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

DATA PACKAGE

METALS

PROJECT NAME : FT MEADE TIPTON AIRFIELD PARCEL RI - PO 0111169

WESTON SOLUTIONS

1400 Weston Way

PO Box 2653

West Chester, PA - 19380

Phone No: 610-701-7400

ORDER ID : P5022

ATTENTION : Nathan Fretz

Laboratory Certification ID # 20012

Table Of Contents for P5022

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Cover Page

Order ID : P5022

Project ID : Ft Meade Tipton Airfield Parcel RI - PO 0111169

Client : Weston Solutions

Lab Sample Number	Client Sample Number
P5022-01	TAPIAL2-SB02D-13-112424-00-T1

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : N. N. Pandya

APPROVED

Date: 12/11/2024

By Nimisha Pandya, QA/QC Supervisor at 3:13 pm, Dec 11, 2024

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

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CASE NARRATIVE

Weston Solutions
Project Name: Ft Meade Tipton Airfield Parcel RI - PO 0111169
Project # N/A
Chemtech Project # P5022
Test Name: Mercury

A. Number of Samples and Date of Receipt:
1 Solid sample was received on 11/27/2024.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Anions Group1, Mercury, pH and TOC. This data package contains results for Mercury.

C. Analytical Techniques:
The analysis of Mercury was based on method 7471B and digestion was based on method 7471B (soils).

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples.
The Matrix Spike analysis met criteria for all samples.
The Matrix Spike Duplicate analysis met criteria for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.
The Serial Dilution met the acceptable requirements.

E. Additional Comments:

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature N. N. Pandya

APPROVED
By Nimisha Pandya, QA/QC Supervisor at 3:13 pm, Dec 11, 2024

284 Sheffield Street, Mountainside NJ 07092
Tel. 908-789-8900 Fax: 908-789-8922

DATA REPORTING QUALIFIERS- INORGANIC

For reporting results, the following " Results Qualifiers" are used:

J	Indicates the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL), but greater than or equal to the Instrument Detection Limit (IDL).
U	Indicates the analyte was analyzed for, but not detected.
ND	Indicates the analyte was analyzed for, but not detected
E	Indicates the reported value is estimated because of the presence of interference
M	Indicates Duplicate injection precision not met.
N	Indicates the spiked sample recovery is not within control limits.
S	Indicates the reported value was determined by the Method of Standard Addition (MSA).
*	Indicates that the duplicate analysis is not within control limits.
+	Indicates the correlation coefficient for the MSA is less than 0.995.
D	Indicates the reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.
M	Method qualifiers **"P"** for ICP instrument **"PM"** for ICP when Microwave Digestion is used **"CV"** for Manual Cold Vapor AA **"AV"** for automated Cold Vapor AA **"CA"** for MIDI-Distillation Spectrophotometric **"AS"** for Semi –Automated Spectrophotometric **"C"** for Manual Spectrophotometric **"T"** for Titrimetric **"NR"** for analyte not required to be analyzed
OR	Indicates the analyte's concentration exceeds the calibrated range of the instrument for that specific analysis.
Q	Indicates the LCS did not meet the control limits requirements
H	Sample Analysis Out Of Hold Time

METALS CONFORMANCE/NON-CONFORMANCE SUMMARY

CHEMTECH PROJECT NUMBER: P5022 MATRIX: Solid

METHOD: 7471B

		NA	NO	YES
1.	Calibration Summary met criteria.			✓
2.	ICP Interference Check Sample Results Summary Submitted.			✓
3.	Serial Dilution Summary (if applicable) Submitted.			✓
4.	Laboratory Control Sample Summary (if applicable) Submitted.			✓
5.	Blank Contamination - If yes, list compounds and concentrations in each blank:		✓	
6.	Matrix Spike/Matrix Spike Duplicate Recoveries Met Criteria			✓
	If not met, list those compounds and their recoveries which fall outside the acceptable range.			
7.	Sample Duplicate Analysis Met QC Criteria			✓
	If not met, list those compounds and their recoveries which fall outside the acceptable range.			
8.	Digestion Holding Time Met			✓
	If not met, list number of days exceeded for each sample:			
9.	Analysis Holding Time Met			✓
	If not met, list those compounds and their recoveries which fall outside the acceptable range.			

ADDITIONAL COMMENTS:

S. M. Jodhani

QA REVIEW

REVIEWED
By Sohil Jodhani, QA/QC Director at 3:11 pm, Dec 11, 2024

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APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: P5022

	Completed
For thorough review, the report must have the following:	
GENERAL:	
Are all original paperwork present (chain of custody, record of communication,airbill, sample management lab chronicle, login page)	✓
Check chain-of-custody for proper relinquish/return of samples	✓
Is the chain of custody signed and complete	✓
Check internal chain-of-custody for proper relinquish/return of samples /sample extracts	✓
Collect information for each project id from server. Were all requirements followed	✓
COVER PAGE:	
Do numbers of samples correspond to the number of samples in the Chain of Custody on login page	✓
Do lab numbers and client Ids on cover page agree with the Chain of Custody	✓
CHAIN OF CUSTODY:	
Do requested analyses on Chain of Custody agree with form I results	✓
Do requested analyses on Chain of Custody agree with the log-in page	✓
Were the correct method log-in for analysis according to the Analytical Request and Chain of Castody	✓
Were the samples received within hold time	✓
Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle	✓
ANALYTICAL:	
Was method requirement followed?	✓
Was client requirement followed?	✓
Does the case narrative summarize all QC failure?	✓
All runlogs and manual integration are reviewed for requirements	✓
All manual calculations and /or hand notations verified	✓

QA Review Signature: SOHIL JODHANI **Date:** 12/11/2024

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LAB CHRONICLE

OrderID:	P5022	**OrderDate:**	11/27/2024 10:42:00 AM
Client:	Weston Solutions	**Project:**	Ft Meade Tipton Airfield Parcel RI - PO 0111169
Contact:	Nathan Fretz	**Location:**	L41

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
P5022-01	**TAPIAL2-SB02D-13-1 12424-00-T1**	**SOIL**			**11/24/24**			**11/27/24**
			Mercury	7471B		12/02/24	12/02/24	

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Hit Summary Sheet
SW-846

SDG No.:	P5022	**Order ID:**	P5022
Client:	Weston Solutions	**Project ID:**	Ft Meade Tipton Airfield Parcel RI - PO 01

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	LOD	RDL	Units
Client ID : TAPIAL2-SB02D-13-112424-00-T1									
P5022-01	TAPIAL2-SB02D-13-112424-00-	SOIL	Mercury	0.018		0.0060	0.011	0.013	mg/Kg

SAMPLE DATA

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Report of Analysis

Client:	Weston Solutions	Date Collected:	11/24/24
Project:	Ft Meade Tipton Airfield Parcel RI - PO 0111169	Date Received:	11/27/24
Client Sample ID:	TAPIAL2-SB02D-13-112424-00-T1	SDG No.:	P5022
Lab Sample ID:	P5022-01	Matrix:	SOIL
Level (low/med):	low	% Solid:	92.9

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.	Prep Met.
7439-97-6	Mercury	0.018		1	0.0060	0.011	0.013	mg/Kg	12/02/24 09:25	12/02/24 16:08	SW7471B	

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments: METALS-TAL

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

METAL CALIBRATION DATA

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions **SDG No.:** P5022

Contract: WEST04 **Lab Code:** CHEM **Case No.:** P5022 **SAS No.:** P5022

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV10	Mercury	3.85	4.0	96	90 - 110	CV	12/02/2024	15:45	LB133693

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions **SDG No.:** P5022

Contract: WEST04 **Lab Code:** CHEM **Case No.:** P5022 **SAS No.:** P5022

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV72	Mercury	4.91	5.0	98	90 - 110	CV	12/02/2024	15:52	LB133693
CCV73	Mercury	5.18	5.0	104	90 - 110	CV	12/02/2024	16:20	LB133693
CCV74	Mercury	5.19	5.0	104	90 - 110	CV	12/02/2024	16:45	LB133693

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Metals

- 2b -
CRDL STANDARD FOR AA & ICP

Client: Weston Solutions **SDG No.:** P5022

Contract: WEST04 **Lab Code:** CHEM **Case No.:** P5022 **SAS No.:** P5022

Initial Calibration Source:

Continuing Calibration Source:

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRA	Mercury	0.21	0.2	103	40 - 160	CV	12/02/2024	15:57	LB133693

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Weston Solutions **SDG No.:** P5022

Contract: WEST04 **Lab Code:** CHEM **Case No.:** P5022 **SAS No.:** P5022

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB10	Mercury	0.20	+/-0.20	U	0.16	0.20	CV	12/02/2024	15:47	LB133693

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Weston Solutions **SDG No.:** P5022

Contract: WEST04 **Lab Code:** CHEM **Case No.:** P5022 **SAS No.:** P5022

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB72	Mercury	0.20	+/-0.20	U	0.16	0.20	CV	12/02/2024	15:55	LB133693
CCB73	Mercury	0.20	+/-0.20	U	0.16	0.20	CV	12/02/2024	16:22	LB133693
CCB74	Mercury	0.20	+/-0.20	U	0.16	0.20	CV	12/02/2024	16:47	LB133693

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Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Weston Solutions **SDG No.:** P5022

Instrument: CV1

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	LOD mg/Kg	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB165333BL		**SOLID**		**Batch Number:**		**PB165333**		**Prep Date:**	**12/02/2024**	
	Mercury	0.013	<0.013	U	0.010	0.013	CV	12/02/2024	16:43	LB133693

METAL QC DATA

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metals
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MATRIX SPIKE SUMMARY

client: Weston Solutions **level:** low **sdg no.:** P5022

contract: WEST04 **lab code:** CHEM **case no.:** P5022 **sas no.:** P5022

matrix: Solid **sample id:** P5022-01 **client id:** TAPIAL2-SB02D-13-112424-00-T1MS

Percent Solids for Sample: 92.9 **Spiked ID:** P5022-01MS **Percent Solids for Spike Sample:** 92.9

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	mg/Kg	80 - 124	0.27		0.018		0.26	96		CV

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metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: Weston Solutions **level:** low **sdg no.:** P5022

contract: WEST04 **lab code:** CHEM **case no.:** P5022 **sas no.:** P5022

matrix: Solid **sample id:** P5022-01 **client id:** TAPIAL2-SB02D-13-112424-00-T1MSD

Percent Solids for Sample: 92.9 **Spiked ID:** P5022-01MSD **Percent Solids for Spike Sample:** 92.9

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	mg/Kg	80 - 124	0.28		0.018		0.26	103		CV

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Metals
- 5b -

Client: Weston Solutions **SDG No.:** P5022

Contract: WEST04 **Lab Code:** CHEM **Case No.:** P5022 **SAS No.:** P5022

Matrix: **Level:** LOW **Client ID:**

Sample ID: **Spiked ID:**

Analyte	Units	Acceptance Limit %R	C	Sample Result	C	Spike Added	% Recovery	Qual	M

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Metals

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DUPLICATE SAMPLE SUMMARY

Client: Weston Solutions **Level:** LOW **SDG No.:** P5022

Contract: WEST04 **Lab Code:** CHEM **Case No.:** P5022 **SAS No.:** P5022

Matrix: Solid **Sample ID:** P5022-01 **Client ID:** TAPIAL2-SB02D-13-112424-00-T1DUP

Percent Solids for Sample: 92.9 **Duplicate ID** P5022-01DUP **Percent Solids for Spike Sample:** 92.9

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Mercury	mg/Kg	20	0.018		0.017		6		CV

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

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Metals

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DUPLICATE SAMPLE SUMMARY

Client: Weston Solutions **Level:** LOW **SDG No.:** P5022

Contract: WEST04 **Lab Code:** CHEM **Case No.:** P5022 **SAS No.:** P5022

Matrix: Solid **Sample ID:** P5022-01MS **Client ID:** TAPIAL2-SB02D-13-112424-00-T1MSD

Percent Solids for Sample: 92.9 **Duplicate ID** P5022-01MSD **Percent Solids for Spike Sample:** 92.9

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Mercury	mg/Kg	20	0.27		0.28		6		CV

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

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LABORATORY CONTROL SAMPLE SUMMARY

Client: Weston Solutions **SDG No.:** P5022

Contract: WEST04 **Lab Code:** CHEM **Case No.:** P5022 **SAS No.:** P5022

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB165333BS							
Mercury	mg/Kg	0.25	0.22		88	80 - 124	CV

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Metals

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ICP SERIAL DILUTIONS

SAMPLE NO.

TAPIAL2-SB02D-13-112424-00-T1L

Lab Name: Chemtech Consulting Group **Contract:** WEST04

Lab Code: CHEM **Lb No.:** lb133693 **Lab Sample ID :** P5022-01L **SDG No.:** P5022

Matrix (soil/water): Solid **Level (low/med):** LOW

Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Mercury	0.018		0.066	U	100.0		CV

METAL PREPARATION & INSTRUMENT DATA

METAL PREPARATION & ANALYICAL SUMMARY

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Metals
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SAMPLE PREPARATION SUMMARY

Client: Weston Solutions **SDG No.:** P5022

Contract: WEST04 **Lab Code:** CHEM **Method:**

Case No.: P5022 **SAS No.:** P5022

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB165333**						
P5022-01	TAPIAL2-SB02D-13-112424-00-T1	SAM	SOLID	12/02/2024	0.57	35.0	92.90
P5022-01DUP	TAPIAL2-SB02D-13-112424-00-T1DUP	DUP	SOLID	12/02/2024	0.56	35.0	92.90
P5022-01MS	TAPIAL2-SB02D-13-112424-00-T1MS	MS	SOLID	12/02/2024	0.58	35.0	92.90
P5022-01MSD	TAPIAL2-SB02D-13-112424-00-T1MSD	MSD	SOLID	12/02/2024	0.57	35.0	92.90
PB165333BL	PB165333BL	MB	SOLID	12/02/2024	0.54	35.0	100.00
PB165333BS	PB165333BS	LCS	SOLID	12/02/2024	0.56	35.0	100.00

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metals
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ANALYSIS RUN LOG

Client: Weston Solutions **Contract:** WEST04

Lab code: CHEM **Case no.:** P5022 **Sas no.:** P5022 **Sdg no.:** P5022

Instrument id number: **Method:** **Run number:** LB133693

Start date: 12/02/2024 **End date:** 12/02/2024

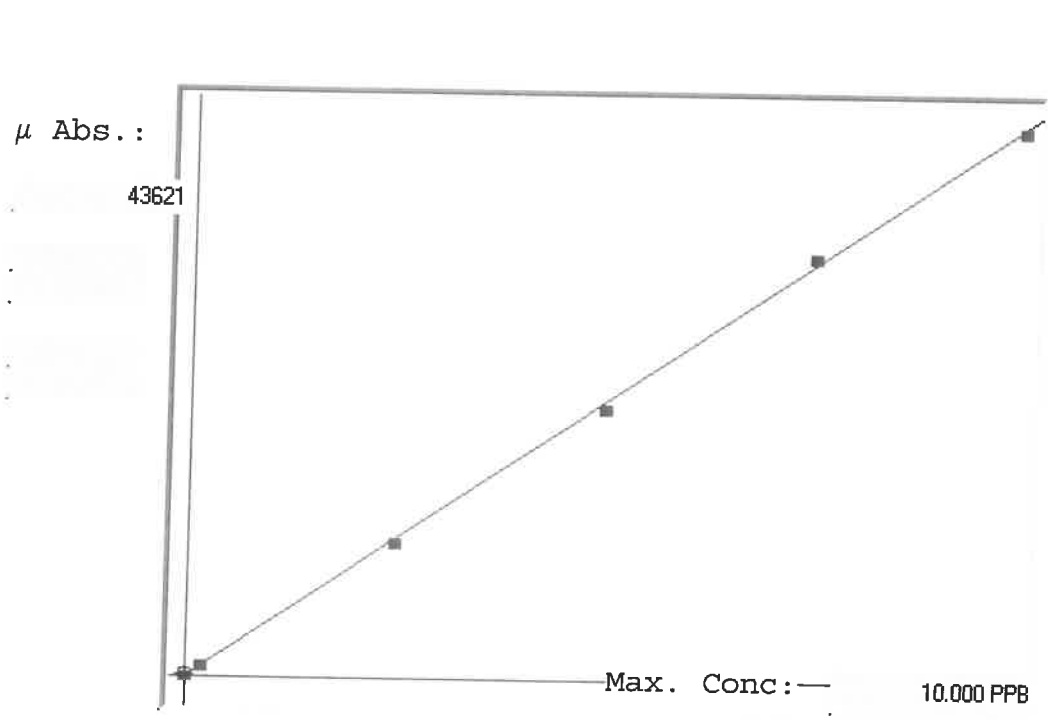
Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1519	HG
S0.2	S0.2	1	1529	HG
S2.5	S2.5	1	1532	HG
S5	S5	1	1534	HG
S7.5	S7.5	1	1536	HG
S10	S10	1	1542	HG
ICV10	ICV10	1	1545	HG
ICB10	ICB10	1	1547	HG
CCV72	CCV72	1	1552	HG
CCB72	CCB72	1	1555	HG
CRA	CRA	1	1557	HG
PB165333BS	PB165333BS	1	1606	HG
P5022-01	TAPIAL2-SB02D-13-112424-00	1	1608	HG
P5022-01DUP	TAPIAL2-SB02D-13-112424-00	1	1611	HG
P5022-01MS	TAPIAL2-SB02D-13-112424-00	1	1613	HG
P5022-01MSD	TAPIAL2-SB02D-13-112424-00	1	1615	HG
CCV73	CCV73	1	1620	HG
CCB73	CCB73	1	1622	HG
P5022-01L	TAPIAL2-SB02D-13-112424-00	5	1638	HG
PB165333BL	PB165333BL	1	1643	HG
CCV74	CCV74	1	1645	HG
CCB74	CCB74	1	1647	HG

METAL
RAW DATA

LB133693

7471B

INSTRUMENT ID: CV1



Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	%D
0.0	0.000	0.032	0.032	166	0.000	166					
0.2	0.200	0.214	0.014	966	0.0 %	966					7
2.5	2.500	2.455	-0.045	10786	0.0 %	10786					-2
5.0	5.000	4.913	-0.087	21561	0.0 %	21561					-2
7.5	7.500	7.642	0.142	33523	0.0 %	33523					2
10.0	10.000	9.945	-0.055	43621	0.0 %	43621					-1

Reviewed By:mohan
On:12/3/2024 9:07:07 AM
Inst Id :CV1
LB :LB133693

LB133693 INSTRUMENT ID : CV1

Method: 7471B Operator: Admin Date of Analysis: 02 Dec 2024 15:18:11

Sample ID	Extended ID	µ Abs	Conc	Stnd Conc	Method	Units	Date	Type	Type
0.0 - 1	50	166	-	0.0000	7471B	PPB	02 Dec 2024 15:19:25	S	Std
0.2 - 1	50.2	966	-	0.2000	7471B	PPB	02 Dec 2024 15:29:54	S	Std
2.5 - 1	52.5	10786	-	2.5000	7471B	PPB	02 Dec 2024 15:32:11	S	Std
5.0 - 1	55	21561	-	5.0000	7471B	PPB	02 Dec 2024 15:34:27	S	Std
7.5 - 1	57.5	33523	-	7.5000	7471B	PPB	02 Dec 2024 15:36:47	S	Std
10.0 - 1	510	43621	-	10.0000	7471B	PPB	02 Dec 2024 15:42:38	S	Std
ICV108 - 1	ICV108	16923	3.8546	-	7471B	PPB	02 Dec 2024 15:45:26	U	SMPL
ICB108 - 1	ICB108	-181	-0.0474	-	7471B	PPB	02 Dec 2024 15:47:44	U	SMPL
CCV72 - 1	CCV72	21544	4.9088	-	7471B	PPB	02 Dec 2024 15:52:51	U	SMPL
CCB72 - 1	CCB72	-240	-0.0608	-	7471B	PPB	02 Dec 2024 15:55:06	U	SMPL
CRA - 1	CRA	927	0.2054	-	7471B	PPB	02 Dec 2024 15:57:24	U	SMPL
HighStd - 1	HighStd	44140	10.0636	-	7471B	PPB	02 Dec 2024 15:59:39	U	SMPL
ChkStd - 1	ChkStd	31163	7.1032	-	7471B	PPB	02 Dec 2024 16:01:55	U	SMPL
PB165333BS - 1	LCSS	15449	3.5183	-	7471B	PPB	02 Dec 2024 16:06:41	U	SMPL
P5022-01 - 1	TAPIAL2-SB02D-13-112424-00-T1	1212	0.2704	-	7471B	PPB	02 Dec 2024 16:08:57	U	SMPL
P5022-01DUP - 1	TAPIAL2-SB02D-13-112424-00-T1DUP	1132	0.2522	-	7471B	PPB	02 Dec 2024 16:11:16	U	SMPL
P5022-01MS - 1	TAPIAL2-SB02D-13-112424-00-T1MS	18085	4.1197	-	7471B	PPB	02 Dec 2024 16:13:35	U	SMPL
P5022-01MSD - 1	TAPIAL2-SB02D-13-112424-00-T1MSD	18887	4.3026	-	7471B	PPB	02 Dec 2024 16:15:54	U	SMPL
P5025-01 - 1	SOIL-WEST	2481	0.5599	-	7471B	PPB	02 Dec 2024 16:18:13	U	SMPL
CCV73 - 1	CCV73	22715	5.1759	-	7471B	PPB	02 Dec 2024 16:20:31	U	SMPL
CCB73 - 1	CCB73	-162	-0.0430	-	7471B	PPB	02 Dec 2024 16:22:47	U	SMPL
P5025-05 - 1	SOIL-EAST	2352	0.5305	-	7471B	PPB	02 Dec 2024 16:25:06	U	SMPL
P5026-01 - 1	SOIL-1-HAM	1408	0.3151	-	7471B	PPB	02 Dec 2024 16:27:21	U	SMPL
P5026-05 - 1	SOIL-1-HAM	3254	0.7363	-	7471B	PPB	02 Dec 2024 16:29:37	U	SMPL
P5045-01 - 1	SU-04-11222024	3958	0.8969	-	7471B	PPB	02 Dec 2024 16:31:53	U	SMPL
P5046-01 - 1	HD-01-11272024	3617	0.8191	-	7471B	PPB	02 Dec 2024 16:34:09	U	SMPL
P5048-01 - 1	MH-746-WC	6646	1.5101	-	7471B	PPB	02 Dec 2024 16:36:27	U	SMPL
P5022-01LX5 - 1		-17	-0.0100	-	7471B	PPB	02 Dec 2024 16:38:45	U	SMPL
P5022-01A - 1		18805	4.2839	-	7471B	PPB	02 Dec 2024 16:41:03	U	SMPL
PB165333BL - 1	PBS	-28	-0.0125	-	7471B	PPB	02 Dec 2024 16:43:20	U	SMPL
CCV74 - 1	CCV74	22787	5.1923	-	7471B	PPB	02 Dec 2024 16:45:38	U	SMPL
CCB74 - 1	CCB74	-104	-0.0298	-	7471B	PPB	02 Dec 2024 16:47:54	U	SMPL

Alliance TECHNICAL GROUP

Soil/Sludge Mercury Preparation Sheet

PB165333

SOP ID : M7471B-Mercury-18

SDG No : NA

Matrix : SOIL

Pippete ID: HG A

Balance ID : M SC-3

Filter paper ID : NA

pH Strip ID : NA

Hood ID : #1

Block ID: 1. HG HOT BLOCK#3 2. N/A

Start Digest Date: 12/02/2024 **Time :** 09:25 **Temp :** 94 °C

End Digest Date: 12/02/2024 **Time :** 09:55 **Temp :** 94 °C

Digestion tube ID: M5595

Block thermometer ID: HG-DIG#3

Dig Technician Signature: MB

Supervisor Signature: JV

Temp : 1. 94°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
ICV	30mL	MP83417
CCV	30mL	MP83419
CRA	30mL	MP83421
Blank Spike	0.48mL	MP83410
Matrix Spike	0.48mL	MP83410

Chemical Used	ML/SAMPLE USED	Lot Number
AQUA REGIA	1.5mL	MP83423
KMnO4 (5%)	4.5mL	MP83208
Hydroxylamine HCL (12%)	2.0mL	MP83210
PTFE Boiling Stones	----------	M4583
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

LAB SAMPLE ID	CLIENT SAMPLE ID	Wt(g)/Vol(ml)	Comment
0.0 ppb	S0	30mL	MP83411
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	30mL	MP83412
2.5 ppb	S2.5	30mL	MP83413
5.0 ppb	S5.0	30mL	MP83414
7.5 ppb	S7.5	30mL	MP83415
10.0 ppb	S10.0	30mL	MP83416
ICV	ICV	30mL	MP83417
ICB	ICB	30mL	MP83418
CCV	CCV	30mL	MP83419
CCB	CCB	30mL	MP83420
CRI	CRI	30mL	MP83421
CHK STD	CHK STD	30mL	MP83422

Extraction Conformance/Non-Conformance Comments:

N/A

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
12/2/24 @ 11:35	MB - Dig Lab	MB - Det Lab
	Preparation Group	**Analysis Group**

Alliance TECHNICAL GROUP

Soil/Sludge Mercury Preparation Sheet

PB165333

Lab Sample ID	Client Sample ID	Initial Weight (g)	Final Vol (ml)	pH	Comment	Prep Pos
P5022-01	TAPIAL2-SB02D-13-112424-00-T1	0.57	35	NA	N/A	3-1
P5022-01DUP	TAPIAL2-SB02D-13-112424-00-T1DUP	0.56	35	NA	N/A	2
P5022-01MS	TAPIAL2-SB02D-13-112424-00-T1MS	0.58	35	NA	MP83410	3
P5022-01MSD	TAPIAL2-SB02D-13-112424-00-T1MSD	0.57	35	NA	MP83410	4
P5025-01	SOIL-WEST	0.52	35	NA	N/A	5
P5025-05	SOIL-EAST	0.51	35	NA	N/A	6
P5026-01	SOIL-1-HAM	0.53	35	NA	N/A	7
P5026-05	SOIL-1-HAM	0.59	35	NA	N/A	8
P5045-01	SU-04-11222024	0.53	35	NA	N/A	9
P5046-01	HD-01-11272024	0.51	35	NA	N/A	10
P5048-01	MH-746-WC	0.52	35	NA	N/A	11
PB165333BL	PBS333	0.54	35	NA	N/A	12
PB165333BS	LCS333	0.56	35	NA	MP83410	13

WORKLIST(Hardcopy Internal Chain)

WorkList Name : 120224_7471 **WorkList ID :** 185866 **Department :** Digestion **Date :** 12-02-2024 07:38:01

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P5025-01	SOIL-WEST	Solid	Mercury	Cool 4 deg C	TULL02	L61	11/27/2024	7471B
P5025-05	SOIL-EAST	Solid	Mercury	Cool 4 deg C	TULL02	L61	11/27/2024	7471B
P5026-01	SOIL-1-HAM	Solid	Mercury	Cool 4 deg C	TULL02	L61	11/27/2024	7471B
P5026-05	SOIL-1-HAM	Solid	Mercury	Cool 4 deg C	TULL02	L61	11/27/2024	7471B
P5022-01	TAPIAL2-SB02D-13-112424-00-	Solid	Mercury	Cool 4 deg C	TULL02	L61	11/27/2024	7471B
P5048-01	MH-746-WC	Solid	Mercury	Cool 4 deg C	WEST04	L41	11/24/2024	7471B
P5045-01	SU-04-11222024	Solid	Mercury	Cool 4 deg C	PSEG03	L61	11/27/2024	7471B
P5046-01	HD-01-11272024	Solid	Mercury	Cool 4 deg C	PSEG05	L51	11/27/2024	7471B
P5046-01	HD-01-11272024	Solid	Mercury	Cool 4 deg C	PSEG05	L51	11/27/2024	7471B

Date/Time 12/2/24 @ 9:00

Raw Sample Received by: MB - DLS 'Log

Raw Sample Relinquished by: MB - DLS 'Log

Date/Time 12/2/24 @ 9:45

Raw Sample Received by: MB - DLS 'Log

Raw Sample Relinquished by: MB - DLS 'Log

PERCENT SOLID

Supervisor: Iwona
Analyst: jignesh
Date: 12/2/2024

OVENTEMP IN Celsius(°C): 107
Time IN: 17:15
In Date: 11/27/2024
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
OvenID: M OVEN#1

OVENTEMP OUT Celsius(°C): 103
Time OUT: 08:15
Out Date: 11/28/2024
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
BalanceID: M SC-4
Thermometer ID: % SOLID- OVEN

QC: LB133667

Lab ID	Client SampleID	Dish #	Dish Wt(g) (A)	Sample Wt(g)	Dish + Sample Wt(g) (B)	Dish+Dry Sample Wt(g) (C)	% Solid	Comments
P5022-01	TAPIAL2-SB02D-13-112424-00-T1	1	1.15	8.70	9.85	9.23	92.9	
P5025-01	SOIL-WEST	2	1.18	8.43	9.61	8.41	85.8	
P5025-03	SOIL-WEST-TPH2	3	1.17	8.60	9.77	8.54	85.7	
P5025-04	SOIL-WEST-GRAB	4	1.16	8.49	9.65	8.43	85.6	
P5025-05	SOIL-EAST	5	1.15	8.73	9.88	7.85	76.7	
P5025-07	SOIL-EAST-TPH2	6	1.11	8.70	9.81	7.76	76.4	
P5025-08	SOIL-EAST-GRAB	7	1.15	8.82	9.97	9.39	93.4	
P5026-01	SOIL-1-HAM	8	1.13	8.65	9.78	8.00	79.4	
P5026-03	SOIL-1-HAM-TPH2	9	1.17	8.50	9.67	8.72	88.8	
P5026-04	SOIL-1-HAM-GRAB	10	1.18	8.42	9.6	8.66	88.8	
P5026-05	SOIL-1-HAM	11	1.15	8.81	9.96	8.00	77.8	
P5026-07	SOIL-1-HAM-TPH2	12	1.19	8.50	9.69	7.51	74.4	
P5026-08	SOIL-1-HAM-GRAB	13	1.14	8.75	9.89	7.7	75.0	
P5045-01	SU-04-11222024	14	1.19	8.50	9.69	8.96	91.4	
P5045-02	SU-04-11222024-E2	15	1.13	8.74	9.87	8.49	84.2	
P5046-01	HD-01-11272024	16	1.17	8.57	9.74	8.8	89.0	
P5046-02	HD-01-11272024-E2	17	1.16	8.83	9.99	9.00	88.8	
P5048-01	MH-746-WC	18	1.17	8.65	9.82	9.18	92.6	
P5048-02	MH-746-EPH	19	1.15	8.80	9.95	8.91	88.2	
P5048-03	MH-746--VOC	20	1.15	8.36	9.51	8.48	87.7	

$$\% \text{ Solid} = \frac{(C-A) * 100}{(B-A)}$$

WORKLIST(Hardcopy Internal Chain)

JB 133667

WorkList Name : %1-112724 **WorkList ID :** 185820 **Department :** Wet-Chemistry **Date :** 11-27-2024 08:06:01

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P5022-01	TAPIAL2-SB02D-13-112424-00-	Solid	Percent Solids	Cool 4 deg C	WEST04	L41	11/24/2024	Chemtech -SO
P5025-01	SOIL-WEST	Solid	Percent Solids	Cool 4 deg C	TULL02	L61	11/27/2024	Chemtech -SO
P5025-03	SOIL-WEST-TPH2	Solid	Percent Solids	Cool 4 deg C	TULL02	L61	11/27/2024	Chemtech -SO
P5025-04	SOIL-WEST-GRAB	Solid	Percent Solids	Cool 4 deg C	TULL02	L61	11/27/2024	Chemtech -SO
P5025-05	SOIL-EAST	Solid	Percent Solids	Cool 4 deg C	TULL02	L61	11/27/2024	Chemtech -SO
P5025-07	SOIL-EAST-TPH2	Solid	Percent Solids	Cool 4 deg C	TULL02	L61	11/27/2024	Chemtech -SO
P5025-08	SOIL-EAST-GRAB	Solid	Percent Solids	Cool 4 deg C	TULL02	L61	11/27/2024	Chemtech -SO
P5026-01	SOIL-1-HAM	Solid	Percent Solids	Cool 4 deg C	TULL02	L61	11/27/2024	Chemtech -SO
P5026-03	SOIL-1-HAM-TPH2	Solid	Percent Solids	Cool 4 deg C	TULL02	L61	11/27/2024	Chemtech -SO
P5026-04	SOIL-1-HAM-GRAB	Solid	Percent Solids	Cool 4 deg C	TULL02	L61	11/27/2024	Chemtech -SO
P5026-05	SOIL-1-HAM	Solid	Percent Solids	Cool 4 deg C	TULL02	L61	11/27/2024	Chemtech -SO
P5026-07	SOIL-1-HAM-TPH2	Solid	Percent Solids	Cool 4 deg C	TULL02	L61	11/27/2024	Chemtech -SO
P5026-08	SOIL-1-HAM-GRAB	Solid	Percent Solids	Cool 4 deg C	TULL02	L61	11/27/2024	Chemtech -SO
P5045-01	SU-04-11222024	Solid	Percent Solids	Cool 4 deg C	TULL02	L61	11/27/2024	Chemtech -SO
P5045-02	SU-04-11222024-E2	Solid	Percent Solids	Cool 4 deg C	PSEG05	L51	11/27/2024	Chemtech -SO
P5046-01	HD-01-11272024	Solid	Percent Solids	Cool 4 deg C	PSEG05	L51	11/27/2024	Chemtech -SO
P5046-02	HD-01-11272024-E2	Solid	Percent Solids	Cool 4 deg C	PSEG05	L51	11/27/2024	Chemtech -SO
P5048-01	MH-746-WC	Solid	Percent Solids	Cool 4 deg C	PSEG05	L51	11/27/2024	Chemtech -SO
P5048-02	MH-746-EPH	Solid	Percent Solids	Cool 4 deg C	PSEG03	L61	11/27/2024	Chemtech -SO
P5048-03	MH-746--VOC	Solid	Percent Solids	Cool 4 deg C	PSEG03	L61	11/27/2024	Chemtech -SO

Date/Time 11-27-24 16:10

Raw Sample Received by: JB WC1

Raw Sample Relinquished by: [signature]

Date/Time 11-27-24 17:20

Raw Sample Received by: [signature]

Raw Sample Relinquished by: JB WC

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

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QCBatch ID # LB133693

Review By	jaswal	Review On	12/3/2024 9:06:44 AM
Supervise By	mohan	Supervise On	12/3/2024 9:07:07 AM

STD. NAME	STD REF.#
ICAL Standard	MP83411,MP83412,MP83413,MP83414,MP83415,MP83416
ICV Standard	MP83417
CCV Standard	MP83419
ICSA Standard	
CRI Standard	MP83421
LCS Standard	
Chk Standard	MP83418,MP83420,MP83422,MP83424

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	12/02/24 15:19		Mohan	OK
2	S0.2	S0.2	CAL2	12/02/24 15:29		Mohan	OK
3	S2.5	S2.5	CAL3	12/02/24 15:32		Mohan	OK
4	S5	S5	CAL4	12/02/24 15:34		Mohan	OK
5	S7.5	S7.5	CAL5	12/02/24 15:36		Mohan	OK
6	S10	S10	CAL6	12/02/24 15:42		Mohan	OK
7	ICV10	ICV10	ICV	12/02/24 15:45		Mohan	OK
8	ICB10	ICB10	ICB	12/02/24 15:47		Mohan	OK
9	CCV72	CCV72	CCV	12/02/24 15:52		Mohan	OK
10	CCB72	CCB72	CCB	12/02/24 15:55		Mohan	OK
11	CRA	CRA	CRDL	12/02/24 15:57		Mohan	OK
12	HighStd	HighStd	HIGH STD	12/02/24 15:59		Mohan	OK
13	ChkStd	ChkStd	SAM	12/02/24 16:01		Mohan	OK
14	PB165333BS	PB165333BS	LCS	12/02/24 16:06		Mohan	OK
15	P5022-01	TAPIAL2-SB02D-13-1	SAM	12/02/24 16:08		Mohan	OK
16	P5022-01DUP	TAPIAL2-SB02D-13-1	DUP	12/02/24 16:11		Mohan	OK
17	P5022-01MS	TAPIAL2-SB02D-13-1	MS	12/02/24 16:13		Mohan	OK
18	P5022-01MSD	TAPIAL2-SB02D-13-1	MSD	12/02/24 16:15		Mohan	OK

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

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QCBatch ID # LB133693

Review By	jaswal	Review On	12/3/2024 9:06:44 AM
Supervise By	mohan	Supervise On	12/3/2024 9:07:07 AM

STD. NAME	STD REF.#
ICAL Standard	MP83411,MP83412,MP83413,MP83414,MP83415,MP83416
ICV Standard	MP83417
CCV Standard	MP83419
ICSA Standard	
CRI Standard	MP83421
LCS Standard	
Chk Standard	MP83418,MP83420,MP83422,MP83424

19	P5025-01	SOIL-WEST	SAM	12/02/24 16:18		Mohan	OK
20	CCV73	CCV73	CCV	12/02/24 16:20		Mohan	OK
21	CCB73	CCB73	CCB	12/02/24 16:22		Mohan	OK
22	P5025-05	SOIL-EAST	SAM	12/02/24 16:25		Mohan	OK
23	P5026-01	SOIL-1-HAM	SAM	12/02/24 16:27		Mohan	OK
24	P5026-05	SOIL-1-HAM	SAM	12/02/24 16:29		Mohan	OK
25	P5045-01	SU-04-11222024	SAM	12/02/24 16:31		Mohan	OK
26	P5046-01	HD-01-11272024	SAM	12/02/24 16:34		Mohan	OK
27	P5048-01	MH-746-WC	SAM	12/02/24 16:36		Mohan	OK
28	P5022-01L	TAPIAL2-SB02D-13-1	SD	12/02/24 16:38		Mohan	OK
29	P5022-01A	TAPIAL2-SB02D-13-1	PS	12/02/24 16:41		Mohan	OK
30	PB165333BL	PB165333BL	MB	12/02/24 16:43		Mohan	OK
31	CCV74	CCV74	CCV	12/02/24 16:45		Mohan	OK
32	CCB74	CCB74	CCB	12/02/24 16:47		Mohan	OK

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Prep Standard - Chemical Standard Summary

Order ID : P5022

Test : Mercury

Prepbatch ID : PB165333,

Sequence ID/Qc Batch ID: LB133693,

Standard ID :
MP83208,MP83210,MP83410,MP83411,MP83412,MP83413,MP83414,MP83415,MP83416,MP83417,MP83418,MP83419,MP83420,MP83421,MP83422,MP83423,MP83424,

Chemical ID :
M4371,M4583,M4916,M5062,M5882,M5884,M5953,M6121,M6124,W3112,

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Fax : 908 789 8922

Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
65	POTASSIUM PERMANGANATE SOLUTION 5 %	MP83208	11/11/2024	05/11/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 11/11/2024

FROM 100.00000gram of M4916 + 2000.00000ml of W3112 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
67	SODIUM CHLORIDE - HYDROXYL- CHLORIDE SOLUTION	MP83210	11/11/2024	05/11/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 11/11/2024

FROM 2000.00000ml of W3112 + 240.00000gram of M4371 + 240.00000gram of M5884 = Final Quantity: 2000.000 ml

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Fax : 908 789 8922

Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP83410	12/02/2024	12/03/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 1.00000ml of M6124 + 2.50000ml of M5062 + 96.50000ml of W3112 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1340	Hg 0.00 PPB STD	MP83411	12/02/2024	12/03/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 2.50000ml of M6124 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

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Fax : 908 789 8922

Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1341	Hg 0.2 PPB STD	MP83412	12/02/2024	12/03/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 2.50000ml of M6124 + 247.30000ml of W3112 + 0.20000ml of MP83410 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1342	Hg 2.5 PPB STD	MP83413	12/02/2024	12/03/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 2.50000ml of M6124 + 245.00000ml of W3112 + 2.50000ml of MP83410 = Final Quantity: 250.000 ml

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

Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1343	Hg 5.0 PPB STD	MP83414	12/02/2024	12/03/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 2.50000ml of M6124 + 242.50000ml of W3112 + 5.00000ml of MP83410 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1344	Hg 7.5 PPB STD	MP83415	12/02/2024	12/03/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 2.50000ml of M6124 + 240.00000ml of W3112 + 7.50000ml of MP83410 = Final Quantity: 250.000 ml

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

Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1345	Hg 10.0 PPB STD	MP83416	12/02/2024	12/03/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 2.50000ml of M6124 + 237.50000ml of W3112 + 10.00000ml of MP83410 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1346	Hg ICV SOLUTION	MP83417	12/02/2024	12/03/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 2.50000ml of M5953 + 2.50000ml of M6124 + 245.00000ml of W3112 = Final Quantity: 250.000 ml

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

Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1351	ICB (Hg 0.00 PPB SOLUTION)	MP83418	12/02/2024	12/03/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 2.50000ml of M6124 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1358	CCV (Hg 5.0 PPB SOLUTION)	MP83419	12/02/2024	12/03/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 485.00000ml of W3112 + 5.00000ml of M6124 + 10.00000ml of MP83410 = Final Quantity: 500.000 ml

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

Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1352	CCB (Hg 0.00 PPB SOLUTION)	MP83420	12/02/2024	12/03/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 495.00000ml of W3112 + 5.00000ml of M6124 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1349	CRA/CRI (Hg 0.2 PPB SOLUTION)	MP83421	12/02/2024	12/03/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 2.50000ml of M6124 + 247.30000ml of W3112 + 0.20000ml of MP83410 = Final Quantity: 250.000 ml

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Fax : 908 789 8922

Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1350	CHK STD (Hg 7.0 PPB SOLUTION)	MP83422	12/02/2024	12/03/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 2.50000ml of M6124 + 240.50000ml of W3112 + 7.00000ml of MP83410 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
887	AQUA REGIA FOR HG ON 7471A	MP83423	12/02/2024	12/03/2024	Mohan Bera	None	None	Sarabjit Jaswal 12/03/2024

FROM 150.00000ml of M6121 + 50.00000ml of M6124 = Final Quantity: 200.000 ml

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Fax : 908 789 8922

Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
68	STANNOUS CHLORIDE SOLUTION	MP83424	12/02/2024	12/03/2024	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 12/03/2024

FROM 450.00000ml of W3112 + 50.00000gram of M5882 + 50.00000ml of M6121 = Final Quantity: 500.000 ml

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Fax : 908 789 8922

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-2196-01 / Hydroxylamine Hydrochloride, Crystal (cs/4x500g)	0000215387	06/25/2025	07/01/2019 / RICHARD	06/07/2019 / RICHARD	M4371

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Labpure	0919120 / Boiling Stones	26275770	07/07/2025	07/03/2020 / mohan	05/07/2020 / mohan	M4583

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3227-05 / Potassium Permanganate (2.5kg)	210800	03/31/2026	11/30/2022 / mohan	07/28/2021 / mohan	M4916

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	MSHG-10PPM / MERCURY HCl 125mL 10ug/mL	S2-HG709270	09/22/2026	05/28/2022 / mohan	01/27/2022 / mohan	M5062

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3980-01 / Stannous Chloride (cs/4x500g)	232820	08/31/2028	04/30/2024 / mohan	04/25/2024 / mohan	M5882

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3624-05 / Sodium Chloride, Crystal (cs/4x2.5kg)	0000281938	07/06/2026	04/30/2024 / mohan	04/25/2024 / mohan	M5884

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Fax : 908 789 8922

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-5 / ICV (HG) STOCK SOLN	ICV5-0415	01/01/2025	07/01/2024 / mohan	03/30/2023 / mohan	M5953

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	0000275677	05/13/2025	11/13/2024 / Eman	10/13/2024 / Eman	M6121

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24D1062002	05/22/2025	11/22/2024 / Janvi	10/22/2024 / Janvi	M6124

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	07/03/2029	07/03/2024 / Iwona	07/03/2024 / Iwona	W3112

ThermoFisher SCIENTIFIC

M5882 M3

Certificate of Analysis

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120633

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the final formulator and end user to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

Catalog Number	T142	Quality Test / Release Date	08/17/2023
Lot Number	232820		
Description	STANNOUS CHLORIDE, DIHYDRATE CERTIFIED ACS (Suitable for Mercury Determination)		
Country of Origin	United States	Suggested Retest Date	Aug/2028
Chemical Origin	Inorganic-non animal		
BSE/TSE Comment	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Clear crystals
ASSAY	%	Inclusive Between 98 - 103	100.65
CALCIUM	%	<= 0.005	0.0017
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
IRON (Fe)	%	<= 0.003	0.0011
LEAD (Pb)	%	<= 0.01	0.0006
MERCURY (Hg)	ppm	<= 0.05	<0.05
POTASSIUM (K)	%	<= 0.005	0.0001
SODIUM (Na)	%	<= 0.01	<0.01
SOLUBILITY IN HCL	PASS/FAIL	= PASS TEST	PASS TEST
SULFATE (SO4)	PASS/FAIL	= P.T. (ABOUT 0.003%)	P.T. (ABOUT 0.003%)

Harout Sahagian - Quality Control Supervisor - Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
If there are any questions with this certificate, please call at (800) 227-6701.
*Based on suggested storage condition.

M4371

Hydroxylamine Hydrochloride, Crystal
BAKER ANALYZED® A.C.S. Reagent
Suitable for Mercury Determination
(hydroxylammonium chloride)

Rec – 06.07.19

J.T.Baker® | avantor™

Material No.: 2196-01
Batch No.: 0000215387
Manufactured Date: 2018/06/27
Retest Date: 2025/06/25
Revision No: 1

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay ($NH_2OH \cdot HCl$) (by $KMnO_4$ titrn)	>= 96.0 %	99.1
Clarity of Alcohol Solution	Passes Test	PT
Residue after Ignition	<= 0.050 %	0.017
Titrable Free Acid (meq/g)	<= 0.25	0.19
Ammonium (NH_4)	Passes Test	PT
Sulfur Compounds (as SO_4)	<= 0.005 %	< 0.003
Trace Impurities - ACS - Heavy Metals (as Pb)	<= 5 ppm	4
Trace Impurities - Iron (Fe)	<= 5 ppm	< 3
Trace Impurities - Mercury (Hg)	<= 0.050 ppm	< 0.005

For Laboratory, Research or Manufacturing Use

Country of Origin: CN
Packaging Site: Paris Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2015, FSSC22000
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Gliwice, Poland 9001:2015, 13485:2012
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2015, 17025:2005
Panoli, India 9001:2015

James Ethier
Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

M45 P3
Exp 12+. 5 7x4
MB

SAINT-GOBAIN

Manufacturer:
Saint-Gobain Performance Plastics
11 Sicho Drive
Poestenkill, NY 12140

Certificate of Conformance

Part Number/ Revision:	D1069103 0	**Customer Part Number/ Revision:**	1069103 N/A
Description:	*PTFE BOILING STONES-450 GRAMS		
Lot Number:	26275770	**Lot Quantity:**	10 EA
Date of Manufacture (MM/DD/YY)	03/23/20	**Expiration Date: (MM/DD/YY)**	N/A
Post Processing Run Number: (Refer to the attached Certificate for Additional Detail)		N/A	

We certify the material listed above confirms in full with the following specifications:

All items have been manufactured, inspected, tested, and accepted in accordance with our Quality Management system, ISO 9001-2015. Documentation substantiating this certification is kept on record per the Company's retention policy and is available for review.
All materials and processes used in manufacturing conform to the materials and/or manufacturing specifications and notes indicated on the purchase order, drawing, specifications, quality assurance requirements, or other applicable documents effective on the date of manufacture.
Saint-Gobain does not warrant the product for any particular application and it is the responsibility of the user to conduct tests that are deemed necessary to determine the suitability of the product for any particular use. Saint-Gobain's sole responsibility shall be for failure to manufacture the product in accordance with specifications and requirements of the buyer, and from defects in material and workmanship. This warranty is expressly made in lieu of any and all other warranties and Saint-Gobain's sole liability shall be to replace any product not in conformance with the specification and requirements of the buyer.

Quality Approval:	Jonathan Kimble	**Date:**	05/13/20

ThermoFisher SCIENTIFIC

M4913-16

MB

Certificate of Analysis

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120632

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Catalog Number	P279	Quality Test / Release Date	01/12/2021
Lot Number	210306		
Description	POTASSIUM PERMANGANATE, A.C.S.		
Country of Origin	United States	Suggested Retest Date	Jan/2026

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Dark purple to purple green crystals
ASSAY	%	>= 99	99.3
CHLORIDE & CHLORATE	%	<= 0.005	<0.005
IDENTIFICATION	PASS/FAIL	= PASS TEST	pass test
INSOLUBLE MATTER	%	<= 0.2	<0.2
MERCURY (Hg)	ppm	<= 0.05	<0.004
SULFATE (SO4)	%	<= 0.02	<0.02

Julian Burton

Julian Burton - Quality Control Manager – Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
If there are any questions with this certificate, please call at (800) 227-6701.
*Based on suggested storage condition.

INORGANIC VENTURES
Refine your results. Redefine your industry.

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

M5062
M5063
M3

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Mass Spec Solution
Catalog Number:	MSHG-10PPM
Lot Number:	S2-HG709270
Matrix:	10% (v/v) HCl
Value / Analyte(s):	10 µg/mL ea: Mercury
Starting Material:	Hg metal
Starting Material Lot#:	1959
Starting Material Purity:	99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.001 ± 0.053 µg/mL

Density: 1.020 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Hg	ICP Assay	3133	160921
Hg	EDTA	928	928
Hg	Calculated		See Sec. 4.2

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$X_{CRM/RM} = \Sigma(w_i)(X_i)$

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance.

$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Ag		0.000011	M	Eu	<	0.000201	O	Na		0.000004	M	Se	<	0.015915	O	Zn	<	0.001510
O	Al		0.000001	O	Fe		0.000001	M	Nb	<	0.000201	O	Si		0.000005	M	Zr	<	0.000201
M	As	<	0.000402	M	Ga	<	0.000201	M	Nd	<	0.000201	M	Sm	<	0.000201				
M	Au	<	0.003631	M	Gd	<	0.000201	M	Ni	<	0.000402	M	Sn	<	0.001007				
M	B	<	0.001208	M	Ge	<	0.000201	M	Os	<	0.000605	M	Sr	<	0.000201				
M	Ba	<	0.000201	M	Hf	<	0.000201	O	P	<	0.032370	M	Ta	<	0.000201				
M	Be	<	0.000201	s	Hg	<		M	Pb	<	0.000201	M	Tb	<	0.000201				
M	Bi	<	0.000201	M	Ho	<	0.000201	M	Pd	<	0.000403	M	Te	<	0.002216				
O	Ca		0.000007	M	In	<	0.000201	M	Pr	<	0.000201	M	Th	<	0.000201				
M	Cd	<	0.000201	M	Ir	<	0.000201	M	Pt	<	0.000402	M	Ti	<	0.000402				
M	Ce	<	0.000201	O	K		0.000020	M	Rb	<	0.000201	O	Tl	<	0.016508				
M	Co	<	0.000201	M	La	<	0.000201	M	Re	<	0.000201	M	Tm	<	0.000201				
O	Cr	<	0.003021	O	Li	<	0.000107	M	Rh	<	0.000201	M	U	<	0.008058				
M	Cs	<	0.001208	M	Lu	<	0.000201	M	Ru	<	0.000201	M	V	<	0.000201				
M	Cu	<	0.000402	O	Mg		0.000001	O	S	<	0.053950	M	W	<	0.000604				
M	Dy	<	0.000201	M	Mn	<	0.000604	M	Sb	<	0.001208	M	Y	<	0.000201				
M	Er	<	0.000201	M	Mo		0.000009	M	Sc	<	0.000201	M	Yb	<	0.000201				

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 200.59 +2 4 Hg(OH)(aq) 1+

Chemical Compatibility - Stable in HNO3. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.

Stability - 2-100 ppb levels not stable in 1% HNO3 / LDPE container, stable in 10% HNO3 packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO3 packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO3 / LDPE container.

Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO3); Oxide (Soluble in HNO3); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 202 amu	9 ppt	n/a	186W16O
ICP-OES 184.950 nm	0.03 / 0.005 µg/mL	1	
ICP-OES 194.227 nm	0.03 / 0.005 µg/mL	1	V
ICP-OES 253.652 nm	0.1 / 0.03 µg/mL	1	Ta, Co, Th ,Rh , Fe, U

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 22, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- September 22, 2026

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Supervisor, Product Documentation

Certificate Approved By:

Michael Booth
Director, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Sodium Chloride, Crystal
BAKER ANALYZED® A.C.S. Reagent

MF884
MB

avantor™ | J.T.Baker®

Material No.: 3624-01
Batch No.: 0000281938
Manufactured Date: 2021-06-07
Retest Date: 2026-06-07
Revision No.: 1

Certificate of Analysis

Test	Specification	Result
Assay (NaCl) (by Ag titrn)	≥ 99.0 %	100.0 %
pH of 5% Solution at 25°C	5.0 - 9.0	6.3
Insoluble Matter	≤ 0.005 %	0.003 %
Iodide (I)	≤ 0.002 %	< 0.002 %
Bromide (Br)	≤ 0.01 %	< 0.01 %
Chlorate and Nitrate (as NO_3)	≤ 0.003 %	< 0.001 %
ACS - Phosphate (PO_4)	≤ 5 ppm	< 5 ppm
Sulfate (SO_4)	≤ 0.004 %	< 0.004 %
Barium (Ba)	Passes Test	Passes Test
ACS - Heavy Metals (as Pb)	≤ 5 ppm	< 5 ppm
Iron (Fe)	≤ 2 ppm	< 1 ppm
Calcium (Ca)	≤ 0.002 %	< 0.001 %
Magnesium (Mg)	≤ 0.001 %	< 0.001 %
Potassium (K)	≤ 0.005 %	0.001 %

For Laboratory,Research,or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs
Country of Origin: USA
Packaging Site: Paris Mfg Ctr & DC

James T Ethier

Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Avantor Performance Materials, LLC
100 Mansford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700

QATS LABORATORY INORGANIC REFERENCE MATERIAL INITIAL CALIBRATION VERIFICATION SOLUTIONS (ICV1, ICV5, AND ICV6)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

MSS28-37 MB MSS53 MB 3/30/23

Contains Metals in Dilute Acidic or Cyanide in Basic Aqueous Solutions
HAZARDOUS MATERIAL

Safety Data Sheets Available Upon Request

(A) *SAMPLE DESCRIPTION*

Enclosed is a set of one (1) or more Aqueous Inorganic Reference Materials containing various analyte concentrations. ICV1 and ICV5 are in a matrix of dilute nitric acid. ICV6 is in a matrix of dilute basic solution. **For the reference material source in reporting ICVs use "USEPA". For the reference material lot number for the ICV1, ICV5, and ICV6 solutions use "ICV1-1014", "ICV5-0415", and "ICV6-0400", respectively.**

(B) *BREAKAGE OR MISSING ITEMS*

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) *ANALYSIS OF SAMPLES*

The Initial Calibration Verification Solutions (ICVs) are to be used to evaluate the accuracy of the initial calibrations of ICP, AA, and Cyanide colorimetric instruments, and are to be used with the CLP SOWs and revisions. The values for each element in the ICVs are listed below in µg/L (ppb) for the resulting solution(s) after the dilution of the concentrate(s) according to the following instructions. Use Class 'A' glassware to prepare the solution(s).

ICV1-1014 For ICP-AES analysis, use a 10-fold dilution by pipetting 10 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid.

Instructions for QATS Reference Material: *Inorganic ICV Solutions*

ICV1-1014 For ICP-MS analysis, use a 50-fold dilution by pipetting 2 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.

ICV5-0415 For the cold vapor analysis of mercury by AA, use a 100-fold dilution by pipetting 1 mL of the ICV5 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v) $K_2Cr_2O_7$ and 5% (v/v) nitric acid.

ICV6-0400 For the analysis of cyanide, use a 100-fold dilution by pipetting 1 mL of the ICV6 concentrate into a 100 mL volumetric flask and dilute to volume with Type II water. Distill this solution along with the samples before analysis. The cyanide concentrate is prepared from $K_3Fe(CN)_6$, Type II water, and 0.1 % sodium hydroxide, and will decompose rapidly if exposed to light.

NOTE: USE TYPE II WATER AND HIGH-PURITY ACIDS FOR ALL DILUTIONS.

(D) *CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS*

ICV1-1014		
Element	**Concentration (µg/L) (after 10-fold dilution)**	**Concentration (µg/L) (after 50-fold dilution)**
Al	2500	500
Sb	1000	200
As	1000	200
Ba	520	100
Be	510	100
Cd	510	100
Ca	10000	2000
Cr	520	100
Co	520	100
Cu	510	100
Fe	10000	2000
Pb	1000	200
Mg	6000	1200
Mn	520	100
Ni	530	110
K	9900	2000
Se	1000	200
Ag	250	50
Na	10000	2000
Tl	1000	210
V	500	100
Zn	1000	200

ICV5-0415		ICV6-0400	
Element	**Concentration (µg/L) (after 100-fold dilution)**	**Analyte**	**Concentration (µg/L) (after 100-fold dilution)**
Hg	4.0	CN^-	99

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™ | J.T.Baker®

R → 10/13/24
Met dig

M 6121

Material No.: 9530-33
Batch No.: 0000275677
Manufactured Date: 2020/12/16
Retest Date: 2025/12/15
Revision No: 1

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid-base titrn)	36.5 – 38.0 %	37.6
ACS – Color (APHA)	<= 10	5
ACS – Residue after Ignition	<= 3 ppm	1
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.190
ACS – Bromide (Br)	<= 0.005 %	< 0.005
ACS – Extractable Organic Substances	<= 5 ppm	1
ACS – Free Chlorine (as Cl_2)	<= 0.5 ppm	< 0.5
Phosphate (PO_4)	<= 0.05 ppm	< 0.03
Sulfate (SO_4)	<= 0.5 ppm	< 0.3
Sulfite (SO_3)	<= 0.8 ppm	0.3
Ammonium (NH_4)	<= 3 ppm	< 1
Trace Impurities – Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities – Aluminum (Al)	<= 10.0 ppb	< 0.2
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities – Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities – Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities – Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities – Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities – Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities – Calcium (Ca)	<= 50.0 ppb	29.7
Trace Impurities – Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities – Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities – Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities – Gallium (Ga)	<= 1.0 ppb	< 0.2

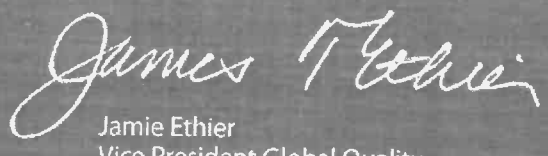
For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

Material No.: 9530-33
Batch No.: 0000275677

Test	Specification	Result
Trace Impurities - Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 15.0 ppb	<1
Trace Impurities - Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	0.2
Trace Impurities - Magnesium (Mg)	<= 10.0 ppb	0.4
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.1
Trace Impurities - Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities - Nickel (Ni)	<= 4.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	< 0.2
Trace Impurities - Potassium (K)	<= 9.0 ppb	< 2.0
Trace Impurities - Selenium (Se), For Information Only	ppb	1.0
Trace Impurities - Silicon (Si)	<= 100.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 100.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 1.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Titanium (Ti)	<= 1.0 ppb	0.2
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC



Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

R:- 10/22/24

MG124

Material No.: 9606-03
Batch No.: 24D1062002
Manufactured Date: 2024-03-26
Retest Date: 2029-03-25
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO_3)	69.0 - 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	1 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.03 ppm
Phosphate (PO_4)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities - Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities - Calcium (Ca)	≤ 50.0 ppb	2.3 ppb
Trace Impurities - Chromium (Cr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities - Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Germanium (Ge)	≤ 20 ppb	< 10 ppb
Trace Impurities - Gold (Au)	≤ 20 ppb	< 5 ppb
Heavy Metals (as Pb)	≤ 100 ppb	100 ppb
Trace Impurities - Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities - Lead (Pb)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities - Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Nickel (Ni)	≤ 20.0 ppb	< 5.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24D1062002

Test	Specification	Result
Trace Impurities - Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities - Potassium (K)	≤ 50 ppb	16 ppb
Trace Impurities - Silicon (Si)	≤ 50 ppb	< 10 ppb
Trace Impurities - Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Sodium (Na)	≤ 150.0 ppb	< 5.0 ppb
Trace Impurities - Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities - Tantalum (Ta)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Thallium (Tl)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Tin (Sn)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count - 0.5 µm and greater	≤ 60 par/ml	10 par/ml
Particle Count - 1.0 µm and greater	≤ 10 par/ml	3 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24D1062002

Test	Specification	Result

For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

Jamie Croak
Director Quality Operations, Bioscience Production

SHIPPING DOCUMENTS

P5022

Weston COC ID
Weston_20241126_1529

Chain of Custody Record/Lab Work Request

Page 1 of 1

Client:	Weston Solutions, Inc.		
Project Manager:	David Sembrot		
Street Address:	1400 Weston Way	City:	West Chester
Phone:	610-314-5456	ST, ZIP:	PA, 19038
e-mail:	david.sembrot@westonsolutions.com		
Sampled By:	Cheyenne Harrington		

Project Name:	Fort Meade RI	**Project POC:**	Nathan Fretz
PO Number	0111169	**Phone:**	484-524-5665
W.O. #:		**POC e-mail:**	nathan.fretz@westonsolutions.com
Lab:	Chemtech	**Lab POC:**	Jordan Hedvat
TAT (days):	21	**Lab Phone:**	908-728-3148
Lab Address:	284 Sheffield Street Mountainside, NJ 07092		

Matrix Codes	
SB -	Soil
SE -	Sediment
SO -	Solid
SL -	Sludge
GW -	Groundwater
W -	Water
O -	Oil
A -	Air
DS -	Drum Solids
DL -	Drum Liquids
L -	EP/TCLP Leachate
WI -	Wipe
X -	Other
F -	Fish

Lab Use Only		
Temperature of cooler when received (°C)		
COC Tape was present and unbroken on outer package?	Y	N
Samples received in good condition?	Y	N
Labels indicate properly preserved?	Y	N
Received within holding times?	Y	N
Discrepancies between sample labels and COC record?	Y	N

#	Sample ID	G/C	Matrix	# Cont	MS/MSD	Date Collected	Time Collected	TAL Metals by EPA 6020B/7471B	pH by EPA 9045D	Anions by EPA 9056A	TOC by EPA 9060A							Special Instructions/Comments
Analyses Requested:																		
Container Type:								Glass	Glass	Glass	Glass							
Container Size:								8 oz	8 oz	8 oz	8 oz							
Preservative:								Ice to 0-6	Ice to 0-6	Ice to 0-6	Ice to 0-6							
1	TAPIAL2-SB02D-13-112424-00-T1	g	SB	3	no	11/24/2024	16:30	X	X	X	X							
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

Shipping Airbill Number: 7702 6101 1180

Cooler Number: 1 of 1

	Relinquished By	Date	Time	Received By	Date	Time	Additional Comments
1.)		11/26/24	1600		1005 11-27-24	1005	QSM 6.0 Compliant
2.)							Deliverable Requirements: DoD Level IV report, EnviroData EDD, and ERIS-compatible EDD
3.)							

Zf Cu #1 3.4°C

Laboratory Certification

Certified By	License No.
CAS EPA CLP Contract	68HERH20D0011
Connecticut	PH-0830
DOD ELAP (ANAB)	L2219
Maine	2024021
Maryland	296
New Hampshire	255424 Rev 1
New Jersey	20012
New York	11376
Pennsylvania	68-00548
Soil Permit	525-24-234-08441
Texas	T104704488