



284 Sheffield Street, Mountainside, New Jersey - 07092

Phone: (908) 789 8900 Fax: (908) 789 8922

LAB CHRONICLE

OrderID:	P1747	OrderDate:	3/13/2024 12:28:00 PM
Client:	LiRo Engineers, Inc.	Project:	Walter Gladwin Recreation Center, Bronx, NY
Contact:	Steve Frank	Location:	I21,I31,VOA Ref. #3 Water

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
P1747-03	MW-01	Water	VOC-NYCD	624.1	03/13/24		03/14/24	03/13/24



Hit Summary Sheet
SW-846

SDG No.: P1747
Client: LiRo Engineers, Inc.

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Client ID:				0				
Total Voc :								
Total Concentration:								

- A
- B
- C
- D
- E
- F
- G

SAMPLE DATA

A

B

C

D

E

F

G

Report of Analysis

Client:	LiRo Engineers, Inc.	Date Collected:	03/13/24
Project:	Walter Gladwin Recreation Center, Bronx, NY	Date Received:	03/13/24
Client Sample ID:	MW-01	SDG No.:	P1747
Lab Sample ID:	P1747-03	Matrix:	Water
Analytical Method:	E624.1	% Solid:	0
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOC-NYCD
GC Column:	DB-624UI ID : 0.18	Level :	LOW
Prep Method :			

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VX040637.D	1		03/14/24 12:46	VX031424

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
1634-04-4	Methyl tert-Butyl Ether	5.00	U	0.83	5.00	ug/L
56-23-5	Carbon Tetrachloride	5.00	U	0.91	5.00	ug/L
67-66-3	Chloroform	5.00	U	0.72	5.00	ug/L
71-55-6	1,1,1-Trichloroethane	5.00	U	0.79	5.00	ug/L
71-43-2	Benzene	5.00	U	0.69	5.00	ug/L
108-88-3	Toluene	5.00	U	0.72	5.00	ug/L
127-18-4	Tetrachloroethene	5.00	U	0.94	5.00	ug/L
100-41-4	Ethyl Benzene	5.00	U	0.73	5.00	ug/L
1330-20-7	Total Xylenes	15.0	U	2.52	15.0	ug/L
106-46-7	1,4-Dichlorobenzene	5.00	U	0.95	5.00	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	30.6		91 - 110	102%	SPK: 30
2037-26-5	Toluene-d8	29.7		91 - 112	99%	SPK: 30
460-00-4	4-Bromofluorobenzene	29.1		63 - 112	97%	SPK: 30
INTERNAL STANDARDS						
74-97-5	Bromochloromethane	15500	4.897			
540-36-3	1,4-Difluorobenzene	88100	6.763			
3114-55-4	Chlorobenzene-d5	81800	10.055			

U = Not Detected

LOQ = Limit of Quantitation

MDL = Method Detection Limit

LOD = Limit of Detection

E = Value Exceeds Calibration Range

Q = indicates LCS control criteria did not meet requirements

M = MS/MSD acceptance criteria did not meet requirements

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

D = Dilution

() = Laboratory InHouse Limit

A = Aldol-Condensation Reaction Products

QC SUMMARY



Surrogate Summary

SDG No.: P1747

Client: LiRo Engineers, Inc.

Analytical Method: SW624.1

Lab Sample ID	Client ID	Parameter	Spike	Result	RecoveryQual	Limits	
						Low	High
P1747-03	MW-01	1,2-Dichloroethane-d4	30	30.6	102	91	110
		Toluene-d8	30	29.7	99	91	112
		4-Bromofluorobenzene	30	29.1	97	63	112
VX0314WBL01	VX0314WBL01	1,2-Dichloroethane-d4	30	30.4	101	91	110
		Toluene-d8	30	27.7	92	91	112
		4-Bromofluorobenzene	30	26.1	87	63	112
VX0314WBS01	VX0314WBS01	1,2-Dichloroethane-d4	30	29.8	99	91	110
		Toluene-d8	30	30.8	103	91	112
		4-Bromofluorobenzene	30	31.2	104	63	112
VX0314WBSD0	VX0314WBSD01	1,2-Dichloroethane-d4	30	27.6	92	91	110
		Toluene-d8	30	33.1	110	91	112
		4-Bromofluorobenzene	30	30.7	102	63	112



Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: P1747
Client: LiRo Engineers, Inc.
Analytical Method: SW624.1

Datafile : VX040631.D

Lab Sample ID	Parameter	Spike	Result	Unit	Rec	RPD	Qual	Low	Limits	
									High	RPD
VX0314WBS01	Methyl tert-butyl Ether	20	18.8	ug/L	94			82	114	
	Carbon Tetrachloride	20	19.0	ug/L	95			70	130	
	Chloroform	20	19.1	ug/L	96			70	135	
	1,1,1-Trichloroethane	20	18.8	ug/L	94			70	130	
	Benzene	20	18.8	ug/L	94			65	135	
	Toluene	20	19.9	ug/L	100			70	130	
	Tetrachloroethene	20	20.2	ug/L	101			70	130	
	Ethyl Benzene	20	20.1	ug/L	101			60	140	
	m/p-Xylenes	40	40.4	ug/L	101			87	111	
	o-Xylene	20	20.3	ug/L	102			87	111	
	1,4-Dichlorobenzene	20	20.4	ug/L	102			65	135	



Laboratory Control Sample/Laboratory Control Sample Duplicate Summary
SW-846

SDG No.: P1747
Client: LiRo Engineers, Inc.
Analytical Method: SW624.1

Datafile : VX040632.D

Lab Sample ID	Parameter	Spike	Result	Unit	Rec	RPD	Qual	Low	Limits	
									High	RPD
VX0314WBSD01	Methyl tert-butyl Ether	20	19.4	ug/L	97	3		82	114	20
	Carbon Tetrachloride	20	20.2	ug/L	101	6		70	130	20
	Chloroform	20	19.7	ug/L	99	3		70	135	20
	1,1,1-Trichloroethane	20	19.9	ug/L	100	6		70	130	20
	Benzene	20	18.3	ug/L	92	2		65	135	20
	Toluene	20	21.2	ug/L	106	6		70	130	20
	Tetrachloroethene	20	21.6	ug/L	108	7		70	130	20
	Ethyl Benzene	20	19.4	ug/L	97	4		60	140	20
	m/p-Xylenes	40	37.8	ug/L	95	6		87	111	20
	o-Xylene	20	19.6	ug/L	98	4		87	111	20
	1,4-Dichlorobenzene	20	21.0	ug/L	105	3		65	135	20



284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VX0314WBL01

Lab Name: CHEMTECH

Contract: LIRO01

Lab Code: CHEM Case No.: P1747

SAS No.: P1747 SDG NO.: P1747

Lab File ID: VX040633.D

Lab Sample ID: VX0314WBL01

Date Analyzed: 03/14/2024

Time Analyzed: 11:06

GC Column: DB-624UI ID: 0.18 (mm)

Heated Purge: (Y/N) N

Instrument ID: MSVOA_X

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
VX0314WBS01	VX0314WBS01	VX040631.D	03/14/2024
VX0314WBSD01	VX0314WBSD01	VX040632.D	03/14/2024
MW-01	P1747-03	VX040637.D	03/14/2024

COMMENTS:



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VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: LIRO01
Lab Code: CHEM Case No.: P1747 SAS No.: P1747 SDG NO.: P1747
Lab File ID: VX040578.D BFB Injection Date: 03/05/2024
Instrument ID: MSVOA_X BFB Injection Time: 08:37
GC Column: DB-624UI ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	22.1
75	30.0 - 60.0% of mass 95	56.7
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.2
173	Less than 2.0% of mass 174	0.8 (1) 1
174	50.0 - 100.0% of mass 95	76.2
175	5.0 - 9.0% of mass 174	5.5 (7.2) 1
176	95.0 - 101.0% of mass 174	73.2 (96.1) 1
177	5.0 - 9.0% of mass 176	5 (6.8) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTDICC005	VSTDICC005	VX040579.D	03/05/2024	10:58
VSTDICCC020	VSTDICCC020	VX040580.D	03/05/2024	11:21
VSTDICCC050	VSTDICCC050	VX040581.D	03/05/2024	11:44
VSTDICCC100	VSTDICCC100	VX040582.D	03/05/2024	12:07
VSTDICCC150	VSTDICCC150	VX040583.D	03/05/2024	12:30



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VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: CHEMTECH Contract: LIRO01
Lab Code: CHEM Case No.: P1747 SAS No.: P1747 SDG NO.: P1747
Lab File ID: VX040629.D BFB Injection Date: 03/14/2024
Instrument ID: MSVOA_X BFB Injection Time: 09:03
GC Column: DB-624UI ID: 0.18 (mm) Heated Purge: Y/N N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	23
75	30.0 - 60.0% of mass 95	58.6
95	Base Peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.6 (0.9) 1
174	50.0 - 100.0% of mass 95	71.7
175	5.0 - 9.0% of mass 174	5.6 (7.8) 1
176	95.0 - 101.0% of mass 174	70 (97.7) 1
177	5.0 - 9.0% of mass 176	4.8 (6.8) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
VSTDCCC020	VSTDCCC020	VX040630.D	03/14/2024	09:43
VX0314WBS01	VX0314WBS01	VX040631.D	03/14/2024	10:11
VX0314WBSD01	VX0314WBSD01	VX040632.D	03/14/2024	10:39
VX0314WBL01	VX0314WBL01	VX040633.D	03/14/2024	11:06
MW-01	P1747-03	VX040637.D	03/14/2024	12:46

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CHEMTECH Contract: LIRO01
 Lab Code: CHEM Case No.: P1747 SAS No.: P1747 SDG NO.: P1747
 Lab File ID: VX040630.D Date Analyzed: 03/14/2024
 Instrument ID: MSVOA_X Time Analyzed: 09:43
 GC Column: DB-624UI ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	16791	4.89	101481	6.76	90514	10.05
UPPER LIMIT	33582	5.391	202962	7.257	181028	10.549
LOWER LIMIT	8395.5	4.391	50740.5	6.257	45257	9.549
EPA SAMPLE NO.						
MW-01	15477	4.90	88123	6.76	81835	10.06
VX0314WBL01	15289	4.90	88714	6.76	81679	10.06
VX0314WBS01	14121	4.89	80662	6.76	73806	10.05
VX0314WBSD01	15443	4.90	83166	6.76	75172	10.06

IS1 = Bromochloromethane
 IS2 = 1,4-Difluorobenzene
 IS3 = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
 AREA LOWER LIMIT = -50% of internal standard area
 RT UPPER LIMIT = +0.50 minutes of internal standard RT
 RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
 * Values outside of QC limits.

QC SAMPLE DATA

A

B

C

D

E

F

G

Report of Analysis

Client:	LiRo Engineers, Inc.	Date Collected:	
Project:	Walter Gladwin Recreation Center, Bronx, NY	Date Received:	
Client Sample ID:	VX0314WBL01	SDG No.:	P1747
Lab Sample ID:	VX0314WBL01	Matrix:	Water
Analytical Method:	E624.1	% Solid:	0
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOC-NYCD
GC Column:	DB-624UI ID : 0.18	Level :	LOW
Prep Method :			

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VX040633.D	1		03/14/24 11:06	VX031424

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
1634-04-4	Methyl tert-Butyl Ether	5.00	U	0.83	5.00	ug/L
56-23-5	Carbon Tetrachloride	5.00	U	0.91	5.00	ug/L
67-66-3	Chloroform	5.00	U	0.72	5.00	ug/L
71-55-6	1,1,1-Trichloroethane	5.00	U	0.79	5.00	ug/L
71-43-2	Benzene	5.00	U	0.69	5.00	ug/L
108-88-3	Toluene	5.00	U	0.72	5.00	ug/L
127-18-4	Tetrachloroethene	5.00	U	0.94	5.00	ug/L
100-41-4	Ethyl Benzene	5.00	U	0.73	5.00	ug/L
1330-20-7	Total Xylenes	15.0	U	2.52	15.0	ug/L
106-46-7	1,4-Dichlorobenzene	5.00	U	0.95	5.00	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	30.4		91 - 110	101%	SPK: 30
2037-26-5	Toluene-d8	27.7		91 - 112	92%	SPK: 30
460-00-4	4-Bromofluorobenzene	26.1		63 - 112	87%	SPK: 30
INTERNAL STANDARDS						
74-97-5	Bromochloromethane	15300	4.897			
540-36-3	1,4-Difluorobenzene	88700	6.763			
3114-55-4	Chlorobenzene-d5	81700	10.055			

U = Not Detected

LOQ = Limit of Quantitation

MDL = Method Detection Limit

LOD = Limit of Detection

E = Value Exceeds Calibration Range

Q = indicates LCS control criteria did not meet requirements

M = MS/MSD acceptance criteria did not meet requirements

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

* = Values outside of QC limits

D = Dilution

() = Laboratory InHouse Limit

A = Aldol-Condensation Reaction Products

Report of Analysis

Client:	LiRo Engineers, Inc.	Date Collected:	
Project:	Walter Gladwin Recreation Center, Bronx, NY	Date Received:	
Client Sample ID:	VX0314WBS01	SDG No.:	P1747
Lab Sample ID:	VX0314WBS01	Matrix:	Water
Analytical Method:	E624.1	% Solid:	0
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOC-NYCD
GC Column:	DB-624UI ID : 0.18	Level :	LOW
Prep Method :			

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VX040631.D	1		03/14/24 10:11	VX031424

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
1634-04-4	Methyl tert-Butyl Ether	18.8		0.83	5.00	ug/L
56-23-5	Carbon Tetrachloride	19.0		0.91	5.00	ug/L
67-66-3	Chloroform	19.1		0.72	5.00	ug/L
71-55-6	1,1,1-Trichloroethane	18.8		0.79	5.00	ug/L
71-43-2	Benzene	18.8		0.69	5.00	ug/L
108-88-3	Toluene	19.9		0.72	5.00	ug/L
127-18-4	Tetrachloroethene	20.2		0.94	5.00	ug/L
100-41-4	Ethyl Benzene	20.1		0.73	5.00	ug/L
1330-20-7	Total Xylenes	60.7		2.52	15.0	ug/L
106-46-7	1,4-Dichlorobenzene	20.4		0.95	5.00	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	29.8		91 - 110	99%	SPK: 30
2037-26-5	Toluene-d8	30.8		91 - 112	103%	SPK: 30
460-00-4	4-Bromofluorobenzene	31.2		63 - 112	104%	SPK: 30
INTERNAL STANDARDS						
74-97-5	Bromochloromethane	14100	4.891			
540-36-3	1,4-Difluorobenzene	80700	6.757			
3114-55-4	Chlorobenzene-d5	73800	10.049			

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Report of Analysis

Client:	LiRo Engineers, Inc.	Date Collected:	
Project:	Walter Gladwin Recreation Center, Bronx, NY	Date Received:	
Client Sample ID:	VX0314WBSD01	SDG No.:	P1747
Lab Sample ID:	VX0314WBSD01	Matrix:	Water
Analytical Method:	E624.1	% Solid:	0
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOC-NYCD
GC Column:	DB-624UI ID : 0.18	Level :	LOW
Prep Method :			

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VX040632.D	1		03/14/24 10:39	VX031424

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
1634-04-4	Methyl tert-Butyl Ether	19.4		0.83	5.00	ug/L
56-23-5	Carbon Tetrachloride	20.2		0.91	5.00	ug/L
67-66-3	Chloroform	19.7		0.72	5.00	ug/L
71-55-6	1,1,1-Trichloroethane	19.9		0.79	5.00	ug/L
71-43-2	Benzene	18.3		0.69	5.00	ug/L
108-88-3	Toluene	21.2		0.72	5.00	ug/L
127-18-4	Tetrachloroethene	21.6		0.94	5.00	ug/L
100-41-4	Ethyl Benzene	19.4		0.73	5.00	ug/L
1330-20-7	Total Xylenes	57.4		2.52	15.0	ug/L
106-46-7	1,4-Dichlorobenzene	21.0		0.95	5.00	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	27.6		91 - 110	92%	SPK: 30
2037-26-5	Toluene-d8	33.1		91 - 112	110%	SPK: 30
460-00-4	4-Bromofluorobenzene	30.7		63 - 112	102%	SPK: 30
INTERNAL STANDARDS						
74-97-5	Bromochloromethane	15400	4.897			
540-36-3	1,4-Difluorobenzene	83200	6.763			
3114-55-4	Chlorobenzene-d5	75200	10.055			

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CALIBRATION SUMMARY

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CHEMTECH Contract: LIRO01
 Lab Code: CHEM Case No.: P1747 SAS No.: P1747 SDG No.: P1747
 Instrument ID: MSVOA_X Calibration Date(s): 03/05/2024 03/05/2024
 Heated Purge: (Y/N) N Calibration Time(s): 10:58 12:30
 GC Column: DB-624UI ID: 0.18 (mm)

LAB FILE ID:		RRF005 = VX040579.D		RRF020 = VX040580.D		RRF050 = VX040581.D	
		RRF100 = VX040582.D		RRF150 = VX040583.D		RRF =	
COMPOUND	RRF005	RRF020	RRF050	RRF100	RRF150	RRF	% RSD
Methyl tert-Butyl Ether	6.759	5.818	6.419	6.925	7.091	6.602	7.6
Carbon Tetrachloride	0.565	0.506	0.545	0.567	0.568	0.551	4.8
Chloroform	4.296	3.676	4.073	4.347	4.401	4.158	7.1
1,1,1-Trichloroethane	0.699	0.611	0.630	0.662	0.669	0.654	5.3
Benzene	1.497	1.333	1.370	1.401	1.408	1.402	4.3
Toluene	1.745	1.725	1.674	1.490	1.627	1.652	6.1
Tetrachloroethene	0.392	0.370	0.368	0.313	0.338	0.356	8.6
Ethyl Benzene	1.945	1.761	1.979	1.914	1.926	1.905	4.4
m/p-Xylenes	0.698	0.651	0.736	0.717	0.715	0.704	4.5
o-Xylene	0.635	0.638	0.711	0.699	0.703	0.677	5.5
1,4-Dichlorobenzene	0.817	0.782	0.876	0.881	0.954	0.862	7.7
1,2-Dichloroethane-d4	2.970	2.805	2.931	3.131	3.145	2.996	4.8
Toluene-d8	1.288	1.478	1.338	1.223	1.302	1.326	7.1
4-Bromofluorobenzene	0.443	0.506	0.544	0.536	0.543	0.515	8.3

* Compounds with required minimum RRF and maximum %RSD values.
 All other compounds must meet a minimum RRF of 0.010.
 RRF of 1,4-Dioxane = Value should be divide by 1000.

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CHEMTECH Contract: LIRO01
 Lab Code: CHEM Case No.: P1747 SAS No.: P1747 SDG No.: P1747
 Instrument ID: MSVOA_X Calibration Date/Time: 03/14/2024 09:43
 Lab File ID: VX040630.D Init. Calib. Date(s): 03/05/2024 03/05/2024
 Heated Purge: (Y/N) N Init. Calib. Time(s): 10:58 12:30
 GC Column: DB-624UI ID: 0.18 (mm)

COMPOUND	RRF	RRF020	MIN RRF	%D	MAX%D
Methyl tert-Butyl Ether	6.602	6.116		-7.36	
Carbon Tetrachloride	0.551	0.479	0.1	-13.07	
Chloroform	4.158	3.929	0.2	-5.51	
1,1,1-Trichloroethane	0.654	0.584	0.1	-10.7	
Benzene	1.402	1.224	0.5	-12.7	
Toluene	1.652	1.432	0.4	-13.32	
Tetrachloroethene	0.356	0.336	0.2	-5.62	
Ethyl Benzene	1.905	1.799	0.1	-5.56	
m/p-Xylenes	0.704	0.671	0.3	-4.69	
o-Xylene	0.677	0.620	0.3	-8.42	
1,4-Dichlorobenzene	0.862	0.825	0.2	-4.29	
1,2-Dichloroethane-d4	2.996	3.235	0.01	7.98	
Toluene-d8	1.326	1.232	0.01	-7.09	
4-Bromofluorobenzene	0.515	0.520	0.2	0.97	

All other compounds must meet a minimum RRF of 0.010.
 RRF of 1,4-Dioxane = Value should be divide by 1000.