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DATA PACKAGE

METALS

PROJECT NAME : NWIRP BETHPAGE 112G08005-WE13

TETRA TECH NUS, INC.

661 Andersen Drive

Suite 200

Pittsburgh, PA - 15220-2745

Phone No: 412-921-7090

ORDER ID : Q2439

ATTENTION : Ernie Wu

Laboratory Certification ID # 20012

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Cover Page

Order ID : Q2439

Project ID : NWIRP Bethpage 112G08005-WE13

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
Q2439-01	RW8-SP100-20250626
Q2439-02	RW8-SP303-20250626

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

Signature : _____ Date: 7/3/2025

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

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CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: NWIRP Bethpage 112G08005-WE13
Project Manager : Ernie Wu
Order ID # Q2439
Test Name: Metals Group4

A. Number of Samples and Date of Receipt:
2 Water samples were received on 06/27/2025.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Metals Group4, SVOC-SIMGroup1, TDS and TSS. This data package contains results for Metals Group4.

C. Analytical Techniques:
The analysis of Metals Group4 was based on method 6010D and digestion based on method 3010 (waters).

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

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

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

Signature_____

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

METALS CONFORMANCE/NON-CONFORMANCE SUMMARY

ORDER ID: Q2439 MATRIX: Water

METHOD: 6010D

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

ADDITIONAL COMMENTS:

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

_____ _____

QA REVIEW Date

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APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: Q2439

	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: MOHAMMAD AHMED **Date:** 07/03/2025

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LAB CHRONICLE

OrderID:	Q2439	**OrderDate:**	6/27/2025 11:04:00 AM
Client:	Tetra Tech NUS, Inc.	**Project:**	NWIRP Bethpage 112G08005-WE13
Contact:	Ernie Wu	**Location:**	A33

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
Q2439-01	**RW8-SP100-20250626**	**Water**			**06/26/25**			**06/27/25**
			Metals Group4	6010D		06/30/25	07/01/25	
Q2439-02	**RW8-SP303-20250626**	**Water**			**06/26/25**			**06/27/25**
			Metals Group4	6010D		06/30/25	07/01/25	

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Hit Summary Sheet
SW-846

SDG No.: Q2439 **Order ID:** Q2439

Client: Tetra Tech NUS, Inc. **Project ID:** NWIRP Bethpage 112G08005-WE13

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	LOD	RDL	Units
Client ID : RW8-SP100-20250626									
Q2439-01	RW8-SP100-20250626	Water	Iron	824		11.7	40.0	50.0	ug/L
Client ID : RW8-SP303-20250626									
Q2439-02	RW8-SP303-20250626	Water	Iron	89.4		11.7	40.0	50.0	ug/L

SAMPLE DATA

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/26/25
Project:	NWIRP Bethpage 112G08005-WE13	Date Received:	06/27/25
Client Sample ID:	RW8-SP100-20250626	SDG No.:	Q2439
Lab Sample ID:	Q2439-01	Matrix:	Water
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7439-89-6	Iron	824		1	11.7	40.0	50.0	ug/L	06/30/25 10:05	07/01/25 20:56	6010D	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:	Tetra Tech NUS, Inc.	Date Collected:	06/26/25
Project:	NWIRP Bethpage 112G08005-WE13	Date Received:	06/27/25
Client Sample ID:	RW8-SP303-20250626	SDG No.:	Q2439
Lab Sample ID:	Q2439-02	Matrix:	Water
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7439-89-6	Iron	89.4		1	11.7	40.0	50.0	ug/L	06/30/25 10:05	07/01/25 21:00	6010D	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

METAL CALIBRATION DATA

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** Q2439

Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q2439 **SAS No.:** Q2439

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	Iron	3700	4000	93	90 - 110	P	07/01/2025	16:17	LB136345

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** Q2439

Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q2439 **SAS No.:** Q2439

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	Iron	107	100	107	80 - 120	P	07/01/2025	16:31	LB136345

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** Q2439

Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q2439 **SAS No.:** Q2439

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	Iron	5170	5000	103	90 - 110	P	07/01/2025	17:07	LB136345
CCV02	Iron	4920	5000	98	90 - 110	P	07/01/2025	18:37	LB136345
CCV03	Iron	4790	5000	96	90 - 110	P	07/01/2025	19:33	LB136345
CCV04	Iron	4960	5000	99	90 - 110	P	07/01/2025	20:43	LB136345
CCV05	Iron	4750	5000	95	90 - 110	P	07/01/2025	21:26	LB136345
CCV06	Iron	4770	5000	96	90 - 110	P	07/01/2025	21:45	LB136345

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Metals

- 2b -
CRDL STANDARD FOR AA & ICP

Client: Tetra Tech NUS, Inc. **SDG No.:** Q2439

Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q2439 **SAS No.:** Q2439

Initial Calibration Source:

Continuing Calibration Source:

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Iron	104	100	104	65 - 135	P	07/01/2025	16:41	LB136345

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** Q2439

Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q2439 **SAS No.:** Q2439

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Iron	23.4	+/-50	U	80.0	100	P	07/01/2025	16:37	LB136345

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** Q2439

Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q2439 **SAS No.:** Q2439

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Iron	23.4	+/-50	U	80.0	100	P	07/01/2025	17:12	LB136345
CCB02	Iron	23.4	+/-50	U	80.0	100	P	07/01/2025	18:41	LB136345
CCB03	Iron	23.4	+/-50	U	80.0	100	P	07/01/2025	19:37	LB136345
CCB04	Iron	23.4	+/-50	U	80.0	100	P	07/01/2025	20:47	LB136345
CCB05	Iron	23.4	+/-50	U	80.0	100	P	07/01/2025	21:31	LB136345
CCB06	Iron	23.4	+/-50	U	80.0	100	P	07/01/2025	21:49	LB136345

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Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** Q2439

Instrument: P5

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	LOD ug/L	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB168661BL		**WATER**		**Batch Number:**		**PB168661**		**Prep Date:**	**06/30/2025**	
	Iron	11.7	<25	U	40.0	50.0	P	07/01/2025	21:41	LB136345

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Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: Tetra Tech NUS, Inc. **SDG No.:** Q2439

Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q2439 **SAS No.:** Q2439

ICS Source: EPA **Instrument ID:** P5

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	Iron	91600	100000	92	85600	116500	07/01/2025	16:50	LB136345
ICSAB01	Iron	94600	99000	96	84400	114500	07/01/2025	16:54	LB136345

METAL QC DATA

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metals
- 5a -
MATRIX SPIKE SUMMARY

client: Tetra Tech NUS, Inc. **level:** low **sdg no.:** Q2439

contract: TETR06 **lab code:** CHEM **case no.:** Q2439 **sas no.:** Q2439

matrix: Water **sample id:** Q2439-02 **client id:** RW8-SP303-20250626MS

Percent Solids for Sample: NA **Spiked ID:** Q2439-02MS **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Iron	ug/L	87 - 115	1690		89.4		1500	107		P

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metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: Tetra Tech NUS, Inc. **level:** low **sdg no.:** Q2439

contract: TETR06 **lab code:** CHEM **case no.:** Q2439 **sas no.:** Q2439

matrix: Water **sample id:** Q2439-02 **client id:** RW8-SP303-20250626MSD

Percent Solids for Sample: NA **Spiked ID:** Q2439-02MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Iron	ug/L	87 - 115	1560		89.4		1500	98		P

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Metals
- 5b -

Client: Tetra Tech NUS, Inc. **SDG No.:** Q2439

Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q2439 **SAS No.:** Q2439

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

Sample ID: **Spiked ID:**

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

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Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** Q2439

Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q2439 **SAS No.:** Q2439

Matrix: Water **Sample ID:** Q2439-02 **Client ID:** RW8-SP303-20250626DUP

Percent Solids for Sample: NA **Duplicate ID** Q2439-02DUP **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Iron	ug/L	20	89.4		84.8		5		P

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

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Metals

- 6 -

DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** Q2439

Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q2439 **SAS No.:** Q2439

Matrix: Water **Sample ID:** Q2439-02MS **Client ID:** RW8-SP303-20250626MSD

Percent Solids for Sample: NA **Duplicate ID** Q2439-02MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Iron	ug/L	20	1690		1560		8		P

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

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LABORATORY CONTROL SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** Q2439

Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q2439 **SAS No.:** Q2439

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB168661BS							
Iron	ug/L	1500	1650		110	87 - 115	P

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Metals

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ICP SERIAL DILUTIONS

SAMPLE NO.

RW8-SP303-20250626L

Lab Name: Chemtech Consulting Group **Contract:** TETR06

Lab Code: CHEM **Lb No.:** lb136345 **Lab Sample ID :** Q2439-02L **SDG No.:** Q2439

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

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Iron	89.4		88.5	J	1		P

METAL PREPARATION & INSTRUMENT DATA

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Metals
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ICP INTERELEMENT CORRECTION FACTORS

Client: Tetra Tech NUS, Inc. **SDG No.:** Q2439

Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q2439 **SAS No.:** Q2439

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
Iron	240.488	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

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Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: Tetra Tech NUS, Inc. **SDG No.:** Q2439

Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q2439 **SAS No.:** Q2439

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
Iron	240.488	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

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Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: Tetra Tech NUS, Inc. **SDG No.:** Q2439

Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q2439 **SAS No.:** Q2439

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
Iron	240.488	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

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Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: Tetra Tech NUS, Inc. **SDG No.:** Q2439

Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q2439 **SAS No.:** Q2439

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
Iron	240.488	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

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Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: Tetra Tech NUS, Inc. **SDG No.:** Q2439

Contract: TETR06 **Lab Code:** CHEM **Case No.:** Q2439 **SAS No.:** Q2439

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
Iron	240.488	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

METAL PREPARATION & ANALYICAL SUMMARY

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

Metals
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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** Q2439

Contract: TETR06 **Lab Code:** CHEM **Method:**

Case No.: Q2439 **SAS No.:** Q2439

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB168661**						
PB168661BL	PB168661BL	MB	WATER	06/30/2025	50.0	25.0	
PB168661BS	PB168661BS	LCS	WATER	06/30/2025	50.0	25.0	
Q2439-01	RW8-SP100-20250626	SAM	WATER	06/30/2025	50.0	25.0	
Q2439-02	RW8-SP303-20250626	SAM	WATER	06/30/2025	50.0	25.0	
Q2439-02DUP	RW8-SP303-20250626DUP	DUP	WATER	06/30/2025	50.0	25.0	
Q2439-02MS	RW8-SP303-20250626MS	MS	WATER	06/30/2025	50.0	25.0	
Q2439-02MSD	RW8-SP303-20250626MSD	MSD	WATER	06/30/2025	50.0	25.0	

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metals
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ANALYSIS RUN LOG

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

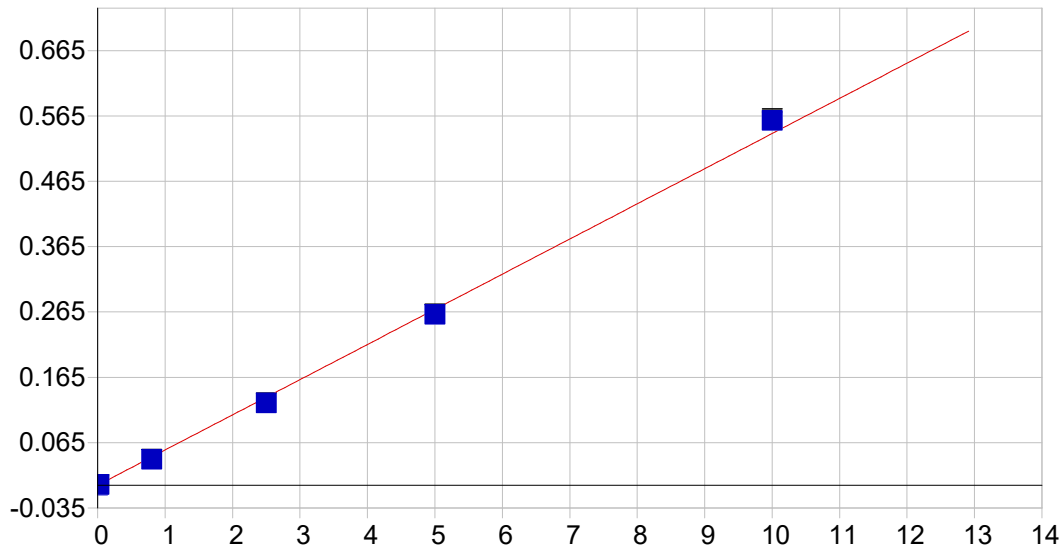
Lab code: CHEM **Case no.:** Q2439 **Sas no.:** Q2439 **Sdg no.:** Q2439

Instrument id number: **Method:** **Run number:** LB136345

Start date: 07/01/2025 **End date:** 07/01/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1528	Fe
S1	S1	1	1533	Fe
S2	S2	1	1537	Fe
S3	S3	1	1542	Fe
S4	S4	1	1546	Fe
S5	S5	1	1550	Fe
ICV01	ICV01	1	1617	Fe
LLICV01	LLICV01	1	1631	Fe
ICB01	ICB01	1	1637	Fe
CRI01	CRI01	1	1641	Fe
ICSA01	ICSA01	1	1650	Fe
ICSAB01	ICSAB01	1	1654	Fe
CCV01	CCV01	1	1707	Fe
CCB01	CCB01	1	1712	Fe
PB168661BS	PB168661BS	1	1811	Fe
CCV02	CCV02	1	1837	Fe
CCB02	CCB02	1	1841	Fe
CCV03	CCV03	1	1933	Fe
CCB03	CCB03	1	1937	Fe
CCV04	CCV04	1	2043	Fe
CCB04	CCB04	1	2047	Fe
Q2439-01	RW8-SP100-20250626	1	2056	Fe
Q2439-02	RW8-SP303-20250626	1	2100	Fe
Q2439-02DUP	RW8-SP303-20250626DUP	1	2105	Fe
Q2439-02L	RW8-SP303-20250626L	5	2109	Fe
Q2439-02MS	RW8-SP303-20250626MS	1	2113	Fe
Q2439-02MSD	RW8-SP303-20250626MSD	1	2118	Fe
CCV05	CCV05	1	2126	Fe
CCB05	CCB05	1	2131	Fe
PB168661BL	PB168661BL	1	2141	Fe
CCV06	CCV06	1	2145	Fe
CCB06	CCB06	1	2149	Fe

METAL
RAW DATA

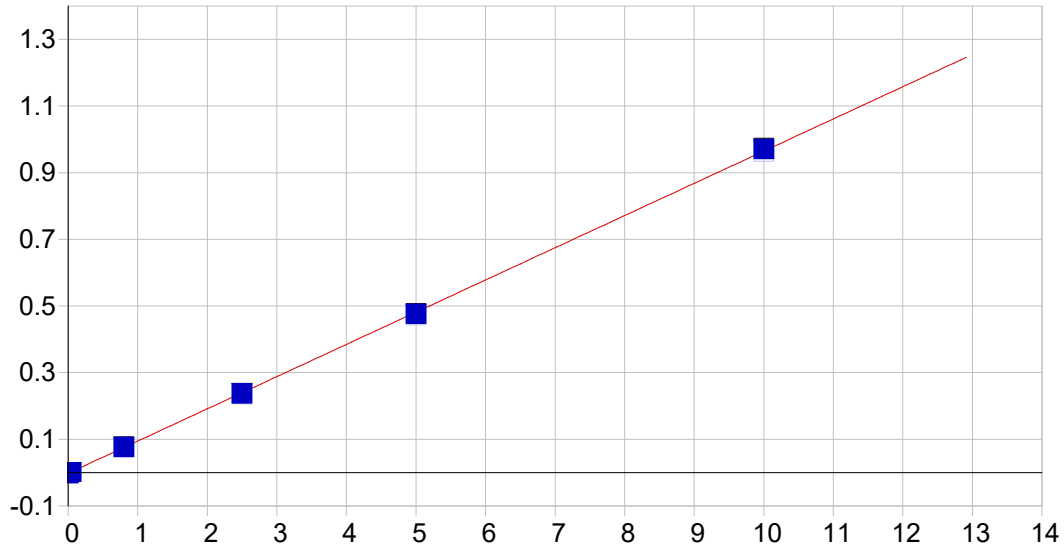


As 189.042 {479}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000058	Re-Slope:	1.000000
A1 (Gain):	0.053818	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999055	Status:	OK.
Std Error of Est:	0.000055		
Predicted MDL:	0.003303		
Predicted MQL:	0.011011		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	-.00006	.000	1
S1	.02000	.01714	-.003	-14.3	.00086	.000	1
S2	.80000	.73209	-.068	-8.49	.03933	.000	1
S3	2.5000	2.3383	-.162	-6.47	.12576	.000	1
S4	5.0000	4.8582	-.142	-2.84	.26136	.000	1
S5	10.000	10.374	.374	3.74	.55818	.002	1

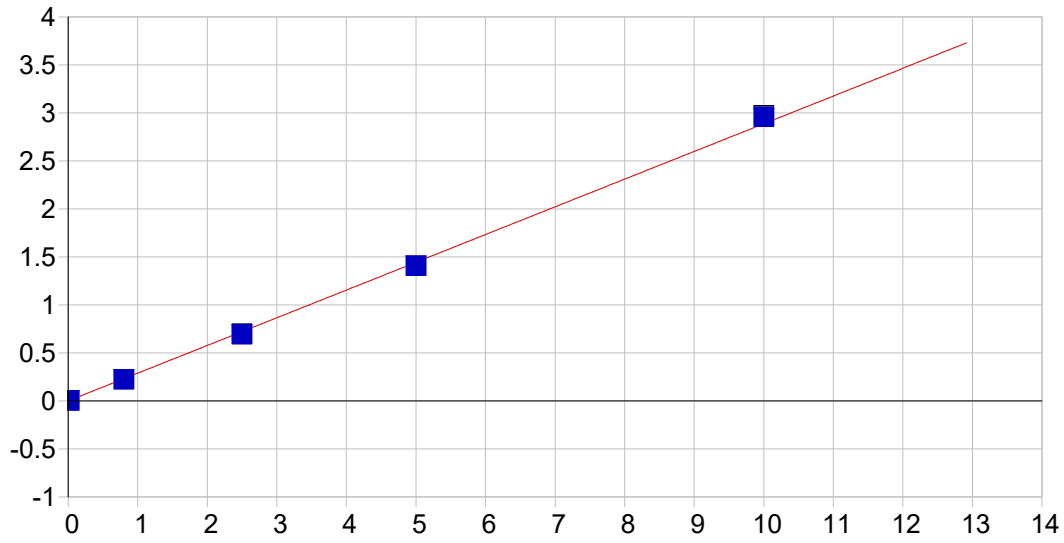


Tl 190.856 {477}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.002004	Re-Slope:	1.000000
A1 (Gain):	0.096667	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999964	Status:	OK.
Std Error of Est:	0.000027		
Predicted MDL:	0.002880		
Predicted MQL:	0.009600		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00200	.000	1
S1	.04000	.04010	.000	.245	.00178	.000	1
S2	.80000	.81207	.012	1.51	.07589	.000	1
S3	2.5000	2.4775	-.023	-.900	.23560	.001	1
S4	5.0000	4.9481	-.052	-1.04	.47254	.001	1
S5	10.000	10.062	.062	.622	.96313	.003	1

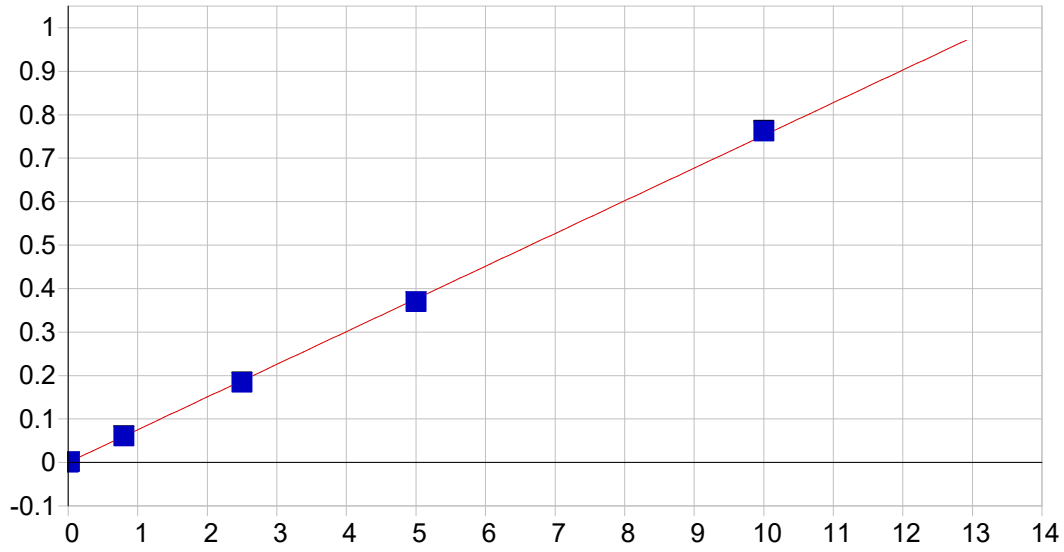


Pb 220.353 {453}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000443	Re-Slope:	1.000000
A1 (Gain):	0.288703	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999614	Status:	OK.
Std Error of Est:	0.000145		
Predicted MDL:	0.002062		
Predicted MQL:	0.006873		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00044	.001	1
S1	.01200	.01084	-.001	-9.65	.00350	.000	1
S2	.80000	.77396	-.026	-3.26	.22368	.000	1
S3	2.5000	2.4047	-.095	-3.81	.69403	.002	1
S4	5.0000	4.8723	-.128	-2.55	1.4058	.002	1
S5	10.000	10.250	.250	2.50	2.9571	.013	1

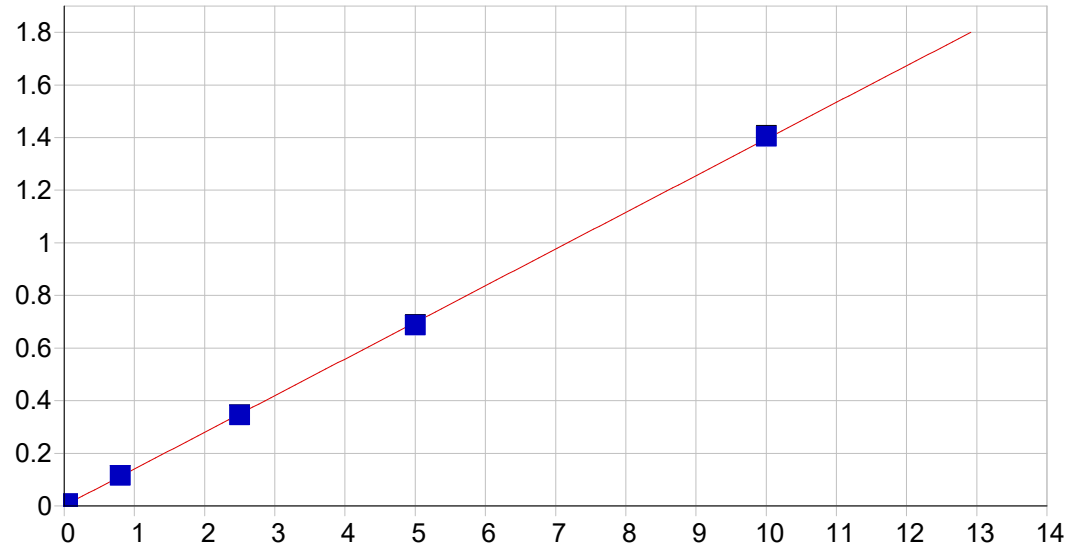


Se 196.090 {472}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000100	Re-Slope:	1.000000
A1 (Gain):	0.075231	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999884	Status:	OK.
Std Error of Est:	0.000027		
Predicted MDL:	0.004927		
Predicted MQL:	0.016424		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00010	.000	1
S1	.02000	.01914	-.001	-4.31	.00154	.000	1
S2	.80000	.80768	.008	.960	.06083	.000	1
S3	2.5000	2.4509	-.049	-1.96	.18437	.000	1
S4	5.0000	4.9130	-.087	-1.74	.36949	.001	1
S5	10.000	10.129	.129	1.29	.76169	.002	1

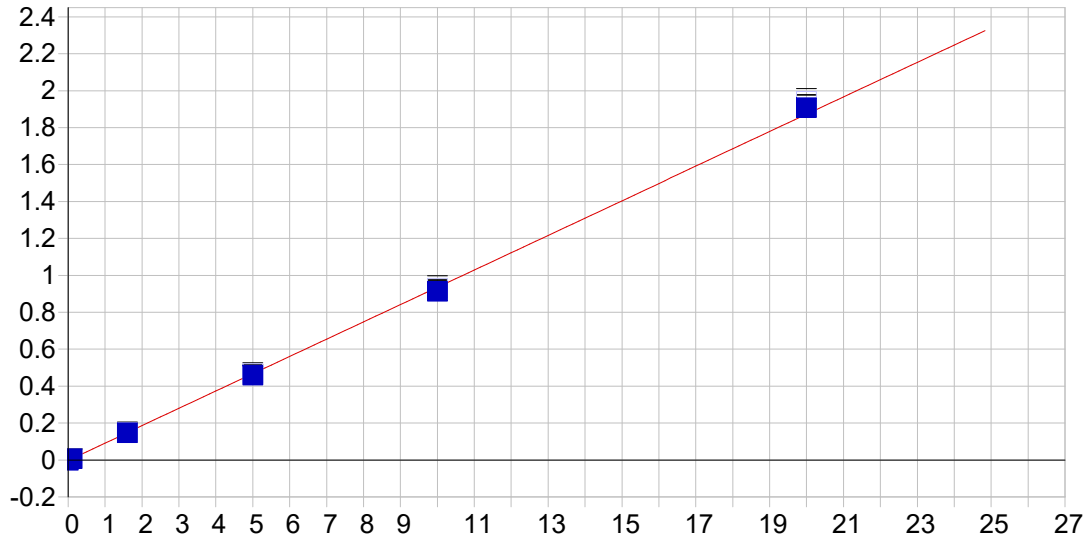


Sb 206.833 {463}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000968	Re-Slope:	1.000000
A1 (Gain):	0.139337	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999935	Status:	OK.
Std Error of Est:	0.000059		
Predicted MDL:	0.003567		
Predicted MQL:	0.011890		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00097	.000	1
S1	.05000	.05114	.001	2.28	.00802	.000	1
S2	.80000	.82035	.020	2.54	.11510	.000	1
S3	2.5000	2.4763	-.024	-.947	.34548	.000	1
S4	5.0000	4.9274	-.073	-1.45	.68649	.001	1
S5	10.000	10.075	.075	.747	1.4026	.004	1

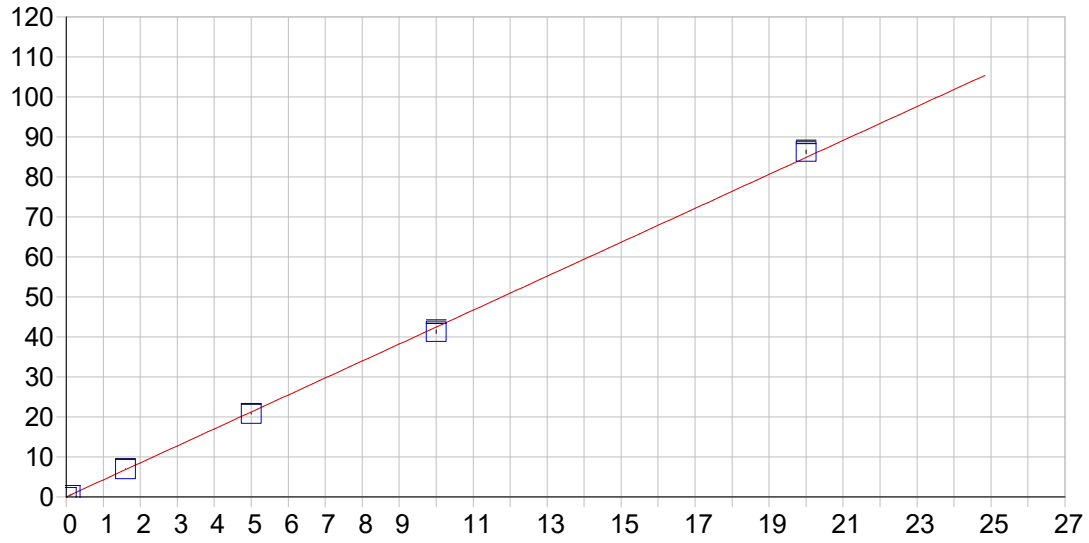


Al 396.152 { 85}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001729	Re-Slope:	1.000000
A1 (Gain):	0.093708	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999778	Status:	OK.
Std Error of Est:	0.000149		
Predicted MDL:	0.040707		
Predicted MQL:	0.135689		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00002	.000	.000	-.00173	.002	1
S1	.10000	.08431	-.016	-15.7	.00687	.003	1
S2	1.6000	1.5773	-.023	-1.42	.14887	.003	1
S3	5.0000	4.9118	-.088	-1.76	.46727	.005	1
S4	10.000	9.7591	-.241	-2.41	.93023	.013	1
S5	20.000	20.368	.368	1.84	1.9418	.016	1

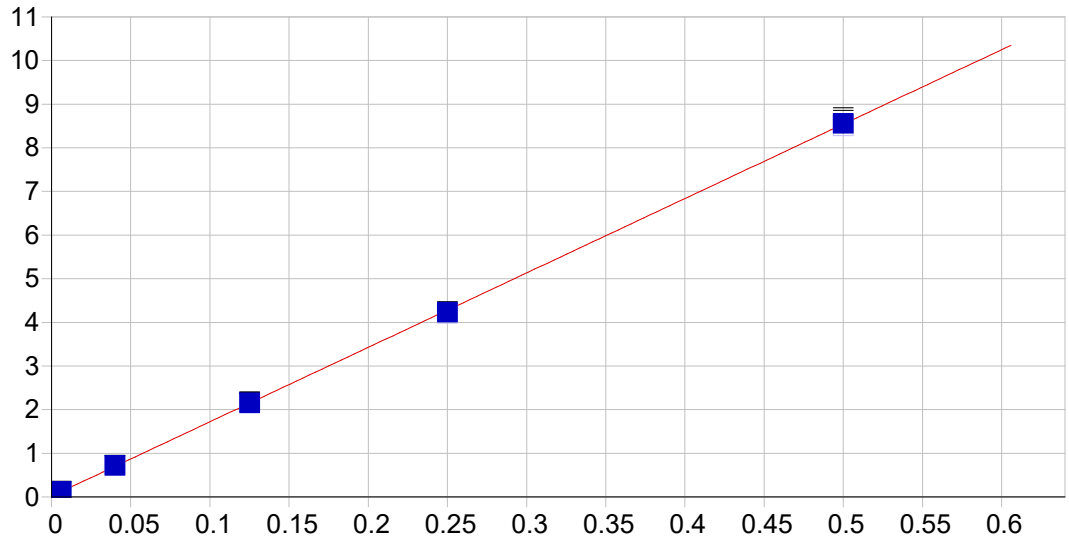


Ba 493.409 { 68}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.024910	Re-Slope:	1.000000
A1 (Gain):	4.242375	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999783	Status:	OK.
Std Error of Est:	0.006553		
Predicted MDL:	0.001536		
Predicted MQL:	0.005120		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.02490	.003	1
S1	.10000	.10286	.003	2.86	.46128	.007	1
S2	1.6000	1.6378	.038	2.36	6.9732	.031	1
S3	5.0000	4.8931	-.107	-2.14	20.783	.064	1
S4	10.000	9.7332	-.267	-2.67	41.317	.404	1
S5	20.000	20.333	.333	1.67	86.285	.409	1

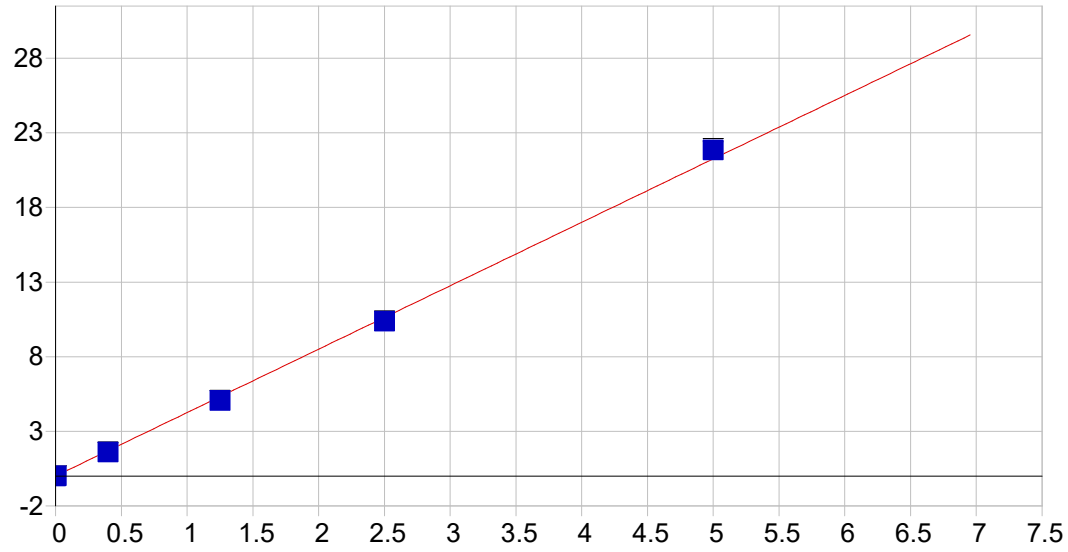


Be 234.861 {144}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.016481	Re-Slope:	1.000000
A1 (Gain):	17.053179	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999947	Status:	OK.
Std Error of Est:	0.000502		
Predicted MDL:	0.000182		
Predicted MQL:	0.000607		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.01647	.005	1
S1	.00600	.00634	.000	5.59	.12343	.004	1
S2	.04000	.04130	.001	3.25	.71625	.003	1
S3	.12500	.12535	.000	.280	2.1399	.020	1
S4	.25000	.24713	-.003	-1.15	4.2025	.018	1
S5	.50000	.50088	.001	.176	8.5012	.131	1

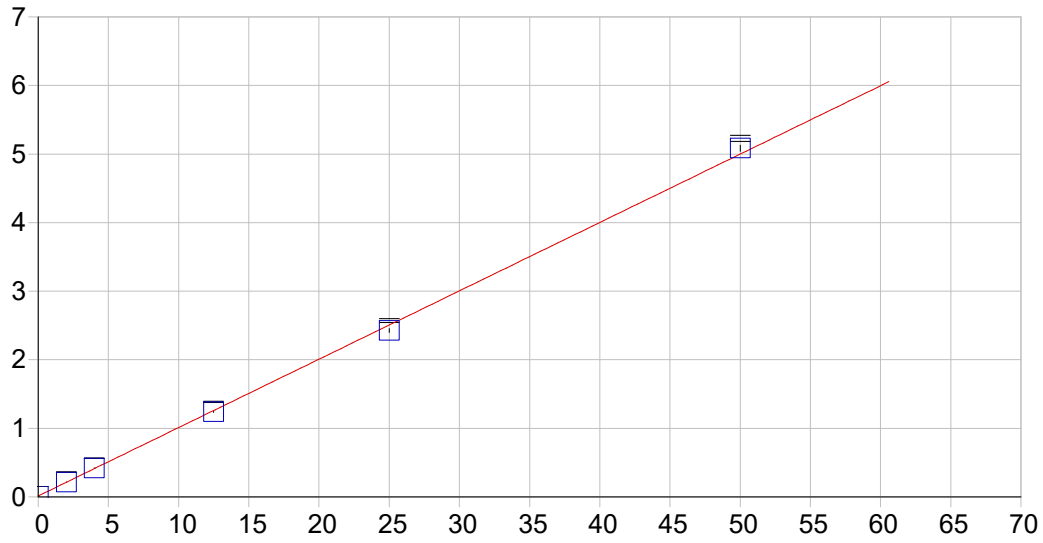


Cd 214.438 {457}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000061	Re-Slope:	1.000000
A1 (Gain):	4.251094	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999495	Status:	OK.
Std Error of Est:	0.001226		
Predicted MDL:	0.000093		
Predicted MQL:	0.000308		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00006	.001	1
S1	.00600	.00532	-.001	-11.4	.02256	.000	1
S2	.40000	.37850	-.022	-5.38	1.6091	.001	1
S3	1.2500	1.1915	-.058	-4.68	5.0657	.008	1
S4	2.5000	2.4411	-.059	-2.36	10.378	.017	1
S5	5.0000	5.1395	.140	2.79	21.850	.105	1

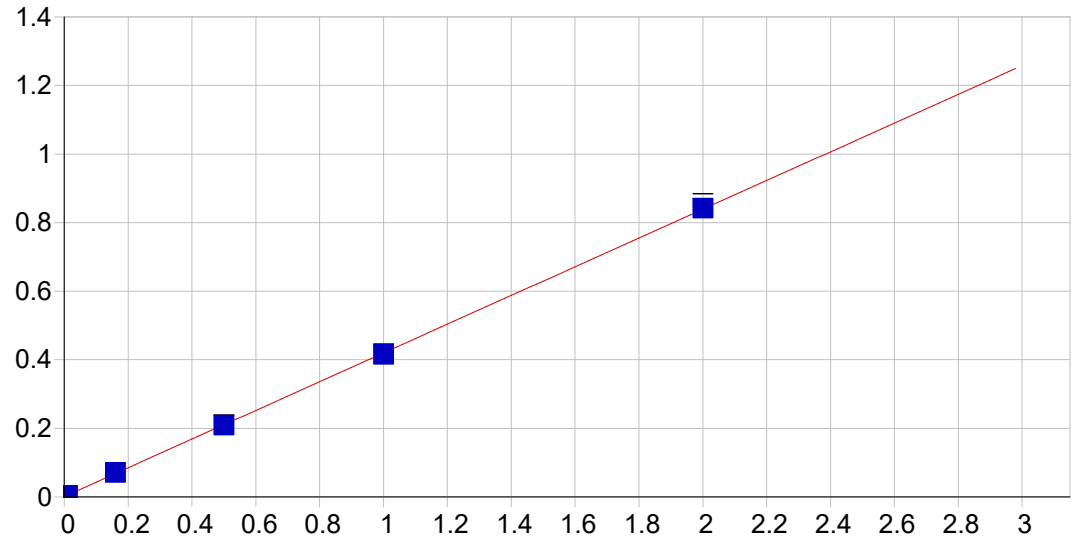


Ca 373.690 { 90}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.014065	Re-Slope:	1.000000
A1 (Gain):	0.099700	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999757	Status:	OK.
Std Error of Est:	0.001164		
Predicted MDL:	0.034186		
Predicted MQL:	0.113953		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00002	-.000	.000	.01406	.001	1
S1	2.0000	2.0335	.033	1.67	.21680	.004	1
S2	4.0000	4.0839	.084	2.10	.42123	.000	1
S3	12.500	12.307	-.193	-1.55	1.2411	.007	1
S4	25.000	24.208	-.792	-3.17	2.4276	.028	1
S5	50.000	50.868	.868	1.74	5.0856	.045	1

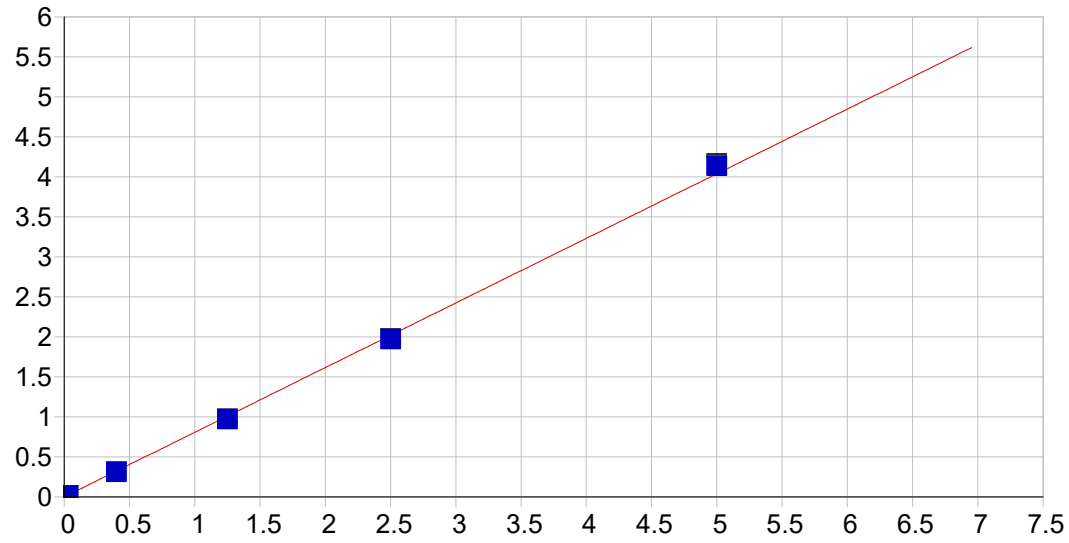


Cr 267.716 {126}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001045	Re-Slope:	1.000000
A1 (Gain):	0.418965	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999941	Status:	OK.
Std Error of Est:	0.000034		
Predicted MDL:	0.001200		
Predicted MQL:	0.003998		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00104	.000	1
S1	.01000	.01059	.001	5.87	.00549	.000	1
S2	.16000	.16624	.006	3.90	.07075	.000	1
S3	.50000	.49661	-.003	-.677	.20930	.000	1
S4	1.0000	.98948	-.011	-1.05	.41598	.001	1
S5	2.0000	2.0071	.007	.354	.84269	.013	1

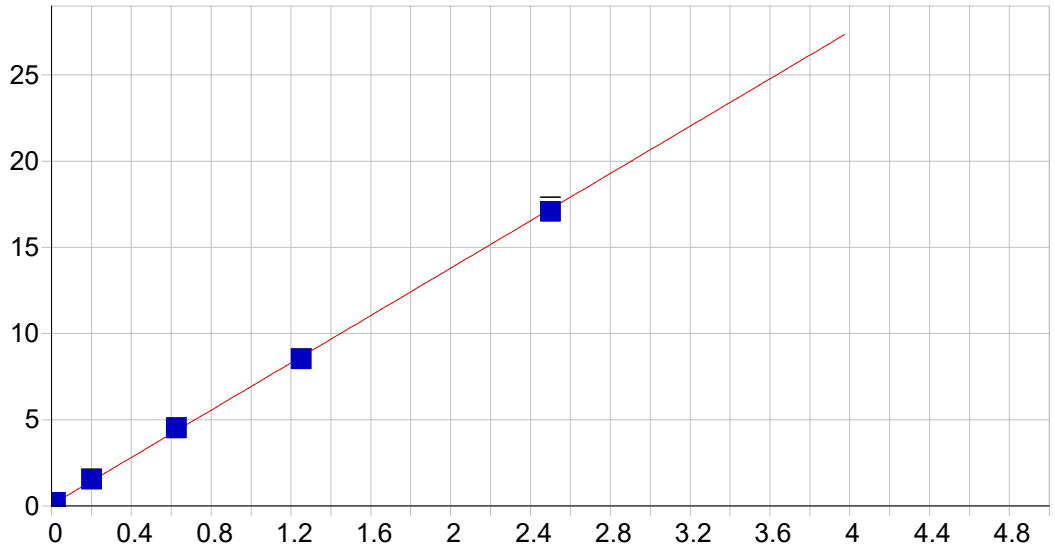


Co 228.616 {448}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000463	Re-Slope:	1.000000
A1 (Gain):	0.807841	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999613	Status:	OK.
Std Error of Est:	0.000457		
Predicted MDL:	0.000487		
Predicted MQL:	0.001624		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00047	.000	1
S1	.03000	.02877	-.001	-4.11	.02356	.000	1
S2	.40000	.38516	-.015	-3.71	.31201	.001	1
S3	1.2500	1.2010	-.049	-3.92	.97189	.001	1
S4	2.5000	2.4397	-.060	-2.41	1.9738	.003	1
S5	5.0000	5.1254	.125	2.51	4.1459	.018	1

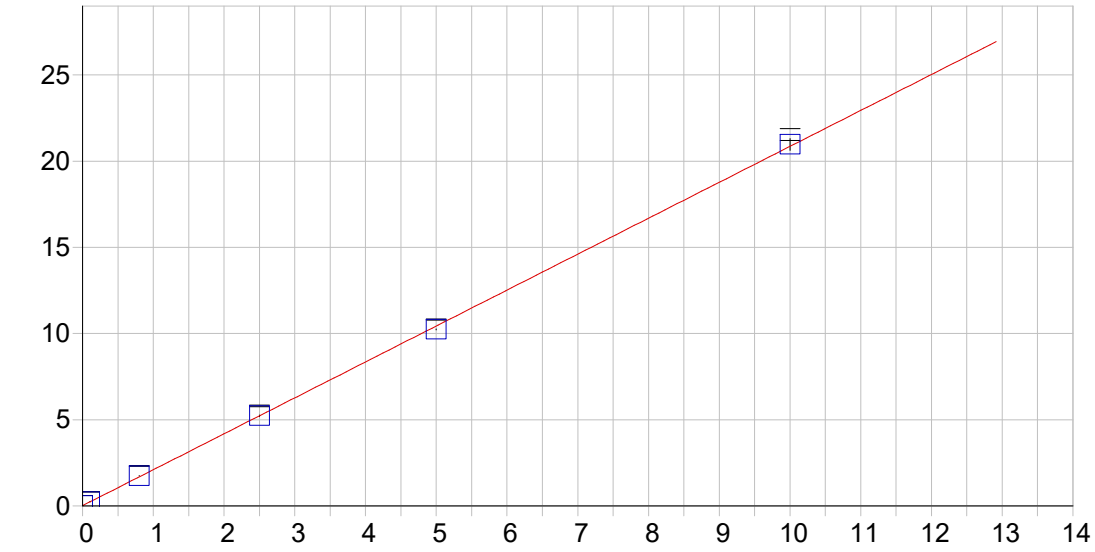


Cu 324.754 {104}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.064278	Re-Slope:	1.000000
A1 (Gain):	6.864667	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999716	Status:	OK.
Std Error of Est:	0.001921		
Predicted MDL:	0.001004		
Predicted MQL:	0.003348		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.06426	.001	1
S1	.02000	.02156	.002	7.82	.21236	.006	1
S2	.20000	.21606	.016	8.03	1.5481	.018	1
S3	.62500	.64682	.022	3.49	4.5066	.042	1
S4	1.2500	1.2325	-.018	-1.40	8.5289	.025	1
S5	2.5000	2.4781	-.022	-.876	17.084	.257	1

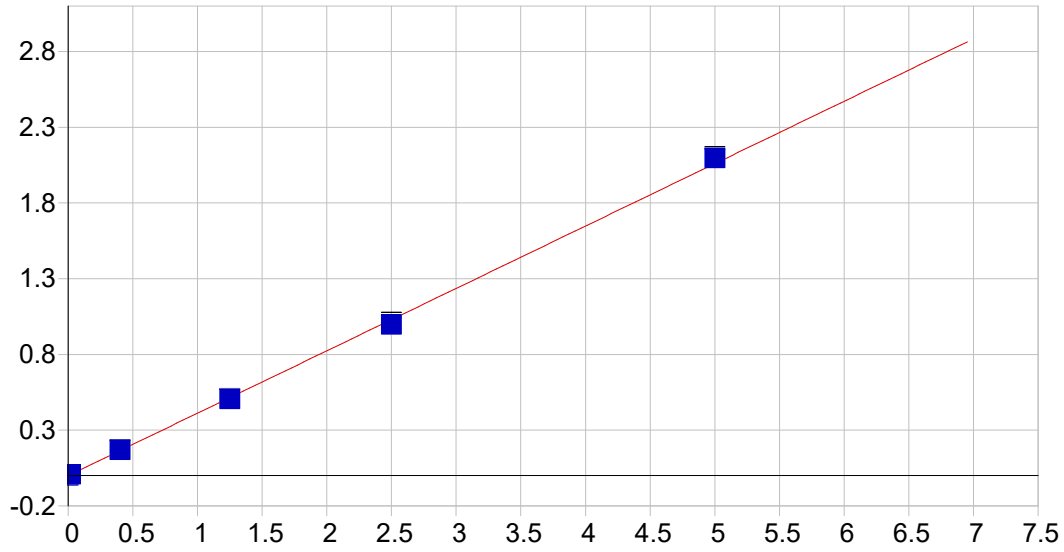


Fe 259.837 {130}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.015101	Re-Slope:	1.000000
A1 (Gain):	2.084436	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999908	Status:	OK.
Std Error of Est:	0.001482		
Predicted MDL:	0.001950		
Predicted MQL:	0.006499		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.01509	.002	1
S1	.10000	.10485	.005	4.85	.23365	.002	1
S2	.80000	.82949	.029	3.69	1.7441	.015	1
S3	2.5000	2.5035	.004	.141	5.2336	.047	1
S4	5.0000	4.9067	-.093	-1.87	10.243	.028	1
S5	10.000	10.055	.055	.554	20.975	.342	1

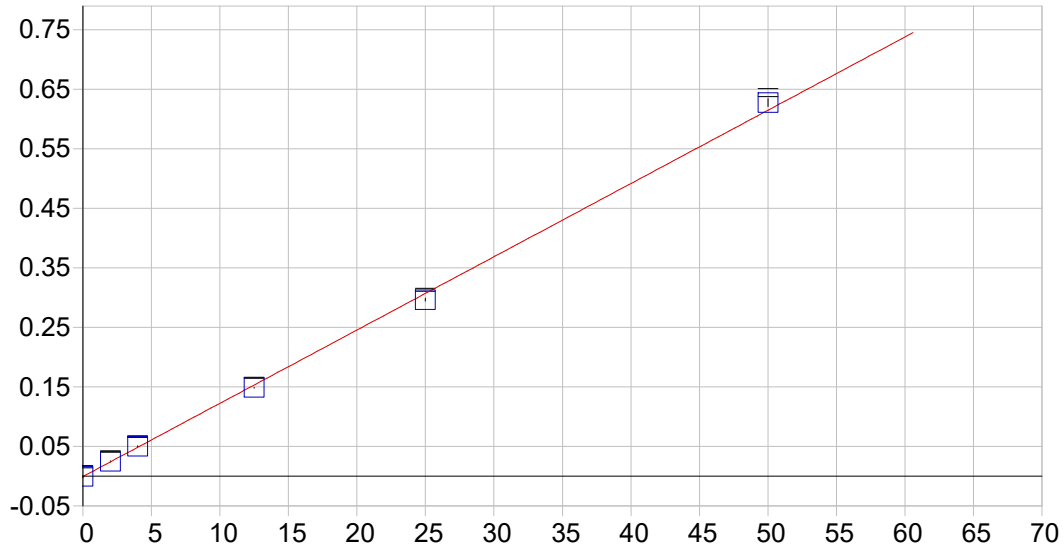


Mn 257.610 {131}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000213	Re-Slope:	1.000000
A1 (Gain):	0.411856	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999746	Status:	OK.
Std Error of Est:	0.000154		
Predicted MDL:	0.002393		
Predicted MQL:	0.007977		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00021	.001	1
S1	.02000	.02096	.001	4.80	.00886	.001	1
S2	.40000	.40985	.010	2.46	.16916	.001	1
S3	1.2500	1.2290	-.021	-1.68	.50685	.004	1
S4	2.5000	2.4216	-.078	-3.14	.99848	.015	1
S5	5.0000	5.0886	.089	1.77	2.0978	.009	1

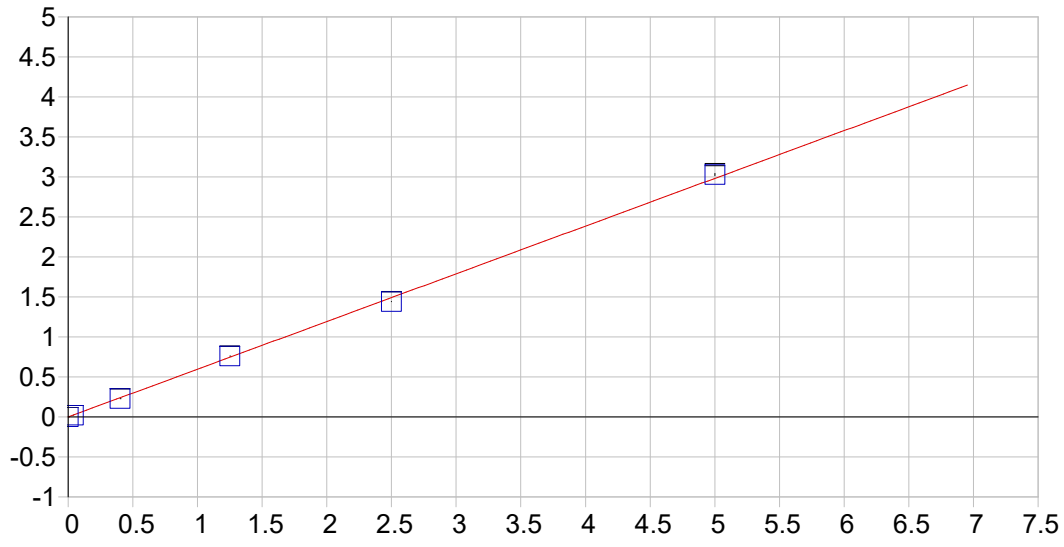


Mg 279.079 {121}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000702	Re-Slope:	1.000000
A1 (Gain):	0.012313	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999644	Status:	OK.
Std Error of Est:	0.000174		
Predicted MDL:	0.099793		
Predicted MQL:	0.332642		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00004	-.000	.000	-.00070	.002	1
S1	2.0000	2.0720	.072	3.60	.02481	.001	1
S2	4.0000	4.1099	.110	2.75	.04990	.001	1
S3	12.500	12.147	-.353	-2.83	.14886	.001	1
S4	25.000	24.140	-.860	-3.44	.29652	.002	1
S5	50.000	51.032	1.03	2.06	.62763	.007	1

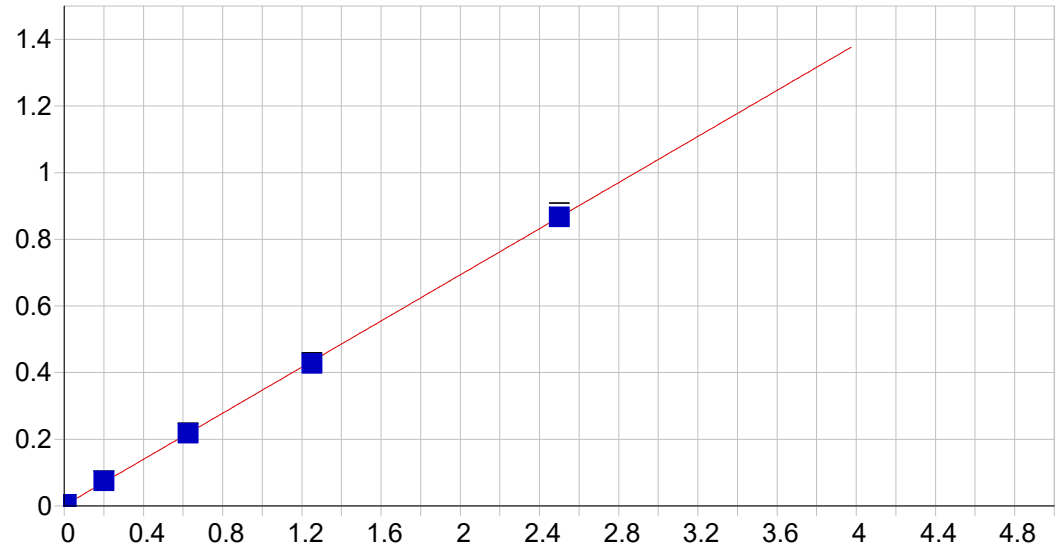


Ni 231.604 {446}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000178	Re-Slope:	1.000000
A1 (Gain):	0.596388	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999693	Status:	OK.
Std Error of Est:	0.000347		
Predicted MDL:	0.000735		
Predicted MQL:	0.002451		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	-.00017	.000	1
S1	.04000	.03632	-.004	-9.19	.02149	.001	1
S2	.40000	.38184	-.018	-4.54	.22755	.000	1
S3	1.2500	1.2742	.024	1.93	.75972	.001	1
S4	2.5000	2.4174	-.083	-3.31	1.4415	.002	1
S5	5.0000	5.0803	.080	1.61	3.0297	.013	1

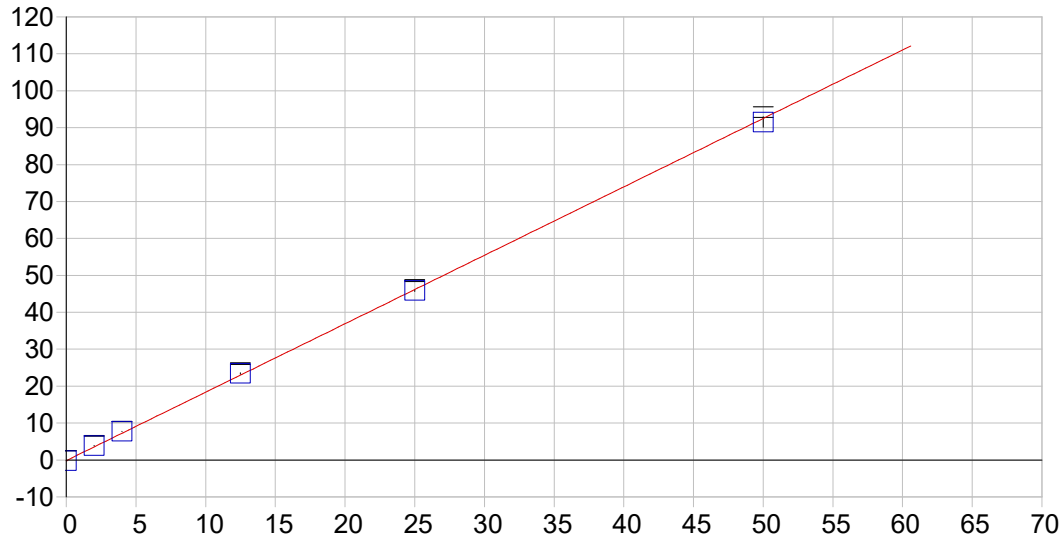


Ag 328.068 {103}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001403	Re-Slope:	1.000000
A1 (Gain):	0.346045	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999866	Status:	OK.
Std Error of Est:	0.000047		
Predicted MDL:	0.001680		
Predicted MQL:	0.005601		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00140	.000	1
S1	.01000	.01072	.001	7.19	.00510	.001	1
S2	.20000	.21350	.014	6.75	.07523	.000	1
S3	.62500	.62717	.002	.347	.21825	.001	1
S4	1.2500	1.2322	-.018	-1.43	.42742	.002	1
S5	2.5000	2.5015	.001	.058	.86629	.012	1

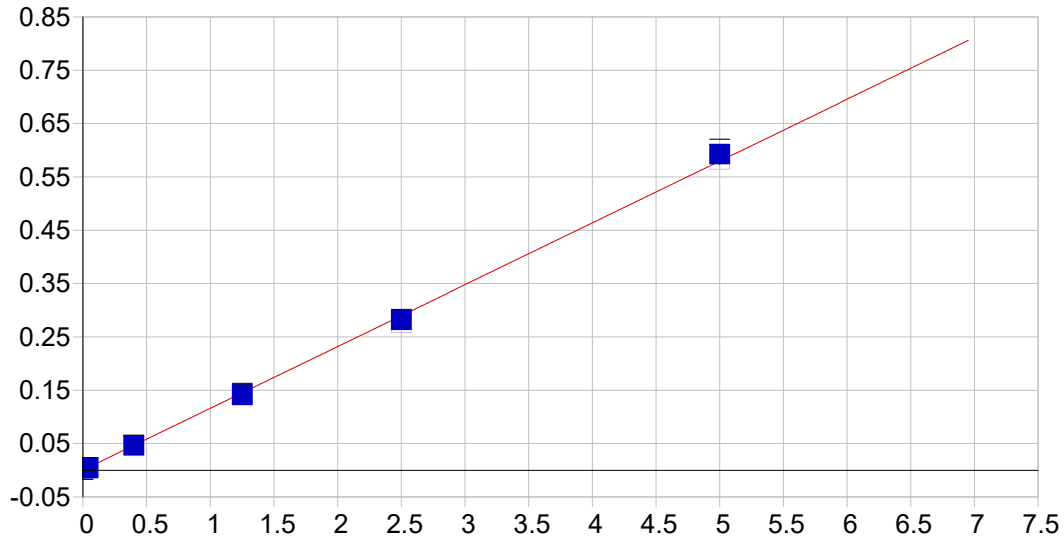


Na 818.326 { 41}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.168419	Re-Slope:	1.000000
A1 (Gain):	1.853434	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999757	Status:	OK.
Std Error of Est:	0.021613		
Predicted MDL:	0.011156		
Predicted MQL:	0.037187		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00032	-.000	.000	-.16901	.039	1
S1	2.0000	2.1811	.181	9.06	3.8741	.069	1
S2	4.0000	4.2722	.272	6.81	7.7499	.043	1
S3	12.500	12.722	.222	1.77	23.410	.208	1
S4	25.000	24.860	-.140	-.562	45.907	.278	1
S5	50.000	49.466	-.534	-1.07	91.513	1.42	1

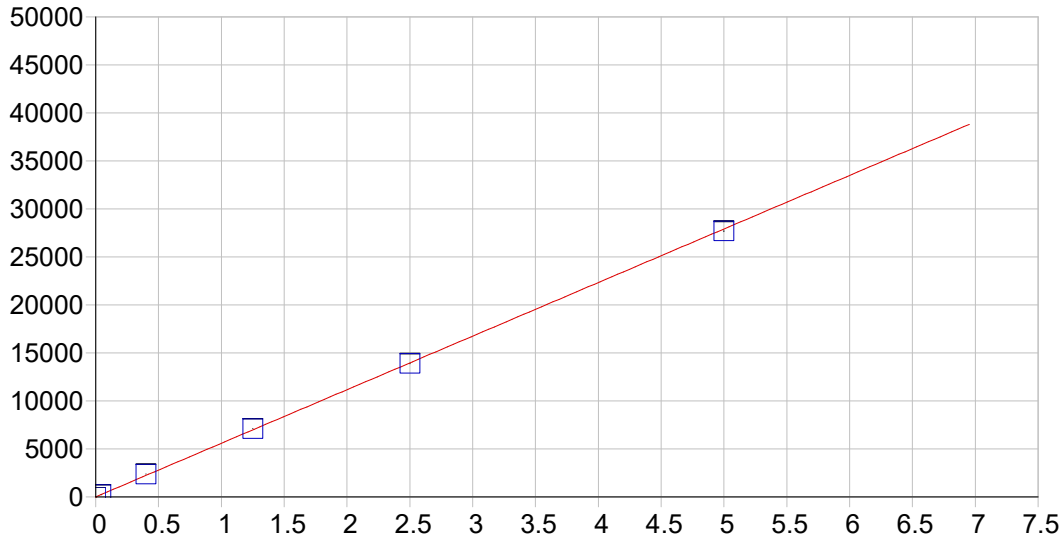


V 292.402 {115}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000137	Re-Slope:	1.000000
A1 (Gain):	0.115910	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999615	Status:	OK.
Std Error of Est:	0.000074		
Predicted MDL:	0.012704		
Predicted MQL:	0.042348		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00014	.003	1
S1	.04000	.03225	-.008	-19.4	.00368	.001	1
S2	.40000	.39883	-.001	-.293	.04554	.001	1
S3	1.2500	1.2188	-.031	-2.50	.13882	.003	1
S4	2.5000	2.4285	-.072	-2.86	.27645	.001	1
S5	5.0000	5.1115	.112	2.23	.58227	.009	1

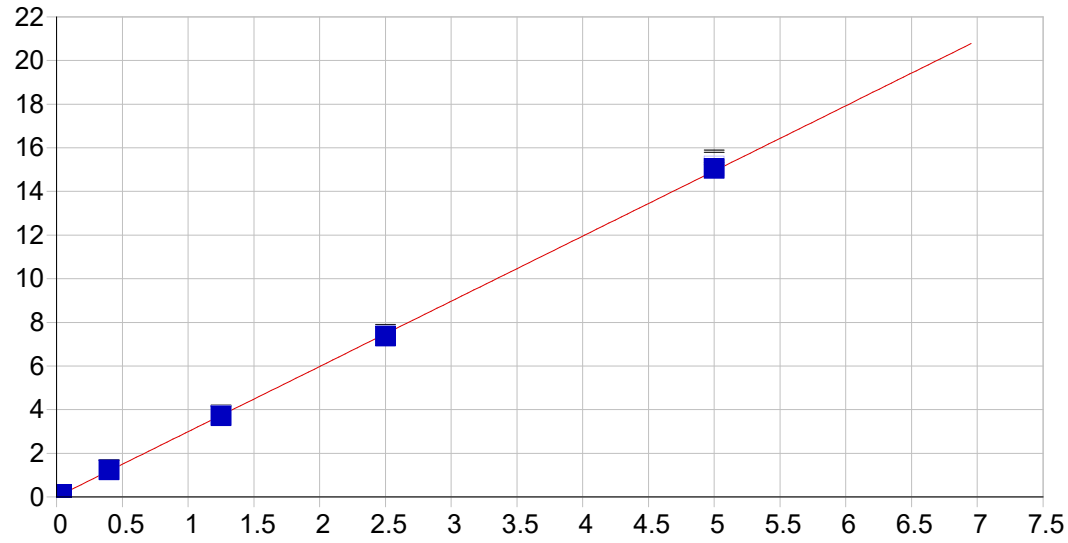


Zn 206.200 {464}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	6.117957	Re-Slope:	1.000000
A1 (Gain):	5580.985491	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999870	Status:	OK.
Std Error of Est:	2.113287		
Predicted MDL:	0.000319		
Predicted MQL:	0.001064		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	6.0931	.378	1
S1	.04000	.04170	.002	4.24	238.83	3.55	1
S2	.40000	.42506	.025	6.26	2378.4	19.4	1
S3	1.2500	1.2722	.022	1.78	7106.2	14.6	1
S4	2.5000	2.4915	-.009	-.341	13911.	34.0	1
S5	5.0000	4.9596	-.040	-.808	27685.	58.8	1

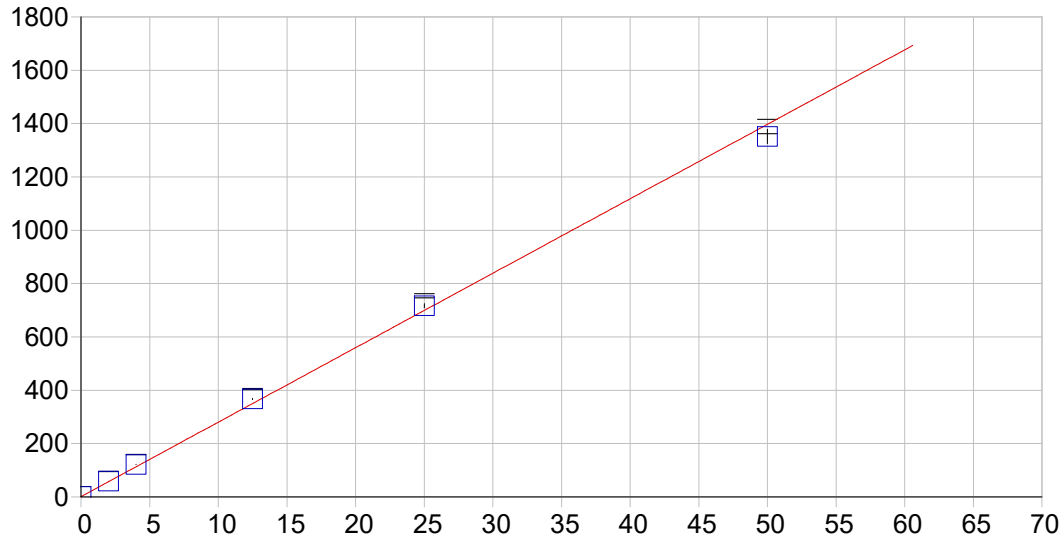


Zn 213.856 {158}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.003121	Re-Slope:	1.000000
A1 (Gain):	2.987617	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999936	Status:	OK.
Std Error of Est:	0.000801		
Predicted MDL:	0.000582		
Predicted MQL:	0.001941		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00312	.002	1
S1	.04000	.04078	.001	1.94	.12582	.004	1
S2	.40000	.40927	.009	2.32	1.2346	.008	1
S3	1.2500	1.2407	-.009	-.740	3.7372	.013	1
S4	2.5000	2.4610	-.039	-1.56	7.4101	.037	1
S5	5.0000	5.0382	.038	.764	15.164	.285	1

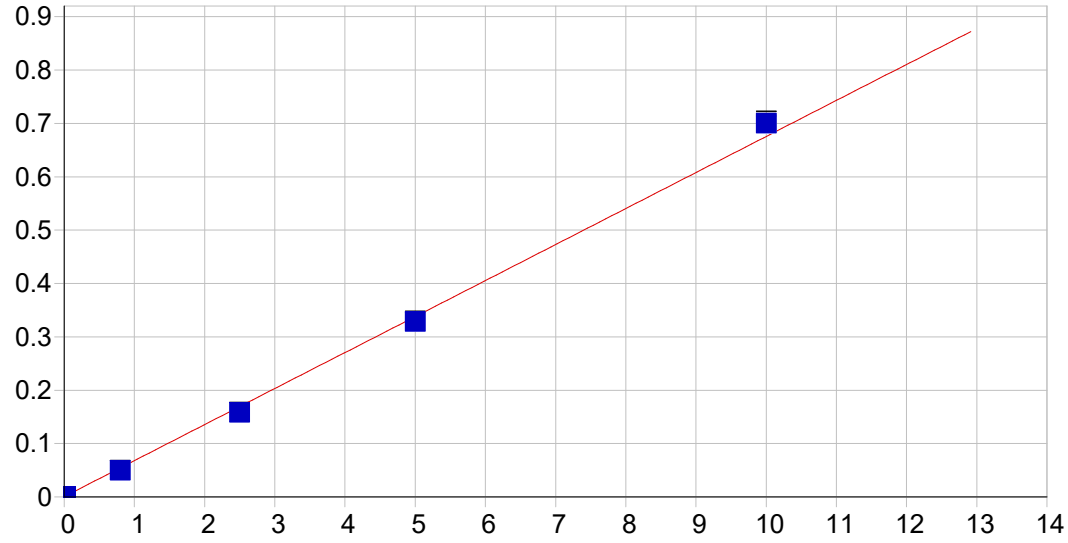


K 769.896 { 44}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.963198	Re-Slope:	1.000000
A1 (Gain):	27.924507	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999316	Status:	OK.
Std Error of Est:	0.546520		
Predicted MDL:	0.000677		
Predicted MQL:	0.002256		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00030	-.000	.000	.95479	.015	1
S1	2.0000	2.0538	.054	2.69	58.315	.260	1
S2	4.0000	4.3261	.326	8.15	121.77	.491	1
S3	12.500	13.118	.618	4.95	367.28	2.69	1
S4	25.000	25.633	.633	2.53	716.76	7.71	1
S5	50.000	48.369	-1.63	-3.26	1351.6	27.3	1

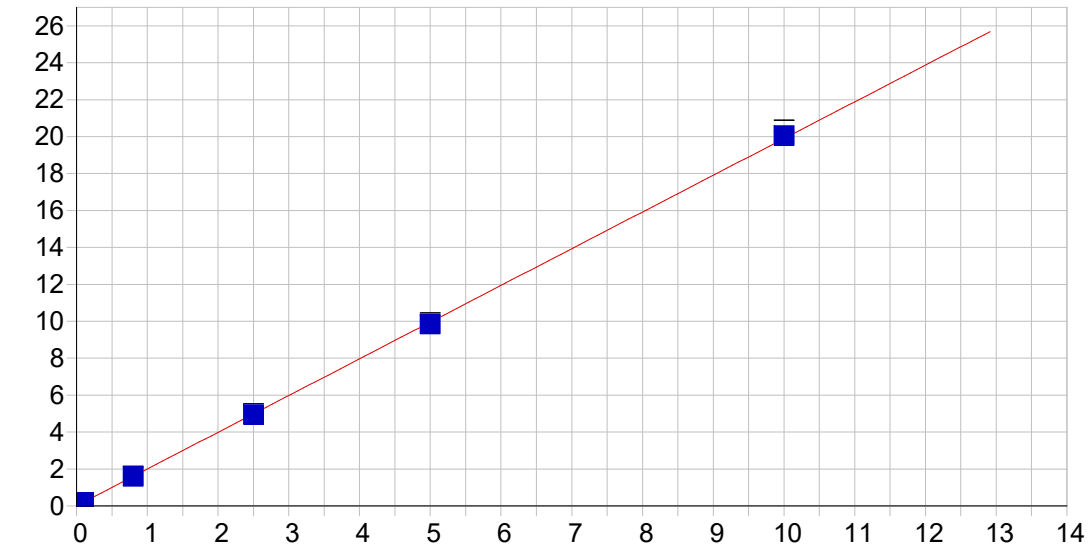


P 177.495 {490}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000557	Re-Slope:	1.000000
A1 (Gain):	0.067489	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999019	Status:	OK.
Std Error of Est:	0.000070		
Predicted MDL:	0.002837		
Predicted MQL:	0.009455		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00056	.000	1
S1	.02000	.01550	-.005	-22.5	.00159	.000	1
S2	.80000	.72706	-.073	-9.12	.04950	.000	1
S3	2.5000	2.3393	-.161	-6.43	.15804	.000	1
S4	5.0000	4.8629	-.137	-2.74	.32797	.001	1
S5	10.000	10.375	.375	3.75	.69921	.004	1

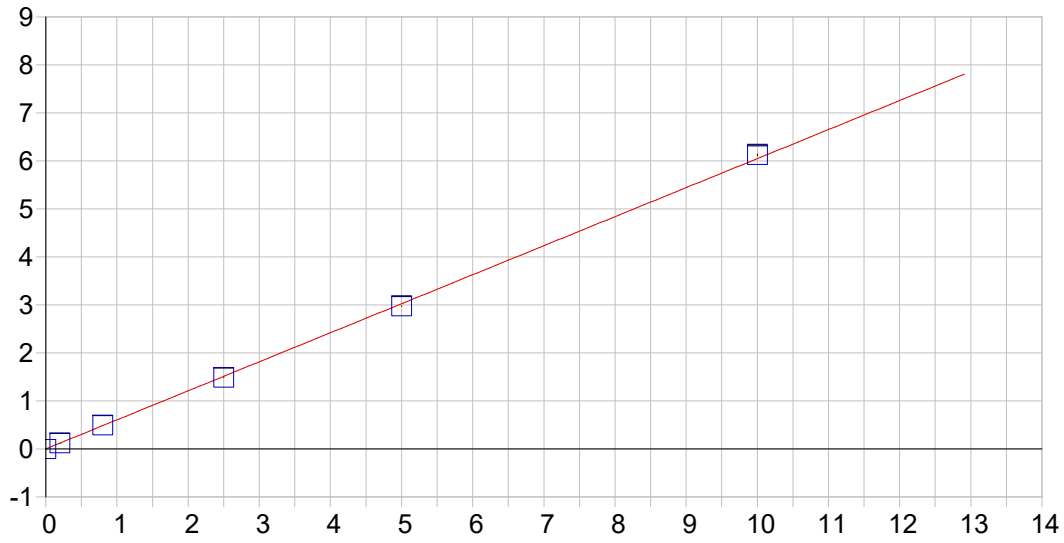


B 249.678 {135}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.011575	Re-Slope:	1.000000
A1 (Gain):	1.988283	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999960	Status:	OK.
Std Error of Est:	0.000935		
Predicted MDL:	0.001965		
Predicted MQL:	0.006551		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.01158	.003	1
S1	.10000	.09870	-.001	-1.30	.20759	.002	1
S2	.80000	.79506	-.005	-.617	1.5912	.017	1
S3	2.5000	2.4760	-.024	-.959	4.9309	.052	1
S4	5.0000	4.9485	-.051	-1.03	9.8431	.066	1
S5	10.000	10.082	.082	.817	20.042	.300	1

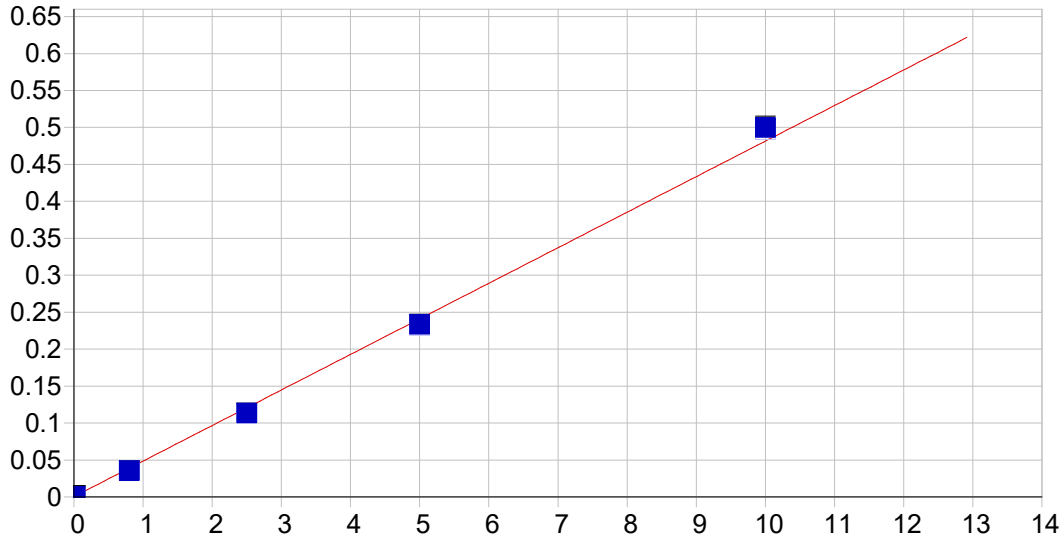


Mo 202.030 {467}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000381	Re-Slope:	1.000000
A1 (Gain):	0.604764	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999889	Status:	OK.
Std Error of Est:	0.000672		
Predicted MDL:	0.000680		
Predicted MQL:	0.002266		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00038	.000	1
S1	.20000	.19839	-.002	-.803	.12036	.001	1
S2	.80000	.80962	.010	1.20	.49001	.001	1
S3	2.5000	2.4541	-.046	-1.84	1.4845	.003	1
S4	5.0000	4.9116	-.088	-1.77	2.9708	.006	1
S5	10.000	10.126	.126	1.26	6.1244	.017	1

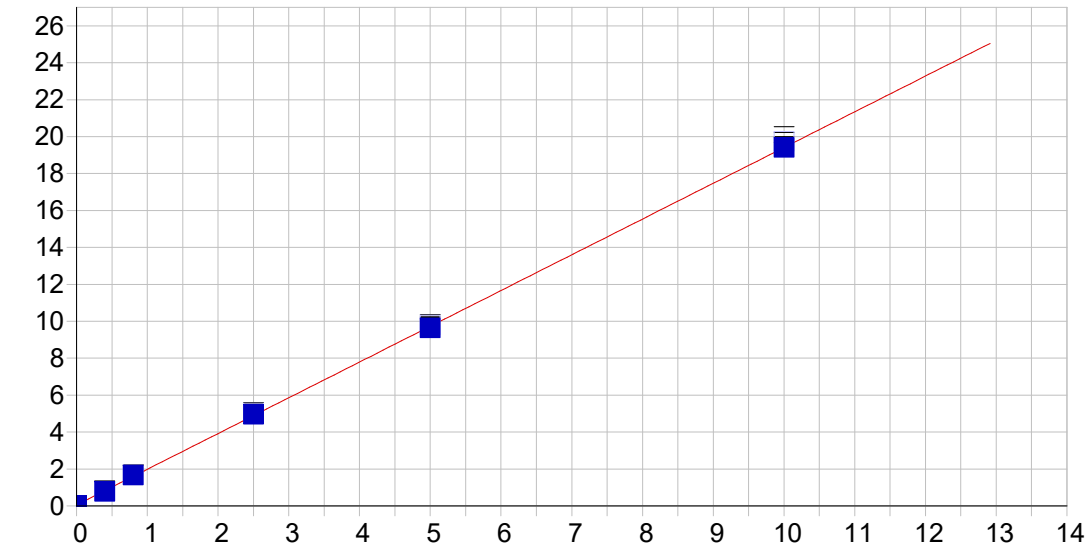


S 182.034 {485}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000408	Re-Slope:	1.000000
A1 (Gain):	0.048112	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999012	Status:	OK.
Std Error of Est:	0.000050		
Predicted MDL:	0.003973		
Predicted MQL:	0.013243		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00041	.000	1
S1	.02000	.02204	.002	10.2	.00139	.000	1
S2	.80000	.72748	-.073	-9.07	.03515	.000	1
S3	2.5000	2.3465	-.154	-6.14	.11250	.000	1
S4	5.0000	4.8422	-.158	-3.16	.23177	.000	1
S5	10.000	10.382	.382	3.82	.49670	.002	1

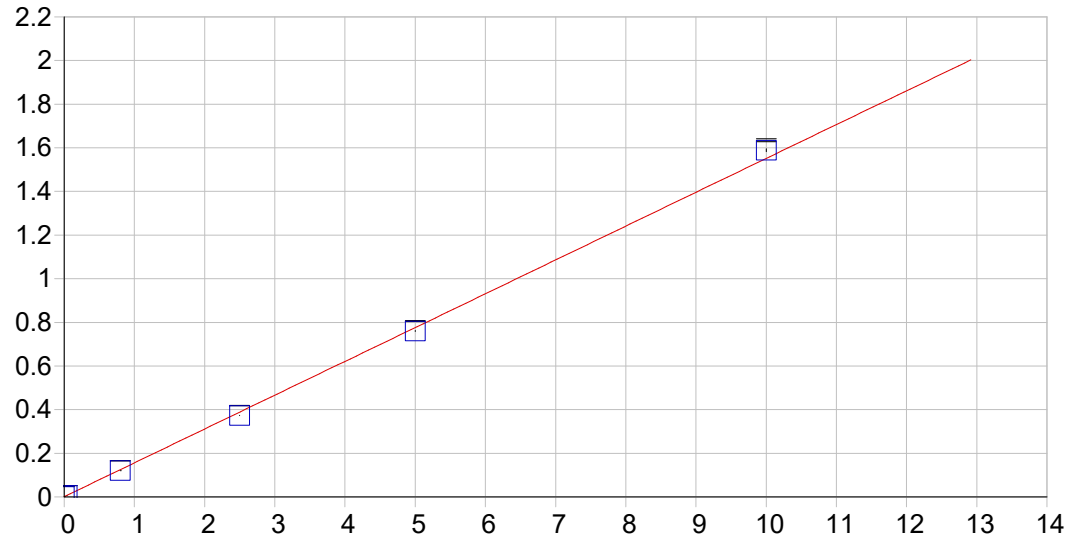


Si 251.611 {134}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.047783	Re-Slope:	1.000000
A1 (Gain):	1.935939	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999925	Status:	OK.
Std Error of Est:	0.002542		
Predicted MDL:	0.002045		
Predicted MQL:	0.006817		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.04779	.002	1
S1	.40000	.38135	-.019	-4.66	.79056	.019	1
S2	.80000	.83030	.030	3.79	1.6802	.015	1
S3	2.5000	2.5313	.031	1.25	5.0265	.042	1
S4	5.0000	4.9517	-.048	-.967	9.7904	.044	1
S5	10.000	10.005	.005	.052	19.730	.269	1

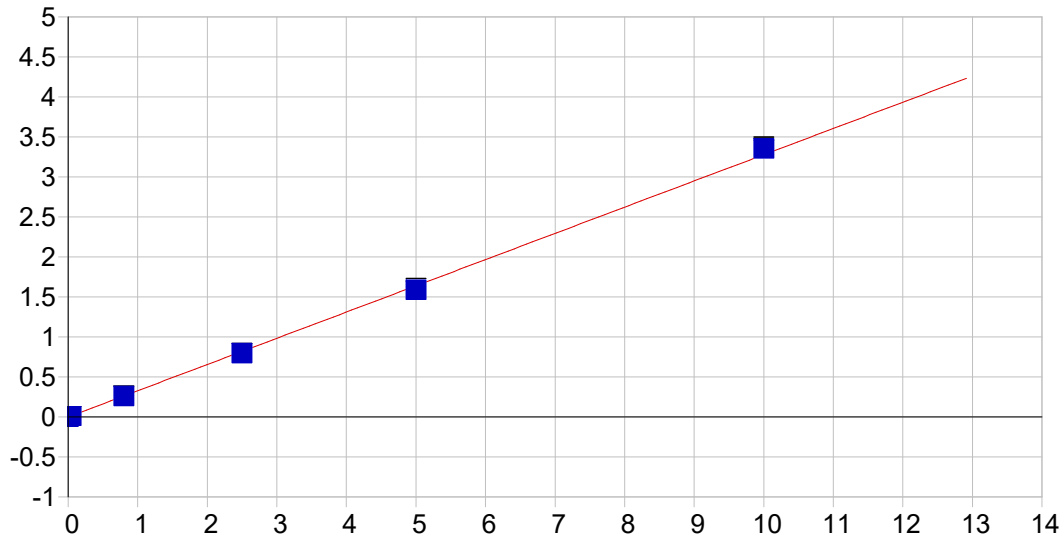


Sn 189.989 {478}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001039	Re-Slope:	1.000000
A1 (Gain):	0.155014	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999622	Status:	OK.
Std Error of Est:	0.000141		
Predicted MDL:	0.001186		
Predicted MQL:	0.003953		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00104	.000	1
S1	.04000	.03647	-.004	-8.82	.00669	.000	1
S2	.80000	.76579	-.034	-4.28	.11975	.000	1
S3	2.5000	2.3979	-.102	-4.08	.37275	.001	1
S4	5.0000	4.8980	-.102	-2.04	.76030	.002	1
S5	10.000	10.242	.242	2.42	1.5887	.007	1

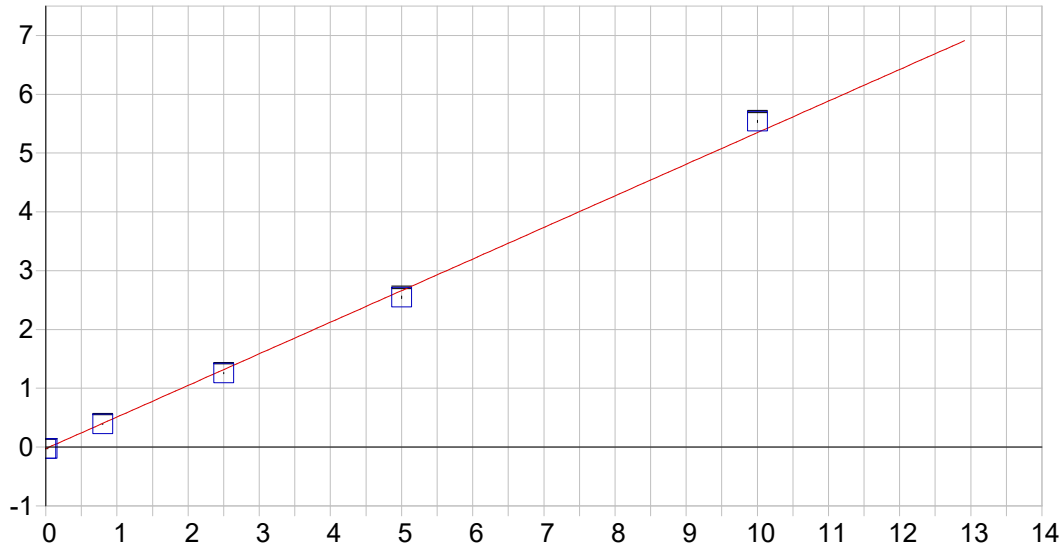


Ti 336.121 {100}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000514	Re-Slope:	1.000000
A1 (Gain):	0.327813	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999637	Status:	OK.
Std Error of Est:	0.000293		
Predicted MDL:	0.006536		
Predicted MQL:	0.021787		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	-.00051	.003	1
S1	.04000	.03419	-.006	-14.5	.01068	.001	1
S2	.80000	.79388	-.006	-.766	.25960	.003	1
S3	2.5000	2.4272	-.073	-2.91	.79475	.002	1
S4	5.0000	4.8473	-.153	-3.05	1.5877	.019	1
S5	10.000	10.237	.237	2.37	3.3538	.020	1

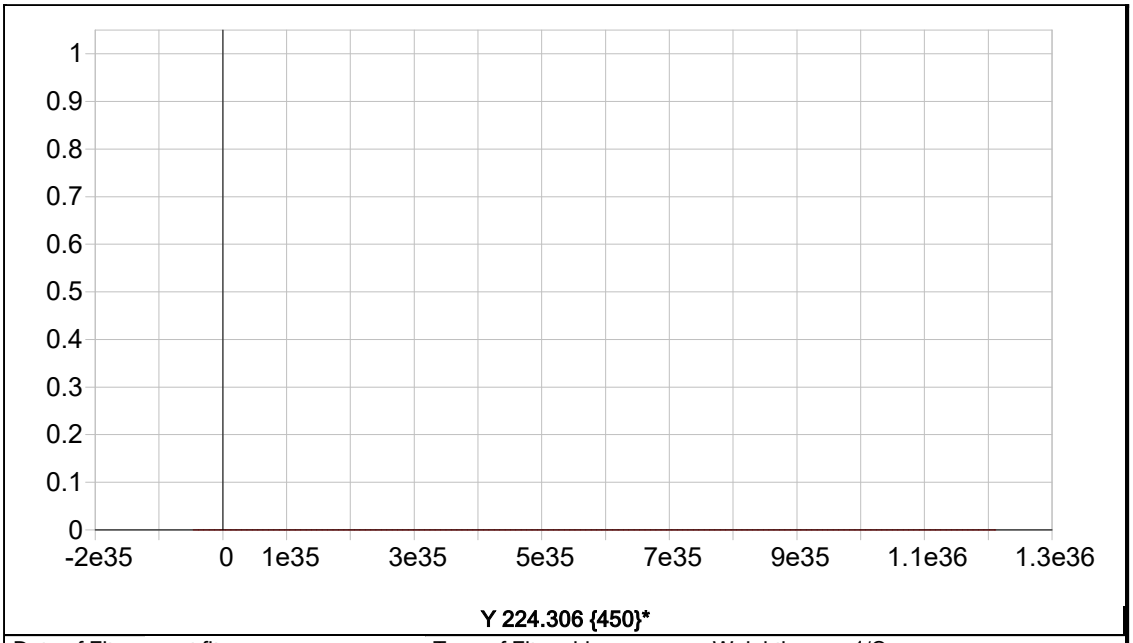


Li 670.784 { 50}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.025810	Re-Slope:	1.000000
A1 (Gain):	0.537306	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998716	Status:	OK.
Std Error of Est:	0.000639		
Predicted MDL:	0.017760		
Predicted MQL:	0.059199		

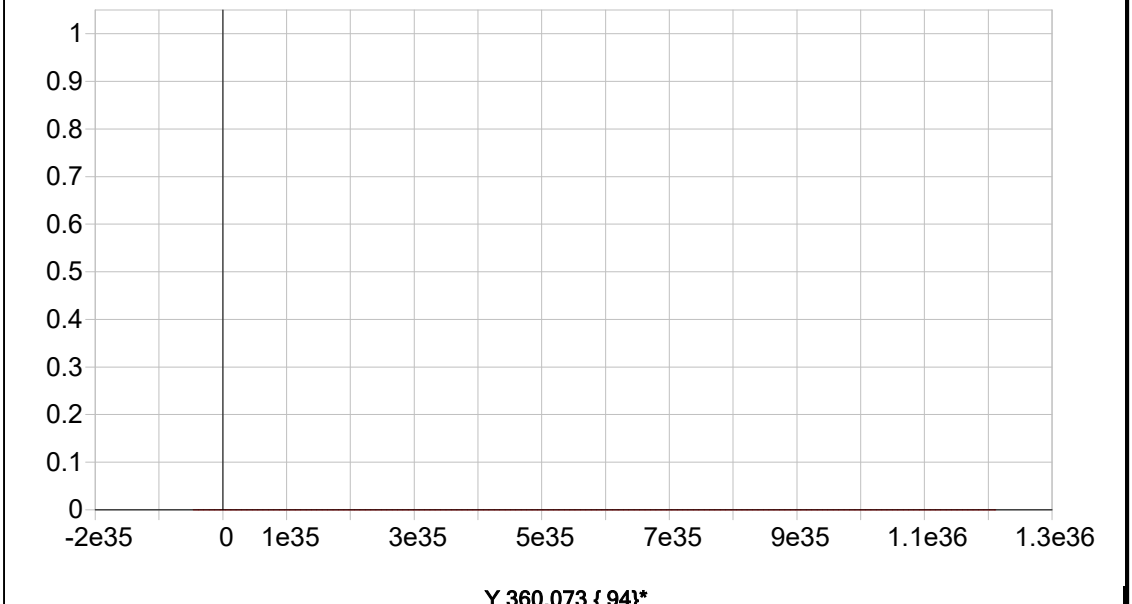
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00002	.000	.000	-.02580	.007	1
S5	10.000	10.356	.356	3.56	5.5387	.020	1
S4	5.0000	4.7915	-.209	-4.17	2.5487	.022	1
S3	2.5000	2.3899	-.110	-4.40	1.2583	.012	1
S2	.80000	.78261	-.017	-2.17	.39469	.011	1
S1	.02000	-.00024	-.020	-101.	-.02594	.002	1



Y 224.306 {450}*

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 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	

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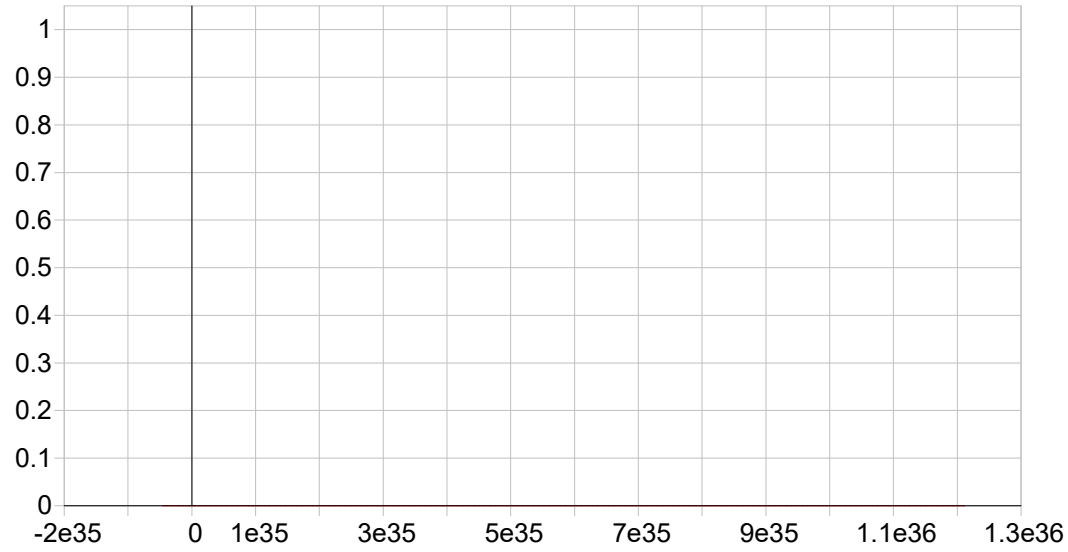
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000	Status:	Warning	Zero Gain	
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

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

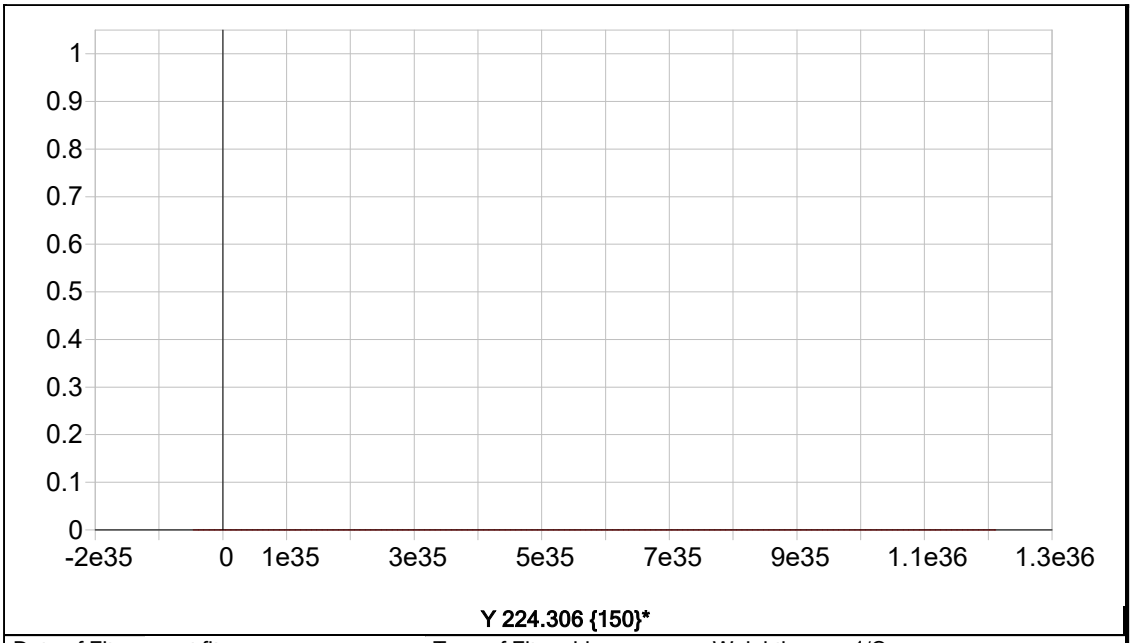


Y 371.030 { 91}*

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		

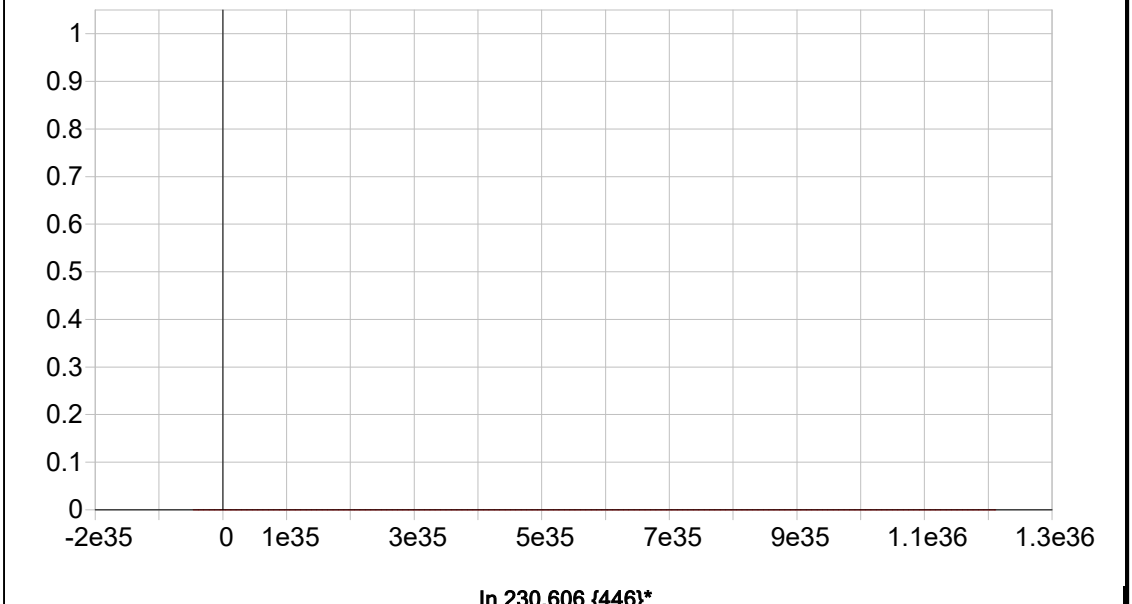
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



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

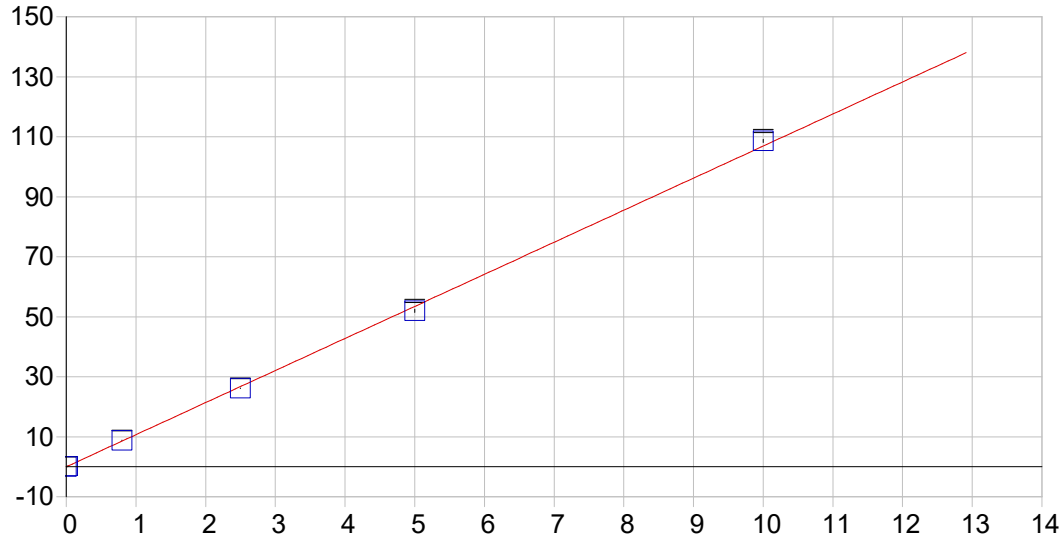


In 230.606 {446}*

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



Sr 407.771 { 83}

Date of Fit:	7/1/2025 16:00:09	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000599	Re-Slope:	1.000000
A1 (Gain):	10.689402	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999785	Status:	OK.
Std Error of Est:	0.005195		
Predicted MDL:	0.000353		
Predicted MQL:	0.001178		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00059	.002	1
S1	.02000	.02102	.001	5.09	.22526	.005	1
S2	.80000	.82102	.021	2.63	8.7768	.064	1
S3	2.5000	2.4496	-.050	-2.02	26.186	.128	1
S4	5.0000	4.8656	-.134	-2.69	52.011	.529	1
S5	10.000	10.163	.163	1.63	108.63	.514	1

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: S0 Acquired: 7/1/2025 15:28:55 Type: Cal
Method: METHOD 6010D, 200.7 M(v21) Mode: IR Corr. Factor: 1.000000
User: Janvi 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	**-.00006**	**-.00200**	**.00044**	**.00010**	**.00097**	**-.00173**	**.02490**	**.01647**
Stddev	.00011	.00031	.00071	.00037	.00031	.00158	.00258	.00537
%RSD	181.15	15.643	160.11	367.54	32.072	91.200	10.358	32.576
#1	.00003	-.00183	.00092	-.00008	.00129	-.00018	.02205	.02250
#2	-.00017	-.00182	-.00037	-.00014	.00068	-.00168	.02557	.01468
#3	-.00003	-.00237	.00078	.00052	.00093	-.00332	.02708	.01223

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00006**	**.01406**	**.00104**	**.00047**	**.06426**	**.01509**	**.00021**	**-.00070**
Stddev	.00052	.00146	.00049	.00024	.00138	.00221	.00125	.00193
%RSD	918.67	10.367	47.248	51.759	2.1478	14.629	586.76	274.90
#1	.00029	.01537	.00146	.00047	.06456	.01403	.00155	.00131
#2	.00019	.01433	.00050	.00071	.06275	.01360	.00002	-.00254
#3	-.00065	.01249	.00117	.00022	.06546	.01762	-.00093	-.00088

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00017**	**.00140**	**-.16901**	**.00014**	**.00312**	**.95479**	**.00056**	**.01158**
Stddev	.00041	.00020	.03878	.00270	.00221	.01461	.00018	.00280
%RSD	237.09	14.183	22.944	1953.4	70.847	1.5305	31.534	24.221
#1	-.00021	.00147	-.12885	.00274	.00567	.95295	.00076	.01227
#2	.00026	.00156	-.17194	.00032	.00188	.97023	.00046	.01398
#3	-.00057	.00118	-.20624	-.00265	.00180	.94118	.00045	.00850

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00038**	**.00041**	**.04779**	**.00104**	**-.00051**	**-.02580**	**.00059**
Stddev	.00048	.00019	.00195	.00011	.00322	.00660	.00178
%RSD	124.55	46.345	4.0725	10.108	629.69	25.594	302.31
#1	.00091	.00056	.04625	.00116	-.00358	-.02309	.00234
#2	-.00002	.00020	.04714	.00097	-.00081	-.02098	-.00122
#3	.00026	.00046	.04997	.00099	.00285	-.03332	.00065

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: S0 Acquired: 7/1/2025 15:28:55 Type: Cal
Method: METHOD 6010D, 200.7 M(v21) Mode: IR Corr. Factor: 1.000000
User: Janvi 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	3126.1	22302.	1550.0	2027.2	4770.3
Stddev	14.4	116.	17.0	13.6	24.5
%RSD	.45912	.52173	1.0970	.66872	.51297
#1	3114.9	22251.	1539.1	2019.8	4753.4
#2	3142.3	22435.	1569.6	2042.9	4798.4
#3	3121.1	22219.	1541.4	2019.0	4759.2

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: S1 Acquired: 7/1/2025 15:33:20 Type: Cal
Method: METHOD 6010D, 200.7 M(v21) Mode: IR Corr. Factor: 1.000000
User: Janvi 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	**.00086**	**.00178**	**.00350**	**.00154**	**.00802**	**.00687**	**.46128**	**.12343**
Stddev	.00036	.00009	.00043	.00022	.00048	.00308	.00739	.00442
%RSD	41.609	4.9655	12.369	14.409	6.0447	44.873	1.6023	3.5804
#1	.00073	.00175	.00353	.00178	.00858	.00450	.45530	.11967
#2	.00059	.00188	.00305	.00147	.00772	.00575	.46954	.12830
#3	.00127	.00172	.00392	.00135	.00776	.01036	.45899	.12233

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.02256**	**.21680**	**.00549**	**.02356**	**.21236**	**.23365**	**.00886**	**.02481**
Stddev	.00048	.00362	.00033	.00049	.00626	.00151	.00076	.00090
%RSD	2.1363	1.6682	5.9714	2.0947	2.9468	.64551	8.5432	3.6095
#1	.02272	.21900	.00586	.02313	.20732	.23196	.00875	.02461
#2	.02202	.21877	.00529	.02410	.21937	.23487	.00967	.02403
#3	.02295	.21263	.00530	.02346	.21040	.23411	.00817	.02579

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.02149**	**.00510**	**3.8741**	**.00368**	**.12582**	**58.315**	**.00159**	**.20759**
Stddev	.00092	.00070	.0686	.00106	.00382	.260	.00023	.00168
%RSD	4.2649	13.697	1.7696	28.866	3.0330	.44602	14.146	.80993
#1	.02225	.00523	3.7956	.00258	.12559	58.083	.00179	.20572
#2	.02047	.00573	3.9047	.00374	.12212	58.596	.00135	.20811
#3	.02174	.00435	3.9221	.00470	.12974	58.267	.00163	.20896

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.12036**	**.00139**	**.79056**	**.00669**	**.01068**	**-.02594**	**.22526**
Stddev	.00054	.00018	.01922	.00030	.00150	.00151	.00536
%RSD	.44840	13.128	2.4316	4.5127	14.004	5.8073	2.3774
#1	.11974	.00161	.76912	.00673	.01182	-.02588	.22515
#2	.12064	.00129	.80626	.00697	.00899	-.02446	.23067
#3	.12071	.00129	.79629	.00637	.01123	-.02747	.21996

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: S1 Acquired: 7/1/2025 15:33:20 Type: Cal
Method: METHOD 6010D, 200.7 M(v21) Mode: IR Corr. Factor: 1.000000
User: Janvi 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	**3085.5**	**21910.**	**1530.6**	**1998.0**	**4518.1**
Stddev	17.3	252.	9.8	18.5	15.2
%RSD	.56074	1.1508	.64271	.92632	.33705
#1	3104.8	21621.	1537.6	1976.6	4533.4
#2	3080.5	22023.	1519.4	2009.2	4518.0
#3	3071.3	22085.	1534.8	2008.1	4502.9

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: S2 Acquired: 7/1/2025 15:37:40 Type: Cal
Method: METHOD 6010D, 200.7 M(v21) Mode: IR Corr. Factor: 1.000000
User: Janvi 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	**.03933**	**.07589**	**.22368**	**.06083**	**.11510**	**.14887**	**6.9732**	**.71625**
Stddev	.00012	.00050	.00039	.00049	.00019	.00293	.0306	.00334
%RSD	.31660	.65241	.17579	.81010	.16493	1.9680	.43893	.46627
#1	.03948	.07607	.22400	.06091	.11528	.14801	6.9409	.71538
#2	.03929	.07628	.22380	.06030	.11490	.15214	7.0018	.71343
#3	.03924	.07533	.22324	.06127	.11514	.14647	6.9768	.71994

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.6091**	**.42123**	**.07075**	**.31201**	**1.5481**	**1.7441**	**.16916**	**.04990**
Stddev	.0012	.00043	.00025	.00126	.0184	.0147	.00114	.00124
%RSD	.07532	.10241	.34881	.40525	1.1856	.84049	.67246	2.4807
#1	1.6102	.42155	.07051	.31331	1.5382	1.7472	.16804	.04862
#2	1.6093	.42074	.07075	.31079	1.5369	1.7282	.16912	.05001
#3	1.6078	.42140	.07100	.31192	1.5693	1.7570	.17032	.05109

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.22755**	**.07523**	**7.7499**	**.04554**	**1.2346**	**121.77**	**.04950**	**1.5912**
Stddev	.00019	.00034	.0429	.00111	.0078	.49	.00007	.0168
%RSD	.08238	.45749	.55301	2.4274	.62826	.40359	.13614	1.0559
#1	.22775	.07484	7.7256	.04608	1.2352	121.38	.04944	1.5896
#2	.22752	.07550	7.7247	.04627	1.2420	121.60	.04950	1.5752
#3	.22738	.07534	7.7994	.04427	1.2265	122.32	.04957	1.6087

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.49001**	**.03515**	**1.6802**	**.11975**	**.25960**	**.39469**	**8.7768**
Stddev	.00111	.00014	.0152	.00020	.00311	.01120	.0637
%RSD	.22572	.40678	.90540	.16321	1.1989	2.8368	.72585
#1	.49075	.03524	1.6734	.11997	.25688	.38313	8.7118
#2	.48874	.03499	1.6696	.11965	.26299	.40548	8.7795
#3	.49054	.03523	1.6977	.11962	.25892	.39546	8.8391

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: S2 Acquired: 7/1/2025 15:37:40 Type: Cal
Method: METHOD 6010D, 200.7 M(v21) Mode: IR Corr. Factor: 1.000000
User: Janvi 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	**3041.9**	**21468.**	**1520.9**	**1962.5**	**4294.9**
Stddev	21.8	130.	2.9	21.7	28.9
%RSD	.71684	.60554	.18741	1.1061	.67300
#1	3063.1	21536.	1523.8	1965.4	4325.7
#2	3043.0	21318.	1520.8	1939.5	4290.6
#3	3019.5	21550.	1518.1	1982.6	4268.4

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: S3 Acquired: 7/1/2025 15:42:02 Type: Cal
Method: METHOD 6010D, 200.7 M(v21) Mode: IR Corr. Factor: 1.000000
User: Janvi 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	**.12576**	**.23560**	**.69403**	**.18437**	**.34548**	**.46727**	**20.783**	**2.1399**
Stddev	.00023	.00078	.00190	.00028	.00032	.00514	.064	.0203
%RSD	.18592	.33253	.27338	.15110	.09226	1.1000	.31029	.94920
#1	.12580	.23480	.69187	.18410	.34569	.46439	20.712	2.1344
#2	.12551	.23637	.69540	.18436	.34512	.47320	20.801	2.1228
#3	.12597	.23563	.69483	.18466	.34565	.46421	20.837	2.1624

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5.0657**	**1.2411**	**.20930**	**.97189**	**4.5066**	**5.2336**	**.50685**	**.14886**
Stddev	.0082	.0074	.00044	.00113	.0416	.0466	.00356	.00074
%RSD	.16130	.59580	.20931	.11616	.92325	.88956	.70327	.49955
#1	5.0582	1.2341	.20979	.97125	4.4992	5.2242	.50285	.14877
#2	5.0744	1.2403	.20914	.97320	4.4691	5.1924	.50970	.14964
#3	5.0644	1.2488	.20896	.97123	4.5513	5.2841	.50799	.14816

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.75972**	**.21825**	**23.410**	**.13882**	**3.7372**	**367.28**	**.15804**	**4.9309**
Stddev	.00098	.00093	.207	.00305	.0133	2.69	.00032	.0524
%RSD	.12885	.42574	.88638	2.1966	.35629	.73218	.20205	1.0623
#1	.75867	.21725	23.353	.13638	3.7483	365.41	.15768	4.8994
#2	.76060	.21841	23.237	.13783	3.7409	366.08	.15829	4.9018
#3	.75990	.21909	23.640	.14224	3.7224	370.36	.15816	4.9913

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.4845**	**.11250**	**5.0265**	**.37275**	**.79475**	**1.2583**	**26.186**
Stddev	.0026	.00010	.0416	.00073	.00173	.0124	.128
%RSD	.17632	.09182	.82778	.19702	.21798	.98701	.49047
#1	1.4816	.11242	5.0072	.37195	.79657	1.2526	26.041
#2	1.4865	.11262	4.9981	.37293	.79312	1.2497	26.288
#3	1.4856	.11247	5.0743	.37338	.79455	1.2725	26.227

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: S3 Acquired: 7/1/2025 15:42:02 Type: Cal
Method: METHOD 6010D, 200.7 M(v21) Mode: IR Corr. Factor: 1.000000
User: Janvi 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	3005.4	21342.	1506.4	1948.2	4054.6
Stddev	10.5	114.	6.7	14.0	12.3
%RSD	.34896	.53237	.44613	.71623	.30221
#1	3017.0	21345.	1511.2	1942.8	4068.7
#2	3002.4	21227.	1509.4	1937.7	4048.7
#3	2996.7	21454.	1498.7	1964.0	4046.4

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: S4 Acquired: 7/1/2025 15:46:19 Type: Cal
Method: METHOD 6010D, 200.7 M(v21) Mode: IR Corr. Factor: 1.000000
User: Janvi 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	**.26136**	**.47254**	**1.4058**	**.36949**	**.68649**	**.93023**	**41.317**	**4.2025**
Stddev	.00044	.00086	.0022	.00063	.00149	.01281	.404	.0177
%RSD	.16778	.18183	.15935	.17021	.21740	1.3776	.97735	.42097
#1	.26170	.47212	1.4047	.36880	.68541	.94495	41.760	4.2015
#2	.26151	.47353	1.4044	.36966	.68586	.92163	40.970	4.1853
#3	.26087	.47197	1.4084	.37002	.68819	.92409	41.220	4.2206

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**10.378**	**2.4276**	**.41598**	**1.9738**	**8.5289**	**10.243**	**.99848**	**.29652**
Stddev	.017	.0283	.00130	.0029	.0251	.028	.01489	.00240
%RSD	.16141	1.1647	.31349	.14816	.29402	.26890	1.4910	.81021
#1	10.364	2.4593	.41517	1.9711	8.5430	10.269	1.0154	.29844
#2	10.374	2.4052	.41529	1.9735	8.4999	10.214	.98722	.29729
#3	10.397	2.4182	.41749	1.9769	8.5438	10.245	.99286	.29383

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.4415**	**.42742**	**45.907**	**.27645**	**7.4101**	**716.76**	**.32797**	**9.8431**
Stddev	.0017	.00205	.278	.00135	.0374	7.71	.00091	.0655
%RSD	.11617	.47913	.60467	.48939	.50450	1.0751	.27749	.66546
#1	1.4397	.42744	46.160	.27792	7.4172	725.22	.32715	9.8646
#2	1.4417	.42536	45.610	.27615	7.3696	710.15	.32781	9.7695
#3	1.4431	.42946	45.952	.27527	7.4434	714.89	.32895	9.8951

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2.9708**	**.23177**	**9.7904**	**.76030**	**1.5877**	**2.5487**	**52.011**
Stddev	.0063	.00042	.0437	.00247	.0185	.0221	.529
%RSD	.21133	.18243	.44651	.32499	1.1677	.86806	1.0166
#1	2.9638	.23169	9.7901	.75773	1.6079	2.5671	52.587
#2	2.9726	.23140	9.7468	.76051	1.5715	2.5242	51.548
#3	2.9759	.23223	9.8343	.76266	1.5837	2.5547	51.897

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: S4 Acquired: 7/1/2025 15:46:19 Type: Cal
Method: METHOD 6010D, 200.7 M(v21) Mode: IR Corr. Factor: 1.000000
User: Janvi 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	2965.2	20960.	1492.9	1919.0	3882.9
Stddev	7.1	88.	12.0	9.2	9.0
%RSD	.24083	.42083	.80300	.47910	.23077
#1	2972.3	20871.	1479.7	1908.6	3889.1
#2	2958.0	21047.	1503.0	1926.0	3872.7
#3	2965.2	20963.	1495.9	1922.3	3887.0

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: S5 Acquired: 7/1/2025 15:50:35 Type: Cal
Method: METHOD 6010D, 200.7 M(v21) Mode: IR Corr. Factor: 1.000000
User: Janvi 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	.55818	.96313	2.9571	.76169	1.4026	1.9418	86.285	8.5012
Stddev	.00234	.00254	.0133	.00198	.0041	.0165	.409	.1313
%RSD	.41989	.26402	.44821	.26026	.29030	.84806	.47438	1.5439
#1	.55548	.96035	2.9421	.75941	1.3982	1.9359	85.939	8.4596
#2	.55933	.96535	2.9672	.76282	1.4061	1.9605	86.737	8.6482
#3	.55972	.96367	2.9621	.76286	1.4037	1.9292	86.179	8.3958

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	21.850	5.0856	.84269	4.1459	17.084	20.975	2.0978	.62763
Stddev	.105	.0447	.01274	.0177	.257	.342	.0087	.00674
%RSD	.48019	.87891	1.5116	.42804	1.5022	1.6283	.41578	1.0744
#1	21.729	5.0844	.85731	4.1255	16.995	20.915	2.0905	.62762
#2	21.905	5.1310	.83393	4.1545	17.373	21.342	2.1075	.63438
#3	21.917	5.0416	.83684	4.1577	16.884	20.667	2.0955	.62089

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.0297	.86629	91.513	.58227	15.164	1351.6	.69921	20.042
Stddev	.0129	.01236	1.415	.00935	.285	27.3	.00414	.300
%RSD	.42642	1.4273	1.5463	1.6052	1.8801	2.0187	.59206	1.4946
#1	3.0148	.88028	91.032	.58368	15.460	1365.0	.69486	19.954
#2	3.0365	.85682	93.105	.59082	14.891	1369.7	.70309	20.375
#3	3.0377	.86178	90.401	.57229	15.141	1320.2	.69969	19.796

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6.1244	.49670	19.730	1.5887	3.3538	5.5387	108.63
Stddev	.0169	.00216	.269	.0067	.0197	.0203	.51
%RSD	.27577	.43567	1.3639	.42370	.58841	.36557	.47350
#1	6.1049	.49430	19.617	1.5809	3.3416	5.5180	108.24
#2	6.1325	.49850	20.037	1.5920	3.3766	5.5395	109.22
#3	6.1356	.49730	19.536	1.5931	3.3432	5.5584	108.44

Sample Name: S5 Acquired: 7/1/2025 15:50:35 Type: Cal
Method: METHOD 6010D, 200.7 M(v21) Mode: IR Corr. Factor: 1.000000
User: Janvi 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	2867.8	20249.	1439.5	1848.0	3651.0
Stddev	11.0	326.	21.9	29.5	17.3
%RSD	.38464	1.6110	1.5187	1.5952	.47425
#1	2877.1	19875.	1445.3	1817.2	3668.5
#2	2855.6	20470.	1415.4	1875.9	3633.9
#3	2870.7	20403.	1458.0	1850.8	3650.6

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: ICV01 Acquired: 7/1/2025 16:17:18 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**3.825994**	**3.863558**	**3.857609**	**3.966739**	**3.774678**	**7.253342**
Stddev	.021462	.012697	.011632	.005893	.009079	.029614
%RSD	.5609472	.3286253	.3015378	.1485675	.2405138	.4082798
#1	3.803010	3.850014	3.847656	3.967548	3.768497	7.225206
#2	3.829458	3.865468	3.854774	3.960483	3.770437	7.250580
#3	3.845512	3.875191	3.870396	3.972186	3.785102	7.284240

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**7.290176**	**.1914446**	**1.950653**	**18.12949**	**.7638720**	**1.864923**
Stddev	.066405	.0016945	.005919	.21896	.0025966	.004899
%RSD	.9108836	.8851274	.3034434	1.207747	.3399297	.2626956
#1	7.217199	.1895319	1.945675	17.89209	.7626419	1.860082
#2	7.347047	.1927579	1.949085	18.32351	.7621191	1.864810
#3	7.306281	.1920442	1.957198	18.17288	.7668551	1.869878

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.9619467**	**3.703915**	**1.817937**	**18.18904**	**1.837315**	**.9564718**
Stddev	.0098562	.019729	.018099	.07026	.003708	.0043574
%RSD	1.024607	.5326643	.9955923	.3862543	.2018038	.4555728
#1	.9517937	3.682224	1.799214	18.12833	1.833297	.9537864
#2	.9714764	3.720792	1.835340	18.17278	1.838042	.9541296
#3	.9625700	3.708730	1.819257	18.26600	1.840605	.9614994

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**20.91076**	**1.852043**	**1.877296**	**21.25152**	F **.0177937**	F **.0017447**
Stddev	.21631	.020531	.011664	.03523	.0051645	.0004395
%RSD	1.034424	1.108573	.6213120	.1657959	29.02410	25.19067
#1	20.66366	1.830434	1.867285	21.26118	.0123142	.0015279
#2	21.06585	1.871292	1.890104	21.28092	.0184955	.0014558
#3	21.00277	1.854403	1.874501	21.21247	.0225714	.0022505

Sample Name: ICV01 Acquired: 7/1/2025 16:17:18 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -.002260	F .0260026	F .0026698	F .0041018	F -.001851	F .0300852
Stddev	.000173	.0029772	.0022859	.0001100	.004939	.0239005
%RSD	7.659648	11.44974	85.62330	2.681183	266.7762	79.44278
#1	-.002456	.0270749	.0052592	.0041964	-.001209	.0568286
#2	-.002200	.0226377	.0009315	.0039811	.002735	.0108119
#3	-.002126	.0282951	.0018186	.0041280	-.007081	.0226151

Elem	Sr4077
Units	ppm
Avg	F .0002860
Stddev	.0002375
%RSD	83.02937
#1	.0001344
#2	.0005597
#3	.0001640

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2984.998	21075.03	1526.837	1937.976	3971.308
Stddev	5.329	90.16	8.875	2.824	7.108
%RSD	.1785225	.4278017	.5812805	.1457211	.1789766
#1	2981.653	21065.85	1537.057	1935.076	3972.507
#2	2982.197	21169.42	1522.389	1940.717	3963.677
#3	2991.143	20989.81	1521.065	1938.136	3977.740

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: LLICV01 Acquired: 7/1/2025 16:31:58 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi 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	**.0159464**	**.0409141**	**.0110804**	**.0205156**	**.0516823**	**.0755436**	**.1025628**
Stddev	.0025642	.0021211	.0018833	.0028463	.0067550	.0460858	.0023757
%RSD	16.08021	5.184279	16.99638	13.87400	13.07032	61.00557	2.316349
#1	.0154204	.0432282	.0108808	.0215080	.0580374	.1223091	.0998236
#2	.0187328	.0390623	.0130555	.0227330	.0524213	.0741527	.1040622
#3	.0136860	.0404518	.0093049	.0173060	.0445881	.0301690	.1038024

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0065002**	**.0055109**	**2.038611**	**.0099909**	**.0293180**	**.0223624**	**.1072728**
Stddev	.0000957	.0001255	.025925	.0008559	.0006666	.0004231	.0024759
%RSD	1.472003	2.277621	1.271716	8.567038	2.273703	1.891979	2.308018
#1	.0063900	.0056548	2.068194	.0106740	.0300878	.0225894	.1077528
#2	.0065621	.0054237	2.019849	.0090308	.0289365	.0226235	.1045920
#3	.0065486	.0054544	2.027790	.0102680	.0289298	.0218742	.1094735

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0212342**	**2.116972**	**.0370294**	**.0101308**	**2.190444**	**.0546454**	**.0406832**
Stddev	.0034619	.100940	.0014475	.0015160	.007802	.0037095	.0010585
%RSD	16.30351	4.768119	3.909106	14.96476	.3561638	6.788300	2.601812
#1	.0180775	2.216623	.0386310	.0085726	2.192763	.0588653	.0406231
#2	.0206886	2.014791	.0366427	.0102191	2.181746	.0518995	.0417704
#3	.0249365	2.119501	.0358145	.0116008	2.196824	.0531713	.0396560

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.046795**	**.0149169**	**.0939190**	**.2000266**	**.0211026**	**.3861261**	**.0369719**
Stddev	.022311	.0012699	.0012502	.0002852	.0023992	.0020844	.0013271
%RSD	1.090038	8.513555	1.331125	.1425659	11.36930	.5398304	3.589603
#1	2.040980	.0143992	.0950473	.2000741	.0233443	.3876995	.0367351
#2	2.027967	.0139875	.0941347	.2002850	.0213917	.3869167	.0384014
#3	2.071437	.0163639	.0925750	.1997206	.0185720	.3837620	.0357790

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: LLICV01 Acquired: 7/1/2025 16:31:58 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0408454	-.032275	.0215409
Stddev	.0041051	.013284	.0003267
%RSD	10.05045	41.15895	1.516408
#1	.0363341	-.044508	.0212782
#2	.0418407	-.018144	.0214377
#3	.0443613	-.034172	.0219066

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3122.725	22021.50	1543.147	2014.044	4564.525
Stddev	19.935	174.34	10.847	18.237	20.002
%RSD	.6383845	.7916768	.7029377	.9055091	.4382007
#1	3123.753	22186.11	1545.870	2035.086	4561.267
#2	3102.296	22039.54	1552.373	2002.798	4546.353
#3	3142.126	21838.84	1531.197	2004.248	4585.956

Sample Name: ICB01 Acquired: 7/1/2025 16:37:02 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0035325**	**.0040399**	**.0003557**	**-.000744**	**.0014719**	**-.012663**
Stddev	.0030931	.0019197	.0023976	.004700	.0024232	.012904
%RSD	87.55981	47.51794	674.0198	632.0267	164.6281	101.8993
#1	.0069731	.0019660	.0022601	.002097	.0028517	-.007501
#2	.0009822	.0057547	.0011438	-.006168	.0028900	-.027349
#3	.0026423	.0043991	-.002337	.001840	-.001326	-.003140

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000289**	**.0001626**	**.0000090**	**.0140731**	**.0002015**	**-.000452**
Stddev	.001704	.0000999	.0000313	.0090773	.0020125	.000075
%RSD	589.7849	61.41624	347.8387	64.50093	998.7243	16.58412
#1	-.001993	.0001226	-.000026	.0181838	.0020475	-.000512
#2	-.000287	.0000889	.000035	.0036677	.0005009	-.000368
#3	.001414	.0002762	.000018	.0203677	-.001944	-.000477

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000020**	**-.001144**	**-.001891**	**-.103444**	**-.000722**	**-.000437**
Stddev	.000295	.001012	.003195	.085270	.000407	.001339
%RSD	1445.452	88.47386	168.9609	82.43109	56.30531	306.5986
#1	-.000328	-.002271	-.002894	-.023064	-.000964	-.001980
#2	.000007	-.000846	.001685	-.192881	-.000253	.000413
#3	.000260	-.000314	-.004465	-.094387	-.000949	.000257

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0204101**	**-.001508**	**-.000216**	**.0001117**	**-.002355**	**-.006044**
Stddev	.0155311	.018992	.000356	.0001415	.003055	.002412
%RSD	76.09522	1259.770	164.3889	126.6765	129.7364	39.91691
#1	.0146590	.014813	-.000349	.0002638	-.000193	-.003315
#2	.0085749	-.022353	.000187	-.000016	-.001021	-.006923
#3	.0379966	.003017	-.000486	.000087	-.005849	-.007893

Sample Name: ICB01 Acquired: 7/1/2025 16:37:02 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000027	.0018777	-.002402	-.000979	-.003007	F -.061984
Stddev	.0009809	.0039412	.000162	.000557	.012438	.015206
%RSD	36518.96	209.8935	6.764225	56.86908	413.6240	24.53131
#1	-.001125	.0003749	-.002417	-.001610	-.000261	-.044442
#2	.000472	-.001091	-.002233	-.000558	-.016589	-.070120
#3	.000661	.006349	-.002557	-.000769	.007829	-.071391

Elem	Sr4077
Units	ppm
Avg	.0000158
Stddev	.0002357
%RSD	1494.957
#1	.0001553
#2	.0001483
#3	-.000256

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3163.560	22652.23	1566.902	2067.838	4813.543
Stddev	9.914	43.31	5.484	4.644	11.308
%RSD	.3133810	.1912146	.3500151	.2246044	.2349258
#1	3154.747	22641.22	1565.088	2072.809	4814.299
#2	3161.640	22615.48	1573.064	2063.609	4801.877
#3	3174.294	22699.98	1562.555	2067.097	4824.455

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CRI01 Acquired: 7/1/2025 16:41:26 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi 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	**.0174446**	**.0396484**	**.0094726**	**.0212310**	**.0523602**	**.0312208**	**.1006269**
Stddev	.0035036	.0032960	.0007540	.0039043	.0055596	.0395030	.0016671
%RSD	20.08429	8.313020	7.959943	18.38956	10.61794	126.5279	1.656755
#1	.0214108	.0419980	.0099255	.0236459	.0516345	.0484396	.1001323
#2	.0147705	.0410664	.0086022	.0167266	.0471992	-.013969	.0992630
#3	.0161525	.0358807	.0098902	.0233203	.0582471	.059192	.1024854

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0063338**	**.0053789**	**1.951739**	**.0117246**	**.0283373**	**.0229689**	**.1037904**
Stddev	.0002261	.0001033	.011429	.0005115	.0003088	.0006345	.0031206
%RSD	3.569679	1.920824	.5855662	4.362244	1.089702	2.762275	3.006599
#1	.0061422	.0054146	1.938694	.0119525	.0280379	.0234068	.1027735
#2	.0065831	.0054597	1.959988	.0120825	.0286547	.0232587	.1013052
#3	.0062759	.0052625	1.956536	.0111388	.0283192	.0222413	.1072926

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0214478**	**2.211693**	**.0362655**	**.0090393**	**2.134184**	**.0408416**	**.0398630**
Stddev	.0027974	.156438	.0008747	.0013830	.020914	.0338088	.0002393
%RSD	13.04280	7.073216	2.411790	15.29923	.9799575	82.78026	.6004156
#1	.0203719	2.161241	.0372273	.0105993	2.122928	.0792915	.0396675
#2	.0193480	2.086706	.0355178	.0079639	2.158315	.0274680	.0397916
#3	.0246233	2.387131	.0360513	.0085548	2.121309	.0157653	.0401299

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.016722**	**.0168948**	**.0913377**	**.1968164**	**.0216127**	**.3745702**	**.0362976**
Stddev	.029905	.0022983	.0022965	.0003239	.0033758	.0038431	.0011671
%RSD	1.482857	13.60343	2.514301	.1645909	15.61955	1.026007	3.215366
#1	1.988620	.0193550	.0891023	.1966575	.0254957	.3702626	.0353027
#2	2.048152	.0165265	.0936908	.1971891	.0193753	.3758005	.0360078
#3	2.013394	.0148030	.0912202	.1966026	.0199670	.3776476	.0375823

Sample Name: CRI01 Acquired: 7/1/2025 16:41:26 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0392033	-.062008	.0210207
Stddev	.0129500	.016266	.0004128
%RSD	33.03307	26.23226	1.963654
#1	.0258625	-.078589	.0205584
#2	.0517235	-.061358	.0213524
#3	.0400238	-.046076	.0211513

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3132.082	22378.26	1567.253	2042.245	4584.548
Stddev	1.697	48.01	17.387	13.116	7.979
%RSD	.0541824	.2145335	1.109377	.6422484	.1740343
#1	3130.206	22430.73	1586.906	2053.664	4588.215
#2	3133.510	22367.49	1553.876	2045.153	4590.035
#3	3132.531	22336.54	1560.976	2027.919	4575.395

Sample Name: ICSA01 Acquired: 7/1/2025 16:50:10 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi 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	**-.000940**	**.0299416**	**-.007208**	**-.002250**	**.0145052**	**237.3981**	**.0077035**
Stddev	.000686	.0065117	.000353	.004074	.0022074	.4620	.0019581
%RSD	73.03365	21.74806	4.897830	181.0765	15.21778	.1946207	25.41870
#1	-.000287	.0362614	-.007565	-.005873	.0121121	236.9051	.0085870
#2	-.001655	.0303098	-.006860	-.003036	.0149418	237.4680	.0090643
#3	-.000877	.0232536	-.007198	.002160	.0164615	237.8212	.0054593

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0016197**	**-.000393**	**231.1339**	**.0634605**	**.0377087**	**-.010247**	**91.55525**
Stddev	.0002264	.000086	.8612	.0006817	.0002575	.000932	2.17403
%RSD	13.97851	21.91745	.3725964	1.074144	.6829714	9.091247	2.374558
#1	.0016802	-.000457	230.4385	.0627149	.0377896	-.010719	93.88853
#2	.0018097	-.000295	230.8659	.0636149	.0379162	-.010848	89.58656
#3	.0013692	-.000427	232.0972	.0640517	.0374205	-.009174	91.19066

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0031025**	**239.9242**	**.0079050**	**.0007822**	**.1185371**	**.0060143**	**.0105723**
Stddev	.0015650	1.3114	.0016083	.0016696	.0149364	.0050671	.0000984
%RSD	50.44332	.5465851	20.34589	213.4391	12.60062	84.25038	.9306822
#1	.0013952	238.6786	.0062501	.0007771	.1116062	.0041850	.0104600
#2	.0044691	239.8014	.0080024	-.000885	.1356798	.0117421	.0106434
#3	.0034431	241.2927	.0094624	.002454	.1083252	.0021159	.0106134

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0086435**	**.0071591**	**.0166119**	**-.011454**	**.0279375**	**-.008912**	**.0060600**
Stddev	.0015337	.0012770	.0022045	.001417	.0098471	.001783	.0009532
%RSD	17.74409	17.83719	13.27070	12.37156	35.24681	20.00696	15.72906
#1	.0102871	.0057283	.0147712	-.010156	.0167933	-.008994	.0062187
#2	.0072507	.0075656	.0160096	-.012965	.0315549	-.010652	.0069240
#3	.0083925	.0081833	.0190550	-.011240	.0354642	-.007089	.0050375

Sample Name: ICSA01 Acquired: 7/1/2025 16:50:10 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0004426	-.016928	.0970747
Stddev	.0075177	.029963	.0002638
%RSD	1698.476	177.0021	.2717039
#1	.0091039	-.032282	.0973407
#2	-.003385	.017600	.0970702
#3	-.004391	-.036101	.0968133

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2871.836	19504.03	1492.770	1851.210	3608.751
Stddev	22.366	158.73	18.951	13.588	24.796
%RSD	.7788093	.8138371	1.269520	.7340070	.6870977
#1	2884.828	19687.29	1471.774	1866.805	3625.892
#2	2846.010	19409.66	1508.608	1841.921	3580.320
#3	2884.671	19415.14	1497.928	1844.902	3620.043

Sample Name: ICSAB01 Acquired: 7/1/2025 16:54:38 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi 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	**.0971360**	**.1041875**	**.0406947**	**.0427839**	**.6077836**	**244.2953**	**.5268860**
Stddev	.0040844	.0037449	.0006550	.0136834	.0024353	1.4620	.0006355
%RSD	4.204845	3.594340	1.609625	31.98267	.4006822	.5984647	.1206109
#1	.0939049	.1013082	.0401423	.0326497	.6078848	242.7618	.5263535
#2	.0957763	.1084211	.0414184	.0373529	.6101667	244.4506	.5267150
#3	.1017269	.1028333	.0405234	.0583491	.6052993	245.6734	.5275895

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5195941**	**1.022457**	**237.9148**	**.5818338**	**.5411460**	**.4723328**	**94.57265**
Stddev	.0069679	.002636	1.3338	.0007581	.0012895	.0073563	.50820
%RSD	1.341026	.2577672	.5606264	.1302898	.2382975	1.557441	.5373686
#1	.5242321	1.019725	236.4927	.5826751	.5401986	.4780221	95.15896
#2	.5115814	1.022662	238.1137	.5816225	.5406247	.4640257	94.25833
#3	.5229687	1.024985	239.1380	.5812038	.5426145	.4749507	94.30066

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5083367**	**247.2347**	**1.010231**	**.2339613**	**.1248753**	**.4915400**	**1.029840**
Stddev	.0052267	.9999	.002114	.0013288	.0193666	.0063588	.004320
%RSD	1.028190	.4044220	.2093004	.5679610	15.50874	1.293642	.4194462
#1	.5055428	246.0802	1.011399	.2348007	.1469520	.4987100	1.026159
#2	.5051007	247.8006	1.007791	.2324293	.1107502	.4865849	1.028765
#3	.5143665	247.8233	1.011505	.2346541	.1169237	.4893251	1.034595

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0073583**	**.0190086**	**.0179724**	**-.011597**	**.0340240**	**-.008773**	**.0076619**
Stddev	.0008794	.0008578	.0021560	.001207	.0051353	.001125	.0013207
%RSD	11.95110	4.512709	11.99609	10.40723	15.09302	12.81988	17.23763
#1	.0068072	.0180212	.0202563	-.012970	.0294104	-.007805	.0086083
#2	.0068953	.0195693	.0159725	-.010703	.0331049	-.010007	.0061531
#3	.0083725	.0194354	.0176884	-.011118	.0395568	-.008507	.0082245

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: ICSAB01 Acquired: 7/1/2025 16:54:38 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0012603	-.029684	.1001654
Stddev	.0074355	.006692	.0002152
%RSD	589.9633	22.54408	.2148477
#1	-.006111	-.036940	.1001613
#2	.008758	-.028357	.1003827
#3	.001134	-.023755	.0999523

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2861.326	19358.73	1471.216	1826.443	3597.645
Stddev	3.040	105.12	12.422	8.854	4.287
%RSD	.1062487	.5430253	.8443193	.4847582	.1191716
#1	2857.834	19475.40	1472.104	1835.803	3595.247
#2	2863.380	19271.38	1483.170	1825.324	3602.595
#3	2862.765	19329.41	1458.374	1818.202	3595.092

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: ICSADLX20 Acquired: 7/1/2025 16:59:04 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: ICSA01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001536**	**.0028528**	**.0006398**	**-.005776**	**.0012411**	**12.68068**	**.0007757**
Stddev	.002908	.0006422	.0009232	.002166	.0006363	.01655	.0022237
%RSD	189.4011	22.51075	144.2808	37.50005	51.27270	.1304821	286.6517
#1	-.001796	.0035931	.0015314	-.006833	.0018948	12.67181	.0024026
#2	.001494	.0025185	-.000312	-.003285	.0012047	12.67045	-.001758
#3	-.004305	.0024467	.000700	-.007211	.0006237	12.69976	.001683

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0002312**	**-.000017**	**12.33048**	**.0195655**	**.0074163**	**-.000030**	**5.403933**
Stddev	.0002506	.000176	.14226	.0005426	.0003685	.000990	.090288
%RSD	108.4205	1023.042	1.153714	2.773506	4.969383	3264.481	1.670776
#1	-.000058	.000102	12.16627	.0193100	.0069917	.001112	5.496895
#2	.000374	-.000219	12.40881	.0191978	.0076535	-.000612	5.398323
#3	.000378	.000066	12.41636	.0201887	.0076038	-.000591	5.316582

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0031181**	**13.28718**	**.0067523**	**-.001164**	**.0332081**	**-.004604**	**.0027755**
Stddev	.0028220	.21152	.0006024	.001293	.0072662	.017679	.0005988
%RSD	90.50637	1.591890	8.921677	111.0351	21.88070	384.0206	21.57587
#1	.0050208	13.07834	.0073935	.000266	.0357704	-.024635	.0027485
#2	.0044577	13.28194	.0066652	-.001509	.0250080	.008816	.0033874
#3	-.000124	13.50127	.0061981	-.002250	.0388461	.002009	.0021906

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0029253**	**-.002287**	**-.006558**	**.0001838**	**.0044789**	**.0012285**	**-.000000**
Stddev	.0005316	.001880	.000684	.0007207	.0024601	.0025039	.000529
%RSD	18.17367	82.20837	10.42714	392.1122	54.92602	203.8062	536604.6
#1	.0024495	-.001201	-.007337	.0002037	.0035817	-.001324	-.000391
#2	.0028272	-.004459	-.006058	.0008944	.0072616	.003681	.000602
#3	.0034991	-.001203	-.006279	-.000547	.0025933	.001328	-.000211

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: ICSADLX20 Acquired: 7/1/2025 16:59:04 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: ICSA01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0013182	-.074628	.0054478
Stddev	.0035839	.007333	.0001618
%RSD	271.8858	9.826155	2.969792
#1	-.002818	-.082740	.0052610
#2	.003502	-.072677	.0055388
#3	.003270	-.068468	.0055437

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3088.643	21766.99	1513.493	2002.059	4394.046
Stddev	23.849	106.96	23.654	11.384	33.909
%RSD	.7721594	.4913988	1.562907	.5685971	.7717067
#1	3069.389	21826.82	1487.679	2008.889	4364.404
#2	3115.322	21830.64	1518.670	2008.370	4431.022
#3	3081.219	21643.49	1534.130	1988.918	4386.711

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: ICSABDLX20 Acquired: 7/1/2025 17:03:25 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: ICSAB01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0017092**	**.0080755**	**.0017521**	**-.008739**	**.0368439**	**12.30071**	**.0252518**
Stddev	.0020928	.0029506	.0028572	.003665	.0071753	.00848	.0006125
%RSD	122.4394	36.53787	163.0746	41.93405	19.47491	.0689614	2.425543
#1	-.000680	.0055082	-.000154	-.007998	.0420933	12.30999	.0256285
#2	.003220	.0112989	.000373	-.012718	.0286678	12.29335	.0245450
#3	.002588	.0074192	.005037	-.005501	.0397706	12.29878	.0255818

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0261818**	**.0453510**	**11.83303**	**.0383172**	**.0293608**	**.0266606**	**5.243887**
Stddev	.0002665	.0001586	.01654	.0017622	.0006377	.0012977	.103771
%RSD	1.017968	.3497532	.1398170	4.598911	2.171894	4.867385	1.978888
#1	.0262796	.0455318	11.81498	.0362828	.0286250	.0251770	5.278486
#2	.0263856	.0452862	11.83665	.0393013	.0297525	.0275848	5.325938
#3	.0258802	.0452351	11.84747	.0393674	.0297049	.0272199	5.127237

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0232796**	**12.48901**	**.0480987**	**.0122582**	**.0114661**	**.0169506**	**.0501043**
Stddev	.0018800	.05378	.0004336	.0011345	.0163241	.0106559	.0003713
%RSD	8.075693	.4305939	.9015530	9.255144	142.3685	62.86441	.7410163
#1	.0253454	12.55073	.0485969	.0124631	-.007211	.0119964	.0500526
#2	.0228245	12.45225	.0478930	.0110352	.018604	.0096737	.0504988
#3	.0216689	12.46405	.0478062	.0132763	.023006	.0291817	.0497616

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0053219**	**-.000013**	**-.007265**	**-.000141**	**.0029970**	**-.003045**	**-.000590**
Stddev	.0009898	.003938	.001198	.000568	.0019722	.001545	.000550
%RSD	18.59873	30708.58	16.49199	402.1750	65.80599	50.72538	93.19705
#1	.0045246	-.002838	-.008570	-.000714	.0010624	-.004773	-.001019
#2	.0050114	.004485	-.006215	.000422	.0050048	-.001799	-.000783
#3	.0064298	-.001685	-.007009	-.000131	.0029239	-.002563	.000030

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: ICSABDLX20 Acquired: 7/1/2025 17:03:25 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: ICSAB01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0040263	-.078807	.0052477
Stddev	.0057451	.016138	.0004007
%RSD	142.6878	20.47844	7.636566
#1	.0057034	-.072382	.0056587
#2	-.002371	-.097168	.0048581
#3	.008746	-.066870	.0052262

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2936.082	20673.15	1442.470	1916.475	4215.277
Stddev	31.500	189.47	17.442	14.052	44.316
%RSD	1.072866	.9165243	1.209180	.7331962	1.051321
#1	2905.244	20674.72	1432.230	1914.331	4167.579
#2	2934.797	20861.84	1432.570	1931.476	4223.077
#3	2968.205	20482.90	1462.609	1903.619	4255.176

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCV01 Acquired: 7/1/2025 17:07:47 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.844286**	**4.922434**	**4.858177**	**4.907600**	**4.910774**	**9.429545**
Stddev	.008207	.003004	.009305	.012825	.010229	.127946
%RSD	.1694095	.0610307	.1915254	.2613325	.2082879	1.356863
#1	4.834944	4.921386	4.847439	4.905155	4.901425	9.283402
#2	4.850337	4.920093	4.863862	4.896174	4.909199	9.521376
#3	4.847576	4.925821	4.863229	4.921472	4.921699	9.483856

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**9.763717**	**.2607092**	**2.442447**	**23.70441**	**.9897925**	**2.440909**
Stddev	.085071	.0040810	.003484	.41674	.0032066	.001201
%RSD	.8712945	1.565361	.1426354	1.758057	.3239653	.0492169
#1	9.667133	.2647725	2.438498	23.23136	.9861452	2.441349
#2	9.827524	.2566107	2.445087	24.01732	.9910642	2.441828
#3	9.796493	.2607444	2.443754	23.86455	.9921682	2.439550

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.299421**	**5.170324**	**2.405388**	**23.29520**	**2.415295**	**1.231238**
Stddev	.023516	.085259	.026364	.57651	.001650	.004380
%RSD	1.809709	1.649013	1.096021	2.474802	.0683205	.3557595
#1	1.323070	5.249163	2.375514	22.66178	2.413580	1.234338
#2	1.276041	5.079841	2.415258	23.78924	2.416871	1.233150
#3	1.299150	5.181966	2.425393	23.43458	2.415435	1.226227

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**26.25083**	**2.389315**	**2.456294**	**27.13050**	**4.886132**	**5.188095**
Stddev	.39434	.025423	.005468	.75662	.004968	.085220
%RSD	1.502210	1.064046	.2226197	2.788800	.1016797	1.642616
#1	26.63530	2.385396	2.456091	28.00396	4.880396	5.266155
#2	25.84730	2.416470	2.461862	26.67744	4.888939	5.097176
#3	26.26989	2.366078	2.450931	26.71010	4.889063	5.200954

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCV01 Acquired: 7/1/2025 17:07:47 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.906178**	**4.835921**	**5.188425**	**4.892854**	**4.827756**	F **4.482708**
Stddev	.006465	.006250	.085259	.011949	.052740	.160961
%RSD	.1317634	.1292495	1.643259	.2442203	1.092442	3.590714
#1	4.903209	4.829216	5.266476	4.879090	4.774664	4.296862
#2	4.901731	4.841587	5.097436	4.898899	4.880138	4.573541
#3	4.913593	4.836958	5.201363	4.900572	4.828467	4.577721

Elem	Sr4077
Units	ppm
Avg	**4.813613**
Stddev	.056973
%RSD	1.183588
#1	4.749242
#2	4.857555
#3	4.834041

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2967.718**	**21013.71**	**1421.667**	**1923.741**	**3882.651**
Stddev	6.486	189.51	30.631	14.868	4.741
%RSD	.2185403	.9018284	2.154576	.7728583	.1221096
#1	2971.776	20818.06	1387.739	1909.168	3887.943
#2	2971.139	21026.65	1447.286	1923.169	3881.221
#3	2960.238	21196.41	1429.977	1938.887	3878.789

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCB01 Acquired: 7/1/2025 17:12:03 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.003075**	**-.002930**	**-.001284**	**-.004629**	**.0033257**	**-.009111**
Stddev	.001265	.007281	.001178	.001645	.0052890	.061276
%RSD	41.13810	248.5095	91.71460	35.53121	159.0352	672.5605
#1	-.004523	-.011336	-.000042	-.005175	.0090730	-.039225
#2	-.002187	.001115	-.001426	-.005930	.0022406	.061395
#3	-.002514	.001431	-.002385	-.002780	-.001337	-.049503

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0033795**	**.0003128**	**.0000207**	**.0056459**	**.0022050**	**.0001059**
Stddev	.0028445	.0001811	.0001048	.0417660	.0012586	.0007064
%RSD	84.16957	57.90257	506.7076	739.7613	57.07848	666.9951
#1	.0063520	.0001221	.0000047	-.042541	.0017037	.0009185
#2	.0006831	.0003338	-.000075	.031447	.0012743	-.000240
#3	.0031033	.0004825	.000132	.028031	.0036369	-.000361

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000706**	**-.003103**	**.0009909**	**-.057539**	**-.000768**	**.0035281**
Stddev	.001497	.001041	.0034488	.065027	.000911	.0016060
%RSD	212.1472	33.54890	348.0467	113.0145	118.5667	45.52175
#1	.001019	-.003296	-.001805	-.111574	-.001030	.0049012
#2	-.001465	-.004033	-.000067	-.075674	-.001519	.0017621
#3	-.001672	-.001979	.004845	.014631	.000245	.0039209

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.005600**	**.0087902**	**.0004766**	**.0029140**	**.0039470**	**.0080678**
Stddev	.009677	.0062121	.0002871	.0022261	.0032290	.0015998
%RSD	172.8119	70.67094	60.24812	76.39373	81.80862	19.82892
#1	-.016771	.0111138	.0003570	.0044707	.0071844	.0072590
#2	-.000191	.0017512	.0002686	.0039071	.0007265	.0099104
#3	.000164	.0135055	.0008042	.0003642	.0039300	.0070339

Sample Name: CCB01 Acquired: 7/1/2025 17:12:03 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007886	.0093740	-.001322	-.000410	-.001290	F -.076731
Stddev	.0013449	.0021463	.005669	.000447	.006555	.019712
%RSD	170.5492	22.89643	428.7296	108.8291	508.1468	25.69033
#1	-.000028	.0109948	-.002559	-.000029	-.008285	-.095893
#2	.002341	.0101872	.004863	-.000301	-.000296	-.056511
#3	.000053	.0069399	-.006270	-.000901	.004711	-.077789

Elem	Sr4077
Units	ppm
Avg	-.000024
Stddev	.000431
%RSD	1771.805
#1	-.000413
#2	-.000099
#3	.000439

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2641.419	18480.13	1486.009	1713.732	4200.588
Stddev	182.974	1135.04	87.152	107.576	253.190
%RSD	6.927096	6.141942	5.864817	6.277286	6.027484
#1	2474.822	18941.45	1435.346	1752.293	3970.326
#2	2612.185	19311.88	1436.039	1796.713	4159.707
#3	2837.249	17187.07	1586.642	1592.191	4471.731

Sample Name: PB168664BL Acquired: 7/1/2025 17:49:19 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0009468**	**.0025066**	**-.000121**	**-.005241**	**.0015426**	**-.066813**	**.0014931**
Stddev	.0016504	.0018954	.002105	.004561	.0019176	.020840	.0039267
%RSD	174.3137	75.61858	1733.570	87.02349	124.3071	31.19150	262.9909
#1	.0002290	.0045056	.001772	-.003474	.0003118	-.083409	.0052370
#2	.0028346	.0022785	-.002389	-.010421	.0005640	-.043424	.0018361
#3	-.000223	.0007354	.000252	-.001828	.0037521	-.073607	-.002594

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000030**	**.0000033**	**-.025797**	**.0011732**	**.0000049**	**.0001145**	**.0010853**
Stddev	.000291	.0000401	.027664	.0009956	.0011412	.0025900	.0016427
%RSD	984.6604	1230.009	107.2372	84.85815	23413.08	2262.203	151.3585
#1	-.000124	-.000022	-.054773	.0022867	.0010960	.0011400	.0020156
#2	.000297	-.000018	-.022950	.0003690	.0000991	-.002831	.0020516
#3	-.000261	.000050	.000334	.0008640	-.001181	.002035	-.000811

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001661**	**-.060326**	**-.000207**	**.0003463**	**.0050160**	**-.000723**	**-.000046**
Stddev	.001550	.045279	.000560	.0007177	.0168424	.010660	.000808
%RSD	93.27675	75.05797	269.8971	207.2245	335.7753	1474.067	1755.318
#1	.000025	-.101926	-.000078	.0008380	-.011387	-.008959	.000212
#2	-.001985	-.012098	.000276	-.000477	.022266	.011318	.000602
#3	-.003023	-.066953	-.000821	.000678	.004169	-.004529	-.000952

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0183036**	**.0004708**	**-.009008**	**.0006871**	**.0043704**	**-.001983**	**.0054981**
Stddev	.0000696	.0018816	.000283	.0004482	.0022469	.004526	.0013920
%RSD	.3804897	399.6411	3.145198	65.23224	51.41067	228.2726	25.31857
#1	.0182382	-.001362	-.009332	.0009756	.0058562	.002001	.0069366
#2	.0183768	.002398	-.008890	.0001707	.0054695	-.001045	.0054001
#3	.0182959	.000376	-.008803	.0009149	.0017856	-.006903	.0041577

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: PB168664BL Acquired: 7/1/2025 17:49:19 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0052055	-.005203	-.000148
Stddev	.0109149	.008430	.000453
%RSD	209.6787	162.0213	306.8925
#1	.0146472	.000265	.000227
#2	.0077151	-.000963	-.000651
#3	-.006746	-.014912	-.000019

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3059.811	21110.51	1419.604	1927.290	4607.943
Stddev	31.265	154.24	37.298	23.575	37.366
%RSD	1.021799	.7306290	2.627360	1.223241	.8109081
#1	3029.454	21080.00	1383.100	1916.642	4572.209
#2	3091.911	21277.73	1418.064	1954.312	4646.752
#3	3058.069	20973.81	1457.649	1910.918	4604.869

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: PB168664BS Acquired: 7/1/2025 17:53:42 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6956956**	**1.977260**	**.9151008**	**1.894213**	**.7839023**	**1.902147**
Stddev	.0033296	.009949	.0010603	.011573	.0028909	.088092
%RSD	.4786057	.5031851	.1158636	.6109456	.3687850	4.631194
#1	.6990646	1.967302	.9142962	1.881039	.7848564	2.003867
#2	.6924068	1.977279	.9147038	1.898858	.7806550	1.851187
#3	.6956155	1.987201	.9163022	1.902741	.7861957	1.851386

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2017064**	**.2162775**	**.1830697**	**1.047696**	**.3949063**	**.1885047**
Stddev	.0035383	.0119021	.0004970	.033202	.0002258	.0012577
%RSD	1.754204	5.503139	.2714895	3.169067	.0571736	.6671759
#1	.2020962	.2028873	.1826932	1.086023	.3947050	.1884134
#2	.2050337	.2202920	.1828829	1.027693	.3951504	.1872952
#3	.1979893	.2256533	.1836330	1.029373	.3948635	.1898055

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.3404955**	**3.352437**	**.1971719**	**1.957948**	**.4660457**	**.0725500**
Stddev	.0194288	.180683	.0037129	.154635	.0006259	.0018778
%RSD	5.706031	5.389602	1.883074	7.897808	.1343051	2.588238
#1	.3187486	3.149199	.2014433	2.027764	.4659445	.0745330
#2	.3465959	3.413222	.1953556	2.065364	.4654765	.0707990
#3	.3561419	3.494888	.1947169	1.780715	.4667161	.0723179

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**3.290548**	**.2954216**	**.1988792**	**10.95049**	**5.400585**	**.3029874**
Stddev	.173829	.0111719	.0009418	.50077	.009258	.0146600
%RSD	5.282661	3.781687	.4735655	4.573018	.1714307	4.838475
#1	3.092445	.2889867	.1993771	10.40053	5.390529	.2867400
#2	3.361627	.3083219	.1977930	11.07077	5.402470	.3069963
#3	3.417574	.2889564	.1994677	11.38016	5.408756	.3152259

Sample Name: PB168664BS Acquired: 7/1/2025 17:53:42 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3865984	F .0003404	.9540133	.6521201	.1875478	F .1544451
Stddev	.0011454	.0040054	.0522051	.0014431	.0061224	.0288007
%RSD	.2962693	1176.853	5.472153	.2212883	3.264435	18.64785
#1	.3856182	.0046441	.8968414	.6504724	.1942140	.1804180
#2	.3863196	-.003278	.9660494	.6527289	.1862530	.1594457
#3	.3878574	-.000345	.9991491	.6531591	.1821763	.1234715

Elem	Sr4077
Units	ppm
Avg	.2002207
Stddev	.0036737
%RSD	1.834821
#1	.2035390
#2	.2008503
#3	.1962730

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3032.783	21604.76	1418.390	1963.780	4269.436
Stddev	10.536	64.02	75.206	9.258	10.999
%RSD	.3473902	.2963113	5.302216	.4714333	.2576248
#1	3022.147	21539.05	1501.942	1954.965	4261.612
#2	3043.216	21666.93	1397.112	1973.425	4282.012
#3	3032.987	21608.31	1356.115	1962.950	4264.684

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2444-01 Acquired: 7/1/2025 18:06:48 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.005189**	**.0007637**	**.0014612**	**.0007520**	**-.000432**	**-.020234**	**.0308442**
Stddev	.001127	.0007791	.0019794	.0022883	.005756	.040265	.0021510
%RSD	21.70858	102.0177	135.4610	304.2850	1332.703	198.9967	6.973719
#1	-.004944	-.000136	.0013429	.0006521	-.004877	.025330	.0318368
#2	-.006419	.001195	-.000456	.0030886	.006070	-.035005	.0283761
#3	-.004206	.001232	.003497	-.001485	-.002488	-.051028	.0323197

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0002531**	**-.000048**	**10.66800**	**.0023058**	**.0065783**	**.2632927**	**.1368471**
Stddev	.0001140	.000147	.85568	.0015964	.0001026	.0324765	.0146327
%RSD	45.03882	303.3649	8.020986	69.23340	1.560190	12.33476	10.69272
#1	.0001470	-.000099	11.33774	.0017015	.0066666	.2442455	.1315852
#2	.0003736	.000117	10.96224	.0010998	.0066025	.2448407	.1255729
#3	.0002387	-.000163	9.70403	.0041162	.0064657	.3007917	.1533830

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0387004**	**2.307236**	**.0011602**	**-.001329**	**22.23099**	**.0022003**	**.1719028**
Stddev	.0061487	.150796	.0011085	.002479	1.46484	.0143022	.0056643
%RSD	15.88798	6.535802	95.54179	186.4844	6.589171	650.0102	3.295062
#1	.0454805	2.379747	.0023863	-.002418	22.39825	.0175003	.1656510
#2	.0371351	2.408080	.0002289	-.003078	20.68970	-.010834	.1733642
#3	.0334856	2.133882	.0008654	.001508	23.60501	-.000066	.1766932

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.497156**	**1.514210**	**.0051719**	**-.001234**	**2.224256**	**2.031992**	**-.006026**
Stddev	.187386	.012176	.0042419	.000362	.026067	.266298	.000873
%RSD	12.51615	.8041076	82.01788	29.31961	1.171954	13.10525	14.47831
#1	1.371679	1.515424	.0036043	-.001513	2.243846	1.863758	-.005620
#2	1.407233	1.525735	.0019370	-.001364	2.234251	1.893202	-.007028
#3	1.712555	1.501474	.0099745	-.000825	2.194670	2.339016	-.005432

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2444-01 Acquired: 7/1/2025 18:06:48 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0033120	-.175192	.0386745
Stddev	.0047655	.041058	.0017133
%RSD	143.8889	23.43618	4.429967
#1	.0011529	-.148137	.0405132
#2	.0087749	-.155002	.0383874
#3	.0000081	-.222435	.0371229

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2834.014	20668.91	1305.402	1874.883	3936.745
Stddev	45.952	1201.07	180.237	108.510	59.543
%RSD	1.621457	5.810974	13.80699	5.787546	1.512502
#1	2807.867	21944.97	1440.485	1989.962	3906.178
#2	2807.101	20501.32	1374.973	1860.263	3898.693
#3	2887.073	19560.45	1100.748	1774.425	4005.363

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: PB168661BS Acquired: 7/1/2025 18:11:14 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6779686**	**1.928132**	**.8888372**	**1.841452**	**.7635568**	**1.828819**	**.1957396**
Stddev	.0043104	.009843	.0008502	.008018	.0022181	.018054	.0010447
%RSD	.6357737	.5104763	.0956496	.4354373	.2904979	.9871877	.5337043
#1	.6816283	1.921958	.8895974	1.850554	.7658720	1.849614	.1968622
#2	.6790599	1.922956	.8879192	1.838370	.7614506	1.819698	.1955607
#3	.6732174	1.939483	.8889952	1.835431	.7633477	1.817146	.1947960

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2133935**	**.1783912**	**.9934482**	**.3850706**	**.1840152**	**.3362123**	**3.309740**
Stddev	.0082622	.0000442	.0294190	.0016940	.0005129	.0155410	.129957
%RSD	3.871813	.0247580	2.961304	.4399091	.2787390	4.622367	3.926497
#1	.2207170	.1784250	.9837328	.3839617	.1835934	.3511723	3.432722
#2	.2150268	.1784073	.9701156	.3870205	.1845861	.3373155	3.322717
#3	.2044366	.1783412	1.026496	.3842297	.1838660	.3201491	3.173782

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1932815**	**1.842639**	**.4544041**	**.0695675**	**3.255208**	**.2745696**	**.1941143**
Stddev	.0017405	.144212	.0014546	.0019893	.129736	.0084960	.0023089
%RSD	.9005196	7.826366	.3201091	2.859562	3.985495	3.094311	1.189474
#1	.1912718	1.988707	.4560608	.0676791	3.368301	.2722669	.1967590
#2	.1942980	1.700358	.4538148	.0716444	3.283744	.2839796	.1925000
#3	.1942748	1.838853	.4533366	.0693790	3.113579	.2674622	.1930839

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.54137**	**5.268041**	**.2990979**	**.3810576**	**.0032933**	**.9450548**	**.6386612**
Stddev	.48535	.006289	.0113527	.0007817	.0030186	.0400259	.0024599
%RSD	4.604207	.1193857	3.795650	.2051308	91.65915	4.235300	.3851640
#1	11.02001	5.265135	.3102349	.3815838	.0022561	.9825960	.6405734
#2	10.55451	5.275257	.2995177	.3801595	.0066939	.9496309	.6395241
#3	10.04959	5.263729	.2875412	.3814296	.0009301	.9029375	.6358861

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: PB168661BS Acquired: 7/1/2025 18:11:14 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**.1831339**	**.1453221**	**.1942706**
Stddev	.0127066	.0222526	.0013660
%RSD	6.938403	15.31261	.7031423
#1	.1702277	.1207944	.1929891
#2	.1835431	.1509545	.1941151
#3	.1956309	.1642173	.1957078

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**3105.421**	**22074.80**	**1432.780**	**2008.767**	**4376.699**
Stddev	9.238	141.85	65.483	21.398	8.369
%RSD	.2974674	.6426035	4.570366	1.065216	.1912074
#1	3095.328	21931.36	1371.906	1984.525	4368.432
#2	3113.456	22078.03	1424.373	2016.750	4385.166
#3	3107.479	22215.01	1502.061	2025.025	4376.498

Sample Name: Q2444-02 Acquired: 7/1/2025 18:15:35 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.005027**	**-.004109**	**.0019422**	**.0004008**	**.0019960**	**-.006627**	**.0288309**
Stddev	.003656	.003474	.0026817	.0082575	.0019854	.039970	.0018501
%RSD	72.72094	84.54222	138.0740	2060.097	99.46566	603.1837	6.416883
#1	-.004850	-.004246	-.001069	-.000901	-.000093	.007507	.0284133
#2	-.001463	-.007513	.002825	.009232	.002223	-.051743	.0272254
#3	-.008768	-.000569	.004072	-.007128	.003858	.024357	.0308541

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000403**	**.0000806**	**10.62722**	**.0038712**	**.0071079**	**.0542264**	**.0946780**
Stddev	.0001298	.0000316	.20216	.0010081	.0004172	.0004022	.0009768
%RSD	322.1971	39.19870	1.902312	26.04236	5.869744	.7417943	1.031699
#1	-.000066	.0001144	10.68153	.0044011	.0069787	.0545559	.0953932
#2	.000185	.0000755	10.79668	.0045038	.0067706	.0537782	.0935651
#3	.000003	.0000518	10.40345	.0027086	.0075744	.0543452	.0950757

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0361078**	**2.403930**	**-.001229**	**-.000142**	**21.09467**	**.0020790**	**.0096483**
Stddev	.0037233	.030081	.000124	.000775	.22074	.0123078	.0003010
%RSD	10.31160	1.251334	10.05669	547.3059	1.046442	592.0034	3.119630
#1	.0377715	2.397490	-.001258	.000591	20.90503	.0156116	.0098462
#2	.0318427	2.436710	-.001335	-.000063	21.33699	-.008447	.0097969
#3	.0387092	2.377590	-.001093	-.000952	21.04201	-.000928	.0093019

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.469390**	**1.515306**	**.0056114**	**-.001227**	**2.217715**	**1.897217**	**-.005846**
Stddev	.030126	.038285	.0004363	.000618	.062111	.049558	.000323
%RSD	2.050267	2.526523	7.775478	50.37921	2.800661	2.612144	5.524119
#1	1.437755	1.558955	.0059294	-.001829	2.289373	1.846332	-.005478
#2	1.472677	1.499550	.0057907	-.000594	2.184448	1.899986	-.005977
#3	1.497738	1.487415	.0051139	-.001256	2.179323	1.945332	-.006083

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2444-02 Acquired: 7/1/2025 18:15:35 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0050194	-.179814	.0392754
Stddev	.0046586	.045369	.0008219
%RSD	92.81199	25.23089	2.092705
#1	.0103840	-.132209	.0399552
#2	.0019933	-.184681	.0395092
#3	.0026808	-.222554	.0383619

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2849.020	20589.25	1346.064	1873.495	3961.857
Stddev	96.890	324.34	40.919	20.847	135.765
%RSD	3.400804	1.575310	3.039932	1.112738	3.426813
#1	2738.098	20643.47	1383.297	1875.375	3806.401
#2	2891.844	20883.07	1352.639	1893.338	4022.057
#3	2917.120	20241.21	1302.255	1851.772	4057.113

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2444-03 Acquired: 7/1/2025 18:19:54 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.009217**	**.0034325**	**.1496819**	**-.000885**	**.0024431**	**1.104563**	**.0879421**
Stddev	.001567	.0042445	.0021883	.005442	.0045490	.070105	.0024172
%RSD	17.00650	123.6555	1.461987	614.9680	186.2000	6.346838	2.748662
#1	-.010435	.0033193	.1479757	-.007161	.0076645	1.185512	.0901643
#2	-.009767	.0077324	.1521492	.001987	-.000664	1.064374	.0853683
#3	-.007448	-.000754	.1489209	.002520	.000329	1.063803	.0882936

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000068**	**.0051773**	**13.22755**	**.0062952**	**.0110901**	**6.040017**	**2.926175**
Stddev	.000229	.0000210	.58132	.0015382	.0002674	.727324	.426335
%RSD	335.7669	.4055358	4.394746	24.43527	2.410807	12.04175	14.56972
#1	.000113	.0051591	13.68555	.0080086	.0113896	5.413990	2.539351
#2	.000007	.0051725	12.57357	.0050331	.0108755	6.837868	3.383286
#3	-.000326	.0052003	13.42352	.0058437	.0110050	5.868193	2.855888

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**3.612748**	**2.724436**	**.4477694**	**.0020722**	**21.48455**	**-.009651**	**16.09820**
Stddev	.062524	.074110	.0006546	.0004604	3.91036	.007418	.51869
%RSD	1.730638	2.720199	.1461887	22.21902	18.20080	76.86752	3.222007
#1	3.666972	2.760453	.4474307	.0025590	17.86379	-.018216	16.68273
#2	3.544356	2.639201	.4473537	.0020136	25.63127	-.005247	15.69290
#3	3.626915	2.773655	.4485240	.0016438	20.95860	-.005490	15.91897

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.954625**	**1.423218**	**.0059565**	**-.002172**	**3.706532**	**10.61236**	**.0060254**
Stddev	.244097	.029851	.0018056	.000539	.086533	1.22178	.0000928
%RSD	12.48818	2.097423	30.31344	24.83043	2.334619	11.51282	1.540844
#1	1.735331	1.402214	.0045597	-.001880	3.673443	9.59284	.0059608
#2	2.217621	1.410052	.0053143	-.002794	3.641425	11.96663	.0059836
#3	1.910923	1.457389	.0079954	-.001841	3.804727	10.27762	.0061318

Sample Name: Q2444-03 Acquired: 7/1/2025 18:19:54 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0409253	-.170550	.0550727
Stddev	.0021668	.036078	.0010833
%RSD	5.294514	21.15363	1.967031
#1	.0402847	-.145757	.0559612
#2	.0433402	-.211939	.0538659
#3	.0391511	-.153954	.0553912

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2875.325	19952.22	1314.584	1819.180	3928.188
Stddev	76.568	1249.13	110.461	103.760	97.807
%RSD	2.662947	6.260625	8.402739	5.703669	2.489871
#1	2892.130	18522.64	1389.027	1700.738	3952.980
#2	2942.095	20833.05	1187.667	1894.047	4011.212
#3	2791.750	20500.96	1367.058	1862.754	3820.370

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2444-04 Acquired: 7/1/2025 18:24:09 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0002862**	**-.002917**	**.0011042**	**-.011306**	**.0021077**	**.0645933**	**.0272051**
Stddev	.0043679	.001489	.0032238	.005438	.0047365	.0114974	.0019104
%RSD	1526.238	51.04778	291.9513	48.09999	224.7204	17.79972	7.022222
#1	-.002320	-.001729	.0015640	-.015660	.0074508	.0706712	.0259185
#2	.005329	-.002434	.0040734	-.013048	-.001575	.0717760	.0294002
#3	-.002151	-.004587	-.002325	-.005210	.000448	.0513325	.0262965

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000954**	**-.000068**	**10.15002**	**.0118691**	**.0062190**	**.0978556**	**.1434363**
Stddev	.0002165	.000053	.15887	.0018721	.0007755	.0053509	.0097216
%RSD	227.0525	77.86949	1.565250	15.77299	12.46918	5.468146	6.777641
#1	-.000092	-.000107	10.15676	.0097074	.0063046	.0930232	.1334616
#2	.000046	-.000088	9.98788	.0129384	.0054043	.1036062	.1528833
#3	.000332	-.000008	10.30542	.0129614	.0069482	.0969374	.1439641

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1042939**	**2.107853**	**.0008879**	**.0002874**	**18.94434**	**-.003549**	**.0949730**
Stddev	.0058328	.070273	.0005994	.0014833	2.00728	.005679	.0022671
%RSD	5.592613	3.333876	67.51166	516.1774	10.59566	160.0328	2.387137
#1	.1038919	2.038926	.0007358	.0002869	17.47878	-.001757	.0959841
#2	.0986725	2.179399	.0003791	-.001196	21.23220	.001019	.0923762
#3	.1103172	2.105235	.0015487	.001771	18.12204	-.009908	.0965586

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.391969**	**1.464077**	**.0019736**	**-.000506**	**2.143426**	**1.838125**	**-.005553**
Stddev	.073104	.073682	.0038091	.000728	.114458	.119510	.000742
%RSD	5.251834	5.032634	193.0023	143.8755	5.339940	6.501737	13.36030
#1	1.324688	1.548604	-.002144	-.000419	2.273550	1.727697	-.006303
#2	1.469758	1.413426	.002693	-.001272	2.058327	1.965011	-.005536
#3	1.381461	1.430201	.005372	.000175	2.098402	1.821667	-.004819

Sample Name: Q2444-04 Acquired: 7/1/2025 18:24:09 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0091263	-.122864	.0372478
Stddev	.0085980	.019531	.0003941
%RSD	94.21172	15.89651	1.058001
#1	.0080868	-.127739	.0376898
#2	.0181968	-.139495	.0371207
#3	.0010952	-.101357	.0369330

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2811.666	20162.36	1370.664	1832.324	3921.068
Stddev	176.649	1013.02	40.039	87.699	236.119
%RSD	6.282733	5.024291	2.921141	4.786202	6.021810
#1	2609.177	19544.17	1415.997	1771.374	3650.674
#2	2934.213	21331.44	1340.136	1932.834	4086.557
#3	2891.607	19611.47	1355.858	1792.765	4025.973

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2444-05 Acquired: 7/1/2025 18:28:26 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.005539**	**-.001666**	**-.000967**	**-.008021**	**.0121839**	**-.062630**	**.0279956**
Stddev	.004230	.004571	.004206	.008457	.0061408	.010141	.0021426
%RSD	76.37106	274.4122	434.8284	105.4362	50.40102	16.19118	7.653316
#1	-.002919	-.006331	-.004883	-.017729	.0172949	-.074021	.0258844
#2	-.003279	-.001473	.003479	-.004090	.0053719	-.054587	.0279342
#3	-.010419	.002806	-.001497	-.002245	.0138850	-.059282	.0301682

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000296**	**.0002244**	**12.11929**	**.0037897**	**.0075395**	**.9097806**	**.0198009**
Stddev	.0001999	.0000640	.15408	.0017982	.0003026	.0865335	.0042786
%RSD	674.5438	28.50936	1.271402	47.44964	4.013209	9.511470	21.60803
#1	-.000201	.0002976	11.95879	.0017837	.0073185	.9673128	.0226615
#2	.000141	.0001967	12.13303	.0052569	.0078843	.9517647	.0218591
#3	.000149	.0001790	12.26604	.0043286	.0074156	.8102644	.0148822

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0189674**	**2.615056**	**.3243208**	**-.000209**	**20.19398**	**.0060565**	**.7904192**
Stddev	.0027573	.174206	.0040326	.000479	3.17242	.0136258	.0565002
%RSD	14.53683	6.661657	1.243398	228.8307	15.70974	224.9793	7.148134
#1	.0221502	2.793359	.3289624	-.000684	22.50805	.0040317	.7566628
#2	.0173092	2.606549	.3223212	.000275	21.49622	-.006444	.7589482
#3	.0174427	2.445259	.3216787	-.000219	16.57766	.020581	.8556467

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.489125**	**.1046703**	**.0018284**	**-.001377**	**2.379360**	**2.197663**	**-.004750**
Stddev	.189920	.0081734	.0017528	.000752	.147469	.184340	.001316
%RSD	12.75381	7.808721	95.86733	54.64286	6.197836	8.388023	27.70682
#1	1.601185	.1137183	.0038055	-.000510	2.541803	2.321347	-.003653
#2	1.596348	.1024710	.0004649	-.001760	2.342370	2.285849	-.006209
#3	1.269842	.0978215	.0012147	-.001860	2.253908	1.985794	-.004386

Sample Name: Q2444-05 Acquired: 7/1/2025 18:28:26 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0056840	-.175244	.0460196
Stddev	.0097041	.005425	.0005247
%RSD	170.7270	3.095894	1.140223
#1	.0047294	-.170245	.0455367
#2	.0158301	-.181014	.0465780
#3	-.003508	-.174474	.0459441

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2768.439	18556.86	1300.607	1681.104	3851.391
Stddev	205.183	2177.14	25.984	200.796	269.846
%RSD	7.411494	11.73229	1.997849	11.94431	7.006451
#1	2553.243	20074.24	1288.048	1815.167	3570.596
#2	2790.203	19534.00	1283.288	1777.900	3874.818
#3	2961.873	16062.33	1330.485	1450.245	4108.760

Sample Name: Q2444-06 Acquired: 7/1/2025 18:32:43 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.007627**	**-.002492**	**.0006277**	**-.004347**	**.0004333**	**.0977075**	**.0332648**
Stddev	.003292	.004947	.0043384	.007121	.0032760	.0302157	.0022768
%RSD	43.16530	198.4847	691.1078	163.8277	756.0837	30.92467	6.844310
#1	-.007558	-.008179	.0016910	-.012544	-.000114	.1252088	.0318744
#2	-.004370	.000814	.0043356	.000313	.003948	.0653625	.0358923
#3	-.010954	-.000111	-.004143	-.000810	-.002535	.1025510	.0320278

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0002006**	**.0000358**	**11.28141**	**.0020046**	**.0078134**	**.3408229**	**.2424322**
Stddev	.0001731	.0000997	.10261	.0020165	.0008243	.0436648	.0393729
%RSD	86.27416	278.6578	.9095362	100.5936	10.54994	12.81159	16.24077
#1	.0003528	-.000000	11.16332	.0030991	.0073013	.3303928	.2370847
#2	.0002366	.000148	11.33210	-.000322	.0073747	.3887582	.2842054
#3	.0000124	-.000041	11.34881	.003237	.0087643	.3033175	.2060063

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1203710**	**2.462669**	**.0104802**	**-.000662**	**17.31542**	**-.008859**	**.0504292**
Stddev	.0027031	.190873	.0004361	.000235	3.38502	.012751	.0027043
%RSD	2.245608	7.750657	4.160934	35.52053	19.54914	143.9433	5.362620
#1	.1176005	2.584037	.0101251	-.000599	16.89385	-.005539	.0498504
#2	.1230012	2.242659	.0109669	-.000465	20.89147	-.022942	.0480612
#3	.1205114	2.561311	.0103485	-.000923	14.16093	.001904	.0533761

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.278013**	**1.528150**	**-.000368**	**-.001663**	**2.220709**	**2.063064**	**-.006196**
Stddev	.190634	.045447	.002498	.000444	.069841	.236446	.000844
%RSD	14.91645	2.973958	678.2717	26.68356	3.144969	11.46092	13.61355
#1	1.239595	1.580271	-.003138	-.001154	2.299797	1.984327	-.006472
#2	1.484931	1.496804	.001712	-.001867	2.167510	2.328833	-.005250
#3	1.109514	1.507376	.000322	-.001968	2.194819	1.876033	-.006868

Sample Name: Q2444-06 Acquired: 7/1/2025 18:32:43 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0066708	-.140905	.0407068
Stddev	.0030939	.035206	.0006045
%RSD	46.38068	24.98558	1.484918
#1	.0093927	-.145498	.0402859
#2	.0073137	-.173589	.0413994
#3	.0033059	-.103628	.0404351

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2866.025	18597.85	1434.264	1691.106	3976.338
Stddev	102.912	1574.51	112.222	138.608	143.444
%RSD	3.590746	8.466111	7.824364	8.196292	3.607435
#1	2747.671	19053.52	1496.027	1736.297	3812.679
#2	2934.430	19894.27	1304.727	1801.479	4080.258
#3	2915.973	16845.75	1502.036	1535.543	4036.077

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCV02 Acquired: 7/1/2025 18:37:01 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi 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	**4.796288**	**4.866501**	**4.813649**	**4.851087**	**4.851279**	**9.578839**	**9.719121**
Stddev	.009723	.007515	.010114	.009144	.013172	.067192	.031214
%RSD	.2027259	.1544300	.2101183	.1884866	.2715217	.7014672	.3211654
#1	4.788953	4.857823	4.802096	4.847857	4.859679	9.601747	9.728449
#2	4.792594	4.870775	4.820910	4.843997	4.836097	9.503187	9.684306
#3	4.807317	4.870905	4.817940	4.861407	4.858059	9.631581	9.744608

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2473657**	**2.410873**	**23.85001**	**.9728197**	**2.411567**	**1.238249**	**4.920872**
Stddev	.0010208	.005005	.09558	.0023318	.006303	.006729	.023549
%RSD	.4126834	.2076213	.4007520	.2396903	.2613823	.5434290	.4785437
#1	.2483212	2.405110	23.76812	.9731989	2.404293	1.245607	4.934667
#2	.2474858	2.413372	23.82689	.9703216	2.414992	1.236733	4.934268
#3	.2462902	2.414137	23.95503	.9749386	2.415417	1.232407	4.893682

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.400982**	**23.63371**	**2.384949**	**1.223072**	**25.07081**	**2.377656**	**2.445551**
Stddev	.005117	.27792	.006192	.000828	.14127	.027808	.005306
%RSD	.2131142	1.175945	.2596361	.0677090	.5634870	1.169558	.2169462
#1	2.400664	23.33456	2.377919	1.222311	25.22410	2.409083	2.442635
#2	2.396031	23.68269	2.387331	1.222952	25.04246	2.356240	2.442344
#3	2.406250	23.88389	2.389596	1.223954	24.94586	2.367644	2.451675

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**25.73643**	**4.855349**	**4.938798**	**4.866399**	**4.789455**	**4.941955**	**4.846661**
Stddev	.29529	.007664	.013046	.008966	.006319	.013082	.011370
%RSD	1.147376	.1578408	.2641556	.1842430	.1319325	.2647221	.2345940
#1	26.00383	4.846508	4.950916	4.865432	4.782503	4.953386	4.833881
#2	25.78597	4.860095	4.940490	4.857956	4.794849	4.944793	4.850447
#3	25.41951	4.859444	4.924989	4.875809	4.791014	4.927687	4.855654

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCV02 Acquired: 7/1/2025 18:37:01 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**4.842327**	**4.777528**	**4.838508**
Stddev	.021656	.035154	.012020
%RSD	.4472213	.7358281	.2484310
#1	4.850865	4.738380	4.836000
#2	4.817704	4.787808	4.827939
#3	4.858413	4.806397	4.851584

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2974.552**	**21015.10**	**1481.648**	**1922.455**	**3899.891**
Stddev	8.525	80.59	13.060	6.823	12.508
%RSD	.2866090	.3834958	.8814230	.3549097	.3207213
#1	2975.863	20923.04	1467.644	1914.588	3913.160
#2	2982.345	21072.92	1483.806	1926.015	3898.197
#3	2965.447	21049.33	1493.494	1926.761	3888.317

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCB02 Acquired: 7/1/2025 18:41:17 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000578**	**.0022095**	**-.000656**	**-.004366**	**.0010720**	**-.010453**
Stddev	.001507	.0005220	.000700	.001327	.0018642	.014447
%RSD	260.9251	23.62477	106.7642	30.38431	173.8988	138.2029
#1	.000617	.0022625	.000055	-.004392	-.000788	-.024622
#2	-.000079	.0016631	-.001345	-.005679	.002940	-.010994
#3	-.002271	.0027031	-.000677	-.003026	.001064	.004256

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0005560**	**-.000079**	**-.000056**	**-.007721**	**.0008523**	**.0001619**
Stddev	.0031284	.000111	.000038	.028247	.0008231	.0001077
%RSD	562.6319	141.4364	68.22089	365.8335	96.58069	66.53359
#1	-.002148	-.000127	-.000096	.024870	.0014460	.0002098
#2	-.000166	-.000157	-.000020	-.025131	-.000087	.0000385
#3	.003982	.000048	-.000052	-.022903	.001198	.0002372

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000076**	**.0013673**	**-.000336**	**.0925913**	**-.001260**	**.0001671**
Stddev	.001580	.0022302	.003234	.1353170	.000467	.0019194
%RSD	2079.143	163.1067	963.7071	146.1444	37.07164	1148.852
#1	.000018	-.000905	-.000958	-.004179	-.000771	.0021026
#2	-.001701	.003553	.003164	.247218	-.001308	-.001736
#3	.001455	.001455	-.003213	.034734	-.001701	.000134

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0085274**	**.0125974**	**.0010057**	**.0123752**	**-.000441**	F **.0100682**
Stddev	.0085673	.0115735	.0003704	.0005173	.001571	.0018079
%RSD	100.4683	91.87240	36.83671	4.179984	356.0376	17.95629
#1	.0068934	-.000755	.0007555	.0123685	.000312	.0090712
#2	.0177940	.019747	.0008302	.0128957	.000611	.0089783
#3	.0008947	.018800	.0014312	.0118613	-.002247	.0121550

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCB02 Acquired: 7/1/2025 18:41:17 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007292	.0105926	-.003711	.0044297	.0042348	F .0583748
Stddev	.0008638	.0029956	.001533	.0005532	.0054570	.0189294
%RSD	118.4666	28.28003	41.30382	12.48768	128.8596	32.42732
#1	.0005863	.0140516	-.001971	.0037946	.0103206	.0580991
#2	.0016556	.0088520	-.004301	.0048066	.0026066	.0774405
#3	-.000054	.0088742	-.004862	.0046878	-.000223	.0395848

Elem	Sr4077
Units	ppm
Avg	.0001468
Stddev	.0002218
%RSD	151.0390
#1	.0000593
#2	.0003991
#3	-.000018

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3111.797	21854.13	1550.336	1989.177	4672.844
Stddev	6.141	81.43	2.668	9.881	2.551
%RSD	.1973399	.3726285	.1720720	.4967500	.0545916
#1	3118.390	21877.70	1553.403	1996.363	4671.067
#2	3110.761	21921.18	1548.552	1993.259	4675.767
#3	3106.240	21763.51	1549.055	1977.909	4671.698

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2444-07 Acquired: 7/1/2025 18:45:42 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.004896**	**-.004089**	**.0010760**	**-.003472**	**.0030073**	**-.039004**	**.0300469**
Stddev	.001981	.003051	.0009795	.004870	.0036845	.102306	.0032617
%RSD	40.47129	74.61770	91.03494	140.2563	122.5183	262.2939	10.85540
#1	-.005009	-.006835	.0000398	.002139	-.000011	-.116415	.0338047
#2	-.002860	-.004630	.0012015	-.006592	.007113	.076981	.0279490
#3	-.006818	-.000804	.0019868	-.005963	.001919	-.077580	.0283870

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0001715**	**.0001207**	**10.95998**	**.0018118**	**.0070622**	**.5357425**	**.0747861**
Stddev	.0003616	.0001485	.49523	.0010429	.0002399	.0992665	.0170422
%RSD	210.8710	122.9801	4.518511	57.56065	3.397584	18.52876	22.78793
#1	.0004749	-.000046	10.57274	.0015027	.0069797	.6503639	.0940475
#2	-.000229	.000239	11.51800	.0029743	.0068743	.4789755	.0686457
#3	.000268	.000169	10.78922	.0009584	.0073325	.4778883	.0616650

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0317502**	**2.404444**	**.0027604**	**.0004546**	**23.95574**	**-.010195**	**.2758355**
Stddev	.0012566	.122553	.0014040	.0022630	5.31842	.010685	.0102611
%RSD	3.957905	5.096945	50.86329	497.7857	22.20104	104.8073	3.719988
#1	.0331292	2.377944	.0038050	.0017715	30.02779	-.020503	.2691769
#2	.0314516	2.538079	.0033116	-.002158	21.71552	.000831	.2706774
#3	.0306697	2.297309	.0011644	.001751	20.12392	-.010913	.2876522

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.429045**	**1.574404**	**.0084050**	**-.001544**	**2.252449**	**1.902290**	**-.006282**
Stddev	.246746	.009315	.0021436	.000751	.012154	.347663	.001216
%RSD	17.26653	.5916632	25.50417	48.63089	.5395792	18.27603	19.35310
#1	1.713963	1.570654	.0108775	-.002296	2.239690	2.303617	-.006131
#2	1.286149	1.585009	.0072690	-.000795	2.263890	1.693132	-.005149
#3	1.287023	1.567548	.0070684	-.001540	2.253767	1.710122	-.007567

Sample Name: Q2444-07 Acquired: 7/1/2025 18:45:42 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**-.006707**	**-.178553**	**.0405587**
Stddev	.003780	.046790	.0010092
%RSD	56.35533	26.20493	2.488359
#1	-.011013	-.232145	.0397864
#2	-.005170	-.145826	.0417007
#3	-.003937	-.157688	.0401891

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2737.990**	**20468.36**	**1325.768**	**1854.527**	**3803.141**
Stddev	24.487	1524.47	193.501	138.935	28.187
%RSD	.8943350	7.447912	14.59542	7.491642	.7411420
#1	2764.688	21518.10	1113.306	1953.162	3829.271
#2	2716.578	21167.22	1491.897	1914.782	3773.271
#3	2732.705	18719.75	1372.100	1695.637	3806.881

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2444-08 Acquired: 7/1/2025 18:49:59 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba493
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002330	k -.002684	k .0036534	s -.008166	s .0032133	k -.026651	.045367
Stddev	.003176	.003602	.0011348	.004647	.0018220	.069831	.002921
%RSD	136.2834	134.1821	31.06066	56.90646	56.70252	262.0200	6.43966
#1	-.004563	k -.004776	k .0028391	s -.012030	s .0049739	k .029452	.047476
#2	.001305	k -.004752	.0049496	-.003010	k .0033305	-.104859	.046592
#3	-.003733	.001475	.0031715	-.009458	.0013355	-.004546	.042032

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe259
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	k .0002089	-.000003	10.18004	s .0034126	k .0064159	k .0494925	.086847
Stddev	.0002956	.000167	.57717	.0007467	.0001977	.0100641	.019972
%RSD	141.5222	6288.821	5.669642	21.88037	3.080698	20.33452	22.9972
#1	k -.000112	-.000194	10.67232	.0026028	k .0066222	k .0407984	.072681
#2	.000470	.000081	9.54484	s .0040738	.0063973	.0605175	.109691
#3	.000269	.000106	10.32297	.0035611	.0062282	.0471616	.078170

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn213
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0263693	2.321231	-.001503	s -.000364	^ *****	k -.004077	.0157540
Stddev	.0023149	.171059	.000342	.002107	-----	.024543	.0004484
%RSD	8.778890	7.369320	22.74484	579.3329	-----	602.0171	2.846359
#1	.0290018	2.512101	-.001749	k -.002497	20.21217	k .022978	.0159830
#2	.0246516	2.181779	-.001646	s .001717	^ -----	k -.010299	.0152374
#3	.0254544	2.269812	-.001112	-.000311	21.33245	-.024909	.0160417

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	^ *****	k 1.520203	k .0093074	s -.001362	k 2.209919	k 1.981748	-.005872
Stddev	-----	.004866	.0045606	.000743	.000864	.341991	.001457
%RSD	-----	.3200966	48.99968	54.56627	.0391183	17.25702	24.80390
#1	1.373501	k 1.516592	k .0046974	s -.002180	k 2.210644	k 1.759266	-.005297
#2	^ -----	1.518281	k .0138170	-.000728	2.208962	2.375538	-.004792
#3	1.408467	1.525737	.0094078	-.001178	2.210151	1.810439	-.007529

Sample Name: Q2444-08 Acquired: 7/1/2025 18:49:59 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0056327	-.186370	.0379695
Stddev	.0153184	.027505	.0007940
%RSD	271.9533	14.75833	2.091249
#1	-.011891	-.196498	.0387297
#2	.012309	-.207376	.0371455
#3	.016480	-.155237	.0380334

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	^ *****	^ *****	1302.151	1918.486	3863.342
Stddev	-----	-----	193.124	34.722	40.595
%RSD	-----	-----	14.83112	1.809860	1.050782
#1	^ -----	20738.76	1416.661	1878.421	3822.146
#2	2768.414	^ -----	1079.179	1939.824	3864.570
#3	2799.747	21414.21	1410.615	1937.213	3903.309

Sample Name: Q2444-09 Acquired: 7/1/2025 18:54:17 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.009384**	**-.001731**	**.0174614**	**-.006638**	**.0031277**	**-.002758**	**.0310842**
Stddev	.003704	.002489	.0027739	.006591	.0050928	.038159	.0011930
%RSD	39.47290	143.7739	15.88617	99.29415	162.8322	1383.386	3.837986
#1	-.008162	-.004451	.0185382	-.007683	.0076986	.038854	.0313187
#2	-.013544	.000433	.0195355	.000413	-.002362	-.036110	.0297914
#3	-.006445	-.001175	.0143105	-.012645	.004046	-.011020	.0321425

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0001232**	**.0005577**	**12.08756**	**.0016194**	**.0079519**	**.4686283**	**.0684545**
Stddev	.0005305	.0000652	.30743	.0006955	.0004947	.1580875	.0298560
%RSD	430.7629	11.68918	2.543390	42.94603	6.221021	33.73409	43.61440
#1	-.000239	.0006238	12.21327	.0008359	.0081410	.4007250	.0550785
#2	.000732	.0004934	11.73719	.0021638	.0073906	.6493229	.1026596
#3	-.000123	.0005560	12.31221	.0018583	.0083242	.3558369	.0476253

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0395136**	**2.589328**	**.4375798**	**.0018797**	**21.15133**	**-.012612**	**7.020412**
Stddev	.0014766	.175953	.0018599	.0008563	8.17181	.019624	.385410
%RSD	3.736993	6.795330	.4250387	45.55261	38.63498	155.5953	5.489843
#1	.0392764	2.710424	.4387516	.0016769	18.33307	-.002642	6.854614
#2	.0381698	2.387495	.4385525	.0011430	30.35927	.000025	6.745646
#3	.0410944	2.670064	.4354352	.0028191	14.76163	-.035220	7.460975

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.569581**	**.6064578**	**.0050135**	**-.000725**	**2.501807**	**2.159157**	**-.003331**
Stddev	.549118	.0205782	.0035528	.000434	.075865	.705661	.000410
%RSD	34.98501	3.393171	70.86601	59.77744	3.032407	32.68226	12.32072
#1	1.364587	.6289288	.0037800	-.000274	2.585496	1.854247	-.003729
#2	2.191707	.6019119	.0090186	-.001139	2.482380	2.966006	-.002909
#3	1.152450	.5885327	.0022417	-.000762	2.437544	1.657219	-.003356

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2444-09 Acquired: 7/1/2025 18:54:17 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0079504	-.177730	.0436169
Stddev	.0065621	.070196	.0007642
%RSD	82.53796	39.49615	1.752185
#1	.0145318	-.146668	.0432498
#2	.0014078	-.258098	.0431055
#3	.0079115	-.128423	.0444954

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2717.636	18562.35	1310.260	1688.417	3781.387
Stddev	108.301	1868.42	314.727	160.661	146.644
%RSD	3.985132	10.06563	24.02022	9.515474	3.878050
#1	2596.338	19224.89	1471.424	1748.804	3618.210
#2	2751.939	20009.22	947.591	1810.134	3823.805
#3	2804.632	16452.95	1511.764	1506.312	3902.146

Sample Name: Q2444-10 Acquired: 7/1/2025 18:58:35 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.007783**	**-.001115**	**.0022451**	**-.003522**	**.0016979**	**.0020203**	**.0306219**
Stddev	.001768	.001824	.0022879	.003256	.0026299	.0779926	.0018713
%RSD	22.71712	163.6178	101.9085	92.44495	154.8923	3860.497	6.110876
#1	-.005932	-.002935	-.000284	-.005876	.0000616	-.040180	.0286550
#2	-.007961	.000713	.004171	-.004884	.0003006	.092020	.0308307
#3	-.009455	-.001123	.002848	.000194	.0047316	-.045779	.0323800

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000202**	**.0000205**	**10.72987**	**.0033712**	**.0067282**	**.0617041**	**.0609773**
Stddev	.0001004	.0000168	.07037	.0003698	.0005367	.0033780	.0096685
%RSD	497.4704	81.93369	.6558381	10.97010	7.976682	5.474499	15.85587
#1	.0000806	.0000381	10.73227	.0037712	.0069377	.0579024	.0500248
#2	-.000096	.0000188	10.79901	.0033007	.0061184	.0628494	.0645795
#3	.000076	.0000046	10.65833	.0030418	.0071286	.0643606	.0683275

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0268197**	**2.428563**	**.0010038**	**-.001300**	**17.15865**	**-.017535**	**.0722117**
Stddev	.0013105	.034107	.0006502	.001042	2.72367	.011895	.0043944
%RSD	4.886316	1.404408	64.76953	80.15553	15.87345	67.83584	6.085381
#1	.0282612	2.405111	.0005891	-.000130	14.02594	-.030604	.0772816
#2	.0264977	2.467690	.0017531	-.001644	18.48425	-.007340	.0694970
#3	.0257002	2.412890	.0006693	-.002127	18.96577	-.014662	.0698566

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.160086**	**1.445832**	**.0019741**	**-.000906**	**2.085810**	**1.576414**	**-.006926**
Stddev	.087810	.054492	.0012800	.000268	.088488	.067744	.000975
%RSD	7.569294	3.768926	64.84021	29.53256	4.242393	4.297354	14.07231
#1	1.063997	1.507848	.0010108	-.000807	2.186490	1.507401	-.006777
#2	1.180098	1.424043	.0014850	-.001209	2.050566	1.579029	-.007967
#3	1.236164	1.405607	.0034266	-.000702	2.020375	1.642813	-.006035

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2444-10 Acquired: 7/1/2025 18:58:35 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**-.005246**	**-.150365**	**.0377081**
Stddev	.006044	.028599	.0005986
%RSD	115.2073	19.01952	1.587482
#1	-.012117	-.181920	.0379437
#2	-.000749	-.143022	.0370275
#3	-.002873	-.126154	.0381530

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2858.615**	**19686.20**	**1519.471**	**1791.710**	**3978.124**
Stddev	121.409	2613.55	59.947	220.840	166.496
%RSD	4.247111	13.27606	3.945287	12.32565	4.185284
#1	2719.200	16668.74	1460.876	1536.706	3786.257
#2	2915.570	21237.72	1580.685	1918.967	4063.530
#3	2941.076	21152.16	1516.852	1919.456	4084.587

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2444-11 Acquired: 7/1/2025 19:02:53 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.005111**	**.0024940**	**-.000487**	**.0000835**	**.0014318**	**.0181738**	**.0305351**
Stddev	.002439	.0037340	.002061	.0098765	.0020697	.0675699	.0009288
%RSD	47.71837	149.7193	423.4146	11821.09	144.5585	371.7991	3.041805
#1	-.003347	.0067829	-.000105	-.008653	.0004284	-.044731	.0294877
#2	-.004092	-.000033	-.002712	-.001896	.0038119	.009652	.0308592
#3	-.007894	.000732	.001356	.010800	.0000549	.089600	.0312585

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0001278**	**.0000378**	**11.09872**	**.0030242**	**.0074039**	**.2109914**	**.0656352**
Stddev	.0005412	.0000880	.28272	.0019243	.0005353	.0165079	.0058792
%RSD	423.3449	233.0365	2.547349	63.62964	7.229664	7.823953	8.957352
#1	.0001979	.0001386	10.87491	.0049430	.0079840	.1919445	.0588953
#2	-.000445	-.000002	11.00478	.0010945	.0072984	.2211648	.0683009
#3	.000631	-.000023	11.41645	.0030351	.0069292	.2198648	.0697093

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0284291**	**2.301887**	**-.000431**	**-.000884**	**18.91003**	**.0012405**	**.1021284**
Stddev	.0044267	.063519	.000820	.001683	2.64870	.0218138	.0067580
%RSD	15.57109	2.759448	190.3708	190.3548	14.00684	1758.437	6.617168
#1	.0233941	2.268132	-.000590	.000671	15.94675	.0201585	.1098909
#2	.0301838	2.262370	.000457	-.002670	21.04729	.0061839	.0975558
#3	.0317095	2.375157	-.001159	-.000653	19.73605	-.022621	.0989384

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.205791**	**1.485984**	**.0011735**	**-.001325**	**2.157316**	**1.612041**	**-.007114**
Stddev	.137908	.021521	.0037155	.000595	.040536	.113299	.000786
%RSD	11.43714	1.448262	316.6282	44.92692	1.878995	7.028312	11.05582
#1	1.052302	1.465925	-.003113	-.001721	2.113245	1.481682	-.007340
#2	1.245803	1.483312	.003480	-.000640	2.165696	1.667654	-.006239
#3	1.319270	1.508717	.003153	-.001613	2.193007	1.686788	-.007762

Sample Name: Q2444-11 Acquired: 7/1/2025 19:02:53 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0013226	-.165926	.0391717
Stddev	.0047431	.011047	.0008738
%RSD	358.6269	6.657551	2.230677
#1	-.002573	-.156840	.0391777
#2	-.000063	-.162716	.0382949
#3	.006604	-.178222	.0400425

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2842.175	19292.07	1480.912	1750.582	3942.482
Stddev	49.864	2643.86	41.347	226.606	68.306
%RSD	1.754448	13.70436	2.791978	12.94462	1.732558
#1	2893.497	16307.82	1456.209	1492.384	4012.292
#2	2839.121	21341.57	1528.645	1916.434	3939.369
#3	2793.908	20226.82	1457.882	1842.928	3875.787

Sample Name: Q2444-12 Acquired: 7/1/2025 19:07:11 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.003473**	**-.004732**	**.0030076**	**-.009351**	**.0038483**	**-.004618**	**.0293680**
Stddev	.002176	.006034	.0014533	.003415	.0045035	.033267	.0011625
%RSD	62.64107	127.5297	48.32004	36.51895	117.0255	720.4437	3.958345
#1	-.002749	-.004932	.0033890	-.006876	-.001275	.033499	.0280983
#2	-.001752	.001400	.0014016	-.013247	.007180	-.019543	.0296254
#3	-.005919	-.010664	.0042321	-.007931	.005640	-.027808	.0303801

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000861**	**-.000030**	**10.65997**	**.0036264**	**.0060628**	**.0408036**	**.1009501**
Stddev	.0000997	.000042	.45747	.0017999	.0003012	.0093534	.0253485
%RSD	115.7598	136.9397	4.291517	49.63389	4.967616	22.92286	25.10998
#1	.0001951	-.000002	10.18861	.0021345	.0062035	.0515719	.1301608
#2	.0000638	-.000011	11.10217	.0031192	.0057170	.0361392	.0847331
#3	-.000001	-.000078	10.68914	.0056254	.0062678	.0346997	.0879563

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0309125**	**2.438855**	**-.000039**	**-.000535**	**22.57525**	**.0055964**	**.0077446**
Stddev	.0025321	.131489	.000609	.003411	5.90543	.0227516	.0003793
%RSD	8.191028	5.391418	1561.535	638.0272	26.15885	406.5424	4.897832
#1	.0305925	2.567990	-.000352	-.003284	29.20223	.0184133	.0076069
#2	.0335893	2.305132	.000663	-.001603	20.65330	.0190481	.0081736
#3	.0285556	2.443443	-.000428	.003283	17.87022	-.020672	.0074534

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.478438**	**1.570726**	**.0037436**	**-.000317**	**2.289531**	**1.949896**	**-.005415**
Stddev	.288810	.126919	.0015857	.000988	.182587	.389387	.002622
%RSD	19.53483	8.080280	42.35835	311.2526	7.974849	19.96963	48.41717
#1	1.811258	1.489042	.0054226	-.000041	2.175194	2.399063	-.005756
#2	1.293731	1.506192	.0022715	-.001415	2.193295	1.707722	-.007850
#3	1.330326	1.716945	.0035365	.000503	2.500105	1.742904	-.002640

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2444-12 Acquired: 7/1/2025 19:07:11 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**-.002670**	**-.192683**	**.0386172**
Stddev	.005989	.045257	.0009382
%RSD	224.3114	23.48762	2.429483
#1	-.005590	-.242736	.0376197
#2	.004219	-.154651	.0394820
#3	-.006639	-.180660	.0387499

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2705.875**	**20728.52**	**1330.746**	**1882.434**	**3770.308**
Stddev	260.041	1939.30	217.190	165.123	347.421
%RSD	9.610239	9.355699	16.32093	8.771760	9.214666
#1	2873.913	21981.57	1098.145	1980.798	3991.294
#2	2837.364	21709.25	1528.251	1974.705	3949.772
#3	2406.348	18494.74	1365.839	1691.800	3369.857

Sample Name: Q2444-12DUP Acquired: 7/1/2025 19:16:14 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000563**	**.0016086**	**-.002391**	**-.002607**	**.0005071**	**.0601267**	**.0303922**
Stddev	.001172	.0098992	.000275	.006154	.0053472	.0578751	.0012648
%RSD	208.0342	615.3936	11.51152	236.0489	1054.400	96.25519	4.161478
#1	.000382	-.009175	-.002169	.003827	.0026644	-.003951	.0307022
#2	-.001875	.003719	-.002306	-.003211	.0044387	.075731	.0314732
#3	-.000198	.010283	-.002699	-.008438	-.005582	.108600	.0290013

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0001817**	**-.000088**	**10.76597**	**.0028107**	**.0031184**	**.0386680**	**.1011125**
Stddev	.0003809	.000158	.25360	.0003747	.0034632	.0084973	.0185277
%RSD	209.6357	178.7962	2.355568	13.33158	111.0573	21.97492	18.32387
#1	.0000219	-.000253	10.89058	.0029873	.0069486	.0331829	.0913950
#2	.0006165	.000061	10.47417	.0030644	.0021991	.0484560	.1224774
#3	-.000093	-.000072	10.93317	.0023803	.0002076	.0343651	.0894651

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0310686**	**2.357557**	**-.000906**	**-.000352**	**22.67503**	**.0033267**	**.0077258**
Stddev	.0042992	.177855	.001197	.001702	3.03323	.0145194	.0005549
%RSD	13.83768	7.544029	132.0993	483.3948	13.37695	436.4486	7.182680
#1	.0338617	2.532311	-.002214	.001607	20.78738	.0188004	.0070882
#2	.0261179	2.176755	-.000641	-.001193	26.17386	.0011788	.0079892
#3	.0332261	2.363604	.000136	-.001470	21.06384	-.009999	.0080999

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.436100**	**.7236419**	**.0006297**	**.0000391**	**1.055151**	**1.898673**	**-.006904**
Stddev	.253984	.8020956	.0019403	.0013774	1.178557	.320402	.001139
%RSD	17.68566	110.8415	308.1407	3520.663	111.6955	16.87505	16.49592
#1	1.309438	1.588030	.0023087	-.001488	2.326549	1.724327	-.005611
#2	1.728506	.579515	-.001494	.001187	.839757	2.268441	-.007344
#3	1.270357	.003381	.001075	.000419	-.000853	1.703251	-.007758

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2444-12DUP Acquired: 7/1/2025 19:16:14 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0083643	-.175780	.0387844
Stddev	.0072714	.043693	.0006660
%RSD	86.93358	24.85682	1.717042
#1	.0147467	-.144591	.0390828
#2	.0098976	-.225719	.0380215
#3	.0004485	-.157031	.0392491

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3273.947	21800.63	1395.718	1977.813	5226.016
Stddev	630.846	727.52	235.113	64.278	1653.967
%RSD	19.26868	3.337130	16.84529	3.249937	31.64871
#1	2638.328	21932.60	1509.194	2001.774	3679.372
#2	3283.603	21016.16	1125.391	1904.996	5029.015
#3	3899.910	22453.12	1552.570	2026.668	6969.660

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2444-12LX5 Acquired: 7/1/2025 19:20:33 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000819**	**.0000415**	**.0003537**	**-.002239**	**-.000581**	**-.029581**	**.0091174**
Stddev	.002449	.0013472	.0010005	.006798	.002631	.041387	.0019428
%RSD	299.2163	3247.149	282.8312	303.5601	452.5180	139.9112	21.30904
#1	-.001741	.0011827	.0011251	.005549	.002346	.016263	.0072891
#2	-.002673	-.001445	-.000777	-.006975	-.002748	-.040814	.0089057
#3	.001958	.000387	.000713	-.005292	-.001342	-.064191	.0111574

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000142**	**-.000048**	**2.358688**	**.0018784**	**.0017087**	**.0080167**	**.0200300**
Stddev	.0001121	.000080	.039588	.0011181	.0004783	.0007801	.0021137
%RSD	787.0613	164.9882	1.678412	59.52205	27.99362	9.731166	10.55252
#1	.0001437	-.000010	2.400584	.0025101	.0022610	.0072384	.0222247
#2	-.000051	-.000140	2.353576	.0025378	.0014413	.0080130	.0198571
#3	-.000050	.000005	2.321903	.0005875	.0014240	.0087986	.0180080

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0070757**	**.5171490**	**-.000906**	**-.000049**	**4.781749**	**-.004280**	**.0026084**
Stddev	.0007690	.1794779	.000559	.001105	.025279	.003157	.0003589
%RSD	10.86767	34.70527	61.73654	2239.699	.5286611	73.75971	13.75752
#1	.0069047	.4369541	-.000264	.000251	4.807189	-.007875	.0029302
#2	.0064066	.3917505	-.001291	.000874	4.781423	-.003009	.0022214
#3	.0079157	.7227424	-.001163	-.001273	4.756634	-.001957	.0026735

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2451302**	**.2741476**	**-.004570**	**.0001111**	**.4212170**	**.3860947**	**.0022274**
Stddev	.0005986	.0033715	.000634	.0001989	.0028516	.0332426	.0013414
%RSD	.2441988	1.229801	13.87168	178.9178	.6769951	8.609952	60.22240
#1	.2455989	.2779922	-.004363	.0001955	.4226889	.3580895	.0030681
#2	.2444559	.2716950	-.004066	-.000116	.4179302	.4228316	.0006804
#3	.2453359	.2727557	-.005282	.000254	.4230320	.3773630	.0029336

Sample Name: Q2444-12LX5 Acquired: 7/1/2025 19:20:33 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.005312	.0692989	.0082991
Stddev	.005269	.0263330	.0001257
%RSD	99.17448	37.99920	1.515182
#1	-.000045	.0930695	.0081876
#2	-.005309	.0409926	.0084354
#3	-.010583	.0738346	.0082745

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3089.835	21743.79	1509.626	1974.768	4461.588
Stddev	9.122	122.79	9.382	17.971	3.881
%RSD	.2952272	.5647348	.6214793	.9100321	.0869879
#1	3100.077	21664.78	1498.794	1959.057	4462.000
#2	3082.583	21885.26	1515.176	1994.364	4465.246
#3	3086.846	21681.34	1514.909	1970.883	4457.517

Sample Name: Q2444-12MS Acquired: 7/1/2025 19:24:57 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7583835**	**2.005101**	**.9787236**	**1.938561**	**.8184023**	**1.965604**	**.2445711**
Stddev	.0049478	.002733	.0050066	.004474	.0038339	.025870	.0020687
%RSD	.6524199	.1363034	.5115407	.2308026	.4684629	1.316122	.8458700
#1	.7636219	2.008255	.9788806	1.937479	.8192177	1.960610	.2469475
#2	.7577393	2.003429	.9736404	1.943477	.8217628	1.942595	.2431727
#3	.7537893	2.003619	.9836498	1.934726	.8142262	1.993606	.2435931

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2096269**	**.1972321**	**13.06876**	**.4119977**	**.2075693**	**.3807113**	**3.398331**
Stddev	.0018303	.0002139	.04822	.0000998	.0003432	.0040548	.028966
%RSD	.8731008	.1084555	.3689721	.0242274	.1653526	1.065068	.8523556
#1	.2108852	.1971930	13.01512	.4121052	.2079385	.3835200	3.417512
#2	.2075273	.1970404	13.08261	.4119078	.2075095	.3760627	3.365011
#3	.2104682	.1974629	13.10853	.4119802	.2072599	.3825512	3.412471

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2335772**	**4.630046**	**.4947946**	**.0691346**	**26.55033**	**.3015158**	**.2194109**
Stddev	.0031058	.119247	.0009258	.0019119	.15145	.0158943	.0011354
%RSD	1.329685	2.575496	.1871017	2.765515	.5704274	5.271463	.5174714
#1	.2370637	4.767401	.4954934	.0695330	26.66057	.3128501	.2183211
#2	.2325615	4.569725	.4937447	.0708160	26.37764	.3083497	.2205869
#3	.2311063	4.553010	.4951458	.0670549	26.61277	.2833475	.2193248

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**12.82872**	**7.524220**	**.2900493**	**.4202768**	**2.264591**	**2.869779**	**.7110653**
Stddev	.14828	.006584	.0013587	.0001274	.005403	.010906	.0012360
%RSD	1.155856	.0875101	.4684370	.0303080	.2385691	.3800241	.1738286
#1	12.98037	7.520933	.2907437	.4201942	2.270522	2.874310	.7124922
#2	12.68405	7.531801	.2884837	.4204235	2.259951	2.857338	.7103770
#3	12.82173	7.519926	.2909203	.4202127	2.263300	2.877689	.7103266

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2444-12MS Acquired: 7/1/2025 19:24:57 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2077305	-.015099	.2493667
Stddev	.0065077	.014926	.0020026
%RSD	3.132750	98.85633	.8030882
#1	.2102008	-.023636	.2507647
#2	.2003493	-.023797	.2470725
#3	.2126413	.002136	.2502629

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2921.964	20794.80	1427.008	1882.798	3972.466
Stddev	7.977	76.84	11.894	10.739	13.965
%RSD	.2729915	.3695071	.8335135	.5703813	.3515432
#1	2918.866	20718.39	1414.373	1873.455	3960.148
#2	2916.001	20793.95	1437.988	1880.409	3969.614
#3	2931.025	20872.06	1428.664	1894.531	3987.637

Sample Name: Q2444-12MSD Acquired: 7/1/2025 19:29:16 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7306940**	**1.904455**	**.9297140**	**1.877897**	**.7799210**	**1.882000**	**.2256384**
Stddev	.0076385	.011188	.0044623	.022506	.0116166	.068947	.0015455
%RSD	1.045378	.5874629	.4799609	1.198489	1.489452	3.663490	.6849301
#1	.7261106	1.891539	.9254609	1.853235	.7665088	1.958003	.2242717
#2	.7264594	1.910699	.9343595	1.897326	.7864620	1.864525	.2253280
#3	.7395118	1.911128	.9293215	1.883131	.7867923	1.823473	.2273155

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1892618**	**.1868986**	**11.87963**	**.3791662**	**.1905596**	**.3450130**	**3.022392**
Stddev	.0035216	.0012338	.06564	.0037577	.0010442	.0040595	.086610
%RSD	1.860677	.6601230	.5525044	.9910564	.5479745	1.176615	2.865603
#1	.1928923	.1854864	11.94759	.3815963	.1894721	.3490621	3.104812
#2	.1890326	.1874419	11.81660	.3810644	.1906521	.3450338	3.030239
#3	.1858605	.1877675	11.87471	.3748380	.1915544	.3409432	2.932126

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2215402**	**4.234660**	**.4592663**	**.0679454**	**22.79453**	**.2777348**	**.2062254**
Stddev	.0034434	.068618	.0009549	.0003598	1.04858	.0053136	.0024363
%RSD	1.554286	1.620384	.2079175	.5295360	4.600143	1.913184	1.181396
#1	.2250574	4.295674	.4586474	.0677060	23.82741	.2753928	.2039625
#2	.2213874	4.160376	.4587855	.0677710	22.82525	.2838170	.2059095
#3	.2181757	4.247930	.4603660	.0683592	21.73092	.2739946	.2088043

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**12.09796**	**7.229934**	**.2668409**	**.3931910**	**2.217696**	**2.594481**	**.6672249**
Stddev	.08558	.065769	.0035812	.0024970	.025749	.027722	.0034665
%RSD	.7073518	.9096770	1.342075	.6350512	1.161086	1.068506	.5195466
#1	12.12774	7.154244	.2700713	.3905004	2.187964	2.624365	.6639693
#2	12.00147	7.273153	.2674615	.3954338	2.232791	2.589474	.6668359
#3	12.16466	7.262404	.2629900	.3936386	2.232332	2.569603	.6708696

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2444-12MSD Acquired: 7/1/2025 19:29:16 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1915152	-.004949	.2298334
Stddev	.0024638	.007962	.0019091
%RSD	1.286483	160.8826	.8306442
#1	.1904291	.003224	.2311583
#2	.1943354	-.012683	.2276452
#3	.1897810	-.005389	.2306969

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2919.001	21060.52	1496.973	1904.864	3987.386
Stddev	31.700	647.80	13.416	55.588	37.752
%RSD	1.085992	3.075883	.8962175	2.918208	.9467903
#1	2949.660	21600.05	1502.103	1946.803	4023.440
#2	2886.354	21239.46	1507.067	1925.978	3948.139
#3	2920.989	20342.07	1481.748	1841.813	3990.579

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCV03 Acquired: 7/1/2025 19:33:35 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.757191**	**4.804296**	**4.760294**	**4.800897**	**4.785606**	**9.362858**	**9.702585**
Stddev	.015511	.009228	.007670	.013533	.008900	.043395	.005216
%RSD	.3260552	.1920801	.1611161	.2818880	.1859726	.4634781	.0537607
#1	4.754873	4.808552	4.755364	4.792609	4.787363	9.372564	9.708494
#2	4.742969	4.793707	4.756387	4.793568	4.775959	9.400578	9.700642
#3	4.773731	4.810627	4.769130	4.816514	4.793497	9.315432	9.698619

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2414648**	**2.386317**	**23.48272**	**.9661687**	**2.380152**	**1.211247**	**4.793264**
Stddev	.0013935	.003153	.09640	.0027957	.004858	.007366	.024818
%RSD	.5770943	.1321317	.4105269	.2893615	.2040876	.6081023	.5177704
#1	.2405556	2.384781	23.44029	.9641783	2.375228	1.212814	4.802501
#2	.2430691	2.384226	23.59306	.9649629	2.380287	1.217703	4.812139
#3	.2407696	2.389944	23.41480	.9693650	2.384941	1.203224	4.765152

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.384442**	**23.06307**	**2.352683**	**1.207956**	**24.67950**	**2.323501**	**2.444278**
Stddev	.007283	.21782	.002027	.001222	.10286	.025434	.007217
%RSD	.3054499	.9444379	.0861464	.1011542	.4167810	1.094639	.2952571
#1	2.385546	23.03512	2.351219	1.207349	24.76579	2.300648	2.438104
#2	2.391111	23.29351	2.351834	1.209362	24.70704	2.350902	2.452212
#3	2.376670	22.86058	2.354996	1.207156	24.56567	2.318955	2.442517

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**25.44954**	**4.823172**	**4.848362**	**4.787141**	**4.759344**	**4.851659**	**4.783152**
Stddev	.30246	.012630	.026826	.007866	.003773	.021459	.009045
%RSD	1.188465	.2618582	.5533048	.1643196	.0792773	.4422925	.1891056
#1	25.41611	4.812562	4.848767	4.779726	4.755987	4.847238	4.780194
#2	25.76732	4.819813	4.874983	4.786304	4.758617	4.874983	4.775955
#3	25.16518	4.837142	4.821335	4.795392	4.763428	4.832755	4.793306

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCV03 Acquired: 7/1/2025 19:33:35 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**4.799768**	**4.749172**	**4.785605**
Stddev	.014853	.034357	.008742
%RSD	.3094618	.7234371	.1826767
#1	4.797492	4.752385	4.776875
#2	4.786184	4.781809	4.794359
#3	4.815628	4.713321	4.785581

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**3016.416**	**21178.76**	**1512.147**	**1929.868**	**3944.963**
Stddev	6.509	56.09	6.979	3.530	10.255
%RSD	.2157732	.2648254	.4614982	.1829371	.2599526
#1	3013.283	21141.60	1506.142	1929.814	3942.052
#2	3023.899	21243.28	1510.498	1933.425	3956.359
#3	3012.066	21151.40	1519.803	1926.365	3936.479

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCB03 Acquired: 7/1/2025 19:37:50 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0013474**	**.0017645**	**.0007844**	**-.001318**	**.0025836**	**-.051455**
Stddev	.0007266	.0021845	.0005630	.002298	.0040631	.060201
%RSD	53.92330	123.8051	71.77413	174.2944	157.2634	116.9968
#1	.0021142	.0037248	.0013376	.001190	.0032732	-.003032
#2	.0012590	-.000590	.0002121	-.001824	-.001780	-.032475
#3	.0006691	.002159	.0008036	-.003322	.006258	-.118859

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0012982**	**-.000050**	**.0000783**	**.0090957**	**.0012210**	**.0002590**
Stddev	.0021682	.000224	.0000197	.0573593	.0012289	.0003116
%RSD	167.0192	445.9423	25.23765	630.6199	100.6477	120.2806
#1	-.000636	-.000292	.0000591	.0350331	.0022225	.0005385
#2	.000888	.000150	.0000985	.0489051	.0015907	-.000077
#3	.003642	-.000009	.0000772	-.056651	-.000150	.000316

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000316**	**.0010418**	**.0008266**	**-.044158**	**-.000523**	**.0005481**
Stddev	.000190	.0013978	.0043812	.207868	.000300	.0015295
%RSD	59.96809	134.1739	530.0519	470.7425	57.41128	279.0663
#1	-.000322	.0017320	.0043781	-.058411	-.000675	-.001179
#2	-.000502	-.000567	.0021708	-.244532	-.000177	.001733
#3	-.000124	.001960	-.004069	.170471	-.000717	.001090

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0213328**	**-.006740**	**.0003373**	**.0122398**	**.0007999**	F **.0100307**
Stddev	.0158706	.017889	.0004373	.0006108	.0006460	.0027783
%RSD	74.39535	265.4101	129.6627	4.990576	80.76006	27.69786
#1	.0368578	.004525	.0007947	.0117300	.0006727	.0115388
#2	.0220028	-.027367	-.000077	.0129168	.0002269	.0117288
#3	.0051378	.002621	.000294	.0120726	.0015001	.0068245

Sample Name: CCB03 Acquired: 7/1/2025 19:37:50 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008359	.0068690	-.001644	.0047079	.0025530	F .0242561
Stddev	.0005734	.0069874	.001131	.0009795	.0134228	.0115556
%RSD	68.59912	101.7226	68.78913	20.80511	525.7770	47.64002
#1	.0003052	-.000621	-.002940	.0037684	-.009136	.0110526
#2	.0007583	.013211	-.000856	.0046324	.017212	.0325262
#3	.0014441	.008017	-.001136	.0057230	-.000417	.0291896

Elem	Sr4077
Units	ppm
Avg	-.000268
Stddev	.000121
%RSD	45.19886
#1	-.000364
#2	-.000132
#3	-.000307

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3170.386	22490.69	1560.662	2038.651	4745.877
Stddev	8.775	183.79	9.100	15.059	10.216
%RSD	.2767859	.8171805	.5830641	.7386664	.2152657
#1	3160.279	22433.31	1563.427	2026.932	4734.084
#2	3174.814	22696.32	1568.058	2055.636	4752.020
#3	3176.065	22342.43	1550.500	2033.387	4751.528

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2444-12A Acquired: 7/1/2025 19:42:14 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6549384**	**1.742220**	**.8444881**	**1.676870**	**.6835182**	**1.721536**	**.2132728**
Stddev	.0035367	.008367	.0001196	.001781	.0047811	.043286	.0018041
%RSD	.5400099	.4802731	.0141604	.1062344	.6994804	2.514364	.8459294
#1	.6521223	1.735234	.8443746	1.676150	.6788869	1.671920	.2111900
#2	.6537852	1.739934	.8446129	1.678898	.6832316	1.741111	.2143528
#3	.6589079	1.751493	.8444768	1.675561	.6884361	1.751576	.2142755

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1810056**	**.1695817**	**11.70267**	**.3602338**	**.1791750**	**.3300305**	**2.958332**
Stddev	.0003372	.0005949	.10146	.0033436	.0011018	.0009324	.004130
%RSD	.1863178	.3507960	.8669862	.9281810	.6149092	.2825168	.1395951
#1	.1809299	.1692405	11.68652	.3640619	.1779415	.3300736	2.958278
#2	.1813743	.1692360	11.81125	.3587544	.1800616	.3290773	2.962488
#3	.1807126	.1702686	11.61026	.3578850	.1795217	.3309405	2.954229

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2083421**	**3.976050**	**.4264399**	**.0609494**	**23.49087**	**.2761472**	**.1918579**
Stddev	.0029259	.149605	.0007466	.0015644	.03484	.0191319	.0012551
%RSD	1.404359	3.762649	.1750658	2.566758	.1483081	6.928144	.6541679
#1	.2058005	3.840765	.4268004	.0606963	23.53045	.2794051	.1931785
#2	.2076851	4.136725	.4255815	.0626250	23.47734	.2934409	.1917144
#3	.2115406	3.950661	.4269377	.0595270	23.46483	.2555956	.1906807

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**11.36343**	**6.517796**	**.2628865**	**.3510554**	**2.025940**	**2.554934**	**.5902323**
Stddev	.10234	.017411	.0043792	.0016557	.003871	.012928	.0004202
%RSD	.9006369	.2671293	1.665809	.4716365	.1910514	.5060163	.0711865
#1	11.27637	6.512421	.2579056	.3498184	2.026260	2.541475	.5901784
#2	11.47617	6.503707	.2646214	.3504114	2.021920	2.567256	.5906768
#3	11.33776	6.537261	.2661323	.3529363	2.029642	2.556071	.5898416

Sample Name: Q2444-12A Acquired: 7/1/2025 19:42:14 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1764139	-.010484	.2187032
Stddev	.0083437	.022990	.0017257
%RSD	4.729631	219.2814	.7890591
#1	.1859199	-.026305	.2167483
#2	.1703024	-.021035	.2200148
#3	.1730196	.015887	.2193466

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3086.982	21763.04	1497.585	1971.020	4214.561
Stddev	5.191	174.85	14.728	15.661	14.252
%RSD	.1681532	.8034076	.9834422	.7945795	.3381702
#1	3091.474	21794.03	1511.303	1970.022	4221.390
#2	3088.174	21574.77	1482.021	1955.881	4224.113
#3	3081.299	21920.32	1499.430	1987.156	4198.179

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCV04 Acquired: 7/1/2025 20:43:23 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi 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	**4.871024**	**4.930575**	**4.885972**	**4.940452**	**4.932398**	**9.778841**	**9.982748**
Stddev	.047960	.036384	.034949	.046910	.047793	.027063	.057519
%RSD	.9845968	.7379235	.7153010	.9495086	.9689510	.2767543	.5761819
#1	4.907080	4.965942	4.917974	4.976610	4.963337	9.801781	10.00075
#2	4.889400	4.932532	4.891266	4.957301	4.956504	9.785748	9.91838
#3	4.816594	4.893253	4.848679	4.887445	4.877353	9.748993	10.02911

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2501657**	**2.444741**	**24.38850**	**1.004771**	**2.446879**	**1.258330**	**4.962177**
Stddev	.0019217	.020300	.05882	.003825	.021151	.007978	.031320
%RSD	.7681886	.8303516	.2411955	.3807266	.8644024	.6340515	.6311821
#1	.2488107	2.461824	24.42637	1.008962	2.465388	1.250714	4.943991
#2	.2493213	2.450100	24.32073	1.003883	2.451426	1.257648	4.944197
#3	.2523650	2.422299	24.41840	1.001467	2.423825	1.266627	4.998342

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.461331**	**24.12920**	**2.421060**	**1.254627**	**25.36651**	**2.418214**	**2.549606**
Stddev	.016736	.15393	.021227	.003739	.21166	.024498	.002582
%RSD	.6799604	.6379559	.8767639	.2980362	.8343876	1.013059	.1012666
#1	2.479877	24.10692	2.439895	1.255351	25.21039	2.444535	2.552446
#2	2.447353	24.29306	2.425228	1.257952	25.28173	2.396078	2.548969
#3	2.456764	23.98763	2.398059	1.250579	25.60742	2.414031	2.547402

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**26.36892**	**4.959500**	**5.017756**	**4.941443**	**4.874867**	**5.013422**	**4.921399**
Stddev	.11924	.047997	.026002	.042132	.044108	.032788	.037933
%RSD	.4522018	.9677773	.5182049	.8526211	.9048042	.6539997	.7707787
#1	26.39898	5.000982	4.995384	4.970023	4.915819	4.981666	4.949700
#2	26.23753	4.970589	5.011601	4.961248	4.880616	5.011450	4.936199
#3	26.47026	4.906930	5.046284	4.893058	4.828166	5.047152	4.878297

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCV04 Acquired: 7/1/2025 20:43:23 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**4.974289**	**4.893740**	**4.978667**
Stddev	.016578	.054237	.028137
%RSD	.3332734	1.108298	.5651544
#1	4.988838	4.925025	4.991213
#2	4.956241	4.831112	4.946439
#3	4.977789	4.925083	4.998348

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2922.906**	**20433.20**	**1464.305**	**1860.119**	**3840.381**
Stddev	21.509	105.28	6.879	5.541	27.604
%RSD	.7358820	.5152326	.4697960	.2978698	.7187723
#1	2913.580	20315.44	1466.681	1853.729	3823.150
#2	2907.633	20465.96	1469.682	1863.600	3825.774
#3	2947.504	20518.20	1456.553	1863.026	3872.219

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCB04 Acquired: 7/1/2025 20:47:36 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0014368**	**.0014215**	**-.002395**	**-.001751**	**-.000273**	**-.005353**
Stddev	.0023359	.0010409	.001908	.001475	.003232	.022109
%RSD	162.5828	73.22522	79.64605	84.24407	1185.306	413.0045
#1	-.000058	.0009781	-.004158	-.000327	.000479	-.030149
#2	.004129	.0026107	-.000370	-.003273	-.003815	.012306
#3	.000240	.0006758	-.002658	-.001654	.002518	.001783

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0012972**	**.0000593**	**.0001014**	**.0262925**	**.0015897**	**.0000599**
Stddev	.0022781	.0002561	.0001132	.0058036	.0006098	.0001057
%RSD	175.6171	432.0493	111.6367	22.07329	38.35907	176.2901
#1	-.001090	-.000234	.0001730	.0212780	.0011078	.0001814
#2	.001535	.000174	-.000029	.0326498	.0022753	.0000092
#3	.003447	.000238	.000160	.0249497	.0013860	-.000011

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000246**	**.0000867**	**.0008544**	**-.024480**	**-.001044**	**-.001276**
Stddev	.001053	.0015053	.0016151	.058098	.000845	.000749
%RSD	428.4971	1735.263	189.0284	237.3267	80.88493	58.69949
#1	.000246	-.001610	.0021253	.018515	-.001928	-.001907
#2	.000472	.000609	.0014011	-.001380	-.000245	-.000448
#3	-.001454	.001262	-.000963	-.090575	-.000959	-.001472

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.007842**	**-.001691**	**.0003377**	**.0133076**	**-.000566**	**.0084811**
Stddev	.012348	.012562	.0003988	.0021949	.001674	.0055036
%RSD	157.4668	742.8372	118.1095	16.49379	295.8370	64.89180
#1	-.014368	-.009603	.0000517	.0135876	-.002493	.0146501
#2	-.015558	.012794	.0007933	.0153490	.000265	.0067186
#3	.006400	-.008264	.0001680	.0109861	.000530	.0040747

Sample Name: CCB04 Acquired: 7/1/2025 20:47:36 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004565	.0058521	-.003069	.0053234	.0034527	F .0475750
Stddev	.0005412	.0037066	.002445	.0009229	.0051022	.0176092
%RSD	118.5369	63.33685	79.67283	17.33639	147.7720	37.01350
#1	.0009747	.0099649	-.000502	.0062353	.0091244	.0673442
#2	-.000105	.0048215	-.003333	.0043899	-.000764	.0335715
#3	.000500	.0027700	-.005371	.0053449	.001997	.0418092

Elem	Sr4077
Units	ppm
Avg	.0001132
Stddev	.0003776
%RSD	333.4838
#1	-.000087
#2	-.000122
#3	.000549

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3080.783	21749.18	1522.418	1963.224	4625.513
Stddev	6.659	167.90	12.365	23.145	7.324
%RSD	.2161570	.7719636	.8121755	1.178911	.1583340
#1	3074.012	21926.40	1522.903	1989.662	4618.630
#2	3081.010	21592.50	1509.818	1946.625	4624.699
#3	3087.325	21728.64	1534.533	1953.383	4633.210

Sample Name: Q2439-01 Acquired: 7/1/2025 20:56:32 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.002475**	**.0022199**	**.0155888**	**.0019063**	**-.000872**	**.0920301**	**.0024430**
Stddev	.002422	.0023286	.0005146	.0073782	.003439	.0387113	.0014318
%RSD	97.87844	104.8943	3.301148	387.0525	394.3973	42.06375	58.60806
#1	-.005247	.0019038	.0157263	.0071439	-.003145	.1301960	.0008903
#2	-.000772	.0000656	.0160207	-.006532	.003085	.0930987	.0037111
#3	-.001404	.0046905	.0150194	.005107	-.002555	.0527955	.0027277

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000115**	**.0001084**	**3.593013**	**.0057215**	**.0080806**	**.0060847**	**1.647809**
Stddev	.000119	.0000483	.059037	.0012766	.0000952	.0009781	.005819
%RSD	103.3438	44.61168	1.643092	22.31160	1.178488	16.07505	.3531558
#1	.000013	.0000620	3.527488	.0071952	.0081906	.0068090	1.643864
#2	-.000223	.0001585	3.642060	.0050119	.0080266	.0049720	1.654492
#3	-.000135	.0001046	3.609492	.0049574	.0080247	.0064730	1.645070

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0234920**	**1.454558**	**.0132853**	**-.001420**	**13.33330**	**-.010675**	**.0423292**
Stddev	.0045477	.118531	.0002989	.001800	.08532	.007008	.0002617
%RSD	19.35835	8.148913	2.249837	126.6942	.6398741	65.64558	.6183086
#1	.0277715	1.548262	.0134064	-.001314	13.30441	-.017283	.0425897
#2	.0187168	1.321311	.0129449	.000324	13.42931	-.003326	.0420663
#3	.0239877	1.494102	.0135047	-.003271	13.26618	-.011418	.0423317

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.189783**	**.0025953**	**.0061659**	**.0002850**	**4.318505**	**5.836107**	**-.005020**
Stddev	.009491	.0025560	.0013031	.0008915	.006807	.044226	.001693
%RSD	.7976890	98.48486	21.13380	312.8454	.1576336	.7577952	33.72587
#1	1.184727	.0000780	.0068890	.0009594	4.325569	5.823758	-.003159
#2	1.200732	.0051883	.0046616	-.000726	4.317960	5.885195	-.005431
#3	1.183892	.0025196	.0069471	.000621	4.311987	5.799368	-.006469

Sample Name: Q2439-01 Acquired: 7/1/2025 20:56:32 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0042334	-.115223	.0212617
Stddev	.0122668	.008198	.0004806
%RSD	289.7594	7.115051	2.260237
#1	-.008116	-.117762	.0207072
#2	.004401	-.106056	.0215207
#3	.016416	-.121852	.0215572

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3119.572	22213.30	1510.640	1999.541	4427.645
Stddev	10.160	13.49	10.891	5.160	15.896
%RSD	.3256740	.0607110	.7209385	.2580823	.3590201
#1	3119.329	22208.16	1516.173	2001.825	4423.944
#2	3129.851	22203.14	1498.094	1993.633	4445.065
#3	3109.537	22228.60	1517.654	2003.166	4413.925

Sample Name: Q2439-02 Acquired: 7/1/2025 21:00:51 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.003050**	**-.002700**	**.0008029**	**-.004508**	**.0020303**	**.0142949**	**.0072040**
Stddev	.003919	.002155	.0031230	.006516	.0033805	.0367164	.0001089
%RSD	128.4915	79.81880	388.9814	144.5254	166.5033	256.8493	1.512061
#1	-.007027	-.000981	-.001321	.002492	.0024270	.0566397	.0072555
#2	.000807	-.002001	-.000660	-.005621	.0051949	-.005065	.0072776
#3	-.002929	-.005117	.004389	-.010396	-.001531	-.008690	.0070789

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000081**	**.0001094**	**4.151083**	**.0021679**	**.0090525**	**.0066051**	**.1788677**
Stddev	.000287	.0001469	.067111	.0010322	.0003104	.0014338	.0011282
%RSD	354.0486	134.3084	1.616717	47.61268	3.429228	21.70774	.6307611
#1	-.000064	.0002513	4.096715	.0031775	.0090812	.0081781	.1776413
#2	.000197	.0001187	4.130445	.0022117	.0093476	.0062660	.1791002
#3	-.000376	-.000042	4.226090	.0011145	.0087288	.0053713	.1798616

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0227370**	**1.497660**	**.0080429**	**-.000466**	**14.18502**	**.0083145**	**.0252685**
Stddev	.0006799	.108131	.0000374	.002171	.13205	.0068091	.0005182
%RSD	2.990304	7.220005	.4653299	466.3185	.9308842	81.89432	2.050730
#1	.0219662	1.384516	.0080182	.001046	14.18580	.0065508	.0257903
#2	.0232515	1.508503	.0080859	-.002953	14.05258	.0025607	.0252612
#3	.0229933	1.599961	.0080244	.000510	14.31667	.0158318	.0247540

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.281437**	**.0063887**	**.0051472**	**-.000312**	**3.917731**	**6.082201**	**-.005336**
Stddev	.002240	.0031939	.0024942	.000349	.012131	.047582	.002000
%RSD	.1747939	49.99315	48.45616	111.9801	.3096536	.7823225	37.48351
#1	1.283018	.0032317	.0080128	-.000552	3.905309	6.112925	-.003163
#2	1.278874	.0063161	.0039641	-.000472	3.918334	6.027391	-.007099
#3	1.282418	.0096183	.0034648	.000089	3.929549	6.106287	-.005746

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2439-02 Acquired: 7/1/2025 21:00:51 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0035063	-.128772	.0263173
Stddev	.0117828	.002629	.0004599
%RSD	336.0496	2.041731	1.747597
#1	.0127141	-.128714	.0268126
#2	-.009772	-.126172	.0262355
#3	.007577	-.131430	.0259037

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2949.942	21034.57	1450.701	1884.700	4169.421
Stddev	10.128	24.75	7.981	12.493	15.716
%RSD	.3433296	.1176871	.5501820	.6628417	.3769289
#1	2955.901	21038.25	1443.639	1880.336	4180.848
#2	2955.678	21008.18	1459.361	1874.975	4175.915
#3	2938.248	21057.28	1449.103	1898.789	4151.499

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2439-02DUP Acquired: 7/1/2025 21:05:12 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.003530**	**-.002816**	**-.000132**	**-.007312**	**-.003205**	**.0313424**	**.0056169**
Stddev	.004483	.004335	.002478	.010119	.001506	.0728849	.0013280
%RSD	126.9956	153.9080	1881.243	138.3818	46.98697	232.5442	23.64289
#1	-.003489	.002112	-.002265	.000564	-.001518	.0863031	.0061891
#2	-.008034	-.006037	.002587	-.018724	-.003683	-.051335	.0040987
#3	.000932	-.004524	-.000717	-.003776	-.004414	.059059	.0065628

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000023**	**-.000024**	**4.002960**	**.0028911**	**.0090090**	**.0052467**	**.1696590**
Stddev	.000198	.000027	.085046	.0011181	.0000719	.0006701	.0060122
%RSD	854.2022	110.0965	2.124584	38.67300	.7976060	12.77175	3.543714
#1	.000133	-.000003	4.096243	.0033079	.0089788	.0054831	.1689527
#2	-.000246	-.000054	3.929737	.0016245	.0090910	.0044905	.1640311
#3	.000044	-.000016	3.982899	.0037409	.0089571	.0057667	.1759932

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0261274**	**1.447995**	**.0078870**	**.0002106**	**13.38146**	**.0060133**	**.0250758**
Stddev	.0033158	.103276	.0007684	.0015728	.37273	.0076450	.0006224
%RSD	12.69096	7.132352	9.742347	746.7969	2.785411	127.1364	2.482000
#1	.0241242	1.462704	.0087641	.0017779	13.28107	.0144331	.0243609
#2	.0299548	1.338153	.0073326	-.001368	13.06920	-.000494	.0253696
#3	.0243033	1.543128	.0075643	.000221	13.79410	.004100	.0254969

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.249826**	**.0079946**	**.0037709**	**-.000132**	**3.977289**	**5.890720**	**-.007091**
Stddev	.017031	.0011731	.0015015	.000712	.007402	.080627	.000345
%RSD	1.362670	14.67353	39.81793	538.9775	.1861073	1.368708	4.866613
#1	1.257042	.0072011	.0022343	.000283	3.979050	5.910203	-.006802
#2	1.230375	.0074406	.0052347	-.000954	3.969165	5.802137	-.006997
#3	1.262060	.0093421	.0038436	.000275	3.983652	5.959820	-.007473

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2439-02DUP Acquired: 7/1/2025 21:05:12 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0056010	-.142189	.0257636
Stddev	.0131167	.036872	.0004632
%RSD	234.1834	25.93190	1.797802
#1	-.008641	-.102208	.0254995
#2	.017186	-.149502	.0254930
#3	.008257	-.174856	.0262985

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2900.421	21189.88	1490.178	1908.611	4101.583
Stddev	8.478	22.29	12.905	4.587	12.034
%RSD	.2923115	.1051962	.8659758	.2403252	.2933995
#1	2909.085	21201.27	1479.070	1912.213	4114.502
#2	2892.142	21204.17	1504.333	1903.448	4090.692
#3	2900.037	21164.20	1487.130	1910.173	4099.555

Sample Name: Q2439-02LX5 Acquired: 7/1/2025 21:09:31 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.002108**	**.0003540**	**-.001881**	**.0006581**	**.0028882**	**-.001056**	**.0013926**
Stddev	.003271	.0031026	.001580	.0036774	.0024226	.043865	.0019750
%RSD	155.2020	876.3233	83.98014	558.8080	83.87859	4152.224	141.8164
#1	-.002182	-.001857	-.002843	.0031843	.0023475	.049435	-.000873
#2	.001200	-.000982	-.002743	-.003561	.0007816	-.022819	.002748
#3	-.005341	.003901	-.000058	.002351	.0055355	-.029785	.002304

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000671**	**.0000627**	**.8620665**	**.0025449**	**.0014808**	**.0004273**	**.0354025**
Stddev	.0003192	.0000189	.0252844	.0002042	.0002973	.0005903	.0006534
%RSD	475.9013	30.20849	2.932994	8.024556	20.07952	138.1342	1.845657
#1	-.000230	.0000554	.8470293	.0026939	.0016492	.0010469	.0346483
#2	.000027	.0000842	.8912579	.0026286	.0011375	-.000129	.0357628
#3	.000404	.0000485	.8479123	.0023121	.0016558	.000364	.0357964

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0061849**	**.2913958**	**.0009441**	**-.001488**	**2.964891**	**-.002722**	**.0051397**
Stddev	.0021014	.0738556	.0011027	.002070	.050377	.012735	.0002487
%RSD	33.97728	25.34548	116.7987	139.1093	1.699126	467.8229	4.839557
#1	.0043915	.2402574	.0022173	-.001911	2.911703	-.004875	.0053141
#2	.0084972	.2578607	.0003026	-.003314	2.971087	.010952	.0052502
#3	.0056659	.3760691	.0003123	.000761	3.011884	-.014244	.0048549

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2100520**	**.0019341**	**-.002476**	**.0002449**	**.7446019**	**1.177096**	**.0024430**
Stddev	.0022442	.0003874	.000835	.0004132	.0050924	.012318	.0014264
%RSD	1.068403	20.03065	33.73739	168.7141	.6839049	1.046484	58.38769
#1	.2074765	.0018874	-.001512	.0003337	.7503415	1.162947	.0028949
#2	.2115873	.0015722	-.002942	.0006065	.7428386	1.182903	.0035887
#3	.2110923	.0023428	-.002974	-.000205	.7406255	1.185436	.0008454

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2439-02LX5 Acquired: 7/1/2025 21:09:31 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0002219	.0262926	.0050787
Stddev	.0056209	.0180377	.0000687
%RSD	2533.099	68.60375	1.353370
#1	-.004759	.0342507	.0051319
#2	.006316	.0389827	.0050011
#3	-.000891	.0056444	.0051030

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3096.900	22095.13	1545.959	1990.311	4538.103
Stddev	11.845	80.70	13.958	8.022	21.474
%RSD	.3824671	.3652362	.9028869	.4030722	.4731955
#1	3084.052	22108.68	1561.709	1981.993	4513.429
#2	3099.264	22008.51	1535.121	1998.001	4548.310
#3	3107.385	22168.19	1541.046	1990.938	4552.570

Sample Name: Q2439-02MS Acquired: 7/1/2025 21:13:54 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7207612**	**1.932073**	**.9380296**	**1.854039**	**.7773895**	**1.860953**	**.2080358**
Stddev	.0055169	.007860	.0043908	.015612	.0078078	.065243	.0010229
%RSD	.7654197	.4067943	.4680915	.8420438	1.004368	3.505907	.4916708
#1	.7149602	1.935887	.9361332	1.839386	.7809823	1.879670	.2084221
#2	.7213821	1.923034	.9349056	1.852271	.7684320	1.914791	.2088092
#3	.7259414	1.937297	.9430499	1.870459	.7827543	1.788396	.2068760

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2020741**	**.1875169**	**5.143138**	**.3934392**	**.1996893**	**.3394628**	**3.378351**
Stddev	.0053971	.0005683	.068130	.0025921	.0011013	.0102525	.108510
%RSD	2.670867	.3030773	1.324669	.6588406	.5515099	3.020214	3.211928
#1	.1958444	.1874927	5.125089	.3904893	.2008848	.3278686	3.253061
#2	.2053382	.1869611	5.218475	.3944750	.1994667	.3473321	3.439867
#3	.2050396	.1880970	5.085850	.3953533	.1987162	.3431878	3.442125

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2232251**	**3.453294**	**.4808633**	**.0674078**	**17.32137**	**.2926421**	**.2294112**
Stddev	.0026533	.074063	.0013671	.0003275	.76050	.0086233	.0009915
%RSD	1.188620	2.144706	.2843099	.4857708	4.390506	2.946688	.4321858
#1	.2240028	3.438465	.4816895	.0670298	16.44834	.3016361	.2301310
#2	.2254027	3.533650	.4792853	.0676068	17.67590	.2918454	.2298222
#3	.2202699	3.387767	.4816151	.0675866	17.83987	.2844449	.2282803

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**12.61578**	**5.617208**	**.2813348**	**.3996461**	**4.083138**	**7.209275**	**.6711362**
Stddev	.18487	.035459	.0070219	.0008308	.023194	.151571	.0030505
%RSD	1.465352	.6312531	2.495917	.2078850	.5680342	2.102449	.4545334
#1	12.56775	5.592400	.2732972	.4005011	4.075953	7.034529	.6676553
#2	12.81993	5.601403	.2844292	.3988417	4.064387	7.305109	.6724095
#3	12.45968	5.657821	.2862781	.3995956	4.109074	7.288189	.6733438

Sample Name: Q2439-02MS Acquired: 7/1/2025 21:13:54 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1969979	.0132394	.2284644
Stddev	.0076327	.0197226	.0011896
%RSD	3.874481	148.9687	.5206892
#1	.1924353	.0356468	.2288932
#2	.2058095	.0055589	.2293801
#3	.1927489	-.001487	.2271198

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2996.830	21348.76	1456.641	1927.657	4127.764
Stddev	15.400	532.84	10.551	52.069	20.747
%RSD	.5138852	2.495900	.7243157	2.701171	.5026191
#1	3008.356	20754.33	1462.276	1868.393	4142.842
#2	3002.795	21508.44	1444.470	1948.506	4136.347
#3	2979.340	21783.50	1463.179	1966.070	4104.103

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: Q2439-02MSD Acquired: 7/1/2025 21:18:13 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6840233**	**1.841659**	**.8929480**	**1.776005**	**.7513056**	**1.781453**	**.1927823**
Stddev	.0293627	.067021	.0304040	.055381	.0251111	.039027	.0028573
%RSD	4.292648	3.639148	3.404908	3.118283	3.342330	2.190725	1.482127
#1	.6600712	1.781963	.8658449	1.725877	.7307772	1.812882	.1954413
#2	.6752174	1.828857	.8871742	1.766681	.7438354	1.793708	.1897613
#3	.7167813	1.914158	.9258250	1.835456	.7793041	1.737770	.1931444

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1858012**	**.1793839**	**4.830355**	**.3652638**	**.1915406**	**.3140450**	**3.112905**
Stddev	.0011603	.0066109	.017994	.0023077	.0070127	.0020448	.018151
%RSD	.6244915	3.685331	.3725255	.6317928	3.661229	.6511049	.5830767
#1	.1870266	.1735458	4.823682	.3659875	.1850934	.3163819	3.129058
#2	.1856577	.1780437	4.816650	.3626810	.1905212	.3131688	3.116394
#3	.1847193	.1865622	4.850733	.3671229	.1990073	.3125844	3.093263

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2150555**	**3.217443**	**.4592822**	**.0625235**	**16.17285**	**.2732766**	**.2152006**
Stddev	.0035120	.113294	.0168593	.0023085	.09240	.0242272	.0006513
%RSD	1.633050	3.521256	3.670791	3.692278	.5713331	8.865438	.3026719
#1	.2144036	3.343877	.4446033	.0622209	16.27925	.2470580	.2145249
#2	.2188478	3.125133	.4555475	.0649685	16.11272	.2779363	.2158245
#3	.2119152	3.183318	.4776956	.0603812	16.12659	.2948354	.2152522

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**11.49934**	**5.344927**	**.2641968**	**.3868456**	**3.993659**	**6.660348**	**.6501847**
Stddev	.04875	.207185	.0034239	.0141051	.154893	.049893	.0230224
%RSD	.4239262	3.876292	1.295948	3.646192	3.878461	.7491073	3.540894
#1	11.48694	5.161914	.2674234	.3739254	3.860759	6.717033	.6301898
#2	11.45799	5.302997	.2645619	.3847177	3.956451	6.640919	.6450104
#3	11.55309	5.569870	.2606050	.4018939	4.163767	6.623092	.6753539

Sample Name: Q2439-02MSD Acquired: 7/1/2025 21:18:13 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1938247	.0272972	.2115171
Stddev	.0017959	.0334477	.0009207
%RSD	.9265784	122.5318	.4352922
#1	.1921604	.0427714	.2122295
#2	.1957283	.0502058	.2104774
#3	.1935854	-.011086	.2118442

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3030.360	22070.86	1511.812	1985.045	4181.321
Stddev	108.880	131.69	3.053	14.946	156.390
%RSD	3.592970	.5966722	.2019323	.7529047	3.740211
#1	3125.533	22136.70	1508.624	1999.525	4321.470
#2	3053.918	22156.64	1514.709	1985.937	4209.869
#3	2911.630	21919.23	1512.103	1969.674	4012.623

Sample Name: Q2439-02A Acquired: 7/1/2025 21:22:33 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6301252**	**1.698604**	**.8259966**	**1.645142**	**.6764457**	**1.735968**	**.1854398**
Stddev	.0051567	.016088	.0098492	.022606	.0065463	.018732	.0006604
%RSD	.8183696	.9471315	1.192405	1.374078	.9677440	1.079051	.3561441
#1	.6243222	1.685678	.8149727	1.625302	.6689388	1.750060	.1849843
#2	.6341825	1.693513	.8290872	1.640372	.6809662	1.743133	.1861973
#3	.6318709	1.716622	.8339298	1.669752	.6794321	1.714711	.1851380

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1772708**	**.1650277**	**4.864038**	**.3474978**	**.1753502**	**.2994928**	**2.981916**
Stddev	.0029480	.0011600	.032358	.0020311	.0001730	.0048285	.050671
%RSD	1.662971	.7029100	.6652406	.5844834	.0986443	1.612218	1.699273
#1	.1794320	.1638175	4.889148	.3470947	.1753452	.3041943	3.023539
#2	.1739126	.1651357	4.827522	.3456985	.1751798	.2945466	2.925493
#3	.1784678	.1661300	4.875445	.3497002	.1755256	.2997374	2.996717

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2038764**	**3.295409**	**.4217639**	**.0565170**	**16.03698**	**.2645770**	**.2034220**
Stddev	.0054588	.047625	.0007106	.0042351	.28626	.0220508	.0011953
%RSD	2.677502	1.445206	.1684735	7.493505	1.785014	8.334371	.5875936
#1	.2092609	3.264340	.4210884	.0532383	16.27234	.2900107	.2042120
#2	.1983462	3.350240	.4225049	.0550139	15.71830	.2529006	.2020469
#3	.2040221	3.271647	.4216984	.0612986	16.12030	.2508196	.2040071

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**11.21915**	**4.945299**	**.2540420**	**.3461126**	**3.790143**	**6.652638**	**.5822669**
Stddev	.08927	.065104	.0043421	.0019327	.048212	.118522	.0026959
%RSD	.7956797	1.316476	1.709211	.5584088	1.272045	1.781579	.4629933
#1	11.25906	4.884450	.2581427	.3452817	3.740672	6.738859	.5793072
#2	11.11689	4.937492	.2494932	.3447343	3.792767	6.517485	.5829111
#3	11.28150	5.013954	.2544901	.3483218	3.836989	6.701572	.5845822

Sample Name: Q2439-02A Acquired: 7/1/2025 21:22:33 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1802002	.0087376	.2035796
Stddev	.0055120	.0192698	.0011797
%RSD	3.058815	220.5386	.5794608
#1	.1864369	.0282570	.2038214
#2	.1759820	.0082285	.2022978
#3	.1781817	-.010273	.2046196

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3069.303	21960.88	1495.536	1988.980	4242.359
Stddev	35.313	212.83	10.411	12.426	47.938
%RSD	1.150525	.9691334	.6961211	.6247484	1.129995
#1	3094.071	22107.52	1486.797	1995.612	4282.118
#2	3084.972	21716.77	1507.055	1974.645	4255.835
#3	3028.867	22058.35	1492.758	1996.684	4189.125

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCV05 Acquired: 7/1/2025 21:26:52 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi 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	**4.883178**	**4.946062**	**4.871853**	**4.908042**	**4.918451**	**9.479148**	**9.708617**
Stddev	.016750	.006483	.017522	.016305	.020281	.052679	.064288
%RSD	.3430084	.1310663	.3596541	.3322064	.4123468	.5557386	.6621739
#1	4.888049	4.948924	4.875506	4.908291	4.911108	9.530083	9.773002
#2	4.864533	4.938641	4.852792	4.891615	4.902865	9.424882	9.644426
#3	4.896953	4.950621	4.887260	4.924221	4.941381	9.482480	9.708422

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2396521**	**2.433942**	**23.67759**	**.9800517**	**2.430592**	**1.209595**	**4.751502**
Stddev	.0026024	.006322	.10596	.0017374	.006604	.015818	.061501
%RSD	1.085906	.2597461	.4475079	.1772760	.2717083	1.307716	1.294352
#1	.2423316	2.434154	23.75901	.9780860	2.426399	1.225151	4.815726
#2	.2371343	2.427517	23.55779	.9806873	2.427172	1.193527	4.693144
#3	.2394904	2.440156	23.71597	.9813818	2.438204	1.210106	4.745636

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.389282**	**23.36848**	**2.406820**	**1.223544**	**24.51283**	**2.372949**	**2.484802**
Stddev	.011473	.26123	.006516	.001893	.31614	.038894	.016730
%RSD	.4802023	1.117863	.2707143	.1547369	1.289688	1.639060	.6732930
#1	2.402448	23.62810	2.402122	1.221457	24.79288	2.396376	2.501349
#2	2.381424	23.37166	2.404079	1.224024	24.17002	2.328053	2.485161
#3	2.383973	23.10567	2.414258	1.225151	24.57559	2.394420	2.467895

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**25.56256**	**4.951189**	**4.820398**	**4.904784**	**4.874463**	**4.845506**	**4.892957**
Stddev	.41449	.017653	.055142	.018790	.009765	.057597	.010569
%RSD	1.621454	.3565362	1.143934	.3830949	.2003283	1.188671	.2160027
#1	25.89315	4.961392	4.867583	4.890028	4.882615	4.897244	4.894960
#2	25.09755	4.930806	4.759780	4.898386	4.863641	4.783446	4.881529
#3	25.69699	4.961371	4.833829	4.925937	4.877133	4.855830	4.902380

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCV05 Acquired: 7/1/2025 21:26:52 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCV05 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**4.836825**	**4.739014**	**4.844090**
Stddev	.010033	.015221	.029278
%RSD	.2074296	.3211942	.6043981
#1	4.846855	4.745416	4.874088
#2	4.826789	4.721638	4.815591
#3	4.836831	4.749990	4.842591

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2938.010**	**20774.34**	**1508.533**	**1896.637**	**3848.511**
Stddev	5.218	60.52	22.165	14.450	12.250
%RSD	.1775956	.2913101	1.469320	.7618859	.3183003
#1	2935.521	20801.14	1487.580	1880.438	3834.527
#2	2944.006	20816.83	1531.738	1901.270	3857.344
#3	2934.503	20705.05	1506.279	1908.202	3853.662

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCB05 Acquired: 7/1/2025 21:31:08 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.002052**	**.0007837**	**-.001317**	**-.002576**	**.0011910**	**-.006128**
Stddev	.003322	.0031932	.001504	.003704	.0036658	.048302
%RSD	161.9206	407.4293	114.1337	143.7790	307.7964	788.1803
#1	.000192	-.002683	-.002629	-.004883	.0011623	-.011192
#2	-.005868	.001430	-.001647	.001697	-.002460	.044506
#3	-.000480	.003604	.000324	-.004543	.004871	-.051699

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001416**	**.0000641**	**.0000056**	**.0089912**	**.0020195**	**.0000371**
Stddev	.002072	.0003301	.0001296	.0427356	.0011277	.0002563
%RSD	146.2923	515.3152	2305.206	475.3058	55.84174	691.3870
#1	-.003606	.0000665	.0000696	.0166903	.0014349	.0002842
#2	-.001158	.0003930	-.000144	.0473539	.0013042	.0000545
#3	.000514	-.000267	.000091	-.037071	.0033195	-.000227

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000858**	**.0020007**	**.0004072**	**.0866542**	**-.000427**	**-.001951**
Stddev	.000569	.0007040	.0011877	.0608235	.000396	.000979
%RSD	66.35501	35.18701	291.6733	70.19110	92.82249	50.18392
#1	-.000277	.0028115	.0006001	.0816694	-.000155	-.003060
#2	-.000881	.0016452	-.000865	.0284764	-.000882	-.001587
#3	-.001415	.0015453	.001487	.1498167	-.000244	-.001206

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0008760**	**-.006018**	**.0005604**	**.0112262**	**-.003779**	F **.0103221**
Stddev	.0025110	.012887	.0005189	.0006453	.001278	.0027612
%RSD	286.6331	214.1571	92.58843	5.748444	33.82522	26.75025
#1	-.001931	-.009294	.0011362	.0116917	-.002369	.0133067
#2	.002909	-.016951	.0004162	.0114974	-.004861	.0078586
#3	.001650	.008191	.0001289	.0104895	-.004109	.0098010

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCB05 Acquired: 7/1/2025 21:31:08 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008967	.0069854	-.003141	.0045366	.0092310	F .0240292
Stddev	.0002848	.0021956	.003550	.0005538	.0047739	.0181265
%RSD	31.76156	31.43107	113.0079	12.20775	51.71609	75.43539
#1	.0011982	.0083862	.000418	.0050071	.0126937	.0094455
#2	.0008594	.0044550	-.006680	.0039262	.0037852	.0443232
#3	.0006323	.0081149	-.003161	.0046764	.0112142	.0183188

Elem	Sr4077
Units	ppm
Avg	.0000588
Stddev	.0004508
%RSD	766.9863
#1	-.000384
#2	.000517
#3	.000044

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3111.222	22426.01	1557.103	2031.417	4664.353
Stddev	6.686	199.61	13.750	13.888	2.782
%RSD	.2148919	.8900882	.8830802	.6836672	.0596368
#1	3105.812	22319.69	1544.936	2019.604	4661.415
#2	3109.158	22656.28	1554.352	2046.716	4664.696
#3	3118.697	22302.06	1572.021	2027.930	4666.947

Sample Name: PB168661BL Acquired: 7/1/2025 21:41:17 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0008319**	**.0026571**	**-.001473**	**-.000685**	**-.001065**	**-.009897**
Stddev	.0016064	.0010538	.001556	.002826	.003716	.063261
%RSD	193.0933	39.65958	105.5804	412.8032	348.9756	639.1704
#1	.0025943	.0030631	-.002475	.002398	.002323	-.072162
#2	-.000550	.0014607	.000319	-.003153	-.005039	.054314
#3	.000452	.0034476	-.002264	-.001299	-.000478	-.011844

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000658**	**.0002292**	**.0000194**	**-.025358**	**.0005360**	**.0001095**
Stddev	.001202	.0001799	.0001103	.018336	.0002186	.0001962
%RSD	182.5632	78.50392	569.8205	72.30740	40.78876	179.2214
#1	-.001965	.0004305	.0000067	-.046529	.0005530	.0000080
#2	-.000410	.0000842	-.000084	-.014599	.0003094	.0003357
#3	.000400	.0001728	.000135	-.014946	.0007456	-.000015

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000174**	**-.001097**	**.0039385**	**-.034941**	**-.000651**	**-.000412**
Stddev	.001056	.002525	.0021012	.096059	.000630	.000780
%RSD	606.8642	230.1359	53.34884	274.9162	96.79143	189.4100
#1	-.000766	-.000137	.0019783	-.121275	-.001194	-.001161
#2	.001045	-.003962	.0061568	.068536	-.000800	-.000471
#3	-.000801	.000807	.0036805	-.052085	.000040	.000396

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0012650**	**.0038581**	**.0000354**	**.0000889**	**-.000048**	**-.001672**
Stddev	.0135659	.0093221	.0002827	.0010717	.003497	.001482
%RSD	1072.405	241.6261	798.7397	1206.061	7291.896	88.68598
#1	-.012687	-.006906	.0003244	-.000636	-.004086	-.002885
#2	.014409	.009182	.0000224	.001320	.001934	-.000019
#3	.002073	.009298	-.000241	-.000418	.002008	-.002110

Sample Name: PB168661BL Acquired: 7/1/2025 21:41:17 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006900	.0026305	-.003409	-.000409	.0082579	F -.028029
Stddev	.0005549	.0041109	.001434	.000873	.0103791	.020340
%RSD	80.41801	156.2799	42.07311	213.2481	125.6866	72.56728
#1	.0001982	.0071125	-.002388	-.000745	.0202027	-.022658
#2	.0005802	.0017433	-.005049	.000582	.0014391	-.010913
#3	.0012915	-.000964	-.002791	-.001064	.0031319	-.050515

Elem	Sr4077
Units	ppm
Avg	.0001183
Stddev	.0003211
%RSD	271.3353
#1	.0004819
#2	-.000000
#3	-.000126

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3155.396	22212.19	1556.219	2002.100	4824.151
Stddev	10.920	75.42	13.583	3.245	11.162
%RSD	.3460857	.3395414	.8728128	.1621047	.2313800
#1	3167.472	22171.98	1543.630	2003.587	4837.039
#2	3146.215	22165.39	1554.412	1998.377	4817.635
#3	3152.502	22299.19	1570.615	2004.335	4817.778

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCV06 Acquired: 7/1/2025 21:45:40 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi 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	**4.814587**	**4.866626**	**4.806201**	**4.831358**	**4.853500**	**9.611189**	**9.848478**
Stddev	.002455	.005317	.012296	.008585	.019162	.021655	.042272
%RSD	.0509965	.1092625	.2558369	.1776978	.3947978	.2253098	.4292214
#1	4.817284	4.870432	4.792054	4.840103	4.865011	9.591235	9.884361
#2	4.813994	4.860550	4.812234	4.822942	4.831380	9.634217	9.801880
#3	4.812482	4.868895	4.814316	4.831029	4.864109	9.608116	9.859194

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2438065**	**2.402585**	**24.09044**	**.9824636**	**2.398487**	**1.221506**	**4.774388**
Stddev	.0013681	.003348	.04401	.0026141	.004248	.005354	.009353
%RSD	.5611556	.1393291	.1826857	.2660764	.1771008	.4383146	.1958948
#1	.2427054	2.398934	24.12341	.9844199	2.393702	1.218476	4.778110
#2	.2433759	2.403311	24.04047	.9794947	2.399946	1.218355	4.763748
#3	.2453381	2.405510	24.10745	.9834761	2.401813	1.227688	4.781307

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.419935**	**24.99098**	**2.372304**	**1.224813**	**26.46735**	**2.373656**	**2.501362**
Stddev	.010019	.24593	.004025	.005492	.13066	.015663	.018551
%RSD	.4140018	.9840653	.1696494	.4483701	.4936465	.6598756	.7416213
#1	2.419442	25.16005	2.370770	1.231151	26.46621	2.391360	2.520664
#2	2.410172	24.70885	2.369272	1.221839	26.33727	2.368011	2.483667
#3	2.430191	25.10403	2.376870	1.221451	26.59858	2.361599	2.499754

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**26.04241**	**4.878961**	**4.902933**	**4.838404**	**4.787703**	**4.874154**	**4.827952**
Stddev	.18472	.004034	.024302	.013122	.007836	.016408	.011489
%RSD	.7093149	.0826728	.4956681	.2712078	.1636638	.3366380	.2379755
#1	25.99562	4.875025	4.893636	4.836885	4.780263	4.867323	4.819472
#2	25.88557	4.878772	4.884652	4.826107	4.795882	4.862265	4.823357
#3	26.24602	4.883086	4.930512	4.852219	4.786963	4.892874	4.841028

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCV06 Acquired: 7/1/2025 21:45:40 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCV06 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**4.903419**	**4.726571**	**4.923595**
Stddev	.027995	.016143	.010899
%RSD	.5709194	.3415386	.2213584
#1	4.909702	4.709079	4.932018
#2	4.872817	4.729738	4.911286
#3	4.927738	4.740895	4.927481

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2976.218**	**20681.75**	**1480.607**	**1884.390**	**3895.020**
Stddev	5.910	170.92	11.808	17.681	12.284
%RSD	.1985798	.8264086	.7974863	.9382851	.3153859
#1	2982.203	20500.70	1476.311	1867.701	3908.892
#2	2976.065	20840.30	1493.961	1902.919	3885.520
#3	2970.386	20704.23	1471.548	1882.550	3890.648

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCB06 Acquired: 7/1/2025 21:49:55 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCB06 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0013380**	**-.000121**	**-.001363**	**-.003153**	**-.000968**	**-.058097**
Stddev	.0053501	.002835	.001773	.001827	.000478	.013915
%RSD	399.8487	2342.042	130.1179	57.95299	49.40252	23.95037
#1	-.004371	.003142	-.000343	-.005255	-.000758	-.042226
#2	.002148	-.001980	-.003410	-.001935	-.001515	-.063870
#3	.006237	-.001525	-.000335	-.002270	-.000631	-.068197

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.003022**	**.0001836**	**.0000692**	**.0163235**	**-.000011**	**-.000339**
Stddev	.000738	.0001447	.0000453	.0159100	.001074	.000225
%RSD	24.40989	78.83087	65.37926	97.46696	9377.163	66.33039
#1	-.003501	.0003020	.0000719	.0032803	-.000385	-.000240
#2	-.003393	.0002266	.0000227	.0340494	-.000849	-.000181
#3	-.002173	.0000222	.0001131	.0116409	.001199	-.000597

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0015510**	**.0016148**	**.0008081**	**.0565745**	**-.000461**	**.0001502**
Stddev	.0007532	.0013617	.0026832	.0782746	.000370	.0016644
%RSD	48.56199	84.32649	332.0412	138.3567	80.28652	1108.185
#1	.0006860	.0030186	-.001894	-.007227	-.000814	.0008478
#2	.0019049	.0015262	.003472	.033032	-.000493	.0013523
#3	.0020621	.0002995	.000846	.143918	-.000076	-.001750

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.006412**	**-.000248**	**.0002673**	**.0137811**	**-.000690**	F **.0118043**
Stddev	.012325	.004683	.0006446	.0007308	.002734	.0004427
%RSD	192.2097	1887.123	241.1250	5.302631	396.2905	3.750076
#1	.007435	.004144	.0009062	.0140192	-.001317	.0114771
#2	-.016184	-.005176	-.000383	.0129609	-.003057	.0123080
#3	-.010488	.000287	.000279	.0143630	.002303	.0116278

Reviewed By:jaswal
On:7/2/2025 11:18:53 PM
Inst Id :P5
LB :LB136345

Sample Name: CCB06 Acquired: 7/1/2025 21:49:55 Type: Unk
Method: METHOD 6010D, 200.7 M(v21) Mode: CONC Corr. Factor: 1.000000
User: Janvi Custom ID1: CCB06 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003728	.0042355	-.001985	.0048325	.0079527	.0142067
Stddev	.0004403	.0046702	.002308	.0003984	.0027303	.0048915
%RSD	118.1168	110.2619	116.2653	8.244941	34.33144	34.43102
#1	.0008587	.0096179	.000271	.0051189	.0054801	.0195144
#2	.0000001	.0012553	-.004342	.0043775	.0108829	.0132254
#3	.0002597	.0018334	-.001884	.0050012	.0074952	.0098802

Elem	Sr4077
Units	ppm
Avg	-.000089
Stddev	.000243
%RSD	273.7583
#1	-.000114
#2	-.000319
#3	.000166

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3089.782	21653.59	1493.866	1961.436	4629.226
Stddev	8.786	41.36	9.127	12.400	7.586
%RSD	.2843511	.1909878	.6109359	.6321704	.1638653
#1	3087.936	21695.74	1483.482	1949.058	4627.678
#2	3082.066	21613.08	1500.615	1961.393	4622.534
#3	3099.344	21651.94	1497.500	1973.858	4637.466

Alliance TECHNICAL GROUP

Water Metals Preparation Sheet

PB168661

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 #2 2. N/A

Start Digest Date: 06/30/2025 **Time :** 10:05 **Temp :** 96 °C

End Digest Date: 06/30/2025 **Time :** 13:15 **Temp :** 96 °C

Digestion tube ID: M5595

Block thermometer ID: MET-DIG. #1

Dig Technician Signature: SPS.

Supervisor Signature:

Temp : 1. 96°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
LFS-1	0.25	M6007
LFS-2	0.25	M6015
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	MP85156
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 96 C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
06/30/25 14:15	SPS. met. dig.	Metals Lab
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

Water Metals Preparation Sheet

PB168661

Lab Sample ID	Client Sample ID	pH	Initial Vol (ml)	Final Vol (ml)	Color Before	Color After	Clarity Before	Clarity After	Comment	Prep Pos
PB168661BL	PBW661	<2	50	25	Colorless	Colorless	Clear	Clear	N/A	19
PB168661BS	LCS661	<2	50	25	Colorless	Colorless	Clear	Clear	M6007,M6015	20
Q2439-01	RW8-SP100-20250626	<2	50	25	Colorless	Colorless	Clear	Clear	N/A	21
Q2439-02	RW8-SP303-20250626	<2	50	25	Colorless	Colorless	Clear	Clear	N/A	22
Q2439-02MS	RW8-SP303-20250626MS	<2	50	25	Colorless	Colorless	Clear	Clear	M6007,M6015	24
Q2439-02MSD	RW8-SP303-20250626MSD	<2	50	25	Colorless	Colorless	Clear	Clear	M6007,M6015	25
Q2439-02DUP	RW8-SP303-20250626DUP	<2	50	25	Colorless	Colorless	Clear	Clear	N/A	23

WORKLIST(Hardcopy Internal Chain)

WorkList Name : PB168661 **WorkList ID :** 190460 **Department :** Digestion **Date :** 06-30-2025 09:31:05

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q2439-01	RW8-SP100-20250626	Water	Metals Group4	1:1 HNO3 to pH < 2	TETR06	A33	06/26/2025	6010D
Q2439-02	RW8-SP303-20250626	Water	Metals Group4	1:1 HNO3 to pH < 2	TETR06	A33	06/26/2025	6010D

Date/Time 06/30/25 09:50
Raw Sample Received by: SLS.mck.dlb
Raw Sample Relinquished by: CR SM

Date/Time 06/30/25 10:50
Raw Sample Received by: CR SM
Raw Sample Relinquished by: SLS mck.dlb

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Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB136345

Review By	Janvi	Review On	7/2/2025 4:45:37 PM
Supervise By	jaswal	Supervise On	7/2/2025 11:18:53 PM

STD. NAME	STD REF.#
ICAL Standard	MP86192,MP86193,MP86194,MP86195,MP86196,MP86212
ICV Standard	MP86213
CCV Standard	MP86216
ICSA Standard	MP86214,MP86215
CRI Standard	MP86212
LCS Standard	
Chk Standard	MP86217,MP86218

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	07/01/25 15:28		Janvi	OK
2	S1	S1	CAL2	07/01/25 15:33		Janvi	OK
3	S2	S2	CAL3	07/01/25 15:37		Janvi	OK
4	S3	S3	CAL4	07/01/25 15:42		Janvi	OK
5	S4	S4	CAL5	07/01/25 15:46		Janvi	OK
6	S5	S5	CAL6	07/01/25 15:50		Janvi	OK
7	ICV01	ICV01	ICV	07/01/25 16:17		Janvi	OK
8	LLICV01	LLICV01	LLICV	07/01/25 16:31		Janvi	OK
9	ICB01	ICB01	ICB	07/01/25 16:37		Janvi	OK
10	CRI01	CRI01	CRDL	07/01/25 16:41		Janvi	OK
11	ICSA01	ICSA01	ICSA	07/01/25 16:50		Janvi	OK
12	ICSAB01	ICSAB01	ICSAB	07/01/25 16:54		Janvi	OK
13	ICSADL	ICSADL	ICSA	07/01/25 16:59		Janvi	OK
14	ICSABDL	ICSABDL	ICSAB	07/01/25 17:03		Janvi	OK
15	CCV01	CCV01	CCV	07/01/25 17:07		Janvi	OK
16	CCB01	CCB01	CCB	07/01/25 17:12		Janvi	OK
17	PB168664BL	PB168664BL	MB	07/01/25 17:49		Janvi	OK
18	PB168664BS	PB168664BS	LCS	07/01/25 17:53		Janvi	OK

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Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB136345

Review By	Janvi	Review On	7/2/2025 4:45:37 PM
Supervise By	jaswal	Supervise On	7/2/2025 11:18:53 PM

STD. NAME	STD REF.#
ICAL Standard	MP86192,MP86193,MP86194,MP86195,MP86196,MP86212
ICV Standard	MP86213
CCV Standard	MP86216
ICSA Standard	MP86214,MP86215
CRI Standard	MP86212
LCS Standard	
Chk Standard	MP86217,MP86218

19	Q2444-01	1ST-PL-CHILD-CARE	SAM	07/01/25 18:06		Janvi	OK
20	PB168661BS	PB168661BS	LCS	07/01/25 18:11		Janvi	OK
21	Q2444-02	1ST-PL-CHILD-CARE	SAM	07/01/25 18:15		Janvi	OK
22	Q2444-03	1ST-PL-CHILD-CARE	SAM	07/01/25 18:19		Janvi	OK
23	Q2444-04	1ST-PL-CHILD-CARE	SAM	07/01/25 18:24		Janvi	OK
24	Q2444-05	1ST-PL-CHILD-CARE	SAM	07/01/25 18:28		Janvi	OK
25	Q2444-06	1ST-PL-CHILD-CARE	SAM	07/01/25 18:32		Janvi	OK
26	CCV02	CCV02	CCV	07/01/25 18:37		Janvi	OK
27	CCB02	CCB02	CCB	07/01/25 18:41		Janvi	OK
28	Q2444-07	1ST-PL-KITCHENSIN	SAM	07/01/25 18:45		Janvi	OK
29	Q2444-08	1ST-PL-KITCHENSIN	SAM	07/01/25 18:49	Bad Injection	Janvi	Not Ok
30	Q2444-09	1ST-PL-RESTROOM-	SAM	07/01/25 18:54		Janvi	OK
31	Q2444-10	1ST-PL-RESTROOM-	SAM	07/01/25 18:58		Janvi	OK
32	Q2444-11	1ST-PL-RESTROOM-	SAM	07/01/25 19:02		Janvi	OK
33	Q2444-12	1ST-PL-RESTROOM-	SAM	07/01/25 19:07		Janvi	OK
34	Q2444-12DUP	1ST-PL-RESTROOM-	DUP	07/01/25 19:16		Janvi	OK
35	Q2444-12L	1ST-PL-RESTROOM-	SD	07/01/25 19:20		Janvi	OK
36	Q2444-12MS	1ST-PL-RESTROOM-	MS	07/01/25 19:24		Janvi	OK
37	Q2444-12MSD	1ST-PL-RESTROOM-	MSD	07/01/25 19:29		Janvi	OK
38	CCV03	CCV03	CCV	07/01/25 19:33		Janvi	OK

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Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB136345

Review By	Janvi	Review On	7/2/2025 4:45:37 PM
Supervise By	jaswal	Supervise On	7/2/2025 11:18:53 PM

STD. NAME	STD REF.#
ICAL Standard	MP86192,MP86193,MP86194,MP86195,MP86196,MP86212
ICV Standard	MP86213
CCV Standard	MP86216
ICSA Standard	MP86214,MP86215
CRI Standard	MP86212
LCS Standard	
Chk Standard	MP86217,MP86218

39	CCB03	CCB03	CCB	07/01/25 19:37		Janvi	OK
40	Q2444-12A	1ST-PL-RESTROOM-	PS	07/01/25 19:42	0.1ml of M6004 and 0.1ml of M6013 in 10ml sample	Janvi	OK
41	CCV04	CCV04	CCV	07/01/25 20:43		Janvi	OK
42	CCB04	CCB04	CCB	07/01/25 20:47		Janvi	OK
43	Q2439-01	RW8-SP100-2025062	SAM	07/01/25 20:56		Janvi	OK
44	Q2439-02	RW8-SP303-2025062	SAM	07/01/25 21:00		Janvi	OK
45	Q2439-02DUP	RW8-SP303-2025062	DUP	07/01/25 21:05		Janvi	OK
46	Q2439-02L	RW8-SP303-2025062	SD	07/01/25 21:09		Janvi	OK
47	Q2439-02MS	RW8-SP303-2025062	MS	07/01/25 21:13		Janvi	OK
48	Q2439-02MSD	RW8-SP303-2025062	MSD	07/01/25 21:18		Janvi	OK
49	Q2439-02A	RW8-SP303-2025062	PS	07/01/25 21:22	0.1ml of M6004 and 0.1ml of M6013 in 10ml sample	Janvi	OK
50	CCV05	CCV05	CCV	07/01/25 21:26		Janvi	OK
51	CCB05	CCB05	CCB	07/01/25 21:31		Janvi	OK
52	PB168661BL	PB168661BL	MB	07/01/25 21:41		Janvi	OK
53	CCV06	CCV06	CCV	07/01/25 21:45		Janvi	OK
54	CCB06	CCB06	CCB	07/01/25 21:49		Janvi	OK

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Prep Standard - Chemical Standard Summary

Order ID : Q2439

Test : Metals Group4

Prepbatch ID : PB168661,

Sequence ID/Qc Batch ID: LB136345,

Standard ID :
MP85156,MP86192,MP86193,MP86194,MP86195,MP86196,MP86211,MP86212,MP86213,MP86214,MP86215,MP86216,MP86217,MP86218,

Chemical ID :
M5467,M5470,M5471,M5499,M5658,M5747,M5748,M5751,M5798,M5799,M5800,M5801,M5811,M5814,M5816,M5820,M5942,M5962,M5970,M5984,M5985,M5996,M5997,M6007,M6015,M6021,M6023,M6028,M6030,M6032,M6076,M6127,M6128,M6137,M6142,M6144,M6145,M6146,M6151,M6152,M6155,M6158,M6159,M6162,M6163,M6164,M6165,W3112,

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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	MP85156	04/07/2025	08/18/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 04/07/2025

FROM 1250.00000ml of M6151 + 1250.00000ml of W3112 = Final Quantity: 2500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP86192	06/25/2025	07/18/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 07/03/2025

FROM 125.00000ml of M6151 + 2350.00000ml of W3112 + 25.00000ml of M6162 = 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)	MP86193	06/25/2025	07/18/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 07/03/2025

FROM 5.00000ml of M5467 + 5.00000ml of M5470 + 5.00000ml of M5816 + 5.00000ml of M5820 + 5.00000ml of M5970 + 5.00000ml of M5996 + 5.00000ml of M5997 + 5.00000ml of M6076 + 5.00000ml of M6146 + 455.00000ml of MP86192 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
910	ICP AES STD S4	MP86194	06/25/2025	07/18/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 07/03/2025

FROM 50.00000ml of MP86192 + 50.00000ml of MP86193 = 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	MP86195	06/25/2025	07/18/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 07/03/2025

FROM 25.00000ml of MP86193 + 75.00000ml of MP86192 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3913	ICP AES STD S2	MP86196	06/25/2025	07/18/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 07/03/2025

FROM 16.00000ml of MP86193 + 184.00000ml of MP86192 = 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	MP86211	06/25/2025	07/18/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 07/03/2025

FROM 0.03000ml of M5798 + 0.03000ml of M6028 + 0.04000ml of M6137 + 0.05000ml of M5658 + 0.05000ml of M5811 + 0.05000ml of M6030 + 0.05000ml of M6159 + 0.06000ml of M5747 + 0.10000ml of M5471 + 0.10000ml of M5751 + 0.10000ml of M5801 + 0.10000ml of M5820 + 0.10000ml of M5962 + 0.10000ml of M5970 + 0.10000ml of M6128 + 0.15000ml of M5800 + 0.20000ml of M5748 + 0.20000ml of M5799 + 0.20000ml of M6021 + 0.20000ml of M6023 + 0.20000ml of M6145 + 0.25000ml of M5467 + 0.25000ml of M6146 + 0.50000ml of M5814 + 0.50000ml of M6032 + 1.00000ml of M5499 + 1.00000ml of M5942 + 1.00000ml of M6127 + 1.00000ml of M6142 + 1.00000ml of M6144 + 2.00000ml of M5816 + 89.29000ml of MP86192 = 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	MP86212	06/25/2025	07/18/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 07/03/2025

FROM 2.00000ml of MP86211 + 98.00000ml of MP86192 = 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
4163	NEW ICV-060925	MP86213	06/25/2025	07/18/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 07/03/2025

FROM 0.20000ml of M6163 + 0.20000ml of M6164 + 0.20000ml of M6165 + 49.40000ml of MP86192 = Final Quantity: 50.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
904	ICP AES ICSA SOLN	MP86214	06/25/2025	07/18/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 07/03/2025

FROM 10.00000ml of M6152 + 80.00000ml of MP86192 = 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
3494	ICP AES ICSAB SOLN-1	MP86215	06/25/2025	07/18/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 07/03/2025

FROM 10.00000ml of M6152 + 10.00000ml of M6155 + 80.00000ml of MP86192 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
911	ICP AES CCV SOLN	MP86216	06/25/2025	07/18/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 07/03/2025

FROM 50.00000ml of MP86192 + 50.00000ml of MP86193 = 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	MP86217	06/25/2025	07/18/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 07/03/2025

FROM 1.00000ml of M5984 + 10.00000ml of M5985 + 1969.00000ml of W3112 + 20.00000ml of M6162 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
903	ICP AES RINSE SOLN	MP86218	06/25/2025	07/18/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 07/03/2025

FROM 200.00000ml of M6162 + 9800.00000ml of W3112 = Final Quantity: 10000.000 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 #
Absolute Standards, Inc.	57058 / Cerium, 1000PPM, 100ML	020623	02/06/2026	03/06/2023 / bin	03/01/2023 / bin	M5467

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57038 / Sr, 1000 PPM, 125 ml	082922	08/29/2025	04/14/2025 / jaswal	03/16/2023 / jaswal	M5470

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	04/14/2025 / jaswal	03/16/2023 / jaswal	M5471

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	04/17/2025 / Janvi	03/17/2023 / bin	M5499

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

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

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

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

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

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

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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.	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

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	CGTI1-1 / TITANIUM 125mL 1000ug/mL	T2-TI719972	06/17/2027	06/18/2024 / Jaswal	02/22/2024 / Jaswal	M5942

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

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	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	CGY10-1 / YTTRIUM 125mL 10,000ug/mL	V2-Y740548	02/20/2029	08/05/2024 / kareem	06/14/2024 / Jaswal	M5984

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	T2-MEB714417	01/27/2027	05/07/2024 / JANVI	02/22/2024 / kareem	M5996

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-3 / CLP CAL SOLUTION #3, 125mL	T2-MEB727800	12/21/2027	02/03/2025 / JANVI	02/22/2024 / kareem	M5997

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	05/27/2026	05/27/2025 / Janvi	05/14/2024 / Jaswal	M6007

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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	WW-LFS-2 / Laboratory Fortified Stock Solution 2, 125 ml	U2-MEB731108	03/17/2028	06/19/2025 / MOHAN	05/14/2024 / Jaswal	M6015

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

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

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57056 / Ba, 1000 PPM, 125 ml	010924	01/09/2027	01/14/2025 / Jaswal	08/05/2024 / Jaswal	M6032

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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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58112 / Mg, 10000 PPM, 500 ml	112124	11/21/2027	01/13/2025 / kareem	01/13/2025 / kareem	M6127

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58025 / Mn, 1000 PPM, 500 ml	101124	10/11/2027	01/13/2025 / kareem	01/13/2025 / kareem	M6128

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
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 #
Absolute Standards, Inc.	58119 / K, 10000 PPM, 500 ml	103024	10/30/2027	05/06/2025 / JANVI	01/13/2025 / Jaswal	M6142

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58111 / Na, 10000 PPM, 500 ml	072424	07/24/2027	01/23/2025 / kareem	01/13/2025 / Jaswal	M6144

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57051 / Sb, 1000 PPM, 125 ml	071724	07/17/2027	01/31/2025 / kareem	10/18/2024 / kareem	M6146

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

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	06/30/2025	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 #
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

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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.	58113 / Al, 10000 PPM, 500 ml	011325	03/18/2026	03/18/2025 / kareem	02/09/2025 / kareem	M6159

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24H0162012	11/27/2025	05/27/2025 / Sagar	04/27/2025 / Sagar	M6162

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	QCP-CICV-1-125ML / EPA CLP ICP Verification Standard1	V2-MEB744107	05/22/2029	06/09/2025 / jaswal	06/06/2025 / jaswal	M6163

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	QCP-CICV-2-125ML / EPA CLP ICP Verification Standard2	U2-MEB733713	06/01/2028	06/09/2025 / jaswal	06/09/2025 / jaswal	M6164

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	QCP-CICV-3-125ML / EPA CLP ICP Verification Standard3	V2-MEB749572	01/02/2030	06/09/2025 / jaswal	06/09/2025 / jaswal	M6165

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

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CERTIFIED WEIGHT REPORT:

Part Number:	**57056**		**Lot #**		
Lot Number:	**010924**	**Solvent:**	24002546	Nitric Acid	
Description:	**Barium (Ba)**				
		2%	40.0 (mL)	Nitric Acid	
Expiration Date:	010927				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty		

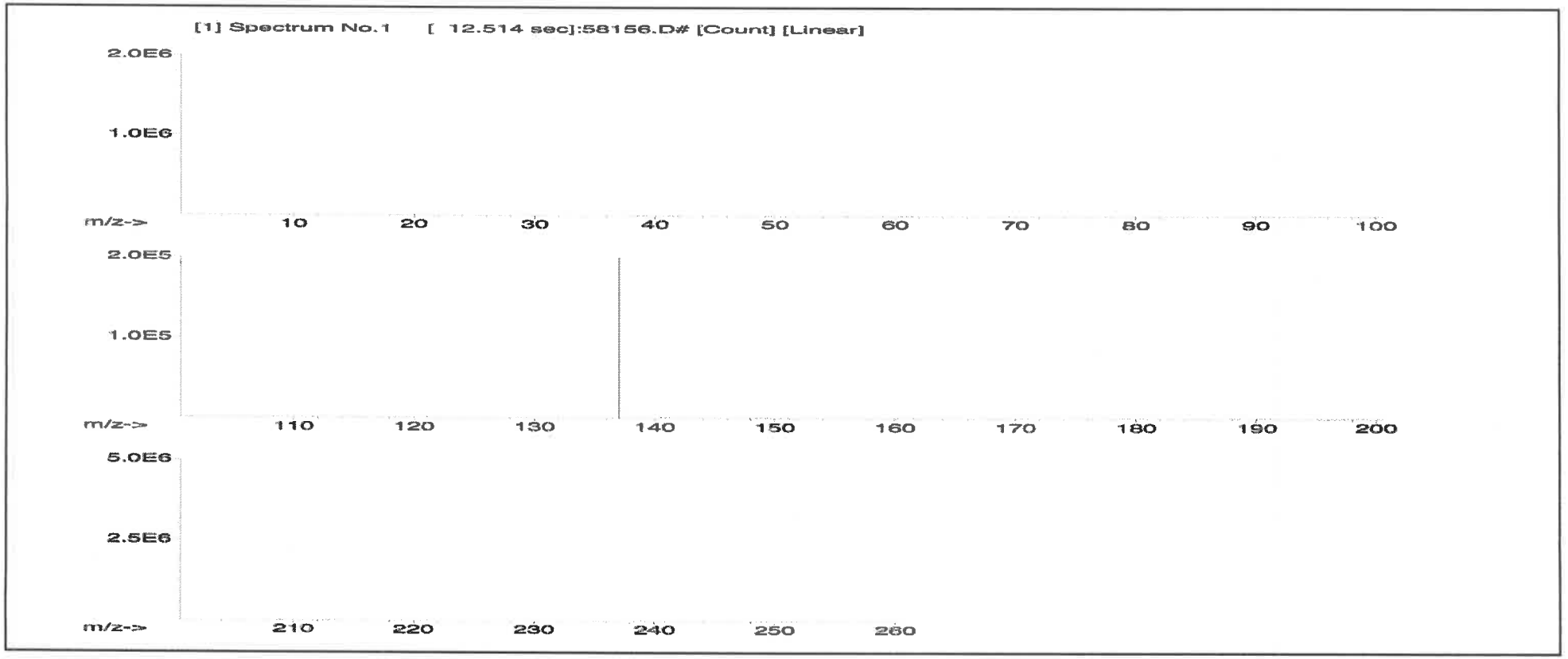
Giovanni Esposito

Formulated By:	Giovanni Esposito	010924

Pedro Rentas

Reviewed By:	Pedro L. Rentas	010924

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Barium nitrate (Ba)	IN023	BAD022019A1	1000	99.999	0.10	52.3	3.82417	3.82441	**1000.1**	**2.0**	10022-31-8	0.5 mg/m3	orl-rat 355 mg/kg	3104a



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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

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M6028

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CERTIFIED WEIGHT REPORT:

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

Expiration Date: 070127
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 2000.07 ± 0.100 Flask Uncertainty

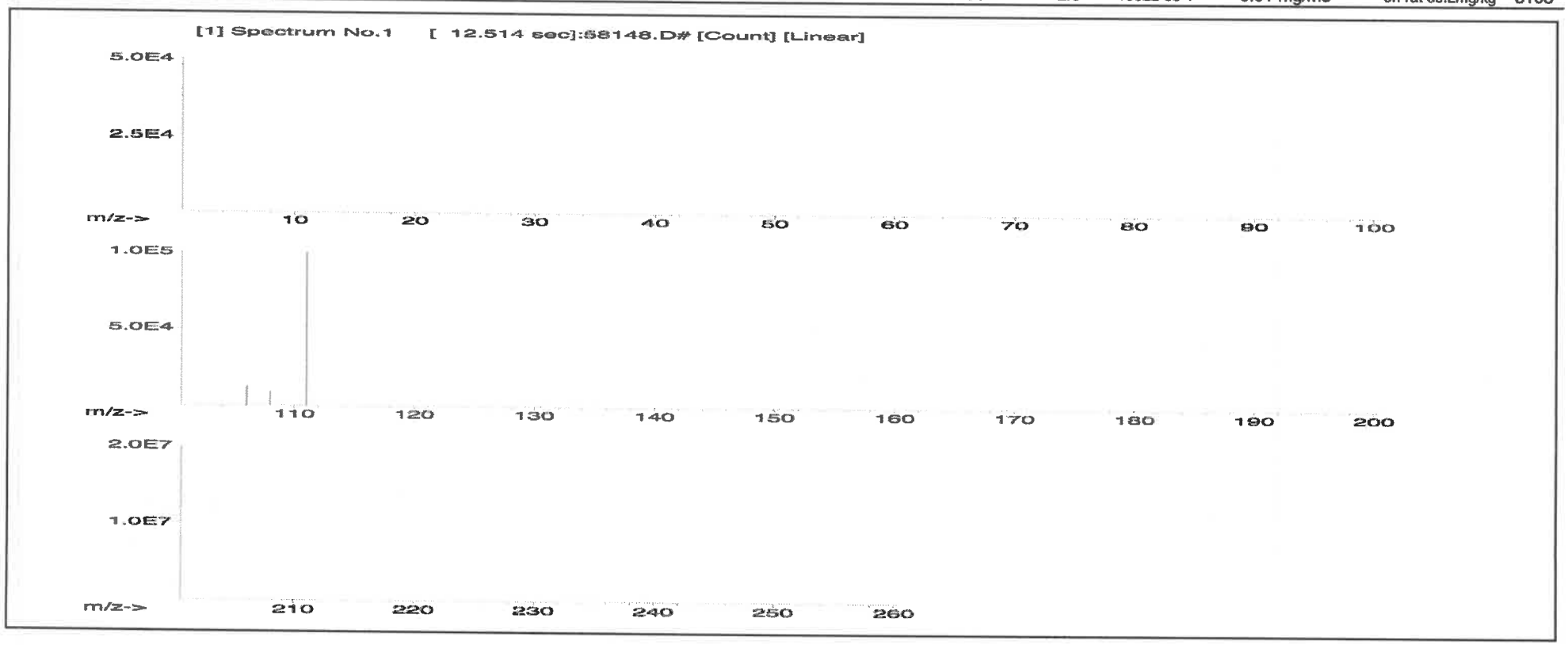
	Lot #		
Solvent:	24002546	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

Aleah O'Brady
Formulated By: Aleah O'Brady 070124

Pedro Rentas
Reviewed By: Pedro L. Rentas 070124

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Cadmium nitrate tetrahydrate (Cd)	IN024	CDM092021A1	1000	99.999	0.10	36.5	5.4797	5.4804	**1000.1**	**2.0**	10022-68-1	0.01 mg/m3	orl-rat 60.2mg/kg	3108



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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.
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R : 01/03/24. M5810, M5811

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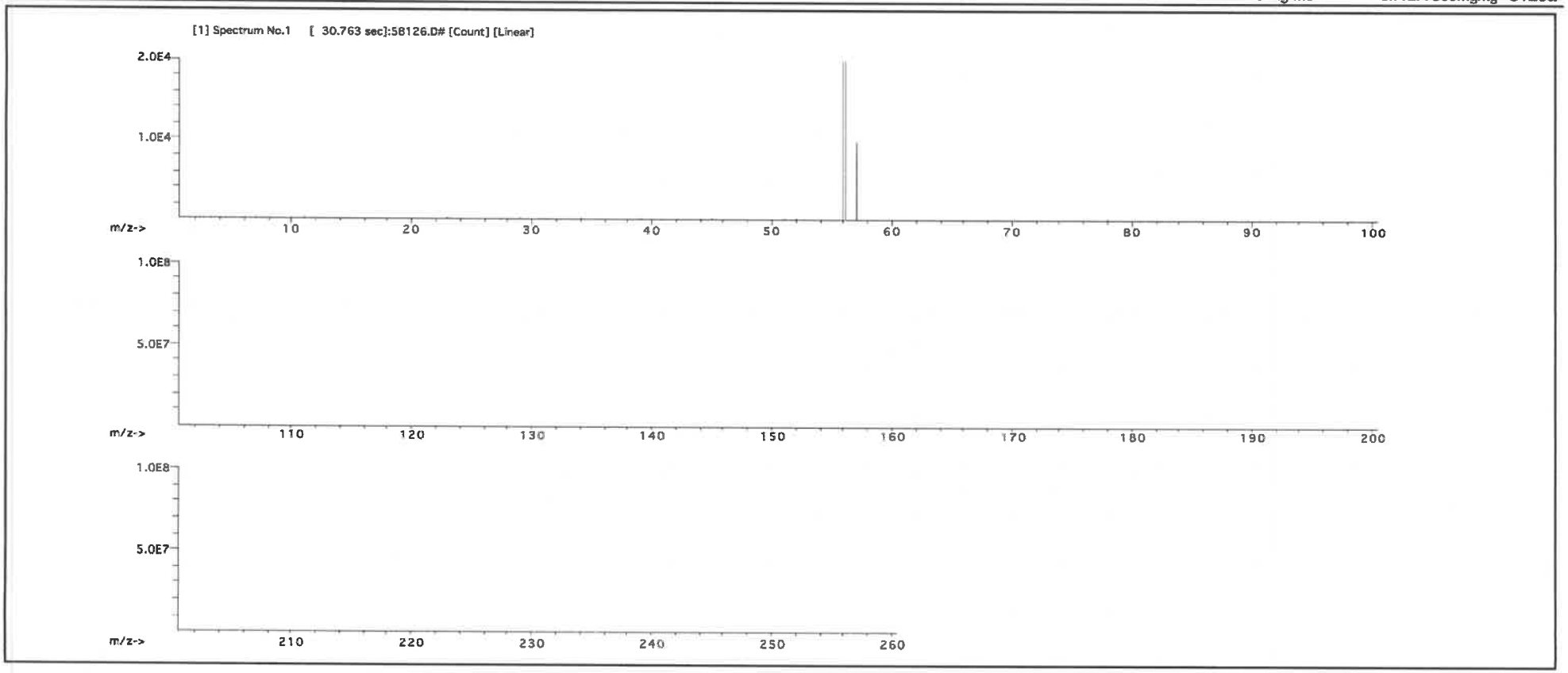
CERTIFIED WEIGHT REPORT:

			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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AR-1539 Certificate Number
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Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.10	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:

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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:	WW-LFS-1
Lot Number:	T2-MEB723367
Matrix:	5% (v/v) HNO3

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

3.0 CERTIFIED VALUES AND UNCERTAINTIES

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

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

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M5467 R: 03/01/23 (LA)

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

CERTIFIED WEIGHT REPORT:

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

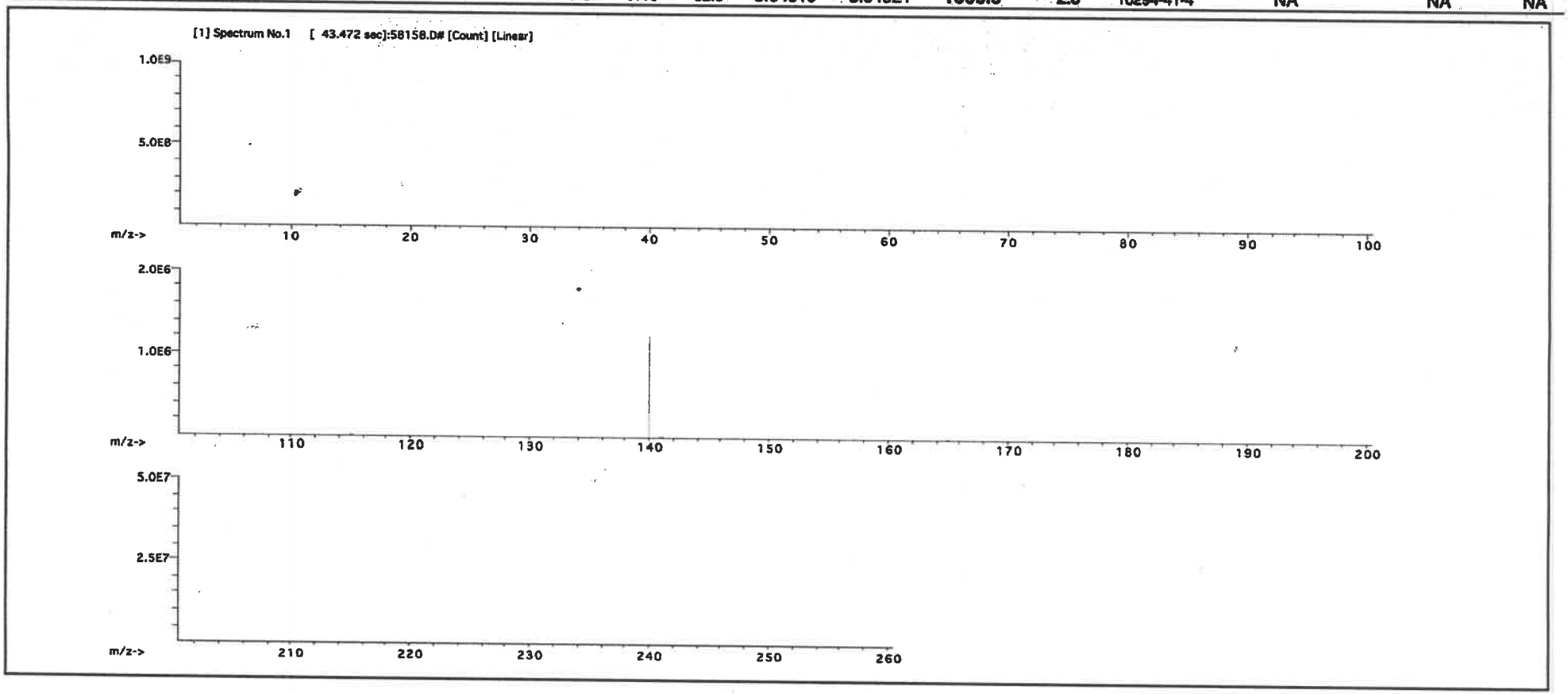
Expiration Date: 020626
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 1000.12 0.058 Flask Uncertainty

	Lot #		
Solvent:	21110221	Nitric Acid	
2%	20.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

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

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Cerium nitrate hexahydrate (Ce)	IN146	Z512CEB1	1000	99.999	0.10	32.8	3.04919	3.04921	**1000.0**	**2.0**	10294-41-4	NA	NA	NA



223 of 334-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	<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).

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

M5493 - M5308
Rad on 4/14/23
JMG

avantor™ | J.T.Baker®

Material No.: 3624-01
Batch No.: 0000281938
Manufactured Date: 2021-06-07
Retest Date: 2026-06-07
Revision No.: 2

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 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700

Absolute Standards, Inc.
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Certified Reference Material CRM

M5658 R ! 8/25/23

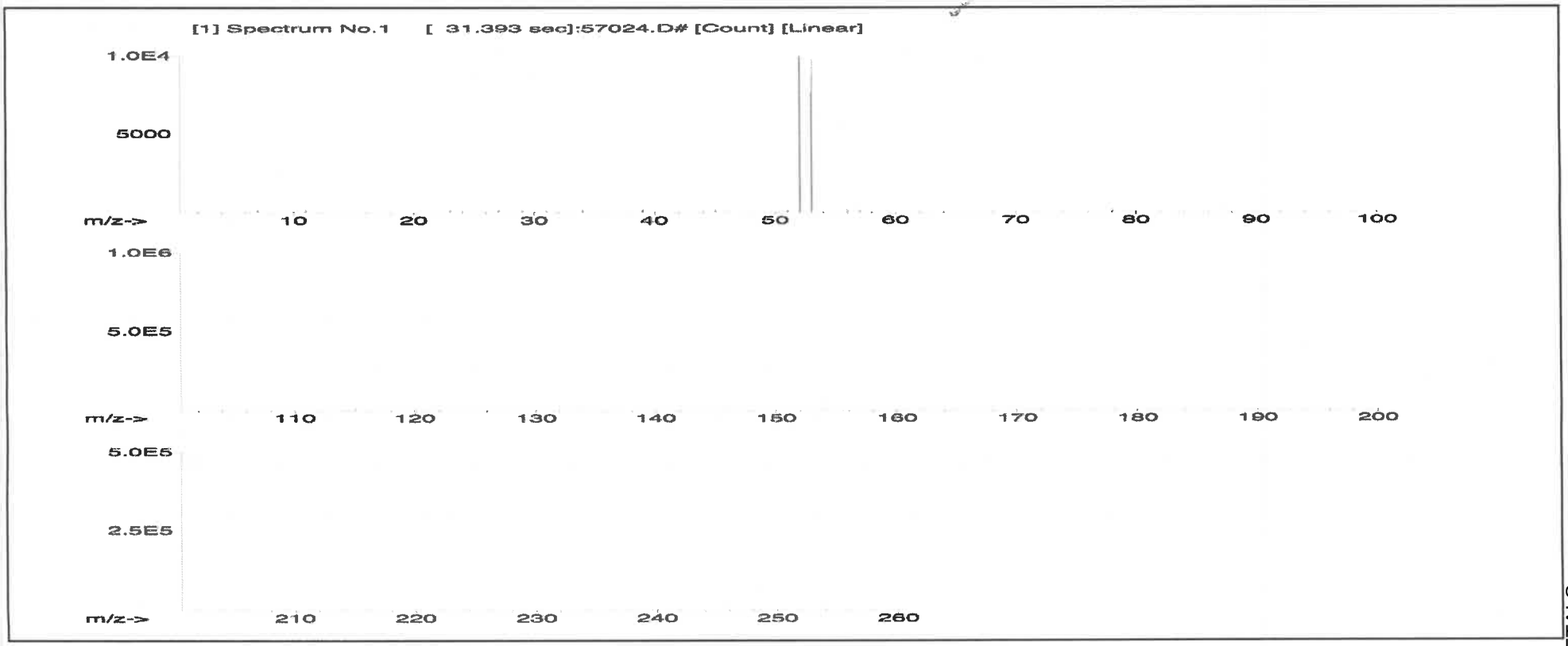
ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

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



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	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	T	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Certified by:

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

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

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

R: 12/20/23 M5747

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

CERTIFIED WEIGHT REPORT:

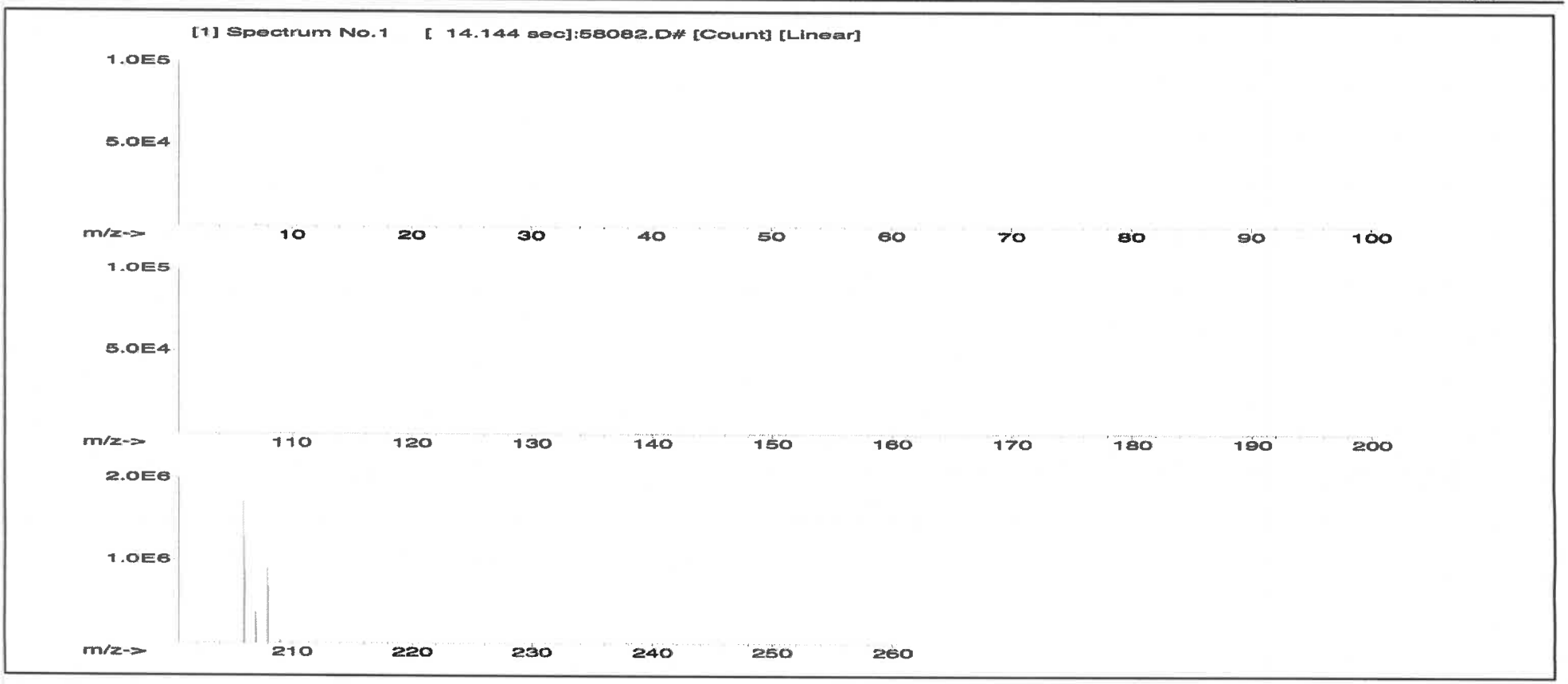
Part Number: 57082
Lot Number: 100923
Description: Lead (Pb)

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 5E-05 Balance Uncertainty 0.06 Flask Uncertainty

	Lot #	
Solvent:	24002546	Nitric Acid
2%	60.0 (mL)	Nitric Acid

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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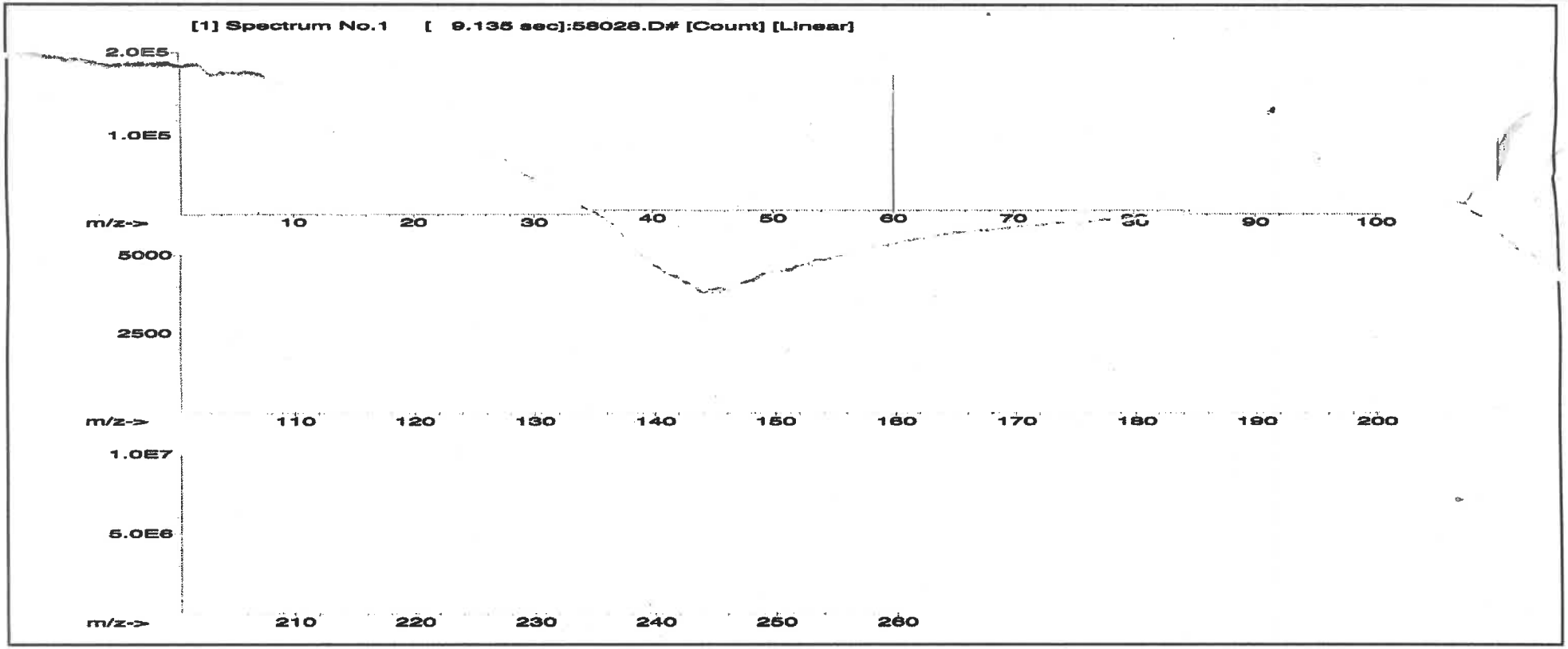
CERTIFIED WEIGHT REPORT:

		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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* 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).

Q2439-METALS

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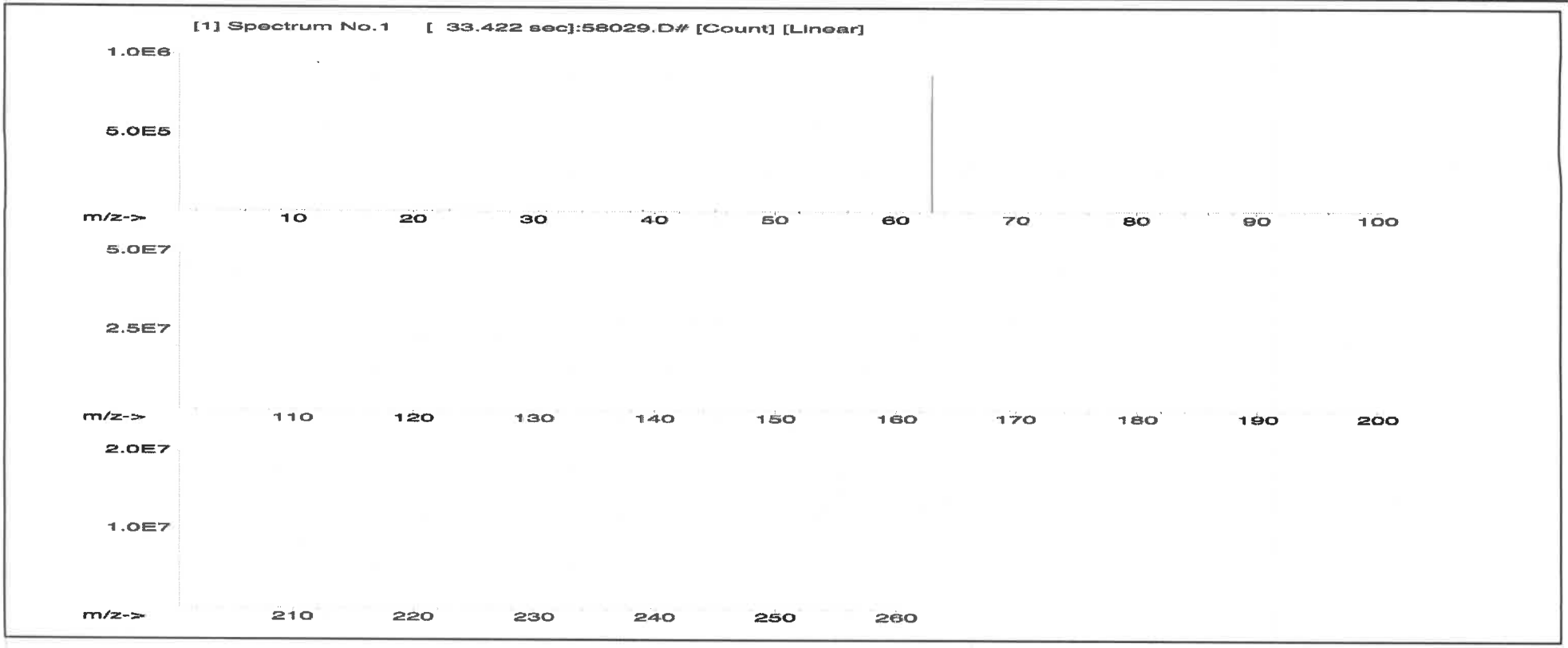
CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**58029**	21110221	Nitric Acid	
Lot Number:	**071723**			
Description:	**Copper (Cu)**	2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	071726			
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	071723
Reviewed By:	Pedro L. Rentas	071723

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Copper(II) nitrate trihydrate (Cu)	58129	022723	0.1000	200.0	0.084	1000	10000.5	**1000.0**	**2.2**	10031-43-3	1 mg/m3	orl-rat 794 mg/kg	3114



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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

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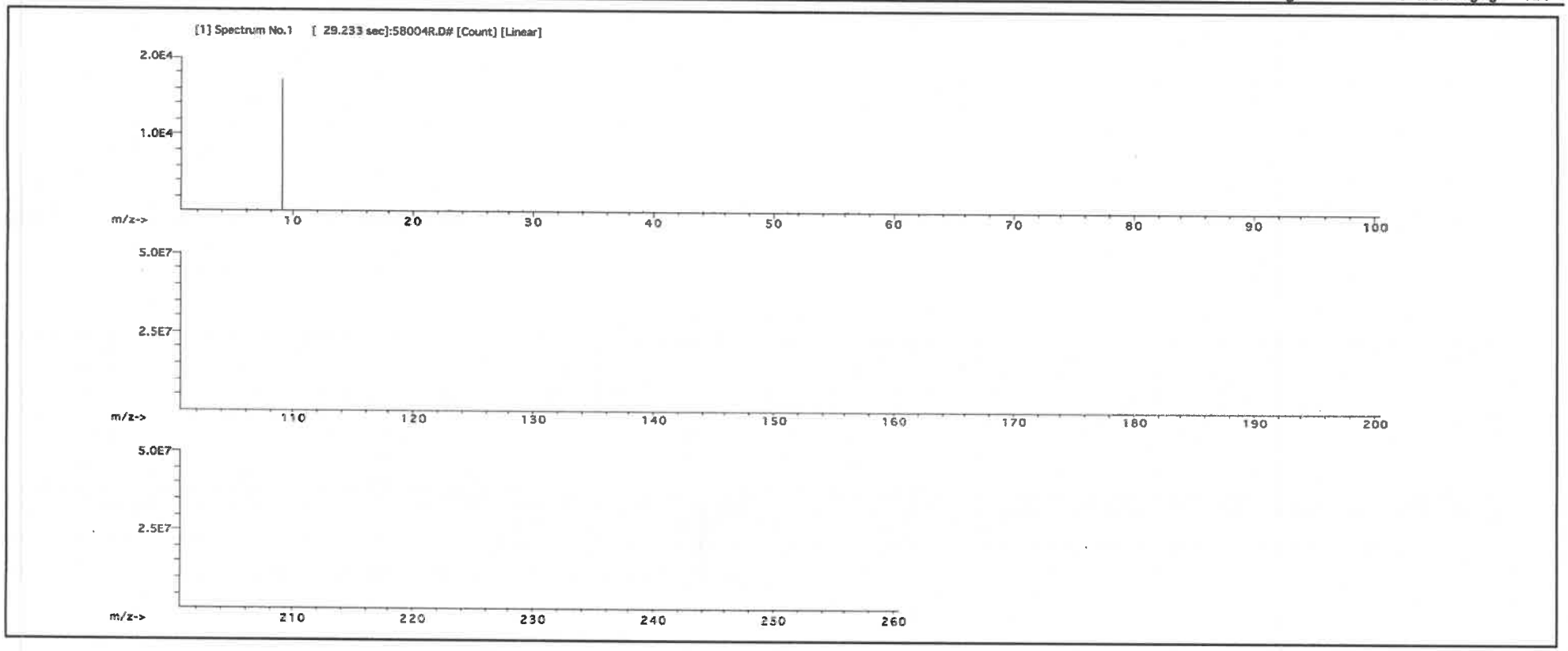
CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57004**	24002546	Nitric Acid	
Lot Number:	**102523**			
Description:	**Beryllium (Be)**	2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	102526			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

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

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Beryllium nitrate (Be)	58104	091423	0.1000	200.0	0.084	1000	10001.5	**1000.0**	**2.2**	13597-99-4	0.2ug/m3	intrvns-rat 3.16mg/kg	NA



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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)

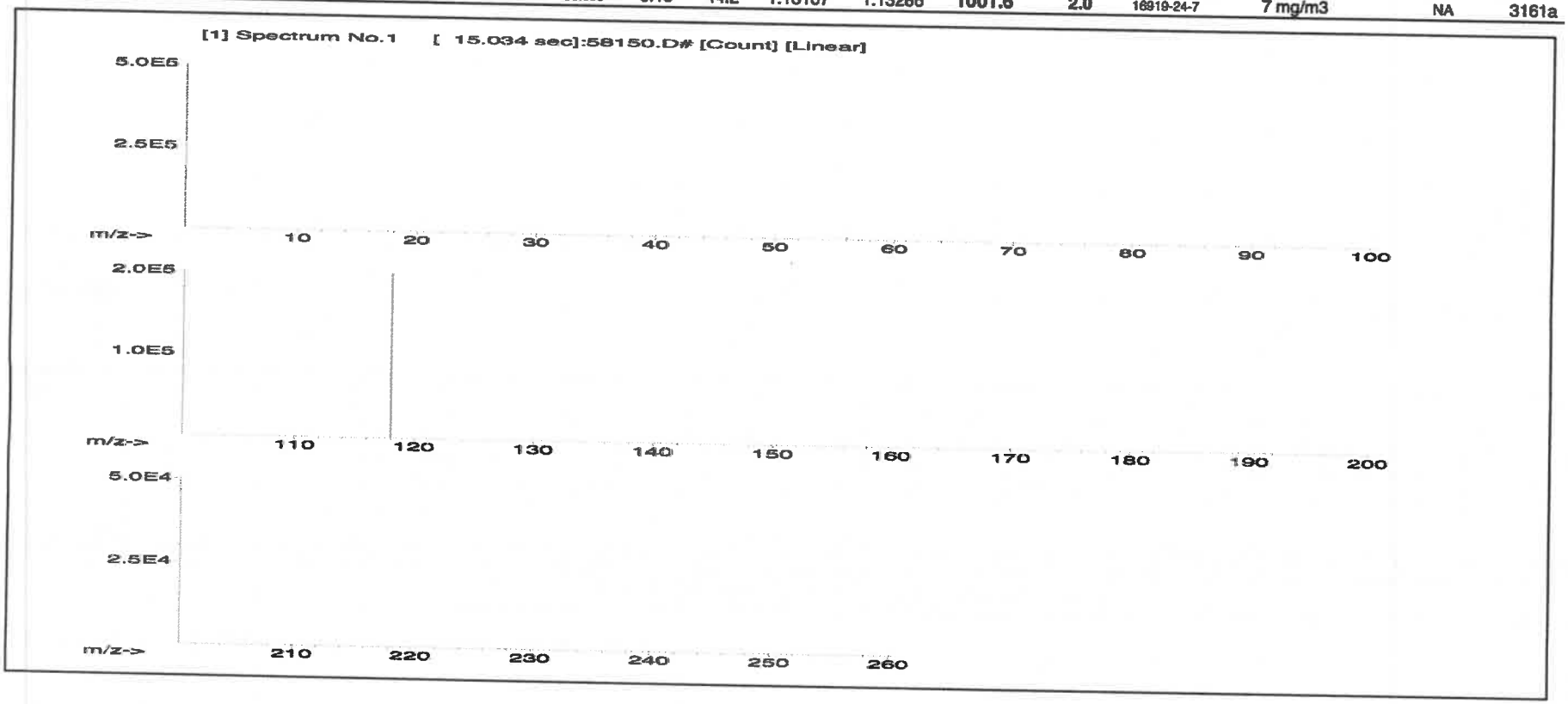
Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 499.93

	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:

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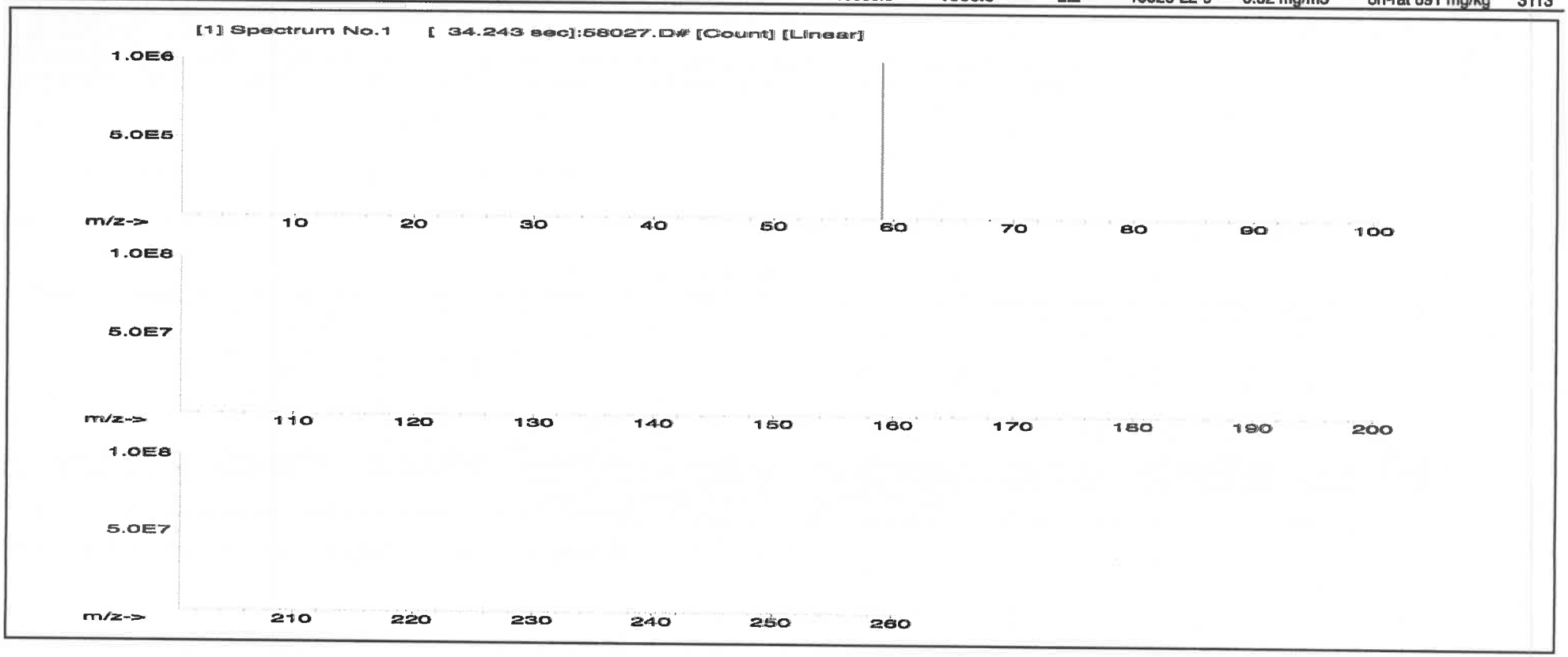
CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:		
Part Number:	**57027**	24002546	Nitric Acid		
Lot Number:	**091923**				
Description:	**Cobalt (Co)**	2.0%	40.0 (mL)	Nitric Acid	
Expiration Date:	091926				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty		

Formulated By:	Lawrence Barry	091923
Reviewed By:	Pedro L. Rentas	091923

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Cobalt(II) nitrate hexahydrate (Co)	58127	050923	0.1000	200.0	0.084	1000	10000.0	**1000.0**	2.2	10026-22-9	0.02 mg/m3	orl-rat 691 mg/kg	3113



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

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

(T)= Target analyte

Physical Characterization:

Certified by:

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

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R: 02/09/24 M5801 BH

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CERTIFIED **WEIGHT** REPORT:

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

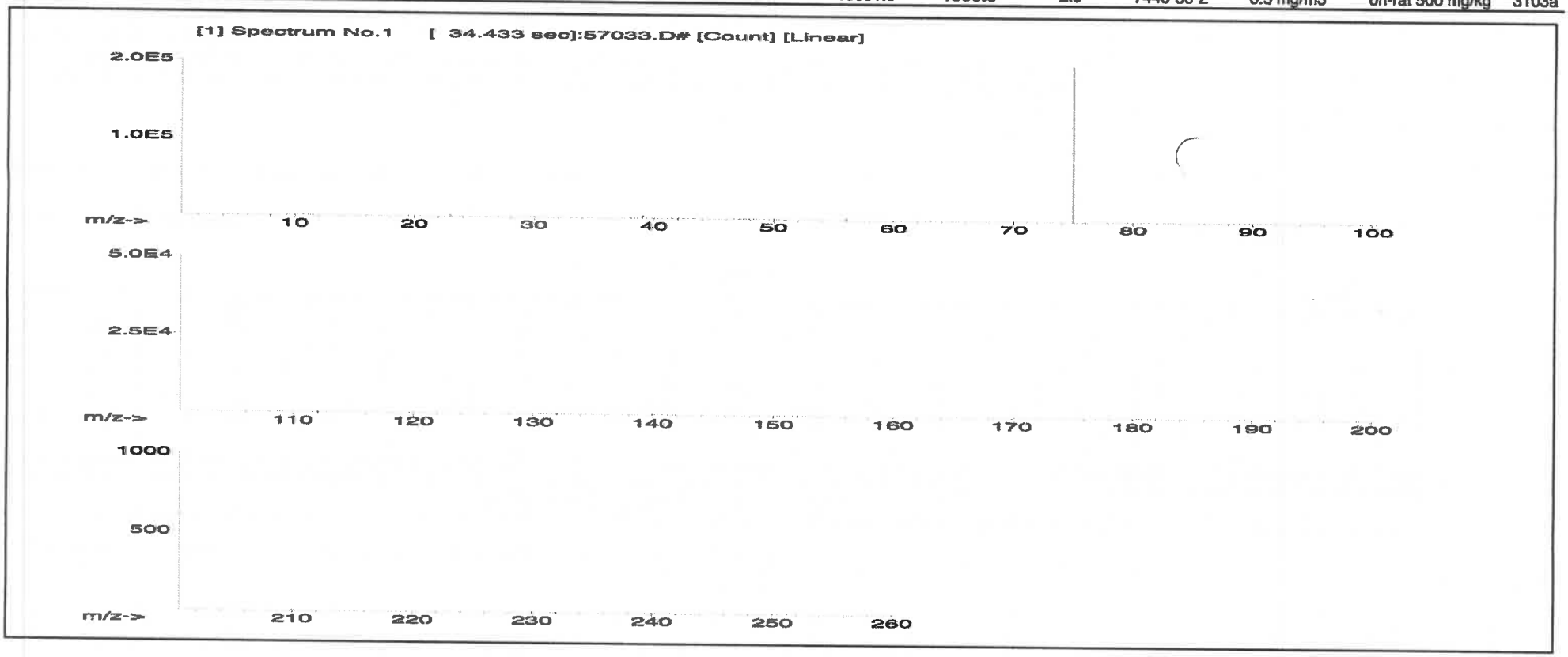
Expiration Date: 111326
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 4000.0

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

5E-05 Balance Uncertainty
0.06 Flask Uncertainty

Formulated By:	Lawrence Barry	111323
Reviewed By:	Pedro L. Rentas	111323

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Arsenic (As)	58133	020522	0.1000	400.0	0.084	1000	10001.0	**1000.0**	2.0	7440-38-2	0.5 mg/m3	orl-rat 500 mg/kg	3103a



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

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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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Certified Reference Material CRM

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

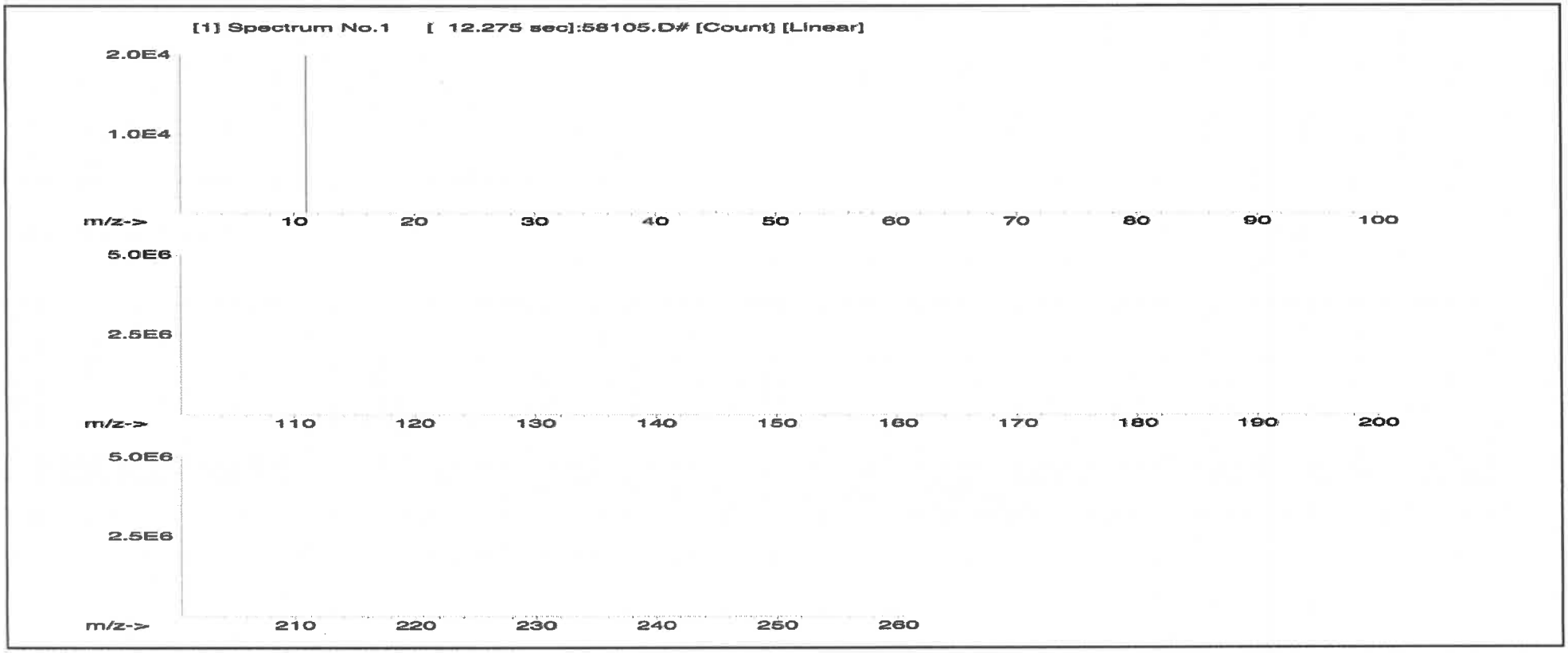
	Lot #			
Solvent:	MKBQ8597V	Ammonium hydroxide		
	2.0%	40.0 (mL)	Ammonium hydroxide	

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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AR-1539 Certificate Number
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Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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Certified Reference Material CRM

R: 02/09/24 M5816

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CERTIFIED WEIGHT REPORT:

Part Number: 57016
Lot Number: 122923
Description: Sulfur (S)

Expiration Date: 122926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

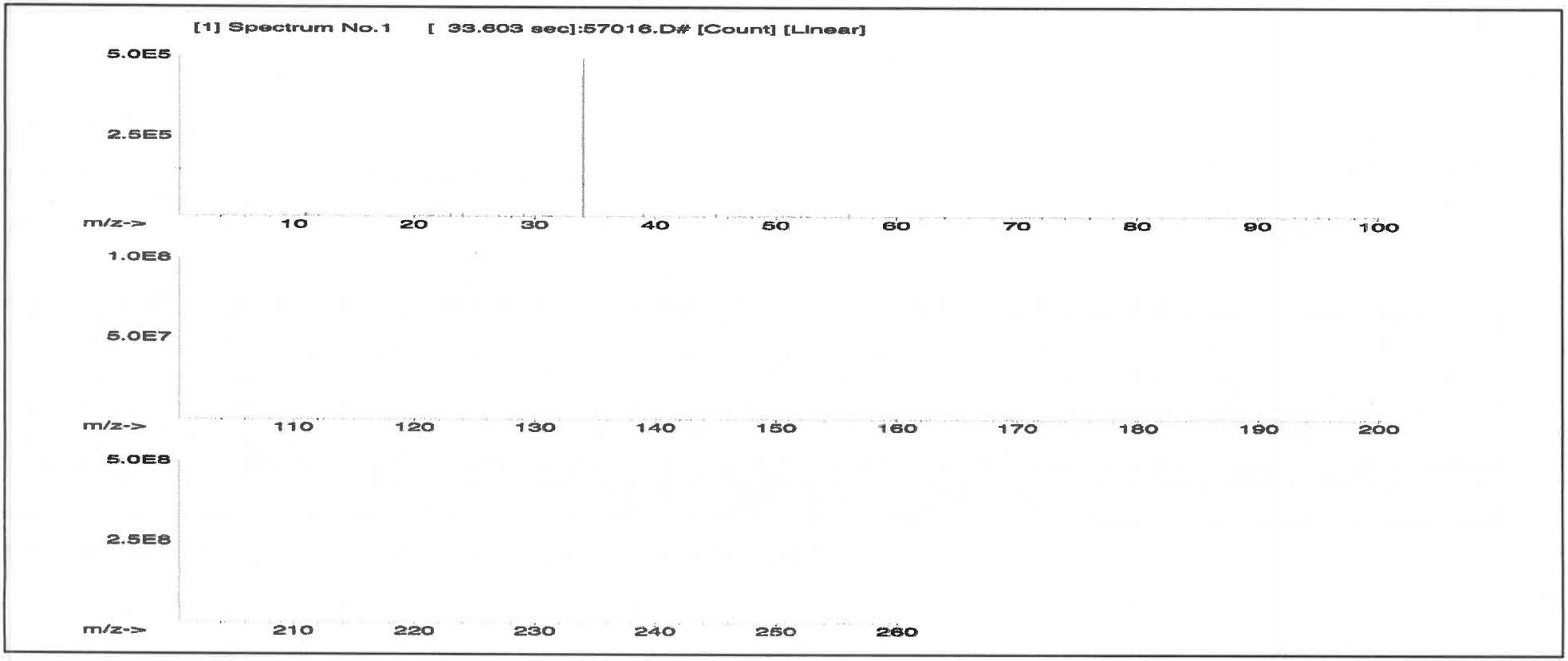
Weight shown below was diluted to (mL): 4000.0 0.06 Flask Uncertainty

Solvent: Lot # 122923 ASTM Type 1 Water

5E-05 Balance Uncertainty

Formulated By:	Benson Chan	122923
Reviewed By:	Pedro L. Rentas	122923

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium sulfate (S)	IN117	SLBR7225V	1000	99.9	0.10	24.3	16.4979	16.4980	**1000.0**	**2.0**	7783-20-2	NA	orl-rat 4250mg/kg	3181



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

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

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

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Certified Reference Material CRM

R: 02/09/24 M5820

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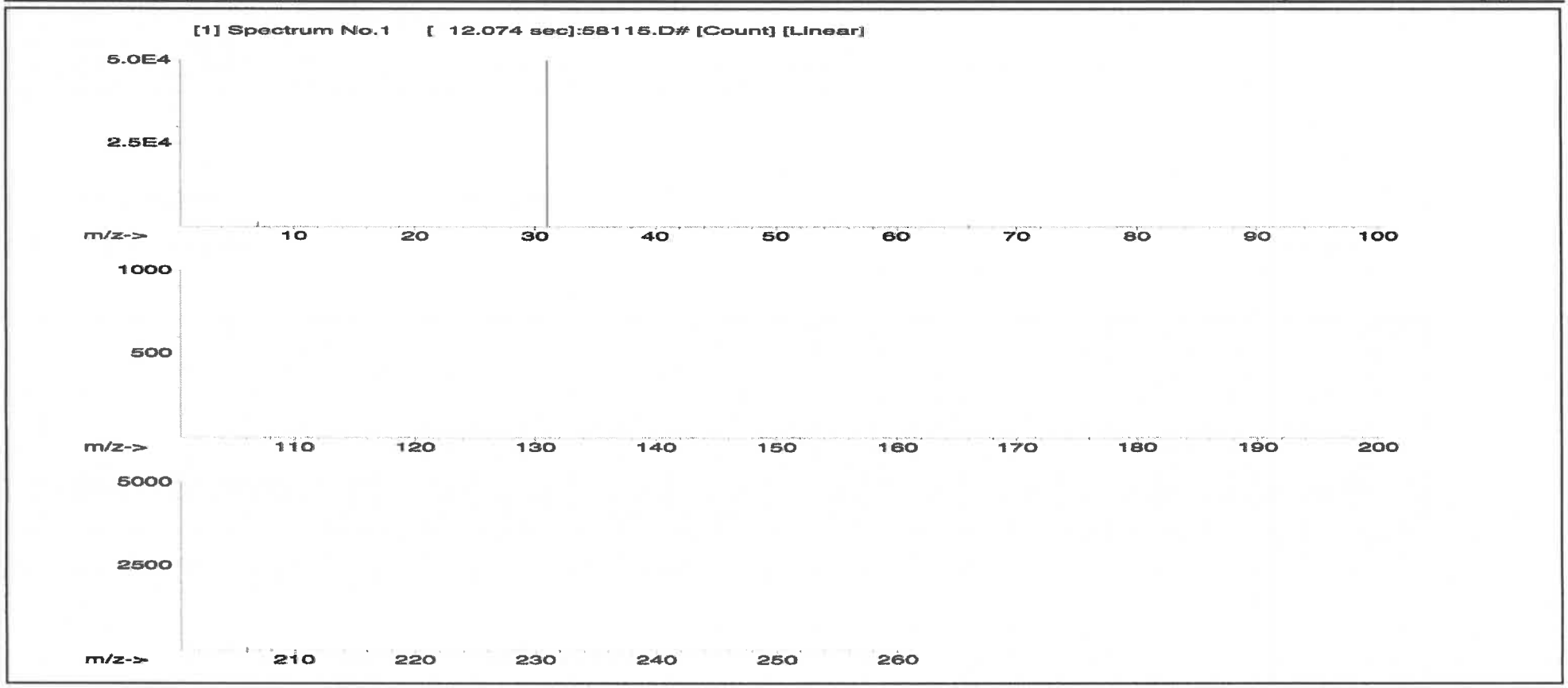
CERTIFIED WEIGHT REPORT:

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

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info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGTI1
Lot Number:	T2-TI719972
Matrix:	2% (v/v) HNO3 tr. HF
Value / Analyte(s):	1 000 µg/mL ea: Titanium
Starting Material:	Ti Metal
Starting Material Lot#:	2094
Starting Material Purity:	99.9975%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 5 µg/mL

Density: 1.012 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 **1002 ± 4 µg/mL**
ICP Assay NIST SRM 3162a Lot Number: 130925

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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	<	0.000536	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 chemically stable for years in 2-5% HNO3 / trace HF in an LDPE container.

Ti Containing Samples (Preparation and Solution) - Metal (Soluble in H2O / HF caution -powder reacts violently); Oxide - low temperature history anatase or rutile (Dissolved by heating in 1:1:1 H2O / HF / H2SO4); 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: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 17, 2022

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

11.2 Lot Expiration Date

- **June 17, 2027**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M5962 R! 06/14/24.

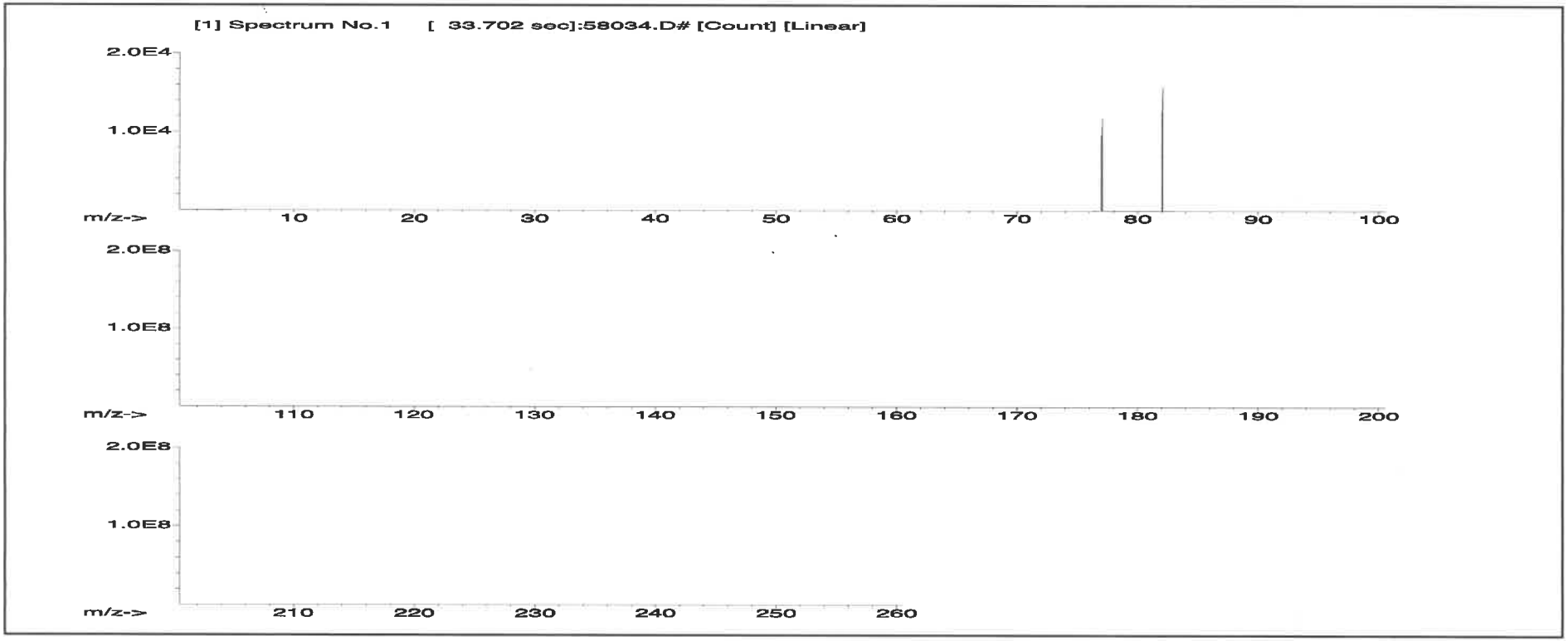
ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57034**	24002546	Nitric Acid	
Lot Number:	**060624**			
Description:	**Selenium (Se)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	060627			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty	

Formulated By:	Benson Chan	060624
Reviewed By:	Pedro L. Rentas	060624

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Selenium (Se)	58134	071223	0.1000	200.0	0.084	1000	10002.5	**1000.0**	**2.2**	7782-49-2	0.2 mg/m3	orl-rat 6700 mg/kg	3149



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Certified Reference Material CRM

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	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).

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

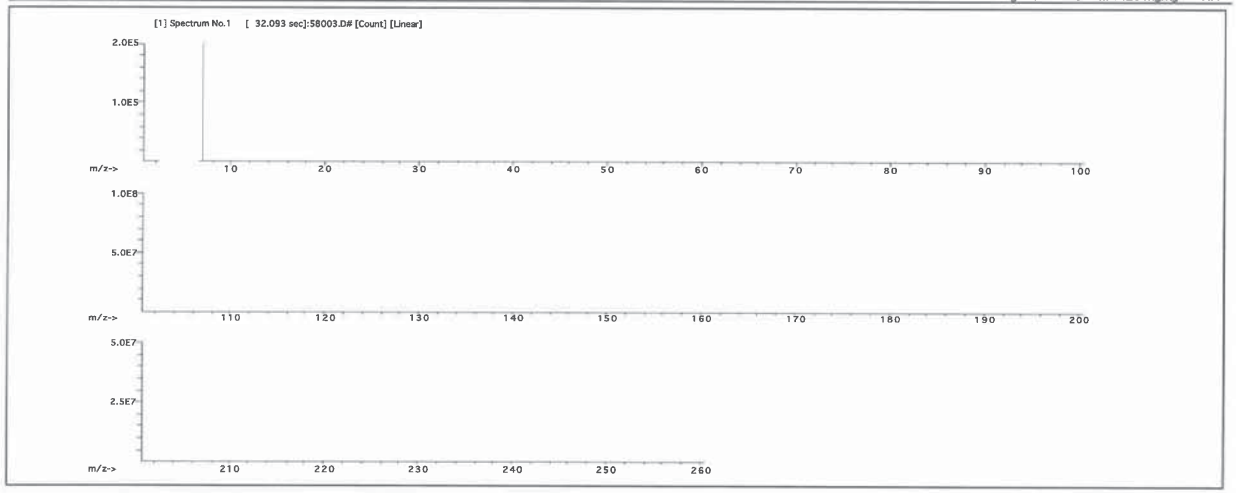
Lot #	Solvent:		
24002546	Nitric Acid		
2.0%	5.0 (mL)	Nitric Acid	

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).

INORGANIC VENTURES™
Refine your results. Redefine your industry.

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

MS984
R:6/14/24

P: 800-669-6799/540-585-3030
F: 540-585-3012
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1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGY10
Lot Number:	V2-Y740548
Matrix:	2% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Yttrium
Starting Material:	Yttrium Oxide
Starting Material Lot#:	2661 and 06230520YL
Starting Material Purity:	99.9984%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10000 ± 30 µg/mL

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

Assay Information:

Assay Method #1 **10011 ± 25 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

Assay Method #2 **9997 ± 50 µg/mL**
ICP Assay NIST SRM 3167a Lot Number: 190730

Assay Method #3 **9984 ± 31 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

M	Ag	<	0.004600	M	Eu		0.009037	M	Na		0.086360	M	Se	<	0.005200	M	Zn		0.030125
M	Al		0.014862	O	Fe		0.002410	M	Nb	<	0.000570	O	Si		0.024100	O	Zr	<	0.002600
M	As	<	0.003500	M	Ga	<	0.000570	M	Nd		0.000923	M	Sm		0.000461				
M	Au	<	0.001700	M	Gd	<	0.003500	M	Ni	<	0.005700	M	Sn	<	0.002300				
O	B		0.002209	M	Ge	<	0.005200	M	Os	<	0.001200	M	Sr	<	0.004600				
O	Ba	<	0.002500	M	Hf	<	0.000570	n	P	<		M	Ta	<	0.000570				
O	Be	<	0.001400	M	Hg	<	0.000570	M	Pb		0.005020	M	Tb		0.001044				
M	Bi	<	0.003500	M	Ho		0.009037	M	Pd	<	0.005100	M	Te	<	0.002300				
O	Ca		0.009841	M	In	<	0.002300	M	Pr	<	0.002300	M	Th	<	0.000570				
M	Cd	<	0.000570	M	Ir	<	0.000570	M	Pt	<	0.000570	M	Ti	<	0.003500				
M	Ce	<	0.002300	O	K		0.018677	M	Rb	<	0.000570	M	Tl	<	0.000570				
M	Co	<	0.000570	M	La		0.000461	M	Re	<	0.000570	M	Tm	<	0.003500				
M	Cr	<	0.004000	O	Li	<	0.009300	M	Rh	<	0.008000	M	U	<	0.000570				
M	Cs	<	0.000570	M	Lu		0.000582	M	Ru	<	0.000570	M	V		0.001265				
M	Cu		0.002610	O	Mg		0.001486	n	S	<		M	W	<	0.002300				
M	Dy		0.003815	M	Mn		0.000582	M	Sb		0.005422	s	Y	<					
M	Er		0.003615	M	Mo	<	0.005700	M	Sc	<	0.001200	M	Yb		0.001827				

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

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 88.91 +3 6 Y(OH)(H2O)x+2

Chemical Compatibility -Soluble in HCl, H2SO4 and HNO3. Avoid HF, H3PO4 and neutral to basic media. Stable with most metals and inorganic anions forming an insoluble carbonate, oxide, oxalate, and fluoride. Avoid mixing with elements / solutions containing moderate amounts of fluoride.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO3 / LDPE container.

Y Containing Samples (Preparation and Solution) - Metal (Soluble in acids); Oxide (Dissolve by heating in H2O/ HNO3); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Dry ash and dissolve in 1:1 H2O / HCl or HNO3).

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

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 89 amu	0.8 ppt	N/A	73Ge16O, 178Hf+2
ICP-OES 360.073 nm	0.005 / 0.000036 µg/mL	1	Ce, Th
ICP-OES 371.030 nm	0.004 / 0.00007 µg/mL	1	Ce
ICP-OES 377.433 nm	0.005 / 0.0009 µg/mL	1	Ta, Th

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

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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

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Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	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 °C)

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = (\Sigma((w_i)^2\,(u_{char\ i})^2))^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 27, 2022

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

11.2 Lot Expiration Date

- January 27, 2027

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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1.0 ACCREDITATION / REGISTRATION

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ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CLPP-CAL-3
Lot Number:	T2-MEB727800
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	1 000 µg/mL ea: Arsenic, Lead, Selenium, Thallium, 500 µg/mL ea: Cadmium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	1 000 ± 7 µg/mL	Cadmium, Cd	500.0 ± 2.2 µg/mL
Lead, Pb	1 000 ± 4 µg/mL	Selenium, Se	1 000 ± 6 µg/mL
Thallium, Tl	1 000 ± 7 µg/mL		

Density: 1.042 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
As	ICP Assay	3103a	100818
As	Calculated		See Sec. 4.2
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Tl	ICP Assay	3158	151215

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

December 21, 2022

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

11.2 Lot Expiration Date

- December 21, 2027

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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Certificate of Analysis

M6074
M6075
M6076
M6077

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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

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:

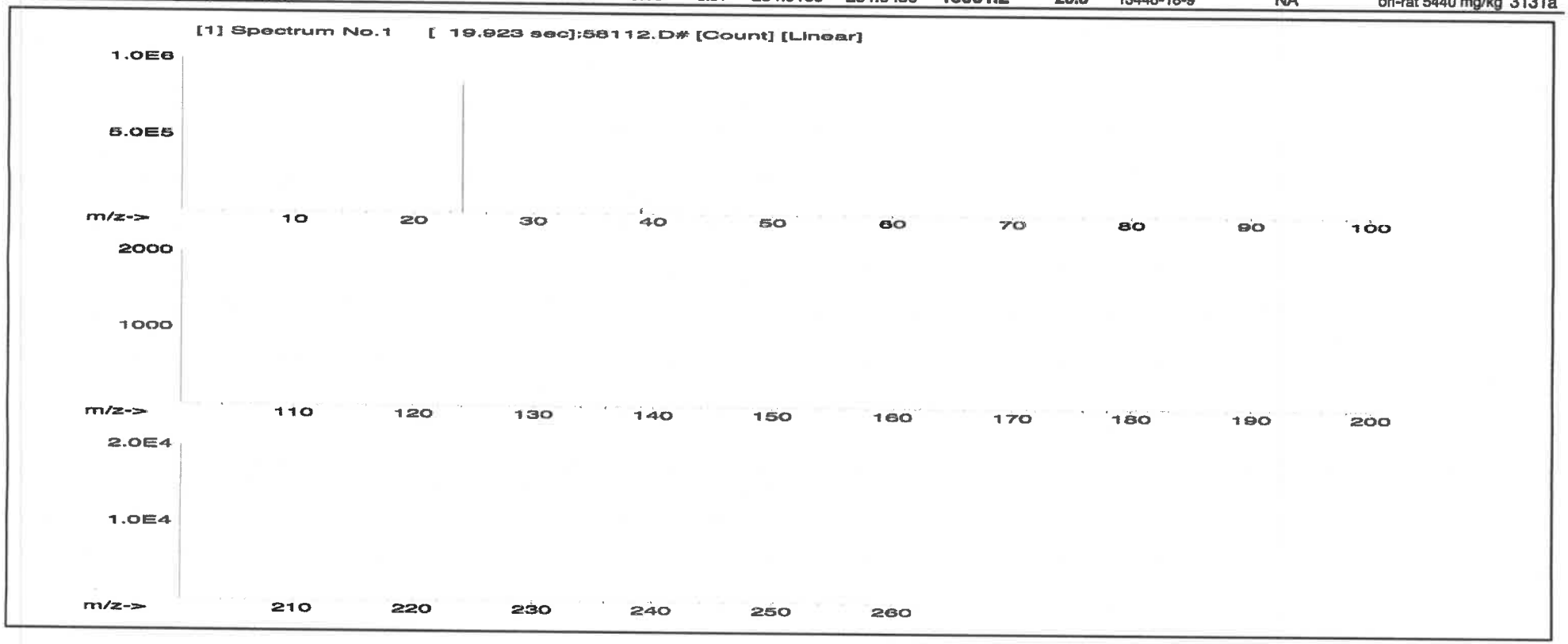
R→ 1/13/25
M 6127

			Lot #	
Part Number:	**58112**	**Solvent:**	24012496	Nitric Acid
Lot Number:	**112124**			
Description:	**Magnesium (Mg)**	2%	40.0 (mL)	Nitric Acid
Expiration Date:	112127			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**10000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Weight shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty	

Giovanni Esposito

Formulated By:	Giovanni Esposito	112124
Reviewed By:	Pedro L. Rentas	112124

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Magnesium nitrate hexahydrate (Mg)	IN030	MGD052023A1	10000	99.999	0.10	8.51	234.9183	234.9459	**10001.2**	**20.0**	13446-18-9	NA	orl-rat 5440 mg/kg	3131a



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Certified Reference Material CRM

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

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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	T	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
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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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**	**Solvent:**	**Lot #** 24002546	Nitric Acid
Lot Number:	**101124**			
Description:	**Manganese (Mn)**	2%	80.0 (mL)	Nitric Acid
Expiration Date:	101127			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Weight shown below was diluted to (mL):	4000.2	0.10	Flask Uncertainty	

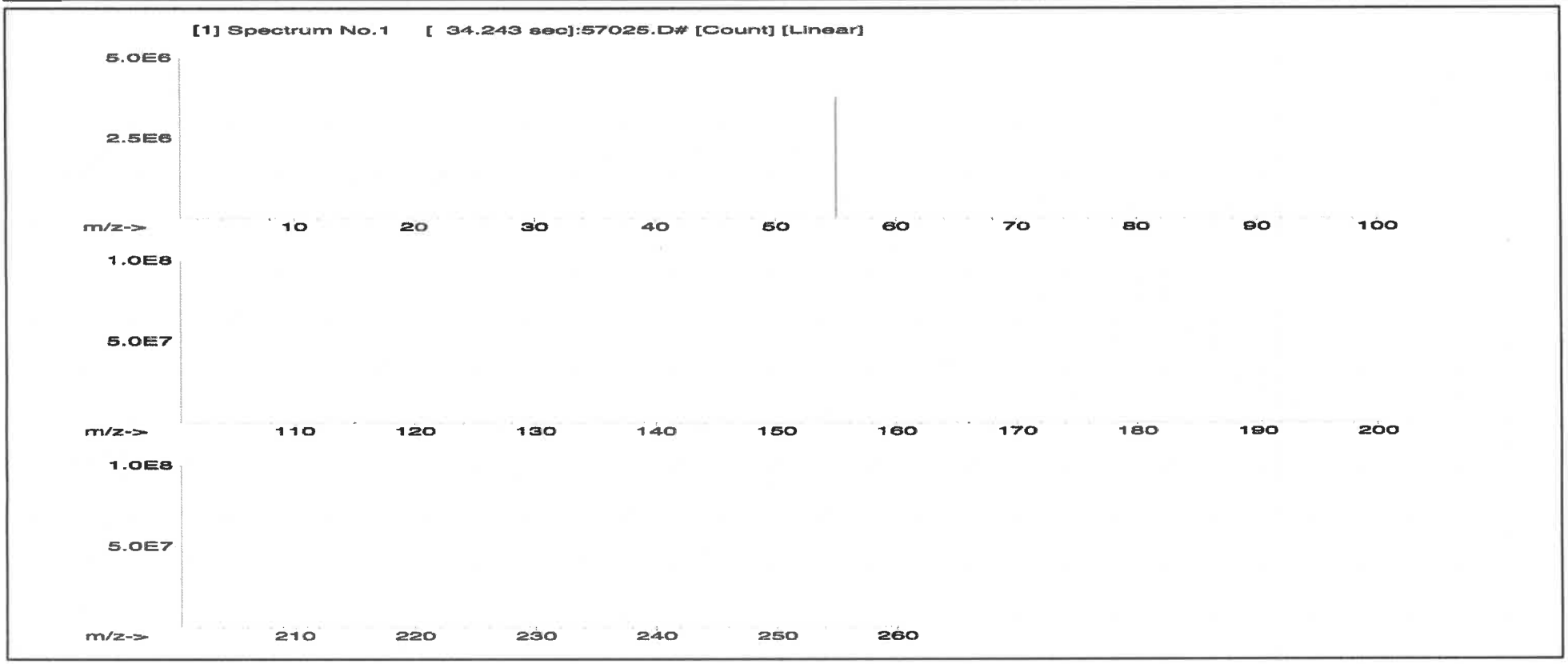
Giovanni Esposito

Formulated By:	Giovanni Esposito	101124

Pedro Rentas

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:

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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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

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

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CERTIFIED WEIGHT REPORT:

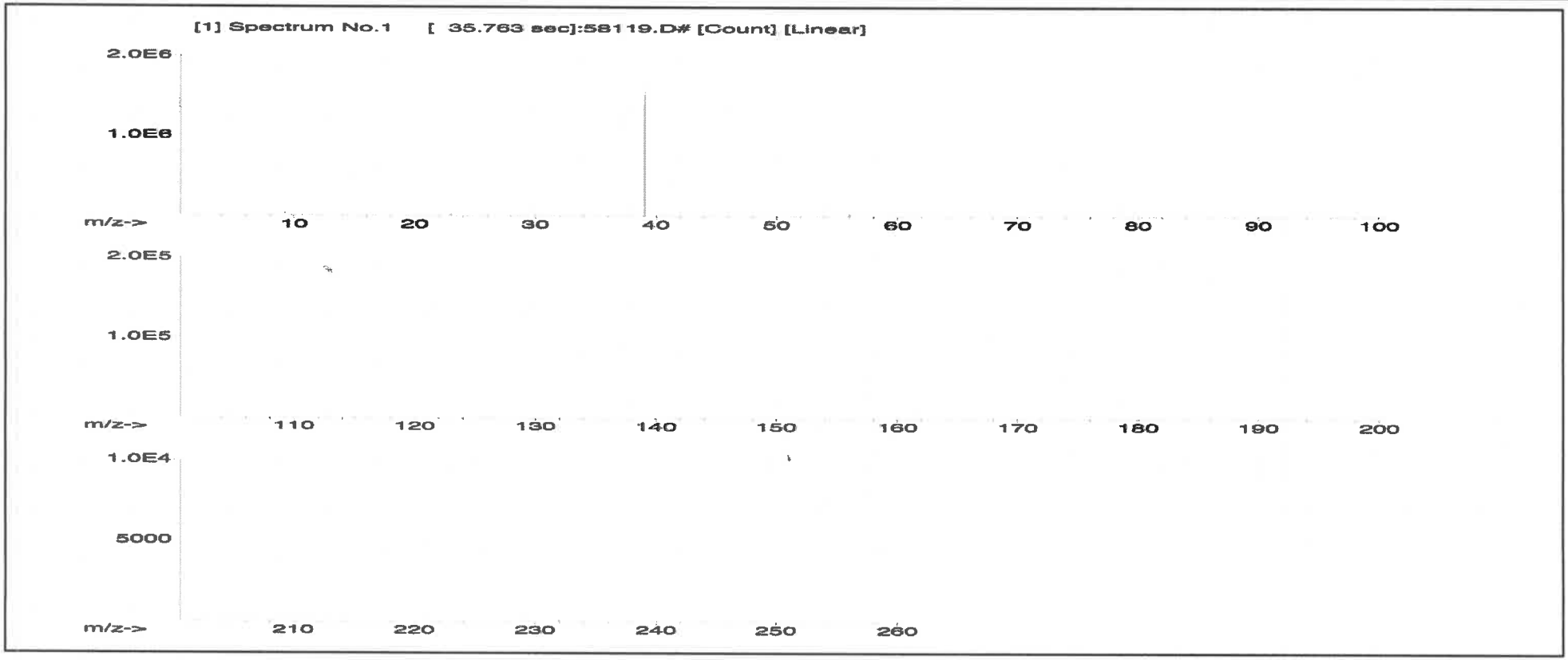
R-> 1/13/25

Part Number:	**57119**		**Lot #**		
Lot Number:	**103024**	**Solvent:**	24002546	Nitric Acid	
Description:	**Potassium (K)**	2%	80.0 (mL)	Nitric Acid	
Expiration Date:	103027				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**10000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	4000.1	0.15	Flask Uncertainty		

M6141
M6142
M6143

Giovanni Esposito	
Formulated By:	Giovanni Esposito 103024
Pedro Rentas	
Reviewed By:	Pedro L. Rentas 103024

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Potassium nitrate (K)	IN034	KD062022A1	10000	99.999	0.10	37.7	106.1040	######	**10001.1**	**20.0**	7757-79-1	5 mg/m3	orl-rat 3750 mg/kg	3141a



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

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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

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

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Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT:

R->1/13/25

Part Number: 58111
Lot Number: 072424
Description: Sodium (Na)

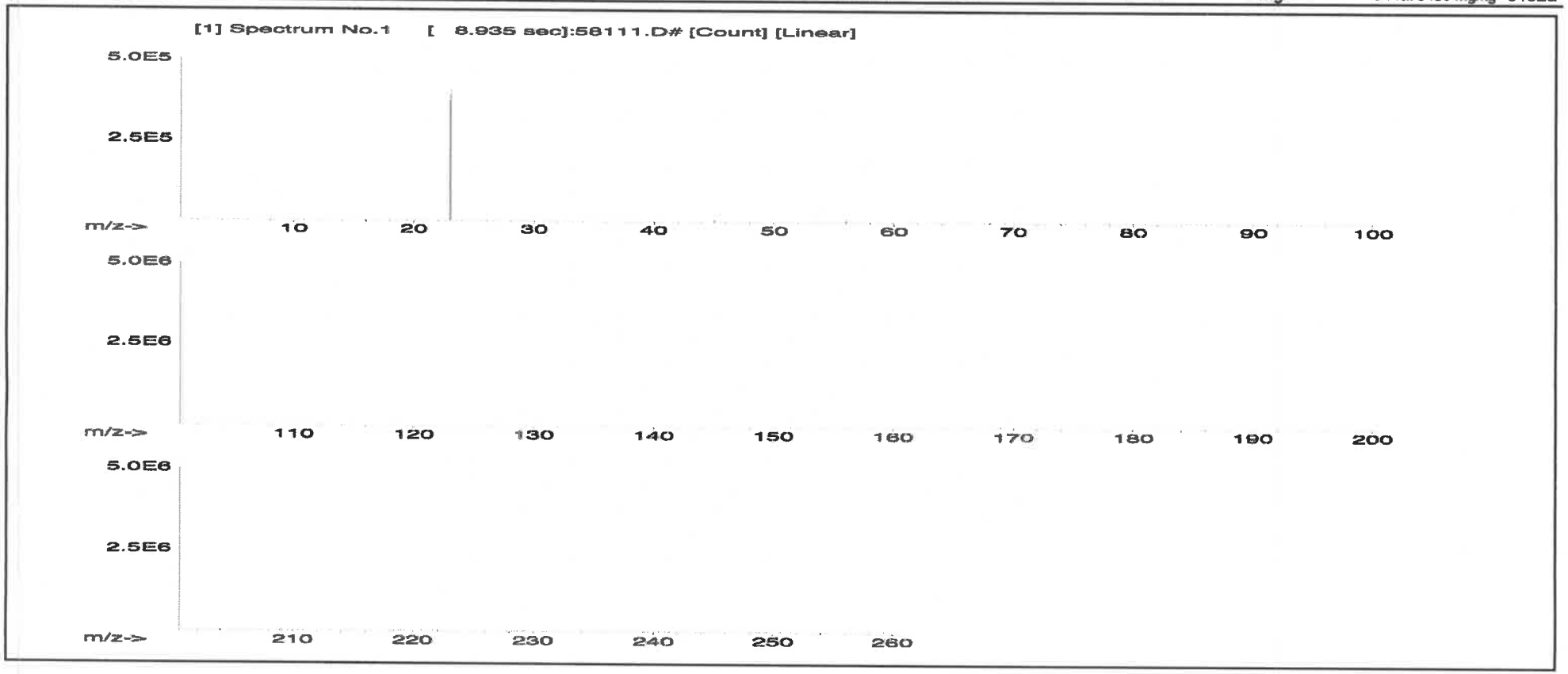
M6144

Expiration Date: 072427
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 4000.2

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	80.0 (mL)	Nitric Acid	
5E-05	Balance Uncertainty		
0.10	Flask Uncertainty		

Formulated By:	Benson Chan	072424
Reviewed By:	Pedro L. Rentas	072424

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Sodium nitrate (Na)	IN036	NAV012015I1	10000	99.999	0.10	26.9	148.7096	######	**10000.0**	**20.0**	7631-99-4	5 mg/m3	orl-rat 3430 mg/kg	3152a



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Certified Reference Material CRM

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

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

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Certified Reference Material CRM

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CERTIFIED WEIGHT REPORT:

Part Number: 58030
Lot Number: 121724
Description: Zinc (Zn)

R → 1/13/25

M6145

Expiration Date: 121727
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 2000.1 ± 0.10 Flask Uncertainty

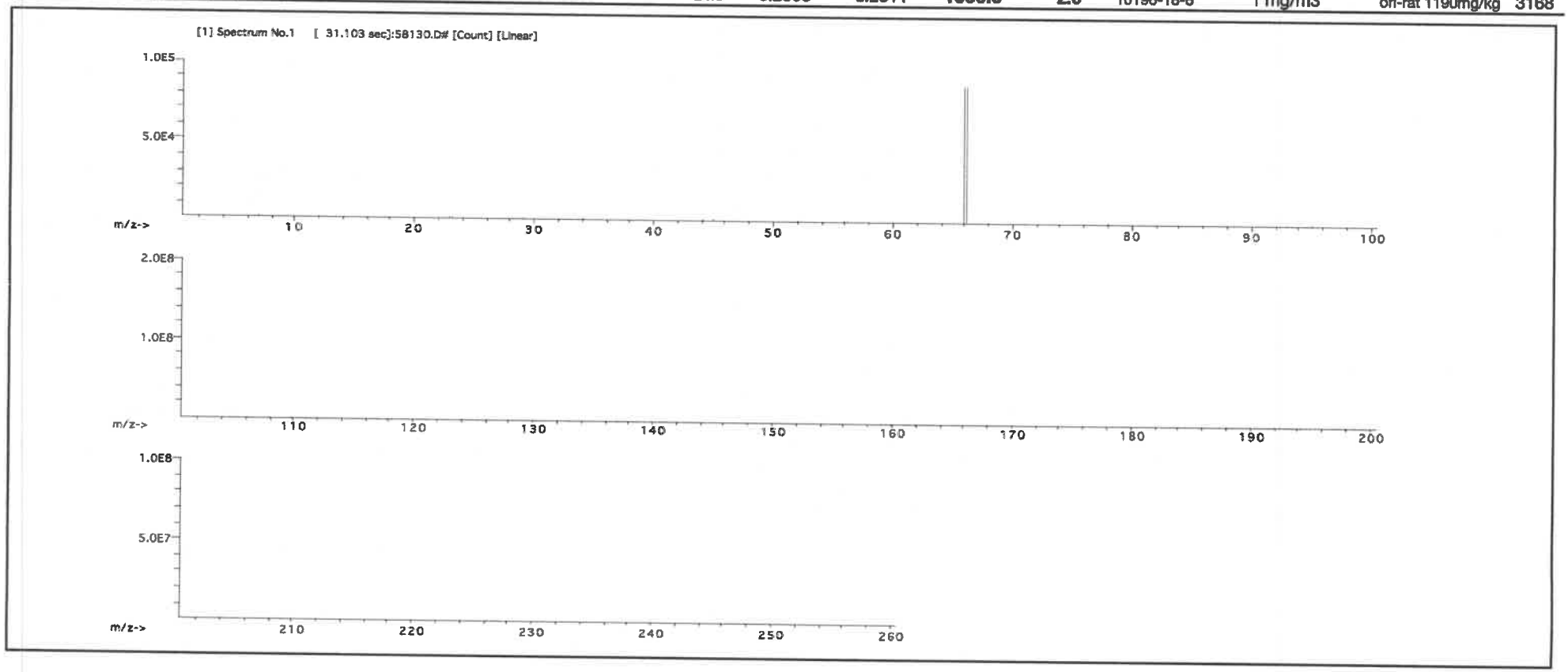
		Lot #	
Solvent:	24012496	Nitric Acid	
	2%	40.0 (mL)	Nitric Acid

5E-05 Balance Uncertainty

Aleah O'Brady

Formulated By:	Aleah O'Brady	121724
Reviewed By:	Pedro L. Rentas	121724

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Zinc nitrate hexahydrate (Zn)	IN016	ZNE032021A1	1000	99.999	0.10	24.3	8.2308	8.2311	**1000.0**	**2.0**	10196-18-6	1 mg/m3	ori-rat 1190mg/kg	3168



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

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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

avantor™ | J.T.Baker®

M6151

R→ 1/15/25

Material No.: 9530-33
Batch No.: 22G2862015
Manufactured Date: 2022-06-15
Retest Date: 2027-06-14
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid-base titrn)	36.5 – 38.0 %	37.9 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.191
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl_2)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO_4)	≤ 0.05 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO_3)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH_4)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	1.3 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	< 5.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	163.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.7 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	0.6 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	6 ppb

>>> Continued on page 2 >>>

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

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 22G2862015

Test	Specification	Result
Trace Impurities – Lead (Pb)	≤ 1.0 ppb	< 0.5 ppb
Trace Impurities – Lithium (Li)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Magnesium (Mg)	≤ 10.0 ppb	2.9 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	0.1 ppb
Trace Impurities – Molybdenum (Mo)	≤ 10.0 ppb	< 3.0 ppb
Trace Impurities – Nickel (Ni)	≤ 4.0 ppb	< 0.3 ppb
Trace Impurities – Niobium (Nb)	≤ 1.0 ppb	0.8 ppb
Trace Impurities – Potassium (K)	≤ 9.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	0.5 ppb
Trace Impurities – Sodium (Na)	≤ 100.0 ppb	2.3 ppb
Trace Impurities – Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Tantalum (Ta)	≤ 1.0 ppb	1.6 ppb
Trace Impurities – Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	4.0 ppb
Trace Impurities – Titanium (Ti)	≤ 1.0 ppb	1.5 ppb
Trace Impurities – Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	0.8 ppb
Trace Impurities – Zirconium (Zr)	≤ 1.0 ppb	0.3 ppb

>>> Continued on page 3 >>>

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

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 22G2862015

Test	Specification	Result

For Laboratory,Research,or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications
Storage Condition: Store below 25 °C.

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

James T Ethier

Jamie Ethier
Vice President Global Quality

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

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

m-5162

R. Date :- 04/27/2025

Material No.: 9606-03
Batch No.: 24H0162012
Manufactured Date: 2024-06-28
Retest Date: 2029-06-27
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO_3)	69.0 – 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	< 1 ppm
Chloride (Cl)	≤ 0.08 ppm	0.03 ppm
Phosphate (PO_4)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities – Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	0.1 ppb
Trace Impurities – Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 30.0 ppb	0.1 ppb
Trace Impurities – Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Germanium (Ge)	≤ 20 ppb	< 1 ppb
Trace Impurities – Gold (Au)	≤ 20 ppb	< 1 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities – Lead (Pb)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Nickel (Ni)	≤ 20.0 ppb	< 1.0 ppb

>>> Continued on page 2 >>>

For questions on this Certificate of Analysis please contact Technical Services at 855 282 6867 or +1 610 386 1700

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24H0162012

Test	Specification	Result
Trace Impurities - Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities - Potassium (K)	≤ 50 ppb	< 1 ppb
Trace Impurities - Silicon (Si)	≤ 50 ppb	1 ppb
Trace Impurities - Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Sodium (Na)	≤ 150.0 ppb	< 1.0 ppb
Trace Impurities - Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities - Tantalum (Ta)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Thallium (Tl)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Tin (Sn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count - 0.5 µm and greater	≤ 60 par/ml	13 par/ml
Particle Count - 1.0 µm and greater	≤ 10 par/ml	5 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

Material No.: 9606-03
Batch No.: 24H0162012

Test	Specification	Result

For Microelectronic Use

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

Jamie Croak
Director Quality Operations, Bioscience Production

INORGANIC VENTURES™
Refine your results. Redefine your industry.

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
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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 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	QCP-CICV-1
Lot Number:	V2-MEB744107
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	2 500 µg/mL ea: Calcium, Potassium, Magnesium, Sodium, 1 000 µg/mL ea: Aluminum, Barium, 500 µg/mL ea: Iron, 250 µg/mL ea: Nickel, Vanadium, Zinc, Cobalt, Manganese, 125 µg/mL ea: Silver, Copper, 100 µg/mL ea: Chromium, 25 µg/mL ea: Beryllium

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

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	1 000 ± 4 µg/mL	Barium, Ba	1 000 ± 6 µg/mL
Beryllium, Be	24.98 ± 0.12 µg/mL	Calcium, Ca	2 500 ± 8 µg/mL
Chromium, Cr	99.9 ± 0.6 µg/mL	Cobalt, Co	250.2 ± 1.2 µg/mL
Copper, Cu	125.0 ± 0.5 µg/mL	Iron, Fe	500.0 ± 2.2 µg/mL
Magnesium, Mg	2 500 ± 11 µg/mL	Manganese, Mn	249.9 ± 1.1 µg/mL
Nickel, Ni	250.0 ± 1.2 µg/mL	Potassium, K	2 500 ± 11 µg/mL
Silver, Ag	125.0 ± 0.6 µg/mL	Sodium, Na	2 500 ± 11 µg/mL
Vanadium, V	250.0 ± 1.1 µg/mL	Zinc, Zn	249.9 ± 1.1 µg/mL

Density: 1.081 g/mL (measured at 20 ± 4 ºC)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Be	Calculated		See Sec. 4.2
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	120618
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	200413
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information (https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver)

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 22, 2024

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

11.2 Lot Expiration Date

- **May 22, 2029**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

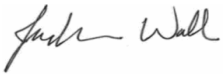
12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor

Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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Certificate of Analysis

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F: 540-585-3012
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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:	QCP-CICV-2
Lot Number:	U2-MEB733713
Matrix:	3% (w/v) Tartaric acid 1% (v/v) HNO3
Value / Analyte(s):	500 µg/mL ea: Antimony

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

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	**500.0 ± 2.8 µg/mL**		

Density: 1.017 g/mL (measured at 20 ± 4 ºC)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Sb	ICP Assay	3102a	140911

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

Characterization of CRM/RM by Two or More Methods

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

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

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$
w_i = the weighting factors for each method calculated using the inverse square of the variance:
$w_i = (1/u_{char\ i})^2 / (\Sigma(1/(u_{char\ i})^2)$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2
$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method
u_{bb} = bottle to bottle homogeneity standard uncertainty
u_{lts} = long term stability standard uncertainty (storage)
u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with
$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2
$u_{char\ a}$ = the errors from characterization
u_{bb} = bottle to bottle homogeneity standard uncertainty
u_{lts} = long term stability standard uncertainty (storage)
u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 01, 2023

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

11.2 Lot Expiration Date

- June 01, 2028

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

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

11.3 Period of Validity

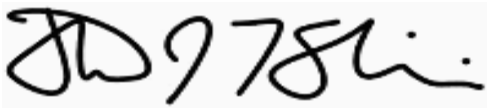
- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

INORGANIC VENTURES™
Refine your results. Redefine your industry.

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

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

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	QCP-CICV-3
Lot Number:	V2-MEB749572
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	500 µg/mL ea: Arsenic, Lead, Selenium, Thallium, 250 µg/mL ea: Cadmium

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

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	**500.0 ± 3.1 µg/mL**	**Cadmium, Cd**	**250.1 ± 1.1 µg/mL**
Lead, Pb	**500.0 ± 2.3 µg/mL**	**Selenium, Se**	**500.0 ± 3.2 µg/mL**
Thallium, Tl	**500.0 ± 3.0 µg/mL**		

Density: 1.040 g/mL (measured at 20 ± 4 ºC)

Assay Information:

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

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

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 02, 2025

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

11.2 Lot Expiration Date

- **January 02, 2030**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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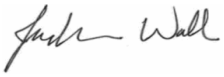
12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor

Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Absolute Standards, Inc.
800-368-1131
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

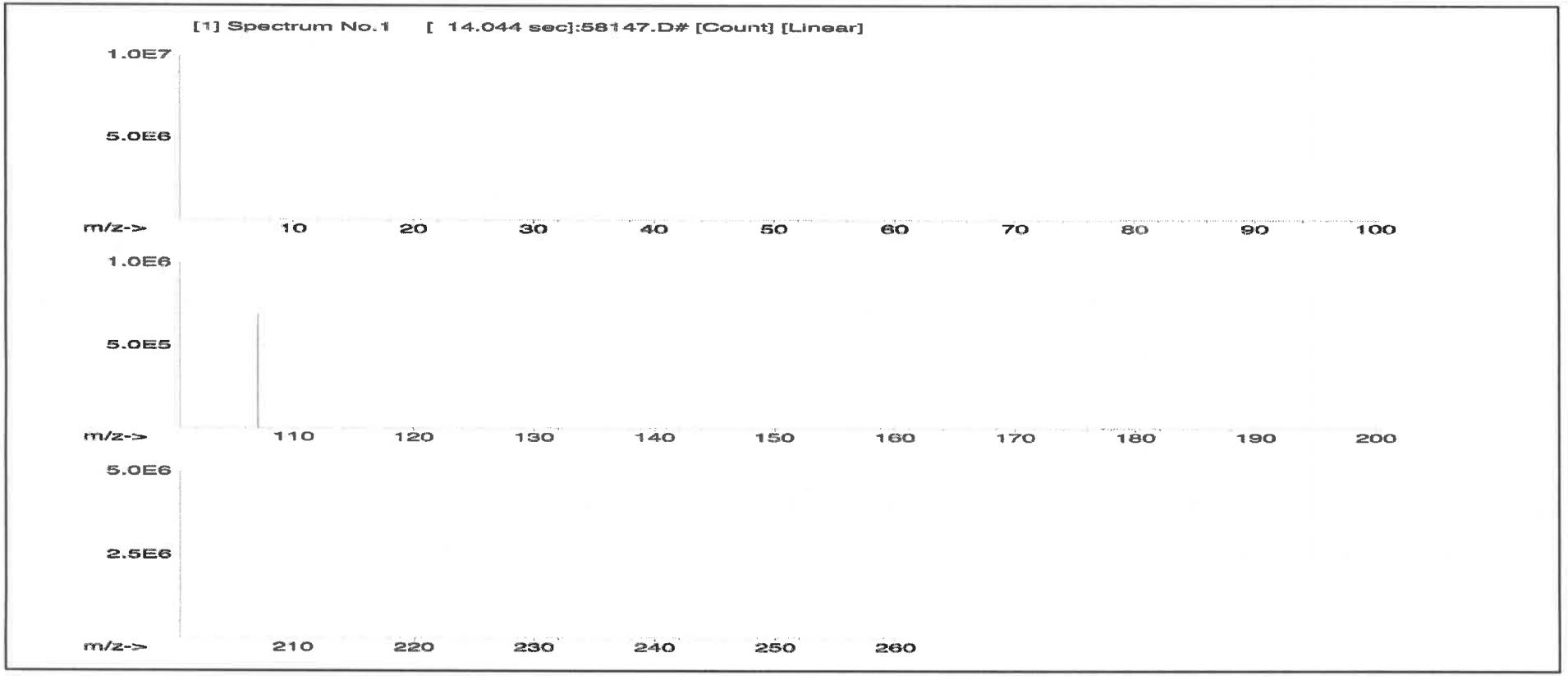
Weight shown below was diluted to (mL): 4000.30 0.058 Flask Uncertainty

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	80.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

Formulated By:	Benson Chan	122823
Reviewed By:	Pedro L. Rentas	122823

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Silver nitrate (Ag)	IN035	J0612AGA1	1000.0	99.9999	0.10	63.7	6.27992	6.27998	**1000.0**	**2.0**	7761-88-8	10 ug/m3	NA	3151



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Certified Reference Material CRM

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

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

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

(T)= Target analyte

Physical Characterization:

Certified by:

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

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* 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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www.absolutestandards.com

Certified Reference Material CRM

R: 10/18/24

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

CERTIFIED WEIGHT REPORT:

MG146

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

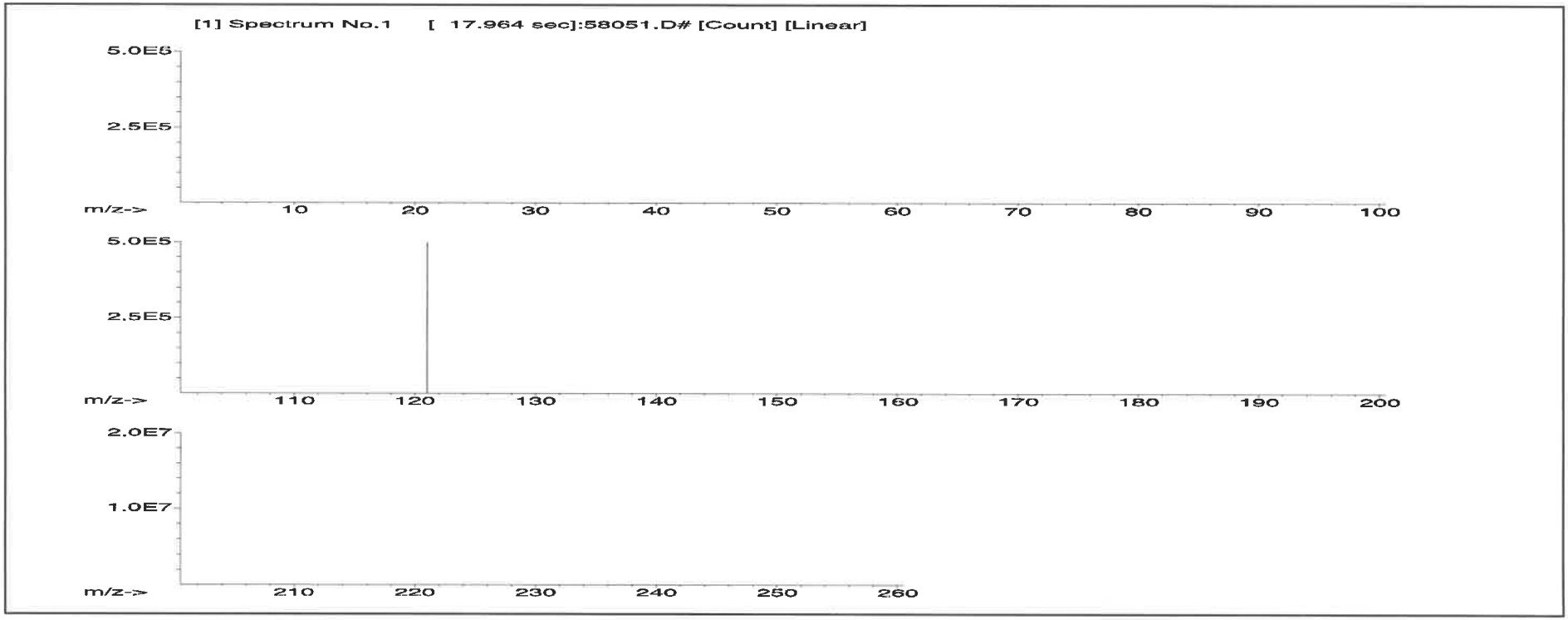
Lot #	Solvent:		
24002546	Nitric Acid		
2.0%	40.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

Giovanni Esposito

Formulated By:	Giovanni Esposito	071724
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



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	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).

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.

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

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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.

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APTIM Federal Services, LLC
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(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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1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 885.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGSR1
Lot Number:	U2-SR730227
Matrix:	0.1% (v/v) HNO3
Value / Analyte(s):	1 000 µg/mL ea: Strontium
Starting Material:	SrCO3
Starting Material Lot#:	M2-2192
Starting Material Purity:	99.9993%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1001 ± 3 µg/mL

Density: 1.000 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 **998 ± 4 µg/mL**
ICP Assay NIST SRM Traceable to 3153a Lot Number: K2-SR650985

Assay Method #2 **1001 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

Assay Method #3 **1001 ± 2 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

M	Ag	<	0.001980	M	Eu	<	0.000495	O	Na		0.000200	M	Se	<	0.013862	O	Zn		0.000143
O	Al		0.000370	O	Fe		0.000410	M	Nb	<	0.000495	i	Si	<		M	Zr	<	0.000495
M	As	<	0.000495	M	Ga	<	0.000495	M	Nd	<	0.000495	M	Sm	<	0.000495				
M	Au	<	0.000989	M	Gd	<	0.000495	O	Ni	<	0.007631	M	Sn	<	0.000990				
M	B	<	0.039606	M	Ge	<	0.000495	M	Os	<	0.000494	s	Sr	<					
M	Ba		0.006486	M	Hf	<	0.000495	i	P	<		M	Ta	<	0.000495				
M	Be	<	0.000990	M	Hg	<	0.000989	M	Pb	<	0.002970	M	Tb	<	0.000495				
M	Bi	<	0.000495	M	Ho	<	0.000495	M	Pd	<	0.003957	M	Te	<	0.027724				
O	Ca		0.004255	M	In	<	0.000495	M	Pr	<	0.000495	M	Th	<	0.000990				
M	Cd		0.001339	M	Ir	<	0.000494	M	Pt	<	0.002970	M	Ti	<	0.005940				
M	Ce	<	0.004950	O	K	<	0.008184	M	Rb	<	0.002970	M	Tl	<	0.000495				
M	Co	<	0.000495	M	La	<	0.000495	M	Re	<	0.000495	M	Tm	<	0.000495				
O	Cr	<	0.003207	O	Li	<	0.000884	O	Rh	<	0.012829	M	U	<	0.001485				
M	Cs	<	0.000990	M	Lu	<	0.002970	M	Ru	<	0.000989	M	V	<	0.001980				
M	Cu		0.000099	O	Mg		0.000064	i	S	<		M	W	<	0.003960				
M	Dy	<	0.000495	O	Mn		0.000066	M	Sb	<	0.014852	O	Y	<	0.000995				
M	Er	<	0.000495	M	Mo	<	0.001980	M	Sc	<	0.001980	M	Yb	<	0.000495				

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

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 87.62 +2 6 $Sr(H_2O)_{6}^{+2}$

Chemical Compatibility - Soluble in HCl, and HNO_3. Avoid H_2SO_4, HF and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicate, carbonate, hydroxide, oxide, fluoride, sulfate, oxalate, chromate, arsenate and tungstate in neutral aqueous media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1 - 3.5% HNO_3 / LDPE container.

Sr Containing Samples (Preparation and Solution) -Metal (Best dissolved in diluted HNO_3); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Dry ash and dissolution in dilute HCl).

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

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 88 amu	1200 ppt	N/A	72Ge16O, 176Yb+2, 176Lu+2 , 176Hf+2
ICP-OES 407.771 nm	0.0004 / 0.00006 µg/mL	1	U, Ce
ICP-OES 421.552 nm	0.0008 / 0.00004 µg/mL	1	Rb
ICP-OES 460.733 nm	0.07 / 0.003 µg/mL	1	Ce

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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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

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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 888.01
ACCREDITED Reference Material Producer Certificate 888.02

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

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 03, 2023

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

11.2 Lot Expiration Date

- **March 03, 2028**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M6023

R ! 8/5/24

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

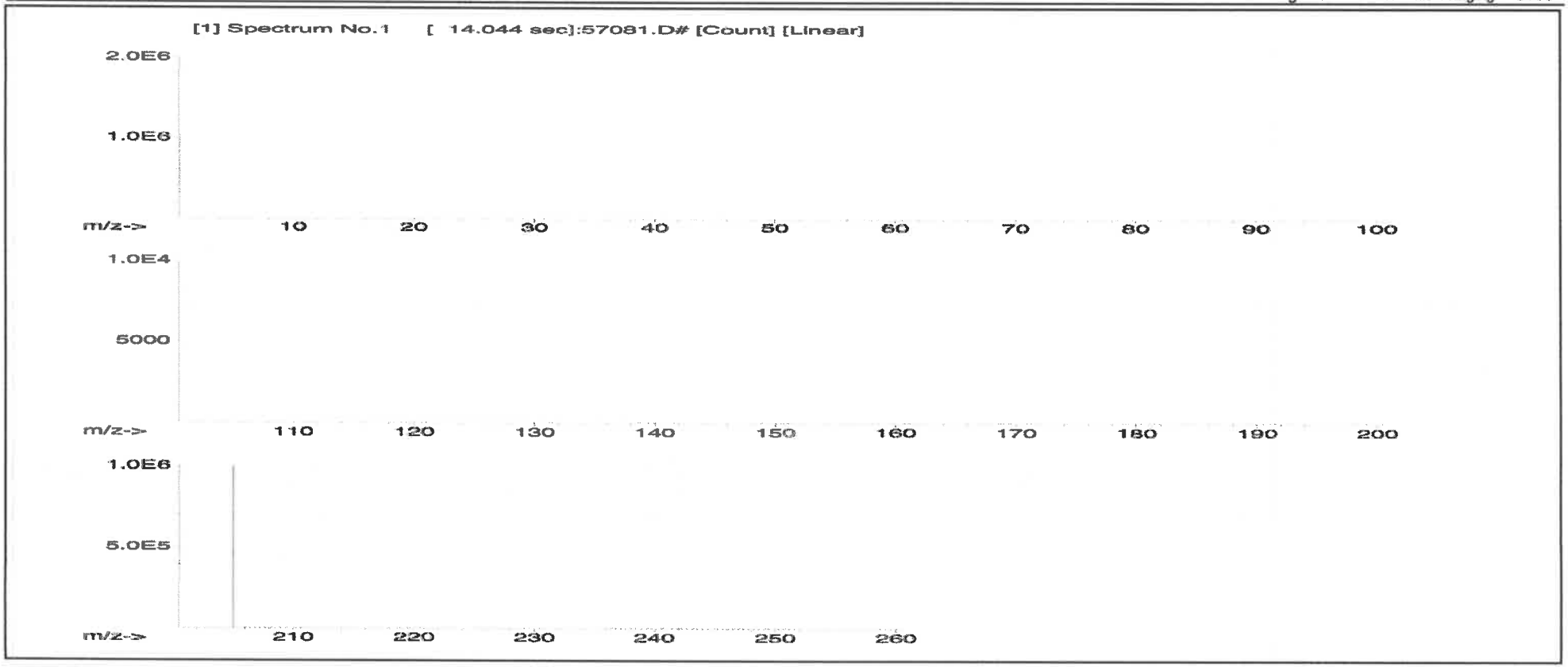
CERTIFIED WEIGHT REPORT:

Part Number:	**57081**			**Lot #**	
Lot Number:	**062724**		**Solvent:**	24002546	Nitric Acid
Description:	**Thallium (Tl)**				
			2%	40.0 (mL)	Nitric Acid
Expiration Date:	062727				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.1	0.10	Flask Uncertainty		

Aleah O'Brady

Formulated By:	Aleah O'Brady	062724
Reviewed By:	Pedro L. Rentas	062724

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Thallium nitrate (Tl)	IN037	BCCF4399	1000	99.999	0.10	77.0	2.5975	2.5977	**1000.1**	**2.0**	10102-45-1	0.1 mg/m3	orl-mus 15mg/kg	3158



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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

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Certified Reference Material CRM

M6021

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

Rc. 8/5/24

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57023**			
Lot Number:	**062424**	24002546	Nitric Acid	
Description:	**Vanadium (V)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	062427			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.3	0.06	Flask Uncertainty	

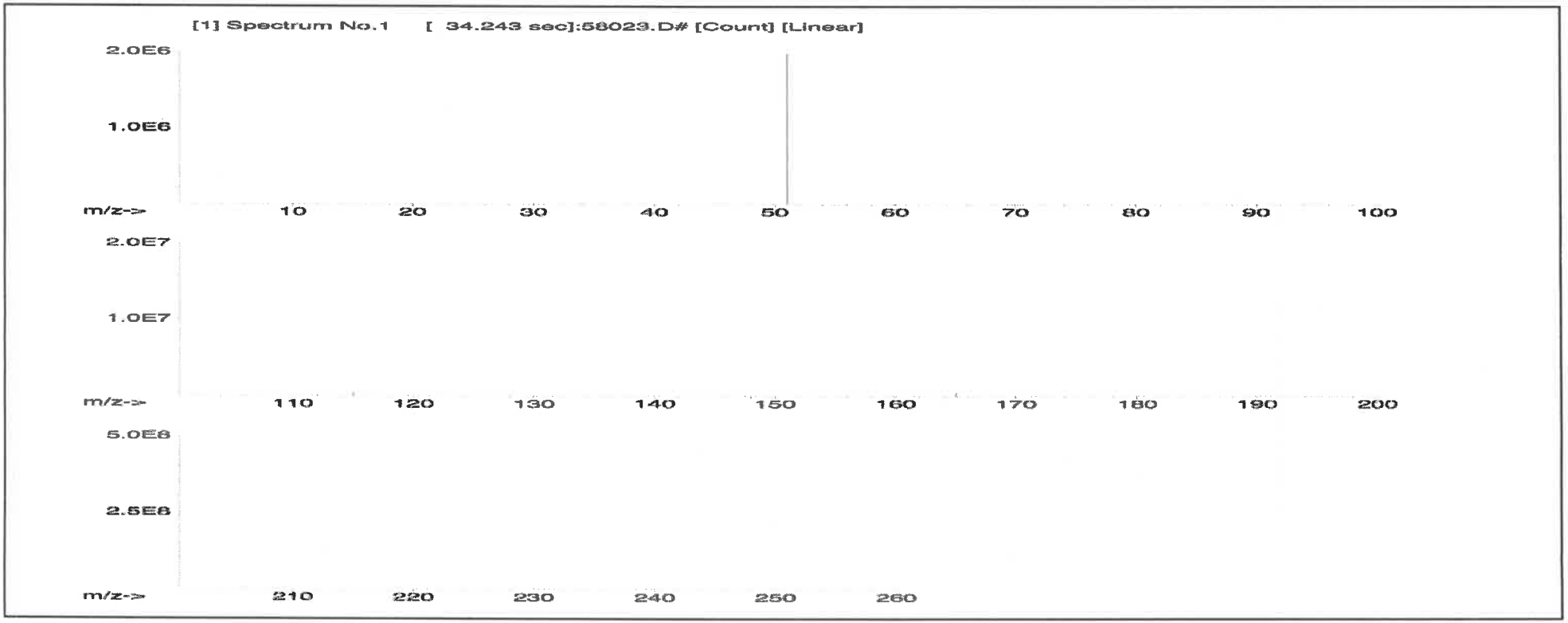
Aleah O'Brady

Formulated By:	Aleah O'Brady	062424

Pedro Rentas

Reviewed By:	Pedro L. Rentas	062424

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium metavanadate (V)	58123	021224	0.1000	200.0	0.084	1000	10000.3	**1000.0**	**2.2**	7803-55-6	0.05 mg/m3	orl-rat 58.1mg/kg	3165



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

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

(T) = Target analyte

Physical Characterization:

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

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SHIPPING DOCUMENTS

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax: (908) 78-8922
www.chemtech.net

Chemtech Project Number: Q2439
COC Number:

CLIENT INFORMATION			PROJECT INFORMATION		BILLING INFORMATION	
COMPANY: Tetra Tech			PROJECT NAME: NWIRP Bethpage		BILL TO:	PO#
ADDRESS: 4433 Corporation Ln, Suite 300			PROJECT #: 112G08005-WE13	LOCATION: RW8	ADDRESS:	
CITY: Virginia Beach	STATE: VA	ZIP: 23462	PROJECT MANAGER: Ernie Wu		CITY:	STATE: ZIP:
ATTENTION: Ernie Wu			E-MAIL: ernie,wu@tetratech.com		ATTENTION:	PHONE:
PHONE: 757-466-4901	FAX: 757-461-4148		PHONE: 757-466-4901	FAX: 757-461-4148		

DATA TURNAROUND INFORMATION

FAX: 10 DAYS*
HARD COPY: 10 DAYS*
EDD 10 DAYS*
* TO BE APPROVED BY CHEMTECH
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

- ☐ RESELTS ONLY
- ☐ RESULTS + QC
- ☐ New Jersey REDUCED
- ☐ New Jersey CLP
- ☐ USEPA CLP
- ☐ New York State ASP "B"
- ☐ New York State ASP "A"
- ☐ Other
- ☐ EDD Format

ANALYSIS

	1,4-Dioxane SW846 8270 SIM	Iron, Total	TSS	TDS					
	1	2	3	4	5	6	7	8	9
PRESERVATIVES		B							
	1	2	3	4	5	6	7	8	9

COMMENTS
<-- Specify Preservatives
A-HCl B-HNO3
C-H2SO4 D-NaOH
E-ICE F-Other

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# of Bottles	1	2	3	4	5	6	7	8	9
1.	RW8-SP100-20250626	GW		x	6/26/25	13:05	2	x	x							
2.	RW8-SP303-20250626	GW		x	6/26/25	13:13	4	x	x	x	x					
3.																
4.																
5.																
6.																
7.																
8.																
9.																
10.																

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE PROSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1.	6/26/25 14:45	1. 6-27-25
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3.		3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant ☐ Cooler Temp 2.2/C
MeOH extraction requires an additional 4oz. Jar for percent solid ☐ Ice in Cooler?:
Comments:

Page of

SHIPPED VIA: CLIENT: ☐ Hand Delivered ☐ Overnight
CHEMTECH: ☐ Picked Up ☐ Overnight

Shipment Complete ☐ YES ☐ NO

WHITE - CHEMTECH COPYFOR RETURN TO CLIENT **YELLOW** - CHEMTECH COPY **PINK** - SAMPLER COPY

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