

5/10/2018

Mr. Curt Lueckenhoff
Missouri Dept. of Natural Resources
2710 West Main

Jefferson City MO 65109

Project Name: Bridgeton Landfill

Project #:

Workorder #: 1804621

Dear Mr. Curt Lueckenhoff

The following report includes the data for the above referenced project for sample(s) received on 4/30/2018 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Brian Whittaker

Project Manager

WORK ORDER #: 1804621

Work Order Summary

CLIENT:	Mr. Curt Lueckenhoff Missouri Dept. of Natural Resources 2710 West Main Jefferson City, MO 65109	BILL TO:	Accounts Payable Missouri Dept. of Natural Resources P.O Box 176 Jefferson City, MO 65102
PHONE:	573-526-3363	P.O. #	180323-CFL-B
FAX:	573-526-3350	PROJECT #	Bridgeton Landfill
DATE RECEIVED:	04/30/2018	CONTACT:	Brian Whittaker
DATE COMPLETED:	05/10/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	D1 (181384)	Modified TO-15	4.9 "Hg	5.1 psi
02A	U1 (181385)	Modified TO-15	6.1 "Hg	4.9 psi
03A	Lab Blank	Modified TO-15	NA	NA
04A	CCV	Modified TO-15	NA	NA
05A	LCS	Modified TO-15	NA	NA
05AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:



Technical Director

DATE: 05/10/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.

Eurofins Air Toxics Inc., certifies that the test results contained in this report meet all requirements of the NELAC standards

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LABORATORY NARRATIVE
Modified TO-15
Missouri Dept. of Natural Resources
Workorder# 1804621

Two 6 Liter Summa Canister (100% Certified) samples were received on April 30, 2018. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

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

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

Requirement	TO-15	ATL Modifications
Initial Calibration	$\leq 30\%$ RSD with 2 compounds allowed out to $< 40\%$ RSD	$\leq 30\%$ RSD with 4 compounds allowed out to $< 40\%$ RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

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

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

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

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

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

N - The identification is based on presumptive evidence.

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

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: D1 (181384)

Lab ID#: 1804621-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.16	0.20	0.90	1.2
Ethanol	0.80	4.0	1.5	7.4
Acetone	0.80	6.1	1.9	14
2-Butanone (Methyl Ethyl Ketone)	0.80	1.1	2.4	3.1

Client Sample ID: U1 (181385)

Lab ID#: 1804621-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.17	0.22	0.94	1.2
Ethanol	0.84	2.8	1.6	5.4
Acetone	0.84	5.8	2.0	14
2-Propanol	0.84	2.0	2.1	4.9
Methylene Chloride	0.34	1.6	1.2	5.4
Hexane	0.17	0.17	0.59	0.61
Cyclohexane	0.17	0.29	0.58	0.99
Toluene	0.17	1.6	0.63	6.2



Air Toxics

Client Sample ID: D1 (181384)

Lab ID#: 1804621-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name: v050219

Date of Collection: 4/25/18 1:05:00 PM

Dil. Factor: 1.61

Date of Analysis: 5/2/18 08:27 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.80	Not Detected	4.0	Not Detected
Freon 114	0.16	Not Detected	1.1	Not Detected
Chloromethane	0.80	Not Detected	1.7	Not Detected
Vinyl Chloride	0.16	Not Detected	0.41	Not Detected
1,3-Butadiene	0.16	Not Detected	0.36	Not Detected
Bromomethane	0.80	Not Detected	3.1	Not Detected
Chloroethane	0.80	Not Detected	2.1	Not Detected
Freon 11	0.16	0.20	0.90	1.2
Ethanol	0.80	4.0	1.5	7.4
Freon 113	0.16	Not Detected	1.2	Not Detected
1,1-Dichloroethene	0.16	Not Detected	0.64	Not Detected
Acetone	0.80	6.1	1.9	14
2-Propanol	0.80	Not Detected	2.0	Not Detected
Carbon Disulfide	0.80	Not Detected	2.5	Not Detected
3-Chloropropene	0.80	Not Detected	2.5	Not Detected
Methylene Chloride	0.32	Not Detected	1.1	Not Detected
Methyl tert-butyl ether	0.16	Not Detected	0.58	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.64	Not Detected
Hexane	0.16	Not Detected	0.57	Not Detected
1,1-Dichloroethane	0.16	Not Detected	0.65	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.80	1.1	2.4	3.1
cis-1,2-Dichloroethene	0.16	Not Detected	0.64	Not Detected
Tetrahydrofuran	0.80	Not Detected	2.4	Not Detected
Chloroform	0.16	Not Detected	0.79	Not Detected
1,1,1-Trichloroethane	0.16	Not Detected	0.88	Not Detected
Cyclohexane	0.16	Not Detected	0.55	Not Detected
Carbon Tetrachloride	0.16	Not Detected	1.0	Not Detected
2,2,4-Trimethylpentane	0.80	Not Detected	3.8	Not Detected
Benzene	0.16	Not Detected	0.51	Not Detected
1,2-Dichloroethane	0.16	Not Detected	0.65	Not Detected
Heptane	0.16	Not Detected	0.66	Not Detected
Trichloroethene	0.16	Not Detected	0.86	Not Detected
1,2-Dichloropropane	0.16	Not Detected	0.74	Not Detected
1,4-Dioxane	0.16	Not Detected	0.58	Not Detected
Bromodichloromethane	0.16	Not Detected	1.1	Not Detected
cis-1,3-Dichloropropene	0.16	Not Detected	0.73	Not Detected
4-Methyl-2-pentanone	0.16	Not Detected	0.66	Not Detected
Toluene	0.16	Not Detected	0.61	Not Detected
trans-1,3-Dichloropropene	0.16	Not Detected	0.73	Not Detected
1,1,2-Trichloroethane	0.16	Not Detected	0.88	Not Detected
Tetrachloroethene	0.16	Not Detected	1.1	Not Detected
2-Hexanone	0.80	Not Detected	3.3	Not Detected



Air Toxics

Client Sample ID: D1 (181384)

Lab ID#: 1804621-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v050219	Date of Collection:	4/25/18 1:05:00 PM
Dil. Factor:	1.61	Date of Analysis:	5/2/18 08:27 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.16	Not Detected	1.4	Not Detected
1,2-Dibromoethane (EDB)	0.16	Not Detected	1.2	Not Detected
Chlorobenzene	0.16	Not Detected	0.74	Not Detected
Ethyl Benzene	0.16	Not Detected	0.70	Not Detected
m,p-Xylene	0.16	Not Detected	0.70	Not Detected
o-Xylene	0.16	Not Detected	0.70	Not Detected
Styrene	0.16	Not Detected	0.68	Not Detected
Bromoform	0.16	Not Detected	1.7	Not Detected
Cumene	0.16	Not Detected	0.79	Not Detected
1,1,2,2-Tetrachloroethane	0.16	Not Detected	1.1	Not Detected
Propylbenzene	0.16	Not Detected	0.79	Not Detected
4-Ethyltoluene	0.16	Not Detected	0.79	Not Detected
1,3,5-Trimethylbenzene	0.16	Not Detected	0.79	Not Detected
1,2,4-Trimethylbenzene	0.16	Not Detected	0.79	Not Detected
1,3-Dichlorobenzene	0.16	Not Detected	0.97	Not Detected
1,4-Dichlorobenzene	0.16	Not Detected	0.97	Not Detected
alpha-Chlorotoluene	0.16	Not Detected	0.83	Not Detected
1,2-Dichlorobenzene	0.16	Not Detected	0.97	Not Detected
1,2,4-Trichlorobenzene	0.80	Not Detected	6.0	Not Detected
Hexachlorobutadiene	0.80	Not Detected	8.6	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: U1 (181385)

Lab ID#: 1804621-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v050220	Date of Collection:	4/25/18 1:30:00 PM
Dil. Factor:	1.68	Date of Analysis:	5/2/18 09:02 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.84	Not Detected	4.2	Not Detected
Freon 114	0.17	Not Detected	1.2	Not Detected
Chloromethane	0.84	Not Detected	1.7	Not Detected
Vinyl Chloride	0.17	Not Detected	0.43	Not Detected
1,3-Butadiene	0.17	Not Detected	0.37	Not Detected
Bromomethane	0.84	Not Detected	3.3	Not Detected
Chloroethane	0.84	Not Detected	2.2	Not Detected
Freon 11	0.17	0.22	0.94	1.2
Ethanol	0.84	2.8	1.6	5.4
Freon 113	0.17	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.17	Not Detected	0.67	Not Detected
Acetone	0.84	5.8	2.0	14
2-Propanol	0.84	2.0	2.1	4.9
Carbon Disulfide	0.84	Not Detected	2.6	Not Detected
3-Chloropropene	0.84	Not Detected	2.6	Not Detected
Methylene Chloride	0.34	1.6	1.2	5.4
Methyl tert-butyl ether	0.17	Not Detected	0.60	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.67	Not Detected
Hexane	0.17	0.17	0.59	0.61
1,1-Dichloroethane	0.17	Not Detected	0.68	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.84	Not Detected	2.5	Not Detected
cis-1,2-Dichloroethene	0.17	Not Detected	0.67	Not Detected
Tetrahydrofuran	0.84	Not Detected	2.5	Not Detected
Chloroform	0.17	Not Detected	0.82	Not Detected
1,1,1-Trichloroethane	0.17	Not Detected	0.92	Not Detected
Cyclohexane	0.17	0.29	0.58	0.99
Carbon Tetrachloride	0.17	Not Detected	1.0	Not Detected
2,2,4-Trimethylpentane	0.84	Not Detected	3.9	Not Detected
Benzene	0.17	Not Detected	0.54	Not Detected
1,2-Dichloroethane	0.17	Not Detected	0.68	Not Detected
Heptane	0.17	Not Detected	0.69	Not Detected
Trichloroethene	0.17	Not Detected	0.90	Not Detected
1,2-Dichloropropane	0.17	Not Detected	0.78	Not Detected
1,4-Dioxane	0.17	Not Detected	0.60	Not Detected
Bromodichloromethane	0.17	Not Detected	1.1	Not Detected
cis-1,3-Dichloropropene	0.17	Not Detected	0.76	Not Detected
4-Methyl-2-pentanone	0.17	Not Detected	0.69	Not Detected
Toluene	0.17	1.6	0.63	6.2
trans-1,3-Dichloropropene	0.17	Not Detected	0.76	Not Detected
1,1,2-Trichloroethane	0.17	Not Detected	0.92	Not Detected
Tetrachloroethene	0.17	Not Detected	1.1	Not Detected
2-Hexanone	0.84	Not Detected	3.4	Not Detected



Air Toxics

Client Sample ID: U1 (181385)

Lab ID#: 1804621-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v050220	Date of Collection:	4/25/18 1:30:00 PM
Dil. Factor:	1.68	Date of Analysis:	5/2/18 09:02 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.17	Not Detected	1.4	Not Detected
1,2-Dibromoethane (EDB)	0.17	Not Detected	1.3	Not Detected
Chlorobenzene	0.17	Not Detected	0.77	Not Detected
Ethyl Benzene	0.17	Not Detected	0.73	Not Detected
m,p-Xylene	0.17	Not Detected	0.73	Not Detected
o-Xylene	0.17	Not Detected	0.73	Not Detected
Styrene	0.17	Not Detected	0.72	Not Detected
Bromoform	0.17	Not Detected	1.7	Not Detected
Cumene	0.17	Not Detected	0.82	Not Detected
1,1,2,2-Tetrachloroethane	0.17	Not Detected	1.2	Not Detected
Propylbenzene	0.17	Not Detected	0.82	Not Detected
4-Ethyltoluene	0.17	Not Detected	0.82	Not Detected
1,3,5-Trimethylbenzene	0.17	Not Detected	0.82	Not Detected
1,2,4-Trimethylbenzene	0.17	Not Detected	0.82	Not Detected
1,3-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
1,4-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
alpha-Chlorotoluene	0.17	Not Detected	0.87	Not Detected
1,2-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
1,2,4-Trichlorobenzene	0.84	Not Detected	6.2	Not Detected
Hexachlorobutadiene	0.84	Not Detected	9.0	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1804621-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v050206	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	5/2/18 11:12 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.10	Not Detected	0.70	Not Detected
Chloromethane	0.50	Not Detected	1.0	Not Detected
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
1,3-Butadiene	0.10	Not Detected	0.22	Not Detected
Bromomethane	0.50	Not Detected	1.9	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.10	Not Detected	0.56	Not Detected
Ethanol	0.50	Not Detected	0.94	Not Detected
Freon 113	0.10	Not Detected	0.77	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Acetone	0.50	Not Detected	1.2	Not Detected
2-Propanol	0.50	Not Detected	1.2	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
3-Chloropropene	0.50	Not Detected	1.6	Not Detected
Methylene Chloride	0.20	Not Detected	0.69	Not Detected
Methyl tert-butyl ether	0.10	Not Detected	0.36	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Hexane	0.10	Not Detected	0.35	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.10	Not Detected	0.49	Not Detected
1,1,1-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Cyclohexane	0.10	Not Detected	0.34	Not Detected
Carbon Tetrachloride	0.10	Not Detected	0.63	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.10	Not Detected	0.32	Not Detected
1,2-Dichloroethane	0.10	Not Detected	0.40	Not Detected
Heptane	0.10	Not Detected	0.41	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected
1,2-Dichloropropane	0.10	Not Detected	0.46	Not Detected
1,4-Dioxane	0.10	Not Detected	0.36	Not Detected
Bromodichloromethane	0.10	Not Detected	0.67	Not Detected
cis-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
4-Methyl-2-pentanone	0.10	Not Detected	0.41	Not Detected
Toluene	0.10	Not Detected	0.38	Not Detected
trans-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
1,1,2-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Tetrachloroethene	0.10	Not Detected	0.68	Not Detected
2-Hexanone	0.50	Not Detected	2.0	Not Detected

Client Sample ID: Lab Blank

Lab ID#: 1804621-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v050206	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/2/18 11:12 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.10	Not Detected	0.85	Not Detected
1,2-Dibromoethane (EDB)	0.10	Not Detected	0.77	Not Detected
Chlorobenzene	0.10	Not Detected	0.46	Not Detected
Ethyl Benzene	0.10	Not Detected	0.43	Not Detected
m,p-Xylene	0.10	Not Detected	0.43	Not Detected
o-Xylene	0.10	Not Detected	0.43	Not Detected
Styrene	0.10	Not Detected	0.42	Not Detected
Bromoform	0.10	Not Detected	1.0	Not Detected
Cumene	0.10	Not Detected	0.49	Not Detected
1,1,2,2-Tetrachloroethane	0.10	Not Detected	0.69	Not Detected
Propylbenzene	0.10	Not Detected	0.49	Not Detected
4-Ethyltoluene	0.10	Not Detected	0.49	Not Detected
1,3,5-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,2,4-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,3-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
1,4-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
alpha-Chlorotoluene	0.10	Not Detected	0.52	Not Detected
1,2-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
1,2,4-Trichlorobenzene	0.50	Not Detected	3.7	Not Detected
Hexachlorobutadiene	0.50	Not Detected	5.3	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	100	70-130

Client Sample ID: CCV

Lab ID#: 1804621-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v050202	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/2/18 08:47 AM

Compound	%Recovery
Freon 12	94
Freon 114	90
Chloromethane	100
Vinyl Chloride	93
1,3-Butadiene	91
Bromomethane	101
Chloroethane	98
Freon 11	95
Ethanol	111
Freon 113	88
1,1-Dichloroethene	96
Acetone	94
2-Propanol	102
Carbon Disulfide	96
3-Chloropropene	107
Methylene Chloride	86
Methyl tert-butyl ether	93
trans-1,2-Dichloroethene	91
Hexane	88
1,1-Dichloroethane	92
2-Butanone (Methyl Ethyl Ketone)	105
cis-1,2-Dichloroethene	91
Tetrahydrofuran	128
Chloroform	93
1,1,1-Trichloroethane	93
Cyclohexane	90
Carbon Tetrachloride	92
2,2,4-Trimethylpentane	89
Benzene	93
1,2-Dichloroethane	93
Heptane	92
Trichloroethene	94
1,2-Dichloropropane	91
1,4-Dioxane	93
Bromodichloromethane	97
cis-1,3-Dichloropropene	100
4-Methyl-2-pentanone	106
Toluene	89
trans-1,3-Dichloropropene	100
1,1,2-Trichloroethane	96
Tetrachloroethene	92
2-Hexanone	103



Air Toxics

Client Sample ID: CCV

Lab ID#: 1804621-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v050202	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/2/18 08:47 AM

Compound	%Recovery
Dibromochloromethane	99
1,2-Dibromoethane (EDB)	96
Chlorobenzene	92
Ethyl Benzene	90
m,p-Xylene	83
o-Xylene	86
Styrene	85
Bromoform	99
Cumene	82
1,1,2,2-Tetrachloroethane	90
Propylbenzene	86
4-Ethyltoluene	88
1,3,5-Trimethylbenzene	88
1,2,4-Trimethylbenzene	92
1,3-Dichlorobenzene	82
1,4-Dichlorobenzene	78
alpha-Chlorotoluene	90
1,2-Dichlorobenzene	82
1,2,4-Trichlorobenzene	99
Hexachlorobutadiene	92

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	88	70-130

Client Sample ID: LCS

Lab ID#: 1804621-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v050203	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/2/18 09:23 AM

Compound	%Recovery	Method Limits
Freon 12	98	70-130
Freon 114	95	70-130
Chloromethane	104	70-130
Vinyl Chloride	100	70-130
1,3-Butadiene	95	70-130
Bromomethane	114	70-130
Chloroethane	109	70-130
Freon 11	100	70-130
Ethanol	123	70-130
Freon 113	91	70-130
1,1-Dichloroethene	99	70-130
Acetone	102	70-130
2-Propanol	113	70-130
Carbon Disulfide	106	70-130
3-Chloropropene	120	70-130
Methylene Chloride	94	70-130
Methyl tert-butyl ether	100	70-130
trans-1,2-Dichloroethene	110	70-130
Hexane	97	70-130
1,1-Dichloroethane	100	70-130
2-Butanone (Methyl Ethyl Ketone)	114	70-130
cis-1,2-Dichloroethene	92	70-130
Tetrahydrofuran	105	70-130
Chloroform	98	70-130
1,1,1-Trichloroethane	101	70-130
Cyclohexane	96	70-130
Carbon Tetrachloride	103	70-130
2,2,4-Trimethylpentane	92	70-130
Benzene	98	70-130
1,2-Dichloroethane	95	70-130
Heptane	102	70-130
Trichloroethene	100	70-130
1,2-Dichloropropane	96	70-130
1,4-Dioxane	100	70-130
Bromodichloromethane	106	70-130
cis-1,3-Dichloropropene	111	70-130
4-Methyl-2-pentanone	115	70-130
Toluene	94	70-130
trans-1,3-Dichloropropene	107	70-130
1,1,2-Trichloroethane	103	70-130
Tetrachloroethene	97	70-130
2-Hexanone	115	70-130

Client Sample ID: LCS

Lab ID#: 1804621-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v050203	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/2/18 09:23 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	106	70-130
1,2-Dibromoethane (EDB)	107	70-130
Chlorobenzene	101	70-130
Ethyl Benzene	101	70-130
m,p-Xylene	96	70-130
o-Xylene	95	70-130
Styrene	98	70-130
Bromoform	111	70-130
Cumene	91	70-130
1,1,2,2-Tetrachloroethane	98	70-130
Propylbenzene	94	70-130
4-Ethyltoluene	96	70-130
1,3,5-Trimethylbenzene	96	70-130
1,2,4-Trimethylbenzene	98	70-130
1,3-Dichlorobenzene	90	70-130
1,4-Dichlorobenzene	88	70-130
alpha-Chlorotoluene	108	70-130
1,2-Dichlorobenzene	91	70-130
1,2,4-Trichlorobenzene	100	70-130
Hexachlorobutadiene	90	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	92	70-130

Client Sample ID: LCSD

Lab ID#: 1804621-05AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v050204	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/2/18 09:59 AM

Compound	%Recovery	Method Limits
Freon 12	100	70-130
Freon 114	94	70-130
Chloromethane	107	70-130
Vinyl Chloride	102	70-130
1,3-Butadiene	95	70-130
Bromomethane	113	70-130
Chloroethane	108	70-130
Freon 11	100	70-130
Ethanol	124	70-130
Freon 113	94	70-130
1,1-Dichloroethene	98	70-130
Acetone	95	70-130
2-Propanol	112	70-130
Carbon Disulfide	105	70-130
3-Chloropropene	116	70-130
Methylene Chloride	92	70-130
Methyl tert-butyl ether	101	70-130
trans-1,2-Dichloroethene	104	70-130
Hexane	95	70-130
1,1-Dichloroethane	98	70-130
2-Butanone (Methyl Ethyl Ketone)	116	70-130
cis-1,2-Dichloroethene	89	70-130
Tetrahydrofuran	106	70-130
Chloroform	98	70-130
1,1,1-Trichloroethane	99	70-130
Cyclohexane	96	70-130
Carbon Tetrachloride	102	70-130
2,2,4-Trimethylpentane	96	70-130
Benzene	99	70-130
1,2-Dichloroethane	97	70-130
Heptane	102	70-130
Trichloroethene	101	70-130
1,2-Dichloropropane	98	70-130
1,4-Dioxane	99	70-130
Bromodichloromethane	99	70-130
cis-1,3-Dichloropropene	114	70-130
4-Methyl-2-pentanone	118	70-130
Toluene	96	70-130
trans-1,3-Dichloropropene	105	70-130
1,1,2-Trichloroethane	101	70-130
Tetrachloroethene	96	70-130
2-Hexanone	116	70-130

Client Sample ID: LCSD

Lab ID#: 1804621-05AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	v050204	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/2/18 09:59 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	103	70-130
1,2-Dibromoethane (EDB)	102	70-130
Chlorobenzene	100	70-130
Ethyl Benzene	100	70-130
m,p-Xylene	94	70-130
o-Xylene	93	70-130
Styrene	94	70-130
Bromoform	109	70-130
Cumene	91	70-130
1,1,2,2-Tetrachloroethane	97	70-130
Propylbenzene	91	70-130
4-Ethyltoluene	96	70-130
1,3,5-Trimethylbenzene	93	70-130
1,2,4-Trimethylbenzene	97	70-130
1,3-Dichlorobenzene	90	70-130
1,4-Dichlorobenzene	86	70-130
alpha-Chlorotoluene	110	70-130
1,2-Dichlorobenzene	90	70-130
1,2,4-Trichlorobenzene	111	70-130
Hexachlorobutadiene	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	93	70-130