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 : Q1504

ATTENTION : Mohammad Ahmed

Laboratory Certification ID # 20012

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Cover Page

Order ID : Q1504

Project ID : NJ Waste Water PT

Client : Alliance Technical Group, LLC - Newark

Lab Sample Number	Client Sample Number
Q1504-01	PT-TM1-WP
Q1504-02	PT-TM1-WP
Q1504-03	PT-SNTI-WP
Q1504-04	PT-SNTI-WP
Q1504-05	PT-MIN2-WP
Q1504-06	PT-MIN2-WP
Q1504-07	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 1:59 pm, Apr 17, 2025

Date: 4/17/2025

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
Chemtech Project # Q1504
Test Name: Metals Group3,Metals Group4,Metals Group5,Mercury

A. Number of Samples and Date of Receipt:
7 Water samples were received on 03/05/2025.

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

C. Analytical Techniques:
The analysis of Metals Group3,Metals Group4,Metals Group5 was based on method 6010D, digestion based on method 3010 (waters).The analysis of Metals Group3,Metals Group4,Metals Group5 was based on method 6020B, The analysis and digestion of Mercury was based on method 7470A.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
Sample PT-HG-WP was diluted due to high concentrations for Mercury.
The Blank Spike met requirements for all samples.
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_____ APPROVED
By Nimisha Pandya, QA/QC Supervisor at 2:00 pm, Apr 17, 2025

Alliance TECHNICAL GROUP
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

CHEMTECH PROJECT NUMBER: Q1504 MATRIX: Water

METHOD: 6010D,7470A

		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 1:00 pm, Apr 17, 2025

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APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: Q1504

	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:** 04/17/2025

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LAB CHRONICLE

OrderID:	Q1504	**OrderDate:**	3/6/2025 10:18:11 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
Q1504-01	**PT-TM1-WP**	**Water**			**03/03/25**			**03/05/25**
			Metals Group3	6010D		03/21/25	04/07/25	
Q1504-02	**PT-TM1-WP**	**Water**			**03/03/25**			**03/05/25**
			Metals Group3	6020B		03/31/25	04/01/25	
Q1504-03	**PT-SNTI-WP**	**Water**			**03/03/25**			**03/05/25**
			Metals Group4	6010D		03/21/25	04/07/25	
Q1504-04	**PT-SNTI-WP**	**Water**			**03/03/25**			**03/05/25**
			Metals Group4	6020B		03/31/25	04/01/25	
Q1504-05	**PT-MIN2-WP**	**Water**			**03/03/25**			**03/05/25**
			Metals Group5	6010D		03/21/25	04/07/25	
Q1504-06	**PT-MIN2-WP**	**Water**			**03/03/25**			**03/05/25**
			Metals Group5	6020B		03/31/25	04/01/25	
Q1504-07	**PT-HG-WP**	**Water**			**03/03/25**			**03/05/25**
			Mercury	7470A		04/03/25	04/03/25	

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Hit Summary Sheet
SW-846

SDG No.: Q1504 **Order ID:** Q1504

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 : PT-TM1-WP								
Q1504-01	PT-TM1-WP	Water	Aluminum	2510		56.6	100	ug/L
Q1504-01	PT-TM1-WP	Water	Antimony	286		4.12	50.0	ug/L
Q1504-01	PT-TM1-WP	Water	Arsenic	561		6.96	20.0	ug/L
Q1504-01	PT-TM1-WP	Water	Barium	631		12.6	100	ug/L
Q1504-01	PT-TM1-WP	Water	Beryllium	319		0.26	6.00	ug/L
Q1504-01	PT-TM1-WP	Water	Boron	1400		19.9	100	ug/L
Q1504-01	PT-TM1-WP	Water	Cadmium	641		0.19	6.00	ug/L
Q1504-01	PT-TM1-WP	Water	Chromium	218		1.32	10.0	ug/L
Q1504-01	PT-TM1-WP	Water	Cobalt	607		1.00	30.0	ug/L
Q1504-01	PT-TM1-WP	Water	Copper	684		14.1	20.0	ug/L
Q1504-01	PT-TM1-WP	Water	Iron	3510		37.0	100	ug/L
Q1504-01	PT-TM1-WP	Water	Lead	971		7.02	12.0	ug/L
Q1504-01	PT-TM1-WP	Water	Manganese	1590		2.92	20.0	ug/L
Q1504-01	PT-TM1-WP	Water	Molybdenum	493		7.34	200	ug/L
Q1504-01	PT-TM1-WP	Water	Nickel	501		1.70	40.0	ug/L
Q1504-01	PT-TM1-WP	Water	Selenium	866		11.8	20.0	ug/L
Q1504-01	PT-TM1-WP	Water	Silver	808		1.16	10.0	ug/L
Q1504-01	PT-TM1-WP	Water	Strontium	266		4.63	20.0	ug/L
Q1504-01	PT-TM1-WP	Water	Thallium	194		4.64	40.0	ug/L
Q1504-01	PT-TM1-WP	Water	Vanadium	1350		6.12	40.0	ug/L
Q1504-01	PT-TM1-WP	Water	Zinc	1080		3.50	40.0	ug/L
Client ID : PT-SNTI-WP								
Q1504-03	PT-SNTI-WP	Water	Tin	1610		3.78	40.0	ug/L
Q1504-03	PT-SNTI-WP	Water	Titanium	219		4.70	40.0	ug/L
Client ID : PT-MIN2-WP								
Q1504-05	PT-MIN2-WP	Water	Calcium	49700		66.0	2000	ug/L
Q1504-05	PT-MIN2-WP	Water	Magnesium	16500		78.8	2000	ug/L
Q1504-05	PT-MIN2-WP	Water	Potassium	21500		1370	2000	ug/L
Q1504-05	PT-MIN2-WP	Water	Sodium	54200		474	2000	ug/L
Client ID : PT-HG-WP								
Q1504-07	PT-HG-WP	Water	Mercury	17.3	D	0.38	1.00	ug/L

SAMPLE DATA

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Report of Analysis

Client:	Alliance Technical Group, LLC - Newark	Date Collected:	03/03/25
Project:	NJ Waste Water PT	Date Received:	03/05/25
Client Sample ID:	PT-TM1-WP	SDG No.:	Q1504
Lab Sample ID:	Q1504-01	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	2510		1	56.6	100	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7440-36-0	Antimony	286		1	4.12	50.0	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7440-38-2	Arsenic	561		1	6.96	20.0	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7440-39-3	Barium	631		1	12.6	100	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7440-41-7	Beryllium	319		1	0.26	6.00	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7440-42-8	Boron	1400		1	19.9	100	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7440-43-9	Cadmium	641		1	0.19	6.00	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7440-47-3	Chromium	218		1	1.32	10.0	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7440-48-4	Cobalt	607		1	1.00	30.0	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7440-50-8	Copper	684		1	14.1	20.0	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7439-89-6	Iron	3510		1	37.0	100	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7439-92-1	Lead	971		1	7.02	12.0	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7439-96-5	Manganese	1590		1	2.92	20.0	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7439-98-7	Molybdenum	493		1	7.34	200	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7440-02-0	Nickel	501		1	1.70	40.0	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7782-49-2	Selenium	866		1	11.8	20.0	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7440-22-4	Silver	808		1	1.16	10.0	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7440-24-6	Strontium	266		1	4.63	20.0	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7440-28-0	Thallium	194		1	4.64	40.0	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7440-62-2	Vanadium	1350		1	6.12	40.0	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010
7440-66-6	Zinc	1080		1	3.50	40.0	ug/L	03/21/25 09:05	04/07/25 14:42	SW6010	SW3010

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:	03/03/25
Project:	NJ Waste Water PT	Date Received:	03/05/25
Client Sample ID:	PT-SNTI-WP	SDG No.:	Q1504
Lab Sample ID:	Q1504-03	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	1610		1	3.78	40.0	ug/L	03/21/25 09:05	04/07/25 14:46	SW6010	SW3010
7440-32-6	Titanium	219		1	4.70	40.0	ug/L	03/21/25 09:05	04/07/25 14:46	SW6010	SW3010

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:	03/03/25
Project:	NJ Waste Water PT	Date Received:	03/05/25
Client Sample ID:	PT-MIN2-WP	SDG No.:	Q1504
Lab Sample ID:	Q1504-05	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	49700		1	66.0	2000	ug/L	03/21/25 09:05	04/07/25 14:38	SW6010	SW3010
7439-95-4	Magnesium	16500		1	78.8	2000	ug/L	03/21/25 09:05	04/07/25 14:38	SW6010	SW3010
7440-09-7	Potassium	21500		1	1370	2000	ug/L	03/21/25 09:05	04/07/25 14:38	SW6010	SW3010
7440-23-5	Sodium	54200		1	474	2000	ug/L	03/21/25 09:05	04/07/25 14:38	SW6010	SW3010

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	Metals Group5				

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:	03/03/25
Project:	NJ Waste Water PT	Date Received:	03/05/25
Client Sample ID:	PT-HG-WP	SDG No.:	Q1504
Lab Sample ID:	Q1504-07	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.
7439-97-6	Mercury	17.3	D	5	0.38	1.00	ug/L	04/03/25 08:10	04/03/25 14:52	SW7470A	

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

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

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
ICV75	Mercury	4.28	4.0	107	90 - 110	CV	04/03/2025	14:14	LB135287

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

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
CCV28	Mercury	4.69	5.0	94	90 - 110	CV	04/03/2025	14:19	LB135287
CCV29	Mercury	5.48	5.0	110	90 - 110	CV	04/03/2025	15:12	LB135287

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Aluminum	2400	2500	96	90 - 110	P	04/07/2025	12:35	LB135333
	Antimony	1020	1000	102	90 - 110	P	04/07/2025	12:35	LB135333
	Arsenic	999	1000	100	90 - 110	P	04/07/2025	12:35	LB135333
	Barium	505	520	97	90 - 110	P	04/07/2025	12:35	LB135333
	Beryllium	535	510	105	90 - 110	P	04/07/2025	12:35	LB135333
	Boron	2530	2500	101	90 - 110	P	04/07/2025	12:35	LB135333
	Cadmium	495	510	97	90 - 110	P	04/07/2025	12:35	LB135333
	Calcium	10300	10000	103	90 - 110	P	04/07/2025	12:35	LB135333
	Chromium	523	520	101	90 - 110	P	04/07/2025	12:35	LB135333
	Cobalt	506	520	97	90 - 110	P	04/07/2025	12:35	LB135333
	Copper	521	510	102	90 - 110	P	04/07/2025	12:35	LB135333
	Iron	9720	10000	97	90 - 110	P	04/07/2025	12:35	LB135333
	Lead	977	1000	98	90 - 110	P	04/07/2025	12:35	LB135333
	Magnesium	6160	6000	103	90 - 110	P	04/07/2025	12:35	LB135333
	Manganese	515	520	99	90 - 110	P	04/07/2025	12:35	LB135333
	Molybdenum	2460	2500	98	90 - 110	P	04/07/2025	12:35	LB135333
	Nickel	508	530	96	90 - 110	P	04/07/2025	12:35	LB135333
	Potassium	9430	9900	95	90 - 110	P	04/07/2025	12:35	LB135333
	Selenium	1030	1000	103	90 - 110	P	04/07/2025	12:35	LB135333
	Silver	242	250	97	90 - 110	P	04/07/2025	12:35	LB135333
	Sodium	10400	10000	104	90 - 110	P	04/07/2025	12:35	LB135333
	Strontium	2540	2500	102	90 - 110	P	04/07/2025	12:35	LB135333
	Thallium	1040	1000	104	90 - 110	P	04/07/2025	12:35	LB135333
	Tin	2500	2500	100	90 - 110	P	04/07/2025	12:35	LB135333
	Titanium	2510	2500	101	90 - 110	P	04/07/2025	12:35	LB135333
	Vanadium	507	500	101	90 - 110	P	04/07/2025	12:35	LB135333
	Zinc	1010	1000	101	90 - 110	P	04/07/2025	12:35	LB135333

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Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

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	105	100	105	80 - 120	P	04/07/2025	13:00	LB135333
	Antimony	52.7	50.0	105	80 - 120	P	04/07/2025	13:00	LB135333
	Arsenic	23.6	20.0	118	80 - 120	P	04/07/2025	13:00	LB135333
	Barium	89.6	100	90	80 - 120	P	04/07/2025	13:00	LB135333
	Beryllium	5.68	6.0	95	80 - 120	P	04/07/2025	13:00	LB135333
	Boron	89.4	100	89	80 - 120	P	04/07/2025	13:00	LB135333
	Cadmium	5.74	6.0	96	80 - 120	P	04/07/2025	13:00	LB135333
	Calcium	1910	2000	95	80 - 120	P	04/07/2025	13:00	LB135333
	Chromium	9.71	10.0	97	80 - 120	P	04/07/2025	13:00	LB135333
	Cobalt	29.2	30.0	97	80 - 120	P	04/07/2025	13:00	LB135333
	Copper	22.1	20.0	110	80 - 120	P	04/07/2025	13:00	LB135333
	Iron	93.7	100	94	80 - 120	P	04/07/2025	13:00	LB135333
	Lead	11.1	12.0	93	80 - 120	P	04/07/2025	13:00	LB135333
	Magnesium	2010	2000	100	80 - 120	P	04/07/2025	13:00	LB135333
	Manganese	20.7	20.0	104	80 - 120	P	04/07/2025	13:00	LB135333
	Molybdenum	208	200	104	80 - 120	P	04/07/2025	13:00	LB135333
	Nickel	39.3	40.0	98	80 - 120	P	04/07/2025	13:00	LB135333
	Potassium	1750	2000	87	80 - 120	P	04/07/2025	13:00	LB135333
	Selenium	19.6	20.0	98	80 - 120	P	04/07/2025	13:00	LB135333
	Silver	10.4	10.0	104	80 - 120	P	04/07/2025	13:00	LB135333
	Sodium	1990	2000	100	80 - 120	P	04/07/2025	13:00	LB135333
	Strontium	18.8	20.0	94	80 - 120	P	04/07/2025	13:00	LB135333
	Thallium	40.7	40.0	102	80 - 120	P	04/07/2025	13:00	LB135333
	Tin	39.0	40.0	98	80 - 120	P	04/07/2025	13:00	LB135333
	Titanium	37.6	40.0	94	80 - 120	P	04/07/2025	13:00	LB135333
	Vanadium	38.8	40.0	97	80 - 120	P	04/07/2025	13:00	LB135333
	Zinc	41.5	40.0	104	80 - 120	P	04/07/2025	13:00	LB135333

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

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	9830	10000	98	90 - 110	P	04/07/2025	13:42	LB135333
	Antimony	5040	5000	101	90 - 110	P	04/07/2025	13:42	LB135333
	Arsenic	5000	5000	100	90 - 110	P	04/07/2025	13:42	LB135333
	Barium	9860	10000	99	90 - 110	P	04/07/2025	13:42	LB135333
	Beryllium	249	250	100	90 - 110	P	04/07/2025	13:42	LB135333
	Boron	5000	5000	100	90 - 110	P	04/07/2025	13:42	LB135333
	Cadmium	2480	2500	99	90 - 110	P	04/07/2025	13:42	LB135333
	Calcium	24500	25000	98	90 - 110	P	04/07/2025	13:42	LB135333
	Chromium	1010	1000	101	90 - 110	P	04/07/2025	13:42	LB135333
	Cobalt	2480	2500	99	90 - 110	P	04/07/2025	13:42	LB135333
	Copper	1260	1250	101	90 - 110	P	04/07/2025	13:42	LB135333
	Iron	4980	5000	100	90 - 110	P	04/07/2025	13:42	LB135333
	Lead	4970	5000	100	90 - 110	P	04/07/2025	13:42	LB135333
	Magnesium	24400	25000	98	90 - 110	P	04/07/2025	13:42	LB135333
	Manganese	2450	2500	98	90 - 110	P	04/07/2025	13:42	LB135333
	Molybdenum	5090	5000	102	90 - 110	P	04/07/2025	13:42	LB135333
	Nickel	2490	2500	100	90 - 110	P	04/07/2025	13:42	LB135333
	Potassium	24900	25000	100	90 - 110	P	04/07/2025	13:42	LB135333
	Selenium	5030	5000	101	90 - 110	P	04/07/2025	13:42	LB135333
	Silver	1260	1250	101	90 - 110	P	04/07/2025	13:42	LB135333
	Sodium	24800	25000	99	90 - 110	P	04/07/2025	13:42	LB135333
	Strontium	5010	5000	100	90 - 110	P	04/07/2025	13:42	LB135333
	Thallium	5100	5000	102	90 - 110	P	04/07/2025	13:42	LB135333
	Tin	4990	5000	100	90 - 110	P	04/07/2025	13:42	LB135333
	Titanium	4910	5000	98	90 - 110	P	04/07/2025	13:42	LB135333
	Vanadium	2460	2500	98	90 - 110	P	04/07/2025	13:42	LB135333
	Zinc	2520	2500	101	90 - 110	P	04/07/2025	13:42	LB135333
CCV02	Aluminum	9500	10000	95	90 - 110	P	04/07/2025	15:07	LB135333
	Antimony	4900	5000	98	90 - 110	P	04/07/2025	15:07	LB135333
	Arsenic	4840	5000	97	90 - 110	P	04/07/2025	15:07	LB135333
	Barium	9880	10000	99	90 - 110	P	04/07/2025	15:07	LB135333
	Beryllium	236	250	94	90 - 110	P	04/07/2025	15:07	LB135333
	Boron	4800	5000	96	90 - 110	P	04/07/2025	15:07	LB135333
	Cadmium	2420	2500	97	90 - 110	P	04/07/2025	15:07	LB135333

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

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	Calcium	23900	25000	96	90 - 110	P	04/07/2025	15:07	LB135333
	Chromium	976	1000	98	90 - 110	P	04/07/2025	15:07	LB135333
	Cobalt	2410	2500	96	90 - 110	P	04/07/2025	15:07	LB135333
	Copper	1230	1250	98	90 - 110	P	04/07/2025	15:07	LB135333
	Iron	4990	5000	100	90 - 110	P	04/07/2025	15:07	LB135333
	Lead	4830	5000	97	90 - 110	P	04/07/2025	15:07	LB135333
	Magnesium	23500	25000	94	90 - 110	P	04/07/2025	15:07	LB135333
	Manganese	2390	2500	96	90 - 110	P	04/07/2025	15:07	LB135333
	Molybdenum	4920	5000	98	90 - 110	P	04/07/2025	15:07	LB135333
	Nickel	2420	2500	97	90 - 110	P	04/07/2025	15:07	LB135333
	Potassium	25000	25000	100	90 - 110	P	04/07/2025	15:07	LB135333
	Selenium	4870	5000	97	90 - 110	P	04/07/2025	15:07	LB135333
	Silver	1230	1250	98	90 - 110	P	04/07/2025	15:07	LB135333
	Sodium	25200	25000	101	90 - 110	P	04/07/2025	15:07	LB135333
	Strontium	4900	5000	98	90 - 110	P	04/07/2025	15:07	LB135333
	Thallium	4910	5000	98	90 - 110	P	04/07/2025	15:07	LB135333
	Tin	4850	5000	97	90 - 110	P	04/07/2025	15:07	LB135333
	Titanium	4800	5000	96	90 - 110	P	04/07/2025	15:07	LB135333
	Vanadium	2410	2500	96	90 - 110	P	04/07/2025	15:07	LB135333
	Zinc	2450	2500	98	90 - 110	P	04/07/2025	15:07	LB135333
CCV03	Aluminum	9610	10000	96	90 - 110	P	04/07/2025	15:41	LB135333
	Antimony	5080	5000	102	90 - 110	P	04/07/2025	15:41	LB135333
	Arsenic	5040	5000	101	90 - 110	P	04/07/2025	15:41	LB135333
	Barium	9810	10000	98	90 - 110	P	04/07/2025	15:41	LB135333
	Beryllium	234	250	94	90 - 110	P	04/07/2025	15:41	LB135333
	Boron	4680	5000	94	90 - 110	P	04/07/2025	15:41	LB135333
	Cadmium	2470	2500	99	90 - 110	P	04/07/2025	15:41	LB135333
	Calcium	23700	25000	95	90 - 110	P	04/07/2025	15:41	LB135333
	Chromium	1020	1000	102	90 - 110	P	04/07/2025	15:41	LB135333
	Cobalt	2470	2500	99	90 - 110	P	04/07/2025	15:41	LB135333
	Copper	1270	1250	101	90 - 110	P	04/07/2025	15:41	LB135333
	Iron	5170	5000	103	90 - 110	P	04/07/2025	15:41	LB135333
	Lead	4970	5000	99	90 - 110	P	04/07/2025	15:41	LB135333
	Magnesium	23600	25000	94	90 - 110	P	04/07/2025	15:41	LB135333

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

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	Manganese	2350	2500	94	90 - 110	P	04/07/2025	15:41	LB135333
	Molybdenum	5080	5000	102	90 - 110	P	04/07/2025	15:41	LB135333
	Nickel	2480	2500	99	90 - 110	P	04/07/2025	15:41	LB135333
	Potassium	26100	25000	104	90 - 110	P	04/07/2025	15:41	LB135333
	Selenium	5100	5000	102	90 - 110	P	04/07/2025	15:41	LB135333
	Silver	1270	1250	102	90 - 110	P	04/07/2025	15:41	LB135333
	Sodium	25900	25000	104	90 - 110	P	04/07/2025	15:41	LB135333
	Strontium	4850	5000	97	90 - 110	P	04/07/2025	15:41	LB135333
	Thallium	5060	5000	101	90 - 110	P	04/07/2025	15:41	LB135333
	Tin	4980	5000	100	90 - 110	P	04/07/2025	15:41	LB135333
	Titanium	4780	5000	96	90 - 110	P	04/07/2025	15:41	LB135333
	Vanadium	2400	2500	96	90 - 110	P	04/07/2025	15:41	LB135333
	Zinc	2530	2500	101	90 - 110	P	04/07/2025	15:41	LB135333
CCV04	Aluminum	9620	10000	96	90 - 110	P	04/07/2025	17:00	LB135333
	Antimony	4990	5000	100	90 - 110	P	04/07/2025	17:00	LB135333
	Arsenic	4920	5000	98	90 - 110	P	04/07/2025	17:00	LB135333
	Barium	9750	10000	98	90 - 110	P	04/07/2025	17:00	LB135333
	Beryllium	245	250	98	90 - 110	P	04/07/2025	17:00	LB135333
	Boron	4970	5000	100	90 - 110	P	04/07/2025	17:00	LB135333
	Cadmium	2450	2500	98	90 - 110	P	04/07/2025	17:00	LB135333
	Calcium	24100	25000	96	90 - 110	P	04/07/2025	17:00	LB135333
	Chromium	991	1000	99	90 - 110	P	04/07/2025	17:00	LB135333
	Cobalt	2440	2500	98	90 - 110	P	04/07/2025	17:00	LB135333
	Copper	1250	1250	100	90 - 110	P	04/07/2025	17:00	LB135333
	Iron	4960	5000	99	90 - 110	P	04/07/2025	17:00	LB135333
	Lead	4900	5000	98	90 - 110	P	04/07/2025	17:00	LB135333
	Magnesium	23800	25000	95	90 - 110	P	04/07/2025	17:00	LB135333
	Manganese	2420	2500	97	90 - 110	P	04/07/2025	17:00	LB135333
	Molybdenum	5010	5000	100	90 - 110	P	04/07/2025	17:00	LB135333
	Nickel	2450	2500	98	90 - 110	P	04/07/2025	17:00	LB135333
	Potassium	25000	25000	100	90 - 110	P	04/07/2025	17:00	LB135333
	Selenium	4990	5000	100	90 - 110	P	04/07/2025	17:00	LB135333
	Silver	1250	1250	100	90 - 110	P	04/07/2025	17:00	LB135333
	Sodium	25300	25000	101	90 - 110	P	04/07/2025	17:00	LB135333

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

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	Strontium	4890	5000	98	90 - 110	P	04/07/2025	17:00	LB135333
	Thallium	4940	5000	99	90 - 110	P	04/07/2025	17:00	LB135333
	Tin	4900	5000	98	90 - 110	P	04/07/2025	17:00	LB135333
	Titanium	4850	5000	97	90 - 110	P	04/07/2025	17:00	LB135333
	Vanadium	2420	2500	97	90 - 110	P	04/07/2025	17:00	LB135333
	Zinc	2490	2500	100	90 - 110	P	04/07/2025	17:00	LB135333
CCV05	Aluminum	9600	10000	96	90 - 110	P	04/07/2025	17:43	LB135333
	Antimony	4920	5000	98	90 - 110	P	04/07/2025	17:43	LB135333
	Arsenic	4880	5000	98	90 - 110	P	04/07/2025	17:43	LB135333
	Barium	9580	10000	96	90 - 110	P	04/07/2025	17:43	LB135333
	Beryllium	251	250	100	90 - 110	P	04/07/2025	17:43	LB135333
	Boron	5120	5000	102	90 - 110	P	04/07/2025	17:43	LB135333
	Cadmium	2430	2500	97	90 - 110	P	04/07/2025	17:43	LB135333
	Calcium	23700	25000	95	90 - 110	P	04/07/2025	17:43	LB135333
	Chromium	989	1000	99	90 - 110	P	04/07/2025	17:43	LB135333
	Cobalt	2420	2500	97	90 - 110	P	04/07/2025	17:43	LB135333
	Copper	1240	1250	99	90 - 110	P	04/07/2025	17:43	LB135333
	Iron	4760	5000	95	90 - 110	P	04/07/2025	17:43	LB135333
	Lead	4840	5000	97	90 - 110	P	04/07/2025	17:43	LB135333
	Magnesium	23800	25000	95	90 - 110	P	04/07/2025	17:43	LB135333
	Manganese	2370	2500	95	90 - 110	P	04/07/2025	17:43	LB135333
	Molybdenum	4950	5000	99	90 - 110	P	04/07/2025	17:43	LB135333
	Nickel	2430	2500	97	90 - 110	P	04/07/2025	17:43	LB135333
	Potassium	23700	25000	95	90 - 110	P	04/07/2025	17:43	LB135333
	Selenium	4900	5000	98	90 - 110	P	04/07/2025	17:43	LB135333
	Silver	1240	1250	99	90 - 110	P	04/07/2025	17:43	LB135333
	Sodium	23500	25000	94	90 - 110	P	04/07/2025	17:43	LB135333
	Strontium	4790	5000	96	90 - 110	P	04/07/2025	17:43	LB135333
	Thallium	4910	5000	98	90 - 110	P	04/07/2025	17:43	LB135333
	Tin	4870	5000	97	90 - 110	P	04/07/2025	17:43	LB135333
	Titanium	4750	5000	95	90 - 110	P	04/07/2025	17:43	LB135333
	Vanadium	2400	2500	96	90 - 110	P	04/07/2025	17:43	LB135333
	Zinc	2470	2500	99	90 - 110	P	04/07/2025	17:43	LB135333
CCV06	Aluminum	9570	10000	96	90 - 110	P	04/07/2025	18:51	LB135333

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

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
CCV06	Antimony	5000	5000	100	90 - 110	P	04/07/2025	18:51	LB135333
	Arsenic	4930	5000	99	90 - 110	P	04/07/2025	18:51	LB135333
	Barium	9840	10000	98	90 - 110	P	04/07/2025	18:51	LB135333
	Beryllium	235	250	94	90 - 110	P	04/07/2025	18:51	LB135333
	Boron	4750	5000	95	90 - 110	P	04/07/2025	18:51	LB135333
	Cadmium	2450	2500	98	90 - 110	P	04/07/2025	18:51	LB135333
	Calcium	23900	25000	96	90 - 110	P	04/07/2025	18:51	LB135333
	Chromium	997	1000	100	90 - 110	P	04/07/2025	18:51	LB135333
	Cobalt	2440	2500	98	90 - 110	P	04/07/2025	18:51	LB135333
	Copper	1260	1250	100	90 - 110	P	04/07/2025	18:51	LB135333
	Iron	5120	5000	102	90 - 110	P	04/07/2025	18:51	LB135333
	Lead	4890	5000	98	90 - 110	P	04/07/2025	18:51	LB135333
	Magnesium	23600	25000	94	90 - 110	P	04/07/2025	18:51	LB135333
	Manganese	2370	2500	95	90 - 110	P	04/07/2025	18:51	LB135333
	Molybdenum	4990	5000	100	90 - 110	P	04/07/2025	18:51	LB135333
	Nickel	2450	2500	98	90 - 110	P	04/07/2025	18:51	LB135333
	Potassium	25700	25000	103	90 - 110	P	04/07/2025	18:51	LB135333
	Selenium	4970	5000	99	90 - 110	P	04/07/2025	18:51	LB135333
	Silver	1240	1250	99	90 - 110	P	04/07/2025	18:51	LB135333
	Sodium	25800	25000	103	90 - 110	P	04/07/2025	18:51	LB135333
	Strontium	4860	5000	97	90 - 110	P	04/07/2025	18:51	LB135333
	Thallium	4940	5000	99	90 - 110	P	04/07/2025	18:51	LB135333
	Tin	4910	5000	98	90 - 110	P	04/07/2025	18:51	LB135333
	Titanium	4800	5000	96	90 - 110	P	04/07/2025	18:51	LB135333
	Vanadium	2410	2500	96	90 - 110	P	04/07/2025	18:51	LB135333
	Zinc	2470	2500	99	90 - 110	P	04/07/2025	18:51	LB135333

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Metals

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CRDL STANDARD FOR AA & ICP

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

Initial Calibration Source:

Continuing Calibration Source:

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRA	Mercury	0.17	0.2	86	40 - 160	CV	04/03/2025	14:24	LB135287
CRI01	Aluminum	103	100	103	40 - 160	P	04/07/2025	13:10	LB135333
	Antimony	53.8	50.0	108	40 - 160	P	04/07/2025	13:10	LB135333
	Arsenic	22.8	20.0	114	40 - 160	P	04/07/2025	13:10	LB135333
	Barium	90.6	100	91	40 - 160	P	04/07/2025	13:10	LB135333
	Beryllium	5.67	6.0	94	40 - 160	P	04/07/2025	13:10	LB135333
	Boron	89.0	100	89	40 - 160	P	04/07/2025	13:10	LB135333
	Cadmium	5.78	6.0	96	40 - 160	P	04/07/2025	13:10	LB135333
	Calcium	1920	2000	96	40 - 160	P	04/07/2025	13:10	LB135333
	Chromium	9.85	10.0	98	40 - 160	P	04/07/2025	13:10	LB135333
	Cobalt	29.8	30.0	99	40 - 160	P	04/07/2025	13:10	LB135333
	Copper	22.4	20.0	112	40 - 160	P	04/07/2025	13:10	LB135333
	Iron	99.8	100	100	40 - 160	P	04/07/2025	13:10	LB135333
	Lead	11.7	12.0	98	40 - 160	P	04/07/2025	13:10	LB135333
	Magnesium	2030	2000	102	40 - 160	P	04/07/2025	13:10	LB135333
	Manganese	21.2	20.0	106	40 - 160	P	04/07/2025	13:10	LB135333
	Molybdenum	210	200	105	40 - 160	P	04/07/2025	13:10	LB135333
	Nickel	39.7	40.0	99	40 - 160	P	04/07/2025	13:10	LB135333
	Potassium	1870	2000	94	40 - 160	P	04/07/2025	13:10	LB135333
	Selenium	21.0	20.0	105	40 - 160	P	04/07/2025	13:10	LB135333
	Silver	10.9	10.0	109	40 - 160	P	04/07/2025	13:10	LB135333
	Sodium	1460	2000	73	40 - 160	P	04/07/2025	13:10	LB135333
	Strontium	19.0	20.0	95	40 - 160	P	04/07/2025	13:10	LB135333
	Thallium	40.7	40.0	102	40 - 160	P	04/07/2025	13:10	LB135333
	Tin	39.6	40.0	99	40 - 160	P	04/07/2025	13:10	LB135333
	Titanium	38.5	40.0	96	40 - 160	P	04/07/2025	13:10	LB135333
	Vanadium	38.2	40.0	95	40 - 160	P	04/07/2025	13:10	LB135333
	Zinc	41.4	40.0	104	40 - 160	P	04/07/2025	13:10	LB135333

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB75	Mercury	0.20	+/-0.20	U	0.20	CV	04/03/2025	14:17	LB135287

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB28	Mercury	0.20	+/-0.20	U	0.20	CV	04/03/2025	14:21	LB135287
CCB29	Mercury	0.20	+/-0.20	U	0.20	CV	04/03/2025	15:14	LB135287

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Aluminum	100	+/-100	U	100	P	04/07/2025	13:05	LB135333
	Antimony	50.0	+/-50.0	U	50.0	P	04/07/2025	13:05	LB135333
	Arsenic	20.0	+/-20.0	U	20.0	P	04/07/2025	13:05	LB135333
	Barium	100	+/-100	U	100	P	04/07/2025	13:05	LB135333
	Beryllium	6.00	+/-6.00	U	6.00	P	04/07/2025	13:05	LB135333
	Boron	100	+/-100	U	100	P	04/07/2025	13:05	LB135333
	Cadmium	6.00	+/-6.00	U	6.00	P	04/07/2025	13:05	LB135333
	Calcium	2000	+/-2000	U	2000	P	04/07/2025	13:05	LB135333
	Chromium	10.0	+/-10.0	U	10.0	P	04/07/2025	13:05	LB135333
	Cobalt	30.0	+/-30.0	U	30.0	P	04/07/2025	13:05	LB135333
	Copper	20.0	+/-20.0	U	20.0	P	04/07/2025	13:05	LB135333
	Iron	100	+/-100	U	100	P	04/07/2025	13:05	LB135333
	Lead	12.0	+/-12.0	U	12.0	P	04/07/2025	13:05	LB135333
	Magnesium	2000	+/-2000	U	2000	P	04/07/2025	13:05	LB135333
	Manganese	20.0	+/-20.0	U	20.0	P	04/07/2025	13:05	LB135333
	Molybdenum	200	+/-200	U	200	P	04/07/2025	13:05	LB135333
	Nickel	40.0	+/-40.0	U	40.0	P	04/07/2025	13:05	LB135333
	Potassium	2000	+/-2000	U	2000	P	04/07/2025	13:05	LB135333
	Selenium	20.0	+/-20.0	U	20.0	P	04/07/2025	13:05	LB135333
	Silver	10.0	+/-10.0	U	10.0	P	04/07/2025	13:05	LB135333
	Sodium	2000	+/-2000	U	2000	P	04/07/2025	13:05	LB135333
	Strontium	20.0	+/-20.0	U	20.0	P	04/07/2025	13:05	LB135333
	Thallium	40.0	+/-40.0	U	40.0	P	04/07/2025	13:05	LB135333
	Tin	40.0	+/-40.0	U	40.0	P	04/07/2025	13:05	LB135333
	Titanium	40.0	+/-40.0	U	40.0	P	04/07/2025	13:05	LB135333
	Vanadium	40.0	+/-40.0	U	40.0	P	04/07/2025	13:05	LB135333
	Zinc	40.0	+/-40.0	U	40.0	P	04/07/2025	13:05	LB135333

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Aluminum	100	+/-100	U	100	P	04/07/2025	13:50	LB135333
	Antimony	50.0	+/-50.0	U	50.0	P	04/07/2025	13:50	LB135333
	Arsenic	20.0	+/-20.0	U	20.0	P	04/07/2025	13:50	LB135333
	Barium	100	+/-100	U	100	P	04/07/2025	13:50	LB135333
	Beryllium	6.00	+/-6.00	U	6.00	P	04/07/2025	13:50	LB135333
	Boron	100	+/-100	U	100	P	04/07/2025	13:50	LB135333
	Cadmium	6.00	+/-6.00	U	6.00	P	04/07/2025	13:50	LB135333
	Calcium	2000	+/-2000	U	2000	P	04/07/2025	13:50	LB135333
	Chromium	10.0	+/-10.0	U	10.0	P	04/07/2025	13:50	LB135333
	Cobalt	30.0	+/-30.0	U	30.0	P	04/07/2025	13:50	LB135333
	Copper	20.0	+/-20.0	U	20.0	P	04/07/2025	13:50	LB135333
	Iron	100	+/-100	U	100	P	04/07/2025	13:50	LB135333
	Lead	12.0	+/-12.0	U	12.0	P	04/07/2025	13:50	LB135333
	Magnesium	2000	+/-2000	U	2000	P	04/07/2025	13:50	LB135333
	Manganese	20.0	+/-20.0	U	20.0	P	04/07/2025	13:50	LB135333
	Molybdenum	200	+/-200	U	200	P	04/07/2025	13:50	LB135333
	Nickel	40.0	+/-40.0	U	40.0	P	04/07/2025	13:50	LB135333
	Potassium	2000	+/-2000	U	2000	P	04/07/2025	13:50	LB135333
	Selenium	20.0	+/-20.0	U	20.0	P	04/07/2025	13:50	LB135333
	Silver	10.0	+/-10.0	U	10.0	P	04/07/2025	13:50	LB135333
	Sodium	2000	+/-2000	U	2000	P	04/07/2025	13:50	LB135333
	Strontium	20.0	+/-20.0	U	20.0	P	04/07/2025	13:50	LB135333
	Thallium	40.0	+/-40.0	U	40.0	P	04/07/2025	13:50	LB135333
	Tin	40.0	+/-40.0	U	40.0	P	04/07/2025	13:50	LB135333
	Titanium	40.0	+/-40.0	U	40.0	P	04/07/2025	13:50	LB135333
	Vanadium	40.0	+/-40.0	U	40.0	P	04/07/2025	13:50	LB135333
	Zinc	40.0	+/-40.0	U	40.0	P	04/07/2025	13:50	LB135333
CCB02	Aluminum	100	+/-100	U	100	P	04/07/2025	15:12	LB135333
	Antimony	50.0	+/-50.0	U	50.0	P	04/07/2025	15:12	LB135333
	Arsenic	20.0	+/-20.0	U	20.0	P	04/07/2025	15:12	LB135333
	Barium	100	+/-100	U	100	P	04/07/2025	15:12	LB135333
	Beryllium	6.00	+/-6.00	U	6.00	P	04/07/2025	15:12	LB135333
	Boron	100	+/-100	U	100	P	04/07/2025	15:12	LB135333
	Cadmium	6.00	+/-6.00	U	6.00	P	04/07/2025	15:12	LB135333
	Calcium	2000	+/-2000	U	2000	P	04/07/2025	15:12	LB135333
	Chromium	10.0	+/-10.0	U	10.0	P	04/07/2025	15:12	LB135333
	Cobalt	30.0	+/-30.0	U	30.0	P	04/07/2025	15:12	LB135333
	Copper	20.0	+/-20.0	U	20.0	P	04/07/2025	15:12	LB135333
	Iron	100	+/-100	U	100	P	04/07/2025	15:12	LB135333

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB02	Lead	12.0	+/-12.0	U	12.0	P	04/07/2025	15:12	LB135333
	Magnesium	2000	+/-2000	U	2000	P	04/07/2025	15:12	LB135333
	Manganese	20.0	+/-20.0	U	20.0	P	04/07/2025	15:12	LB135333
	Molybdenum	200	+/-200	U	200	P	04/07/2025	15:12	LB135333
	Nickel	40.0	+/-40.0	U	40.0	P	04/07/2025	15:12	LB135333
	Potassium	2000	+/-2000	U	2000	P	04/07/2025	15:12	LB135333
	Selenium	20.0	+/-20.0	U	20.0	P	04/07/2025	15:12	LB135333
	Silver	10.0	+/-10.0	U	10.0	P	04/07/2025	15:12	LB135333
	Sodium	2000	+/-2000	U	2000	P	04/07/2025	15:12	LB135333
	Strontium	20.0	+/-20.0	U	20.0	P	04/07/2025	15:12	LB135333
	Thallium	40.0	+/-40.0	U	40.0	P	04/07/2025	15:12	LB135333
	Tin	40.0	+/-40.0	U	40.0	P	04/07/2025	15:12	LB135333
	Titanium	40.0	+/-40.0	U	40.0	P	04/07/2025	15:12	LB135333
	Vanadium	40.0	+/-40.0	U	40.0	P	04/07/2025	15:12	LB135333
	Zinc	40.0	+/-40.0	U	40.0	P	04/07/2025	15:12	LB135333
CCB03	Aluminum	100	+/-100	U	100	P	04/07/2025	15:45	LB135333
	Antimony	50.0	+/-50.0	U	50.0	P	04/07/2025	15:45	LB135333
	Arsenic	20.0	+/-20.0	U	20.0	P	04/07/2025	15:45	LB135333
	Barium	100	+/-100	U	100	P	04/07/2025	15:45	LB135333
	Beryllium	6.00	+/-6.00	U	6.00	P	04/07/2025	15:45	LB135333
	Boron	100	+/-100	U	100	P	04/07/2025	15:45	LB135333
	Cadmium	6.00	+/-6.00	U	6.00	P	04/07/2025	15:45	LB135333
	Calcium	2000	+/-2000	U	2000	P	04/07/2025	15:45	LB135333
	Chromium	10.0	+/-10.0	U	10.0	P	04/07/2025	15:45	LB135333
	Cobalt	30.0	+/-30.0	U	30.0	P	04/07/2025	15:45	LB135333
	Copper	20.0	+/-20.0	U	20.0	P	04/07/2025	15:45	LB135333
	Iron	100	+/-100	U	100	P	04/07/2025	15:45	LB135333
	Lead	12.0	+/-12.0	U	12.0	P	04/07/2025	15:45	LB135333
	Magnesium	2000	+/-2000	U	2000	P	04/07/2025	15:45	LB135333
	Manganese	20.0	+/-20.0	U	20.0	P	04/07/2025	15:45	LB135333
	Molybdenum	200	+/-200	U	200	P	04/07/2025	15:45	LB135333
	Nickel	40.0	+/-40.0	U	40.0	P	04/07/2025	15:45	LB135333
	Potassium	2000	+/-2000	U	2000	P	04/07/2025	15:45	LB135333
	Selenium	20.0	+/-20.0	U	20.0	P	04/07/2025	15:45	LB135333
	Silver	10.0	+/-10.0	U	10.0	P	04/07/2025	15:45	LB135333
	Sodium	2000	+/-2000	U	2000	P	04/07/2025	15:45	LB135333
	Strontium	20.0	+/-20.0	U	20.0	P	04/07/2025	15:45	LB135333
	Thallium	40.0	+/-40.0	U	40.0	P	04/07/2025	15:45	LB135333
	Tin	40.0	+/-40.0	U	40.0	P	04/07/2025	15:45	LB135333

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB03	Titanium	40.0	+/-40.0	U	40.0	P	04/07/2025	15:45	LB135333
	Vanadium	40.0	+/-40.0	U	40.0	P	04/07/2025	15:45	LB135333
	Zinc	40.0	+/-40.0	U	40.0	P	04/07/2025	15:45	LB135333
CCB04	Aluminum	100	+/-100	U	100	P	04/07/2025	17:04	LB135333
	Antimony	50.0	+/-50.0	U	50.0	P	04/07/2025	17:04	LB135333
	Arsenic	20.0	+/-20.0	U	20.0	P	04/07/2025	17:04	LB135333
	Barium	100	+/-100	U	100	P	04/07/2025	17:04	LB135333
	Beryllium	6.00	+/-6.00	U	6.00	P	04/07/2025	17:04	LB135333
	Boron	100	+/-100	U	100	P	04/07/2025	17:04	LB135333
	Cadmium	6.00	+/-6.00	U	6.00	P	04/07/2025	17:04	LB135333
	Calcium	2000	+/-2000	U	2000	P	04/07/2025	17:04	LB135333
	Chromium	10.0	+/-10.0	U	10.0	P	04/07/2025	17:04	LB135333
	Cobalt	30.0	+/-30.0	U	30.0	P	04/07/2025	17:04	LB135333
	Copper	20.0	+/-20.0	U	20.0	P	04/07/2025	17:04	LB135333
	Iron	100	+/-100	U	100	P	04/07/2025	17:04	LB135333
	Lead	12.0	+/-12.0	U	12.0	P	04/07/2025	17:04	LB135333
	Magnesium	2000	+/-2000	U	2000	P	04/07/2025	17:04	LB135333
	Manganese	20.0	+/-20.0	U	20.0	P	04/07/2025	17:04	LB135333
	Molybdenum	200	+/-200	U	200	P	04/07/2025	17:04	LB135333
	Nickel	40.0	+/-40.0	U	40.0	P	04/07/2025	17:04	LB135333
	Potassium	2000	+/-2000	U	2000	P	04/07/2025	17:04	LB135333
	Selenium	20.0	+/-20.0	U	20.0	P	04/07/2025	17:04	LB135333
	Silver	10.0	+/-10.0	U	10.0	P	04/07/2025	17:04	LB135333
	Sodium	2000	+/-2000	U	2000	P	04/07/2025	17:04	LB135333
	Strontium	20.0	+/-20.0	U	20.0	P	04/07/2025	17:04	LB135333
	Thallium	40.0	+/-40.0	U	40.0	P	04/07/2025	17:04	LB135333
	Tin	40.0	+/-40.0	U	40.0	P	04/07/2025	17:04	LB135333
	Titanium	40.0	+/-40.0	U	40.0	P	04/07/2025	17:04	LB135333
	Vanadium	40.0	+/-40.0	U	40.0	P	04/07/2025	17:04	LB135333
	Zinc	40.0	+/-40.0	U	40.0	P	04/07/2025	17:04	LB135333
CCB05	Aluminum	100	+/-100	U	100	P	04/07/2025	17:47	LB135333
	Antimony	50.0	+/-50.0	U	50.0	P	04/07/2025	17:47	LB135333
	Arsenic	20.0	+/-20.0	U	20.0	P	04/07/2025	17:47	LB135333
	Barium	100	+/-100	U	100	P	04/07/2025	17:47	LB135333
	Beryllium	6.00	+/-6.00	U	6.00	P	04/07/2025	17:47	LB135333
	Boron	100	+/-100	U	100	P	04/07/2025	17:47	LB135333
	Cadmium	6.00	+/-6.00	U	6.00	P	04/07/2025	17:47	LB135333
	Calcium	2000	+/-2000	U	2000	P	04/07/2025	17:47	LB135333
	Chromium	10.0	+/-10.0	U	10.0	P	04/07/2025	17:47	LB135333

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB05	Cobalt	30.0	+/-30.0	U	30.0	P	04/07/2025	17:47	LB135333
	Copper	20.0	+/-20.0	U	20.0	P	04/07/2025	17:47	LB135333
	Iron	100	+/-100	U	100	P	04/07/2025	17:47	LB135333
	Lead	12.0	+/-12.0	U	12.0	P	04/07/2025	17:47	LB135333
	Magnesium	2000	+/-2000	U	2000	P	04/07/2025	17:47	LB135333
	Manganese	20.0	+/-20.0	U	20.0	P	04/07/2025	17:47	LB135333
	Molybdenum	200	+/-200	U	200	P	04/07/2025	17:47	LB135333
	Nickel	40.0	+/-40.0	U	40.0	P	04/07/2025	17:47	LB135333
	Potassium	2000	+/-2000	U	2000	P	04/07/2025	17:47	LB135333
	Selenium	20.0	+/-20.0	U	20.0	P	04/07/2025	17:47	LB135333
	Silver	10.0	+/-10.0	U	10.0	P	04/07/2025	17:47	LB135333
	Sodium	2000	+/-2000	U	2000	P	04/07/2025	17:47	LB135333
	Strontium	20.0	+/-20.0	U	20.0	P	04/07/2025	17:47	LB135333
	Thallium	40.0	+/-40.0	U	40.0	P	04/07/2025	17:47	LB135333
	Tin	40.0	+/-40.0	U	40.0	P	04/07/2025	17:47	LB135333
	Titanium	40.0	+/-40.0	U	40.0	P	04/07/2025	17:47	LB135333
	Vanadium	40.0	+/-40.0	U	40.0	P	04/07/2025	17:47	LB135333
	Zinc	40.0	+/-40.0	U	40.0	P	04/07/2025	17:47	LB135333
CCB06	Aluminum	100	+/-100	U	100	P	04/07/2025	18:55	LB135333
	Antimony	50.0	+/-50.0	U	50.0	P	04/07/2025	18:55	LB135333
	Arsenic	20.0	+/-20.0	U	20.0	P	04/07/2025	18:55	LB135333
	Barium	100	+/-100	U	100	P	04/07/2025	18:55	LB135333
	Beryllium	6.00	+/-6.00	U	6.00	P	04/07/2025	18:55	LB135333
	Boron	100	+/-100	U	100	P	04/07/2025	18:55	LB135333
	Cadmium	6.00	+/-6.00	U	6.00	P	04/07/2025	18:55	LB135333
	Calcium	2000	+/-2000	U	2000	P	04/07/2025	18:55	LB135333
	Chromium	10.0	+/-10.0	U	10.0	P	04/07/2025	18:55	LB135333
	Cobalt	30.0	+/-30.0	U	30.0	P	04/07/2025	18:55	LB135333
	Copper	20.0	+/-20.0	U	20.0	P	04/07/2025	18:55	LB135333
	Iron	100	+/-100	U	100	P	04/07/2025	18:55	LB135333
	Lead	12.0	+/-12.0	U	12.0	P	04/07/2025	18:55	LB135333
	Magnesium	2000	+/-2000	U	2000	P	04/07/2025	18:55	LB135333
	Manganese	20.0	+/-20.0	U	20.0	P	04/07/2025	18:55	LB135333
	Molybdenum	200	+/-200	U	200	P	04/07/2025	18:55	LB135333
	Nickel	40.0	+/-40.0	U	40.0	P	04/07/2025	18:55	LB135333
	Potassium	2000	+/-2000	U	2000	P	04/07/2025	18:55	LB135333
	Selenium	20.0	+/-20.0	U	20.0	P	04/07/2025	18:55	LB135333
	Silver	10.0	+/-10.0	U	10.0	P	04/07/2025	18:55	LB135333
	Sodium	2000	+/-2000	U	2000	P	04/07/2025	18:55	LB135333

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Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB06	Strontium	20.0	+/-20.0	U	20.0	P	04/07/2025	18:55	LB135333
	Thallium	40.0	+/-40.0	U	40.0	P	04/07/2025	18:55	LB135333
	Tin	40.0	+/-40.0	U	40.0	P	04/07/2025	18:55	LB135333
	Titanium	40.0	+/-40.0	U	40.0	P	04/07/2025	18:55	LB135333
	Vanadium	40.0	+/-40.0	U	40.0	P	04/07/2025	18:55	LB135333
	Zinc	40.0	+/-40.0	U	40.0	P	04/07/2025	18:55	LB135333

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Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Instrument: CV1

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB167452BL		**WATER**		**Batch Number:**	**PB167452**		**Prep Date:**	**04/03/2025**	
	Mercury	0.20	<0.20	U	0.20	CV	04/03/2025	14:30	LB135287

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Metals
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PREPARATION BLANK SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Instrument: P4

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB167471BL		**WATER**		**Batch Number:**	**PB167471**		**Prep Date:**	**03/21/2025**	
	Aluminum	100	<100	U	100	P	04/07/2025	14:23	LB135333
	Antimony	50.0	<50.0	U	50.0	P	04/07/2025	14:23	LB135333
	Arsenic	20.0	<20.0	U	20.0	P	04/07/2025	14:23	LB135333
	Barium	100	<100	U	100	P	04/07/2025	14:23	LB135333
	Beryllium	6.00	<6.00	U	6.00	P	04/07/2025	14:23	LB135333
	Boron	100	<100	U	100	P	04/07/2025	14:23	LB135333
	Cadmium	6.00	<6.00	U	6.00	P	04/07/2025	14:23	LB135333
	Calcium	2000	<2000	U	2000	P	04/07/2025	14:23	LB135333
	Chromium	10.0	<10.0	U	10.0	P	04/07/2025	14:23	LB135333
	Cobalt	30.0	<30.0	U	30.0	P	04/07/2025	14:23	LB135333
	Copper	20.0	<20.0	U	20.0	P	04/07/2025	14:23	LB135333
	Iron	100	<100	U	100	P	04/07/2025	14:23	LB135333
	Lead	12.0	<12.0	U	12.0	P	04/07/2025	14:23	LB135333
	Magnesium	2000	<2000	U	2000	P	04/07/2025	14:23	LB135333
	Manganese	20.0	<20.0	U	20.0	P	04/07/2025	14:23	LB135333
	Molybdenum	200	<200	U	200	P	04/07/2025	14:23	LB135333
	Nickel	40.0	<40.0	U	40.0	P	04/07/2025	14:23	LB135333
	Potassium	2000	<2000	U	2000	P	04/07/2025	14:23	LB135333
	Selenium	20.0	<20.0	U	20.0	P	04/07/2025	14:23	LB135333
	Silver	10.0	<10.0	U	10.0	P	04/07/2025	14:23	LB135333
	Sodium	2000	<2000	U	2000	P	04/07/2025	14:23	LB135333
	Strontium	20.0	<20.0	U	20.0	P	04/07/2025	14:23	LB135333
	Thallium	40.0	<40.0	U	40.0	P	04/07/2025	14:23	LB135333
	Tin	40.0	<40.0	U	40.0	P	04/07/2025	14:23	LB135333
	Titanium	40.0	<40.0	U	40.0	P	04/07/2025	14:23	LB135333
	Vanadium	40.0	<40.0	U	40.0	P	04/07/2025	14:23	LB135333
	Zinc	40.0	<40.0	U	40.0	P	04/07/2025	14:23	LB135333

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Metals
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INTERFERENCE CHECK SAMPLE

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

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	244000	255000	96	216000	294000	04/07/2025	13:14	LB135333
	Antimony	2.97			-50	50	04/07/2025	13:14	LB135333
	Arsenic	3.15			-20	20	04/07/2025	13:14	LB135333
	Barium	3.18	6.0	53	-94	106	04/07/2025	13:14	LB135333
	Beryllium	1.55			-6	6	04/07/2025	13:14	LB135333
	Boron	-21.5	1000	2	-100	100	04/07/2025	13:14	LB135333
	Cadmium	1.65	1.0	165	-5	7	04/07/2025	13:14	LB135333
	Calcium	231000	245000	94	208000	282000	04/07/2025	13:14	LB135333
	Chromium	58.6	52.0	113	42	62	04/07/2025	13:14	LB135333
	Cobalt	1.78			-30	30	04/07/2025	13:14	LB135333
	Copper	21.3	2.0	1065	-18	22	04/07/2025	13:14	LB135333
	Iron	101000	101000	100	85600	116500	04/07/2025	13:14	LB135333
	Lead	6.94			-12	12	04/07/2025	13:14	LB135333
	Magnesium	248000	255000	97	216000	294000	04/07/2025	13:14	LB135333
	Manganese	2.93	7.0	42	-13	27	04/07/2025	13:14	LB135333
	Molybdenum	-1.75	1000		-200	200	04/07/2025	13:14	LB135333
	Nickel	2.35	2.0	118	-38	42	04/07/2025	13:14	LB135333
	Potassium	-133			0	0	04/07/2025	13:14	LB135333
	Selenium	-16.6			-20	20	04/07/2025	13:14	LB135333
	Silver	-4.96			-10	10	04/07/2025	13:14	LB135333
	Sodium	-262			0	0	04/07/2025	13:14	LB135333
	Strontium	-5.81			0	0	04/07/2025	13:14	LB135333
	Thallium	6.03			-40	40	04/07/2025	13:14	LB135333
	Tin	-4.91	1000		-40	40	04/07/2025	13:14	LB135333
	Titanium	-1.36			0	0	04/07/2025	13:14	LB135333
	Vanadium	5.15			-40	40	04/07/2025	13:14	LB135333
	Zinc	4.53			-40	40	04/07/2025	13:14	LB135333
ICSAB01	Aluminum	238000	247000	96	209000	285000	04/07/2025	13:18	LB135333
	Antimony	619	618	100	525	711	04/07/2025	13:18	LB135333
	Arsenic	109	104	105	88.4	120	04/07/2025	13:18	LB135333
	Barium	478	537	89	437	637	04/07/2025	13:18	LB135333
	Beryllium	456	495	92	420	570	04/07/2025	13:18	LB135333
	Boron	1000	1000	100	850	1150	04/07/2025	13:18	LB135333
	Cadmium	987	972	102	826	1120	04/07/2025	13:18	LB135333
	Calcium	229000	235000	97	199000	271000	04/07/2025	13:18	LB135333
	Chromium	555	542	102	460	624	04/07/2025	13:18	LB135333
	Cobalt	502	476	106	404	548	04/07/2025	13:18	LB135333
	Copper	500	511	98	434	588	04/07/2025	13:18	LB135333
	Iron	106000	99300	107	84400	114500	04/07/2025	13:18	LB135333
	Lead	54.7	49.0	112	37	61	04/07/2025	13:18	LB135333
	Magnesium	243000	248000	98	210000	286000	04/07/2025	13:18	LB135333
	Manganese	459	507	90	430	584	04/07/2025	13:18	LB135333

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Metals
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INTERFERENCE CHECK SAMPLE

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

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	Molybdenum	1130	1000	113	850	1150	04/07/2025	13:18	LB135333
	Nickel	991	954	104	810	1100	04/07/2025	13:18	LB135333
	Potassium	-136			0	0	04/07/2025	13:18	LB135333
	Selenium	41.4	46.0	90	26	66	04/07/2025	13:18	LB135333
	Silver	185	201	92	170	232	04/07/2025	13:18	LB135333
	Sodium	-302			0	0	04/07/2025	13:18	LB135333
	Strontium	974			0	0	04/07/2025	13:18	LB135333
	Thallium	102	108	94	68	148	04/07/2025	13:18	LB135333
	Tin	1140	1000	114	850	1150	04/07/2025	13:18	LB135333
	Titanium	1050			0	0	04/07/2025	13:18	LB135333
	Vanadium	456	491	93	417	565	04/07/2025	13:18	LB135333
	Zinc	1030	952	108	809	1095	04/07/2025	13:18	LB135333

METAL QC DATA

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LABORATORY CONTROL SAMPLE SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB167452BS							
Mercury	ug/L	4.0	4.06		102	80 - 120	CV

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LABORATORY CONTROL SAMPLE SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB167471BS							
Aluminum	ug/L	2000	1840		92	80 - 120	P
Antimony	ug/L	800	807		101	80 - 120	P
Arsenic	ug/L	800	778		97	80 - 120	P
Barium	ug/L	200	180		90	80 - 120	P
Beryllium	ug/L	200	186		93	80 - 120	P
Boron	ug/L	300	260		87	80 - 120	P
Cadmium	ug/L	200	188		94	80 - 120	P
Calcium	ug/L	1000	940	J	94	80 - 120	P
Chromium	ug/L	400	395		99	80 - 120	P
Cobalt	ug/L	200	191		96	80 - 120	P
Copper	ug/L	300	306		102	80 - 120	P
Iron	ug/L	3000	2910		97	80 - 120	P
Lead	ug/L	1000	938		94	80 - 120	P
Magnesium	ug/L	2000	1790	J	90	80 - 120	P
Manganese	ug/L	200	185		92	80 - 120	P
Molybdenum	ug/L	400	399		100	80 - 120	P
Nickel	ug/L	500	481		96	80 - 120	P
Potassium	ug/L	10000	9380		94	80 - 120	P
Selenium	ug/L	2000	1980		99	80 - 120	P
Silver	ug/L	75.0	73.8		98	80 - 120	P
Sodium	ug/L	3000	3010		100	80 - 120	P
Strontium	ug/L	200	182		91	80 - 120	P
Thallium	ug/L	2000	1990		100	80 - 120	P
Tin	ug/L	700	673		96	80 - 120	P
Titanium	ug/L	200	182		91	80 - 120	P
Vanadium	ug/L	300	277		92	80 - 120	P
Zinc	ug/L	200	197		98	80 - 120	P

METAL PREPARATION & INSTRUMENT DATA

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Metals
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ICP INTERELEMENT CORRECTION FACTORS

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

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
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ICP INTERELEMENT CORRECTION FACTORS

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

Instrument ID: **Date:**

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

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

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ICP INTERELEMENT CORRECTION FACTORS

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

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
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ICP INTERELEMENT CORRECTION FACTORS

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

Instrument ID: **Date:**

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

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

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Metals
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ICP INTERELEMENT CORRECTION FACTORS

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Case No.:** Q1504 **SAS No.:** Q1504

Instrument ID: **Date:**

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

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

METAL PREPARATION & ANALYICAL SUMMARY

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Fax : 908 789 8922

Metals
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SAMPLE PREPARATION SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Method:**

Case No.: Q1504 **SAS No.:** Q1504

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB167452**						
PB167452BL	PB167452BL	MB	WATER	04/03/2025	30.0	30.0	
PB167452BS	PB167452BS	LCS	WATER	04/03/2025	30.0	30.0	
Q1504-07	PT-HG-WP	SAM	WATER	04/03/2025	30.0	30.0	

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Fax : 908 789 8922

Metals
- 13 -
SAMPLE PREPARATION SUMMARY

Client: Alliance Technical Group, LLC - Newark **SDG No.:** Q1504

Contract: ALLI03 **Lab Code:** CHEM **Method:**

Case No.: Q1504 **SAS No.:** Q1504

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB167471**						
PB167471BL	PB167471BL	MB	WATER	03/21/2025	50.0	50.0	
PB167471BS	PB167471BS	LCS	WATER	03/21/2025	50.0	50.0	
Q1504-01	PT-TM1-WP	SAM	WATER	03/21/2025	50.0	50.0	
Q1504-03	PT-SNTI-WP	SAM	WATER	03/21/2025	50.0	50.0	
Q1504-05	PT-MIN2-WP	SAM	WATER	03/21/2025	50.0	50.0	

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metals
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ANALYSIS RUN LOG

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

Lab code: CHEM **Case no.:** Q1504 **Sas no.:** Q1504 **Sdg no.:** Q1504

Instrument id number: **Method:** **Run number:** LB135287

Start date: 04/03/2025 **End date:** 04/03/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1357	HG
S0.2	S0.2	1	1400	HG
S2.5	S2.5	1	1402	HG
S5	S5	1	1404	HG
S7.5	S7.5	1	1407	HG
S10	S10	1	1412	HG
ICV75	ICV75	1	1414	HG
ICB75	ICB75	1	1417	HG
CCV28	CCV28	1	1419	HG
CCB28	CCB28	1	1421	HG
CRA	CRA	1	1424	HG
PB167452BL	PB167452BL	1	1430	HG
PB167452BS	PB167452BS	1	1433	HG
Q1504-07	PT-HG-WP	5	1452	HG
CCV29	CCV29	1	1512	HG
CCB29	CCB29	1	1514	HG

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metals
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ANALYSIS RUN LOG

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

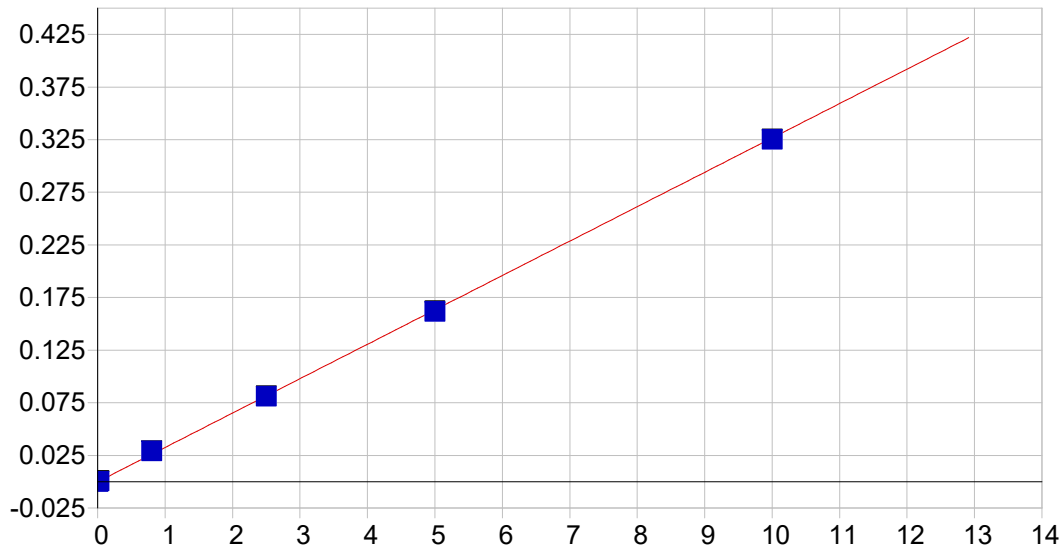
Lab code: CHEM **Case no.:** Q1504 **Sas no.:** Q1504 **Sdg no.:** Q1504

Instrument id number: **Method:** **Run number:** LB135333

Start date: 04/07/2025 **End date:** 04/07/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1051	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
S1	S1	1	1055	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
S2	S2	1	1100	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
S3	S3	1	1104	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
S4	S4	1	1108	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
S5	S5	1	1112	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
ICV01	ICV01	1	1235	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
LLICV01	LLICV01	1	1300	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
ICB01	ICB01	1	1305	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
CRI01	CRI01	1	1310	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
ICSA01	ICSA01	1	1314	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
ICSAB01	ICSAB01	1	1318	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
CCV01	CCV01	1	1342	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
CCB01	CCB01	1	1350	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
PB167471BL	PB167471BL	1	1423	Ag,Al,As,B,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Mo,Na,Ni,Pb,Sb,Se,Sn,Sr,Ti,Tl
PB167471BS	PB167471BS	1	1434	Ag,Al,As,B,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Mo,Na,Ni,Pb,Sb,Se,Sn,Sr,Ti,Tl
Q1504-05	PT-MIN2-WP	1	1438	Ca,K,Mg,Na
Q1504-01	PT-TM1-WP	1	1442	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn
Q1504-03	PT-SNTI-WP	1	1446	Sn,Ti
CCV02	CCV02	1	1507	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
CCB02	CCB02	1	1512	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
CCV03	CCV03	1	1541	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
CCB03	CCB03	1	1545	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
CCV04	CCV04	1	1700	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
CCB04	CCB04	1	1704	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
CCV05	CCV05	1	1743	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
CCB05	CCB05	1	1747	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
CCV06	CCV06	1	1851	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M
CCB06	CCB06	1	1855	Ag,Al,As,B,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Mo,Ni,Pb,Sb,Se,Sr,Tl,V,Zn,Sn,Ti,Ca,K,M

METAL
RAW DATA

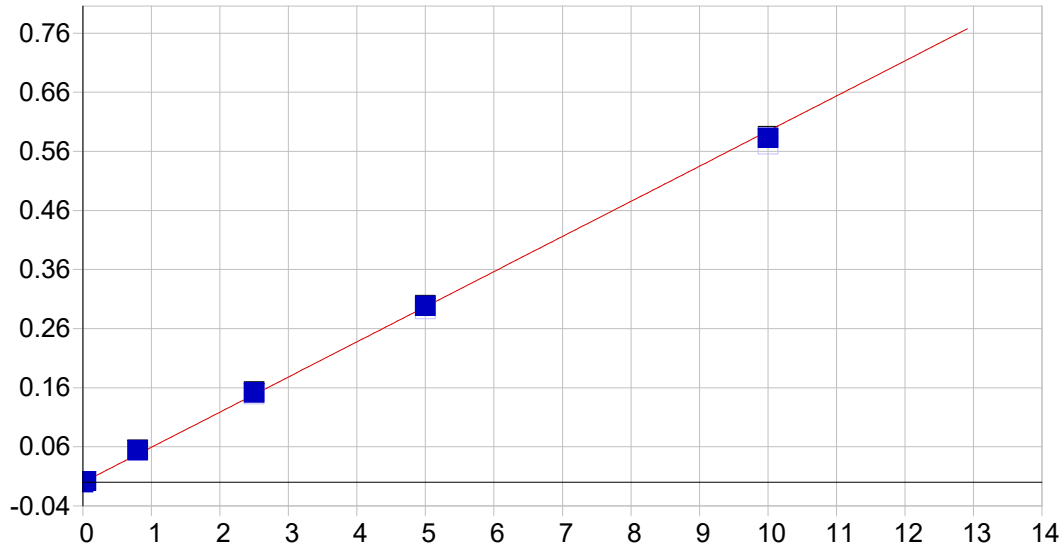


As 189.042 {479}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000166	Re-Slope:	1.000000
A1 (Gain):	0.032683	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999631	Status:	OK.
Std Error of Est:	0.000021		
Predicted MDL:	0.004613		
Predicted MQL:	0.015377		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00017	.000	1
S1	.02000	.02222	.002	11.1	.00056	.000	1
S3	2.5000	2.4909	-.009	-.362	.08116	.000	1
S4	5.0000	4.9510	-.049	-.980	.16147	.001	1
S5	10.000	9.9557	-.044	-.443	.32487	.001	1
S2	.80000	.90017	.100	12.5	.02923	.000	1

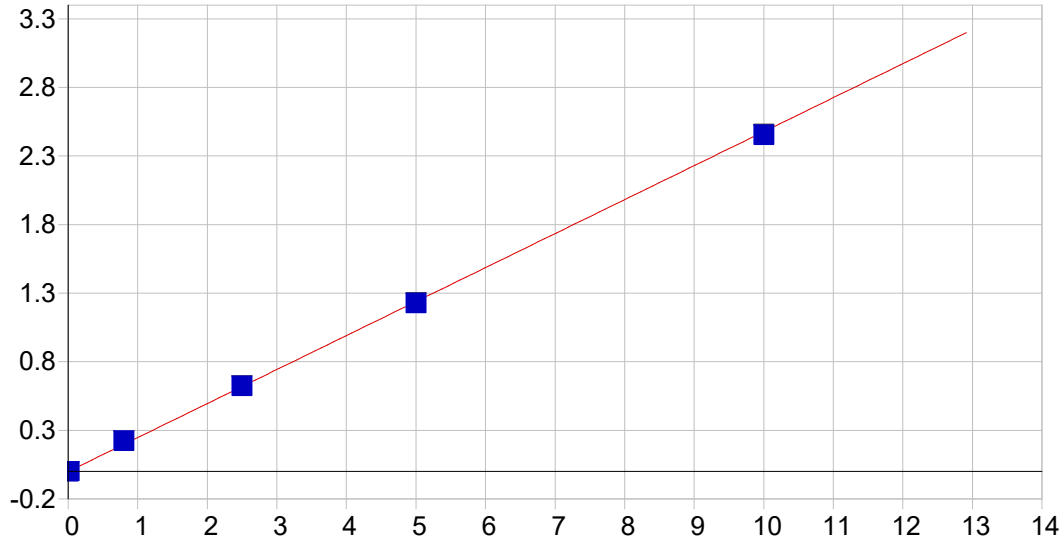


Tl 190.856 {477}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000199	Re-Slope:	1.000000
A1 (Gain):	0.059445	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999400	Status:	OK.
Std Error of Est:	0.000067		
Predicted MDL:	0.002389		
Predicted MQL:	0.007963		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	-.00020	.000	1
S1	.04000	.04199	.002	4.97	.00214	.000	1
S3	2.5000	2.5586	.059	2.34	.14916	.001	1
S4	5.0000	5.0229	.023	.457	.29291	.001	1
S5	10.000	9.8042	-.196	-1.96	.57167	.003	1
S2	.80000	.91244	.112	14.1	.05317	.001	1

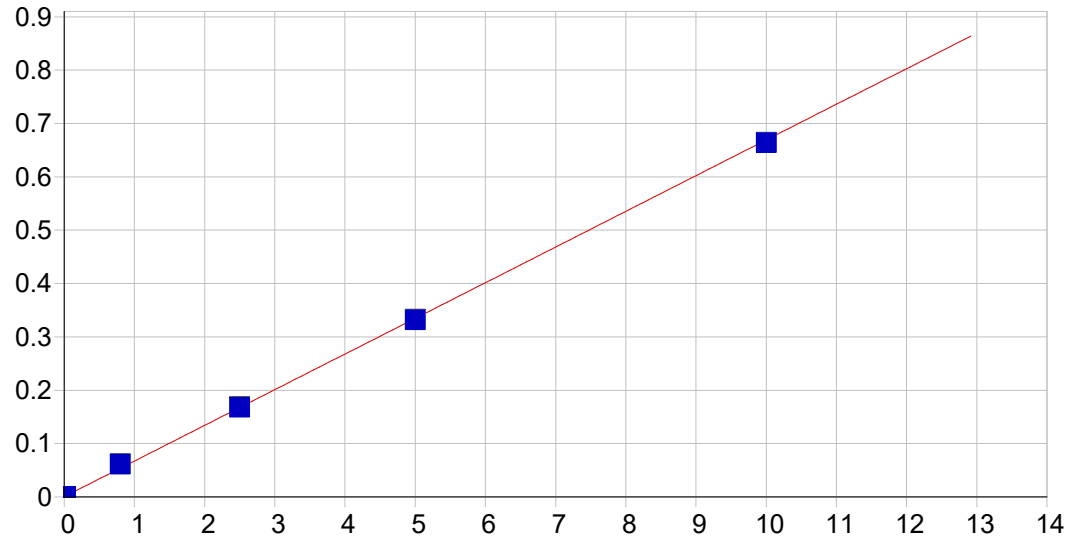


Pb 220.353 {453}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000274	Re-Slope:	1.000000
A1 (Gain):	0.247776	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999577	Status:	OK.
Std Error of Est:	0.000131		
Predicted MDL:	0.001238		
Predicted MQL:	0.004127		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00027	.000	1
S1	.01200	.01135	-.001	-5.39	.00248	.000	1
S3	2.5000	2.5217	.022	.867	.62386	.002	1
S4	5.0000	4.9609	-.039	-.782	1.2276	.003	1
S5	10.000	9.9116	-.088	-.884	2.4529	.004	1
S2	.80000	.90645	.106	13.3	.22410	.001	1

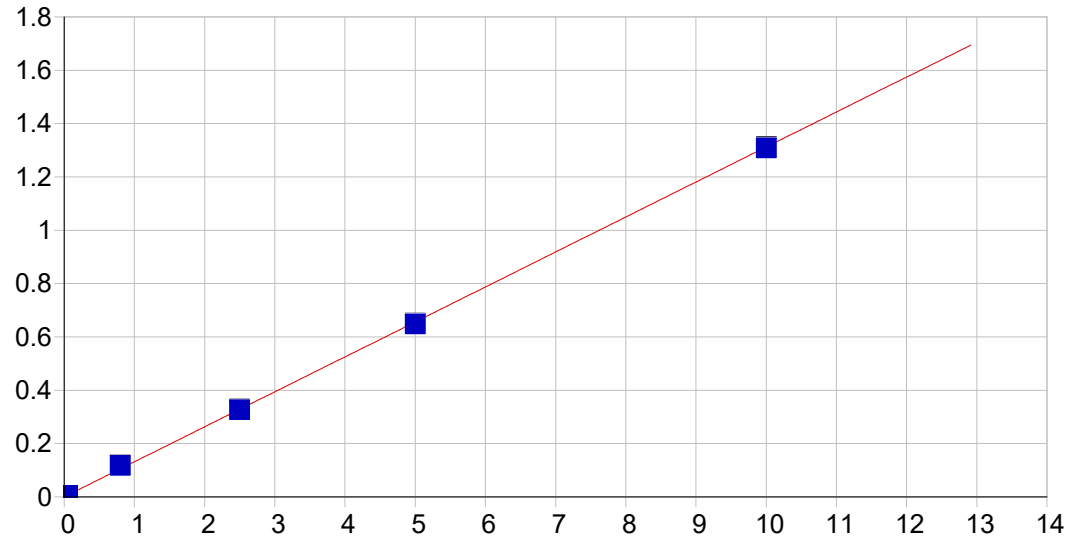


Se 196.090 {472}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000326	Re-Slope:	1.000000
A1 (Gain):	0.066870	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999545	Status:	OK.
Std Error of Est:	0.000047		
Predicted MDL:	0.003217		
Predicted MQL:	0.010722		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00033	.000	1
S1	.02000	.02082	.001	4.08	.00172	.000	1
S3	2.5000	2.5033	.003	.134	.16768	.001	1
S4	5.0000	4.9550	-.045	-.900	.33158	.001	1
S5	10.000	9.9287	-.071	-.713	.66409	.001	1
S2	.80000	.91211	.112	14.0	.06130	.000	1

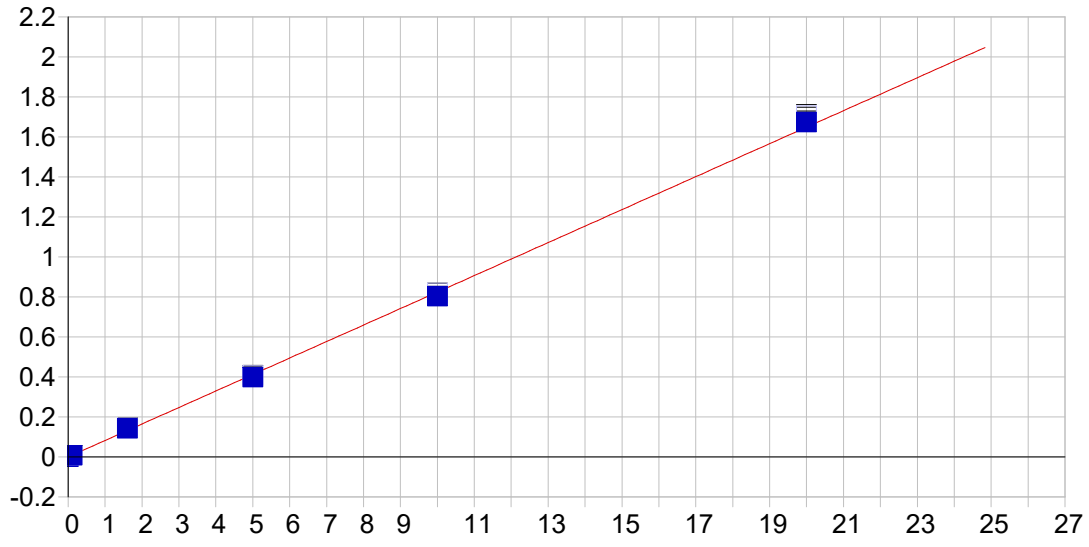


Sb 206.833 {463}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000487	Re-Slope:	1.000000
A1 (Gain):	0.131147	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999662	Status:	OK.
Std Error of Est:	0.000127		
Predicted MDL:	0.001915		
Predicted MQL:	0.006385		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00049	.000	1
S1	.05000	.05062	.001	1.24	.00714	.000	1
S3	2.5000	2.4883	-.012	-.469	.32771	.001	1
S4	5.0000	4.9413	-.059	-1.17	.65030	.001	1
S5	10.000	9.9733	-.027	-.267	1.3120	.002	1
S2	.80000	.89649	.096	12.1	.11834	.000	1

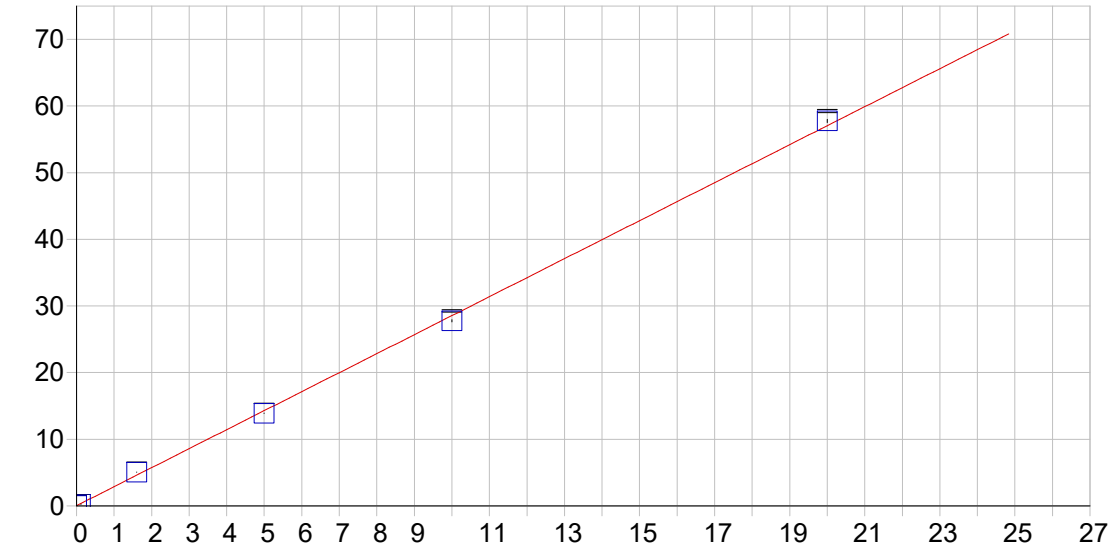


Al 396.152 { 85}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000232	Re-Slope:	1.000000
A1 (Gain):	0.082446	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999647	Status:	OK.
Std Error of Est:	0.000166		
Predicted MDL:	0.007164		
Predicted MQL:	0.023880		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00023	.000	1
S1	.10000	.10101	.001	1.01	.00874	.000	1
S3	5.0000	4.8392	-.161	-3.22	.40674	.001	1
S4	10.000	9.7354	-.265	-2.65	.81841	.001	1
S5	20.000	20.296	.296	1.48	1.7050	.006	1
S2	1.6000	1.7288	.129	8.05	.14486	.001	1

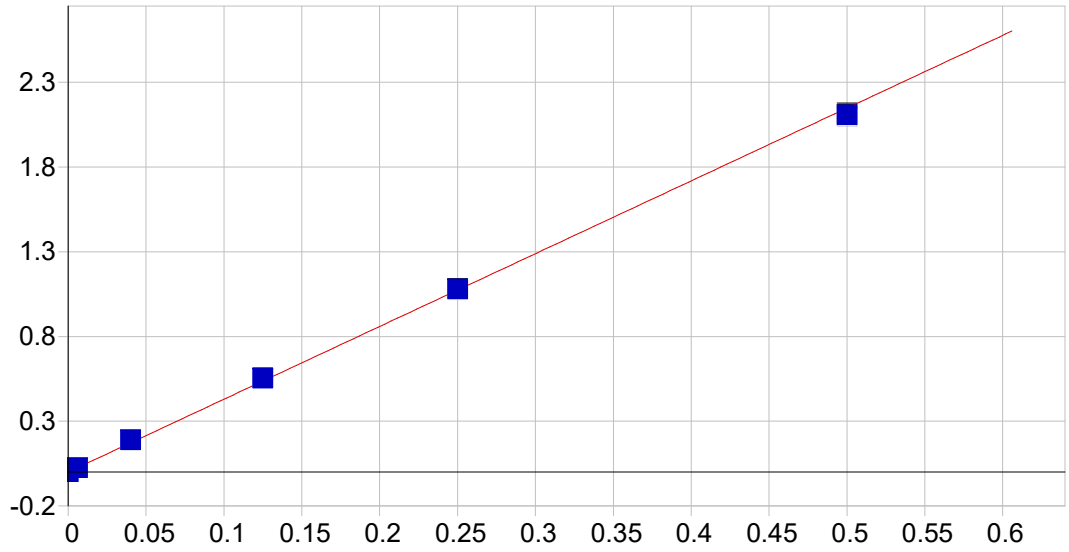


Ba 493.409 { 68}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.039106	Re-Slope:	1.000000
A1 (Gain):	2.850702	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999575	Status:	OK.
Std Error of Est:	0.006162		
Predicted MDL:	0.000762		
Predicted MQL:	0.002540		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.03911	.001	1
S1	.10000	.09391	-.006	-6.09	.30681	.003	1
S3	5.0000	4.8614	-.139	-2.77	13.898	.014	1
S4	10.000	9.7282	-.272	-2.72	27.771	.159	1
S5	20.000	20.255	.255	1.27	57.779	.234	1
S2	1.6000	1.7617	.162	10.1	5.0612	.017	1

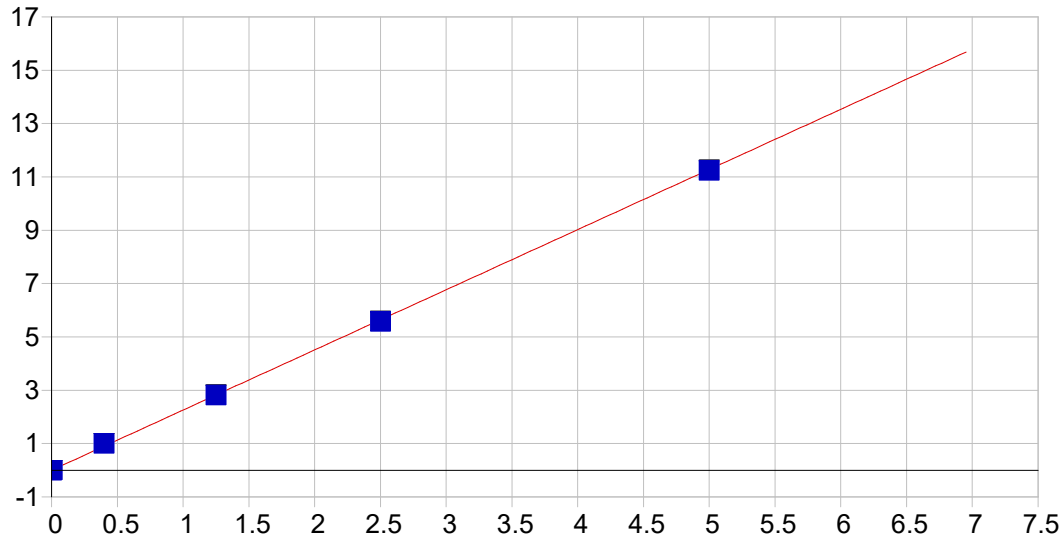


Be 234.861 {144}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000090	Re-Slope:	1.000000
A1 (Gain):	4.295163	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999620	Status:	OK.
Std Error of Est:	0.000339		
Predicted MDL:	0.000059		
Predicted MQL:	0.000196		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00009	.000	1
S1	.00600	.00587	-.000	-2.21	.02510	.000	1
S3	.12500	.12894	.004	3.15	.55149	.002	1
S4	.25000	.25135	.001	.540	1.0749	.002	1
S5	.50000	.49088	-.009	-1.82	2.0989	.010	1
S2	.04000	.04397	.004	9.92	.18817	.001	1

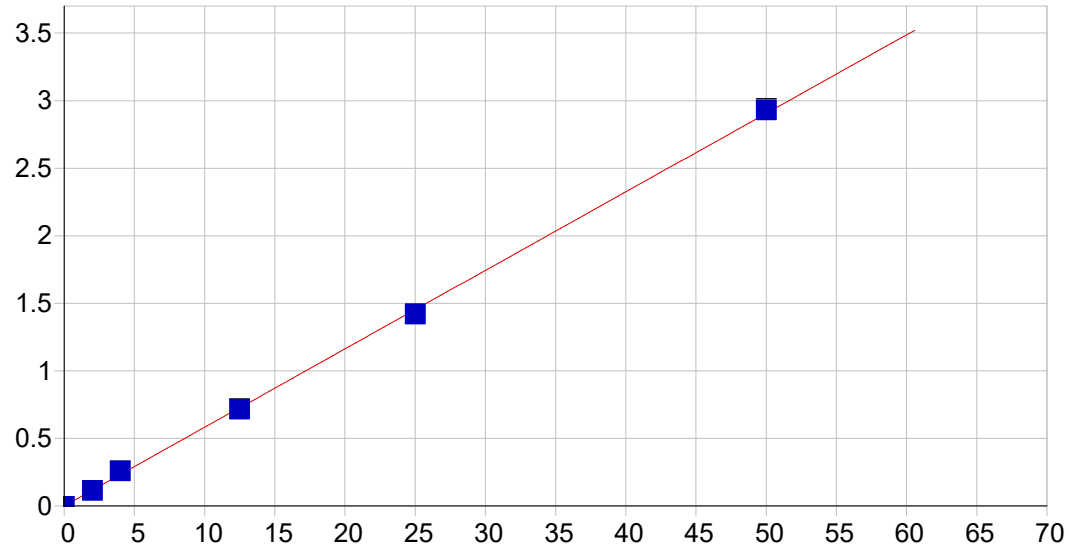


Cd 226.502 {449}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000026	Re-Slope:	1.000000
A1 (Gain):	2.255839	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999698	Status:	OK.
Std Error of Est:	0.000503		
Predicted MDL:	0.000103		
Predicted MQL:	0.000343		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00003	.000	1
S1	.00600	.00590	-.000	-1.72	.01334	.000	1
S3	1.2500	1.2488	-.001	-.099	2.8193	.007	1
S4	2.5000	2.4743	-.026	-1.03	5.5863	.002	1
S5	5.0000	4.9814	-.019	-.372	11.246	.013	1
S2	.40000	.44562	.046	11.4	1.0060	.002	1

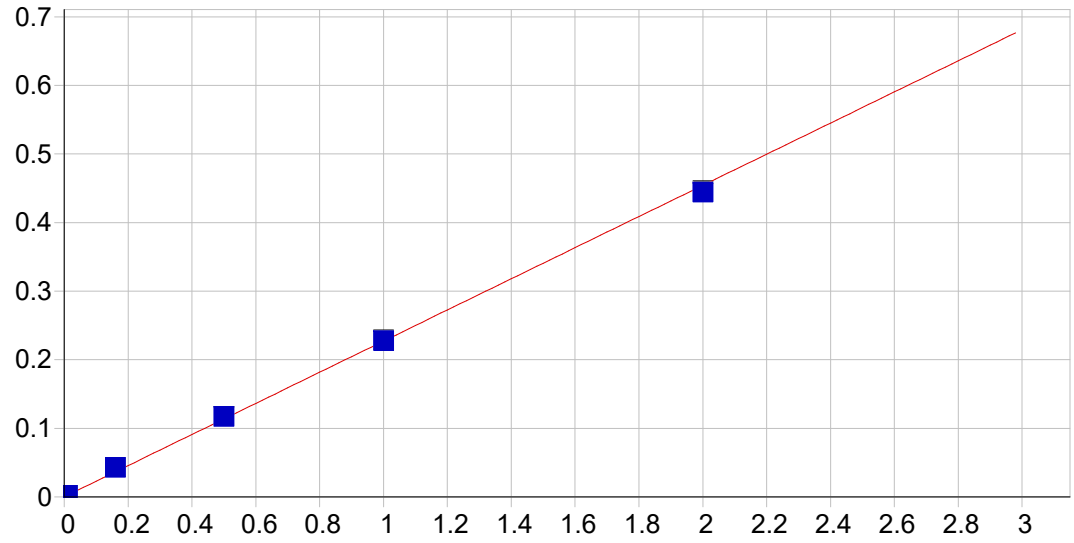


Ca 373.690 { 90}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000672	Re-Slope:	1.000000
A1 (Gain):	0.058098	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999637	Status:	OK.
Std Error of Est:	0.000828		
Predicted MDL:	0.009541		
Predicted MQL:	0.031804		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00010	-.000	.000	.00067	.000	1
S2	4.0000	4.4243	.424	10.6	.25772	.001	1
S3	12.500	12.309	-.191	-1.53	.71580	.001	1
S4	25.000	24.390	-.610	-2.44	1.4177	.004	1
S5	50.000	50.429	.429	.859	2.9305	.008	1
S1	2.0000	1.9470	-.053	-2.65	.11379	.000	1

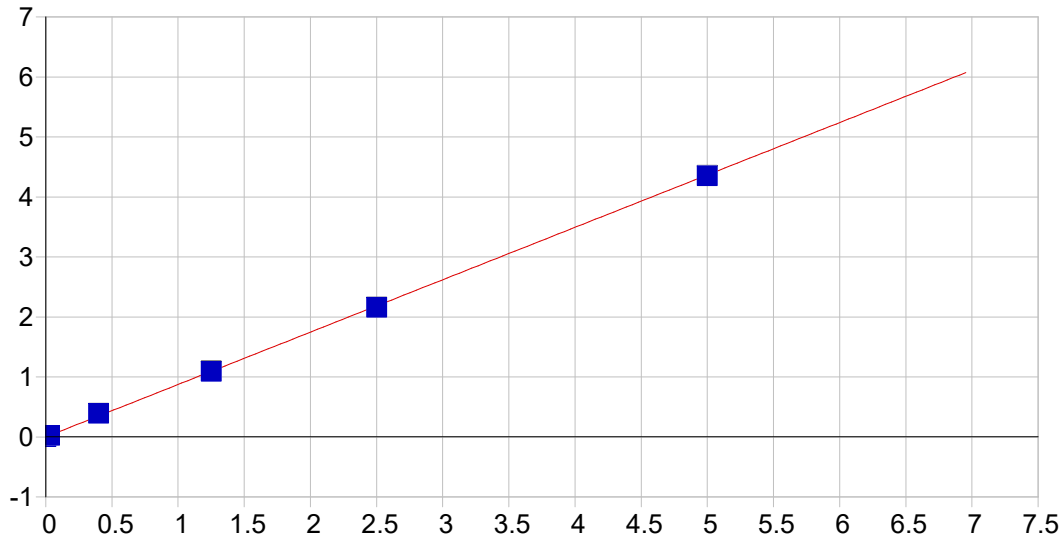


Cr 267.716 {126}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000148	Re-Slope:	1.000000
A1 (Gain):	0.227074	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999164	Status:	OK.
Std Error of Est:	0.000069		
Predicted MDL:	0.000401		
Predicted MQL:	0.001336		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00015	.000	1
S1	.01000	.00972	-.000	-2.78	.00236	.000	1
S3	.50000	.51415	.014	2.83	.11693	.000	1
S4	1.0000	1.0022	.002	.221	.22779	.001	1
S5	2.0000	1.9563	-.044	-2.19	.44450	.002	1
S2	.16000	.18765	.028	17.3	.04277	.000	1

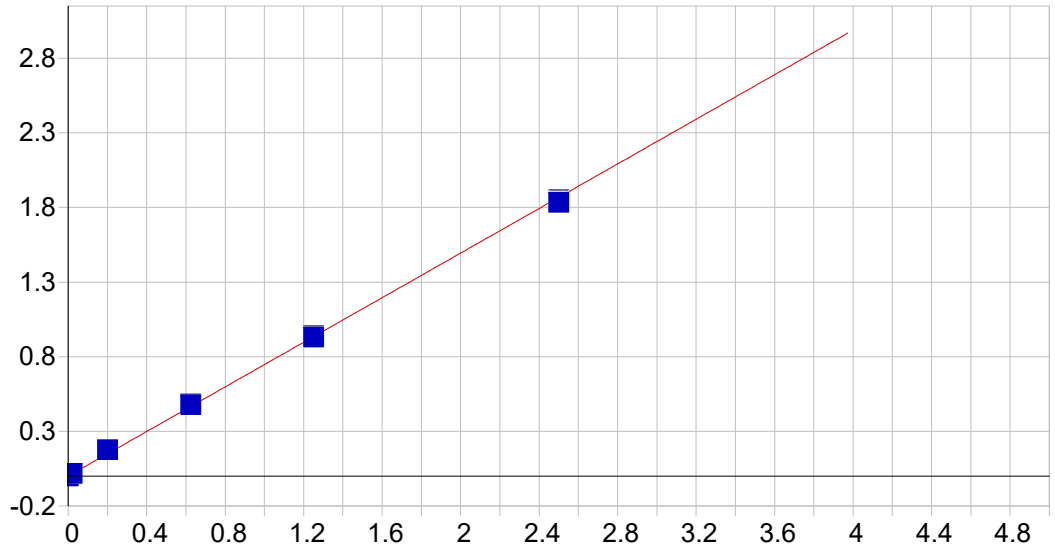


Co 228.616 {448}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000031	Re-Slope:	1.000000
A1 (Gain):	0.873206	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999661	Status:	OK.
Std Error of Est:	0.000462		
Predicted MDL:	0.000235		
Predicted MQL:	0.000784		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00003	.000	1
S1	.03000	.02962	-.000	-1.27	.02572	.000	1
S3	1.2500	1.2496	-.000	-.036	1.0929	.003	1
S4	2.5000	2.4710	-.029	-1.16	2.1613	.002	1
S5	5.0000	4.9816	-.018	-.368	4.3573	.004	1
S2	.40000	.44828	.048	12.1	.39200	.001	1

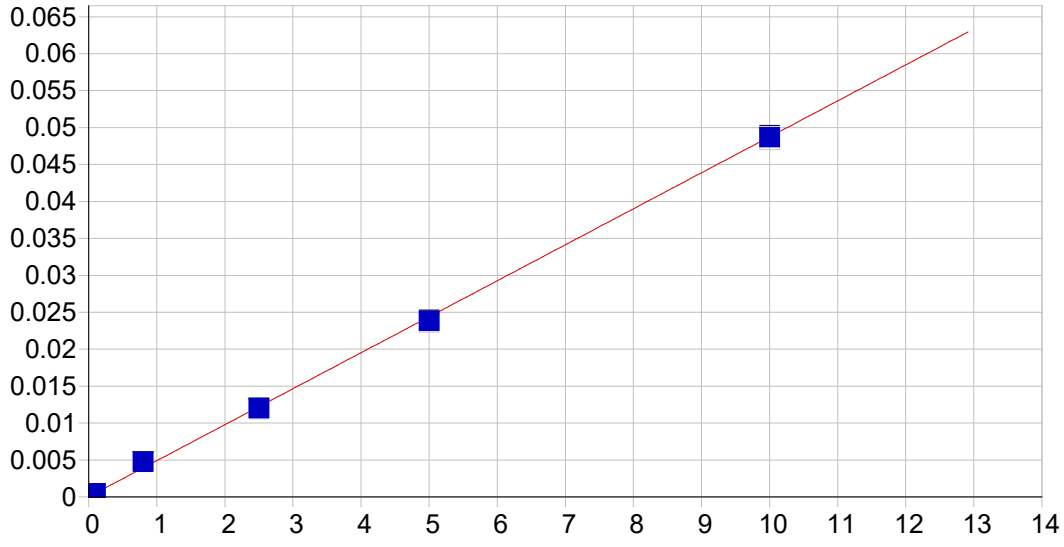


Cu 224.700 {450}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000193	Re-Slope:	1.000000
A1 (Gain):	0.747320	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999194	Status:	OK.
Std Error of Est:	0.000356		
Predicted MDL:	0.000470		
Predicted MQL:	0.001566		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	-.00020	.000	1
S1	.02000	.02222	.002	11.1	.01660	.000	1
S3	.62500	.63947	.014	2.31	.48214	.001	1
S4	1.2500	1.2456	-.004	-.351	.93958	.001	1
S5	2.5000	2.4529	-.047	-1.89	1.8507	.003	1
S2	.20000	.23484	.035	17.4	.17673	.000	1

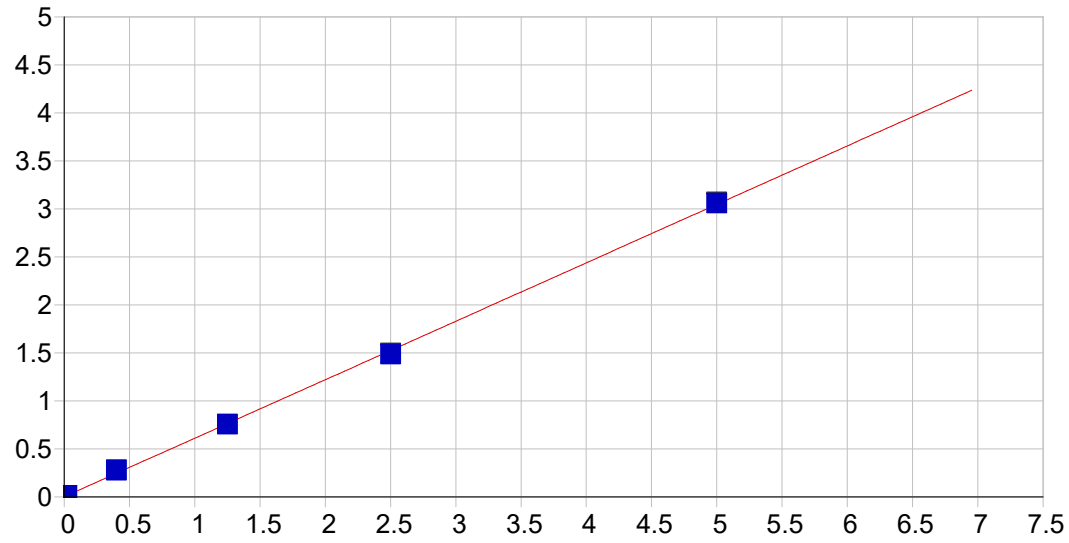


Fe 240.488 {140}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000030	Re-Slope:	1.000000
A1 (Gain):	0.004872	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998903	Status:	OK.
Std Error of Est:	0.000012		
Predicted MDL:	0.005812		
Predicted MQL:	0.019373		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00003	.000	1
S1	.10000	.09678	-.003	-3.22	.00050	.000	1
S3	2.5000	2.4550	-.045	-1.80	.01189	.000	1
S4	5.0000	4.8861	-.114	-2.28	.02363	.000	1
S5	10.000	9.9919	-.008	-.081	.04829	.000	1
S2	.80000	.97023	.170	21.3	.00472	.000	1

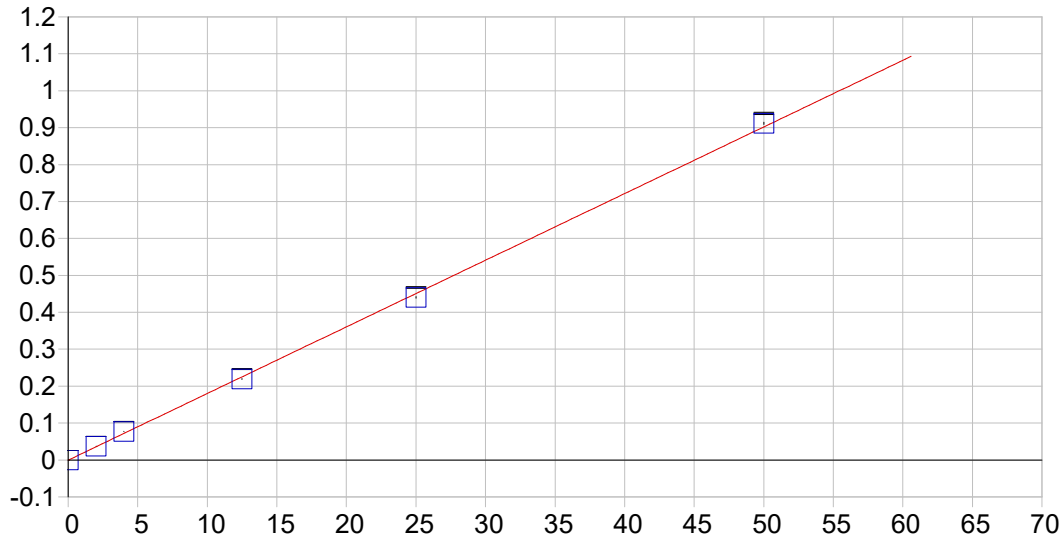


Mn 257.610 {131}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002732	Re-Slope:	1.000000
A1 (Gain):	0.608887	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999545	Status:	OK.
Std Error of Est:	0.000305		
Predicted MDL:	0.000356		
Predicted MQL:	0.001187		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00273	.000	1
S1	.02000	.02053	.001	2.65	.01524	.000	1
S3	1.2500	1.2379	-.012	-.965	.75665	.002	1
S4	2.5000	2.4381	-.062	-2.48	1.4876	.009	1
S5	5.0000	5.0221	.022	.442	3.0612	.009	1
S2	.40000	.45133	.051	12.8	.27759	.001	1

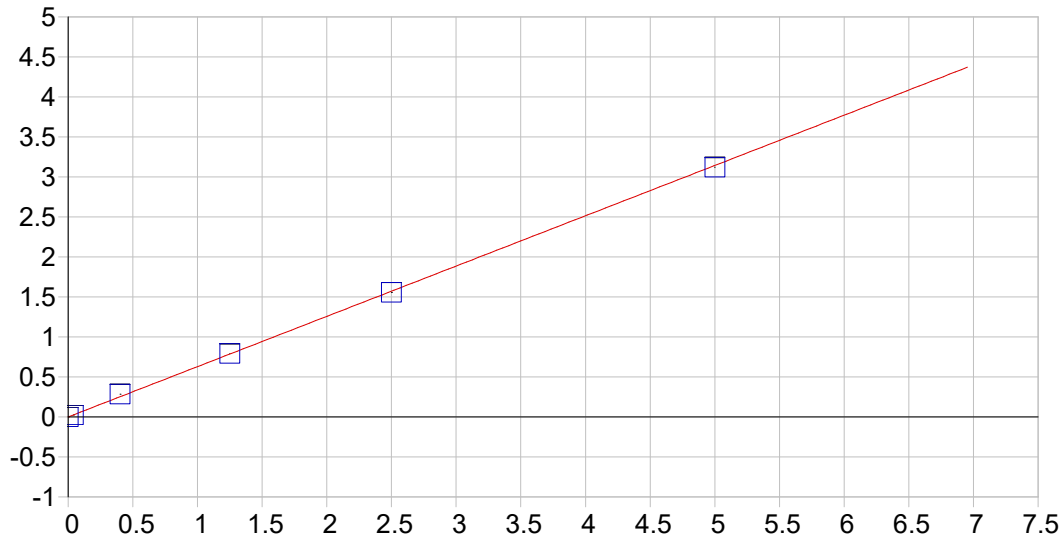


Mg 279.079 {121}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000358	Re-Slope:	1.000000
A1 (Gain):	0.018046	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999716	Status:	OK.
Std Error of Est:	0.000227		
Predicted MDL:	0.013696		
Predicted MQL:	0.045655		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00015	-.000	.000	-.00036	.000	1
S2	4.0000	4.2981	.298	7.45	.07720	.000	1
S3	12.500	12.173	-.327	-2.61	.21931	.001	1
S4	25.000	24.416	-.584	-2.34	.44024	.002	1
S5	50.000	50.538	.538	1.08	.91162	.003	1
S1	2.0000	2.0753	.075	3.77	.03709	.000	1

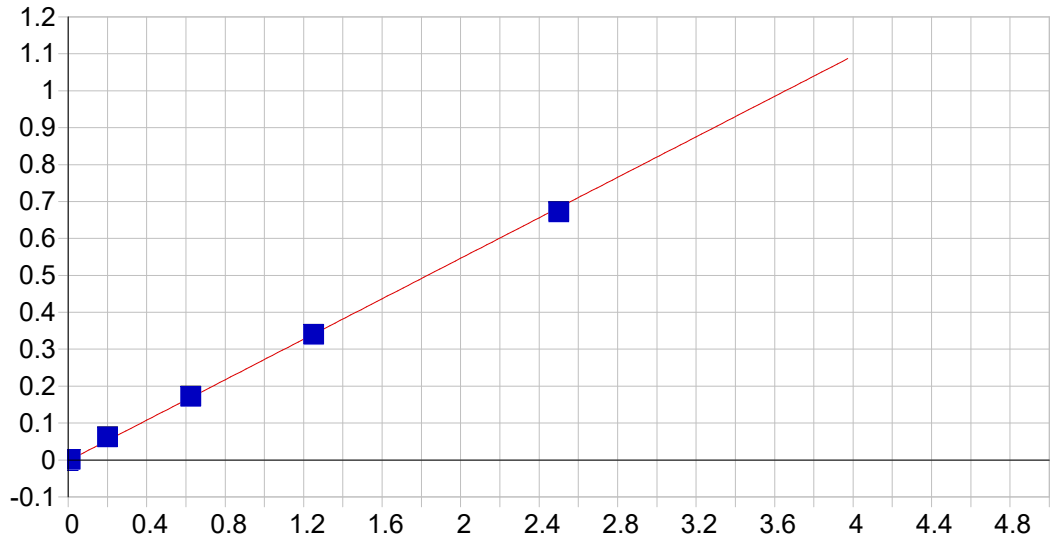


Ni 231.604 {446}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000496	Re-Slope:	1.000000
A1 (Gain):	0.628641	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999585	Status:	OK.
Std Error of Est:	0.000425		
Predicted MDL:	0.000365		
Predicted MQL:	0.001216		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00050	.000	1
S1	.04000	.03995	-.000	-.132	.02462	.000	1
S3	1.2500	1.2595	.009	.759	.79127	.002	1
S4	2.5000	2.4743	-.026	-1.03	1.5550	.001	1
S5	5.0000	4.9632	-.037	-.735	3.1196	.005	1
S2	.40000	.45300	.053	13.3	.28428	.001	1

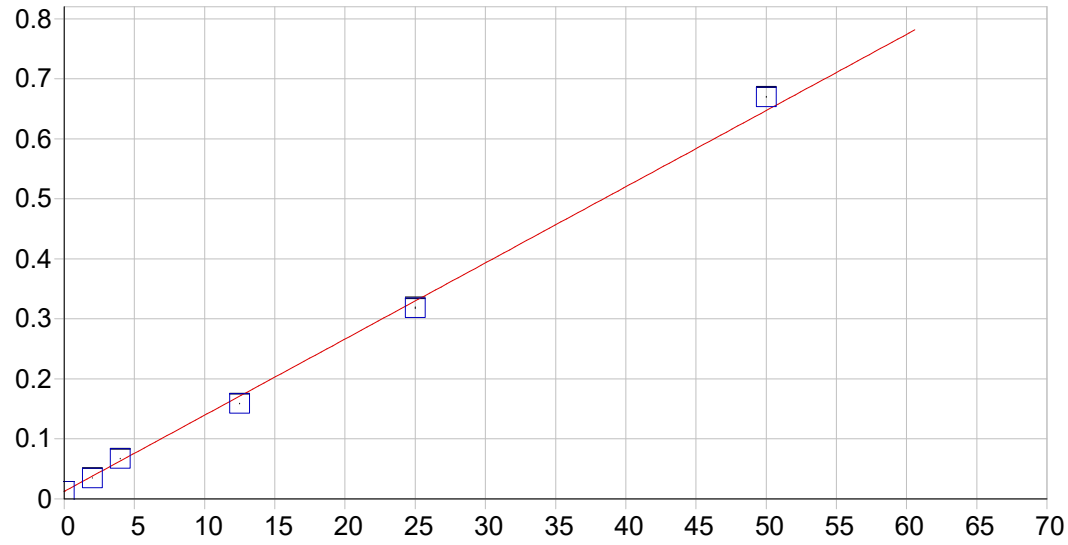


Ag 328.068 {103}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001918	Re-Slope:	1.000000
A1 (Gain):	0.274091	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999285	Status:	OK.
Std Error of Est:	0.000086		
Predicted MDL:	0.000434		
Predicted MQL:	0.001448		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00192	.000	1
S1	.01000	.01057	.001	5.72	.00096	.000	1
S3	.62500	.63553	.011	1.68	.17160	.000	1
S4	1.2500	1.2470	-.003	-.238	.33852	.001	1
S5	2.5000	2.4584	-.042	-1.66	.66919	.001	1
S2	.20000	.23346	.033	16.7	.06185	.000	1

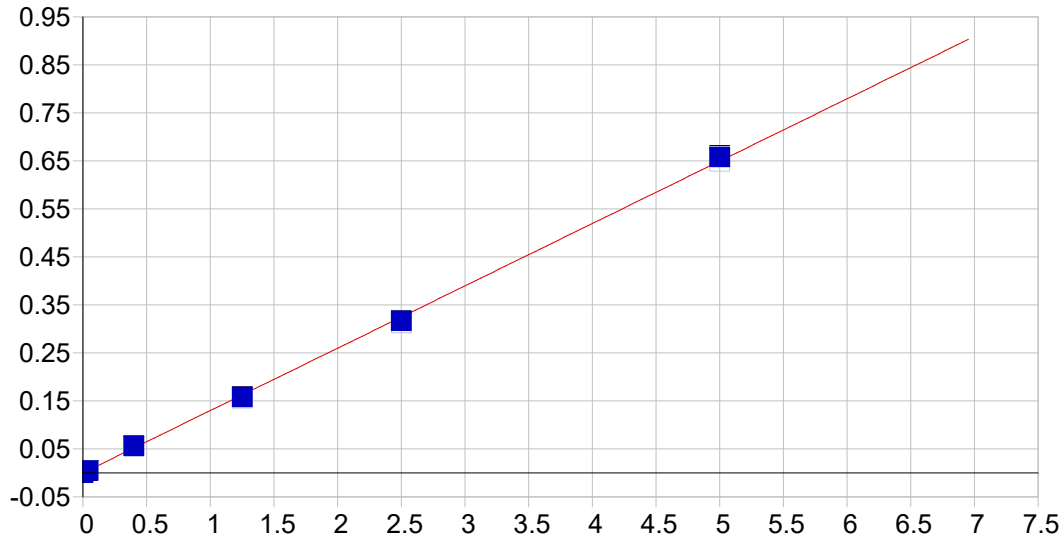


Na 589.592 { 57}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.012580	Re-Slope:	1.000000
A1 (Gain):	0.012688	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998811	Status:	OK.
Std Error of Est:	0.000328		
Predicted MDL:	0.016066		
Predicted MQL:	0.053554		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00025	.000	.000	.01258	.000	1
S2	4.0000	4.2992	.299	7.48	.06713	.000	1
S3	12.500	11.534	-.966	-7.73	.15892	.001	1
S4	25.000	24.108	-.892	-3.57	.31847	.001	1
S5	50.000	51.800	1.80	3.60	.66983	.001	1
S1	2.0000	1.7593	-.241	-12.0	.03490	.000	1

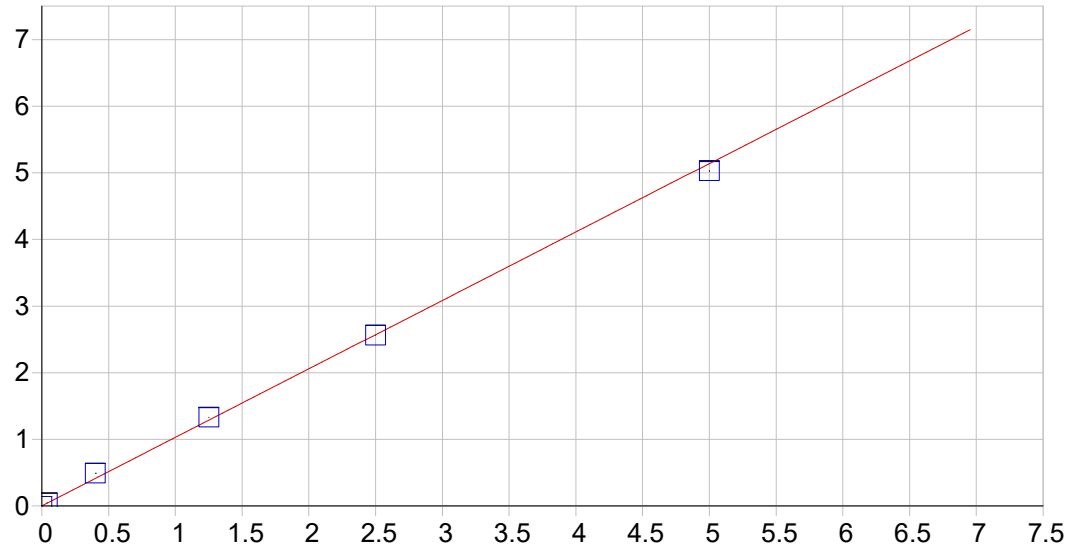


V 292.402 {115}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000040	Re-Slope:	1.000000
A1 (Gain):	0.129911	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999658	Status:	OK.
Std Error of Est:	0.000079		
Predicted MDL:	0.001926		
Predicted MQL:	0.006421		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00004	.000	1
S1	.04000	.03863	-.001	-3.44	.00478	.000	1
S3	1.2500	1.2159	-.034	-2.72	.15556	.000	1
S4	2.5000	2.4367	-.063	-2.53	.31178	.000	1
S5	5.0000	5.0661	.066	1.32	.64863	.003	1
S2	.40000	.43259	.033	8.15	.05540	.000	1

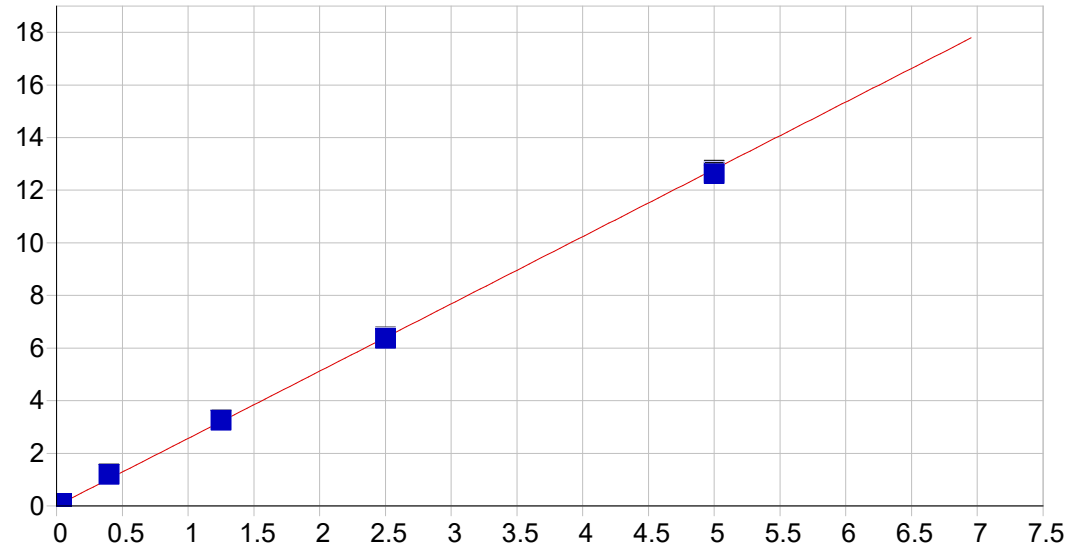


Zn 206.200 {464}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002373	Re-Slope:	1.000000
A1 (Gain):	1.027630	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999048	Status:	OK.
Std Error of Est:	0.001053		
Predicted MDL:	0.000223		
Predicted MQL:	0.000744		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00236	.000	1
S1	.04000	.04187	.002	4.68	.04540	.000	1
S3	1.2500	1.2912	.041	3.30	1.3292	.004	1
S4	2.5000	2.4921	-.008	-.315	2.5633	.003	1
S5	5.0000	4.8909	-.109	-2.18	5.0284	.009	1
S2	.40000	.47396	.074	18.5	.48943	.001	1

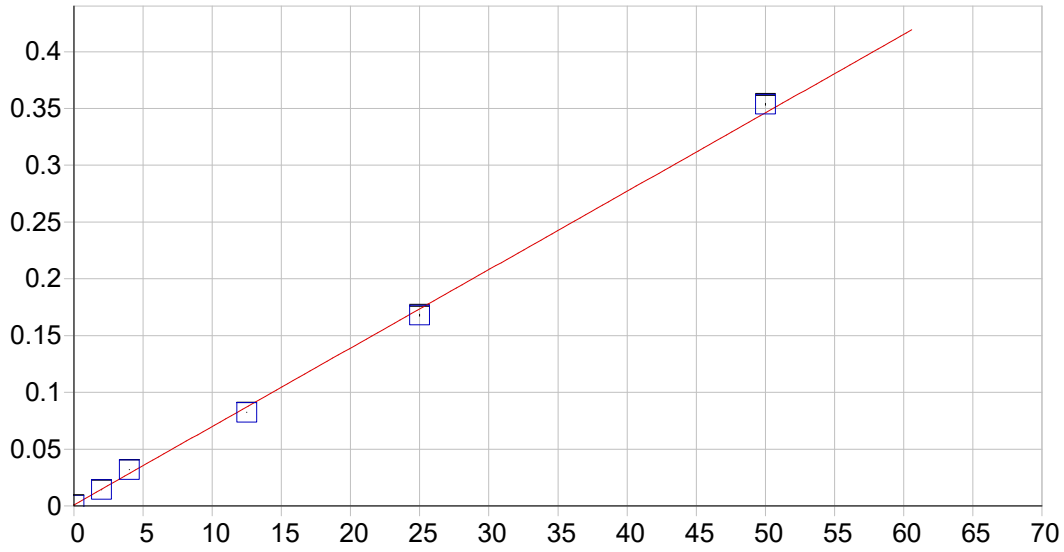


Zn 213.856 {158}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.007203	Re-Slope:	1.000000
A1 (Gain):	2.557506	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999360	Status:	OK.
Std Error of Est:	0.002164		
Predicted MDL:	0.000375		
Predicted MQL:	0.001249		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00718	.000	1
S1	.04000	.04118	.001	2.94	.11323	.001	1
S3	1.2500	1.2669	.017	1.35	3.2695	.006	1
S4	2.5000	2.4847	-.015	-.612	6.4063	.021	1
S5	5.0000	4.9319	-.068	-1.36	12.710	.052	1
S2	.40000	.46530	.065	16.3	1.2043	.005	1

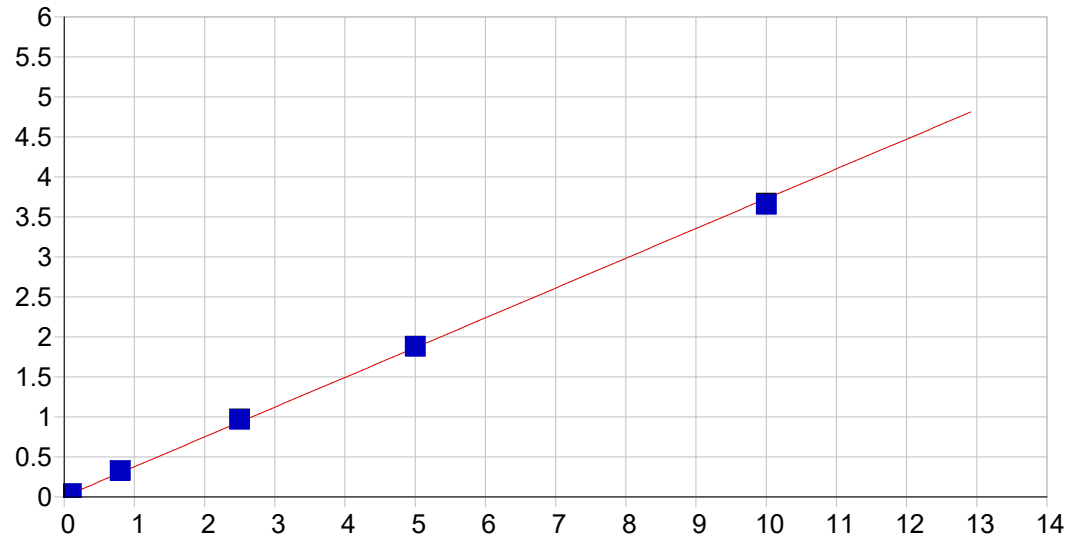


K 766.490 { 44}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000933	Re-Slope:	1.000000
A1 (Gain):	0.006904	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999187	Status:	OK.
Std Error of Est:	0.000147		
Predicted MDL:	0.036398		
Predicted MQL:	0.121326		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00004	-.000	.000	.00093	.000	1
S2	4.0000	4.4917	.492	12.3	.03194	.000	1
S3	12.500	11.803	-.697	-5.57	.08242	.000	1
S4	25.000	24.188	-.812	-3.25	.16793	.001	1
S5	50.000	51.090	1.09	2.18	.35366	.001	1
S1	2.0000	1.9275	-.072	-3.62	.01424	.000	1

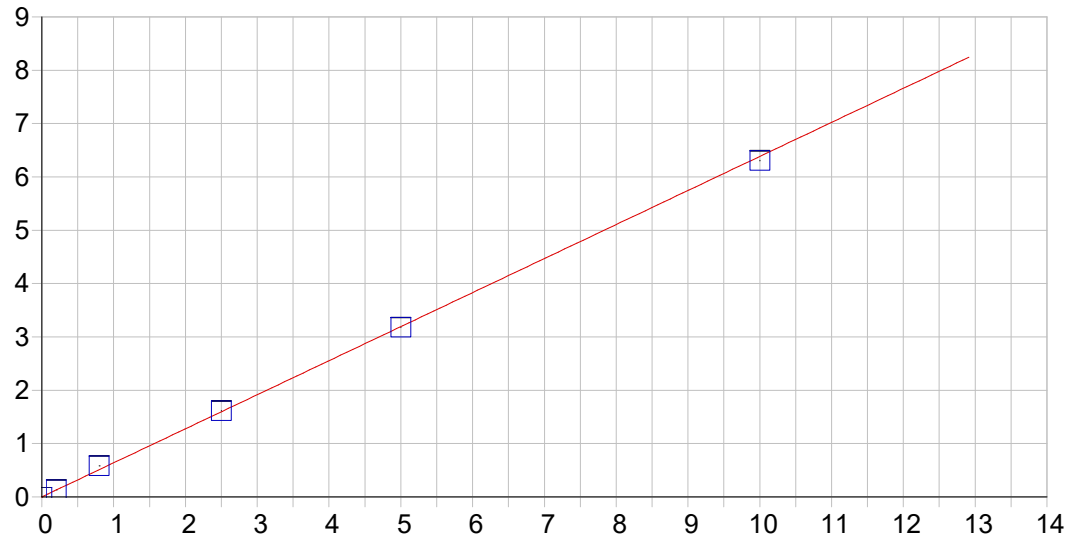


B 249.678 {135}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.004672	Re-Slope:	1.000000
A1 (Gain):	0.372260	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999650	Status:	OK.
Std Error of Est:	0.000516		
Predicted MDL:	0.000849		
Predicted MQL:	0.002829		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00467	.000	1
S1	.10000	.09893	-.001	-1.07	.04134	.000	1
S3	2.5000	2.5852	.085	3.41	.96523	.006	1
S4	5.0000	5.0352	.035	.704	1.8754	.005	1
S5	10.000	9.8109	-.189	-1.89	3.6496	.014	1
S2	.80000	.86980	.070	8.73	.32788	.000	1

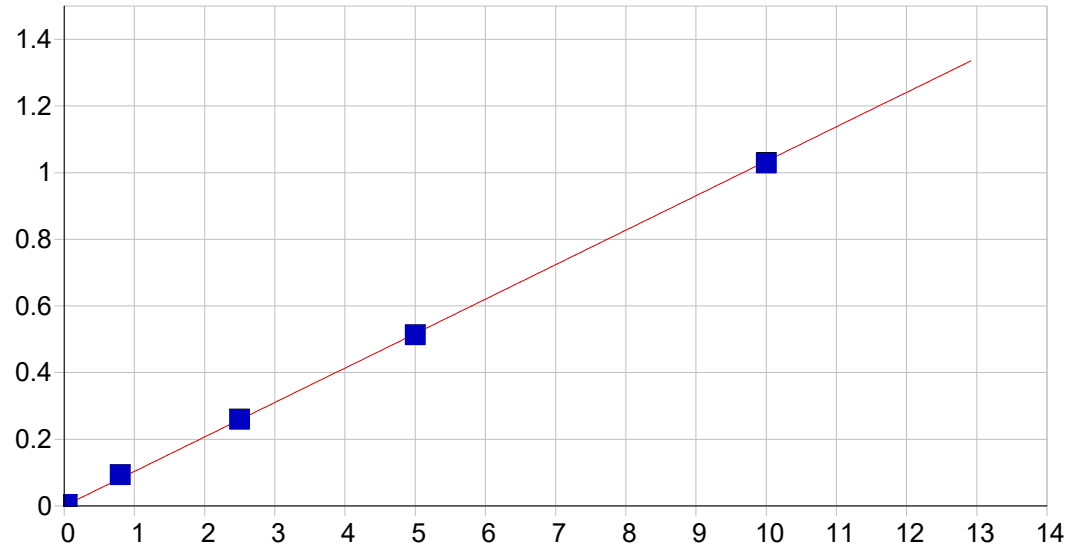


Mo 202.030 {467}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000518	Re-Slope:	1.000000
A1 (Gain):	0.638349	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999510	Status:	OK.
Std Error of Est:	0.001488		
Predicted MDL:	0.000347		
Predicted MQL:	0.001157		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00003	-.000	.000	.00050	.000	1
S1	.20000	.20431	.004	2.15	.13094	.000	1
S3	2.5000	2.5294	.029	1.18	1.6152	.004	1
S4	5.0000	4.9772	-.023	-.457	3.1777	.001	1
S5	10.000	9.8758	-.124	-1.24	6.3047	.004	1
S2	.80000	.91329	.113	14.2	.58352	.001	1

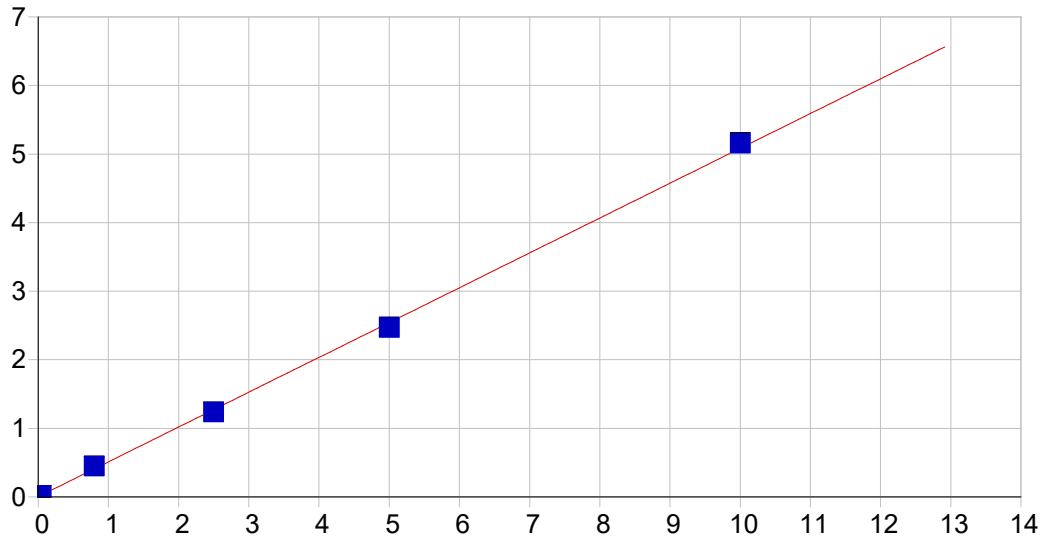


Sn 189.989 {478}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000162	Re-Slope:	1.000000
A1 (Gain):	0.103409	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999675	Status:	OK.
Std Error of Est:	0.000087		
Predicted MDL:	0.001035		
Predicted MQL:	0.003450		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00016	.000	1
S1	.04000	.03973	-.000	-.680	.00427	.000	1
S3	2.5000	2.5038	.004	.151	.25881	.001	1
S4	5.0000	4.9615	-.038	-.769	.51270	.000	1
S5	10.000	9.9401	-.060	-.599	1.0270	.002	1
S2	.80000	.89489	.095	11.9	.09262	.000	1

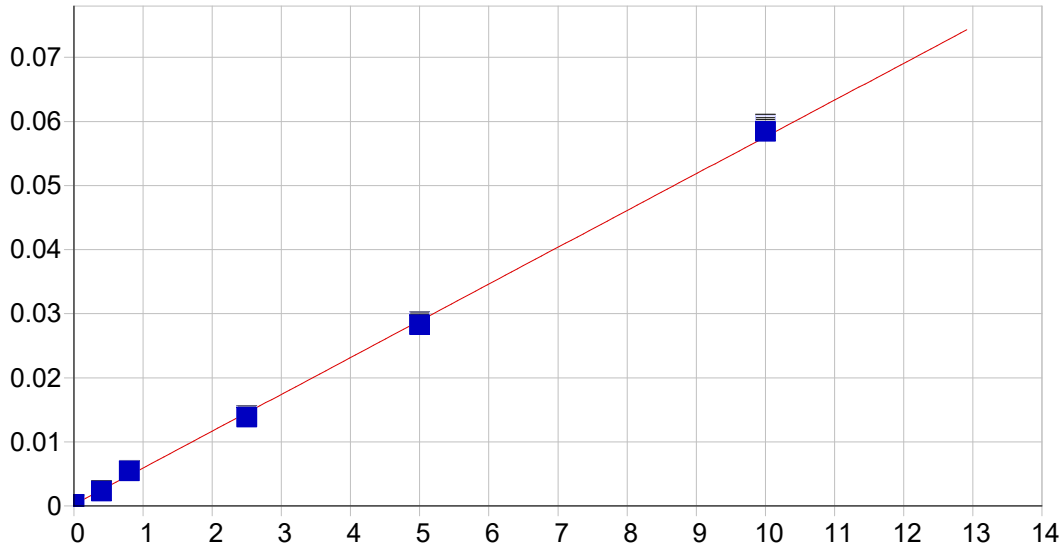


Ti 336.121 {100}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002969	Re-Slope:	1.000000
A1 (Gain):	0.507920	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999574	Status:	OK.
Std Error of Est:	0.000492		
Predicted MDL:	0.000718		
Predicted MQL:	0.002392		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00297	.000	1
S1	.04000	.03879	-.001	-3.02	.02266	.000	1
S3	2.5000	2.4290	-.071	-2.84	1.2362	.002	1
S4	5.0000	4.8530	-.147	-2.94	2.4670	.008	1
S5	10.000	10.143	.143	1.43	5.1532	.012	1
S2	.80000	.87584	.076	9.48	.44768	.002	1

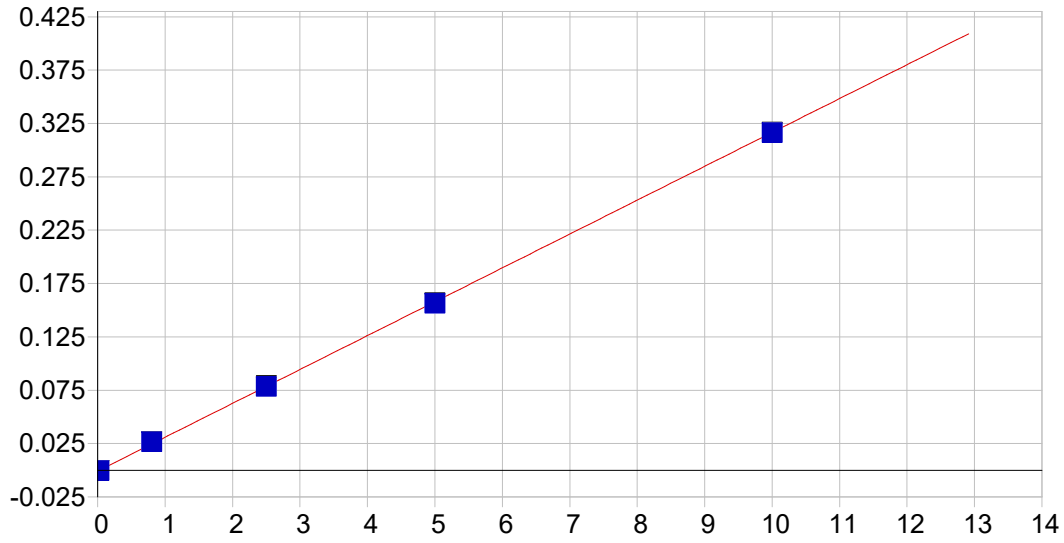


Si 288.158 {117}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000191	Re-Slope:	1.000000
A1 (Gain):	0.005739	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999238	Status:	OK.
Std Error of Est:	0.000024		
Predicted MDL:	0.009039		
Predicted MQL:	0.030129		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00019	.000	1
S1	.40000	.36676	-.033	-8.31	.00230	.000	1
S3	2.5000	2.3775	-.123	-4.90	.01405	.000	1
S4	5.0000	4.8915	-.109	-2.17	.02869	.000	1
S5	10.000	10.151	.151	1.51	.05931	.000	1
S2	.80000	.91300	.113	14.1	.00550	.000	1

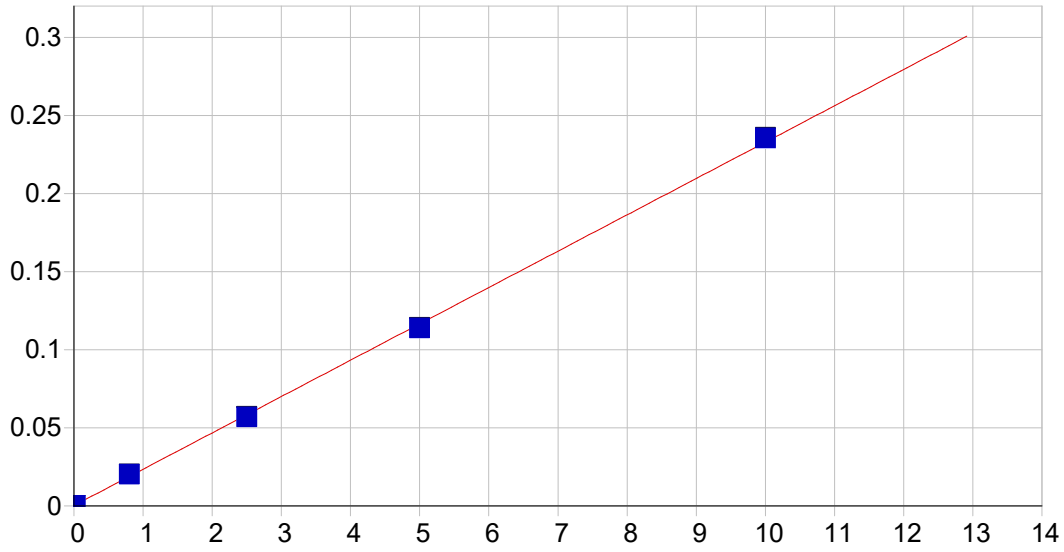


P 177.495 {490}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000831	Re-Slope:	1.000000
A1 (Gain):	0.031747	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999848	Status:	OK.
Std Error of Est:	0.000013		
Predicted MDL:	0.003170		
Predicted MQL:	0.010567		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00083	.000	1
S1	.02000	.01790	-.002	-10.5	-.00026	.000	1
S3	2.5000	2.4974	-.003	-.103	.07844	.001	1
S4	5.0000	4.9504	-.050	-.992	.15630	.000	1
S5	10.000	9.9920	-.008	-.080	.31633	.000	1
S2	.80000	.86225	.062	7.78	.02654	.000	1

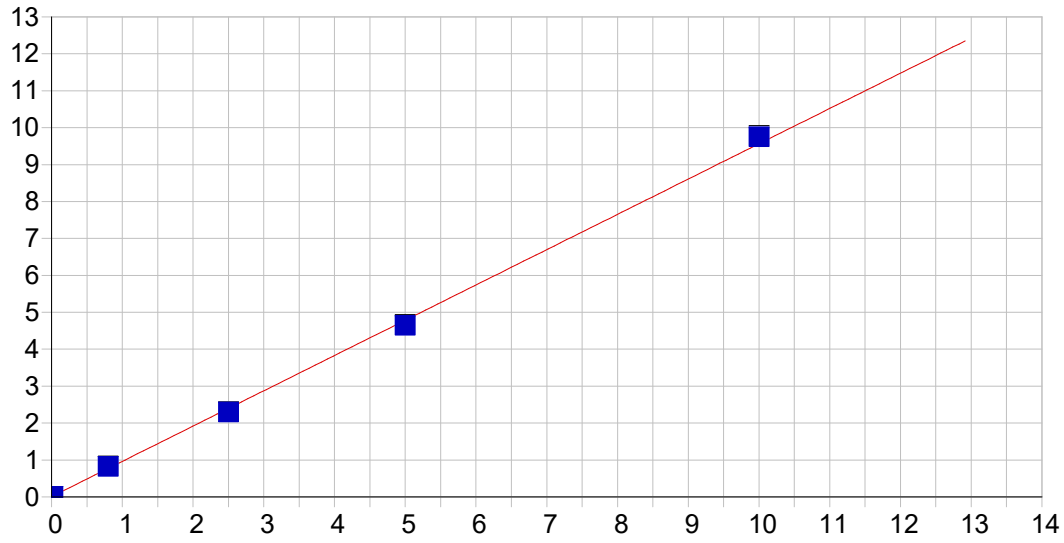


S 182.034 {485}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000230	Re-Slope:	1.000000
A1 (Gain):	0.023265	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999721	Status:	OK.
Std Error of Est:	0.000013		
Predicted MDL:	0.004329		
Predicted MQL:	0.014430		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00023	.000	1
S1	.02000	.01690	-.003	-15.5	.00060	.000	1
S3	2.5000	2.4401	-.060	-2.39	.05685	.000	1
S4	5.0000	4.8887	-.111	-2.23	.11366	.000	1
S5	10.000	10.115	.115	1.15	.23493	.000	1
S2	.80000	.85966	.060	7.46	.02018	.000	1

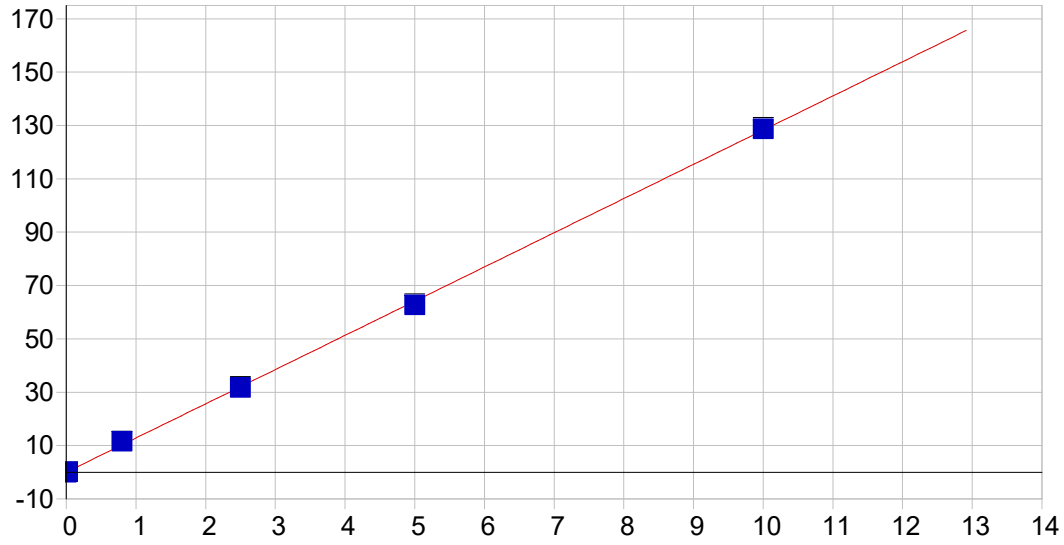


Li 670.784 { 50}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.006531	Re-Slope:	1.000000
A1 (Gain):	0.955741	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999548	Status:	OK.
Std Error of Est:	0.000674		
Predicted MDL:	0.001145		
Predicted MQL:	0.003815		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00653	.001	1
S5	10.000	10.195	.195	1.95	9.7590	.025	1
S4	5.0000	4.8535	-.146	-2.93	4.6495	.017	1
S3	2.5000	2.3972	-.103	-4.11	2.2998	.002	1
S1	.02000	.01769	-.002	-11.5	.02378	.001	1
S2	.80000	.85657	.057	7.07	.82588	.004	1

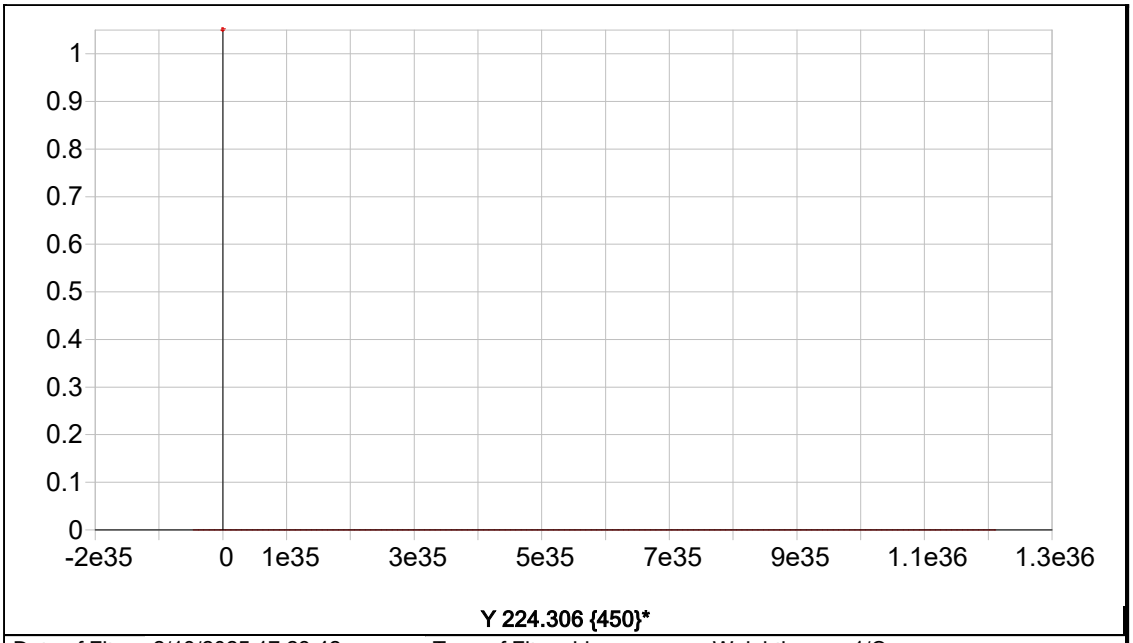


Sr 407.771 { 83}

Date of Fit:	4/7/2025 11:17:00	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000317	Re-Slope:	1.000000
A1 (Gain):	12.825150	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999577	Status:	OK.
Std Error of Est:	0.008757		
Predicted MDL:	0.000049		
Predicted MQL:	0.000164		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00030	.000	1
S1	.02000	.01913	-.001	-4.36	.24692	.000	1
S3	2.5000	2.4765	-.023	-.938	31.794	.281	1
S4	5.0000	4.8910	-.109	-2.18	62.792	.312	1
S5	10.000	10.032	.032	.321	128.79	.477	1
S2	.80000	.90126	.101	12.7	11.569	.041	1

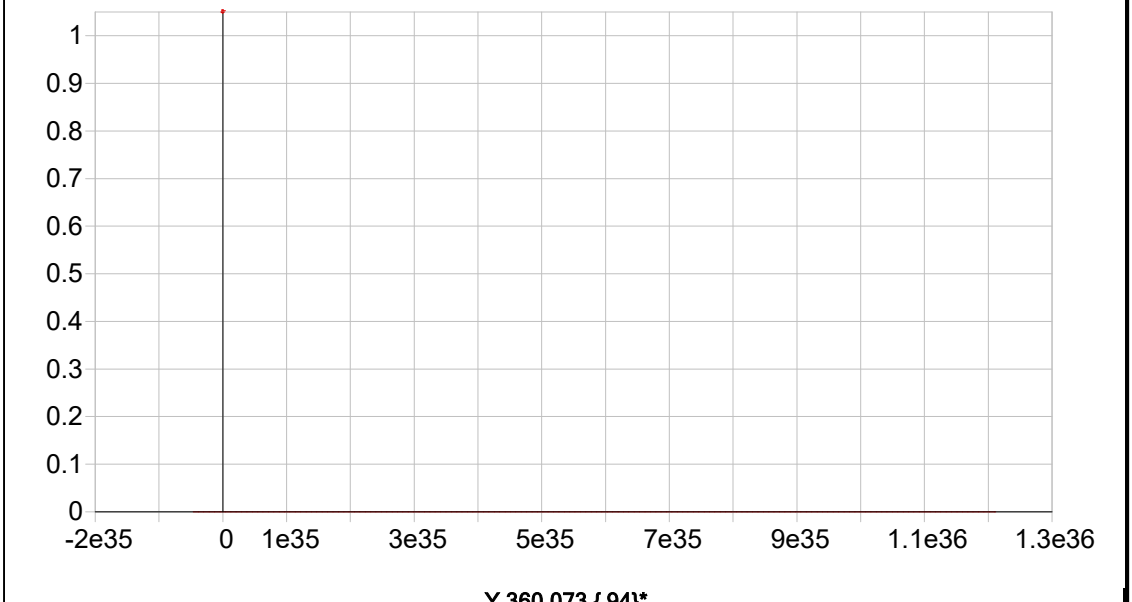


Y 224.306 {450}*

Date of Fit:	2/19/2025 17:23:42	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



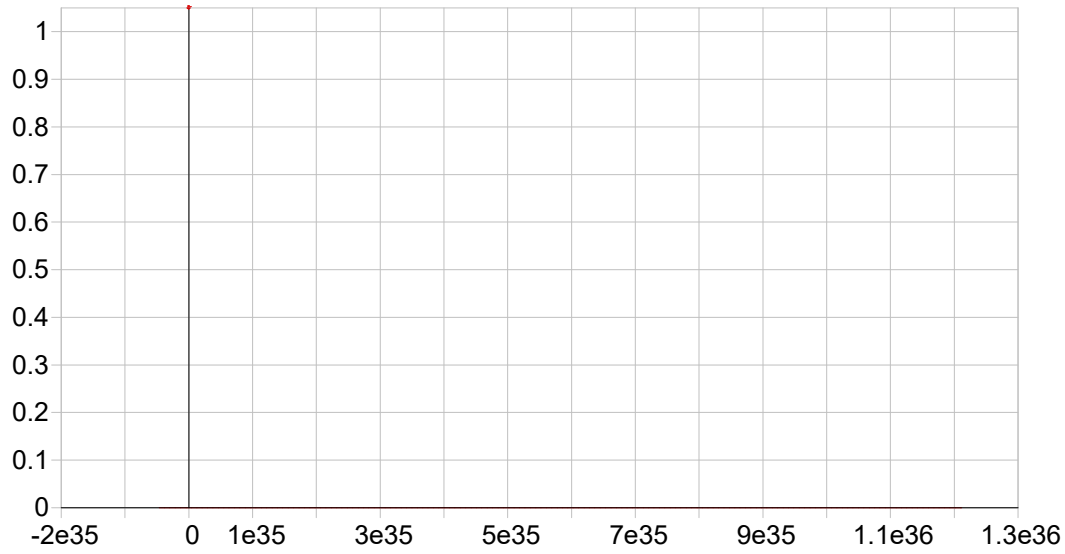
Y 360.073 { 94}*

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

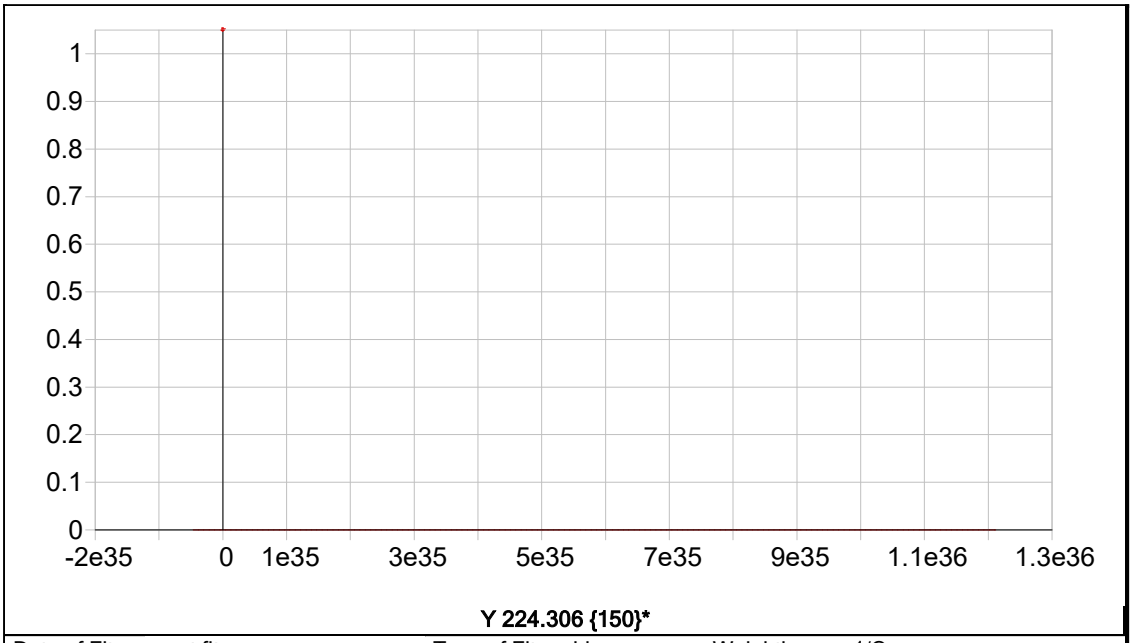


Y 371.030 { 91}*

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

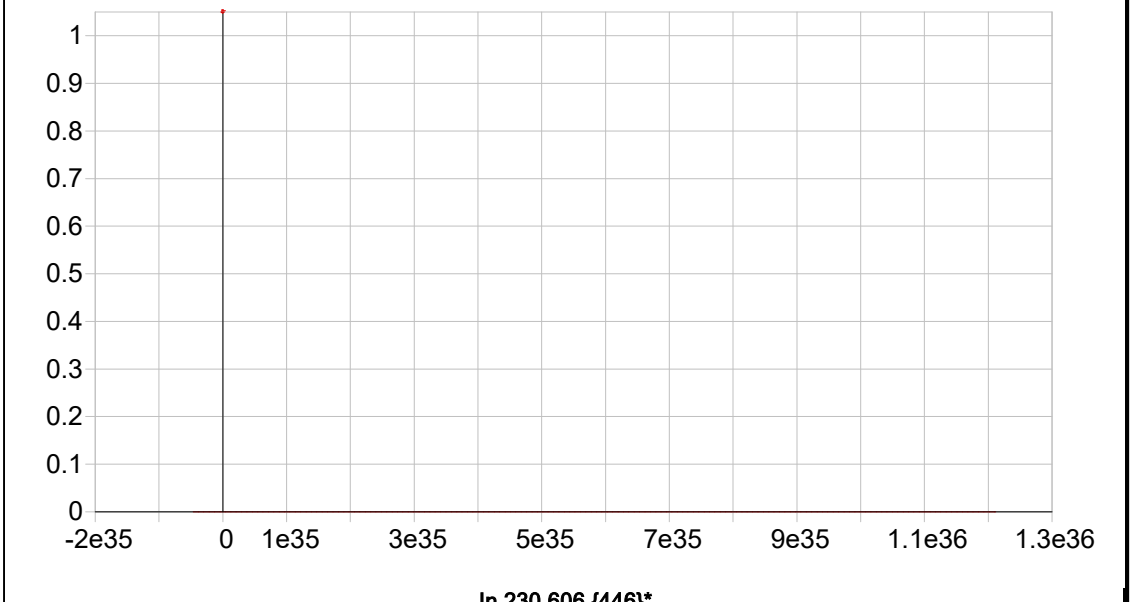


Y 224.306 {150}*

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:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: S0 Acquired: 4/7/2025 10:51:09 Type: Cal
Method: NON EPA-6010-200.7(v2710) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00017	-.00020	-.00027	.00033	.00049	-.00023	.03911	.00009
Stddev	.00005	.00000	.00021	.00001	.00014	.00024	.00121	.00010
%RSD	29.727	1.9922	76.921	3.7671	29.351	101.53	3.1002	116.32
#1	-.00011	-.00020	-.00050	.00033	.00062	-.00019	.04048	-.00003
#2	-.00021	-.00020	-.00009	.00033	.00051	-.00002	.03818	.00015
#3	-.00018	-.00019	-.00023	.00031	.00033	-.00049	.03866	.00014

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	-.00003	.00067	.00015	-.00003	-.00020	.00003	.00273	-.00036
Stddev	.00019	.00022	.00008	.00023	.00024	.00001	.00012	.00015
%RSD	705.67	32.917	54.286	681.03	119.59	40.339	4.4638	42.904
#1	.00013	.00079	.00006	-.00006	.00007	.00002	.00260	-.00032
#2	.00003	.00080	.00020	.00021	-.00031	.00003	.00274	-.00023
#3	-.00024	.00041	.00019	-.00025	-.00035	.00004	.00285	-.00053

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	-.00050	-.00192	.01258	-.00004	.00718	.00093	.00467	.00050
Stddev	.00017	.00004	.00023	.00011	.00027	.00013	.00028	.00022
%RSD	33.451	2.0327	1.8486	277.00	3.7346	13.736	5.9889	44.496
#1	-.00068	-.00193	.01267	.00009	.00736	.00106	.00440	.00073
#2	-.00034	-.00188	.01232	-.00008	.00687	.00093	.00496	.00030
#3	-.00048	-.00195	.01276	-.00013	.00732	.00081	.00465	.00046

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	.00016	.00297	.00019	-.00083	.00023	.00653	.00030
Stddev	.00004	.00019	.00002	.00007	.00006	.00084	.00047
%RSD	22.241	6.3105	9.3364	8.4536	25.000	12.839	153.88
#1	.00019	.00291	.00018	-.00089	.00020	.00556	-.00019
#2	.00018	.00282	.00021	-.00076	.00030	.00705	.00036
#3	.00012	.00318	.00018	-.00084	.00019	.00698	.00074

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: S0 Acquired: 4/7/2025 10:51:09 Type: Cal
Method: NON EPA-6010-200.7(v2710) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2281.9	51393.	9965.3	1469.0	3626.3
Stddev	4.2	168.	33.8	7.1	2.1
%RSD	.18208	.32691	.33888	.48326	.05741
#1	2277.1	51341.	9993.7	1463.3	3626.1
#2	2284.4	51581.	9927.9	1476.9	3628.4
#3	2284.2	51257.	9974.2	1466.8	3624.3

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: S1 Acquired: 4/7/2025 10:55:36 Type: Cal
Method: NON EPA-6010-200.7(v2710) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00056	.00214	.00248	.00172	.00714	.00874	.30681	.02510
Stddev	.00018	.00007	.00013	.00014	.00002	.00032	.00299	.00030
%RSD	31.871	3.2692	5.2811	7.9858	.27176	3.6584	.97439	1.2102
#1	.00037	.00211	.00255	.00162	.00716	.00862	.30456	.02476
#2	.00058	.00222	.00256	.00188	.00712	.00910	.30566	.02517
#3	.00072	.00210	.00233	.00166	.00713	.00849	.31020	.02536

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	.01334	.11379	.00236	.02572	.01660	.00050	.01524	.03709
Stddev	.00017	.00049	.00005	.00011	.00008	.00002	.00022	.00007
%RSD	1.3085	.43146	2.1447	.44614	.46238	4.9503	1.4267	.19084
#1	.01314	.11325	.00234	.02561	.01659	.00051	.01529	.03701
#2	.01343	.11392	.00232	.02572	.01653	.00047	.01543	.03713
#3	.01345	.11420	.00241	.02584	.01668	.00051	.01500	.03713

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	.02462	.00096	.03490	.00478	.11323	.01424	.04134	.13094
Stddev	.00018	.00010	.00026	.00019	.00099	.00006	.00046	.00039
%RSD	.74202	10.854	.75213	3.8849	.86995	.41356	1.1230	.29628
#1	.02441	.00087	.03460	.00499	.11430	.01427	.04086	.13133
#2	.02475	.00094	.03506	.00474	.11302	.01428	.04138	.13092
#3	.02469	.00107	.03504	.00462	.11237	.01417	.04179	.13056

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	.00427	.02266	.00230	-.00026	.00060	.02378	.24692
Stddev	.00004	.00024	.00003	.00003	.00008	.00137	.00046
%RSD	.87546	1.0643	1.4276	10.512	13.805	5.7544	.18457
#1	.00423	.02258	.00227	-.00023	.00051	.02290	.24640
#2	.00427	.02246	.00234	-.00026	.00067	.02536	.24725
#3	.00430	.02293	.00229	-.00029	.00063	.02309	.24710

Sample Name: S1 Acquired: 4/7/2025 10:55:36 Type: Cal
Method: NON EPA-6010-200.7(v2710) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2276.5	52255.	10120.	1483.6	3561.3
Stddev	3.5	109.	53.	2.5	7.4
%RSD	.15253	.20893	.52130	.16611	.20863
#1	2274.9	52176.	10140.	1482.4	3556.7
#2	2274.2	52380.	10160.	1486.4	3557.5
#3	2280.5	52210.	10060.	1481.9	3569.9

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: S2 Acquired: 4/7/2025 11:00:02 Type: Cal
Method: NON EPA-6010-200.7(v2710) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02923	.05317	.22410	.06130	.11834	.14486	5.0612	.18817
Stddev	.00012	.00074	.00072	.00017	.00007	.00126	.0171	.00056
%RSD	.39357	1.3954	.32154	.27341	.06178	.86737	.33704	.29558
#1	.02930	.05231	.22334	.06128	.11826	.14346	5.0490	.18843
#2	.02928	.05360	.22419	.06148	.11838	.14588	5.0539	.18753
#3	.02909	.05359	.22478	.06115	.11839	.14524	5.0807	.18855

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.0060	.25772	.04277	.39200	.17673	.00472	.27759	.07720
Stddev	.0017	.00075	.00018	.00079	.00032	.00002	.00118	.00036
%RSD	.16843	.29261	.42769	.20241	.18002	.46000	.42675	.45993
#1	1.0041	.25710	.04274	.39125	.17703	.00474	.27685	.07733
#2	1.0063	.25748	.04260	.39193	.17677	.00470	.27697	.07748
#3	1.0075	.25856	.04297	.39283	.17639	.00473	.27896	.07680

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	.28428	.06185	.06713	.05540	1.2043	.03194	.32788	.58352
Stddev	.00057	.00006	.00037	.00014	.0053	.00009	.00046	.00084
%RSD	.19933	.08930	.54423	.24499	.43576	.27785	.13965	.14423
#1	.28363	.06187	.06697	.05543	1.2026	.03204	.32841	.58256
#2	.28469	.06190	.06687	.05552	1.2002	.03186	.32759	.58387
#3	.28452	.06179	.06755	.05525	1.2102	.03193	.32765	.58413

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	.09262	.44768	.00550	.02654	.02018	.82588	11.569
Stddev	.00015	.00206	.00004	.00006	.00005	.00354	.041
%RSD	.16282	.46007	.77725	.22101	.22714	.42862	.35010
#1	.09245	.44635	.00549	.02660	.02021	.82250	11.547
#2	.09267	.44664	.00546	.02654	.02013	.82558	11.545
#3	.09273	.45005	.00555	.02648	.02021	.82956	11.616

Sample Name: S2 Acquired: 4/7/2025 11:00:02 Type: Cal
Method: NON EPA-6010-200.7(v2710) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2267.4	51419.	10311.	1480.3	3490.3
Stddev	2.7	38.	7.	5.7	.3
%RSD	.11968	.07441	.07227	.38218	.00723
#1	2264.6	51448.	10306.	1485.4	3490.5
#2	2267.7	51434.	10319.	1481.1	3490.4
#3	2270.0	51376.	10306.	1474.2	3490.0

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: S3 Acquired: 4/7/2025 11:04:15 Type: Cal
Method: NON EPA-6010-200.7(v2710) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.08116	.14916	.62386	.16768	.32771	.40674	13.898	.55149
Stddev	.00015	.00130	.00184	.00093	.00140	.00098	.014	.00190
%RSD	.17948	.86891	.29511	.55506	.42870	.24107	.10200	.34510
#1	.08114	.14901	.62244	.16784	.32740	.40584	13.886	.54930
#2	.08103	.14795	.62319	.16668	.32648	.40659	13.913	.55276
#3	.08131	.15053	.62594	.16852	.32924	.40778	13.893	.55241

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.8193	.71580	.11693	1.0929	.48214	.01189	.75665	.21931
Stddev	.0066	.00080	.00028	.0034	.00067	.00004	.00166	.00120
%RSD	.23535	.11152	.24025	.31265	.13989	.35306	.21980	.54735
#1	2.8173	.71508	.11663	1.0909	.48189	.01190	.75481	.21813
#2	2.8139	.71566	.11697	1.0911	.48164	.01192	.75803	.21929
#3	2.8267	.71666	.11719	1.0969	.48291	.01184	.75711	.22053

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	.79127	.17160	.15892	.15556	3.2695	.08242	.96523	1.6152
Stddev	.00230	.00031	.00058	.00044	.0060	.00017	.00569	.0044
%RSD	.29069	.18033	.36543	.28579	.18396	.20603	.58997	.27110
#1	.78943	.17128	.15959	.15531	3.2700	.08257	.95936	1.6141
#2	.79055	.17160	.15866	.15529	3.2632	.08246	.96560	1.6115
#3	.79385	.17190	.15852	.15607	3.2752	.08224	.97073	1.6200

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	.25881	1.2362	.01405	.07844	.05685	2.2998	31.794
Stddev	.00110	.0020	.00004	.00055	.00029	.0022	.281
%RSD	.42359	.16069	.27203	.70594	.50531	.09725	.88516
#1	.25836	1.2342	.01406	.07828	.05713	2.2976	31.878
#2	.25800	1.2364	.01408	.07798	.05655	2.3021	32.025
#3	.26006	1.2381	.01401	.07906	.05686	2.2997	31.481

Sample Name: S3 Acquired: 4/7/2025 11:04:15 Type: Cal
Method: NON EPA-6010-200.7(v2710) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2246.4	51341.	9625.3	1456.3	3387.8
Stddev	4.1	34.	44.2	4.1	7.7
%RSD	.18188	.06632	.45921	.28177	.22612
#1	2246.6	51380.	9676.1	1453.1	3388.8
#2	2250.3	51315.	9596.1	1454.9	3394.9
#3	2242.1	51328.	9603.6	1460.9	3379.7

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: S4 Acquired: 4/7/2025 11:08:30 Type: Cal
Method: NON EPA-6010-200.7(v2710) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.16147	.29291	1.2276	.33158	.65030	.81841	27.771	1.0749
Stddev	.00057	.00093	.0026	.00130	.00112	.00144	.159	.0022
%RSD	.35325	.31711	.21448	.39253	.17225	.17609	.57141	.20802
#1	.16083	.29311	1.2245	.33022	.64914	.81699	27.755	1.0743
#2	.16192	.29190	1.2287	.33171	.65040	.81988	27.938	1.0773
#3	.16167	.29372	1.2294	.33281	.65137	.81836	27.621	1.0730

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5.5863	1.4177	.22779	2.1613	.93958	.02363	1.4876	.44024
Stddev	.0018	.0043	.00072	.0020	.00101	.00012	.0093	.00198
%RSD	.03296	.30417	.31673	.09328	.10732	.50241	.62533	.44960
#1	5.5844	1.4195	.22717	2.1590	.94013	.02365	1.4919	.43882
#2	5.5881	1.4208	.22762	2.1628	.93841	.02373	1.4939	.44250
#3	5.5864	1.4128	.22858	2.1622	.94018	.02350	1.4769	.43939

Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.5550	.33852	.31847	.31178	6.4063	.16793	1.8754	3.1777
Stddev	.0009	.00073	.00126	.00033	.0213	.00094	.0050	.0013
%RSD	.05661	.21538	.39622	.10493	.33318	.56258	.26526	.04214
#1	1.5540	.33900	.31992	.31173	6.4130	.16861	1.8777	3.1763
#2	1.5556	.33768	.31759	.31213	6.3824	.16685	1.8789	3.1778
#3	1.5553	.33888	.31790	.31148	6.4235	.16832	1.8697	3.1789

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	.51270	2.4670	.02869	.15630	.11366	4.6495	62.792
Stddev	.00041	.0080	.00009	.00039	.00030	.0168	.312
%RSD	.08083	.32350	.29944	.25199	.26075	.36128	.49734
#1	.51233	2.4744	.02862	.15663	.11336	4.6683	63.139
#2	.51262	2.4680	.02867	.15641	.11368	4.6444	62.705
#3	.51315	2.4585	.02879	.15587	.11395	4.6359	62.533

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: S4 Acquired: 4/7/2025 11:08:30 Type: Cal
Method: NON EPA-6010-200.7(v2710) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2190.4	49979.	9494.8	1395.7	3257.5
Stddev	1.6	77.	48.4	1.8	1.2
%RSD	.07130	.15371	.51026	.12620	.03613
#1	2191.9	50064.	9502.9	1397.0	3258.5
#2	2188.8	49959.	9442.8	1396.5	3256.2
#3	2190.5	49914.	9538.7	1393.7	3257.7

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: S5 Acquired: 4/7/2025 11:12:48 Type: Cal
Method: NON EPA-6010-200.7(v2710) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.32487	.57167	2.4529	.66409	1.3120	1.7050	57.779	2.0989
Stddev	.00051	.00282	.0039	.00052	.0019	.0063	.234	.0104
%RSD	.15689	.49257	.15981	.07888	.14098	.37237	.40447	.49450
#1	.32479	.56884	2.4510	.66448	1.3141	1.7033	57.764	2.0941
#2	.32440	.57447	2.4502	.66349	1.3112	1.6997	57.554	2.0917
#3	.32541	.57170	2.4574	.66429	1.3108	1.7121	58.020	2.1108

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	11.246	2.9305	.44450	4.3573	1.8507	.04829	3.0612	.91162
Stddev	.013	.0080	.00178	.0043	.0028	.00024	.0093	.00295
%RSD	.11662	.27262	.40087	.09795	.15139	.50207	.30444	.32400
#1	11.240	2.9301	.44257	4.3557	1.8536	.04843	3.0644	.91302
#2	11.238	2.9228	.44485	4.3541	1.8481	.04844	3.0508	.90823
#3	11.261	2.9387	.44609	4.3622	1.8503	.04801	3.0686	.91361

Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.1196	.66919	.66983	.64863	12.710	.35366	3.6496	6.3047
Stddev	.0047	.00058	.00088	.00330	.052	.00085	.0138	.0043
%RSD	.15079	.08681	.13154	.50907	.40998	.23985	.37754	.06823
#1	3.1163	.66869	.66992	.64932	12.676	.35300	3.6481	6.3066
#2	3.1175	.66983	.67066	.64504	12.770	.35462	3.6366	6.2998
#3	3.1250	.66905	.66890	.65153	12.684	.35336	3.6640	6.3077

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.0270	5.1532	.05931	.31633	.23493	9.7590	128.79
Stddev	.0022	.0120	.00026	.00044	.00047	.0248	.48
%RSD	.21345	.23301	.44206	.13946	.19978	.25410	.37022
#1	1.0248	5.1559	.05907	.31619	.23544	9.7628	128.36
#2	1.0270	5.1401	.05927	.31598	.23450	9.7325	128.72
#3	1.0292	5.1636	.05959	.31682	.23486	9.7816	129.30

Sample Name: S5 Acquired: 4/7/2025 11:12:48 Type: Cal
Method: NON EPA-6010-200.7(v2710) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2111.8	49282.	9356.4	1336.8	3076.9
Stddev	4.2	118.	47.4	2.3	4.6
%RSD	.19655	.23849	.50659	.17042	.14847
#1	2108.7	49396.	9363.5	1335.8	3075.2
#2	2116.5	49287.	9399.9	1335.1	3082.1
#3	2110.1	49162.	9305.9	1339.4	3073.5

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: ICV01 Acquired: 4/7/2025 12:35:07 Type: Unk
Method: NON EPA-6010-200.7(v2892) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9986112	1.037343	.9768230	1.033418	1.017689	2.403346	.5046295
Stddev	.0077403	.006091	.0026315	.007978	.003593	.003811	.0020289
%RSD	.7751055	.5872019	.2693936	.7720122	.3530738	.1585904	.4020523
#1	.9994345	1.031808	.9764609	1.036001	1.016770	2.400352	.5068685
#2	.9904922	1.036351	.9743912	1.024469	1.014646	2.402049	.5029128
#3	1.005907	1.043869	.9796167	1.039785	1.021653	2.407636	.5041074

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5346381	.4953565	10.27096	.5233482	.5061060	.5208063	9.719878
Stddev	.0008213	.0004120	.01152	.0005095	.0005473	.0018918	.031151
%RSD	.1536086	.0831789	.1121142	.0973462	.1081344	.3632424	.3204889
#1	.5339467	.4951379	10.26215	.5231897	.5055684	.5211308	9.753416
#2	.5355459	.4950999	10.26673	.5229368	.5060870	.5187732	9.691848
#3	.5344218	.4958318	10.28399	.5239180	.5066625	.5225148	9.714371

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5153526	6.157813	.5079711	.2417900	10.39884	.5068942	1.008654
Stddev	.0004697	.013103	.0007709	.0005592	.06325	.0015972	.003227
%RSD	.0911327	.2127941	.1517514	.2312918	.6082817	.3150911	.3199204
#1	.5158033	6.163024	.5076667	.2412116	10.46692	.5081056	1.006141
#2	.5153882	6.142906	.5073989	.2423278	10.38770	.5050842	1.007529
#3	.5148661	6.167510	.5088476	.2418307	10.34189	.5074927	1.012293

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.433068	2.532030	2.458224	2.495242	2.513985	2.513034	2.604048
Stddev	.053937	.003277	.007717	.005798	.004461	.003521	.002537
%RSD	.5717880	.1294266	.3139445	.2323553	.1774399	.1401031	.0974210
#1	9.484268	2.528700	2.457702	2.488787	2.518582	2.515566	2.606106
#2	9.438180	2.535252	2.450781	2.496934	2.513699	2.509013	2.604825
#3	9.376758	2.532139	2.466189	2.500006	2.509674	2.514521	2.601214

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: ICV01 Acquired: 4/7/2025 12:35:07 Type: Unk
Method: NON EPA-6010-200.7(v2892) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.613875	2.534519	2.539924
Stddev	.014520	.010720	.019219
%RSD	.5554827	.4229608	.7566747
#1	2.597142	2.545413	2.551547
#2	2.621335	2.534163	2.550486
#3	2.623148	2.523981	2.517741

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2208.274	51154.09	9815.522	1411.303	3410.939
Stddev	5.850	111.40	23.005	5.335	4.214
%RSD	.2649341	.2177690	.2343745	.3780177	.1235311
#1	2208.101	51120.68	9807.222	1407.352	3413.156
#2	2214.209	51063.22	9797.818	1417.371	3413.581
#3	2202.512	51278.37	9841.525	1409.184	3406.080

Sample Name: LLICV01 Acquired: 4/7/2025 13:00:27 Type: Unk
Method: NON EPA-6010-200.7(v2893) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0236485	.0406518	.0111099	.0196115	.0526575	.1053135	.0895716
Stddev	.0021741	.0017698	.0004721	.0020853	.0016255	.0013961	.0014948
%RSD	9.193303	4.353544	4.249270	10.63314	3.086975	1.325612	1.668843
#1	.0215822	.0394663	.0115493	.0214625	.0545290	.1059948	.0908177
#2	.0234470	.0426861	.0106108	.0200199	.0518461	.1062380	.0879142
#3	.0259163	.0398029	.0111697	.0173522	.0515973	.1037076	.0899828

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0056758	.0057396	1.905230	.0097113	.0291740	.0220717	.0937060
Stddev	.0000538	.0000634	.010682	.0002131	.0002135	.0003325	.0047801
%RSD	.9473402	1.104317	.5606653	2.194030	.7318705	1.506484	5.101159
#1	.0056953	.0057962	1.911659	.0094716	.0290057	.0223156	.0895186
#2	.0056150	.0056711	1.892899	.0097833	.0294142	.0222066	.0926855
#3	.0057170	.0057515	1.911131	.0098791	.0291020	.0216930	.0989140

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0207064	2.009670	.0392536	.0104341	1.990139	.0387933	.0414724
Stddev	.0004119	.033485	.0002164	.0000473	.046735	.0015309	.0001151
%RSD	1.989128	1.666171	.5513623	.4530889	2.348350	3.946270	.2774459
#1	.0206655	2.030997	.0391833	.0104267	1.957848	.0383221	.0415809
#2	.0203165	1.971076	.0394964	.0104847	2.043730	.0405044	.0413517
#3	.0211372	2.026936	.0390811	.0103910	1.968840	.0375534	.0414845

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.747745	.0894271	.2082171	.0389982	.0376392	.3601572	.0248611
Stddev	.025153	.0009129	.0009837	.0007112	.0013184	.0077777	.0038579
%RSD	1.439188	1.020817	.4724376	1.823739	3.502675	2.159542	15.51796
#1	1.719606	.0902338	.2090345	.0398189	.0362659	.3540425	.0293063
#2	1.768045	.0884361	.2071254	.0385623	.0388947	.3689112	.0228918
#3	1.755585	.0896112	.2084915	.0386133	.0377569	.3575181	.0223853

Sample Name: LLICV01 Acquired: 4/7/2025 13:00:27 Type: Unk
Method: NON EPA-6010-200.7(v2893) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0196101	.0180233	.0188053
Stddev	.0041539	.0004722	.0000703
%RSD	21.18258	2.619946	.3737779
#1	.0161278	.0182010	.0187571
#2	.0242079	.0183808	.0187729
#3	.0184947	.0174880	.0188860

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2221.844	51219.95	10121.61	1428.346	3535.506
Stddev	3.869	361.93	61.59	10.873	5.792
%RSD	.1741190	.7066206	.6085160	.7612083	.1638147
#1	2217.472	51266.48	10096.02	1433.032	3528.893
#2	2223.235	50837.01	10191.87	1415.915	3537.952
#3	2224.825	51556.37	10076.94	1436.089	3539.674

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: ICB01 Acquired: 4/7/2025 13:05:48 Type: Unk
Method: NON EPA-6010-200.7(v2893) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007689	-.001212	.0007294	.0004524	.0016698	.0032121	-.001662
Stddev	.0019603	.002243	.0005967	.0011069	.0011585	.0047226	.000436
%RSD	254.9568	185.0701	81.80905	244.6608	69.38128	147.0233	26.21384
#1	-.000155	-.001597	.0000424	-.000785	.0020804	.0040421	-.002049
#2	.003020	.001198	.0011185	.000793	.0003619	.0074648	-.001747
#3	-.000558	-.003238	.0010273	.001349	.0025671	-.001870	-.001190

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000048	-.000079	-.007675	-.000336	.0000971	-.000151	.0324361
Stddev	.000021	.000031	.004798	.000131	.0001701	.000445	.0062722
%RSD	44.25360	38.62428	62.51613	39.02660	175.1481	294.2645	19.33706
#1	-.000031	-.000098	-.009031	-.000210	.0001955	-.000237	.0365584
#2	-.000072	-.000096	-.011649	-.000472	.0001951	-.000548	.0252179
#3	-.000041	-.000044	-.002345	-.000326	-.000099	.000331	.0355320

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0019061	.0051226	-.000047	.0002903	-.417308	.0008119	-.000242
Stddev	.0001603	.0059156	.000146	.0001604	.019190	.0020695	.000450
%RSD	8.411669	115.4802	312.7693	55.24098	4.598414	254.9012	186.2489
#1	.0020907	.0071234	.000119	.0002967	-.395522	-.001237	-.000383
#2	.0018252	-.001534	-.000160	.0004474	-.431704	.002902	-.000604
#3	.0018023	.009778	-.000099	.0001268	-.424699	.000771	.000262

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.153184	-.009133	-.000227	-.001085	.0004164	.0008703	-.001108
Stddev	.018029	.000425	.000262	.000866	.0002886	.0022709	.001906
%RSD	11.76979	4.656842	115.6134	79.84565	69.31404	260.9259	172.1201
#1	-.135473	-.009602	-.000427	-.000138	.0007067	-.001374	-.000109
#2	-.152565	-.008772	-.000324	-.001838	.0004131	.003167	.000092
#3	-.171516	-.009025	.000070	-.001278	.0001294	.000818	-.003306

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: ICB01 Acquired: 4/7/2025 13:05:48 Type: Unk
Method: NON EPA-6010-200.7(v2893) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000701	-.001123	-.000131
Stddev	.002740	.000561	.000038
%RSD	390.8905	49.94030	28.76031
#1	-.003862	-.000591	-.000165
#2	.000768	-.001070	-.000138
#3	.000992	-.001709	-.000091

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2217.513	49980.71	10028.70	1389.871	3563.429
Stddev	3.916	92.76	26.02	5.872	3.988
%RSD	.1765891	.1855865	.2594423	.4225091	.1119053
#1	2213.231	49893.62	10006.94	1396.226	3561.851
#2	2218.396	50078.25	10057.52	1384.645	3560.472
#3	2220.913	49970.25	10021.65	1388.744	3567.964

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CRI01 Acquired: 4/7/2025 13:10:09 Type: Unk
Method: NON EPA-6010-200.7(v2893) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0227668	.0406786	.0117094	.0210042	.0537970	.1033478	.0905940
Stddev	.0028310	.0030322	.0006270	.0013495	.0003408	.0033312	.0005057
%RSD	12.43476	7.454130	5.354621	6.424744	.6335117	3.223241	.5581623
#1	.0195258	.0388312	.0121901	.0205329	.0538606	.1007437	.0900148
#2	.0247567	.0390266	.0110002	.0199537	.0541015	.1071015	.0908195
#3	.0240180	.0441782	.0119380	.0225262	.0534289	.1021983	.0909476

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0056693	.0057750	1.923162	.0098453	.0297864	.0223722	.0997617
Stddev	.0000453	.0000389	.025644	.0001314	.0001832	.0003877	.0026631
%RSD	.7984121	.6727364	1.333414	1.334944	.6149478	1.733111	2.669496
#1	.0056388	.0057328	1.897634	.0098011	.0296134	.0222215	.1001178
#2	.0057213	.0058092	1.922930	.0097418	.0299783	.0228127	.0969384
#3	.0056477	.0057832	1.948920	.0099932	.0297675	.0220825	.1022288

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0211726	2.031789	.0397098	.0109436	1.459358	.0381768	.0414187
Stddev	.0001590	.013519	.0003541	.0001189	.011321	.0002287	.0000830
%RSD	.7507778	.6653961	.8916592	1.086002	.7757847	.5990768	.2003007
#1	.0210257	2.016535	.0393037	.0110355	1.446347	.0383960	.0414495
#2	.0213414	2.036537	.0399536	.0109858	1.466962	.0379396	.0413247
#3	.0211507	2.042293	.0398721	.0108093	1.464764	.0381947	.0414818

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.873969	.0890002	.2097660	.0395503	.0384777	.3743464	.0171066
Stddev	.010786	.0010345	.0011262	.0002770	.0000462	.0029449	.0015468
%RSD	.5755717	1.162311	.5368691	.7004746	.1201470	.7866855	9.042382
#1	1.862868	.0879222	.2103376	.0397623	.0384320	.3710081	.0184969
#2	1.874630	.0899848	.2104918	.0396519	.0384767	.3765764	.0154403
#3	1.884409	.0890935	.2084687	.0392368	.0385244	.3754547	.0173825

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CRI01 Acquired: 4/7/2025 13:10:09 Type: Unk
Method: NON EPA-6010-200.7(v2893) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0169535	.0172073	.0189834
Stddev	.0039595	.0004825	.0000491
%RSD	23.35491	2.804243	.2588181
#1	.0160640	.0177014	.0189335
#2	.0135144	.0167373	.0190318
#3	.0212820	.0171831	.0189849

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2211.557	50486.11	10273.60	1405.241	3503.008
Stddev	5.860	149.84	44.26	3.186	5.694
%RSD	.2649791	.2967973	.4307703	.2267068	.1625357
#1	2205.269	50657.95	10322.54	1408.504	3498.060
#2	2212.535	50382.70	10261.85	1402.139	3509.232
#3	2216.867	50417.68	10236.41	1405.081	3501.734

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: ICSA01 Acquired: 4/7/2025 13:14:28 Type: Unk
Method: NON EPA-6010-200.7(v2893) Mode: CONC Corr. Factor: 1.000000
User: Kareem 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	.0031502	.0060279	.0069416	-.016618	.0029700	244.1646	.0031830
Stddev	.0015188	.0007623	.0016112	.001596	.0009448	.8512	.0002191
%RSD	48.21167	12.64663	23.21146	9.605766	31.81159	.3486302	6.883269
#1	.0015598	.0051822	.0087092	-.015401	.0038112	243.7176	.0032664
#2	.0033055	.0066621	.0065603	-.016027	.0031512	243.6300	.0033482
#3	.0045854	.0062395	.0055551	-.018425	.0019478	245.1462	.0029345

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0015482	.0016451	230.7384	.0586430	.0017839	.0212698	101.3146
Stddev	.0000520	.0001821	.6982	.0003983	.0003214	.0006782	.2793
%RSD	3.361542	11.07171	.3025873	.6791792	18.01908	3.188353	.2757113
#1	.0014888	.0018526	230.7610	.0584239	.0018692	.0219086	101.1150
#2	.0015698	.0015118	230.0292	.0584024	.0014284	.0213427	101.1949
#3	.0015860	.0015709	231.4250	.0591027	.0020541	.0205581	101.6338

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0029280	248.2958	.0023505	-.004957	-.262336	.0051475	.0045272
Stddev	.0003620	1.0605	.0002355	.000223	.020207	.0015482	.0001524
%RSD	12.36482	.4271263	10.01999	4.506492	7.702747	30.07602	3.367081
#1	.0027257	248.1902	.0024872	-.004740	-.285221	.0062025	.0044373
#2	.0027124	247.2921	.0020786	-.005186	-.254836	.0033702	.0047032
#3	.0033460	249.4052	.0024857	-.004944	-.246952	.0058698	.0044411

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.132901	-.021512	-.001747	-.004905	-.001355	.0167203	.0009611
Stddev	.010665	.000482	.000386	.001882	.000282	.0131191	.0023095
%RSD	8.025001	2.242533	22.08065	38.36809	20.83411	78.46208	240.2933
#1	-.123693	-.021399	-.002028	-.005168	-.001680	.0114754	-.001666
#2	-.130423	-.021097	-.001906	-.002905	-.001170	.0316504	.002671
#3	-.144588	-.022041	-.001307	-.006641	-.001215	.0070350	.001879

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: ICSA01 Acquired: 4/7/2025 13:14:28 Type: Unk
Method: NON EPA-6010-200.7(v2893) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.007657	-.017007	-.005805
Stddev	.001691	.000171	.000122
%RSD	22.08908	1.007626	2.099890
#1	-.007880	-.016896	-.005665
#2	-.005865	-.016920	-.005873
#3	-.009226	-.017204	-.005879

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2001.922	44752.45	9590.641	1273.705	2848.370
Stddev	6.200	179.99	42.779	10.695	4.048
%RSD	.3097054	.4022005	.4460523	.8396429	.1421118
#1	1998.843	44887.31	9582.494	1284.770	2847.180
#2	1997.864	44821.97	9636.908	1272.921	2845.050
#3	2009.059	44548.06	9552.521	1263.424	2852.879

Sample Name: ICSAB01 Acquired: 4/7/2025 13:18:53 Type: Unk
Method: NON EPA-6010-200.7(v2893) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1091196	.1016301	.0547064	.0414446	.6187269	238.0796	.4783205
Stddev	.0110848	.0026321	.0015735	.0023040	.0028974	3.4304	.0027440
%RSD	10.15842	2.589860	2.876262	5.559324	.4682807	1.440874	.5736777
#1	.1208198	.1037212	.0553516	.0418935	.6167448	234.1185	.4802228
#2	.1077642	.0986745	.0558547	.0389491	.6173839	240.0478	.4751749
#3	.0987747	.1024946	.0529128	.0434911	.6220521	240.0724	.4795638

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4564441	.9866395	228.8359	.5550659	.5015059	.4997651	105.6225
Stddev	.0031604	.0012471	1.2260	.0014062	.0011729	.0004341	.7756
%RSD	.6923990	.1263997	.5357765	.2533371	.2338690	.0868540	.7343341
#1	.4536700	.9853742	228.7097	.5558942	.5013596	.4994049	106.3787
#2	.4557778	.9866768	227.6779	.5534423	.5004131	.4996434	104.8288
#3	.4598846	.9878676	230.1202	.5558613	.5027451	.5002471	105.6599

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4593979	242.6305	.9909976	.1851094	-.301827	.4563495	1.034380
Stddev	.0030669	1.3939	.0019467	.0007813	.006658	.0011434	.002465
%RSD	.6676006	.5744773	.1964383	.4220769	2.205926	.2505444	.2383078
#1	.4579797	241.9238	.9896929	.1855728	-.309464	.4560690	1.037159
#2	.4572966	241.7316	.9900647	.1855480	-.297246	.4576071	1.033526
#3	.4629173	244.2362	.9932352	.1842073	-.298769	.4553725	1.032456

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.135549	1.004387	1.133540	1.136656	1.052815	1.065716	1.085206
Stddev	.010072	.002475	.000155	.003083	.005439	.004877	.003612
%RSD	7.430403	.2464648	.0136914	.2712652	.5165904	.4576460	.3327942
#1	-.131454	1.002621	1.133615	1.136907	1.051059	1.070127	1.084573
#2	-.128170	1.003322	1.133644	1.133455	1.048471	1.066541	1.081953
#3	-.147024	1.007216	1.133362	1.139606	1.058915	1.060478	1.089093

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: ICSAB01 Acquired: 4/7/2025 13:18:53 Type: Unk
Method: NON EPA-6010-200.7(v2893) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.097519	.9987718	.9743853
Stddev	.007601	.0062834	.0054806
%RSD	.6925306	.6291164	.5624635
#1	1.106289	1.002116	.9771612
#2	1.092848	.991523	.9680722
#3	1.093419	1.002676	.9779226

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1974.663	45284.83	10233.38	1285.770	2815.869
Stddev	.898	120.93	57.65	8.873	5.918
%RSD	.0454686	.2670446	.5633427	.6900768	.2101571
#1	1974.374	45158.89	10281.54	1276.315	2817.321
#2	1975.670	45400.04	10249.10	1293.915	2820.925
#3	1973.945	45295.56	10169.50	1287.080	2809.360

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: ICSADLX20 Acquired: 4/7/2025 13:23:05 Type: Unk
Method: NON EPA-6010-200.7(v2893) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSADLX20 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008176	.0011732	-.000123	-.001561	-.000370	12.00778	-.000961
Stddev	.0030108	.0010516	.000643	.002592	.000324	.01179	.000099
%RSD	368.2634	89.63764	521.9523	166.0342	87.61599	.0982245	10.25502
#1	.0042934	.0012572	.000200	-.003952	-.000018	11.99919	-.001075
#2	-.000984	.0021804	-.000864	-.001924	-.000436	12.00292	-.000909
#3	-.000857	.0000821	.000294	.001193	-.000657	12.02123	-.000899

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001245	-.000027	11.91334	.0023849	.0002386	.0013719	5.214164
Stddev	.0000431	.000057	.02032	.0003092	.0000706	.0001861	.002868
%RSD	34.58968	210.2702	.1705294	12.96528	29.57922	13.56544	.0550072
#1	.0001150	-.000071	11.89087	.0024525	.0002530	.0011733	5.213681
#2	.0001715	-.000048	11.91875	.0026548	.0001619	.0014000	5.217243
#3	.0000869	.000038	11.93040	.0020475	.0003008	.0015423	5.211568

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0018709	12.18207	.0000681	-.000061	-.442050	.0008595	-.000591
Stddev	.0001999	.05732	.0001392	.000123	.016508	.0016713	.000747
%RSD	10.68674	.4705444	204.4814	203.9130	3.734386	194.4534	126.4433
#1	.0019385	12.12348	.0000414	.000020	-.449977	-.000597	-.001066
#2	.0020283	12.18470	.0002187	.000001	-.453099	.002684	-.000976
#3	.0016460	12.23804	-.000056	-.000203	-.423074	.000491	.000270

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.201186	-.009484	-.000427	-.000979	.0004626	-.003947	-.001835
Stddev	.022484	.000550	.000119	.000473	.0001028	.004877	.001729
%RSD	11.17587	5.797010	27.78198	48.29045	22.22288	123.5584	94.22819
#1	-.210475	-.008849	-.000400	-.000437	.0005688	.001647	-.003689
#2	-.175546	-.009780	-.000558	-.001306	.0004553	-.007303	-.001550
#3	-.217537	-.009821	-.000325	-.001195	.0003636	-.006185	-.000266

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: ICSADLX20 Acquired: 4/7/2025 13:23:05 Type: Unk
Method: NON EPA-6010-200.7(v2893) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSADLX20 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000940	-.002651	-.000352
Stddev	.001067	.000841	.000022
%RSD	113.4756	31.71436	6.138421
#1	-.002096	-.001805	-.000341
#2	-.000732	-.002661	-.000338
#3	.000007	-.003486	-.000377

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2221.702	49632.72	10346.11	1398.241	3460.326
Stddev	.897	220.39	45.28	8.266	7.844
%RSD	.0403647	.4440401	.4376405	.5911886	.2266832
#1	2221.321	49885.49	10398.06	1407.672	3451.398
#2	2222.726	49531.88	10325.30	1394.799	3463.471
#3	2221.059	49480.80	10314.98	1392.252	3466.110

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: ICSABDLX20 Acquired: 4/7/2025 13:37:51 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSABDLX20 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0073445	.0064537	.0027129	.0017299	.0297126	12.12814	.0216283
Stddev	.0010979	.0015509	.0002713	.0011485	.0012393	.02229	.0005459
%RSD	14.94837	24.03058	10.00193	66.38663	4.171080	.1837481	2.523802
#1	.0082383	.0082423	.0030247	.0009859	.0309181	12.10259	.0214416
#2	.0061190	.0056353	.0025841	.0011513	.0284420	12.14360	.0222430
#3	.0076761	.0054834	.0025299	.0030526	.0297776	12.13821	.0212003

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0258254	.0497798	11.99339	.0287481	.0250859	.0275935	4.929000
Stddev	.0001146	.0001009	.01397	.0002714	.0001690	.0005001	.017878
%RSD	.4438401	.2027386	.1165035	.9440979	.6738053	1.812470	.3627061
#1	.0257779	.0496698	11.99542	.0284358	.0249250	.0271694	4.931483
#2	.0259562	.0498017	11.97852	.0288815	.0252621	.0274661	4.910011
#3	.0257422	.0498680	12.00625	.0289269	.0250705	.0281450	4.945506

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0255737	12.31533	.0506299	.0090656	-.464558	.0237931	.0509399
Stddev	.0003314	.01707	.0002414	.0005461	.010105	.0013550	.0000828
%RSD	1.295884	.1386250	.4768676	6.024146	2.175082	5.695007	.1625448
#1	.0256994	12.30646	.0504740	.0096459	-.454389	.0253573	.0508730
#2	.0251978	12.33502	.0505078	.0089891	-.474596	.0230440	.0510325
#3	.0258238	12.30453	.0509080	.0085617	-.464689	.0229781	.0509141

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.223099	.0345363	.0586990	.0557403	.0541560	.0386908	.0437124
Stddev	.039846	.0002230	.0003584	.0002557	.0006372	.0105849	.0028558
%RSD	17.86013	.6456954	.6106300	.4587598	1.176560	27.35770	6.533188
#1	-.226867	.0345195	.0585378	.0558966	.0540861	.0280784	.0424876
#2	-.181503	.0343221	.0591097	.0554452	.0548252	.0387459	.0469763
#3	-.260927	.0347672	.0584495	.0558791	.0535566	.0492481	.0416733

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: ICSABDLX20 Acquired: 4/7/2025 13:37:51 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSABDLX20 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0546785	.0476358	.0490519
Stddev	.0052626	.0010928	.0000657
%RSD	9.624575	2.294142	.1340233
#1	.0486042	.0473119	.0489796
#2	.0578633	.0488539	.0491081
#3	.0575679	.0467414	.0490681

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2198.902	50421.42	9778.199	1426.744	3396.022
Stddev	3.965	137.56	34.350	5.906	5.768
%RSD	.1803303	.2728240	.3512869	.4139606	.1698465
#1	2197.134	50513.51	9793.130	1430.186	3397.618
#2	2203.443	50487.45	9802.557	1430.122	3400.824
#3	2196.127	50263.29	9738.911	1419.924	3389.624

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCV01 Acquired: 4/7/2025 13:42:11 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.998148	5.100096	4.973754	5.028018	5.044854	9.832461	9.855406
Stddev	.011346	.019785	.014855	.017795	.022855	.013927	.100722
%RSD	.2270122	.3879266	.2986597	.3539169	.4530433	.1416450	1.021994
#1	4.993298	5.080414	4.963372	5.009468	5.025303	9.828158	9.742712
#2	4.990033	5.099892	4.967119	5.029638	5.039279	9.821193	9.886855
#3	5.011114	5.119982	4.990769	5.044947	5.069982	9.848032	9.936650

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2486603	2.481280	24.50141	1.010984	2.483321	1.263541	4.980519
Stddev	.0001715	.005828	.06940	.002740	.006150	.003781	.015303
%RSD	.0689632	.2348586	.2832325	.2710551	.2476650	.2992218	.3072627
#1	.2487245	2.479330	24.44700	1.013109	2.481606	1.259281	4.997750
#2	.2487904	2.476678	24.47768	1.007891	2.478209	1.264843	4.968513
#3	.2484659	2.487833	24.57956	1.011951	2.490146	1.266498	4.975293

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.449860	24.39642	2.486557	1.261365	24.84474	2.458652	2.523467
Stddev	.003460	.10309	.004809	.001452	.11145	.002503	.003858
%RSD	.1412145	.4225802	.1933976	.1150932	.4485671	.1017921	.1528682
#1	2.447471	24.28987	2.483438	1.261954	24.93103	2.456071	2.520060
#2	2.448282	24.40372	2.484138	1.259711	24.71891	2.461068	2.522685
#3	2.453827	24.49567	2.492095	1.262430	24.88427	2.458817	2.527655

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.91861	4.997568	5.094282	4.994379	4.907404	4.936135	5.094198
Stddev	.14797	.012479	.014474	.010141	.003864	.030845	.013065
%RSD	.5938282	.2496927	.2841140	.2030435	.0787325	.6248852	.2564745
#1	25.01574	5.003065	5.079450	4.994533	4.902956	4.916101	5.089766
#2	24.74830	5.006355	5.095026	4.984162	4.909328	4.920650	5.083926
#3	24.99178	4.983285	5.108369	5.004441	4.909928	4.971655	5.108903

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCV01 Acquired: 4/7/2025 13:42:11 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.922041	4.975103	5.010307
Stddev	.006447	.004475	.031108
%RSD	.1309899	.0899518	.6208797
#1	4.928640	4.971998	4.974478
#2	4.915757	4.980233	5.030443
#3	4.921727	4.973078	5.026000

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2175.586	49647.82	9585.218	1383.793	3252.482
Stddev	5.400	287.12	38.479	13.811	6.396
%RSD	.2481897	.5783096	.4014404	.9980244	.1966627
#1	2181.449	49691.13	9617.933	1395.045	3256.988
#2	2174.493	49910.82	9594.896	1387.954	3255.298
#3	2170.817	49341.50	9542.824	1368.381	3245.161

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCB01 Acquired: 4/7/2025 13:50:48 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0011940	.0007424	-.000111	.0001431	-.000190	.0042208	-.002376
Stddev	.0026135	.0017532	.000859	.0021100	.000904	.0038171	.000685
%RSD	218.8823	236.1523	774.7106	1474.861	475.7452	90.43687	28.82263
#1	.0029591	.0021419	.000133	-.002231	.000854	.0084608	-.002554
#2	.0024313	-.001224	-.001066	.001804	-.000725	.0010582	-.002955
#3	-.001808	.001309	.000600	.000856	-.000700	.0031433	-.001620

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000038	-.000023	-.005364	-.000131	.0002071	-.000277	-.003958
Stddev	.000022	.000077	.002861	.000526	.0002448	.000234	.001237
%RSD	57.21672	331.9890	53.33590	401.4720	118.1729	84.64438	31.24878
#1	-.000042	.000060	-.007128	.000452	.0000114	-.000129	-.002961
#2	-.000014	-.000090	-.006901	-.000277	.0001285	-.000547	-.003570
#3	-.000057	-.000039	-.002063	-.000568	.0004816	-.000154	-.005342

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0016834	.0045474	.0002757	.0003851	-.470385	.0015026	-.000941
Stddev	.0004399	.0089071	.0000968	.0000255	.007168	.0017517	.000265
%RSD	26.13028	195.8753	35.10498	6.622476	1.523804	116.5741	28.12731
#1	.0013800	-.005670	.0001842	.0004129	-.477972	.0024804	-.000948
#2	.0014823	.010676	.0003771	.0003794	-.469456	-.000520	-.001203
#3	.0021879	.008636	.0002658	.0003629	-.463727	.002547	-.000674

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.226667	-.006045	-.000475	-.000432	.0005637	-.001707	-.002158
Stddev	.026009	.000499	.000279	.000506	.0006645	.005302	.001353
%RSD	11.47458	8.253537	58.62554	117.1158	117.8865	310.5685	62.69403
#1	-.225339	-.006619	-.000778	-.000815	.0005044	-.007598	-.001968
#2	-.201347	-.005793	-.000419	.000142	-.000069	.002684	-.003597
#3	-.253314	-.005722	-.000229	-.000623	.001256	-.000208	-.000911

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCB01 Acquired: 4/7/2025 13:50:48 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000257	-.001562	.0000181
Stddev	.001867	.001211	.0000505
%RSD	727.1171	77.51623	278.5237
#1	.001357	-.001319	-.000035
#2	.000175	-.000491	.000025
#3	-.002301	-.002875	.000065

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2208.742	50056.28	10419.07	1389.249	3558.448
Stddev	1.863	137.69	23.12	4.631	4.164
%RSD	.0843310	.2750638	.2218957	.3333130	.1170207
#1	2210.812	50084.21	10436.97	1387.343	3557.101
#2	2208.211	49906.77	10392.96	1394.529	3563.119
#3	2207.202	50177.86	10427.27	1385.876	3555.124

Sample Name: PB167491BL Acquired: 4/7/2025 14:03:34 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007271	.0010875	-.000389	.0007022	.0007067	.0075126	-.000757
Stddev	.0030552	.0014859	.001077	.0008880	.0012924	.0065901	.001208
%RSD	420.1696	136.6366	276.8890	126.4705	182.8743	87.72024	159.5572
#1	.0009979	-.000625	-.001598	.0010555	.0019425	.0011683	-.001312
#2	.0036380	.001849	-.000037	.0013591	.0008136	.0070458	-.001587
#3	-.002454	.002038	.000468	-.000308	-.000636	.0143236	.000629

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000032	-.000012	-.002220	-.000217	.0000403	-.000126	-.000608
Stddev	.000015	.000045	.005772	.000070	.0000489	.000273	.002443
%RSD	45.31559	372.4614	259.9458	32.22741	121.1248	217.7076	401.9574
#1	-.000035	-.000060	.000235	-.000138	.0000879	.000041	-.002535
#2	-.000016	-.000006	-.008814	-.000272	.0000429	.000023	-.001427
#3	-.000045	.000029	.001918	-.000241	-.000010	-.000441	.002139

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0014210	.0008154	.0002150	.0000347	-.530423	-.000280	-.001052
Stddev	.0002104	.0190223	.0002282	.0002540	.007388	.001055	.000136
%RSD	14.80391	2332.940	106.1173	731.2660	1.392816	376.8890	12.93041
#1	.0014370	.0086315	.0001477	-.000243	-.538129	.000915	-.001202
#2	.0012031	-.020870	.0004693	.000256	-.523401	-.001083	-.000938
#3	.0016230	.014685	.0000281	.000091	-.529740	-.000673	-.001015

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.249850	-.007749	-.000521	-.000085	-.000017	.0007692	-.002198
Stddev	.037642	.000174	.000167	.000581	.000771	.0057297	.001475
%RSD	15.06601	2.244267	32.11216	681.3766	4524.021	744.8655	67.12769
#1	-.270116	-.007806	-.000714	-.000441	.000830	-.005635	-.000494
#2	-.273017	-.007887	-.000431	-.000401	-.000201	.002535	-.003054
#3	-.206416	-.007554	-.000418	.000586	-.000679	.005408	-.003045

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: PB167491BL Acquired: 4/7/2025 14:03:34 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.004666	-.000954	-.000031
Stddev	.001885	.000145	.000006
%RSD	40.38808	15.18302	18.14660
#1	-.006722	-.000885	-.000024
#2	-.004256	-.000857	-.000033
#3	-.003021	-.001121	-.000035

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2259.465	50887.18	9875.348	1449.089	3638.096
Stddev	6.031	25.48	38.543	5.962	7.264
%RSD	.2669003	.0500670	.3902917	.4114082	.1996616
#1	2255.832	50863.01	9918.908	1455.708	3632.723
#2	2266.426	50884.75	9845.666	1444.141	3646.360
#3	2256.136	50913.79	9861.471	1447.417	3635.206

Sample Name: PB167491BS Acquired: 4/7/2025 14:19:12 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7489575	1.873270	.9155707	1.915088	.7774439	1.808159	.1733701
Stddev	.0022491	.023376	.0026483	.005409	.0026207	.005659	.0008939
%RSD	.3002969	1.247879	.2892545	.2824546	.3370885	.3129616	.5156281
#1	.7485257	1.851478	.9165386	1.921059	.7803319	1.808699	.1742927
#2	.7469555	1.870372	.9125745	1.913687	.7767824	1.813529	.1725078
#3	.7513911	1.897960	.9175988	1.910517	.7752173	1.802250	.1733097

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1867126	.1823704	.9134295	.3796029	.1862536	.2970724	2.747773
Stddev	.0007563	.0002249	.0065078	.0007119	.0004686	.0000883	.024553
%RSD	.4050510	.1232999	.7124609	.1875396	.2516148	.0297353	.8935607
#1	.1874061	.1823752	.9188920	.3802964	.1865485	.2970598	2.765750
#2	.1859062	.1821431	.9062291	.3796386	.1857133	.2969911	2.757771
#3	.1868254	.1825928	.9151673	.3788739	.1864991	.2971664	2.719798

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1844763	1.761613	.4682172	.0716027	3.002346	.2704945	.1913039
Stddev	.0007210	.010106	.0001796	.0002561	.030564	.0006110	.0000424
%RSD	.3908245	.5737004	.0383582	.3576897	1.017989	.2258759	.0221590
#1	.1852254	1.772809	.4680789	.0718526	3.017538	.2705068	.1912624
#2	.1844164	1.753162	.4681524	.0716147	3.022336	.2698774	.1913471
#3	.1837872	1.758870	.4684202	.0713408	2.967163	.2710992	.1913023

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.807521	.3150523	.3838366	.6517663	.1787971	.9015257	5.565816
Stddev	.069424	.0011206	.0007632	.0013698	.0000645	.0090029	.011305
%RSD	.7882380	.3556990	.1988292	.2101620	.0360551	.9986336	.2031105
#1	8.815861	.3144106	.3832570	.6528225	.1787471	.8915060	5.578390
#2	8.872398	.3144001	.3835514	.6502186	.1787742	.9089348	5.562567
#3	8.734303	.3163463	.3847012	.6522577	.1788698	.9041364	5.556492

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: PB167491BS Acquired: 4/7/2025 14:19:12 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	8.922683	.1877553	.1792763
Stddev	.008901	.0003723	.0008118
%RSD	.0997612	.1982895	.4528157
#1	8.912405	.1876370	.1799664
#2	8.927881	.1881724	.1794807
#3	8.927764	.1874566	.1783819

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2191.096	51364.65	9869.282	1430.054	3431.459
Stddev	3.872	203.88	53.256	9.190	5.426
%RSD	.1766937	.3969171	.5396139	.6426629	.1581205
#1	2186.747	51176.31	9808.621	1421.820	3425.470
#2	2194.166	51336.51	9908.353	1428.373	3436.046
#3	2192.376	51581.14	9890.871	1439.969	3432.861

Sample Name: PB167471BL Acquired: 4/7/2025 14:23:15 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0019689	-.000255	.0006288	.0007189	.0014407	.0034169	-.000719
Stddev	.0009696	.000711	.0013602	.0042808	.0016323	.0058964	.000415
%RSD	49.24768	278.3455	216.3212	595.4381	113.2973	172.5647	57.80976
#1	.0030583	-.000015	.0010828	.0020597	.0033026	-.000399	-.000428
#2	.0012002	.000304	.0017039	.0041689	.0007638	.010208	-.001195
#3	.0016483	-.001056	-.000900	-.004072	.0002558	.000442	-.000533

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000063	.0000188	-.004708	-.000159	.0000364	-.000540	-.000780
Stddev	.000044	.0000488	.006361	.000181	.0001835	.000280	.001393
%RSD	69.63974	259.6114	135.1152	113.7592	503.6173	51.83539	178.7297
#1	-.000040	-.000004	.001511	-.000326	.0002483	-.000805	-.000203
#2	-.000036	-.000014	-.004432	-.000183	-.000070	-.000568	-.002369
#3	-.000114	.000075	-.011202	.000033	-.000069	-.000247	.000233

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0014111	-.005183	.0000121	.0002236	-.519735	.0009330	-.001389
Stddev	.0000401	.007372	.0002741	.0002141	.010992	.0017409	.000233
%RSD	2.843857	142.2459	2266.549	95.73604	2.114961	186.5961	16.80723
#1	.0014336	.000105	-.000269	.0000707	-.532427	.0029379	-.001414
#2	.0014349	-.002049	.000279	.0004683	-.513461	.0000561	-.001609
#3	.0013647	-.013604	.000026	.0001319	-.513316	-.000195	-.001144

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.216763	-.009539	-.000439	-.000699	-.000112	-.003748	-.000811
Stddev	.016765	.000855	.000382	.000163	.000344	.007564	.001463
%RSD	7.734278	8.963909	87.00902	23.27431	307.1142	201.8216	180.3747
#1	-.212285	-.010315	-.000172	-.000792	.000226	-.004008	.000819
#2	-.235313	-.008622	-.000269	-.000794	-.000100	.003943	-.002011
#3	-.202693	-.009678	-.000876	-.000511	-.000462	-.011178	-.001241

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: PB167471BL Acquired: 4/7/2025 14:23:15 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.001253	-.001724	-.000041
Stddev	.000503	.000511	.000043
%RSD	40.12137	29.65777	106.2729
#1	-.001826	-.001134	-.000041
#2	-.001044	-.002005	-.000084
#3	-.000888	-.002032	.000003

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2237.015	51122.27	10674.47	1453.789	3575.359
Stddev	5.377	165.45	33.53	9.203	9.204
%RSD	.2403501	.3236352	.3141269	.6330448	.2574151
#1	2234.765	51051.72	10710.25	1443.197	3574.585
#2	2243.151	51003.79	10643.76	1458.337	3584.925
#3	2233.129	51311.30	10669.40	1459.832	3566.567

Sample Name: PB167471BS Acquired: 4/7/2025 14:34:30 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7780046	1.986955	.9375255	1.976608	.8065618	1.838744	.1796000
Stddev	.0126487	.007147	.0048729	.012580	.0056362	.000689	.0005168
%RSD	1.625791	.3596795	.5197620	.6364651	.6987914	.0374800	.2877563
#1	.7659843	1.989078	.9336143	1.968197	.8009544	1.839094	.1792381
#2	.7768297	1.992801	.9359779	1.970555	.8065046	1.837950	.1801919
#3	.7911997	1.978988	.9429842	1.991070	.8122263	1.839188	.1793700

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1855101	.1877708	.9397424	.3946132	.1909412	.3057028	2.909538
Stddev	.0007347	.0008824	.0094380	.0027160	.0007456	.0014346	.030750
%RSD	.3960390	.4699238	1.004322	.6882770	.3904917	.4692799	1.056873
#1	.1853513	.1868915	.9503179	.3930995	.1901886	.3041870	2.942777
#2	.1863112	.1877646	.9367337	.3929912	.1909555	.3058820	2.882104
#3	.1848678	.1886562	.9321755	.3977487	.1916796	.3070394	2.903733

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1852668	1.794278	.4808576	.0738241	3.012239	.2765051	.1970976
Stddev	.0014764	.008295	.0014569	.0003465	.016095	.0020448	.0008046
%RSD	.7968863	.4623019	.3029834	.4693648	.5343066	.7395144	.4082113
#1	.1836204	1.801354	.4795665	.0736192	2.998156	.2741683	.1962353
#2	.1857070	1.796329	.4805692	.0736290	3.008779	.2779660	.1978282
#3	.1864731	1.785149	.4824372	.0742242	3.029782	.2773812	.1972292

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.381234	.2602579	.3987369	.6727477	.1823650	.7738226	5.704938
Stddev	.095305	.0007480	.0018827	.0020076	.0007889	.0120073	.015937
%RSD	1.015912	.2874136	.4721572	.2984116	.4326006	1.551684	.2793528
#1	9.415984	.2599744	.3975384	.6713077	.1831912	.7613332	5.689271
#2	9.273430	.2611062	.3977653	.6718944	.1822841	.7852813	5.704410
#3	9.454289	.2596930	.4009068	.6750409	.1816196	.7748533	5.721132

Sample Name: PB167471BS Acquired: 4/7/2025 14:34:30 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	9.248180	.1884301	.1817343
Stddev	.034702	.0007284	.0007195
%RSD	.3752294	.3865520	.3958886
#1	9.218429	.1880221	.1811843
#2	9.239810	.1892711	.1814702
#3	9.286302	.1879972	.1825485

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2174.361	50244.08	10123.31	1402.513	3413.485
Stddev	10.071	117.83	34.34	5.524	13.054
%RSD	.4631864	.2345114	.3391743	.3938658	.3824227
#1	2179.249	50258.04	10133.83	1408.690	3421.206
#2	2181.055	50354.30	10084.95	1400.805	3420.837
#3	2162.778	50119.89	10151.16	1398.045	3398.414

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1504-05 Acquired: 4/7/2025 14:38:31 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0058624	.0014817	-.000210	-.002934	-.001868	-.013973	.0020673
Stddev	.0075515	.0016229	.000912	.002720	.001266	.007563	.0009377
%RSD	128.8114	109.5292	434.2378	92.71390	67.79796	54.12648	45.35823
#1	.0075318	.0003414	-.000071	-.005100	-.002358	-.020310	.0028620
#2	-.002384	.0033397	.000624	-.003821	-.000430	-.005601	.0010331
#3	.012440	.0007640	-.001183	.000119	-.002815	-.016008	.0023069

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000763	-.000067	49.68474	-.001136	-.000142	-.000670	-.001898
Stddev	.0000182	.000025	.17672	.000306	.000132	.000174	.002007
%RSD	23.82428	37.80913	.3556842	26.92327	93.48597	25.93997	105.7626
#1	.0000964	-.000045	49.49787	-.001117	-.000105	-.000544	-.002558
#2	.0000610	-.000062	49.84916	-.001451	-.000288	-.000868	-.003492
#3	.0000714	-.000095	49.70719	-.000840	-.000031	-.000598	.000356

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004480	16.50885	.0002871	.0000729	54.15804	.0009710	-.000580
Stddev	.000058	.05094	.0004769	.0001515	.25578	.0025352	.000217
%RSD	1.299342	.3085370	166.1370	207.7142	.4722872	261.0827	37.47081
#1	-.004465	16.49262	-.000256	.0000427	53.86901	-.001182	-.000375
#2	-.004544	16.46801	.000477	.0002372	54.35518	.003765	-.000807
#3	-.004431	16.56593	.000640	-.000061	54.24993	.000330	-.000556

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	21.52008	-.010361	-.000427	-.004881	-.001305	-.010069	-.000834
Stddev	.07712	.000385	.000252	.000536	.000220	.004814	.002758
%RSD	.3583672	3.713468	59.11325	10.98315	16.83870	47.80744	330.8085
#1	21.43424	-.010777	-.000591	-.005098	-.001483	-.007379	.001907
#2	21.54249	-.010286	-.000553	-.005275	-.001372	-.015627	-.000800
#3	21.58352	-.010019	-.000136	-.004271	-.001059	-.007202	-.003608

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1504-05 Acquired: 4/7/2025 14:38:31 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0092079	-.011646	.0048261
Stddev	.0041154	.000281	.0000741
%RSD	44.69396	2.415759	1.535547
#1	.0076319	-.011803	.0047415
#2	.0061134	-.011815	.0048572
#3	.0138783	-.011322	.0048797

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2203.333	50301.18	10687.71	1420.956	3346.308
Stddev	5.714	58.29	20.75	8.501	9.245
%RSD	.2593558	.1158866	.1941777	.5982523	.2762671
#1	2207.922	50318.77	10710.82	1426.959	3355.723
#2	2205.143	50348.65	10681.68	1424.680	3345.957
#3	2196.932	50236.11	10670.65	1411.229	3337.244

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1504-01 Acquired: 4/7/2025 14:42:50 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5606723	.1944500	.9706099	.8660850	.2864974	2.513291	.6314889
Stddev	.0030528	.0026332	.0010242	.0020766	.0017238	.004528	.0001904
%RSD	.5444819	1.354192	.1055221	.2397701	.6016799	.1801670	.0301577
#1	.5571856	.1914337	.9712352	.8679032	.2876892	2.513552	.6315899
#2	.5628646	.1962899	.9694279	.8665299	.2845208	2.508638	.6312692
#3	.5619666	.1956266	.9711666	.8638220	.2872822	2.517683	.6316075

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3191552	.6405471	.0186563	.2178202	.6066732	.6841273	3.514252
Stddev	.0020677	.0001764	.0032473	.0005793	.0003424	.0003576	.019329
%RSD	.6478549	.0275329	17.40568	.2659702	.0564347	.0522769	.5500050
#1	.3212581	.6405077	.0178838	.2174262	.6068659	.6844579	3.491940
#2	.3171247	.6403937	.0158650	.2175489	.6062779	.6841762	3.524941
#3	.3190826	.6407398	.0222202	.2184854	.6068758	.6837477	3.525876

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.594055	-.002931	.5005796	.8083918	-.442911	1.345423	1.083370
Stddev	.002253	.021655	.0010839	.0004561	.003671	.001992	.006497
%RSD	.1413310	738.7058	.2165238	.0564209	.8289191	.1480536	.5996907
#1	1.595379	-.017517	.4999118	.8088270	-.447127	1.347692	1.081036
#2	1.595332	-.013228	.4999968	.8079174	-.441188	1.344619	1.090712
#3	1.591453	.021951	.5018302	.8084309	-.440419	1.343959	1.078364

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.217969	1.397446	.4928887	-.000162	-.000305	.4594292	-.000859
Stddev	.012946	.008176	.0005000	.000600	.000267	.0151327	.002754
%RSD	5.939543	.5850474	.1014489	371.1607	87.73346	3.293809	320.6596
#1	-.203594	1.403909	.4923197	-.000753	-.000117	.4548263	.000690
#2	-.228711	1.388255	.4930886	-.000179	-.000186	.4763290	-.004039
#3	-.221602	1.400174	.4932579	.000447	-.000611	.4471325	.000772

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1504-01 Acquired: 4/7/2025 14:42:50 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.006296	-.002443	.2659299
Stddev	.003074	.000655	.0002316
%RSD	48.83004	26.80480	.0870789
#1	-.002937	-.002194	.2660240
#2	-.008971	-.003186	.2656660
#3	-.006980	-.001949	.2660996

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2225.381	50472.97	10293.27	1434.219	3527.829
Stddev	2.352	125.24	49.08	3.952	5.768
%RSD	.1057007	.2481342	.4768511	.2755502	.1635100
#1	2223.083	50527.45	10237.41	1436.958	3521.621
#2	2225.277	50329.72	10329.48	1429.688	3528.844
#3	2227.784	50561.75	10312.93	1436.010	3533.023

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1504-03 Acquired: 4/7/2025 14:46:57 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0036832	.0008002	-.000684	.0009470	-.015871	.0881926	-.000205
Stddev	.0043744	.0019560	.000695	.0010302	.001824	.0043352	.000787
%RSD	118.7647	244.4535	101.6555	108.7805	11.49472	4.915647	383.4931
#1	.0071033	.0018104	.000063	-.000241	-.015059	.0838984	-.001092
#2	.0051924	.0020445	-.001312	.001485	-.014594	.0925678	.000412
#3	-.001246	-.001454	-.000803	.001597	-.017961	.0881115	.000064

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000025	-.000053	-.006832	-.000174	.0001756	-.000092	.0017697
Stddev	.000039	.000010	.008574	.000577	.0001803	.000301	.0039205
%RSD	155.5094	19.35149	125.5100	332.4668	102.6727	327.5247	221.5348
#1	-.000067	-.000043	.001048	-.000766	.0000104	-.000315	-.001891
#2	.000009	-.000064	-.015963	-.000141	.0003680	.000250	.001294
#3	-.000017	-.000053	-.005580	.000387	.0001485	-.000211	.005907

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0013078	-.002122	.0000658	-.000202	-.324453	-.000173	-.001054
Stddev	.0001427	.015853	.0002419	.000224	.016779	.000551	.000077
%RSD	10.91096	747.2083	367.5177	111.0576	5.171370	319.5081	7.272903
#1	.0012274	-.016615	.0003337	-.000403	-.322459	.000280	-.000968
#2	.0012235	.014809	-.000137	.000040	-.342140	-.000012	-.001079
#3	.0014726	-.004559	.000000	-.000242	-.308761	-.000787	-.001115

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.236430	.2465054	-.000561	1.609495	.2187780	2.002855	-.000984
Stddev	.023833	.0020708	.000229	.007353	.0020552	.017334	.001389
%RSD	10.08057	.8400594	40.80847	.4568206	.9394117	.8654617	141.1317
#1	-.253632	.2454084	-.000728	1.602863	.2203631	2.007528	.000589
#2	-.246432	.2488939	-.000656	1.608222	.2164559	1.983663	-.001501
#3	-.209225	.2452139	-.000300	1.617401	.2195151	2.017373	-.002040

Sample Name: Q1504-03 Acquired: 4/7/2025 14:46:57 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.001485	-.001488	.0000200
Stddev	.001165	.000834	.0000417
%RSD	78.47031	56.07915	208.8062
#1	-.000149	-.002000	.0000494
#2	-.002013	-.001938	.0000383
#3	-.002292	-.000525	-.000028

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2255.184	51030.48	10127.27	1460.204	3598.215
Stddev	8.215	191.69	55.96	2.318	11.060
%RSD	.3642870	.3756312	.5525693	.1587560	.3073724
#1	2261.545	50998.33	10179.43	1457.948	3605.570
#2	2258.098	51236.21	10068.16	1462.580	3603.579
#3	2245.909	50856.90	10134.22	1460.085	3585.496

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1698-01 Acquired: 4/7/2025 14:51:16 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1146662	.0087386	.3692608	-.004298	.0043488	16.94393
Stddev	.0097350	.0046829	.0041664	.001193	.0009477	.09340
%RSD	8.489884	53.58842	1.128316	27.75263	21.79142	.5512291
#1	.1055335	.0036215	.3644822	-.003357	.0033310	16.84675
#2	.1249085	.0097836	.3721328	-.005639	.0045098	16.95200
#3	.1135567	.0128108	.3711675	-.003897	.0052057	17.03303

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2040427	.0030960	.0025141	162.9381	.1591206	.0165653
Stddev	.0012834	.0000133	.0003432	.8432	.0018276	.0003746
%RSD	.6289928	.4278803	13.65030	.5174972	1.148589	2.261157
#1	.2026809	.0030868	.0021187	162.0915	.1607298	.0163865
#2	.2042173	.0030900	.0026888	162.9452	.1594986	.0169958
#3	.2052298	.0031112	.0027349	163.7778	.1571336	.0163137

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5758161	50.45562	.7965831	29.10057	.0514475	-.001862
Stddev	.0109741	.43982	.0040351	.24991	.0007871	.000144
%RSD	1.905832	.8716881	.5065564	.8587874	1.529917	7.741145
#1	.5633479	50.87516	.7928976	28.89754	.0505388	-.001776
#2	.5840096	50.49369	.7959571	29.02450	.0518836	-.001782
#3	.5800908	49.99800	.8008947	29.37968	.0519199	-.002029

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.058715	.0673600	.9838322	2.741142	-.092234	.0290459
Stddev	.022251	.0006521	.0042186	.019536	.003698	.0005657
%RSD	37.89562	.9680971	.4287925	.7126986	4.009838	1.947479
#1	-.066859	.0675659	.9875827	2.754344	-.089527	.0284368
#2	-.033540	.0666298	.9846489	2.750382	-.090726	.0295547
#3	-.075747	.0678843	.9792649	2.718700	-.096448	.0291463

Sample Name: Q1698-01 Acquired: 4/7/2025 14:51:16 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0206566	1.116651	F 13.12177	1.515529	5.130776	.0072185
Stddev	.0003187	.007110	.06471	.021531	.082642	.0012085
%RSD	1.542868	.6367032	.4931861	1.420718	1.610717	16.74126
#1	.0204474	1.110719	13.15547	1.491038	5.036385	.0086134
#2	.0210234	1.114702	13.16268	1.531481	5.190117	.0065556
#3	.0204989	1.124532	13.04716	1.524069	5.165825	.0064866

Elem	Sr4077
Units	ppm
Avg	.4799182
Stddev	.0030070
%RSD	.6265625
#1	.4765685
#2	.4808017
#3	.4823846

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2132.945	48404.17	9791.435	1353.050	3140.864
Stddev	32.354	315.54	77.738	5.734	47.044
%RSD	1.516867	.6518814	.7939394	.4237714	1.497806
#1	2169.920	48069.20	9835.150	1347.059	3193.841
#2	2109.829	48447.52	9837.475	1353.604	3103.975
#3	2119.086	48695.80	9701.681	1358.487	3124.774

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1698-07 Acquired: 4/7/2025 14:55:26 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0464565	-.005704	.8973311	-.022564	.0076639	19.76898
Stddev	.0035169	.002082	.0078208	.002575	.0031077	.03441
%RSD	7.570244	36.49262	.8715633	11.41178	40.54981	.1740813
#1	.0492280	-.007681	.9038765	-.022467	.0063803	19.80842
#2	.0425002	-.003531	.8994466	-.020038	.0054036	19.74504
#3	.0476413	-.005901	.8886701	-.025185	.0112078	19.75349

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3656344	.0024413	.0028192	136.7715	.1881538	.0259184
Stddev	.0003444	.0000315	.0003209	.4455	.0035951	.0004960
%RSD	.0941968	1.291307	11.38222	.3257562	1.910721	1.913527
#1	.3659594	.0024433	.0028556	137.2825	.1901112	.0264835
#2	.3656703	.0024088	.0031203	136.5678	.1840048	.0257162
#3	.3652734	.0024718	.0024816	136.4642	.1903455	.0255555

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6202072	75.84833	1.004172	16.98691	.0760735	-.002566
Stddev	.0070668	.91600	.003067	.11068	.0009249	.000345
%RSD	1.139420	1.207672	.3054278	.6515581	1.215808	13.43568
#1	.6258133	76.54318	1.006998	17.10819	.0769761	-.002220
#2	.6225392	74.81030	1.000910	16.96116	.0761165	-.002568
#3	.6122692	76.19151	1.004609	16.89137	.0751278	-.002910

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000009	.0886475	1.088876	3.319390	-.149865	.0193511
Stddev	.024694	.0017297	.021181	.048800	.001280	.0004526
%RSD	270556.5	1.951204	1.945250	1.470158	.8539351	2.338803
#1	.028448	.0904917	1.101815	3.308438	-.151200	.0197431
#2	-.015787	.0883897	1.064432	3.276996	-.148649	.0194546
#3	-.012689	.0870612	1.100380	3.372735	-.149746	.0188558

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1698-07 Acquired: 4/7/2025 14:55:26 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0489929	1.346353	F 12.52909	1.913546	6.080756	.0094798
Stddev	.0003930	.004401	.15114	.023056	.076587	.0009950
%RSD	.8022147	.3268523	1.206289	1.204896	1.259506	10.49613
#1	.0485435	1.351431	12.61781	1.935531	6.137512	.0102614
#2	.0491633	1.343967	12.35458	1.915557	6.111112	.0083597
#3	.0492720	1.343660	12.61488	1.889551	5.993644	.0098184

Elem	Sr4077
Units	ppm
Avg	.4647192
Stddev	.0006370
%RSD	.1370696
#1	.4641730
#2	.4654189
#3	.4645657

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2169.849	49946.64	10131.62	1382.512	3221.536
Stddev	20.336	759.85	43.97	26.309	30.700
%RSD	.9372183	1.521321	.4339606	1.902992	.9529616
#1	2149.870	49408.08	10093.18	1366.680	3191.113
#2	2169.152	50815.78	10179.56	1412.882	3220.991
#3	2190.525	49616.05	10122.13	1367.973	3252.506

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1698-07DUP Acquired: 4/7/2025 14:59:35 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0459603	-.004983	.9007992	-.021778	.0050425	19.75524
Stddev	.0039995	.004358	.0132893	.004043	.0003112	.06081
%RSD	8.702047	87.45500	1.475277	18.56280	6.171542	.3078409
#1	.0416627	-.000246	.8854581	-.026272	.0048264	19.77891
#2	.0495733	-.008821	.9087757	-.018438	.0053991	19.80066
#3	.0466448	-.005881	.9081637	-.020623	.0049018	19.68615

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3737064	.0024447	.0022468	134.1236	.1898211	.0259014
Stddev	.0020265	.0000583	.0002240	.2945	.0012950	.0004876
%RSD	.5422582	2.383929	9.968254	.2195788	.6822402	1.882580
#1	.3750467	.0024338	.0019884	133.9890	.1892043	.0253635
#2	.3746974	.0023927	.0023859	134.4614	.1913092	.0263145
#3	.3713752	.0025077	.0023661	133.9204	.1889497	.0260262

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6163248	79.32520	1.008202	15.12584	.0756587	-.002178
Stddev	.0093229	.71563	.003080	.02236	.0008456	.000456
%RSD	1.512652	.9021436	.3054771	.1478357	1.117700	20.94790
#1	.6055795	79.62549	1.011436	15.10147	.0747725	-.001730
#2	.6211333	79.84176	1.007868	15.13063	.0764569	-.002642
#3	.6222617	78.50835	1.005304	15.14542	.0757466	-.002162

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0696044	.0909503	1.114625	3.534163	-.140462	.0193209
Stddev	.0141149	.0008845	.004141	.085483	.001888	.0006112
%RSD	20.27873	.9724615	.3714893	2.418766	1.344354	3.163206
#1	.0839740	.0914575	1.112506	3.590864	-.138642	.0187066
#2	.0690805	.0914644	1.119397	3.575785	-.140330	.0199289
#3	.0557588	.0899290	1.111973	3.435840	-.142412	.0193272

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1698-07DUP Acquired: 4/7/2025 14:59:35 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0503545	1.352635	F 13.32996	1.903587	5.978631	.0094546
Stddev	.0005941	.004159	.12010	.028727	.089912	.0004733
%RSD	1.179801	.3074484	.9009726	1.509119	1.503886	5.005888
#1	.0500183	1.355662	13.34109	1.870854	5.874940	.0094862
#2	.0510405	1.354350	13.44411	1.924610	6.034990	.0099113
#3	.0500048	1.347893	13.20468	1.915297	6.025961	.0089663

Elem	Sr4077
Units	ppm
Avg	.4681167
Stddev	.0040096
%RSD	.8565363
#1	.4713581
#2	.4693589
#3	.4636330

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2175.917	49067.41	10385.09	1368.860	3224.305
Stddev	27.091	226.68	54.47	3.565	44.165
%RSD	1.245036	.4619835	.5244896	.2604134	1.369747
#1	2207.121	49148.46	10443.03	1372.279	3275.283
#2	2162.223	48811.34	10377.32	1365.166	3200.025
#3	2158.407	49242.42	10334.92	1369.135	3197.606

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCV02 Acquired: 4/7/2025 15:07:59 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.844254	4.905586	4.829110	4.871404	4.896935	9.495168	9.878387
Stddev	.056922	.079081	.049236	.050950	.055785	.046026	.086053
%RSD	1.175042	1.612052	1.019558	1.045898	1.139176	.4847358	.8711288
#1	4.790925	4.853412	4.781563	4.816142	4.838986	9.463898	9.832832
#2	4.837645	4.866772	4.825892	4.881556	4.901550	9.473587	9.824687
#3	4.904192	4.996574	4.879876	4.916513	4.950269	9.548020	9.977642

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2355960	2.417357	23.93367	.9755257	2.409056	1.227234	4.991383
Stddev	.0008243	.021895	.17134	.0018461	.022941	.013009	.027457
%RSD	.3498703	.9057240	.7158751	.1892457	.9522688	1.060038	.5500943
#1	.2348038	2.397302	23.84494	.9771494	2.388863	1.214064	5.013274
#2	.2355353	2.414052	23.82489	.9735176	2.404305	1.227561	4.960576
#3	.2364490	2.440716	24.13117	.9759100	2.434001	1.240076	5.000299

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.388480	23.54837	2.416437	1.225188	25.24744	2.412467	2.446074
Stddev	.021674	.14204	.024750	.002236	.14095	.015875	.002829
%RSD	.9074338	.6031703	1.024226	.1825132	.5582870	.6580424	.1156490
#1	2.378192	23.46574	2.395640	1.226703	25.33482	2.401119	2.444347
#2	2.373865	23.46699	2.409861	1.222619	25.08483	2.405674	2.449339
#3	2.413381	23.71238	2.443811	1.226240	25.32266	2.430608	2.444537

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.96911	4.795555	4.923288	4.849156	4.801764	5.044973	5.014122
Stddev	.04943	.032567	.054185	.049848	.032008	.005636	.051921
%RSD	.1979641	.6791130	1.100589	1.027979	.6665806	.1117214	1.035497
#1	24.99923	4.764863	4.869300	4.806072	4.790563	5.040033	4.961708
#2	24.91207	4.792082	4.922897	4.837643	4.776862	5.043772	5.015121
#3	24.99604	4.829719	4.977668	4.903754	4.837866	5.051113	5.065536

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCV02 Acquired: 4/7/2025 15:07:59 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.814609	4.832358	4.895307
Stddev	.074947	.028026	.030510
%RSD	1.556654	.5799609	.6232458
#1	4.749814	4.819406	4.891313
#2	4.797325	4.813150	4.866991
#3	4.896687	4.864517	4.927617

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2167.900	49719.12	9860.144	1394.050	3233.989
Stddev	19.797	82.31	43.011	2.158	29.500
%RSD	.9132032	.1655446	.4362142	.1547672	.9121896
#1	2189.164	49645.86	9898.375	1396.241	3262.124
#2	2164.537	49808.18	9868.483	1393.980	3236.551
#3	2150.000	49703.30	9813.574	1391.928	3203.291

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCB02 Acquired: 4/7/2025 15:12:11 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000031	-.000334	-.000504	.0000338	.0019055	-.000793	-.001354
Stddev	.002285	.000895	.000363	.0027437	.0016556	.008371	.000382
%RSD	7369.382	267.8099	72.11117	8118.066	86.88435	1055.210	28.21984
#1	.002597	.000322	-.000092	.0022077	.0028523	.007831	-.001744
#2	-.001555	.000029	-.000641	-.003049	.0028704	-.008885	-.001339
#3	-.001135	-.001354	-.000778	.000943	-.000006	-.001326	-.000980

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000037	-.000003	-.008032	-.000537	.0001144	.0001317	.0015033
Stddev	.0000842	.000050	.006584	.000085	.0002293	.0000759	.0044076
%RSD	2284.920	1473.878	81.97895	15.92457	200.4802	57.59492	293.1874
#1	.0000923	-.000060	-.002688	-.000454	-.000056	.0001406	.0011186
#2	-.000006	.000014	-.006020	-.000625	.000024	.0002028	-.002699
#3	-.000075	.000036	-.015388	-.000531	.000375	.0000518	.006091

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0018290	.0029086	.0000838	.0003032	-.557822	-.001389	-.001141
Stddev	.0002023	.0070875	.0001117	.0002217	.016174	.000690	.000099
%RSD	11.06278	243.6772	133.3182	73.12653	2.899520	49.71260	8.632056
#1	.0016483	.0055155	.0000253	.0000584	-.549975	-.002185	-.001030
#2	.0020476	.0083234	.0000135	.0004905	-.547068	-.001002	-.001218
#3	.0017911	-.005113	.0002126	.0003607	-.576423	-.000979	-.001176

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.252133	-.001502	-.000281	-.000226	.0004770	.0071007	-.001062
Stddev	.016882	.000295	.000204	.001101	.0006444	.0046529	.000266
%RSD	6.695740	19.65604	72.60456	487.6141	135.1041	65.52728	25.08469
#1	-.235888	-.001558	-.000306	.000982	.0010736	.0118209	-.001068
#2	-.250922	-.001182	-.000472	-.001172	-.000206	.0069629	-.000792
#3	-.269588	-.001764	-.000066	-.000488	.000564	.0025182	-.001325

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCB02 Acquired: 4/7/2025 15:12:11 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.003284	-.001648	.0000282
Stddev	.001881	.000649	.0000510
%RSD	57.27293	39.37820	180.6192
#1	-.001248	-.001786	.0000045
#2	-.003648	-.002217	.0000868
#3	-.004956	-.000941	-.000007

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2217.836	50319.03	10419.04	1421.535	3542.735
Stddev	31.441	84.36	30.79	4.119	46.026
%RSD	1.417665	.1676478	.2955571	.2897443	1.299156
#1	2219.885	50373.38	10384.54	1417.298	3549.744
#2	2248.202	50361.86	10443.74	1421.783	3584.854
#3	2185.420	50221.85	10428.84	1425.525	3493.607

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1698-07LX5 Acquired: 4/7/2025 15:16:32 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0107466	.0002728	.1858523	-.002555	.0025788	3.997244	.0741922
Stddev	.0028628	.0008501	.0028260	.002041	.0012273	.121492	.0028466
%RSD	26.63884	311.6256	1.520571	79.88967	47.59315	3.039401	3.836780
#1	.0131342	.0008172	.1826226	-.004888	.0039062	4.066892	.0764005
#2	.0115326	.0007080	.1878711	-.001680	.0023450	4.067882	.0751966
#3	.0075729	-.000707	.1870631	-.001097	.0014852	3.856958	.0709796

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005017	.0002111	27.34009	.0394905	.0053647	.1318839	16.29088
Stddev	.0000936	.0000636	.86318	.0002347	.0002525	.0021512	.04041
%RSD	18.66430	30.14085	3.157199	.5944571	4.706907	1.631111	.2480747
#1	.0005782	.0002237	27.88452	.0397382	.0056557	.1296193	16.28836
#2	.0005296	.0001421	27.79090	.0394618	.0052352	.1339001	16.25179
#3	.0003973	.0002674	26.34484	.0392714	.0052032	.1321323	16.33250

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2099808	3.122813	.0150583	-.000893	-.465916	.0202453	.2320526
Stddev	.0067995	.092120	.0004295	.000205	.005926	.0008726	.0014453
%RSD	3.238136	2.949920	2.851897	23.00699	1.271986	4.309983	.6228439
#1	.2145450	3.186666	.0146136	-.000670	-.471466	.0201330	.2307274
#2	.2132312	3.164563	.0154707	-.000935	-.466608	.0211685	.2318368
#3	.2021662	3.017210	.0150905	-.001074	-.459674	.0194343	.2335937

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4529389	-.034752	.0037674	.0092564	.2747765	2.544073	.3844258
Stddev	.0044167	.000620	.0002248	.0007153	.0089759	.023274	.0054022
%RSD	.9751306	1.783813	5.967450	7.727143	3.266637	.9148148	1.405276
#1	.4563295	-.035344	.0039485	.0087060	.2801895	2.521268	.3782315
#2	.4545430	-.034804	.0038378	.0089984	.2797246	2.543164	.3881608
#3	.4479443	-.034107	.0035158	.0100649	.2644155	2.567788	.3868852

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1698-07LX5 Acquired: 4/7/2025 15:16:32 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.185862	.0009899	.0923764
Stddev	.019680	.0005891	.0034754
%RSD	1.659547	59.50916	3.762191
#1	1.163416	.0010127	.0946487
#2	1.200158	.0015672	.0941049
#3	1.194012	.0003897	.0883757

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2229.433	50059.29	10376.87	1404.968	3460.197
Stddev	27.289	214.91	316.42	8.204	43.771
%RSD	1.224030	.4293199	3.049277	.5839176	1.264982
#1	2257.024	50168.98	10156.03	1406.397	3507.326
#2	2202.456	50197.23	10235.22	1412.363	3420.820
#3	2228.820	49811.67	10739.37	1396.143	3452.444

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1698-07MS Acquired: 4/7/2025 15:20:48 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7172342	1.589742	1.767823	1.588886	.4914373	24.72637
Stddev	.0068316	.017631	.023356	.018724	.0093096	.03660
%RSD	.9524878	1.109030	1.321147	1.178433	1.894357	.1480165
#1	.7094088	1.569910	1.741216	1.567663	.4808816	24.73710
#2	.7220091	1.595672	1.784939	1.603074	.4984763	24.75641
#3	.7202846	1.603643	1.777313	1.595920	.4949539	24.68561

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5392366	.1568374	.1682768	128.5613	.5640268	.2116869
Stddev	.0006861	.0003705	.0031340	.3158	.0024678	.0043146
%RSD	.1272327	.2362336	1.862407	.2456538	.4375263	2.038215
#1	.5397432	.1564506	.1647106	128.7619	.5611776	.2069007
#2	.5395107	.1571891	.1705926	128.7246	.5654879	.2152782
#3	.5384558	.1568725	.1695272	128.1972	.5654149	.2128818

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9331523	133.7444	1.378293	15.25030	.5151070	.0645109
Stddev	.0155251	.3048	.003224	.02144	.0078494	.0002041
%RSD	1.663727	.2279329	.2338995	.1405923	1.523848	.3164500
#1	.9154800	133.5484	1.381048	15.26305	.5061090	.0646568
#2	.9445953	133.5892	1.379084	15.26230	.5205498	.0642776
#3	.9393816	134.0956	1.374747	15.22554	.5186622	.0645982

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.048765	.3483586	1.346955	14.12234	.0081083	.3580855
Stddev	.037959	.0022185	.010298	.08261	.0012170	.0053374
%RSD	1.245049	.6368346	.7645500	.5849618	15.00892	1.490540
#1	3.032567	.3498268	1.335067	14.09475	.0071394	.3519891
#2	3.021592	.3494425	1.353132	14.05705	.0077112	.3619167
#3	3.092135	.3458066	1.352667	14.21521	.0094742	.3603507

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1698-07MS Acquired: 4/7/2025 15:20:48 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6265269	1.849546	F 17.82353	7.278311	5.533776	.1890458
Stddev	.0096163	.006918	.08671	.112683	.086781	.0018738
%RSD	1.534855	.3740324	.4864884	1.548206	1.568215	.9911613
#1	.6155315	1.856543	17.77414	7.150142	5.438735	.1901591
#2	.6333659	1.849385	17.77280	7.361813	5.608800	.1900959
#3	.6306833	1.842710	17.92365	7.322978	5.553792	.1868825

Elem	Sr4077
Units	ppm
Avg	.5866120
Stddev	.0018304
%RSD	.3120216
#1	.5881300
#2	.5871266
#3	.5845794

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2152.474	48621.71	10812.77	1351.802	3177.158
Stddev	26.796	218.56	26.39	10.462	48.833
%RSD	1.244893	.4495201	.2440767	.7739420	1.536990
#1	2182.998	48850.66	10821.20	1363.824	3232.801
#2	2132.828	48599.20	10783.19	1344.765	3141.434
#3	2141.594	48415.28	10833.91	1346.816	3157.238

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1698-07MSD Acquired: 4/7/2025 15:24:49 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7052031	1.597727	1.753624	1.567557	.4822268	24.84438
Stddev	.0048642	.022044	.025351	.020753	.0062606	.00937
%RSD	.6897568	1.379702	1.445626	1.323930	1.298277	.0377163
#1	.7043870	1.596142	1.743036	1.560859	.4808437	24.83511
#2	.7104237	1.620520	1.782553	1.590832	.4890634	24.85385
#3	.7007985	1.576518	1.735284	1.550979	.4767734	24.84418

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5306030	.1654009	.1688690	128.5284	.5539559	.2096448
Stddev	.0015333	.0004691	.0021367	.0484	.0045505	.0024192
%RSD	.2889660	.2836058	1.265299	.0376870	.8214470	1.153936
#1	.5310240	.1649440	.1676033	128.4840	.5551257	.2087601
#2	.5318819	.1658813	.1713360	128.5211	.5578073	.2123818
#3	.5289033	.1653773	.1676678	128.5801	.5489348	.2077925

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9340379	125.4061	1.385370	15.42272	.5119182	.0618127
Stddev	.0125539	.7163	.001711	.02142	.0061317	.0005053
%RSD	1.344044	.5712030	.1234866	.1388672	1.197783	.8174905
#1	.9289386	125.2924	1.384963	15.43860	.5095714	.0613394
#2	.9483390	126.1725	1.383899	15.39836	.5188767	.0623449
#3	.9248360	124.7535	1.387247	15.43119	.5073066	.0617537

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.741762	.3489826	1.324066	13.16489	-.004545	.3541793
Stddev	.028831	.0011054	.005203	.08483	.001976	.0034455
%RSD	1.051534	.3167534	.3929674	.6443507	43.48602	.9728243
#1	2.732425	.3477071	1.323689	13.20257	-.002781	.3525936
#2	2.774103	.3496617	1.329447	13.22434	-.004172	.3581322
#3	2.718756	.3495791	1.319061	13.06775	-.006681	.3518120

Sample Name: Q1698-07MSD Acquired: 4/7/2025 15:24:49 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6209251	1.839425	F 16.82532	7.384725	5.558681	.1906940
Stddev	.0082566	.000947	.10640	.091508	.065072	.0010180
%RSD	1.329733	.0515025	.6323747	1.239155	1.170640	.5338131
#1	.6161350	1.838517	16.79358	7.348565	5.527591	.1897858
#2	.6304590	1.840407	16.94397	7.488788	5.633466	.1917943
#3	.6161813	1.839350	16.73840	7.316822	5.514985	.1905019

Elem	Sr4077
Units	ppm
Avg	.5891221
Stddev	.0009314
%RSD	.1581036
#1	.5898601
#2	.5894306
#3	.5880756

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2170.024	49469.54	10208.87	1375.288	3189.072
Stddev	25.329	215.53	20.95	4.158	36.939
%RSD	1.167223	.4356801	.2052034	.3023449	1.158299
#1	2175.037	49379.54	10201.62	1372.182	3202.930
#2	2142.563	49313.60	10232.48	1373.670	3147.208
#3	2192.472	49715.48	10192.52	1380.012	3217.078

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1698-07A Acquired: 4/7/2025 15:28:50 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8140851	1.851126	1.792162	1.825812	.8000515	21.51231
Stddev	.0076288	.014811	.005490	.003174	.0058755	.02614
%RSD	.9371023	.8001308	.3063403	.1738407	.7343929	.1215068
#1	.8204236	1.844527	1.798466	1.826576	.8067243	21.50361
#2	.8162137	1.840760	1.788427	1.828535	.7977770	21.54169
#3	.8056181	1.868090	1.789594	1.822326	.7956533	21.49163

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5589778	.1802514	.1926277	258.7677	.5774383	.2214649
Stddev	.0014472	.0007520	.0005823	.4864	.0121256	.0012356
%RSD	.2589034	.4171648	.3022852	.1879840	2.099902	.5579407
#1	.5575831	.1804658	.1932875	258.2097	.5854835	.2228708
#2	.5604723	.1794156	.1921859	258.9914	.5634916	.2205514
#3	.5588779	.1808729	.1924096	259.1022	.5833397	.2209724

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8828549	95.44658	1.411814	81.95745	.5600739	.0723329
Stddev	.0034348	1.45293	.000736	.20221	.0018718	.0014652
%RSD	.3890572	1.522243	.0521671	.2467208	.3341983	2.025662
#1	.8867287	96.61601	1.411088	81.73583	.5622046	.0735718
#2	.8816550	93.82007	1.412560	82.00464	.5586948	.0707156
#3	.8801810	95.90366	1.411796	82.13189	.5593222	.0727112

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.349386	.3763975	1.286568	14.68419	.1068616	.4127368
Stddev	.052428	.0020030	.028682	.20133	.0023763	.0011542
%RSD	1.565293	.5321612	2.229366	1.371033	2.223729	.2796364
#1	3.376415	.3750063	1.309433	14.82690	.1085240	.4140498
#2	3.288959	.3754929	1.254385	14.45391	.1041399	.4122783
#3	3.382783	.3786933	1.295886	14.77177	.1079210	.4118824

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1698-07A Acquired: 4/7/2025 15:28:50 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7321369	1.733225	F 17.50511	8.246415	F 10.25626	.1891916
Stddev	.0025019	.001388	.27778	.032128	.02333	.0002097
%RSD	.3417240	.0801029	1.586869	.3896000	.2274696	.1108289
#1	.7341359	1.731625	17.67610	8.281625	10.28320	.1889939
#2	.7293312	1.733950	17.18459	8.218691	10.24280	.1894115
#3	.7329438	1.734102	17.65463	8.238928	10.24278	.1891693

Elem	Sr4077
Units	ppm
Avg	.6913959
Stddev	.0033207
%RSD	.4802920
#1	.6885742
#2	.6950552
#3	.6905582

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2110.274	48840.02	10509.23	1372.736	3021.122
Stddev	9.543	902.48	31.23	31.008	10.576
%RSD	.4522159	1.847823	.2972117	2.258882	.3500539
#1	2099.260	48176.78	10504.04	1350.405	3008.937
#2	2115.475	49867.74	10542.74	1408.140	3027.908
#3	2116.087	48475.54	10480.92	1359.663	3026.521

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1705-01 Acquired: 4/7/2025 15:32:51 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0149922	-.023050	.0978778	-.051137	-.000665	77.62849
Stddev	.0050682	.006001	.0006921	.002574	.001536	.50657
%RSD	33.80596	26.03292	.7070971	5.034261	230.9170	.6525599
#1	.0092221	-.018402	.0976479	-.051187	.001101	77.12840
#2	.0187241	-.029824	.0973298	-.053686	-.001695	77.61576
#3	.0170303	-.020923	.0986555	-.048538	-.001402	78.14131

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5177576	.0050614	.0110876	1017.521	.3808358	.0363434
Stddev	.0037719	.0000611	.0002295	6.838	.0008278	.0003103
%RSD	.7285050	1.206207	2.070072	.6719848	.2173747	.8537374
#1	.5142467	.0051283	.0110882	1017.452	.3803150	.0366828
#2	.5172808	.0050470	.0108577	1010.718	.3804021	.0362729
#3	.5217452	.0050088	.0113168	1024.393	.3817904	.0360743

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1341810	127.2949	2.571671	45.94587	.1923183	-.006128
Stddev	.0009326	.2599	.014108	.27883	.0016385	.000132
%RSD	.6950360	.2041743	.5485811	.6068605	.8519646	2.152784
#1	.1348632	126.9979	2.561123	45.79733	.1922175	-.005978
#2	.1331183	127.4062	2.566194	45.77277	.1907326	-.006225
#3	.1345615	127.4806	2.587696	46.26752	.1940049	-.006182

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.910301	.1130095	.5349737	27.37680	-.084925	.0180269
Stddev	.038138	.0019611	.0041983	.14311	.001836	.0005285
%RSD	.4821337	1.735329	.7847745	.5227248	2.162217	2.931506
#1	7.866545	.1116488	.5314117	27.22164	-.084195	.0186133
#2	7.936492	.1121222	.5339069	27.50360	-.083567	.0178800
#3	7.927866	.1152574	.5396026	27.40515	-.087014	.0175875

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1705-01 Acquired: 4/7/2025 15:32:51 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002673	3.316967	F 14.99781	F 11.47556	F 60.34963	-.096013
Stddev	.001287	.020299	.09239	.09673	.38537	.001564
%RSD	48.16418	.6119611	.6159985	.8429334	.6385705	1.628552
#1	-.001930	3.301754	14.89123	11.50746	60.35804	-.097226
#2	-.004160	3.309131	15.05511	11.36691	59.96012	-.094248
#3	-.001930	3.340015	15.04709	11.55232	60.73073	-.096565

Elem	Sr4077
Units	ppm
Avg	5.452181
Stddev	.049611
%RSD	.9099290
#1	5.423992
#2	5.423086
#3	5.509464

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2564.411	58827.39	13198.35	1649.190	2560.303
Stddev	4.195	86.02	81.05	9.336	12.525
%RSD	.1635841	.1462171	.6141017	.5660780	.4892065
#1	2563.215	58892.02	13224.29	1650.953	2557.174
#2	2569.075	58860.39	13263.25	1657.517	2574.096
#3	2560.944	58729.76	13107.50	1639.098	2549.639

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1705-02 Acquired: 4/7/2025 15:37:14 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0170143	-.018199	.1005153	-.056977	-.001732	75.42247
Stddev	.0030635	.006037	.0029501	.002240	.002548	.23665
%RSD	18.00531	33.17106	2.934949	3.932072	147.0964	.3137658
#1	.0159288	-.021426	.0971641	-.056881	.000388	75.43882
#2	.0204728	-.021936	.1016613	-.054786	-.004559	75.17806
#3	.0146415	-.011234	.1027203	-.059263	-.001025	75.65051

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4924742	.0048375	.0165808	884.8289	.1985577	.1016330
Stddev	.0011006	.0000654	.0006927	2.8932	.0009518	.0016153
%RSD	.2234901	1.351440	4.177810	.3269784	.4793789	1.589338
#1	.4917500	.0049125	.0170463	886.6263	.1977024	.1023496
#2	.4919318	.0048069	.0157847	881.4914	.1983875	.0997834
#3	.4937407	.0047930	.0169114	886.3690	.1995831	.1027661

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2370843	156.9384	2.087636	47.11728	.0966499	-.008171
Stddev	.0050491	.8329	.006679	.12775	.0015112	.000340
%RSD	2.129681	.5307428	.3199131	.2711215	1.563624	4.155710
#1	.2398280	156.1192	2.081317	47.01202	.0971795	-.008379
#2	.2312573	157.7844	2.086965	47.08041	.0949451	-.007779
#3	.2401675	156.9116	2.094624	47.25940	.0978251	-.008354

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.712006	.1061903	.4943115	29.44115	-.186800	.0118544
Stddev	.061249	.0011275	.0046404	.09136	.001759	.0002511
%RSD	.9125309	1.061767	.9387685	.3103182	.9415104	2.118254
#1	6.644533	.1049818	.4889935	29.33640	-.188821	.0116922
#2	6.764100	.1063753	.4975384	29.48273	-.185971	.0117274
#3	6.727386	.1072139	.4964027	29.50433	-.185610	.0121437

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1705-02 Acquired: 4/7/2025 15:37:14 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003811	3.010121	F 15.03159	F 24.03396	F 69.06266	-.070387
Stddev	.000827	.008079	.07683	.37112	1.06135	.000722
%RSD	21.69445	.2683830	.5111175	1.544164	1.536796	1.026039
#1	-.003023	3.006906	14.96337	24.25862	69.70392	-.071017
#2	-.003736	3.004145	15.11481	23.60559	67.83756	-.069599
#3	-.004672	3.019312	15.01657	24.23766	69.64649	-.070543

Elem	Sr4077
Units	ppm
Avg	4.764418
Stddev	.025975
%RSD	.5451950
#1	4.739643
#2	4.791447
#3	4.762166

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2754.943	62865.49	13852.10	1740.670	2603.296
Stddev	30.791	355.61	56.76	18.776	38.751
%RSD	1.117674	.5656657	.4097556	1.078640	1.488536
#1	2746.849	63268.38	13895.95	1761.785	2587.163
#2	2788.974	62595.35	13872.35	1725.854	2647.507
#3	2729.008	62732.75	13787.99	1734.371	2575.217

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCV03 Acquired: 4/7/2025 15:41:38 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.035334	5.056458	4.969322	5.099381	5.080766	9.606211	9.807274
Stddev	.042614	.059260	.061712	.036889	.048272	.335569	.326752
%RSD	.8463082	1.171958	1.241865	.7234084	.9500902	3.493249	3.331727
#1	5.059603	5.118462	5.009785	5.120285	5.109759	9.796738	9.880904
#2	5.060270	5.050522	4.999889	5.121071	5.107497	9.218747	9.449990
#3	4.986128	5.000389	4.898292	5.056787	5.025042	9.803148	10.09093

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2341327	2.474534	23.72753	1.019445	2.472056	1.265441	5.171467
Stddev	.0069100	.029674	.81001	.005521	.026414	.013322	.002023
%RSD	2.951299	1.199159	3.413804	.5416127	1.068484	1.052796	.0391145
#1	.2363998	2.493245	24.13317	1.013943	2.489270	1.274648	5.169263
#2	.2263740	2.490037	22.79484	1.024985	2.485253	1.271509	5.173239
#3	.2396243	2.440320	24.25458	1.019406	2.441645	1.250164	5.171900

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.348920	23.55300	2.478888	1.269931	25.94553	2.396421	2.533350
Stddev	.077423	.80560	.029082	.003818	.19357	.082438	.021362
%RSD	3.296105	3.420369	1.173206	.3006338	.7460486	3.440042	.8432124
#1	2.389707	23.90695	2.497710	1.266532	26.14551	2.443210	2.519385
#2	2.259631	22.63102	2.493561	1.274061	25.93199	2.301234	2.557941
#3	2.397422	24.12103	2.445392	1.269199	25.75909	2.444819	2.522724

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	26.12915	4.677702	5.084499	4.981674	4.777575	5.394334	5.064442
Stddev	.07943	.142755	.051947	.054979	.161922	.007198	.040091
%RSD	.3040007	3.051809	1.021668	1.103634	3.389202	.1334370	.7916229
#1	26.20640	4.730974	5.122122	5.024728	4.867705	5.401375	5.102684
#2	26.13334	4.515972	5.106145	5.000551	4.590644	5.394638	5.067915
#3	26.04771	4.786161	5.025230	4.919743	4.874376	5.386989	5.022727

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCV03 Acquired: 4/7/2025 15:41:38 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.958545	4.823747	4.845308
Stddev	.034678	.165042	.098617
%RSD	.6993585	3.421441	2.035303
#1	4.978326	4.932706	4.903773
#2	4.978805	4.633862	4.731449
#3	4.918503	4.904673	4.900702

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2147.835	48492.81	10138.81	1344.222	3221.064
Stddev	22.764	249.32	292.47	12.236	35.478
%RSD	1.059879	.5141380	2.884684	.9102367	1.101429
#1	2130.922	48670.85	10023.42	1351.693	3195.223
#2	2138.865	48207.87	10471.38	1330.102	3206.455
#3	2173.718	48599.72	9921.64	1350.872	3261.514

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCB03 Acquired: 4/7/2025 15:45:48 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001669	.0001976	-.001426	.0000296	.0009522	.0015132	-.000861
Stddev	.0008584	.0010264	.001255	.0003827	.0013760	.0043637	.000146
%RSD	514.1340	519.5146	87.97726	1294.687	144.5080	288.3746	16.98630
#1	-.000818	.0013310	-.002552	-.000127	.0018029	.0043236	-.000810
#2	.000757	-.000069	-.001652	-.000250	-.000635	.0037300	-.001026
#3	.000562	-.000669	-.000074	.000466	.001689	-.003514	-.000747

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000054	.0000352	-.002837	-.000097	.0000773	-.000039	-.003720
Stddev	.000068	.0000564	.004445	.000214	.0002399	.000234	.002693
%RSD	125.9775	160.0720	156.6759	221.6738	310.3288	601.7758	72.38118
#1	.000012	.0000998	-.002434	-.000213	.0003446	-.000298	-.004998
#2	-.000124	-.000004	.001392	.000151	.0000063	.000027	-.000626
#3	-.000049	.000010	-.007470	-.000228	-.000119	.000155	-.005535

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0017113	.0055553	-.000065	-.000006	-.471058	.0020539	-.001124
Stddev	.0000721	.0154149	.000535	.000091	.004739	.0007468	.000302
%RSD	4.214995	277.4822	819.6503	1590.892	1.006117	36.35897	26.89534
#1	.0017922	.0088892	.000499	-.000108	-.475635	.0024617	-.001337
#2	.0016535	.0190304	-.000564	.000067	-.471366	.0025081	-.000778
#3	.0016883	-.011254	-.000131	.000024	-.466171	.0011920	-.001257

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.176266	-.001741	-.000349	.0002900	.0006120	.0051646	-.001185
Stddev	.024079	.000429	.000130	.0005204	.0009107	.0046698	.001949
%RSD	13.66053	24.65331	37.27736	179.4228	148.8004	90.41898	164.4338
#1	-.187011	-.002095	-.000200	-.000104	.0004604	.0066966	-.002579
#2	-.193101	-.001863	-.000408	.000094	-.000213	-.000079	-.002019
#3	-.148685	-.001264	-.000440	.000880	.001589	.008876	.001042

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCB03 Acquired: 4/7/2025 15:45:48 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000828	-.002366	.0000288
Stddev	.005646	.001046	.0000296
%RSD	682.2954	44.19367	102.7970
#1	-.006260	-.001609	.0000496
#2	.005011	-.001930	-.000005
#3	-.001234	-.003559	.000042

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2237.528	51020.23	10464.55	1435.632	3578.942
Stddev	35.454	134.38	14.93	5.175	58.919
%RSD	1.584537	.2633906	.1426354	.3604983	1.646273
#1	2228.211	50896.85	10470.59	1432.148	3565.204
#2	2276.711	51000.42	10447.55	1441.579	3643.517
#3	2207.663	51163.42	10475.51	1433.169	3528.106

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1706-01 Acquired: 4/7/2025 15:50:09 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0195162	-.009965	.2260915	-.049545	.0056312	108.4638
Stddev	.0037927	.002060	.0018019	.001737	.0001670	.2088
%RSD	19.43345	20.66865	.7969730	3.506336	2.965570	.1925190
#1	.0201472	-.009203	.2264249	-.049350	.0054915	108.6893
#2	.0154477	-.012297	.2277034	-.047914	.0055860	108.2772
#3	.0229539	-.008395	.2241461	-.051372	.0058162	108.4250

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6204920	.0077212	.0034200	21.55159	.1806645	.1073683
Stddev	.0009664	.0000484	.0002056	.07692	.0008084	.0005199
%RSD	.1557465	.6275534	6.012997	.3569276	.4474780	.4841989
#1	.6204596	.0076825	.0034685	21.63236	.1809754	.1073693
#2	.6195423	.0077756	.0035970	21.47920	.1812713	.1078876
#3	.6214743	.0077056	.0031944	21.54321	.1797468	.1068479

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4390985	211.8604	5.369136	38.61317	.1927103	-.007431
Stddev	.0016055	.5426	.007766	.05336	.0008241	.000527
%RSD	.3656281	.2561287	.1446396	.1381788	.4276588	7.098430
#1	.4404413	211.3260	5.376733	38.67129	.1918967	-.007689
#2	.4395339	212.4109	5.361212	38.60181	.1935446	-.006824
#3	.4373202	211.8445	5.369464	38.56641	.1926896	-.007780

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.023460	.3145348	.6427412	10.52440	-.303779	.0015863
Stddev	.029385	.0016460	.0006852	.03771	.004208	.0001352
%RSD	.9718835	.5233164	.1065987	.3582656	1.385319	8.524650
#1	2.992426	.3155841	.6434570	10.48342	-.306844	.0016791
#2	3.050856	.3153827	.6426753	10.55762	-.298981	.0014311
#3	3.027099	.3126377	.6420914	10.53217	-.305512	.0016486

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1706-01 Acquired: 4/7/2025 15:50:09 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0391494	3.385106	F 10.00564	3.418419	1.958297	.1534169
Stddev	.0005474	.005993	.03884	.005506	.007332	.0010014
%RSD	1.398271	.1770364	.3882196	.1610745	.3744285	.6527228
#1	.0385743	3.389715	9.96121	3.418851	1.956248	.1537470
#2	.0396641	3.378332	10.03321	3.423697	1.966436	.1542115
#3	.0392099	3.387273	10.02249	3.412710	1.952207	.1522921

Elem	Sr4077
Units	ppm
Avg	-.125328
Stddev	.000723
%RSD	.5765357
#1	-.124578
#2	-.126019
#3	-.125388

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2459.528	55552.40	11788.75	1591.676	3205.249
Stddev	4.178	108.52	22.96	4.188	3.385
%RSD	.1698683	.1953402	.1947431	.2631053	.1055936
#1	2455.842	55612.42	11764.80	1590.908	3203.884
#2	2458.676	55427.13	11810.56	1587.925	3202.761
#3	2464.066	55617.64	11790.90	1596.194	3209.103

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCV04 Acquired: 4/7/2025 17:00:25 Type: Unk
Method: NON EPA-6010-200.7(v2894) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.921351	4.942860	4.897908	4.985454	4.988789	9.624261	9.751113
Stddev	.029460	.028281	.011031	.016860	.023360	.040154	.115835
%RSD	.5986141	.5721680	.2252120	.3381921	.4682492	.4172175	1.187919
#1	4.912964	4.975516	4.894328	4.978695	4.969436	9.620128	9.646319
#2	4.896993	4.926360	4.889112	4.973021	4.982195	9.666322	9.875493
#3	4.954094	4.926705	4.910284	5.004645	5.014738	9.586333	9.731528

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2452562	2.447329	24.10581	.9913003	2.444320	1.249558	4.957105
Stddev	.0007090	.003719	.03906	.0031398	.004468	.004697	.028207
%RSD	.2890943	.1519437	.1620296	.3167331	.1827820	.3758625	.5690315
#1	.2458009	2.446625	24.09726	.9944764	2.442000	1.245465	4.985112
#2	.2455131	2.444013	24.14844	.9912265	2.441490	1.248522	4.957502
#3	.2444545	2.451349	24.07174	.9881981	2.449471	1.254686	4.928701

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.415850	23.80850	2.450112	1.246802	25.33434	2.424342	2.490507
Stddev	.012246	.05537	.005065	.003319	.11315	.006177	.013811
%RSD	.5069081	.2325821	.2067432	.2662175	.4466394	.2547764	.5545603
#1	2.418210	23.75086	2.448603	1.248351	25.44634	2.428131	2.493092
#2	2.426745	23.86129	2.445972	1.249064	25.33662	2.427681	2.502842
#3	2.402596	23.81335	2.455760	1.242991	25.22006	2.417215	2.475585

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.00148	4.972931	5.011204	4.903459	4.845762	5.052855	5.224919
Stddev	.10425	.020787	.013746	.007297	.016195	.006179	.017124
%RSD	.4169912	.4179971	.2743140	.1488131	.3342181	.1222967	.3277316
#1	25.11199	4.981598	5.002566	4.896879	4.850264	5.045771	5.221745
#2	24.98758	4.987982	5.003990	4.902191	4.859231	5.057142	5.209605
#3	24.90487	4.949213	5.027056	4.911307	4.827792	5.055651	5.243408

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCV04 Acquired: 4/7/2025 17:00:25 Type: Unk
Method: NON EPA-6010-200.7(v2894) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.896944	4.950446	4.894896
Stddev	.010766	.013089	.031289
%RSD	.2198496	.2644019	.6392268
#1	4.884557	4.960624	4.913725
#2	4.904050	4.955033	4.912186
#3	4.902224	4.935681	4.858777

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2142.723	49188.28	9580.030	1375.937	3208.173
Stddev	7.055	120.35	40.940	9.554	5.927
%RSD	.3292576	.2446661	.4273519	.6943464	.1847366
#1	2146.622	49140.60	9581.970	1375.528	3209.859
#2	2146.969	49099.07	9538.154	1366.594	3213.075
#3	2134.579	49325.15	9619.966	1385.688	3201.587

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCB04 Acquired: 4/7/2025 17:04:43 Type: Unk
Method: NON EPA-6010-200.7(v2894) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000631	-.000128	-.000649	.0016947	.0012984	.0026048	-.001399
Stddev	.003237	.001736	.000795	.0020270	.0009154	.0032162	.000128
%RSD	512.8393	1361.181	122.4318	119.6044	70.50213	123.4714	9.119180
#1	.001770	-.002070	-.000383	.0012825	.0018164	.0002237	-.001300
#2	-.004313	.001273	-.001543	.0038961	.0002415	.0013273	-.001354
#3	.000649	.000414	-.000022	-.000094	.0018375	.0062634	-.001543

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000022	-.000040	-.006269	.0000268	.0001130	-.000172	-.000981
Stddev	.000019	.000070	.005948	.0003981	.0002759	.000470	.005714
%RSD	86.65272	173.0982	94.88262	1482.921	244.2548	274.1801	582.3917
#1	-.000037	.000002	-.001629	-.000327	.0001653	-.000423	-.005080
#2	-.000030	-.000121	-.004203	.000458	-.000185	-.000463	.005546
#3	-.000000	-.000002	-.012974	-.000051	.000359	.000371	-.003410

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0016717	.0081258	.0001256	.0002736	-.390580	.0002959	-.001210
Stddev	.0001506	.0164956	.0001633	.0001228	.013244	.0016323	.000183
%RSD	9.009164	203.0035	130.0368	44.90467	3.390965	551.7133	15.08569
#1	.0018088	.0120800	-.000029	.0004143	-.404267	-.000840	-.001343
#2	.0016958	.0222849	.000109	.0001879	-.377828	-.000439	-.001002
#3	.0015105	-.009988	.000297	.0002185	-.389645	.002166	-.001286

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.139902	-.002846	-.000305	.0002985	.0006175	.0026270	-.001683
Stddev	.022784	.000832	.000210	.0005539	.0002725	.0043107	.001170
%RSD	16.28593	29.24343	68.93268	185.5428	44.13858	164.0935	69.50667
#1	-.161192	-.001903	-.000081	.0005164	.0005704	.0027876	-.003033
#2	-.115872	-.003157	-.000497	-.000331	.0009105	-.001762	-.000998
#3	-.142642	-.003479	-.000336	.000710	.0003715	.006855	-.001017

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCB04 Acquired: 4/7/2025 17:04:43 Type: Unk
Method: NON EPA-6010-200.7(v2894) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000729	-.000564	.0000194
Stddev	.001088	.000390	.0000296
%RSD	149.3056	69.12910	152.7901
#1	.000473	-.000114	.0000393
#2	-.001013	-.000808	-.000015
#3	-.001646	-.000770	.000033

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2205.175	50741.41	10034.35	1417.561	3541.767
Stddev	11.257	159.13	14.43	6.097	19.804
%RSD	.5104656	.3136162	.1437754	.4300836	.5591510
#1	2215.072	50923.50	10030.77	1423.335	3557.163
#2	2192.929	50629.02	10022.05	1411.186	3519.426
#3	2207.523	50671.72	10050.23	1418.161	3548.713

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1706-03 Acquired: 4/7/2025 17:09:10 Type: Unk
Method: NON EPA-6010-200.7(v2894) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0254893	-.004850	.4404931	-.082784	.0115546	144.5242	.8161625
Stddev	.0073247	.003888	.0045741	.001201	.0005309	.3154	.0030088
%RSD	28.73643	80.16775	1.038415	1.450312	4.594530	.2182251	.3686548
#1	.0296108	-.000365	.4456616	-.083142	.0121429	144.3378	.8185701
#2	.0170323	-.007262	.4369668	-.083765	.0111111	144.8884	.8171279
#3	.0298248	-.006923	.4388508	-.081445	.0114099	144.3465	.8127895

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0111443	.0118962	23.80402	.2546715	.1688572	.6865052	298.9669
Stddev	.0000724	.0003352	.07527	.0002947	.0013324	.0059868	.5192
%RSD	.6496475	2.817844	.3162209	.1157300	.7890485	.8720653	.1736753
#1	.0112231	.0122711	23.84964	.2545014	.1703244	.6931910	299.5501
#2	.0111291	.0117919	23.84529	.2550118	.1677228	.6816403	298.5549
#3	.0110808	.0116255	23.71714	.2545013	.1685246	.6846842	298.7955

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.404399	54.48376	.2985532	-.014384	4.305909	.4011159	1.026966
Stddev	.037959	.18998	.0028790	.000088	.010917	.0010023	.001931
%RSD	.5126607	.3486893	.9643126	.6141293	.2535292	.2498841	.1880343
#1	7.435774	54.53658	.3017661	-.014389	4.313959	.4002560	1.025729
#2	7.415219	54.64175	.2962075	-.014470	4.293483	.4008748	1.029192
#3	7.362204	54.27296	.2976860	-.014294	4.310286	.4022167	1.025979

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	13.73670	-.546892	.0043453	.0768714	4.417150	9.216297	5.217593
Stddev	.05435	.002977	.0001239	.0006928	.013179	.020352	.047917
%RSD	.3956723	.5442839	2.850150	.9012964	.2983537	.2208309	.9183760
#1	13.69125	-.548848	.0044405	.0772551	4.417268	9.206313	5.272720
#2	13.72195	-.548363	.0042053	.0772876	4.430270	9.202865	5.194129
#3	13.79691	-.543467	.0043902	.0760717	4.403914	9.239714	5.185929

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1706-03 Acquired: 4/7/2025 17:09:10 Type: Unk
Method: NON EPA-6010-200.7(v2894) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.871849	.2440975	-.186339
Stddev	.022784	.0004338	.000554
%RSD	1.217186	.1777295	.2973416
#1	1.896585	.2436657	-.186692
#2	1.851722	.2440934	-.185701
#3	1.867242	.2445334	-.186626

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2467.543	56211.14	11607.92	1574.183	3085.088
Stddev	16.560	10.48	51.73	3.486	24.407
%RSD	.6711113	.0186433	.4456407	.2214763	.7911260
#1	2448.987	56207.74	11581.91	1575.559	3057.909
#2	2480.820	56222.89	11574.35	1570.218	3105.134
#3	2472.823	56202.77	11667.49	1576.770	3092.221

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1604-05 Acquired: 4/7/2025 17:13:20 Type: Unk
Method: NON EPA-6010-200.7(v2894) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001075	-.009501	-.000034	.0061952	.0086538	-.059470
Stddev	.002114	.002139	.000369	.0015029	.0016937	.006252
%RSD	196.6925	22.51050	1094.111	24.25855	19.57239	10.51315
#1	-.000522	-.010761	.000305	.0055201	.0095369	-.053124
#2	-.003410	-.007031	-.000426	.0051482	.0067010	-.065624
#3	.000708	-.010710	.000020	.0079172	.0097234	-.059661

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2300767	-.000187	.0000694	149.8858	.0021228	-.000227
Stddev	.0016920	.000037	.0000148	.5317	.0004701	.000261
%RSD	.7353982	19.93468	21.37167	.3547494	22.14609	115.0251
#1	.2313063	-.000224	.0000728	149.9296	.0026600	-.000218
#2	.2281470	-.000150	.0000822	149.3335	.0019220	-.000491
#3	.2307767	-.000186	.0000531	150.3942	.0017865	.000029

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0431151	.0333919	.0053134	24.55782	.0159614	-.000246
Stddev	.0004744	.0024372	.0001507	.11030	.0005280	.000408
%RSD	1.100277	7.298756	2.835850	.4491516	3.307752	165.5365
#1	.0429003	.0348815	.0054047	24.47660	.0153630	.000018
#2	.0436588	.0305793	.0053959	24.51347	.0161599	-.000716
#3	.0427860	.0347149	.0051394	24.68340	.0163614	-.000041

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	414.7215	.0045664	.0093541	38.37209	.6228261	.0203574
Stddev	4.3352	.0004391	.0002737	.16415	.0017567	.0001747
%RSD	1.045319	9.614890	2.926377	.4277956	.2820596	.8584125
#1	418.1737	.0042185	.0093142	38.46782	.6212269	.0202502
#2	416.1348	.0044210	.0091026	38.18255	.6225449	.0202630
#3	409.8561	.0050597	.0096457	38.46592	.6247065	.0205591

Sample Name: Q1604-05 Acquired: 4/7/2025 17:13:20 Type: Unk
Method: NON EPA-6010-200.7(v2894) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003992	-.001833	8.475798	.0361337	F 56.24070	-.005711
Stddev	.000673	.001089	.049811	.0025282	.09705	.000384
%RSD	16.85654	59.40036	.5876839	6.996859	.1725609	6.721094
#1	-.003392	-.002865	8.493771	.0390491	56.13217	-.005350
#2	-.004719	-.001940	8.419495	.0348069	56.31913	-.006115
#3	-.003865	-.000695	8.514128	.0345450	56.27082	-.005669

Elem	Sr4077
Units	ppm
Avg	1.161649
Stddev	.006662
%RSD	.5734545
#1	1.166680
#2	1.154095
#3	1.164172

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1936.499	44614.55	9523.206	1237.289	2853.644
Stddev	3.692	27.43	17.461	9.555	6.950
%RSD	.1906457	.0614894	.1833556	.7722524	.2435477
#1	1932.479	44603.87	9526.886	1240.581	2846.698
#2	1937.281	44645.72	9538.535	1244.762	2853.638
#3	1939.738	44594.07	9504.198	1226.523	2860.598

Sample Name: PB167441BL Acquired: 4/7/2025 17:17:46 Type: Unk
Method: NON EPA-6010-200.7(v2894) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000524	.0002539	-.000305	-.000254	-.000475	.0078188	-.001492
Stddev	.003253	.0020987	.000394	.002233	.000442	.0027550	.000622
%RSD	620.7360	826.5276	129.1307	877.8407	92.90884	35.23555	41.67426
#1	-.001678	.0015960	.000002	.002083	.000035	.0047406	-.001304
#2	.003148	.0013304	-.000168	-.002366	-.000729	.0100532	-.000986
#3	-.003043	-.002165	-.000749	-.000481	-.000732	.0086626	-.002186

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000068	-.000063	-.001610	-.000314	.0001258	-.000431	.0056696
Stddev	.000058	.000011	.002567	.000183	.0001881	.000447	.0073753
%RSD	85.86881	17.97046	159.4230	58.29381	149.5354	103.5387	130.0849
#1	-.000077	-.000066	-.003008	-.000103	-.000059	-.000082	-.000357
#2	-.000006	-.000072	.001352	-.000415	.000120	-.000934	.003472
#3	-.000121	-.000050	-.003175	-.000425	.000317	-.000277	.013894

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0017081	.0063500	.0000602	-.000056	-.370779	.0005269	-.000950
Stddev	.0003107	.0038559	.0001154	.000093	.025230	.0011505	.000160
%RSD	18.18860	60.72295	191.5906	167.0462	6.804536	218.3514	16.85872
#1	.0013835	.0019633	-.000073	-.000140	-.357687	-.000414	-.000768
#2	.0017381	.0078834	.000129	-.000071	-.399864	.001810	-.001014
#3	.0020027	.0092034	.000124	.000044	-.354786	.000185	-.001069

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.148489	-.006580	-.000370	.0002206	.0006114	-.001161	-.002275
Stddev	.010922	.000159	.000393	.0002960	.0003414	.002779	.000435
%RSD	7.355563	2.414268	106.2677	134.2078	55.83922	239.4273	19.12008
#1	-.160235	-.006465	-.000709	-.000032	.0008627	.001907	-.002330
#2	-.138639	-.006514	-.000462	.000147	.0007487	-.001879	-.001815
#3	-.146593	-.006762	.000061	.000546	.0002227	-.003511	-.002680

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: PB167441BL Acquired: 4/7/2025 17:17:46 Type: Unk
Method: NON EPA-6010-200.7(v2894) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0018301	.0001344	-.000000
Stddev	.0013308	.0011033	.000027
%RSD	72.71968	820.8954	36835.03
#1	.0016345	-.001030	.000007
#2	.0006079	.001164	.000022
#3	.0032479	.000269	-.000030

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2256.041	50292.16	9827.329	1422.498	3641.053
Stddev	5.093	229.48	39.158	8.181	7.385
%RSD	.2257520	.4562912	.3984653	.5750807	.2028206
#1	2251.019	50029.90	9870.841	1416.893	3632.725
#2	2261.202	50390.54	9794.922	1418.715	3646.804
#3	2255.903	50456.05	9816.225	1431.885	3643.631

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1712-01 Acquired: 4/7/2025 17:31:02 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0464766	-.001663	1.706809	-.037736	-.000223	88.57203	1.092019
Stddev	.0019836	.001654	.003643	.002735	.001613	.11249	.003112
%RSD	4.268003	99.48507	.2134360	7.247052	722.8380	.1269987	.2849405
#1	.0454312	.000130	1.709173	-.037148	-.002021	88.68050	1.094825
#2	.0487643	-.001987	1.708639	-.040717	.001096	88.57966	1.092560
#3	.0452344	-.003131	1.702613	-.035343	.000255	88.45592	1.088673

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0067345	.0068701	111.7346	.1306528	.1917629	.5427270	148.5463
Stddev	.0000449	.0001931	.1439	.0005499	.0001467	.0005396	.3463
%RSD	.6665314	2.810666	.1288287	.4208874	.0765261	.0994191	.2331207
#1	.0067838	.0069839	111.8541	.1300417	.1919063	.5433491	148.2154
#2	.0067238	.0066472	111.7751	.1311077	.1917694	.5423866	148.9062
#3	.0066960	.0069793	111.5748	.1308090	.1916130	.5424453	148.5172

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.803745	32.21737	.3113854	-.004096	11.92430	.2104816	1.185511
Stddev	.013524	.03262	.0003533	.000275	.07326	.0016473	.004805
%RSD	.2330230	.1012571	.1134562	6.719069	.6143471	.7826494	.4053053
#1	5.816757	32.24028	.3113085	-.003778	11.87848	.2104745	1.180550
#2	5.804717	32.18002	.3117708	-.004251	12.00878	.2121324	1.185840
#3	5.789761	32.23181	.3110769	-.004258	11.88563	.2088378	1.190143

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	13.31661	-.237504	.0027817	.0501600	1.579453	3.724512	5.489288
Stddev	.04420	.002878	.0001242	.0004959	.003559	.028211	.013989
%RSD	.3319289	1.211924	4.465704	.9886766	.2253598	.7574427	.2548492
#1	13.28805	-.240701	.0026399	.0502030	1.582175	3.692143	5.493632
#2	13.36752	-.236693	.0028713	.0496440	1.580759	3.743870	5.473642
#3	13.29426	-.235119	.0028338	.0506330	1.575425	3.737522	5.500591

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1712-01 Acquired: 4/7/2025 17:31:02 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.942909	.1250236	.4650836
Stddev	.009418	.0004353	.0010459
%RSD	.4847398	.3481734	.2248768
#1	1.932559	.1247628	.4657186
#2	1.950975	.1247820	.4656556
#3	1.945195	.1255262	.4638765

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2300.988	52453.58	11607.96	1469.043	3043.772
Stddev	4.304	137.67	50.77	3.077	8.989
%RSD	.1870670	.2624557	.4373545	.2094887	.2953370
#1	2298.865	52473.00	11552.58	1472.582	3042.968
#2	2298.157	52307.23	11619.01	1466.990	3035.212
#3	2305.941	52580.50	11652.30	1467.559	3053.136

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1715-05 Acquired: 4/7/2025 17:35:07 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0719755	-.005416	4.275520	-.064962	.0110261	82.24126	1.072629
Stddev	.0033249	.000788	.007720	.002847	.0018023	.09583	.003875
%RSD	4.619481	14.54431	.1805611	4.381987	16.34560	.1165195	.3612977
#1	.0732120	-.005103	4.281375	-.065533	.0104350	82.28469	1.072290
#2	.0745050	-.004834	4.266771	-.067480	.0095937	82.30768	1.076662
#3	.0682095	-.006312	4.278414	-.061874	.0130498	82.13141	1.068934

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0075658	.0121082	227.1389	.1460214	.1467409	1.248488	245.7034
Stddev	.0000729	.0004134	.3408	.0002075	.0003290	.001847	.9597
%RSD	.9631607	3.413846	.1500526	.1421232	.2242128	.1479614	.3906038
#1	.0076431	.0125823	227.3383	.1462035	.1468068	1.249942	244.8711
#2	.0074984	.0119194	227.3330	.1457955	.1470320	1.246409	246.7532
#3	.0075558	.0118231	226.7453	.1460652	.1463840	1.249113	245.4860

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.875662	47.26906	.2584755	-.006685	18.38307	.3030632	1.924994
Stddev	.016707	.12550	.0000397	.000704	.14166	.0015147	.005845
%RSD	.3426581	.2655032	.0153392	10.53000	.7706021	.4997926	.3036175
#1	4.883134	47.30678	.2585123	-.007140	18.29267	.3024589	1.926860
#2	4.887328	47.12902	.2584805	-.005874	18.54634	.3047867	1.918445
#3	4.856523	47.37137	.2584335	-.007041	18.31022	.3019438	1.929679

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.30972	.0087347	.0083980	.2037376	3.188308	7.582385	7.799494
Stddev	.06388	.0018823	.0002639	.0014936	.006283	.049197	.024381
%RSD	.5648163	21.54920	3.142516	.7331024	.1970631	.6488299	.3126002
#1	11.26904	.0071003	.0085667	.2036062	3.189156	7.525597	7.827617
#2	11.38335	.0083112	.0080939	.2023140	3.194123	7.609489	7.786551
#3	11.27678	.0107927	.0085334	.2052925	3.181644	7.612069	7.784313

Sample Name: Q1715-05 Acquired: 4/7/2025 17:35:07 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	6.780470	.0841875	1.055724
Stddev	.015456	.0008216	.020927
%RSD	.2279484	.9759456	1.982236
#1	6.794901	.0846008	1.078183
#2	6.782349	.0847203	1.036772
#3	6.764161	.0832413	1.052216

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2321.444	52909.08	11736.02	1467.233	2955.652
Stddev	2.855	37.29	45.44	5.003	5.740
%RSD	.1229623	.0704748	.3871706	.3409760	.1941981
#1	2318.853	52931.63	11684.56	1471.416	2949.751
#2	2320.977	52866.04	11752.87	1468.593	2955.987
#3	2324.504	52929.56	11770.62	1461.691	2961.216

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1721-02 Acquired: 4/7/2025 17:39:19 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0780661	-.002849	.1778084	-.051574	.0005824	70.96931
Stddev	.0019539	.001707	.0013304	.004887	.0017366	.20289
%RSD	2.502944	59.92029	.7482251	9.475842	298.1677	.2858862
#1	.0802631	-.002229	.1767400	-.048765	.0020763	71.15634
#2	.0774124	-.004779	.1792985	-.057217	-.001323	70.99798
#3	.0765229	-.001538	.1773866	-.048741	.000994	70.75360

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3542294	.0070119	.0015136	228.8996	.1978620	.0642441
Stddev	.0016277	.0001772	.0002810	.6308	.0011120	.0003346
%RSD	.4595072	2.527740	18.56463	.2755708	.5619913	.5208755
#1	.3558827	.0069073	.0011901	229.4469	.1990003	.0641803
#2	.3541770	.0072165	.0016974	229.0422	.1967784	.0646060
#3	.3526285	.0069118	.0016532	228.2097	.1978074	.0639459

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1601333	195.5309	1.477612	41.85731	.0855635	-.008800
Stddev	.0017927	1.1240	.002018	.17606	.0002492	.000234
%RSD	1.119503	.5748246	.1365420	.4206185	.2911843	2.656007
#1	.1583321	196.4762	1.479837	41.99579	.0856556	-.008671
#2	.1619173	194.2881	1.477098	41.91696	.0852814	-.008659
#3	.1601504	195.8283	1.475901	41.65917	.0857534	-.009070

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.437311	.2671910	.3280261	6.450555	-.332611	.0034217
Stddev	.025315	.0006037	.0004542	.017049	.007081	.0001551
%RSD	1.761261	.2259562	.1384518	.2643082	2.128937	4.532066
#1	1.416287	.2678871	.3277089	6.469114	-.329807	.0034446
#2	1.430236	.2668768	.3285463	6.435587	-.340665	.0032564
#3	1.465411	.2668092	.3278229	6.446964	-.327362	.0035640

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1721-02 Acquired: 4/7/2025 17:39:19 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0023104	1.316972	F 10.45651	3.979812	4.841580	.0285025
Stddev	.0008589	.002613	.03179	.014561	.030239	.0009197
%RSD	37.17570	.1984219	.3040354	.3658704	.6245650	3.226727
#1	.0013656	1.319543	10.47473	3.964768	4.808970	.0280178
#2	.0025216	1.317054	10.41980	3.993836	4.868693	.0279266
#3	.0030440	1.314319	10.47499	3.980831	4.847079	.0295632

Elem	Sr4077
Units	ppm
Avg	.6389279
Stddev	.0023472
%RSD	.3673681
#1	.6405224
#2	.6400288
#3	.6362326

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2181.917	50368.67	10805.47	1399.749	2988.517
Stddev	2.406	213.51	46.02	3.408	4.294
%RSD	.1102767	.4238894	.4259370	.2434606	.1436907
#1	2179.173	50133.60	10777.19	1395.970	2992.295
#2	2182.914	50550.57	10780.64	1402.588	2983.847
#3	2183.664	50421.82	10858.57	1400.689	2989.410

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCV05 Acquired: 4/7/2025 17:43:26 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.883036	4.914278	4.840165	4.896047	4.917661	9.598727	9.577853
Stddev	.014114	.037522	.005311	.026963	.012606	.027930	.085067
%RSD	.2890377	.7635293	.1097344	.5507028	.2563506	.2909726	.8881620
#1	4.866772	4.936266	4.836715	4.900110	4.907174	9.566517	9.562591
#2	4.890265	4.870953	4.837500	4.867283	4.914160	9.613437	9.501451
#3	4.892070	4.935615	4.846282	4.920747	4.931647	9.616227	9.669518

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2511367	2.434837	23.74461	.9891950	2.420088	1.235964	4.756234
Stddev	.0012065	.004445	.03505	.0023812	.005681	.004849	.028864
%RSD	.4804001	.1825598	.1476176	.2407192	.2347400	.3923222	.6068636
#1	.2506342	2.433607	23.72528	.9910161	2.416380	1.232736	4.761906
#2	.2502627	2.431137	23.78507	.9900685	2.417254	1.233616	4.781840
#3	.2525132	2.439768	23.72348	.9865004	2.426628	1.241540	4.724955

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.368521	23.78922	2.429079	1.237771	23.45420	2.397312	2.472824
Stddev	.005786	.06564	.006457	.003647	.23627	.003018	.005917
%RSD	.2443049	.2759427	.2658180	.2946068	1.007363	.1259016	.2392853
#1	2.368445	23.71560	2.425587	1.236284	23.45656	2.395629	2.475308
#2	2.374345	23.84164	2.425120	1.241926	23.68927	2.395510	2.477094
#3	2.362773	23.81042	2.436530	1.235103	23.21675	2.400797	2.466070

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	23.72455	5.122070	4.949795	4.868065	4.745916	4.895545	5.063981
Stddev	.20866	.033407	.017013	.012654	.010720	.026049	.011356
%RSD	.8795068	.6522245	.3437211	.2599355	.2258872	.5320953	.2242578
#1	23.77889	5.106016	4.938428	4.866391	4.736400	4.887014	5.059084
#2	23.90067	5.099719	4.941602	4.856332	4.757531	4.924790	5.055895
#3	23.49410	5.160474	4.969354	4.881473	4.743818	4.874832	5.076965

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCV05 Acquired: 4/7/2025 17:43:26 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV05 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.845190	4.877410	4.789976
Stddev	.012994	.010188	.084490
%RSD	.2681792	.2088753	1.763890
#1	4.839429	4.866664	4.693917
#2	4.836073	4.886928	4.852772
#3	4.860068	4.878639	4.823240

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2171.343	49420.18	9334.452	1389.342	3241.780
Stddev	4.641	215.62	40.697	8.092	4.087
%RSD	.2137458	.4363079	.4359852	.5824646	.1260720
#1	2176.380	49471.21	9362.860	1381.999	3246.121
#2	2170.410	49183.61	9352.668	1388.008	3241.212
#3	2167.240	49605.71	9287.830	1398.018	3238.007

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCB05 Acquired: 4/7/2025 17:47:37 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0037140	-.000977	.0005398	.0007566	.0012874	.0103670	-.000487
Stddev	.0022262	.000791	.0000695	.0005729	.0002334	.0037879	.000561
%RSD	59.93993	80.92849	12.88342	75.72162	18.12733	36.53823	115.0479
#1	.0027730	-.001588	.0005897	.0004339	.0011334	.0101306	-.000847
#2	.0062561	-.000084	.0004604	.0014180	.0011730	.0142675	.000159
#3	.0021128	-.001259	.0005692	.0004178	.0015559	.0067028	-.000773

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000041	-.000020	-.003395	-.000469	.0000802	.0000197	-.001751
Stddev	.0000689	.000092	.006208	.000397	.0001210	.0003420	.001475
%RSD	1676.972	457.5880	182.8638	84.51667	150.7155	1733.446	84.19921
#1	.0000271	.000084	-.008057	-.000891	.0002124	.0004134	-.001280
#2	-.000073	-.000088	.003652	-.000413	.0000533	-.000204	-.000570
#3	.000059	-.000057	-.005779	-.000103	-.000025	-.000150	-.003404

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0016011	.0109775	-.000071	-.000147	-.556416	-.000198	-.000729
Stddev	.0002281	.0074386	.000165	.000207	.005759	.000411	.000541
%RSD	14.24712	67.76243	233.4312	141.4536	1.035046	207.9194	74.20331
#1	.0017713	.0193967	-.000217	-.000235	-.555868	-.000616	-.000976
#2	.0013419	.0082412	.000108	-.000296	-.550951	-.000183	-.001104
#3	.0016901	.0052946	-.000102	.000090	-.562430	.000206	-.000109

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.213053	-.002968	.0001191	-.000201	.0003434	.0053960	-.001110
Stddev	.030351	.000654	.0001765	.001226	.0004797	.0083008	.002843
%RSD	14.24582	22.03662	148.2162	608.8989	139.7088	153.8333	256.0118
#1	-.196204	-.003541	.0002009	.001116	.0006127	-.003535	.000531
#2	-.194864	-.002256	-.000083	-.000411	.0006280	.006847	.000531
#3	-.248091	-.003106	.000240	-.001309	-.000210	.012876	-.004393

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCB05 Acquired: 4/7/2025 17:47:37 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000526	-.000819	.0000403
Stddev	.004455	.000712	.0000268
%RSD	846.4436	86.92708	66.45519
#1	-.005489	-.000840	.0000695
#2	.003129	-.001520	.0000349
#3	.000782	-.000097	.0000167

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2253.156	51637.66	10042.19	1449.206	3621.586
Stddev	4.953	273.73	43.48	8.920	5.529
%RSD	.2198117	.5301025	.4329355	.6155219	.1526694
#1	2258.817	51747.40	10044.30	1455.270	3627.163
#2	2251.032	51839.50	9997.70	1453.386	3621.488
#3	2249.620	51326.09	10084.58	1438.964	3616.106

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1721-02DUP Acquired: 4/7/2025 17:52:05 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0787190	-.002182	.1762825	-.051544	.0010309	71.44268
Stddev	.0044235	.002134	.0011271	.001292	.0009474	.13111
%RSD	5.619313	97.81557	.6393932	2.506225	91.90025	.1835237
#1	.0809960	-.004061	.1753134	-.050665	.0000409	71.38840
#2	.0815401	-.002622	.1775194	-.050940	.0011228	71.59222
#3	.0736209	.000138	.1760146	-.053027	.0019290	71.34743

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3416230	.0075520	.0030386	226.4860	.1986346	.0637794
Stddev	.0004326	.0000401	.0001127	.4859	.0005313	.0002839
%RSD	.1266150	.5305363	3.707308	.2145286	.2674929	.4451164
#1	.3411448	.0075395	.0029361	226.1180	.1982236	.0636476
#2	.3417372	.0075197	.0030205	227.0368	.1984457	.0641053
#3	.3419869	.0075969	.0031592	226.3033	.1992346	.0635854

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1678982	184.9545	1.462918	42.09524	.0846534	-.010451
Stddev	.0014516	.1983	.003163	.10360	.0002883	.000216
%RSD	.8645752	.1072188	.2162083	.2461020	.3405863	2.066780
#1	.1675443	185.1082	1.465189	42.03392	.0843249	-.010255
#2	.1666562	185.0248	1.464260	42.21485	.0847703	-.010683
#3	.1694940	184.7307	1.459305	42.03695	.0848648	-.010416

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.228911	.2635920	.3286218	6.062485	-.380437	.0035116
Stddev	.017100	.0013040	.0018796	.040362	.003147	.0003854
%RSD	1.391468	.4947143	.5719724	.6657628	.8271242	10.97573
#1	1.209170	.2621632	.3272268	6.016412	-.376805	.0030671
#2	1.239161	.2638948	.3278795	6.091608	-.382334	.0037137
#3	1.238401	.2647179	.3307593	6.079435	-.382173	.0037539

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1721-02DUP Acquired: 4/7/2025 17:52:05 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0030873	1.303992	F 10.18100	3.951148	4.779390	.0295604
Stddev	.0006096	.000832	.02284	.009904	.008559	.0001030
%RSD	19.74474	.0637965	.2243256	.2506505	.1790811	.3485755
#1	.0028603	1.304535	10.16212	3.945027	4.786799	.0294419
#2	.0037777	1.303034	10.17450	3.962574	4.781351	.0296288
#3	.0026237	1.304406	10.20638	3.945843	4.770021	.0296105

Elem	Sr4077
Units	ppm
Avg	.6308935
Stddev	.0009833
%RSD	.1558547
#1	.6304912
#2	.6320142
#3	.6301752

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2193.187	49916.55	10184.63	1400.247	3010.296
Stddev	.275	73.29	25.45	4.248	1.950
%RSD	.0125328	.1468306	.2498775	.3033747	.0647908
#1	2193.365	49980.33	10203.98	1404.716	3008.394
#2	2192.871	49836.49	10155.80	1399.765	3010.204
#3	2193.326	49932.83	10194.11	1396.261	3012.291

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1721-02LX5 Acquired: 4/7/2025 17:56:14 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0142771	-.000322	.0364087	-.007641	-.000437	15.14717	.0757681
Stddev	.0061008	.000550	.0013481	.002103	.000475	.03410	.0006348
%RSD	42.73163	170.8991	3.702799	27.52164	108.8149	.2251536	.8377564
#1	.0211836	-.000817	.0377852	-.009683	-.000832	15.14146	.0753063
#2	.0120259	.000270	.0350908	-.007756	-.000569	15.11628	.0764919
#3	.0096218	-.000419	.0363503	-.005482	.000091	15.18377	.0755059

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0015980	-.000369	49.54338	.0432161	.0127750	.0375848	41.34977
Stddev	.0000473	.000049	.16007	.0001607	.0001727	.0003310	.15000
%RSD	2.961556	13.32439	.3230850	.3719240	1.351851	.8806246	.3627600
#1	.0016525	-.000314	49.36345	.0434005	.0125762	.0373788	41.18729
#2	.0015670	-.000410	49.66995	.0431418	.0128882	.0374090	41.37905
#3	.0015746	-.000383	49.59673	.0431060	.0128605	.0379665	41.48297

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3276436	9.113001	.0175437	-.002112	-.186080	.0584295	.0697199
Stddev	.0017209	.025567	.0000865	.000510	.007859	.0015480	.0002647
%RSD	.5252239	.2805529	.4928498	24.16031	4.223705	2.649271	.3796672
#1	.3262055	9.083490	.0174448	-.002338	-.193663	.0600731	.0694493
#2	.3295502	9.127065	.0175819	-.002469	-.186607	.0569993	.0699783
#3	.3271751	9.128449	.0176046	-.001527	-.177971	.0582162	.0697320

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.113294	-.082301	.0006031	-.001818	.2873028	2.195198	.7864607
Stddev	.008574	.000901	.0001615	.000205	.0007459	.015524	.0027110
%RSD	.7701151	1.094684	26.77054	11.25392	.2596072	.7071858	.3447143
#1	1.111533	-.081430	.0007858	-.002045	.2865426	2.196225	.7836066
#2	1.122611	-.083229	.0004795	-.001647	.2880335	2.179186	.7867742
#3	1.105737	-.082243	.0005441	-.001763	.2873322	2.210183	.7890014

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1721-02LX5 Acquired: 4/7/2025 17:56:14 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.9419595	.0045003	.1352991
Stddev	.0040720	.0008451	.0004240
%RSD	.4322945	18.77967	.3133562
#1	.9377513	.0054762	.1350642
#2	.9458801	.0040108	.1357885
#3	.9422473	.0040139	.1350445

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2221.681	50989.59	10492.21	1415.647	3349.546
Stddev	8.261	133.76	16.44	3.538	6.113
%RSD	.3718304	.2623303	.1566912	.2499082	.1825009
#1	2212.371	50962.39	10511.17	1413.749	3342.503
#2	2228.135	51134.87	10482.01	1413.464	3352.668
#3	2224.537	50871.53	10483.43	1419.729	3353.467

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1721-02MS Acquired: 4/7/2025 18:00:30 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7092643	1.614613	.9849100	1.414992	.2107441	73.20705
Stddev	.0030256	.009636	.0048207	.006284	.0035027	.04607
%RSD	.4265778	.5967831	.4894584	.4440939	1.662042	.0629339
#1	.7057708	1.609415	.9818756	1.411633	.2067804	73.16543
#2	.7109795	1.608692	.9823858	1.411101	.2120292	73.19917
#3	.7110425	1.625732	.9904687	1.422241	.2134227	73.25656

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4748074	.1520723	.1655116	120.5647	.5194858	.2357425
Stddev	.0009504	.0004914	.0005901	.2931	.0007291	.0005292
%RSD	.2001689	.3231134	.3565565	.2430764	.1403570	.2244830
#1	.4747451	.1526296	.1659041	120.8424	.5190622	.2362517
#2	.4757874	.1518859	.1648329	120.5934	.5203277	.2351953
#3	.4738896	.1517014	.1657978	120.2583	.5190675	.2357805

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4004737	194.4031	2.993487	28.94996	.4895605	.0548843
Stddev	.0013204	.7215	.008912	.05124	.0007394	.0000354
%RSD	.3296980	.3711268	.2977021	.1770085	.1510389	.0644768
#1	.4000184	194.2194	3.001975	28.99755	.4902782	.0548436
#2	.3994412	195.1987	2.994282	28.95661	.4888011	.0549019
#3	.4019614	193.7912	2.984205	28.89571	.4896022	.0549074

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.672419	.5039014	.5205309	15.17389	-.154336	.3093417
Stddev	.037669	.0025726	.0026804	.08825	.003558	.0009143
%RSD	1.025720	.5105328	.5149348	.5816203	2.305616	.2955528
#1	3.677500	.5055101	.5208715	15.07857	-.158160	.3088350
#2	3.707289	.5009343	.5230246	15.25277	-.151122	.3087930
#3	3.632467	.5052597	.5176964	15.19032	-.153725	.3103971

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1721-02MS Acquired: 4/7/2025 18:00:30 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5742860	1.270040	F 12.23882	8.489884	3.607052	.2070633
Stddev	.0016960	.004639	.05317	.044403	.011161	.0006422
%RSD	.2953240	.3652508	.4344651	.5230060	.3094316	.3101659
#1	.5723429	1.273535	12.17836	8.525655	3.606407	.2066770
#2	.5754688	1.271808	12.25978	8.440188	3.596228	.2078047
#3	.5750465	1.264777	12.27831	8.503809	3.618522	.2067082

Elem	Sr4077
Units	ppm
Avg	.4457055
Stddev	.0012499
%RSD	.2804358
#1	.4464949
#2	.4463571
#3	.4442644

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2237.985	51138.04	10977.42	1419.986	3117.283
Stddev	5.217	85.24	53.12	5.567	9.096
%RSD	.2330914	.1666783	.4838980	.3920309	.2917807
#1	2240.153	51121.51	10916.11	1422.591	3111.099
#2	2241.767	51062.28	11009.67	1413.595	3127.727
#3	2232.034	51230.33	11006.48	1423.773	3113.024

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1721-02MSD Acquired: 4/7/2025 18:04:32 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6967315	1.602712	.9741728	1.396038	.2129042	73.85239
Stddev	.0017045	.015619	.0021097	.005059	.0019050	.14185
%RSD	.2446390	.9745145	.2165614	.3623993	.8947872	.1920718
#1	.6986104	1.610312	.9718740	1.390199	.2127346	73.78557
#2	.6962996	1.613076	.9746239	1.399117	.2148883	74.01531
#3	.6952846	1.584748	.9760204	1.398797	.2110896	73.75629

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4715425	.1555610	.1651949	120.2430	.5201814	.2337361
Stddev	.0026514	.0009031	.0004792	.3597	.0021177	.0004597
%RSD	.5622746	.5805516	.2900655	.2991092	.4071059	.1966817
#1	.4693154	.1545556	.1646772	119.9113	.5222299	.2333003
#2	.4744754	.1563033	.1656228	120.6253	.5180007	.2342165
#3	.4708368	.1558243	.1652846	120.1924	.5203136	.2336915

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4032211	189.9495	2.987780	29.10882	.4862127	.0537474
Stddev	.0018739	1.2248	.010878	.03670	.0004899	.0005584
%RSD	.4647192	.6447781	.3640941	.1260673	.1007559	1.038889
#1	.4011027	191.3347	2.976530	29.06807	.4857154	.0541222
#2	.4038991	189.0100	2.998244	29.11912	.4866949	.0531057
#3	.4046617	189.5038	2.988567	29.13926	.4862279	.0540144

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.511950	.5045419	.5204851	14.80525	-.163502	.3092917
Stddev	.019403	.0018059	.0037710	.12413	.003746	.0004871
%RSD	.5524829	.3579285	.7245146	.8384405	2.291190	.1574850
#1	3.533500	.5048369	.5247040	14.94854	-.159346	.3094542
#2	3.506480	.5061822	.5174423	14.73691	-.166618	.3087441
#3	3.495868	.5026067	.5193092	14.73031	-.164542	.3096768

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1721-02MSD Acquired: 4/7/2025 18:04:32 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5704771	1.289414	F 12.80061	8.350665	3.555783	.2094087
Stddev	.0013637	.004721	.07773	.010515	.008253	.0013590
%RSD	.2390389	.3661628	.6072483	.1259165	.2321137	.6489504
#1	.5720435	1.285497	12.88482	8.349039	3.548620	.2083259
#2	.5695553	1.294656	12.73159	8.361899	3.564809	.2109337
#3	.5698324	1.288088	12.78543	8.341058	3.553921	.2089666

Elem	Sr4077
Units	ppm
Avg	.4474668
Stddev	.0035465
%RSD	.7925843
#1	.4442500
#2	.4512700
#3	.4468803

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2256.571	51368.19	10736.70	1427.447	3147.506
Stddev	3.313	226.14	54.70	6.531	3.162
%RSD	.1468283	.4402396	.5094247	.4575201	.1004758
#1	2255.122	51121.06	10795.94	1420.162	3146.480
#2	2260.362	51564.80	10688.12	1429.405	3151.054
#3	2254.228	51418.72	10726.04	1432.776	3144.983

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1721-02A Acquired: 4/7/2025 18:08:35 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6154023	1.354970	.8592612	1.257453	.3611425	73.07440
Stddev	.1190916	.294026	.1509111	.281976	.1505025	.48893
%RSD	19.35183	21.69979	17.56289	22.42436	41.67400	.6690805
#1	.4953210	1.062086	.7078575	.976164	.2175434	73.32948
#2	.6174069	1.352701	.8602513	1.256086	.3481747	73.38303
#3	.7334789	1.650124	1.009675	1.540110	.5177093	72.51068

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4078607	.0780279	.1433463	229.1751	.3502375	.2086938
Stddev	.0018203	.0084355	.0317481	1.4524	.0197219	.0326575
%RSD	.4463036	10.81088	22.14784	.6337662	5.631014	15.64851
#1	.4060142	.0699370	.1118028	230.0343	.3316563	.1760037
#2	.4079143	.0773765	.1429411	229.9929	.3481260	.2087593
#3	.4096536	.0867702	.1752951	227.4982	.3709302	.2413185

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3615633	196.9609	1.535835	42.72434	.4462438	.0215357
Stddev	.0457867	.4363	.008455	.21445	.0811169	.0033555
%RSD	12.66353	.2215376	.5505049	.5019307	18.17771	15.58090
#1	.3157436	197.3855	1.538140	42.75859	.3655043	.0185691
#2	.3616295	196.5137	1.542898	42.91959	.4454943	.0208607
#3	.4073169	196.9835	1.526467	42.49482	.5277328	.0251774

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.314358	.3459883	.4049994	10.17647	-.234644	.1823816
Stddev	.054172	.0046454	.0086367	.17525	.016022	.0752528
%RSD	2.340708	1.342634	2.132513	1.722140	6.828193	41.26116
#1	2.263032	.3436493	.3965536	10.00112	-.246834	.1109017
#2	2.309055	.3429774	.4046297	10.17667	-.240601	.1753321
#3	2.370987	.3513383	.4138150	10.35162	-.216497	.2609111

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: Q1721-02A Acquired: 4/7/2025 18:08:35 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3245211	1.410179	F 13.37047	8.491041	4.770623	.0896679
Stddev	.1367627	.009339	.06105	1.012042	.012105	.0042442
%RSD	42.14292	.6622760	.4565828	11.91893	.2537456	4.733225
#1	.1945550	1.414667	13.42540	7.484333	4.767754	.0860661
#2	.3118149	1.416428	13.30475	8.480456	4.760209	.0885909
#3	.4671935	1.399443	13.38127	9.508333	4.783905	.0943469

Elem	Sr4077
Units	ppm
Avg	.6888690
Stddev	.0032976
%RSD	.4787005
#1	.6897878
#2	.6916097
#3	.6852094

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2192.083	49997.37	10614.25	1403.990	2994.927
Stddev	4.818	42.89	69.85	2.338	10.723
%RSD	.2197818	.0857912	.6580955	.1665100	.3580490
#1	2196.372	50027.77	10585.95	1402.830	3002.254
#2	2193.007	50016.04	10562.99	1402.459	2999.908
#3	2186.870	49948.31	10693.81	1406.681	2982.619

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: PB167441BS Acquired: 4/7/2025 18:12:38 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7412568	1.937761	.9156884	1.882206	.7749645	1.847868
Stddev	.0033395	.017758	.0012061	.009139	.0051534	.019781
%RSD	.4505214	.9163957	.1317118	.4855625	.6649904	1.070457
#1	.7383779	1.952155	.9146033	1.887820	.7718078	1.840546
#2	.7404745	1.917917	.9154750	1.871660	.7721742	1.870266
#3	.7449180	1.943209	.9169869	1.887138	.7809114	1.832792

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1836824	.1909737	.1852740	.9509595	.3926981	.1874630
Stddev	.0011760	.0017162	.0000884	.0097155	.0018439	.0006091
%RSD	.6402118	.8986737	.0477318	1.021653	.4695502	.3249219
#1	.1825137	.1908005	.1852315	.9522718	.3938823	.1867609
#2	.1848655	.1927700	.1852148	.9599522	.3905736	.1877780
#3	.1836679	.1893507	.1853757	.9406546	.3936384	.1878501

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2977365	2.897867	.1892620	1.815435	.4716342	.0738812
Stddev	.0003535	.025241	.0009751	.023145	.0009006	.0005758
%RSD	.1187211	.8710217	.5151919	1.274905	.1909527	.7793758
#1	.2973398	2.898532	.1884005	1.800000	.4711251	.0741471
#2	.2978520	2.872300	.1903205	1.842048	.4711034	.0732205
#3	.2980178	2.922769	.1890649	1.804258	.4726740	.0742760

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.974636	.2798462	.1967962	9.184600	.2756020	.3922704
Stddev	.029878	.0047125	.0015443	.067435	.0034510	.0011049
%RSD	1.004431	1.683969	.7847180	.7342187	1.252177	.2816658
#1	2.957791	.2749075	.1972053	9.144442	.2747778	.3923701
#2	2.956983	.2842941	.1950886	9.146904	.2793905	.3911190
#3	3.009133	.2803371	.1980948	9.262455	.2726377	.3933221

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: PB167441BS Acquired: 4/7/2025 18:12:38 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6552436	.1837212	.7679900	5.652382	F -.009479	.1926196
Stddev	.0031261	.0018510	.0019727	.004950	.000845	.0024220
%RSD	.4770967	1.007521	.2568631	.0875685	8.918838	1.257379
#1	.6530499	.1821790	.7665197	5.652435	-.009274	.1899221
#2	.6538579	.1857739	.7672184	5.647407	-.010408	.1946074
#3	.6588231	.1832106	.7702318	5.657306	-.008755	.1933294

Elem	Sr4077
Units	ppm
Avg	.1830868
Stddev	.0017701
%RSD	.9667976
#1	.1815218
#2	.1850078
#3	.1827308

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2264.294	51148.02	9988.111	1460.043	3549.601
Stddev	5.625	168.93	101.466	6.050	3.335
%RSD	.2484132	.3302831	1.015871	.4143733	.0939428
#1	2265.685	51226.18	10023.32	1459.515	3550.615
#2	2269.093	51263.73	9873.73	1466.339	3552.312
#3	2258.104	50954.16	10067.28	1454.274	3545.878

Sample Name: PB167466BL Acquired: 4/7/2025 18:16:41 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0022574	-.000301	-.000520	.0013884	.0003055	.0034100	-.000784
Stddev	.0019083	.000875	.000797	.0005290	.0008874	.0106344	.000295
%RSD	84.53703	290.5591	153.3279	38.09779	290.4365	311.8556	37.63456
#1	.0028027	-.001258	-.000950	.0018260	.0004924	-.008513	-.000994
#2	.0038337	-.000104	.000400	.0008006	.0010846	.011916	-.000910
#3	.0001358	.000459	-.001009	.0015386	-.000660	.006828	-.000446

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000015	-.000048	.0010113	-.000189	-.000061	-.000236	.0007530
Stddev	.000055	.000073	.0079066	.000292	.000243	.000148	.0046409
%RSD	374.0996	152.4852	781.8198	155.1206	401.0435	62.56892	616.3044
#1	.000009	-.000101	-.000151	-.000175	-.000164	-.000323	.0028360
#2	-.000078	-.000078	.009435	-.000487	-.000235	-.000320	.0039876
#3	.000025	.000035	-.006250	.000097	.000217	-.000066	-.004564

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0013993	.0050269	-.000073	.0002453	-.605377	.0002582	-.001097
Stddev	.0003039	.0114511	.000197	.0001388	.006692	.0005465	.000229
%RSD	21.72112	227.7979	270.5498	56.57349	1.105374	211.6084	20.87304
#1	.0010669	-.007946	-.000262	.0002761	-.612207	-.000249	-.000981
#2	.0014680	.013728	-.000086	.0003661	-.598833	.000837	-.001361
#3	.0016630	.009299	.000130	.0000937	-.605092	.000187	-.000950

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.245156	-.008320	-.000495	.0005947	.0001194	-.006409	-.001838
Stddev	.007746	.000412	.000354	.0003879	.0005979	.005756	.001544
%RSD	3.159762	4.948637	71.48884	65.21654	500.9643	89.81489	84.01941
#1	-.243797	-.007847	-.000683	.0002233	.0003937	-.003800	-.000521
#2	-.253491	-.008600	-.000087	.0005637	-.000567	-.002419	-.001454
#3	-.238178	-.008513	-.000714	.0009972	.000531	-.013008	-.003537

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: PB167466BL Acquired: 4/7/2025 18:16:41 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000784	-.000074	-.000019
Stddev	.003980	.000820	.000021
%RSD	507.3850	1102.135	114.4650
#1	.003765	.000847	.000006
#2	-.002492	-.000722	-.000030
#3	-.003626	-.000348	-.000032

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2266.915	51167.08	10028.64	1453.044	3640.068
Stddev	10.491	154.98	61.84	6.885	11.721
%RSD	.4627760	.3028993	.6166287	.4738479	.3220132
#1	2275.944	51276.20	10029.36	1460.573	3650.893
#2	2255.406	50989.68	9966.44	1447.068	3627.619
#3	2269.394	51235.37	10090.11	1451.491	3641.691

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: PB167466BS Acquired: 4/7/2025 18:27:26 Type: Unk
Method: NON EPA-6010-200.7(v2895) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7547065	1.913274	.9154939	1.936581	.7827066	1.843006
Stddev	.0027225	.012614	.0026436	.010890	.0057488	.003451
%RSD	.3607381	.6592881	.2887586	.5623107	.7344740	.1872571
#1	.7558986	1.898732	.9139492	1.927729	.7805597	1.845604
#2	.7515913	1.919840	.9139862	1.933273	.7783403	1.844324
#3	.7566297	1.921251	.9185464	1.948741	.7892199	1.839090

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1763564	.1793767	.1847631	.9577335	.3869952	.1866570
Stddev	.0006789	.0007494	.0008404	.0056098	.0018264	.0007480
%RSD	.3849699	.4177753	.4548449	.5857416	.4719546	.4007569
#1	.1768748	.1801426	.1842965	.9616634	.3848995	.1860046
#2	.1766064	.1786450	.1842595	.9602280	.3882482	.1864928
#3	.1755879	.1793423	.1857332	.9513090	.3878378	.1874735

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2974981	2.925352	.1812356	1.803875	.4713355	.0729548
Stddev	.0009311	.012133	.0005591	.012141	.0019710	.0004519
%RSD	.3129890	.4147574	.3085063	.6730756	.4181705	.6194480
#1	.2965795	2.914169	.1815949	1.811083	.4700390	.0734489
#2	.2974736	2.923635	.1815205	1.789857	.4703638	.0725625
#3	.2984413	2.938252	.1805914	1.810684	.4736036	.0728528

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.962178	.2711653	.1930802	9.328786	.2546689	.3887920
Stddev	.018391	.0026903	.0006267	.013973	.0027747	.0010351
%RSD	.6208535	.9921155	.3245797	.1497814	1.089529	.2662444
#1	2.942015	.2739633	.1937394	9.342591	.2572823	.3880703
#2	2.978033	.2709348	.1930090	9.314651	.2517571	.3883277
#3	2.966484	.2685976	.1924921	9.329117	.2549672	.3899780

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: PB167466BS Acquired: 4/7/2025 18:27:26 Type: Unk
Method: NON EPA-6010-200.7(v2895) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6533497	.1782471	.7554751	5.616185	F -.016204	.1840301
Stddev	.0030971	.0006680	.0082748	.031372	.000679	.0005833
%RSD	.4740401	.3747708	1.095314	.5586019	4.192794	.3169754
#1	.6507069	.1789744	.7650107	5.589199	-.015596	.1843278
#2	.6525844	.1776610	.7501811	5.608748	-.016937	.1844046
#3	.6567577	.1781059	.7512335	5.650607	-.016080	.1833580

Elem	Sr4077
Units	ppm
Avg	.1771845
Stddev	.0004979
%RSD	.2810108
#1	.1777192
#2	.1771002
#3	.1767341

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2213.148	51031.04	10379.99	1431.323	3464.398
Stddev	5.897	79.81	36.75	5.543	6.541
%RSD	.2664683	.1563929	.3540883	.3872410	.1887968
#1	2207.639	51011.51	10339.79	1428.371	3459.614
#2	2219.369	50962.80	10388.33	1427.881	3471.852
#3	2212.436	51118.80	10411.87	1437.717	3461.730

Sample Name: LR1 Acquired: 4/7/2025 18:41:58 Type: Unk
Method: NON EPA-6010-200.7(v2896) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0410497	.0762372	.0483380	-.227040	.0087569	1930.508	.0165800
Stddev	.0056835	.0013399	.0056796	.016193	.0091698	22.474	.0007939
%RSD	13.84531	1.757571	11.74970	7.132392	104.7157	1.164131	4.788099
#1	.0437335	.0751104	.0546190	-.231439	.0159249	1947.486	.0173007
#2	.0448943	.0758823	.0435638	-.209101	-.001576	1939.014	.0167102
#3	.0345213	.0777188	.0468311	-.240579	.011922	1905.022	.0157291

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0094596	.0302777	1873.654	.0252347	.0275612	.0510505	974.0240
Stddev	.0001776	.0013713	10.460	.0007203	.0002959	.0085202	4.0706
%RSD	1.877608	4.529017	.5582498	2.854407	1.073477	16.68972	.4179129
#1	.0093170	.0294976	1884.032	.0258862	.0273514	.0470188	976.2761
#2	.0096585	.0294744	1873.814	.0253566	.0278996	.0452945	976.4708
#3	.0094032	.0318610	1863.115	.0244612	.0274325	.0608383	969.3250

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.032236	1635.542	.0161046	-.045589	1818.678	.0177787	.4198488
Stddev	.000559	7.495	.0012048	.000144	9.581	.0026133	.0016293
%RSD	1.733662	.4582564	7.480977	.3158409	.5268143	14.69928	.3880567
#1	-.031648	1641.084	.0160435	-.045680	1811.714	.0149094	.4204534
#2	-.032298	1638.528	.0149315	-.045423	1814.715	.0184039	.4180037
#3	-.032761	1627.014	.0173387	-.045663	1829.604	.0200227	.4210893

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1379.147	^ *****	-.013696	-.001895	-.035346	.1151766	.0726044
Stddev	8.532	-----	.002598	.002776	.000515	.0081405	.0106346
%RSD	.6186512	-----	18.97096	146.5163	1.456255	7.067852	14.64737
#1	1375.825	^ -----	-.016644	.001179	-.035875	.1179796	.0603535
#2	1388.840	^ -----	-.011738	-.004220	-.035317	.1060049	.0794594
#3	1372.775	^ -----	-.012707	-.002643	-.034847	.1215452	.0780003

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: LR1 Acquired: 4/7/2025 18:41:58 Type: Unk
Method: NON EPA-6010-200.7(v2896) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.200486	-.296147	-.962701
Stddev	.028390	.000738	.004086
%RSD	14.16083	.2492571	.4244139
#1	-.230551	-.296780	-.964951
#2	-.196770	-.295336	-.965168
#3	-.174136	-.296324	-.957985

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1542.489	35475.18	8753.969	988.4035	1955.645
Stddev	6.318	96.23	52.893	3.3216	4.128
%RSD	.4096154	.2712691	.6042199	.3360558	.2110860
#1	1543.627	35384.51	8696.008	984.6077	1957.542
#2	1548.160	35464.89	8766.275	989.8252	1958.484
#3	1535.679	35576.15	8799.625	990.7777	1950.910

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: LR2 Acquired: 4/7/2025 18:46:57 Type: Unk
Method: NON EPA-6010-200.7(v2896) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.006000	-.026240	262.9397	.0058882	.0037343	.3178710	95.87287
Stddev	.001534	.004694	.3530	.0048095	.0035867	.0068642	1.83680
%RSD	25.56311	17.89041	.1342432	81.68080	96.04708	2.159427	1.915869
#1	-.004323	-.028358	262.9576	.0040837	.0074478	.3257884	97.91071
#2	-.007332	-.020860	262.5781	.0113389	.0034657	.3135909	94.34480
#3	-.006344	-.029502	263.2833	.0022419	.0002895	.3142337	95.36310

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003298	-.004259	.4268428	.0093523	.0027253	269.7784	.3493580
Stddev	.000043	.000064	.0130669	.0002608	.0004280	1.6851	.0061470
%RSD	1.300935	1.499196	3.061292	2.788530	15.70308	.6246302	1.759504
#1	-.003306	-.004186	.4334387	.0090513	.0030209	271.2072	.3489724
#2	-.003252	-.004282	.4352971	.0095114	.0029204	267.9201	.3556887
#3	-.003337	-.004307	.4117927	.0094942	.0022346	270.2079	.3434130

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	49.04173	.0015263	51.54665	.0030069	-.358053	-.011353	31.85936
Stddev	.46652	.0205973	.05898	.0001296	.019880	.000590	.12730
%RSD	.9512677	1349.457	.1144246	4.308986	5.552220	5.197516	.3995713
#1	49.56987	.0177415	51.58362	.0029515	-.343191	-.011092	31.73275
#2	48.68579	.0084870	51.47863	.0029142	-.350334	-.012028	31.98734
#3	48.86952	-.021649	51.57770	.0031549	-.380635	-.010938	31.85800

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0735842	-.007965	-.008521	-.006447	-.032688	-.008568	.4448910
Stddev	.0088107	.000988	.000361	.000667	.000618	.005805	.0066645
%RSD	11.97367	12.39827	4.236736	10.34090	1.889932	67.75066	1.498012
#1	.0649004	-.007264	-.008851	-.005876	-.032007	-.001954	.4520520
#2	.0825166	-.007536	-.008576	-.007180	-.033214	-.010933	.4437509
#3	.0733356	-.009094	-.008136	-.006284	-.032842	-.012817	.4388701

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: LR2 Acquired: 4/7/2025 18:46:57 Type: Unk
Method: NON EPA-6010-200.7(v2896) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.003428	-.001007	.0013773
Stddev	.002230	.000756	.0000340
%RSD	65.05132	75.13123	2.469688
#1	-.005223	-.000318	.0013492
#2	-.004130	-.000886	.0014151
#3	-.000932	-.001816	.0013675

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1802.592	50803.64	10058.11	1373.670	3380.568
Stddev	3.739	145.19	83.72	3.910	5.328
%RSD	.2074168	.2857855	.8323990	.2846746	.1576211
#1	1804.573	50855.38	9962.40	1371.791	3383.788
#2	1804.923	50915.88	10094.19	1378.165	3383.499
#3	1798.279	50639.67	10117.75	1371.053	3374.418

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCV06 Acquired: 4/7/2025 18:51:48 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV06 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.932824	4.936253	4.891713	4.967998	4.995592	9.574465	9.840386
Stddev	.022770	.056419	.033302	.023825	.027025	.024327	.065876
%RSD	.4616112	1.142953	.6807865	.4795776	.5409777	.2540806	.6694419
#1	4.921853	4.907886	4.870284	4.963877	4.995181	9.602506	9.813640
#2	4.917616	4.899646	4.874776	4.946502	4.968775	9.559002	9.915428
#3	4.959003	5.001226	4.930080	4.993615	5.022820	9.561888	9.792090

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2347814	2.449135	23.87253	.9971477	2.437855	1.256818	5.117340
Stddev	.0013706	.014823	.06260	.0011301	.012836	.007170	.011750
%RSD	.5837756	.6052165	.2622166	.1133293	.5265200	.5705199	.2296157
#1	.2337030	2.438336	23.80739	.9984434	2.428714	1.253626	5.127350
#2	.2363238	2.443034	23.93223	.9963658	2.432322	1.251798	5.104403
#3	.2343174	2.466034	23.87797	.9966339	2.452530	1.265030	5.120267

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.369925	23.59007	2.448838	1.243043	25.82792	2.412330	2.465424
Stddev	.008410	.09369	.014356	.000779	.18091	.002652	.009255
%RSD	.3548843	.3971659	.5862351	.0626943	.7004426	.1099541	.3753885
#1	2.365035	23.51558	2.440188	1.242398	26.02202	2.413010	2.469127
#2	2.379636	23.69526	2.440916	1.242821	25.66400	2.409403	2.454890
#3	2.365103	23.55937	2.465409	1.243909	25.79772	2.414576	2.472253

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.69552	4.747691	4.994969	4.909268	4.802322	5.288855	5.065389
Stddev	.22736	.029887	.022488	.029170	.008124	.038190	.045732
%RSD	.8848082	.6295034	.4502161	.5941924	.1691703	.7220810	.9028240
#1	25.88034	4.723095	4.994880	4.889837	4.803054	5.315802	5.049112
#2	25.44164	4.780953	4.972525	4.895155	4.810055	5.245152	5.030023
#3	25.76458	4.739025	5.017501	4.942811	4.793856	5.305612	5.117033

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCV06 Acquired: 4/7/2025 18:51:48 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV06 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.882523	4.820591	4.855069
Stddev	.010740	.005164	.045650
%RSD	.2199733	.1071187	.9402446
#1	4.873829	4.826497	4.826308
#2	4.879211	4.818348	4.907705
#3	4.894529	4.816928	4.831195

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2165.854	49186.74	10023.97	1370.858	3239.144
Stddev	6.497	131.38	55.69	4.586	14.771
%RSD	.2999927	.2671055	.5555732	.3345436	.4560044
#1	2165.416	49035.04	10043.58	1365.629	3249.193
#2	2172.559	49263.42	9961.13	1374.197	3246.055
#3	2159.586	49261.76	10067.21	1372.748	3222.185

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCB06 Acquired: 4/7/2025 18:55:59 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB06 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0023125	.0005912	.0006219	.0010106	.0005922	.0025568	-.001603
Stddev	.0016047	.0012440	.0005463	.0009096	.0013097	.0050256	.000508
%RSD	69.39334	210.4084	87.84201	90.01397	221.1562	196.5526	31.66877
#1	.0021140	.0015646	.0011740	.0016562	.0017992	-.003244	-.001071
#2	.0008162	-.000810	.0000815	.0014052	.0007780	.005589	-.001656
#3	.0040072	.001019	.0006104	-.000030	-.000800	.005325	-.002082

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000078	.0000198	-.002919	-.000177	.0002026	.0004111	-.002644
Stddev	.000047	.0000692	.004578	.000307	.0001158	.0001839	.005952
%RSD	60.02960	349.8560	156.8540	173.7628	57.15804	44.73780	225.1095
#1	-.000058	-.000060	-.007912	-.000121	.0001327	.0002291	-.004443
#2	-.000045	.000052	-.001926	.000099	.0001388	.0005969	-.007489
#3	-.000132	.000067	.001082	-.000508	.0003363	.0004073	.004000

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0016494	.0026256	.0001418	.0000448	-.334739	.0015551	-.001284
Stddev	.0002520	.0038852	.0000988	.0005242	.024513	.0022107	.000246
%RSD	15.27836	147.9731	69.67728	1169.393	7.322910	142.1616	19.15979
#1	.0013622	.0022228	.0001279	.0002977	-.362403	.0014362	-.001355
#2	.0017526	-.001042	.0002467	.0003946	-.326094	.0038229	-.001487
#3	.0018334	.006697	.0000506	-.000558	-.315721	-.000594	-.001011

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.122189	-.005717	-.000478	-.000278	.0003801	.0087389	-.001963
Stddev	.037252	.000918	.000163	.000440	.0003818	.0030676	.002137
%RSD	30.48734	16.05139	34.00307	158.5596	100.4421	35.10313	108.8702
#1	-.114291	-.006557	-.000414	-.000426	.0006511	.0122782	-.001949
#2	-.089519	-.004738	-.000358	.000218	.0005457	.0068445	-.004107
#3	-.162756	-.005858	-.000663	-.000625	-.000057	.0070941	.000167

Reviewed By:jaswal
On:4/9/2025 11:41:50 AM
Inst Id :P4
LB :LB135333

Sample Name: CCB06 Acquired: 4/7/2025 18:55:59 Type: Unk
Method: NON EPA-6010-200.7(v2710) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB06 Custom ID2: Custom ID3:
Comment:

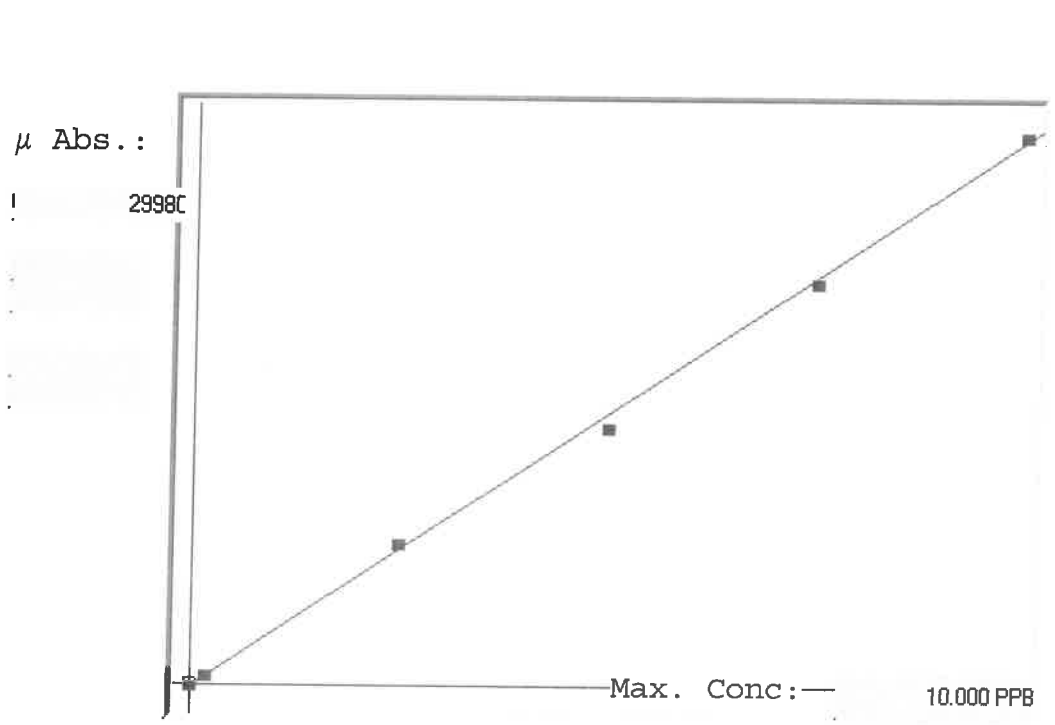
Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0009128	.0000526	.0000356
Stddev	.0019242	.0008076	.0000296
%RSD	210.8165	1536.417	82.99562
#1	.0020247	-.000871	.0000647
#2	.0020227	.000625	.0000367
#3	-.001309	.000403	.0000056

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2271.943	50886.16	9741.098	1438.603	3670.727
Stddev	9.529	173.67	6.619	1.892	13.134
%RSD	.4194021	.3412970	.0679470	.1315182	.3578063
#1	2272.087	50878.70	9744.795	1437.987	3670.916
#2	2281.399	50716.34	9745.042	1440.726	3683.766
#3	2262.343	51063.45	9733.456	1437.095	3657.500

Reviewed By:jaswal
On:4/9/2025 11:58:25 AM
Inst Id :CV1
LB :LB135287

LB135287

7470A INSTRUMENT ID: CV1



Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	%D
0.0	0.000	0.027	0.027	-27	0.000	-27	0				
0.2	0.200	0.214	0.014	531	0.0 %	531					
2.5	2.500	2.633	0.133	7718	0.0 %	7718					
5.0	5.000	4.775	-0.225	14080	0.0 %	14080					
7.5	7.500	7.425	-0.075	21953	0.0 %	21953					
10.0	10.000	10.126	0.126	29980	0.0 %	29980					

Reviewed By:jaswal
On:4/9/2025 11:58:25 AM
Inst Id :CV1
LB :LB135287

LB135287 INSTRUMENT ID : CV1

Method: 7470A Operator: Admin Date of Analysis: 03 Apr 2025 13:51:36

Sample ID	Extended ID	µ Abs.	Conc.	Stnd Conc	Method	Units	Date	Type	Type
0.0 - 1	S0	-27	-	0.0000	7470A	PPB	03 Apr 2025 13:57:54	S	Std
0.2 - 1	S0.2	531	-	0.2000	7470A	PPB	03 Apr 2025 14:00:10	S	Std
2.5 - 1	S2.5	7718	-	2.5000	7470A	PPB	03 Apr 2025 14:02:27	S	Std
5.0 - 1	S5	14080	-	5.0000	7470A	PPB	03 Apr 2025 14:04:44	S	Std
7.5 - 1	S7.5	21953	-	7.5000	7470A	PPB	03 Apr 2025 14:07:02	S	Std
10.0 - 1	S10	29980	-	10.0000	7470A	PPB	03 Apr 2025 14:12:03	S	Std
ICV75 - 1	ICV75	12618	4.2826		7470A	PPB	03 Apr 2025 14:14:53	U	SMP
ICB75 - 1	ICB75	-239	-0.0448		7470A	PPB	03 Apr 2025 14:17:09	U	SMP
CCV28 - 1	CCV28	13837	4.6929		7470A	PPB	03 Apr 2025 14:19:26	U	SMP
CCB28 - 1	CCB28	-188	-0.0277		7470A	PPB	03 Apr 2025 14:21:41	U	SMP
CRA - 1	CRA	407	0.1726		7470A	PPB	03 Apr 2025 14:24:00	U	SMP
HighStd - 1	HighStd	30171	10.1907		7470A	PPB	03 Apr 2025 14:26:15	U	SMP
ChkStd - 1	ChkStd	19812	6.7040		7470A	PPB	03 Apr 2025 14:28:31	U	SMP
PB167452BL - 1	PBW	-407	-0.1014		7470A	PPB	03 Apr 2025 14:30:49	U	SMP
PB167452BS - 1	LCSW	11965	4.0628		7470A	PPB	03 Apr 2025 14:33:08	U	SMP
Q1504-07 - 1	PT-HG-WP	51229	17.2785		7470A	PPB	03 Apr 2025 14:42:32	U	SMP
Q1504-07DLX5 - 1	PT-HG-WP	10199	3.4684		7470A	PPB	03 Apr 2025 14:52:02	U	SMP
CCV29 - 1	CCV29	16174	5.4795		7470A	PPB	03 Apr 2025 15:12:15	U	SMP
CCB29 - 1	CCB29	-151	-0.0152		7470A	PPB	03 Apr 2025 15:14:30	U	SMP

Alliance TECHNICAL GROUP

Water Metals Preparation Sheet

PB167471

SOP ID : M3010A-Digestion-17

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: 03/21/2025 **Time :** 09:05 **Temp :** 96 °C

End Digest Date: 03/21/2025 **Time :** 12:10 **Temp :** 96 °C

Digestion tube ID: M5595

Block thermometer ID: MET-DIG. #1

Dig Technician Signature: SJB.

Supervisor Signature:

Temp : 1. 96°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
LFS-1	0.25	M6003
LFS-1	0.25	M6012
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	MP84720
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 Temp :96 C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
03/21/25 13:10	SPAS. met. dig	Metals Lab
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

Water Metals Preparation Sheet

PB167471

Lab Sample ID	Client Sample ID	pH	Initial Vol (ml)	Final Vol (ml)	Color Before	Color After	Clarity Before	Clarity After	Comment	Prep Pos
PB167471BL	PBW471	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	1
PB167471BS	LCS471	<2	50	50	Colorless	Colorless	Clear	Clear	M6003,M6012	2
Q1504-01	PT-TM1-WP	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	3
Q1504-03	PT-SNTI-WP	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	4
Q1504-05	PT-MIN2-WP	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	5

WORKLIST(Hardcopy Internal Chain)

WorkList Name : PB167471 **WorkList ID :** 188751 **Department :** Digestion **Date :** 03-20-2025 08:30:48

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q1504-01	PT-TM1-WP	Water	Metals Group3	1:1 HNO3 to pH < 2	ALLI03	QA Of	03/03/2025	6010D
Q1504-03	PT-SNTI-WP	Water	Metals Group4	1:1 HNO3 to pH < 2	ALLI03	QA Of	03/03/2025	6010D
Q1504-05	PT-MIN2-WP	Water	Metals Group5	1:1 HNO3 to pH < 2	ALLI03	QA Of	03/03/2025	6010D

Date/Time 03/20/25 08:40
Raw Sample Received by: S129.met.d10
Raw Sample Relinquished by: [illegible]

Date/Time 03/20/25 09:40
Raw Sample Received by: [illegible]
Raw Sample Relinquished by: S129.met.d10

Alliance TECHNICAL GROUP

Water Mercury Preparation Sheet

PB167452

SOP ID : M7470A-Mercury-19

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: 04/03/2025 **Time :** 08:10 **Temp :** 94 °C

End Digest Date: 04/03/2025 **Time :** 10:10 **Temp :** 95 °C

Digestion tube ID: M5595

Block thermometer ID: HG-DIG#3

Dig Technician Signature:

Supervisor Signature:

Temp : 1. 94°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
ICV	30mL	MP85129
CCV	30mL	MP85131
CRA	30mL	MP85133
Blank Spike	0.48mL	MP85121
Matrix Spike	0.48mL	MP85121

Chemical Used	ML/SAMPLE USED	Lot Number
HNO3/H2SO4(1:2)	2.5mL	MP84563
KMnO4 (5%)	4.5mL	MP84564
K2S2O8 (5%)	2.5mL	MP84565
Hydroxylamine HCL (12%)	2.0mL	MP84566
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	MP85122
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	30mL	MP85124
2.5 ppb	S2.5	30mL	MP85125
5.0 ppb	S5.0	30mL	MP85126
7.5 ppb	S7.5	30mL	MP85127
10.0 ppb	S10.0	30mL	MP85138
ICV	ICV	30mL	MP85129
ICB	ICB	30mL	MP85130
CCV	CCV	30mL	MP85131
CCB	CCB	30mL	MP85132
CRI	CRI	30mL	MP85133
CHK STD	CHK STD	30mL	MP85134

Extraction Conformance/Non-Conformance Comments:

N/A

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
4/3/25 @ 10:40	MB - Dig. Lab	MB - metals Lab
	Preparation Group	**Analysis Group**

Alliance TECHNICAL GROUP

Water Mercury Preparation Sheet

PB167452

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Comment	Prep Pos
PB167452BL	PBW452	30	30	<2	N/A	3-1
PB167452BS	LCS452	30	30	<2	MP85121	2
Q1504-07	PT-HG-WP	30	30	<2	N/A	3

WORKLIST(Hardcopy Internal Chain)

WorkList Name : 040325_7470 **WorkList ID :** 188707 **Department :** Digestion **Date :** 04-03-2025 06:09:28

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q1504-07	PT-HG-WP	Water	Mercury	1:1 HNO3 to pH < 2	ALLI03	QA Office	03/03/2025	7470A

Date/Time 4/3/25 @ 7:50

Raw Sample Received by: [illegible] Dig. Lab

Raw Sample Relinquished by: [illegible] (Metal Supv)

Date/Time 4/3/25 @ 8:95

Raw Sample Received by: [illegible] (Metal Supv)

Raw Sample Relinquished by: [illegible] Dig. Lab

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

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QCBatch ID # LB135287

Review By	mohan	Review On	4/9/2025 11:11:14 AM
Supervise By	jaswal	Supervise On	4/9/2025 11:58:25 AM

STD. NAME	STD REF.#
ICAL Standard	MP85122,MP85124,MP85125,MP85126,MP85127,MP85138
ICV Standard	MP85129
CCV Standard	MP85131
ICSA Standard	
CRI Standard	MP85133
LCS Standard	
Chk Standard	MP85130,MP85132,MP85134,MP85136

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	04/03/25 13:57		mohan	OK
2	S0.2	S0.2	CAL2	04/03/25 14:00		mohan	OK
3	S2.5	S2.5	CAL3	04/03/25 14:02		mohan	OK
4	S5	S5	CAL4	04/03/25 14:04		mohan	OK
5	S7.5	S7.5	CAL5	04/03/25 14:07		mohan	OK
6	S10	S10	CAL6	04/03/25 14:12		mohan	OK
7	ICV75	ICV75	ICV	04/03/25 14:14		mohan	OK
8	ICB75	ICB75	ICB	04/03/25 14:17		mohan	OK
9	CCV28	CCV28	CCV	04/03/25 14:19		mohan	OK
10	CCB28	CCB28	CCB	04/03/25 14:21		mohan	OK
11	CRA	CRA	CRDL	04/03/25 14:24		mohan	OK
12	HighStd	HighStd	HIGH STD	04/03/25 14:26		mohan	OK
13	ChkStd	ChkStd	SAM	04/03/25 14:28		mohan	OK
14	PB167452BL	PB167452BL	MB	04/03/25 14:30		mohan	OK
15	PB167452BS	PB167452BS	LCS	04/03/25 14:33		mohan	OK
16	Q1504-07	PT-HG-WP	SAM	04/03/25 14:42	Hg High	mohan	Dilution
17	Q1504-07DL	PT-HG-WPDL	SAM	04/03/25 14:52	5X for Hg	mohan	Confirms
18	CCV29	CCV29	CCV	04/03/25 15:12		mohan	OK

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

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QCBatch ID # LB135287

Review By	mohan	Review On	4/9/2025 11:11:14 AM
Supervise By	jaswal	Supervise On	4/9/2025 11:58:25 AM

STD. NAME	STD REF.#
ICAL Standard	MP85122,MP85124,MP85125,MP85126,MP85127,MP85138
ICV Standard	MP85129
CCV Standard	MP85131
ICSA Standard	
CRI Standard	MP85133
LCS Standard	
Chk Standard	MP85130,MP85132,MP85134,MP85136

19	CCB29	CCB29	CCB	04/03/25 15:14		mohan	OK

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

Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB135333

Review By	kareem	Review On	4/8/2025 4:31:10 PM
Supervise By	jaswal	Supervise On	4/9/2025 11:41:50 AM

STD. NAME	STD REF.#
ICAL Standard	MP85016,MP85017,MP85018,MP85019,MP85020,MP85022
ICV Standard	MP85023
CCV Standard	MP85026
ICSA Standard	MP85024,MP85025
CRI Standard	MP85022
LCS Standard	
Chk Standard	MP85030,MP85031

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	04/07/25 10:51		Kareem	OK
2	S1	S1	CAL2	04/07/25 10:55		Kareem	OK
3	S2	S2	CAL3	04/07/25 11:00		Kareem	OK
4	S3	S3	CAL4	04/07/25 11:04		Kareem	OK
5	S4	S4	CAL5	04/07/25 11:08		Kareem	OK
6	S5	S5	CAL6	04/07/25 11:12		Kareem	OK
7	ICV01	ICV01	ICV	04/07/25 12:35		Kareem	OK
8	LLICV01	LLICV01	LLICV	04/07/25 13:00		Kareem	OK
9	ICB01	ICB01	ICB	04/07/25 13:05		Kareem	OK
10	CRI01	CRI01	CRDL	04/07/25 13:10		Kareem	OK
11	ICSA01	ICSA01	ICSA	04/07/25 13:14		Kareem	OK
12	ICSAB01	ICSAB01	ICSAB	04/07/25 13:18		Kareem	OK
13	ICSADL	ICSADL	ICSA	04/07/25 13:23		Kareem	OK
14	ICSABDL	ICSABDL	ICSAB	04/07/25 13:37		Kareem	OK
15	CCV01	CCV01	CCV	04/07/25 13:42		Kareem	OK
16	CCB01	CCB01	CCB	04/07/25 13:50		Kareem	OK
17	PB167491BL	PB167491BL	MB	04/07/25 14:03		Kareem	OK
18	PB167491BS	PB167491BS	LCS	04/07/25 14:19	0.1 ML OF M6013 AND M6004 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK

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

Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB135333

Review By	kareem	Review On	4/8/2025 4:31:10 PM
Supervise By	jaswal	Supervise On	4/9/2025 11:41:50 AM

STD. NAME	STD REF.#
ICAL Standard	MP85016,MP85017,MP85018,MP85019,MP85020,MP85022
ICV Standard	MP85023
CCV Standard	MP85026
ICSA Standard	MP85024,MP85025
CRI Standard	MP85022
LCS Standard	
Chk Standard	MP85030,MP85031

19	PB167471BL	PB167471BL	MB	04/07/25 14:23		Kareem	OK
20	PB167471BS	PB167471BS	LCS	04/07/25 14:34	0.1 ML OF M6013 AND M6004 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
21	Q1504-05	PT-MIN2-WP	SAM	04/07/25 14:38		Kareem	OK
22	Q1504-01	PT-TM1-WP	SAM	04/07/25 14:42		Kareem	OK
23	Q1504-03	PT-SNTI-WP	SAM	04/07/25 14:46		Kareem	OK
24	Q1698-01	B-9	SAM	04/07/25 14:51		Kareem	OK
25	Q1698-07	B-10	SAM	04/07/25 14:55		Kareem	OK
26	Q1698-07DUP	B-10DUP	DUP	04/07/25 14:59		Kareem	OK
27	CCV02	CCV02	CCV	04/07/25 15:07		Kareem	OK
28	CCB02	CCB02	CCB	04/07/25 15:12		Kareem	OK
29	Q1698-07L	B-10L	SD	04/07/25 15:16		Kareem	OK
30	Q1698-07MS	B-10MS	MS	04/07/25 15:20	0.1 ML OF M6013 AND M6004 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
31	Q1698-07MSD	B-10MSD	MSD	04/07/25 15:24	0.1 ML OF M6013 AND M6004 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
32	Q1698-07A	B-10A	PS	04/07/25 15:28	0.1 ML OF M6013 AND M6004 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
33	Q1705-01	ETGI-327	SAM	04/07/25 15:32		Kareem	OK
34	Q1705-02	ETGI-275	SAM	04/07/25 15:37		Kareem	OK

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

Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB135333

Review By	kareem	Review On	4/8/2025 4:31:10 PM
Supervise By	jaswal	Supervise On	4/9/2025 11:41:50 AM

STD. NAME	STD REF.#
ICAL Standard	MP85016,MP85017,MP85018,MP85019,MP85020,MP85022
ICV Standard	MP85023
CCV Standard	MP85026
ICSA Standard	MP85024,MP85025
CRI Standard	MP85022
LCS Standard	
Chk Standard	MP85030,MP85031

35	CCV03	CCV03	CCV	04/07/25 15:41		Kareem	OK
36	CCB03	CCB03	CCB	04/07/25 15:45		Kareem	OK
37	Q1706-01	PL-01-040225	SAM	04/07/25 15:50		Kareem	OK
38	CCV04	CCV04	CCV	04/07/25 17:00		Kareem	OK
39	CCB04	CCB04	CCB	04/07/25 17:04		Kareem	OK
40	Q1706-03	PL-02-040225	SAM	04/07/25 17:09		Kareem	OK
41	Q1604-05	FRAC-TANK-N45878	SAM	04/07/25 17:13		Kareem	OK
42	PB167441BL	PB167441BL	MB	04/07/25 17:17		Kareem	OK
43	Q1712-01	Z-05A	SAM	04/07/25 17:31		Kareem	OK
44	Q1712-05	TT-7	SAM	04/07/25 17:35		Kareem	OK
45	Q1721-02	AU-05-040325	SAM	04/07/25 17:39		Kareem	OK
46	CCV05	CCV05	CCV	04/07/25 17:43		Kareem	OK
47	CCB05	CCB05	CCB	04/07/25 17:47		Kareem	OK
48	Q1721-02DUP	AU-05-040325DUP	DUP	04/07/25 17:52		Kareem	OK
49	Q1721-02L	AU-05-040325L	SD	04/07/25 17:56		Kareem	OK
50	Q1721-02MS	AU-05-040325MS	MS	04/07/25 18:00	0.1 ML OF M6013 AND M6004 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
51	Q1721-02MSD	AU-05-040325MSD	MSD	04/07/25 18:04	0.1 ML OF M6013 AND M6004 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
52	Q1721-02A	AU-05-040325A	PS	04/07/25 18:08		Kareem	OK

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Fax : 908 789 8922

Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB135333

Review By	kareem	Review On	4/8/2025 4:31:10 PM
Supervise By	jaswal	Supervise On	4/9/2025 11:41:50 AM

STD. NAME	STD REF.#
ICAL Standard	MP85016,MP85017,MP85018,MP85019,MP85020,MP85022
ICV Standard	MP85023
CCV Standard	MP85026
ICSA Standard	MP85024,MP85025
CRI Standard	MP85022
LCS Standard	
Chk Standard	MP85030,MP85031

53	PB167441BS	PB167441BS	LCS	04/07/25 18:12	0.1 ML OF M6013 AND M6004 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
54	PB167466BL	PB167466BL	MB	04/07/25 18:16		Kareem	OK
55	PB167466BS	PB167466BS	LCS	04/07/25 18:27	0.1 ML OF M6013 AND M6004 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
56	LR1	LR1	HIGH STD	04/07/25 18:41		Kareem	OK
57	LR2	LR2	HIGH STD	04/07/25 18:46		Kareem	OK
58	CCV06	CCV06	CCV	04/07/25 18:51		Kareem	OK
59	CCB06	CCB06	CCB	04/07/25 18:55		Kareem	OK

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Prep Standard - Chemical Standard Summary

Order ID : Q1504

Test : Mercury,Metals Group3,Metals Group4,Metals Group5

Prepbatch ID : PB167452,PB167471,

Sequence ID/Qc Batch ID: LB135287,LB135333,LB135333,LB135333,

Standard ID :
MP84563,MP84564,MP84565,MP84566,MP84720,MP85016,MP85017,MP85018,MP85019,MP85020,MP85021,MP850
22,MP85023,MP85024,MP85025,MP85026,MP85030,MP85031,MP85121,MP85122,MP85124,MP85125,MP85126,MP
85127,MP85129,MP85130,MP85131,MP85132,MP85133,MP85134,MP85136,MP85138,

Chemical ID :
M4371,M4465,M4883,M4891,M4916,M5020,M5062,M5288,M5387,M5395,M5429,M5466,M5472,M5496,M5497,M5516
,M5521,M5532,M5658,M5747,M5748,M5768,M5789,M5798,M5799,M5800,M5801,M5811,M5814,M5816,M5817,M5820
,M5875,M5882,M5884,M5959,M5970,M5978,M5985,M6003,M6012,M6021,M6023,M6028,M6030,M6041,M6058,M607
6,M6126,M6128,M6137,M6150,M6151,M6152,M6155,M6156,M6158,M6160,W3112,

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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	MP84563	02/18/2025	06/03/2025	Mohan Bera	None	None	Janvi Patel 02/19/2025

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

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
65	POTASSIUM PERMANGANATE SOLUTION 5 %	MP84564	02/18/2025	08/18/2025	Mohan Bera	None	None	Janvi Patel 02/19/2025

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 %	MP84565	02/18/2025	08/06/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Janvi Patel 02/19/2025

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

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
67	SODIUM CHLORIDE - HYDROXYL- CHLORIDE SOLUTION	MP84566	02/18/2025	06/25/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Janvi Patel 02/19/2025

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

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
170	1:1HCL	MP84720	03/03/2025	04/04/2025	Sagar Kanani	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 03/03/2025

FROM 1000.00000ml of M6151 + 1000.00000ml of W3112 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP85016	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 04/07/2025

FROM 125.00000ml of M6151 + 2350.00000ml of W3112 + 25.00000ml of M5789 = 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
907	ICP AES STD S (S5)	MP85017	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 04/07/2025

FROM 5.00000ml of M5395 + 5.00000ml of M5466 + 5.00000ml of M5472 + 5.00000ml of M5816 + 5.00000ml of M5820 + 5.00000ml of M5875 + 5.00000ml of M5970 + 5.00000ml of M6076 + 5.00000ml of M6160 + 455.00000ml of MP85016 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
910	ICP AES STD S4	MP85018	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 04/07/2025

FROM 50.00000ml of MP85016 + 50.00000ml of MP85017 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
909	ICP AES STD S3	MP85019	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 04/07/2025

FROM 25.00000ml of MP85017 + 75.00000ml of MP85016 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3913	ICP AES STD S2	MP85020	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 04/07/2025

FROM 16.00000ml of MP85017 + 184.00000ml of MP85016 = Final Quantity: 200.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2950	ICP AES S1/CRI STOCK STD	MP85021	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 04/07/2025

FROM 0.03000ml of M5798 + 0.03000ml of M6028 + 0.04000ml of M6137 + 0.05000ml of M5496 + 0.05000ml of M5658 + 0.05000ml of M5811 + 0.05000ml of M6030 + 0.06000ml of M5747 + 0.10000ml of M4883 + 0.10000ml of M5472 + 0.10000ml of M5521 + 0.10000ml of M5801 + 0.10000ml of M5820 + 0.10000ml of M5970 + 0.10000ml of M6128 + 0.15000ml of M5800 + 0.20000ml of M4891 + 0.20000ml of M5748 + 0.20000ml of M5799 + 0.20000ml of M6021 + 0.20000ml of M6023 + 0.25000ml of M5466 + 0.25000ml of M6160 + 0.50000ml of M5387 + 0.50000ml of M5814 + 1.00000ml of M5288 + 1.00000ml of M5497 + 1.00000ml of M5516 + 1.00000ml of M5768 + 1.00000ml of M5978 + 1.00000ml of M6156 + 2.00000ml of M5816 + 77.68000ml of MP85016 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2951	ICP AES S1/CRI WORK STD	MP85022	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 04/07/2025

FROM 2.00000ml of MP85021 + 98.00000ml of MP85016 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
912	ICP AES ICV SOLN	MP85023	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 04/07/2025

FROM 0.02500ml of M5020 + 0.02500ml of M5429 + 0.02500ml of M5817 + 0.10000ml of M5466 + 0.25000ml of M5472 + 0.25000ml of M6058 + 10.00000ml of M6150 + 89.77500ml of MP85016 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
904	ICP AES ICSA SOLN	MP85024	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 04/07/2025

FROM 25.00000ml of M6152 + 225.00000ml of MP85016 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3494	ICP AES ICSAB SOLN-1	MP85025	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 04/07/2025

FROM 0.01000ml of M5020 + 0.01000ml of M5817 + 0.10000ml of M5472 + 0.10000ml of M5970 + 0.10000ml of M6076 + 10.00000ml of M6152 + 10.00000ml of M6155 + 79.50000ml of MP85016 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
911	ICP AES CCV SOLN	MP85026	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 04/07/2025

FROM 50.00000ml of MP85016 + 50.00000ml of MP85017 = 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
919	ICP AES INTERNAL STD	MP85030	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 04/07/2025

FROM 1.00000ml of M5959 + 10.00000ml of M5985 + 1969.00000ml of W3112 + 20.00000ml of M5789 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
513	RINSE SOLN	MP85031	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 04/07/2025

FROM 200.00000ml of M5789 + 9800.00000ml of W3112 = Final Quantity: 10000.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP85121	04/03/2025	04/04/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025

FROM 1.00000ml of M6158 + 2.50000ml of M5062 + 96.50000ml of W3112 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1340	Hg 0.00 PPB STD	MP85122	04/03/2025	04/04/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025

FROM 2.50000ml of M6158 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1341	Hg 0.2 PPB STD	MP85124	04/03/2025	04/04/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025

FROM 2.50000ml of M6158 + 247.30000ml of W3112 + 0.20000ml of MP85121 = 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	MP85125	04/03/2025	04/04/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025

FROM 2.50000ml of M6158 + 245.00000ml of W3112 + 2.50000ml of MP85121 = 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	MP85126	04/03/2025	04/04/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025

FROM 2.50000ml of M6158 + 242.50000ml of W3112 + 5.00000ml of MP85121 = 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	MP85127	04/03/2025	04/04/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025

FROM 2.50000ml of M6158 + 240.00000ml of W3112 + 7.50000ml of MP85121 = 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
1346	Hg ICV SOLUTION	MP85129	04/03/2025	04/04/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025

FROM 2.50000ml of M5532 + 2.50000ml of M6158 + 245.00000ml of W3112 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1351	ICB (Hg 0.00 PPB SOLUTION)	MP85130	04/03/2025	04/04/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025

FROM 2.50000ml of M6158 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1358	CCV (Hg 5.0 PPB SOLUTION)	MP85131	04/03/2025	04/04/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025

FROM 485.00000ml of W3112 + 5.00000ml of M6158 + 10.00000ml of MP85121 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1352	CCB (Hg 0.00 PPB SOLUTION)	MP85132	04/03/2025	04/04/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025

FROM 495.00000ml of W3112 + 5.00000ml of M6158 = 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)	MP85133	04/03/2025	04/04/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025

FROM 2.50000ml of M6158 + 247.30000ml of W3112 + 0.20000ml of MP85121 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1350	CHK STD (Hg 7.0 PPB SOLUTION)	MP85134	04/03/2025	04/04/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025

FROM 2.50000ml of M6158 + 240.50000ml of W3112 + 7.00000ml of MP85121 = 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
68	STANNOUS CHLORIDE SOLUTION	MP85136	04/03/2025	04/04/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 04/07/2025

FROM 450.00000ml of W3112 + 50.00000gram of M5882 + 50.00000ml of M6151 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1345	Hg 10.0 PPB STD	MP85138	04/03/2025	04/04/2025	Mohan Bera	None	None	Sarabjit Jaswal 04/07/2025

FROM 2.50000ml of M6158 + 237.50000ml of W3112 + 10.00000ml of MP85121 = Final Quantity: 250.000 ml

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CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3238-05 / Potassium Persulfate (2.5kg)	0000234156	08/06/2025	07/23/2019 / jaswal	07/25/2019 / manojkumar	M4465

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57034 / Se, 1000 PPM, 125 ml	070221	09/07/2025	08/06/2021 / jaswal	08/05/2021 / jaswal	M4883

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	031921	05/19/2025	08/25/2021 / bin	08/05/2021 / jaswal	M4891

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 #
Absolute Standards, Inc.	57115 / P, 10000 PPM, 125 ml	032921	05/17/2025	12/13/2021 / bin	12/09/2021 / bin	M5020

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CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57056 / Ba, 1000 PPM, 125 ml	072122	07/21/2025	11/01/2022 / jaswal	09/18/2022 / jaswal	M5387

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-3 / CLP CAL SOLUTION #3, 125mL	T2-MEB714159	01/13/2027	01/30/2024 / bin	09/19/2022 / bin	M5395

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

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

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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.	57038 / Sr, 1000 PPM, 125 ml	082922	08/29/2025	01/14/2025 / Jaswal	03/16/2023 / jaswal	M5472

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

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

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	022123	11/06/2025	11/06/2024 / kareem	03/17/2023 / bin	M5516

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	102622	10/26/2025	11/21/2022 / bin	11/20/2022 / bin	M5521

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-5 / ICV (HG) STOCK SOLN	ICV5-0415	04/30/2025	01/02/2025 / jaswal	03/30/2023 / mohan	M5532

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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.	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.	/ Lead (Pb) 1000PPM	100923	10/09/2026	05/20/2024 / Jaswal	12/20/2023 / jaswal	M5747

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	23G1262003	07/30/2025	02/08/2024 / Al-Terek	06/26/2023 / Al-Terek	M5789

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

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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.	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.	58126 / Fe, 10000 PPM, 500 ml	051523	05/15/2026	02/06/2025 / kareem	01/03/2024 / jaswal	M5811

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

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

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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 #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	T2-MEB714417	01/27/2027	04/19/2024 / jaswal	02/22/2024 / jaswal	M5875

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

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

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

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

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-1 / Laboratory Fortified Stock Solution 1, 125 ml	T2-MEB723367	08/26/2025	02/26/2025 / Eman	05/14/2024 / Jaswal	M6003

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-2 / Laboratory Fortified Stock Solution 2, 125 ml	U2-MEB731108	09/17/2025	03/17/2025 / Eman	05/14/2024 / Jaswal	M6012

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

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

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

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 #
Seidler Chemical	BA-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	23D2462010	03/20/2028	08/16/2024 / mohan	08/16/2024 / mohan	M6041

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
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	01/01/2026	01/01/2025 / kareem	09/19/2024 / kareem	M6076

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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-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24D1062002	06/03/2025	12/03/2024 / Janvi	11/12/2024 / Janvi	M6126

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-1 / ICV (ICP/ICPMS) STOCK SOLN	ICV1-1014	07/07/2025	02/07/2025 / JANVI	04/20/2021 / JANVI	M6150

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	08/18/2025	02/18/2025 / Sagar	01/15/2025 / Sagar	M6151

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	08/24/2025	02/24/2025 / kareem	04/20/2021 / kareem	M6152

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART B / ICSAB (ICP) STOCK SOLN	ICSB-0710	06/20/2025	02/10/2025 / kareem	02/09/2024 / kareem	M6155

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	032123	03/21/2026	11/06/2024 / JANVI	06/12/2024 / JANVI	M6156

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	03/25/2029	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.	57051 / Sb, 1000 PPM, 125 ml	071724	03/24/2026	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 #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	07/03/2029	07/03/2024 / Iwona	07/03/2024 / Iwona	W3112

ThermoFisher SCIENTIFIC

M5882 M3

Certificate of Analysis

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

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

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

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

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

Harout Sahagian - Quality Control Supervisor - Fair Lawn

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

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M6028

R: 8/5/24

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

CERTIFIED WEIGHT REPORT:

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

Expiration Date: 070127
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 2000.07 ± 0.100 Flask Uncertainty

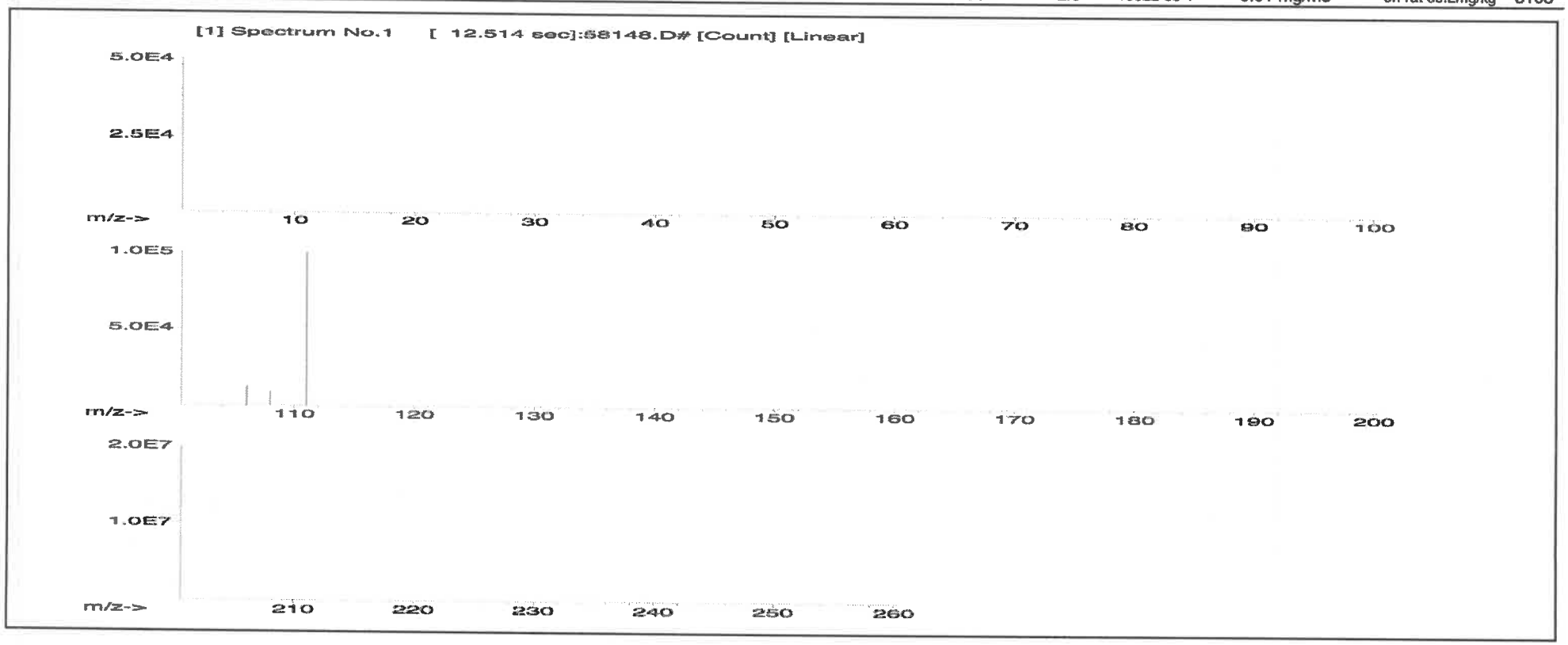
	Lot #		
Solvent:	24002546	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

Aleah O'Brady
Formulated By: Aleah O'Brady 070124

Pedro Rentas
Reviewed By: Pedro L. Rentas 070124

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Cadmium nitrate tetrahydrate (Cd)	IN024	CDM092021A1	1000	99.999	0.10	36.5	5.4797	5.4804	**1000.1**	**2.0**	10022-68-1	0.01 mg/m3	orl-rat 60.2mg/kg	3108



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Certified Reference Material CRM

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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:

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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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:	CLPP-CAL-1
Lot Number:	T2-MEB714417
Matrix:	5% (v/v) HNO3
Value / Analyte(s):	5 000 µg/mL ea: Calcium, Potassium, Magnesium, Sodium, 2 000 µg/mL ea: Aluminum, Barium, 1 000 µg/mL ea: Iron, 500 µg/mL ea: Nickel, Vanadium, Zinc, Cobalt, Manganese, 250 µg/mL ea: Silver, Copper, 200 µg/mL ea: Chromium, 50 µg/mL ea: Beryllium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

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

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

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

$CRM/RM\ Expanded\ Uncertainty\ (\pm) = U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$CRM/RM\ Expanded\ Uncertainty\ (\pm) = U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 27, 2022

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

11.2 Lot Expiration Date

- **January 27, 2027**

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

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

11.3 Period of Validity

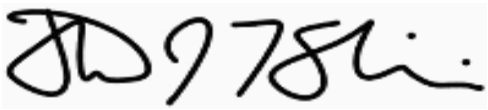
- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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Certificate of Analysis

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

3.0 CERTIFIED VALUES AND UNCERTAINTIES

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

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

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

$CRM/RM\ Expanded\ Uncertainty\ (\pm) = U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$CRM/RM\ Expanded\ Uncertainty\ (\pm) = U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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- 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.

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- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 13, 2022

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

11.2 Lot Expiration Date

- **January 13, 2027**

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

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

11.3 Period of Validity

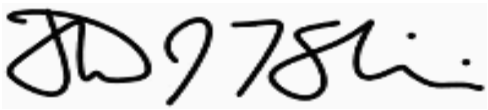
- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

R : 01/03/24. M5810, M5811

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

CERTIFIED WEIGHT REPORT:

				Lot #	
Part Number:	**58126**		**Solvent:**	21110221	Nitric Acid
Lot Number:	**051523**				
Description:	**Iron (Fe)**		5.0%	250.0 (mL)	Nitric Acid
Expiration Date:	051526				
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):	5000.1	0.12	Flask Uncertainty		

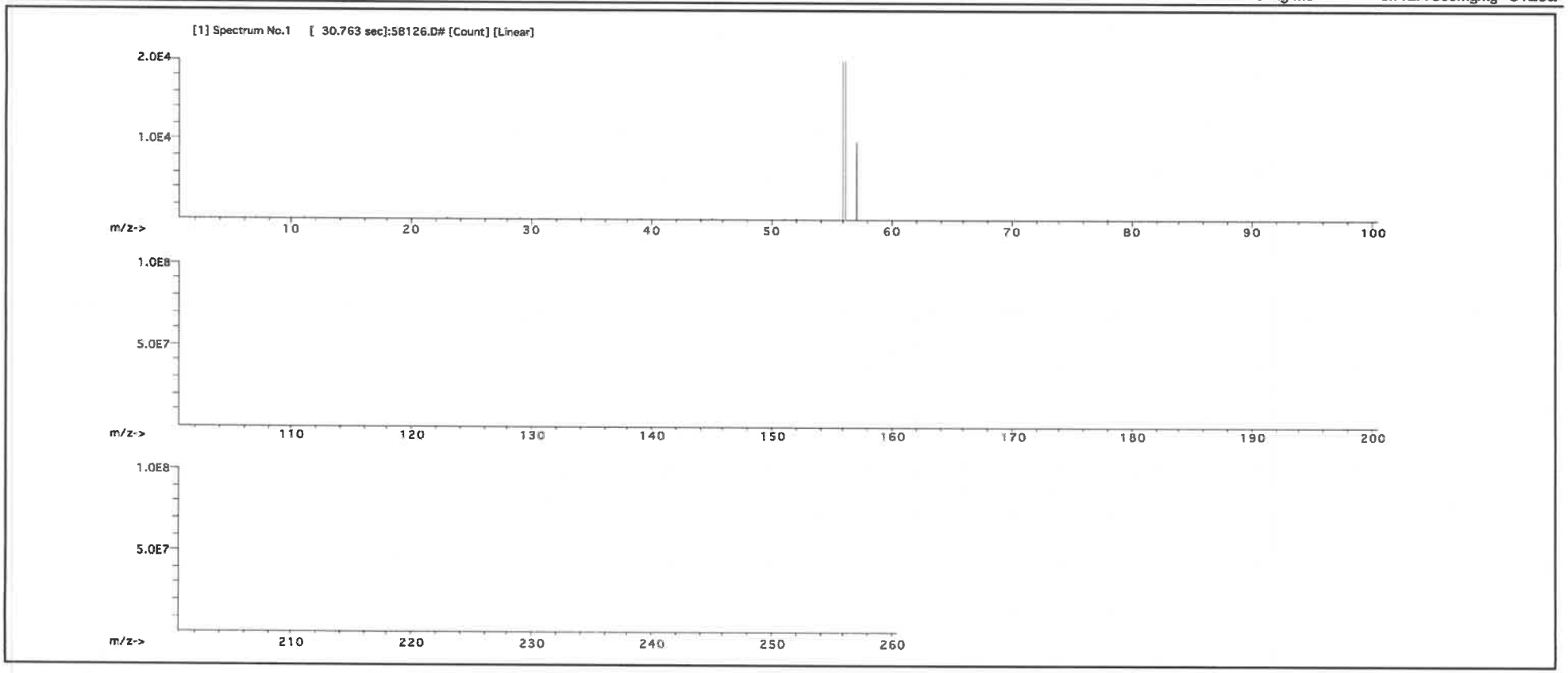
Giovanni Esposito

Formulated By:	Giovanni Esposito	051523

Pedro Rentas

Reviewed By:	Pedro L. Rentas	051523

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 (Fe)	IN346	2302010-500	10000	99.995	0.10	100.0	50.0034	50.0111	**10001.5**	**20.0**	7439-89-6	5 mg/m3	orl-rat 7500mg/kg	3126a



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www.absolutestandards.com

Certified Reference Material CRM

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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

INORGANIC VENTURES

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Certificate of Analysis

RD:05/14/2024

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inorganicventures.com

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info@inorganicventures.com

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:	T2-MEB723367
Matrix:	5% (v/v) HNO3

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

3.0 CERTIFIED VALUES AND UNCERTAINTIES

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

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

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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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:

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

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

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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 (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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

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- 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.

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

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

N/A

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 30, 2022

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

11.2 Lot Expiration Date

- **August 30, 2026**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



INORGANIC VENTURES

Refine your results. Redefine your industry.

Certificate of Analysis

RD:05/14/2024

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

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

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 863.01 ACCREDITED Reference Material Producer Certificate 863.02

2.0 PRODUCT DESCRIPTION

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

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	80.1 ± 0.6 µg/mL	Molybdenum, Mo	40.03 ± 0.18 µg/mL
Silica, SiO2	200.2 ± 1.3 µg/mL	Tin, Sn	70.0 ± 0.4 µg/mL
Titanium, Ti	20.01 ± 0.13 µg/mL		

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

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Mo	Calculated		See Sec. 4.2
Sb	ICP Assay	3102a	140911
SiO2	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925
Ti	Calculated		See Sec. 4.2

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 17, 2023

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

11.2 Lot Expiration Date

- March 17, 2028

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



M4371

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

Rec – 06.07.19

J.T.Baker® | avantor™

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

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

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

For Laboratory, Research or Manufacturing Use

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

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

James 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

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

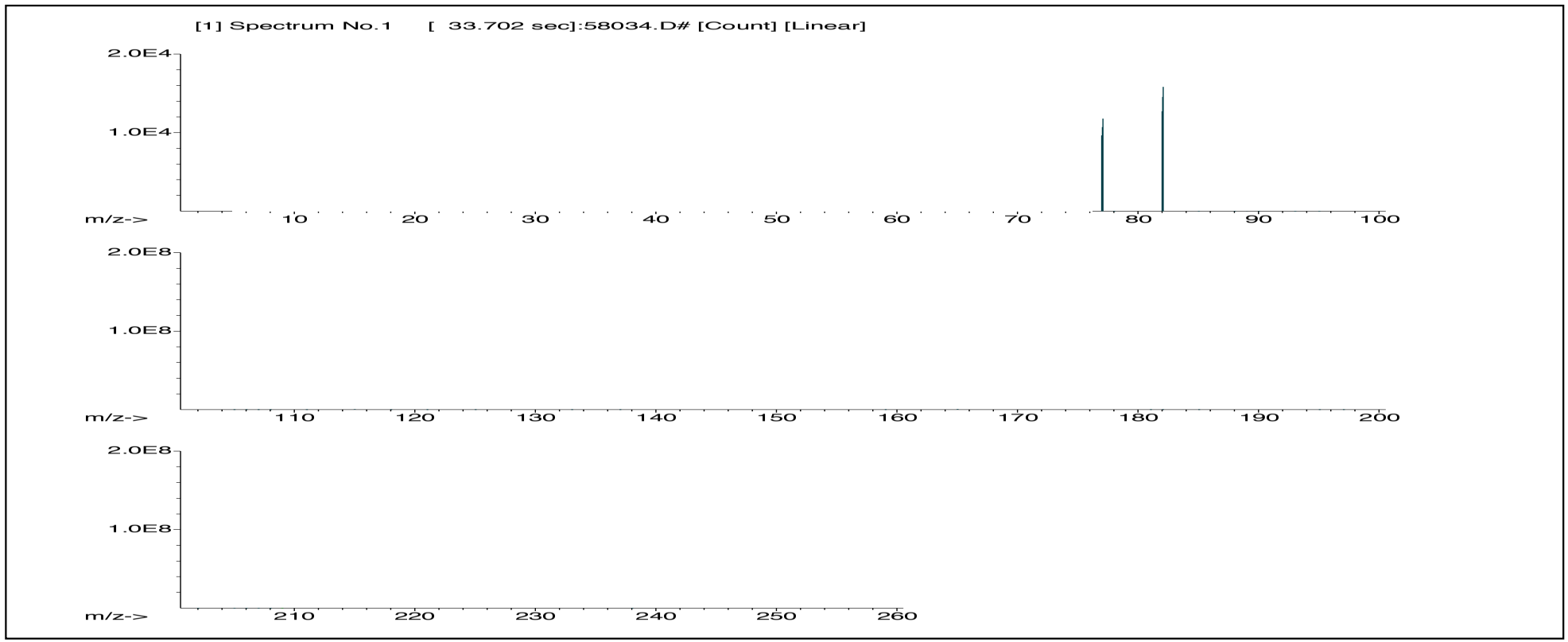
ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57034**	20370011	Nitric Acid	
Lot Number:	**070221**			
Description:	**Selenium (Se)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	070224			
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:	Giovanni Esposito 070221
Reviewed By:	Pedro L. Rentas 070221

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(IV) oxide (Se)	58134	021621	0.1000	200.0	0.084	1000	10000.2	**1000.0**	**2.2**	7446-08-4	0.2 mg/m3	orl-rat 68 mg/kg	3149



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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	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.
* 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:

		Lot #	Solvent:	
Part Number:	**58030**	20370011	Nitric Acid	
Lot Number:	**031921**			
Description:	**Zinc (Zn)**			
		2.0%	40.0	Nitric Acid
Expiration Date:	031924		(mL)	
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	

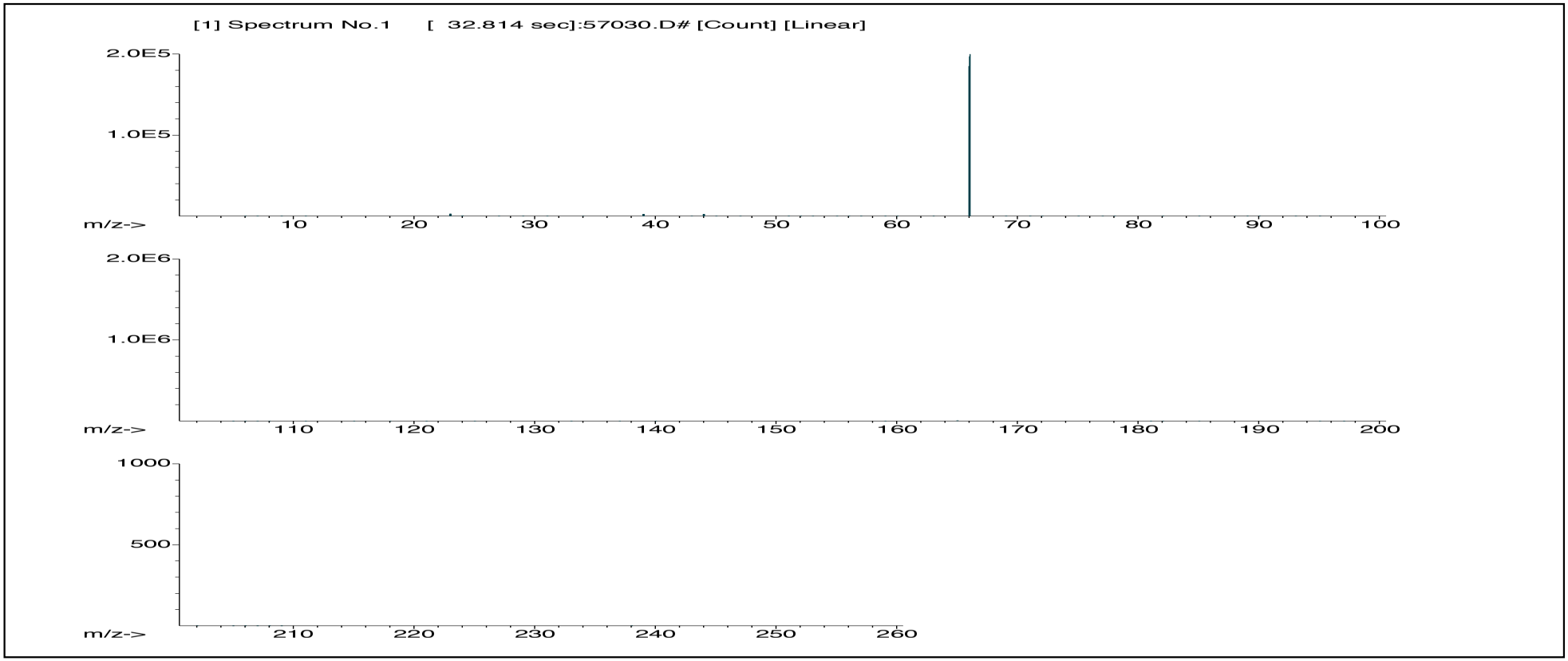
Giovanni Esposito

Formulated By:	Giovanni Esposito	031921

Pedro Rentas

Reviewed By:	Pedro L. Rentas	031921

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. Zinc nitrate hexahydrate (Zn)	58130	082020	0.1000	200.0	0.084	1000	10000.3	**1000.0**	**2.2**	10196-18-6	1 mg/m3	orl-rat 1190mg/kg	3168



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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	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:

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).

ThermoFisher SCIENTIFIC

M4913-16

MB

Certificate of Analysis

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

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

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

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

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

Julian Burton

Julian Burton - Quality Control Manager – Fair Lawn

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

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Certified Reference Material CRM

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BA NM5020 R: 12/09/21

CERTIFIED WEIGHT REPORT:

Part Number: 57115
Lot Number: 032921
Description: Phosphorous (P)

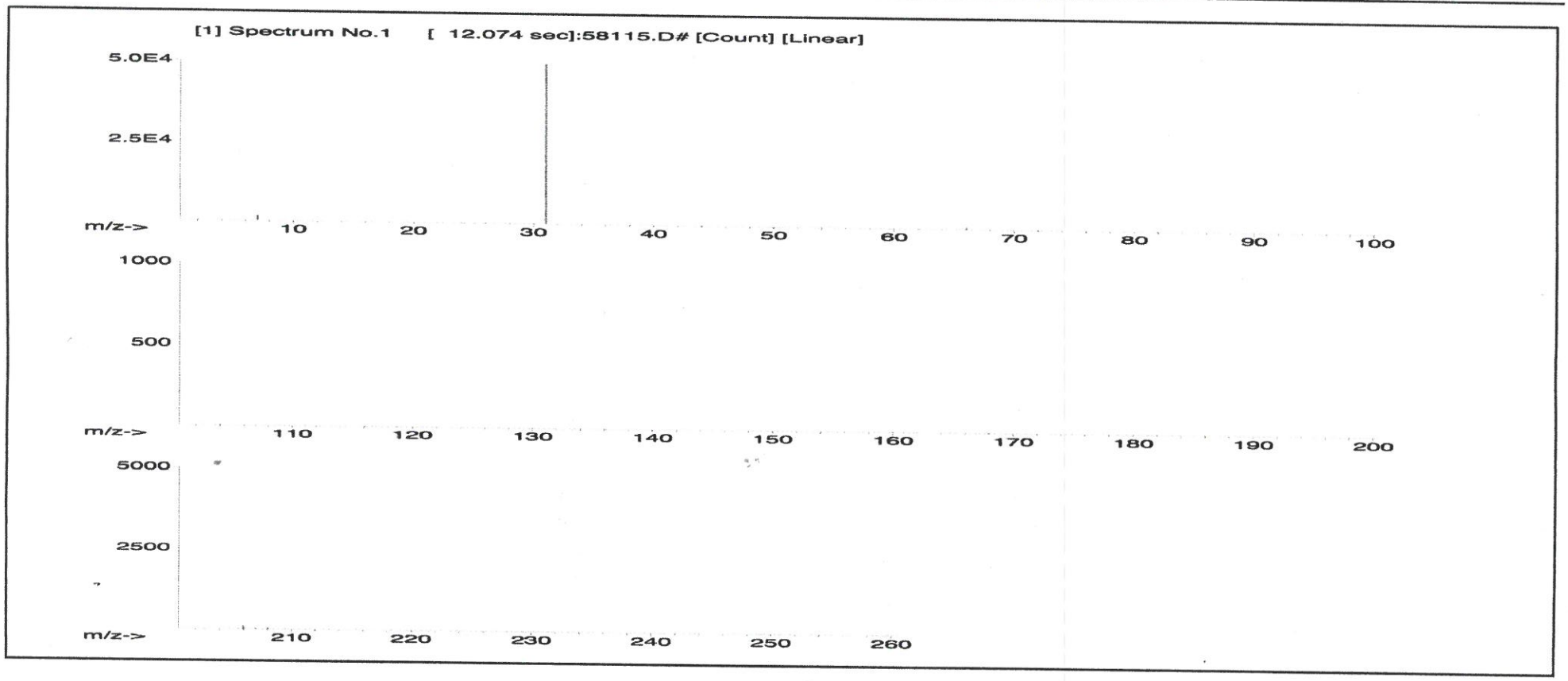
Expiration Date: 032924
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 3000.41

	Lot #		
Solvent:	20370011	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Lawrence Barry	032921
Reviewed By:	Pedro L. Rentas	032921

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	PV052018A1	10000	99.999	0.10	27.3	109.9063	109.9093	**10000.3**	**20.0**	7722-76-1	5 mg/m3	NA	3186



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Certified Reference Material CRM

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

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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<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.

* 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
info@inorganicventures.com

M5062
M5063
M3

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

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

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.001 ± 0.053 µg/mL

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

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

$$\text{CRM/RM Expanded Uncertainty } (\pm) = U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/4}$$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

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

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

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 22, 2021

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

11.2 Lot Expiration Date

- September 22, 2026

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Supervisor, Product Documentation



Certificate Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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Certified Reference Material CRM

M5288 R: 07/21/2022

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AR-1539 Certificate Number
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CERTIFIED WEIGHT REPORT:

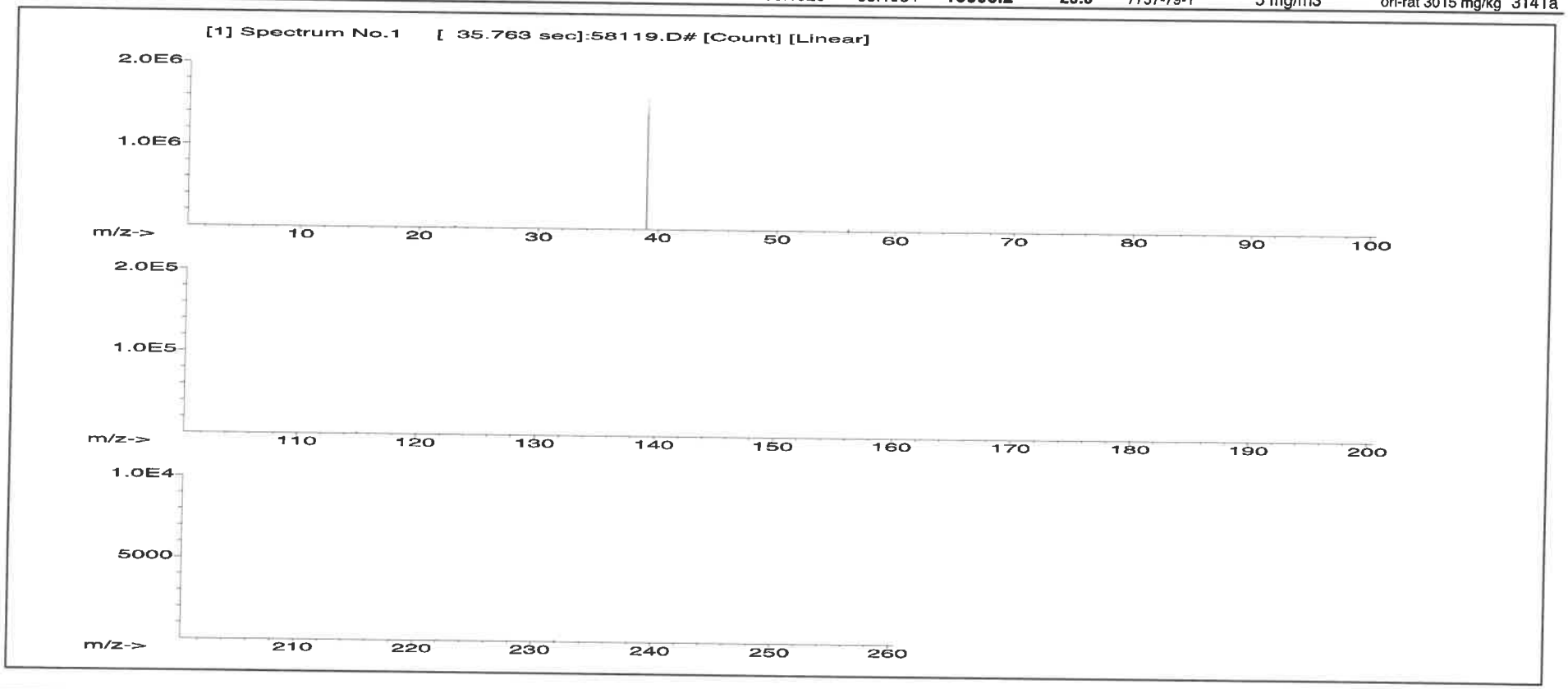
Part Number: 58119
Lot Number: 071122
Description: Potassium (K)

Expiration Date: 071125
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02

	Lot #		
Solvent:	20510011	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	
	5E-05	Balance Uncertainty	
	0.058	Flask Uncertainty	

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

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Potassium nitrate (K)	IN034	KD022021A1	10000	99.999	0.10	37.6	53.1925	53.1934	**10000.2**	**20.0**	7757-79-1	5 mg/m3	orl-rat 3015 mg/kg	3141a



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

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

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

(T)= Target analyte

Physical Characterization:

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

Certified by:

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

Part # **58119** Lot # **071122**

Printed: 8/2/2022, 11:20:01 PM

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R: 09/08/22 (BA)

Certified Reference Material CRM

M5387 . M5389 . M5390 . M5391 . M5392

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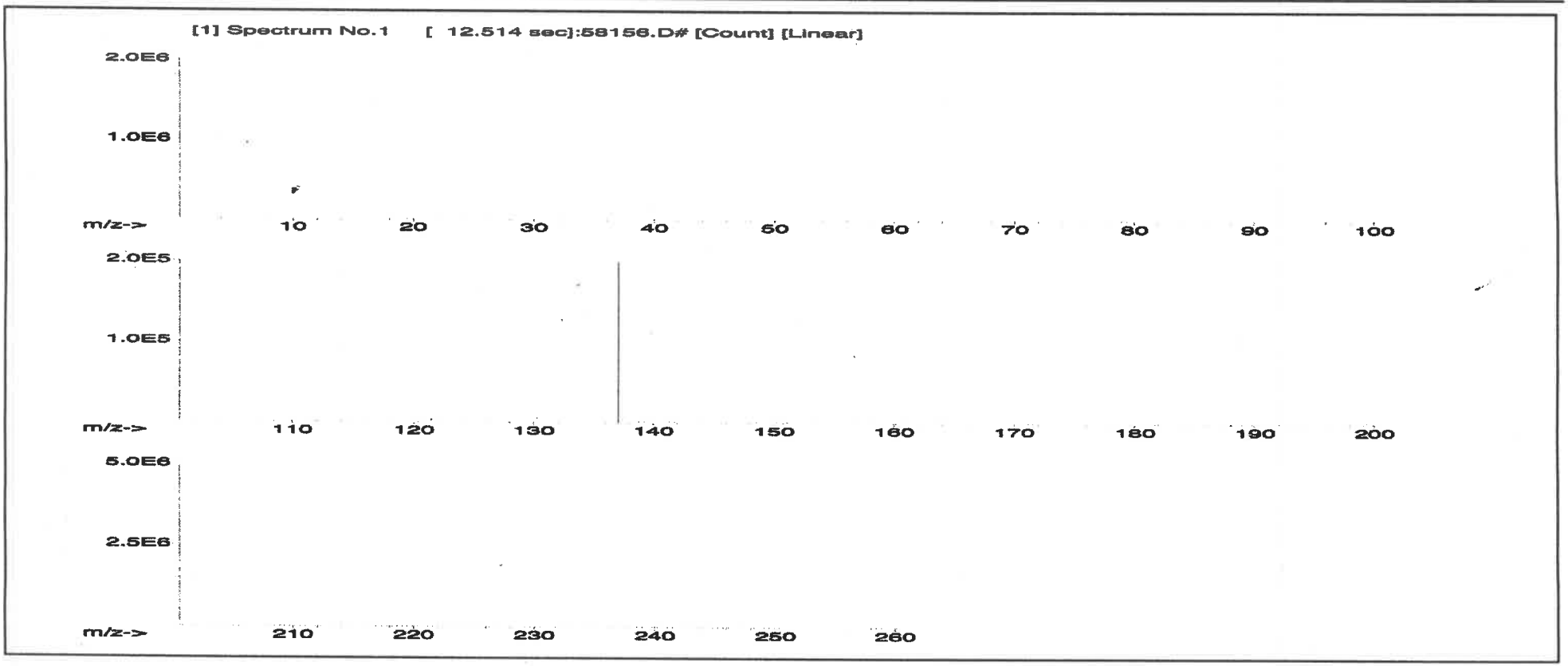
CERTIFIED WEIGHT REPORT:

Part Number:	**57056**		**Lot #**		
Lot Number:	**072122**	**Solvent:**	20510011	Nitric Acid	
Description:	**Barium (Ba)**	2%	40.0 (mL)	Nitric Acid	
Expiration Date:	072125				
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	072122
Reviewed By:	Pedro L. Rentas	072122

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	3.82426	**1000.0**	**2.0**	10022-31-8	0.5 mg/m3	orl-rat 355 mg/kg	3104a



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:

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

M5429 R1 01/26/23 BH

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CERTIFIED WEIGHT REPORT:

Part Number: 57103
Lot Number: 070622
Description: Lithium (Li)

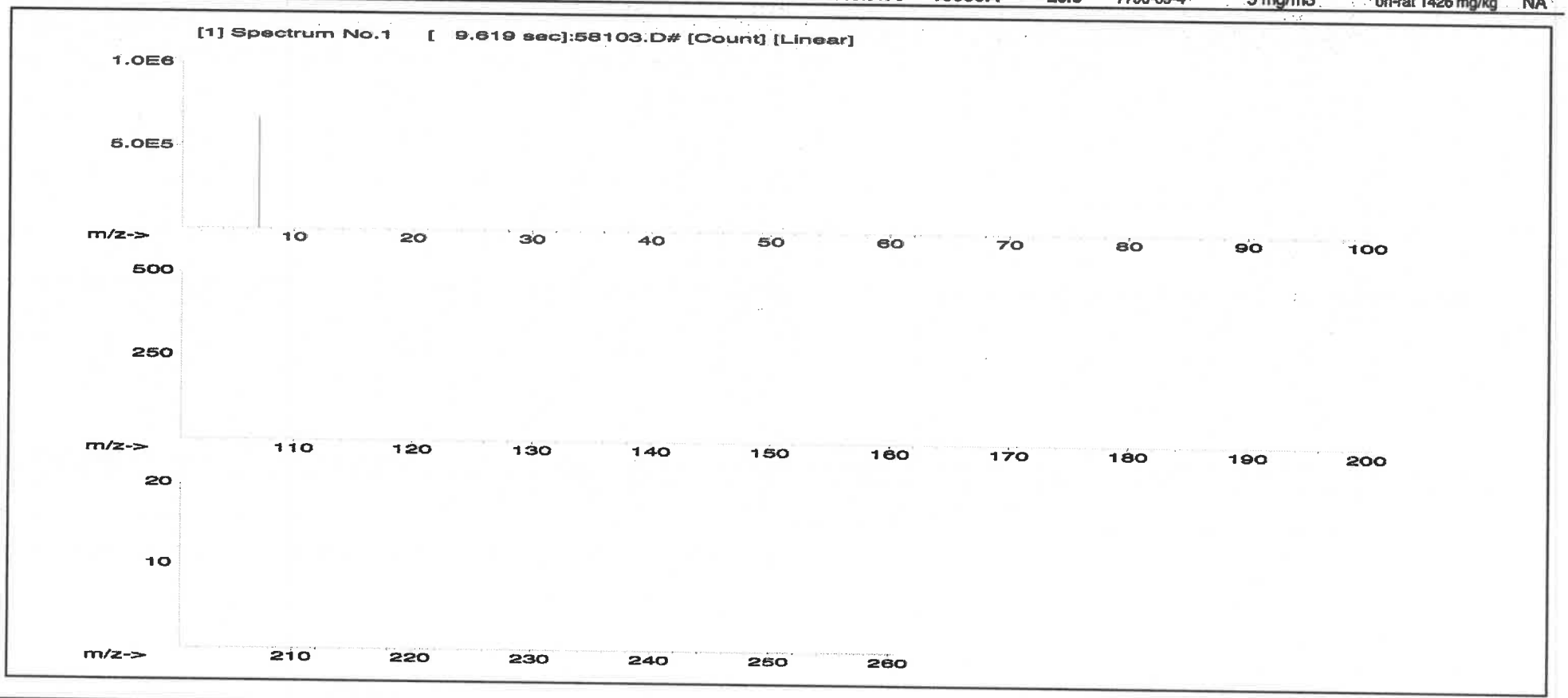
Expiration Date: 070625
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 1000.12

	Lot #		
Solvent:	20510011	Nitric Acid	
2%	20.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Lawrence Barry	070622
Reviewed By:	Pedro L. Rentas	070622

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lithium nitrate (Li)	IN019	LIZ042018A1	10000	99.999	0.10	10.0	100.0134	100.0173	**10000.4**	**20.0**	7790-69-4	5 mg/m3	orl-rat 1426 mg/kg	NA



QUALITY-METALS

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

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

(T)= Target analyte

Physical Characterization:

Certified by:

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

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

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M 5466

Certified Reference Material CRM

R: 03/01/23 BH

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CERTIFIED WEIGHT REPORT:

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

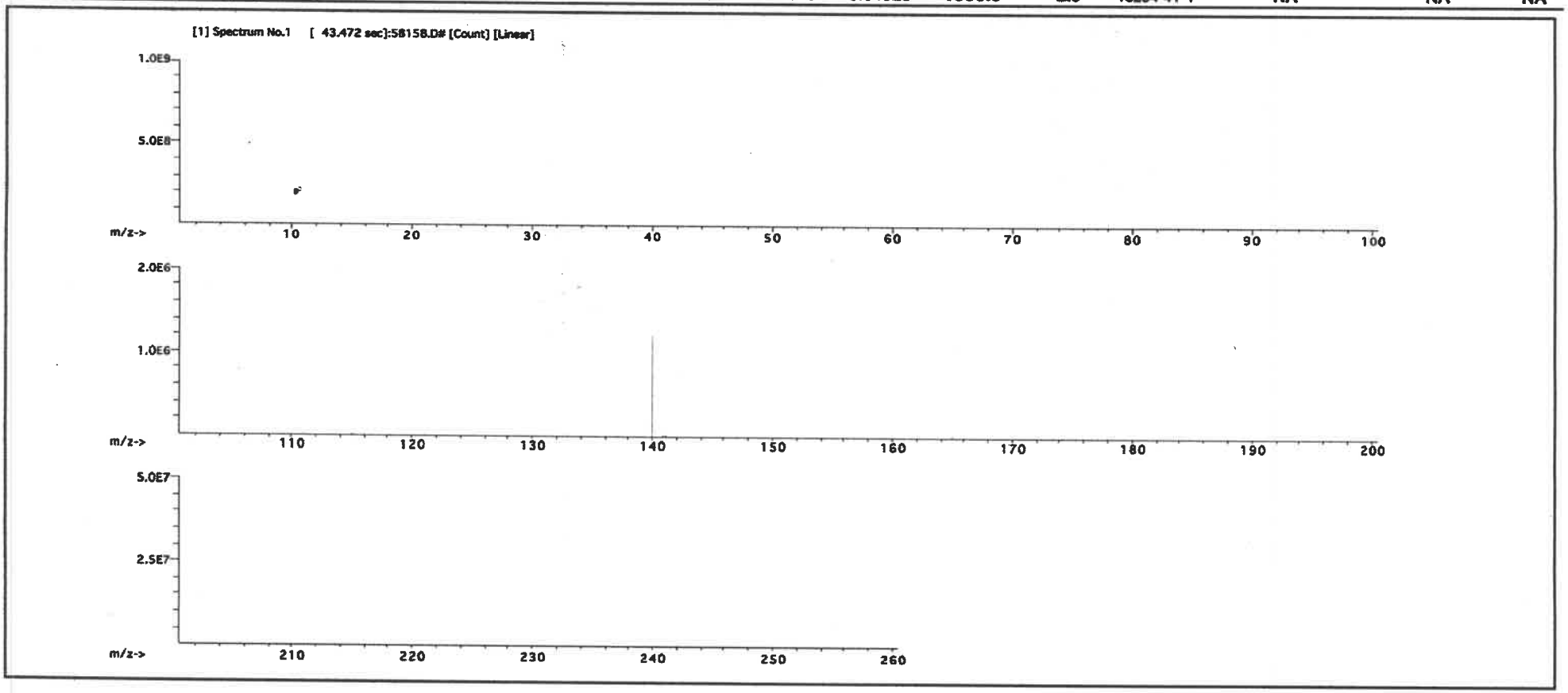
Expiration Date: 061325
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 1000.12 | 0.058 Flask Uncertainty | 5E-05 Balance Uncertainty

	Lot #	
Solvent:	20510011	Nitric Acid
2%	20.0 (mL)	Nitric Acid

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

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	3.04923	1000.0	2.0	10294-41-4	NA	NA	NA



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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	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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M5496 R 7/20/23

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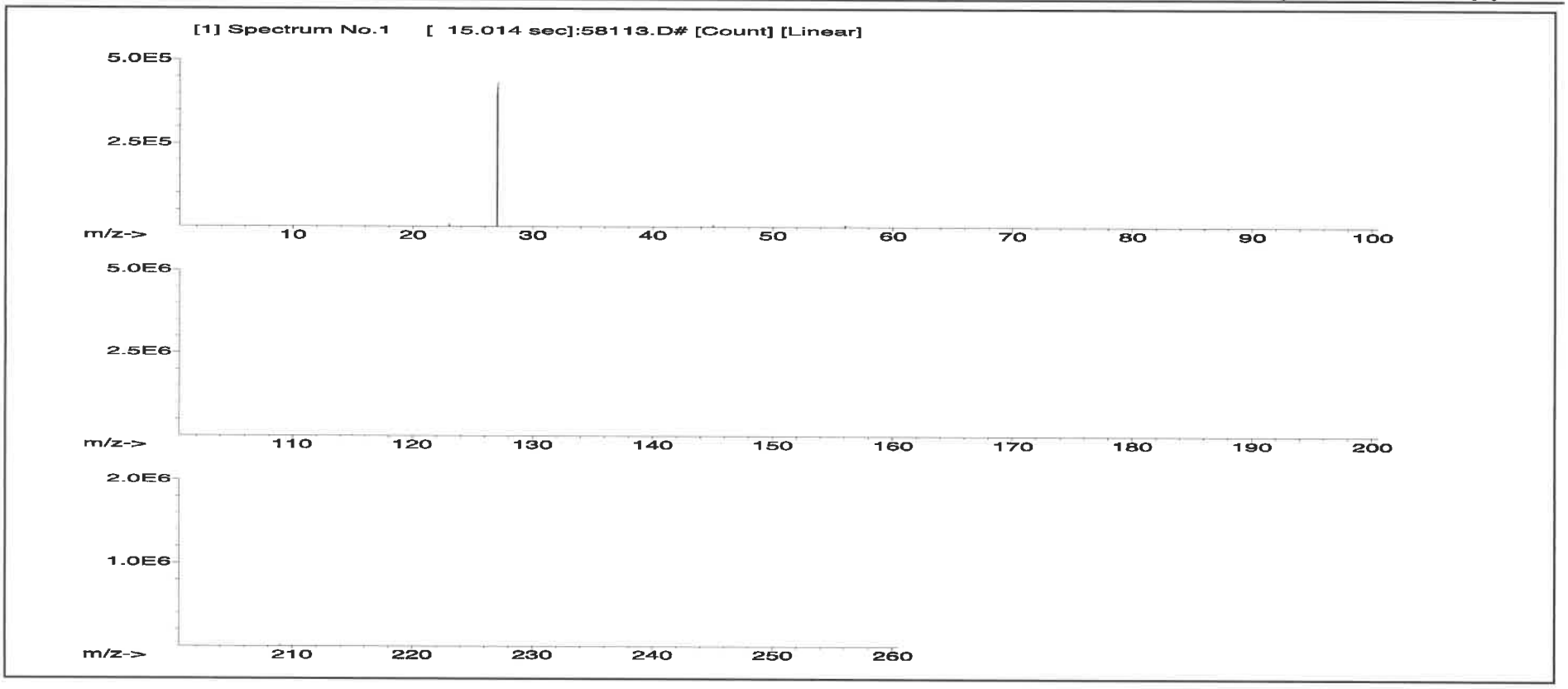
CERTIFIED WEIGHT REPORT:

Part Number:	**58113**		**Lot #**		
Lot Number:	**011623**	**Solvent:**	20510011	Nitric Acid	
Description:	**Aluminum (Al)**	2%	40.0 (mL)	Nitric Acid	
Expiration Date:	011626				
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):	2000.02	0.058	Flask Uncertainty		

Giovanni Esposito

Formulated By:	Giovanni Esposito	011623
Reviewed By:	Pedro L. Rentas	011623

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Aluminum nitrate nonahydrate (Al)	IN022	ALM112021A1	10000	99.999	0.10	7.30	273.9779	274.0078	**10001.1**	**20.0**	7784-27-2	2 mg/m3	orl-rat 3671 mg/kg	3101a



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Certified Reference Material CRM

M5497 - M5498 R: 03/17/23 BH

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Q1504-METALS

CERTIFIED WEIGHT REPORT:

Part Number: 58120
Lot Number: 031523
Description: Calcium (Ca)

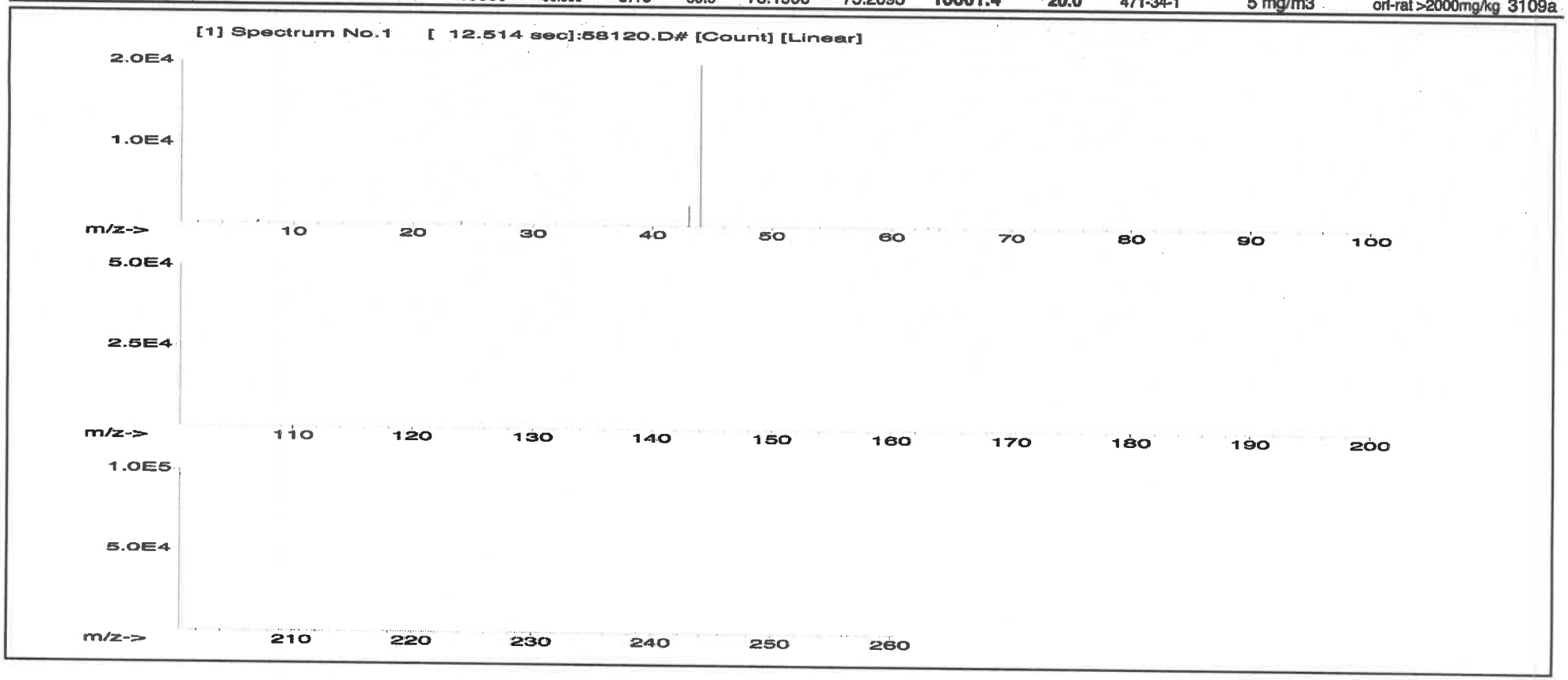
Expiration Date: 031526
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 3000.41

Lot #			
Solvent:	21110221	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	
	5E-05	Balance Uncertainty	
	0.058	Flask Uncertainty	

Giovanni Esposito
Formulated By: Giovanni Esposito 031523

Pedro Rentas
Reviewed By: Pedro L. Rentas 031523

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Calcium carbonate (Ca)	IN014	CAD072022A1	10000	99.999	0.10	39.9	75.1990	75.2093	**10001.4**	**20.0**	471-34-1	5 mg/m3	orl-rat >2000mg/kg	3109a



QSM 5.4-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	T	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Certified by:

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

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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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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M546 M517 R: 03/17/22 BH

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CERTIFIED WEIGHT REPORT:

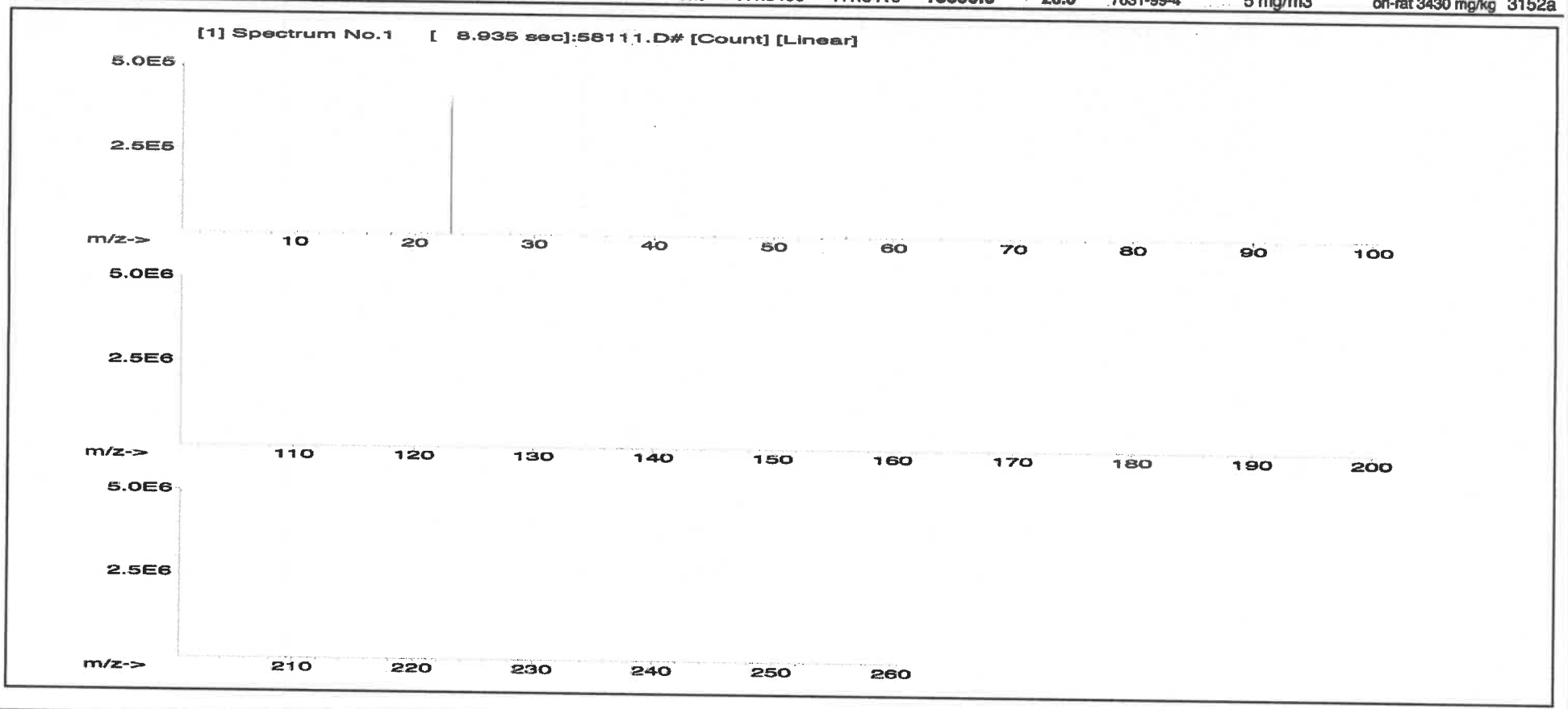
Part Number: 58111
Lot Number: 022123
Description: Sodium (Na)

Expiration Date: 022126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 3000.41 5E-05 Balance Uncertainty 0.06 Flask Uncertainty

	Lot #	
Solvent:	21110221	Nitric Acid
2%	60.0 (mL)	Nitric Acid

Formulated By:	Lawrence Barry	022123
Reviewed By:	Pedro L. Rentas	022123

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	111.5406	111.5410	**10000.0**	**20.0**	7631-99-4	5 mg/m3	orl-rat 3430 mg/kg	3152a



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

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	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	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.
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* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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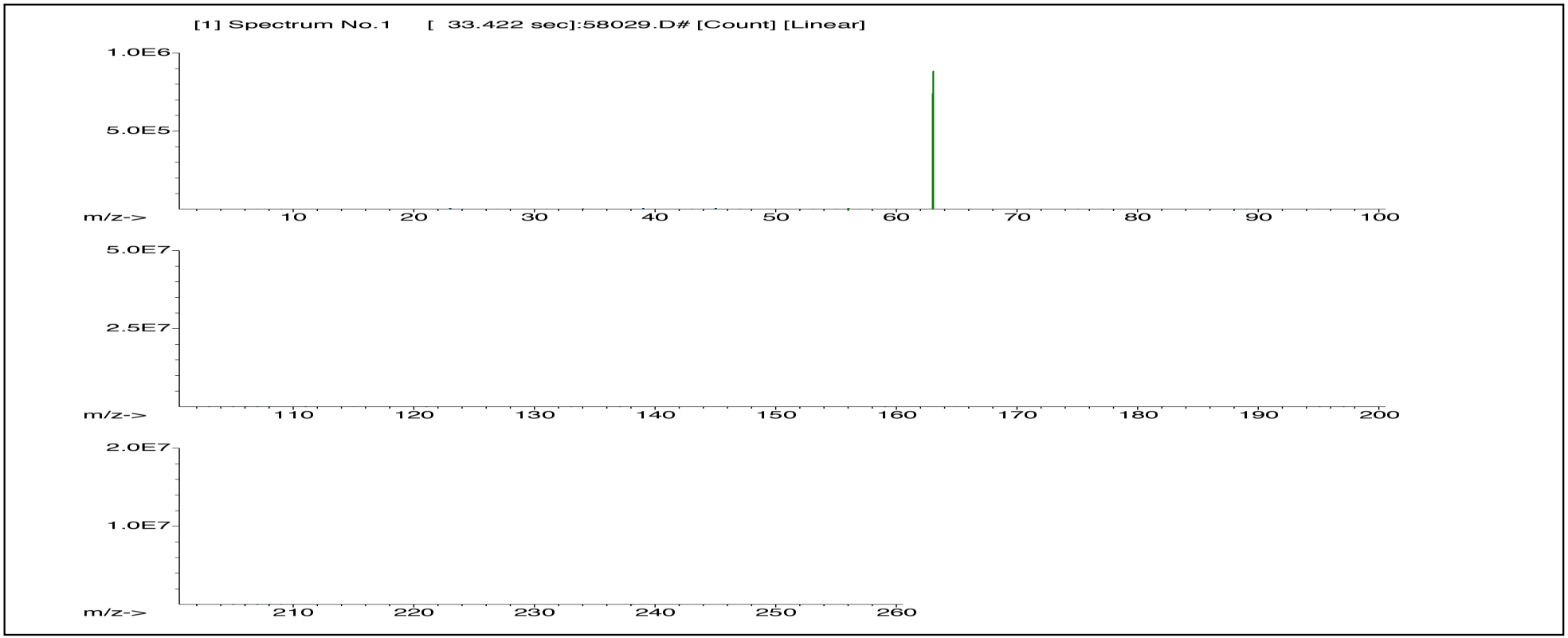
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CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**58029**	20510011	Nitric Acid	
Lot Number:	**102622**			
Description:	**Copper (Cu)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	102625			
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:	Eli Aliaga	102622
Reviewed By:	Pedro L. Rentas	102622

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	021422	0.1000	200.0	0.084	1000	10000.8	**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:

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

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

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

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

MSS28-37
MB

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

Safety Data Sheets Available Upon Request

(A) *SAMPLE DESCRIPTION*

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

(B) *BREAKAGE OR MISSING ITEMS*

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

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

(C) *ANALYSIS OF SAMPLES*

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

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

Instructions for QATS Reference Material: *Inorganic ICV Solutions*

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

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

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

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

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

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

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

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M5658 R ! 8/25/23

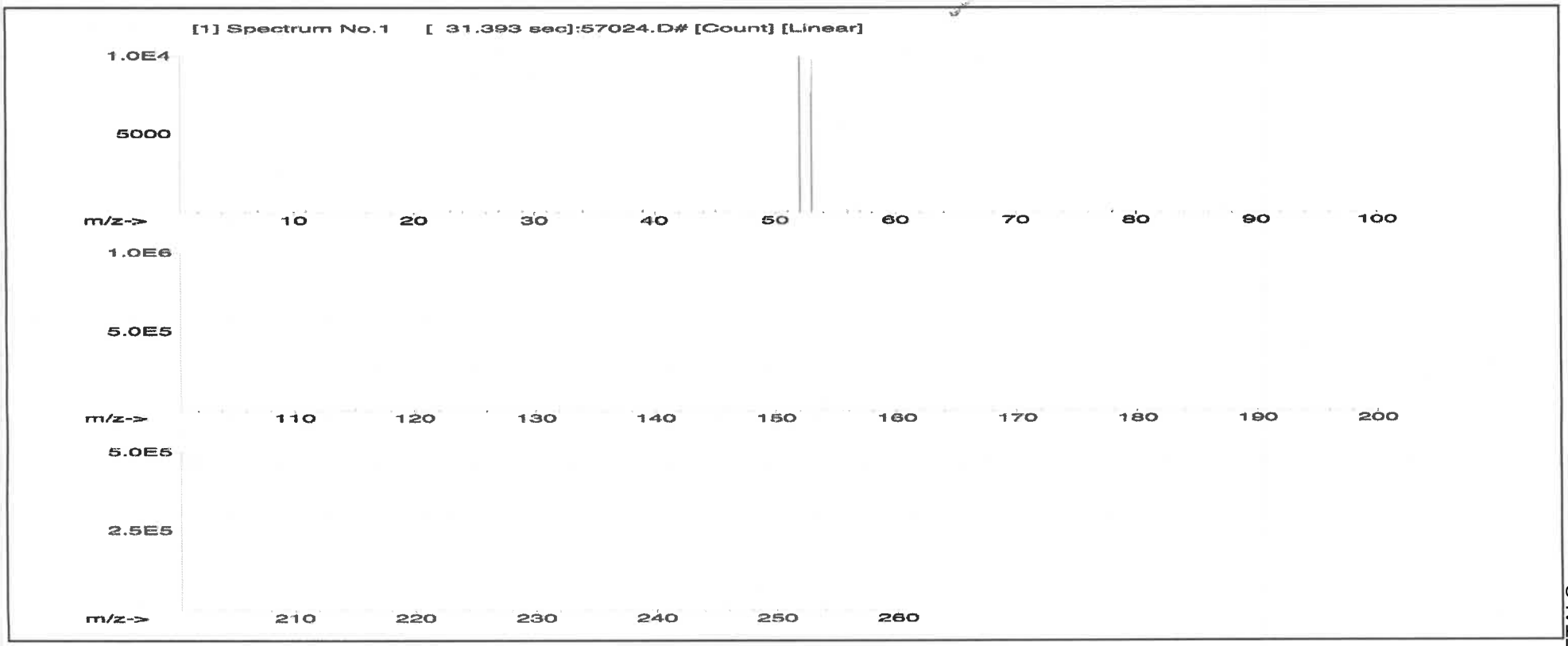
ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

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.
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* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
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* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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R: 12/20/23 M5747

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CERTIFIED WEIGHT REPORT:

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

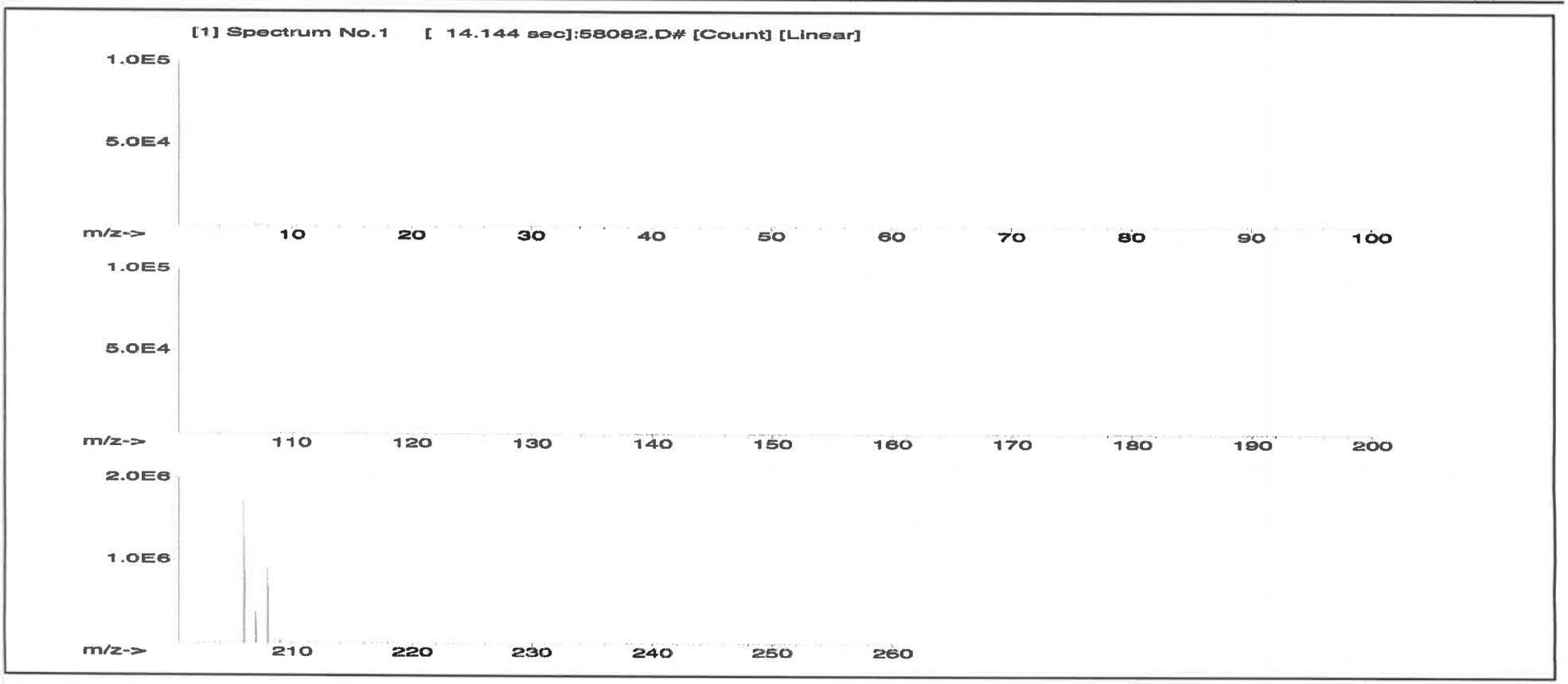
Expiration Date: 100926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 3000.41 0.06 Flask Uncertainty

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

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

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lead(II) nitrate (Pb)	IN029	PBD122016A1	1000	99.999	0.10	62.5	4.80071	4.80077	**1000.0**	**2.0**	10099-74-8	0.05 mg/m3	intrvns-rat 93 mg/kg	3128



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

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

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

(T)= Target analyte

Physical Characterization:

Certified by:

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

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

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R: 12/20/23 M5748

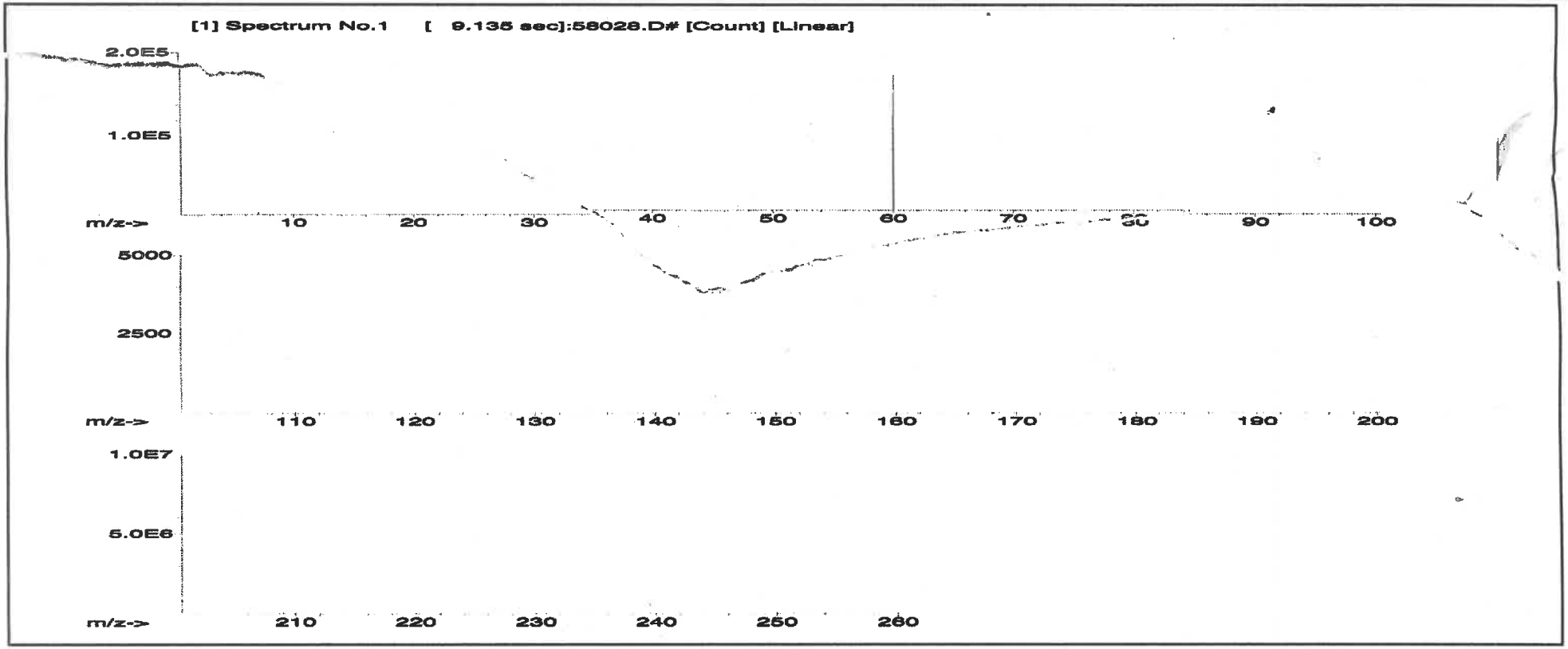
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CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57028**	24002546	Nitric Acid	
Lot Number:	**091223**			
Description:	**Nickel (Ni)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	091226			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

Formulated By:	Lawrence Barry	091223
Reviewed By:	Pedro L. Rentas	091223

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Nickel(II) nitrate hexahydrate (Ni)	58128	062023	0.1000	200.0	0.084	1000	10000.4	**1000.0**	2.2	13478-00-7	1 mg/m3	orl-rat 1620 mg/kg	3136



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

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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

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M5768 M5769 (BP) R:1/3/24

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CERTIFIED WEIGHT REPORT:

Part Number: 58112
Lot Number: 091823
Description: Magnesium (Mg)

Expiration Date: 091826
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

M5768, M5769 (BP) R: 1/3/24

Weight shown below was diluted to (mL): 2000.02 ± 0.058 Flask Uncertainty

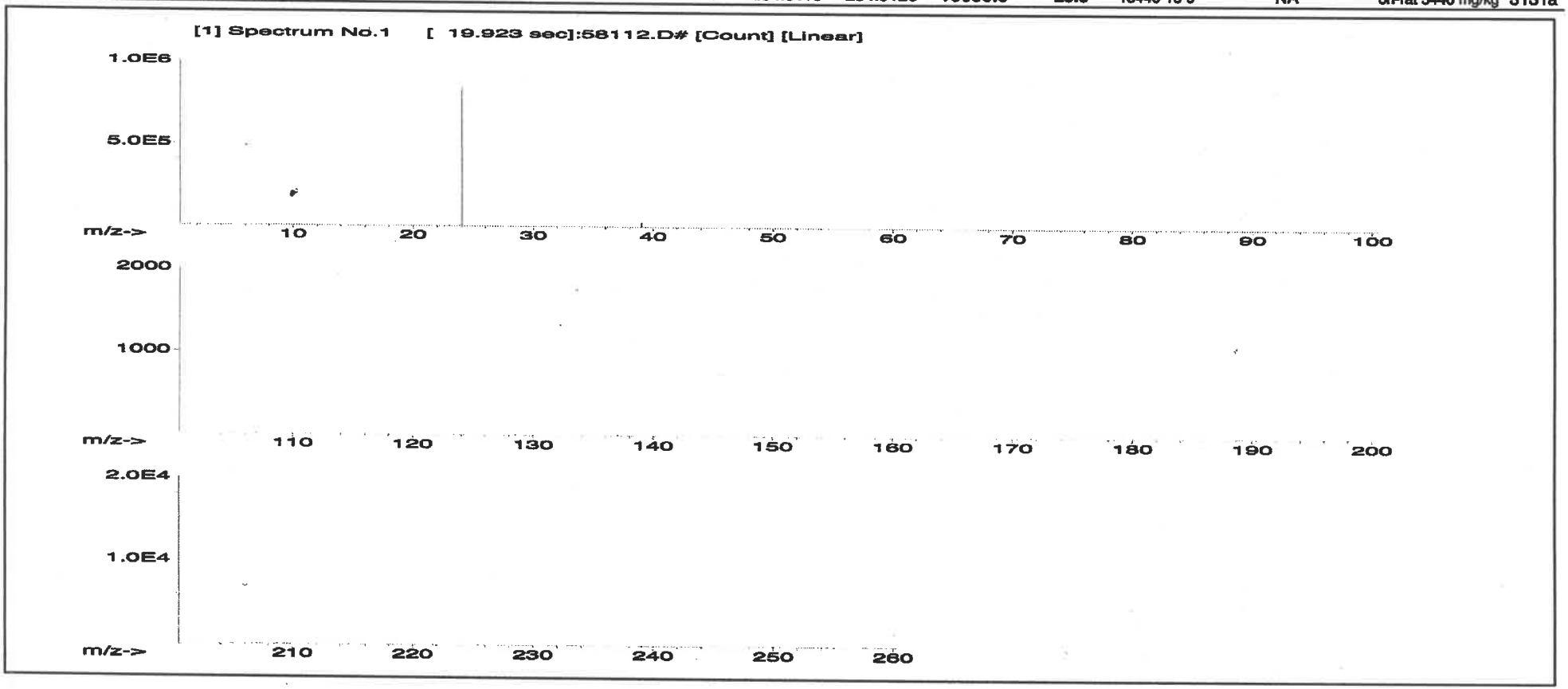
	Lot #		
Solvent:	24002546	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

Formulated By: Lawrence Barry 091823

Reviewed By: Pedro L. Rentas 091823

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	234.9118	234.9126	**10000.0**	**20.0**	13446-18-9	NA	ori-rat 5440 mg/kg	3131a



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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

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R: 02/09/24 M5798

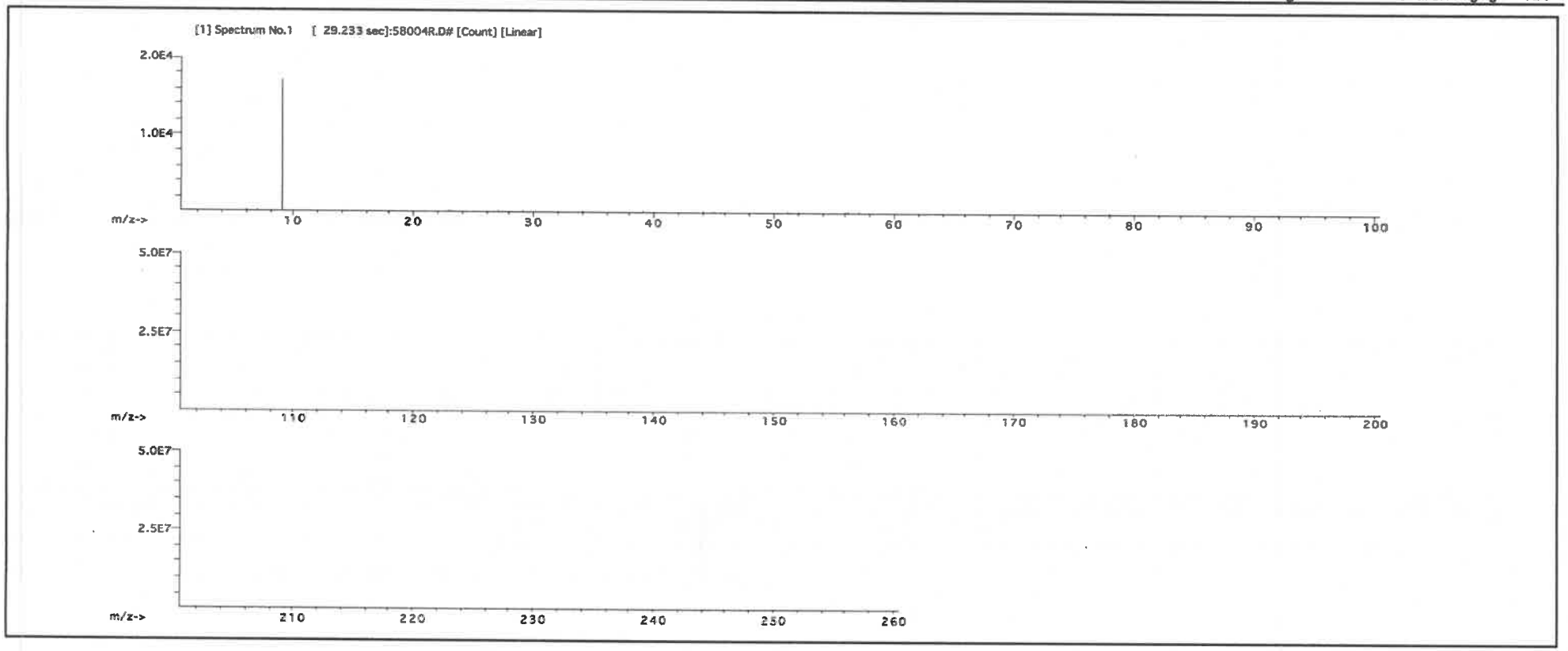
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CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57004**			
Lot Number:	**102523**	24002546	Nitric Acid	
Description:	**Beryllium (Be)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	102526			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

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

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Beryllium nitrate (Be)	58104	091423	0.1000	200.0	0.084	1000	10001.5	**1000.0**	**2.2**	13597-99-4	0.2ug/m3	intrvns-rat 3.16mg/kg	NA



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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

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R? 02/09/24 IM5799

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CERTIFIED WEIGHT REPORT:

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

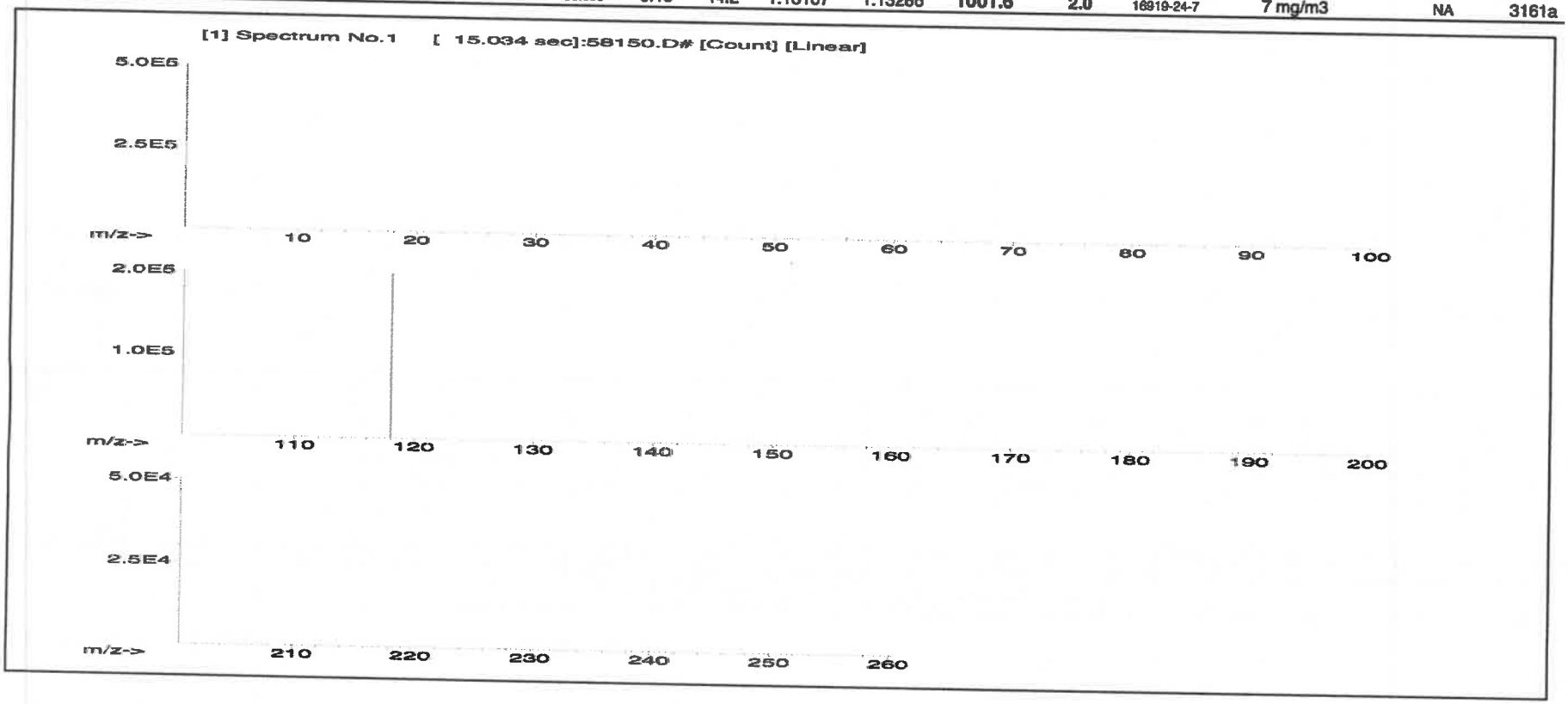
Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 499.93

	Lot #	
Solvents:	21110221	Nitric Acid
	22D0562008	Hydrochloric acid
2%	10.0	Nitric Acid
6%	30.0	Hydrochloric acid
	(mL)	

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Benson Chan	071123
Reviewed By:	Pedro L. Rentas	071123

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium hexafluorostannate(IV) (Sn)	IN010	SND042023A1	1000	99.999	0.10	44.2	1.13107	1.13286	**1001.6**	**2.0**	16919-24-7	7 mg/m3	NA	3161a



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

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<500	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	T	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* 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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R: 02/09/24 IM5800 BH

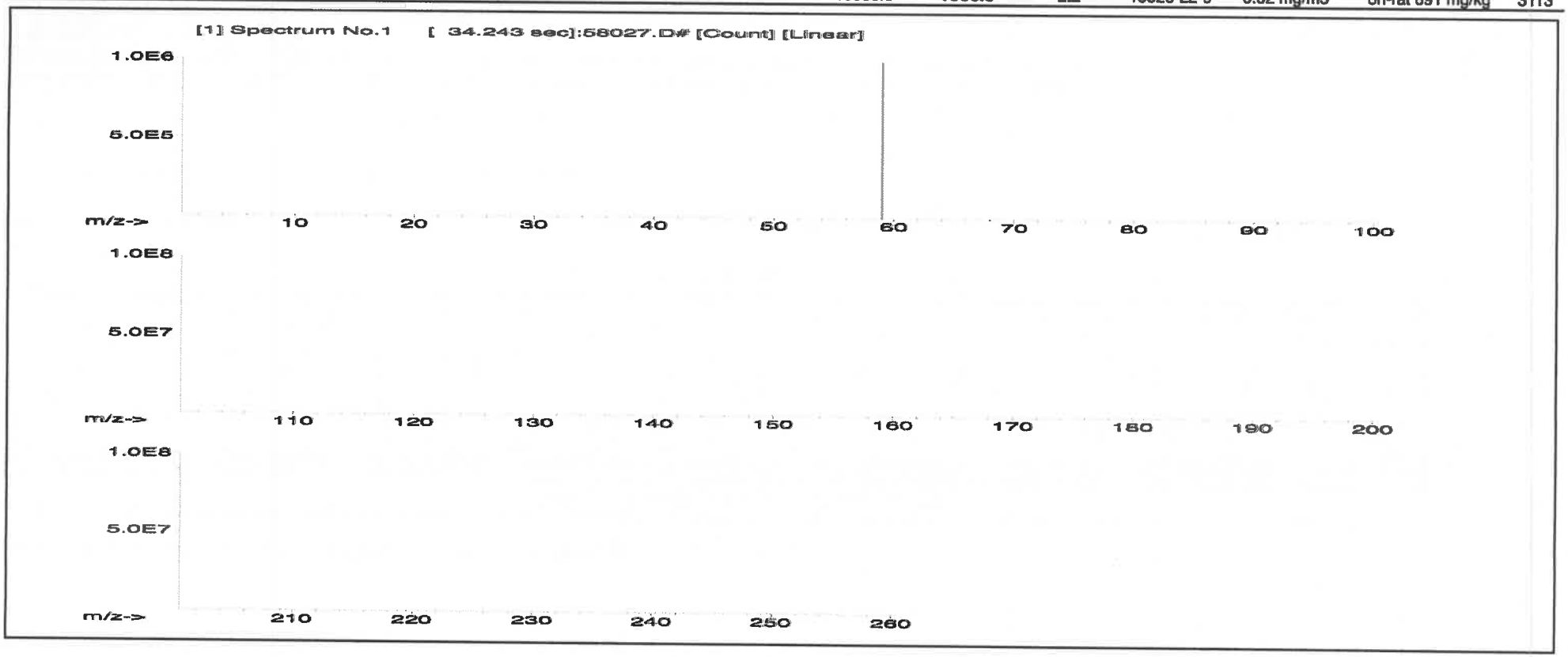
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CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:		
Part Number:	**57027**	24002546	Nitric Acid		
Lot Number:	**091923**				
Description:	**Cobalt (Co)**	2.0%	40.0 (mL)	Nitric Acid	
Expiration Date:	091926				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty		

Formulated By:	Lawrence Barry	091923
Reviewed By:	Pedro L. Rentas	091923

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Cobalt(II) nitrate hexahydrate (Co)	58127	050923	0.1000	200.0	0.084	1000	10000.0	**1000.0**	2.2	10026-22-9	0.02 mg/m3	orl-rat 691 mg/kg	3113



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

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

(T)= Target analyte

Physical Characterization:

Certified by:

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

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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R: 02/09/24 M5801 BH

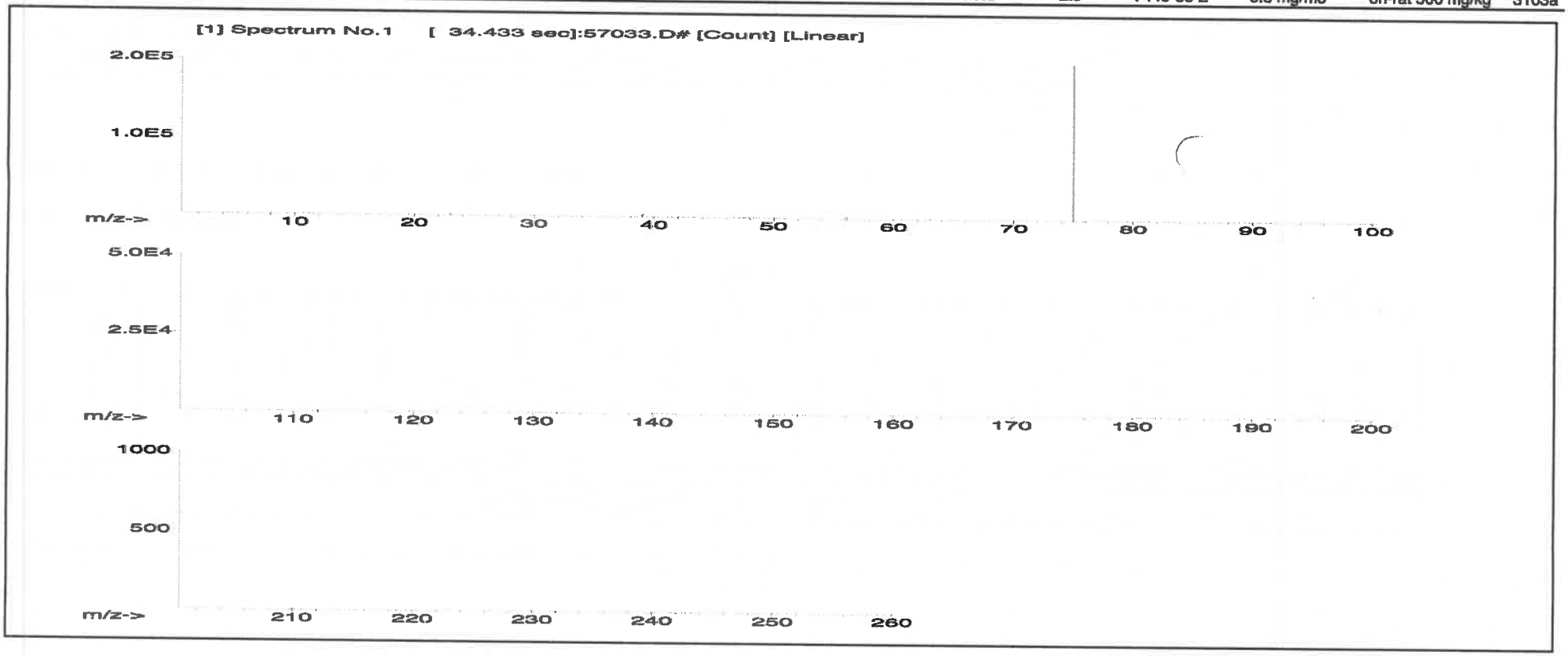
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CERTIFIED **WEIGHT** REPORT:

		Lot #	Solvent:		
Part Number:	**57033**				
Lot Number:	**111323**	24002546	Nitric Acid		
Description:	**Arsenic (As)**	2.0%	80.0 (mL)	Nitric Acid	
Expiration Date:	111326				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	4000.0	0.06	Flask Uncertainty		

Formulated By:	Lawrence Barry	111323
Reviewed By:	Pedro L. Rentas	111323

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Arsenic (As)	58133	020522	0.1000	400.0	0.084	1000	10001.0	**1000.0**	**2.0**	7440-38-2	0.5 mg/m3	orl-rat 500 mg/kg	3103a



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

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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

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

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A: 02/09/24 M.5814

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CERTIFIED WEIGHT REPORT:

Part Number: 57005
Lot Number: 071123
Description: Boron (B)

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 1999.48 0.058 Flask Uncertainty

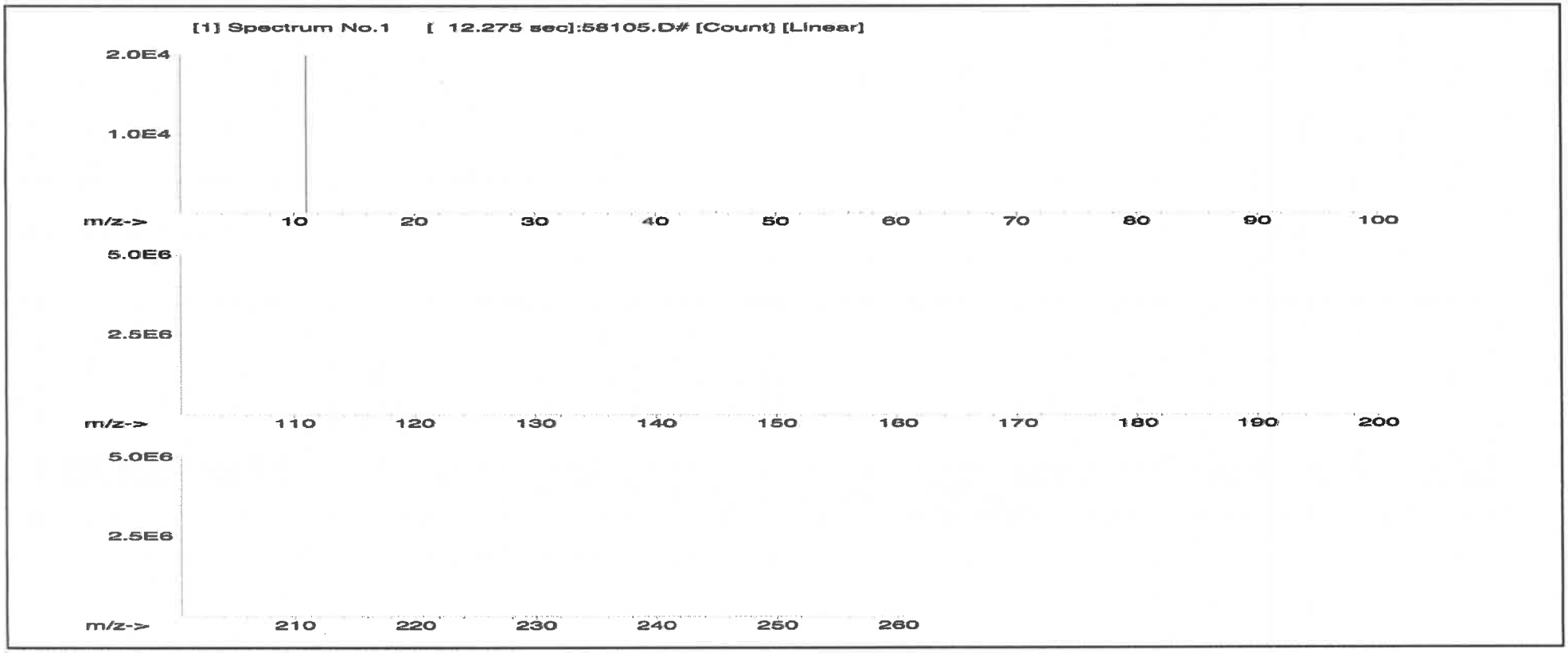
	Lot #			
Solvent:	MKBQ8597V	Ammonium hydroxide		
	2.0%	40.0 (mL)	Ammonium hydroxide	

5E-05 Balance Uncertainty

Formulated By: Benson Chan 071123

Reviewed By: Pedro L. Rentas 071123

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Boric acid (B)	IN018	BV092016A1	1000	99.9999	0.10	17.3	11.55772	11.56201	**1000.4**	**2.0**	10043-35-3	2 mg/m3	orl-rat 2660 mg/kg	3107



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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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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 M5816

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CERTIFIED WEIGHT REPORT:

Part Number: 57016
Lot Number: 122923
Description: Sulfur (S)

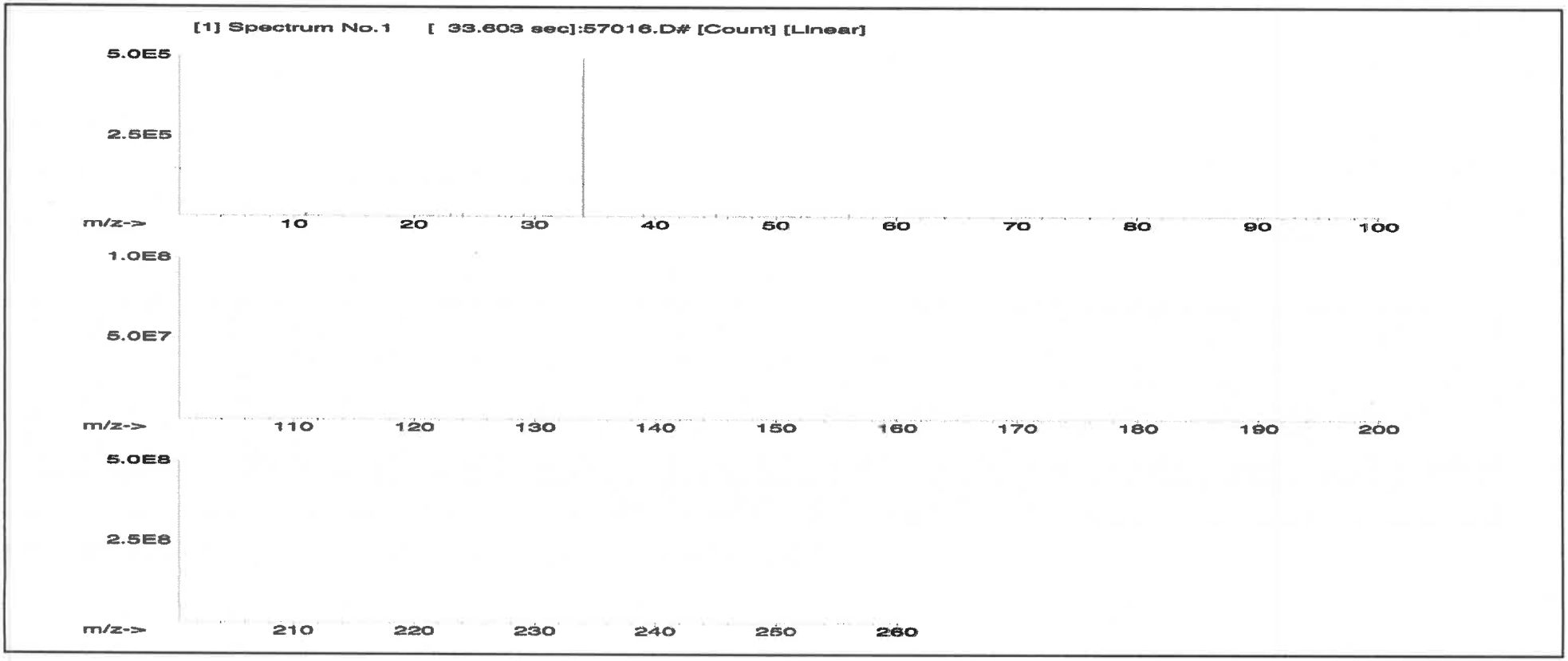
Expiration Date: 122926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 4000.0

Lot #		
Solvent:	122923	ASTM Type 1 Water
	5E-05	Balance Uncertainty
	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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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:

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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 M5817

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CERTIFIED WEIGHT REPORT:

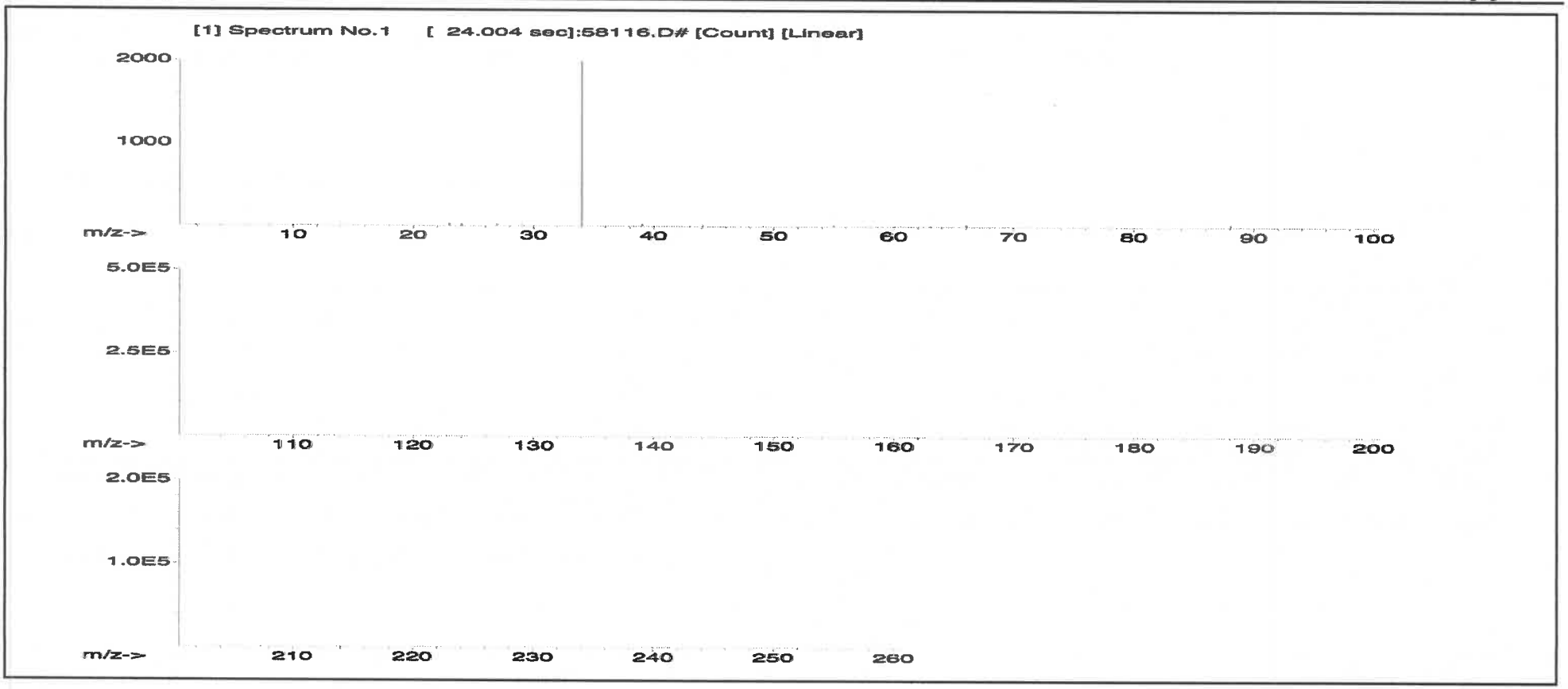
Part Number: 57116
Lot Number: 071123
Description: Sulfur (S)

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

Lot #
Solvent: 071123 ASTM Type 1 Water

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:

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R: 02/09/24 M5820

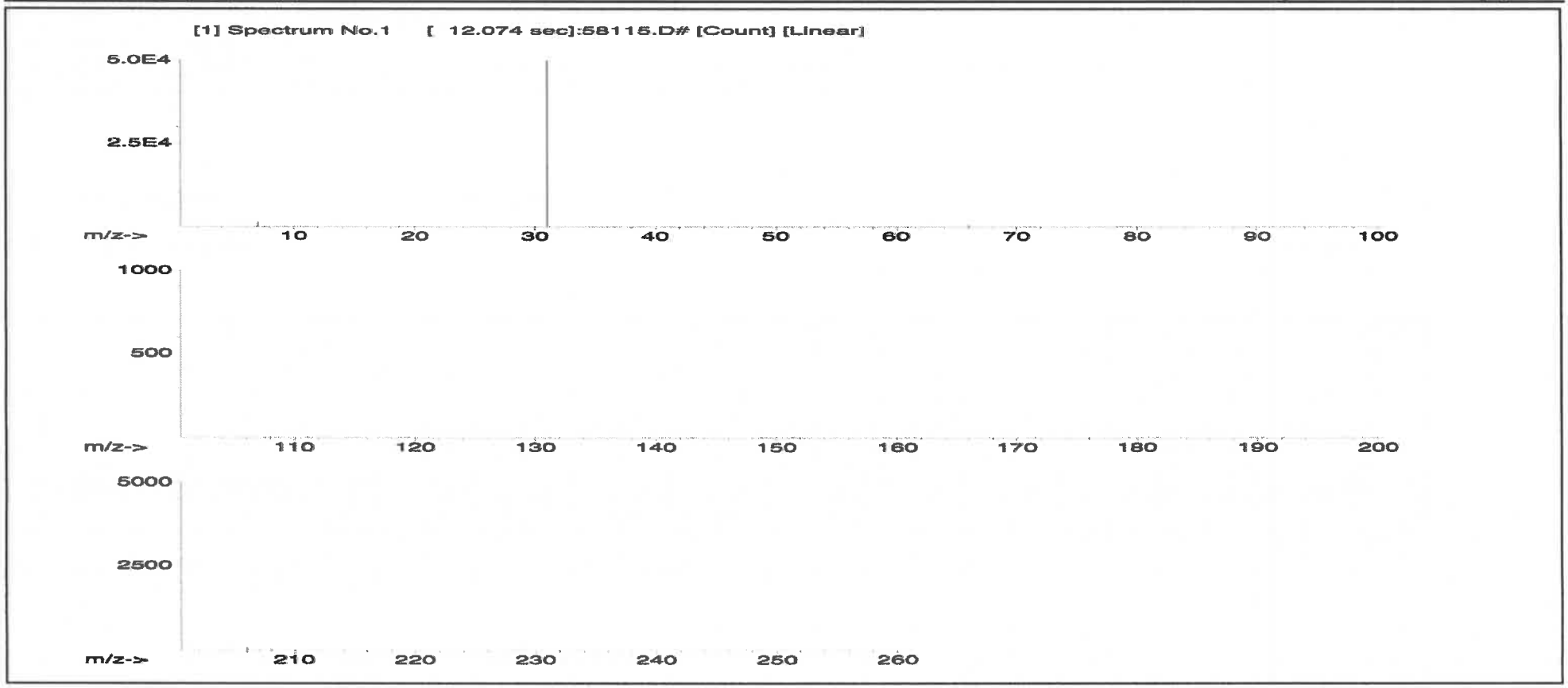
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CERTIFIED WEIGHT REPORT:

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.

* 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).

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

MF884
MB

avantor™ | J.T.Baker®

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

Certificate of Analysis

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

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

James T Ethier
Jamie Ethier
Vice President Global Quality

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

INORGANIC VENTURES
Refine your results. Redefine your industry.

Certificate of Analysis

M5959 R: 6/14/24.

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

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 863.01 ACCREDITED Reference Material Producer Certificate 863.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGY10
Lot Number:	V2-Y740548
Matrix:	2% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Yttrium
Starting Material:	Yttrium Oxide
Starting Material Lot#:	2661 and 06230520YL
Starting Material Purity:	99.9984%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10000 ± 30 µg/mL

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

Assay Information:

Assay Method #1	**10011 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928
Assay Method #2	**9997 ± 50 µg/mL** ICP Assay NIST SRM 3167a Lot Number: 190730
Assay Method #3	**9984 ± 31 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 20, 2024

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

11.2 Lot Expiration Date

- February 20, 2029

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor



Certificate Approved By:

Muzzammil Khan
Stock Laboratory Supervisor



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M5970, M5971 R: 7/01/24

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

CERTIFIED WEIGHT REPORT:

Part Number: 57003
Lot Number: 062124
Description: Lithium (Li)
Expiration Date: 062127
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 250.11

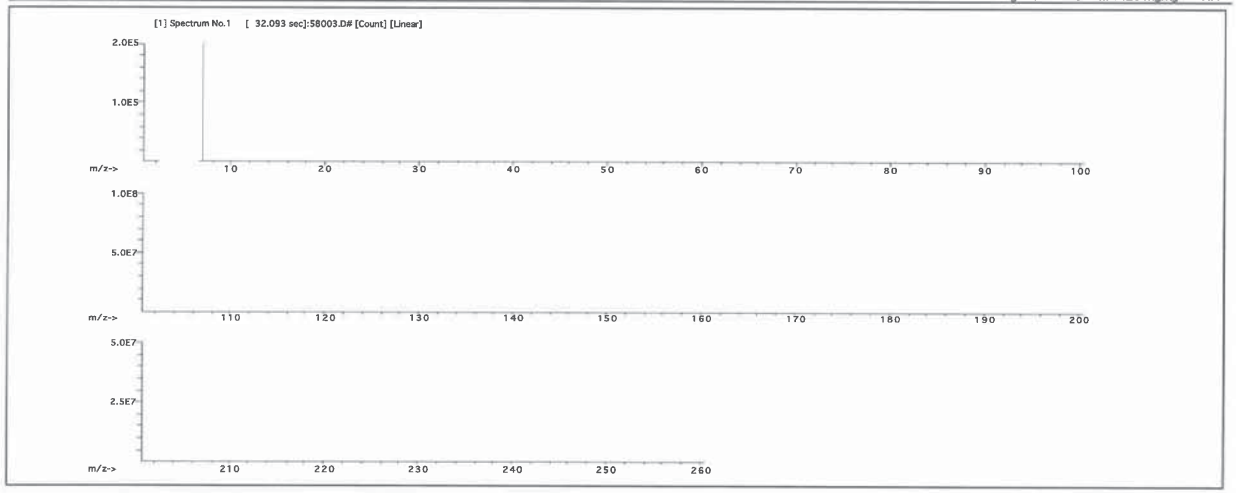
Lot #	Solvent:		
24002546	Nitric Acid		
2.0%	5.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty
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).

Certificate of Analysis

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R: 2/22/24

1.0 ACCREDITATION / REGISTRATION

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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 + K2S2O7 - no KF if silica not present); Organic Matrices (Dry ash at 450EC in Pt0 and dissolve by heating with 1:1:1 H2O / HF / H2SO4 or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystalline form).

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

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 48 amu	14 ppt	N/A	32S16O, 32S14N, 14N16O18O, 14N17N2, 36Ar12C, 48Ca, [96X=2 (where X = Zr, Mo, Ru)]
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1	Ce, Ar, Ni
ICP-OES 334.941 nm	0.0038 / 0.000028 µg/mL	1	Nb, Ta, Cr, U
ICP-OES 336.121 nm	0.0053 / 0.000034 µg/mL	1	W, Mo, Co

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.5798; 540.585.3030; Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 17, 2022

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

11.2 Lot Expiration Date

- June 17, 2027

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozlkowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

INORGANIC VENTURES™
Refine your results. Redefine your industry.

Certificate of Analysis

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MS985
R: 6/14/24

1.0 ACCREDITATION / REGISTRATION

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

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

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 21, 2023

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

11.2 Lot Expiration Date

- February 21, 2028

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

M 6041-46
MG

avantor™ | J.T.Baker®

Material No.: 9673-33
Batch No.: 23D2462010
Manufactured Date: 2023-03-22
Retest Date: 2028-03-20
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (H_2SO_4)	95.0 – 98.0 %	96.1 %
Appearance	Passes Test	Passes Test
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Substances Reducing Permanganate (as 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 and Antimony (as As)	≤ 4.0 ppb	< 2.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	8.5 ppb
Trace Impurities – Cadmium (Cd)	≤ 2.0 ppb	< 0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 6.0 ppb	< 0.4 ppb
Trace Impurities – Cobalt (Co)	≤ 0.5 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gold (Au)	≤ 10.0 ppb	0.5 ppb
Heavy Metals (as Pb)	≤ 500.0 ppb	< 100.0 ppb
Trace Impurities – Iron (Fe)	≤ 50.0 ppb	1.3 ppb
Trace Impurities – Lead (Pb)	≤ 0.5 ppb	< 0.5 ppb
Trace Impurities – Magnesium (Mg)	≤ 7.0 ppb	0.8 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Nickel (Ni)	≤ 2.0 ppb	0.3 ppb
Trace Impurities – Potassium (K)	≤ 500.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se)	≤ 50.0 ppb	< 0.1 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	31.5 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb

>>> Continued on page 2 >>>

Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

avantor™ | J.T.Baker®

Material No.: 9673-33
Batch No.: 23D2462010

Test	Specification	Result
Trace Impurities - Sodium (Na)	≤ 500.0 ppb	5.4 ppb
Trace Impurities - Strontium (Sr)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities - Tin (Sn)	≤ 5.0 ppb	< 0.8 ppb
Trace Impurities - Zinc (Zn)	≤ 5.0 ppb	0.4 ppb

For Laboratory,Research,or Manufacturing Use

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

James T Ethier
Jamie Ethier
Vice President Global Quality

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R! 08/22/24 M6058, M6059

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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

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

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



INORGANIC VENTURES™
Refine your results. Redefine your industry.

Certificate of Analysis

M6074
M6075
M6076
M6077

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

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

EXP.: 9/6/2029

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CHEM-CLP-4
Lot Number:	V2-MEB746762
Matrix:	3% (v/v) HNO3 3% (v/v) HF
Value / Analyte(s):	1 000 µg/mL ea: Boron, Molybdenum, Silicon, Tin, Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

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

Density: 1.033 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
Mo	ICP Assay	traceable to 3134	U2-MO739068
Si	ICP Assay	Traceable to 3150	S2-SI702546
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	traceable to 3162a	T2-TI725816

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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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



Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

R -> 11/12/24

M6126

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

Certificate of Analysis

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

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

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

Test	Specification	Result

For Microelectronic Use

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

Jamie Croak
Director Quality Operations, Bioscience Production

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

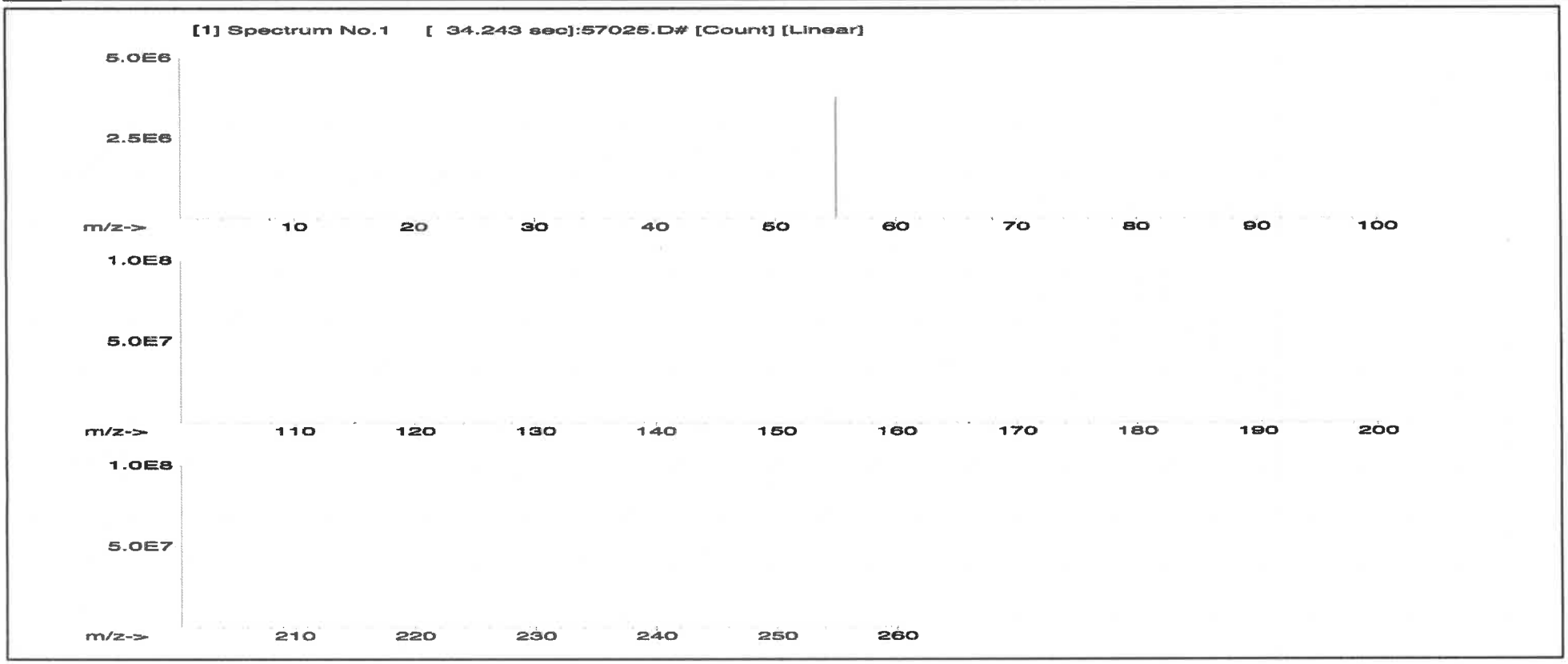
5E-05 Balance Uncertainty

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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Certified Reference Material CRM

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

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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	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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Certificate of Analysis

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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

R : 4/20/21

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

M6150

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

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

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

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

Safety Data Sheets Available Upon Request

(A) *SAMPLE DESCRIPTION*

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

(B) *BREAKAGE OR MISSING ITEMS*

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

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

(C) *ANALYSIS OF SAMPLES*

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

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

The Quality Assurance Technical Support (QATS) contract is operated by APTIM Federal Services, LLC.

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

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

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

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

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

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

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

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

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

M6156

Certified Reference Material CRM

R→ 6/12/24

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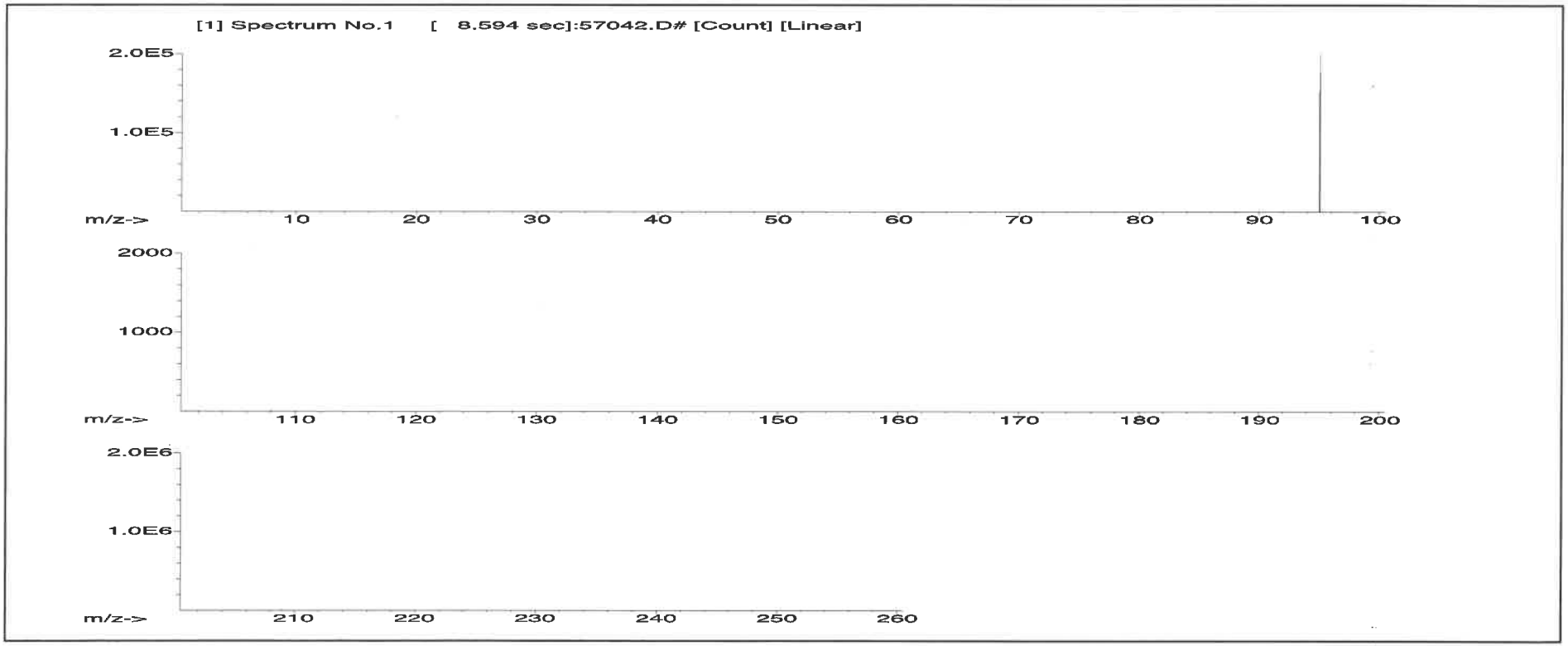
CERTIFIED WEIGHT REPORT:

Part Number:	**57042**
Lot Number:	**032123**
Description:	**Molybdenum (Mo)**
Expiration Date:	032126
Recommended Storage:	Ambient (20 °C)
Nominal Concentration (µg/mL):	**1000**
NIST Test Number:	6UTB
Volume shown below was diluted to (mL):	3000.41

Lot #	Solvent:		
MKBQ8597V	Ammonium hydroxide		
0.5%	15.0 (mL)	Ammonium hydroxide	
5E-05	Balance Uncertainty		
0.058	Flask Uncertainty		

Formulated By:	Lawrence Barry	032123
Reviewed By:	Pedro L. Rentas	032123

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	300.0	0.084	1000	10001.4	**1000.0**	**2.1**	13106-76-8	5 mg(Mo)/m3	orl-rat 333 mg/kg	3134



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

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

(T)= Target analyte

Physical Characterization:

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).

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

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

avantor™ | J.T.Baker®

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

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

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

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

Test	Specification	Result

For Microelectronic Use

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

Jamie Croak
Director Quality Operations, Bioscience Production

Absolute Standards, Inc.
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www.absolutestandards.com

Certified Reference Material CRM

M6030

R: 8/5/24

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

CERTIFIED WEIGHT REPORT:

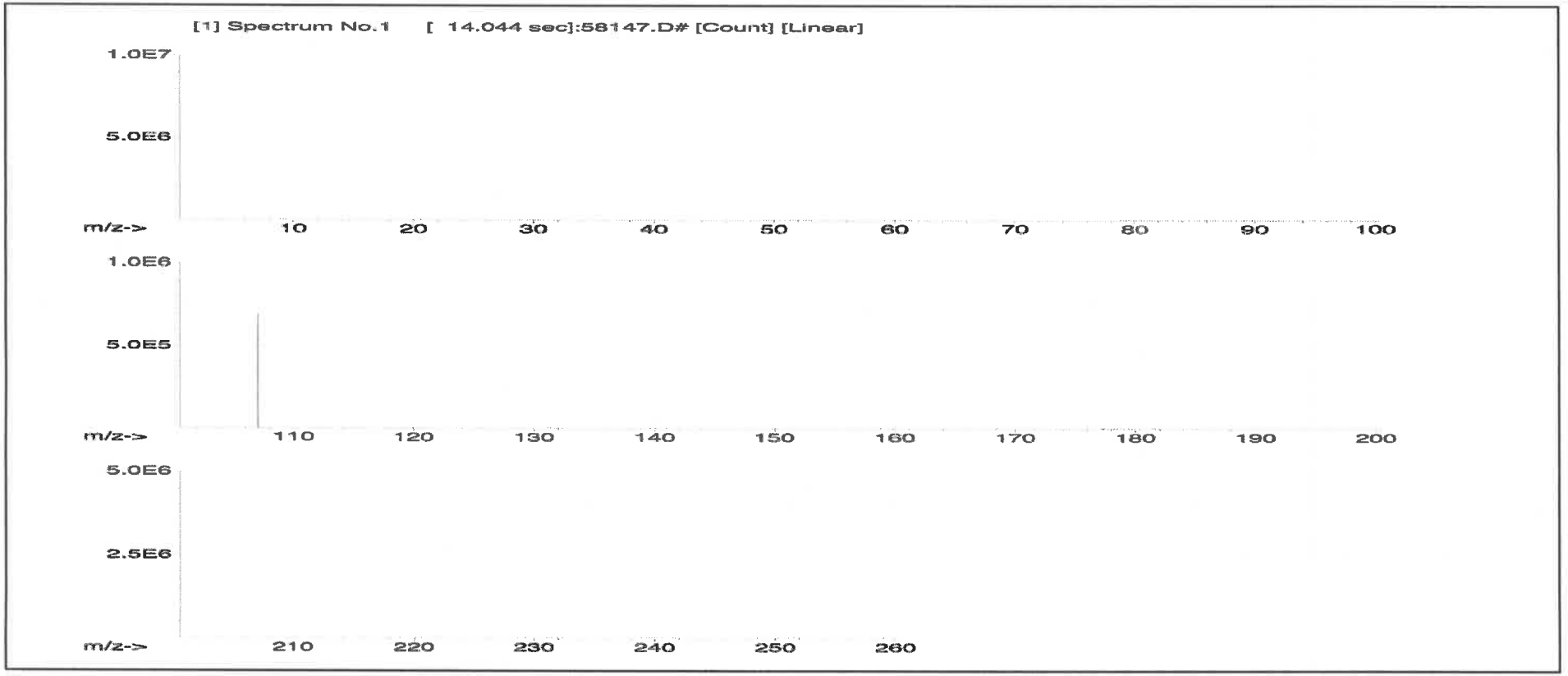
Part Number: 57047
Lot Number: 122823
Description: Silver (Ag)

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

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	80.0 (mL)	Nitric Acid	
	5E-05	Balance Uncertainty	
	0.058	Flask Uncertainty	

Formulated By:	Benson Chan	122823
Reviewed By:	Pedro L. Rentas	122823

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Silver nitrate (Ag)	IN035	J0612AGA1	1000.0	99.9999	0.10	63.7	6.27992	6.27998	**1000.0**	**2.0**	7761-88-8	10 ug/m3	NA	3151



Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

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

Instrumental Analysis by Inductively Coupled Plasma Mass 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.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

R : 04/20/21

APTIM

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

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

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.

M6152

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,

The Quality Assurance Technical Support (QATS) contract is operated by APTIM Federal Services, LLC.

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.

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

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

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.

M6155

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,

The Quality Assurance Technical Support (QATS) contract is operated by APTIM Federal Services, LLC.

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.

opened : 3/24/25

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: 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

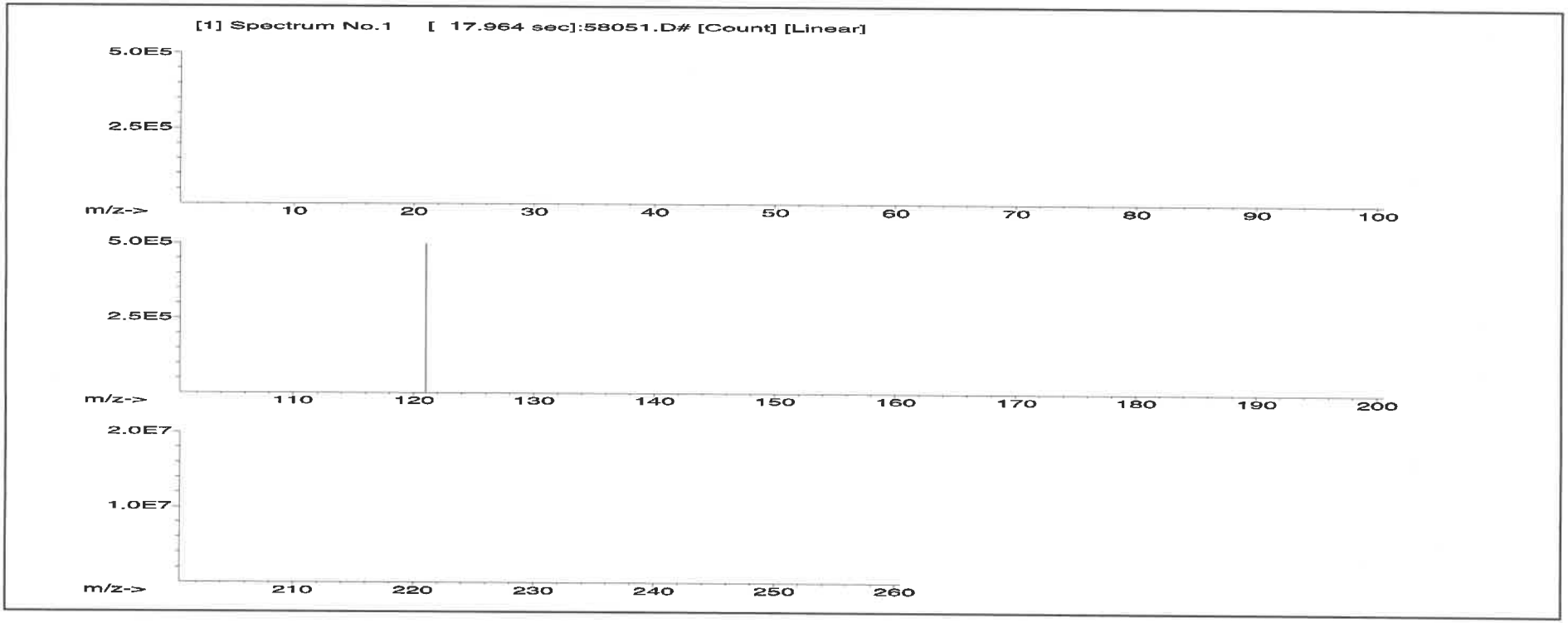
Lot #	Solvent:		
24002546	Nitric Acid		
2.0%	40.0 (mL)	Nitric Acid	

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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Certified Reference Material CRM

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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<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.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

INORGANIC VENTURES™
Refine your results. Redefine your industry.

Certificate of Analysis

R: 8/5/24 M6019

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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 888.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGSR1
Lot Number:	U2-SR730227
Matrix:	0.1% (v/v) HNO3
Value / Analyte(s):	1 000 µg/mL ea: Strontium
Starting Material:	SrCO3
Starting Material Lot#:	M2-2192
Starting Material Purity:	99.9993%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1001 ± 3 µg/mL

Density: 1.000 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 **998 ± 4 µg/mL**
ICP Assay NIST SRM Traceable to 3153a Lot Number: K2-SR650985

Assay Method #2 **1001 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

Assay Method #3 **1001 ± 2 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

M	Ag	<	0.001980	M	Eu	<	0.000495	O	Na		0.000200	M	Se	<	0.013862	O	Zn		0.000143
O	Al		0.000370	O	Fe		0.000410	M	Nb	<	0.000495	i	Si	<		M	Zr	<	0.000495
M	As	<	0.000495	M	Ga	<	0.000495	M	Nd	<	0.000495	M	Sm	<	0.000495				
M	Au	<	0.000989	M	Gd	<	0.000495	O	Ni	<	0.007631	M	Sn	<	0.000990				
M	B	<	0.039606	M	Ge	<	0.000495	M	Os	<	0.000494	s	Sr	<					
M	Ba		0.006486	M	Hf	<	0.000495	i	P	<		M	Ta	<	0.000495				
M	Be	<	0.000990	M	Hg	<	0.000989	M	Pb	<	0.002970	M	Tb	<	0.000495				
M	Bi	<	0.000495	M	Ho	<	0.000495	M	Pd	<	0.003957	M	Te	<	0.027724				
O	Ca		0.004255	M	In	<	0.000495	M	Pr	<	0.000495	M	Th	<	0.000990				
M	Cd		0.001339	M	Ir	<	0.000494	M	Pt	<	0.002970	M	Ti	<	0.005940				
M	Ce	<	0.004950	O	K	<	0.008184	M	Rb	<	0.002970	M	Tl	<	0.000495				
M	Co	<	0.000495	M	La	<	0.000495	M	Re	<	0.000495	M	Tm	<	0.000495				
O	Cr	<	0.003207	O	Li	<	0.000884	O	Rh	<	0.012829	M	U	<	0.001485				
M	Cs	<	0.000990	M	Lu	<	0.002970	M	Ru	<	0.000989	M	V	<	0.001980				
M	Cu		0.000099	O	Mg		0.000064	i	S	<		M	W	<	0.003960				
M	Dy	<	0.000495	O	Mn		0.000066	M	Sb	<	0.014852	O	Y	<	0.000995				
M	Er	<	0.000495	M	Mo	<	0.001980	M	Sc	<	0.001980	M	Yb	<	0.000495				

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

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 87.62 +2 6 $Sr(H_2O)_{6}^{+2}$

Chemical Compatibility - Soluble in HCl, and HNO_3. Avoid H_2SO_4, HF and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicate, carbonate, hydroxide, oxide, fluoride, sulfate, oxalate, chromate, arsenate and tungstate in neutral aqueous media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1 - 3.5% HNO_3 / LDPE container.

Sr Containing Samples (Preparation and Solution) -Metal (Best dissolved in diluted HNO_3); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Dry ash and dissolution in dilute HCl).

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

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 88 amu	1200 ppt	N/A	72Ge16O, 176Yb+2, 176Lu+2 , 176Hf+2
ICP-OES 407.771 nm	0.0004 / 0.00006 µg/mL	1	U, Ce
ICP-OES 421.552 nm	0.0008 / 0.00004 µg/mL	1	Rb
ICP-OES 460.733 nm	0.07 / 0.003 µg/mL	1	Ce

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 03, 2023

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

11.2 Lot Expiration Date

- **March 03, 2028**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M6023

B ! 8/5/24

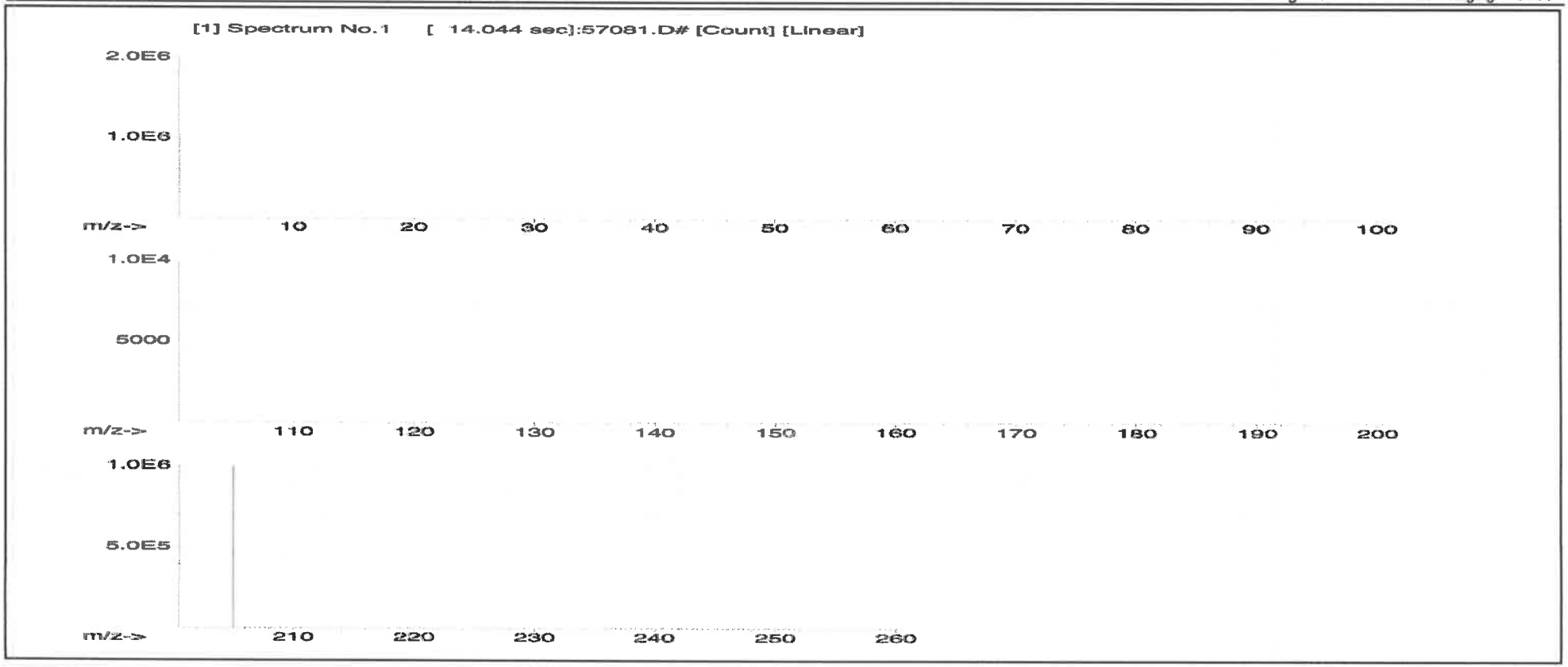
ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT:

Part Number:	**57081**			**Lot #**	
Lot Number:	**062724**		**Solvent:**	24002546	Nitric Acid
Description:	**Thallium (Tl)**				
			2%	40.0 (mL)	Nitric Acid
Expiration Date:	062727				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.1	0.10	Flask Uncertainty		

Aleah O'Brady		
Formulated By:	Aleah O'Brady	062724
Reviewed By:	Pedro L. Rentas	062724

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Thallium nitrate (Tl)	IN037	BCCF4399	1000	99.999	0.10	77.0	2.5975	2.5977	**1000.1**	**2.0**	10102-45-1	0.1 mg/m3	orl-mus 15mg/kg	3158



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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:



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

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Certified Reference Material CRM

M6021

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AR-1539 Certificate Number
https://Absolutestandards.com

Rc. 8/5/24

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57023**	24002546	Nitric Acid	
Lot Number:	**062424**			
Description:	**Vanadium (V)**	2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	062427			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.3	0.06	Flask Uncertainty	

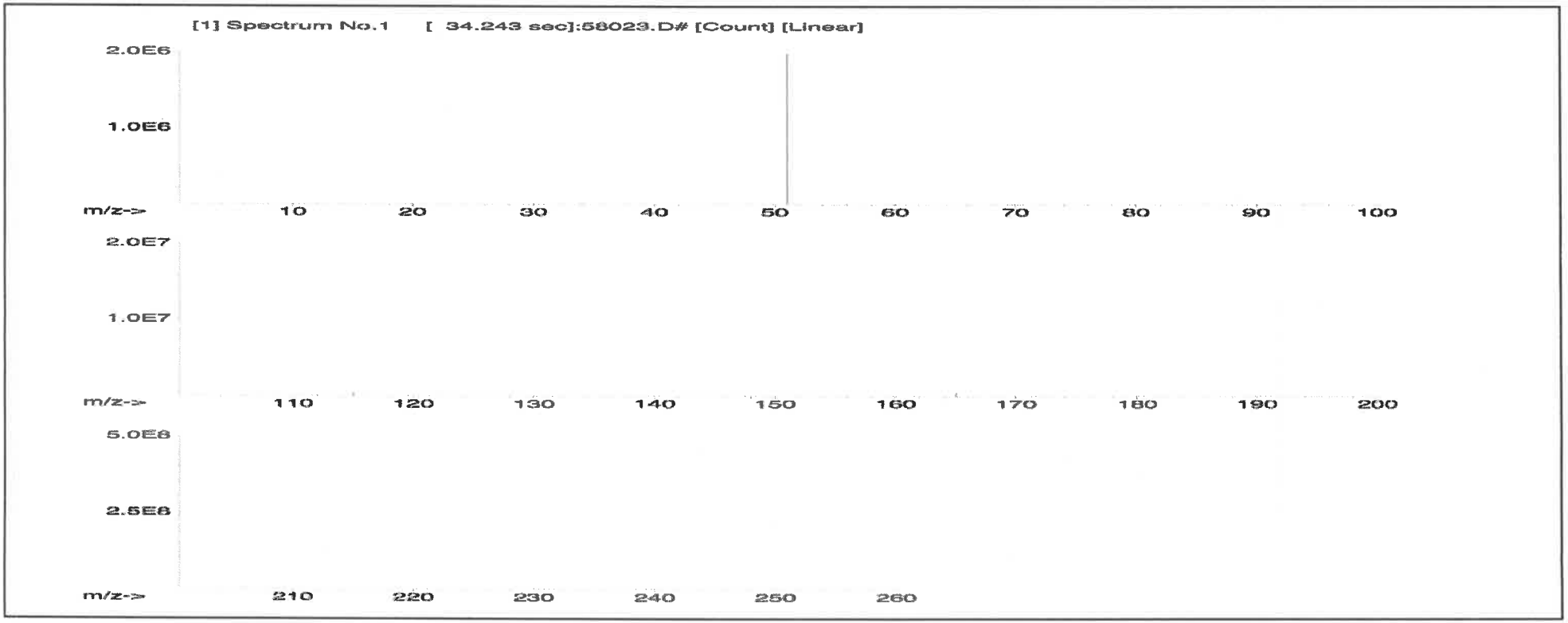
Aleah O'Brady

Formulated By:	Aleah O'Brady	062424

Pedro Rentas

Reviewed By:	Pedro L. Rentas	062424

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium metavanadate (V)	58123	021224	0.1000	200.0	0.084	1000	10000.3	**1000.0**	**2.2**	7803-55-6	0.05 mg/m3	orl-rat 58.1mg/kg	3165



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Certified Reference Material CRM

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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
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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

(T) = Target analyte

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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).

SHIPPING DOCUMENTS

phenova® Certified Reference Materials | A Phenomenex® Company

Packing List

Date	Order #
03/03/2025	333289

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
3/5/2025 14:30

Customer PO #	Terms	PT Acct #	Customer #	Ship Via	F.O.B.
PO2-1517	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	WP0325	8264-04
1	1	0	PT-HG-WP	WP Mercury	WP0325	8264-05
1	1	0	PT-SNTI-WP	WP Tin & Titanium	WP0325	8264-38
1	1	0	PT-CR6-WP	WP Hexavalent Chromium	WP0325	8264-06
1	1	0	PT-DEM-WP	WP Demand	WP0325	8264-07
			PT-MINSET-WP	WP Minerals Set : (MIN1, MIN2 and COND)		
1	1	0	PT-MIN1-WP	WP Minerals 1 Only	WP0325	8264-08
1	1	0	PT-MIN2-WP	WP Minerals 2 Only	WP0325	8264-102
1	1	0	PT-COND-WP	WP Conductivity Only	WP0325	8264-72
1	1	0	PT-SOL-WP	WP Solids	WP0325	8264-09
			PT-NUTSET-WP	WP Nutrients Set : (NUT1, NUT2 and NUT3)		
1	1	0	PT-NUT1-WP	WP NUT1 Simple Nutrients Only	WP0325	8264-10
1	1	0	PT-NUT2-WP	WP NUT2 - Complex Nutrients	WP0325	8264-11
1	1	0	PT-NUT3-WP	WP NUT3 - Nitrite Only	WP0325	8264-69
1	1	0	PT-OGR1L-WP	WP Oil and Grease 1L	WP0325	8264-103
1	1	0	PT-CL-WP	WP Residual Chlorine	WP0325	8264-13
1	1	0	PT-PH-WP	WP pH	WP0325	8264-15
1	1	0	PT-CN-WP	WP Cyanide	WP0325	8264-14
1	1	0	PT-PHEN-WP	WP Phenolics	WP0325	8264-16

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Golden, CO 80403

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Fax: +1-303-940-0043
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www.phenova.com

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PO2-1517	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-S2-WP	WP Sulfide	WP0325	8264-22
1	1	0	PT-SSOL-WP	WP Settleable Solids	WP0325	8264-17
1	1	0	PT-TURB-WP	WP Turbidity	WP0325	8264-20
1	1	0	PT-VOA-WP	WP Volatiles	WP0325	8264-26
1	1	0	PT-BN-WP	WP Base Neutrals	WP0325	8264-27
1	1	0	PT-ACIDS-WP	WP Acids	WP0325	8264-28
1	1	0	PT-PEST-WP	WP Pesticides	WP0325	8264-29
1	1	0	PT-CHLR-WP	WP Chlordane	WP0325	8264-30
1	1	0	PT-TXP-WP	WP Toxaphene	WP0325	8264-31
1	1	0	PT-PCBW-WP	WP PCBs in Water	WP0325	8264-32
1	1	0	PT-HERB-WP	WP Herbicides	WP0325	8264-36
1	1	0	RR-TPH1L-WP	WP TPH 1L	R40367	R40367-104
1	1	0	RR-VSOL-WP	WP Volatile Solids	R40367	R40367-18
1	1	0	RR-SIO2-WP	WP Silica	R40367	R40367-21
1	1	0	RR-COL-WP	WP Color	R40367	R40367-51
1	1	0	RR-GAS-WP	WP Gasoline Range Organics	R40367	R40367-62
1	1	0	RR-DIES-WP	WP Diesel Range Organics	R40367	R40367-63
1	1	0	RR-8011-WP	WP EDB/DBCP/TCP	R40367	R40367-98
1	1	0	RR-PAH-WP	WP PAH-Low Level	R40433	R40433-37

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Packing List

Date	Order #
03/07/2025	335989

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Golden, CO 80403

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Alliance Tech Group - Newark
ATTN: Sohil Jodhani
284 Sheffield St., #1
Mountainside, NJ 07092
USA

Received by: SJ
3/11/2025 9:55

Customer PO #	Terms	PT Acct #	Customer #	Ship Via	F.O.B.
Email: Sohil Jodhani	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	RR-TRIAZINE-WP	WP Triazine Pesticides	R40480	R40480-108

284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Laboratory Certification

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