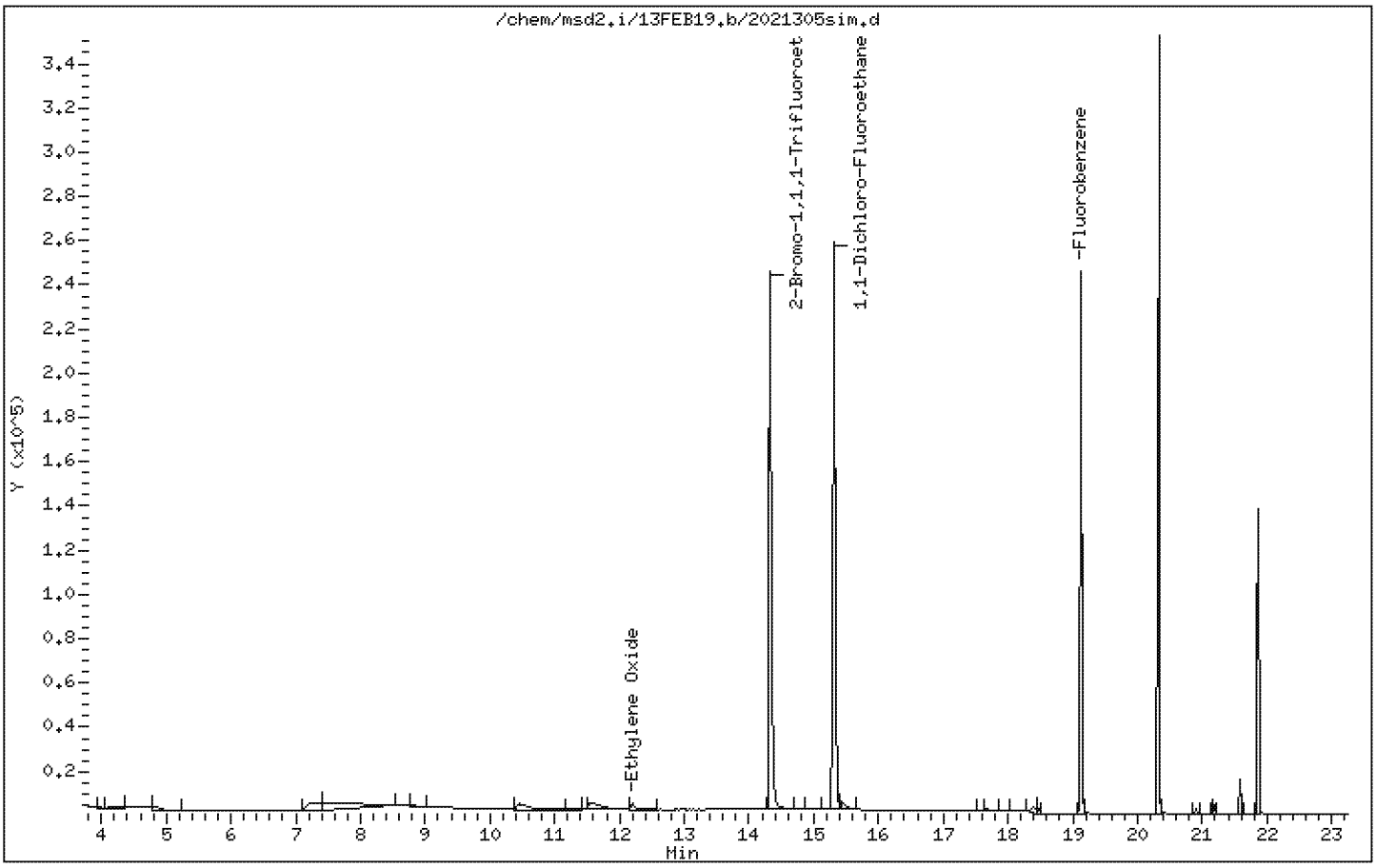
Instrument: msd2.i

Sample Info: 100ml #3018-601;ICAL Level 7

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/13FEB19.b/2021305sim.d

Date : 13-FEB-2019 12:14

Client ID:

Instrument: msd2.i

Sample Info: 100ml #3018-601;ICAL Level 7

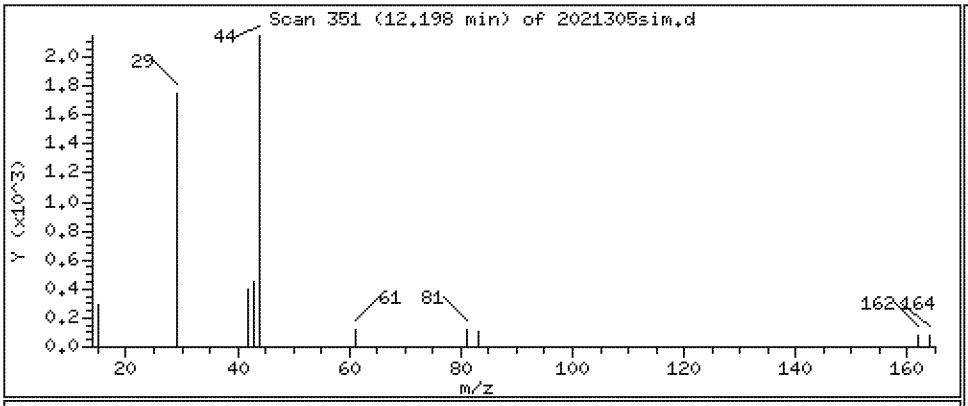
Operator: db

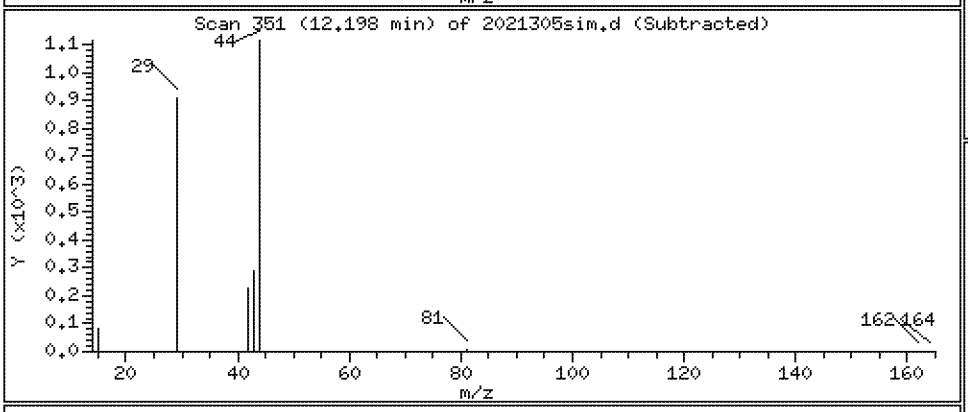
Column phase: RTX-624

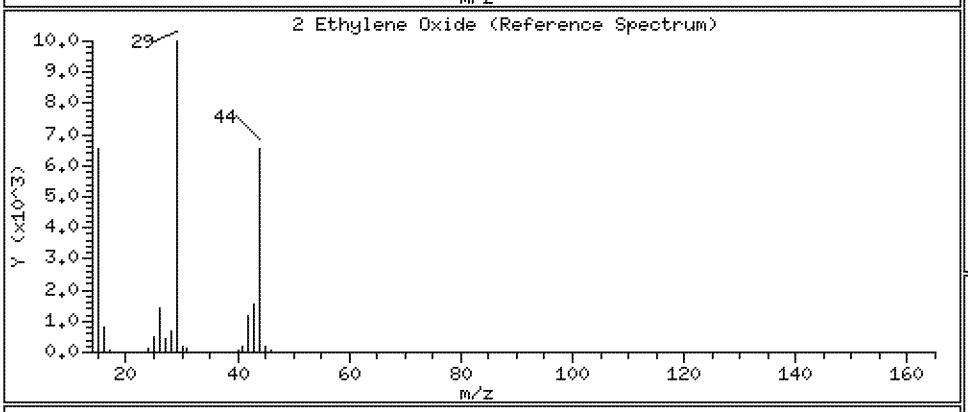
Column diameter: 0.32

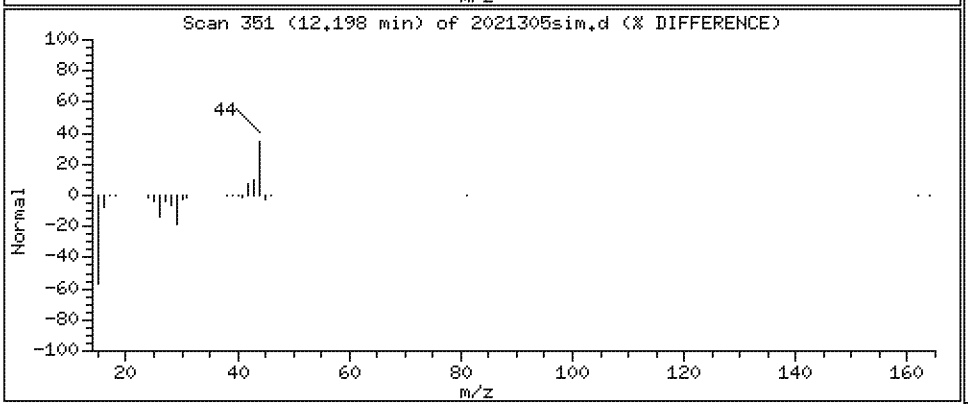
2 Ethylene Oxide

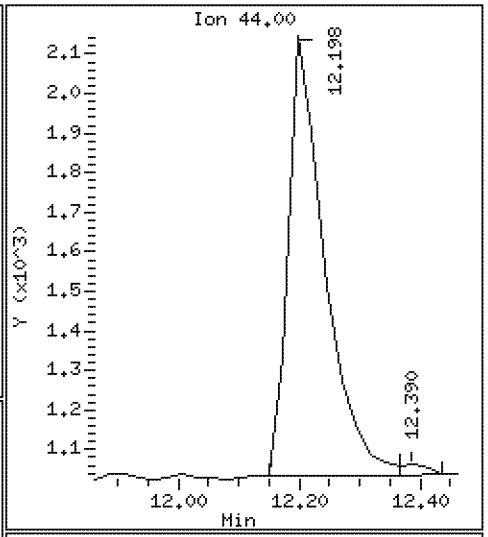
Concentration: 0.3935 PPBV

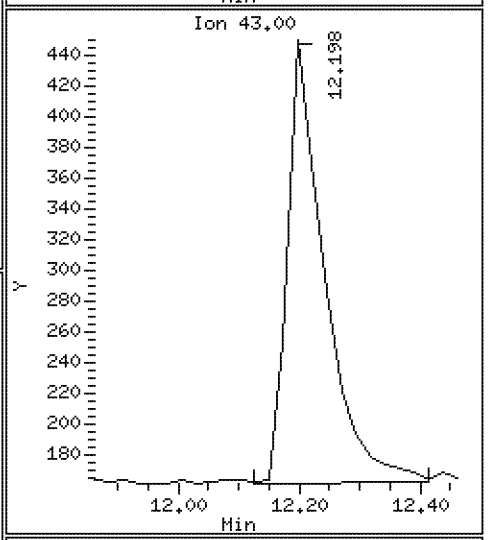


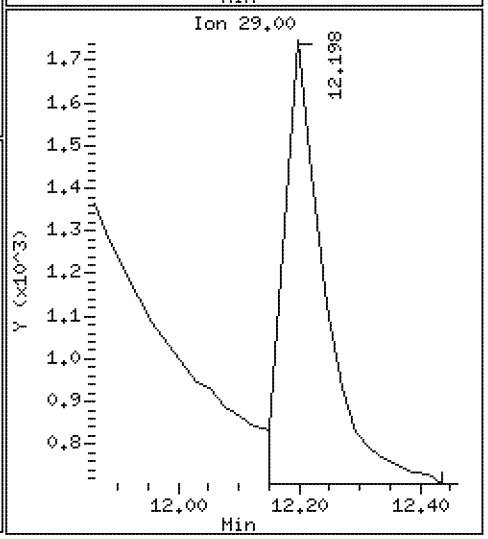












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/14FEB19.b/2021405sim.d
Lab Smp Id: ICAL Level 8
Inj Date : 14-FEB-2019 12:10
Operator : db Inst ID: msd2.i
Smp Info : 200ml #3045-195
Misc Info : 0.5ppbv(0.5ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 27-Feb-2019 12:33 ueja Quant Type: ISTD
Cal Date : 14-FEB-2019 12:10 Cal File: 2021405sim.d
Als bottle: 5 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 25df.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
* 7 Fluorobenzene						CAS #: 462-06-6		
18.967	19.081	(1.000)	96	456234	6.00000		80.00- 120.00	100.00(TH)
18.967	19.068	(1.000)	70	82032			0.00- 49.55	17.98
9 2,5-Dimethylfuran						CAS #: 625-86-5		
19.422	19.454	(1.014)	96	10427	0.50000	0.4843	80.00- 120.00	100.00(TH)
19.422	19.549	(1.014)	95	9190			61.88- 121.88	88.14
19.422	19.549	(1.014)	53	7408			70.24- 130.24	71.05
$ 10 Toluene-d8						CAS #: 2037-26-5		
20.198	20.223	(1.054)	98	390300	6.00000	6.720	80.00- 120.00	100.00(T)
20.179	20.279	(1.053)	70	42317			0.00- 45.38	10.84
20.198	20.298	(1.054)	100	246034			31.22- 91.22	63.04

QC Flag Legend

T - Target compound detected outside RT window.
H - Operator selected an alternate compound hit.

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021405sim.d
Lab Smp Id: ICAL Level 8
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 0.5ppbv(0.5ppbv)

Calibration Date: 14-FEB-2019
Calibration Time: 11:33

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
7 Fluorobenzene	406443	243866	569020	456234	12.25

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
7 Fluorobenzene	19.14	18.81	19.47	18.97	-0.89

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/msd2.i/14FEB19.b/2021405sim.d

Date : 14-FEB-2019 12:10

Client ID:

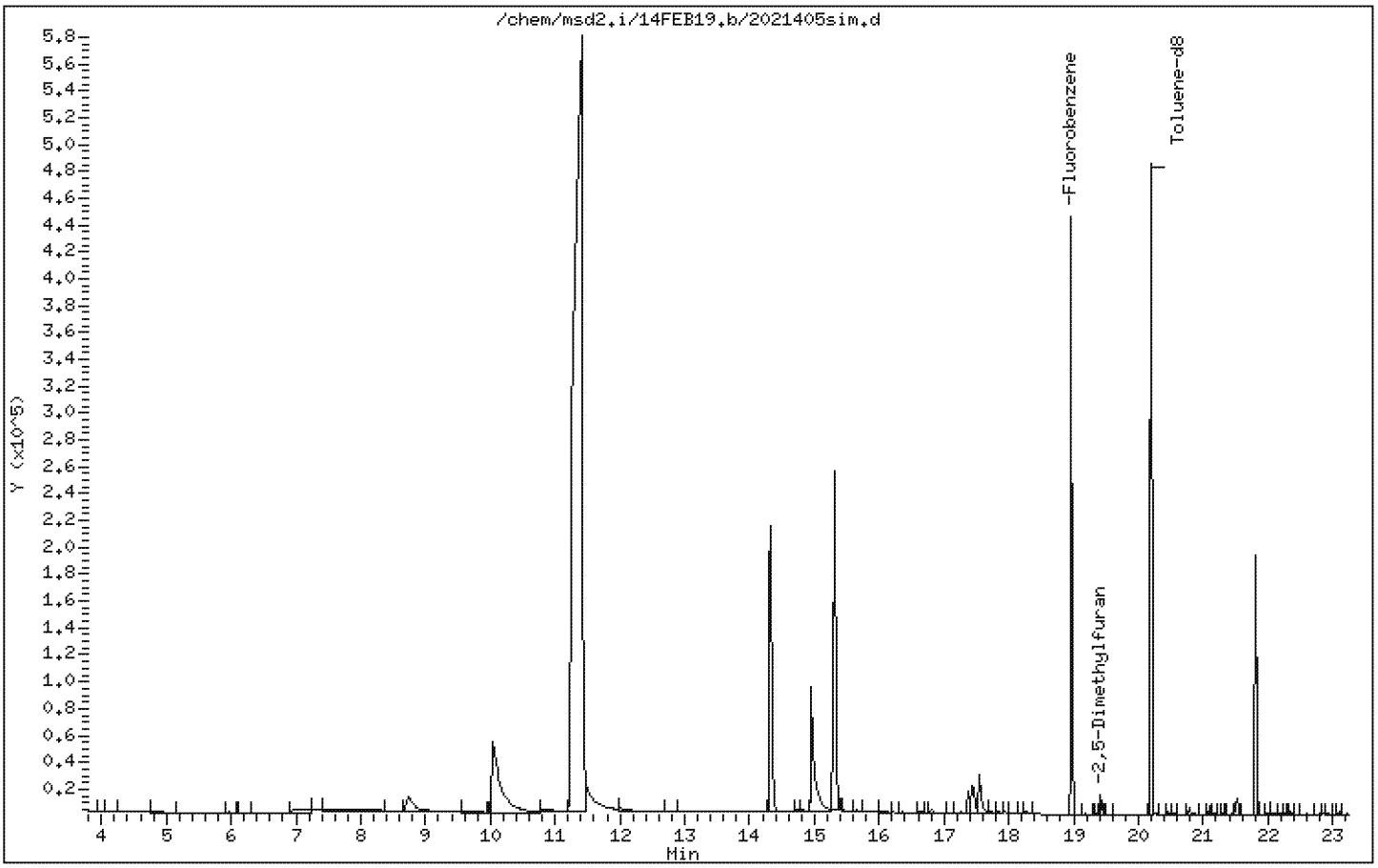
Instrument: msd2.i

Sample Info: 200ml #3045-195

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/14FEB19.b/2021405sim.d

Date : 14-FEB-2019 12:10

Client ID:

Instrument: msd2.i

Sample Info: 200ml #3045-195

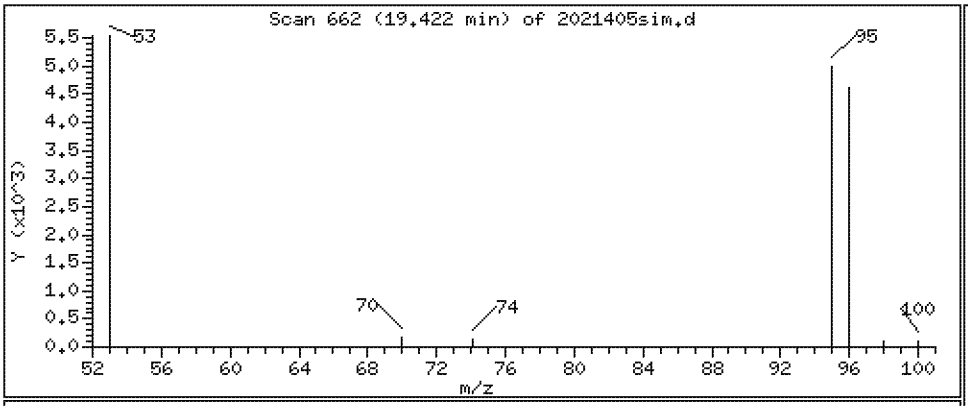
Operator: db

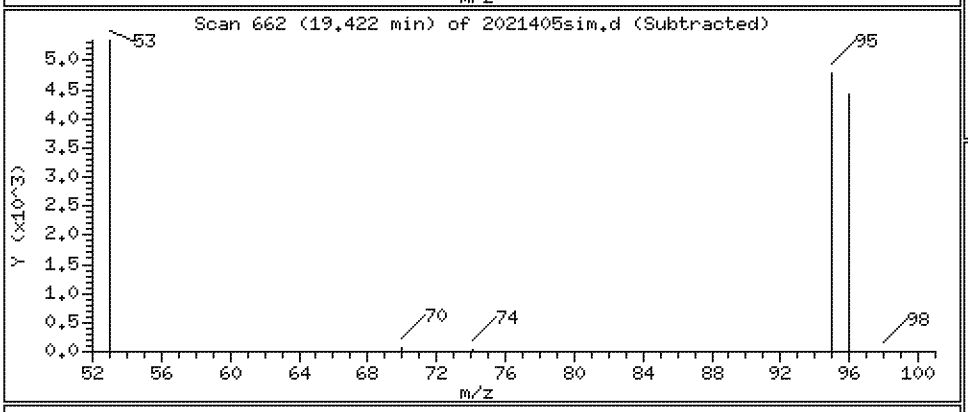
Column phase: RTX-624

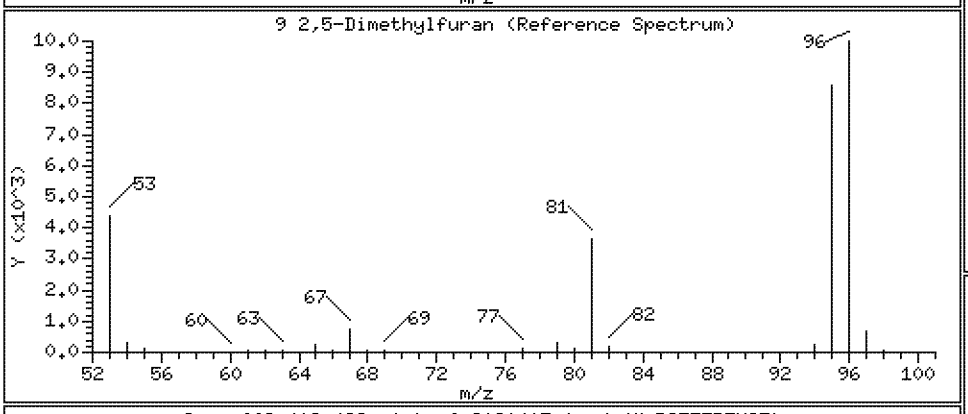
Column diameter: 0.32

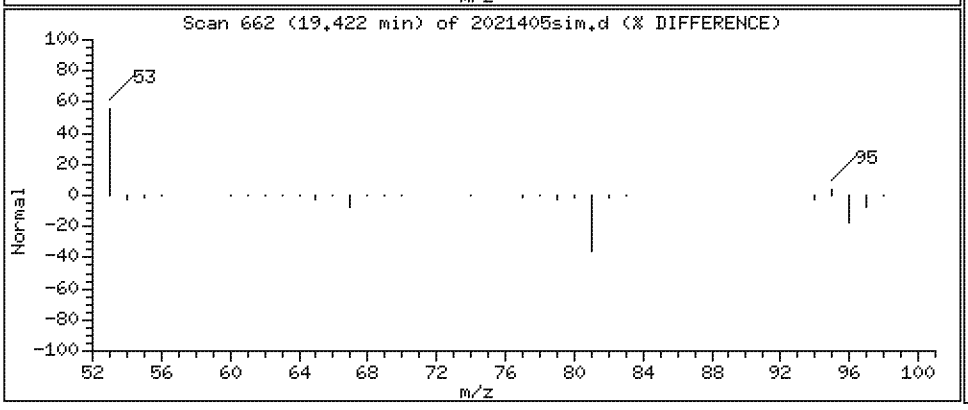
9 2,5-Dimethylfuran

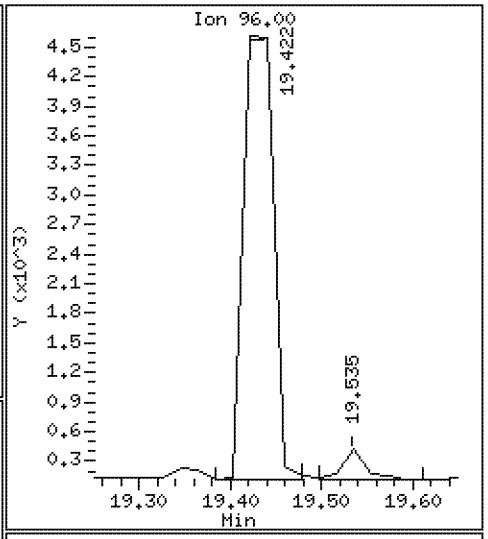
Concentration: 0.4843 PPBV

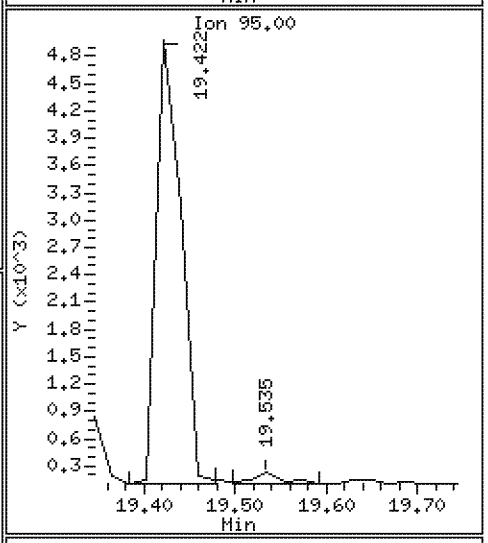


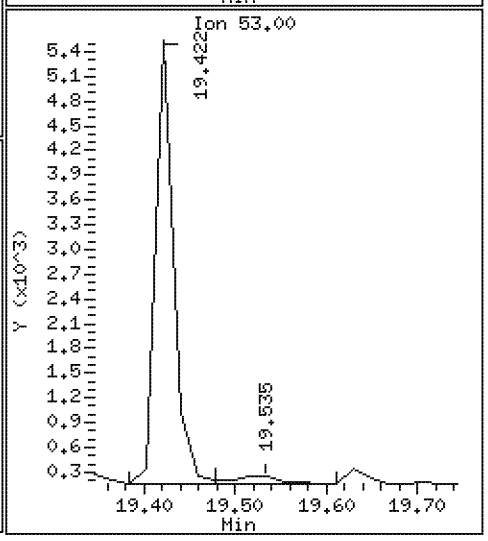












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/13FEB19.b/2021306sim.d
Lab Smp Id: ICAL Level 8
Inj Date : 13-FEB-2019 12:51
Operator : db Inst ID: msd2.i
Smp Info : 200ml #3018-601
Misc Info : 1.0ppbv (1.0ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/13FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 08:23 udib Quant Type: ISTD
Cal Date : 13-FEB-2019 12:51 Cal File: 2021306sim.d
Als bottle: 6 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

	RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
	2 Ethylene Oxide						CAS #: 75-21-8		
	12.198	12.198	(0.796)	44	9873	1.00000	1.000	80.00- 120.00	100.00
	12.198	12.198	(0.796)	43	2437			0.00- 55.01	24.68
	12.174	12.174	(0.795)	29	8754			59.74- 119.74	88.67
$	3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
	14.335	14.335	(0.936)	164	211421	6.00000	6.000	80.00- 120.00	100.00
	14.335	14.335	(0.936)	162	217375			73.24- 133.24	102.82
	14.335	14.335	(0.936)	83	172211			63.25- 123.25	81.45
*	4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
	15.319	15.319	(1.000)	81	300829	6.00000		80.00- 120.00	100.00
	15.319	15.319	(1.000)	83	98552			3.63- 63.63	32.76
	15.319	15.319	(1.000)	61	93450			3.78- 63.78	31.06
*	7 Fluorobenzene						CAS #: 462-06-6		
	19.138	19.138	(1.000)	96	420806	6.00000		80.00- 120.00	100.00
	19.119	19.119	(1.000)	70	78357			0.00- 49.55	18.62

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021306sim.d
Lab Smp Id: ICAL Level 8
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/13FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 1.0ppbv (1.0ppbv)

Calibration Date: 13-FEB-2019
Calibration Time: 12:51

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	300829	180497	421161	300829	0.00
7 Fluorobenzene	420806	252484	589128	420806	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.14	18.81	19.47	19.14	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/msd2.i/13FEB19.b/2021306sim.d

Date : 13-FEB-2019 12:51

Client ID:

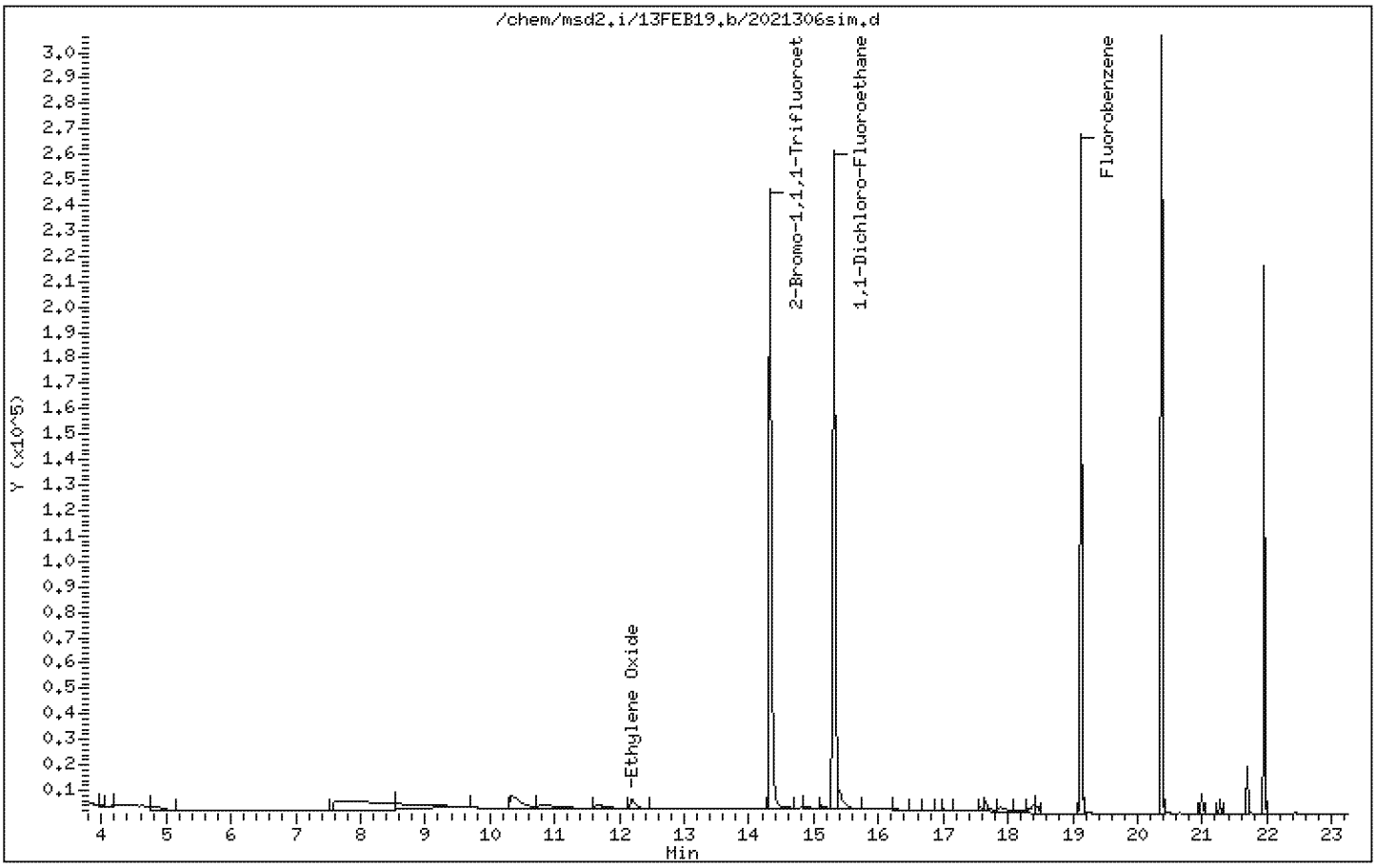
Instrument: msd2.i

Sample Info: 200ml #3018-601

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/13FEB19.b/2021306sim.d

Date : 13-FEB-2019 12:51

Client ID:

Instrument: msd2.i

Sample Info: 200ml #3018-601

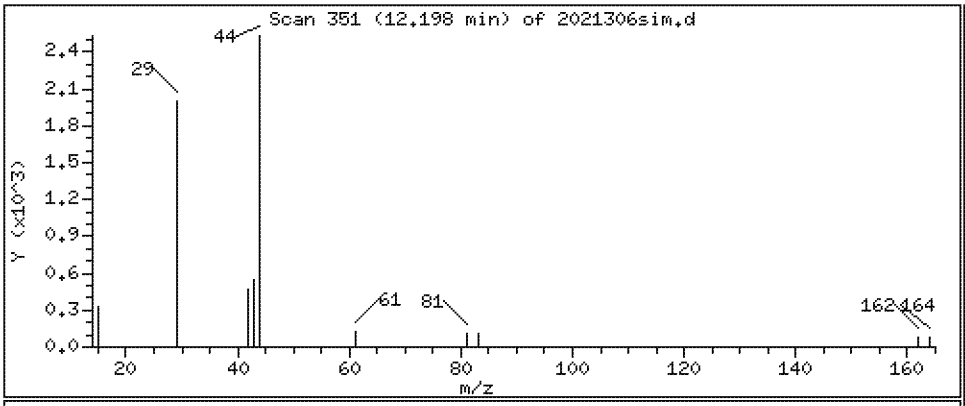
Operator: db

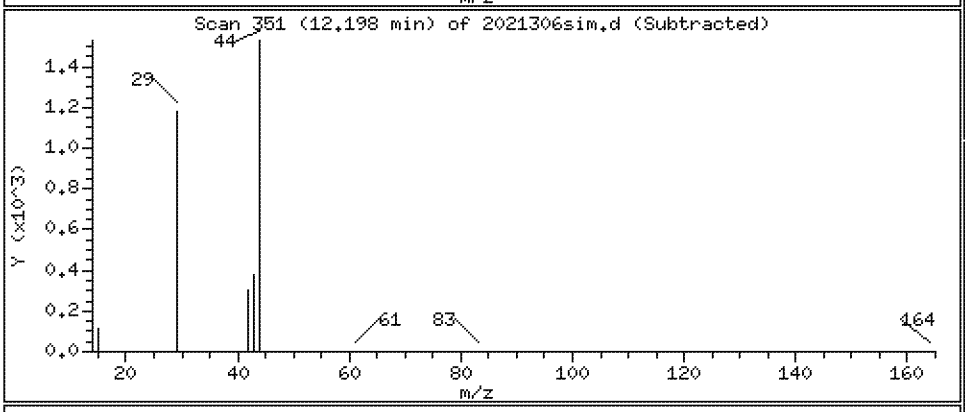
Column phase: RTX-624

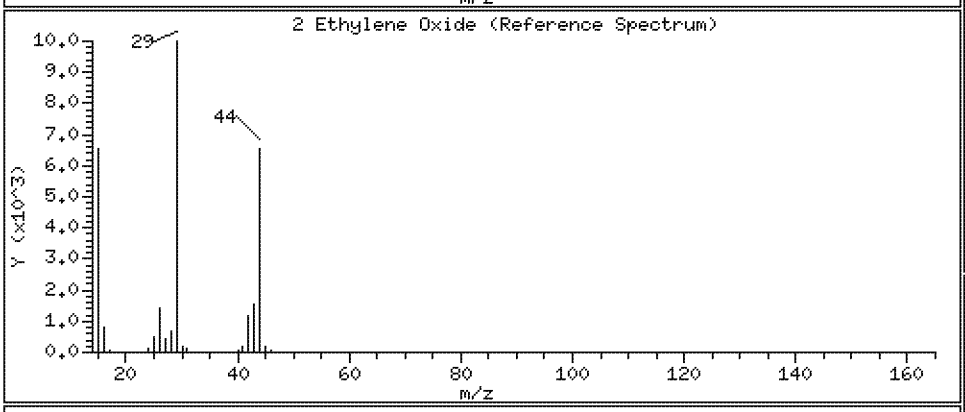
Column diameter: 0.32

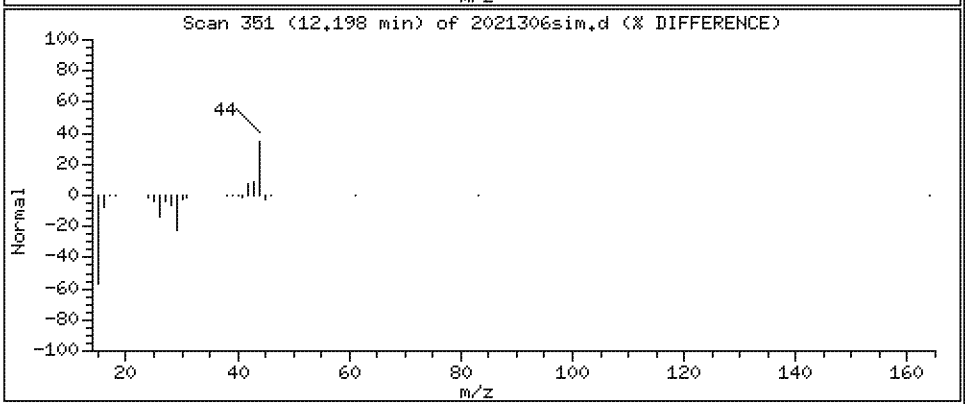
2 Ethylene Oxide

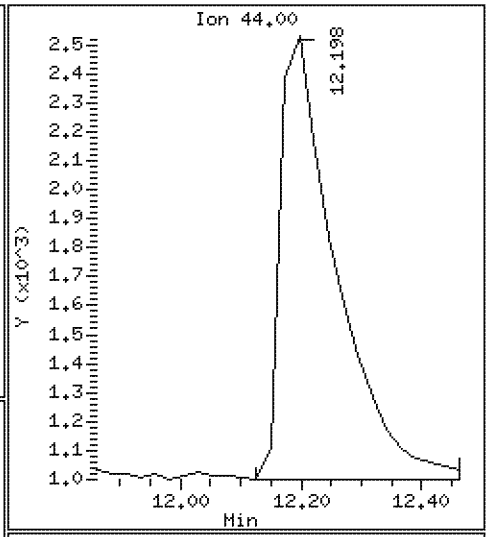
Concentration: 1.000 PPBV

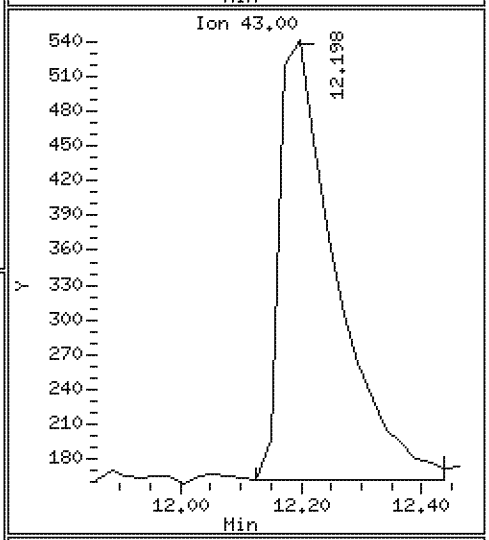


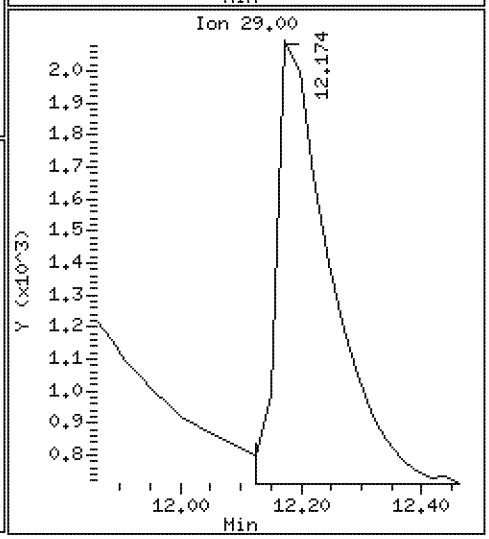












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/13FEB19.b/2021307sim.d
Lab Smp Id: ICAL Level 12
Inj Date : 13-FEB-2019 13:28
Operator : db Inst ID: msd2.i
Smp Info : 40ml #3018-608
Misc Info : 5.0ppbv (25ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/13FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 08:24 udib Quant Type: ISTD
Cal Date : 13-FEB-2019 13:28 Cal File: 2021307sim.d
Als bottle: 3 Calibration Sample, Level: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.078	12.198	(0.788)	44	55225	5.00000	4.742	80.00- 120.00	100.00(T)
12.078	12.198	(0.788)	43	13768			0.00- 55.01	24.93
12.078	12.188	(0.788)	29	47010			59.74- 119.74	85.12
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	203788	6.00000	5.974	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	209094			73.24- 133.24	102.60
14.335	14.335	(0.936)	83	165328			63.25- 123.25	81.13
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	293877	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	96007			3.63- 63.63	32.67
15.319	15.319	(1.000)	61	91681			3.78- 63.78	31.20
* 7 Fluorobenzene						CAS #: 462-06-6		
19.138	19.138	(1.000)	96	397347	6.00000		80.00- 120.00	100.00
19.119	19.119	(1.000)	70	74063			0.00- 49.55	18.64

QC Flag Legend

T - Target compound detected outside RT window.

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021307sim.d
Lab Smp Id: ICAL Level 12
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/13FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 5.0ppbv (25ppbv)

Calibration Date: 13-FEB-2019
Calibration Time: 12:51

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	300829	180497	421161	293877	-2.31
7 Fluorobenzene	420806	252484	589128	397347	-5.57

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.14	18.81	19.47	19.14	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/msd2.i/13FEB19.b/2021307sim.d

Date : 13-FEB-2019 13:28

Client ID:

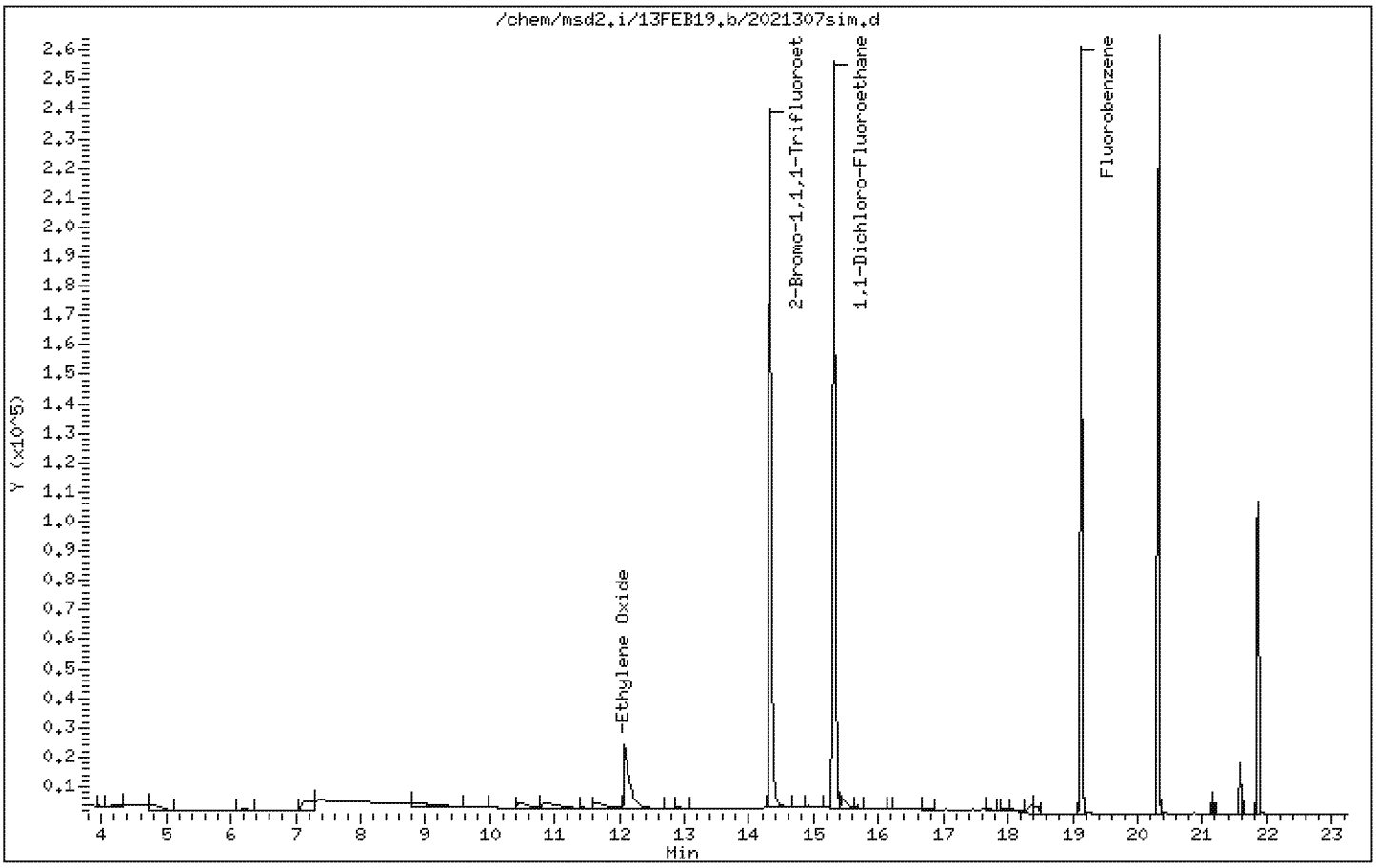
Instrument: msd2.i

Sample Info: 40ml #3018-608

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/13FEB19.b/2021307sim.d

Date : 13-FEB-2019 13:28

Client ID:

Instrument: msd2.i

Sample Info: 40ml #3018-608

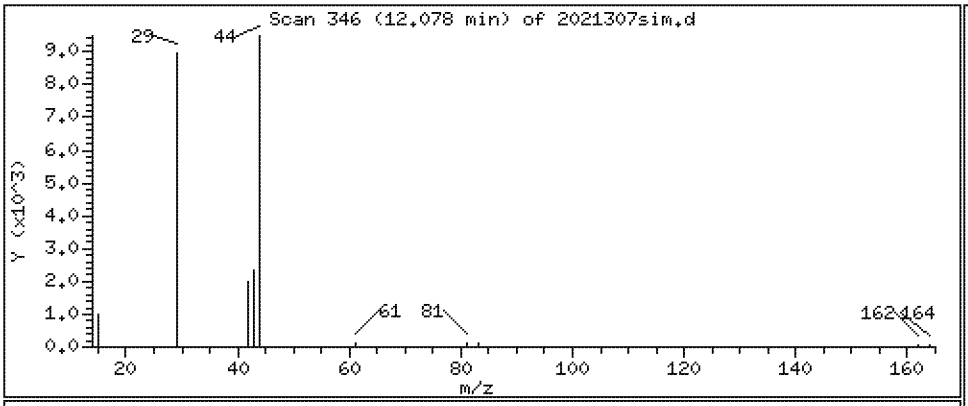
Operator: db

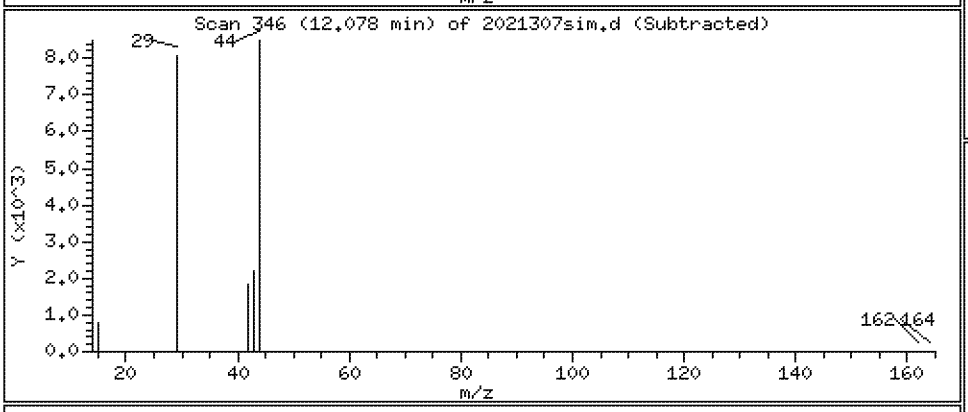
Column phase: RTX-624

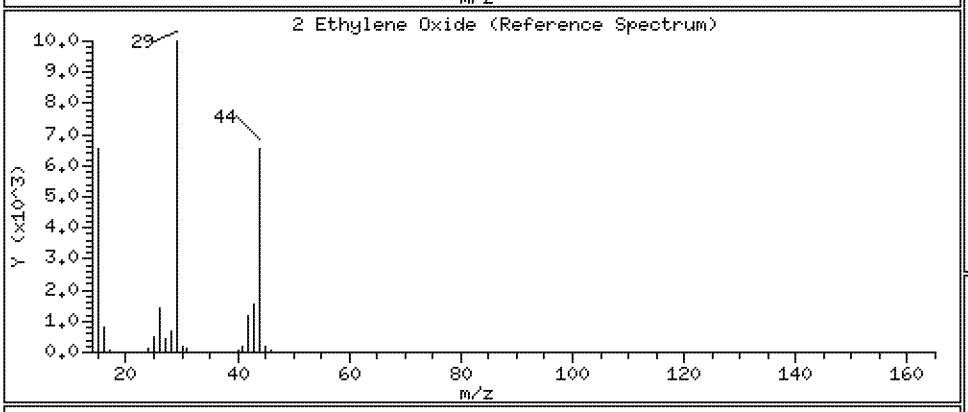
Column diameter: 0.32

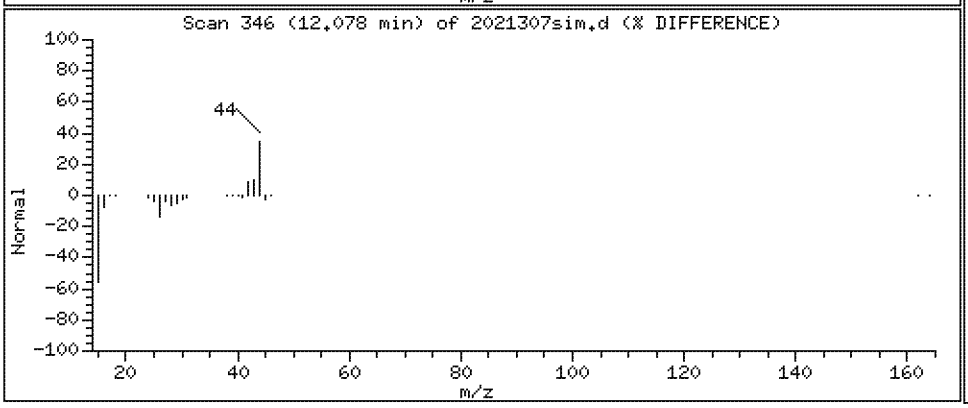
2 Ethylene Oxide

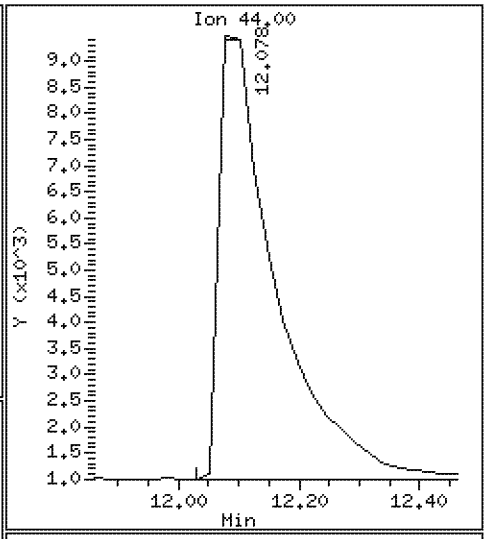
Concentration: 4.742 PPBV

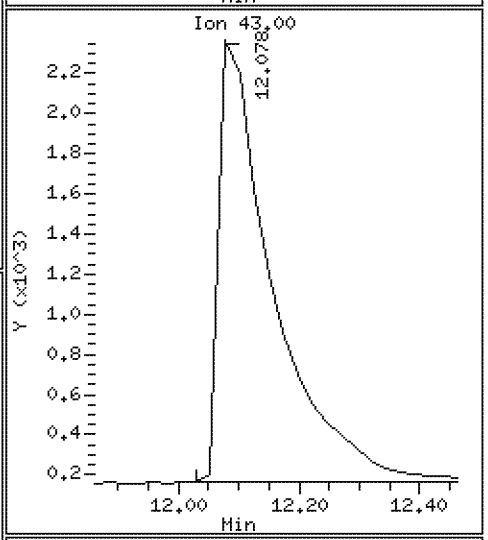


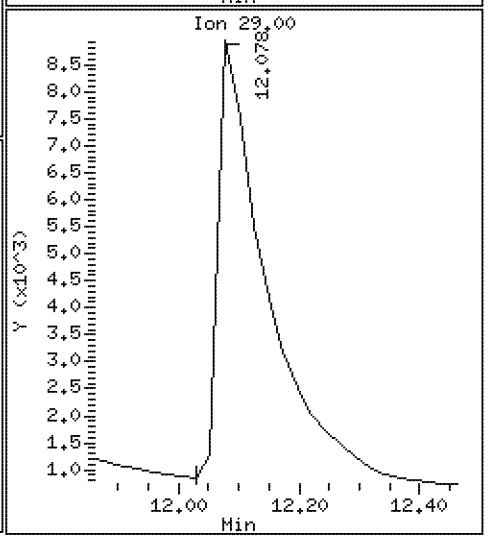












US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/13FEB19.b/2021308sim.d
Lab Smp Id: ICAL Level 15
Inj Date : 13-FEB-2019 14:04
Operator : db Inst ID: msd2.i
Smp Info : 160ml #3018-516
Misc Info : 20ppbv (25ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/13FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 08:24 udib Quant Type: ISTD
Cal Date : 13-FEB-2019 14:04 Cal File: 2021308sim.d
Als bottle: 3 Calibration Sample, Level: 15
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.030	12.170	(0.785)	44	190674	20.0000	16.327	80.00- 120.00	100.00(TA)
12.030	12.170	(0.785)	43	47444			0.00- 55.01	24.88
12.006	12.158	(0.784)	29	162645			59.74- 119.74	85.30
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	213706	6.00000	6.022	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	220521			73.24- 133.24	103.19
14.335	14.335	(0.936)	83	174729			63.25- 123.25	81.76
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	305520	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	100259			3.63- 63.63	32.82
15.319	15.319	(1.000)	61	94756			3.78- 63.78	31.01
* 7 Fluorobenzene						CAS #: 462-06-6		
18.967	19.109	(1.000)	96	404112	6.00000		80.00- 120.00	100.00(TH)
18.967	19.093	(1.000)	70	73706			0.00- 49.55	18.24

QC Flag Legend

T - Target compound detected outside RT window.
A - Target compound detected but, quantitated amount exceeded maximum amount.
H - Operator selected an alternate compound hit.

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021308sim.d
Lab Smp Id: ICAL Level 15
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/13FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 20ppbv (25ppbv)

Calibration Date: 13-FEB-2019
Calibration Time: 12:51

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	300829	180497	421161	305520	1.56
7 Fluorobenzene	420806	252484	589128	404112	-3.97

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	-0.00
7 Fluorobenzene	19.14	18.81	19.47	18.97	-0.89

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/msd2.i/13FEB19.b/2021308sim.d

Date : 13-FEB-2019 14:04

Client ID:

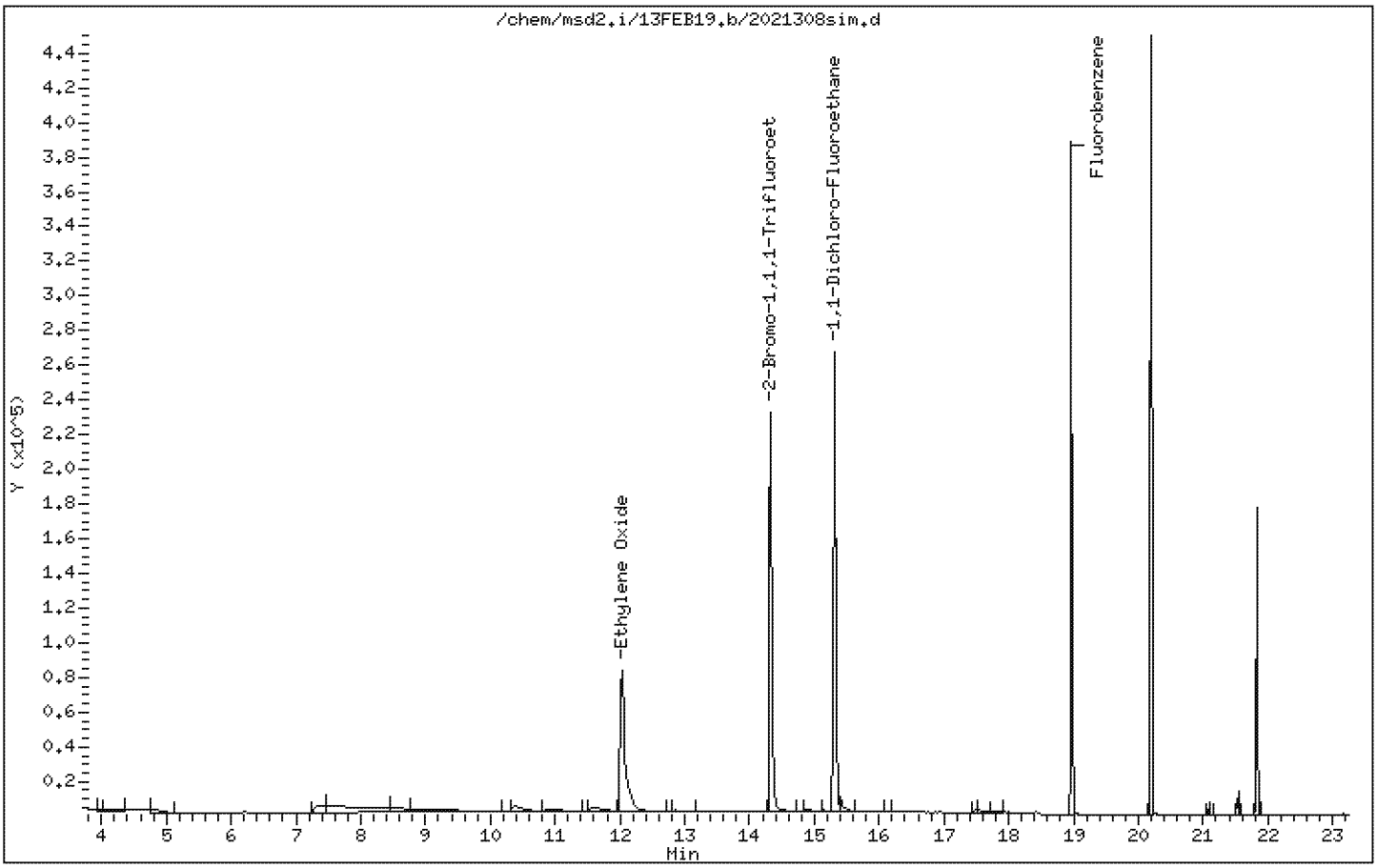
Instrument: msd2.i

Sample Info: 160ml #3018-516

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/13FEB19.b/2021308sim.d

Date : 13-FEB-2019 14:04

Client ID:

Instrument: msd2.i

Sample Info: 160ml #3018-516

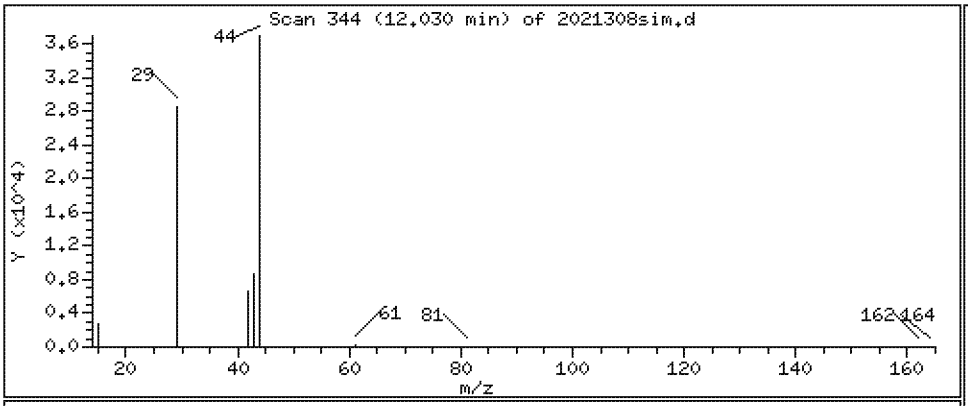
Operator: db

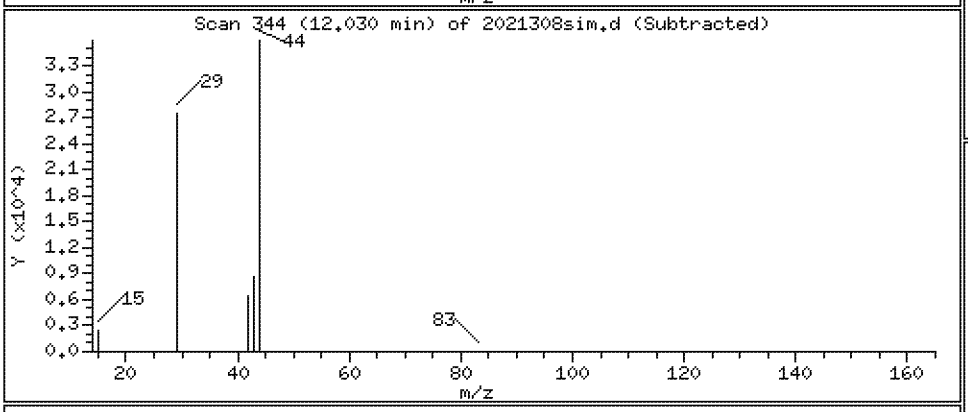
Column phase: RTX-624

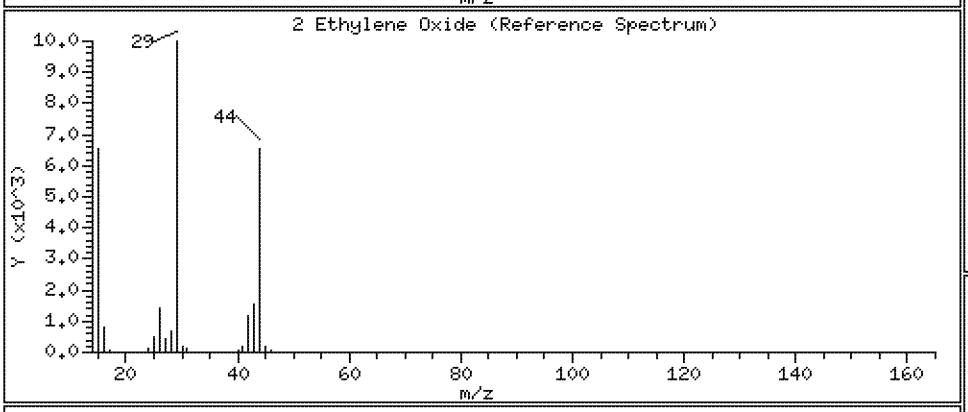
Column diameter: 0.32

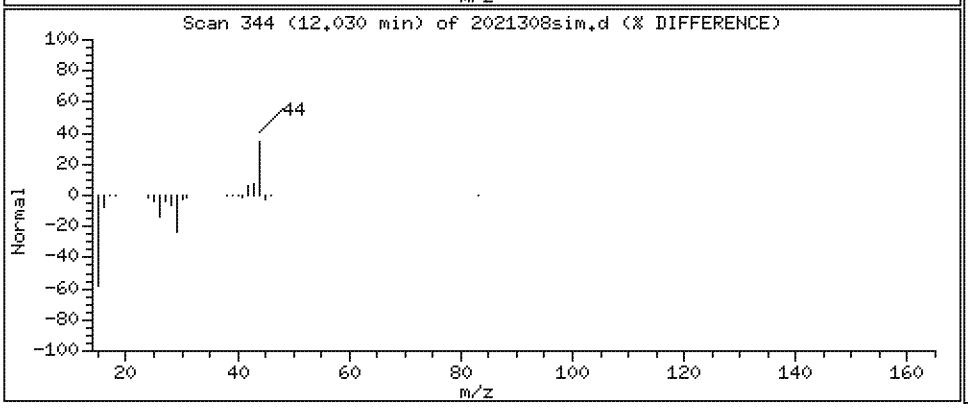
2 Ethylene Oxide

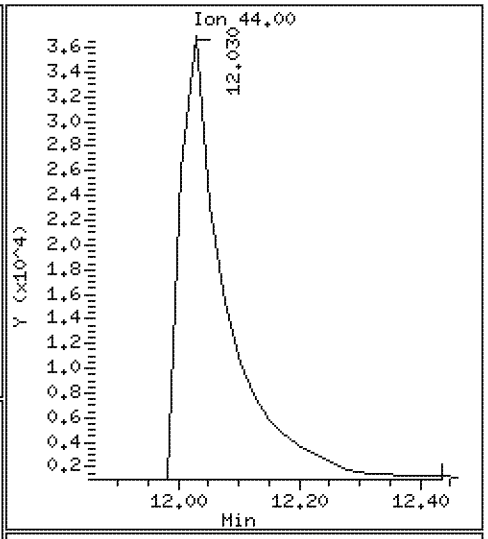
Concentration: 16.327 PPBV

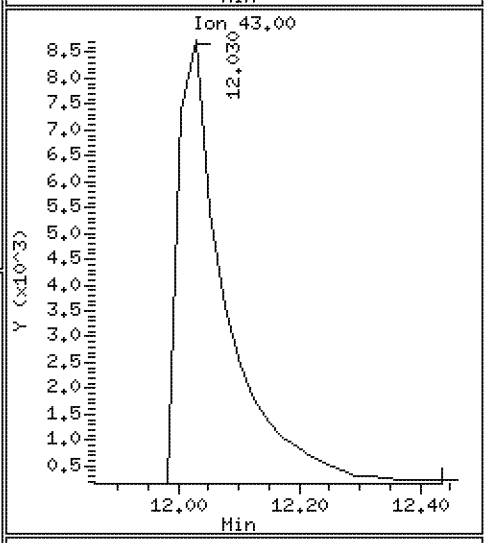


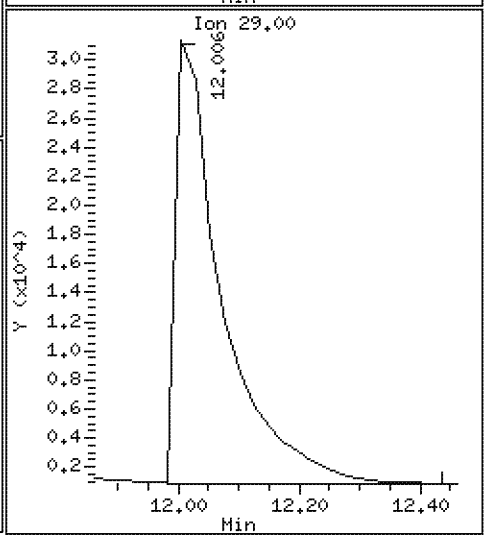












MSD-2 E.O. MDL SIM
200ml Loads
100ml # 3018-448 0.1ppbv → 0.05ppbv

ED_002475_00000019-00091

Report Date : 17-Oct-2018 15:05

US32APPTV002
METHOD DETECTION LIMIT SUMMARY REPORT

Method File: /chem/msd2.i/15oct18a.b/218l1015eo.m/218s1015eo.m
Batch File: /chem/msd2.i/15oct18a.b
Inst ID: msd2.i

ID:	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	MDL08
FILENAME:	2101523sim	2101524sim	2101525sim	2101608sim	2101609sim	2101610sim	2101707sim	2101708sim
INJ.DATE:	16-OCT-2018	16-OCT-2018	16-OCT-2018	16-OCT-2018	16-OCT-2018	16-OCT-2018	17-OCT-2018	17-OCT-2018
INJ.TIME:	01:16	01:52	02:29	14:01	14:39	15:16	13:27	14:04

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	MDL08	AVG CONC	STD DEV	MDL (ppbv)	RL (ppbv)	MDL BLK (ppt)
1 Acetaldehyde	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++		
2 Ethylene Oxide	63.66	67.40	79.02	63.40	68.78	65.11	84.26	76.00	70.95	7.63	23.48	0.05	27.44
!$ 3 2-Bromo-1,1,1-Trifluor	4949.55	4932.57	4952.54	4894.14	4893.07	4912.58	4837.64	4887.98	4907.51	37.98	113.88		
!* 4 1,1-Dichloro-Fluoroeth	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	5000.00	0.00	0.00		
!* 5 Bromochloromethane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++		
!$ 6 1,2-Dichloroethane-d4	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++		
!* 7 1,4-Difluorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++		
!$ 8 Toluene-d8	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++		
!* 9 Chlorobenzene-d5	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++		
!$ 10 4-Bromofluorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++		

Reviewer 1 Diane Bottom Date: 10/18/18
Reviewer 2 [illegible] Date: 10/18/18

MDL Verification - File 2101714 (0.04ppbv)

msD-2 E.O. Sim Blank
units - pptv

ED_002475_00000019-00092

Report Date : 18-OCT-2018 10:55 Page 1

US32APPTV002

SPIKED METHOD DETECTION LIMIT SUMMARY REPORT

Method File: /chem/msd2.i/17oct18.b/21811015eo.m/218s1015eo.m
Batch File: /chem/msd2.i/17oct18.b
Instrument Names: msd2.i
Student T 2.998 for 8 Replicates with 99% Confidence

Spiked ID(s) Spiked Vol(s)

ID:	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	MDL08
FILENAME:	2101520simEPALB	2101521simEPALB	2101522simEPALB	2101605simEPALB	2101606simEPALB	2101607simEPALB	2101705simEPALB	2101706simEPALB
INJ.DATE:	15-OCT-2018	16-OCT-2018	16-OCT-2018	16-OCT-2018	16-OCT-2018	16-OCT-2018	17-OCT-2018	17-OCT-2018
INJ.TIME:	23:25	00:02	00:39	12:09	12:47	13:25	12:12	12:50

pptv

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	MDL08	AVG CONC	STD DEV	SPK AMT	RL	RATIO	MDL	
1 Ethylene Oxide	0.000000	0.000000	23.59	13.27	13.22	27.44	20.00	17.19	14.34	10.08	0.000000	20.00	0.475	30.21	Ratio 1 to 20 Fai
$ 2 2-Bromo-1,1,1-Trifluoroethane	4955.00	4953.90	4936.00	4896.30	4866.60	4911.20	4839.60	4829.40	4898.50	49.42	0.000000	20.00	33.06	148.16	
* 3 1,1-Dichloro-Fluoroethane	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	0.000000	0.000000	20.00	1.00	0.000000	

Reviewer 1 Diane Bates Date: 10/18/18
Reviewer 2 [illegible] Date: 10/18/18

MODIFIED EPA METHOD TO-15 GC/MS SIM
SAL

eurofins | Air Toxics

Client ID:	CCV		
Lab ID:	1902183AR1-05A	**Date/Time Analyzed:**	2/14/19 01:42 PM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd2.i / 2021406sim

Compound	CAS#	%Recovery
2,5-Dimethylfuran	625-86-5	105
Ethylene Oxide	75-21-8	88

D: Analyte not within the DoD scope of accreditation.

2,5-Dimethylfuran recovery is from file 2021404sima.d, analyzed on 2-14-19 at 11:33.

US32APPTV002

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msd2.i Injection Date: 14-FEB-2019 13:42
Lab File ID: 2021406sim.d Init. Cal. Date(s): 13-FEB-2019 14-FEB-2019
Analysis Type: AIR Init. Cal. Times: 11:01 12:10
Lab Sample ID: Quant Type: ISTD
Method: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m

COMPOUND	RRF / AMOUNT	RF0.500	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
2 Ethylene Oxide	0.22934	0.20171	0.010	12.05061	30.00000	Averaged
$ 3 2-Bromo-1,1,1-Trifluoroetha	0.69696	0.70175	0.010	-0.68818	30.00000	Averaged

US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/14FEB19.b/2021406sim.d
Lab Smp Id:
Inj Date : 14-FEB-2019 13:42
Operator : db Inst ID: msd2.i
Smp Info : 100ml #3018-601;CCV
Misc Info : 0.5ppbv(1.0ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 14:17 udib Quant Type: ISTD
Cal Date : 14-FEB-2019 12:10 Cal File: 2021405sim.d
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.222	12.174	(0.798)	44	4849	0.50000	0.4397	80.00- 120.00	100.00
12.222	12.174	(0.798)	43	1165			0.00- 55.01	24.03
12.222	12.162	(0.798)	29	3675			59.74- 119.74	75.79
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	202442	6.00000	6.041	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	208470			73.24- 133.24	102.98
14.335	14.335	(0.936)	83	164429			63.25- 123.25	81.22
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	288480	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	95010			3.63- 63.63	32.93
15.319	15.319	(1.000)	61	85285			3.78- 63.78	29.56
* 7 Fluorobenzene						CAS #: 462-06-6		
19.137	19.081	(1.000)	96	415327	6.00000		80.00- 120.00	100.00
19.119	19.068	(1.000)	70	77796			0.00- 49.55	18.73

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021406sim.d
Lab Smp Id:
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 0.5ppbv(1.0ppbv)

Calibration Date: 14-FEB-2019
Calibration Time: 11:33

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	293889	176333	411445	288480	-1.84
7 Fluorobenzene	406443	243866	569020	415327	2.19

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.14	18.81	19.47	19.14	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/msd2.i/14FEB19.b/2021406sim.d

Date : 14-FEB-2019 13:42

Client ID:

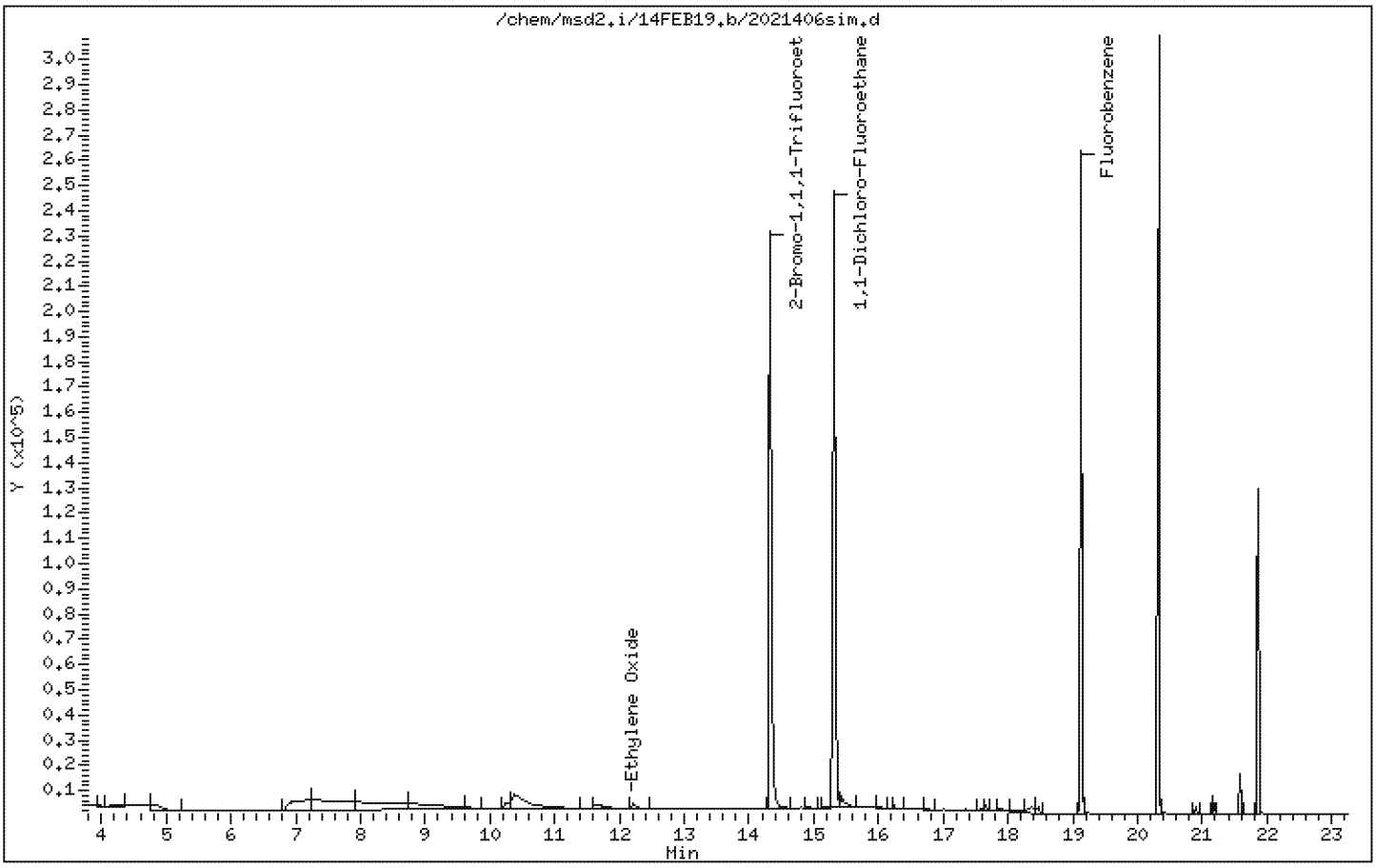
Instrument: msd2.i

Sample Info: 100ml #3018-601;CCV

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/14FEB19.b/2021406sim.d

Date : 14-FEB-2019 13:42

Client ID:

Instrument: msd2.i

Sample Info: 100ml #3018-601:CCV

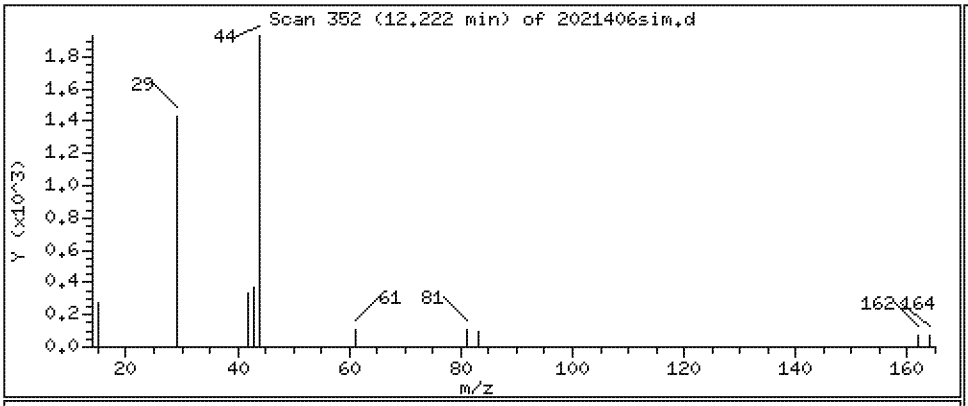
Operator: db

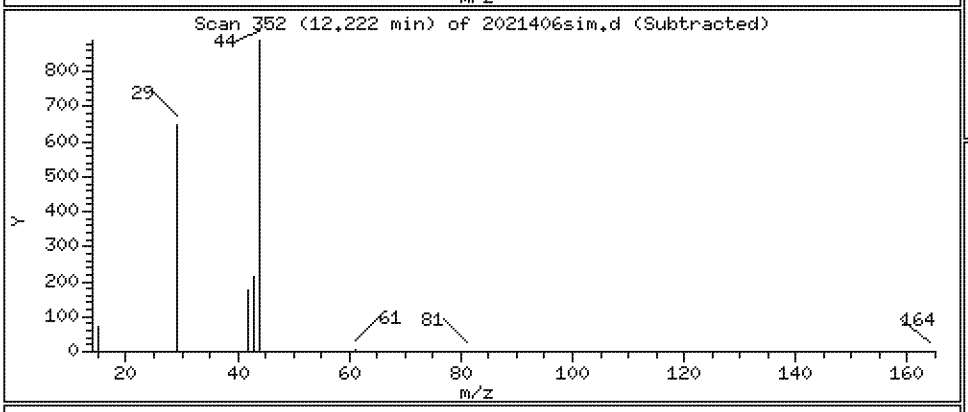
Column phase: RTX-624

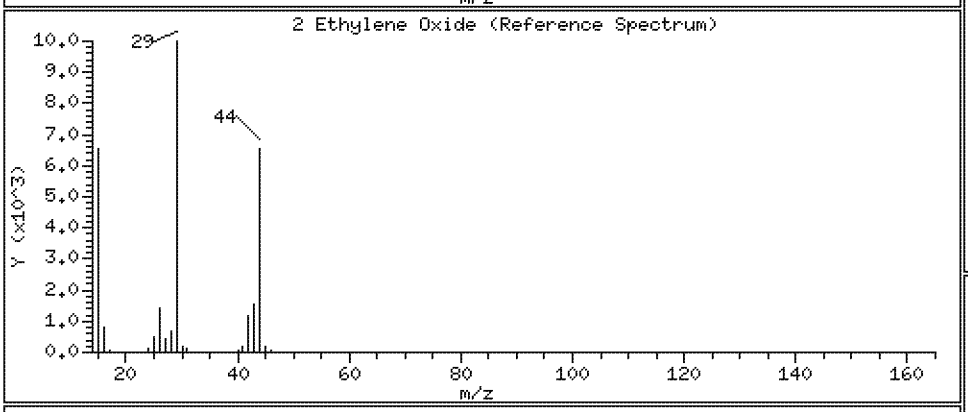
Column diameter: 0.32

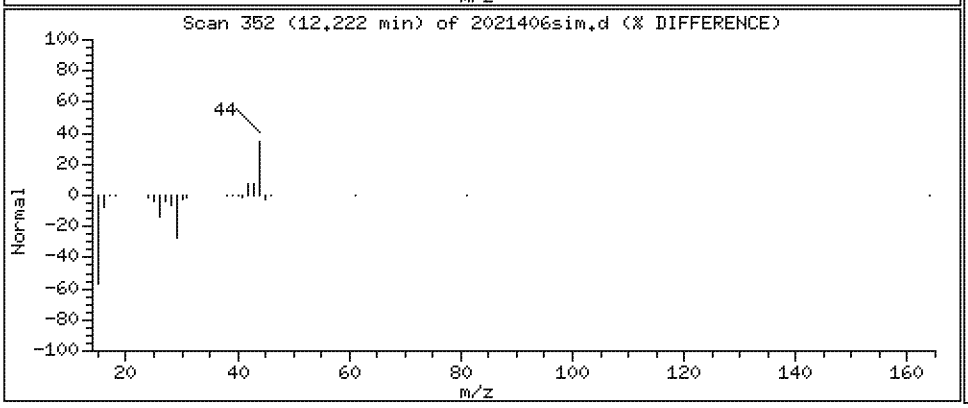
2 Ethylene Oxide

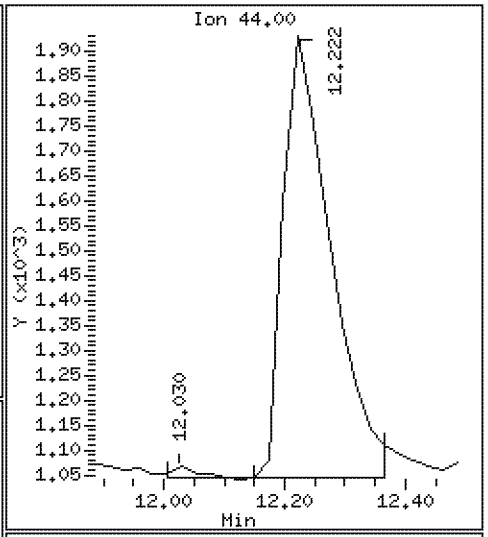
Concentration: 0.4397 PPBV

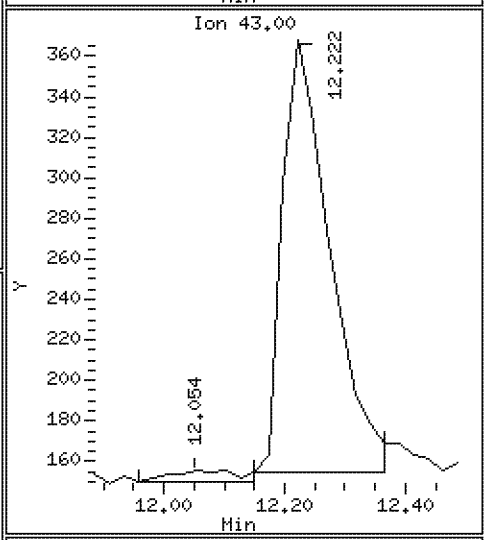


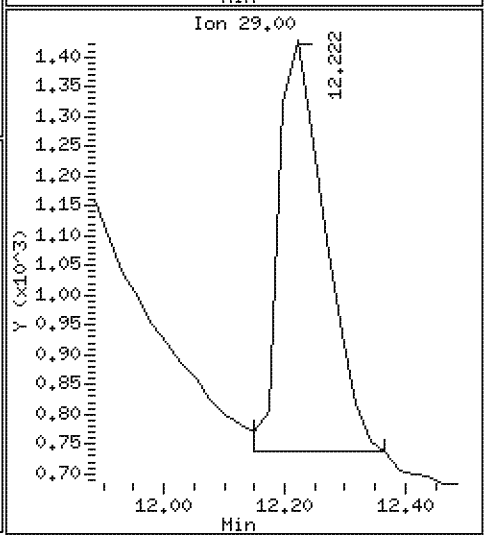












US32APPTV002

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: msd2.i Injection Date: 14-FEB-2019 11:33
Lab File ID: 2021404sima.d Init. Cal. Date(s): 13-FEB-2019 14-FEB-2019
Analysis Type: AIR Init. Cal. Times: 11:01 12:10
Lab Sample ID: CCV Quant Type: ISTD
Method: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m

COMPOUND	RRF / AMOUNT	RF0.500	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
9 2,5-Dimethylfuran	0.28312	0.29660	0.010	-4.76103	30.00000	Averaged
$ 10 Toluene-d8	0.76378	0.75445	0.010	1.22165	30.00000	Averaged

US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/14FEB19.b/2021404sima.d
Lab Smp Id: CCV
Inj Date : 14-FEB-2019 11:33
Operator : db Inst ID: msd2.i
Smp Info : 100ml #3045-195
Misc Info : 0.25ppbv(0.5ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 28-Feb-2019 07:28 udib Quant Type: ISTD
Cal Date : 14-FEB-2019 12:10 Cal File: 2021405sim.d
Als bottle: 5 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 25df.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	AMOUNTS CAL-AMT (PPBV)	AMOUNTS ON-COL (PPBV)	TARGET RANGE	RATIO
* 7 Fluorobenzene						CAS #: 462-06-6		
19.137	19.081	(1.000)	96	406443	6.00000		80.00- 120.00	100.00
19.119	19.068	(1.000)	70	76643			0.00- 49.55	18.86
9 2,5-Dimethylfuran						CAS #: 625-86-5		
19.592	19.454	(1.024)	96	5023	0.25000	0.2619	80.00- 120.00	100.00(T)
19.592	19.549	(1.024)	95	4502			61.88- 121.88	89.63
19.592	19.549	(1.024)	53	3065			70.24- 130.24	61.02
$ 10 Toluene-d8						CAS #: 2037-26-5		
20.331	20.223	(1.062)	98	306642	6.00000	5.927	80.00- 120.00	100.00(T)
20.312	20.279	(1.061)	70	39012			0.00- 45.38	12.72
20.331	20.298	(1.062)	100	193123			31.22- 91.22	62.98

QC Flag Legend

T - Target compound detected outside RT window.

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021404sima.d
Lab Smp Id: CCV
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 0.25ppbv(0.5ppbv)

Calibration Date: 14-FEB-2019
Calibration Time: 11:33

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
7 Fluorobenzene	406443	243866	569020	406443	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
7 Fluorobenzene	19.14	18.81	19.47	19.14	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/msd2.i/14FEB19.b/2021404sima.d

Date : 14-FEB-2019 11:33

Client ID:

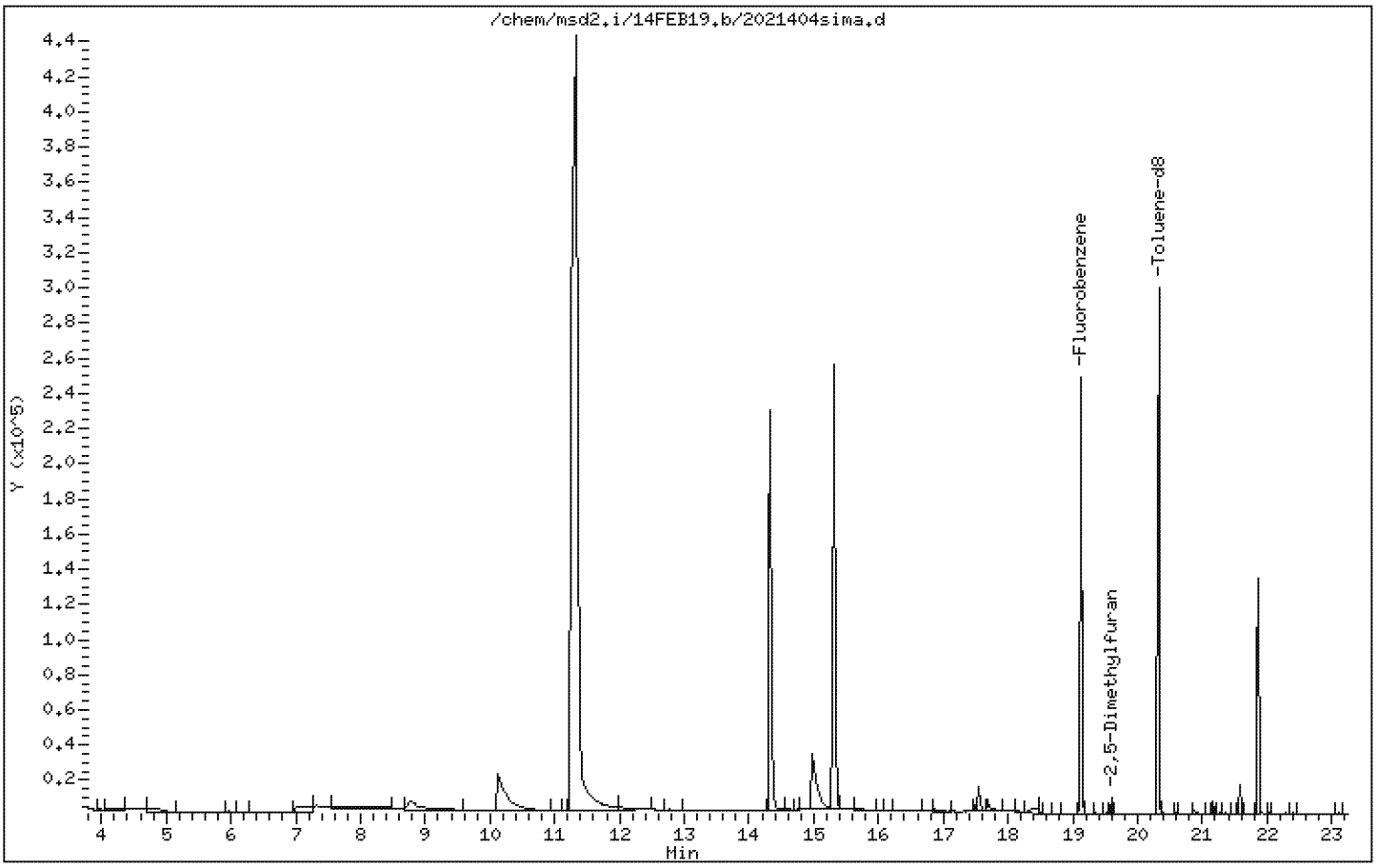
Instrument: msd2.i

Sample Info: 100ml #3045-195

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/14FEB19.b/2021404sima.d

Date : 14-FEB-2019 11:33

Client ID:

Instrument: msd2.i

Sample Info: 100ml #3045-195

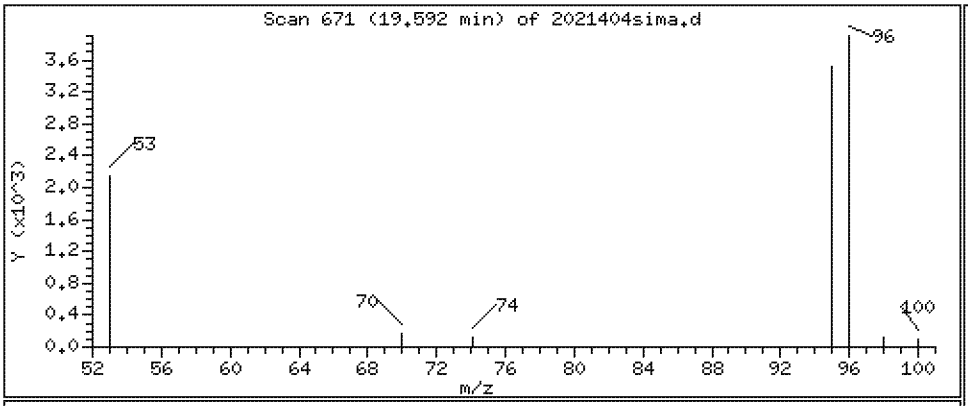
Operator: db

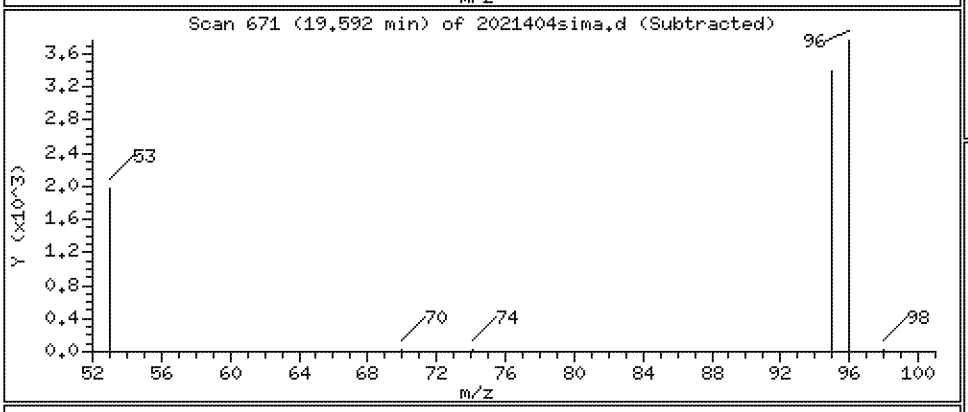
Column phase: RTX-624

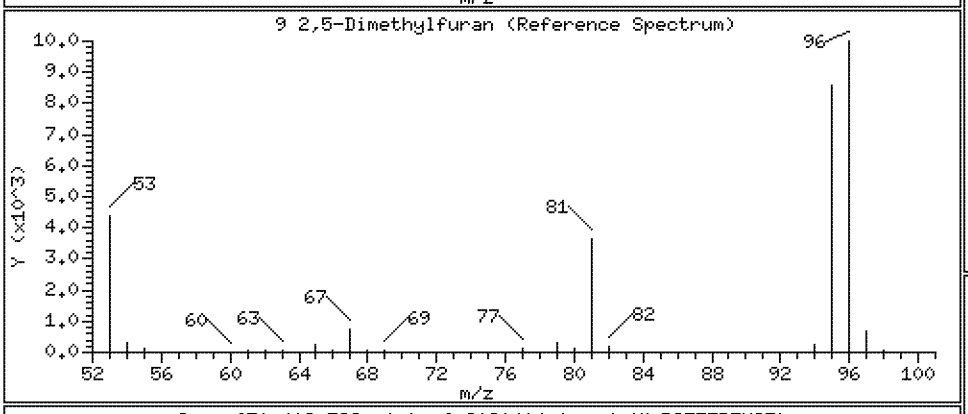
Column diameter: 0.32

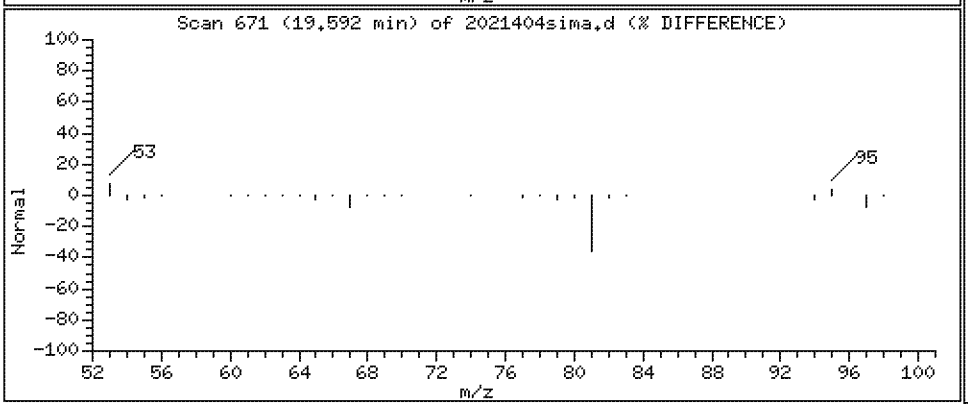
9 2,5-Dimethylfuran

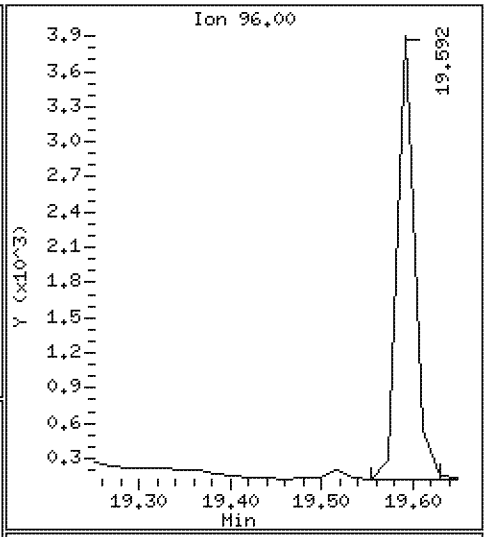
Concentration: 0.2619 PPBV

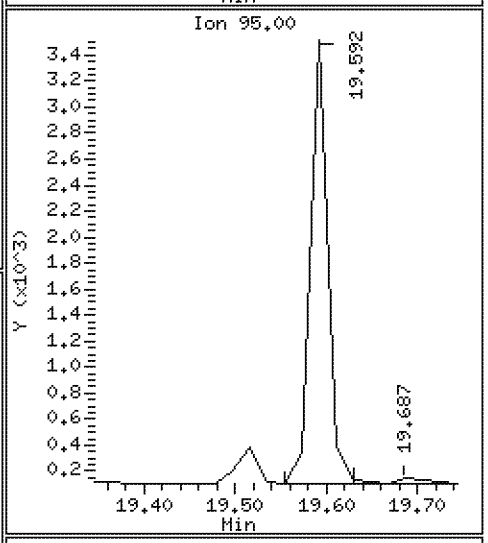


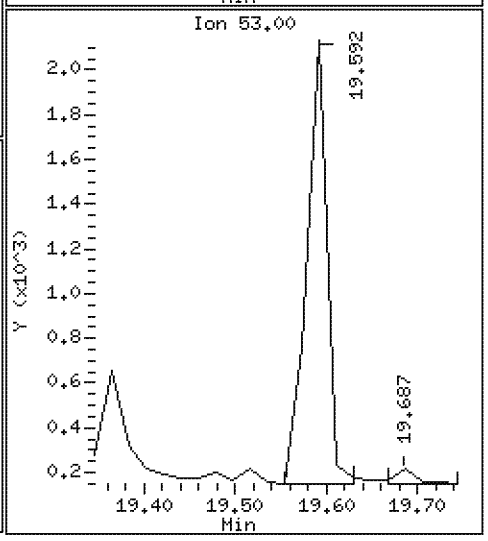












MODIFIED EPA METHOD TO-15 GC/MS SIM
SAL

eurofins | Air Toxics

Client ID:	LCS		
Lab ID:	1902183AR1-06A	**Date/Time Analyzed:**	2/14/19 02:19 PM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd2.i / 2021407sim

Compound	CAS#	%Recovery
2,5-Dimethylfuran	625-86-5	Not Spiked
Ethylene Oxide	75-21-8	96

D: Analyte not within the DoD scope of accreditation.

* % Recovery is calculated using unrounded analytical results.

Report Date: 15-Feb-2019 18:25

US32APPTV002

RECOVERY REPORT

Client Name: Client SDG: 14FEB19
Sample Matrix: GAS Fraction: VOA
Lab Smp Id: LCS
Level: LOW Operator: db
Data Type: MS DATA SampleType: LCS
SpikeList File: LCS.spk Quant Type: ISTD
Sublist File: eocrv.sub
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 1.0ppbv(1.0ppbv)

SPIKE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
2 Ethylene Oxide	1.000	0.9645	96.45

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
$ 3 2-Bromo-1,1,1-Trifluoroethane	6.000	5.979	99.65

US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/14FEB19.b/2021407sim.d
Lab Smp Id: LCS
Inj Date : 14-FEB-2019 14:19
Operator : db Inst ID: msd2.i
Smp Info : 200ml #3018-613;LCS
Misc Info : 1.0ppbv(1.0ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 15:33 udib Quant Type: ISTD
Cal Date : 14-FEB-2019 12:10 Cal File: 2021405sim.d
Als bottle: 4 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.174	12.174	(0.795)	44	10796	0.96453	0.9645	80.00- 120.00	100.00
12.174	12.174	(0.795)	43	2699			0.00- 55.01	25.00
12.174	12.174	(0.795)	29	8688			59.74- 119.74	80.47
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	203379	5.97909	5.979	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	209108			73.24- 133.24	102.82
14.335	14.335	(0.936)	83	163802			63.25- 123.25	80.54
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	292830	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	95887			3.63- 63.63	32.74
15.319	15.319	(1.000)	61	86671			3.78- 63.78	29.60
* 7 Fluorobenzene						CAS #: 462-06-6		
19.138	19.081	(1.000)	96	413285	6.00000		80.00- 120.00	100.00
19.119	19.081	(1.000)	70	76637			0.00- 49.55	18.54

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021407sim.d
Lab Smp Id: LCS
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 1.0ppbv(1.0ppbv)

Calibration Date: 14-FEB-2019
Calibration Time: 13:42

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	288480	173088	403872	292830	1.51
7 Fluorobenzene	415327	249196	581458	413285	-0.49

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.14	18.81	19.47	19.14	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/msd2.i/14FEB19.b/2021407sim.d

Date : 14-FEB-2019 14:19

Client ID:

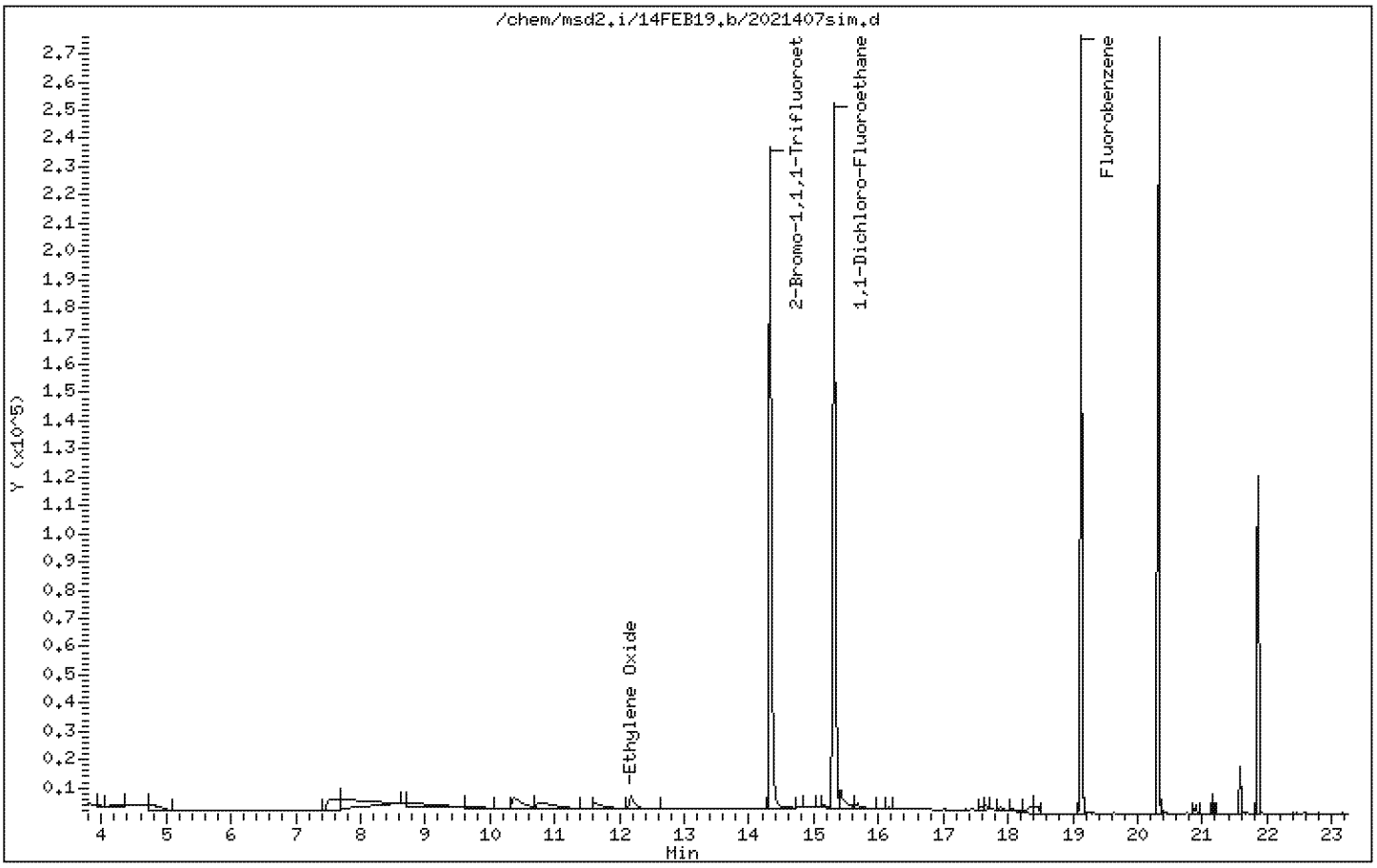
Instrument: msd2.i

Sample Info: 200ml #3018-613;LCS

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/14FEB19.b/2021407sim.d

Date : 14-FEB-2019 14:19

Client ID:

Instrument: msd2.i

Sample Info: 200ml #3018-613;LCS

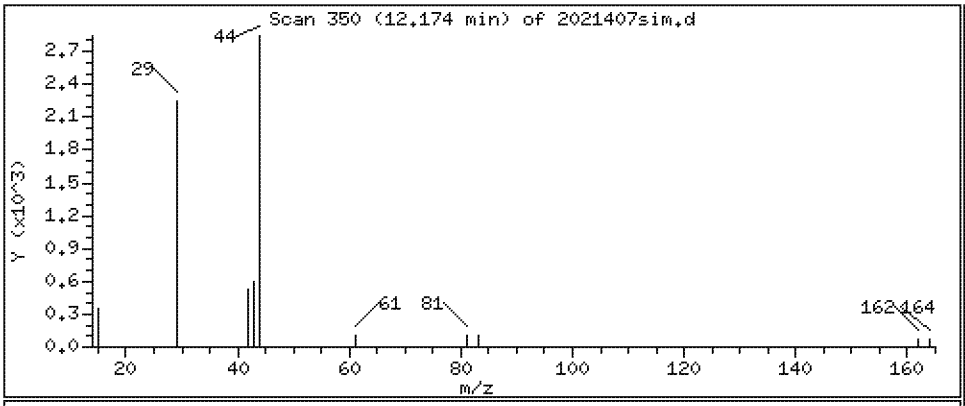
Operator: db

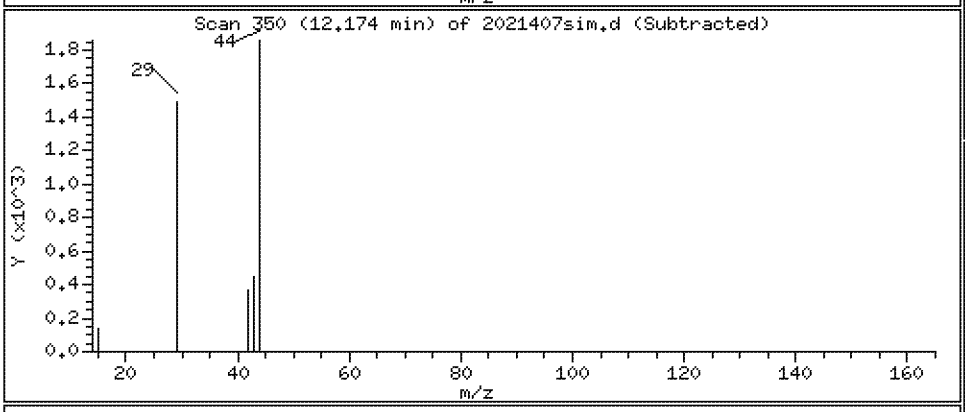
Column phase: RTX-624

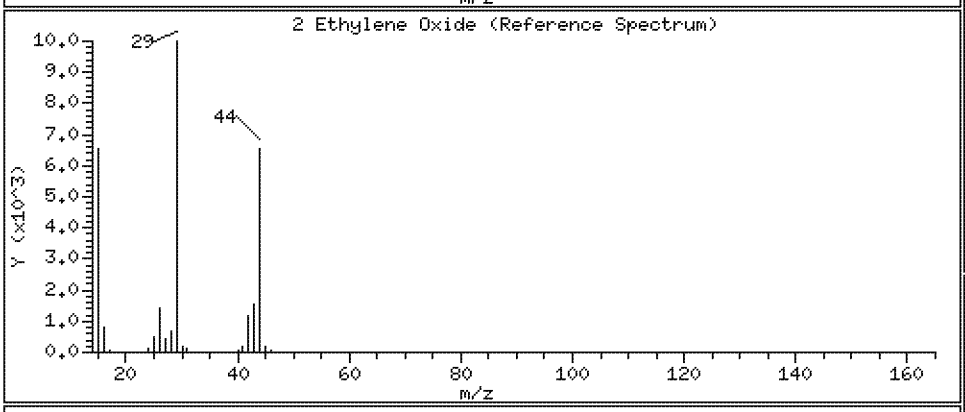
Column diameter: 0.32

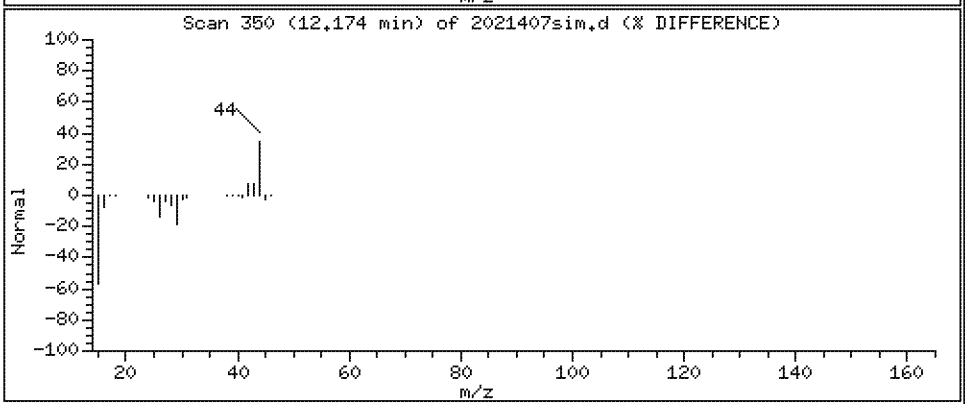
2 Ethylene Oxide

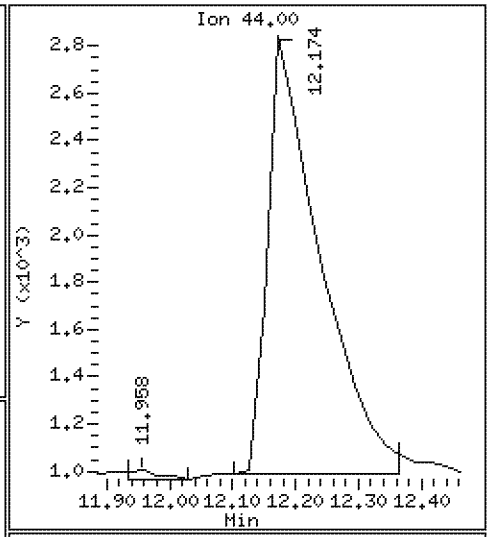
Concentration: 0.9645 PPBV

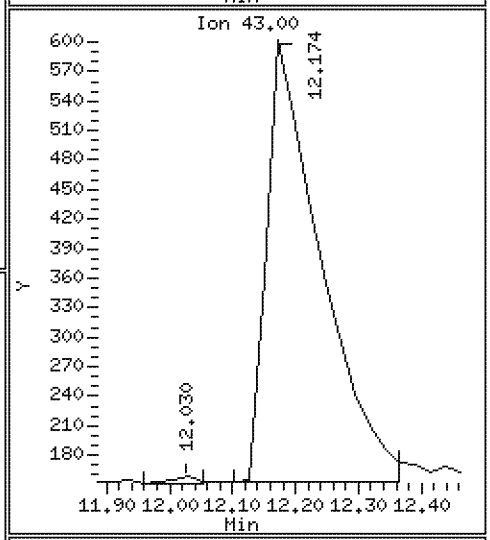


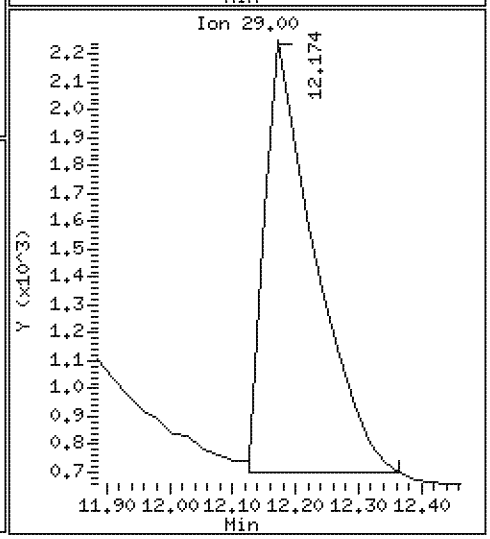












MODIFIED EPA METHOD TO-15 GC/MS SIM
SAL

eurofins | Air Toxics

Client ID:	LCSD		
Lab ID:	1902183AR1-06AA	**Date/Time Analyzed:**	2/14/19 02:56 PM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd2.i / 2021408sim

Compound	CAS#	%Recovery
2,5-Dimethylfuran	625-86-5	Not Spiked
Ethylene Oxide	75-21-8	99

D: Analyte not within the DoD scope of accreditation.

* % Recovery is calculated using unrounded analytical results.

US32APPTV002

RECOVERY REPORT

Client Name: Client SDG: 14FEB19
Sample Matrix: GAS Fraction: VOA
Lab Smp Id: LCSD
Level: LOW Operator: db
Data Type: MS DATA SampleType: LCS
SpikeList File: LCS.spk Quant Type: ISTD
Sublist File: eocrv.sub
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 1.0ppbv(1.0ppbv)

SPIKE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
2 Ethylene Oxide	1.000	0.9866	98.66

SURROGATE COMPOUND	CONC ADDED PPBV	CONC RECOVERED PPBV	% RECOVERED
$ 3 2-Bromo-1,1,1-Trifluoroethane	6.000	6.084	101.39

US32APPTV002

EPA TO-15/MODIFIED TO14A

Data file : /chem/msd2.i/14FEB19.b/2021408sim.d
Lab Smp Id: LCSD
Inj Date : 14-FEB-2019 14:56
Operator : db Inst ID: msd2.i
Smp Info : 200ml #3018-613;LCSD
Misc Info : 1.0ppbv(1.0ppbv)
Comment : SIM - GC/MS
Method : /chem/msd2.i/14FEB19.b/21910213eo.m/219s10213eo.m
Meth Date : 14-Feb-2019 15:33 udib Quant Type: ISTD
Cal Date : 14-FEB-2019 12:10 Cal File: 2021405sim.d
Als bottle: 4 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: eocrv.sub
Sample Matrix: AIR
Processing Host: us32apptv003

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

RT	EXP RT	(REL RT)	MASS	RESPONSE	CONCENTRATIONS ON-COL (PPBV)	FINAL (PPBV)	TARGET RANGE	RATIO
2 Ethylene Oxide						CAS #: 75-21-8		
12.174	12.174	(0.795)	44	10897	0.98662	0.9866	80.00- 120.00	100.00
12.174	12.174	(0.795)	43	2716			0.00- 55.01	24.92
12.174	12.174	(0.795)	29	8909			59.74- 119.74	81.76
$ 3 2-Bromo-1,1,1-Trifluoroethane						CAS #: 421-06-7		
14.335	14.335	(0.936)	164	204195	6.08369	6.084	80.00- 120.00	100.00
14.335	14.335	(0.936)	162	210839			73.24- 133.24	103.25
14.335	14.335	(0.936)	83	166530			63.25- 123.25	81.55
* 4 1,1-Dichloro-Fluoroethane						CAS #: 1717-00-6		
15.319	15.319	(1.000)	81	288950	6.00000		80.00- 120.00	100.00
15.319	15.319	(1.000)	83	94513			3.63- 63.63	32.71
15.319	15.319	(1.000)	61	85346			3.78- 63.78	29.54
* 7 Fluorobenzene						CAS #: 462-06-6		
18.967	19.081	(1.000)	96	384723	6.00000		80.00- 120.00	100.00(H)
18.967	19.081	(1.000)	70	70649			0.00- 49.55	18.36

QC Flag Legend

H - Operator selected an alternate compound hit.

US32APPTV002

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: msd2.i
Lab File ID: 2021408sim.d
Lab Smp Id: LCSD
Analysis Type: VOA
Quant Type: ISTD
Operator: db
Method File: /chem/msd2.i/14FEB19.b/219l0213eo.m/219s10213eo.m
Misc Info: 1.0ppbv(1.0ppbv)

Calibration Date: 14-FEB-2019
Calibration Time: 13:42

Level: LOW
Sample Type: AIR

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	288480	173088	403872	288950	0.16
7 Fluorobenzene	415327	249196	581458	384723	-7.37

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
4 1,1-Dichloro-Fluo	15.32	14.99	15.65	15.32	0.00
7 Fluorobenzene	19.14	18.81	19.47	18.97	-0.89

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/msd2.i/14FEB19.b/2021408sim.d

Date : 14-FEB-2019 14:56

Client ID:

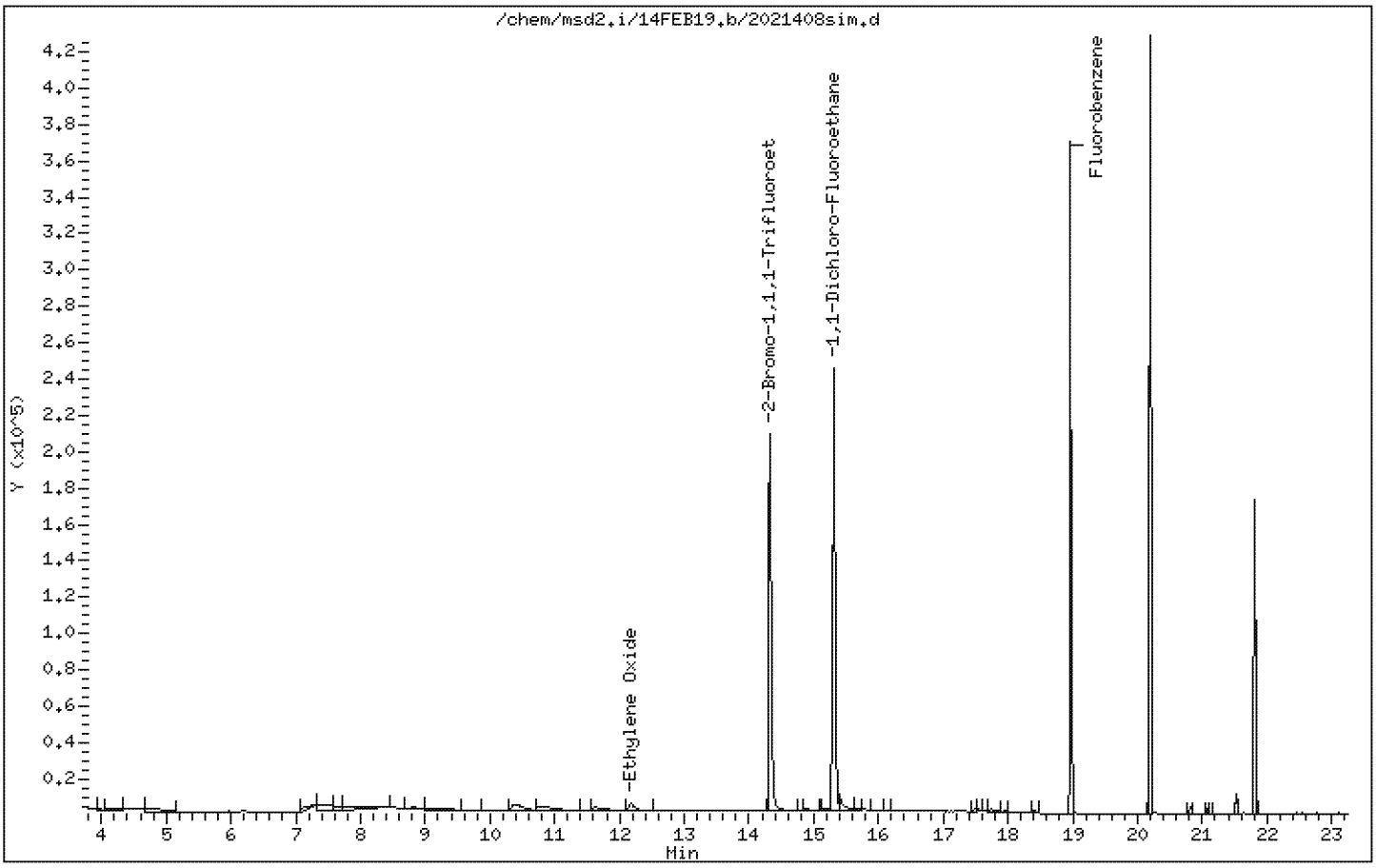
Instrument: msd2.i

Sample Info: 200ml #3018-613;LCSD

Operator: db

Column phase: RTX-624

Column diameter: 0.32



Data File: /chem/msd2.i/14FEB19.b/2021408sim.d

Date : 14-FEB-2019 14:56

Client ID:

Instrument: msd2.i

Sample Info: 200ml #3018-613;LCSD

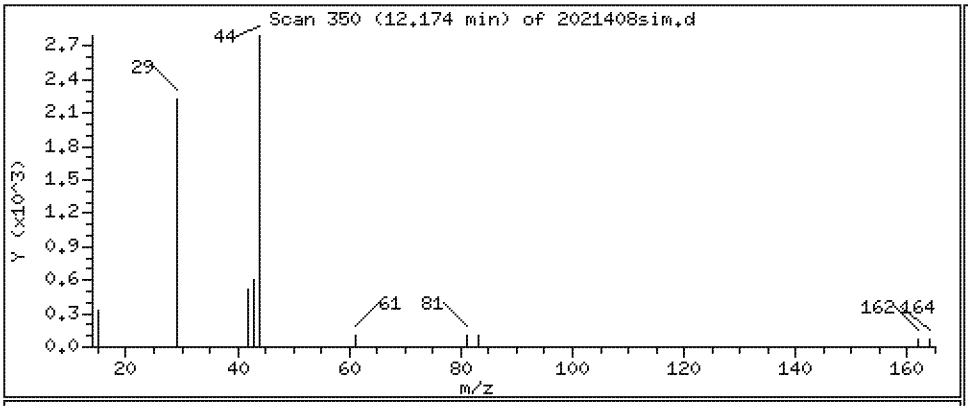
Operator: db

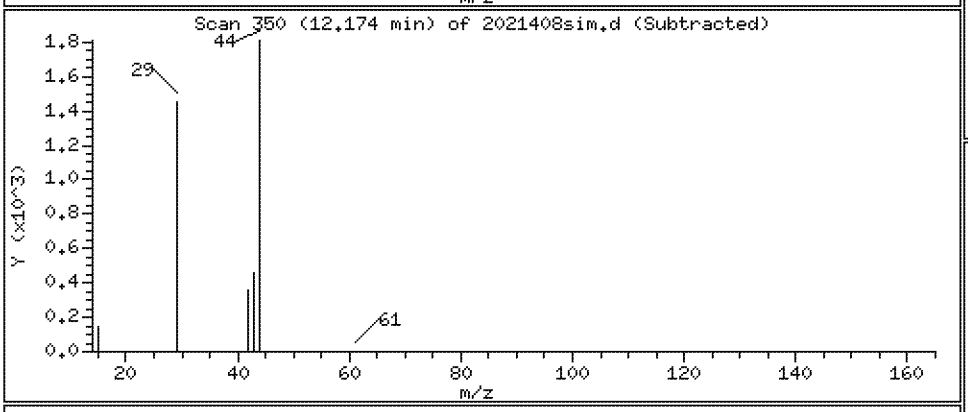
Column phase: RTX-624

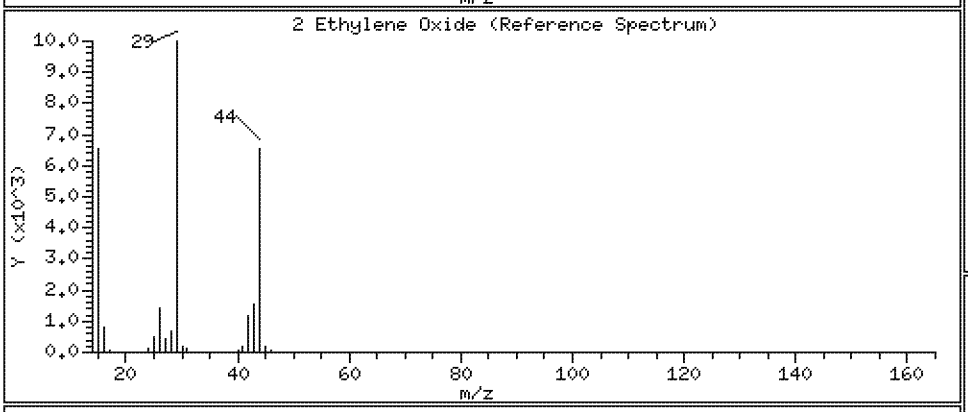
Column diameter: 0.32

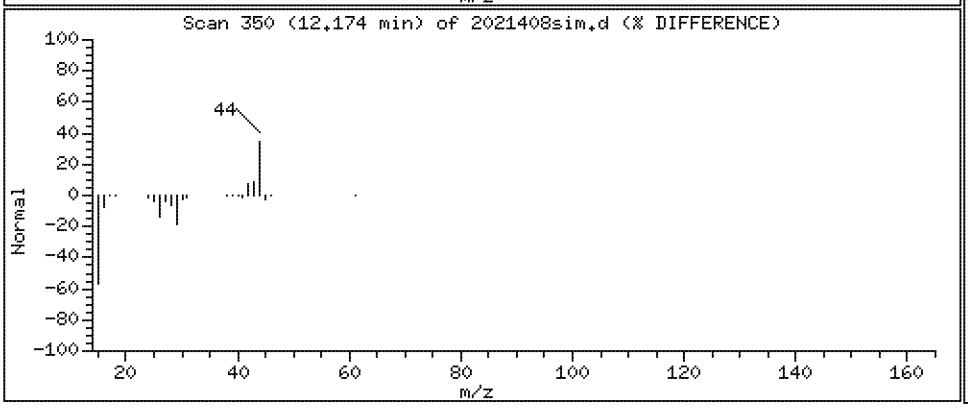
2 Ethylene Oxide

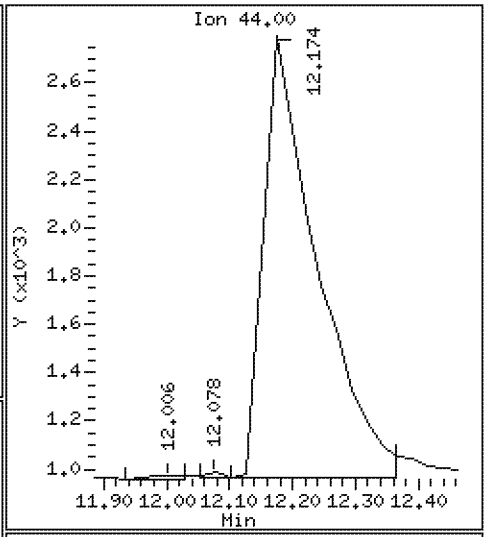
Concentration: 0.9866 PPBV

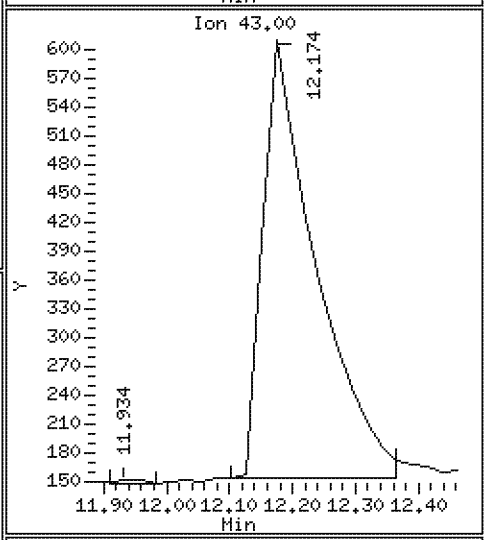


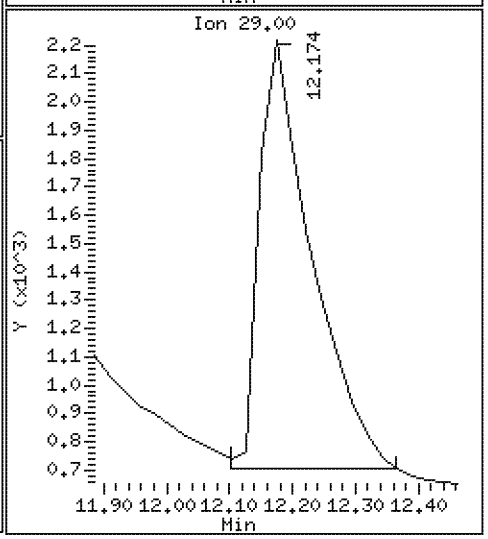












ED_002475_00000019-00117

MSD2

BFB verification of 176/174 ratio: (109,784/114,968)*100%=95.49%					Method TO-15/TO-14
					SOP# 132
IS/S Std.#:	2810-905	Exp. Date:		5/9/19	Vacuum: NA
1,1-Dichloro-Flouroethane: 288,480					Please check all standards
Fluorobenzene: 415,327					

Surrogate# 2810-905	Exp. Date:	5/9/19	Surrogate# NA	Exp. Date:	NA
CCV# 3018-601	Exp. Date:	3/1/19	LCS# 3	Exp. Date:	
CCV# NA	Exp. Date:	NA	LCS# NA	Exp. Date:	
CCV sp2# NA	Exp. Date:	NA	LCS sp2# NA	Exp. Date:	NA
CCV sp3# NA	Exp. Date:	NA	LCS sp3# NA	Exp. Date:	NA

Verified CCV vs ICAL mid-point(-40%): db

Method: 219l0213eo.m / 219s0213eo.m

Use	File #	Enter/Scan Sample IDs	Canister# or Std ID	Cart Pos.	Pressure	ml	DF	Verify Load	Loaded Init	Date Analyzed	Time Analyzed	Review Init	Comments
√	2021401	BFB	#2810-905	16	7.0ng	200ml	1.00	db	db	2/14/19	0937	db	exp. 05/09/19.
√	2021402	ICAL Level 5	#3045-195	5	0.05ppbv(0.5ppbv)	20ml	1.00	db	db	2/14/19	1020	db	exp. 2/16/19;
√	2021403	ICAL Level 6	#3045-195	5	0.1ppbv(0.5ppbv)	40ml	1.00	db	db	2/14/19	1058	db	
√	2021404	ICAL Level 7	#3045-195	5	0.25ppbv(0.5ppbv)	100ml	1.00	db	db	2/14/19	1133	db	
√	2021405	ICAL Level 8	#3045-195	5	0.5ppbv(0.5ppbv)	200ml	1.00	db	db	2/14/19	1210	db	
√	2021406	CCV	#3018-601	3	0.5 2-15-19 1.0ppbv(1.0ppbv)	100ml	1.00	db	db	2/14/19	1342	db	exp. 3/1/19
√	2021407	LCS	#3018-613	4	1.0ppbv(1.0ppbv)	200ml	1.00	db	db	2/14/19	1419	db	exp. 3/12/19
√	2021408	LCSD	#3018-613	4	1.0ppbv(1.0ppbv)	200ml	1.00	db	db	2/14/19	1456	db	
X	2021409	System Blank	5411	16	Humid	200ml	1.00	db	db	2/14/19	1549	db	
√	2021410	Lab Blank	5411	16	Humid	200ml	1.00	db	db	2/14/19	1626	db	
√	2021411	1902183-01A	O0334	6	8.5 Hg->5 psi	200ml	1.87	db	db	2/14/19	1703	db	
√	2021412	1902183-02A	O0114	7	14.0 Hg->5 psi	200ml	2.51	db	db	2/14/19	1739	db	
√	2021413	1902183-03A	N1772	9	11.0 Hg->5 psi	200ml	2.12	db	db	2/14/19	1816	db	
√	2021414	1902185-01A	N3478	10	8.5 Hg->5 psi	200ml	1.87	db	db	2/14/19	1853	db	
√	2021415	1902185-02A	O0385	11	1.5 Hg->5 psi	200ml	1.41	db	db	2/14/19	1930	db	
√	2021416	1902185-03A	N1744	12	4.5 Hg->5 psi	200ml	1.58	db	db	2/14/19	2007	db	
P	2021417	Manifold Cert	N2841	6	M012	200ml	1.00	db	db	2/15/19	0918	db	Zero Air

GA

2/15/19

US32APPTV002

Data file : /chem/msd2.i/13FEB19.b/2021301.d
Lab Smp Id: BFB Client Smp ID: BFB
Inj Date : 13-FEB-2019 09:35
Operator : db Inst ID: msd2.i
Smp Info : 200ml #2810-905;BFB;BFB
Misc Info : 14ng
Comment :
Method : /chem/msd2.i/13FEB19.b/bfbrtx1.m
Meth Date : 02-Nov-2018 10:50 ushn Quant Type: ESTD
Cal Date : Cal File:
Als bottle: 16 QC Sample: BFB
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: all.sub
Sample Matrix: AIR
Processing Host: us32apptv003

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

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

Cpnd Variable Local Compound Variable

RT	EXP RT	DLT RT	MASS	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	TARGET RANGE	RATIO
1 bfb						CAS #: 460-00-4		
21.821	21.821	0.000	95	105872			100.00- 100.00	100.00
21.821	29.232	-7.411	50	23723			8.00- 40.00	22.41
21.821	29.232	-7.411	75	47144			30.00- 66.00	44.53
21.821	29.232	-7.411	96	7051			5.00- 9.00	6.66
21.821	29.232	-7.411	173	1013			0.00- 1.99	0.97
21.821	29.232	-7.411	174	104417			50.00- 120.00	98.63
21.821	29.232	-7.411	175	7374			4.00- 9.00	7.06
21.821	29.232	-7.411	176	100343			93.00- 101.00	96.10
21.821	29.232	-7.411	177	6331			5.00- 9.00	6.31

Data File: /chem/msd2.i/13FEB19.b/2021301.d

Date : 13-FEB-2019 09:35

Client ID: BFB

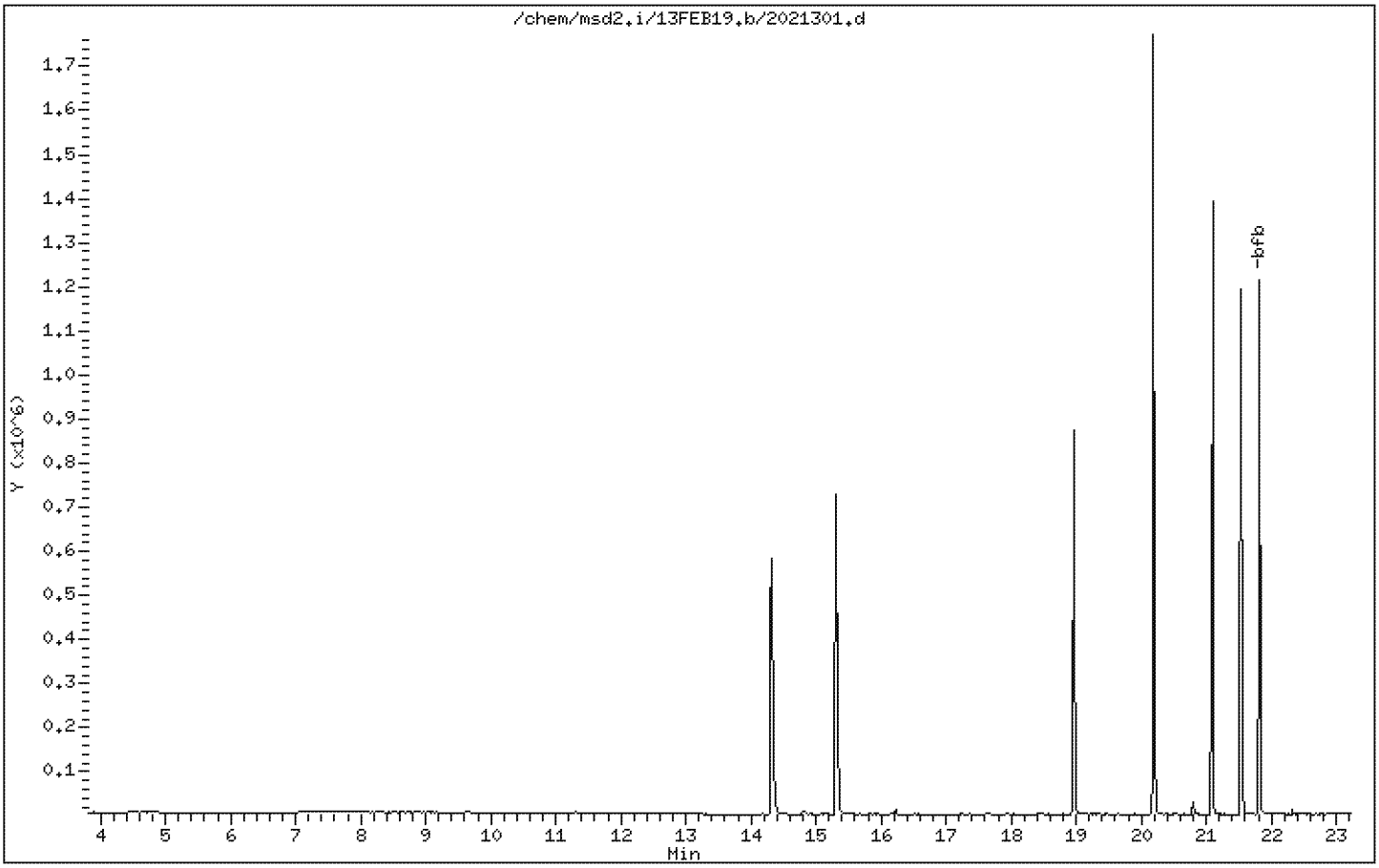
Instrument: msd2.i

Sample Info: 200ml #2810-905;BFB;BFB

Operator: db

Column phase:

Column diameter: 2.00



Data File: /chem/msd2.i/13FEB19.b/2021301.d

Date : 13-FEB-2019 09:35

Client ID: BFB

Instrument: msd2.i

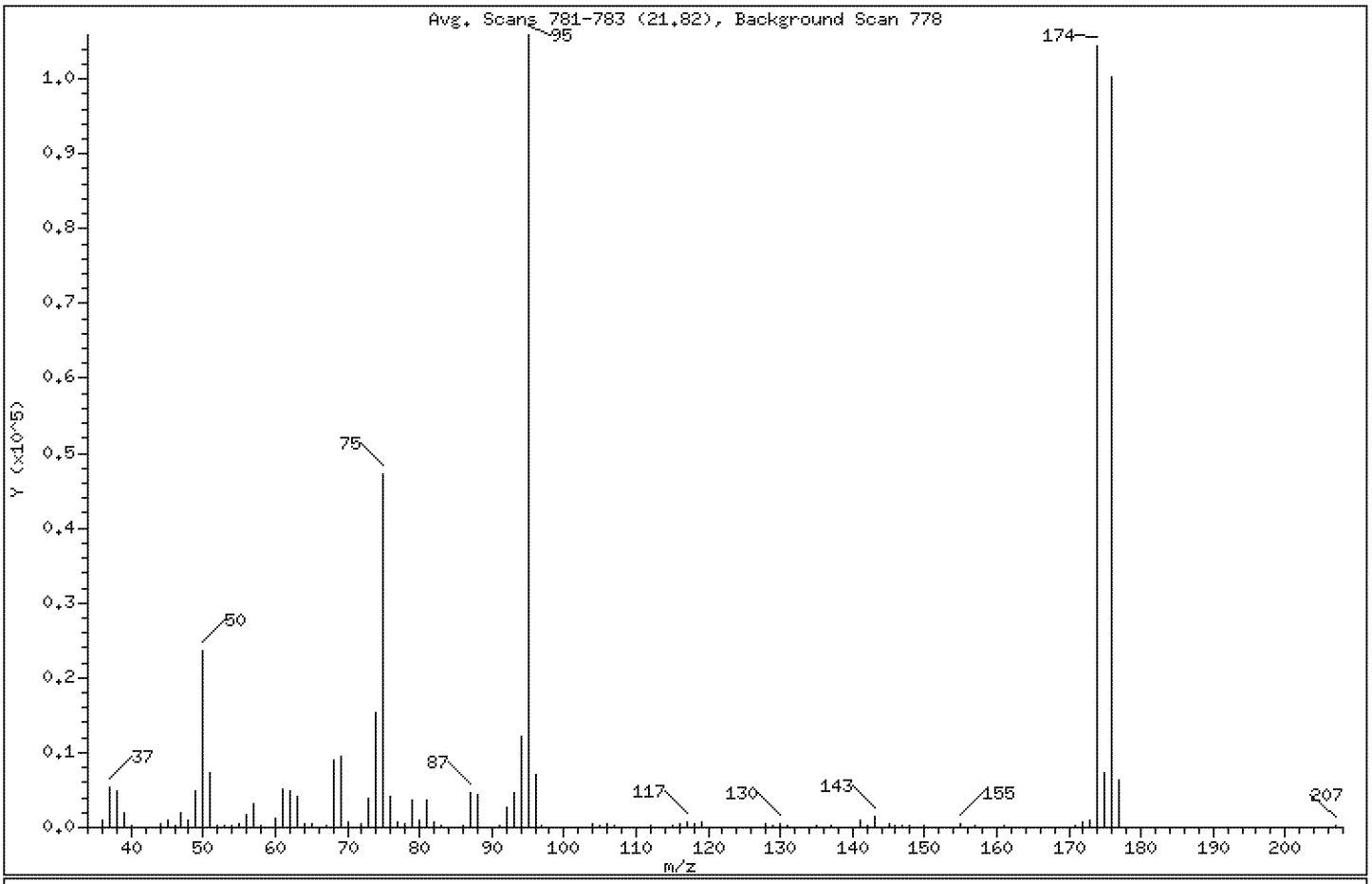
Sample Info: 200ml #2810-905;BFB;BFB

Operator: db

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	22.41
75	30.00 - 66.00% of mass 95	44.53
96	5.00 - 9.00% of mass 95	6.66
173	Less than 1.99% of mass 174	0.96 (0.97)
174	50.00 - 120.00% of mass 95	98.63
175	4.00 - 9.00% of mass 174	6.97 (7.06)
176	93.00 - 101.00% of mass 174	94.78 (96.10)
177	5.00 - 9.00% of mass 176	5.98 (6.31)

Data File: /chem/msd2.i/13FEB19.b/2021301.d

Date : 13-FEB-2019 09:35

Client ID: BFB

Instrument: msd2.i

Sample Info: 200ml #2810-905;BFB;BFB

Operator: db

Column phase:

Column diameter: 2.00

Data File: 2021301.d
Spectrum: Avg. Scans 781-783 (21.82), Background Scan 778
Location of Maximum: 95.00
Number of points: 104

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	52	65.00	471	96.00	7051	143.00	1549
36.00	888	66.00	119	97.00	278	145.00	422
37.00	5277	67.00	271	103.00	77	146.00	246
38.00	4913	68.00	9066	104.00	545	147.00	148
39.00	1998	69.00	9597	105.00	218	148.00	279
40.00	203	70.00	851	106.00	524	149.00	78
41.00	13	71.00	61	107.00	166	150.00	131
44.00	569	72.00	504	110.00	64	154.00	83
45.00	1068	73.00	3796	111.00	81	155.00	377
46.00	188	74.00	15308	112.00	137	156.00	52
47.00	1948	75.00	47144	113.00	100	157.00	281
48.00	865	76.00	4152	115.00	161	158.00	96
49.00	4872	77.00	657	116.00	463	159.00	104
50.00	23720	78.00	439	117.00	806	161.00	196
51.00	7298	79.00	3671	118.00	482	171.00	161
52.00	357	80.00	954	119.00	653	172.00	624
53.00	220	81.00	3713	126.00	50	173.00	1013
54.00	202	82.00	647	127.00	59	174.00	104416
55.00	376	83.00	125	128.00	433	175.00	7374
56.00	1777	86.00	153	129.00	285	176.00	100336
57.00	3109	87.00	4634	130.00	468	177.00	6331
58.00	176	88.00	4494	131.00	220	178.00	121
60.00	1124	91.00	364	135.00	243	207.00	127
61.00	5130	92.00	2769	137.00	224		
62.00	4925	93.00	4547	140.00	89		
63.00	4126	94.00	12210	141.00	1057		
64.00	593	95.00	105872	142.00	126		

US32APPTV002

Data file : /chem/msd2.i/14FEB19.b/2021401.d
Lab Smp Id: BFB Client Smp ID: BFB
Inj Date : 14-FEB-2019 09:37
Operator : db Inst ID: msd2.i
Smp Info : 200ml #2810-905;BFB
Misc Info : 14ng
Comment :
Method : /chem/msd2.i/14FEB19.b/bfbrtx1.m
Meth Date : 02-Nov-2018 10:50 ushn Quant Type: ESTD
Cal Date : Cal File:
Als bottle: 16 QC Sample: BFB
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: all.sub
Sample Matrix: AIR
Processing Host: us32apptv003

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

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

Cpnd Variable Local Compound Variable

RT	EXP RT	DLT RT	MASS	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	TARGET RANGE	RATIO
1 bfb						CAS #: 460-00-4		
21.821	21.821	0.000	95	116580			100.00- 100.00	100.00
21.821	29.232	-7.411	50	25376			8.00- 40.00	21.77
21.821	29.232	-7.411	75	51732			30.00- 66.00	44.37
21.821	29.232	-7.411	96	7900			5.00- 9.00	6.78
21.821	29.232	-7.411	173	1157			0.00- 1.99	1.01
21.821	29.232	-7.411	174	114969			50.00- 120.00	98.62
21.821	29.232	-7.411	175	8270			4.00- 9.00	7.19
21.821	29.232	-7.411	176	109788			93.00- 101.00	95.49
21.821	29.232	-7.411	177	6974			5.00- 9.00	6.35

Data File: /chem/msd2.i/14FEB19.b/2021401.d

Date : 14-FEB-2019 09:37

Client ID: BFB

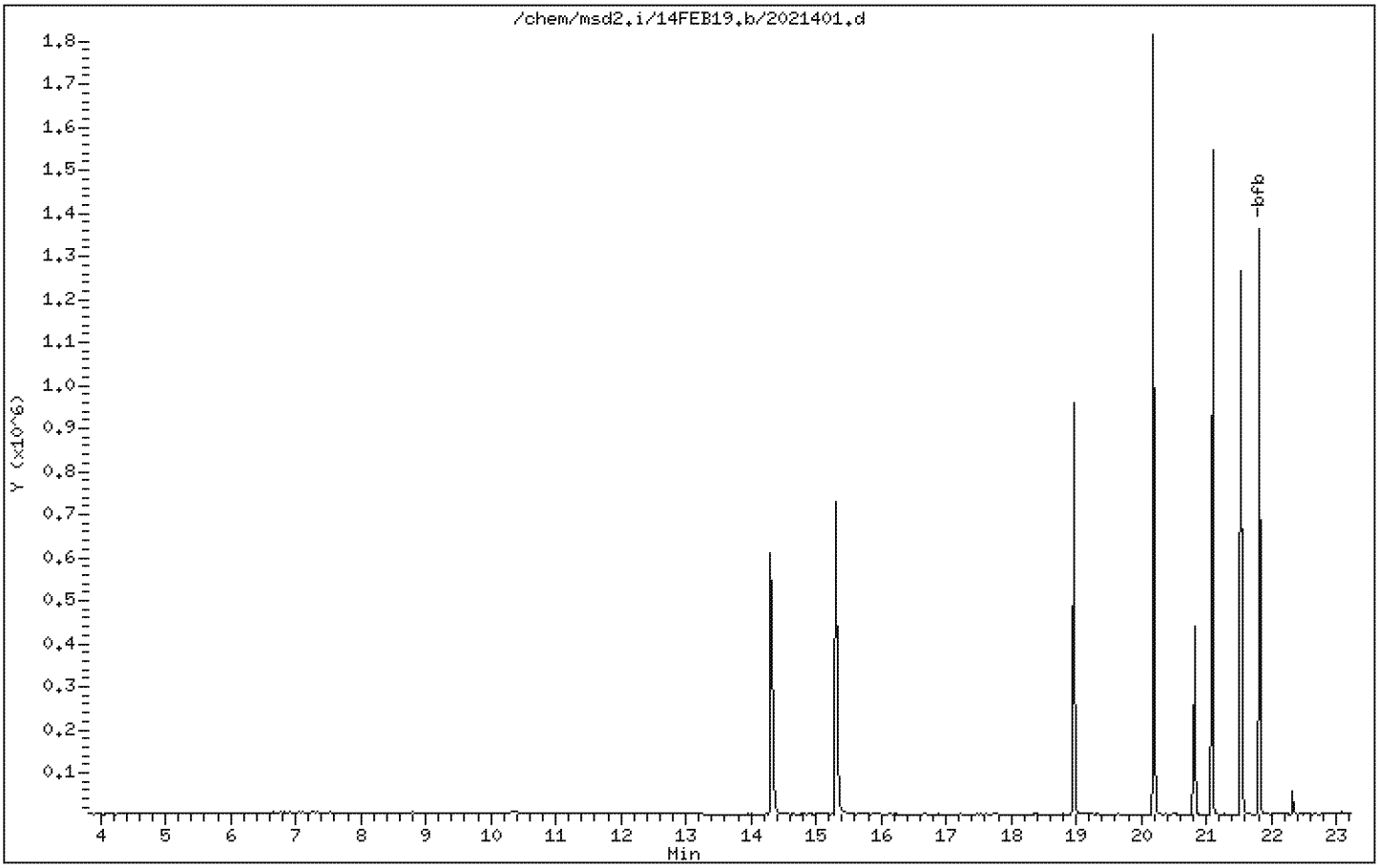
Instrument: msd2.i

Sample Info: 200ml #2810-905;BFB

Operator: db

Column phase:

Column diameter: 2.00



Data File: /chem/msd2.i/14FEB19.b/2021401.d

Date : 14-FEB-2019 09:37

Client ID: BFB

Instrument: msd2.i

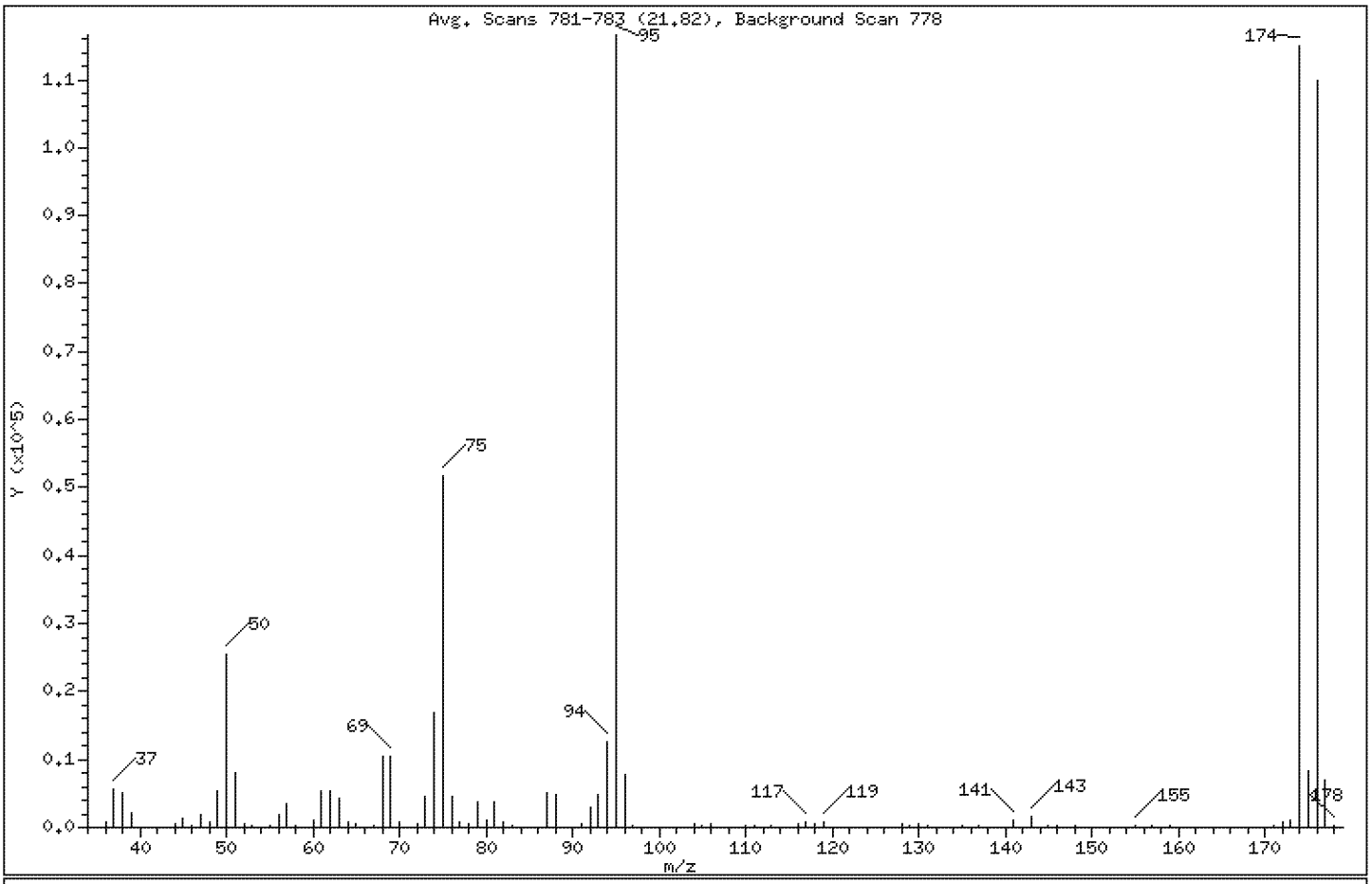
Sample Info: 200ml #2810-905;BFB

Operator: db

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	21.77
75	30.00 - 66.00% of mass 95	44.37
96	5.00 - 9.00% of mass 95	6.78
173	Less than 1.99% of mass 174	0.99 (1.01)
174	50.00 - 120.00% of mass 95	98.62
175	4.00 - 9.00% of mass 174	7.09 (7.19)
176	93.00 - 101.00% of mass 174	94.17 (95.49)
177	5.00 - 9.00% of mass 176	5.98 (6.35)

Data File: /chem/msd2.i/14FEB19.b/2021401.d

Date : 14-FEB-2019 09:37

Client ID: BFB

Instrument: msd2.i

Sample Info: 200ml #2810-905;BFB

Operator: db

Column phase:

Column diameter: 2.00

Data File: 2021401.d
Spectrum: Avg. Scans 781-783 (21.82), Background Scan 778
Location of Maximum: 95.00
Number of points: 105

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	59	65.00	585	96.00	7900	142.00	126
36.00	749	66.00	62	97.00	198	143.00	1650
37.00	5527	67.00	306	103.00	57	144.00	86
38.00	5196	68.00	10403	104.00	585	145.00	394
39.00	2176	69.00	10437	105.00	183	146.00	253
40.00	123	70.00	814	106.00	533	147.00	88
41.00	39	72.00	577	107.00	79	148.00	345
43.00	75	73.00	4631	110.00	150	149.00	83
44.00	540	74.00	16944	111.00	159	150.00	132
45.00	1232	75.00	51728	112.00	89	153.00	86
46.00	179	76.00	4524	113.00	155	154.00	70
47.00	1998	77.00	828	115.00	110	155.00	362
48.00	776	78.00	490	116.00	485	156.00	83
49.00	5283	79.00	3836	117.00	899	157.00	306
50.00	25376	80.00	984	118.00	443	159.00	154
51.00	8083	81.00	3868	119.00	694	161.00	112
52.00	448	82.00	907	123.00	50	171.00	167
53.00	268	83.00	167	124.00	80	172.00	695
55.00	321	86.00	120	126.00	76	173.00	1157
56.00	1832	87.00	5200	128.00	516	174.00	114968
57.00	3395	88.00	4769	129.00	221	175.00	8270
58.00	199	90.00	54	130.00	518	176.00	109784
60.00	1064	91.00	437	131.00	266	177.00	6974
61.00	5331	92.00	3065	135.00	213	178.00	258
62.00	5364	93.00	4752	137.00	203		
63.00	4317	94.00	12713	140.00	106		
64.00	685	95.00	116576	141.00	1202		

Shipping/ Receiving Documents

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Eurofins Air Toxics, Inc. Sample Receipt Confirmation Cover Page

Thank you for choosing Eurofins Air Toxics, Inc. (EATL). 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 accuracy.

For corrections call: **Air Toxics, Ltd. at 916-985-1000**

EATL will proceed with the analysis as specified on the Chain of Custody (COC) 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 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

eurofins | Air Toxics

Analysis Request /Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 1902183

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Client: Ramboll
Project Name: SAL
Project Manager: Robert DeMott Project # 1690000629
Sampler: C. Borczkiewicz
Site Name:

Special Instructions/Notes:

Turnaround Time (Rush surcharges may apply)
Standard _____ Rush ✓ _____(specify)

Lab ID	Field Sample Identification(Location)	Can #	Flow Controller #	Start Sampling Information Date	Start Sampling Information Time	Stop Sampling Information Date	Stop Sampling Information Time	Canister Vacuum/Pressure Initial (in Hg)	Canister Vacuum/Pressure Final (in Hg)	Lab Use Only Receipt	Lab Use Only Final (psig) Gas: N_2 / He	Requested Analyses Ethylene Oxide	Requested Analyses 2,5 Dimethylfuran		
01A	PD-D-020819	6L0675	23508	2/8/19	1613	2/8/19	2205	28	13.5			✓	✓		
02A	DUP-D-020819	6L1456	23487	2/8/19	1615	2/8/19	2208	29	15.5			✓	✓		
03A	WH-D-020819	6L1008	23446	2/8/19	1620	2/8/19	2150	30	15.0			✓	✓		

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Cynthia Borczkiewicz Fed Ex	2/9/19		EATL	2/11/19	0920
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

Shipper Name: Fed Ex | Custody Seals Intact? | Yes | No | None | Good

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

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

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

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 Listing

Modified TO-15 SIM (Sp)-Ethylene Oxide & 2,5-Dimethylfuran

CAS Number	Compound	Detection Limit ppbv	Type
75-21-8	Ethylene Oxide	0.050	
625-86-5	2,5-Dimethylfuran	0.050	

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

Media Certification Report

Canister Number: 200ml O0334
Can#: 123505-0334
Date : 02/05/19 7:04
Data File: 2020418sim.d

Name	CAS	Conc.	Units
Ethylene Oxide	75-21-8	ND	ppbv

All canisters have been certified according to the project-specific requirements and/or Standard Operating Procedures.

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Media Certification Report

Canister Number: 200ml O0114
Can#: 123505-0114
Date : 02/04/19 19:43
Data File: 2020411sim.d

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

Name	CAS	Conc.	Units
Ethylene Oxide	75-21-8	ND	ppbv

All canisters have been certified according to the project-specific requirements and/or Standard Operating Procedures.

eurofins | Air Toxics

Media Certification Report

Canister Number: 200ml N1772
Can#: 123505-1772
Date : 02/04/19 22:11
Data File: 2020415sim.d

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

Name	CAS	Conc.	Units
Ethylene Oxide	75-21-8	ND	ppbv

All canisters have been certified according to the project-specific requirements and/or Standard Operating Procedures.

Eurofins Air Toxics	Data Review Checklist			Release Date: 10/12/18
Workorder # 1902183A	Form F1.27	Revision #16	Revision Date: 10/12/18	Page 1 of 2

S1	S2	S3	S4	D	Section 1 – Spec Out				
					Initials/Instrument/Date	S1: DB MSD-2/2/14/19	S2:	S3:	S4:
✓					Project Identification (PID), Project Requirements Table (PRT), Daily QC and ICAL met Criteria				
					Lumen QC and ICAL evaluation (ref. SOP/Method) report initialed and in folder				
NA					Manual Integrations included and approved				
✓				✓	Chain of Custody verified for special comments/notes and analyses requested (add comments below)				
NA					Non-standard Target sublist verified (MDL, LOD, RL, control limits, etc.)				
✓					Verified standard expiration dates				

Profile, analyses, reporting, special notes and unusual circumstances:

A1	A2	A3	A4	D	Section 2 – Sample Analysis				
					Initials/Date DB 2/15/19	A1:	A2:	A3:	A4:
✓				✓	IS/Surr Recoveries, Dilution Factors, Load Volumes, leg(s) of instrument, Initial/Final Pressures, Canister #s Verified and dilution ranges are met per SOP (ex. Over-ranged/overdiluted)				
NA				NA	a) Tedlar Bag IDs verified against COC b) Tedlar Bag ID confirmed with loading sequence/leg(s) of instrument				
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				
✓ NA				NA	Re-analysis of sample(s) has been evaluated for comparability and/or sample(s) has/have been checked for trends (Inf/Eff), field dups/trip blanks, samples following bad loads on CIAAs have been verified (system blks, confirmation runs).				
✓				✓	All runs have been evaluated for potential carry-over (TPHg/non-Target/over-range compounds/ etc.)				

Analytical and special notes:

D1	D2	D3	D4	T	3T	Section 3 – Target Data Reduction	Technical Review Needed? Circle one: Yes/No		T: JDT 2-15-19	
						Initials/Instrument/Date	D1: DB 2/15/19	D2:	D3:	D4:
NA				NA		CAR # (if applicable)				
✓				✓		Spectra Verified (documentation of spectral defense included if applicable)				
NA				NA		TICs resemble reference spectra/ TICs between sample dups. are consistent (if applicable)				
✓				✓		Lab Narrative is correct				
NA				NA		TPH/NMOC calculations complete and included in folder				

Special notes: (1) -01A: Ratio for Mass 29 off; however, area integrated includes sub baseline. Manual integration of monitoring ion 29 not performed. JDT 2-15-19
-02A: Noisy baseline & RT shift; near MDL value. JDT 2-15-19

A	3T	Section 4- Atlas Data Entry	Lumen verified and included in folder	Circle one: Yes/No
		Initials/Date: JDT 2-15-19	3rd Tier: (needed only for DOD or per client request)	
NA		Sample Discrepancy Report (SDR) complete and approved (if applicable)		
✓		Manually entered results are checked		
✓		At least one result per sample is verified against Target quant sheets		
✓		Appropriate data qualifier flags are applied		
✓		Final Invoice is correct/ Final PDF report, COC and EDD reviewed and correct		

Special Notes: Peak match ion ratio & RRT window → positive hit.

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

Eurofins Air Toxics	Data Review Checklist			Release Date: 10/12/18
Reissued 2-20-19	Form F1.27	Revision #16	Revision Date: 10/12/18	Page 2 of 2

Workorder # :	Reason for Reissue: Use MDL template to display MDL value on final report.
1902183AR1	

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)
NA				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)
2-20-19			

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