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

DATA PACKAGE

METALS

PROJECT NAME : NYCDDC SANTWOBR BROOKLYN BRIDGE BBMCR

RU2 ENGINEERING, LLC

2 Melinda Drive

Monroe Township, NJ - 08831

Phone No: 732-261-2236

ORDER ID : Q1235

ATTENTION : Rutu Manani

Laboratory Certification ID # 20012

Table Of Contents for Q1235

1) METALS DATA 2

2) Signature Page 4

3) Case Narrative 5

4) Qualifier Page 7

5) Conformance/Non Conformance 8

6) QA Checklist 9

7) Chronicle 10

8) Hit Summary 11

9) Sample Data 13

- 9.1) JPP-51.2-012925 14
- 9.2) JPP-16.1-012925 15

10) METALS CALIBRATION DATA 16

- 10.1) Initial and Continuing Calibration Verification 17
- 10.2) CRDL Standard For AA & ICP 25
- 10.3) Initial and Continuing Calibration Blank Summary 26
- 10.4) Preparation Blank Summary 32
- 10.5) Interference Check Sample 34

11) METALS QC DATA 36

- 11.1) Matrix Spike Summary 37
- 11.2) Post Digest Spike Summary 39
- 11.3) Duplicate Sample Summary 40
- 11.4) Laboratory Control Sample Summary 42
- 11.5) ICP Serial Dilutions 44

12) METALS PREPARATION & INSTRUMENT DATA 45

- 12.1) ICP Interelement Correction Factors 46

13) PREPARATION & ANALYTICAL SUMMARY 51

- 13.1) Sample Preparation Summary 52
- 13.2) Analysis Run Log 54

14) METALS RAW DATA 56

- 14.1) METALS RAW DATA - ANALYTICAL 57
- 14.2) LB134505 57
- 14.3) LB134501 213
- 14.4) METALS RAW DATA - PREP 215
  - 14.4.1) PB166387 215
  - 14.4.2) PB166402 218

15) Percent Solid 221
16) Analytical Runlogs 225
17) Standard Prep Logs 232
18) Shipping Document 388
18.1) Chain Of Custody 389
18.2) Lab Certificate 390
18.3) Internal COC 391

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Cover Page

Order ID : Q1235

Project ID : NYCDDC SANTWOBR Brooklyn Bridge BBMCR

Client : RU2 Engineering, LLC

Lab Sample Number	Client Sample Number
Q1235-01	JPP-51.2-012925
Q1235-02	JPP-51.2-012925
Q1235-03	JPP-51.2-012925
Q1235-04	JPP-51.2-012925
Q1235-05	JPP-16.1-012925
Q1235-06	JPP-16.1-012925
Q1235-07	JPP-16.1-012925
Q1235-08	JPP-16.1-012925

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 : APPROVED
By Nimisha Pandya, QA/QC Supervisor at 3:04 pm, Feb 13, 2025

Date: 2/13/2025

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

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CASE NARRATIVE

RU2 Engineering, LLC
Project Name: NYCDDC SANTWOBR Brooklyn Bridge BBMCR
Project # N/A
Chemtech Project # Q1235
Test Name: Metals ICP-TAL,Mercury

A. Number of Samples and Date of Receipt:
8 Solid samples were received on 01/30/2025.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Corrosivity, Diesel Range Organics, Gasoline Range Organics, Ignitability, Mercury, Metals ICP-TAL, METALS-TAL, Paint Filter, PCB, Pesticide-TCL, RCRA CHARACTERISTICS, Reactive Cyanide, Reactive Sulfide, SVOC-TCL BNA -20, TCLP BNA, TCLP Extraction, TCLP Herbicide, TCLP ICP Metals, TCLP Mercury, TCLP Pesticide, TCLP VOA, TCLP ZHE Extraction, TCLP-FULL and VOCMS Group1. This data package contains results for Metals ICP-TAL,Mercury.

C. Analytical Techniques:
The analysis of Metals ICP-TAL was based on method 6010D, digestion based on method 3050 (soils). The analysis and digestion of Mercury was based on method 7471B.

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 (JPP-16.1-012925MS) analysis met criteria for all samples except for Antimony due to Chemical Interference during Digestion process.
The Matrix Spike Duplicate (JPP-16.1-012925MSD) analysis met criteria for all samples except for Antimony, Lead, Potassium, Vanadium due to Chemical Interference during Digestion process.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.
The Serial Dilution met the acceptable requirements.

E. Additional Comments:

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

Signature_____ **APPROVED**

By Nimisha Pandya, QA/QC Supervisor at 3:04 pm, Feb 13, 2025

Alliance TECHNICAL GROUP
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Tel. 908-789-8900 Fax: 908-789-8922

DATA REPORTING QUALIFIERS- INORGANIC

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

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

METALS CONFORMANCE/NON-CONFORMANCE SUMMARY

CHEMTECH PROJECT NUMBER: Q1235 MATRIX: Solid

METHOD: 6010D,7471B

		NA	NO	YES
1.	Calibration Summary met criteria.			✓
2.	ICP Interference Check Sample Results Summary Submitted.			✓
3.	Serial Dilution Summary (if applicable) Submitted.			✓
4.	Laboratory Control Sample Summary (if applicable) Submitted.			✓
5.	Blank Contamination - If yes, list compounds and concentrations in each blank:		✓	
6.	Matrix Spike/Matrix Spike Duplicate Recoveries Met Criteria		✓	
	If not met, list those compounds and their recoveries which fall outside the acceptable range.			
	The Matrix Spike (JPP-16.1-012925MS) analysis met criteria for all samples except for Antimony due to Chemical Interference during Digestion process. The Matrix Spike Duplicate (JPP-16.1-012925MSD) analysis met criteria for all samples except for Antimony, Lead, Potassium, Vanadium due to Chemical Interference during Digestion process.			
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:

QA REVIEW

REVIEWED
By Sohil Jodhani, QA/QC Director at 11:19 am, Feb 13, 2025

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APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: Q1235

	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:** 02/13/2025

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LAB CHRONICLE

OrderID:	Q1235	**OrderDate:**	1/30/2025 12:15:00 PM
Client:	RU2 Engineering, LLC	**Project:**	NYCDDC SANTWOBR Brooklyn Bridge BBMCR
Contact:	Rutu Manani	**Location:**	E11,VOA Ref. #2 Soil

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
Q1235-03	**JPP-51.2-012925**	**SOIL**			**01/29/25**			**01/30/25**
			Mercury	7471B		01/30/25	01/31/25	
			Metals ICP-TAL	6010D		01/30/25	01/31/25	
Q1235-07	**JPP-16.1-012925**	**SOIL**			**01/29/25**			**01/30/25**
			Mercury	7471B		01/30/25	01/31/25	
			Metals ICP-TAL	6010D		01/30/25	01/31/25	

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Hit Summary Sheet
SW-846

SDG No.: Q1235 **Order ID:** Q1235

Client: RU2 Engineering, LLC **Project ID:** NYCDDC SANTWOBR Brooklyn Bridge

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Client ID : JPP-51.2-012925								
Q1235-03	JPP-51.2-012925	SOIL	Aluminum	6010		2.54	5.26	mg/Kg
Q1235-03	JPP-51.2-012925	SOIL	Arsenic	4.07		0.31	1.05	mg/Kg
Q1235-03	JPP-51.2-012925	SOIL	Barium	55.0		0.67	5.26	mg/Kg
Q1235-03	JPP-51.2-012925	SOIL	Beryllium	0.41		0.013	0.32	mg/Kg
Q1235-03	JPP-51.2-012925	SOIL	Cadmium	0.45		0.017	0.32	mg/Kg
Q1235-03	JPP-51.2-012925	SOIL	Calcium	39200		2.95	105	mg/Kg
Q1235-03	JPP-51.2-012925	SOIL	Chromium	21.5		0.057	0.53	mg/Kg
Q1235-03	JPP-51.2-012925	SOIL	Cobalt	6.16		0.061	1.58	mg/Kg
Q1235-03	JPP-51.2-012925	SOIL	Copper	34.3		0.50	1.05	mg/Kg
Q1235-03	JPP-51.2-012925	SOIL	Iron	10600		2.83	5.26	mg/Kg
Q1235-03	JPP-51.2-012925	SOIL	Lead	54.7		0.16	0.63	mg/Kg
Q1235-03	JPP-51.2-012925	SOIL	Magnesium	6820		3.61	105	mg/Kg
Q1235-03	JPP-51.2-012925	SOIL	Manganese	198		0.075	1.05	mg/Kg
Q1235-03	JPP-51.2-012925	SOIL	Mercury	0.13		0.0070	0.015	mg/Kg
Q1235-03	JPP-51.2-012925	SOIL	Nickel	19.9		0.095	2.10	mg/Kg
Q1235-03	JPP-51.2-012925	SOIL	Potassium	1140		30.2	105	mg/Kg
Q1235-03	JPP-51.2-012925	SOIL	Sodium	446		38.0	105	mg/Kg
Q1235-03	JPP-51.2-012925	SOIL	Vanadium	19.6		0.28	2.10	mg/Kg
Q1235-03	JPP-51.2-012925	SOIL	Zinc	76.6		0.12	2.10	mg/Kg
Client ID : JPP-16.1-012925								
Q1235-07	JPP-16.1-012925	SOIL	Aluminum	4460		2.21	4.59	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Antimony	0.90	J	0.14	2.30	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Arsenic	4.60		0.27	0.92	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Barium	80.4		0.59	4.59	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Beryllium	0.34		0.011	0.28	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Cadmium	0.44		0.015	0.28	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Calcium	28600		2.57	91.9	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Chromium	13.0		0.050	0.46	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Cobalt	4.72		0.053	1.38	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Copper	72.0		0.43	0.92	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Iron	9910		2.47	4.59	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Lead	184		0.14	0.55	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Magnesium	7860		3.15	91.9	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Manganese	156		0.065	0.92	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Mercury	0.31		0.0060	0.014	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Nickel	15.4		0.083	1.84	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Potassium	1160		26.4	91.9	mg/Kg

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Hit Summary Sheet
SW-846

SDG No.:	Q1235	**Order ID:**	Q1235
Client:	RU2 Engineering, LLC	**Project ID:**	NYCDDC SANTWOBR Brooklyn Bridge

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Q1235-07	JPP-16.1-012925	SOIL	Silver	0.068	J	0.048	0.46	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Sodium	1180		33.2	91.9	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Vanadium	18.0		0.25	1.84	mg/Kg
Q1235-07	JPP-16.1-012925	SOIL	Zinc	117		0.10	1.84	mg/Kg

SAMPLE DATA

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Report of Analysis

Client:	RU2 Engineering, LLC	Date Collected:	01/29/25
Project:	NYCDDC SANTWOBR Brooklyn Bridge BBMCR	Date Received:	01/30/25
Client Sample ID:	JPP-51.2-012925	SDG No.:	Q1235
Lab Sample ID:	Q1235-03	Matrix:	SOIL
Level (low/med):	low	% Solid:	91.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.	Prep Met.
7429-90-5	Aluminum	6010		1	2.54	5.26	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7440-36-0	Antimony	2.63	UN	1	0.16	2.63	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7440-38-2	Arsenic	4.07		1	0.31	1.05	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7440-39-3	Barium	55.0		1	0.67	5.26	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7440-41-7	Beryllium	0.41		1	0.013	0.32	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7440-43-9	Cadmium	0.45		1	0.017	0.32	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7440-70-2	Calcium	39200		1	2.95	105	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7440-47-3	Chromium	21.5		1	0.057	0.53	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7440-48-4	Cobalt	6.16		1	0.061	1.58	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7440-50-8	Copper	34.3		1	0.50	1.05	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7439-89-6	Iron	10600		1	2.83	5.26	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7439-92-1	Lead	54.7	N	1	0.16	0.63	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7439-95-4	Magnesium	6820		1	3.61	105	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7439-96-5	Manganese	198		1	0.075	1.05	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7439-97-6	Mercury	0.13		1	0.0070	0.015	mg/Kg	01/30/25 16:50	01/31/25 14:12	SW7471B	
7440-02-0	Nickel	19.9		1	0.095	2.10	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7440-09-7	Potassium	1140	N	1	30.2	105	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7782-49-2	Selenium	1.05	U	1	0.35	1.05	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7440-22-4	Silver	0.53	U	1	0.055	0.53	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7440-23-5	Sodium	446		1	38.0	105	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7440-28-0	Thallium	2.10	U	1	0.46	2.10	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7440-62-2	Vanadium	19.6	N	1	0.28	2.10	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050
7440-66-6	Zinc	76.6		1	0.12	2.10	mg/Kg	01/30/25 15:10	01/31/25 13:44	SW6010	SW3050

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	
Comments:	METALS-TAL				

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

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

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Report of Analysis

Client:	RU2 Engineering, LLC	Date Collected:	01/29/25
Project:	NYCDDC SANTWOBR Brooklyn Bridge BBMCR	Date Received:	01/30/25
Client Sample ID:	JPP-16.1-012925	SDG No.:	Q1235
Lab Sample ID:	Q1235-07	Matrix:	SOIL
Level (low/med):	low	% Solid:	89.2

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.	Prep Met.
7429-90-5	Aluminum	4460		1	2.21	4.59	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7440-36-0	Antimony	0.90	JN	1	0.14	2.30	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7440-38-2	Arsenic	4.60		1	0.27	0.92	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7440-39-3	Barium	80.4		1	0.59	4.59	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7440-41-7	Beryllium	0.34		1	0.011	0.28	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7440-43-9	Cadmium	0.44		1	0.015	0.28	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7440-70-2	Calcium	28600		1	2.57	91.9	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7440-47-3	Chromium	13.0		1	0.050	0.46	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7440-48-4	Cobalt	4.72		1	0.053	1.38	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7440-50-8	Copper	72.0		1	0.43	0.92	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7439-89-6	Iron	9910		1	2.47	4.59	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7439-92-1	Lead	184	N	1	0.14	0.55	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7439-95-4	Magnesium	7860		1	3.15	91.9	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7439-96-5	Manganese	156		1	0.065	0.92	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7439-97-6	Mercury	0.31		1	0.0060	0.014	mg/Kg	01/30/25 16:50	01/31/25 14:19	SW7471B	
7440-02-0	Nickel	15.4		1	0.083	1.84	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7440-09-7	Potassium	1160	N	1	26.4	91.9	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7782-49-2	Selenium	0.92	U	1	0.30	0.92	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7440-22-4	Silver	0.068	J	1	0.048	0.46	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7440-23-5	Sodium	1180		1	33.2	91.9	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7440-28-0	Thallium	1.84	U	1	0.40	1.84	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7440-62-2	Vanadium	18.0	N	1	0.25	1.84	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050
7440-66-6	Zinc	117		1	0.10	1.84	mg/Kg	01/30/25 15:10	01/31/25 13:48	SW6010	SW3050

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	
Comments:	METALS-TAL				

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

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

METAL CALIBRATION DATA

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

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
ICV77	Mercury	3.97	4.0	99	90 - 110	CV	01/31/2025	13:15	LB134501

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

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
CCV92	Mercury	4.92	5.0	98	90 - 110	CV	01/31/2025	13:19	LB134501
CCV93	Mercury	4.98	5.0	100	90 - 110	CV	01/31/2025	13:47	LB134501
CCV94	Mercury	5.01	5.0	100	90 - 110	CV	01/31/2025	14:15	LB134501
CCV95	Mercury	5.00	5.0	100	90 - 110	CV	01/31/2025	14:42	LB134501
CCV96	Mercury	5.03	5.0	100	90 - 110	CV	01/31/2025	14:52	LB134501

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

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	01/31/2025	11:23	LB134505
	Antimony	1020	1000	102	90 - 110	P	01/31/2025	11:23	LB134505
	Arsenic	1030	1000	103	90 - 110	P	01/31/2025	11:23	LB134505
	Barium	478	520	92	90 - 110	P	01/31/2025	11:23	LB134505
	Beryllium	487	510	96	90 - 110	P	01/31/2025	11:23	LB134505
	Cadmium	496	510	97	90 - 110	P	01/31/2025	11:23	LB134505
	Calcium	9560	10000	96	90 - 110	P	01/31/2025	11:23	LB134505
	Chromium	519	520	100	90 - 110	P	01/31/2025	11:23	LB134505
	Cobalt	501	520	96	90 - 110	P	01/31/2025	11:23	LB134505
	Copper	515	510	101	90 - 110	P	01/31/2025	11:23	LB134505
	Iron	9830	10000	98	90 - 110	P	01/31/2025	11:23	LB134505
	Lead	997	1000	100	90 - 110	P	01/31/2025	11:23	LB134505
	Magnesium	5620	6000	94	90 - 110	P	01/31/2025	11:23	LB134505
	Manganese	488	520	94	90 - 110	P	01/31/2025	11:23	LB134505
	Nickel	504	530	95	90 - 110	P	01/31/2025	11:23	LB134505
	Potassium	9640	9900	97	90 - 110	P	01/31/2025	11:23	LB134505
	Selenium	1040	1000	104	90 - 110	P	01/31/2025	11:23	LB134505
	Silver	252	250	101	90 - 110	P	01/31/2025	11:23	LB134505
	Sodium	9160	10000	92	90 - 110	P	01/31/2025	11:23	LB134505
	Thallium	1020	1000	102	90 - 110	P	01/31/2025	11:23	LB134505
	Vanadium	481	500	96	90 - 110	P	01/31/2025	11:23	LB134505
	Zinc	1010	1000	101	90 - 110	P	01/31/2025	11:23	LB134505

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Metals

- 2a -
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

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	103	100	103	80 - 120	P	01/31/2025	11:27	LB134505
	Antimony	50.9	50.0	102	80 - 120	P	01/31/2025	11:27	LB134505
	Arsenic	23.2	20.0	116	80 - 120	P	01/31/2025	11:27	LB134505
	Barium	92.6	100	93	80 - 120	P	01/31/2025	11:27	LB134505
	Beryllium	5.53	6.0	92	80 - 120	P	01/31/2025	11:27	LB134505
	Cadmium	5.82	6.0	97	80 - 120	P	01/31/2025	11:27	LB134505
	Calcium	1920	2000	96	80 - 120	P	01/31/2025	11:27	LB134505
	Chromium	9.80	10.0	98	80 - 120	P	01/31/2025	11:27	LB134505
	Cobalt	29.1	30.0	97	80 - 120	P	01/31/2025	11:27	LB134505
	Copper	21.7	20.0	108	80 - 120	P	01/31/2025	11:27	LB134505
	Iron	103	100	103	80 - 120	P	01/31/2025	11:27	LB134505
	Lead	12.9	12.0	108	80 - 120	P	01/31/2025	11:27	LB134505
	Magnesium	2040	2000	102	80 - 120	P	01/31/2025	11:27	LB134505
	Manganese	19.5	20.0	98	80 - 120	P	01/31/2025	11:27	LB134505
	Nickel	39.2	40.0	98	80 - 120	P	01/31/2025	11:27	LB134505
	Potassium	2050	2000	102	80 - 120	P	01/31/2025	11:27	LB134505
	Selenium	19.2	20.0	96	80 - 120	P	01/31/2025	11:27	LB134505
	Silver	10.3	10.0	104	80 - 120	P	01/31/2025	11:27	LB134505
	Sodium	1950	2000	98	80 - 120	P	01/31/2025	11:27	LB134505
	Thallium	37.8	40.0	95	80 - 120	P	01/31/2025	11:27	LB134505
	Vanadium	39.9	40.0	100	80 - 120	P	01/31/2025	11:27	LB134505
	Zinc	41.2	40.0	103	80 - 120	P	01/31/2025	11:27	LB134505

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

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	9490	10000	95	90 - 110	P	01/31/2025	12:16	LB134505
	Antimony	4880	5000	98	90 - 110	P	01/31/2025	12:16	LB134505
	Arsenic	4860	5000	97	90 - 110	P	01/31/2025	12:16	LB134505
	Barium	9620	10000	96	90 - 110	P	01/31/2025	12:16	LB134505
	Beryllium	251	250	100	90 - 110	P	01/31/2025	12:16	LB134505
	Cadmium	2380	2500	95	90 - 110	P	01/31/2025	12:16	LB134505
	Calcium	23600	25000	94	90 - 110	P	01/31/2025	12:16	LB134505
	Chromium	956	1000	96	90 - 110	P	01/31/2025	12:16	LB134505
	Cobalt	2380	2500	95	90 - 110	P	01/31/2025	12:16	LB134505
	Copper	1220	1250	98	90 - 110	P	01/31/2025	12:16	LB134505
	Iron	4860	5000	97	90 - 110	P	01/31/2025	12:16	LB134505
	Lead	4780	5000	96	90 - 110	P	01/31/2025	12:16	LB134505
	Magnesium	23200	25000	93	90 - 110	P	01/31/2025	12:16	LB134505
	Manganese	2340	2500	94	90 - 110	P	01/31/2025	12:16	LB134505
	Nickel	2380	2500	95	90 - 110	P	01/31/2025	12:16	LB134505
	Potassium	24500	25000	98	90 - 110	P	01/31/2025	12:16	LB134505
	Selenium	4910	5000	98	90 - 110	P	01/31/2025	12:16	LB134505
	Silver	1190	1250	96	90 - 110	P	01/31/2025	12:16	LB134505
	Sodium	24500	25000	98	90 - 110	P	01/31/2025	12:16	LB134505
	Thallium	5080	5000	102	90 - 110	P	01/31/2025	12:16	LB134505
	Vanadium	2370	2500	95	90 - 110	P	01/31/2025	12:16	LB134505
	Zinc	2410	2500	96	90 - 110	P	01/31/2025	12:16	LB134505
CCV02	Aluminum	9670	10000	97	90 - 110	P	01/31/2025	13:06	LB134505
	Antimony	4970	5000	100	90 - 110	P	01/31/2025	13:06	LB134505
	Arsenic	4930	5000	99	90 - 110	P	01/31/2025	13:06	LB134505
	Barium	9270	10000	93	90 - 110	P	01/31/2025	13:06	LB134505
	Beryllium	227	250	91	90 - 110	P	01/31/2025	13:06	LB134505
	Cadmium	2360	2500	94	90 - 110	P	01/31/2025	13:06	LB134505
	Calcium	23200	25000	93	90 - 110	P	01/31/2025	13:06	LB134505
	Chromium	971	1000	97	90 - 110	P	01/31/2025	13:06	LB134505
	Cobalt	2380	2500	95	90 - 110	P	01/31/2025	13:06	LB134505
	Copper	1240	1250	99	90 - 110	P	01/31/2025	13:06	LB134505
	Iron	4780	5000	96	90 - 110	P	01/31/2025	13:06	LB134505
	Lead	4760	5000	95	90 - 110	P	01/31/2025	13:06	LB134505

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

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	23400	25000	94	90 - 110	P	01/31/2025	13:06	LB134505
	Manganese	2260	2500	91	90 - 110	P	01/31/2025	13:06	LB134505
	Nickel	2380	2500	95	90 - 110	P	01/31/2025	13:06	LB134505
	Potassium	24600	25000	98	90 - 110	P	01/31/2025	13:06	LB134505
	Selenium	5020	5000	100	90 - 110	P	01/31/2025	13:06	LB134505
	Silver	1190	1250	95	90 - 110	P	01/31/2025	13:06	LB134505
	Sodium	24000	25000	96	90 - 110	P	01/31/2025	13:06	LB134505
	Thallium	5100	5000	102	90 - 110	P	01/31/2025	13:06	LB134505
	Vanadium	2370	2500	95	90 - 110	P	01/31/2025	13:06	LB134505
	Zinc	2410	2500	96	90 - 110	P	01/31/2025	13:06	LB134505
CCV03	Aluminum	9820	10000	98	90 - 110	P	01/31/2025	13:57	LB134505
	Antimony	4880	5000	98	90 - 110	P	01/31/2025	13:57	LB134505
	Arsenic	4840	5000	97	90 - 110	P	01/31/2025	13:57	LB134505
	Barium	9480	10000	95	90 - 110	P	01/31/2025	13:57	LB134505
	Beryllium	246	250	98	90 - 110	P	01/31/2025	13:57	LB134505
	Cadmium	2390	2500	96	90 - 110	P	01/31/2025	13:57	LB134505
	Calcium	23700	25000	95	90 - 110	P	01/31/2025	13:57	LB134505
	Chromium	982	1000	98	90 - 110	P	01/31/2025	13:57	LB134505
	Cobalt	2390	2500	96	90 - 110	P	01/31/2025	13:57	LB134505
	Copper	1230	1250	98	90 - 110	P	01/31/2025	13:57	LB134505
	Iron	4710	5000	94	90 - 110	P	01/31/2025	13:57	LB134505
	Lead	4790	5000	96	90 - 110	P	01/31/2025	13:57	LB134505
	Magnesium	23700	25000	95	90 - 110	P	01/31/2025	13:57	LB134505
	Manganese	2330	2500	93	90 - 110	P	01/31/2025	13:57	LB134505
	Nickel	2390	2500	96	90 - 110	P	01/31/2025	13:57	LB134505
	Potassium	23900	25000	96	90 - 110	P	01/31/2025	13:57	LB134505
	Selenium	4880	5000	98	90 - 110	P	01/31/2025	13:57	LB134505
	Silver	1220	1250	97	90 - 110	P	01/31/2025	13:57	LB134505
	Sodium	22600	25000	90	90 - 110	P	01/31/2025	13:57	LB134505
	Thallium	5160	5000	103	90 - 110	P	01/31/2025	13:57	LB134505
	Vanadium	2400	2500	96	90 - 110	P	01/31/2025	13:57	LB134505
	Zinc	2440	2500	98	90 - 110	P	01/31/2025	13:57	LB134505
CCV04	Aluminum	9870	10000	99	90 - 110	P	01/31/2025	14:47	LB134505
	Antimony	5050	5000	101	90 - 110	P	01/31/2025	14:47	LB134505

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

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	5030	5000	101	90 - 110	P	01/31/2025	14:47	LB134505
	Barium	9430	10000	94	90 - 110	P	01/31/2025	14:47	LB134505
	Beryllium	243	250	97	90 - 110	P	01/31/2025	14:47	LB134505
	Cadmium	2440	2500	97	90 - 110	P	01/31/2025	14:47	LB134505
	Calcium	23500	25000	94	90 - 110	P	01/31/2025	14:47	LB134505
	Chromium	1010	1000	101	90 - 110	P	01/31/2025	14:47	LB134505
	Cobalt	2430	2500	97	90 - 110	P	01/31/2025	14:47	LB134505
	Copper	1260	1250	101	90 - 110	P	01/31/2025	14:47	LB134505
	Iron	4760	5000	95	90 - 110	P	01/31/2025	14:47	LB134505
	Lead	4880	5000	98	90 - 110	P	01/31/2025	14:47	LB134505
	Magnesium	23700	25000	95	90 - 110	P	01/31/2025	14:47	LB134505
	Manganese	2280	2500	91	90 - 110	P	01/31/2025	14:47	LB134505
	Nickel	2430	2500	97	90 - 110	P	01/31/2025	14:47	LB134505
	Potassium	24300	25000	97	90 - 110	P	01/31/2025	14:47	LB134505
	Selenium	5090	5000	102	90 - 110	P	01/31/2025	14:47	LB134505
	Silver	1240	1250	99	90 - 110	P	01/31/2025	14:47	LB134505
	Sodium	22600	25000	90	90 - 110	P	01/31/2025	14:47	LB134505
	Thallium	5290	5000	106	90 - 110	P	01/31/2025	14:47	LB134505
	Vanadium	2400	2500	96	90 - 110	P	01/31/2025	14:47	LB134505
	Zinc	2510	2500	101	90 - 110	P	01/31/2025	14:47	LB134505
CCV05	Aluminum	9620	10000	96	90 - 110	P	01/31/2025	15:25	LB134505
	Antimony	4930	5000	98	90 - 110	P	01/31/2025	15:25	LB134505
	Arsenic	4900	5000	98	90 - 110	P	01/31/2025	15:25	LB134505
	Barium	9380	10000	94	90 - 110	P	01/31/2025	15:25	LB134505
	Beryllium	230	250	92	90 - 110	P	01/31/2025	15:25	LB134505
	Cadmium	2370	2500	95	90 - 110	P	01/31/2025	15:25	LB134505
	Calcium	23300	25000	93	90 - 110	P	01/31/2025	15:25	LB134505
	Chromium	979	1000	98	90 - 110	P	01/31/2025	15:25	LB134505
	Cobalt	2370	2500	95	90 - 110	P	01/31/2025	15:25	LB134505
	Copper	1230	1250	98	90 - 110	P	01/31/2025	15:25	LB134505
	Iron	4860	5000	97	90 - 110	P	01/31/2025	15:25	LB134505
	Lead	4750	5000	95	90 - 110	P	01/31/2025	15:25	LB134505
	Magnesium	23200	25000	93	90 - 110	P	01/31/2025	15:25	LB134505
	Manganese	2280	2500	91	90 - 110	P	01/31/2025	15:25	LB134505

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

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	2370	2500	95	90 - 110	P	01/31/2025	15:25	LB134505
	Potassium	24900	25000	100	90 - 110	P	01/31/2025	15:25	LB134505
	Selenium	4970	5000	99	90 - 110	P	01/31/2025	15:25	LB134505
	Silver	1210	1250	97	90 - 110	P	01/31/2025	15:25	LB134505
	Sodium	23900	25000	96	90 - 110	P	01/31/2025	15:25	LB134505
	Thallium	5000	5000	100	90 - 110	P	01/31/2025	15:25	LB134505
	Vanadium	2370	2500	95	90 - 110	P	01/31/2025	15:25	LB134505
	Zinc	2420	2500	97	90 - 110	P	01/31/2025	15:25	LB134505

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Metals

- 2b -
CRDL STANDARD FOR AA & ICP

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

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	99.4	100	99	40 - 160	P	01/31/2025	11:36	LB134505
	Antimony	49.4	50.0	99	40 - 160	P	01/31/2025	11:36	LB134505
	Arsenic	21.0	20.0	105	40 - 160	P	01/31/2025	11:36	LB134505
	Barium	89.7	100	90	40 - 160	P	01/31/2025	11:36	LB134505
	Beryllium	5.63	6.0	94	40 - 160	P	01/31/2025	11:36	LB134505
	Cadmium	5.77	6.0	96	40 - 160	P	01/31/2025	11:36	LB134505
	Calcium	1900	2000	95	40 - 160	P	01/31/2025	11:36	LB134505
	Chromium	9.68	10.0	97	40 - 160	P	01/31/2025	11:36	LB134505
	Cobalt	28.8	30.0	96	40 - 160	P	01/31/2025	11:36	LB134505
	Copper	21.0	20.0	105	40 - 160	P	01/31/2025	11:36	LB134505
	Iron	94.7	100	95	40 - 160	P	01/31/2025	11:36	LB134505
	Lead	11.4	12.0	95	40 - 160	P	01/31/2025	11:36	LB134505
	Magnesium	2020	2000	101	40 - 160	P	01/31/2025	11:36	LB134505
	Manganese	19.3	20.0	97	40 - 160	P	01/31/2025	11:36	LB134505
	Nickel	38.4	40.0	96	40 - 160	P	01/31/2025	11:36	LB134505
	Potassium	1910	2000	96	40 - 160	P	01/31/2025	11:36	LB134505
	Selenium	20.7	20.0	103	40 - 160	P	01/31/2025	11:36	LB134505
	Silver	10.2	10.0	102	40 - 160	P	01/31/2025	11:36	LB134505
	Sodium	1810	2000	90	40 - 160	P	01/31/2025	11:36	LB134505
	Thallium	38.9	40.0	97	40 - 160	P	01/31/2025	11:36	LB134505
	Vanadium	39.6	40.0	99	40 - 160	P	01/31/2025	11:36	LB134505
	Zinc	40.8	40.0	102	40 - 160	P	01/31/2025	11:36	LB134505
CRA	Mercury	0.18	0.2	91	40 - 160	CV	01/31/2025	13:24	LB134501

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB77	Mercury	0.20	+/-0.20	U	0.20	CV	01/31/2025	13:17	LB134501

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- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB92	Mercury	0.20	+/-0.20	U	0.20	CV	01/31/2025	13:21	LB134501
CCB93	Mercury	0.20	+/-0.20	U	0.20	CV	01/31/2025	13:49	LB134501
CCB94	Mercury	0.20	+/-0.20	U	0.20	CV	01/31/2025	14:17	LB134501
CCB95	Mercury	0.20	+/-0.20	U	0.20	CV	01/31/2025	14:45	LB134501
CCB96	Mercury	0.20	+/-0.20	U	0.20	CV	01/31/2025	14:54	LB134501

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- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Aluminum	100	+/-100	U	100	P	01/31/2025	11:32	LB134505
	Antimony	50.0	+/-50.0	U	50.0	P	01/31/2025	11:32	LB134505
	Arsenic	20.0	+/-20.0	U	20.0	P	01/31/2025	11:32	LB134505
	Barium	100	+/-100	U	100	P	01/31/2025	11:32	LB134505
	Beryllium	6.00	+/-6.00	U	6.00	P	01/31/2025	11:32	LB134505
	Cadmium	6.00	+/-6.00	U	6.00	P	01/31/2025	11:32	LB134505
	Calcium	2000	+/-2000	U	2000	P	01/31/2025	11:32	LB134505
	Chromium	10.0	+/-10.0	U	10.0	P	01/31/2025	11:32	LB134505
	Cobalt	30.0	+/-30.0	U	30.0	P	01/31/2025	11:32	LB134505
	Copper	20.0	+/-20.0	U	20.0	P	01/31/2025	11:32	LB134505
	Iron	100	+/-100	U	100	P	01/31/2025	11:32	LB134505
	Lead	12.0	+/-12.0	U	12.0	P	01/31/2025	11:32	LB134505
	Magnesium	2000	+/-2000	U	2000	P	01/31/2025	11:32	LB134505
	Manganese	20.0	+/-20.0	U	20.0	P	01/31/2025	11:32	LB134505
	Nickel	40.0	+/-40.0	U	40.0	P	01/31/2025	11:32	LB134505
	Potassium	2000	+/-2000	U	2000	P	01/31/2025	11:32	LB134505
	Selenium	20.0	+/-20.0	U	20.0	P	01/31/2025	11:32	LB134505
	Silver	10.0	+/-10.0	U	10.0	P	01/31/2025	11:32	LB134505
	Sodium	2000	+/-2000	U	2000	P	01/31/2025	11:32	LB134505
	Thallium	40.0	+/-40.0	U	40.0	P	01/31/2025	11:32	LB134505
	Vanadium	40.0	+/-40.0	U	40.0	P	01/31/2025	11:32	LB134505
	Zinc	40.0	+/-40.0	U	40.0	P	01/31/2025	11:32	LB134505

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Aluminum	100	+/-100	U	100	P	01/31/2025	12:20	LB134505
	Antimony	50.0	+/-50.0	U	50.0	P	01/31/2025	12:20	LB134505
	Arsenic	20.0	+/-20.0	U	20.0	P	01/31/2025	12:20	LB134505
	Barium	100	+/-100	U	100	P	01/31/2025	12:20	LB134505
	Beryllium	6.00	+/-6.00	U	6.00	P	01/31/2025	12:20	LB134505
	Cadmium	6.00	+/-6.00	U	6.00	P	01/31/2025	12:20	LB134505
	Calcium	2000	+/-2000	U	2000	P	01/31/2025	12:20	LB134505
	Chromium	10.0	+/-10.0	U	10.0	P	01/31/2025	12:20	LB134505
	Cobalt	30.0	+/-30.0	U	30.0	P	01/31/2025	12:20	LB134505
	Copper	20.0	+/-20.0	U	20.0	P	01/31/2025	12:20	LB134505
	Iron	100	+/-100	U	100	P	01/31/2025	12:20	LB134505
	Lead	12.0	+/-12.0	U	12.0	P	01/31/2025	12:20	LB134505
	Magnesium	2000	+/-2000	U	2000	P	01/31/2025	12:20	LB134505
	Manganese	20.0	+/-20.0	U	20.0	P	01/31/2025	12:20	LB134505
	Nickel	40.0	+/-40.0	U	40.0	P	01/31/2025	12:20	LB134505
	Potassium	2000	+/-2000	U	2000	P	01/31/2025	12:20	LB134505
	Selenium	20.0	+/-20.0	U	20.0	P	01/31/2025	12:20	LB134505
	Silver	10.0	+/-10.0	U	10.0	P	01/31/2025	12:20	LB134505
	Sodium	2000	+/-2000	U	2000	P	01/31/2025	12:20	LB134505
	Thallium	40.0	+/-40.0	U	40.0	P	01/31/2025	12:20	LB134505
	Vanadium	40.0	+/-40.0	U	40.0	P	01/31/2025	12:20	LB134505
	Zinc	40.0	+/-40.0	U	40.0	P	01/31/2025	12:20	LB134505
CCB02	Aluminum	100	+/-100	U	100	P	01/31/2025	13:10	LB134505
	Antimony	50.0	+/-50.0	U	50.0	P	01/31/2025	13:10	LB134505
	Arsenic	20.0	+/-20.0	U	20.0	P	01/31/2025	13:10	LB134505
	Barium	100	+/-100	U	100	P	01/31/2025	13:10	LB134505
	Beryllium	6.00	+/-6.00	U	6.00	P	01/31/2025	13:10	LB134505
	Cadmium	6.00	+/-6.00	U	6.00	P	01/31/2025	13:10	LB134505
	Calcium	2000	+/-2000	U	2000	P	01/31/2025	13:10	LB134505
	Chromium	10.0	+/-10.0	U	10.0	P	01/31/2025	13:10	LB134505
	Cobalt	30.0	+/-30.0	U	30.0	P	01/31/2025	13:10	LB134505
	Copper	20.0	+/-20.0	U	20.0	P	01/31/2025	13:10	LB134505
	Iron	100	+/-100	U	100	P	01/31/2025	13:10	LB134505
	Lead	12.0	+/-12.0	U	12.0	P	01/31/2025	13:10	LB134505
	Magnesium	2000	+/-2000	U	2000	P	01/31/2025	13:10	LB134505
	Manganese	20.0	+/-20.0	U	20.0	P	01/31/2025	13:10	LB134505
	Nickel	40.0	+/-40.0	U	40.0	P	01/31/2025	13:10	LB134505
	Potassium	2000	+/-2000	U	2000	P	01/31/2025	13:10	LB134505
	Selenium	20.0	+/-20.0	U	20.0	P	01/31/2025	13:10	LB134505

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB02	Silver	10.0	+/-10.0	U	10.0	P	01/31/2025	13:10	LB134505
	Sodium	2000	+/-2000	U	2000	P	01/31/2025	13:10	LB134505
	Thallium	40.0	+/-40.0	U	40.0	P	01/31/2025	13:10	LB134505
	Vanadium	40.0	+/-40.0	U	40.0	P	01/31/2025	13:10	LB134505
	Zinc	40.0	+/-40.0	U	40.0	P	01/31/2025	13:10	LB134505
CCB03	Aluminum	100	+/-100	U	100	P	01/31/2025	14:01	LB134505
	Antimony	50.0	+/-50.0	U	50.0	P	01/31/2025	14:01	LB134505
	Arsenic	20.0	+/-20.0	U	20.0	P	01/31/2025	14:01	LB134505
	Barium	100	+/-100	U	100	P	01/31/2025	14:01	LB134505
	Beryllium	6.00	+/-6.00	U	6.00	P	01/31/2025	14:01	LB134505
	Cadmium	6.00	+/-6.00	U	6.00	P	01/31/2025	14:01	LB134505
	Calcium	2000	+/-2000	U	2000	P	01/31/2025	14:01	LB134505
	Chromium	10.0	+/-10.0	U	10.0	P	01/31/2025	14:01	LB134505
	Cobalt	30.0	+/-30.0	U	30.0	P	01/31/2025	14:01	LB134505
	Copper	20.0	+/-20.0	U	20.0	P	01/31/2025	14:01	LB134505
	Iron	100	+/-100	U	100	P	01/31/2025	14:01	LB134505
	Lead	12.0	+/-12.0	U	12.0	P	01/31/2025	14:01	LB134505
	Magnesium	2000	+/-2000	U	2000	P	01/31/2025	14:01	LB134505
	Manganese	20.0	+/-20.0	U	20.0	P	01/31/2025	14:01	LB134505
	Nickel	40.0	+/-40.0	U	40.0	P	01/31/2025	14:01	LB134505
	Potassium	2000	+/-2000	U	2000	P	01/31/2025	14:01	LB134505
	Selenium	20.0	+/-20.0	U	20.0	P	01/31/2025	14:01	LB134505
	Silver	10.0	+/-10.0	U	10.0	P	01/31/2025	14:01	LB134505
	Sodium	2000	+/-2000	U	2000	P	01/31/2025	14:01	LB134505
	Thallium	40.0	+/-40.0	U	40.0	P	01/31/2025	14:01	LB134505
	Vanadium	40.0	+/-40.0	U	40.0	P	01/31/2025	14:01	LB134505
	Zinc	40.0	+/-40.0	U	40.0	P	01/31/2025	14:01	LB134505
CCB04	Aluminum	100	+/-100	U	100	P	01/31/2025	14:52	LB134505
	Antimony	50.0	+/-50.0	U	50.0	P	01/31/2025	14:52	LB134505
	Arsenic	20.0	+/-20.0	U	20.0	P	01/31/2025	14:52	LB134505
	Barium	100	+/-100	U	100	P	01/31/2025	14:52	LB134505
	Beryllium	6.00	+/-6.00	U	6.00	P	01/31/2025	14:52	LB134505
	Cadmium	6.00	+/-6.00	U	6.00	P	01/31/2025	14:52	LB134505
	Calcium	2000	+/-2000	U	2000	P	01/31/2025	14:52	LB134505
	Chromium	10.0	+/-10.0	U	10.0	P	01/31/2025	14:52	LB134505
	Cobalt	30.0	+/-30.0	U	30.0	P	01/31/2025	14:52	LB134505
	Copper	20.0	+/-20.0	U	20.0	P	01/31/2025	14:52	LB134505
	Iron	100	+/-100	U	100	P	01/31/2025	14:52	LB134505
	Lead	12.0	+/-12.0	U	12.0	P	01/31/2025	14:52	LB134505

Alliance TECHNICAL GROUP
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Fax : 908 789 8922

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- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB04	Magnesium	2000	+/-2000	U	2000	P	01/31/2025	14:52	LB134505
	Manganese	20.0	+/-20.0	U	20.0	P	01/31/2025	14:52	LB134505
	Nickel	40.0	+/-40.0	U	40.0	P	01/31/2025	14:52	LB134505
	Potassium	2000	+/-2000	U	2000	P	01/31/2025	14:52	LB134505
	Selenium	20.0	+/-20.0	U	20.0	P	01/31/2025	14:52	LB134505
	Silver	10.0	+/-10.0	U	10.0	P	01/31/2025	14:52	LB134505
	Sodium	2000	+/-2000	U	2000	P	01/31/2025	14:52	LB134505
	Thallium	40.0	+/-40.0	U	40.0	P	01/31/2025	14:52	LB134505
	Vanadium	40.0	+/-40.0	U	40.0	P	01/31/2025	14:52	LB134505
	Zinc	40.0	+/-40.0	U	40.0	P	01/31/2025	14:52	LB134505
CCB05	Aluminum	100	+/-100	U	100	P	01/31/2025	15:29	LB134505
	Antimony	50.0	+/-50.0	U	50.0	P	01/31/2025	15:29	LB134505
	Arsenic	20.0	+/-20.0	U	20.0	P	01/31/2025	15:29	LB134505
	Barium	100	+/-100	U	100	P	01/31/2025	15:29	LB134505
	Beryllium	6.00	+/-6.00	U	6.00	P	01/31/2025	15:29	LB134505
	Cadmium	6.00	+/-6.00	U	6.00	P	01/31/2025	15:29	LB134505
	Calcium	2000	+/-2000	U	2000	P	01/31/2025	15:29	LB134505
	Chromium	10.0	+/-10.0	U	10.0	P	01/31/2025	15:29	LB134505
	Cobalt	30.0	+/-30.0	U	30.0	P	01/31/2025	15:29	LB134505
	Copper	20.0	+/-20.0	U	20.0	P	01/31/2025	15:29	LB134505
	Iron	100	+/-100	U	100	P	01/31/2025	15:29	LB134505
	Lead	12.0	+/-12.0	U	12.0	P	01/31/2025	15:29	LB134505
	Magnesium	2000	+/-2000	U	2000	P	01/31/2025	15:29	LB134505
	Manganese	20.0	+/-20.0	U	20.0	P	01/31/2025	15:29	LB134505
	Nickel	40.0	+/-40.0	U	40.0	P	01/31/2025	15:29	LB134505
	Potassium	2000	+/-2000	U	2000	P	01/31/2025	15:29	LB134505
	Selenium	20.0	+/-20.0	U	20.0	P	01/31/2025	15:29	LB134505
	Silver	10.0	+/-10.0	U	10.0	P	01/31/2025	15:29	LB134505
	Sodium	2000	+/-2000	U	2000	P	01/31/2025	15:29	LB134505
	Thallium	40.0	+/-40.0	U	40.0	P	01/31/2025	15:29	LB134505
	Vanadium	40.0	+/-40.0	U	40.0	P	01/31/2025	15:29	LB134505
	Zinc	40.0	+/-40.0	U	40.0	P	01/31/2025	15:29	LB134505

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- 3b -
PREPARATION BLANK SUMMARY

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Instrument: CV1

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB166402BL		**SOLID**		**Batch Number:**	**PB166402**		**Prep Date:**	**01/30/2025**	
	Mercury	0.013	<0.013	U	0.013	CV	01/31/2025	13:31	LB134501

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- 3b -
PREPARATION BLANK SUMMARY

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Instrument: P4

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB166387BL		**SOLID**		**Batch Number:**	**PB166387**		**Prep Date:**	**01/30/2025**	
	Aluminum	4.08	<4.08	U	4.08	P	01/31/2025	14:22	LB134505
	Antimony	2.04	<2.04	U	2.04	P	01/31/2025	14:22	LB134505
	Arsenic	0.82	<0.82	U	0.82	P	01/31/2025	14:22	LB134505
	Barium	4.08	<4.08	U	4.08	P	01/31/2025	14:22	LB134505
	Beryllium	0.25	<0.25	U	0.25	P	01/31/2025	14:22	LB134505
	Cadmium	0.25	<0.25	U	0.25	P	01/31/2025	14:22	LB134505
	Calcium	81.6	<81.6	U	81.6	P	01/31/2025	14:22	LB134505
	Chromium	0.41	<0.41	U	0.41	P	01/31/2025	14:22	LB134505
	Cobalt	1.22	<1.22	U	1.22	P	01/31/2025	14:22	LB134505
	Copper	0.82	<0.82	U	0.82	P	01/31/2025	14:22	LB134505
	Iron	4.08	<4.08	U	4.08	P	01/31/2025	14:22	LB134505
	Lead	0.49	<0.49	U	0.49	P	01/31/2025	14:22	LB134505
	Magnesium	81.6	<81.6	U	81.6	P	01/31/2025	14:22	LB134505
	Manganese	0.82	<0.82	U	0.82	P	01/31/2025	14:22	LB134505
	Nickel	1.63	<1.63	U	1.63	P	01/31/2025	14:22	LB134505
	Potassium	81.6	<81.6	U	81.6	P	01/31/2025	14:22	LB134505
	Selenium	0.82	<0.82	U	0.82	P	01/31/2025	14:22	LB134505
	Silver	0.41	<0.41	U	0.41	P	01/31/2025	14:22	LB134505
	Sodium	81.6	<81.6	U	81.6	P	01/31/2025	14:22	LB134505
	Thallium	1.63	<1.63	U	1.63	P	01/31/2025	14:22	LB134505
	Vanadium	1.63	<1.63	U	1.63	P	01/31/2025	14:22	LB134505
	Zinc	1.63	<1.63	U	1.63	P	01/31/2025	14:22	LB134505

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Fax : 908 789 8922

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- 4 -
INTERFERENCE CHECK SAMPLE

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

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	240000	255000	94	216000	294000	01/31/2025	11:47	LB134505
	Antimony	-2.70			-50	50	01/31/2025	11:47	LB134505
	Arsenic	2.15			-20	20	01/31/2025	11:47	LB134505
	Barium	2.86	6.0	48	-94	106	01/31/2025	11:47	LB134505
	Beryllium	1.33			-6	6	01/31/2025	11:47	LB134505
	Cadmium	-0.026	1.0	3	-5	7	01/31/2025	11:47	LB134505
	Calcium	225000	245000	92	208000	282000	01/31/2025	11:47	LB134505
	Chromium	55.5	52.0	107	42	62	01/31/2025	11:47	LB134505
	Cobalt	1.61			-30	30	01/31/2025	11:47	LB134505
	Copper	11.8	2.0	590	-18	22	01/31/2025	11:47	LB134505
	Iron	98700	101000	98	85600	116500	01/31/2025	11:47	LB134505
	Lead	8.45			-12	12	01/31/2025	11:47	LB134505
	Magnesium	242000	255000	95	216000	294000	01/31/2025	11:47	LB134505
	Manganese	6.39	7.0	91	-13	27	01/31/2025	11:47	LB134505
	Nickel	2.95	2.0	148	-38	42	01/31/2025	11:47	LB134505
	Potassium	97.3			0	0	01/31/2025	11:47	LB134505
	Selenium	-19.7			-20	20	01/31/2025	11:47	LB134505
	Silver	-3.42			-10	10	01/31/2025	11:47	LB134505
	Sodium	62.8			0	0	01/31/2025	11:47	LB134505
	Thallium	9.31			-40	40	01/31/2025	11:47	LB134505
	Vanadium	5.36			-40	40	01/31/2025	11:47	LB134505
	Zinc	3.14			-40	40	01/31/2025	11:47	LB134505
ICSAB01	Aluminum	239000	247000	97	209000	285000	01/31/2025	11:53	LB134505
	Antimony	621	618	100	525	711	01/31/2025	11:53	LB134505
	Arsenic	113	104	109	88.4	120	01/31/2025	11:53	LB134505
	Barium	479	537	89	437	637	01/31/2025	11:53	LB134505
	Beryllium	483	495	98	420	570	01/31/2025	11:53	LB134505
	Cadmium	992	972	102	826	1120	01/31/2025	11:53	LB134505
	Calcium	226000	235000	96	199000	271000	01/31/2025	11:53	LB134505
	Chromium	552	542	102	460	624	01/31/2025	11:53	LB134505
	Cobalt	502	476	106	404	548	01/31/2025	11:53	LB134505
	Copper	497	511	97	434	588	01/31/2025	11:53	LB134505
	Iron	96700	99300	97	84400	114500	01/31/2025	11:53	LB134505
	Lead	58.4	49.0	119	37	61	01/31/2025	11:53	LB134505
	Magnesium	242000	248000	98	210000	286000	01/31/2025	11:53	LB134505
	Manganese	469	507	92	430	584	01/31/2025	11:53	LB134505
	Nickel	991	954	104	810	1100	01/31/2025	11:53	LB134505
	Potassium	112			0	0	01/31/2025	11:53	LB134505
	Selenium	35.4	46.0	77	26	66	01/31/2025	11:53	LB134505
	Silver	211	201	105	170	232	01/31/2025	11:53	LB134505
	Sodium	46.6			0	0	01/31/2025	11:53	LB134505
	Thallium	94.3	108	87	68	148	01/31/2025	11:53	LB134505

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Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

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
ICSAB01	Vanadium	469	491	96	417	565	01/31/2025	11:53	LB134505
	Zinc	1040	952	109	809	1095	01/31/2025	11:53	LB134505

METAL QC DATA

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metals
- 5a -
MATRIX SPIKE SUMMARY

client: RU2 Engineering, LLC **level:** low **sdg no.:** Q1235

contract: RUTW01 **lab code:** CHEM **case no.:** Q1235 **sas no.:** Q1235

matrix: Solid **sample id:** Q1235-07 **client id:** JPP-16.1-012925MS

Percent Solids for Sample: 89.2 **Spiked ID:** Q1235-07MS **Percent Solids for Spike Sample:** 89.2

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	75 - 125	4430		4460		110	-22		P
Antimony	mg/Kg	75 - 125	21.9		0.90	J	43.3	49	N	P
Arsenic	mg/Kg	75 - 125	45.7		4.60		43.3	95		P
Barium	mg/Kg	75 - 125	89.2		80.4		10.8	81		P
Beryllium	mg/Kg	75 - 125	9.17		0.34		10.8	82		P
Cadmium	mg/Kg	75 - 125	10.8		0.44		10.8	95		P
Calcium	mg/Kg	75 - 125	30000		28600		54.2	2576		P
Chromium	mg/Kg	75 - 125	33.7		13.0		21.7	96		P
Cobalt	mg/Kg	75 - 125	16.0		4.72		10.8	105		P
Copper	mg/Kg	75 - 125	68.9		72.0		16.2	-19		P
Iron	mg/Kg	75 - 125	9930		9910		160	11		P
Lead	mg/Kg	75 - 125	236		184		54.2	96		P
Magnesium	mg/Kg	75 - 125	9850		7860		110	1806		P
Manganese	mg/Kg	75 - 125	174		156		10.8	171		P
Mercury	mg/Kg	80 - 120	0.55		0.31		0.27	87		CV
Nickel	mg/Kg	75 - 125	41.9		15.4		27.1	98		P
Potassium	mg/Kg	75 - 125	1660		1160		540	94		P
Selenium	mg/Kg	75 - 125	94.1		0.92	U	110	86		P
Silver	mg/Kg	75 - 125	3.81		0.068	J	4.1	91		P
Sodium	mg/Kg	75 - 125	1250		1180		160	46		P
Thallium	mg/Kg	75 - 125	104		1.84	U	110	94		P
Vanadium	mg/Kg	75 - 125	31.1		18.0		16.2	81		P
Zinc	mg/Kg	75 - 125	130		117		10.8	114		P

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metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: RU2 Engineering, LLC **level:** low **sdg no.:** Q1235

contract: RUTW01 **lab code:** CHEM **case no.:** Q1235 **sas no.:** Q1235

matrix: Solid **sample id:** Q1235-07 **client id:** JPP-16.1-012925MSD

Percent Solids for Sample: 89.2 **Spiked ID:** Q1235-07MSD **Percent Solids for Spike Sample:** 89.2

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	75 - 125	3840		4460		93.4	-655		P
Antimony	mg/Kg	75 - 125	18.8		0.90	J	37.4	48	N	P
Arsenic	mg/Kg	75 - 125	39.3		4.60		37.4	93		P
Barium	mg/Kg	75 - 125	79.2		80.4		9.3	-13		P
Beryllium	mg/Kg	75 - 125	7.94		0.34		9.3	82		P
Cadmium	mg/Kg	75 - 125	9.25		0.44		9.3	95		P
Calcium	mg/Kg	75 - 125	26100		28600		46.7	-5216		P
Chromium	mg/Kg	75 - 125	28.6		13.0		18.7	84		P
Cobalt	mg/Kg	75 - 125	13.8		4.72		9.3	98		P
Copper	mg/Kg	75 - 125	59.4		72.0		14.0	-90		P
Iron	mg/Kg	75 - 125	8620		9910		140	-925		P
Lead	mg/Kg	75 - 125	204		184		46.7	42	N	P
Magnesium	mg/Kg	75 - 125	8590		7860		93.4	783		P
Manganese	mg/Kg	75 - 125	155		156		9.3	-11		P
Mercury	mg/Kg	80 - 120	0.60		0.31		0.27	106		CV
Nickel	mg/Kg	75 - 125	36.2		15.4		23.4	89		P
Potassium	mg/Kg	75 - 125	1440		1160		470	59	N	P
Selenium	mg/Kg	75 - 125	80.6		0.92	U	93.4	86		P
Silver	mg/Kg	75 - 125	3.27		0.068	J	3.5	92		P
Sodium	mg/Kg	75 - 125	1100		1180		140	-54		P
Thallium	mg/Kg	75 - 125	89.2		1.84	U	93.4	96		P
Vanadium	mg/Kg	75 - 125	27.2		18.0		14.0	65	N	P
Zinc	mg/Kg	75 - 125	110		117		9.3	-82		P

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Metals
- 5b -
POST DIGEST SPIKE SUMMARY

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

Matrix: Solid **Level:** LOW **Client ID:** JPP-16.1-012925A

Sample ID: Q1235-07 **Spiked ID:** Q1235-07A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Antimony	mg/Kg	75 - 125	18.0		0.90	J	36.8	46		P
Lead	mg/Kg	75 - 125	197		184		45.9	29		P
Potassium	mg/Kg	75 - 125	1350		1160		460	42		P
Vanadium	mg/Kg	75 - 125	26.2		18.0		13.8	59		P

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Metals

- 6 -

DUPLICATE SAMPLE SUMMARY

Client: RU2 Engineering, LLC **Level:** LOW **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

Matrix: Solid **Sample ID:** Q1235-07 **Client ID:** JPP-16.1-012925DUP

Percent Solids for Sample: 89.2 **Duplicate ID** Q1235-07DUP **Percent Solids for Spike Sample:** 89.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	4460		5000		11		P
Antimony	mg/Kg	20	0.90	J	1.15	J	24		P
Arsenic	mg/Kg	20	4.60		5.04		9		P
Barium	mg/Kg	20	80.4		91.6		13		P
Beryllium	mg/Kg	20	0.34		0.38		12		P
Cadmium	mg/Kg	20	0.44		0.49		10		P
Calcium	mg/Kg	20	28600		32600		13		P
Chromium	mg/Kg	20	13.0		14.4		10		P
Cobalt	mg/Kg	20	4.72		5.30		12		P
Copper	mg/Kg	20	72.0		80.6		11		P
Iron	mg/Kg	20	9910		11200		12		P
Lead	mg/Kg	20	184		207		12		P
Magnesium	mg/Kg	20	7860		8870		12		P
Manganese	mg/Kg	20	156		178		13		P
Mercury	mg/Kg	20	0.31		0.32		2		CV
Nickel	mg/Kg	20	15.4		17.4		12		P
Potassium	mg/Kg	20	1160		1290		11		P
Selenium	mg/Kg	20	0.92	U	1.03	U			P
Silver	mg/Kg	20	0.068	J	0.11	J	43		P
Sodium	mg/Kg	20	1180		1330		12		P
Thallium	mg/Kg	20	1.84	U	2.06	U			P
Vanadium	mg/Kg	20	18.0		20.4		12		P
Zinc	mg/Kg	20	117		130		11		P

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

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Metals

- 6 -

DUPLICATE SAMPLE SUMMARY

Client: RU2 Engineering, LLC **Level:** LOW **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

Matrix: Solid **Sample ID:** Q1235-07MS **Client ID:** JPP-16.1-012925MSD

Percent Solids for Sample: 89.2 **Duplicate ID** Q1235-07MSD **Percent Solids for Spike Sample:** 89.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	4430		3840		14		P
Antimony	mg/Kg	20	21.9		18.8		15		P
Arsenic	mg/Kg	20	45.7		39.3		15		P
Barium	mg/Kg	20	89.2		79.2		12		P
Beryllium	mg/Kg	20	9.17		7.94		14		P
Cadmium	mg/Kg	20	10.8		9.25		15		P
Calcium	mg/Kg	20	30000		26100		14		P
Chromium	mg/Kg	20	33.7		28.6		16		P
Cobalt	mg/Kg	20	16.0		13.8		15		P
Copper	mg/Kg	20	68.9		59.4		15		P
Iron	mg/Kg	20	9930		8620		14		P
Lead	mg/Kg	20	236		204		15		P
Magnesium	mg/Kg	20	9850		8590		14		P
Manganese	mg/Kg	20	174		155		12		P
Mercury	mg/Kg	20	0.55		0.60		9		CV
Nickel	mg/Kg	20	41.9		36.2		15		P
Potassium	mg/Kg	20	1660		1440		14		P
Selenium	mg/Kg	20	94.1		80.6		15		P
Silver	mg/Kg	20	3.81		3.27		15		P
Sodium	mg/Kg	20	1250		1100		13		P
Thallium	mg/Kg	20	104		89.2		15		P
Vanadium	mg/Kg	20	31.1		27.2		13		P
Zinc	mg/Kg	20	130		110		17		P

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

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LABORATORY CONTROL SAMPLE SUMMARY

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB166387BS							
Aluminum	mg/Kg	81.6	78.6		96	80 - 120	P
Antimony	mg/Kg	32.7	31.7		97	80 - 120	P
Arsenic	mg/Kg	32.7	32.7		100	80 - 120	P
Barium	mg/Kg	8.2	7.43		91	80 - 120	P
Beryllium	mg/Kg	8.2	7.66		93	80 - 120	P
Cadmium	mg/Kg	8.2	7.67		94	80 - 120	P
Calcium	mg/Kg	40.8	40.3	J	99	80 - 120	P
Chromium	mg/Kg	16.3	16.2		99	80 - 120	P
Cobalt	mg/Kg	8.2	7.72		94	80 - 120	P
Copper	mg/Kg	12.2	12.4		102	80 - 120	P
Iron	mg/Kg	120	119		99	80 - 120	P
Lead	mg/Kg	40.8	38.7		95	80 - 120	P
Magnesium	mg/Kg	81.6	76.2	J	93	80 - 120	P
Manganese	mg/Kg	8.2	7.63		93	80 - 120	P
Nickel	mg/Kg	20.4	19.4		95	80 - 120	P
Potassium	mg/Kg	410	398		97	80 - 120	P
Selenium	mg/Kg	81.6	80.8		99	80 - 120	P
Silver	mg/Kg	3.1	3.01		97	80 - 120	P
Sodium	mg/Kg	120	111		92	80 - 120	P
Thallium	mg/Kg	81.6	84.5		104	80 - 120	P
Vanadium	mg/Kg	12.2	11.6		95	80 - 120	P
Zinc	mg/Kg	8.2	8.22		100	80 - 120	P

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LABORATORY CONTROL SAMPLE SUMMARY

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB166402BS							
Mercury	mg/Kg	0.25	0.28		114	80 - 120	CV

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Metals

-9 -

ICP SERIAL DILUTIONS

SAMPLE NO.

JPP-16.1-012925L

Lab Name: Chemtech Consulting Group **Contract:** RUTW01

Lab Code: CHEM **Lb No.:** lb134505 **Lab Sample ID :** Q1235-07L **SDG No.:** Q1235

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

Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	4460		4780		7		P
Antimony	0.90	J	11.5	U	100.0		P
Arsenic	4.60		5.03		9		P
Barium	80.4		85.9		7		P
Beryllium	0.34		0.41	J	22		P
Cadmium	0.44		0.19	J	58		P
Calcium	28600		32700		15		P
Chromium	13.0		14.8		14		P
Cobalt	4.72		4.80	J	2		P
Copper	72.0		86.5		20		P
Iron	9910		10600		7		P
Lead	184		196		7		P
Magnesium	7860		8700		11		P
Manganese	156		180		16		P
Mercury	0.31		0.33		7		CV
Nickel	15.4		16.2		5		P
Potassium	1160		1170		1		P
Selenium	0.92	U	4.59	U			P
Silver	0.068	J	2.30	U	100.0		P
Sodium	1180		1090		7		P
Thallium	1.84	U	9.19	U			P
Vanadium	18.0		20.3		13		P
Zinc	117		130		11		P

METAL PREPARATION & INSTRUMENT DATA

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Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

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

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Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

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

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Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

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

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Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

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

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Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Case No.:** Q1235 **SAS No.:** Q1235

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
- 13 -
SAMPLE PREPARATION SUMMARY

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Method:**

Case No.: Q1235 **SAS No.:** Q1235

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB166387**						
PB166387BL	PB166387BL	MB	SOLID	01/30/2025	2.45	100.0	100.00
PB166387BS	PB166387BS	LCS	SOLID	01/30/2025	2.45	100.0	100.00
Q1235-03	JPP-51.2-012925	SAM	SOLID	01/30/2025	2.07	100.0	91.80
Q1235-07	JPP-16.1-012925	SAM	SOLID	01/30/2025	2.44	100.0	89.20
Q1235-07DUP	JPP-16.1-012925DUP	DUP	SOLID	01/30/2025	2.18	100.0	89.20
Q1235-07MS	JPP-16.1-012925MS	MS	SOLID	01/30/2025	2.07	100.0	89.20
Q1235-07MSD	JPP-16.1-012925MSD	MSD	SOLID	01/30/2025	2.40	100.0	89.20

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Metals
- 13 -
SAMPLE PREPARATION SUMMARY

Client: RU2 Engineering, LLC **SDG No.:** Q1235

Contract: RUTW01 **Lab Code:** CHEM **Method:**

Case No.: Q1235 **SAS No.:** Q1235

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB166402**						
PB166402BL	PB166402BL	MB	SOLID	01/30/2025	0.54	35.0	100.00
PB166402BS	PB166402BS	LCS	SOLID	01/30/2025	0.55	35.0	100.00
Q1235-03	JPP-51.2-012925	SAM	SOLID	01/30/2025	0.51	35.0	91.80
Q1235-07	JPP-16.1-012925	SAM	SOLID	01/30/2025	0.58	35.0	89.20
Q1235-07DUP	JPP-16.1-012925DUP	DUP	SOLID	01/30/2025	0.56	35.0	89.20
Q1235-07MS	JPP-16.1-012925MS	MS	SOLID	01/30/2025	0.59	35.0	89.20
Q1235-07MSD	JPP-16.1-012925MSD	MSD	SOLID	01/30/2025	0.58	35.0	89.20

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metals
- 14 -
ANALYSIS RUN LOG

Client: RU2 Engineering, LLC **Contract:** RUTW01

Lab code: CHEM **Case no.:** Q1235 **Sas no.:** Q1235 **Sdg no.:** Q1235

Instrument id number: **Method:** **Run number:** LB134501

Start date: 01/31/2025 **End date:** 01/31/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1247	HG
S0.2	S0.2	1	1249	HG
S2.5	S2.5	1	1252	HG
S5	S5	1	1254	HG
S7.5	S7.5	1	1256	HG
S10	S10	1	1301	HG
ICV77	ICV77	1	1315	HG
ICB77	ICB77	1	1317	HG
CCV92	CCV92	1	1319	HG
CCB92	CCB92	1	1321	HG
CRA	CRA	1	1324	HG
PB166402BL	PB166402BL	1	1331	HG
PB166402BS	PB166402BS	1	1333	HG
CCV93	CCV93	1	1347	HG
CCB93	CCB93	1	1349	HG
Q1235-03	JPP-51.2-012925	1	1412	HG
CCV94	CCV94	1	1415	HG
CCB94	CCB94	1	1417	HG
Q1235-07	JPP-16.1-012925	1	1419	HG
Q1235-07DUP	JPP-16.1-012925DUP	1	1422	HG
Q1235-07MS	JPP-16.1-012925MS	1	1424	HG
Q1235-07MSD	JPP-16.1-012925MSD	1	1426	HG
Q1235-07L	JPP-16.1-012925L	5	1438	HG
CCV95	CCV95	1	1442	HG
CCB95	CCB95	1	1445	HG
CCV96	CCV96	1	1452	HG
CCB96	CCB96	1	1454	HG

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metals
- 14 -
ANALYSIS RUN LOG

Client: RU2 Engineering, LLC **Contract:** RUTW01

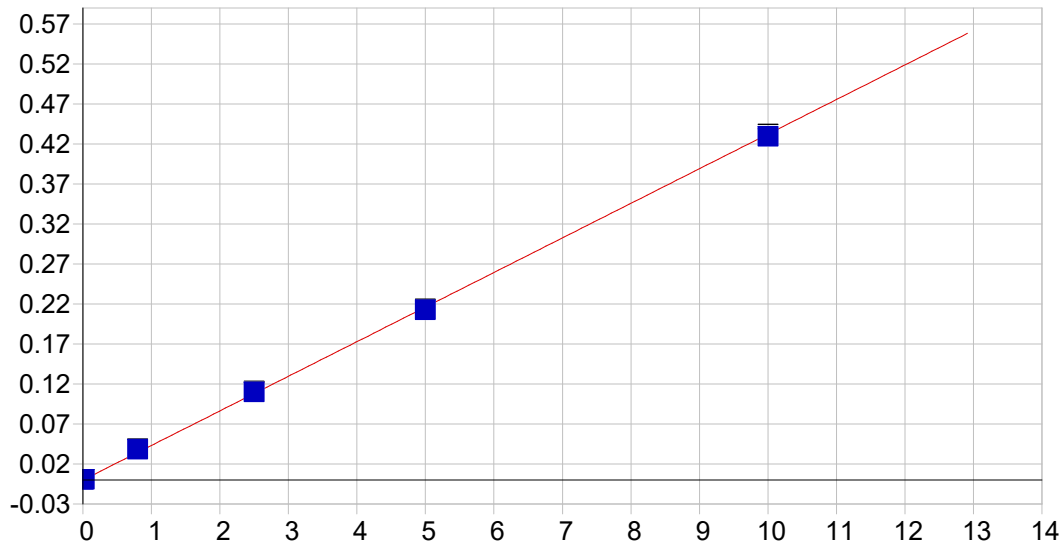
Lab code: CHEM **Case no.:** Q1235 **Sas no.:** Q1235 **Sdg no.:** Q1235

Instrument id number: **Method:** **Run number:** LB134505

Start date: 01/31/2025 **End date:** 01/31/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1057	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	1102	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	1106	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	1110	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	1115	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	1119	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	1123	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	1127	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	1132	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	1136	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	1147	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	1153	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	1216	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	1220	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	1306	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	1310	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1235-03	JPP-51.2-012925	1	1344	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1235-07	JPP-16.1-012925	1	1348	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1235-07DUP	JPP-16.1-012925DUP	1	1352	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	1357	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	1401	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1235-07L	JPP-16.1-012925L	5	1405	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1235-07MS	JPP-16.1-012925MS	1	1409	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1235-07MSD	JPP-16.1-012925MSD	1	1414	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1235-07A	JPP-16.1-012925A	1	1418	K,Pb,Sb,V
PB166387BL	PB166387BL	1	1422	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
PB166387BS	PB166387BS	1	1426	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	1447	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	1452	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	1525	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	1529	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn

METAL
RAW DATA

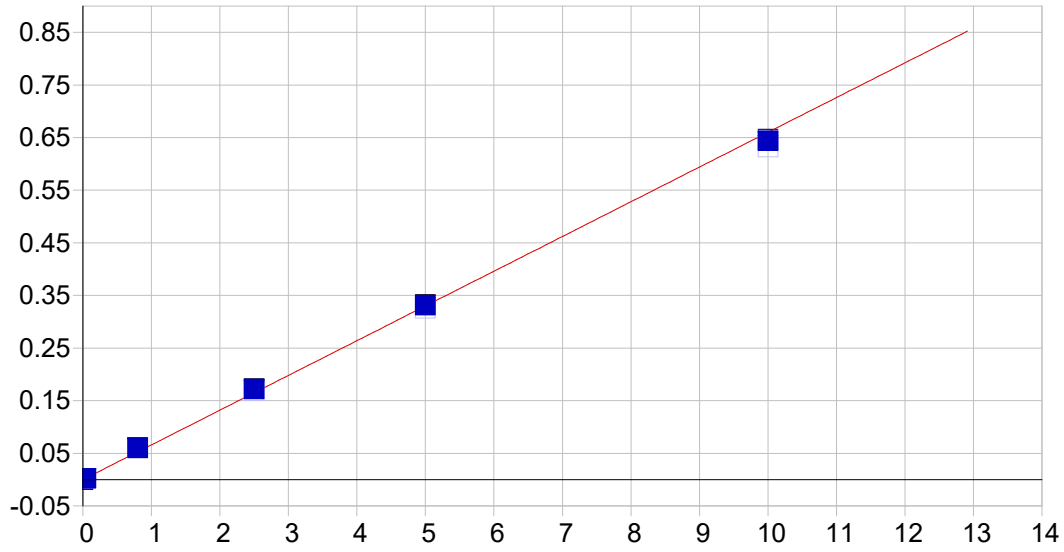


As 189.042 {479}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000111	Re-Slope:	1.000000
A1 (Gain):	0.043244	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999640	Status:	OK.
Std Error of Est:	0.000027		
Predicted MDL:	0.002830		
Predicted MQL:	0.009433		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00011	.000	1
S1	.02000	.02191	.002	9.56	.00083	.000	1
S3	2.5000	2.5495	.049	1.98	.11002	.001	1
S4	5.0000	4.9202	-.080	-1.60	.21242	.001	1
S5	10.000	9.9374	-.063	-.626	.42916	.003	1
S2	.80000	.89102	.091	11.4	.03838	.000	1

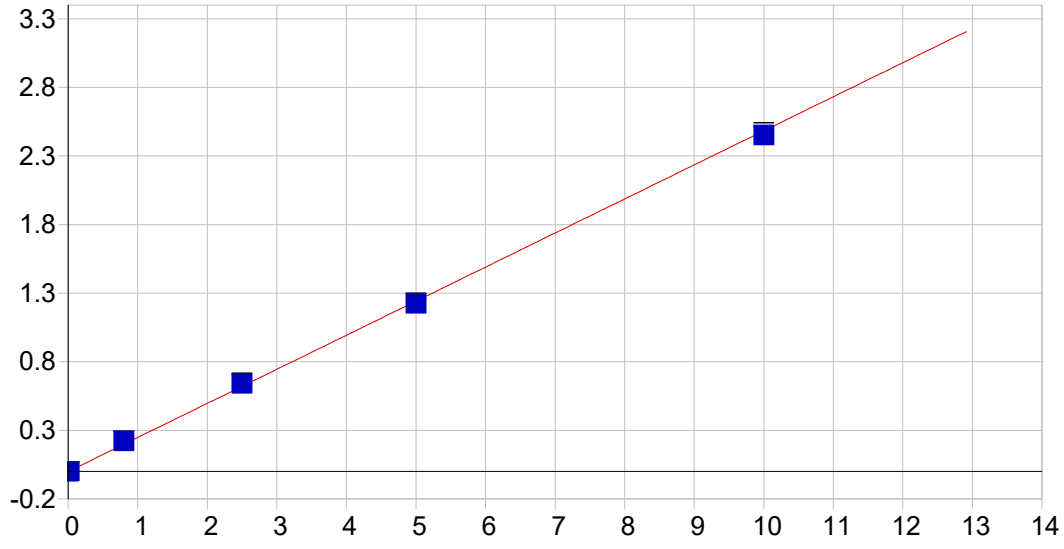


Tl 190.856 {477}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000016	Re-Slope:	1.000000
A1 (Gain):	0.066010	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999245	Status:	OK.
Std Error of Est:	0.000084		
Predicted MDL:	0.002106		
Predicted MQL:	0.007020		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	-.00002	.000	1
S1	.04000	.03907	-.001	-2.33	.00239	.000	1
S3	2.5000	2.6069	.107	4.28	.16903	.001	1
S4	5.0000	5.0211	.021	.421	.32534	.001	1
S5	10.000	9.7590	-.241	-2.41	.63201	.003	1
S2	.80000	.91389	.114	14.2	.05934	.000	1

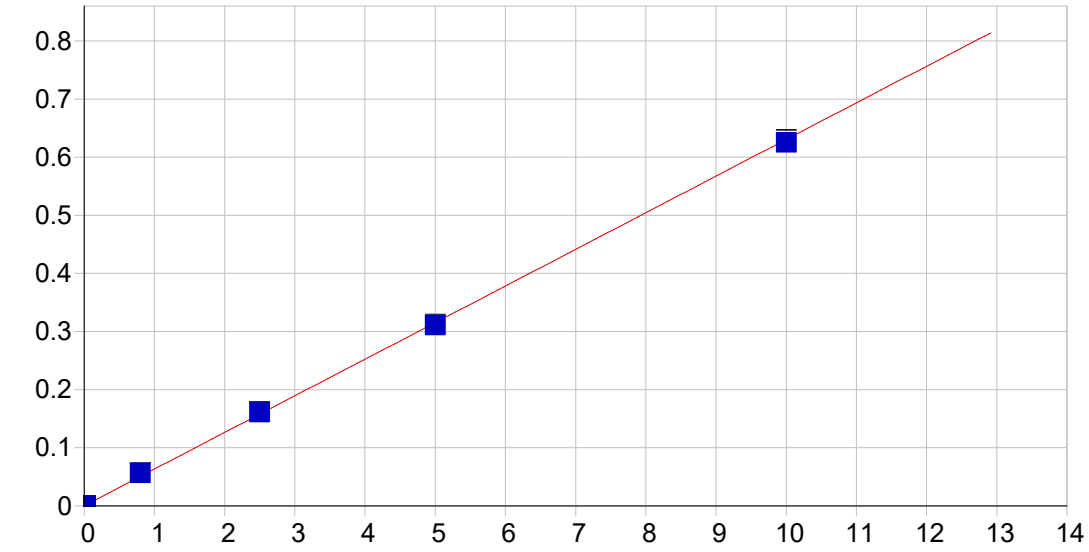


Pb 220.353 {453}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000316	Re-Slope:	1.000000
A1 (Gain):	0.248395	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999522	Status:	OK.
Std Error of Est:	0.000139		
Predicted MDL:	0.001221		
Predicted MQL:	0.004070		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00032	.000	1
S1	.01200	.01195	-.000	-.375	.00259	.000	1
S3	2.5000	2.5836	.084	3.34	.64076	.004	1
S4	5.0000	4.9374	-.063	-1.25	1.2247	.002	1
S5	10.000	9.8793	-.121	-1.21	2.4509	.017	1
S2	.80000	.89980	.100	12.5	.22297	.001	1

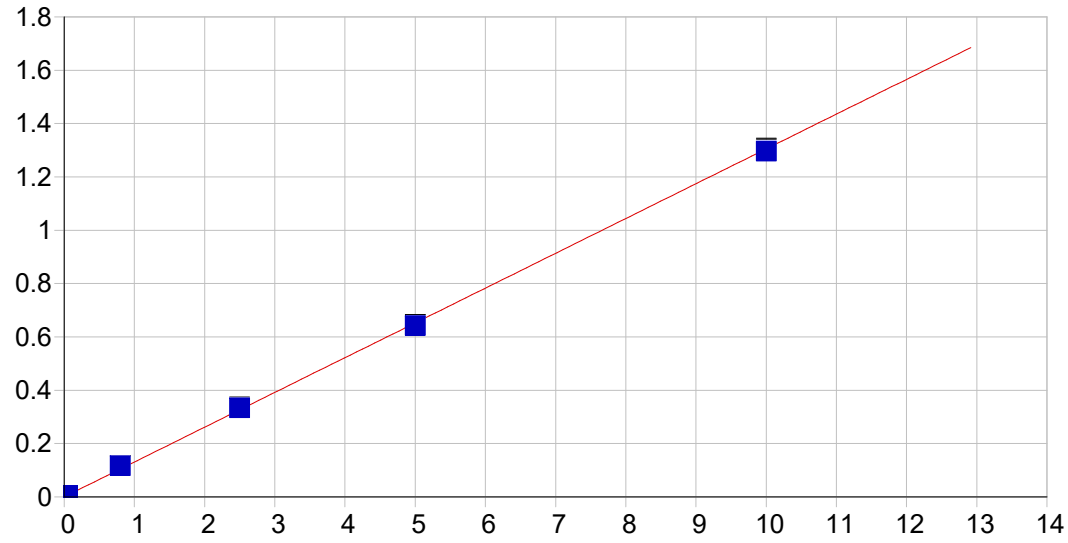


Se 196.090 {472}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000326	Re-Slope:	1.000000
A1 (Gain):	0.063009	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999605	Status:	OK.
Std Error of Est:	0.000042		
Predicted MDL:	0.002619		
Predicted MQL:	0.008731		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00033	.000	1
S1	.02000	.01955	-.000	-2.23	.00156	.000	1
S3	2.5000	2.5535	.054	2.14	.16118	.001	1
S4	5.0000	4.9295	-.070	-1.41	.31085	.002	1
S5	10.000	9.9206	-.079	-.794	.62525	.004	1
S2	.80000	.89673	.097	12.1	.05681	.000	1

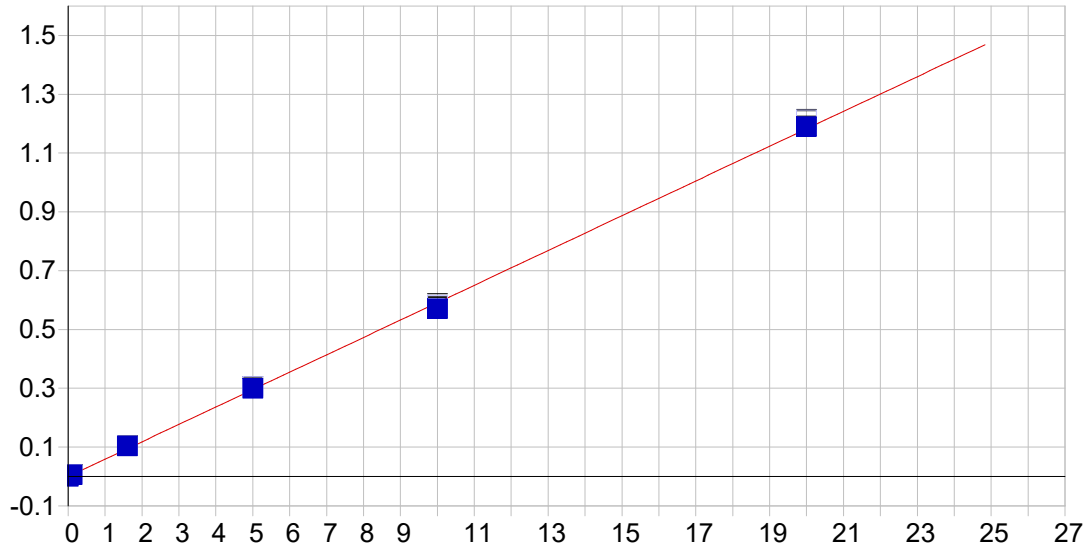


Sb 206.833 {463}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000358	Re-Slope:	1.000000
A1 (Gain):	0.130446	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999621	Status:	OK.
Std Error of Est:	0.000134		
Predicted MDL:	0.001547		
Predicted MQL:	0.005158		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00036	.000	1
S1	.05000	.04987	-.000	-.262	.00688	.000	1
S3	2.5000	2.5543	.054	2.17	.33444	.002	1
S4	5.0000	4.9180	-.082	-1.64	.64366	.003	1
S5	10.000	9.9339	-.066	-.661	1.2997	.009	1
S2	.80000	.89398	.094	11.7	.11726	.000	1

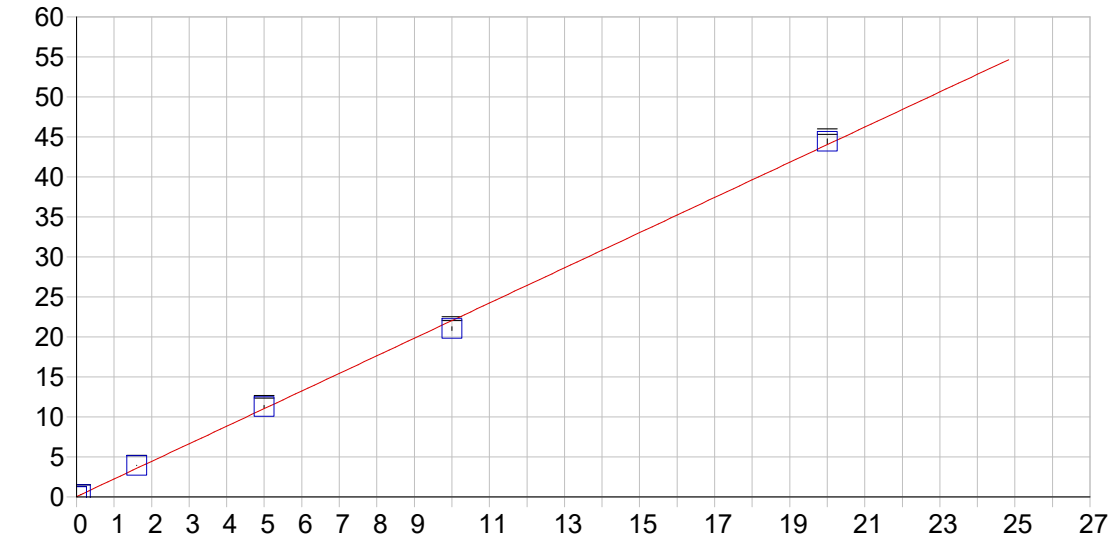


Al 396.152 { 85}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000138	Re-Slope:	1.000000
A1 (Gain):	0.059133	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999638	Status:	OK.
Std Error of Est:	0.000120		
Predicted MDL:	0.007929		
Predicted MQL:	0.026428		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	-.00014	.000	1
S1	.10000	.10480	.005	4.80	.00652	.000	1
S3	5.0000	5.0726	.073	1.45	.30556	.000	1
S4	10.000	9.6528	-.347	-3.47	.58213	.005	1
S5	20.000	20.122	.122	.612	1.2127	.002	1
S2	1.6000	1.7472	.147	9.20	.10501	.000	1

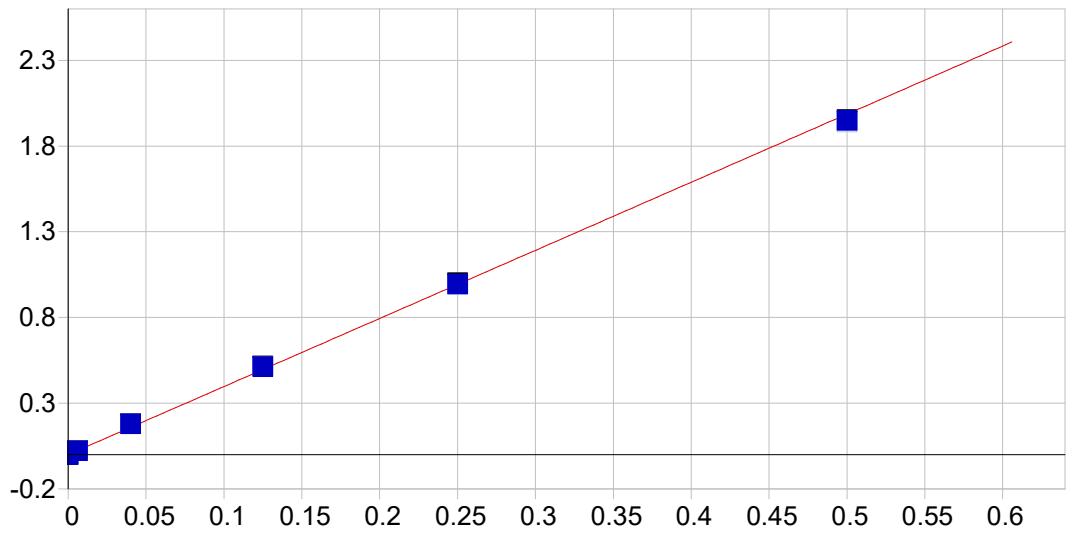


Ba 493.409 { 68}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.042482	Re-Slope:	1.000000
A1 (Gain):	2.199245	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999435	Status:	OK.
Std Error of Est:	0.005484		
Predicted MDL:	0.000725		
Predicted MQL:	0.002415		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.04246	.001	1
S1	.10000	.10131	.001	1.31	.26529	.002	1
S3	5.0000	5.1047	.105	2.09	11.269	.159	1
S4	10.000	9.5479	-.452	-4.52	21.041	.253	1
S5	20.000	20.180	.180	.900	44.423	.328	1
S2	1.6000	1.7660	.166	10.4	3.9264	.021	1

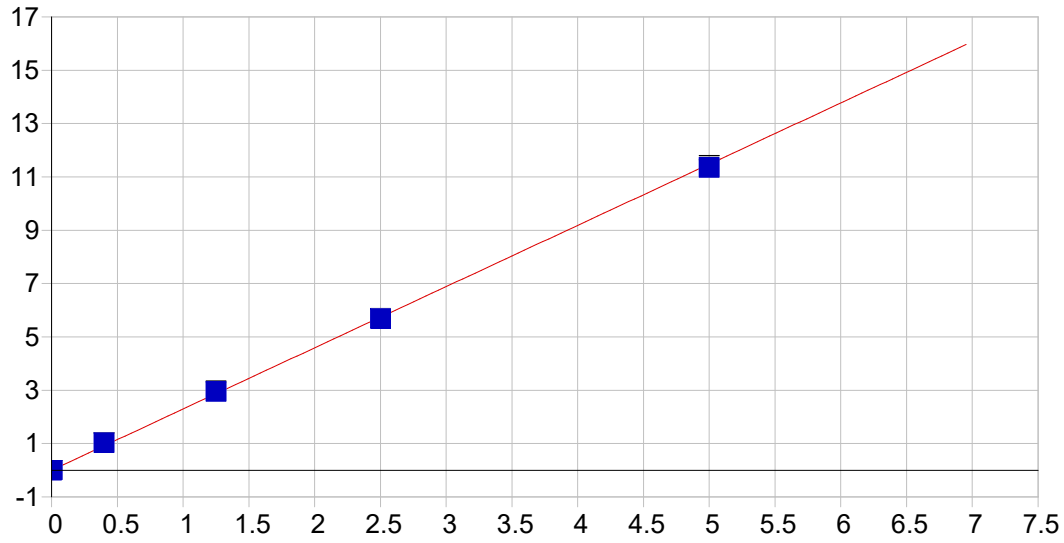


Be 234.861 {144}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000134	Re-Slope:	1.000000
A1 (Gain):	3.972327	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999467	Status:	OK.
Std Error of Est:	0.000372		
Predicted MDL:	0.000056		
Predicted MQL:	0.000185		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00014	.000	1
S1	.00600	.00584	-.000	-2.69	.02288	.000	1
S3	.12500	.12917	.004	3.34	.51075	.004	1
S4	.25000	.25038	.000	.154	.99003	.008	1
S5	.50000	.49051	-.009	-1.90	1.9394	.005	1
S2	.04000	.04509	.005	12.7	.17829	.001	1

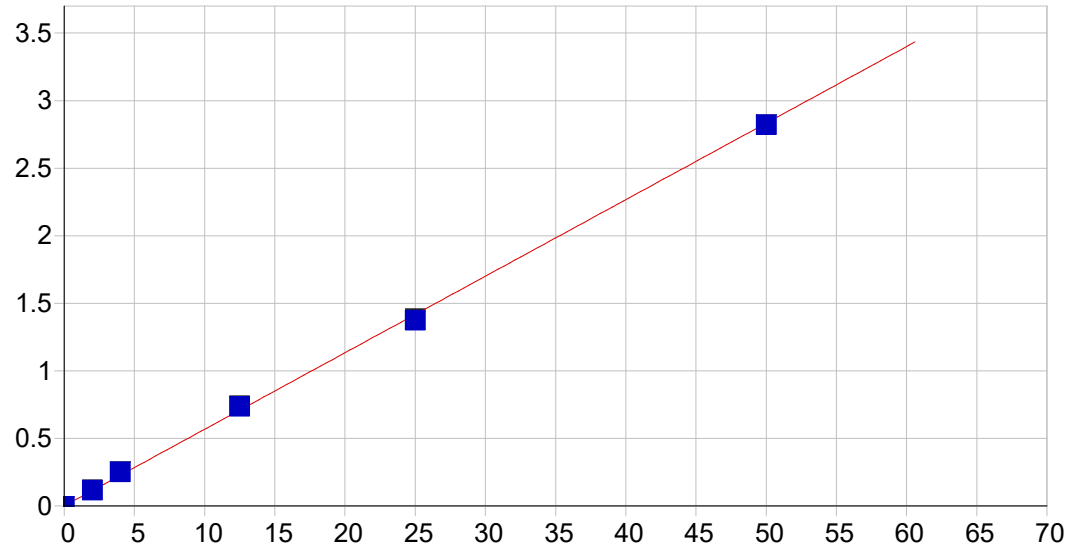


Cd 226.502 {449}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000006	Re-Slope:	1.000000
A1 (Gain):	2.295634	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999586	Status:	OK.
Std Error of Est:	0.000600		
Predicted MDL:	0.000100		
Predicted MQL:	0.000334		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00001	.000	1
S1	.00600	.00596	-.000	-.749	.01373	.000	1
S3	1.2500	1.2862	.036	2.90	2.9550	.020	1
S4	2.5000	2.4746	-.025	-1.01	5.6855	.006	1
S5	5.0000	4.9418	-.058	-1.16	11.354	.080	1
S2	.40000	.44737	.047	11.8	1.0277	.002	1

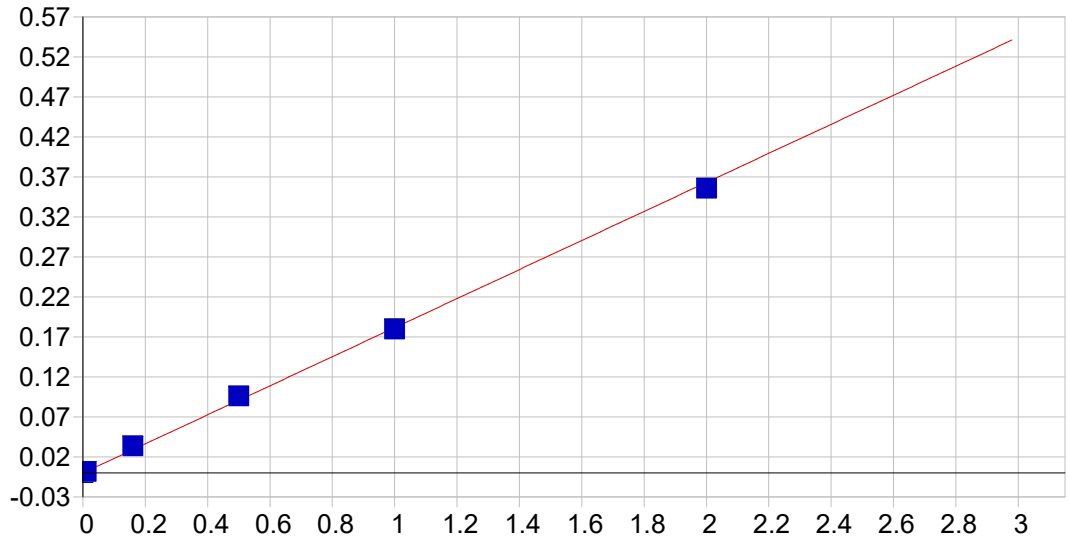


Ca 373.690 { 90}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000734	Re-Slope:	1.000000
A1 (Gain):	0.056654	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999518	Status:	OK.
Std Error of Est:	0.000930		
Predicted MDL:	0.008328		
Predicted MQL:	0.027761		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00026	-.000	.000	.00072	.000	1
S2	4.0000	4.4383	.438	11.0	.25218	.000	1
S3	12.500	12.977	.477	3.82	.73592	.003	1
S4	25.000	24.253	-.747	-2.99	1.3748	.008	1
S5	50.000	49.795	-.205	-.411	2.8218	.002	1
S1	2.0000	2.0366	.037	1.83	.11611	.000	1

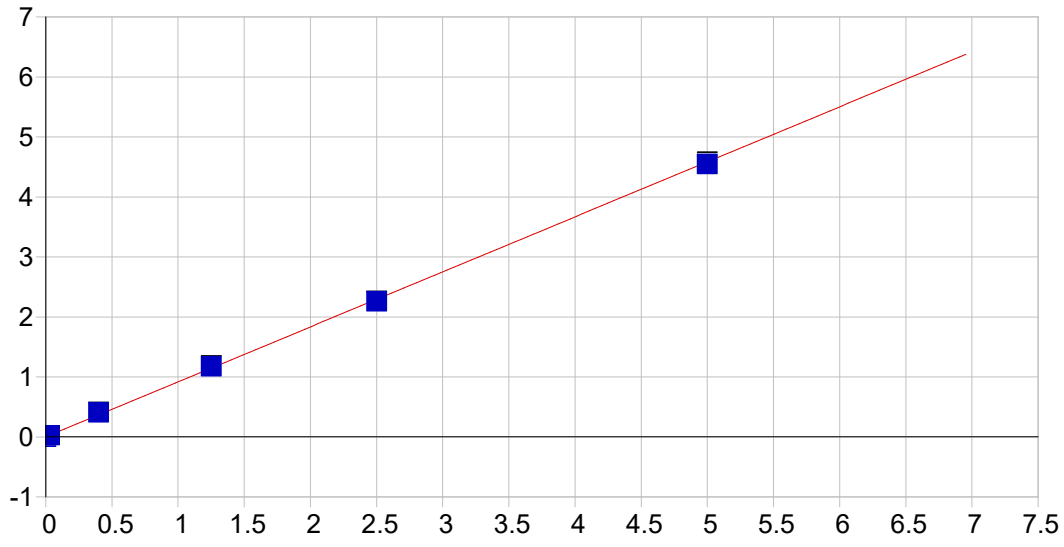


Cr 267.716 {126}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000015	Re-Slope:	1.000000
A1 (Gain):	0.181574	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999144	Status:	OK.
Std Error of Est:	0.000056		
Predicted MDL:	0.000392		
Predicted MQL:	0.001305		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00002	.000	1
S1	.01000	.00990	-.000	-.979	.00178	.000	1
S3	.50000	.52771	.028	5.54	.09583	.000	1
S4	1.0000	.98827	-.012	-1.17	.17948	.001	1
S5	2.0000	1.9595	-.041	-2.03	.35588	.000	1
S2	.16000	.18466	.025	15.4	.03352	.000	1

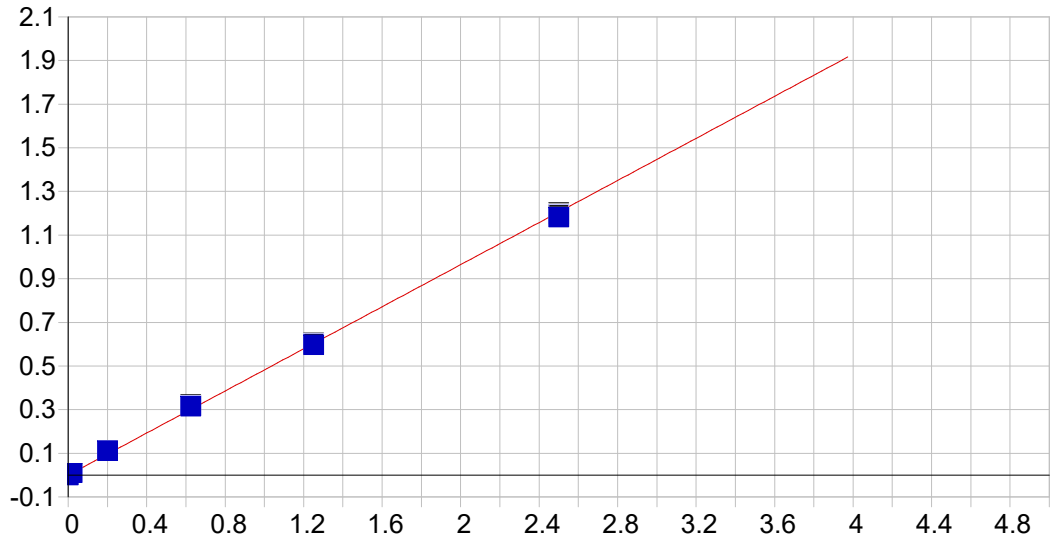


Co 228.616 {448}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000057	Re-Slope:	1.000000
A1 (Gain):	0.916940	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999599	Status:	OK.
Std Error of Est:	0.000529		
Predicted MDL:	0.000224		
Predicted MQL:	0.000745		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00006	.000	1
S1	.03000	.02977	-.000	-.751	.02713	.000	1
S3	1.2500	1.2826	.033	2.61	1.1779	.009	1
S4	2.5000	2.4629	-.037	-1.49	2.2621	.004	1
S5	5.0000	4.9573	-.043	-.853	4.5533	.029	1
S2	.40000	.44746	.047	11.9	.41086	.001	1

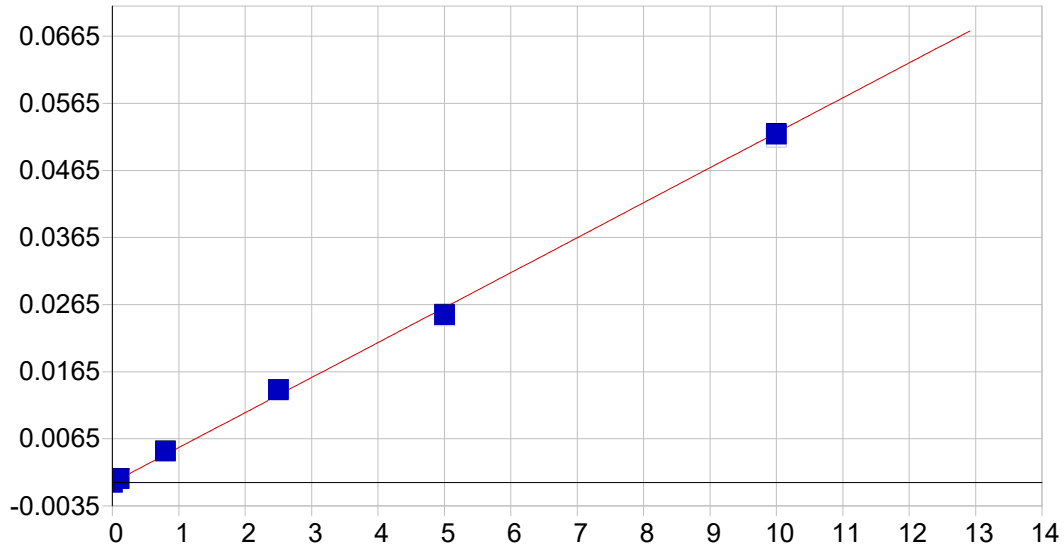


Cu 224.700 {450}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000278	Re-Slope:	1.000000
A1 (Gain):	0.482366	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999181	Status:	OK.
Std Error of Est:	0.000232		
Predicted MDL:	0.000520		
Predicted MQL:	0.001735		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	-.00028	.000	1
S1	.02000	.02186	.002	9.28	.01042	.000	1
S3	.62500	.65482	.030	4.77	.31919	.003	1
S4	1.2500	1.2373	-.013	-1.01	.60379	.002	1
S5	2.5000	2.4495	-.051	-2.02	1.1957	.007	1
S2	.20000	.23152	.032	15.8	.11255	.000	1

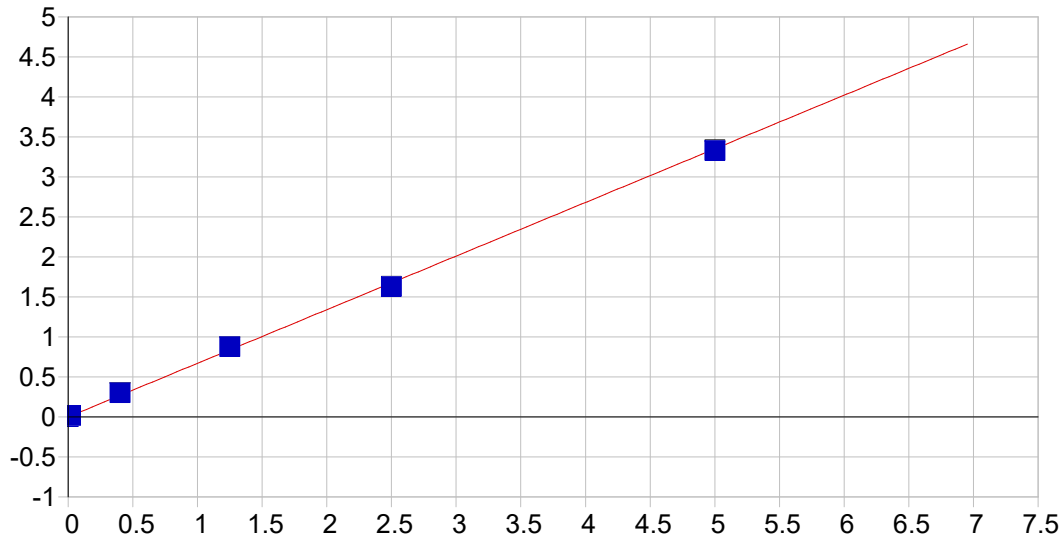


Fe 240.488 {140}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000017	Re-Slope:	1.000000
A1 (Gain):	0.005213	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999182	Status:	OK.
Std Error of Est:	0.000011		
Predicted MDL:	0.004609		
Predicted MQL:	0.015363		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00002	-.000	.000	-.00002	.000	1
S1	.10000	.10564	.006	5.64	.00053	.000	1
S3	2.5000	2.6498	.150	5.99	.01368	.000	1
S4	5.0000	4.7957	-.204	-4.09	.02476	.000	1
S5	10.000	9.9520	-.048	-.480	.05142	.000	1
S2	.80000	.89692	.097	12.1	.00462	.000	1

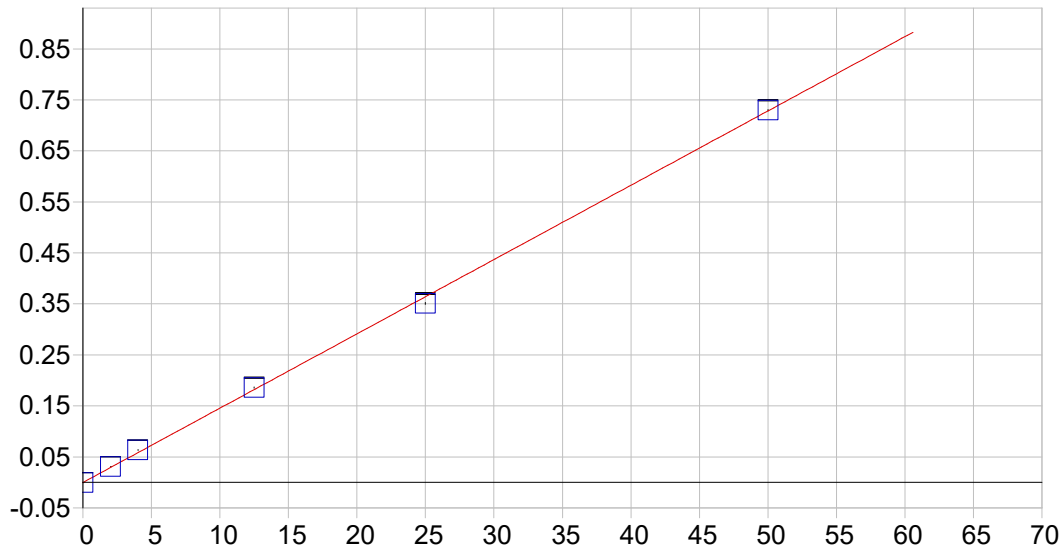


Mn 257.610 {131}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000021	Re-Slope:	1.000000
A1 (Gain):	0.670187	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999398	Status:	OK.
Std Error of Est:	0.000386		
Predicted MDL:	0.000298		
Predicted MQL:	0.000993		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00002	.000	1
S1	.02000	.02152	.002	7.61	.01441	.000	1
S3	1.2500	1.3042	.054	4.34	.87421	.005	1
S4	2.5000	2.4290	-.071	-2.84	1.6282	.006	1
S5	5.0000	4.9650	-.035	-.701	3.3281	.008	1
S2	.40000	.45030	.050	12.6	.30182	.002	1

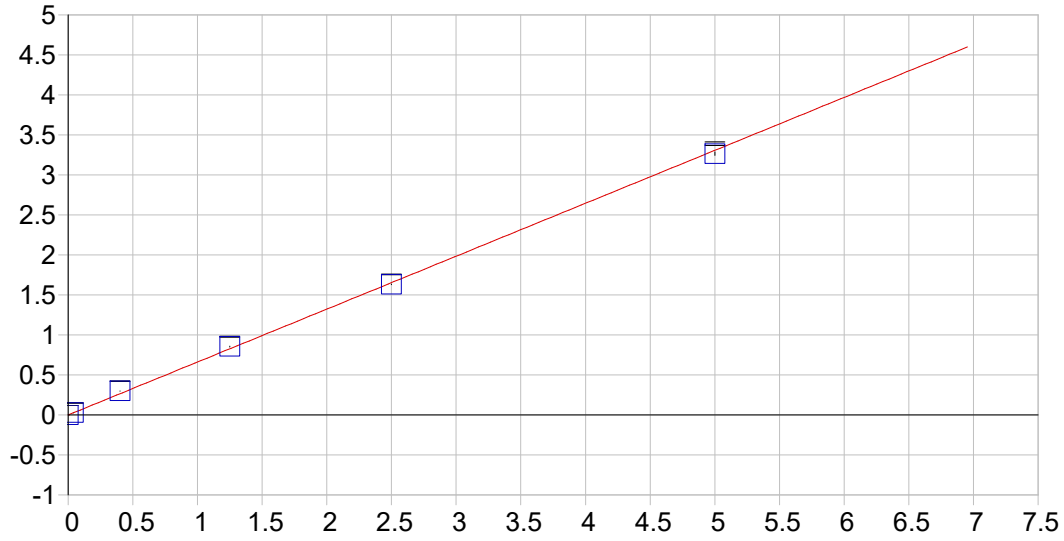


Mg 279.079 {121}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000168	Re-Slope:	1.000000
A1 (Gain):	0.014569	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999542	Status:	OK.
Std Error of Est:	0.000233		
Predicted MDL:	0.013851		
Predicted MQL:	0.046170		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00031	-.000	.000	-.00017	.000	1
S2	4.0000	4.3798	.380	9.49	.06364	.000	1
S3	12.500	12.779	.279	2.23	.18601	.001	1
S4	25.000	24.100	-.900	-3.60	.35094	.002	1
S5	50.000	50.096	.096	.191	.72968	.001	1
S1	2.0000	2.1460	.146	7.30	.03110	.000	1

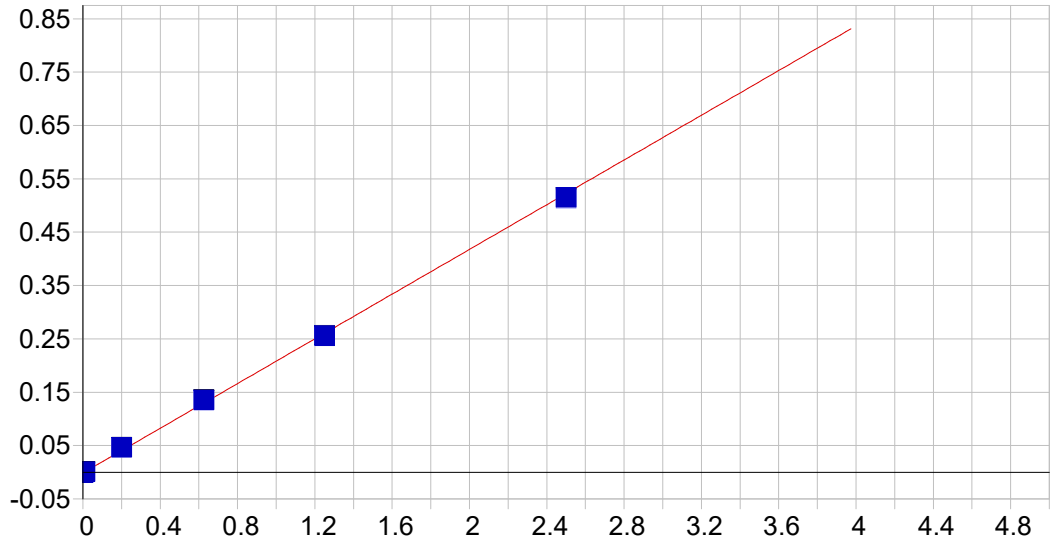


Ni 231.604 {446}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000409	Re-Slope:	1.000000
A1 (Gain):	0.661453	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999493	Status:	OK.
Std Error of Est:	0.000495		
Predicted MDL:	0.000346		
Predicted MQL:	0.001155		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	-.00041	.000	1
S1	.04000	.03998	-.000	-.053	.02604	.000	1
S3	1.2500	1.2920	.042	3.36	.85420	.006	1
S4	2.5000	2.4690	-.031	-1.24	1.6327	.003	1
S5	5.0000	4.9371	-.063	-1.26	3.2653	.021	1
S2	.40000	.45193	.052	13.0	.29852	.001	1

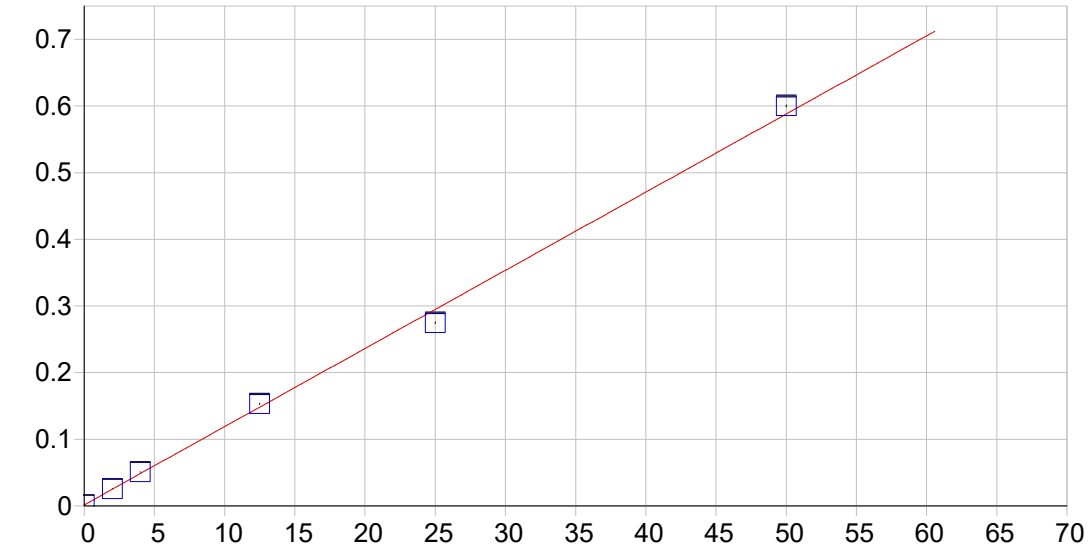


Ag 328.068 {103}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001437	Re-Slope:	1.000000
A1 (Gain):	0.209571	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999292	Status:	OK.
Std Error of Est:	0.000065		
Predicted MDL:	0.000444		
Predicted MQL:	0.001479		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00144	.000	1
S1	.01000	.01020	.000	1.97	.00069	.000	1
S3	.62500	.65262	.028	4.42	.13481	.000	1
S4	1.2500	1.2294	-.021	-1.65	.25517	.000	1
S5	2.5000	2.4633	-.037	-1.47	.51271	.000	1
S2	.20000	.22948	.029	14.7	.04649	.000	1

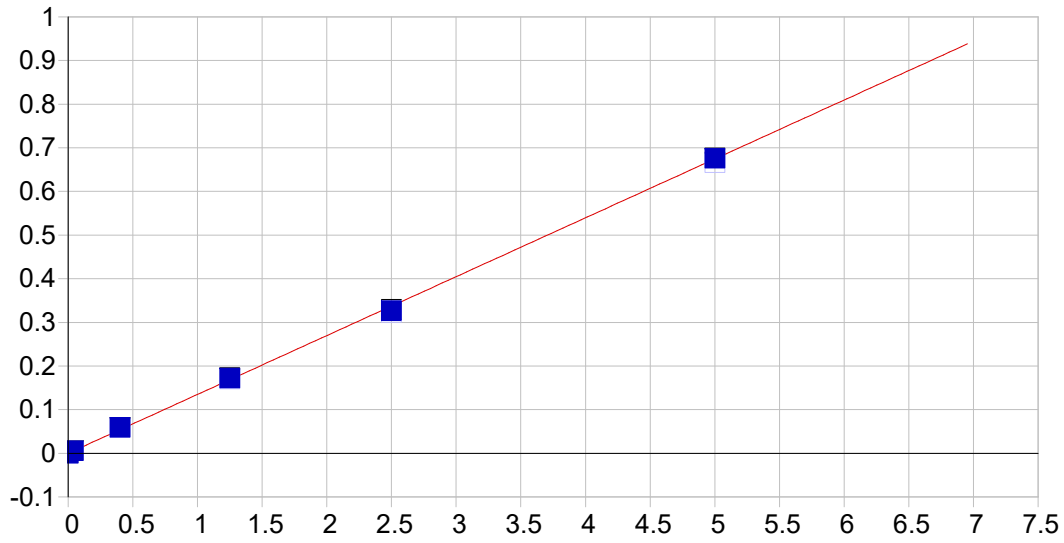


Na 589.592 { 57}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001659	Re-Slope:	1.000000
A1 (Gain):	0.011727	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999126	Status:	OK.
Std Error of Est:	0.000260		
Predicted MDL:	0.014139		
Predicted MQL:	0.047130		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00012	-.000	.000	.00166	.000	1
S2	4.0000	4.2079	.208	5.20	.05101	.000	1
S3	12.500	12.915	.415	3.32	.15311	.001	1
S4	25.000	23.294	-1.71	-6.82	.27484	.001	1
S5	50.000	51.039	1.04	2.08	.60020	.002	1
S1	2.0000	2.0444	.044	2.22	.02563	.000	1

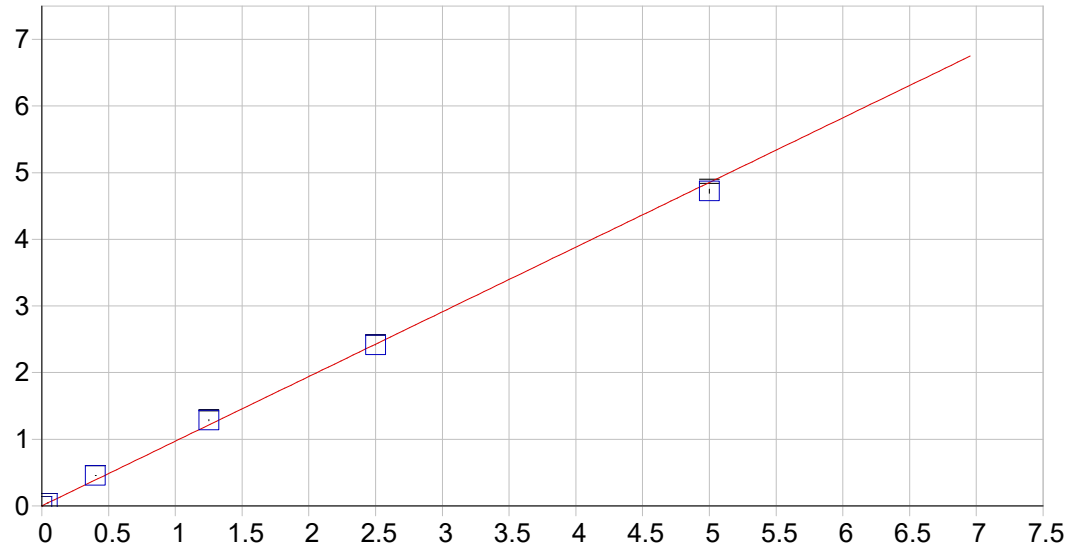


V 292.402 {115}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000086	Re-Slope:	1.000000
A1 (Gain):	0.134924	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999642	Status:	OK.
Std Error of Est:	0.000084		
Predicted MDL:	0.001645		
Predicted MQL:	0.005482		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00009	.000	1
S1	.04000	.04105	.001	2.63	.00525	.000	1
S3	1.2500	1.2780	.028	2.24	.16989	.001	1
S4	2.5000	2.4251	-.075	-3.00	.32220	.002	1
S5	5.0000	5.0086	.009	.171	.66585	.001	1
S2	.40000	.43731	.037	9.33	.05813	.000	1

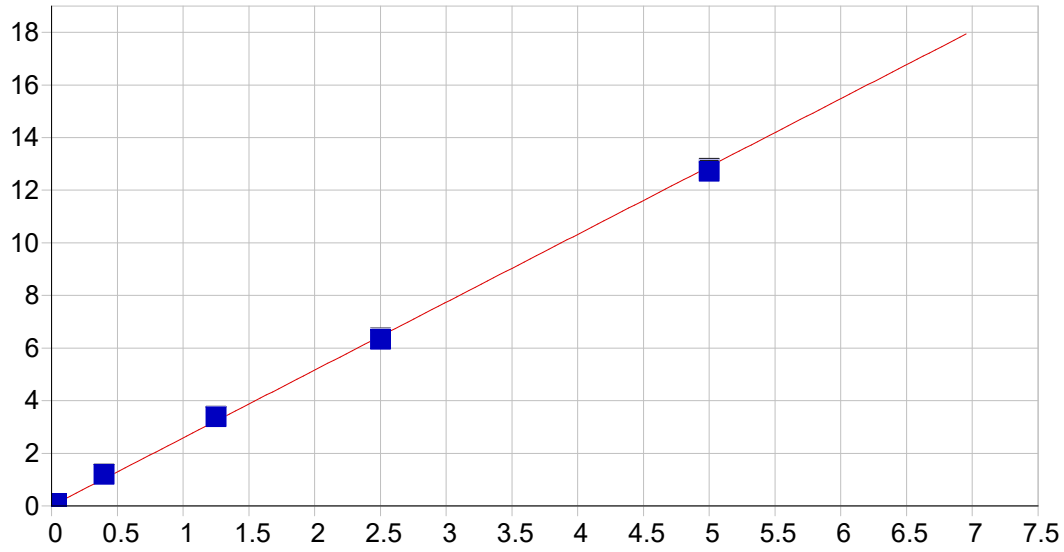


Zn 206.200 {464}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000752	Re-Slope:	1.000000
A1 (Gain):	0.970451	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998905	Status:	OK.
Std Error of Est:	0.001067		
Predicted MDL:	0.000181		
Predicted MQL:	0.000605		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00074	.000	1
S1	.04000	.04202	.002	5.04	.04153	.000	1
S3	1.2500	1.3248	.075	5.98	1.2864	.010	1
S4	2.5000	2.4888	-.011	-.449	2.4160	.003	1
S5	5.0000	4.8654	-.135	-2.69	4.7224	.030	1
S2	.40000	.46902	.069	17.3	.45591	.002	1

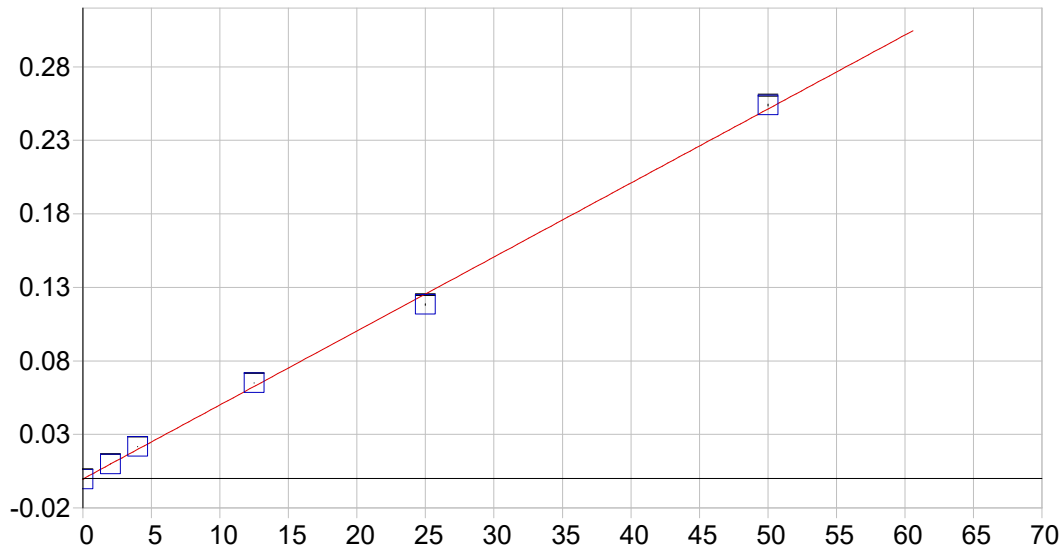


Zn 213.856 {158}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001933	Re-Slope:	1.000000
A1 (Gain):	2.579803	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999208	Status:	OK.
Std Error of Est:	0.002427		
Predicted MDL:	0.000267		
Predicted MQL:	0.000890		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00191	.001	1
S1	.04000	.04144	.001	3.60	.10957	.001	1
S3	1.2500	1.3107	.061	4.86	3.4058	.003	1
S4	2.5000	2.4504	-.050	-1.98	6.3683	.013	1
S5	5.0000	4.9252	-.075	-1.50	12.798	.031	1
S2	.40000	.46219	.062	15.5	1.2015	.007	1

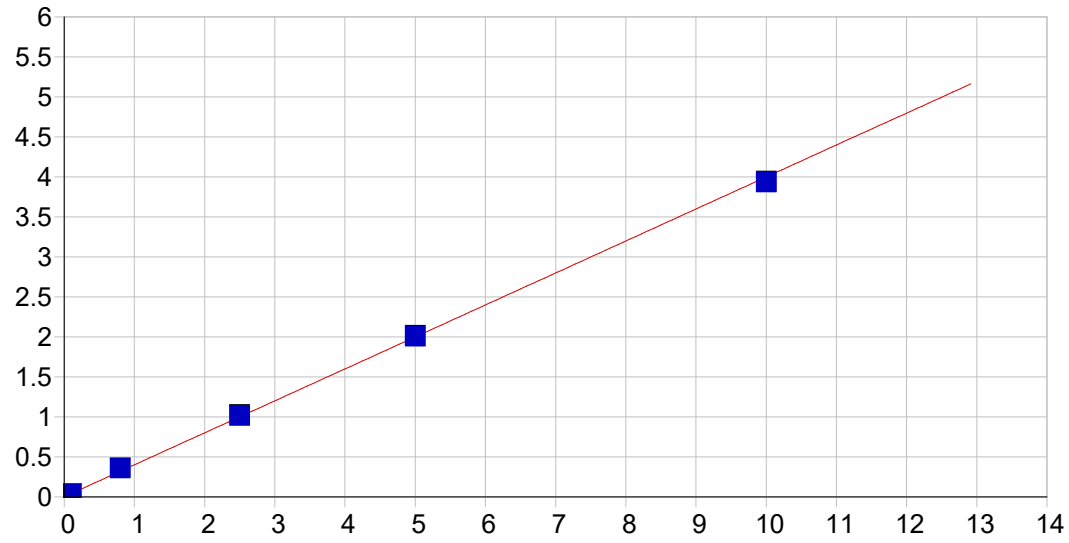


K 766.490 { 44}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000302	Re-Slope:	1.000000
A1 (Gain):	0.005033	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999249	Status:	OK.
Std Error of Est:	0.000103		
Predicted MDL:	0.037069		
Predicted MQL:	0.123564		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00020	-.000	.000	-.00030	.000	1
S2	4.0000	4.3701	.370	9.25	.02169	.000	1
S3	12.500	12.986	.486	3.89	.06505	.000	1
S4	25.000	23.576	-1.42	-5.70	.11835	.000	1
S5	50.000	50.536	.536	1.07	.25403	.001	1
S1	2.0000	2.0323	.032	1.62	.00993	.000	1

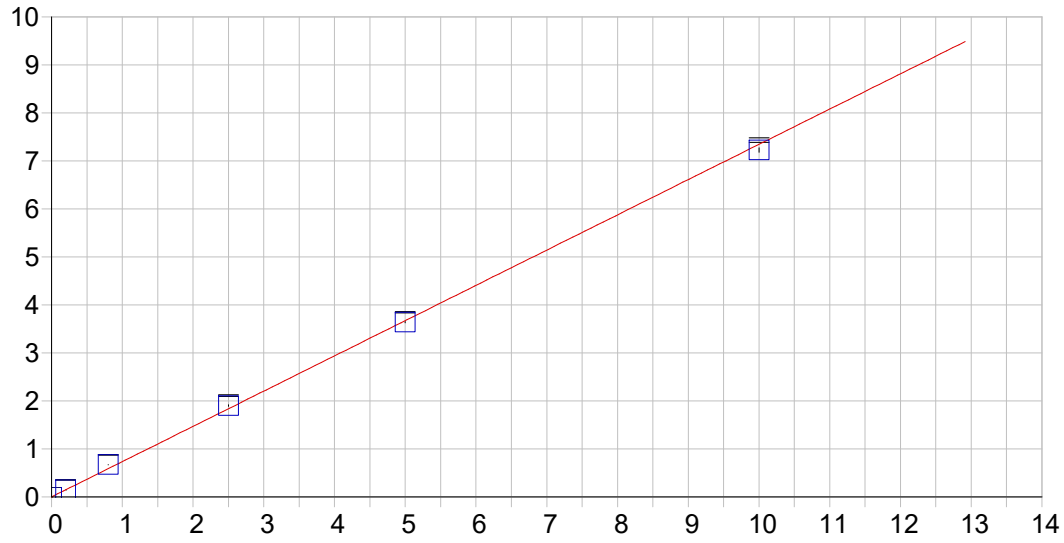


B 249.678 {135}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001221	Re-Slope:	1.000000
A1 (Gain):	0.399717	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999607	Status:	OK.
Std Error of Est:	0.000587		
Predicted MDL:	0.000684		
Predicted MQL:	0.002279		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00122	.000	1
S1	.10000	.09919	-.001	-.812	.04070	.000	1
S3	2.5000	2.5426	.043	1.70	1.0156	.009	1
S4	5.0000	5.0170	.017	.340	2.0027	.014	1
S5	10.000	9.8463	-.154	-1.54	3.9292	.010	1
S2	.80000	.89491	.095	11.9	.35831	.002	1

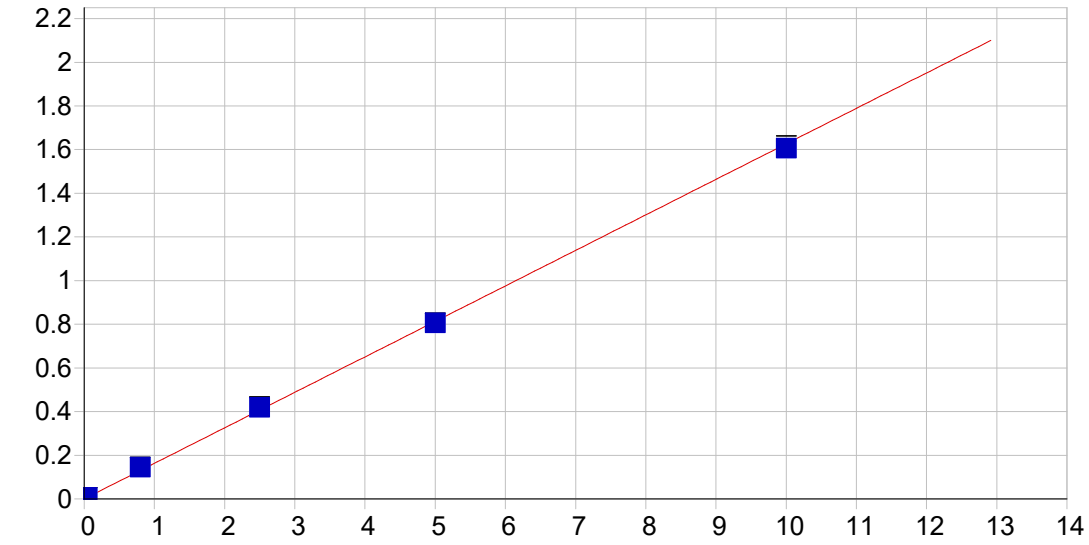


Mo 202.030 {467}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000140	Re-Slope:	1.000000
A1 (Gain):	0.734513	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999404	Status:	OK.
Std Error of Est:	0.001888		
Predicted MDL:	0.000253		
Predicted MQL:	0.000844		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00003	-.000	.000	.00012	.000	1
S1	.20000	.20265	.003	1.33	.14899	.001	1
S3	2.5000	2.5901	.090	3.60	1.9026	.015	1
S4	5.0000	4.9532	-.047	-.936	3.6383	.012	1
S5	10.000	9.8415	-.158	-1.58	7.2289	.047	1
S2	.80000	.91252	.113	14.1	.67040	.002	1

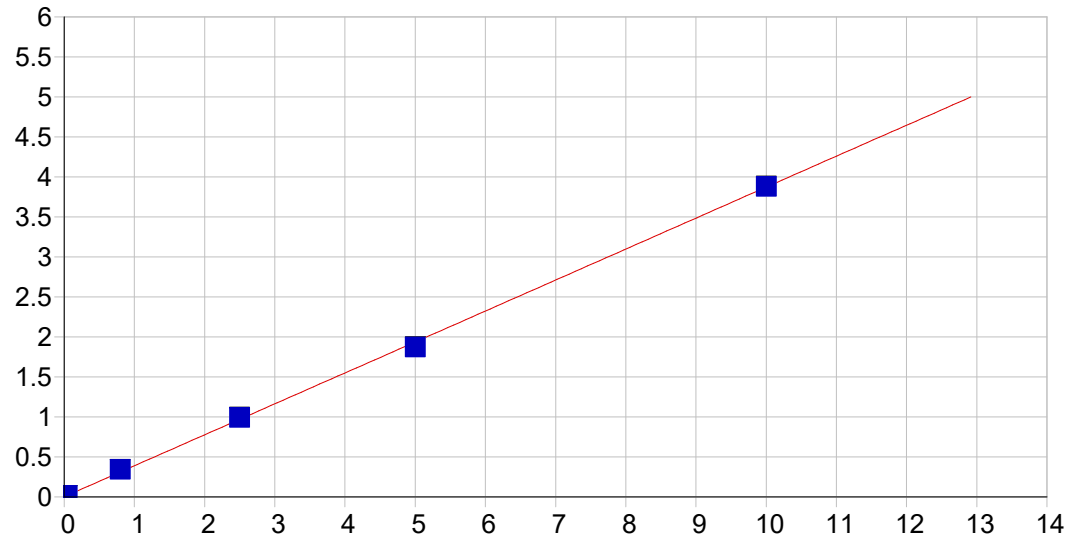


Sn 189.989 {478}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000213	Re-Slope:	1.000000
A1 (Gain):	0.162597	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999587	Status:	OK.
Std Error of Est:	0.000155		
Predicted MDL:	0.000703		
Predicted MQL:	0.002343		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00021	.000	1
S1	.04000	.03909	-.001	-2.29	.00656	.000	1
S3	2.5000	2.5767	.077	3.07	.41877	.003	1
S4	5.0000	4.9536	-.046	-.929	.80482	.000	1
S5	10.000	9.8776	-.122	-1.22	1.6046	.012	1
S2	.80000	.89300	.093	11.6	.14528	.000	1

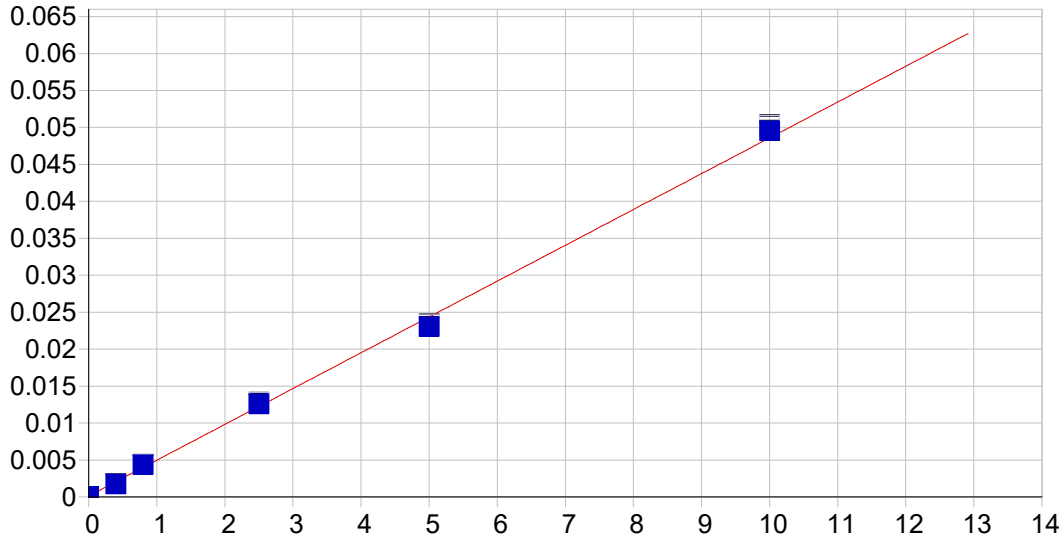


Ti 336.121 {100}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002019	Re-Slope:	1.000000
A1 (Gain):	0.386966	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999594	Status:	OK.
Std Error of Est:	0.000366		
Predicted MDL:	0.000770		
Predicted MQL:	0.002567		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00202	.000	1
S1	.04000	.03920	-.001	-2.01	.01718	.000	1
S3	2.5000	2.5604	.060	2.42	.99246	.005	1
S4	5.0000	4.8370	-.163	-3.26	1.8731	.008	1
S5	10.000	10.023	.023	.231	3.8792	.004	1
S2	.80000	.88025	.080	10.0	.34253	.002	1

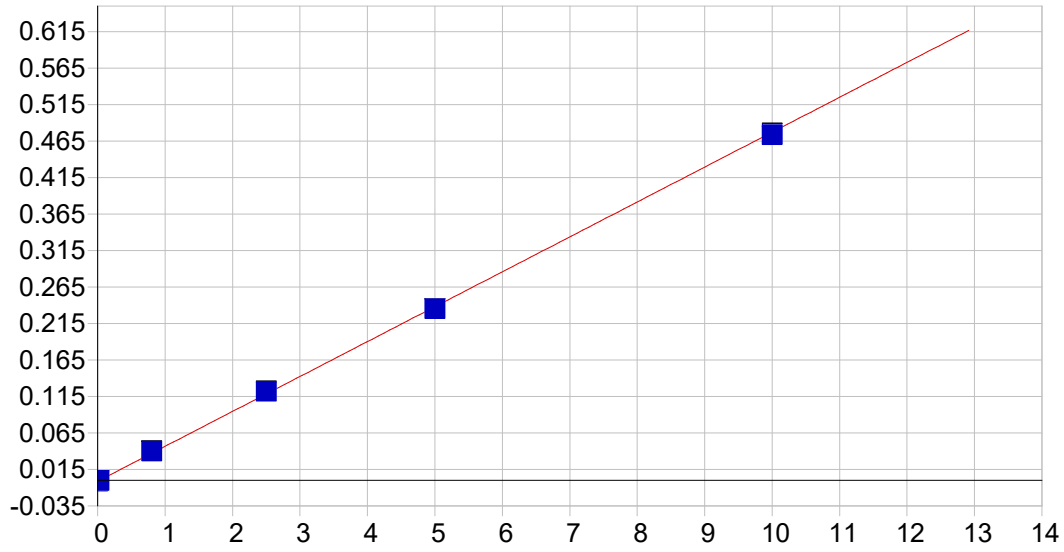


Si 288.158 {117}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000118	Re-Slope:	1.000000
A1 (Gain):	0.004847	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999006	Status:	OK.
Std Error of Est:	0.000023		
Predicted MDL:	0.008208		
Predicted MQL:	0.027359		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00003	.000	.000	.00012	.000	1
S1	.40000	.33249	-.068	-16.9	.00173	.000	1
S3	2.5000	2.5708	.071	2.83	.01276	.000	1
S4	5.0000	4.7277	-.272	-5.45	.02340	.000	1
S5	10.000	10.198	.198	1.98	.05028	.000	1
S2	.80000	.87035	.070	8.79	.00439	.000	1

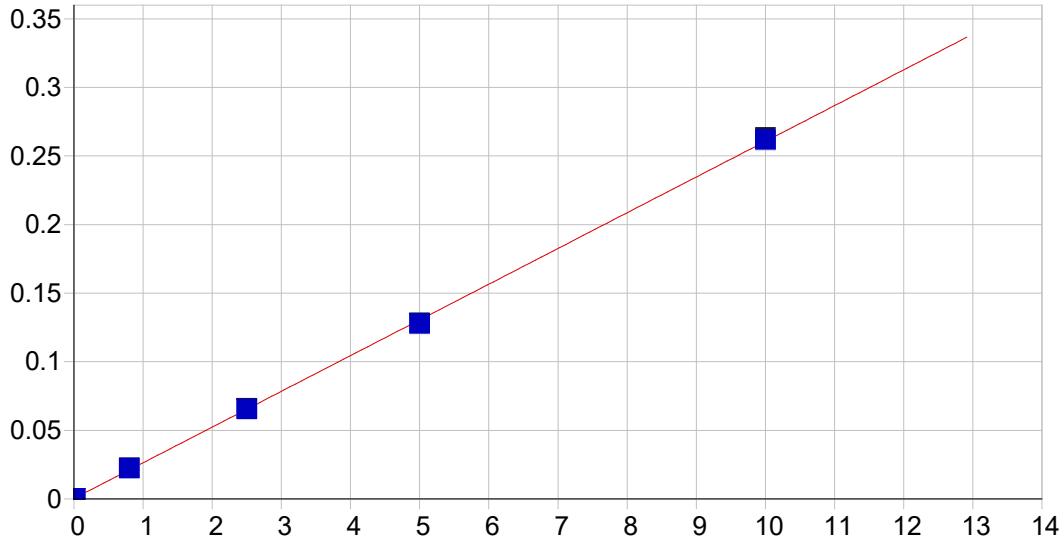


P 177.495 {490}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001193	Re-Slope:	1.000000
A1 (Gain):	0.047836	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999760	Status:	OK.
Std Error of Est:	0.000025		
Predicted MDL:	0.002157		
Predicted MQL:	0.007191		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00119	.000	1
S1	.02000	.01697	-.003	-15.2	-.00038	.000	1
S3	2.5000	2.5721	.072	2.88	.12183	.001	1
S4	5.0000	4.9431	-.057	-1.14	.23523	.000	1
S5	10.000	9.9245	-.076	-.755	.47348	.002	1
S2	.80000	.86343	.063	7.93	.04010	.000	1

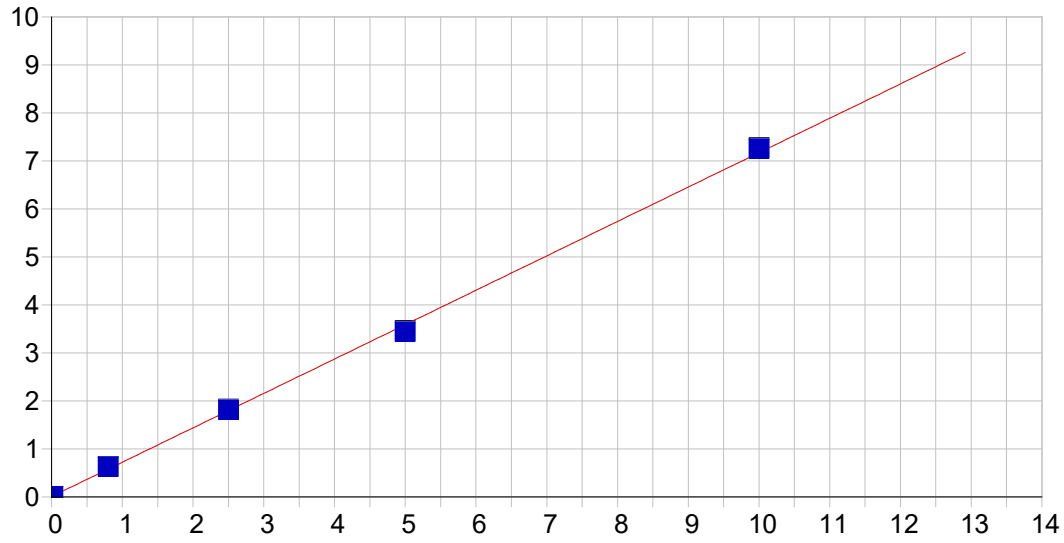


S 182.034 {485}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000305	Re-Slope:	1.000000
A1 (Gain):	0.026040	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999820	Status:	OK.
Std Error of Est:	0.000012		
Predicted MDL:	0.003702		
Predicted MQL:	0.012341		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00030	.000	1
S1	.02000	.01557	-.004	-22.2	.00069	.000	1
S3	2.5000	2.5078	.008	.314	.06544	.000	1
S4	5.0000	4.8939	-.106	-2.12	.12740	.001	1
S5	10.000	10.053	.053	.533	.26142	.001	1
S2	.80000	.84922	.049	6.15	.02236	.000	1

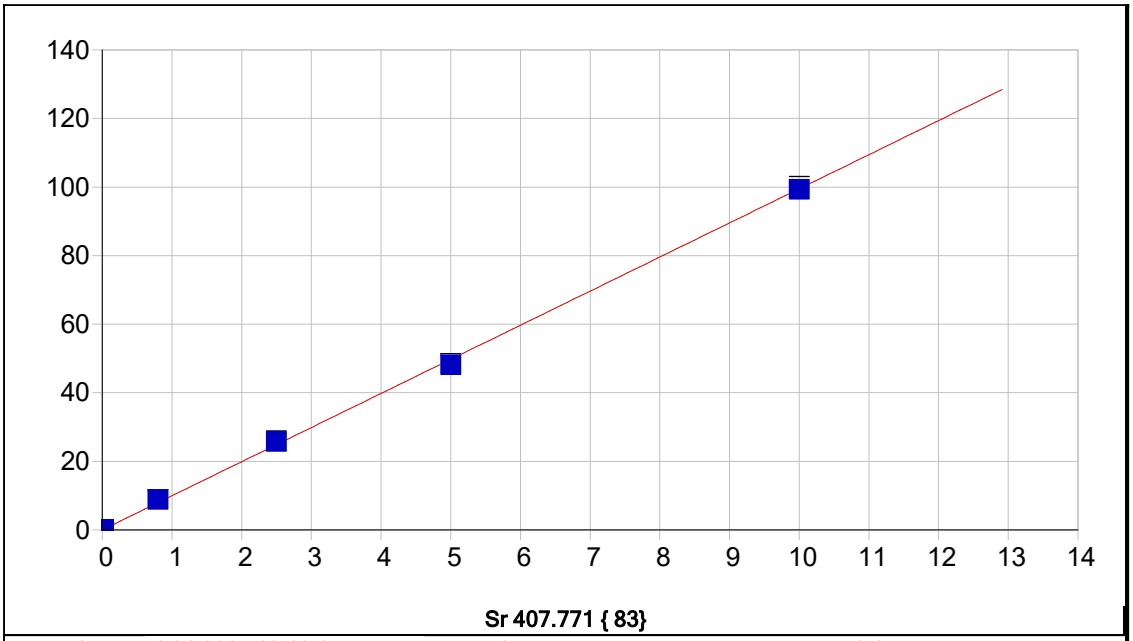


Li 670.784 { 50}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.006262	Re-Slope:	1.000000
A1 (Gain):	0.716507	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999598	Status:	OK.
Std Error of Est:	0.000477		
Predicted MDL:	0.001218		
Predicted MQL:	0.004060		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00626	.001	1
S5	10.000	10.116	.116	1.16	7.2612	.010	1
S4	5.0000	4.7967	-.203	-4.07	3.4464	.015	1
S3	2.5000	2.5246	.025	.983	1.8167	.009	1
S1	.02000	.01968	-.000	-1.58	.02062	.001	1
S2	.80000	.86259	.063	7.82	.62483	.004	1

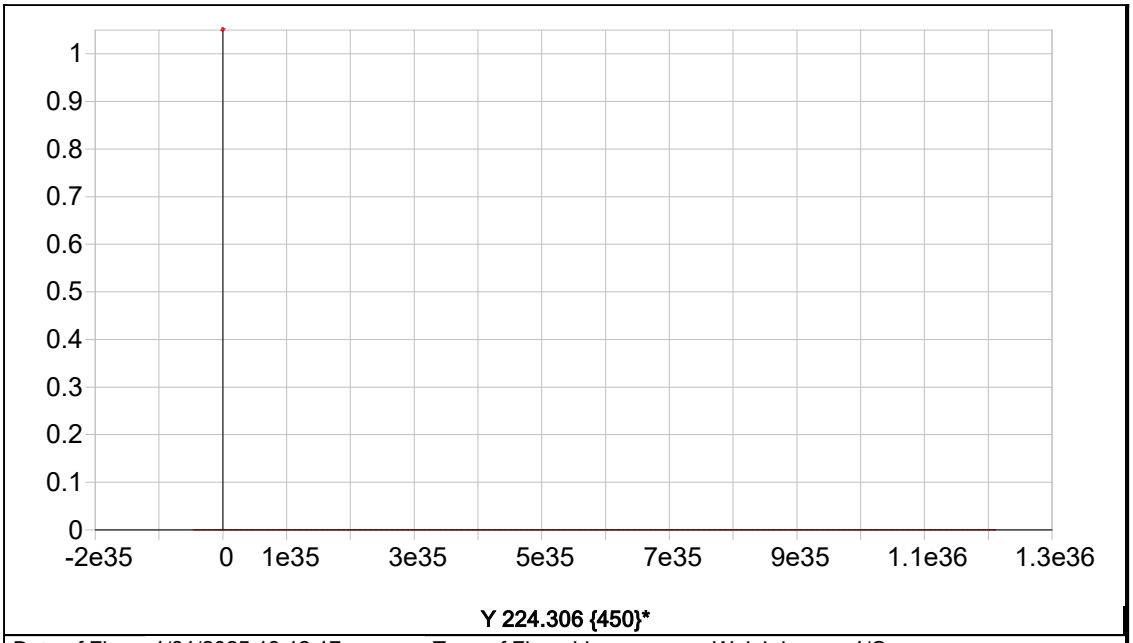


Sr 407.771 { 83}

Date of Fit:	1/31/2025 13:12:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001360	Re-Slope:	1.000000
A1 (Gain):	9.948163	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999516	Status:	OK.
Std Error of Est:	0.007259		
Predicted MDL:	0.000051		
Predicted MQL:	0.000172		

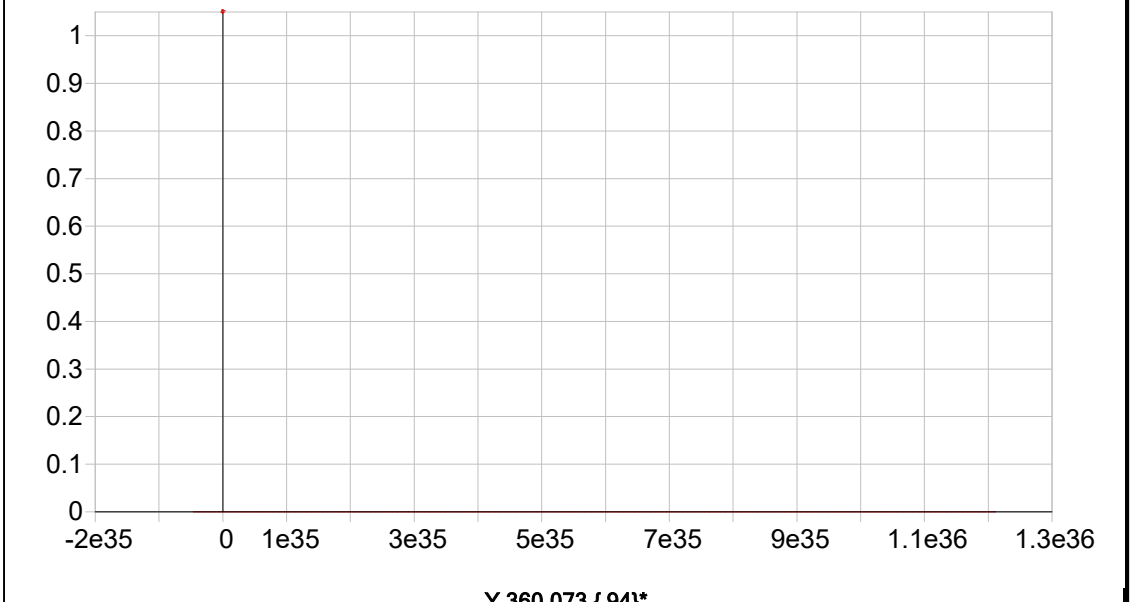
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00134	.000	1
S1	.02000	.01974	-.000	-1.30	.19874	.001	1
S3	2.5000	2.5861	.086	3.45	25.753	.192	1
S4	5.0000	4.8416	-.158	-3.17	48.216	.324	1
S5	10.000	9.9842	-.016	-.158	99.425	.790	1
S2	.80000	.88833	.088	11.0	8.8465	.050	1



Y 224.306 {450}*

Date of Fit:	1/31/2025 13:12:17	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

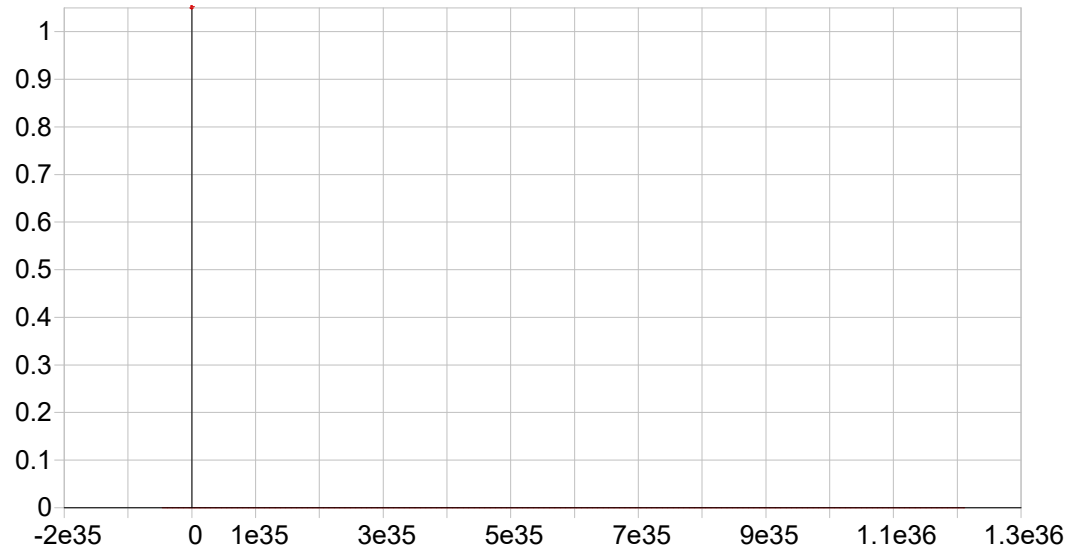


Y 360.073 { 94}*

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	

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

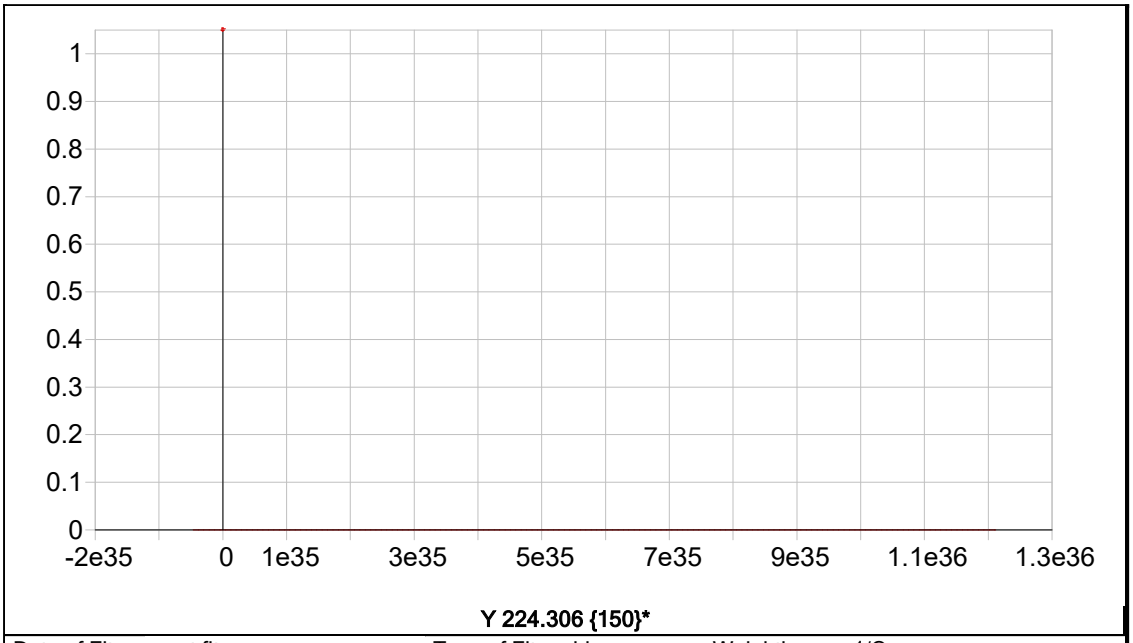


Y 371.030 { 91}*

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		

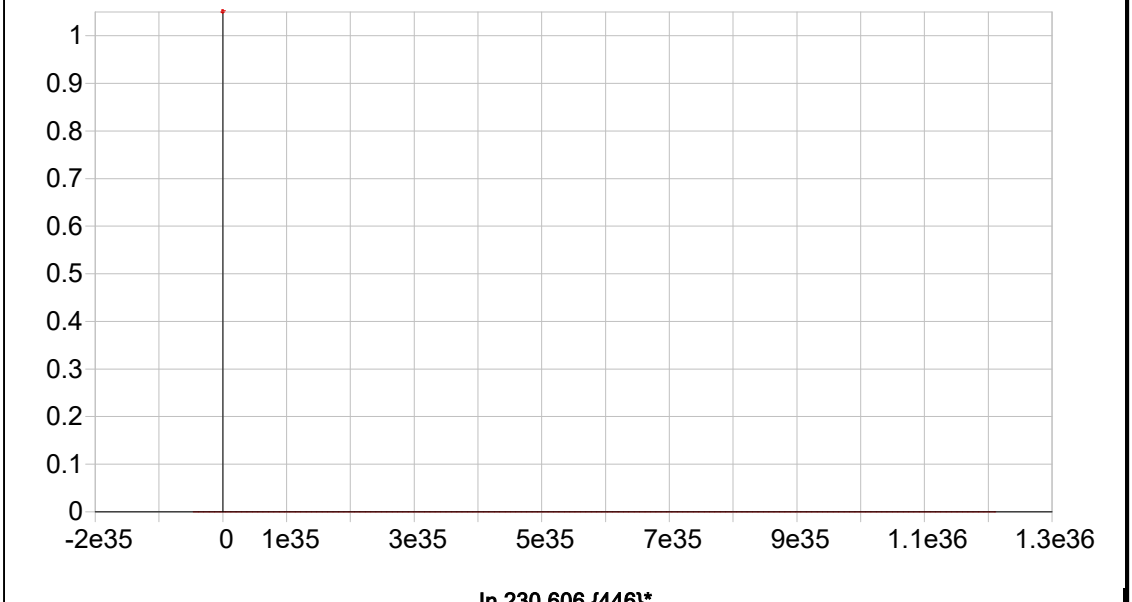
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



Y 224.306 {150}*

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



In 230.606 {446}*

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**

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: S0 Acquired: 1/31/2025 10:57:46 Type: Cal
Method: NON EPA-6010-200.7(v2648) 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	-.00011	-.00002	-.00032	.00033	.00036	-.00014	.04246	-.00014
Stddev	.00003	.00007	.00006	.00016	.00012	.00013	.00145	.00007
%RSD	29.709	454.15	19.276	50.426	32.873	90.439	3.4221	52.119
#1	-.00014	-.00006	-.00033	.00049	.00032	-.00027	.04410	-.00015
#2	-.00008	.00007	-.00025	.00016	.00049	-.00012	.04193	-.00006
#3	-.00011	-.00006	-.00037	.00032	.00026	-.00003	.04135	-.00020

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	-.00001	.00072	-.00002	-.00006	-.00028	-.00002	-.00002	-.00017
Stddev	.00006	.00042	.00004	.00006	.00010	.00002	.00020	.00012
%RSD	767.90	58.984	235.89	98.848	35.707	108.11	834.40	69.304
#1	.00001	.00051	.00001	-.00011	-.00039	-.00003	-.00013	-.00004
#2	-.00007	.00121	-.00000	.00001	-.00019	-.00003	-.00014	-.00027
#3	.00004	.00044	-.00006	-.00008	-.00027	.00000	.00020	-.00021

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	-.00041	-.00144	.00166	-.00009	.00191	-.00030	.00122	.00012
Stddev	.00024	.00007	.00012	.00014	.00052	.00005	.00013	.00011
%RSD	58.683	4.5976	7.3906	157.03	27.367	17.749	11.030	95.028
#1	-.00021	-.00147	.00172	-.00021	.00142	-.00029	.00132	.00000
#2	-.00068	-.00136	.00152	.00006	.00246	-.00025	.00106	.00012
#3	-.00035	-.00148	.00174	-.00010	.00185	-.00036	.00126	.00022

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	.00021	.00202	.00012	-.00119	.00030	.00626	.00134
Stddev	.00010	.00017	.00001	.00007	.00005	.00090	.00032
%RSD	47.478	8.6419	10.088	5.8823	17.016	14.321	24.075
#1	.00019	.00220	.00013	-.00115	.00031	.00537	.00162
#2	.00032	.00186	.00011	-.00116	.00035	.00717	.00099
#3	.00013	.00199	.00012	-.00127	.00025	.00624	.00141

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: S0 Acquired: 1/31/2025 10:57:46 Type: Cal
Method: NON EPA-6010-200.7(v2648) 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	3509.2	72712.	13289.	2605.7	4164.6
Stddev	3.7	238.	78.	10.2	1.5
%RSD	.10481	.32725	.58822	.39320	.03606
#1	3506.1	72459.	13209.	2594.5	4164.6
#2	3508.3	72932.	13365.	2607.7	4163.1
#3	3513.3	72745.	13292.	2614.7	4166.1

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: S1 Acquired: 1/31/2025 11:02:12 Type: Cal
Method: NON EPA-6010-200.7(v2648) 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	.00083	.00239	.00259	.00156	.00688	.00652	.26529	.02288
Stddev	.00002	.00002	.00012	.00004	.00011	.00033	.00243	.00008
%RSD	2.5255	.96714	4.6395	2.8762	1.6096	4.9944	.91546	.35666
#1	.00084	.00237	.00251	.00153	.00676	.00645	.26760	.02285
#2	.00085	.00240	.00254	.00161	.00698	.00687	.26550	.02282
#3	.00081	.00241	.00273	.00153	.00689	.00623	.26276	.02297

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	.01373	.11611	.00178	.02713	.01042	.00053	.01441	.03110
Stddev	.00015	.00022	.00005	.00021	.00016	.00001	.00016	.00011
%RSD	1.0843	.18672	2.5361	.77498	1.5049	2.4040	1.1318	.33775
#1	.01357	.11636	.00183	.02736	.01024	.00051	.01434	.03100
#2	.01376	.11605	.00178	.02696	.01052	.00053	.01459	.03108
#3	.01386	.11593	.00174	.02707	.01049	.00053	.01429	.03121

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	.02604	.00069	.02563	.00525	.10957	.00993	.04070	.14899
Stddev	.00010	.00008	.00013	.00021	.00069	.00015	.00030	.00070
%RSD	.40017	12.222	.49419	3.9150	.62916	1.5522	.74127	.46823
#1	.02603	.00069	.02550	.00501	.11021	.00989	.04099	.14858
#2	.02594	.00060	.02575	.00539	.10965	.00979	.04071	.14860
#3	.02614	.00077	.02565	.00535	.10884	.01010	.04039	.14980

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	.00656	.01718	.00173	-.00038	.00069	.02062	.19874
Stddev	.00009	.00011	.00003	.00015	.00003	.00051	.00103
%RSD	1.3346	.61904	1.4725	38.190	5.0725	2.4941	.51768
#1	.00666	.01722	.00171	-.00048	.00068	.02077	.19919
#2	.00649	.01705	.00176	-.00021	.00066	.02005	.19946
#3	.00653	.01725	.00173	-.00045	.00073	.02105	.19756

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: S1 Acquired: 1/31/2025 11:02:12 Type: Cal
Method: NON EPA-6010-200.7(v2648) 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	3535.1	72332.	13374.	2566.5	4202.2
Stddev	9.8	231.	67.	10.4	10.4
%RSD	.27644	.31885	.50377	.40607	.24673
#1	3545.7	72299.	13301.	2563.5	4212.7
#2	3533.2	72119.	13389.	2557.9	4201.8
#3	3526.4	72577.	13433.	2578.1	4192.0

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: S2 Acquired: 1/31/2025 11:06:35 Type: Cal
Method: NON EPA-6010-200.7(v2648) 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	.03838	.05934	.22297	.05681	.11726	.10501	3.9264	.17829
Stddev	.00025	.00043	.00091	.00023	.00040	.00014	.0207	.00068
%RSD	.64396	.71788	.40881	.40309	.33705	.13103	.52701	.38053
#1	.03854	.05978	.22373	.05704	.11756	.10507	3.9493	.17780
#2	.03810	.05894	.22196	.05682	.11681	.10486	3.9209	.17906
#3	.03851	.05929	.22323	.05658	.11741	.10511	3.9090	.17800

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	1.0277	.25218	.03352	.41086	.11255	.00462	.30182	.06364
Stddev	.0018	.00049	.00020	.00099	.00009	.00002	.00164	.00010
%RSD	.17134	.19461	.58713	.24215	.08072	.36376	.54491	.15729
#1	1.0289	.25275	.03348	.41173	.11262	.00462	.30318	.06356
#2	1.0257	.25194	.03335	.40978	.11245	.00461	.30229	.06375
#3	1.0285	.25186	.03374	.41108	.11259	.00464	.29999	.06361

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	.29852	.04649	.05101	.05813	1.2015	.02169	.35831	.67040
Stddev	.00061	.00018	.00046	.00024	.0067	.00014	.00169	.00229
%RSD	.20466	.39722	.89415	.41813	.56166	.63394	.47216	.34148
#1	.29901	.04655	.05150	.05839	1.2091	.02170	.35765	.67246
#2	.29783	.04628	.05060	.05810	1.1965	.02155	.36023	.66793
#3	.29872	.04663	.05091	.05790	1.1988	.02182	.35704	.67081

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	.14528	.34253	.00439	.04010	.02236	.62483	8.8465
Stddev	.00029	.00174	.00004	.00018	.00007	.00391	.0502
%RSD	.20112	.50915	.87530	.45070	.32067	.62532	.56712
#1	.14545	.34452	.00440	.04017	.02244	.62845	8.8977
#2	.14545	.34181	.00435	.03990	.02236	.62535	8.8445
#3	.14494	.34126	.00443	.04024	.02229	.62069	8.7974

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: S2 Acquired: 1/31/2025 11:06:35 Type: Cal
Method: NON EPA-6010-200.7(v2648) 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	3479.9	71203.	13088.	2493.6	4082.5
Stddev	9.7	371.	32.	14.2	8.1
%RSD	.27938	.52066	.24503	.56917	.19943
#1	3469.4	71086.	13077.	2478.6	4073.4
#2	3488.6	71618.	13063.	2506.7	4089.1
#3	3481.7	70904.	13124.	2495.6	4085.0

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: S3 Acquired: 1/31/2025 11:10:43 Type: Cal
Method: NON EPA-6010-200.7(v2648) 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	.11002	.16903	.64076	.16118	.33444	.30556	11.269	.51075
Stddev	.00087	.00058	.00378	.00145	.00232	.00040	.159	.00397
%RSD	.78818	.34533	.59042	.89884	.69474	.13058	1.4140	.77719
#1	.11014	.16884	.64138	.16098	.33486	.30533	11.086	.50741
#2	.10910	.16857	.63670	.15984	.33193	.30602	11.379	.51514
#3	.11083	.16968	.64420	.16272	.33652	.30532	11.342	.50970

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	2.9550	.73592	.09583	1.1779	.31919	.01368	.87421	.18601
Stddev	.0200	.00303	.00030	.0090	.00261	.00001	.00531	.00106
%RSD	.67579	.41138	.31194	.76343	.81760	.10294	.60777	.56722
#1	2.9607	.73383	.09616	1.1782	.31959	.01370	.86991	.18536
#2	2.9328	.73939	.09559	1.1688	.31641	.01367	.88015	.18722
#3	2.9715	.73455	.09574	1.1868	.32158	.01369	.87257	.18544

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	.85420	.13481	.15311	.16989	3.4058	.06505	1.0156	1.9026
Stddev	.00648	.00037	.00079	.00062	.0034	.00016	.0087	.0151
%RSD	.75814	.27536	.51356	.36672	.10004	.24005	.85760	.79460
#1	.85564	.13520	.15395	.16942	3.4083	.06520	1.0080	1.9021
#2	.84712	.13446	.15300	.17060	3.4071	.06489	1.0251	1.8877
#3	.85983	.13479	.15239	.16965	3.4019	.06507	1.0137	1.9180

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	.41877	.99246	.01276	.12183	.06544	1.8167	25.753
Stddev	.00316	.00450	.00008	.00080	.00044	.0094	.192
%RSD	.75397	.45377	.59835	.65989	.67838	.51490	.74732
#1	.41932	.98876	.01284	.12226	.06544	1.8132	25.540
#2	.41537	.99748	.01269	.12090	.06500	1.8273	25.807
#3	.42162	.99115	.01276	.12232	.06588	1.8097	25.914

Sample Name: S3 Acquired: 1/31/2025 11:10:43 Type: Cal
Method: NON EPA-6010-200.7(v2648) 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	3447.2	69907.	13049.	2469.2	3969.1
Stddev	26.1	378.	73.	10.6	25.5
%RSD	.75844	.54045	.55704	.42741	.64158
#1	3446.7	69477.	13095.	2457.8	3963.2
#2	3473.6	70188.	12965.	2478.6	3997.0
#3	3421.3	70056.	13086.	2471.1	3947.2

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: S4 Acquired: 1/31/2025 11:15:03 Type: Cal
Method: NON EPA-6010-200.7(v2648) 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	.21242	.32534	1.2247	.31085	.64366	.58213	21.041	.99003
Stddev	.00112	.00093	.0020	.00154	.00316	.00537	.253	.00845
%RSD	.52904	.28465	.16140	.49459	.49122	.92218	1.2018	.85306
#1	.21133	.32457	1.2232	.30932	.64075	.57663	20.877	.98062
#2	.21236	.32637	1.2240	.31083	.64321	.58736	21.332	.99696
#3	.21358	.32508	1.2270	.31239	.64703	.58241	20.913	.99250

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	5.6855	1.3748	.17948	2.2621	.60379	.02476	1.6282	.35094
Stddev	.0063	.0085	.00056	.0041	.00192	.00010	.0055	.00206
%RSD	.11170	.61692	.31455	.18104	.31875	.40730	.33937	.58757
#1	5.6830	1.3653	.17901	2.2593	.60166	.02487	1.6225	.34856
#2	5.6809	1.3816	.17934	2.2602	.60433	.02469	1.6335	.35222
#3	5.6928	1.3775	.18011	2.2668	.60540	.02472	1.6286	.35205

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	1.6327	.25517	.27484	.32220	6.3683	.11835	2.0027	3.6383
Stddev	.0033	.00035	.00105	.00243	.0127	.00048	.0136	.0118
%RSD	.20172	.13773	.38200	.75306	.20002	.40942	.67985	.32354
#1	1.6297	.25496	.27600	.31948	6.3601	.11875	1.9902	3.6258
#2	1.6322	.25558	.27395	.32413	6.3619	.11781	2.0172	3.6400
#3	1.6362	.25499	.27457	.32299	6.3830	.11848	2.0007	3.6492

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	.80482	1.8731	.02340	.23523	.12740	3.4464	48.216
Stddev	.00049	.0082	.00004	.00027	.00052	.0155	.324
%RSD	.06108	.43561	.18170	.11326	.40780	.44829	.67269
#1	.80461	1.8643	.02337	.23497	.12681	3.4298	48.111
#2	.80447	1.8804	.02338	.23551	.12765	3.4604	47.957
#3	.80538	1.8746	.02345	.23520	.12776	3.4490	48.580

Sample Name: S4 Acquired: 1/31/2025 11:15:03 Type: Cal
Method: NON EPA-6010-200.7(v2648) 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	3385.8	69926.	12560.	2444.8	3853.2
Stddev	6.8	210.	84.	12.9	4.3
%RSD	.20217	.30085	.66614	.52760	.11158
#1	3392.0	69963.	12656.	2447.3	3852.3
#2	3387.1	70116.	12508.	2456.2	3858.0
#3	3378.5	69700.	12515.	2430.8	3849.5

Sample Name: S5 Acquired: 1/31/2025 11:19:17 Type: Cal
Method: NON EPA-6010-200.7(v2648) 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	.42916	.63201	2.4509	.62525	1.2997	1.2127	44.423	1.9394
Stddev	.00286	.00277	.0175	.00436	.0088	.0018	.328	.0053
%RSD	.66600	.43853	.71198	.69799	.67306	.15066	.73853	.27312
#1	.42603	.62892	2.4317	.62045	1.2902	1.2117	44.649	1.9336
#2	.42980	.63286	2.4553	.62629	1.3016	1.2116	44.573	1.9406
#3	.43164	.63426	2.4658	.62899	1.3074	1.2148	44.047	1.9440

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	11.354	2.8218	.35588	4.5533	1.1957	.05142	3.3281	.72968
Stddev	.080	.0025	.00020	.0289	.0067	.00017	.0083	.00137
%RSD	.70158	.08780	.05758	.63453	.56176	.33254	.25051	.18723
#1	11.268	2.8212	.35610	4.5221	1.1880	.05155	3.3210	.72867
#2	11.369	2.8197	.35570	4.5587	1.1990	.05147	3.3260	.72913
#3	11.425	2.8245	.35584	4.5791	1.2002	.05122	3.3373	.73123

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	3.2653	.51271	.60020	.66585	12.798	.25403	3.9292	7.2289
Stddev	.0212	.00043	.00154	.00117	.031	.00066	.0101	.0468
%RSD	.64870	.08306	.25660	.17588	.23972	.26133	.25659	.64706
#1	3.2424	.51277	.60158	.66481	12.772	.25403	3.9202	7.1771
#2	3.2690	.51311	.60049	.66563	12.832	.25470	3.9273	7.2415
#3	3.2843	.51226	.59854	.66712	12.790	.25337	3.9400	7.2680

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	1.6046	3.8792	.05028	.47348	.26142	7.2612	99.425
Stddev	.0117	.0040	.00009	.00234	.00120	.0096	.790
%RSD	.73171	.10297	.17208	.49426	.46058	.13250	.79481
#1	1.5919	3.8777	.05021	.47085	.26006	7.2509	100.27
#2	1.6070	3.8762	.05037	.47425	.26186	7.2627	98.707
#3	1.6150	3.8838	.05025	.47533	.26234	7.2700	99.297

Sample Name: S5 Acquired: 1/31/2025 11:19:17 Type: Cal
Method: NON EPA-6010-200.7(v2648) 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	3298.9	68455.	12565.	2316.8	3703.5
Stddev	19.0	195.	12.	6.6	20.8
%RSD	.57612	.28453	.09725	.28331	.56219
#1	3320.6	68320.	12578.	2318.6	3726.2
#2	3290.7	68367.	12564.	2309.5	3699.1
#3	3285.4	68678.	12553.	2322.3	3685.3

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: ICV01 Acquired: 1/31/2025 11:23:35 Type: Unk
Method: NON EPA-6010-200.7(v2648) 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	1.026593	1.021307	.9965944	1.039554	1.019915	2.399705
Stddev	.007823	.002545	.0036322	.004730	.005735	.008853
%RSD	.7620656	.2491699	.3644585	.4550154	.5623452	.3689177
#1	1.035616	1.020629	.9995201	1.044782	1.025441	2.403189
#2	1.021711	1.019170	.9977341	1.035570	1.020312	2.389641
#3	1.022451	1.024122	.9925291	1.038312	1.013991	2.406287

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4780725	.4871779	.4963842	9.562447	.5188246	.5007221
Stddev	.0028387	.0023963	.0031195	.059310	.0016238	.0032092
%RSD	.5937712	.4918822	.6284341	.6202353	.3129785	.6409235
#1	.4784182	.4877528	.4999859	9.580060	.5206996	.5043967
#2	.4750768	.4845463	.4946263	9.496326	.5178895	.4992994
#3	.4807224	.4892344	.4945404	9.610955	.5178846	.4984701

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5146945	9.825848	.4878365	5.615431	.5035676	.2516245
Stddev	.0043500	.017030	.0034222	.014472	.0030143	.0005775
%RSD	.8451529	.1733143	.7015033	.2577119	.5985787	.2295207
#1	.5196793	9.831859	.4885712	5.617882	.5069447	.2520778
#2	.5127360	9.839057	.4841067	5.599890	.5026083	.2518215
#3	.5116680	9.806628	.4908317	5.628520	.5011497	.2509743

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.162451	.4805834	1.011742	9.635725	F .0054136	F -.000204
Stddev	.043125	.0030059	.000548	.031703	.0010571	.000306
%RSD	.4706704	.6254579	.0541765	.3290171	19.52725	150.0009
#1	9.211105	.4810915	1.011646	9.659709	.0066251	.000143
#2	9.147311	.4773559	1.011248	9.647684	.0046785	-.000320
#3	9.128938	.4833028	1.012332	9.599781	.0049372	-.000435

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: ICV01 Acquired: 1/31/2025 11:23:35 Type: Unk
Method: NON EPA-6010-200.7(v2648) 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 -.001036	F -.000927	F -.004174	F .0013434	F -.002867	F -.002988
Stddev	.000819	.000190	.002568	.0013653	.001086	.000713
%RSD	79.01544	20.49085	61.51070	101.6244	37.88453	23.85965
#1	-.001783	-.000888	-.006666	.0001490	-.004050	-.003556
#2	-.001165	-.001134	-.001537	.0010497	-.001915	-.002188
#3	-.000161	-.000760	-.004320	.0028317	-.002635	-.003220

Elem	Sr4077
Units	ppm
Avg	F -.008696
Stddev	.000022
%RSD	.2552329
#1	-.008690
#2	-.008721
#3	-.008677

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3481.298	71845.50	13660.96	2454.807	4148.003
Stddev	23.073	255.99	81.25	9.886	25.226
%RSD	.6627840	.3563018	.5947611	.4027333	.6081572
#1	3454.991	71550.14	13638.36	2443.434	4119.074
#2	3490.802	71982.96	13751.12	2461.349	4159.514
#3	3498.102	72003.38	13593.41	2459.638	4165.419

Sample Name: LLICV01 Acquired: 1/31/2025 11:27:43 Type: Unk
Method: NON EPA-6010-200.7(v2648) 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	.0231785	.0378374	.0129220	.0192254	.0508588	.1033475	.0926045
Stddev	.0024730	.0008456	.0012600	.0019563	.0009526	.0076051	.0019361
%RSD	10.66936	2.234911	9.750956	10.17537	1.873029	7.358718	2.090681
#1	.0254381	.0384284	.0132203	.0198633	.0510203	.0963571	.0941337
#2	.0205366	.0368688	.0140061	.0170298	.0498358	.1114457	.0904276
#3	.0235607	.0382151	.0115396	.0207830	.0517204	.1022397	.0932521

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0055340	.0058165	1.924698	.0098020	.0291428	.0216662	.1031413
Stddev	.0000515	.0000475	.021873	.0001800	.0001756	.0004315	.0047683
%RSD	.9298159	.8164839	1.136451	1.836734	.6024853	1.991385	4.623104
#1	.0055790	.0058118	1.935401	.0096244	.0289438	.0212570	.1068395
#2	.0054779	.0058662	1.899534	.0099843	.0292090	.0216246	.1048248
#3	.0055449	.0057716	1.939159	.0097972	.0292757	.0221169	.0977596

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0195259	2.038667	.0391610	.0103483	1.951155	.0398627	.0412167
Stddev	.0000638	.026871	.0000971	.0004129	.014807	.0020657	.0002117
%RSD	.3267581	1.318081	.2480127	3.990087	.7589042	5.181971	.5135190
#1	.0195926	2.016325	.0390649	.0100136	1.965175	.0376762	.0413614
#2	.0194655	2.031191	.0392592	.0102216	1.935669	.0401304	.0409738
#3	.0195197	2.068485	.0391588	.0108098	1.952620	.0417814	.0413149

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.047100	.1017339	.2027203	.0389061	.0373940	.3358899	.0164003
Stddev	.023482	.0013689	.0006231	.0011609	.0005116	.0081752	.0003566
%RSD	1.147082	1.345531	.3073544	2.983871	1.368105	2.433898	2.174369
#1	2.072005	.1032567	.2026366	.0382949	.0379328	.3321306	.0161962
#2	2.025363	.1006057	.2021434	.0381784	.0373341	.3302706	.0161926
#3	2.043931	.1013392	.2033810	.0402449	.0369149	.3452686	.0168121

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: LLICV01 Acquired: 1/31/2025 11:27:43 Type: Unk
Method: NON EPA-6010-200.7(v2648) 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	.0183533	.0171073	.0187966
Stddev	.0013300	.0002829	.0004054
%RSD	7.246612	1.653362	2.156669
#1	.0188388	.0168167	.0192067
#2	.0168488	.0173818	.0183961
#3	.0193724	.0171234	.0187870

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3478.173	71972.25	13992.52	2467.020	4178.424
Stddev	8.516	145.26	88.67	4.205	5.719
%RSD	.2448474	.2018265	.6336841	.1704682	.1368598
#1	3473.771	72127.76	13957.25	2471.499	4177.308
#2	3487.990	71948.92	14093.40	2466.405	4184.618
#3	3472.759	71840.07	13926.92	2463.156	4173.345

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: ICB01 Acquired: 1/31/2025 11:32:03 Type: Unk
Method: NON EPA-6010-200.7(v2648) 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	-.001197	-.002448	.0001603	-.002662	-.001380	.0038042	-.001528
Stddev	.002602	.000962	.0005423	.001369	.001038	.0009478	.000365
%RSD	217.2971	39.29449	338.3339	51.44417	75.20063	24.91528	23.92317
#1	-.004199	-.003372	.0007865	-.001887	-.000191	.0027494	-.001383
#2	.000206	-.002519	-.000148	-.004243	-.002102	.0045843	-.001943
#3	.000401	-.001453	-.000157	-.001855	-.001848	.0040790	-.001256

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000132	-.000029	-.004704	-.000175	-.000030	-.000046	.0003103
Stddev	.0000191	.000095	.002243	.000173	.000230	.000588	.0005659
%RSD	144.6620	327.0146	47.69356	99.18185	766.8336	1278.353	182.4043
#1	-.000007	.000044	-.002950	-.000085	.000063	-.000720	.0000028
#2	.000016	-.000136	-.003929	-.000375	-.000292	.000218	.0009634
#3	.000031	.000005	-.007232	-.000064	.000139	.000364	-.000035

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000437	-.009523	.0000273	.0003052	.0070035	.0008766	-.000236
Stddev	.0001380	.005760	.0003123	.0001913	.0024040	.0011130	.000228
%RSD	315.9262	60.49131	1144.546	62.69685	34.32624	126.9736	96.71075
#1	-.000071	-.011610	.0001758	.0001251	.0075779	-.000363	-.000091
#2	.000197	-.013949	.0002377	.0002844	.0043643	.001790	-.000118
#3	.000005	-.003010	-.000332	.0005060	.0090683	.001203	-.000499

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0500776	.0023452	-.000174	.0003785	-.000101	.0065784	-.001154
Stddev	.0108034	.0005911	.000134	.0003896	.000044	.0117714	.000969
%RSD	21.57335	25.20265	77.20696	102.9302	43.83927	178.9408	83.95347
#1	.0602659	.0028080	-.000329	-.000001	-.000130	-.005882	-.000070
#2	.0387494	.0025482	-.000090	.000778	-.000123	.008105	-.001457
#3	.0512174	.0016794	-.000103	.000359	-.000050	.017512	-.001934

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: ICB01 Acquired: 1/31/2025 11:32:03 Type: Unk
Method: NON EPA-6010-200.7(v2648) 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	-.004150	-.002828	-.000160
Stddev	.003782	.000635	.000025
%RSD	91.12813	22.46614	15.72583
#1	-.008324	-.003023	-.000185
#2	-.003173	-.003343	-.000160
#3	-.000952	-.002118	-.000135

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3479.487	72495.94	13578.20	2496.460	4203.517
Stddev	3.026	252.83	48.50	9.502	2.047
%RSD	.0869799	.3487562	.3571791	.3806053	.0486964
#1	3481.334	72701.44	13632.51	2485.624	4205.749
#2	3481.133	72572.76	13539.23	2500.391	4201.727
#3	3475.994	72213.60	13562.86	2503.366	4203.075

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CRI01 Acquired: 1/31/2025 11:36:26 Type: Unk
Method: NON EPA-6010-200.7(v2648) 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	.0210315	.0389466	.0113779	.0206888	.0493511	.0993658	.0896722
Stddev	.0018913	.0028520	.0005651	.0015009	.0012112	.0027226	.0004588
%RSD	8.992559	7.322952	4.966870	7.254533	2.454235	2.740010	.5115876
#1	.0201700	.0362431	.0107282	.0216932	.0502071	.1017389	.0902019
#2	.0197243	.0386699	.0117552	.0189635	.0479653	.0963935	.0893985
#3	.0232001	.0419270	.0116504	.0214097	.0498809	.0999650	.0894164

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0056264	.0057717	1.903613	.0096770	.0288264	.0210275	.0947396
Stddev	.0000911	.0000883	.014440	.0000790	.0002270	.0002042	.0029219
%RSD	1.618511	1.529027	.7585614	.8163543	.7876152	.9708987	3.084135
#1	.0057282	.0057492	1.920234	.0095868	.0286729	.0211158	.0938895
#2	.0055983	.0056970	1.896445	.0097105	.0290872	.0211727	.0923371
#3	.0055528	.0058691	1.894159	.0097339	.0287190	.0207941	.0979923

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0193142	2.023000	.0384322	.0102298	1.805410	.0395919	.0407573
Stddev	.0003540	.008881	.0000919	.0000506	.006526	.0003803	.0001098
%RSD	1.832926	.4389779	.2391032	.4944828	.3614506	.9604428	.2693601
#1	.0195350	2.026923	.0385159	.0102556	1.810323	.0392389	.0408282
#2	.0189058	2.029243	.0383339	.0102623	1.798005	.0399946	.0408127
#3	.0195017	2.012833	.0384468	.0101715	1.807902	.0395421	.0406308

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.912651	.0953847	.2008736	.0388168	.0372451	.3163534	.0164495
Stddev	.043251	.0000665	.0007928	.0000966	.0005154	.0095265	.0015134
%RSD	2.261306	.0696690	.3946755	.2488884	1.383784	3.011341	9.200088
#1	1.899030	.0954601	.2009559	.0388507	.0376956	.3206390	.0149377
#2	1.877850	.0953348	.2000429	.0388919	.0366831	.3229844	.0164463
#3	1.961073	.0953591	.2016221	.0387078	.0373567	.3054368	.0179644

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CRI01 Acquired: 1/31/2025 11:36:26 Type: Unk
Method: NON EPA-6010-200.7(v2648) 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	.0172490	.0166461	.0185112
Stddev	.0031197	.0007651	.0000100
%RSD	18.08625	4.596451	.0542203
#1	.0137626	.0166611	.0185208
#2	.0197772	.0158737	.0185008
#3	.0182071	.0174037	.0185120

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3509.508	73528.14	13765.72	2509.611	4236.641
Stddev	8.602	141.40	55.07	14.105	10.101
%RSD	.2451018	.1923039	.4000837	.5620488	.2384185
#1	3515.862	73366.44	13723.90	2493.350	4243.010
#2	3512.942	73589.43	13745.13	2518.534	4241.918
#3	3499.719	73628.56	13828.12	2516.950	4224.994

Sample Name: ICSA01 Acquired: 1/31/2025 11:47:11 Type: Unk
Method: NON EPA-6010-200.7(v2648) 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	.0021468	.0093139	.0084520	-.019747	-.002700	239.5171
Stddev	.0039105	.0019848	.0005946	.001450	.003920	.4610
%RSD	182.1549	21.31055	7.035222	7.344404	145.1473	.1924861
#1	.0064299	.0093005	.0083010	-.019758	-.001619	239.1253
#2	.0012434	.0113055	.0079475	-.021192	.000565	240.0251
#3	-.001233	.0073358	.0091076	-.018292	-.007047	239.4010

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0028556	.0013301	-.000026	225.2638	.0555208	.0016084
Stddev	.0006126	.0000332	.000235	.4874	.0002215	.0002253
%RSD	21.45216	2.492945	897.8405	.2163668	.3989299	14.01062
#1	.0029601	.0012962	-.000282	225.0741	.0556982	.0013565
#2	.0034092	.0013624	.000024	225.8175	.0555915	.0017909
#3	.0021975	.0013318	.000180	224.8997	.0552725	.0016776

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0117740	98.69842	.0063862	242.2405	.0029452	-.003421
Stddev	.0014534	.52475	.0000906	.4113	.0000708	.000379
%RSD	12.34423	.5316672	1.418679	.1697884	2.404248	11.07895
#1	.0121272	98.77920	.0063196	242.1948	.0030128	-.003285
#2	.0101765	99.17809	.0063497	242.6728	.0029511	-.003128
#3	.0130182	98.13797	.0064894	241.8540	.0028716	-.003849

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0627751	.0053591	.0031366	.0972707	F -.186719	.0002257
Stddev	.0080499	.0011749	.0005913	.0369408	.002558	.0004650
%RSD	12.82339	21.92277	18.85198	37.97729	1.370196	206.0837
#1	.0653877	.0060287	.0038082	.0553771	-.185944	-.000134
#2	.0691942	.0060462	.0029079	.1112669	-.184637	.000060
#3	.0537434	.0040025	.0026939	.1251683	-.189575	.000751

Sample Name: ICSA01 Acquired: 1/31/2025 11:47:11 Type: Unk
Method: NON EPA-6010-200.7(v2648) 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	-.002927	-.001330	.0139859	.0035180	-.018232	F -.038877
Stddev	.000905	.000392	.0027915	.0037621	.003590	.001134
%RSD	30.91654	29.48373	19.95951	106.9393	19.69073	2.918120
#1	-.003943	-.001476	.0171757	.0054224	-.021842	-.037932
#2	-.002632	-.000886	.0127929	-.000816	-.018192	-.040135
#3	-.002206	-.001629	.0119892	.005947	-.014662	-.038564

Elem	Sr4077
Units	ppm
Avg	-.005702
Stddev	.000339
%RSD	5.947656
#1	-.005666
#2	-.006058
#3	-.005382

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3130.126	64368.71	13357.23	2176.000	3505.229
Stddev	5.119	89.67	18.00	5.918	1.069
%RSD	.1635286	.1393123	.1347688	.2719765	.0304879
#1	3126.421	64420.03	13370.85	2170.460	3506.185
#2	3135.967	64265.17	13364.01	2175.305	3505.425
#3	3127.992	64420.94	13336.82	2182.235	3504.075

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: ICSAB01 Acquired: 1/31/2025 11:53:44 Type: Unk
Method: NON EPA-6010-200.7(v2648) 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	.1130144	.0943490	.0583583	.0353566	.6207263	239.2257
Stddev	.0005306	.0034217	.0016639	.0022963	.0041515	.8547
%RSD	.4694649	3.626617	2.851168	6.494569	.6688118	.3572670
#1	.1127381	.0915152	.0580663	.0331913	.6167052	238.2527
#2	.1136261	.0933817	.0568597	.0377645	.6204767	239.8552
#3	.1126789	.0981502	.0601488	.0351139	.6249969	239.5691

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4790672	.4833599	.9923781	226.3738	.5521612	.5017191
Stddev	.0020042	.0015880	.0056799	.6424	.0003774	.0023205
%RSD	.4183581	.3285276	.5723571	.2837779	.0683472	.4625060
#1	.4767609	.4832595	.9933777	225.6559	.5525098	.5015676
#2	.4803867	.4849957	.9862648	226.8944	.5517604	.4994781
#3	.4800538	.4818246	.9974920	226.5712	.5522133	.5041116

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4969049	96.72035	.4687149	242.1741	.9906900	.2107121
Stddev	.0036084	.28141	.0005466	.5798	.0063358	.0006853
%RSD	.7261692	.2909571	.1166226	.2394201	.6395327	.3252426
#1	.4955046	96.56977	.4692382	241.6296	.9897427	.2099279
#2	.4942066	96.54626	.4681476	242.7837	.9848812	.2111961
#3	.5010035	97.04502	.4687590	242.1090	.9974461	.2110123

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0466205	.4686417	1.039574	.1119246	F -.193815	F .0001340
Stddev	.0077790	.0025068	.002263	.0409906	.002525	.0004867
%RSD	16.68587	.5349156	.2177211	36.62341	1.302641	363.3605
#1	.0541820	.4658323	1.037068	.0685181	-.194263	-.000129
#2	.0470388	.4694426	1.040184	.1499721	-.196086	.000696
#3	.0386408	.4706502	1.041470	.1172837	-.191097	-.000165

Sample Name: ICSAB01 Acquired: 1/31/2025 11:53:44 Type: Unk
Method: NON EPA-6010-200.7(v2648) 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 -.002599	F -.002902	F .0042647	F .0042463	F -.019945	F -.039689
Stddev	.000666	.000224	.0081925	.0024461	.004908	.000928
%RSD	25.64213	7.709662	192.1007	57.60590	24.60716	2.338021
#1	-.001846	-.003077	.0115651	.0070631	-.017024	-.039000
#2	-.002837	-.002650	.0058247	.0026576	-.017200	-.040744
#3	-.003114	-.002978	-.004596	.0030182	-.025611	-.039322

Elem	Sr4077
Units	ppm
Avg	F -.003433
Stddev	.000382
%RSD	11.12354
#1	-.003757
#2	-.003012
#3	-.003530

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3110.688	65136.37	13095.24	2227.223	3471.016
Stddev	15.539	39.37	27.57	4.564	16.676
%RSD	.4995308	.0604409	.2105299	.2049155	.4804471
#1	3110.067	65090.92	13101.69	2226.330	3465.794
#2	3126.528	65159.95	13065.02	2223.172	3489.679
#3	3095.469	65158.24	13119.01	2232.168	3457.575

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: ICSADLX20 Acquired: 1/31/2025 11:57:52 Type: Unk
Method: NON EPA-6010-200.7(v2648) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSADLX20 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000477	-.002267	.0005568	-.000574	-.001999	12.00683	-.001867
Stddev	.0010511	.001433	.0006538	.001825	.000333	.02647	.000379
%RSD	2204.918	63.18142	117.4274	318.0751	16.67289	.2204622	20.30540
#1	-.000497	-.003427	.0002124	.000553	-.002161	11.97952	-.002231
#2	-.000619	-.002709	.0013108	-.002679	-.001616	12.00862	-.001895
#3	.001259	-.000666	.0001472	.000405	-.002221	12.03237	-.001474

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001334	-.000050	11.86080	.0024865	.0002537	.0007515	4.893073
Stddev	.0000423	.000085	.07029	.0003196	.0002333	.0004288	.009680
%RSD	31.67389	169.1228	.5926076	12.85177	91.97722	57.06343	.1978247
#1	.0001455	-.000140	11.80511	.0025829	.0000140	.0004867	4.897494
#2	.0001683	-.000039	11.83750	.0021299	.0004800	.0012462	4.899753
#3	.0000864	.000029	11.93977	.0027468	.0002671	.0005215	4.881972

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004070	12.21417	.0003470	-.000145	.0263368	.0020622	.0002043
Stddev	.0001980	.05707	.0002218	.000217	.0057924	.0009174	.0000813
%RSD	48.64680	.4672431	63.91925	148.9550	21.99376	44.48868	39.78447
#1	.0006345	12.18356	.0005893	.000006	.0319804	.0029008	.0001594
#2	.0003132	12.17894	.0001542	-.000049	.0266236	.0022035	.0002981
#3	.0002733	12.28002	.0002973	-.000394	.0204062	.0010823	.0001553

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0347938	-.011469	-.000046	-.001155	.0000140	.0117433	-.003399
Stddev	.0251201	.000376	.000190	.000504	.0004258	.0047989	.000762
%RSD	72.19719	3.274250	409.5628	43.63294	3046.465	40.86527	22.42828
#1	.0150030	-.011062	-.000234	-.001693	.0001021	.0170983	-.002867
#2	.0263244	-.011802	-.000052	-.000693	.0003888	.0102996	-.004272
#3	.0630540	-.011543	.000146	-.001079	-.000449	.0078319	-.003057

Sample Name: ICSADLX20 Acquired: 1/31/2025 11:57:52 Type: Unk
Method: NON EPA-6010-200.7(v2648) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSADLX20 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.004342	-.005208	-.000204
Stddev	.003017	.001177	.000051
%RSD	69.49693	22.60336	24.74676
#1	-.002132	-.006347	-.000196
#2	-.003113	-.005281	-.000158
#3	-.007779	-.003996	-.000258

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3427.971	71476.57	13452.72	2437.005	4073.098
Stddev	4.191	169.26	76.55	9.734	2.256
%RSD	.1222518	.2367994	.5690473	.3994439	.0553854
#1	3429.243	71392.15	13491.32	2434.224	4072.172
#2	3431.378	71671.43	13502.29	2447.828	4075.670
#3	3423.291	71366.13	13364.55	2428.965	4071.453

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: ICSABDLX20 Acquired: 1/31/2025 12:02:09 Type: Unk
Method: NON EPA-6010-200.7(v2648) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSABDLX20 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0046996	.0027216	.0026484	.0020411	.0286456	11.74578	.0220615
Stddev	.0015220	.0024500	.0014741	.0009664	.0010825	.04350	.0001871
%RSD	32.38476	90.02055	55.65941	47.34738	3.778877	.3703815	.8479092
#1	.0056504	.0039220	.0031524	.0010773	.0275495	11.69562	.0219265
#2	.0055043	-.000097	.0009884	.0020358	.0297139	11.76845	.0222751
#3	.0029442	.004340	.0038042	.0030102	.0286733	11.77326	.0219831

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0238597	.0487882	11.57271	.0283727	.0242214	.0256147	4.918233
Stddev	.0001086	.0001399	.04323	.0003616	.0002064	.0004179	.022072
%RSD	.4549321	.2868498	.3735693	1.274418	.8519256	1.631559	.4487703
#1	.0237357	.0486268	11.52450	.0279552	.0244559	.0253821	4.911341
#2	.0239374	.0488614	11.58561	.0285794	.0240677	.0253648	4.900429
#3	.0239061	.0488762	11.60803	.0285835	.0241405	.0260972	4.942928

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0243580	11.94747	.0493470	.0102868	.0172188	.0242685	.0512592
Stddev	.0000510	.06213	.0002139	.0000163	.0052730	.0002812	.0003933
%RSD	.2092424	.5199895	.4335418	.1582196	30.62381	1.158561	.7672937
#1	.0243961	11.87666	.0493216	.0102866	.0141617	.0245360	.0509022
#2	.0243779	11.99284	.0491468	.0102707	.0141871	.0242943	.0511945
#3	.0243001	11.97289	.0495725	.0103032	.0233075	.0239754	.0516808

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0453028	-.011371	.0000431	-.001267	-.000327	.0069235	-.000428
Stddev	.0195427	.000111	.0000869	.000285	.000508	.0081561	.000447
%RSD	43.13797	.9726938	201.4954	22.47061	155.1336	117.8026	104.3549
#1	.0241561	-.011318	.0000703	-.001032	-.000736	-.001199	-.000617
#2	.0626975	-.011498	.0001132	-.001185	-.000487	.006857	-.000749
#3	.0490549	-.011297	-.000054	-.001584	.000241	.015113	.000082

Sample Name: ICSABDLX20 Acquired: 1/31/2025 12:02:09 Type: Unk
Method: NON EPA-6010-200.7(v2648) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSABDLX20 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.002750	-.004275	-.000327
Stddev	.002595	.000658	.000027
%RSD	94.36435	15.39148	8.133038
#1	-.000051	-.004934	-.000296
#2	-.002973	-.004271	-.000345
#3	-.005226	-.003618	-.000340

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3455.981	71769.24	13917.83	2437.849	4128.532
Stddev	10.147	266.94	69.10	2.362	9.833
%RSD	.2935932	.3719465	.4964558	.0968900	.2381682
#1	3467.559	72043.90	13997.60	2440.340	4139.792
#2	3448.640	71753.05	13876.45	2437.566	4121.639
#3	3451.744	71510.75	13879.44	2435.641	4124.166

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CCV01 Acquired: 1/31/2025 12:16:27 Type: Unk
Method: NON EPA-6010-200.7(v2649) 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	4.863796	5.081463	4.776767	4.905453	4.878768	9.486307	9.617851
Stddev	.014833	.023013	.024495	.021124	.017940	.019322	.094713
%RSD	.3049716	.4528901	.5127933	.4306251	.3677067	.2036864	.9847585
#1	4.846904	5.069105	4.753533	4.881343	4.858155	9.507406	9.726651
#2	4.869786	5.067268	4.774415	4.914300	4.887296	9.469473	9.573062
#3	4.874697	5.108015	4.802353	4.920714	4.890853	9.482043	9.553839

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2508898	2.382508	23.55205	.9562001	2.378874	1.218242	4.855256
Stddev	.0015285	.008569	.09675	.0015085	.008920	.004396	.022985
%RSD	.6092273	.3596488	.4107907	.1577620	.3749608	.3608415	.4734105
#1	.2526436	2.375312	23.64771	.9557671	2.370566	1.213316	4.858440
#2	.2501841	2.380224	23.55421	.9549554	2.377755	1.219644	4.876483
#3	.2498416	2.391987	23.45424	.9578777	2.388301	1.221766	4.830844

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.337835	23.20344	2.383327	1.193877	24.54288	2.372042	2.412356
Stddev	.011309	.10391	.011280	.000372	.06389	.003750	.006306
%RSD	.4837358	.4478163	.4732688	.0311414	.2603117	.1580905	.2613940
#1	2.341783	23.27986	2.373347	1.194219	24.53113	2.374670	2.414369
#2	2.346642	23.24533	2.381070	1.193931	24.61182	2.373707	2.405289
#3	2.325082	23.08512	2.395565	1.193481	24.48568	2.367747	2.417409

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.48072	4.559374	4.884869	4.817437	4.696523	4.782576	4.776760
Stddev	.07292	.020352	.016099	.024555	.018810	.010325	.021287
%RSD	.2978614	.4463691	.3295745	.5097135	.4005068	.2158930	.4456424
#1	24.44098	4.580384	4.866794	4.792506	4.710730	4.771455	4.756277
#2	24.56487	4.557984	4.890144	4.818206	4.703648	4.791858	4.775232
#3	24.43630	4.539752	4.897670	4.841598	4.675192	4.784416	4.798770

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CCV01 Acquired: 1/31/2025 12:16:27 Type: Unk
Method: NON EPA-6010-200.7(v2649) 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	4.812216	4.696180	4.705286
Stddev	.027063	.022647	.034589
%RSD	.5623818	.4822480	.7351157
#1	4.782220	4.712496	4.744664
#2	4.819624	4.705720	4.679811
#3	4.834803	4.670323	4.691385

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3348.190	70198.51	13331.61	2385.481	3844.174
Stddev	7.993	95.18	65.99	4.612	12.595
%RSD	.2387369	.1355924	.4949986	.1933374	.3276515
#1	3356.800	70092.14	13258.55	2381.069	3852.623
#2	3346.765	70275.66	13349.39	2390.270	3850.203
#3	3341.005	70227.72	13386.89	2385.106	3829.697

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CCB01 Acquired: 1/31/2025 12:20:26 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	-.000902	-.001746	.0007062	.0010443	-.000885	.0042192	-.001021
Stddev	.000342	.001452	.0004663	.0006263	.001033	.0054229	.000826
%RSD	37.92276	83.16255	66.02805	59.97269	116.7124	128.5306	80.86463
#1	-.000618	-.003085	.0001815	.0008759	-.000076	.0102324	-.000515
#2	-.001282	-.000202	.0010732	.0005194	-.000531	-.000300	-.001975
#3	-.000806	-.001953	.0008639	.0017376	-.002048	.002725	-.000575

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000447	.0000171	.0018966	-.000082	.0000833	-.000039	-.001275
Stddev	.0000458	.0000096	.0084396	.000228	.0001643	.000233	.000553
%RSD	102.3449	56.19696	444.9930	277.0540	197.1687	600.2644	43.35413
#1	.0000452	.0000245	-.007775	-.000200	.0002725	.000131	-.001039
#2	-.000001	.0000063	.005694	-.000228	.0000014	-.000304	-.000880
#3	.000090	.0000205	.007771	.000181	-.000024	.000057	-.001907

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000134	-.003393	.0001862	.0003967	.0111430	.0019831	-.000117
Stddev	.000271	.007568	.0000321	.0003453	.0048309	.0000801	.000056
%RSD	202.2163	223.0490	17.25590	87.03918	43.35406	4.041293	47.32376
#1	-.000163	.003315	.0001702	.0000959	.0151502	.0020337	-.000056
#2	.000150	-.001897	.0002232	.0007737	.0125002	.0020249	-.000165
#3	-.000390	-.011598	.0001652	.0003205	.0057786	.0018907	-.000131

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1162214	.0107017	.0000325	.0006202	-.000171	.0042447	-.001198
Stddev	.0244363	.0001766	.0001364	.0001988	.000419	.0038618	.001794
%RSD	21.02561	1.650171	419.3182	32.06282	245.5730	90.98000	149.6730
#1	.1007597	.0107831	-.000101	.0007882	-.000581	.0022320	-.003007
#2	.1035113	.0108229	.000027	.0006717	-.000188	.0086970	-.001168
#3	.1443932	.0104991	.000172	.0004006	.000257	.0018050	.000580

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CCB01 Acquired: 1/31/2025 12:20:26 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	-.003018	-.005735	-.000044
Stddev	.002205	.000044	.000023
%RSD	73.04826	.7611122	52.37198
#1	-.003165	-.005716	-.000027
#2	-.000744	-.005785	-.000070
#3	-.005145	-.005704	-.000034

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3475.761	72191.94	13814.80	2444.760	4235.219
Stddev	13.557	266.32	107.86	10.350	16.903
%RSD	.3900394	.3689068	.7807707	.4233435	.3991152
#1	3485.363	71984.38	13719.09	2433.190	4240.515
#2	3481.667	72492.23	13931.68	2453.136	4248.841
#3	3460.253	72099.21	13793.63	2447.955	4216.302

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1239-01 Acquired: 1/31/2025 12:24:46 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0840127	-.006566	.6250111	-.026803	.0092225	51.83231	.4043989
Stddev	.0053247	.001677	.0017988	.001643	.0013297	.06362	.0015332
%RSD	6.337969	25.54370	.2878015	6.131287	14.41758	.1227508	.3791320
#1	.0800300	-.007645	.6261851	-.028479	.0104633	51.88112	.4061350
#2	.0819474	-.007419	.6229402	-.026734	.0093853	51.85546	.4038312
#3	.0900606	-.004634	.6259081	-.025195	.0078190	51.76035	.4032306

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0054678	.0025966	35.46195	.2100664	.0368442	.3031689	124.9969
Stddev	.0000392	.0002105	.08151	.0011914	.0001166	.0009869	.3337
%RSD	.7178916	8.106919	.2298621	.5671481	.3163542	.3255364	.2669765
#1	.0054515	.0025395	35.51969	.2100904	.0367126	.3029206	124.9474
#2	.0055126	.0024206	35.49745	.2112456	.0368856	.3023300	125.3526
#3	.0054394	.0028298	35.36870	.2088631	.0369344	.3042564	124.6907

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.336294	20.40091	.0804347	-.002701	1.875141	.2597823	1.108660
Stddev	.003106	.03389	.0003245	.000119	.012292	.0010361	.008780
%RSD	.2323989	.1660969	.4033676	4.393199	.6555418	.3988259	.7919220
#1	1.339545	20.42980	.0807892	-.002778	1.882272	.2586138	1.106608
#2	1.335978	20.40933	.0801525	-.002761	1.882204	.2605889	1.118283
#3	1.333358	20.36361	.0803624	-.002565	1.860947	.2601441	1.101087

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.484627	-.208664	.0074950	.0205351	.9627346	4.423408	4.819110
Stddev	.050000	.002814	.0001899	.0006713	.0049030	.027811	.030663
%RSD	.6680341	1.348467	2.533399	3.269020	.5092788	.6287151	.6362691
#1	7.494252	-.210448	.0076034	.0199773	.9681548	4.405684	4.852209
#2	7.529115	-.210124	.0076058	.0203479	.9614406	4.455461	4.813446
#3	7.430515	-.205421	.0072757	.0212802	.9586084	4.409079	4.791674

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1239-01 Acquired: 1/31/2025 12:24:46 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	2.847930	.0367896	.0820239
Stddev	.006822	.0007814	.0006294
%RSD	.2395253	2.123961	.7673555
#1	2.854104	.0371703	.0827461
#2	2.849079	.0358908	.0817329
#3	2.840607	.0373078	.0815925

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3548.031	75223.68	14961.88	2485.128	3939.693
Stddev	11.539	266.04	54.93	17.438	7.653
%RSD	.3252099	.3536640	.3671482	.7016826	.1942573
#1	3559.235	75218.14	14935.31	2497.402	3947.948
#2	3548.673	74960.44	14925.27	2465.168	3938.297
#3	3536.184	75492.44	15025.04	2492.815	3932.833

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1239-04 Acquired: 1/31/2025 12:28:52 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0794730	-.009485	.8205908	-.043635	.0028119	153.1740	.5792755
Stddev	.0020053	.001833	.0014997	.001725	.0013709	.4687	.0024864
%RSD	2.523211	19.32542	.1827544	3.952247	48.75176	.3059908	.4292234
#1	.0771643	-.008659	.8221211	-.045559	.0015157	153.6274	.5785101
#2	.0807801	-.011586	.8191237	-.043121	.0026731	153.2032	.5820547
#3	.0804747	-.008210	.8205276	-.042227	.0042469	152.6914	.5772619

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0078535	.0023899	27.55731	.2237690	.0582480	.3585043	199.7228
Stddev	.0000637	.0000865	.04660	.0011432	.0000888	.0006452	.3116
%RSD	.8115315	3.620146	.1690882	.5108921	.1524266	.1799694	.1560376
#1	.0079234	.0024872	27.60889	.2249592	.0583325	.3583484	199.8233
#2	.0077986	.0023609	27.51826	.2236686	.0582560	.3592132	199.3734
#3	.0078384	.0023216	27.54479	.2226793	.0581555	.3579514	199.9719

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.786900	13.38136	.1061165	-.005487	3.029318	.3512577	.5679056
Stddev	.007116	.04226	.0004422	.000445	.007048	.0027506	.0014912
%RSD	.3982138	.3158165	.4167613	8.109656	.2326550	.7830668	.2625846
#1	1.781062	13.43008	.1058335	-.005158	3.031165	.3542471	.5682718
#2	1.794826	13.35468	.1066262	-.005993	3.035259	.3506922	.5662654
#3	1.784811	13.35931	.1058900	-.005311	3.021531	.3488338	.5691796

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.226996	-.389270	.0054427	.0143559	1.992882	5.775039	4.324895
Stddev	.044439	.001542	.0004126	.0004714	.005557	.029452	.011423
%RSD	.4816189	.3960919	7.580423	3.283732	.2788514	.5099921	.2641299
#1	9.274895	-.387570	.0054749	.0138814	1.995737	5.808794	4.318662
#2	9.218986	-.389663	.0058382	.0148241	1.996432	5.761753	4.317943
#3	9.187106	-.390578	.0050149	.0143622	1.986478	5.754571	4.338079

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1239-04 Acquired: 1/31/2025 12:28:52 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	8.799888	.0341929	-.041004
Stddev	.016613	.0004720	.000855
%RSD	.1887887	1.380301	2.084881
#1	8.780920	.0336615	-.041183
#2	8.806885	.0343539	-.040074
#3	8.811857	.0345634	-.041756

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3576.288	74422.31	14688.26	2489.906	3815.234
Stddev	6.965	350.85	46.12	12.530	2.204
%RSD	.1947508	.4714320	.3140149	.5032379	.0577669
#1	3570.406	74028.31	14638.56	2482.801	3813.704
#2	3574.478	74700.98	14696.54	2504.374	3814.238
#3	3583.979	74537.64	14729.69	2482.544	3817.760

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1239-07 Acquired: 1/31/2025 12:32:57 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.1098098	-.004016	1.293108	-.056605	.0029632	62.50218
Stddev	.0005254	.002686	.001817	.014696	.0017803	.24126
%RSD	.4784447	66.89498	.1405267	25.96175	60.07945	.3859956
#1	.1092477	-.000927	1.294198	-.046165	.0044344	62.50836
#2	.1102885	-.005317	1.291010	-.073410	.0034710	62.74029
#3	.1098932	-.005803	1.294116	-.050239	.0009842	62.25790

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5873354	.0063225	.0054806	314.7522	.2729778	.0399096
Stddev	.0035733	.0000427	.0002694	1.2943	.0006035	.0001932
%RSD	.6083924	.6752631	4.915560	.4112084	.2210805	.4840681
#1	.5888015	.0063296	.0056546	314.2060	.2731963	.0400350
#2	.5899425	.0063612	.0051703	316.2301	.2722955	.0396871
#3	.5832623	.0062767	.0056168	313.8206	.2734416	.0400066

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4359485	194.1688	1.675299	47.93982	.0792432	-.007135
Stddev	.0006702	.1440	.011129	.24793	.0004201	.000081
%RSD	.1537334	.0741489	.6642765	.5171704	.5300999	1.140638
#1	.4365981	194.0604	1.677255	47.93921	.0787598	-.007170
#2	.4359879	194.1138	1.685319	48.18805	.0794501	-.007042
#3	.4352594	194.3322	1.663321	47.69219	.0795197	-.007193

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.247360	.2396591	1.823816	8.747656	-.342064	.0078515
Stddev	.004043	.0024936	.004209	.042949	.005356	.0004329
%RSD	.1798975	1.040481	.2308065	.4909772	1.565722	5.514145
#1	2.251624	.2388048	1.823747	8.751364	-.345803	.0081146
#2	2.246873	.2424676	1.819642	8.702973	-.344461	.0073518
#3	2.243583	.2377050	1.828060	8.788630	-.335928	.0080881

Sample Name: Q1239-07 Acquired: 1/31/2025 12:32:57 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0401399	1.705563	F 15.92309	5.024699	7.305820	.0094044
Stddev	.0007930	.010137	.07863	.002028	.021513	.0008979
%RSD	1.975571	.5943332	.4938421	.0403510	.2944572	9.547505
#1	.0406966	1.709398	15.84024	5.023829	7.317633	.0091044
#2	.0392319	1.713223	15.93236	5.027016	7.280989	.0104139
#3	.0404911	1.694068	15.99668	5.023251	7.318837	.0086949

Elem	Sr4077
Units	ppm
Avg	1.007318
Stddev	.009280
%RSD	.9212782
#1	1.015723
#2	1.008873
#3	.997359

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3316.851	69580.35	13913.14	2325.414	3610.789
Stddev	4.184	82.64	70.28	9.103	1.749
%RSD	.1261509	.1187713	.5051136	.3914648	.0484492
#1	3312.232	69628.03	13906.28	2321.390	3609.113
#2	3320.387	69628.10	13846.55	2335.835	3612.603
#3	3317.936	69484.93	13986.60	2319.016	3610.650

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1239-10 Acquired: 1/31/2025 12:37:19 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0544591	-.004679	.5773588	-.024946	.0097274	48.52380	.3863185
Stddev	.0021705	.001503	.0034185	.001383	.0004658	.06918	.0013061
%RSD	3.985596	32.11494	.5920849	5.544023	4.788038	.1425632	.3380808
#1	.0567060	-.003109	.5789875	-.026186	.0097013	48.59959	.3876717
#2	.0523740	-.006104	.5734306	-.025198	.0102057	48.50776	.3850654
#3	.0542976	-.004824	.5796583	-.023455	.0092753	48.46405	.3862184

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0047947	.0020267	15.55558	.1589157	.0265247	.2429977	107.2995
Stddev	.0000723	.0000994	.07621	.0003390	.0002696	.0013587	1.1503
%RSD	1.507651	4.903453	.4899080	.2132884	1.016269	.5591574	1.072027
#1	.0048470	.0020840	15.64322	.1586463	.0268077	.2430823	106.7194
#2	.0047122	.0019119	15.50489	.1592963	.0262710	.2415987	108.6243
#3	.0048249	.0020841	15.51862	.1588047	.0264955	.2443122	106.5548

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.106037	9.542848	.0605083	-.003309	1.727629	.1741926	.8937917
Stddev	.004525	.033659	.0001289	.000076	.027521	.0003291	.0058200
%RSD	.4091041	.3527152	.2131078	2.285126	1.593005	.1888996	.6511633
#1	1.111170	9.580130	.0604457	-.003380	1.709552	.1745339	.8870776
#2	1.102627	9.533719	.0604227	-.003230	1.759303	.1741665	.8968982
#3	1.104312	9.514695	.0606566	-.003318	1.714033	.1738773	.8973994

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.300943	-.210648	.0077150	.0162693	1.063480	4.573248	3.316073
Stddev	.044647	.004700	.0001322	.0005493	.001478	.042845	.001054
%RSD	1.038064	2.231392	1.714073	3.376164	.1389594	.9368644	.0317825
#1	4.283447	-.212430	.0077875	.0160190	1.065167	4.551008	3.317050
#2	4.351688	-.205317	.0075624	.0168991	1.062416	4.622640	3.314956
#3	4.267695	-.214197	.0077952	.0158897	1.062856	4.546096	3.316214

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1239-10 Acquired: 1/31/2025 12:37:19 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	2.143234	.0198941	-.032129
Stddev	.002109	.0003685	.000996
%RSD	.0984124	1.852418	3.099350
#1	2.145641	.0202922	-.031468
#2	2.142347	.0198252	-.033275
#3	2.141712	.0195649	-.031645

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3541.306	73708.24	14093.21	2490.734	4008.318
Stddev	3.851	534.83	94.35	19.518	1.030
%RSD	.1087374	.7256095	.6694664	.7836297	.0257090
#1	3538.866	74024.28	14021.92	2512.563	4007.217
#2	3545.746	73090.72	14200.20	2474.963	4009.259
#3	3539.308	74009.72	14057.50	2484.677	4008.480

Sample Name: Q1239-10DUP Acquired: 1/31/2025 12:41:27 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0522193	-.007416	.5740606	-.021473	.0090357	48.11942	.3783075
Stddev	.0006784	.000740	.0020612	.001715	.0018287	.19213	.0026699
%RSD	1.299077	9.973080	.3590616	7.986638	20.23856	.3992860	.7057611
#1	.0529893	-.007876	.5760778	-.019672	.0109863	47.90850	.3763707
#2	.0519583	-.006562	.5719580	-.021660	.0073600	48.28445	.3813532
#3	.0517101	-.007808	.5741461	-.023087	.0087609	48.16532	.3771987

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0048813	.0026242	15.39471	.1594304	.0263421	.2465598	103.9008
Stddev	.0000797	.0001758	.05587	.0009234	.0001702	.0017754	.7673
%RSD	1.632905	6.699093	.3629344	.5791830	.6459668	.7200659	.7385095
#1	.0047909	.0025487	15.33083	.1601089	.0265158	.2465280	104.1447
#2	.0049414	.0024988	15.43443	.1598035	.0261757	.2448006	104.5166
#3	.0049116	.0028251	15.41889	.1583788	.0263349	.2483509	103.0412

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.087614	9.462225	.0608589	-.003429	1.623388	.1724951	.8934097
Stddev	.003752	.034802	.0007422	.000331	.028425	.0009025	.0063664
%RSD	.3449603	.3678037	1.219571	9.661795	1.750942	.5232214	.7125989
#1	1.085248	9.432073	.0604376	-.003053	1.636357	.1735145	.8976267
#2	1.091940	9.500309	.0604233	-.003677	1.643015	.1721727	.8965159
#3	1.085654	9.454293	.0617159	-.003557	1.590792	.1717980	.8860864

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.098794	-.223734	.0080609	.0160544	1.054665	4.379343	3.264482
Stddev	.039099	.001552	.0005144	.0007488	.007254	.029544	.008809
%RSD	.9539076	.6935930	6.382050	4.663886	.6878459	.6746294	.2698562
#1	4.089478	-.222031	.0085612	.0166126	1.048206	4.399822	3.274517
#2	4.141710	-.225068	.0080881	.0163471	1.062514	4.392733	3.258021
#3	4.065196	-.224104	.0075333	.0152035	1.053275	4.345475	3.260909

Sample Name: Q1239-10DUP Acquired: 1/31/2025 12:41:27 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	2.120983	.0198383	-.030074
Stddev	.008794	.0005888	.000550
%RSD	.4146321	2.968114	1.829675
#1	2.111755	.0192269	-.030483
#2	2.121927	.0198866	-.030290
#3	2.129267	.0204016	-.029448

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3537.368	73930.36	13850.08	2462.773	4036.084
Stddev	6.915	189.58	61.77	7.123	6.637
%RSD	.1954789	.2564253	.4460160	.2892342	.1644408
#1	3537.288	73808.52	13909.93	2455.341	4041.959
#2	3544.322	73833.80	13853.75	2463.436	4037.408
#3	3530.493	74148.78	13786.55	2469.541	4028.885

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1239-10LX5 Acquired: 1/31/2025 12:45:34 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0082884	-.006115	.1206072	-.005122	.0009846	10.33334	.0804646
Stddev	.0013844	.002123	.0013307	.001152	.0012186	.04853	.0012026
%RSD	16.70244	34.71345	1.103304	22.48578	123.7708	.4696724	1.494540
#1	.0092579	-.007593	.1191432	-.006444	.0019404	10.32600	.0799700
#2	.0067030	-.007070	.1217432	-.004334	-.000388	10.28890	.0795882
#3	.0089044	-.003683	.1209353	-.004588	.001401	10.38513	.0818356

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0010298	.0001513	3.338650	.0335942	.0051926	.0529731	23.09105
Stddev	.0000537	.0000618	.017556	.0002038	.0001033	.0005757	.11740
%RSD	5.215082	40.83370	.5258497	.6066221	1.988494	1.086724	.5084257
#1	.0010478	.0002185	3.345220	.0334733	.0052463	.0534971	23.05745
#2	.0010722	.0000969	3.318757	.0334798	.0052578	.0530652	22.99411
#3	.0009694	.0001385	3.351974	.0338295	.0050735	.0523569	23.22158

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2360025	2.040700	.0124974	-.000205	.3677261	.0367538	.1931417
Stddev	.0017081	.023768	.0002363	.000121	.0158519	.0011052	.0013611
%RSD	.7237783	1.164676	1.890718	58.80988	4.310779	3.007051	.7047348
#1	.2361842	2.043586	.0126241	-.000220	.3517443	.0368439	.1933789
#2	.2342107	2.015622	.0122247	-.000078	.3679893	.0356063	.1916775
#3	.2376125	2.062893	.0126433	-.000317	.3834448	.0378112	.1943686

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9974301	-.045844	.0012685	.0028831	.2243415	.9842572	.6806397
Stddev	.0372776	.000626	.0003974	.0002325	.0012750	.0060139	.0004754
%RSD	3.737361	1.365893	31.33127	8.063852	.5683207	.6110130	.0698534
#1	.9639652	-.045558	.0008816	.0030893	.2256963	.9773231	.6803174
#2	1.037608	-.045413	.0016756	.0029288	.2231652	.9880511	.6811858
#3	.990717	-.046563	.0012482	.0026311	.2241629	.9873972	.6804160

Sample Name: Q1239-10LX5 Acquired: 1/31/2025 12:45:34 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.4422919	-.001108	-.006992
Stddev	.0012526	.000563	.000047
%RSD	.2832107	50.81054	.6777311
#1	.4423654	-.000509	-.007027
#2	.4410042	-.001188	-.006938
#3	.4435062	-.001626	-.007012

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3411.856	71762.59	13950.66	2393.937	4074.168
Stddev	1.175	361.87	64.62	17.298	3.386
%RSD	.0344446	.5042549	.4632228	.7225804	.0831075
#1	3410.812	71846.65	13961.48	2390.778	4076.007
#2	3411.627	72075.03	14009.19	2412.597	4070.260
#3	3413.129	71366.10	13881.31	2378.436	4076.236

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1239-10MS Acquired: 1/31/2025 12:49:49 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.8298317	2.002403	1.512887	1.780244	.4834413	66.42934	.6072814
Stddev	.0001929	.003726	.005208	.002790	.0005823	.16962	.0022238
%RSD	.0232434	.1860653	.3442399	.1567388	.1204402	.2553353	.3661943
#1	.8298887	2.004182	1.518288	1.781746	.4840357	66.58526	.6076209
#2	.8296167	1.998122	1.507897	1.777024	.4828721	66.45404	.6093160
#3	.8299897	2.004907	1.512476	1.781961	.4834161	66.24873	.6049073

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1789786	.1926959	18.91380	.5940291	.2249483	.5302085	124.7145
Stddev	.0007778	.0004040	.05243	.0016117	.0007229	.0014529	.1996
%RSD	.4345704	.2096830	.2772209	.2713154	.3213420	.2740319	.1600415
#1	.1784753	.1928715	18.88715	.5934749	.2252258	.5301883	124.6201
#2	.1798744	.1922337	18.97420	.5927676	.2241278	.5287658	124.5796
#3	.1785861	.1929824	18.88004	.5958448	.2254912	.5316715	124.9438

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.307317	13.20177	.5545885	.0685285	4.673994	.4704501	1.082362
Stddev	.002673	.05058	.0006041	.0001124	.015752	.0020476	.001951
%RSD	.2044756	.3831416	.1089283	.1640805	.3370193	.4352317	.1802760
#1	1.306504	13.15483	.5552695	.0685789	4.683571	.4726887	1.083205
#2	1.310302	13.25534	.5541171	.0686069	4.655813	.4686721	1.080131
#3	1.305144	13.19515	.5543789	.0683996	4.682598	.4699895	1.083751

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.70892	.0001446	.3996958	.6817249	1.316673	7.245566	8.760556
Stddev	.05801	.0013663	.0010390	.0007309	.002333	.019767	.016262
%RSD	.3943949	944.9945	.2599589	.1072115	.1771690	.2728110	.1856271
#1	14.77580	.0011155	.3993922	.6813289	1.317963	7.227558	8.757468
#2	14.67221	-.001418	.3988423	.6825683	1.318077	7.242423	8.746060
#3	14.67875	.000736	.4008528	.6812774	1.313981	7.266715	8.778141

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1239-10MS Acquired: 1/31/2025 12:49:49 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	1.997575	.2237130	.1429375
Stddev	.003830	.0005480	.0009207
%RSD	.1917119	.2449472	.6441510
#1	1.999724	.2235652	.1433436
#2	1.993154	.2243198	.1435854
#3	1.999848	.2232541	.1418836

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3456.186	72686.28	14279.55	2402.422	3916.028
Stddev	4.435	128.51	31.44	12.502	4.703
%RSD	.1283317	.1768066	.2202082	.5203923	.1200981
#1	3454.769	72632.93	14282.64	2388.543	3911.869
#2	3461.157	72832.87	14246.67	2412.801	3921.132
#3	3452.632	72593.03	14309.33	2405.922	3915.083

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1239-10MSD Acquired: 1/31/2025 12:53:47 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.8251530	2.011636	1.511617	1.764856	.4813378	66.87872	.6193658
Stddev	.0060202	.004952	.002188	.006028	.0026458	.18485	.0031156
%RSD	.7295867	.2461471	.1447362	.3415641	.5496784	.2764027	.5030367
#1	.8288385	2.008107	1.514143	1.771789	.4842902	67.01655	.6222025
#2	.8182058	2.017296	1.510406	1.761931	.4791814	66.66865	.6160312
#3	.8284147	2.009504	1.510303	1.760849	.4805417	66.95094	.6198637

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1816767	.1925203	19.15241	.5931043	.2252971	.5294301	125.1724
Stddev	.0005446	.0005965	.04542	.0004541	.0008065	.0022364	.5328
%RSD	.2997854	.3098462	.2371585	.0765551	.3579925	.4224176	.4256261
#1	.1818131	.1931896	19.20413	.5925811	.2262251	.5316031	125.3448
#2	.1821401	.1923261	19.13407	.5933362	.2247651	.5295519	124.5748
#3	.1810768	.1920450	19.11901	.5933955	.2249011	.5271353	125.5976

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.337932	13.33808	.5537370	.0692970	4.721377	.4756079	1.083119
Stddev	.006072	.04175	.0013679	.0000675	.027170	.0028855	.001040
%RSD	.4538486	.3129983	.2470324	.0974056	.5754601	.6067050	.0959744
#1	1.344293	13.36954	.5551567	.0692441	4.726634	.4783066	1.084227
#2	1.337305	13.35399	.5536269	.0692739	4.691964	.4725662	1.082965
#3	1.332198	13.29072	.5524275	.0693731	4.745535	.4759510	1.082165

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.68800	-.001831	.3993082	.6816459	1.347931	7.737943	8.841223
Stddev	.06801	.002665	.0014501	.0024880	.012247	.035851	.017535
%RSD	.4630020	145.5919	.3631425	.3649941	.9086051	.4633164	.1983285
#1	14.71369	-.001519	.4009578	.6844906	1.360926	7.705992	8.825179
#2	14.61090	-.004638	.3987322	.6805709	1.336601	7.731122	8.859941
#3	14.73943	.000665	.3982347	.6798761	1.346266	7.776715	8.838549

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1239-10MSD Acquired: 1/31/2025 12:53:47 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	2.003776	.2264299	.1458573
Stddev	.007751	.0007476	.0009149
%RSD	.3868448	.3301445	.6272212
#1	2.010623	.2271305	.1467855
#2	2.005345	.2256430	.1458298
#3	1.995360	.2265163	.1449565

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3468.562	72804.31	14061.41	2413.540	3918.423
Stddev	12.155	59.46	55.68	4.775	10.415
%RSD	.3504314	.0816749	.3959883	.1978293	.2657882
#1	3454.913	72790.64	14041.53	2415.022	3907.346
#2	3472.554	72869.42	14018.40	2417.398	3919.908
#3	3478.219	72752.88	14124.31	2408.200	3928.016

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1239-10A Acquired: 1/31/2025 12:57:45 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.8279622	2.021166	1.516483	1.770144	.4817904	66.48351	.6096860
Stddev	.0056308	.005285	.003635	.004571	.0022902	.09690	.0005832
%RSD	.6800808	.2615003	.2396987	.2582351	.4753609	.1457505	.0956513
#1	.8304386	2.024637	1.516092	1.772668	.4844343	66.59220	.6092951
#2	.8319305	2.015083	1.513059	1.772897	.4805198	66.40614	.6094065
#3	.8215176	2.023778	1.520297	1.764868	.4804172	66.45219	.6103563

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1816129	.1937640	18.93708	.5907735	.2255794	.5314555	123.2529
Stddev	.0016360	.0004939	.04915	.0008961	.0005391	.0009415	.6694
%RSD	.9008316	.2548804	.2595334	.1516799	.2389775	.1771638	.5431135
#1	.1825588	.1941810	18.95632	.5898137	.2262004	.5324141	122.8105
#2	.1797238	.1932186	18.88122	.5909186	.2252314	.5305320	124.0230
#3	.1825562	.1938923	18.97369	.5915881	.2253064	.5314203	122.9251

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.314431	13.24115	.5564651	.0682284	4.609024	.4706324	1.079902
Stddev	.002845	.05088	.0014852	.0002967	.025355	.0009082	.003047
%RSD	.2164276	.3842362	.2668989	.4348939	.5501205	.1929729	.2821086
#1	1.316610	13.29411	.5568187	.0684136	4.584394	.4716810	1.077866
#2	1.311213	13.19266	.5548351	.0683856	4.635047	.4701030	1.078435
#3	1.315470	13.23668	.5577417	.0678862	4.607632	.4701131	1.083404

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.47994	-.000365	.3982697	.6826239	1.346074	8.437144	8.972243
Stddev	.07360	.002110	.0004644	.0032226	.005447	.086049	.028896
%RSD	.5082568	578.3785	.1166163	.4720948	.4046475	1.019879	.3220651
#1	14.42932	-.001835	.3986371	.6857836	1.348196	8.365862	9.000876
#2	14.56436	.002053	.3977477	.6793418	1.339885	8.532731	8.972763
#3	14.44612	-.001312	.3984244	.6827464	1.350140	8.412839	8.943090

Sample Name: Q1239-10A Acquired: 1/31/2025 12:57:45 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	2.013128	.2241098	.1447046
Stddev	.005853	.0012960	.0010169
%RSD	.2907582	.5783030	.7027187
#1	2.015610	.2256052	.1455492
#2	2.006443	.2233107	.1435759
#3	2.017331	.2234137	.1449887

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3453.877	72951.90	14093.89	2423.445	3892.064
Stddev	9.525	130.86	83.37	2.359	9.266
%RSD	.2757841	.1793812	.5915143	.0973226	.2380856
#1	3446.123	73001.18	14031.98	2420.860	3882.168
#2	3450.997	72803.55	14188.68	2425.480	3893.490
#3	3464.509	73050.96	14061.00	2423.995	3900.535

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1240-01 Acquired: 1/31/2025 13:01:44 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0011001	.0072285	.0016404	.0416405	.0015753	.0285979	-.006447
Stddev	.0034493	.0020603	.0003704	.0013330	.0011541	.0084800	.000629
%RSD	313.5276	28.50302	22.57809	3.201149	73.26576	29.65237	9.762096
#1	-.002226	.0071640	.0012188	.0411687	.0010417	.0383557	-.006413
#2	.004660	.0093203	.0017893	.0431452	.0028997	.0230121	-.007092
#3	.000866	.0052011	.0019131	.0406075	.0007845	.0244261	-.005835

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000322	-.000139	.0553108	.0009924	.0002240	.0016829	.0455699
Stddev	.0000627	.000068	.0012962	.0003013	.0001060	.0001307	.0021634
%RSD	194.7274	48.84317	2.343461	30.35918	47.34799	7.766282	4.747483
#1	-.000010	-.000207	.0559448	.0006508	.0003358	.0015321	.0440675
#2	.000104	-.000072	.0561679	.0012202	.0001249	.0017524	.0480496
#3	.000003	-.000138	.0538196	.0011061	.0002112	.0017642	.0445927

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0010567	.0121500	.0002238	.0012354	-.007379	.0000342	.0026714
Stddev	.0002474	.0045290	.0002556	.0002580	.007837	.0015506	.0001804
%RSD	23.41290	37.27589	114.1905	20.88518	106.2074	4530.598	6.753243
#1	.0010789	.0137732	-.000042	.0009581	-.011602	-.001756	.0025017
#2	.0007989	.0156437	.000468	.0012799	-.012198	.000943	.0028609
#3	.0012922	.0070330	.000246	.0014684	.001664	.000915	.0026517

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1279846	-.002215	.0002369	.0123197	.0005089	.0026038	.0206011
Stddev	.0367162	.000172	.0001720	.0005155	.0002993	.0048417	.0013251
%RSD	28.68795	7.761035	72.59857	4.184446	58.81256	185.9478	6.432009
#1	.1076503	-.002166	.0003795	.0119357	.0008347	.0080513	.0190989
#2	.1703692	-.002073	.0002853	.0121178	.0004458	-.001209	.0211003
#3	.1059343	-.002406	.0000459	.0129056	.0002462	.000969	.0216041

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1240-01 Acquired: 1/31/2025 13:01:44 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.1348372	-.006258	-.000040
Stddev	.0041478	.000723	.000025
%RSD	3.076139	11.55465	62.21280
#1	.1331074	-.005729	-.000060
#2	.1318343	-.007082	-.000012
#3	.1395699	-.005962	-.000048

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3283.467	71355.07	13829.87	2304.848	4383.493
Stddev	14.257	194.24	127.05	13.199	16.059
%RSD	.4342096	.2722100	.9186562	.5726417	.3663450
#1	3295.075	71486.63	13686.35	2319.928	4394.045
#2	3287.772	71446.59	13927.96	2299.222	4391.421
#3	3267.553	71131.98	13875.29	2295.395	4365.012

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CCV02 Acquired: 1/31/2025 13:06:04 Type: Unk
Method: NON EPA-6010-200.7(v2647) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.932047	5.104434	4.760155	5.021568	4.972501	9.669676
Stddev	.019228	.012134	.016217	.019479	.017960	.036145
%RSD	.3898648	.2377117	.3406913	.3879141	.3611886	.3737945
#1	4.935403	5.117937	4.749841	5.027740	4.971719	9.665126
#2	4.911361	5.094446	4.751775	4.999750	4.954945	9.636021
#3	4.949376	5.100918	4.778847	5.037214	4.990839	9.707880

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.271944	.2267580	2.359083	23.24530	.9705333	2.377116
Stddev	.094484	.0016938	.008305	.06091	.0045889	.006001
%RSD	1.019034	.7469469	.3520388	.2620245	.4728219	.2524686
#1	9.254278	.2249784	2.355073	23.24032	.9654706	2.375597
#2	9.187539	.2269453	2.353544	23.18704	.9744192	2.372020
#3	9.374014	.2283504	2.368632	23.30855	.9717101	2.383731

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.236104	4.776534	2.264759	23.39117	2.379279	1.186591
Stddev	.003813	.022752	.004714	.07964	.005730	.005443
%RSD	.3085072	.4763341	.2081551	.3404649	.2408225	.4587170
#1	1.235600	4.800138	2.264769	23.31077	2.377686	1.180658
#2	1.232567	4.774721	2.260039	23.39271	2.374514	1.191353
#3	1.240144	4.754742	2.269468	23.47002	2.385637	1.187763

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.02642	2.373981	2.413373	24.60632	F 4.494544	4.971737
Stddev	.13876	.007457	.009619	.10960	.038822	.014502
%RSD	.5775232	.3141306	.3985741	.4454210	.8637473	.2916974
#1	24.17842	2.376921	2.404219	24.72722	4.452293	4.972303
#2	23.99433	2.365502	2.423398	24.57827	4.502699	4.956959
#3	23.90652	2.379521	2.412503	24.51347	4.528640	4.985947

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CCV02 Acquired: 1/31/2025 13:06:04 Type: Unk
Method: NON EPA-6010-200.7(v2647) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.783292	4.672994	4.950926	4.591491	4.728740	4.668386
Stddev	.016121	.014208	.014309	.011924	.020266	.015026
%RSD	.3370341	.3040449	.2890076	.2596877	.4285742	.3218739
#1	4.775282	4.673292	4.940718	4.592498	4.733975	4.679515
#2	4.772743	4.658640	4.967281	4.579096	4.706370	4.651293
#3	4.801849	4.687051	4.944779	4.602879	4.745875	4.674348

Elem	Sr4077
Units	ppm
Avg	4.656920
Stddev	.014391
%RSD	.3090343
#1	4.662469
#2	4.640581
#3	4.667712

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3286.432	69383.59	13335.21	2257.092	3848.086
Stddev	5.434	162.12	63.46	10.173	6.656
%RSD	.1653354	.2336631	.4758604	.4507025	.1729593
#1	3288.157	69488.92	13402.19	2259.630	3852.008
#2	3290.793	69196.90	13327.45	2245.890	3851.847
#3	3280.345	69464.96	13275.99	2265.755	3840.401

Sample Name: CCB02 Acquired: 1/31/2025 13:10:16 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0001077	-.002582	.0000561	.0012974	.0009667	-.001447	-.001978
Stddev	.0023640	.000301	.0014623	.0019213	.0013996	.004967	.000233
%RSD	2194.146	11.67549	2606.514	148.0854	144.7789	343.3044	11.77065
#1	-.001169	-.002922	.0006172	.0010083	.0022879	-.007150	-.002092
#2	.002836	-.002347	-.001604	.0033470	-.000500	.001930	-.001710
#3	-.001343	-.002476	.001155	-.000463	.001112	.000879	-.002132

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000878	.0000586	.0011442	.0003929	.0001000	-.000620	.0004792
Stddev	.0000523	.0000342	.0087841	.0004067	.0001322	.000235	.0025459
%RSD	59.59738	58.41096	767.6806	103.5212	132.2891	37.86898	531.3219
#1	.0000932	.0000695	-.004650	.0001856	.0000909	-.000359	.0020395
#2	.0001371	.0000861	.011251	.0008615	.0002365	-.000684	-.002459
#3	.0000329	.0000203	-.003168	.0001316	-.000028	-.000815	.001857

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001340	-.003689	.0002112	.0004405	-.023080	.0006453	-.000276
Stddev	.0003567	.001143	.0002820	.0000531	.014035	.0019553	.000210
%RSD	266.2831	30.98877	133.5339	12.04869	60.80762	302.9944	76.03436
#1	-.000132	-.002483	.0005102	.0004682	-.012955	.0001369	-.000039
#2	.000539	-.004756	.0001735	.0003793	-.039101	.0028047	-.000350
#3	-.000005	-.003829	-.000050	.0004740	-.017185	-.001006	-.000439

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1667107	.0073086	.0000115	.0004451	.0003398	.0062264	-.000706
Stddev	.0326434	.0003151	.0002026	.0006204	.0004336	.0074019	.001665
%RSD	19.58085	4.311514	1761.808	139.3758	127.6170	118.8801	235.9290
#1	.1294949	.0071764	-.000218	.0009192	-.000158	.0133958	.001217
#2	.1904983	.0076683	.000085	-.000257	.000541	.0066712	-.001684
#3	.1801389	.0070811	.000167	.000673	.000636	-.001388	-.001650

Sample Name: CCB02 Acquired: 1/31/2025 13:10:16 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	-.003027	-.007677	-.000077
Stddev	.000780	.001022	.000037
%RSD	25.76883	13.31239	47.11966
#1	-.002504	-.008368	-.000118
#2	-.002653	-.008159	-.000047
#3	-.003923	-.006503	-.000068

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3387.576	71869.10	13698.11	2384.677	4104.393
Stddev	12.097	230.34	18.81	7.783	20.183
%RSD	.3571130	.3204995	.1373273	.3263909	.4917509
#1	3397.004	72126.04	13719.05	2377.574	4118.446
#2	3391.789	71681.13	13692.64	2383.459	4113.469
#3	3373.935	71800.12	13682.64	2392.997	4081.265

Sample Name: PB166392BL Acquired: 1/31/2025 13:14:36 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0024994	-.003111	-.000933	.0012104	.0003940	.0021739	-.001699
Stddev	.0029822	.001826	.000252	.0017122	.0023321	.0064248	.000829
%RSD	119.3185	58.70621	27.04613	141.4670	591.9209	295.5468	48.78936
#1	.0059359	-.001906	-.000775	.0000708	.0000713	.0057376	-.002415
#2	.0009720	-.005212	-.001224	.0003809	-.001760	.0060269	-.001891
#3	.0005902	-.002215	-.000799	.0031794	.002871	-.005243	-.000791

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000434	-.000029	-.004056	.0001653	.0000512	-.000137	-.000457
Stddev	.0000588	.000030	.004227	.0000829	.0000934	.000494	.001979
%RSD	135.5403	103.9613	104.2196	50.12933	182.2237	359.1889	432.5865
#1	.0000836	-.000023	-.008932	.0002372	.0000327	-.000474	-.001743
#2	.0000707	-.000002	-.001428	.0000747	-.000031	.000429	.001821
#3	-.000024	-.000061	-.001807	.0001841	.000152	-.000367	-.001450

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000053	-.007193	.0002550	.0004060	-.011363	.0014531	-.000161
Stddev	.0001170	.004944	.0000392	.0003036	.011196	.0010976	.000216
%RSD	2216.132	68.74237	15.39068	74.77064	98.53509	75.53634	134.4067
#1	.0000071	-.010642	.0002496	.0006508	-.024273	.0003615	.000089
#2	-.000113	-.001528	.0002966	.0005009	-.005491	.0025566	-.000286
#3	.000121	-.009407	.0002187	.0000663	-.004323	.0014411	-.000285

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1945648	.0034291	-.000278	.0001439	-.000261	.0012480	.0002108
Stddev	.0164253	.0004022	.000249	.0006237	.000408	.0021061	.0002498
%RSD	8.442055	11.72951	89.33666	433.5680	155.9270	168.7673	118.5288
#1	.1938342	.0038842	-.000102	.0002786	-.000172	.0033596	.0004589
#2	.1785169	.0031210	-.000170	-.000536	-.000706	-.000853	-.000041
#3	.2113431	.0032822	-.000563	.000689	.000094	.001237	.000214

Sample Name: PB166392BL Acquired: 1/31/2025 13:14:36 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	-.002948	-.007514	-.000155
Stddev	.003445	.000589	.000020
%RSD	116.8710	7.835595	12.90429
#1	.000708	-.008064	-.000132
#2	-.003418	-.006893	-.000166
#3	-.006133	-.007584	-.000168

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3397.490	71036.70	13613.62	2393.736	4104.887
Stddev	11.399	162.72	20.26	7.348	16.536
%RSD	.3355158	.2290700	.1488380	.3069604	.4028270
#1	3393.698	71091.18	13635.68	2388.611	4101.935
#2	3410.301	71165.20	13609.34	2390.444	4122.699
#3	3388.470	70853.73	13595.84	2402.155	4090.026

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: PB166392BS Acquired: 1/31/2025 13:18:57 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.8178632	2.140671	.9767485	2.019387	.7934302	1.926435
Stddev	.0028871	.016132	.0007472	.005948	.0018659	.009064
%RSD	.3530040	.7535731	.0765002	.2945653	.2351717	.4704964
#1	.8148413	2.123255	.9759396	2.018385	.7934580	1.934839
#2	.8181552	2.143658	.9768931	2.014003	.7915505	1.916831
#3	.8205933	2.155101	.9774129	2.025772	.7952821	1.927634

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1787428	.2029419	.1940346	.9848986	.4031825	.1948709
Stddev	.0013562	.0004548	.0005222	.0044153	.0001204	.0004868
%RSD	.7587238	.2240795	.2691484	.4482966	.0298692	.2497960
#1	.1802293	.2031708	.1941475	.9801588	.4031506	.1949732
#2	.1775730	.2024181	.1934652	.9856420	.4033157	.1943410
#3	.1784261	.2032367	.1944912	.9888950	.4030813	.1952983

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3115732	2.795332	.1877500	1.871387	.4901770	.0745090
Stddev	.0016146	.022535	.0010107	.020149	.0011755	.0001739
%RSD	.5182002	.8061597	.5383241	1.076708	.2398011	.2333453
#1	.3109401	2.794188	.1889072	1.860853	.4898735	.0744635
#2	.3103711	2.818417	.1870401	1.858689	.4891830	.0747011
#3	.3134084	2.773390	.1873028	1.894620	.4914744	.0743624

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.459972	.2845086	.2063287	9.267713	.2883348	.4094285
Stddev	.020840	.0011467	.0014406	.060883	.0016090	.0011537
%RSD	.8471639	.4030456	.6981994	.6569394	.5580402	.2817732
#1	2.453358	.2838631	.2050658	9.246709	.2880758	.4089679
#2	2.483317	.2858326	.2060226	9.336318	.2868711	.4085762
#3	2.443242	.2838302	.2078977	9.220113	.2900577	.4107413

Sample Name: PB166392BS Acquired: 1/31/2025 13:18:57 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.6796107	.1869272	F .6571227	5.566148	F -.011580	.1807455
Stddev	.0032889	.0012889	.0065025	.012320	.001232	.0014382
%RSD	.4839337	.6895025	.9895348	.2213388	10.63612	.7957044
#1	.6789478	.1883256	.6562105	5.559553	-.012806	.1820450
#2	.6767037	.1857869	.6640331	5.558529	-.011590	.1809912
#3	.6831805	.1866692	.6511245	5.580362	-.010343	.1792003

Elem	Sr4077
Units	ppm
Avg	.1802341
Stddev	.0013063
%RSD	.7247592
#1	.1816475
#2	.1799835
#3	.1790712

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3400.331	70220.31	12645.74	2379.591	4090.259
Stddev	9.191	161.72	56.47	8.748	9.459
%RSD	.2703031	.2303082	.4465458	.3676280	.2312665
#1	3406.921	70343.40	12626.74	2389.255	4094.737
#2	3404.240	70037.15	12709.26	2372.213	4096.648
#3	3389.831	70280.38	12601.23	2377.304	4079.392

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1232-03 Acquired: 1/31/2025 13:22:57 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0515990	-.015184	2.083071	-.046128	.0038500	85.45842	.8672942
Stddev	.0028449	.000936	.001968	.003671	.0015041	.35717	.0042201
%RSD	5.513536	6.163313	.0944936	7.958332	39.06816	.4179403	.4865774
#1	.0548164	-.014262	2.082010	-.041893	.0052445	85.54924	.8676069
#2	.0505644	-.016133	2.081861	-.048401	.0022561	85.76141	.8713491
#3	.0494162	-.015157	2.085342	-.048091	.0040495	85.06461	.8629264

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0071489	.0040247	138.2946	.2017687	.0978568	1.391440	200.2803
Stddev	.0000450	.0003401	.5135	.0010986	.0000261	.000224	1.1453
%RSD	.6301457	8.449681	.3713195	.5444655	.0266652	.0161143	.5718523
#1	.0071095	.0038083	138.3825	.2012278	.0978824	1.391676	200.3872
#2	.0071980	.0044166	138.7584	.2010454	.0978579	1.391413	199.0853
#3	.0071393	.0038490	137.7428	.2030328	.0978302	1.391230	201.3684

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.082730	43.31654	.3243752	-.002860	7.731697	.2916285	2.037182
Stddev	.020474	.21075	.0006421	.000355	.055420	.0012605	.011255
%RSD	.5014670	.4865276	.1979482	12.41100	.7167888	.4322091	.5524636
#1	4.087538	43.30025	.3246127	-.002477	7.708774	.2908312	2.037380
#2	4.100371	43.53495	.3248647	-.002926	7.691417	.2930817	2.025830
#3	4.060280	43.11441	.3236482	-.003178	7.794901	.2909727	2.048337

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	18.60676	-.339795	.0025190	.0890607	3.856568	5.367994	6.450247
Stddev	.10101	.004160	.0004614	.0010851	.017029	.053612	.010671
%RSD	.5428747	1.224221	18.31510	1.218350	.4415673	.9987338	.1654282
#1	18.64572	-.338798	.0029307	.0879610	3.860027	5.366547	6.461929
#2	18.49206	-.344363	.0020204	.0901306	3.871602	5.315120	6.441013
#3	18.68248	-.336224	.0026059	.0890906	3.838074	5.422314	6.447798

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1232-03 Acquired: 1/31/2025 13:22:57 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	2.148665	.0972447	.4034997
Stddev	.006721	.0009048	.0039384
%RSD	.3127879	.9304440	.9760522
#1	2.141559	.0982083	.4033673
#2	2.149517	.0964132	.4075025
#3	2.154920	.0971126	.3996291

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3512.302	73393.15	15167.72	2422.537	3642.505
Stddev	7.277	509.53	66.50	12.874	4.126
%RSD	.2071984	.6942514	.4384590	.5314262	.1132702
#1	3517.335	73306.74	15140.63	2425.916	3645.142
#2	3515.614	73940.36	15119.03	2433.385	3644.622
#3	3503.958	72932.34	15243.49	2408.311	3637.750

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1232-07 Acquired: 1/31/2025 13:27:02 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0432417	-.032904	.7420345	-.062810	-.000593	70.00852	.7013615
Stddev	.0010908	.000596	.0011111	.001541	.001717	.04074	.0022675
%RSD	2.522597	1.810474	.1497421	2.454189	289.5991	.0581940	.3233049
#1	.0421404	-.033553	.7409250	-.064547	.001077	69.99157	.7012372
#2	.0443217	-.032777	.7431473	-.061603	-.002352	70.05500	.7036887
#3	.0432630	-.032383	.7420313	-.062281	-.000503	69.97899	.6991587

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0073912	.0178353	250.7406	.2103279	.1279210	.6728194	208.4050
Stddev	.0001020	.0004157	1.5417	.0003039	.0001942	.0021901	.9214
%RSD	1.379962	2.330892	.6148665	.1444957	.1517938	.3255042	.4421273
#1	.0073371	.0176759	250.1738	.2099915	.1279308	.6703226	208.8851
#2	.0073276	.0175228	252.4855	.2105826	.1277221	.6737201	208.9872
#3	.0075089	.0183071	249.5624	.2104097	.1281101	.6744154	207.3427

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.083578	89.57017	.2967054	-.010484	6.865862	.2562153	.8995044
Stddev	.009080	.04332	.0010400	.000244	.048865	.0016328	.0046370
%RSD	.2944530	.0483598	.3505270	2.326633	.7117040	.6372892	.5155026
#1	3.086703	89.60331	.2966177	-.010611	6.870052	.2569009	.9026002
#2	3.090683	89.52116	.2957120	-.010203	6.912497	.2573936	.9017399
#3	3.073349	89.58606	.2977865	-.010638	6.815037	.2543515	.8941732

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	23.02949	-.463397	.0080975	.0430818	4.926713	9.896934	7.517821
Stddev	.13455	.005985	.0003076	.0009007	.011660	.017235	.009758
%RSD	.5842699	1.291598	3.799130	2.090583	.2366698	.1741420	.1297932
#1	23.08058	-.463265	.0080537	.0440963	4.933996	9.884797	7.522678
#2	23.13102	-.457479	.0084247	.0423763	4.932879	9.916661	7.506588
#3	22.87688	-.469448	.0078141	.0427728	4.913265	9.889343	7.524197

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1232-07 Acquired: 1/31/2025 13:27:02 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	9.470923	.0512659	.3463519
Stddev	.002442	.0005658	.0009598
%RSD	.0257837	1.103573	.2771100
#1	9.468290	.0506126	.3463184
#2	9.471367	.0515988	.3473280
#3	9.473113	.0515861	.3454093

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3895.993	84011.52	16234.88	2713.773	3381.848
Stddev	6.189	91.02	30.07	11.762	2.943
%RSD	.1588469	.1083462	.1852105	.4334182	.0870133
#1	3902.088	83986.87	16259.86	2711.264	3384.440
#2	3889.715	83935.36	16243.27	2703.468	3382.454
#3	3896.176	84112.33	16201.50	2726.587	3378.649

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1232-11 Acquired: 1/31/2025 13:31:14 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0725823	-.030054	2.337491	-.057828	.0082640	94.23093
Stddev	.0024704	.000944	.003144	.005445	.0015383	.78108
%RSD	3.403532	3.141581	.1345224	9.415659	18.61508	.8288966
#1	.0725165	-.031135	2.338351	-.062016	.0085265	94.87406
#2	.0750848	-.029637	2.334006	-.051673	.0066112	94.45697
#3	.0701454	-.029390	2.340116	-.059795	.0096542	93.36176

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.381395	.0065393	.0085349	601.8586	.2587574	.1164644
Stddev	.009800	.0000712	.0003258	2.3510	.0004044	.0005361
%RSD	.7094219	1.088568	3.817350	.3906211	.1562963	.4603179
#1	1.388182	.0066069	.0082572	603.0950	.2591752	.1161335
#2	1.385844	.0065459	.0084540	599.1474	.2587292	.1161767
#3	1.370160	.0064650	.0088936	603.3334	.2583678	.1170829

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8028102	206.7559	4.735833	68.42769	.3176806	-.005186
Stddev	.0018315	1.0185	.034427	.59164	.0006473	.000208
%RSD	.2281425	.4926061	.7269531	.8646265	.2037595	4.018701
#1	.8031501	207.8638	4.759948	68.93762	.3173630	-.005120
#2	.8008325	206.5439	4.751145	68.56644	.3172535	-.005018
#3	.8044480	205.8602	4.696406	67.77899	.3184254	-.005419

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.265327	.3466077	1.806222	26.65428	-.331142	.0145290
Stddev	.050098	.0013899	.001388	.10987	.002929	.0002708
%RSD	.5407028	.4010123	.0768570	.4121877	.8845797	1.863827
#1	9.312223	.3471422	1.807800	26.77931	-.333198	.0148386
#2	9.271209	.3476511	1.805187	26.61039	-.332439	.0144125
#3	9.212547	.3450299	1.805679	26.57315	-.327788	.0143360

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1232-11 Acquired: 1/31/2025 13:31:14 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.2013048	5.598361	6.932855	6.234208	F 35.98808	.0289427
Stddev	.0008722	.049167	.052437	.024670	.06448	.0015789
%RSD	.4332746	.8782432	.7563567	.3957272	.1791702	5.455131
#1	.2003022	5.638137	6.990365	6.207087	36.01921	.0297206
#2	.2017230	5.613554	6.920504	6.240221	35.91394	.0299816
#3	.2018891	5.543390	6.887695	6.255316	36.03109	.0271258

Elem	Sr4077
Units	ppm
Avg	1.077751
Stddev	.013667
%RSD	1.268127
#1	1.063720
#2	1.091023
#3	1.078508

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3351.950	69195.09	14382.76	2283.175	3369.194
Stddev	4.482	249.12	95.46	7.465	6.016
%RSD	.1337269	.3600300	.6637240	.3269704	.1785734
#1	3347.764	68920.44	14315.67	2280.366	3366.721
#2	3356.680	69258.32	14340.55	2277.522	3376.053
#3	3351.407	69406.50	14492.05	2291.638	3364.807

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1232-15 Acquired: 1/31/2025 13:35:35 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0526999	-.016260	1.319042	-.044444	.0052681	65.93218
Stddev	.0015070	.003807	.000673	.001584	.0014973	.37293
%RSD	2.859538	23.41198	.0510589	3.563879	28.42199	.5656274
#1	.0542947	-.020323	1.318320	-.046085	.0069965	66.10843
#2	.0512997	-.015681	1.319155	-.042924	.0043656	65.50379
#3	.0525053	-.012776	1.319652	-.044322	.0044424	66.18432

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7720095	.0054044	.0042467	312.7207	.1754348	.0814937
Stddev	.0037963	.0000623	.0001824	.2815	.0008020	.0001950
%RSD	.4917475	1.153207	4.295402	.0900192	.4571513	.2392588
#1	.7747489	.0054298	.0044517	312.7082	.1750373	.0817174
#2	.7676761	.0053334	.0041863	312.4457	.1749093	.0814039
#3	.7736037	.0054500	.0041022	313.0083	.1763580	.0813597

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6096187	179.3759	2.585251	52.33356	.2804968	-.003969
Stddev	.0014266	1.0795	.011101	.23556	.0003489	.000356
%RSD	.2340077	.6018184	.4293911	.4501084	.1243917	8.965908
#1	.6092916	179.1258	2.590843	52.50461	.2803275	-.003784
#2	.6111804	178.4434	2.572466	52.06488	.2808981	-.004380
#3	.6083841	180.5585	2.592444	52.43118	.2802649	-.003745

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.598427	.2546881	1.148076	18.02882	-.287519	.0072636
Stddev	.037204	.0014378	.003550	.16533	.001890	.0004350
%RSD	.8090489	.5645148	.3092088	.9170098	.6574506	5.988366
#1	4.579575	.2545543	1.148178	17.97137	-.289698	.0068051
#2	4.574423	.2533220	1.144476	17.89988	-.286316	.0073152
#3	4.641283	.2561881	1.151574	18.21520	-.286544	.0076705

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1232-15 Acquired: 1/31/2025 13:35:35 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0742338	3.603325	F 20.58325	6.667505	F 12.40396	.0481305
Stddev	.0005381	.018063	.15579	.005012	.01742	.0004495
%RSD	.7248851	.5012756	.7568583	.0751769	.1404097	.9339020
#1	.0746511	3.613151	20.51053	6.664775	12.39178	.0479472
#2	.0736264	3.582479	20.47712	6.664451	12.42391	.0478016
#3	.0744237	3.614344	20.76210	6.673290	12.39619	.0486426

Elem	Sr4077
Units	ppm
Avg	.6483392
Stddev	.0041760
%RSD	.6441035
#1	.6512433
#2	.6435535
#3	.6502208

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3478.340	72772.24	14966.21	2410.472	3523.012
Stddev	6.810	480.10	38.99	10.466	9.420
%RSD	.1957888	.6597253	.2605519	.4341985	.2673824
#1	3471.761	73139.13	14957.58	2416.571	3515.756
#2	3477.900	72948.72	15008.80	2416.457	3519.622
#3	3485.360	72228.88	14932.25	2398.387	3533.657

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1232-19 Acquired: 1/31/2025 13:39:48 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.1034517	-.025599	4.781298	-.071882	.0062824	121.8697
Stddev	.0009968	.002115	.020009	.002569	.0025017	.1858
%RSD	.9634940	8.261023	.4184935	3.573604	39.82030	.1524178
#1	.1045703	-.027964	4.777104	-.074779	.0039919	121.6973
#2	.1031273	-.024944	4.803072	-.070986	.0059034	122.0664
#3	.1026576	-.023889	4.763718	-.069881	.0089520	121.8453

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.061007	.0093833	.0167593	441.5403	.3150388	.1529328
Stddev	.003819	.0000920	.0001418	.6213	.0009831	.0007728
%RSD	.1853133	.9804054	.8459622	.1407093	.3120502	.5053299
#1	2.061705	.0093951	.0166729	441.0808	.3147386	.1530267
#2	2.064429	.0094688	.0169229	442.2472	.3161370	.1536544
#3	2.056887	.0092859	.0166820	441.2929	.3142408	.1521173

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.498282	291.9537	4.835179	97.32729	.5349786	-.005447
Stddev	.002189	.0830	.013142	.57640	.0023017	.000198
%RSD	.1461015	.0284336	.2718020	.5922324	.4302434	3.634587
#1	1.498345	291.9108	4.825054	96.76064	.5350969	-.005612
#2	1.500440	292.0493	4.850031	97.91298	.5372188	-.005502
#3	1.496063	291.9008	4.830453	97.30824	.5326200	-.005227

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12.50904	.4441824	3.392305	26.10254	-.460402	.0125584
Stddev	.03674	.0013128	.015029	.07790	.006955	.0003599
%RSD	.2936891	.2955491	.4430428	.2984227	1.510689	2.866095
#1	12.55113	.4427124	3.376745	26.18742	-.452991	.0121558
#2	12.49258	.4452378	3.406740	26.08587	-.466787	.0128490
#3	12.48341	.4445970	3.393430	26.03432	-.461429	.0126705

Sample Name: Q1232-19 Acquired: 1/31/2025 13:39:48 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.3189832	5.147845	F 11.49439	F 13.71879	F 12.29667	.0798116
Stddev	.0007697	.007127	.01680	.03436	.03776	.0006240
%RSD	.2412847	.1384488	.1461943	.2504509	.3070877	.7818728
#1	.3191214	5.140675	11.49433	13.72972	12.30017	.0792512
#2	.3196743	5.154928	11.47762	13.74636	12.33256	.0796996
#3	.3181538	5.147931	11.51123	13.68030	12.25728	.0804841

Elem	Sr4077
Units	ppm
Avg	1.151784
Stddev	.011230
%RSD	.9750096
#1	1.147455
#2	1.164534
#3	1.143363

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3446.979	73601.25	15466.32	2417.002	3335.177
Stddev	3.325	257.18	88.68	8.550	11.718
%RSD	.0964666	.3494233	.5734066	.3537408	.3513444
#1	3449.328	73883.89	15566.29	2421.392	3339.228
#2	3443.174	73538.84	15397.10	2422.465	3321.971
#3	3448.435	73381.02	15435.58	2407.148	3344.332

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1235-03 Acquired: 1/31/2025 13:44:09 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0773514	-.032607	1.039309	-.055061	.0013644	114.2955
Stddev	.0032658	.003351	.001825	.001560	.0005983	.2783
%RSD	4.222083	10.27575	.1756107	2.833079	43.84975	.2434485
#1	.0736935	-.029365	1.040092	-.054507	.0015249	114.5609
#2	.0799743	-.032401	1.037222	-.053854	.0007023	114.3198
#3	.0783864	-.036057	1.040611	-.056823	.0018662	114.0060

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.044760	.0077058	.0085277	745.4126	.4087611	.1171306
Stddev	.006915	.0000129	.0002378	7.1684	.0020337	.0002299
%RSD	.6618817	.1672401	2.788905	.9616686	.4975283	.1962924
#1	1.052704	.0077002	.0082872	753.6900	.4109238	.1169075
#2	1.041486	.0077205	.0085333	741.2800	.4084721	.1171176
#3	1.040090	.0076966	.0087627	741.2678	.4068873	.1173668

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6520300	202.0466	3.757391	129.5423	.3787951	-.004274
Stddev	.0016934	.2618	.025775	.3619	.0008336	.000438
%RSD	.2597070	.1295527	.6859713	.2793616	.2200625	10.25961
#1	.6513652	202.2544	3.786969	129.9595	.3785089	-.004694
#2	.6507700	202.1328	3.745465	129.3540	.3781424	-.004309
#3	.6539549	201.7527	3.739740	129.3134	.3797341	-.003819

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.466924	.3730255	1.455399	21.58139	-.266954	.0242544
Stddev	.045179	.0018781	.012881	.09212	.002246	.0003951
%RSD	.5335910	.5034796	.8850821	.4268515	.8414641	1.628880
#1	8.500182	.3750555	1.467414	21.57425	-.269331	.0245608
#2	8.485102	.3726714	1.456986	21.67686	-.266665	.0243938
#3	8.415488	.3713496	1.441798	21.49304	-.264867	.0238085

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1235-03 Acquired: 1/31/2025 13:44:09 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0590866	5.513924	8.524169	5.894911	F 28.76180	.0013884
Stddev	.0013092	.026355	.038968	.011375	.07184	.0015303
%RSD	2.215737	.4779737	.4571433	.1929670	.2497745	110.2241
#1	.0575847	5.544318	8.497619	5.885286	28.75617	-.000379
#2	.0596891	5.500056	8.568905	5.891982	28.69294	.002281
#3	.0599862	5.497399	8.505982	5.907464	28.83629	.002262

Elem	Sr4077
Units	ppm
Avg	1.691453
Stddev	.026212
%RSD	1.549701
#1	1.705718
#2	1.707438
#3	1.661201

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3255.833	68745.35	14857.22	2246.610	3222.095
Stddev	7.276	186.68	121.51	19.921	3.944
%RSD	.2234751	.2715480	.8178217	.8867137	.1223934
#1	3256.180	68576.55	14717.17	2228.834	3226.067
#2	3262.929	68713.66	14919.81	2242.854	3222.037
#3	3248.389	68945.85	14934.66	2268.142	3218.181

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1235-07 Acquired: 1/31/2025 13:48:30 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.1000801	-.026754	4.003035	-.055873	.0196387	96.96978
Stddev	.0057638	.003683	.008246	.002737	.0014102	.37010
%RSD	5.759159	13.76583	.2059859	4.899289	7.180808	.3816669
#1	.1029530	-.026110	3.999006	-.057827	.0207602	97.07299
#2	.0934445	-.030717	3.997578	-.052744	.0201003	96.55903
#3	.1038427	-.023436	4.012520	-.057047	.0180555	97.27732

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.750433	.0073925	.0095894	621.8345	.2821544	.1026690
Stddev	.011371	.0000884	.0000875	1.8006	.0004938	.0000848
%RSD	.6496216	1.195239	.9120181	.2895584	.1749971	.0825740
#1	1.758796	.0073314	.0095296	622.1677	.2823252	.1027190
#2	1.737485	.0074938	.0096898	623.4451	.2815979	.1025711
#3	1.755018	.0073523	.0095487	619.8905	.2825400	.1027170

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.566742	215.7762	3.391169	171.1081	.3359496	.0014850
Stddev	.007946	1.1098	.013033	.7560	.0009035	.0002937
%RSD	.5071925	.5143425	.3843103	.4417972	.2689466	19.77706
#1	1.566911	216.7229	3.388680	170.6429	.3362150	.0018200
#2	1.558712	214.5548	3.379561	170.7010	.3349431	.0012720
#3	1.574602	216.0508	3.405267	171.9803	.3366908	.0013629

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.63288	.3927899	2.550876	25.21872	-.250589	.0130471
Stddev	.29955	.0015450	.004305	.21761	.005449	.0004102
%RSD	1.168602	.3933422	.1687479	.8629051	2.174377	3.144224
#1	25.95247	.3943670	2.546767	25.44307	-.244742	.0129712
#2	25.35851	.3912791	2.555353	25.00853	-.255525	.0126801
#3	25.58766	.3927236	2.550508	25.20457	-.251501	.0134900

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1235-07 Acquired: 1/31/2025 13:48:30 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.1647064	4.450862	F 19.47904	8.728697	F 19.19322	.0261916
Stddev	.0011976	.016486	.10275	.028569	.02735	.0013791
%RSD	.7271247	.3703893	.5275131	.3272977	.1425115	5.265581
#1	.1653048	4.458569	19.57201	8.725209	19.18680	.0271999
#2	.1633275	4.431934	19.36871	8.702032	19.16964	.0246200
#3	.1654869	4.462082	19.49640	8.758850	19.22321	.0267550

Elem	Sr4077
Units	ppm
Avg	1.595163
Stddev	.015353
%RSD	.9624881
#1	1.602739
#2	1.605255
#3	1.577494

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3340.457	69384.32	15005.55	2254.256	3292.078
Stddev	13.577	146.46	55.92	4.977	7.435
%RSD	.4064452	.2110806	.3726491	.2207697	.2258444
#1	3335.727	69229.36	15069.80	2253.268	3290.085
#2	3355.767	69403.14	14967.89	2249.846	3300.306
#3	3329.879	69520.45	14978.95	2259.652	3285.842

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1235-07DUP Acquired: 1/31/2025 13:52:50 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0979610	-.024310	4.030943	-.056210	.0222833	97.13733
Stddev	.0022189	.002791	.011258	.002355	.0020946	.50472
%RSD	2.265042	11.47879	.2792909	4.189755	9.399777	.5195948
#1	.0958371	-.021594	4.022303	-.055291	.0209627	97.05356
#2	.0977818	-.027169	4.026853	-.054453	.0246984	97.67870
#3	.1002639	-.024168	4.043675	-.058886	.0211889	96.67974

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.780387	.0074276	.0094321	633.3475	.2806833	.1031409
Stddev	.005236	.0001209	.0000786	6.7974	.0012942	.0003271
%RSD	.2941079	1.627195	.8331450	1.073253	.4610770	.3171725
#1	1.778327	.0074012	.0093441	637.3142	.2802792	.1029270
#2	1.786340	.0075595	.0094953	637.2296	.2821313	.1029782
#3	1.776493	.0073222	.0094570	625.4986	.2796393	.1035175

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.566699	217.0971	3.463670	172.5203	.3385527	.0020451
Stddev	.002976	.4035	.016551	.7654	.0016588	.0001825
%RSD	.1899499	.1858732	.4778462	.4436349	.4899560	8.923089
#1	1.565075	216.6497	3.460100	172.4205	.3366389	.0022142
#2	1.564887	217.2079	3.481715	173.3306	.3394419	.0020695
#3	1.570133	217.4336	3.449195	171.8097	.3395772	.0018517

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.95255	.3958305	2.533824	25.17552	-.250674	.0129501
Stddev	.09377	.0030753	.020598	.09519	.004065	.0001755
%RSD	.3613013	.7769294	.8129357	.3781186	1.621623	1.354985
#1	25.90280	.3928091	2.524219	25.09066	-.249762	.0127596
#2	25.89414	.3989570	2.557470	25.15745	-.255118	.0131051
#3	26.06070	.3957252	2.519782	25.27845	-.247143	.0129856

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1235-07DUP Acquired: 1/31/2025 13:52:50 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.1661129	4.503683	F 19.48162	8.892356	F 19.35062	.0251218
Stddev	.0008014	.015293	.03014	.019255	.05080	.0017128
%RSD	.4824660	.3395619	.1546951	.2165360	.2625382	6.818191
#1	.1655585	4.501579	19.44952	8.877443	19.31517	.0234506
#2	.1670318	4.519919	19.48601	8.885531	19.32787	.0250414
#3	.1657484	4.489551	19.50931	8.914094	19.40882	.0268735

Elem	Sr4077
Units	ppm
Avg	1.624744
Stddev	.013164
%RSD	.8102463
#1	1.610645
#2	1.626872
#3	1.636715

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3352.980	69771.65	14871.51	2291.206	3279.551
Stddev	4.463	158.44	92.98	12.751	6.449
%RSD	.1331112	.2270875	.6252043	.5565048	.1966279
#1	3355.641	69947.39	14900.50	2302.650	3285.926
#2	3355.473	69639.74	14767.50	2277.462	3279.698
#3	3347.828	69727.81	14946.55	2293.507	3273.031

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CCV03 Acquired: 1/31/2025 13:57:11 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	4.843792	5.159702	4.792317	4.879991	4.882876	9.815195	9.480647
Stddev	.009257	.016572	.003005	.004054	.006892	.080498	.081680
%RSD	.1911139	.3211784	.0627054	.0830781	.1411393	.8201342	.8615451
#1	4.834467	5.171708	4.794659	4.877820	4.881234	9.908078	9.544419
#2	4.852980	5.140795	4.793364	4.884668	4.890441	9.771846	9.508939
#3	4.843930	5.166602	4.788929	4.877484	4.876954	9.765662	9.388582

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2458182	2.390141	23.70536	.9815084	2.391224	1.225326	4.709854
Stddev	.0010778	.000406	.07730	.0082359	.001554	.001168	.048030
%RSD	.4384536	.0169892	.3260964	.8391055	.0649908	.0953401	1.019787
#1	.2465113	2.389695	23.79340	.9843897	2.390453	1.224008	4.718730
#2	.2445764	2.390237	23.67406	.9879166	2.393013	1.226235	4.752828
#3	.2463668	2.390490	23.64862	.9722190	2.390206	1.225734	4.658005

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.333219	23.71191	2.392457	1.216974	22.58088	2.397786	2.439482
Stddev	.006364	.03444	.001018	.007208	.30262	.007276	.009732
%RSD	.2727764	.1452500	.0425656	.5922543	1.340158	.3034483	.3989357
#1	2.339135	23.72257	2.393533	1.220291	22.65839	2.405850	2.438991
#2	2.334036	23.67340	2.392328	1.221927	22.83721	2.395798	2.449450
#3	2.326485	23.73977	2.391509	1.208706	22.24705	2.391711	2.430004

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	23.86877	4.863886	4.960491	4.821772	4.762000	4.811858	4.716699
Stddev	.27599	.018564	.003935	.003904	.022356	.051047	.005436
%RSD	1.156271	.3816671	.0793327	.0809747	.4694673	1.060863	.1152476
#1	23.99743	4.875679	4.956286	4.819627	4.786596	4.826912	4.713829
#2	24.05693	4.842487	4.964084	4.819410	4.756487	4.853685	4.713299
#3	23.55194	4.873491	4.961104	4.826279	4.742916	4.754976	4.722968

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CCV03 Acquired: 1/31/2025 13:57:11 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	4.737986	4.645071	4.706531
Stddev	.007853	.027338	.022904
%RSD	.1657522	.5885322	.4866511
#1	4.746762	4.675035	4.681386
#2	4.731621	4.638687	4.726203
#3	4.735575	4.621489	4.712003

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3362.228	68660.36	12547.95	2312.424	3883.979
Stddev	6.466	613.68	9.57	12.533	9.994
%RSD	.1923244	.8937939	.0762463	.5419719	.2573134
#1	3357.780	68614.77	12542.40	2311.279	3874.799
#2	3359.257	68070.74	12559.00	2300.503	3882.513
#3	3369.645	69295.56	12542.46	2325.490	3894.625

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CCB03 Acquired: 1/31/2025 14:01:22 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0014685	-.003281	.0004368	-.000997	-.000159	-.005556	-.001533
Stddev	.0012989	.001563	.0007642	.000934	.001082	.002992	.000386
%RSD	88.44901	47.62893	174.9532	93.73046	681.5378	53.85441	25.17499
#1	.0002640	-.002465	.0008486	-.001927	-.001167	-.002965	-.001767
#2	.0028447	-.002296	.0009068	-.001005	.000984	-.008831	-.001088
#3	.0012969	-.005083	-.000445	-.000058	-.000293	-.004872	-.001745

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000671	.0000303	.0001878	.0001101	.0001185	-.000366	.0012621
Stddev	.0000213	.0000358	.0034671	.0000719	.0002922	.000222	.0007260
%RSD	31.74661	118.4214	1846.362	65.31721	246.5421	60.61785	57.52324
#1	.0000879	.0000170	-.003630	.0000784	-.000105	-.000598	.0014607
#2	.0000679	.0000708	.001053	.0001924	.000449	-.000157	.0018681
#3	.0000453	.0000030	.003141	.0000595	.000011	-.000342	.0004575

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000501	-.007689	.0002691	.0002880	.0526335	.0021319	-.000369
Stddev	.0001246	.008572	.0003619	.0003262	.0099924	.0016064	.000233
%RSD	248.8546	111.4789	134.5042	113.2595	18.98482	75.34796	63.29520
#1	.0001685	-.001332	.0005292	.0001689	.0437081	.0002793	-.000638
#2	-.000080	-.017438	-.000144	.0006570	.0634287	.0029786	-.000254
#3	.000062	-.004298	.000422	.0000381	.0507637	.0031378	-.000215

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2795937	.0059956	.0000561	.0002684	-.000077	.0047707	-.000454
Stddev	.0363827	.0004509	.0001668	.0002363	.000492	.0027133	.001403
%RSD	13.01269	7.520922	297.0536	88.05444	638.4654	56.87491	308.7396
#1	.3148517	.0057590	.0002485	.0000598	-.000095	.0073851	.000738
#2	.2421821	.0065156	-.000032	.0005250	-.000559	.0019683	-.002000
#3	.2817474	.0057122	-.000048	.0002203	.000423	.0049586	-.000101

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CCB03 Acquired: 1/31/2025 14:01:22 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	-.002986	-.008224	-.000040
Stddev	.000105	.001092	.000055
%RSD	3.512017	13.28312	136.6491
#1	-.003038	-.008888	-.000077
#2	-.002865	-.008820	-.000067
#3	-.003054	-.006963	.000023

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3381.177	71161.97	13502.28	2388.252	4096.178
Stddev	3.297	200.98	85.54	13.188	3.489
%RSD	.0975041	.2824199	.6335280	.5521826	.0851668
#1	3379.767	70971.09	13465.11	2390.297	4092.293
#2	3384.945	71143.10	13441.62	2374.162	4099.044
#3	3378.820	71371.71	13600.12	2400.298	4097.195

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1235-07LX5 Acquired: 1/31/2025 14:05:42 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0218884	-.007947	.8543262	-.012845	.0028792	20.79810	.3738210
Stddev	.0031569	.001671	.0022501	.005027	.0005407	.06646	.0015906
%RSD	14.42287	21.02954	.2633756	39.13435	18.77896	.3195332	.4254871
#1	.0213175	-.008563	.8520275	-.007863	.0023669	20.76007	.3726163
#2	.0252919	-.006056	.8544267	-.017916	.0028263	20.75940	.3732228
#3	.0190559	-.009224	.8565243	-.012756	.0034444	20.87484	.3756240

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0018008	.0008141	142.5134	.0642514	.0208964	.3766748	46.33082
Stddev	.0000425	.0000612	.3641	.0006032	.0000623	.0002028	.05266
%RSD	2.357507	7.515019	.2555177	.9387991	.2980931	.0538343	.1136684
#1	.0017525	.0007482	142.3937	.0635728	.0208292	.3764442	46.29573
#2	.0018321	.0008691	142.2242	.0647266	.0209081	.3768252	46.30535
#3	.0018179	.0008249	142.9223	.0644549	.0209521	.3767550	46.39137

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7856210	37.85792	.0706301	-.000036	4.742704	.0884589	.5660369
Stddev	.0017984	.10630	.0000984	.000274	.022896	.0021161	.0013700
%RSD	.2289178	.2807841	.1392611	762.3708	.4827712	2.392125	.2420241
#1	.7835503	37.74798	.0706888	-.000065	4.735704	.0863899	.5652157
#2	.7867933	37.86561	.0706850	-.000294	4.724125	.0883677	.5652767
#3	.7865193	37.96016	.0705165	.000252	4.768284	.0906191	.5676184

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.071219	-.056353	.0030568	.0311510	1.001142	3.794993	1.766729
Stddev	.026582	.000765	.0001049	.0003407	.003182	.021715	.009451
%RSD	.5241758	1.358380	3.431452	1.093697	.3178780	.5722124	.5349272
#1	5.040787	-.055546	.0030068	.0315364	.997676	3.778743	1.763887
#2	5.082967	-.056443	.0031773	.0310264	1.001817	3.786581	1.759026
#3	5.089903	-.057069	.0029863	.0308901	1.003933	3.819656	1.777275

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1235-07LX5 Acquired: 1/31/2025 14:05:42 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	3.834456	-.003927	.3549531
Stddev	.010013	.000744	.0016933
%RSD	.2611325	18.95519	.4770518
#1	3.832469	-.003744	.3539624
#2	3.825586	-.004746	.3539886
#3	3.845314	-.003292	.3569083

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3248.828	68497.15	13642.89	2285.789	3657.643
Stddev	1.907	282.67	73.60	14.185	7.293
%RSD	.0586852	.4126700	.5394437	.6205906	.1994005
#1	3250.027	68804.54	13724.67	2301.264	3663.915
#2	3249.828	68438.50	13622.03	2282.703	3659.375
#3	3246.630	68248.40	13581.98	2273.401	3649.640

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1235-07MS Acquired: 1/31/2025 14:09:52 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.8431103	1.919286	4.357238	1.737690	.4049087	81.81791
Stddev	.0046742	.003855	.006503	.007478	.0024946	.30845
%RSD	.5543935	.2008367	.1492536	.4303623	.6160967	.3769901
#1	.8447222	1.915952	4.349903	1.729159	.4035819	81.46652
#2	.8467651	1.918400	4.359512	1.743116	.4077863	81.94327
#3	.8378435	1.923507	4.362299	1.740794	.4033579	82.04394

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.647438	.1693778	.1985339	553.3238	.6226151	.2961665
Stddev	.006728	.0008821	.0001781	2.4661	.0070846	.0004095
%RSD	.4083861	.5207763	.0897037	.4456865	1.137884	.1382622
#1	1.641358	.1691109	.1984428	554.0564	.6205538	.2957203
#2	1.646291	.1703626	.1984199	555.3406	.6305018	.2962540
#3	1.654666	.1686601	.1987392	550.5745	.6167897	.2965251

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.272636	183.3728	3.217368	181.8355	.7740214	.0702603
Stddev	.004170	1.6095	.012163	.5544	.0015751	.0008453
%RSD	.3276348	.8777286	.3780379	.3048682	.2034956	1.203042
#1	1.269156	181.8098	3.203364	181.2547	.7722037	.0696234
#2	1.277257	185.0251	3.223441	182.3589	.7749834	.0712193
#3	1.271493	183.2835	3.225298	181.8929	.7748772	.0699383

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	23.09624	.5744058	2.392228	30.73670	-.024638	.3719498
Stddev	.22279	.0043925	.025754	.22875	.002583	.0003115
%RSD	.9645949	.7646976	1.076551	.7442224	10.48398	.0837573
#1	22.85664	.5693345	2.390454	30.48109	-.027541	.3719424
#2	23.29714	.5768686	2.418822	30.92215	-.023778	.3722650
#3	23.13496	.5770143	2.367406	30.80687	-.022594	.3716421

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1235-07MS Acquired: 1/31/2025 14:09:52 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.8611949	4.218659	F 20.33681	F 12.76861	F 13.02868	.2162724
Stddev	.0016976	.016616	.26054	.05561	.03104	.0012711
%RSD	.1971231	.3938739	1.281102	.4355271	.2382642	.5877359
#1	.8626379	4.200604	20.10155	12.71128	13.01910	.2148152
#2	.8616223	4.222063	20.61683	12.82232	13.06338	.2171530
#3	.8593244	4.233309	20.29206	12.77223	13.00356	.2168491

Elem	Sr4077
Units	ppm
Avg	1.388235
Stddev	.014370
%RSD	1.035101
#1	1.404825
#2	1.379653
#3	1.380228

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3221.950	68193.87	14577.08	2222.577	3244.349
Stddev	9.994	583.66	23.25	13.800	7.272
%RSD	.3101778	.8558876	.1594746	.6209147	.2241389
#1	3230.435	68557.32	14585.40	2224.477	3252.423
#2	3210.934	67520.63	14550.82	2207.926	3238.314
#3	3224.481	68503.67	14595.02	2235.330	3242.311

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1235-07MSD Acquired: 1/31/2025 14:14:07 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.8417634	1.909456	4.358249	1.725288	.4035249	82.28360
Stddev	.0052671	.018890	.006246	.006974	.0031089	.10404
%RSD	.6257173	.9892620	.1433039	.4042303	.7704365	.1264464
#1	.8357512	1.924951	4.351039	1.720398	.4039307	82.40361
#2	.8455647	1.915002	4.361702	1.722191	.4002331	82.22854
#3	.8439743	1.888414	4.362005	1.733274	.4064110	82.21866

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.694895	.1699524	.1980429	559.4906	.6130436	.2958016
Stddev	.001645	.0004005	.0005674	4.0719	.0006812	.0007511
%RSD	.0970301	.2356352	.2865059	.7277940	.1111191	.2539230
#1	1.696614	.1703606	.1974324	560.2966	.6138301	.2953363
#2	1.694733	.1695601	.1985542	563.0994	.6126586	.2966681
#3	1.693337	.1699365	.1981420	555.0760	.6126420	.2954005

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.270812	184.5157	3.313488	183.9687	.7744282	.0700912
Stddev	.001107	.6437	.007540	.3659	.0021355	.0003082
%RSD	.0870947	.3488442	.2275522	.1989048	.2757486	.4397200
#1	1.270887	183.8323	3.312885	184.2719	.7720470	.0697398
#2	1.269669	184.6044	3.306267	183.5622	.7750642	.0702184
#3	1.271879	185.1104	3.321311	184.0719	.7761734	.0703156

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	23.58127	.5817993	2.346576	30.75348	-.021722	.3703384
Stddev	.04807	.0037462	.000845	.06034	.004319	.0006364
%RSD	.2038278	.6438954	.0360147	.1962098	19.88169	.1718449
#1	23.52579	.5857737	2.347418	30.70843	-.024830	.3699670
#2	23.61037	.5812910	2.345728	30.82204	-.016791	.3699751
#3	23.60765	.5783333	2.346581	30.72997	-.023546	.3710733

Sample Name: Q1235-07MSD Acquired: 1/31/2025 14:14:07 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.8586887	4.300695	F 20.29509	F 12.92837	F 13.04468	.2215801
Stddev	.0019823	.005277	.12322	.06933	.00917	.0010076
%RSD	.2308578	.1226934	.6071589	.5362421	.0702973	.4547277
#1	.8567731	4.304716	20.16284	12.88592	13.03409	.2226450
#2	.8607316	4.294720	20.31574	12.89082	13.05000	.2206418
#3	.8585614	4.302648	20.40668	13.00837	13.04995	.2214534

Elem	Sr4077
Units	ppm
Avg	1.408018
Stddev	.019200
%RSD	1.363632
#1	1.426416
#2	1.409533
#3	1.388105

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3237.500	69348.56	14527.75	2288.951	3253.174
Stddev	4.023	26.81	42.57	3.868	5.124
%RSD	.1242591	.0386668	.2930460	.1690040	.1574976
#1	3241.993	69326.60	14480.42	2285.254	3259.090
#2	3236.272	69378.44	14562.90	2292.971	3250.280
#3	3234.234	69340.65	14539.94	2288.628	3250.153

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1235-07A Acquired: 1/31/2025 14:18:20 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.8140873	1.866290	4.289112	1.662451	.3914955	80.65355
Stddev	.0049948	.004929	.023801	.011523	.0041465	.29145
%RSD	.6135507	.2640934	.5549199	.6931603	1.059149	.3613635
#1	.8102851	1.865997	4.262911	1.651490	.3870229	80.33851
#2	.8122326	1.861515	4.295027	1.661397	.3922516	80.70856
#3	.8197442	1.871359	4.309397	1.674465	.3952119	80.91357

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.643120	.1741832	.1964960	550.5895	.6174870	.2922462
Stddev	.006963	.0007749	.0006668	1.4122	.0049271	.0014137
%RSD	.4237967	.4448459	.3393404	.2564905	.7979361	.4837197
#1	1.635412	.1735207	.1958442	552.2152	.6138258	.2910665
#2	1.644992	.1739937	.1964671	549.6664	.6155463	.2918590
#3	1.648957	.1750352	.1971768	549.8870	.6230890	.2938131

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.248188	176.9889	3.205693	179.4598	.7641634	.0688039
Stddev	.006718	1.5513	.014296	.7711	.0035677	.0007184
%RSD	.5382586	.8765206	.4459484	.4296733	.4668708	1.044138
#1	1.241009	175.5732	3.191635	178.7227	.7603861	.0681844
#2	1.249232	176.7464	3.205227	179.3958	.7646283	.0686358
#3	1.254323	178.6473	3.220216	180.2609	.7674758	.0695914

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	21.67378	.5695603	2.370832	29.38441	-.033436	.3669944
Stddev	.20593	.0030286	.019604	.20410	.002017	.0021000
%RSD	.9501427	.5317423	.8269026	.6945765	6.032855	.5722278
#1	21.46428	.5664636	2.354959	29.19356	-.031374	.3648843
#2	21.68111	.5725159	2.364790	29.36009	-.035405	.3670146
#3	21.87595	.5697014	2.392746	29.59957	-.033530	.3690842

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1235-07A Acquired: 1/31/2025 14:18:20 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.8473700	4.222431	F 20.14116	F 12.71714	F 12.63034	.2092186
Stddev	.0035282	.020879	.20835	.12889	.07989	.0016410
%RSD	.4163735	.4944886	1.034425	1.013513	.6325523	.7843304
#1	.8447313	4.199829	19.94204	12.58560	12.55052	.2073674
#2	.8460011	4.226465	20.12380	12.72263	12.63020	.2097942
#3	.8513775	4.240999	20.35764	12.84320	12.71031	.2104943

Elem	Sr4077
Units	ppm
Avg	1.377465
Stddev	.011560
%RSD	.8392313
#1	1.372451
#2	1.369258
#3	1.390686

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3313.563	68889.07	14219.00	2273.945	3322.188
Stddev	13.330	367.17	30.14	13.788	14.252
%RSD	.4022763	.5329878	.2119499	.6063431	.4289822
#1	3327.514	69258.05	14250.80	2284.912	3336.726
#2	3312.217	68885.44	14190.87	2278.456	3321.596
#3	3300.957	68523.73	14215.32	2258.466	3308.241

Sample Name: PB166387BL Acquired: 1/31/2025 14:22:34 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0007853	-.002463	.0009359	-.000394	-.000530	.0103854	-.004635
Stddev	.0016745	.000733	.0005633	.000769	.000858	.0033885	.000765
%RSD	213.2327	29.76892	60.18863	195.2479	161.7454	32.62743	16.51251
#1	.0014501	-.002131	.0003494	-.000371	-.000854	.0142292	-.003919
#2	-.001120	-.003304	.0009856	.000363	-.001180	.0078301	-.004544
#3	.002025	-.001955	.0014728	-.001174	.000442	.0090970	-.005441

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000543	.0000199	.0425999	-.000170	.0000053	-.000398	.0146025
Stddev	.0000520	.0000470	.0116730	.000135	.0000969	.000299	.0013568
%RSD	95.81057	236.2568	27.40134	79.45506	1831.209	75.16254	9.291837
#1	.0000422	-.000031	.0293352	-.000265	-.000042	-.000178	.0131177
#2	.0000094	.000030	.0513041	-.000228	-.000059	-.000278	.0157779
#3	.0001113	.000061	.0471605	-.000015	.000117	-.000739	.0149119

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004426	.0102180	-.000088	.0001030	.0339127	-.000324	-.000213
Stddev	.0001618	.0036025	.000310	.0002746	.0113297	.000385	.000089
%RSD	36.54468	35.25646	353.8339	266.5874	33.40857	118.6526	41.75042
#1	.0005527	.0079106	-.000005	-.000204	.0217402	-.000706	-.000210
#2	.0002569	.0143692	-.000431	.000188	.0358472	.000064	-.000303
#3	.0005182	.0083742	.000173	.000325	.0441506	-.000331	-.000126

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2223006	.0003519	-.000215	.0000644	.0003870	.0104389	.0005505
Stddev	.0097813	.0005737	.000040	.0001663	.0005306	.0024836	.0005534
%RSD	4.400008	163.0147	18.66939	258.4596	137.0935	23.79151	100.5223
#1	.2327444	.0003085	-.000234	.0000239	-.000138	.0080647	.0011346
#2	.2133548	.0009462	-.000243	.0002471	.000923	.0102329	.0004829
#3	.2208027	-.000199	-.000169	-.000078	.000375	.0130190	.0000341

Sample Name: PB166387BL Acquired: 1/31/2025 14:22:34 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	-.002213	-.008556	-.000097
Stddev	.002520	.000503	.000008
%RSD	113.8401	5.876379	8.229357
#1	-.001236	-.008115	-.000105
#2	-.000329	-.008449	-.000089
#3	-.005075	-.009103	-.000096

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3456.774	70611.55	13456.16	2380.866	4218.521
Stddev	10.689	219.14	130.17	4.222	12.627
%RSD	.3092157	.3103468	.9673318	.1773169	.2993336
#1	3444.493	70442.63	13366.54	2383.986	4203.942
#2	3463.979	70532.84	13396.48	2376.062	4226.008
#3	3461.850	70859.17	13605.47	2382.549	4225.614

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: PB166387BS Acquired: 1/31/2025 14:26:54 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.8009066	2.070565	.9475625	1.980620	.7764916	1.925400
Stddev	.0027580	.008787	.0040512	.000791	.0037752	.018661
%RSD	.3443556	.4243801	.4275404	.0399601	.4861814	.9691937
#1	.8005641	2.060455	.9497875	1.981389	.7797597	1.907042
#2	.7983359	2.076363	.9428864	1.979808	.7723593	1.944349
#3	.8038198	2.074877	.9500137	1.980663	.7773560	1.924810

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1819190	.1876495	.1878652	.9863468	.3960751	.1890191
Stddev	.0022974	.0014032	.0006813	.0179638	.0021366	.0004594
%RSD	1.262878	.7477812	.3626458	1.821242	.5394492	.2430509
#1	.1794651	.1860984	.1880751	.9698528	.3973218	.1888105
#2	.1840188	.1888308	.1871037	.9837008	.3936080	.1887009
#3	.1822730	.1880193	.1884169	1.005487	.3972955	.1895458

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3031910	2.925601	.1870160	1.868050	.4747646	.0736488
Stddev	.0016247	.017559	.0022711	.028931	.0014896	.0001107
%RSD	.5358813	.6001834	1.214372	1.548753	.3137656	.1503675
#1	.3035908	2.907660	.1848341	1.838097	.4747682	.0735621
#2	.3014037	2.942752	.1893668	1.895839	.4732731	.0736108
#3	.3045786	2.926392	.1868472	1.870214	.4762524	.0737736

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.724827	.2845672	.2013535	9.749049	.2659815	.4005557
Stddev	.024774	.0034777	.0016451	.051450	.0022501	.0013592
%RSD	.9092133	1.222106	.8170012	.5277478	.8459601	.3393266
#1	2.702601	.2816592	.2021752	9.699355	.2634023	.4007890
#2	2.751538	.2884196	.1994595	9.802093	.2675429	.3990950
#3	2.720342	.2836229	.2024259	9.745699	.2669992	.4017832

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: PB166387BS Acquired: 1/31/2025 14:26:54 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.6575874	.1864063	F .7007203	5.287416	F -.011576	.1828021
Stddev	.0019063	.0012740	.0056760	.008951	.002773	.0015466
%RSD	.2898929	.6834608	.8100216	.1692941	23.95233	.8460337
#1	.6576254	.1855067	.7070502	5.292890	-.008376	.1816762
#2	.6556623	.1878641	.6990272	5.277086	-.013247	.1845655
#3	.6594743	.1858480	.6960835	5.292272	-.013106	.1821646

Elem	Sr4077
Units	ppm
Avg	.1819198
Stddev	.0027659
%RSD	1.520407
#1	.1793487
#2	.1848462
#3	.1815644

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3426.264	70669.81	13425.57	2366.070	4152.929
Stddev	16.535	272.04	109.95	14.537	17.046
%RSD	.4825855	.3849410	.8189386	.6143747	.4104526
#1	3414.091	70582.80	13550.87	2358.278	4141.068
#2	3445.088	70974.71	13345.24	2382.842	4172.463
#3	3419.612	70451.93	13380.59	2357.092	4145.257

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1214-01 Acquired: 1/31/2025 14:30:55 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0006403	-.003575	.0024433	-.000661	-.001771	49.55675
Stddev	.0021004	.000601	.0004133	.003325	.001920	.05783
%RSD	328.0471	16.80016	16.91525	503.4342	108.4008	.1166928
#1	-.000774	-.004017	.0023557	.001144	-.000896	49.59499
#2	-.000359	-.002891	.0020808	.001372	-.003973	49.58504
#3	.003054	-.003816	.0028934	-.004498	-.000444	49.49022

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001277	.0000133	.0000116	.7099442	.0676791	.0006029
Stddev	.000222	.0000388	.0000012	.0084425	.0002278	.0001684
%RSD	17.40188	292.5570	10.33666	1.189175	.3365820	27.93780
#1	-.001064	.0000273	.0000125	.7123761	.0674210	.0005240
#2	-.001508	-.000031	.0000103	.7169039	.0678523	.0004884
#3	-.001259	.000043	.0000121	.7005527	.0677638	.0007963

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0050186	.1261506	.0970693	.6843273	.0150183	.0004867
Stddev	.0001485	.0038311	.0009282	.0110661	.0000935	.0003556
%RSD	2.959518	3.036950	.9562050	1.617084	.6223888	73.07044
#1	.0049266	.1262352	.0979551	.6787367	.0150055	.0003172
#2	.0049393	.1222778	.0971491	.6970734	.0149318	.0008953
#3	.0051899	.1299387	.0961038	.6771718	.0151175	.0002475

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0354246	.0050919	.0282222	.1884488	.0012124	.0003167
Stddev	.0128545	.0010652	.0003042	.0219636	.0005028	.0001341
%RSD	36.28708	20.92001	1.077950	11.65493	41.47337	42.36026
#1	.0284420	.0062118	.0279612	.1736185	.0017840	.0004390
#2	.0502593	.0040914	.0285563	.1780471	.0008386	.0003377
#3	.0275726	.0049725	.0281491	.2136810	.0010145	.0001732

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1214-01 Acquired: 1/31/2025 14:30:55 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0004285	.0063124	.2565748	.0061830	F 11.76157	-.011052
Stddev	.0002972	.0003628	.0056266	.0027923	.08283	.000693
%RSD	69.36729	5.748056	2.192963	45.16027	.7042193	6.274060
#1	.0003499	.0067036	.2624756	.0077302	11.70760	-.010299
#2	.0001785	.0062468	.2512699	.0078593	11.72018	-.011190
#3	.0007572	.0059868	.2559788	.0029596	11.85694	-.011665

Elem	Sr4077
Units	ppm
Avg	.0002037
Stddev	.0000278
%RSD	13.64400
#1	.0001907
#2	.0002356
#3	.0001847

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3453.459	71595.74	14308.52	2434.709	4181.687
Stddev	31.124	119.67	85.44	9.193	38.125
%RSD	.9012447	.1671408	.5971211	.3775623	.9117171
#1	3473.588	71699.16	14220.71	2445.317	4211.915
#2	3469.178	71464.67	14313.47	2429.719	4194.289
#3	3417.610	71623.39	14391.37	2429.089	4138.856

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1214-01DUP Acquired: 1/31/2025 14:35:13 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0001309	-.003173	.0028006	-.000679	-.001581	49.34710
Stddev	.0003196	.001741	.0007422	.000993	.001084	.09219
%RSD	244.1452	54.85770	26.50294	146.2388	68.58860	.1868288
#1	.0000296	-.004181	.0020144	.000421	-.002823	49.26953
#2	-.000126	-.001163	.0028981	-.000947	-.000821	49.44903
#3	.000489	-.004176	.0034893	-.001510	-.001100	49.32274

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003527	.0000273	.0000308	.7092171	.0668447	.0006644
Stddev	.000339	.0000361	.0000849	.0060516	.0004496	.0001115
%RSD	9.612057	132.5239	275.4360	.8532827	.6726544	16.77820
#1	-.003904	.0000019	.0001283	.7063776	.0672317	.0007839
#2	-.003248	.0000686	-.000027	.7051073	.0669508	.0005632
#3	-.003428	.0000113	-.000009	.7161663	.0663514	.0006462

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0052299	.1205280	.0976676	.6667300	.0148571	.0002093
Stddev	.0003721	.0052153	.0004797	.0097993	.0002456	.0001171
%RSD	7.115485	4.327048	.4911237	1.469748	1.652927	55.92492
#1	.0051954	.1265159	.0972510	.6554906	.0149554	.0001753
#2	.0056181	.1180894	.0981920	.6734820	.0150384	.0001131
#3	.0048763	.1169788	.0975598	.6712174	.0145776	.0003397

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0090927	.0053114	.0279597	.1794026	.0008116	.0004257
Stddev	.0080992	.0004951	.0000961	.0128119	.0004341	.0001068
%RSD	89.07358	9.320870	.3438457	7.141412	53.49086	25.09092
#1	.0017715	.0052399	.0278888	.1941231	.0010941	.0003026
#2	.0077138	.0058384	.0279212	.1733174	.0010290	.0004932
#3	.0177928	.0048560	.0280691	.1707675	.0003117	.0004814

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1214-01DUP Acquired: 1/31/2025 14:35:13 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0004742	.0058953	.2513082	.0054830	F 11.59920	-.011579
Stddev	.0007884	.0001771	.0062463	.0014270	.03917	.000593
%RSD	166.2536	3.003781	2.485527	26.02478	.3377196	5.121616
#1	-.000431	.0060132	.2553782	.0040323	11.64176	-.011780
#2	.001012	.0056916	.2441164	.0055319	11.56465	-.010912
#3	.000841	.0059810	.2544301	.0068849	11.59119	-.012046

Elem	Sr4077
Units	ppm
Avg	.0002066
Stddev	.0000243
%RSD	11.74852
#1	.0002085
#2	.0002298
#3	.0001814

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3481.618	72029.19	13840.08	2463.356	4215.214
Stddev	10.946	13.29	84.84	2.690	8.528
%RSD	.3144072	.0184574	.6129772	.1092167	.2023175
#1	3486.434	72014.33	13903.08	2466.187	4218.924
#2	3489.330	72033.29	13743.62	2460.832	4221.258
#3	3469.089	72039.96	13873.55	2463.050	4205.459

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1214-01LX5 Acquired: 1/31/2025 14:39:32 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	-.000240	-.003593	.0001265	.0010604	-.001422	10.17052	-.003171
Stddev	.001565	.002125	.0001654	.0034154	.001591	.04794	.000102
%RSD	651.6778	59.15138	130.7210	322.0880	111.8282	.4713387	3.219537
#1	-.000095	-.005373	.0002902	-.001262	-.002873	10.15532	-.003285
#2	-.001873	-.004165	.0001298	.004982	-.001674	10.22422	-.003088
#3	.001247	-.001240	-.000041	-.000539	.000279	10.13203	-.003140

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000504	.0000528	.1480838	.0131882	.0003400	.0039382	.0260332
Stddev	.0000168	.0000373	.0026942	.0005396	.0001360	.0000773	.0031356
%RSD	33.40628	70.63831	1.819340	4.091200	39.99937	1.962236	12.04478
#1	.0000685	.0000957	.1501010	.0137780	.0003325	.0038734	.0255641
#2	.0000352	.0000272	.1450242	.0130674	.0002079	.0040237	.0293770
#3	.0000475	.0000356	.1491263	.0127193	.0004796	.0039174	.0231585

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0202617	.1322630	.0030228	.0002212	.0113362	.0011914	.0051891
Stddev	.0003108	.0125020	.0001778	.0002934	.0130319	.0008386	.0000357
%RSD	1.534152	9.452341	5.880425	132.6524	114.9586	70.38678	.6874358
#1	.0201520	.1448915	.0030694	.0000036	-.003643	.0011343	.0051859
#2	.0200207	.1198915	.0028264	.0005548	.017578	.0003829	.0052263
#3	.0206126	.1320061	.0031726	.0001051	.020073	.0020572	.0051552

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1655276	-.000571	.0000199	.0005030	.0006313	.0528163	.0010021
Stddev	.0227036	.000210	.0001649	.0008789	.0006786	.0045263	.0019179
%RSD	13.71592	36.78952	829.0998	174.7405	107.4887	8.569962	191.3945
#1	.1783255	-.000804	.0000320	-.000396	.0006827	.0533342	-.000795
#2	.1393142	-.000514	-.000151	.001360	.0012828	.0570615	.003021
#3	.1789432	-.000395	.000178	.000544	-.000071	.0480533	.000780

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1214-01LX5 Acquired: 1/31/2025 14:39:32 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	2.395177	-.009371	-.000094
Stddev	.014569	.000859	.000022
%RSD	.6082613	9.169664	23.20068
#1	2.381124	-.008925	-.000118
#2	2.394194	-.010362	-.000076
#3	2.410212	-.008826	-.000088

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3407.722	71884.07	13770.85	2442.229	4120.915
Stddev	12.147	643.27	47.24	23.743	13.633
%RSD	.3564472	.8948669	.3430388	.9722016	.3308266
#1	3412.323	71347.71	13789.52	2431.323	4128.479
#2	3416.896	71707.25	13717.12	2425.897	4129.089
#3	3393.947	72597.25	13805.89	2469.465	4105.177

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1214-01MS Acquired: 1/31/2025 14:43:51 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.7737055	1.960049	.9071472	1.890705	.7488886	47.36824
Stddev	.0071217	.016034	.0046817	.013733	.0044933	.20734
%RSD	.9204604	.8180498	.5160954	.7263251	.6000012	.4377121
#1	.7675866	1.947365	.9032912	1.878260	.7455368	47.60755
#2	.7720070	1.954710	.9057937	1.888416	.7471346	47.24258
#3	.7815228	1.978072	.9123565	1.905438	.7539944	47.25458

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1680247	.1770797	.1806849	1.544817	.4341984	.1809391
Stddev	.0009581	.0013076	.0010101	.012576	.0009089	.0007554
%RSD	.5702261	.7384228	.5590619	.8140447	.2093204	.4175004
#1	.1688732	.1785791	.1803433	1.554933	.4344545	.1806614
#2	.1682154	.1761764	.1798899	1.548780	.4331890	.1803619
#3	.1669856	.1764835	.1818216	1.530737	.4349518	.1817941

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2915322	2.818049	.2619933	2.352929	.4675000	.0694296
Stddev	.0014478	.024350	.0006288	.029040	.0031061	.0003880
%RSD	.4966214	.8640664	.2400077	1.234202	.6643963	.5588824
#1	.2908140	2.792725	.2621405	2.386300	.4662192	.0690006
#2	.2905840	2.820131	.2625354	2.333401	.4652391	.0697561
#3	.2931988	2.841291	.2613039	2.339085	.4710416	.0695320

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.544133	.2669400	.2176033	9.245596	.2392363	.3846291
Stddev	.022561	.0011128	.0008657	.060363	.0010216	.0027213
%RSD	.8867768	.4168809	.3978297	.6528814	.4270063	.7075009
#1	2.524318	.2682012	.2168417	9.184812	.2404125	.3830962
#2	2.539394	.2665221	.2174235	9.246446	.2387252	.3830200
#3	2.568687	.2660966	.2185448	9.305529	.2385711	.3877710

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1214-01MS Acquired: 1/31/2025 14:43:51 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.6415702	.1793576	.8539165	5.156241	F 10.97575	.1626600
Stddev	.0042441	.0013326	.0081266	.023009	.04814	.0010669
%RSD	.6615185	.7429914	.9516816	.4462386	.4385659	.6559115
#1	.6377063	.1808207	.8446237	5.151870	10.95901	.1638133
#2	.6408914	.1782134	.8574344	5.135731	10.93821	.1624584
#3	.6461128	.1790385	.8596915	5.181122	11.03002	.1617082

Elem	Sr4077
Units	ppm
Avg	.1679418
Stddev	.0007345
%RSD	.4373571
#1	.1687858
#2	.1674480
#3	.1675914

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3404.124	72512.60	13881.89	2439.705	4084.492
Stddev	27.574	313.71	93.58	12.449	29.075
%RSD	.8100229	.4326335	.6740992	.5102814	.7118378
#1	3425.338	72868.82	13773.90	2452.147	4104.648
#2	3414.081	72391.48	13939.13	2439.720	4097.667
#3	3372.955	72277.51	13932.64	2427.248	4051.162

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CCV04 Acquired: 1/31/2025 14:47:50 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	5.029742	5.288258	4.884036	5.086834	5.053064	9.869218	9.425132
Stddev	.030848	.035162	.023996	.037118	.025082	.012865	.111650
%RSD	.6133115	.6649152	.4913181	.7296884	.4963751	.1303501	1.184598
#1	5.064846	5.289786	4.911745	5.129417	5.081753	9.877127	9.552703
#2	5.006959	5.252356	4.870169	5.061329	5.042160	9.854373	9.377469
#3	5.017419	5.322631	4.870195	5.069754	5.035280	9.876152	9.345224

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2429289	2.435500	23.48882	1.008653	2.433734	1.258491	4.758766
Stddev	.0007162	.011916	.03045	.003642	.013295	.007775	.019410
%RSD	.2948068	.4892423	.1296291	.3610331	.5462791	.6178026	.4078736
#1	.2421028	2.449256	23.51472	1.009767	2.449009	1.267367	4.775691
#2	.2433099	2.428400	23.49646	1.004585	2.427428	1.255221	4.763029
#3	.2433740	2.428843	23.45528	1.011608	2.424766	1.252885	4.737580

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.278875	23.70448	2.433670	1.239386	22.58538	2.402063	2.514573
Stddev	.007307	.00295	.012555	.002328	.20890	.004546	.011113
%RSD	.3206241	.0124566	.5158779	.1878608	.9249336	.1892486	.4419459
#1	2.286565	23.70587	2.448037	1.239791	22.82180	2.407309	2.522835
#2	2.278037	23.70647	2.428160	1.236882	22.50866	2.399279	2.501939
#3	2.272024	23.70108	2.424812	1.241486	22.42569	2.399601	2.518946

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.33113	4.796027	5.118608	4.918094	4.714762	4.998343	4.690407
Stddev	.21564	.008282	.027508	.021614	.016303	.008585	.015924
%RSD	.8862530	.1726753	.5374148	.4394772	.3457957	.1717522	.3395086
#1	24.57972	4.786570	5.150335	4.942820	4.733562	5.001743	4.704859
#2	24.21901	4.801986	5.101422	4.902791	4.704507	4.988579	4.673335
#3	24.19464	4.799524	5.104067	4.908671	4.706218	5.004707	4.693027

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CCV04 Acquired: 1/31/2025 14:47:50 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	4.830655	4.602482	4.650028
Stddev	.023337	.021456	.041932
%RSD	.4831064	.4661851	.9017627
#1	4.856619	4.626912	4.648637
#2	4.811427	4.593839	4.608808
#3	4.823918	4.586695	4.692638

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3294.034	67418.55	12753.55	2209.190	3842.035
Stddev	21.969	50.78	34.11	10.677	22.210
%RSD	.6669250	.0753210	.2674481	.4833160	.5780850
#1	3269.016	67431.42	12792.58	2199.301	3816.532
#2	3302.915	67461.66	12729.48	2220.511	3852.445
#3	3310.173	67362.58	12738.59	2207.757	3857.129

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CCB04 Acquired: 1/31/2025 14:52:01 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0003040	-.002841	.0007643	-.000587	-.000814	.0032551	-.005848
Stddev	.0009956	.001475	.0006420	.000657	.000218	.0046984	.000210
%RSD	327.4897	51.92057	84.00256	111.8340	26.80425	144.3388	3.586793
#1	.0008472	-.003052	.0013962	-.000418	-.000868	.0061488	-.005960
#2	-.000845	-.001271	.0001126	-.000031	-.001001	-.002166	-.005606
#3	.000910	-.004198	.0007840	-.001312	-.000574	.005783	-.005978

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000600	.0000085	.0030330	-.000243	.0000947	.0000648	.0000474
Stddev	.0000356	.0000419	.0057264	.000175	.0000666	.0004003	.0035811
%RSD	59.23296	491.1200	188.8061	71.87546	70.38702	618.0597	7557.543
#1	.0000430	-.000024	-.002534	-.000442	.0000282	-.000397	-.001919
#2	.0001009	-.000007	.002726	-.000111	.0001615	.000321	.004181
#3	.0000362	.000056	.008907	-.000177	.0000944	.000270	-.002120

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000175	.0013264	.0001145	.0002115	.0023432	.0012739	-.000135
Stddev	.000215	.0072232	.0004368	.0002070	.0189038	.0014045	.000225
%RSD	122.9816	544.5615	381.3829	97.89462	806.7684	110.2554	166.0705
#1	-.000104	.0071752	-.000302	.0004394	-.006290	.0028815	.000080
#2	-.000004	.0035517	.000076	.0001600	-.010702	.0006555	-.000368
#3	-.000416	-.006748	.000569	.0000350	.024022	.0002847	-.000117

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2454269	.0062143	.0001368	-.000159	.0004950	.0040085	.0005226
Stddev	.0120847	.0007258	.0001940	.000347	.0006842	.0014274	.0010355
%RSD	4.923950	11.67929	141.8110	217.4007	138.2168	35.60894	198.1527
#1	.2323776	.0070091	.0003597	-.000000	-.000162	.0040656	-.000589
#2	.2476708	.0055867	.0000440	-.000557	.000443	.0025535	.000696
#3	.2562324	.0060471	.0000066	.000079	.001204	.0054066	.001460

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CCB04 Acquired: 1/31/2025 14:52:01 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	-.006291	-.009570	-.000067
Stddev	.002582	.000570	.000016
%RSD	41.04458	5.958615	23.99892
#1	-.003633	-.009838	-.000059
#2	-.006451	-.009956	-.000057
#3	-.008790	-.008915	-.000086

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3483.464	70203.45	13190.89	2349.532	4260.567
Stddev	6.794	851.89	58.35	23.312	9.831
%RSD	.1950365	1.213462	.4423716	.9922111	.2307328
#1	3476.858	70636.73	13123.95	2363.085	4249.776
#2	3483.103	70751.60	13217.72	2362.897	4262.911
#3	3490.432	69222.01	13231.01	2322.613	4269.014

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1214-01MSD Acquired: 1/31/2025 14:56:21 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.7675677	1.968002	.9038784	1.868094	.7416736	47.96480
Stddev	.0024801	.006321	.0014774	.005035	.0028502	.03986
%RSD	.3231050	.3211659	.1634566	.2695367	.3842940	.0830942
#1	.7702889	1.971108	.9052305	1.873902	.7446067	47.95390
#2	.7654346	1.960730	.9023014	1.865421	.7415000	47.93152
#3	.7669796	1.972169	.9041033	1.864959	.7389142	48.00897

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1737365	.1774328	.1805992	1.577066	.4360998	.1808750
Stddev	.0006118	.0015017	.0003657	.012500	.0004734	.0002423
%RSD	.3521641	.8463273	.2025020	.7926281	.1085480	.1339706
#1	.1742484	.1790397	.1806285	1.584480	.4364240	.1809595
#2	.1730589	.1760651	.1809494	1.584085	.4363188	.1806017
#3	.1739023	.1771936	.1802197	1.562634	.4355565	.1810637

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2909167	2.874647	.2690853	2.408497	.4671655	.0692510
Stddev	.0009045	.026343	.0011792	.012505	.0009055	.0002162
%RSD	.3109131	.9163752	.4382101	.5192108	.1938269	.3121534
#1	.2918112	2.844257	.2688398	2.413354	.4680138	.0692250
#2	.2909363	2.890958	.2680481	2.394293	.4662120	.0694791
#3	.2900025	2.888727	.2703678	2.417846	.4672706	.0690491

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.652461	.2714260	.2166163	9.461832	.2437834	.3824391
Stddev	.003817	.0019168	.0001084	.050777	.0016914	.0006559
%RSD	.1439154	.7061973	.0500651	.5366515	.6937944	.1714967
#1	2.650909	.2698033	.2167403	9.414816	.2448895	.3827060
#2	2.656810	.2709338	.2165695	9.455003	.2418364	.3829194
#3	2.649664	.2735409	.2165391	9.515678	.2446242	.3816919

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1214-01MSD Acquired: 1/31/2025 14:56:21 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.6404282	.1827486	.8721885	5.236328	F 11.01247	.1676964
Stddev	.0018987	.0009211	.0035294	.007793	.01840	.0015335
%RSD	.2964663	.5040021	.4046652	.1488274	.1671069	.9144750
#1	.6384024	.1837722	.8706600	5.232390	11.03276	.1694252
#2	.6421670	.1824865	.8762245	5.231291	10.99685	.1671639
#3	.6407152	.1819869	.8696809	5.245305	11.00781	.1665000

Elem	Sr4077
Units	ppm
Avg	.1712332
Stddev	.0000779
%RSD	.0454683
#1	.1713231
#2	.1711882
#3	.1711883

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3418.633	72673.32	13874.72	2463.770	4088.898
Stddev	2.607	244.58	78.39	6.110	5.930
%RSD	.0762670	.3365474	.5650186	.2479902	.1450315
#1	3421.301	72931.53	13822.51	2465.883	4095.020
#2	3416.091	72643.26	13964.87	2468.543	4088.494
#3	3418.506	72445.15	13836.79	2456.885	4083.181

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1214-01A Acquired: 1/31/2025 15:00:20 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.7361740	1.931145	.8796194	1.785410	.7226860	47.25590
Stddev	.0004373	.002450	.0003444	.002214	.0017174	.20853
%RSD	.0594076	.1268747	.0391575	.1240036	.2376409	.4412708
#1	.7357987	1.933887	.8793082	1.783206	.7215282	47.49076
#2	.7366543	1.929171	.8799895	1.785391	.7218705	47.18443
#3	.7360691	1.930376	.8795605	1.787634	.7246592	47.09250

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1720116	.1754545	.1751706	1.556148	.4424873	.1761296
Stddev	.0010863	.0009675	.0005245	.011791	.0175445	.0006825
%RSD	.6314959	.5514147	.2994308	.7576801	3.964984	.3874814
#1	.1732543	.1751167	.1753912	1.561817	.4283891	.1759922
#2	.1715375	.1747012	.1755488	1.564033	.4369371	.1768703
#3	.1712430	.1765456	.1745718	1.542594	.4621357	.1755263

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2823605	2.943062	.2642005	2.359509	.4537575	.0707542
Stddev	.0012349	.102801	.0017852	.019587	.0008480	.0030905
%RSD	.4373391	3.493007	.6757125	.8301263	.1868767	4.367892
#1	.2816053	2.860670	.2661323	2.366856	.4536085	.0686814
#2	.2837856	2.910252	.2638577	2.374359	.4546701	.0692751
#3	.2816907	3.058264	.2626115	2.337310	.4529939	.0743063

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.730137	.2681778	.2204490	9.642402	.2386273	.3804023
Stddev	.101035	.0010052	.0082529	.310198	.0015320	.0002266
%RSD	3.700735	.3748388	3.743684	3.217016	.6420150	.0595782
#1	2.645221	.2693292	.2145387	9.413390	.2374046	.3802242
#2	2.703312	.2674744	.2169302	9.518397	.2381315	.3803252
#3	2.841878	.2677299	.2298781	9.995420	.2403459	.3806574

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: Q1214-01A Acquired: 1/31/2025 15:00:20 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.6208652	.1801918	.9007832	4.893471	F 10.30057	.1665233
Stddev	.0016996	.0010683	.0260629	.013571	.01339	.0024518
%RSD	.2737510	.5928497	2.893365	.2773307	.1299490	1.472365
#1	.6194945	.1810963	.8805484	4.909138	10.30288	.1670797
#2	.6227669	.1804659	.8916085	4.885900	10.31266	.1686491
#3	.6203341	.1790132	.9301929	4.885374	10.28619	.1638411

Elem	Sr4077
Units	ppm
Avg	.1685044
Stddev	.0009201
%RSD	.5460548
#1	.1693850
#2	.1685790
#3	.1675493

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3534.753	70505.65	13994.14	2397.669	4276.927
Stddev	3.478	2387.37	21.68	74.169	4.949
%RSD	.0983867	3.386071	.1549443	3.093391	.1157165
#1	3538.410	72322.62	13969.40	2456.015	4278.241
#2	3534.362	71392.57	14009.81	2422.790	4271.453
#3	3531.488	67801.75	14003.22	2314.201	4281.086

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: PB166377BL Acquired: 1/31/2025 15:04:19 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.0000818	-.001901	-.000176	-.000705	-.000141	.0021932	-.005130
Stddev	.0009229	.001965	.000725	.001183	.001301	.0028769	.000790
%RSD	1128.073	103.3701	412.4297	167.6735	921.2577	131.1734	15.40795
#1	-.000557	-.003881	.000570	-.001954	.001297	.0016193	-.005884
#2	.001140	.000048	-.000218	-.000559	-.000484	-.000353	-.005200
#3	-.000338	-.001868	-.000879	.000397	-.001237	.005314	-.004308

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000666	.0000118	.0005969	.0001945	-.000016	-.000516	.0030904
Stddev	.0000229	.0000315	.0021194	.0002275	.000108	.000253	.0056773
%RSD	34.33289	266.3377	355.0615	116.9914	672.8685	48.93927	183.7100
#1	.0000521	-.000021	-.001120	.0004572	-.000034	-.000758	-.000733
#2	.0000929	.000042	-.000055	.0000645	-.000114	-.000537	.000390
#3	.0000547	.000015	.002966	.0000617	.000099	-.000254	.009614

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000018	-.013810	.0002899	.0003905	-.022892	.0012126	-.000347
Stddev	.000140	.009384	.0003461	.0000374	.011974	.0014396	.000089
%RSD	793.3890	67.95260	119.4157	9.583361	52.30851	118.7214	25.55886
#1	-.000175	-.013669	.0005321	.0004141	-.030560	.0028748	-.000300
#2	.000091	-.023263	.0004440	.0004101	-.029022	.0004020	-.000292
#3	.000031	-.004496	-.000107	.0003474	-.009094	.0003611	-.000450

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1931434	.0017534	.0000093	-.000023	-.000101	.0031242	.0007633
Stddev	.0144863	.0007666	.0001209	.000197	.000388	.0044050	.0008758
%RSD	7.500265	43.72201	1302.328	859.3090	385.3233	140.9942	114.7346
#1	.1968046	.0008841	.0001094	-.000224	.000059	-.001077	.0005466
#2	.2054478	.0020433	.0000435	.000170	.000182	.007708	.0000162
#3	.1771778	.0023328	-.000125	-.000015	-.000544	.002742	.0017271

Sample Name: PB166377BL Acquired: 1/31/2025 15:04:19 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	-.004432	-.008222	-.000187
Stddev	.001501	.000381	.000013
%RSD	33.85846	4.636397	7.151294
#1	-.003867	-.007782	-.000197
#2	-.003296	-.008464	-.000192
#3	-.006133	-.008419	-.000172

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3441.968	70584.56	13019.68	2343.952	4238.350
Stddev	7.766	410.20	83.54	14.625	9.913
%RSD	.2256366	.5811416	.6416612	.6239493	.2338851
#1	3436.841	70844.05	13077.63	2349.431	4231.939
#2	3438.160	70797.98	13057.49	2355.047	4233.343
#3	3450.903	70111.65	12923.92	2327.379	4249.768

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: PB166377BS Acquired: 1/31/2025 15:08:40 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.7965395	2.049764	.9503067	1.977368	.7756499	1.883662
Stddev	.0060933	.023263	.0119351	.025202	.0076611	.004497
%RSD	.7649770	1.134934	1.255923	1.274514	.9877000	.2387275
#1	.8031206	2.076552	.9640854	2.006199	.7844932	1.886068
#2	.7954041	2.038098	.9436569	1.966382	.7710306	1.886444
#3	.7910936	2.034642	.9431778	1.959525	.7714259	1.878474

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1783163	.1866102	.1894892	.9564948	.3969978	.1896945
Stddev	.0007430	.0009058	.0020842	.0107758	.0068860	.0019046
%RSD	.4166987	.4853858	1.099884	1.126587	1.734517	1.004030
#1	.1791653	.1874997	.1918958	.9672063	.3931323	.1918433
#2	.1777844	.1856889	.1882938	.9456560	.3929129	.1890259
#3	.1779993	.1866418	.1882781	.9566222	.4049480	.1882144

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3037624	2.902104	.1840024	1.823924	.4773891	.0733841
Stddev	.0029803	.028215	.0014911	.014507	.0056162	.0010053
%RSD	.9811253	.9722161	.8103695	.7953770	1.176432	1.369930
#1	.3067052	2.890890	.1856831	1.810977	.4837277	.0724722
#2	.3038359	2.881221	.1828383	1.839603	.4754064	.0732179
#3	.3007460	2.934202	.1834858	1.821193	.4730333	.0744621

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.677488	.2792234	.2028454	9.740050	.2650901	.3987769
Stddev	.050181	.0037721	.0038584	.141747	.0018155	.0038684
%RSD	1.874169	1.350913	1.902131	1.455300	.6848497	.9700599
#1	2.632252	.2815710	.2003014	9.646549	.2671180	.4030600
#2	2.668747	.2812269	.2009497	9.670458	.2645360	.3977334
#3	2.731465	.2748723	.2072849	9.903142	.2636162	.3955373

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: PB166377BS Acquired: 1/31/2025 15:08:40 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	.6616502	.1835763	F .6850765	5.372633	F -.011691	.1778964
Stddev	.0060108	.0017022	.0147782	.057379	.004531	.0013715
%RSD	.9084574	.9272273	2.157165	1.067978	38.75696	.7709370
#1	.6684072	.1854438	.6724472	5.438583	-.008850	.1784978
#2	.6568981	.1821117	.6814527	5.334157	-.009308	.1763270
#3	.6596453	.1831733	.7013296	5.345159	-.016917	.1788644

Elem	Sr4077
Units	ppm
Avg	.1789701
Stddev	.0007501
%RSD	.4190919
#1	.1798326
#2	.1784709
#3	.1786068

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3391.947	69799.59	13425.70	2341.153	4077.756
Stddev	28.133	949.28	109.35	25.638	39.971
%RSD	.8294115	1.360010	.8145104	1.095095	.9802089
#1	3360.148	70364.92	13300.21	2350.052	4031.670
#2	3402.092	70330.21	13500.60	2361.155	4098.624
#3	3413.600	68703.64	13476.30	2312.251	4102.973

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: LR1 Acquired: 1/31/2025 15:15:25 Type: Unk
Method: NON EPA-6010-200.7(v2650) 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	.0450790	.0815922	.0455656	-.194800	-.014257	2042.565	.0267012
Stddev	.0065521	.0040807	.0042639	.011840	.007372	6.671	.0012987
%RSD	14.53462	5.001281	9.357800	6.078238	51.71179	.3266173	4.863793
#1	.0521863	.0769924	.0449415	-.200472	-.013774	2042.875	.0274615
#2	.0437711	.0830074	.0416481	-.181191	-.021859	2035.745	.0252016
#3	.0392795	.0847769	.0501072	-.202739	-.007138	2049.077	.0274404

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0097056	-.001158	1806.995	.0039441	.0265664	.2529971	1090.982
Stddev	.0002624	.000177	7.688	.0008061	.0000353	.0046006	3.428
%RSD	2.703396	15.30266	.4254675	20.43913	.1328598	1.818439	.3142308
#1	.0095317	-.001142	1814.555	.0033118	.0266009	.2505553	1094.085
#2	.0095777	-.000990	1799.185	.0036686	.0265304	.2583038	1087.302
#3	.0100074	-.001343	1807.245	.0048519	.0265680	.2501321	1091.558

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.060460	1676.873	.0480058	-.008283	1956.588	.0177049	.1331351
Stddev	.000468	9.195	.0007858	.000645	11.211	.0017245	.0037050
%RSD	.7732906	.5483168	1.636978	7.785637	.5729699	9.740421	2.782916
#1	-.059925	1683.453	.0484705	-.007846	1943.998	.0162789	.1289021
#2	-.060670	1666.367	.0470984	-.009024	1965.489	.0196217	.1347143
#3	-.060786	1680.798	.0484484	-.007980	1960.277	.0172142	.1357889

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1248.485	^ *****	-.005561	.0077398	-.037383	.1576723	.0662791
Stddev	2.291	-----	.000823	.0024025	.000322	.0044822	.0044087
%RSD	.1834885	-----	14.79868	31.04075	.8601488	2.842727	6.651744
#1	1251.129	^ -----	-.005245	.0050216	-.037270	.1611428	.0628017
#2	1247.216	^ -----	-.006495	.0086187	-.037746	.1526119	.0647980
#3	1247.109	^ -----	-.004943	.0095790	-.037134	.1592624	.0712377

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: LR1 Acquired: 1/31/2025 15:15:25 Type: Unk
Method: NON EPA-6010-200.7(v2650) 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	-.246415	-.295226	-1.07978
Stddev	.006729	.000515	.00350
%RSD	2.730861	.1745193	.3241410
#1	-.250623	-.295592	-1.08301
#2	-.249969	-.294637	-1.07606
#3	-.238654	-.295450	-1.08028

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2337.129	49769.93	11202.75	1630.697	2378.333
Stddev	4.201	172.46	65.14	8.870	5.856
%RSD	.1797480	.3465170	.5814475	.5439217	.2462138
#1	2337.983	49689.13	11199.09	1640.699	2372.974
#2	2332.567	49652.71	11269.65	1627.605	2384.583
#3	2340.838	49967.96	11139.53	1623.788	2377.441

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: LR2 Acquired: 1/31/2025 15:20:20 Type: Unk
Method: NON EPA-6010-200.7(v2650) 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	.0063901	-.011812	231.2562	.0101005	.0011523	.1778502
Stddev	.0045714	.000932	.5427	.0015720	.0011123	.0050036
%RSD	71.53893	7.886678	.2346770	15.56376	96.52481	2.813378
#1	.0018547	-.012879	230.6315	.0094356	.0019742	.1819576
#2	.0063189	-.011401	231.5258	.0118957	.0015961	.1722776
#3	.0109968	-.011157	231.6114	.0089702	-.000113	.1793155

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 75.84893	-.003536	-.005685	.0433499	.0102767	.0028838
Stddev	.41094	.000087	.000108	.0051664	.0002032	.0001504
%RSD	.5417909	2.463095	1.898596	11.91782	1.977581	5.215572
#1	76.25549	-.003597	-.005562	.0389096	.0101319	.0029841
#2	75.85756	-.003575	-.005729	.0421198	.0101893	.0027108
#3	75.43374	-.003436	-.005764	.0490203	.0105090	.0029563

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	254.6103	.0161606	40.95245	-.074118	50.70078	.0044430
Stddev	.5598	.0074492	.10768	.002298	.07154	.0002494
%RSD	.2198649	46.09507	.2629270	3.099960	.1411117	5.613431
#1	254.1808	.0246774	40.84308	-.073228	50.62175	.0047095
#2	254.4067	.0129457	40.95593	-.072398	50.76114	.0044045
#3	255.2434	.0108586	41.05835	-.076728	50.71946	.0042151

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2801786	-.009175	31.65078	.5287083	-.000746	-.007422
Stddev	.0119251	.000541	.28778	.0329935	.000468	.000383
%RSD	4.256239	5.900815	.9092284	6.240403	62.75790	5.166336
#1	.2939234	-.008648	31.98245	.5497007	-.000539	-.007274
#2	.2740254	-.009147	31.46728	.5457450	-.001282	-.007858
#3	.2725870	-.009729	31.50261	.4906792	-.000417	-.007135

Sample Name: LR2 Acquired: 1/31/2025 15:20:20 Type: Unk
Method: NON EPA-6010-200.7(v2650) 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	-.003916	-.036715	-.001440	.2567388	.0128370	-.008423
Stddev	.000188	.000437	.002084	.0034080	.0024882	.000723
%RSD	4.811554	1.191263	144.7100	1.327412	19.38330	8.584813
#1	-.004100	-.036808	.000842	.2554618	.0156995	-.008644
#2	-.003723	-.036238	-.001920	.2606009	.0116199	-.009010
#3	-.003924	-.037098	-.003242	.2541538	.0111916	-.007615

Elem	Sr4077
Units	ppm
Avg	.0007181
Stddev	.0000393
%RSD	5.471269
#1	.0006908
#2	.0007003
#3	.0007631

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3012.257	70405.82	13588.74	2270.010	3992.159
Stddev	.972	139.93	63.22	12.658	3.782
%RSD	.0322638	.1987536	.4652124	.5576250	.0947279
#1	3012.433	70274.14	13612.69	2256.660	3995.316
#2	3011.210	70552.76	13517.05	2281.838	3987.968
#3	3013.130	70390.56	13636.48	2271.533	3993.193

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CCV05 Acquired: 1/31/2025 15:25:21 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	4.897692	5.004596	4.751761	4.970439	4.927124	9.619986	9.378021
Stddev	.038755	.043906	.026671	.042263	.034041	.045175	.094912
%RSD	.7912843	.8773160	.5612899	.8502812	.6908805	.4695910	1.012065
#1	4.892914	4.992756	4.740138	4.953484	4.920212	9.567832	9.276572
#2	4.861548	4.967824	4.732873	4.939287	4.897071	9.645228	9.392839
#3	4.938614	5.053208	4.782271	5.018547	4.964091	9.646899	9.464652

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2300390	2.367755	23.28609	.9794382	2.369360	1.230632	4.855284
Stddev	.0035686	.012702	.15063	.0320648	.011906	.007922	.111312
%RSD	1.551307	.5364727	.6468644	3.273797	.5024925	.6437373	2.292602
#1	.2268188	2.364405	23.16440	.9614512	2.365926	1.228282	4.808509
#2	.2294226	2.357064	23.23931	.9604049	2.359548	1.224151	4.774992
#3	.2338757	2.381797	23.45456	1.016459	2.382605	1.239463	4.982351

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.279541	23.19644	2.371959	1.213744	23.93965	2.369706	2.422908
Stddev	.009826	.19869	.011747	.034707	.50967	.008791	.066434
%RSD	.4310488	.8565401	.4952302	2.859462	2.128993	.3709785	2.741900
#1	2.273927	23.01292	2.370564	1.193445	23.82457	2.362395	2.372788
#2	2.273810	23.16898	2.360972	1.193968	23.49734	2.367263	2.397675
#3	2.290887	23.40743	2.384341	1.253818	24.49702	2.379461	2.498262

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.89912	4.565674	4.934451	4.761618	4.672773	5.014377	4.628166
Stddev	.49069	.069654	.033872	.029856	.015516	.124962	.015296
%RSD	1.970707	1.525595	.6864291	.6270136	.3320486	2.492079	.3304885
#1	24.76728	4.496202	4.927535	4.748305	4.658431	4.947882	4.623779
#2	24.48782	4.565313	4.904572	4.740735	4.670644	4.936723	4.615544
#3	25.44226	4.635508	4.971247	4.795815	4.689243	5.158527	4.645176

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CCV05 Acquired: 1/31/2025 15:25:21 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	4.744155	4.610329	4.624913
Stddev	.025064	.006286	.032187
%RSD	.5283176	.1363558	.6959515
#1	4.743850	4.606793	4.654741
#2	4.719246	4.606608	4.590797
#3	4.769371	4.617588	4.629203

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3278.698	67720.36	13169.50	2250.084	3814.318
Stddev	16.602	1825.90	137.72	53.922	15.386
%RSD	.5063702	2.696242	1.045734	2.396430	.4033649
#1	3279.380	68683.13	13299.33	2284.844	3815.228
#2	3294.949	68863.39	13184.11	2277.440	3829.229
#3	3261.766	65614.56	13025.06	2187.967	3798.498

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CCB05 Acquired: 1/31/2025 15:29:34 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	-.000420	-.003675	.0001806	-.001672	-.000143	.0033660	-.005258
Stddev	.000800	.001343	.0006474	.000764	.001510	.0049864	.000641
%RSD	190.3623	36.54606	358.4024	45.67048	1052.528	148.1396	12.18195
#1	.000013	-.004033	.0004626	-.001607	-.000601	-.001627	-.004528
#2	.000070	-.004804	.0006392	-.002467	.001542	.003379	-.005519
#3	-.001344	-.002190	-.000560	-.000943	-.001372	.008346	-.005727

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000400	.0000173	.0025795	.0002288	.0001045	.0002180	.0008851
Stddev	.0000441	.0000506	.0066179	.0005494	.0002317	.0001630	.0035727
%RSD	110.1679	293.0558	256.5632	240.1269	221.6522	74.75102	403.6455
#1	-.000008	-.000005	-.000635	-.000155	-.000141	.0003775	.0049845
#2	.000078	.000075	-.001817	.000858	.000319	.0002249	-.000764
#3	.000050	-.000019	.010191	-.000017	.000136	.0000517	-.001565

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000051	.0063175	.0003262	-.000002	.1164914	.0002234	-.000222
Stddev	.000189	.0113018	.0003388	.000357	.0084526	.0005113	.000266
%RSD	372.3252	178.8959	103.8721	22283.28	7.256013	228.8758	119.9833
#1	-.000070	.0054130	.0003914	.000308	.1161170	.0008033	-.000181
#2	.000147	-.004505	-.000041	-.000393	.1251251	-.000163	.000022
#3	-.000229	.018044	.000628	.000080	.1082323	.000030	-.000506

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3442049	.0047919	-.000158	-.000381	.0004434	.0020637	-.001708
Stddev	.0352426	.0002107	.000340	.000496	.0004535	.0038409	.000395
%RSD	10.23884	4.395843	215.7663	130.2450	102.2874	186.1138	23.10901
#1	.3097644	.0047496	.000171	-.000031	.0000512	.0019078	-.001368
#2	.3426522	.0050205	-.000135	-.000163	.0009399	.0059802	-.001615
#3	.3801982	.0046057	-.000508	-.000948	.0003390	-.001697	-.002141

Reviewed By:Jaswal
On:2/4/2025 1:28:19 PM
Inst Id :P4
LB :LB134505

Sample Name: CCB05 Acquired: 1/31/2025 15:29:34 Type: Unk
Method: NON EPA-6010-200.7(v2647) 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	-.003669	-.007574	-.000097
Stddev	.001606	.000261	.000013
%RSD	43.75817	3.444492	13.81014
#1	-.002455	-.007829	-.000101
#2	-.003063	-.007584	-.000082
#3	-.005489	-.007308	-.000107

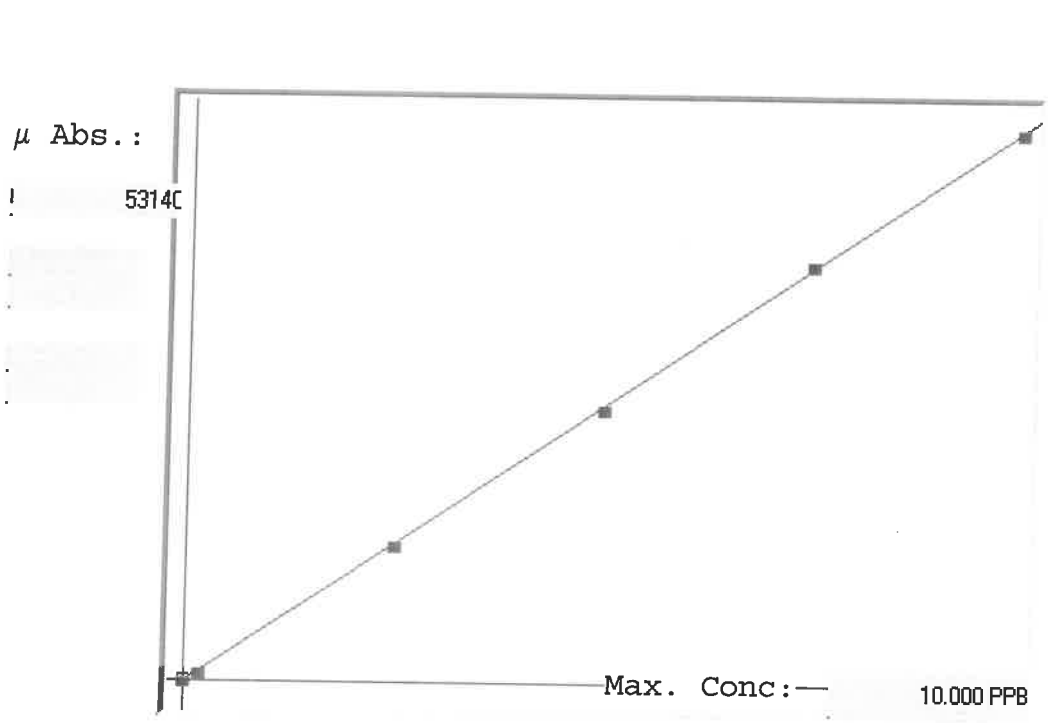
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3398.171	70796.95	13217.07	2370.338	4134.917
Stddev	11.192	206.01	145.96	8.955	15.463
%RSD	.3293589	.2909870	1.104341	.3777969	.3739647
#1	3396.383	70998.27	13109.05	2380.273	4138.537
#2	3410.150	70586.55	13383.12	2367.856	4148.249
#3	3387.981	70806.02	13159.03	2362.887	4117.965

Reviewed By:mohan
On:1/31/2025 7:53:24 PM
Inst Id :CV1
LB :LB134501

LB134501

7471B

INSTRUMENT ID: CV1



Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	QC
0.0	0.000	0.037	0.037	107	0.000	107					
0.2	0.200	0.175	-0.025	842	0.0 %	842					
2.5	2.500	2.485	-0.015	13180	0.0 %	13180					
5.0	5.000	4.963	-0.037	26414	0.0 %	26414					
7.5	7.500	7.573	0.073	40356	0.0 %	40356					
10.0	10.000	9.967	-0.033	53140	0.0 %	53140					

-TB
-1
-1
1
0

Reviewed By:mohan
On:1/31/2025 7:53:24 PM
Inst Id :CV1
LB :LB134501

LB134501 INSTRUMENT ID : CV1

Method: 7471B Operator: Admin Date of Analysis: 31 Jan 2025 12:41:05

Sample ID	Extended ID	µ Abs.	Conc.	Stnd Conc	Method	Units	Date	Type	Type
0.0 - 1	S0	107	-	0.00000	7471B	PPB	31 Jan 2025 12:47:42	S	Std
0.2 - 1	S0.2	842	-	0.20000	7471B	PPB	31 Jan 2025 12:49:59	S	Std
2.5 - 1	S2.5	13180	-	2.50000	7471B	PPB	31 Jan 2025 12:52:16	S	Std
5.0 - 1	S5	26414	-	5.00000	7471B	PPB	31 Jan 2025 12:54:33	S	Std
7.5 - 1	S7.5	40356	-	7.50000	7471B	PPB	31 Jan 2025 12:56:52	S	Std
10.0 - 1	S10	53140	-	10.00000	7471B	PPB	31 Jan 2025 13:01:53	S	Std
ICV77 - 1	ICV77	21121	3.9718		-7471B	PPB	31 Jan 2025 13:15:05	U	SMPL
ICB77 - 1	ICB77	11	0.0192		-7471B	PPB	31 Jan 2025 13:17:19	U	SMPL
CCV92 - 1	CCV92	26188	4.9205		-7471B	PPB	31 Jan 2025 13:19:37	U	SMPL
CCB92 - 1	CCB92	82	0.0325		-7471B	PPB	31 Jan 2025 13:21:53	U	SMPL
CRA - 1	CRA	881	0.1821		-7471B	PPB	31 Jan 2025 13:24:11	U	SMPL
HighStd - 1	HighStd	54124	10.1511		-7471B	PPB	31 Jan 2025 13:26:26	U	SMPL
ChkStd - 1	ChkStd	38235	7.1761		-7471B	PPB	31 Jan 2025 13:28:42	U	SMPL
PB166402BL - 1	PBS	-80	0.0022		-7471B	PPB	31 Jan 2025 13:31:07	U	SMPL
PB166402BS - 1	LCSS	23772	4.4682		-7471B	PPB	31 Jan 2025 13:33:28	U	SMPL
Q1216-03 - 1	JPP-18.1-012825	34742	6.5221		-7471B	PPB	31 Jan 2025 13:35:44	U	SMPL
Q1216-07 - 1	JPP-21.1-012825	22897	4.3043		-7471B	PPB	31 Jan 2025 13:38:03	U	SMPL
Q1216-11 - 1	JPP-21.2-012825	17693	3.3299		-7471B	PPB	31 Jan 2025 13:40:28	U	SMPL
Q1216-15 - 1	JPP-26.1-012825	32692	6.1383		-7471B	PPB	31 Jan 2025 13:42:48	U	SMPL
Q1216-19 - 1	JPP-26.2-012825	112531	21.0870		-7471B	PPB	31 Jan 2025 13:45:05	U	SMPL
CCV93 - 1	CCV93	26518	4.9823		-7471B	PPB	31 Jan 2025 13:47:25	U	SMPL
CCB93 - 1	CCB93	60	0.0284		-7471B	PPB	31 Jan 2025 13:49:56	U	SMPL
Q1218-01 - 1	BELL-25-002	217	0.0578		-7471B	PPB	31 Jan 2025 13:52:16	U	SMPL
Q1219-01 - 1	LAW-25-0015	137	0.0428		-7471B	PPB	31 Jan 2025 13:54:32	U	SMPL
Q1220-01 - 1	TR-06-01292025	1351	0.2701		-7471B	PPB	31 Jan 2025 13:56:47	U	SMPL
Q1221-01 - 1	CHESTNUT-CONCRETE	519	0.1144		-7471B	PPB	31 Jan 2025 13:59:03	U	SMPL
Q1232-03 - 1	JPP-46.2-012925	23643	4.4440		-7471B	PPB	31 Jan 2025 14:01:19	U	SMPL
Q1232-07 - 1	JPP-46.1-012925	5482	1.0436		-7471B	PPB	31 Jan 2025 14:03:35	U	SMPL
Q1232-11 - 1	JPP-42.1-012925	33892	6.3630		-7471B	PPB	31 Jan 2025 14:05:54	U	SMPL
Q1232-15 - 1	JPP-42.2-012925	16724	3.1485		-7471B	PPB	31 Jan 2025 14:08:12	U	SMPL
Q1232-19 - 1	JPP-51.1-012925	69157	12.9658		-7471B	PPB	31 Jan 2025 14:10:32	U	SMPL
Q1235-03 - 1	JPP-51.2-012925	9241	1.7474		-7471B	PPB	31 Jan 2025 14:12:50	U	SMPL
CCV94 - 1	CCV94	26684	5.0134		-7471B	PPB	31 Jan 2025 14:15:15	U	SMPL
CCB94 - 1	CCB94	70	0.0303		-7471B	PPB	31 Jan 2025 14:17:32	U	SMPL
Q1235-07 - 1	JPP-16.1-012925	24539	4.6118		-7471B	PPB	31 Jan 2025 14:19:51	U	SMPL
Q1235-07DUP - 1	JPP-16.1-012925DUP	24180	4.5445		-7471B	PPB	31 Jan 2025 14:22:06	U	SMPL
Q1235-07MS - 1	JPP-16.1-012925MS	43908	8.2383		-7471B	PPB	31 Jan 2025 14:24:24	U	SMPL
Q1235-07MSD - 1	JPP-16.1-012925MSD	47083	8.8328		-7471B	PPB	31 Jan 2025 14:26:43	U	SMPL
Q1239-01 - 1	286	2319	0.4514		-7471B	PPB	31 Jan 2025 14:29:05	U	SMPL
Q1239-04 - 1	348	2462	0.4782		-7471B	PPB	31 Jan 2025 14:31:25	U	SMPL
Q1239-07 - 1	RBR22266	4888	0.9324		-7471B	PPB	31 Jan 2025 14:33:43	U	SMPL
Q1239-10 - 1	357	4527	0.8648		-7471B	PPB	31 Jan 2025 14:36:00	U	SMPL
Q1235-07LX5 - 1		5161	0.9835		-7471B	PPB	31 Jan 2025 14:38:18	U	SMPL
Q1235-07A - 1		45500	8.5364		-7471B	PPB	31 Jan 2025 14:40:34	U	SMPL
CCV95 - 1	CCV95	26621	5.0016		-7471B	PPB	31 Jan 2025 14:42:51	U	SMPL
CCB95 - 1	CCB95	180	0.0509		-7471B	PPB	31 Jan 2025 14:45:10	U	SMPL
Q1216-19DLX5 - 1		24206	4.5494		-7471B	PPB	31 Jan 2025 14:47:29	U	SMPL
Q1232-19DLX5 - 1		14984	2.8227		-7471B	PPB	31 Jan 2025 14:49:45	U	SMPL
CCV96 - 1	CCV96	26758	5.0272		-7471B	PPB	31 Jan 2025 14:52:03	U	SMPL
CCB96 - 1	CCB96	-26	0.0123		-7471B	PPB	31 Jan 2025 14:54:21	U	SMPL

Alliance TECHNICAL GROUP

Soil/Sludge Metals Preparation Sheet

PB166387

SOP ID : M3050B-Digestion-20

SDG No : N/A

Matrix : SOIL

Pippete ID: ICP A

Balance ID : M SC-2

Filter paper ID : N/A

pH Strip ID : N/A

Hood ID : #3

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

Start Digest Date: 01/30/2025 **Time :** 15:10 **Temp :** 96 °C

End Digest Date: 01/30/2025 **Time :** 17:15 **Temp :** 96 °C

Digestion tube ID: M6054

Block thermometer ID: MET-DIG. #2

Dig Technician Signature: SJ2D

Supervisor Signature:

Temp : 1. 96°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
LFS-1	1.00	M6002
LFS-2	1.00	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
1:1 HNO3	10.00	MP84041
Conc. HNO3	5.00	M6126
30% H2O2	3.00	M6125
Conc. HCL	10.00	M6121
PTFE Boiling Stones	N/A	M5585
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#2 CELL#34 TEMP:96 C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
01/30/25 18:25	SJ2. met digestion.	SJ (metals lab)
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

Soil/Sludge Metals Preparation Sheet

PB166387

Lab Sample ID	Client Sample ID	pH	Initial Weight (g)	Final Vol (ml)	Color Before	Color After	Texture	Artifact	Comment	Prep Pos
PB166387BL	PBS387	N/A	2.45	200	Colorless	Colorless	Fine	N/A	N/A	1
PB166387BS	LCS387	N/A	2.45	200	Colorless	Colorless	Fine	N/A	M6002,M6011	2
Q1232-03	JPP-46.2-012925	N/A	2.15	200	Brown	Yellow	Medium	N/A	N/A	3
Q1232-07	JPP-46.1-012925	N/A	2.26	200	Brown	Yellow	Medium	N/A	N/A	4
Q1232-11	JPP-42.1-012925	N/A	2.24	200	Brown	Yellow	Medium	N/A	N/A	5
Q1232-15	JPP-42.2-012925	N/A	2.02	200	Brown	Yellow	Medium	N/A	N/A	6
Q1232-19	JPP-51.1-012925	N/A	2.23	200	Brown	Yellow	Medium	N/A	N/A	7
Q1235-03	JPP-51.2-012925	N/A	2.07	200	Brown	Yellow	Medium	N/A	N/A	8
Q1235-07	JPP-16.1-012925	N/A	2.44	200	Brown	Yellow	Medium	N/A	N/A	9
Q1235-07MS	JPP-16.1-012925MS	N/A	2.07	200	Brown	Yellow	Medium	N/A	M6002,M6011	11
Q1235-07MSD	JPP-16.1-012925MSD	N/A	2.40	200	Brown	Yellow	Medium	N/A	M6002,M6011	12
Q1235-07DUP	JPP-16.1-012925DUP	N/A	2.18	200	Brown	Yellow	Medium	N/A	N/A	10

WORKLIST(Hardcopy Internal Chain)

WorkList Name : PB166387 **WorkList ID :** 187304 **Department :** Digestion **Date :** 01-30-2025 14:31:36

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q1232-03	JPP-46.2-012925	Solid	Metals ICP-TAL	Cool 4 deg C	RUTW01	E11	01/29/2025	6010D
Q1232-07	JPP-46.1-012925	Solid	Metals ICP-TAL	Cool 4 deg C	RUTW01	E11	01/29/2025	6010D
Q1232-11	JPP-42.1-012925	Solid	Metals ICP-TAL	Cool 4 deg C	RUTW01	E11	01/29/2025	6010D
Q1232-15	JPP-42.2-012925	Solid	Metals ICP-TAL	Cool 4 deg C	RUTW01	E11	01/29/2025	6010D
Q1232-19	JPP-51.1-012925	Solid	Metals ICP-TAL	Cool 4 deg C	RUTW01	E11	01/29/2025	6010D
Q1235-03	JPP-51.2-012925	Solid	Metals ICP-TAL	Cool 4 deg C	RUTW01	E11	01/29/2025	6010D
Q1235-07	JPP-16.1-012925	Solid	Metals ICP-TAL	Cool 4 deg C	RUTW01	E11	01/29/2025	6010D

Date/Time 01/30/25 14:45
Raw Sample Received by: SR2. met dr.
Raw Sample Relinquished by: CP SM

Date/Time 01/30/25 15:55
Raw Sample Received by: CP SM
Raw Sample Relinquished by: SR2. met. dr

Alliance TECHNICAL GROUP

Soil/Sludge Mercury Preparation Sheet

PB166402

SOP ID : M7471B-Mercury-18

SDG No : NA

Matrix : SOIL

Pippete ID: HG A

Balance ID : M SC-3

Filter paper ID : NA

pH Strip ID : NA

Hood ID : #1

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

Start Digest Date: 01/30/2025 **Time :** 16:50 **Temp :** 95 °C

End Digest Date: 01/30/2025 **Time :** 17:20 **Temp :** 94 °C

Digestion tube ID: M5595

Block thermometer ID: HG-DIG#3

Dig Technician Signature: MB

Supervisor Signature: [signature]

Temp : 1. 95°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
ICV	30mL	MP84281
CCV	30mL	MP84283
CRA	30mL	MP84285
Blank Spike	0.48mL	MP84273
Matrix Spike	0.48mL	MP84273

Chemical Used	ML/SAMPLE USED	Lot Number
AQUA REGIA	1.5mL	MP84287
KMnO4 (5%)	4.5mL	MP83692
Hydroxylamine HCL (12%)	2.0mL	MP83694
PTFE Boiling Stones	----------	M4583
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

LAB SAMPLE ID	CLIENT SAMPLE ID	Wt(g)/Vol(ml)	Comment
0.0 ppb	S0	30mL	MP84274
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	30mL	MP84275
2.5 ppb	S2.5	30mL	MP84276
5.0 ppb	S5.0	30mL	MP84277
7.5 ppb	S7.5	30mL	MP84278
10.0 ppb	S10.0	30mL	MP84279
ICV	ICV	30mL	MP84280
ICB	ICB	30mL	MP84281
CCV	CCV	30mL	MP84282
CCB	CCB	30mL	MP84283
CRI	CRI	30mL	MP84285
CHK STD	CHK STD	30mL	MP84286

Extraction Conformance/Non-Conformance Comments:

N/A

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
1/30/25 @ 18:00	MB - Dig. Lab	MB - Metal Lab
	Preparation Group	**Analysis Group**

Alliance TECHNICAL GROUP

Soil/Sludge Mercury Preparation Sheet

PB166402

Lab Sample ID	Client Sample ID	Initial Weight (g)	Final Vol (ml)	pH	Comment	Prep Pos
PB166402BL	PBS402	0.54	35	NA	N/A	3-1
PB166402BS	LCS402	0.55	35	NA	MP84273	2
Q1216-03	JPP-18.1-012825	0.56	35	NA	N/A	3
Q1216-07	JPP-21.1-012825	0.54	35	NA	N/A	4
Q1216-11	JPP-21.2-012825	0.50	35	NA	N/A	5
Q1216-15	JPP-26.1-012825	0.52	35	NA	N/A	6
Q1216-19	JPP-26.2-012825	0.54	35	NA	N/A	7
Q1218-01	BELL-25-002	0.57	35	NA	N/A	8
Q1219-01	LAW-25-0015	0.57	35	NA	N/A	9
Q1220-01	TR-06-01292025	0.55	35	NA	N/A	10
Q1221-01	CHESTNUT-CONCRETE	0.60	35	NA	N/A	11
Q1232-03	JPP-46.2-012925	0.60	35	NA	N/A	12
Q1232-07	JPP-46.1-012925	0.54	35	NA	N/A	13
Q1232-11	JPP-42.1-012925	0.58	35	NA	N/A	14
Q1232-15	JPP-42.2-012925	0.59	35	NA	N/A	15
Q1232-19	JPP-51.1-012925	0.60	35	NA	N/A	16
Q1235-03	JPP-51.2-012925	0.51	35	NA	N/A	17
Q1235-07	JPP-16.1-012925	0.58	35	NA	N/A	18
Q1235-07DUP	JPP-16.1-012925DUP	0.56	35	NA	N/A	19
Q1235-07MS	JPP-16.1-012925MS	0.59	35	NA	MP84273	20
Q1235-07MSD	JPP-16.1-012925MSD	0.58	35	NA	MP84273	21
Q1239-01	286	0.56	35	NA	N/A	22
Q1239-04	348	0.59	35	NA	N/A	23
Q1239-07	RBR22266	0.55	35	NA	N/A	24
Q1239-10	357	0.55	35	NA	N/A	25

WORKLIST(Hardcopy Internal Chain)

WorkList Name : 013025_7471 **WorkList ID :** 187307 **Department :** Digestion **Date :** 01-30-2025 14:32:56

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q1216-03	JPP-18.1-012825	Solid	Mercury	Cool 4 deg C	RUTW01	E11	01/28/2025	7471B
Q1216-07	JPP-21.1-012825	Solid	Mercury	Cool 4 deg C	RUTW01	E11	01/28/2025	7471B
Q1216-11	JPP-21.2-012825	Solid	Mercury	Cool 4 deg C	RUTW01	E11	01/28/2025	7471B
Q1216-15	JPP-26.1-012825	Solid	Mercury	Cool 4 deg C	RUTW01	E11	01/28/2025	7471B
Q1216-19	JPP-26.2-012825	Solid	Mercury	Cool 4 deg C	RUTW01	E11	01/28/2025	7471B
Q1232-03	JPP-46.2-012925	Solid	Mercury	Cool 4 deg C	RUTW01	E11	01/28/2025	7471B
Q1232-07	JPP-46.1-012925	Solid	Mercury	Cool 4 deg C	RUTW01	E11	01/29/2025	7471B
Q1232-11	JPP-42.1-012925	Solid	Mercury	Cool 4 deg C	RUTW01	E11	01/29/2025	7471B
Q1232-15	JPP-42.2-012925	Solid	Mercury	Cool 4 deg C	RUTW01	E11	01/29/2025	7471B
Q1232-19	JPP-51.1-012925	Solid	Mercury	Cool 4 deg C	RUTW01	E11	01/29/2025	7471B
Q1235-03	JPP-51.2-012925	Solid	Mercury	Cool 4 deg C	RUTW01	E11	01/29/2025	7471B
Q1235-07	JPP-16.1-012925	Solid	Mercury	Cool 4 deg C	RUTW01	E11	01/29/2025	7471B
Q1218-01	BELL-25-002	Solid	Mercury	Cool 4 deg C	RUTW01	E11	01/29/2025	7471B
Q1219-01	LAW-25-0015	Solid	Mercury	Cool 4 deg C	PSEG03	N41	01/29/2025	7471B
Q1221-01	CHESTNUT-CONCRETE	Solid	Mercury	Cool 4 deg C	PSEG03	N41	01/29/2025	7471B
Q1239-01	286	Solid	Mercury	Cool 4 deg C	PSEG03	N41	01/29/2025	7471B
Q1239-04	348	Solid	Mercury	Cool 4 deg C	PSEG03	N31	01/30/2025	7471B
Q1239-07	RBR22266	Solid	Mercury	Cool 4 deg C	PSEG03	N31	01/30/2025	7471B
Q1239-10	357	Solid	Mercury	Cool 4 deg C	PSEG03	N31	01/30/2025	7471B
Q1220-01	TR-06-01292025	Solid	Mercury	Cool 4 deg C	PSEG05	N41	01/29/2025	7471B

Date/Time 1/30/25 @ 16:20

Raw Sample Received by: [illegible]

Raw Sample Relinquished by: [illegible]

Date/Time 1/30/25 @ 12:10

Raw Sample Received by: [illegible]

Raw Sample Relinquished by: [illegible]

PERCENT SOLID

Supervisor: Iwona
Analyst: jignesh
Date: 1/31/2025

OVENTEMP IN Celsius(°C): 107
Time IN: 16:45
In Date: 01/30/2025
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
OvenID: M OVEN#1

OVENTEMP OUT Celsius(°C): 103
Time OUT: 08:14
Out Date: 01/31/2025
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
BalanceID: M SC-4
Thermometer ID: % SOLID- OVEN

QC: LB134481

Lab ID	Client SampleID	Dish #	Dish Wt(g) (A)	Sample Wt(g)	Dish + Sample Wt(g) (B)	Dish+Dry Sample Wt(g) (C)	% Solid	Comments
Q1215-01	JPP-29.1-012825	1	1.15	8.54	9.69	8.75	89.0	
Q1215-03	JPP-29.1-012825	2	1.16	8.48	9.64	8.69	88.8	
Q1215-05	JPP-29.2-012825	3	1.19	8.70	9.89	8.77	87.1	
Q1215-07	JPP-29.2-012825	4	1.15	8.63	9.78	8.81	88.8	
Q1216-01	JPP-18.1-012825	5	1.19	8.45	9.64	8.05	81.2	
Q1216-03	JPP-18.1-012825	6	1.16	8.82	9.98	8.51	83.3	
Q1216-05	JPP-21.1-012825	7	1.15	8.40	9.55	8.83	91.4	
Q1216-07	JPP-21.1-012825	8	1.15	8.75	9.9	9.06	90.4	
Q1216-09	JPP-21.2-012825	9	1.19	8.42	9.61	8.29	84.3	
Q1216-11	JPP-21.2-012825	10	1.15	8.36	9.51	8.2	84.3	
Q1216-13	JPP-26.1-012825	11	1.19	8.46	9.65	7.87	79.0	
Q1216-15	JPP-26.1-012825	12	1.17	8.76	9.93	8.42	82.8	
Q1216-17	JPP-26.2-012825	13	1.16	8.63	9.79	8.52	85.3	
Q1216-19	JPP-26.2-012825	14	1.17	8.51	9.68	8.47	85.8	
Q1232-01	JPP-46.2-012925	15	1.12	8.77	9.89	8.99	89.7	
Q1232-03	JPP-46.2-012925	16	1.15	8.37	9.52	8.62	89.2	
Q1232-05	JPP-46.1-012925	17	1.17	8.50	9.67	9.14	93.8	
Q1232-07	JPP-46.1-012925	18	1.15	8.72	9.87	9.35	94.0	
Q1232-09	JPP-42.1-012925	19	1.14	8.37	9.51	8.56	88.6	
Q1232-11	JPP-42.1-012925	20	1.19	8.43	9.62	8.62	88.1	
Q1232-13	JPP-42.2-012925	21	1.15	8.50	9.65	8.98	92.1	
Q1232-15	JPP-42.2-012925	22	1.15	8.37	9.52	8.95	93.2	
Q1232-17	JPP-51.1-012925	23	1.19	8.42	9.61	9.14	94.4	
Q1232-19	JPP-51.1-012925	24	1.12	8.75	9.87	9.44	95.1	
Q1233-01	WIPE-1	25	1.00	1.00	2.00	2.00	100.0	WIPE SAMPLE
Q1233-02	WIPE-2	26	1.00	1.00	2.00	2.00	100.0	WIPE SAMPLE
Q1235-01	JPP-51.2-012925	27	1.15	8.60	9.75	8.99	91.2	
Q1235-03	JPP-51.2-012925	28	1.15	8.51	9.66	8.96	91.8	

Alliance TECHNICAL GROUP

PERCENT SOLID

Supervisor: Iwona
Analyst: jignesh
Date: 1/31/2025

OVENTEMP IN Celsius(°C): 107
Time IN: 16:45
In Date: 01/30/2025
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
OvenID: M OVEN#1

OVENTEMP OUT Celsius(°C): 103
Time OUT: 08:14
Out Date: 01/31/2025
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
BalanceID: M SC-4
Thermometer ID: % SOLID- OVEN

QC: LB134481

Lab ID	Client SampleID	Dish #	Dish Wt(g) (A)	Sample Wt(g)	Dish + Sample Wt(g) (B)	Dish+Dry Sample Wt(g) (C)	% Solid	Comments
Q1235-05	JPP-16.1-012925	29	1.15	8.75	9.9	8.94	89.0	
Q1235-07	JPP-16.1-012925	30	1.12	8.77	9.89	8.94	89.2	
Q1237-01	HL6PX1	31	1.16	8.53	9.69	9.27	95.1	
Q1237-02	HL6PX2	32	1.16	8.70	9.86	9.28	93.3	
Q1237-03	HL6PX3	33	1.15	8.82	9.97	9.27	92.1	
Q1237-04	HL6PX4	34	1.15	8.78	9.93	9.43	94.3	
Q1237-05	HL6PX5	35	1.17	8.54	9.71	9.33	95.6	
Q1237-06	HL6PX6	36	1.17	8.57	9.74	9.07	92.2	
Q1239-01	286	37	1.14	8.49	9.63	8.68	88.8	
Q1239-04	348	38	1.14	8.83	9.97	9.00	89.0	
Q1239-07	RBR22266	39	1.17	8.74	9.91	9.00	89.6	
Q1239-10	357	40	1.16	8.80	9.96	8.62	84.8	
Q1240-01	MEG-OIL	41	1.00	1.00	2.00	2.00	100.0	oil sample

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

WORKLIST(Hardcopy Internal Chain)

(B 13448)

WorkList Name : %1-013025 **WorkList ID :** 187270 **Department :** Wet-Chemistry **Date :** 01-30-2025 07:55:51

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q1215-01	JPP-29.1-012825	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/28/2025	Chemtech -SO
Q1215-03	JPP-29.1-012825	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/28/2025	Chemtech -SO
Q1215-05	JPP-29.2-012825	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/28/2025	Chemtech -SO
Q1215-07	JPP-29.2-012825	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/28/2025	Chemtech -SO
Q1216-01	JPP-18.1-012825	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/28/2025	Chemtech -SO
Q1216-03	JPP-18.1-012825	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/28/2025	Chemtech -SO
Q1216-05	JPP-21.1-012825	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/28/2025	Chemtech -SO
Q1216-07	JPP-21.1-012825	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/28/2025	Chemtech -SO
Q1216-09	JPP-21.2-012825	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/28/2025	Chemtech -SO
Q1216-11	JPP-21.2-012825	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/28/2025	Chemtech -SO
Q1216-13	JPP-26.1-012825	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/28/2025	Chemtech -SO
Q1216-15	JPP-26.1-012825	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/28/2025	Chemtech -SO
Q1216-17	JPP-26.2-012825	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/28/2025	Chemtech -SO
Q1216-19	JPP-26.2-012825	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/28/2025	Chemtech -SO
Q1232-01	JPP-46.2-012925	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/28/2025	Chemtech -SO
Q1232-03	JPP-46.2-012925	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/29/2025	Chemtech -SO
Q1232-05	JPP-46.1-012925	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/29/2025	Chemtech -SO
Q1232-07	JPP-46.1-012925	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/29/2025	Chemtech -SO
Q1232-09	JPP-42.1-012925	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/29/2025	Chemtech -SO
Q1232-11	JPP-42.1-012925	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/29/2025	Chemtech -SO
Q1232-13	JPP-42.2-012925	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/29/2025	Chemtech -SO

Date/Time 01/30/25 1520

Raw Sample Received by: SB WLC

Raw Sample Relinquished by: CJSM

Date/Time 01/30/25 1710

Raw Sample Received by: CF SB

Raw Sample Relinquished by: SB WLC

WORKLIST(Hardcopy Internal Chain)

JB 134481

WorkList Name : %1-013025 **WorkList ID :** 187270 **Department :** Wet-Chemistry **Date :** 01-30-2025 07:55:51

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q1232-15	JPP-42.2-012925	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/29/2025	Chemtech -SO
Q1232-17	JPP-51.1-012925	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/29/2025	Chemtech -SO
Q1232-19	JPP-51.1-012925	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/29/2025	Chemtech -SO
Q1233-01	WIPE-1	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/29/2025	Chemtech -SO
Q1233-02	WIPE-2	Solid	Percent Solids	Cool 4 deg C	PSEG03	N41	01/30/2025	Chemtech -SO
Q1235-01	JPP-51.2-012925	Solid	Percent Solids	Cool 4 deg C	PSEG03	N41	01/30/2025	Chemtech -SO
Q1235-03	JPP-51.2-012925	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/29/2025	Chemtech -SO
Q1235-05	JPP-16.1-012925	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/29/2025	Chemtech -SO
Q1235-07	JPP-16.1-012925	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/29/2025	Chemtech -SO
Q1237-01	HL6PX1	Solid	Percent Solids	Cool 4 deg C	RUTW01	E11	01/29/2025	Chemtech -SO
Q1237-02	HL6PX2	Solid	Percent Solids	Cool 4 deg C	GENV01	N31	01/30/2025	Chemtech -SO
Q1237-03	HL6PX3	Solid	Percent Solids	Cool 4 deg C	GENV01	N31	01/30/2025	Chemtech -SO
Q1237-04	HL6PX4	Solid	Percent Solids	Cool 4 deg C	GENV01	N31	01/30/2025	Chemtech -SO
Q1237-05	HL6PX5	Solid	Percent Solids	Cool 4 deg C	GENV01	N31	01/30/2025	Chemtech -SO
Q1237-06	HL6PX6	Solid	Percent Solids	Cool 4 deg C	GENV01	N31	01/30/2025	Chemtech -SO
Q1239-01	286	Solid	Percent Solids	Cool 4 deg C	GENV01	N31	01/30/2025	Chemtech -SO
Q1239-04	348	Solid	Percent Solids	Cool 4 deg C	PSEG03	N31	01/30/2025	Chemtech -SO
Q1239-07	RBR22266	Solid	Percent Solids	Cool 4 deg C	PSEG03	N31	01/30/2025	Chemtech -SO
Q1239-10	357	Solid	Percent Solids	Cool 4 deg C	PSEG03	N31	01/30/2025	Chemtech -SO
Q1240-01	MEG-OIL	Solid	Percent Solids	Cool 4 deg C	PSEG03	N41	01/30/2025	Chemtech -SO

Date/Time 01/30/25 1512 0

Raw Sample Received by: JB WdC

Raw Sample Relinquished by: CF SM

Date/Time 01/30/25 1710

Raw Sample Received by: CF SM

Raw Sample Relinquished by: JB WdC

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

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QCBatch ID # LB134501

Review By	jaswal	Review On	1/31/2025 7:52:36 PM
Supervise By	mohan	Supervise On	1/31/2025 7:53:24 PM

STD. NAME	STD REF.#
ICAL Standard	MP84274,MP84276,MP84277,MP84278,MP84279,MP84280
ICV Standard	MP84281
CCV Standard	MP84283
ICSA Standard	
CRI Standard	MP84285
LCS Standard	
Chk Standard	MP84282,MP84284,MP84286,MP84313

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	01/31/25 12:47		Mohan	OK
2	S0.2	S0.2	CAL2	01/31/25 12:49		Mohan	OK
3	S2.5	S2.5	CAL3	01/31/25 12:52		Mohan	OK
4	S5	S5	CAL4	01/31/25 12:54		Mohan	OK
5	S7.5	S7.5	CAL5	01/31/25 12:56		Mohan	OK
6	S10	S10	CAL6	01/31/25 13:01		Mohan	OK
7	ICV77	ICV77	ICV	01/31/25 13:15		Mohan	OK
8	ICB77	ICB77	ICB	01/31/25 13:17		Mohan	OK
9	CCV92	CCV92	CCV	01/31/25 13:19		Mohan	OK
10	CCB92	CCB92	CCB	01/31/25 13:21		Mohan	OK
11	CRA	CRA	CRDL	01/31/25 13:24		Mohan	OK
12	HighStd	HighStd	HIGH STD	01/31/25 13:26		Mohan	OK
13	ChkStd	ChkStd	SAM	01/31/25 13:28		Mohan	OK
14	PB166402BL	PB166402BL	MB	01/31/25 13:31		Mohan	OK
15	PB166402BS	PB166402BS	LCS	01/31/25 13:33		Mohan	OK
16	Q1216-03	JPP-18.1-012825	SAM	01/31/25 13:35		Mohan	OK
17	Q1216-07	JPP-21.1-012825	SAM	01/31/25 13:38		Mohan	OK
18	Q1216-11	JPP-21.2-012825	SAM	01/31/25 13:40		Mohan	OK

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Instrument ID: CV1

Daily Analysis Runlog For Sequence/QCBatch ID # LB134501

Review By	jaswal	Review On	1/31/2025 7:52:36 PM
Supervise By	mohan	Supervise On	1/31/2025 7:53:24 PM

STD. NAME	STD REF.#
ICAL Standard	MP84274,MP84276,MP84277,MP84278,MP84279,MP84280
ICV Standard	MP84281
CCV Standard	MP84283
ICSA Standard	
CRI Standard	MP84285
LCS Standard	
Chk Standard	MP84282,MP84284,MP84286,MP84313

19	Q1216-15	JPP-26.1-012825	SAM	01/31/25 13:42		Mohan	OK
20	Q1216-19	JPP-26.2-012825	SAM	01/31/25 13:45	High	Mohan	Dilution
21	CCV93	CCV93	CCV	01/31/25 13:47		Mohan	OK
22	CCB93	CCB93	CCB	01/31/25 13:49		Mohan	OK
23	Q1218-01	BELL-25-002	SAM	01/31/25 13:52		Mohan	OK
24	Q1219-01	LAW-25-0015	SAM	01/31/25 13:54		Mohan	OK
25	Q1220-01	TR-06-01292025	SAM	01/31/25 13:56		Mohan	OK
26	Q1221-01	CHESTNUT-CONCRE	SAM	01/31/25 13:59		Mohan	OK
27	Q1232-03	JPP-46.2-012925	SAM	01/31/25 14:01		Mohan	OK
28	Q1232-07	JPP-46.1-012925	SAM	01/31/25 14:03		Mohan	OK
29	Q1232-11	JPP-42.1-012925	SAM	01/31/25 14:05		Mohan	OK
30	Q1232-15	JPP-42.2-012925	SAM	01/31/25 14:08		Mohan	OK
31	Q1232-19	JPP-51.1-012925	SAM	01/31/25 14:10	High	Mohan	Dilution
32	Q1235-03	JPP-51.2-012925	SAM	01/31/25 14:12		Mohan	OK
33	CCV94	CCV94	CCV	01/31/25 14:15		Mohan	OK
34	CCB94	CCB94	CCB	01/31/25 14:17		Mohan	OK
35	Q1235-07	JPP-16.1-012925	SAM	01/31/25 14:19		Mohan	OK
36	Q1235-07DUP	JPP-16.1-012925DUP	DUP	01/31/25 14:22		Mohan	OK
37	Q1235-07MS	JPP-16.1-012925MS	MS	01/31/25 14:24		Mohan	OK
38	Q1235-07MSD	JPP-16.1-012925MSD	MSD	01/31/25 14:26		Mohan	OK

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Instrument ID: CV1

Daily Analysis Runlog For Sequence/QCBatch ID # LB134501

Review By	jaswal	Review On	1/31/2025 7:52:36 PM
Supervise By	mohan	Supervise On	1/31/2025 7:53:24 PM

STD. NAME	STD REF.#
ICAL Standard	MP84274,MP84276,MP84277,MP84278,MP84279,MP84280
ICV Standard	MP84281
CCV Standard	MP84283
ICSA Standard	
CRI Standard	MP84285
LCS Standard	
Chk Standard	MP84282,MP84284,MP84286,MP84313

39	Q1239-01	286	SAM	01/31/25 14:29		Mohan	OK
40	Q1239-04	348	SAM	01/31/25 14:31		Mohan	OK
41	Q1239-07	RBR22266	SAM	01/31/25 14:33		Mohan	OK
42	Q1239-10	357	SAM	01/31/25 14:36		Mohan	OK
43	Q1235-07L	JPP-16.1-012925L	SD	01/31/25 14:38		Mohan	OK
44	Q1235-07A	JPP-16.1-012925A	PS	01/31/25 14:40		Mohan	OK
45	CCV95	CCV95	CCV	01/31/25 14:42		Mohan	OK
46	CCB95	CCB95	CCB	01/31/25 14:45		Mohan	OK
47	Q1216-19DL	JPP-26.2-012825DL	SAM	01/31/25 14:47	Report 5X	Mohan	Confirms
48	Q1232-19DL	JPP-51.1-012925DL	SAM	01/31/25 14:49	Report 5X	Mohan	Confirms
49	CCV96	CCV96	CCV	01/31/25 14:52		Mohan	OK
50	CCB96	CCB96	CCB	01/31/25 14:54		Mohan	OK

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Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB134505

Review By	kareem	Review On	2/2/2025 12:14:49 PM
Supervise By	Jaswal	Supervise On	2/4/2025 1:28:19 PM

STD. NAME	STD REF.#
ICAL Standard	MP84204,MP84223,MP84224,MP84225,MP84226,MP84228
ICV Standard	MP84229
CCV Standard	MP84232
ICSA Standard	MP84230,MP84231
CRI Standard	MP84228
LCS Standard	
Chk Standard	MP84218,MP84219

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	01/31/25 10:57		Kareem	OK
2	S1	S1	CAL2	01/31/25 11:02		Kareem	OK
3	S2	S2	CAL3	01/31/25 11:06		Kareem	OK
4	S3	S3	CAL4	01/31/25 11:10		Kareem	OK
5	S4	S4	CAL5	01/31/25 11:15		Kareem	OK
6	S5	S5	CAL6	01/31/25 11:19		Kareem	OK
7	ICV01	ICV01	ICV	01/31/25 11:23	Ba,Mg,Mn,Na (200.7)	Kareem	OK
8	LLICV01	LLICV01	LLICV	01/31/25 11:27		Kareem	OK
9	ICB01	ICB01	ICB	01/31/25 11:32		Kareem	OK
10	CRI01	CRI01	CRDL	01/31/25 11:36		Kareem	OK
11	ICSA01	ICSA01	ICSA	01/31/25 11:47		Kareem	OK
12	ICSAB01	ICSAB01	ICSAB	01/31/25 11:53		Kareem	OK
13	ICSADL	ICSADL	ICSA	01/31/25 11:57		Kareem	OK
14	ICSABDL	ICSABDL	ICSAB	01/31/25 12:02		Kareem	OK
15	CCV01	CCV01	CCV	01/31/25 12:16		Kareem	OK
16	CCB01	CCB01	CCB	01/31/25 12:20		Kareem	OK
17	Q1239-01	286	SAM	01/31/25 12:24		Kareem	OK
18	Q1239-04	348	SAM	01/31/25 12:28		Kareem	OK

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Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB134505

Review By	kareem	Review On	2/2/2025 12:14:49 PM
Supervise By	Jaswal	Supervise On	2/4/2025 1:28:19 PM

STD. NAME	STD REF.#
ICAL Standard	MP84204,MP84223,MP84224,MP84225,MP84226,MP84228
ICV Standard	MP84229
CCV Standard	MP84232
ICSA Standard	MP84230,MP84231
CRI Standard	MP84228
LCS Standard	
Chk Standard	MP84218,MP84219

19	Q1239-07	RBR22266	SAM	01/31/25 12:32		Kareem	OK
20	Q1239-10	357	SAM	01/31/25 12:37		Kareem	OK
21	Q1239-10DUP	357DUP	DUP	01/31/25 12:41		Kareem	OK
22	Q1239-10L	357L	SD	01/31/25 12:45		Kareem	OK
23	Q1239-10MS	357MS	MS	01/31/25 12:49	0.1 ML M6010 AND M6001 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
24	Q1239-10MSD	357MSD	MSD	01/31/25 12:53	0.1 ML M6010 AND M6001 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
25	Q1239-10A	357A	PS	01/31/25 12:57	0.1 ML M6010 AND M6001 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
26	Q1240-01	MEG-OIL	SAM	01/31/25 13:01		Kareem	OK
27	CCV02	CCV02	CCV	01/31/25 13:06		Kareem	OK
28	CCB02	CCB02	CCB	01/31/25 13:10		Kareem	OK
29	PB166392BL	PB166392BL	MB	01/31/25 13:14		Kareem	OK
30	PB166392BS	PB166392BS	LCS	01/31/25 13:18	0.1 ML M6010 AND M6001 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
31	Q1232-03	JPP-46.2-012925	SAM	01/31/25 13:22		Kareem	OK
32	Q1232-07	JPP-46.1-012925	SAM	01/31/25 13:27		Kareem	OK
33	Q1232-11	JPP-42.1-012925	SAM	01/31/25 13:31		Kareem	OK
34	Q1232-15	JPP-42.2-012925	SAM	01/31/25 13:35		Kareem	OK

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Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB134505

Review By	kareem	Review On	2/2/2025 12:14:49 PM
Supervise By	Jaswal	Supervise On	2/4/2025 1:28:19 PM

STD. NAME	STD REF.#
ICAL Standard	MP84204,MP84223,MP84224,MP84225,MP84226,MP84228
ICV Standard	MP84229
CCV Standard	MP84232
ICSA Standard	MP84230,MP84231
CRI Standard	MP84228
LCS Standard	
Chk Standard	MP84218,MP84219

35	Q1232-19	JPP-51.1-012925	SAM	01/31/25 13:39		Kareem	OK
36	Q1235-03	JPP-51.2-012925	SAM	01/31/25 13:44		Kareem	OK
37	Q1235-07	JPP-16.1-012925	SAM	01/31/25 13:48		Kareem	OK
38	Q1235-07DUP	JPP-16.1-012925DUP	DUP	01/31/25 13:52		Kareem	OK
39	CCV03	CCV03	CCV	01/31/25 13:57		Kareem	OK
40	CCB03	CCB03	CCB	01/31/25 14:01		Kareem	OK
41	Q1235-07L	JPP-16.1-012925L	SD	01/31/25 14:05		Kareem	OK
42	Q1235-07MS	JPP-16.1-012925MS	MS	01/31/25 14:09	0.1 ML M6010 AND M6001 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
43	Q1235-07MSD	JPP-16.1-012925MSD	MSD	01/31/25 14:14	0.1 ML M6010 AND M6001 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
44	Q1235-07A	JPP-16.1-012925A	PS	01/31/25 14:18	0.1 ML M6010 AND M6001 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
45	PB166387BL	PB166387BL	MB	01/31/25 14:22		Kareem	OK
46	PB166387BS	PB166387BS	LCS	01/31/25 14:26	0.1 ML M6010 AND M6001 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
47	Q1214-01	PARAMUS-CONDENS	SAM	01/31/25 14:30		Kareem	OK
48	Q1214-01DUP	PARAMUS-CONDENS	DUP	01/31/25 14:35		Kareem	OK
49	Q1214-01L	PARAMUS-CONDENS	SD	01/31/25 14:39		Kareem	OK
50	Q1214-01MS	PARAMUS-CONDENS	MS	01/31/25 14:43	0.1 ML M6010 AND M6001 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK

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Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB134505

Review By	kareem	Review On	2/2/2025 12:14:49 PM
Supervise By	Jaswal	Supervise On	2/4/2025 1:28:19 PM

STD. NAME	STD REF.#
ICAL Standard	MP84204,MP84223,MP84224,MP84225,MP84226,MP84228
ICV Standard	MP84229
CCV Standard	MP84232
ICSA Standard	MP84230,MP84231
CRI Standard	MP84228
LCS Standard	
Chk Standard	MP84218,MP84219

51	CCV04	CCV04	CCV	01/31/25 14:47		Kareem	OK
52	CCB04	CCB04	CCB	01/31/25 14:52		Kareem	OK
53	Q1214-01MSD	PARAMUS-CONDEN	MSD	01/31/25 14:56	0.1 ML M6010 AND M6001 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
54	Q1214-01A	PARAMUS-CONDEN	PS	01/31/25 15:00	0.1 ML M6010 AND M6001 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
55	PB166377BL	PB166377BL	MB	01/31/25 15:04		Kareem	OK
56	PB166377BS	PB166377BS	LCS	01/31/25 15:08	0.1 ML M6010 AND M6001 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
57	LR1	LR1	HIGH STD	01/31/25 15:15		Kareem	OK
58	LR2	LR2	HIGH STD	01/31/25 15:20		Kareem	OK
59	CCV05	CCV05	CCV	01/31/25 15:25		Kareem	OK
60	CCB05	CCB05	CCB	01/31/25 15:29		Kareem	OK

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Prep Standard - Chemical Standard Summary

Order ID : Q1235

Test : Mercury,Metals ICP-TAL

Prepbatch ID : PB166387,PB166402,

Sequence ID/Qc Batch ID: LB134501,LB134505,

Standard ID :
MP83692,MP83694,MP84041,MP84204,MP84218,MP84219,MP84223,MP84224,MP84225,MP84226,MP84227,MP84228,MP84229,MP84230,MP84231,MP84232,MP84273,MP84274,MP84276,MP84277,MP84278,MP84279,MP84280,MP84281,MP84282,MP84283,MP84284,MP84285,MP84286,MP84287,MP84313,

Chemical ID :
M4371,M4583,M4884,M4916,M5062,M5130,M5192,M5218,M5223,M5288,M5295,M5298,M5393,M5429,M5467,M5472,M5496,M5497,M5532,M5585,M5658,M5697,M5747,M5748,M5798,M5799,M5800,M5801,M5802,M5814,M5815,M5816,M5817,M5819,M5820,M5875,M5882,M5884,M5959,M5962,M5970,M5978,M5985,M6002,M6011,M6021,M6023,M6028,M6030,M6032,M6077,M6121,M6125,M6126,M6127,M6128,M6144,W3112,

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
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

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

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

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
169	1:1HNO3	MP84041	01/14/2025	07/14/2025	Eman Mughal	None	None	Sarabjit Jaswal 01/16/2025

FROM 1250.00000ml of M6126 + 1250.00000ml of W3112 = Final Quantity: 2500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP84204	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/27/2025

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

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
919	ICP AES INTERNAL STD	MP84218	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/27/2025

FROM 1.00000ml of M5959 + 10.00000ml of M5985 + 1969.00000ml of W3112 + 20.00000ml of M6126 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
903	ICP AES RINSE SOLN	MP84219	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/27/2025

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

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
907	ICP AES STD S (S5)	MP84223	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/28/2025

FROM 5.00000ml of M5393 + 5.00000ml of M5467 + 5.00000ml of M5472 + 5.00000ml of M5802 + 5.00000ml of M5816 + 5.00000ml of M5820 + 5.00000ml of M5875 + 5.00000ml of M5970 + 5.00000ml of M6077 + 455.00000ml of MP84204 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
910	ICP AES STD S4	MP84224	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/28/2025

FROM 50.00000ml of MP84204 + 50.00000ml of MP84223 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
909	ICP AES STD S3	MP84225	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/28/2025

FROM 25.00000ml of MP84223 + 75.00000ml of MP84204 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3913	ICP AES STD S2	MP84226	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/28/2025

FROM 16.00000ml of MP84223 + 184.00000ml of MP84204 = Final Quantity: 200.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2950	ICP AES S1/CRI STOCK STD	MP84227	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/28/2025

FROM 0.00200ml of M5816 + 0.00400ml of M5978 + 0.03000ml of M5798 + 0.03000ml of M6028 + 0.05000ml of M5298 + 0.05000ml of M5496 + 0.05000ml of M5658 + 0.05000ml of M6030 + 0.06000ml of M5747 + 0.10000ml of M5472 + 0.10000ml of M5697 + 0.10000ml of M5801 + 0.10000ml of M5962 + 0.10000ml of M5970 + 0.10000ml of M6128 + 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 M5814 + 0.50000ml of M6032 + 1.00000ml of M5192 + 1.00000ml of M5288 + 1.00000ml of M5497 + 1.00000ml of M6127 + 1.00000ml of M6144 + 2.00000ml of M4884 + 77.68000ml of MP84204 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2951	ICP AES S1/CRI WORK STD	MP84228	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/28/2025

FROM 2.00000ml of MP84227 + 98.00000ml of MP84204 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
912	ICP AES ICV SOLN	MP84229	01/24/2025	02/05/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/28/2025

FROM 0.02500ml of M5429 + 0.02500ml of M5815 + 0.02500ml of M5817 + 0.10000ml of M5467 + 0.25000ml of M5218 + 0.25000ml of M5472 + 10.00000ml of M5295 + 89.77500ml of MP84204 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
904	ICP AES ICSA SOLN	MP84230	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/28/2025

FROM 25.00000ml of M5130 + 225.00000ml of MP84204 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3494	ICP AES ICSAB SOLN-1	MP84231	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/28/2025

FROM 0.01000ml of M5815 + 0.01000ml of M5817 + 0.10000ml of M5472 + 0.10000ml of M5970 + 0.10000ml of M6077 + 10.00000ml of M5130 + 10.00000ml of M5223 + 79.50000ml of MP84204 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
911	ICP AES CCV SOLN	MP84232	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 01/28/2025

FROM 50.00000ml of MP84204 + 50.00000ml of MP84223 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP84273	01/30/2025	01/31/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/31/2025

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

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1340	Hg 0.00 PPB STD	MP84274	01/30/2025	01/31/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/31/2025

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

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1341	Hg 0.2 PPB STD	MP84276	01/30/2025	01/31/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/31/2025

FROM 2.50000ml of M6126 + 247.30000ml of W3112 + 0.20000ml of MP84273 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1342	Hg 2.5 PPB STD	MP84277	01/30/2025	01/31/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/31/2025

FROM 2.50000ml of M6126 + 245.00000ml of W3112 + 2.50000ml of MP84273 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1343	Hg 5.0 PPB STD	MP84278	01/30/2025	01/31/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/31/2025

FROM 2.50000ml of M6126 + 242.50000ml of W3112 + 5.00000ml of MP84273 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1344	Hg 7.5 PPB STD	MP84279	01/30/2025	01/31/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/31/2025

FROM 2.50000ml of M6126 + 240.00000ml of W3112 + 7.50000ml of MP84273 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1345	Hg 10.0 PPB STD	MP84280	01/30/2025	01/31/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/31/2025

FROM 2.50000ml of M6126 + 237.50000ml of W3112 + 10.00000ml of MP84273 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1346	Hg ICV SOLUTION	MP84281	01/30/2025	01/31/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/31/2025

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

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1351	ICB (Hg 0.00 PPB SOLUTION)	MP84282	01/30/2025	01/31/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/31/2025

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

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1358	CCV (Hg 5.0 PPB SOLUTION)	MP84283	01/30/2025	01/31/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/31/2025

FROM 485.00000ml of W3112 + 5.00000ml of M6126 + 10.00000ml of MP84273 = Final Quantity: 500.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1352	CCB (Hg 0.00 PPB SOLUTION)	MP84284	01/30/2025	01/31/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/31/2025

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

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1349	CRA/CRI (Hg 0.2 PPB SOLUTION)	MP84285	01/30/2025	01/31/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/31/2025

FROM 2.50000ml of M6126 + 247.30000ml of W3112 + 0.20000ml of MP84273 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1350	CHK STD (Hg 7.0 PPB SOLUTION)	MP84286	01/30/2025	01/31/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 01/31/2025

FROM 2.50000ml of M6126 + 240.50000ml of W3112 + 7.00000ml of MP84273 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
887	AQUA REGIA FOR HG ON 7471A	MP84287	01/30/2025	01/31/2025	Mohan Bera	None	None	Sarabjit Jaswal 01/31/2025

FROM 150.00000ml of M6121 + 50.00000ml of M6126 = Final Quantity: 200.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
68	STANNOUS CHLORIDE SOLUTION	MP84313	01/31/2025	02/01/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 02/04/2025

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 #
Labpure	0919120 / Boiling Stones	26275770	07/07/2025	07/03/2020 / mohan	05/07/2020 / mohan	M4583

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57014 / Si, 1000 PPM, 125 ml	030921	03/09/2025	08/06/2021 / jaswal	08/05/2021 / jaswal	M4884

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

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CHEMICAL RECEIPT LOG BOOK

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

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 #
Absolute Standards, Inc.	58126 / Fe, 10000 PPM, 500 ml	020422	02/04/2025	05/02/2023 / jaswal	06/15/2022 / jaswal	M5298

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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	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.	57038 / Sr, 1000 PPM, 125 ml	082922	08/29/2025	01/14/2025 / Jaswal	03/16/2023 / jaswal	M5472

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

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-5 / ICV (HG) STOCK SOLN	ICV5-0415	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 #
PCI Scientific Supply, Inc.	26397-103 / PTFE BOILING STONES	W126678	02/28/2025	01/20/2024 / jaswal	06/12/2023 / jaswal	M5585

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.	/ Lead (Pb) 1000PPM	100923	10/09/2026	05/20/2024 / Jaswal	12/20/2023 / jaswal	M5747

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

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CHEMICAL RECEIPT LOG BOOK

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

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.	57005 / B, 1000 PPM, 125 ml	071123	07/11/2026	03/26/2024 / Sohil	01/03/2024 / jaswal	M5814

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CHEMICAL RECEIPT LOG BOOK

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

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

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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-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

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

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CHEMICAL RECEIPT LOG BOOK

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

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 / Tl, 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

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CHEMICAL RECEIPT LOG BOOK

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

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	010924	01/09/2027	01/14/2025 / Jaswal	08/05/2024 / Jaswal	M6032

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	V2-MEB746762	09/06/2029	01/23/2025 / kareem	09/19/2024 / kareem	M6077

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 #
PCI Scientific Supply, Inc.	1403 / Hydrogen Peroxide, 30% 1 gal	820803	05/25/2025	11/26/2024 / Eman	11/22/2024 / Eman	M6125

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

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

CHEMICAL RECEIPT LOG BOOK

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	112124	11/21/2027	01/13/2025 / kareem	01/13/2025 / kareem	M6127

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	101124	10/11/2027	01/13/2025 / kareem	01/13/2025 / kareem	M6128

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	072424	07/24/2027	01/23/2025 / kareem	01/13/2025 / Jaswal	M6144

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

ThermoFisher SCIENTIFIC

M5882 M3

Certificate of Analysis

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

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

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

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

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

Harout Sahagian - Quality Control Supervisor - Fair Lawn

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

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M6032

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

R 8/5/24

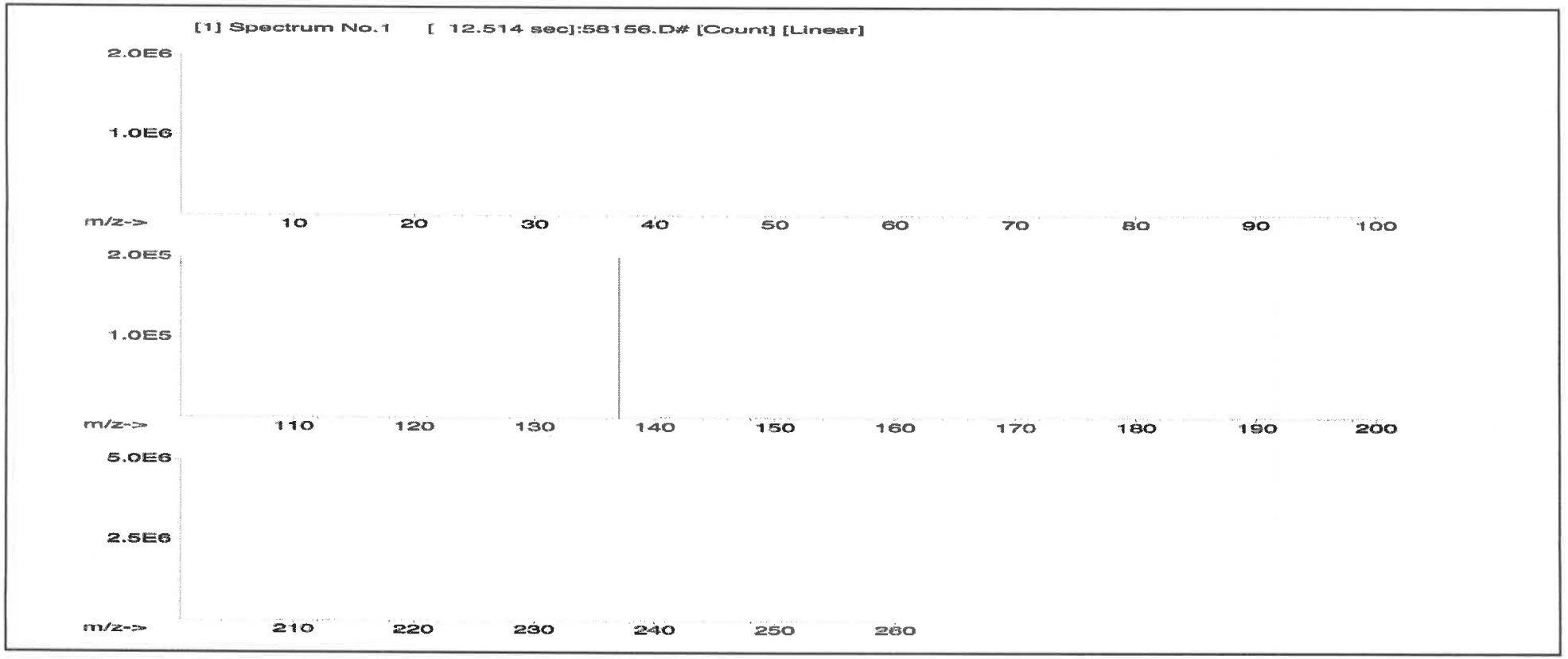
CERTIFIED WEIGHT REPORT:

Part Number:	**57056**		**Solvent:**	24002546	Nitric Acid
Lot Number:	**010924**				
Description:	**Barium (Ba)**			2%	40.0 (mL) Nitric Acid
Expiration Date:	010927				
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):	2000.02	0.058	Flask Uncertainty		

Lot #

Giovanni Esposito		
Formulated By:	Giovanni Esposito	010924
Pedro Rentas		
Reviewed By:	Pedro L. Rentas	010924

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Barium nitrate (Ba)	IN023	BAD022019A1	1000	99.999	0.10	52.3	3.82417	3.82441	**1000.1**	**2.0**	10022-31-8	0.5 mg/m3	orl-rat 355 mg/kg	3104a



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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	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	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	<0.2	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 certifed (+/-) 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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Certified Reference Material CRM

M6028

R 8/15/24

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CERTIFIED WEIGHT REPORT:

Part Number: 57048
Lot Number: 070124
Description: Cadmium (Cd)

Expiration Date: 070127
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 2000.07 ± 0.100 Flask Uncertainty

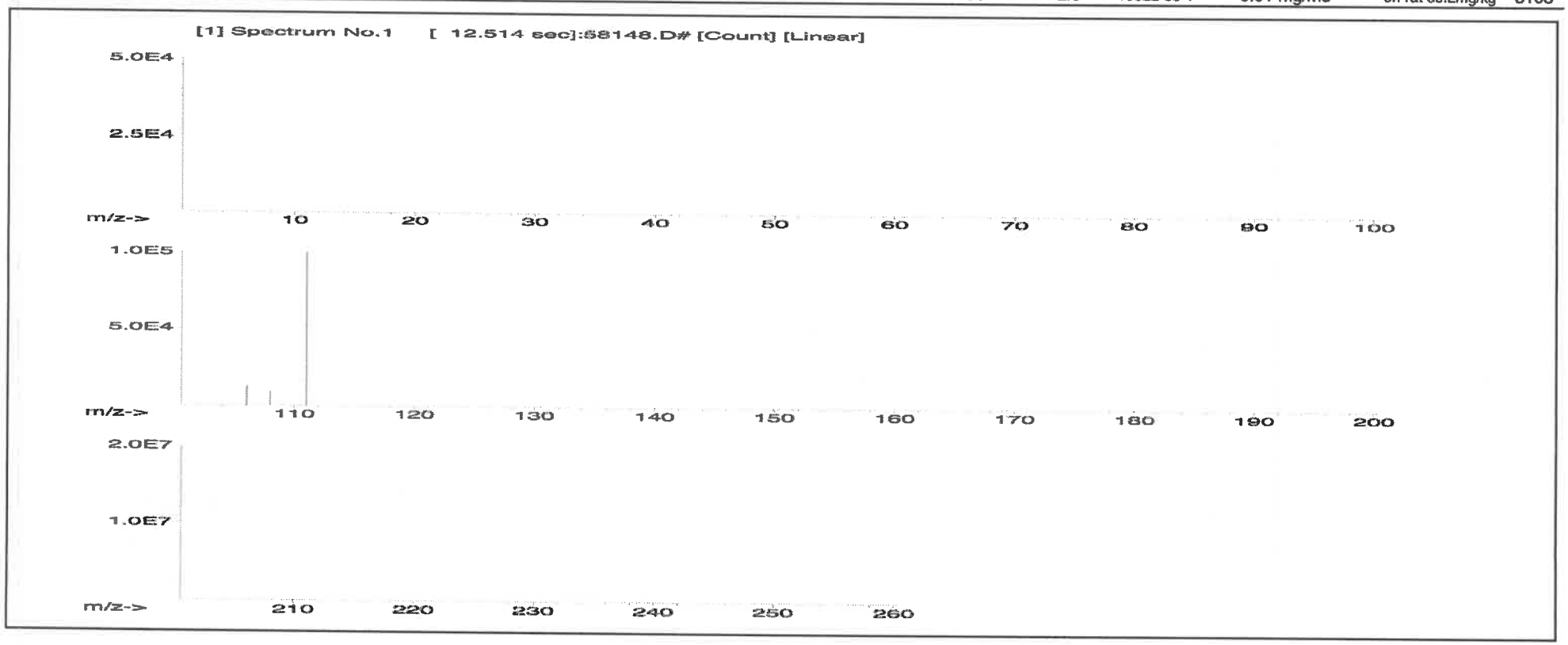
	Lot #		
Solvent:	24002546	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

Aleah O'Brady
Formulated By: Aleah O'Brady 070124

Pedro Rentas
Reviewed By: Pedro L. Rentas 070124

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Cadmium nitrate tetrahydrate (Cd)	IN024	CDM092021A1	1000	99.999	0.10	36.5	5.4797	5.4804	**1000.1**	**2.0**	10022-68-1	0.01 mg/m3	orl-rat 60.2mg/kg	3108



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Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
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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	T	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	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:

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 certifed (+/-) 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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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).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CLPP-CAL-1
Lot Number:	T2-MEB714417
Matrix:	5% (v/v) HNO3
Value / Analyte(s):	5 000 µg/mL ea: Calcium, Potassium, Magnesium, Sodium, 2 000 µg/mL ea: Aluminum, Barium, 1 000 µg/mL ea: Iron, 500 µg/mL ea: Nickel, Vanadium, Zinc, Cobalt, 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 ºC)

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

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

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

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

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

$CRM/RM\ Expanded\ Uncertainty\ (\pm) = U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$CRM/RM\ Expanded\ Uncertainty\ (\pm) = U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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)

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

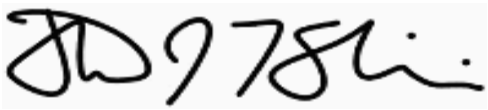
- Sealed TCT Bag Open Date: _____

- 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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1.0 ACCREDITATION / REGISTRATION

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ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

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 ºC)

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

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

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

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

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

$CRM/RM\ Expanded\ Uncertainty\ (\pm) = U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$CRM/RM\ Expanded\ Uncertainty\ (\pm) = U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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)

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

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

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

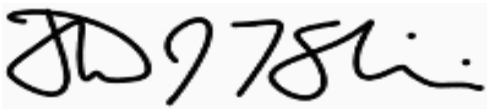
- Sealed TCT Bag Open Date: _____

- 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



INORGANIC VENTURES

Refine your results. Redefine your industry.

Certificate of Analysis

RD:05/14/2024

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).

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	WW-LFS-1
Lot Number:	T2-MEB723367
Matrix:	5% (v/v) HNO3

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

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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)

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

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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



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Certificate of Analysis

RD:05/14/2024

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).

ACCREDITED Testing Laboratory Certificate 863.01 ACCREDITED Reference Material Producer Certificate 863.02

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, SiO2	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
SiO2	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, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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)

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. 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

J.T.Baker® | avantor™

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

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

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

For Laboratory, Research or Manufacturing Use

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

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

James T Ethier
Jamie Ethier
Vice President Global Quality

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

M45 P3
Expd Dt. 5 7 24
MB

SAINT-GOBAIN

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

Certificate of Conformance

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

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

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

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

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

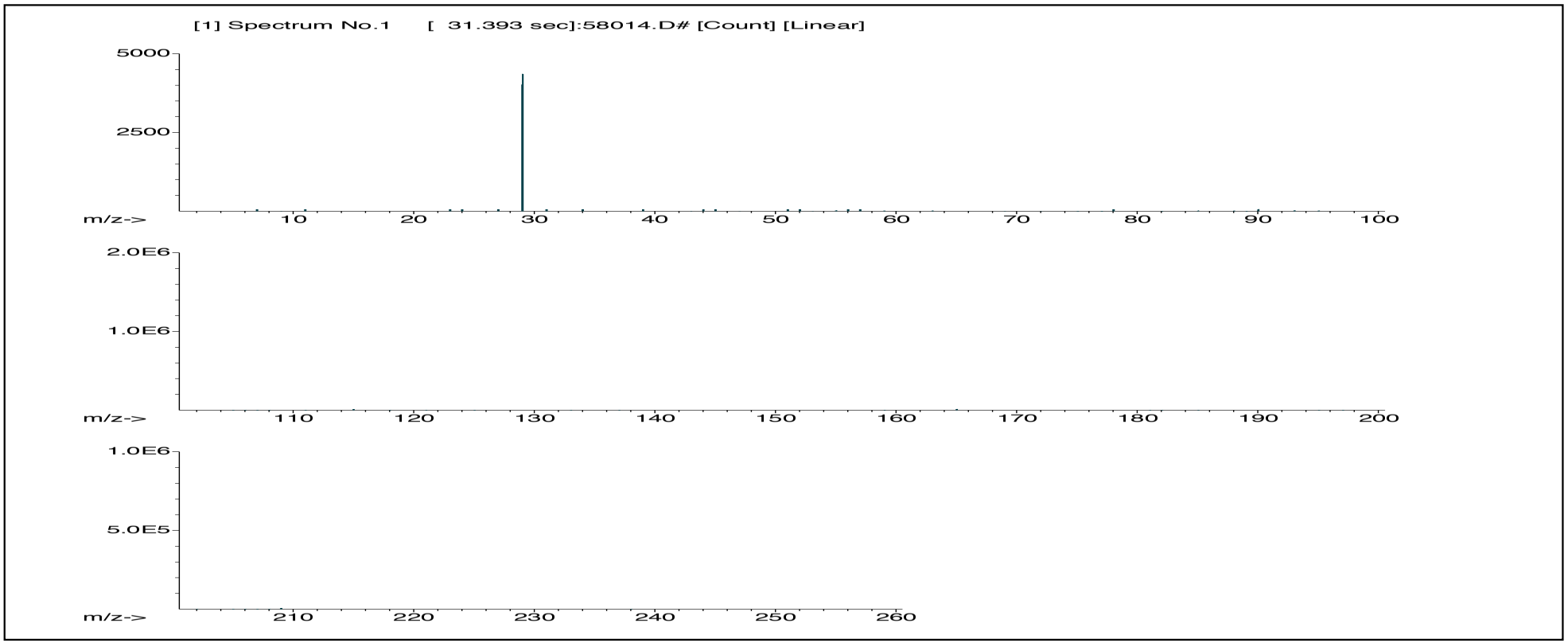
ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57014**	19410105	Nitric Acid	
Lot Number:	**030921**			
Description:	**Silicon (Si)**			
		2.0%	60.0	Nitric Acid
Expiration Date:	030924		(mL)	
Recommended Storage:	Ambient (20 ºC)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	3000.41	0.058	Flask Uncertainty	

Formulated By:	Lawrence Barry 030921
Reviewed By:	Pedro L. Rentas 030921

	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 (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1.	Ammonium hexafluorosilicate (Si)	58114	070120	0.1000	300.0	0.084	1000	10000.0	**1000.0**	**2.1**	16919-19-0	2.50 mg/m3	orl-rat 70 mg/kg	NA



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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	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	T	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:

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 certifed (+/-) 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).

ThermoFisher SCIENTIFIC

M4913-16

MB

Certificate of Analysis

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

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

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.

INORGANIC VENTURES
Refine your results. Redefine your industry.

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

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

M5062
M5063
M3

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

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

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.001 ± 0.053 µg/mL

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

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/4}$$

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.

Contains Heavy Metals
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

(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,

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 HNO_3. 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 HNO_3. 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

ICSA M5126 M5127 M5128 M5129 M5130

ICSB M5219 M5220 M5221 M5222 M5223

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.

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M5192 R: 06/17/22

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

CERTIFIED WEIGHT REPORT:

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

Lot #	Solvent:		
MKBQ8597V	Ammonium hydroxide	0.5%	15.0 (mL)

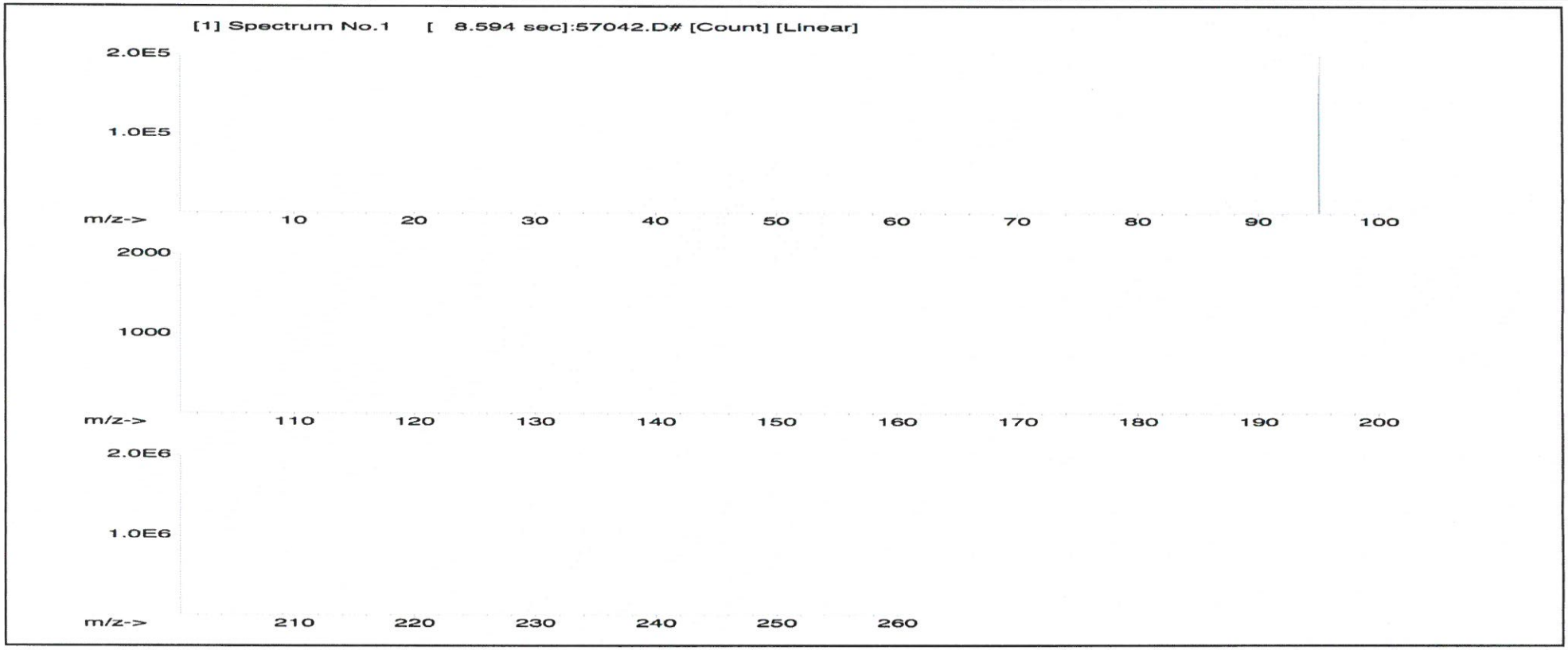
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Ammonium hydroxide

Formulated By: Lawrence Barry 051722

Reviewed By: Pedro L. Rentas 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 (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	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	orl-rat 333 mg/kg	3134



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Certified Reference Material CRM

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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	<0.02	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:

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 certifed (+/-) 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).

INORGANIC VENTURES™
Refine your results. Redefine your industry.

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

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

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	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 ºC)

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

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

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

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

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

$CRM/RM\ Expanded\ Uncertainty\ (\pm) = U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$CRM/RM\ Expanded\ Uncertainty\ (\pm) = U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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)

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

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

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.

Contains Heavy Metals
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

(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,

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 HNO_3. 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 HNO_3. 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

ICSA M5126 M5127 M5128 M5129 M5130

ICSB M5219 M5220 M5221 M5222 M5223

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.

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Certified Reference Material CRM

M5288 R: 07/21/2022

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AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT:

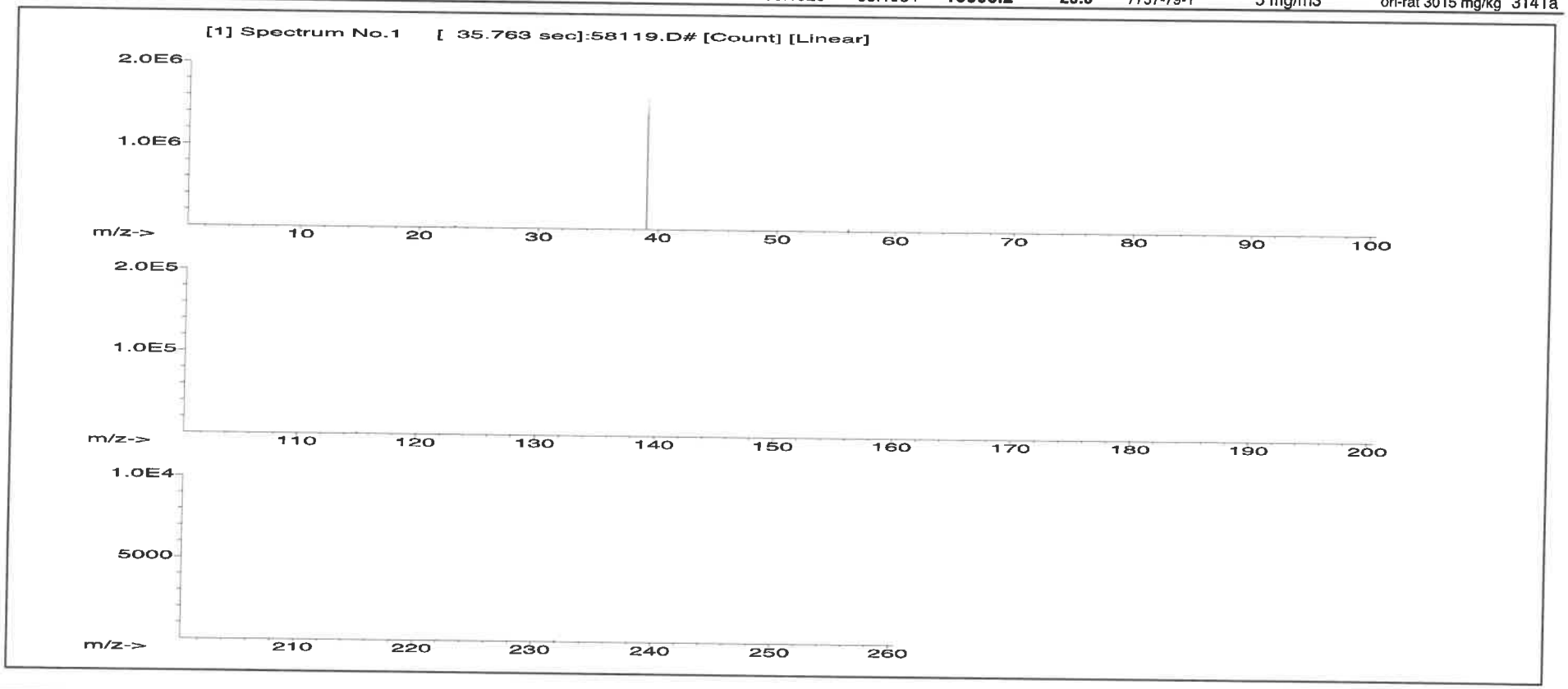
Part Number: 58119
Lot Number: 071122
Description: Potassium (K)

Expiration Date: 071125
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02

	Lot #		
Solvent:	20510011	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	
	5E-05	Balance Uncertainty	
	0.058	Flask Uncertainty	

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

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



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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	<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	T	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 certifed (+/-) 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

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.

The Quality Assurance Technical Support (QATS) contract is operated by APTIM Federal Services, LLC.

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

SJ 6/15/22

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Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT:

Part Number: 58126
Lot Number: 020422
Description: Iron (Fe)

M5298

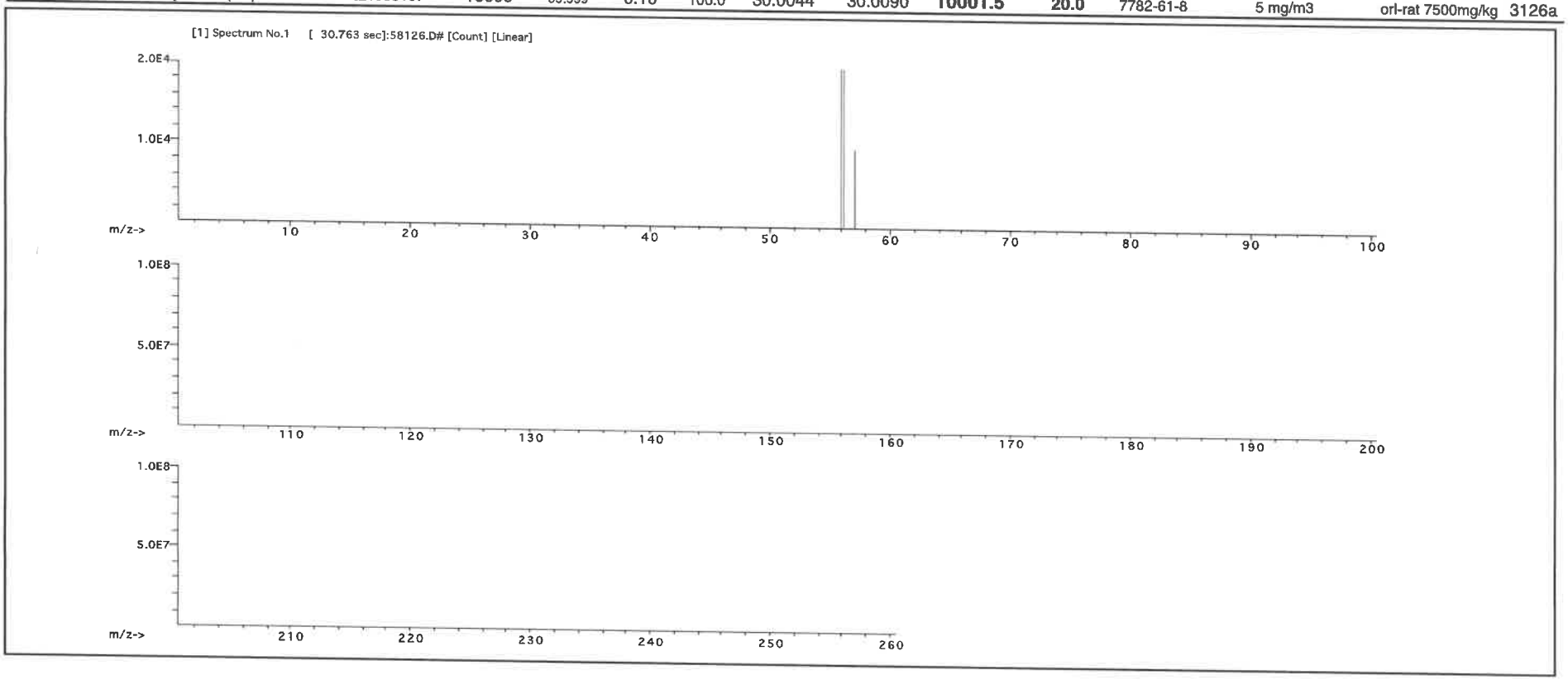
Expiration Date: 020425
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 3000.41

	Lot #		
Solvent:	20370011	Nitric Acid	
5.0%	150.0 (mL)	Nitric Acid	
5E-05	Balance Uncertainty		
0.058	Flask Uncertainty		

Giovanni Esposito
Formulated By: Giovanni Esposito 020422

Pedro Rentas
Reviewed By: Pedro L. Rentas 020422

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Iron(III) nitrate nonahydrate (Fe)	IN346	221035107	10000	99.999	0.10	100.0	30.0044	30.0090	**10001.5**	**20.0**	7782-61-8	5 mg/m3	orl-rat 7500mg/kg	3126a



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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	<0.10	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	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	<0.10	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.5	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	<0.10	Ge	<0.10	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	<0.10	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.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 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).

Part # **58126** Lot # **020422**

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M5429 R1 01/26/23 BH

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CERTIFIED WEIGHT REPORT:

Part Number: 57103
Lot Number: 070622
Description: Lithium (Li)

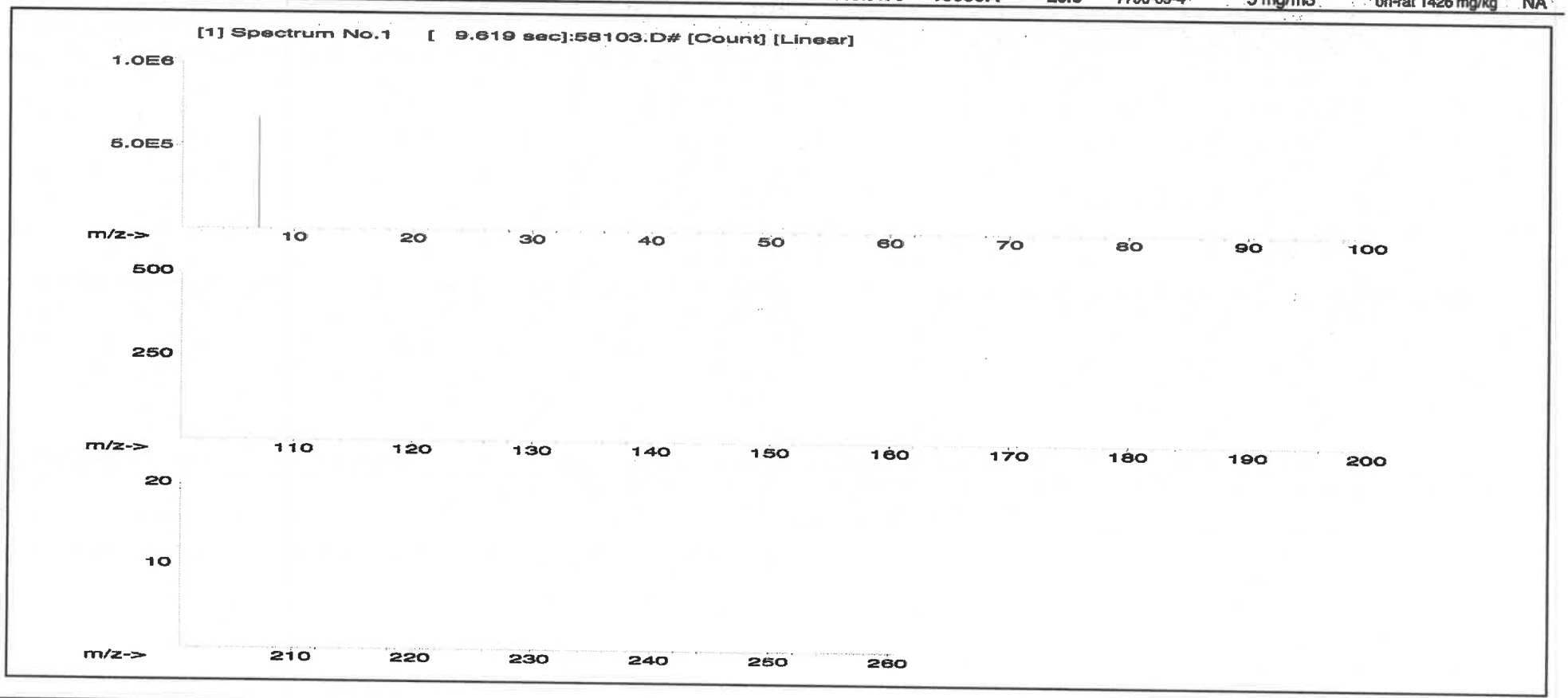
Expiration Date: 070625
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 1000.12

	Lot #			
Solvent:	20510011	Nitric Acid		
2%	20.0 (mL)	Nitric Acid		

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Lawrence Barry	070622
Reviewed By:	Pedro L. Rentas	070622

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lithium nitrate (Li)	IN019	LIZ042018A1	10000	99.999	0.10	10.0	100.0134	100.0173	**10000.4**	**20.0**	7790-69-4	5 mg/m3	orl-rat 1426 mg/kg	NA



QUALITY-METALS

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	T	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	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:

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 certifed (+/-) 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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M5467 R: 03/01/23 (LA)

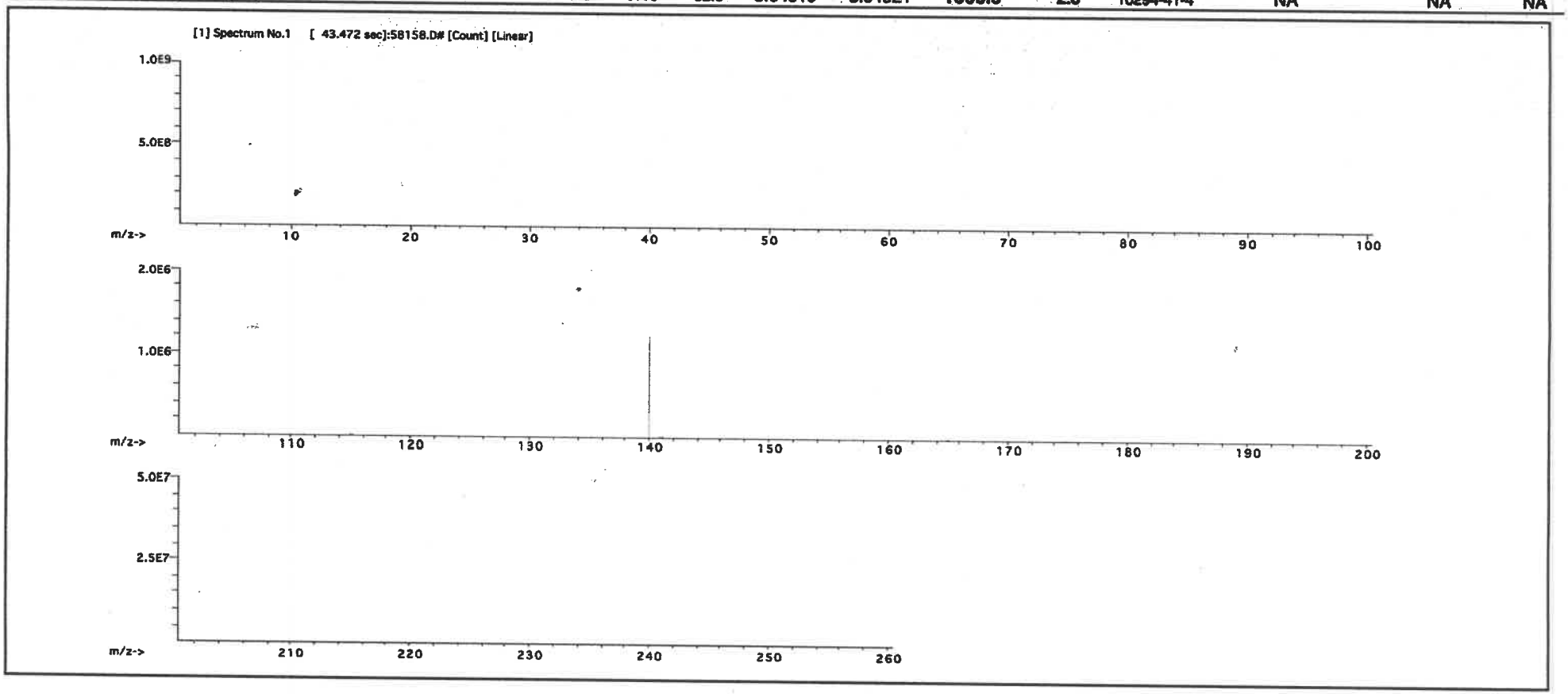
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AR-1539 Certificate Number
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CERTIFIED WEIGHT REPORT:

Part Number:	57058		**Lot #**	
Lot Number:	020623	**Solvent:**	21110221	Nitric Acid
Description:	Cerium (Ce)	2%	20.0 (mL)	Nitric Acid
Expiration Date:	020626			
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):	1000.12	0.058	Flask Uncertainty	

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

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



21 CFR 211.84(d)(6) 211.84(d)(7) 211.165(a) 211.165(e) 211.194(a) 211.194(a)(2) 211.194(a)(3) 211.194(a)(4) 211.194(a)(5) 211.194(a)(6) 211.194(a)(7) 211.194(a)(8) 211.194(a)(9) 211.194(a)(10) 211.194(a)(11) 211.194(a)(12) 211.194(a)(13) 211.194(b) 211.194(c) 211.194(d) 211.194(e) 211.194(f) 211.194(g) 211.194(h) 211.194(i) 211.194(j) 211.194(k) 211.194(l) 211.194(m) 211.194(n) 211.194(o) 211.194(p) 211.194(q) 211.194(r) 211.194(s) 211.194(t) 211.194(u) 211.194(v) 211.194(w) 211.194(x) 211.194(y) 211.194(z) 211.194(aa) 211.194(bb) 211.194(cc) 211.194(dd) 211.194(ee) 211.194(ff) 211.194(gg) 211.194(hh) 211.194(ii) 211.194(jj) 211.194(kk) 211.194(ll) 211.194(mm) 211.194(nn) 211.194(oo) 211.194(pp) 211.194(qq) 211.194(rr) 211.194(ss) 211.194(tt) 211.194(uu) 211.194(vv) 211.194(ww) 211.194(xx) 211.194(yy) 211.194(zz) 211.194(aaa) 211.194(bbb) 211.194(ccc) 211.194(ddd) 211.194(eee) 211.194(fff) 211.194(ggg) 211.194(hhh) 211.194(iii) 211.194(jjj) 211.194(kkk) 211.194(lll) 211.194(mmm) 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Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M5496 R 7/20/23

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

CERTIFIED WEIGHT REPORT:

Part Number: 58113
Lot Number: 011623
Description: Aluminum (Al)

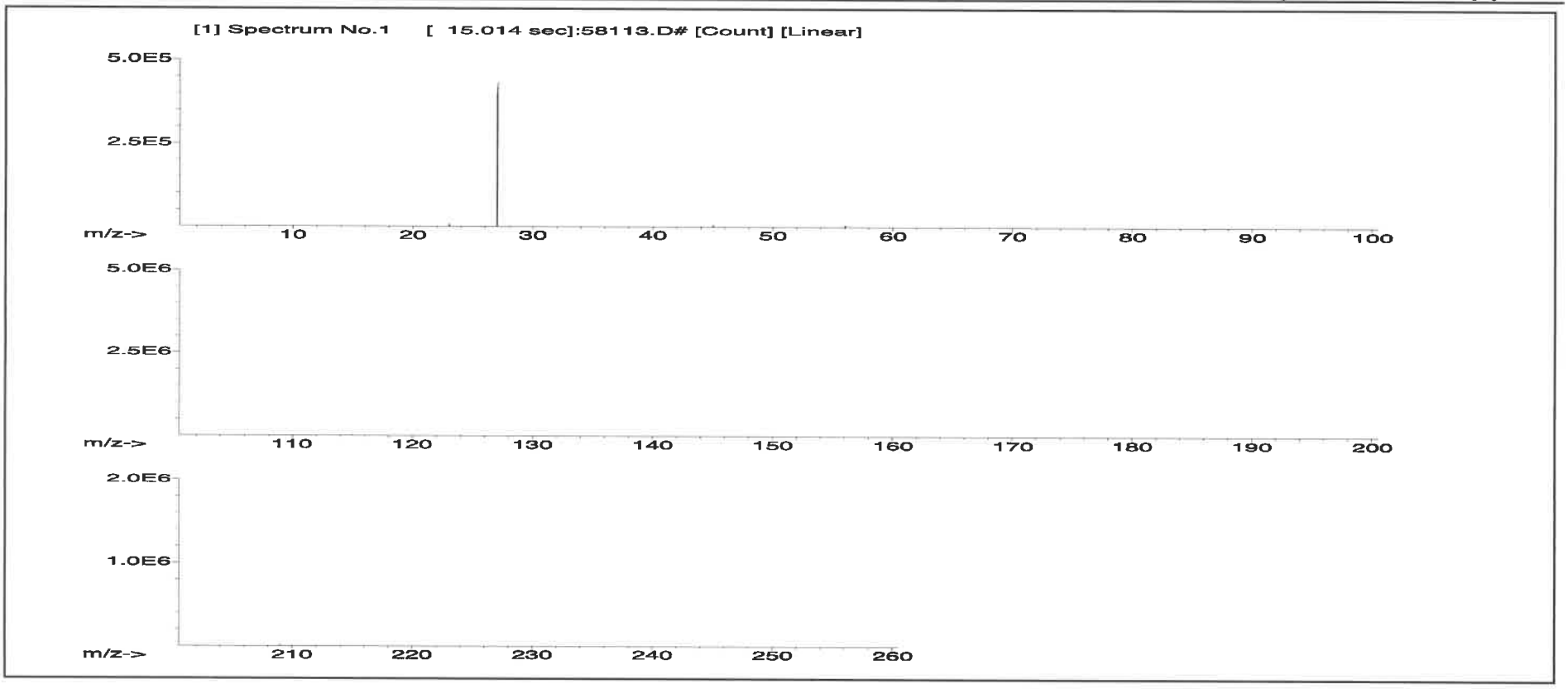
Expiration Date: 011626
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02

	Lot #		
Solvent:	20510011	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	
5E-05	Balance Uncertainty		
0.058	Flask Uncertainty		

Giovanni Esposito
Formulated By: Giovanni Esposito 011623

Pedro Rentas
Reviewed By: Pedro L. Rentas 011623

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) 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	orl-rat 3671 mg/kg	3101a



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800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M5497 - M5498 R: 03/17/23 (BP)

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

CERTIFIED WEIGHT REPORT:

Part Number: 58120
Lot Number: 031523
Description: Calcium (Ca)

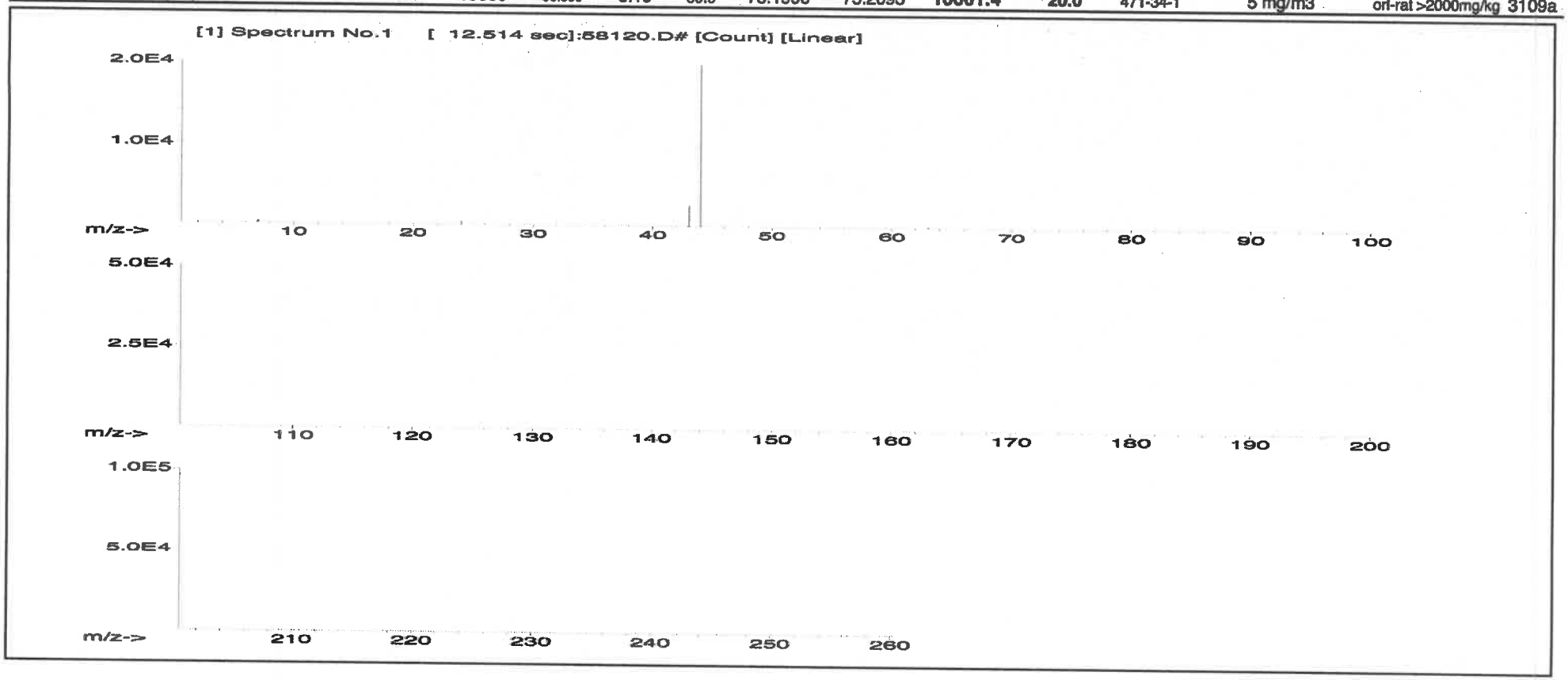
Expiration Date: 031526
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 3000.41

	Lot #		
Solvent:	21110221	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	
	5E-05	Balance Uncertainty	
	0.058	Flask Uncertainty	

Giovanni Esposito
Formulated By: Giovanni Esposito 031523

Pedro Rentas
Reviewed By: Pedro L. Rentas 031523

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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	orl-rat >2000mg/kg	3109a



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	T	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	<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 certifed (+/-) 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).

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

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

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

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

MSS28-37
MB

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

Safety Data Sheets Available Upon Request

(A) *SAMPLE DESCRIPTION*

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

(B) *BREAKAGE OR MISSING ITEMS*

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

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

(C) *ANALYSIS OF SAMPLES*

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

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

Instructions for QATS Reference Material: *Inorganic ICV Solutions*

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

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

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

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

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

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

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

JENSEN INERT PRODUCTS

MATERIAL CERTIFICATE OF COMPLIANCE

DATE: JUNE 12, 2023

CUSTOMER:	PCI SCIENTIFIC SUPPLY, INC
PURCHASE ORDER NO.	6054931
CATALOG NO.	BOI5021-450L
PRODUCT DESCRIPTION:	BOILING STONES, TFE, 454GMS
QUANTITY:	10 EACH
LOT NO.	W126678
SPECIFICATION (S):	Made from Virgin PTFE Resin

We certify that we have complied with the terms and conditions of the above Purchase Order and the Part Specifications in the manufacturing of the above product.

Laura Valencia

Laura Valencia
Quality Assurance Inspector

F:U:J:CF:PCISCI:COC-55114-BOI5021-061223

3773 NW 126th Avenue • Coral Springs, Florida 33065 • Fax (954) 344-2008 • 1-800 446-3781
Email: jensen@jenseninert.com Visit our Web Site at www.jenseninert.com

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M5658 R ! 8/25/23

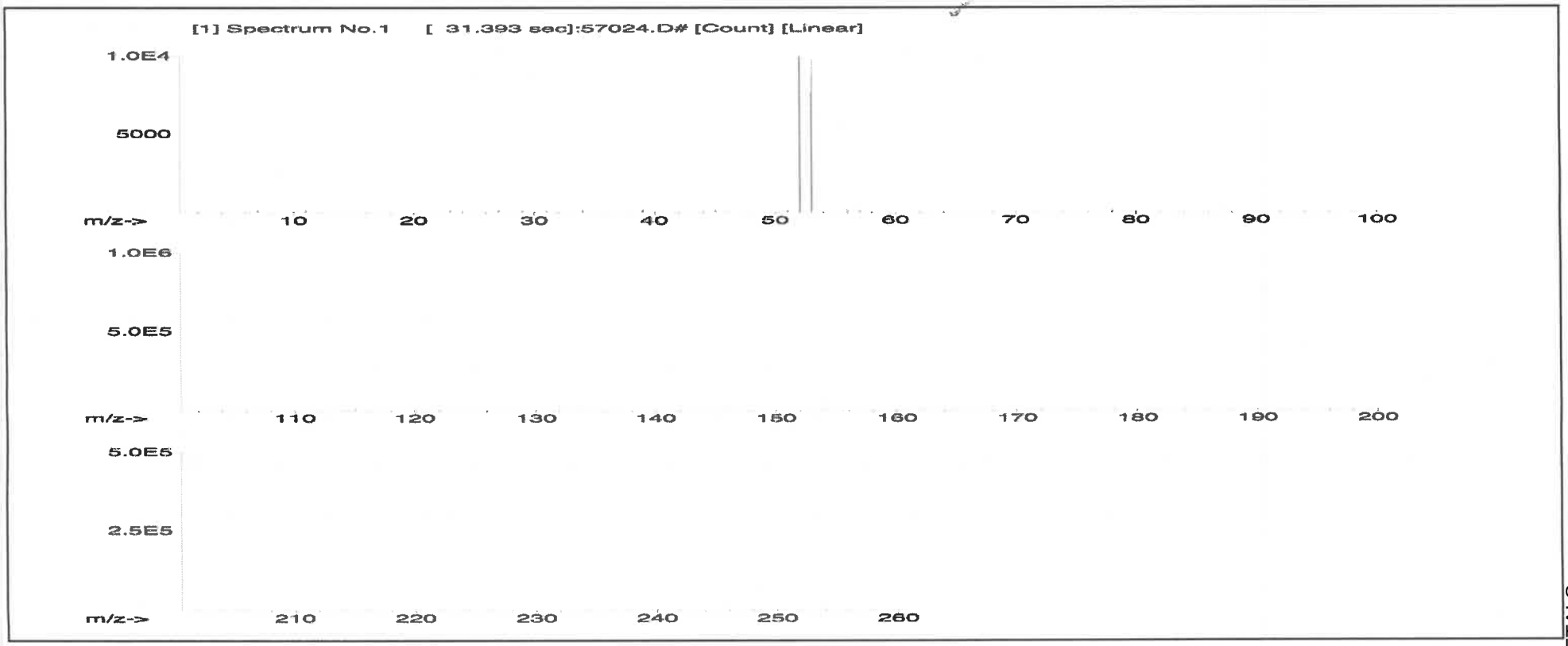
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CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**58024**	21110221	Nitric Acid	
Lot Number:	**060523**			
Description:	**Chromium (Cr)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	060526			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

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

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 (Solvent Safety Info. On Attached pg.) 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	orl-rat 3250 mg/kg	3112a



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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	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:

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 certifed (+/-) 0.5% of the stated value, unless otherwise stated.
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* 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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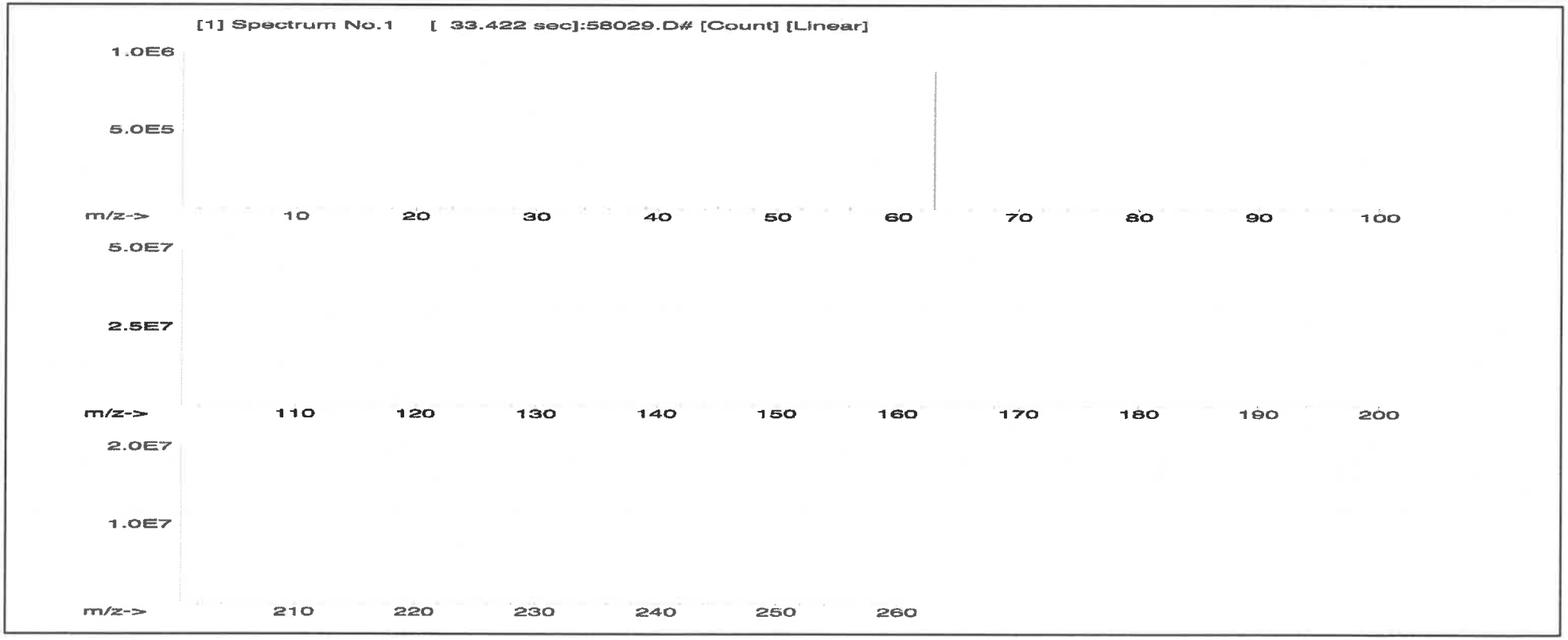
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CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:
Part Number:	**58029**	24002546	Nitric Acid
Lot Number:	**102523**		
Description:	**Copper (Cu)**		
		2.0%	40.0 (mL) Nitric Acid
Expiration Date:	102526		
Recommended Storage:	Ambient (20 °C)		
Nominal Concentration (µg/mL):	**1000**		
NIST Test Number:	6UTB	5E-05	Balance Uncertainty
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty

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

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



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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	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	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	<0.02	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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CERTIFIED WEIGHT REPORT:

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

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

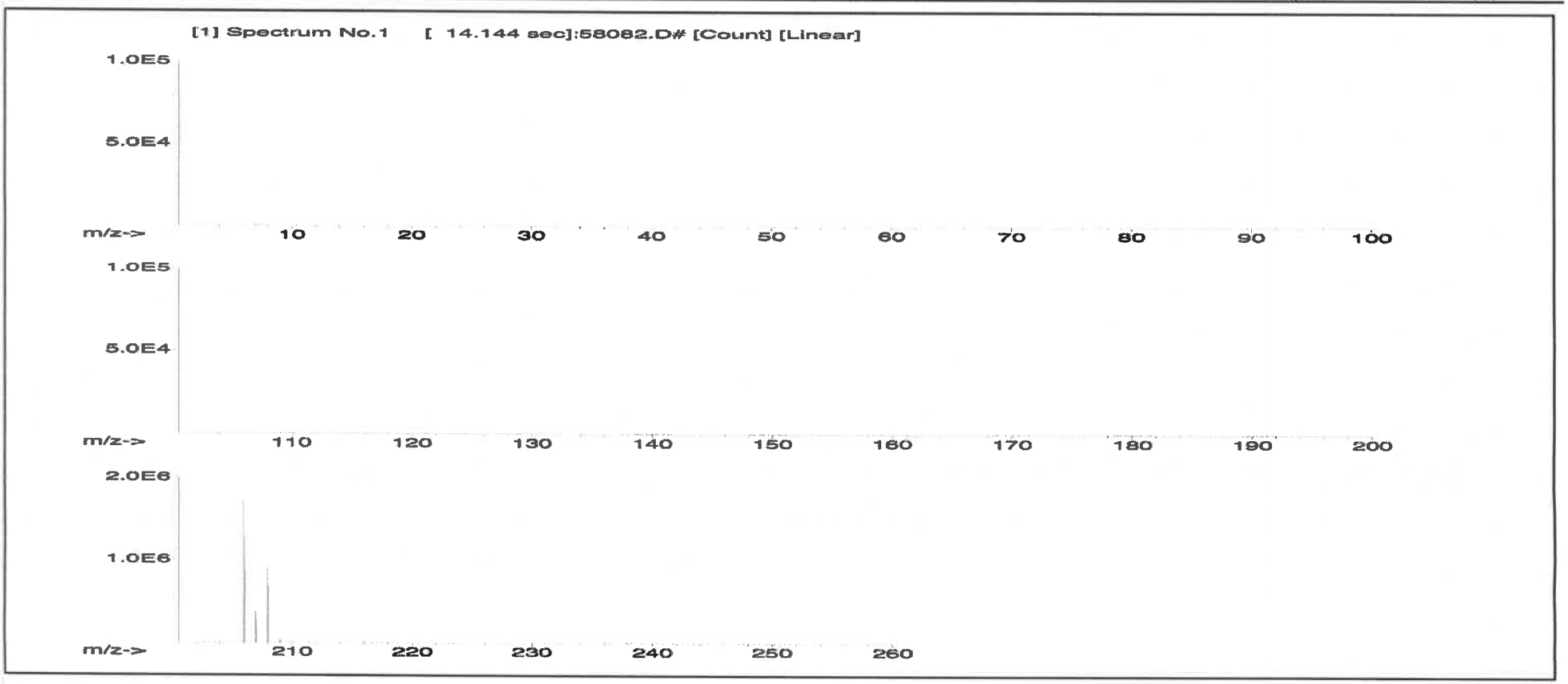
Weight shown below was diluted to (mL): 3000.41 0.06 Flask Uncertainty

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

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

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lead(II) nitrate (Pb)	IN029	PBD122016A1	1000	99.999	0.10	62.5	4.80071	4.80077	**1000.0**	**2.0**	10099-74-8	0.05 mg/m3	intrvns-rat 93 mg/kg	3128



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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	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	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	T	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.

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* 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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R: 12/20/23 M5748

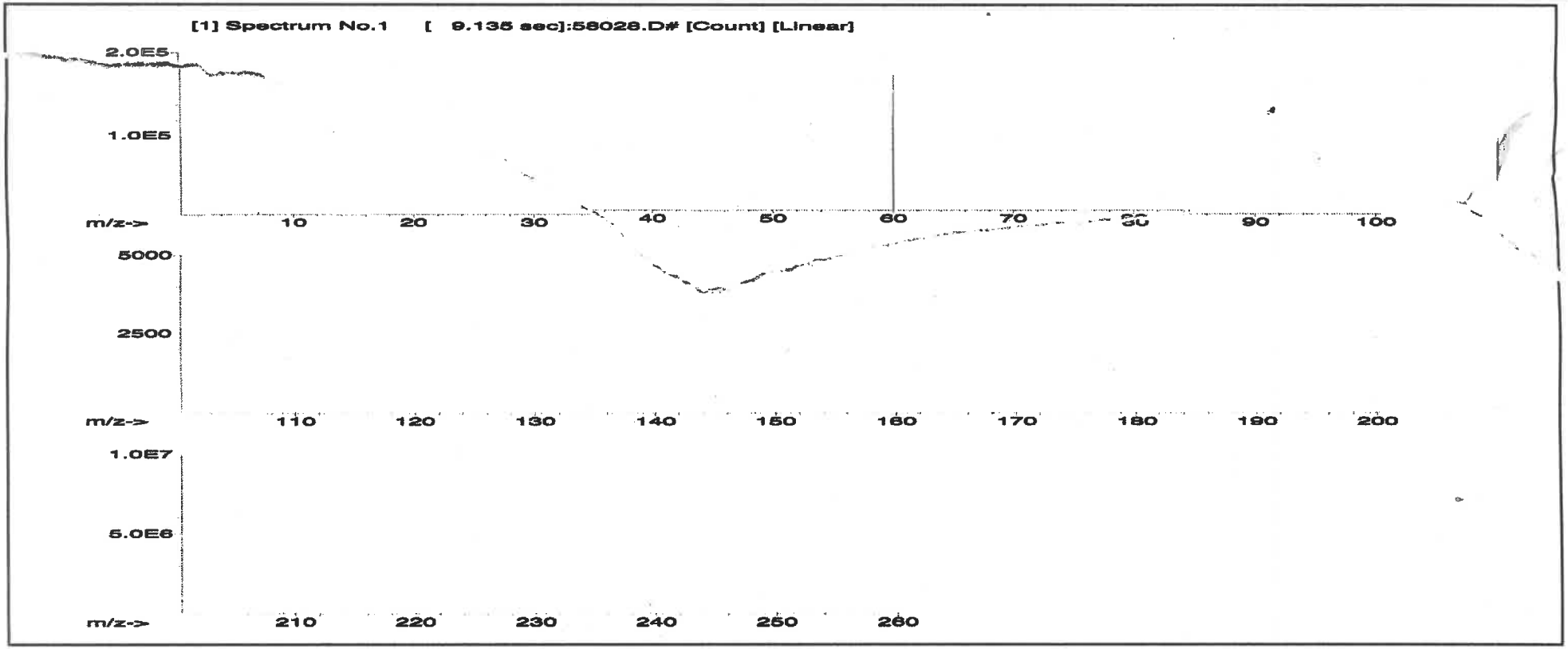
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CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57028**	24002546	Nitric Acid	
Lot Number:	**091223**			
Description:	**Nickel (Ni)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	091226			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

Formulated By:	Lawrence Barry	091223
Reviewed By:	Pedro L. Rentas	091223

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 (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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	orl-rat 1620 mg/kg	3136



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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	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:

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).
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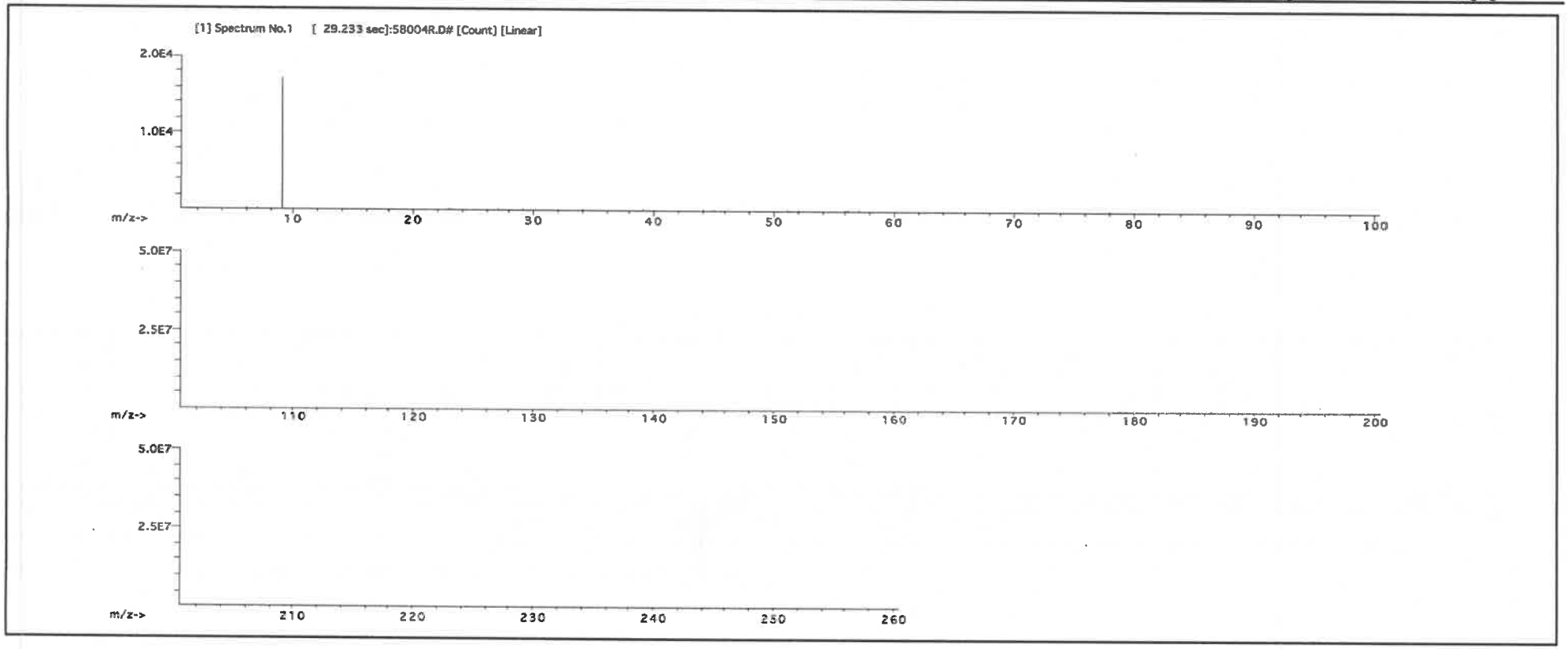
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CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57004**			
Lot Number:	**102523**	24002546	Nitric Acid	
Description:	**Beryllium (Be)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	102526			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

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

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 (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Beryllium nitrate (Be)	58104	091423	0.1000	200.0	0.084	1000	10001.5	**1000.0**	**2.2**	13597-99-4	0.2ug/m3	intrvns-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	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	T	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:

Certified by:

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

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R? 02/09/24 IM5799

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CERTIFIED WEIGHT REPORT:

Part Number: 57050
Lot Number: 071123
Description: Tin (Sn)

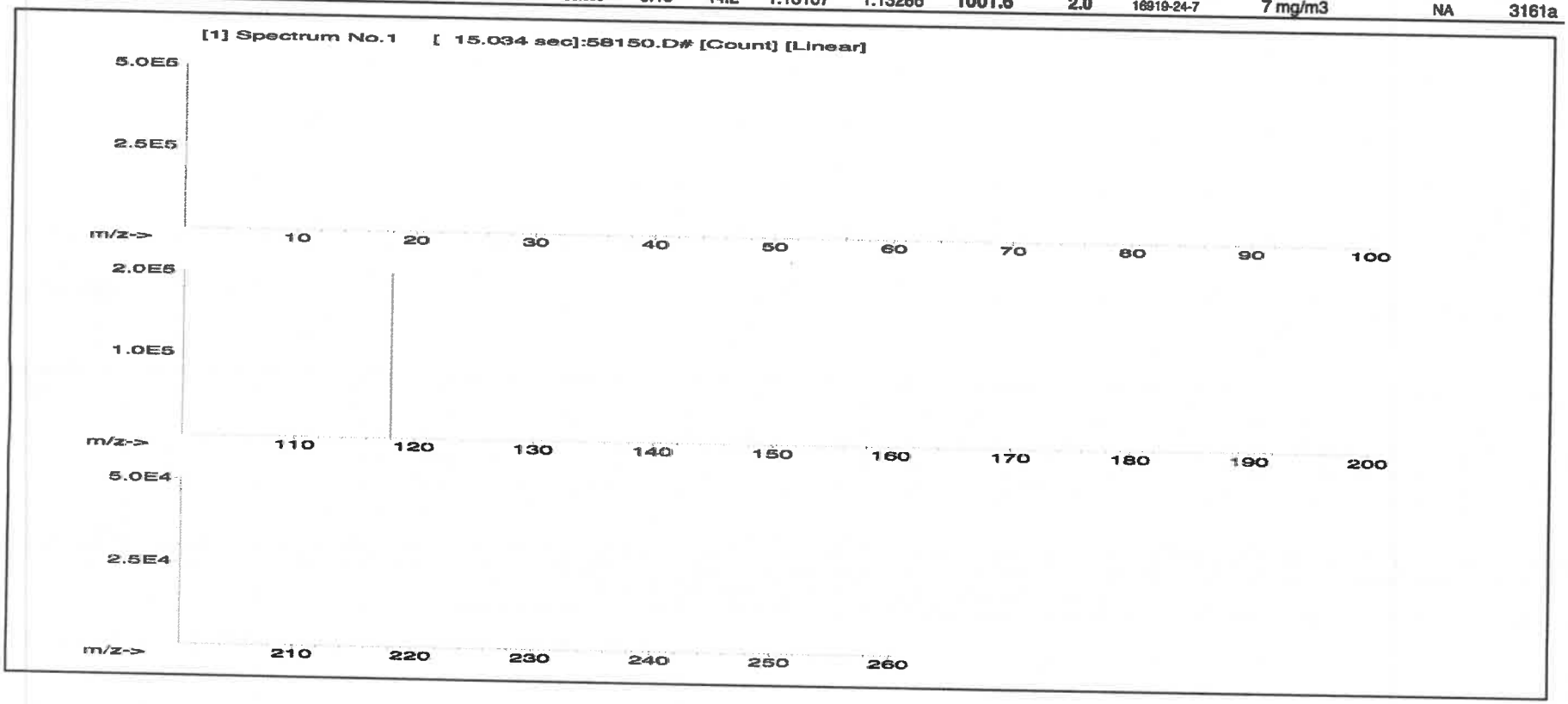
Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 499.93

	Lot #	
Solvents:	21110221	Nitric Acid
	22D0562008	Hydrochloric acid
2%	10.0	Nitric Acid
6%	30.0	Hydrochloric acid
	(mL)	

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Benson Chan	071123
Reviewed By:	Pedro L. Rentas	071123

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium hexafluorostannate(IV) (Sn)	IN010	SND042023A1	1000	99.999	0.10	44.2	1.13107	1.13286	**1001.6**	**2.0**	16919-24-7	7 mg/m3	NA	3161a



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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	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	<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	Sn	T	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).
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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).

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R: 02/09/24 IM5800 BH

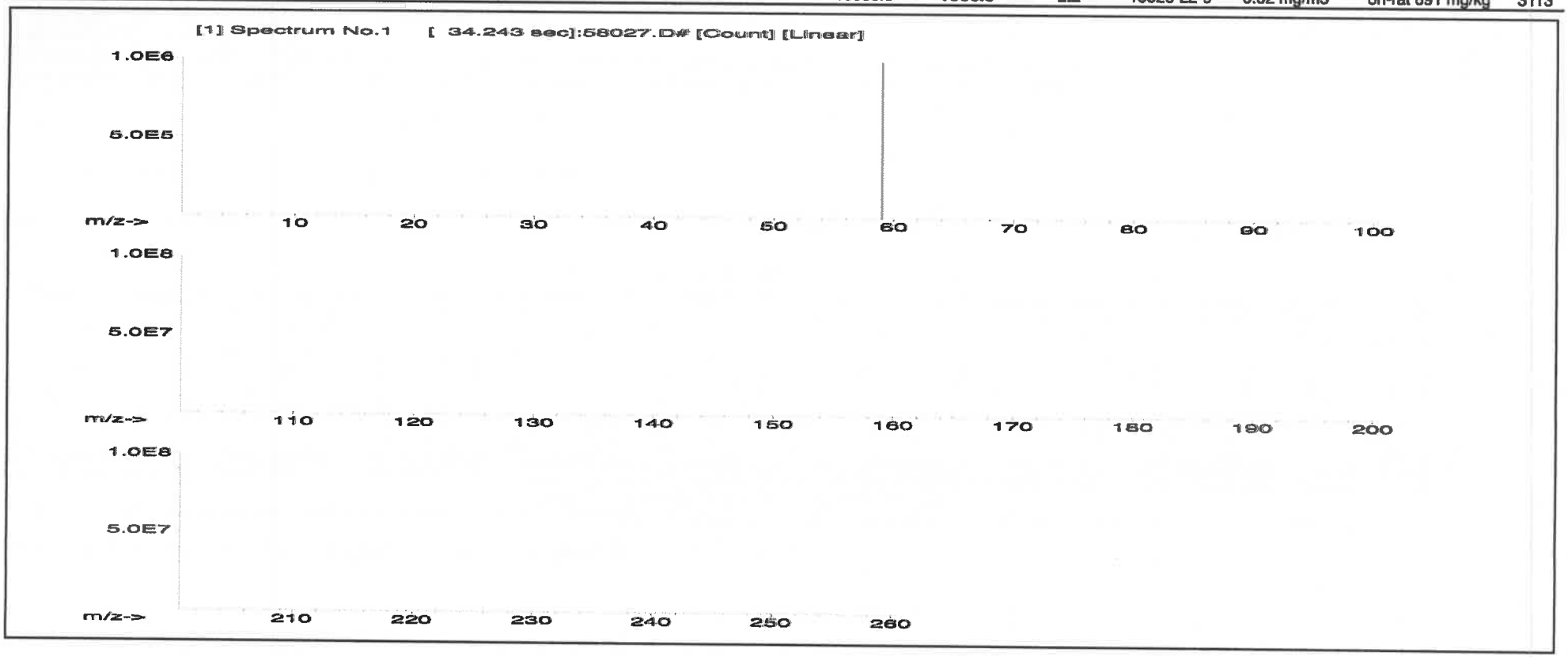
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CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:		
Part Number:	**57027**	24002546	Nitric Acid		
Lot Number:	**091923**				
Description:	**Cobalt (Co)**	2.0%	40.0 (mL)	Nitric Acid	
Expiration Date:	091926				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty		

Formulated By:	Lawrence Barry	091923
Reviewed By:	Pedro L. Rentas	091923

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 (Solvent Safety Info. On Attached pg.) 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**	2.2	10026-22-9	0.02 mg/m3	orl-rat 691 mg/kg	3113



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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	<0.02	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	T	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:

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.
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R: 02/09/24 M5801 BH

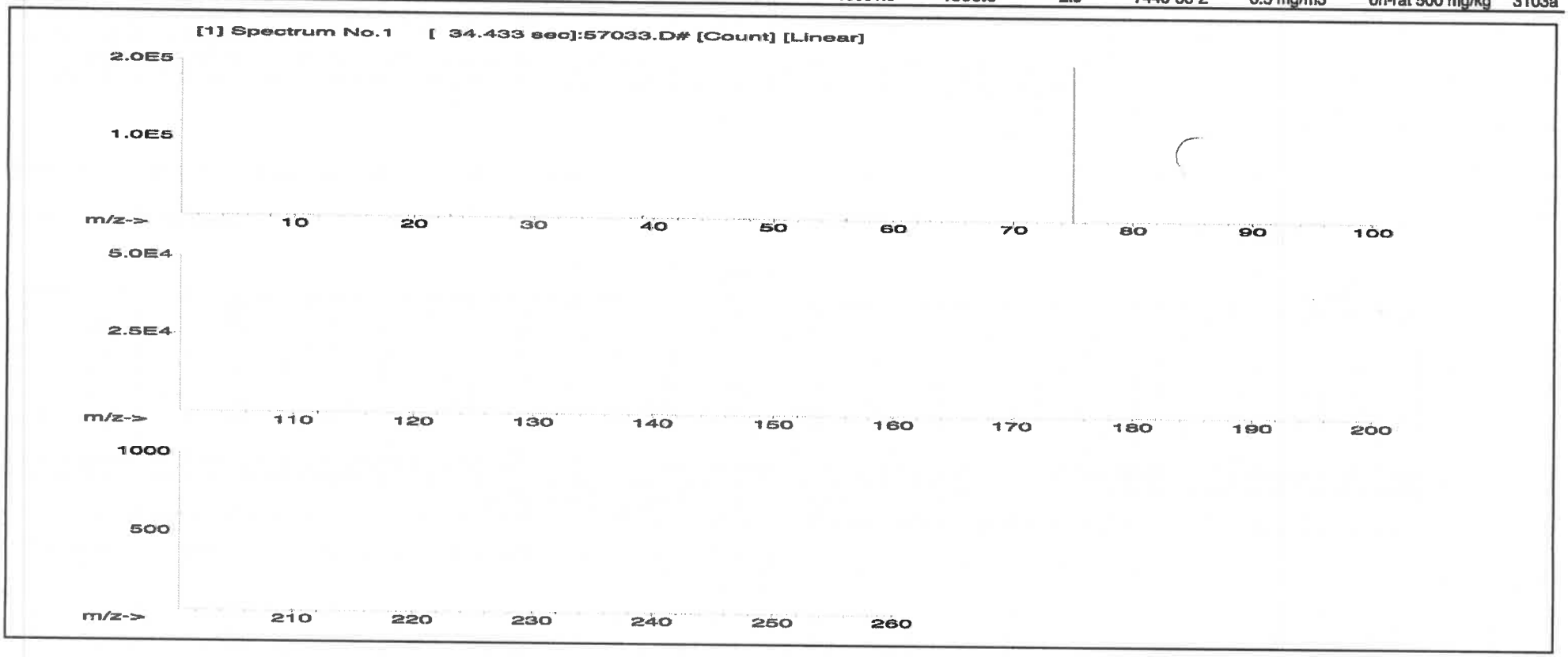
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CERTIFIED **WEIGHT** REPORT:

		Lot #	Solvent:		
Part Number:	**57033**				
Lot Number:	**111323**	24002546	Nitric Acid		
Description:	**Arsenic (As)**	2.0%	80.0 (mL)	Nitric Acid	
Expiration Date:	111326				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	4000.0	0.06	Flask Uncertainty		

Formulated By:	Lawrence Barry	111323
Reviewed By:	Pedro L. Rentas	111323

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 (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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	orl-rat 500 mg/kg	3103a



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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	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	T	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:

Certified by:

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

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* 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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A: 02/09/24 M.5814

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CERTIFIED WEIGHT REPORT:

Part Number: 57005
Lot Number: 071123
Description: Boron (B)

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 1999.48 0.058 Flask Uncertainty

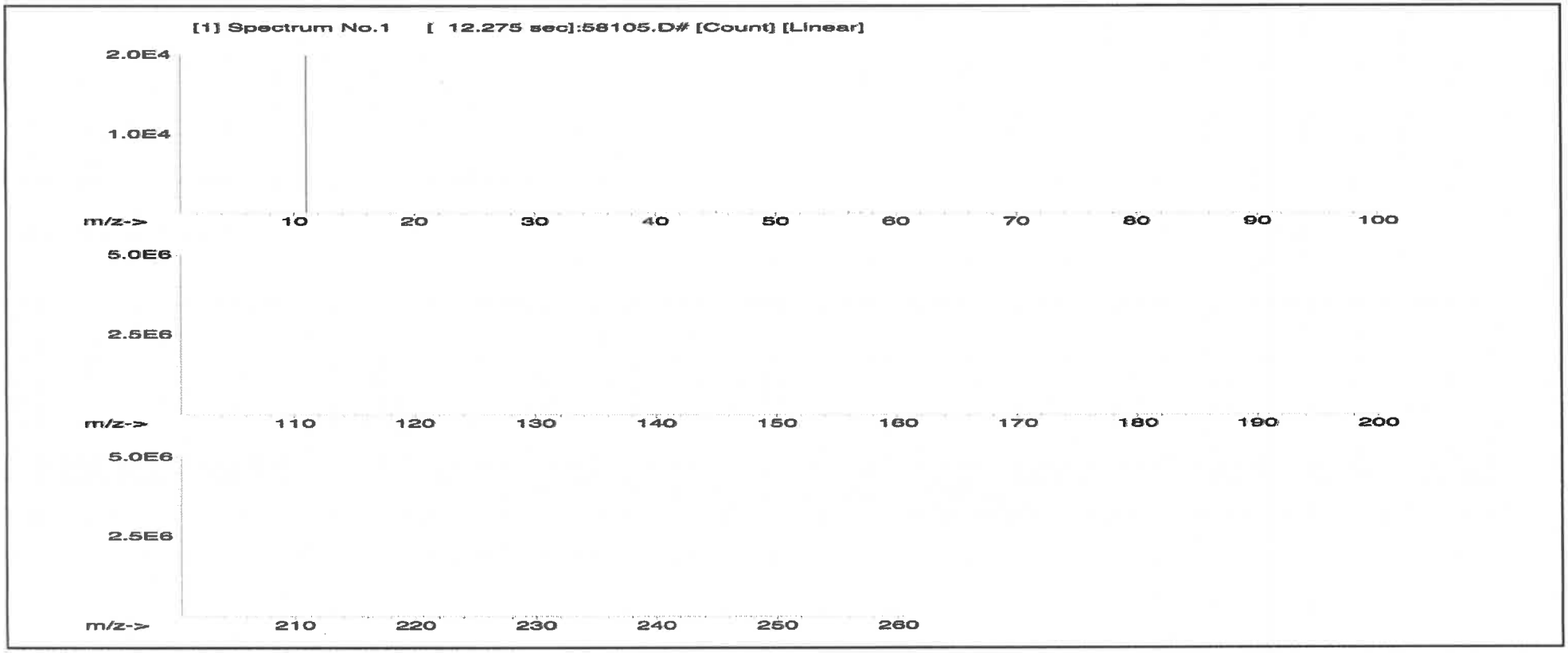
	Lot #			
Solvent:	MKBQ8597V	Ammonium hydroxide		
		2.0%	40.0 (mL)	Ammonium hydroxide

5E-05 Balance Uncertainty

Formulated By: Benson Chan 071123

Reviewed By: Pedro L. Rentas 071123

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Boric acid (B)	IN018	BV092016A1	1000	99.9999	0.10	17.3	11.55772	11.56201	**1000.4**	**2.0**	10043-35-3	2 mg/m3	orl-rat 2660 mg/kg	3107



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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	<0.02	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.
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R1 02/09/24. M58165

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CERTIFIED WEIGHT REPORT:

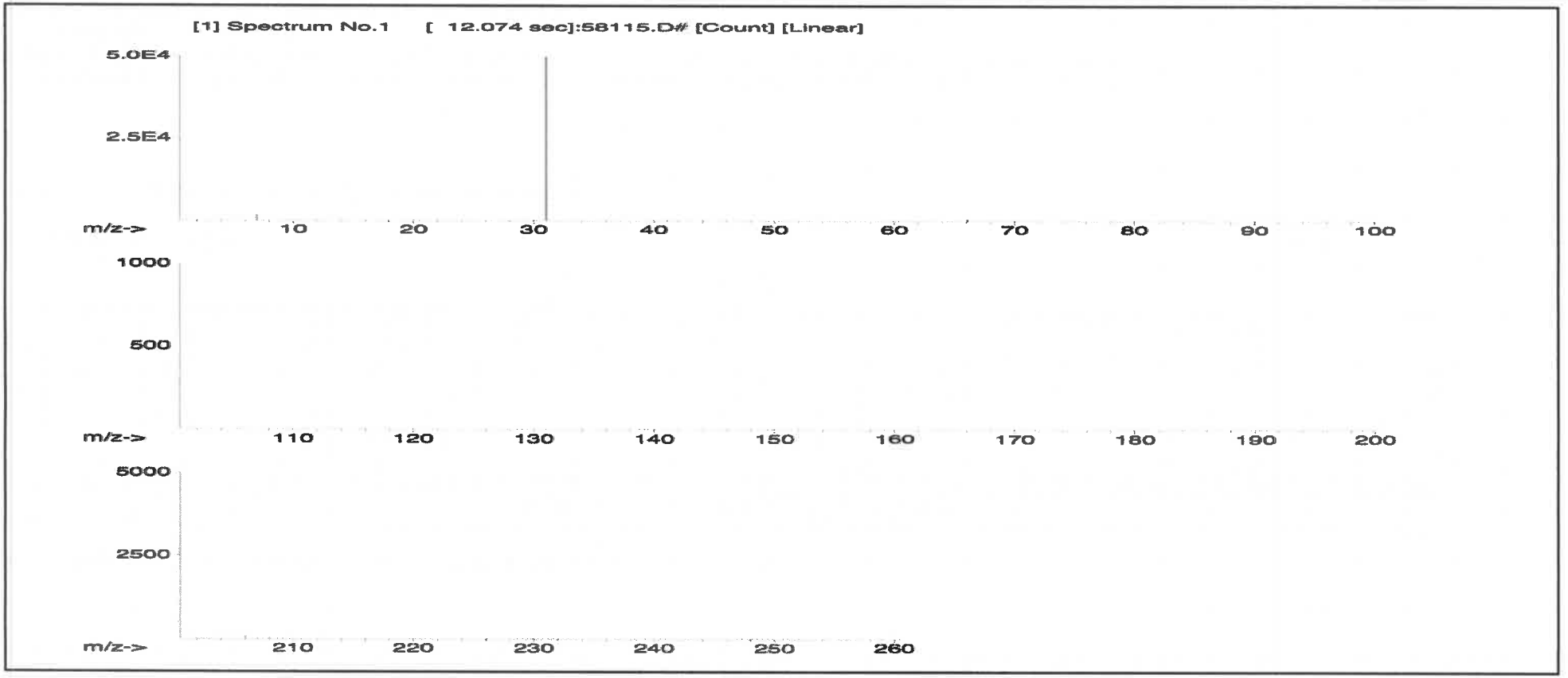
Part Number: 57115
Lot Number: 041723
Description: Phosphorous (P)

Expiration Date: 041726
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02 0.058 Flask Uncertainty

		Lot #	
Solvent:	21110221		Nitric Acid
	2%	40.0 (mL)	Nitric Acid
		5E-05	Balance Uncertainty

Formulated By:	Lawrence Barry	041723
Reviewed By:	Pedro L. Rentas	041723

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium dihydrogen phosphate (P)	IN008	PV082019A1	10000	99.999	0.10	27.5	72.7287	72.7289	**10000.0**	**20.0**	7722-76-1	5 mg/m3	orl-rat >2000mg/kg	3186



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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	<0.02	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:

Certified by:

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

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* 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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R: 02/09/24 M5816

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CERTIFIED WEIGHT REPORT:

Part Number: 57016
Lot Number: 122923
Description: Sulfur (S)

Expiration Date: 122926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

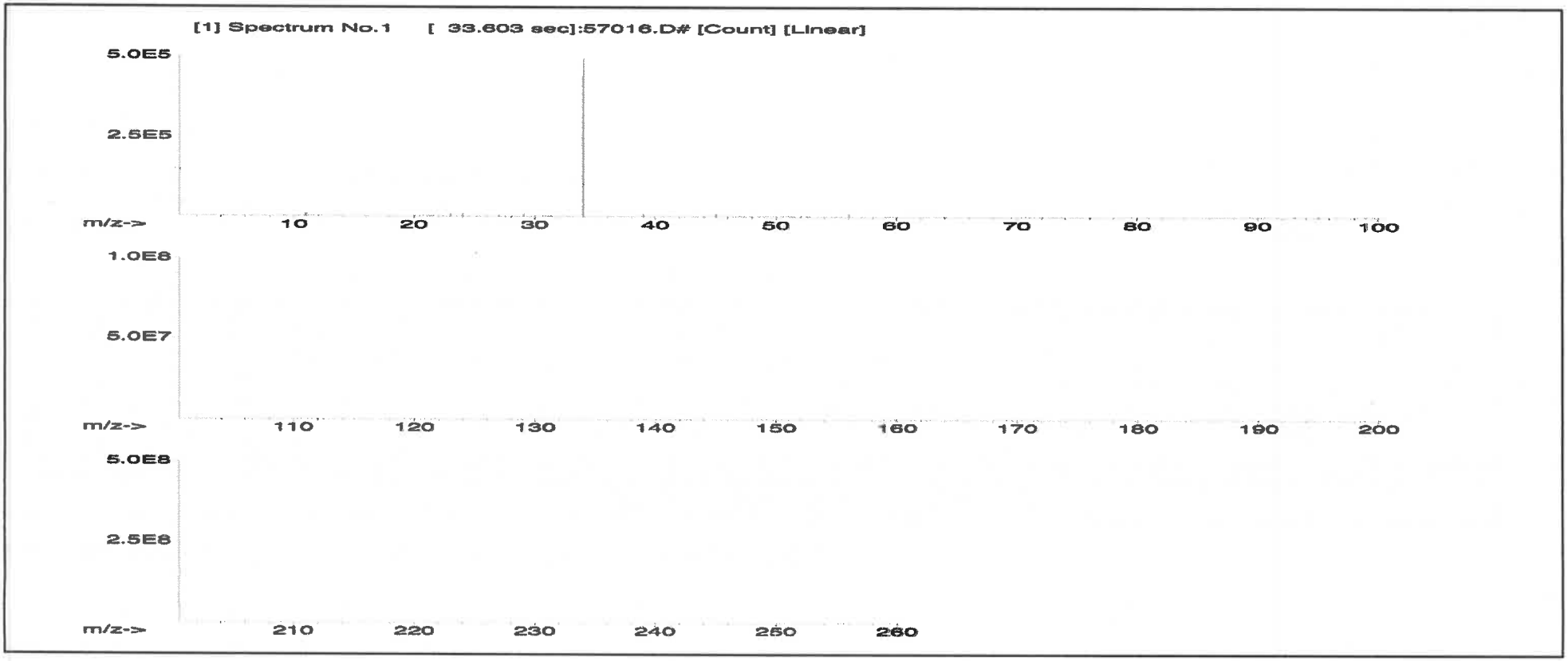
Weight shown below was diluted to (mL): 4000.0 ± 0.06 Flask Uncertainty

Solvent: Lot # 122923 ASTM Type 1 Water

5E-05 Balance Uncertainty

Formulated By:	Benson Chan	122923
Reviewed By:	Pedro L. Rentas	122923

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium sulfate (S)	IN117	SLBR7225V	1000	99.9	0.10	24.3	16.4979	16.4980	**1000.0**	**2.0**	7783-20-2	NA	orl-rat 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	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	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	T	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.
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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).

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Certified Reference Material CRM

R: 02/09/24 M5817

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CERTIFIED WEIGHT REPORT:

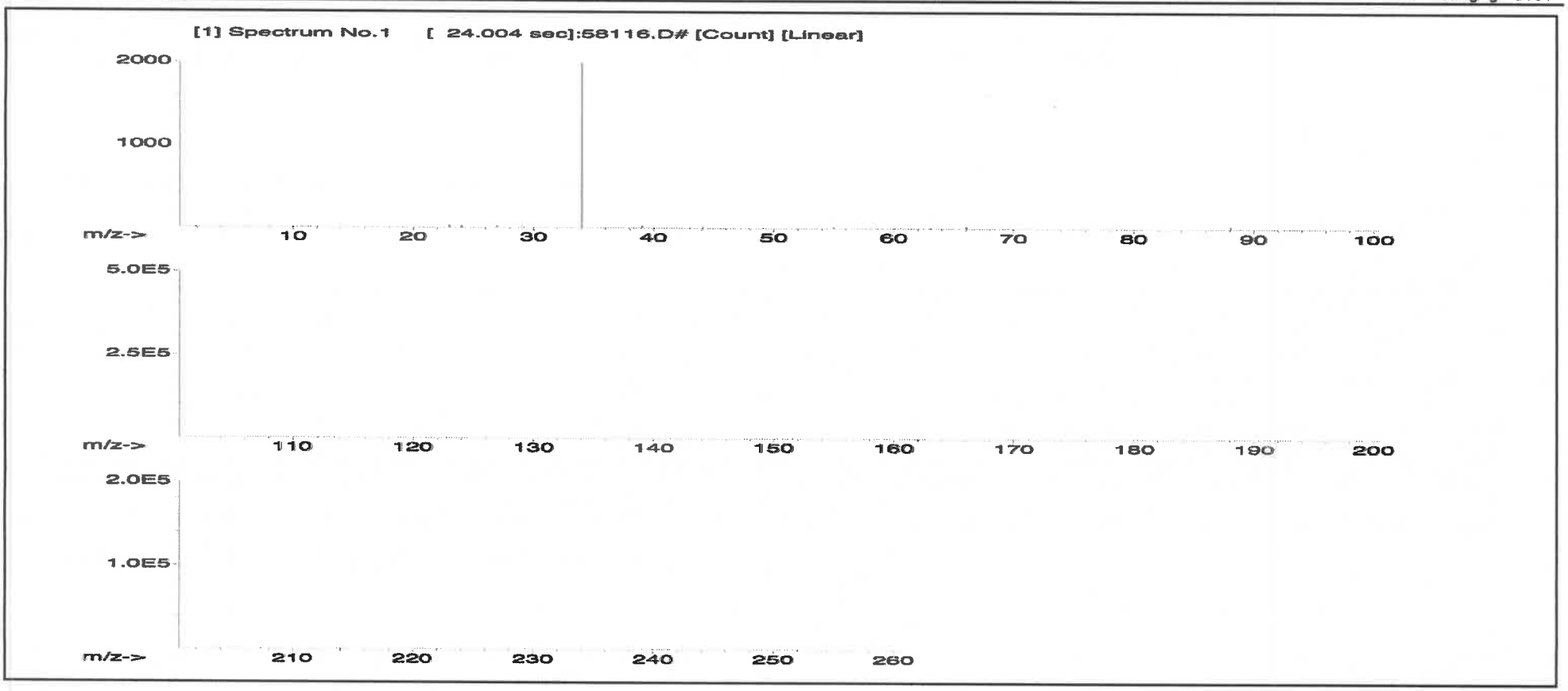
Part Number: 57116
Lot Number: 071123
Description: Sulfur (S)

Lot #
Solvent: 071123 ASTM Type 1 Water

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB 5E-05 Balance Uncertainty
Weight shown below was diluted to (mL): 1999.48 0.058 Flask Uncertainty

Formulated By:	Lawrence Barry	071123
Reviewed By:	Pedro L. Rentas	071123

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium sulfate (S)	IN117	SLBR7225V	10000	99.9	0.10	24.3	82.4675	82.4682	10000.1	20.0	7783-20-2	NA	orl-rat 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	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	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	T	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.
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* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 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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Certified Reference Material CRM

R: 02/09/24 M5819

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
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CERTIFIED WEIGHT REPORT:

Part Number: 58030
Lot Number: 111623
Description: Zinc (Zn)

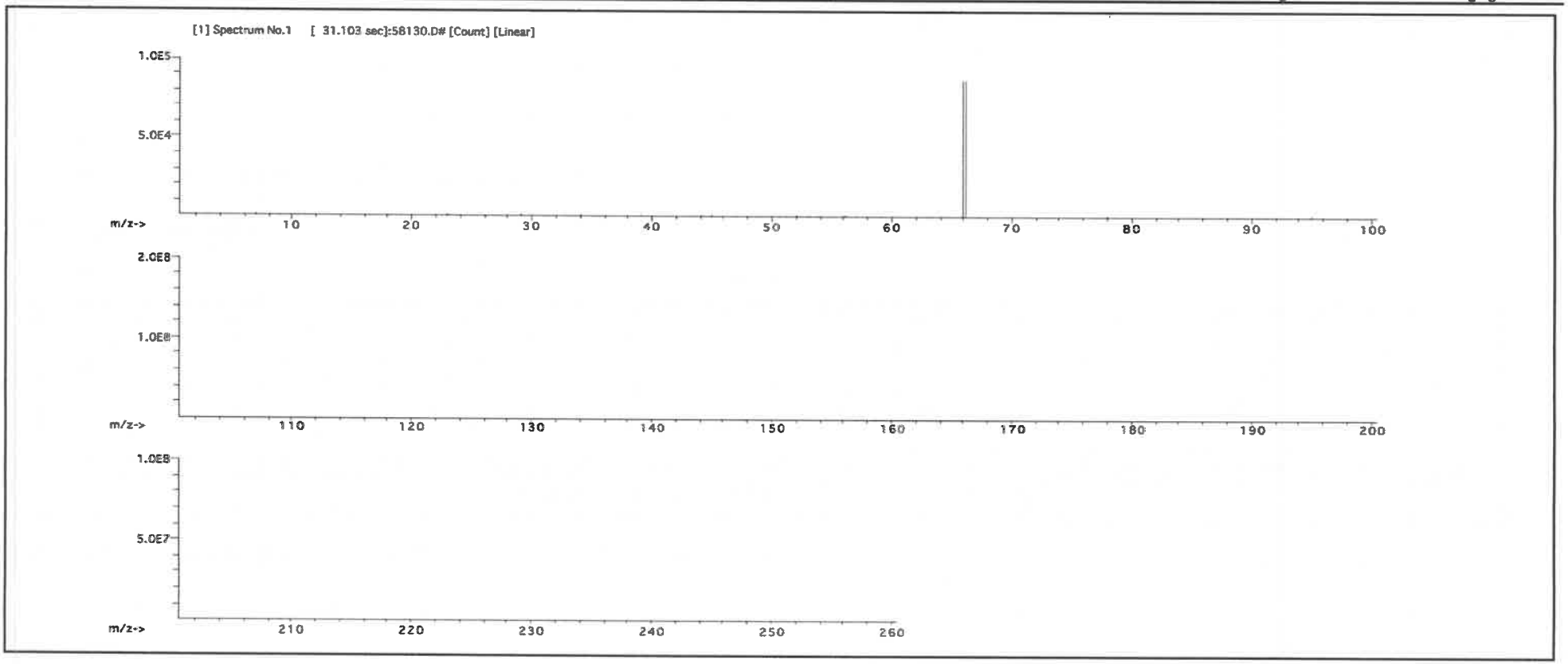
Expiration Date: 111626
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 3000.4 ± 0.06 Flask Uncertainty

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	
	5E-05	Balance Uncertainty	

Formulated By:	Benson Chan	111623
Reviewed By:	Pedro L. Rentas	111623

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Zinc nitrate hexahydrate (Zn)	IN016	ZNE032021A1	1000	99.999	0.10	24.3	12.3475	12.3502	**1000.2**	**2.0**	10196-18-6	1 mg/m3	orl-rat 1190mg/kg	3168



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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	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	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	T
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:

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Certified by:

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Certified Reference Material CRM

R: 02/09/24 M5820

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CERTIFIED WEIGHT REPORT:

Part Number: 57015
Lot Number: 091123
Description: Phosphorous (P)

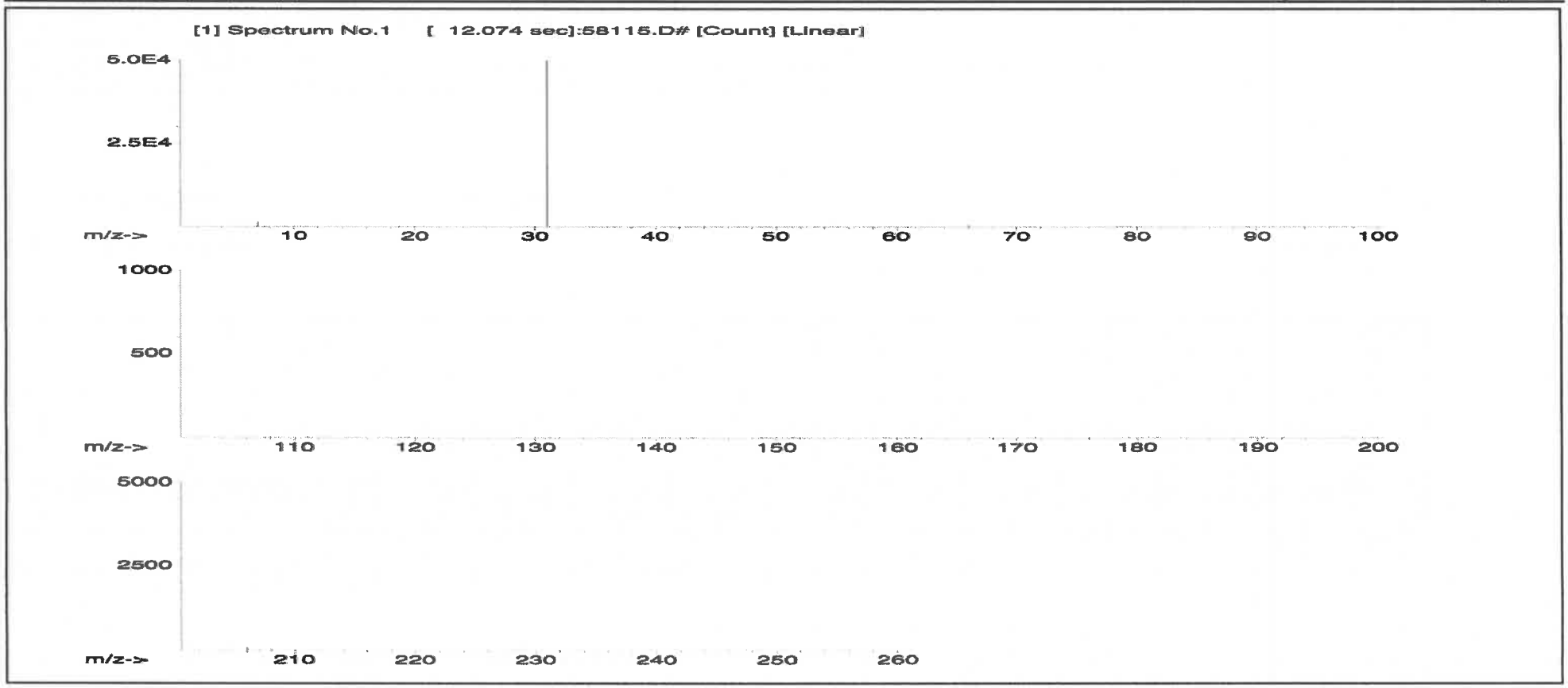
Expiration Date: 091126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 2000.02 ± 0.058 Flask Uncertainty

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	
	5E-05	Balance Uncertainty	

Formulated By:	Lawrence Barry	091123
Reviewed By:	Pedro L. Rentas	091123

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium dihydrogen phosphate (P)	IN008	PV082019A1	1000	99.999	0.10	27.5	7.2729	7.2730	**1000.0**	**2.0**	7722-76-1	5 mg/m3	orl-rat >2000mg/k	3186



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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	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	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

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

MF884
MB

avantor™ | J.T.Baker®

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

Certificate of Analysis

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

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

James T Ethier

Jamie Ethier
Vice President Global Quality

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

INORGANIC VENTURES
Refine your results. Redefine your industry.

Certificate of Analysis

M5959 R: 6/14/24.

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).

ACCREDITED Testing Laboratory Certificate 863.01
ACCREDITED Reference Material Producer Certificate 863.02

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:

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

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 Pt0 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

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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

M5962 R! 06/14/24.

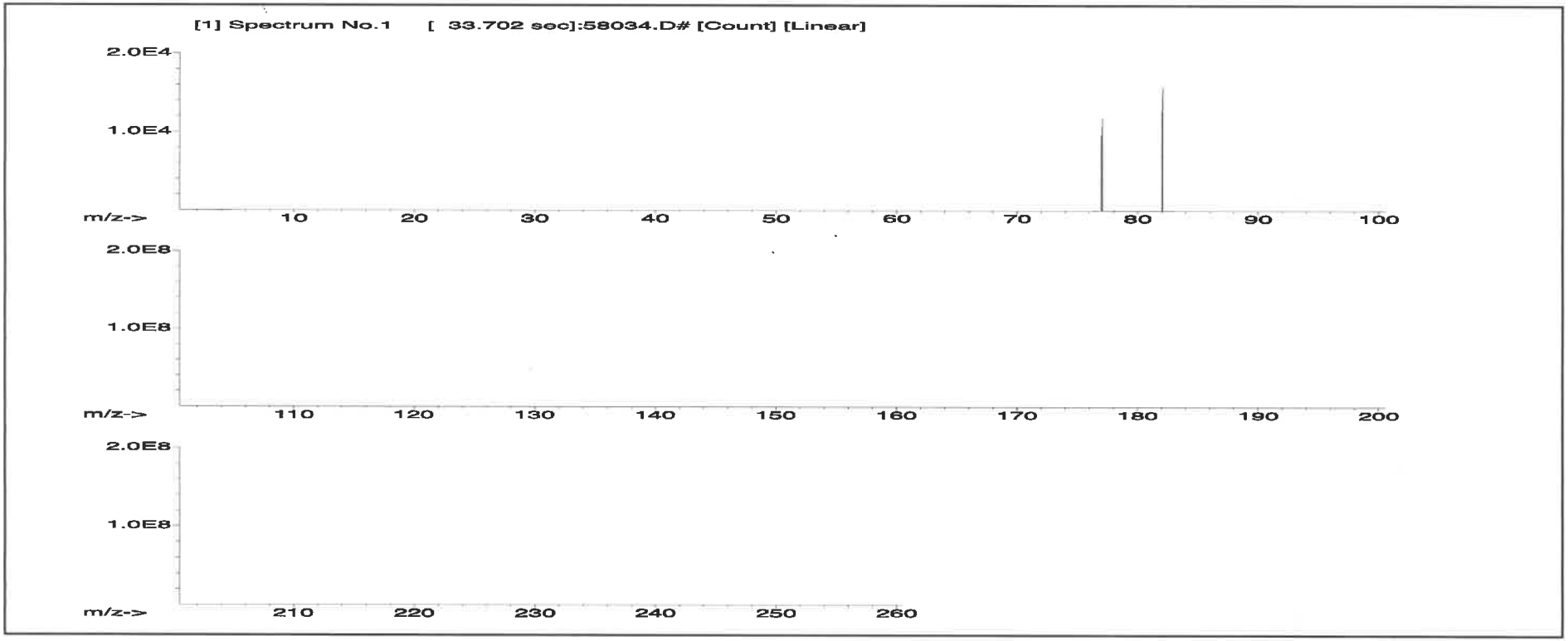
ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57034**	24002546	Nitric Acid	
Lot Number:	**060624**			
Description:	**Selenium (Se)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	060627			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty	

Formulated By:	Benson Chan	060624
Reviewed By:	Pedro L. Rentas	060624

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 (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	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	orl-rat 6700 mg/kg	3149



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Certified Reference Material CRM

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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	Pr	<0.02	Se	T	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	<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 certifed (+/-) 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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Certified Reference Material CRM

M5970, M5971 R: 7/01/24

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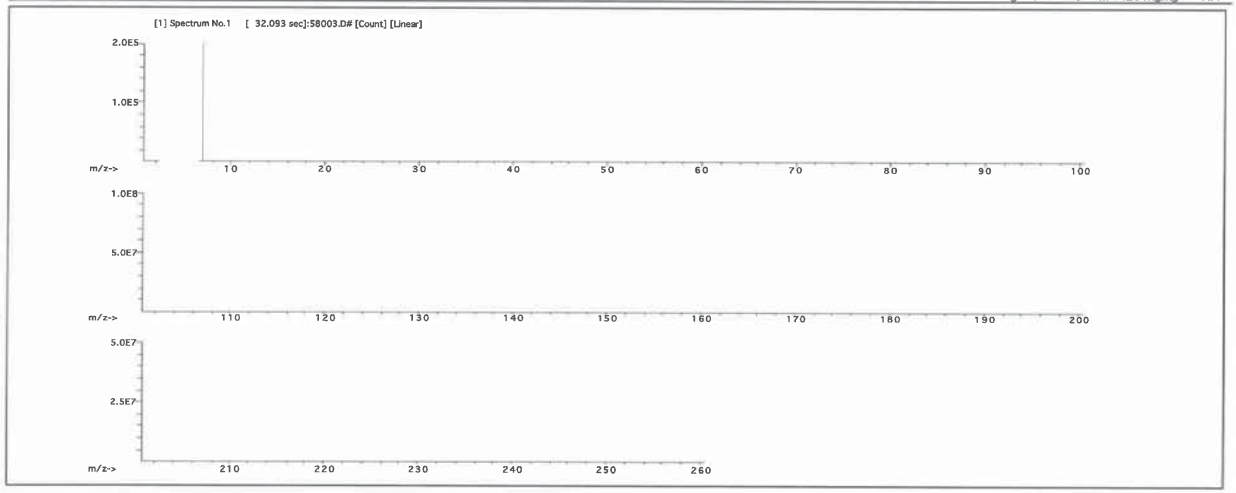
CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:		
Part Number:	**57003**	24002546	Nitric Acid		
Lot Number:	**062124**				
Description:	**Lithium (Li)**	2.0%	5.0 (mL)	Nitric Acid	
Expiration Date:	062127				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	250.11	0.016	Flask Uncertainty		

Giovanni Esposito
Formulated By: Giovanni Esposito 062124

Pedro Rentas
Reviewed By: Pedro L. Rentas 062124

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 (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lithium nitrate (Li)	58103	070622	0.1000	25.0	0.004	1000	10000.4	**1000.0**	**2.0**	7790-69-4	5 mg/m3	orl-rat 1426 mg/kg	NA



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Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
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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	T	Ni	<0.02	Pr	<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	<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 certifed (+/-) 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).

MS978, MS979

Certificate of Analysis

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Christiansburg, VA 24073 USA
inorganicventures.com

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info@inorganicventures.com

R: 2/22/24

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).

ACCREDITED Testing Laboratory Certificate 865.01

ACCREDITED Reference Material Producer Certificate 865.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGT11
Lot Number:	T2-TI719972
Matrix:	2% (v/v) HNO3 tr. HF
Value / Analyte(s):	1 000 µg/mL ea: Titanium
Starting Material:	TI Metal
Starting Material Lot#:	2094
Starting Material Purity:	99.9975%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 5 µg/mL

Density: 1.012 g/mL (measured at 20 ± 4 °C)

Assay Information:

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:

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

x_i = mean of Assay Method i with standard uncertainty $u_{Char\ i}$

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

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

CRM/RM Expanded Uncertainty ($\pm$) = $U_{CRM/RM} = k\ (u^2_{Char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{Char} = [\Sigma(w_i)^2\ (u_{Char\ i})^2]^{½}$ 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:

$$X_{CRM/RM} = (\Sigma x_a)\ (u_{Char\ a})$$

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty ($\pm$) = $U_{CRM/RM} = k\ (u^2_{Char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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	<	0.000536	M	Eu	<	0.000268	O	Na	<	0.032670	M	Se		0.001204	O	Zn	<	0.003267
O	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		0.000096				
O	B	<	0.008929	M	Ge	<	0.002146	M	Os	<	0.000269	O	Sr		0.000096				
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	Ce	<	0.000268	M	K		0.001172	M	Rb	<	0.000268	M	Tl	<	0.000268				
M	Co	<	0.004293	M	La	<	0.000268	M	Re	<	0.000268	M	Tm	<	0.000268				
M	Cr		0.000752	O	Li	<	0.027225	M	Rh	<	0.000268	M	U	<	0.000268				
M	Cs	<	0.000268	M	Lu	<	0.000268	M	Ru	<	0.000269	M	V	<	0.019855				
O	Cu	<	0.010890	O	Mg	<	0.005445	i	S	<		M	W		0.000473				
M	Dy	<	0.000268	O	Mn	<	0.003267	M	Sb	<	0.006976	M	Y	<	0.002146				
M	Er	<	0.000268	M	Mo		0.000774	O	Sc	<	0.004900	M	Yb	<	0.000536				

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 - 47.87 +4 6 Ti(F)6-2

Chemical Compatibility - 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 unless they are fluorinated). 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 for months in 1% 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); Oxide - high temperature history (~800EC) brookite (fuse in Pt0 with K2S2O7); Ores (fuse in Pt0 with KF + K2S2O7 - no KF if silica not present); Organic Matrices (Dry ash at 450EC in Pt0 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 crystalline 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, 14N16O18O, 14N17N2, 36Ar12C, 48Ca, [96X=2 (where X = Zr, Mo, Ru)]
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1	Ce, Ar, Ni
ICP-OES 334.941 nm	0.0038 / 0.000028 µg/mL	1	Nb, Ta, Cr, U
ICP-OES 336.121 nm	0.0053 / 0.000034 µg/mL	1	W, Mo, Co

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

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.5798; 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

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 property 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 Kozlkowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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Certificate of Analysis

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inorganicventures.com

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F: 540-585-3012
info@inorganicventures.com

MS985
R: 6/14/24

1.0 ACCREDITATION / REGISTRATION

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ACCREDITED Testing Laboratory Certificate 863.01
ACCREDITED Reference Material Producer Certificate 863.02

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:

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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 Pt0 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



INORGANIC VENTURES™
Refine your results. Redefine your industry.

Certificate of Analysis

M6074
M6075
M6076
M6077

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

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

EXP.: 9/6/2029

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CHEM-CLP-4
Lot Number:	V2-MEB746762
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 ± 5 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	1 000 ± 6 µg/mL		

Density: 1.033 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
Mo	ICP Assay	traceable to 3134	U2-MO739068
Si	ICP Assay	Traceable to 3150	S2-SI702546
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	traceable to 3162a	T2-TI725816

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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)

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. 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

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 06, 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

- September 06, 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 Approved By:

Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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

avantor™ | J.T.Baker®

R → 10/13/24
Met dig

M 6121

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

Certificate of Analysis

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

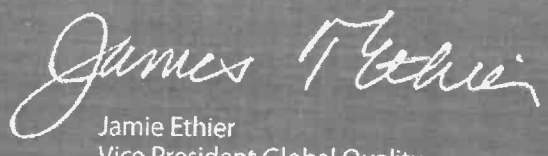
For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

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

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

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

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



Jamie Ethier
Vice President Global Quality

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

M6125 Receive -> 11/22/24

CORCO CHEMICAL CORPORATION

Manufacturers of ACS Reagents and Semiconductor Grade Chemicals

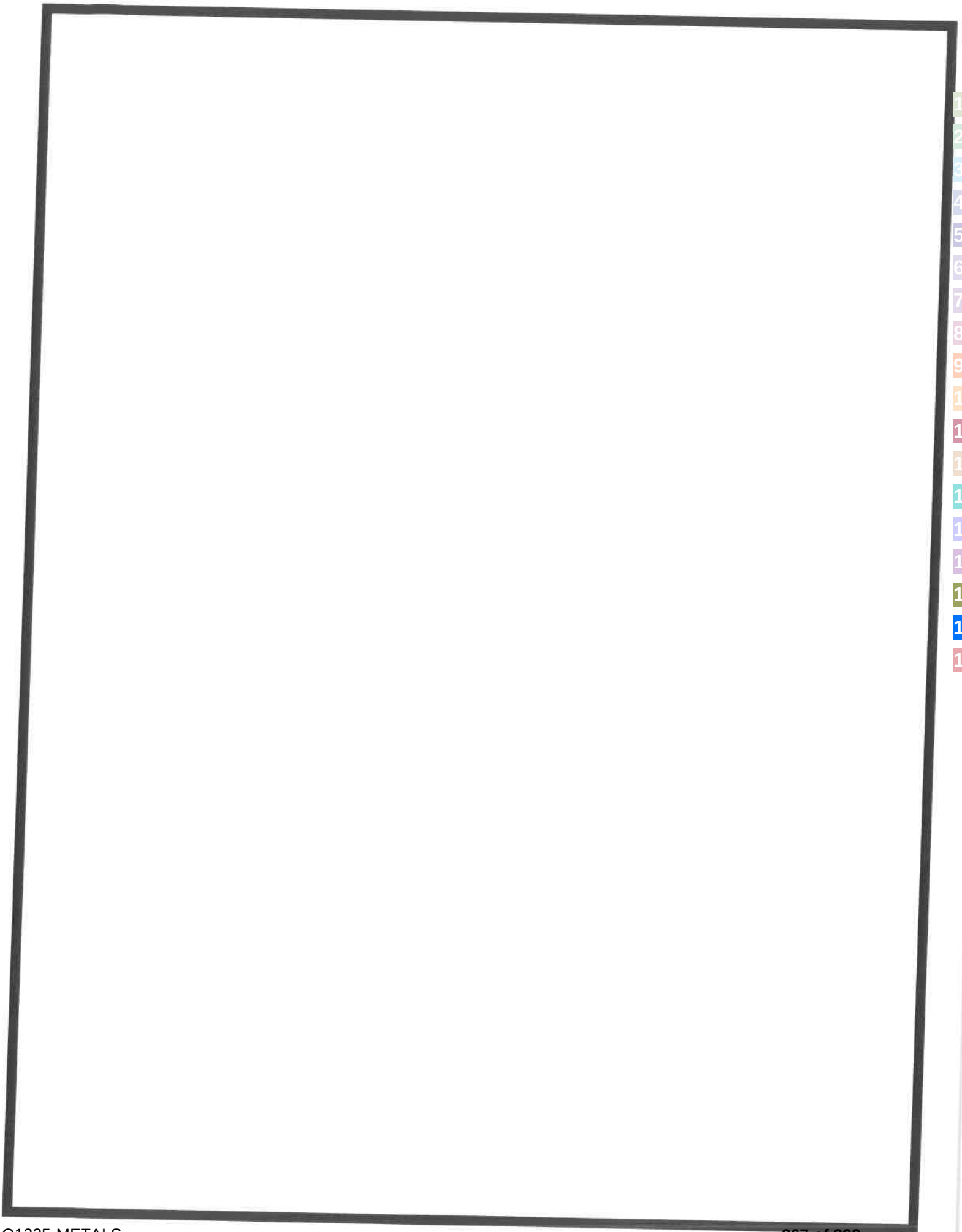
Office and Plant
299 Cedar Lane
Fairless Hills, PA 19030

Phone: 215-295-5006
Fax: 215-295-0781

Hydrogen Peroxide 30%, ACS

Reagent Grade

SPECIFICATION	MAXIMUM LIMITS
Appearance	Colorless and free from suspended matter or sediment
Assay	29-32%
Color (APHA)	10
Residue after Evaporation	0.002%
Titratable Acid	0.0006 meq/g
Chloride (Cl)	3 ppm
Nitrate (NO_3)	2 ppm
Phosphate	2 ppm
Sulfate (SO_4)	5 ppm
Ammonium (NH_4)	5 ppm
Heavy Metals (as Pb)	1 ppm
Iron (Fe)	0.5 ppm



Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

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 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

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

Test	Specification	Result

For Microelectronic Use

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

Jamie Croak
Director Quality Operations, Bioscience Production

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Certified Reference Material CRM

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AR-1539 Certificate Number
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CERTIFIED WEIGHT REPORT:

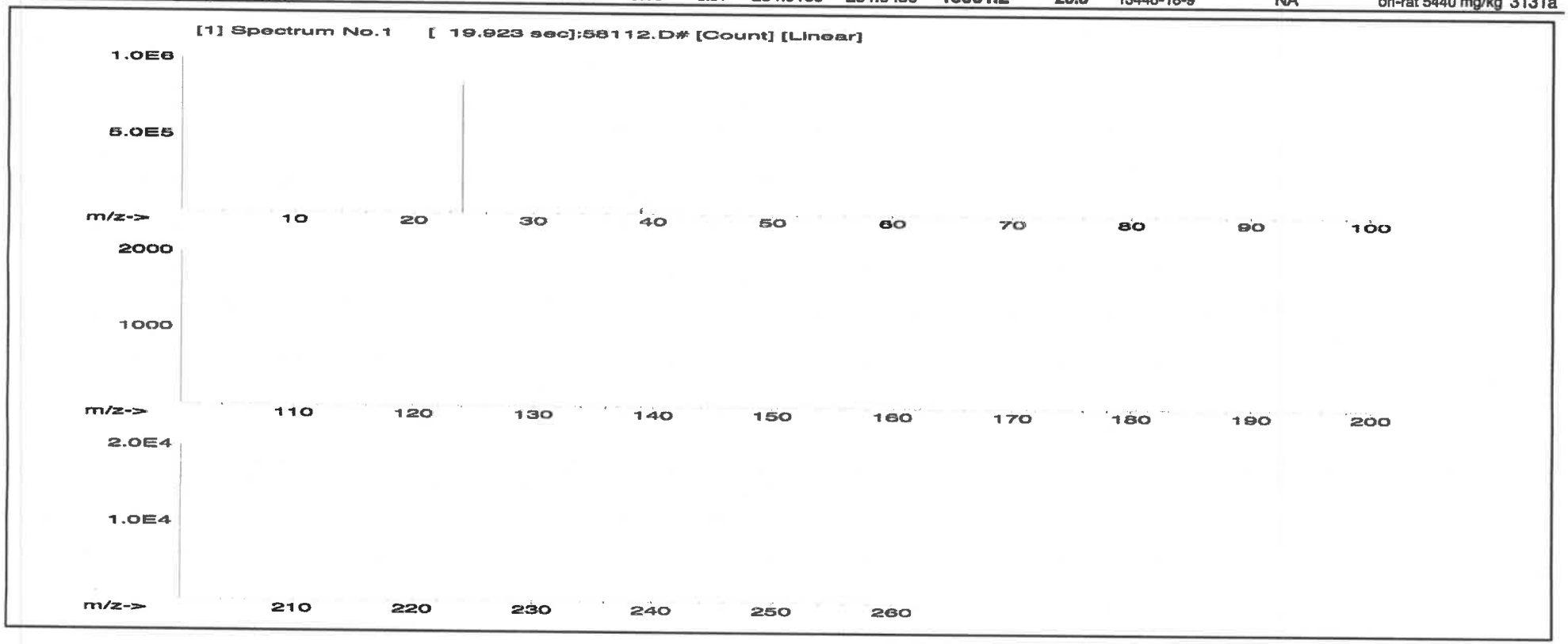
R -> 1/13/25
M 6127

Part Number:	**58112**		**Solvent:**	**Lot #** 24012496	Nitric Acid
Lot Number:	**112124**				
Description:	**Magnesium (Mg)**		2%	40.0 (mL)	Nitric Acid
Expiration Date:	112127				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**10000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty		

Giovanni Esposito

Formulated By:	Giovanni Esposito	112124
Reviewed By:	Pedro L. Rentas	112124

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Magnesium nitrate hexahydrate (Mg)	IN030	MGD052023A1	10000	99.999	0.10	8.51	234.9183	234.9459	**10001.2**	**20.0**	13446-18-9	NA	orl-rat 5440 mg/kg	3131a



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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	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
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:

Certified by:

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

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* 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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CERTIFIED WEIGHT REPORT:

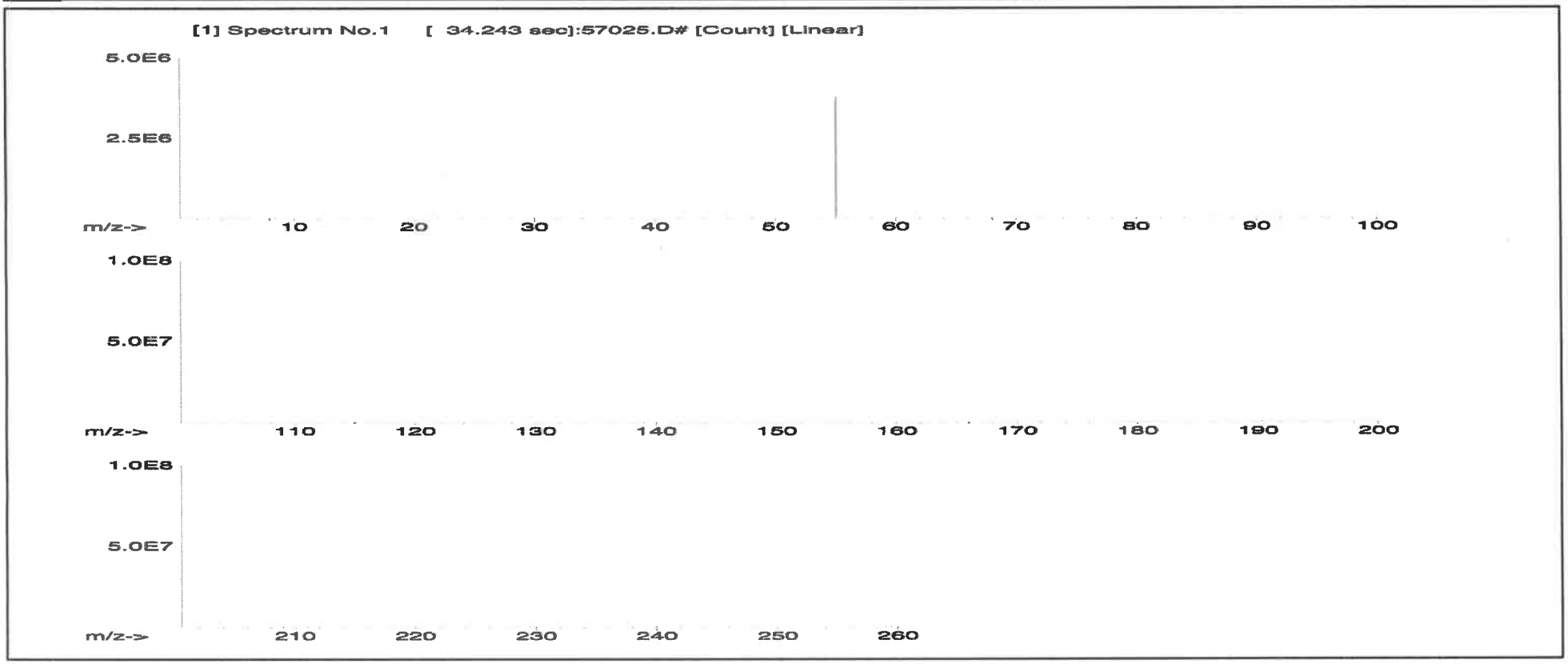
R->1/13/25
M6128

Part Number:	**58025**	**Solvent:**	**Lot #** 24002546	Nitric Acid
Lot Number:	**101124**			
Description:	**Manganese (Mn)**	2%	80.0 (mL)	Nitric Acid
Expiration Date:	101127			
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):	4000.2	0.10	Flask Uncertainty	

Giovanni Esposito

Formulated By:	Giovanni Esposito	101124
Reviewed By:	Pedro L. Rentas	101124

	Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	**Actual Conc. (µg/mL)**	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1.	Manganese(II) nitrate hydrate (Mn)	IN031	MNM092020A1	1000	99.999	0.10	20.8	19.2322	19.2344	**1000.1**	**2.0**	15710-66-4	5 mg/m3	orl-rat >300mg/kg	3132



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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	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	T	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:

Certified by:

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

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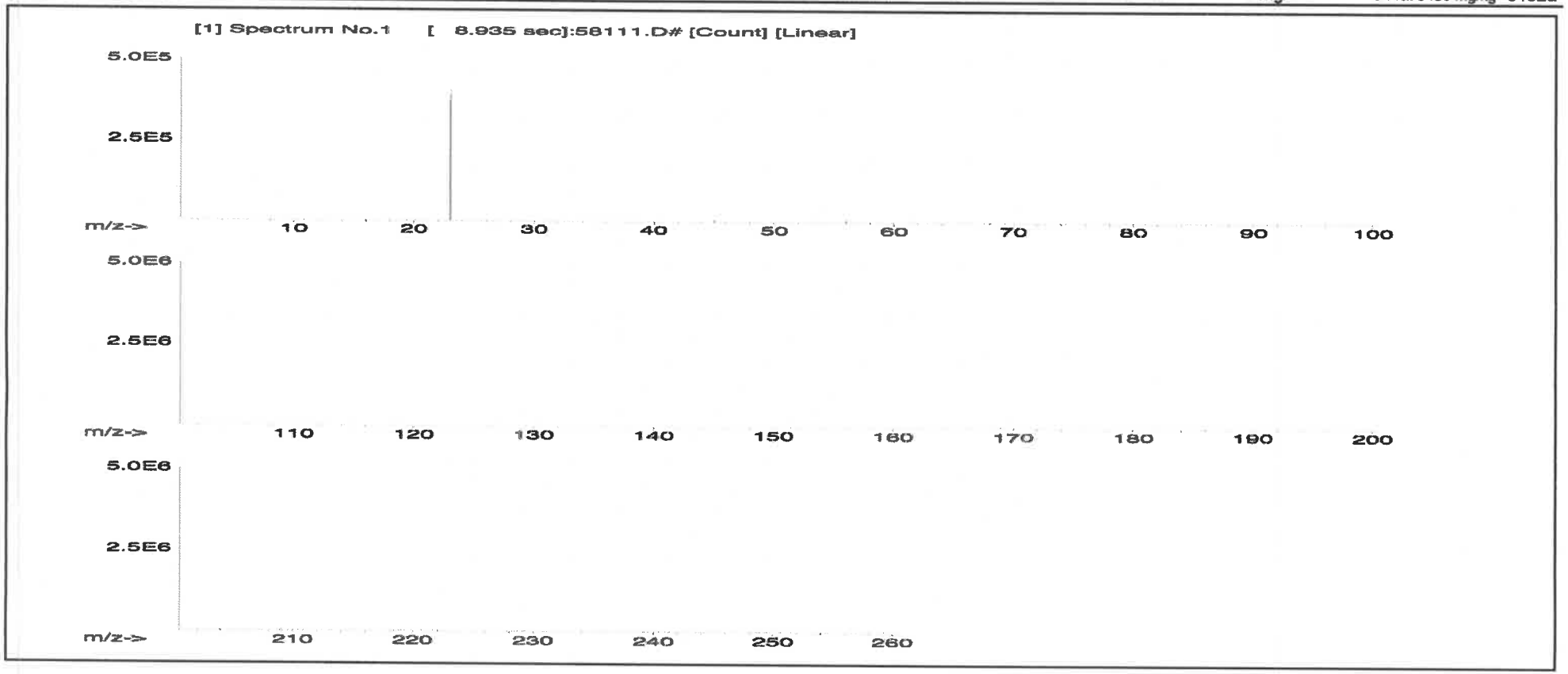
CERTIFIED WEIGHT REPORT:

R->1/13/25

Part Number:	**58111**			**Lot #**	
Lot Number:	**072424**	**Solvent:**	24002546	Nitric Acid	
Description:	**Sodium (Na)**				
		MG144 2%	80.0 (mL)	Nitric Acid	
Expiration Date:	072427				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**10000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	4000.2	0.10	Flask Uncertainty		

Formulated By:	Benson Chan 072424
Reviewed By:	Pedro L. Rentas 072424

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Sodium nitrate (Na)	IN036	NAV012015I1	10000	99.999	0.10	26.9	148.7096	######	**10000.0**	**20.0**	7631-99-4	5 mg/m3	orl-rat 3430 mg/kg	3152a



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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	Pr	<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	<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	T	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:

Certified by:

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

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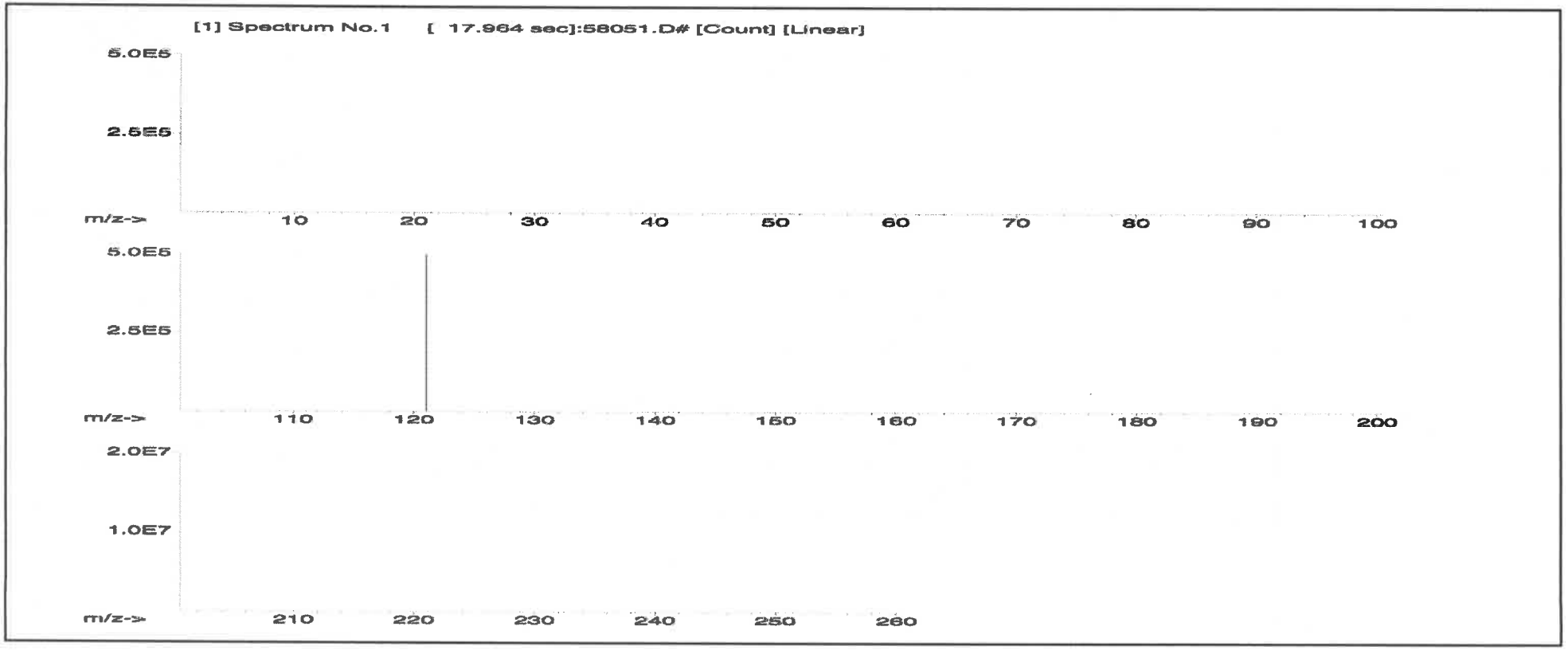
R: 01/03/24 M5802, M5803

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57051**	24002546	Nitric Acid	
Lot Number:	**120523**			
Description:	**Antimony (Sb)**			
		2.0%	60.0 (mL)	Nitric Acid
Expiration Date:	120526			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	3000.41	0.058	Flask Uncertainty	

Formulated By:	Lawrence Barry	120523
Reviewed By:	Pedro L. Rentas	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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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	orl-rat 7000 mg/kg	3102a



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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	Pr	<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	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:

Certified by:

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

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M6030

R: 8/5/24

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CERTIFIED WEIGHT REPORT:

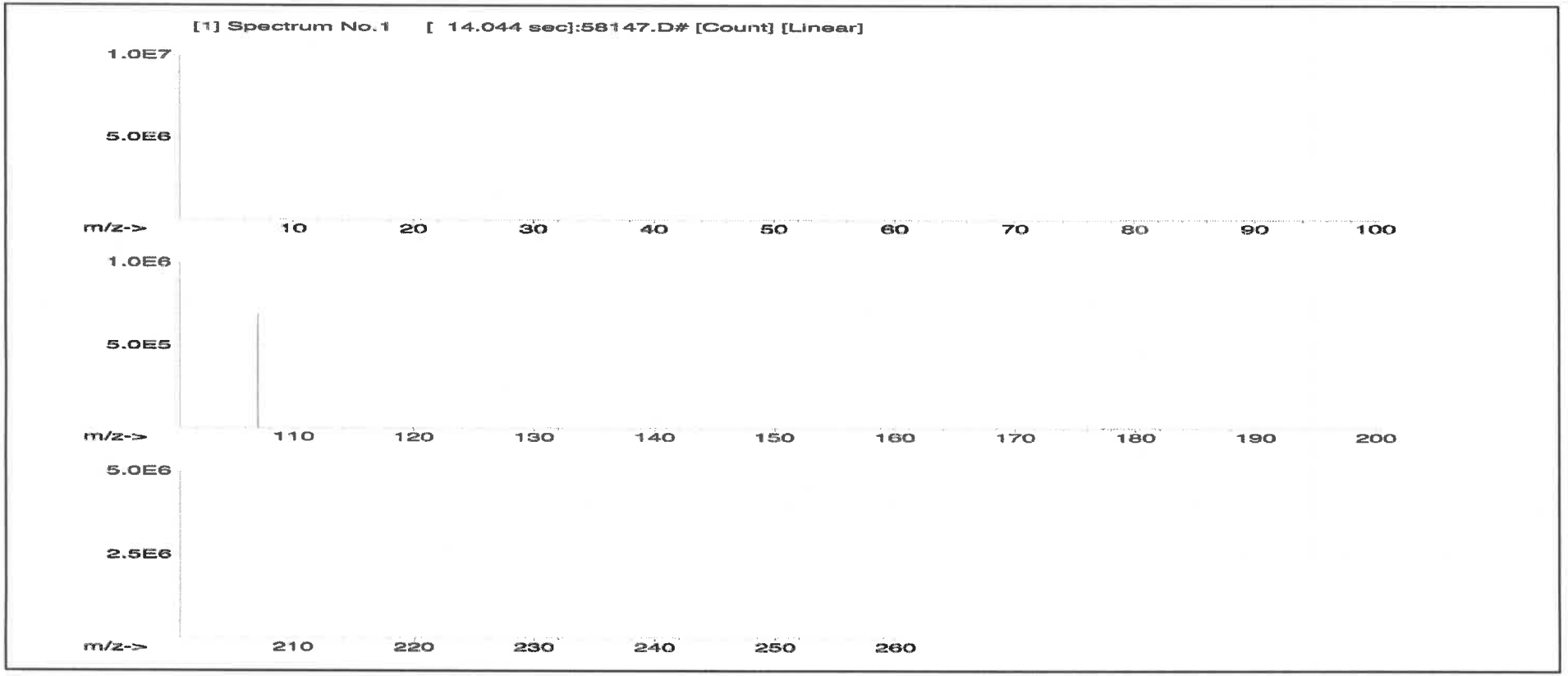
Part Number: 57047
Lot Number: 122823
Description: Silver (Ag)

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

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	80.0 (mL)	Nitric Acid	
	5E-05	Balance Uncertainty	
	0.058	Flask Uncertainty	

Formulated By:	Benson Chan	122823
Reviewed By:	Pedro L. Rentas	122823

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Silver nitrate (Ag)	IN035	J0612AGA1	1000.0	99.9999	0.10	63.7	6.27992	6.27998	**1000.0**	**2.0**	7761-88-8	10 ug/m3	NA	3151



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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	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	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

(T)= Target analyte

Physical Characterization:

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Certified by:

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Certificate of Analysis

R: 8/5/24 M6019

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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).

ACCREDITED Testing Laboratory Certificate 888.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGSR1
Lot Number:	U2-SR730227
Matrix:	0.1% (v/v) HNO3
Value / Analyte(s):	1 000 µg/mL ea: Strontium
Starting Material:	SrCO3
Starting Material Lot#:	M2-2192
Starting Material Purity:	99.9993%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1001 ± 3 µg/mL

Density: 1.000 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 **998 ± 4 µg/mL**
ICP Assay NIST SRM Traceable to 3153a Lot Number: K2-SR650985

Assay Method #2 **1001 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

Assay Method #3 **1001 ± 2 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:

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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	<	0.001980	M	Eu	<	0.000495	O	Na		0.000200	M	Se	<	0.013862	O	Zn		0.000143
O	Al		0.000370	O	Fe		0.000410	M	Nb	<	0.000495	i	Si	<		M	Zr	<	0.000495
M	As	<	0.000495	M	Ga	<	0.000495	M	Nd	<	0.000495	M	Sm	<	0.000495				
M	Au	<	0.000989	M	Gd	<	0.000495	O	Ni	<	0.007631	M	Sn	<	0.000990				
M	B	<	0.039606	M	Ge	<	0.000495	M	Os	<	0.000494	s	Sr	<					
M	Ba		0.006486	M	Hf	<	0.000495	i	P	<		M	Ta	<	0.000495				
M	Be	<	0.000990	M	Hg	<	0.000989	M	Pb	<	0.002970	M	Tb	<	0.000495				
M	Bi	<	0.000495	M	Ho	<	0.000495	M	Pd	<	0.003957	M	Te	<	0.027724				
O	Ca		0.004255	M	In	<	0.000495	M	Pr	<	0.000495	M	Th	<	0.000990				
M	Cd		0.001339	M	Ir	<	0.000494	M	Pt	<	0.002970	M	Ti	<	0.005940				
M	Ce	<	0.004950	O	K	<	0.008184	M	Rb	<	0.002970	M	Tl	<	0.000495				
M	Co	<	0.000495	M	La	<	0.000495	M	Re	<	0.000495	M	Tm	<	0.000495				
O	Cr	<	0.003207	O	Li	<	0.000884	O	Rh	<	0.012829	M	U	<	0.001485				
M	Cs	<	0.000990	M	Lu	<	0.002970	M	Ru	<	0.000989	M	V	<	0.001980				
M	Cu		0.000099	O	Mg		0.000064	i	S	<		M	W	<	0.003960				
M	Dy	<	0.000495	O	Mn		0.000066	M	Sb	<	0.014852	O	Y	<	0.000995				
M	Er	<	0.000495	M	Mo	<	0.001980	M	Sc	<	0.001980	M	Yb	<	0.000495				

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 - 87.62 +2 6 $Sr(H_2O)_{6}^{+2}$

Chemical Compatibility - Soluble in HCl, and HNO_3. Avoid H_2SO_4, HF and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicate, carbonate, hydroxide, oxide, fluoride, sulfate, oxalate, chromate, arsenate and tungstate in neutral aqueous media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1 - 3.5% HNO_3 / LDPE container.

Sr Containing Samples (Preparation and Solution) -Metal (Best dissolved in diluted HNO_3); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (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 88 amu	1200 ppt	N/A	72Ge16O, 176Yb+2, 176Lu+2 , 176Hf+2
ICP-OES 407.771 nm	0.0004 / 0.00006 µg/mL	1	U, Ce
ICP-OES 421.552 nm	0.0008 / 0.00004 µg/mL	1	Rb
ICP-OES 460.733 nm	0.07 / 0.003 µg/mL	1	Ce

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

March 03, 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 03, 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



Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M6023

R ! 8/5/24

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

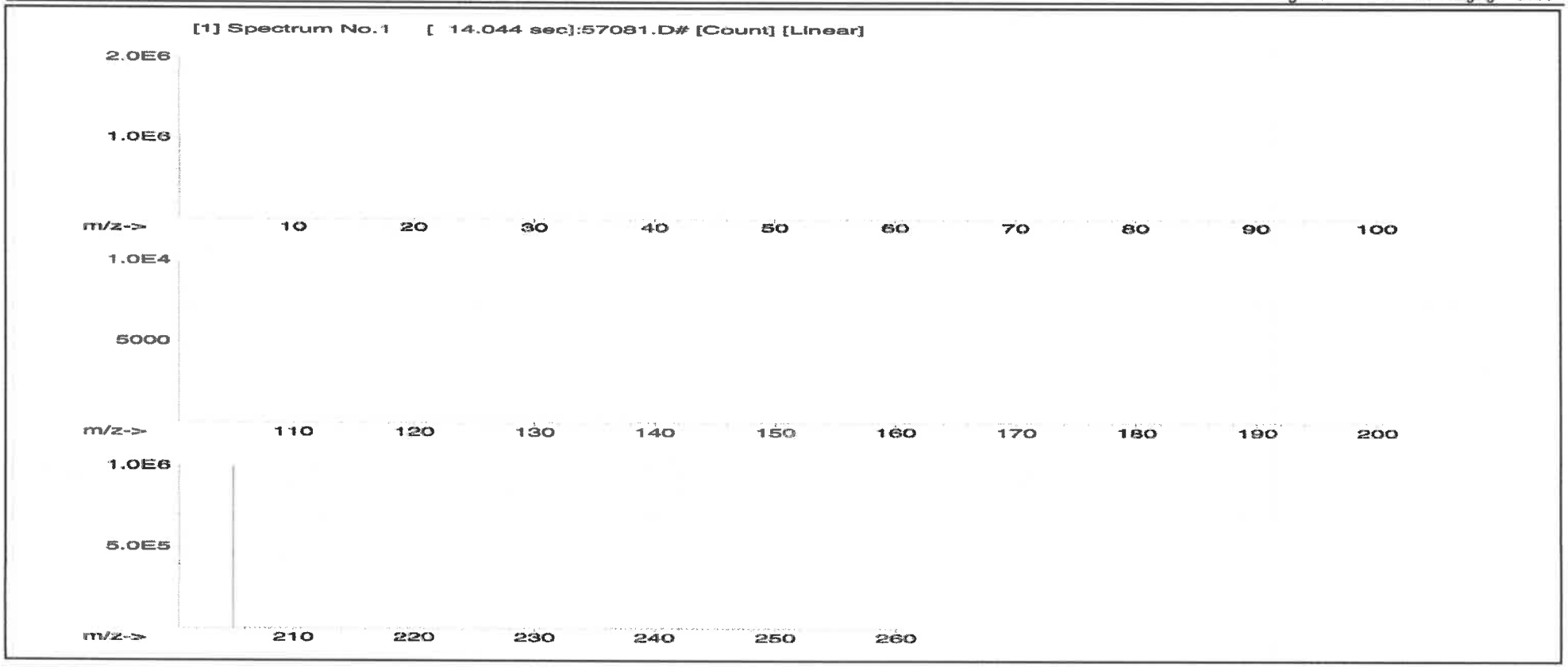
CERTIFIED WEIGHT REPORT:

Part Number:	**57081**			**Lot #**	
Lot Number:	**062724**		**Solvent:**	24002546	Nitric Acid
Description:	**Thallium (Tl)**				
			2%	40.0 (mL)	Nitric Acid
Expiration Date:	062727				
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		

Aleah O'Brady

Formulated By:	Aleah O'Brady	062724
Reviewed By:	Pedro L. Rentas	062724

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Thallium nitrate (Tl)	IN037	BCCF4399	1000	99.999	0.10	77.0	2.5975	2.5977	**1000.1**	**2.0**	10102-45-1	0.1 mg/m3	orl-mus 15mg/kg	3158



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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	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	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	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 certifed (+/-) 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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Certified Reference Material CRM

M6021

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AR-1539 Certificate Number
https://Absolutestandards.com

Rc. 8/5/24

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	57023	24002546	Nitric Acid	
Lot Number:	062424			
Description:	Vanadium (V)	2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	062427			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	1000			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.3	0.06	Flask Uncertainty	

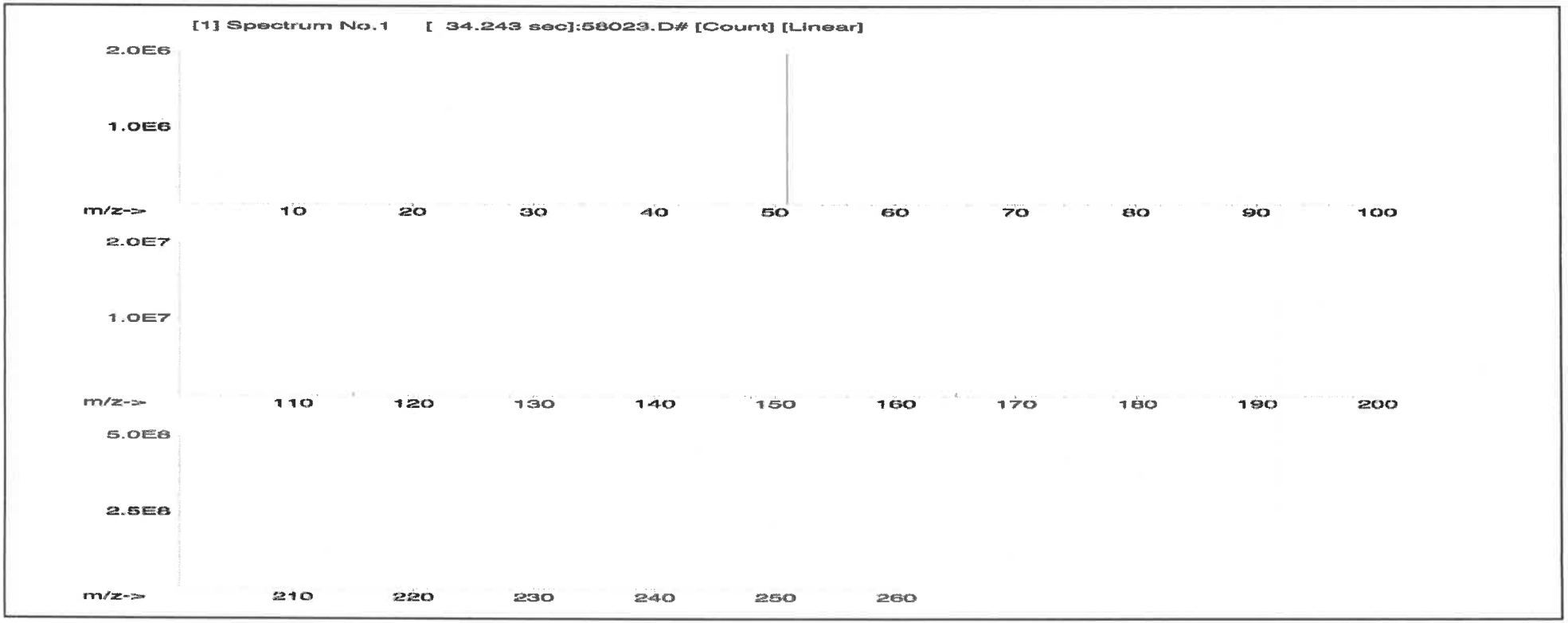
Aleah O'Brady

Formulated By:	Aleah O'Brady	062424

Pedro Rentas

Reviewed By:	Pedro L. Rentas	062424

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 (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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	orl-rat 58.1mg/kg	3165



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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	<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	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 certifed (+/-) 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).

SHIPPING DOCUMENTS

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 • Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. Q1235
QUOTE NO.
COC Number 2041689

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: RU2 Engineering LLC
ADDRESS: 2 Melinda Drive, Monroe Twp, NJ 08831
CITY STATE: ZIP:
ATTENTION: Rutu Manani
PHONE: 609-409-4564 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: SANDTWOBR BMCR Project
PROJECT NO.: LOCATION: Brooklyn, NYC
PROJECT MANAGER: Rutu Manani
e-mail: Rmanani@RU2eng.com
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: Same as company address PO#:
ADDRESS:
CITY STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX (RUSH) Standard 10 days DAYS*
HARDCOPY (DATA PACKAGE): Standard 10 days DAYS*
EDD: Standard 10 days DAYS*
*TO BE APPROVED BY CHEMTECH
STANDARD HARDCOPY TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

- ☐ Level 1 (Results Only)
- ☐ Level 2 (Results + QC)
- ☐ Level 3 (Results + QC + Raw Data)
- ☐ Level 4 (QC + Full Raw Data)
- ☐ NJ Reduced
- ☐ NYS ASP A
- ☒ NYS ASP B
- ☐ Other
- ☐ EDD FORMAT

ANALYSIS

1 TCL VOC + TICs MTBE/TBA
2 TCLP VOCs
3 TPH GRO-DRO
4 TCL SVOCs + TICs
5 TAL Metals
6 Pesticides, PCBs
7 RCRA Characteristics
8 Paint filter
9 full TCLP

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	JPP-51.2-012925	So;l		G	1/29/25	14:50	3	X	X	X							
2.	JPP-51.2-012925	So;l	C		1/29/25	15:00	8			X	X	X	X	X	X	X	
3.	JPP-16.1-012925	So;l		G	1/29/25	15:54	3	X	X	X							
4.	JPP-16.1-012925	So;l	C		1/29/25	16:00	8			X	X	X	X	X	X	X	
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

PRESERVATIVES: 1 2 3 4 5 6 7 8 9
COMMENTS: ← Specify Preservatives
A-HCl D-NaOH
B-HN03 E-ICE
C-H2SO4 F-OTHER

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

	DATE/TIME	RECEIVED BY
1. RELINQUISHED BY SAMPLER: RA	1/30/2025	1. 1095 1-30-25
2. RELINQUISHED BY SAMPLER:	DATE/TIME:	2. RECEIVED BY:
3. RELINQUISHED BY SAMPLER:	DATE/TIME: 1152 1-30-25	3. RECEIVED BY:

Conditions of bottles or coolers at receipt: ☐ COMPLIANT ☐ NON COMPLIANT ☐ COOLER TEMP 3.1 °C
Comments: Preserve extra Sample Jar if additional analysis is Required.

Page 2 of 2

CLIENT: ☐ Hand Delivered ☐ Other
CHEMTECH: ☐ Picked Up ☐ Field Sampling

Shipment Complete ☐ YES ☐ NO

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WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

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

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

LOGIN REPORT/SAMPLE TRANSFER

Order ID : Q1235 RUTW01
Client Name : RU2 Engineering, LLC
Client Contact : Rutu Manani
Invoice Name : RU2 Engineering, LLC
Invoice Contact : Rutu Manani

Order Date : 1/30/2025 12:15:00 PM
Project Name : ~~SANDTWOBR BMCR Bro~~ NYCDDC SANTWOBR Brooklyn Bridge BBMCR
Receive DateTime : 1/30/2025 11:52:00 AM
Purchase Order :

YG 02/04/25

Project Mgr :
Report Type : NYS ASP B
EDD Type : Excel NY
Hard Copy Date :
Date Signoff :

LAB ID	CLIENT ID	MATRIX	SAMPLE DATE	SAMPLE TIME	TEST	TEST GROUP	METHOD	FAX DATE	DUE DATES
Q1235-01	JPP-51.2-012925	Solid	01/29/2025	14:50					
					VOCMS Group1		8260D		10 Bus. Days
Q1235-05	JPP-16.1-012925	Solid	01/29/2025	15:54					
					VOCMS Group1		8260D		10 Bus. Days

Relinguished By :
Date / Time : 1/30/25 1300

Received By :
Date / Time : 1-30-25 13:00

Storage Area : VOA Refridgerator Room

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

LOGIN REPORT/SAMPLE TRANSFER

Order ID : Q1235 RUTW01
Client Name : RU2 Engineering, LLC
Client Contact : Rutu Manani
Invoice Name : RU2 Engineering, LLC
Invoice Contact : Rutu Manani

Order Date : 1/30/2025 12:15:00 PM YG 02/04/25
Project Name : ~~SANDTWOBR BMCR Bro~~ NYCDDC SANTWOBR Brooklyn Bridge BBMCR
Receive DateTime : 1/30/2025 11:52:00 AM
Purchase Order :

Project Mgr :
Report Type : NYS ASP B
EDD Type : Excel NY
Hard Copy Date :
Date Signoff :

LAB ID	CLIENT ID	MATRIX	SAMPLE DATE	SAMPLE TIME	TEST	TEST GROUP	METHOD	FAX DATE	DUE DATES
Q1235-01	JPP-51.2-012925	Solid	01/29/2025	14:50					
					Gasoline Range Organics		8015D		10 Bus. Days
Q1235-05	JPP-16.1-012925	Solid	01/29/2025	15:54					
					Gasoline Range Organics		8015D		10 Bus. Days

Relinguished By :
Date / Time : 1/30/25 1300

Received By :
Date / Time : 1-30-25 13:00

Storage Area : VOA Refridgerator Room