

DATA PACKAGE METALS

PROJECT NAME : NWIRP BETHPAGE 112G08005-WE13

TETRA TECH NUS, INC.

661 Andersen Drive

Suite 200

Pittsburgh, PA - 15220-2745

Phone No: 412-921-7090

ORDER ID : Q1122

ATTENTION : Ernie Wu



Laboratory Certification ID # 20012



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Cover Page

Order ID : Q1122

Project ID : NWIRP Bethpage 112G08005-WE13

Client : Tetra Tech NUS, Inc.

Lab Sample Number

Q1122-01
Q1122-02

Client Sample Number

RW10A-20250116
RW10A-F-20250116

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 : _____

Date: 1/30/2025

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012



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

CASE NARRATIVE

Tetra Tech NUS, Inc.

Project Name: NWIRP Bethpage 112G08005-WE13

Project Manager: Ernie Wu

Chemtech Project # Q1122

Test Name: Dissolved ICP-TAL Metals, Metals ICP-TAL, Dissolved Mercury, Mercury

A. Number of Samples and Date of Receipt:

2 Water samples were received on 01/16/2025.

B. Parameters:

According to the Chain of Custody document, the following analyses were requested: Alkalinity, Dissolved ICP-TAL Metals, Dissolved Mercury, DISSOLVED METALS-TAL, Mercury, Metals ICP-TAL, METALS-TAL, PCB, PESTICIDE Group2, Pesticide-PCB, Pesticide-TCL, pH, Phosphorus-Total, SVOC-TCL BNA -20, TDS and TSS. This data package contains results for Dissolved ICP-TAL Metals, Metals ICP-TAL, Dissolved Mercury, Mercury.

C. Analytical Techniques:

The analysis of Dissolved ICP-TAL Metals, Metals ICP-TAL was based on method 6010D, digestion based on method 3010 (waters). The analysis and digestion of Dissolved Mercury, Mercury was based on method 7470A.

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 (RW10A-F-20250116MS) analysis met criteria for all samples except for Aluminum, Barium, Beryllium, Iron, Magnesium, Manganese, Vanadium due to matrix interference.

The Matrix Spike Duplicate (RW10A-F-20250116MSD) analysis met criteria for all samples except for Beryllium, Magnesium, Manganese due to matrix interference.

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:

Sample Q1122-01 was analyzed as total Metals and sample Q1122-02 was analyzed as Dissolved Metals.



The laboratory certifies that the all-electronic diskette deliverable exactly match the data summary forms (i.e. Form Is).

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_____

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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: Q1122

MATRIX: Water

METHOD: 6010D,7470A

	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.			
The Matrix Spike (RW10A-F-20250116MS) analysis met criteria for all samples except for Aluminum, Barium, Beryllium, Iron, Magnesium, Manganese, Vanadium due to matrix interference. The Matrix Spike Duplicate (RW10A-F-20250116MSD) analysis met criteria for all samples except for Beryllium, Magnesium, Manganese due to matrix interference.			
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: Sample Q1122-01 was analyzed as total Metals and sample Q1122-02 was analyzed as Dissolved Metals.

The laboratory certifies that the all-electronic diskette deliverable exactly match the data summary forms (i.e. Form Is).

QA REVIEW

Date

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: Q1122

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: 01/30/2025

LAB CHRONICLE

OrderID:	Q1122	OrderDate:	1/17/2025 8:43:00 AM
Client:	Tetra Tech NUS, Inc.	Project:	NWIRP Bethpage 112G08005-WE13
Contact:	Ernie Wu	Location:	E11,M11

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
Q1122-01	RW10A-20250116	Water	Mercury	7470A	01/16/25	01/22/25	01/23/25	01/16/25
			Metals ICP-TAL	6010D		01/21/25	01/21/25	
Q1122-02	RW10A-F-20250116	Water	Dissolved ICP-TAL Metals	6010D	01/16/25	01/21/25	01/21/25	01/16/25
			Dissolved Mercury	7470A		01/22/25	01/23/25	

Hit Summary Sheet
SW-846

SDG No.: Q1122 **Order ID:** Q1122
Client: Tetra Tech NUS, Inc. **Project ID:** NWIRP Bethpage 112G08005-WE13

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	LOD	RDL	Units
Client ID : RW10A-20250116									
Q1122-01	RW10A-20250116	Water	Aluminum	704		28.3	40.0	50.0	ug/L
Q1122-01	RW10A-20250116	Water	Barium	10.5	J	6.28	12.5	50.0	ug/L
Q1122-01	RW10A-20250116	Water	Beryllium	0.14	J	0.13	0.75	3.00	ug/L
Q1122-01	RW10A-20250116	Water	Calcium	9470		33.0	250	1000	ug/L
Q1122-01	RW10A-20250116	Water	Chromium	0.70	J	0.66	2.50	5.00	ug/L
Q1122-01	RW10A-20250116	Water	Cobalt	17.4		0.50	3.75	15.0	ug/L
Q1122-01	RW10A-20250116	Water	Copper	25.7		7.07	8.00	10.0	ug/L
Q1122-01	RW10A-20250116	Water	Iron	2190		18.5	40.0	50.0	ug/L
Q1122-01	RW10A-20250116	Water	Magnesium	3880		39.4	250	1000	ug/L
Q1122-01	RW10A-20250116	Water	Manganese	113		1.46	2.50	10.0	ug/L
Q1122-01	RW10A-20250116	Water	Nickel	18.4	J	0.85	5.00	20.0	ug/L
Q1122-01	RW10A-20250116	Water	Potassium	3090		685	800	1000	ug/L
Q1122-01	RW10A-20250116	Water	Silver	0.65	J	0.58	2.50	5.00	ug/L
Q1122-01	RW10A-20250116	Water	Sodium	47400		237	500	1000	ug/L
Q1122-01	RW10A-20250116	Water	Zinc	78.2		1.75	5.00	20.0	ug/L
Client ID : RW10A-F-20250116									
Q1122-02	RW10A-F-20250116	Water	Aluminum	696		28.3	40.0	50.0	ug/L
Q1122-02	RW10A-F-20250116	Water	Barium	10.2	J	6.28	12.5	50.0	ug/L
Q1122-02	RW10A-F-20250116	Water	Beryllium	0.14	J	0.13	0.75	3.00	ug/L
Q1122-02	RW10A-F-20250116	Water	Calcium	9420		33.0	250	1000	ug/L
Q1122-02	RW10A-F-20250116	Water	Cobalt	17.4		0.50	3.75	15.0	ug/L
Q1122-02	RW10A-F-20250116	Water	Copper	18.4		7.07	8.00	10.0	ug/L
Q1122-02	RW10A-F-20250116	Water	Iron	2190		18.5	40.0	50.0	ug/L
Q1122-02	RW10A-F-20250116	Water	Magnesium	3880		39.4	250	1000	ug/L
Q1122-02	RW10A-F-20250116	Water	Manganese	114		1.46	2.50	10.0	ug/L
Q1122-02	RW10A-F-20250116	Water	Nickel	18.5	J	0.85	5.00	20.0	ug/L
Q1122-02	RW10A-F-20250116	Water	Potassium	3030		685	800	1000	ug/L
Q1122-02	RW10A-F-20250116	Water	Sodium	47700		237	500	1000	ug/L
Q1122-02	RW10A-F-20250116	Water	Zinc	77.8		1.75	5.00	20.0	ug/L



SAMPLE DATA

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/16/25
Project:	NWIRP Bethpage 112G08005-WE13	Date Received:	01/16/25
Client Sample ID:	RW10A-20250116	SDG No.:	Q1122
Lab Sample ID:	Q1122-01	Matrix:	Water
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7429-90-5	Aluminum	704	N	1	28.3	40.0	50.0	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7440-36-0	Antimony	6.25	U	1	2.06	6.25	25.0	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7440-38-2	Arsenic	8.00	U	1	3.48	8.00	10.0	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7440-39-3	Barium	10.5	JN	1	6.28	12.5	50.0	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7440-41-7	Beryllium	0.14	JN	1	0.13	0.75	3.00	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7440-43-9	Cadmium	0.75	U	1	0.094	0.75	3.00	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7440-70-2	Calcium	9470		1	33.0	250	1000	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7440-47-3	Chromium	0.70	J	1	0.66	2.50	5.00	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7440-48-4	Cobalt	17.4		1	0.50	3.75	15.0	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7440-50-8	Copper	25.7		1	7.07	8.00	10.0	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7439-89-6	Iron	2190	N	1	18.5	40.0	50.0	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7439-92-1	Lead	4.80	U	1	3.51	4.80	6.00	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7439-95-4	Magnesium	3880	N	1	39.4	250	1000	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7439-96-5	Manganese	113	N	1	1.46	2.50	10.0	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7439-97-6	Mercury	0.16	U	1	0.081	0.16	0.20	ug/L	01/22/25 15:10	01/23/25 10:39	SW7470A	
7440-02-0	Nickel	18.4	J	1	0.85	5.00	20.0	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7440-09-7	Potassium	3090		1	685	800	1000	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7782-49-2	Selenium	8.00	U	1	5.88	8.00	10.0	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7440-22-4	Silver	0.65	J	1	0.58	2.50	5.00	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7440-23-5	Sodium	47400		1	237	500	1000	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7440-28-0	Thallium	10.0	U	1	2.32	10.0	20.0	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7440-62-2	Vanadium	10.0	UN	1	3.06	10.0	20.0	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010
7440-66-6	Zinc	78.2		1	1.75	5.00	20.0	ug/L	01/21/25 10:40	01/21/25 14:26	SW6010	SW3010

Color Before:	Colorless	Clarity Before:	Clear	Texture:
Color After:	Colorless	Clarity After:	Clear	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

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	01/16/25
Project:	NWIRP Bethpage 112G08005-WE13	Date Received:	01/16/25
Client Sample ID:	RW10A-F-20250116	SDG No.:	Q1122
Lab Sample ID:	Q1122-02	Matrix:	Water
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7429-90-5	Aluminum	696	N	1	28.3	40.0	50.0	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7440-36-0	Antimony	6.25	U	1	2.06	6.25	25.0	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7440-38-2	Arsenic	8.00	U	1	3.48	8.00	10.0	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7440-39-3	Barium	10.2	JN	1	6.28	12.5	50.0	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7440-41-7	Beryllium	0.14	JN	1	0.13	0.75	3.00	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7440-43-9	Cadmium	0.75	U	1	0.094	0.75	3.00	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7440-70-2	Calcium	9420		1	33.0	250	1000	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7440-47-3	Chromium	2.50	U	1	0.66	2.50	5.00	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7440-48-4	Cobalt	17.4		1	0.50	3.75	15.0	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7440-50-8	Copper	18.4		1	7.07	8.00	10.0	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7439-89-6	Iron	2190	N	1	18.5	40.0	50.0	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7439-92-1	Lead	4.80	U	1	3.51	4.80	6.00	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7439-95-4	Magnesium	3880	N	1	39.4	250	1000	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7439-96-5	Manganese	114	N	1	1.46	2.50	10.0	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7439-97-6	Mercury	0.16	U	1	0.081	0.16	0.20	ug/L	01/22/25 15:10	01/23/25 10:42	SW7470A	
7440-02-0	Nickel	18.5	J	1	0.85	5.00	20.0	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7440-09-7	Potassium	3030		1	685	800	1000	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7782-49-2	Selenium	8.00	U	1	5.88	8.00	10.0	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7440-22-4	Silver	2.50	U	1	0.58	2.50	5.00	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7440-23-5	Sodium	47700		1	237	500	1000	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7440-28-0	Thallium	10.0	U	1	2.32	10.0	20.0	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7440-62-2	Vanadium	10.0	UN	1	3.06	10.0	20.0	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010
7440-66-6	Zinc	77.8		1	1.75	5.00	20.0	ug/L	01/21/25 10:40	01/21/25 14:30	SW6010	SW3010

Color Before:	Colorless	Clarity Before:	Clear	Texture:
Color After:	Colorless	Clarity After:	Clear	Artifacts:
Comments:	DISSOLVED 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: Tetra Tech NUS, Inc. **SDG No.:** Q1122
Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q1122 **SAS No.:** Q1122
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
ICV66	Mercury	4.06	4.0	102	90 - 110	CV	01/23/2025	10:19	LB134375

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** Q1122

Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q1122 **SAS No.:** Q1122

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
CCV62	Mercury	5.08	5.0	102	90 - 110	CV	01/23/2025	10:23	LB134375
CCV63	Mercury	5.17	5.0	103	90 - 110	CV	01/23/2025	10:56	LB134375
CCV64	Mercury	5.10	5.0	102	90 - 110	CV	01/23/2025	11:10	LB134375

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. SDG No.: Q1122
Contract: TETR06 Lab Code: CHEM Case No.: Q1122 SAS No.: Q1122
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Aluminum	2400	2500	96	90 - 110	P	01/21/2025	11:26	LB134358
	Antimony	1020	1000	102	90 - 110	P	01/21/2025	11:26	LB134358
	Arsenic	1030	1000	103	90 - 110	P	01/21/2025	11:26	LB134358
	Barium	477	520	92	90 - 110	P	01/21/2025	11:26	LB134358
	Beryllium	485	510	95	90 - 110	P	01/21/2025	11:26	LB134358
	Cadmium	505	510	99	90 - 110	P	01/21/2025	11:26	LB134358
	Calcium	9610	10000	96	90 - 110	P	01/21/2025	11:26	LB134358
	Chromium	529	520	102	90 - 110	P	01/21/2025	11:26	LB134358
	Cobalt	509	520	98	90 - 110	P	01/21/2025	11:26	LB134358
	Copper	524	510	103	90 - 110	P	01/21/2025	11:26	LB134358
	Iron	10300	10000	103	90 - 110	P	01/21/2025	11:26	LB134358
	Lead	1010	1000	101	90 - 110	P	01/21/2025	11:26	LB134358
	Magnesium	5700	6000	95	90 - 110	P	01/21/2025	11:26	LB134358
	Manganese	494	520	95	90 - 110	P	01/21/2025	11:26	LB134358
	Nickel	511	530	96	90 - 110	P	01/21/2025	11:26	LB134358
	Potassium	10000	9900	101	90 - 110	P	01/21/2025	11:26	LB134358
	Selenium	1040	1000	104	90 - 110	P	01/21/2025	11:26	LB134358
	Silver	252	250	101	90 - 110	P	01/21/2025	11:26	LB134358
	Sodium	9990	10000	100	90 - 110	P	01/21/2025	11:26	LB134358
	Thallium	1040	1000	104	90 - 110	P	01/21/2025	11:26	LB134358
	Vanadium	483	500	97	90 - 110	P	01/21/2025	11:26	LB134358
	Zinc	1020	1000	102	90 - 110	P	01/21/2025	11:26	LB134358

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. SDG No.: Q1122
Contract: TETR06 Lab Code: CHEM Case No.: Q1122 SAS No.: Q1122
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
LLICV01	Aluminum	90.4	100	90	80 - 120	P	01/21/2025	11:35	LB134358
	Antimony	49.2	50.0	98	80 - 120	P	01/21/2025	11:35	LB134358
	Arsenic	20.6	20.0	103	80 - 120	P	01/21/2025	11:35	LB134358
	Barium	93.4	100	93	80 - 120	P	01/21/2025	11:35	LB134358
	Beryllium	5.63	6.0	94	80 - 120	P	01/21/2025	11:35	LB134358
	Cadmium	5.80	6.0	97	80 - 120	P	01/21/2025	11:35	LB134358
	Calcium	1930	2000	96	80 - 120	P	01/21/2025	11:35	LB134358
	Chromium	9.51	10.0	95	80 - 120	P	01/21/2025	11:35	LB134358
	Cobalt	28.9	30.0	96	80 - 120	P	01/21/2025	11:35	LB134358
	Copper	21.6	20.0	108	80 - 120	P	01/21/2025	11:35	LB134358
	Iron	109	100	109	80 - 120	P	01/21/2025	11:35	LB134358
	Lead	11.8	12.0	98	80 - 120	P	01/21/2025	11:35	LB134358
	Magnesium	2030	2000	102	80 - 120	P	01/21/2025	11:35	LB134358
	Manganese	19.8	20.0	99	80 - 120	P	01/21/2025	11:35	LB134358
	Nickel	38.6	40.0	96	80 - 120	P	01/21/2025	11:35	LB134358
	Potassium	1980	2000	99	80 - 120	P	01/21/2025	11:35	LB134358
	Selenium	19.4	20.0	97	80 - 120	P	01/21/2025	11:35	LB134358
	Silver	10.3	10.0	103	80 - 120	P	01/21/2025	11:35	LB134358
	Sodium	2000	2000	100	80 - 120	P	01/21/2025	11:35	LB134358
	Thallium	39.3	40.0	98	80 - 120	P	01/21/2025	11:35	LB134358
	Vanadium	38.6	40.0	96	80 - 120	P	01/21/2025	11:35	LB134358
	Zinc	41.9	40.0	105	80 - 120	P	01/21/2025	11:35	LB134358

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. SDG No.: Q1122
Contract: TETR06 Lab Code: CHEM Case No.: Q1122 SAS No.: Q1122
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV01	Aluminum	9840	10000	98	90 - 110	P	01/21/2025	12:12	LB134358
	Antimony	4970	5000	100	90 - 110	P	01/21/2025	12:12	LB134358
	Arsenic	4890	5000	98	90 - 110	P	01/21/2025	12:12	LB134358
	Barium	9850	10000	98	90 - 110	P	01/21/2025	12:12	LB134358
	Beryllium	240	250	96	90 - 110	P	01/21/2025	12:12	LB134358
	Cadmium	2450	2500	98	90 - 110	P	01/21/2025	12:12	LB134358
	Calcium	24500	25000	98	90 - 110	P	01/21/2025	12:12	LB134358
	Chromium	992	1000	99	90 - 110	P	01/21/2025	12:12	LB134358
	Cobalt	2450	2500	98	90 - 110	P	01/21/2025	12:12	LB134358
	Copper	1240	1250	100	90 - 110	P	01/21/2025	12:12	LB134358
	Iron	5040	5000	101	90 - 110	P	01/21/2025	12:12	LB134358
	Lead	4890	5000	98	90 - 110	P	01/21/2025	12:12	LB134358
	Magnesium	24300	25000	97	90 - 110	P	01/21/2025	12:12	LB134358
	Manganese	2450	2500	98	90 - 110	P	01/21/2025	12:12	LB134358
	Nickel	2450	2500	98	90 - 110	P	01/21/2025	12:12	LB134358
	Potassium	25300	25000	101	90 - 110	P	01/21/2025	12:12	LB134358
	Selenium	4940	5000	99	90 - 110	P	01/21/2025	12:12	LB134358
	Silver	1240	1250	99	90 - 110	P	01/21/2025	12:12	LB134358
	Sodium	25300	25000	101	90 - 110	P	01/21/2025	12:12	LB134358
	Thallium	5100	5000	102	90 - 110	P	01/21/2025	12:12	LB134358
CCV02	Vanadium	2460	2500	98	90 - 110	P	01/21/2025	12:12	LB134358
	Zinc	2490	2500	100	90 - 110	P	01/21/2025	12:12	LB134358
	Aluminum	9660	10000	97	90 - 110	P	01/21/2025	13:01	LB134358
	Antimony	4910	5000	98	90 - 110	P	01/21/2025	13:01	LB134358
	Arsenic	4820	5000	96	90 - 110	P	01/21/2025	13:01	LB134358
	Barium	9770	10000	98	90 - 110	P	01/21/2025	13:01	LB134358
	Beryllium	238	250	95	90 - 110	P	01/21/2025	13:01	LB134358
	Cadmium	2420	2500	97	90 - 110	P	01/21/2025	13:01	LB134358
	Calcium	24000	25000	96	90 - 110	P	01/21/2025	13:01	LB134358
	Chromium	984	1000	98	90 - 110	P	01/21/2025	13:01	LB134358
	Cobalt	2420	2500	97	90 - 110	P	01/21/2025	13:01	LB134358
	Copper	1230	1250	98	90 - 110	P	01/21/2025	13:01	LB134358
	Iron	5050	5000	101	90 - 110	P	01/21/2025	13:01	LB134358
	Lead	4820	5000	96	90 - 110	P	01/21/2025	13:01	LB134358

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. SDG No.: Q1122
Contract: TETR06 Lab Code: CHEM Case No.: Q1122 SAS No.: Q1122
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV02	Magnesium	23800	25000	95	90 - 110	P	01/21/2025	13:01	LB134358
	Manganese	2400	2500	96	90 - 110	P	01/21/2025	13:01	LB134358
	Nickel	2420	2500	97	90 - 110	P	01/21/2025	13:01	LB134358
	Potassium	25100	25000	101	90 - 110	P	01/21/2025	13:01	LB134358
	Selenium	4870	5000	97	90 - 110	P	01/21/2025	13:01	LB134358
	Silver	1230	1250	99	90 - 110	P	01/21/2025	13:01	LB134358
	Sodium	25100	25000	100	90 - 110	P	01/21/2025	13:01	LB134358
	Thallium	5100	5000	102	90 - 110	P	01/21/2025	13:01	LB134358
	Vanadium	2420	2500	97	90 - 110	P	01/21/2025	13:01	LB134358
	Zinc	2470	2500	99	90 - 110	P	01/21/2025	13:01	LB134358
CCV03	Aluminum	9610	10000	96	90 - 110	P	01/21/2025	13:18	LB134358
	Antimony	4940	5000	99	90 - 110	P	01/21/2025	13:18	LB134358
	Arsenic	4870	5000	97	90 - 110	P	01/21/2025	13:18	LB134358
	Barium	9590	10000	96	90 - 110	P	01/21/2025	13:18	LB134358
	Beryllium	233	250	93	90 - 110	P	01/21/2025	13:18	LB134358
	Cadmium	2410	2500	96	90 - 110	P	01/21/2025	13:18	LB134358
	Calcium	23700	25000	95	90 - 110	P	01/21/2025	13:18	LB134358
	Chromium	974	1000	97	90 - 110	P	01/21/2025	13:18	LB134358
	Cobalt	2410	2500	96	90 - 110	P	01/21/2025	13:18	LB134358
	Copper	1230	1250	98	90 - 110	P	01/21/2025	13:18	LB134358
	Iron	4840	5000	97	90 - 110	P	01/21/2025	13:18	LB134358
	Lead	4810	5000	96	90 - 110	P	01/21/2025	13:18	LB134358
	Magnesium	23700	25000	95	90 - 110	P	01/21/2025	13:18	LB134358
	Manganese	2360	2500	94	90 - 110	P	01/21/2025	13:18	LB134358
	Nickel	2410	2500	96	90 - 110	P	01/21/2025	13:18	LB134358
	Potassium	24200	25000	97	90 - 110	P	01/21/2025	13:18	LB134358
	Selenium	4910	5000	98	90 - 110	P	01/21/2025	13:18	LB134358
	Silver	1200	1250	96	90 - 110	P	01/21/2025	13:18	LB134358
	Sodium	24400	25000	98	90 - 110	P	01/21/2025	13:18	LB134358
	Thallium	5090	5000	102	90 - 110	P	01/21/2025	13:18	LB134358
	Vanadium	2390	2500	96	90 - 110	P	01/21/2025	13:18	LB134358
CCV04	Zinc	2430	2500	97	90 - 110	P	01/21/2025	13:18	LB134358
	Aluminum	9510	10000	95	90 - 110	P	01/21/2025	13:56	LB134358
	Antimony	5020	5000	100	90 - 110	P	01/21/2025	13:56	LB134358

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. SDG No.: Q1122
Contract: TETR06 Lab Code: CHEM Case No.: Q1122 SAS No.: Q1122
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV04	Arsenic	4940	5000	99	90 - 110	P	01/21/2025	13:56	LB134358
	Barium	9550	10000	96	90 - 110	P	01/21/2025	13:56	LB134358
	Beryllium	226	250	90	90 - 110	P	01/21/2025	13:56	LB134358
	Cadmium	2410	2500	96	90 - 110	P	01/21/2025	13:56	LB134358
	Calcium	23300	25000	93	90 - 110	P	01/21/2025	13:56	LB134358
	Chromium	959	1000	96	90 - 110	P	01/21/2025	13:56	LB134358
	Cobalt	2410	2500	96	90 - 110	P	01/21/2025	13:56	LB134358
	Copper	1240	1250	99	90 - 110	P	01/21/2025	13:56	LB134358
	Iron	4930	5000	99	90 - 110	P	01/21/2025	13:56	LB134358
	Lead	4790	5000	96	90 - 110	P	01/21/2025	13:56	LB134358
	Magnesium	22900	25000	92	90 - 110	P	01/21/2025	13:56	LB134358
	Manganese	2310	2500	92	90 - 110	P	01/21/2025	13:56	LB134358
	Nickel	2410	2500	96	90 - 110	P	01/21/2025	13:56	LB134358
	Potassium	25100	25000	101	90 - 110	P	01/21/2025	13:56	LB134358
	Selenium	5040	5000	101	90 - 110	P	01/21/2025	13:56	LB134358
	Silver	1210	1250	96	90 - 110	P	01/21/2025	13:56	LB134358
	Sodium	25300	25000	101	90 - 110	P	01/21/2025	13:56	LB134358
	Thallium	5060	5000	101	90 - 110	P	01/21/2025	13:56	LB134358
	Vanadium	2360	2500	94	90 - 110	P	01/21/2025	13:56	LB134358
	Zinc	2420	2500	97	90 - 110	P	01/21/2025	13:56	LB134358
CCV05	Aluminum	9740	10000	97	90 - 110	P	01/21/2025	15:03	LB134358
	Antimony	5040	5000	101	90 - 110	P	01/21/2025	15:03	LB134358
	Arsenic	4970	5000	99	90 - 110	P	01/21/2025	15:03	LB134358
	Barium	9770	10000	98	90 - 110	P	01/21/2025	15:03	LB134358
	Beryllium	230	250	92	90 - 110	P	01/21/2025	15:03	LB134358
	Cadmium	2430	2500	97	90 - 110	P	01/21/2025	15:03	LB134358
	Calcium	23900	25000	96	90 - 110	P	01/21/2025	15:03	LB134358
	Chromium	978	1000	98	90 - 110	P	01/21/2025	15:03	LB134358
	Cobalt	2430	2500	97	90 - 110	P	01/21/2025	15:03	LB134358
	Copper	1250	1250	100	90 - 110	P	01/21/2025	15:03	LB134358
	Iron	5010	5000	100	90 - 110	P	01/21/2025	15:03	LB134358
	Lead	4840	5000	97	90 - 110	P	01/21/2025	15:03	LB134358
	Magnesium	23700	25000	95	90 - 110	P	01/21/2025	15:03	LB134358
	Manganese	2380	2500	95	90 - 110	P	01/21/2025	15:03	LB134358

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** Q1122
Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q1122 **SAS No.:** Q1122
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV05	Nickel	2430	2500	97	90 - 110	P	01/21/2025	15:03	LB134358
	Potassium	25400	25000	102	90 - 110	P	01/21/2025	15:03	LB134358
	Selenium	5030	5000	101	90 - 110	P	01/21/2025	15:03	LB134358
	Silver	1220	1250	97	90 - 110	P	01/21/2025	15:03	LB134358
	Sodium	25600	25000	102	90 - 110	P	01/21/2025	15:03	LB134358
	Thallium	5110	5000	102	90 - 110	P	01/21/2025	15:03	LB134358
	Vanadium	2420	2500	97	90 - 110	P	01/21/2025	15:03	LB134358
	Zinc	2450	2500	98	90 - 110	P	01/21/2025	15:03	LB134358

Metals

- 2b -

CRDL STANDARD FOR AA & ICP

Client: Tetra Tech NUS, Inc. **SDG No.:** Q1122
Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q1122 **SAS No.:** Q1122
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
CRI01	Aluminum	91.5	100	92	40 - 160	P	01/21/2025	11:59	LB134358
	Antimony	48.9	50.0	98	40 - 160	P	01/21/2025	11:59	LB134358
	Arsenic	20.8	20.0	104	40 - 160	P	01/21/2025	11:59	LB134358
	Barium	87.2	100	87	40 - 160	P	01/21/2025	11:59	LB134358
	Beryllium	5.73	6.0	96	40 - 160	P	01/21/2025	11:59	LB134358
	Cadmium	5.73	6.0	96	40 - 160	P	01/21/2025	11:59	LB134358
	Calcium	1890	2000	94	40 - 160	P	01/21/2025	11:59	LB134358
	Chromium	9.51	10.0	95	40 - 160	P	01/21/2025	11:59	LB134358
	Cobalt	29.0	30.0	97	40 - 160	P	01/21/2025	11:59	LB134358
	Copper	21.6	20.0	108	40 - 160	P	01/21/2025	11:59	LB134358
	Iron	101	100	101	40 - 160	P	01/21/2025	11:59	LB134358
	Lead	11.6	12.0	97	40 - 160	P	01/21/2025	11:59	LB134358
	Magnesium	1990	2000	100	40 - 160	P	01/21/2025	11:59	LB134358
	Manganese	19.3	20.0	96	40 - 160	P	01/21/2025	11:59	LB134358
	Nickel	38.7	40.0	97	40 - 160	P	01/21/2025	11:59	LB134358
	Potassium	1910	2000	96	40 - 160	P	01/21/2025	11:59	LB134358
	Selenium	19.8	20.0	99	40 - 160	P	01/21/2025	11:59	LB134358
	Silver	11.1	10.0	111	40 - 160	P	01/21/2025	11:59	LB134358
	Sodium	1960	2000	98	40 - 160	P	01/21/2025	11:59	LB134358
	Thallium	40.3	40.0	101	40 - 160	P	01/21/2025	11:59	LB134358
	Vanadium	38.1	40.0	95	40 - 160	P	01/21/2025	11:59	LB134358
	Zinc	42.1	40.0	105	40 - 160	P	01/21/2025	11:59	LB134358
CRA	Mercury	0.17	0.2	85	40 - 160	CV	01/23/2025	10:28	LB134375



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

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** Q1122
Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q1122 **SAS No.:** Q1122

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB66	Mercury	0.20	+/-0.20	U	0.16	0.20	CV	01/23/2025	10:21	LB134375

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc.		SDG No.: Q1122								
Contract:	TETR06	Lab Code:	CHEM	Case No.:	Q1122	SAS No.:	Q1122			
Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB62	Mercury	0.20	+/-0.20	U	0.16	0.20	CV	01/23/2025	10:26	LB134375
CCB63	Mercury	0.20	+/-0.20	U	0.16	0.20	CV	01/23/2025	10:58	LB134375
CCB64	Mercury	0.20	+/-0.20	U	0.16	0.20	CV	01/23/2025	11:12	LB134375

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc.		SDG No.: Q1122								
Contract: TETR06	Lab Code: CHEM	Case No.: Q1122	SAS No.: Q1122							
Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Aluminum	100	+/-100	U	80.0	100	P	01/21/2025	11:51	LB134358
	Antimony	50.0	+/-50.0	U	12.5	50.0	P	01/21/2025	11:51	LB134358
	Arsenic	20.0	+/-20.0	U	16.0	20.0	P	01/21/2025	11:51	LB134358
	Barium	100	+/-100	U	25.0	100	P	01/21/2025	11:51	LB134358
	Beryllium	6.00	+/-6.00	U	1.50	6.00	P	01/21/2025	11:51	LB134358
	Cadmium	6.00	+/-6.00	U	1.50	6.00	P	01/21/2025	11:51	LB134358
	Calcium	2000	+/-2000	U	500	2000	P	01/21/2025	11:51	LB134358
	Chromium	10.0	+/-10.0	U	5.00	10.0	P	01/21/2025	11:51	LB134358
	Cobalt	30.0	+/-30.0	U	7.50	30.0	P	01/21/2025	11:51	LB134358
	Copper	20.0	+/-20.0	U	16.0	20.0	P	01/21/2025	11:51	LB134358
	Iron	100	+/-100	U	80.0	100	P	01/21/2025	11:51	LB134358
	Lead	12.0	+/-12.0	U	9.60	12.0	P	01/21/2025	11:51	LB134358
	Magnesium	2000	+/-2000	U	500	2000	P	01/21/2025	11:51	LB134358
	Manganese	20.0	+/-20.0	U	5.00	20.0	P	01/21/2025	11:51	LB134358
	Nickel	40.0	+/-40.0	U	10.0	40.0	P	01/21/2025	11:51	LB134358
	Potassium	2000	+/-2000	U	1600	2000	P	01/21/2025	11:51	LB134358
	Selenium	20.0	+/-20.0	U	16.0	20.0	P	01/21/2025	11:51	LB134358
	Silver	10.0	+/-10.0	U	5.00	10.0	P	01/21/2025	11:51	LB134358
	Sodium	2000	+/-2000	U	1000	2000	P	01/21/2025	11:51	LB134358
	Thallium	40.0	+/-40.0	U	20.0	40.0	P	01/21/2025	11:51	LB134358
	Vanadium	40.0	+/-40.0	U	20.0	40.0	P	01/21/2025	11:51	LB134358
	Zinc	40.0	+/-40.0	U	10.0	40.0	P	01/21/2025	11:51	LB134358

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc.		SDG No.: Q1122								
Contract: TETR06	Lab Code: CHEM	Case No.: Q1122	SAS No.: Q1122							
Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Aluminum	100	+/-100	U	80.0	100	P	01/21/2025	12:16	LB134358
	Antimony	50.0	+/-50.0	U	12.5	50.0	P	01/21/2025	12:16	LB134358
	Arsenic	20.0	+/-20.0	U	16.0	20.0	P	01/21/2025	12:16	LB134358
	Barium	100	+/-100	U	25.0	100	P	01/21/2025	12:16	LB134358
	Beryllium	6.00	+/-6.00	U	1.50	6.00	P	01/21/2025	12:16	LB134358
	Cadmium	6.00	+/-6.00	U	1.50	6.00	P	01/21/2025	12:16	LB134358
	Calcium	2000	+/-2000	U	500	2000	P	01/21/2025	12:16	LB134358
	Chromium	10.0	+/-10.0	U	5.00	10.0	P	01/21/2025	12:16	LB134358
	Cobalt	30.0	+/-30.0	U	7.50	30.0	P	01/21/2025	12:16	LB134358
	Copper	20.0	+/-20.0	U	16.0	20.0	P	01/21/2025	12:16	LB134358
	Iron	100	+/-100	U	80.0	100	P	01/21/2025	12:16	LB134358
	Lead	12.0	+/-12.0	U	9.60	12.0	P	01/21/2025	12:16	LB134358
	Magnesium	2000	+/-2000	U	500	2000	P	01/21/2025	12:16	LB134358
	Manganese	20.0	+/-20.0	U	5.00	20.0	P	01/21/2025	12:16	LB134358
	Nickel	40.0	+/-40.0	U	10.0	40.0	P	01/21/2025	12:16	LB134358
	Potassium	2000	+/-2000	U	1600	2000	P	01/21/2025	12:16	LB134358
	Selenium	20.0	+/-20.0	U	16.0	20.0	P	01/21/2025	12:16	LB134358
	Silver	1.24	+/-10.0	J	5.00	10.0	P	01/21/2025	12:16	LB134358
	Sodium	2000	+/-2000	U	1000	2000	P	01/21/2025	12:16	LB134358
	Thallium	40.0	+/-40.0	U	20.0	40.0	P	01/21/2025	12:16	LB134358
	Vanadium	40.0	+/-40.0	U	20.0	40.0	P	01/21/2025	12:16	LB134358
	Zinc	40.0	+/-40.0	U	10.0	40.0	P	01/21/2025	12:16	LB134358
CCB02	Aluminum	100	+/-100	U	80.0	100	P	01/21/2025	13:06	LB134358
	Antimony	50.0	+/-50.0	U	12.5	50.0	P	01/21/2025	13:06	LB134358
	Arsenic	20.0	+/-20.0	U	16.0	20.0	P	01/21/2025	13:06	LB134358
	Barium	100	+/-100	U	25.0	100	P	01/21/2025	13:06	LB134358
	Beryllium	6.00	+/-6.00	U	1.50	6.00	P	01/21/2025	13:06	LB134358
	Cadmium	6.00	+/-6.00	U	1.50	6.00	P	01/21/2025	13:06	LB134358
	Calcium	2000	+/-2000	U	500	2000	P	01/21/2025	13:06	LB134358
	Chromium	10.0	+/-10.0	U	5.00	10.0	P	01/21/2025	13:06	LB134358
	Cobalt	30.0	+/-30.0	U	7.50	30.0	P	01/21/2025	13:06	LB134358
	Copper	20.0	+/-20.0	U	16.0	20.0	P	01/21/2025	13:06	LB134358
	Iron	100	+/-100	U	80.0	100	P	01/21/2025	13:06	LB134358
	Lead	12.0	+/-12.0	U	9.60	12.0	P	01/21/2025	13:06	LB134358
	Magnesium	2000	+/-2000	U	500	2000	P	01/21/2025	13:06	LB134358
	Manganese	20.0	+/-20.0	U	5.00	20.0	P	01/21/2025	13:06	LB134358
	Nickel	40.0	+/-40.0	U	10.0	40.0	P	01/21/2025	13:06	LB134358
	Potassium	2000	+/-2000	U	1600	2000	P	01/21/2025	13:06	LB134358
	Selenium	20.0	+/-20.0	U	16.0	20.0	P	01/21/2025	13:06	LB134358

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc.		SDG No.: Q1122								
Contract: TETR06	Lab Code: CHEM	Case No.: Q1122	SAS No.: Q1122							
Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB02	Silver	10.0	+/-10.0	U	5.00	10.0	P	01/21/2025	13:06	LB134358
	Sodium	2000	+/-2000	U	1000	2000	P	01/21/2025	13:06	LB134358
	Thallium	40.0	+/-40.0	U	20.0	40.0	P	01/21/2025	13:06	LB134358
	Vanadium	40.0	+/-40.0	U	20.0	40.0	P	01/21/2025	13:06	LB134358
	Zinc	40.0	+/-40.0	U	10.0	40.0	P	01/21/2025	13:06	LB134358
CCB03	Aluminum	100	+/-100	U	80.0	100	P	01/21/2025	13:22	LB134358
	Antimony	50.0	+/-50.0	U	12.5	50.0	P	01/21/2025	13:22	LB134358
	Arsenic	20.0	+/-20.0	U	16.0	20.0	P	01/21/2025	13:22	LB134358
	Barium	100	+/-100	U	25.0	100	P	01/21/2025	13:22	LB134358
	Beryllium	6.00	+/-6.00	U	1.50	6.00	P	01/21/2025	13:22	LB134358
	Cadmium	6.00	+/-6.00	U	1.50	6.00	P	01/21/2025	13:22	LB134358
	Calcium	2000	+/-2000	U	500	2000	P	01/21/2025	13:22	LB134358
	Chromium	10.0	+/-10.0	U	5.00	10.0	P	01/21/2025	13:22	LB134358
	Cobalt	30.0	+/-30.0	U	7.50	30.0	P	01/21/2025	13:22	LB134358
	Copper	20.0	+/-20.0	U	16.0	20.0	P	01/21/2025	13:22	LB134358
	Iron	100	+/-100	U	80.0	100	P	01/21/2025	13:22	LB134358
	Lead	12.0	+/-12.0	U	9.60	12.0	P	01/21/2025	13:22	LB134358
	Magnesium	2000	+/-2000	U	500	2000	P	01/21/2025	13:22	LB134358
	Manganese	20.0	+/-20.0	U	5.00	20.0	P	01/21/2025	13:22	LB134358
	Nickel	40.0	+/-40.0	U	10.0	40.0	P	01/21/2025	13:22	LB134358
	Potassium	2000	+/-2000	U	1600	2000	P	01/21/2025	13:22	LB134358
	Selenium	20.0	+/-20.0	U	16.0	20.0	P	01/21/2025	13:22	LB134358
	Silver	10.0	+/-10.0	U	5.00	10.0	P	01/21/2025	13:22	LB134358
	Sodium	2000	+/-2000	U	1000	2000	P	01/21/2025	13:22	LB134358
	Thallium	40.0	+/-40.0	U	20.0	40.0	P	01/21/2025	13:22	LB134358
	Vanadium	40.0	+/-40.0	U	20.0	40.0	P	01/21/2025	13:22	LB134358
	Zinc	40.0	+/-40.0	U	10.0	40.0	P	01/21/2025	13:22	LB134358
CCB04	Aluminum	100	+/-100	U	80.0	100	P	01/21/2025	14:00	LB134358
	Antimony	50.0	+/-50.0	U	12.5	50.0	P	01/21/2025	14:00	LB134358
	Arsenic	20.0	+/-20.0	U	16.0	20.0	P	01/21/2025	14:00	LB134358
	Barium	100	+/-100	U	25.0	100	P	01/21/2025	14:00	LB134358
	Beryllium	6.00	+/-6.00	U	1.50	6.00	P	01/21/2025	14:00	LB134358
	Cadmium	6.00	+/-6.00	U	1.50	6.00	P	01/21/2025	14:00	LB134358
	Calcium	2000	+/-2000	U	500	2000	P	01/21/2025	14:00	LB134358
	Chromium	10.0	+/-10.0	U	5.00	10.0	P	01/21/2025	14:00	LB134358
	Cobalt	30.0	+/-30.0	U	7.50	30.0	P	01/21/2025	14:00	LB134358
	Copper	20.0	+/-20.0	U	16.0	20.0	P	01/21/2025	14:00	LB134358
	Iron	100	+/-100	U	80.0	100	P	01/21/2025	14:00	LB134358
	Lead	12.0	+/-12.0	U	9.60	12.0	P	01/21/2025	14:00	LB134358

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc.		SDG No.: Q1122								
Contract: TETR06	Lab Code: CHEM	Case No.: Q1122	SAS No.: Q1122							
Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB04	Magnesium	2000	+/-2000	U	500	2000	P	01/21/2025	14:00	LB134358
	Manganese	20.0	+/-20.0	U	5.00	20.0	P	01/21/2025	14:00	LB134358
	Nickel	40.0	+/-40.0	U	10.0	40.0	P	01/21/2025	14:00	LB134358
	Potassium	2000	+/-2000	U	1600	2000	P	01/21/2025	14:00	LB134358
	Selenium	20.0	+/-20.0	U	16.0	20.0	P	01/21/2025	14:00	LB134358
	Silver	10.0	+/-10.0	U	5.00	10.0	P	01/21/2025	14:00	LB134358
	Sodium	2000	+/-2000	U	1000	2000	P	01/21/2025	14:00	LB134358
	Thallium	40.0	+/-40.0	U	20.0	40.0	P	01/21/2025	14:00	LB134358
	Vanadium	40.0	+/-40.0	U	20.0	40.0	P	01/21/2025	14:00	LB134358
	Zinc	40.0	+/-40.0	U	10.0	40.0	P	01/21/2025	14:00	LB134358
CCB05	Aluminum	100	+/-100	U	80.0	100	P	01/21/2025	15:07	LB134358
	Antimony	50.0	+/-50.0	U	12.5	50.0	P	01/21/2025	15:07	LB134358
	Arsenic	20.0	+/-20.0	U	16.0	20.0	P	01/21/2025	15:07	LB134358
	Barium	100	+/-100	U	25.0	100	P	01/21/2025	15:07	LB134358
	Beryllium	6.00	+/-6.00	U	1.50	6.00	P	01/21/2025	15:07	LB134358
	Cadmium	6.00	+/-6.00	U	1.50	6.00	P	01/21/2025	15:07	LB134358
	Calcium	2000	+/-2000	U	500	2000	P	01/21/2025	15:07	LB134358
	Chromium	10.0	+/-10.0	U	5.00	10.0	P	01/21/2025	15:07	LB134358
	Cobalt	30.0	+/-30.0	U	7.50	30.0	P	01/21/2025	15:07	LB134358
	Copper	20.0	+/-20.0	U	16.0	20.0	P	01/21/2025	15:07	LB134358
	Iron	100	+/-100	U	80.0	100	P	01/21/2025	15:07	LB134358
	Lead	12.0	+/-12.0	U	9.60	12.0	P	01/21/2025	15:07	LB134358
	Magnesium	2000	+/-2000	U	500	2000	P	01/21/2025	15:07	LB134358
	Manganese	20.0	+/-20.0	U	5.00	20.0	P	01/21/2025	15:07	LB134358
	Nickel	40.0	+/-40.0	U	10.0	40.0	P	01/21/2025	15:07	LB134358
	Potassium	2000	+/-2000	U	1600	2000	P	01/21/2025	15:07	LB134358
	Selenium	20.0	+/-20.0	U	16.0	20.0	P	01/21/2025	15:07	LB134358
	Silver	10.0	+/-10.0	U	5.00	10.0	P	01/21/2025	15:07	LB134358
	Sodium	2000	+/-2000	U	1000	2000	P	01/21/2025	15:07	LB134358
	Thallium	40.0	+/-40.0	U	20.0	40.0	P	01/21/2025	15:07	LB134358
	Vanadium	40.0	+/-40.0	U	20.0	40.0	P	01/21/2025	15:07	LB134358
	Zinc	40.0	+/-40.0	U	10.0	40.0	P	01/21/2025	15:07	LB134358

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc.

SDG No.: Q1122

Instrument: CV1

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	LOD ug/L	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB166192BL		WATER		Batch Number:		PB166192		Prep Date:	01/22/2025	
	Mercury	0.20	<0.20	U	0.16	0.20	CV	01/23/2025	10:35	LB134375

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc.

SDG No.: Q1122

Instrument: P4

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	LOD ug/L	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB166153BL	WATER			Batch Number:		PB166153		Prep Date:	01/21/2025	
	Aluminum	50.0	<50.0	U	40.0	50.0	P	01/21/2025	14:55	LB134358
	Antimony	25.0	<25.0	U	6.25	25.0	P	01/21/2025	14:55	LB134358
	Arsenic	10.0	<10.0	U	8.00	10.0	P	01/21/2025	14:55	LB134358
	Barium	50.0	<50.0	U	12.5	50.0	P	01/21/2025	14:55	LB134358
	Beryllium	3.00	<3.00	U	0.75	3.00	P	01/21/2025	14:55	LB134358
	Cadmium	3.00	<3.00	U	0.75	3.00	P	01/21/2025	14:55	LB134358
	Calcium	1000	<1000	U	250	1000	P	01/21/2025	14:55	LB134358
	Chromium	5.00	<5.00	U	2.50	5.00	P	01/21/2025	14:55	LB134358
	Cobalt	15.0	<15.0	U	3.75	15.0	P	01/21/2025	14:55	LB134358
	Copper	10.0	<10.0	U	8.00	10.0	P	01/21/2025	14:55	LB134358
	Iron	50.0	<50.0	U	40.0	50.0	P	01/21/2025	14:55	LB134358
	Lead	6.00	<6.00	U	4.80	6.00	P	01/21/2025	14:55	LB134358
	Magnesium	1000	<1000	U	250	1000	P	01/21/2025	14:55	LB134358
	Manganese	10.0	<10.0	U	2.50	10.0	P	01/21/2025	14:55	LB134358
	Nickel	20.0	<20.0	U	5.00	20.0	P	01/21/2025	14:55	LB134358
	Potassium	1000	<1000	U	800	1000	P	01/21/2025	14:55	LB134358
	Selenium	10.0	<10.0	U	8.00	10.0	P	01/21/2025	14:55	LB134358
	Silver	5.00	<5.00	U	2.50	5.00	P	01/21/2025	14:55	LB134358
	Sodium	1000	<1000	U	500	1000	P	01/21/2025	14:55	LB134358
	Thallium	20.0	<20.0	U	10.0	20.0	P	01/21/2025	14:55	LB134358
	Vanadium	20.0	<20.0	U	10.0	20.0	P	01/21/2025	14:55	LB134358
	Zinc	20.0	<20.0	U	5.00	20.0	P	01/21/2025	14:55	LB134358

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: Tetra Tech NUS, Inc. **SDG No.:** Q1122
Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q1122 **SAS No.:** Q1122
ICS Source: EPA **Instrument ID:** P4

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Low Limit (ug/L)	High Limit (ug/L)	Analysis Date	Analysis Time	Run Number
ICSA01	Aluminum	242000	255000	95	216000	294000	01/21/2025	12:03	LB134358
	Antimony	-1.90			-50	50	01/21/2025	12:03	LB134358
	Arsenic	-1.38			-20	20	01/21/2025	12:03	LB134358
	Barium	1.39	6.0	23	-94	106	01/21/2025	12:03	LB134358
	Beryllium	1.25			-6	6	01/21/2025	12:03	LB134358
	Cadmium	-1.84	1.0	184	-5	7	01/21/2025	12:03	LB134358
	Calcium	229000	245000	94	208000	282000	01/21/2025	12:03	LB134358
	Chromium	58.1	52.0	112	42	62	01/21/2025	12:03	LB134358
	Cobalt	1.29			-30	30	01/21/2025	12:03	LB134358
	Copper	1.63	2.0	82	-18	22	01/21/2025	12:03	LB134358
	Iron	103000	101000	102	85600	116500	01/21/2025	12:03	LB134358
	Lead	8.78			-12	12	01/21/2025	12:03	LB134358
	Magnesium	243000	255000	95	216000	294000	01/21/2025	12:03	LB134358
	Manganese	5.90	7.0	84	-13	27	01/21/2025	12:03	LB134358
	Nickel	2.86	2.0	143	-38	42	01/21/2025	12:03	LB134358
	Potassium	65.9			0	0	01/21/2025	12:03	LB134358
	Selenium	-12.5			-20	20	01/21/2025	12:03	LB134358
	Silver	2.40			-10	10	01/21/2025	12:03	LB134358
	Sodium	42.8			0	0	01/21/2025	12:03	LB134358
	Thallium	13.6			-40	40	01/21/2025	12:03	LB134358
	Vanadium	4.87			-40	40	01/21/2025	12:03	LB134358
	Zinc	3.58			-40	40	01/21/2025	12:03	LB134358
ICSAB01	Aluminum	240000	247000	97	209000	285000	01/21/2025	12:08	LB134358
	Antimony	631	618	102	525	711	01/21/2025	12:08	LB134358
	Arsenic	108	104	104	88.4	120	01/21/2025	12:08	LB134358
	Barium	476	537	89	437	637	01/21/2025	12:08	LB134358
	Beryllium	476	495	96	420	570	01/21/2025	12:08	LB134358
	Cadmium	1010	972	104	826	1120	01/21/2025	12:08	LB134358
	Calcium	228000	235000	97	199000	271000	01/21/2025	12:08	LB134358
	Chromium	570	542	105	460	624	01/21/2025	12:08	LB134358
	Cobalt	511	476	107	404	548	01/21/2025	12:08	LB134358
	Copper	497	511	97	434	588	01/21/2025	12:08	LB134358
	Iron	104000	99300	105	84400	114500	01/21/2025	12:08	LB134358
	Lead	56.1	49.0	114	37	61	01/21/2025	12:08	LB134358
	Magnesium	242000	248000	98	210000	286000	01/21/2025	12:08	LB134358
	Manganese	472	507	93	430	584	01/21/2025	12:08	LB134358
	Nickel	1010	954	106	810	1100	01/21/2025	12:08	LB134358
	Potassium	54.5			0	0	01/21/2025	12:08	LB134358
	Selenium	38.8	46.0	84	26	66	01/21/2025	12:08	LB134358
	Silver	225	201	112	170	232	01/21/2025	12:08	LB134358
	Sodium	38.8			0	0	01/21/2025	12:08	LB134358
	Thallium	102	108	94	68	148	01/21/2025	12:08	LB134358

Metals
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INTERFERENCE CHECK SAMPLE

Client: <u>Tetra Tech NUS, Inc.</u>	SDG No.: <u>Q1122</u>
Contract: <u>TETR06</u>	Lab Code: <u>CHEM</u>
ICS Source: <u>EPA</u>	Case No.: <u>Q1122</u>
	SAS No.: <u>Q1122</u>
	Instrument ID: <u>P4</u>

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Low Limit (ug/L)	High Limit (ug/L)	Analysis Date	Analysis Time	Run Number
ICSAB01	Vanadium	471	491	96	417	565	01/21/2025	12:08	LB134358
	Zinc	1070	952	112	809	1095	01/21/2025	12:08	LB134358



METAL QC DATA

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metals
- 5a -
MATRIX SPIKE SUMMARY

client: Tetra Tech NUS, Inc. **level:** low **sdg no.:** Q1122
contract: TETR06 **lab code:** CHEM **case no.:** Q1122 **sas no.:** Q1122
matrix: Water **sample id:** Q1122-02 **client id:** RW10A-F-20250116MS
Percent Solids for Sample: NA **Spiked ID:** Q1122-02MS **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	ug/L	86 - 115	1540		696		1000	84	N	P
Antimony	ug/L	88 - 113	377		25.0	U	400	94		P
Arsenic	ug/L	87 - 113	379		10.0	U	400	95		P
Barium	ug/L	88 - 113	94.7		10.2	J	100	85	N	P
Beryllium	ug/L	89 - 112	85.3		0.14	J	100	85	N	P
Cadmium	ug/L	88 - 113	89.6		3.00	U	100	90		P
Calcium	ug/L	87 - 113	9470		9420		500	9		P
Chromium	ug/L	90 - 113	190		5.00	U	200	95		P
Cobalt	ug/L	89 - 114	109		17.4		100	91		P
Copper	ug/L	86 - 114	158		18.4		150	93		P
Iron	ug/L	87 - 115	3400		2190		1500	81	N	P
Lead	ug/L	86 - 113	442		6.00	U	500	88		P
Magnesium	ug/L	85 - 113	4520		3880		1000	64	N	P
Manganese	ug/L	90 - 114	196		114		100	82	N	P
Nickel	ug/L	88 - 113	246		18.5	J	250	91		P
Potassium	ug/L	86 - 114	7480		3030		5000	89		P
Selenium	ug/L	83 - 114	904		10.0	U	1000	90		P
Silver	ug/L	84 - 115	34.6		5.00	U	37.5	92		P
Sodium	ug/L	87 - 115	44500		47700		1500	-211		P
Thallium	ug/L	85 - 114	929		20.0	U	1000	93		P
Vanadium	ug/L	90 - 111	134		20.0	U	150	89	N	P
Zinc	ug/L	87 - 115	171		77.8		100	93		P

metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: Tetra Tech NUS, Inc. **level:** low **sdg no.:** Q1122
contract: TETR06 **lab code:** CHEM **case no.:** Q1122 **sas no.:** Q1122
matrix: Water **sample id:** Q1122-02 **client id:** RW10A-F-20250116MSD
Percent Solids for Sample: NA **Spiked ID:** Q1122-02MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	ug/L	86 - 115	1560		696		1000	87		P
Antimony	ug/L	88 - 113	384		25.0	U	400	96		P
Arsenic	ug/L	87 - 113	390		10.0	U	400	98		P
Barium	ug/L	88 - 113	101		10.2	J	100	91		P
Beryllium	ug/L	89 - 112	81.8		0.14	J	100	82	N	P
Cadmium	ug/L	88 - 113	91.4		3.00	U	100	91		P
Calcium	ug/L	87 - 113	9710		9420		500	56		P
Chromium	ug/L	90 - 113	190		5.00	U	200	95		P
Cobalt	ug/L	89 - 114	110		17.4		100	93		P
Copper	ug/L	86 - 114	160		18.4		150	95		P
Iron	ug/L	87 - 115	3600		2190		1500	94		P
Lead	ug/L	86 - 113	450		6.00	U	500	90		P
Magnesium	ug/L	85 - 113	4650		3880		1000	77	N	P
Manganese	ug/L	90 - 114	202		114		100	87	N	P
Nickel	ug/L	88 - 113	251		18.5	J	250	93		P
Potassium	ug/L	86 - 114	7910		3030		5000	98		P
Selenium	ug/L	83 - 114	930		10.0	U	1000	93		P
Silver	ug/L	84 - 115	34.6		5.00	U	37.5	92		P
Sodium	ug/L	87 - 115	47100		47700		1500	-38		P
Thallium	ug/L	85 - 114	945		20.0	U	1000	94		P
Vanadium	ug/L	90 - 111	137		20.0	U	150	91		P
Zinc	ug/L	87 - 115	170		77.8		100	92		P

metals
- 5a -
MATRIX SPIKE SUMMARY

client: <u>Tetra Tech NUS, Inc.</u>	level: <u>low</u>	sdg no.: <u>Q1122</u>
contract: <u>TETR06</u>	lab code: <u>CHEM</u>	case no.: <u>Q1122</u> sas no.: <u>Q1122</u>
matrix: <u>Water</u>	sample id: <u>Q1140-01</u>	client id: <u>FRAC-TANK-F06078MS</u>
Percent Solids for Sample: <u>NA</u>	Spiked ID: <u>Q1140-01MS</u>	Percent Solids for Spike Sample: <u>NA</u>

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	ug/L	82 - 119	3.78		0.22		4.0	89		CV

metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: <u>Tetra Tech NUS, Inc.</u>	level: <u>low</u>	sdg no.: <u>Q1122</u>
contract: <u>TETR06</u>	lab code: <u>CHEM</u>	case no.: <u>Q1122</u> sas no.: <u>Q1122</u>
matrix: <u>Water</u>	sample id: <u>Q1140-01</u>	client id: <u>FRAC-TANK-F06078MSD</u>
Percent Solids for Sample: <u>NA</u>	Spiked ID: <u>Q1140-01MSD</u>	Percent Solids for Spike Sample: <u>NA</u>

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	ug/L	82 - 119	3.74		0.22		4.0	88		CV

Metals
- 5b -
POST DIGEST SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** Q1122

Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q1122 **SAS No.:** Q1122

Matrix: Water **Level:** LOW **Client ID:** RW10A-F-20250116A

Sample ID: Q1122-02 **Spiked ID:** Q1122-02A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	ug/L	86 - 115	1550		696		10000	9		P
Barium	ug/L	88 - 113	97.4		10.2	J	100	87		P
Beryllium	ug/L	89 - 112	81.6		0.14	J	100	81		P
Iron	ug/L	87 - 115	3520		2190		1500	89		P
Magnesium	ug/L	85 - 113	4570		3880		1000	68		P
Manganese	ug/L	90 - 114	197		114		100	82		P
Vanadium	ug/L	90 - 111	134		20.0	U	150	89		P

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** Q1122
Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q1122 **SAS No.:** Q1122
Matrix: Water **Sample ID:** Q1122-02 **Client ID:** RW10A-F-20250116DUP
Percent Solids for Sample: NA **Duplicate ID** Q1122-02DUP **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	ug/L	20	696		692		1		P
Antimony	ug/L	20	25.0	U	25.0	U			P
Arsenic	ug/L	20	10.0	U	10.0	U			P
Barium	ug/L	20	10.2	J	9.27	J	10		P
Beryllium	ug/L	20	0.14	J	0.13	J	7		P
Cadmium	ug/L	20	3.00	U	3.00	U			P
Calcium	ug/L	20	9420		9380		0		P
Chromium	ug/L	20	5.00	U	0.69	J	200.0		P
Cobalt	ug/L	20	17.4		17.4		0		P
Copper	ug/L	20	18.4		18.4		0		P
Iron	ug/L	20	2190		2100		4		P
Lead	ug/L	20	6.00	U	6.00	U			P
Magnesium	ug/L	20	3880		3870		0		P
Manganese	ug/L	20	114		113		1		P
Nickel	ug/L	20	18.5	J	18.3	J	1		P
Potassium	ug/L	20	3030		2890		5		P
Selenium	ug/L	20	10.0	U	10.0	U			P
Silver	ug/L	20	5.00	U	5.00	U			P
Sodium	ug/L	20	47700		45400		5		P
Thallium	ug/L	20	20.0	U	20.0	U			P
Vanadium	ug/L	20	20.0	U	20.0	U			P
Zinc	ug/L	20	77.8		76.8		1		P

“A control limit of $\pm 20\%$ RPD for each matrix applies for sample values greater than 10 times Detection Limit”

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** Q1122
Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q1122 **SAS No.:** Q1122
Matrix: Water **Sample ID:** Q1122-02MS **Client ID:** RW10A-F-20250116MSD
Percent Solids for Sample: NA **Duplicate ID** Q1122-02MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	ug/L	20	1540		1560		1		P
Antimony	ug/L	20	377		384		2		P
Arsenic	ug/L	20	379		390		3		P
Barium	ug/L	20	94.7		101		6		P
Beryllium	ug/L	20	85.3		81.8		4		P
Cadmium	ug/L	20	89.6		91.4		2		P
Calcium	ug/L	20	9470		9710		3		P
Chromium	ug/L	20	190		190		0		P
Cobalt	ug/L	20	109		110		1		P
Copper	ug/L	20	158		160		1		P
Iron	ug/L	20	3400		3600		6		P
Lead	ug/L	20	442		450		2		P
Magnesium	ug/L	20	4520		4650		3		P
Manganese	ug/L	20	196		202		3		P
Nickel	ug/L	20	246		251		2		P
Potassium	ug/L	20	7480		7910		6		P
Selenium	ug/L	20	904		930		3		P
Silver	ug/L	20	34.6		34.6		0		P
Sodium	ug/L	20	44500		47100		6		P
Thallium	ug/L	20	929		945		2		P
Vanadium	ug/L	20	134		137		2		P
Zinc	ug/L	20	171		170		1		P

“A control limit of $\pm 20\%$ RPD for each matrix applies for sample values greater than 10 times Detection Limit”

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** Q1122
Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q1122 **SAS No.:** Q1122
Matrix: Water **Sample ID:** Q1140-01 **Client ID:** FRAC-TANK-F06078DUP
Percent Solids for Sample: NA **Duplicate ID** Q1140-01DUP **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Mercury	ug/L	20	0.22		0.18	J	18		CV

“A control limit of $\pm 20\%$ RPD for each matrix applies for sample values greater than 10 times Detection Limit”

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** Q1122
Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q1122 **SAS No.:** Q1122
Matrix: Water **Sample ID:** Q1140-01MS **Client ID:** FRAC-TANK-F06078MSD
Percent Solids for Sample: NA **Duplicate ID** Q1140-01MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Mercury	ug/L	20	3.78		3.74		1		CV

“A control limit of $\pm 20\%$ RPD for each matrix applies for sample values greater than 10 times Detection Limit”

Metals

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LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. SDG No.: Q1122
 Contract: TETR06 Lab Code: CHEM Case No.: Q1122 SAS No.: Q1122

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB166153BS							
Aluminum	ug/L	1000	903		90	86 - 115	P
Antimony	ug/L	400	381		95	88 - 113	P
Arsenic	ug/L	400	385		96	87 - 113	P
Barium	ug/L	100	88.3		88	88 - 113	P
Beryllium	ug/L	100	90.1		90	89 - 112	P
Cadmium	ug/L	100	92.3		92	88 - 113	P
Calcium	ug/L	500	479	J	96	87 - 113	P
Chromium	ug/L	200	191		96	90 - 113	P
Cobalt	ug/L	100	93.3		93	89 - 114	P
Copper	ug/L	150	149		99	86 - 114	P
Iron	ug/L	1500	1470		98	87 - 115	P
Lead	ug/L	500	464		93	86 - 113	P
Magnesium	ug/L	1000	897	J	90	85 - 113	P
Manganese	ug/L	100	92.9		93	90 - 114	P
Nickel	ug/L	250	234		94	88 - 113	P
Potassium	ug/L	5000	4830		97	86 - 114	P
Selenium	ug/L	1000	955		96	83 - 114	P
Silver	ug/L	37.5	36.3		97	84 - 115	P
Sodium	ug/L	1500	1510		101	87 - 115	P
Thallium	ug/L	1000	1020		102	85 - 114	P
Vanadium	ug/L	150	136		91	90 - 111	P
Zinc	ug/L	100	97.6		98	87 - 115	P

Metals

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LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** Q1122
Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q1122 **SAS No.:** Q1122

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB166192BS Mercury	ug/L	4.0	4.02		100	82 - 119	CV

Metals
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ICP SERIAL DILUTIONS

SAMPLE NO.

RW10A-F-20250116L

Lab Name: Chemtech Consulting Group

Contract: TETR06

Lab Code: CHEM Lb No.: lb134358 Lab Sample ID : Q1122-02L SDG No.: Q1122

Matrix (soil/water): Water Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)		Serial Dilution Result (S)		% Difference	Q	M
Aluminum	696		718		3		P
Antimony	25.0	U	125	U			P
Arsenic	10.0	U	50.0	U			P
Barium	10.2	J	250	U	100.0		P
Beryllium	0.14	J	15.0	U	100.0		P
Cadmium	3.00	U	15.0	U			P
Calcium	9420		10100		7		P
Chromium	5.00	U	25.0	U			P
Cobalt	17.4		18.0	J	4		P
Copper	18.4		50.0	U	100.0		P
Iron	2190		2280		4		P
Lead	6.00	U	30.0	U			P
Magnesium	3880		4180	J	8		P
Manganese	114		122		7		P
Nickel	18.5	J	18.7	J	1		P
Potassium	3030		5000	U	100.0		P
Selenium	10.0	U	50.0	U			P
Silver	5.00	U	25.0	U			P
Sodium	47700		48900		3		P
Thallium	20.0	U	100	U			P
Vanadium	20.0	U	100	U			P
Zinc	77.8		78.5	J	1		P

Metals
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ICP SERIAL DILUTIONS

SAMPLE NO.

FRAC-TANK-F06078L

Lab Name: Chemtech Consulting Group **Contract:** TETR06
Lab Code: CHEM **Lb No.:** lb134375 **Lab Sample ID :** Q1140-01L **SDG No.:** Q1122
Matrix (soil/water): Water **Level (low/med):** LOW
Concentration Units: ug/L

Analyte	Initial Sample Result (I) C	Serial Dilution Result (S) C	% Differ- ence	Q	M
Mercury	0.22	1.00 U	100.0		CV



METAL PREPARATION & INSTRUMENT DATA

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Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Tetra Tech NUS, Inc.

SDG No.: Q1122

Contract: TETR06

Lab Code: CHEM

Case No.: Q1122

SAS No.: Q1122

Instrument ID:

Date:

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Al	Ca	Fe	Mg	Ag
Aluminum	396.100	0.0000000	-0.0002060	0.0000000	0.0000000	0.0000000
Antimony	206.833	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Arsenic	193.759	0.0000000	0.0000000	-0.0000440	0.0000000	0.0000000
Barium	493.409	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	234.861	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000000	0.0000930	0.0000000	0.0000000
Calcium	373.690	0.0000000	0.0000000	-0.0075970	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cobalt	228.616	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	224.700	0.0000000	0.0000000	0.0007850	0.0000000	0.0000000
Iron	240.488	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	-0.0000920	0.0000000	0.0000380	0.0000000	0.0000000
Magnesium	279.079	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.090	0.0000000	0.0000000	-0.0001440	0.0000000	0.0000000
Silver	328.068	0.0000000	0.0000000	-0.0001490	0.0000000	0.0000000
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.856	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.402	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	213.800	0.0000000	0.0000000	0.0001050	0.0000000	0.0000000

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Tetra Tech NUS, Inc. **SDG No.:** Q1122
Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q1122 **SAS No.:** Q1122
Instrument ID: _____ **Date:** _____
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		As	Ba	Be	Cd	Co
Aluminum	396.100	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	206.833	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Arsenic	193.759	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium	493.409	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	234.861	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0002870
Calcium	373.690	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cobalt	228.616	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	224.700	0.0000000	0.0000000	0.0000000	0.0000000	0.0009530
Iron	240.488	0.0000000	0.0000000	0.0000000	0.0000000	-0.0039600
Lead	220.353	0.0000000	0.0003170	0.0000000	0.0000000	0.0000000
Magnesium	279.079	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.090	0.0000000	0.0000000	0.0000000	0.0000000	-0.0003570
Silver	328.068	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.856	0.0000000	0.0000000	0.0000000	0.0000000	0.0054900
Vanadium	292.402	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	213.800	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Tetra Tech NUS, Inc. **SDG No.:** Q1122
Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q1122 **SAS No.:** Q1122
Instrument ID: _____ **Date:** _____
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Cr	Cu	K	Mn	Mo
Aluminum	396.100	0.0000000	0.0000000	0.0000590	0.0000000	0.0396900
Antimony	206.833	0.0122000	0.0000000	0.0000000	0.0000000	0.0000000
Arsenic	193.759	-0.0029000	0.0000000	0.0000000	0.0000000	0.0004900
Barium	493.409	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	234.861	0.0000000	0.0000000	0.0000000	-0.0000710	-0.0003400
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Calcium	373.690	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000070	0.0002200	0.0000000
Cobalt	228.616	0.0000000	0.0000000	0.0000000	0.0000000	-0.0007860
Copper	224.700	0.0000000	0.0000000	0.0000000	0.0006510	0.0020500
Iron	240.488	0.0000000	0.0000000	0.0000730	0.0000000	-0.0015250
Lead	220.353	0.0000000	0.0000000	0.0000000	0.0001400	-0.0008600
Magnesium	279.079	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.090	0.0000000	0.0000000	0.0000000	0.0007460	0.0000000
Silver	328.068	0.0000000	0.0000000	0.0000000	0.0000000	-0.0000120
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.856	0.0000000	0.0000000	0.0000000	0.0017400	-0.0100400
Vanadium	292.402	-0.0025100	0.0000000	0.0000000	0.0000000	-0.0072000
Zinc	213.800	0.0000000	0.0009010	0.0000000	0.0000000	0.0000000

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Tetra Tech NUS, Inc. **SDG No.:** Q1122
Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q1122 **SAS No.:** Q1122
Instrument ID: _____ **Date:** _____
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Na	Ni	Pb	Sb	Se
Aluminum	396.100	0.0000000	0.0000000	0.0012800	0.0000000	0.0000000
Antimony	206.833	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Arsenic	193.759	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium	493.409	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	234.861	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Calcium	373.690	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cobalt	228.616	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	224.700	0.0000000	-0.0047000	0.0036100	0.0000000	0.0000000
Iron	240.488	0.0000000	-0.0017000	0.0000000	0.0000000	0.0000000
Lead	220.353	0.0000000	0.0006580	0.0000000	0.0000000	0.0001290
Magnesium	279.079	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.090	0.0000000	0.0000000	0.0003330	0.0000000	0.0000000
Silver	328.068	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.856	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.402	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	213.800	0.0000000	0.0067600	0.0000000	0.0000000	0.0000000

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Tetra Tech NUS, Inc.

SDG No.: Q1122

Contract: TETR06

Lab Code: CHEM

Case No.: Q1122

SAS No.: Q1122

Instrument ID:

Date:

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Sn	Ti	Tl	V	Zn
Aluminum	396.100	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	206.833	-0.0035600	-0.0007970	0.0000000	-0.0018900	0.0000000
Arsenic	193.759	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium	493.409	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	234.861	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000630	0.0001280	0.0000000	0.0000000
Calcium	373.690	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0001110	0.0000000
Cobalt	228.616	0.0000000	0.0018800	0.0000000	0.0000000	0.0000000
Copper	224.700	0.0000000	0.0003840	0.0000000	0.0000000	0.0000000
Iron	240.488	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	0.0000000	-0.0003610	0.0000000	0.0000000	0.0000000
Magnesium	279.079	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.090	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.068	0.0000000	-0.0007420	0.0000000	0.0000000	0.0000000
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.856	0.0000000	-0.0039700	0.0000000	-0.0115600	0.0000000
Vanadium	292.402	0.0000000	0.0005320	0.0000000	0.0000000	0.0000000
Zinc	213.800	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

METAL PREPARATION & ANALYICAL SUMMARY

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Metals
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SAMPLE PREPARATION SUMMARY

Client:	<u>Tetra Tech NUS, Inc.</u>	SDG No.:	<u>Q1122</u>
Contract:	<u>TETR06</u>	Lab Code:	<u>CHEM</u>
		Method:	<u></u>
		Case No.:	<u>Q1122</u>
		SAS No.:	<u>Q1122</u>

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB166153							
PB166153BL	PB166153BL	MB	WATER	01/21/2025	50.0	25.0	
PB166153BS	PB166153BS	LCS	WATER	01/21/2025	50.0	25.0	
Q1122-01	RW10A-20250116	SAM	WATER	01/21/2025	50.0	25.0	
Q1122-02	RW10A-F-20250116	SAM	WATER	01/21/2025	50.0	25.0	
Q1122-02DUP	RW10A-F-20250116DUP	DUP	WATER	01/21/2025	50.0	25.0	
Q1122-02MS	RW10A-F-20250116MS	MS	WATER	01/21/2025	50.0	25.0	
Q1122-02MSD	RW10A-F-20250116MSD	MSD	WATER	01/21/2025	50.0	25.0	

Metals
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SAMPLE PREPARATION SUMMARY

Client:	<u>Tetra Tech NUS, Inc.</u>	SDG No.:	<u>Q1122</u>
Contract:	<u>TETR06</u>	Lab Code:	<u>CHEM</u>
		Method:	<u></u>
		Case No.:	<u>Q1122</u>
		SAS No.:	<u>Q1122</u>

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB166192							
PB166192BL	PB166192BL	MB	WATER	01/22/2025	30.0	30.0	
PB166192BS	PB166192BS	LCS	WATER	01/22/2025	30.0	30.0	
Q1122-01	RW10A-20250116	SAM	WATER	01/22/2025	30.0	30.0	
Q1122-02	RW10A-F-20250116	SAM	WATER	01/22/2025	30.0	30.0	
Q1140-01DUP	FRAC-TANK-F06078DUP	DUP	WATER	01/22/2025	30.0	30.0	
Q1140-01MS	FRAC-TANK-F06078MS	MS	WATER	01/22/2025	30.0	30.0	
Q1140-01MSD	FRAC-TANK-F06078MSD	MSD	WATER	01/22/2025	30.0	30.0	

metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab code: CHEM **Case no.:** Q1122 **Sas no.:** Q1122 **Sdg no.:** Q1122

Instrument id number: **Method:** **Run number:** LB134358

Start date: 01/21/2025 **End date:** 01/21/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1101	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S1	S1	1	1105	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S2	S2	1	1109	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S3	S3	1	1114	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S4	S4	1	1118	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S5	S5	1	1122	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
ICV01	ICV01	1	1126	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
LLICV01	LLICV01	1	1135	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
ICB01	ICB01	1	1151	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CRI01	CRI01	1	1159	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
ICSA01	ICSA01	1	1203	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
ICSAB01	ICSAB01	1	1208	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCV01	CCV01	1	1212	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCB01	CCB01	1	1216	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCV02	CCV02	1	1301	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCB02	CCB02	1	1306	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCV03	CCV03	1	1318	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCB03	CCB03	1	1322	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCV04	CCV04	1	1356	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCB04	CCB04	1	1400	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1122-01	RW10A-20250116	1	1426	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1122-02	RW10A-F-20250116	1	1430	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1122-02DUP	RW10A-F-20250116DUP	1	1434	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1122-02L	RW10A-F-20250116L	5	1439	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1122-02MS	RW10A-F-20250116MS	1	1443	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1122-02MSD	RW10A-F-20250116MSD	1	1447	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1122-02A	RW10A-F-20250116A	1	1451	Al,Ba,Be,Fe,Mg,Mn,V
PB166153BL	PB166153BL	1	1455	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
PB166153BS	PB166153BS	1	1459	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCV05	CCV05	1	1503	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCB05	CCB05	1	1507	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn

metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc. **Contract:** TETR06

Lab code: CHEM **Case no.:** Q1122 **Sas no.:** Q1122 **Sdg no.:** Q1122

Instrument id number: **Method:** **Run number:** LB134375

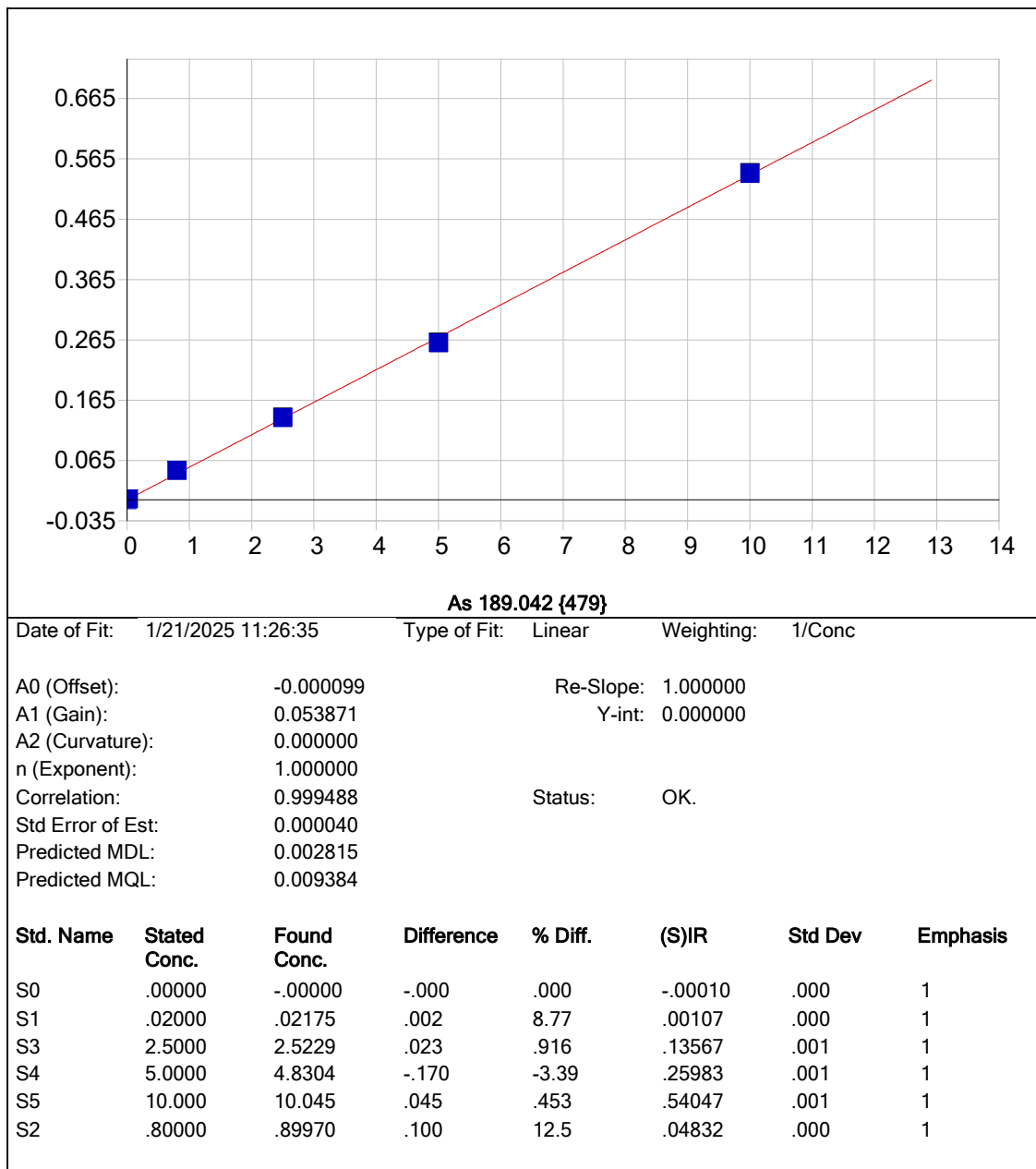
Start date: 01/23/2025 **End date:** 01/23/2025

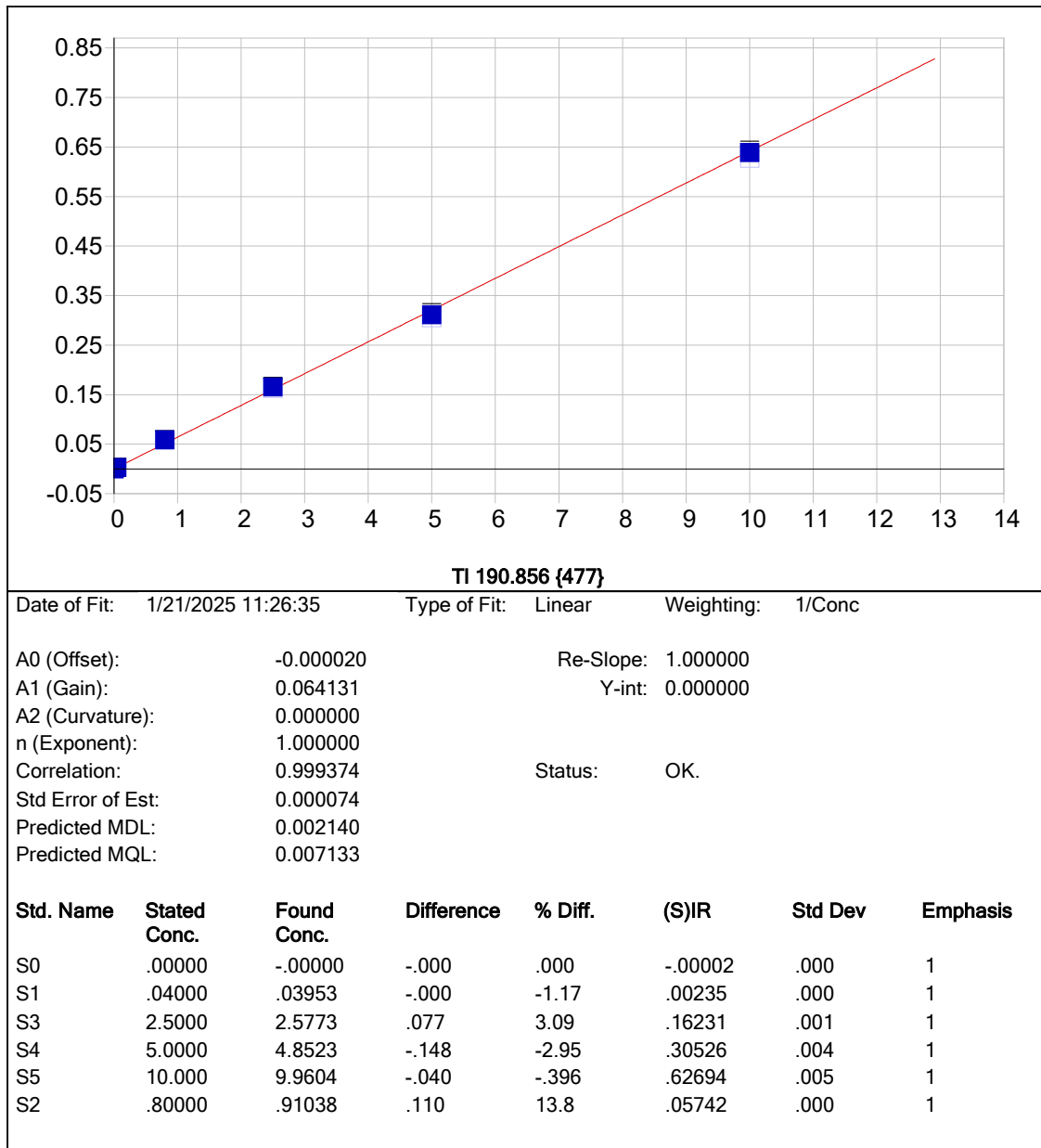
Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	0952	HG
S0.2	S0.2	1	0954	HG
S2.5	S2.5	1	0957	HG
S5	S5	1	0959	HG
S7.5	S7.5	1	1004	HG
S10	S10	1	1011	HG
ICV66	ICV66	1	1019	HG
ICB66	ICB66	1	1021	HG
CCV62	CCV62	1	1023	HG
CCB62	CCB62	1	1026	HG
CRA	CRA	1	1028	HG
PB166192BL	PB166192BL	1	1035	HG
PB166192BS	PB166192BS	1	1037	HG
Q1122-01	RW10A-20250116	1	1039	HG
Q1122-02	RW10A-F-20250116	1	1042	HG
Q1140-01DUP	FRAC-TANK-F06078DUP	1	1051	HG
Q1140-01MS	FRAC-TANK-F06078MS	1	1053	HG
CCV63	CCV63	1	1056	HG
CCB63	CCB63	1	1058	HG
Q1140-01MSD	FRAC-TANK-F06078MSD	1	1100	HG
Q1140-01L	FRAC-TANK-F06078L	5	1105	HG
CCV64	CCV64	1	1110	HG
CCB64	CCB64	1	1112	HG

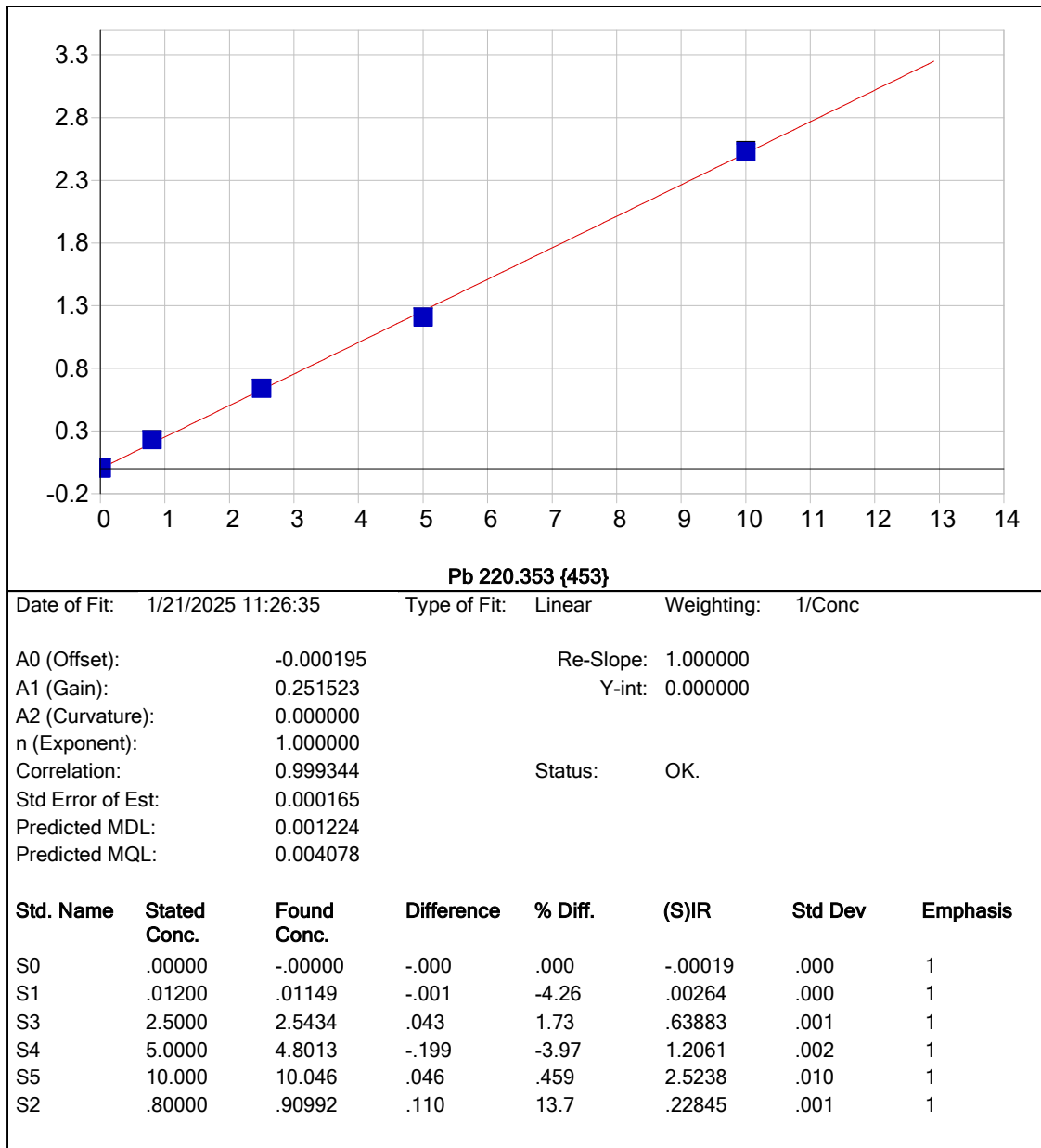


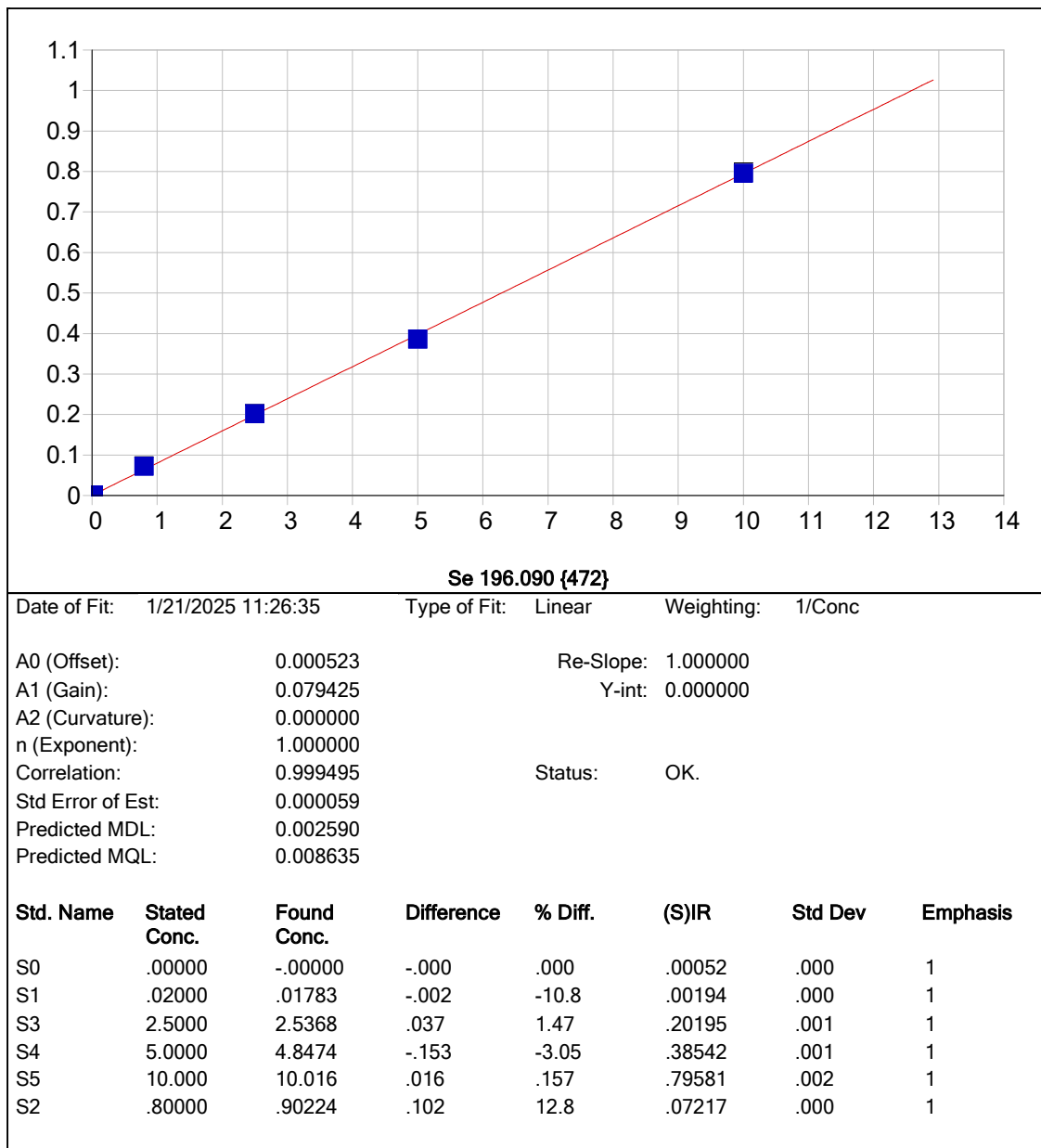
METAL RAW DATA

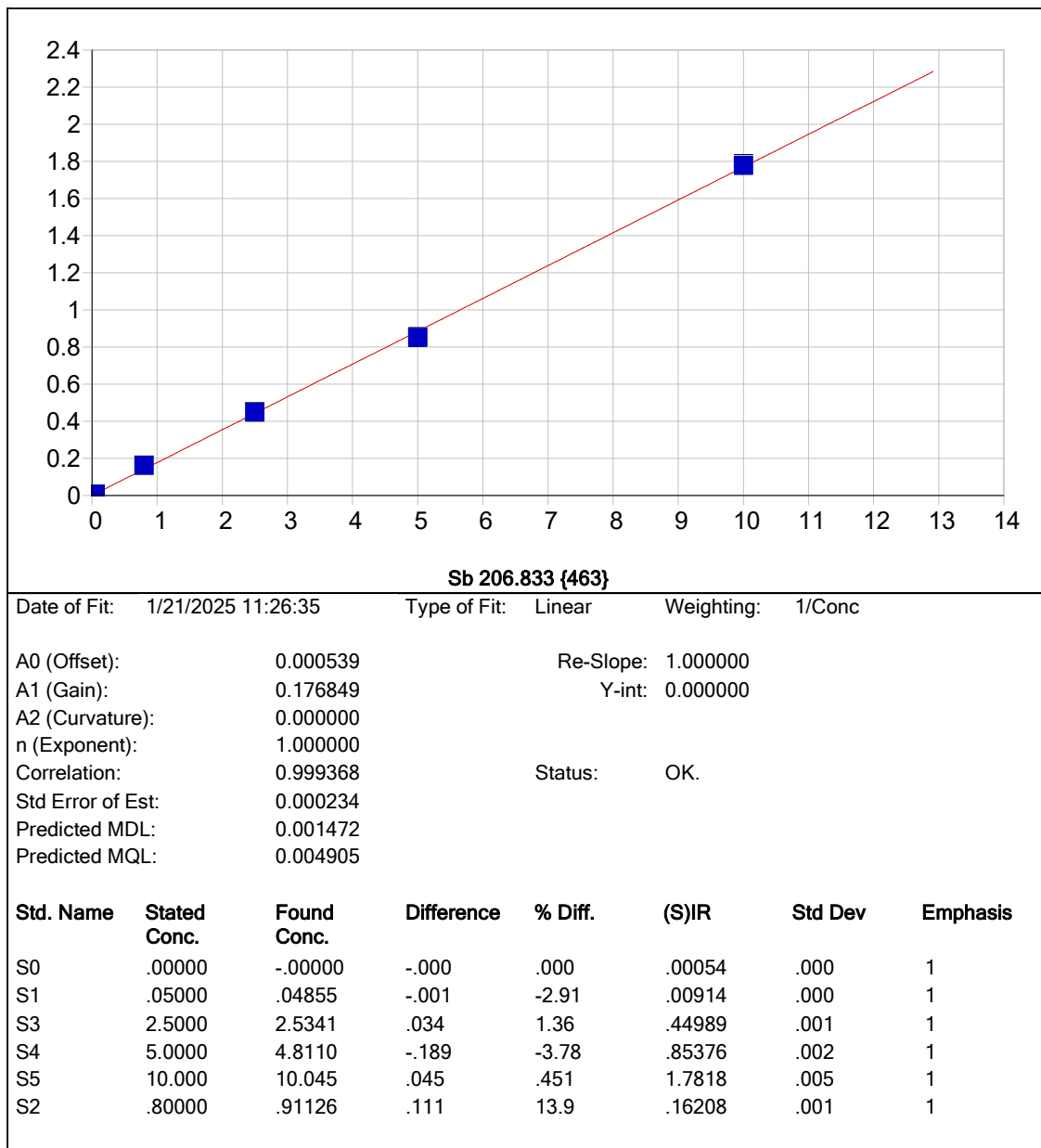
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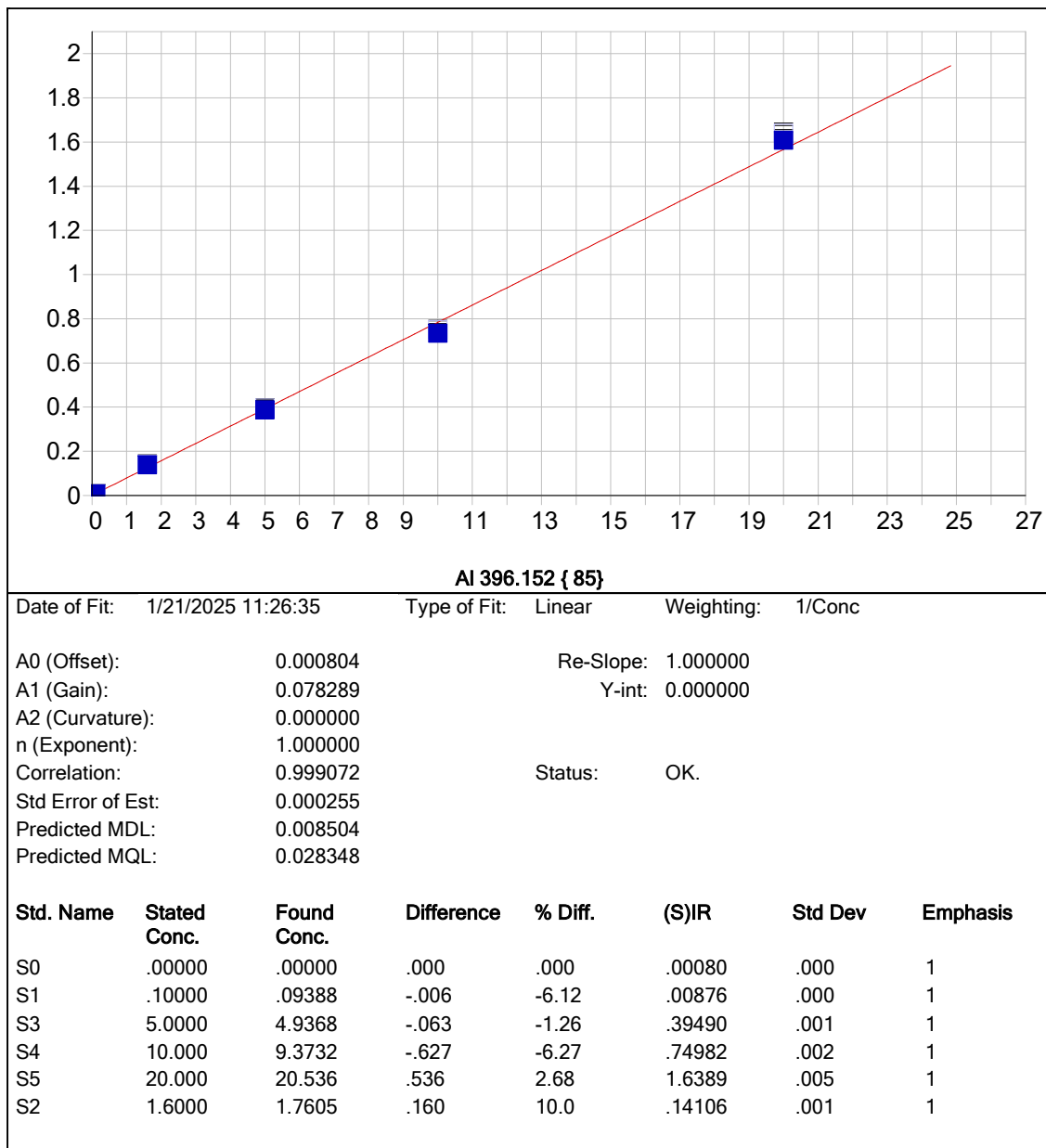


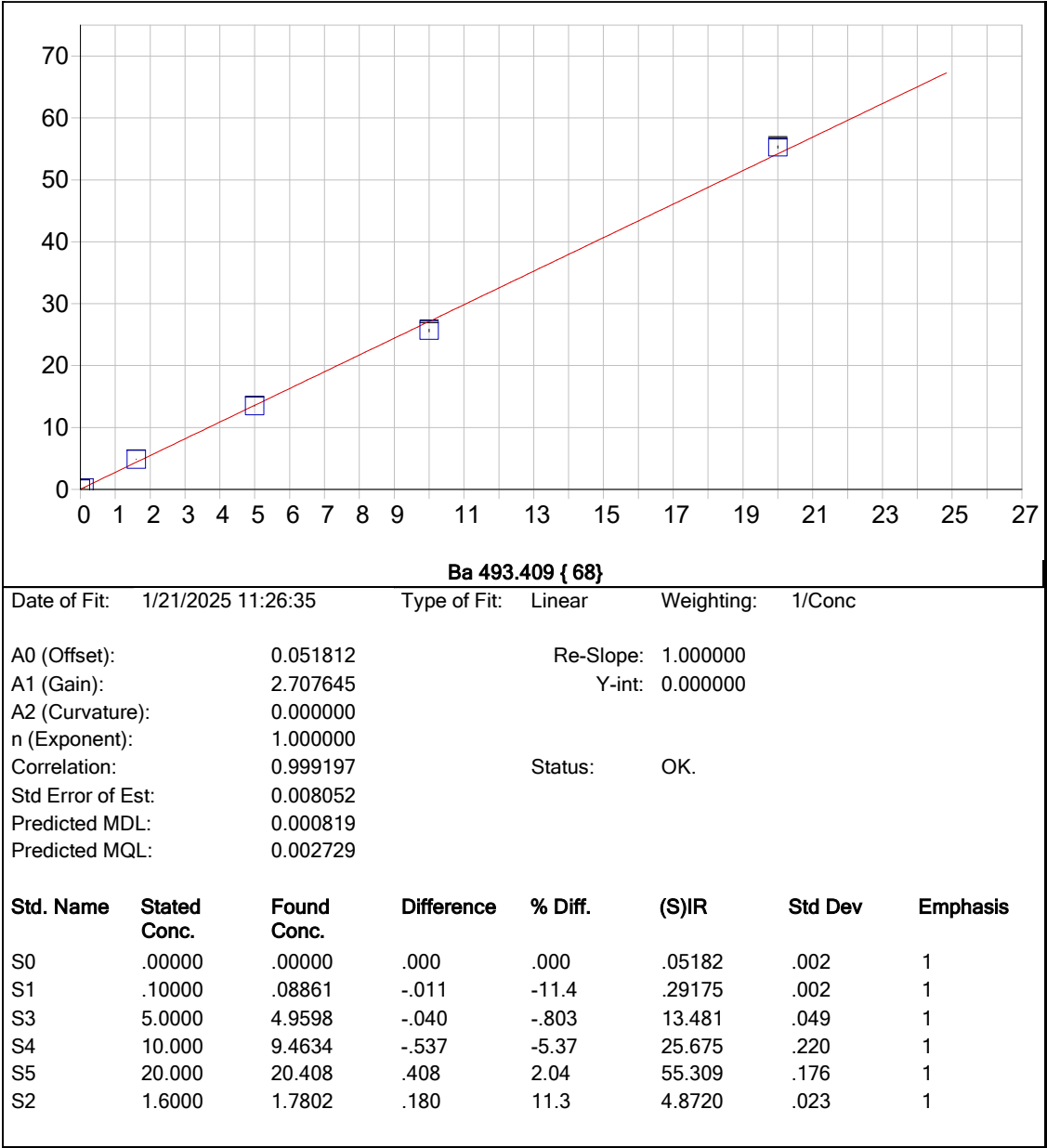


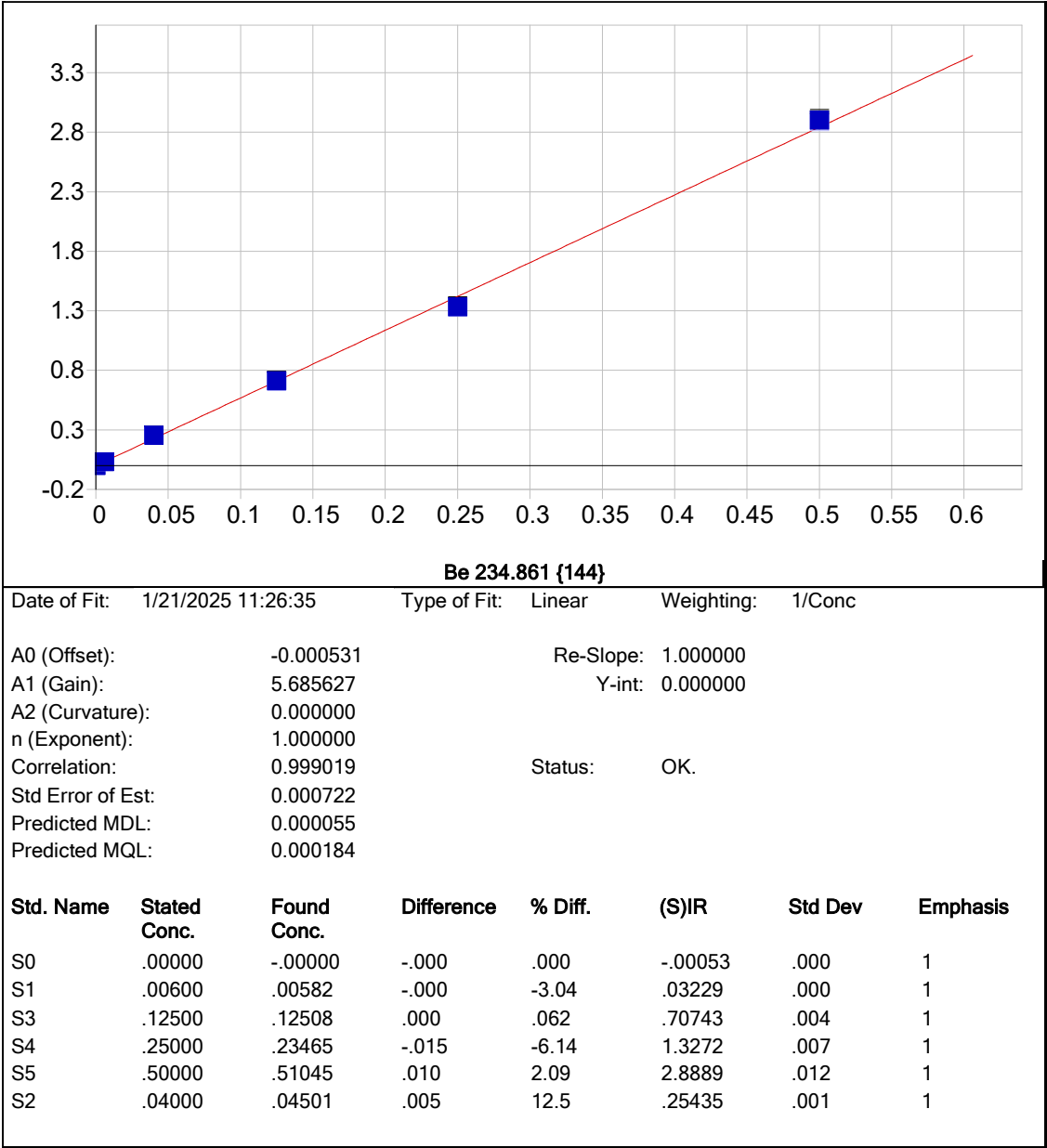


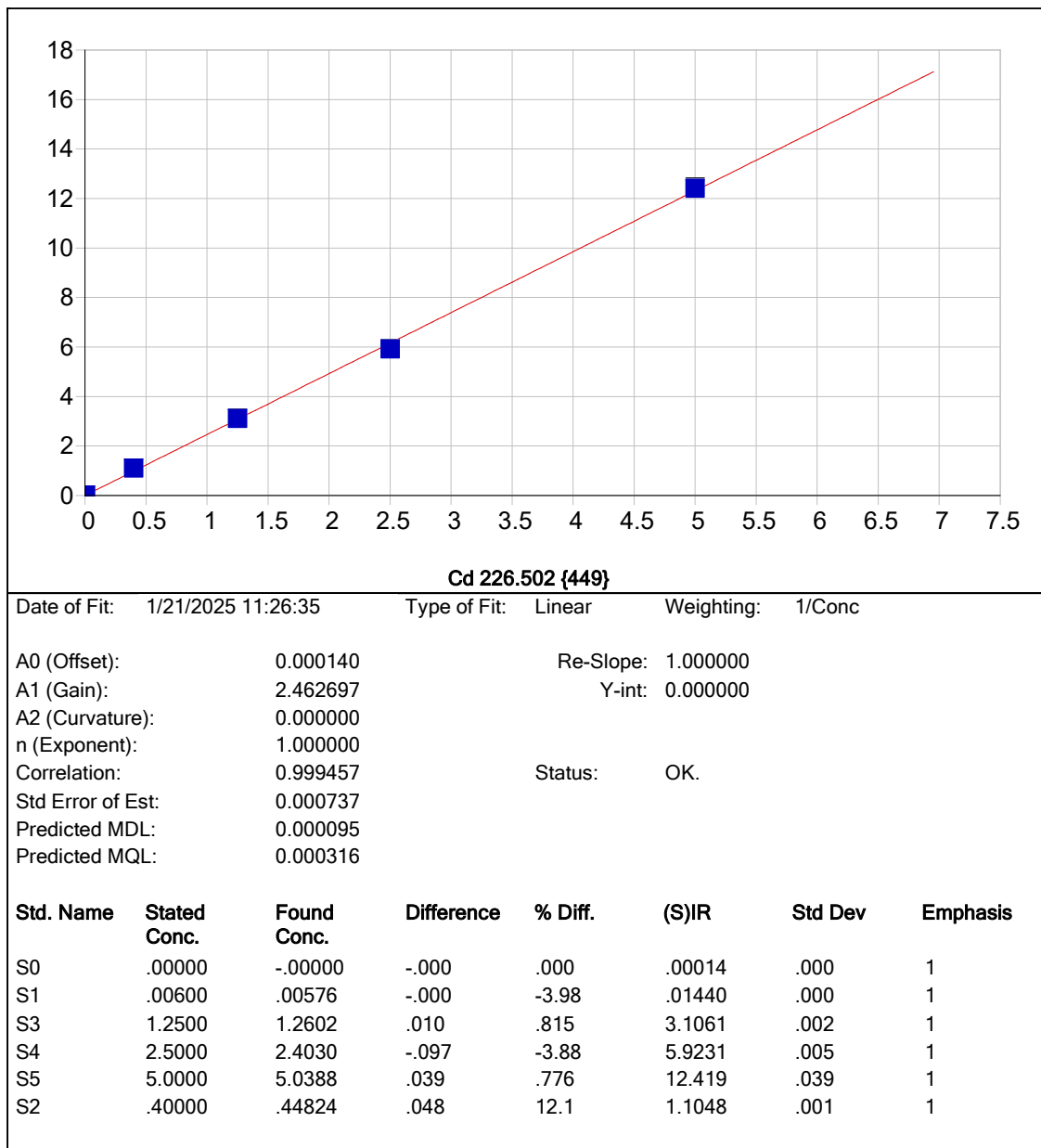


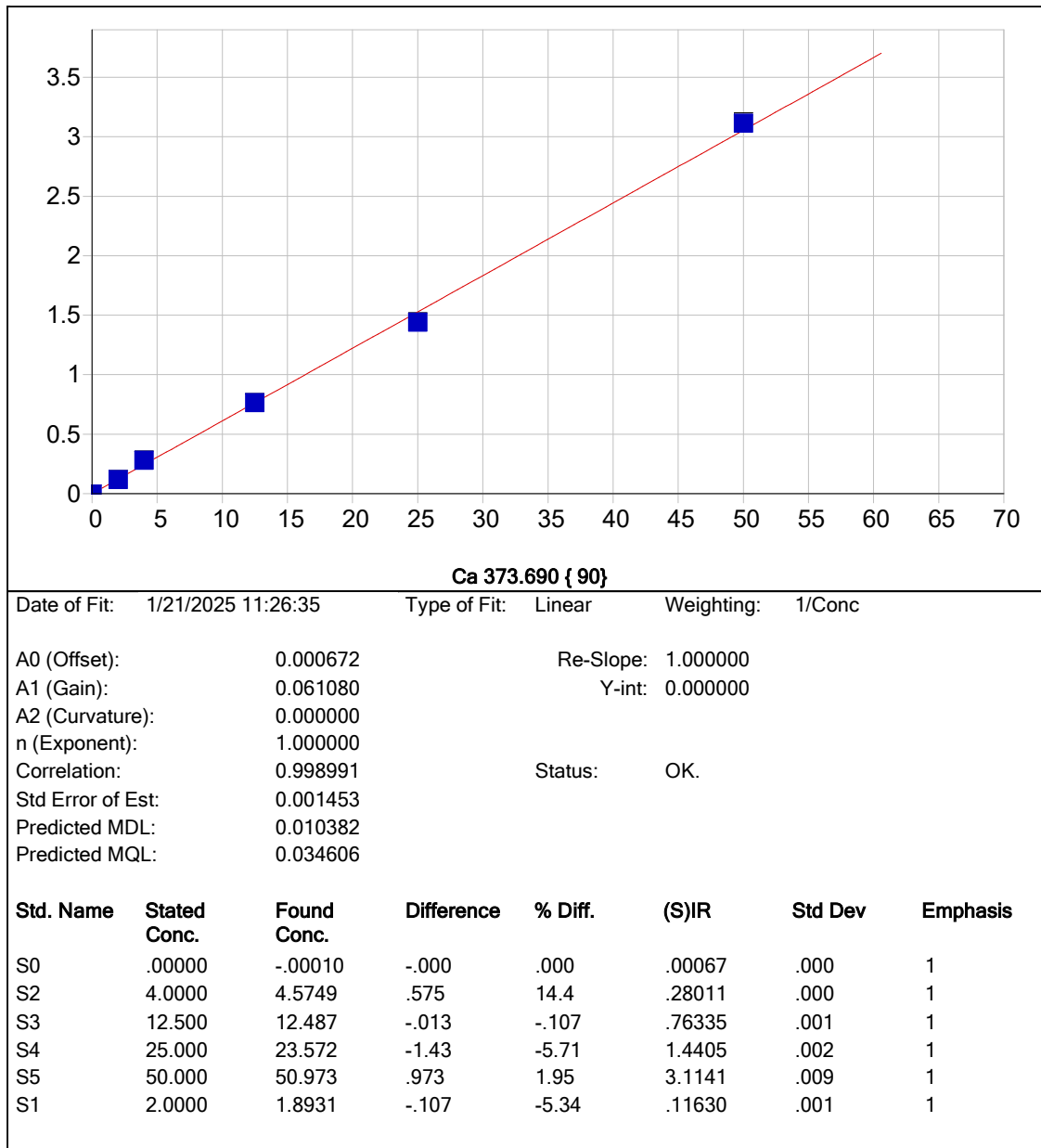


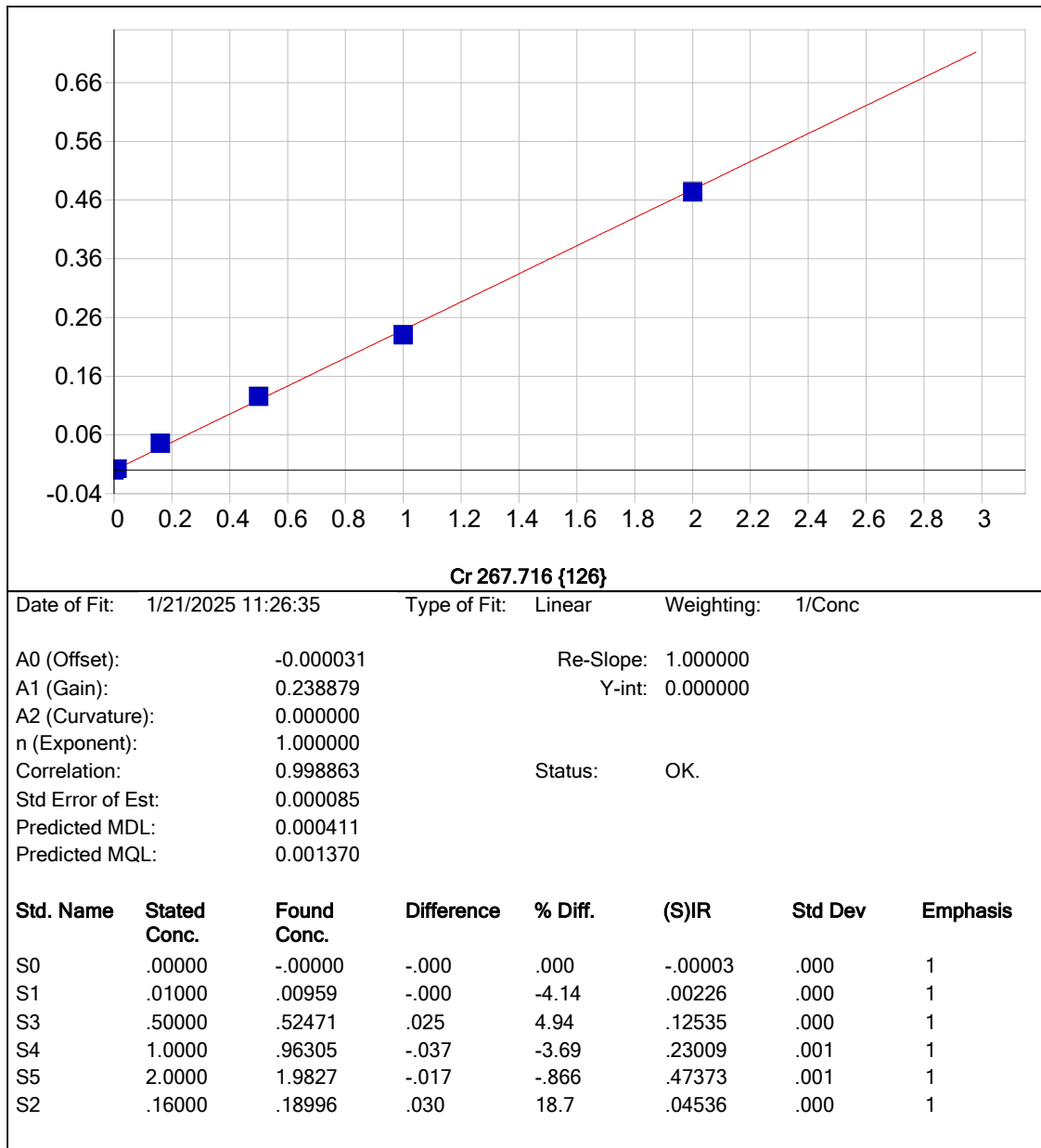


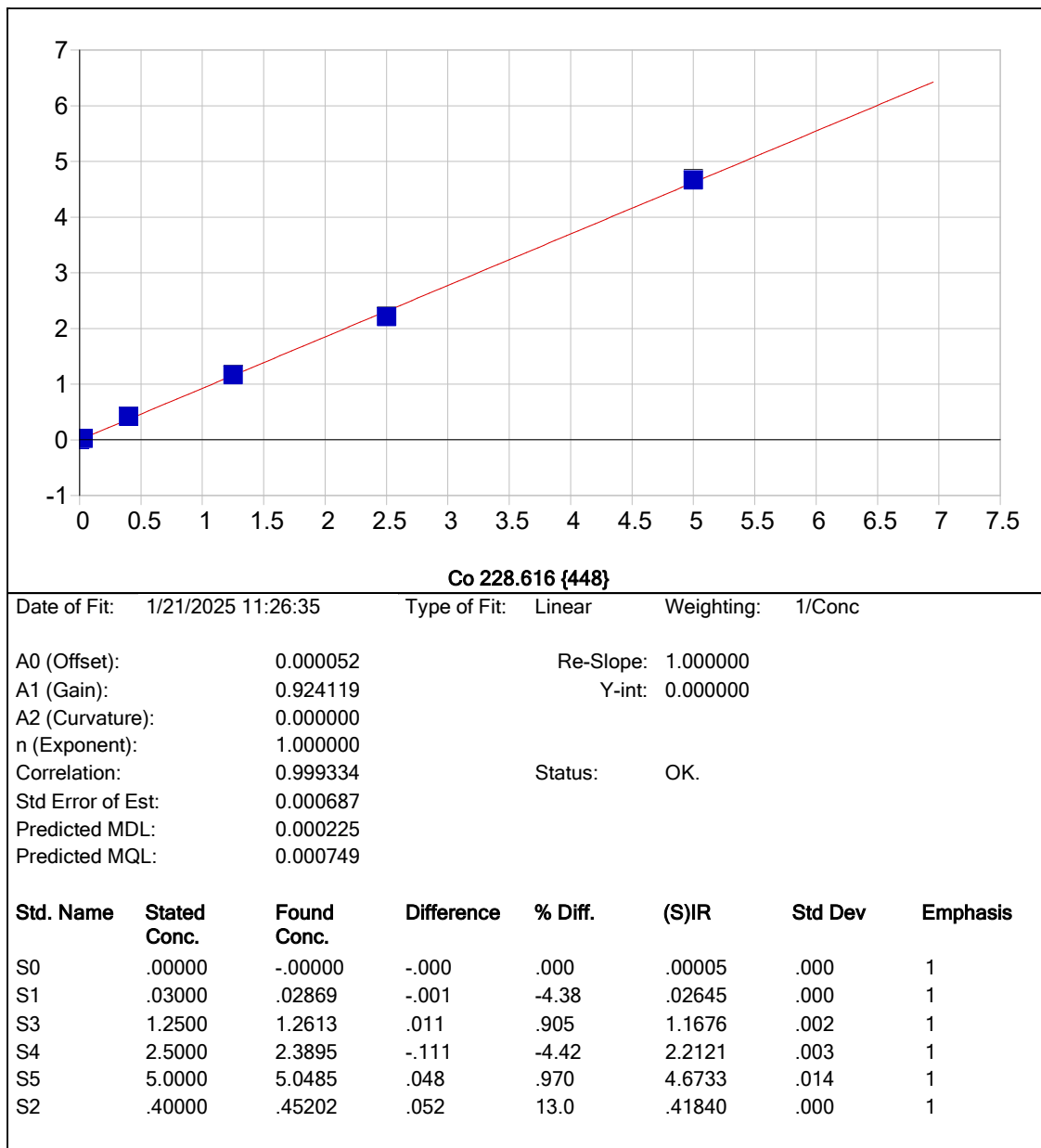


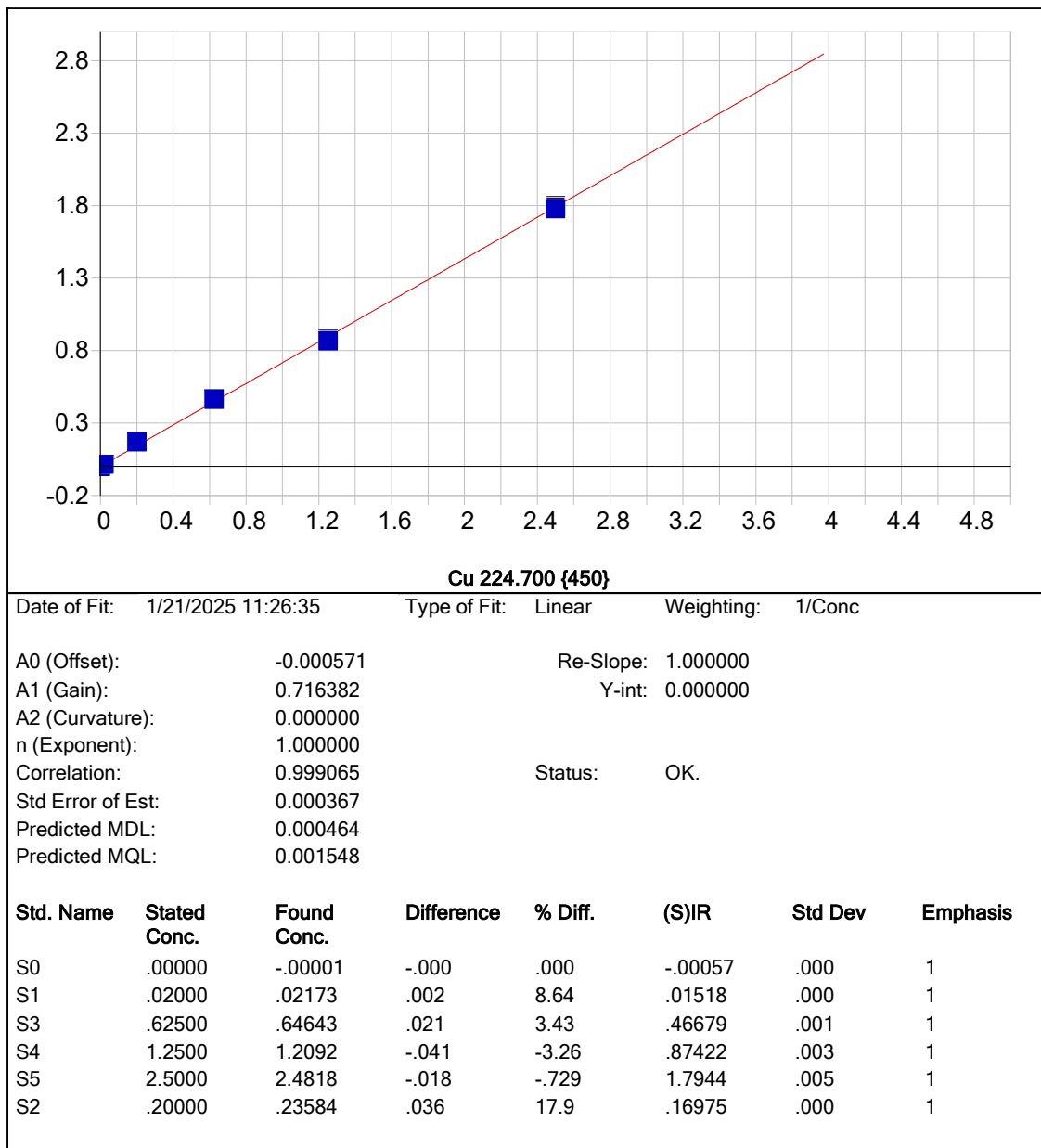


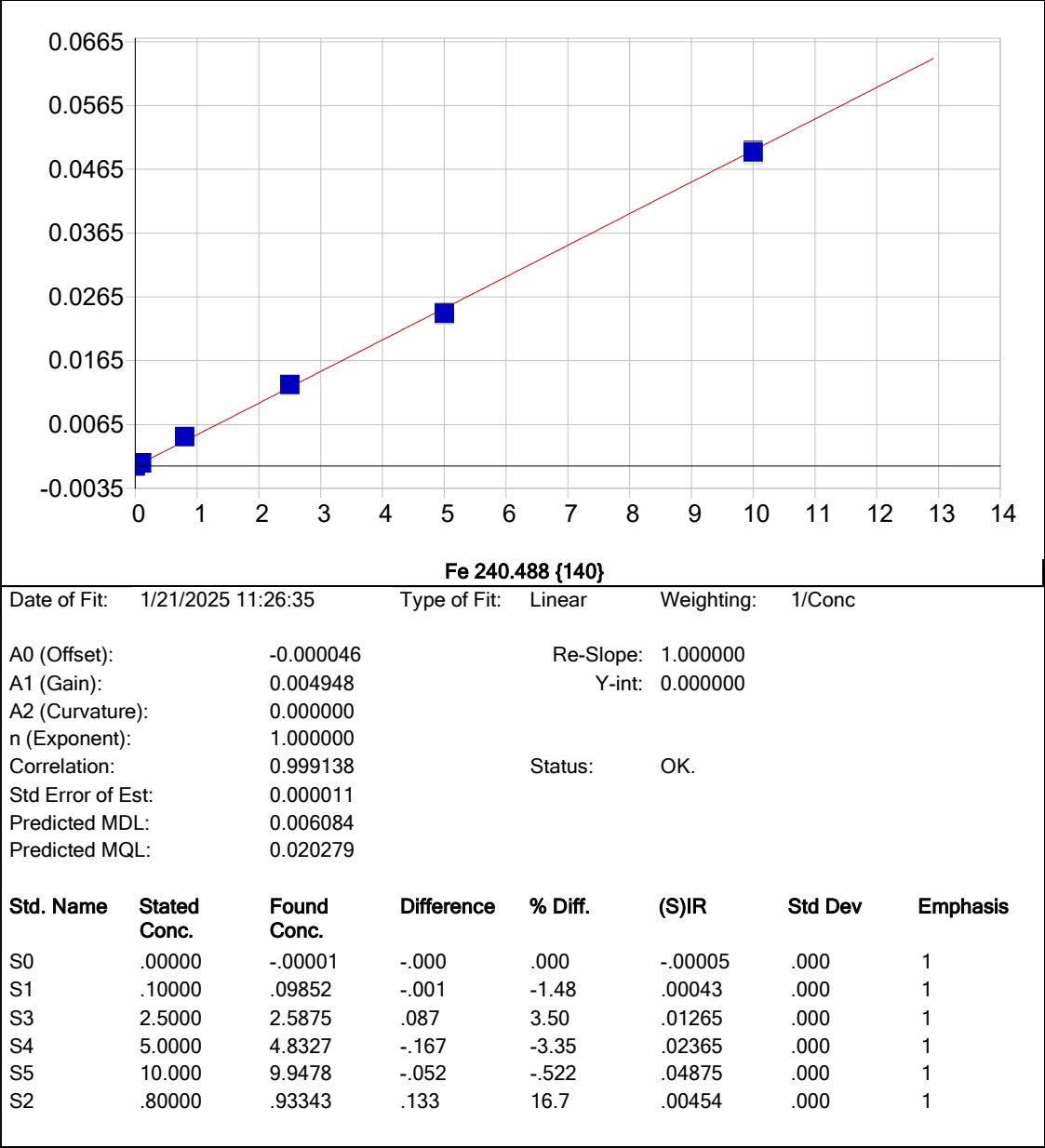


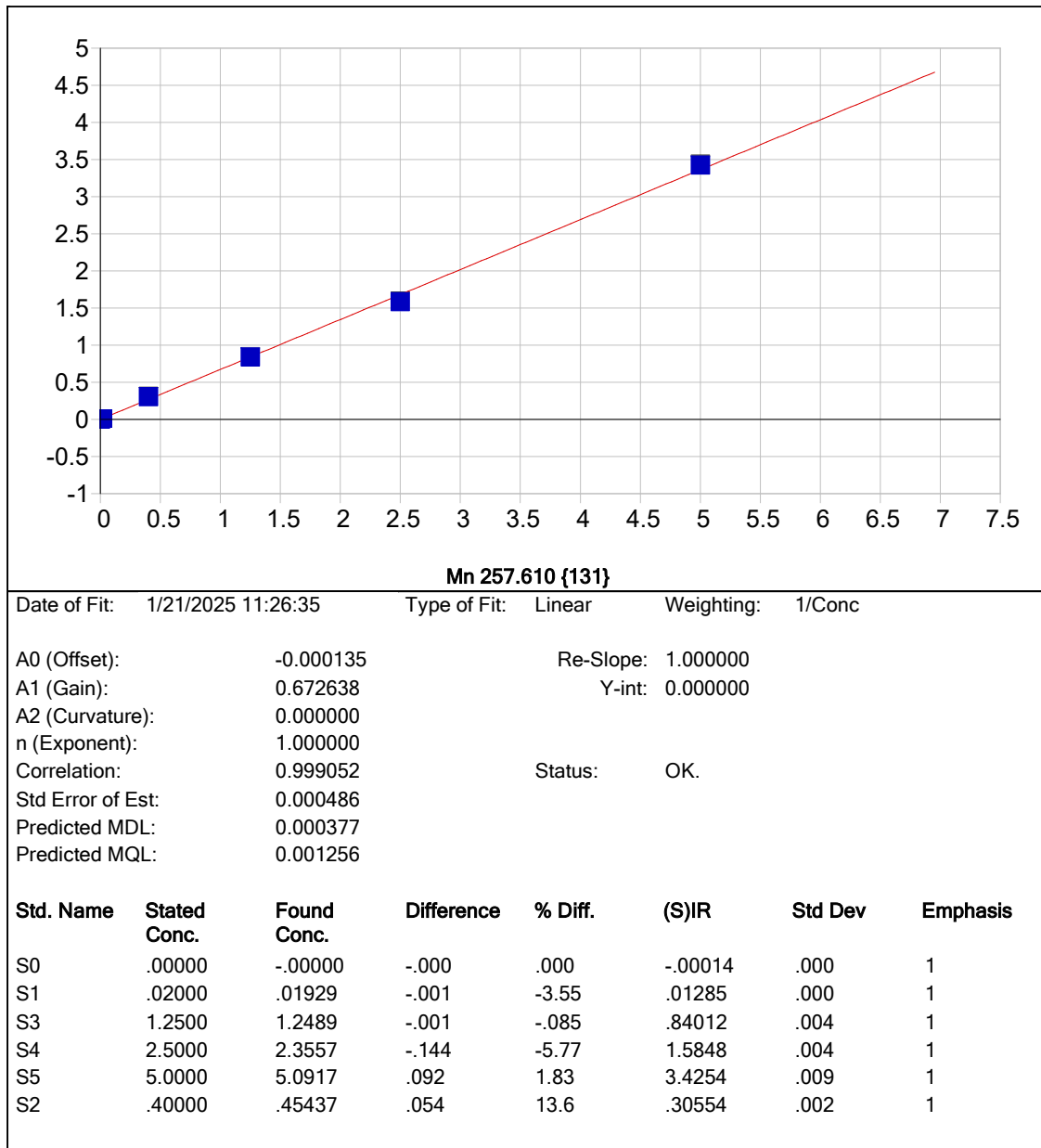


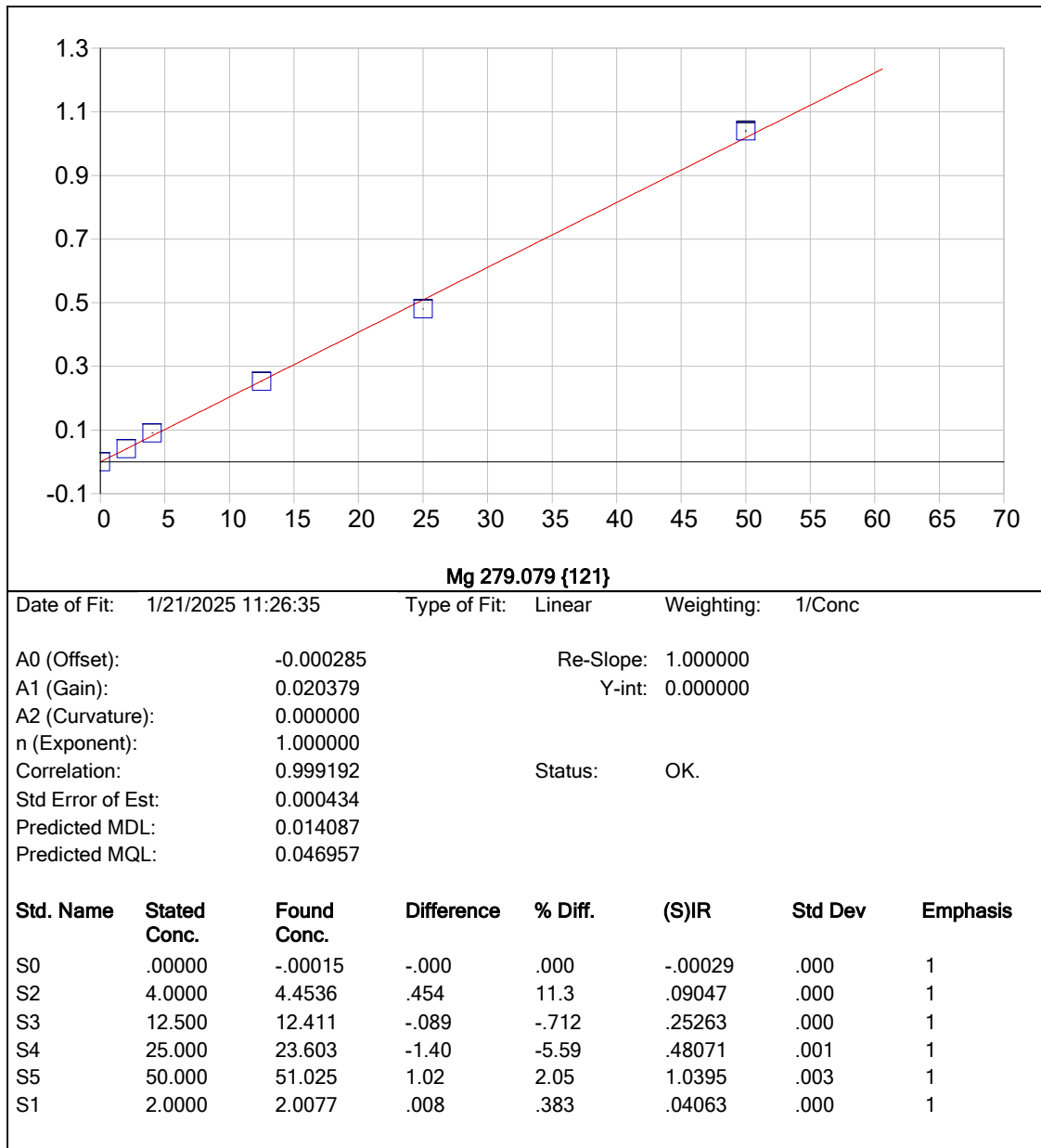


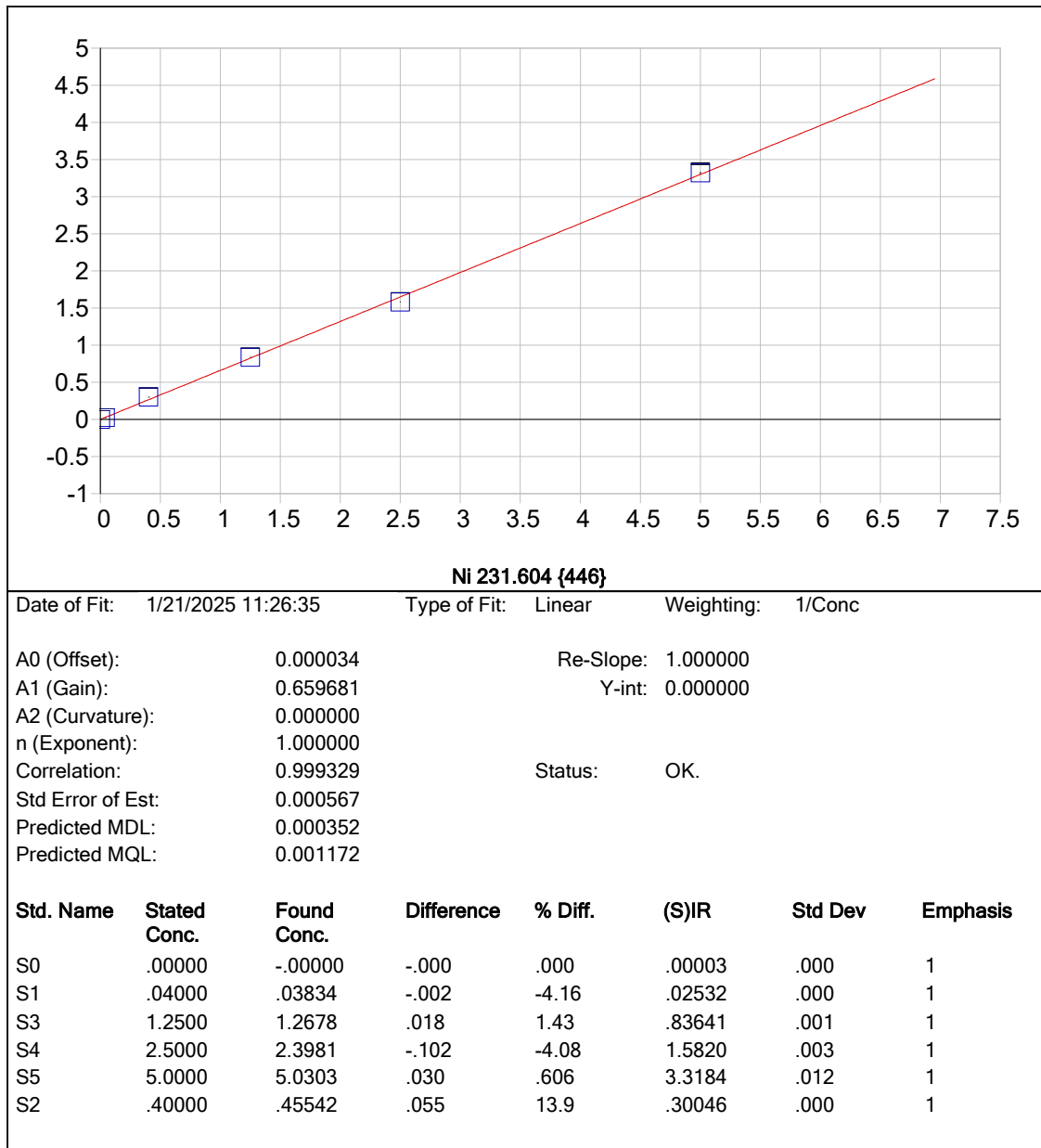


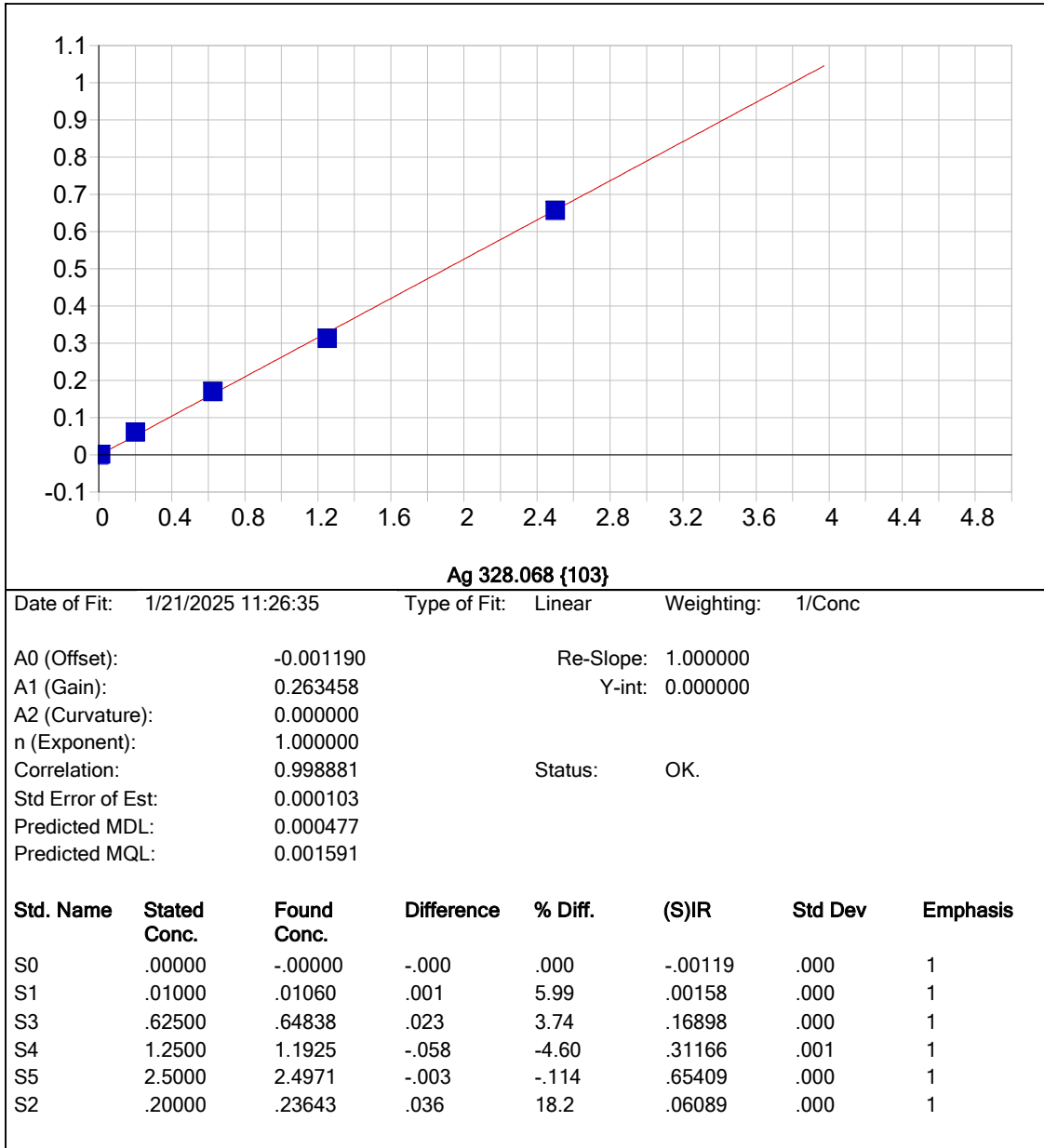


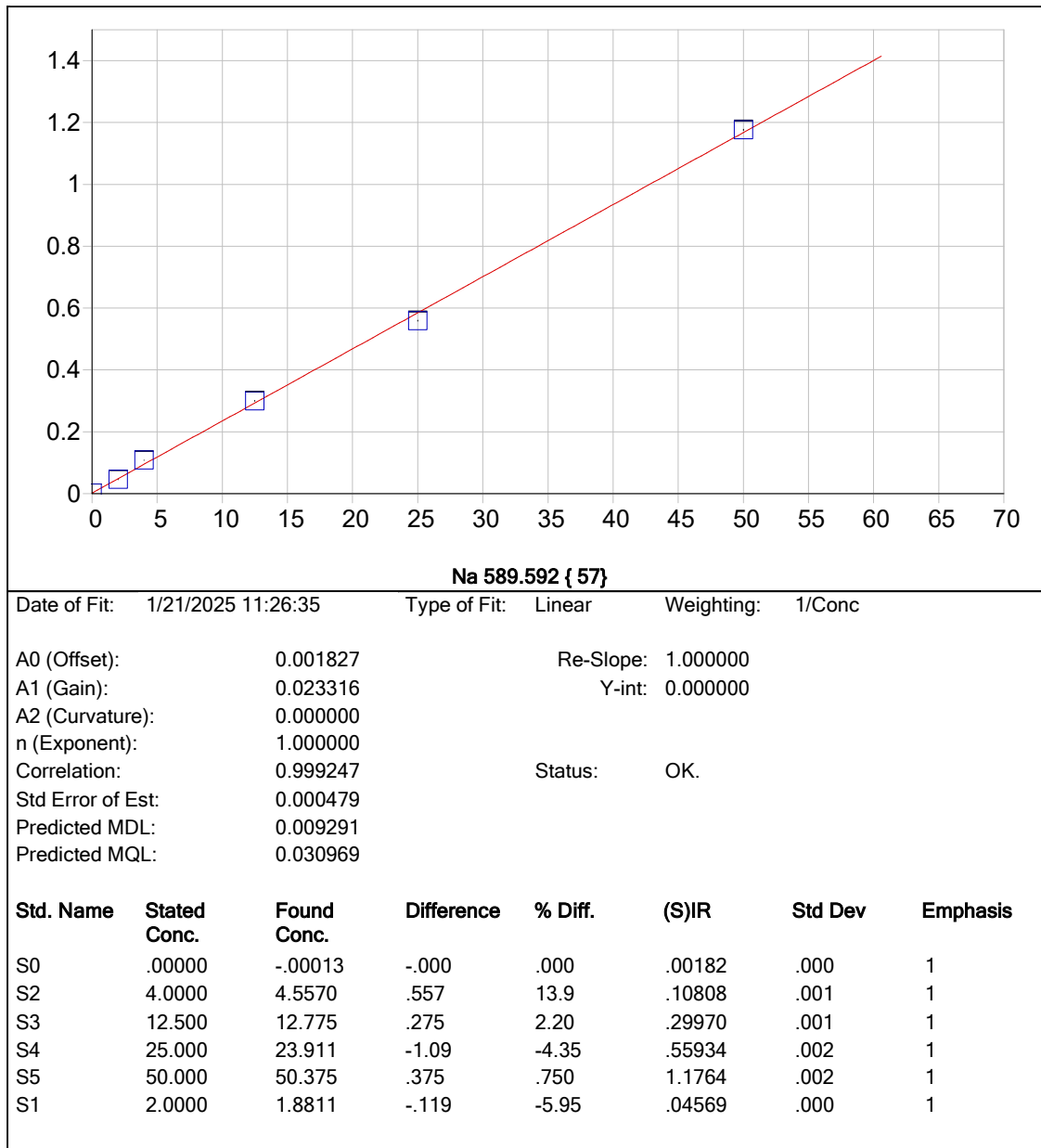


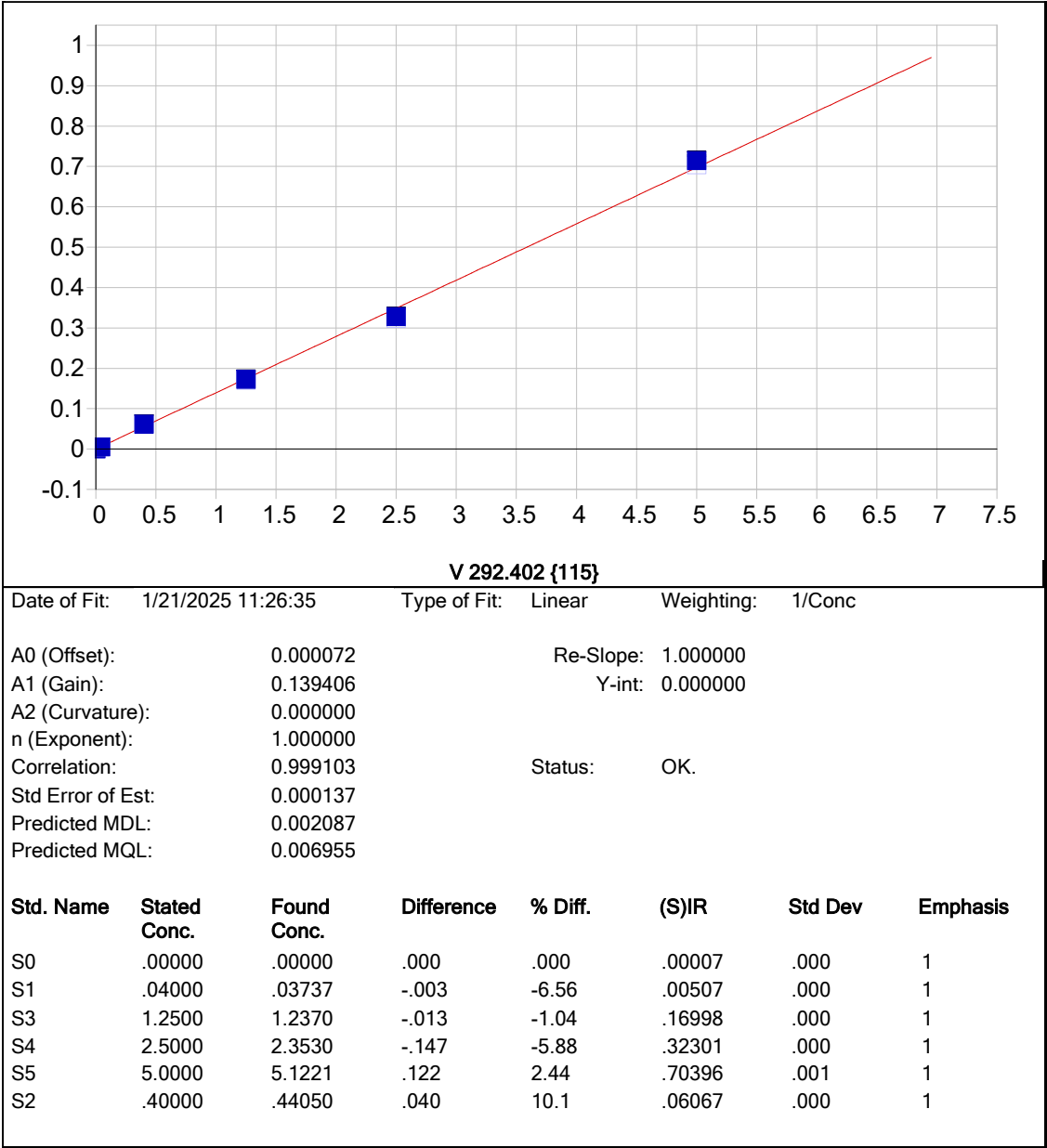


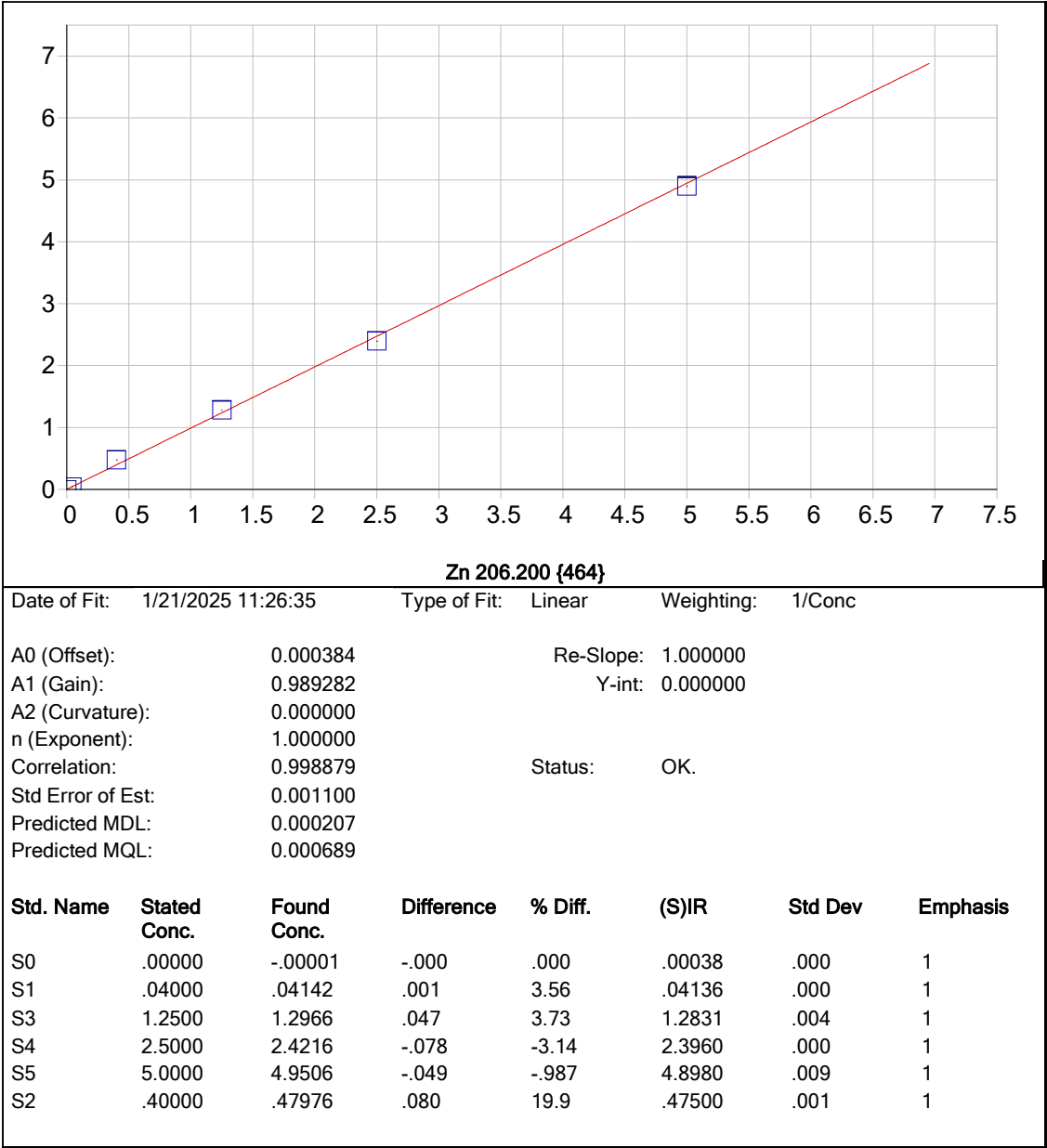


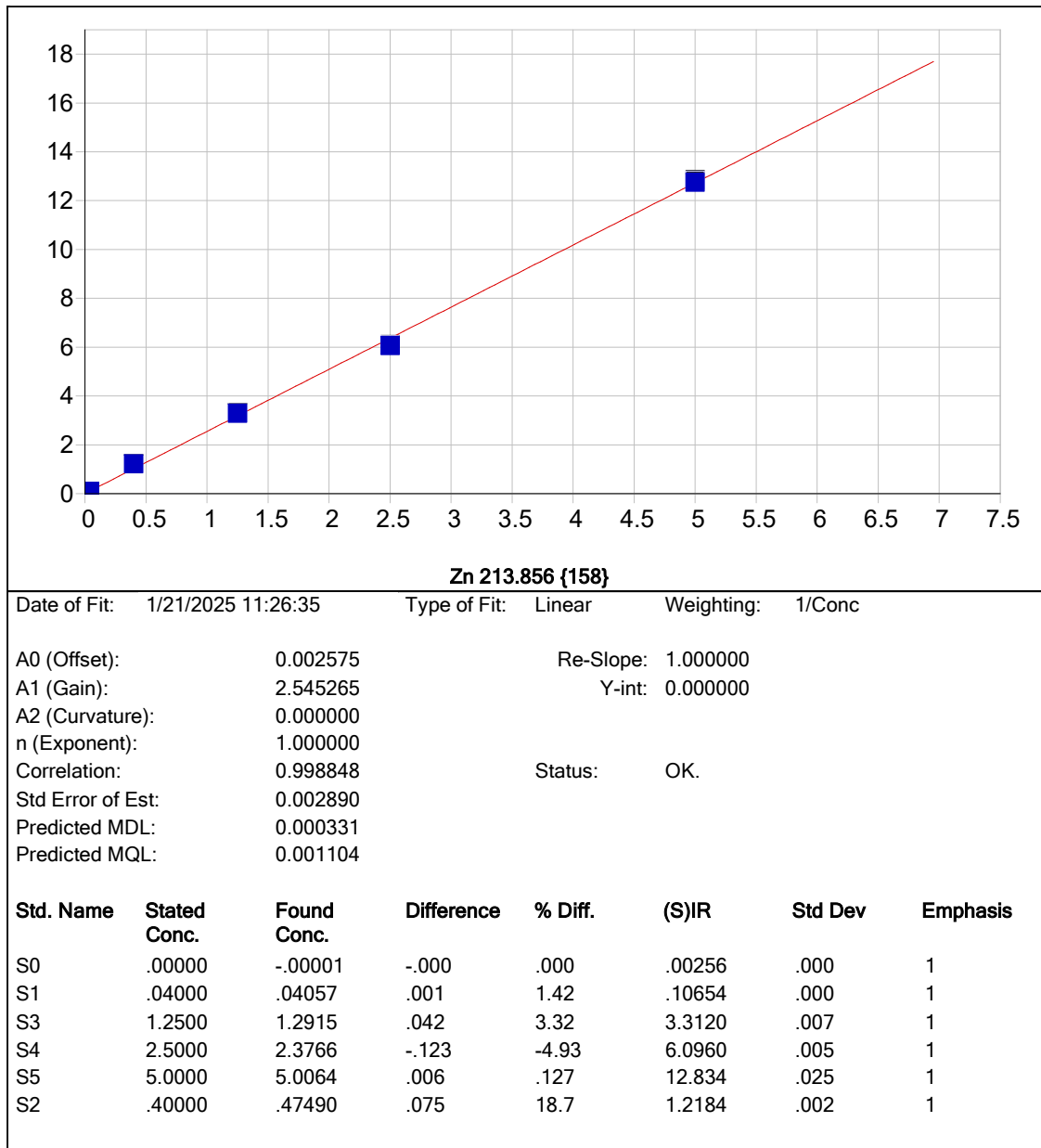


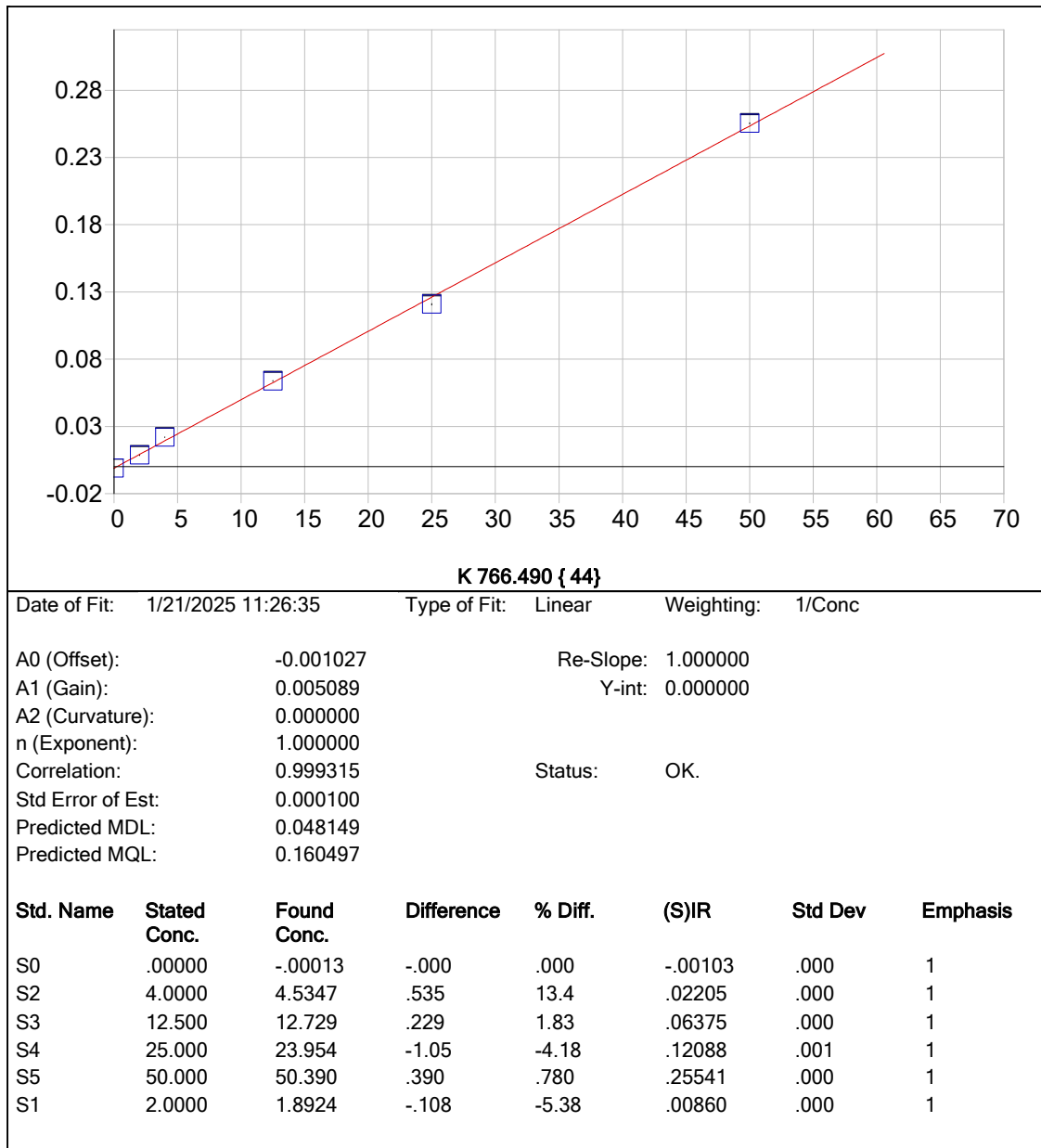


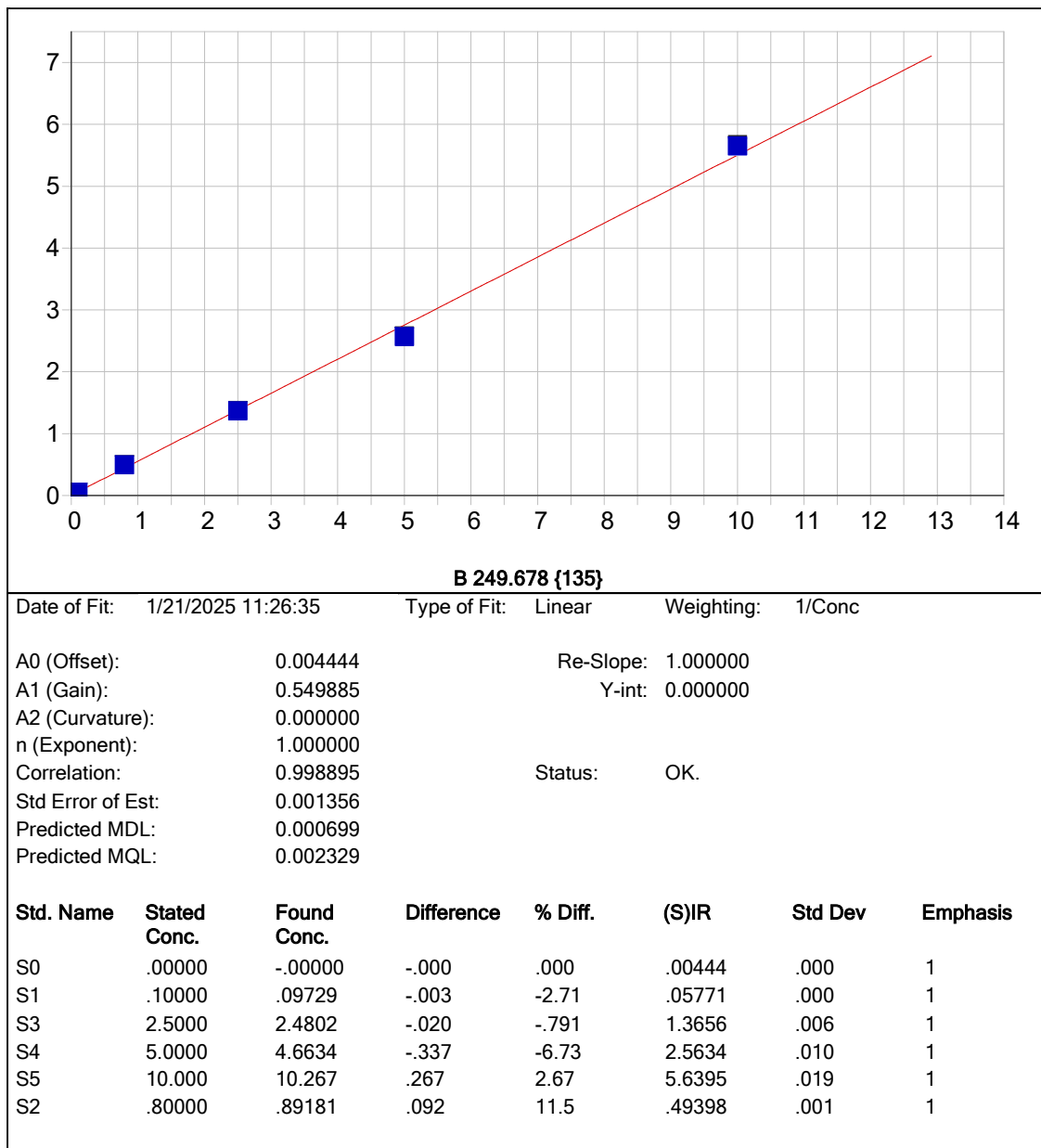


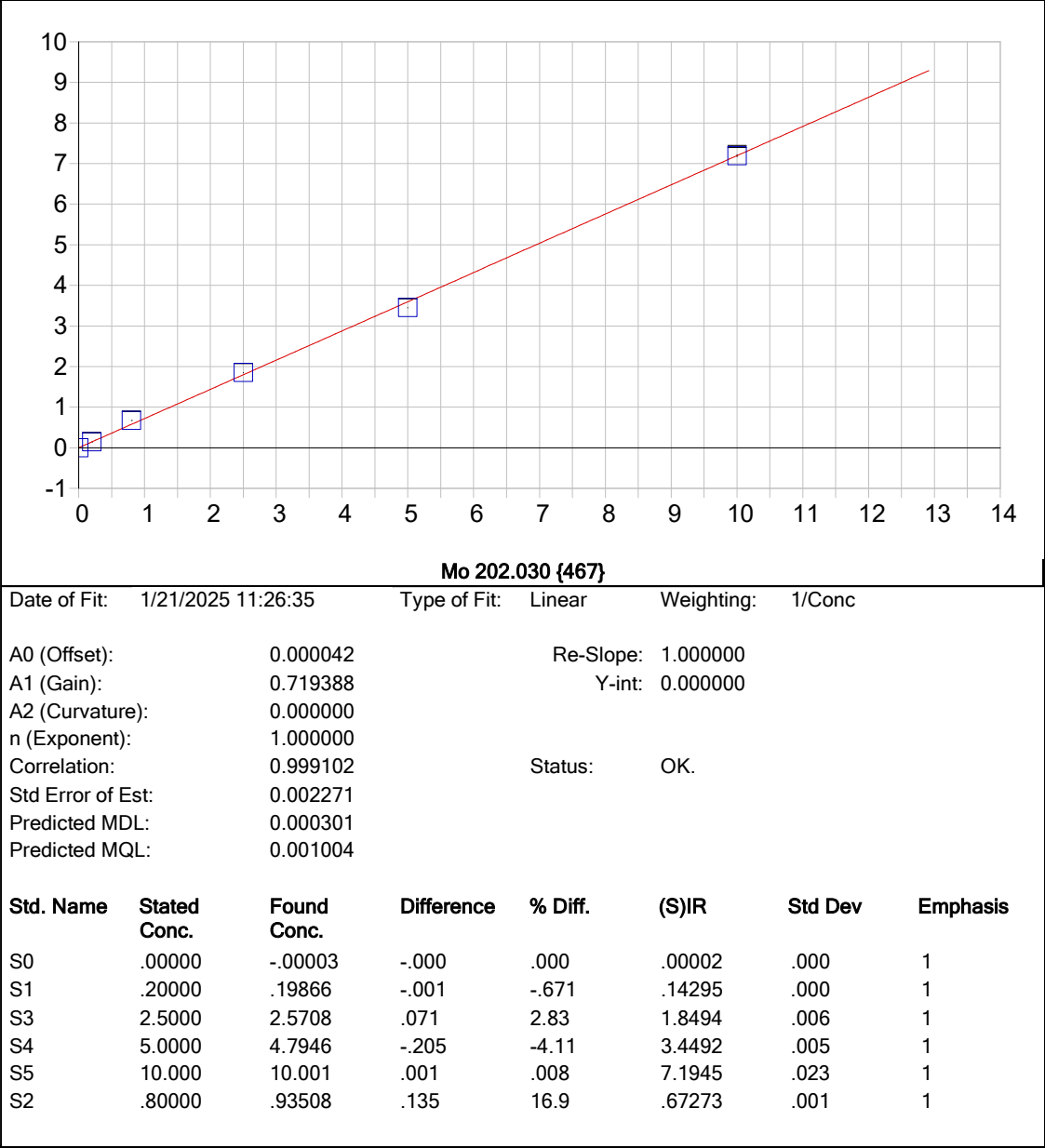


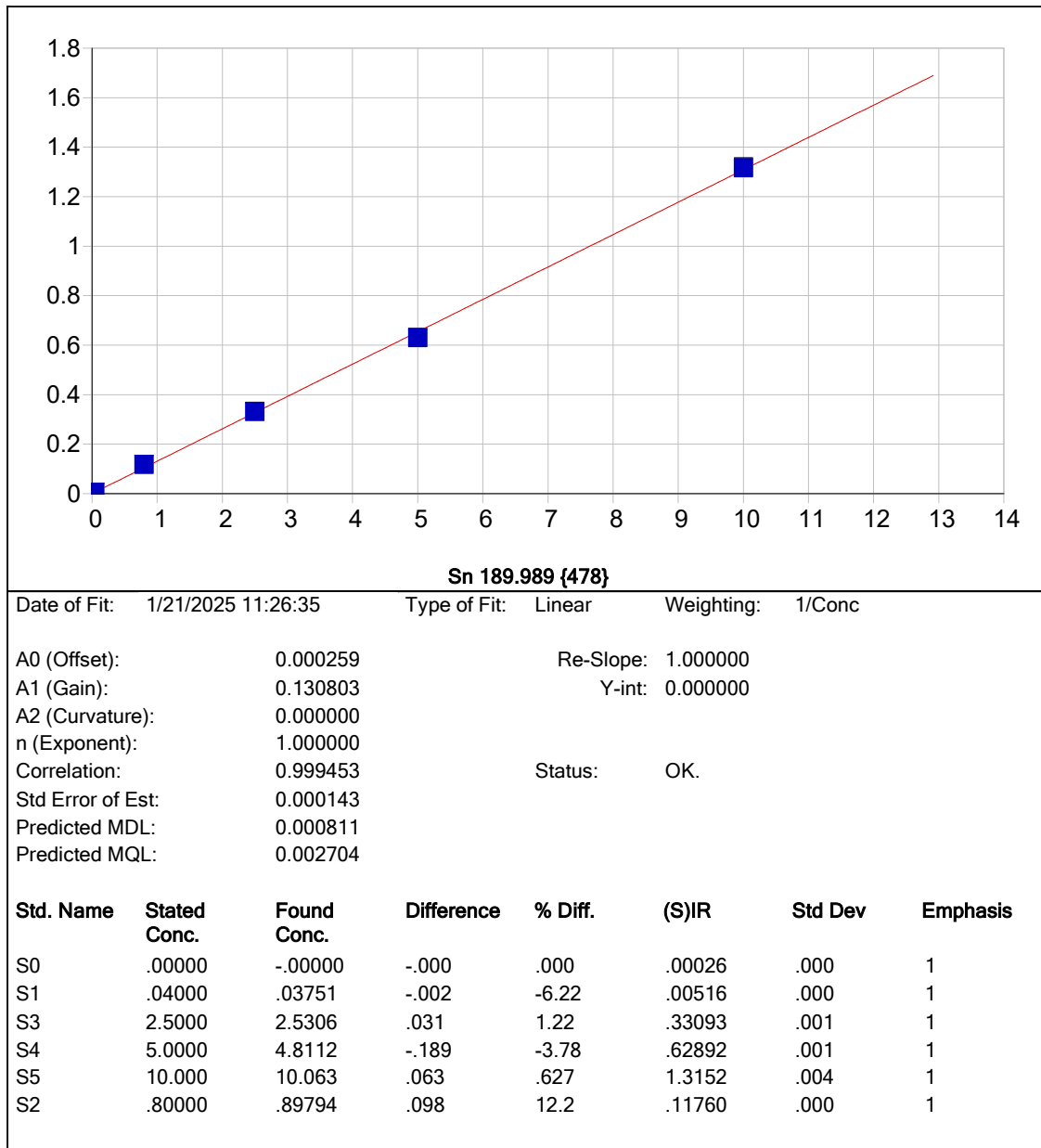


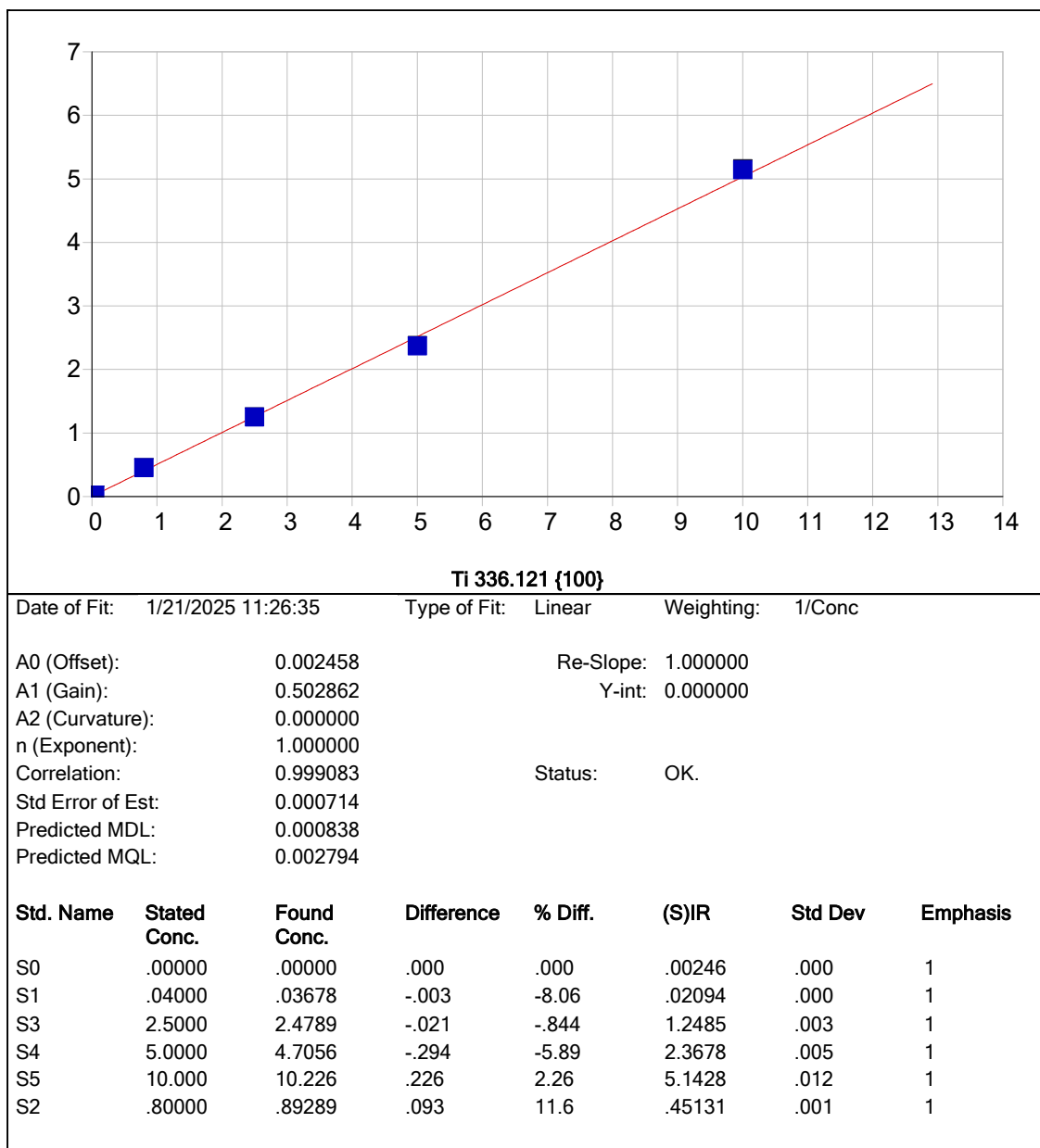


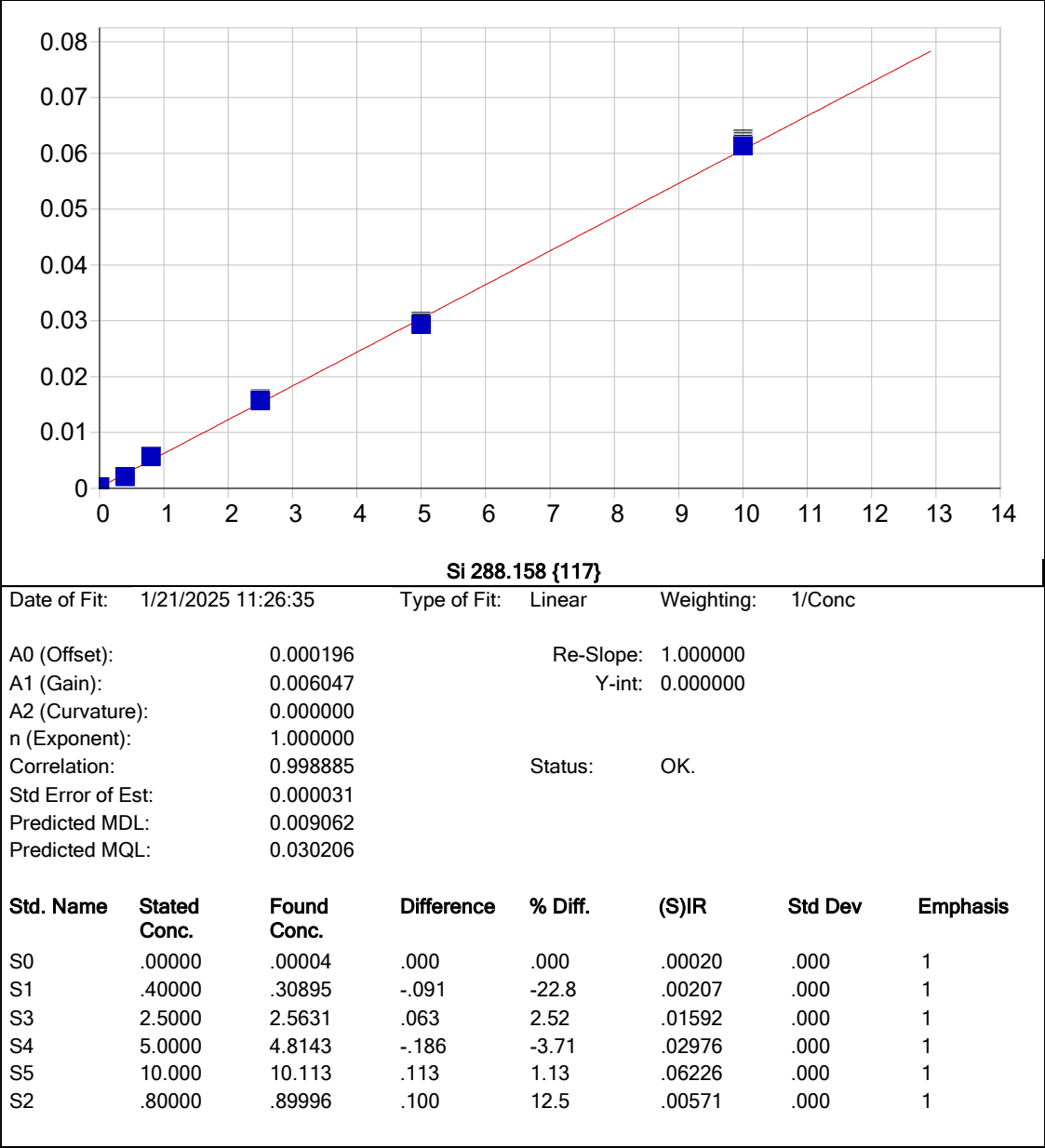


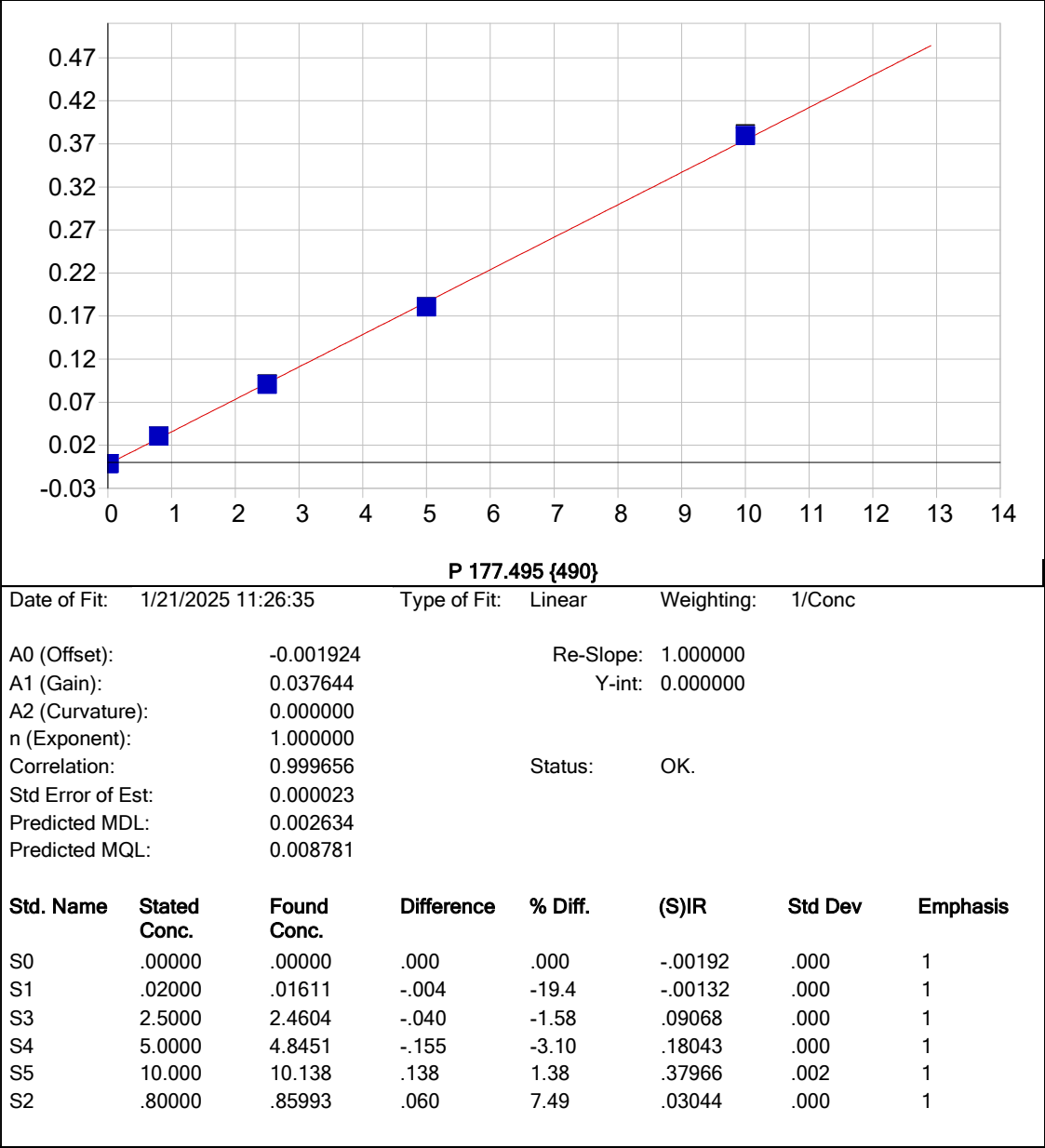


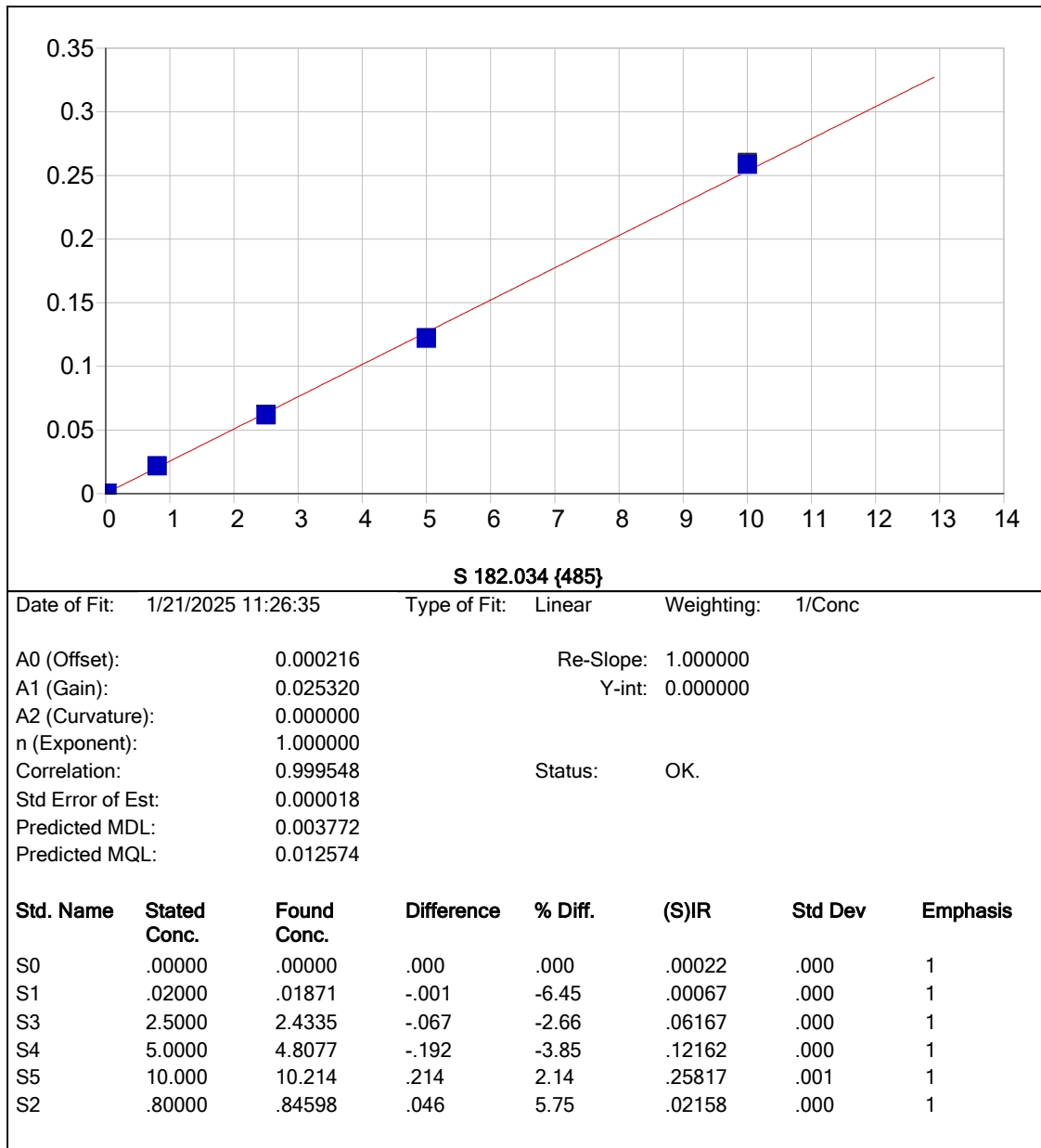


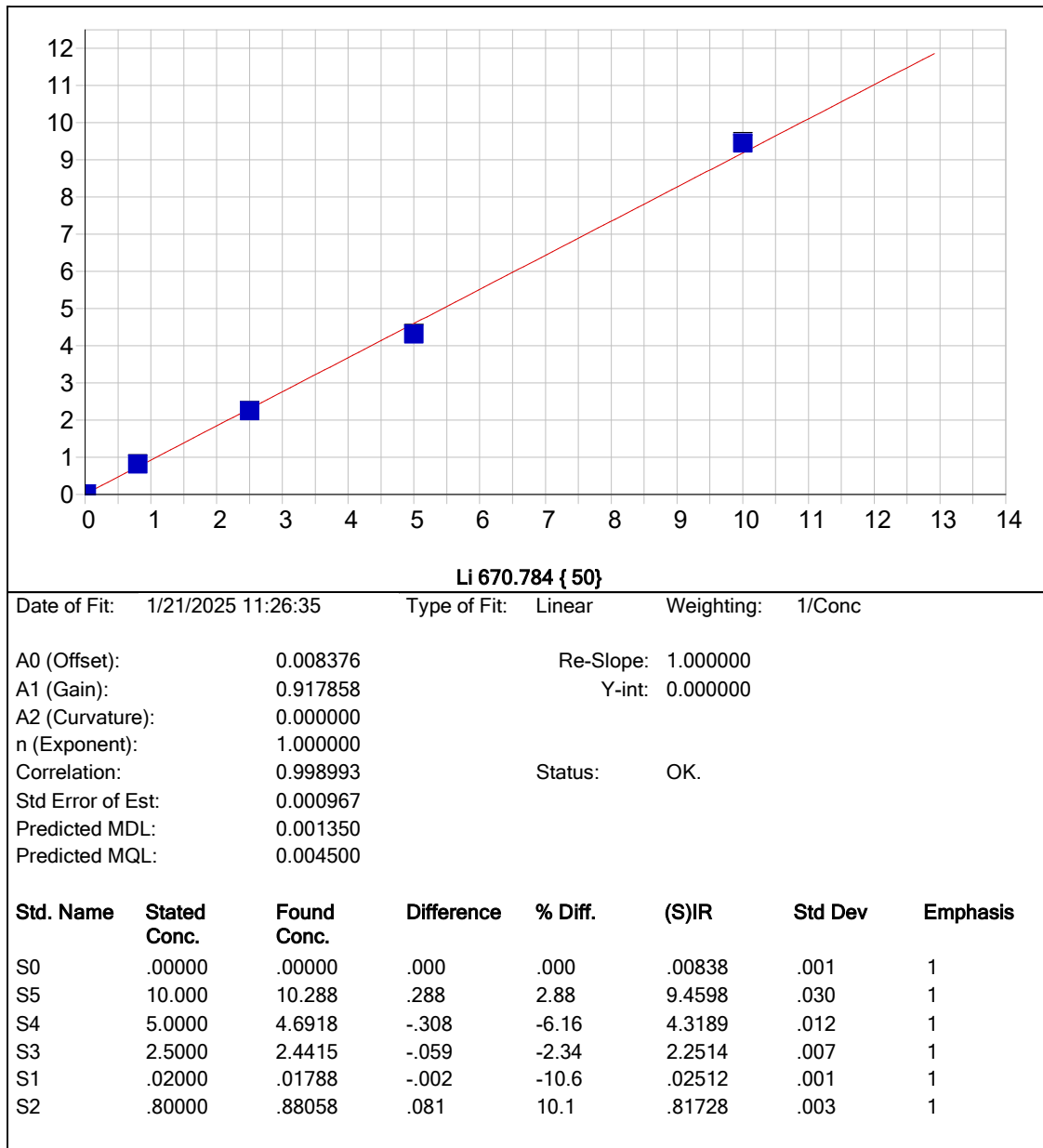


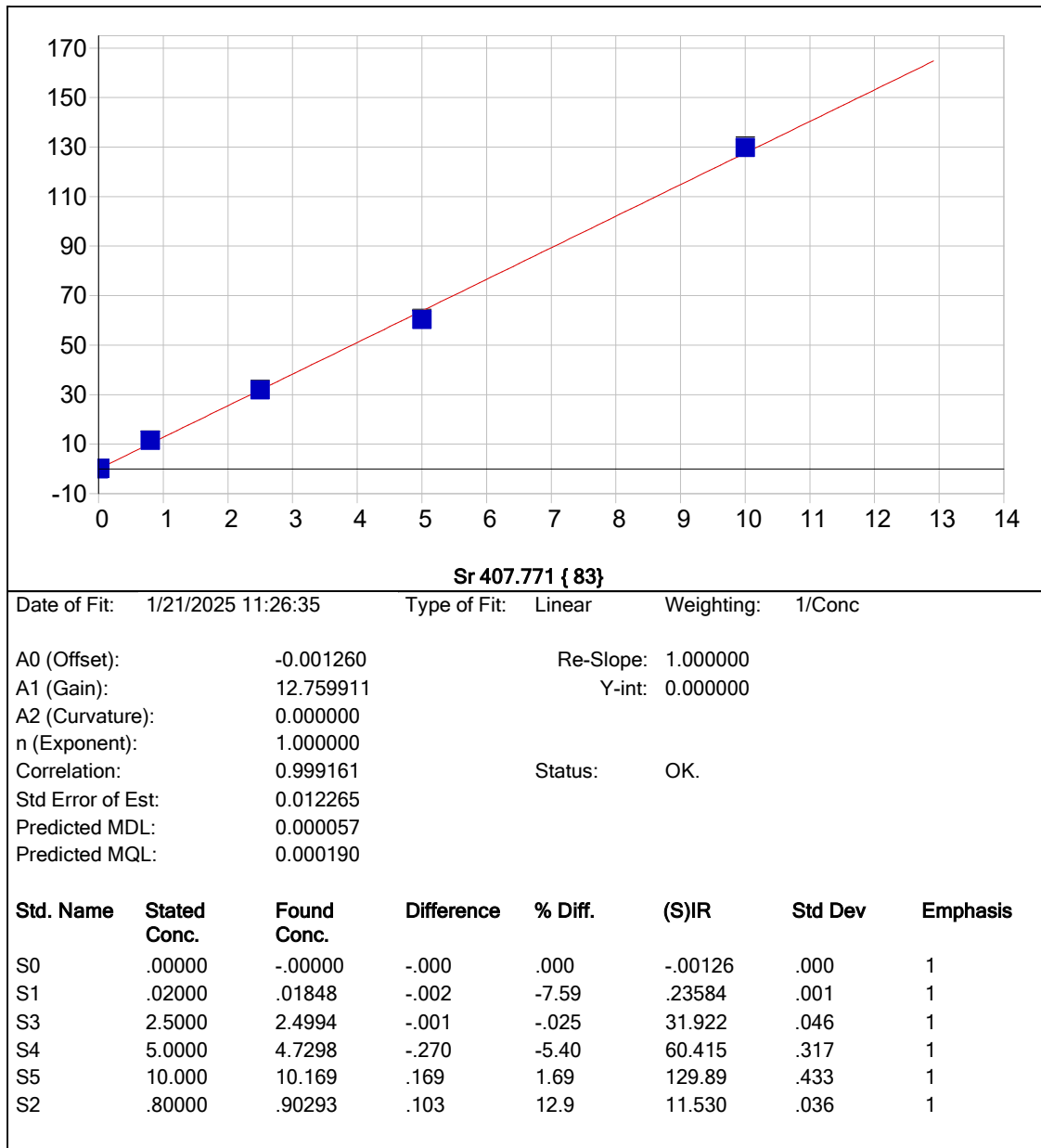


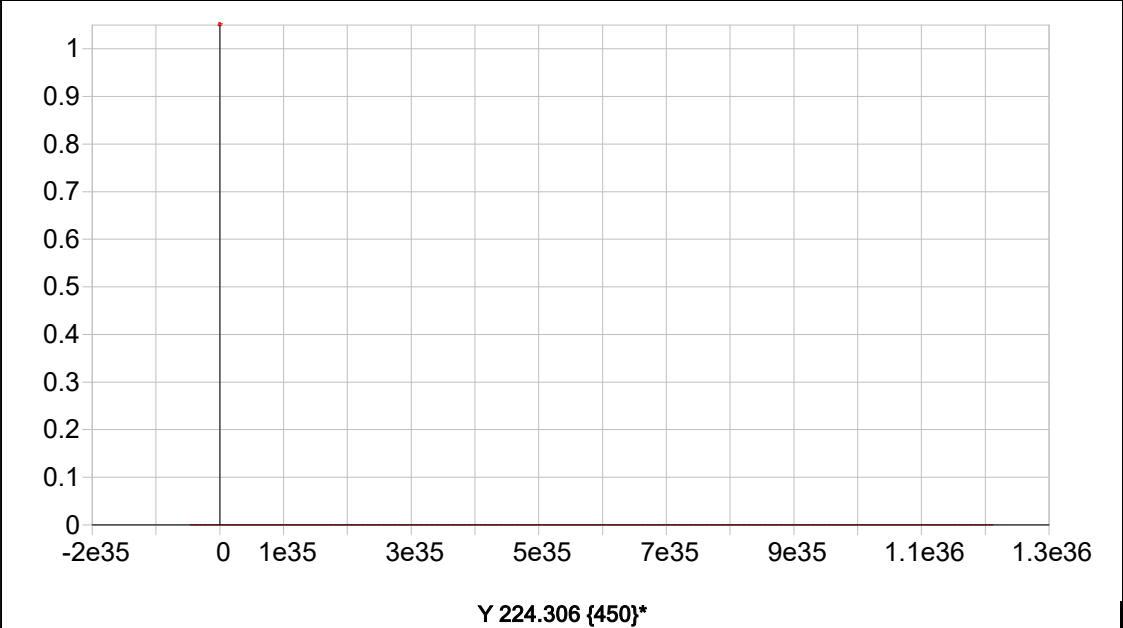




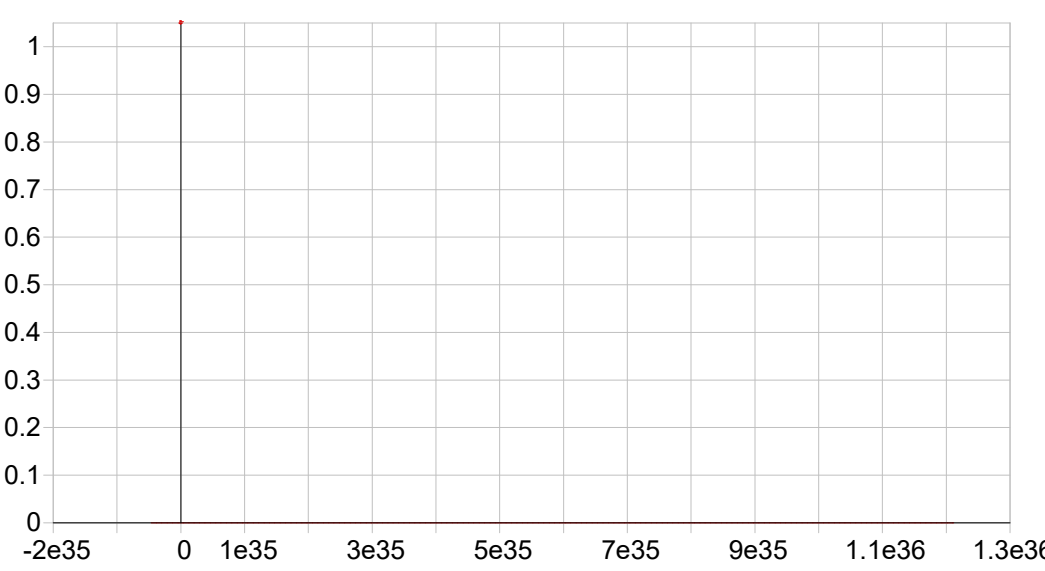




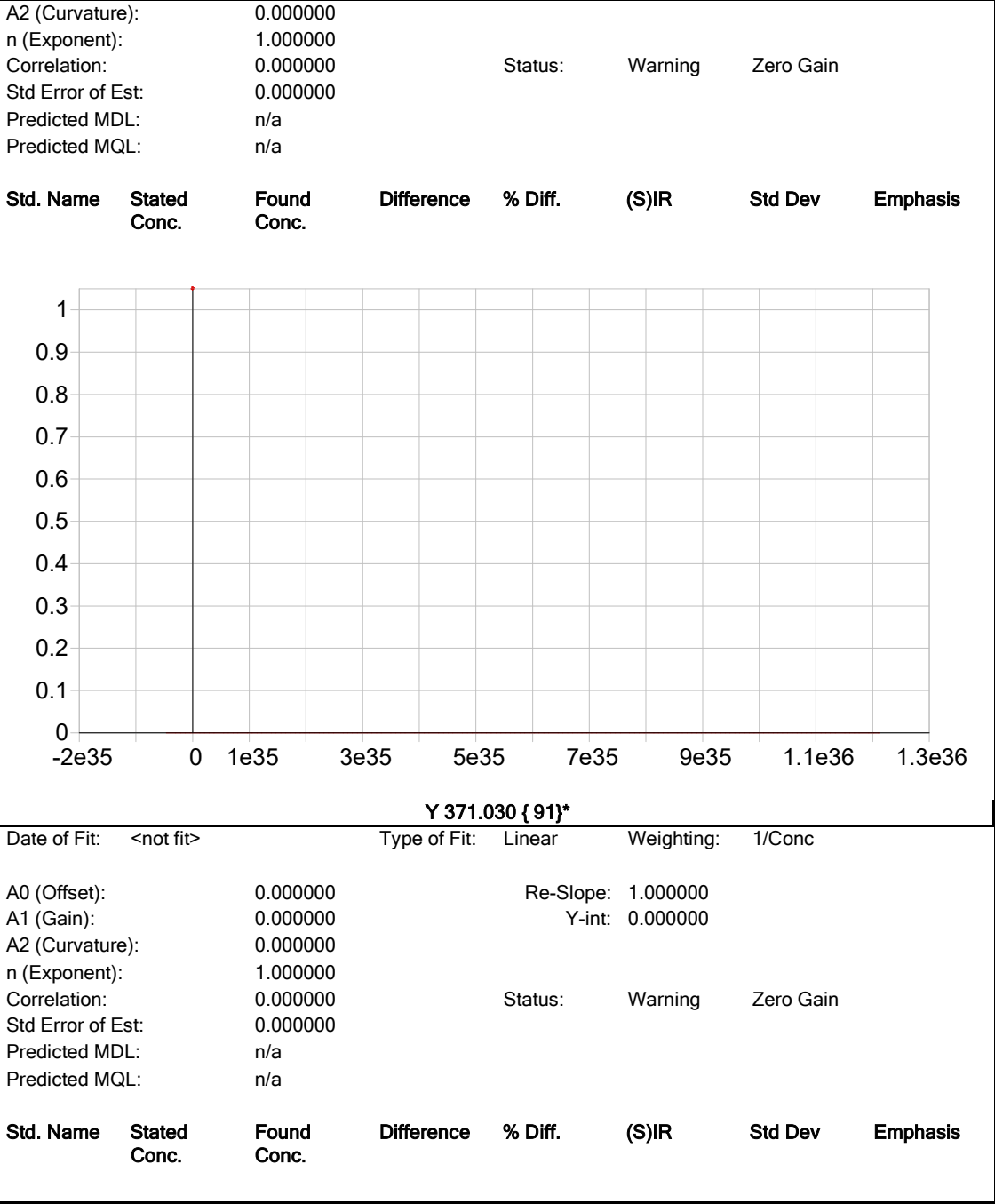


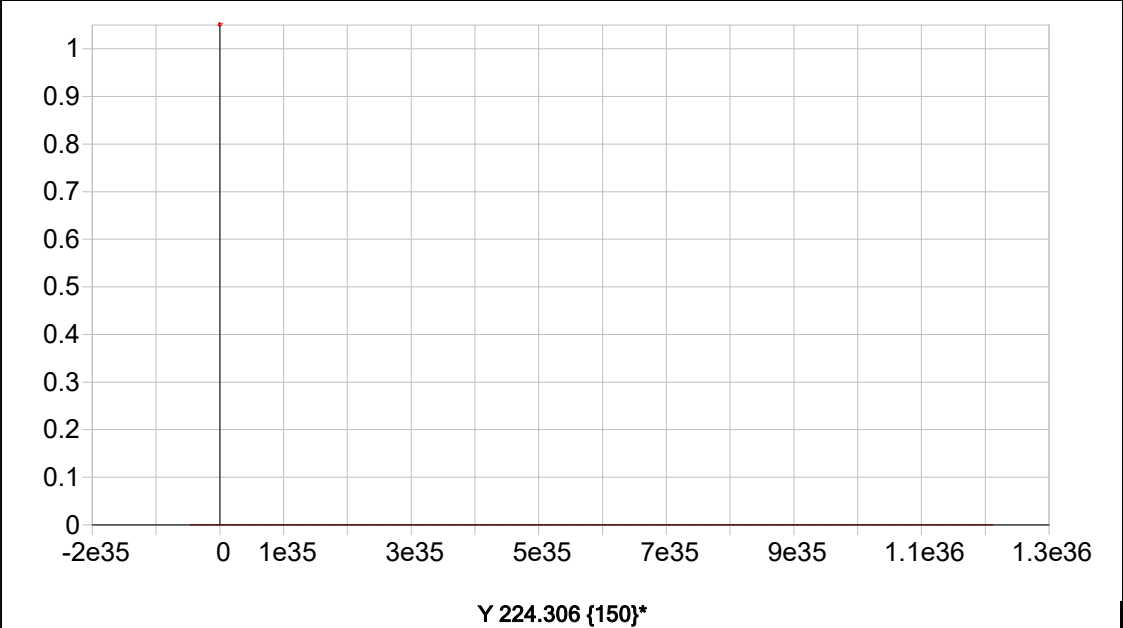


Date of Fit:	12/5/2024 19:04:41	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000		
A1 (Gain):	0.000000	Y-int:	0.000000		
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000	Status:	Warning	Zero Gain	
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

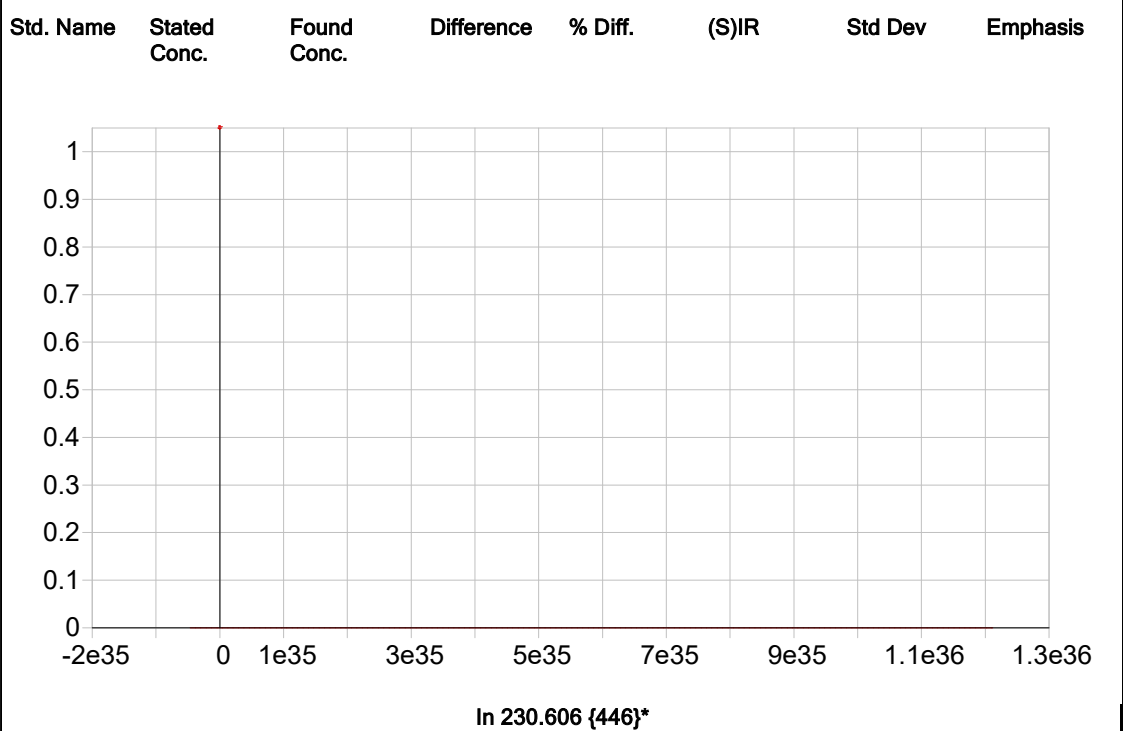
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
							
Y 360.073 { 94}*							

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000		
A1 (Gain):	0.000000	Y-int:	0.000000		





Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				



Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000		
A1 (Gain):	0.000000	Y-int:	0.000000		

A2 (Curvature):		0.000000					
n (Exponent):		1.000000					
Correlation:		0.000000		Status:	Warning	Zero Gain	
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
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- 13
- 14
- 15
- 16
- 17

Sample Name: S0 Acquired: 1/21/2025 11:01:12 Type: Cal
Method: NON EPA-6010-200.7(v2492) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00010	-.00002	-.00019	.00052	.00054	.00080	.05182	-.00053
Stddev	.00009	.00009	.00015	.00013	.00015	.00046	.00215	.00018
%RSD	95.588	418.85	78.243	25.595	27.239	56.750	4.1505	34.416
#1	-.00019	-.00007	-.00035	.00067	.00054	.00066	.04951	-.00056
#2	-.00000	.00008	-.00005	.00042	.00039	.00132	.05219	-.00070
#3	-.00010	-.00007	-.00019	.00048	.00068	.00044	.05377	-.00034
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00014	.00067	-.00003	.00005	-.00057	-.00005	-.00014	-.00029
Stddev	.00009	.00032	.00012	.00010	.00038	.00002	.00019	.00024
%RSD	65.745	47.766	366.97	202.95	66.858	38.002	143.35	83.375
#1	.00005	.00060	-.00004	.00017	-.00022	-.00003	-.00029	-.00035
#2	.00014	.00101	.00009	.00002	-.00098	-.00004	.00008	-.00049
#3	.00023	.00039	-.00015	-.00003	-.00052	-.00006	-.00020	-.00002
Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00003	-.00119	.00182	.00007	.00256	-.00103	.00444	.00002
Stddev	.00014	.00007	.00016	.00012	.00010	.00009	.00027	.00012
%RSD	430.27	5.6349	9.0126	167.66	3.9432	8.8850	6.0811	585.48
#1	.00013	-.00126	.00185	-.00001	.00263	-.00093	.00475	.00012
#2	.00009	-.00118	.00165	.00001	.00259	-.00105	.00428	.00006
#3	-.00013	-.00113	.00197	.00021	.00244	-.00111	.00429	-.00011
Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.00026	.00246	.00020	-.00192	.00022	.00838	-.00126	
Stddev	.00005	.00030	.00003	.00009	.00012	.00130	.00046	
%RSD	19.287	12.278	15.807	4.8922	54.518	15.495	36.739	
#1	.00031	.00221	.00018	-.00203	.00025	.00987	-.00074	
#2	.00026	.00279	.00023	-.00184	.00009	.00757	-.00143	
#3	.00021	.00238	.00018	-.00190	.00032	.00769	-.00162	

Sample Name: S0 Acquired: 1/21/2025 11:01:12 Type: Cal
Method: NON EPA-6010-200.7(v2492) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2913.2	55361.	9602.2	2009.6	4356.6
Stddev	4.0	165.	55.8	9.4	6.5
%RSD	.13832	.29803	.58142	.46774	.14938
#1	2909.3	55364.	9550.9	2003.1	4352.7
#2	2913.1	55524.	9593.9	2020.4	4353.0
#3	2917.3	55194.	9661.7	2005.3	4364.1

Sample Name: S1 Acquired: 1/21/2025 11:05:34 Type: Cal
Method: NON EPA-6010-200.7(v2492) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00107	.00235	.00264	.00194	.00914	.00876	.29175	.03229
Stddev	.00009	.00012	.00013	.00007	.00010	.00033	.00156	.00016
%RSD	8.3549	5.0877	4.8478	3.6125	1.0395	3.7889	.53629	.50608
#1	.00098	.00233	.00274	.00187	.00905	.00898	.29338	.03235
#2	.00106	.00224	.00249	.00201	.00914	.00892	.29160	.03242
#3	.00116	.00248	.00267	.00194	.00924	.00838	.29026	.03211
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.01440	.11630	.00226	.02645	.01518	.00043	.01285	.04063
Stddev	.00015	.00082	.00006	.00013	.00017	.00002	.00012	.00010
%RSD	1.0300	.70243	2.6891	.47569	1.1481	4.3665	.95030	.23735
#1	.01447	.11697	.00219	.02645	.01515	.00045	.01271	.04073
#2	.01423	.11655	.00230	.02632	.01536	.00043	.01296	.04054
#3	.01450	.11539	.00229	.02657	.01502	.00042	.01286	.04061
Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02532	.00158	.04569	.00507	.10654	.00860	.05771	.14295
Stddev	.00005	.00009	.00012	.00028	.00042	.00024	.00038	.00038
%RSD	.20233	5.9430	.26936	5.5835	.39581	2.8193	.65446	.26737
#1	.02526	.00148	.04557	.00482	.10702	.00859	.05754	.14281
#2	.02535	.00166	.04567	.00538	.10624	.00837	.05744	.14266
#3	.02536	.00161	.04581	.00502	.10636	.00885	.05814	.14339
Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.00516	.02094	.00207	-.00132	.00067	.02512	.23584	
Stddev	.00004	.00010	.00003	.00013	.00005	.00072	.00135	
%RSD	.75831	.49949	1.3639	9.8481	6.9671	2.8855	.57119	
#1	.00512	.02085	.00210	-.00141	.00066	.02591	.23510	
#2	.00520	.02105	.00205	-.00117	.00062	.02496	.23740	
#3	.00516	.02090	.00206	-.00137	.00072	.02449	.23504	

Sample Name: S1 Acquired: 1/21/2025 11:05:34 Type: Cal
Method: NON EPA-6010-200.7(v2492) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2930.1	55452.	9542.5	2012.9	4370.5
Stddev	6.8	87.	2.8	4.1	6.5
%RSD	.23094	.15651	.02894	.20195	.14874
#1	2935.6	55436.	9543.7	2013.2	4377.7
#2	2932.1	55546.	9544.4	2016.8	4368.4
#3	2922.5	55375.	9539.3	2008.6	4365.2

Sample Name: S2 Acquired: 1/21/2025 11:09:58 Type: Cal
Method: NON EPA-6010-200.7(v2492) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.04832	.05742	.22845	.07217	.16208	.14106	4.8720	.25435
Stddev	.00014	.00034	.00066	.00008	.00055	.00093	.0228	.00097
%RSD	.28026	.58653	.29068	.11013	.33696	.65856	.46708	.38280
#1	.04843	.05704	.22839	.07225	.16264	.14102	4.8597	.25344
#2	.04817	.05767	.22782	.07209	.16155	.14201	4.8982	.25538
#3	.04836	.05755	.22914	.07215	.16204	.14015	4.8580	.25425
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.1048	.28011	.04536	.41840	.16975	.00454	.30554	.09047
Stddev	.0012	.00021	.00018	.00030	.00044	.00004	.00195	.00014
%RSD	.10652	.07501	.40281	.07069	.25833	.85167	.63839	.15580
#1	1.1038	.28033	.04522	.41842	.17011	.00453	.30441	.09038
#2	1.1061	.27991	.04529	.41869	.16926	.00451	.30780	.09063
#3	1.1045	.28009	.04557	.41810	.16987	.00458	.30442	.09040
Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.30046	.06089	.10808	.06067	1.2184	.02205	.49398	.67273
Stddev	.00012	.00003	.00066	.00043	.0017	.00024	.00126	.00118
%RSD	.03880	.05221	.61420	.70360	.14275	1.0972	.25588	.17469
#1	.30059	.06085	.10732	.06039	1.2168	.02183	.49324	.67300
#2	.30036	.06091	.10837	.06116	1.2181	.02201	.49544	.67144
#3	.30045	.06091	.10854	.06045	1.2203	.02231	.49326	.67375
Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.11760	.45131	.00571	.03044	.02158	.81728	11.530	
Stddev	.00016	.00140	.00006	.00011	.00008	.00269	.036	
%RSD	.14004	.30950	1.0357	.34956	.36106	.32967	.31028	
#1	.11769	.45036	.00564	.03035	.02150	.81765	11.518	
#2	.11771	.45292	.00574	.03042	.02165	.81978	11.570	
#3	.11742	.45066	.00575	.03056	.02160	.81442	11.502	

Sample Name: S2 Acquired: 1/21/2025 11:09:58 Type: Cal
Method: NON EPA-6010-200.7(v2492) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2899.9	54832.	9559.4	1980.5	4295.2
Stddev	2.3	152.	8.8	11.4	9.9
%RSD	.07885	.27803	.09194	.57365	.23151
#1	2902.6	54970.	9559.5	1977.2	4303.0
#2	2898.6	54858.	9550.6	1993.2	4284.0
#3	2898.6	54668.	9568.2	1971.2	4298.5

Sample Name: S3 Acquired: 1/21/2025 11:14:05 Type: Cal
Method: NON EPA-6010-200.7(v2492) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.13567	.16231	.63883	.20195	.44989	.39490	13.481	.70743
Stddev	.00062	.00102	.00069	.00074	.00101	.00055	.049	.00411
%RSD	.45418	.63055	.10726	.36771	.22424	.13804	.36695	.58138
#1	.13497	.16129	.63804	.20141	.44917	.39550	13.511	.71218
#2	.13615	.16231	.63925	.20165	.44945	.39444	13.424	.70500
#3	.13588	.16333	.63920	.20280	.45104	.39475	13.509	.70512
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.1061	.76335	.12535	1.1676	.46679	.01265	.84012	.25263
Stddev	.0016	.00136	.00028	.0020	.00090	.00002	.00401	.00044
%RSD	.05042	.17859	.22223	.17178	.19174	.14510	.47681	.17252
#1	3.1047	.76296	.12509	1.1664	.46602	.01263	.84296	.25213
#2	3.1059	.76223	.12531	1.1665	.46657	.01265	.83553	.25293
#3	3.1078	.76487	.12564	1.1699	.46777	.01267	.84186	.25284
Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.83641	.16898	.29970	.16998	3.3120	.06375	1.3656	1.8494
Stddev	.00096	.00034	.00138	.00036	.0069	.00033	.0055	.0056
%RSD	.11419	.20223	.46100	.20963	.20892	.51993	.40567	.30034
#1	.83695	.16903	.29812	.16957	3.3043	.06379	1.3717	1.8445
#2	.83530	.16861	.30028	.17025	3.3178	.06340	1.3608	1.8484
#3	.83696	.16929	.30070	.17011	3.3137	.06406	1.3643	1.8554
Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.33093	1.2485	.01592	.09068	.06167	2.2514	31.922	
Stddev	.00063	.0034	.00009	.00026	.00021	.0070	.046	
%RSD	.19026	.27049	.55335	.28261	.33543	.31138	.14410	
#1	.33071	1.2513	.01585	.09048	.06143	2.2572	31.971	
#2	.33044	1.2448	.01590	.09059	.06174	2.2436	31.880	
#3	.33164	1.2496	.01602	.09097	.06183	2.2533	31.916	

Sample Name: S3 Acquired: 1/21/2025 11:14:05 Type: Cal
Method: NON EPA-6010-200.7(v2492) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2853.5	53529.	9381.6	1925.2	4135.7
Stddev	6.1	85.	30.3	2.6	6.8
%RSD	.21476	.15948	.32278	.13449	.16552
#1	2855.6	53599.	9351.2	1922.5	4134.0
#2	2858.4	53554.	9411.8	1925.5	4143.3
#3	2846.7	53433.	9382.0	1927.7	4129.9

Sample Name: S4 Acquired: 1/21/2025 11:18:11 Type: Cal
Method: NON EPA-6010-200.7(v2492) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.25983	.30526	1.2061	.38542	.85376	.74982	25.675	1.3272
Stddev	.00086	.00426	.0019	.00056	.00219	.00153	.220	.0066
%RSD	.33004	1.3959	.15939	.14422	.25619	.20361	.85681	.49731
#1	.25924	.30665	1.2045	.38479	.85142	.74805	25.728	1.3221
#2	.25943	.30864	1.2054	.38568	.85410	.75077	25.864	1.3249
#3	.26081	.30047	1.2082	.38580	.85576	.75062	25.434	1.3347
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5.9231	1.4405	.23009	2.2121	.87422	.02365	1.5848	.48071
Stddev	.0050	.0017	.00061	.0034	.00271	.00017	.0043	.00121
%RSD	.08441	.11832	.26523	.15157	.31049	.70818	.27268	.25235
#1	5.9199	1.4405	.22940	2.2110	.87185	.02377	1.5890	.47955
#2	5.9206	1.4387	.23034	2.2095	.87363	.02373	1.5849	.48197
#3	5.9289	1.4421	.23054	2.2159	.87718	.02346	1.5804	.48060
Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.5820	.31166	.55934	.32301	6.0960	.12088	2.5634	3.4492
Stddev	.0032	.00060	.00164	.00040	.0049	.00053	.0098	.0055
%RSD	.19928	.19249	.29267	.12253	.07988	.43994	.38176	.15793
#1	1.5791	.31135	.55965	.32314	6.0905	.12133	2.5584	3.4430
#2	1.5815	.31129	.56080	.32332	6.0978	.12102	2.5571	3.4533
#3	1.5854	.31236	.55757	.32256	6.0997	.12029	2.5747	3.4514
Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.62892	2.3678	.02976	.18043	.12162	4.3189	60.415	
Stddev	.00073	.0045	.00009	.00033	.00045	.0118	.317	
%RSD	.11610	.19176	.30593	.18446	.37059	.27349	.52466	
#1	.62827	2.3718	.02975	.18005	.12129	4.3287	60.781	
#2	.62877	2.3688	.02986	.18057	.12143	4.3222	60.232	
#3	.62971	2.3629	.02968	.18067	.12213	4.3058	60.231	

Sample Name: S4 Acquired: 1/21/2025 11:18:11 Type: Cal
Method: NON EPA-6010-200.7(v2492) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2755.2	53417.	9213.5	1893.8	3910.5
Stddev	3.7	118.	38.8	4.7	2.2
%RSD	.13354	.22031	.42067	.24730	.05501
#1	2759.4	53548.	9251.6	1896.2	3911.8
#2	2753.5	53322.	9214.8	1888.5	3911.6
#3	2752.7	53380.	9174.1	1896.9	3908.0

Sample Name: S5 Acquired: 1/21/2025 11:22:24 Type: Cal
Method: NON EPA-6010-200.7(v2492) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.54047	.62694	2.5238	.79581	1.7818	1.6389	55.309	2.8889
Stddev	.00122	.00483	.0096	.00245	.0052	.0055	.176	.0122
%RSD	.22557	.76984	.38059	.30839	.29076	.33249	.31868	.42169
#1	.53938	.62209	2.5156	.79370	1.7789	1.6433	55.480	2.9025
#2	.54024	.62698	2.5215	.79521	1.7787	1.6407	55.128	2.8854
#3	.54179	.63174	2.5344	.79850	1.7878	1.6328	55.321	2.8789
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	12.419	3.1141	.47373	4.6733	1.7944	.04875	3.4254	1.0395
Stddev	.039	.0088	.00094	.0137	.0051	.00029	.0090	.0030
%RSD	.31454	.28172	.19797	.29336	.28413	.58661	.26173	.28690
#1	12.389	3.1186	.47373	4.6626	1.7911	.04863	3.4328	1.0403
#2	12.405	3.1197	.47280	4.6685	1.7918	.04855	3.4280	1.0421
#3	12.463	3.1040	.47467	4.6888	1.8003	.04908	3.4154	1.0362
Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.3184	.65409	1.1764	.70396	12.834	.25541	5.6395	7.1945
Stddev	.0122	.00032	.0017	.00139	.025	.00037	.0190	.0230
%RSD	.36721	.04938	.14000	.19780	.19518	.14588	.33677	.31936
#1	3.3098	.65440	1.1747	.70468	12.818	.25502	5.6586	7.1773
#2	3.3132	.65376	1.1780	.70484	12.862	.25545	5.6394	7.1857
#3	3.3324	.65410	1.1764	.70235	12.820	.25576	5.6206	7.2206
Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	1.3152	5.1428	.06226	.37966	.25817	9.4598	129.89	
Stddev	.0038	.0119	.00024	.00174	.00133	.0296	.43	
%RSD	.28876	.23127	.38462	.45938	.51357	.31295	.33325	
#1	1.3119	5.1502	.06200	.37789	.25737	9.4715	129.87	
#2	1.3142	5.1491	.06229	.37972	.25745	9.4818	129.46	
#3	1.3193	5.1291	.06248	.38138	.25971	9.4262	130.33	

Sample Name: S5 Acquired: 1/21/2025 11:22:24 Type: Cal
Method: NON EPA-6010-200.7(v2492) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2714.6	52164.	8614.0	1817.7	3784.0
Stddev	3.9	61.	26.3	4.9	8.8
%RSD	.14402	.11737	.30559	.27201	.23212
#1	2717.7	52138.	8584.0	1820.4	3790.5
#2	2715.9	52234.	8624.2	1812.0	3787.6
#3	2710.2	52120.	8633.6	1820.7	3774.0

Sample Name: ICV01 Acquired: 1/21/2025 11:26:39 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.033928	1.035520	1.011781	1.039999	1.024987	2.404540
Stddev	.001438	.011664	.002800	.004870	.004315	.005045
%RSD	.1390769	1.126422	.2767414	.4682772	.4210225	.2098291
#1	1.035169	1.027861	1.008770	1.035029	1.023557	2.405693
#2	1.032352	1.029755	1.012268	1.040207	1.021568	2.408908
#3	1.034264	1.048944	1.014306	1.044762	1.029836	2.399017
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4770033	.4849313	.5051992	9.609383	.5289227	.5085271
Stddev	.0006465	.0022746	.0015894	.027189	.0018398	.0009616
%RSD	.1355296	.4690578	.3146026	.2829409	.3478312	.1890859
#1	.4762717	.4848536	.5038427	9.579584	.5302223	.5075743
#2	.4774976	.4872438	.5048070	9.632841	.5297282	.5085097
#3	.4772407	.4826966	.5069480	9.615725	.5268176	.5094972
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5237446	10.25509	.4936418	5.703672	.5108244	.2516717
Stddev	.0007831	.03671	.0032170	.029928	.0006799	.0011192
%RSD	.1495185	.3579938	.6516910	.5247142	.1331014	.4446952
#1	.5228557	10.21483	.4899277	5.673680	.5101108	.2523452
#2	.5240455	10.26372	.4954433	5.733536	.5108977	.2522901
#3	.5243326	10.28672	.4955545	5.703801	.5114647	.2503798
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.986845	.4830981	1.020156	10.03020	F .0137727	F -.000410
Stddev	.023211	.0007849	.002898	.02649	.0000698	.000157
%RSD	.2324204	.1624802	.2841129	.2640846	.5067194	38.24659
#1	9.977141	.4833871	1.023290	10.05942	.0137697	-.000283
#2	9.970061	.4836975	1.019606	10.02344	.0138440	-.000585
#3	10.01333	.4822096	1.017572	10.00775	.0137045	-.000361

Sample Name: ICV01 Acquired: 1/21/2025 11:26:39 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -.001556	F .0001283	F -.003327	F .0054680	F -.003371	F -.001409
Stddev	.000688	.0002237	.007279	.0028862	.001381	.000534
%RSD	44.23746	174.3943	218.7601	52.78351	40.98228	37.92475
#1	-.002140	.0003866	.000798	.0022782	-.003944	-.001353
#2	-.001731	.0000045	.000952	.0062269	-.004374	-.001969
#3	-.000797	-.000006	-.011731	.0078988	-.001795	-.000905
Elem	Sr4077					
Units	ppm					
Avg	F -.008936					
Stddev	.000036					
%RSD	.4066472					
#1	-.008896					
#2	-.008944					
#3	-.008968					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	2864.877	54369.88	9826.958	1955.608	4228.596	
Stddev	2.283	232.96	60.425	6.357	4.761	
%RSD	.0796781	.4284690	.6148912	.3250715	.1125974	
#1	2862.275	54284.20	9820.787	1952.553	4234.066	
#2	2865.814	54191.90	9769.855	1951.355	4226.336	
#3	2866.542	54633.55	9890.232	1962.916	4225.385	

Sample Name: LLICV01 Acquired: 1/21/2025 11:35:17 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0205674	.0392969	.0117894	.0194447	.0492030	.0904386	.0933603
Stddev	.0005862	.0012089	.0012498	.0011960	.0006519	.0071830	.0004397
%RSD	2.850049	3.076273	10.60110	6.151037	1.324962	7.942431	.4709443
#1	.0211066	.0384302	.0103625	.0182601	.0489784	.0982862	.0930117
#2	.0206521	.0406779	.0123159	.0194221	.0486931	.0888400	.0932150
#3	.0199434	.0387826	.0126897	.0206518	.0499375	.0841895	.0938543
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0056256	.0058029	1.927815	.0095105	.0288664	.0216348	.1088832
Stddev	.0000742	.0000938	.003524	.0002810	.0001006	.0002299	.0058439
%RSD	1.319627	1.616796	.1827765	2.954425	.3485057	1.062826	5.367168
#1	.0057017	.0057396	1.926389	.0093529	.0287740	.0214113	.1139141
#2	.0056217	.0057584	1.931828	.0093437	.0289736	.0216225	.1102625
#3	.0055534	.0059107	1.925227	.0098349	.0288516	.0218707	.1024730
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0197518	2.031977	.0385728	.0102798	2.000212	.0385566	.0419420
Stddev	.0003606	.018881	.0000991	.0001946	.006779	.0021569	.0000565
%RSD	1.825821	.9291768	.2569095	1.892601	.3389303	5.594241	.1347644
#1	.0193655	2.015424	.0386241	.0105044	1.995430	.0382574	.0419719
#2	.0198101	2.052541	.0386357	.0101657	1.997235	.0408475	.0419773
#3	.0200797	2.027966	.0384585	.0101692	2.007970	.0365649	.0418768
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.977294	.0996268	.2017222	.0376859	.0376199	.3297719	.0177104
Stddev	.030712	.0000293	.0005489	.0004745	.0003579	.0067564	.0010775
%RSD	1.553246	.0294194	.2721148	1.258967	.9513323	2.048814	6.084168
#1	1.952065	.0996196	.2016247	.0381369	.0377736	.3305580	.0165159
#2	2.011492	.0996017	.2023133	.0377299	.0378753	.3226569	.0180057
#3	1.968326	.0996590	.2012285	.0371910	.0372108	.3361010	.0186094

Sample Name: LLICV01 Acquired: 1/21/2025 11:35:17 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	.0165032	.0186132	.0190735		
Stddev	.0030982	.0009528	.0000872		
%RSD	18.77302	5.118955	.4570931		
#1	.0190726	.0180913	.0190560		
#2	.0130628	.0180353	.0191681		
#3	.0173742	.0197129	.0189964		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2858.543	54504.60	9780.521	1963.191	4274.780
Stddev	6.358	212.19	37.679	12.282	10.297
%RSD	.2224231	.3893036	.3852464	.6256242	.2408780
#1	2863.748	54404.66	9761.948	1957.303	4283.439
#2	2851.456	54360.84	9755.734	1954.961	4263.394
#3	2860.424	54748.31	9823.881	1977.309	4277.506

Sample Name: ICB01 Acquired: 1/21/2025 11:51:45 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001721	-.001159	-.000197	-.000114	-.000069	-.002154	-.005100
Stddev	.0007917	.001955	.000867	.000424	.000710	.003867	.000434
%RSD	460.1042	168.7044	440.9317	371.7965	1029.438	179.5551	8.508350
#1	.0009757	-.002039	.000306	-.000446	-.000087	-.004037	-.005584
#2	-.000607	.001081	-.001198	.000363	.000650	-.004720	-.004967
#3	.000148	-.002518	.000302	-.000259	-.000769	.002294	-.004748
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000386	-.000069	-.000501	.0001768	.0000026	-.000470	.0037779
Stddev	.0000237	.000025	.008836	.0003858	.0001029	.000108	.0044709
%RSD	61.32214	36.54159	1764.797	218.2220	3987.634	22.96641	118.3442
#1	.0000113	-.000060	.003910	.0000777	.0001157	-.000455	.0010850
#2	.0000526	-.000049	.005262	-.000150	-.000022	-.000585	.0013098
#3	.0000520	-.000097	-.010674	.000603	-.000086	-.000371	.0089388
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000976	-.005509	-.000012	.0005298	-.015665	-.000358	.0002427
Stddev	.0001340	.008821	.000041	.0002743	.001068	.001072	.0000684
%RSD	137.3495	160.1182	343.8940	51.76726	6.819548	299.2525	28.17227
#1	.0002396	-.005235	-.000006	.0005375	-.015554	.000840	.0002329
#2	.0000798	.003171	-.000055	.0008002	-.014657	-.001226	.0003155
#3	-.000027	-.014465	.000025	.0002518	-.016785	-.000689	.0001798
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0159621	.0004783	-.000277	-.000898	.0002841	-.003000	-.001767
Stddev	.0164548	.0005622	.000269	.000474	.0011089	.004657	.001162
%RSD	103.0867	117.5349	97.20328	52.76207	390.2783	155.2315	65.79509
#1	.0327625	.0009925	-.000245	-.001172	-.000971	-.005400	-.002686
#2	.0152477	-.000122	-.000561	-.000351	.000691	-.005966	-.002153
#3	-.000124	.000564	-.000025	-.001171	.001132	.002367	-.000460

Sample Name: ICB01 Acquired: 1/21/2025 11:51:45 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	-.000148	.0002463	.0000228		
Stddev	.001045	.0002557	.0000252		
%RSD	705.3426	103.7923	110.3104		
#1	.000872	.0005180	.0000448		
#2	-.001216	.0000105	.0000284		
#3	-.000100	.0002104	-.000005		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2890.403	54033.04	9374.678	1918.635	4415.615
Stddev	10.196	139.38	23.722	7.123	5.398
%RSD	.3527628	.2579459	.2530435	.3712620	.1222414
#1	2881.458	54130.08	9356.530	1926.790	4412.003
#2	2888.246	53873.33	9401.520	1915.492	4413.021
#3	2901.505	54095.70	9365.984	1913.625	4421.820

Sample Name: CRI01 Acquired: 1/21/2025 11:59:39 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0208025	.0402875	.0116378	.0197982	.0488681	.0914974	.0871888
Stddev	.0017255	.0017909	.0010406	.0029917	.0001461	.0054605	.0006324
%RSD	8.294818	4.445288	8.941625	15.11100	.2989374	5.967955	.7253533
#1	.0193198	.0390132	.0104574	.0165559	.0487927	.0970275	.0875082
#2	.0226965	.0395141	.0124225	.0203870	.0487752	.0913553	.0864604
#3	.0203910	.0423351	.0120336	.0224518	.0490365	.0861093	.0875978
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0057323	.0057316	1.887500	.0095099	.0289806	.0215794	.1013428
Stddev	.0000145	.0000143	.004534	.0001083	.0002401	.0003980	.0034385
%RSD	.2532906	.2496775	.2402121	1.138507	.8283151	1.844310	3.392959
#1	.0057469	.0057360	1.886473	.0094727	.0287913	.0220047	.1052727
#2	.0057321	.0057156	1.892459	.0094252	.0288999	.0212159	.0998679
#3	.0057179	.0057431	1.883566	.0096319	.0292506	.0215178	.0988878
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0192706	1.992239	.0386528	.0111324	1.962937	.0381117	.0421376
Stddev	.0006775	.020352	.0001419	.0002124	.000401	.0006820	.0003967
%RSD	3.515920	1.021549	.3670535	1.908319	.0204183	1.789544	.9414950
#1	.0184934	1.975880	.0386112	.0110842	1.963343	.0380540	.0421536
#2	.0195813	1.985808	.0385363	.0109482	1.962925	.0374603	.0417332
#3	.0197371	2.015029	.0388107	.0113648	1.962542	.0388207	.0425261
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.912006	.0943390	.2043384	.0371673	.0369880	.3270578	.0189542
Stddev	.020012	.0004881	.0010222	.0007750	.0001752	.0054600	.0010371
%RSD	1.046639	.5173438	.5002473	2.085157	.4735615	1.669427	5.471703
#1	1.917568	.0937917	.2039712	.0376804	.0368254	.3263620	.0186064
#2	1.928649	.0947291	.2035505	.0362758	.0369651	.3219791	.0201205
#3	1.889802	.0944961	.2054934	.0375456	.0371734	.3328324	.0181357

Sample Name: CRI01 Acquired: 1/21/2025 11:59:39 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0181057	.0184281	.0184417
Stddev	.0017059	.0008482	.0000822
%RSD	9.421611	4.602878	.4457499
#1	.0198653	.0180788	.0184336
#2	.0179926	.0178103	.0185277
#3	.0164592	.0193952	.0183639

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2838.730	53654.58	9604.501	1902.446	4284.288
Stddev	13.269	70.45	32.887	1.848	19.714
%RSD	.4674408	.1313020	.3424083	.0971571	.4601401
#1	2844.979	53592.48	9642.437	1900.469	4296.672
#2	2847.722	53731.14	9584.066	1904.132	4294.638
#3	2823.490	53640.13	9586.999	1902.737	4261.555

Sample Name: ICSA01 Acquired: 1/21/2025 12:03:59 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001384	.0136350	.0087752	-.012508	-.001904	241.5650
Stddev	.002891	.0018353	.0012319	.002239	.001220	.6811
%RSD	208.8078	13.46041	14.03858	17.89877	64.05143	.2819394
#1	-.002369	.0153850	.0078947	-.014751	-.000691	241.8902
#2	.001870	.0117248	.0101830	-.010273	-.001891	242.0225
#3	-.003655	.0137951	.0082479	-.012501	-.003130	240.7823
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0013921	.0012525	-.001843	228.9518	.0581060	.0012942
Stddev	.0008189	.0000345	.000182	.3517	.0002421	.0001142
%RSD	58.82576	2.753907	9.889596	.1535960	.4166180	8.821139
#1	.0023286	.0012839	-.001978	229.3577	.0582589	.0011946
#2	.0010370	.0012156	-.001635	228.7402	.0578269	.0012692
#3	.0008107	.0012579	-.001915	228.7574	.0582322	.0014188
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0016267	103.3808	.0059036	243.2068	.0028625	.0024016
Stddev	.0008247	.0435	.0003946	.3872	.0000858	.0003895
%RSD	50.69566	.0420557	6.683304	.1592251	2.998263	16.22017
#1	.0007233	103.3311	.0060471	243.6103	.0028975	.0027083
#2	.0023390	103.4117	.0062063	242.8381	.0029252	.0025330
#3	.0018178	103.3996	.0054574	243.1721	.0027647	.0019633
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0428477	.0048681	.0035795	.0658667	.0215408	.0007064
Stddev	.0072667	.0018181	.0003949	.0305675	.0008735	.0001127
%RSD	16.95935	37.34695	11.03240	46.40811	4.055244	15.94683
#1	.0366481	.0028655	.0040346	.0401197	.0214807	.0008144
#2	.0410506	.0064150	.0033278	.0578312	.0224428	.0007154
#3	.0508443	.0053239	.0033760	.0996493	.0206988	.0005896

Sample Name: ICSA01 Acquired: 1/21/2025 12:03:59 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002460	-.002300	.0177209	.0029439	F -.021343	F -.036002
Stddev	.000706	.000640	.0128031	.0008797	.001550	.000429
%RSD	28.69238	27.84144	72.24862	29.88385	7.261022	1.191497
#1	-.002073	-.001818	.0030299	.0033191	-.023063	-.036348
#2	-.003274	-.002055	.0264980	.0035738	-.020056	-.036137
#3	-.002032	-.003026	.0236347	.0019387	-.020910	-.035522

Elem	Sr4077
Units	ppm
Avg	-.008869
Stddev	.000353
%RSD	3.975778
#1	-.008555
#2	-.008802
#3	-.009250

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2575.191	48185.10	9334.471	1724.188	3561.226
Stddev	4.473	52.26	29.982	5.404	6.485
%RSD	.1736993	.1084549	.3211927	.3134334	.1820922
#1	2580.345	48174.75	9306.395	1721.535	3565.834
#2	2572.321	48241.76	9366.050	1730.406	3564.033
#3	2572.908	48138.79	9330.967	1720.622	3553.810

Sample Name: ICSAB01 Acquired: 1/21/2025 12:08:14 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1078397	.1016924	.0560652	.0387882	.6312896	240.4388
Stddev	.0024122	.0025506	.0007466	.0060378	.0002793	.3233
%RSD	2.236853	2.508112	1.331732	15.56602	.0442448	.1344745
#1	.1070009	.1041886	.0567060	.0375825	.6316059	240.8113
#2	.1059588	.0990908	.0562443	.0334442	.6311858	240.2312
#3	.1105593	.1017978	.0552453	.0453378	.6310770	240.2738
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4756110	.4757877	1.009836	227.8822	.5703333	.5107286
Stddev	.0022126	.0015685	.000921	.1807	.0025537	.0002364
%RSD	.4652008	.3296647	.0912508	.0792946	.4477577	.0462823
#1	.4753986	.4747082	1.009129	228.0880	.5696684	.5106799
#2	.4779221	.4750679	1.009501	227.7492	.5731536	.5105203
#3	.4735124	.4775869	1.010878	227.8095	.5681777	.5109855
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4971930	103.9927	.4717930	242.1785	1.005251	.2254091
Stddev	.0011288	.5143	.0007830	.3820	.001117	.0002391
%RSD	.2270318	.4945077	.1659571	.1577220	.1111055	.1060928
#1	.4966004	104.2918	.4716723	242.2704	1.004126	.2254745
#2	.4964839	104.2874	.4710774	241.7589	1.006360	.2256087
#3	.4984947	103.3989	.4726293	242.5061	1.005266	.2251441
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0387657	.4709326	1.071839	.0544522	F .0245712	F .0006960
Stddev	.0031724	.0021807	.000324	.0316893	.0010537	.0002336
%RSD	8.183385	.4630530	.0301864	58.19646	4.288298	33.56741
#1	.0372877	.4733525	1.071842	.0189767	.0254794	.0009612
#2	.0366020	.4691197	1.072161	.0799570	.0248183	.0005206
#3	.0424074	.4703257	1.071514	.0644229	.0234160	.0006061

Sample Name: ICSAB01 Acquired: 1/21/2025 12:08:14 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -.002435	F -.002842	F -.007106	F .0049059	F -.021781	F -.037129
Stddev	.000719	.000319	.004230	.0047214	.008150	.001042
%RSD	29.50544	11.21485	59.52390	96.23978	37.41778	2.806419
#1	-.003119	-.003210	-.002238	-.000213	-.028819	-.037327
#2	-.002500	-.002676	-.009885	.009089	-.023670	-.036002
#3	-.001687	-.002641	-.009195	.005842	-.012852	-.038058

Elem	Sr4077
Units	ppm
Avg	F -.009035
Stddev	.000284
%RSD	3.148384
#1	-.009315
#2	-.009044
#3	-.008747

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2555.693	48475.94	9507.074	1725.784	3540.723
Stddev	.822	119.66	26.593	7.172	6.961
%RSD	.0321559	.2468385	.2797180	.4155639	.1965930
#1	2555.665	48376.10	9512.740	1717.505	3537.708
#2	2554.885	48443.14	9530.377	1730.088	3535.777
#3	2556.528	48608.57	9478.104	1729.758	3548.683

Sample Name: CCV01 Acquired: 1/21/2025 12:12:20 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.887972	5.101538	4.885573	4.940304	4.972866	9.841407	9.845933
Stddev	.015493	.049290	.019812	.016322	.007239	.016158	.050232
%RSD	.3169621	.9661695	.4055272	.3303771	.1455794	.1641825	.5101826
#1	4.870133	5.067606	4.870449	4.921557	4.964513	9.838102	9.884139
#2	4.898060	5.158075	4.878270	4.951349	4.977337	9.858961	9.789035
#3	4.895722	5.078932	4.908000	4.948007	4.976746	9.827157	9.864626
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2401923	2.446020	24.45964	.9921791	2.450248	1.243591	5.044570
Stddev	.0014515	.006294	.01566	.0029853	.006912	.000610	.026466
%RSD	.6043035	.2573106	.0640328	.3008794	.2820807	.0490731	.5246509
#1	.2386084	2.440237	24.45758	.9936111	2.444077	1.243656	5.073140
#2	.2414590	2.445101	24.47623	.9887476	2.448951	1.242951	5.020890
#3	.2405094	2.452724	24.44511	.9941785	2.457717	1.244166	5.039678
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.452763	24.28196	2.445530	1.237401	25.27563	2.461889	2.493333
Stddev	.007464	.04689	.006340	.002764	.15196	.003618	.006731
%RSD	.3042898	.1931152	.2592527	.2234035	.6012233	.1469422	.2699662
#1	2.457539	24.23370	2.441097	1.237144	25.41743	2.463683	2.493033
#2	2.456587	24.28482	2.442701	1.234774	25.11522	2.464260	2.486756
#3	2.444162	24.32735	2.452792	1.240284	25.29424	2.457726	2.500208
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.27099	4.785225	5.040125	4.905827	4.915759	5.033246	4.898106
Stddev	.11485	.027269	.007619	.012353	.011904	.029601	.020893
%RSD	.4544732	.5698651	.1511714	.2518065	.2421593	.5881096	.4265440
#1	25.36892	4.757358	5.031606	4.893187	4.919184	5.066089	4.875669
#2	25.14458	4.811854	5.042482	4.906421	4.925574	5.008625	4.901649
#3	25.29946	4.786462	5.046288	4.917872	4.902518	5.025023	4.917001

Sample Name: CCV01 Acquired: 1/21/2025 12:12:20 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	4.829019	4.969909	4.981480		
Stddev	.007152	.006094	.011377		
%RSD	.1481007	.1226186	.2283948		
#1	4.820769	4.975511	4.992535		
#2	4.832819	4.970797	4.969805		
#3	4.833468	4.963420	4.982101		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2769.036	53237.75	9235.355	1858.255	3978.421
Stddev	3.430	349.66	4.079	12.636	7.096
%RSD	.1238793	.6567855	.0441705	.6800113	.1783655
#1	2766.307	52932.52	9235.580	1852.218	3978.805
#2	2772.887	53619.25	9239.317	1872.778	3985.317
#3	2767.915	53161.49	9231.168	1849.770	3971.140

Sample Name: CCB01 Acquired: 1/21/2025 12:16:31 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001700	-.000656	.0004722	-.001637	-.000629	-.005872	-.003277
Stddev	.001662	.000404	.0006961	.001265	.000726	.005496	.000898
%RSD	97.73121	61.55057	147.4289	77.25513	115.3578	93.59204	27.40134
#1	.000127	-.001122	.0000923	-.002851	-.001467	-.009823	-.002645
#2	-.002106	-.000398	.0000486	-.000327	-.000226	-.008198	-.002880
#3	-.003122	-.000449	.0012756	-.001733	-.000194	.000404	-.004304
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000477	-.000004	-.003413	-.000025	-.000022	-.000310	.0074693
Stddev	.0000355	.000069	.012468	.000131	.000173	.000362	.0024861
%RSD	74.47607	1904.011	365.2970	534.5686	793.3124	116.6861	33.28413
#1	.0000722	.000076	-.000726	-.000172	.000128	-.000691	.0053211
#2	.0000639	-.000044	-.017005	.000080	-.000211	.000030	.0101925
#3	.0000070	-.000043	.007492	.000018	.000018	-.000269	.0068942
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003372	.0008434	-.000093	.0012417	.0008373	.0004649	-.000040
Stddev	.0000455	.0043201	.000195	.0003438	.0093351	.0012013	.000337
%RSD	13.48457	512.2368	210.4405	27.68621	1114.858	258.3814	838.7693
#1	.0003558	.0042010	-.000240	.0015009	-.009120	.0003625	-.000220
#2	.0003704	.0023595	-.000167	.0008517	.002240	-.000682	-.000249
#3	.0002854	-.004030	.000129	.0013723	.009392	.001714	.000348
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.014976	.0030077	.0000173	-.000803	-.000089	-.004763	-.001557
Stddev	.014742	.0006932	.0002184	.000039	.000447	.006937	.002076
%RSD	98.43530	23.04939	1260.450	4.795526	500.5821	145.6321	133.3328
#1	-.029236	.0022679	-.000183	-.000838	-.000145	-.012603	.000362
#2	.000205	.0031128	.000250	-.000810	.000383	-.002267	-.001273
#3	-.015898	.0036424	-.000015	-.000762	-.000506	.000580	-.003761

Sample Name: CCB01 Acquired: 1/21/2025 12:16:31 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0009268	.0004748	.0001184
Stddev	.0019550	.0002963	.0000169
%RSD	210.9365	62.40576	14.31148

#1	.0005851	.0004950	.0001062
#2	-.000835	.0001689	.0001378
#3	.003030	.0007605	.0001113

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2801.548	54277.32	9719.247	1933.315	4226.210
Stddev	.641	163.50	28.405	11.742	6.647
%RSD	.0228947	.3012263	.2922557	.6073568	.1572728

#1	2802.281	54124.95	9749.426	1926.715	4218.737
#2	2801.090	54256.97	9693.032	1926.359	4231.461
#3	2801.273	54450.04	9715.285	1946.873	4228.432

Sample Name: PB166135BL Acquired: 1/21/2025 12:20:51 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000954	-.001144	.0010631	-.002163	-.001493	.0027173	-.004389
Stddev	.001197	.001371	.0004876	.001089	.001438	.0094566	.000642
%RSD	125.5635	119.8330	45.86276	50.35350	96.25489	348.0099	14.61893
#1	-.002257	.000127	.0014613	-.001120	-.002780	-.000118	-.004134
#2	.000097	-.002596	.0005193	-.003293	-.001759	-.004997	-.005119
#3	-.000701	-.000963	.0012085	-.002076	.000058	.013267	-.003913
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000664	-.000064	.0058180	.0001733	.0000149	-.000274	.0053720
Stddev	.0000785	.000092	.0040005	.0004504	.0002882	.000030	.0019510
%RSD	118.1768	143.8169	68.76063	259.9354	1936.372	11.13244	36.31753
#1	-.000024	-.000170	.0102600	-.000299	.0000148	-.000239	.0063065
#2	.000118	-.000012	.0024989	.000598	-.000273	-.000286	.0066798
#3	.000105	-.000010	.0046951	.000221	.000303	-.000297	.0031295
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005220	-.003737	-.000236	.0011762	.0035422	.0003981	-.000093
Stddev	.0002294	.009994	.000066	.0000253	.0075352	.0028186	.000364
%RSD	43.94510	267.4639	28.00830	2.153280	212.7250	707.9537	390.1908
#1	.0004026	-.015137	-.000301	.0011526	-.001231	.0019024	.000235
#2	.0007865	.000410	-.000237	.0011731	-.000371	-.002854	-.000030
#3	.0003770	.003517	-.000169	.0012030	.012229	.002146	-.000485
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.039361	.0000679	-.000255	-.000779	.0004164	-.008851	-.001816
Stddev	.036635	.0004227	.000122	.000492	.0003274	.005159	.002111
%RSD	93.07340	622.5790	47.89081	63.08658	78.61722	58.29602	116.2268
#1	-.077992	-.000390	-.000210	-.000309	.0000445	-.014642	-.000731
#2	-.005119	.000444	-.000394	-.000740	.0005439	-.004744	-.004248
#3	-.034972	.000150	-.000163	-.001289	.0006608	-.007166	-.000468

Sample Name: PB166135BL Acquired: 1/21/2025 12:20:51 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	.0017787	-.000342	.0000201		
Stddev	.0006729	.001205	.0000427		
%RSD	37.83031	352.8243	212.0529		
#1	.0015496	.000368	.0000505		
#2	.0012503	-.001733	.0000386		
#3	.0025362	.000340	-.000029		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2877.921	54790.76	9464.834	1947.428	4393.803
Stddev	10.153	169.50	51.301	3.708	13.350
%RSD	.3527951	.3093588	.5420142	.1904306	.3038369
#1	2866.459	54635.87	9462.510	1947.458	4378.403
#2	2885.785	54971.82	9517.258	1943.705	4400.921
#3	2881.520	54764.58	9414.735	1951.122	4402.086

Sample Name: PB166135BS Acquired: 1/21/2025 12:25:10 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7833368	2.019561	.9527772	1.934752	.7697329	1.853216
Stddev	.0072886	.019413	.0027833	.009407	.0028171	.004682
%RSD	.9304525	.9612329	.2921279	.4861964	.3659844	.2526363
#1	.7883807	2.013999	.9545254	1.927751	.7673454	1.850202
#2	.7749802	2.003536	.9495676	1.931062	.7690133	1.850836
#3	.7866493	2.041147	.9542387	1.945445	.7728400	1.858610
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1854247	.1883045	.1893972	.9863609	.3883893	.1908060
Stddev	.0005944	.0006163	.0005565	.0114389	.0004493	.0006398
%RSD	.3205511	.3272716	.2938544	1.159707	.1156774	.3353398
#1	.1851710	.1875930	.1895098	.9809964	.3879118	.1908527
#2	.1849993	.1886539	.1887930	.9994962	.3888037	.1901441
#3	.1861038	.1886667	.1898889	.9785902	.3884522	.1914212
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3030106	2.987586	.1946525	1.872088	.4796140	.0729253
Stddev	.0012457	.011443	.0005550	.010123	.0009979	.0003262
%RSD	.4110957	.3830274	.2851438	.5407292	.2080672	.4472497
#1	.3025855	2.989541	.1941832	1.861032	.4798557	.0732948
#2	.3020330	2.997926	.1945091	1.880902	.4785175	.0726777
#3	.3044131	2.975292	.1952651	1.874330	.4804690	.0728033
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.879940	.2814776	.1990133	9.571960	.2737626	.3926665
Stddev	.011482	.0034239	.0011617	.024665	.0020916	.0017433
%RSD	.3986726	1.216420	.5837153	.2576778	.7640312	.4439588
#1	2.889139	.2829117	.1992799	9.567444	.2717456	.3917200
#2	2.867072	.2775697	.2000185	9.549865	.2736205	.3916012
#3	2.883608	.2839512	.1977415	9.598571	.2759217	.3946783

Sample Name: PB166135BS Acquired: 1/21/2025 12:25:10 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6614778	.1888684	F .6715691	5.722208	F -.015277	.1970475
Stddev	.0028318	.0011161	.0063499	.019013	.002029	.0006545
%RSD	.4281024	.5909540	.9455305	.3322648	13.28168	.3321479
#1	.6594474	.1893653	.6775975	5.731784	-.014680	.1978032
#2	.6602734	.1875901	.6649404	5.700311	-.013614	.1966646
#3	.6647128	.1896498	.6721694	5.734528	-.017538	.1966746
Elem	Sr4077					
Units	ppm					
Avg	.1869141					
Stddev	.0004650					
%RSD	.2487725					
#1	.1871213					
#2	.1863816					
#3	.1872395					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	2808.348	54441.55	9411.550	1955.814	4177.613	
Stddev	4.113	64.98	16.186	6.332	1.921	
%RSD	.1464565	.1193634	.1719781	.3237468	.0459775	
#1	2813.094	54370.53	9430.040	1950.789	4178.359	
#2	2806.142	54498.03	9404.664	1953.727	4179.049	
#3	2805.809	54456.10	9399.945	1962.926	4175.431	

Sample Name: Q1134-01 Acquired: 1/21/2025 12:29:11 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0514240	-.002964	.5559908	-.030017	.0027474	95.21592	.5066154
Stddev	.0024979	.002542	.0010859	.001463	.0014255	.05287	.0007251
%RSD	4.857520	85.74275	.1953135	4.874016	51.88262	.0555304	.1431352
#1	.0539981	-.000082	.5551041	-.029937	.0042077	95.15491	.5058378
#2	.0490099	-.004883	.5556663	-.028596	.0013596	95.24834	.5072731
#3	.0512639	-.003929	.5572020	-.031519	.0026751	95.24451	.5067354
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0070589	.0001436	30.22973	.1950226	.1391231	.4296280	236.7405
Stddev	.0001303	.0001946	.04465	.0005750	.0001975	.0010939	1.0449
%RSD	1.845686	135.4946	.1476889	.2948328	.1419340	.2546175	.4413823
#1	.0069902	.0003489	30.20501	.1947180	.1392025	.4306971	235.6112
#2	.0072091	.0001201	30.28127	.1946639	.1388983	.4296760	236.9369
#3	.0069772	-.000038	30.20291	.1956858	.1392685	.4285109	237.6732
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.003481	28.85638	.1856318	.0083406	11.58994	.3726567	.6232061
Stddev	.004331	.03056	.0000599	.0001017	.04804	.0019182	.0021227
%RSD	.1081812	.1059093	.0322513	1.219620	.4144869	.5147413	.3406056
#1	3.999631	28.87224	.1856179	.0082449	11.55257	.3711295	.6213045
#2	4.002642	28.87576	.1855801	.0083293	11.57312	.3720309	.6228176
#3	4.008170	28.82115	.1856974	.0084474	11.64412	.3748097	.6254962
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.530969	.0799165	.0078823	.0225197	2.604970	3.566376	4.920766
Stddev	.033568	.0040207	.0001988	.0001727	.004621	.019970	.010628
%RSD	.6069083	5.031069	2.522578	.7667620	.1774029	.5599385	.2159740
#1	5.507229	.0754502	.0078144	.0224181	2.609138	3.587325	4.931230
#2	5.516304	.0810522	.0081062	.0227191	2.600000	3.547556	4.921087
#3	5.569374	.0832472	.0077263	.0224220	2.605773	3.564247	4.909982

Sample Name: Q1134-01 Acquired: 1/21/2025 12:29:11 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	3.051392	.0731388	-.124193
Stddev	.005550	.0015192	.000867
%RSD	.1818887	2.077090	.6980160
#1	3.046366	.0714052	-.123194
#2	3.057349	.0742376	-.124625
#3	3.050460	.0737737	-.124758

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3113.054	60761.72	11458.81	2128.190	3889.576
Stddev	.919	223.59	52.23	8.608	4.739
%RSD	.0295348	.3679808	.4558496	.4044685	.1218510
#1	3113.875	60974.89	11470.84	2136.554	3884.122
#2	3112.060	60528.99	11401.60	2119.357	3892.699
#3	3113.226	60781.29	11503.97	2128.659	3891.905

Sample Name: Q1134-01DUP Acquired: 1/21/2025 12:33:13 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0510968	-.001102	.5504708	-.031192	.0048172	95.14861	.5028829
Stddev	.0017106	.002856	.0047675	.001619	.0013620	.15615	.0038637
%RSD	3.347789	259.2062	.8660765	5.191577	28.27383	.1641150	.7683003
#1	.0529686	.001835	.5451345	-.030564	.0039307	95.29030	.5072098
#2	.0496146	-.003869	.5519676	-.029980	.0041355	94.98119	.5016609
#3	.0507071	-.001271	.5543103	-.033031	.0063855	95.17435	.4997781
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0070928	-.000106	30.06062	.1957127	.1378219	.4253675	236.4014
Stddev	.0000120	.000599	.14982	.0007919	.0011043	.0056786	1.3664
%RSD	.1685354	562.9944	.4983794	.4046112	.8012181	1.334976	.5780119
#1	.0070974	-.000736	30.22581	.1948848	.1365769	.4188116	237.6562
#2	.0071017	-.000039	30.02251	.1964628	.1386829	.4285379	236.6024
#3	.0070792	.000456	29.93354	.1957905	.1382060	.4287529	234.9457
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.960826	28.75901	.1850310	.0081149	11.62200	.3688185	.6244522
Stddev	.032999	.09329	.0009070	.0000089	.02952	.0026550	.0021384
%RSD	.8331237	.3243881	.4902033	.1096963	.2539751	.7198760	.3424494
#1	3.997212	28.86635	.1839969	.0081249	11.62244	.3717630	.6261432
#2	3.952430	28.71324	.1854042	.0081121	11.65129	.3680853	.6220484
#3	3.932837	28.69745	.1856919	.0081078	11.59226	.3666070	.6251650
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.674503	.0801714	.0076883	.0228547	2.639726	5.156718	4.806069
Stddev	.026432	.0014432	.0001353	.0012472	.015214	.038154	.033093
%RSD	.4658081	1.800156	1.759173	5.456979	.5763488	.7398966	.6885631
#1	5.691236	.0813536	.0077803	.0219474	2.656096	5.116726	4.767930
#2	5.644030	.0785631	.0075330	.0242768	2.637062	5.192721	4.823098
#3	5.688243	.0805975	.0077517	.0223397	2.626020	5.160707	4.827180

Sample Name: Q1134-01DUP Acquired: 1/21/2025 12:33:13 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.993367	.0718579	-.124414
Stddev	.018029	.0006611	.000881
%RSD	.6022892	.9200332	.7078130
#1	2.972716	.0723495	-.124893
#2	3.001414	.0721179	-.124951
#3	3.005970	.0711063	-.123398

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3150.486	60713.65	11551.41	2115.629	3947.272
Stddev	18.269	79.47	26.47	2.373	28.445
%RSD	.5798652	.1308900	.2291478	.1121698	.7206187
#1	3171.466	60803.13	11536.67	2113.127	3979.375
#2	3138.088	60686.53	11581.97	2117.847	3925.207
#3	3141.905	60651.29	11535.59	2115.914	3937.233

Sample Name: Q1134-01LX5 Acquired: 1/21/2025 12:37:17 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0078207	.0000428	.1156690	-.007306	-.000153	21.94082	.1159457
Stddev	.0017725	.0011128	.0009953	.001647	.000141	.08413	.0007557
%RSD	22.66383	2602.618	.8605111	22.54544	92.10903	.3834208	.6517447
#1	.0089951	.0007566	.1167928	-.007329	.000010	21.91732	.1156673
#2	.0086851	-.001239	.1148987	-.008942	-.000232	21.87094	.1153687
#3	.0057819	.000611	.1153154	-.005648	-.000238	22.03419	.1168011
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0017687	-.001404	7.093456	.0451479	.0279603	.1029609	53.83946
Stddev	.0000387	.000026	.022618	.0002416	.0000763	.0005250	.07826
%RSD	2.189255	1.835951	.3188547	.5351090	.2730582	.5098648	.1453656
#1	.0018129	-.001420	7.095540	.0449904	.0279073	.1023815	53.89096
#2	.0017522	-.001418	7.069869	.0450272	.0279258	.1034048	53.74940
#3	.0017408	-.001375	7.114960	.0454260	.0280478	.1030964	53.87803
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9478528	6.774294	.0381545	.0020444	2.568504	.0865141	.1432462
Stddev	.0045362	.067248	.0001330	.0002960	.013557	.0003425	.0014650
%RSD	.4785745	.9926969	.3484708	14.47680	.5278115	.3959071	1.022691
#1	.9509072	6.773344	.0380963	.0023612	2.553175	.0866355	.1421357
#2	.9426404	6.707526	.0383067	.0017750	2.578916	.0867794	.1449065
#3	.9500106	6.842013	.0380606	.0019971	2.573422	.0861274	.1426965
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.184777	.0144038	.0015145	.0033613	.6152409	1.013126	.9814786
Stddev	.016686	.0005499	.0001663	.0006672	.0039203	.006767	.0004831
%RSD	1.408394	3.817444	10.98241	19.85078	.6371941	.6679634	.0492184
#1	1.204042	.0137689	.0013625	.0033013	.6150483	1.020436	.9815230
#2	1.175414	.0147302	.0016922	.0027260	.6114204	1.011862	.9809749
#3	1.174875	.0147122	.0014888	.0040565	.6192539	1.007080	.9819380

Sample Name: Q1134-01LX5 Acquired: 1/21/2025 12:37:17 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.6072570	.0162370	-.027415
Stddev	.0105348	.0010368	.000046
%RSD	1.734818	6.385476	.1661649
#1	.5960414	.0171030	-.027363
#2	.6087856	.0150881	-.027445
#3	.6169440	.0165198	-.027438

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2885.102	55624.34	10146.18	1963.377	4127.519
Stddev	6.299	119.37	61.23	10.712	11.351
%RSD	.2183158	.2146011	.6034326	.5456003	.2749960
#1	2883.967	55638.41	10137.65	1953.118	4123.660
#2	2879.448	55736.04	10211.22	1974.491	4118.601
#3	2891.891	55498.55	10089.67	1962.522	4140.296

Sample Name: Q1134-01MS Acquired: 1/21/2025 12:41:30 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7399833	1.960515	1.491136	1.591059	.3115576	99.57675
Stddev	.0034526	.004157	.001933	.002506	.0003797	.05290
%RSD	.4665808	.2120485	.1296316	.1574880	.1218631	.0531244
#1	.7363340	1.957438	1.490136	1.592619	.3114765	99.57649
#2	.7431982	1.958862	1.489908	1.588169	.3119713	99.62978
#3	.7404177	1.965244	1.493364	1.592390	.3112251	99.52399
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.115897	.1667008	.1926575	31.26161	.5272826	.2884298
Stddev	.000575	.0003266	.0004173	.09807	.0016897	.0006550
%RSD	.0515403	.1958879	.2166132	.3137170	.3204460	.2270984
#1	1.115467	.1663239	.1921775	31.16165	.5274061	.2877364
#2	1.116550	.1669000	.1929348	31.35768	.5289071	.2890381
#3	1.115675	.1668784	.1928600	31.26549	.5255345	.2885149
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7961282	194.2448	2.865316	26.03282	.6528581	.0728853
Stddev	.0017677	.4759	.008572	.07133	.0019100	.0003627
%RSD	.2220385	.2449999	.2991678	.2740131	.2925608	.4976241
#1	.7958949	193.8822	2.855418	25.96141	.6507636	.0732416
#2	.7944888	194.7837	2.870160	26.10408	.6533071	.0728979
#3	.7980010	194.0686	2.870369	26.03296	.6545036	.0725165
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.66258	.5666667	.9160366	14.36761	.2679871	.3573420
Stddev	.03554	.0016577	.0007565	.06547	.0012020	.0013923
%RSD	.2423788	.2925427	.0825867	.4556492	.4485343	.3896160
#1	14.68536	.5647560	.9164071	14.43850	.2690965	.3557504
#2	14.68074	.5677214	.9151662	14.35489	.2681546	.3579416
#3	14.62163	.5675228	.9165365	14.30944	.2667101	.3583341

Sample Name: Q1134-01MS Acquired: 1/21/2025 12:41:30 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6854919	2.331746	3.731192	F 10.26114	3.010308	.2438357
Stddev	.0011178	.001810	.005445	.01497	.006056	.0004255
%RSD	.1630596	.0776383	.1459309	.1458640	.2011642	.1744978
#1	.6842230	2.330439	3.734231	10.26748	3.007689	.2438979
#2	.6863310	2.333812	3.724906	10.27190	3.017232	.2433825
#3	.6859217	2.330987	3.734440	10.24405	3.006003	.2442267

Elem	Sr4077
Units	ppm
Avg	.0818152
Stddev	.0001153
%RSD	.1409738
#1	.0818764
#2	.0816821
#3	.0818870

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3183.472	60161.85	11266.28	2113.260	4009.196
Stddev	2.842	162.01	40.38	3.126	4.860
%RSD	.0892708	.2692825	.3584501	.1479443	.1212258
#1	3186.368	60300.81	11311.58	2116.369	4014.802
#2	3183.360	59983.91	11234.05	2113.295	4006.170
#3	3180.687	60200.84	11253.20	2110.117	4006.615

Sample Name: Q1134-01MSD Acquired: 1/21/2025 12:45:27 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7660655	2.009551	1.535031	1.654425	.3191015	99.18448
Stddev	.0050809	.013983	.001966	.007675	.0020645	.10469
%RSD	.6632514	.6958216	.1280818	.4639308	.6469716	.1055503
#1	.7718852	2.007574	1.532835	1.661625	.3199363	99.06384
#2	.7625121	1.996662	1.536627	1.646350	.3167504	99.25152
#3	.7637993	2.024418	1.535632	1.655301	.3206179	99.23806
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.111522	.1703086	.1989697	30.77603	.5287005	.2945870
Stddev	.004973	.0004476	.0002520	.14548	.0018627	.0004723
%RSD	.4474031	.2627915	.1266670	.4726934	.3523141	.1603344
#1	1.105780	.1699250	.1991413	30.61705	.5275447	.2948789
#2	1.114296	.1702004	.1990875	30.80856	.5308493	.2948400
#3	1.114488	.1708003	.1986804	30.90249	.5277074	.2940421
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8227735	190.8386	2.850525	25.86092	.6676948	.0721030
Stddev	.0021224	1.0063	.012080	.07457	.0002944	.0003070
%RSD	.2579544	.5273272	.4237750	.2883444	.0440947	.4257351
#1	.8251169	189.7291	2.837417	25.77885	.6678268	.0723459
#2	.8222233	191.6925	2.852947	25.87942	.6673574	.0722050
#3	.8209804	191.0941	2.861210	25.92450	.6679000	.0717580
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.19814	.5625842	.8997445	14.05547	.2666614	.3622258
Stddev	.04261	.0006788	.0042954	.01104	.0022650	.0003942
%RSD	.3000857	.1206580	.4774049	.0785415	.8493877	.1088359
#1	14.17085	.5621234	.9001771	14.04358	.2640559	.3623807
#2	14.24723	.5622656	.8952491	14.06538	.2677678	.3625191
#3	14.17633	.5633637	.9038072	14.05745	.2681606	.3617776

Sample Name: Q1134-01MSD Acquired: 1/21/2025 12:45:27 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7033818	2.342249	4.127664	F 10.74024	3.085328	.2405344
Stddev	.0007132	.006474	.022547	.02795	.003035	.0006639
%RSD	.1013976	.2763969	.5462307	.2602580	.0983756	.2760267
#1	.7032339	2.334828	4.147490	10.77251	3.082511	.2411937
#2	.7041574	2.346741	4.132364	10.72341	3.084933	.2398659
#3	.7027542	2.345178	4.103138	10.72481	3.088542	.2405436

Elem	Sr4077
Units	ppm
Avg	.0829255
Stddev	.0001028
%RSD	.1240043
#1	.0829098
#2	.0828314
#3	.0830353

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3099.353	60309.61	11080.59	2117.358	3865.810
Stddev	7.805	273.52	19.96	5.148	1.811
%RSD	.2518379	.4535223	.1801251	.2431130	.0468356
#1	3091.074	60390.88	11091.37	2111.548	3863.732
#2	3100.406	60004.67	11057.56	2119.180	3866.651
#3	3106.578	60533.28	11092.85	2121.347	3867.048

Sample Name: Q1134-01A Acquired: 1/21/2025 12:49:26 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7526075	2.012936	1.518676	1.623142	.3144674	100.9641
Stddev	.0036611	.027867	.001299	.005193	.0018067	.3261
%RSD	.4864529	1.384402	.0855276	.3199469	.5745321	.3230272
#1	.7522323	1.981280	1.519596	1.617441	.3145490	101.3365
#2	.7491485	2.033764	1.519242	1.627601	.3126213	100.7295
#3	.7564418	2.023764	1.517190	1.624385	.3162319	100.8262
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.170386	.1652118	.1947269	31.26376	.5258313	.2917079
Stddev	.006411	.0006101	.0004095	.08887	.0009181	.0003654
%RSD	.5478020	.3692968	.2103044	.2842517	.1746001	.1252482
#1	1.177735	.1650622	.1942546	31.35371	.5267011	.2913192
#2	1.167485	.1658827	.1949422	31.26156	.5248716	.2917602
#3	1.165938	.1646903	.1949838	31.17602	.5259213	.2920443
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8033267	199.3061	2.941782	26.48017	.6613655	.0729349
Stddev	.0011669	1.0086	.010799	.01822	.0003605	.0004835
%RSD	.1452542	.5060520	.3670780	.0688099	.0545100	.6628466
#1	.8029650	200.4026	2.953412	26.49846	.6610393	.0733202
#2	.8046316	198.4180	2.939861	26.48003	.6617526	.0723924
#3	.8023836	199.0977	2.932073	26.46201	.6613046	.0730922
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.86211	.5798249	.8862989	14.72037	.2804610	.3612667
Stddev	.10896	.0040371	.0031154	.07968	.0010776	.0007061
%RSD	.7331268	.6962618	.3515118	.5412573	.3842076	.1954519
#1	14.97180	.5844816	.8839367	14.78208	.2817052	.3606099
#2	14.75390	.5773098	.8851303	14.63042	.2798303	.3620135
#3	14.86065	.5776834	.8898297	14.74861	.2798475	.3611768

Sample Name: Q1134-01A Acquired: 1/21/2025 12:49:26 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6957297	2.435362	4.402391	F 10.49535	3.001776	.2529572
Stddev	.0019425	.015392	.061680	.00680	.004218	.0019867
%RSD	.2792046	.6320102	1.401056	.0648350	.1405146	.7853846
#1	.6979156	2.452826	4.336509	10.48761	2.997246	.2552495
#2	.6942013	2.429487	4.411900	10.50038	3.005590	.2518886
#3	.6950721	2.423772	4.458764	10.49807	3.002493	.2517336

Elem	Sr4077
Units	ppm
Avg	.0847862
Stddev	.0004158
%RSD	.4903535
#1	.0851969
#2	.0847961
#3	.0843655

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3147.734	60820.11	11407.23	2134.326	3932.903
Stddev	4.112	67.10	38.85	4.279	6.435
%RSD	.1306302	.1103240	.3405895	.2005066	.1636082
#1	3148.370	60752.57	11423.91	2135.312	3937.346
#2	3143.342	60821.01	11362.83	2138.027	3925.525
#3	3151.491	60886.76	11434.96	2129.640	3935.840

Sample Name: Q1123-01 Acquired: 1/21/2025 12:53:23 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0839466	.0080353	.2141803	-.019728	.0030578	46.43240	.2494261
Stddev	.0017126	.0022240	.0022562	.002816	.0011487	.02899	.0003927
%RSD	2.040118	27.67814	1.053392	14.27354	37.56564	.0624437	.1574497
#1	.0846810	.0099437	.2133468	-.017494	.0019681	46.46509	.2490874
#2	.0851695	.0085693	.2124594	-.018800	.0029477	46.42231	.2493342
#3	.0819893	.0055929	.2167346	-.022891	.0042576	46.40979	.2498566
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0061442	-.004630	33.19773	.2195830	.0337574	.1229534	182.7589
Stddev	.0000294	.000136	.02727	.0014010	.0002271	.0002162	.8053
%RSD	.4787410	2.929295	.0821457	.6380056	.6727321	.1758744	.4406273
#1	.0061605	-.004779	33.18943	.2202829	.0338816	.1230880	182.4513
#2	.0061619	-.004597	33.17557	.2179701	.0334953	.1230683	182.1527
#3	.0061103	-.004513	33.22818	.2204962	.0338954	.1227040	183.6726
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.013151	12.82763	.0515304	.0062923	3.481747	.1953559	.3357815
Stddev	.002278	.03426	.0005172	.0002848	.007569	.0013808	.0023284
%RSD	.2248045	.2670707	1.003680	4.526041	.2174010	.7067972	.6934216
#1	1.011961	12.85425	.0511686	.0060395	3.478279	.1959086	.3370975
#2	1.011714	12.78898	.0512999	.0066008	3.476534	.1963747	.3330931
#3	1.015777	12.83966	.0521228	.0062366	3.490429	.1937844	.3371539
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.920162	.0593551	.0053874	.0178067	.7669278	3.813214	3.709255
Stddev	.035746	.0004923	.0001321	.0006892	.0048903	.023979	.006118
%RSD	.7265278	.8293459	2.451096	3.870740	.6376447	.6288293	.1649308
#1	4.879004	.0588274	.0054692	.0180561	.7631889	3.825625	3.702670
#2	4.938033	.0598018	.0054580	.0183366	.7651324	3.785574	3.710332
#3	4.943449	.0594361	.0052351	.0170275	.7724620	3.828443	3.714762

Sample Name: Q1123-01 Acquired: 1/21/2025 12:53:23 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	2.907702	.0318185	-.060067		
Stddev	.008578	.0002507	.000266		
%RSD	.2949954	.7878006	.4430656		
#1	2.900313	.0317968	-.059941		
#2	2.917108	.0315793	-.059888		
#3	2.905685	.0320793	-.060373		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2874.163	55921.99	10589.65	1954.386	4022.577
Stddev	9.153	263.43	42.50	13.634	5.202
%RSD	.3184742	.4710689	.4013595	.6976004	.1293293
#1	2884.607	55772.23	10550.04	1943.385	4028.399
#2	2870.350	56226.16	10634.55	1969.639	4020.949
#3	2867.534	55767.57	10584.37	1950.135	4018.383

Sample Name: Q1132-01 Acquired: 1/21/2025 12:57:30 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3943368	-.102231	.1328672	-.067174	.0058992	259.5966
Stddev	.0010569	.001129	.0014577	.000337	.0007239	1.5164
%RSD	.2680146	1.104600	1.097097	.5020889	12.27186	.5841259
#1	.3931600	-.100954	.1313812	-.067009	.0055200	259.8863
#2	.3952052	-.102644	.1342948	-.066950	.0067340	257.9563
#3	.3946451	-.103096	.1329256	-.067561	.0054437	260.9472
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.088478	.0181604	.0536157	68.43285	.3430615	.4953367
Stddev	.002043	.0001173	.0005018	.09691	.0008175	.0009951
%RSD	.1876703	.6460248	.9360198	.1416096	.2382867	.2008852
#1	1.090196	.0180393	.0535600	68.40279	.3433211	.4964152
#2	1.086219	.0181683	.0541431	68.35453	.3437177	.4951408
#3	1.089020	.0182736	.0531440	68.54122	.3421458	.4944542
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6897303	475.6612	4.412848	62.24756	.3798037	.0107412
Stddev	.0033485	2.5182	.001152	.10462	.0011252	.0004463
%RSD	.4854824	.5294098	.0261049	.1680735	.2962482	4.155047
#1	.6896258	477.2833	4.413591	62.13958	.3801723	.0106459
#2	.6931298	472.7602	4.411521	62.34846	.3806984	.0103503
#3	.6864352	476.9402	4.413432	62.25463	.3785405	.0112275
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.116368	.8669850	.4331990	29.19109	.7729438	.0124144
Stddev	.032282	.0023926	.0003619	.15370	.0037164	.0004650
%RSD	.6309477	.2759637	.0835407	.5265381	.4808150	3.745252
#1	5.152148	.8686566	.4336036	29.36795	.7761213	.0118880
#2	5.107530	.8642443	.4329064	29.11544	.7688572	.0125862
#3	5.089425	.8680542	.4330869	29.08986	.7738531	.0127690

Sample Name: Q1132-01 Acquired: 1/21/2025 12:57:30 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001536	F 16.37097	2.990523	9.960884	3.452517	.1304697
Stddev	.001104	.01215	.020194	.008762	.008169	.0003807
%RSD	71.89530	.0741992	.6752755	.0879690	.2366127	.2917511
#1	-.000376	16.38073	3.013758	9.965656	3.452211	.1305725
#2	-.001658	16.35737	2.980609	9.966224	3.460834	.1300482
#3	-.002573	16.37481	2.977202	9.950771	3.444504	.1307884
Elem	Sr4077					
Units	ppm					
Avg	-.181863					
Stddev	.002010					
%RSD	1.105330					
#1	-.183381					
#2	-.179583					
#3	-.182625					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	4559.485	88398.33	17520.45	3093.740	3568.196	
Stddev	4.353	291.77	37.27	14.086	5.341	
%RSD	.0954739	.3300578	.2127167	.4553047	.1496922	
#1	4555.142	88109.53	17562.87	3077.559	3562.030	
#2	4563.848	88392.49	17492.97	3103.253	3571.162	
#3	4559.466	88692.98	17505.52	3100.409	3571.397	

Sample Name: CCV02 Acquired: 1/21/2025 13:01:50 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.823096	5.102174	4.816637	4.868851	4.911350	9.660887	9.774711
Stddev	.014738	.027304	.002047	.007135	.010514	.007013	.024095
%RSD	.3055745	.5351464	.0425055	.1465415	.2140831	.0725937	.2465012
#1	4.828447	5.129303	4.814928	4.875277	4.919373	9.654203	9.750661
#2	4.834411	5.074698	4.818906	4.870103	4.915229	9.668188	9.774621
#3	4.806430	5.102521	4.816076	4.861173	4.899447	9.660268	9.798850
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2375889	2.415002	23.98672	.9835424	2.419036	1.231723	5.046960
Stddev	.0009576	.002859	.05037	.0078281	.002775	.002389	.017407
%RSD	.4030577	.1183650	.2099941	.7959061	.1147070	.1939317	.3448992
#1	.2367199	2.417615	24.04454	.9757920	2.421717	1.234385	5.057965
#2	.2374312	2.415442	23.96329	.9833892	2.419216	1.231017	5.026891
#3	.2386155	2.411948	23.95233	.9914459	2.416176	1.229767	5.056022
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.401490	23.84070	2.416885	1.232375	25.13178	2.416770	2.472440
Stddev	.005689	.07545	.003836	.009449	.08625	.003251	.016918
%RSD	.2368935	.3164782	.1586972	.7667448	.3432057	.1345364	.6842561
#1	2.406518	23.85640	2.418290	1.224346	25.11703	2.418302	2.463423
#2	2.402637	23.75863	2.419820	1.229992	25.05385	2.418972	2.461942
#3	2.395315	23.90706	2.412545	1.242788	25.22446	2.413035	2.491957
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.14962	4.709315	4.976105	4.849810	4.810235	5.042456	4.919199
Stddev	.08834	.017338	.011212	.006153	.007650	.020887	.012099
%RSD	.3512637	.3681673	.2253150	.1268805	.1590298	.4142258	.2459453
#1	25.14452	4.693385	4.987955	4.856087	4.819011	5.036382	4.932988
#2	25.06394	4.706778	4.974695	4.849556	4.804981	5.025279	4.914245
#3	25.24041	4.727782	4.965664	4.843788	4.806713	5.065707	4.910363

Sample Name: CCV02 Acquired: 1/21/2025 13:01:50 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	4.794795	4.860231	4.821326		
Stddev	.014412	.009978	.035025		
%RSD	.3005661	.2052959	.7264551		
#1	4.811427	4.869750	4.839060		
#2	4.786955	4.849850	4.780981		
#3	4.786004	4.861092	4.843937		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2775.233	52721.93	9282.237	1855.055	3986.197
Stddev	3.253	210.67	10.795	8.105	1.516
%RSD	.1171986	.3995793	.1163008	.4369276	.0380196
#1	2771.807	52806.01	9280.271	1860.698	3985.976
#2	2775.611	52877.57	9293.880	1858.699	3987.811
#3	2778.279	52482.20	9272.559	1845.767	3984.804

Sample Name: CCB02 Acquired: 1/21/2025 13:06:02 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0011528	-.002480	.0005778	-.002220	-.000391	-.005619	-.003798
Stddev	.0034954	.001340	.0005781	.001091	.000080	.001918	.001206
%RSD	303.2238	54.05056	100.0565	49.13633	20.49244	34.14323	31.75061

#1	.0050415	-.000948	.0007628	-.003255	-.000398	-.003539	-.005190
#2	-.001728	-.003438	-.000070	-.002323	-.000308	-.007318	-.003133
#3	.000144	-.003054	.001041	-.001081	-.000469	-.005999	-.003071

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000881	-.000015	-.004352	.0001053	-.000014	-.000087	.0057548
Stddev	.0000378	.000051	.009517	.0002200	.000303	.000578	.0035592
%RSD	42.86325	343.9187	218.6767	208.8216	2111.369	667.8653	61.84878

#1	.0000897	.000014	-.005722	.0003564	-.000001	-.000134	.0028062
#2	.0000496	-.000073	.005776	-.000054	.000282	-.000640	.0047496
#3	.0001251	.000015	-.013109	.000013	-.000323	.000514	.0097085

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002219	.0084930	-.000283	.0005956	.0045496	-.002103	-.000109
Stddev	.0000623	.0105121	.000191	.0002705	.0059263	.001175	.000266
%RSD	28.08674	123.7742	67.47834	45.41848	130.2606	55.87065	245.1045

#1	.0001921	.0081493	-.000504	.0003106	-.002279	-.003449	-.000045
#2	.0001802	-.001843	-.000176	.0008488	.007582	-.001576	.000120
#3	.0002936	.019173	-.000170	.0006273	.008346	-.001284	-.000401

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0103699	.0028790	.0002766	-.000325	.0000073	.0045728	-.004038
Stddev	.0321544	.0003139	.0001148	.000474	.0004144	.0086263	.000067
%RSD	310.0759	10.90396	41.50044	145.7056	5653.493	188.6446	1.653157

#1	.0038244	.0026248	.0001463	-.000302	-.000354	.0101996	-.004068
#2	-.018008	.0027823	.0003208	.000137	.000460	.0088774	-.004085
#3	.045293	.0032299	.0003628	-.000810	-.000083	-.005359	-.003962

Sample Name: CCB02 Acquired: 1/21/2025 13:06:02 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	.0002893	-.000171	.0001390		
Stddev	.0021787	.000170	.0000180		
%RSD	753.0078	99.44691	12.95133		
#1	-.001494	-.000196	.0001237		
#2	.002718	.000010	.0001345		
#3	-.000356	-.000329	.0001589		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2823.728	54491.88	9585.756	1930.985	4266.546
Stddev	4.723	106.03	40.226	10.592	10.258
%RSD	.1672593	.1945739	.4196469	.5485471	.2404320
#1	2822.829	54551.82	9580.945	1939.825	4254.790
#2	2828.836	54369.45	9628.172	1919.245	4273.681
#3	2819.519	54554.35	9548.152	1933.885	4271.166

Sample Name: Q1132-04 Acquired: 1/21/2025 13:10:23 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1169983	-.048167	.2226722	-.049155	.0035979	205.0412	.8814338
Stddev	.0021228	.003470	.0008151	.004893	.0012094	.8722	.0025954
%RSD	1.814403	7.203491	.3660772	9.955121	33.61398	.4253544	.2944472
#1	.1187335	-.048051	.2235374	-.054413	.0022157	205.8721	.8800244
#2	.1176300	-.044756	.2219186	-.044733	.0044614	204.1329	.8798481
#3	.1146313	-.051693	.2225606	-.048320	.0041165	205.1185	.8844290
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0153334	.0348129	38.44955	.2301478	.3231537	.4424941	366.5456
Stddev	.0001019	.0002296	.08886	.0011629	.0002947	.0002733	.8747
%RSD	.6645508	.6595411	.2311168	.5052923	.0911982	.0617651	.2386256
#1	.0154430	.0350773	38.43112	.2313157	.3228593	.4426572	365.5536
#2	.0152415	.0346975	38.37134	.2301376	.3231532	.4426466	366.8771
#3	.0153156	.0346639	38.54618	.2289900	.3234487	.4421786	367.2060
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.927274	44.63401	.3235804	.0094638	8.716183	.5960848	.5927048
Stddev	.012418	.07443	.0010382	.0002684	.011748	.0025664	.0016856
%RSD	.2520294	.1667639	.3208563	2.836251	.1347807	.4305402	.2843998
#1	4.926508	44.69946	.3228761	.0091789	8.702618	.5958946	.5928994
#2	4.915257	44.55304	.3247727	.0095007	8.722971	.5936188	.5942848
#3	4.940058	44.64953	.3230924	.0097119	8.722960	.5987410	.5909304
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	17.48280	.3126286	.0090580	.0075174	9.180559	3.415431	8.562610
Stddev	.02936	.0008470	.0001935	.0007330	.023073	.019879	.014951
%RSD	.1679563	.2709420	2.136004	9.749999	.2513205	.5820275	.1746049
#1	17.48381	.3136054	.0092787	.0077589	9.187098	3.428460	8.575723
#2	17.45295	.3121824	.0089176	.0080991	9.154922	3.392550	8.546329
#3	17.51165	.3120979	.0089778	.0066942	9.199656	3.425281	8.565776

Sample Name: Q1132-04 Acquired: 1/21/2025 13:10:23 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	3.678781	.1183664	-.208327
Stddev	.013771	.0002680	.000874
%RSD	.3743362	.2263991	.4193928
#1	3.665861	.1185957	-.207343
#2	3.677214	.1180718	-.209011
#3	3.693269	.1184319	-.208627

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4573.343	86902.90	16875.01	3055.620	3757.716
Stddev	3.700	237.75	75.00	18.781	1.805
%RSD	.0809000	.2735783	.4444476	.6146440	.0480459
#1	4577.521	86628.37	16796.78	3034.649	3759.760
#2	4572.029	87040.99	16946.29	3061.318	3756.339
#3	4570.480	87039.34	16881.95	3070.892	3757.048

Sample Name: Q1133-01 Acquired: 1/21/2025 13:14:42 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0497280	.0047147	.3014736	-.028720	.0023954	80.76769	.5866841
Stddev	.0024569	.0035483	.0014161	.003304	.0003793	.12653	.0006378
%RSD	4.940676	75.26065	.4697403	11.50417	15.83640	.1566530	.1087199
#1	.0497319	.0053456	.3009337	-.030186	.0028321	80.85697	.5870171
#2	.0521829	.0079053	.3030803	-.031037	.0021484	80.82320	.5859486
#3	.0472691	.0008933	.3004068	-.024937	.0022056	80.62290	.5870864
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0073172	.0019986	230.3270	.1881602	.0942747	.2758464	216.2448
Stddev	.0001139	.0002864	.8168	.0016527	.0004709	.0016873	1.7751
%RSD	1.555922	14.33125	.3546465	.8783705	.4994653	.6116744	.8208709
#1	.0073733	.0019369	231.1522	.1897437	.0944888	.2764193	216.9796
#2	.0073922	.0023109	230.3100	.1864460	.0946004	.2771727	214.2202
#3	.0071862	.0017480	229.5188	.1882909	.0937348	.2739473	217.5344
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.868830	104.0782	.1367229	.0061775	4.497510	.3075375	.7042905
Stddev	.013960	.4802	.0000249	.0001644	.041044	.0011469	.0025234
%RSD	.3608272	.4613985	.0182246	2.661592	.9125863	.3729292	.3582950
#1	3.884359	104.5383	.1367157	.0060801	4.499974	.3076371	.7046285
#2	3.864811	104.1163	.1367507	.0063673	4.455290	.3086313	.7016151
#3	3.857321	103.5801	.1367024	.0060850	4.537266	.3063440	.7066278
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12.86212	.0914956	.0065846	.0120523	1.545386	7.858245	3.482401
Stddev	.12270	.0033617	.0002744	.0011316	.002287	.053004	.007710
%RSD	.9539698	3.674203	4.167745	9.388819	.1480041	.6745034	.2213863
#1	12.95350	.0920837	.0068019	.0110651	1.546798	7.876334	3.486547
#2	12.72266	.0878786	.0062762	.0118047	1.546613	7.798564	3.473505
#3	12.91020	.0945244	.0066758	.0132872	1.542747	7.899837	3.487150

Sample Name: Q1133-01 Acquired: 1/21/2025 13:14:42 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	6.440842	.0415845	.2880373		
Stddev	.017445	.0008865	.0012434		
%RSD	.2708568	2.131860	.4316705		
#1	6.457883	.0409800	.2877628		
#2	6.423018	.0411714	.2893950		
#3	6.441626	.0426022	.2869542		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2873.535	54547.43	10649.50	1902.692	3742.447
Stddev	1.998	307.72	42.44	11.537	3.043
%RSD	.0695482	.5641259	.3984949	.6063669	.0813210
#1	2872.068	54434.29	10626.05	1901.832	3740.681
#2	2875.811	54895.70	10623.95	1914.635	3745.962
#3	2872.726	54312.30	10698.48	1891.608	3740.699

Sample Name: CCV03 Acquired: 1/21/2025 13:18:47 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.870032	5.092053	4.811326	4.909953	4.935469	9.612173	9.593886
Stddev	.018916	.039099	.023287	.024531	.016539	.091595	.194421
%RSD	.3884096	.7678376	.4840115	.4996124	.3351026	.9529090	2.026505
#1	4.862760	5.063123	4.801343	4.900355	4.925273	9.507470	9.385972
#2	4.855831	5.076503	4.794694	4.891673	4.926582	9.677473	9.771179
#3	4.891505	5.136535	4.837940	4.937832	4.954551	9.651574	9.624506
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2331525	2.411360	23.72734	.9735513	2.410837	1.231446	4.839743
Stddev	.0025882	.009014	.24701	.0020533	.010171	.005003	.005196
%RSD	1.110075	.3738321	1.041055	.2109104	.4218723	.4062390	.1073588
#1	.2305227	2.407641	23.47708	.9749108	2.407473	1.228190	4.838975
#2	.2356969	2.404800	23.97097	.9711893	2.402774	1.228943	4.834973
#3	.2332379	2.421639	23.73397	.9745538	2.422263	1.237207	4.845280
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.355262	23.70660	2.411805	1.201361	24.37321	2.394668	2.425892
Stddev	.024481	.26499	.009478	.001904	.06073	.025534	.006520
%RSD	1.039399	1.117773	.3930030	.1585082	.2491548	1.066275	.2687854
#1	2.328714	23.41353	2.408802	1.202206	24.42254	2.368908	2.421042
#2	2.376944	23.92929	2.404192	1.202697	24.30538	2.419969	2.423328
#3	2.360129	23.77698	2.422422	1.199181	24.39171	2.395127	2.433304
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.22958	4.636659	4.956874	4.850273	4.753370	4.939445	4.905628
Stddev	.03487	.048876	.018738	.020208	.042695	.008639	.030884
%RSD	.1439255	1.054122	.3780206	.4166380	.8982138	.1749027	.6295669
#1	24.18938	4.584270	4.946418	4.833109	4.708594	4.947130	4.885632
#2	24.24765	4.681031	4.945697	4.845166	4.793625	4.930094	4.890053
#3	24.25170	4.644676	4.978507	4.872545	4.757891	4.941112	4.941198

Sample Name: CCV03 Acquired: 1/21/2025 13:18:47 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	4.831256	4.775102	4.787681		
Stddev	.019600	.034830	.121865		
%RSD	.4056888	.7294059	2.545395		
#1	4.815081	4.735856	4.647013		
#2	4.825634	4.802336	4.861263		
#3	4.853052	4.787115	4.854767		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2766.635	54258.54	9360.260	1859.134	3975.957
Stddev	8.119	107.16	105.432	3.884	11.432
%RSD	.2934463	.1974938	1.126375	.2088922	.2875265
#1	2768.810	54341.57	9478.763	1860.010	3976.971
#2	2773.445	54296.48	9276.852	1862.505	3986.848
#3	2757.651	54137.58	9325.165	1854.887	3964.052

Sample Name: CCB03 Acquired: 1/21/2025 13:22:58 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007357	.0013287	-.000058	-.000513	-.000717	.0040305	-.005370
Stddev	.0019793	.0008111	.001464	.000649	.000307	.0024972	.000882
%RSD	269.0357	61.04774	2521.437	126.4781	42.81188	61.95777	16.43145
#1	.0008424	.0014124	-.001630	-.001252	-.000573	.0012408	-.005396
#2	-.001295	.0004789	.000190	-.000249	-.000509	.0047936	-.006238
#3	.002659	.0020947	.001266	-.000038	-.001070	.0060571	-.004474
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000799	-.000032	.0073186	.0002403	-.000075	.0000031	.0101425
Stddev	.0000210	.000029	.0065055	.0001616	.000169	.0002113	.0013395
%RSD	26.27979	89.61037	88.89095	67.25510	226.1247	6788.784	13.20630
#1	.0000841	-.000014	.0129414	.0004198	.000119	.0002339	.0090620
#2	.0000572	-.000016	.0088210	.0001949	-.000150	-.000044	.0097243
#3	.0000985	-.000065	.0001933	.0001063	-.000194	-.000181	.0116411
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000005	-.005929	-.000187	.0008460	.0130280	-.001296	.0000083
Stddev	.000098	.011987	.000283	.0002776	.0063023	.000475	.0001859
%RSD	2109.447	202.1686	151.6845	32.81628	48.37520	36.66774	2236.452
#1	-.000030	.006086	-.000506	.0005909	.0058968	-.001383	.0002224
#2	.000104	-.017887	-.000083	.0011417	.0153371	-.001722	-.000112
#3	-.000087	-.005987	.000030	.0008053	.0178502	-.000783	-.000085
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0401903	.0022080	.0002172	-.000730	-.000270	-.001572	-.002817
Stddev	.0220067	.0005049	.0002981	.000180	.000311	.004681	.000895
%RSD	54.75612	22.86609	137.2722	24.65544	115.0544	297.8383	31.77731
#1	.0332826	.0025929	.0005311	-.000933	-.000623	-.003747	-.001943
#2	.0224663	.0016363	-.000062	-.000588	-.000154	-.004770	-.002776
#3	.0648221	.0023948	.000182	-.000669	-.000034	.003802	-.003732

Sample Name: CCB03 Acquired: 1/21/2025 13:22:58 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	-.000845	.0003591	.0000711		
Stddev	.003462	.0003131	.0000662		
%RSD	409.4759	87.17949	93.13433		
#1	-.001166	.0002893	.0000206		
#2	-.004136	.0007013	.0000466		
#3	.002765	.0000869	.0001460		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2857.557	54298.07	9387.128	1931.020	4331.695
Stddev	3.695	165.09	41.155	7.783	5.950
%RSD	.1293062	.3040441	.4384162	.4030424	.1373515
#1	2859.409	54107.59	9432.817	1924.481	4333.576
#2	2853.302	54386.74	9352.966	1928.952	4325.033
#3	2859.959	54399.88	9375.599	1939.628	4336.477

Sample Name: LR1 Acquired: 1/21/2025 13:26:54 Type: Unk
Method: NON EPA-6010-200.7(v2626) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0182739	.1358328	.0311005	-.114364	.0059549	1970.997	-.004985
Stddev	.0029834	.0045125	.0037907	.012574	.0076567	14.261	.001369
%RSD	16.32576	3.322127	12.18861	10.99440	128.5777	.7235253	27.47354
#1	.0206082	.1335642	.0280406	-.108730	-.001871	1956.363	-.006563
#2	.0193006	.1410295	.0299198	-.105593	.006304	1984.853	-.004113
#3	.0149127	.1329047	.0353410	-.128769	.013431	1971.776	-.004278
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0084203	-.009476	1743.243	-.003236	.0250236	-.187900	1011.107
Stddev	.0002195	.002078	10.903	.000768	.0001450	.009429	8.298
%RSD	2.607107	21.93233	.6254203	23.71734	.5793595	5.017969	.8207325
#1	.0084161	-.011566	1755.624	-.003365	.0248787	-.197932	1019.465
#2	.0086419	-.009452	1735.078	-.003932	.0250234	-.186547	1010.986
#3	.0082029	-.007409	1739.026	-.002413	.0251687	-.179220	1002.869
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.065256	1625.468	.0191902	.0225400	2005.600	.0330546	.0531898
Stddev	.001095	5.442	.0008368	.0006452	13.853	.0010642	.0020490
%RSD	1.678291	.3348183	4.360361	2.862413	.6907177	3.219612	3.852227
#1	-.064052	1625.815	.0192502	.0226448	2013.851	.0336301	.0530371
#2	-.066194	1630.729	.0199954	.0218489	2013.342	.0318265	.0553108
#3	-.065522	1619.861	.0183251	.0231264	1989.606	.0337071	.0512214
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1275.570	.3337856	-.005700	.0123392	-.042484	.1547184	.0785946
Stddev	10.895	.0089708	.001625	.0010347	.000457	.0059115	.0058356
%RSD	.8541274	2.687590	28.50786	8.385729	1.076736	3.820815	7.424930
#1	1279.248	.3439797	-.005731	.0127234	-.042118	.1563302	.0846823
#2	1284.149	.3302808	-.004060	.0131270	-.042997	.1481681	.0730488
#3	1263.311	.3270962	-.007309	.0111674	-.042337	.1596568	.0780528

Sample Name: LR1 Acquired: 1/21/2025 13:26:54 Type: Unk
Method: NON EPA-6010-200.7(v2626) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	-.218286	-.275402	-1.00004		
Stddev	.009160	.002241	.00836		
%RSD	4.196493	.8137891	.8361917		
#1	-.214054	-.276649	-1.00851		
#2	-.228797	-.272815	-.99983		
#3	-.212006	-.276743	-.99179		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1975.299	38028.81	8156.735	1327.103	2500.421
Stddev	2.284	256.77	17.565	12.541	7.593
%RSD	.1156282	.6751993	.2153445	.9449610	.3036696
#1	1977.883	37917.17	8145.200	1324.246	2509.188
#2	1974.463	37846.76	8148.054	1316.237	2496.011
#3	1973.550	38322.50	8176.950	1340.825	2496.063

Sample Name: LR2 Acquired: 1/21/2025 13:31:51 Type: Unk
Method: NON EPA-6010-200.7(v2626) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0095384	-.019496	230.3329	.0082612	-.009840	.0195278	104.2391
Stddev	.0005669	.002895	.1351	.0041712	.001540	.0057728	.3881
%RSD	5.943351	14.84716	.0586529	50.49176	15.65085	29.56189	.3722866
#1	.0097896	-.019827	230.2536	.0038789	-.009630	.0136423	104.2584
#2	.0088893	-.016450	230.4889	.0121832	-.008416	.0251808	103.8417
#3	.0099362	-.022211	230.2562	.0087214	-.011475	.0197602	104.6171
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002159	-.007188	.1591708	.0148993	-.033383	228.1473	.0795812
Stddev	.000034	.000190	.0030538	.0004377	.000389	.6597	.0063867
%RSD	1.559771	2.643304	1.918545	2.938037	1.166212	.2891523	8.025392
#1	-.002191	-.007408	.1626221	.0147694	-.033826	227.5931	.0728094
#2	-.002124	-.007083	.1580713	.0153873	-.033227	228.8770	.0854964
#3	-.002163	-.007074	.1568191	.0145412	-.033096	227.9719	.0804377
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	40.72076	-.055873	46.04225	.0038707	.2624499	-.011967	32.22493
Stddev	.35869	.008989	.00547	.0004045	.0136718	.001343	.04602
%RSD	.8808413	16.08842	.0118818	10.45143	5.209290	11.21892	.1428128
#1	40.92626	-.050118	46.03609	.0043291	.2753492	-.011335	32.17357
#2	40.30659	-.066232	46.04652	.0037195	.2638820	-.011056	32.26242
#3	40.92942	-.051270	46.04415	.0035636	.2481184	-.013509	32.23880
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2742803	-.003146	-.008032	-.005941	-.041180	-.018896	1.141653
Stddev	.0442396	.000489	.000469	.000472	.000663	.004377	.007221
%RSD	16.12933	15.54694	5.835501	7.940188	1.610174	23.16158	.6325273
#1	.3131170	-.002803	-.007501	-.005400	-.040857	-.021652	1.134052
#2	.2836009	-.003706	-.008385	-.006158	-.041942	-.013850	1.148423
#3	.2261231	-.002929	-.008211	-.006267	-.040740	-.021187	1.142485

Sample Name: LR2 Acquired: 1/21/2025 13:31:51 Type: Unk
Method: NON EPA-6010-200.7(v2626) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	-.025114	-.001100	.0013370		
Stddev	.003252	.000992	.0000367		
%RSD	12.94768	90.19837	2.742742		
#1	-.027491	-.001424	.0013414		
#2	-.026443	.000014	.0012984		
#3	-.021409	-.001888	.0013713		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2609.748	55861.97	10395.82	1860.344	4177.498
Stddev	5.258	142.78	108.22	6.746	6.155
%RSD	.2014873	.2555934	1.040952	.3626205	.1473440
#1	2610.380	56007.12	10270.94	1864.754	4175.110
#2	2604.203	55721.69	10462.04	1863.700	4172.895
#3	2614.662	55857.09	10454.48	1852.579	4184.489

Sample Name: CCV04 Acquired: 1/21/2025 13:56:32 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.944381	5.058924	4.790804	5.038938	5.015650	9.508480	9.548982
Stddev	.006636	.017360	.008064	.017294	.006402	.023152	.145277
%RSD	.1342224	.3431477	.1683217	.3432032	.1276480	.2434838	1.521391
#1	4.936840	5.041059	4.783676	5.020265	5.010130	9.529633	9.705643
#2	4.949332	5.075730	4.789180	5.054404	5.022669	9.512060	9.522600
#3	4.946970	5.059983	4.799557	5.042144	5.014150	9.483747	9.418704
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2257854	2.408733	23.27373	.9590018	2.405595	1.241820	4.927536
Stddev	.0001527	.005249	.07605	.0016856	.005784	.002003	.010102
%RSD	.0676251	.2179134	.3267451	.1757705	.2404363	.1613141	.2050174
#1	.2256784	2.405164	23.34186	.9609309	2.400651	1.239507	4.939024
#2	.2257176	2.406276	23.28765	.9578130	2.404180	1.242923	4.920038
#3	.2259603	2.414760	23.19169	.9582615	2.411956	1.243028	4.923548
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.308432	22.90904	2.409069	1.205596	25.28564	2.358289	2.422078
Stddev	.007609	.12829	.003405	.001571	.04556	.002978	.010065
%RSD	.3296158	.5600105	.1413401	.1302788	.1801760	.1262743	.4155353
#1	2.316457	22.95789	2.405514	1.206955	25.32442	2.360198	2.432374
#2	2.307519	23.00573	2.409393	1.205957	25.29704	2.359812	2.421599
#3	2.301322	22.76349	2.412301	1.203876	25.23547	2.354858	2.412262
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.14095	4.510078	4.952212	4.834560	4.707348	5.017107	4.934372
Stddev	.08259	.007024	.007268	.011391	.018044	.004849	.016042
%RSD	.3285038	.1557490	.1467670	.2356187	.3833057	.0966583	.3251109
#1	25.23612	4.512225	4.946474	4.821813	4.722811	5.018544	4.915849
#2	25.08810	4.515779	4.960385	4.838123	4.711710	5.011701	4.943490
#3	25.09862	4.502231	4.949778	4.843743	4.687524	5.021075	4.943777

Sample Name: CCV04 Acquired: 1/21/2025 13:56:32 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	4.937127	4.753024	4.763616		
Stddev	.014398	.013947	.044160		
%RSD	.2916300	.2934345	.9270167		
#1	4.924306	4.767340	4.812233		
#2	4.934371	4.752256	4.752627		
#3	4.952704	4.739478	4.725989		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2742.805	54422.58	9796.169	1868.580	3947.247
Stddev	5.495	118.28	33.037	10.213	4.492
%RSD	.2003489	.2173453	.3372461	.5465787	.1138095
#1	2744.807	54290.36	9760.334	1857.862	3951.862
#2	2736.589	54459.04	9802.760	1869.679	3946.989
#3	2747.018	54518.35	9825.414	1878.200	3942.889

Sample Name: CCB04 Acquired: 1/21/2025 14:00:43 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002552	-.001162	.0001255	-.001920	-.001547	.0011338	-.006636
Stddev	.002624	.000407	.0010211	.001879	.000909	.0023814	.000215
%RSD	102.8132	34.99563	813.4715	97.88396	58.77354	210.0365	3.238328
#1	-.005348	-.001601	-.000876	-.002773	-.001226	-.001477	-.006606
#2	-.000142	-.000798	.001165	-.003222	-.000842	.003187	-.006864
#3	-.002167	-.001087	.000087	.000235	-.002573	.001691	-.006438
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000378	-.000038	.0032363	.0000827	.0000202	.0000981	.0050535
Stddev	.0000609	.000025	.0119030	.0001679	.0000743	.0002609	.0036201
%RSD	161.2404	66.86367	367.7971	203.0414	368.3004	265.8574	71.63535
#1	.0000583	-.000048	-.010219	.0001823	-.000032	.0002546	.0022015
#2	.0000857	-.000056	.012393	.0001770	-.000013	.0002428	.0091261
#3	-.000031	-.000009	.007535	-.000111	.000105	-.000203	.0038328
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001295	-.003277	-.000251	.0008077	.0977826	-.001624	.0000996
Stddev	.0000267	.011987	.000062	.0003338	.0091938	.000479	.0001729
%RSD	20.64235	365.7315	24.87044	41.32493	9.402250	29.50071	173.6460
#1	.0001501	.007773	-.000192	.0006739	.1081256	-.001897	.0002974
#2	.0001390	-.016020	-.000243	.0005616	.0905394	-.001904	.0000242
#3	.0000993	-.001586	-.000316	.0011876	.0946829	-.001071	-.000023
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0656201	-.000236	-.000000	-.000270	-.000006	.0018156	.0000627
Stddev	.0453047	.000393	.000192	.000468	.000556	.0041555	.0001505
%RSD	69.04095	166.4236	44418.88	173.2732	9435.579	228.8850	240.1612
#1	.0541679	.000080	.000156	-.000336	-.000370	-.001679	.0001965
#2	.1155520	-.000112	.000059	-.000701	.000634	.000715	-.000100
#3	.0271404	-.000676	-.000215	.000227	-.000282	.006411	.000092

Sample Name: CCB04 Acquired: 1/21/2025 14:00:43 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	-.000550	.0001909	.0000903		
Stddev	.001051	.0004320	.0000436		
%RSD	191.1051	226.3414	48.27993		
#1	-.000724	-.000099	.0001332		
#2	.000577	.000687	.0000460		
#3	-.001503	-.000016	.0000917		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2874.863	56110.17	10367.32	1959.413	4358.557
Stddev	3.973	81.25	30.15	4.376	8.290
%RSD	.1381871	.1447987	.2907758	.2233383	.1901999
#1	2873.909	56031.46	10371.90	1963.101	4358.025
#2	2879.226	56193.73	10335.14	1960.560	4367.100
#3	2871.454	56105.33	10394.91	1954.577	4350.546

Sample Name: Q1122-01 Acquired: 1/21/2025 14:26:26 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002363	-.004583	.0007906	.0000927	-.000600	1.408776
Stddev	.002731	.001953	.0005784	.0010020	.000733	.007152
%RSD	115.5931	42.61991	73.16637	1081.193	122.0891	.5076561
#1	-.002727	-.004286	.0003542	-.001030	.000230	1.416946
#2	.000532	-.002796	.0005708	.000895	-.001156	1.403647
#3	-.004893	-.006669	.0014466	.000413	-.000874	1.405736
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0209207	.0002818	-.000272	18.94700	.0013916	.0347466
Stddev	.0006149	.0000292	.000026	.04462	.0001371	.0000902
%RSD	2.939432	10.35204	9.596763	.2354890	9.853193	.2595028
#1	.0205683	.0002514	-.000258	18.90782	.0014446	.0346570
#2	.0216307	.0003095	-.000255	18.99556	.0014943	.0348373
#3	.0205629	.0002845	-.000302	18.93761	.0012359	.0347455
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0513290	4.379657	.2268718	7.767730	.0367851	.0012995
Stddev	.0004474	.010351	.0014010	.019344	.0001796	.0003069
%RSD	.8716930	.2363537	.6175146	.2490305	.4881418	23.61233
#1	.0508145	4.368354	.2257368	7.760272	.0367165	.0015194
#2	.0516267	4.381941	.2284376	7.753225	.0366500	.0014302
#3	.0515459	4.388676	.2264409	7.789693	.0369889	.0009490
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	94.76910	.0011548	.1563143	6.189373	.1202495	.0001014
Stddev	.11719	.0011081	.0009566	.042251	.0009417	.0000993
%RSD	.1236556	95.95058	.6120005	.6826434	.7831424	97.91285
#1	94.90385	.0023954	.1560060	6.207519	.1191623	.0000025
#2	94.71237	.0002634	.1555498	6.141079	.1208132	.0002011
#3	94.69107	.0008057	.1573871	6.219520	.1207729	.0001006

Sample Name: Q1122-01 Acquired: 1/21/2025 14:26:26 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001367	-.000360	5.619120	.0044170	F 17.19065	-.002960
Stddev	.000963	.000705	.010008	.0021864	.00585	.000498
%RSD	70.42455	195.7843	.1781056	49.49964	.0340074	16.83931
#1	-.001967	-.000853	5.608155	.0054564	17.19728	-.003530
#2	-.000257	-.000676	5.621441	.0058898	17.18842	-.002604
#3	-.001877	.000448	5.627763	.0019048	17.18625	-.002746
Elem	Sr4077					
Units	ppm					
Avg	.1019464					
Stddev	.0002776					
%RSD	.2723361					
#1	.1018872					
#2	.1022489					
#3	.1017032					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	2750.939	54231.10	10446.20	1875.446	4052.541	
Stddev	3.074	38.42	36.42	8.979	2.796	
%RSD	.1117352	.0708480	.3486797	.4787740	.0689900	
#1	2748.121	54258.99	10477.98	1872.378	4050.928	
#2	2750.480	54187.28	10406.45	1885.557	4050.927	
#3	2754.217	54247.03	10454.16	1868.402	4055.770	

Sample Name: Q1122-02 Acquired: 1/21/2025 14:30:39 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.005552	-.007300	.0013626	-.000168	-.001467	1.391689
Stddev	.000981	.002236	.0001880	.002131	.001328	.003813
%RSD	17.66956	30.62824	13.80090	1265.094	90.51111	.2739972
#1	-.005267	-.008773	.0015785	-.001572	-.002836	1.388266
#2	-.006644	-.008399	.0012744	.002284	-.000184	1.395799
#3	-.004745	-.004727	.0012348	-.001218	-.001381	1.391002
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0204249	.0002831	-.000218	18.84747	.0012685	.0347471
Stddev	.0001073	.0000472	.000046	.07594	.0001422	.0003038
%RSD	.5252092	16.67026	21.07380	.4028925	11.20777	.8742009
#1	.0204731	.0003222	-.000184	18.79746	.0014119	.0346805
#2	.0204996	.0002307	-.000200	18.93485	.0011276	.0344821
#3	.0203020	.0002966	-.000270	18.81010	.0012659	.0350786
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0367976	4.380513	.2289936	7.762939	.0369475	.0011323
Stddev	.0002004	.038773	.0016308	.047687	.0001286	.0004850
%RSD	.5444959	.8851256	.7121730	.6142956	.3479851	42.83071
#1	.0368060	4.417179	.2276914	7.727284	.0368513	.0011458
#2	.0369937	4.384429	.2308228	7.817107	.0370935	.0016103
#3	.0365932	4.339931	.2284667	7.744426	.0368977	.0006407
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	95.30196	.0013481	.1555540	6.058828	.1230949	.0002431
Stddev	.84208	.0000721	.0000990	.061976	.0016496	.0002242
%RSD	.8835895	5.349093	.0636407	1.022899	1.340125	92.23748
#1	96.25411	.0013086	.1556612	6.089892	.1215323	.0004846
#2	94.99662	.0014313	.1555350	6.099128	.1248196	.0002028
#3	94.65515	.0013043	.1554660	5.987464	.1229328	.0000417

Sample Name: Q1122-02 Acquired: 1/21/2025 14:30:39 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002355	-.000715	5.661223	.0037841	F 17.78027	-.003815
Stddev	.000116	.000662	.046279	.0008670	.05122	.000847
%RSD	4.928793	92.52001	.8174746	22.91276	.2880571	22.20706
#1	-.002371	-.000557	5.702336	.0028336	17.83156	-.004249
#2	-.002232	-.001441	5.611102	.0045316	17.72912	-.002838
#3	-.002462	-.000147	5.670230	.0039871	17.78013	-.004357

Elem	Sr4077
Units	ppm
Avg	.1007835
Stddev	.0003156
%RSD	.3131422
#1	.1006999
#2	.1011325
#3	.1005181

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2740.171	53893.26	10376.40	1856.756	4038.556
Stddev	8.885	118.84	63.90	12.930	9.988
%RSD	.3242438	.2205089	.6157974	.6963675	.2473042
#1	2730.025	53760.72	10449.14	1848.726	4028.163
#2	2746.563	53928.75	10329.32	1849.870	4039.424
#3	2743.925	53990.31	10350.74	1871.671	4048.081

Sample Name: Q1122-02DUP Acquired: 1/21/2025 14:34:52 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001716	-.009320	.0014029	.0018401	-.000373	1.383267
Stddev	.001532	.000749	.0001381	.0005737	.001014	.011915
%RSD	89.27880	8.039361	9.843214	31.17741	272.0877	.8613459
#1	-.001931	-.009015	.0012457	.0024881	.000683	1.385137
#2	-.000088	-.010174	.0014584	.0016351	-.001339	1.394137
#3	-.003128	-.008772	.0015047	.0013970	-.000462	1.370528
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0185337	.0002659	-.000225	18.75028	.0013858	.0347570
Stddev	.0010320	.0000408	.000079	.03346	.0000540	.0001481
%RSD	5.568006	15.34389	35.14927	.1784766	3.897846	.4261181
#1	.0180591	.0002700	-.000309	18.76992	.0014473	.0347773
#2	.0197175	.0003045	-.000152	18.76927	.0013640	.0345999
#3	.0178244	.0002232	-.000214	18.71164	.0013460	.0348940
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0367694	4.196122	.2269568	7.741631	.0366196	.0007533
Stddev	.0004883	.024539	.0011044	.014355	.0002840	.0003635
%RSD	1.328042	.5848006	.4866272	.1854281	.7756100	48.25290
#1	.0367143	4.217866	.2274728	7.758091	.0365063	.0008552
#2	.0372829	4.200985	.2277088	7.735095	.0369428	.0010550
#3	.0363109	4.169516	.2256888	7.731707	.0364097	.0003497
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	90.71635	.0025340	.1536404	5.772252	.1269844	.0002851
Stddev	.46289	.0010294	.0006894	.056856	.0008374	.0001982
%RSD	.5102597	40.62320	.4486809	.9849839	.6594743	69.52604
#1	91.13544	.0017357	.1544297	5.837564	.1264941	.0005123
#2	90.79411	.0036959	.1533347	5.733817	.1265077	.0001955
#3	90.21951	.0021705	.1531567	5.745376	.1279513	.0001475

Sample Name: Q1122-02DUP Acquired: 1/21/2025 14:34:52 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001788	-.000431	5.403225	.0048320	F 17.42783	-.003035
Stddev	.000845	.000568	.018693	.0020840	.02841	.000951
%RSD	47.24118	131.6294	.3459656	43.12906	.1630291	31.34718
#1	-.002550	-.000963	5.424804	.0072367	17.44754	-.004133
#2	-.000879	-.000498	5.392895	.0037086	17.44070	-.002503
#3	-.001935	.000167	5.391977	.0035507	17.39526	-.002468

Elem	Sr4077
Units	ppm
Avg	.0989098
Stddev	.0003415
%RSD	.3453152
#1	.0991508
#2	.0990596
#3	.0985189

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2783.251	54415.05	10058.63	1877.919	4113.114
Stddev	4.075	253.31	28.11	10.520	7.299
%RSD	.1464199	.4655135	.2794852	.5601924	.1774672
#1	2779.355	54210.36	10029.38	1869.949	4106.174
#2	2787.484	54336.45	10061.07	1873.965	4120.726
#3	2782.912	54698.34	10085.44	1889.843	4112.442

Sample Name: Q1122-02LX5 Acquired: 1/21/2025 14:39:05 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002324	-.002707	-.000075	-.001870	-.001130	.2872729	-.000067
Stddev	.000559	.001424	.001027	.001038	.000621	.0056903	.000474
%RSD	24.05353	52.60536	1364.154	55.48387	54.96518	1.980811	706.2948
#1	-.001689	-.004140	-.001256	-.001964	-.000792	.2935088	.000441
#2	-.002742	-.001293	.000426	-.000789	-.001846	.2823619	-.000147
#3	-.002540	-.002687	.000604	-.002858	-.000751	.2859480	-.000496
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001544	.0000034	4.031542	.0004961	.0071952	.0079704	.9125026
Stddev	.0000043	.0000317	.014643	.0000946	.0001546	.0001510	.0055294
%RSD	2.772503	947.0809	.3632194	19.06725	2.149243	1.894260	.6059637
#1	.0001541	.0000256	4.034949	.0004863	.0072975	.0077968	.9085245
#2	.0001503	.0000174	4.044180	.0005951	.0070173	.0080439	.9188167
#3	.0001589	-.000033	4.015495	.0004067	.0072708	.0080706	.9101667
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0489552	1.670165	.0074919	.0006611	19.57606	.0005641	.0313807
Stddev	.0005782	.006646	.0000662	.0003940	.11771	.0006284	.0001467
%RSD	1.181109	.3979116	.8836566	59.59243	.6013074	111.3974	.4676542
#1	.0496108	1.667260	.0075250	.0003911	19.45918	.0008319	.0314162
#2	.0485178	1.665467	.0074157	.0011132	19.69459	.0010143	.0312194
#3	.0487371	1.677769	.0075351	.0004790	19.57442	-.000154	.0315064
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.291877	.0240167	-.000026	-.000956	-.000124	1.157411	-.000217
Stddev	.032651	.0007617	.000201	.000487	.000252	.015402	.001317
%RSD	2.527426	3.171533	777.0121	50.89095	203.2865	1.330698	606.6898
#1	1.260756	.0244392	-.000253	-.001106	-.000334	1.143309	-.001234
#2	1.325869	.0231374	.000049	-.000412	.000156	1.173847	-.000687
#3	1.289008	.0244734	.000126	-.001351	-.000194	1.155078	.001270

Sample Name: Q1122-02LX5 Acquired: 1/21/2025 14:39:05 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	3.665547	-.000289	.0214932		
Stddev	.004260	.000706	.0001087		
%RSD	.1162260	244.4994	.5058601		
#1	3.661330	.000500	.0214579		
#2	3.665463	-.000504	.0216152		
#3	3.669849	-.000863	.0214066		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2872.961	55424.56	10379.39	1932.824	4323.713
Stddev	2.862	104.30	39.97	9.130	14.200
%RSD	.0996075	.1881860	.3850500	.4723914	.3284099
#1	2872.801	55533.04	10333.84	1941.009	4319.167
#2	2870.183	55325.01	10408.58	1922.977	4312.344
#3	2875.899	55415.62	10395.76	1934.487	4339.629

Sample Name: Q1122-02MS Acquired: 1/21/2025 14:43:23 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7570706	1.857257	.8847263	1.808295	.7543428	3.080682
Stddev	.0018569	.003752	.0022370	.004124	.0015478	.009881
%RSD	.2452775	.2020086	.2528444	.2280799	.2051814	.3207375
#1	.7555871	1.855236	.8871557	1.803938	.7547009	3.070736
#2	.7564717	1.854949	.8842717	1.808807	.7556802	3.090497
#3	.7591531	1.861586	.8827515	1.812139	.7526474	3.080812
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1894707	.1705665	.1791597	18.94045	.3792720	.2173101
Stddev	.0003990	.0005337	.0001150	.02144	.0003107	.0001511
%RSD	.2105968	.3129190	.0641648	.1131865	.0819228	.0695439
#1	.1893167	.1705136	.1790807	18.93510	.3789473	.2173513
#2	.1891717	.1711247	.1792916	18.96405	.3793022	.2171426
#3	.1899238	.1700611	.1791068	18.92218	.3795665	.2174363
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3152769	6.796200	.3921080	9.033985	.4915427	.0692697
Stddev	.0006494	.015964	.0013811	.040094	.0002502	.0006307
%RSD	.2059902	.2348986	.3522228	.4438147	.0509050	.9104536
#1	.3150503	6.810816	.3936736	9.028412	.4914613	.0695420
#2	.3147712	6.779164	.3915883	9.076573	.4918235	.0697185
#3	.3160093	6.798621	.3910622	8.996968	.4913433	.0685486
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	88.96460	.2682166	.3414570	14.95334	.3601189	.4048883
Stddev	.19682	.0025167	.0013381	.07694	.0010798	.0004625
%RSD	.2212372	.9383103	.3918797	.5145221	.2998534	.1142400
#1	89.11879	.2690089	.3399144	15.02696	.3612125	.4043776
#2	88.74291	.2702418	.3421533	14.87346	.3600908	.4050080
#3	89.03211	.2653991	.3423035	14.95959	.3590533	.4052791

Sample Name: Q1122-02MS Acquired: 1/21/2025 14:43:23 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6392293	.1736665	5.769285	5.273209	F 16.46589	.1750365
Stddev	.0005229	.0011764	.011615	.006740	.02854	.0010262
%RSD	.0818018	.6773938	.2013292	.1278162	.1733120	.5862559
#1	.6397756	.1746512	5.777187	5.269696	16.43801	.1759021
#2	.6391788	.1723638	5.755948	5.268951	16.46463	.1753044
#3	.6387335	.1739845	5.774718	5.280979	16.49504	.1739029
Elem	Sr4077					
Units	ppm					
Avg	.2696846					
Stddev	.0007940					
%RSD	.2944188					
#1	.2705969					
#2	.2693072					
#3	.2691497					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	2796.838	54137.65	9854.906	1873.995	4131.361	
Stddev	3.379	98.96	28.591	11.933	5.055	
%RSD	.1208155	.1827863	.2901213	.6367608	.1223511	
#1	2796.231	54246.34	9874.100	1887.537	4130.325	
#2	2800.479	54052.76	9822.046	1869.426	4136.853	
#3	2793.804	54113.85	9868.571	1865.022	4126.904	

Sample Name: Q1122-02MSD Acquired: 1/21/2025 14:47:19 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7792927	1.890899	.9006844	1.859518	.7689247	3.129677
Stddev	.0047765	.011133	.0004808	.006909	.0019635	.002465
%RSD	.6129235	.5887925	.0533792	.3715305	.2553579	.0787501
#1	.7739030	1.878743	.9007763	1.851646	.7675121	3.126868
#2	.7830014	1.893352	.9001643	1.864576	.7680952	3.131479
#3	.7809738	1.900601	.9011126	1.862331	.7711668	3.130684
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2016333	.1636541	.1828946	19.41117	.3792805	.2207326
Stddev	.0010418	.0004168	.0001414	.04752	.0005600	.0003757
%RSD	.5166793	.2546761	.0773098	.2448247	.1476605	.1702136
#1	.2028325	.1639259	.1829498	19.46601	.3792157	.2211537
#2	.2011169	.1638622	.1827339	19.38552	.3798701	.2206123
#3	.2009506	.1631743	.1830000	19.38199	.3787556	.2204318
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3206142	7.190324	.4030474	9.306684	.5012189	.0691981
Stddev	.0004535	.005879	.0015013	.020349	.0008653	.0004877
%RSD	.1414521	.0817589	.3724759	.2186469	.1726321	.7047383
#1	.3201918	7.184956	.4044960	9.295438	.5021890	.0695092
#2	.3210935	7.196606	.4014985	9.330173	.5009409	.0694490
#3	.3205572	7.189410	.4031476	9.294440	.5005268	.0686361
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	94.16004	.2733132	.3401495	15.81565	.3441129	.4055780
Stddev	.23340	.0023022	.0000391	.05223	.0007866	.0009488
%RSD	.2478772	.8423261	.0114802	.3302520	.2285728	.2339346
#1	94.17298	.2706827	.3401879	15.87327	.3450137	.4047743
#2	93.92043	.2749609	.3401098	15.77141	.3437631	.4053351
#3	94.38670	.2742959	.3401507	15.80227	.3435620	.4066246

Sample Name: Q1122-02MSD Acquired: 1/21/2025 14:47:19 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6534706	.1807049	6.125088	5.508603	F 17.19303	.1818429
Stddev	.0009247	.0004015	.001073	.014439	.03417	.0009847
%RSD	.1415107	.2221719	.0175157	.2621170	.1987344	.5414886
#1	.6539353	.1803054	6.125948	5.506077	17.15535	.1817295
#2	.6524057	.1811083	6.125430	5.495593	17.22201	.1809199
#3	.6540708	.1807009	6.123886	5.524138	17.20172	.1828794

Elem	Sr4077
Units	ppm
Avg	.2797064
Stddev	.0004394
%RSD	.1571085
#1	.2801173
#2	.2792431
#3	.2797586

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2729.409	54501.93	10251.12	1873.565	3992.405
Stddev	2.706	114.02	42.56	9.012	2.725
%RSD	.0991554	.2091960	.4151511	.4810060	.0682528
#1	2731.183	54451.40	10229.01	1872.931	3989.602
#2	2730.748	54421.92	10224.18	1864.887	3992.570
#3	2726.293	54632.48	10300.19	1882.878	3995.044

Sample Name: Q1122-02A Acquired: 1/21/2025 14:51:15 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7727607	1.865790	.8966420	1.846569	.7621994	3.095534
Stddev	.0019139	.018003	.0029867	.001738	.0009368	.012721
%RSD	.2476667	.9648879	.3330991	.0941283	.1229106	.4109573
#1	.7733056	1.857788	.8957738	1.846103	.7611786	3.085896
#2	.7706334	1.853175	.8941856	1.845111	.7630199	3.090752
#3	.7743430	1.886406	.8999666	1.848492	.7623997	3.109953
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1947544	.1632717	.1819894	19.06509	.3774938	.2196372
Stddev	.0008033	.0008139	.0002436	.02598	.0002853	.0001945
%RSD	.4124665	.4984738	.1338547	.1362527	.0755876	.0885341
#1	.1940015	.1623399	.1820412	19.04644	.3774839	.2197615
#2	.1946617	.1636319	.1817241	19.05408	.3777840	.2194131
#3	.1956001	.1638434	.1822029	19.09476	.3772136	.2197370
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3186859	7.049237	.3936966	9.132558	.4978731	.0684563
Stddev	.0003590	.028505	.0012347	.013620	.0001765	.0003484
%RSD	.1126597	.4043693	.3136164	.1491354	.0354484	.5089926
#1	.3183367	7.077519	.3941475	9.139528	.4980296	.0688481
#2	.3186669	7.049679	.3946425	9.141282	.4976818	.0681813
#3	.3190540	7.020514	.3922998	9.116864	.4979080	.0683393
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	92.83158	.2683285	.3383610	15.57836	.3434182	.4025872
Stddev	.18418	.0017423	.0008144	.09460	.0007865	.0006816
%RSD	.1983984	.6492985	.2406868	.6072301	.2290095	.1693136
#1	93.04355	.2663531	.3374207	15.68758	.3440942	.4020245
#2	92.71067	.2696460	.3388183	15.52490	.3425551	.4023920
#3	92.74052	.2689864	.3388439	15.52260	.3436054	.4033451

Sample Name: Q1122-02A Acquired: 1/21/2025 14:51:15 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6481561	.1764815	6.025692	5.488532	F 17.08555	.1779867
Stddev	.0018155	.0008712	.005240	.010887	.05063	.0003791
%RSD	.2801079	.4936220	.0869647	.1983554	.2963442	.2129892
#1	.6463347	.1755310	6.021994	5.480638	17.05834	.1782075
#2	.6499657	.1766717	6.023394	5.484007	17.05435	.1775490
#3	.6481680	.1772419	6.031689	5.500951	17.14398	.1782036
Elem	Sr4077					
Units	ppm					
Avg	.2733352					
Stddev	.0003830					
%RSD	.1401260					
#1	.2734252					
#2	.2729152					
#3	.2736652					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	2740.817	54423.54	10275.65	1881.254	4010.015	
Stddev	.382	67.87	26.14	3.832	2.659	
%RSD	.0139205	.1247087	.2543677	.2036675	.0662988	
#1	2740.388	54435.51	10305.82	1885.245	4007.594	
#2	2741.118	54350.48	10260.19	1877.604	4012.860	
#3	2740.945	54484.63	10260.92	1880.914	4009.591	

Sample Name: PB166153BL Acquired: 1/21/2025 14:55:12 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0019996	-.000302	.0006066	-.001280	-.000311	-.008055	-.005618
Stddev	.0020128	.001957	.0017235	.000353	.000692	.001749	.000381
%RSD	100.6577	647.5479	284.1128	27.54266	222.5450	21.71527	6.786179
#1	.0043109	-.002482	-.001016	-.000878	-.000927	-.008505	-.005616
#2	.0006325	.000272	.002416	-.001428	.000438	-.006125	-.006000
#3	.0010554	.001303	.000420	-.001534	-.000444	-.009535	-.005238
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000003	.0000033	.0023940	.0000482	.0000163	.0001321	.0063139
Stddev	.000014	.0001059	.0120654	.0001754	.0002649	.0003134	.0042201
%RSD	488.4860	3203.721	503.9925	363.4791	1624.512	237.1775	66.83815
#1	.000010	.0000191	.0018156	-.000053	.0003086	-.000217	.0076122
#2	-.000018	.0001004	.0147382	.000251	-.000208	.000224	.0015972
#3	-.000000	-.000110	-.009372	-.000053	-.000052	.000389	.0097323
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003033	.0017916	-.000275	.0009043	.1402296	-.000327	-.000189
Stddev	.0002891	.0069729	.000092	.0005276	.0087949	.003135	.000262
%RSD	95.33044	389.1923	33.56725	58.34467	6.271820	960.0310	138.5982
#1	.0004828	.0069747	-.000375	.0013455	.1348020	-.002102	-.000447
#2	.0004573	-.006136	-.000193	.0010478	.1355099	-.002171	.000078
#3	-.000030	.004536	-.000257	.0003198	.1503769	.003293	-.000199
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0662399	-.004562	-.000037	-.000565	-.000352	-.003638	-.004663
Stddev	.0281402	.000601	.000314	.000650	.000381	.003644	.001356
%RSD	42.48223	13.18025	849.1263	115.1093	108.3665	100.1564	29.08359
#1	.0940064	-.005153	-.000040	.000067	.000085	.000434	-.004819
#2	.0669730	-.003951	-.000350	-.001232	-.000621	-.004756	-.003236
#3	.0377403	-.004584	.000278	-.000529	-.000519	-.006592	-.005935

Sample Name: PB166153BL Acquired: 1/21/2025 14:55:12 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0004426	.0023053	.0000485
Stddev	.0022920	.0015004	.0000490
%RSD	517.9059	65.08365	100.9915

#1	.0004515	.0037919	.0000902
#2	-.001854	.0023325	.0000609
#3	.002730	.0007915	-.000005

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2890.994	56005.76	10170.31	1994.131	4368.899
Stddev	5.264	130.81	19.69	7.761	4.648
%RSD	.1820840	.2335731	.1936044	.3891846	.1063919

#1	2885.240	55916.23	10148.99	1986.099	4368.710
#2	2892.173	56155.89	10174.12	1994.705	4364.349
#3	2895.568	55945.17	10187.81	2001.589	4373.639

Sample Name: PB166153BS Acquired: 1/21/2025 14:59:32 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7698796	2.033865	.9278966	1.910185	.7619866	1.806567
Stddev	.0021020	.017075	.0014552	.009387	.0006418	.012117
%RSD	.2730306	.8395121	.1568258	.4913931	.0842310	.6707356
#1	.7723009	2.016438	.9264028	1.909914	.7617801	1.796552
#2	.7685227	2.050564	.9279770	1.900937	.7614734	1.820037
#3	.7688152	2.034592	.9293098	1.919705	.7627062	1.803113
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1765713	.1802618	.1845831	.9571307	.3818633	.1866473
Stddev	.0005354	.0008217	.0001169	.0019743	.0007368	.0000502
%RSD	.3032430	.4558506	.0633446	.2062702	.1929415	.0269101
#1	.1759601	.1800877	.1844645	.9585246	.3814512	.1866606
#2	.1769572	.1811566	.1845865	.9548715	.3827140	.1865918
#3	.1767967	.1795411	.1846982	.9579960	.3814248	.1866896
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2981399	2.932610	.1857421	1.794942	.4683326	.0726010
Stddev	.0003901	.019134	.0003789	.022897	.0005280	.0005879
%RSD	.1308353	.6524479	.2039822	1.275652	.1127393	.8097129
#1	.2985447	2.937718	.1857549	1.787373	.4677456	.0729125
#2	.2977665	2.911441	.1861145	1.820666	.4684835	.0729677
#3	.2981084	2.948672	.1853571	1.776788	.4687687	.0719230
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.010783	.2719314	.1952542	9.667568	.2589567	.3919588
Stddev	.007156	.0035843	.0015016	.063701	.0008781	.0004976
%RSD	.2376714	1.318077	.7690582	.6589132	.3391073	.1269412
#1	3.002540	.2710542	.1959078	9.705351	.2597121	.3913885
#2	3.015405	.2688672	.1963182	9.594022	.2591647	.3923041
#3	3.014403	.2758729	.1935365	9.703331	.2579932	.3921837

Sample Name: PB166153BS Acquired: 1/21/2025 14:59:32 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6459295	.1826170	F .6803616	5.516931	F -.006146	.1926852
Stddev	.0016172	.0012124	.0126932	.011491	.002748	.0016416
%RSD	.2503627	.6638769	1.865648	.2082795	44.70800	.8519480
#1	.6442506	.1813283	.6822862	5.503929	-.006408	.1934560
#2	.6460611	.1837349	.6919825	5.525724	-.003276	.1937996
#3	.6474769	.1827877	.6668160	5.521140	-.008753	.1908001

Elem	Sr4077
Units	ppm
Avg	.1822076
Stddev	.0004382
%RSD	.2404805
#1	.1824684
#2	.1824526
#3	.1817017

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2913.030	56082.25	10027.80	1985.644	4374.820
Stddev	8.477	179.67	67.18	13.634	3.609
%RSD	.2910168	.3203719	.6698930	.6866158	.0824841
#1	2904.941	56099.33	10028.74	1979.969	4370.880
#2	2921.849	55894.65	9960.17	1975.764	4377.965
#3	2912.300	56252.77	10094.51	2001.198	4375.615

Sample Name: CCV05 Acquired: 1/21/2025 15:03:32 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.966345	5.109761	4.837794	5.030903	5.037993	9.736916	9.771014
Stddev	.020854	.053280	.017983	.022515	.019090	.035177	.105607
%RSD	.4199126	1.042710	.3717184	.4475370	.3789189	.3612727	1.080823
#1	4.969166	5.057375	4.827062	5.018284	5.038458	9.696641	9.710851
#2	4.944223	5.108014	4.827765	5.017527	5.018674	9.752484	9.892955
#3	4.985645	5.163892	4.858555	5.056897	5.056846	9.761622	9.709236
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2296944	2.427996	23.87354	.9775972	2.430760	1.252375	5.010369
Stddev	.0005809	.009537	.07827	.0047012	.009701	.005322	.034314
%RSD	.2528822	.3927945	.3278695	.4808911	.3990745	.4249846	.6848572
#1	.2290673	2.424773	23.78341	.9778184	2.426854	1.251243	4.980127
#2	.2298020	2.420487	23.92442	.9727894	2.423622	1.247710	5.003321
#3	.2302140	2.438726	23.91280	.9821839	2.441805	1.258172	5.047660
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.375204	23.65824	2.432267	1.217599	25.55617	2.416028	2.453921
Stddev	.016994	.15009	.009138	.002059	.10921	.011248	.007702
%RSD	.7154546	.6343927	.3756811	.1690811	.4273250	.4655716	.3138528
#1	2.356359	23.49550	2.429561	1.219702	25.53649	2.403308	2.453166
#2	2.379891	23.79121	2.424788	1.215587	25.45815	2.420111	2.446625
#3	2.389362	23.68803	2.442452	1.217509	25.67389	2.424665	2.461973
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.40835	4.568008	5.012272	4.881061	4.832412	5.081778	5.007523
Stddev	.12636	.013369	.019944	.023344	.023847	.029379	.020002
%RSD	.4973304	.2926601	.3979036	.4782658	.4934819	.5781179	.3994473
#1	25.37044	4.553853	5.007651	4.870876	4.806311	5.057939	5.013108
#2	25.30528	4.580418	4.995045	4.864539	4.837864	5.072796	4.985322
#3	25.54933	4.569755	5.034121	4.907767	4.853060	5.114599	5.024139

Sample Name: CCV05 Acquired: 1/21/2025 15:03:32 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV05 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	4.935293	4.907609	4.889753		
Stddev	.024575	.024278	.029702		
%RSD	.4979432	.4946951	.6074248		
#1	4.918606	4.880734	4.901230		
#2	4.923759	4.914140	4.856026		
#3	4.963513	4.927954	4.912004		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2763.736	54575.70	9724.201	1870.530	3977.697
Stddev	7.730	132.16	18.768	9.505	12.015
%RSD	.2797032	.2421566	.1930029	.5081240	.3020578
#1	2762.586	54524.55	9745.650	1869.541	3978.890
#2	2771.977	54725.79	9710.796	1880.490	3989.071
#3	2756.645	54476.76	9716.157	1861.558	3965.130

Sample Name: CCB05 Acquired: 1/21/2025 15:07:44 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000697	-.001844	-.000546	-.001603	-.000057	-.001646	-.006567
Stddev	.000894	.000744	.001122	.000613	.000955	.004975	.000995
%RSD	128.2630	40.34797	205.6936	38.22331	1671.398	302.2110	15.14721
#1	-.001665	-.001869	.000285	-.000901	-.000943	.000548	-.006509
#2	-.000520	-.002574	-.001822	-.001881	-.000182	.001854	-.007589
#3	.000096	-.001087	-.000100	-.002028	.000954	-.007341	-.005602
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000727	-.000057	.0054760	.0002984	-.000027	.0001230	.0060539
Stddev	.0000221	.000045	.0075334	.0002154	.000111	.0000881	.0035265
%RSD	30.47505	78.23878	137.5715	72.18903	416.0616	71.63572	58.25163
#1	.0000829	-.000006	.0114877	.0004923	.000035	.0001676	.0094547
#2	.0000878	-.000088	-.002975	.0000665	-.000155	.0001798	.0062930
#3	.0000473	-.000078	.007915	.0003366	.000039	.0000215	.0024139
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002045	.0068184	-.000256	.0007472	.0882534	.0001634	-.000209
Stddev	.0001047	.0059646	.000145	.0003948	.0043931	.0018480	.000086
%RSD	51.19174	87.47879	56.77081	52.83566	4.977775	1130.727	41.30329
#1	.0001131	.0128885	-.000339	.0003153	.0866658	-.001968	-.000131
#2	.0003188	.0066015	-.000088	.0010894	.0848749	.001321	-.000195
#3	.0001817	.0009652	-.000341	.0008370	.0932196	.001137	-.000302
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0392014	.0001725	.0002988	-.000613	-.000023	-.000336	-.003338
Stddev	.0169501	.0000692	.0001957	.000381	.000294	.008690	.001131
%RSD	43.23850	40.13885	65.48358	62.21905	1255.645	2585.517	33.87586
#1	.0240046	.0001705	.0003590	-.000323	.000300	.000040	-.002090
#2	.0574815	.0001043	.0004573	-.000470	-.000273	.008160	-.003628
#3	.0361180	.0002427	.0000801	-.001045	-.000097	-.009209	-.004295

Sample Name: CCB05 Acquired: 1/21/2025 15:07:44 Type: Unk
Method: NON EPA-6010-200.7(v2492) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	-.001961	-.000201	.0000368		
Stddev	.003296	.000933	.0000198		
%RSD	168.0691	464.2876	53.79403		
#1	-.005060	.000778	.0000362		
#2	.001502	-.000302	.0000173		
#3	-.002326	-.001079	.0000568		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2862.953	55953.07	10097.43	1950.341	4333.874
Stddev	6.320	138.05	31.15	4.056	10.172
%RSD	.2207564	.2467254	.3085413	.2079826	.2347152
#1	2864.756	55997.15	10077.12	1954.945	4341.639
#2	2855.928	56063.70	10133.30	1948.786	4322.359
#3	2868.176	55798.37	10081.87	1947.293	4337.624

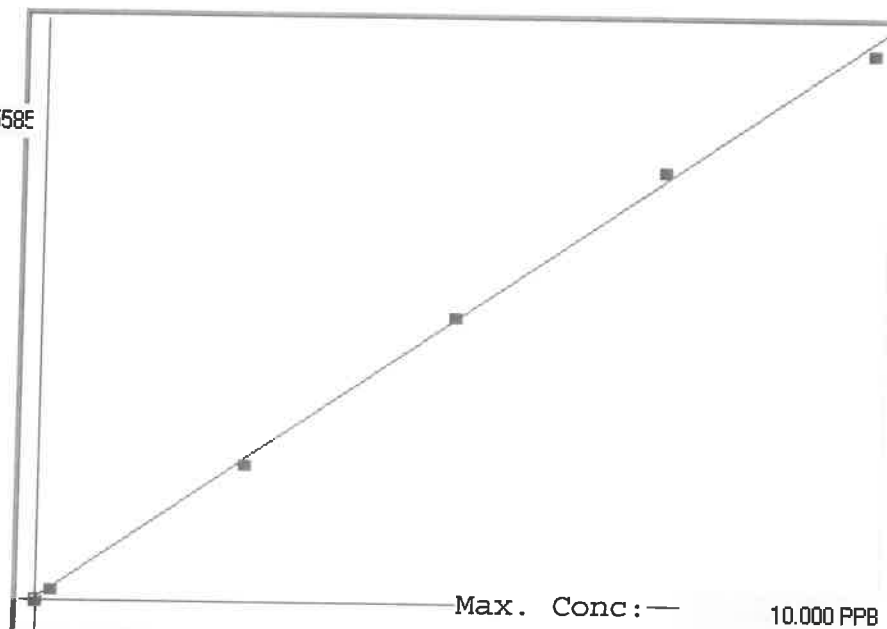
LB134375

7470A

INSTRUMENT ID CV1

μ Abs.:

4558E



Linear

A= 0.0000e+000

B= 2.1581e-004

C= -3.4821e-002

Rho= 0.9994011

Accept=Accepted

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Std
0.0	0.000	-0.010	-0.010	116	0.000	116	0				0.0
0.2	0.200	0.172	-0.028	959	0.0 %	959					1.4
2.5	2.500	2.438	-0.062	11458	0.0 %	11458					1.2
5.0	5.000	5.077	0.077	23686	0.0 %	23686					2
7.5	7.500	7.720	0.220	35933	0.0 %	35933					3
10.0	10.000	9.803	-0.197	45585	0.0 %	45585					2

LB134375 INSTRUMENT ID : CV1

Method: 7470A

Operator: Admin

Date of Analysis: 23 Jan 2025 09:42:41

Sample ID	Extended ID	μ Abs.	Conc.	Std ConcMethod	Units	Date	Type	Type
0.0 - 1	50	116	-	0.00007470A	PPB	23 Jan 2025 09:52:39	S	Std
0.2 - 1	50.2	959	-	0.20007470A	PPB	23 Jan 2025 09:54:56	S	Std
2.5 - 1	52.5	11458	-	2.50007470A	PPB	23 Jan 2025 09:57:12	S	Std
5.0 - 1	55	23686	-	5.00007470A	PPB	23 Jan 2025 09:59:29	S	Std
7.5 - 1	57.5	35933	-	7.50007470A	PPB	23 Jan 2025 10:04:30	S	Std
10.0 - 1	510	45585	-	10.00007470A	PPB	23 Jan 2025 10:11:21	S	Std
ICV66 - 1	ICV66	18982	4.0617	-7470A	PPB	23 Jan 2025 10:19:17	U	SMPL
ICB66 - 1	ICB66	-224	-0.0832	-7470A	PPB	23 Jan 2025 10:21:32	U	SMPL
CCV62 - 1	CCV62	23689	5.0775	-7470A	PPB	23 Jan 2025 10:23:49	U	SMPL
CCB62 - 1	CCB62	-171	-0.0717	-7470A	PPB	23 Jan 2025 10:26:04	U	SMPL
CRA - 1	CRA	949	0.1700	-7470A	PPB	23 Jan 2025 10:28:21	U	SMPL
HighStd - 1	HighStd	45930	9.8774	-7470A	PPB	23 Jan 2025 10:30:36	U	SMPL
ChkStd - 1	ChkStd	32977	7.0820	-7470A	PPB	23 Jan 2025 10:32:52	U	SMPL
PB166192BL - 1	PBW	-215	-0.0812	-7470A	PPB	23 Jan 2025 10:35:10	U	SMPL
PB166192BS - 1	LCSW	18804	4.0233	-7470A	PPB	23 Jan 2025 10:37:29	U	SMPL
Q1122-01 - 1	RW10A-20250116	-22	-0.0396	-7470A	PPB	23 Jan 2025 10:39:45	U	SMPL
Q1122-02 - 1	RW10A-F-20250116	86	-0.0163	-7470A	PPB	23 Jan 2025 10:42:04	U	SMPL
Q1140-01 - 1	FRAC-TANK-F06078	1164	0.2164	-7470A	PPB	23 Jan 2025 10:49:28	U	SMPL
Q1140-01DUP - 1	FRAC-TANK-F06078DUP	1000	0.1810	-7470A	PPB	23 Jan 2025 10:51:44	U	SMPL
Q1140-01MS - 1	FRAC-TANK-F06078MS	17661	3.7766	-7470A	PPB	23 Jan 2025 10:53:59	U	SMPL
CCV63 - 1	CCV63	24114	5.1692	-7470A	PPB	23 Jan 2025 10:56:15	U	SMPL
CCB63 - 1	CCB63	-41	-0.0437	-7470A	PPB	23 Jan 2025 10:58:32	U	SMPL
Q1140-01MSD - 1	FRAC-TANK-F06078MSD	17505	3.7429	-7470A	PPB	23 Jan 2025 11:00:50	U	SMPL
Q1140-01LX5 - 1		187	0.0055	-7470A	PPB	23 Jan 2025 11:05:52	U	SMPL
Q1140-01A - 1		17421	3.7248	-7470A	PPB	23 Jan 2025 11:08:07	U	SMPL
CCV64 - 1	CCV64	23793	5.1000	-7470A	PPB	23 Jan 2025 11:10:22	U	SMPL
CCB64 - 1	CCB64	-48	-0.0452	-7470A	PPB	23 Jan 2025 11:12:40	U	SMPL

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SOP ID : M3010A-Digestion-17

SDG No : N/A

Matrix : WATER

Pipette ID: ICP A

Balance ID : N/A

Filter paper ID : N/A

pH Strip ID : M6069

Hood ID : #3

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

Start Digest Date: 01/21/2025 Time : 10:40 Temp : 96 °C

End Digest Date: 01/21/2025 Time : 13:45 Temp : 96 °C

Digestion tube ID: M5595

Block thermometer ID: MET-DIG. # 1

Dig Technician Signature: *SLK*

Supervisor Signature: *JO*

Temp : 1. 96°C 2. N/A

Standard Name	MLS USED	STD REF. # FROM LOG
LFS-1	0.25	M6002
LFS-2	0.25	M6011
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
Conc. HNO3	3.00	M6126
1:1 HCL	5.00	MP83499
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
N/A	N/A	N/A
N/A	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

HOT BLOCK#1CELL #55 Temp: 96 C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
01/21/25 13:50 13:55	<i>SLK. Met digestion.</i>	<i>JO Met Dig</i>
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	pH	Initial Vol (ml)	Final Vol (ml)	Color Before	Color After	Clarity Before	Clarity After	Comment	Prep Pos
PB166153BL	PBW153	<2	50	25	Colorless	Colorless	Clear	Clear	N/A	8
PB166153BS	LCS153	<2	50	25	Colorless	Colorless	Clear	Clear	M6002,M6011	9
Q1122-01	RW10A-20250116	<2	50	25	Colorless	Colorless	Clear	Clear	N/A	10
Q1122-02	RW10A-F-20250116	<2	50	25	Colorless	Colorless	Clear	Clear	N/A	11
Q1122-02MS	RW10A-F-20250116MS	<2	50	25	Colorless	Colorless	Clear	Clear	M6002,M6011	13
Q1122-02MSD	RW10A-F-20250116MSD	<2	50	25	Colorless	Colorless	Clear	Clear	M6002,M6011	14
Q1122-02DUP	RW10A-F-20250116DUP	<2	50	25	Colorless	Colorless	Clear	Clear	N/A	12

WORKLIST(Hardcopy Internal Chain)

Worklist Name : PB166153

Worklist ID : 187036

Department : Digestion

Date : 01-21-2025 09:54:41

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q1122-01	RW10A-20250116	Water	Metals ICP-TAL	1:1 HNO3 to pH < 2	TETR06	M11	01/16/2025	6010D
Q1122-02	RW10A-F-20250116	Water	Dissolved ICP-TAL Metals	Cool 4 deg C	TETR06	M11	01/16/2025	6010D

Date/Time 01/21/25 10:15
Raw Sample Received by: SID . methers
Raw Sample Relinquished by: CSA

Date/Time 01/21/25 11:15
Raw Sample Received by: CSA
Raw Sample Relinquished by: SID met dresch

SOP ID : M7470A-Mercury-19

SDG No : NA

Matrix : WATER

Pipette ID : HG A

Balance ID : N/A

Filter paper ID : NA

pH Strip ID : M6069

Hood ID : #1

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

Start Digest Date: 01/22/2025 Time : 15:10 Temp : 95 °C

End Digest Date: 01/22/2025 Time : 17:10 Temp : 94 °C

Digestion tube ID: M5595

Block thermometer ID: HG-DIG#3

Dig Technician Signature:

Supervisor Signature:

Temp : 1. 95°C 2. N/A

Standardized Name	MLS USED	STD REF. # FROM LOG
ICV	30mL	MP84144
CCV	30mL	MP84146
CRA	30mL	MP84148
Blank Spike	0.48mL	MP84137
Matrix Spike	0.48mL	MP84137

Chemical Used	ML/SAMPLE USED	Lot Number
HNO3/H2SO4(1:2)	N/A	MP83691
KMnO4 (5%)	N/A	MP83692
K2S2O8 (5%)	2.5mL	MP83693
Hydroxylamine HCL (12%)	2.0mL	MP83694
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	MP84138
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	30mL	MP84139
2.5 ppb	S2.5	30mL	MP84140
5.0 ppb	S5.0	30mL	MP84141
7.5 ppb	S7.5	30mL	MP84142
10.0 ppb	S10.0	30mL	MP84143
ICV	ICV	30mL	MP84144
ICB	ICB	30mL	MP84145
CCV	CCV	30mL	MP84146
CCB	CCB	30mL	MP84147
CRI	CRI	30mL	MP84148
CHK STD	CHK STD	30mL	MP84149

Extraction Conformance/Non-Conformance Comments:

N/A		
Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
1/22/25 @ 17:40	MB - Dig. Lab	MB - metal Lab
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Comment	Prep Pos
PB166192BL	PBW192	30	30	<2	N/A	N/A
PB166192BS	LCS192	30	30	<2	MP84137	N/A
Q1122-01	RW10A-20250116	30	30	<2	N/A	N/A
Q1122-02	RW10A-F-20250116	30	30	<2	N/A	N/A
Q1140-01	FRAC-TANK-F06078	30	30	<2	N/A	N/A
Q1140-01DUP	FRAC-TANK-F06078DUP	30	30	<2	N/A	N/A
Q1140-01MS	FRAC-TANK-F06078MS	30	30	<2	MP84137	N/A
Q1140-01MSD	FRAC-TANK-F06078MSD	30	30	<2	MP84137	N/A

WORKLIST(Hardcopy Internal Chain)

WorkList Name : 01225_7470

WorkList ID : 187060

Department : Digestion

Date : 01-22-2025 11:36:21

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q1122-01	RW10A-20250116	Water	Mercury	1:1 HNO3 to pH < 2	TETR06	M11	01/16/2025	7470A
Q1122-02	RW10A-F-20250116	Water	Dissolved Mercury	1:1 HNO3 to pH < 2	TETR06	M11	01/16/2025	7470A
Q1140-01	FRAC-TANK-F06078	Water	Mercury	1:1 HNO3 to pH < 2	PSEG03	E11	01/21/2025	7470A

Date/Time 1/22/25 11:40
 Raw Sample Received by: DOB - DIX, CAL
 Raw Sample Relinquished by: DOB - M. G. LAY

Date/Time 1/22/25 11:30
 Raw Sample Received by: DOB - M. G. LAY
 Raw Sample Relinquished by: DOB - M. G. LAY

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134358

Review By	kareem	Review On	1/22/2025 6:29:48 PM
Supervise By	jaswal	Supervise On	1/23/2025 10:15:01 PM
STD. NAME	STD REF.#		
ICAL Standard	MP83935,MP83936,MP83937,MP83938,MP83939,MP83941		
ICV Standard	MP83942		
CCV Standard	MP83945		
ICSA Standard	MP83943,MP83944		
CRI Standard	MP83941		
LCS Standard			
Chk Standard	MP83948,MP83949		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	01/21/25 11:01		Kareem	OK
2	S1	S1	CAL2	01/21/25 11:05		Kareem	OK
3	S2	S2	CAL3	01/21/25 11:09		Kareem	OK
4	S3	S3	CAL4	01/21/25 11:14		Kareem	OK
5	S4	S4	CAL5	01/21/25 11:18		Kareem	OK
6	S5	S5	CAL6	01/21/25 11:22		Kareem	OK
7	ICV01	ICV01	ICV	01/21/25 11:26		Kareem	OK
8	LLICV01	LLICV01	LLICV	01/21/25 11:35		Kareem	OK
9	ICB01	ICB01	ICB	01/21/25 11:51		Kareem	OK
10	CRI01	CRI01	CRDL	01/21/25 11:59		Kareem	OK
11	ICSA01	ICSA01	ICSA	01/21/25 12:03		Kareem	OK
12	ICSAB01	ICSAB01	ICSAB	01/21/25 12:08		Kareem	OK
13	CCV01	CCV01	CCV	01/21/25 12:12		Kareem	OK
14	CCB01	CCB01	CCB	01/21/25 12:16		Kareem	OK
15	PB166135BL	PB166135BL	MB	01/21/25 12:20		Kareem	OK
16	PB166135BS	PB166135BS	LCS	01/21/25 12:25	0.1ML OF M6010 AND M6001 WERE ADDED TO 10ML OF THE SAMPLE	Kareem	OK
17	Q1134-01	EO-1-011725	SAM	01/21/25 12:29		Kareem	OK
18	Q1134-01DUP	EO-1-011725DUP	DUP	01/21/25 12:33		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134358

Review By	kareem	Review On	1/22/2025 6:29:48 PM
Supervise By	jaswal	Supervise On	1/23/2025 10:15:01 PM

STD. NAME	STD REF.#
ICAL Standard	MP83935,MP83936,MP83937,MP83938,MP83939,MP83941
ICV Standard	MP83942
CCV Standard	MP83945
ICSA Standard	MP83943,MP83944
CRI Standard	MP83941
LCS Standard	
Chk Standard	MP83948,MP83949

19	Q1134-01L	EO-1-011725L	SD	01/21/25 12:37		Kareem	OK
20	Q1134-01MS	EO-1-011725MS	MS	01/21/25 12:41	0.1ML OF M6010 AND M6001 WERE ADDED TO 10ML OF THE SAMPLE	Kareem	OK
21	Q1134-01MSD	EO-1-011725MSD	MSD	01/21/25 12:45	0.1ML OF M6010 AND M6001 WERE ADDED TO 10ML OF THE SAMPLE	Kareem	OK
22	Q1134-01A	EO-1-011725A	PS	01/21/25 12:49	0.1ML OF M6010 AND M6001 WERE ADDED TO 10ML OF THE SAMPLE	Kareem	OK
23	Q1123-01	BU-03-1172025	SAM	01/21/25 12:53		Kareem	OK
24	Q1132-01	HD-1-011725	SAM	01/21/25 12:57		Kareem	OK
25	CCV02	CCV02	CCV	01/21/25 13:01		Kareem	OK
26	CCB02	CCB02	CCB	01/21/25 13:06		Kareem	OK
27	Q1132-04	HD-2-011725	SAM	01/21/25 13:10		Kareem	OK
28	Q1133-01	TR-04-1172025	SAM	01/21/25 13:14		Kareem	OK
29	CCV03	CCV03	CCV	01/21/25 13:18		Kareem	OK
30	CCB03	CCB03	CCB	01/21/25 13:22		Kareem	OK
31	LR1	LR1	HIGH STD	01/21/25 13:26		Kareem	OK
32	LR2	LR2	HIGH STD	01/21/25 13:31		Kareem	OK
33	CCV04	CCV04	CCV	01/21/25 13:56		Kareem	OK
34	CCB04	CCB04	CCB	01/21/25 14:00		Kareem	OK
35	Q1122-01	RW10A-20250116	SAM	01/21/25 14:26		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134358

Review By	kareem	Review On	1/22/2025 6:29:48 PM
Supervise By	jaswal	Supervise On	1/23/2025 10:15:01 PM

STD. NAME	STD REF.#
ICAL Standard	MP83935,MP83936,MP83937,MP83938,MP83939,MP83941
ICV Standard	MP83942
CCV Standard	MP83945
ICSA Standard	MP83943,MP83944
CRI Standard	MP83941
LCS Standard	
Chk Standard	MP83948,MP83949

36	Q1122-02	RW10A-F-20250116	SAM	01/21/25 14:30		Kareem	OK
37	Q1122-02DUP	RW10A-F-20250116D	DUP	01/21/25 14:34		Kareem	OK
38	Q1122-02L	RW10A-F-20250116L	SD	01/21/25 14:39		Kareem	OK
39	Q1122-02MS	RW10A-F-20250116M	MS	01/21/25 14:43	0.1ML OF M6010 AND M6001 WERE ADDED TO 10ML OF THE SAMPLE	Kareem	OK
40	Q1122-02MSD	RW10A-F-20250116M	MSD	01/21/25 14:47	0.1ML OF M6010 AND M6001 WERE ADDED TO 10ML OF THE SAMPLE	Kareem	OK
41	Q1122-02A	RW10A-F-20250116A	PS	01/21/25 14:51	0.1ML OF M6010 AND M6001 WERE ADDED TO 10ML OF THE SAMPLE	Kareem	OK
42	PB166153BL	PB166153BL	MB	01/21/25 14:55		Kareem	OK
43	PB166153BS	PB166153BS	LCS	01/21/25 14:59	0.1ML OF M6010 AND M6001 WERE ADDED TO 10ML OF THE SAMPLE	Kareem	OK
44	CCV05	CCV05	CCV	01/21/25 15:03		Kareem	OK
45	CCB05	CCB05	CCB	01/21/25 15:07		Kareem	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB134375

Review By	jaswal	Review On	1/23/2025 10:14:38 PM
Supervise By	mohan	Supervise On	1/23/2025 10:17:05 PM
STD. NAME	STD REF.#		
ICAL Standard	MP84138,MP84139,MP84140,MP84141,MP84142,MP84143		
ICV Standard	MP84144		
CCV Standard	MP84146		
ICSA Standard			
CRI Standard	MP84148		
LCS Standard			
Chk Standard	MP84145,MP84147,MP84149,MP84168		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	01/23/25 09:52		Mohan	OK
2	S0.2	S0.2	CAL2	01/23/25 09:54		Mohan	OK
3	S2.5	S2.5	CAL3	01/23/25 09:57		Mohan	OK
4	S5	S5	CAL4	01/23/25 09:59		Mohan	OK
5	S7.5	S7.5	CAL5	01/23/25 10:04		Mohan	OK
6	S10	S10	CAL6	01/23/25 10:11		Mohan	OK
7	ICV66	ICV66	ICV	01/23/25 10:19		Mohan	OK
8	ICB66	ICB66	ICB	01/23/25 10:21		Mohan	OK
9	CCV62	CCV62	CCV	01/23/25 10:23		Mohan	OK
10	CCB62	CCB62	CCB	01/23/25 10:26		Mohan	OK
11	CRA	CRA	CRDL	01/23/25 10:28		Mohan	OK
12	HighStd	HighStd	HIGH STD	01/23/25 10:30		Mohan	OK
13	ChkStd	ChkStd	SAM	01/23/25 10:32		Mohan	OK
14	PB166192BL	PB166192BL	MB	01/23/25 10:35		Mohan	OK
15	PB166192BS	PB166192BS	LCS	01/23/25 10:37		Mohan	OK
16	Q1122-01	RW10A-20250116	SAM	01/23/25 10:39		Mohan	OK
17	Q1122-02	RW10A-F-20250116	SAM	01/23/25 10:42		Mohan	OK
18	Q1140-01	FRAC-TANK-F06078	SAM	01/23/25 10:49		Mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB134375

Review By	jaswal	Review On	1/23/2025 10:14:38 PM
Supervise By	mohan	Supervise On	1/23/2025 10:17:05 PM

STD. NAME	STD REF.#
ICAL Standard	MP84138,MP84139,MP84140,MP84141,MP84142,MP84143
ICV Standard	MP84144
CCV Standard	MP84146
ICSA Standard	
CRI Standard	MP84148
LCS Standard	
Chk Standard	MP84145,MP84147,MP84149,MP84168

19	Q1140-01DUP	FRAC-TANK-F06078	DUP	01/23/25 10:51		Mohan	OK
20	Q1140-01MS	FRAC-TANK-F06078	MS	01/23/25 10:53		Mohan	OK
21	CCV63	CCV63	CCV	01/23/25 10:56		Mohan	OK
22	CCB63	CCB63	CCB	01/23/25 10:58		Mohan	OK
23	Q1140-01MSD	FRAC-TANK-F06078	MSD	01/23/25 11:00		Mohan	OK
24	Q1140-01L	FRAC-TANK-F06078	SD	01/23/25 11:05		Mohan	OK
25	Q1140-01A	FRAC-TANK-F06078	PS	01/23/25 11:08		Mohan	OK
26	CCV64	CCV64	CCV	01/23/25 11:10		Mohan	OK
27	CCB64	CCB64	CCB	01/23/25 11:12		Mohan	OK

Prep Standard - Chemical Standard Summary

Order ID : Q1122

Test : Dissolved ICP-TAL Metals,Dissolved Mercury,Mercury,Metals ICP-TAL

Prepbatch ID : PB166153,PB166192,

Sequence ID/Qc Batch ID: LB134358,LB134358,LB134375,LB134375,

Standard ID :
MP83499,MP83500,MP83691,MP83692,MP83693,MP83694,MP83935,MP83936,MP83937,MP83938,MP83939,MP83940,MP83941,MP83942,MP83943,MP83944,MP83945,MP83948,MP83949,MP84137,MP84138,MP84139,MP84140,MP84141,MP84142,MP84143,MP84144,MP84145,MP84146,MP84147,MP84148,MP84149,MP84168,

Chemical ID :
M4371,M4465,M4916,M5062,M5130,M5192,M5218,M5223,M5288,M5295,M5296,M5390,M5393,M5429,M5466,M5467,M5496,M5497,M5515,M5532,M5658,M5697,M5698,M5747,M5748,M5768,M5798,M5799,M5800,M5801,M5802,M5806,M5814,M5815,M5816,M5817,M5818,M5819,M5820,M5875,M5882,M5884,M5959,M5962,M5970,M5978,M5982,M5985,M6002,M6011,M6021,M6023,M6028,M6030,M6041,M6121,M6126,W3112,

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
170	1:1HCL	MP83499	12/09/2024	01/30/2025	Eman Mughal	None	None	Sarabjit Jaswal
								12/09/2024

FROM 1250.00000ml of M6121 + 1250.00000ml of W3112 = Final Quantity: 2500.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
902	ICP AES CAL BLK (SO/ICB/CCB)	MP83500	12/06/2024	01/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								12/09/2024

FROM 125.00000ml of M6121 + 2350.00000ml of W3112 + 25.00000ml of M6126 = Final Quantity: 2500.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3965	2:1 H2SO4 : HNO3	MP83691	12/18/2024	06/03/2025	Mohan Bera	None	None	Sarabjit Jaswal
								12/18/2024

FROM 1600.00000ml of M6041 + 800.00000ml of M6126 = Final Quantity: 3200.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
65	POTASSIUM PERMANGANATE SOLUTION 5 %	MP83692	12/18/2024	06/18/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal
								12/18/2024

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

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
66	POTASSIUM PERSULFATE SOLUTION 5 %	MP83693	12/18/2024	06/18/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal

FROM 100.00000ml of M4465 + 2000.00000ml of W3112 = Final Quantity: 2000.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
67	SODIUM CHLORIDE - HYDROXYL- CHLORIDE SOLUTION	MP83694	12/18/2024	06/18/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal

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

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
514	CAL BLK (S0/ICB/CCB)	MP83935	01/07/2025	02/07/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/09/2025

FROM 125.00000ml of M6121 + 2350.00000ml of W3112 + 25.00000ml of M6126 = Final Quantity: 2500.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
907	ICP AES STD S (S5)	MP83936	01/07/2025	02/07/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/09/2025

FROM 5.00000ml of M5296 + 5.00000ml of M5393 + 5.00000ml of M5467 + 5.00000ml of M5802 + 5.00000ml of M5816 + 5.00000ml of M5820 + 5.00000ml of M5875 + 5.00000ml of M5970 + 5.00000ml of M5982 + 455.00000ml of MP83500 = Final Quantity: 500.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
910	ICP AES STD S4	MP83937	01/07/2025	02/07/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/09/2025

FROM 50.00000ml of MP83500 + 50.00000ml of MP83936 = Final Quantity: 100.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
909	ICP AES STD S3	MP83938	01/07/2025	02/07/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/09/2025

FROM 25.00000ml of MP83936 + 75.00000ml of MP83500 = Final Quantity: 100.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3913	ICP AES STD S2	MP83939	01/07/2025	02/07/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/09/2025

FROM 16.00000ml of MP83936 + 184.00000ml of MP83500 = Final Quantity: 200.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
2950	ICP AES S1/CRI STOCK STD	MP83940	01/07/2025	02/07/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/09/2025

FROM 0.00200ml of M5982 + 0.00400ml of M5978 + 0.03000ml of M5798 + 0.03000ml of M6028 + 0.04000ml of M5818 + 0.05000ml of M5496 + 0.05000ml of M5515 + 0.05000ml of M5658 + 0.05000ml of M6030 + 0.06000ml of M5747 + 0.10000ml of M5697 + 0.10000ml of M5698 + 0.10000ml of M5801 + 0.10000ml of M5820 + 0.10000ml of M5962 + 0.10000ml of M5970 + 0.15000ml of M5800 + 0.20000ml of M5748 + 0.20000ml of M5799 + 0.20000ml of M5819 + 0.20000ml of M6021 + 0.20000ml of M6023 + 0.25000ml of M5467 + 0.25000ml of M5802 + 0.50000ml of M5390 + 0.50000ml of M5814 + 1.00000ml of M5192 + 1.00000ml of M5288 + 1.00000ml of M5497 + 1.00000ml of M5768 + 1.00000ml of M5806 + 2.00000ml of M5816 + 77.68000ml of MP83500 = Final Quantity: 100.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
2951	ICP AES S1/CRI WORK STD	MP83941	01/07/2025	02/07/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/09/2025

FROM 2.00000ml of MP83940 + 98.00000ml of MP83500 = Final Quantity: 100.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
912	ICP AES ICV SOLN	MP83942	01/07/2025	02/07/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/09/2025

FROM 0.02500ml of M5429 + 0.02500ml of M5815 + 0.02500ml of M5817 + 0.02500ml of M5982 + 0.10000ml of M5466 + 0.25000ml of M5218 + 10.00000ml of M5295 + 89.77500ml of MP83500 = Final Quantity: 100.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
904	ICP AES ICSA SOLN	MP83943	01/07/2025	02/07/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/09/2025

FROM 25.00000ml of M5130 + 225.00000ml of MP83500 = Final Quantity: 250.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3494	ICP AES ICSAB SOLN-1	MP83944	01/07/2025	02/07/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/09/2025

FROM 0.01000ml of M5815 + 0.01000ml of M5817 + 0.10000ml of M5296 + 0.10000ml of M5970 + 0.10000ml of M5982 + 10.00000ml of M5130 + 10.00000ml of M5223 + 79.50000ml of MP83500 = Final Quantity: 100.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
911	ICP AES CCV SOLN	MP83945	01/07/2025	02/07/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/09/2025

FROM 50.00000ml of MP83500 + 50.00000ml of MP83936 = Final Quantity: 100.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
919	ICP AES INTERNAL STD	MP83948	01/07/2025	02/07/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/09/2025

FROM 1.00000ml of M5959 + 10.00000ml of M5985 + 1969.00000ml of W3112 = Final Quantity: 2000.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
903	ICP AES RINSE SOLN	MP83949	01/07/2025	02/07/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/09/2025

FROM 200.00000ml of M6126 + 9800.00000ml of W3112 = Final Quantity: 10000.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP84137	01/22/2025	01/23/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal
								01/22/2025

FROM 1.00000ml of M6126 + 2.50000ml of M5062 + 96.50000ml of W3112 = Final Quantity: 100.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1340	Hg 0.00 PPB STD	MP84138	01/22/2025	01/23/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 01/22/2025

FROM 2.50000ml of M6126 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1341	Hg 0.2 PPB STD	MP84139	01/22/2025	01/23/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 01/22/2025

FROM 2.50000ml of M6126 + 247.30000ml of W3112 + 0.20000ml of MP84137 = Final Quantity: 250.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1342	Hg 2.5 PPB STD	MP84140	01/22/2025	01/23/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/22/2025
FROM 2.50000ml of M6126 + 245.00000ml of W3112 + 2.50000ml of MP84137 = Final Quantity: 250.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1343	Hg 5.0 PPB STD	MP84141	01/22/2025	01/23/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/22/2025
FROM 2.50000ml of M6126 + 242.50000ml of W3112 + 5.00000ml of MP84137 = Final Quantity: 250.000 ml								

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1344	Hg 7.5 PPB STD	MP84142	01/22/2025	01/23/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/22/2025

FROM 2.50000ml of M6126 + 240.00000ml of W3112 + 7.50000ml of MP84137 = Final Quantity: 250.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1345	Hg 10.0 PPB STD	MP84143	01/22/2025	01/23/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/22/2025

FROM 2.50000ml of M6126 + 237.50000ml of W3112 + 10.00000ml of MP84137 = Final Quantity: 250.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1346	Hg ICV SOLUTION	MP84144	01/22/2025	01/23/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/22/2025

FROM 2.50000ml of M5532 + 2.50000ml of M6126 + 245.00000ml of W3112 = Final Quantity: 250.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1351	ICB (Hg 0.00 PPB SOLUTION)	MP84145	01/22/2025	01/23/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/22/2025

FROM 2.50000ml of M6126 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1358	CCV (Hg 5.0 PPB SOLUTION)	MP84146	01/22/2025	01/23/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 01/22/2025

FROM 485.00000ml of W3112 + 5.00000ml of M6126 + 10.00000ml of MP84137 = Final Quantity: 500.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1352	CCB (Hg 0.00 PPB SOLUTION)	MP84147	01/22/2025	01/23/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 01/22/2025

FROM 495.00000ml of W3112 + 5.00000ml of M6126 = Final Quantity: 500.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1349	CRA/CRI (Hg 0.2 PPB SOLUTION)	MP84148	01/22/2025	01/23/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 01/22/2025

FROM 2.50000ml of M6126 + 247.30000ml of W3112 + 0.20000ml of MP84137 = Final Quantity: 250.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1350	CHK STD (Hg 7.0 PPB SOLUTION)	MP84149	01/22/2025	01/23/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 01/22/2025

FROM 2.50000ml of M6126 + 240.50000ml of W3112 + 7.00000ml of MP84137 = Final Quantity: 250.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
68	STANNOUS CHLORIDE SOLUTION	MP84168	01/23/2025	01/24/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal
FROM 450.00000ml of W3112 + 50.00000gram of M5882 + 50.00000ml of M6121 = Final Quantity: 500.000 ml								

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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 #
Seidler Chemical	BA-3238-05 / Potassium Persulfate (2.5kg)	0000234156	08/06/2025	07/23/2019 / Jaswal	07/25/2019 / manojkumar	M4465

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 #
EPA	PART A / ICSA (ICP) STOCK SOLN	ICSA-1211	01/31/2025	05/20/2024 / Jaswal	04/20/2021 / bin	M5130

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57042 / Mo, 1000 PPM, 125 ml	051722	05/17/2025	07/01/2022 / bin	06/17/2022 / jaswal	M5192

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CHEM-QC-4 / CHEM-QC-4, Second Source, 1000 ug/ml, B, Mo, Si, Sn, Ti	S2-MEB711674	11/02/2026	07/01/2022 / bin	09/10/2021 / bin	M5218

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART B / ICSAB (ICP) STOCK SOLN	ICSB-0710	01/31/2025	05/20/2024 / Jaswal	04/20/2021 / bin	M5223

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58119 / K, 10000 PPM, 500 ml	071122	07/11/2025	09/01/2022 / jaswal	07/21/2022 / jaswal	M5288

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-1 / ICV (ICP/ICPMS) STOCK SOLN	ICV-1014	02/05/2025	08/07/2024 / jaswal	04/20/2021 / bin	M5295

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	S2-MEB711673	11/02/2026	09/19/2022 / jaswal	08/20/2022 / jaswal	M5296

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57056 / Ba, 1000 PPM, 125 ml	072122	07/21/2025	08/07/2024 / jaswal	09/18/2022 / bin	M5390

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-3 / CLP CAL SOLUTION #3, 125mL	T2-MEB714159	01/13/2027	10/12/2022 / bin	09/19/2022 / bin	M5393

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57103 / Li, 10000 PPM, 125 ml	070622	07/06/2025	01/30/2023 / bin	01/26/2023 / bin	M5429

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57058 / Cerium, 1000PPM, 100ML	061322	06/13/2025	03/06/2023 / bin	03/01/2023 / bin	M5466

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57058 / Cerium, 1000PPM, 100ML	020623	02/06/2026	03/06/2023 / bin	03/01/2023 / bin	M5467

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Al, 10000 PPM, 500 ml	011623	01/16/2026	08/15/2023 / jaswal	03/17/2023 / bin	M5496

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58120 / Ca, 10000 PPM, 500 ml	031523	03/15/2026	03/18/2023 / bin	03/17/2023 / bin	M5497

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58126 / Fe, 10000 PPM, 500 ml	092122	09/21/2025	08/01/2024 / Jaswal	03/17/2023 / bin	M5515

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	02/28/2025	01/02/2025 / Jaswal	03/30/2023 / mohan	M5532

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58024 / Chromium, Cr, 500 ml, 1000 PPM	060523	06/05/2026	08/28/2023 / jaswal	08/25/2023 / jaswal	M5658

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58029 / Cu, 1000 PPM, 500 ml	102523	10/25/2026	04/03/2024 / jaswal	10/27/2023 / jaswal	M5697

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58025 / Mn, 1000 PPM, 500 ml	102623	10/26/2026	04/18/2024 / jaswal	10/27/2023 / jaswal	M5698

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	/ Lead (Pb) 1000PPM	100923	10/09/2026	05/20/2024 / Jaswal	12/20/2023 / jaswal	M5747

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	/ Nickel (Ni) 1000PPM	091223	09/12/2026	01/02/2024 / bin	12/20/2023 / jaswal	M5748

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58112 / Mg, 10000 PPM, 500 ml	091823	09/18/2026	01/08/2024 / bin	01/03/2024 / bin	M5768

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57004 / Be, 1000 PPM, 125 ml	102523	10/25/2026	02/09/2024 / bin	02/09/2024 / bin	M5798

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57050 / Sn, 1000 PPM, 125 ml	071123	07/11/2026	02/09/2024 / bin	02/09/2024 / bin	M5799

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57027 / CO, 1000 PPM, 125 ml	091923	09/19/2026	05/31/2024 / bin	02/09/2024 / bin	M5800

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57033 / As, 1000 PPM, 125 ml	111323	11/13/2026	02/09/2024 / bin	02/09/2024 / bin	M5801

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57051 / Sb, 1000 PPM, 125 ml	120523	12/05/2026	08/07/2024 / jaswal	01/03/2024 / jaswal	M5802

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58111 / Na, 10000 PPM, 500 ml	122223	12/22/2026	08/01/2024 / Jaswal	01/03/2024 / jaswal	M5806

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57005 / B, 1000 PPM, 125 ml	071123	07/11/2026	03/26/2024 / Sohil	01/03/2024 / jaswal	M5814

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57115 / P, 10000 PPM, 125 ml	041723	04/17/2026	05/21/2024 / Jaswal	02/09/2024 / jaswal	M5815

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57016 / S, 1000 PPM, 125 ml	122923	12/29/2026	05/20/2024 / Jaswal	02/09/2024 / jaswal	M5816

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57116 / S, 10000 PPM, 125 ml	071123	07/11/2026	03/01/2024 / jaswal	02/09/2024 / jaswal	M5817

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57014 / Si, 1000 PPM, 125 ml	122023	12/20/2026	03/06/2024 / jaswal	02/09/2024 / jaswal	M5818

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58030 / Zinc, Zn, 500 ml, 1000 PPM	111623	11/16/2026	03/20/2024 / jaswal	02/09/2024 / jaswal	M5819

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57015 / P, 1000 PPM, 125 ml	091123	09/11/2026	05/01/2024 / jaswal	02/09/2024 / jaswal	M5820

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	T2-MEB714417	01/27/2027	04/19/2024 / jaswal	02/22/2024 / jaswal	M5875

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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGY10-1 / YTTRIUM 125mL 10,000ug/mL	V2-Y740548	02/20/2029	07/01/2024 / Jaswal	06/14/2024 / Jaswal	M5959

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57034 / Se, 1000 PPM, 125 ml	060624	06/06/2027	07/02/2024 / Jaswal	06/14/2024 / Jaswal	M5962

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57003 / Li, 1000 PPM, 125 ml	061224	06/21/2027	07/01/2024 / Jaswal	07/01/2024 / Jaswal	M5970

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	T2-TI719972	06/17/2027	08/07/2024 / jaswal	02/22/2024 / Jaswal	M5978

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57038 / Sr, 1000 PPM, 125 ml	031524	03/15/2027	07/01/2024 / Jaswal	06/11/2024 / Jaswal	M5982

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGIN10-5 / INDIUM 1 x 500 ml	U2-IN729349	02/21/2028	10/08/2024 / Jaswal	06/14/2024 / Jaswal	M5985

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-1 / Laboratory Fortified Stock Solution 1, 125 ml	T2-MEB723367	07/14/2025	01/14/2025 / Eman	05/14/2024 / Jaswal	M6002

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-2 / Laboratory Fortified Stock Solution 2, 125 ml	U2-MEB731108	07/14/2025	01/14/2025 / Eman	05/14/2024 / Jaswal	M6011

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57023 / V, 1000 PPM, 125 ml	062424	06/24/2027	09/28/2024 / jaswal	08/05/2024 / Jaswal	M6021

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57081 / TI, 1000 PPM, 125 ml	0624724	06/27/2027	08/05/2024 / kareem	08/05/2024 / Jaswal	M6023

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57048 / Cd, 1000 PPM, 125 ml	070124	07/01/2027	08/05/2024 / kareem	08/05/2024 / Jaswal	M6028

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57047 / Ag, 1000 PPM, 125 ml	122823	12/28/2026	08/05/2024 / kareem	08/05/2024 / Jaswal	M6030

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	23D2462010	03/20/2028	08/16/2024 / mohan	08/16/2024 / mohan	M6041

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	06/03/2025	12/03/2024 / Janvi	11/12/2024 / Janvi	M6126

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 / lwona	07/03/2024 / lwona	W3112

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.



M6028



CERTIFIED WEIGHT REPORT:

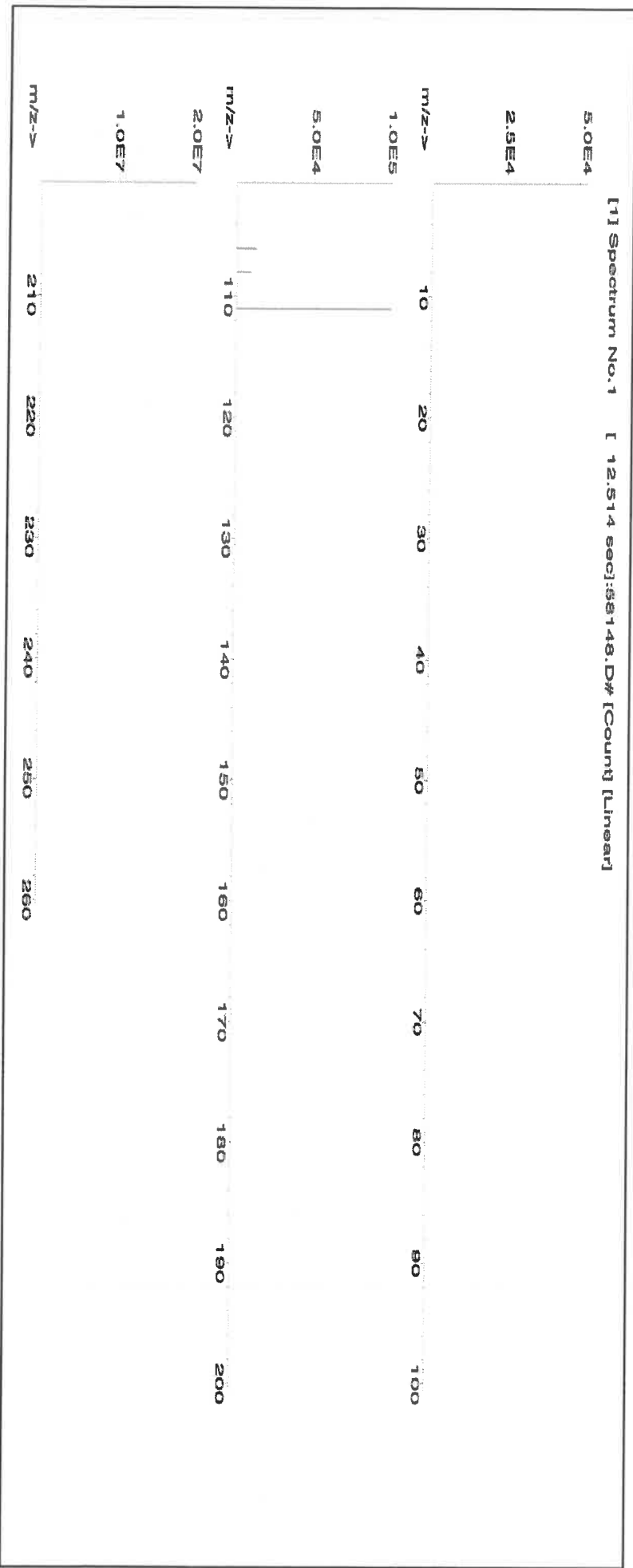
Part Number: 57048 **Lot #**
Lot Number: 070124
Description: Cadmium (Cd) **Solvent:** 24002546 Nitric Acid

Expiration Date: 070127 **2%** 40.0 Nitric Acid (mL)
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB 5E-05 Balance Uncertainty
Weight shown below was diluted to (mL): 2000.07 0.100 Flask Uncertainty

<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas
070124	

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty		CAS#	SDS Information		NIST SRM
									+/- (µg/mL)	(µg/mL)		(Solvent Safety Info. On Attached pg.)	LD50	

1. Cadmium nitrate tetrahydrate (Cd) IN024 CDM09221A1 1000 99.999 0.10 36.5 5.4797 5.4804 1000.1 2.0 10022-68-1 0.01 mg/m3 or-rat 60.2mg/kg 3108





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.2	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Ba	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Cd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pr	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



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Certificate of Analysis

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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).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CHEM-CLP-4
Lot Number: S2-MEB711673
Matrix: 3% (v/v) HNO₃
3% (v/v) HF
Value / Analyte(s): 1 000 µg/mL ea:
Boron, Molybdenum,
Silicon, Tin,
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 6 µg/mL	Molybdenum, Mo	1 000 ± 6 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 6 µg/mL
Titanium, Ti	1 000 ± 7 µg/mL		

Density: 1.030 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	110830
Mo	ICP Assay	3134	130418
Si	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925

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

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

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

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

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k(u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k(u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = 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)

N/A

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

HF Note: This standard should not be prepared or stored in glass.

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

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

November 02, 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

- **November 02, 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 Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Certificate of Analysis

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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).



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution	
Catalog Number:	CLPP-CAL-1	
Lot Number:	T2-MEB714417	
Matrix:	5% (v/v) HNO ₃	
Value / Analyte(s):	5 000 µg/mL ea:	Potassium, Sodium,
	Calcium, Magnesium,	
	2 000 µg/mL ea:	Barium,
	Aluminum,	
	1 000 µg/mL ea:	
	Iron,	
	500 µg/mL ea:	Vanadium, Cobalt,
	Nickel, Zinc, Manganese,	
	250 µg/mL ea:	
	Silver,	Copper,
	200 µg/mL ea:	
	Chromium,	
	50 µg/mL ea:	
	Beryllium	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	2 000 ± 7 µg/mL	Barium, Ba	2 000 ± 9 µg/mL
Beryllium, Be	50.00 ± 0.26 µg/mL	Calcium, Ca	5 000 ± 22 µg/mL
Chromium, Cr	200.0 ± 1.0 µg/mL	Cobalt, Co	500.0 ± 2.4 µg/mL
Copper, Cu	250.0 ± 1.0 µg/mL	Iron, Fe	1 000 ± 4 µg/mL
Magnesium, Mg	5 000 ± 20 µg/mL	Manganese, Mn	500.0 ± 2.0 µg/mL
Nickel, Ni	500.0 ± 2.2 µg/mL	Potassium, K	5 000 ± 19 µg/mL
Silver, Ag	250.0 ± 1.1 µg/mL	Sodium, Na	5 000 ± 18 µg/mL
Vanadium, V	499.7 ± 2.2 µg/mL	Zinc, Zn	500.0 ± 2.2 µg/mL

Density: 1.118 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Be	Calculated		See Sec. 4.2
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cr	Calculated		See Sec. 4.2
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	120715
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	IC Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

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

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

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

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k(u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k(u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = 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)

N/A

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

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information.

<https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver>

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

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 27, 2022

- 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

- January 27, 2027

- 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 Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





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2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CLPP-CAL-3
Lot Number: T2-MEB714159
Matrix: 7% (v/v) HNO₃
Value / Analyte(s):
1 000 µg/mL ea:
Arsenic, Lead,
Selenium, Thallium,
500 µg/mL ea:
Cadmium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	1 000 ± 8 µg/mL	Cadmium, Cd	500.0 ± 2.1 µg/mL
Lead, Pb	1 000 ± 5 µg/mL	Selenium, Se	1 000 ± 8 µg/mL
Thallium, Tl	1 000 ± 7 µg/mL		

Density: 1.043 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
As	ICP Assay	3103a	100818
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Tl	ICP Assay	3158	151215

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

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

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

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

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k(u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k(u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = 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)

N/A

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

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

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 13, 2022

- 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

- **January 13, 2027**

- 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 Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





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Certificate of Analysis

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info@inorganicventures.com

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).



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	WW-LFS-1
Lot Number:	T2-MEB723367
Matrix:	5% (v/v) HNO ₃

Value / Analyte(s):	1 000 µg/mL ea: Potassium,	
	600 µg/mL ea: Phosphorus,	
	300 µg/mL ea: Sodium,	Iron,
	200 µg/mL ea: Magnesium, Cerium, Thallium,	Aluminum, Selenium,
	100 µg/mL ea: Lead,	Calcium,
	80 µg/mL ea: Arsenic,	
	70 µg/mL ea: Mercury,	
	50 µg/mL ea: Nickel,	
	40 µg/mL ea: Chromium,	
	30 µg/mL ea: Copper, Vanadium,	Boron,
	20 µg/mL ea: Zinc, Barium, Cadmium, Manganese,	Strontium, Beryllium, Cobalt, Lithium,
	7.5 µg/mL ea: Silver	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	200.0 ± 0.7 µg/mL	Arsenic, As	80.0 ± 0.7 µg/mL
Barium, Ba	20.00 ± 0.09 µg/mL	Beryllium, Be	20.00 ± 0.13 µg/mL
Boron, B	30.00 ± 0.18 µg/mL	Cadmium, Cd	20.00 ± 0.09 µg/mL
Calcium, Ca	100.0 ± 0.4 µg/mL	Cerium, Ce	200.0 ± 0.8 µg/mL
Chromium, Cr	40.00 ± 0.30 µg/mL	Cobalt, Co	20.00 ± 0.10 µg/mL
Copper, Cu	30.00 ± 0.13 µg/mL	Iron, Fe	300.0 ± 1.3 µg/mL
Lead, Pb	100.0 ± 0.4 µg/mL	Lithium, Li	20.00 ± 0.08 µg/mL
Magnesium, Mg	200.0 ± 0.8 µg/mL	Manganese, Mn	20.00 ± 0.08 µg/mL
Mercury, Hg	70.0 ± 0.3 µg/mL	Nickel, Ni	50.00 ± 0.22 µg/mL
Phosphorus, P	600.0 ± 2.7 µg/mL	Potassium, K	1 000 ± 4 µg/mL
Selenium, Se	200.0 ± 1.3 µg/mL	Silver, Ag	7.50 ± 0.03 µg/mL
Sodium, Na	300.0 ± 1.4 µg/mL	Strontium, Sr	20.01 ± 0.08 µg/mL
Thallium, Tl	200.0 ± 1.4 µg/mL	Vanadium, V	30.00 ± 0.13 µg/mL
Zinc, Zn	20.00 ± 0.09 µg/mL		

Density: 1.034 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Ag	Calculated		See Sec. 4.2
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
As	ICP Assay	3103a	100818
B	ICP Assay	3107	190605
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Ce	ICP Assay	3110	090504
Ce	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
Hg	ICP Assay	3133	160921
Hg	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Li	ICP Assay	3129a	100714
Li	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	Traceable to 3152A	S2-NA700842
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
P	ICP Assay	3139a	060717
P	Acidimetric	84L	84L
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Sr	EDTA	928	928
Sr	ICP Assay	Traceable to 3153a	K2-SR650985
Tl	ICP Assay	3158	151215
V	IC Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

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

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

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

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

$$\text{CRM/RM Expanded Uncertainty (z)} = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{ts}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$\text{CRM/RM Expanded Uncertainty (z)} = U_{\text{CRM/RM}} = k (u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{ts}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{ts} = 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)

N/A

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

Low Silver Note: This solution contains "LOW" levels of Silver. Please store this entire bottle inside a sealed glass jar.

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; info@inorganicventures.com; inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 30, 2022

- 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

- August 30, 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 Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Refine your results. Redefine your industry.

RD:05/14/2024

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
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1.0 ACCREDITATION / REGISTRATION

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2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: WW-LFS-2
Lot Number: U2-MEB731108
Matrix: 5% (v/v) HNO₃
tr. HF
Value / Analyte(s):
200 µg/mL ea:
Silica,
80 µg/mL ea:
Antimony,
70 µg/mL ea:
Tin,
40 µg/mL ea:
Molybdenum,
20 µg/mL ea:
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	80.1 ± 0.6 µg/mL	Molybdenum, Mo	40.03 ± 0.18 µg/mL
Silica, SiO ₂	200.2 ± 1.3 µg/mL	Tin, Sn	70.0 ± 0.4 µg/mL
Titanium, Ti	20.01 ± 0.13 µg/mL		

Density: 1.025 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Mo	Calculated		See Sec. 4.2
Sb	ICP Assay	3102a	140911
SiO ₂	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925
Ti	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, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$$\text{CRM/RM Expanded Uncertainty } (z) = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{ITS}}^2 + u_{\text{TS}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{TS} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$\text{CRM/RM Expanded Uncertainty } (z) = U_{\text{CRM/RM}} = k (u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{ITS}}^2 + u_{\text{TS}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{ITS} = 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)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures [Terms and Conditions of Sale](https://www.inorganicventures.com/terms-and-conditions-sale). <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

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

HF Note: This standard should not be prepared or stored in glass.

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

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 17, 2023

- 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

- **March 17, 2028**

- 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 Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



M4371

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

Rec - 06.07.19



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 ₂ OH · HCl) (by KMnO ₄ titrn)	>= 96.0 %	99.1
Clarity of Alcohol Solution	Passes Test	PT
Residue after Ignition	<= 0.050 %	0.017
Titrate 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

M4913-16

MS

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

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	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.

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

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

MS062
MS063
MB

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).



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:

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

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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char} = [\sum ((w_i)^2 (u_{char i})^2)]^{1/2}$ 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

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

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

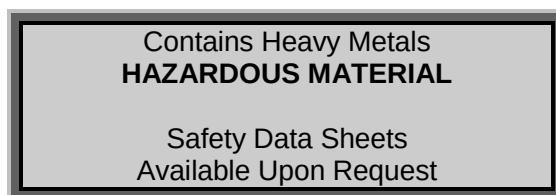


**QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)**

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.



(A) SAMPLE DESCRIPTION

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(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 interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,

Instructions for QATS Reference Material: **ICP-AES ICS**

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSAB solution by ICP-AES.

(D) "CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 15 percent of the listed certified value.

ICSA
M5126
M5127
M5128
M5129
M5130

ICSB
M5219
M5220
M5221
M5222
M5223



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

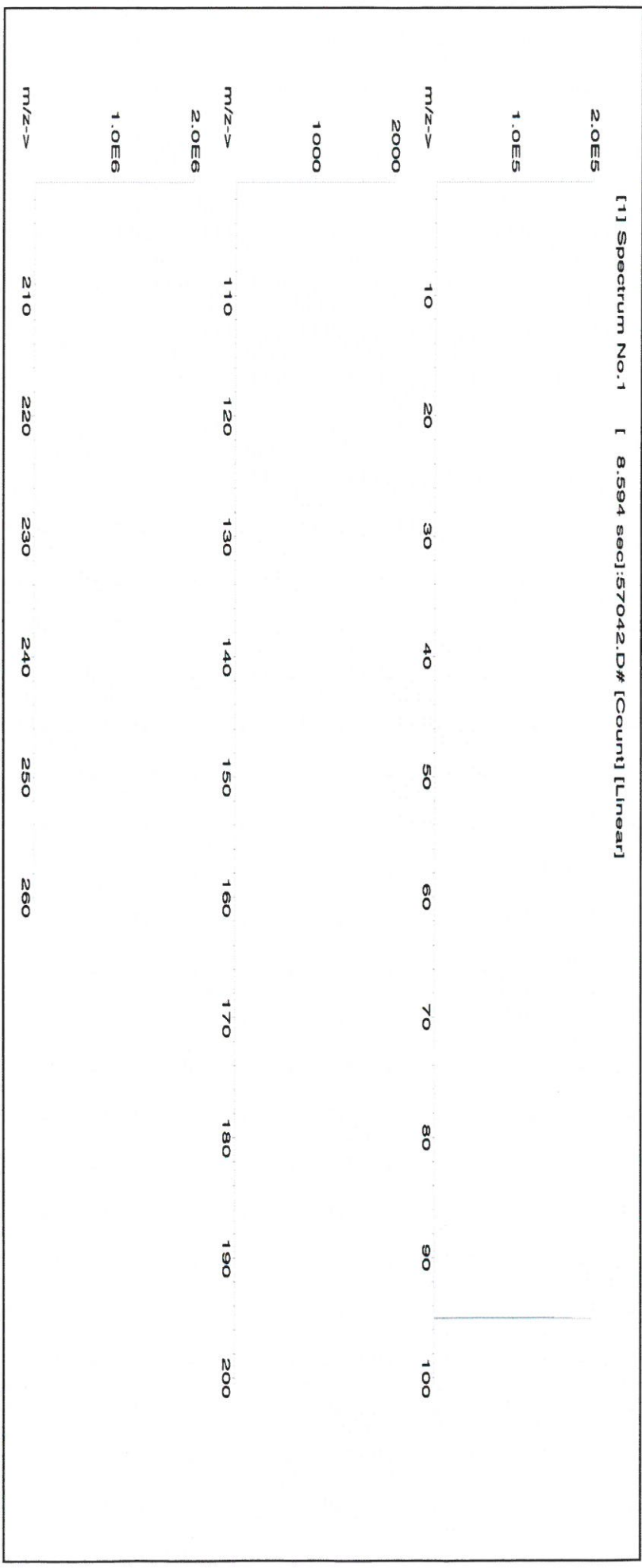
Part Number: 57042
Lot Number: 051722
Description: Molybdenum (Mo)

Lot # M5192
Solvent: R: 06/17/22

Expiration Date: 051725
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 3000.41

<i>Lawrence Barry</i>	
Formulated By:	Lawrence Barry
Reviewed By:	<i>Pedro L. Rendas</i>
	Pedro L. Rendas
	051722

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information	NIST SRM
1. Ammonium molybdate (Mo)	58142	022222	0.1000	300.0	0.084	1000	10001.0	1000.0	2.1	13106-76-8 5 mg(Mo)/m3 or-trat 333 mg/kg	3134





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	T	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

300 Technology Drive
 Christiansburg, VA 24073 USA
 inorganicventures.com

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

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).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
 Catalog Number: CHEM-QC-4
 Lot Number: S2-MEB711674
 Matrix: 3% (v/v) HNO₃
 3% (v/v) HF
 Value / Analyte(s): 1 000 µg/mL ea:
 Boron, Molybdenum,
 Silicon, Tin,
 Titanium

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 7 µg/mL	Molybdenum, Mo	1 000 ± 5 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 5 µg/mL
Titanium, Ti	1 001 ± 6 µg/mL		

Density: 1.032 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	110830
Mo	ICP Assay	3134	130418
Si	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925

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

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

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

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

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k(u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{\text{CRM/RM}} = k(u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{Its}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{Its} = 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)

N/A

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

HF Note: This standard should not be prepared or stored in glass.

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"

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

November 02, 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

- **November 02, 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 Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

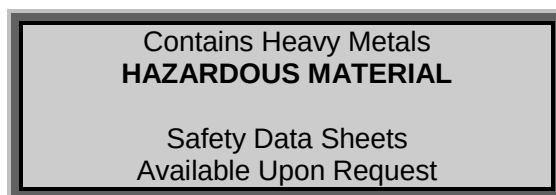


**QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)**

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.



(A) SAMPLE DESCRIPTION

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

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

(C) ANALYSIS OF SAMPLES

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,

Instructions for QATS Reference Material: ICP-AES ICS

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSAB solution by ICP-AES.

(D) "CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 15 percent of the listed certified value.

ICSA
M5126
M5127
M5128
M5129
M5130

ICSB
M5219
M5220
M5221
M5222
M5223



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58119
071122
Potassium (K)

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

071125
Ambient (20 °C)
10000
6UTB

Weight shown below was diluted to (mL):

2000.02

Lot

Solvent: 20510011 Nitric Acid

2% 40.0
(mL) Nitric Acid5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Lawrence Barry	071122
Reviewed By:	Pedro L. Rentas	071122

SDS Information

Expanded
Uncertainty
+/- (µg/mL)

(Solvent Safety Info. On Attached pg.)
LD50

CAS#

Actual
Conc. (µg/mL)

Actual
Weight (g)

Target
Weight (g)

Assay
(%)

Purity
(%)

Nominal
Conc. (µg/mL)

Lot
Number

RM#

Compound

53.1925

53.1934

10000.2

20.0

7757-79-1

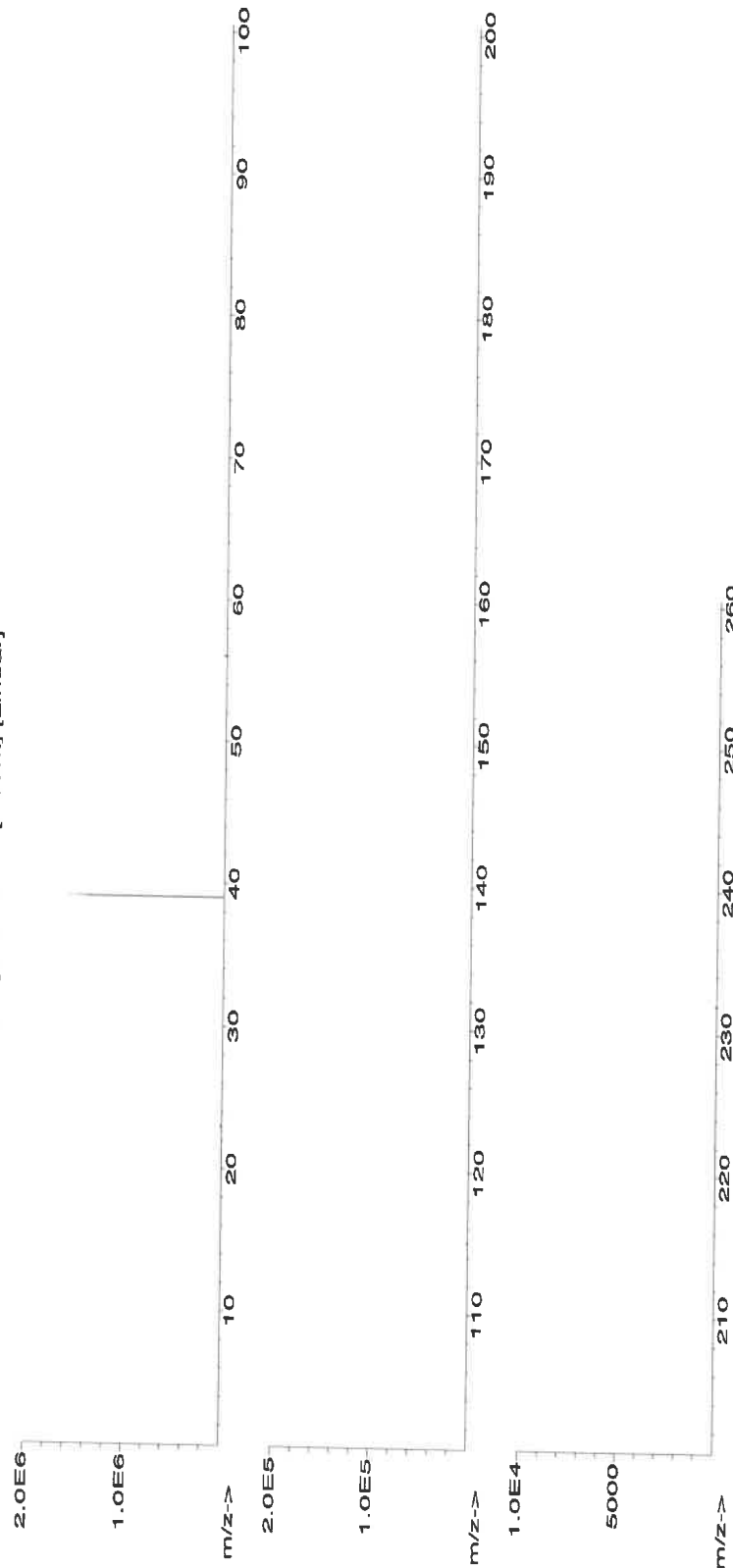
5 mg/m3

orl-rat 3015 mg/kg

3141a

1. Potassium nitrate (K) IN034 KD022021A1 10000 99.999 0.10 37.6 53.1925 53.1934 10000.2 20.0 7757-79-1 5 mg/m3 orl-rat 3015 mg/kg 3141a

[1] Spectrum No.1 [35.763 sec]:58119.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.02	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.02	Os	<0.01	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.02	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.02	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



R: 4/20/21

Instructions for QATS Reference Material: *Inorganic ICV Solutions*

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.

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

Safety Data Sheets
Available Upon Request

M5291
M5292
M5293
M5294
M5295

(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



Ridgely 11/12 (B1)
Certified Reference Material CRM

M5387 - M5389 - M5390 - M5391 - M5392



CERTIFIED WEIGHT REPORT:

Part Number: 57056
Lot Number: 072122
Description: Barium (Ba)

Solvent: 20510011 Nitric Acid

Lot #

2% 40.0 (mL) Nitric Acid

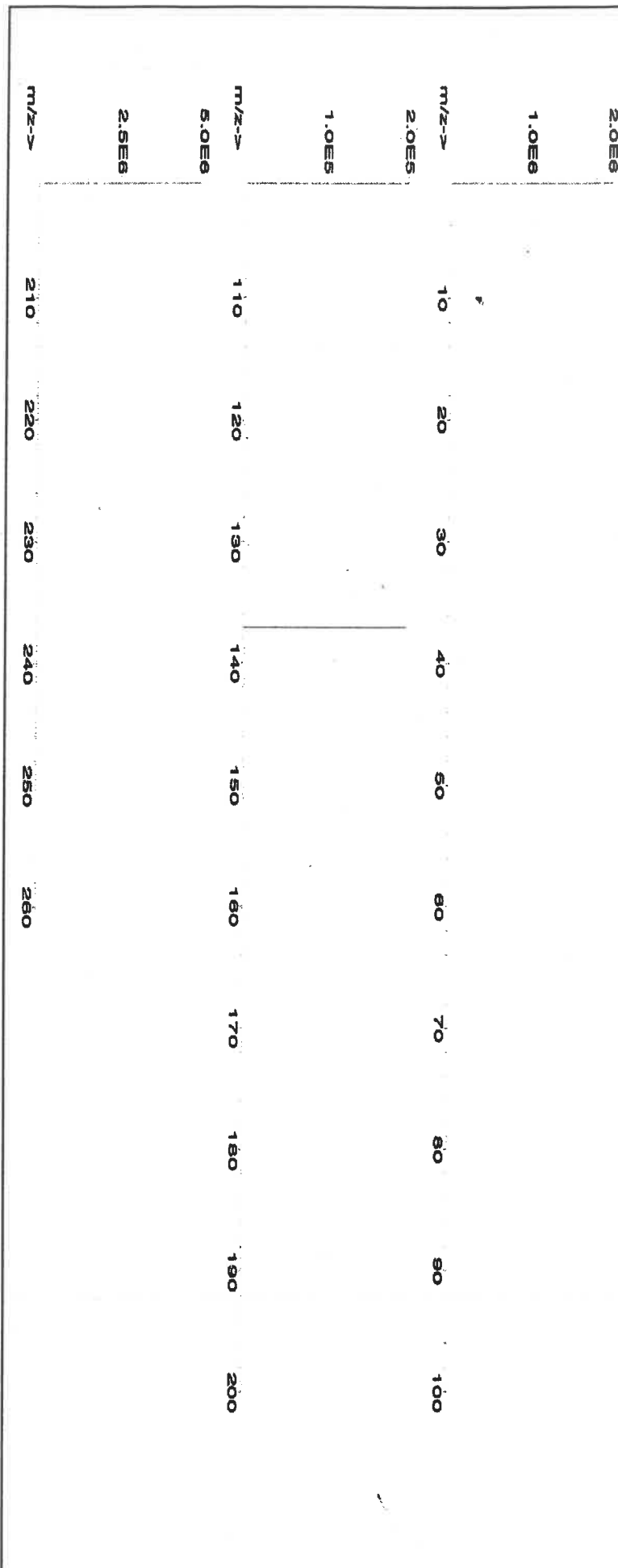
<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	<i>Pedro L. Rentes</i>
	072122

Expiration Date: 072125
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

SDS Information									
Compound	Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded
	Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	Uncertainty +/- (µg/mL)
									CAS#
									OSHA PEL (TWA)
									LD50
									NIST SRM

1. Barium nitrate (Ba) IN023 BA002019A1 1000 99.999 0.10 52.3 3.82417 3.82426 1000.0 2.0 10022-31-8 0.5 mg/m3 or-al 355 mg/kg 31046

[1] Spectrum No. 1 [12.514 sec]:58156.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.02	Er	<0.2	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	T	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

Ben. P. R.

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.2	Ho	<0.02	La	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



AN 5466

Certified Reference Material CRM



ANAB ISO 17034 Accredited
AFR-1539 Certificate Number
https://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 57058
Lot Number: 061322
Description: Cerium (Ce)

Solvent: 2051001 Nitric Acid

Lot #

Expiration Date: 061325
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6LUTB

2% 20.0 (mL) Nitric Acid

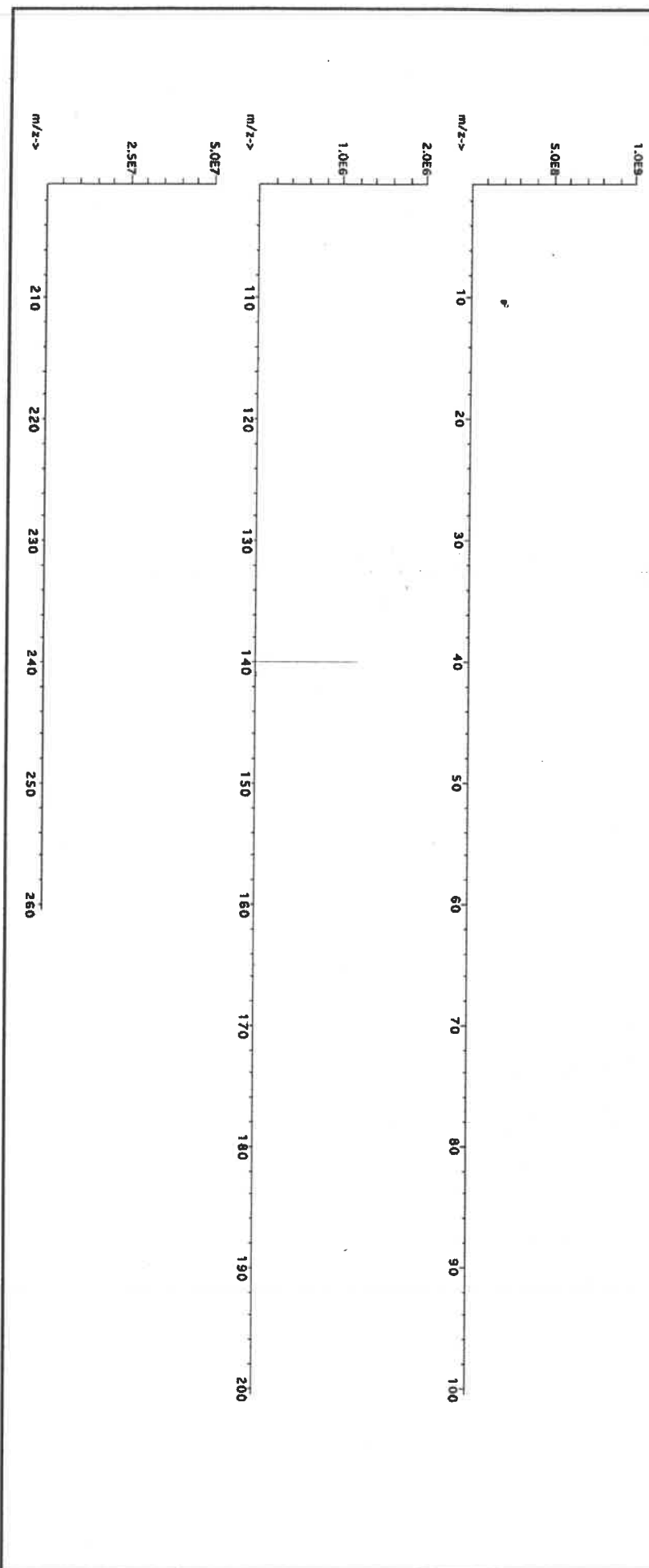
Weight shown below was diluted to (mL): 1000.12 0.058 Flask Uncertainty

Formulated By:	Lawrence Barry
	061322
Reviewed By:	Pedro L. Renteria
	061322

Compound	Expanded										SDS information		NIST
	Lot		Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Uncertainty	(Solvent Safety Info. On Attached pg.)		
RM#	Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	+/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	SRM

1.	Cerium nitrate hexahydrate (Ce)	IN146	Z512CEB1	1000	99.999	0.10	32.8	3.04919	3.04923	1000.0	2.0	10294-41-4	NA	NA	NA
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[1] Spectrum No.1 [43.472 sec:158158.D# [Count] [Linear]



Absolute Standards, Inc.

800-368-1131
www.absolutestandards.com



Certified Reference Material CRM



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://absolutestandards.com

Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Er	<0.02	Ho	<0.02	Li	<0.02	Lu	<0.02	Nb	<0.02	Pt	<0.02	Re	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Mg	<0.02	Os	<0.02	Rh	<0.02	Si	<0.02	Te	<0.02	U	<0.02	V	<0.02
As	<0.2	Ce	T	Gd	<0.02	Ir	<0.02	La	<0.2	Hg	<0.2	Mn	<0.02	Pd	<0.02	Rb	<0.02	Ag	<0.02	Th	<0.02	Yb	<0.02	Y	<0.02
Ba	<0.02	Cr	<0.02	Ga	<0.02	Fe	<0.02	Mo	<0.02	K	<0.2	Ru	<0.02	Sr	<0.02	Sc	<0.02	Na	<0.2	Tm	<0.02	Zn	<0.02	Zr	<0.02
Be	<0.01	Co	<0.02	Ge	<0.02	Pb	<0.02	Nd	<0.02																
Bi	<0.02	Cu	<0.02	Au	<0.02																				
B	<0.02																								

(T)= Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 57058
Lot Number: 020623
Description: Cerium (Ce)

Expiration Date: 020626
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 1000.12

Lot # 21110221
Solvent: Nitric Acid

2% 20.0 mL
Nitric Acid

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

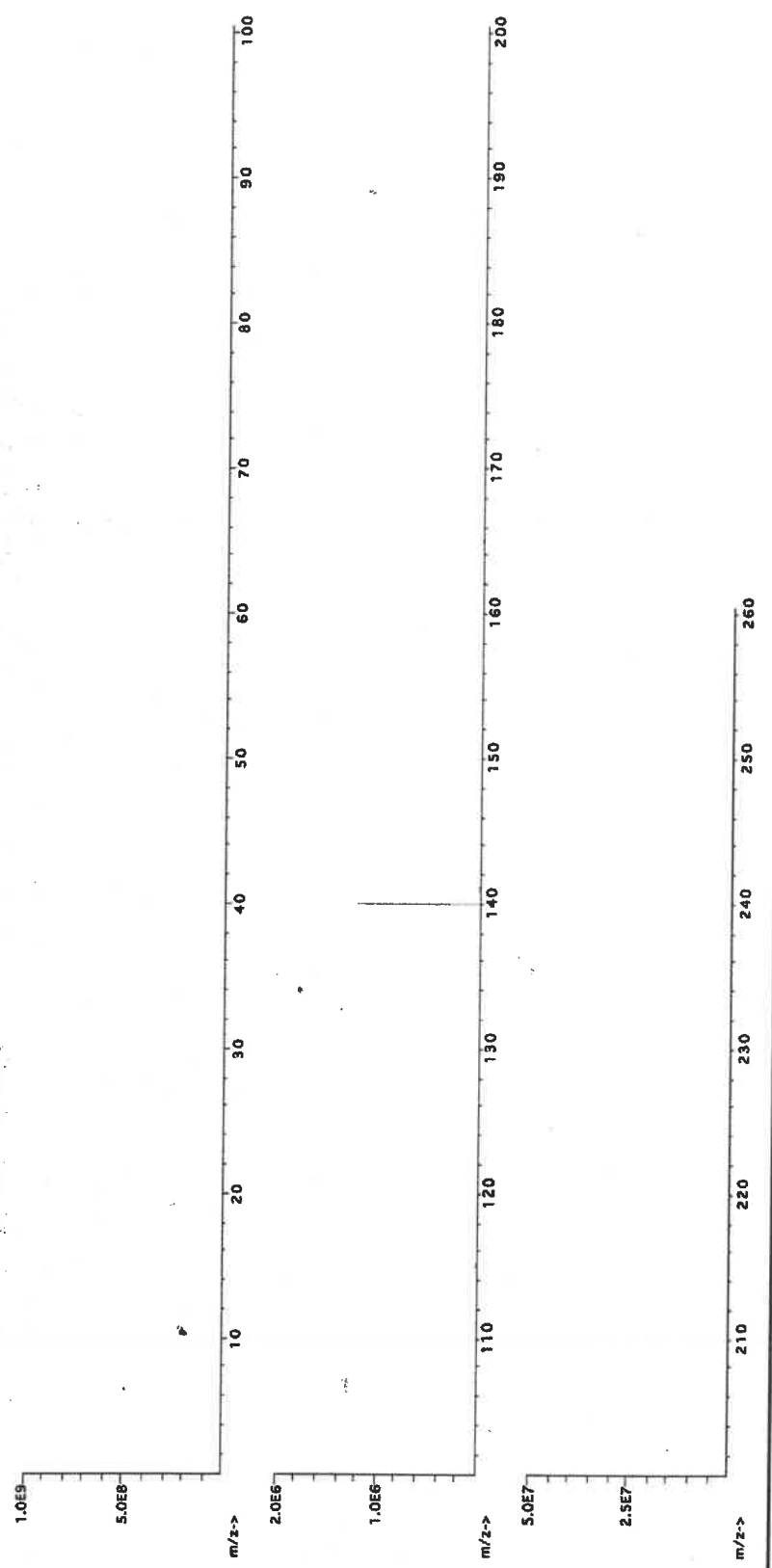
Formulated By: Lawrence Barry 020623
Reviewed By: Pedro L. Rentas 020623

Expanded Uncertainty
+/- (µg/mL)

SDS Information
(Solvent Safety Info. On Attached pg.)
LD50: OSHA PEL (TWA)

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	LD50	SRM
1. Cerium nitrate hexahydrate (Ce)	IN146	Z512CEB1	1000	99.999	0.10	32.8	3.04919	3.04921	1000.0	2.0	10294-41-4	NA

[1] Spectrum No.1 [43.472 sec]58158.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.2	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	T	Eu	T	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.2	Ta	<0.02	Ti	<0.02	Zr	<0.02

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

Ben. F. R.

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids: 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: **58113**

Lot Number: **011623**

Description: **Aluminum (Al)**

Solvent: **20510011 Nitric Acid**

Lot #

MS496 R 17/20/23

Expiration Date: **011626**

Recommended Storage: **Ambient (20 °C)**

Nominal Concentration (µg/mL): **10000**

NIST Test Number: **6UTB**

Weight shown below was diluted to (mL): **2000.02** **5E-05 Balance Uncertainty** **0.058 Flask Uncertainty**

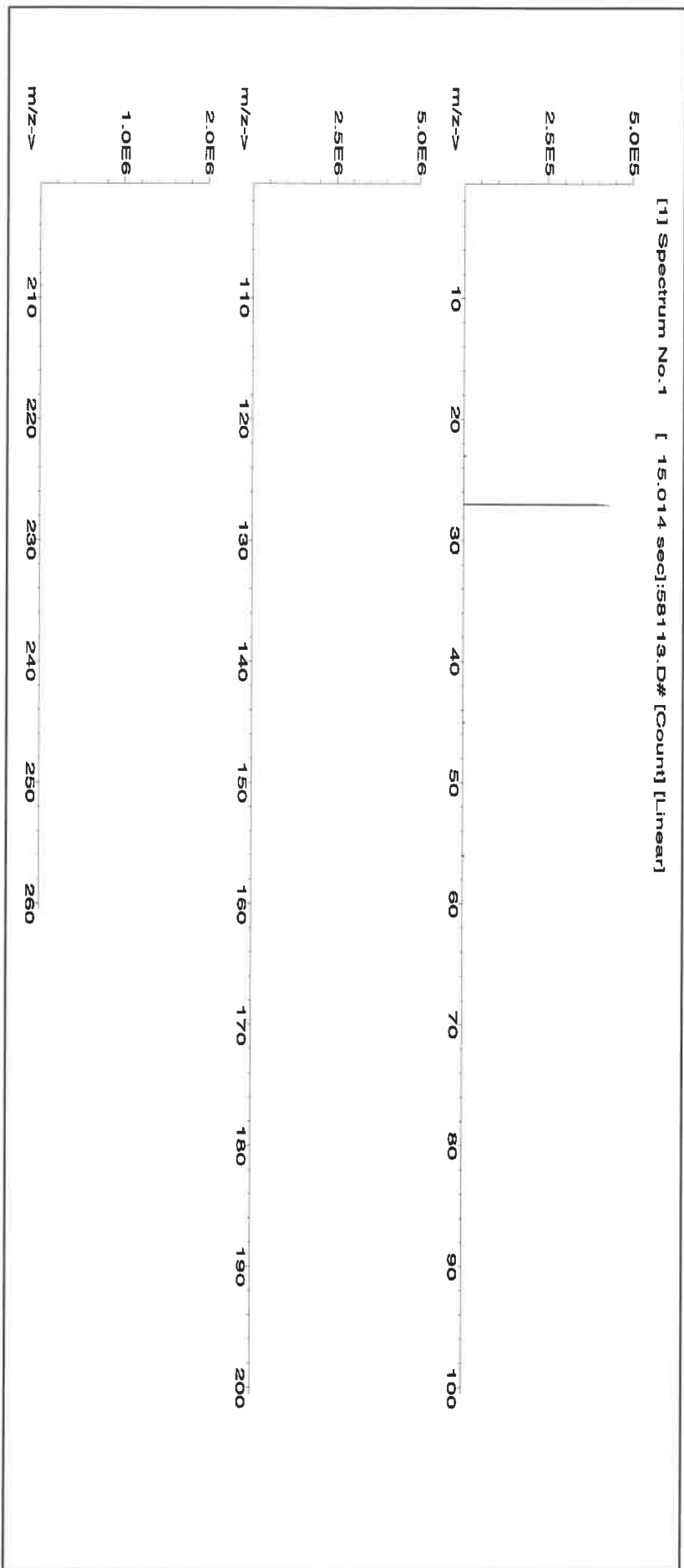
Giovanni Esposito
Formulated By: **Giovanni Esposito** **011623**

Pedro L. Rentas
Reviewed By: **Pedro L. Rentas** **011623**

SDS Information

Compound	Lot	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Aluminum nitrate nonahydrate (Al)	IN022 ALM112021A1	10000	99.999	0.10	7.30	273.9779	274.0078	10001.1	20.0	7784-27-2	2 mg/m3	or-hat 3671 mg/kg	3101a

[1] Spectrum No. 1 [15.014 sec]:58113.D# [Count] [Linear]





15497-15498 R: 03/17/23 (2)

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58120
031523
Calcium (Ca)

Solvent: 21110221 Nitric Acid

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

031526
Ambient (20 °C)
10000
6UTB
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

2% 60.0 Nitric Acid
(mL)

Weight shown below was diluted to (mL): 3000.41

SDS Information

Expanded

Uncertainty

(Solvent Safety Info. On Attached pg.)

NIST

LD50

SRM

Actual

Conc. (µg/mL)

Actual

Target

Assay

Purity (%)

Purity (%)

Nominal

Conc. (µg/mL)

Lot

Number

RM#

Compound

1. Calcium carbonate (Ca)

IN014 CAD072022A1 10000 99.999 0.10 39.9 75.1990 75.2093 10001.4 20.0 471-34-1 5 mg/m3 or-rat >2000mg/kg 3109a

[1] Spectrum No.1 [12.514 sec]:58120.D# [Count] [Linear]

2.0E4

1.0E4

m/z-->

5.0E4

2.5E4

m/z-->

1.0E5

5.0E4

m/z-->

210 220 230 240 250 260

170 180 190 200

90 100



Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.02	Er	T	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.02	Os	<0.01	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.02	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.2	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.2	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

Ben. P. Davis

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

M5514, M5515
Lot #

R: 03/12/23

Part Number:

Solvent:

Lot Number:

Description:

Expiration Date:

Recommended Storage:

Nominal Concentration (µg/mL):

NIST Test Number:

Weight shown below was diluted to (mL):

Nitric Acid

350.0 (mL)

Nitric Acid

092122

Giovanni Esposito

092122

092125

092122

10000

092122

6UTB

092122

5000.1

092122

0.12

092122

SE-05

092122

Balance Uncertainty

092122

Flask Uncertainty

092122

Compound

Lot

Nominal

Purity

Uncertainty

Assay

Target

Actual

Actual

Expanded

Uncertainty

(Solvent Safety Info. On Attached pg.)

CAS#

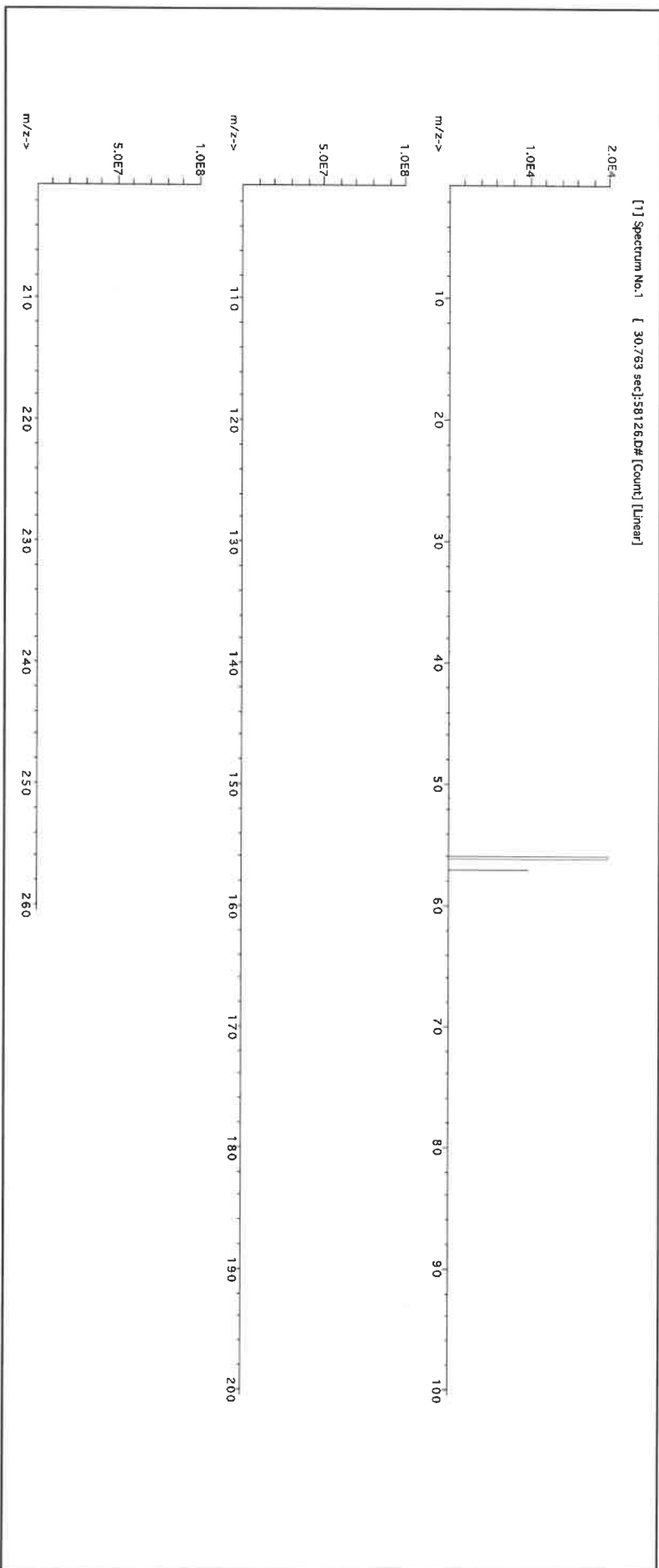
OSHA PEL (TWA)

LD50

SRM

1. Iron (Fe) IN346 2224912-500 10000 99.995 0.10 100.0 50.0034 50.0111 10001.5 20.0 7439-89-6 5 mg/m3 or-hal 7500mg/kg 3126a

[1] Spectrum No.1 [30.763 sec] 58126.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.10	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	La	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.10	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.05	Ga	<0.2	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.10	Ge	<0.02	La	<0.10	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.05
B	<0.02	Cu	<0.10	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
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- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
"An ISO 9001:2015 Certified Program"

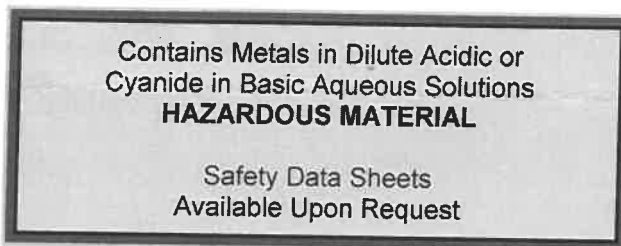
Instructions for QATS Reference Material: *Inorganic ICV Solutions*

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.



(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 $\mu\text{g/L}$ (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.





QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
"An ISO 9001:2015 Certified Program"

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) K₂Cr₂O₇ 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 K₃Fe(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



CERTIFIED WEIGHT REPORT:

Part Number: 58024
Lot Number: 060523
Description: Chromium (Cr)

Lot # 21110221
Solvent: Nitric Acid

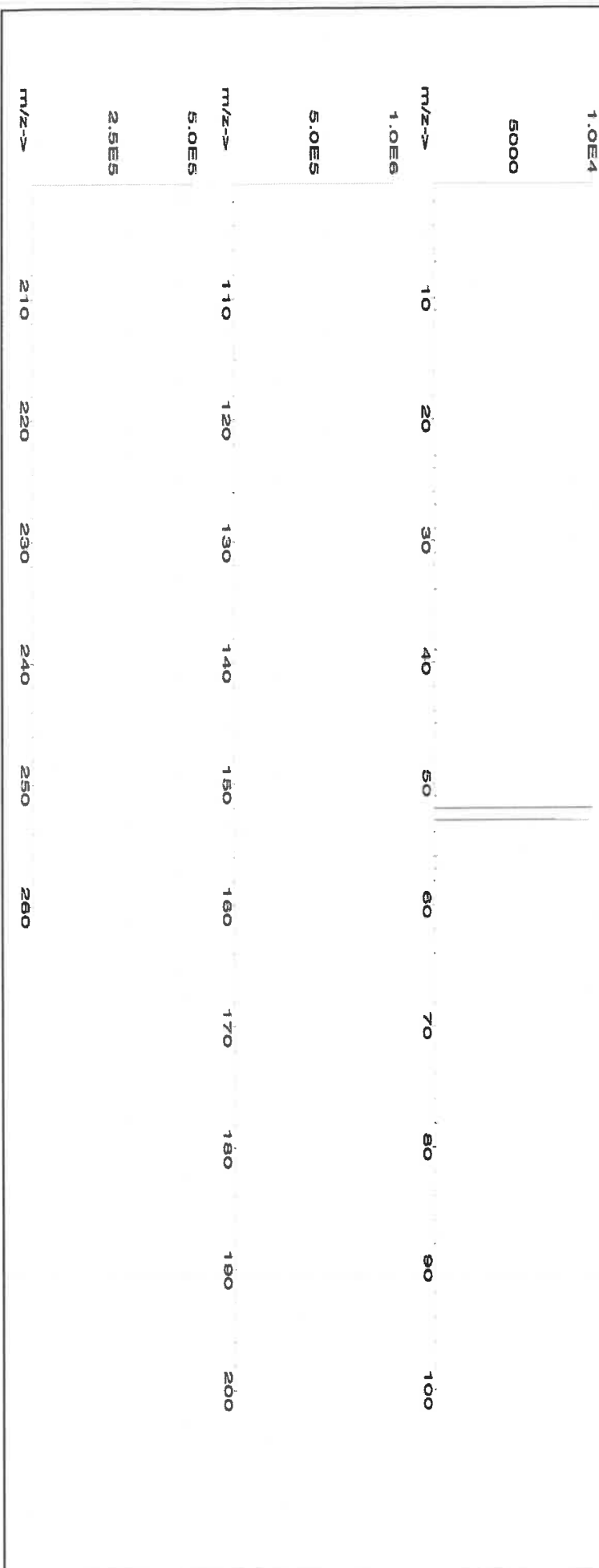
Formulated By:	Lawrence Barry
	060523
Reviewed By:	Pedro L. Ruelas
	060523

Expiration Date: 060526
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 2000.02
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
----------	-------------	------------	-----------------	-------------------	------------------	-----------------------	-----------------------	---------------------	----------------------------------	------	----------------	------	----------

1. Chromium(III) nitrate nonahydrate (Cr) 58124 071122 0.1000 200.0 0.084 1000 10000.1 1000.0 2.2 7789-02-8 0.5 mg(Cr)/m3 or rat 3250 mg/kg 3112a

[1] Spectrum No.1 [31.393 sec]:57024.D# [Count] [Linear]





Certified Reference Material CRM



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://AbsoluteStandards.com

Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	T	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM



M5697 R: 10/27/23

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58029
102523
Copper (Cu)

Lot #
Solvent:

24002546 Nitric Acid

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

102526
Ambient (20 °C)
1000
6UTB

2.0% Nitric Acid
40.0 (mL)

5E-05 Balance Uncertainty
0.058 Flask Uncertainty
Volume shown below was diluted to (mL): 2000.02

Formulated By:	Benson Chan	102523
Reviewed By:	Pedro L. Rentas	102523

SDS Information

Expanded Uncertainty	(Solvent Safety Info. On Attached pg.)	NIST
+/- (µg/mL)	CAS#	LD50
1000.0	10031-43-3	1 mg/m3 orl-rat 794 mg/kg 3114

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty <th>SDS Information</th>	SDS Information
----------	-------------	------------	-----------------	-------------------	------------------	-----------------------	-----------------------	---------------------	---	-----------------

1. Copper(II) nitrate trihydrate (Cu) 58129 100223 0.1000 200.0 0.084 1000 10000.1 1000.0 2.2 10031-43-3 1 mg/m3 orl-rat 794 mg/kg 3114

[1] Spectrum No.1 [33.422 sec]:58029.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.02	Os	<0.01	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.2	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	T	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.2	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM



M5648 R: 10/23/23

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58025
102623
Manganese (Mn)

Lot # 24002546
Solvent: Nitric Acid

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

102626
Ambient (20 °C)
1000
6UTB
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

2.0% Nitric Acid
60.0 (mL)

Formulated By:	Benson Chan	102623
Reviewed By:	Pedro L. Rentas	102623

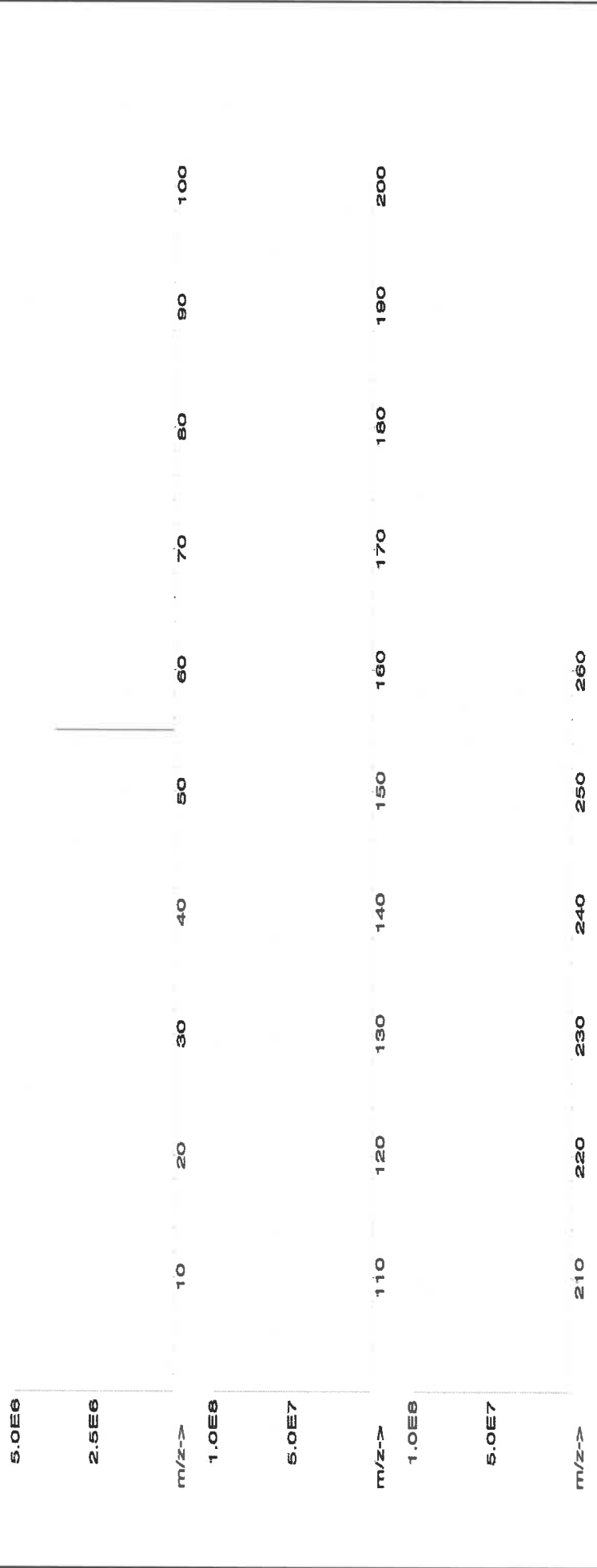
SDS Information

Expanded Uncertainty
Final Conc. (µg/mL)
Initial Conc. (µg/mL)
Nominal Conc. (µg/mL)
Dilution Factor
Volume shown below was diluted to (mL):

(Solvent Safety Info. On Attached pg.)
CAS#
OSHA PEL (TWA)
LD50
NIST
SRM

1. Manganese(II) nitrate tetrahydrate (Mn) 58125 071123 0.1000 300.0 0.084 1000 10000.1 1000.0 2.1 20894-39-7 5 mg/m3 ori-rat >300mg/kg 3132

[1] Spectrum No.1 [34.243 sec]:57025.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.02	Os	<0.01	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	T	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.2	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
 * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the balances that are calibrated with weights traceable to NIST (see above).

* Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.

* All standards should be stored with caps tight and under appropriate laboratory conditions.

Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 57082
Lot Number: 100923
Description: Lead (Pb)

Solvent: 24002546 Nitric Acid

Lot #

R: 12/20/23 MS747

Formulated By:	Lawrence Barry
	100923
Reviewed By:	Pedro L. Rentas
	100923

Expiration Date: 100926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

2% 60.0 Nitric Acid (mL)

Weight shown below was diluted to (mL): 3000.41 0.06 Flask Uncertainty

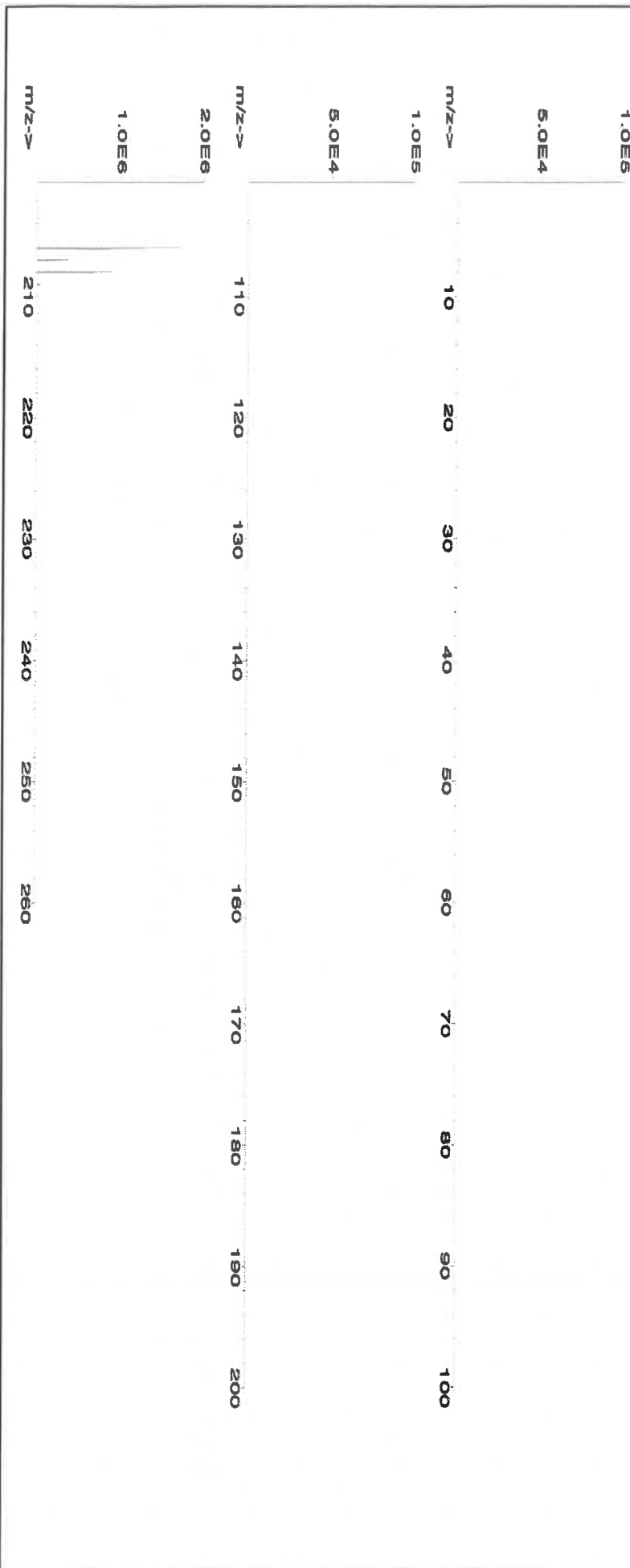
Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded		NIST SRM
										Uncertainty	+/- (µg/mL)	

SDS Information

(Solvent Safety Info. On Attached pg.)
CAS# OSHA PEL (TWA) LD50

1. Lead(II) nitrate (Pb) IN029 PB0122016A1 1000 99.999 0.10 62.5 4.80071 4.80077 1000.0 2.0 10099-74-8 0.05 mg/m3 Intyms-ret 89 mg/kg 3128

[1] Spectrum No. 1 [14.144 sec]:58082.D# [Count] [Linear]





Certified Reference Material CRM



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
<https://AbsoluteStandards.com>

Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sn	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

(T) = Target analyte

Certified by:

Mr. P. J. [Signature]

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: **57028**
Lot Number: **091223**
Description: **Nickel (NI)**

Lot # **24002546**
Solvent: **Nitric Acid**

Expiration Date: **091226**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6U7B**

2.0% **40.0** **Nitric Acid**
(mL)

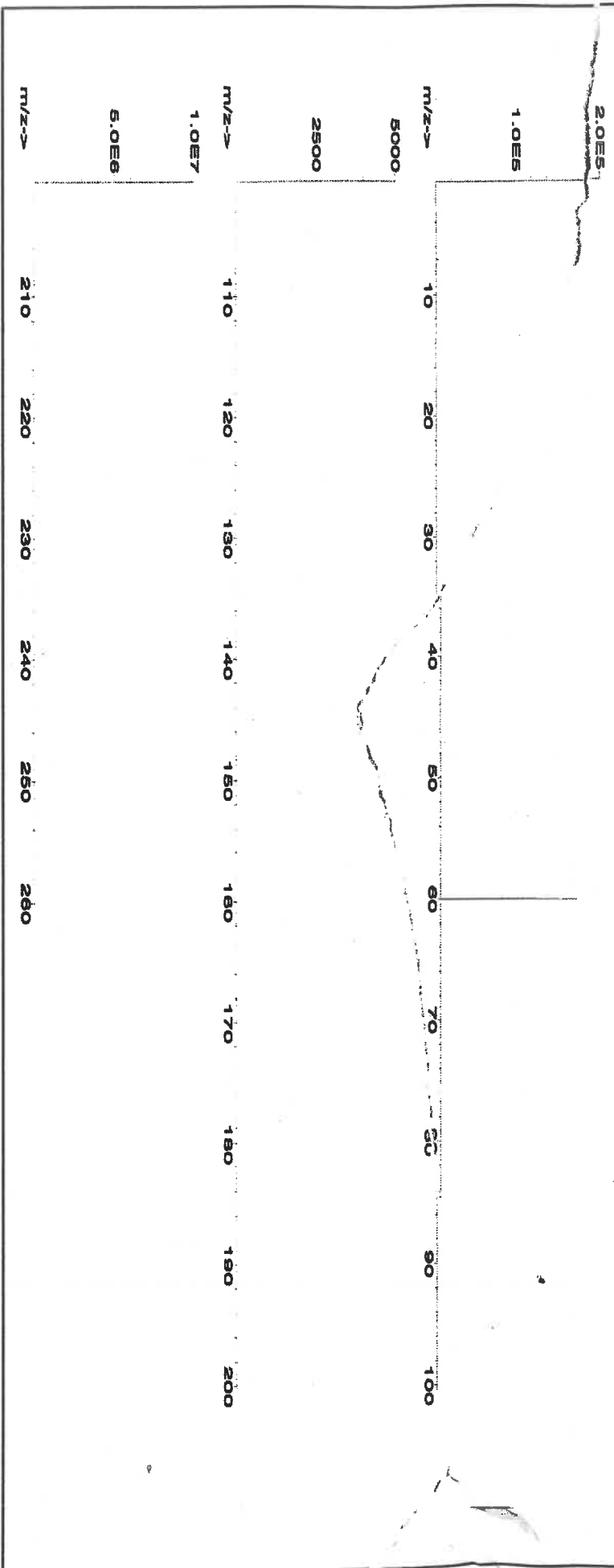
Volume shown below was diluted to (mL): **2000.02** **5E-05** **Balance Uncertainty**
0.056 **Flask Uncertainty**

Formulated By:	<i>Lawrence Barry</i>	091223
Reviewed By:	<i>Pedro L. Renteria</i>	091223

Compound	Part Number	Lot Number	Dilution Factor	Initial Vd. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Nickel(II) nitrate hexahydrate (NI) 58128 062023 0.1000 200.0 0.084 1000 10000.4 1000.0 2.2 13478-00-7 1 mg/m3 or-rel 1620 mg/kg 3136

[1] Spectrum No.1 [9.135 sec]:56028.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	T	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Tb	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



M5768 M5769
Certified Reference Material CRM
R: 1/13/24



CERTIFIED WEIGHT REPORT:

Part Number: 58112
Lot Number: 091823
Description: Magnesium (Mg)
Solvent: 24002546 Nitric Acid
Lot #

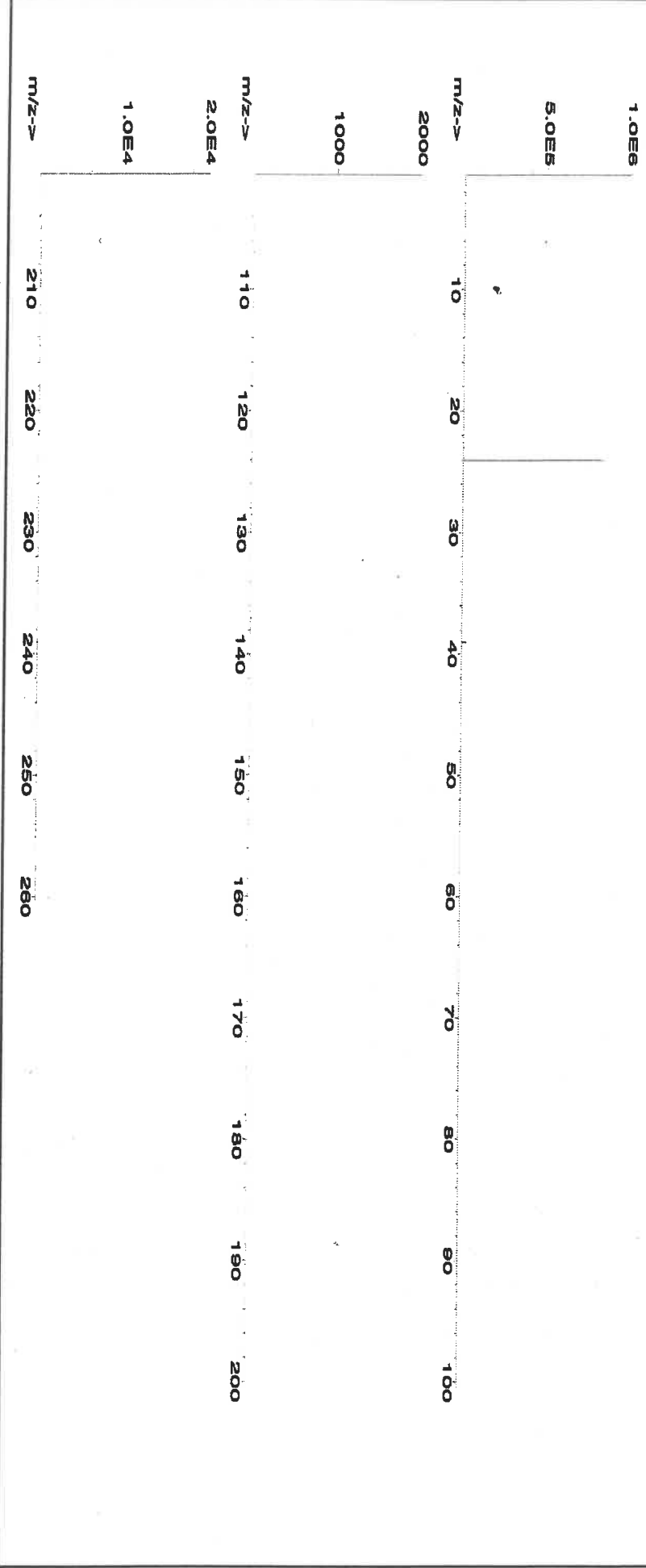
Expiration Date: 091826
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02
Purity: 99.999
Uncertainty: 0.10
Assay: 8.51
Target Weight (g): 234.9118
Actual Weight (g): 234.9126
Actual Concentration (µg/mL): 10000.0
Expanded Uncertainty: 20.0
CAS#: 13446-18-9
OSHA PEL (TWA): NA
LD50: or-rat 5440 mg/kg 3131a

Weight shown below was diluted to (mL): 2000.02
Purity: 99.999
Uncertainty: 0.10
Assay: 8.51
Target Weight (g): 234.9118
Actual Weight (g): 234.9126
Actual Concentration (µg/mL): 10000.0
Expanded Uncertainty: 20.0
CAS#: 13446-18-9
OSHA PEL (TWA): NA
LD50: or-rat 5440 mg/kg 3131a

Formulated By:	Lawrence Barry	091823
Reviewed By:	Pedro L. Rentas	091823

Compound	Lot	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Magnesium nitrate hexahydrate (Mg)	IN030	10000	99.999	0.10	8.51	234.9118	234.9126	10000.0	20.0	13446-18-9	NA		or-rat 5440 mg/kg 3131a

[1] Spectrum No. 1 [19.923 sec]:58112.D# [Count] [Linear]



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www.absolutestandards.com**Certified Reference Material CRM**ANAB ISO 17034 Accredited
AR-1539 Certificate Number
<https://AbsoluteStandards.com>**Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):****Trace Metals Verification by ICP-MS (µg/mL)**

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	T	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Bc	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 57004
Lot Number: 102523
Description: Beryllium (Be)

Lot # 24002546
Solvent: Nitric Acid

Expiration Date:

102526

2.0%

40.0 (mL)

Nitric Acid

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL): 2000.02

5E-05 Balance Uncertainty

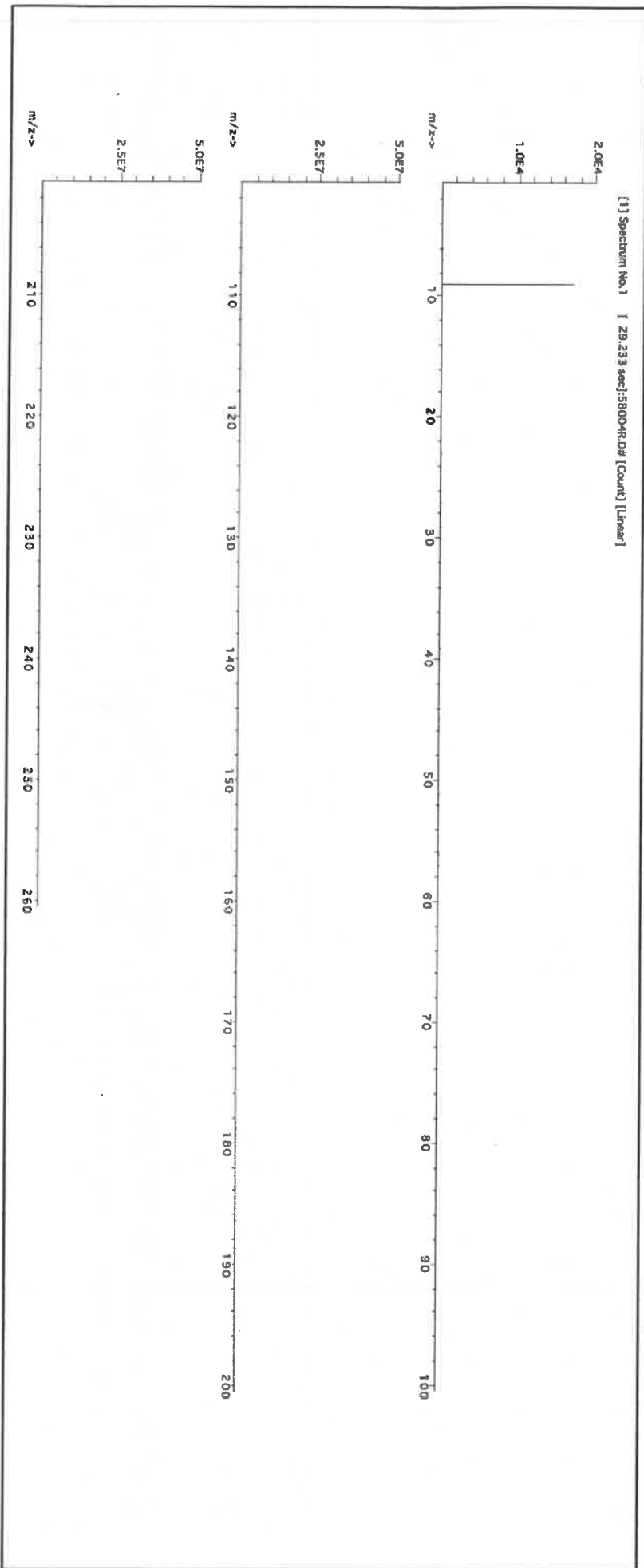
0.058 Flask Uncertainty

Formulated By:	Benson Chan	102523
Reviewed By:	Pedro L. Rentas	102523

SDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Beryllium nitrate (Be)	58104	091423	0.1000	200.0	0.084	1000	10001.5	1000.0	2.2	13597-99-4	0.2µg/m3	intrinsc-rat 3.16mg/kg	NA
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Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<0.02	U	<0.02
As	<0.02	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	T	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Ta	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM

CERTIFIED WEIGHT REPORT:

Part Number: 57050
Lot Number: 071123
Description: Tin (Sn)

Solvents: 21110221 Nitric Acid
22D0562008 Hydrochloric acid

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000

2% 10.0 Nitric Acid
6% 30.0 Hydrochloric acid
(mL)

NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 499.93

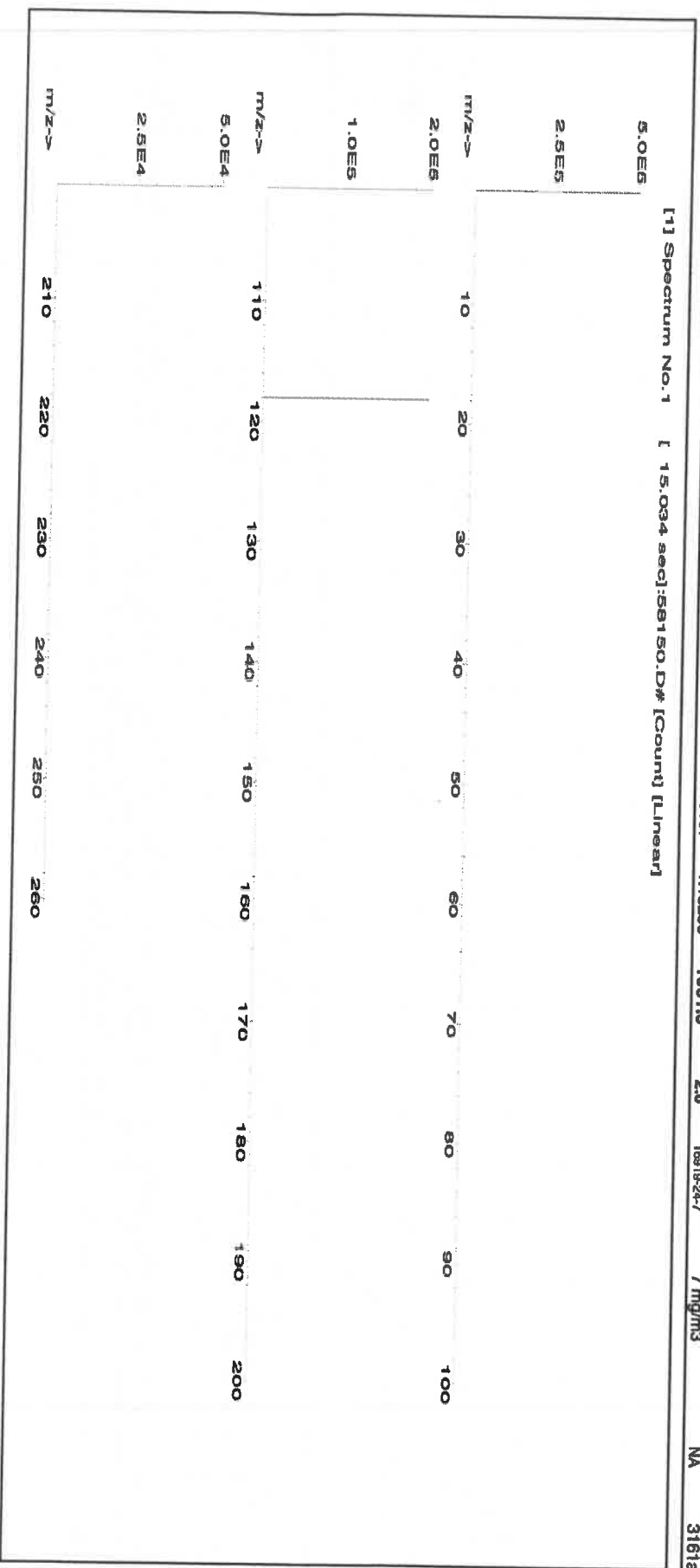
5E-05 Balance Uncertainty
0.0058 Flask Uncertainty

<i>[Signature]</i>	
Formulated By:	Benson Chan
	071123
Reviewed By:	Pedro L. Rentas
	071123

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information	
										(Solvent Safety Info. On Attached pg.)	NIST SRM

1. Ammonium hexafluoroantimonate(V) (Sn) INO10 SMD042023A1 1000 99.999 0.10 44.2 1.13107 1.13286 1001.6 2.0 16919-24-7 7 mg/m3 NA 3161a

[1] Spectrum No. 1 [15.034 sec] :56150.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<500	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Ta	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



R: 02/09/24 115800 (54)

CERTIFIED WEIGHT REPORT:

Part Number: 57027
Lot Number: 091923
Description: Cobalt (Co)

Expiration Date: 091926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 2000.02

Lot # 24002546
Solvent: Nitric Acid

2.0% Nitric Acid
40.0 (mL)

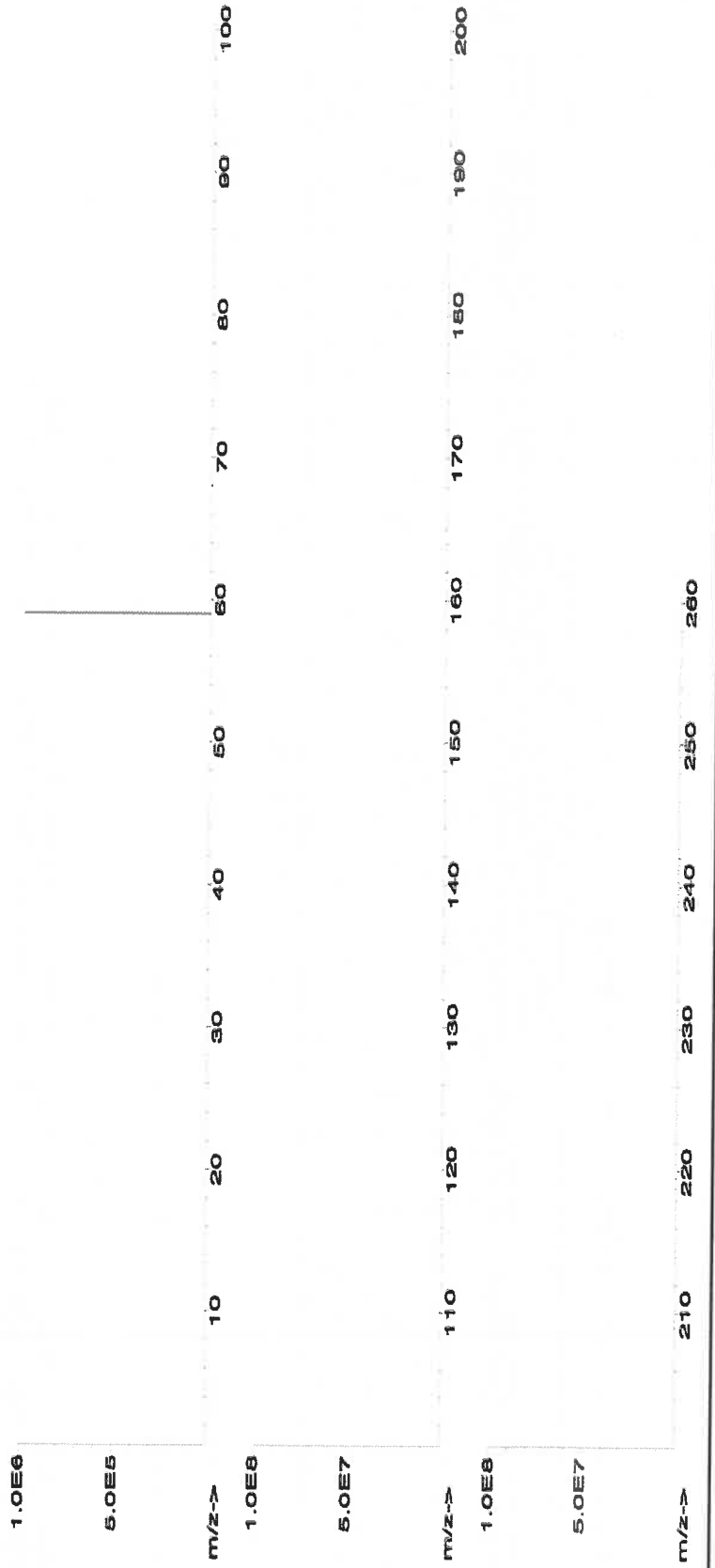
Formulated By: Lawrence Barry 091923
Reviewed By: Pedro L. Rentas 091923

SDS Information

Expanded Uncertainty +/- (µg/mL) CAS# OSHA PEL (TWA) LD50 NIST SRM

1. Cobalt(II) nitrate hexahydrate (Co) 58127 050923 0.1000 200.0 0.084 1000 10000.0 1000.0 10026-22-9 0.02 mg/m3 orl-rat 691 mg/kg 3113

[1] Spectrum No.1 [34.243 sec]:58027.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.01	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Gé	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

Ben. H. R.

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM

AR: 02/09/24

M5801

BA



CERTIFIED WEIGHT REPORT:

Part Number: 57033
Lot Number: 111323
Description: Arsenic (As)

Lot # 24002546
Solvent: Nitric Acid

Expiration Date: 111326

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6LUTB

Volume shown below was diluted to (mL): 4000.0

Balance Uncertainty: 5E-05
Flask Uncertainty: 0.06

2.0%

80.0 (mL)

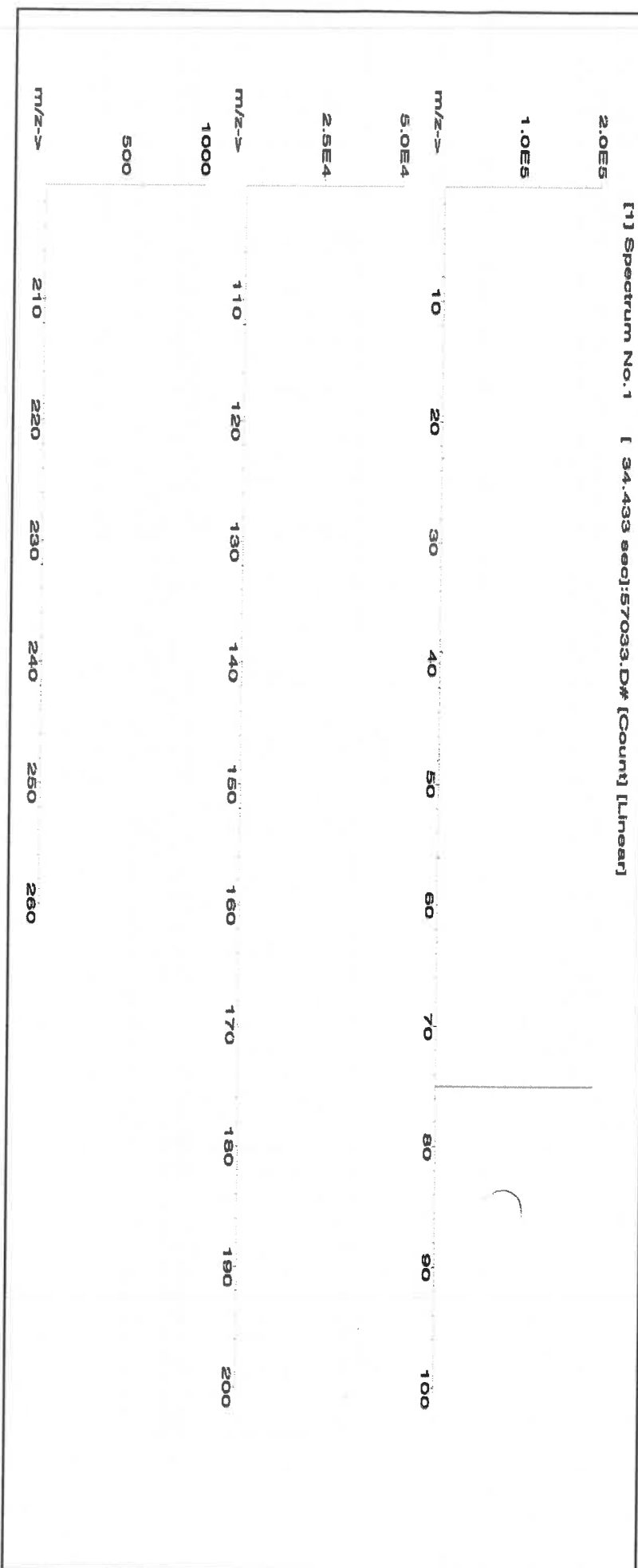
Nitric Acid

Formulated By:	Lawrence Barry	111323
Reviewed By:	Pedro L. Rendas	111323

SDS Information									
Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)
1. Arsenic (As)	58133	020522	0.1000	400.0	0.084	1000	10001.0	1000.0	2.0

7440-38-2 0.5 mg/m3 or-lat 500 mg/kg 3103a

[1] Spectrum No.1 [34.433 sec]:57033.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<0.02	U	<0.02
As	T	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Bc	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge*	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sa	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: **57005**
Lot Number: **071123**
Description: **Boron (B)**

Solvent: MKB0857V Ammonium hydroxide

Lot #

AI: 021009124 M5814

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

2.0% 40.0 (mL) Ammonium hydroxide

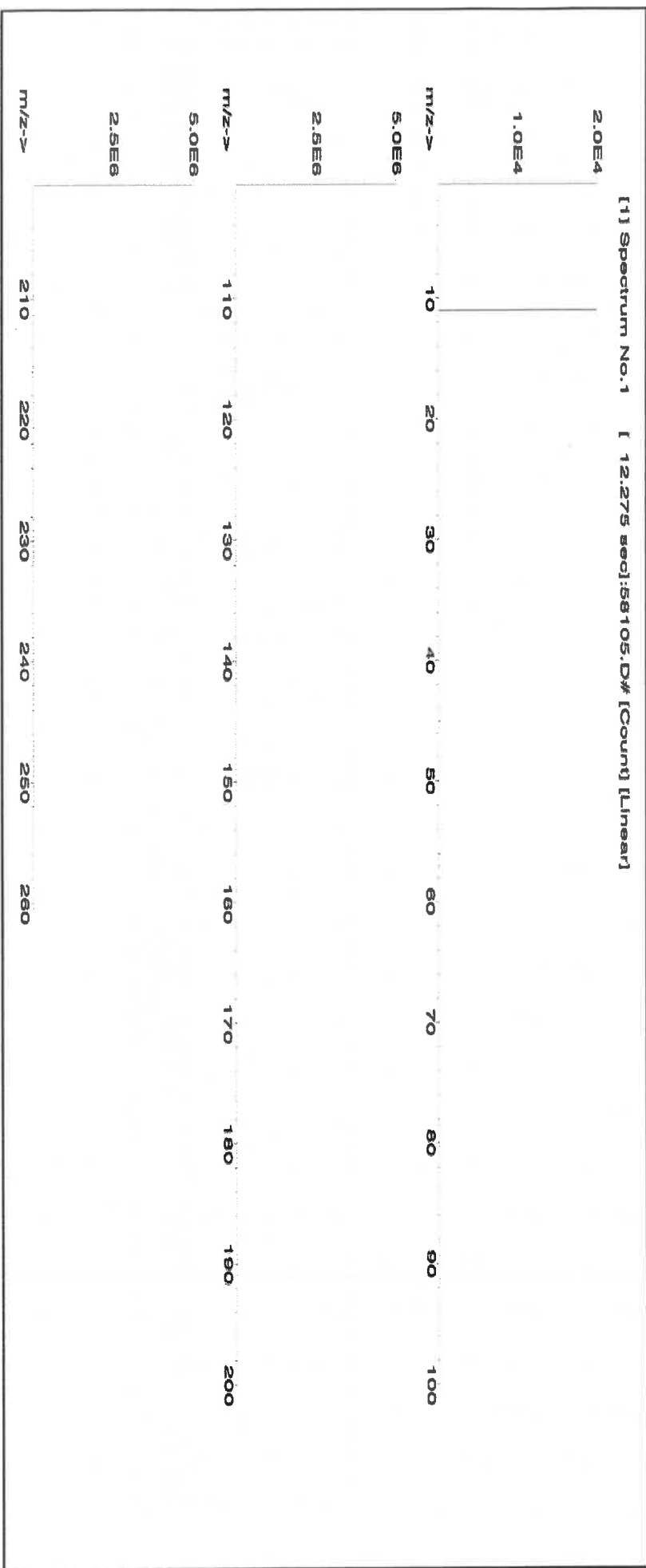
Weight shown below was diluted to (mL): 1999.48 0.058 Balance Uncertainty Flask Uncertainty

Formulated By:	Benson Chan
071123	
Reviewed By:	Pedro L. Rientas
071123	

SDS Information

Compound	Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Uncertainty	(Solvent Safety Info. On Attached pg.)		NIST
	RM#	Number	Conc. (µg/mL)	(%)	Purity (%)	Weight (g)	Weight (g)	Conc. (µg/mL)	+/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50

1. Boric acid (B) IN018 BV082018A1 1000 99.9999 0.10 17.3 11.55772 11.56201 1000.4 2.0 10043-35-3 2 mg/m3 or-nat 2660 mg/kg 3107





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	T	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: 57115
Lot Number: 041723
Description: Phosphorous (P)

Solvent: 21110221 Nitric Acid

Lot #

R102109124 M5815

Expiration Date: 041726
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

2% 40.0 (mL) Nitric Acid

Weight shown below was diluted to (mL): 2000.02 0.056 Balance Uncertainty
Flask Uncertainty

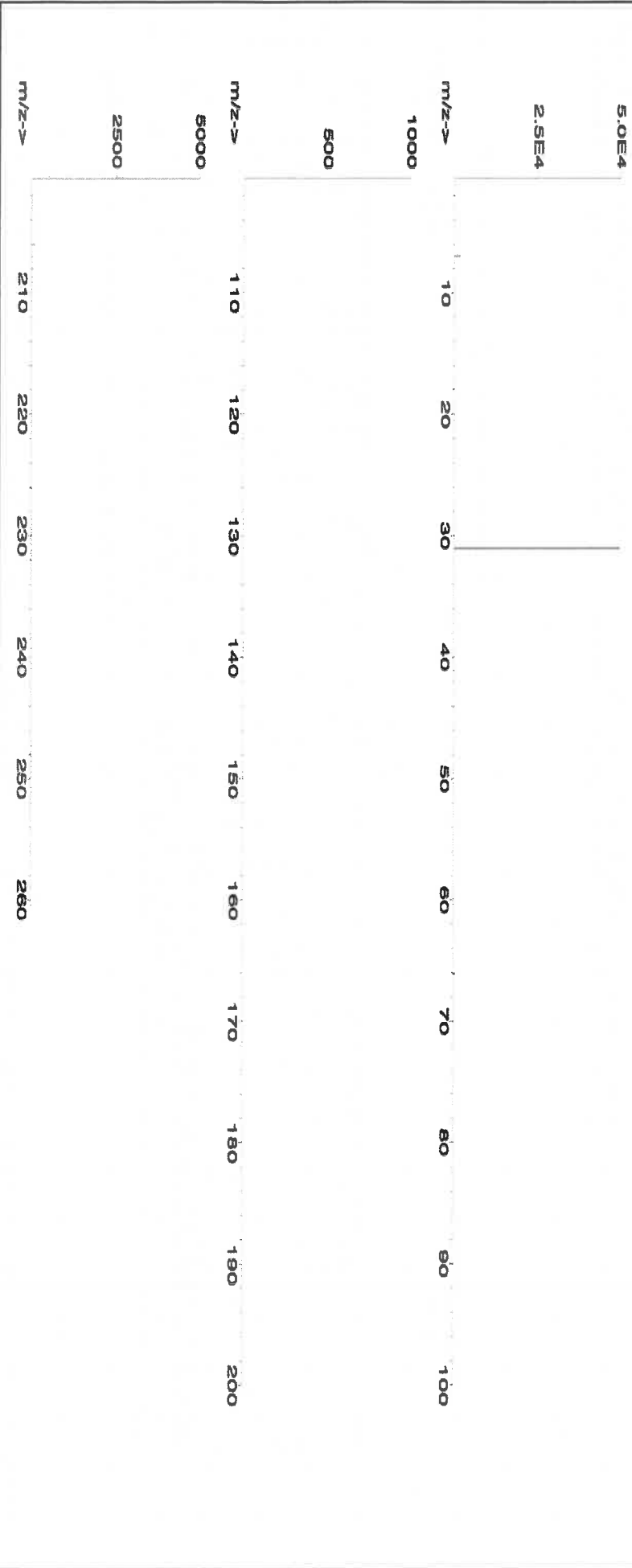
Formulated By: Lawrence Barry	041723
Reviewed By: Pedro L. Rentas	041723

Compound

RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Ammonium dihydrogen phosphate (P) IN008 PVR2019A1 10000 99.999 0.10 27.5 72.7287 72.7289 10000.0 20.0 7722-76-1 5 mg/m3 or-hal->2000mg/kg 3186

[1] Spectrum No.1 [12.074 sec]:58115.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	T	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 57016
Lot Number: 122923
Description: Sulfur (S)

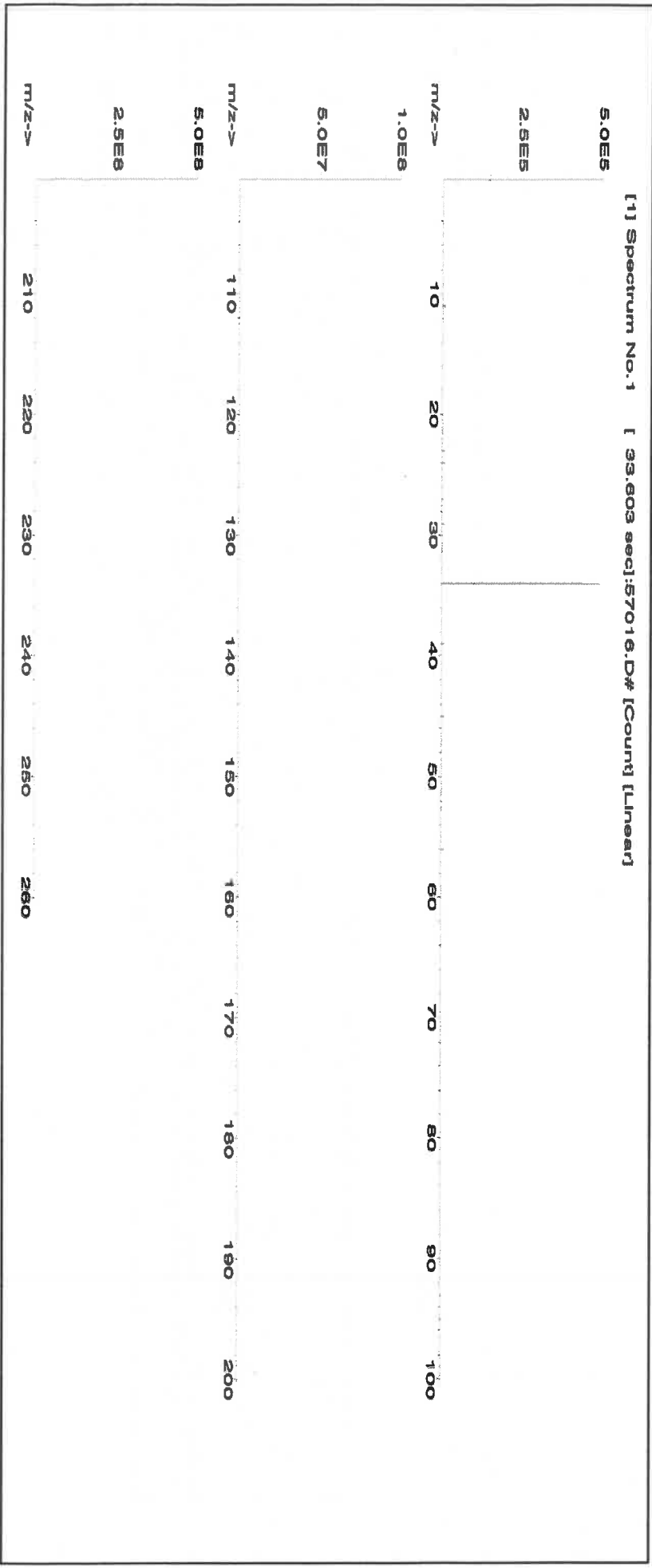
Solvent: 122923
ASTM Type 1 Water

Formulated By:	Benson Chan
Reviewed By:	Pedro L. Rentas

Expiration Date: 122926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6L7B
Weight shown below was diluted to (mL): 4000.0
SE-05 Balance Uncertainty
0.06 Flask Uncertainty

SDS Information													
Compound	RM#	Lot		Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded	Solvent Safety Info. On Attached pg.)	
		Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	+/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50
												NIST	SRM

1. Ammonium sulfate (S) IN117 SLBR725V 1000 99.9 0.10 24.3 16.4979 16.4980 1000.0 2.0 7783-20-2 NA or-rel 4250mg/kg 3181





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	La	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Ba	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Ru	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Sr	<0.02	S	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	Ta	<0.02	Ti	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Certified by:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: **57116**
Lot Number: **071123**
Description: **Sulfur (S)**

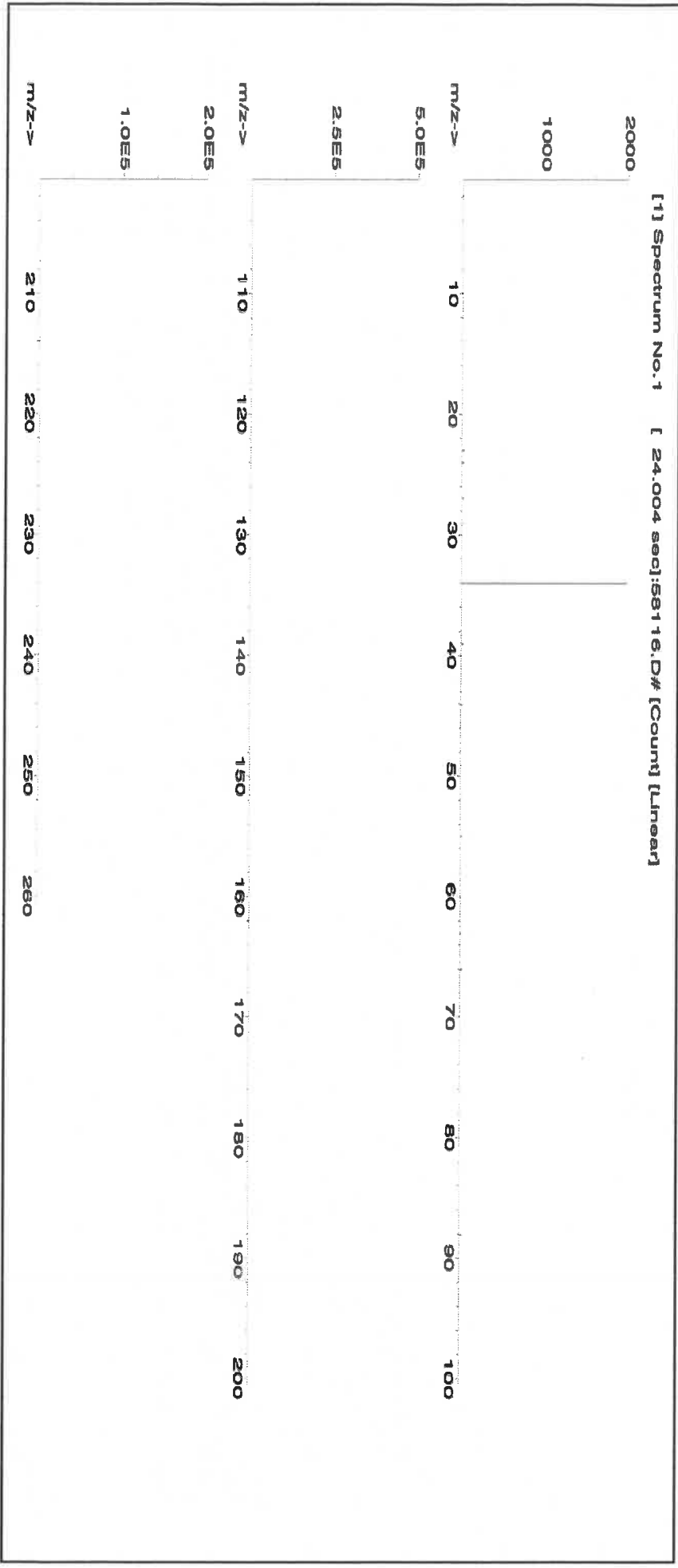
Solvent: **071123** Lot #
ASTM Type 1 Water

Formulated By:	Lawrence Barry
Reviewed By:	
Pedro L. Rentas	
071123	

Expiration Date: **071126**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **10000**
NIST Test Number: **6UTB**
Weight shown below was diluted to (mL): **1999.48**
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

SDS Information									
Compound	Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded
	Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	+/- (µg/mL)
									CAS# OSHA PEL (TWA) LD50 SRM

1. Ammonium sulfate (S)	IN117	SLBR725V	10000	99.9	0.10	24.3	82.4675	82.4692	10000.1	20.0	7783-20-2	NA	oral 4250mg/kg	3181
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Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Tm	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Sn	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	T	Ti	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02			Zr	<0.02

Physical Characterization:

(T)= Target analyte

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: **57014**
Lot Number: **122023**
Description: **Silicon (Si)**

Solvent: **24002546** Nitric Acid

Lot #

R: 02/09/24 M5818

Expiration Date: **122026**

2% 40.0 (mL) Nitric Acid

Recommended Storage: **Ambient (20 °C)**

Nominal Concentration (µg/mL): **1000**

NIST Test Number: **6UTB**

5E-05 Balance Uncertainty

Weight shown below was diluted to (mL): **1999.48** 0.058 Flask Uncertainty

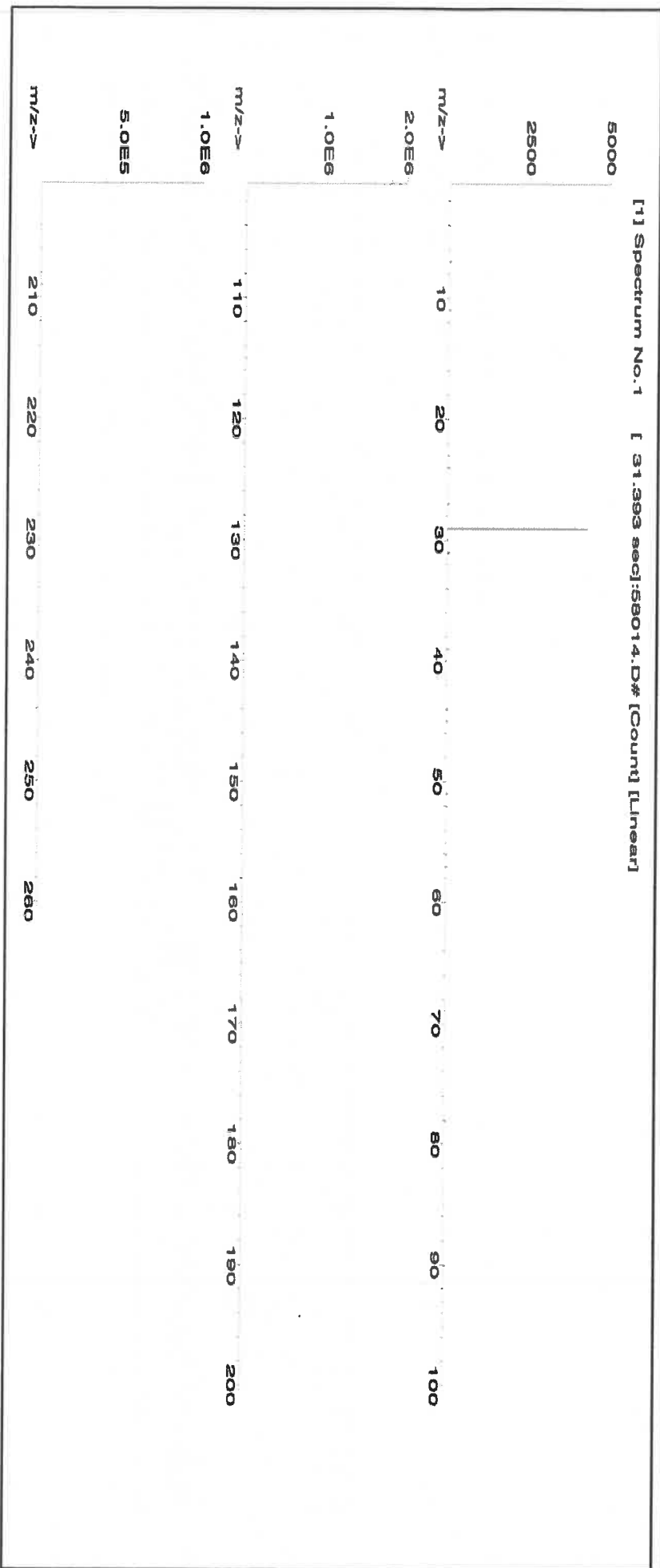
Aleah O Brady	
Formulated By:	Aleah O Brady
Reviewed By:	Pedro L. Rentas
	122023

SDS Information

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Ammonium hexafluorosilicate (Si) IN009 S1D08022A1 1000 99.999 0.10 14.4 13.8854 13.8855 1000.0 2.0 18919-19-0 2.5 mg/m3 or-mus 70 mg/kg NA

[1] Spectrum No. 1 [31.393 sec; 158014.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	T	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Bu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Ru	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

[Signature]

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 58030
Lot Number: 111623
Description: Zinc (Zn)

Solvent: 24002546 Nitric Acid

Lot # R: 02109124 MS819

2% 60.0 (mL) Nitric Acid

Expiration Date: 111626

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 3000.4

5E-05 Balance Uncertainty
0.06 Flask Uncertainty

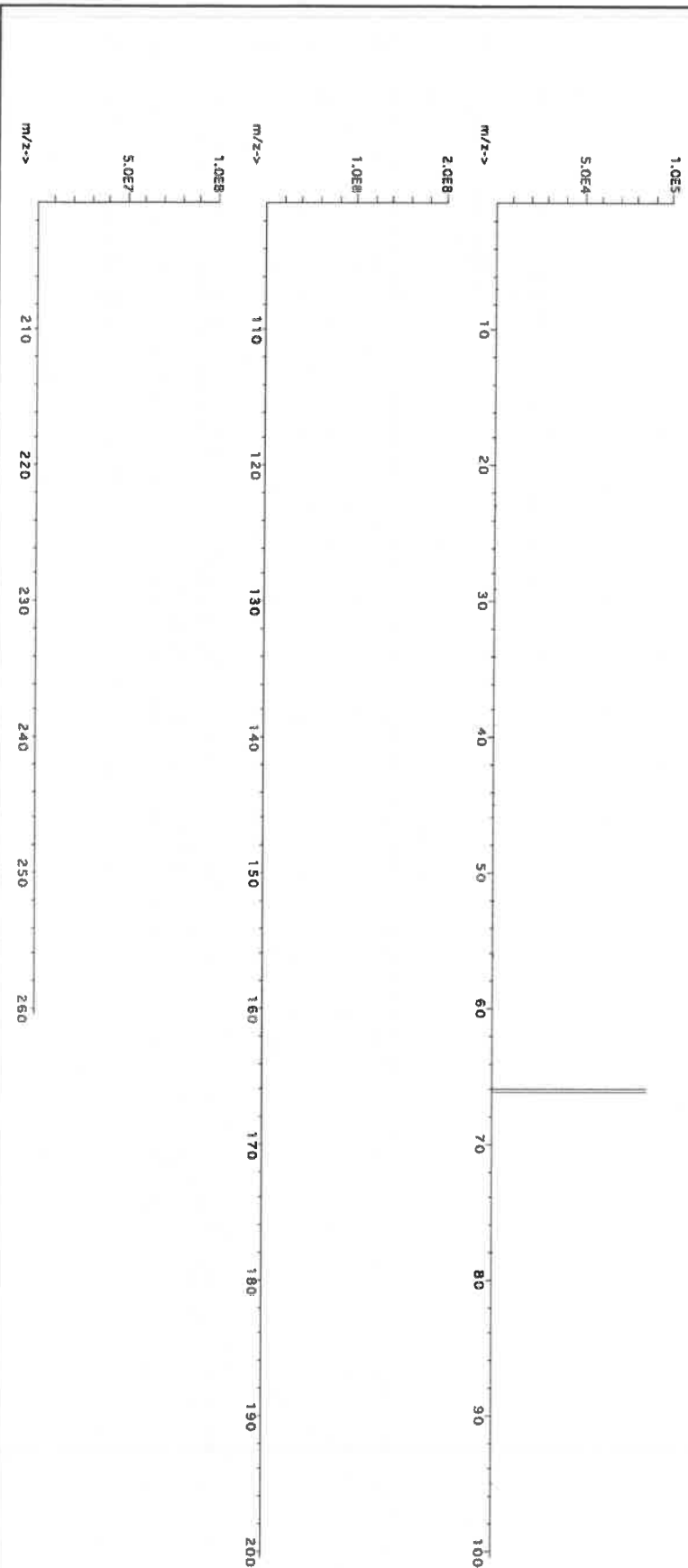
Formulated By:	Benson Chan	111623
Reviewed By:	Pedro L. Reintas	111623

Compound

Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded	SDS Information	NIST
Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	± (µg/mL)	(Solvent Safety Info. On Attached pg.)	SRM

1. Zinc nitrate hexahydrate (Zn) IN016 ZNE03021A1 1000 99.999 0.10 24.3 12.3475 12.3502 1000.2 2.0 10196-16-6 1 mg/mL 3168 on-rat 1190mg/kg

[1] Spectrum No.1 [31.103 sec;358130.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Bu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.2	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: 57015
Lot Number: 091123
Description: Phosphorous (P)

Solvent: 24002546 Nitric Acid

Lot #

Formulated By:	Lawrence Barry	091123
Reviewed By:	Pedro L. Rentas	091123

Expiration Date: 091126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6LUTB

2% 40.0 (mL) Nitric Acid

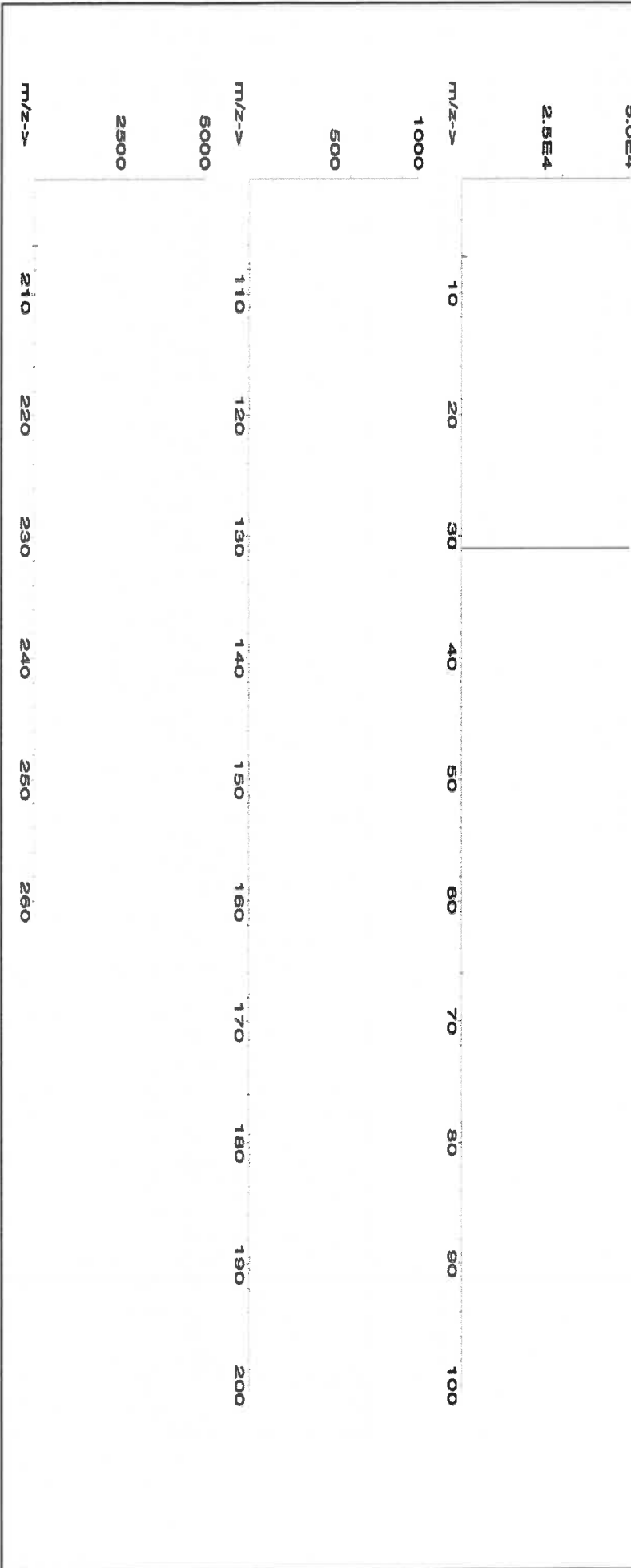
Weight shown below was diluted to (mL): 2000.02 0.058 Flask Uncertainty

SDS Information

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
----------	------------	-----------------------	------------	-----------------	-----------	-------------------	-------------------	----------------------	----------------------------------	------	----------------	------	----------

1. Ammonium dihydrogen phosphate (P) IN008 PVO62019A1 1000 99.999 0.10 27.5 7.2729 7.2730 1000.0 2.0 7722-76-1 5 mg/m3 xH-rat >2000mg/kg 3186

[1] Spectrum No.1 [12.074 sec]:58115.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	T	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sa	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
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- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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



MS824
MB

Material No.: 3624-01

Batch No.: 0000281938

Manufactured Date: 2021-06-07

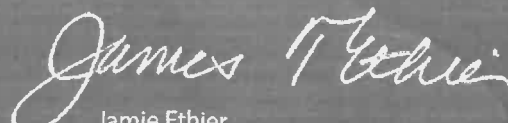
Retest Date: 2026-06-07

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


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

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).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGY10
Lot Number: V2-Y740548
Matrix: 2% (v/v) HNO₃
Value / Analyte(s): 10 000 µg/mL ea:
Yttrium
Starting Material: Yttrium Oxide
Starting Material Lot#: 2661 and 06230520YL
Starting Material Purity: 99.9984%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10000 ± 30 µg/mL
Density: 1.032 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	10011 ± 25 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #2	9997 ± 50 µg/mL ICP Assay NIST SRM 3167a Lot Number: 190730
Assay Method #3	9984 ± 31 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

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:

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

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:

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

$$CRM/RM \text{ Expanded Uncertainty } (z) = U_{CRM/RM} = k(u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char} = [\sum(w_i)^2(u_{char\ i}^2)]^{1/2}$ 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

$$CRM/RM \text{ Expanded Uncertainty } (z) = U_{CRM/RM} = k(u_{char\ a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

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.

M	Ag	<	0.004600	M	Eu	0.009037	M	Na	0.086360	M	Se	<	0.005200	M	Zn	0.030125
M	Al	0.014862	O	Fe	0.002410	M	Nb	<	0.000570	O	Si	0.024100	O	Zr	<	0.002600
M	As	<	0.003500	M	Ga	<	0.000570	M	Nd	0.000923	M	Sm	0.000461			
M	Au	<	0.001700	M	Gd	<	0.003500	M	Ni	<	0.005700	M	Sn	<	0.002300	
O	B	0.002209	M	Ge	<	0.005200	M	Os	<	0.001200	M	Sr	<	0.004600		
O	Ba	<	0.002500	M	Hf	<	0.000570	n	P	<		M	Ta	<	0.000570	
O	Be	<	0.001400	M	Hg	<	0.000570	M	Pb	0.005020	M	Tb	0.001044			
M	Bi	<	0.003500	M	Ho	0.009037	M	Pd	<	0.005100	M	Te	<	0.002300		
O	Ca	0.009841	M	In	<	0.002300	M	Pr	<	0.002300	M	Th	<	0.000570		
M	Cd	<	0.000570	M	Ir	<	0.000570	M	Pt	<	0.000570	M	Ti	<	0.003500	
M	Ce	<	0.002300	O	K	0.018677	M	Rb	<	0.000570	M	Tl	<	0.000570		
M	Co	<	0.000570	M	La	0.000461	M	Re	<	0.000570	M	Tm	<	0.003500		
M	Cr	<	0.004000	O	Li	<	0.009300	M	Rh	<	0.008000	M	U	<	0.000570	
M	Cs	<	0.000570	M	Lu	0.000582	M	Ru	<	0.000570	M	V	0.001265			
M	Cu	0.002610	O	Mg	0.001486	n	S	<			M	W	<	0.002300		
M	Dy	0.003815	M	Mn	0.000582	M	Sb	0.005422	s	Y	<					
M	Er	0.003615	M	Mo	<	0.005700	M	Sc	<	0.001200	M	Yb	0.001827			

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

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

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 - 88.91 +3 6 Y(OH)(H₂O)_{x+2}

Chemical Compatibility -Soluble in HCl, H₂SO₄ and HNO₃. Avoid HF, H₃PO₄ and neutral to basic media.

Stable with most metals and inorganic anions forming an insoluble carbonate, oxide, oxalate, and fluoride.

Avoid mixing with elements / solutions containing moderate amounts of fluoride.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO₃ / LDPE container.

Y Containing Samples (Preparation and Solution) - Metal (Soluble in acids); Oxide (Dissolve by heating in H₂O / HNO₃); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Dry ash and dissolve in 1:1 H₂O / HCl or HNO₃).

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 89 amu	0.8 ppt	N/A	73Ge16O, 178Hf+2
ICP-OES 360.073 nm	0.005 / 0.000036 µg/mL	1	Ce, Th
ICP-OES 371.030 nm	0.004 / 0.00007 µg/mL	1	Ce
ICP-OES 377.433 nm	0.005 / 0.0009 µg/mL	1	Ta, Th

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

February 20, 2024

- 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

- February 20, 2029

- 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
Custom Processing Supervisor



Certificate Approved By:

Muzzammil Khan
Stock Laboratory Supervisor



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Absolute Standards, Inc.

800-368-1131
www.absolutestandards.com



Certified Reference Material CRM



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
<https://AbsoluteStandards.com>

CERTIFIED WEIGHT REPORT:

Part Number:

57034

Lot Number:

060624

Description:

Selenium (Se)

Lot #

24002546

Solvent:

Nitric Acid

2.0%

40.0

(mL)

Nitric Acid

(mL)

Formulated By:

Benson Chan

060624

Expiration Date:

060627

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

2000.07

SE-05 Balance Uncertainty

0.100 Flask Uncertainty

Reviewed By:

Pedro L. Rantas

060624

SDS Information

Compound

Part Number

Lot Number

Dilution Factor

Initial Vol. (mL)

Pipette (mL)

Uncertainty

Nominal Conc. (µg/mL)

Initial Conc. (µg/mL)

Final Conc. (µg/mL)

Expanded Uncertainty

(Solvent Safety Info. On Attached pg.)

CAS#

OSHA PEL (TWA)

LDSO

NIST SRM

1. Selenium (Se)

58134 071223

0.1000

200.0

0.084

1000

10002.5

1000.0

2.2

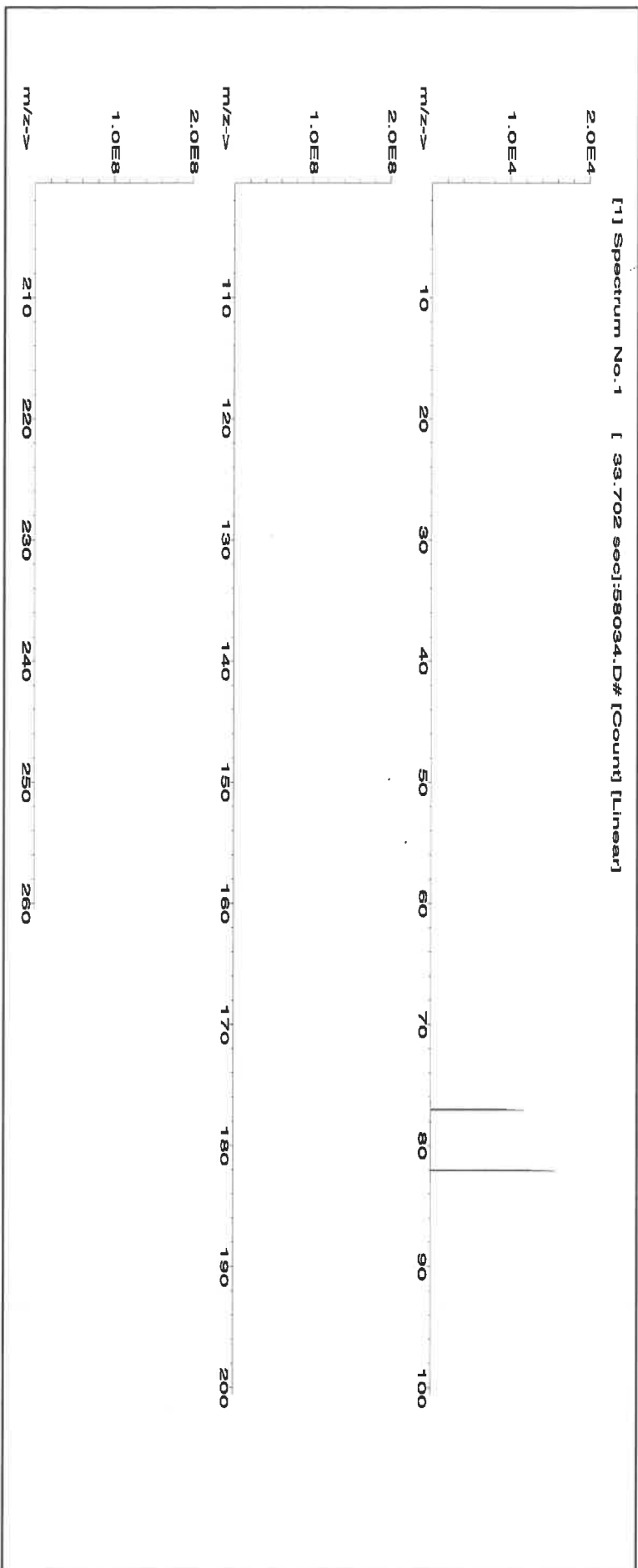
7782-49-2

0.2 mg/m3

or-tral 6700 mg/kg

3149

[1] Spectrum No.1 [33.702 sec]:58034.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	T	Tb	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

Absolute Standards, Inc.
800-368-1131
www.absolute-standards.com



Certified Reference Material CRM
M5970 M5971 R1 710124



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 57003
Lot Number: 062124
Description: Lithium (Li)
Expiration Date: 06/21/27
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 250.11
SE-05 Balance Uncertainty: 0.016
Fisk Uncertainty:

Lot # 24002546
Solvent: Nitric Acid

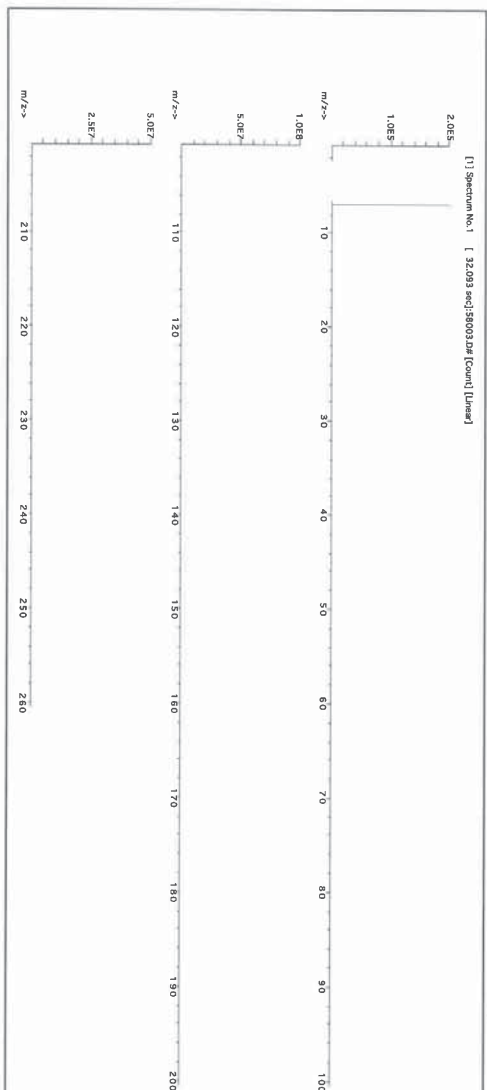
2.0% **5.0 (mL)** **Nitric Acid**

Microvial Capable	
Formulated By:	062124
Giovanni Esposito	
Reviewed By:	Pedro L. Parias

Compound		SDS Information														NEST	
		Part		Lot		Dilution		Initial		Uncertainty		Nominal		Expanded			
Number	Factor	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	Initial	Final	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	Uncertainty	± (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	SM

1. Lithium nitrate (Li) 58103 070622 0.1000 25.0 0.004 1000 10000.4 1000.0 2.0 7790-68-4 5 mg/m3 or-hal 1428 mg/kg NA

[1] Spectrum No. 1 [32.093 sec; 15000.0Hz Count [Lines]



Part # 57003 Lot # 062124

1 of 2

Printed: 6/24/2024, 11:20:08 PM

MS978, MS979

Certificate of Analysis



Redefine your results. Redefine your industry.

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



INORGANIC VENTURES is accredited to ISO 17024, "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).

1.0 ACCREDITATION / REGISTRATION

2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution

Catalog Number: CGT1

Lot Number: T2-T1719972

Matrix: 2% (v/v) HNO₃

Value / Analyte(s): tr. HF

Starting Material: 1 000 µg/mL ea.

Starting Material: Titanium

Starting Material Lot#: T1 Metal

Starting Material Purity: 2094

Certified Value: 99.9975%

Density: 1.012 g/mL (measured at 20 ± 4 °C)

Assay Method #1: 1002 ± 4 µg/mL

ICP Assay NIST SRM 3162a Lot Number: 130925

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

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:

$X_{CRM/RM} = \frac{\sum (X_i \cdot w_i)}{\sum w_i}$ where X_i = mean of Assay Method i with standard uncertainty $u_{CRM,i}$

$w_i = \frac{1}{u_{CRM,i}^2}$ = the weighting factors for each method calculated using the inverse square of the variance

$u_{CRM} = \sqrt{\frac{1}{\sum w_i}} = \sqrt{\frac{1}{\sum \frac{1}{u_{CRM,i}^2}}}$

$u_{CRM} = \sqrt{u_{CRM}^2 + u_{lab}^2 + u_{tr}^2 + u_{sp}^2}$ where u_{CRM} is the error from each characterization method

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

u_{tr} = bottle to bottle homogeneity standard uncertainty

u_{sp} = the error from characterization

$k = \text{coverage factor} = 2$

$U_{CRM} = 2 \cdot u_{CRM}$

$U_{CRM} = 2 \cdot \sqrt{u_{CRM}^2 + u_{lab}^2 + u_{tr}^2 + u_{sp}^2}$

$U_{CRM} = 2 \cdot \sqrt{u_{CRM}^2 + u_{lab}^2 + u_{tr}^2 + u_{sp}^2}$

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$U_{CRM} = 2 \cdot \sqrt{u_{CRM}^2 + u_{lab}^2 + u_{tr}^2 + u_{sp}^2}$

$U_{CRM} = 2 \cdot \sqrt{u_{CRM}^2 + u_{lab}^2 + u_{tr}^2 + u_{sp}^2}$

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 UHPA-filtered Clean Room. An UHPA-filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M Ag	<	0.000536	M Eu	<	0.000268	O Na	<	0.032670	M Se	<	0.001204	O Zn	<	0.003267
M Al	<	0.000872	O Fe	<	0.003225	O Nb	<	0.043560	O Si	<	0.004735	O Zr	<	0.043560
M As	<	0.008586	M Ga	<	0.000268	M Nd	<	0.000268	M Sm	<	0.000268			
M Au	<	0.004577	M Gd	<	0.000268	O Ni	<	0.010890	M Sn	<	0.000986			
O B	<	0.008929	M Ge	<	0.002146	M Os	<	0.000269	O Sr	<	0.000986			
M Ba	<	0.002683	M Hf	<	0.002161	O P	<	0.054450	M Ta	<	0.010560			
M Be	<	0.005366	M Hg	<	0.003231	M Pb	<	0.001073	M Tb	<	0.000268			
M Bi	<	0.001609	M Ho	<	0.000268	M Pd	<	0.000268	M Te	<	0.001341			
O Ca	<	0.000676	M In	<	0.002683	M Pr	<	0.000268	M Th	<	0.053663			
M Cd	<	0.000268	M Ir	<	0.000269	M Pt	<	0.000536	S Ti	<				
M Co	<	0.000268	M K	<	0.001172	M Rb	<	0.000268	M Tl	<	0.000268			
M Cr	<	0.000752	O Li	<	0.000268	M Re	<	0.000268	M Tm	<	0.000268			
M Cs	<	0.000268	M Lu	<	0.000268	M Rh	<	0.000268	M U	<	0.000268			
O Cu	<	0.010890	O Mg	<	0.005445	I S	<	0.006976	M Y	<	0.002146			
M Dy	<	0.000268	O Mn	<	0.003267	M Sb	<	0.004900	M Yb	<	0.000536			
M Er	<	0.000268	M Mo	<	0.000774	O Sc	<							

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

- 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: Soluble in concentrated HCl, HF, H₃PO₄, H₂SO₄ and HNO₃. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F⁻ away (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements forming the hydrated oxide in all dilute acids except HF. Stable with most inorganic anions with a tendency to hydrolyze forming the hydrated oxide in all dilute acids except HF.

Stability: 2-100 ppb levels stable (Alone or mixed with all other metals) as the Ti(F)₆-2 for months in 1% HNO₃ / LDPE container. 1-10,000 ppm single element solutions as the Ti(F)₆-2 chemically stable for years in 2-5% HNO₃ / Trace HF in an LDPE container.

Ti Containing Samples (Preparation and Solution) - Metal (Soluble in H₂O / HF caution - powder reacts violently): Oxide - low temperature history anatase or rutile (Dissolved by heating in 1:1:1 H₂O / HF / H₂SO₄); K₂SiO₇ - no KF if silica not present); Organic Matrices (Dry ash at 450EC in P10 and dissolve by heating with 1:1:1 H₂O / HF / H₂SO₄ or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystaline form).

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 48 amu	14 ppt	N/A	32S16O, 32S14N,
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1	14N17N2, 36Ar12C,
ICP-OES 334.941 nm	0.0038 / 0.00028 µg/mL	1	48Ca, 196X=2
ICP-OES 336.121 nm	0.0053 / 0.00034 µg/mL	1	W, Mo, Co
			Nb, Ta, Cr, U
			Ce, Ar, Ni
			Ru]]
			(where X = Zr, Mo,

8.0

HAZARDOUS INFORMATION

HF Note: This standard should not be prepared or stored in glass.

9.0

HOMOGENEITY

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

10.0

QUALITY STANDARD DOCUMENTATION

- 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.

10.1 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"

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY
Inorganic Ventures, 300 Technology Drive, Chesapeake, VA 24073, USA; Telephone: 800.868.6786; 540.565.3030; Fax: 540.565.3012; info@inorganicventures.com
- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

11.1 Certification Issue Date

June 17, 2022

- 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

- June 17, 2027

- 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

Thomas Kozlikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Paul Gaines

80978



Certified Reference Material CRM



45982 R: 6/11/24

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57038
031524
Strontium (Sr)

Solvent: 24002546 Nitric Acid

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

031527
Ambient (20 °C)
1000
6UTB
5E-05 Balance Uncertainty
0.100 Flask Uncertainty

Weight shown below was diluted to (mL): 2000.07

Lot #

2% 40.0 Nitric Acid
(mL)

Formulated By: Benson Chan
031524

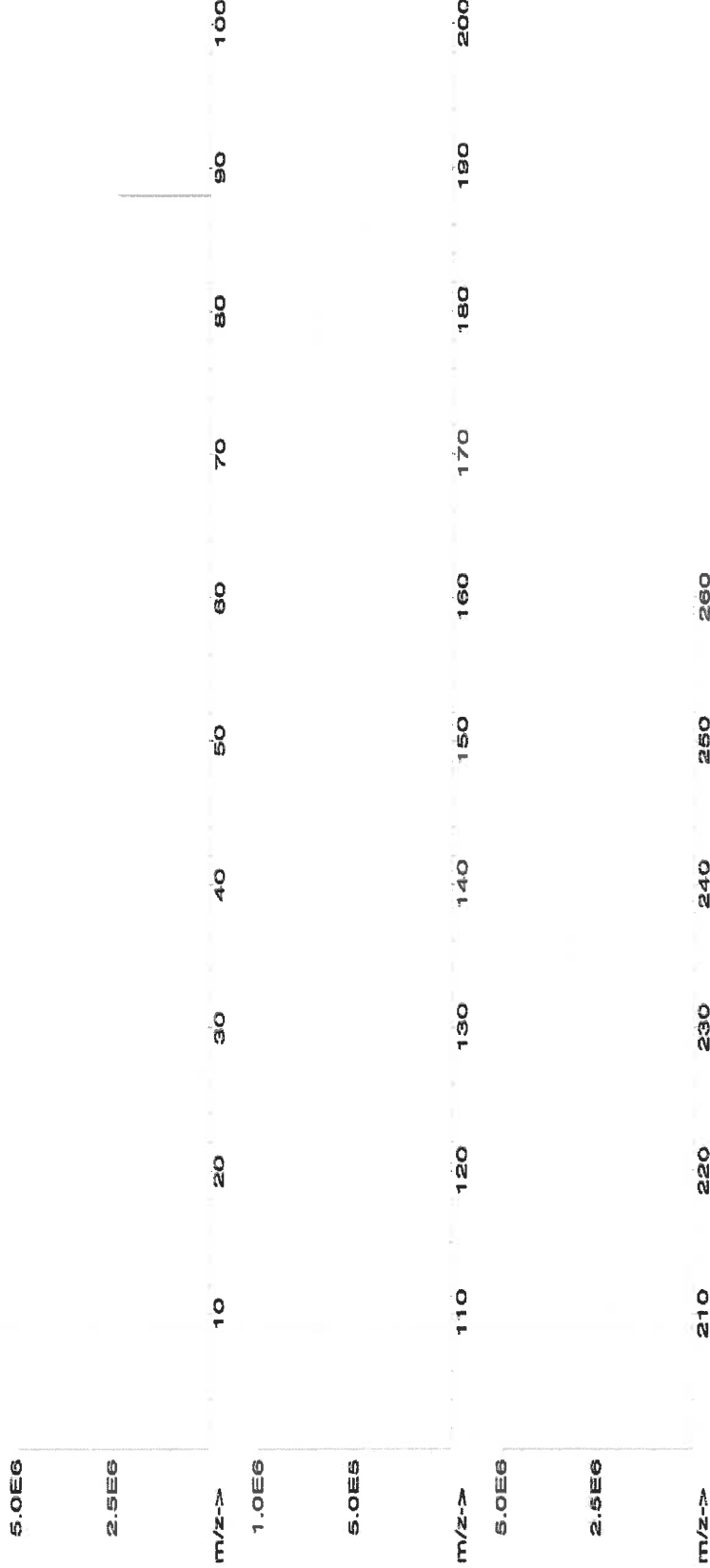
Reviewed By: Pedro L. Rentas
031524

SDS Information

Expanded Uncertainty
(Solvent Safety Info. On Attached pg.)
CASH# OSHA PEL (TWA) LD50 NIST SRM

1. Strontium nitrate (Sr) IN017 SR2022018A1 1000 89.997 0.10 41.2 4.85470 4.85502 1000.1 2.0 10042-76-9 NA orl-rat >2000mg/kg 3153a

[1] Spectrum No.1 [14.495 sec]:58136.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.02	Os	<0.01	Rh	<0.02	Ag	<0.02	Ti	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.2	Tm	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02
																W	<0.02
																U	<0.02
																V	<0.02
																Yb	<0.02
																Y	<0.02
																Zn	<0.02
																Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

[Signature]

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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Certificate of Analysis

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Christiansburg, VA 24073 USA
inorganicventures.com

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F: 540-585-3012
info@inorganicventures.com

M5985
R: 6/14/24

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).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGIN10
Lot Number: U2-IN729349
Matrix: 5% (v/v) HNO₃
Value / Analyte(s): 10 000 µg/mL ea:
Indium
Starting Material: Indium Metal
Starting Material Lot#: 2511
Starting Material Purity: 99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10022 ± 30 µg/mL
Density: 1.044 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	10021 ± 56 µg/mL ICP Assay NIST SRM 3124a Lot Number: 110516
Assay Method #2	10035 ± 25 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #3	10001 ± 33 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

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:

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

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:

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

$$CRM/RM \text{ Expanded Uncertainty } (k) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char} = [\sum (w_i)^2 (u_{char\ i})^2]^{1/2}$ 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

$$CRM/RM \text{ Expanded Uncertainty } (k) = U_{CRM/RM} = k (u_{char\ a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

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.

M	Ag	<	0.000760	M	Eu	<	0.000760	O	Na	0.012771	M	Se	<	0.023000	M	Zn	<	0.006100
M	Al	0.003385	O	Fe	0.004462	M	Nb	<	0.000760	O	Si	0.024619	M	Zr	<	0.000760		
M	As	<	0.004600	M	Ga	<	0.000760	M	Nd	<	0.000760	M	Sm	<	0.000760			
M	Au	<	0.002300	M	Gd	<	0.000760	O	Ni	<	0.005100	M	Sn	<	0.000760			
O	B	0.003692	M	Ge	<	0.001600	M	Os	<	0.000760	O	Sr	<	0.000610				
M	Ba	<	0.001600	M	Hf	<	0.000760	n	P	<		M	Ta	<	0.000760			
O	Be	<	0.000130	M	Hg	<	0.003100	M	Pb	0.001400	M	Tb	<	0.000760				
M	Bi	<	0.000760	M	Ho	<	0.000760	M	Pd	<	0.001600	M	Te	<	0.000760			
O	Ca	0.004616	s	In	<			M	Pr	<	0.000760	M	Th	<	0.000760			
M	Cd	<	0.000760	M	Ir	<	0.000760	M	Pt	<	0.000760	O	Ti	<	0.001100			
M	Ce	<	0.000760	O	K	0.007078	M	Rb	<	0.000760	M	Tl	<	0.000760				
M	Co	<	0.000760	M	La	<	0.000760	M	Re	<	0.000760	M	Tm	<	0.000760			
O	Cr	<	0.001300	O	Li	<	0.000130	M	Rh	<	0.000760	M	U	<	0.000760			
M	Cs	<	0.000760	M	Lu	<	0.000760	M	Ru	<	0.000760	M	V	<	0.001600			
M	Cu	<	0.003800	O	Mg	0.000707	n	S	<		M	W	<	0.001600				
M	Dy	<	0.000760	O	Mn	0.000149	M	Sb	<	0.000760	M	Y	<	0.000760				
M	Er	<	0.000760	M	Mo	<	0.002300	M	Sc	<	0.000760	M	Yb	<	0.000760			

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

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale. <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

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 - 114.82 +3 6 In(H₂O)₆+3

Chemical Compatibility -Soluble in HCl, HNO₃, and H₂SO₄. Avoid neutral and basic media. Stable with most metals and inorganic anions. The oxalate, sulfide, carbonate, hydroxide and phosphate are insoluble in water.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO₃ / LDPE container.

In Containing Samples (Preparation and Solution) -Metal (Best dissolved in HCl / HNO₃); Oxide (Soluble in mineral acids); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Sulfuric/peroxide digestion or dry ash and dissolution in dilute HCl).

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 115 amu	1 ppt	n/a	115Sn, 99Ru16O
ICP-OES 158.583 nm	0.05 / 0.002 µg/mL	1	
ICP-OES 230.606 nm	0.1 / 0.03 µg/mL	1	Ni, Os
ICP-OES 325.609 nm	0.2 / 0.05 µg/mL	1	Mn, Mo, Th

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

February 21, 2023

- 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

- February 21, 2028

- 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 Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

avantor™



M 6041-4b
MS

Material No.: 9673-33
Batch No.: 23D2462010
Manufactured Date: 2023-03-22
Retest Date: 2028-03-20
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (H ₂ SO ₄)	95.0 – 98.0 %	96.1 %
Appearance	Passes Test	Passes Test
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Substances Reducing Permanganate (as SO ₂)	≤ 2 ppm	< 2 ppm
Ammonium (NH ₄)	≤ 1 ppm	1 ppm
Chloride (Cl)	≤ 0.1 ppm	< 0.1 ppm
Nitrate (NO ₃)	≤ 0.2 ppm	< 0.1 ppm
Phosphate (PO ₄)	≤ 0.5 ppm	< 0.1 ppm
Trace Impurities – Aluminum (Al)	≤ 30.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 4.0 ppb	< 2.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	8.5 ppb
Trace Impurities – Cadmium (Cd)	≤ 2.0 ppb	< 0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 6.0 ppb	< 0.4 ppb
Trace Impurities – Cobalt (Co)	≤ 0.5 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gold (Au)	≤ 10.0 ppb	0.5 ppb
Heavy Metals (as Pb)	≤ 500.0 ppb	< 100.0 ppb
Trace Impurities – Iron (Fe)	≤ 50.0 ppb	1.3 ppb
Trace Impurities – Lead (Pb)	≤ 0.5 ppb	< 0.5 ppb
Trace Impurities – Magnesium (Mg)	≤ 7.0 ppb	0.8 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Nickel (Ni)	≤ 2.0 ppb	0.3 ppb
Trace Impurities – Potassium (K)	≤ 500.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se)	≤ 50.0 ppb	< 0.1 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	31.5 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb

>>> Continued on page 2 >>>

Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

 **avantor™**

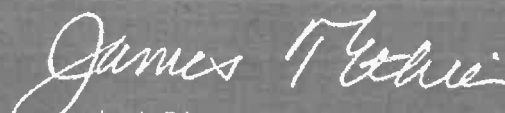


Material No.: 9673-33
Batch No.: 23D2462010

Test	Specification	Result
Trace Impurities – Sodium (Na)	≤ 500.0 ppb	5.4 ppb
Trace Impurities – Strontium (Sr)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	< 0.8 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	0.4 ppb

For Laboratory, Research, or Manufacturing Use

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


Jamie Ethier
Vice President Global Quality

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



R → 16/13/24
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

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

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

Nitric Acid 69%
CMOS



R → 11/12/24

M6126

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 >>>



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: 58111
Lot Number: 122223
Description: Sodium (Na)

Solvent: 24002546 Nitric Acid

Lot #

Expiration Date: 122226

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 10000

NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 3000.4 0.06 Flask Uncertainty

2% 60.0 (mL) Nitric Acid

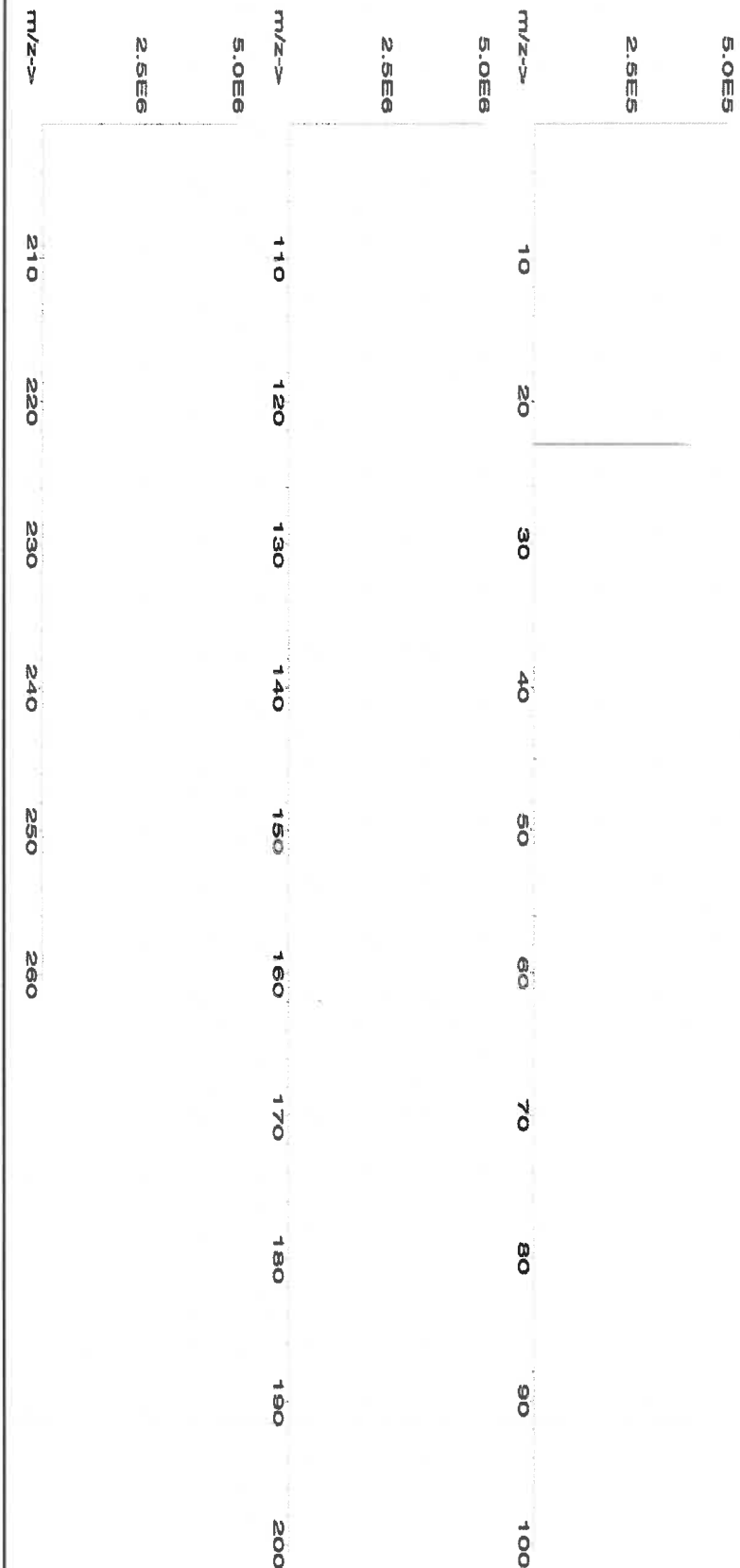
<i>Aleah O Brady</i>	
Formulated By:	Aleah O Brady
Reviewed By:	Pedro L. Rentas
	122223

SDS Information

Compound	Lot	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Sodium nitrate (Na) IN036 NAV01201511 10000 99.999 0.10 26.9 111.5406 111.5479 10000.7 20.0 7631-99-4 5 mg/m3 or-tat 3430 mg/kg 3152a

[1] Spectrum No.1 [8.935 sec]:58111.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.02	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57051
120523
Antimony (Sb)

Lot #
Solvent:

24002546
Nitric Acid

2.0%
60.0
Nitric Acid
(mL)

Expiration Date:

120526

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6U7B

Volume shown below was diluted to (mL):

3000.41

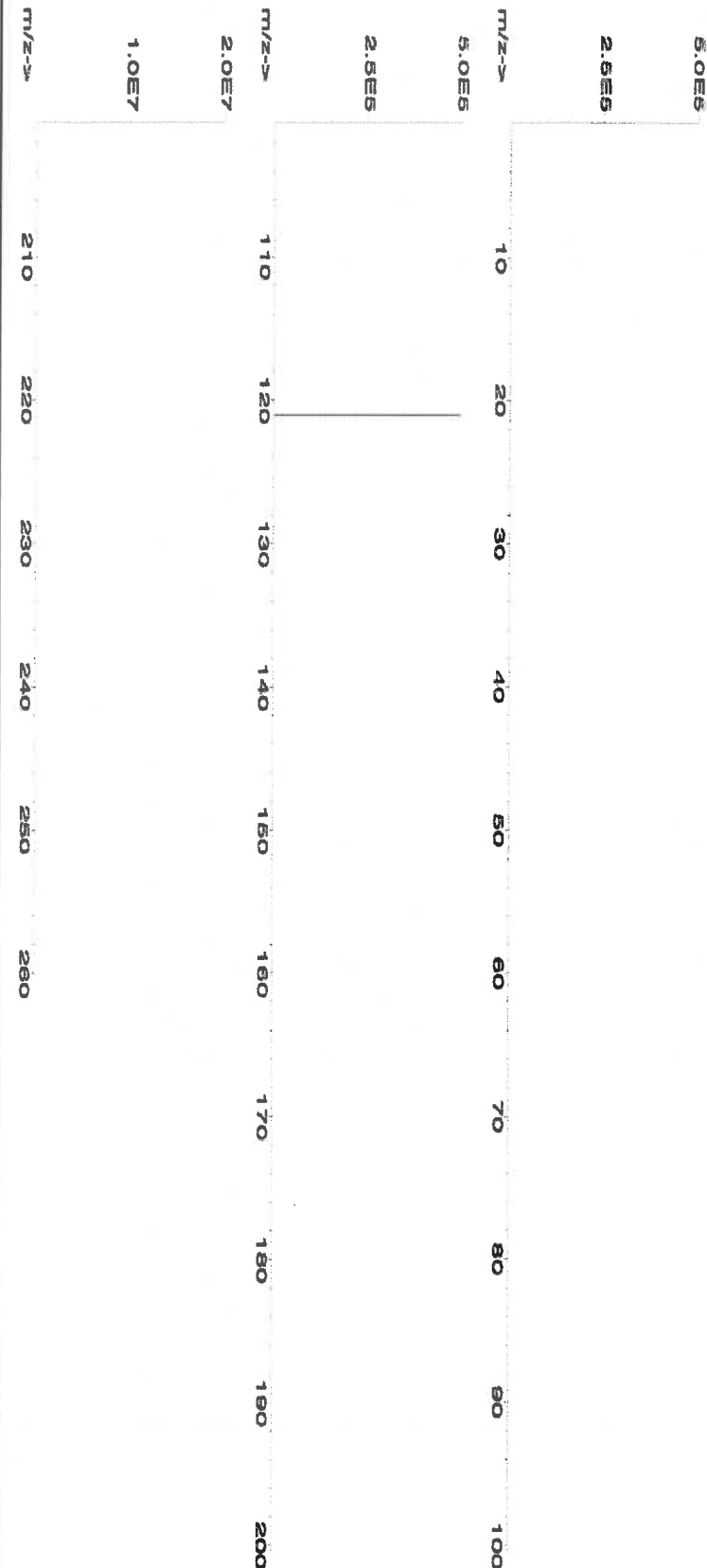
Formulated By:	Lawrence Barry	120523
Reviewed By:	Pedro L. Renteria	120523

Compound

Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Antimony (Sb) 58151 100923 0.1000 300.0 0.084 1000 10001.4 1000.0 2.1 7440-36-0 0.5 mg/m3 or-rel 7000 mg/kg 3102a

[1] Spectrum No.1 [17.964 sec]:58051.D# [Count] [Linear]





Certified Reference Material CRM



Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	T	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	La	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	Pb	<0.02	Mo	<0.02	Pr	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02			Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM

M6030



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
<https://absolutestandards.com>

CERTIFIED WEIGHT REPORT:

Part Number: **57047**
Lot Number: **122823**
Description: **Silver (Ag)**

Lot #
Solvent: 24002546 Nitric Acid

Formulated By:	Benson Chan
Reviewed By:	Pedro L. Rentas
	122823

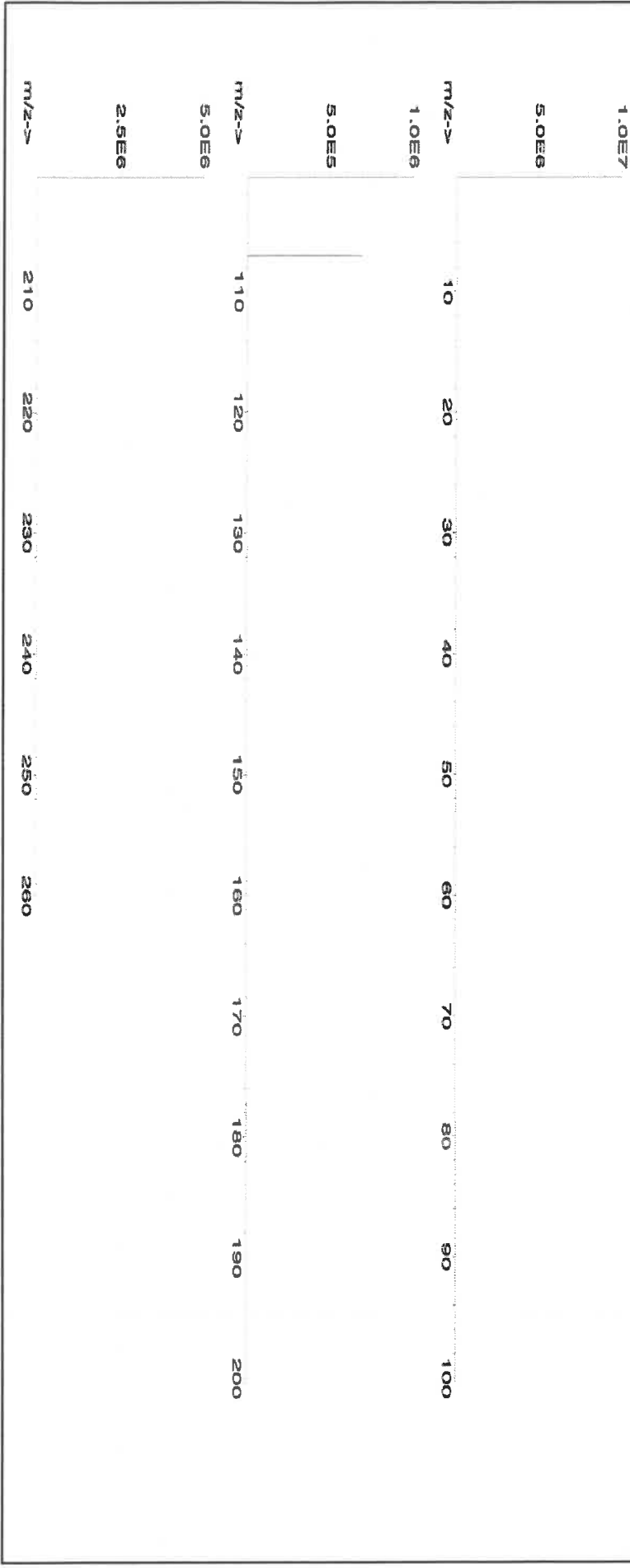
2% 80.0 (mL) Nitric Acid

Expiration Date: 122826
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 4000.30
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty		CAS#	SDS Information		NIST SRM
										+/- (µg/mL)	(µg/mL)		(Solvent Safety Info. On Attached pg.)	OSHA PEL (TWA)	

1. Silver nitrate (Ag) IN035 J0612AGA1 1000.0 99.999 0.10 63.7 6.27992 6.27998 1000.0 2.0 7761-88-8 10 µg/m3 NA 3151

[1] Spectrum No. 1 [14.044 sec]:58147.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	T	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

Physical Characterization:

(T)= Target analyte

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 meqohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM

M6023



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 57081
Lot Number: 062724
Description: Thallium (TI)

Solvent: 24002546 Nitric Acid

Lot #

Alieah O'Brady
Formulated By: Alieah O'Brady 062724

Expiration Date:

062727

2%

40.0

Nitric Acid

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

5E-05 Balance Uncertainty

Weight shown below was diluted to (mL):

2000.1

0.10 Flask Uncertainty

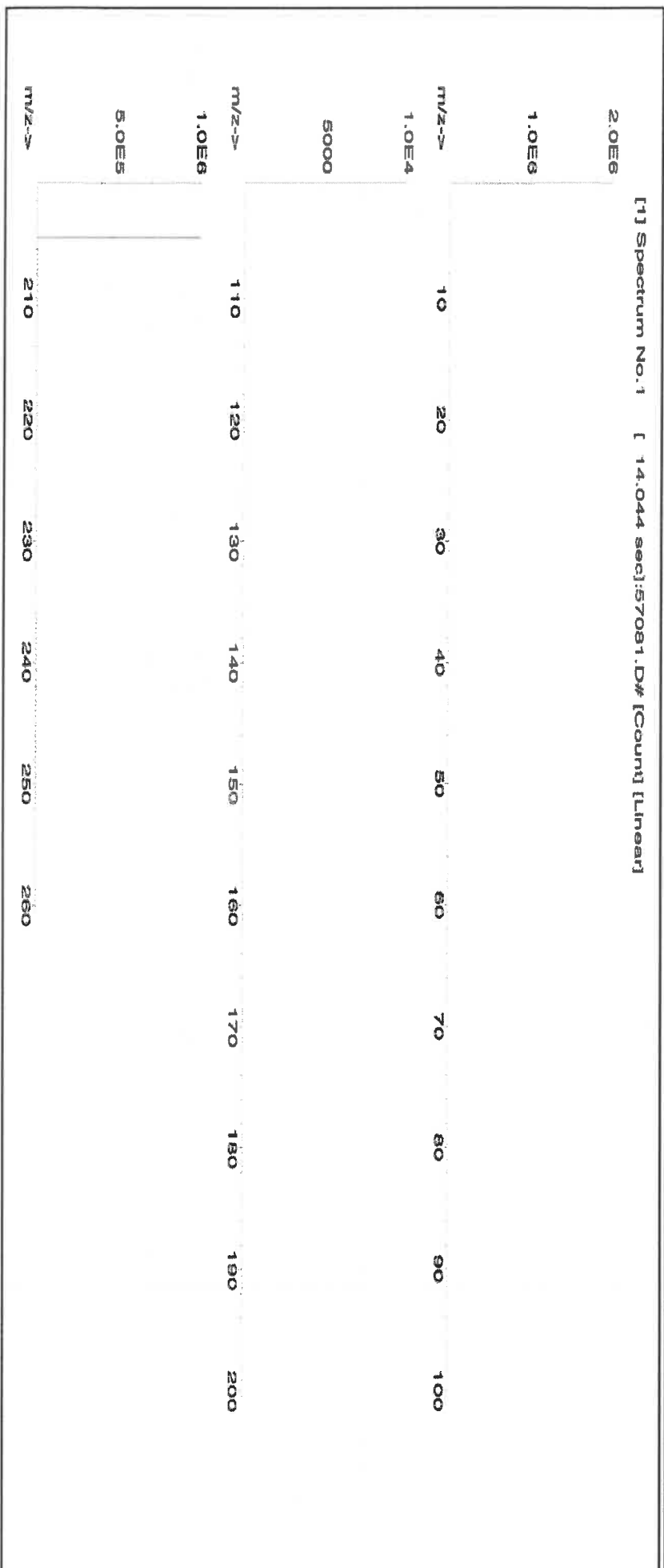
Pedro L. Renteria
Reviewed By: Pedro L. Renterias 062724

SDS Information

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
----------	------------	-----------------------	------------	-----------------	-----------	-------------------	-------------------	----------------------	----------------------------------	------	----------------	------	----------

1. Thallium nitrate (TI) IN037 BCCF4399 1000 99.999 0.10 77.0 2.5975 2.5977 1000.1 2.0 10102-45-1 0.1 mg/m3 or-mus 15mg/kg 3158

[1] Spectrum No.1 [14.044 sec]:57081.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Sc	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	T	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Tm	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Sn	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Ti	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Se	<0.02	Ta	<0.02			Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
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Certified Reference Material CRM

M6021



CERTIFIED WEIGHT REPORT:

Part Number: 57023
Lot Number: 062424
Description: Vanadium (V)

Lot # 24002546
Solvent: Nitric Acid

Aleah O'Brady	
Formulated By:	Aleah O'Brady
Reviewed By:	Pedro L. Rantas
	062424

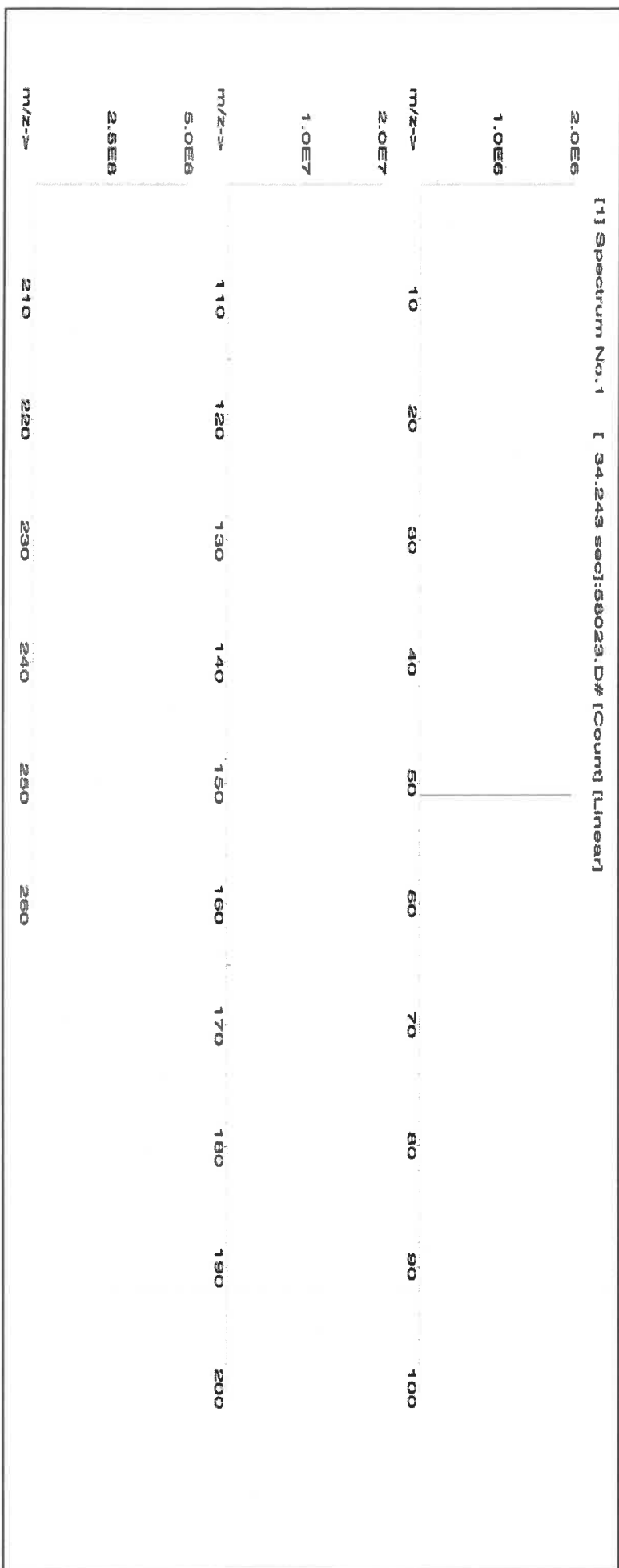
Expiration Date: 062427
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

2.0% 40.0 (mL) Nitric Acid

Volume shown below was diluted to (mL): 2000.3 0.06 Flask Uncertainty

Compound		Part		Lot		Dilution		Initial		Uncertainty		Nominal		Initial		Final		Expanded		SDS Information		NIST	
		Number		Number		Factor		Vol. (mL)		Pipette (mL)		Conc. (µg/mL)		Conc. (µg/mL)		Conc. (µg/mL)		+/- (µg/mL)		CAS#		LD50	
1. Ammonium metavanadate (V)		58123		021224		0.1000		200.0		0.084		1000		10000.3		1000.0		2.2		7803-55-6		0.05 mg/m3	
																						or-rat 58.1mg/kg	
																						3165	

[1] Spectrum No.1 [34.243 sec]:58023.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	T
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Ru	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Sr	<0.02	S	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	Ta	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ti	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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SHIPPING DOCUMENTS

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CHEMTECH

CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 • Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. **Q1122**
QUOTE NO.
COC Number **2041596**

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: **Tetra Tech Inc.**
ADDRESS: **4433 Corporation Lane Suite 300**
CITY: **Virginia Beach** STATE: **VA** ZIP: **23462**
ATTENTION: **Ernie Wu**
PHONE: **757-466-4901** FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: **NWIRP Beth page**
PROJECT NO.: **112608005-WE13** LOCATION: **Bethpage, NY**
PROJECT MANAGER: **Ernie Wu**
e-mail: **ernie.wu@tetra-tech.com**
PHONE: **757-466-4901** FAX:

CLIENT BILLING INFORMATION

BILL TO: **See Contract** PO#:
ADDRESS:
CITY STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX (RUSH) DAYS*
HARDCOPY (DATA PACKAGE): **Standard TAT** DAYS*
EDD: **Standard TAT** DAYS*
*TO BE APPROVED BY CHEMTECH
STANDARD HARDCOPY TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ Level 1 (Results Only) ☐ Level 4 (QC + Full Raw Data)
☐ Level 2 (Results + QC) ☐ NJ Reduced ☐ US EPA CLP
☐ Level 3 (Results + QC) ☐ NYS ASP A ☐ NYS ASP B
+ Raw Data ☒ Other: **See Contract**
☐ EDD FORMAT

1. **TAL Metals**
2. **Filtered Metals**
3. **TCL SVOCs**
4. **PCB/Pesticides**
5. **PH**
6. **Total Phosphorus**
7. **TSS**
8. **TDS**
9. **Alkalinity**

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE		SAMPLE COLLECTION		# OF BOTTLES	PRESERVATIVES									COMMENTS	
			COMP	GRAB	DATE	TIME		B/E	B/E	E	E	E	C/E	E	E	E		
1.	RW10A - 20250116	G-W		X	1-16-25	1040	8	1		1	1	1	1	1	1	1		
2.	RW10A - F - 20250116	G-W		X	1-16-25	1040	1		1								Field Filtered	
3.																		
4.																		
5.																		
6.																		
7.																		
8.																		
9.																		
10.																		

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER: 1. [Signature]	DATE/TIME: 1-16-25/1530	RECEIVED BY: 1. [Signature] 1530 1-16-25	Conditions of bottles or coolers at receipt: ☐ COMPLIANT ☐ NON COMPLIANT ☐ COOLER TEMP 2.7 °C
RELINQUISHED BY SAMPLER: 2. [Signature]	DATE/TIME:	RECEIVED BY: 2. [Signature]	Comments:
RELINQUISHED BY SAMPLER: 3. [Signature]	DATE/TIME: 1810 1-16-25	RECEIVED BY: 3. [Signature]	

Page **1** of **2**

CLIENT: ☐ Hand Delivered ☐ Other
CHEMTECH: ☒ Picked Up ☐ Field Sampling

Shipment Complete
☐ YES ☐ NO

From: Kiran Saleem <Kiran.Saleem@alliancetg.com>
Sent: Friday, January 17, 2025 10:32 AM
Subject: Re: NWIRP BethPage - Q1122

Jake,

Got it, thank you!

As we discussed on the phone, we have one 1-liter amber container for PCB/Pesticides. We will divide the volume for each test.

Thank you!

NOTE: Chemtech is now an Alliance Technical Group company. Please add [AllianceTG.com](https://www.alliancetg.com) to your safe senders list to ensure receipt of important emails.

Regards,



Kiran Saleem
Project Manager
Alliance Technical Group
Main: 908-789-8900
Direct: 908-728-3148
Address: 284 Sheffield St, Ste 1, Mountainside, NJ 07092
www.alliancetg.com

From: Kiran Saleem <Kiran.Saleem@alliancetg.com>
Sent: Friday, January 17, 2025 9:33 AM
To: Wu, Ernie <Ernie.Wu@tetrattech.com>; Jake.Marlow@tetrattech.com <Jake.Marlow@tetrattech.com>
Cc: Yazmeen Gomez <Yazmeen.Gomez@alliancetg.com>
Subject: NWIRP BethPage - Q1122

Good Morning Jake,

Can you please share the compounds list that need to be analyzed under pesticides for attached COC?

Let me know.

Thanks.

NOTE: Chemtech is now an Alliance Technical Group company. Please add [AllianceTG.com](https://www.alliancetg.com) to your safe senders list to ensure receipt of important emails.

Regards,



Kiran Saleem
Project Manager
Alliance Technical Group
Main: 908-789-8900
Direct: 908-728-3148
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From: Marlow, Jake <Jake.Marlow@tetrattech.com>
Sent: Monday, January 20, 2025 9:27 AM
Subject: RE: Q1122 - NWIRP Bethpage 112G08005-WE13

EXTERNAL EMAIL - This email was sent by a person from outside your organization. Exercise caution when clicking links, opening attachments or taking further action, before validating its authenticity.

Secured by Check Point

Hi Kiran,

Yes that is a mistake, the collection date should be 1-16-25.

Thank you,
Jake

From: Kiran Saleem <Kiran.Saleem@alliancetg.com>
Sent: Monday, January 20, 2025 9:00 AM
To: Marlow, Jake <Jake.Marlow@tetrattech.com>
Cc: Wu, Ernie <Ernie.Wu@tetrattech.com>
Subject: Q1122 - NWIRP Bethpage 112G08005-WE13

⚠ **CAUTION:** This email originated from an external sender. Verify the source before opening links or attachments.
⚠

Good Morning Ernie,

I am reaching out regarding the samples collection date. It could be a mistake; the COC collection date says 1-16-24 while the relinquished date says 1-16-25. Please confirm the collection date. Please find attached COC.

Thank you!

NOTE: Chemtech is now an Alliance Technical Group company. Please add [AllianceTG.com](https://www.alliancetg.com) to your safe senders list to ensure receipt of important emails.

Regards,



Kiran Saleem
Project Manager
Alliance Technical Group
Main: 908-789-8900
Direct: 908-728-3148
Address: 284 Sheffield St, Ste 1, Mountainside, NJ 07092
www.alliancetg.com

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