284 Sheffield Street, Mountainside, New Jersey 07092, Phone : 908 789 8900,
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DATA PACKAGE

METALS

PROJECT NAME : NJ WASTE WATER PT

ALLIANCE TECHNICAL GROUP, LLC - NEWARK

284 Sheffiled Stree

Suite 1

Mountainside, NJ - 07092

Phone No: 908-789-8900

ORDER ID : Q3016

ATTENTION : Mohammad Ahmed

Laboratory Certification ID # 20012

Table Of Contents for Q3016

1) METALS DATA 2

2) Signature Page 4

3) Case Narrative 5

4) Qualifier Page 6

5) Conformance/Non Conformance 7

6) QA Checklist 8

7) Chronicle 9

8) Hit Summary 10

9) Sample Data 11

- 9.1) WP0925-PT-TM1-WP 12
- 9.2) WP0925-PT-SNTI-WP 13
- 9.3) WP0925-PT-MIN2-WP 14
- 9.4) WP0925-PT-SIO2-WP 15
- 9.5) WP0925-PT-HG-WP 16

10) METALS CALIBRATION DATA 17

- 10.1) Initial and Continuing Calibration Verification 18
- 10.2) CRDL Standard For AA & ICP 26
- 10.3) Initial and Continuing Calibration Blank Summary 27
- 10.4) Preparation Blank Summary 33
- 10.5) Interference Check Sample 35

11) METALS QC DATA 38

- 11.1) Laboratory Control Sample Summary 39

12) METALS PREPARATION & INSTRUMENT DATA 41

- 12.1) ICP Interelement Correction Factors 42

13) PREPARATION & ANALYTICAL SUMMARY 47

- 13.1) Sample Preparation Summary 48
- 13.2) Analysis Run Log 50

14) METALS RAW DATA 52

- 14.1) METALS RAW DATA - ANALYTICAL 53
- 14.2) LB137342 53
- 14.3) LB137392 177
- 14.4) METALS RAW DATA - PREP 179
  - 14.4.1) PB169563 179
  - 14.4.2) PB169747 182

15) Analytical Runlogs 185

16) Standard Prep Logs 190
17) Shipping Document 376
17.1) Chain Of Custody 377
17.2) Lab Certificate 379

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

Cover Page

Order ID : Q3016

Project ID : NJ Waste Water PT

Client : Alliance Technical Group, LLC - Newark

Lab Sample Number	Client Sample Number
Q3016-01	WP0925-PT-TM1-WP
Q3016-02	WP0925-PT-TM1-WP
Q3016-03	WP0925-PT-SNTI-WP
Q3016-04	WP0925-PT-SNTI-WP
Q3016-05	WP0925-PT-MIN2-WP
Q3016-06	WP0925-PT-MIN2-WP
Q3016-07	WP0925-PT-SIO2-WP
Q3016-08	WP0925-PT-HG-WP

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 9:52 am, Nov 21, 2025

Date: 10/13/2025

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

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CASE NARRATIVE

Alliance Technical Group, LLC - Newark
Project Name: NJ Waste Water PT
Project # N/A
Order ID # Q3016
Test Name: Hardness, Calcium,Hardness, Total,,Mercury,Metals Group3,Metals Group4,Metals Group5,Silica

A. Number of Samples and Date of Receipt:
8 Water samples were received on 09/04/2025.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Hardness, Calcium,Hardness, Total,Mercury,Metals Group3,Metals Group4,Metals Group5,Silica. This data package contains results for Hardness, Calcium, Hardness, Total ,Mercury,Metals Group3,Metals Group4,Metals Group5,Silica.

C. Analytical Techniques:
The analysis and digestion of Metals Group3,Metals Group4,Metals Group5,Silica was based on 200.7, and The analysis and digestion of Mercury was based on 245.1.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
Sample WP0925-PT-SIO2-WP was diluted due to high concentrations for Dissolved Silica & Sample WP0925-PT-HG-WP was diluted due to high concentrations for Mercury.
The Blank Spike met requirements for all compounds.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the 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 

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

DATA REPORTING QUALIFIERS- INORGANIC

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

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

ALLIANCE 284 Sheffield Street, Mountainside New Jersey 07092

NEW JERSEY LAB ID#: 20012: NEW YORK LAB ID#: 11376

METALS CONFORMANCE/NON-CONFORMANCE SUMMARY

ORDER ID: Q3016 MATRIX: Water

METHOD: 200.7,200.8,245.1,SM2340B

		NA	NO	YES
1.	Calibration Summary met criteria.			✓
2.	ICP Interference Check Sample Results Summary Submitted.			✓
3.	Laboratory Control Sample Summary (if applicable) Submitted.			✓
4.	Blank Contamination - If yes, list compounds and concentrations in each blank:		✓	
5.	Digestion Holding Time Met			✓
	If not met, list number of days exceeded for each sample:			
6.	Analysis Holding Time Met			✓
	If not met, list those compounds and their recoveries which fall outside the acceptable range. The Holding Times were met for all analysis.			

ADDITIONAL COMMENTS:

QA REVIEW

REVIEWED
By Sohil Jodhani, QA/QC Director at 9:44 am, Nov 21, 2025

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APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: Q3016

	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:** 10/13/2025

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LAB CHRONICLE

OrderID:	Q3016	**OrderDate:**	9/4/2025 10:18:00 AM
Client:	Alliance Technical Group, LLC - Newark	**Project:**	NJ Waste Water PT
Contact:	Mohammad Ahmed	**Location:**	QA Office

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
Q3016-01	**WP0925-PT-TM1-WP**	**Water**			**09/02/25**			**09/04/25**
			Metals Group3	200.7		09/23/25	09/26/25	
Q3016-03	**WP0925-PT-SNTI-WP**	**Water**			**09/02/25**			**09/04/25**
			Metals Group4	200.7		09/23/25	09/26/25	
Q3016-05	**WP0925-PT-MIN2-WP**	**Water**			**09/02/25**			**09/04/25**
			Hardness, Calcium	SM2340B		09/23/25	09/26/25	
			Hardness,Total	200.7		09/23/25	09/26/25	
			Metals Group5					
Q3016-07	**WP0925-PT-SIO2-WP**	**Water**			**09/02/25**			**09/04/25**
			Silica	200.7		09/23/25	09/26/25	
Q3016-08	**WP0925-PT-HG-WP**	**Water**			**09/02/25**			**09/04/25**
			Mercury	245.1		10/02/25	10/02/25	

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Hit Summary Sheet
SW-846

SDG No.: Q3016 **Order ID:** Q3016

Client: Alliance Technical Group, LLC - Newark **Project ID:** NJ Waste Water PT

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Client ID : WP0925-PT-TM1-WP								
Q3016-01	WP0925-PT-TM1-WP	Water	Aluminum	3230		30.8	100	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Antimony	633		5.44	50.0	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Arsenic	222		3.70	20.0	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Barium	1560		19.5	100	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Beryllium	237		0.54	6.00	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Boron	954		13.8	100	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Cadmium	372		0.62	6.00	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Chromium	875		1.06	10.0	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Cobalt	294		2.32	30.0	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Copper	356		3.78	20.0	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Iron	2270		36.0	100	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Lead	996		2.42	12.0	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Manganese	889		4.92	20.0	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Molybdenum	270		17.6	200	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Nickel	611		3.80	40.0	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Selenium	500		5.04	20.0	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Silver	650		1.62	10.0	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Thallium	613		5.02	40.0	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Vanadium	1250		4.98	40.0	ug/L
Q3016-01	WP0925-PT-TM1-WP	Water	Zinc	1160		4.00	40.0	ug/L
Client ID : WP0925-PT-SNTI-WP								
Q3016-03	WP0925-PT-SNTI-WP	Water	Tin	671		5.36	40.0	ug/L
Q3016-03	WP0925-PT-SNTI-WP	Water	Titanium	81.0		7.82	40.0	ug/L
Client ID : WP0925-PT-MIN2-WP								
Q3016-05	WP0925-PT-MIN2-WP	Water	Calcium	79900		173	2000	ug/L
Q3016-05	WP0925-PT-MIN2-WP	Water	Calcium Hardness	200000		432	4990	ug/L
Q3016-05	WP0925-PT-MIN2-WP	Water	Magnesium	28000		208	2000	ug/L
Q3016-05	WP0925-PT-MIN2-WP	Water	Potassium	8330		618	2000	ug/L
Q3016-05	WP0925-PT-MIN2-WP	Water	Sodium	25200		734	2000	ug/L
Q3016-05	WP0925-PT-MIN2-WP	Water	Hardness, Total	315000		1290	13200	ug/L
Client ID : WP0925-PT-SIO2-WP								
Q3016-07	WP0925-PT-SIO2-WP	Water	Dissolved Silica	72100	D	400	4280	ug/L
Client ID : WP0925-PT-HG-WP								
Q3016-08	WP0925-PT-HG-WP	Water	Mercury	27.0	D	0.14	1.00	ug/L

SAMPLE DATA

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Report of Analysis

Client:	Alliance Technical Group, LLC - Newark	Date Collected:	09/02/25
Project:	NJ Waste Water PT	Date Received:	09/04/25
Client Sample ID:	WP0925-PT-TM1-WP	SDG No.:	Q3016
Lab Sample ID:	Q3016-01	Matrix:	Water
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7429-90-5	Aluminum	3230		1	30.8	100	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7440-36-0	Antimony	633		1	5.44	50.0	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7440-38-2	Arsenic	222		1	3.70	20.0	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7440-39-3	Barium	1560		1	19.5	100	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7440-41-7	Beryllium	237		1	0.54	6.00	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7440-42-8	Boron	954		1	13.8	100	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7440-43-9	Cadmium	372		1	0.62	6.00	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7440-47-3	Chromium	875		1	1.06	10.0	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7440-48-4	Cobalt	294		1	2.32	30.0	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7440-50-8	Copper	356		1	3.78	20.0	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7439-89-6	Iron	2270		1	36.0	100	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7439-92-1	Lead	996		1	2.42	12.0	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7439-96-5	Manganese	889		1	4.92	20.0	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7439-98-7	Molybdenum	270		1	17.6	200	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7440-02-0	Nickel	611		1	3.80	40.0	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7782-49-2	Selenium	500		1	5.04	20.0	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7440-22-4	Silver	650		1	1.62	10.0	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7440-28-0	Thallium	613		1	5.02	40.0	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7440-62-2	Vanadium	1250		1	4.98	40.0	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	
7440-66-6	Zinc	1160		1	4.00	40.0	ug/L	09/23/25 09:30	09/26/25 14:39	EPA 200.7	

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	Metals Group3				

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:	Alliance Technical Group, LLC - Newark	Date Collected:	09/02/25
Project:	NJ Waste Water PT	Date Received:	09/04/25
Client Sample ID:	WP0925-PT-SNTI-WP	SDG No.:	Q3016
Lab Sample ID:	Q3016-03	Matrix:	Water
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7440-31-5	Tin	671		1	5.36	40.0	ug/L	09/23/25 09:30	09/26/25 14:27	EPA 200.7	
7440-32-6	Titanium	81.0		1	7.82	40.0	ug/L	09/23/25 09:30	09/26/25 14:27	EPA 200.7	

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	Metals Group4				

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:	Alliance Technical Group, LLC - Newark	Date Collected:	09/02/25
Project:	NJ Waste Water PT	Date Received:	09/04/25
Client Sample ID:	WP0925-PT-MIN2-WP	SDG No.:	Q3016
Lab Sample ID:	Q3016-05	Matrix:	Water
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7440-70-2	Calcium	79900		1	173	2000	ug/L	09/23/25 09:30	09/26/25 14:14	EPA 200.7	
Calcium Hardness	Calcium Hardness	200000		1	432	4990	ug/L	09/23/25 09:30	09/26/25 14:14	EPA 200.7	
Hardness	Hardness, Total	315000		1	1290	13200	ug/L	09/23/25 09:30	09/26/25 14:14	EPA 200.7	
7439-95-4	Magnesium	28000		1	208	2000	ug/L	09/23/25 09:30	09/26/25 14:14	EPA 200.7	
7440-09-7	Potassium	8330		1	618	2000	ug/L	09/23/25 09:30	09/26/25 14:14	EPA 200.7	
7440-23-5	Sodium	25200		1	734	2000	ug/L	09/23/25 09:30	09/26/25 14:14	EPA 200.7	

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	Hardness, Calcium				

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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Fax : 908 789 8922

Report of Analysis

Client:	Alliance Technical Group, LLC - Newark	Date Collected:	09/02/25
Project:	NJ Waste Water PT	Date Received:	09/04/25
Client Sample ID:	WP0925-PT-SIO2-WP	SDG No.:	Q3016
Lab Sample ID:	Q3016-07	Matrix:	Water
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
Dissolved Silica	Dissolved Silica	72100	D	5	400	4280	ug/L	09/23/25 09:30	09/26/25 14:53	EPA 200.7	

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	Silica				

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:	Alliance Technical Group, LLC - Newark	Date Collected:	09/02/25
Project:	NJ Waste Water PT	Date Received:	09/04/25
Client Sample ID:	WP0925-PT-HG-WP	SDG No.:	Q3016
Lab Sample ID:	Q3016-08	Matrix:	Water
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7439-97-6	Mercury	27.0	D	5	0.14	1.00	ug/L	10/02/25 09:05	10/02/25 13:23	E245.1	

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments: Mercury

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

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

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Alliance Technical Group, LLC - Newark
SDG No.: Q3016
Contract: ALLI03
Lab Code: ACE
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
ICV55	Mercury	3.91	4.0	98	95 - 105	CV	10/02/2025	12:37	LB137392

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Alliance Technical Group, LLC - Newark
SDG No.: Q3016
Contract: ALLI03
Lab Code: ACE
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
CCV73	Mercury	5.11	5.0	102	90 - 110	CV	10/02/2025	12:45	LB137392
CCV74	Mercury	5.07	5.0	101	90 - 110	CV	10/02/2025	13:16	LB137392
CCV75	Mercury	5.09	5.0	102	90 - 110	CV	10/02/2025	13:30	LB137392

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

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	7850	8000	98	95 - 105	P	09/26/2025	12:44	LB137342
	Antimony	4060	4000	102	95 - 105	P	09/26/2025	12:44	LB137342
	Arsenic	3940	4000	98	95 - 105	P	09/26/2025	12:44	LB137342
	Barium	7720	8000	96	95 - 105	P	09/26/2025	12:44	LB137342
	Beryllium	197	200	98	95 - 105	P	09/26/2025	12:44	LB137342
	Boron	3900	4000	97	95 - 105	P	09/26/2025	12:44	LB137342
	Cadmium	1960	2000	98	95 - 105	P	09/26/2025	12:44	LB137342
	Calcium	19500	20000	97	95 - 105	P	09/26/2025	12:44	LB137342
	Chromium	794	800	99	95 - 105	P	09/26/2025	12:44	LB137342
	Cobalt	1960	2000	98	95 - 105	P	09/26/2025	12:44	LB137342
	Copper	996	1000	100	95 - 105	P	09/26/2025	12:44	LB137342
	Iron	3910	4000	98	95 - 105	P	09/26/2025	12:44	LB137342
	Lead	3840	4000	96	95 - 105	P	09/26/2025	12:44	LB137342
	Magnesium	19500	20000	97	95 - 105	P	09/26/2025	12:44	LB137342
	Manganese	1940	2000	97	95 - 105	P	09/26/2025	12:44	LB137342
	Molybdenum	4010	4000	100	95 - 105	P	09/26/2025	12:44	LB137342
	Nickel	1960	2000	98	95 - 105	P	09/26/2025	12:44	LB137342
	Potassium	19300	20000	96	95 - 105	P	09/26/2025	12:44	LB137342
	Selenium	3950	4000	99	95 - 105	P	09/26/2025	12:44	LB137342
	Silver	951	1000	95	95 - 105	P	09/26/2025	12:44	LB137342
	Sodium	19000	20000	95	95 - 105	P	09/26/2025	12:44	LB137342
	Thallium	3830	4000	96	95 - 105	P	09/26/2025	12:44	LB137342
	Tin	3940	4000	99	95 - 105	P	09/26/2025	12:44	LB137342
	Titanium	3960	4000	99	95 - 105	P	09/26/2025	12:44	LB137342
	Vanadium	1950	2000	97	95 - 105	P	09/26/2025	12:44	LB137342
	Zinc	2000	2000	100	95 - 105	P	09/26/2025	12:44	LB137342

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

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	116	100	116	80 - 120	P	09/26/2025	12:49	LB137342
	Antimony	52.8	50.0	106	80 - 120	P	09/26/2025	12:49	LB137342
	Arsenic	21.9	20.0	110	80 - 120	P	09/26/2025	12:49	LB137342
	Barium	98.1	100	98	80 - 120	P	09/26/2025	12:49	LB137342
	Beryllium	6.33	6.0	106	80 - 120	P	09/26/2025	12:49	LB137342
	Boron	113	100	113	80 - 120	P	09/26/2025	12:49	LB137342
	Cadmium	6.03	6.0	100	80 - 120	P	09/26/2025	12:49	LB137342
	Calcium	2100	2000	105	80 - 120	P	09/26/2025	12:49	LB137342
	Chromium	10.2	10.0	102	80 - 120	P	09/26/2025	12:49	LB137342
	Cobalt	30.3	30.0	101	80 - 120	P	09/26/2025	12:49	LB137342
	Copper	22.4	20.0	112	80 - 120	P	09/26/2025	12:49	LB137342
	Iron	107	100	107	80 - 120	P	09/26/2025	12:49	LB137342
	Lead	12.3	12.0	102	80 - 120	P	09/26/2025	12:49	LB137342
	Magnesium	2160	2000	108	80 - 120	P	09/26/2025	12:49	LB137342
	Manganese	20.9	20.0	105	80 - 120	P	09/26/2025	12:49	LB137342
	Molybdenum	201	200	100	80 - 120	P	09/26/2025	12:49	LB137342
	Nickel	41.1	40.0	103	80 - 120	P	09/26/2025	12:49	LB137342
	Potassium	2110	2000	105	80 - 120	P	09/26/2025	12:49	LB137342
	Selenium	22.9	20.0	114	80 - 120	P	09/26/2025	12:49	LB137342
	Silver	10.5	10.0	105	80 - 120	P	09/26/2025	12:49	LB137342
	Sodium	2030	2000	102	80 - 120	P	09/26/2025	12:49	LB137342
	Thallium	39.8	40.0	100	80 - 120	P	09/26/2025	12:49	LB137342
	Tin	38.8	40.0	97	80 - 120	P	09/26/2025	12:49	LB137342
	Titanium	42.7	40.0	107	80 - 120	P	09/26/2025	12:49	LB137342
	Vanadium	36.6	40.0	92	80 - 120	P	09/26/2025	12:49	LB137342
	Zinc	44.6	40.0	112	80 - 120	P	09/26/2025	12:49	LB137342

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

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	9970	10000	100	90 - 110	P	09/26/2025	13:40	LB137342
	Antimony	4980	5000	100	90 - 110	P	09/26/2025	13:40	LB137342
	Arsenic	4980	5000	100	90 - 110	P	09/26/2025	13:40	LB137342
	Barium	9770	10000	98	90 - 110	P	09/26/2025	13:40	LB137342
	Beryllium	250	250	100	90 - 110	P	09/26/2025	13:40	LB137342
	Boron	4980	5000	100	90 - 110	P	09/26/2025	13:40	LB137342
	Cadmium	2480	2500	99	90 - 110	P	09/26/2025	13:40	LB137342
	Calcium	24900	25000	100	90 - 110	P	09/26/2025	13:40	LB137342
	Chromium	997	1000	100	90 - 110	P	09/26/2025	13:40	LB137342
	Cobalt	2460	2500	99	90 - 110	P	09/26/2025	13:40	LB137342
	Copper	1250	1250	100	90 - 110	P	09/26/2025	13:40	LB137342
	Iron	4930	5000	99	90 - 110	P	09/26/2025	13:40	LB137342
	Lead	4920	5000	98	90 - 110	P	09/26/2025	13:40	LB137342
	Magnesium	24800	25000	99	90 - 110	P	09/26/2025	13:40	LB137342
	Manganese	2470	2500	99	90 - 110	P	09/26/2025	13:40	LB137342
	Molybdenum	5000	5000	100	90 - 110	P	09/26/2025	13:40	LB137342
	Nickel	2470	2500	99	90 - 110	P	09/26/2025	13:40	LB137342
	Potassium	24500	25000	98	90 - 110	P	09/26/2025	13:40	LB137342
	Selenium	4990	5000	100	90 - 110	P	09/26/2025	13:40	LB137342
	Silver	1240	1250	100	90 - 110	P	09/26/2025	13:40	LB137342
	Sodium	24100	25000	96	90 - 110	P	09/26/2025	13:40	LB137342
	Thallium	5010	5000	100	90 - 110	P	09/26/2025	13:40	LB137342
	Tin	4910	5000	98	90 - 110	P	09/26/2025	13:40	LB137342
	Titanium	4950	5000	99	90 - 110	P	09/26/2025	13:40	LB137342
	Vanadium	2490	2500	99	90 - 110	P	09/26/2025	13:40	LB137342
	Zinc	2510	2500	100	90 - 110	P	09/26/2025	13:40	LB137342
CCV02	Aluminum	9960	10000	100	90 - 110	P	09/26/2025	14:31	LB137342
	Antimony	5060	5000	101	90 - 110	P	09/26/2025	14:31	LB137342
	Arsenic	5080	5000	102	90 - 110	P	09/26/2025	14:31	LB137342
	Barium	9690	10000	97	90 - 110	P	09/26/2025	14:31	LB137342
	Beryllium	249	250	100	90 - 110	P	09/26/2025	14:31	LB137342
	Boron	4930	5000	99	90 - 110	P	09/26/2025	14:31	LB137342
	Cadmium	2510	2500	100	90 - 110	P	09/26/2025	14:31	LB137342
	Calcium	25000	25000	100	90 - 110	P	09/26/2025	14:31	LB137342

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

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	Chromium	1010	1000	101	90 - 110	P	09/26/2025	14:31	LB137342
	Cobalt	2490	2500	100	90 - 110	P	09/26/2025	14:31	LB137342
	Copper	1270	1250	101	90 - 110	P	09/26/2025	14:31	LB137342
	Iron	5060	5000	101	90 - 110	P	09/26/2025	14:31	LB137342
	Lead	4970	5000	99	90 - 110	P	09/26/2025	14:31	LB137342
	Magnesium	24700	25000	99	90 - 110	P	09/26/2025	14:31	LB137342
	Manganese	2450	2500	98	90 - 110	P	09/26/2025	14:31	LB137342
	Molybdenum	5050	5000	101	90 - 110	P	09/26/2025	14:31	LB137342
	Nickel	2500	2500	100	90 - 110	P	09/26/2025	14:31	LB137342
	Potassium	25000	25000	100	90 - 110	P	09/26/2025	14:31	LB137342
	Selenium	5130	5000	103	90 - 110	P	09/26/2025	14:31	LB137342
	Silver	1260	1250	101	90 - 110	P	09/26/2025	14:31	LB137342
	Sodium	24300	25000	97	90 - 110	P	09/26/2025	14:31	LB137342
	Thallium	5170	5000	104	90 - 110	P	09/26/2025	14:31	LB137342
	Tin	4970	5000	99	90 - 110	P	09/26/2025	14:31	LB137342
	Titanium	4910	5000	98	90 - 110	P	09/26/2025	14:31	LB137342
	Vanadium	2480	2500	99	90 - 110	P	09/26/2025	14:31	LB137342
	Zinc	2550	2500	102	90 - 110	P	09/26/2025	14:31	LB137342
CCV03	Aluminum	9690	10000	97	90 - 110	P	09/26/2025	15:14	LB137342
	Antimony	4750	5000	95	90 - 110	P	09/26/2025	15:14	LB137342
	Arsenic	4770	5000	95	90 - 110	P	09/26/2025	15:14	LB137342
	Barium	9510	10000	95	90 - 110	P	09/26/2025	15:14	LB137342
	Beryllium	241	250	96	90 - 110	P	09/26/2025	15:14	LB137342
	Boron	4820	5000	96	90 - 110	P	09/26/2025	15:14	LB137342
	Cadmium	2380	2500	95	90 - 110	P	09/26/2025	15:14	LB137342
	Calcium	24200	25000	97	90 - 110	P	09/26/2025	15:14	LB137342
	Chromium	964	1000	96	90 - 110	P	09/26/2025	15:14	LB137342
	Cobalt	2370	2500	95	90 - 110	P	09/26/2025	15:14	LB137342
	Copper	1190	1250	95	90 - 110	P	09/26/2025	15:14	LB137342
	Iron	4720	5000	94	90 - 110	P	09/26/2025	15:14	LB137342
	Lead	4720	5000	94	90 - 110	P	09/26/2025	15:14	LB137342
	Magnesium	24200	25000	97	90 - 110	P	09/26/2025	15:14	LB137342
	Manganese	2390	2500	96	90 - 110	P	09/26/2025	15:14	LB137342
	Molybdenum	4910	5000	98	90 - 110	P	09/26/2025	15:14	LB137342

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

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
CCV03	Nickel	2360	2500	95	90 - 110	P	09/26/2025	15:14	LB137342
	Potassium	23600	25000	95	90 - 110	P	09/26/2025	15:14	LB137342
	Selenium	4790	5000	96	90 - 110	P	09/26/2025	15:14	LB137342
	Silver	1200	1250	96	90 - 110	P	09/26/2025	15:14	LB137342
	Sodium	23000	25000	92	90 - 110	P	09/26/2025	15:14	LB137342
	Thallium	5080	5000	102	90 - 110	P	09/26/2025	15:14	LB137342
	Tin	4710	5000	94	90 - 110	P	09/26/2025	15:14	LB137342
	Titanium	4800	5000	96	90 - 110	P	09/26/2025	15:14	LB137342
	Vanadium	2420	2500	97	90 - 110	P	09/26/2025	15:14	LB137342
	Zinc	2400	2500	96	90 - 110	P	09/26/2025	15:14	LB137342
CCV04	Aluminum	9870	10000	99	90 - 110	P	09/26/2025	16:13	LB137342
	Antimony	4920	5000	98	90 - 110	P	09/26/2025	16:13	LB137342
	Arsenic	4950	5000	99	90 - 110	P	09/26/2025	16:13	LB137342
	Barium	9560	10000	96	90 - 110	P	09/26/2025	16:13	LB137342
	Beryllium	249	250	100	90 - 110	P	09/26/2025	16:13	LB137342
	Boron	4920	5000	98	90 - 110	P	09/26/2025	16:13	LB137342
	Cadmium	2460	2500	98	90 - 110	P	09/26/2025	16:13	LB137342
	Calcium	24700	25000	99	90 - 110	P	09/26/2025	16:13	LB137342
	Chromium	1010	1000	101	90 - 110	P	09/26/2025	16:13	LB137342
	Cobalt	2440	2500	98	90 - 110	P	09/26/2025	16:13	LB137342
	Copper	1230	1250	99	90 - 110	P	09/26/2025	16:13	LB137342
	Iron	5010	5000	100	90 - 110	P	09/26/2025	16:13	LB137342
	Lead	4880	5000	98	90 - 110	P	09/26/2025	16:13	LB137342
	Magnesium	24700	25000	99	90 - 110	P	09/26/2025	16:13	LB137342
	Manganese	2420	2500	97	90 - 110	P	09/26/2025	16:13	LB137342
	Molybdenum	5040	5000	101	90 - 110	P	09/26/2025	16:13	LB137342
	Nickel	2450	2500	98	90 - 110	P	09/26/2025	16:13	LB137342
	Potassium	25300	25000	101	90 - 110	P	09/26/2025	16:13	LB137342
	Selenium	4980	5000	100	90 - 110	P	09/26/2025	16:13	LB137342
	Silver	1260	1250	101	90 - 110	P	09/26/2025	16:13	LB137342
	Sodium	24000	25000	96	90 - 110	P	09/26/2025	16:13	LB137342
	Thallium	5010	5000	100	90 - 110	P	09/26/2025	16:13	LB137342
	Tin	4860	5000	97	90 - 110	P	09/26/2025	16:13	LB137342
	Titanium	4860	5000	97	90 - 110	P	09/26/2025	16:13	LB137342

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Alliance Technical Group, LLC - Newark
SDG No.: Q3016
Contract: ALLI03
Lab Code: ACE
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	Vanadium	2480	2500	99	90 - 110	P	09/26/2025	16:13	LB137342
	Zinc	2490	2500	100	90 - 110	P	09/26/2025	16:13	LB137342

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Metals

- 2b -
CRDL STANDARD FOR AA & ICP

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

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	113	100	113	65 - 135	P	09/26/2025	13:00	LB137342
	Antimony	51.7	50.0	103	65 - 135	P	09/26/2025	13:00	LB137342
	Arsenic	22.3	20.0	112	65 - 135	P	09/26/2025	13:00	LB137342
	Barium	98.8	100	99	65 - 135	P	09/26/2025	13:00	LB137342
	Beryllium	6.33	6.0	106	65 - 135	P	09/26/2025	13:00	LB137342
	Boron	105	100	105	65 - 135	P	09/26/2025	13:00	LB137342
	Cadmium	6.04	6.0	101	65 - 135	P	09/26/2025	13:00	LB137342
	Calcium	2090	2000	104	65 - 135	P	09/26/2025	13:00	LB137342
	Chromium	10.1	10.0	101	65 - 135	P	09/26/2025	13:00	LB137342
	Cobalt	29.9	30.0	100	65 - 135	P	09/26/2025	13:00	LB137342
	Copper	22.3	20.0	111	65 - 135	P	09/26/2025	13:00	LB137342
	Iron	96.4	100	96	65 - 135	P	09/26/2025	13:00	LB137342
	Lead	12.4	12.0	103	65 - 135	P	09/26/2025	13:00	LB137342
	Magnesium	2140	2000	107	65 - 135	P	09/26/2025	13:00	LB137342
	Manganese	20.5	20.0	102	65 - 135	P	09/26/2025	13:00	LB137342
	Molybdenum	200	200	100	65 - 135	P	09/26/2025	13:00	LB137342
	Nickel	40.8	40.0	102	65 - 135	P	09/26/2025	13:00	LB137342
	Potassium	2000	2000	100	65 - 135	P	09/26/2025	13:00	LB137342
	Selenium	24.9	20.0	124	65 - 135	P	09/26/2025	13:00	LB137342
	Silver	10.4	10.0	104	65 - 135	P	09/26/2025	13:00	LB137342
	Sodium	2000	2000	100	65 - 135	P	09/26/2025	13:00	LB137342
	Thallium	39.1	40.0	98	65 - 135	P	09/26/2025	13:00	LB137342
	Tin	38.6	40.0	96	65 - 135	P	09/26/2025	13:00	LB137342
	Titanium	40.0	40.0	100	65 - 135	P	09/26/2025	13:00	LB137342
	Vanadium	37.4	40.0	93	65 - 135	P	09/26/2025	13:00	LB137342
	Zinc	43.2	40.0	108	65 - 135	P	09/26/2025	13:00	LB137342
CRA	Mercury	0.041	0.05	83	60 - 140	CV	10/02/2025	12:54	LB137392

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB55	Mercury	0.027	+/-0.2	U	0.20	CV	10/02/2025	12:39	LB137392

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB73	Mercury	0.027	+/-0.2	U	0.20	CV	10/02/2025	12:47	LB137392
CCB74	Mercury	0.027	+/-0.2	U	0.20	CV	10/02/2025	13:18	LB137392
CCB75	Mercury	0.027	+/-0.2	U	0.20	CV	10/02/2025	13:32	LB137392

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Aluminum	11.3	+/-50	U	100	P	09/26/2025	12:55	LB137342
	Antimony	6.76	+/-25	U	50.0	P	09/26/2025	12:55	LB137342
	Arsenic	5.12	+/-10	U	20.0	P	09/26/2025	12:55	LB137342
	Barium	14.6	+/-50	U	100	P	09/26/2025	12:55	LB137342
	Beryllium	0.56	+/-3	U	6.00	P	09/26/2025	12:55	LB137342
	Boron	15.7	+/-50	U	100	P	09/26/2025	12:55	LB137342
	Cadmium	0.50	+/-3	U	6.00	P	09/26/2025	12:55	LB137342
	Calcium	234	+/-1000	U	2000	P	09/26/2025	12:55	LB137342
	Chromium	2.12	+/-5	U	10.0	P	09/26/2025	12:55	LB137342
	Cobalt	2.26	+/-15	U	30.0	P	09/26/2025	12:55	LB137342
	Copper	4.60	+/-10	U	20.0	P	09/26/2025	12:55	LB137342
	Iron	23.4	+/-50	U	100	P	09/26/2025	12:55	LB137342
	Lead	2.30	+/-6	U	12.0	P	09/26/2025	12:55	LB137342
	Magnesium	244	+/-1000	U	2000	P	09/26/2025	12:55	LB137342
	Manganese	5.94	+/-10	U	20.0	P	09/26/2025	12:55	LB137342
	Molybdenum	18.7	+/-100	U	200	P	09/26/2025	12:55	LB137342
	Nickel	3.06	+/-20	U	40.0	P	09/26/2025	12:55	LB137342
	Potassium	918	+/-1000	U	2000	P	09/26/2025	12:55	LB137342
	Selenium	9.64	+/-10	U	20.0	P	09/26/2025	12:55	LB137342
	Silver	1.62	+/-5	U	10.0	P	09/26/2025	12:55	LB137342
	Sodium	868	+/-1000	U	2000	P	09/26/2025	12:55	LB137342
	Thallium	4.38	+/-20	U	40.0	P	09/26/2025	12:55	LB137342
	Tin	5.14	+/-20	U	40.0	P	09/26/2025	12:55	LB137342
	Titanium	6.42	+/-20	U	40.0	P	09/26/2025	12:55	LB137342
	Vanadium	6.26	+/-20	U	40.0	P	09/26/2025	12:55	LB137342
	Zinc	16.7	+/-20	U	40.0	P	09/26/2025	12:55	LB137342

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Aluminum	11.3	+/-50	U	100	P	09/26/2025	13:44	LB137342
	Antimony	6.76	+/-25	U	50.0	P	09/26/2025	13:44	LB137342
	Arsenic	5.12	+/-10	U	20.0	P	09/26/2025	13:44	LB137342
	Barium	14.6	+/-50	U	100	P	09/26/2025	13:44	LB137342
	Beryllium	0.56	+/-3	U	6.00	P	09/26/2025	13:44	LB137342
	Boron	15.7	+/-50	U	100	P	09/26/2025	13:44	LB137342
	Cadmium	0.50	+/-3	U	6.00	P	09/26/2025	13:44	LB137342
	Calcium	234	+/-1000	U	2000	P	09/26/2025	13:44	LB137342
	Chromium	2.12	+/-5	U	10.0	P	09/26/2025	13:44	LB137342
	Cobalt	2.26	+/-15	U	30.0	P	09/26/2025	13:44	LB137342
	Copper	4.60	+/-10	U	20.0	P	09/26/2025	13:44	LB137342
	Iron	23.4	+/-50	U	100	P	09/26/2025	13:44	LB137342
	Lead	2.30	+/-6	U	12.0	P	09/26/2025	13:44	LB137342
	Magnesium	244	+/-1000	U	2000	P	09/26/2025	13:44	LB137342
	Manganese	5.94	+/-10	U	20.0	P	09/26/2025	13:44	LB137342
	Molybdenum	18.7	+/-100	U	200	P	09/26/2025	13:44	LB137342
	Nickel	3.06	+/-20	U	40.0	P	09/26/2025	13:44	LB137342
	Potassium	918	+/-1000	U	2000	P	09/26/2025	13:44	LB137342
	Selenium	9.64	+/-10	U	20.0	P	09/26/2025	13:44	LB137342
	Silver	1.62	+/-5	U	10.0	P	09/26/2025	13:44	LB137342
	Sodium	868	+/-1000	U	2000	P	09/26/2025	13:44	LB137342
	Thallium	4.38	+/-20	U	40.0	P	09/26/2025	13:44	LB137342
	Tin	5.14	+/-20	U	40.0	P	09/26/2025	13:44	LB137342
	Titanium	6.42	+/-20	U	40.0	P	09/26/2025	13:44	LB137342
	Vanadium	6.26	+/-20	U	40.0	P	09/26/2025	13:44	LB137342
	Zinc	16.7	+/-20	U	40.0	P	09/26/2025	13:44	LB137342
CCB02	Aluminum	11.3	+/-50	U	100	P	09/26/2025	14:35	LB137342
	Antimony	6.76	+/-25	U	50.0	P	09/26/2025	14:35	LB137342
	Arsenic	5.12	+/-10	U	20.0	P	09/26/2025	14:35	LB137342
	Barium	14.6	+/-50	U	100	P	09/26/2025	14:35	LB137342
	Beryllium	0.56	+/-3	U	6.00	P	09/26/2025	14:35	LB137342
	Boron	15.7	+/-50	U	100	P	09/26/2025	14:35	LB137342
	Cadmium	0.50	+/-3	U	6.00	P	09/26/2025	14:35	LB137342
	Calcium	234	+/-1000	U	2000	P	09/26/2025	14:35	LB137342
	Chromium	2.12	+/-5	U	10.0	P	09/26/2025	14:35	LB137342
	Cobalt	2.26	+/-15	U	30.0	P	09/26/2025	14:35	LB137342
	Copper	4.60	+/-10	U	20.0	P	09/26/2025	14:35	LB137342
	Iron	23.4	+/-50	U	100	P	09/26/2025	14:35	LB137342
	Lead	2.30	+/-6	U	12.0	P	09/26/2025	14:35	LB137342

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB02	Magnesium	244	+/-1000	U	2000	P	09/26/2025	14:35	LB137342
	Manganese	5.94	+/-10	U	20.0	P	09/26/2025	14:35	LB137342
	Molybdenum	18.7	+/-100	U	200	P	09/26/2025	14:35	LB137342
	Nickel	3.06	+/-20	U	40.0	P	09/26/2025	14:35	LB137342
	Potassium	918	+/-1000	U	2000	P	09/26/2025	14:35	LB137342
	Selenium	9.64	+/-10	U	20.0	P	09/26/2025	14:35	LB137342
	Silver	1.62	+/-5	U	10.0	P	09/26/2025	14:35	LB137342
	Sodium	868	+/-1000	U	2000	P	09/26/2025	14:35	LB137342
	Thallium	4.38	+/-20	U	40.0	P	09/26/2025	14:35	LB137342
	Tin	5.14	+/-20	U	40.0	P	09/26/2025	14:35	LB137342
	Titanium	6.42	+/-20	U	40.0	P	09/26/2025	14:35	LB137342
	Vanadium	6.26	+/-20	U	40.0	P	09/26/2025	14:35	LB137342
	Zinc	16.7	+/-20	U	40.0	P	09/26/2025	14:35	LB137342
CCB03	Aluminum	11.3	+/-50	U	100	P	09/26/2025	15:18	LB137342
	Antimony	6.76	+/-25	U	50.0	P	09/26/2025	15:18	LB137342
	Arsenic	5.12	+/-10	U	20.0	P	09/26/2025	15:18	LB137342
	Barium	14.6	+/-50	U	100	P	09/26/2025	15:18	LB137342
	Beryllium	0.56	+/-3	U	6.00	P	09/26/2025	15:18	LB137342
	Boron	15.7	+/-50	U	100	P	09/26/2025	15:18	LB137342
	Cadmium	0.50	+/-3	U	6.00	P	09/26/2025	15:18	LB137342
	Calcium	234	+/-1000	U	2000	P	09/26/2025	15:18	LB137342
	Chromium	2.12	+/-5	U	10.0	P	09/26/2025	15:18	LB137342
	Cobalt	2.26	+/-15	U	30.0	P	09/26/2025	15:18	LB137342
	Copper	4.60	+/-10	U	20.0	P	09/26/2025	15:18	LB137342
	Iron	23.4	+/-50	U	100	P	09/26/2025	15:18	LB137342
	Lead	2.30	+/-6	U	12.0	P	09/26/2025	15:18	LB137342
	Magnesium	244	+/-1000	U	2000	P	09/26/2025	15:18	LB137342
	Manganese	5.94	+/-10	U	20.0	P	09/26/2025	15:18	LB137342
	Molybdenum	18.7	+/-100	U	200	P	09/26/2025	15:18	LB137342
	Nickel	3.06	+/-20	U	40.0	P	09/26/2025	15:18	LB137342
	Potassium	918	+/-1000	U	2000	P	09/26/2025	15:18	LB137342
	Selenium	9.64	+/-10	U	20.0	P	09/26/2025	15:18	LB137342
	Silver	1.62	+/-5	U	10.0	P	09/26/2025	15:18	LB137342
	Sodium	868	+/-1000	U	2000	P	09/26/2025	15:18	LB137342
	Thallium	4.38	+/-20	U	40.0	P	09/26/2025	15:18	LB137342
	Tin	5.14	+/-20	U	40.0	P	09/26/2025	15:18	LB137342
	Titanium	6.42	+/-20	U	40.0	P	09/26/2025	15:18	LB137342
	Vanadium	6.26	+/-20	U	40.0	P	09/26/2025	15:18	LB137342
	Zinc	16.7	+/-20	U	40.0	P	09/26/2025	15:18	LB137342

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB04	Aluminum	11.3	+/-50	U	100	P	09/26/2025	16:18	LB137342
	Antimony	6.76	+/-25	U	50.0	P	09/26/2025	16:18	LB137342
	Arsenic	5.12	+/-10	U	20.0	P	09/26/2025	16:18	LB137342
	Barium	14.6	+/-50	U	100	P	09/26/2025	16:18	LB137342
	Beryllium	0.56	+/-3	U	6.00	P	09/26/2025	16:18	LB137342
	Boron	15.7	+/-50	U	100	P	09/26/2025	16:18	LB137342
	Cadmium	0.50	+/-3	U	6.00	P	09/26/2025	16:18	LB137342
	Calcium	234	+/-1000	U	2000	P	09/26/2025	16:18	LB137342
	Chromium	2.12	+/-5	U	10.0	P	09/26/2025	16:18	LB137342
	Cobalt	2.26	+/-15	U	30.0	P	09/26/2025	16:18	LB137342
	Copper	4.60	+/-10	U	20.0	P	09/26/2025	16:18	LB137342
	Iron	23.4	+/-50	U	100	P	09/26/2025	16:18	LB137342
	Lead	2.30	+/-6	U	12.0	P	09/26/2025	16:18	LB137342
	Magnesium	244	+/-1000	U	2000	P	09/26/2025	16:18	LB137342
	Manganese	5.94	+/-10	U	20.0	P	09/26/2025	16:18	LB137342
	Molybdenum	18.7	+/-100	U	200	P	09/26/2025	16:18	LB137342
	Nickel	3.06	+/-20	U	40.0	P	09/26/2025	16:18	LB137342
	Potassium	918	+/-1000	U	2000	P	09/26/2025	16:18	LB137342
	Selenium	9.64	+/-10	U	20.0	P	09/26/2025	16:18	LB137342
	Silver	1.62	+/-5	U	10.0	P	09/26/2025	16:18	LB137342
	Sodium	868	+/-1000	U	2000	P	09/26/2025	16:18	LB137342
	Thallium	4.38	+/-20	U	40.0	P	09/26/2025	16:18	LB137342
	Tin	5.14	+/-20	U	40.0	P	09/26/2025	16:18	LB137342
	Titanium	6.42	+/-20	U	40.0	P	09/26/2025	16:18	LB137342
	Vanadium	6.26	+/-20	U	40.0	P	09/26/2025	16:18	LB137342
	Zinc	16.7	+/-20	U	40.0	P	09/26/2025	16:18	LB137342

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Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Instrument: CV1

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB169747BL		**WATER**		**Batch Number:**	**PB169747**		**Prep Date:**	**10/02/2025**	
	Mercury	0.027	<0.2	U	0.20	CV	10/02/2025	13:01	LB137392

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Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Instrument: P4

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB169563BL		**WATER**		**Batch Number:**	**PB169563**		**Prep Date:**	**09/23/2025**	
	Aluminum	30.8	<50	U	100	P	09/26/2025	13:49	LB137342
	Antimony	5.44	<25	U	50.0	P	09/26/2025	13:49	LB137342
	Arsenic	3.70	<10	U	20.0	P	09/26/2025	13:49	LB137342
	Barium	19.5	<50	U	100	P	09/26/2025	13:49	LB137342
	Beryllium	0.54	<3	U	6.00	P	09/26/2025	13:49	LB137342
	Boron	13.8	<50	U	100	P	09/26/2025	13:49	LB137342
	Cadmium	0.62	<3	U	6.00	P	09/26/2025	13:49	LB137342
	Calcium	173	<1000	U	2000	P	09/26/2025	13:49	LB137342
	Chromium	1.06	<5	U	10.0	P	09/26/2025	13:49	LB137342
	Cobalt	2.32	<15	U	30.0	P	09/26/2025	13:49	LB137342
	Copper	3.78	<10	U	20.0	P	09/26/2025	13:49	LB137342
	Iron	36.0	<50	U	100	P	09/26/2025	13:49	LB137342
	Lead	2.42	<6	U	12.0	P	09/26/2025	13:49	LB137342
	Magnesium	208	<1000	U	2000	P	09/26/2025	13:49	LB137342
	Manganese	4.92	<10	U	20.0	P	09/26/2025	13:49	LB137342
	Molybdenum	17.6	<100	U	200	P	09/26/2025	13:49	LB137342
	Nickel	3.80	<20	U	40.0	P	09/26/2025	13:49	LB137342
	Potassium	618	<1000	U	2000	P	09/26/2025	13:49	LB137342
	Selenium	5.04	<10	U	20.0	P	09/26/2025	13:49	LB137342
	Silver	1.62	<5	U	10.0	P	09/26/2025	13:49	LB137342
	Sodium	734	<1000	U	2000	P	09/26/2025	13:49	LB137342
	Thallium	5.02	<20	U	40.0	P	09/26/2025	13:49	LB137342
	Tin	5.36	<20	U	40.0	P	09/26/2025	13:49	LB137342
	Titanium	7.82	<20	U	40.0	P	09/26/2025	13:49	LB137342
	Vanadium	4.98	<20	U	40.0	P	09/26/2025	13:49	LB137342
	Zinc	4.00	<20	U	40.0	P	09/26/2025	13:49	LB137342

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Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

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	260000	255000	102	216000	294000	09/26/2025	13:04	LB137342
	Antimony	-2.91			-50	50	09/26/2025	13:04	LB137342
	Arsenic	3.14			-20	20	09/26/2025	13:04	LB137342
	Barium	3.49	6.0	58	-94	106	09/26/2025	13:04	LB137342
	Beryllium	1.67			-6	6	09/26/2025	13:04	LB137342
	Boron	72.7	1000	7	-100	100	09/26/2025	13:04	LB137342
	Cadmium	-1.23	1.0	123	-5	7	09/26/2025	13:04	LB137342
	Calcium	241000	245000	98	208000	282000	09/26/2025	13:04	LB137342
	Chromium	45.7	52.0	88	42	62	09/26/2025	13:04	LB137342
	Cobalt	1.48			-30	30	09/26/2025	13:04	LB137342
	Copper	9.02	2.0	451	-18	22	09/26/2025	13:04	LB137342
	Iron	102000	101000	101	85600	116500	09/26/2025	13:04	LB137342
	Lead	-0.70			-12	12	09/26/2025	13:04	LB137342
	Magnesium	258000	255000	101	216000	294000	09/26/2025	13:04	LB137342
	Manganese	6.38	7.0	91	-13	27	09/26/2025	13:04	LB137342
	Molybdenum	0.17	1000		-200	200	09/26/2025	13:04	LB137342
	Nickel	3.29	2.0	164	-38	42	09/26/2025	13:04	LB137342
	Potassium	43.8			0	0	09/26/2025	13:04	LB137342
	Selenium	7.79			-20	20	09/26/2025	13:04	LB137342
	Silver	-1.79			-10	10	09/26/2025	13:04	LB137342
	Sodium	76.3			0	0	09/26/2025	13:04	LB137342
	Thallium	5.89			-40	40	09/26/2025	13:04	LB137342
	Tin	-4.75	1000		-40	40	09/26/2025	13:04	LB137342
	Titanium	-4.04			0	0	09/26/2025	13:04	LB137342
	Vanadium	0.41			-40	40	09/26/2025	13:04	LB137342
	Zinc	2.43			-40	40	09/26/2025	13:04	LB137342
ICSAB01	Aluminum	249000	247000	101	209000	285000	09/26/2025	13:08	LB137342
	Antimony	609	618	98	525	711	09/26/2025	13:08	LB137342
	Arsenic	108	104	104	88.4	120	09/26/2025	13:08	LB137342
	Barium	495	537	92	437	637	09/26/2025	13:08	LB137342
	Beryllium	504	495	102	420	570	09/26/2025	13:08	LB137342
	Boron	981	1000	98	850	1150	09/26/2025	13:08	LB137342
	Cadmium	983	972	101	826	1120	09/26/2025	13:08	LB137342
	Calcium	236000	235000	100	199000	271000	09/26/2025	13:08	LB137342
	Chromium	544	542	100	460	624	09/26/2025	13:08	LB137342
	Cobalt	494	476	104	404	548	09/26/2025	13:08	LB137342
	Copper	500	511	98	434	588	09/26/2025	13:08	LB137342
	Iron	98300	99300	99	84400	114500	09/26/2025	13:08	LB137342
	Lead	43.2	49.0	88	37	61	09/26/2025	13:08	LB137342
	Magnesium	250000	248000	101	210000	286000	09/26/2025	13:08	LB137342
	Manganese	493	507	97	430	584	09/26/2025	13:08	LB137342
	Molybdenum	960	1000	96	850	1150	09/26/2025	13:08	LB137342

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Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

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	Nickel	981	954	103	810	1100	09/26/2025	13:08	LB137342
	Potassium	-20.4			0	0	09/26/2025	13:08	LB137342
	Selenium	60.5	46.0	132	26	66	09/26/2025	13:08	LB137342
	Silver	209	201	104	170	232	09/26/2025	13:08	LB137342
	Sodium	69.1			0	0	09/26/2025	13:08	LB137342
	Thallium	113	108	105	68	148	09/26/2025	13:08	LB137342
	Tin	935	1000	94	850	1150	09/26/2025	13:08	LB137342
	Titanium	935			0	0	09/26/2025	13:08	LB137342
	Vanadium	483	491	98	417	565	09/26/2025	13:08	LB137342
	Zinc	1040	952	109	809	1095	09/26/2025	13:08	LB137342
ICSA	Aluminum	251000	255000	98	216000	294000	09/26/2025	13:32	LB137342
	Antimony	27.8			-50	50	09/26/2025	13:32	LB137342
	Arsenic	-22.7			-20	20	09/26/2025	13:32	LB137342
	Barium	5.49	6.0	92	-94	106	09/26/2025	13:32	LB137342
	Beryllium	2.23			-6	6	09/26/2025	13:32	LB137342
	Boron	4.59	1000		-100	100	09/26/2025	13:32	LB137342
	Cadmium	-1.10	1.0	110	-5	7	09/26/2025	13:32	LB137342
	Calcium	247000	245000	101	208000	282000	09/26/2025	13:32	LB137342
	Chromium	38.0	52.0	73	42	62	09/26/2025	13:32	LB137342
	Cobalt	0.39			-30	30	09/26/2025	13:32	LB137342
	Copper	24.0	2.0	1200	-18	22	09/26/2025	13:32	LB137342
	Iron	99400	101000	98	85600	116500	09/26/2025	13:32	LB137342
	Lead	3.40			-12	12	09/26/2025	13:32	LB137342
	Magnesium	258000	255000	101	216000	294000	09/26/2025	13:32	LB137342
	Manganese	-3.28	7.0	47	-13	27	09/26/2025	13:32	LB137342
	Molybdenum	-2.38	1000		-200	200	09/26/2025	13:32	LB137342
	Nickel	9.35	2.0	468	-38	42	09/26/2025	13:32	LB137342
	Potassium	-852			0	0	09/26/2025	13:32	LB137342
	Selenium	75.5			-20	20	09/26/2025	13:32	LB137342
	Silver	-12.6			-10	10	09/26/2025	13:32	LB137342
	Sodium	-206			0	0	09/26/2025	13:32	LB137342
	Thallium	8.66			-40	40	09/26/2025	13:32	LB137342
	Tin	-56.3	1000	6	-40	40	09/26/2025	13:32	LB137342
	Titanium	16.3			0	0	09/26/2025	13:32	LB137342
	Vanadium	-31.9			-40	40	09/26/2025	13:32	LB137342
	Zinc	9.94			-40	40	09/26/2025	13:32	LB137342
ICSAB	Aluminum	247000	247000	100	209000	285000	09/26/2025	13:36	LB137342
	Antimony	606	618	98	525	711	09/26/2025	13:36	LB137342
	Arsenic	117	104	112	88.4	120	09/26/2025	13:36	LB137342
	Barium	466	537	87	437	637	09/26/2025	13:36	LB137342
	Beryllium	515	495	104	420	570	09/26/2025	13:36	LB137342
	Boron	929	1000	93	850	1150	09/26/2025	13:36	LB137342

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Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

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
ICSAB	Cadmium	943	972	97	826	1120	09/26/2025	13:36	LB137342
	Calcium	243000	235000	103	199000	271000	09/26/2025	13:36	LB137342
	Chromium	538	542	99	460	624	09/26/2025	13:36	LB137342
	Cobalt	467	476	98	404	548	09/26/2025	13:36	LB137342
	Copper	512	511	100	434	588	09/26/2025	13:36	LB137342
	Iron	93400	99300	94	84400	114500	09/26/2025	13:36	LB137342
	Lead	65.1	49.0	133	37	61	09/26/2025	13:36	LB137342
	Magnesium	253000	248000	102	210000	286000	09/26/2025	13:36	LB137342
	Manganese	506	507	100	430	584	09/26/2025	13:36	LB137342
	Molybdenum	957	1000	96	850	1150	09/26/2025	13:36	LB137342
	Nickel	941	954	99	810	1100	09/26/2025	13:36	LB137342
	Potassium	-495			0	0	09/26/2025	13:36	LB137342
	Selenium	74.8	46.0	163	26	66	09/26/2025	13:36	LB137342
	Silver	195	201	97	170	232	09/26/2025	13:36	LB137342
	Sodium	20.7			0	0	09/26/2025	13:36	LB137342
	Thallium	115	108	106	68	148	09/26/2025	13:36	LB137342
	Tin	847	1000	85	850	1150	09/26/2025	13:36	LB137342
	Titanium	970			0	0	09/26/2025	13:36	LB137342
	Vanadium	463	491	94	417	565	09/26/2025	13:36	LB137342
	Zinc	1030	952	108	809	1095	09/26/2025	13:36	LB137342

METAL QC DATA

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LABORATORY CONTROL SAMPLE SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB169563BS							
Aluminum	ug/L	2000	1990		100	85 - 115	P
Antimony	ug/L	800	802		100	85 - 115	P
Arsenic	ug/L	800	787		98	85 - 115	P
Barium	ug/L	200	190		95	85 - 115	P
Beryllium	ug/L	200	205		102	85 - 115	P
Boron	ug/L	300	305		102	85 - 115	P
Cadmium	ug/L	200	195		98	85 - 115	P
Calcium	ug/L	1000	997	J	100	85 - 115	P
Chromium	ug/L	400	397		99	85 - 115	P
Cobalt	ug/L	200	196		98	85 - 115	P
Copper	ug/L	300	307		102	85 - 115	P
Iron	ug/L	3000	2880		96	85 - 115	P
Lead	ug/L	1000	965		96	85 - 115	P
Magnesium	ug/L	2000	1990	J	100	85 - 115	P
Manganese	ug/L	200	198		99	85 - 115	P
Molybdenum	ug/L	400	406		102	85 - 115	P
Nickel	ug/L	500	492		98	85 - 115	P
Potassium	ug/L	10000	9370		94	85 - 115	P
Selenium	ug/L	2000	1990		100	85 - 115	P
Silver	ug/L	75.0	70.1		94	85 - 115	P
Sodium	ug/L	3000	2700		90	85 - 115	P
Thallium	ug/L	2000	2040		102	85 - 115	P
Tin	ug/L	700	681		97	85 - 115	P
Titanium	ug/L	200	195		98	85 - 115	P
Vanadium	ug/L	300	292		97	85 - 115	P
Zinc	ug/L	200	203		102	85 - 115	P

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LABORATORY CONTROL SAMPLE SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB169747BS							
Mercury	ug/L	4.0	3.96		99	85 - 115	CV

METAL PREPARATION & INSTRUMENT DATA

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Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

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: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

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

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

Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

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: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

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

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

Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE

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

284 Sheffield Street, Mountainside, New Jersey 07092, Phone : 908 789 8900,
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Metals
- 13 -
SAMPLE PREPARATION SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE **Method:**

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB169563**						
PB169563BL	PB169563BL	MB	WATER	09/23/2025	50.0	50.0	
PB169563BS	PB169563BS	LCS	WATER	09/23/2025	50.0	50.0	
Q3016-01	WP0925-PT-TM1-WP	SAM	WATER	09/23/2025	50.0	50.0	
Q3016-03	WP0925-PT-SNTI-WP	SAM	WATER	09/23/2025	50.0	50.0	
Q3016-05	WP0925-PT-MIN2-WP	SAM	WATER	09/23/2025	50.0	50.0	
Q3016-07	WP0925-PT-SIO2-WP	SAM	WATER	09/23/2025	50.0	50.0	

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Metals
- 13 -
SAMPLE PREPARATION SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q3016

Contract: ALLI03 **Lab Code:** ACE **Method:**

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB169747**						
PB169747BL	PB169747BL	MB	WATER	10/02/2025	30.0	30.0	
PB169747BS	PB169747BS	LCS	WATER	10/02/2025	30.0	30.0	
Q3016-08	WP0925-PT-HG-WP	SAM	WATER	10/02/2025	30.0	30.0	

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metals
- 14 -
ANALYSIS RUN LOG

Client: Alliance Technical Group, LLC - Newark **Contract:** ALLI03

Lab code: ACE **Sdg no.:** Q3016

Instrument id number: **Method:** **Run number:** LB137342

Start date: 09/26/2025 **End date:** 09/26/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1212	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
S1	S1	1	1216	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
S2	S2	1	1221	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
S3	S3	1	1225	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
S4	S4	1	1229	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
S5	S5	1	1233	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
ICV01	ICV01	1	1244	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
LLICV01	LLICV01	1	1249	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
ICB01	ICB01	1	1255	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
CRI01	CRI01	1	1300	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
ICSA01	ICSA01	1	1304	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
ICSAB01	ICSAB01	1	1308	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
ICSA	ICSA	20	1332	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
ICSAB	ICSAB	20	1336	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
CCV01	CCV01	1	1340	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
CCB01	CCB01	1	1344	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
PB169563BL	PB169563BL	1	1349	Ag,Al,As,B,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Mo,Na,Ni,Pb,Sb,Se,Sn,Ti,Tl,V,Zn
PB169563BS	PB169563BS	1	1353	Ag,Al,As,B,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Mo,Na,Ni,Pb,Sb,Se,Sn,Ti,Tl,V,Zn
Q3016-05	WP0925-PT-MIN2-WP	1	1414	Ca,K,Mg,Na
Q3016-03	WP0925-PT-SNTI-WP	1	1427	Sn,Ti
CCV02	CCV02	1	1431	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
CCB02	CCB02	1	1435	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
Q3016-01	WP0925-PT-TM1-WP	1	1439	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn
Q3016-07	WP0925-PT-SIO2-WP	5	1453	Si
CCV03	CCV03	1	1514	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
CCB03	CCB03	1	1518	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
CCV04	CCV04	1	1613	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na
CCB04	CCB04	1	1618	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Tl,V,Zn,Sn,Ti,Ca,K,Mg,Na

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

metals
- 14 -
ANALYSIS RUN LOG

Client: Alliance Technical Group, LLC - Newark **Contract:** ALLI03

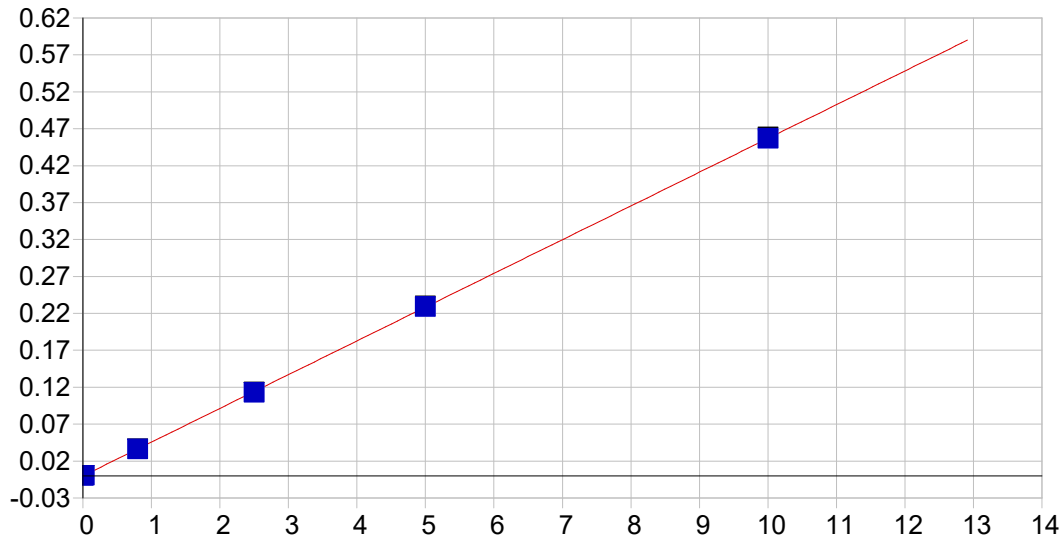
Lab code: ACE **Sdg no.:** Q3016

Instrument id number: **Method:** **Run number:** LB137392

Start date: 10/02/2025 **End date:** 10/02/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1220	HG
S0.05	S0.05	1	1222	HG
S0.2	S0.2	1	1225	HG
S2.5	S2.5	1	1227	HG
S5	S5	1	1229	HG
S7.5	S7.5	1	1232	HG
S10	S10	1	1234	HG
ICV55	ICV55	1	1237	HG
ICB55	ICB55	1	1239	HG
CCV73	CCV73	1	1245	HG
CCB73	CCB73	1	1247	HG
CRA	CRA	1	1254	HG
PB169747BL	PB169747BL	1	1301	HG
PB169747BS	PB169747BS	1	1303	HG
CCV74	CCV74	1	1316	HG
CCB74	CCB74	1	1318	HG
Q3016-08	WP0925-PT-HG-WP	5	1323	HG
CCV75	CCV75	1	1330	HG
CCB75	CCB75	1	1332	HG

METAL
RAW DATA

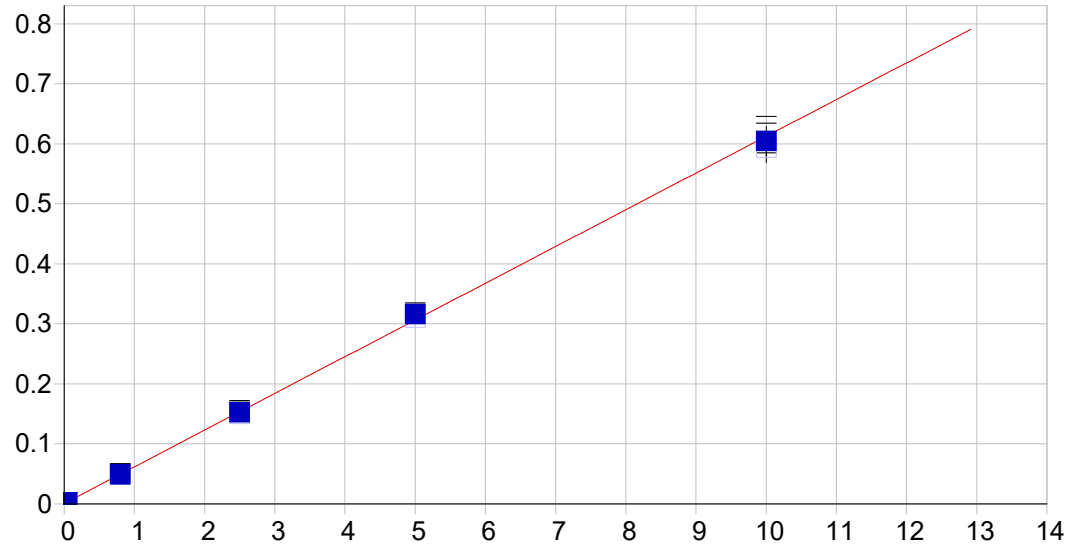


As 189.042 {479}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000077	Re-Slope:	1.000000
A1 (Gain):	0.045698	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999984	Status:	OK.
Std Error of Est:	0.000006		
Predicted MDL:	0.002526		
Predicted MQL:	0.008421		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00008	.000	1
S1	.02000	.02268	.003	13.4	.00096	.000	1
S3	2.5000	2.4788	-.021	-.848	.11308	.000	1
S4	5.0000	5.0156	.016	.313	.22889	.001	1
S5	10.000	10.005	.005	.050	.45666	.002	1
S2	.80000	.79790	-.002	-.262	.03635	.000	1

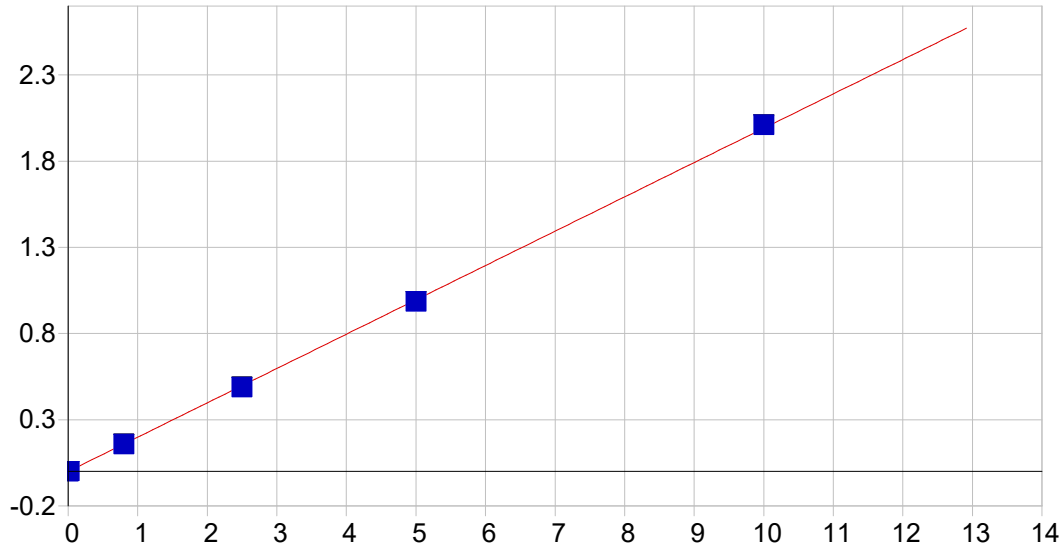


Tl 190.856 {477}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000614	Re-Slope:	1.000000
A1 (Gain):	0.061185	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999810	Status:	OK.
Std Error of Est:	0.000039		
Predicted MDL:	0.002839		
Predicted MQL:	0.009462		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00061	.000	1
S1	.04000	.03892	-.001	-2.71	.00284	.000	1
S3	2.5000	2.4815	-.019	-.741	.14965	.003	1
S4	5.0000	5.1552	.155	3.10	.31045	.002	1
S5	10.000	9.8691	-.131	-1.31	.59330	.025	1
S2	.80000	.79525	-.005	-.593	.04838	.001	1

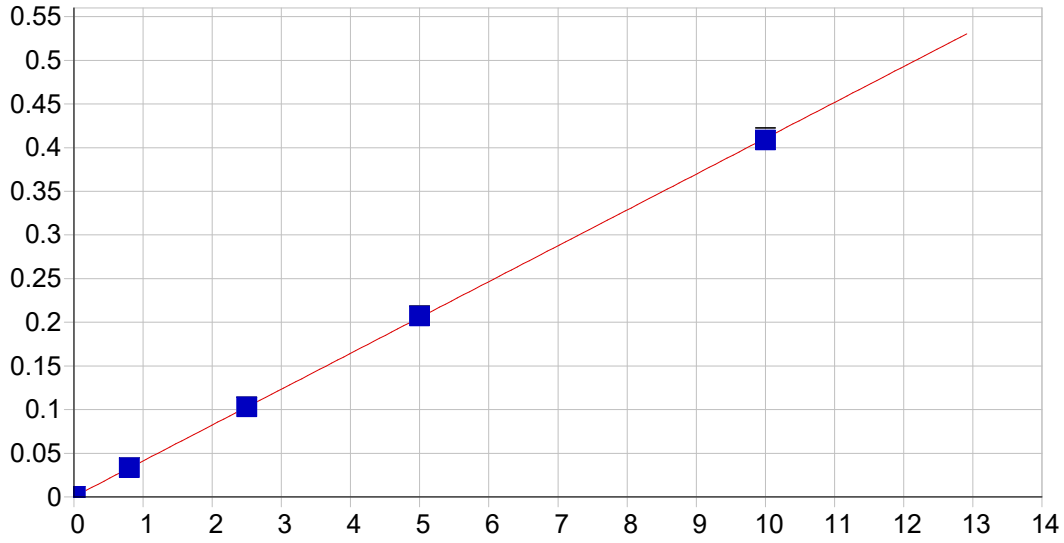


Pb 220.353 {453}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000135	Re-Slope:	1.000000
A1 (Gain):	0.199140	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999936	Status:	OK.
Std Error of Est:	0.000041		
Predicted MDL:	0.001471		
Predicted MQL:	0.004904		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00013	.000	1
S1	.01200	.01268	.001	5.63	.00234	.000	1
S3	2.5000	2.4564	-.044	-1.74	.48848	.001	1
S4	5.0000	4.9502	-.050	-.996	.98454	.001	1
S5	10.000	10.099	.099	.992	2.0088	.002	1
S2	.80000	.79352	-.006	-.809	.15771	.000	1

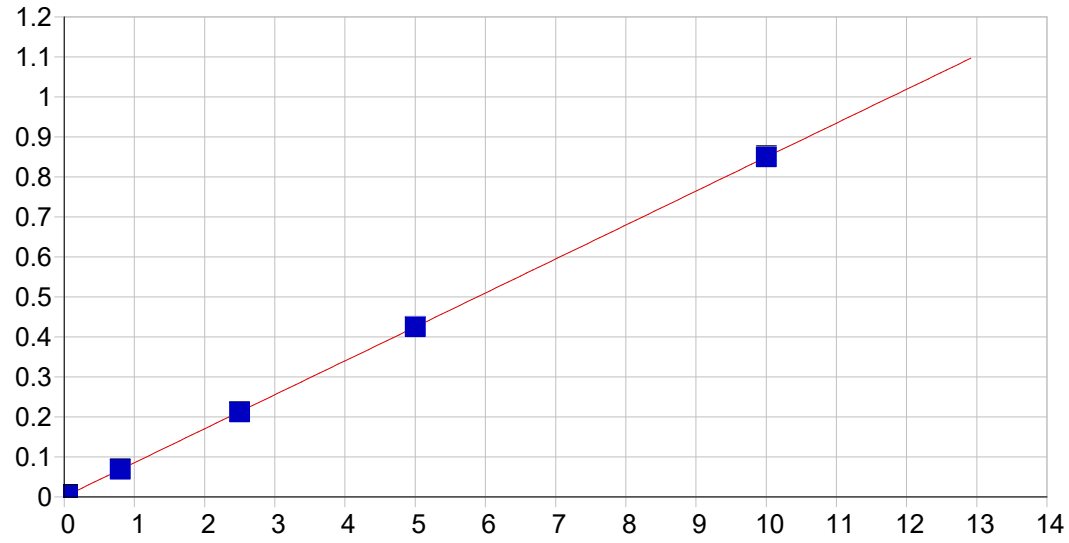


Se 196.090 {472}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000215	Re-Slope:	1.000000
A1 (Gain):	0.041052	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999966	Status:	OK.
Std Error of Est:	0.000008		
Predicted MDL:	0.003558		
Predicted MQL:	0.011861		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00021	.000	1
S1	.02000	.02376	.004	18.8	.00119	.000	1
S3	2.5000	2.5013	.001	.051	.10287	.000	1
S4	5.0000	5.0358	.036	.716	.20689	.001	1
S5	10.000	9.9523	-.048	-.477	.40866	.002	1
S2	.80000	.80689	.007	.861	.03333	.000	1

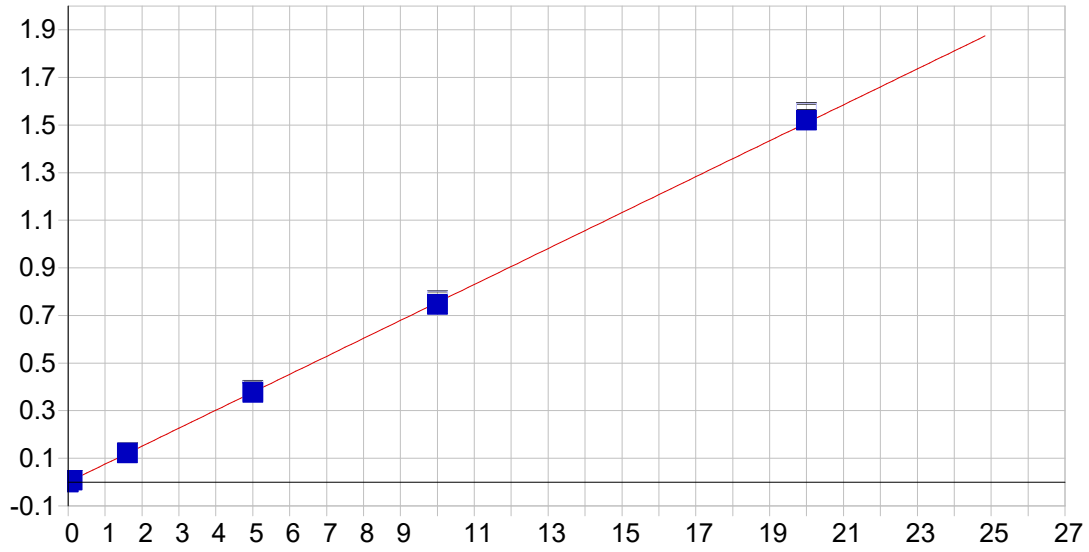


Sb 206.833 {463}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000602	Re-Slope:	1.000000
A1 (Gain):	0.084873	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999990	Status:	OK.
Std Error of Est:	0.000014		
Predicted MDL:	0.002200		
Predicted MQL:	0.007333		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00060	.000	1
S1	.05000	.05352	.004	7.05	.00515	.000	1
S3	2.5000	2.4863	-.014	-.547	.21220	.000	1
S4	5.0000	5.0002	.000	.005	.42614	.000	1
S5	10.000	10.004	.004	.045	.85202	.001	1
S2	.80000	.80547	.005	.684	.06915	.000	1

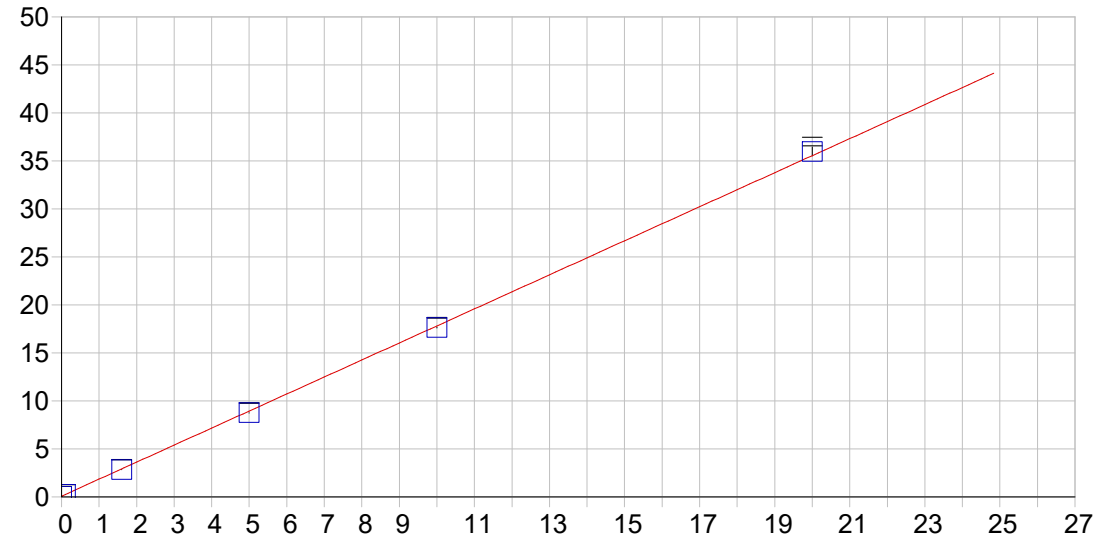


Al 396.152 { 85}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000140	Re-Slope:	1.000000
A1 (Gain):	0.075471	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999962	Status:	OK.
Std Error of Est:	0.000050		
Predicted MDL:	0.012513		
Predicted MQL:	0.041710		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00014	.000	1
S1	.10000	.10366	.004	3.66	.00855	.000	1
S3	5.0000	4.9774	-.023	-.452	.38311	.002	1
S4	10.000	9.8714	-.129	-1.29	.75979	.002	1
S5	20.000	20.141	.141	.705	1.5495	.003	1
S2	1.6000	1.6063	.006	.393	.12371	.001	1

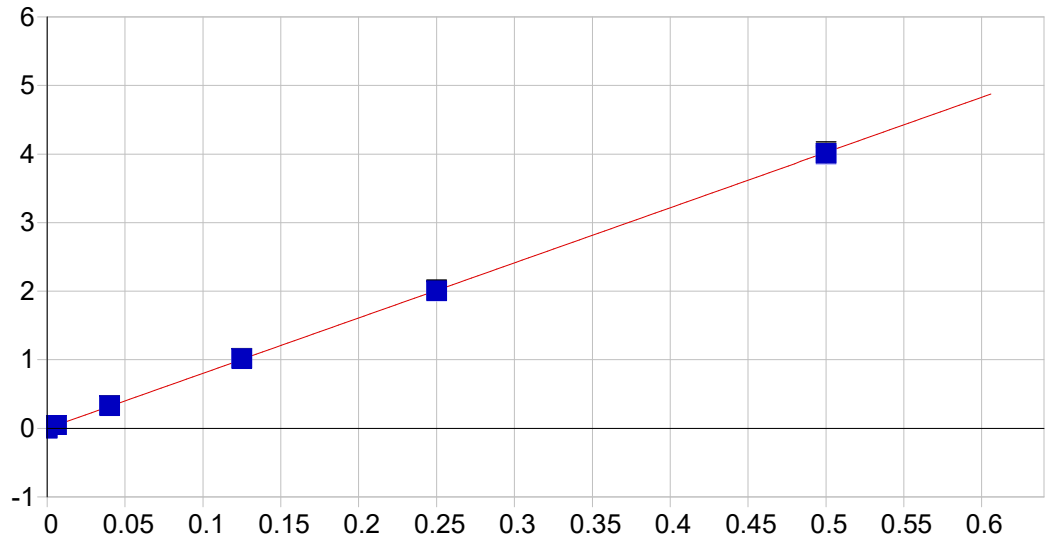


Ba 493.409 { 68}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.076810	Re-Slope:	1.000000
A1 (Gain):	1.773522	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999902	Status:	OK.
Std Error of Est:	0.001838		
Predicted MDL:	0.001408		
Predicted MQL:	0.004692		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.07682	.003	1
S1	.10000	.10016	.000	.156	.25444	.005	1
S3	5.0000	4.8931	-.107	-2.14	8.7549	.012	1
S4	10.000	9.9008	-.099	-.992	17.636	.029	1
S5	20.000	20.244	.244	1.22	35.981	.456	1
S2	1.6000	1.5617	-.038	-2.40	2.8464	.010	1

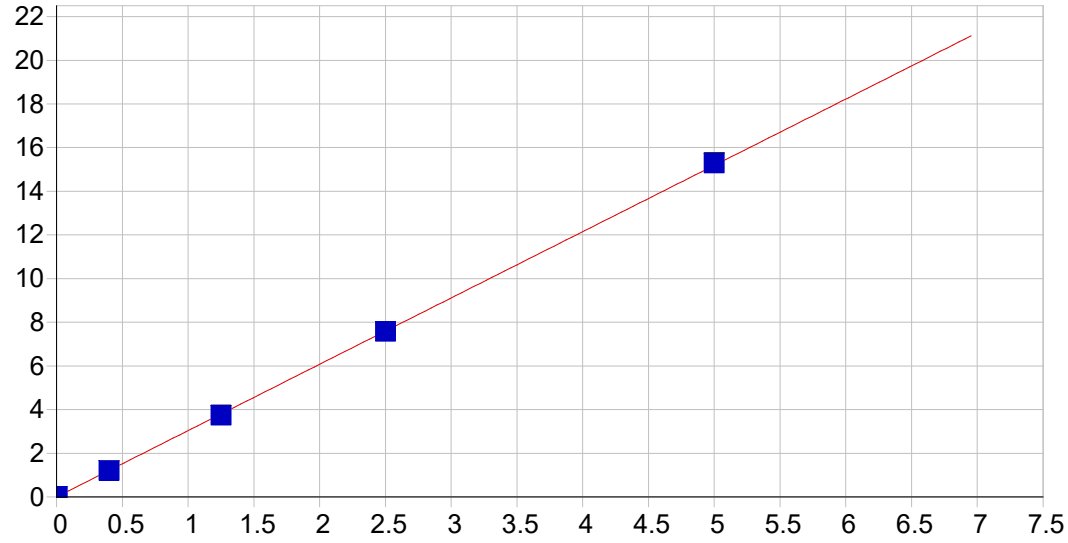


Be 234.861 {144}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000631	Re-Slope:	1.000000
A1 (Gain):	8.045867	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999968	Status:	OK.
Std Error of Est:	0.000183		
Predicted MDL:	0.000074		
Predicted MQL:	0.000245		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00063	.000	1
S1	.00600	.00627	.000	4.57	.04949	.001	1
S3	.12500	.12641	.001	1.12	1.0119	.003	1
S4	.25000	.24952	-.000	-.193	1.9979	.012	1
S5	.50000	.49792	-.002	-.417	3.9875	.030	1
S2	.04000	.04089	.001	2.22	.32691	.003	1

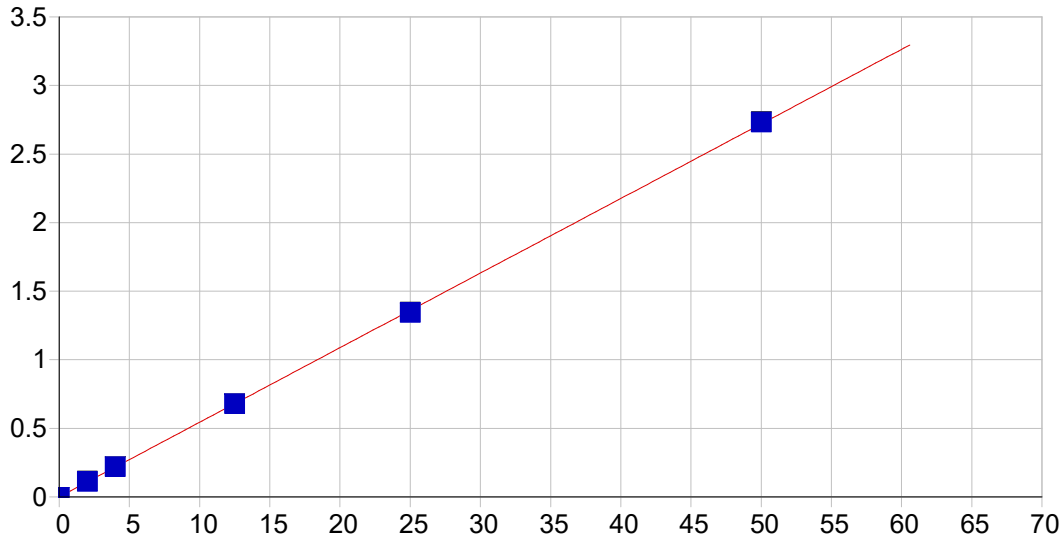


Cd 226.502 {449}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000686	Re-Slope:	1.000000
A1 (Gain):	3.037296	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999967	Status:	OK.
Std Error of Est:	0.000225		
Predicted MDL:	0.000081		
Predicted MQL:	0.000271		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00069	.000	1
S1	.00600	.00611	.000	1.78	.01929	.000	1
S3	1.2500	1.2305	-.020	-1.56	3.7405	.001	1
S4	2.5000	2.4930	-.007	-.280	7.5776	.002	1
S5	5.0000	5.0320	.032	.641	15.294	.020	1
S2	.40000	.39439	-.006	-1.40	1.1994	.002	1

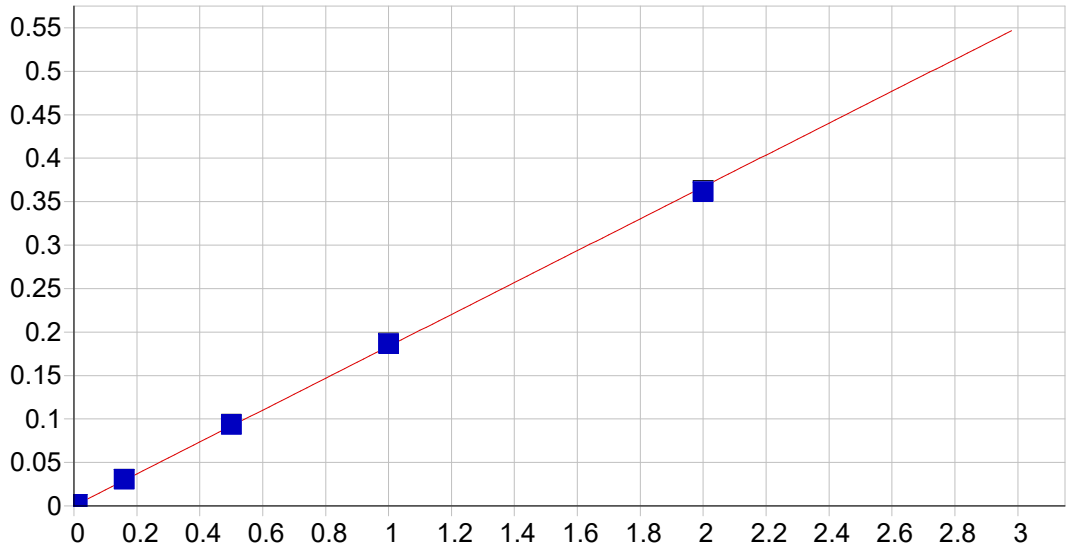


Ca 373.690 { 90}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000564	Re-Slope:	1.000000
A1 (Gain):	0.054381	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999959	Status:	OK.
Std Error of Est:	0.000259		
Predicted MDL:	0.013667		
Predicted MQL:	0.045558		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00007	-.000	.000	.00056	.000	1
S2	4.0000	4.0304	.030	.760	.21974	.001	1
S3	12.500	12.489	-.011	-.088	.67972	.002	1
S4	25.000	24.685	-.315	-1.26	1.3430	.003	1
S5	50.000	50.227	.227	.454	2.7319	.003	1
S1	2.0000	2.0685	.069	3.43	.11305	.001	1

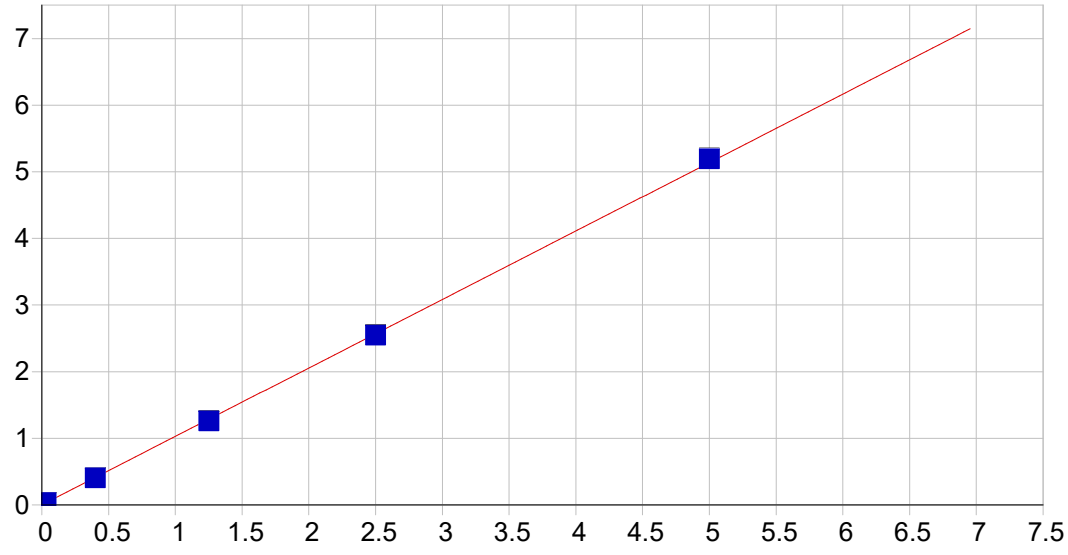


Cr 267.716 {126}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000199	Re-Slope:	1.000000
A1 (Gain):	0.183379	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999864	Status:	OK.
Std Error of Est:	0.000022		
Predicted MDL:	0.000411		
Predicted MQL:	0.001371		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00020	.000	1
S1	.01000	.01008	.000	.774	.00205	.000	1
S3	.50000	.50859	.009	1.72	.09354	.000	1
S4	1.0000	1.0164	.016	1.64	.18674	.000	1
S5	2.0000	1.9702	-.030	-1.49	.36178	.001	1
S2	.16000	.16470	.005	2.94	.03043	.000	1

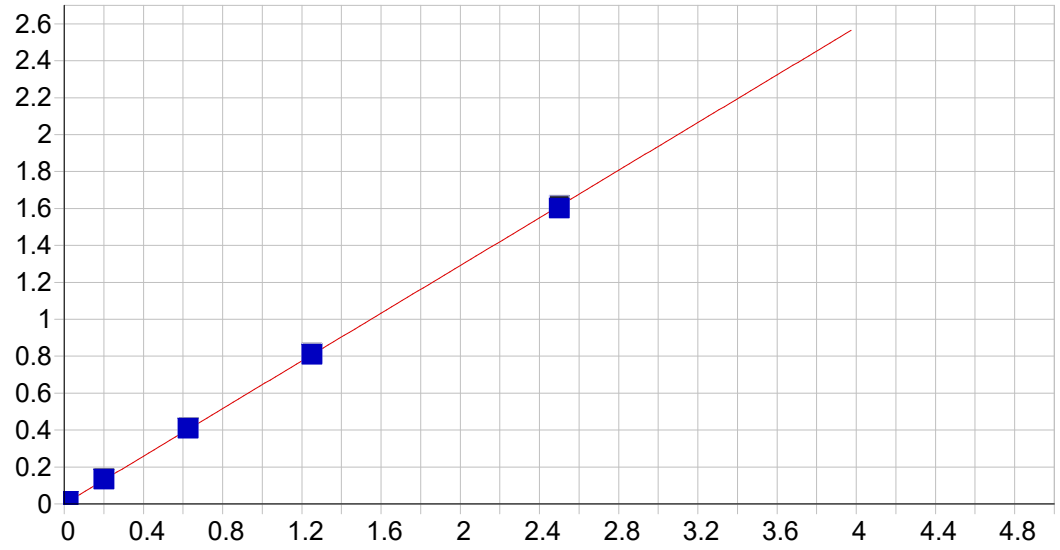


Co 228.616 {448}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000464	Re-Slope:	1.000000
A1 (Gain):	1.027682	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999926	Status:	OK.
Std Error of Est:	0.000255		
Predicted MDL:	0.000212		
Predicted MQL:	0.000707		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00046	.000	1
S1	.03000	.03028	.000	.922	.03145	.000	1
S3	1.2500	1.2239	-.026	-2.09	1.2604	.000	1
S4	2.5000	2.4790	-.021	-.838	2.5525	.002	1
S5	5.0000	5.0527	.053	1.05	5.2017	.004	1
S2	.40000	.39414	-.006	-1.47	.40621	.001	1

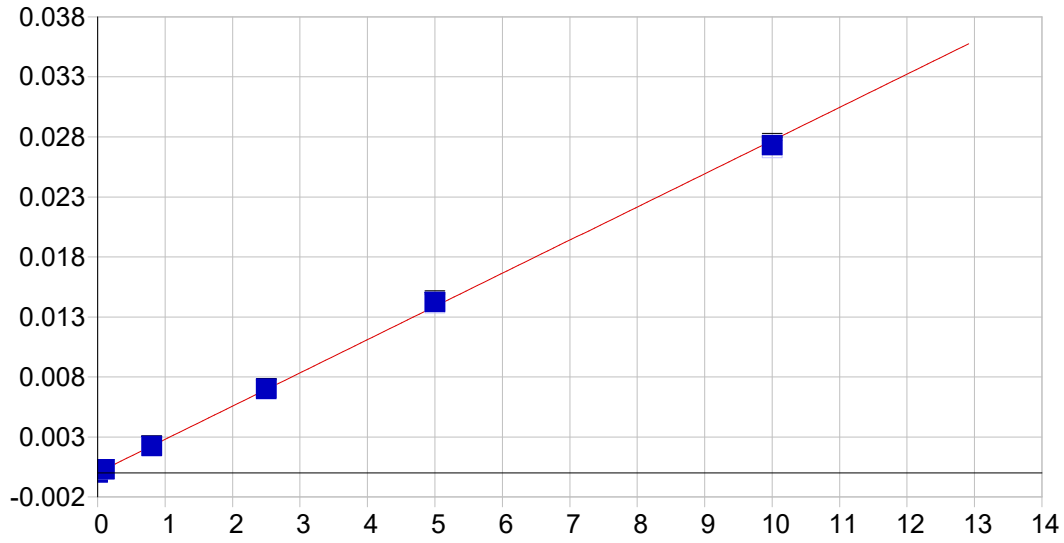


Cu 224.700 {450}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000394	Re-Slope:	1.000000
A1 (Gain):	0.645314	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999924	Status:	OK.
Std Error of Est:	0.000094		
Predicted MDL:	0.000443		
Predicted MQL:	0.001476		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00039	.000	1
S1	.02000	.02225	.002	11.2	.01490	.000	1
S3	.62500	.63211	.007	1.14	.41166	.000	1
S4	1.2500	1.2530	.003	.244	.81572	.001	1
S5	2.5000	2.4809	-.019	-.766	1.6148	.003	1
S2	.20000	.20673	.007	3.36	.13487	.001	1

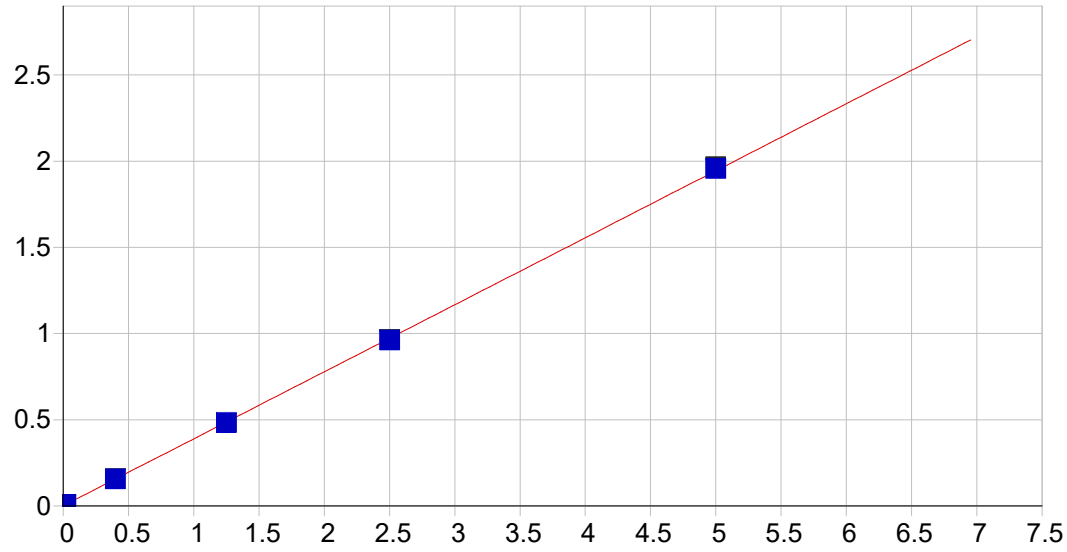


Fe 240.488 {140}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000029	Re-Slope:	1.000000
A1 (Gain):	0.002767	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999819	Status:	OK.
Std Error of Est:	0.000003		
Predicted MDL:	0.008177		
Predicted MQL:	0.027256		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00003	.000	1
S1	.10000	.09235	-.008	-7.65	.00028	.000	1
S3	2.5000	2.5199	.020	.797	.00694	.000	1
S4	5.0000	5.1351	.135	2.70	.01412	.000	1
S5	10.000	9.8538	-.146	-1.46	.02706	.000	1
S2	.80000	.79878	-.001	-.153	.00222	.000	1

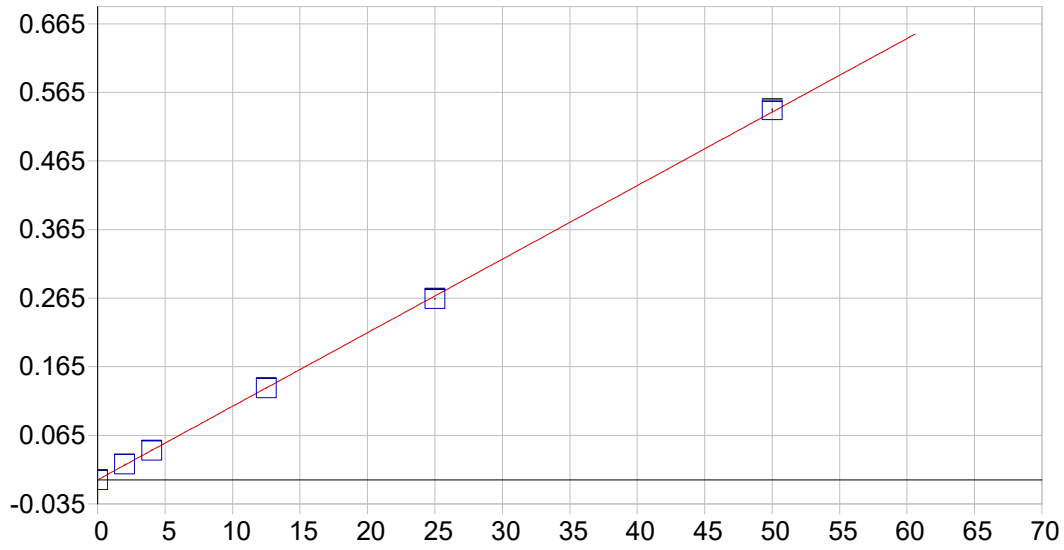


Mn 257.610 {131}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000445	Re-Slope:	1.000000
A1 (Gain):	0.388803	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999966	Status:	OK.
Std Error of Est:	0.000053		
Predicted MDL:	0.000698		
Predicted MQL:	0.002327		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00044	.000	1
S1	.02000	.02020	.000	1.02	.00830	.000	1
S3	1.2500	1.2427	-.007	-.582	.48372	.000	1
S4	2.5000	2.4709	-.029	-1.16	.96133	.004	1
S5	5.0000	5.0340	.034	.679	1.9580	.008	1
S2	.40000	.40223	.002	.557	.15686	.001	1

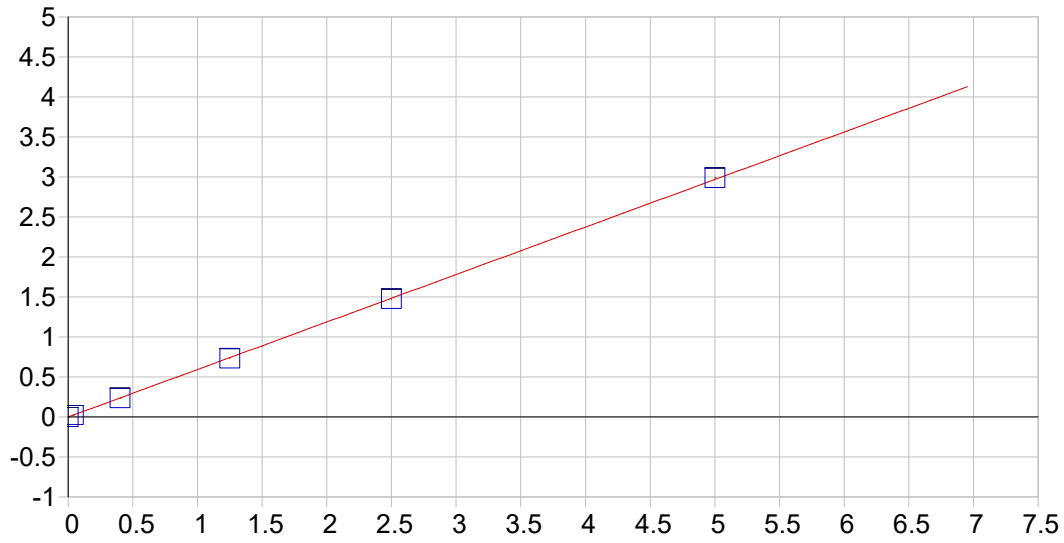


Mg 279.079 {121}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000046	Re-Slope:	1.000000
A1 (Gain):	0.010726	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999919	Status:	OK.
Std Error of Est:	0.000072		
Predicted MDL:	0.032641		
Predicted MQL:	0.108804		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00010	-.000	.000	.00004	.000	1
S2	4.0000	4.0035	.003	.086	.04299	.000	1
S3	12.500	12.474	-.026	-.211	.13383	.000	1
S4	25.000	24.619	-.381	-1.52	.26411	.001	1
S5	50.000	50.279	.279	.559	.53933	.002	1
S1	2.0000	2.1243	.124	6.21	.02283	.000	1

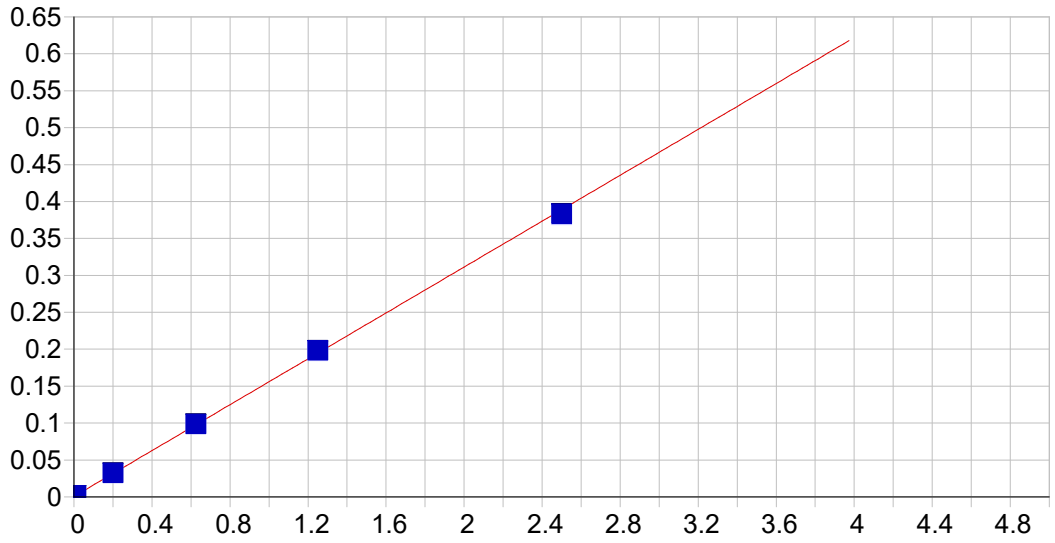


Ni 231.604 {446}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000814	Re-Slope:	1.000000
A1 (Gain):	0.593631	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999965	Status:	OK.
Std Error of Est:	0.000116		
Predicted MDL:	0.000391		
Predicted MQL:	0.001303		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00081	.000	1
S1	.04000	.04141	.001	3.52	.02377	.000	1
S3	1.2500	1.2315	-.018	-1.48	.73024	.000	1
S4	2.5000	2.4850	-.015	-.599	1.4744	.001	1
S5	5.0000	5.0334	.033	.667	2.9871	.001	1
S2	.40000	.39869	-.001	-.327	.23586	.001	1

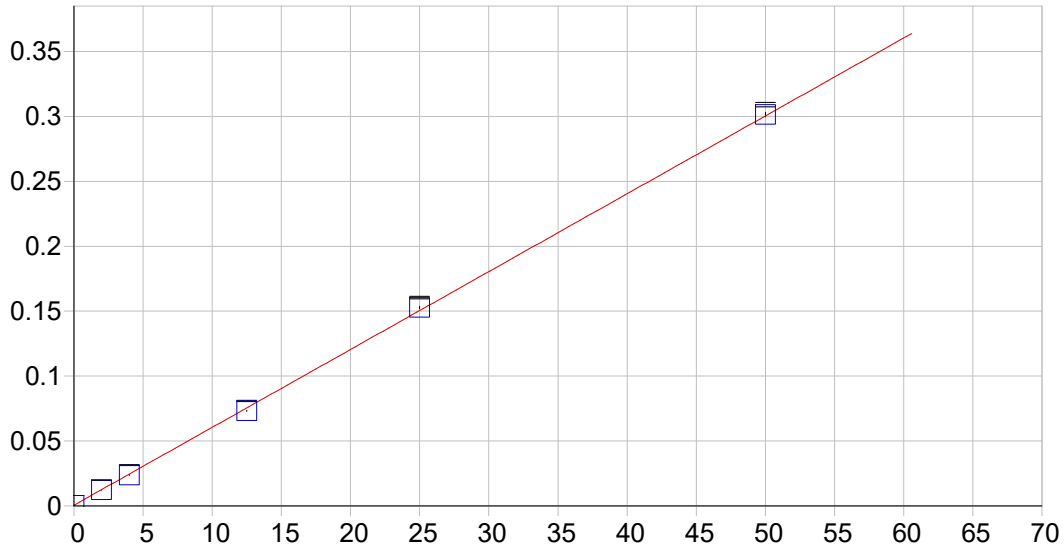


Ag 328.068 {103}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000554	Re-Slope:	1.000000
A1 (Gain):	0.155354	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999877	Status:	OK.
Std Error of Est:	0.000020		
Predicted MDL:	0.000731		
Predicted MQL:	0.002437		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00055	.000	1
S1	.01000	.01007	.000	.661	.00210	.000	1
S3	.62500	.63202	.007	1.12	.09827	.000	1
S4	1.2500	1.2734	.023	1.87	.19744	.000	1
S5	2.5000	2.4649	-.035	-1.40	.38161	.000	1
S2	.20000	.20457	.005	2.29	.03218	.000	1

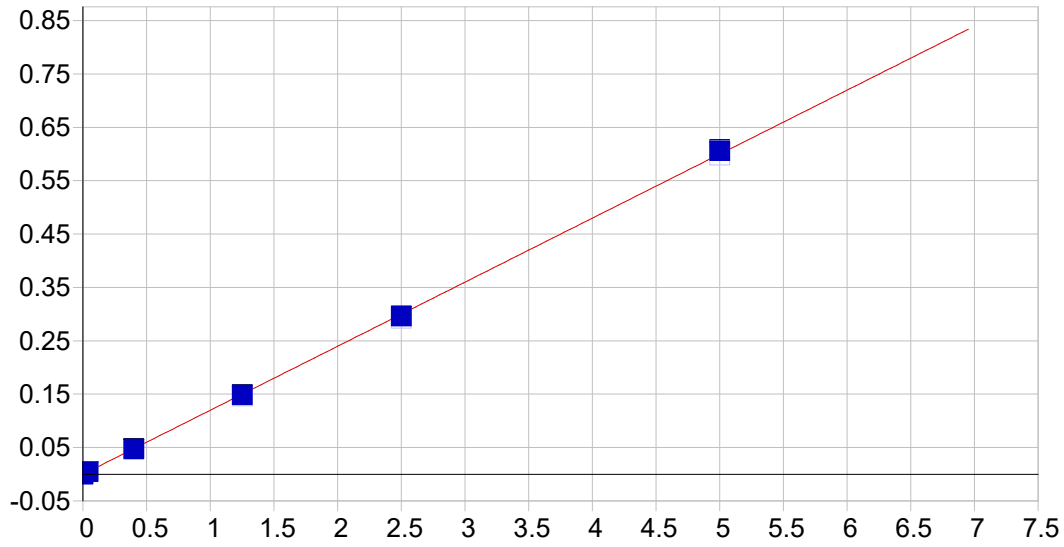


Na 589.592 { 57}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000551	Re-Slope:	1.000000
A1 (Gain):	0.005997	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999871	Status:	OK.
Std Error of Est:	0.000051		
Predicted MDL:	0.024784		
Predicted MQL:	0.082613		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00014	.000	.000	.00055	.000	1
S2	4.0000	3.8711	-.129	-3.22	.02377	.000	1
S3	12.500	12.112	-.388	-3.11	.07318	.001	1
S4	25.000	25.378	.378	1.51	.15274	.001	1
S5	50.000	50.192	.192	.385	.30155	.002	1
S1	2.0000	1.9471	-.053	-2.65	.01223	.000	1

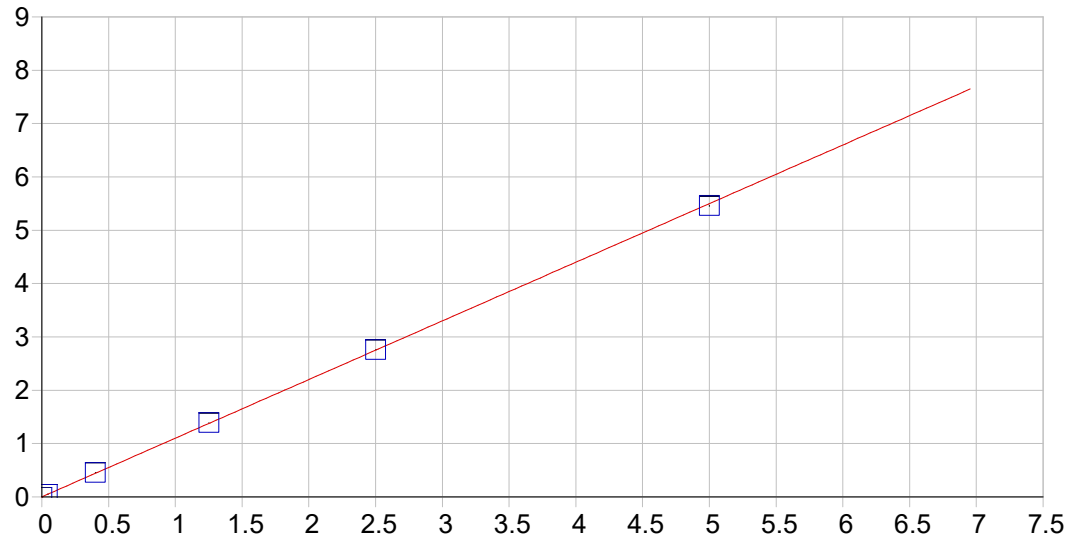


V 292.402 {115}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000015	Re-Slope:	1.000000
A1 (Gain):	0.119961	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999931	Status:	OK.
Std Error of Est:	0.000033		
Predicted MDL:	0.003432		
Predicted MQL:	0.011440		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00001	.000	1
S1	.04000	.03960	-.000	-1.01	.00456	.000	1
S3	1.2500	1.2354	-.015	-1.17	.14600	.001	1
S4	2.5000	2.4671	-.033	-1.31	.29157	.001	1
S5	5.0000	5.0528	.053	1.06	.59738	.002	1
S2	.40000	.39504	-.005	-1.24	.04668	.000	1

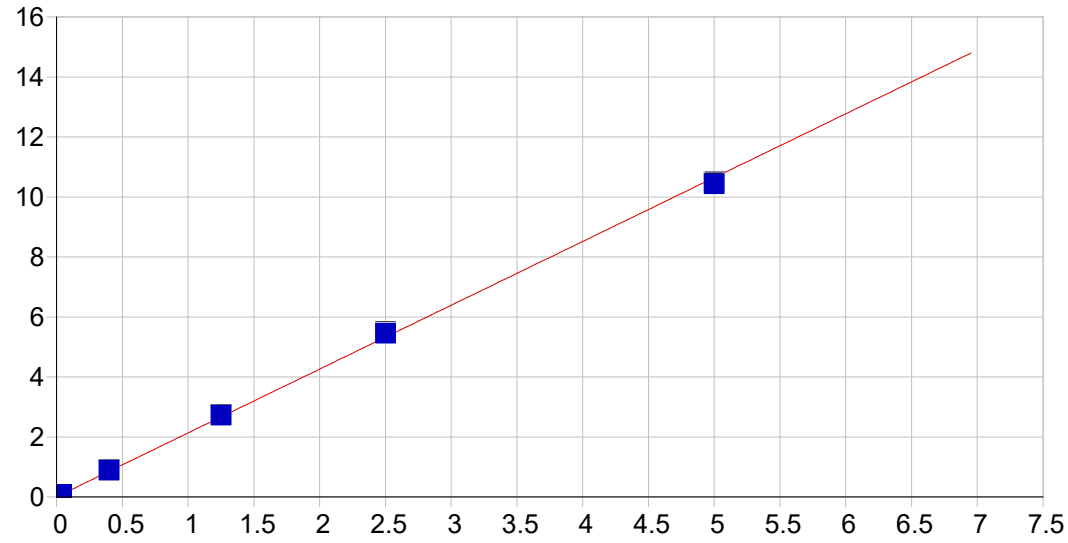


Zn 206.200 {464}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001606	Re-Slope:	1.000000
A1 (Gain):	1.099565	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999941	Status:	OK.
Std Error of Est:	0.000280		
Predicted MDL:	0.000154		
Predicted MQL:	0.000512		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00160	.000	1
S1	.04000	.04283	.003	7.09	.04871	.000	1
S3	1.2500	1.2620	.012	.962	1.3893	.002	1
S4	2.5000	2.5094	.009	.375	2.7608	.002	1
S5	5.0000	4.9624	-.038	-.752	5.4581	.008	1
S2	.40000	.41337	.013	3.34	.45614	.001	1

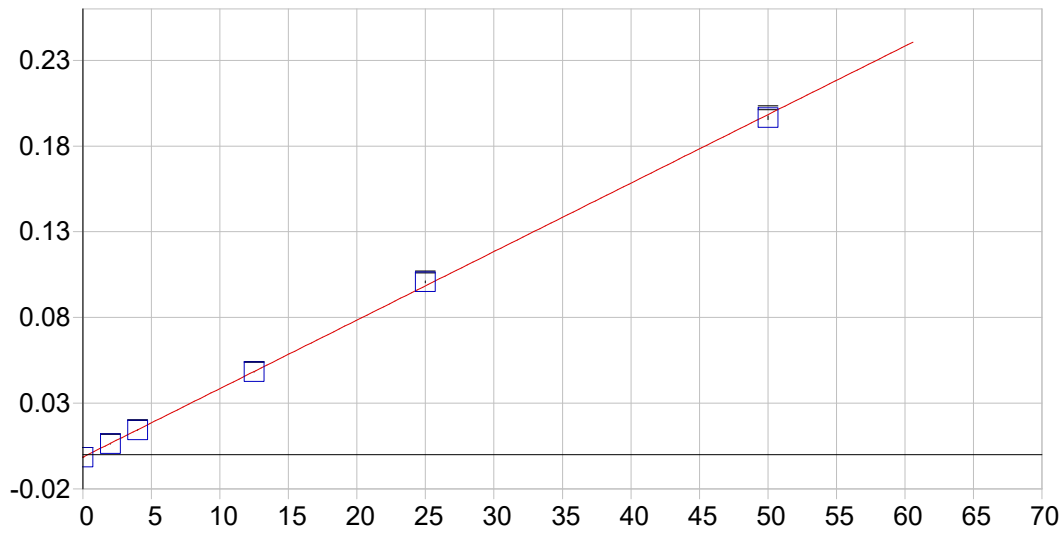


Zn 213.856 {158}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.004823	Re-Slope:	1.000000
A1 (Gain):	2.127709	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999758	Status:	OK.
Std Error of Est:	0.001107		
Predicted MDL:	0.000278		
Predicted MQL:	0.000926		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00481	.000	1
S1	.04000	.04191	.002	4.78	.09460	.000	1
S3	1.2500	1.2740	.024	1.92	2.7340	.004	1
S4	2.5000	2.5583	.058	2.33	5.4852	.017	1
S5	5.0000	4.9001	-.100	-2.00	10.505	.012	1
S2	.40000	.41562	.016	3.90	.89505	.002	1

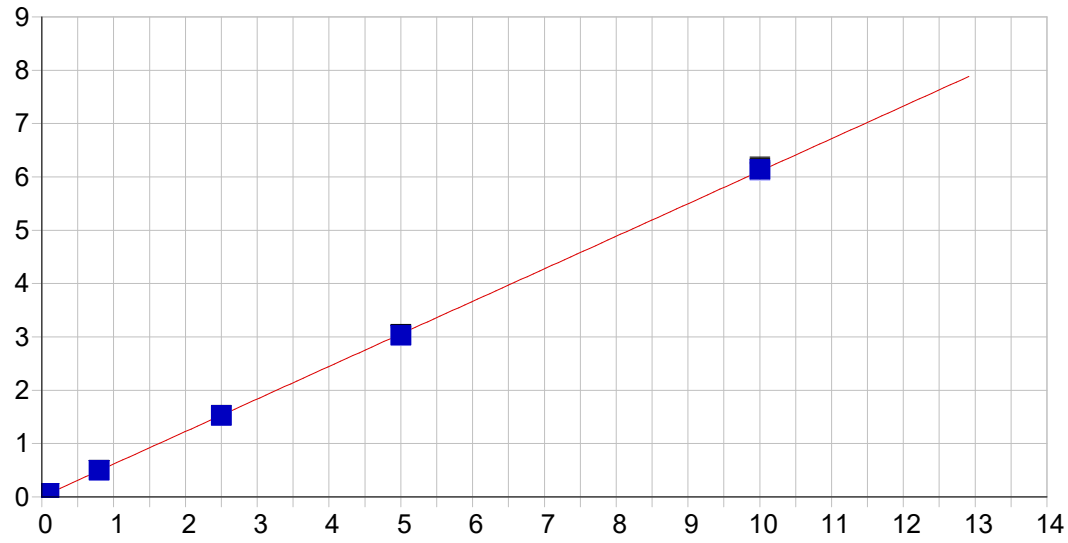


K 766.490 { 44}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001439	Re-Slope:	1.000000
A1 (Gain):	0.003996	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999886	Status:	OK.
Std Error of Est:	0.000032		
Predicted MDL:	0.046884		
Predicted MQL:	0.156281		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00008	.000	.000	-.00144	.000	1
S2	4.0000	3.9573	-.043	-1.07	.01437	.000	1
S3	12.500	12.462	-.038	-.301	.04835	.000	1
S4	25.000	25.590	.590	2.36	.10081	.001	1
S5	50.000	49.568	-.432	-.864	.19661	.001	1
S1	2.0000	1.9221	-.078	-3.90	.00624	.000	1

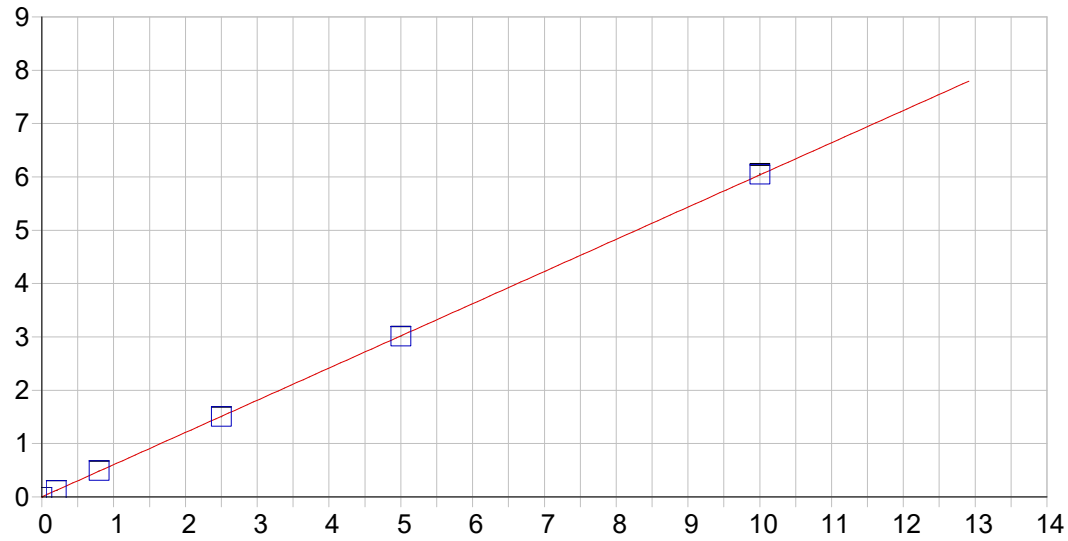


B 249.678 {135}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.005794	Re-Slope:	1.000000
A1 (Gain):	0.610106	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999982	Status:	OK.
Std Error of Est:	0.000190		
Predicted MDL:	0.000995		
Predicted MQL:	0.003315		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00579	.000	1
S1	.10000	.10139	.001	1.39	.06729	.000	1
S3	2.5000	2.4927	-.007	-.293	1.5211	.004	1
S4	5.0000	4.9564	-.044	-.871	3.0188	.020	1
S5	10.000	10.046	.046	.464	6.1132	.052	1
S2	.80000	.80308	.003	.385	.49400	.004	1

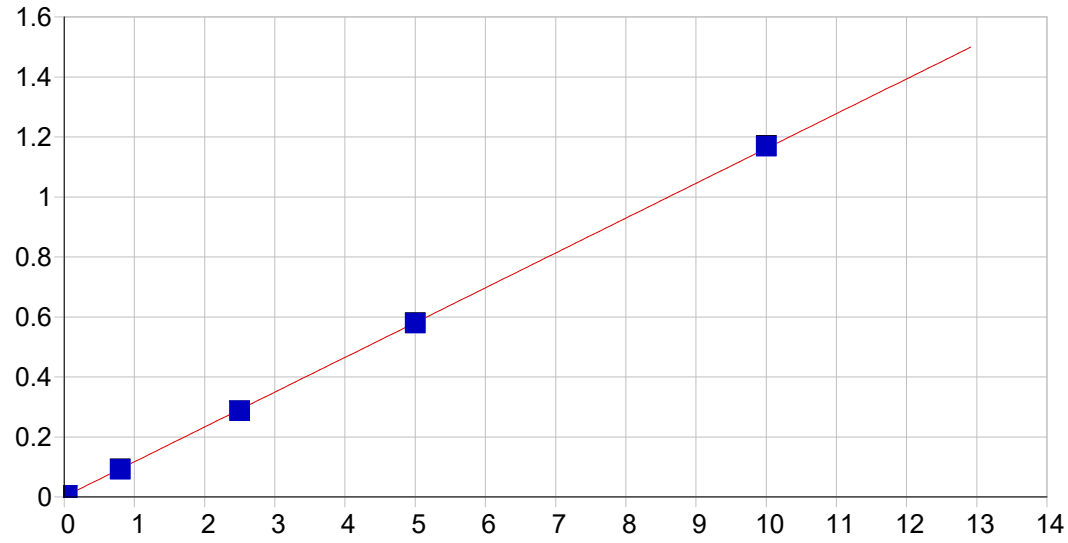


Mo 202.030 {467}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000749	Re-Slope:	1.000000
A1 (Gain):	0.603657	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999994	Status:	OK.
Std Error of Est:	0.000156		
Predicted MDL:	0.000293		
Predicted MQL:	0.000978		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00075	.000	1
S1	.20000	.19999	-.000	-.005	.12147	.000	1
S3	2.5000	2.4901	-.010	-.398	1.5039	.002	1
S4	5.0000	4.9862	-.014	-.276	3.0107	.002	1
S5	10.000	10.014	.014	.137	6.0456	.018	1
S2	.80000	.81003	.010	1.25	.48973	.001	1

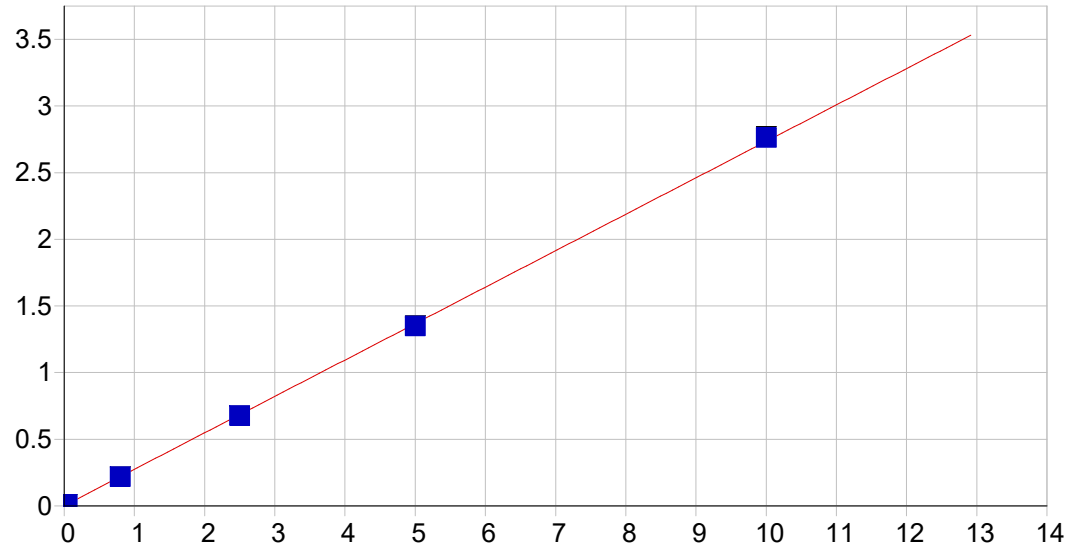


Sn 189.989 {478}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000874	Re-Slope:	1.000000
A1 (Gain):	0.116037	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999971	Status:	OK.
Std Error of Est:	0.000029		
Predicted MDL:	0.000871		
Predicted MQL:	0.002902		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00087	.000	1
S1	.04000	.03975	-.000	-.626	.00548	.000	1
S3	2.5000	2.4696	-.030	-1.22	.28714	.000	1
S4	5.0000	4.9796	-.020	-.407	.57810	.001	1
S5	10.000	10.064	.064	.637	1.1674	.003	1
S2	.80000	.78729	-.013	-1.59	.09213	.000	1

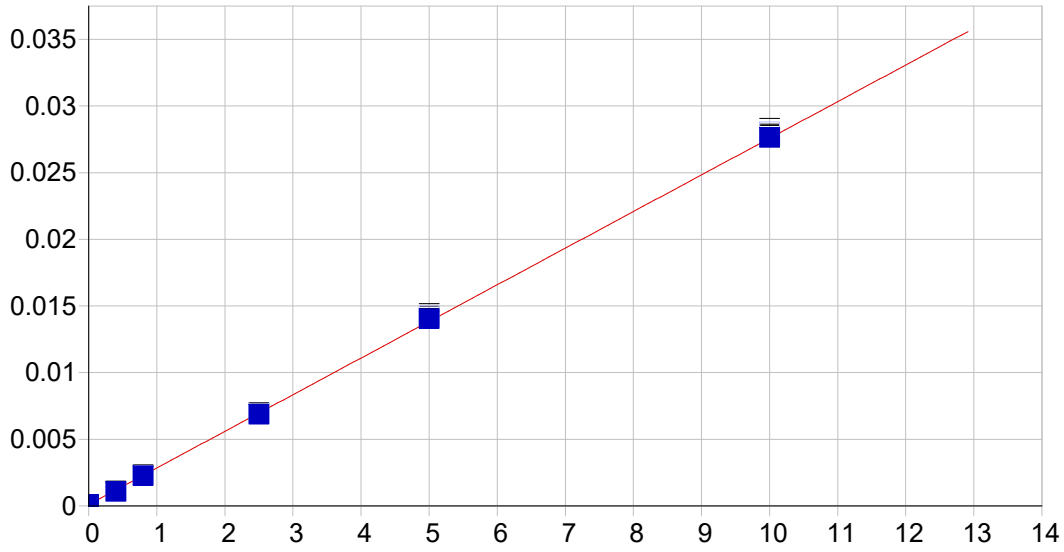


Ti 336.121 {100}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001518	Re-Slope:	1.000000
A1 (Gain):	0.273307	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999931	Status:	OK.
Std Error of Est:	0.000107		
Predicted MDL:	0.001968		
Predicted MQL:	0.006560		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00152	.000	1
S1	.04000	.03876	-.001	-3.10	.01210	.000	1
S3	2.5000	2.4718	-.028	-1.13	.67683	.001	1
S4	5.0000	4.9289	-.071	-1.42	1.3481	.006	1
S5	10.000	10.106	.106	1.06	2.7626	.007	1
S2	.80000	.79427	-.006	-.717	.21852	.001	1

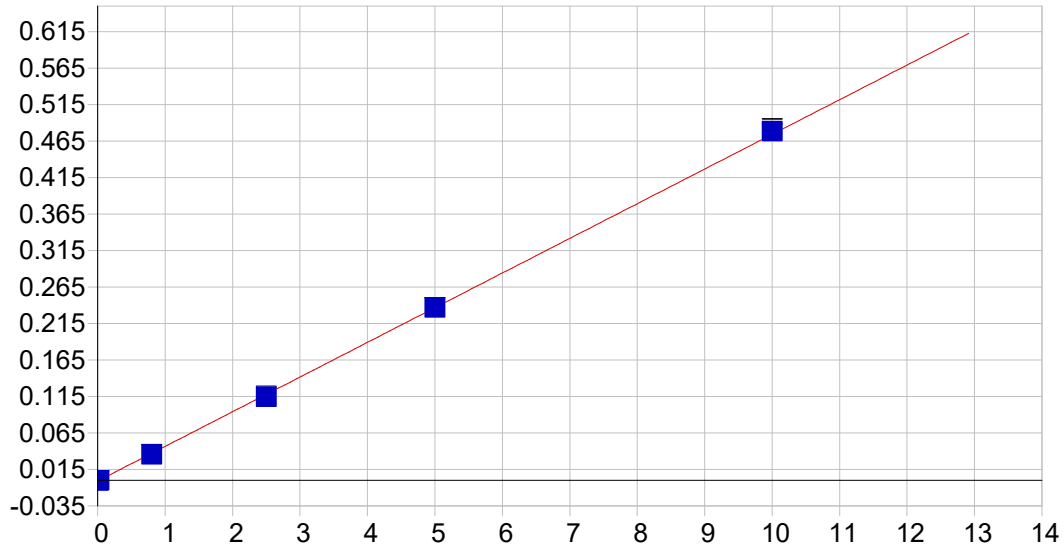


Si 288.158 {117}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000097	Re-Slope:	1.000000
A1 (Gain):	0.002748	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999808	Status:	OK.
Std Error of Est:	0.000006		
Predicted MDL:	0.014837		
Predicted MQL:	0.049456		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00005	.000	.000	.00010	.000	1
S1	.40000	.35424	-.046	-11.4	.00107	.000	1
S3	2.5000	2.4624	-.038	-1.50	.00697	.000	1
S4	5.0000	5.0772	.077	1.54	.01426	.000	1
S5	10.000	10.022	.022	.223	.02806	.000	1
S2	.80000	.78331	-.017	-2.09	.00228	.000	1

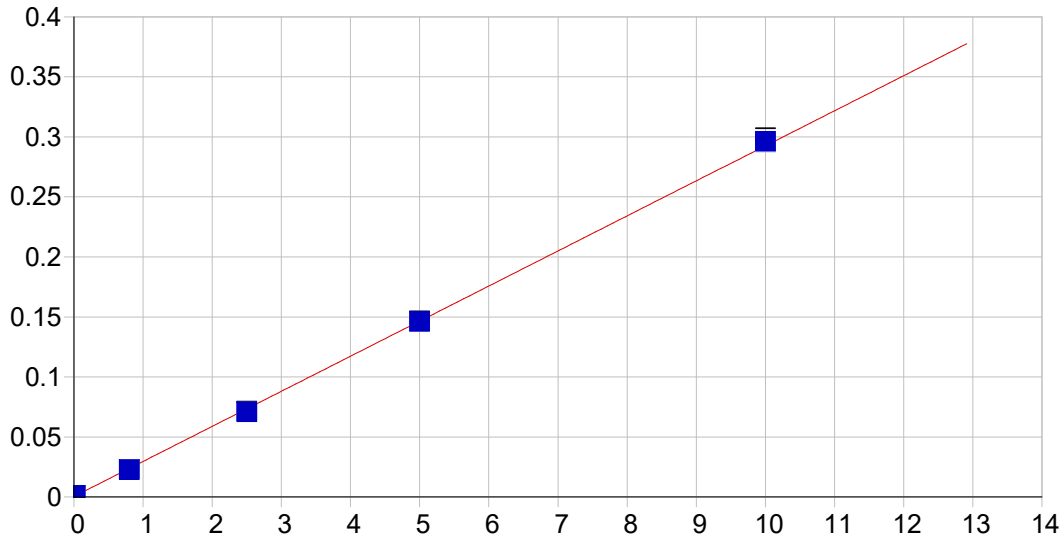


P 177.495 {490}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000952	Re-Slope:	1.000000
A1 (Gain):	0.047512	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999905	Status:	OK.
Std Error of Est:	0.000015		
Predicted MDL:	0.001803		
Predicted MQL:	0.006010		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00095	.000	1
S1	.02000	.01999	-.000	-.038	-.00000	.000	1
S3	2.5000	2.4346	-.065	-2.62	.11470	.001	1
S4	5.0000	5.0045	.005	.091	.23679	.000	1
S5	10.000	10.089	.089	.888	.47831	.003	1
S2	.80000	.77209	-.028	-3.49	.03573	.000	1

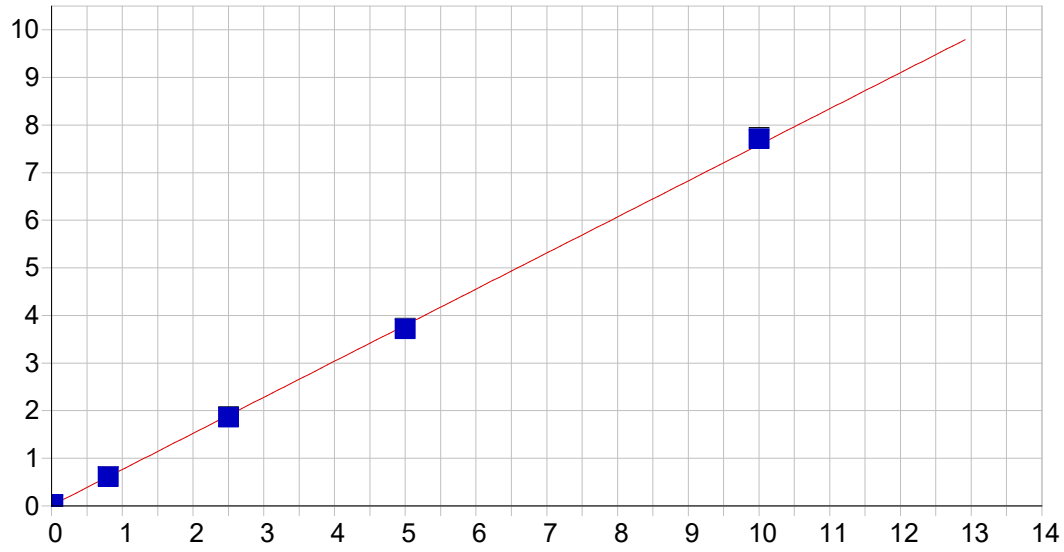


S 182.034 {485}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000334	Re-Slope:	1.000000
A1 (Gain):	0.029224	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999803	Status:	OK.
Std Error of Est:	0.000014		
Predicted MDL:	0.003203		
Predicted MQL:	0.010677		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00033	.000	1
S1	.02000	.02446	.004	22.3	.00102	.000	1
S3	2.5000	2.4159	-.084	-3.36	.07075	.000	1
S4	5.0000	4.9896	-.010	-.208	.14577	.000	1
S5	10.000	10.127	.127	1.27	.29553	.003	1
S2	.80000	.76290	-.037	-4.64	.02257	.000	1

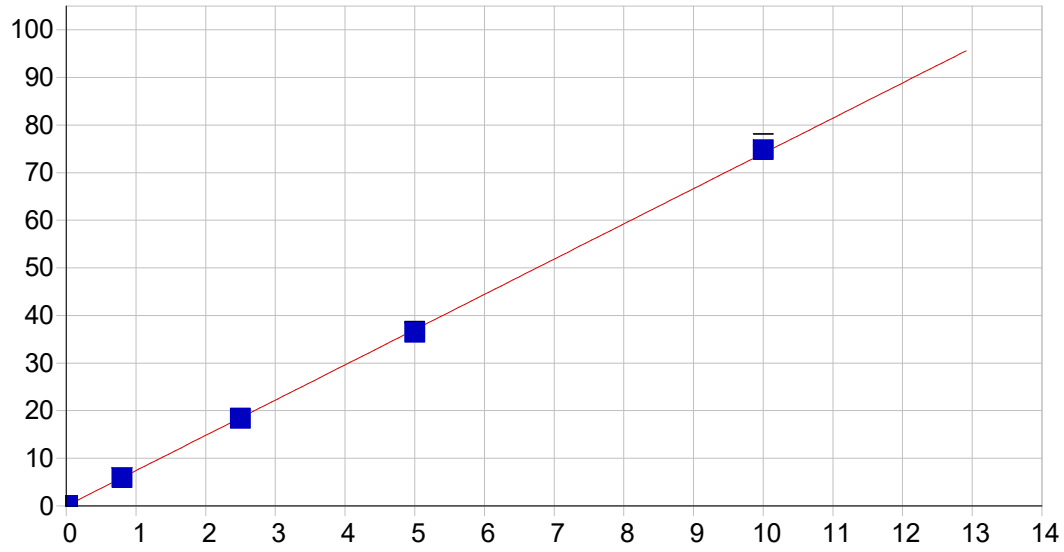


Li 670.784 { 50}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.007578	Re-Slope:	1.000000
A1 (Gain):	0.757805	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999837	Status:	OK.
Std Error of Est:	0.000321		
Predicted MDL:	0.002261		
Predicted MQL:	0.007538		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00758	.001	1
S5	10.000	10.161	.161	1.61	7.7135	.024	1
S4	5.0000	4.8944	-.106	-2.11	3.7196	.012	1
S3	2.5000	2.4483	-.052	-2.07	1.8644	.003	1
S1	.02000	.02119	.001	5.95	.02390	.001	1
S2	.80000	.79526	-.005	-.593	.61071	.004	1

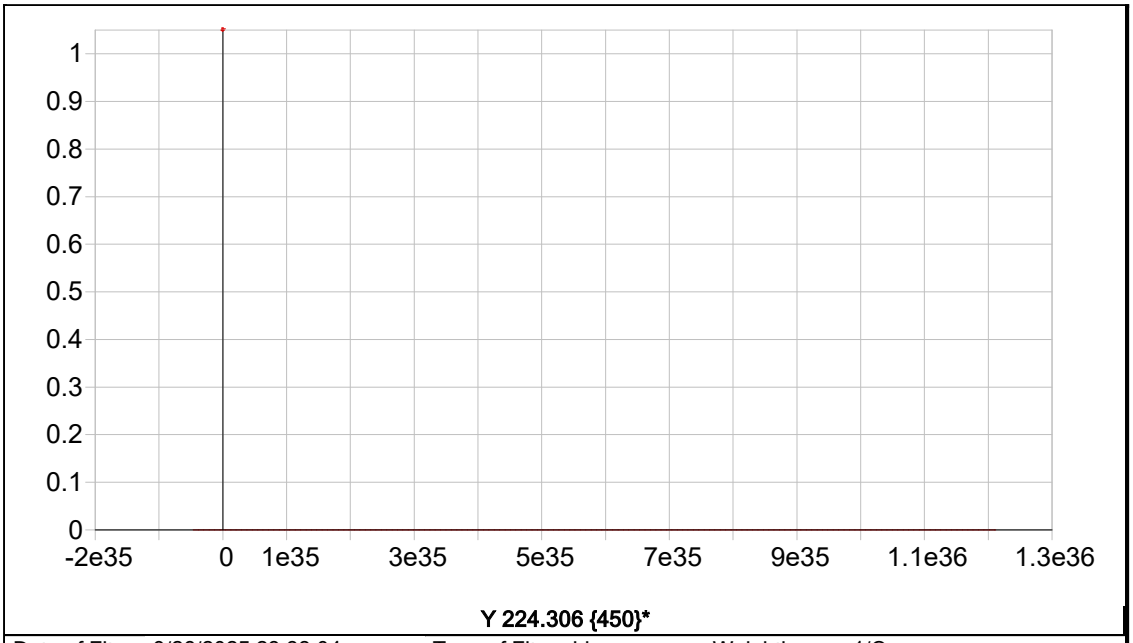


Sr 407.771 { 83}

Date of Fit:	9/26/2025 23:38:04	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.004611	Re-Slope:	1.000000
A1 (Gain):	7.404520	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999929	Status:	OK.
Std Error of Est:	0.002069		
Predicted MDL:	0.000124		
Predicted MQL:	0.000413		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00460	.001	1
S1	.02000	.02121	.001	6.07	.16240	.002	1
S3	2.5000	2.4767	-.023	-.932	18.361	.064	1
S4	5.0000	4.9195	-.081	-1.61	36.467	.237	1
S5	10.000	10.101	.101	1.01	74.867	1.21	1
S2	.80000	.80192	.002	.240	5.9481	.028	1

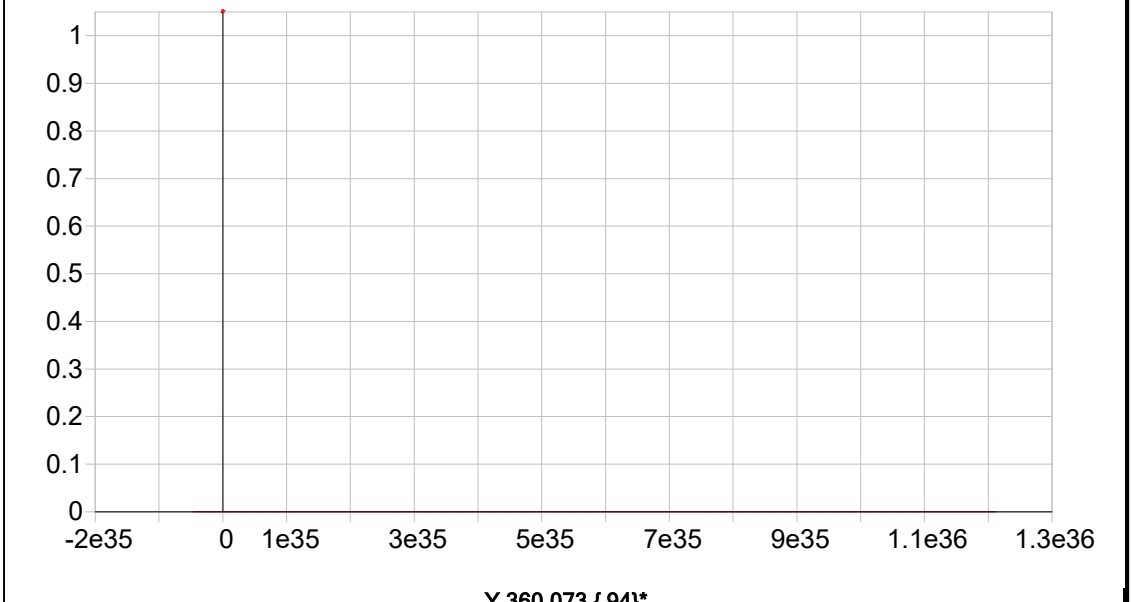


Y 224.306 {450}*

Date of Fit:	9/26/2025 23:38:04	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



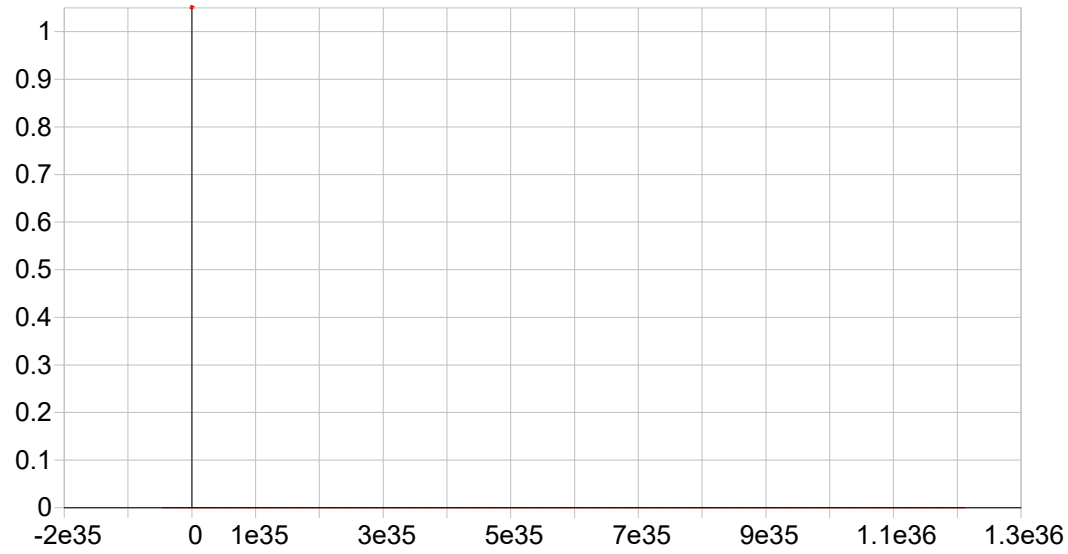
Y 360.073 { 94}*

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

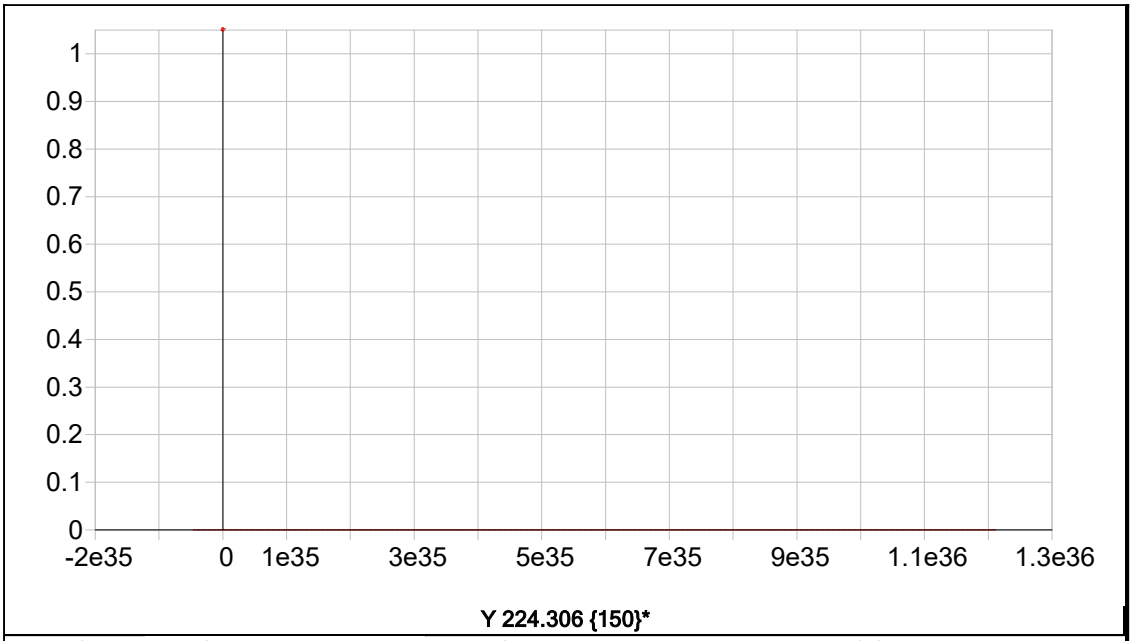


Y 371.030 { 91}*

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

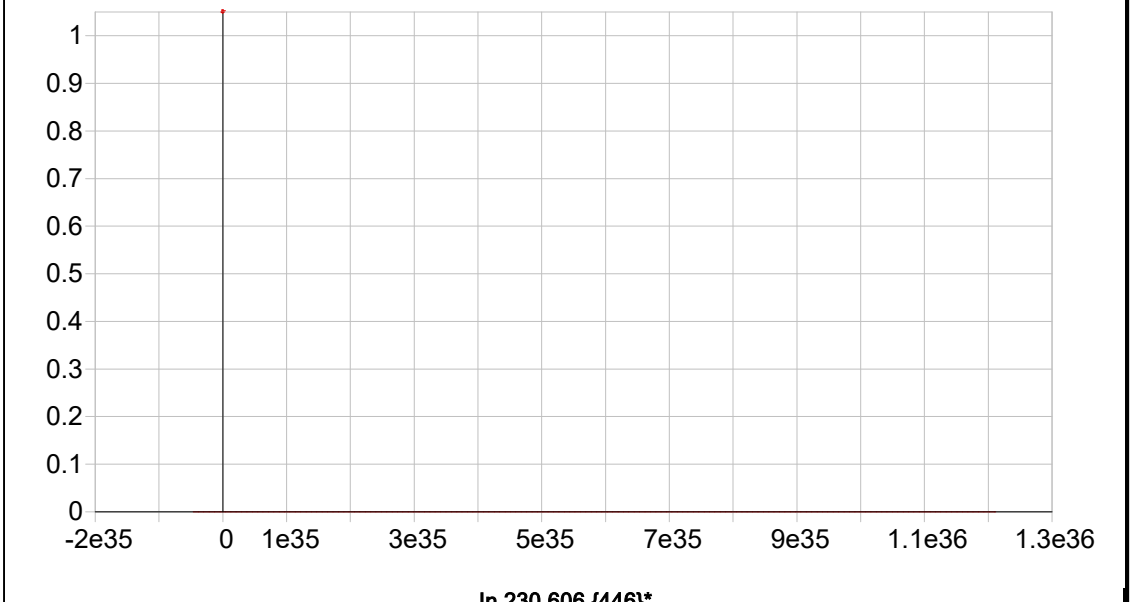


Y 224.306 {150}*

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:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: S0 Acquired: 9/26/2025 12:12:22 Type: Cal
Method: 6010-200.7 NEW(v188) Mode: IR Corr. Factor: 1.000000
User: Jaswal 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	**-.00008**	**.00061**	**-.00013**	**.00021**	**.00060**	**.00014**	**.07682**	**-.00063**
Stddev	.00004	.00013	.00030	.00006	.00006	.00022	.00277	.00036
%RSD	55.333	21.207	222.97	26.274	10.166	159.95	3.6052	56.688
#1	-.00012	.00075	-.00006	.00016	.00065	.00027	.07443	-.00057
#2	-.00003	.00059	.00012	.00021	.00063	.00027	.07986	-.00031
#3	-.00008	.00050	-.00047	.00027	.00053	-.00012	.07616	-.00102

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	**.00069**	**.00056**	**.00020**	**.00046**	**.00039**	**.00003**	**.00044**	**.00004**
Stddev	.00012	.00013	.00004	.00023	.00019	.00003	.00009	.00037
%RSD	17.721	23.129	19.359	50.016	49.392	116.96	20.704	836.06
#1	.00074	.00071	.00021	.00050	.00020	.00002	.00034	-.00005
#2	.00055	.00048	.00016	.00067	.00039	.00006	.00052	.00046
#3	.00077	.00049	.00023	.00021	.00059	-.00000	.00047	-.00027

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	**-.00081**	**.00055**	**.00055**	**-.00001**	**.00481**	**-.00144**	**.00579**	**.00075**
Stddev	.00009	.00010	.00012	.00041	.00031	.00007	.00047	.00015
%RSD	10.569	18.449	22.507	2795.1	6.3501	4.6840	8.0890	20.118
#1	-.00091	.00058	.00046	.00005	.00516	-.00147	.00531	.00091
#2	-.00074	.00064	.00069	-.00046	.00470	-.00136	.00625	.00062
#3	-.00080	.00044	.00050	.00036	.00458	-.00149	.00582	.00071

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	**.00087**	**.00152**	**.00010**	**-.00095**	**.00033**	**.00758**	**.00460**
Stddev	.00007	.00047	.00002	.00003	.00003	.00144	.00068
%RSD	8.2268	30.811	15.982	2.8470	9.6222	18.982	14.813
#1	.00083	.00105	.00009	-.00092	.00036	.00810	.00538
#2	.00083	.00152	.00012	-.00098	.00030	.00868	.00436
#3	.00096	.00198	.00009	-.00096	.00034	.00595	.00408

Sample Name: S0 Acquired: 9/26/2025 12:12:22 Type: Cal
Method: 6010-200.7 NEW(v188) Mode: IR Corr. Factor: 1.000000
User: Jaswal 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	5757.0	92374.	8414.8	4607.0	6812.7
Stddev	3.8	127.	46.8	19.4	3.5
%RSD	.06534	.13718	.55614	.42162	.05142
#1	5760.9	92253.	8419.5	4588.2	6810.5
#2	5753.4	92363.	8365.8	4627.0	6810.8
#3	5756.6	92506.	8459.0	4605.8	6816.7

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: S1 Acquired: 9/26/2025 12:16:48 Type: Cal
Method: 6010-200.7 NEW(v188) Mode: IR Corr. Factor: 1.000000
User: Jaswal 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	**.00096**	**.00284**	**.00234**	**.00119**	**.00515**	**.00855**	**.25444**	**.04949**
Stddev	.00014	.00007	.00008	.00007	.00008	.00014	.00476	.00065
%RSD	14.207	2.5340	3.2305	5.5291	1.5587	1.6886	1.8699	1.3132
#1	.00089	.00276	.00232	.00115	.00518	.00871	.25536	.04874
#2	.00087	.00285	.00228	.00127	.00506	.00849	.25867	.04993
#3	.00111	.00290	.00242	.00115	.00521	.00845	.24929	.04979

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	**.01929**	**.11305**	**.00205**	**.03145**	**.01490**	**.00028**	**.00830**	**.02283**
Stddev	.00011	.00066	.00001	.00010	.00023	.00000	.00018	.00005
%RSD	.55718	.58528	.38835	.32465	1.5510	.86574	2.1266	.22715
#1	.01918	.11318	.00205	.03136	.01516	.00028	.00836	.02278
#2	.01939	.11364	.00204	.03156	.01471	.00028	.00844	.02288
#3	.01932	.11234	.00206	.03143	.01482	.00028	.00810	.02283

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	**.02377**	**.00210**	**.01223**	**.00456**	**.09460**	**.00624**	**.06729**	**.12147**
Stddev	.00016	.00009	.00012	.00026	.00041	.00007	.00014	.00021
%RSD	.67379	4.2921	.94965	5.7767	.43121	1.1475	.21090	.16926
#1	.02387	.00213	.01231	.00454	.09417	.00627	.06738	.12169
#2	.02385	.00218	.01228	.00430	.09465	.00629	.06738	.12128
#3	.02358	.00200	.01209	.00483	.09498	.00616	.06713	.12145

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	**.00548**	**.01210**	**.00107**	**-.00000**	**.00102**	**.02390**	**.16240**
Stddev	.00006	.00017	.00003	.00007	.00001	.00134	.00173
%RSD	1.1766	1.3897	2.7552	11005.	.82798	5.6010	1.0631
#1	.00550	.01218	.00104	-.00000	.00101	.02236	.16250
#2	.00541	.01191	.00107	-.00007	.00103	.02473	.16407
#3	.00554	.01222	.00110	.00007	.00102	.02462	.16062

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: S1 Acquired: 9/26/2025 12:16:48 Type: Cal
Method: 6010-200.7 NEW(v188) Mode: IR Corr. Factor: 1.000000
User: Jaswal 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	5679.2	90939.	8448.1	4620.7	6610.3
Stddev	7.2	256.	17.7	10.1	5.0
%RSD	.12765	.28147	.20902	.21858	.07538
#1	5686.8	90662.	8452.2	4615.2	6608.9
#2	5678.6	90987.	8428.7	4614.6	6615.8
#3	5672.4	91167.	8463.3	4632.4	6606.1

Sample Name: S2 Acquired: 9/26/2025 12:21:09 Type: Cal
Method: 6010-200.7 NEW(v188) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2265
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.03635	.04838	.15771	.03333	.06915	.12371	2.8464	.32691	1.1994
Stddev	.00006	.00136	.00031	.00015	.00040	.00065	.0103	.00324	.0017
%RSD	.15182	2.8182	.19736	.44031	.57709	.52541	.36171	.99156	.14131
#1	.03641	.04932	.15739	.03326	.06879	.12307	2.8519	.32458	1.1982
#2	.03630	.04900	.15773	.03323	.06958	.12370	2.8346	.32553	1.1986
#3	.03634	.04682	.15801	.03350	.06907	.12437	2.8528	.33061	1.2013

Elem	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.21974	.03043	.40621	.13487	.00222	.15686	.04299	.23586	.03218
Stddev	.00086	.00006	.00087	.00058	.00001	.00054	.00034	.00052	.00013
%RSD	.39137	.21206	.21347	.42922	.37608	.34656	.78336	.22243	.41500
#1	.21896	.03038	.40547	.13433	.00222	.15719	.04261	.23535	.03222
#2	.21960	.03040	.40599	.13480	.00223	.15624	.04326	.23584	.03229
#3	.22066	.03050	.40716	.13548	.00221	.15716	.04308	.23640	.03204

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02377	.04668	.89505	.01437	.49400	.48973	.09213	.21852	.00228
Stddev	.00028	.00028	.00164	.00025	.00378	.00102	.00029	.00067	.00004
%RSD	1.1684	.60913	.18362	1.7418	.76610	.20821	.31609	.30504	1.5730
#1	.02397	.04698	.89531	.01429	.49302	.48992	.09245	.21895	.00232
#2	.02388	.04642	.89655	.01465	.49080	.48863	.09209	.21775	.00224
#3	.02345	.04662	.89329	.01418	.49817	.49064	.09187	.21885	.00229

Elem	P_1774	S_1820	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.03573	.02257	.61071	5.9481
Stddev	.00009	.00016	.00429	.0277
%RSD	.23968	.71576	.70324	.46533
#1	.03581	.02274	.61045	5.9710
#2	.03573	.02254	.60655	5.9174
#3	.03564	.02242	.61513	5.9561

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: S2 Acquired: 9/26/2025 12:21:09 Type: Cal
Method: 6010-200.7 NEW(v188) Mode: IR Corr. Factor: 1.000000
User: Jaswal 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	5717.9	88215.	8442.1	4515.2	6662.0
Stddev	17.3	134.	46.2	19.7	17.2
%RSD	.30321	.15153	.54731	.43646	.25793
#1	5737.9	88280.	8472.5	4515.3	6681.1
#2	5709.0	88061.	8464.8	4495.4	6656.8
#3	5706.9	88303.	8388.9	4534.8	6647.9

Sample Name: S3 Acquired: 9/26/2025 12:25:16 Type: Cal
Method: 6010-200.7 NEW(v188) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2265
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.11308**	**.14965**	**.48848**	**.10287**	**.21220**	**.38311**	**8.7549**	**1.0119**	**3.7405**
Stddev	.00010	.00330	.00083	.00019	.00026	.00170	.0119	.0026	.0014
%RSD	.09204	2.2056	.16970	.18127	.12143	.44267	.13630	.25499	.03769
#1	.11297	.14611	.48944	.10267	.21192	.38385	8.7573	1.0104	3.7421
#2	.11309	.15022	.48795	.10291	.21242	.38432	8.7420	1.0104	3.7393
#3	.11318	.15263	.48807	.10303	.21226	.38117	8.7655	1.0149	3.7402

Elem	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.67972**	**.09354**	**1.2604**	**.41166**	**.00694**	**.48372**	**.13383**	**.73024**	**.09827**
Stddev	.00165	.00032	.0005	.00044	.00003	.00020	.00044	.00043	.00009
%RSD	.24317	.34713	.03728	.10634	.44274	.04076	.32513	.05927	.09429
#1	.68107	.09347	1.2602	.41119	.00697	.48355	.13362	.73068	.09820
#2	.68022	.09325	1.2609	.41205	.00691	.48367	.13434	.72982	.09823
#3	.67788	.09389	1.2601	.41176	.00694	.48393	.13355	.73023	.09837

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.07318**	**.14600**	**2.7340**	**.04835**	**1.5211**	**1.5039**	**.28714**	**.67683**	**.00697**
Stddev	.00055	.00090	.0042	.00023	.0043	.0022	.00011	.00103	.00003
%RSD	.75101	.61936	.15228	.47357	.27975	.14794	.03966	.15238	.43693
#1	.07370	.14668	2.7333	.04840	1.5166	1.5022	.28719	.67625	.00698
#2	.07261	.14635	2.7302	.04811	1.5216	1.5030	.28701	.67621	.00693
#3	.07324	.14497	2.7385	.04856	1.5251	1.5064	.28722	.67802	.00699

Elem	P_1774	S_1820	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.11470**	**.07075**	**1.8644**	**18.361**
Stddev	.00054	.00047	.0032	.064
%RSD	.47050	.66840	.16944	.34720
#1	.11465	.07059	1.8640	18.288
#2	.11419	.07037	1.8616	18.401
#3	.11526	.07128	1.8678	18.395

Sample Name: S3 Acquired: 9/26/2025 12:25:16 Type: Cal
Method: 6010-200.7 NEW(v188) Mode: IR Corr. Factor: 1.000000
User: Jaswal 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	5624.0	86026.	8320.4	4423.3	6459.4
Stddev	7.0	167.	19.3	7.1	14.5
%RSD	.12475	.19390	.23245	.16022	.22425
#1	5616.3	86014.	8336.2	4415.4	6442.7
#2	5625.6	86199.	8298.8	4425.4	6468.7
#3	5630.1	85866.	8326.0	4429.1	6466.7

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: S4 Acquired: 9/26/2025 12:29:24 Type: Cal
Method: 6010-200.7 NEW(v188) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2265
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.22889	.31045	.98454	.20689	.42614	.75979	17.636	1.9979	7.5776
Stddev	.00074	.00224	.00065	.00060	.00021	.00181	.029	.0119	.0025
%RSD	.32139	.72159	.06569	.29228	.05044	.23884	.16172	.59584	.03284
#1	.22863	.30790	.98438	.20645	.42600	.75971	17.631	1.9984	7.5805
#2	.22972	.31211	.98526	.20758	.42639	.76164	17.610	2.0096	7.5760
#3	.22832	.31135	.98400	.20663	.42603	.75802	17.667	1.9858	7.5764

Elem	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.3430	.18674	2.5525	.81572	.01412	.96133	.26411	1.4744	.19744
Stddev	.0033	.00048	.0022	.00062	.00010	.00417	.00105	.0010	.00018
%RSD	.24376	.25706	.08475	.07575	.67997	.43326	.39927	.06889	.09057
#1	1.3456	.18657	2.5548	.81542	.01415	.96613	.26410	1.4748	.19728
#2	1.3440	.18637	2.5522	.81643	.01401	.95913	.26517	1.4751	.19764
#3	1.3393	.18728	2.5505	.81531	.01420	.95873	.26306	1.4732	.19740

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.15274	.29157	5.4852	.10081	3.0188	3.0107	.57810	1.3481	.01426
Stddev	.00098	.00084	.0175	.00062	.0199	.0024	.00111	.0060	.00018
%RSD	.64140	.28685	.31878	.61338	.65862	.08107	.19158	.44623	1.2576
#1	.15288	.29253	5.5046	.10108	3.0246	3.0095	.57878	1.3551	.01417
#2	.15169	.29100	5.4705	.10010	3.0350	3.0135	.57870	1.3451	.01414
#3	.15364	.29119	5.4807	.10125	2.9966	3.0091	.57682	1.3443	.01446

Elem	P_1774	S_1820	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.23679	.14577	3.7196	36.467
Stddev	.00026	.00040	.0120	.237
%RSD	.10802	.27332	.32263	.64999
#1	.23702	.14611	3.7316	36.193
#2	.23651	.14586	3.7198	36.615
#3	.23682	.14533	3.7076	36.591

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: S4 Acquired: 9/26/2025 12:29:24 Type: Cal
Method: 6010-200.7 NEW(v188) Mode: IR Corr. Factor: 1.000000
User: Jaswal 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	**5554.3**	**84107.**	**8314.3**	**4307.0**	**6278.2**
Stddev	.8	170.	42.5	15.5	4.9
%RSD	.01359	.20181	.51120	.35916	.07837
#1	5553.4	84229.	8310.1	4295.6	6272.7
#2	5554.6	84179.	8274.0	4324.6	6282.1
#3	5554.7	83913.	8358.7	4300.7	6279.7

Sample Name: S5 Acquired: 9/26/2025 12:33:34 Type: Cal
Method: 6010-200.7 NEW(v188) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2265
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.45666	.59330	2.0088	.40866	.85202	1.5495	35.981	3.9875	15.294
Stddev	.00158	.02480	.0024	.00248	.00135	.0025	.456	.0298	.020
%RSD	.34617	4.1794	.11986	.60698	.15818	.16153	1.2673	.74624	.13280
#1	.45484	.56503	2.0087	.40584	.85079	1.5523	36.305	4.0190	15.273
#2	.45772	.61138	2.0065	.41052	.85180	1.5475	36.177	3.9598	15.298
#3	.45740	.60348	2.0113	.40962	.85346	1.5487	35.459	3.9838	15.313

Elem	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.7319	.36178	5.2017	1.6148	.02706	1.9580	.53933	2.9871	.38161
Stddev	.0025	.00097	.0040	.0027	.00017	.0084	.00195	.0011	.00048
%RSD	.09250	.26681	.07678	.16634	.64323	.42724	.36227	.03641	.12560
#1	2.7349	.36092	5.1983	1.6123	.02686	1.9640	.54153	2.9865	.38157
#2	2.7303	.36282	5.2008	1.6143	.02714	1.9485	.53865	2.9865	.38211
#3	2.7307	.36160	5.2061	1.6176	.02718	1.9617	.53781	2.9884	.38115

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.30155	.59738	10.505	.19661	6.1132	6.0456	1.1674	2.7626	.02806
Stddev	.00172	.00234	.012	.00113	.0518	.0180	.0026	.0070	.00026
%RSD	.57084	.39214	.10965	.57361	.84665	.29760	.22466	.25421	.93681
#1	.29963	.59950	10.504	.19558	6.1637	6.0248	1.1648	2.7701	.02776
#2	.30297	.59486	10.517	.19782	6.0603	6.0562	1.1701	2.7561	.02827
#3	.30204	.59778	10.494	.19644	6.1155	6.0558	1.1674	2.7618	.02814

Elem	P_1774	S_1820	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.47831	.29553	7.7135	74.867
Stddev	.00346	.00300	.0239	1.207
%RSD	.72287	1.0165	.31033	1.6119
#1	.47437	.29231	7.7348	76.258
#2	.48086	.29826	7.6876	74.228
#3	.47970	.29603	7.7182	74.114

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: S5 Acquired: 9/26/2025 12:33:34 Type: Cal
Method: 6010-200.7 NEW(v188) Mode: IR Corr. Factor: 1.000000
User: Jaswal 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	5478.4	87560.	8122.5	4362.5	6082.8
Stddev	5.9	395.	54.9	32.7	5.9
%RSD	.10848	.45153	.67578	.75048	.09747
#1	5481.7	87631.	8059.4	4380.5	6078.4
#2	5482.0	87133.	8159.5	4324.7	6089.6
#3	5471.5	87914.	8148.6	4382.3	6080.6

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: ICV01 Acquired: 9/26/2025 12:44:52 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**3.936689**	**3.829944**	**3.844817**	**3.953703**	**4.062284**	**7.848034**
Stddev	.009910	.063195	.007783	.004223	.004104	.029012
%RSD	.2517384	1.650027	.2024277	.1068056	.1010154	.3696732
#1	3.933364	3.880030	3.844143	3.951365	4.057547	7.814535
#2	3.928869	3.850859	3.837393	3.951166	4.064728	7.864512
#3	3.947834	3.758943	3.852915	3.958578	4.064578	7.865055

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**7.723019**	**.1970168**	**1.963768**	**19.46403**	**.7939665**	**1.956557**
Stddev	.030992	.0012473	.003973	.04234	.0011092	.003423
%RSD	.4012936	.6330881	.2023177	.2175087	.1397031	.1749607
#1	7.688804	.1962943	1.962152	19.43381	.7936030	1.954702
#2	7.731040	.1962991	1.960857	19.51242	.7930847	1.954462
#3	7.749211	.1984570	1.968294	19.44586	.7952119	1.960507

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.9961429**	**3.911959**	**1.941775**	**19.48530**	**1.956934**	**.9514856**
Stddev	.0015293	.037063	.009555	.09070	.003437	.0013170
%RSD	.1535208	.9474324	.4920821	.4654933	.1756560	.1384111
#1	.9948797	3.932046	1.931201	19.42878	1.954328	.9526429
#2	.9957059	3.934642	1.944336	19.43720	1.955646	.9500527
#3	.9978431	3.869188	1.949789	19.58992	1.960830	.9517614

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**19.01579**	**1.947628**	**2.000785**	**19.29241**	**3.897881**	**4.010434**
Stddev	.07742	.011160	.001979	.12537	.030873	.005231
%RSD	.4071382	.5730167	.0988889	.6498608	.7920518	.1304297
#1	18.99026	1.934855	2.001105	19.28825	3.876872	4.007857
#2	19.10275	1.955489	1.998666	19.41981	3.883442	4.006992
#3	18.95435	1.952541	2.002584	19.16917	3.933328	4.016453

Sample Name: ICV01 Acquired: 9/26/2025 12:44:52 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal 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	3.943857	3.959542	3.852690	F .0101360	3.821917	3.895925
Stddev	.007022	.010321	.013686	.0012433	.010420	.014854
%RSD	.1780476	.2606591	.3552405	12.26606	.2726352	.3812668
#1	3.951905	3.950030	3.851898	.0095547	3.816799	3.878781
#2	3.938975	3.958082	3.866755	.0115634	3.815046	3.904948
#3	3.940692	3.970516	3.839417	.0092898	3.833906	3.904047

Elem	Sr4077
Units	ppm
Avg	3.947973
Stddev	.016818
%RSD	.4259897
#1	3.930770
#2	3.948772
#3	3.964377

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5667.939	88689.83	8489.624	4460.653	6444.175
Stddev	7.743	208.33	54.808	13.178	12.354
%RSD	.1366034	.2349026	.6455923	.2954338	.1917110
#1	5667.475	88790.47	8543.447	4471.294	6440.091
#2	5675.903	88450.28	8491.545	4445.912	6458.055
#3	5660.439	88828.73	8433.881	4464.752	6434.381

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: LLICV01 Acquired: 9/26/2025 12:49:31 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal 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	**.0219167**	**.0397840**	**.0122645**	**.0228665**	**.0528136**	**.1159435**	**.0980669**
Stddev	.0019708	.0042076	.0009944	.0023745	.0016527	.0133289	.0013082
%RSD	8.992237	10.57616	8.107616	10.38411	3.129365	11.49602	1.333951
#1	.0217998	.0431126	.0121364	.0233588	.0529324	.1101665	.0989200
#2	.0200070	.0411848	.0133167	.0249562	.0511047	.1064777	.0965608
#3	.0239434	.0350547	.0113404	.0202844	.0544037	.1311863	.0987198

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0063333**	**.0060293**	**2.097130**	**.0101936**	**.0303066**	**.0223682**	**.1068582**
Stddev	.0000865	.0000137	.015754	.0001594	.0001376	.0002242	.0053834
%RSD	1.365839	.2263546	.7512226	1.563389	.4540356	1.002247	5.037929
#1	.0064006	.0060197	2.114728	.0102362	.0303909	.0221916	.1017031
#2	.0062357	.0060233	2.084341	.0100172	.0303811	.0222925	.1064275
#3	.0063636	.0060450	2.092322	.0103273	.0301478	.0226204	.1124441

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0209351**	**2.160496**	**.0411268**	**.0104567**	**2.030290**	**.0366295**	**.0446498**
Stddev	.0006703	.006800	.0000495	.0006694	.042238	.0005826	.0007442
%RSD	3.201823	.3147193	.1203346	6.401868	2.080414	1.590440	1.666818
#1	.0203689	2.163539	.0411536	.0099624	2.015899	.0361281	.0445909
#2	.0216752	2.152706	.0411570	.0101893	2.077844	.0372686	.0454217
#3	.0207612	2.165241	.0410697	.0112185	1.997129	.0364919	.0439367

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.108165**	**.1131037**	**.2009146**	**.0387651**	**.0426653**	**.3880191**	**.0198529**
Stddev	.015162	.0005532	.0009998	.0005848	.0006556	.0080792	.0008291
%RSD	.7191910	.4891470	.4976260	1.508691	1.536544	2.082163	4.176259
#1	2.101466	.1136000	.2020570	.0387199	.0428842	.3848097	.0206814
#2	2.097506	.1125072	.2004877	.0382041	.0431835	.3820378	.0198540
#3	2.125522	.1132040	.2001991	.0393712	.0419283	.3972099	.0190232

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: LLICV01 Acquired: 9/26/2025 12:49:31 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0215296	.0226655	.0213350
Stddev	.0025791	.0005101	.0001488
%RSD	11.97932	2.250577	.6973945
#1	.0237483	.0232203	.0214239
#2	.0186998	.0225595	.0211632
#3	.0221406	.0222167	.0214178

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5779.962	86211.97	8479.582	4396.358	6802.761
Stddev	28.611	793.25	92.846	31.859	28.281
%RSD	.4950103	.9201106	1.094937	.7246567	.4157294
#1	5747.616	87025.24	8383.346	4423.783	6771.160
#2	5801.958	85440.39	8568.620	4361.412	6825.693
#3	5790.313	86170.30	8486.779	4403.880	6811.429

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: ICB01 Acquired: 9/26/2025 12:55:50 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal 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	**.0003712**	**-.000481**	**.0007920**	**.0012537**	**-.000042**	**.0039566**	**.0003569**
Stddev	.0013901	.000635	.0010359	.0011487	.001327	.0024904	.0007566
%RSD	374.5212	131.8855	130.7844	91.62510	3172.542	62.94357	211.9741
#1	.0012161	-.000156	-.000092	.0003209	.001484	.0057868	.0004147
#2	.0011306	-.000075	.001932	.0009035	-.000924	.0011206	-.000427
#3	-.001233	-.001212	.000536	.0025368	-.000685	.0049625	.001083

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000102**	**-.000082**	**.0104790**	**-.000384**	**-.000040**	**.0005905**	**-.003608**
Stddev	.000034	.000030	.0089986	.000260	.000091	.0003932	.002152
%RSD	33.79466	36.82647	85.87226	67.86804	226.1183	66.59476	59.63253
#1	-.000142	-.000077	.0170251	-.000309	.000056	.0002857	-.001136
#2	-.000079	-.000115	.0141942	-.000169	-.000051	.0010344	-.004634
#3	-.000085	-.000055	.0002177	-.000673	-.000126	.0004515	-.005055

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000565**	**.0010923**	**.0000064**	**-.000063**	**-.037465**	**-.003017**	**.0019689**
Stddev	.000400	.0580330	.0001896	.000071	.014520	.002547	.0001997
%RSD	70.88116	5312.845	2958.303	112.6127	38.75546	84.42404	10.14218
#1	-.000622	-.065918	.0002096	-.000133	-.040181	-.003604	.0019424
#2	-.000933	.034824	-.000166	.000008	-.050435	-.005219	.0017838
#3	-.000139	.034371	-.000024	-.000064	-.021779	-.000228	.0021805

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.065929**	**.0040028**	**-.000079**	**-.003509**	**-.000238**	**.0003742**	**.0010896**
Stddev	.036872	.0002747	.000029	.001153	.000530	.0077845	.0012010
%RSD	55.92683	6.863871	37.21072	32.85059	222.4176	2080.200	110.2314
#1	-.059298	.0039142	-.000079	-.004765	-.000084	.0064812	.0024598
#2	-.105667	.0037832	-.000108	-.003263	-.000828	-.008391	.0005902
#3	-.032822	.0043109	-.000049	-.002500	.000197	.003033	.0002188

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: ICB01 Acquired: 9/26/2025 12:55:50 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000706	-.002930	.0000272
Stddev	.002760	.001173	.0000544
%RSD	391.0415	40.04522	199.7514
#1	-.003737	-.002156	-.000028
#2	.001663	-.002354	.000029
#3	-.000044	-.004281	.000081

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5815.859	89949.65	8493.396	4553.271	6934.052
Stddev	19.150	283.03	4.690	31.480	18.168
%RSD	.3292778	.3146533	.0552158	.6913769	.2620173
#1	5836.731	89990.58	8488.441	4549.179	6954.266
#2	5811.746	90209.99	8497.766	4586.597	6928.806
#3	5799.099	89648.39	8493.982	4524.037	6919.083

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: CRI01 Acquired: 9/26/2025 13:00:09 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal 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	**.0223005**	**.0391027**	**.0124118**	**.0248695**	**.0516610**	**.1129208**	**.0987836**
Stddev	.0011266	.0029669	.0001673	.0034427	.0021170	.0244176	.0015675
%RSD	5.051743	7.587569	1.348097	13.84321	4.097916	21.62365	1.586840
#1	.0213777	.0424313	.0122273	.0214804	.0495291	.0848868	.0969959
#2	.0219678	.0367361	.0125538	.0283634	.0516911	.1243320	.0994317
#3	.0235559	.0381406	.0124542	.0247646	.0537629	.1295436	.0999232

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0063344**	**.0060436**	**2.085215**	**.0100998**	**.0299215**	**.0222691**	**.0964246**
Stddev	.0001186	.0000426	.009744	.0001967	.0001215	.0001662	.0083851
%RSD	1.872747	.7048569	.4672949	1.947283	.4060935	.7461418	8.696010
#1	.0062338	.0059966	2.082164	.0102519	.0299692	.0223699	.0910973
#2	.0063042	.0060796	2.077362	.0098777	.0297834	.0223601	.1060900
#3	.0064652	.0060546	2.096120	.0101699	.0300119	.0220773	.0920865

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0204524**	**2.138742**	**.0407977**	**.0104055**	**2.003311**	**.0373694**	**.0432415**
Stddev	.0008931	.031179	.0001379	.0005441	.034902	.0013369	.0002369
%RSD	4.366673	1.457803	.3379424	5.228899	1.742195	3.577388	.5477848
#1	.0197933	2.117067	.0406453	.0097853	2.043389	.0385280	.0432354
#2	.0200950	2.174474	.0408341	.0108026	1.986931	.0359067	.0434814
#3	.0214688	2.124684	.0409137	.0106287	1.979612	.0376736	.0430077

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.002362**	**.1054178**	**.2001080**	**.0385699**	**.0400484**	**.3702033**	**.0196662**
Stddev	.020571	.0016211	.0004798	.0004732	.0008659	.0088782	.0001239
%RSD	1.027327	1.537754	.2397939	1.226796	2.162196	2.398203	.6300524
#1	1.996254	.1037905	.1999884	.0386353	.0393721	.3785096	.0197523
#2	2.025295	.1054301	.2006363	.0390069	.0397488	.3608466	.0195242
#3	1.985537	.1070326	.1996993	.0380674	.0410243	.3712536	.0197221

Sample Name: CRI01 Acquired: 9/26/2025 13:00:09 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0211117	.0220748	.0213324
Stddev	.0009065	.0024091	.0001774
%RSD	4.293889	10.91344	.8316077
#1	.0210169	.0201383	.0211288
#2	.0202563	.0213134	.0214534
#3	.0220619	.0247726	.0214150

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5814.153	87844.59	8520.678	4483.577	6861.633
Stddev	16.098	284.32	71.906	16.418	12.167
%RSD	.2768746	.3236670	.8438953	.3661832	.1773232
#1	5797.750	87643.55	8592.228	4468.408	6848.948
#2	5814.780	87720.32	8521.384	4481.312	6862.745
#3	5829.928	88169.89	8448.422	4501.010	6873.206

Sample Name: ICSA01 Acquired: 9/26/2025 13:04:24 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0031396**	**.0058941**	**-.000704**	**.0077872**	**-.002914**	**259.7011**	**.0034880**
Stddev	.0023440	.0003292	.003697	.0034250	.002691	2.4258	.0010741
%RSD	74.65932	5.584639	524.8246	43.98185	92.34550	.9340919	30.79282
#1	.0010130	.0060178	-.004613	.0051574	-.000482	261.9709	.0047138
#2	.0027530	.0061434	-.000238	.0116602	-.002455	259.9877	.0030380
#3	.0056529	.0055210	.002737	.0065441	-.005806	257.1447	.0027121

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0016675**	**-.001234**	**241.4421**	**.0456513**	**.0014791**	**.0090233**	**101.8092**
Stddev	.0000578	.000515	1.8202	.0006887	.0001729	.0032902	.5740
%RSD	3.467972	41.71599	.7538688	1.508660	11.69122	36.46317	.5638174
#1	.0017130	-.000736	243.1861	.0461238	.0013326	.0122713	102.4631
#2	.0016024	-.001201	241.5858	.0459690	.0016698	.0091062	101.5758
#3	.0016871	-.001764	239.5543	.0448610	.0014348	.0056925	101.3886

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0063787**	**257.6883**	**.0032863**	**-.001787**	**.0763206**	**.0004058**	**.0024312**
Stddev	.0004713	1.8721	.0001919	.000318	.0179401	.0043866	.0003200
%RSD	7.389052	.7265071	5.838322	17.80397	23.50629	1080.915	13.16392
#1	.0067676	259.6221	.0034566	-.002127	.0796410	-.002346	.0027850
#2	.0065139	257.5582	.0030784	-.001737	.0569522	.005465	.0023468
#3	.0058545	255.8846	.0033240	-.001496	.0923685	-.001901	.0021618

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0438486**	**.0727311**	**.0001670**	**-.004745**	**-.004043**	**.0222059**	**.0035431**
Stddev	.0378896	.0014420	.0002311	.001187	.001832	.0049338	.0016089
%RSD	86.41007	1.982676	138.3987	25.01372	45.30432	22.21849	45.40928
#1	.0759830	.0722848	.0000958	-.005421	-.002026	.0165672	.0028137
#2	.0534943	.0715650	.0004253	-.003374	-.004501	.0257300	.0053875
#3	.0020684	.0743435	-.000020	-.005439	-.005602	.0243204	.0024281

Sample Name: ICSA01 Acquired: 9/26/2025 13:04:24 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.009700	-.007061	.0037401
Stddev	.006278	.000936	.0006294
%RSD	64.71829	13.25634	16.82823
#1	-.007412	-.006850	.0039044
#2	-.004887	-.008085	.0042711
#3	-.016801	-.006249	.0030449

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5309.375	82227.57	8209.309	4146.123	5901.264
Stddev	9.213	205.58	17.116	10.856	12.966
%RSD	.1735161	.2500143	.2084946	.2618306	.2197122
#1	5299.319	82276.17	8210.155	4151.030	5888.014
#2	5311.399	82404.50	8191.786	4133.680	5901.853
#3	5317.408	82002.05	8225.987	4153.658	5913.926

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: ICSAB01 Acquired: 9/26/2025 13:08:34 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1081623**	**.1132508**	**.0431924**	**.0604703**	**.6091300**	**248.5505**
Stddev	.0020626	.0026545	.0015776	.0065590	.0035650	.0433
%RSD	1.906935	2.343955	3.652586	10.84667	.5852551	.0174313
#1	.1083175	.1120410	.0429348	.0551511	.6054307	248.5675
#2	.1060266	.1114166	.0417594	.0677990	.6094157	248.5013
#3	.1101430	.1162947	.0448830	.0584609	.6125434	248.5828

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4945743**	**.5041768**	**.9828820**	**235.9449**	**.5436624**	**.4944977**
Stddev	.0007374	.0026632	.0053472	.3379	.0020064	.0022360
%RSD	.1491078	.5282272	.5440364	.1432152	.3690432	.4521862
#1	.4953341	.5011386	.9774413	235.7757	.5422287	.4920348
#2	.4938614	.5052845	.9881305	235.7250	.5428033	.4964002
#3	.4945274	.5061075	.9830742	236.3340	.5459553	.4950581

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4997021**	**98.31116**	**.4930375**	**249.9665**	**.9809789**	**.2086628**
Stddev	.0025742	.45576	.0018173	.6905	.0048878	.0011787
%RSD	.5151398	.4635889	.3685986	.2762472	.4982583	.5648564
#1	.4968332	98.18311	.4916171	249.4735	.9765417	.2084767
#2	.5018098	97.93312	.4924099	249.6703	.9862181	.2075883
#3	.5004632	98.81724	.4950854	250.7557	.9801770	.2099234

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0691025**	**.4829625**	**1.035640**	**-.020367**	**.9805113**	**.9601709**
Stddev	.0168067	.0012505	.001172	.053618	.0039186	.0039419
%RSD	24.32136	.2589181	.1131400	263.2653	.3996487	.4105399
#1	.0574872	.4839241	1.034354	-.041372	.9764328	.9561572
#2	.0614463	.4815488	1.035919	-.060302	.9808537	.9640368
#3	.0883741	.4834145	1.036647	.040574	.9842475	.9603185

Sample Name: ICSAB01 Acquired: 9/26/2025 13:08:34 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal 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	.9354072	.9347586	.9214092	F .0094128	.9937742	.9263512
Stddev	.0031566	.0013364	.0193161	.0023600	.0046851	.0011452
%RSD	.3374549	.1429622	2.096367	25.07171	.4714464	.1236249
#1	.9318378	.9336082	.9296603	.0090722	.9939925	.9269716
#2	.9378312	.9362245	.8993378	.0072417	.9983463	.9250297
#3	.9365525	.9344432	.9352293	.0119246	.9889837	.9270524

Elem	Sr4077
Units	ppm
Avg	1.018327
Stddev	.001085
%RSD	.1065261
#1	1.019577
#2	1.017627
#3	1.017778

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5323.813	82414.67	8256.319	4185.507	5888.168
Stddev	22.470	272.18	30.147	14.836	26.191
%RSD	.4220641	.3302574	.3651421	.3544549	.4448095
#1	5348.658	82541.12	8287.283	4189.399	5915.501
#2	5304.914	82600.62	8254.614	4198.008	5863.292
#3	5317.866	82102.26	8227.061	4169.113	5885.712

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: ICSADLX20 Acquired: 9/26/2025 13:32:11 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSA01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001137**	**.0004332**	**.0001698**	**.0037749**	**.0013875**	**12.56917**	**.0002746**
Stddev	.001644	.0028275	.0011397	.0032232	.0024337	.02082	.0010411
%RSD	144.5779	652.6932	671.2626	85.38455	175.4086	.1656154	379.0828
#1	-.000456	.0022359	-.001042	.0003832	-.001423	12.54649	-.000487
#2	-.003013	.0018894	.000331	.0067977	.002795	12.57363	.001461
#3	.000057	-.002826	.001221	.0041437	.002791	12.58740	-.000151

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0001113**	**-.000055**	**12.32834**	**.0018980**	**.0000195**	**.0011989**	**4.971376**
Stddev	.0000045	.000036	.02871	.0002174	.0001464	.0002528	.064724
%RSD	4.012258	65.25297	.2328667	11.45453	750.1503	21.08863	1.301941
#1	.0001111	-.000077	12.35573	.0021413	.0000282	.0010551	5.044580
#2	.0001159	-.000014	12.33083	.0017230	-.000131	.0014908	4.921728
#3	.0001069	-.000075	12.29847	.0018295	.000161	.0010507	4.947822

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000164**	**12.88983**	**.0004677**	**-.000630**	**-.010307**	**-.001597**	**.0004970**
Stddev	.000707	.04565	.0003311	.000531	.016533	.003638	.0004003
%RSD	432.5915	.3541389	70.78711	84.23766	160.4031	227.7717	80.54002
#1	-.000596	12.93888	.0004338	-.000152	.004949	-.004718	.0001089
#2	.000653	12.84859	.0001549	-.001202	-.027873	-.002474	.0009084
#3	-.000547	12.88203	.0008144	-.000538	-.007997	.002399	.0004736

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.042601**	**.0002297**	**-.000119**	**-.002813**	**.0008161**	**.0004327**	**-.000838**
Stddev	.038788	.0008151	.000180	.000312	.0028384	.0081987	.001532
%RSD	91.04948	354.8268	151.0549	11.08371	347.7885	1894.693	182.7746
#1	-.087272	.0011458	-.000106	-.002932	.0019952	-.000786	-.002597
#2	-.023066	-.000415	-.000306	-.002459	.0028749	-.007089	.000211
#3	-.017464	-.000041	.000054	-.003048	-.002422	.009173	-.000129

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: ICSADLX20 Acquired: 9/26/2025 13:32:11 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSA01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.002251	-.002379	.0002613
Stddev	.001501	.000330	.0001354
%RSD	66.70427	13.85922	51.81291
#1	-.000809	-.002386	.0001741
#2	-.003805	-.002705	.0004173
#3	-.002137	-.002046	.0001925

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5604.466	86800.17	8380.418	4364.853	6559.844
Stddev	11.730	314.65	42.043	18.862	11.270
%RSD	.2092936	.3624982	.5016851	.4321268	.1718036
#1	5591.584	86467.10	8422.805	4351.304	6547.709
#2	5614.530	87092.41	8338.727	4356.860	6569.982
#3	5607.284	86841.01	8379.722	4386.395	6561.841

Sample Name: ICSABDLX20 Acquired: 9/26/2025 13:36:28 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSAB01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0058702**	**.0057390**	**.0032552**	**.0037411**	**.0302801**	**12.36317**	**.0233087**
Stddev	.0017299	.0020755	.0007345	.0002700	.0015320	.02023	.0017532
%RSD	29.46909	36.16441	22.56317	7.216531	5.059375	.1635989	7.521575
#1	.0078005	.0040896	.0032094	.0035882	.0302129	12.34059	.0242731
#2	.0044603	.0050580	.0040114	.0040529	.0287828	12.37964	.0212850
#3	.0053497	.0080694	.0025446	.0035824	.0318445	12.36927	.0243680

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0257267**	**.0471509**	**12.14279**	**.0268759**	**.0233387**	**.0255860**	**4.668057**
Stddev	.0000248	.0001512	.01933	.0002712	.0001189	.0005567	.017488
%RSD	.0964512	.3206638	.1591987	1.009146	.5094384	2.175892	.3746381
#1	.0257334	.0473171	12.12047	.0271576	.0234163	.0260986	4.684876
#2	.0257475	.0471142	12.15357	.0266166	.0232018	.0249937	4.649968
#3	.0256993	.0470214	12.15433	.0268536	.0233980	.0256656	4.669325

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0252910**	**12.64259**	**.0470736**	**.0097470**	**.0010326**	**.0231533**	**.0513585**
Stddev	.0003836	.08372	.0003561	.0004442	.0097232	.0003523	.0006035
%RSD	1.516533	.6621829	.7563776	4.557611	941.6096	1.521718	1.174989
#1	.0257253	12.60572	.0471411	.0094020	.0102556	.0232861	.0507557
#2	.0251489	12.73841	.0466886	.0095908	.0019657	.0234200	.0513572
#3	.0249988	12.58363	.0473911	.0102483	-.009123	.0227539	.0519626

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.024741**	**.0464404**	**.0478576**	**.0423433**	**.0484927**	**.0336245**	**.0008779**
Stddev	.019365	.0013772	.0003012	.0002171	.0022317	.0061638	.0004818
%RSD	78.26971	2.965595	.6294428	.5127888	4.602166	18.33127	54.87702
#1	-.028031	.0448842	.0481034	.0424248	.0469263	.0372614	.0003703
#2	-.003942	.0475023	.0475215	.0425079	.0475037	.0265077	.0013288
#3	-.042250	.0469347	.0479478	.0420972	.0510480	.0371042	.0009346

Sample Name: ICSABDLX20 Acquired: 9/26/2025 13:36:28 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSAB01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0443909	.0409740	.0510756
Stddev	.0033304	.0005549	.0001994
%RSD	7.502329	1.354169	.3904298
#1	.0444582	.0403346	.0512909
#2	.0476871	.0413293	.0508972
#3	.0410275	.0412580	.0510387

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5895.289	91481.08	8336.502	4541.538	7035.547
Stddev	21.188	111.13	7.683	5.006	23.698
%RSD	.3594043	.1214766	.0921650	.1102278	.3368341
#1	5878.319	91425.54	8331.659	4546.513	7017.458
#2	5888.513	91408.68	8332.487	4536.501	7026.809
#3	5919.036	91609.03	8345.361	4541.599	7062.373

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: CCV01 Acquired: 9/26/2025 13:40:38 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal 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	**4.975487**	**5.010479**	**4.915561**	**4.994306**	**4.976852**	**9.973648**	**9.766051**
Stddev	.013929	.060946	.003163	.013110	.009384	.013828	.088965
%RSD	.2799595	1.216379	.0643468	.2625084	.1885430	.1386463	.9109568
#1	4.977899	4.954930	4.918803	4.999467	4.983636	9.979052	9.687121
#2	4.960509	5.000834	4.912484	4.979401	4.966143	9.983959	9.748576
#3	4.988053	5.075673	4.915397	5.004051	4.980777	9.957934	9.862457

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2500639**	**2.475198**	**24.87562**	**.9974279**	**2.463770**	**1.246427**	**4.929707**
Stddev	.0011500	.003228	.06621	.0017727	.002689	.002701	.031021
%RSD	.4599025	.1303947	.2661838	.1777258	.1091284	.2166863	.6292632
#1	.2487517	2.478902	24.86550	.9987616	2.466874	1.249120	4.941251
#2	.2505436	2.472993	24.81506	.9954163	2.462270	1.243719	4.894569
#3	.2508965	2.473697	24.94632	.9981058	2.462165	1.246441	4.953300

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.470841**	**24.79521**	**2.467507**	**1.243749**	**24.13572**	**2.485052**	**2.505720**
Stddev	.012318	.09577	.002571	.002112	.20050	.005394	.009009
%RSD	.4985251	.3862309	.1041995	.1697806	.8307388	.2170443	.3595209
#1	2.467784	24.90069	2.469959	1.244711	24.08958	2.483113	2.502315
#2	2.460339	24.71371	2.467732	1.241328	23.96230	2.480896	2.498911
#3	2.484399	24.77124	2.464831	1.245209	24.35527	2.491147	2.515935

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**24.48260**	**4.981853**	**5.000161**	**4.913133**	**4.949175**	**4.882446**	**4.970648**
Stddev	.15072	.018464	.007027	.006221	.024731	.010079	.009354
%RSD	.6156008	.3706171	.1405365	.1266254	.4996897	.2064349	.1881917
#1	24.45819	4.961812	5.005620	4.920227	4.938932	4.871088	4.966998
#2	24.34558	4.998171	4.992232	4.910566	4.931212	4.890326	4.963669
#3	24.64403	4.985577	5.002630	4.908606	4.977382	4.885924	4.981277

Sample Name: CCV01 Acquired: 9/26/2025 13:40:38 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**4.901866**	**4.893573**	**4.952179**
Stddev	.016048	.025029	.070253
%RSD	.3273773	.5114702	1.418630
#1	4.884526	4.882757	4.999677
#2	4.904878	4.875770	4.985381
#3	4.916195	4.922191	4.871479

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5576.059**	**87418.97**	**8286.594**	**4385.167**	**6320.553**
Stddev	15.986	187.49	34.075	21.628	16.467
%RSD	.2866892	.2144695	.4112015	.4932149	.2605246
#1	5558.011	87415.63	8325.471	4404.354	6302.780
#2	5581.728	87608.10	8261.908	4389.419	6323.589
#3	5588.437	87233.17	8272.404	4361.729	6335.290

Sample Name: CCB01 Acquired: 9/26/2025 13:44:47 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal 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	**-.000661**	**-.000523**	**.0009229**	**.0009947**	**.0010124**	**-.002472**	**.0000084**
Stddev	.002175	.001650	.0010170	.0021160	.0023026	.017882	.0014757
%RSD	329.0601	315.5291	110.2004	212.7221	227.4418	723.2669	17556.40
#1	.000870	-.000834	.0017469	.0022227	.0012945	-.009665	-.001608
#2	.000298	-.001995	-.000214	-.001449	.0031610	-.015638	.000350
#3	-.003150	.001260	.001235	.002210	-.001418	.017886	.001283

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000062**	**-.000001**	**.0090686**	**-.000081**	**-.000055**	**.0002737**	**-.004432**
Stddev	.000066	.000141	.0082102	.000328	.000162	.0002727	.006009
%RSD	106.0713	18033.73	90.53477	406.7172	296.8800	99.64186	135.5890
#1	-.000004	-.000066	.0109486	.000168	-.000183	.0001561	-.008504
#2	-.000049	.000161	.0000814	.000043	.000128	.0000794	-.007261
#3	-.000133	-.000097	.0161758	-.000452	-.000109	.0005854	.002470

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0003368**	**-.013570**	**.0002781**	**.0002836**	**-.050163**	**-.000834**	**.0044359**
Stddev	.0004178	.020224	.0001770	.0001816	.006641	.004029	.0001555
%RSD	124.0587	149.0347	63.65467	64.02446	13.23843	482.9465	3.505460
#1	.0008192	-.011735	.0004789	.0001631	-.045354	.000254	.0044569
#2	.0000892	.005674	.0001447	.0004924	-.047394	-.005295	.0045799
#3	.0001020	-.034649	.0002107	.0001953	-.057740	.002539	.0042710

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.052780**	**.0010377**	**.0001443**	**-.003811**	**.0021954**	**-.002689**	**.0000300**
Stddev	.019797	.0001656	.0003493	.000554	.0015999	.007434	.0013931
%RSD	37.50834	15.95371	242.0789	14.54514	72.87644	276.4468	4639.659
#1	-.072434	.0010613	.0004400	-.004022	.0011330	-.010955	.0009170
#2	-.053062	.0008616	-.000241	-.003182	.0040355	.003450	.0007486
#3	-.032843	.0011902	.000234	-.004229	.0014178	-.000563	-.001576

Sample Name: CCB01 Acquired: 9/26/2025 13:44:47 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0038539	-.005442	.0001153
Stddev	.0028029	.001388	.0000933
%RSD	72.72875	25.50124	80.96833
#1	.0058947	-.004472	.0001996
#2	.0006580	-.007032	.0001312
#3	.0050089	-.004822	.0000150

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5775.496	91219.36	8388.361	4614.433	6863.319
Stddev	7.121	206.54	37.221	35.025	5.743
%RSD	.1233028	.2264215	.4437240	.7590211	.0836700
#1	5781.095	91040.04	8401.022	4580.498	6865.887
#2	5777.914	91172.84	8417.600	4650.454	6867.329
#3	5767.481	91445.19	8346.461	4612.347	6856.741

Sample Name: PB169563BL Acquired: 9/26/2025 13:49:06 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0006038**	**.0008460**	**.0009197**	**-.000122**	**-.000933**	**-.000481**	**.0023131**
Stddev	.0011361	.0033694	.0013020	.000446	.001034	.004960	.0013196
%RSD	188.1438	398.2450	141.5614	366.6400	110.7622	1031.958	57.04762
#1	.0006549	-.002998	.0020005	-.000614	.000218	.003170	.0009524
#2	-.000557	.002247	-.000526	.000255	-.001781	-.006128	.0035874
#3	.001714	.003289	.001284	-.000006	-.001237	.001516	.0023997

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000076**	**-.000094**	**.0122737**	**-.000508**	**-.000024**	**.0004355**	**-.006301**
Stddev	.000067	.000026	.0066951	.000198	.000139	.0002941	.001117
%RSD	88.39926	27.05467	54.54852	38.90529	591.0808	67.52581	17.71934
#1	-.000006	-.000088	.0110273	-.000595	-.000166	.0000974	-.006741
#2	-.000081	-.000073	.0062893	-.000282	.000111	.0005774	-.007130
#3	-.000140	-.000122	.0195043	-.000648	-.000016	.0006316	-.005032

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000417**	**-.028272**	**.0002954**	**-.000615**	**-.000728**	**-.004572**	**-.000023**
Stddev	.000185	.017081	.0003568	.000452	.015799	.003308	.000200
%RSD	44.39565	60.41546	120.7912	73.51523	2171.374	72.35448	879.5890
#1	-.000462	-.040065	.0005599	-.000437	-.012893	-.001040	-.000034
#2	-.000574	-.036067	.0004369	-.000279	-.006418	-.005077	-.000217
#3	-.000213	-.008685	-.000110	-.001129	.017128	-.007598	.000183

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.090711**	**.0000847**	**-.000000**	**-.000634**	**.0010284**	**.0086058**	**-.000495**
Stddev	.037710	.0008587	.000165	.000478	.0002477	.0042300	.001733
%RSD	41.57123	1013.690	62296.63	75.38862	24.08194	49.15327	350.3900
#1	-.123088	-.000902	.000151	-.000970	.0010236	.0037214	.000889
#2	-.049307	.000665	.000024	-.000846	.0007832	.0110467	.000066
#3	-.099739	.000491	-.000176	-.000087	.0012785	.0110492	-.002439

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: PB169563BL Acquired: 9/26/2025 13:49:06 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000240	-.000994	-.000031
Stddev	.000856	.001593	.000070
%RSD	357.0950	160.3155	228.6021
#1	.000741	-.002788	.000033
#2	-.000624	-.000449	-.000019
#3	-.000837	.000256	-.000105

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5671.995	86088.65	8372.387	4364.041	6710.532
Stddev	37.371	453.79	45.071	39.522	35.181
%RSD	.6588774	.5271238	.5383310	.9056258	.5242648
#1	5637.018	86605.60	8380.518	4405.150	6679.843
#2	5667.594	85756.01	8323.804	4326.324	6702.825
#3	5711.372	85904.35	8412.840	4360.650	6748.928

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: PB169563BS Acquired: 9/26/2025 13:53:26 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7867694**	**2.043228**	**.9649542**	**1.992634**	**.8022820**	**1.986316**	**.1904576**
Stddev	.0038086	.072930	.0002147	.006366	.0014801	.021478	.0013104
%RSD	.4840853	3.569349	.0222447	.3194651	.1844910	1.081312	.6880538
#1	.7854735	2.066449	.9647066	1.997040	.8034073	1.989486	.1902105
#2	.7910568	2.101720	.9650873	1.995528	.8028333	1.963429	.1918740
#3	.7837778	1.961515	.9650688	1.985336	.8006053	2.006033	.1892882

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2052163**	**.1952940**	**.9970595**	**.3974223**	**.1955944**	**.3067608**	**2.879699**
Stddev	.0014163	.0002062	.0045740	.0005329	.0002144	.0004742	.019652
%RSD	.6901502	.1055566	.4587476	.1340871	.1096103	.1545660	.6824482
#1	.2049562	.1953238	.9954310	.3977027	.1954957	.3066083	2.867269
#2	.2039480	.1954837	1.002225	.3977565	.1958404	.3063818	2.902356
#3	.2067446	.1950746	.993523	.3968078	.1954471	.3072925	2.869473

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1980350**	**1.988186**	**.4923272**	**.0701260**	**2.700719**	**.2920595**	**.2028797**
Stddev	.0006028	.015588	.0006072	.0003381	.050655	.0037159	.0004050
%RSD	.3043791	.7840343	.1233317	.4821105	1.875627	1.272322	.1996014
#1	.1987301	2.006048	.4916306	.0699710	2.679685	.2880525	.2024584
#2	.1976577	1.977330	.4927439	.0698932	2.758503	.2953920	.2032660
#3	.1977170	1.981180	.4926073	.0705138	2.663970	.2927338	.2029148

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**9.372203**	**.3054538**	**.4061577**	**.6812736**	**.1954513**	**.8363536**	**5.731392**
Stddev	.081593	.0025585	.0002809	.0019128	.0018864	.0100481	.034699
%RSD	.8705844	.8376149	.0691548	.2807718	.9651683	1.201419	.6054272
#1	9.368525	.3068702	.4062866	.6820215	.1936485	.8453785	5.747589
#2	9.455573	.3025003	.4063509	.6826994	.1974115	.8381562	5.755032
#3	9.292512	.3069909	.4058355	.6790998	.1952939	.8255263	5.691556

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: PB169563BS Acquired: 9/26/2025 13:53:26 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	F -.005223	.1991779	.1938145
Stddev	.001711	.0015065	.0005333
%RSD	32.75764	.7563438	.2751681
#1	-.004399	.2006279	.1935889
#2	-.007190	.1992852	.1944235
#3	-.004080	.1976207	.1934310

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5718.850	90546.98	8324.210	4556.721	6722.015
Stddev	5.260	355.17	42.827	10.840	5.138
%RSD	.0919681	.3922495	.5144882	.2378837	.0764318
#1	5722.810	90826.03	8333.185	4561.090	6727.591
#2	5712.882	90147.17	8361.838	4544.379	6720.982
#3	5720.858	90667.72	8277.606	4564.695	6717.472

Sample Name: PB169561BL Acquired: 9/26/2025 13:57:27 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0005051**	**-.000416**	**.0010164**	**.0040430**	**.0007670**	**.0014407**	**.0002347**
Stddev	.0005550	.002827	.0014123	.0030273	.0007660	.0072911	.0001653
%RSD	109.8978	679.4891	138.9613	74.87715	99.86547	506.0747	70.44934
#1	.0009331	-.003397	-.000199	.0013850	.0014251	-.001701	.0002550
#2	.0007042	-.000078	.000683	.0034059	.0009497	.009776	.0000601
#3	-.000122	.002227	.002566	.0073381	-.000074	-.003753	.0003889

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000010**	**-.000052**	**.0013289**	**-.000496**	**-.000033**	**.0000299**	**-.005370**
Stddev	.0000441	.000019	.0013657	.000327	.000153	.0001963	.004233
%RSD	4586.211	36.17331	102.7727	65.90694	468.2552	656.2504	78.83990
#1	.0000097	-.000071	.0011712	-.000870	.000139	.0002221	-.001731
#2	.0000401	-.000049	.0000488	-.000344	-.000083	.0000379	-.010016
#3	-.000047	-.000034	.0027666	-.000272	-.000154	-.000170	-.004362

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000411**	**-.002404**	**.0002128**	**.0001708**	**-.019776**	**-.001947**	**.0001681**
Stddev	.000209	.002335	.0002189	.0003885	.003406	.002815	.0004107
%RSD	50.77838	97.13768	102.9040	227.4985	17.22197	144.5756	244.3505
#1	-.000484	-.001199	.0002993	-.000202	-.022304	-.001739	.0006177
#2	-.000574	-.005096	.0003752	.000142	-.015903	.000758	-.000187
#3	-.000176	-.000918	-.000036	.000573	-.021121	-.004861	.000074

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.072937**	**-.000057**	**.0000471**	**-.000592**	**.0001992**	**.0173492**	**-.000231**
Stddev	.008583	.000356	.0000674	.000189	.0010130	.0111590	.000865
%RSD	11.76721	628.6548	142.9973	31.93777	508.5601	64.32001	373.7628
#1	-.076671	.000113	.0001135	-.000643	-.000532	.0058105	-.001230
#2	-.079020	-.000465	.0000491	-.000383	.001355	.0181520	.000236
#3	-.063120	.000182	-.000021	-.000751	-.000226	.0280851	.000299

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: PB169561BL Acquired: 9/26/2025 13:57:27 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0026921	-.003802	.0000821
Stddev	.0010100	.000698	.0000560
%RSD	37.51791	18.35278	68.23114
#1	.0015554	-.003029	.0000764
#2	.0030346	-.004386	.0001408
#3	.0034863	-.003990	.0000292

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5663.485	89400.62	8337.879	4495.810	6687.963
Stddev	7.789	637.93	10.011	32.561	10.599
%RSD	.1375258	.7135601	.1200645	.7242544	.1584736
#1	5658.678	89073.85	8345.856	4472.253	6678.255
#2	5672.471	88992.27	8326.645	4482.210	6699.270
#3	5659.306	90135.72	8341.136	4532.966	6686.363

Sample Name: PB169561BS Acquired: 9/26/2025 14:01:46 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7706652**	**1.990971**	**.9414281**	**1.961371**	**.8047763**	**1.930897**	**.1848516**
Stddev	.0003614	.007379	.0017467	.008351	.0029676	.017234	.0010819
%RSD	.0468956	.3706343	.1855334	.4257632	.3687501	.8925565	.5852738
#1	.7708744	1.992860	.9395359	1.968157	.8053205	1.934512	.1847780
#2	.7708732	1.997223	.9429787	1.963910	.8015742	1.912142	.1859684
#3	.7702479	1.982831	.9417699	1.952045	.8074341	1.946037	.1838083

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2004776**	**.1912581**	**.9804842**	**.3983262**	**.1912879**	**.2999712**	**2.958994**
Stddev	.0005775	.0001022	.0026608	.0016502	.0001115	.0004908	.026251
%RSD	.2880533	.0534087	.2713761	.4142872	.0583077	.1636171	.8871698
#1	.2002539	.1911403	.9793788	.3965914	.1913089	.3000911	2.981463
#2	.2000454	.1913119	.9835196	.3998762	.1913874	.2994315	2.965380
#3	.2011334	.1913221	.9785544	.3985110	.1911673	.3003909	2.930139

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1909383**	**1.934086**	**.4818590**	**.0709042**	**2.769048**	**.2875173**	**.2052914**
Stddev	.0000955	.031889	.0004289	.0001684	.011269	.0055062	.0008247
%RSD	.0500287	1.648769	.0890162	.2375175	.4069498	1.915087	.4017374
#1	.1909087	1.903892	.4819628	.0709733	2.779314	.2822443	.2043654
#2	.1910452	1.967435	.4822265	.0707122	2.770838	.2870773	.2059470
#3	.1908611	1.930932	.4813877	.0710271	2.756991	.2932303	.2055618

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**9.631136**	**.2936747**	**.4050251**	**.6823796**	**.1938197**	**.8900545**	**5.650438**
Stddev	.068299	.0005603	.0003565	.0027780	.0007236	.0098749	.040015
%RSD	.7091467	.1907753	.0880240	.4071123	.3733123	1.109475	.7081666
#1	9.585995	.2939975	.4047327	.6815930	.1945203	.8787003	5.657553
#2	9.709710	.2930278	.4049203	.6854661	.1938635	.8948228	5.686418
#3	9.597702	.2939988	.4054223	.6800797	.1930752	.8966403	5.607344

Sample Name: PB169561BS Acquired: 9/26/2025 14:01:46 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	F -.002741	.1909152	.1874751
Stddev	.001093	.0021753	.0004683
%RSD	39.87392	1.139398	.2498019
#1	-.001677	.1927794	.1872362
#2	-.002685	.1914409	.1871744
#3	-.003861	.1885252	.1880147

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5702.977	85353.66	8335.447	4358.581	6694.866
Stddev	8.312	412.64	2.148	25.510	6.851
%RSD	.1457504	.4834430	.0257678	.5852875	.1023335
#1	5693.382	85384.39	8334.480	4382.558	6687.185
#2	5707.970	84926.52	8333.953	4331.774	6697.068
#3	5707.580	85750.07	8337.908	4361.409	6700.346

Sample Name: Q3016-07 Acquired: 9/26/2025 14:05:49 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0025595**	**-.000233**	**.0032746**	**-.001176**	**-.000044**	**.0029527**
Stddev	.0014699	.003799	.0008035	.002228	.000464	.0169201
%RSD	57.43049	1630.398	24.53693	189.4090	1051.793	573.0419
#1	.0041116	-.002235	.0041461	-.003581	-.000473	-.013021
#2	.0011885	.004148	.0031144	-.000766	.000448	.020682
#3	.0023784	-.002612	.0025632	.000818	-.000107	.001197

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0010141**	**.0000095**	**-.000048**	**-.002164**	**-.000714**	**-.000299**
Stddev	.0023899	.0000321	.000048	.014438	.000116	.000183
%RSD	235.6647	336.0604	98.70005	667.1367	16.21396	61.23455
#1	-.000491	-.000000	-.000101	.008827	-.000692	-.000276
#2	-.000236	.000045	-.000033	-.018515	-.000839	-.000493
#3	.003770	-.000017	-.000010	.003196	-.000611	-.000129

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000121**	**-.003944**	**-.000799**	**-.001820**	**-.000315**	**.0003379**
Stddev	.000363	.003468	.000730	.015042	.000483	.0009023
%RSD	300.2134	87.93758	91.33128	826.2857	153.1561	267.0039
#1	-.000431	-.007936	-.000041	-.013661	.000203	.0005720
#2	-.000209	-.001677	-.000859	-.006905	-.000395	-.000658
#3	.000278	-.002218	-.001498	.015105	-.000754	.001100

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**54.53108**	**-.000687**	**.0002118**	**-.078265**	**-.002201**	**.0019139**
Stddev	.33005	.002263	.0000399	.036458	.000799	.0005713
%RSD	.6052429	329.6030	18.84529	46.58263	36.31287	29.85159
#1	54.63933	-.003298	.0002577	-.077222	-.001353	.0024320
#2	54.16050	.000691	.0001930	-.042340	-.002310	.0020085
#3	54.79340	.000547	.0001848	-.115233	-.002940	.0013012

Sample Name: Q3016-07 Acquired: 9/26/2025 14:05:49 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004319	.0016795	F 31.62742	.0010740	.0039505	-.005734
Stddev	.000361	.0021082	.27782	.0006798	.0018642	.001109
%RSD	8.355490	125.5253	.8784032	63.29347	47.18978	19.34312
#1	-.004354	.0009298	31.51554	.0015736	.0022458	-.005903
#2	-.004662	.0000486	31.42298	.0013484	.0059412	-.004550
#3	-.003942	.0040601	31.94373	.0002999	.0036643	-.006749

Elem	Sr4077
Units	ppm
Avg	.0000667
Stddev	.0000968
%RSD	145.0740
#1	.0001506
#2	.0000888
#3	-.000039

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5854.668	92180.57	8871.097	4660.793	6727.497
Stddev	18.745	346.52	54.561	20.480	15.366
%RSD	.3201649	.3759122	.6150454	.4394109	.2284029
#1	5874.858	92366.39	8904.746	4682.980	6744.609
#2	5837.819	92394.54	8808.146	4656.788	6714.879
#3	5851.325	91780.77	8900.401	4642.611	6723.003

Sample Name: Q3018-05 Acquired: 9/26/2025 14:10:06 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0008084**	**-.000758**	**.0026469**	**-.001168**	**-.001833**	**-.002671**	**.0018023**
Stddev	.0007461	.002594	.0015266	.002620	.000319	.018547	.0006997
%RSD	92.29788	342.0842	57.67567	224.3977	17.40153	694.3963	38.82377
#1	.0011231	.000004	.0026881	-.004035	-.002199	.017229	.0026042
#2	-.000044	-.003648	.0041526	-.000571	-.001690	-.019475	.0014862
#3	.001346	.001369	.0011002	.001102	-.001611	-.005766	.0013163

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000800**	**.0000033**	**79.40293**	**-.000723**	**-.000027**	**-.000100**	**-.007518**
Stddev	.0000570	.0000056	.10668	.000214	.000015	.000040	.002810
%RSD	71.29383	171.7265	.1343513	29.60367	54.04093	40.29872	37.37584
#1	.0000142	.0000094	79.28121	-.000959	-.000018	-.000126	-.006796
#2	.0001158	.0000021	79.44742	-.000543	-.000020	-.000120	-.010618
#3	.0001101	-.000002	79.48017	-.000666	-.000045	-.000053	-.005140

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000482**	**27.94968**	**.0005269**	**-.000050**	**24.19692**	**.0016286**	**.0003872**
Stddev	.000137	.09492	.0003945	.000137	.19982	.0005197	.0005521
%RSD	28.33448	.3396166	74.87723	272.3499	.8257971	31.91126	142.5850
#1	-.000532	27.86924	.0009483	-.000208	24.08473	.0013681	.0008843
#2	-.000328	27.92543	.0001664	.000026	24.42761	.0022270	.0004842
#3	-.000587	28.05438	.0004659	.000031	24.07840	.0012906	-.000207

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**8.078452**	**-.003191**	**.0002439**	**-.008745**	**-.002369**	**.0016756**	**-.001010**
Stddev	.057106	.000783	.0001883	.000340	.001711	.0200085	.002162
%RSD	.7068889	24.53592	77.17449	3.892785	72.22167	1194.127	214.0327
#1	8.044031	-.003674	.0000399	-.008608	-.004157	-.021294	-.000579
#2	8.144370	-.003612	.0002811	-.009133	-.000747	.011010	.000904
#3	8.046955	-.002288	.0004109	-.008495	-.002205	.015311	-.003355

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: Q3018-05 Acquired: 9/26/2025 14:10:06 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0041354	-.018079	.0075870
Stddev	.0015241	.000745	.0001212
%RSD	36.85548	4.119910	1.597137
#1	.0032450	-.018930	.0075171
#2	.0032660	-.017547	.0077269
#3	.0058953	-.017759	.0075170

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5833.510	90873.29	8630.512	4574.895	6729.390
Stddev	19.918	386.13	37.755	16.529	21.206
%RSD	.3414489	.4249067	.4374554	.3612993	.3151253
#1	5855.180	91065.33	8586.930	4578.484	6753.493
#2	5829.349	90428.80	8653.239	4556.866	6721.077
#3	5816.001	91125.75	8651.367	4589.334	6713.600

Sample Name: Q3016-05 Acquired: 9/26/2025 14:14:23 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000379**	**.0030693**	**.0027350**	**.0019953**	**.0011032**	**.0049343**	**.0015214**
Stddev	.003577	.0028736	.0004289	.0021797	.0005542	.0090372	.0008545
%RSD	942.7994	93.62346	15.68271	109.2416	50.23485	183.1493	56.16182
#1	-.001615	-.000233	.0026876	.0028472	.0012167	.0083935	.0024535
#2	.003652	.005001	.0031857	-.000482	.0015919	-.005321	.0007750
#3	-.003175	.004440	.0023318	.003620	.0005011	.011731	.0013358

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000131**	**-.000034**	**79.85784**	**-.000685**	**.0000218**	**.0000445**	**-.003776**
Stddev	.0000073	.000086	.26709	.000531	.0001653	.0003075	.003197
%RSD	56.08611	255.6144	.3344585	77.58227	758.0657	690.5571	84.66993
#1	.0000183	-.000036	79.55918	-.000490	-.000030	.0003735	-.000561
#2	.0000162	-.000119	80.07382	-.000279	.000207	-.000004	-.003812
#3	.0000047	.000053	79.94051	-.001287	-.000112	-.000236	-.006954

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000351**	**28.03347**	**.0004614**	**.0006173**	**25.22631**	**-.003045**	**.0002744**
Stddev	.000395	.10756	.0002776	.0004692	.18060	.000949	.0003782
%RSD	112.6380	.3836962	60.16152	76.00625	.7159203	31.14827	137.8423
#1	-.000242	27.91169	.0005018	.0004057	25.04416	-.002046	.0006927
#2	-.000021	28.11552	.0007166	.0011551	25.22944	-.003157	.0001738
#3	-.000788	28.07319	.0001659	.0002912	25.40532	-.003933	-.000043

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**8.329933**	**-.003898**	**.0003799**	**-.008972**	**-.001717**	**.0000247**	**-.000218**
Stddev	.102010	.000578	.0000871	.000363	.001363	.0072073	.001295
%RSD	1.224617	14.82668	22.91984	4.045087	79.40050	29178.41	594.4638
#1	8.220324	-.004300	.0003365	-.008759	-.002025	.0059240	.000021
#2	8.347384	-.004157	.0004802	-.008766	-.000226	-.008009	.000941
#3	8.422092	-.003236	.0003231	-.009391	-.002901	.002159	-.001616

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: Q3016-05 Acquired: 9/26/2025 14:14:23 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0051622	-.019674	.0076116
Stddev	.0012863	.000309	.0000552
%RSD	24.91817	1.571727	.7253160
#1	.0051427	-.019390	.0076397
#2	.0038858	-.019628	.0076471
#3	.0064582	-.020003	.0075480

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5690.621	88799.29	8627.127	4503.815	6526.118
Stddev	5.513	426.61	23.992	21.562	6.356
%RSD	.0968831	.4804201	.2781038	.4787425	.0973956
#1	5693.137	89047.49	8608.907	4513.482	6522.009
#2	5694.427	89043.68	8618.163	4518.852	6533.439
#3	5684.298	88306.68	8654.311	4479.112	6522.905

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: Q3018-01 Acquired: 9/26/2025 14:18:40 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2238617**	**.6137947**	**.9892401**	**.5014190**	**.6281216**	**3.195813**	**1.553903**
Stddev	.0028158	.0024580	.0011242	.0030713	.0003658	.009607	.008163
%RSD	1.257829	.4004583	.1136415	.6125184	.0582454	.3006046	.5253163
#1	.2256566	.6115678	.9881545	.4983721	.6285237	3.201775	1.547135
#2	.2253121	.6164321	.9903992	.5013708	.6280325	3.184731	1.551606
#3	.2206164	.6133842	.9891665	.5045141	.6278085	3.200933	1.562969

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2350454**	**.3710248**	**.0068499**	**.8724021**	**.2919847**	**.3530907**	**2.328861**
Stddev	.0021016	.0002821	.0009734	.0017657	.0006720	.0010490	.030795
%RSD	.8941307	.0760433	14.21036	.2023921	.2301377	.2971032	1.322328
#1	.2345804	.3709568	.0058331	.8705194	.2912636	.3538920	2.296155
#2	.2332153	.3713347	.0077732	.8740212	.2925933	.3519033	2.357300
#3	.2373406	.3707828	.0069436	.8726657	.2920974	.3534768	2.333129

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.8871808**	**-.009417**	**.6079953**	**.5687470**	**.0192247**	**1.240267**	**1.166734**
Stddev	.0067177	.018712	.0004711	.0130092	.0146914	.008580	.003181
%RSD	.7571929	198.7088	.0774781	2.287345	76.41938	.6917607	.2726068
#1	.8823259	-.023892	.6074516	.5737271	.0026255	1.244112	1.166730
#2	.8843691	.011712	.6082809	.5539835	.0305554	1.246252	1.163555
#3	.8948475	-.016070	.6082535	.5785305	.0244933	1.230437	1.169917

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.080253**	**.9430064**	**.2656810**	**-.005961**	**-.000486**	**.4025682**	**-.000132**
Stddev	.052104	.0099253	.0003994	.000185	.000389	.0094971	.001026
%RSD	64.92487	1.052516	.1503374	3.100894	80.09463	2.359131	775.2721
#1	-.120857	.9445266	.2656504	-.005895	-.000466	.3937881	-.001317
#2	-.098402	.9324087	.2652978	-.006170	-.000884	.4126484	.000443
#3	-.021502	.9520839	.2660949	-.005819	-.000107	.4012682	.000477

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: Q3018-01 Acquired: 9/26/2025 14:18:40 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.001964	-.005563	.1475546
Stddev	.004030	.001031	.0007743
%RSD	205.1883	18.52930	.5247348
#1	-.004933	-.004813	.1471073
#2	.002624	-.006739	.1471079
#3	-.003583	-.005138	.1484487

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5860.764	90554.90	8525.136	4585.382	7022.998
Stddev	18.083	396.84	60.623	18.320	15.718
%RSD	.3085478	.4382314	.7111118	.3995367	.2238114
#1	5840.068	90986.88	8527.265	4596.552	7005.908
#2	5868.706	90206.53	8584.667	4564.239	7026.252
#3	5873.516	90471.28	8463.477	4595.355	7036.835

Sample Name: Q3018-03 Acquired: 9/26/2025 14:22:44 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0007389**	**-.001970**	**.0023006**	**.0020096**	**-.005176**	**.0528532**	**.0013042**
Stddev	.0005444	.002787	.0011761	.0037871	.000718	.0055819	.0002453
%RSD	73.67685	141.4399	51.12164	188.4521	13.86786	10.56117	18.80569
#1	.0001175	-.000562	.0034434	-.001982	-.004630	.0536003	.0014861
#2	.0011318	-.005180	.0010938	.002459	-.005989	.0469354	.0014012
#3	.0009675	-.000169	.0023646	.005552	-.004908	.0580240	.0010253

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000073**	**-.000056**	**-.001973**	**-.000122**	**-.000124**	**.0001685**	**-.003910**
Stddev	.000103	.000045	.010479	.000036	.000092	.0003282	.003080
%RSD	140.2651	80.82232	531.1734	29.51819	74.03817	194.8415	78.78892
#1	.000027	-.000004	-.013193	-.000096	-.000228	.0004694	-.006966
#2	-.000178	-.000083	-.000287	-.000106	-.000091	.0002176	-.000806
#3	-.000069	-.000081	.007561	-.000163	-.000054	-.000182	-.003957

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0009676**	**-.020329**	**.0004349**	**.0006868**	**.0613979**	**-.001699**	**.0003793**
Stddev	.0006426	.026302	.0002963	.0004067	.0170877	.000768	.0001922
%RSD	66.41184	129.3827	68.13818	59.21048	27.83109	45.21869	50.66668
#1	.0005842	-.047021	.0006793	.0010458	.0774620	-.002571	.0001814
#2	.0006091	-.019531	.0005200	.0007694	.0632880	-.001401	.0005652
#3	.0017094	.005565	.0001053	.0002452	.0434438	-.001124	.0003915

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.069024**	**.1270681**	**.0001723**	**.6732218**	**.0825432**	**1.108873**	**-.000161**
Stddev	.007978	.0003917	.0002118	.0047402	.0001834	.013196	.001560
%RSD	11.55841	.3082912	122.9329	.7041100	.2222193	1.190010	966.0494
#1	-.061691	.1269582	-.000002	.6679211	.0823818	1.115646	-.001922
#2	-.077520	.1275031	.000111	.6746908	.0827427	1.093666	.000388
#3	-.067861	.1267430	.000408	.6770537	.0825051	1.117308	.001049

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: Q3018-03 Acquired: 9/26/2025 14:22:44 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0004460	-.004786	-.000049
Stddev	.0017636	.001457	.000134
%RSD	395.4198	30.45583	272.3064
#1	.0024811	-.006392	-.000162
#2	-.000506	-.003548	-.000086
#3	-.000637	-.004417	.000099

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5801.056	91795.36	8533.605	4628.336	6855.953
Stddev	19.416	532.40	6.437	21.376	17.286
%RSD	.3346914	.5799899	.0754296	.4618467	.2521368
#1	5809.103	92233.50	8540.416	4649.301	6871.145
#2	5815.155	91949.75	8532.778	4629.138	6859.568
#3	5778.911	91202.82	8527.623	4606.571	6837.145

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: Q3016-03 Acquired: 9/26/2025 14:27:01 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0017068**	**-.000855**	**.0019904**	**.0041325**	**-.004887**	**.0552879**	**.0018292**
Stddev	.0029075	.001795	.0010153	.0011571	.000833	.0099834	.0003294
%RSD	170.3452	209.8982	51.01167	28.00134	17.04876	18.05720	18.00994
#1	.0017628	.000217	.0014726	.0027974	-.005609	.0585355	.0020644
#2	-.001228	.000145	.0031603	.0047536	-.005077	.0440850	.0014527
#3	.004586	-.002927	.0013384	.0048464	-.003975	.0632432	.0019704

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000117**	**-.000079**	**-.006874**	**-.000559**	**-.000000**	**.0002759**	**-.001197**
Stddev	.000058	.000023	.009700	.000388	.000140	.0003766	.003740
%RSD	49.42650	28.79723	141.0977	69.37093	43416.21	136.5337	312.5104
#1	-.000121	-.000100	-.015869	-.000848	.000081	.0005774	-.002496
#2	-.000057	-.000081	.003403	-.000118	-.000162	-.000146	.003020
#3	-.000172	-.000055	-.008157	-.000712	.000080	.000396	-.004114

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0008762**	**.0037684**	**.0003640**	**.0003332**	**.0696240**	**.0003348**	**.0003940**
Stddev	.0001872	.0178691	.0001917	.0006607	.0145955	.0026402	.0000749
%RSD	21.36319	474.1774	52.66885	198.2635	20.96334	788.5277	19.00781
#1	.0009075	-.000473	.0005797	.0008234	.0634078	-.002335	.0003286
#2	.0006754	.023377	.0002127	-.000418	.0862986	.000395	.0004757
#3	.0010458	-.011598	.0002998	.000594	.0591657	.002944	.0003778

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.050397**	**.1273509**	**.0000227**	**.6714946**	**.0810389**	**1.127132**	**-.000428**
Stddev	.021415	.0011410	.0002825	.0008465	.0001880	.021410	.002215
%RSD	42.49177	.8959398	1244.759	.1260632	.2319581	1.899517	517.7147
#1	-.072928	.1260754	.0001708	.6706663	.0811682	1.147090	.001377
#2	-.030308	.1282746	-.000303	.6714593	.0811252	1.104517	.000240
#3	-.047956	.1277026	.000200	.6723582	.0808232	1.129788	-.002900

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: Q3016-03 Acquired: 9/26/2025 14:27:01 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000532	-.005976	.0000149
Stddev	.003485	.000927	.0000315
%RSD	655.0132	15.51076	210.7307
#1	.000309	-.006978	.0000119
#2	-.004360	-.005149	-.000015
#3	.002455	-.005801	.000048

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5819.487	90852.90	8544.463	4609.237	6887.551
Stddev	12.997	234.61	50.366	20.335	12.215
%RSD	.2233410	.2582347	.5894583	.4411727	.1773499
#1	5829.724	90870.11	8584.821	4619.609	6894.969
#2	5823.872	91078.43	8488.019	4622.293	6894.230
#3	5804.864	90610.15	8560.549	4585.807	6873.452

Sample Name: CCV02 Acquired: 9/26/2025 14:31:20 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.084992**	**5.173455**	**4.972154**	**5.128578**	**5.060145**	**9.962934**	**9.691758**
Stddev	.004240	.100638	.011743	.009287	.003031	.022160	.037519
%RSD	.0833868	1.945267	.2361814	.1810831	.0598969	.2224290	.3871246
#1	5.083102	5.070507	4.962409	5.118393	5.061963	9.980087	9.676086
#2	5.089849	5.271611	4.968861	5.130763	5.061827	9.970801	9.734572
#3	5.082026	5.178246	4.985192	5.136578	5.056647	9.937913	9.664615

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2489682**	**2.513092**	**24.95926**	**1.006616**	**2.492011**	**1.266249**	**5.056531**
Stddev	.0003704	.004149	.06527	.001994	.003326	.000969	.011465
%RSD	.1487646	.1651037	.2615039	.1981344	.1334861	.0765122	.2267275
#1	.2493947	2.508474	24.97850	1.004317	2.489027	1.266469	5.048788
#2	.2487283	2.514297	24.88653	1.007887	2.491408	1.265189	5.051103
#3	.2487815	2.516505	25.01274	1.007643	2.495597	1.267088	5.069701

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.446754**	**24.73476**	**2.501348**	**1.259228**	**24.29386**	**2.476874**	**2.552318**
Stddev	.009187	.00989	.002740	.002445	.13594	.008758	.004420
%RSD	.3754654	.0399986	.1095503	.1941926	.5595594	.3535841	.1731762
#1	2.457358	24.73744	2.498202	1.256632	24.37904	2.476693	2.550040
#2	2.441223	24.72380	2.503217	1.259562	24.13709	2.485721	2.549501
#3	2.441680	24.74304	2.502624	1.261488	24.36546	2.468208	2.557412

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**25.03192**	**4.932647**	**5.048603**	**4.965452**	**4.907707**	**4.977364**	**5.080712**
Stddev	.01901	.002871	.006636	.006154	.015558	.022434	.027278
%RSD	.0759488	.0581940	.1314374	.1239428	.3170191	.4507203	.5368879
#1	25.01012	4.935759	5.041731	4.959722	4.924054	4.954406	5.049284
#2	25.04060	4.930103	5.049105	4.964675	4.893080	4.978450	5.098228
#3	25.04504	4.932079	5.054974	4.971957	4.905986	4.999235	5.094625

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: CCV02 Acquired: 9/26/2025 14:31:20 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**5.077110**	**4.833129**	**4.936294**
Stddev	.015485	.024279	.016601
%RSD	.3049985	.5023480	.3363134
#1	5.059400	4.857570	4.953469
#2	5.088103	4.809015	4.935080
#3	5.083826	4.832800	4.920333

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5446.333**	**85270.16**	**8281.347**	**4302.141**	**6157.970**
Stddev	10.955	218.52	7.450	20.979	18.057
%RSD	.2011357	.2562698	.0899654	.4876383	.2932286
#1	5457.714	85515.30	8277.709	4326.019	6176.365
#2	5445.425	85199.37	8276.415	4286.665	6157.274
#3	5435.862	85095.81	8289.918	4293.741	6140.271

Sample Name: CCB02 Acquired: 9/26/2025 14:35:31 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal 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	**-.001080**	**-.001618**	**.0021751**	**.0036561**	**-.000082**	**.0096222**	**.0007707**
Stddev	.001843	.001242	.0008732	.0019709	.000195	.0060357	.0004483
%RSD	170.6947	76.77738	40.14367	53.90889	237.9378	62.72672	58.16335
#1	.000566	-.000292	.0031815	.0014669	-.000243	.0158846	.0008017
#2	-.003072	-.002755	.0016185	.0042119	-.000139	.0038422	.0012027
#3	-.000734	-.001808	.0017254	.0052894	.000135	.0091397	.0003078

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000067**	**.0000017**	**-.005367**	**-.000310**	**-.000189**	**-.000053**	**-.002129**
Stddev	.000039	.0000438	.007004	.000263	.000051	.000363	.003984
%RSD	58.19610	2637.846	130.5052	84.87405	27.06781	678.5110	187.1425
#1	-.000031	.0000519	-.002416	-.000039	-.000160	.000229	-.006067
#2	-.000108	-.000029	-.013364	-.000328	-.000158	.000073	-.002218
#3	-.000061	-.000018	-.000321	-.000564	-.000248	-.000463	.001899

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0013501**	**-.038678**	**.0000834**	**.0006440**	**-.055534**	**.0000950**	**.0005704**
Stddev	.0004357	.024047	.0000455	.0004561	.010470	.0030934	.0001212
%RSD	32.27284	62.17243	54.55128	70.82096	18.85376	3258.110	21.24100
#1	.0014989	-.026430	.0000891	.0002277	-.049644	-.000559	.0004661
#2	.0008594	-.066384	.0000354	.0011315	-.067622	.003463	.0005418
#3	.0016918	-.023221	.0001259	.0005728	-.049334	-.002619	.0007033

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.084024**	**.0009151**	**.0002804**	**-.005851**	**.0007748**	**.0053626**	**.0002254**
Stddev	.046528	.0009536	.0001690	.000370	.0003784	.0180584	.0009862
%RSD	55.37488	104.2069	60.28035	6.331328	48.83830	336.7449	437.5607
#1	-.033486	.0000542	.0003465	-.005716	.0011514	.0170434	.0006409
#2	-.125082	.0019402	.0004065	-.006269	.0007786	-.015437	.0009358
#3	-.093502	.0007510	.0000883	-.005566	.0003946	.014481	-.000901

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: CCB02 Acquired: 9/26/2025 14:35:31 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0002387	-.005125	.0001480
Stddev	.0021290	.000566	.0000555
%RSD	892.0271	11.04311	37.48662
#1	-.001002	-.004495	.0001423
#2	-.000979	-.005289	.0002061
#3	.002697	-.005591	.0000956

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5790.277	89624.04	8459.170	4565.786	6874.183
Stddev	2.246	297.15	44.214	10.162	14.597
%RSD	.0387960	.3315553	.5226744	.2225596	.2123410
#1	5787.815	89778.76	8498.515	4562.724	6860.789
#2	5792.215	89281.46	8411.322	4557.508	6872.019
#3	5790.802	89811.92	8467.673	4577.127	6889.741

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: Q3016-01 Acquired: 9/26/2025 14:39:50 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2221270**	**.6129171**	**.9962085**	**.5004041**	**.6331059**	**3.227535**	**1.560054**
Stddev	.0028045	.0115503	.0009873	.0038562	.0008661	.005640	.005989
%RSD	1.262580	1.884488	.0991109	.7706164	.1368078	.1747433	.3838771
#1	.2219909	.6144606	.9959286	.4966524	.6335143	3.221027	1.553302
#2	.2193930	.6006726	.9953914	.5002030	.6336924	3.230583	1.562136
#3	.2249971	.6236181	.9973056	.5043569	.6321111	3.230996	1.564724

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2368221**	**.3720232**	**-.004998**	**.8749826**	**.2938984**	**.3559971**	**2.267538**
Stddev	.0013524	.0002036	.008386	.0030336	.0003230	.0006873	.002407
%RSD	.5710523	.0547227	167.7614	.3467067	.1098936	.1930659	.1061582
#1	.2353996	.3722554	-.001811	.8715768	.2942702	.3552755	2.264946
#2	.2369752	.3718750	.001326	.8773950	.2937377	.3560716	2.267965
#3	.2380913	.3719393	-.014510	.8759760	.2936873	.3566441	2.269704

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.8893897**	**-.050980**	**.6107573**	**.6498721**	**.0032989**	**1.252438**	**1.163636**
Stddev	.0044904	.032577	.0002742	.0013773	.0132948	.003550	.001729
%RSD	.5048903	63.90111	.0448883	.2119263	403.0051	.2834445	.1485922
#1	.8849586	-.087878	.6110708	.6482891	.0020383	1.250258	1.165472
#2	.8892735	-.026195	.6105624	.6507954	.0171791	1.250522	1.163396
#3	.8939372	-.038867	.6106388	.6505318	-.009321	1.256534	1.162039

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.067115**	**.9544951**	**.2702293**	**-.005371**	**.0001983**	**.3818084**	**.0020886**
Stddev	.044053	.0021165	.0008622	.000575	.0009517	.0035596	.0015117
%RSD	65.63778	.2217448	.3190803	10.71457	479.8677	.9322908	72.37792
#1	-.057654	.9527480	.2697238	-.006034	.0012915	.3812446	.0034740
#2	-.028562	.9538886	.2697392	-.005002	-.000251	.3856162	.0004763
#3	-.115131	.9568487	.2712249	-.005077	-.000446	.3785643	.0023155

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: Q3016-01 Acquired: 9/26/2025 14:39:50 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000932	-.003992	.1483469
Stddev	.001450	.001317	.0007766
%RSD	155.6154	32.98003	.5235299
#1	-.000693	-.003758	.1474970
#2	.000384	-.005410	.1490197
#3	-.002486	-.002809	.1485239

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5949.320	94622.46	8598.120	4695.902	7188.576
Stddev	11.633	292.49	49.955	11.657	3.573
%RSD	.1955360	.3091130	.5809991	.2482315	.0497071
#1	5960.636	94960.14	8648.135	4707.057	7192.474
#2	5949.931	94448.18	8597.999	4696.849	7187.796
#3	5937.394	94459.06	8548.226	4683.801	7185.456

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: Q3016-07DLX5 Acquired: 9/26/2025 14:53:20 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000405**	**-.002896**	**.0011661**	**.0008766**	**-.000759**	**-.004005**	**.0017542**
Stddev	.001666	.001827	.0006707	.0032822	.001149	.004687	.0025384
%RSD	410.9201	63.08708	57.51396	374.4204	151.4962	117.0301	144.6999
#1	.001515	-.000789	.0003917	-.002514	.000485	-.002386	.0045888
#2	-.001458	-.004039	.0015532	.004039	-.001782	-.000342	-.000309
#3	-.001274	-.003860	.0015533	.001105	-.000978	-.009286	.000983

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000653**	**-.000017**	**.0038950**	**.0000516**	**-.000194**	**.0001822**	**-.006067**
Stddev	.0000731	.000051	.0071371	.0003951	.000090	.0005999	.002054
%RSD	111.8385	306.5667	183.2381	765.4319	46.22006	329.3395	33.86143
#1	.0000717	.000026	-.003502	.0004124	-.000288	.0004306	-.004888
#2	-.000011	-.000002	.010740	-.000371	-.000187	-.000502	-.008438
#3	.000135	-.000073	.004447	.000113	-.000109	.000618	-.004873

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000387**	**.0102171**	**.0000647**	**.0002611**	**10.76884**	**-.002112**	**.0006309**
Stddev	.000541	.0267280	.0003430	.0003117	.08594	.002216	.0004189
%RSD	139.7455	261.6010	529.8195	119.3629	.7980233	104.8856	66.40440
#1	.000193	.0298790	-.000225	-.000072	10.67118	.000438	.0007316
#2	-.000476	-.020216	.000444	.000546	10.80241	-.003559	.0009903
#3	-.000879	.020988	-.000025	.000310	10.83293	-.003217	.0001708

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.065579**	**-.002456**	**-.000490**	**-.002233**	**.0018363**	**6.739498**	**-.000760**
Stddev	.022928	.000549	.000143	.000890	.0007190	.031914	.000807
%RSD	34.96245	22.34394	29.26437	39.84755	39.15819	.4735415	106.1011
#1	-.055513	-.002075	-.000349	-.003117	.0013757	6.705857	-.000487
#2	-.091818	-.002208	-.000636	-.001337	.0026648	6.743292	-.001668
#3	-.049406	-.003085	-.000485	-.002245	.0014683	6.769346	-.000126

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: Q3016-07DLX5 Acquired: 9/26/2025 14:53:20 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0008985	.0004913	.0000322
Stddev	.0030587	.0018593	.0000192
%RSD	340.4116	378.4313	59.66973
#1	-.001261	.0021943	.0000371
#2	.004399	.0007720	.0000110
#3	-.000442	-.001492	.0000485

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5758.030	87807.09	8459.854	4492.766	6743.849
Stddev	10.160	97.66	23.437	15.782	14.321
%RSD	.1764484	.1112260	.2770399	.3512677	.2123622
#1	5768.494	87893.07	8444.411	4510.580	6757.438
#2	5757.393	87700.90	8448.329	4480.533	6745.217
#3	5748.204	87827.29	8486.823	4487.186	6728.893

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: CCV03 Acquired: 9/26/2025 15:14:31 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal 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	**4.771525**	**5.080354**	**4.719749**	**4.794893**	**4.753037**	**9.693220**	**9.512386**
Stddev	.004258	.010837	.005107	.004637	.001481	.018720	.098351
%RSD	.0892274	.2133124	.1082083	.0967010	.0311616	.1931292	1.033925
#1	4.767838	5.090739	4.713860	4.791319	4.754346	9.714797	9.614908
#2	4.776185	5.081207	4.722970	4.793227	4.751429	9.681297	9.418818
#3	4.770553	5.069115	4.722416	4.800132	4.753335	9.683565	9.503432

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2412722**	**2.376846**	**24.22542**	**.9642450**	**2.366171**	**1.192639**	**4.723790**
Stddev	.0005672	.003710	.08061	.0005673	.002545	.000563	.016303
%RSD	.2350785	.1560836	.3327385	.0588280	.1075492	.0472137	.3451276
#1	.2411300	2.372637	24.30484	.9636020	2.363323	1.191990	4.740132
#2	.2418970	2.378257	24.14367	.9646745	2.366966	1.192991	4.723713
#3	.2407898	2.379643	24.22776	.9644584	2.368222	1.192937	4.707526

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.391706**	**24.20376**	**2.363825**	**1.195569**	**23.01311**	**2.422431**	**2.397327**
Stddev	.011031	.03866	.002150	.001509	.11151	.003415	.001661
%RSD	.4612229	.1597353	.0909577	.1262011	.4845449	.1409924	.0692711
#1	2.403846	24.16413	2.361406	1.195054	23.14057	2.424498	2.396947
#2	2.388973	24.20576	2.364554	1.197268	22.96519	2.418489	2.395889
#3	2.382298	24.24138	2.365517	1.194385	22.93357	2.424306	2.399145

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**23.64596**	**4.824025**	**4.909065**	**4.712532**	**4.796200**	**4.746097**	**4.550713**
Stddev	.10504	.008285	.004177	.012323	.025092	.032582	.003393
%RSD	.4442016	.1717475	.0850971	.2615014	.5231544	.6865085	.0745509
#1	23.76620	4.829465	4.906780	4.698390	4.825138	4.730941	4.551173
#2	23.59959	4.828121	4.906527	4.718239	4.782968	4.723854	4.547114
#3	23.57209	4.814490	4.913886	4.720968	4.780495	4.783497	4.553853

Sample Name: CCV03 Acquired: 9/26/2025 15:14:31 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**4.707538**	**4.733075**	**4.772498**
Stddev	.006485	.018946	.064487
%RSD	.1377672	.4002807	1.351228
#1	4.700425	4.754784	4.758257
#2	4.713123	4.724560	4.842916
#3	4.709066	4.719881	4.716322

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5746.718**	**88926.32**	**8336.747**	**4395.706**	**6556.907**
Stddev	3.183	251.79	21.905	16.590	4.087
%RSD	.0553940	.2831457	.2627565	.3774125	.0623263
#1	5750.293	89163.57	8346.427	4411.118	6561.055
#2	5744.190	88662.15	8311.669	4378.147	6552.884
#3	5745.671	88953.24	8352.144	4397.851	6556.783

Sample Name: CCB03 Acquired: 9/26/2025 15:18:39 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal 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	**.0005502**	**.0035134**	**.0009428**	**-.000856**	**.0008921**	**-.009018**	**.0003289**
Stddev	.0011482	.0011410	.0006350	.004748	.0016439	.008636	.0013082
%RSD	208.6846	32.47464	67.34896	554.5874	184.2778	95.75929	397.8003
#1	.0016081	.0024567	.0002274	.000612	-.000314	-.018897	.0017919
#2	-.000671	.0033603	.0011614	.002985	.000226	-.005255	-.000728
#3	.000713	.0047232	.0014395	-.006165	.002764	-.002902	-.000077

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000048**	**-.000026**	**-.001012**	**-.000401**	**-.000025**	**.0005911**	**-.007632**
Stddev	.000129	.000058	.001798	.000351	.000020	.0000772	.005272
%RSD	270.7210	220.0944	177.5548	87.55205	77.91245	13.05173	69.08141
#1	.000089	.000012	.000946	-.000185	-.000006	.0005510	-.009519
#2	-.000166	-.000093	-.002587	-.000805	-.000024	.0006800	-.011702
#3	-.000066	.000002	-.001396	-.000211	-.000045	.0005423	-.001676

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0003667**	**-.021766**	**.0007564**	**.0001391**	**-.053120**	**-.001893**	**.0015347**
Stddev	.0002372	.032708	.0000638	.0006964	.017190	.003532	.0004472
%RSD	64.66986	150.2688	8.434962	500.5094	32.36151	186.5586	29.13723
#1	.0005985	.013438	.0008182	.0002400	-.037565	.002156	.0011718
#2	.0003772	-.051213	.0006908	-.000602	-.071576	-.004338	.0013981
#3	.0001245	-.027524	.0007602	.000780	-.050218	-.003498	.0020343

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0010748**	**.0076095**	**.0001276**	**-.004976**	**.0017205**	**-.008020**	**-.001366**
Stddev	.0112475	.0006398	.0002973	.000330	.0007379	.004067	.000400
%RSD	1046.516	8.407171	233.0086	6.639250	42.88639	50.70602	29.28625
#1	.0138408	.0075045	.0003295	-.004978	.0009565	-.006937	-.000905
#2	-.007377	.0070288	.0002671	-.004645	.0024291	-.004605	-.001624
#3	-.003240	.0082953	-.000214	-.005306	.0017761	-.012519	-.001569

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: CCB03 Acquired: 9/26/2025 15:18:39 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.001993	-.005928	.0001772
Stddev	.000979	.000958	.0000845
%RSD	49.09752	16.16666	47.66818
#1	-.000923	-.005898	.0002091
#2	-.002842	-.004984	.0002410
#3	-.002214	-.006900	.0000814

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5941.245	93481.31	8512.165	4640.056	7170.374
Stddev	17.598	128.31	29.671	9.081	14.448
%RSD	.2962075	.1372550	.3485748	.1957052	.2014954
#1	5946.896	93561.18	8543.879	4650.529	7172.864
#2	5955.324	93549.45	8507.533	4635.260	7183.416
#3	5921.516	93333.31	8485.081	4634.378	7154.843

Sample Name: LR-1 Acquired: 9/26/2025 15:23:47 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LR-1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.002225**	**.0188334**	**-.006856**	**-.025347**	**.0172310**	**.1850626**	**.0178341**
Stddev	.004676	.0038673	.002123	.003775	.0021968	.0187177	.0006620
%RSD	210.1172	20.53442	30.96079	14.89212	12.74894	10.11427	3.712269
#1	-.007622	.0144025	-.006392	-.021692	.0146967	.1903103	.0180995
#2	.000606	.0205675	-.005004	-.029231	.0184051	.1642811	.0170805
#3	.000340	.0215302	-.009172	-.025117	.0185913	.2005964	.0183223

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0008968**	**.0007727**	**2510.200**	**.0331383**	**.0072659**	**.0068038**	**.5938358**
Stddev	.0000569	.0001581	16.868	.0004783	.0006097	.0007593	.0069840
%RSD	6.343555	20.46344	.6719845	1.443342	8.391773	11.15985	1.176078
#1	.0008837	.0006614	2508.492	.0326678	.0067043	.0063041	.5968306
#2	.0009590	.0009537	2527.857	.0331230	.0079144	.0076776	.5858539
#3	.0008475	.0007029	2494.251	.0336241	.0071789	.0064298	.5988230

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0255168**	**2302.695**	**.0271333**	**-.001604**	**2356.954**	**.0102776**	**.0687447**
Stddev	.0004860	3.516	.0001014	.000184	20.785	.0027126	.0004715
%RSD	1.904446	.1526704	.3736067	11.47458	.8818433	26.39283	.6859243
#1	.0256420	2298.931	.0270166	-.001622	2363.164	.0130491	.0683263
#2	.0249805	2303.258	.0271995	-.001779	2373.926	.0076281	.0692556
#3	.0259278	2305.894	.0271839	-.001412	2333.772	.0101558	.0686521

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.718819**	**.0159287**	**.0075486**	**-.006225**	**-.111244**	**-.009805**	**.0165720**
Stddev	.618090	.0003166	.0007540	.002472	.001008	.015198	.0028630
%RSD	10.80801	1.987733	9.989155	39.71700	.9063057	155.0045	17.27609
#1	5.085183	.0155654	.0082120	-.005539	-.111703	-.020847	.0174405
#2	5.751181	.0160753	.0077052	-.004168	-.110088	.007528	.0133753
#3	6.320092	.0161455	.0067285	-.008968	-.111941	-.016096	.0189002

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: LR-1 Acquired: 9/26/2025 15:23:47 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LR-1 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2454888	-.355008	.0620223
Stddev	.0083017	.003421	.0005799
%RSD	3.381701	.9635098	.9350224
#1	.2383945	-.354324	.0625078
#2	.2546191	-.358719	.0613801
#3	.2434529	-.351981	.0621791

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3883.530	64671.01	7370.598	3025.509	4045.199
Stddev	8.045	245.41	38.965	20.190	7.086
%RSD	.2071694	.3794821	.5286500	.6673113	.1751807
#1	3888.732	64947.21	7415.408	3048.467	4050.829
#2	3887.594	64587.81	7344.686	3017.539	4047.527
#3	3874.263	64478.01	7351.700	3010.521	4037.242

Sample Name: LR-2 Acquired: 9/26/2025 15:28:15 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LR-2 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0778517**	**-.282373**	**.0236394**	**.0573115**	**-.183716**	**1860.814**	**.0193861**
Stddev	.0055185	.010346	.0019532	.0098803	.009524	10.755	.0008116
%RSD	7.088511	3.663909	8.262482	17.23968	5.184154	.5779796	4.186619
#1	.0720095	-.289080	.0258857	.0684792	-.173773	1858.126	.0184496
#2	.0785693	-.287582	.0223415	.0537482	-.184617	1851.657	.0198230
#3	.0829763	-.270458	.0226910	.0497071	-.192757	1872.658	.0198857

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0440902**	**.0155890**	**8.094399**	**-.286419**	**.0636022**	**.4162603**	**2541.216**
Stddev	.0006568	.0025101	.106962	.001477	.0005569	.0160126	10.125
%RSD	1.489581	16.10164	1.321437	.5157565	.8756712	3.846768	.3984364
#1	.0439466	.0154941	8.024758	-.285644	.0637879	.4097627	2539.462
#2	.0448068	.0131277	8.040882	-.288123	.0629761	.4045178	2552.104
#3	.0435171	.0181452	8.217557	-.285491	.0640426	.4345003	2532.083

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.223465**	**.9145137**	**.0542336**	**.3960432**	**4.650289**	**.0535745**	**.0804029**
Stddev	.002195	.0200771	.0005431	.0037129	.025010	.0001673	.0004293
%RSD	.9823271	2.195382	1.001341	.9375023	.5378201	.3122313	.5339525
#1	-.223247	.8963918	.0540166	.3931572	4.626373	.0534024	.0799103
#2	-.225761	.9360961	.0538327	.4002319	4.676265	.0535845	.0806014
#3	-.221387	.9110532	.0548517	.3947405	4.648229	.0537365	.0806971

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1711.122**	**^ *****	**-.015493**	**.0194312**	**.0049948**	**.4673310**	**.0940504**
Stddev	7.850	-----	.001338	.0015837	.0013341	.0122407	.0018755
%RSD	.4587458	-----	8.636235	8.150048	26.71034	2.619275	1.994179
#1	1710.292	^ -----	-.016073	.0194178	.0055297	.4778296	.0960731
#2	1703.720	^ -----	-.013963	.0178543	.0059785	.4702775	.0937090
#3	1719.353	^ -----	-.016443	.0210216	.0034763	.4538860	.0923690

Sample Name: LR-2 Acquired: 9/26/2025 15:28:15 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LR-2 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**-.390318**	**.2700143**	**-2.43629**
Stddev	.007798	.0021934	.00969
%RSD	1.997761	.8123299	.3975881
#1	-.397195	.2723401	-2.43456
#2	-.391912	.2697197	-2.44672
#3	-.381846	.2679830	-2.42758

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**4772.721**	**72235.68**	**8023.082**	**3653.892**	**4370.139**
Stddev	25.470	381.02	31.823	19.890	29.573
%RSD	.5336658	.5274732	.3966372	.5443494	.6767002
#1	4795.626	72657.92	8023.598	3676.645	4394.038
#2	4777.246	72131.62	7991.005	3639.812	4379.313
#3	4745.292	71917.49	8054.643	3645.218	4337.067

Sample Name: LR-3 Acquired: 9/26/2025 15:39:39 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LR-3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0913180**	**.0496125**	**217.0056**	**.0067247**	**.1643615**	**.0599091**	**.0009685**
Stddev	.0004902	.0025927	.6431	.0018945	.0034592	.0071022	.0003738
%RSD	.5367959	5.225879	.2963490	28.17159	2.104629	11.85500	38.59526
#1	.0917711	.0475983	217.0685	.0065121	.1631288	.0660626	.0009602
#2	.0907977	.0525377	216.3334	.0087165	.1682682	.0615273	.0013463
#3	.0913853	.0487014	217.6150	.0049455	.1616875	.0521374	.0005989

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.005949**	**-.001401**	**.3081691**	**24.27831**	**.0064375**	**53.60723**	**1.137256**
Stddev	.000082	.000097	.0072944	.21292	.0002200	.03688	.009083
%RSD	1.373594	6.889040	2.367025	.8769933	3.418069	.0688028	.7986760
#1	-.006019	-.001424	.3154079	24.39505	.0064113	53.58262	1.129009
#2	-.005859	-.001295	.3082791	24.03256	.0062318	53.58944	1.135770
#3	-.005969	-.001484	.3008203	24.40734	.0066695	53.64964	1.146991

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**51.81951**	**-.243043**	**24.41835**	**.0034937**	**.5062262**	**-.037690**	**31.52466**
Stddev	.70215	.017333	.01622	.0002959	.0215208	.002840	.23550
%RSD	1.354985	7.131774	.0664367	8.468141	4.251223	7.535445	.7470378
#1	52.59217	-.260184	24.43217	.0031692	.4819215	-.034731	31.75905
#2	51.64590	-.225524	24.42239	.0035632	.5228627	-.037945	31.52686
#3	51.22045	-.243422	24.40049	.0037485	.5138943	-.040395	31.28806

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6784997**	**.0037816**	**-.017452**	**-.002317**	**-.042577**	**-.128832**	**.2098870**
Stddev	.0318836	.0005363	.000213	.000495	.001665	.002727	.0020210
%RSD	4.699127	14.18136	1.218370	21.36945	3.910244	2.116479	.9628993
#1	.6431642	.0042809	-.017658	-.002881	-.044126	-.125969	.2097445
#2	.6872168	.0032147	-.017233	-.001956	-.042788	-.129128	.2119755
#3	.7051181	.0038493	-.017467	-.002113	-.040816	-.131398	.2079411

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: LR-3 Acquired: 9/26/2025 15:39:39 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LR-3 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0927929	.0048482	-.000441
Stddev	.0029952	.0032181	.000116
%RSD	3.227841	66.37614	26.34953
#1	.0894166	.0030639	-.000547
#2	.0951305	.0029176	-.000317
#3	.0938316	.0085631	-.000459

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5304.837	88703.25	8303.717	4264.609	6589.485
Stddev	8.504	54.54	67.083	3.305	8.882
%RSD	.1603098	.0614825	.8078669	.0774906	.1347837
#1	5303.887	88641.58	8226.561	4262.084	6579.842
#2	5313.777	88745.13	8336.346	4263.393	6597.330
#3	5296.848	88723.03	8348.243	4268.349	6591.284

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: PB169831BL Acquired: 9/26/2025 15:44:33 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0005481**	**.0030876**	**.0018211**	**.0065167**	**.0009569**	**-.014813**	**.0022580**
Stddev	.0027956	.0008405	.0002932	.0052321	.0010397	.006234	.0013939
%RSD	510.0802	27.22030	16.10207	80.28747	108.6481	42.08694	61.73275
#1	-.001920	.0023979	.0016325	.0004888	.0006245	-.021424	.0038666
#2	.003584	.0040238	.0021589	.0091795	.0001241	-.013976	.0014072
#3	-.000020	.0028413	.0016719	.0098818	.0021222	-.009040	.0015001

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000312**	**.0000001**	**.0050666**	**-.000581**	**-.000043**	**.0002260**	**-.004047**
Stddev	.0000953	.0000447	.0083830	.000398	.000211	.0003296	.003117
%RSD	305.0777	32016.12	165.4557	68.55821	494.4631	145.8320	77.01653
#1	-.000053	-.000027	.0141747	-.001000	-.000286	.0003969	-.001199
#2	.000135	.000052	.0033512	-.000207	.000059	-.000154	-.007377
#3	.000012	-.000024	-.002326	-.000536	.000099	.000435	-.003565

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000411**	**-.017780**	**.0005694**	**.0000598**	**.2054087**	**.0004233**	**.0003358**
Stddev	.000086	.019332	.0002495	.0005020	.0200822	.0009707	.0001518
%RSD	21.02552	108.7316	43.80899	839.0411	9.776716	229.2967	45.21310
#1	-.000401	-.029490	.0003461	-.000267	.1987252	-.000685	.0005109
#2	-.000330	.004534	.0008386	-.000191	.2279804	.000830	.0002418
#3	-.000502	-.028384	.0005236	.000638	.1895203	.001125	.0002546

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4399838**	**-.001002**	**-.000267**	**-.000633**	**.0010126**	**.0127246**	**-.000295**
Stddev	.0194095	.000293	.000099	.000602	.0024386	.0075698	.001843
%RSD	4.411421	29.24603	36.97822	95.19020	240.8182	59.48960	624.7553
#1	.4516312	-.001184	-.000344	-.000199	-.000893	.0070070	.001746
#2	.4175774	-.000664	-.000156	-.000379	.000170	.0098576	-.001839
#3	.4507427	-.001159	-.000302	-.001320	.003761	.0213091	-.000792

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: PB169831BL Acquired: 9/26/2025 15:44:33 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.002118	.0021705	-.000054
Stddev	.000347	.0005158	.000146
%RSD	16.38020	23.76478	273.3676
#1	-.001836	.0017464	.000060
#2	-.002012	.0020204	-.000001
#3	-.002505	.0027447	-.000219

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5694.476	86982.86	8198.015	4402.902	6745.766
Stddev	6.008	151.49	8.010	18.764	1.321
%RSD	.1055142	.1741586	.0977033	.4261811	.0195784
#1	5700.654	87149.43	8189.038	4419.521	6746.848
#2	5694.120	86945.84	8204.431	4406.632	6744.294
#3	5688.653	86853.32	8200.577	4382.552	6746.156

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: PB169831BS Acquired: 9/26/2025 15:48:52 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7796451**	**1.960430**	**.9484986**	**1.981581**	**.7935389**	**1.958164**
Stddev	.0006695	.041782	.0004833	.001634	.0026371	.017185
%RSD	.0858762	2.131244	.0509515	.0824437	.3323257	.8776010
#1	.7798932	1.912301	.9484974	1.980231	.7945053	1.948838
#2	.7788869	1.987395	.9480158	1.981115	.7905549	1.947658
#3	.7801552	1.981593	.9489824	1.983397	.7955565	1.977996

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1857106**	**.2053806**	**.1923624**	**1.001963**	**.4000314**	**.1929668**
Stddev	.0004743	.0004691	.0001654	.003318	.0013824	.0005108
%RSD	.2554071	.2284157	.0859804	.3311562	.3455756	.2647054
#1	.1862008	.2050083	.1925292	1.002541	.3985239	.1930575
#2	.1852540	.2059075	.1921985	1.004955	.4012398	.1924168
#3	.1856768	.2052261	.1923595	.998394	.4003304	.1934262

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.3030062**	**2.872792**	**.1937998**	**1.971454**	**.4858697**	**.0715451**
Stddev	.0009371	.018112	.0017373	.029444	.0005829	.0004302
%RSD	.3092701	.6304727	.8964507	1.493495	.1199638	.6012506
#1	.3040812	2.865964	.1918966	1.975435	.4862690	.0719851
#2	.3023615	2.859086	.1942021	1.940223	.4852008	.0711255
#3	.3025759	2.893326	.1953006	1.998705	.4861392	.0715248

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.829025**	**.2896431**	**.1983532**	**9.740810**	**.2999758**	**.4048951**
Stddev	.003247	.0033996	.0012773	.093615	.0013138	.0003909
%RSD	.1147734	1.173728	.6439332	.9610547	.4379741	.0965507
#1	2.826726	.2899131	.1990494	9.632715	.3014570	.4051361
#2	2.827609	.2861165	.1968791	9.794388	.2989510	.4051051
#3	2.832739	.2928996	.1991310	9.795327	.2995194	.4044440

Sample Name: PB169831BS Acquired: 9/26/2025 15:48:52 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6740089	.1913898	.8317584	5.558922	F 4.439912	.1943130
Stddev	.0007165	.0023927	.0099116	.017567	.026128	.0021594
%RSD	.1063091	1.250193	1.191644	.3160218	.5884746	1.111304
#1	.6731826	.1940941	.8331831	5.540034	4.411066	.1920883
#2	.6744573	.1905281	.8212115	5.561958	4.461989	.1944499
#3	.6743869	.1895473	.8408805	5.574773	4.446682	.1964006

Elem	Sr4077
Units	ppm
Avg	.1884934
Stddev	.0008506
%RSD	.4512621
#1	.1875239
#2	.1891144
#3	.1888419

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5726.760	87392.11	8220.030	4392.380	6744.259
Stddev	.810	331.10	32.737	30.267	8.633
%RSD	.0141443	.3788658	.3982547	.6890766	.1280022
#1	5726.763	87765.83	8256.171	4425.069	6753.710
#2	5725.948	87275.09	8192.364	4386.744	6742.276
#3	5727.568	87135.42	8211.556	4365.328	6736.789

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: PB169831TB Acquired: 9/26/2025 15:52:52 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.002544**	**-.001195**	**.0025693**	**.0016205**	**.0006197**	**.0044629**
Stddev	.001179	.000729	.0004584	.0012346	.0014236	.0016416
%RSD	46.32988	61.00950	17.84106	76.18049	229.7350	36.78357
#1	-.003753	-.002032	.0023269	.0002613	.0022472	.0029428
#2	-.002479	-.000697	.0030980	.0026722	.0000052	.0062037
#3	-.001399	-.000857	.0022830	.0019281	-.000394	.0042421

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000497**	**-.000139**	**-.000067**	**.0270790**	**.0006444**	**-.000235**
Stddev	.0007237	.000067	.000023	.0093226	.0002539	.000160
%RSD	1457.228	48.19780	34.39235	34.42743	39.39811	67.95143
#1	.0007145	-.000129	-.000078	.0294890	.0004650	-.000233
#2	-.000721	-.000211	-.000041	.0349599	.0005333	-.000076
#3	.000156	-.000078	-.000083	.0167880	.0009348	-.000396

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0003218**	**.0005606**	**.0055117**	**-.020006**	**.0007394**	**-.000469**
Stddev	.0003104	.0033427	.0001769	.008958	.0004077	.000453
%RSD	96.46504	596.2730	3.209565	44.77431	55.13783	96.65857
#1	.0000464	-.001022	.0054380	-.010509	.0002717	-.000952
#2	.0002609	-.001697	.0053836	-.028303	.0010193	-.000053
#3	.0006582	.004401	.0057135	-.021208	.0009273	-.000403

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0132985**	**-.001689**	**.0015951**	**.0049965**	**.0014913**	**.0004290**
Stddev	.0025232	.001053	.0002254	.0561555	.0005282	.0001452
%RSD	18.97315	62.34791	14.13203	1123.907	35.41804	33.84115
#1	.0104532	-.002903	.0018482	-.019852	.0011772	.0002646
#2	.0141787	-.001140	.0015213	.069289	.0021011	.0004829
#3	.0152637	-.001023	.0014159	-.034448	.0011955	.0005396

Sample Name: PB169831TB Acquired: 9/26/2025 15:52:52 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004347	.0009149	.0270364	.0024860	F 16.51532	-.007760
Stddev	.000660	.0025348	.0108763	.0013105	.02722	.002698
%RSD	15.17256	277.0694	40.22829	52.71440	.1647919	34.76539
#1	-.005043	-.000048	.0149714	.0039976	16.52780	-.006560
#2	-.004266	-.000998	.0300489	.0017902	16.48410	-.010849
#3	-.003732	.003790	.0360888	.0016701	16.53405	-.005869

Elem	Sr4077
Units	ppm
Avg	.0000384
Stddev	.0000917
%RSD	238.6664
#1	-.000060
#2	.000054
#3	.000121

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5927.368	89079.69	8564.403	4479.900	7121.073
Stddev	12.890	703.70	66.444	34.642	11.595
%RSD	.2174590	.7899708	.7758196	.7732818	.1628271
#1	5931.564	88267.32	8560.394	4441.802	7122.812
#2	5912.903	89470.40	8500.054	4509.509	7108.706
#3	5937.636	89501.36	8632.762	4488.389	7131.700

Reviewed By:jaswal
On:10/1/2025 3:33:59 PM
Inst Id :P4
LB :LB137342

Sample Name: Q3177-01 Acquired: 9/26/2025 15:57:09 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.002270**	**.0138434**	**-.003526**	**.0017943**	**.0046982**	**4.377688**
Stddev	.000407	.0011836	.000801	.0010613	.0004301	.004645
%RSD	17.92738	8.550130	22.71545	59.14682	9.154466	.1061166
#1	-.002174	.0149059	-.002681	.0025411	.0049290	4.377837
#2	-.002717	.0125676	-.003625	.0005795	.0049636	4.372970
#3	-.001920	.0140567	-.004273	.0022623	.0042019	4.382258

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.3212453**	**-.001917**	**.0567797**	**201.9927**	**.0137095**	**.0064473**
Stddev	.0010659	.000020	.0002097	.1699	.0001607	.0002181
%RSD	.3317913	1.029458	.3693459	.0841077	1.171945	3.382388
#1	.3208407	-.001934	.0569975	202.1316	.0138348	.0063492
#2	.3204410	-.001921	.0567626	202.0432	.0137654	.0062954
#3	.3224542	-.001895	.0565791	201.8032	.0135284	.0066972

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000008**	**.4121497**	**20.88464**	**24.26694**	**.0140808**	**.0005128**
Stddev	.000085	.0127586	.05426	.04595	.0001399	.0003735
%RSD	1117.051	3.095631	.2597936	.1893562	.9937695	72.83640
#1	.000049	.4042487	20.94705	24.26492	.0140838	.0009323
#2	-.000105	.4053316	20.84868	24.31386	.0142192	.0003898
#3	.000033	.4268688	20.85819	24.22202	.0139394	.0002163

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.02820**	**-.007383**	**.1215839**	**19.10616**	**.0981865**	**.0005973**
Stddev	.05027	.004266	.0005591	.11119	.0012733	.0002986
%RSD	.5013332	57.78324	.4598501	.5819581	1.296766	49.99900
#1	10.00161	-.002750	.1219750	19.00551	.0986207	.0004340
#2	9.99680	-.011150	.1209435	19.08745	.0991858	.0004159
#3	10.08618	-.008250	.1218331	19.22551	.0967529	.0009420

Sample Name: Q3177-01 Acquired: 9/26/2025 15:57:09 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.006937	-.004356	4.310573	.0413955	F 140.3590	-.036994
Stddev	.000104	.000871	.036682	.0005801	.2554	.000662
%RSD	1.495482	19.99753	.8509750	1.401393	.1819454	1.788544
#1	-.007047	-.005037	4.281887	.0411202	140.5280	-.036463
#2	-.006841	-.003374	4.297928	.0410042	140.0652	-.037735
#3	-.006922	-.004655	4.351905	.0420620	140.4839	-.036784

Elem	Sr4077
Units	ppm
Avg	.4338505
Stddev	.0011056
%RSD	.2548231
#1	.4351114
#2	.4330473
#3	.4333929

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5614.250	87133.67	8374.191	4311.176	6458.416
Stddev	7.796	476.39	27.935	10.251	18.191
%RSD	.1388529	.5467355	.3335811	.2377667	.2816706
#1	5609.016	87400.95	8348.133	4313.949	6442.646
#2	5610.526	87416.41	8370.755	4319.755	6454.283
#3	5623.210	86583.66	8403.685	4299.824	6478.318

Sample Name: Q3177-02 Acquired: 9/26/2025 16:01:19 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.003393**	**.0082730**	**-.000476**	**.0001753**	**.0046423**	**3.508443**
Stddev	.003116	.0017171	.000581	.0025458	.0017572	.011888
%RSD	91.83317	20.75564	122.0967	1451.990	37.85286	.3388326
#1	-.000083	.0082212	.000017	.0022525	.0065154	3.496090
#2	-.006270	.0100154	-.001117	.0009382	.0043815	3.509437
#3	-.003828	.0065824	-.000328	-.002665	.0030301	3.519803

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2484716**	**-.000790**	**.0008126**	**264.9013**	**.0068942**	**.0008107**
Stddev	.0004925	.000045	.0001265	.3730	.0004767	.0003754
%RSD	.1982227	5.644149	15.56611	.1408240	6.914863	46.30526
#1	.2490298	-.000814	.0006724	264.7231	.0064627	.0005286
#2	.2482870	-.000739	.0008472	265.3300	.0074060	.0012368
#3	.2480981	-.000819	.0009181	264.6508	.0068139	.0006668

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0084717**	**.0864331**	**9.813026**	**35.78698**	**.0085854**	**-.000231**
Stddev	.0003894	.0029743	.010428	.08480	.0001345	.000493
%RSD	4.596569	3.441184	.1062718	.2369445	1.567033	213.5685
#1	.0083781	.0890400	9.816923	35.80356	.0084304	-.000449
#2	.0088993	.0831932	9.820945	35.86227	.0086549	.000333
#3	.0081376	.0870661	9.801210	35.69512	.0086710	-.000576

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**14.96996**	**-.003303**	**.1184475**	**21.46788**	**.1270829**	**.0004152**
Stddev	.03118	.003339	.0007975	.03866	.0011591	.0003130
%RSD	.2083169	101.1000	.6733287	.1800628	.9120767	75.39141
#1	15.00457	-.001383	.1192540	21.46016	.1267880	.0006706
#2	14.94404	-.001366	.1184291	21.43367	.1260997	.0000660
#3	14.96128	-.007158	.1176592	21.50982	.1283609	.0005090

Sample Name: Q3177-02 Acquired: 9/26/2025 16:01:19 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.007263	-.008986	5.343883	.0494815	F 173.8431	-.047444
Stddev	.000894	.001458	.006489	.0010795	.2552	.001741
%RSD	12.31564	16.22089	.1214194	2.181545	.1468266	3.668762
#1	-.006733	-.010203	5.351144	.0494482	173.8802	-.047363
#2	-.008295	-.007371	5.341850	.0484191	174.0778	-.049223
#3	-.006760	-.009384	5.338654	.0505773	173.5713	-.045745

Elem	Sr4077
Units	ppm
Avg	.5701441
Stddev	.0008240
%RSD	.1445167
#1	.5693410
#2	.5709874
#3	.5701038

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5555.857	88808.81	8196.861	4330.683	6383.633
Stddev	14.351	202.81	17.131	14.155	12.887
%RSD	.2583028	.2283719	.2090007	.3268459	.2018776
#1	5560.498	88779.40	8214.861	4314.419	6392.227
#2	5567.313	89024.73	8194.966	4337.410	6389.856
#3	5539.760	88622.31	8180.755	4340.219	6368.815

Sample Name: Q3177-03 Acquired: 9/26/2025 16:05:30 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.004475**	**.0105449**	**-.000765**	**.0002145**	**.0076755**	**4.522811**
Stddev	.001421	.0010972	.001384	.0020686	.0016591	.020208
%RSD	31.75577	10.40539	180.9570	964.6029	21.61580	.4467963
#1	-.002988	.0112733	.000273	-.002160	.0095812	4.545502
#2	-.004617	.0092829	-.002336	.001177	.0068930	4.506753
#3	-.005819	.0110784	-.000232	.001626	.0065524	4.516179

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2897001**	**-.000788**	**.0012173**	**266.5622**	**.0086340**	**.0040419**
Stddev	.0030751	.000031	.0000395	1.3819	.0004259	.0001772
%RSD	1.061480	3.892823	3.245171	.5184315	4.933065	4.383577
#1	.2895952	-.000756	.0012608	266.6932	.0091252	.0038750
#2	.2928263	-.000789	.0011836	267.8739	.0083668	.0040227
#3	.2866788	-.000818	.0012076	265.1194	.0084101	.0042278

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0155230**	**.1775149**	**11.18151**	**29.88182**	**.0110726**	**.0000432**
Stddev	.0006370	.0122735	.06984	.17310	.0002000	.0002101
%RSD	4.103444	6.914055	.6246014	.5792782	1.805846	486.3221
#1	.0148109	.1712735	11.18319	29.89857	.0110763	.0000038
#2	.0160384	.1696165	11.25050	30.04593	.0108707	-.000144
#3	.0157197	.1916548	11.11085	29.70095	.0112706	.000270

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**13.75310**	**-.001129**	**.3781842**	**16.15727**	**.2245051**	**.0003894**
Stddev	.08821	.005497	.0003634	.07037	.0025741	.0003584
%RSD	.6414046	486.6904	.0960941	.4355594	1.146568	92.04941
#1	13.68867	.004018	.3780478	16.12195	.2264355	-.000002
#2	13.71699	-.006920	.3785961	16.11156	.2254973	.000703
#3	13.85364	-.000487	.3779087	16.23831	.2215826	.000467

Sample Name: Q3177-03 Acquired: 9/26/2025 16:05:30 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.006254	-.008372	6.268912	.0947419	F 172.7623	-.047688
Stddev	.000442	.001042	.031529	.0007974	1.4561	.001610
%RSD	7.063299	12.45003	.5029346	.8416322	.8428107	3.375079
#1	-.005949	-.008908	6.280105	.0947863	172.6804	-.045930
#2	-.006051	-.009037	6.233314	.0939233	171.3489	-.049089
#3	-.006760	-.007171	6.293316	.0955162	174.2576	-.048045

Elem	Sr4077
Units	ppm
Avg	.5946584
Stddev	.0031158
%RSD	.5239626
#1	.5940341
#2	.5980390
#3	.5919019

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5585.840	88077.07	8349.074	4299.267	6427.790
Stddev	18.673	275.75	61.520	13.293	11.728
%RSD	.3343005	.3130807	.7368492	.3091882	.1824627
#1	5566.696	88029.47	8321.600	4285.167	6414.280
#2	5604.005	88373.53	8306.079	4311.571	6435.358
#3	5586.817	87828.22	8419.544	4301.062	6433.732

Sample Name: Q3179-01 Acquired: 9/26/2025 16:09:40 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.004284**	**.0039730**	**.0003948**	**-.002493**	**.0035988**	**.6538559**
Stddev	.001433	.0016939	.0019241	.000871	.0023571	.0138392
%RSD	33.45499	42.63431	487.3408	34.91929	65.49639	2.116552
#1	-.005483	.0050933	.0016550	-.001546	.0047317	.6531195
#2	-.004671	.0048015	.0013493	-.003259	.0008892	.6403997
#3	-.002697	.0020244	-.001820	-.002674	.0051754	.6680487

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2647762**	**-.000839**	**.0020238**	**306.9519**	**.0101333**	**.0009934**
Stddev	.0014443	.000061	.0000457	.5665	.0006229	.0001163
%RSD	.5454843	7.239754	2.256858	.1845528	6.147457	11.70835
#1	.2646819	-.000822	.0020511	307.0321	.0094141	.0008660
#2	.2662653	-.000788	.0020492	307.4740	.0105045	.0010204
#3	.2633813	-.000906	.0019711	306.3496	.0104812	.0010939

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0085620**	**.0927911**	**7.875763**	**37.55000**	**.0047004**	**-.000244**
Stddev	.0002023	.0071868	.034291	.05609	.0000523	.000591
%RSD	2.362325	7.745159	.4353958	.1493657	1.112907	242.3460
#1	.0087287	.0860167	7.880677	37.59638	.0046665	-.000584
#2	.0086204	.0920274	7.907331	37.56595	.0046741	-.000585
#3	.0083370	.1003293	7.839280	37.48767	.0047607	.000438

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**11.81297**	**-.001533**	**.1310224**	**23.33447**	**.1888100**	**.0008461**
Stddev	.09041	.003185	.0006287	.09268	.0016706	.0003105
%RSD	.7653768	207.7448	.4798257	.3972008	.8847811	36.69287
#1	11.71938	-.000755	.1315892	23.22844	.1886539	.0008392
#2	11.89983	-.005035	.1311318	23.40005	.1905531	.0005392
#3	11.81969	.001191	.1303462	23.37494	.1872229	.0011600

Sample Name: Q3179-01 Acquired: 9/26/2025 16:09:40 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.008989	-.010636	5.741976	.0989836	F 196.8934	-.055165
Stddev	.000049	.001116	.015495	.0029458	.7540	.002488
%RSD	.5434003	10.49442	.2698604	2.976012	.3829423	4.510481
#1	-.008990	-.010552	5.733255	.0976019	197.7599	-.057360
#2	-.008940	-.009563	5.732808	.0969827	196.3865	-.055672
#3	-.009038	-.011791	5.759867	.1023663	196.5338	-.052462

Elem	Sr4077
Units	ppm
Avg	.6352773
Stddev	.0033221
%RSD	.5229372
#1	.6351037
#2	.6386828
#3	.6320454

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5501.807	86149.20	8304.077	4220.994	6312.717
Stddev	22.220	279.88	31.069	10.783	29.023
%RSD	.4038721	.3248776	.3741422	.2554685	.4597527
#1	5476.157	86472.06	8294.517	4230.076	6279.383
#2	5515.153	85975.41	8278.912	4209.076	6332.378
#3	5514.113	86000.12	8338.803	4223.829	6326.390

Sample Name: CCV04 Acquired: 9/26/2025 16:13:51 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.952310**	**5.008306**	**4.883025**	**4.981525**	**4.923843**	**9.872177**	**9.563744**
Stddev	.009159	.066010	.004283	.012546	.005181	.043311	.070049
%RSD	.1849395	1.318016	.0877160	.2518533	.1052326	.4387227	.7324482
#1	4.942100	4.996796	4.878571	4.995408	4.926718	9.884839	9.606332
#2	4.959803	4.948808	4.883389	4.970998	4.926950	9.823945	9.482896
#3	4.955026	5.079314	4.887114	4.978169	4.917861	9.907746	9.602002

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2490936**	**2.461202**	**24.70369**	**1.005839**	**2.443556**	**1.232228**	**5.006653**
Stddev	.0019429	.002471	.14132	.000167	.001471	.000669	.034559
%RSD	.7800069	.1004140	.5720650	.0166460	.0602170	.0542816	.6902711
#1	.2498280	2.458929	24.69697	1.005732	2.441858	1.231948	4.966805
#2	.2468905	2.460844	24.56585	1.006032	2.444351	1.231744	5.024717
#3	.2505624	2.463833	24.84825	1.005753	2.444459	1.232991	5.028438

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.416840**	**24.68117**	**2.445065**	**1.260728**	**23.95087**	**2.479210**	**2.488474**
Stddev	.014276	.18646	.002835	.001703	.19532	.016327	.009523
%RSD	.5906714	.7554725	.1159299	.1350923	.8154889	.6585392	.3826884
#1	2.405518	24.69708	2.441794	1.262051	23.74251	2.484951	2.489920
#2	2.412126	24.48727	2.446802	1.258806	24.12980	2.460788	2.478310
#3	2.432877	24.85917	2.446600	1.261326	23.98030	2.491890	2.497191

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**25.34395**	**4.922109**	**5.039118**	**4.855268**	**4.860457**	**5.018621**	**4.788640**
Stddev	.12005	.041437	.007449	.014809	.031389	.052533	.021108
%RSD	.4736855	.8418502	.1478141	.3050015	.6458120	1.046759	.4407922
#1	25.23495	4.930646	5.039304	4.847904	4.840283	4.958158	4.808439
#2	25.47262	4.877069	5.031578	4.845586	4.844467	5.053078	4.766430
#3	25.32430	4.958612	5.046472	4.872315	4.896622	5.044628	4.791049

Sample Name: CCV04 Acquired: 9/26/2025 16:13:51 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**5.042135**	**4.720013**	**4.856258**
Stddev	.014598	.022768	.083424
%RSD	.2895239	.4823802	1.717876
#1	5.057889	4.708543	4.907245
#2	5.029065	4.705261	4.759984
#3	5.039451	4.746235	4.901546

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5696.104**	**85842.34**	**8420.685**	**4313.193**	**6469.116**
Stddev	1.488	181.24	49.464	8.244	1.904
%RSD	.0261195	.2111339	.5874147	.1911339	.0294336
#1	5696.564	86031.85	8416.131	4306.488	6471.091
#2	5697.307	85670.68	8472.269	4322.398	6468.966
#3	5694.440	85824.49	8373.655	4310.694	6467.292

Sample Name: CCB04 Acquired: 9/26/2025 16:18:02 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0001381**	**.0021235**	**.0007132**	**.0005715**	**.0004274**	**-.002219**
Stddev	.0018163	.0008340	.0011038	.0016395	.0012882	.010264
%RSD	1315.236	39.27477	154.7641	286.8822	301.4057	462.5547
#1	-.001959	.0021686	-.000450	.0007604	-.001047	-.013154
#2	.001205	.0012679	.001746	-.001154	.000993	.007206
#3	.001169	.0029341	.000844	.002108	.001336	-.000709

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0002381**	**.0000179**	**-.000020**	**.0003028**	**-.000132**	**-.000081**
Stddev	.0003904	.0000818	.000043	.0163521	.000091	.000110
%RSD	163.9653	457.6220	220.9019	5400.018	68.56978	135.7270
#1	-.000165	.0000326	-.000061	-.013890	-.000224	-.000026
#2	.000614	-.000070	-.000024	-.003386	-.000042	-.000208
#3	.000266	.000091	.000026	.018184	-.000131	-.000010

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0002718**	**-.012108**	**.0000911**	**-.016723**	**.0002952**	**.0002128**
Stddev	.0003054	.003103	.0008362	.005904	.0000505	.0003197
%RSD	112.3623	25.62358	918.1331	35.30595	17.10520	150.2520
#1	.0005850	-.015689	-.000841	-.015236	.0003499	-.000154
#2	-.000025	-.010420	.000340	-.011704	.0002854	.000430
#3	.000256	-.010216	.000775	-.023228	.0002503	.000362

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0456038**	**-.000538**	**.0008507**	**.1285023**	**.0017488**	**.0001575**
Stddev	.0216926	.000938	.0002105	.0200536	.0006071	.0002294
%RSD	47.56755	174.4504	24.74581	15.60564	34.71581	145.6772
#1	.0216652	-.001599	.0010656	.1478574	.0017634	-.000105
#2	.0511876	-.000191	.0006448	.1078164	.0023484	.000318
#3	.0639588	.000177	.0008418	.1298330	.0011345	.000260

Sample Name: CCB04 Acquired: 9/26/2025 16:18:02 Type: Unk
Method: 6010-200.7 NEW(v188) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003516	.0006151	-.005458	-.000786	F .0447470	-.001148
Stddev	.000500	.0011871	.015494	.001652	.0029795	.002096
%RSD	14.21656	192.9954	283.9066	210.0233	6.658448	182.5996
#1	-.004087	.0011270	-.022101	-.002068	.0480505	.001272
#2	-.003300	.0014602	-.002820	.001077	.0439273	-.002355
#3	-.003159	-.000742	.008548	-.001368	.0422632	-.002360

Elem	Sr4077
Units	ppm
Avg	.0000700
Stddev	.0000881
%RSD	125.9684
#1	-.000032
#2	.000117
#3	.000125

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5788.593	89298.84	8454.460	4491.212	6852.934
Stddev	13.203	579.78	13.492	21.723	16.336
%RSD	.2280864	.6492605	.1595808	.4836809	.2383863
#1	5792.067	89968.31	8459.444	4513.216	6860.709
#2	5799.711	88961.43	8439.185	4490.636	6863.930
#3	5774.000	88966.78	8464.750	4469.782	6834.162

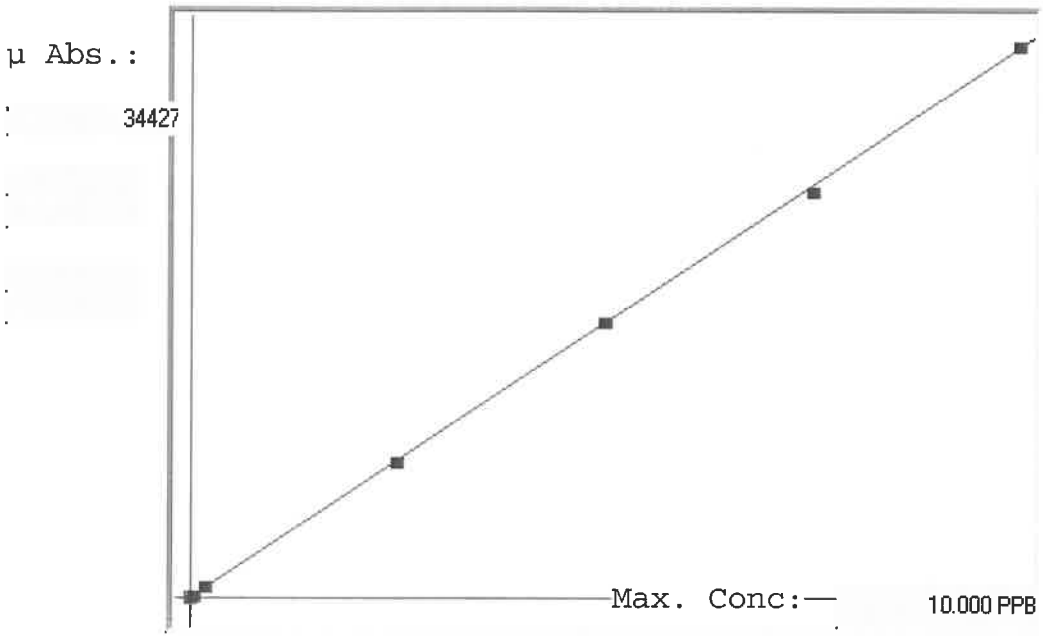
Reviewed By:janvi
On:10/7/2025 11:28:16 PM
Inst Id :CV1
LB :LB137392

LB137392

245.1

INSTRUMENT ID: CV1

Linear



A= 0.0000e+000

B= 2.9188e-004

C= 7.2780e-003

Rho= 0.9999268

Accept=Accepted

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0.0	0.000	-0.009	-0.009	-57	0.000	-57				
0.05	0.050	0.064	0.014	193	0.0 %	193				
0.2	0.200	0.216	0.016	716	0.0 %	716				
2.5	2.500	2.483	-0.017	8483	0.0 %	8483				
5.0	5.000	5.035	0.035	17225	0.0 %	17225				
7.5	7.500	7.405	-0.095	25346	0.0 %	25346				
10.0	10.000	10.056	0.056	34427	0.0 %	34427				

Reviewed By:janvi
On:10/7/2025 11:28:16 PM
Inst Id :CV1
LB :LB137392

LB137392 INSTRUMENT ID : CV1

Method: 245.1 Operator: Admin Date of Analysis: 02 Oct 2025 11:58:17

Type	Sample ID	Extended ID	Conc.	µ Abs.	Units	Type	Stnd Conc	Method	Date
S	0.0 - 1	S0	-	-57	PPB	Std	0.0000	245.1	02 Oct 2025 12:20:39
S	0.05 - 1	S0.05	-	193	PPB	Std	0.0500	245.1	02 Oct 2025 12:22:56
S	0.2 - 1	S0.2	-	716	PPB	Std	0.2000	245.1	02 Oct 2025 12:25:14
S	2.5 - 1	S2.5	-	8483	PPB	Std	2.5000	245.1	02 Oct 2025 12:27:31
S	5.0 - 1	S5	-	17225	PPB	Std	5.0000	245.1	02 Oct 2025 12:29:47
S	7.5 - 1	S7.5	-	25346	PPB	Std	7.5000	245.1	02 Oct 2025 12:32:05
S	10.0 - 1	S10	-	34427	PPB	Std	10.0000	245.1	02 Oct 2025 12:34:24
U	ICV55 - 1	ICV55	3.9094	13369	PPB	SMPL		245.1	02 Oct 2025 12:37:36
U	ICB55 - 1	ICB55	-0.0715	-270	PPB	SMPL		245.1	02 Oct 2025 12:39:51
U	CCV73 - 1	CCV73	5.1114	17487	PPB	SMPL		245.1	02 Oct 2025 12:45:05
U	CCB73 - 1	CCB73	-0.0578	-223	PPB	SMPL		245.1	02 Oct 2025 12:47:20
U	CRA - 1	CRA	0.0414	117	PPB	SMPL		245.1	02 Oct 2025 12:54:33
U	HighStd - 1	HighStd	9.9937	34214	PPB	SMPL		245.1	02 Oct 2025 12:56:48
U	ChkStd - 1	ChkStd	6.4520	22080	PPB	SMPL		245.1	02 Oct 2025 12:59:04
U	PB169747BL - 1	PBW	-0.0736	-277	PPB	SMPL		245.1	02 Oct 2025 13:01:29
U	PB169747BS - 1	LCSW	3.9556	13527	PPB	SMPL		245.1	02 Oct 2025 13:03:50
U	Q3016-08 - 1	WP0925-PT-HG-WP	26.6850	91399	PPB	SMPL		245.1	02 Oct 2025 13:11:00
U	CCV74 - 1	CCV74	5.0665	17333	PPB	SMPL		245.1	02 Oct 2025 13:16:11
U	CCB74 - 1	CCB74	-0.1086	-397	PPB	SMPL		245.1	02 Oct 2025 13:18:50
U	Q3016-08DLX5 - 1	WP0925-PT-HG-WP	5.4018	18482	PPB	SMPL		245.1	02 Oct 2025 13:23:23
U	CCV75 - 1	CCV75	5.0895	17412	PPB	SMPL		245.1	02 Oct 2025 13:30:18
U	CCB75 - 1	CCB75	-0.0920	-340	PPB	SMPL		245.1	02 Oct 2025 13:32:38

Alliance TECHNICAL GROUP

Water Metals Preparation Sheet

PB169563

SOP ID : M200.7-Trace Elements-22

SDG No : N/A

Matrix : WATER

Pippete ID: ICP A

Balance ID : N/A

Filter paper ID : N/A

pH Strip ID : M6069

Hood ID : #3

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

Start Digest Date: 09/23/2025 **Time :** 09:30 **Temp :** 96 °C

End Digest Date: 09/23/2025 **Time :** 12:32 **Temp :** 96 °C

Digestion tube ID: M5595

Block thermometer ID: MET-DIG. #1

Dig Technician Signature: SKG.

Supervisor Signature:

Temp : 1. 96°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
LFS-1	0.25	M6180
LFS-2	0.25	M6181
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
Conc. HNO3	3.00	M6158
1:1 HCL	5.00	MP87148
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

HOT BLOCK#1 CELL#50 96C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
09/23/25 12:50	SKG met dig	Emetals lab
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

Water Metals Preparation Sheet

PB169563

Lab Sample ID	Client Sample ID	pH	Initial Vol (ml)	Final Vol (ml)	Color Before	Color After	Clarity Before	Clarity After	Comment	Prep Pos
PB169563BL	PBW563	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	1
PB169563BS	LCS563	<2	50	50	Colorless	Colorless	Clear	Clear	M6180,M6181	2
Q3016-01	WP0925-PT-TM1-WP	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	3
Q3016-03	WP0925-PT-SNTI-WP	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	4
Q3016-05	WP0925-PT-MIN2-WP	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	5
Q3016-07	WP0925-PT-SIO2-WP	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	6

WORKLIST(Hardcopy Internal Chain)

WorkList Name : PB169563 **WorkList ID :** 191682 **Department :** Digestion **Date :** 09-04-2025 17:52:44

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q3016-01	WP0925-PT-TM1-WP	Water	Metals Group3	1:1 HNO3 to pH < 2	ALLI03	QA Of	09/02/2025	200.7
Q3016-03	WP0925-PT-SNTI-WP	Water	Metals Group4	1:1 HNO3 to pH < 2	ALLI03	QA Of	09/02/2025	200.7
Q3016-05	WP0925-PT-MIN2-WP	Water	Metals Group5	1:1 HNO3 to pH < 2	ALLI03	QA Of	09/02/2025	200.7
Q3016-07	WP0925-PT-SIO2-WP	Water	Silica	1:1 HNO3 to pH < 2	ALLI03	QA Of	09/02/2025	200.7

09/22/2025

Date/Time ~~09/22/2025~~ 18:10

Raw Sample Received by: Suj mert dig

Raw Sample Relinquished by: (Metals lab)

09/22/2025

Date/Time ~~09/22/2025~~ 19:10

Raw Sample Received by: (Metals lab)

Raw Sample Relinquished by: Suj mert dig

Alliance TECHNICAL GROUP

Water Mercury Preparation Sheet

PB169747

SOP ID : M245.1-Mercury-20

SDG No : NA

Matrix : WATER

Pippete ID: HG A

Balance ID : N/A

Filter paper ID : NA

pH Strip ID : M6069

Hood ID : #1

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

Start Digest Date: 10/02/2025 **Time :** 09:05 **Temp :** 94 °C

End Digest Date: 10/02/2025 **Time :** 11:05 **Temp :** 94 °C

Digestion tube ID: M5595

Block thermometer ID: HG-DIG#3

Dig Technician Signature: MB

Supervisor Signature: [illegible]

Temp : 1. 94°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
ICV	30mL	MP87429
CCV	30mL	MP87431
CRA	30mL	MP87433
Blank Spike	0.48mL	MP87421
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
HNO3/H2SO4(1:2)	2.25mL	MP87071
KMnO4 (5%)	4.5mL	MP87072
K2S2O8 (5%)	2.4mL	MP87073
Hydroxylamine HCL (12%)	1.8mL	MP87149
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	MP87422
0.05 ppb	S0.05	30Ml	MP87423
0.2 ppb	S0.2	30Ml	MP87424
2.5 ppb	S2.5	30mL	MP87425
5.0 ppb	S5.0	30mL	MP87426
7.5 ppb	S7.5	30mL	MP87427
10.0 ppb	S10.0	30mL	MP87428
ICV	ICV	30mL	MP87429
ICB	ICB	30mL	MP87430
CCV	CCV	30mL	MP87431
CCB	CCB	30mL	MP87432
CRI	CRI	30mL	MP87433
CHK STD	CHK STD	30mL	MP87434

Extraction Conformance/Non-Conformance Comments:

N/A

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
10/2/25 @ 11:50	MB - 3114. Lab	MB - Metals Lab
	Preparation Group	**Analysis Group**

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Comment	Prep Pos
PB169747BL	PBW747	30	30	<2	N/A	3-1
PB169747BS	LCS747	30	30	<2	MP87421	2
Q3016-08	WP0925-PT-HG-WP	30	30	<2	N/A	3

WORKLIST(Hardcopy Internal Chain)

WorkList Name : 100225_245.1 **WorkList ID :** 192229 **Department :** Digestion **Date :** 10-02-2025 08:07:18

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q3016-08	WP0925-PT-HG-WP	Water	Mercury	1:1 HNO3 to pH < 2	ALLI03	QA Of	09/02/2025	245.1

Date/Time 10/2/25 @ 8:55

Raw Sample Received by: DRG-DMG-LMS

Raw Sample Relinquished by: DRG-DMG-LMS

Date/Time 10/2/25 @ 9:25

Raw Sample Received by: DRG-DMG-LMS

Raw Sample Relinquished by: DRG-DMG-LMS

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Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB137342

Review By	Janvi	Review On	10/1/2025 11:48:02 AM
Supervise By	jaswal	Supervise On	10/1/2025 3:33:59 PM

STD. NAME	STD REF.#
ICAL Standard	MP87031,MP87038,MP87035,MP87034,MP87033,MP87032
ICV Standard	MP87404,MP87038
CCV Standard	MP87042
ICSA Standard	MP87040,MP87405
CRI Standard	MP87038
LCS Standard	
Chk Standard	MP87043,MP87044,MP87045,MP87046,MP87049

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	09/26/25 12:12		Jaswal	OK
2	S1	S1	CAL2	09/26/25 12:16		Jaswal	OK
3	S2	S2	CAL3	09/26/25 12:21		Jaswal	OK
4	S3	S3	CAL4	09/26/25 12:25		Jaswal	OK
5	S4	S4	CAL5	09/26/25 12:29		Jaswal	OK
6	S5	S5	CAL6	09/26/25 12:33		Jaswal	OK
7	ICV01	ICV01	ICV	09/26/25 12:44		Jaswal	OK
8	LLICV01	LLICV01	LLICV	09/26/25 12:49		Jaswal	OK
9	ICB01	ICB01	ICB	09/26/25 12:55		Jaswal	OK
10	CRI01	CRI01	CRDL	09/26/25 13:00		Jaswal	OK
11	ICSA01	ICSA01	ICSA	09/26/25 13:04		Jaswal	OK
12	ICSAB01	ICSAB01	ICSAB	09/26/25 13:08		Jaswal	OK
13	ICSADL	ICSADL	ICSA	09/26/25 13:32		Jaswal	OK
14	ICSABDL	ICSABDL	ICSAB	09/26/25 13:36		Jaswal	OK
15	CCV01	CCV01	CCV	09/26/25 13:40		Jaswal	OK
16	CCB01	CCB01	CCB	09/26/25 13:44		Jaswal	OK
17	PB169563BL	PB169563BL	MB	09/26/25 13:49		Jaswal	OK
18	PB169563BS	PB169563BS	LCS	09/26/25 13:53		Jaswal	OK

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Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB137342

Review By	Janvi	Review On	10/1/2025 11:48:02 AM
Supervise By	jaswal	Supervise On	10/1/2025 3:33:59 PM

STD. NAME	STD REF.#
ICAL Standard	MP87031,MP87038,MP87035,MP87034,MP87033,MP87032
ICV Standard	MP87404,MP87038
CCV Standard	MP87042
ICSA Standard	MP87040,MP87405
CRI Standard	MP87038
LCS Standard	
Chk Standard	MP87043,MP87044,MP87045,MP87046,MP87049

19	PB169561BL	PB169561BL	MB	09/26/25 13:57		Jaswal	OK
20	PB169561BS	PB169561BS	LCS	09/26/25 14:01		Jaswal	OK
21	Q3016-07	WP0925-PT-SIO2-WP	SAM	09/26/25 14:05	Si high	Jaswal	Dilution
22	Q3018-05	WP0925-PT-MIN2-WP	SAM	09/26/25 14:10		Jaswal	OK
23	Q3016-05	WP0925-PT-MIN2-WP	SAM	09/26/25 14:14		Jaswal	OK
24	Q3018-01	WP0925-PT-TM1-WP	SAM	09/26/25 14:18		Jaswal	OK
25	Q3018-03	WP0925-PT-SNTI-WP	SAM	09/26/25 14:22		Jaswal	OK
26	Q3016-03	WP0925-PT-SNTI-WP	SAM	09/26/25 14:27		Jaswal	OK
27	CCV02	CCV02	CCV	09/26/25 14:31		Jaswal	OK
28	CCB02	CCB02	CCB	09/26/25 14:35		Jaswal	OK
29	Q3016-01	WP0925-PT-TM1-WP	SAM	09/26/25 14:39		Jaswal	OK
30	Q3016-07DL	WP0925-PT-SIO2-WP	SAM	09/26/25 14:53	5x for Si	Jaswal	Confirms
31	CCV03	CCV03	CCV	09/26/25 15:14		Jaswal	OK
32	CCB03	CCB03	CCB	09/26/25 15:18		Jaswal	OK
33	LR-1	LR-1	HIGH STD	09/26/25 15:23		Jaswal	OK
34	LR-2	LR-2	HIGH STD	09/26/25 15:28		Jaswal	OK
35	LR-3	LR-3	HIGH STD	09/26/25 15:39		Jaswal	OK
36	PB169831BL	PB169831BL	MB	09/26/25 15:44	NOT USE	Jaswal	Not Ok
37	PB169831BS	PB169831BS	LCS	09/26/25 15:48	NOT USE	Jaswal	Not Ok
38	PB169831TB	PB169831TB	MB	09/26/25 15:52	NOT USE	Jaswal	Not Ok

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Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB137342

Review By	Janvi	Review On	10/1/2025 11:48:02 AM
Supervise By	jaswal	Supervise On	10/1/2025 3:33:59 PM

STD. NAME	STD REF.#
ICAL Standard	MP87031,MP87038,MP87035,MP87034,MP87033,MP87032
ICV Standard	MP87404,MP87038
CCV Standard	MP87042
ICSA Standard	MP87040,MP87405
CRI Standard	MP87038
LCS Standard	
Chk Standard	MP87043,MP87044,MP87045,MP87046,MP87049

39	Q3177-01	EME-TS12-01	SAM	09/26/25 15:57	NOT USE	Jaswal	Not Ok
40	Q3177-02	EME-TS13-01	SAM	09/26/25 16:01	NOT USE	Jaswal	Not Ok
41	Q3177-03	EME-TS14-02	SAM	09/26/25 16:05	NOT USE	Jaswal	Not Ok
42	Q3179-01	EME-TS14-01	SAM	09/26/25 16:09	NOT USE	Jaswal	Not Ok
43	CCV04	CCV04	CCV	09/26/25 16:13		Jaswal	OK
44	CCB04	CCB04	CCB	09/26/25 16:18	CCB fail for S	Jaswal	OK

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Instrument ID: CV1

Daily Analysis Runlog For Sequence/QCBatch ID # LB137392

Review By	jaswal	Review On	10/6/2025 11:36:34 PM
Supervise By	janvi	Supervise On	10/7/2025 11:28:16 PM

STD. NAME	STD REF.#
ICAL Standard	MP87442,MP874423,MP87444,MP87445,MP87447,MP87448
ICV Standard	MP87449
CCV Standard	MP87451
ICSA Standard	
CRI Standard	MP87453
LCS Standard	
Chk Standard	MP87450,MP87452,MP87454,MP87456

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	10/02/25 12:20		mohan	OK
2	S0.05	S0.05	CAL2	10/02/25 12:22		mohan	OK
3	S0.2	S0.2	CAL3	10/02/25 12:25		mohan	OK
4	S2.5	S2.5	CAL4	10/02/25 12:27		mohan	OK
5	S5	S5	CAL5	10/02/25 12:29		mohan	OK
6	S7.5	S7.5	CAL6	10/02/25 12:32		mohan	OK
7	S10	S10	CAL7	10/02/25 12:34		mohan	OK
8	ICV55	ICV55	ICV	10/02/25 12:37		mohan	OK
9	ICB55	ICB55	ICB	10/02/25 12:39		mohan	OK
10	CCV73	CCV73	CCV	10/02/25 12:45		mohan	OK
11	CCB73	CCB73	CCB	10/02/25 12:47		mohan	OK
12	CRA	CRA	CRDL	10/02/25 12:54		mohan	OK
13	HighStd	HighStd	HIGH STD	10/02/25 12:56		mohan	OK
14	ChkStd	ChkStd	SAM	10/02/25 12:59		mohan	OK
15	PB169747BL	PB169747BL	MB	10/02/25 13:01		mohan	OK
16	PB169747BS	PB169747BS	LCS	10/02/25 13:03		mohan	OK
17	Q3016-08	WP0925-PT-HG-WP	SAM	10/02/25 13:11	Mercury High	mohan	Dilution
18	CCV74	CCV74	CCV	10/02/25 13:16		mohan	OK

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Instrument ID: CV1

Daily Analysis Runlog For Sequence/QCBatch ID # LB137392

Review By	jaswal	Review On	10/6/2025 11:36:34 PM
Supervise By	janvi	Supervise On	10/7/2025 11:28:16 PM

STD. NAME	STD REF.#
ICAL Standard	MP87442,MP874423,MP87444,MP87445,MP87447,MP87448
ICV Standard	MP87449
CCV Standard	MP87451
ICSA Standard	
CRI Standard	MP87453
LCS Standard	
Chk Standard	MP87450,MP87452,MP87454,MP87456

19	CCB74	CCB74	CCB	10/02/25 13:18		mohan	OK
20	Q3016-08DL	WP0925-PT-HG-WPD	SAM	10/02/25 13:23	5X Report	mohan	Confirms
21	CCV75	CCV75	CCV	10/02/25 13:30		mohan	OK
22	CCB75	CCB75	CCB	10/02/25 13:32		mohan	OK

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Prep Standard - Chemical Standard Summary

Order ID : Q3016

Test : Hardness, Calcium,Hardness, Total,Mercury,Metals Group3,Metals Group4,Metals Group5,Silica

Prepbatch ID : PB169563,PB169747,

Sequence ID/Qc Batch ID: LB137342,LB137342,LB137342,LB137342,LB137392,

Standard ID :
MP87031,MP87032,MP87033,MP87034,MP87035,MP87036,MP87038,MP87040,MP87042,MP87043,MP87044,MP87045,MP87046,MP87049,MP87071,MP87072,MP87073,MP87148,MP87149,MP87404,MP87405,MP87421,MP87429,MP87431,MP87433,MP87441,MP87442,MP874423,MP87444,MP87445,MP87447,MP87448,MP87449,MP87450,MP87451,MP87452,MP87453,MP87454,MP87456,

Chemical ID :
M4397,M4916,M5062,M5467,M5658,M5748,M5751,M5798,M5799,M5800,M5801,M5814,M5817,M5820,M5882,M5884,M5923,M5962,M5969,M5970,M5971,M5979,M5985,M5998,M6019,M6021,M6023,M6026,M6027,M6028,M6030,M6032,M6058,M6077,M6128,M6137,M6138,M6140,M6142,M6144,M6145,M6151,M6157,M6158,M6159,M6160,M6161,M6163,M6164,M6165,M6171,M6174,M6176,M6177,M6178,M6179,M6180,M6181,M6182,M6184,M6187,M6196,M6200,W3112,

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP87031	09/02/2025	10/10/2025	Sarabjit Jaswal	None	None	Janvi Patel 09/04/2025

FROM 125.00000ml of M6151 + 2350.00000ml of W3112 + 25.00000ml of M6187 = Final Quantity: 2500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
907	ICP AES STD S (S5)	MP87032	09/02/2025	10/10/2025	Sarabjit Jaswal	None	None	Janvi Patel 09/04/2025

FROM 5.00000ml of M5467 + 5.00000ml of M5820 + 5.00000ml of M5969 + 5.00000ml of M5971 + 5.00000ml of M5998 + 5.00000ml of M6077 + 5.00000ml of M6160 + 5.00000ml of M6174 + 5.00000ml of M6176 + 455.00000ml of MP87031 = 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
910	ICP AES STD S4	MP87033	09/02/2025	10/10/2025	Sarabjit Jaswal	None	None	Janvi Patel 09/04/2025

FROM 50.00000ml of MP87031 + 50.00000ml of MP87032 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
909	ICP AES STD S3	MP87034	09/02/2025	10/10/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel 09/04/2025

FROM 25.00000ml of MP87032 + 75.00000ml of MP87031 = 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
3913	ICP AES STD S2	MP87035	09/02/2025	10/10/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel 09/04/2025

FROM 16.00000ml of MP87032 + 184.00000ml of MP87031 = Final Quantity: 200.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2950	ICP AES S1/CRI STOCK STD	MP87036	09/02/2025	10/10/2025	Sarabjit Jaswal	None	None	Janvi Patel 09/04/2025

FROM 0.03000ml of M5798 + 0.03000ml of M6028 + 0.04000ml of M6137 + 0.05000ml of M5658 + 0.05000ml of M6030 + 0.05000ml of M6140 + 0.05000ml of M6159 + 0.06000ml of M6177 + 0.10000ml of M5751 + 0.10000ml of M5801 + 0.10000ml of M5820 + 0.10000ml of M5962 + 0.10000ml of M5971 + 0.10000ml of M6128 + 0.10000ml of M6176 + 0.15000ml of M5800 + 0.20000ml of M5799 + 0.20000ml of M6021 + 0.20000ml of M6023 + 0.20000ml of M6027 + 0.20000ml of M6145 + 0.25000ml of M5467 + 0.25000ml of M6160 + 0.50000ml of M5814 + 0.50000ml of M6032 + 1.00000ml of M5979 + 1.00000ml of M6138 + 1.00000ml of M6142 + 1.00000ml of M6144 + 1.00000ml of M6171 + 1.00000ml of M6178 + 2.00000ml of M5969 + 88.29000ml of MP87031 = 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
2951	ICP AES S1/CRI WORK STD	MP87038	09/02/2025	10/10/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel 09/04/2025

FROM 2.00000ml of MP87036 + 98.00000ml of MP87031 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
904	ICP AES ICSA SOLN	MP87040	09/02/2025	10/10/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel 09/04/2025

FROM 25.00000ml of M6182 + 225.00000ml of MP87031 = 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
911	ICP AES CCV SOLN	MP87042	09/02/2025	10/10/2025	Sarabjit Jaswal	None	None	Janvi Patel 09/04/2025

FROM 50.00000ml of MP87031 + 50.00000ml of MP87032 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
919	ICP AES INTERNAL STD	MP87043	09/02/2025	10/10/2025	Sarabjit Jaswal	None	None	Janvi Patel 09/04/2025

FROM 1.00000ml of M6179 + 10.00000ml of M5985 + 1969.00000ml of W3112 + 20.00000ml of M6187 = 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
903	ICP AES RINSE SOLN	MP87044	09/02/2025	10/10/2025	Sarabjit Jaswal	None	None	Janvi Patel 09/04/2025

FROM 200.00000ml of M6187 + 9800.00000ml of W3112 = Final Quantity: 10000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
4225	LR-1	MP87045	09/02/2025	10/10/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel 09/04/2025

FROM 11.50000ml of M6138 + 11.50000ml of M6144 + 11.50000ml of M6171 + 15.50000ml of MP87031 = Final Quantity: 50.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
4226	LR-2	MP87046	09/02/2025	10/10/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel 09/04/2025

FROM 13.50000ml of M6140 + 9.00000ml of M6142 + 9.50000ml of M6159 + 18.00000ml of MP87031 = Final Quantity: 50.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
4227	LR-3	MP87049	09/02/2025	10/10/2025	Sarabjit Jaswal	None	None	Janvi Patel 09/04/2025

FROM 1.15000ml of M6026 + 1.25000ml of M5658 + 1.25000ml of M5748 + 1.50000ml of M6145 + 2.50000ml of M5751 + 2.50000ml of M6128 + 39.85000ml of MP87031 = Final Quantity: 50.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3965	2:1 H2SO4 : HNO3	MP87071	09/04/2025	11/07/2025	Mohan Bera	None	None	Sarabjit Jaswal 09/04/2025

FROM 1600.00000ml of M6157 + 800.00000ml of M6187 = Final Quantity: 3200.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
65	POTASSIUM PERMANGANATE SOLUTION 5 %	MP87072	09/04/2025	03/04/2026	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 09/04/2025

FROM 100.00000gram of M4916 + 2000.00000ml of W3112 = 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
66	POTASSIUM PERSULFATE SOLUTION 5 %	MP87073	09/04/2025	03/05/2026	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 09/04/2025

FROM 100.00000ml of M4397 + 2000.00000ml of W3112 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
170	1:1HCL	MP87148	09/09/2025	02/17/2026	Sagar Kanani	None	None	Sarabjit Jaswal 09/10/2025

FROM 1250.00000ml of M6151 + 1250.00000ml of W3112 = 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
67	SODIUM CHLORIDE - HYDROXYL- CHLORIDE SOLUTION	MP87149	09/09/2025	02/03/2026	Mohan Bera	METALS_SCALE_2 (M SC-2)	None	Sarabjit Jaswal 09/10/2025

FROM 2000.00000ml of W3112 + 240.00000gram of M5884 + 240.00000ml of M6196 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
4163	NEW ICV-060925	MP87404	09/22/2025	10/03/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 10/02/2025

FROM 0.02000ml of M5817 + 0.20000ml of M5923 + 0.20000ml of M6019 + 0.20000ml of M6058 + 0.40000ml of M6163 + 0.40000ml of M6164 + 0.40000ml of M6165 + 48.18000ml of MP87031 = Final Quantity: 50.000 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	MP87405	09/22/2025	10/03/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 10/02/2025

FROM 0.01000ml of M5817 + 0.10000ml of M5970 + 0.10000ml of M6077 + 0.10000ml of M6176 + 10.00000ml of M6182 + 10.00000ml of M6184 + 79.69000ml of MP87031 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP87421	10/02/2025	10/03/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 10/02/2025

FROM 1.00000ml of M6187 + 2.50000ml of M5062 + 96.50000ml of W3112 = 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
1346	Hg ICV SOLUTION	MP87429	10/02/2025	10/03/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 10/02/2025

FROM 2.50000ml of M6161 + 2.50000ml of M6187 + 245.00000ml 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)	MP87431	10/02/2025	10/03/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 10/02/2025

FROM 485.00000ml of W3112 + 5.00000ml of M6187 + 10.00000ml of MP87421 = 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
1349	CRA/CRI (Hg 0.2 PPB SOLUTION)	MP87433	10/02/2025	10/03/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 10/02/2025

FROM 2.50000ml of M6187 + 247.30000ml of W3112 + 0.20000ml of MP87421 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP87441	10/06/2025	10/07/2025	Mohan Bera	None	METALS_PIPETTE_6 (HG B)	Sarabjit Jaswal 10/06/2025

FROM 1.00000ml of M6187 + 2.50000ml of M5062 + 96.50000ml of W3112 = 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
1340	Hg 0.00 PPB STD	MP87442	10/06/2025	10/07/2025	Mohan Bera	None	METALS_PIPETTE_6 (HGB)	Sarabjit Jaswal 10/06/2025

FROM 2.50000ml of M6187 + 247.50000ml of W3112 = 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	MP87444	10/06/2025	10/07/2025	Mohan Bera	None	METALS_PIPETTE_6 (HGB)	Sarabjit Jaswal 10/06/2025

FROM 2.50000ml of M6187 + 245.00000ml of W3112 + 2.50000ml of MP87441 = 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	MP87445	10/06/2025	10/07/2025	Mohan Bera	None	METALS_PIPETTE_6 (HGB)	Sarabjit Jaswal 10/06/2025

FROM 2.50000ml of M6187 + 242.50000ml of W3112 + 5.00000ml of MP87441 = 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	MP87447	10/06/2025	10/07/2025	Mohan Bera	None	METALS_PIPETTE_6 (HGB)	Sarabjit Jaswal 10/06/2025

FROM 2.50000ml of M6187 + 240.00000ml of W3112 + 7.50000ml of MP87441 = 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	MP87448	10/06/2025	10/07/2025	Mohan Bera	None	METALS_PIPETTE_6 (HGB)	Sarabjit Jaswal 10/06/2025

FROM 2.50000ml of M6187 + 237.50000ml of W3112 + 10.00000ml of MP87441 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1346	Hg ICV SOLUTION	MP87449	10/06/2025	10/07/2025	Mohan Bera	None	METALS_PIPETTE_6 (HGB)	Sarabjit Jaswal 10/06/2025

FROM 2.50000ml of M6161 + 2.50000ml of M6187 + 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)	MP87450	10/06/2025	10/07/2025	Mohan Bera	None	METALS_PIPETTE_6 (HGB)	Sarabjit Jaswal 10/06/2025

FROM 2.50000ml of M6187 + 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)	MP87451	10/06/2025	10/07/2025	Mohan Bera	None	METALS_PIPETTE_6 (HGB)	Sarabjit Jaswal 10/06/2025

FROM 485.00000ml of W3112 + 5.00000ml of M6187 + 10.00000ml of MP87441 = 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)	MP87452	10/06/2025	10/07/2025	Mohan Bera	None	METALS_PIPETTE_6 (HGB)	Sarabjit Jaswal 10/06/2025

FROM 495.00000ml of W3112 + 5.00000ml of M6187 = 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)	MP87453	10/06/2025	10/07/2025	Mohan Bera	None	METALS_PIPETTE_6 (HGB)	Sarabjit Jaswal 10/06/2025

FROM 2.50000ml of M6187 + 247.30000ml of W3112 + 0.20000ml of MP87441 = 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)	MP87454	10/06/2025	10/07/2025	Mohan Bera	None	METALS_PIPETTE_6 (HG B)	Sarabjit Jaswal 10/06/2025

FROM 2.50000ml of M6187 + 240.50000ml of W3112 + 7.00000ml of MP87441 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
68	STANNOUS CHLORIDE SOLUTION	MP87456	10/06/2025	10/07/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 10/06/2025

FROM 450.00000ml of W3112 + 50.00000gram of M5882 + 50.00000ml of M6200 = 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-3238-05 / Potassium Persulfate (2.5kg)	0000227540	09/24/2025	08/16/2019 / RICHARD	07/17/2019 / RICHARD	M4397

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 #
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.	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.	/ 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.	58029 / Cu, 1000 PPM, 500 ml	071723	07/17/2026	10/01/2024 / Jaswal	08/25/2023 / jaswal	M5751

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.	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.	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.	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 #
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 #
Absolute Standards, Inc.	57003 / Lithium, Li, 100 ml, 1000 PPM	102423	10/24/2026	02/20/2024 / Jaswal	01/10/2024 / Jaswal	M5923

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

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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.	57016 / S, 1000 PPM, 125 ml	122923	03/31/2026	03/31/2025 / kareem	06/11/2024 / Jaswal	M5969

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 #
Absolute Standards, Inc.	57003 / Li, 1000 PPM, 125 ml	061224	06/21/2027	06/06/2025 / Janvi	07/01/2024 / Jaswal	M5971

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	08/05/2026	08/06/2025 / Janvi	02/22/2024 / Jaswal	M5979

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	CLPP-CAL-3 / CLP CAL SOLUTION #3, 125mL	T2-MEB727800	07/30/2026	07/30/2025 / Janvi	02/22/2024 / kareem	M5998

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Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSR1-1 / Strontium, 125 ml, 1000 PPM	U2-SR730227	03/03/2028	01/14/2025 / Jaswal	08/05/2024 / Jaswal	M6019

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.	57182 / Pb, 10000 PPM, 125 ml	110923	11/09/2026	12/05/2024 / janvi	08/05/2024 / Jaswal	M6026

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57028 / Ni, 1000 PPM, 125 ml	062024	06/20/2027	06/04/2025 / Janvi	08/05/2024 / Jaswal	M6027

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	CHEM-QC-4 / CHEM-QC-4, Second Source, 1000 ug/ml, B, Mo, Si, Sn, Ti	V2-MEB746173	01/29/2026	01/29/2025 / JANVI	08/22/2024 / Jaswal	M6058

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 #
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 #
Inorganic Ventures	CGSI1-1 / SILICON 125mL 1000ug/mL	V2-SI744713	07/10/2029	01/14/2025 / Jaswal	10/03/2024 / Jaswal	M6137

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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.	58120 / Ca, 10000 PPM, 500 ml	121824	12/18/2027	04/17/2025 / Janvi	01/13/2025 / Jaswal	M6138

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	011025	01/10/2028	06/25/2025 / Janvi	01/13/2025 / Jaswal	M6140

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	103024	10/30/2027	05/06/2025 / JANVI	01/13/2025 / Jaswal	M6142

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 #
Absolute Standards, Inc.	58030 / Zinc, Zn, 500 ml, 1000 PPM	121724	12/17/2027	02/04/2025 / jaswal	01/13/2025 / Jaswal	M6145

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)	22G2862015	02/17/2026	02/18/2025 / Sagar	01/15/2025 / Sagar	M6151

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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-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	24i1262013	11/07/2025	05/07/2025 / RUPESH	02/18/2025 / Mohan	M6157

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	10/30/2025	03/10/2025 / Eman	02/02/2025 / Sagar	M6158

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	011325	03/18/2026	03/18/2025 / kareem	02/09/2025 / kareem	M6159

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	071724	07/17/2027	03/24/2025 / kareem	10/18/2024 / kareem	M6160

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-5 / ICV (HG) STOCK SOLN	ICV 5 0415	12/31/2025	05/01/2025 / mohan	03/30/2024 / mohan	M6161

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	QCP-CICV-1-125ML / EPA CLP ICP Verification Standard1	V2-MEB744107	06/08/2026	06/09/2025 / jaswal	06/06/2025 / jaswal	M6163

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Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	QCP-CICV-2-125ML / EPA CLP ICP Verification Standard2	U2-MEB733713	06/08/2026	06/09/2025 / jaswal	06/09/2025 / jaswal	M6164

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	QCP-CICV-3-125ML / EPA CLP ICP Verification Standard3	V2-MEB749572	06/08/2026	06/09/2025 / jaswal	06/09/2025 / jaswal	M6165

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	011525	01/15/2028	07/15/2025 / jaswal	02/13/2025 / Janvi	M6171

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	V2-MEB742428	07/31/2026	07/31/2025 / Janvi	05/05/2025 / Janvi	M6174

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	092724	09/27/2027	08/06/2025 / Janvi	08/06/2025 / Janvi	M6176

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	/ Lead (Pb) 1000PPM	031525	03/15/2028	08/06/2025 / Janvi	08/06/2025 / Janvi	M6177

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.	57042 / Mo, 1000 PPM, 125 ml	080528	08/05/2028	08/06/2025 / Janvi	08/06/2025 / Janvi	M6178

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	08/05/2026	08/06/2025 / Janvi	06/02/2024 / Janvi	M6179

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	W2-MEB752149	02/05/2026	08/06/2025 / Janvi	07/22/2025 / Janvi	M6180

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	V2-MEB7433480	02/05/2026	08/06/2025 / Janvi	07/22/2025 / Janvi	M6181

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	02/05/2026	08/06/2025 / Janvi	03/06/2024 / Janvi	M6182

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	02/05/2026	08/06/2025 / Janvi	03/06/2024 / Janvi	M6184

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 #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24H0162012	01/28/2026	08/29/2025 / Sagar	08/08/2025 / Sagar	M6187

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	H330-500 / HYDROXYLAMINE HYDROCHLORIDE ACS 500G	243373	02/03/2026	09/04/2025 / mohan	08/04/2025 / mohan	M6196

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)	24D1562005	02/10/2026	09/11/2025 / Sagar	08/25/2025 / Sagar	M6200

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.

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Certified Reference Material CRM

M6032

R: 8/5/24

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CERTIFIED WEIGHT REPORT:

Part Number:	**57056**		**Lot #**		
Lot Number:	**010924**	**Solvent:**	24002546	Nitric Acid	
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		

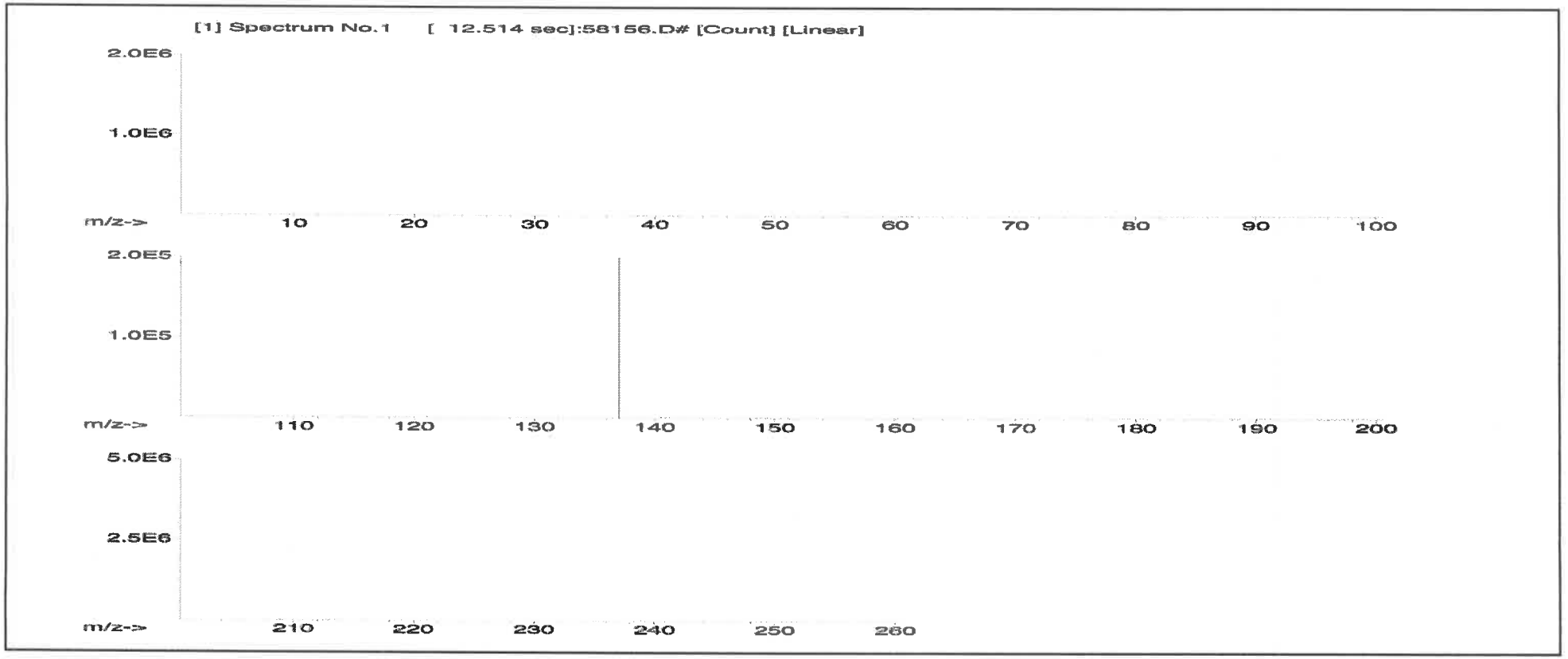
Giovanni Esposito

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



222 of 379
Q3016-METALS

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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: 8/5/24

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CERTIFIED WEIGHT REPORT:

Part Number: 57048
Lot Number: 070124
Description: Cadmium (Cd)

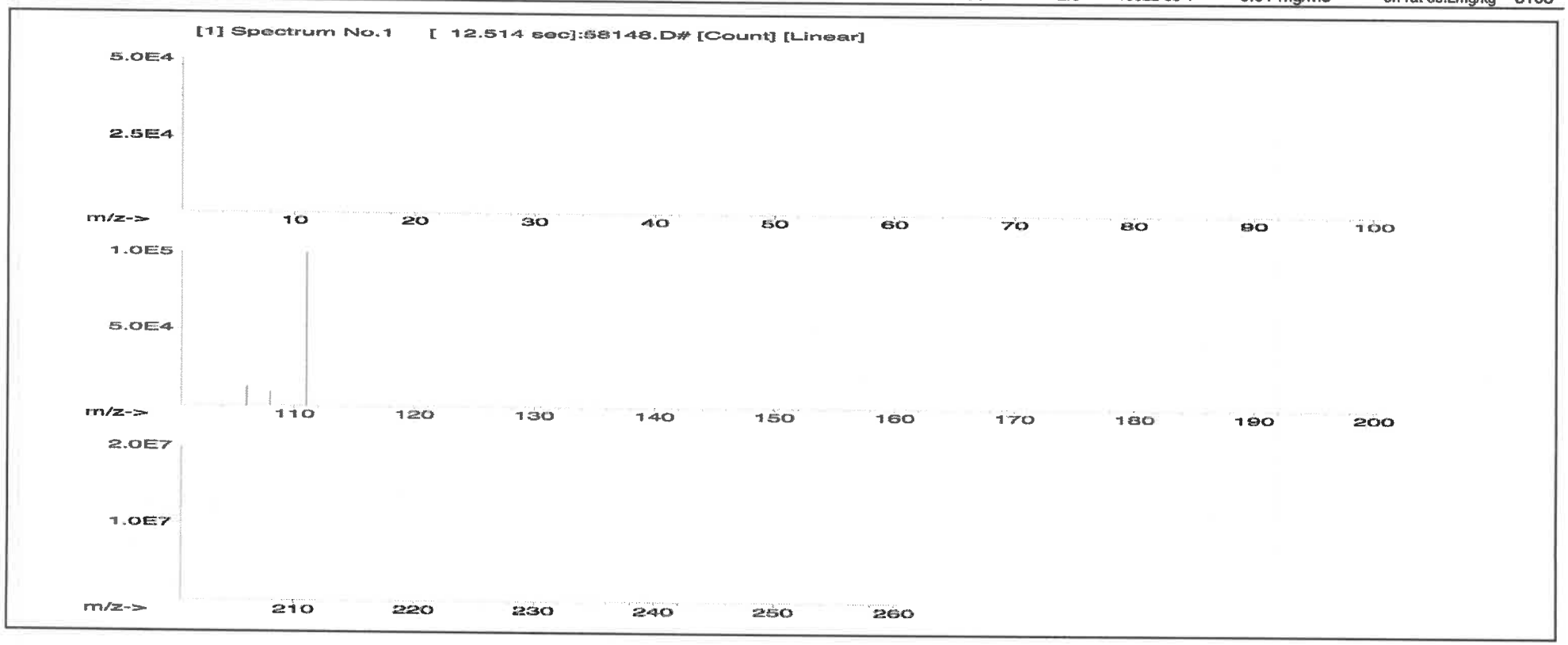
Expiration Date: 070127
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.07

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	
	5E-05	Balance Uncertainty	
	0.100	Flask 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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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.
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* 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

M6026

R: 8/15/24

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CERTIFIED WEIGHT REPORT:

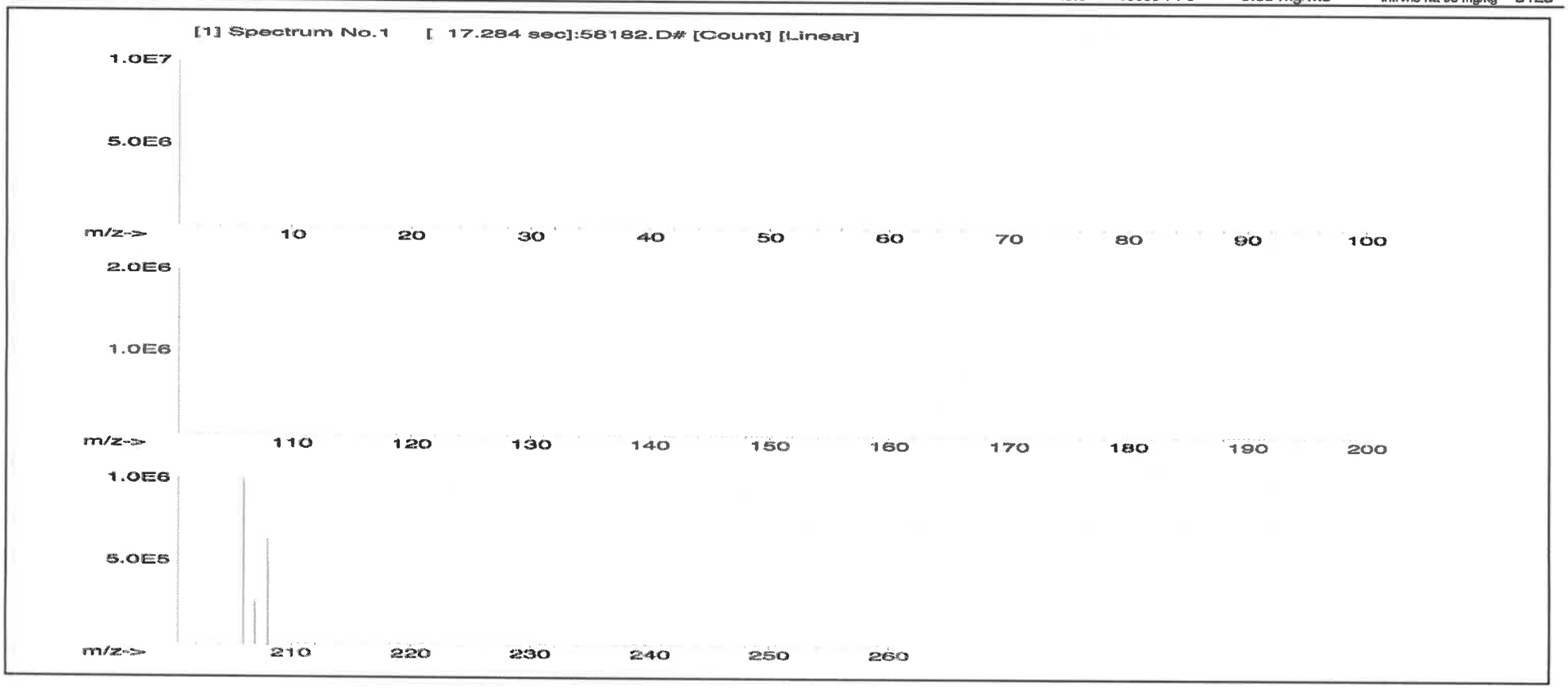
Part Number: 57182
Lot Number: 110923
Description: Lead (Pb)

Expiration Date: 110926
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:	24002546	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	
	5E-05	Balance Uncertainty	
	0.058	Flask Uncertainty	

Formulated By:	Lawence Barry	110923
Reviewed By:	Pedro L. Rentas	110923

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	10000	99.999	0.10	62.5	32.0006	32.0040	**10001.1**	**20.0**	10099-74-8	0.05 mg/m3	intrvns-rat 93 mg/kg	3128



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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	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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Potassium Permanganate
BAKER ANALYZED® A.C.S. Reagent
Suitable for Mercury Determination

avantor™ | J.T.Baker®

M4397
Supplied – 07.17.19
Opened – 08.16.19
exp – 09.24.25

Material No.: 3227-05
Batch No.: 0000227540
Manufactured Date: 2018/09/26
Retest Date: 2025/09/24
Revision No: 1

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
ACS - Assay ($KMnO_4$)	>= 99.0 %	99.0
ACS - Insoluble Matter	<= 0.2 %	< 0.1
ACS - Chloride and Chlorate (as Cl)	<= 0.005 %	0.005
ACS - Sulfate (SO_4)	<= 0.02 %	0.02
Trace Impurities - Mercury (Hg)	<= 0.050 ppm	0.004

For Laboratory, Research or Manufacturing Use

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

RS
08.16.19

James Ethier
Jamie Ethier
Vice President Global Quality

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

M4913-16
MB

Certificate of Analysis

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

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

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

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

Julian Burton

Julian Burton - Quality Control Manager – Fair Lawn

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

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Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

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F: 540-585-3012
info@inorganicventures.com

M5062
M5063
M3

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

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

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.001 ± 0.053 µg/mL

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

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

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

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

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 22, 2021

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

11.2 Lot Expiration Date

- September 22, 2026

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Supervisor, Product Documentation



Certificate Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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Certified Reference Material CRM

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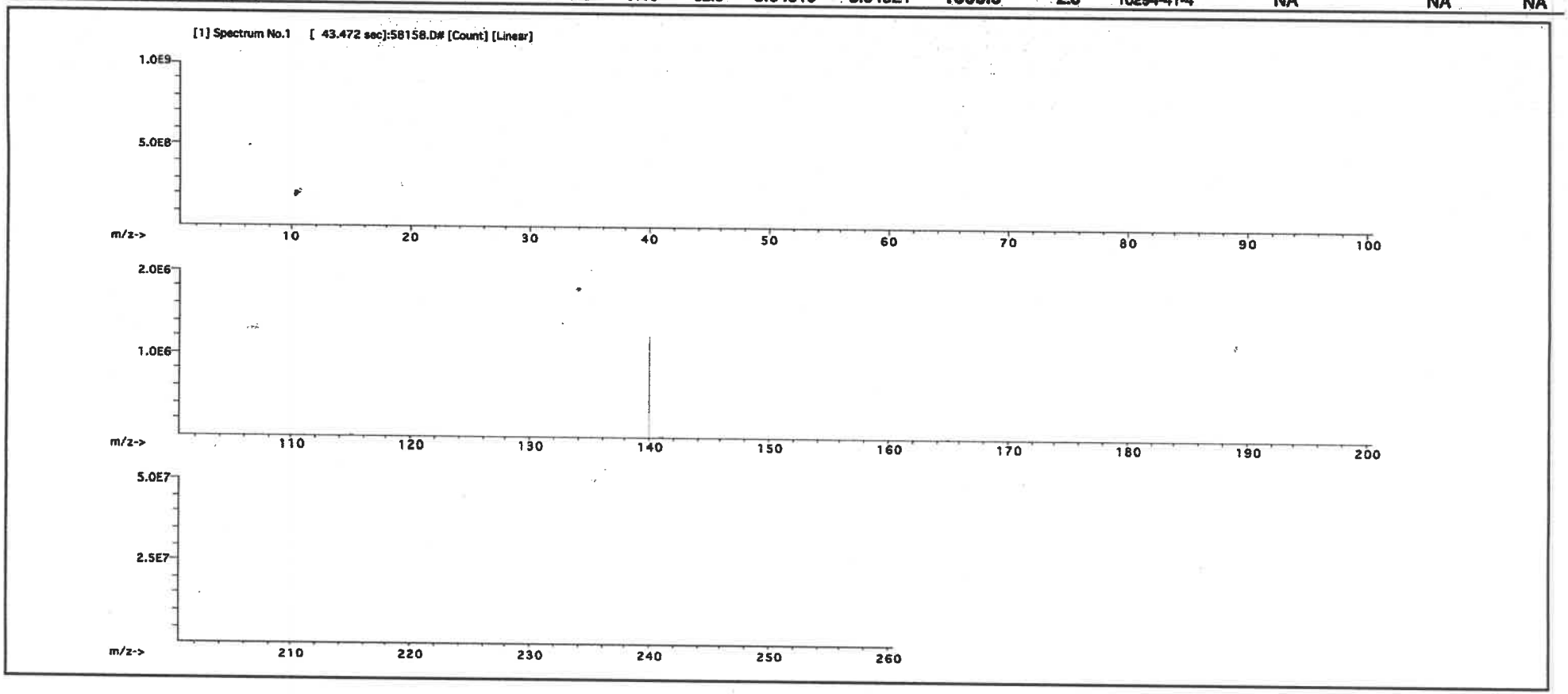
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CERTIFIED WEIGHT REPORT:

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



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	T	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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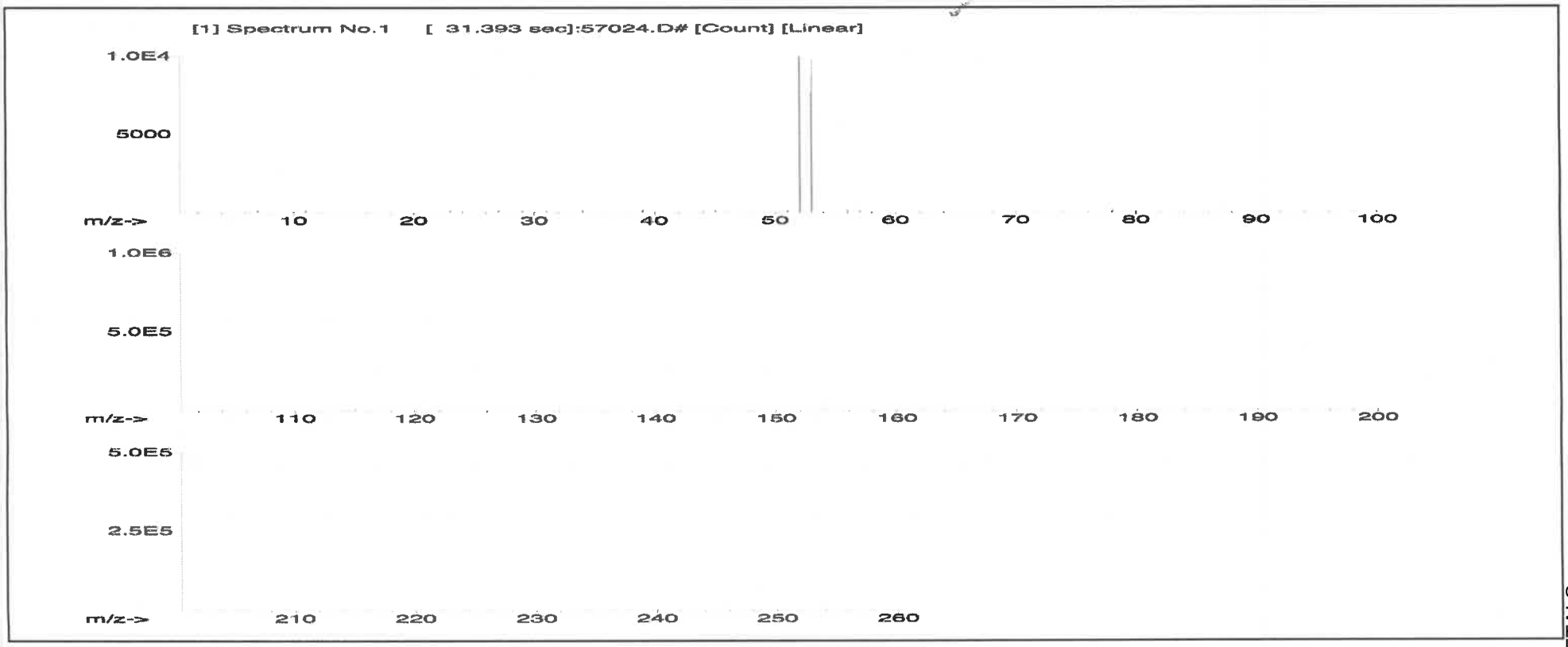
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CERTIFIED WEIGHT REPORT:

		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.
* 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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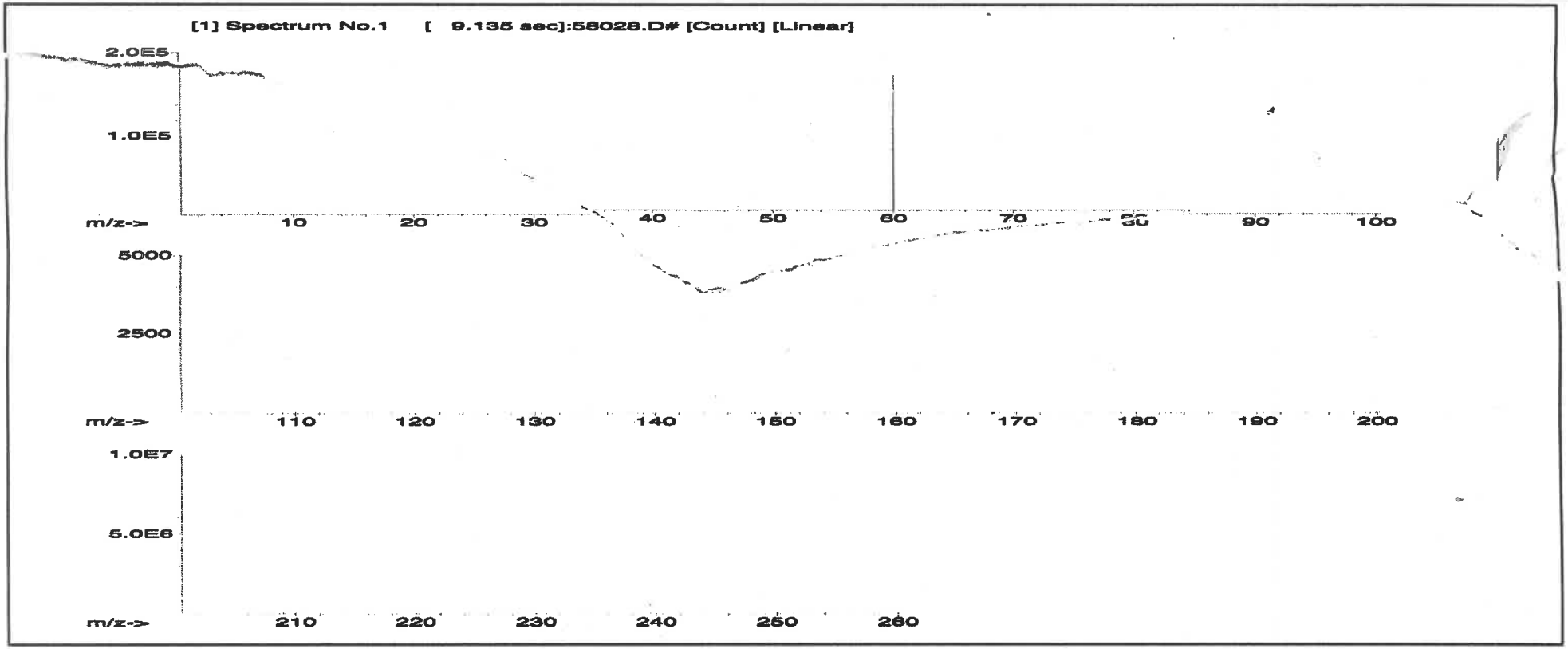
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CERTIFIED WEIGHT REPORT:

		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).
* 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).

Q3016-METALS

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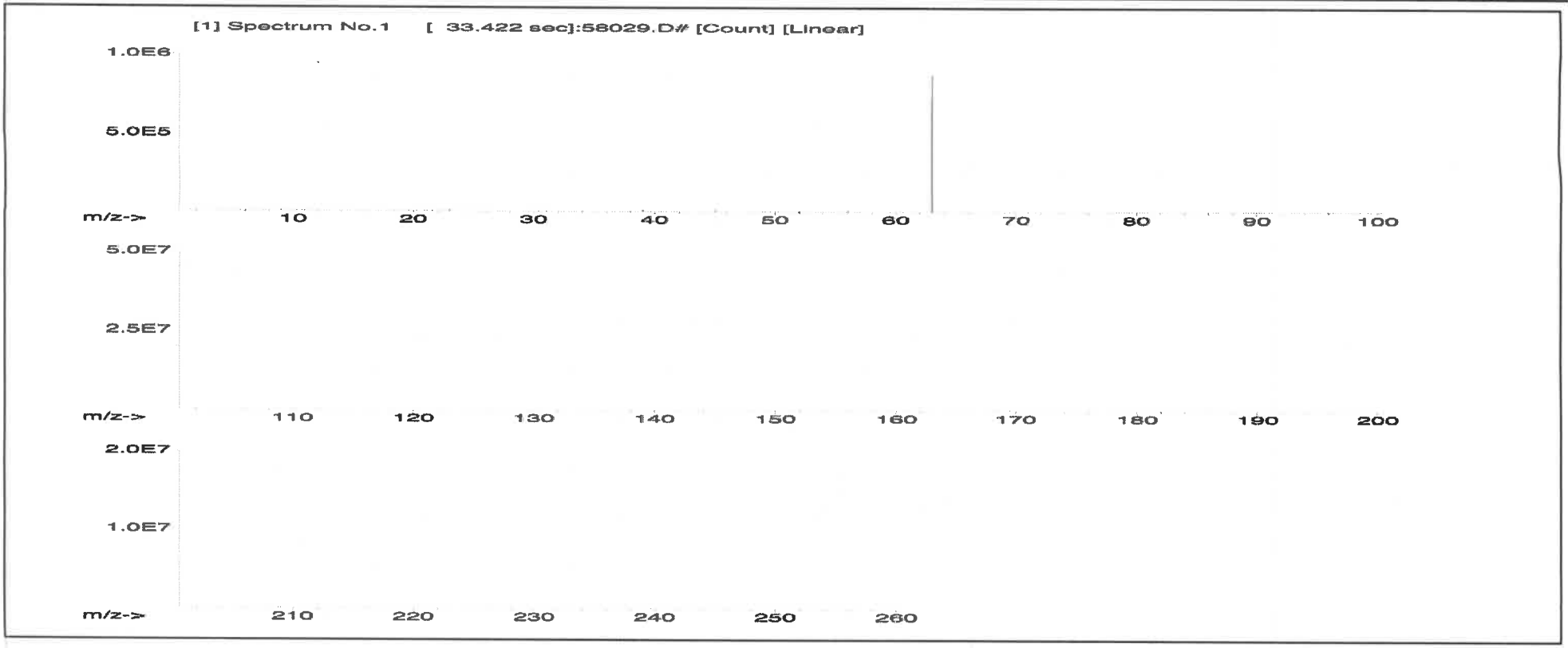
CERTIFIED WEIGHT REPORT:

Part Number:	58029
Lot Number:	071723
Description:	Copper (Cu)
Expiration Date:	071726
Recommended Storage:	Ambient (20 °C)
Nominal Concentration (µg/mL):	1000
NIST Test Number:	6UTB
Volume shown below was diluted to (mL):	2000.02

Lot #	Solvent:		
21110221	Nitric Acid		
2.0%	40.0 (mL)	Nitric Acid	
5E-05	Balance Uncertainty		
0.058	Flask Uncertainty		

Formulated By:	Benson Chan	071723
Reviewed By:	Pedro L. Rentas	071723

	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	022723	0.1000	200.0	0.084	1000	10000.5	**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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* 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 M5798

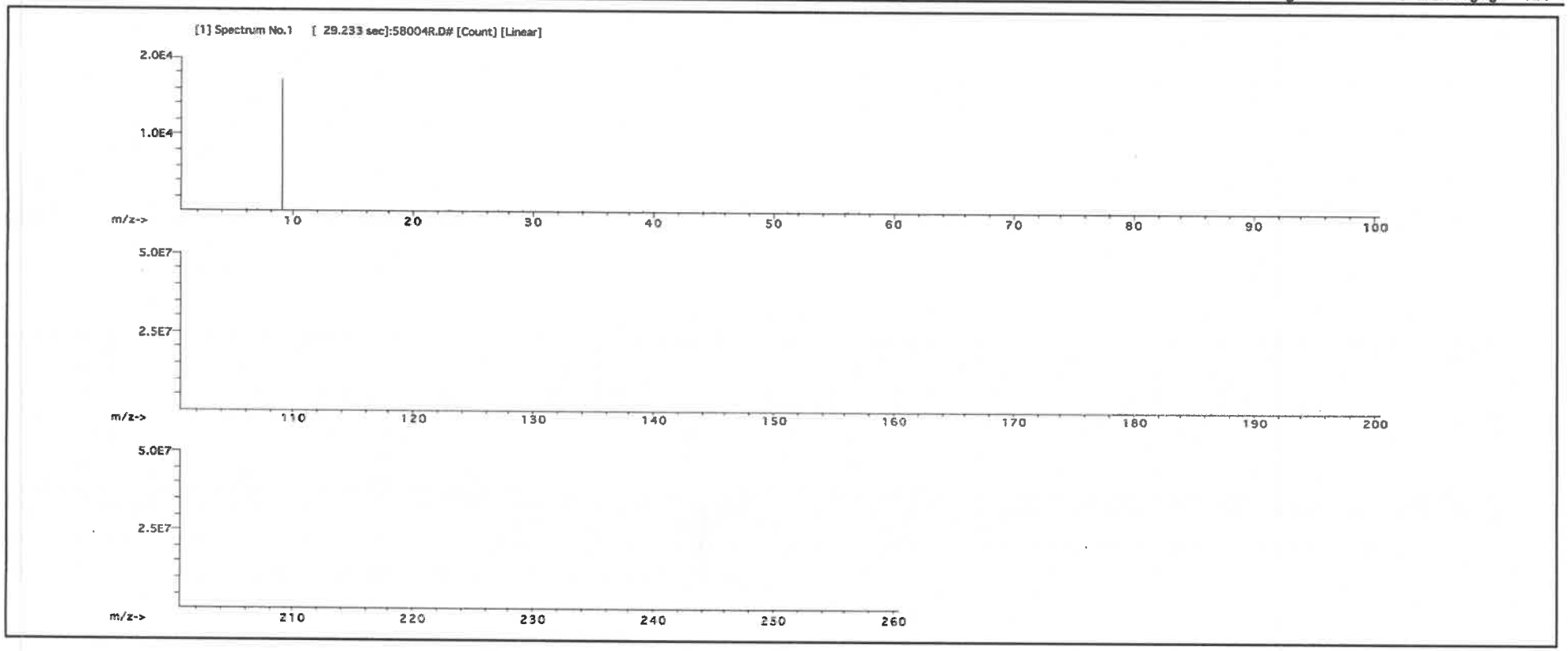
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CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57004**	24002546	Nitric Acid	
Lot Number:	**102523**			
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



Q3016-METALS

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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* 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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* 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:

Part Number: 57050
Lot Number: 071123
Description: Tin (Sn)

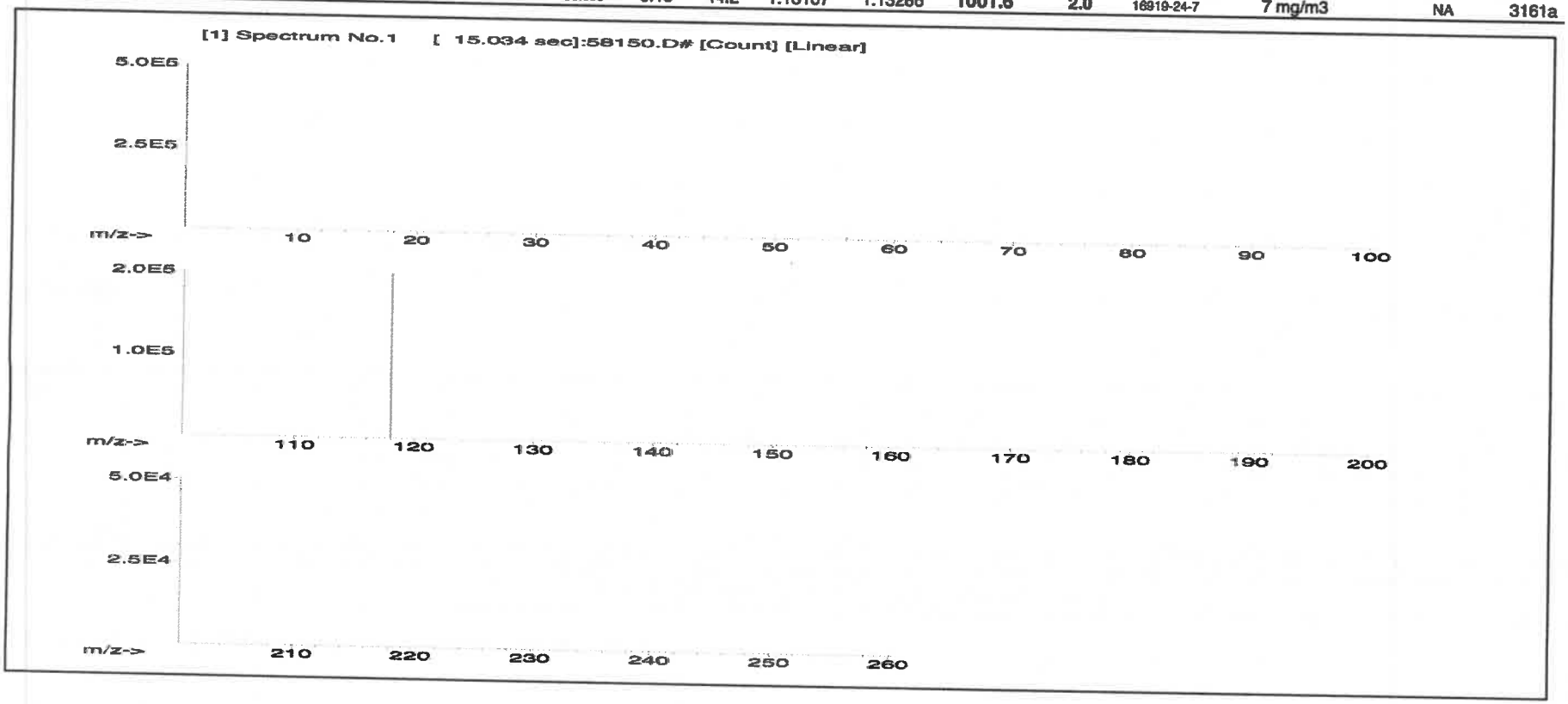
Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 499.93

Solvents:	Lot #	
	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:

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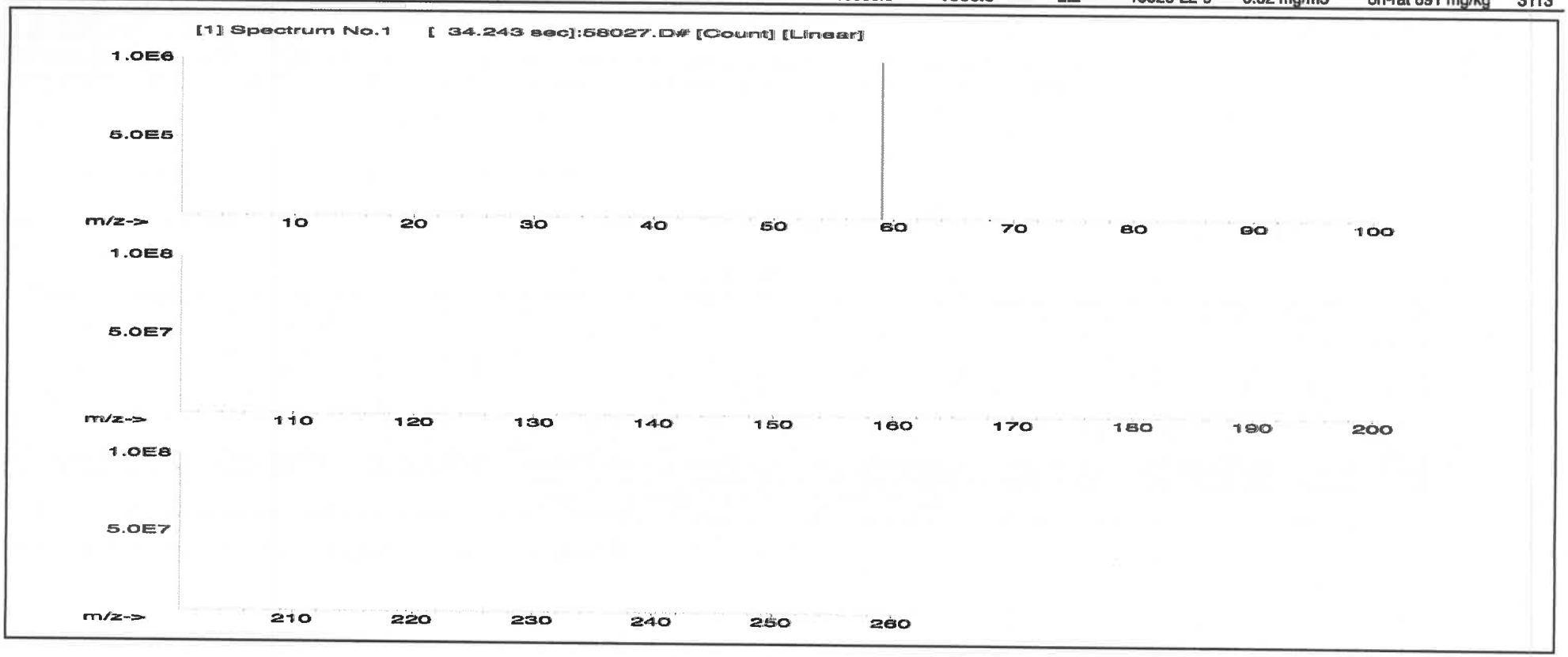
CERTIFIED WEIGHT REPORT:

		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.

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CERTIFIED **WEIGHT** REPORT:

Part Number: 57033
Lot Number: 111323
Description: Arsenic (As)

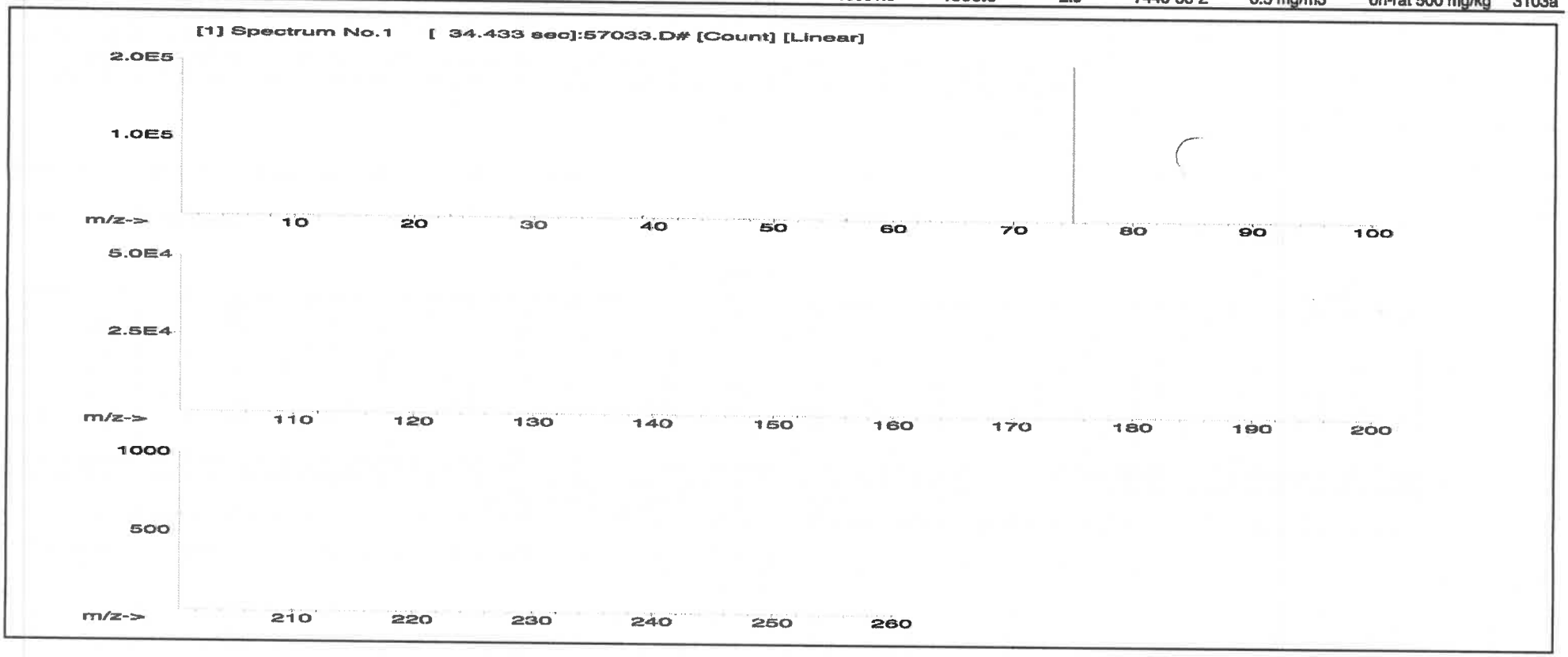
Expiration Date: 111326
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 4000.0

Lot #	Solvent:		
24002546	Nitric Acid		
2.0%	80.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty
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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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

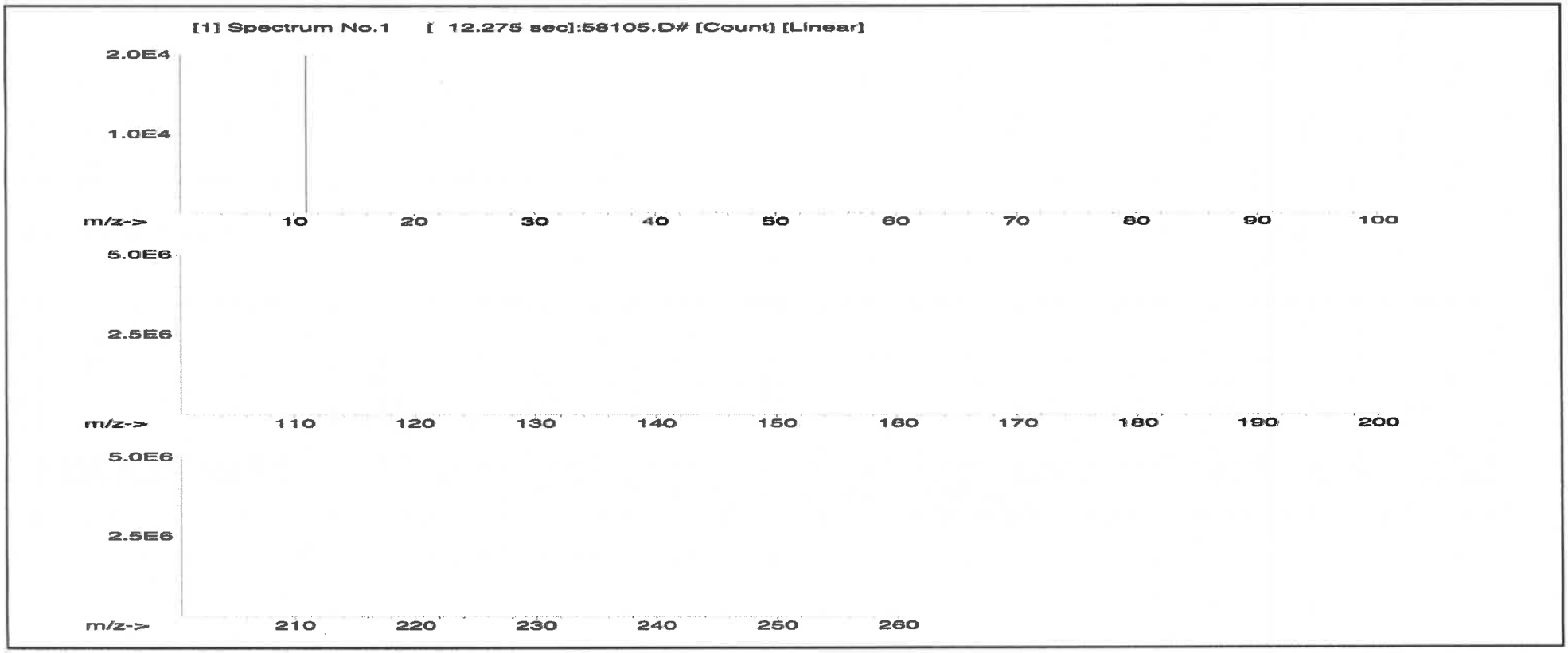
	Lot #			
Solvent:	MKBQ8597V	Ammonium hydroxide		
	2.0%	40.0 (mL)	Ammonium hydroxide	

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:

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CERTIFIED WEIGHT REPORT:

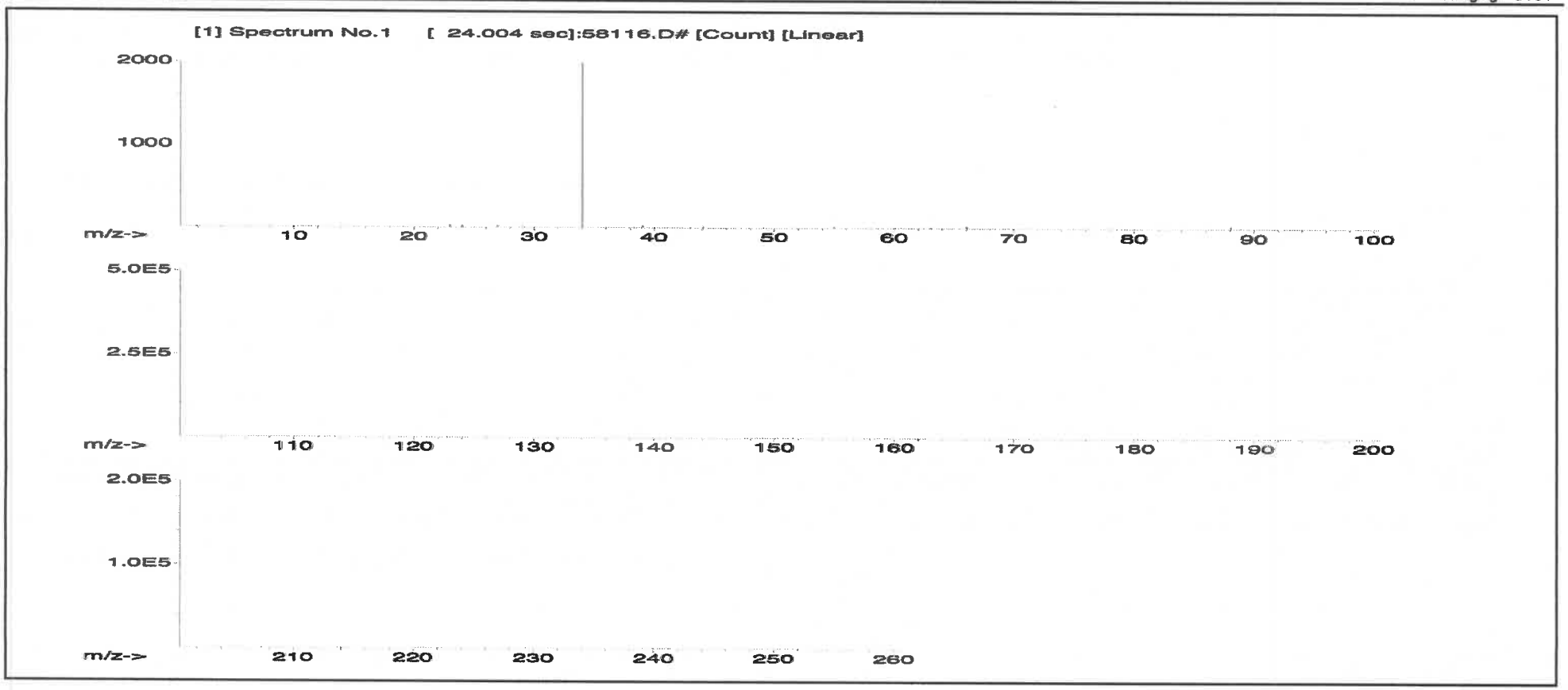
Part Number: 57116
Lot Number: 071123
Description: Sulfur (S)

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	ori-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.
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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: 02/09/24 M5820

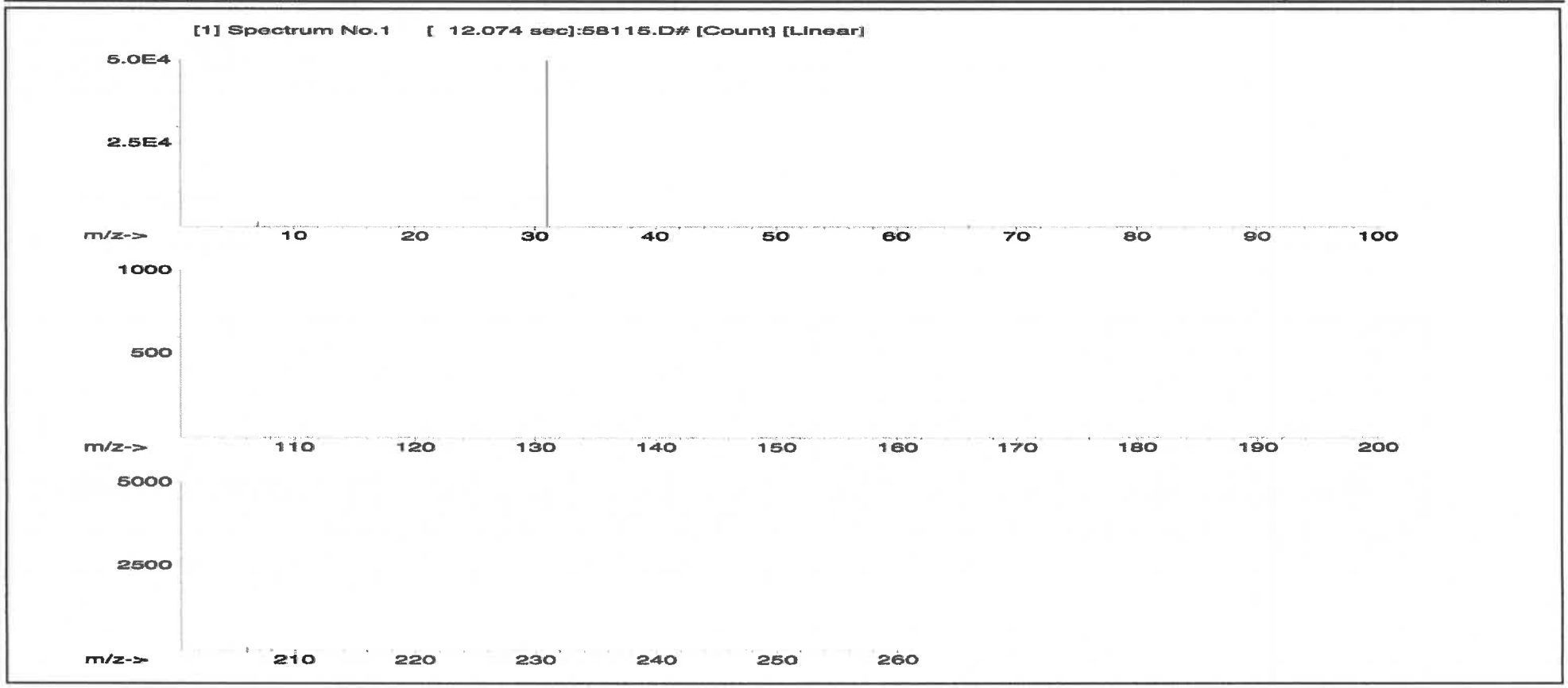
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CERTIFIED WEIGHT REPORT:

Part Number:	**57015**		**Lot #**		
Lot Number:	**091123**	**Solvent:**	24002546	Nitric Acid	
Description:	**Phosphorous (P)**				
		2%	40.0 (mL)	Nitric Acid	
Expiration Date:	091126				
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		

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

(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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* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
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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).

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
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M5923 R: 01/10/24

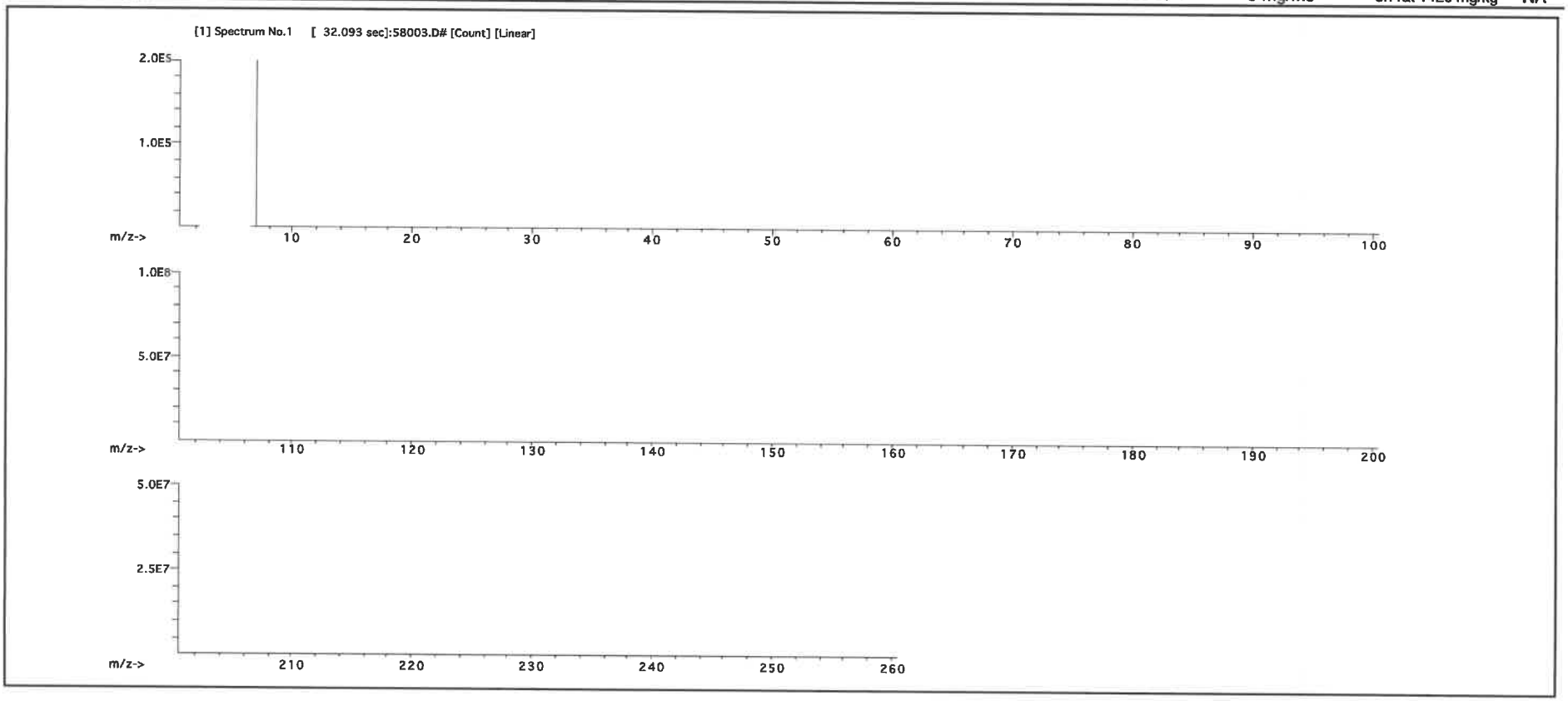
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CERTIFIED WEIGHT REPORT:

Part Number:	**57003**		**Lot #**	
Lot Number:	**102423**	**Solvent:**	24002546	Nitric Acid
Description:	**Lithium (Li)**	2%	40.0 (mL)	Nitric Acid
Expiration Date:	102426			
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	

Formulated By:	Lawrence Barry	102423
Reviewed By:	Pedro L. Rentas	102423

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	1000	99.999	0.10	10.0	20.0004	20.0006	**1000.0**	**2.0**	7790-69-4	5 mg/m3	orl-rat 1426 mg/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	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.
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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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M5962 R! 06/14/24.

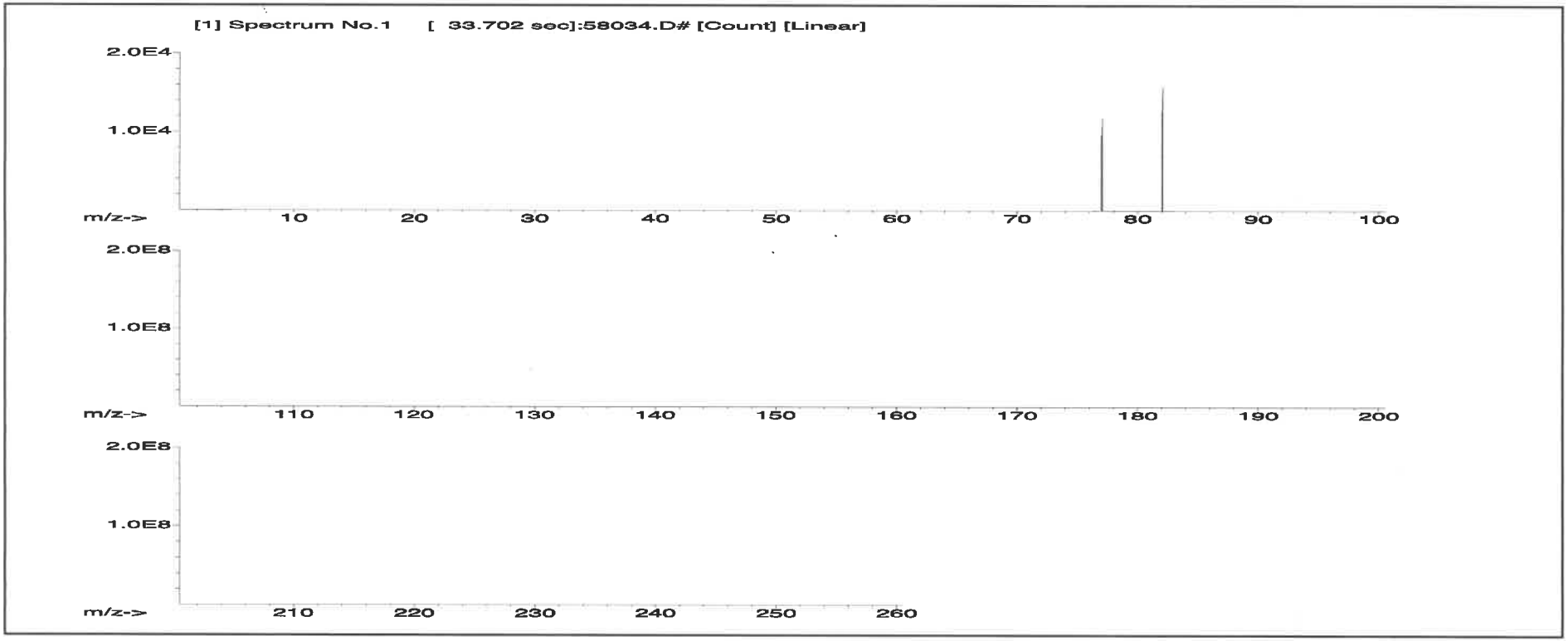
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CERTIFIED WEIGHT REPORT:

		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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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:

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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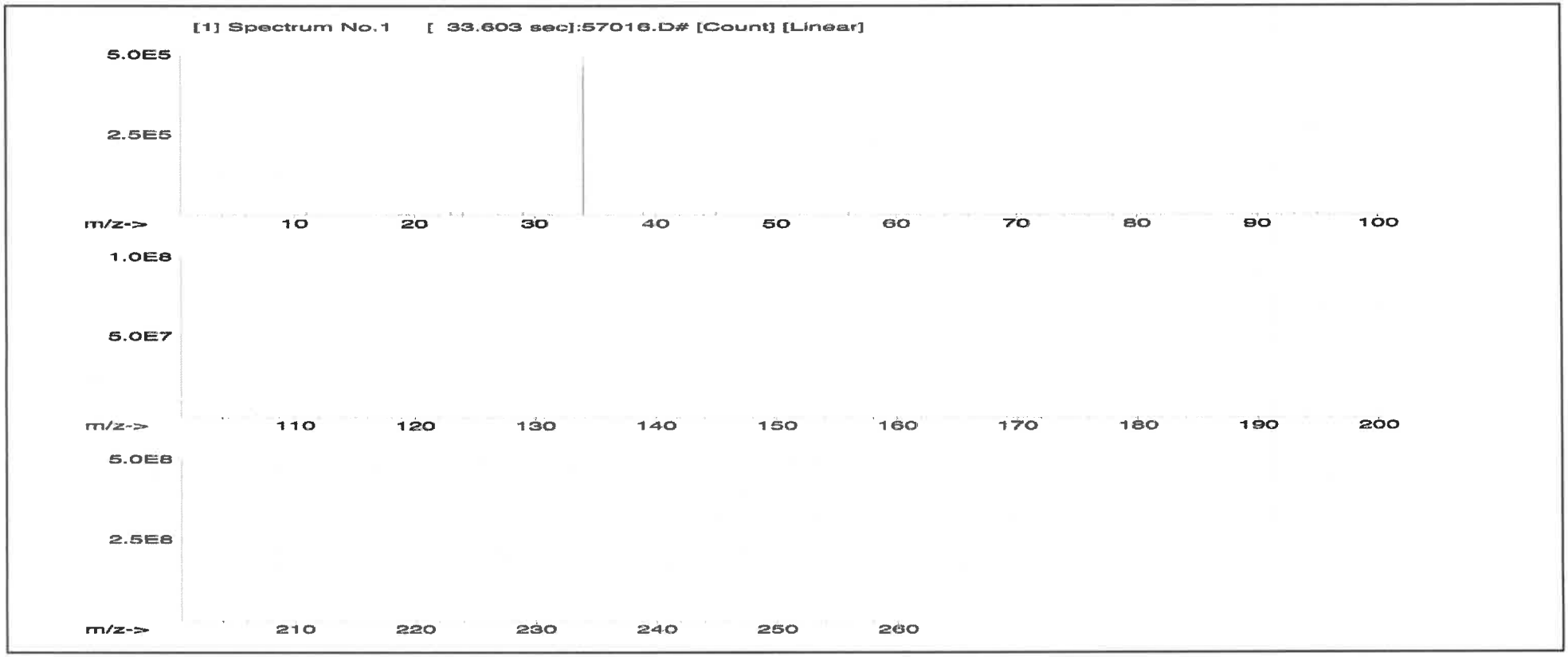
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CERTIFIED WEIGHT REPORT:

Part Number:	**57016**	**Solvent:**	**Lot #** 122923	ASTM Type 1 Water
Lot Number:	**122923**			
Description:	**Sulfur (S)**			
Expiration Date:	122926			
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):	4000.0	0.06	Flask 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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M5970, M5971 R: 7/01/24

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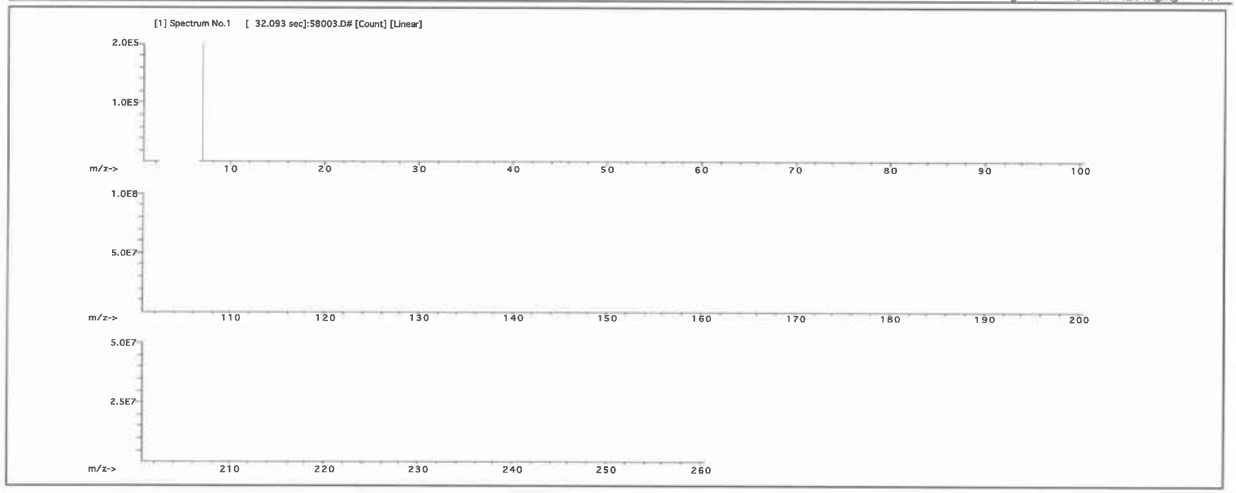
CERTIFIED WEIGHT REPORT:

		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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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.
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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 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		

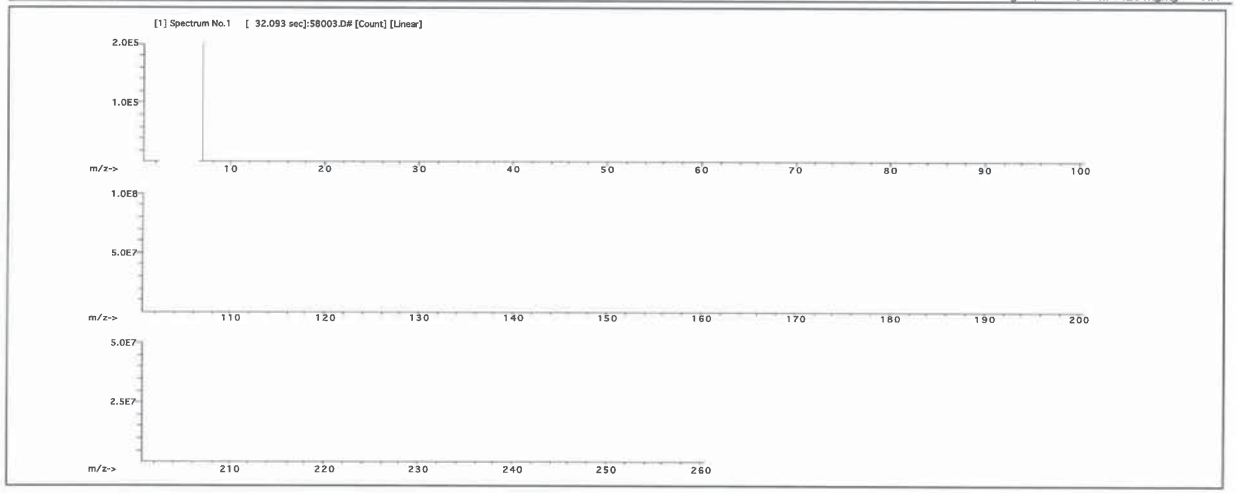
Giovanni Esposito

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
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	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

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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, $X_{CRM/MM}$, 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 + K2SO7 - 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: 800.669.6799; 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

June 17, 2022

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

11.2 Lot Expiration Date

- June 17, 2027

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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1.0 ACCREDITATION / REGISTRATION

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

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



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Certificate of Analysis

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R: 2/22/24
MS-997

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-3
Lot Number:	T2-MEB727800
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 ± 7 µg/mL**	**Cadmium, Cd**	**500.0 ± 2.2 µg/mL**
Lead, Pb	**1 000 ± 4 µg/mL**	**Selenium, Se**	**1 000 ± 6 µg/mL**
Thallium, Tl	**1 000 ± 7 µg/mL**		

Density: 1.042 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
As	ICP Assay	3103a	100818
As	Calculated		See Sec. 4.2
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 (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

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)

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**

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

December 21, 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

- December 21, 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

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-MEB746172
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: 1.032 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 (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

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)

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

August 12, 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

- August 12, 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



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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) HNO_3 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

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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



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:

R->1/13/25
M6128

Part Number: 58025
Lot Number: 101124
Description: Manganese (Mn)
Expiration Date: 101127
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

		Lot #	
Solvent:	24002546	Nitric Acid	
	2%	80.0 (mL)	Nitric Acid

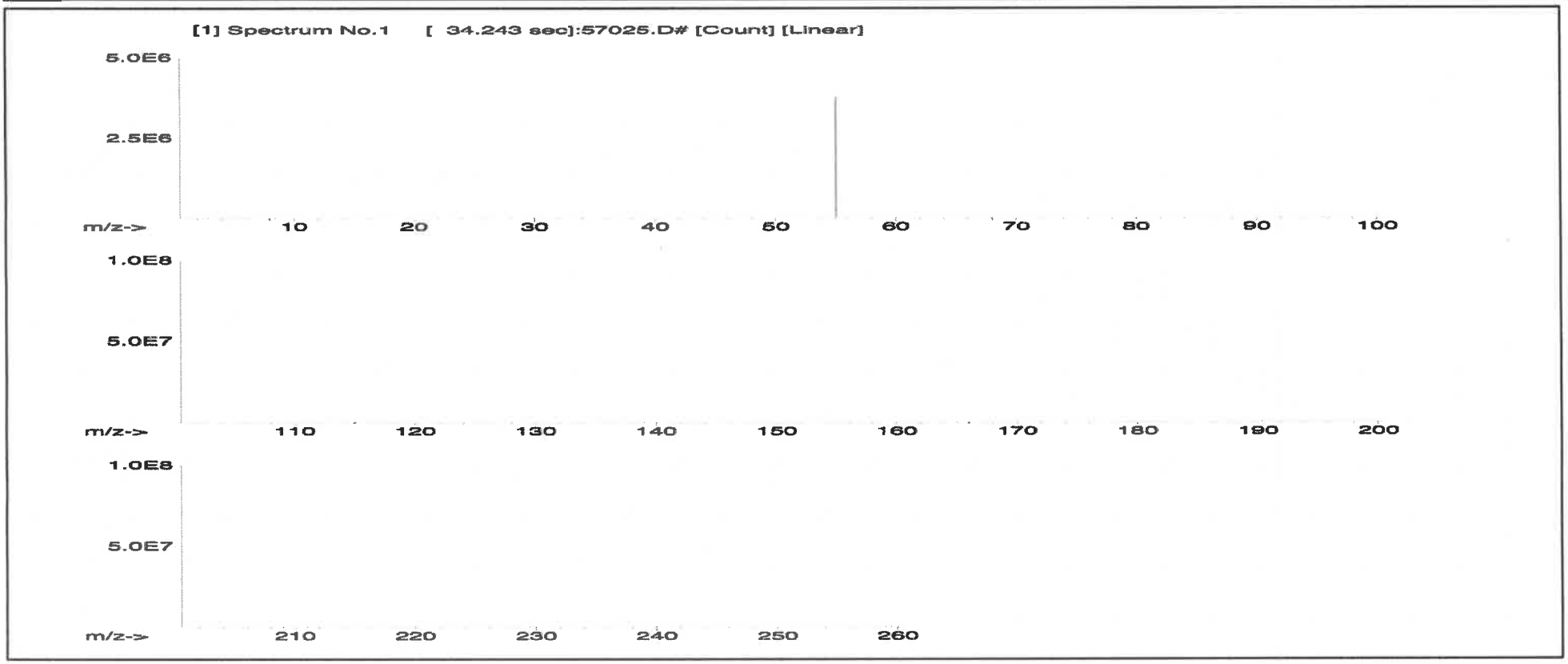
5E-05 Balance Uncertainty

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.

* 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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F: 540-585-3012
info@inorganicventures.com

M6137 R→10/3/24

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 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGSI1
Lot Number:	V2-SI744713
Matrix:	tr. HNO3 tr. HF
Value / Analyte(s):	1 000 µg/mL ea: Silicon
Starting Material:	Silica
Starting Material Lot#:	1771
Starting Material Purity:	99.9981%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 999 ± 6 µg/mL

Density: 1.003 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 **999 ± 5 µg/mL**
ICP Assay NIST SRM Traceable to 3150 Lot Number: S2-SI702546

Assay Method #2 **1000 ± 7 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	<	0.000310	M	Eu	<	0.000310	O	Na		0.001656	M	Se	<	0.022000	M	Zn	<	0.002500
M	Al		0.010787	M	Fe	<	0.027000	M	Nb	<	0.001300	s	Si	<		O	Zr	<	0.001900
M	As	<	0.001900	M	Ga	<	0.001300	M	Nd	<	0.000310	M	Sm	<	0.000310				
M	Au	<	0.000910	M	Gd	<	0.000310	M	Ni	<	0.005500	M	Sn		0.000096				
M	B		0.016180	M	Ge	<	0.001900	M	Os	<	0.000610	O	Sr		0.000092				
M	Ba		0.000096	M	Hf		0.000423	i	P	<		M	Ta		0.002542				
O	Be	<	0.000570	M	Hg	<	0.000610	M	Pb	<	0.000310	M	Tb	<	0.000310				
M	Bi	<	0.000310	M	Ho	<	0.000610	M	Pd	<	0.000610	M	Te	<	0.000910				
O	Ca		0.011557	M	In	<	0.000310	M	Pr	<	0.000310	M	Th	<	0.001900				
M	Cd	<	0.000310	M	Ir	<	0.000310	M	Pt	<	0.000310	M	Ti		0.001078				
M	Ce	<	0.000610	O	K		0.000577	M	Rb	<	0.009100	M	Tl	<	0.000310				
M	Co	<	0.001600	M	La	<	0.000310	M	Re	<	0.000310	M	Tm	<	0.000310				
M	Cr	<	0.010000	O	Li	<	0.000460	M	Rh	<	0.000310	M	U	<	0.000310				
M	Cs	<	0.000310	M	Lu	<	0.000310	M	Ru	<	0.000310	O	V	<	0.001300				
M	Cu	<	0.002500	O	Mg		0.001348	O	S	<	0.570000	M	W	<	0.001900				
M	Dy	<	0.000310	M	Mn	<	0.002500	M	Sb	<	0.000310	M	Y	<	0.000310				
M	Er	<	0.000310	M	Mo	<	0.000310	O	Sc	<	0.000590	M	Yb	<	0.000310				

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 - 28.09 +4 6 Si(OH)x(F)y2-

Chemical Compatibility -Soluble in HCl, HF, H3PO4 H2SO4 and HNO3 as the Si(OH)x(F)y2-. 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 silicic acid (silicic acid is soluble up to ∼100 ppm in water) in all dilute acids except HF.

Stability - 2-100 ppb levels - stability unknown - (alone or mixed with all other metals) as the Si(OH)x(F)y2-. 1-10,000 ppm single element solutions as the Si(OH)x(F)y2- chemically stable for years in 2-5 % HNO3 / trace HF in a LDPE container.

Si Containing Samples (Preparation and Solution) -Metal (Soluble in 1:1:1 H2O / HF / HNO3); Oxide - SiO2, amorphic (dissolve by heating in 1:1:1 H2O / HF / HNO3); Oxide - quartz (fuse in Pt0 with Na2CO3); Geological Samples(fuse in Pt0with Na2CO3 followed by HCl solution of the fuseate); Organic Matrices containing silicates and non volatile silicon compounds (dry ash at 4500C in Pt0 and dissolve by gently warming with 1:1:1 H2O / HF / H2SO4 or fuse / ash with Na2CO3 and dissolve fuseate with HCl / H2O); Silicone Oils - dimethyl silicones depolymerize to form volatile monomer units when heated (Measure directly in alcoholic KOH / xylene mixture where sample is treated first with the KOH at 60-1000C to "unzip" the Si- O-Si polymeric structure or digest with conc. H2SO4 / H2O2 followed by cooling and dissolution of the dehydrated silica with HF.) Note that the direct analysis of silicone oils in an organic solvent will result in false high results due to high vapor pressure of volatile monomer units like hexamethylcyclotrisiloxane. The KOH forms the K2+Si(CH3)2O= salt which is not volatile at room temperature.

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 28 amu	4000 - 8000 ppt	N/A	N2, 12C16O
ICP-OES 212.412 nm	0.02/0.01 µg/mL	1	Hf, Os, Mo, Ta
ICP-OES 251.611 nm	0.012/0.003 µg/mL	1	Ta, U, Zn, Th
ICP-OES 288.158 nm	0.03/0.004 µg/mL	1	Ta, Ce, Cr, Cd, Th

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

July 10, 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

- **July 10, 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

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M6138
R->1/13/25

CERTIFIED WEIGHT REPORT:

Part Number: 58120
Lot Number: 121824
Description: Calcium (Ca)

Expiration Date: 121827
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 4000.1 0.15 Flask Uncertainty

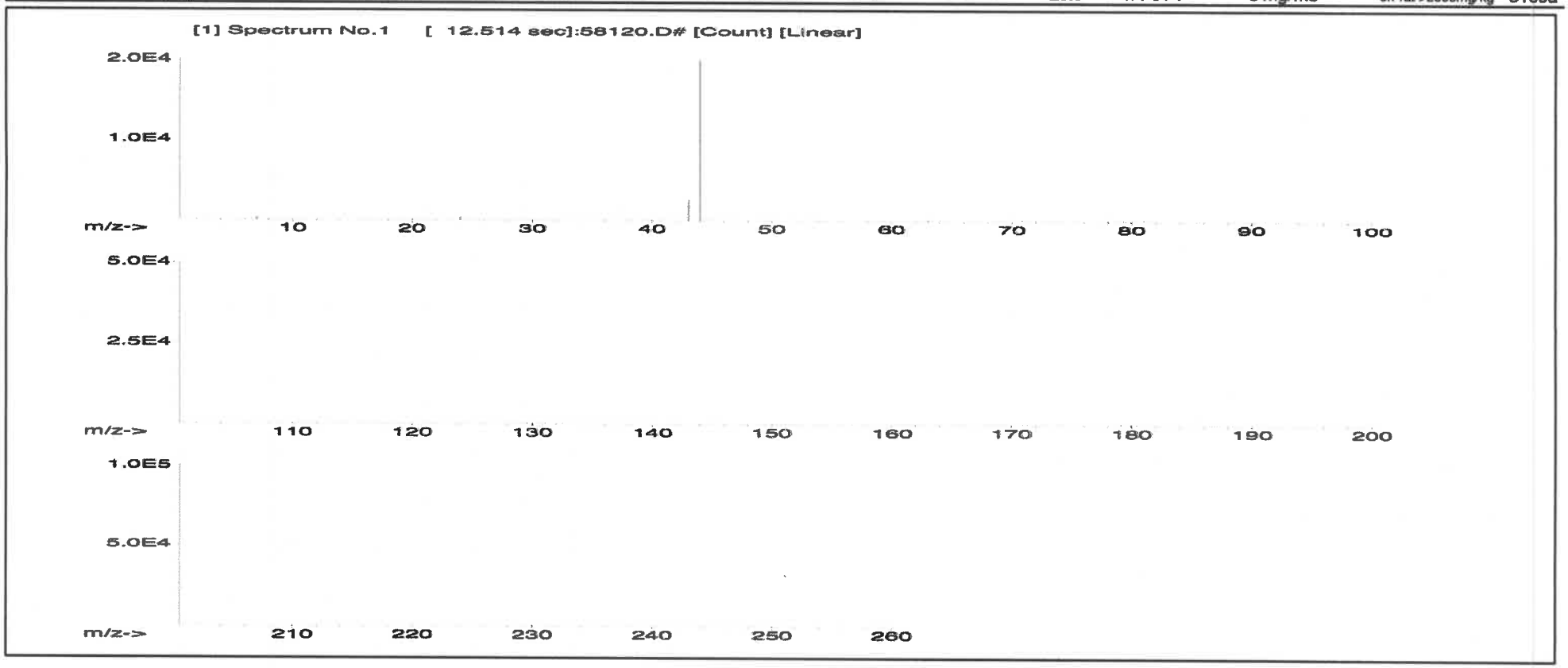
	Lot #			
Solvent:	24012496	Nitric Acid		
2%	80.0 (mL)	Nitric Acid		

5E-05 Balance Uncertainty

Giovanni Esposito

Formulated By:	Giovanni Esposito	121824
Reviewed By:	Pedro L. Rentas	121824

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	CAD03203B3	10000	99.999	0.10	39.9	100.2537	100.2677	**10001.4**	**20.0**	471-34-1	5 mg/m3	orl-rat >2000mg/kg	3109a



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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	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	30	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.
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CERTIFIED WEIGHT REPORT:

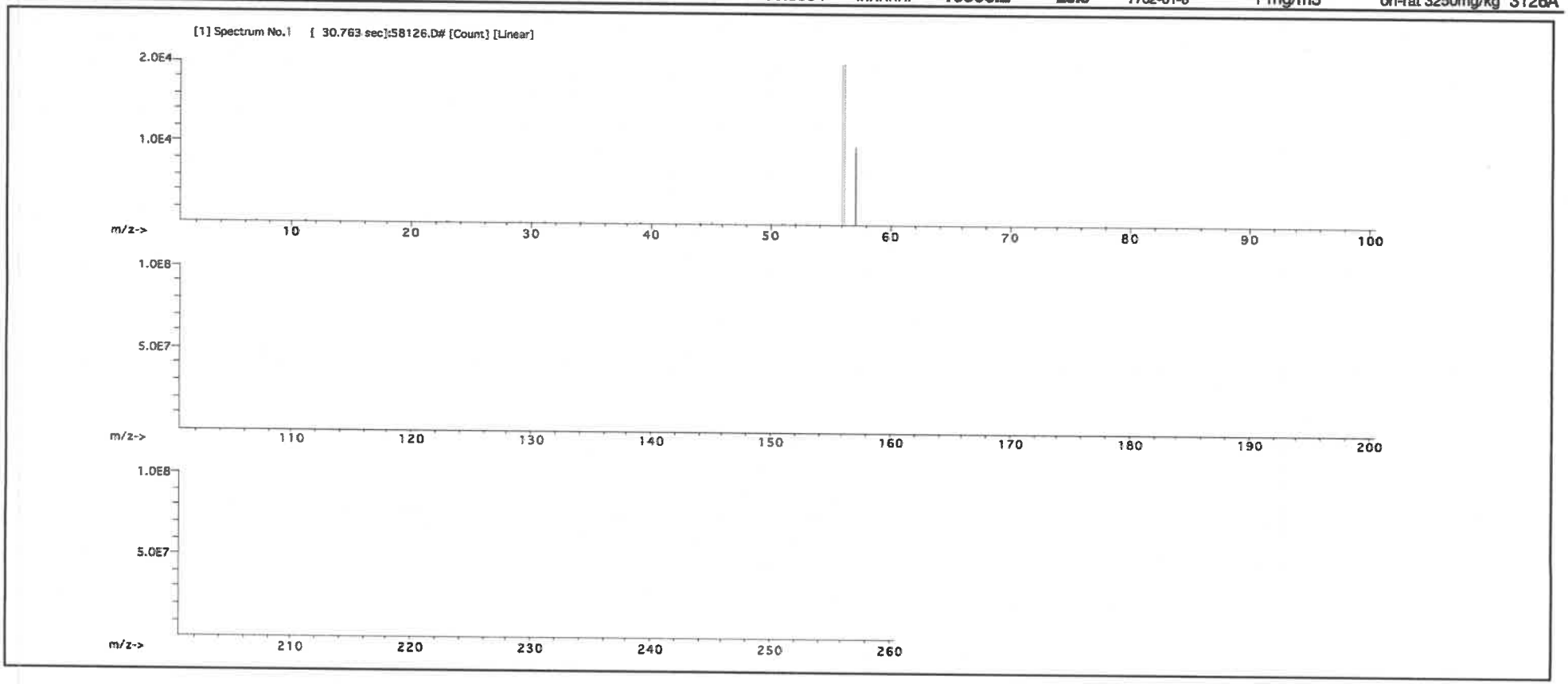
Part Number: 58126 R->1|B|2S
Lot Number: 011025
Description: Iron (Fe) M6140
Expiration Date: 011028
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.07

	Lot #		
Solvent:	24012496	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty
0.100 Flask Uncertainty

Formulated By:	Benson Chan	011025
Reviewed By:	Pedro L. Rentas	011025

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)	IN028	FED082023A1	10000	99.999	0.10	13.0	153.8534	######	**10000.2**	**20.0**	7782-61-8	1 mg/m3	orl-rat 3250mg/kg	3126A



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

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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	T	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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CERTIFIED WEIGHT REPORT:

R-> 1/13/25

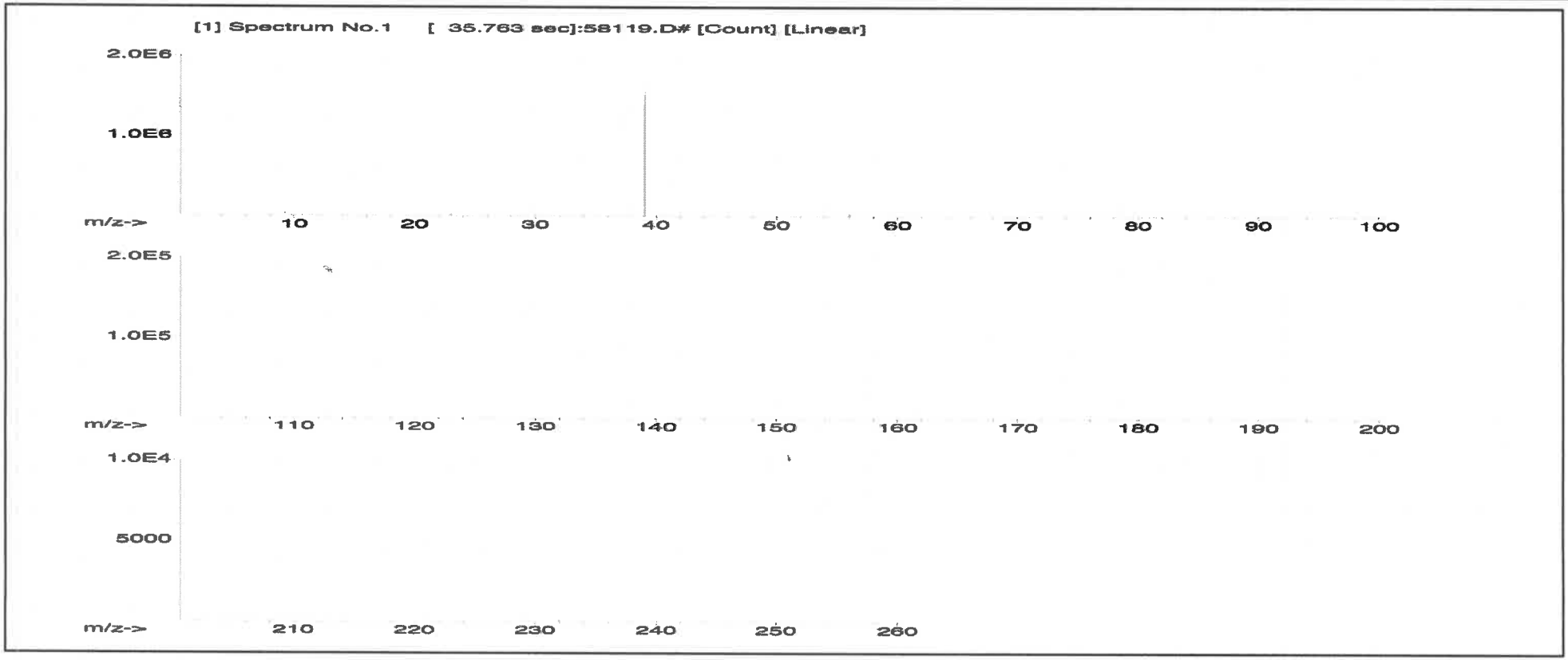
Part Number:	**57119**		**Lot #**		
Lot Number:	**103024**	**Solvent:**	24002546	Nitric Acid	
Description:	**Potassium (K)**				
		2%	80.0 (mL)	Nitric Acid	
Expiration Date:	103027				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**10000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	4000.1	0.15	Flask Uncertainty		

M6141
M6142
M6143

Giovanni Esposito

Formulated By:	Giovanni Esposito	103024
Reviewed By:	Pedro L. Rentas	103024

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	KD062022A1	10000	99.999	0.10	37.7	106.1040	######	**10001.1**	**20.0**	7757-79-1	5 mg/m3	orl-rat 3750 mg/kg	3141a



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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	<0.02	Nd	<0.02	K	T	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 WEIGHT REPORT:

R->1/13/25

Part Number: 58111
Lot Number: 072424
Description: Sodium (Na)

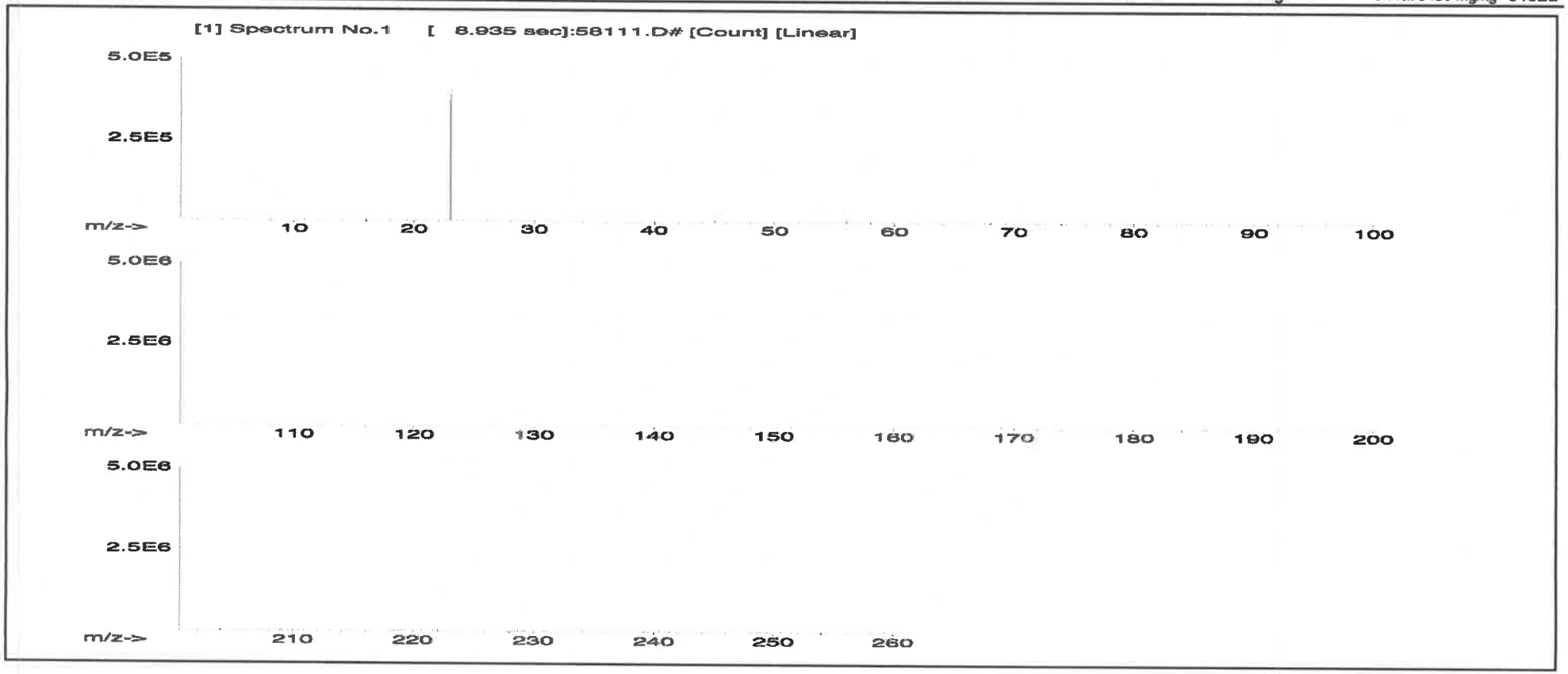
M6144

Expiration Date: 072427
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 4000.2

	Lot #		
Solvent:	24002546	Nitric Acid	
	2%	80.0 (mL)	Nitric Acid
5E-05	Balance Uncertainty		
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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Certified Reference Material CRM

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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	<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.

* 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 WEIGHT REPORT:

Part Number: 58030
Lot Number: 121724
Description: Zinc (Zn)

R → 1/13/25

M6145

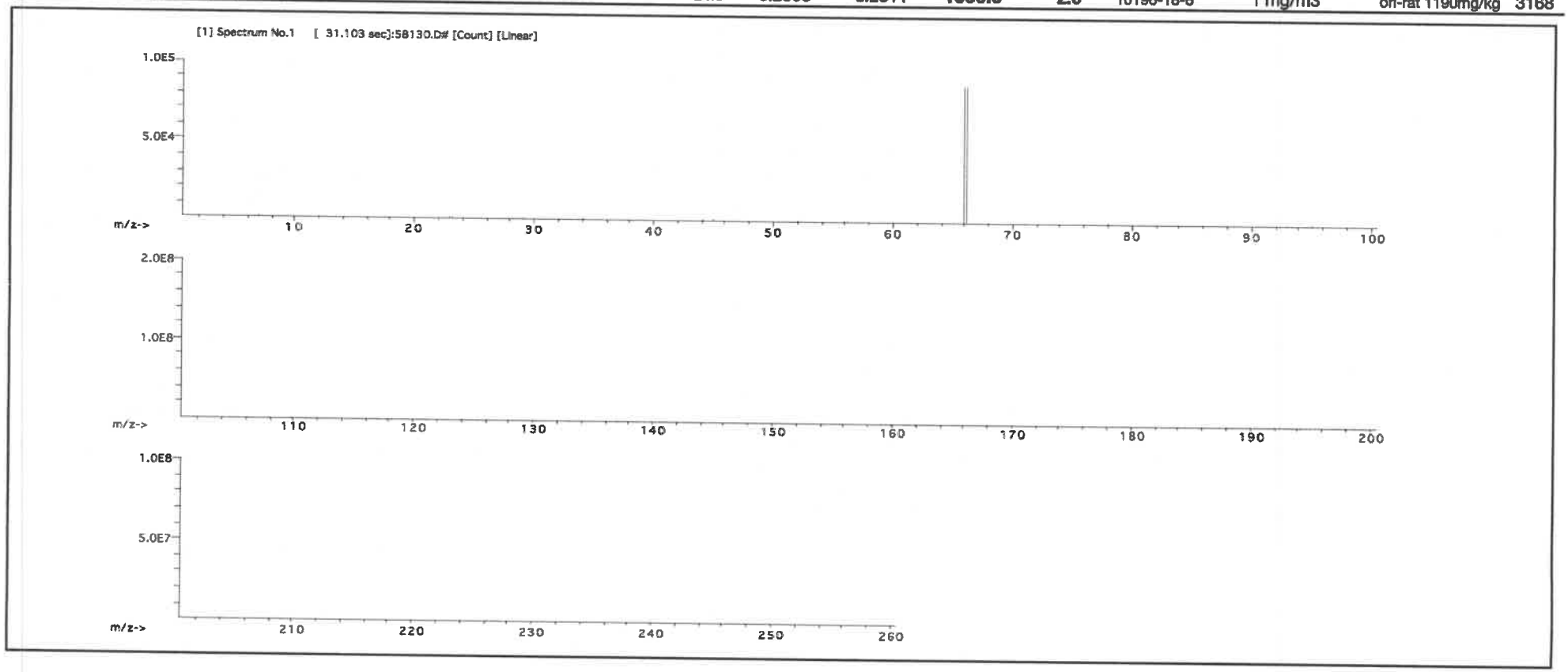
Expiration Date: 121727
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

				Lot #	
Solvent:	24012496	Nitric Acid			
	2%	40.0 (mL)	Nitric Acid		
	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	121724
Reviewed By:	Pedro L. Rentas	121724

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	8.2308	8.2311	**1000.0**	**2.0**	10196-18-6	1 mg/m3	ori-rat 1190mg/kg	3168



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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	<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:

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

avantor™ | J.T.Baker®

M6151

R-> 1/15/25

Material No.: 9530-33
Batch No.: 22G2862015
Manufactured Date: 2022-06-15
Retest Date: 2027-06-14
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid-base titrn)	36.5 – 38.0 %	37.9 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.191
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl_2)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO_4)	≤ 0.05 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO_3)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH_4)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	1.3 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	< 5.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	163.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.7 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	0.6 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	6 ppb

>>> Continued on page 2 >>>

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

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 22G2862015

Test	Specification	Result
Trace Impurities – Lead (Pb)	≤ 1.0 ppb	< 0.5 ppb
Trace Impurities – Lithium (Li)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Magnesium (Mg)	≤ 10.0 ppb	2.9 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	0.1 ppb
Trace Impurities – Molybdenum (Mo)	≤ 10.0 ppb	< 3.0 ppb
Trace Impurities – Nickel (Ni)	≤ 4.0 ppb	< 0.3 ppb
Trace Impurities – Niobium (Nb)	≤ 1.0 ppb	0.8 ppb
Trace Impurities – Potassium (K)	≤ 9.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	0.5 ppb
Trace Impurities – Sodium (Na)	≤ 100.0 ppb	2.3 ppb
Trace Impurities – Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Tantalum (Ta)	≤ 1.0 ppb	1.6 ppb
Trace Impurities – Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	4.0 ppb
Trace Impurities – Titanium (Ti)	≤ 1.0 ppb	1.5 ppb
Trace Impurities – Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	0.8 ppb
Trace Impurities – Zirconium (Zr)	≤ 1.0 ppb	0.3 ppb

>>> Continued on page 3 >>>

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

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 22G2862015

Test	Specification	Result

For Laboratory,Research,or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications
Storage Condition: Store below 25 °C.

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

James T Ethier

Jamie Ethier
Vice President Global Quality

Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

M615 MB

avantor™ | J.T.Baker

Material No.: 9673-33
Batch No.: 24I1262013
Manufactured Date: 2024-08-07
Retest Date:2029-08-06
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (H_2SO_4)	95.0 – 98.0 %	96.2 %
Appearance	Passes Test	Passes Test
ACS – Color (APHA)	<= 10	5
ACS – Residue after Ignition	<= 3 ppm	<1 ppm
ACS – Substances Reducing Permanganate(as SO2)	<= 2 ppm	<2 ppm
Ammonium (NH_4)	<= 1 ppm	<1 ppm
Chloride (Cl)	<= 0.1 ppm	<0.1 ppm
Nitrate (NO_3)	<= 0.2 ppm	0.1 ppm
Phosphate (PO_4)	<= 0.5 ppm	<0.1 ppm
Trace Impurities – Aluminum (Al)	<= 30.0 ppb	<5.0 ppb
Arsenic & Antimony (as As)	<= 4.0 ppb	<2.0 ppb
Trace Impurities – Boron (B)	<= 10.0 ppb	<5.0 ppb
Trace Impurities – Cadmium (Cd)	<= 2.0 ppb	<1.0 ppb
Trace Impurities – Chromium (Cr)	<= 6.0 ppb	<1.0 ppb
Trace Impurities – Cobalt (Co)	<= 0.5 ppb	<0.3 ppb
Trace Impurities – Copper (Cu)	<= 1.0 ppb	<1.0 ppb
Trace Impurities – Gold (Au)	<= 10.0 ppb	<5.0 ppb
Heavy Metals (as Pb)	<= 500.0 ppb	<100.0 ppb
Trace Impurities – Iron (Fe)	<= 50.0 ppb	<1.0 ppb
Trace Impurities – Lead (Pb)	<= 0.5 ppb	<0.5 ppb
Trace Impurities – Magnesium (Mg)	<= 7.0 ppb	<1.0 ppb
Trace Impurities – Manganese (Mn)	<= 1.0 ppb	<1.0 ppb
Trace Impurities – Mercury (Hg)	<= 0.5 ppb	<0.1 ppb
Trace Impurities – Nickel (Ni)	<= 2.0 ppb	<0.3 ppb
Trace Impurities – Potassium (K)	<= 500.0 ppb	<10.0 ppb
Trace Impurities – Selenium (Se)	<= 50.0 ppb	7.2 ppb
Trace Impurities – Silicon (Si)	<= 100.0 ppb	12.8 ppb
Trace Impurities – Silver (Ag)	<= 1.0 ppb	<1.0 ppb

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

Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

avantor™ | J.T.Baker

Material No.: 9673-33
Batch No.: 24I1262013

Test	Specification	Result
Trace Impurities - Sodium (Na)	<= 500.0 ppb	<5.0 ppb
Trace Impurities - Strontium (Sr)	<= 5.0 ppb	<1.0 ppb
Trace Impurities - Tin (Sn)	<= 5.0 ppb	1.1 ppb
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	<1.0 ppb

For Laboratory,Research,or Manufacturing Use

Country of Origin: United States
Packaging Site: Phillipsburg Mfg Ctr & DC

Jamie Croak
Director Quality Operations, Bioscience Production

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

Nitric Acid 69%
CMOS

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R-02102/2025

M-6158

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

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

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

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

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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

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:	QCP-CICV-1
Lot Number:	V2-MEB744107
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	2 500 µg/mL ea: Calcium, Potassium, Magnesium, Sodium, 1 000 µg/mL ea: Aluminum, Barium, 500 µg/mL ea: Iron, 250 µg/mL ea: Nickel, Vanadium, Zinc, Cobalt, Manganese, 125 µg/mL ea: Silver, Copper, 100 µg/mL ea: Chromium, 25 µg/mL ea: Beryllium

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
Aluminum, Al	1 000 ± 4 µg/mL	Barium, Ba	1 000 ± 6 µg/mL
Beryllium, Be	24.98 ± 0.12 µg/mL	Calcium, Ca	2 500 ± 8 µg/mL
Chromium, Cr	99.9 ± 0.6 µg/mL	Cobalt, Co	250.2 ± 1.2 µg/mL
Copper, Cu	125.0 ± 0.5 µg/mL	Iron, Fe	500.0 ± 2.2 µg/mL
Magnesium, Mg	2 500 ± 11 µg/mL	Manganese, Mn	249.9 ± 1.1 µg/mL
Nickel, Ni	250.0 ± 1.2 µg/mL	Potassium, K	2 500 ± 11 µg/mL
Silver, Ag	125.0 ± 0.6 µg/mL	Sodium, Na	2 500 ± 11 µg/mL
Vanadium, V	250.0 ± 1.1 µg/mL	Zinc, Zn	249.9 ± 1.1 µg/mL

Density: 1.081 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
Cu	ICP Assay	3114	120618
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	200413
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	ICP 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

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**

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

May 22, 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

- **May 22, 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

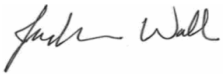
Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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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:	QCP-CICV-2
Lot Number:	U2-MEB733713
Matrix:	3% (w/v) Tartaric acid 1% (v/v) HNO3
Value / Analyte(s):	500 µg/mL ea: Antimony

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
Antimony, Sb	**500.0 ± 2.8 µg/mL**		

Density: 1.017 g/mL (measured at 20 ± 4 ºC)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Sb	ICP Assay	3102a	140911

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.

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7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 01, 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

- June 01, 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

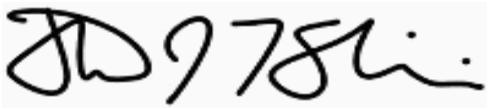
- Sealed TCT Bag Open Date: _____

- 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



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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:	QCP-CICV-3
Lot Number:	V2-MEB749572
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	500 µg/mL ea: Arsenic, Lead, Selenium, Thallium, 250 µg/mL ea: Cadmium

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
Arsenic, As	**500.0 ± 3.1 µg/mL**	**Cadmium, Cd**	**250.1 ± 1.1 µg/mL**
Lead, Pb	**500.0 ± 2.3 µg/mL**	**Selenium, Se**	**500.0 ± 3.2 µg/mL**
Thallium, Tl	**500.0 ± 3.0 µg/mL**		

Density: 1.040 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

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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:

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

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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

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u_{bb} = bottle to bottle homogeneity standard uncertainty

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4.0 TRACEABILITY TO NIST

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4.2 Balance Calibration

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4.3 Glassware Calibration

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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.

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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

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 02, 2025

- 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 02, 2030**

- 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

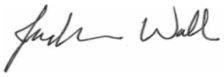
Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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Certified Reference Material CRM

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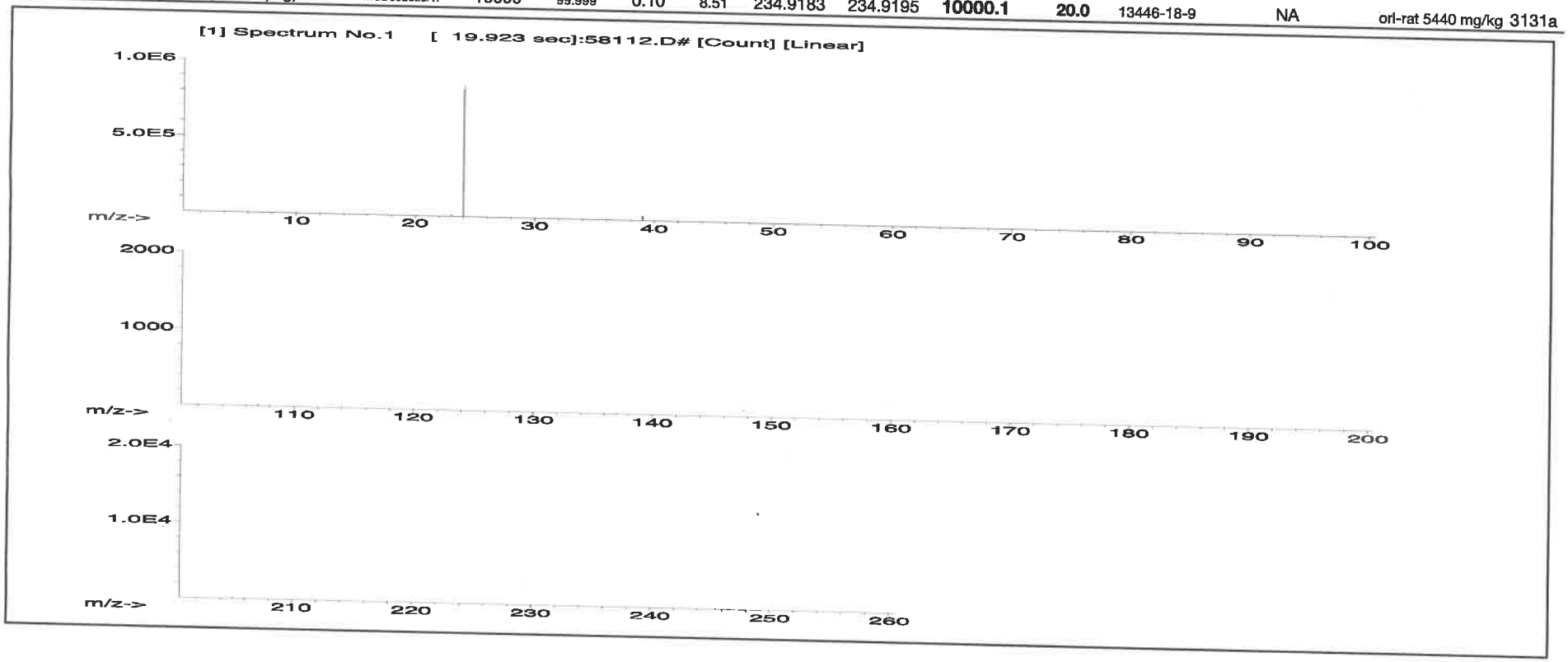
CERTIFIED WEIGHT REPORT:

M 6171

Part Number:	**58112**		**Lot #**		
Lot Number:	**011525**	**Solvent:**	24012496	Nitric Acid	
Description:	**Magnesium (Mg)**				
		2%	40.0 (mL)	Nitric Acid	
Expiration Date:	011528				
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		

Formulated By:	Benson Chan	011525
Reviewed By:	Pedro L. Rentas	011525

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	234.9195	**10000.1**	**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:

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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Certificate of Analysis

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F: 540-585-3012
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M6174
R->5/5/24

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 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:	V2-MEB742428
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	50.03 ± 0.30 µg/mL	Calcium, Ca	5 000 ± 16 µg/mL
Chromium, Cr	200.0 ± 1.1 µg/mL	Cobalt, Co	500.0 ± 2.3 µg/mL
Copper, Cu	250.0 ± 1.1 µg/mL	Iron, Fe	1 000 ± 4 µg/mL
Magnesium, Mg	5 000 ± 22 µg/mL	Manganese, Mn	499.9 ± 2.2 µg/mL
Nickel, Ni	500.1 ± 2.3 µg/mL	Potassium, K	5 000 ± 22 µg/mL
Silver, Ag	250.0 ± 1.1 µg/mL	Sodium, Na	5 000 ± 22 µg/mL
Vanadium, V	500.0 ± 2.2 µg/mL	Zinc, Zn	500.0 ± 2.2 µg/mL

Density: 1.117 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	120618
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	200413
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	ICP 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

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**

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

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 22, 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

- March 22, 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:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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CERTIFIED WEIGHT REPORT:

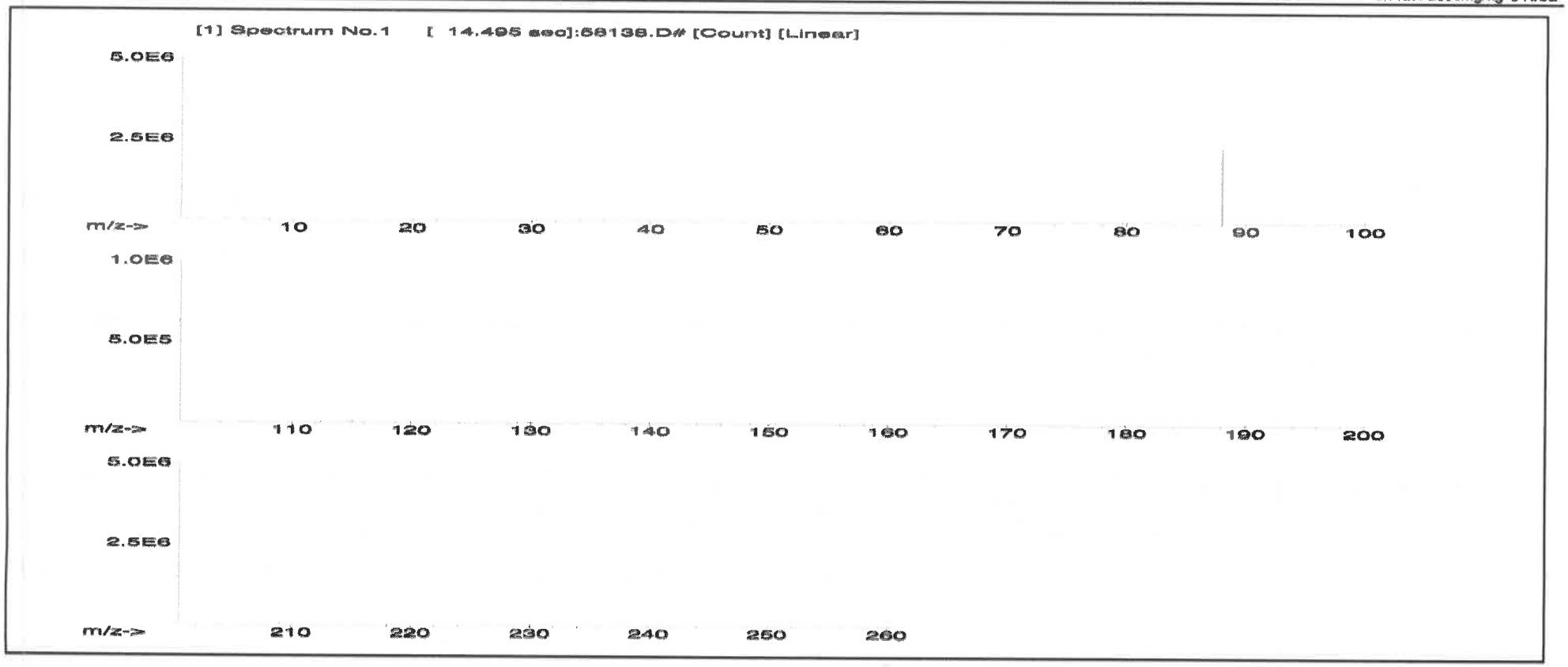
R->8/6/25

M6176

Part Number:	**57038**		**Lot #**		
Lot Number:	**092724**	**Solvent:**	24002546	Nitric Acid	
Description:	**Strontium (Sr)**	2%	40.0 (mL)	Nitric Acid	
Expiration Date:	092727				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty		

Formulated By:	Benson Chan 092724
Reviewed By:	Pedro L. Rentas 092724

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. Strontium nitrate (Sr)	IN017	SRZ022018A1	1000	99.997	0.10	41.2	4.85470	4.85481	**1000.0**	**2.0**	10042-76-9	NA	orl-rat >2000mg/kg	3153a



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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	T	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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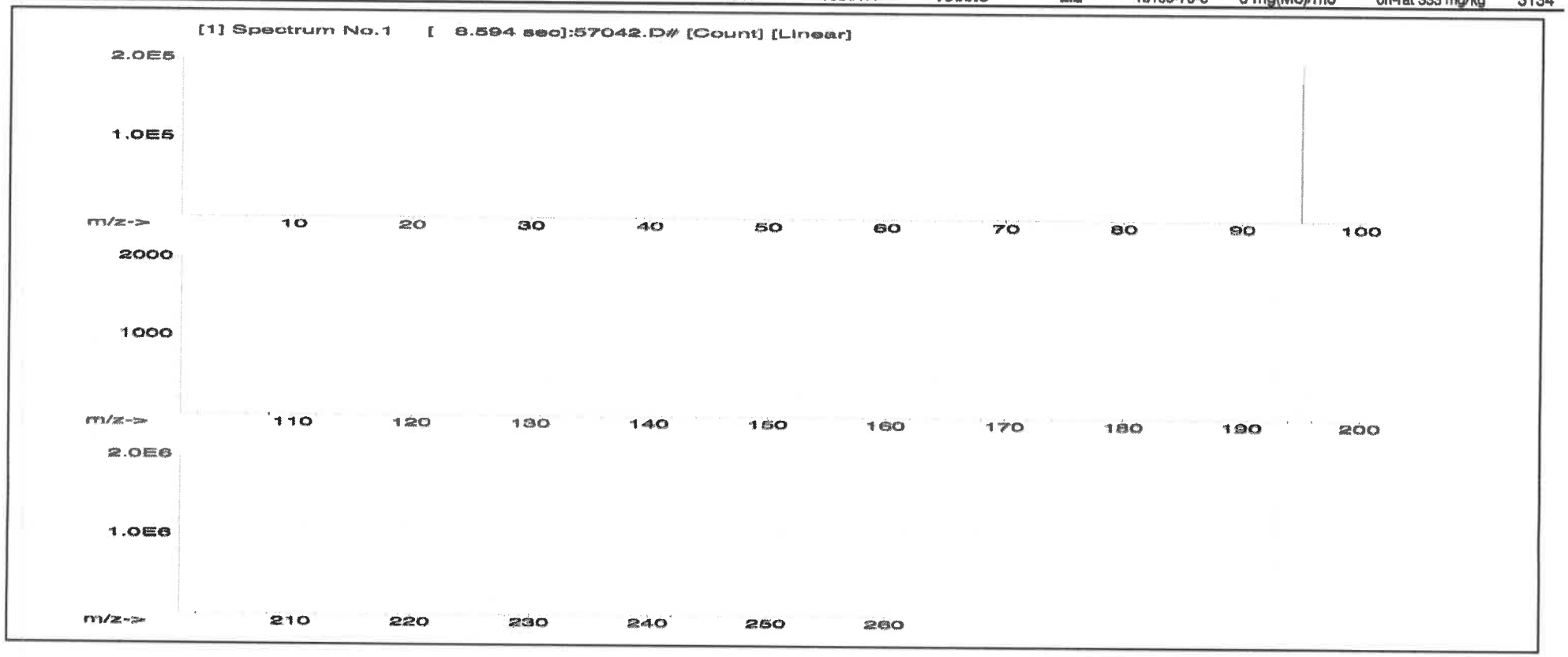
CERTIFIED WEIGHT REPORT:

R→ 8/6/25
M6177

		Lot #	Solvent:		
Part Number:	57042	MKBQ8597V	Ammonium hydroxide		
Lot Number:	080525	080525	ASTM Type 1 Water		
Description:	Molybdenum (Mo)	0.5%	10.0 (mL)	Ammonium hydroxide	
Expiration Date:	080528				
Recommended Storage:	Ambient (15 - 30 °C)				
Nominal Concentration (µg/mL):	1000				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	1999.41	0.058	Flask Uncertainty		

Formulated By:	Benson Chan	080525
Reviewed By:	Pedro L. Rentas	080525

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	112322	0.1000	200.0	0.084	1000	10001.4	**1000.5**	**2.2**	13106-76-8	5 mg(Mo)/m3	orl-rat 333 mg/kg	3134



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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	T	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware, and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated by an ISO17025 certified organization with weights traceable through NIST to the SI kilogram (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).
Rev 1.0, 2/25/2025

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CERTIFIED WEIGHT REPORT:

R>8/6/28
M6178

Part Number:	**57082**		**Lot #**		
Lot Number:	**031525**	**Solvent:**	24014457	Nitric Acid	
Description:	**Lead (Pb)**		2%	40.0 (mL)	Nitric Acid
Expiration Date:	031528				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.07	0.10	Flask Uncertainty		

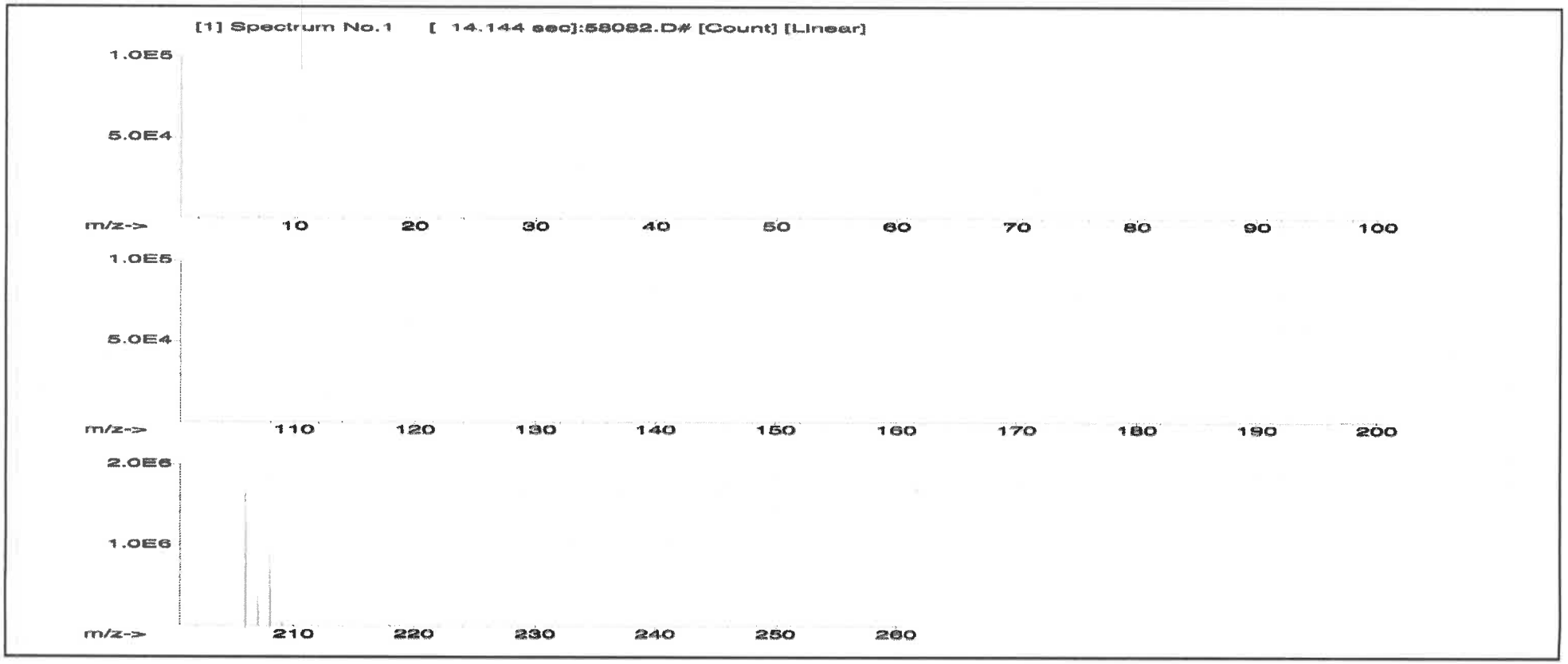
Giovanni Esposito

Formulated By:	Giovanni Esposito	031525

Pedro Rentas

Reviewed By:	Pedro L. Rentas	031525

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	3.20015	3.20067	**1000.2**	**2.0**	10099-74-8	0.05 mg/m3	intrvns-rat 93 mg/kg	3128



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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	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	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.

* 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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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 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 (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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	<	0.004600	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



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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:	WW-LFS-1
Lot Number:	W2-MEB752149
Matrix:	5% (v/v) HNO3

M6180
R-7/22/25

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	200.2 ± 0.7 µg/mL	Arsenic, As	80.1 ± 0.5 µg/mL
Barium, Ba	20.02 ± 0.12 µg/mL	Beryllium, Be	20.02 ± 0.11 µg/mL
Boron, B	30.02 ± 0.15 µg/mL	Cadmium, Cd	20.04 ± 0.09 µg/mL
Calcium, Ca	100.1 ± 0.3 µg/mL	Cerium, Ce	200.2 ± 1.0 µg/mL
Chromium, Cr	40.02 ± 0.26 µg/mL	Cobalt, Co	20.03 ± 0.09 µg/mL
Copper, Cu	30.03 ± 0.13 µg/mL	Iron, Fe	300.3 ± 1.3 µg/mL
Lead, Pb	100.1 ± 0.5 µg/mL	Lithium, Li	20.03 ± 0.09 µg/mL
Magnesium, Mg	200.2 ± 0.9 µg/mL	Manganese, Mn	19.99 ± 0.09 µg/mL
Mercury, Hg	70.0 ± 0.3 µg/mL	Nickel, Ni	50.05 ± 0.22 µg/mL
Phosphorus, P	600.5 ± 2.9 µg/mL	Potassium, K	1 001 ± 4 µg/mL
Selenium, Se	200.2 ± 1.1 µg/mL	Silver, Ag	7.52 ± 0.03 µg/mL
Sodium, Na	300.3 ± 1.3 µg/mL	Strontium, Sr	20.02 ± 0.10 µg/mL
Thallium, Tl	200.2 ± 1.0 µg/mL	Vanadium, V	30.02 ± 0.13 µg/mL
Zinc, Zn	20.05 ± 0.09 µg/mL		

Density: 1.037 g/mL (measured at 20 ± 5 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
As	ICP Assay	3103a	100818
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
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	160830
Ce	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	120618
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	3152a	200413
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	ICP 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

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° - 25° C to minimize the effects of transpiration. Use at 20° ± 5° 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

April 08, 2025

- 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

- **April 08, 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:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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M6181
R->7/22/28

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-2
Lot Number:	V2-MEB743480
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 ± 0.5 µg/mL	Molybdenum, Mo	40.05 ± 0.22 µg/mL
Silica, SiO2	200.3 ± 1.4 µg/mL	Tin, Sn	70.1 ± 0.4 µg/mL
Titanium, Ti	20.03 ± 0.12 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
Sb	ICP Assay	3102a	140911
SiO2	Calculated		See Sec. 4.2
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

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{¼}$ 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

May 07, 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

- May 07, 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:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Thomas Kozikowski
Stock VS Manager



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.

M6182

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

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.

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.

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Contains Heavy Metals
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

M6184

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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
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Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
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Ni	40	(2.0)	-38.0	42.0	954	810	1100
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Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

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

Nitric Acid 69%
CMOS

M6187
R.D :- 08/08/25

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24H0162012
Manufactured Date: 2024-06-28
Retest Date: 2029-06-27
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	< 1.0 ppb
Trace Impurities - Boron (B)	≤ 10.0 ppb	0.1 ppb
Trace Impurities - Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities - Calcium (Ca)	≤ 50.0 ppb	0.3 ppb
Trace Impurities - Chromium (Cr)	≤ 30.0 ppb	0.1 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	< 1 ppb
Trace Impurities - Gold (Au)	≤ 20 ppb	< 1 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities - Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities - Lead (Pb)	≤ 20.0 ppb	< 1.0 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	< 1.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24H0162012

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	< 1 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	1 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 1.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	13 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	5 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24H0162012

Test	Specification	Result

For Microelectronic Use

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

Jamie Croak
Director Quality Operations, Bioscience Production

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

M6200
R.0 → 08/25/25

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 24D1562005
Manufactured Date: 2024-03-18
Retest Date: 2029-03-17
Revision No.: 0

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 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.192
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl_2)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO_4)	≤ 0.05 ppm	0.03 ppm
Sulfate (SO_4)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO_3)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH_4)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	2.2 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	31.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.5 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	< 0.2 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	3 ppb

>>> Continued on page 2 >>>

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

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 24D1562005

Test	Specification	Result
Trace Impurities – Lead (Pb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Lithium (Li)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Magnesium (Mg)	≤ 10.0 ppb	2.2 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Molybdenum (Mo)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Nickel (Ni)	≤ 4.0 ppb	0.2 ppb
Trace Impurities – Niobium (Nb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Potassium (K)	≤ 9.0 ppb	< 1.0 ppb
Trace Impurities – Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Sodium (Na)	≤ 100.0 ppb	2.0 ppb
Trace Impurities – Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Tantalum (Ta)	≤ 1.0 ppb	< 0.9 ppb
Trace Impurities – Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	< 0.4 ppb
Trace Impurities – Titanium (Ti)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities – Zirconium (Zr)	≤ 1.0 ppb	< 0.1 ppb

>>> Continued on page 3 >>>

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

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 24D1562005

Test	Specification	Result

For Laboratory,Research,or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications
Storage Condition: Store below 25 °C.

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

Jamie Croak
Director Quality Operations, Bioscience Production

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M6027

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

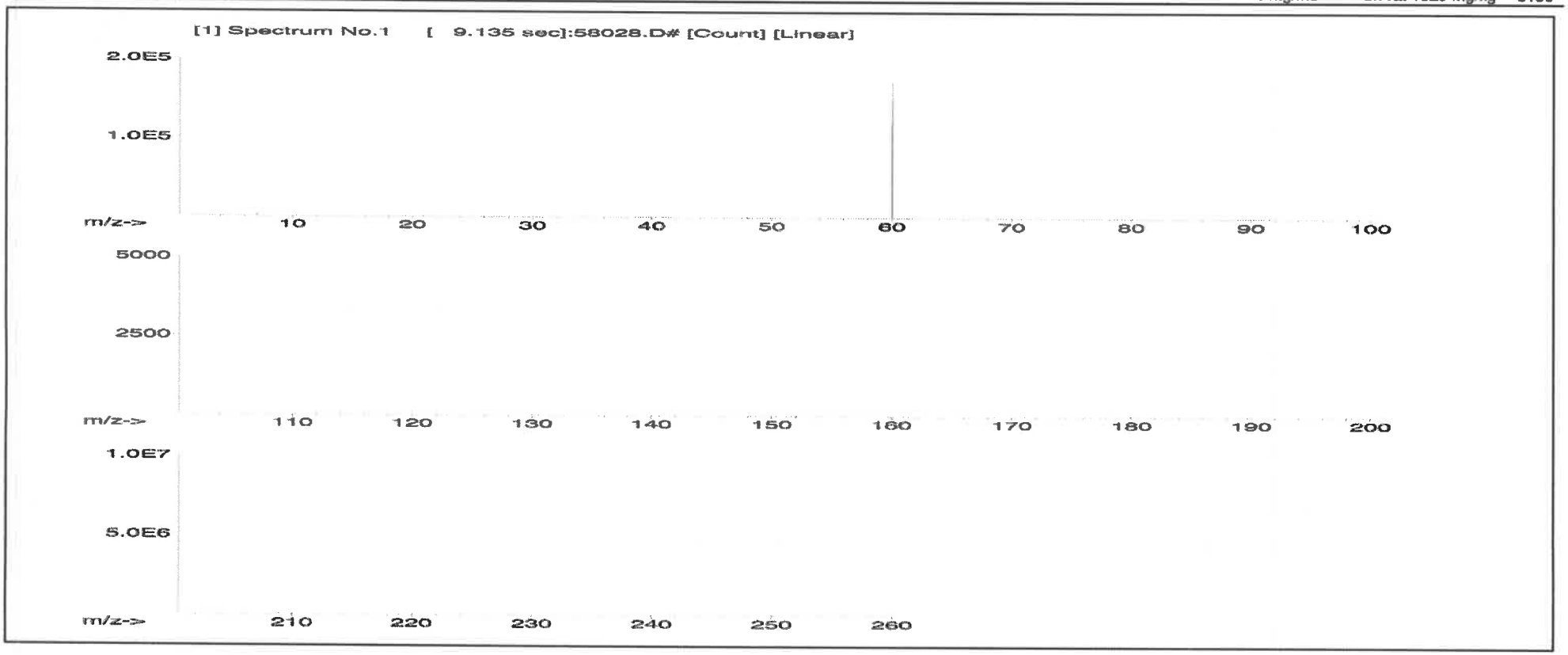
R1 8/05/24

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57028**	24002546	Nitric Acid	
Lot Number:	**062024**			
Description:	**Nickel (Ni)**	2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	062027			
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	062024
Reviewed By:	Pedro L. Rentas	062024

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 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	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).
* 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

M6030

R: 8/5/24

ANAB ISO 17034 Accredited
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https://Absolutestandards.com

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

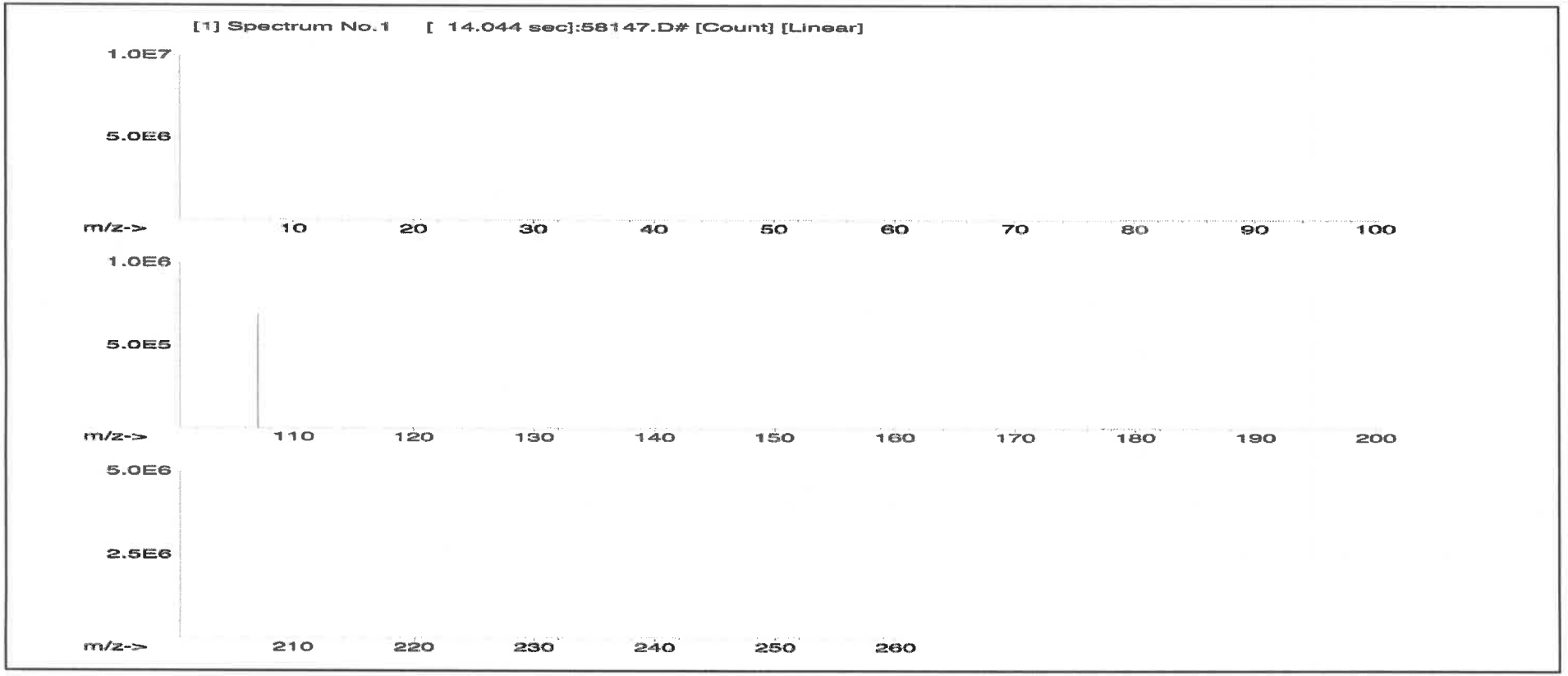
Weight shown below was diluted to (mL): 4000.30 0.058 Flask Uncertainty

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	80.0 (mL)	Nitric Acid	

5E-05 Balance 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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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	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:

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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* 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).

opened : 3/24/25

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Certified Reference Material CRM

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CERTIFIED WEIGHT REPORT: M6160

Part Number: 57051
Lot Number: 071724
Description: Antimony (Sb)

Expiration Date: 071727
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 2000.26 ± 0.058 Flask Uncertainty

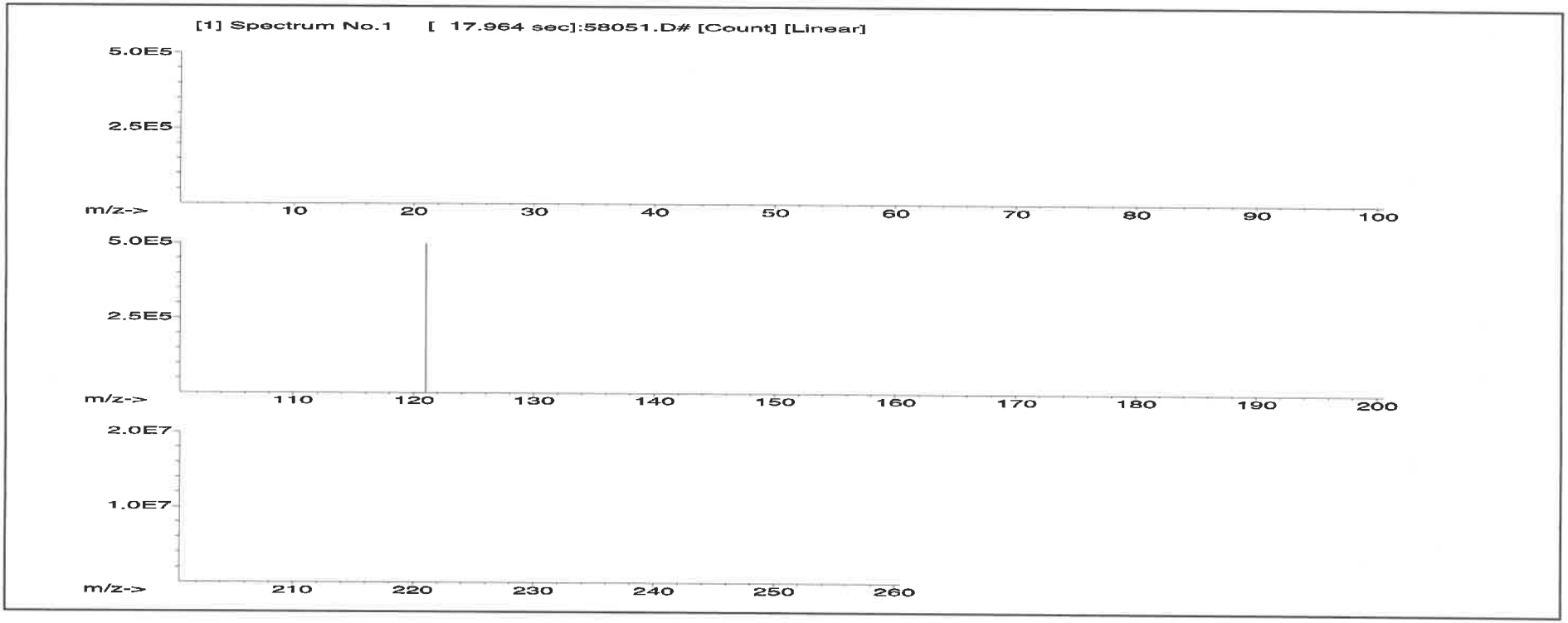
Lot #	Solvent:		
24002546	Nitric Acid		
2.0%	40.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

Giovanni Esposito
Formulated By: Giovanni Esposito 071724

Pedro Rentas
Reviewed By: Pedro L. Rentas 071724

	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	060324	0.1000	200.0	0.084	1000	10001.4	**1000.0**	**2.2**	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:

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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Certificate of Analysis

R: 8/5/24 M6019

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P: 800-669-6799/540-585-3030
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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 885.01 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

B ! 8/5/24

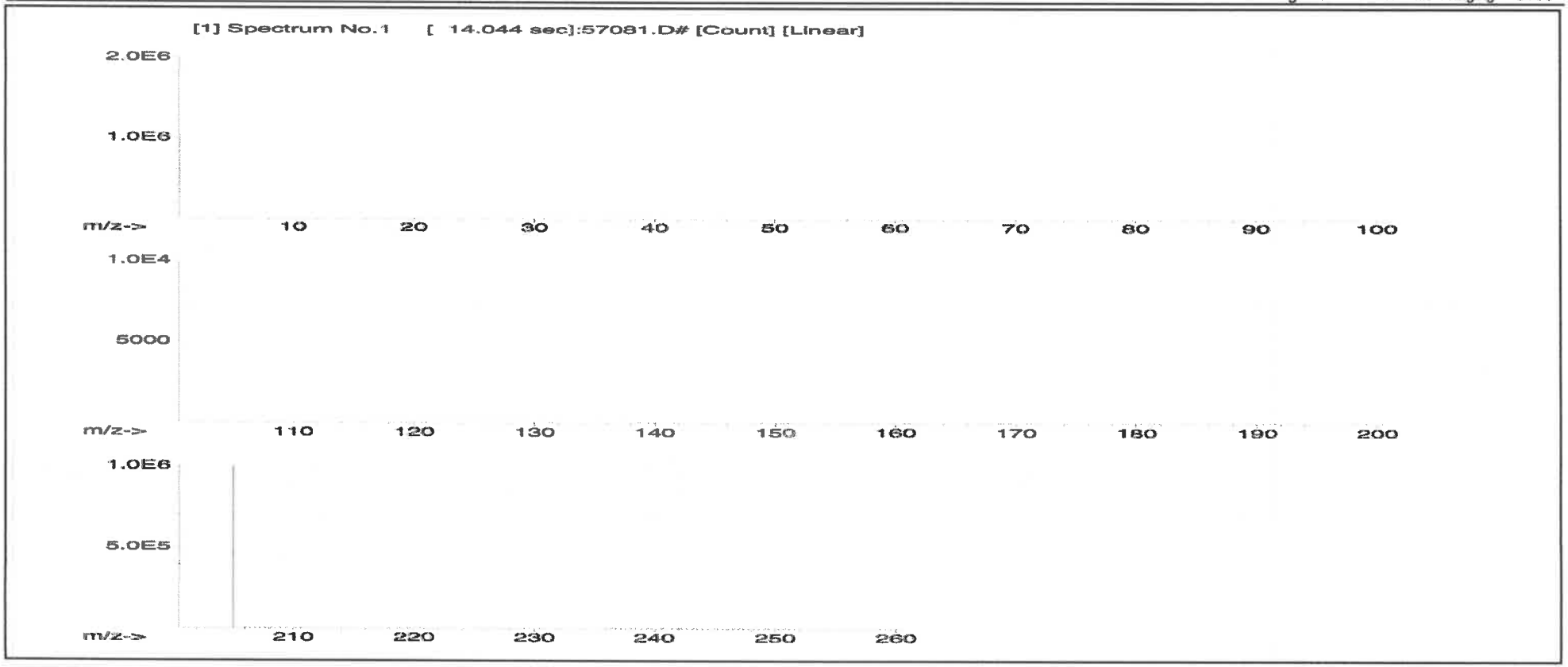
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CERTIFIED WEIGHT REPORT:

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
Pedro Rentas		
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**			
Lot Number:	**062424**	24002546	Nitric Acid	
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	

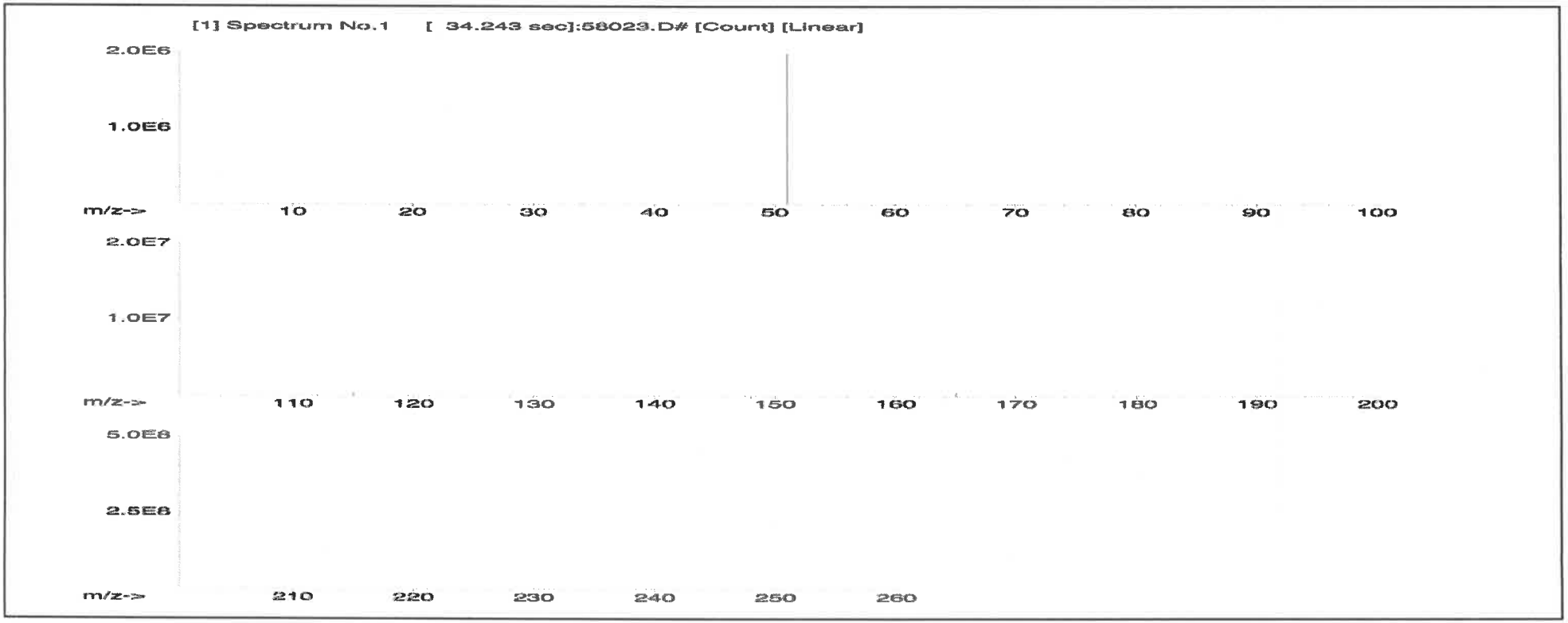
Aleah O'Brady

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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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

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SHIPPING DOCUMENTS

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Packing List

Date	Order #
09/02/2025	333290

6390 Joyce Dr., #100
Golden, CO 80403

Tel: +1-303-940-0033
Fax: +1-303-940-0043
info@phenova.com
www.phenova.com

For terms and conditions of your order, please visit:
www.phenova.com/home/termsofsale

Ship To

Alliance Tech Group - Newark
ATTN: Sohil Jodhani
284 Sheffield St., #1
Mountainside, NJ 07092
USA

Received by: SJ 9/4/2025 9:25

Customer PO #	Terms	PT Acct #	Customer #	Ship Via	F.O.B.
PO2-3159	Net 30	ZCM-100	1500470	FedEx 2nd Day	Golden, CO

Qty Ordered	Qty Shipped	Qty Backorder	Part Number	Part Description	Study Number	Lot Number
			PT-TMSET-WP	WP Trace Metals Set : (TM1, HG and SNTI)		
1	1	0	PT-TM1-WP	WP Trace Metals 1	WP0925	8270-04
1	1	0	PT-HG-WP	WP Mercury	WP0925	8270-05
1	1	0	PT-SNTI-WP	WP Tin & Titanium	WP0925	8270-38
1	1	0	PT-CR6-WP	WP Hexavalent Chromium	WP0925	8270-06
1	1	0	PT-DEM-WP	WP Demand	WP0925	8270-07
			PT-MINSET-WP	WP Minerals Set : (MIN1, MIN2 and COND)		
1	1	0	PT-MIN1-WP	WP Minerals 1 Only	WP0925	8270-08
1	1	0	PT-MIN2-WP	WP Minerals 2 Only	WP0925	8270-102
1	1	0	PT-COND-WP	WP Conductivity Only	WP0925	8270-72
1	1	0	PT-COND-WP	WP Conductivity Only	WP0925	8270-72
1	1	0	PT-SOL-WP	WP Solids	WP0925	8270-09
			PT-NUTSET-WP	WP Nutrients Set : (NUT1, NUT2 and NUT3)		
1	1	0	PT-NUT1-WP	WP NUT1 Simple Nutrients Only	WP0925	8270-10
1	1	0	PT-NUT2-WP	WP NUT2 - Complex Nutrients	WP0925	8270-11
1	1	0	PT-NUT3-WP	WP NUT3 - Nitrite Only	WP0925	8270-69
1	1	0	PT-OGR1L-WP	WP Oil and Grease 1L	WP0925	8270-103
1	1	0	PT-CL-WP	WP Residual Chlorine	WP0925	8270-13
1	1	0	PT-PH-WP	WP pH	WP0925	8270-15
1	1	0	PT-CN-WP	WP Cyanide	WP0925	8270-14

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Packing List

Date	Order #
09/02/2025	333290

6390 Joyce Dr., #100
Golden, CO 80403

Tel: +1-303-940-0033
Fax: +1-303-940-0043
info@phenova.com
www.phenova.com

For terms and conditions of your order, please visit:
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Ship To

Alliance Tech Group - Newark
ATTN: Sohil Jodhani
284 Sheffield St., #1
Mountainside, NJ 07092
USA

Received by: SJ
9/4/2025
9:25

Customer PO #	Terms	PT Acct #	Customer #	Ship Via	F.O.B.
PO2-3159	Net 30	ZCM-100	1500470	FedEx 2nd Day	Golden, CO

Qty Ordered	Qty Shipped	Qty Backorder	Part Number	Part Description	Study Number	Lot Number
1	1	0	PT-PHEN-WP	WP Phenolics	WP0925	8270-16
1	1	0	PT-S2-WP	WP Sulfide	WP0925	8270-22
1	1	0	PT-SSOL-WP	WP Settleable Solids	WP0925	8270-17
1	1	0	PT-VSOL-WP	WP Volatile Solids	WP0925	8270-18
1	1	0	PT-TURB-WP	WP Turbidity	WP0925	8270-20
1	1	0	PT-SIO2-WP	WP Silica	WP0925	8270-21
1	1	0	PT-COL-WP	WP Color	WP0925	8270-51
1	1	0	PT-VOA-WP	WP Volatiles	WP0925	8270-26
1	1	0	PT-BN-WP	WP Base Neutrals	WP0925	8270-27
1	1	0	PT-ACIDS-WP	WP Acids	WP0925	8270-28
1	1	0	PT-PEST-WP	WP Pesticides	WP0925	8270-29
1	1	0	PT-CHLR-WP	WP Chlordane	WP0925	8270-30
1	1	0	PT-TXP-WP	WP Toxaphene	WP0925	8270-31
1	1	0	PT-PCBW-WP	WP PCBs in Water	WP0925	8270-32
1	1	0	PT-HERB-WP	WP Herbicides	WP0925	8270-36
1	1	0	RR-TPH1L-WP	WP TPH 1L	R41815	R41815-104
1	1	0	RR-PAH-WP	WP PAH-Low Level	R41815	R41815-37
1	1	0	RR-GAS-WP	WP Gasoline Range Organics	R41815	R41815-62
1	1	0	RR-DIES-WP	WP Diesel Range Organics	R41815	R41815-63
1	1	0	RR-8011-WP	WP EDB/DBCP/TCP	R41815	R41815-98

Alliance TECHNICAL GROUP
284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Laboratory Certification

Certified By	License No.
Connecticut	PH-0830
DOD ELAP (ANAB)	L2219
Maine	2024021
Maryland	296
New Hampshire	255425
New Jersey	20012
New York	11376
Pennsylvania	68-00548
Soil Permit	525-24-234-08441
Texas	TX-C25-00189
Virginia	460312