

DATA PACKAGE METALS

PROJECT NAME : RFP 918

**WESTON SOLUTIONS, INC.
1090 King Georges Post Road
Suite 201
Edison, NJ - 08837-3703
Phone No: 732-585-4410**

**ORDER ID : Q3321
ATTENTION : Smita Sumbaly**



Laboratory Certification ID # 20012



1) METALS DATA	2
2) Signature Page	4
3) Case Narrative	5
4) Qualifier Page	7
5) Conformance/Non Conformance	8
6) QA Checklist	10
7) Chronicle	11
8) Hit Summary	12
9) Sample Data	13
9.1) P001-DS-01	14
10) METALS CALIBRATION DATA	15
10.1) Initial and Continuing Calibration Verification	16
10.2) CRDL Standard For AA & ICP	24
10.3) Initial and Continuing Calibration Blank Summary	25
10.4) Preparation Blank Summary	31
10.5) Interference Check Sample	33
11) METALS QC DATA	35
11.1) Matrix Spike Summary	36
11.2) Post Digest Spike Summary	40
11.3) Duplicate Sample Summary	41
11.4) Laboratory Control Sample Summary	45
11.5) ICP Serial Dilutions	47
12) METALS PREPARATION & INSTRUMENT DATA	49
12.1) ICP Interelement Correction Factors	50
13) PREPARATION & ANALYTICAL SUMMARY	55
13.1) Sample Preparation Summary	56
13.2) Analysis Run Log	58
14) METALS RAW DATA	60
14.1) METALS RAW DATA - ANALYTICAL	61
14.2) LB137500	61
14.3) LB137509	207
14.4) METALS RAW DATA - PREP	209
14.4.1) PB170058	209
14.4.2) PB170072	212
15) Percent Solid	215

Table Of Contents for Q3321

16) Analytical Runlogs	217
17) Standard Prep Logs	223
18) Shipping Document	401
18.1) Chain Of Custody	402
18.2) Lab Certificate	404
18.3) Internal COC	405

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

Cover Page

Order ID : Q3321

Project ID : RFP 918

Client : Weston Solutions, Inc.

Lab Sample Number

Q3321-01
Q3321-02

Client Sample Number

P001-DS-01
P001-DS-01

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: 10/16/2025

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012



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

CASE NARRATIVE

Weston Solutions, Inc.

Project Name: RFP 918

Project # N/A

Order ID # Q3321

Test Name: Mercury, Metals ICP-TAL

A. Number of Samples and Date of Receipt:

2 Solid samples were received on 10/09/2025.

B. Parameters:

According to the Chain of Custody document, the following analyses were requested: Mercury, Metals ICP-TAL. This data package contains results for Mercury, Metals ICP-TAL.

C. Analytical Techniques:

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

D. QA/ QC Samples:

The Holding Times were met for all analysis.

Sample P001-DS-01 was diluted due to high concentrations for Copper, Iron and Silver.

The Blank Spike met requirements for all compounds.

The Duplicate analysis met criteria for all compounds.

The Matrix Spike (OR-02-100925MS) analysis met criteria for all compounds except for Antimony and Potassium due to Chemical Interference during Digestion process.

The Matrix Spike Duplicate (OR-02-100925MSD) analysis met criteria for all compounds except for Antimony, Copper, Potassium and Sodium due to Chemical Interference during Digestion process.

The Blank analysis did not indicate the presence of lab contamination.

The Calibration met the requirements.

The Serial Dilution met criteria for all compounds.

E. Additional Comments:

The Post Digest Spike (OR-02-100925A) analysis met criteria for all compounds except for Antimony, Copper, Potassium and Sodium due to unknown chemical interference of matrix with the addition of spike amount after digestion and before analysis; matrix has suppression effect during addition of spike.

Sample Q3321-01 was oversaturated for Silver parameter so, Silver reported from its 5X Dilution.



Calculation for ICP-AES Soil Sample:

Conversion of Results from mg/L or ppm to mg/kg (Dry Weight Basis):

$$\text{Concentration (mg/kg)} = \frac{C \times V_f \times DF}{W \times S}$$

Where,

C = Instrument value in ppm (The average of all replicate exposures)

V_f = Final digestion volume (mL)

W = Initial aliquot amount (g) (Sample amount taken in prep)

S = % Solids / 100 (Fraction of Percent Solids)

DF = Dilution Factor

Calculation for Hg Soil Sample:

Conversion of Results from µg /L or ppb to mg/kg :

$$\text{Concentration (mg/kg)} = \frac{C \times V_f \times DF}{W \times S} / 1000$$

Where,

C = Instrument response in µg/L from the calibration curve.

V_f = Final prepared (absorbing solution) volume (mL)

W = Initial aliquot amount (g) (Fraction of Sample amount taken in prep)

S = % Solids / 100 (Fraction of Percent Solids)

DF = Dilution Factor

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_____

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: Q3321

MATRIX: Solid

METHOD: 6010D,7471B

	NA	NO	YES
1. Calibration Summary met criteria.			✓
2. ICP Interference Check Sample Results Summary Submitted.			✓
3. Serial Dilution Summary (if applicable) Submitted.			✓
The Serial Dilution met criteria for all compounds.			
4. Laboratory Control Sample Summary (if applicable) Submitted.			✓
5. Blank Contamination - If yes, list compounds and concentrations in each blank:		✓	
6. Matrix Spike/Matrix Spike Duplicate Recoveries Met Criteria		✓	
If not met, list those compounds and their recoveries which fall outside the acceptable range.			
The Matrix Spike (OR-02-100925MS) analysis met criteria for all compounds except for Antimony and Potassium due to Chemical Interference during Digestion process. The Matrix Spike Duplicate (OR-02-100925MSD) analysis met criteria for all compounds except for Antimony, Copper, Potassium and Sodium due to Chemical Interference during Digestion process.			
7. Sample Duplicate Analysis Met QC Criteria			✓
If not met, list those compounds and their recoveries which fall outside the acceptable range.			
8. Digestion Holding Time Met			✓
If not met, list number of days exceeded for each sample:			
9. Analysis Holding Time Met			✓
If not met, list those compounds and their recoveries which fall outside the acceptable range.			

ALLIANCE 284 Sheffield Street, Mountainside New Jersey 07092

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

METALS CONFORMANCE/NON-CONFORMANCE SUMMARY (CONTINUED)

NA NO YES

ADDITIONAL COMMENTS:

The Post Digest Spike (OR-02-100925A) analysis met criteria for all compounds except for Antimony, Copper, Potassium and Sodium due to unknown chemical interference of matrix with the addition of spike amount after digestion and before analysis; matrix has suppression effect during addition of spike.

Sample Q3321-01 was oversaturated for Silver parameter so, Silver reported from its 5X Dilution.

QA REVIEW

Date

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: Q3321

Completed

For thorough review, the report must have the following:

GENERAL:

Are all original paperwork present (chain of custody, record of communication,airbill, sample management lab chronicle, login page)

✓

Check chain-of-custody for proper relinquish/return of samples

✓

Is the chain of custody signed and complete

✓

Check internal chain-of-custody for proper relinquish/return of samples /sample extracts

✓

Collect information for each project id from server. Were all requirements followed

✓

COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody on login page

✓

Do lab numbers and client Ids on cover page agree with the Chain of Custody

✓

CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results

✓

Do requested analyses on Chain of Custody agree with the log-in page

✓

Were the correct method log-in for analysis according to the Analytical Request and Chain of Castody

✓

Were the samples received within hold time

✓

Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle

✓

ANALYTICAL:

Was method requirement followed?

✓

Was client requirement followed?

✓

Does the case narrative summarize all QC failure?

✓

All runlogs and manual integration are reviewed for requirements

✓

All manual calculations and /or hand notations verified

✓

QA Review Signature: SOHIL JODHANI

Date: 10/16/2025

LAB CHRONICLE

OrderID:	Q3321	OrderDate:	10/9/2025 10:30:00 AM
Client:	Weston Solutions, Inc.	Project:	RFP 918
Contact:	Smita Sumbaly	Location:	D41,VOA Ref. #2 Soil

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
Q3321-01	P001-DS-01	SOIL			10/08/25			10/09/25
			Mercury	7471B		10/13/25	10/13/25	
			Metals ICP-TAL	6010D		10/10/25	10/10/25	

Hit Summary Sheet SW-846

SDG No.: Q3321 **Order ID:** Q3321
Client: Weston Solutions, Inc. **Project ID:** RFP 918

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Client ID : P001-DS-01								
Q3321-01	P001-DS-01	SOIL	Aluminum	8880		0.95	5.67	mg/Kg
Q3321-01	P001-DS-01	SOIL	Antimony	18.2		0.25	2.83	mg/Kg
Q3321-01	P001-DS-01	SOIL	Arsenic	27.3		0.22	1.13	mg/Kg
Q3321-01	P001-DS-01	SOIL	Barium	443		0.83	5.67	mg/Kg
Q3321-01	P001-DS-01	SOIL	Beryllium	1.72		0.028	0.34	mg/Kg
Q3321-01	P001-DS-01	SOIL	Cadmium	98.4		0.027	0.34	mg/Kg
Q3321-01	P001-DS-01	SOIL	Calcium	63500		12.6	113	mg/Kg
Q3321-01	P001-DS-01	SOIL	Chromium	462		0.053	0.57	mg/Kg
Q3321-01	P001-DS-01	SOIL	Cobalt	37.9		0.11	1.70	mg/Kg
Q3321-01	P001-DS-01	SOIL	Copper	7160	D	1.25	5.67	mg/Kg
Q3321-01	P001-DS-01	SOIL	Iron	119000	D	22.6	28.3	mg/Kg
Q3321-01	P001-DS-01	SOIL	Lead	1950		0.15	0.68	mg/Kg
Q3321-01	P001-DS-01	SOIL	Magnesium	28800		13.6	113	mg/Kg
Q3321-01	P001-DS-01	SOIL	Manganese	1260		0.16	1.13	mg/Kg
Q3321-01	P001-DS-01	SOIL	Mercury	0.35		0.0090	0.016	mg/Kg
Q3321-01	P001-DS-01	SOIL	Nickel	1050		0.15	2.27	mg/Kg
Q3321-01	P001-DS-01	SOIL	Potassium	1250		31.4	113	mg/Kg
Q3321-01	P001-DS-01	SOIL	Silver	12.3	D	0.68	2.83	mg/Kg
Q3321-01	P001-DS-01	SOIL	Sodium	250		20.2	113	mg/Kg
Q3321-01	P001-DS-01	SOIL	Vanadium	27.1		0.28	2.27	mg/Kg
Q3321-01	P001-DS-01	SOIL	Zinc	1680		0.26	2.27	mg/Kg



SAMPLE DATA

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

Report of Analysis

Client: Weston Solutions, Inc.
Project: RFP 918
Client Sample ID: P001-DS-01
Lab Sample ID: Q3321-01
Level (low/med): low

Date Collected: 10/08/25
Date Received: 10/09/25
SDG No.: Q3321
Matrix: SOIL
% Solid: 78.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7429-90-5	Aluminum	8880		1	0.95	5.67	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050
7440-36-0	Antimony	18.2	N	1	0.25	2.83	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050
7440-38-2	Arsenic	27.3		1	0.22	1.13	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050
7440-39-3	Barium	443		1	0.83	5.67	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050
7440-41-7	Beryllium	1.72		1	0.028	0.34	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050
7440-43-9	Cadmium	98.4		1	0.027	0.34	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050
7440-70-2	Calcium	63500		1	12.6	113	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050
7440-47-3	Chromium	462		1	0.053	0.57	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050
7440-48-4	Cobalt	37.9		1	0.11	1.70	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050
7440-50-8	Copper	7160	DN	5	1.25	5.67	mg/Kg	10/10/25 10:10	10/10/25 16:13	6010D	SW3050
7439-89-6	Iron	119000	D	5	22.6	28.3	mg/Kg	10/10/25 10:10	10/10/25 16:13	6010D	SW3050
7439-92-1	Lead	1950		1	0.15	0.68	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050
7439-95-4	Magnesium	28800		1	13.6	113	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050
7439-96-5	Manganese	1260		1	0.16	1.13	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050
7439-97-6	Mercury	0.35		1	0.0090	0.016	mg/Kg	10/13/25 10:50	10/13/25 14:14	7471B	
7440-02-0	Nickel	1050		1	0.15	2.27	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050
7440-09-7	Potassium	1250	N	1	31.4	113	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050
7782-49-2	Selenium	0.30	U	1	0.30	1.13	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050
7440-22-4	Silver	12.3	D	5	0.68	2.83	mg/Kg	10/10/25 10:10	10/10/25 16:13	6010D	SW3050
7440-23-5	Sodium	250	N	1	20.2	113	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050
7440-28-0	Thallium	0.26	U	1	0.26	2.27	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050
7440-62-2	Vanadium	27.1		1	0.28	2.27	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050
7440-66-6	Zinc	1680		1	0.26	2.27	mg/Kg	10/10/25 10:10	10/10/25 15:45	6010D	SW3050

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

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions, Inc.

SDG No.: Q3321

Contract: ROYF02

Lab Code: ACE

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV68	Mercury	4.11	4.0	103	90 - 110	CV	10/13/2025	13:49	LB137509

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions, Inc.

SDG No.: Q3321

Contract: ROYF02

Lab Code: ACE

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV19	Mercury	4.80	5.0	96	90 - 110	CV	10/13/2025	13:54	LB137509
CCV20	Mercury	4.71	5.0	94	90 - 110	CV	10/13/2025	14:27	LB137509
CCV21	Mercury	4.74	5.0	95	90 - 110	CV	10/13/2025	14:57	LB137509
CCV22	Mercury	4.71	5.0	94	90 - 110	CV	10/13/2025	15:09	LB137509

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions, Inc.

SDG No.: Q3321

Contract: ROYF02

Lab Code: ACE

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Aluminum	7540	8000	94	90 - 110	P	10/10/2025	11:52	LB137500
	Antimony	4010	4000	100	90 - 110	P	10/10/2025	11:52	LB137500
	Arsenic	3890	4000	97	90 - 110	P	10/10/2025	11:52	LB137500
	Barium	7750	8000	97	90 - 110	P	10/10/2025	11:52	LB137500
	Beryllium	196	200	98	90 - 110	P	10/10/2025	11:52	LB137500
	Cadmium	1940	2000	97	90 - 110	P	10/10/2025	11:52	LB137500
	Calcium	19500	20000	98	90 - 110	P	10/10/2025	11:52	LB137500
	Chromium	820	800	102	90 - 110	P	10/10/2025	11:52	LB137500
	Cobalt	1960	2000	98	90 - 110	P	10/10/2025	11:52	LB137500
	Copper	1000	1000	100	90 - 110	P	10/10/2025	11:52	LB137500
	Iron	4140	4000	104	90 - 110	P	10/10/2025	11:52	LB137500
	Lead	3810	4000	95	90 - 110	P	10/10/2025	11:52	LB137500
	Magnesium	19400	20000	97	90 - 110	P	10/10/2025	11:52	LB137500
	Manganese	1930	2000	96	90 - 110	P	10/10/2025	11:52	LB137500
	Nickel	1970	2000	99	90 - 110	P	10/10/2025	11:52	LB137500
	Potassium	20300	20000	102	90 - 110	P	10/10/2025	11:52	LB137500
	Selenium	3900	4000	98	90 - 110	P	10/10/2025	11:52	LB137500
	Silver	984	1000	98	90 - 110	P	10/10/2025	11:52	LB137500
	Sodium	20000	20000	100	90 - 110	P	10/10/2025	11:52	LB137500
	Thallium	3730	4000	93	90 - 110	P	10/10/2025	11:52	LB137500
	Vanadium	1940	2000	97	90 - 110	P	10/10/2025	11:52	LB137500
	Zinc	2030	2000	101	90 - 110	P	10/10/2025	11:52	LB137500

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions, Inc.

SDG No.: Q3321

Contract: ROYF02

Lab Code: ACE

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
LLICV01	Aluminum	91.1	100	91	80 - 120	P	10/10/2025	12:00	LB137500
	Antimony	52.2	50.0	104	80 - 120	P	10/10/2025	12:00	LB137500
	Arsenic	20.8	20.0	104	80 - 120	P	10/10/2025	12:00	LB137500
	Barium	106	100	106	80 - 120	P	10/10/2025	12:00	LB137500
	Beryllium	6.30	6.0	105	80 - 120	P	10/10/2025	12:00	LB137500
	Cadmium	5.95	6.0	99	80 - 120	P	10/10/2025	12:00	LB137500
	Calcium	2080	2000	104	80 - 120	P	10/10/2025	12:00	LB137500
	Chromium	10.8	10.0	108	80 - 120	P	10/10/2025	12:00	LB137500
	Cobalt	30.1	30.0	100	80 - 120	P	10/10/2025	12:00	LB137500
	Copper	22.5	20.0	112	80 - 120	P	10/10/2025	12:00	LB137500
	Iron	118	100	118	80 - 120	P	10/10/2025	12:00	LB137500
	Lead	12.6	12.0	105	80 - 120	P	10/10/2025	12:00	LB137500
	Magnesium	2180	2000	109	80 - 120	P	10/10/2025	12:00	LB137500
	Manganese	20.6	20.0	103	80 - 120	P	10/10/2025	12:00	LB137500
	Nickel	40.7	40.0	102	80 - 120	P	10/10/2025	12:00	LB137500
	Potassium	2110	2000	105	80 - 120	P	10/10/2025	12:00	LB137500
	Selenium	19.3	20.0	96	80 - 120	P	10/10/2025	12:00	LB137500
	Silver	10.7	10.0	107	80 - 120	P	10/10/2025	12:00	LB137500
	Sodium	2150	2000	108	80 - 120	P	10/10/2025	12:00	LB137500
	Thallium	41.3	40.0	103	80 - 120	P	10/10/2025	12:00	LB137500
	Vanadium	39.0	40.0	98	80 - 120	P	10/10/2025	12:00	LB137500
	Zinc	46.5	40.0	116	80 - 120	P	10/10/2025	12:00	LB137500

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions, Inc.

SDG No.: Q3321

Contract: ROYF02

Lab Code: ACE

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV01	Aluminum	9770	10000	98	90 - 110	P	10/10/2025	12:52	LB137500
	Antimony	4920	5000	98	90 - 110	P	10/10/2025	12:52	LB137500
	Arsenic	4910	5000	98	90 - 110	P	10/10/2025	12:52	LB137500
	Barium	9650	10000	96	90 - 110	P	10/10/2025	12:52	LB137500
	Beryllium	255	250	102	90 - 110	P	10/10/2025	12:52	LB137500
	Cadmium	2440	2500	98	90 - 110	P	10/10/2025	12:52	LB137500
	Calcium	25000	25000	100	90 - 110	P	10/10/2025	12:52	LB137500
	Chromium	1000	1000	100	90 - 110	P	10/10/2025	12:52	LB137500
	Cobalt	2430	2500	97	90 - 110	P	10/10/2025	12:52	LB137500
	Copper	1230	1250	98	90 - 110	P	10/10/2025	12:52	LB137500
	Iron	4810	5000	96	90 - 110	P	10/10/2025	12:52	LB137500
	Lead	4860	5000	97	90 - 110	P	10/10/2025	12:52	LB137500
	Magnesium	24400	25000	98	90 - 110	P	10/10/2025	12:52	LB137500
	Manganese	2430	2500	97	90 - 110	P	10/10/2025	12:52	LB137500
	Nickel	2440	2500	97	90 - 110	P	10/10/2025	12:52	LB137500
	Potassium	23600	25000	94	90 - 110	P	10/10/2025	12:52	LB137500
	Selenium	4900	5000	98	90 - 110	P	10/10/2025	12:52	LB137500
	Silver	1240	1250	99	90 - 110	P	10/10/2025	12:52	LB137500
	Sodium	22900	25000	92	90 - 110	P	10/10/2025	12:52	LB137500
	Thallium	4810	5000	96	90 - 110	P	10/10/2025	12:52	LB137500
	Vanadium	2460	2500	98	90 - 110	P	10/10/2025	12:52	LB137500
	Zinc	2510	2500	100	90 - 110	P	10/10/2025	12:52	LB137500
CCV02	Aluminum	9590	10000	96	90 - 110	P	10/10/2025	14:04	LB137500
	Antimony	5060	5000	101	90 - 110	P	10/10/2025	14:04	LB137500
	Arsenic	5000	5000	100	90 - 110	P	10/10/2025	14:04	LB137500
	Barium	9440	10000	94	90 - 110	P	10/10/2025	14:04	LB137500
	Beryllium	235	250	94	90 - 110	P	10/10/2025	14:04	LB137500
	Cadmium	2400	2500	96	90 - 110	P	10/10/2025	14:04	LB137500
	Calcium	24100	25000	96	90 - 110	P	10/10/2025	14:04	LB137500
	Chromium	983	1000	98	90 - 110	P	10/10/2025	14:04	LB137500
	Cobalt	2410	2500	96	90 - 110	P	10/10/2025	14:04	LB137500
	Copper	1230	1250	98	90 - 110	P	10/10/2025	14:04	LB137500
	Iron	4980	5000	100	90 - 110	P	10/10/2025	14:04	LB137500
	Lead	4810	5000	96	90 - 110	P	10/10/2025	14:04	LB137500

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions, Inc.

Contract: ROYF02

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

SDG No.: Q3321

Lab Code: ACE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV02	Magnesium	23800	25000	95	90 - 110	P	10/10/2025	14:04	LB137500
	Manganese	2340	2500	94	90 - 110	P	10/10/2025	14:04	LB137500
	Nickel	2410	2500	96	90 - 110	P	10/10/2025	14:04	LB137500
	Potassium	24600	25000	98	90 - 110	P	10/10/2025	14:04	LB137500
	Selenium	5050	5000	101	90 - 110	P	10/10/2025	14:04	LB137500
	Silver	1240	1250	99	90 - 110	P	10/10/2025	14:04	LB137500
	Sodium	24100	25000	96	90 - 110	P	10/10/2025	14:04	LB137500
	Thallium	4750	5000	95	90 - 110	P	10/10/2025	14:04	LB137500
	Vanadium	2420	2500	97	90 - 110	P	10/10/2025	14:04	LB137500
	Zinc	2490	2500	100	90 - 110	P	10/10/2025	14:04	LB137500
CCV03	Aluminum	10100	10000	101	90 - 110	P	10/10/2025	15:37	LB137500
	Antimony	5040	5000	101	90 - 110	P	10/10/2025	15:37	LB137500
	Arsenic	4960	5000	99	90 - 110	P	10/10/2025	15:37	LB137500
	Barium	9930	10000	99	90 - 110	P	10/10/2025	15:37	LB137500
	Beryllium	239	250	96	90 - 110	P	10/10/2025	15:37	LB137500
	Cadmium	2460	2500	98	90 - 110	P	10/10/2025	15:37	LB137500
	Calcium	24400	25000	98	90 - 110	P	10/10/2025	15:37	LB137500
	Chromium	1010	1000	101	90 - 110	P	10/10/2025	15:37	LB137500
	Cobalt	2480	2500	99	90 - 110	P	10/10/2025	15:37	LB137500
	Copper	1260	1250	101	90 - 110	P	10/10/2025	15:37	LB137500
	Iron	5170	5000	103	90 - 110	P	10/10/2025	15:37	LB137500
	Lead	4900	5000	98	90 - 110	P	10/10/2025	15:37	LB137500
	Magnesium	24800	25000	99	90 - 110	P	10/10/2025	15:37	LB137500
	Manganese	2450	2500	98	90 - 110	P	10/10/2025	15:37	LB137500
	Nickel	2470	2500	99	90 - 110	P	10/10/2025	15:37	LB137500
	Potassium	25900	25000	104	90 - 110	P	10/10/2025	15:37	LB137500
	Selenium	4950	5000	99	90 - 110	P	10/10/2025	15:37	LB137500
	Silver	1260	1250	101	90 - 110	P	10/10/2025	15:37	LB137500
	Sodium	25700	25000	103	90 - 110	P	10/10/2025	15:37	LB137500
	Thallium	4890	5000	98	90 - 110	P	10/10/2025	15:37	LB137500
CCV04	Vanadium	2500	2500	100	90 - 110	P	10/10/2025	15:37	LB137500
	Zinc	2500	2500	100	90 - 110	P	10/10/2025	15:37	LB137500
	Aluminum	10500	10000	105	90 - 110	P	10/10/2025	16:29	LB137500
	Antimony	5320	5000	106	90 - 110	P	10/10/2025	16:29	LB137500

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions, Inc.

Contract: ROYF02

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

SDG No.: Q3321

Lab Code: ACE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV04	Arsenic	5210	5000	104	90 - 110	P	10/10/2025	16:29	LB137500
	Barium	10800	10000	108	90 - 110	P	10/10/2025	16:29	LB137500
	Beryllium	265	250	106	90 - 110	P	10/10/2025	16:29	LB137500
	Cadmium	2580	2500	103	90 - 110	P	10/10/2025	16:29	LB137500
	Calcium	26200	25000	105	90 - 110	P	10/10/2025	16:29	LB137500
	Chromium	1050	1000	105	90 - 110	P	10/10/2025	16:29	LB137500
	Cobalt	2620	2500	105	90 - 110	P	10/10/2025	16:29	LB137500
	Copper	1320	1250	106	90 - 110	P	10/10/2025	16:29	LB137500
	Iron	5410	5000	108	90 - 110	P	10/10/2025	16:29	LB137500
	Lead	5150	5000	103	90 - 110	P	10/10/2025	16:29	LB137500
	Magnesium	26000	25000	104	90 - 110	P	10/10/2025	16:29	LB137500
	Manganese	2680	2500	107	90 - 110	P	10/10/2025	16:29	LB137500
	Nickel	2600	2500	104	90 - 110	P	10/10/2025	16:29	LB137500
	Potassium	26300	25000	105	90 - 110	P	10/10/2025	16:29	LB137500
	Selenium	5230	5000	105	90 - 110	P	10/10/2025	16:29	LB137500
	Silver	1330	1250	107	90 - 110	P	10/10/2025	16:29	LB137500
	Sodium	26500	25000	106	90 - 110	P	10/10/2025	16:29	LB137500
	Thallium	5410	5000	108	90 - 110	P	10/10/2025	16:29	LB137500
	Vanadium	2650	2500	106	90 - 110	P	10/10/2025	16:29	LB137500
	Zinc	2650	2500	106	90 - 110	P	10/10/2025	16:29	LB137500
CCV05	Aluminum	10200	10000	102	90 - 110	P	10/10/2025	17:04	LB137500
	Antimony	5240	5000	105	90 - 110	P	10/10/2025	17:04	LB137500
	Arsenic	5090	5000	102	90 - 110	P	10/10/2025	17:04	LB137500
	Barium	10400	10000	104	90 - 110	P	10/10/2025	17:04	LB137500
	Beryllium	244	250	98	90 - 110	P	10/10/2025	17:04	LB137500
	Cadmium	2530	2500	101	90 - 110	P	10/10/2025	17:04	LB137500
	Calcium	24600	25000	98	90 - 110	P	10/10/2025	17:04	LB137500
	Chromium	1010	1000	100	90 - 110	P	10/10/2025	17:04	LB137500
	Cobalt	2570	2500	103	90 - 110	P	10/10/2025	17:04	LB137500
	Copper	1300	1250	104	90 - 110	P	10/10/2025	17:04	LB137500
	Iron	5240	5000	105	90 - 110	P	10/10/2025	17:04	LB137500
	Lead	5050	5000	101	90 - 110	P	10/10/2025	17:04	LB137500
	Magnesium	25000	25000	100	90 - 110	P	10/10/2025	17:04	LB137500
	Manganese	2560	2500	102	90 - 110	P	10/10/2025	17:04	LB137500

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions, Inc.

SDG No.: Q3321

Contract: ROYF02

Lab Code: ACE

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV05	Nickel	2550	2500	102	90 - 110	P	10/10/2025	17:04	LB137500
	Potassium	25700	25000	103	90 - 110	P	10/10/2025	17:04	LB137500
	Selenium	5140	5000	103	90 - 110	P	10/10/2025	17:04	LB137500
	Silver	1270	1250	102	90 - 110	P	10/10/2025	17:04	LB137500
	Sodium	26100	25000	104	90 - 110	P	10/10/2025	17:04	LB137500
	Thallium	5430	5000	109	90 - 110	P	10/10/2025	17:04	LB137500
	Vanadium	2550	2500	102	90 - 110	P	10/10/2025	17:04	LB137500
	Zinc	2520	2500	101	90 - 110	P	10/10/2025	17:04	LB137500

Metals

- 2b -

CRDL STANDARD FOR AA & ICP

Client: Weston Solutions, Inc.

SDG No.: Q3321

Contract: ROYF02

Lab Code: ACE

Initial Calibration Source: _____

Continuing Calibration Source: _____

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Aluminum	112	100	112	65 - 135	P	10/10/2025	12:15	LB137500
	Antimony	49.2	50.0	98	65 - 135	P	10/10/2025	12:15	LB137500
	Arsenic	19.3	20.0	97	65 - 135	P	10/10/2025	12:15	LB137500
	Barium	98.1	100	98	65 - 135	P	10/10/2025	12:15	LB137500
	Beryllium	6.45	6.0	108	65 - 135	P	10/10/2025	12:15	LB137500
	Cadmium	5.79	6.0	97	65 - 135	P	10/10/2025	12:15	LB137500
	Calcium	2050	2000	102	65 - 135	P	10/10/2025	12:15	LB137500
	Chromium	10.4	10.0	104	65 - 135	P	10/10/2025	12:15	LB137500
	Cobalt	29.4	30.0	98	65 - 135	P	10/10/2025	12:15	LB137500
	Copper	21.8	20.0	109	65 - 135	P	10/10/2025	12:15	LB137500
	Iron	102	100	102	65 - 135	P	10/10/2025	12:15	LB137500
	Lead	11.9	12.0	100	65 - 135	P	10/10/2025	12:15	LB137500
	Magnesium	2080	2000	104	65 - 135	P	10/10/2025	12:15	LB137500
	Manganese	19.3	20.0	96	65 - 135	P	10/10/2025	12:15	LB137500
	Nickel	39.9	40.0	100	65 - 135	P	10/10/2025	12:15	LB137500
	Potassium	1890	2000	94	65 - 135	P	10/10/2025	12:15	LB137500
	Selenium	19.9	20.0	100	65 - 135	P	10/10/2025	12:15	LB137500
	Silver	10.3	10.0	103	65 - 135	P	10/10/2025	12:15	LB137500
	Sodium	1850	2000	93	65 - 135	P	10/10/2025	12:15	LB137500
	Thallium	43.1	40.0	108	65 - 135	P	10/10/2025	12:15	LB137500
	Vanadium	41.5	40.0	104	65 - 135	P	10/10/2025	12:15	LB137500
	Zinc	44.9	40.0	112	65 - 135	P	10/10/2025	12:15	LB137500
CRA	Mercury	0.20	0.2	102	70 - 130	CV	10/13/2025	13:58	LB137509



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

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Weston Solutions, Inc. **SDG No.:** Q3321
Contract: ROYF02 **Lab Code:** ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB68	Mercury	0.076	+/-0.2	U	0.20	CV	10/13/2025	13:51	LB137509

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Weston Solutions, Inc.

SDG No.: Q3321

Contract: ROYF02

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB19	Mercury	0.076	+/-0.2	U	0.20	CV	10/13/2025	13:56	LB137509
CCB20	Mercury	0.076	+/-0.2	U	0.20	CV	10/13/2025	14:29	LB137509
CCB21	Mercury	0.076	+/-0.2	U	0.20	CV	10/13/2025	14:59	LB137509
CCB22	Mercury	0.076	+/-0.2	U	0.20	CV	10/13/2025	15:11	LB137509

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Weston Solutions, Inc.

SDG No.: Q3321

Contract: ROYF02

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Aluminum	44.6	+/-50	J	100	P	10/10/2025	12:11	LB137500
	Antimony	6.76	+/-25	U	50.0	P	10/10/2025	12:11	LB137500
	Arsenic	5.12	+/-10	U	20.0	P	10/10/2025	12:11	LB137500
	Barium	14.6	+/-50	U	100	P	10/10/2025	12:11	LB137500
	Beryllium	0.56	+/-3	U	6.00	P	10/10/2025	12:11	LB137500
	Cadmium	0.50	+/-3	U	6.00	P	10/10/2025	12:11	LB137500
	Calcium	234	+/-1000	U	2000	P	10/10/2025	12:11	LB137500
	Chromium	2.12	+/-5	U	10.0	P	10/10/2025	12:11	LB137500
	Cobalt	2.26	+/-15	U	30.0	P	10/10/2025	12:11	LB137500
	Copper	4.60	+/-10	U	20.0	P	10/10/2025	12:11	LB137500
	Iron	23.4	+/-50	U	100	P	10/10/2025	12:11	LB137500
	Lead	2.30	+/-6	U	12.0	P	10/10/2025	12:11	LB137500
	Magnesium	244	+/-1000	U	2000	P	10/10/2025	12:11	LB137500
	Manganese	5.94	+/-10	U	20.0	P	10/10/2025	12:11	LB137500
	Nickel	3.06	+/-20	U	40.0	P	10/10/2025	12:11	LB137500
	Potassium	918	+/-1000	U	2000	P	10/10/2025	12:11	LB137500
	Selenium	9.64	+/-10	U	20.0	P	10/10/2025	12:11	LB137500
	Silver	1.62	+/-5	U	10.0	P	10/10/2025	12:11	LB137500
	Sodium	868	+/-1000	U	2000	P	10/10/2025	12:11	LB137500
	Thallium	4.38	+/-20	U	40.0	P	10/10/2025	12:11	LB137500
	Vanadium	6.26	+/-20	U	40.0	P	10/10/2025	12:11	LB137500
	Zinc	16.7	+/-20	U	40.0	P	10/10/2025	12:11	LB137500

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client:	Weston Solutions, Inc.	SDG No.:	Q3321
Contract:	ROYF02	Lab Code:	ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Aluminum	12.8	+/-50	J	100	P	10/10/2025	12:57	LB137500
	Antimony	6.76	+/-25	U	50.0	P	10/10/2025	12:57	LB137500
	Arsenic	5.12	+/-10	U	20.0	P	10/10/2025	12:57	LB137500
	Barium	14.6	+/-50	U	100	P	10/10/2025	12:57	LB137500
	Beryllium	0.56	+/-3	U	6.00	P	10/10/2025	12:57	LB137500
	Cadmium	0.50	+/-3	U	6.00	P	10/10/2025	12:57	LB137500
	Calcium	234	+/-1000	U	2000	P	10/10/2025	12:57	LB137500
	Chromium	2.12	+/-5	U	10.0	P	10/10/2025	12:57	LB137500
	Cobalt	2.26	+/-15	U	30.0	P	10/10/2025	12:57	LB137500
	Copper	4.60	+/-10	U	20.0	P	10/10/2025	12:57	LB137500
	Iron	23.4	+/-50	U	100	P	10/10/2025	12:57	LB137500
	Lead	2.30	+/-6	U	12.0	P	10/10/2025	12:57	LB137500
	Magnesium	244	+/-1000	U	2000	P	10/10/2025	12:57	LB137500
	Manganese	5.94	+/-10	U	20.0	P	10/10/2025	12:57	LB137500
	Nickel	3.06	+/-20	U	40.0	P	10/10/2025	12:57	LB137500
	Potassium	918	+/-1000	U	2000	P	10/10/2025	12:57	LB137500
	Selenium	9.64	+/-10	U	20.0	P	10/10/2025	12:57	LB137500
	Silver	1.62	+/-5	U	10.0	P	10/10/2025	12:57	LB137500
	Sodium	868	+/-1000	U	2000	P	10/10/2025	12:57	LB137500
	Thallium	4.38	+/-20	U	40.0	P	10/10/2025	12:57	LB137500
	Vanadium	6.26	+/-20	U	40.0	P	10/10/2025	12:57	LB137500
	Zinc	16.7	+/-20	U	40.0	P	10/10/2025	12:57	LB137500
CCB02	Aluminum	15.0	+/-50	J	100	P	10/10/2025	14:10	LB137500
	Antimony	6.76	+/-25	U	50.0	P	10/10/2025	14:10	LB137500
	Arsenic	5.12	+/-10	U	20.0	P	10/10/2025	14:10	LB137500
	Barium	14.6	+/-50	U	100	P	10/10/2025	14:10	LB137500
	Beryllium	0.56	+/-3	U	6.00	P	10/10/2025	14:10	LB137500
	Cadmium	0.50	+/-3	U	6.00	P	10/10/2025	14:10	LB137500
	Calcium	234	+/-1000	U	2000	P	10/10/2025	14:10	LB137500
	Chromium	2.12	+/-5	U	10.0	P	10/10/2025	14:10	LB137500
	Cobalt	2.26	+/-15	U	30.0	P	10/10/2025	14:10	LB137500
	Copper	4.60	+/-10	U	20.0	P	10/10/2025	14:10	LB137500
	Iron	23.4	+/-50	U	100	P	10/10/2025	14:10	LB137500
	Lead	2.30	+/-6	U	12.0	P	10/10/2025	14:10	LB137500
	Magnesium	244	+/-1000	U	2000	P	10/10/2025	14:10	LB137500
	Manganese	5.94	+/-10	U	20.0	P	10/10/2025	14:10	LB137500
	Nickel	3.06	+/-20	U	40.0	P	10/10/2025	14:10	LB137500
	Potassium	918	+/-1000	U	2000	P	10/10/2025	14:10	LB137500
	Selenium	9.64	+/-10	U	20.0	P	10/10/2025	14:10	LB137500

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client:	Weston Solutions, Inc.	SDG No.:	Q3321
Contract:	ROYF02	Lab Code:	ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB02	Silver	1.62	+/-5	U	10.0	P	10/10/2025	14:10	LB137500
	Sodium	891	+/-1000	J	2000	P	10/10/2025	14:10	LB137500
	Thallium	4.38	+/-20	U	40.0	P	10/10/2025	14:10	LB137500
	Vanadium	6.26	+/-20	U	40.0	P	10/10/2025	14:10	LB137500
	Zinc	16.7	+/-20	U	40.0	P	10/10/2025	14:10	LB137500
CCB03	Aluminum	11.3	+/-50	U	100	P	10/10/2025	15:41	LB137500
	Antimony	6.76	+/-25	U	50.0	P	10/10/2025	15:41	LB137500
	Arsenic	5.12	+/-10	U	20.0	P	10/10/2025	15:41	LB137500
	Barium	14.6	+/-50	U	100	P	10/10/2025	15:41	LB137500
	Beryllium	0.56	+/-3	U	6.00	P	10/10/2025	15:41	LB137500
	Cadmium	0.50	+/-3	U	6.00	P	10/10/2025	15:41	LB137500
	Calcium	234	+/-1000	U	2000	P	10/10/2025	15:41	LB137500
	Chromium	2.12	+/-5	U	10.0	P	10/10/2025	15:41	LB137500
	Cobalt	2.26	+/-15	U	30.0	P	10/10/2025	15:41	LB137500
	Copper	4.60	+/-10	U	20.0	P	10/10/2025	15:41	LB137500
	Iron	23.4	+/-50	U	100	P	10/10/2025	15:41	LB137500
	Lead	2.30	+/-6	U	12.0	P	10/10/2025	15:41	LB137500
	Magnesium	244	+/-1000	U	2000	P	10/10/2025	15:41	LB137500
	Manganese	5.94	+/-10	U	20.0	P	10/10/2025	15:41	LB137500
	Nickel	3.06	+/-20	U	40.0	P	10/10/2025	15:41	LB137500
	Potassium	918	+/-1000	U	2000	P	10/10/2025	15:41	LB137500
	Selenium	9.64	+/-10	U	20.0	P	10/10/2025	15:41	LB137500
	Silver	1.62	+/-5	U	10.0	P	10/10/2025	15:41	LB137500
	Sodium	868	+/-1000	U	2000	P	10/10/2025	15:41	LB137500
	Thallium	4.38	+/-20	U	40.0	P	10/10/2025	15:41	LB137500
	Vanadium	6.26	+/-20	U	40.0	P	10/10/2025	15:41	LB137500
	Zinc	16.7	+/-20	U	40.0	P	10/10/2025	15:41	LB137500
CCB04	Aluminum	13.6	+/-50	J	100	P	10/10/2025	16:33	LB137500
	Antimony	6.76	+/-25	U	50.0	P	10/10/2025	16:33	LB137500
	Arsenic	5.12	+/-10	U	20.0	P	10/10/2025	16:33	LB137500
	Barium	14.6	+/-50	U	100	P	10/10/2025	16:33	LB137500
	Beryllium	0.56	+/-3	U	6.00	P	10/10/2025	16:33	LB137500
	Cadmium	0.50	+/-3	U	6.00	P	10/10/2025	16:33	LB137500
	Calcium	234	+/-1000	U	2000	P	10/10/2025	16:33	LB137500
	Chromium	2.12	+/-5	U	10.0	P	10/10/2025	16:33	LB137500
	Cobalt	2.26	+/-15	U	30.0	P	10/10/2025	16:33	LB137500
	Copper	4.60	+/-10	U	20.0	P	10/10/2025	16:33	LB137500
	Iron	23.4	+/-50	U	100	P	10/10/2025	16:33	LB137500
	Lead	2.30	+/-6	U	12.0	P	10/10/2025	16:33	LB137500

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Weston Solutions, Inc.

SDG No.: Q3321

Contract: ROYF02

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB04	Magnesium	244	+/-1000	U	2000	P	10/10/2025	16:33	LB137500
	Manganese	5.94	+/-10	U	20.0	P	10/10/2025	16:33	LB137500
	Nickel	3.06	+/-20	U	40.0	P	10/10/2025	16:33	LB137500
	Potassium	918	+/-1000	U	2000	P	10/10/2025	16:33	LB137500
	Selenium	9.64	+/-10	U	20.0	P	10/10/2025	16:33	LB137500
	Silver	1.62	+/-5	U	10.0	P	10/10/2025	16:33	LB137500
	Sodium	868	+/-1000	U	2000	P	10/10/2025	16:33	LB137500
	Thallium	4.38	+/-20	U	40.0	P	10/10/2025	16:33	LB137500
	Vanadium	6.26	+/-20	U	40.0	P	10/10/2025	16:33	LB137500
	Zinc	16.7	+/-20	U	40.0	P	10/10/2025	16:33	LB137500
CCB05	Aluminum	11.3	+/-50	U	100	P	10/10/2025	17:08	LB137500
	Antimony	6.76	+/-25	U	50.0	P	10/10/2025	17:08	LB137500
	Arsenic	5.12	+/-10	U	20.0	P	10/10/2025	17:08	LB137500
	Barium	14.6	+/-50	U	100	P	10/10/2025	17:08	LB137500
	Beryllium	0.56	+/-3	U	6.00	P	10/10/2025	17:08	LB137500
	Cadmium	0.50	+/-3	U	6.00	P	10/10/2025	17:08	LB137500
	Calcium	234	+/-1000	U	2000	P	10/10/2025	17:08	LB137500
	Chromium	2.12	+/-5	U	10.0	P	10/10/2025	17:08	LB137500
	Cobalt	2.26	+/-15	U	30.0	P	10/10/2025	17:08	LB137500
	Copper	4.60	+/-10	U	20.0	P	10/10/2025	17:08	LB137500
	Iron	23.4	+/-50	U	100	P	10/10/2025	17:08	LB137500
	Lead	2.30	+/-6	U	12.0	P	10/10/2025	17:08	LB137500
	Magnesium	244	+/-1000	U	2000	P	10/10/2025	17:08	LB137500
	Manganese	5.94	+/-10	U	20.0	P	10/10/2025	17:08	LB137500
	Nickel	3.06	+/-20	U	40.0	P	10/10/2025	17:08	LB137500
	Potassium	918	+/-1000	U	2000	P	10/10/2025	17:08	LB137500
	Selenium	9.64	+/-10	U	20.0	P	10/10/2025	17:08	LB137500
	Silver	1.62	+/-5	U	10.0	P	10/10/2025	17:08	LB137500
	Sodium	868	+/-1000	U	2000	P	10/10/2025	17:08	LB137500
	Thallium	4.38	+/-20	U	40.0	P	10/10/2025	17:08	LB137500
	Vanadium	6.26	+/-20	U	40.0	P	10/10/2025	17:08	LB137500
	Zinc	16.7	+/-20	U	40.0	P	10/10/2025	17:08	LB137500

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Weston Solutions, Inc.

SDG No.: Q3321

Instrument: CV1

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB170072BL		SOLID		Batch Number:	PB170072		Prep Date:	10/13/2025	
	Mercury	0.0080	<0.014	U	0.014	CV	10/13/2025	14:06	LB137509

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Weston Solutions, Inc.

SDG No.: Q3321

Instrument: P4

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB170058BL	SOLID			Batch Number:	PB170058		Prep Date:	10/10/2025	
	Aluminum	0.84	<2.5	U	5.00	P	10/10/2025	14:35	LB137500
	Antimony	0.22	<1.25	U	2.50	P	10/10/2025	14:35	LB137500
	Arsenic	0.19	<0.5	U	1.00	P	10/10/2025	14:35	LB137500
	Barium	0.73	<2.5	U	5.00	P	10/10/2025	14:35	LB137500
	Beryllium	0.025	<0.15	U	0.30	P	10/10/2025	14:35	LB137500
	Cadmium	0.024	<0.15	U	0.30	P	10/10/2025	14:35	LB137500
	Calcium	11.1	<50	U	100	P	10/10/2025	14:35	LB137500
	Chromium	0.047	<0.25	U	0.50	P	10/10/2025	14:35	LB137500
	Cobalt	0.10	<0.75	U	1.50	P	10/10/2025	14:35	LB137500
	Copper	0.22	<0.5	U	1.00	P	10/10/2025	14:35	LB137500
	Iron	3.99	<2.5	U	5.00	P	10/10/2025	14:35	LB137500
	Lead	0.13	<0.3	U	0.60	P	10/10/2025	14:35	LB137500
	Magnesium	12.0	<50	U	100	P	10/10/2025	14:35	LB137500
	Manganese	0.14	<0.5	U	1.00	P	10/10/2025	14:35	LB137500
	Nickel	0.13	<1	U	2.00	P	10/10/2025	14:35	LB137500
	Potassium	27.7	<50	U	100	P	10/10/2025	14:35	LB137500
	Selenium	0.26	<0.5	U	1.00	P	10/10/2025	14:35	LB137500
	Silver	0.12	<0.25	U	0.50	P	10/10/2025	14:35	LB137500
	Sodium	17.8	<50	U	100	P	10/10/2025	14:35	LB137500
	Thallium	0.23	<1	U	2.00	P	10/10/2025	14:35	LB137500
	Vanadium	0.25	<1	U	2.00	P	10/10/2025	14:35	LB137500
	Zinc	0.23	<1	U	2.00	P	10/10/2025	14:35	LB137500

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: <u>Weston Solutions, Inc.</u>	SDG No.: <u>Q3321</u>
Contract: <u>ROYF02</u>	Lab Code: <u>ACE</u>
ICS Source: <u>EPA</u>	Instrument ID: <u>P4</u>

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Low Limit (ug/L)	High Limit (ug/L)	Analysis Date	Analysis Time	Run Number
ICSA01	Aluminum	252000	255000	99	216000	294000	10/10/2025	12:29	LB137500
	Antimony	0.92			-50	50	10/10/2025	12:29	LB137500
	Arsenic	5.57			-20	20	10/10/2025	12:29	LB137500
	Barium	4.33	6.0	72	-94	106	10/10/2025	12:29	LB137500
	Beryllium	1.56			-6	6	10/10/2025	12:29	LB137500
	Cadmium	1.46	1.0	146	-5	7	10/10/2025	12:29	LB137500
	Calcium	243000	245000	99	208000	282000	10/10/2025	12:29	LB137500
	Chromium	49.5	52.0	95	42	62	10/10/2025	12:29	LB137500
	Cobalt	1.26			-30	30	10/10/2025	12:29	LB137500
	Copper	-7.17	2.0	358	-18	22	10/10/2025	12:29	LB137500
	Iron	99700	101000	99	85600	116500	10/10/2025	12:29	LB137500
	Lead	-2.66			-12	12	10/10/2025	12:29	LB137500
	Magnesium	253000	255000	99	216000	294000	10/10/2025	12:29	LB137500
	Manganese	-1.90	7.0	27	-13	27	10/10/2025	12:29	LB137500
	Nickel	3.68	2.0	184	-38	42	10/10/2025	12:29	LB137500
	Potassium	-15.0			0	0	10/10/2025	12:29	LB137500
	Selenium	-4.74			-20	20	10/10/2025	12:29	LB137500
	Silver	1.17			-10	10	10/10/2025	12:29	LB137500
	Sodium	55.0			0	0	10/10/2025	12:29	LB137500
	Thallium	17.3			-40	40	10/10/2025	12:29	LB137500
	Vanadium	7.63			-40	40	10/10/2025	12:29	LB137500
	Zinc	-6.80			-40	40	10/10/2025	12:29	LB137500
ICSAB01	Aluminum	258000	247000	104	209000	285000	10/10/2025	12:33	LB137500
	Antimony	628	618	102	525	711	10/10/2025	12:33	LB137500
	Arsenic	111	104	107	88.4	120	10/10/2025	12:33	LB137500
	Barium	517	537	96	437	637	10/10/2025	12:33	LB137500
	Beryllium	518	495	105	420	570	10/10/2025	12:33	LB137500
	Cadmium	1030	972	106	826	1120	10/10/2025	12:33	LB137500
	Calcium	245000	235000	104	199000	271000	10/10/2025	12:33	LB137500
	Chromium	586	542	108	460	624	10/10/2025	12:33	LB137500
	Cobalt	521	476	110	404	548	10/10/2025	12:33	LB137500
	Copper	492	511	96	434	588	10/10/2025	12:33	LB137500
	Iron	107000	99300	108	84400	114500	10/10/2025	12:33	LB137500
	Lead	47.9	49.0	98	37	61	10/10/2025	12:33	LB137500
	Magnesium	258000	248000	104	210000	286000	10/10/2025	12:33	LB137500
	Manganese	499	507	98	430	584	10/10/2025	12:33	LB137500
	Nickel	1040	954	109	810	1100	10/10/2025	12:33	LB137500
	Potassium	-27.6			0	0	10/10/2025	12:33	LB137500
	Selenium	50.3	46.0	109	26	66	10/10/2025	12:33	LB137500
	Silver	222	201	110	170	232	10/10/2025	12:33	LB137500
	Sodium	113			0	0	10/10/2025	12:33	LB137500
	Thallium	113	108	105	68	148	10/10/2025	12:33	LB137500

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: <u>Weston Solutions, Inc.</u>	SDG No.: <u>Q3321</u>
Contract: <u>ROYF02</u>	Lab Code: <u>ACE</u>
ICS Source: <u>EPA</u>	Instrument ID: <u>P4</u>

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Low Limit (ug/L)	High Limit (ug/L)	Analysis Date	Analysis Time	Run Number
ICSAB01	Vanadium	513	491	104	417	565	10/10/2025	12:33	LB137500
	Zinc	1090	952	114	809	1095	10/10/2025	12:33	LB137500



METAL QC DATA

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

metals
- 5a -
MATRIX SPIKE SUMMARY

client: <u>Weston Solutions, Inc.</u>	level: <u>low</u>	sdg no.: <u>Q3321</u>
contract: <u>ROYF02</u>		lab code: <u>ACE</u>
matrix: <u>Solid</u>	sample id: <u>Q3322-01</u>	client id: <u>OR-02-100925MS</u>
Percent Solids for Sample: 93	Spiked ID: Q3322-01MS	Percent Solids for Spike Sample: 93

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	75 - 125	8120		8280		92.7	-175		P
Antimony	mg/Kg	75 - 125	15.7		2.40	U	37.1	42	N	P
Arsenic	mg/Kg	75 - 125	33.9		2.89		37.1	84		P
Barium	mg/Kg	75 - 125	43.6		35.7		9.3	86		P
Beryllium	mg/Kg	75 - 125	8.31		0.52		9.3	84		P
Cadmium	mg/Kg	75 - 125	9.62		0.46		9.3	99		P
Calcium	mg/Kg	75 - 125	5130		3470		46.3	3595		P
Chromium	mg/Kg	75 - 125	26.3		9.23		18.5	92		P
Cobalt	mg/Kg	75 - 125	17.2		7.47		9.3	105		P
Copper	mg/Kg	75 - 125	25.4		14.9		13.9	76		P
Iron	mg/Kg	75 - 125	14600		14000		140	451		P
Lead	mg/Kg	75 - 125	77.8		23.3		46.3	118		P
Magnesium	mg/Kg	75 - 125	3850		3290		92.7	604		P
Manganese	mg/Kg	75 - 125	227		238		9.3	-124		P
Nickel	mg/Kg	75 - 125	36.1		12.3		23.2	103		P
Potassium	mg/Kg	75 - 125	1230		636		460	129	N	P
Selenium	mg/Kg	75 - 125	71.2		0.96	U	92.7	77		P
Silver	mg/Kg	75 - 125	3.54		0.24	J	3.5	94		P
Sodium	mg/Kg	75 - 125	562		414		140	105		P
Thallium	mg/Kg	75 - 125	80.6		1.92	U	92.7	87		P
Vanadium	mg/Kg	75 - 125	35.8		25.1		13.9	77		P
Zinc	mg/Kg	75 - 125	43.1		34.6		9.3	91		P

metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: <u>Weston Solutions, Inc.</u>	level: <u>low</u>	sdg no.: <u>Q3321</u>
contract: <u>ROYF02</u>		lab code: <u>ACE</u>
matrix: <u>Solid</u>	sample id: <u>Q3322-01</u>	client id: <u>OR-02-100925MSD</u>
Percent Solids for Sample: 93	Spiked ID: Q3322-01MSD	Percent Solids for Spike Sample: 93

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	75 - 125	8270		8280		94.3	-13		P
Antimony	mg/Kg	75 - 125	19.0		2.40	U	37.7	50	N	P
Arsenic	mg/Kg	75 - 125	34.4		2.89		37.7	83		P
Barium	mg/Kg	75 - 125	43.9		35.7		9.4	88		P
Beryllium	mg/Kg	75 - 125	7.95		0.52		9.4	79		P
Cadmium	mg/Kg	75 - 125	9.49		0.46		9.4	96		P
Calcium	mg/Kg	75 - 125	4310		3470		47.2	1769		P
Chromium	mg/Kg	75 - 125	26.9		9.23		18.9	94		P
Cobalt	mg/Kg	75 - 125	16.8		7.47		9.4	99		P
Copper	mg/Kg	75 - 125	24.8		14.9		14.1	70	N	P
Iron	mg/Kg	75 - 125	15100		14000		140	773		P
Lead	mg/Kg	75 - 125	71.7		23.3		47.2	102		P
Magnesium	mg/Kg	75 - 125	3690		3290		94.3	420		P
Manganese	mg/Kg	75 - 125	223		238		9.4	-167		P
Nickel	mg/Kg	75 - 125	35.7		12.3		23.6	99		P
Potassium	mg/Kg	75 - 125	1250		636		470	130	N	P
Selenium	mg/Kg	75 - 125	72.5		0.96	U	94.3	77		P
Silver	mg/Kg	75 - 125	3.86		0.24	J	3.5	103		P
Sodium	mg/Kg	75 - 125	591		414		140	126	N	P
Thallium	mg/Kg	75 - 125	82.2		1.92	U	94.3	87		P
Vanadium	mg/Kg	75 - 125	36.1		25.1		14.1	78		P
Zinc	mg/Kg	75 - 125	41.8		34.6		9.4	77		P

metals
- 5a -
MATRIX SPIKE SUMMARY

client: <u>Weston Solutions, Inc.</u>	level: <u>low</u>	sdg no.: <u>Q3321</u>
contract: <u>ROYF02</u>		lab code: <u>ACE</u>
matrix: <u>Solid</u>	sample id: <u>Q3327-01</u>	client id: <u>HADLEY-ROAD-TPMS</u>
Percent Solids for Sample: 88.2	Spiked ID: Q3327-01MS	Percent Solids for Spike Sample: 88.2

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	mg/Kg	80 - 120	0.25		0.013	J	0.28	85		CV

metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: <u>Weston Solutions, Inc.</u>	level: <u>low</u>	sdg no.: <u>Q3321</u>
contract: <u>ROYF02</u>		lab code: <u>ACE</u>
matrix: <u>Solid</u>	sample id: <u>Q3327-01</u>	client id: <u>HADLEY-ROAD-TPMSD</u>
Percent Solids for Sample: 88.2	Spiked ID: Q3327-01MSD	Percent Solids for Spike Sample: 88.2

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	mg/Kg	80 - 120	0.27		0.013	J	0.29	89		CV

Metals
- 5b -
POST DIGEST SPIKE SUMMARY

Client: <u>Weston Solutions, Inc.</u>	SDG No.: <u>Q3321</u>	
Contract: <u>ROYF02</u>	Lab Code: <u>ACE</u>	
Matrix: <u>Solid</u>	Level: <u>LOW</u>	Client ID: <u>OR-02-100925A</u>
Sample ID: <u>Q3322-01</u>	Spiked ID: <u>Q3322-01A</u>	

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Antimony	mg/Kg	75 - 125	5.53		2.40	U	38.4	14	N	P
Copper	mg/Kg	75 - 125	19.2		14.9		14.4	30	N	P
Potassium	mg/Kg	75 - 125	817		636		480	38	N	P
Sodium	mg/Kg	75 - 125	514		414		140	71	N	P

Metals

- 6 -

DUPLICATE SAMPLE SUMMARY

Client: Weston Solutions, Inc. **Level:** LOW **SDG No.:** Q3321
Contract: ROYF02 **Lab Code:** ACE
Matrix: Solid **Sample ID:** Q3322-01 **Client ID:** OR-02-100925DUP
Percent Solids for Sample: 93 **Duplicate ID** Q3322-01DUP **Percent Solids for Spike Sample:** 93

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	8280		8360		1		P
Antimony	mg/Kg	20	2.40	U	2.40	U			P
Arsenic	mg/Kg	20	2.89		2.99		3		P
Barium	mg/Kg	20	35.7		35.5		1		P
Beryllium	mg/Kg	20	0.52		0.52		1		P
Cadmium	mg/Kg	20	0.46		0.49		7		P
Calcium	mg/Kg	20	3470		3420		1		P
Chromium	mg/Kg	20	9.23		9.72		5		P
Cobalt	mg/Kg	20	7.47		7.76		4		P
Copper	mg/Kg	20	14.9		15.4		3		P
Iron	mg/Kg	20	14000		14600		4		P
Lead	mg/Kg	20	23.3		24.3		4		P
Magnesium	mg/Kg	20	3290		3310		1		P
Manganese	mg/Kg	20	238		233		2		P
Nickel	mg/Kg	20	12.3		12.7		3		P
Potassium	mg/Kg	20	636		682		7		P
Selenium	mg/Kg	20	0.96	U	0.96	U			P
Silver	mg/Kg	20	0.24	J	0.28	J	13		P
Sodium	mg/Kg	20	414		436		5		P
Thallium	mg/Kg	20	1.92	U	1.92	U			P
Vanadium	mg/Kg	20	25.1		25.2		0		P
Zinc	mg/Kg	20	34.6		35.1		1		P

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

Metals

- 6 -

DUPLICATE SAMPLE SUMMARY

Client: Weston Solutions, Inc. **Level:** LOW **SDG No.:** Q3321
Contract: ROYF02 **Lab Code:** ACE
Matrix: Solid **Sample ID:** Q3322-01MS **Client ID:** OR-02-100925MSD
Percent Solids for Sample: 93 **Duplicate ID** Q3322-01MSD **Percent Solids for Spike Sample:** 93

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	8120		8270		2		P
Antimony	mg/Kg	20	15.7		19.0		19		P
Arsenic	mg/Kg	20	33.9		34.4		1		P
Barium	mg/Kg	20	43.6		43.9		1		P
Beryllium	mg/Kg	20	8.31		7.95		4		P
Cadmium	mg/Kg	20	9.62		9.49		1		P
Calcium	mg/Kg	20	5130		4310		17		P
Chromium	mg/Kg	20	26.3		26.9		2		P
Cobalt	mg/Kg	20	17.2		16.8		2		P
Copper	mg/Kg	20	25.4		24.8		2		P
Iron	mg/Kg	20	14600		15100		3		P
Lead	mg/Kg	20	77.8		71.7		8		P
Magnesium	mg/Kg	20	3850		3690		4		P
Manganese	mg/Kg	20	227		223		2		P
Nickel	mg/Kg	20	36.1		35.7		1		P
Potassium	mg/Kg	20	1230		1250		2		P
Selenium	mg/Kg	20	71.2		72.5		2		P
Silver	mg/Kg	20	3.54		3.86		9		P
Sodium	mg/Kg	20	562		591		5		P
Thallium	mg/Kg	20	80.6		82.2		2		P
Vanadium	mg/Kg	20	35.8		36.1		1		P
Zinc	mg/Kg	20	43.1		41.8		3		P

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

Metals

- 6 -

DUPLICATE SAMPLE SUMMARY

Client:	<u>Weston Solutions, Inc.</u>	Level:	<u>LOW</u>	SDG No.:	<u>Q3321</u>
Contract:	<u>ROYF02</u>			Lab Code:	<u>ACE</u>
Matrix:	<u>Solid</u>	Sample ID:	<u>Q3327-01</u>	Client ID:	<u>HADLEY-ROAD-TPDUP</u>
Percent Solids for Sample:	88.2	Duplicate ID	Q3327-01DUP	Percent Solids for Spike Sample:	88.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Mercury	mg/Kg	20	0.013	J	0.012	J	8		CV

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

Metals

- 6 -

DUPLICATE SAMPLE SUMMARY

Client:	<u>Weston Solutions, Inc.</u>	Level:	<u>LOW</u>	SDG No.:	<u>Q3321</u>
Contract:	<u>ROYF02</u>			Lab Code:	<u>ACE</u>
Matrix:	<u>Solid</u>	Sample ID:	<u>Q3327-01MS</u>	Client ID:	<u>HADLEY-ROAD-TPMSD</u>
Percent Solids for Sample:	88.2	Duplicate ID	Q3327-01MSD	Percent Solids for Spike Sample:	88.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Mercury	mg/Kg	20	0.25		0.27		8		CV

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

Metals

- 7 -

LABORATORY CONTROL SAMPLE SUMMARY

Client:	<u>Weston Solutions, Inc.</u>	SDG No.:	<u>Q3321</u>
Contract:	<u>ROYF02</u>	Lab Code:	<u>ACE</u>

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB170058BS							
Aluminum	mg/Kg	100	96.5		96	80 - 120	P
Antimony	mg/Kg	40.0	40.7		102	80 - 120	P
Arsenic	mg/Kg	40.0	38.5		96	80 - 120	P
Barium	mg/Kg	10.0	9.35		94	80 - 120	P
Beryllium	mg/Kg	10.0	9.04		90	80 - 120	P
Cadmium	mg/Kg	10.0	9.22		92	80 - 120	P
Calcium	mg/Kg	50.0	45.8	J	92	80 - 120	P
Chromium	mg/Kg	20.0	20.1		100	80 - 120	P
Cobalt	mg/Kg	10.0	9.53		95	80 - 120	P
Copper	mg/Kg	15.0	15.1		101	80 - 120	P
Iron	mg/Kg	150	165		110	80 - 120	P
Lead	mg/Kg	50.0	46.3		93	80 - 120	P
Magnesium	mg/Kg	100	97.0	J	97	80 - 120	P
Manganese	mg/Kg	10.0	9.47		95	80 - 120	P
Nickel	mg/Kg	25.0	23.9		96	80 - 120	P
Potassium	mg/Kg	500	547		109	80 - 120	P
Selenium	mg/Kg	100	97.2		97	80 - 120	P
Silver	mg/Kg	3.8	3.85		101	80 - 120	P
Sodium	mg/Kg	150	169		113	80 - 120	P
Thallium	mg/Kg	100	81.6		82	80 - 120	P
Vanadium	mg/Kg	15.0	14.5		97	80 - 120	P
Zinc	mg/Kg	10.0	10.5		105	80 - 120	P

Metals

- 7 -

LABORATORY CONTROL SAMPLE SUMMARY

Client: Weston Solutions, Inc.

SDG No.: Q3321

Contract: ROYF02

Lab Code: ACE

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB170072BS Mercury	mg/Kg	0.28	0.25		88	80 - 120	CV

Metals
-9 -
ICP SERIAL DILUTIONS

SAMPLE NO.

OR-02-100925L

Lab Name: Alliance **Contract:** ROYF02
Lab Code: ACE **Lb No.:** lb137500 **Lab Sample ID :** Q3322-01L **SDG No.:** Q3321
Matrix (soil/water): Solid **Level (low/med):** LOW
Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)		Serial Dilution Result (S)		% Differ-ence		Q	M
Aluminum	8280		9200		11			P
Antimony	2.40	U	12.0	U				P
Arsenic	2.89		2.60	J	10			P
Barium	35.7		38.5		8			P
Beryllium	0.52		0.64	J	23			P
Cadmium	0.46		1.44	U	100.0			P
Calcium	3470		3950		14			P
Chromium	9.23		10.9		18			P
Cobalt	7.47		7.13	J	4			P
Copper	14.9		17.7		19			P
Iron	14000		16200		16			P
Lead	23.3		23.6		1			P
Magnesium	3290		3730		13			P
Manganese	238		267		12			P
Nickel	12.3		12.0		2			P
Potassium	636		771		21			P
Selenium	0.96	U	4.80	U				P
Silver	0.24	J	2.40	U	100.0			P
Sodium	414		455	J	10			P
Thallium	1.92	U	9.60	U				P
Vanadium	25.1		29.1		16			P
Zinc	34.6		39.5		14			P

Metals
-9 -
ICP SERIAL DILUTIONS

SAMPLE NO.

HADLEY-ROAD-TPL

Lab Name: Alliance **Contract:** ROYF02
Lab Code: ACE **Lb No.:** lb137509 **Lab Sample ID :** Q3327-01L **SDG No.:** Q3321
Matrix (soil/water): Solid **Level (low/med):** LOW
Concentration Units: mg/Kg

Analyte	Initial Sample Result (I) C	Serial Dilution Result (S) C	% Differ- ence	Q	M
Mercury	0.013 J	0.071 U	100.0		CV



METAL PREPARATION & INSTRUMENT DATA

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

Metals

- 11 -

ICP INTERELEMEN CORRECTION FACTORS

Client: Weston Solutions, Inc.

SDG No.: Q3321

Contract: ROYF02

Lab Code: ACE

Instrument ID: _____

Date: _____

Interement Correction Factors (apparent ppb analyte/ppm interferent)

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

Metals

- 11 -

ICP INTERELEMEN CORRECTION FACTORS

Client: Weston Solutions, Inc.

SDG No.: Q3321

Contract: ROYF02

Lab Code: ACE

Instrument ID: _____

Date: _____

Interement Correction Factors (apparent ppb analyte/ppm interferent)

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

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Weston Solutions, Inc.

SDG No.: Q3321

Contract: ROYF02

Lab Code: ACE

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

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

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Weston Solutions, Inc.

SDG No.: Q3321

Contract: ROYF02

Lab Code: ACE

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

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

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Weston Solutions, Inc.

SDG No.: Q3321

Contract: ROYF02

Lab Code: ACE

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

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

METAL PREPARATION & ANALYICAL SUMMARY

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

Metals
- 13 -

SAMPLE PREPARATION SUMMARY

Client: Weston Solutions, Inc.

SDG No.: Q3321

Contract: ROYF02

Lab Code: ACE

Method: _____

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB170058							
PB170058BL	PB170058BL	MB	SOLID	10/10/2025	2.00	100.0	100.00
PB170058BS	PB170058BS	LCS	SOLID	10/10/2025	2.00	100.0	100.00
Q3321-01	P001-DS-01	SAM	SOLID	10/10/2025	2.25	100.0	78.40
Q3322-01DUP	OR-02-100925DUP	DUP	SOLID	10/10/2025	2.24	100.0	93.00
Q3322-01MS	OR-02-100925MS	MS	SOLID	10/10/2025	2.32	100.0	93.00
Q3322-01MSD	OR-02-100925MSD	MSD	SOLID	10/10/2025	2.28	100.0	93.00

Metals
- 13 -

SAMPLE PREPARATION SUMMARY

Client: Weston Solutions, Inc.

SDG No.: Q3321

Contract: ROYF02

Lab Code: ACE

Method: _____

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB170072							
PB170072BL	PB170072BL	MB	SOLID	10/13/2025	0.50	35.0	100.00
PB170072BS	PB170072BS	LCS	SOLID	10/13/2025	0.50	35.0	100.00
Q3321-01	P001-DS-01	SAM	SOLID	10/13/2025	0.57	35.0	78.40
Q3327-01DUP	HADLEY-ROAD-TPDUP	DUP	SOLID	10/13/2025	0.55	35.0	88.20
Q3327-01MS	HADLEY-ROAD-TPMS	MS	SOLID	10/13/2025	0.56	35.0	88.20
Q3327-01MSD	HADLEY-ROAD-TPMSD	MSD	SOLID	10/13/2025	0.54	35.0	88.20

metals
- 14 -
ANALYSIS RUN LOG

Client: Weston Solutions, Inc.
Contract: ROYF02
Lab code: ACE
Sdg no.: Q3321
Instrument id number: _____

Method: _____

Run number: LB137500
Start date: 10/10/2025
End date: 10/10/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1127	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S1	S1	1	1131	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S2	S2	1	1136	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S3	S3	1	1140	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S4	S4	1	1144	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S5	S5	1	1148	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
ICV01	ICV01	1	1152	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
LLICV01	LLICV01	1	1200	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
ICB01	ICB01	1	1211	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CRI01	CRI01	1	1215	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
ICSA01	ICSA01	1	1229	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
ICSAB01	ICSAB01	1	1233	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCV01	CCV01	1	1252	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCB01	CCB01	1	1257	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCV02	CCV02	1	1404	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCB02	CCB02	1	1410	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
PB170058BL	PB170058BL	1	1435	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
PB170058BS	PB170058BS	1	1448	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCV03	CCV03	1	1537	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCB03	CCB03	1	1541	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q3321-01	P001-DS-01	1	1545	Al,As,Ba,Be,Ca,Cd,Co,Cr,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q3322-01DUP	OR-02-100925DUP	1	1554	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q3322-01L	OR-02-100925L	5	1558	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q3322-01MS	OR-02-100925MS	1	1602	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q3322-01MSD	OR-02-100925MSD	1	1606	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q3322-01A	OR-02-100925A	1	1609	Cu,K,Na,Sb
Q3321-01	P001-DS-01	5	1613	Ag,Cu,Fe
CCV04	CCV04	1	1629	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCB04	CCB04	1	1633	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCV05	CCV05	1	1704	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCB05	CCB05	1	1708	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn

metals
- 14 -
ANALYSIS RUN LOG

Client: Weston Solutions, Inc.

Contract: ROYF02

Lab code: ACE

Sdg no.: Q3321

Instrument id number: _____

Method: _____

Run number: LB137509

Start date: 10/13/2025

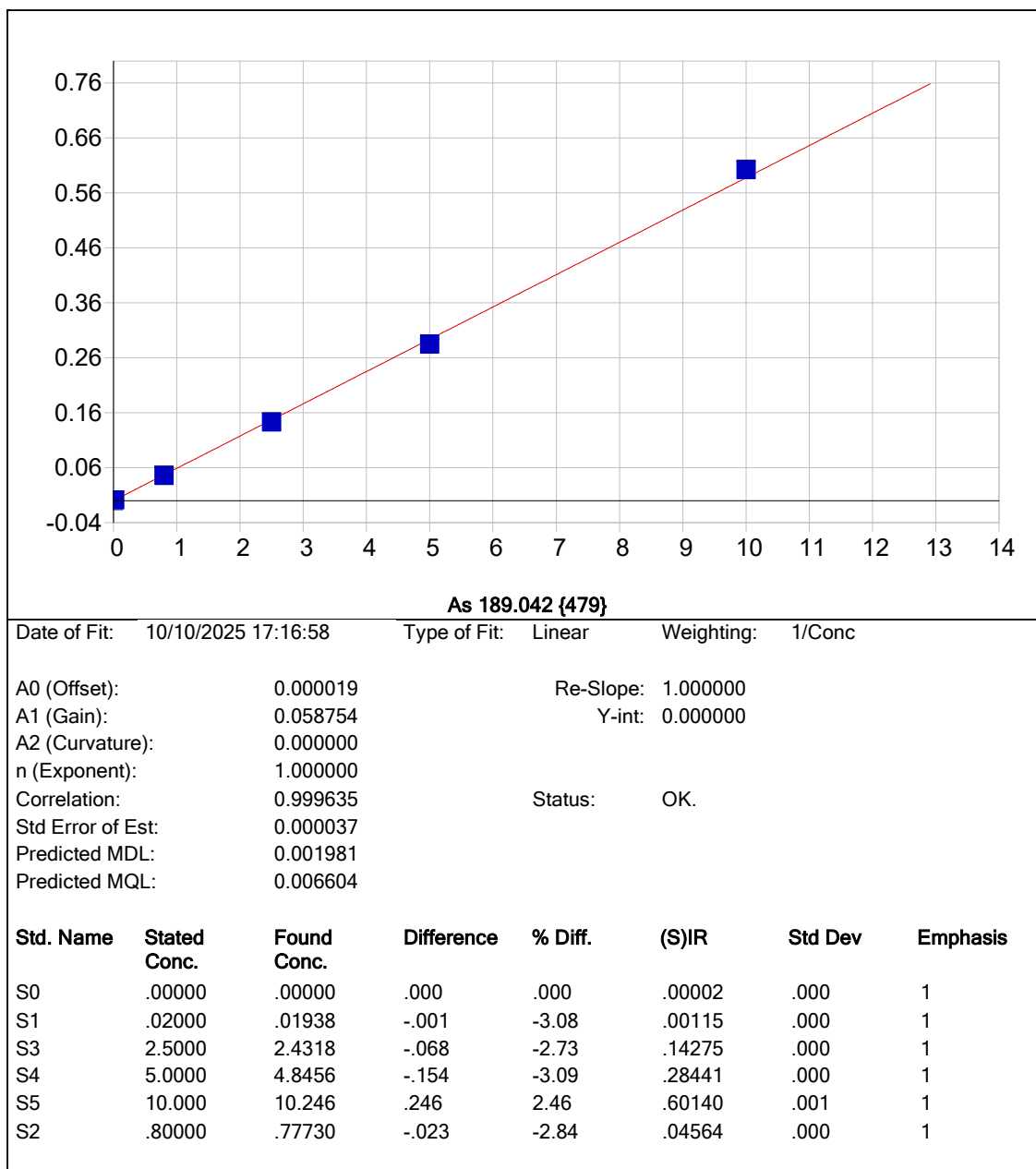
End date: 10/13/2025

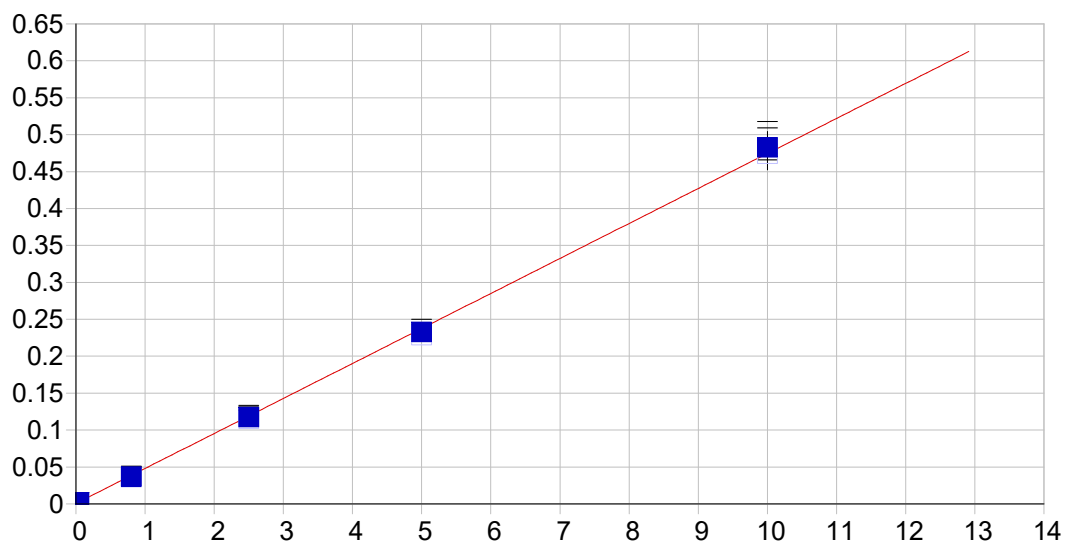
Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1327	HG
S0.2	S0.2	1	1330	HG
S2.5	S2.5	1	1332	HG
S5	S5	1	1334	HG
S7.5	S7.5	1	1337	HG
S10	S10	1	1343	HG
ICV68	ICV68	1	1349	HG
ICB68	ICB68	1	1351	HG
CCV19	CCV19	1	1354	HG
CCB19	CCB19	1	1356	HG
CRA	CRA	1	1358	HG
PB170072BL	PB170072BL	1	1406	HG
PB170072BS	PB170072BS	1	1411	HG
Q3321-01	P001-DS-01	1	1414	HG
CCV20	CCV20	1	1427	HG
CCB20	CCB20	1	1429	HG
Q3327-01DUP	HADLEY-ROAD-TPDUP	1	1449	HG
Q3327-01MS	HADLEY-ROAD-TPMS	1	1452	HG
Q3327-01MSD	HADLEY-ROAD-TPMSD	1	1454	HG
CCV21	CCV21	1	1457	HG
CCB21	CCB21	1	1459	HG
Q3327-01L	HADLEY-ROAD-TPL	5	1504	HG
CCV22	CCV22	1	1509	HG
CCB22	CCB22	1	1511	HG



METAL RAW DATA

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18



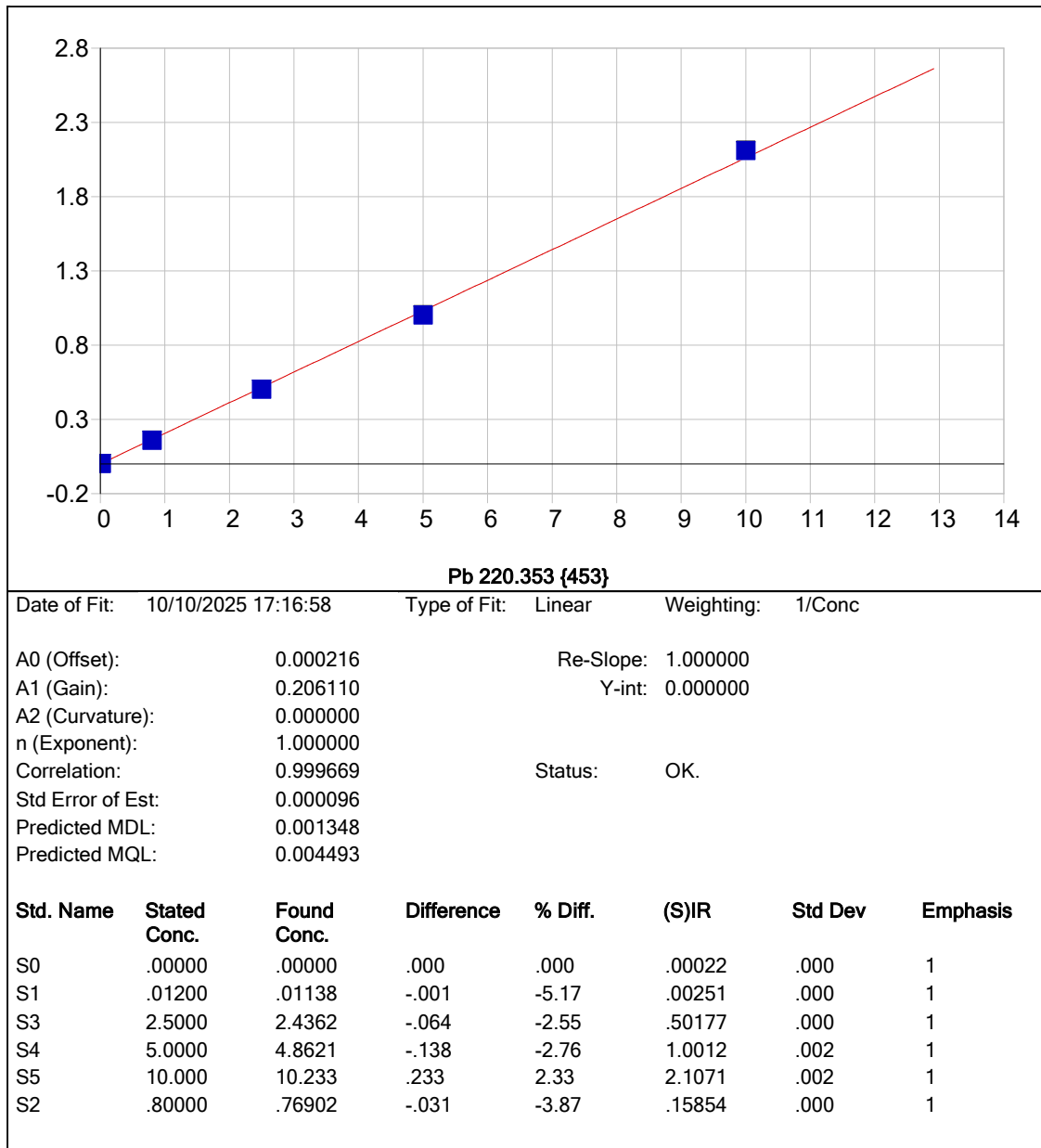


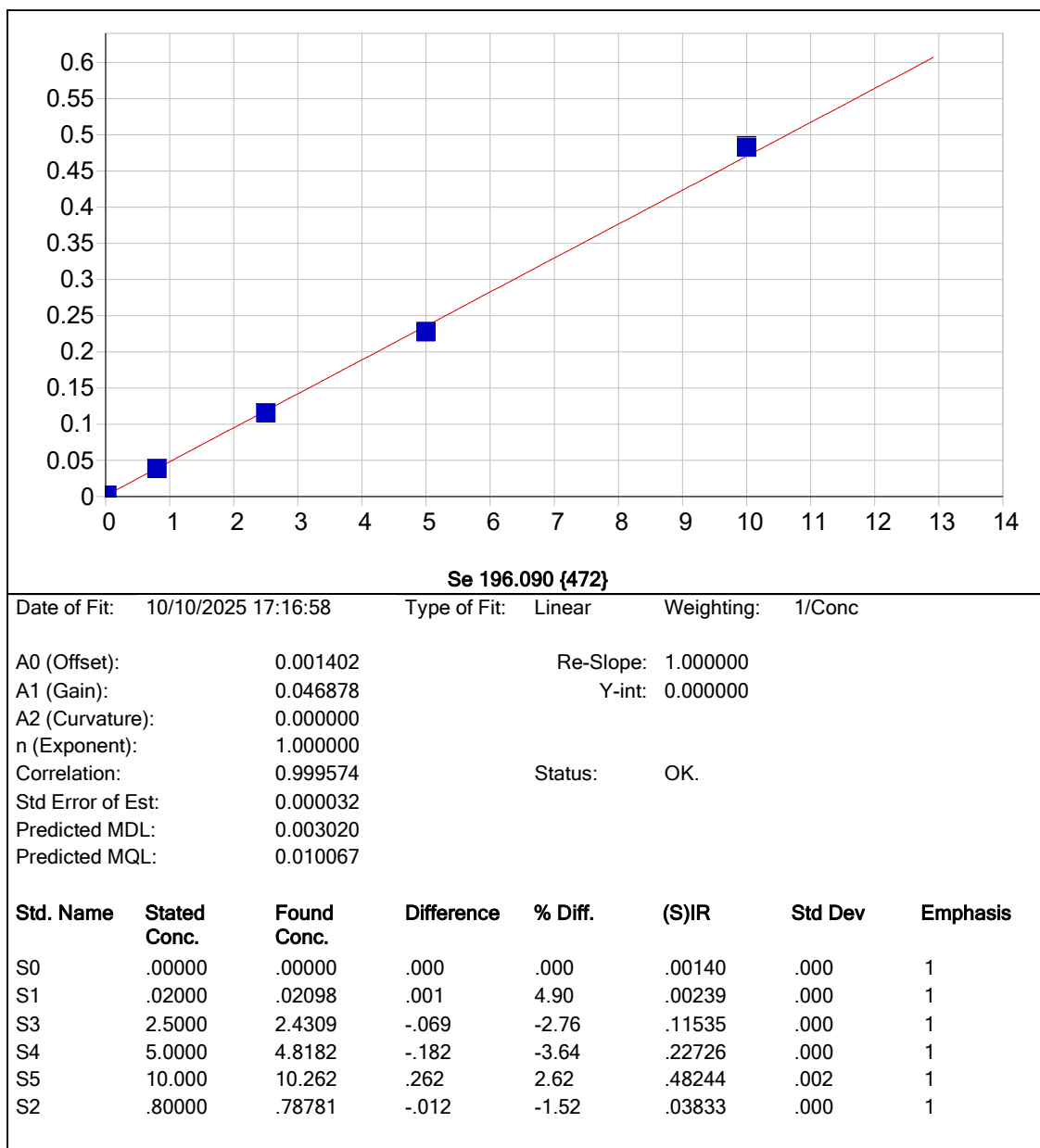
TI 190.856 {477}

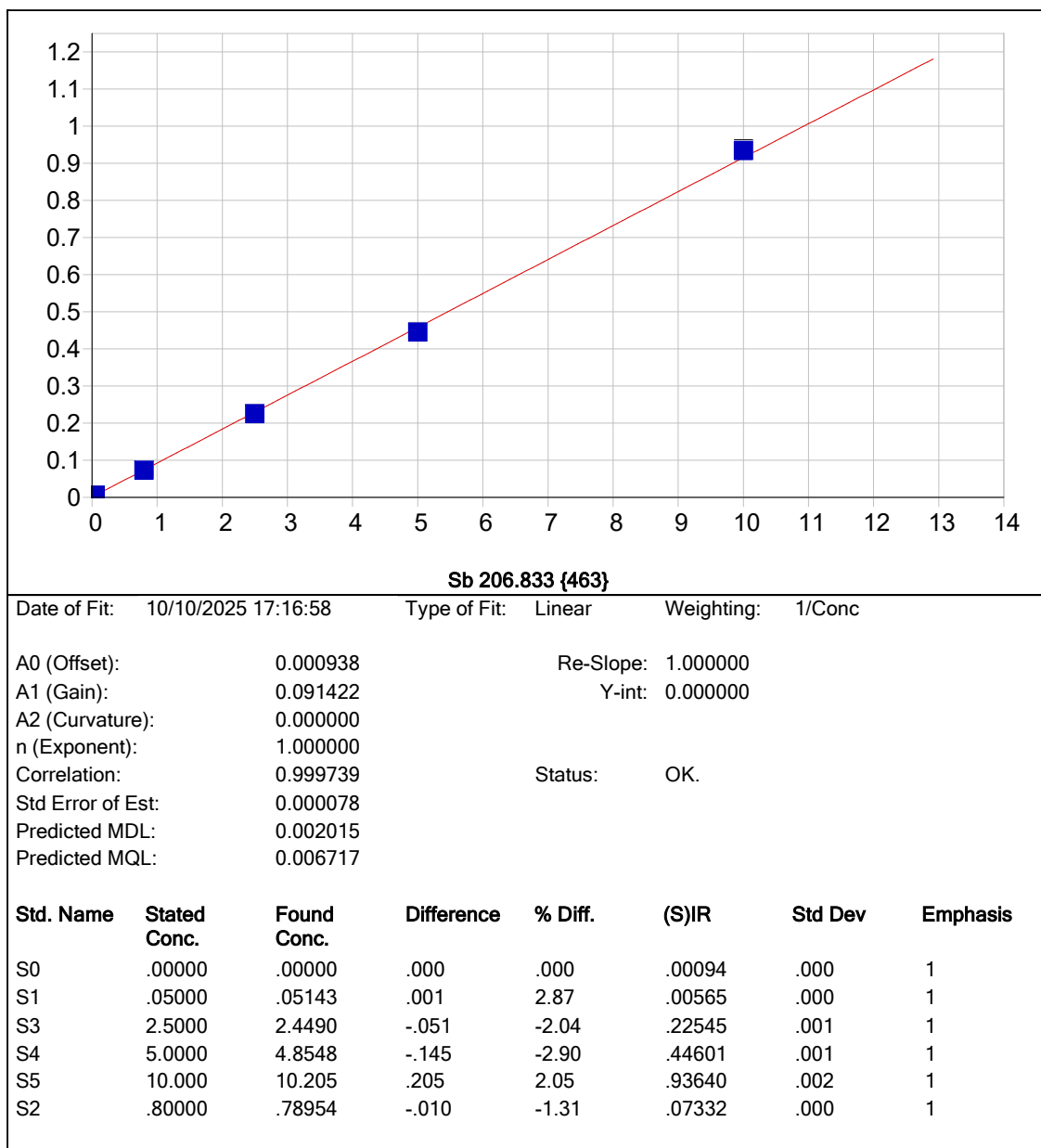
Date of Fit: 10/10/2025 17:16:58 Type of Fit: Linear Weighting: 1/Conc

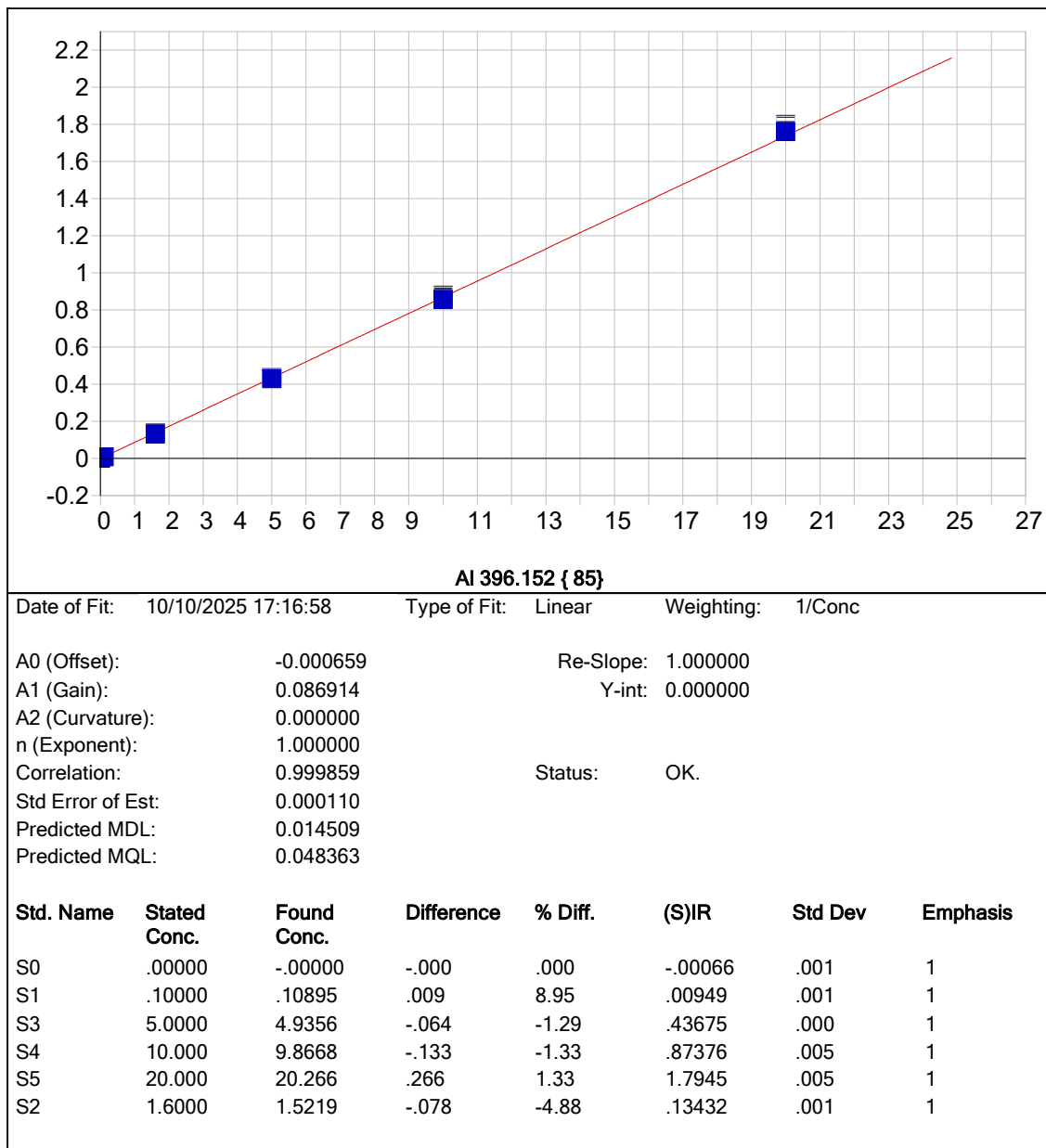
A0 (Offset): 0.000604 Re-Slope: 1.000000
A1 (Gain): 0.047395 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999795 Status: OK.
Std Error of Est: 0.000031
Predicted MDL: 0.003273
Predicted MQL: 0.010909

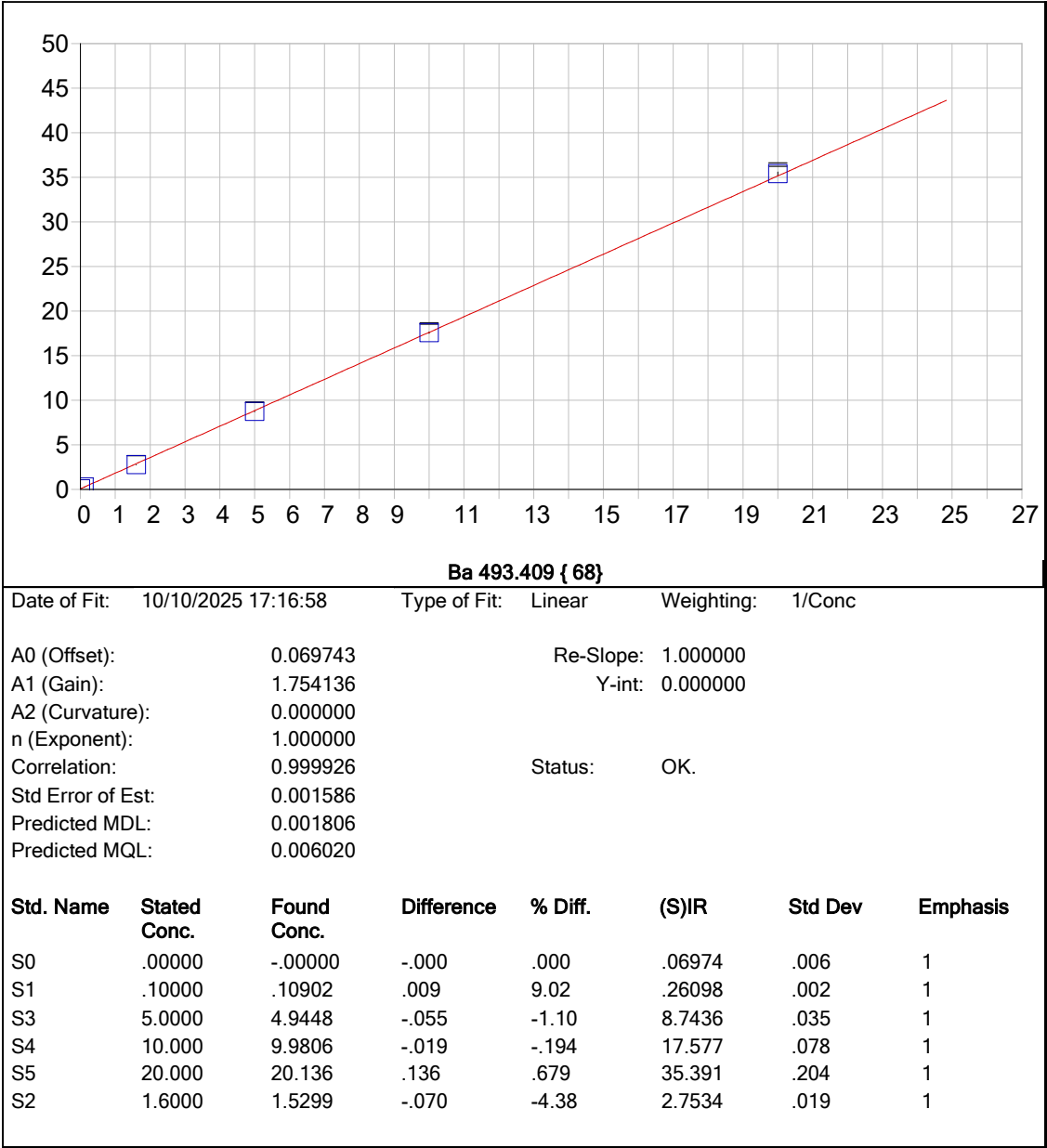
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00060	.000	1
S1	.04000	.04051	.001	1.27	.00240	.000	1
S3	2.5000	2.4664	-.034	-1.34	.11534	.002	1
S4	5.0000	4.8986	-.101	-2.03	.22845	.004	1
S5	10.000	10.172	.172	1.72	.47408	.022	1
S2	.80000	.76228	-.038	-4.72	.03604	.001	1

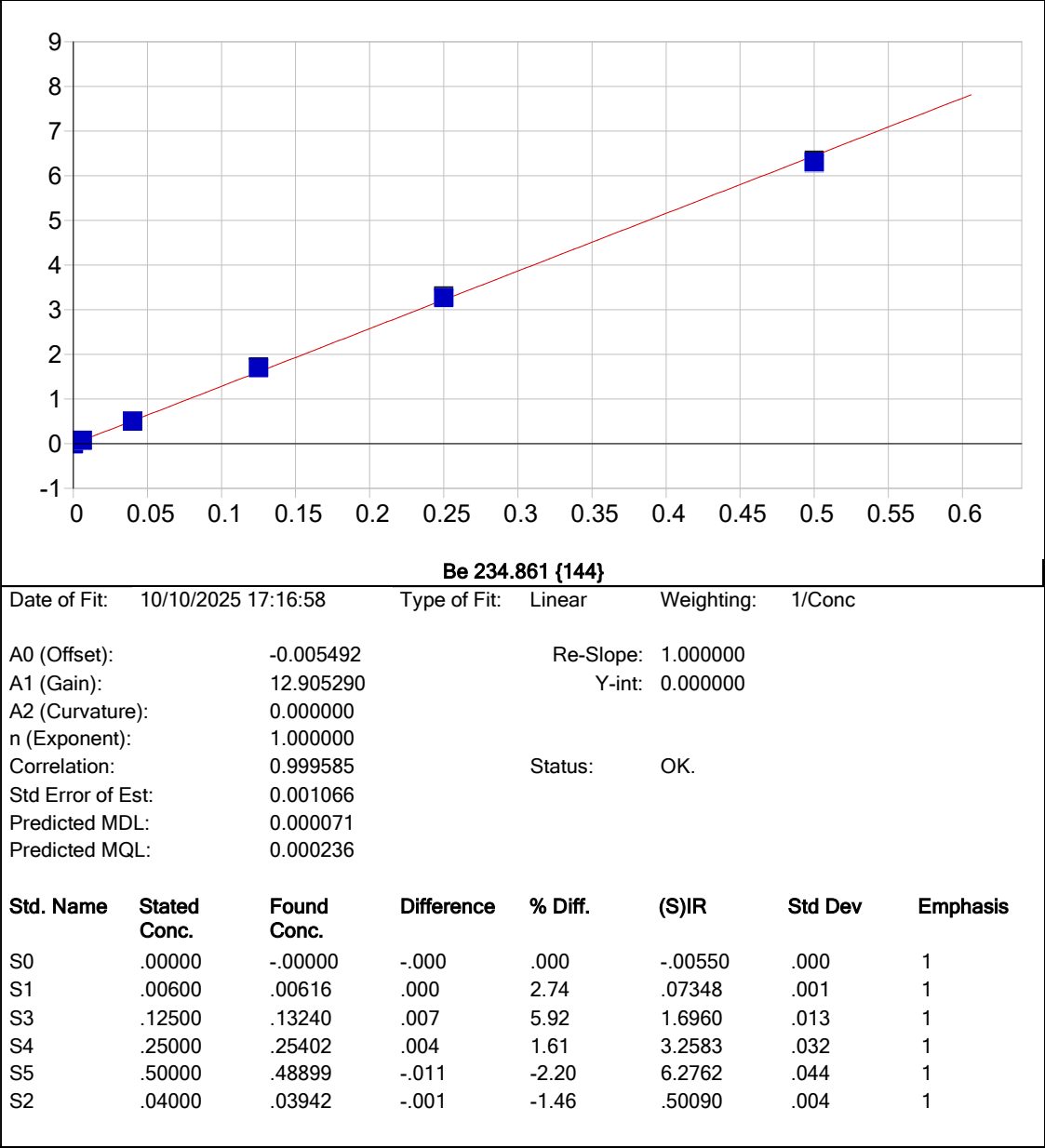


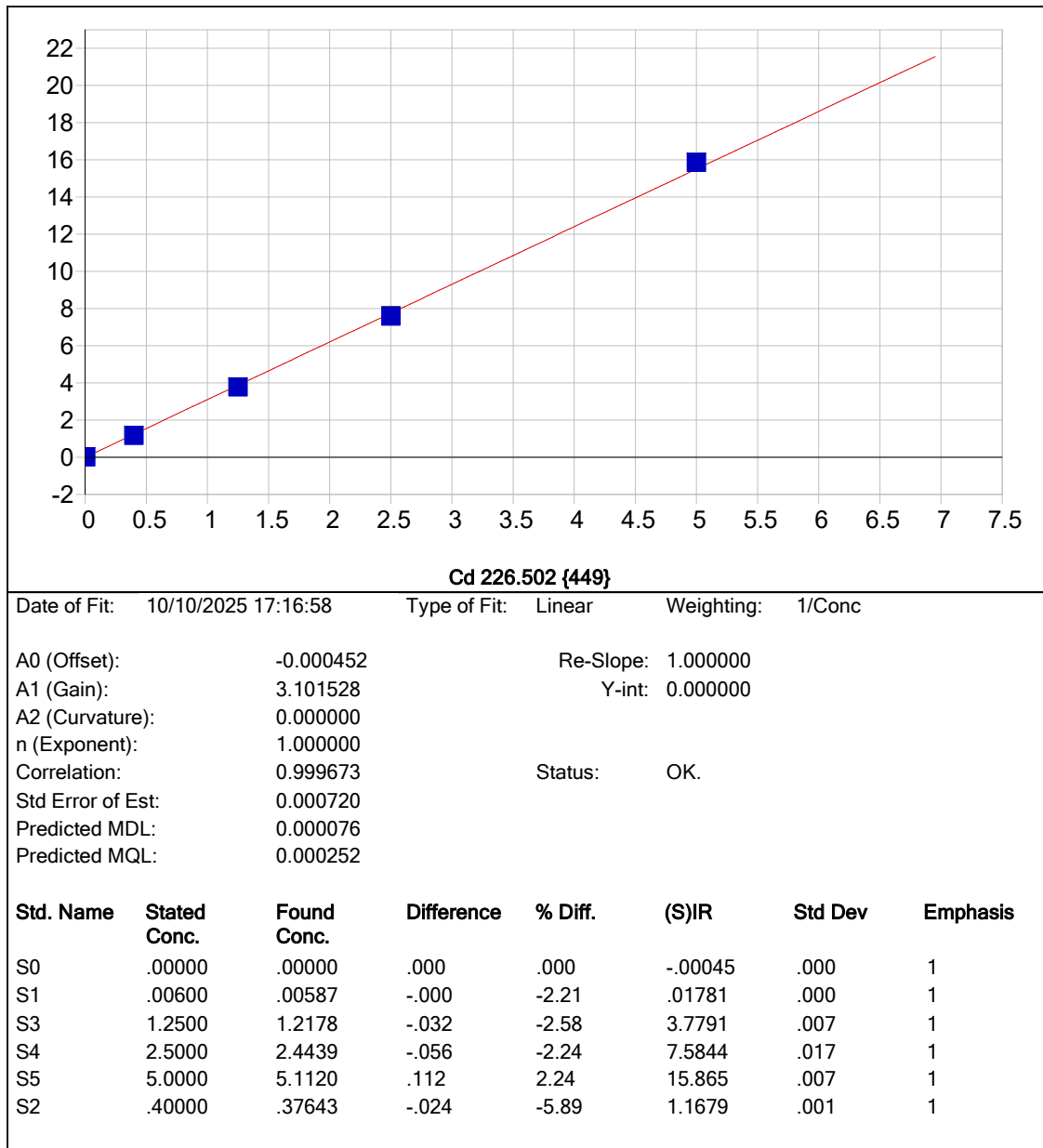


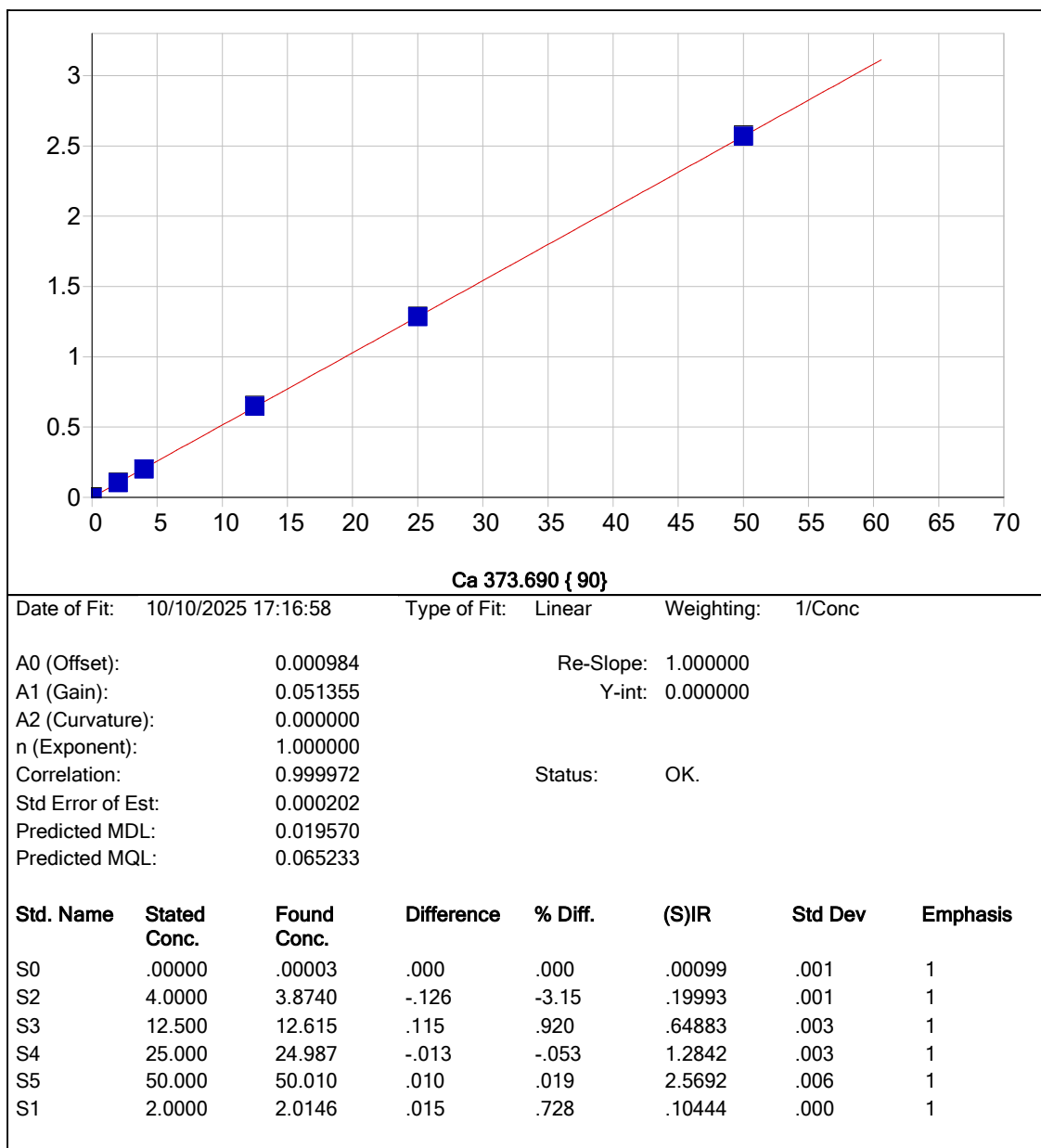


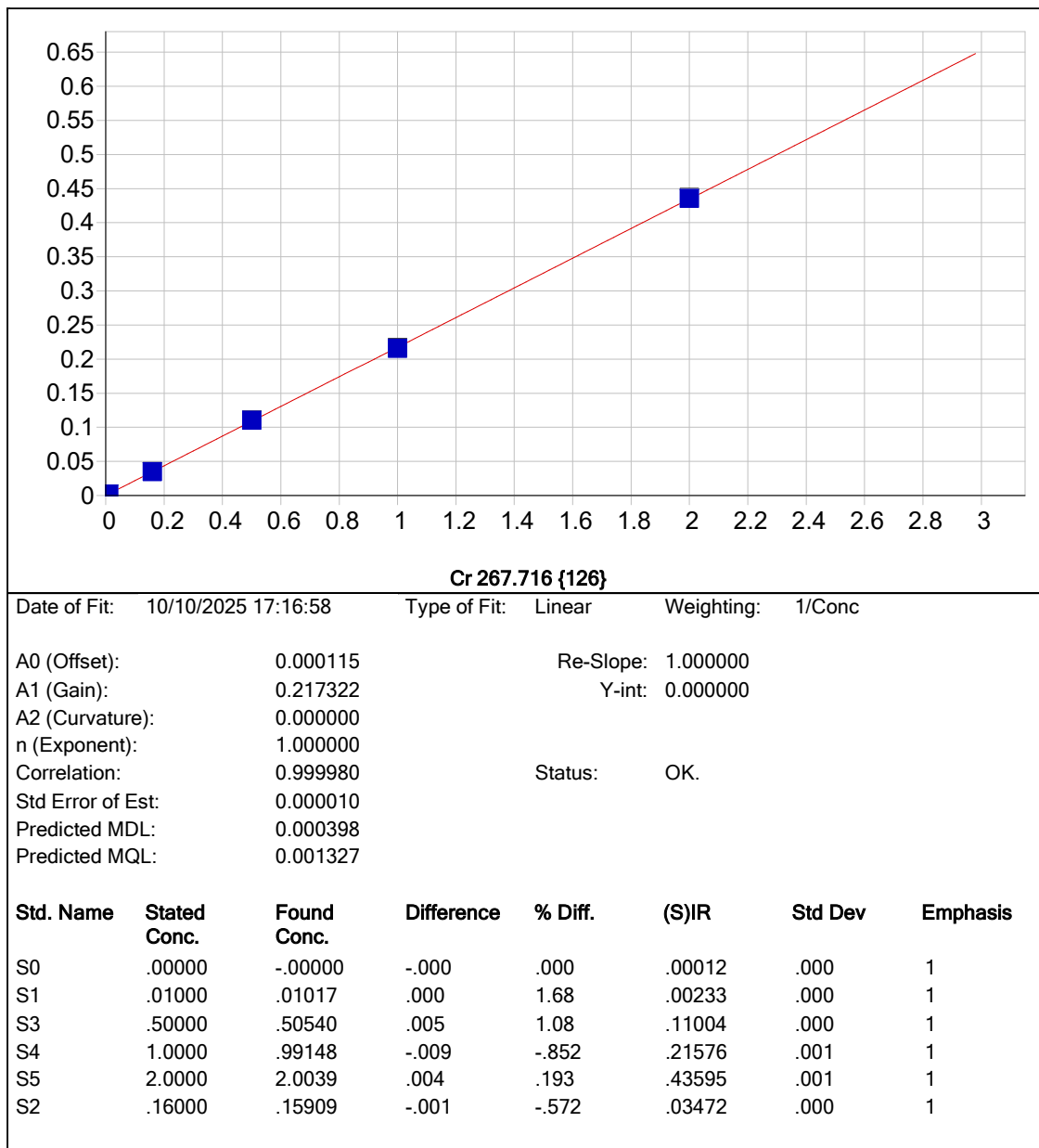


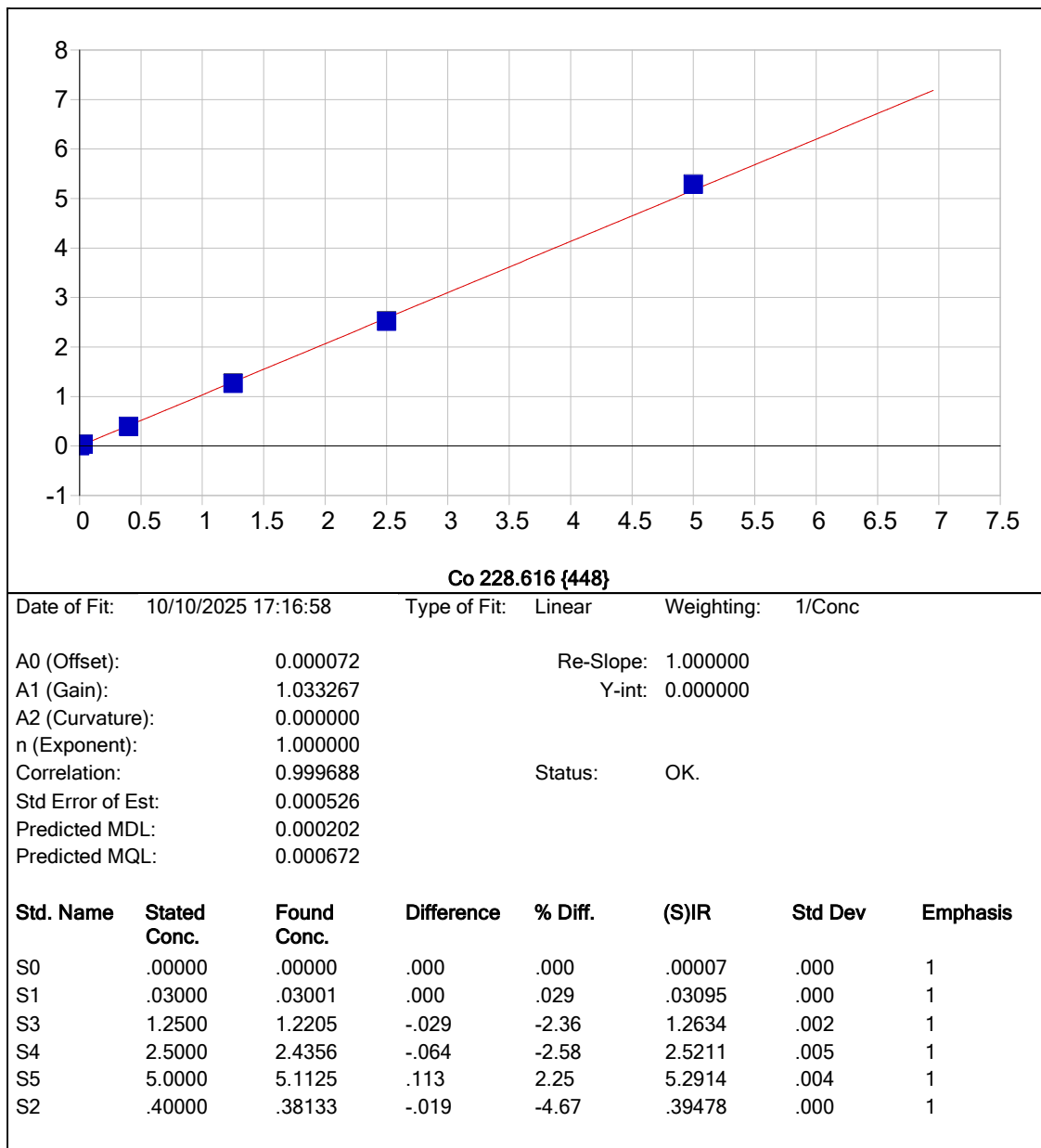


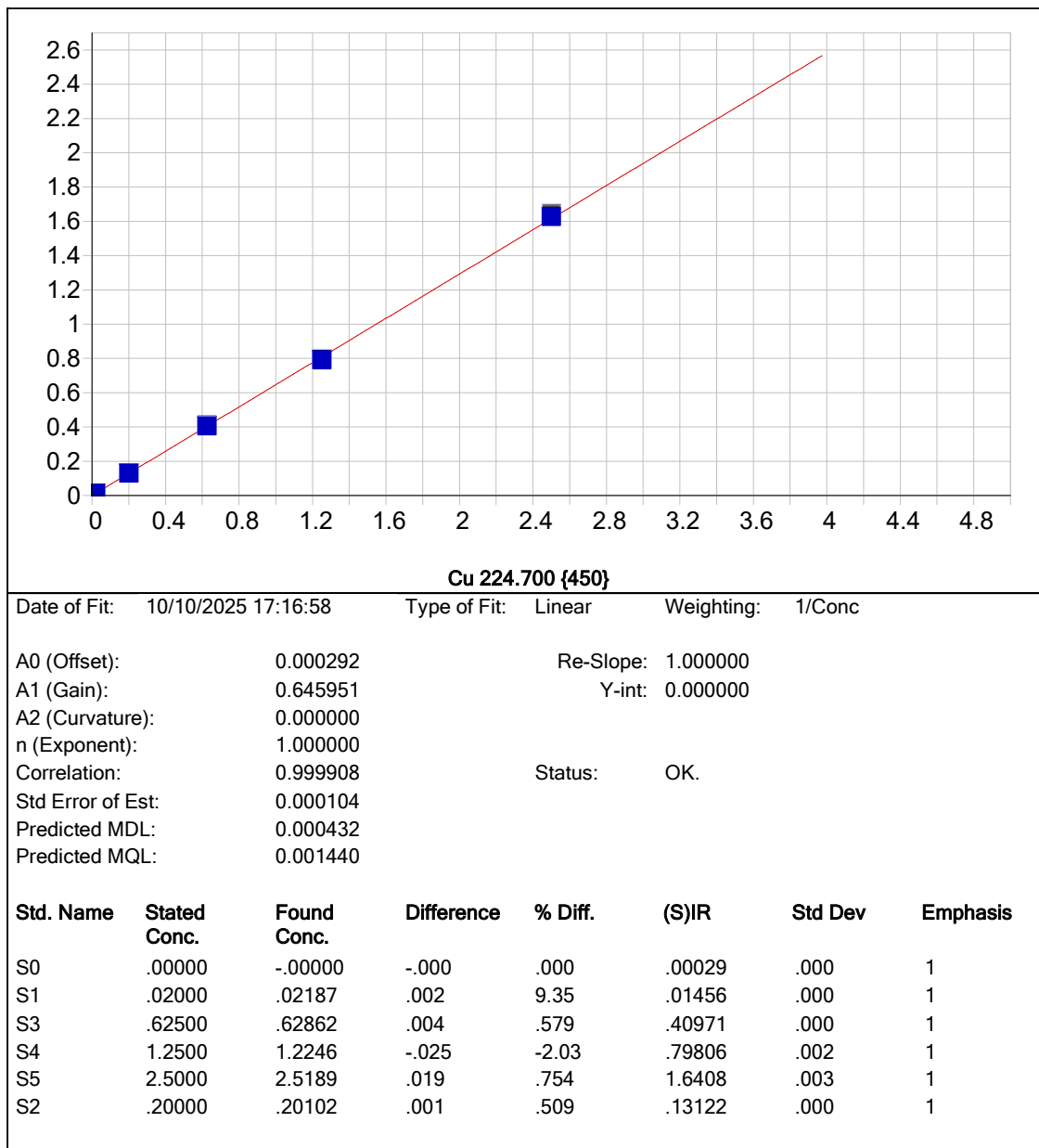


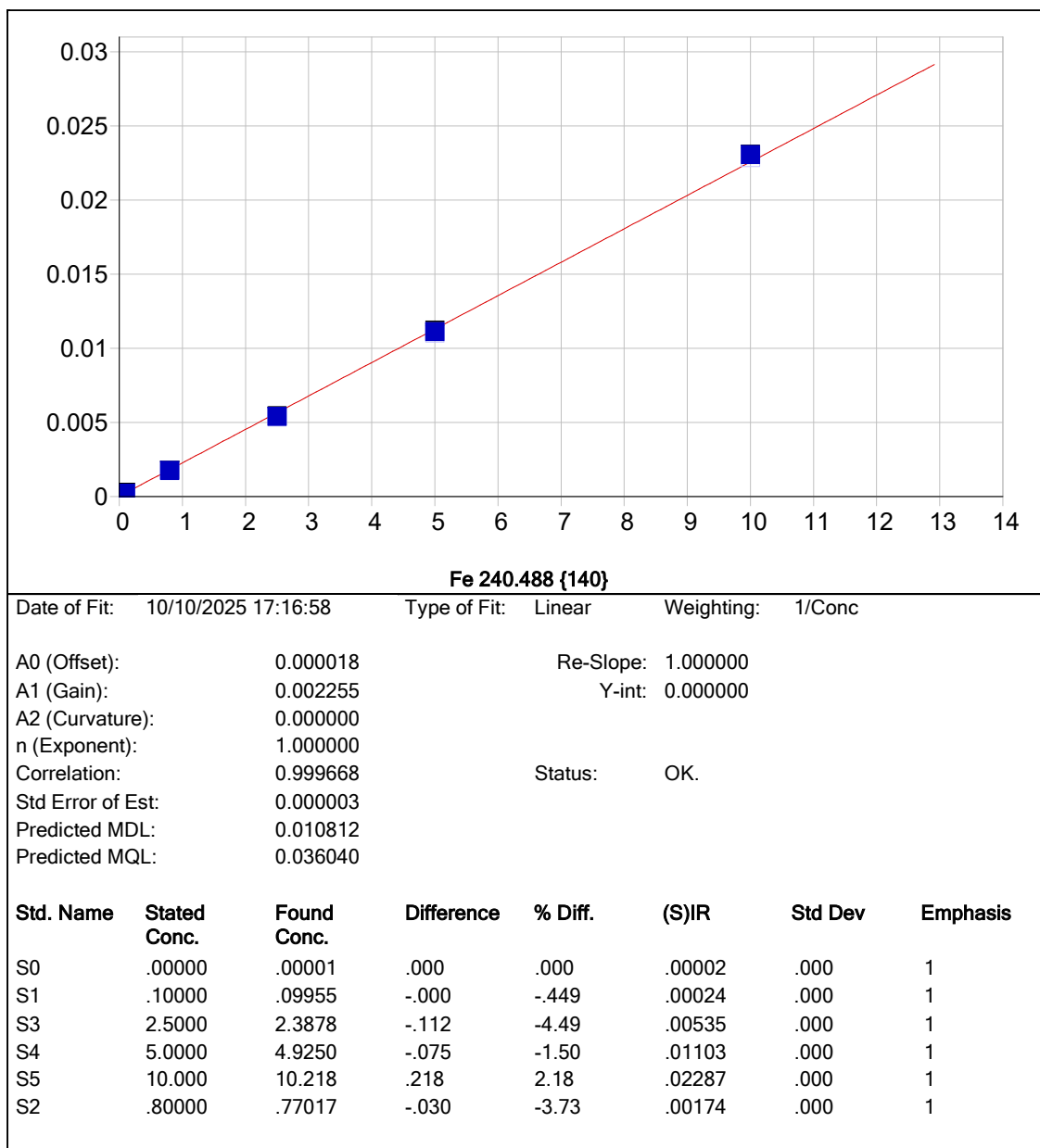


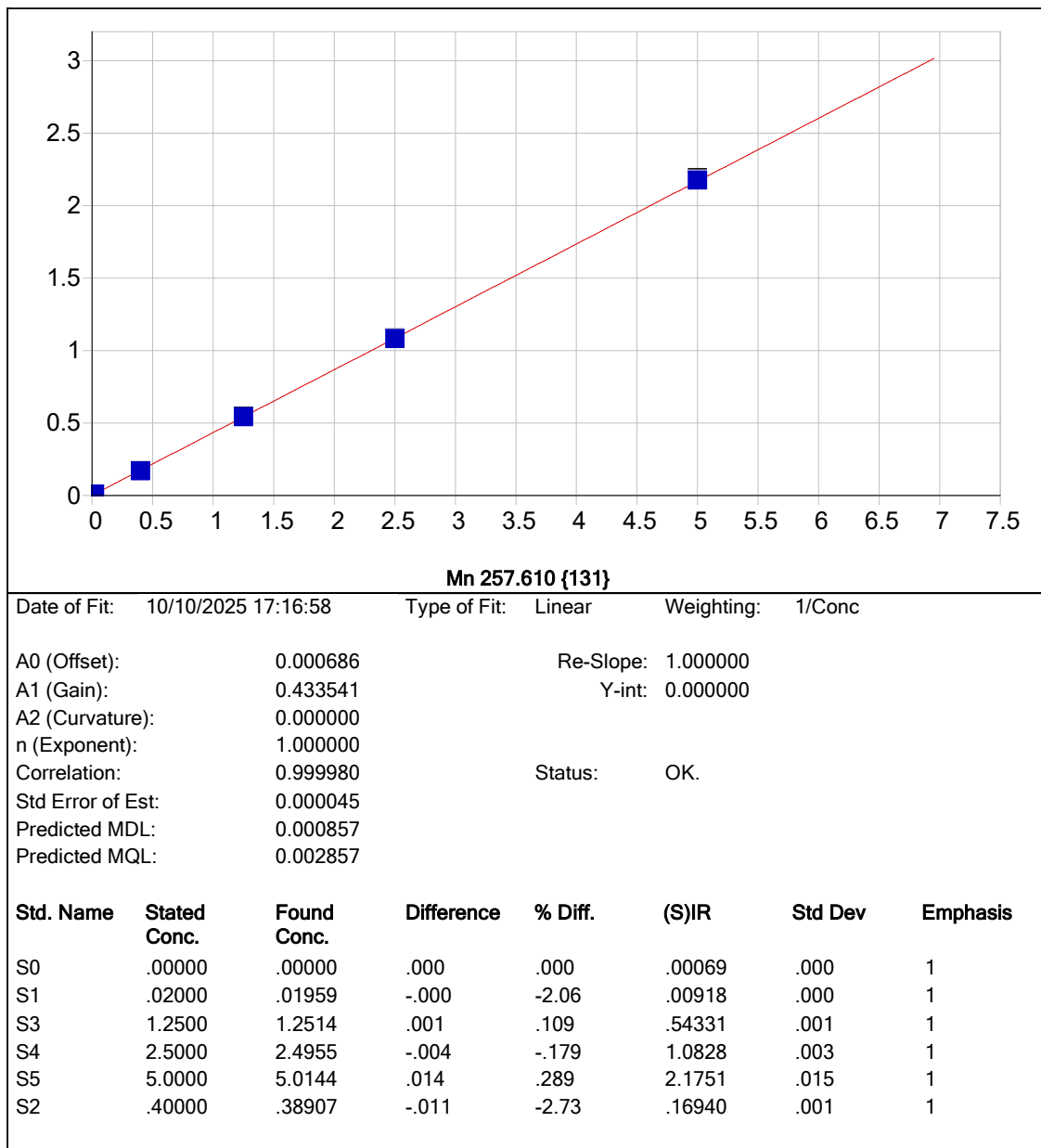


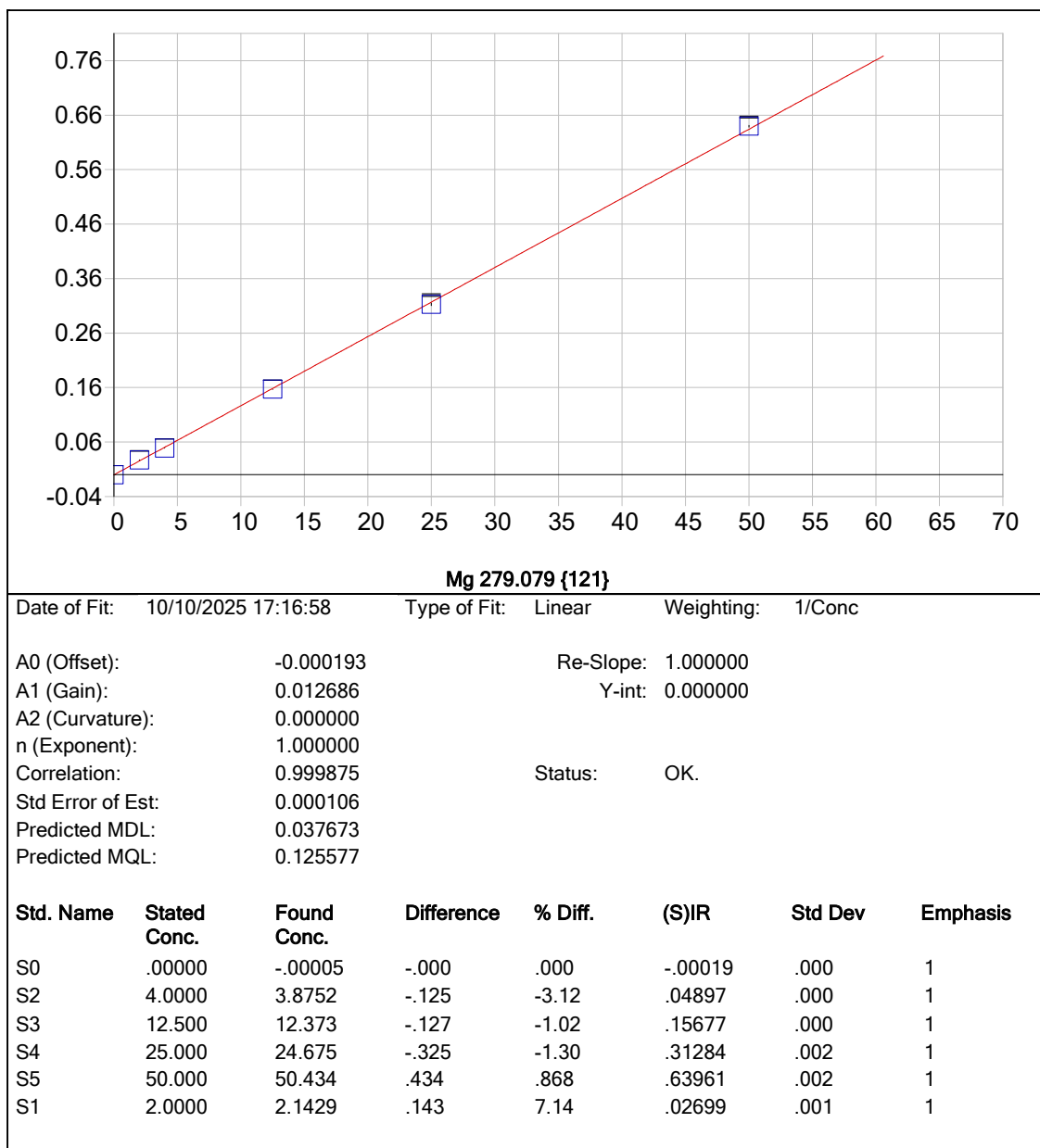


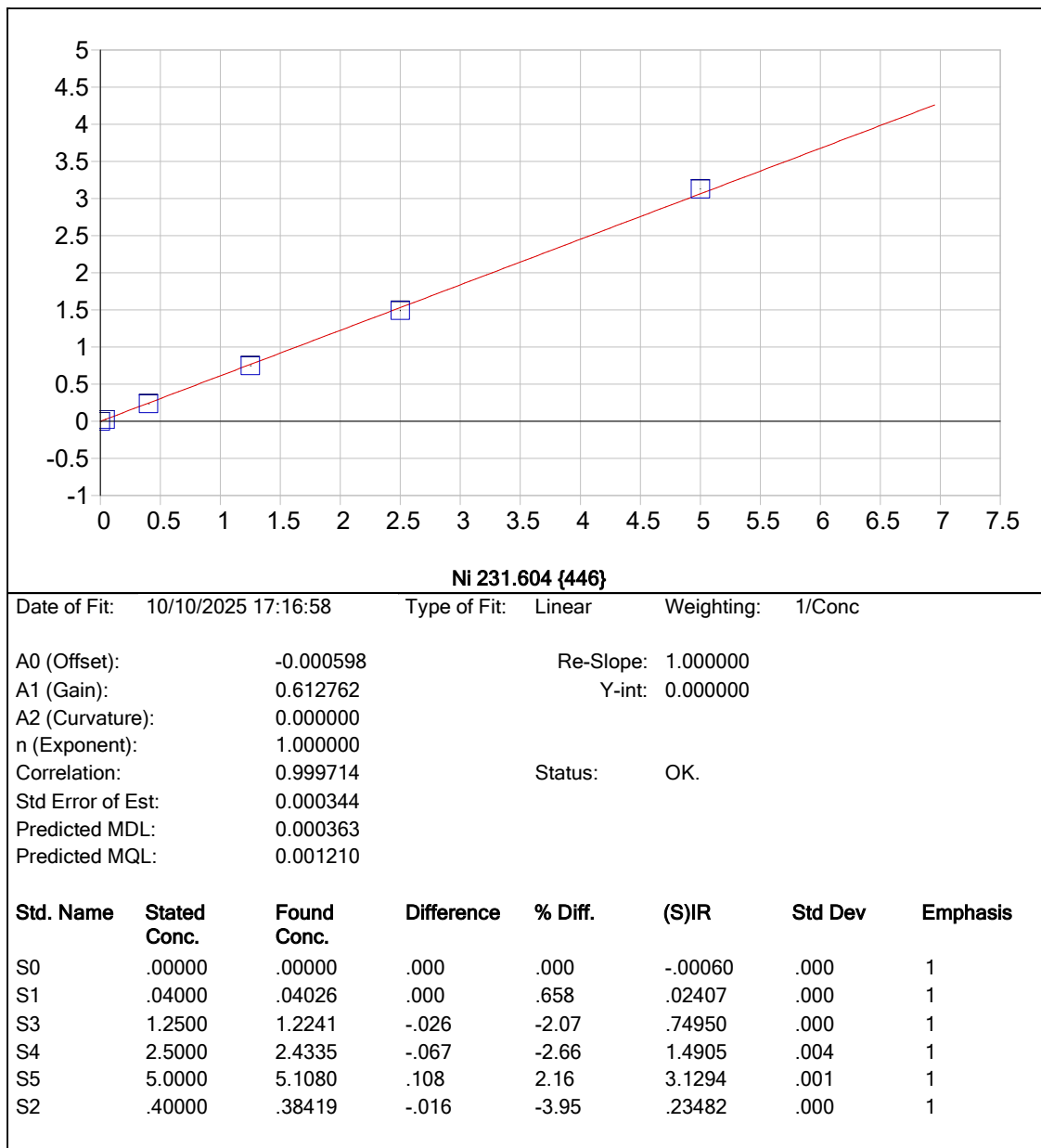


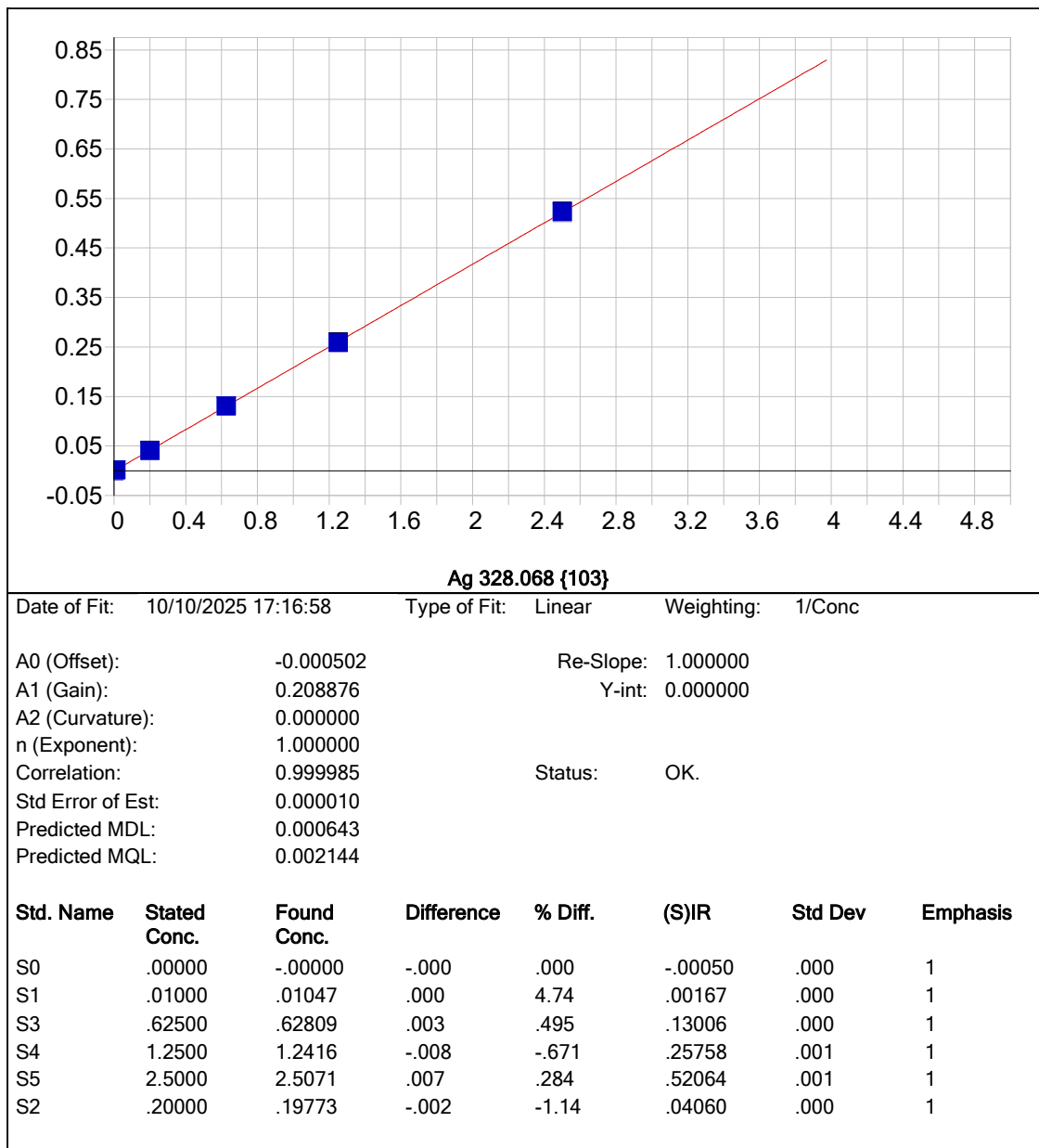


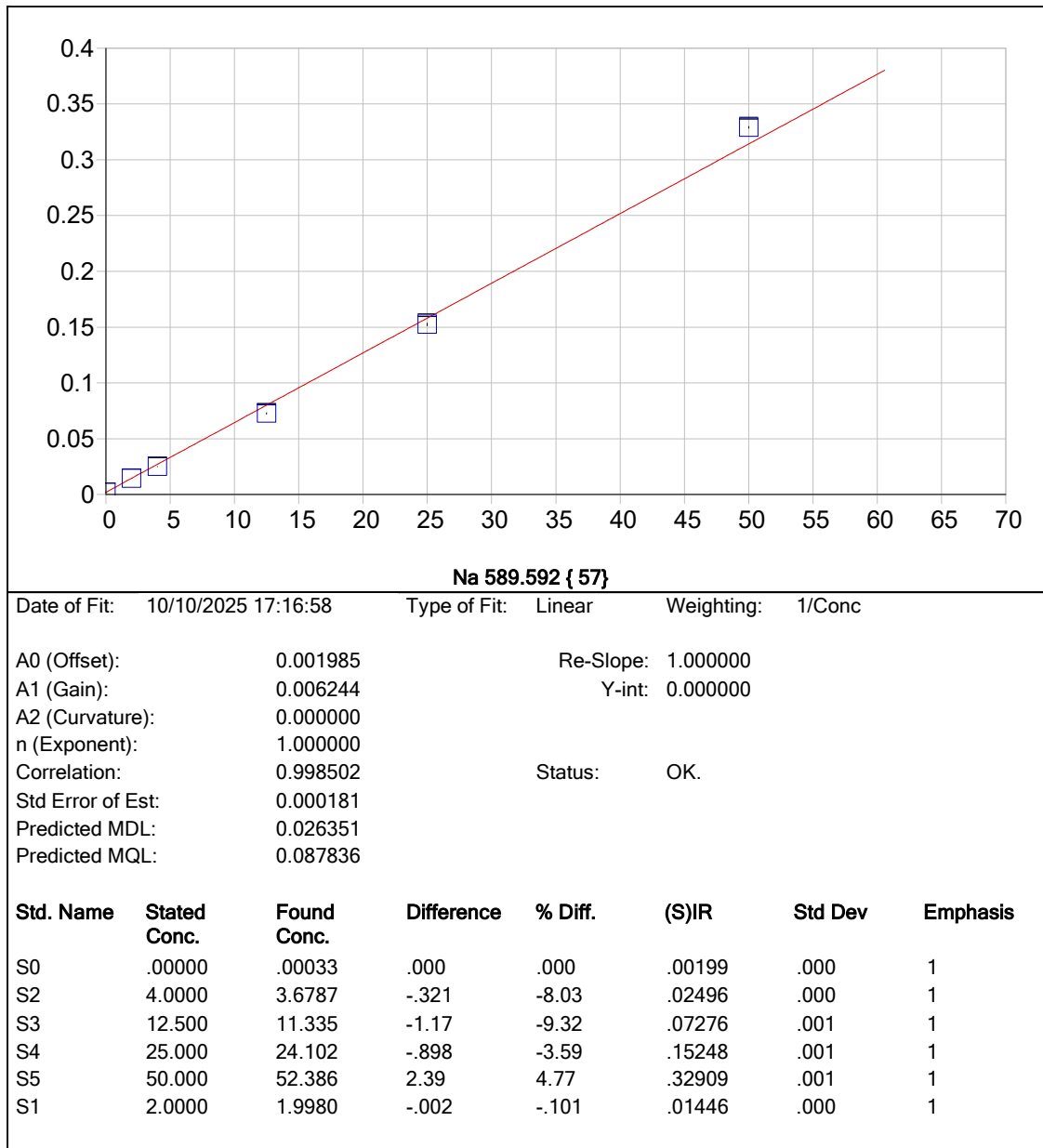




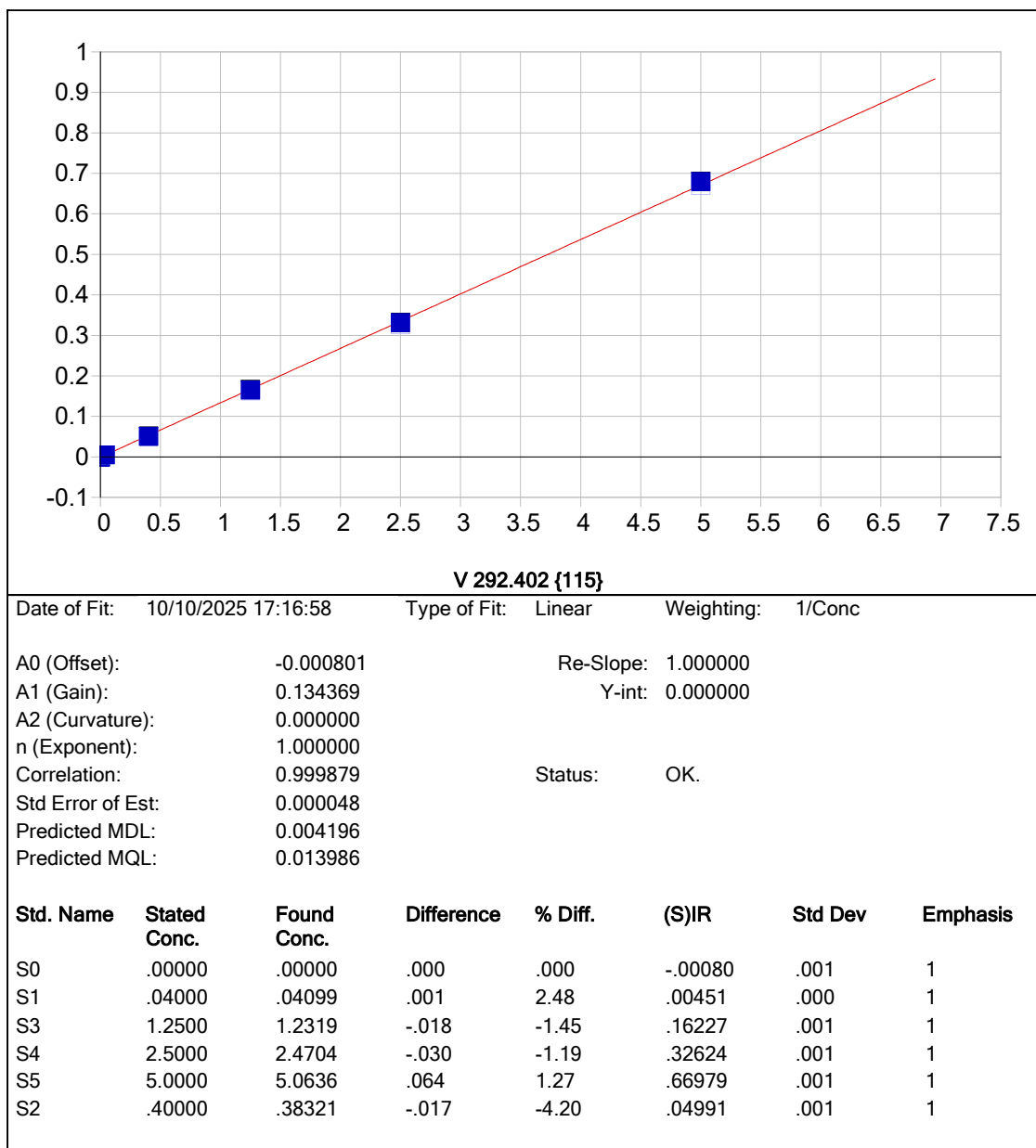


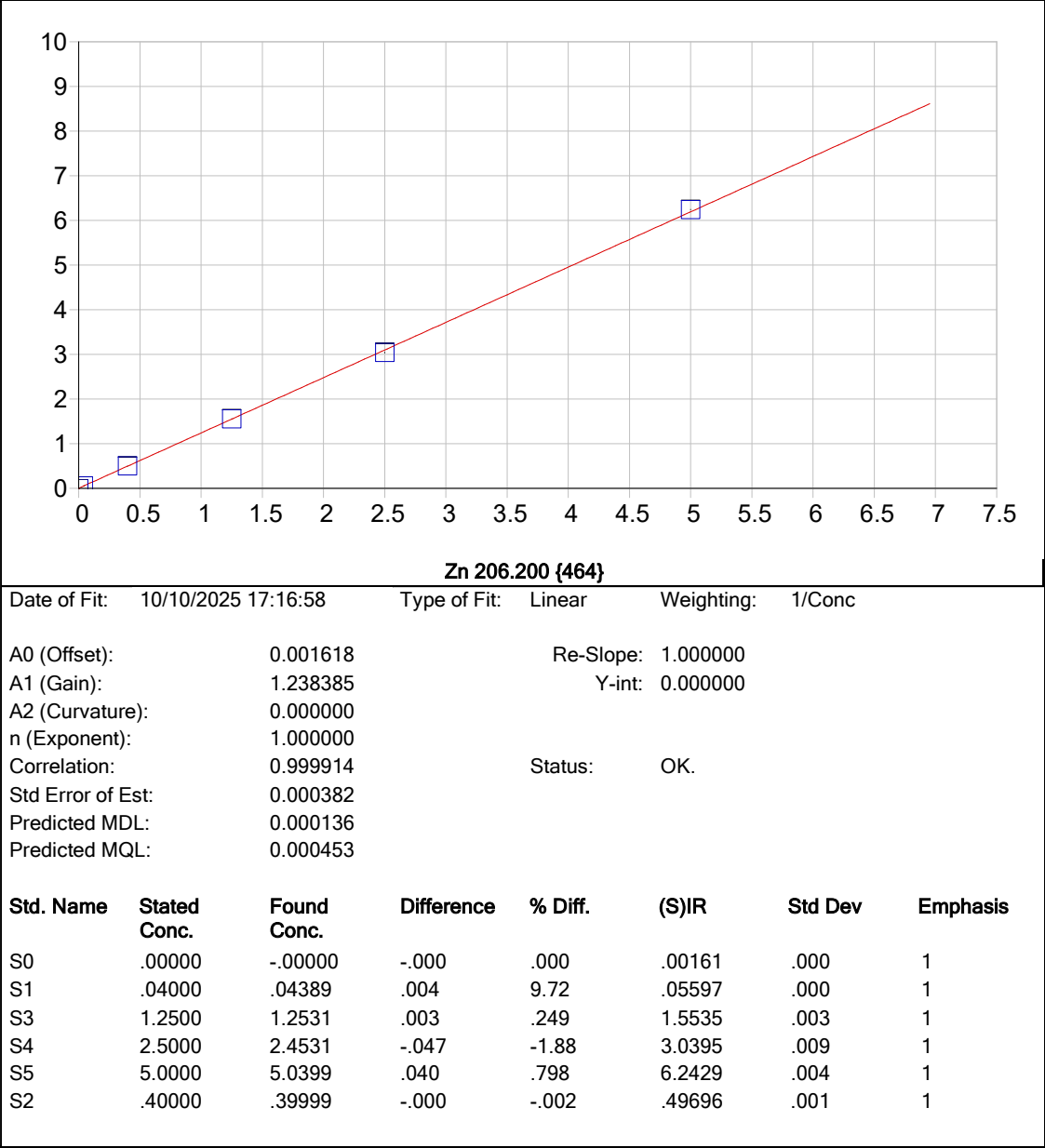


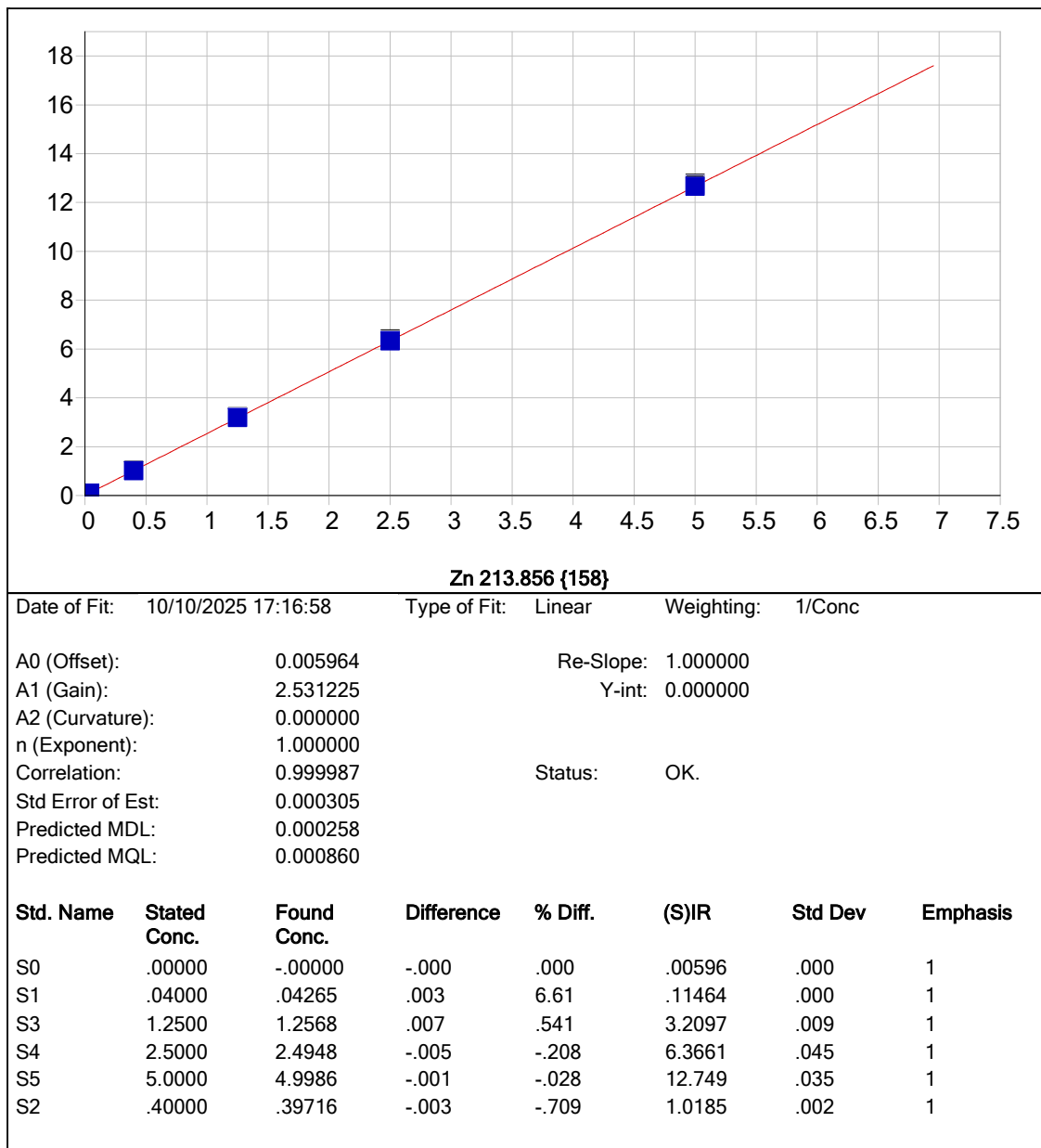


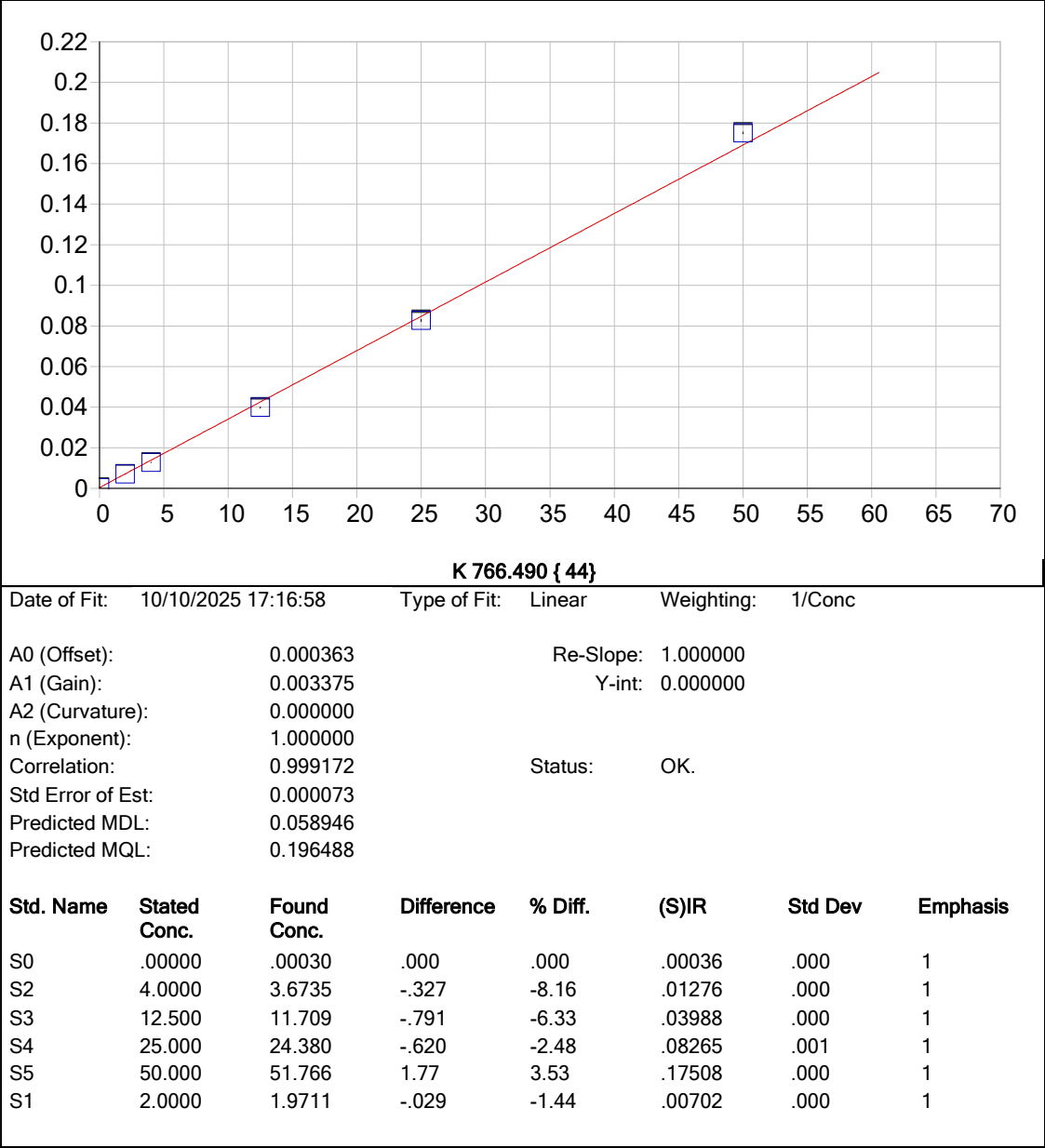


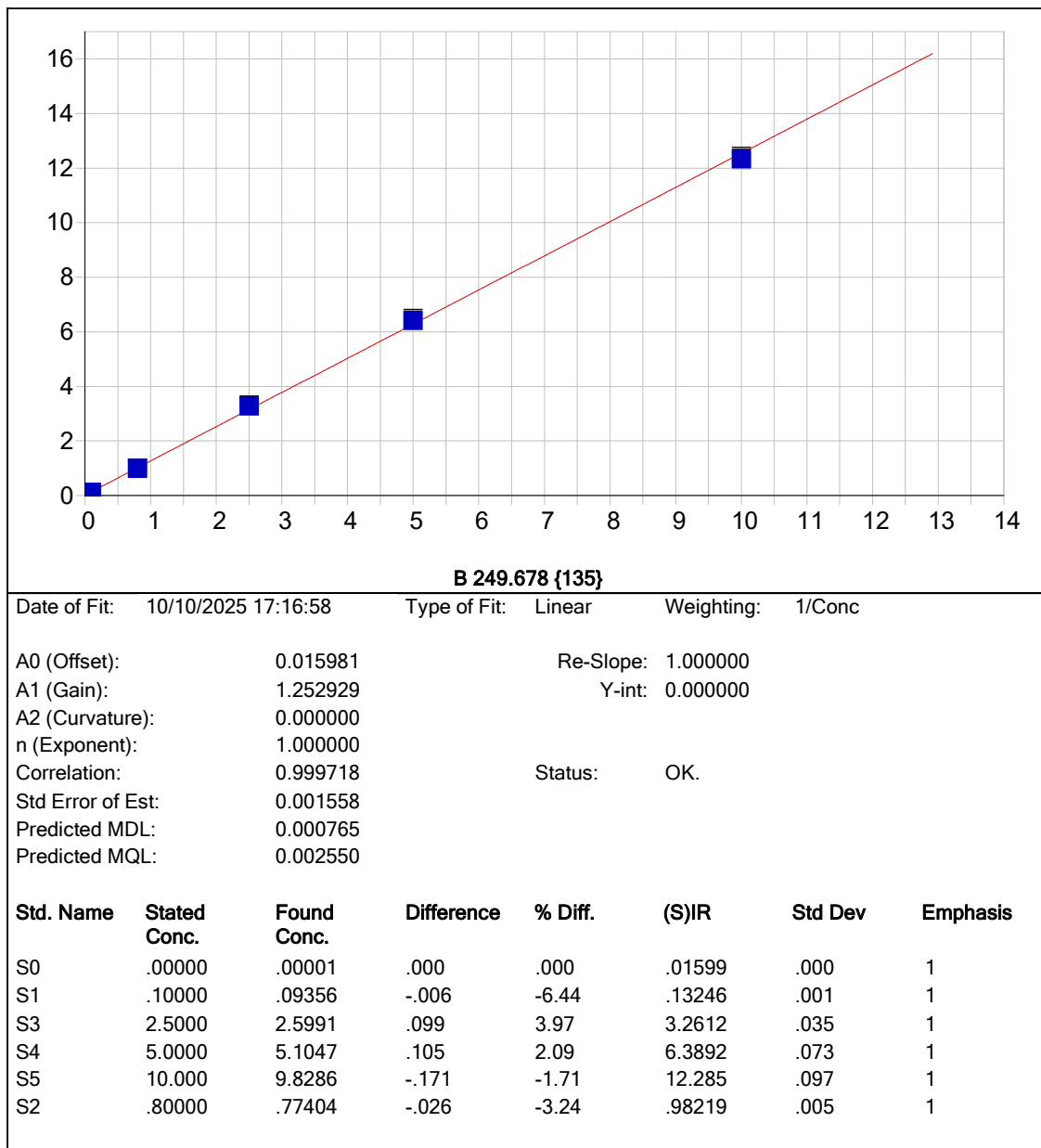
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

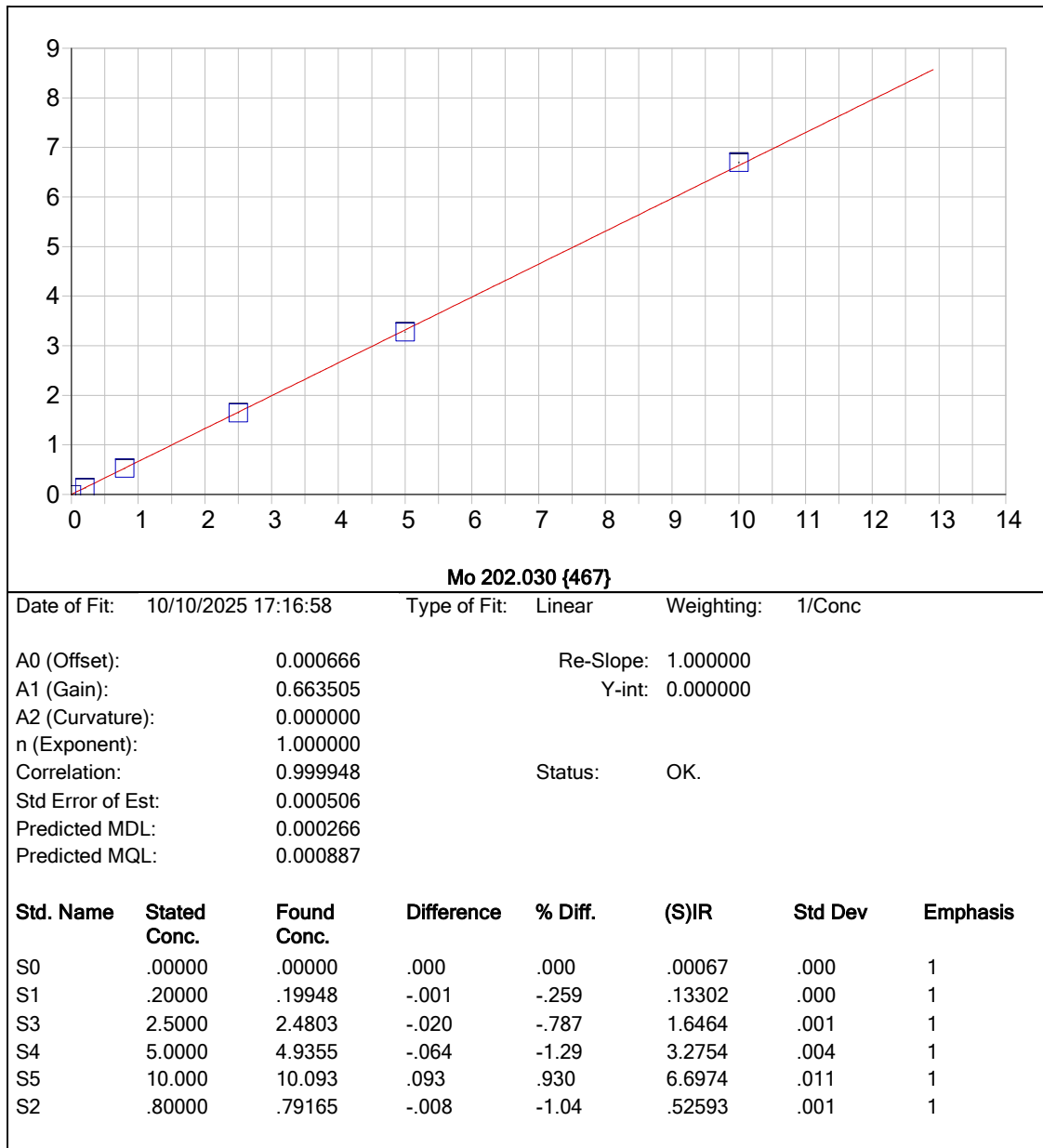


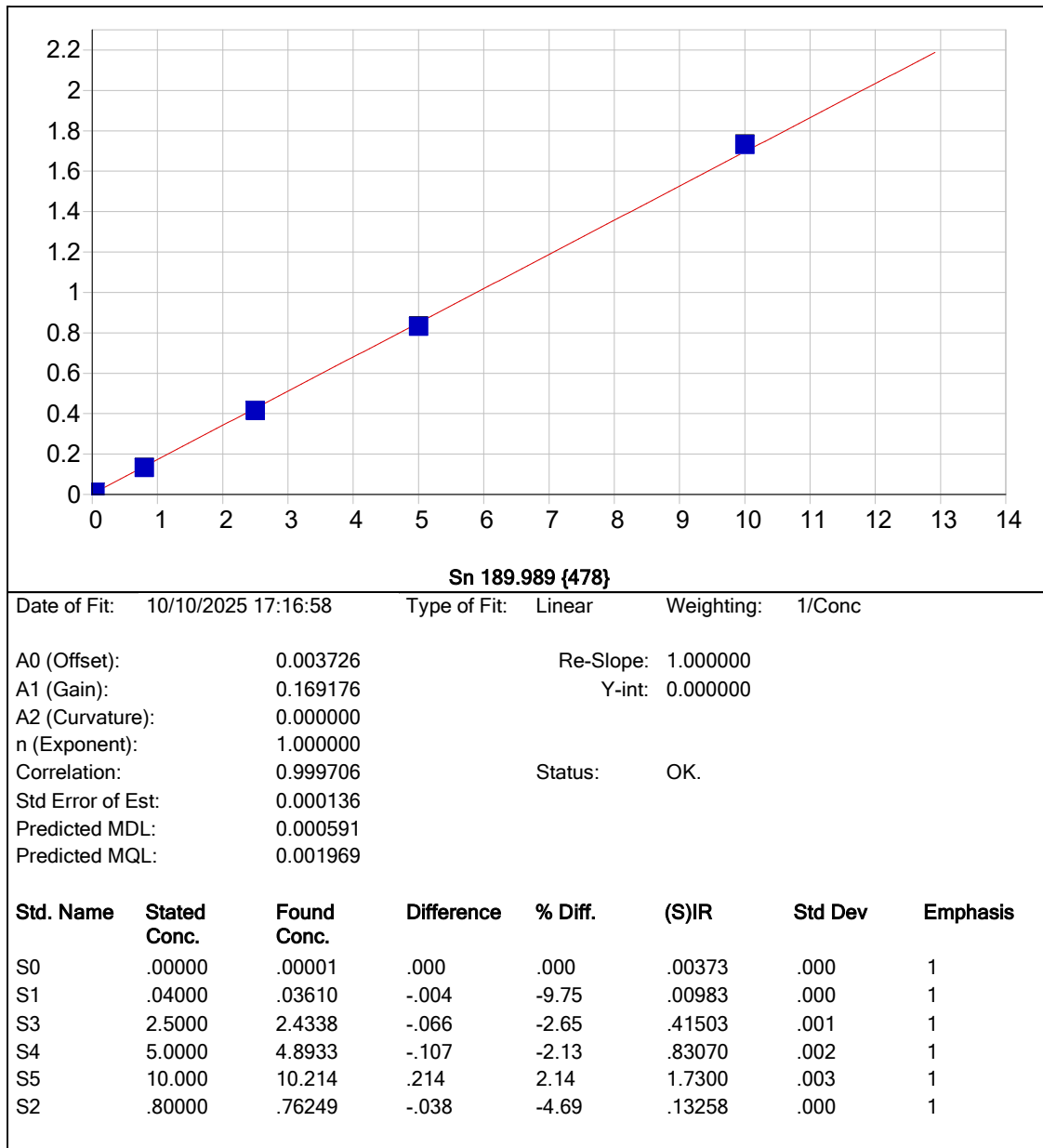


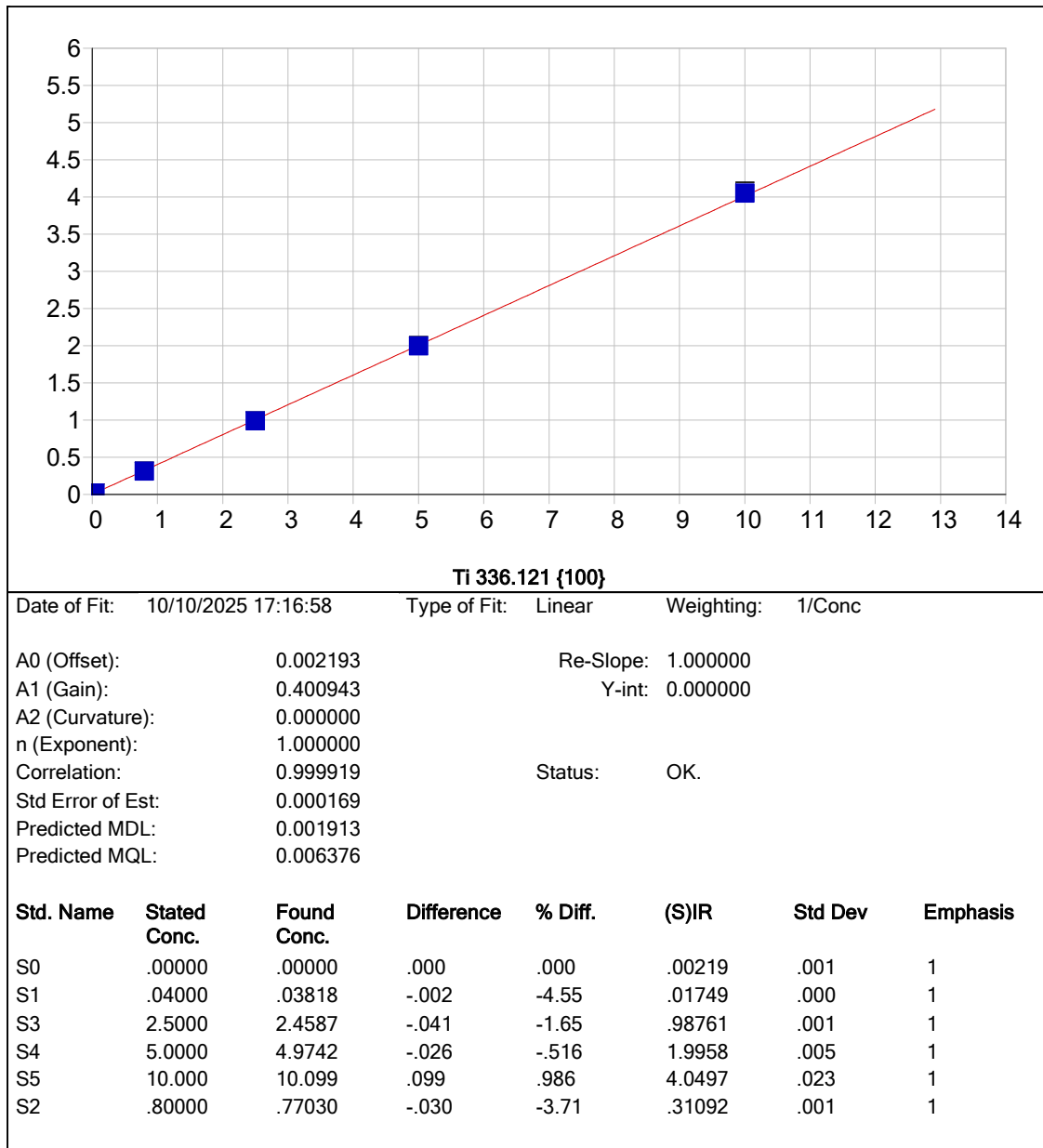


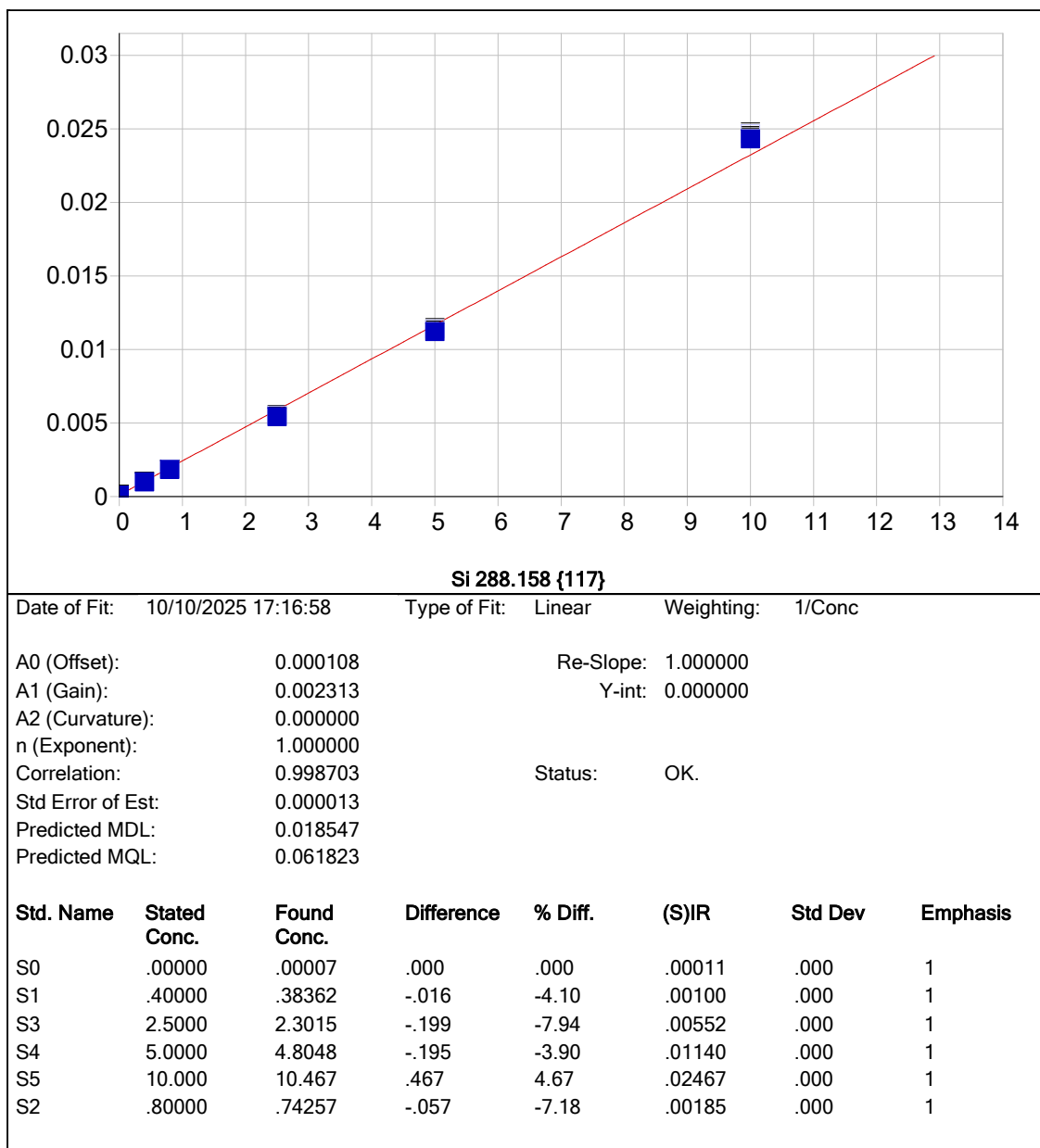


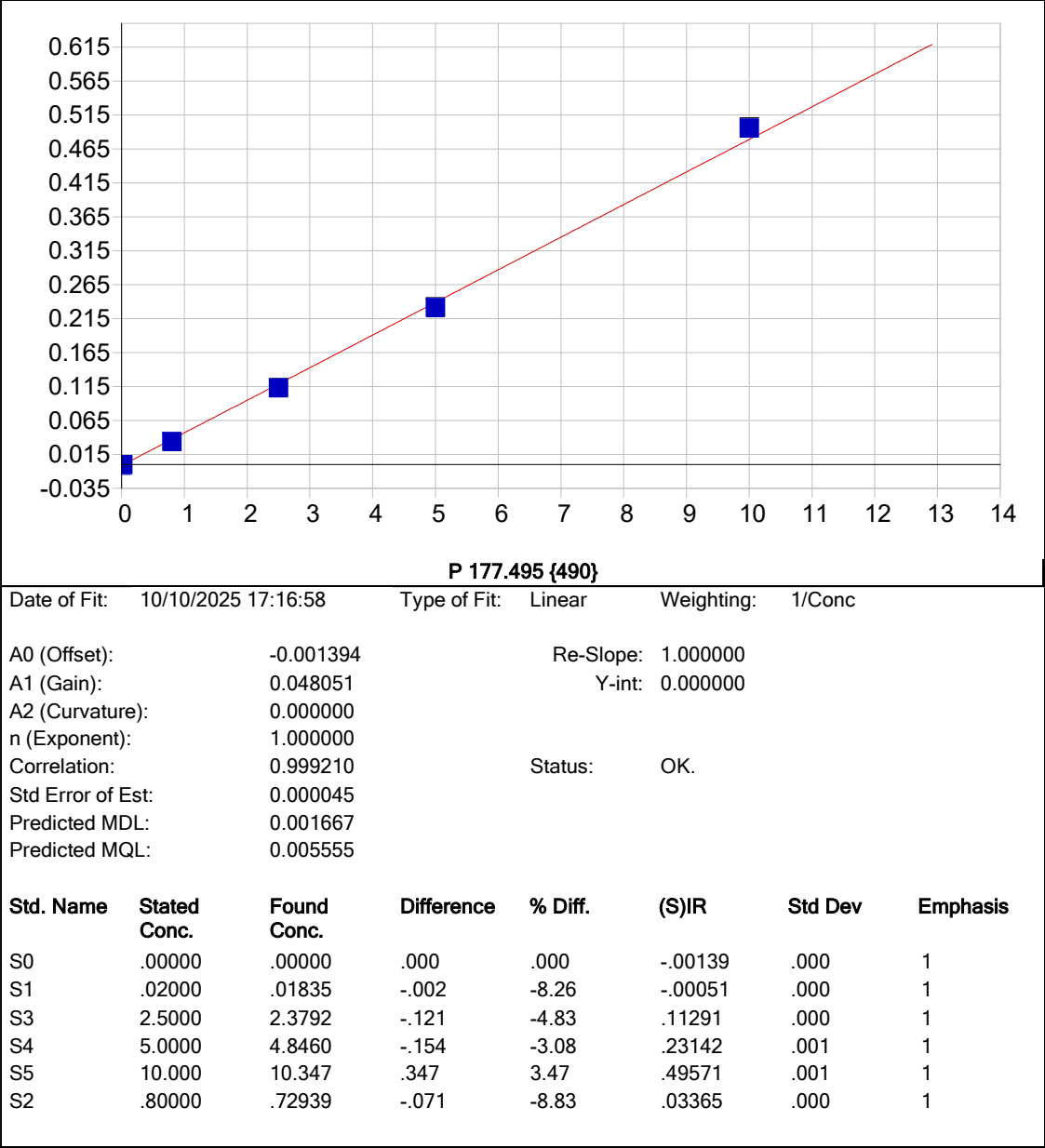


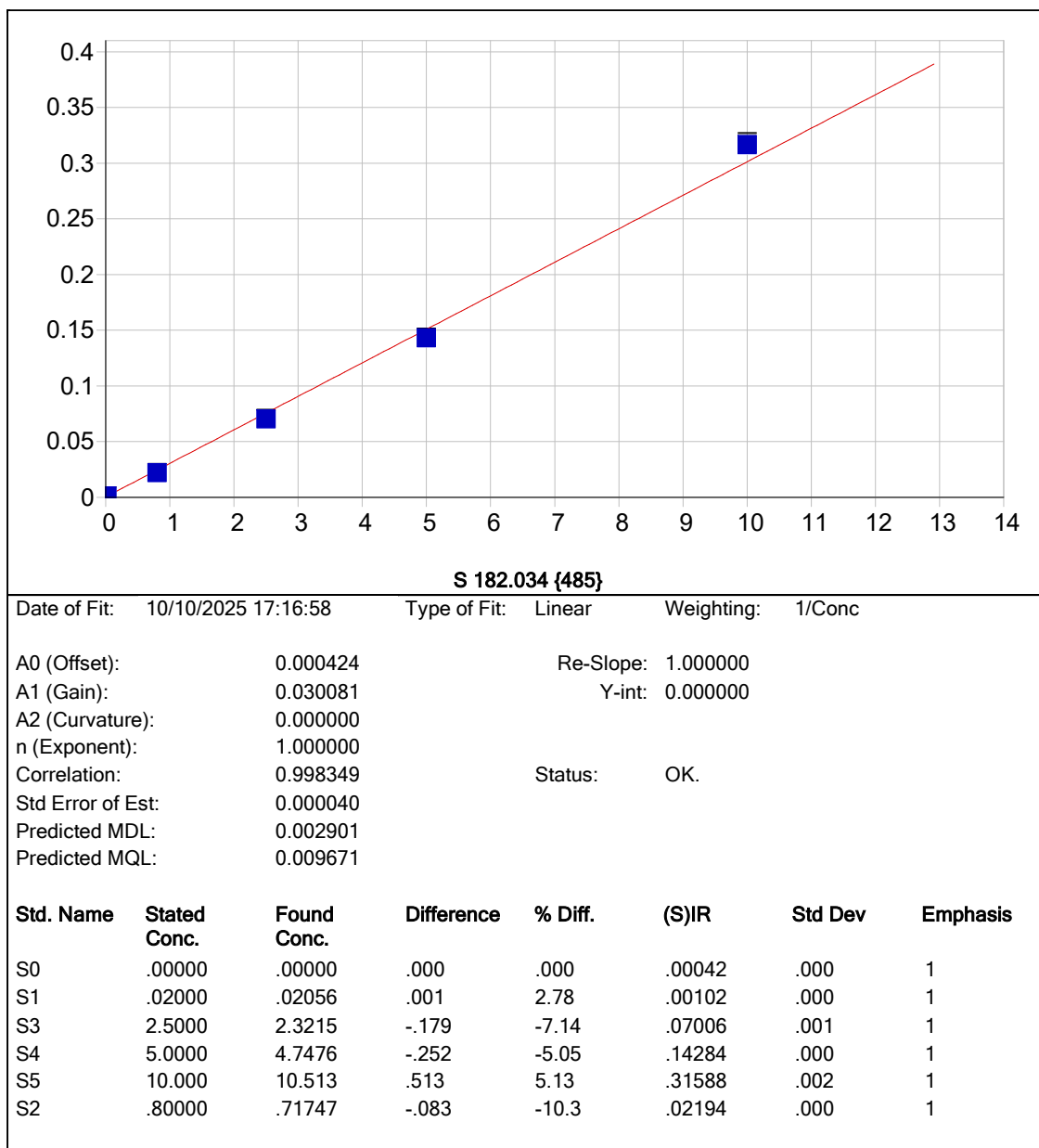


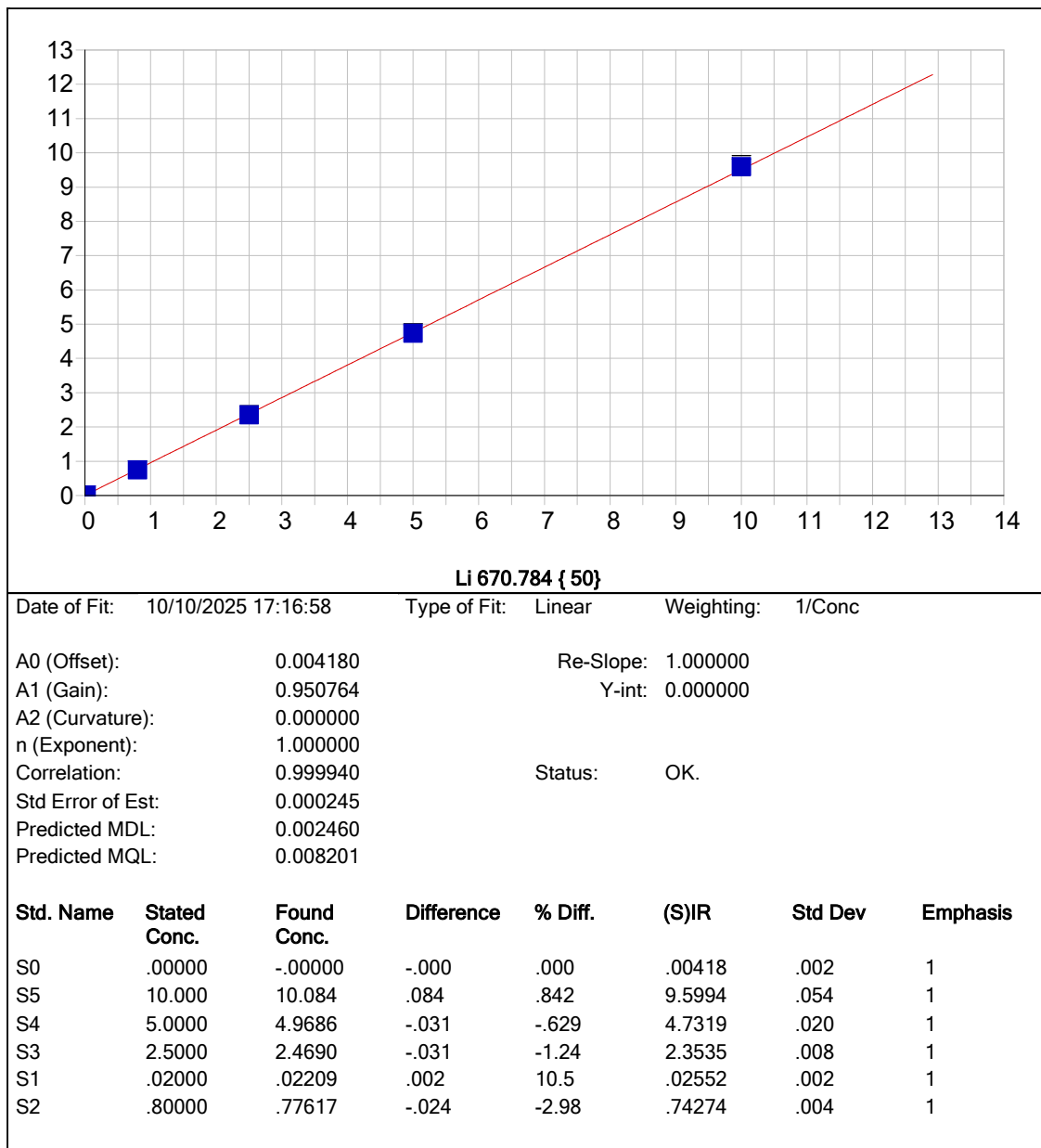


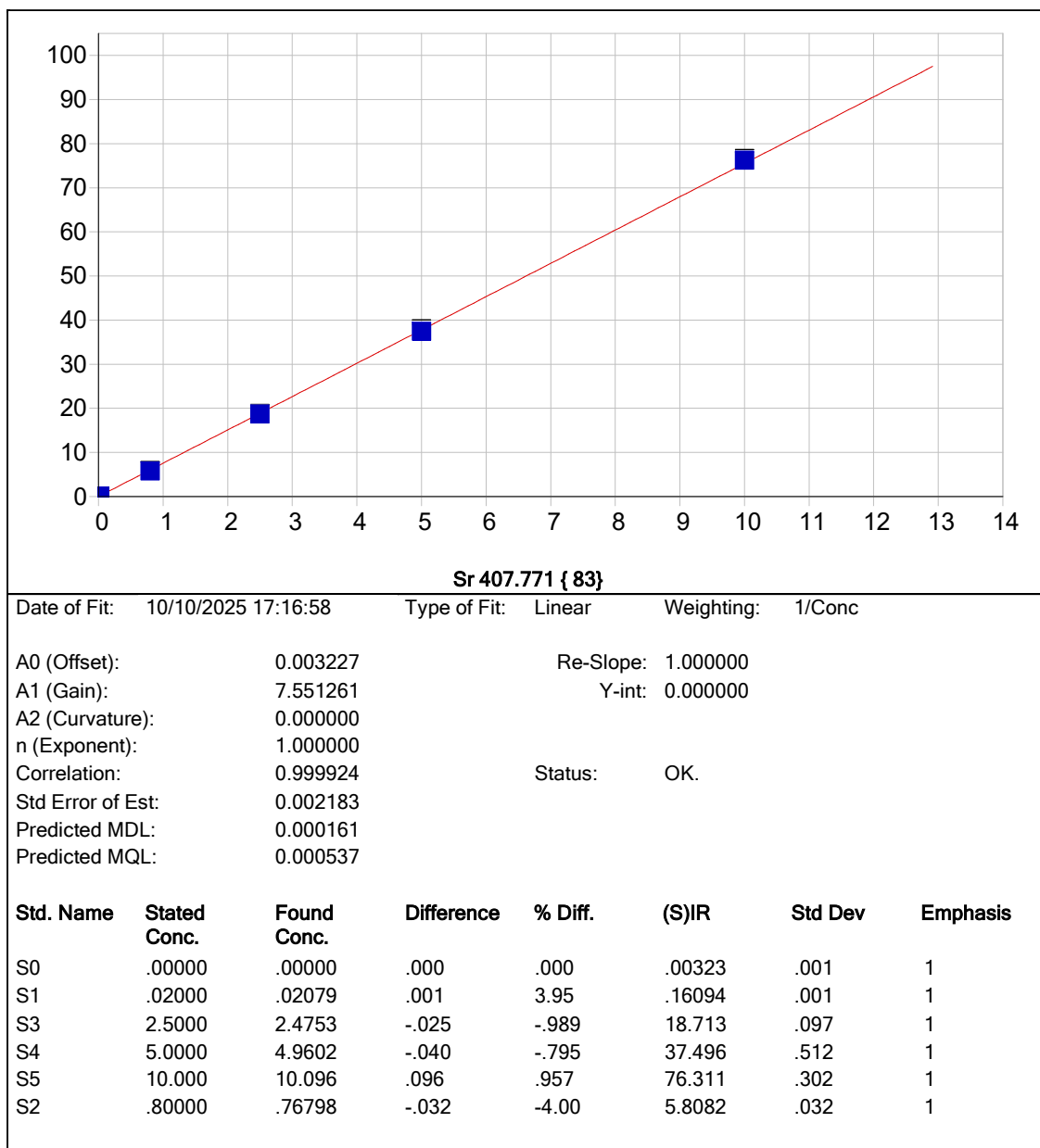


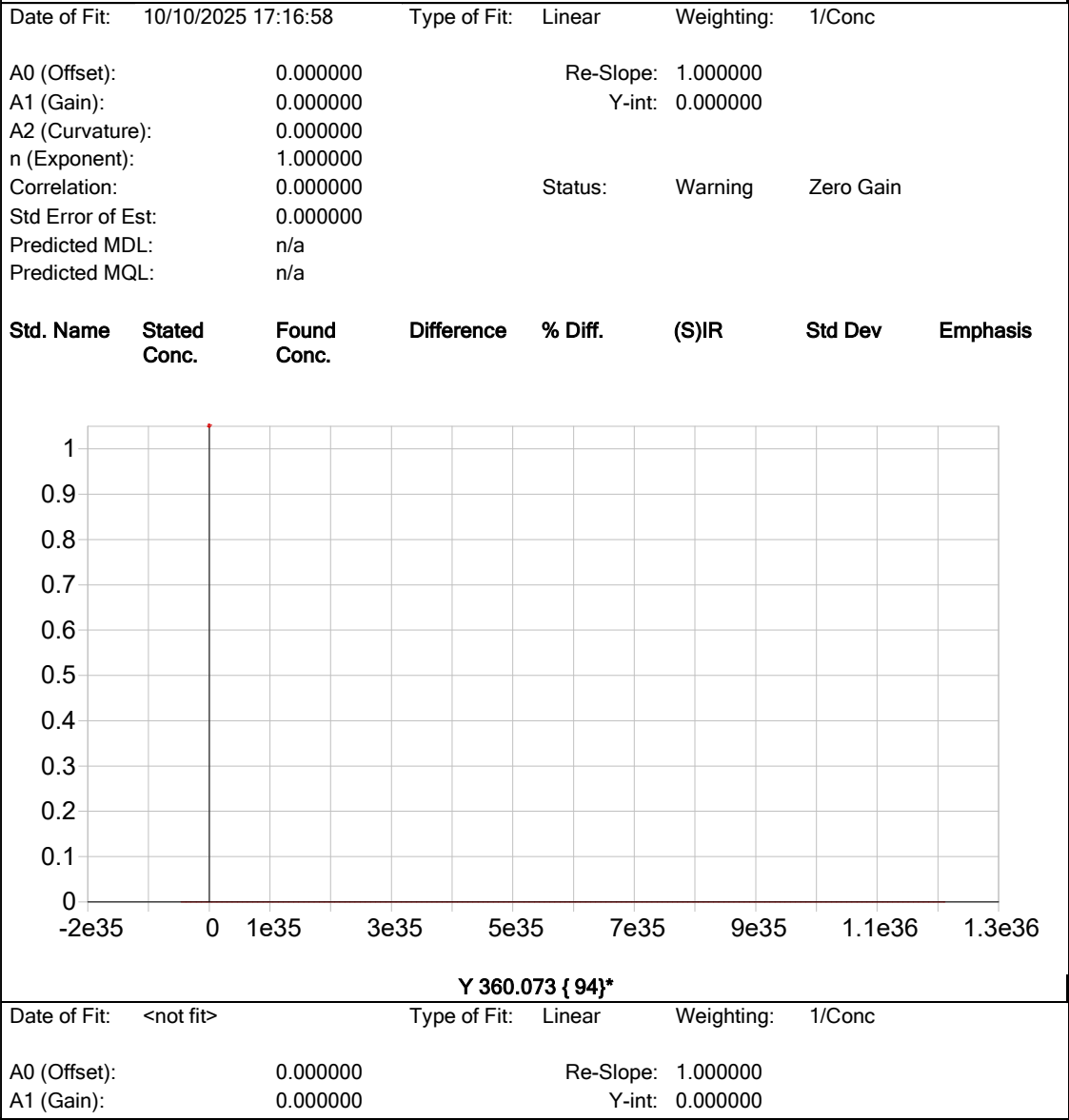
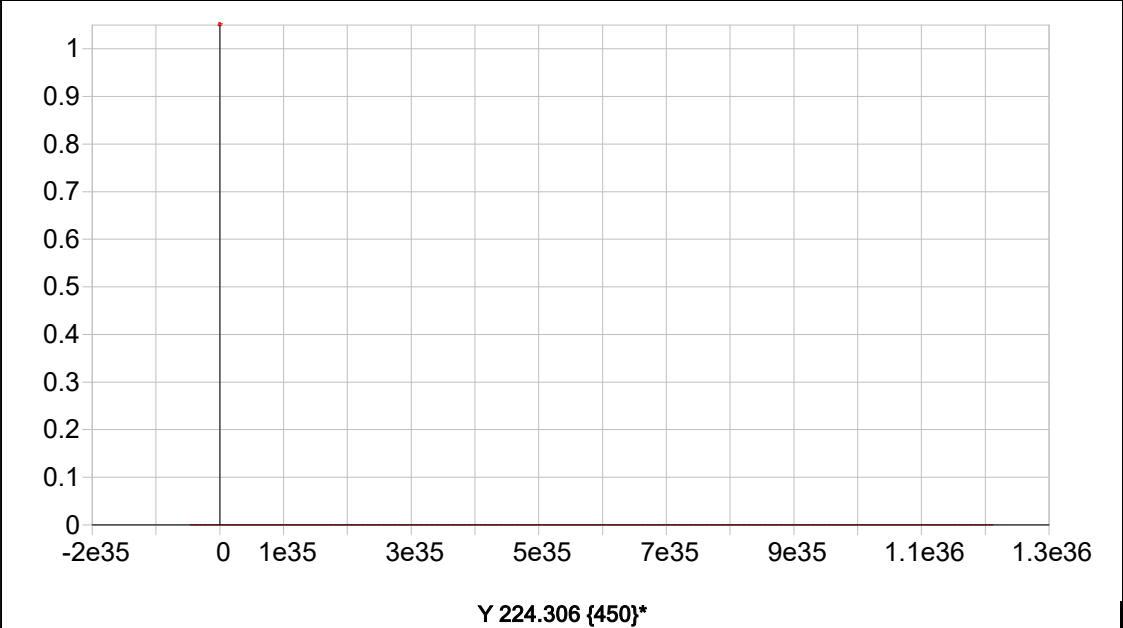


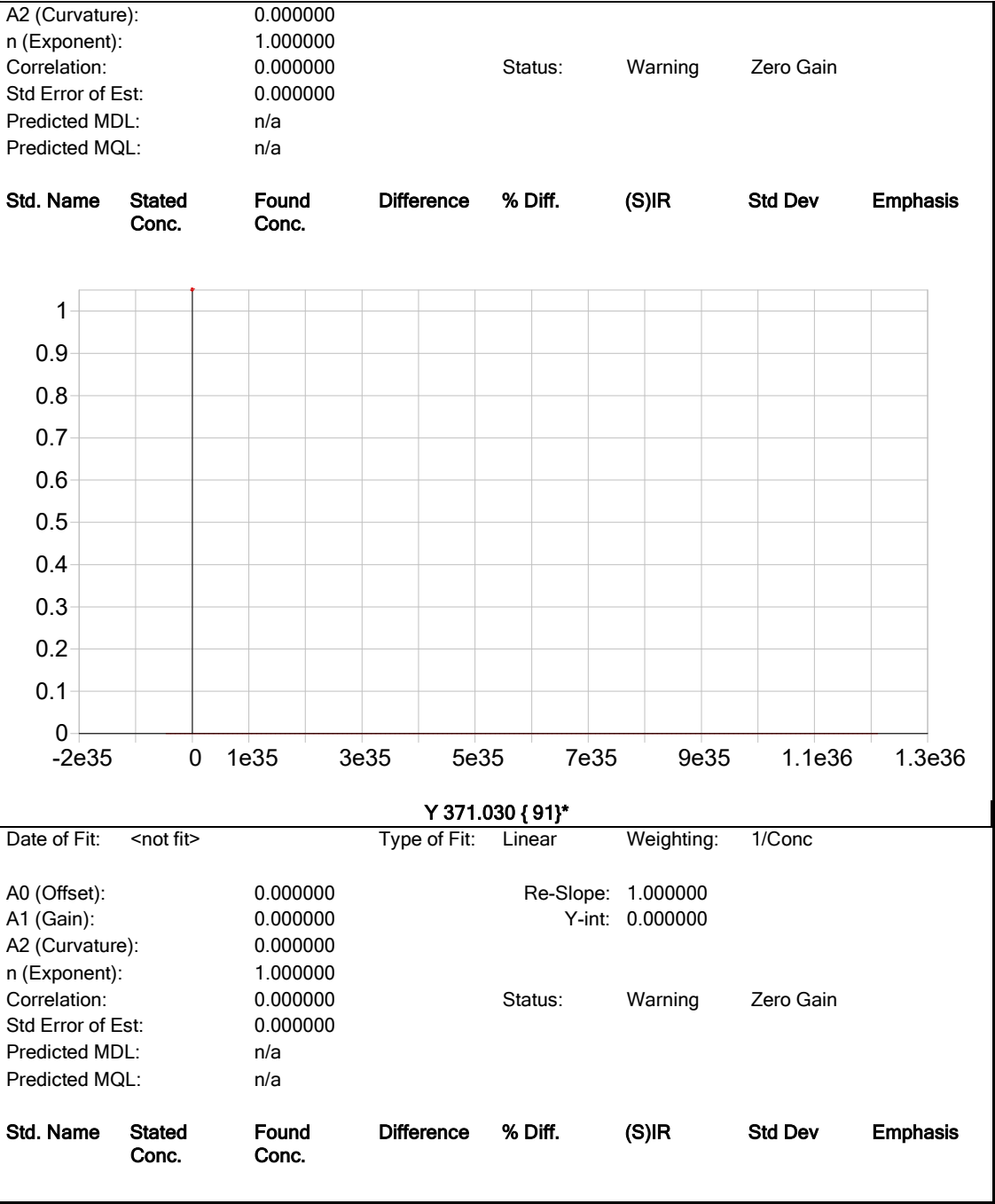




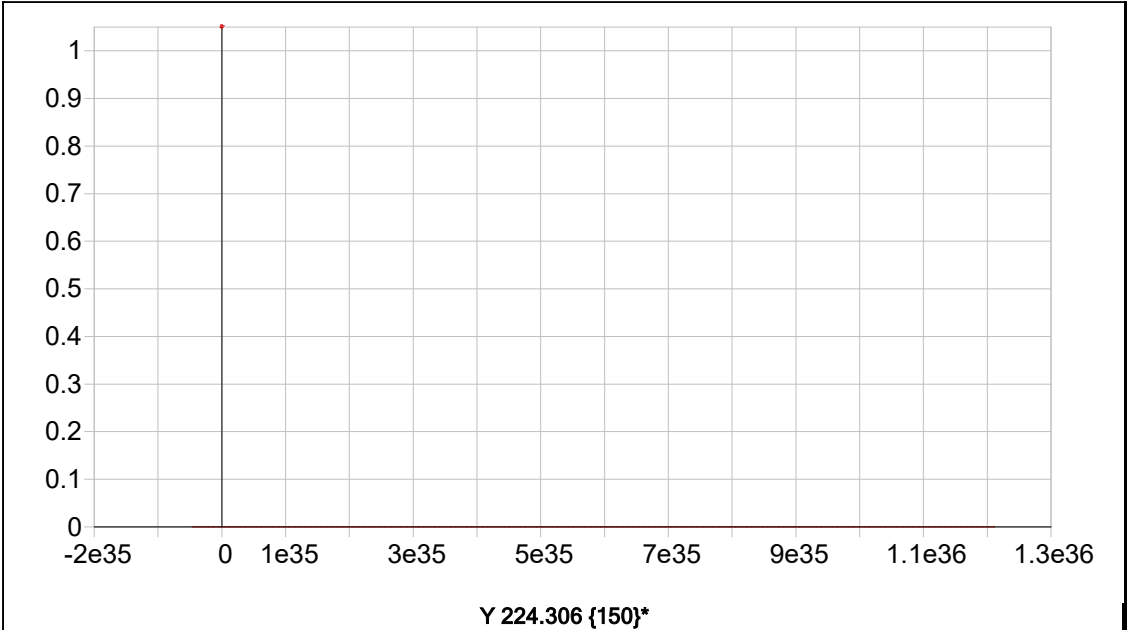




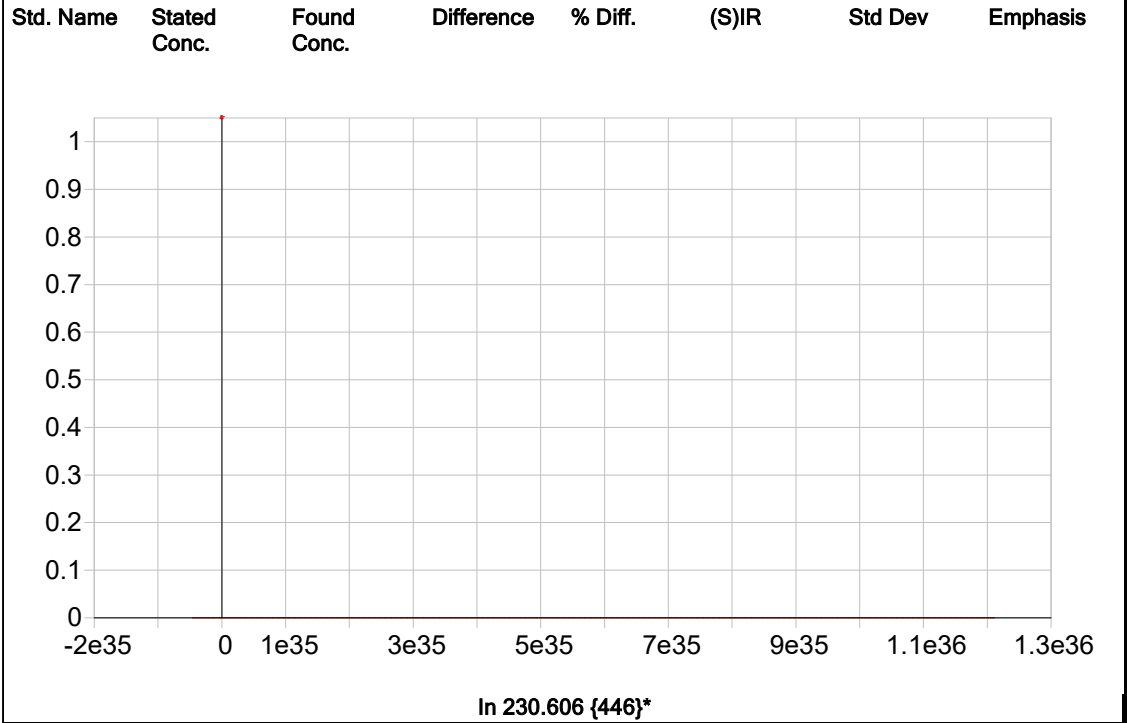




- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18



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



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

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

Sample Name: S0 Acquired: 10/10/2025 11:27:23 Type: Cal
Method: 6010-200.7 NEW(v276) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00002	.00060	.00022	.00140	.00094	-.00037	.06974	-.00550
Stddev	.00004	.00012	.00028	.00007	.00004	.00107	.00567	.00021
%RSD	192.03	20.466	128.01	4.6551	4.4716	289.40	8.1376	3.8690
#1	.00004	.00064	-.00008	.00140	.00099	.00086	.06411	-.00533
#2	-.00002	.00047	.00027	.00147	.00091	-.00107	.07546	-.00573
#3	.00004	.00070	.00046	.00134	.00092	-.00090	.06964	-.00543
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00045	.00099	.00012	.00007	.00029	.00002	.00069	-.00019
Stddev	.00016	.00071	.00007	.00017	.00010	.00000	.00018	.00009
%RSD	36.544	72.227	62.982	236.67	32.892	11.186	26.598	44.654
#1	-.00063	.00017	.00020	-.00013	.00039	.00002	.00052	-.00026
#2	-.00030	.00128	.00006	.00015	.00029	.00002	.00088	-.00010
#3	-.00042	.00150	.00008	.00020	.00020	.00002	.00066	-.00023
Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00060	-.00050	.00199	-.00080	.00596	.00036	.01599	.00067
Stddev	.00023	.00005	.00012	.00059	.00013	.00019	.00036	.00005
%RSD	39.085	9.4343	5.8481	73.605	2.1398	51.196	2.2815	8.0538
#1	-.00033	-.00055	.00185	-.00075	.00582	.00018	.01557	.00073
#2	-.00073	-.00046	.00207	-.00141	.00598	.00036	.01620	.00066
#3	-.00073	-.00049	.00204	-.00024	.00607	.00055	.01620	.00062
Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.00373	.00219	.00011	-.00139	.00042	.00418	.00323	
Stddev	.00006	.00070	.00004	.00007	.00003	.00160	.00058	
%RSD	1.5819	32.021	38.405	5.1578	7.8718	38.295	17.920	
#1	.00366	.00281	.00011	-.00142	.00041	.00304	.00304	
#2	.00374	.00143	.00015	-.00145	.00046	.00601	.00277	
#3	.00378	.00234	.00007	-.00131	.00040	.00349	.00388	

Sample Name: S0 Acquired: 10/10/2025 11:27:23 Type: Cal
Method: 6010-200.7 NEW(v276) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6426.9	86467.	5958.6	4617.0	7836.3
Stddev	22.1	438.	14.7	11.0	16.1
%RSD	.34444	.50633	.24678	.23782	.20603
#1	6429.7	86138.	5941.9	4604.4	7838.3
#2	6447.6	86298.	5969.9	4622.2	7851.4
#3	6403.5	86964.	5963.8	4624.4	7819.3

Sample Name: S1 Acquired: 10/10/2025 11:31:46 Type: Cal
Method: 6010-200.7 NEW(v276) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00115	.00240	.00251	.00239	.00565	.00333	.26098	.07348
Stddev	.00015	.00018	.00007	.00013	.00006	.00013	.00166	.00094
%RSD	13.140	7.3765	2.9460	5.4444	1.0430	4.0421	.63452	1.2745
#1	.00103	.00260	.00248	.00239	.00559	.00323	.26130	.07358
#2	.00132	.00225	.00246	.00226	.00565	.00348	.25919	.07250
#3	.00110	.00236	.00260	.00252	.00571	.00327	.26246	.07436
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.01781	.10444	.00233	.03095	.01456	.00024	.00918	.02699
Stddev	.00031	.00041	.00005	.00014	.00014	.00003	.00017	.00050
%RSD	1.7484	.38992	2.2285	.44528	.94880	11.776	1.8275	1.8563
#1	.01745	.10445	.00230	.03100	.01470	.00023	.00932	.02746
#2	.01798	.10403	.00239	.03079	.01442	.00027	.00923	.02705
#3	.01799	.10485	.00230	.03105	.01457	.00022	.00900	.02646
Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02407	.00167	.01446	.00451	.11464	.00702	.13246	.13302
Stddev	.00022	.00001	.00019	.00018	.00038	.00010	.00055	.00027
%RSD	.90380	.45692	1.3000	3.9612	.33092	1.3876	.41880	.20262
#1	.02385	.00167	.01427	.00457	.11495	.00701	.13183	.13274
#2	.02410	.00166	.01465	.00465	.11422	.00712	.13270	.13328
#3	.02428	.00167	.01446	.00431	.11477	.00692	.13286	.13306
Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.00983	.01749	.00100	-.00051	.00102	.02552	.16094	
Stddev	.00003	.00036	.00002	.00006	.00009	.00201	.00148	
%RSD	.28243	2.0640	2.4181	11.746	9.1152	7.8914	.91794	
#1	.00981	.01741	.00097	-.00056	.00093	.02662	.16229	
#2	.00981	.01717	.00100	-.00044	.00111	.02319	.16116	
#3	.00986	.01788	.00102	-.00053	.00101	.02674	.15936	

Sample Name: S1 Acquired: 10/10/2025 11:31:46 Type: Cal
Method: 6010-200.7 NEW(v276) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6315.7	90971.	6359.4	4799.8	7665.3
Stddev	18.7	140.	32.5	28.8	30.0
%RSD	.29562	.15366	.51112	.60071	.39092
#1	6322.8	90961.	6323.3	4774.3	7683.3
#2	6329.8	90836.	6386.3	4793.9	7682.0
#3	6294.5	91115.	6368.7	4831.1	7630.7

Sample Name: S2 Acquired: 10/10/2025 11:36:01 Type: Cal
Method: 6010-200.7 NEW(v276) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.04564	.03604	.15854	.03833	.07332	.02948	2.7534	.50090
Stddev	.00021	.00085	.00039	.00008	.00010	.00198	.0186	.00376
%RSD	.46473	2.3561	.24427	.19898	.13204	6.7264	.67629	.75012

#1	.04568	.03701	.15836	.03842	.07326	.02805	2.7445	.49776
#2	.04541	.03568	.15827	.03828	.07326	.02865	2.7747	.49987
#3	.04583	.03543	.15898	.03829	.07343	.03174	2.7408	.50506

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.1679	.19993	.03472	.39478	.13122	.00174	.16940	.04897
Stddev	.0009	.00121	.00017	.00026	.00039	.00001	.00105	.00027
%RSD	.07921	.60468	.49389	.06631	.29905	.85725	.61751	.54233

#1	1.1685	.19901	.03462	.39449	.13083	.00175	.16834	.04866
#2	1.1668	.20130	.03461	.39489	.13120	.00174	.17043	.04908
#3	1.1683	.19949	.03491	.39498	.13161	.00172	.16944	.04916

Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.23482	.04060	.02496	.04991	1.0185	.01276	.98219	.52593
Stddev	.00018	.00015	.00021	.00071	.0019	.00014	.00536	.00133
%RSD	.07604	.37208	.84762	1.4137	.18443	1.1059	.54527	.25336

#1	.23485	.04053	.02478	.05007	1.0166	.01260	.97648	.52601
#2	.23498	.04049	.02519	.05052	1.0186	.01284	.98299	.52456
#3	.23462	.04077	.02490	.04914	1.0204	.01284	.98710	.52722

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.13258	.31092	.00185	.03365	.02194	.74274	5.8082	
Stddev	.00021	.00110	.00001	.00022	.00021	.00361	.0324	
%RSD	.15942	.35488	.61719	.65551	.96609	.48664	.55761	

#1	.13268	.30965	.00184	.03380	.02198	.73863	5.7866	
#2	.13234	.31163	.00186	.03339	.02172	.74541	5.8455	
#3	.13273	.31149	.00185	.03375	.02214	.74419	5.7926	

Sample Name: S2 Acquired: 10/10/2025 11:36:01 Type: Cal
Method: 6010-200.7 NEW(v276) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6220.7	88471.	6011.9	4660.4	7439.0
Stddev	9.5	71.	25.7	21.2	10.6
%RSD	.15283	.08041	.42818	.45504	.14275
#1	6224.8	88427.	6036.8	4673.0	7434.7
#2	6227.5	88433.	6013.4	4672.3	7451.1
#3	6209.8	88554.	5985.4	4636.0	7431.2

Sample Name: S3 Acquired: 10/10/2025 11:40:04 Type: Cal
Method: 6010-200.7 NEW(v276) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Ti1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.14275	.11534	.50177	.11535	.22545	.09130	8.7436	1.6960
Stddev	.00012	.00245	.00048	.00018	.00058	.00048	.0348	.0134
%RSD	.08326	2.1261	.09631	.15231	.25852	.52468	.39822	.78803
#1	.14275	.11683	.50184	.11551	.22509	.09077	8.7821	1.7043
#2	.14286	.11668	.50126	.11537	.22514	.09142	8.7143	1.6806
#3	.14262	.11251	.50222	.11516	.22612	.09170	8.7343	1.7031
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.7791	.64883	.11004	1.2634	.40971	.00535	.54331	.15677
Stddev	.0067	.00335	.00037	.0018	.00047	.00003	.00078	.00048
%RSD	.17680	.51640	.33547	.14318	.11433	.60176	.14288	.30776
#1	3.7868	.64785	.11019	1.2647	.41020	.00535	.54408	.15635
#2	3.7748	.65257	.11031	1.2613	.40966	.00539	.54253	.15666
#3	3.7757	.64608	.10962	1.2641	.40927	.00533	.54333	.15730
Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.74950	.13006	.07276	.16227	3.2097	.03988	3.2612	1.6464
Stddev	.00005	.00011	.00070	.00117	.0090	.00037	.0352	.0015
%RSD	.00625	.08320	.95682	.72116	.28159	.93435	1.0790	.09081
#1	.74955	.13018	.07296	.16362	3.2195	.03989	3.2798	1.6480
#2	.74946	.13001	.07333	.16149	3.2017	.04025	3.2206	1.6450
#3	.74950	.12998	.07198	.16172	3.2079	.03951	3.2832	1.6461
Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.41503	.98761	.00552	.11291	.07006	2.3535	18.713	
Stddev	.00067	.00148	.00005	.00038	.00052	.0078	.097	
%RSD	.16155	.15027	.91825	.33855	.73656	.33268	.52042	
#1	.41549	.98910	.00553	.11307	.07022	2.3621	18.825	
#2	.41534	.98613	.00556	.11318	.07047	2.3469	18.649	
#3	.41426	.98761	.00546	.11247	.06948	2.3515	18.664	

Sample Name: S3 Acquired: 10/10/2025 11:40:04 Type: Cal
Method: 6010-200.7 NEW(v276) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6363.2	87486.	5720.7	4655.3	7395.5
Stddev	8.7	257.	41.3	20.5	9.8
%RSD	.13625	.29382	.72240	.44099	.13263
#1	6353.9	87459.	5703.6	4640.8	7384.2
#2	6371.1	87244.	5767.8	4646.3	7400.3
#3	6364.6	87755.	5690.6	4678.8	7402.0

Sample Name: S4 Acquired: 10/10/2025 11:44:03 Type: Cal
Method: 6010-200.7 NEW(v276) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.28441	.22845	1.0012	.22726	.44601	.19031	17.577	3.2583
Stddev	.00039	.00387	.0023	.00046	.00066	.00093	.078	.0319
%RSD	.13844	1.6925	.23025	.20129	.14900	.48695	.44505	.97842

#1	.28466	.22969	1.0034	.22770	.44664	.19136	17.645	3.2737
#2	.28396	.23155	1.0014	.22729	.44532	.18995	17.595	3.2795
#3	.28462	.22412	.99878	.22678	.44608	.18962	17.492	3.2216

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7.5844	1.2842	.21576	2.5211	.79806	.01103	1.0828	.31284
Stddev	.0174	.0030	.00066	.0051	.00153	.00010	.0027	.00230
%RSD	.22971	.23514	.30759	.20133	.19116	.94123	.25386	.73519

#1	7.6038	1.2874	.21652	2.5268	.79964	.01109	1.0855	.31160
#2	7.5793	1.2837	.21530	2.5193	.79796	.01091	1.0830	.31549
#3	7.5701	1.2814	.21545	2.5171	.79660	.01108	1.0800	.31142

Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.4905	.25758	.15248	.32624	6.3661	.08265	6.3892	3.2754
Stddev	.0039	.00117	.00124	.00067	.0447	.00059	.0729	.0037
%RSD	.26242	.45339	.81122	.20409	.70272	.70980	1.1410	.11170

#1	1.4949	.25891	.15272	.32671	6.4157	.08311	6.4278	3.2794
#2	1.4892	.25708	.15114	.32653	6.3539	.08199	6.4347	3.2745
#3	1.4874	.25674	.15358	.32548	6.3288	.08285	6.3051	3.2723

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.83070	1.9958	.01140	.23142	.14284	4.7319	37.496	
Stddev	.00193	.0046	.00007	.00078	.00044	.0199	.512	
%RSD	.23202	.23186	.64798	.33913	.30478	.42101	1.3651	

#1	.83292	1.9992	.01144	.23232	.14332	4.7430	37.233	
#2	.82958	1.9977	.01131	.23105	.14275	4.7439	38.085	
#3	.82959	1.9906	.01144	.23090	.14246	4.7089	37.168	

Sample Name: S4 Acquired: 10/10/2025 11:44:03 Type: Cal
Method: 6010-200.7 NEW(v276) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6247.2	84652.	5699.5	4505.3	7129.0
Stddev	13.7	395.	32.8	21.5	20.1
%RSD	.21898	.46658	.57507	.47724	.28252
#1	6235.3	84386.	5695.1	4481.7	7109.7
#2	6244.1	85106.	5669.2	4523.7	7127.6
#3	6262.2	84464.	5734.3	4510.4	7149.9

Sample Name: S5 Acquired: 10/10/2025 11:48:09 Type: Cal
Method: 6010-200.7 NEW(v276) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.60140	.47408	2.1071	.48244	.93640	.41581	35.391	6.2762
Stddev	.00092	.02169	.0024	.00209	.00245	.00361	.204	.0440
%RSD	.15332	4.5754	.11219	.43330	.26207	.86830	.57666	.70187

#1	.60245	.49443	2.1085	.48485	.93919	.41420	35.260	6.2837
#2	.60069	.47654	2.1044	.48137	.93544	.41327	35.286	6.2289
#3	.60107	.45126	2.1084	.48109	.93456	.41994	35.626	6.3161

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	15.865	2.5692	.43595	5.2914	1.6408	.02287	2.1751	.63961
Stddev	.007	.0059	.00063	.0039	.0029	.00003	.0146	.00182
%RSD	.04309	.22929	.14387	.07418	.17929	.12220	.67308	.28452

#1	15.873	2.5716	.43587	5.2960	1.6439	.02290	2.1690	.64047
#2	15.861	2.5625	.43661	5.2892	1.6381	.02286	2.1645	.63752
#3	15.861	2.5736	.43536	5.2891	1.6404	.02285	2.1918	.64085

Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.1294	.52064	.32909	.66979	12.749	.17508	12.285	6.6974
Stddev	.0013	.00088	.00070	.00066	.035	.00047	.097	.0111
%RSD	.04062	.16937	.21419	.09795	.27288	.26909	.78829	.16527

#1	3.1302	.52151	.32828	.66921	12.762	.17458	12.314	6.7101
#2	3.1279	.52065	.32943	.66967	12.776	.17551	12.177	6.6897
#3	3.1300	.51975	.32956	.67050	12.710	.17515	12.365	6.6925

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	1.7300	4.0497	.02467	.49571	.31588	9.5994	76.311	
Stddev	.0027	.0234	.00012	.00146	.00243	.0539	.302	
%RSD	.15295	.57703	.50151	.29420	.77074	.56097	.39613	

#1	1.7329	4.0462	.02456	.49740	.31861	9.5673	76.503	
#2	1.7277	4.0283	.02480	.49485	.31508	9.5694	75.963	
#3	1.7294	4.0747	.02463	.49489	.31394	9.6616	76.468	

Sample Name: S5 Acquired: 10/10/2025 11:48:09 Type: Cal
Method: 6010-200.7 NEW(v276) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5813.4	84542.	5916.8	4382.1	6484.1
Stddev	8.7	210.	27.9	24.6	8.8
%RSD	.15050	.24826	.47122	.56125	.13614
#1	5823.4	84412.	5909.0	4401.4	6494.2
#2	5808.9	84431.	5947.8	4354.4	6477.6
#3	5807.8	84784.	5893.7	4390.6	6480.6

Sample Name: ICV01 Acquired: 10/10/2025 11:52:22 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.890425	3.733430	3.808280	3.903953	4.005046	7.535000
Stddev	.013291	.098404	.011972	.016657	.007300	.085254
%RSD	.3416436	2.635765	.3143593	.4266822	.1822750	1.131438
#1	3.876336	3.708482	3.797630	3.892418	3.996757	7.623625
#2	3.892198	3.649901	3.805974	3.896392	4.010519	7.527802
#3	3.902741	3.841907	3.821237	3.923050	4.007861	7.453574
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.745444	1.1957516	1.942928	19.53562	.8195445	1.964714
Stddev	.047258	.0014121	.003881	.01851	.0002571	.004518
%RSD	.6101336	.7213755	.1997480	.0947351	.0313701	.2299379
#1	7.791850	.1962035	1.940332	19.53729	.8197616	1.961638
#2	7.747104	.1968824	1.941063	19.55324	.8196113	1.962603
#3	7.697378	.1941689	1.947390	19.51634	.8192606	1.969901
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.003813	4.140052	1.925422	19.40246	1.972388	.9837407
Stddev	.002021	.026411	.012893	.05006	.005137	.0015681
%RSD	.2013296	.6379405	.6696105	.2580260	.2604273	.1593991
#1	1.001899	4.158801	1.938851	19.43372	1.968316	.9826274
#2	1.003615	4.109847	1.924274	19.42893	1.970688	.9855340
#3	1.005926	4.151509	1.913142	19.34472	1.978158	.9830607
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	20.00715	1.942278	2.026742	20.30533	3.765287	4.004200
Stddev	.13898	.006786	.005195	.15157	.030395	.007987
%RSD	.6946647	.3493623	.2563471	.7464663	.8072405	.1994608
#1	20.15782	1.935024	2.023807	20.37404	3.767063	3.998394
#2	19.88396	1.948470	2.032740	20.13157	3.794756	4.000896
#3	19.97968	1.943340	2.023677	20.41038	3.734044	4.013308

Sample Name: ICV01 Acquired: 10/10/2025 11:52:22 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.935380	3.873867	3.890329	F .0009081	F .0225386	F .0000408
Stddev	.015889	.010361	.020973	.0006130	.0013843	.0011041
%RSD	.4037491	.2674697	.5391124	67.51000	6.141849	2707.272
#1	3.923793	3.884810	3.892320	.0011771	.0210110	.0003397
#2	3.928855	3.872584	3.868432	.0013407	.0237098	-.001182
#3	3.953493	3.864207	3.910236	.0002065	.0228951	.000965
Elem	Sr4077					
Units	ppm					
Avg	F -.003154					
Stddev	.000112					
%RSD	3.565568					
#1	-.003026					
#2	-.003201					
#3	-.003236					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	6376.564	85966.46	6319.202	4482.738	7373.918	
Stddev	6.668	256.63	34.292	5.515	18.048	
%RSD	.1045679	.2985238	.5426575	.1230195	.2447586	
#1	6381.988	85926.15	6303.444	4484.697	7386.214	
#2	6378.584	86240.86	6295.622	4476.511	7382.343	
#3	6369.120	85732.37	6358.540	4487.006	7353.198	

Sample Name: LLICV01 Acquired: 10/10/2025 12:00:45 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0208490	.0413417	.0126101	.0193030	.0522210	.0910638	.1059013
Stddev	.0020158	.0022883	.0016191	.0016337	.0014787	.0630249	.0005813
%RSD	9.668499	5.535101	12.83978	8.463641	2.831628	69.20959	.5489282
#1	.0185260	.0437474	.0108537	.0211305	.0530719	.1575906	.1058246
#2	.0218824	.0410854	.0129335	.0179839	.0505136	.0833497	.1065171
#3	.0221385	.0391924	.0140431	.0187946	.0530776	.0322510	.1053621
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0063007	.0059526	2.079048	.0108483	.0301414	.0224560	.1184427
Stddev	.0000344	.0000398	.015645	.0002231	.0001812	.0002078	.0135606
%RSD	.5465631	.6689906	.7525136	2.056488	.6013452	.9252548	11.44911
#1	.0062684	.0059175	2.064951	.0111046	.0303501	.0222831	.1336966
#2	.0062967	.0059959	2.076313	.0106977	.0300502	.0226865	.1138782
#3	.0063369	.0059445	2.095881	.0107426	.0300238	.0223984	.1077533
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0206163	2.178673	.0407250	.0106973	2.149297	.0390431	.0464536
Stddev	.0002070	.029406	.0002853	.0004275	.027718	.0009161	.0000605
%RSD	1.004322	1.349735	.7004778	3.995980	1.289639	2.346450	.1302559
#1	.0204062	2.212474	.0408056	.0110771	2.154847	.0399860	.0463938
#2	.0206227	2.164575	.0409613	.0102343	2.119224	.0381563	.0464523
#3	.0208202	2.158970	.0404081	.0107803	2.173821	.0389870	.0465148
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.106434	.1026541	.2014474	.0388809	.0373553	.4028970	.0183119
Stddev	.040643	.0005272	.0005268	.0004998	.0013901	.0163914	.0007465
%RSD	1.929487	.5135888	.2614913	1.285444	3.721250	4.068377	4.076436
#1	2.060065	.1028593	.2009275	.0385250	.0383446	.4192422	.0183881
#2	2.135886	.1030479	.2019808	.0394523	.0379553	.4029889	.0190174
#3	2.123352	.1020552	.2014338	.0386654	.0357659	.3864599	.0175303

Sample Name: LLICV01 Acquired: 10/10/2025 12:00:45 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0176532	.0229838	.0209376
Stddev	.0005324	.0014017	.0002931
%RSD	3.015624	6.098732	1.399875

#1	.0181752	.0216840	.0210045
#2	.0176734	.0244690	.0206169
#3	.0171110	.0227985	.0211915

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6341.433	82193.80	6180.407	4363.546	7685.040
Stddev	10.066	393.34	19.488	22.371	7.807
%RSD	.1587349	.4785561	.3153156	.5126758	.1015935

#1	6352.833	82164.89	6190.580	4357.688	7693.973
#2	6333.770	82600.80	6157.937	4388.264	7681.620
#3	6337.697	81815.70	6192.703	4344.688	7679.525

Sample Name: ICB01 Acquired: 10/10/2025 12:11:12 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001301	-.001434	-.000980	.0006246	.0004925	.0445525	.0032786
Stddev	.000926	.002712	.000077	.0033763	.0009214	.0395374	.0028872
%RSD	71.17747	189.0737	7.874573	540.5194	187.0770	88.74336	88.06268
#1	-.002174	.001532	-.000946	.0023341	.0009347	.0685462	.0000766
#2	-.001399	-.003785	-.001069	.0028043	-.000567	-.001081	.0056835
#3	-.000330	-.002049	-.000926	-.003265	.001110	.066192	.0040757
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000941	-.000017	-.004385	.0004789	-.000169	.0003237	.0026464
Stddev	.0000245	.000012	.014142	.0001054	.000178	.0000585	.0134950
%RSD	26.00431	68.93966	322.5223	22.01399	105.2320	18.07320	509.9378
#1	.0000690	-.000030	-.016514	.0003642	.000008	.0003174	-.010157
#2	.0000954	-.000006	.011149	.0005715	-.000167	.0002687	.001357
#3	.0001179	-.000016	-.007790	.0005010	-.000347	.0003852	.016740
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000578	.0159197	.0004621	.0002677	-.134516	.0023213	.0047853
Stddev	.000670	.0258991	.0003551	.0004047	.039772	.0010638	.0001535
%RSD	116.0692	162.6858	76.85207	151.1730	29.56704	45.82551	3.207819
#1	-.000337	-.009293	.0005940	-.000190	-.180371	.0032060	.0049099
#2	-.001335	.042455	.0007325	.000576	-.113795	.0011410	.0046138
#3	-.000060	.014597	.0000599	.000417	-.109383	.0026169	.0048321
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.110964	-.003221	-.000064	-.001470	-.001116	-.003436	-.000886
Stddev	.037752	.000142	.000157	.000269	.000767	.009787	.001016
%RSD	34.02172	4.396274	243.0573	18.28285	68.74126	284.8292	114.6936
#1	-.151962	-.003384	-.000166	-.001780	-.001603	.007024	.000260
#2	-.103294	-.003138	-.000143	-.001321	-.001515	-.012369	-.001677
#3	-.077636	-.003140	.000116	-.001309	-.000232	-.004963	-.001241

Sample Name: ICB01 Acquired: 10/10/2025 12:11:12 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.001450	-.000816	-.000350
Stddev	.001890	.000886	.000020
%RSD	130.3599	108.6068	5.798896

#1	.000476	.000080	-.000364
#2	-.003302	-.001693	-.000359
#3	-.001523	-.000835	-.000327

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6285.518	89997.88	6111.357	4641.568	7775.428
Stddev	16.003	288.48	21.916	12.888	17.926
%RSD	.2545995	.3205428	.3586169	.2776703	.2305429

#1	6298.513	90003.97	6093.471	4631.056	7781.877
#2	6290.397	90283.26	6135.805	4655.947	7789.237
#3	6267.643	89706.40	6104.796	4637.700	7755.170

Sample Name: CRI01 Acquired: 10/10/2025 12:15:52 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0193423	.0431343	.0119493	.0199473	.0491771	.1117477	.0981313
Stddev	.0012008	.0026570	.0005846	.0015390	.0015434	.0458262	.0013065
%RSD	6.207970	6.159838	4.892501	7.715158	3.138424	41.00864	1.331397
#1	.0184728	.0438403	.0122273	.0209451	.0491996	.1099136	.0985905
#2	.0207124	.0453669	.0112776	.0181749	.0476226	.1584635	.0966572
#3	.0188418	.0401956	.0123431	.0207218	.0507091	.0668661	.0991463
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0064538	.0057933	2.045195	.0103850	.0294198	.0218378	.1021622
Stddev	.0001035	.0000348	.013760	.0001521	.0001714	.0004083	.0032558
%RSD	1.603191	.6000087	.6727729	1.464605	.5827645	1.869915	3.186933
#1	.0065598	.0058259	2.059633	.0104326	.0295917	.0218049	.1032890
#2	.0064485	.0057973	2.032234	.0105075	.0292488	.0222615	.0984926
#3	.0063531	.0057567	2.043717	.0102147	.0294189	.0214468	.1047049
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0192603	2.078067	.0399197	.0102832	1.854617	.0415408	.0449477
Stddev	.0003099	.048952	.0001629	.0003298	.017495	.0019473	.0002309
%RSD	1.608905	2.355671	.4079529	3.207372	.9433314	4.687618	.5136995
#1	.0190325	2.066740	.0399467	.0099259	1.834416	.0431436	.0447979
#2	.0191353	2.035772	.0397450	.0103478	1.864570	.0393737	.0448315
#3	.0196132	2.131690	.0400674	.0105760	1.864864	.0421052	.0452136
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.889292	.0945850	.1973401	.0357659	.0365046	.3684189	.0187876
Stddev	.066966	.0013874	.0005066	.0000984	.0008665	.0067887	.0011907
%RSD	3.544477	1.466789	.2567204	.2751140	2.373773	1.842657	6.337858
#1	1.815849	.0961756	.1979162	.0357476	.0368706	.3636288	.0191031
#2	1.905062	.0936243	.1971403	.0358721	.0355152	.3761877	.0197889
#3	1.946966	.0939551	.1969639	.0356779	.0371282	.3654401	.0174709

Sample Name: CRI01 Acquired: 10/10/2025 12:15:52 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0195537	.0214736	.0199083
Stddev	.0001181	.0024273	.0003464
%RSD	.6041974	11.30373	1.739836

#1	.0194181	.0191040	.0199262
#2	.0196081	.0213620	.0195533
#3	.0196348	.0239548	.0202453

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6495.640	85995.81	6197.229	4455.067	7881.317
Stddev	8.171	334.44	43.442	19.382	3.729
%RSD	.1257901	.3889030	.7009829	.4350461	.0473203

#1	6492.461	86142.74	6147.229	4448.218	7878.747
#2	6489.537	85613.06	6218.733	4440.040	7879.609
#3	6504.923	86231.64	6225.723	4476.943	7885.594

Sample Name: ICSA01 Acquired: 10/10/2025 12:29:32 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0055653	.0173401	-.002657	-.004736	.0009223	251.6151
Stddev	.0023292	.0075369	.001336	.004851	.0048798	.3440
%RSD	41.85245	43.46535	50.29988	102.4375	529.1097	.1367244
#1	.0068615	.0220827	-.004058	-.006853	.0058846	251.5482
#2	.0069580	.0212884	-.002514	.000814	-.003871	251.3093
#3	.0028763	.0086493	-.001397	-.008169	.000753	251.9876
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0043265	.0015604	.0014649	242.5833	.0494832	.0012551
Stddev	.0012880	.0000835	.0001338	.4583	.0002856	.0001756
%RSD	29.76995	5.352640	9.131445	.1889280	.5772667	13.99067
#1	.0056501	.0015665	.0014203	243.0349	.0492750	.0011077
#2	.0030774	.0016407	.0016152	242.1186	.0493657	.0012084
#3	.0042519	.0014740	.0013591	242.5963	.0498088	.0014494
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.007167	99.69689	-.001898	253.0664	.0036819	.0011693
Stddev	.000982	1.12830	.001328	.3080	.0005962	.0006541
%RSD	13.69621	1.131728	69.96117	.1217254	16.19136	55.93975
#1	-.006770	99.38605	-.002857	253.4219	.0032233	.0015475
#2	-.006447	98.75661	-.000382	252.9002	.0034666	.0004140
#3	-.008286	100.9480	-.002455	252.8772	.0043558	.0015465
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0550170	.0076277	-.006802	-.015020	-.003701	.0001633
Stddev	.0351546	.0016997	.000047	.031178	.003831	.0001843
%RSD	63.89770	22.28365	.6894755	207.5807	103.5114	112.8603
#1	.0154029	.0094133	-.006762	-.002250	-.003864	.0000717
#2	.0671500	.0074404	-.006854	.007746	-.007448	.0003754
#3	.0824980	.0060294	-.006791	-.050555	.000209	.0000428

Sample Name: ICSA01 Acquired: 10/10/2025 12:29:32 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0043648	-.005701	.0181199	.0032106	.0171636	F -.031262
Stddev	.0014268	.001269	.0092727	.0022998	.0033706	.002123
%RSD	32.68757	22.26265	51.17396	71.63046	19.63826	6.789417

#1	.0052126	-.006296	.0274036	.0006940	.0132807	-.033338
#2	.0027176	-.006562	.0088583	.0037348	.0188740	-.029096
#3	.0051642	-.004243	.0180979	.0052031	.0193362	-.031353

Elem	Sr4077
Units	ppm
Avg	.0049868
Stddev	.0010755
%RSD	21.56760

#1	.0057135
#2	.0054957
#3	.0037513

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5709.448	81890.12	5850.925	4286.028	6269.206
Stddev	8.233	474.35	41.110	28.300	12.586
%RSD	.1442075	.5792466	.7026209	.6602897	.2007634

#1	5700.295	81807.02	5808.307	4253.367	6254.681
#2	5716.251	82400.52	5854.130	4301.445	6276.871
#3	5711.798	81462.81	5890.339	4303.272	6276.068

Sample Name: ICSAB01 Acquired: 10/10/2025 12:33:42 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1109676	.1132249	.0478839	.0503126	.6277125	258.4714
Stddev	.0037349	.0008273	.0007142	.0014652	.0065106	.2002
%RSD	3.365755	.7306693	1.491489	2.912187	1.037193	.0774419
#1	.1070383	.1124433	.0477576	.0495057	.6264684	258.5108
#2	.1113929	.1140914	.0472413	.0494283	.6219138	258.6489
#3	.1144716	.1131399	.0486528	.0520039	.6347554	258.2545
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5172646	.5176603	1.034099	245.2657	.5856144	.5207534
Stddev	.0030914	.0049949	.000455	1.0526	.0006502	.0002918
%RSD	.5976464	.9649031	.0440122	.4291729	.1110270	.0560279
#1	.5200581	.5126839	1.034611	245.0147	.5862705	.5207907
#2	.5139432	.5176236	1.033740	244.3613	.5849703	.5210246
#3	.5177926	.5226735	1.033948	246.4211	.5856024	.5204447
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4917764	106.8393	.4987109	258.4291	1.040523	.2216010
Stddev	.0011833	.8719	.0011900	.1767	.000817	.0007846
%RSD	.2406096	.8160673	.2386107	.0683919	.0785505	.3540616
#1	.4905650	107.8459	.4997945	258.2615	1.039591	.2209255
#2	.4929294	106.3538	.4974374	258.4120	1.040860	.2224616
#3	.4918349	106.3182	.4989010	258.6138	1.041117	.2214160
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1131526	.5126826	1.091560	-.027592	1.005557	1.057789
Stddev	.0363918	.0083769	.001848	.031031	.002773	.000142
%RSD	32.16170	1.633942	.1692539	112.4604	.2758027	.0134522
#1	.0931718	.5041882	1.090465	.008040	1.003584	1.057886
#2	.1551577	.5209369	1.090522	-.042147	1.004359	1.057856
#3	.0911284	.5129227	1.093693	-.048671	1.008728	1.057626

Sample Name: ICSAB01 Acquired: 10/10/2025 12:33:42 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.057408	1.025092	1.094939	F .0031004	F -.002994	F -.029760
Stddev	.001957	.001208	.006892	.0018577	.001975	.000803
%RSD	.1850393	.1178657	.6294633	59.91731	65.95612	2.699383
#1	1.058973	1.023730	1.092658	.0020918	-.004426	-.030683
#2	1.055214	1.025511	1.102683	.0052443	-.000741	-.029217
#3	1.058038	1.026035	1.089477	.0019652	-.003815	-.029381
Elem	Sr4077					
Units	ppm					
Avg	F -.000276					
Stddev	.000691					
%RSD	250.5164					
#1	-.000929					
#2	-.000345					
#3	.000447					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	5696.755	77019.86	5898.348	4002.892	6259.781	
Stddev	5.443	171.74	43.422	4.900	5.289	
%RSD	.0955466	.2229822	.7361692	.1223997	.0844927	
#1	5699.985	76961.15	5946.235	4008.520	6255.461	
#2	5690.471	76885.18	5887.274	3999.576	6258.203	
#3	5699.809	77213.26	5861.536	4000.580	6265.680	

Sample Name: ICSA01DLX20 Acquired: 10/10/2025 12:37:43 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSA01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000657	.0018913	.0007868	-.002719	-.000825	13.44766	.0043346
Stddev	.001264	.0015205	.0012558	.000714	.001875	.01797	.0019080
%RSD	192.3602	80.39040	159.6125	26.26109	227.1335	.1336155	44.01849
#1	.000413	.0029225	-.000156	-.003502	.001333	13.45235	.0060761
#2	-.002051	.0001452	.002212	-.002551	-.001764	13.46282	.0022952
#3	-.000333	.0026063	.000304	-.002104	-.002045	13.42781	.0046324
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002475	.0000857	13.44016	.0034526	.0007025	.0005330	5.391927
Stddev	.0001147	.0000897	.02053	.0003266	.0001006	.0001918	.061040
%RSD	46.36192	104.6924	.1527531	9.458047	14.31740	35.99319	1.132067
#1	.0003794	.0001761	13.43533	.0030854	.0005894	.0007437	5.322743
#2	.0001919	.0000842	13.46267	.0035621	.0007360	.0003683	5.438184
#3	.0001711	-.000003	13.42247	.0037104	.0007820	.0004870	5.414856
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000835	13.84688	.0010776	.0003486	-.080780	.0001821	.0037096
Stddev	.000210	.04176	.0001625	.0001200	.012743	.0035488	.0001059
%RSD	25.14722	.3016131	15.08130	34.42775	15.77442	1949.303	2.853649
#1	-.000594	13.89287	.0009679	.0002178	-.094347	-.000366	.0036211
#2	-.000978	13.83643	.0012643	.0003743	-.078929	-.003061	.0038269
#3	-.000934	13.81133	.0010006	.0004537	-.069064	.003973	.0036807
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.201064	-.002892	.0027676	.0110408	.0020416	-.008877	.0005915
Stddev	.069280	.000695	.0003068	.0003674	.0014313	.015010	.0021110
%RSD	34.45647	24.03588	11.08612	3.327203	70.10348	169.0878	356.9015
#1	-.180663	-.002938	.0028050	.0114547	.0008163	-.010961	.0028532
#2	-.278254	-.002175	.0024438	.0109142	.0016939	-.022736	-.001327
#3	-.144276	-.003563	.0030540	.0107534	.0036147	.007066	.000248

Sample Name: ICSA01DLX20 Acquired: 10/10/2025 12:37:43 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSA01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0230699	-.003883	.0001670
Stddev	.0001311	.000626	.0001100
%RSD	.5681853	16.12000	65.85336

#1	.0232192	-.003926	.0001566
#2	.0229735	-.004487	.0002818
#3	.0230170	-.003237	.0000626

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6124.743	83508.80	5847.758	4332.078	7316.862
Stddev	6.878	426.73	23.199	21.090	2.189
%RSD	.1122938	.5110013	.3967115	.4868286	.0299237

#1	6121.193	83855.05	5821.000	4334.578	7314.340
#2	6132.670	83032.06	5860.049	4309.850	7317.976
#3	6120.366	83639.30	5862.226	4351.807	7318.270

Sample Name: ICSAB01DLX20 Acquired: 10/10/2025 12:41:58 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSAB01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0046605	.0050522	.0031139	-.001949	.0303563	12.49989	.0249042
Stddev	.0006770	.0043253	.0006150	.001583	.0003876	.03283	.0012997
%RSD	14.52615	85.61206	19.75003	81.22444	1.276942	.2626192	5.218912
#1	.0039049	.0075948	.0035893	-.001430	.0301718	12.52877	.0247427
#2	.0048648	.0075036	.0033330	-.000690	.0300955	12.50671	.0236928
#3	.0052118	.0000581	.0024193	-.003725	.0308018	12.46419	.0262771
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0281913	.0498452	12.58268	.0298258	.0249832	.0263866	4.952310
Stddev	.0001569	.0000570	.04477	.0005426	.0001298	.0000980	.021518
%RSD	.5564089	.1142822	.3558032	1.819243	.5196937	.3716033	.4345065
#1	.0283481	.0498847	12.63433	.0294139	.0250444	.0263543	4.959712
#2	.0281913	.0497799	12.55502	.0304406	.0248341	.0264968	4.928068
#3	.0280344	.0498710	12.55869	.0296229	.0250712	.0263088	4.969150
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0235680	12.91126	.0502380	.0101565	-.093041	.0235592	.0577844
Stddev	.0002860	.02436	.0004786	.0005462	.019073	.0031721	.0005609
%RSD	1.213601	.1886368	.9525880	5.377521	20.49974	13.46441	.9706417
#1	.0235311	12.92348	.0503643	.0101328	-.094049	.0244178	.0571701
#2	.0233021	12.88322	.0497090	.0107142	-.111591	.0200461	.0579137
#3	.0238706	12.92709	.0506407	.0096226	-.073484	.0262136	.0582693
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.121152	.0440556	.0499533	.0449995	.0448987	.0462990	-.000637
Stddev	.094989	.0004234	.0000789	.0006664	.0004662	.0112540	.001500
%RSD	78.40489	.9609626	.1578898	1.480867	1.038307	24.30726	235.5302
#1	-.177339	.0437648	.0500296	.0454030	.0443875	.0580938	.000452
#2	-.174639	.0445413	.0499583	.0453653	.0453004	.0356778	-.000015
#3	-.011479	.0438607	.0498721	.0442304	.0450082	.0451254	-.002347

Sample Name: ICSAB01DLX20 Acquired: 10/10/2025 12:41:58 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSAB01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.003132	.0002532	.0000935
Stddev	.001026	.0022320	.0001230
%RSD	32.77205	881.4379	131.4974

#1	-.002383	.0015739	.0001025
#2	-.002712	-.002324	.0002118
#3	-.004302	.001510	-.000034

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6207.335	82152.50	5650.497	4269.321	7427.259
Stddev	4.479	270.17	25.887	1.625	6.275
%RSD	.0721525	.3288668	.4581309	.0380731	.0844863

#1	6205.699	82458.13	5664.802	4269.105	7421.614
#2	6203.905	81945.52	5620.614	4267.814	7434.015
#3	6212.402	82053.83	5666.074	4271.043	7426.147

Sample Name: CCV01 Acquired: 10/10/2025 12:52:28 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.912360	4.813160	4.860556	4.901536	4.917884	9.771716	9.653696
Stddev	.013831	.182215	.003164	.019963	.012642	.015443	.022822
%RSD	.2815451	3.785775	.0650921	.4072761	.2570651	.1580329	.2364026
#1	4.898228	4.603024	4.861943	4.879121	4.909208	9.786284	9.659536
#2	4.912984	4.927428	4.862789	4.908086	4.912055	9.755527	9.628522
#3	4.925868	4.909028	4.856935	4.917401	4.932389	9.773336	9.673030
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2547487	2.440035	24.96272	1.003607	2.432170	1.227727	4.814854
Stddev	.0016371	.003915	.11850	.002115	.003208	.001537	.021541
%RSD	.6426309	.1604656	.4747160	.2106992	.1318837	.1251621	.4473762
#1	.2529312	2.441358	24.92438	1.006010	2.432428	1.226100	4.839713
#2	.2552071	2.443117	24.86813	1.002781	2.435241	1.229154	4.801703
#3	.2561077	2.435629	25.09564	1.002031	2.428841	1.227925	4.803147
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.430465	24.37133	2.436187	1.242999	22.89337	2.457336	2.513481
Stddev	.004239	.11201	.003547	.001385	.23246	.015308	.005571
%RSD	.1743915	.4596144	.1455788	.1114003	1.015400	.6229428	.2216416
#1	2.426486	24.41573	2.436661	1.244349	23.16121	2.453722	2.519834
#2	2.429987	24.24392	2.439473	1.243065	22.77477	2.444159	2.511178
#3	2.434922	24.45433	2.432427	1.241582	22.74413	2.474127	2.509430
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	23.55737	5.080314	4.979634	4.908715	4.887292	4.780786	4.822060
Stddev	.26368	.039905	.008577	.007771	.002053	.048662	.032039
%RSD	1.119329	.7854831	.1722376	.1583195	.0419981	1.017875	.6644331
#1	23.86107	5.034500	4.971911	4.906326	4.885835	4.836969	4.793888
#2	23.38664	5.098950	4.978128	4.917400	4.889639	4.753482	4.856913
#3	23.42440	5.107491	4.988865	4.902418	4.886400	4.751907	4.815379

Sample Name: CCV01 Acquired: 10/10/2025 12:52:28 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.753491	4.789892	4.806444
Stddev	.025263	.006923	.074363
%RSD	.5314615	.1445339	1.547153

#1	4.724465	4.788337	4.863771
#2	4.765482	4.783880	4.722417
#3	4.770525	4.797461	4.833143

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6224.416	85161.66	5761.350	4424.959	7144.846
Stddev	10.285	409.82	46.661	20.772	27.723
%RSD	.1652373	.4812259	.8098955	.4694335	.3880077

#1	6217.909	84794.82	5803.448	4404.195	7123.504
#2	6219.067	85603.97	5769.424	4445.739	7134.854
#3	6236.274	85086.19	5711.180	4424.942	7176.179

Sample Name: CCB01 Acquired: 10/10/2025 12:57:34 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001122	-.000049	.0007121	.0002004	.0006207	.0127694	.0053280
Stddev	.000823	.001059	.0002987	.0030409	.0006096	.0188067	.0011900
%RSD	73.38798	2164.939	41.94569	1517.058	98.21154	147.2789	22.33415
#1	-.001848	-.000532	.0007172	-.003282	.0003109	.0122208	.0042757
#2	-.001291	-.000781	.0010083	.001554	.0002282	.0318444	.0066194
#3	-.000227	.001166	.0004109	.002330	.0013230	-.005757	.0050889
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000834	.0000605	.0050718	.0002598	-.000080	.0001688	-.004276
Stddev	.0000342	.0000345	.0103838	.0000805	.000148	.0001695	.000429
%RSD	41.01630	57.05917	204.7352	31.00199	185.1539	100.4312	10.02491
#1	.0001203	.0000952	.0014398	.0002711	.000078	.0002417	-.003967
#2	.0000528	.0000602	.0167838	.0003341	-.000216	-.000025	-.004766
#3	.0000771	.0000261	-.003008	.0001742	-.000102	.000290	-.004096
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000701	.0033107	.0000968	.0001961	-.129925	.0007173	.0002822
Stddev	.000306	.0177448	.0002459	.0004161	.019361	.0014649	.0003038
%RSD	43.71071	535.9837	254.1269	212.1524	14.90189	204.2320	107.6607
#1	-.000741	.0170346	-.000040	.0002082	-.150775	-.000715	.0004957
#2	-.000985	-.016728	-.000051	.0006060	-.112513	.000654	.0004164
#3	-.000376	.009625	.000381	-.000226	-.126487	.002213	-.000066
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.215183	-.002943	.0002807	-.000744	.0001646	-.000015	-.000579
Stddev	.044086	.000073	.0001463	.000818	.0009936	.021509	.000808
%RSD	20.48770	2.469336	52.12334	109.8702	603.4982	142033.5	139.4639
#1	-.222561	-.002954	.0001122	-.001639	-.000073	-.015422	-.001297
#2	-.167874	-.002865	.0003544	-.000559	.001255	-.009182	-.000736
#3	-.255115	-.003009	.0003756	-.000035	-.000689	.024558	.000295

Sample Name: CCB01 Acquired: 10/10/2025 12:57:34 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.003407	.0007600	.0001438
Stddev	.001228	.0008784	.0000370
%RSD	36.05622	115.5710	25.71232

#1	-.002393	.0001026	.0001809
#2	-.003056	.0004199	.0001436
#3	-.004773	.0017576	.0001070

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6346.968	90445.16	6601.267	4613.566	7872.615
Stddev	7.137	366.99	38.734	15.096	16.697
%RSD	.1124510	.4057622	.5867706	.3272042	.2120896

#1	6338.798	90719.99	6571.081	4606.480	7855.148
#2	6351.987	90587.10	6587.776	4630.901	7888.417
#3	6350.121	90028.40	6644.942	4603.316	7874.278

Sample Name: LR-2 Acquired: 10/10/2025 13:07:13 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0937700	-.068884	.0845039	-.625563	-.085078	1984.133	.0288574
Stddev	.0042557	.015453	.0007746	.010717	.006352	8.342	.0013495
%RSD	4.538486	22.43306	.9166348	1.713168	7.465775	.4204447	4.676548
#1	.0889770	-.051714	.0846720	-.622297	-.077743	1983.166	.0283743
#2	.0971055	-.081675	.0836591	-.637533	-.088757	1976.316	.0303820
#3	.0952274	-.073262	.0851806	-.616859	-.088732	1992.916	.0278159
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0406735	.0116938	-31.7013	-.270479	.0528634	-.286847	2738.414
Stddev	.0002531	.0032123	.2977	.003613	.0001931	.018695	35.595
%RSD	.6222882	27.47041	.9390971	1.335949	.3653044	6.517472	1.299835
#1	.0406481	.0153975	-31.3604	-.266311	.0526751	-.266044	2697.559
#2	.0404340	.0100173	-31.8341	-.272391	.0530610	-.302242	2762.735
#3	.0409383	.0096665	-31.9096	-.272735	.0528543	-.292255	2754.948
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.485935	1.205460	.0484173	^ *****	4.245152	.0399170	-.206746
Stddev	.002371	.026557	.0009932	-----	.046777	.0004173	.004994
%RSD	.4880260	2.203020	2.051247	-----	1.101888	1.045467	2.415376
#1	-.483775	1.235235	.0488995	^ -----	4.261225	.0402305	-.202454
#2	-.485557	1.184220	.0490773	^ -----	4.192458	.0394433	-.212227
#3	-.488473	1.196927	.0472751	^ -----	4.281773	.0400771	-.205556
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1924.082	^ *****	-.016279	.0140467	.0041961	.5077440	.0726702
Stddev	4.256	-----	.000791	.0009517	.0011390	.0063251	.0053137
%RSD	.2211851	-----	4.856959	6.775068	27.14404	1.245731	7.312084
#1	1926.791	^ -----	-.016568	.0150227	.0053333	.5005583	.0745616
#2	1919.177	^ -----	-.016884	.0139961	.0030553	.5102046	.0666695
#3	1926.278	^ -----	-.015384	.0131213	.0041998	.5124690	.0767794

Sample Name: LR-2 Acquired: 10/10/2025 13:07:13 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-485814	.2972639	-2.62535
Stddev	.018019	.0048773	.03413
%RSD	3.708946	1.640736	1.299894

#1	-465060	.2917286	-2.58619
#2	-497469	.2991327	-2.64869
#3	-494913	.3009305	-2.64118

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5409.562	70613.32	5490.250	3827.236	5583.032
Stddev	9.233	399.57	15.092	27.643	8.155
%RSD	.1706708	.5658615	.2748868	.7222826	.1460693

#1	5402.079	71014.32	5506.600	3855.020	5574.093
#2	5419.880	70610.45	5487.297	3826.952	5590.067
#3	5406.727	70215.19	5476.853	3799.735	5584.934

Sample Name: LR-3 Acquired: 10/10/2025 13:11:40 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1029880	.0333124	248.0230	.0177119	.2465140	.2328362	.0036886
Stddev	.0017998	.0024849	3.0965	.0008173	.0055634	.0018597	.0017089
%RSD	1.747610	7.459418	1.248466	4.614243	2.256814	.7987249	46.32988
#1	.1041409	.0313501	251.5701	.0181917	.2492878	.2341135	.0017280
#2	.1009141	.0324805	246.6387	.0181757	.2501451	.2307026	.0044757
#3	.1039090	.0361065	245.8601	.0167682	.2401091	.2336926	.0048623
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003381	-.002411	.3097427	23.61121	.0071564	51.85187	.3299054
Stddev	.000129	.000060	.0052129	.08750	.0001418	.30802	.0107043
%RSD	3.813616	2.485665	1.682986	.3705695	1.982063	.5940323	3.244659
#1	-.003236	-.002342	.3041435	23.68993	.0073080	52.04650	.3222631
#2	-.003425	-.002440	.3106290	23.51700	.0070270	52.01235	.3253136
#3	-.003483	-.002451	.3144557	23.62669	.0071341	51.49675	.3421396
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	51.36028	-.094324	25.10590	.0040195	.2828102	-.035944	30.25594
Stddev	.11528	.043067	.10471	.0002858	.0093001	.003129	.07470
%RSD	.2244627	45.65902	.4170675	7.109835	3.288452	8.706577	.2468996
#1	51.26843	-.102596	25.16585	.0042965	.2934817	-.033444	30.34055
#2	51.48965	-.132655	25.16686	.0040365	.2785138	-.034934	30.22812
#3	51.32276	-.047720	24.98500	.0037257	.2764351	-.039453	30.19913
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4142530	-.002522	-.016990	-.013512	-.035131	-.069681	.0634331
Stddev	.0390777	.000807	.000348	.000258	.000689	.009958	.0004414
%RSD	9.433304	32.00124	2.048148	1.907338	1.960268	14.29052	.6957830
#1	.4585056	-.002762	-.017157	-.013737	-.035788	-.081156	.0632348
#2	.3997651	-.003181	-.017223	-.013231	-.035189	-.063306	.0639389
#3	.3844881	-.001622	-.016590	-.013569	-.034415	-.064582	.0631258

Sample Name: LR-3 Acquired: 10/10/2025 13:11:40 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0680319	.0029167	.0000107
Stddev	.0055279	.0018118	.0001501
%RSD	8.125506	62.11645	1404.299

#1	.0724190	.0050003	-.000090
#2	.0618230	.0017119	.000183
#3	.0698536	.0020380	-.000062

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5501.701	91636.48	6727.650	4626.157	7740.868
Stddev	33.007	388.16	99.139	24.742	37.595
%RSD	.5999354	.4235836	1.473602	.5348389	.4856752

#1	5477.330	91615.36	6838.575	4644.747	7711.686
#2	5488.509	92034.77	6647.687	4635.649	7727.626
#3	5539.263	91259.32	6696.688	4598.073	7783.293

Sample Name: LR-1 Acquired: 10/10/2025 13:20:51 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0022804	.0169359	.0177542	.0094136	.0220697	.4802063	.0221049
Stddev	.0012151	.0072965	.0009425	.0057929	.0033672	.0007866	.0033279
%RSD	53.28217	43.08328	5.308676	61.53721	15.25724	.1638106	15.05489
#1	.0011249	.0161915	.0186812	.0156330	.0214493	.4803704	.0225072
#2	.0021690	.0100401	.0167969	.0084360	.0257040	.4808979	.0185942
#3	.0035473	.0245761	.0177844	.0041717	.0190558	.4793506	.0252133
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0010735	.0009965	2395.116	.0386927	.0068535	.0086839	.7122866
Stddev	.0000565	.0001505	16.599	.0005844	.0003560	.0004244	.0110985
%RSD	5.262573	15.10192	.6930303	1.510407	5.193660	4.887551	1.558150
#1	.0010863	.0010366	2397.393	.0387625	.0068973	.0090719	.6995543
#2	.0011224	.0008300	2410.459	.0380765	.0071856	.0087491	.7199150
#3	.0010116	.0011228	2377.496	.0392390	.0064778	.0082306	.7173905
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0267355	2335.283	.0291809	.0032408	2510.892	.0166519	.0792392
Stddev	.0004638	9.631	.0008955	.0003181	3.373	.0011985	.0005866
%RSD	1.734828	.4124086	3.068800	9.816438	.1343525	7.197398	.7402463
#1	.0262798	2343.115	.0300994	.0028735	2513.422	.0157560	.0787041
#2	.0272071	2338.205	.0291328	.0034310	2507.062	.0180133	.0791471
#3	.0267197	2324.530	.0283104	.0034178	2512.191	.0161864	.0798663
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.781177	.0059855	.0094287	-.009000	-.084598	-.015266	.0148446
Stddev	1.803080	.0014494	.0001804	.001077	.001973	.013777	.0007517
%RSD	18.43418	24.21579	1.913429	11.96933	2.331879	90.24216	5.063821
#1	7.904021	.0074925	.0094107	-.010244	-.082330	-.013120	.0157105
#2	9.939811	.0046015	.0096174	-.008418	-.085554	-.002689	.0144649
#3	11.49970	.0058626	.0092579	-.008339	-.085911	-.029990	.0143586

Sample Name: LR-1 Acquired: 10/10/2025 13:20:51 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2458276	-.382800	.0613891
Stddev	.0047599	.002752	.0000905
%RSD	1.936264	.7190340	.1474854

#1	.2512030	-.384214	.0614818
#2	.2441326	-.384559	.0613009
#3	.2421473	-.379628	.0613846

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4159.249	62086.75	5315.988	3034.960	4354.931
Stddev	3.461	159.23	41.236	7.079	7.504
%RSD	.0832061	.2564713	.7757044	.2332624	.1723130

#1	4156.609	62229.24	5305.027	3027.007	4346.732
#2	4157.971	62116.16	5281.340	3037.298	4356.605
#3	4163.167	61914.87	5361.598	3040.575	4361.457

Sample Name: PB170047BL Acquired: 10/10/2025 13:25:17 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001632	-.001221	.0003978	-.000510	-.001535	.0203952
Stddev	.000471	.001698	.0004394	.001708	.001015	.0083168
%RSD	28.85556	139.0476	110.4425	334.8614	66.11479	40.77840
#1	-.001131	-.003055	-.000100	.001262	-.001161	.0298367
#2	-.002065	.000296	.000730	-.000646	-.000760	.0141534
#3	-.001700	-.000903	.000564	-.002147	-.002684	.0171955
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0012523	.0000135	-.000028	.1252808	.0001552	-.000138
Stddev	.0031393	.0000091	.000031	.0264998	.0002456	.000077
%RSD	250.6869	66.93721	111.5476	21.15236	158.3007	55.68935
#1	.0017340	.0000057	-.000064	.1498232	.0000912	-.000200
#2	-.002100	.0000115	-.000010	.1288366	.0004264	-.000052
#3	.004123	.0000235	-.000010	.0971826	-.000052	-.000161
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0016975	-.003036	-.000793	.1386160	.0005401	.0002450
Stddev	.0000625	.003622	.001197	.0317557	.0003206	.0002574
%RSD	3.679042	119.2872	150.9960	22.90913	59.36601	105.0782
#1	.0017239	-.007218	-.000420	.1154788	.0004629	.0002103
#2	.0017425	-.000893	.000174	.1255488	.0008922	.0000066
#3	.0016262	-.000998	-.002132	.1748205	.0002651	.0005179
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 1.398835	.0014200	.0011147	.7167791	-.006151	-.000103
Stddev	.109681	.0020511	.0009000	.0314294	.000472	.000189
%RSD	7.840917	144.4428	80.73809	4.384805	7.677870	184.1007
#1	1.488075	-.000240	.0005196	.7068628	-.006684	.000044
#2	1.432042	.000787	.0021501	.7519706	-.005983	-.000317
#3	1.276387	.003713	.0006745	.6915040	-.005786	-.000036

Sample Name: PB170047BL Acquired: 10/10/2025 13:25:17 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001472	-.000114	-.006991	-.000002	-.005219	F .0211541
Stddev	.000451	.002446	.004075	.000308	.000923	.0009559
%RSD	30.65301	2141.403	58.29563	17027.53	17.68526	4.518831

#1	-.001638	-.000058	-.005155	-.000148	-.005327	.0217925
#2	-.001817	.002304	-.011661	-.000210	-.006083	.0200551
#3	-.000962	-.002588	-.004156	.000352	-.004247	.0216148

Elem	Sr4077
Units	ppm
Avg	-.000229
Stddev	.000196
%RSD	85.92050

#1	-.000387
#2	-.000290
#3	-.000009

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6241.218	90838.34	5692.028	4707.461	7703.808
Stddev	18.259	459.24	15.931	17.462	15.007
%RSD	.2925604	.5055627	.2798903	.3709369	.1947974

#1	6261.373	91143.95	5679.859	4711.576	7710.444
#2	6236.503	91060.85	5710.060	4722.497	7714.353
#3	6225.779	90310.22	5686.165	4688.309	7686.627

Sample Name: PB170047BS Acquired: 10/10/2025 13:29:36 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7876296	1.953978	.9595490	1.996592	.8042701	2.039862
Stddev	.0005053	.062211	.0033209	.002391	.0030372	.014402
%RSD	.0641547	3.183800	.3460870	.1197785	.3776307	.7060303
#1	.7874172	1.886920	.9604164	1.995009	.8077180	2.052289
#2	.7872652	1.965199	.9558805	1.995425	.8019909	2.024078
#3	.7882065	2.009814	.9623500	1.999343	.8031014	2.043219
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1970434	.2056620	.1920144	1.092468	.4158914	.1969649
Stddev	.0011025	.0002109	.0002454	.017661	.0008774	.0005443
%RSD	.5595375	.1025417	.1278110	1.616613	.2109781	.2763643
#1	.1977706	.2054193	.1919426	1.108738	.4159857	.1973697
#2	.1957749	.2058005	.1918129	1.094980	.4167178	.1963460
#3	.1975847	.2057662	.1922877	1.073685	.4149706	.1971788
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3112856	3.254583	.2030807	2.068269	.4931133	.0784242
Stddev	.0004306	.028513	.0004987	.025334	.0004508	.0000719
%RSD	.1383196	.8760767	.2455606	1.224891	.0914107	.0916730
#1	.3115812	3.235525	.2026827	2.048909	.4928154	.0784898
#2	.3107916	3.240862	.2029194	2.058957	.4936319	.0783473
#3	.3114839	3.287362	.2036401	2.096941	.4928925	.0784354
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 3.681539	.3037874	.2202385	10.40726	.2951437	.4033355
Stddev	.020960	.0038529	.0009626	.10553	.0008252	.0004793
%RSD	.5693266	1.268272	.4370585	1.013978	.2795923	.1188300
#1	3.685226	.3045281	.2200344	10.43384	.2942002	.4030597
#2	3.658980	.2996179	.2212868	10.29099	.2955003	.4038890
#3	3.700410	.3072161	.2193944	10.49696	.2957307	.4030580

Sample Name: PB170047BS Acquired: 10/10/2025 13:29:36 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6681057	.1911087	.9191907	5.594995	F -.008090	.2052481
Stddev	.0006758	.0010019	.0128804	.015919	.002443	.0006665
%RSD	.1011442	.5242345	1.401277	.2845265	30.19038	.3247277
#1	.6679131	.1900894	.9282138	5.577437	-.010797	.2045848
#2	.6675471	.1920922	.9249185	5.608487	-.006051	.2052417
#3	.6688568	.1911446	.9044399	5.599060	-.007423	.2059177
Elem	Sr4077					
Units	ppm					
Avg	.1944777					
Stddev	.0007132					
%RSD	.3667147					
#1	.1950410					
#2	.1936758					
#3	.1947162					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	6485.855	85165.47	6201.702	4462.567	7832.377	
Stddev	11.075	163.62	17.518	26.151	16.665	
%RSD	.1707589	.1921194	.2824719	.5860138	.2127716	
#1	6473.289	85346.72	6216.428	4453.388	7816.854	
#2	6494.194	85028.66	6182.329	4442.243	7849.987	
#3	6490.081	85121.02	6206.349	4492.070	7830.291	

Sample Name: PB170027TB Acquired: 10/10/2025 13:33:37 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003733	-.002627	-.000231	.0052773	.0029055	.0166666	.0007353
Stddev	.001560	.002701	.000809	.0014991	.0029011	.0052877	.0006802
%RSD	41.78227	102.8199	351.0585	28.40572	99.85102	31.72653	92.50165

#1	-.004581	.000492	.000704	.0058201	-.000046	.0213718	.0009700
#2	-.001933	-.004221	-.000707	.0035824	.005754	.0176839	-.000031
#3	-.004684	-.004151	-.000688	.0064292	.003008	.0109441	.001267

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000153	-.000140	.0083485	.0046827	-.000418	-.000123	.0255317
Stddev	.000027	.000048	.0095737	.0002065	.000145	.000160	.0018711
%RSD	17.54680	34.05540	114.6756	4.410345	34.71456	129.7978	7.328415

#1	-.000128	-.000085	-.001737	.0048998	-.000521	-.000298	.0257760
#2	-.000181	-.000171	.009471	.0046595	-.000482	.000015	.0272687
#3	-.000149	-.000162	.017311	.0044887	-.000252	-.000086	.0235506

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008523	.0339447	.0022598	-.000324	375.4655	.0024182	.0015949
Stddev	.0009336	.0291964	.0004546	.000106	8.4318	.0020403	.0003294
%RSD	109.5496	86.01165	20.11760	32.57547	2.245700	84.37188	20.65231

#1	.0006316	.0324596	.0020021	-.000410	382.8927	.0018809	.0014082
#2	.0018765	.0638553	.0019926	-.000357	377.2037	.0007003	.0019752
#3	.0000487	.0055192	.0027847	-.000206	366.3000	.0046733	.0014013

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.138037	-.008028	.0008467	-.016661	-.000213	.0089410	.0067387
Stddev	.093543	.000450	.0000641	.000285	.001711	.0093804	.0012450
%RSD	67.76682	5.601941	7.569121	1.710141	802.3928	104.9146	18.47518

#1	-.231719	-.008048	.0007933	-.016959	-.001246	.0118007	.0072907
#2	-.044634	-.007568	.0009178	-.016391	-.001156	.0165588	.0076123
#3	-.137757	-.008467	.0008291	-.016633	.001762	-.001536	.0053132

Sample Name: PB170027TB Acquired: 10/10/2025 13:33:37 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0079083	-.004078	-.000170
Stddev	.0018858	.003121	.000137
%RSD	23.84628	76.53566	80.69083

#1	.0082633	-.003780	-.000120
#2	.0095915	-.007337	-.000326
#3	.0058703	-.001117	-.000065

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5811.689	80420.92	5723.621	4139.354	6663.059
Stddev	23.216	611.97	61.229	43.164	20.291
%RSD	.3994650	.7609634	1.069761	1.042770	.3045354

#1	5785.683	79891.92	5714.820	4097.553	6642.294
#2	5819.060	80279.67	5788.775	4136.748	6664.044
#3	5830.325	81091.17	5667.269	4183.763	6682.841

Sample Name: Q3272-08 Acquired: 10/10/2025 13:38:05 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001815	-.003057	.0000944	.0021802	.0088056	.1113676
Stddev	.002168	.002402	.0008501	.0011742	.0018634	.0165557
%RSD	119.4179	78.54902	900.2903	53.85669	21.16198	14.86582

#1	.000179	-.004548	.0003017	.0025848	.0070894	.0969103
#2	-.001502	-.000287	-.000840	.0030986	.0085398	.1294282
#3	-.004123	-.004338	.000822	.0008572	.0107877	.1077643

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0559179	-.000066	-.000090	215.3768	.0006074	-.000197
Stddev	.0014831	.000080	.000050	.2721	.0003879	.000186
%RSD	2.652353	121.0913	55.72787	.1263148	63.85638	94.63647

#1	.0568214	-.000156	-.000114	215.5976	.0007215	-.000135
#2	.0567262	-.000003	-.000033	215.0729	.0009254	-.000406
#3	.0542062	-.000039	-.000125	215.4598	.0001753	-.000049

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000562	.0463722	.0321382	7.026693	.0037544	-.000360
Stddev	.000200	.0067045	.0004442	.037204	.0003069	.000364
%RSD	35.55745	14.45796	1.382258	.5294657	8.173617	101.2441

#1	-.000560	.0386365	.0316849	7.059362	.0034730	-.000673
#2	-.000764	.0499765	.0325728	6.986199	.0040816	-.000446
#3	-.000364	.0505037	.0321569	7.034517	.0037087	.000040

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	355.8768	.0071937	.0383606	1.183849	.0433612	.0076565
Stddev	1.2663	.0008138	.0000910	.064281	.0009354	.0001633
%RSD	.3558270	11.31275	.2371664	5.429872	2.157326	2.133266

#1	354.4155	.0065996	.0384308	1.115882	.0424657	.0076675
#2	356.5647	.0081213	.0382578	1.191995	.0432860	.0074880
#3	356.6503	.0068602	.0383933	1.243668	.0443320	.0078141

Sample Name: Q3272-08 Acquired: 10/10/2025 13:38:05 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.019984	-.006338	3.682880	.0091699	F 26.75509	-.035769
Stddev	.000422	.000821	.071752	.0018358	.24008	.001745
%RSD	2.110271	12.94839	1.948264	20.01982	.8973239	4.879444
#1	-.019867	-.007157	3.631191	.0095885	26.74178	-.037145
#2	-.019633	-.006341	3.764801	.0071609	26.52195	-.036356
#3	-.020452	-.005516	3.652647	.0107602	27.00155	-.033806
Elem	Sr4077					
Units	ppm					
Avg	.2432991					
Stddev	.0005754					
%RSD	.2365018					
#1	.2429240					
#2	.2430118					
#3	.2439616					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	5610.406	74642.82	6088.618	3766.387	6387.495	
Stddev	44.241	333.28	37.567	13.598	50.217	
%RSD	.7885459	.4464942	.6170007	.3610430	.7861717	
#1	5594.930	75026.16	6117.465	3780.501	6384.109	
#2	5660.305	74480.43	6046.139	3765.288	6439.319	
#3	5575.982	74421.86	6102.252	3753.371	6339.057	

Sample Name: Q3315-02 Acquired: 10/10/2025 13:42:29 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0121546	-.003367	.0006279	.0016947	.0037126	.0550990	.1659640
Stddev	.0019163	.001915	.0007698	.0010649	.0026649	.0129867	.0022429
%RSD	15.76603	56.86639	122.5941	62.83807	71.77941	23.56965	1.351442
#1	.0138100	-.003087	-.000129	.0027054	.0017870	.0401556	.1633790
#2	.0100553	-.005407	.001410	.0017960	.0067541	.0636542	.1673930
#3	.0125983	-.001608	.000603	.0005828	.0025969	.0614873	.1671202
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000412	.0003243	18.12693	.0036190	.0003155	.0147452	.0778893
Stddev	.0000402	.0000240	.07590	.0001755	.0001591	.0005939	.0063727
%RSD	97.43810	7.403137	.4187176	4.849960	50.42940	4.028064	8.181705
#1	.0000870	.0002967	18.04983	.0035778	.0002055	.0144821	.0711330
#2	.0000120	.0003356	18.20157	.0034677	.0002431	.0154252	.0787424
#3	.0000246	.0003406	18.12938	.0038115	.0004979	.0143282	.0837924
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0402220	4.365638	.0029652	-.000204	317.8849	.0040291	1.275466
Stddev	.0008399	.021676	.0003068	.000743	8.8317	.0047734	.006287
%RSD	2.088196	.4965205	10.34511	364.6883	2.778255	118.4736	.4929498
#1	.0393218	4.370640	.0026125	-.000762	311.6332	.0068611	1.268292
#2	.0403597	4.384377	.0031695	-.000488	314.0333	-.001482	1.278089
#3	.0409846	4.341898	.0031137	.000640	327.9882	.006708	1.280017
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.173020	.0553372	.0003412	-.018536	-.001125	2.282724	.0887334
Stddev	.105604	.0006166	.0004815	.000993	.001132	.057387	.0006074
%RSD	1.710740	1.114290	141.1278	5.359294	100.6273	2.513990	.6845033
#1	6.065799	.0557542	.0008915	-.018950	-.002338	2.236201	.0880346
#2	6.176330	.0556284	.0001348	-.019255	-.000097	2.265120	.0890308
#3	6.276930	.0546289	-.000003	-.017402	-.000940	2.346852	.0891347

Sample Name: Q3315-02 Acquired: 10/10/2025 13:42:29 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.586496	-.001576	.1604348
Stddev	.004281	.000766	.0017248
%RSD	.2698459	48.58888	1.075082

#1	1.590835	-.002450	.1584745
#2	1.586379	-.001023	.1611104
#3	1.582275	-.001254	.1617196

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5729.353	79368.96	5877.816	4006.439	6565.955
Stddev	25.561	372.02	41.850	21.231	21.980
%RSD	.4461457	.4687211	.7119929	.5299277	.3347626

#1	5702.449	79674.68	5854.089	4030.058	6542.952
#2	5753.317	79477.45	5853.222	4000.318	6586.745
#3	5732.295	78954.76	5926.138	3988.940	6568.168

Sample Name: Q3315-02DUP Acquired: 10/10/2025 13:46:53 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0116262	-.004560	.0011336	.0062109	.0019461	.0535054	.1696264
Stddev	.0031927	.001639	.0012460	.0040206	.0011468	.0103545	.0003750
%RSD	27.46166	35.94688	109.9069	64.73480	58.92793	19.35229	.2211015

#1	.0104470	-.006065	.0013407	.0096543	.0025532	.0423249	.1692095
#2	.0091908	-.004801	-.000203	.0017924	.0006234	.0627649	.1699363
#3	.0152408	-.002813	.002263	.0071860	.0026617	.0554262	.1697335

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000806	.0002628	18.01742	.0036548	.0003565	.0149197	.0891396
Stddev	.0000435	.0000300	.07463	.0001150	.0001605	.0006596	.0073835
%RSD	53.96175	11.40526	.4142195	3.146481	45.01701	4.420738	8.283078

#1	.0000907	.0002883	18.09906	.0036647	.0001744	.0141914	.0970778
#2	.0001182	.0002702	18.00048	.0037645	.0004176	.0150911	.0878640
#3	.0000330	.0002298	17.95271	.0035351	.0004774	.0154767	.0824770

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0410392	4.339791	.0030079	.0001268	332.7525	.0018988	1.244449
Stddev	.0007148	.031741	.0001505	.0004670	7.1814	.0021269	.003583
%RSD	1.741772	.7313848	5.002936	368.3064	2.158175	112.0109	.2878955

#1	.0417917	4.371021	.0028523	-.000386	324.4619	.0043347	1.241107
#2	.0403692	4.307563	.0030187	.000240	336.7489	.0009519	1.248232
#3	.0409569	4.340791	.0031527	.000527	337.0466	.0004098	1.244008

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.146836	.0539953	.0007334	-.018566	.0002432	2.230372	.0938821
Stddev	.034834	.0004952	.0002992	.000369	.0017826	.012997	.0011670
%RSD	.5666922	.9170798	40.80287	1.985360	732.9925	.5827360	1.243044

#1	6.177362	.0541749	.0004087	-.018670	.0016117	2.215862	.0934683
#2	6.154255	.0534354	.0007935	-.018157	.0008905	2.240948	.0929785
#3	6.108891	.0543756	.0009981	-.018872	-.001773	2.234304	.0951997

Sample Name: Q3315-02DUP Acquired: 10/10/2025 13:46:53 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.648568	-.000568	.1644972
Stddev	.017492	.001642	.0012801
%RSD	1.061038	289.1587	.7782047

#1	1.630872	-.001621	.1659707
#2	1.648984	.001324	.1638621
#3	1.665849	-.001406	.1636588

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5578.365	82633.29	6089.301	4247.660	6378.164
Stddev	26.340	98.11	30.090	8.798	39.745
%RSD	.4721853	.1187314	.4941457	.2071312	.6231471

#1	5605.457	82651.02	6057.914	4251.025	6419.267
#2	5576.790	82527.51	6092.087	4237.676	6375.295
#3	5552.848	82721.32	6117.900	4254.279	6339.932

Sample Name: Q3315-02LX5 Acquired: 10/10/2025 13:51:17 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0009539	-.002859	.0003191	-.003785	.0004698	.0073856	.0272900
Stddev	.0016715	.002155	.0011780	.002089	.0010683	.0048416	.0007924
%RSD	175.2314	75.38639	369.1381	55.19798	227.3777	65.55393	2.903654
#1	.0026843	-.005330	-.000933	-.001444	-.000538	.0064550	.0278759
#2	-.000652	-.001366	.001406	-.005461	.001590	.0030769	.0263884
#3	.000829	-.001881	.000484	-.004450	.000357	.0126250	.0276056
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000215	.0000346	3.388315	.0005564	-.000006	.0028257	.0124221
Stddev	.0000568	.0000268	.027560	.0001494	.000148	.0001764	.0062383
%RSD	263.6991	77.38746	.8133713	26.85939	2495.626	6.242252	50.21896
#1	.0000870	.0000038	3.356877	.0004168	-.000125	.0029657	.0053052
#2	-.000009	.0000525	3.408310	.0005384	.000159	.0026276	.0169440
#3	-.000013	.0000475	3.399758	.0007140	-.000053	.0028839	.0150172
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0068793	.8460090	.0005381	-.000125	63.24985	.0009804	.2373605
Stddev	.0005498	.0261925	.0001761	.000353	.14286	.0034095	.0011396
%RSD	7.991383	3.096012	32.72858	282.4203	.2258694	347.7463	.4800966
#1	.0074688	.8701771	.0004606	-.000489	63.39239	-.002940	.2362771
#2	.0067886	.8181777	.0007397	-.000102	63.25049	.003255	.2372553
#3	.0063806	.8496721	.0004141	.000216	63.10667	.002626	.2385490
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.583013	.0042297	.0001615	.0022603	-.000838	.4212692	.0173461
Stddev	.039813	.0005288	.0001118	.0006554	.000804	.0192483	.0003055
%RSD	2.515023	12.50279	69.25363	28.99590	95.96092	4.569109	1.761140
#1	1.537306	.0036192	.0001957	.0017260	-.001749	.4059407	.0170314
#2	1.610136	.0045236	.0000365	.0029917	-.000544	.4149954	.0173654
#3	1.601597	.0045464	.0002521	.0020634	-.000223	.4428717	.0176415

Sample Name: Q3315-02LX5 Acquired: 10/10/2025 13:51:17 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.3082580	.0167200	.0308175
Stddev	.0051224	.0004456	.0001049
%RSD	1.661732	2.665115	.3403662

#1	.3141589	.0168806	.0307389
#2	.3049562	.0170630	.0309366
#3	.3056588	.0162163	.0307771

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6406.640	88338.41	6545.091	4505.006	7620.641
Stddev	47.060	599.27	19.647	16.474	75.079
%RSD	.7345443	.6783761	.3001865	.3656837	.9852109

#1	6352.331	88930.57	6566.503	4523.998	7534.186
#2	6432.230	88352.37	6527.892	4494.590	7658.291
#3	6435.360	87732.28	6540.877	4496.428	7669.445

Sample Name: CCV02 Acquired: 10/10/2025 14:04:47 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.999674	4.749768	4.805607	5.050160	5.055271	9.593369	9.442398
Stddev	.021254	.125833	.016383	.022515	.033715	.004174	.053984
%RSD	.4251030	2.649243	.3409136	.4458267	.6669364	.0435109	.5717154
#1	4.976703	4.893350	4.786760	5.024182	5.016457	9.588941	9.504502
#2	5.003681	4.658689	4.813620	5.064040	5.072053	9.593934	9.406699
#3	5.018640	4.697265	4.816443	5.062258	5.077302	9.597232	9.415994
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2345760	2.402704	24.08883	.9825751	2.411102	1.227099	4.982080
Stddev	.0014868	.005706	.04415	.0047463	.007904	.005438	.039399
%RSD	.6338050	.2375010	.1832781	.4830514	.3278326	.4431297	.7908177
#1	.2354205	2.396523	24.13615	.9770964	2.401976	1.220875	4.956469
#2	.2354482	2.403818	24.08159	.9851894	2.415523	1.230925	4.962323
#3	.2328593	2.407772	24.04875	.9854394	2.415807	1.229498	5.027449
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.340249	23.76003	2.407064	1.237875	24.05247	2.417011	2.490226
Stddev	.013822	.06271	.007954	.002467	.14439	.003125	.005140
%RSD	.5906335	.2639284	.3304287	.1992756	.6003108	.1293086	.2064261
#1	2.356139	23.74505	2.398035	1.237257	24.03327	2.420618	2.485292
#2	2.333611	23.82888	2.410128	1.240592	23.91864	2.415088	2.489833
#3	2.330998	23.70617	2.413031	1.235776	24.20550	2.415328	2.495551
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.59011	4.691734	5.010590	4.841107	4.774325	5.056471	4.657360
Stddev	.11193	.035677	.014939	.010672	.013202	.021862	.025641
%RSD	.4551974	.7604245	.2981500	.2204387	.2765239	.4323641	.5505415
#1	24.53614	4.718056	4.993478	4.831682	4.788745	5.036370	4.686962
#2	24.51538	4.706018	5.021032	4.838945	4.771397	5.053295	4.643038
#3	24.71880	4.651128	5.017260	4.852694	4.762832	5.079747	4.642080

Sample Name: CCV02 Acquired: 10/10/2025 14:04:47 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.790393	4.561287	4.702949
Stddev	.020800	.021070	.048829
%RSD	.4342117	.4619397	1.038264

#1	4.799045	4.585606	4.688912
#2	4.766663	4.549772	4.662677
#3	4.805472	4.548484	4.757260

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6432.234	91053.35	6630.682	4529.312	7473.924
Stddev	23.614	517.69	26.493	20.878	21.908
%RSD	.3671211	.5685588	.3995461	.4609491	.2931289

#1	6459.495	91650.94	6628.956	4553.364	7497.965
#2	6418.085	90767.49	6605.095	4518.714	7468.721
#3	6419.122	90741.62	6657.996	4515.860	7455.086

Sample Name: CCB02 Acquired: 10/10/2025 14:10:04 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002787	-.001698	.0007689	.0008939	-.000287	.0149657	-.003735
Stddev	.002093	.002539	.0004229	.0030698	.000443	.0049769	.002295
%RSD	75.10468	149.5343	55.00064	343.4084	154.2056	33.25551	61.42895
#1	-.001108	.000879	.0012536	.0026985	-.000099	.0171300	-.003228
#2	-.005132	-.001776	.0004747	.0026338	.000030	.0092731	-.001737
#3	-.002120	-.004198	.0005785	-.002651	-.000793	.0184941	-.006241
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000027	-.000011	.0166324	.0006509	-.000094	.0008438	.0065050
Stddev	.0000236	.000062	.0197469	.0001451	.000196	.0003161	.0076385
%RSD	861.8643	569.1843	118.7256	22.28729	209.3043	37.46549	117.4248
#1	-.000021	-.000079	.0138797	.0007411	.000101	.0010923	.0004908
#2	.000003	.000002	-.001594	.0007280	-.000292	.0009510	.0150995
#3	.000026	.000044	.037611	.0004836	-.000091	.0004880	.0039248
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000668	.0388514	.0001469	-.000195	.8908208	.0006901	.0008009
Stddev	.000407	.0462196	.0000351	.000119	.0089783	.0020132	.0002613
%RSD	60.91767	118.9652	23.92264	61.18057	1.007867	291.7330	32.62143
#1	-.001077	.0511054	.0001528	-.000058	.8824492	-.001550	.0010571
#2	-.000263	.0777091	.0001092	-.000255	.8897108	.001272	.0005348
#3	-.000665	-.012260	.0001788	-.000273	.9003025	.002348	.0008108
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.119878	-.004692	.0003365	-.006706	-.000349	-.011873	.0010152
Stddev	.011212	.000057	.0000385	.000626	.001079	.005710	.0011571
%RSD	9.352848	1.210740	11.44862	9.331296	309.6735	48.09716	113.9827
#1	-.132741	-.004726	.0002948	-.006745	.000865	-.006275	-.000071
#2	-.112171	-.004722	.0003708	-.007312	-.000711	-.011654	.002232
#3	-.114722	-.004626	.0003439	-.006062	-.001200	-.017689	.000884

Sample Name: CCB02 Acquired: 10/10/2025 14:10:04 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.003382	.0001540	-.000280
Stddev	.001985	.0033731	.000102
%RSD	58.68238	2190.131	36.30555

#1	-.005408	-.001942	-.000178
#2	-.003295	-.001641	-.000281
#3	-.001442	.004045	-.000382

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6198.229	90961.84	6196.038	4621.851	7659.537
Stddev	30.778	480.01	31.504	16.235	46.511
%RSD	.4965610	.5277062	.5084526	.3512757	.6072315

#1	6228.731	90979.98	6198.104	4614.833	7703.419
#2	6198.773	90473.02	6163.552	4610.304	7664.412
#3	6167.182	91432.53	6226.459	4640.414	7610.781

Sample Name: Q3315-02MS Acquired: 10/10/2025 14:15:01 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9433137	2.134551	1.059283	2.365614	.9177619	2.242981	.3877701
Stddev	.0015788	.013872	.003251	.011034	.0036610	.002917	.0013460
%RSD	.1673681	.6498968	.3068748	.4664258	.3989006	.1300569	.3470997
#1	.9418778	2.122094	1.057670	2.354391	.9138738	2.245941	.3877541
#2	.9450044	2.149501	1.057155	2.366002	.9182690	2.240109	.3891240
#3	.9430588	2.132058	1.063025	2.376448	.9211429	2.242893	.3864322
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2071496	.2190501	18.07384	.4586008	.2251663	.3468294	3.871633
Stddev	.0007928	.0004490	.08632	.0015369	.0005987	.0015414	.034382
%RSD	.3827380	.2049652	.4775993	.3351296	.2658710	.4444175	.8880609
#1	.2069608	.2187743	17.98181	.4570348	.2246131	.3455051	3.849936
#2	.2080199	.2188077	18.15300	.4601069	.2250840	.3464617	3.911275
#3	.2064683	.2195681	18.08672	.4586607	.2258019	.3485214	3.853688
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2613617	6.228174	.5629401	.0855852	334.8300	.3433207	1.421069
Stddev	.0014299	.041905	.0016661	.0004529	2.2317	.0062587	.004500
%RSD	.5470844	.6728279	.2959666	.5291992	.6665154	1.822998	.3166962
#1	.2610313	6.188746	.5628041	.0858803	333.5418	.3465568	1.415880
#2	.2629278	6.223596	.5613461	.0858116	337.4070	.3472989	1.423921
#3	.2601259	6.272180	.5646700	.0850637	333.5413	.3361065	1.423405
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	18.43739	.3419141	.4654229	.7458341	.2172686	3.257010	6.708500
Stddev	.12823	.0015418	.0006970	.0012149	.0021660	.019063	.011066
%RSD	.6954948	.4509293	.1497680	.1628869	.9969354	.5852882	.1649581
#1	18.40410	.3410946	.4646353	.7457834	.2177620	3.239957	6.716598
#2	18.57898	.3436925	.4656728	.7446453	.2191453	3.277590	6.713012
#3	18.32908	.3409550	.4659605	.7470735	.2148984	3.253483	6.695891

Sample Name: Q3315-02MS Acquired: 10/10/2025 14:15:01 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.498504	.2204456	.3758258
Stddev	.002797	.0026001	.0020073
%RSD	.1866766	1.179486	.5341105

#1	1.495885	.2220335	.3755586
#2	1.498176	.2174449	.3779533
#3	1.501451	.2218583	.3739654

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5599.468	78375.56	6014.516	4045.430	6387.688
Stddev	4.067	634.97	41.425	32.973	7.941
%RSD	.0726384	.8101610	.6887552	.8150700	.1243241

#1	5594.836	79043.23	6055.333	4082.487	6379.214
#2	5602.457	77779.34	5972.508	4019.333	6394.960
#3	5601.110	78304.09	6015.707	4034.469	6388.889

Sample Name: Q3315-02MSD Acquired: 10/10/2025 14:19:11 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9665366	2.067456	1.078972	2.394646	.9817792	2.274693	.4205046
Stddev	.0009129	.071887	.004336	.006293	.0016516	.018491	.0035731
%RSD	.0944493	3.477085	.4018432	.2628087	.1682301	.8128933	.8497179
#1	.9658129	1.984910	1.083939	2.390826	.9814579	2.291338	.4210560
#2	.9675622	2.101158	1.077031	2.391203	.9803117	2.277952	.4237700
#3	.9662347	2.116300	1.075946	2.401910	.9835678	2.254790	.4166879
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2266443	.2256959	22.83803	.4754911	.2317037	.3571000	3.727847
Stddev	.0003380	.0000202	.09118	.0005849	.0003547	.0011168	.027528
%RSD	.1491505	.0089692	.3992486	.1230202	.1530677	.3127345	.7384399
#1	.2269769	.2256799	22.79861	.4761010	.2320607	.3566192	3.696510
#2	.2266550	.2256891	22.94229	.4754376	.2313514	.3563042	3.738902
#3	.2263011	.2257186	22.77319	.4749348	.2316991	.3583767	3.748129
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2719208	7.293308	.5806106	.0470301	373.8065	.3499520	1.733913
Stddev	.0012002	.015203	.0007795	.0003629	1.5941	.0017179	.007784
%RSD	.4413809	.2084454	.1342636	.7716138	.4264496	.4908850	.4489136
#1	.2709250	7.280973	.5811167	.0473355	373.3616	.3486431	1.726743
#2	.2732535	7.310292	.5797129	.0471260	375.5758	.3518972	1.732805
#3	.2715839	7.288657	.5810022	.0466290	372.4822	.3493156	1.742192
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	18.93709	.3850773	.5049768	.8069830	.2306718	3.602640	6.860696
Stddev	.03775	.0010430	.0004097	.0020429	.0022403	.002218	.030207
%RSD	.1993594	.2708619	.0811399	.2531471	.9712025	.0615727	.4402914
#1	18.89777	.3839159	.5049233	.8054008	.2287414	3.602984	6.827722
#2	18.97305	.3853818	.5045964	.8062590	.2331283	3.604666	6.867336
#3	18.94044	.3859342	.5054106	.8092893	.2301455	3.600269	6.887031

Sample Name: Q3315-02MSD Acquired: 10/10/2025 14:19:11 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.853149	.2224151	.4115827
Stddev	.014352	.0018356	.0024992
%RSD	.7744766	.8252961	.6072222

#1	1.836712	.2213081	.4107275
#2	1.863203	.2214032	.4143972
#3	1.859530	.2245339	.4096233

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5436.169	75752.54	5445.677	3911.826	6177.535
Stddev	7.438	133.55	1.398	16.705	8.485
%RSD	.1368311	.1763012	.0256742	.4270463	.1373445

#1	5427.681	75859.28	5446.995	3911.111	6168.162
#2	5441.554	75795.57	5445.825	3928.877	6184.692
#3	5439.271	75602.78	5444.211	3895.489	6179.751

Sample Name: Q3315-02A Acquired: 10/10/2025 14:23:21 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8939657	1.956461	1.012954	2.215996	.9176285	2.173034	.3868143
Stddev	.0006582	.022749	.002008	.005765	.0023462	.007546	.0013114
%RSD	.0736281	1.162761	.1982595	.2601374	.2556834	.3472788	.3390341
#1	.8938382	1.970629	1.015260	2.221282	.9200735	2.177926	.3860240
#2	.8933805	1.968533	1.012016	2.209849	.9153955	2.176832	.3883281
#3	.8946783	1.930221	1.011587	2.216857	.9174165	2.164343	.3860907
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1962417	.2105430	19.06562	.4346093	.2160939	.3322891	3.598772
Stddev	.0013645	.0005972	.04159	.0003770	.0005996	.0006876	.027735
%RSD	.6953367	.2836498	.2181642	.0867486	.2774895	.2069194	.7706672
#1	.1978049	.2108220	19.01850	.4342894	.2160870	.3324229	3.567336
#2	.1952889	.2109496	19.09725	.4345136	.2166970	.3329000	3.619785
#3	.1956314	.2098573	19.08110	.4350250	.2154977	.3315445	3.609195
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2557629	6.453058	.5393584	.0797408	343.8799	.3326157	1.452981
Stddev	.0010235	.044769	.0011515	.0005897	1.4591	.0015888	.004783
%RSD	.4001602	.6937688	.2134949	.7395569	.4242942	.4776556	.3291789
#1	.2554623	6.504751	.5397321	.0790625	343.8265	.3344468	1.449315
#2	.2569030	6.427626	.5402767	.0800278	345.3649	.3317977	1.458391
#3	.2549234	6.426798	.5380665	.0801321	342.4483	.3316027	1.451236
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	17.90863	.3283243	.4754851	.7571676	.2161720	3.395868	6.326262
Stddev	.12748	.0029620	.0008565	.0009904	.0004371	.044438	.023944
%RSD	.7118149	.9021552	.1801267	.1308008	.2021884	1.308596	.3784887
#1	17.77606	.3317284	.4764319	.7570360	.2156945	3.344559	6.353881
#2	18.03031	.3269099	.4747643	.7562496	.2165523	3.421006	6.313554
#3	17.91953	.3263347	.4752590	.7582172	.2162691	3.422040	6.311351

Sample Name: Q3315-02A Acquired: 10/10/2025 14:23:21 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.539435	.2125860	.3775997
Stddev	.005432	.0006782	.0003456
%RSD	.3528641	.3190418	.0915270

#1	1.541199	.2131783	.3776567
#2	1.533340	.2127335	.3779132
#3	1.543766	.2118461	.3772291

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5757.590	81977.88	6156.091	4226.794	6586.186
Stddev	6.590	393.66	32.320	15.255	2.615
%RSD	.1144617	.4802047	.5250095	.3609074	.0397113

#1	5759.382	82234.65	6130.703	4238.037	6586.196
#2	5763.098	82174.33	6192.474	4232.916	6588.796
#3	5750.289	81524.65	6145.095	4209.429	6583.565

Sample Name: PB170008BL Acquired: 10/10/2025 14:27:31 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004120	-.004582	-.000213	-.000371	.0012650	.0023058	-.002960
Stddev	.002183	.001591	.000420	.002419	.0008507	.0176481	.000950
%RSD	52.98650	34.71842	197.3696	652.7475	67.24646	765.3733	32.09303
#1	-.001636	-.003834	.000211	-.000899	.0015060	.0204360	-.003831
#2	-.004993	-.006408	-.000220	-.002482	.0019691	.0012986	-.001947
#3	-.005732	-.003502	-.000628	.002269	.0003198	-.014817	-.003101
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000037	-.000068	-.012029	.0005439	-.000213	.0000045	-.001440
Stddev	.000033	.000063	.005827	.0001326	.000108	.0001561	.003672
%RSD	90.02866	92.60093	48.44386	24.38553	50.84085	3492.535	254.9465
#1	-.000061	-.000125	-.018733	.0004827	-.000337	.0001359	.002070
#2	.000001	-.000001	-.008171	.0006961	-.000144	-.000168	-.005255
#3	-.000049	-.000078	-.009184	.0004530	-.000157	.000046	-.001137
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001276	.0106240	-.000158	.0006980	-.243432	.0020734	-.000087
Stddev	.000423	.0090790	.000235	.0003459	.012017	.0021100	.000145
%RSD	33.15591	85.45659	148.4495	49.56182	4.936486	101.7639	166.2416
#1	-.001334	.0099722	.000106	.0007504	-.248105	.0043570	-.000109
#2	-.001667	.0018886	-.000344	.0010147	-.252411	.0001961	.000068
#3	-.000827	.0200114	-.000236	.0003289	-.229781	.0016671	-.000221
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.338626	-.007576	.0003002	-.019812	-.001295	-.014686	.0010748
Stddev	.008623	.000297	.0000729	.000279	.000976	.009777	.0010087
%RSD	2.546571	3.914903	24.28512	1.410618	75.37221	66.57053	93.84691
#1	-.347369	-.007915	.0003705	-.020028	-.000359	-.005689	.0021022
#2	-.338379	-.007362	.0003050	-.019911	-.001218	-.013280	.0010361
#3	-.330128	-.007451	.0002250	-.019496	-.002307	-.025090	.0000860

Sample Name: PB170008BL Acquired: 10/10/2025 14:27:31 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.007126	-.004933	-.000272
Stddev	.001752	.000800	.000053
%RSD	24.58450	16.21658	19.65440

#1	-.006915	-.005310	-.000220
#2	-.008974	-.005474	-.000269
#3	-.005490	-.004014	-.000327

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6642.824	95964.56	6649.097	4856.878	8298.059
Stddev	11.500	421.28	50.619	21.906	25.736
%RSD	.1731199	.4389966	.7612919	.4510403	.3101504

#1	6634.153	96309.35	6705.794	4879.569	8273.102
#2	6638.449	96089.35	6633.052	4855.214	8296.565
#3	6655.869	95494.98	6608.445	4835.851	8324.510

Sample Name: PB170008BS Acquired: 10/10/2025 14:31:49 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7797394	1.636753	.9391971	1.962145	.8107210	1.964327
Stddev	.0008819	.059440	.0018079	.006494	.0014736	.003901
%RSD	.1131069	3.631555	.1924926	.3309804	.1817690	.1986143

#1	.7803720	1.701892	.9400601	1.969493	.8122695	1.965660
#2	.7801141	1.622912	.9404117	1.957174	.8105574	1.967387
#3	.7787319	1.585454	.9371194	1.959769	.8093359	1.959933

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1834328	.1982664	.1880685	1.023080	.4113624	.1932163
Stddev	.0011296	.0000652	.0002699	.005783	.0002475	.0003856
%RSD	.6158204	.0328664	.1435365	.5652815	.0601607	.1995515

#1	.1845069	.1983184	.1881747	1.016490	.4111034	.1928437
#2	.1835368	.1982875	.1882693	1.027310	.4113871	.1936136
#3	.1822548	.1981933	.1877617	1.025440	.4115966	.1931915

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3065144	3.076192	.1922526	1.992170	.4875642	.0764898
Stddev	.0002367	.019435	.0009714	.024958	.0007632	.0002716
%RSD	.0772148	.6317816	.5052596	1.252783	.1565294	.3551119

#1	.3062963	3.096625	.1916128	2.016228	.4877121	.0767982
#2	.3067661	3.057940	.1917747	1.993881	.4882427	.0763849
#3	.3064809	3.074010	.1933704	1.966401	.4867380	.0762862

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.431920	.2963591	.2117176	10.14171	.2836547	.4035306
Stddev	.018342	.0026857	.0003502	.02029	.0014156	.0007216
%RSD	.5344577	.9062393	.1654200	.2000553	.4990513	.1788221

#1	3.442667	.2988804	.2119326	10.12979	.2842611	.4043601
#2	3.410741	.2966623	.2119067	10.13021	.2820369	.4031843
#3	3.442352	.2935347	.2113135	10.16514	.2846660	.4030475

Sample Name: PB170008BS Acquired: 10/10/2025 14:31:49 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6558798	.1856108	.8782979	5.340448	F -.000740	.2013459
Stddev	.0017301	.0020417	.0106970	.030809	.001423	.0005511
%RSD	.2637868	1.099968	1.217926	.5769049	192.2711	.2736891
#1	.6566296	.1872881	.8869742	5.368199	.000754	.2018978
#2	.6571084	.1833374	.8815734	5.345848	-.000894	.2013442
#3	.6539012	.1862069	.8663461	5.307295	-.002079	.2007956
Elem	Sr4077					
Units	ppm					
Avg	.1844093					
Stddev	.0011949					
%RSD	.6479412					
#1	.1851929					
#2	.1830341					
#3	.1850011					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	6753.178	92469.62	6653.757	4677.457	8208.920	
Stddev	4.284	316.45	19.061	5.457	4.700	
%RSD	.0634393	.3422202	.2864677	.1166586	.0572560	
#1	6748.413	92174.17	6636.388	4671.471	8204.601	
#2	6754.410	92431.13	6650.736	4678.746	8208.234	
#3	6756.712	92803.55	6674.149	4682.154	8213.926	

Sample Name: PB170058BL Acquired: 10/10/2025 14:35:50 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000072	-.001339	-.000731	.0012417	.0001417	-.002590
Stddev	.001016	.001052	.000658	.0024348	.0012044	.003185
%RSD	1418.211	78.58415	89.94067	196.0892	849.9415	122.9660

#1	.000961	-.000825	-.000238	-.000874	.0014559	.001084
#2	-.000105	-.000642	-.001478	.000695	-.000121	-.004294
#3	-.001070	-.002549	-.000477	.003903	-.000909	-.004560

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001952	.0000693	-.000039	.0008249	-.000014	-.000050
Stddev	.001676	.0000285	.000075	.0110160	.000242	.000059
%RSD	85.86499	41.18483	194.7982	1335.443	1692.756	116.0956

#1	-.003381	.0001018	-.000048	-.001289	-.000141	.000015
#2	-.000107	.0000578	.000041	.012745	-.000167	-.000069
#3	-.002368	.0000483	-.000109	-.008981	.000265	-.000097

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001616	-.004890	-.000987	.0181699	-.000037	-.000163
Stddev	.0001951	.006260	.000769	.0091267	.000080	.000193
%RSD	120.7847	128.0210	77.86330	50.22970	216.5957	118.6507

#1	-.000038	-.011855	-.001718	.0113405	-.000128	-.000171
#2	.000352	-.003081	-.000186	.0285356	.000019	.000034
#3	.000171	.000266	-.001057	.0146337	-.000002	-.000351

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3067910	.0031988	-.000289	.2677679	-.007565	.0003826
Stddev	.0162812	.0013480	.000170	.0248024	.000416	.0000717
%RSD	5.306926	42.14242	59.00953	9.262651	5.495695	18.74871

#1	.2994410	.0031648	-.000109	.2482605	-.007115	.0004338
#2	.2954807	.0045635	-.000448	.2956808	-.007644	.0003006
#3	.3254513	.0018681	-.000308	.2593625	-.007935	.0004133

Sample Name: PB170058BL Acquired: 10/10/2025 14:35:50 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0076765	-.000189	-.014506	.0010918	F .0193650	.0042831
Stddev	.0005544	.000852	.016939	.0011923	.0005891	.0006639
%RSD	7.221504	450.0263	116.7710	109.2031	3.041910	15.50132
#1	.0071914	.000281	-.012667	.0024665	.0197008	.0042464
#2	.0075575	-.001173	-.032290	.0003406	.0186848	.0036383
#3	.0082807	.000324	.001438	.0004682	.0197093	.0049646
Elem	Sr4077					
Units	ppm					
Avg	.0000084					
Stddev	.0001673					
%RSD	1985.037					
#1	-.000023					
#2	.000189					
#3	-.000141					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	6411.526	92409.98	6505.034	4692.751	7968.736	
Stddev	3.485	213.61	35.025	21.576	3.270	
%RSD	.0543578	.2311591	.5384342	.4597658	.0410381	
#1	6413.728	92191.06	6541.554	4668.918	7972.428	
#2	6413.343	92421.03	6501.821	4710.952	7967.578	
#3	6407.508	92617.86	6471.725	4698.384	7966.203	

Sample Name: Q3310-01 Acquired: 10/10/2025 14:44:09 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3720925	-.127448	1.883111	-.158321	-.008878	88.76003
Stddev	.0010661	.008623	.006469	.001419	.002817	.63008
%RSD	.2865173	6.765742	.3435477	.8961121	31.72769	.7098690
#1	.3727507	-.119138	1.876681	-.159952	-.011743	88.42937
#2	.3708624	-.136353	1.883032	-.157634	-.008781	88.36410
#3	.3726643	-.126854	1.889619	-.157376	-.006112	89.48660
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.157754	.0117142	.0148336	86.98134	.7053657	.1645421
Stddev	.018635	.0001493	.0002009	.64953	.0019588	.0002683
%RSD	.5901411	1.274394	1.354559	.7467455	.2777014	.1630432
#1	3.146138	.0118427	.0148270	86.59146	.7072249	.1646651
#2	3.147876	.0117496	.0150377	86.62140	.7033206	.1642344
#3	3.179249	.0115505	.0146360	87.73115	.7055515	.1647268
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.486886	548.5773	15.67893	115.6285	2.019926	.0157874
Stddev	.005101	1.0704	.10216	.8378	.007997	.0005332
%RSD	.3430489	.1951146	.6515772	.7245843	.3958889	3.377479
#1	1.481877	547.5840	15.62161	115.3440	2.014479	.0158833
#2	1.486706	548.4372	15.61829	114.9700	2.016193	.0152128
#3	1.492073	549.7109	15.79687	116.5715	2.029107	.0162662
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	43.90999	F 6.629805	5.376266	13.81189	^ *****	.0254994
Stddev	.09499	.045283	.009360	.03037	-----	.0002208
%RSD	.2163288	.6830260	.1740994	.2198982	-----	.8657176
#1	43.95504	6.599135	5.378951	13.77790	^ -----	.0257067
#2	43.97407	6.608465	5.365857	13.83639	^ -----	.0252673
#3	43.80085	6.681815	5.383990	13.82137	^ -----	.0255244

Sample Name: Q3310-01 Acquired: 10/10/2025 14:44:09 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2159183	3.530847	F 20.48745	F 14.14017	F 13.44168	.2501457
Stddev	.0022262	.031637	.25003	.05062	.08208	.0015719
%RSD	1.031040	.8960069	1.220393	.3579938	.6106632	.6284146
#1	.2133776	3.525306	20.22361	14.09569	13.35481	.2487517
#2	.2168502	3.502347	20.72089	14.19525	13.51794	.2498360
#3	.2175271	3.564888	20.51783	14.12958	13.45231	.2518495
Elem	Sr4077					
Units	ppm					
Avg	.1326172					
Stddev	.0034070					
%RSD	2.569078					
#1	.1305318					
#2	.1307709					
#3	.1365489					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	6204.813	91583.11	6660.922	4616.696	6606.104	
Stddev	22.554	391.16	42.637	31.962	19.925	
%RSD	.3634932	.4271048	.6401072	.6923147	.3016079	
#1	6223.392	91155.85	6649.173	4589.408	6622.235	
#2	6211.328	91923.57	6708.202	4651.860	6612.245	
#3	6179.718	91669.93	6625.392	4608.820	6583.832	

Sample Name: PB170058BS Acquired: 10/10/2025 14:48:09 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7699089	1.632626	.9262575	1.944161	.8145086	1.929396
Stddev	.0063372	.019825	.0030433	.003879	.0003818	.003775
%RSD	.8231112	1.214324	.3285636	.1995209	.0468720	.1956604
#1	.7625914	1.632924	.9246702	1.939787	.8145006	1.931940
#2	.7735389	1.612654	.9297663	1.945515	.8148943	1.931188
#3	.7735964	1.652301	.9243360	1.947182	.8141308	1.925058
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1870087	.1808646	.1844843	.9168923	.4016672	.1906948
Stddev	.0019270	.0002538	.0003016	.0058560	.0022462	.0004972
%RSD	1.030452	.1403007	.1634626	.6386751	.5592114	.2607539
#1	.1855024	.1810688	.1841426	.9230959	.3993539	.1901240
#2	.1891802	.1805805	.1847130	.9161204	.4038396	.1910340
#3	.1863435	.1809444	.1845975	.9114605	.4018081	.1909265
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3023380	3.295529	.1893575	1.940899	.4774234	.0770882
Stddev	.0009106	.028298	.0006506	.044359	.0005837	.0004417
%RSD	.3011954	.8586761	.3435839	2.285483	.1222700	.5729506
#1	.3013294	3.291976	.1892370	1.890047	.4767811	.0774433
#2	.3030997	3.325436	.1900599	1.971644	.4775676	.0772276
#3	.3025849	3.269176	.1887755	1.961005	.4779216	.0765936
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.377377	.2907882	.2104562	10.94877	.2576017	.4016807
Stddev	.064615	.0043648	.0005480	.18197	.0013262	.0007262
%RSD	1.913173	1.501023	.2603766	1.661969	.5148379	.1807821
#1	3.309845	.2858579	.2100114	10.79200	.2589831	.4010141
#2	3.438614	.2941593	.2102887	11.14831	.2563386	.4024545
#3	3.383671	.2923475	.2110683	10.90599	.2574835	.4015736

Sample Name: PB170058BS Acquired: 10/10/2025 14:48:09 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6657104	.1861618	.9930745	5.329111	F .0147272	.1908287
Stddev	.0020382	.0005712	.0289563	.035823	.0005603	.0002046
%RSD	.3061650	.3068185	2.915824	.6722116	3.804429	.1072046
#1	.6646890	.1860039	.9829957	5.345208	.0151180	.1910649
#2	.6643848	.1867953	1.025723	5.288063	.0140853	.1907067
#3	.6680573	.1856862	.970505	5.354062	.0149783	.1907146
Elem	Sr4077					
Units	ppm					
Avg	.1864175					
Stddev	.0010444					
%RSD	.5602436					
#1	.1854263					
#2	.1875080					
#3	.1863181					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	6517.183	87027.77	6983.843	4446.618	7931.082	
Stddev	21.253	490.74	12.882	31.213	13.828	
%RSD	.3261072	.5638901	.1844473	.7019431	.1743509	
#1	6530.096	87562.60	6998.449	4482.094	7941.672	
#2	6492.654	86598.20	6978.971	4423.373	7915.438	
#3	6528.800	86922.50	6974.107	4434.387	7936.136	

Sample Name: Q3310-02 Acquired: 10/10/2025 14:52:11 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4909910	-.208192	3.744677	-.096186	-.001040	126.9380
Stddev	.0001442	.016665	.014220	.001355	.003008	.7027
%RSD	.0293745	8.004556	.3797267	1.408879	289.2936	.5535942

#1	.4910887	-.202190	3.743718	-.094797	.002023	127.7464
#2	.4910588	-.227027	3.730961	-.096257	-.001152	126.5956
#3	.4908253	-.195360	3.759352	-.097504	-.003990	126.4722

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.479812	.0127005	.0130061	109.3279	.7572807	.2334799
Stddev	.016085	.0001080	.0002735	.4122	.0025935	.0014987
%RSD	.4622486	.8502434	2.102845	.3770494	.3424692	.6418836

#1	3.488815	.0126729	.0131079	109.7495	.7543575	.2333112
#2	3.489380	.0128196	.0132141	109.3084	.7593055	.2320726
#3	3.461241	.0126090	.0126963	108.9257	.7581792	.2350557

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.939937	378.3154	9.793703	198.2993	4.725044	.0092209
Stddev	.014425	1.8141	.055812	.9474	.016221	.0007899
%RSD	.3661161	.4795097	.5698784	.4777838	.3433082	8.565845

#1	3.936483	378.3623	9.816420	199.3408	4.727350	.0096015
#2	3.927552	376.4784	9.834574	198.0686	4.707793	.0083128
#3	3.955775	380.1056	9.730115	197.4886	4.739990	.0097484

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	54.84716	F 10.90553	9.699064	18.40134	.2186253	.0289632
Stddev	.19865	.04727	.021678	.17376	.0121978	.0004769
%RSD	.3621969	.4334128	.2235061	.9443037	5.579309	1.646686

#1	54.73670	10.95789	9.674127	18.40090	.2132274	.0284127
#2	54.72828	10.89267	9.709650	18.22779	.2100578	.0292517
#3	55.07649	10.86602	9.713416	18.57532	.2325907	.0292253

Sample Name: Q3310-02 Acquired: 10/10/2025 14:52:11 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5961709	5.035031	F 20.51148	F 19.86275	F 14.90433	.1839278
Stddev	.0039316	.018550	.25316	.08070	.08081	.0011475
%RSD	.6594776	.3684164	1.234219	.4062806	.5421655	.6238994
#1	.5999195	5.046927	20.73798	19.77150	14.87107	.1838263
#2	.5920788	5.044508	20.23819	19.92474	14.99645	.1828345
#3	.5965144	5.013657	20.55827	19.89201	14.84546	.1851228
Elem	Sr4077					
Units	ppm					
Avg	.5665097					
Stddev	.0065460					
%RSD	1.155496					
#1	.5699972					
#2	.5705735					
#3	.5589583					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	6549.302	94194.66	7006.339	4638.691	6687.293	
Stddev	24.834	197.14	53.054	.327	20.977	
%RSD	.3791788	.2092912	.7572236	.0070565	.3136777	
#1	6551.827	94298.40	6991.876	4638.464	6689.921	
#2	6572.776	94318.27	6962.017	4639.066	6706.831	
#3	6523.302	93967.31	7065.125	4638.543	6665.126	

Sample Name: Q3310-03 Acquired: 10/10/2025 14:56:10 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.301407	-.123294	11.88982	-.292286	.0954356	96.77213
Stddev	.013150	.005023	.04252	.004125	.0013731	.21216
%RSD	.3983194	4.074222	.3576475	1.411171	1.438799	.2192417
#1	3.304422	-.127133	11.89563	-.292622	.0969580	96.57136
#2	3.287011	-.117609	11.84469	-.288004	.0950582	96.75093
#3	3.312787	-.125140	11.92914	-.296233	.0942906	96.99410
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.096525	.0206554	.0214360	62.67270	.5698270	.1690723
Stddev	.010428	.0004225	.0008501	.23093	.0009060	.0006850
%RSD	.4974167	2.045268	3.965909	.3684694	.1589956	.4051634
#1	2.101831	.0208422	.0204711	62.88882	.5704930	.1692578
#2	2.103234	.0201718	.0220747	62.42938	.5701927	.1683137
#3	2.084510	.0209524	.0217621	62.69992	.5687953	.1696455
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.75581	977.2441	18.92908	78.56363	1.338891	^ *****
Stddev	.03565	14.5432	.07993	.20308	.005317	-----
%RSD	.3314563	1.488182	.4222407	.2584913	.3970865	-----
#1	10.76442	990.6879	19.01106	78.47330	1.340095	^ -----
#2	10.71664	961.8072	18.92478	78.42138	1.333075	^ -----
#3	10.78637	979.2373	18.85138	78.79620	1.343502	^ -----
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	27.79473	3.698005	6.015720	21.97548	^ *****	.0676537
Stddev	.18755	.003546	.010204	.15890	-----	.0005530
%RSD	.6747673	.0958959	.1696282	.7230609	-----	.8173616
#1	27.99464	3.701505	6.005057	22.02791	^ -----	.0678008
#2	27.76688	3.694414	6.016707	22.10153	^ -----	.0670420
#3	27.62266	3.698097	6.025394	21.79699	^ -----	.0681182

Sample Name: Q3310-03 Acquired: 10/10/2025 14:56:10 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.582662	4.420427	9.804122	F 25.22053	F 16.07699	.2848739
Stddev	.008212	.016595	.192742	.20218	.17376	.0027640
%RSD	.5188558	.3754188	1.965928	.8016619	1.080794	.9702630
#1	1.585613	4.435753	9.587034	25.23207	16.09799	.2852482
#2	1.573383	4.422726	9.870190	25.01283	15.89369	.2819417
#3	1.588991	4.402803	9.955141	25.41670	16.23930	.2874316
Elem	Sr4077					
Units	ppm					
Avg	-.089521					
Stddev	.015079					
%RSD	16.84413					
#1	-.100771					
#2	-.072387					
#3	-.095404					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	6453.747	90636.25	6873.989	4518.845	6821.520	
Stddev	19.941	211.54	21.723	7.566	26.781	
%RSD	.3089873	.2334000	.3160142	.1674365	.3925984	
#1	6450.477	90480.39	6881.807	4511.725	6821.336	
#2	6475.122	90877.07	6890.721	4526.790	6848.393	
#3	6435.643	90551.29	6849.440	4518.021	6794.832	

Sample Name: CCV03 Acquired: 10/10/2025 15:37:01 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.959845	4.894045	4.895761	4.946592	5.041231	10.07331	9.925655
Stddev	.014239	.054357	.006918	.006006	.002330	.09412	.105981
%RSD	.2870949	1.110674	.1413084	.1214086	.0462107	.9343762	1.067750
#1	4.960984	4.831298	4.887785	4.951019	5.043916	10.06173	9.928123
#2	4.973481	4.924101	4.899356	4.939756	5.040041	10.17268	10.03038
#3	4.945070	4.926737	4.900141	4.949002	5.039737	9.98551	9.81846
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2391128	2.459035	24.44315	1.013094	2.479178	1.258294	5.170000
Stddev	.0043277	.003569	.25300	.003511	.001618	.000329	.025504
%RSD	1.809881	.1451563	1.035043	.3465644	.0652458	.0261667	.4933108
#1	.2379834	2.455446	24.40698	1.017136	2.477366	1.258570	5.184888
#2	.2438932	2.462585	24.71229	1.010810	2.479692	1.257930	5.140551
#3	.2354618	2.459073	24.21019	1.011335	2.480476	1.258383	5.184560
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.449790	24.78135	2.468345	1.260845	25.66276	2.501928	2.504937
Stddev	.024408	.21745	.002977	.003036	.24273	.034509	.004669
%RSD	.9963376	.8774627	.1206255	.2408244	.9458338	1.379296	.1864009
#1	2.443920	24.72528	2.464928	1.263741	25.82257	2.494727	2.499951
#2	2.476598	25.02134	2.469723	1.257685	25.38345	2.539470	2.505651
#3	2.428853	24.59743	2.470384	1.261108	25.78225	2.471588	2.509207
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.94542	4.723149	5.035129	4.879981	4.912813	5.276553	4.717767
Stddev	.26835	.093649	.004421	.012070	.047364	.051150	.016579
%RSD	1.034299	1.982771	.0878041	.2473271	.9640954	.9693903	.3514266
#1	26.03358	4.687898	5.034117	4.871248	4.897355	5.286939	4.709665
#2	25.64408	4.829308	5.039968	4.893753	4.965975	5.221007	4.736839
#3	26.15861	4.652241	5.031301	4.874941	4.875109	5.321713	4.706796

Sample Name: CCV03 Acquired: 10/10/2025 15:37:01 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.726963	4.758616	4.987014
Stddev	.025500	.058206	.081670
%RSD	.5394580	1.223169	1.637657

#1	4.711943	4.732475	5.031988
#2	4.756406	4.825309	5.036311
#3	4.712540	4.718063	4.892742

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6385.109	89561.87	6504.765	4593.392	7365.178
Stddev	3.693	434.16	125.814	49.387	9.256
%RSD	.0578418	.4847546	1.934175	1.075179	.1256711

#1	6389.188	90015.82	6586.957	4646.350	7375.842
#2	6381.992	89519.11	6359.927	4585.236	7359.228
#3	6384.148	89150.68	6567.411	4548.591	7360.464

Sample Name: CCB03 Acquired: 10/10/2025 15:41:04 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003479	-.004630	-.000445	.0044427	.0014914	.0070282	.0068961
Stddev	.001216	.001215	.000412	.0018744	.0008342	.0110827	.0025648
%RSD	34.96410	26.24089	92.64599	42.18945	55.93446	157.6890	37.19170
#1	-.002160	-.004307	-.000897	.0063995	.0024538	.0035169	.0098550
#2	-.003721	-.003609	-.000349	.0042651	.0010447	.0194412	.0053079
#3	-.004556	-.005973	-.000089	.0026634	.0009756	-.001873	.0055255
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000060	-.000073	-.012562	.0005171	-.000408	-.000223	-.003709
Stddev	.000036	.000059	.013567	.0000801	.000112	.000204	.003947
%RSD	59.10753	81.46649	107.9976	15.48572	27.40223	91.40504	106.3956
#1	-.000039	-.000009	-.025406	.0005829	-.000536	-.000411	-.002822
#2	-.000102	-.000126	-.013907	.0004279	-.000339	-.000007	-.008024
#3	-.000040	-.000082	.001627	.0005405	-.000347	-.000250	-.000282
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001187	.0058212	-.000299	-.000601	-.271426	.0014704	.0001929
Stddev	.000477	.0419941	.000286	.000537	.006393	.0033949	.0000334
%RSD	40.17804	721.4047	95.68021	89.32585	2.355447	230.8841	17.30870
#1	-.000751	.0290630	-.000535	-.000218	-.278493	.0025456	.0002256
#2	-.001696	-.042656	-.000379	-.001215	-.269740	.0041975	.0001944
#3	-.001113	.031056	.000019	-.000371	-.266044	-.002332	.0001588
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.419688	-.002597	.0007849	-.019590	-.000530	-.004922	.0009244
Stddev	.023363	.000068	.0000667	.000316	.001690	.017844	.0019579
%RSD	5.566732	2.616505	8.503905	1.612523	318.9968	362.5302	211.8042
#1	-.411213	-.002672	.0008440	-.019338	-.002215	-.023549	.0005581
#2	-.446106	-.002578	.0007125	-.019486	.001165	.012020	-.000825
#3	-.401745	-.002540	.0007982	-.019944	-.000539	-.003238	.003040

Sample Name: CCB03 Acquired: 10/10/2025 15:41:04 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.006344	-.003583	-.000146
Stddev	.001277	.000570	.000083
%RSD	20.12291	15.89496	56.73621

#1	-.005718	-.002929	-.000060
#2	-.005501	-.003851	-.000151
#3	-.007813	-.003969	-.000225

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6289.025	90073.47	6495.073	4685.704	7818.698
Stddev	22.369	484.92	34.123	34.624	16.331
%RSD	.3556779	.5383621	.5253733	.7389302	.2088743

#1	6285.536	90574.13	6534.089	4703.242	7806.550
#2	6268.606	90040.29	6480.336	4708.049	7812.279
#3	6312.933	89605.99	6470.795	4645.820	7837.263

Sample Name: Q3321-01 Acquired: 10/10/2025 15:45:22 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4824226	-.121337	34.38055	-.667038	.3209734	156.6487
Stddev	.0038631	.005945	.02968	.010970	.0055924	.2081
%RSD	.8007783	4.899265	.0863404	1.644569	1.742336	.1328286

#1	.4781682	-.122601	34.39179	-.658155	.3163694	156.8027
#2	.4833883	-.114862	34.40297	-.679300	.3271968	156.7315
#3	.4857112	-.126548	34.34689	-.663659	.3193540	156.4120

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.811829	.0303848	1.735656	1119.818	8.142928	.6693367
Stddev	.023556	.0001184	.001578	2.044	.009371	.0008360
%RSD	.3015391	.3895540	.0909105	.1825235	.1150765	.1248932

#1	7.837088	.0303342	1.735987	1118.253	8.145251	.6697852
#2	7.807936	.0303001	1.737042	1119.072	8.150919	.6698526
#3	7.790462	.0305200	1.733939	1122.131	8.132615	.6683722

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 110.9685	1811.153	22.18355	507.8586	18.48523	^ *****
Stddev	.3472	15.394	.05234	.8099	.01339	-----
%RSD	.3129034	.8499318	.2359615	.1594678	.0724554	-----

#1	111.2751	1802.368	22.24386	508.5253	18.49400	^ -----
#2	110.5914	1802.164	22.15675	508.0932	18.49188	^ -----
#3	111.0388	1828.928	22.15003	506.9573	18.46982	^ -----

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.413457	.4782678	29.62048	21.96519	^ *****	.6531058
Stddev	.031971	.0042861	.55345	.01079	-----	.0001979
%RSD	.7244069	.8961714	1.868463	.0491253	-----	.0303075

#1	4.386190	.4809617	30.15838	21.96418	^ -----	.6531887
#2	4.405538	.4805164	29.05269	21.95494	^ -----	.6528799
#3	4.448644	.4733253	29.65036	21.97645	^ -----	.6532488

Sample Name: Q3321-01 Acquired: 10/10/2025 15:45:22 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.456632	3.357222	F 15.28498	F 14.62742	F 27.92887	.2040418
Stddev	.007513	.029130	.06554	.04515	.06249	.0023138
%RSD	.1376825	.8676945	.4288045	.3086694	.2237592	1.133980
#1	5.451902	3.385106	15.26990	14.57603	27.85801	.2034449
#2	5.465295	3.359572	15.35675	14.66072	27.95248	.2020849
#3	5.452699	3.326988	15.22829	14.64552	27.97611	.2065955
Elem	Sr4077					
Units	ppm					
Avg	-.787253					
Stddev	.015523					
%RSD	1.971798					
#1	-.776748					
#2	-.779928					
#3	-.805083					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	5218.974	84864.19	6570.659	4108.634	5505.602	
Stddev	9.768	68.16	6.363	26.121	9.217	
%RSD	.1871659	.0803195	.0968329	.6357552	.1674157	
#1	5207.750	84789.72	6576.397	4091.338	5497.488	
#2	5225.551	84879.34	6571.765	4095.883	5503.694	
#3	5223.621	84923.50	6563.817	4138.682	5515.624	

Sample Name: Q3322-01 Acquired: 10/10/2025 15:50:01 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0602430	-.024728	.4862704	-.079297	-.007139	172.4819
Stddev	.0015164	.003105	.0005635	.004348	.001779	.2021
%RSD	2.517179	12.55828	.1158861	5.483251	24.91747	.1171674

#1	.0619719	-.027409	.4856389	-.078956	-.008112	172.5270
#2	.0591385	-.021325	.4867218	-.075130	-.005086	172.2611
#3	.0596186	-.025451	.4864506	-.083806	-.008218	172.6576

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7430388	.0108666	.0095050	72.28860	.1923814	.1555627
Stddev	.0010281	.0000377	.0002994	.13127	.0006322	.0009101
%RSD	.1383699	.3473077	3.150194	.1815862	.3286002	.5850590

#1	.7424038	.0108231	.0092783	72.43055	.1929633	.1554251
#2	.7442250	.0108852	.0093923	72.17160	.1924721	.1547291
#3	.7424876	.0108913	.0098444	72.26366	.1917087	.1565337

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3098089	291.9953	4.966722	68.54403	.2557935	.0050317
Stddev	.0019768	1.8832	.001651	.27767	.0010395	.0007155
%RSD	.6380777	.6449295	.0332482	.4050993	.4063712	14.22033

#1	.3076798	293.6544	4.967510	68.83143	.2553005	.0054850
#2	.3101607	289.9484	4.964824	68.27724	.2550922	.0042068
#3	.3115863	292.3830	4.967831	68.52343	.2569877	.0054033

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.631570	.5231256	.7214556	13.25810	.0977889	.0043108
Stddev	.022844	.0046260	.0073211	.03204	.0109898	.0003760
%RSD	.2646552	.8843004	1.014769	.2416501	11.23829	8.722565

#1	8.654404	.5232763	.7275005	13.25189	.1081562	.0038929
#2	8.631588	.5184262	.7133153	13.22963	.0862676	.0044181
#3	8.608716	.5276745	.7235511	13.29279	.0989429	.0046216

Sample Name: Q3322-01 Acquired: 10/10/2025 15:50:01 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0347857	5.595874	F 11.63158	8.108683	4.381388	.2091615
Stddev	.0007775	.013996	.07895	.063357	.018838	.0017044
%RSD	2.234983	.2501162	.6787914	.7813471	.4299529	.8148934
#1	.0356739	5.592225	11.54185	8.167338	4.396213	.2074234
#2	.0342285	5.584064	11.66251	8.041490	4.360190	.2108301
#3	.0344548	5.611334	11.69039	8.117221	4.387760	.2092310
Elem	Sr4077					
Units	ppm					
Avg	-.065124					
Stddev	.002005					
%RSD	3.078181					
#1	-.066983					
#2	-.063000					
#3	-.065388					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	7247.406	103576.4	7246.133	5295.083	6817.203	
Stddev	30.904	507.7	24.313	33.774	32.302	
%RSD	.4264162	.4902060	.3355351	.6378370	.4738253	
#1	7255.148	102991.8	7247.013	5265.300	6830.989	
#2	7273.702	103907.2	7221.392	5331.778	6840.325	
#3	7213.366	103830.2	7269.994	5288.172	6780.296	

Sample Name: Q3322-01DUP Acquired: 10/10/2025 15:54:02 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0622887	-.027299	.5052610	-.085003	-.006931	174.1691
Stddev	.0017629	.012567	.0009610	.002404	.001193	2.2463
%RSD	2.830265	46.03686	.1901940	2.827717	17.20872	1.289743
#1	.0625050	-.033307	.5055914	-.086498	-.005579	171.7202
#2	.0604275	-.035734	.5060133	-.086280	-.007835	174.6529
#3	.0639335	-.012855	.5041785	-.082230	-.007379	176.1340
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7393442	.0107306	.0102358	71.23738	.2025610	.1616561
Stddev	.0086748	.0000878	.0005178	1.00696	.0005029	.0004319
%RSD	1.173306	.8179494	5.058283	1.413534	.2482447	.2671399
#1	.7303245	.0106611	.0107700	70.15487	.2030351	.1619557
#2	.7400813	.0108292	.0102014	71.41108	.2026142	.1618516
#3	.7476270	.0107014	.0097362	72.14620	.2020337	.1611611
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3207092	304.9199	4.855174	68.89782	.2652147	.0057432
Stddev	.0011207	2.5997	.058105	.61416	.0008350	.0018902
%RSD	.3494408	.8525763	1.196766	.8914029	.3148520	32.91230
#1	.3208622	302.2613	4.795430	68.27762	.2661773	.0042002
#2	.3217454	305.0422	4.858604	68.91010	.2646851	.0051778
#3	.3195198	307.4563	4.911489	69.50575	.2647816	.0078516
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.083122	.5247176	.7312347	14.21120	.1681600	.0045799
Stddev	.065755	.0116757	.0016440	.15204	.0068036	.0005797
%RSD	.7239217	2.225142	.2248296	1.069894	4.045942	12.65855
#1	9.011497	.5172293	.7301416	14.03573	.1621106	.0047002
#2	9.097113	.5187528	.7304371	14.29386	.1668438	.0039494
#3	9.140754	.5381709	.7331254	14.30401	.1755256	.0050901

Sample Name: Q3322-01DUP Acquired: 10/10/2025 15:54:02 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0235332	5.665406	F 18.04609	8.373567	4.508165	.2072312
Stddev	.0005005	.048525	.11515	.049450	.021786	.0014801
%RSD	2.126707	.8565127	.6380842	.5905530	.4832531	.7142251
#1	.0240312	5.612054	18.07850	8.422613	4.532232	.2063692
#2	.0230302	5.677255	18.14156	8.323722	4.502472	.2063842
#3	.0235382	5.706909	17.91821	8.374365	4.489791	.2089403
Elem	Sr4077					
Units	ppm					
Avg	-.077117					
Stddev	.000678					
%RSD	.8790239					
#1	-.076911					
#2	-.076567					
#3	-.077874					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	7013.852	101121.8	7558.466	5070.125	6586.731	
Stddev	13.051	198.4	3.593	24.120	9.260	
%RSD	.1860747	.1962346	.0475383	.4757347	.1405814	
#1	7020.403	100910.3	7561.958	5082.606	6591.167	
#2	7022.331	101151.4	7558.662	5085.447	6592.938	
#3	6998.823	101303.9	7554.779	5042.321	6576.087	

Sample Name: Q3322-01LX5 Acquired: 10/10/2025 15:58:03 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0108149	-.007298	.0982460	-.018339	-.003060	38.32182	.1603973
Stddev	.0006122	.002030	.0013646	.002617	.002220	.07655	.0004377
%RSD	5.660960	27.82227	1.388985	14.26862	72.56119	.1997656	.2729074

#1	.0103938	-.005510	.0984752	-.021322	-.001793	38.37190	.1599434
#2	.0115172	-.006878	.0994815	-.017264	-.005623	38.35986	.1608169
#3	.0105336	-.009505	.0967813	-.016431	-.001763	38.23370	.1604315

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0026773	.0004677	16.47332	.0455315	.0297195	.0738841	67.56466
Stddev	.0000519	.0001029	.03454	.0003776	.0001760	.0010051	.11723
%RSD	1.937224	22.01055	.2096966	.8294030	.5922507	1.360399	.1735088

#1	.0026397	.0005343	16.49351	.0457475	.0298935	.0749177	67.44790
#2	.0026556	.0005196	16.49303	.0457516	.0297233	.0729101	67.68235
#3	.0027365	.0003491	16.43344	.0450955	.0295416	.0738245	67.56373

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.110624	15.54713	.0499544	-.000083	1.895712	.1211860	.1646719
Stddev	.004618	.05688	.0005214	.000333	.031697	.0038864	.0005160
%RSD	.4157605	.3658246	1.043670	399.8541	1.672039	3.206941	.3133482

#1	1.114619	15.56712	.0505238	-.000097	1.859113	.1168674	.1645926
#2	1.111684	15.59131	.0498388	.000256	1.914328	.1244018	.1652230
#3	1.105568	15.48296	.0495005	-.000409	1.913694	.1222888	.1642002

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.211832	.0250384	.0010278	.0089758	1.269844	3.523722	1.537568
Stddev	.071039	.0015388	.0001696	.0001166	.008817	.041316	.011911
%RSD	2.211778	6.145933	16.50167	1.298916	.6943656	1.172516	.7746400

#1	3.132960	.0239184	.0008345	.0089533	1.279967	3.571342	1.551314
#2	3.231753	.0267930	.0010971	.0091019	1.265726	3.497404	1.530324
#3	3.270784	.0244037	.0011518	.0088720	1.263839	3.502421	1.531065

Sample Name: Q3322-01LX5 Acquired: 10/10/2025 15:58:03 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.8249128	.0471514	-.017323
Stddev	.0072907	.0009407	.000171
%RSD	.8838153	1.995111	.9877850

#1	.8330230	.0461884	-.017286
#2	.8228127	.0480681	-.017510
#3	.8189026	.0471975	-.017174

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6773.159	91987.10	6596.897	4722.968	7714.924
Stddev	8.811	263.07	44.395	15.869	3.612
%RSD	.1300874	.2859816	.6729693	.3359935	.0468135

#1	6782.556	91809.32	6555.302	4713.048	7715.065
#2	6771.839	91862.68	6591.747	4714.584	7718.463
#3	6765.083	92289.29	6643.643	4741.270	7711.244

Sample Name: Q3322-01MS Acquired: 10/10/2025 16:02:09 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7324995	1.738747	1.679077	1.536973	.3389390	175.1338
Stddev	.0049665	.075304	.010429	.005182	.0091502	1.4699
%RSD	.6780185	4.330943	.6211231	.3371387	2.699652	.8392759
#1	.7275628	1.822984	1.670389	1.531289	.3283990	176.4029
#2	.7324405	1.715304	1.690643	1.541433	.3448476	173.5232
#3	.7374953	1.677953	1.676201	1.538198	.3435703	175.4752
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9411857	.1792580	.2075359	110.7828	.5671457	.3716593
Stddev	.0067348	.0030083	.0026840	.9537	.0404497	.0030831
%RSD	.7155684	1.678179	1.293274	.8608341	7.132146	.8295577
#1	.9480536	.1813203	.2052656	111.7432	.5752194	.3680994
#2	.9345924	.1758061	.2104981	109.8360	.5232680	.3734722
#3	.9409111	.1806476	.2068439	110.7691	.6029495	.3734063
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5479063	316.0446	4.895055	83.06516	.7785555	.0763841
Stddev	.0130540	19.5788	.043932	.83061	.0068847	.0043759
%RSD	2.382522	6.194946	.8974672	.9999519	.8842963	5.728777
#1	.5404542	319.4124	4.937371	83.89794	.7706409	.0771780
#2	.5629795	295.0004	4.849669	82.23673	.7831598	.0716657
#3	.5402853	333.7211	4.898125	83.06079	.7818658	.0803087
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12.11782	.7725359	.9304855	26.56762	.3884369	.3496998
Stddev	.76725	.0069290	.0652111	1.65441	.0475148	.0081249
%RSD	6.331565	.8969141	7.008290	6.227179	12.23230	2.323395
#1	12.23589	.7772159	.9460491	26.81668	.3949637	.3408050
#2	11.29839	.7645760	.8589007	24.80280	.3379961	.3515633
#3	12.81920	.7758159	.9865066	28.08339	.4323508	.3567310

Sample Name: Q3322-01MS Acquired: 10/10/2025 16:02:09 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6981365	5.913856	F 20.14525	F 14.00885	4.036873	.3855619
Stddev	.0128581	.030121	1.14041	.04575	.057656	.0069975
%RSD	1.841781	.5093326	5.660933	.3266128	1.428231	1.814874

#1	.6837052	5.943888	20.52060	14.04165	4.091146	.3912104
#2	.7023298	5.883647	18.86448	14.02833	4.043128	.3777341
#3	.7083745	5.914035	21.05068	13.95658	3.976344	.3877411

Elem	Sr4077
Units	ppm
Avg	.1282550
Stddev	.0157600
%RSD	12.28803

#1	.1273885
#2	.1444303
#3	.1129460

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7176.028	97848.29	7306.204	5049.825	6621.113
Stddev	42.283	5569.04	50.314	303.898	43.164
%RSD	.5892215	5.691504	.6886486	6.017991	.6519218

#1	7224.839	96547.67	7248.216	4977.161	6670.795
#2	7152.607	103952.5	7332.099	5383.468	6592.814
#3	7150.639	93044.7	7338.296	4788.846	6599.729

Sample Name: Q3322-01MSD Acquired: 10/10/2025 16:06:03 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7285967	1.743661	1.520048	1.536911	.4020663	175.2945
Stddev	.0032424	.097241	.002262	.004132	.0049386	.5962
%RSD	.4450205	5.576828	.1488341	.2688537	1.228299	.3401414

#1	.7295204	1.850902	1.521987	1.540925	.3975840	175.8571
#2	.7312770	1.661226	1.520596	1.532670	.4012544	174.6695
#3	.7249927	1.718854	1.517563	1.537138	.4073605	175.3568

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9315381	.1685209	.2011728	91.28557	.5705904	.3565695
Stddev	.0034970	.0004537	.0003082	.19309	.0013254	.0001913
%RSD	.3753988	.2691928	.1532212	.2115226	.2322784	.0536535

#1	.9349675	.1682330	.2012664	91.50662	.5713741	.3563684
#2	.9279772	.1682858	.2014233	91.14986	.5690601	.3565908
#3	.9316696	.1690438	.2008285	91.20021	.5713368	.3567493

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5248807	320.1422	4.723305	78.16797	.7568418	.0817910
Stddev	.0016033	1.6291	.017746	.08660	.0012143	.0010893
%RSD	.3054621	.5088717	.3757214	.1107838	.1604405	1.331820

#1	.5231014	321.3165	4.740723	78.18406	.7568813	.0827160
#2	.5262132	318.2823	4.705247	78.07446	.7580358	.0805903
#3	.5253275	320.8277	4.723944	78.24540	.7556082	.0820667

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12.52589	.7655630	.8870011	26.49940	.4305869	.4032410
Stddev	.09398	.0060478	.0015048	.19988	.0044700	.0023997
%RSD	.7502566	.7899847	.1696458	.7542670	1.038127	.5950927

#1	12.60964	.7690851	.8855708	26.66762	.4343243	.4008622
#2	12.42426	.7585797	.8885706	26.27845	.4256351	.4031999
#3	12.54376	.7690242	.8868620	26.55214	.4318011	.4056610

Sample Name: Q3322-01MSD Acquired: 10/10/2025 16:06:03 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7832938	5.868187	F 17.26192	F 13.51986	3.618933	.3889210
Stddev	.0037808	.026835	.17649	.07697	.039639	.0027069
%RSD	.4826852	.4572926	1.022414	.5692811	1.095335	.6960064
#1	.7798096	5.896633	17.41829	13.59186	3.664658	.3912914
#2	.7827579	5.843323	17.29692	13.43874	3.594284	.3859713
#3	.7873141	5.864606	17.07056	13.52897	3.597856	.3895002
Elem	Sr4077					
Units	ppm					
Avg	.1047430					
Stddev	.0013957					
%RSD	1.332520					
#1	.1063545					
#2	.1039515					
#3	.1039228					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	7191.948	100774.0	7768.789	5230.923	6714.881	
Stddev	16.315	477.1	19.143	24.655	10.921	
%RSD	.2268496	.4734001	.2464051	.4713270	.1626395	
#1	7210.578	100503.0	7773.384	5227.073	6727.224	
#2	7180.207	101324.9	7785.216	5257.276	6706.471	
#3	7185.060	100494.2	7747.767	5208.420	6710.947	

Sample Name: Q3322-01A Acquired: 10/10/2025 16:09:58 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3146383	.5777327	.8659838	.5181651	.1152153	180.0638
Stddev	.0813960	.2102313	.1163248	.2058690	.0624779	.1664
%RSD	25.86970	36.38902	13.43267	39.73038	54.22712	.0924145
#1	.2360464	.3875237	.7541687	.3206280	.0580876	180.2530
#2	.3092935	.5422134	.8574362	.5024069	.1056240	179.9403
#3	.3985749	.8034611	.9863467	.7314603	.1819343	179.9980
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8093248	.0452100	.0822914	70.89847	.2759642	.2413449
Stddev	.0077034	.0014286	.0238000	.10457	.0037582	.0245276
%RSD	.9518257	3.159855	28.92165	.1474889	1.361854	10.16289
#1	.8181989	.0437470	.0594670	71.00169	.2717477	.2178881
#2	.8043591	.0452818	.0804474	70.79261	.2771838	.2393278
#3	.8054164	.0466014	.1069598	70.90112	.2789612	.2668187
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4008360	324.6284	5.082679	70.71909	.4600580	.0256121
Stddev	.0296538	1.1770	.034775	.15837	.0603962	.0001326
%RSD	7.397974	.3625665	.6841936	.2239366	13.12795	.5178468
#1	.3719319	325.7544	5.121780	70.62569	.4020882	.0256963
#2	.3993898	323.4063	5.055212	70.62964	.4554671	.0254592
#3	.4311864	324.7245	5.071045	70.90194	.5226186	.0256807
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.71027	.5886595	.7784241	17.02845	.2690749	.0644794
Stddev	.11831	.0038872	.0006429	.07099	.0085537	.0303217
%RSD	1.104685	.6603550	.0825958	.4168621	3.178941	47.02538
#1	10.84214	.5931421	.7783762	17.11000	.2614208	.0362180
#2	10.67524	.5866187	.7778065	16.98057	.2674956	.0607111
#3	10.61342	.5862177	.7790897	16.99477	.2783082	.0965091

Sample Name: Q3322-01A Acquired: 10/10/2025 16:09:58 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1446453	5.824421	F 18.93302	F 10.53674	4.471451	.2510622
Stddev	.0614060	.032141	.10796	.69444	.026784	.0009211
%RSD	42.45281	.5518264	.5702372	6.590649	.5989969	.3668887
#1	.0864008	5.860608	19.04783	9.90376	4.487341	.2521250
#2	.1387479	5.813463	18.83354	10.42691	4.440527	.2504937
#3	.2087872	5.799192	18.91767	11.27955	4.486484	.2505680
Elem	Sr4077					
Units	ppm					
Avg	-.052237					
Stddev	.001910					
%RSD	3.656005					
#1	-.050231					
#2	-.052445					
#3	-.054034					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	7056.507	98905.67	7671.207	5123.335	6581.374	
Stddev	13.110	438.10	17.872	14.415	6.835	
%RSD	.1857815	.4429494	.2329701	.2813524	.1038565	
#1	7066.599	99360.10	7678.355	5138.255	6584.905	
#2	7061.231	98485.97	7650.868	5122.267	6585.722	
#3	7041.690	98870.93	7684.398	5109.485	6573.496	

Sample Name: Q3321-01DLX5 Acquired: 10/10/2025 16:13:57 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0988704	-.024615	7.395178	-.134615	.0589711	34.02517	1.577182
Stddev	.0021944	.007110	.011287	.003370	.0004928	.03968	.008470
%RSD	2.219486	28.88636	.1526208	2.503605	.8356073	.1166176	.5370484
#1	.0999911	-.018051	7.383036	-.138408	.0593159	33.99928	1.586543
#2	.1002781	-.023627	7.405350	-.133471	.0591907	34.00538	1.574956
#3	.0963419	-.032168	7.397147	-.131965	.0584067	34.07085	1.570046
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0075243	.3616281	260.9554	2.006765	.1387185	25.26477	418.6427
Stddev	.0000949	.0004498	.0843	.004588	.0003526	.02426	.9656
%RSD	1.261840	.1243696	.0323194	.2286095	.2541553	.0960394	.2306478
#1	.0075646	.3611749	260.9559	2.001548	.1385016	25.24051	418.6471
#2	.0074158	.3620744	261.0394	2.010169	.1385287	25.26475	419.6061
#3	.0075924	.3616350	260.8708	2.008578	.1391253	25.28904	417.6750
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.973514	118.2622	3.957992	.0433388	.9046458	.1093653	11.97986
Stddev	.021710	.1325	.005707	.0008044	.0310550	.0031416	.01618
%RSD	.4365091	.1120186	.1441998	1.856043	3.432831	2.872552	.1350770
#1	4.998581	118.4122	3.952101	.0441445	.8876555	.1064733	11.96154
#2	4.961249	118.2133	3.963496	.0433361	.8857931	.1127078	11.98580
#3	4.960713	118.1611	3.958378	.0425358	.9404889	.1089148	11.99223
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.495244	.1352051	.1359983	1.183767	.7351455	3.253120	2.885963
Stddev	.109970	.0123606	.0005363	.006576	.0068772	.064138	.033752
%RSD	2.446373	9.142081	.3943221	.5554946	.9354920	1.971570	1.169533
#1	4.376373	.1232095	.1354227	1.179408	.7272252	3.179107	2.858657
#2	4.516002	.1479009	.1360883	1.191331	.7396035	3.287860	2.923699
#3	4.593356	.1345049	.1364838	1.180563	.7386077	3.292393	2.875534

Sample Name: Q3321-01DLX5 Acquired: 10/10/2025 16:13:57 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.479040	.0406944	-.202439
Stddev	.069017	.0018439	.001626
%RSD	1.259648	4.531029	.8034057

#1	5.443501	.0388017	-.201019
#2	5.558584	.0424852	-.204213
#3	5.435036	.0407961	-.202085

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5717.921	84597.61	6161.093	4197.154	6474.717
Stddev	8.559	241.63	21.895	14.176	8.242
%RSD	.1496958	.2856223	.3553727	.3377561	.1272927

#1	5725.268	84678.97	6136.760	4212.832	6483.868
#2	5719.974	84325.80	6167.316	4185.238	6467.878
#3	5708.522	84788.05	6179.203	4193.391	6472.405

Sample Name: CCV04 Acquired: 10/10/2025 16:29:38 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.205107	5.406986	5.152916	5.229030	5.322198	10.53682	10.80369
Stddev	.025998	.249083	.011984	.033124	.012141	.00782	.01861
%RSD	.4994691	4.606687	.2325726	.6334696	.2281236	.0742166	.1722262
#1	5.179145	5.145188	5.139850	5.190988	5.308592	10.52978	10.78222
#2	5.231140	5.434742	5.163395	5.244619	5.331930	10.54524	10.81517
#3	5.205037	5.641028	5.155504	5.251485	5.326071	10.53545	10.81369
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2654992	2.576776	26.19847	1.051433	2.616376	1.321957	5.413613
Stddev	.0020283	.009106	.06310	.001823	.006881	.003086	.030586
%RSD	.7639717	.3533942	.2408614	.1733567	.2629944	.2334344	.5649833
#1	.2632940	2.567238	26.13417	1.051476	2.609400	1.318422	5.445385
#2	.2672852	2.585378	26.26030	1.053233	2.623158	1.323331	5.384369
#3	.2659183	2.577714	26.20095	1.049589	2.616570	1.324117	5.411086
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.681678	26.04854	2.597671	1.334941	26.49864	2.654489	2.645871
Stddev	.013514	.12557	.007027	.001599	.23215	.008958	.002639
%RSD	.5039372	.4820439	.2705089	.1197659	.8760702	.3374746	.0997371
#1	2.668373	25.90688	2.589850	1.336786	26.75335	2.644966	2.643012
#2	2.695392	26.09264	2.603452	1.334086	26.29895	2.662749	2.646387
#3	2.681270	26.14611	2.599711	1.333952	26.44361	2.655751	2.648214
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	26.26359	5.292869	5.252878	5.141985	5.293501	5.289444	5.094116
Stddev	.09037	.036885	.023283	.028112	.020125	.034163	.043997
%RSD	.3440900	.6968781	.4432378	.5467063	.3801743	.6458765	.8636847
#1	26.36573	5.251016	5.226509	5.109712	5.271104	5.328473	5.046533
#2	26.19401	5.320632	5.270602	5.161138	5.310064	5.274900	5.133324
#3	26.23104	5.306960	5.261522	5.155105	5.299337	5.264959	5.102491

Sample Name: CCV04 Acquired: 10/10/2025 16:29:38 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.101627	5.177590	5.315009
Stddev	.058657	.012172	.022480
%RSD	1.149765	.2350966	.4229582

#1	5.034426	5.168725	5.326911
#2	5.142550	5.191468	5.329036
#3	5.127904	5.172576	5.289080

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6017.048	84979.83	5829.951	4439.298	6889.869
Stddev	18.030	248.13	40.464	25.751	19.839
%RSD	.2996529	.2919853	.6940667	.5800703	.2879379

#1	6034.809	84718.24	5871.492	4429.552	6908.615
#2	5998.760	85009.40	5790.658	4419.842	6869.093
#3	6017.575	85211.84	5827.703	4468.499	6891.897

Sample Name: CCB04 Acquired: 10/10/2025 16:33:41 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002167	-.004601	-.000153	.0013284	.0007283	.0135704	.0058172
Stddev	.000939	.001740	.000739	.0022762	.0006993	.0153752	.0002285
%RSD	43.35355	37.82614	481.8468	171.3488	96.01296	113.3000	3.928586

#1	-.001372	-.005923	.000573	.0039265	.0014983	.0149705	.0057566
#2	-.001926	-.005250	-.000904	-.000315	.0005541	.0281977	.0056252
#3	-.003203	-.002629	-.000129	.000374	.0001326	-.002457	.0060700

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000258	-.000013	-.008752	.0003262	-.000338	-.000001	.0017516
Stddev	.0001010	.000074	.018096	.0000918	.000202	.000171	.0074508
%RSD	390.8802	557.5135	206.7722	28.15579	59.72806	26310.14	425.3720

#1	.0000797	.000046	-.017579	.0002679	-.000139	-.000091	-.000772
#2	-.000091	-.000096	-.020740	.0002786	-.000332	-.000108	-.004110
#3	.000088	.000011	.012064	.0004321	-.000543	.000197	.010136

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000523	.0096547	-.000372	-.000050	-.280939	.0014036	-.000112
Stddev	.000416	.0332753	.000198	.000482	.013504	.0021884	.000029
%RSD	79.62896	344.6550	53.27741	958.0789	4.806618	155.9129	25.93029

#1	-.000807	-.013321	-.000528	.000413	-.284658	.0005621	-.000141
#2	-.000716	-.005528	-.000437	-.000549	-.292193	-.000239	-.000111
#3	-.000045	.047813	-.000149	-.000015	-.265965	.003888	-.000083

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.389820	-.005376	.0006507	-.019689	.0004629	.0079480	.0013555
Stddev	.008789	.000064	.0001080	.000837	.0014553	.0139128	.0004847
%RSD	2.254593	1.185595	16.60099	4.250716	314.3819	175.0468	35.76128

#1	-.380397	-.005442	.0005666	-.020636	.0001950	.0226949	.0016192
#2	-.391269	-.005371	.0006130	-.019380	.0020336	.0060939	.0007961
#3	-.397794	-.005314	.0007725	-.019050	-.000840	-.004945	.0016512

Sample Name: CCB04 Acquired: 10/10/2025 16:33:41 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.005167	-.003196	-.000144
Stddev	.001134	.001192	.000055
%RSD	21.94653	37.29481	38.20361

#1	-.004876	-.003493	-.000085
#2	-.004207	-.001884	-.000154
#3	-.006419	-.004212	-.000194

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6433.799	94043.27	6544.554	4800.838	8008.022
Stddev	4.448	678.06	81.805	29.134	14.686
%RSD	.0691291	.7210072	1.249978	.6068483	.1833921

#1	6436.824	94647.57	6473.784	4802.215	7991.872
#2	6428.692	94172.27	6525.757	4829.259	8011.617
#3	6435.882	93309.98	6634.122	4771.040	8020.576

Sample Name: Q3310-01DLX5 Acquired: 10/10/2025 16:49:26 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0733297	-.036723	.3846662	-.035123	-.004317	18.21943	.6713252
Stddev	.0016730	.004656	.0017584	.001857	.001573	.05807	.0026761
%RSD	2.281408	12.67834	.4571309	5.286117	36.44228	.3187293	.3986340
#1	.0714753	-.037135	.3828503	-.033239	-.004683	18.27379	.6709930
#2	.0737885	-.031875	.3847873	-.035179	-.002593	18.15825	.6741519
#3	.0747255	-.041159	.3863609	-.036951	-.005675	18.22624	.6688306
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0025756	-.000044	18.23080	.1548017	.0328569	.3272532	127.7755
Stddev	.0000659	.000078	.00975	.0014917	.0002691	.0003382	.4656
%RSD	2.558200	179.5466	.0534618	.9635931	.8189918	.1033496	.3643504
#1	.0026498	-.000071	18.23735	.1544220	.0325464	.3272519	127.6247
#2	.0025530	.000045	18.23545	.1564465	.0330229	.3275922	128.2977
#3	.0025240	-.000105	18.21960	.1535365	.0330013	.3269157	127.4040
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.478770	24.86395	.4113845	.0064800	9.884352	1.408537	1.195663
Stddev	.023691	.07676	.0002143	.0001528	.058525	.003014	.004071
%RSD	.6810155	.3087151	.0520960	2.357464	.5920946	.2139552	.3405132
#1	3.479198	24.85871	.4112765	.0066561	9.887030	1.410941	1.190962
#2	3.502244	24.78995	.4112457	.0063824	9.941492	1.409513	1.198090
#3	3.454868	24.94320	.4116313	.0064016	9.824535	1.405156	1.197936
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.897784	.0984883	.0051566	.0488622	.6864862	1.578054	2.771898
Stddev	.052251	.0014729	.0002127	.0003286	.0069484	.019824	.013942
%RSD	1.803126	1.495552	4.124818	.6724238	1.012166	1.256253	.5029788
#1	2.922797	.0983844	.0049767	.0492293	.6940358	1.600926	2.787918
#2	2.932826	.1000104	.0053914	.0487615	.6850634	1.565807	2.765263
#3	2.837728	.0970700	.0051018	.0485958	.6803593	1.567429	2.762513

Sample Name: Q3310-01DLX5 Acquired: 10/10/2025 16:49:26 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.635154	.0567599	.0193305
Stddev	.004274	.0007254	.0006584
%RSD	.1621772	1.278073	3.406218

#1	2.640003	.0559270	.0195313
#2	2.633521	.0570994	.0198651
#3	2.631938	.0572534	.0185950

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6501.427	85360.55	6456.365	4524.010	7478.618
Stddev	3.258	472.53	38.273	22.821	3.676
%RSD	.0501135	.5535721	.5927963	.5044516	.0491507

#1	6501.683	85702.41	6477.318	4548.291	7478.933
#2	6498.049	84821.33	6412.190	4503.002	7474.795
#3	6504.550	85557.90	6479.586	4520.736	7482.127

Sample Name: Q3310-02DLX5 Acquired: 10/10/2025 16:53:29 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1041346	-.053491	.7987267	-.026490	-.002197	28.19753	.7886202
Stddev	.0015950	.004822	.0034770	.001826	.002442	.07025	.0031733
%RSD	1.531664	9.015547	.4353126	6.892876	111.1389	.2491393	.4023886
#1	.1027807	-.052860	.8016172	-.024402	-.004285	28.11677	.7922712
#2	.1037301	-.049015	.7948684	-.027786	-.002793	28.23126	.7870646
#3	.1058928	-.058597	.7996945	-.027283	.000488	28.24454	.7865249
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0028284	.0005676	23.77868	.1741969	.0482481	.9163525	91.96378
Stddev	.0000636	.0001164	.03871	.0005856	.0001184	.0018551	.40276
%RSD	2.249404	20.50791	.1627722	.3361835	.2454476	.2024411	.4379502
#1	.0028796	.0006851	23.81724	.1745384	.0481173	.9142275	92.41417
#2	.0028485	.0005654	23.73983	.1735207	.0482789	.9176486	91.63820
#3	.0027572	.0004523	23.77898	.1745316	.0483480	.9171815	91.83897
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.293767	45.18268	.9854101	.0045535	13.05069	2.466148	2.337555
Stddev	.016736	.08468	.0006155	.0003984	.08313	.005489	.007253
%RSD	.7296286	.1874240	.0624640	8.748465	.6369547	.2225798	.3102792
#1	2.313057	45.18990	.9854292	.0048306	13.14647	2.461244	2.345839
#2	2.285135	45.09462	.9847852	.0047329	13.00824	2.465122	2.334474
#3	2.283110	45.26353	.9860158	.0040970	12.99735	2.472078	2.332350
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.434199	.0921253	.0062853	.1297188	1.096487	3.158788	4.117045
Stddev	.046556	.0002015	.0002173	.0002657	.002757	.032352	.014527
%RSD	1.049919	.2187089	3.457570	.2048211	.2514828	1.024189	.3528592
#1	4.394482	.0923515	.0063957	.1300243	1.099624	3.189888	4.131779
#2	4.422684	.0920593	.0060349	.1295420	1.094448	3.161160	4.102733
#3	4.485432	.0919651	.0064252	.1295900	1.095389	3.125315	4.116624

Sample Name: Q3310-02DLX5 Acquired: 10/10/2025 16:53:29 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	3.003285	.0431397	.1232822
Stddev	.017970	.0010248	.0007376
%RSD	.5983561	2.375608	.5983430

#1	3.019102	.0432086	.1238672
#2	2.983745	.0420822	.1235258
#3	3.007009	.0441283	.1224535

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6379.827	86326.00	6676.425	4462.077	7271.680
Stddev	6.632	337.56	21.324	22.958	2.314
%RSD	.1039479	.3910284	.3193871	.5145200	.0318260

#1	6386.698	85964.63	6651.820	4452.272	7269.029
#2	6373.463	86633.19	6687.920	4445.649	7272.715
#3	6379.321	86380.19	6689.535	4488.309	7273.296

Sample Name: Q3310-03DLX2 Acquired: 10/10/2025 16:57:32 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.785294	-.082714	6.373329	-.170705	.0408631	51.71312
Stddev	.038354	.004525	.137324	.003497	.0006030	.17622
%RSD	2.148323	5.470811	2.154674	2.048682	1.475612	.3407553
#1	1.762259	-.078800	6.275050	-.166950	.0402584	51.91554
#2	1.829569	-.081673	6.530237	-.171295	.0414644	51.62979
#3	1.764053	-.087669	6.314701	-.173869	.0408666	51.59403
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.105730	.0107570	.0064621	29.66020	.3091945	.0902599
Stddev	.006213	.0000585	.0014083	.09973	.0025080	.0018152
%RSD	.5618981	.5441500	21.79323	.3362425	.8111481	2.011029
#1	1.112801	.0107537	.0058552	29.76092	.3075272	.0888897
#2	1.103242	.0107001	.0080721	29.65819	.3079775	.0923186
#3	1.101146	.0108171	.0054590	29.56149	.3120788	.0895715
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.030072	544.4455	10.03764	42.74393	.7200239	.0197808
Stddev	.130883	3.1884	.02812	.07466	.0155154	.0004707
%RSD	2.170497	.5856232	.2801743	.1746694	2.154846	2.379404
#1	5.935124	542.2829	10.06901	42.78229	.7084638	.0193409
#2	6.179374	542.9465	10.01468	42.65789	.7376573	.0202772
#3	5.975719	548.1072	10.02924	42.79162	.7139507	.0197244
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.18196	1.966166	3.164924	11.89522	^ *****	.0370745
Stddev	.05411	.006347	.023461	.09364	-----	.0006975
%RSD	.3564200	.3228361	.7412968	.7872152	-----	1.881287
#1	15.18120	1.971503	3.146947	11.84605	^ -----	.0365026
#2	15.12823	1.967848	3.156360	11.83640	^ -----	.0378515
#3	15.23645	1.959147	3.191464	12.00320	^ -----	.0368692

Sample Name: Q3310-03DLX2 Acquired: 10/10/2025 16:57:32 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8532681	2.294895	3.321956	F 13.43537	8.785229	.1536205
Stddev	.0203064	.009243	.017825	.29172	.201732	.0009359
%RSD	2.379836	.4027562	.5365774	2.171272	2.296268	.6092504
#1	.8394607	2.305425	3.333013	13.24360	8.629358	.1540328
#2	.8765842	2.291142	3.301393	13.77108	9.013078	.1542796
#3	.8437594	2.288120	3.331461	13.29142	8.713251	.1525493
Elem	Sr4077					
Units	ppm					
Avg	-.072624					
Stddev	.005376					
%RSD	7.403218					
#1	-.067583					
#2	-.072005					
#3	-.078283					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	6196.761	90438.67	7056.519	4544.701	6845.471	
Stddev	112.476	368.60	30.306	16.915	131.389	
%RSD	1.815082	.4075663	.4294791	.3721890	1.919360	
#1	6265.317	90631.05	7021.693	4533.954	6928.535	
#2	6066.953	90671.27	7076.911	4564.199	6693.991	
#3	6258.013	90013.68	7070.951	4535.950	6913.886	

Sample Name: CCV05 Acquired: 10/10/2025 17:04:36 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal 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	5.091837	5.430039	5.052778	5.135537	5.236262	10.18462	10.39438
Stddev	.018854	.105656	.011903	.017269	.019544	.01506	.02413
%RSD	.3702805	1.945761	.2355653	.3362603	.3732385	.1478869	.2321771
#1	5.087733	5.326308	5.049754	5.127935	5.229342	10.16723	10.38372
#2	5.112405	5.426290	5.065901	5.155303	5.258324	10.19290	10.37741
#3	5.075373	5.537519	5.042679	5.123374	5.221120	10.19371	10.42201
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2437829	2.528066	24.63140	1.005217	2.570482	1.296991	5.238211
Stddev	.0026430	.007088	.03319	.001790	.008245	.004614	.023018
%RSD	1.084164	.2803679	.1347512	.1780900	.3207549	.3557106	.4394294
#1	.2408536	2.525416	24.64648	1.004169	2.567887	1.295974	5.254329
#2	.2445062	2.536097	24.59335	1.007284	2.579713	1.302029	5.248456
#3	.2459890	2.522685	24.65438	1.004198	2.563848	1.292972	5.211849
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.555138	25.03506	2.545366	1.269417	26.13657	2.552939	2.518388
Stddev	.010164	.02677	.008548	.004770	.12240	.003148	.008375
%RSD	.3977710	.1069168	.3358136	.3757440	.4683046	.1232891	.3325476
#1	2.554188	25.00528	2.542275	1.264538	26.24434	2.549370	2.509712
#2	2.545483	25.04277	2.555029	1.274070	26.16188	2.555320	2.526425
#3	2.565743	25.05712	2.538794	1.269643	26.00350	2.554126	2.519026
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.68232	4.853635	5.142415	5.039439	5.068213	5.227939	4.945218
Stddev	.12101	.059455	.019459	.013575	.012352	.062196	.019515
%RSD	.4711796	1.224957	.3783971	.2693847	.2437090	1.189683	.3946147
#1	25.76890	4.786004	5.136117	5.034047	5.069900	5.292341	4.926073
#2	25.73401	4.877232	5.164243	5.054882	5.055104	5.223264	4.965082
#3	25.54405	4.897670	5.126886	5.029388	5.079635	5.168213	4.944499

Sample Name: CCV05 Acquired: 10/10/2025 17:04:36 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV05 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.039615	4.950692	5.133178
Stddev	.025315	.009895	.061000
%RSD	.5023290	.1998676	1.188349

#1	5.015161	4.947005	5.192042
#2	5.065712	4.943170	5.137246
#3	5.037973	4.961901	5.070245

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6199.667	91039.80	6382.593	4743.943	7088.602
Stddev	21.697	204.12	42.626	12.849	23.807
%RSD	.3499698	.2242095	.6678497	.2708546	.3358554

#1	6201.891	90954.80	6423.209	4731.006	7088.095
#2	6176.944	90891.92	6386.362	4756.703	7065.052
#3	6220.167	91272.68	6338.207	4744.119	7112.658

Sample Name: CCB05 Acquired: 10/10/2025 17:08:40 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002065	-.004348	.0006532	.0004769	.0007908	.0106685	-.000404
Stddev	.000305	.001404	.0006171	.0011551	.0010756	.0027820	.000610
%RSD	14.78239	32.27726	94.47805	242.2402	136.0218	26.07678	151.1150
#1	-.002097	-.005829	.0012070	-.000340	-.000449	.0128051	-.000659
#2	-.001745	-.003037	-.000012	-.000028	.001478	.0075228	-.000845
#3	-.002353	-.004179	.000764	.001799	.001343	.0116777	.000293
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000045	-.000005	-.024810	.0003959	-.000278	.0004477	.0013365
Stddev	.000104	.000052	.007650	.0001740	.000100	.0000942	.0064679
%RSD	230.0118	1105.368	30.83338	43.94331	35.83207	21.03131	483.9553
#1	-.000073	.000018	-.017807	.0005104	-.000166	.0005564	-.003618
#2	-.000133	-.000064	-.032974	.0001957	-.000358	.0003947	-.001026
#3	.000070	.000032	-.023650	.0004817	-.000309	.0003920	.008653
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000507	-.005287	-.000263	-.000383	-.151868	.0045855	.0006577
Stddev	.000732	.015017	.000162	.000239	.017304	.0004748	.0000417
%RSD	144.3746	284.0312	61.51969	62.46655	11.39398	10.35414	6.347304
#1	-.001290	.011546	-.000432	-.000137	-.171476	.0042785	.0006551
#2	-.000393	-.017308	-.000248	-.000396	-.138736	.0051324	.0007007
#3	.000161	-.010100	-.000109	-.000615	-.145393	.0043456	.0006173
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.176201	-.004735	.0004442	-.011437	-.000912	.0008389	.0013370
Stddev	.019319	.000158	.0001382	.000562	.001152	.0072349	.0007358
%RSD	10.96439	3.343926	31.11626	4.916660	126.2643	862.4323	55.03328
#1	-.195422	-.004602	.0003979	-.012072	-.002087	.0048831	.0007715
#2	-.176395	-.004910	.0005996	-.011002	.000215	.0051474	.0021689
#3	-.156785	-.004694	.0003351	-.011237	-.000865	-.007514	.0010706

Sample Name: CCB05 Acquired: 10/10/2025 17:08:40 Type: Unk
Method: 6010-200.7 NEW(v276) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.004783	-.001274	-.000070
Stddev	.001725	.002938	.000031
%RSD	36.07204	230.6545	44.05432

#1	-.005419	.001748	-.000048
#2	-.002830	-.001449	-.000106
#3	-.006099	-.004120	-.000057

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6256.015	91917.64	6364.376	4833.396	7732.103
Stddev	52.167	172.08	20.279	29.482	63.772
%RSD	.8338697	.1872137	.3186342	.6099635	.8247690

#1	6313.820	92106.89	6387.463	4867.357	7801.891
#2	6212.437	91770.57	6349.444	4818.454	7676.861
#3	6241.789	91875.45	6356.221	4814.376	7717.555

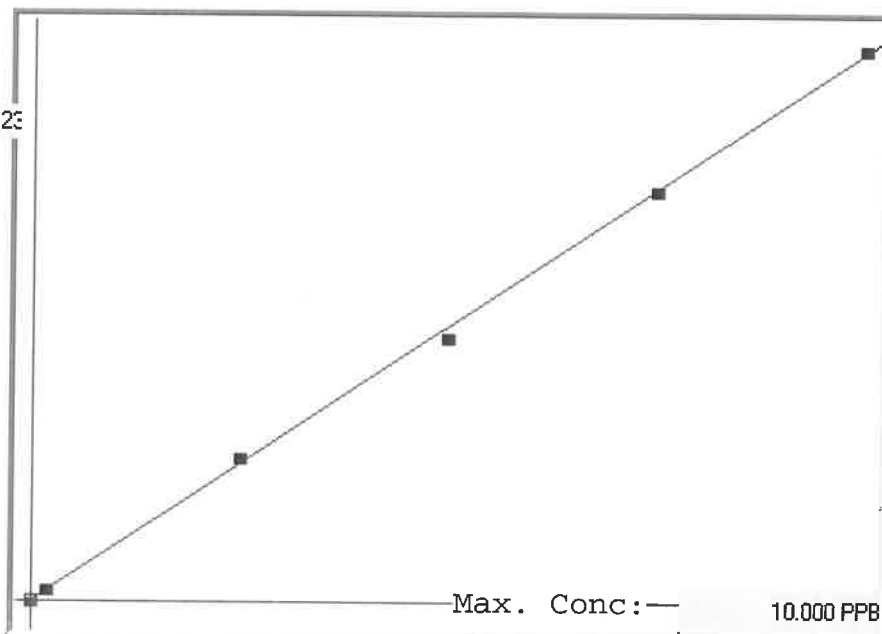
LB137509

7471B

INSTRUMENT ID:CV1

μ Abs.:

51123



Linear

A= 0.0000e+000

B= 1.9695e-004

C= -5.0279e-003

Rho= 0.9996627

Accept=Accepted

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0.0	0.000	0.006	0.006	58	0.000	58				
0.2	0.200	0.211	0.011	1096	0.0 %	1096				
2.5	2.500	2.615	0.115	13301	0.0 %	13301				
5.0	5.000	4.806	-0.194	24426	0.0 %	24426				
7.5	7.500	7.499	-0.001	38100	0.0 %	38100				
10.0	10.000	10.064	0.064	51123	0.0 %	51123				

LB137509 INSTRUMENT ID : CV1

Method: 7471B Operator: Admin Date of Analysis: 13 Oct 2025 12:55:21

Type	Sample ID	Extended ID	Conc.	µ Abs.	Units	Type	Std Conc	Method	Date
S	0.0 - 1	50	-	58	PPB	Std	0.0000	7471B	13 Oct 2025 13:27:59
S	0.2 - 1	50.2	-	1096	PPB	Std	0.2000	7471B	13 Oct 2025 13:30:21
S	2.5 - 1	52.5	-	13301	PPB	Std	2.5000	7471B	13 Oct 2025 13:32:38
S	5.0 - 1	55	-	24426	PPB	Std	5.0000	7471B	13 Oct 2025 13:34:55
S	7.5 - 1	57.5	-	38100	PPB	Std	7.5000	7471B	13 Oct 2025 13:37:29
S	10.0 - 1	510	-	51123	PPB	Std	10.0000	7471B	13 Oct 2025 13:43:23
U	ICV68 - 1	ICV68	4.1122	20905	PPB	SMPL	-7471B		13 Oct 2025 13:49:00
U	ICB68 - 1	ICB68	-0.0484	-220	PPB	SMPL	-7471B		13 Oct 2025 13:51:25
U	CCV19 - 1	CCV19	4.8029	24412	PPB	SMPL	-7471B		13 Oct 2025 13:54:03
U	CCB19 - 1	CCB19	-0.0484	-220	PPB	SMPL	-7471B		13 Oct 2025 13:56:18
U	CRA - 1	CRA	0.2035	1059	PPB	SMPL	-7471B		13 Oct 2025 13:58:59
U	HighStd - 1	HighStd	10.1200	51409	PPB	SMPL	-7471B		13 Oct 2025 14:01:14
U	ChkStd - 1	ChkStd	6.9920	35527	PPB	SMPL	-7471B		13 Oct 2025 14:03:29
U	PB170072BL - 1	PBS	-0.0639	-299	PPB	SMPL	-7471B		13 Oct 2025 14:06:19
U	PB170072BS - 1	LCSS	3.5088	17841	PPB	SMPL	-7471B		13 Oct 2025 14:11:42
U	Q3321-01 - 1	P001-DS-01	4.4323	22530	PPB	SMPL	-7471B		13 Oct 2025 14:14:05
U	Q3322-01 - 1	OR-02-100925	0.4462	2291	PPB	SMPL	-7471B		13 Oct 2025 14:16:44
U	Q3323-01 - 1	SED-01-0-2	5.5645	28279	PPB	SMPL	-7471B		13 Oct 2025 14:19:27
U	Q3323-02 - 1	SED-02-0-2	1.7356	8838	PPB	SMPL	-7471B		13 Oct 2025 14:21:45
U	Q3323-03 - 1	SED-03-0-2	4.8244	24521	PPB	SMPL	-7471B		13 Oct 2025 14:24:34
U	CCV20 - 1	CCV20	4.7068	23924	PPB	SMPL	-7471B		13 Oct 2025 14:27:06
U	CCB20 - 1	CCB20	-0.0610	-284	PPB	SMPL	-7471B		13 Oct 2025 14:29:49
U	Q3323-04 - 1	SED-04-0-2	4.8998	24904	PPB	SMPL	-7471B		13 Oct 2025 14:32:29
U	Q3323-05 - 1	SED-05-0-2	3.1182	15858	PPB	SMPL	-7471B		13 Oct 2025 14:34:45
U	Q3323-06 - 1	SED-06-0-2	1.7736	9031	PPB	SMPL	-7471B		13 Oct 2025 14:37:27
U	Q3323-07 - 1	SED-07-0-2	8.4136	42745	PPB	SMPL	-7471B		13 Oct 2025 14:40:04
U	Q3326-01 - 1	TP-1	-0.0168	-60	PPB	SMPL	-7471B		13 Oct 2025 14:42:35
U	Q3326-05 - 1	TP-2	0.3300	1701	PPB	SMPL	-7471B		13 Oct 2025 14:45:24
U	Q3327-01 - 1	HADLEY-ROAD-TP	0.1764	921	PPB	SMPL	-7471B		13 Oct 2025 14:47:41
U	Q3327-01DUP - 1	HADLEY-ROAD-TPDUP	0.1673	875	PPB	SMPL	-7471B		13 Oct 2025 14:49:58
U	Q3327-01MS - 1	HADLEY-ROAD-TPMS	3.5289	17943	PPB	SMPL	-7471B		13 Oct 2025 14:52:15
U	Q3327-01MSD - 1	HADLEY-ROAD-TPMSD	3.6982	18803	PPB	SMPL	-7471B		13 Oct 2025 14:54:30
U	CCV21 - 1	CCV21	4.7403	24094	PPB	SMPL	-7471B		13 Oct 2025 14:57:08
U	CCB21 - 1	CCB21	-0.0505	-231	PPB	SMPL	-7471B		13 Oct 2025 14:59:45
U	Q3332-01 - 1	100225-D	0.5683	2911	PPB	SMPL	-7471B		13 Oct 2025 15:02:26
U	Q3327-01LX5 - 1		-0.0017	17	PPB	SMPL	-7471B		13 Oct 2025 15:04:41
U	Q3327-01A - 1		3.5681	18142	PPB	SMPL	-7471B		13 Oct 2025 15:06:58
U	CCV22 - 1	CCV22	4.7141	23961	PPB	SMPL	-7471B		13 Oct 2025 15:09:14
U	CCB22 - 1	CCB22	-0.0576	-267	PPB	SMPL	-7471B		13 Oct 2025 15:11:52

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

SOP ID : M3050B-Digestion-20

SDG No : N/A

Matrix : SOIL

Pipette ID: ICP A

Balance ID : M SC-2

Filter paper ID : N/A

pH Strip ID : N/A

Hood ID : #3

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

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

End Digest Date: 10/10/2025 Time : 12:15 Temp : 96 °C

Digestion tube ID: M6054

Block thermometer ID: MET-DIG. #2

Dlg Technician Signature: *SKS*

Supervisor Signature: *[Signature]*

Temp : 1. 96°C 2. N/A

Standardized Name	MLS USED	STD REF. # FROM LOG
LFS-1	1.00	M6180
LFS-2	1.00	M6181
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
Conc. HNO3	5.00	M6158
1:1 HNO3	10.00	MP86978
30% H2O2	3.00	M6170
Conc. HCL	10.00	M6151
PTFE Boiling Stones	N/A	M5581
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

HOT BLOCK#2 CELL#35 96C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
10/10/25 13:15	<i>SKS metals</i>	<i>[Signature]</i>
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	pH	Initial Weight (g)	Final Vol (ml)	Color Before	Color After	Texture	Artifact	Comment	Prep Pos
PB170058BL	PBS058	N/A	2.00	100	Colorless	Colorless	Fine	No	N/A	1
PB170058BS	LCS058	N/A	2.00	100	Colorless	Colorless	Fine	No	M6180,M6181	2
Q3310-01	SS-01-0-1	N/A	2.10	100	Brown	Yellow	Medium	No	N/A	3
Q3310-02	SS-01-1-2	N/A	2.34	100	Brown	Yellow	Medium	No	N/A	4
Q3310-03	SS-01-2-3	N/A	2.41	100	Brown	Yellow	Medium	No	N/A	5
Q3321-01	P001-DS-01	N/A	2.25	100	Brown	Yellow	Medium	No	N/A	6
Q3322-01	OR-02-100925	N/A	2.24	100	Brown	Yellow	Medium	No	N/A	7
Q3322-01MS	OR-02-100925MS	N/A	2.32	100	Brown	Yellow	Medium	No	M6180,M6181	9
Q3322-01MSD	OR-02-100925MSD	N/A	2.28	100	Brown	Yellow	Medium	No	M6180,M6181	10
Q3322-01DUP	OR-02-100925DUP	N/A	2.24	100	Brown	Yellow	Medium	No	N/A	8

WORKLIST(Hardcopy Internal Chain)

Worklist Name : PB170058

Worklist ID : 192390

Department : Digestion

Date : 10-10-2025 09:37:37

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q3310-01	SS-01-0-1	Solid	Metals ICP-TAL	Cool 4 deg C	LANG01	D31	10/07/2025	6010D
Q3310-02	SS-01-1-2	Solid	Metals ICP-TAL	Cool 4 deg C	LANG01	D31	10/07/2025	6010D
Q3310-03	SS-01-2-3	Solid	Metals ICP-TAL	Cool 4 deg C	LANG01	D31	10/07/2025	6010D
Q3321-01	P001-DS-01	Solid	Metals ICP-TAL	Cool 4 deg C	ROYF02	D41	10/08/2025	6010D
Q3322-01	OR-02-100925	Solid	Metals ICP-TAL	Cool 4 deg C	PSEG05	D31	10/09/2025	6010D

Date/Time 10/10/2025 09:50

Raw Sample Received by: SRS ent AB

Raw Sample Relinquished by: CPCS m)

Date/Time 10/10/2025 10:50

Raw Sample Received by: CPCS m)

Raw Sample Relinquished by: SRS ent AB

SOP ID : M7471B-Mercury-19

SDG No : NA

Matrix : SOIL

Pipette ID: HG A

Balance ID : M SC-3

Filter paper ID : NA

pH Strip ID : NA

Hood ID : #1

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

Start Digest Date: 10/13/2025 Time : 10:50 Temp : 95 °C

End Digest Date: 10/13/2025 Time : 11:20 Temp : 95 °C

Digestion tube ID: M5595

Block thermometer ID: HG-DIG#3

Dig Technician Signature: 

Supervisor Signature: 

Temp : 1. 95°C 2. N/A

Standard Name	MLS USED	STD REF. # FROM LOG
ICV	30mL	MP87536
CCV	30mL	MP87538
CRA	30mL	MP87540
Blank Spike	0.48mL	MP87528
Matrix Spike	0.48mL	MP87528

Chemical Used	ML/SAMPLE USED	Lot Number
AQUA REGIA	1.5mL	MP87542
KMnO4 (5%)	4.5mL	MP87072
Hydroxylamine HCL (12%)	2.4mL	MP87149
PTFE Boiling Stones	1.8mL	M5582
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

LAB SAMPLE ID	CLIENT SAMPLE ID	Wt(g)/Vol(ml)	Comment
0.0 ppb	S0	30ml	MP87529
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	30ml	MP87530
2.5 ppb	S2.5	30ml	MP87531
5.0 ppb	S5.0	30ml	MP87533
7.5 ppb	S7.5	30ml	MP87534
10.0 ppb	S10.0	30ml	MP87535
ICV	ICV	30ml	MP87536
ICB	ICB	30ml	MP87537
CCV	CCV	30ml	MP87538
CCB	CCB	30ml	MP87539
CRI	CRI	30ml	MP87540
CHK STD	CHK STD	30ml	MP87541

Extraction Conformance/Non-Conformance Comments:

N/A		
Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
10/13/2025 12:00	MB (Digestion Lab)	MB (Metal lab)
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	Initial Weight (g)	Final Vol (ml)	pH	Comment	Prep Pos
PB170072BL	PBS072	0.50	35	N/A	N/A	3-1
PB170072BS	LCS072	0.50	35	N/A	MP87528	2
Q3321-01	P001-DS-01	0.57	35	N/A	N/A	3
Q3322-01	OR-02-100925	0.56	35	N/A	N/A	4
Q3323-01	SED-01-0-2	0.54	35	N/A	N/A	5
Q3323-02	SED-02-0-2	0.57	35	N/A	N/A	6
Q3323-03	SED-03-0-2	0.52	35	N/A	N/A	7
Q3323-04	SED-04-0-2	0.57	35	N/A	N/A	8
Q3323-05	SED-05-0-2	0.56	35	N/A	N/A	9
Q3323-06	SED-06-0-2	0.53	35	N/A	N/A	10
Q3323-07	SED-07-0-2	0.57	35	N/A	N/A	11
Q3326-01	TP-1	0.56	35	N/A	N/A	12
Q3326-05	TP-2	0.52	35	N/A	N/A	13
Q3327-01	HADLEY-ROAD	0.56	35	N/A	N/A	14
Q3327-01MS	HADLEY-ROADMS	0.56	35	N/A	MP87528	16
Q3327-01MSD	HADLEY-ROADMSD	0.54	35	N/A	MP87528	17
Q3327-01DUP	HADLEY-ROADDUP	0.55	35	N/A	N/A	15
Q3332-01	100225-D	0.58	35	N/A	N/A	18

WORKLIST(Hardcopy Internal Chain)

WorkList Name : 101325_7471 WorkList ID : 192419 Department : Digestion Date : 10-13-2025 10:34:34

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q3321-01	P001-DS-01	Solid	Mercury	Cool 4 deg C	ROYF02	D41	10/08/2025	7471B
Q3322-01	OR-02-100925	Solid	Mercury	Cool 4 deg C	PSEG05	D31	10/09/2025	7471B
Q3323-01	SED-01-0-2	Solid	Mercury	Cool 4 deg C	LANG01	D31	10/09/2025	7471B
Q3323-02	SED-02-0-2	Solid	Mercury	Cool 4 deg C	LANG01	D31	10/09/2025	7471B
Q3323-03	SED-03-0-2	Solid	Mercury	Cool 4 deg C	LANG01	D31	10/09/2025	7471B
Q3323-04	SED-04-0-2	Solid	Mercury	Cool 4 deg C	LANG01	D31	10/09/2025	7471B
Q3323-05	SED-05-0-2	Solid	Mercury	Cool 4 deg C	LANG01	D31	10/09/2025	7471B
Q3323-06	SED-06-0-2	Solid	Mercury	Cool 4 deg C	LANG01	D31	10/09/2025	7471B
Q3323-07	SED-07-0-2	Solid	Mercury	Cool 4 deg C	LANG01	D31	10/09/2025	7471B
Q3326-01	TP-1	Solid	Mercury	Cool 4 deg C	PSEG03	D31	10/10/2025	7471B
Q3326-05	TP-2	Solid	Mercury	Cool 4 deg C	PSEG03	D31	10/10/2025	7471B
Q3327-01	HADLEY-ROAD-TP	Solid	Mercury	Cool 4 deg C	PSEG03	D31	10/10/2025	7471B
Q3332-01	100225-D	Solid	Mercury	Cool 4 deg C	PSEG03	D41	10/10/2025	7471B

Date/Time 10/13/25 10:35
 Raw Sample Received by: MR. M. G. LUG
 Raw Sample Relinquished by: MR. M. G. LUG

Date/Time 10/13/25 11:05
 Raw Sample Received by: MR. M. G. LUG
 Raw Sample Relinquished by: MR. M. G. LUG

PERCENT SOLID

Supervisor: Iwona
Analyst: jignesh
Date: 10/10/2025

OVENTEMP IN Celsius(°C): 107
Time IN: 17:10
In Date: 10/09/2025
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
OvenID: M OVEN#1

OVENTEMP OUT Celsius(°C): 104
Time OUT: 08:40
Out Date: 10/10/2025
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
BalanceID: M SC-4
Thermometer ID: % SOLID-OVEN

QC:LB137480

Lab ID	Client SampleID	Dish #	Dish Wt (g) (A)	Sample Wt (g)	Dish + Sample Wt (g) (B)	Dish+Dry Sample Wt (g) (C)	% Solid	Comments
Q3300-01	OIL	1	1.00	1.00	2.00	2.00	100.0	oil sample
Q3310-01	SS-01-0-1	2	1.15	10.03	11.18	7.7	65.3	
Q3310-02	SS-01-1-2	3	1.12	10.62	11.74	8.81	72.4	
Q3310-03	SS-01-2-3	4	1.16	10.56	11.72	9.09	75.1	
Q3321-01	P001-DS-01	5	1.16	10.56	11.72	9.44	78.4	
Q3322-01	OR-02-100925	6	1.11	10.33	11.44	10.72	93.0	
Q3322-02	OR-02-100925-E2	7	1.12	11.11	12.23	11.55	93.9	

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

WORKLIST(Hardcopy Internal Chain)

137480

WorkList Name : %1-100925

WorkList ID : 192359

Department : Wet-Chemistry

Date : 10-09-2025 08:08:47

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q3300-01	OIL	Solid	Percent Solids	Cool 4 deg C	PSEG03	D31	10/07/2025	Chemtech -SO
Q3310-01	SS-01-0-1	Solid	Percent Solids	Cool 4 deg C	LANG01	D31	10/07/2025	Chemtech -SO
Q3310-02	SS-01-1-2	Solid	Percent Solids	Cool 4 deg C	LANG01	D31	10/07/2025	Chemtech -SO
Q3310-03	SS-01-2-3	Solid	Percent Solids	Cool 4 deg C	LANG01	D31	10/07/2025	Chemtech -SO
Q3321-01	P001-DS-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	D41	10/08/2025	Chemtech -SO
Q3322-01	OR-02-100925	Solid	Percent Solids	Cool 4 deg C	PSEG05	D31	10/09/2025	Chemtech -SO
Q3322-02	OR-02-100925-E2	Solid	Percent Solids	Cool 4 deg C	PSEG05	D31	10/09/2025	Chemtech -SO

Date/Time 10/09/25 15:10

Raw Sample Received by: [Signature]

Raw Sample Relinquished by: [Signature]

Date/Time

10/09/25

Raw Sample Received by: [Signature]

Raw Sample Relinquished by: [Signature]

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137500

Review By	jaswal	Review On	10/14/2025 12:26:11 PM
Supervise By	janvi	Supervise On	10/14/2025 12:29:01 PM
STD. NAME	STD REF.#		
ICAL Standard	MP87031,MP87038,MP87035,MP87034,MP87033,MP87032		
ICV Standard	MP87039,MP87035		
CCV Standard	MP87042		
ICSA Standard	MP87040,MP87048		
CRI Standard	MP87035		
LCS Standard			
Chk Standard	MP87043,MP87044,MP87045,MP87046,MP87049		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	10/10/25 11:27		Jaswal	OK
2	S1	S1	CAL2	10/10/25 11:31		Jaswal	OK
3	S2	S2	CAL3	10/10/25 11:36		Jaswal	OK
4	S3	S3	CAL4	10/10/25 11:40		Jaswal	OK
5	S4	S4	CAL5	10/10/25 11:44		Jaswal	OK
6	S5	S5	CAL6	10/10/25 11:48		Jaswal	OK
7	ICV01	ICV01	ICV	10/10/25 11:52		Jaswal	OK
8	LLICV01	LLICV01	LLICV	10/10/25 12:00		Jaswal	OK
9	ICB01	ICB01	ICB	10/10/25 12:11		Jaswal	OK
10	CRI01	CRI01	CRDL	10/10/25 12:15		Jaswal	OK
11	ICSA01	ICSA01	ICSA	10/10/25 12:29		Jaswal	OK
12	ICSAB01	ICSAB01	ICSAB	10/10/25 12:33		Jaswal	OK
13	ICSADL	ICSADL	ICSA	10/10/25 12:37		Jaswal	OK
14	ICSABDL	ICSABDL	ICSAB	10/10/25 12:41		Jaswal	OK
15	CCV01	CCV01	CCV	10/10/25 12:52		Jaswal	OK
16	CCB01	CCB01	CCB	10/10/25 12:57		Jaswal	OK
17	LR-2	LR-2	HIGH STD	10/10/25 13:07		Jaswal	OK
18	LR-3	LR-3	HIGH STD	10/10/25 13:11		Jaswal	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137500

Review By	jaswal	Review On	10/14/2025 12:26:11 PM
Supervise By	janvi	Supervise On	10/14/2025 12:29:01 PM
STD. NAME	STD REF.#		
ICAL Standard	MP87031,MP87038,MP87035,MP87034,MP87033,MP87032		
ICV Standard	MP87039,MP87035		
CCV Standard	MP87042		
ICSA Standard	MP87040,MP87048		
CRI Standard	MP87035		
LCS Standard			
Chk Standard	MP87043,MP87044,MP87045,MP87046,MP87049		

19	LR-1	LR-1	HIGH STD	10/10/25 13:20		Jaswal	OK
20	PB170047BL	PB170047BL	MB	10/10/25 13:25		Jaswal	OK
21	PB170047BS	PB170047BS	LCS	10/10/25 13:29		Jaswal	OK
22	PB170027TB	PB170027TB	MB	10/10/25 13:33		Jaswal	OK
23	Q3272-08	R7	SAM	10/10/25 13:38		Jaswal	OK
24	Q3315-02	314	SAM	10/10/25 13:42		Jaswal	OK
25	Q3315-02DUP	314DUP	DUP	10/10/25 13:46		Jaswal	OK
26	Q3315-02L	314L	SD	10/10/25 13:51		Jaswal	OK
27	CCV02	CCV02	CCV	10/10/25 14:04		Jaswal	OK
28	CCB02	CCB02	CCB	10/10/25 14:10		Jaswal	OK
29	Q3315-02MS	314MS	MS	10/10/25 14:15		Jaswal	OK
30	Q3315-02MSD	314MSD	MSD	10/10/25 14:19		Jaswal	OK
31	Q3315-02A	314A	PS	10/10/25 14:23	0.1ML M6008,M6017-10 ML SAMPLE	Jaswal	OK
32	PB170008BL	PB170008BL	MB	10/10/25 14:27		Jaswal	OK
33	PB170008BS	PB170008BS	LCS	10/10/25 14:31		Jaswal	OK
34	PB170058BL	PB170058BL	MB	10/10/25 14:35		Jaswal	OK
35	Q3310-01	SS-01-0-1	SAM	10/10/25 14:44		Jaswal	OK
36	PB170058BS	PB170058BS	LCS	10/10/25 14:48		Jaswal	OK
37	Q3310-02	SS-01-1-2	SAM	10/10/25 14:52		Jaswal	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137500

Review By	jaswal	Review On	10/14/2025 12:26:11 PM
Supervise By	janvi	Supervise On	10/14/2025 12:29:01 PM
STD. NAME	STD REF.#		
ICAL Standard	MP87031,MP87038,MP87035,MP87034,MP87033,MP87032		
ICV Standard	MP87039,MP87035		
CCV Standard	MP87042		
ICSA Standard	MP87040,MP87048		
CRI Standard	MP87035		
LCS Standard			
Chk Standard	MP87043,MP87044,MP87045,MP87046,MP87049		

38	Q3310-03	SS-01-2-3	SAM	10/10/25 14:56	Ag oversaturated	Jaswal	Dilution
39	CCV03	CCV03	CCV	10/10/25 15:37		Jaswal	OK
40	CCB03	CCB03	CCB	10/10/25 15:41		Jaswal	OK
41	Q3321-01	P001-DS-01	SAM	10/10/25 15:45	Cu,Fe high & Ag oversaturated	Jaswal	Dilution
42	Q3322-01	OR-02-100925	SAM	10/10/25 15:50		Jaswal	OK
43	Q3322-01DUP	OR-02-100925DUP	DUP	10/10/25 15:54		Jaswal	OK
44	Q3322-01L	OR-02-100925L	SD	10/10/25 15:58		Jaswal	OK
45	Q3322-01MS	OR-02-100925MS	MS	10/10/25 16:02		Jaswal	OK
46	Q3322-01MSD	OR-02-100925MSD	MSD	10/10/25 16:06		Jaswal	OK
47	Q3322-01A	OR-02-100925A	PS	10/10/25 16:09	0.1ML M6008,M6017-10 ML SAMPLE	Jaswal	OK
48	Q3321-01DL	P001-DS-01DL	SAM	10/10/25 16:13	5x for Cu,Fe,Ag	Jaswal	Confirms
49	CCV04	CCV04	CCV	10/10/25 16:29		Jaswal	OK
50	CCB04	CCB04	CCB	10/10/25 16:33		Jaswal	OK
51	Q3310-01DL	SS-01-0-1DL	SAM	10/10/25 16:49	NOT USE	Jaswal	Not Ok
52	Q3310-02DL	SS-01-1-2DL	SAM	10/10/25 16:53	NOT USE	Jaswal	Not Ok
53	Q3310-03DL	SS-01-2-3DL	SAM	10/10/25 16:57	2x for Ag	Jaswal	Confirms
54	CCV05	CCV05	CCV	10/10/25 17:04		Jaswal	OK
55	CCB05	CCB05	CCB	10/10/25 17:08		Jaswal	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB137509

Review By	jaswal	Review On	10/14/2025 12:31:04 PM
Supervise By	janvi	Supervise On	10/14/2025 12:32:11 PM
STD. NAME	STD REF.#		
ICAL Standard	MP87529,MP87530,MP87531,MP87533,MP87534,MP87535		
ICV Standard	MP87536		
CCV Standard	MP87538		
ICSA Standard			
CRI Standard	MP87540		
LCS Standard			
Chk Standard	MP87537,MP87539,MP87541,MP875423		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	10/13/25 13:27		mohan	OK
2	S0.2	S0.2	CAL2	10/13/25 13:30		mohan	OK
3	S2.5	S2.5	CAL3	10/13/25 13:32		mohan	OK
4	S5	S5	CAL4	10/13/25 13:34		mohan	OK
5	S7.5	S7.5	CAL5	10/13/25 13:37		mohan	OK
6	S10	S10	CAL6	10/13/25 13:43		mohan	OK
7	ICV68	ICV68	ICV	10/13/25 13:49		mohan	OK
8	ICB68	ICB68	ICB	10/13/25 13:51		mohan	OK
9	CCV19	CCV19	CCV	10/13/25 13:54		mohan	OK
10	CCB19	CCB19	CCB	10/13/25 13:56		mohan	OK
11	CRA	CRA	CRDL	10/13/25 13:58		mohan	OK
12	HighStd	HighStd	HIGH STD	10/13/25 14:01		mohan	OK
13	ChkStd	ChkStd	SAM	10/13/25 14:03		mohan	OK
14	PB170072BL	PB170072BL	MB	10/13/25 14:06		mohan	OK
15	PB170072BS	PB170072BS	LCS	10/13/25 14:11		mohan	OK
16	Q3321-01	P001-DS-01	SAM	10/13/25 14:14		mohan	OK
17	Q3322-01	OR-02-100925	SAM	10/13/25 14:16		mohan	OK
18	Q3323-01	SED-01-0-2	SAM	10/13/25 14:19		mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB137509

Review By	jaswal	Review On	10/14/2025 12:31:04 PM
Supervise By	janvi	Supervise On	10/14/2025 12:32:11 PM

STD. NAME	STD REF.#
ICAL Standard	MP87529,MP87530,MP87531,MP87533,MP87534,MP87535
ICV Standard	MP87536
CCV Standard	MP87538
ICSA Standard	
CRI Standard	MP87540
LCS Standard	
Chk Standard	MP87537,MP87539,MP87541,MP875423

19	Q3323-02	SED-02-0-2	SAM	10/13/25 14:21		mohan	OK
20	Q3323-03	SED-03-0-2	SAM	10/13/25 14:24		mohan	OK
21	CCV20	CCV20	CCV	10/13/25 14:27		mohan	OK
22	CCB20	CCB20	CCB	10/13/25 14:29		mohan	OK
23	Q3323-04	SED-04-0-2	SAM	10/13/25 14:32		mohan	OK
24	Q3323-05	SED-05-0-2	SAM	10/13/25 14:34		mohan	OK
25	Q3323-06	SED-06-0-2	SAM	10/13/25 14:37		mohan	OK
26	Q3323-07	SED-07-0-2	SAM	10/13/25 14:40		mohan	OK
27	Q3326-01	TP-1	SAM	10/13/25 14:42		mohan	OK
28	Q3326-05	TP-2	SAM	10/13/25 14:45		mohan	OK
29	Q3327-01	HADLEY-ROAD-TP	SAM	10/13/25 14:47		mohan	OK
30	Q3327-01DUP	HADLEY-ROAD-TPD	DUP	10/13/25 14:49		mohan	OK
31	Q3327-01MS	HADLEY-ROAD-TPM	MS	10/13/25 14:52		mohan	OK
32	Q3327-01MSD	HADLEY-ROAD-TPM	MSD	10/13/25 14:54		mohan	OK
33	CCV21	CCV21	CCV	10/13/25 14:57		mohan	OK
34	CCB21	CCB21	CCB	10/13/25 14:59		mohan	OK
35	Q3332-01	100225-D	SAM	10/13/25 15:02		mohan	OK
36	Q3327-01L	HADLEY-ROAD-TPL	SD	10/13/25 15:04		mohan	OK
37	Q3327-01A	HADLEY-ROAD-TPA	PS	10/13/25 15:06		mohan	OK
38	CCV22	CCV22	CCV	10/13/25 15:09		mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB137509

Review By	jaswal	Review On	10/14/2025 12:31:04 PM
Supervise By	janvi	Supervise On	10/14/2025 12:32:11 PM
STD. NAME	STD REF.#		
ICAL Standard	MP87529,MP87530,MP87531,MP87533,MP87534,MP87535		
ICV Standard	MP87536		
CCV Standard	MP87538		
ICSA Standard			
CRI Standard	MP87540		
LCS Standard			
Chk Standard	MP87537,MP87539,MP87541,MP875423		

39	CCB22	CCB22	CCB	10/13/25 15:11		mohan	OK
----	-------	-------	-----	----------------	--	-------	----

Prep Standard - Chemical Standard Summary

Order ID : Q3321
Test : Mercury, Metals ICP-TAL
Prepbatch ID : PB170058, PB170072,
Sequence ID/Qc Batch ID: LB137500, LB137509,

Standard ID :
 MP86978, MP87031, MP87032, MP87033, MP87034, MP87035, MP87036, MP87038, MP87039, MP87040, MP87042, MP87043, MP87044, MP87045, MP87046, MP87048, MP87049, MP87072, MP87149, MP87528, MP87529, MP87530, MP87531, MP87533, MP87534, MP87535, MP87536, MP87537, MP87538, MP87539, MP87540, MP87541, MP87542, MP875423,

Chemical ID :
 M4916, M5062, M5467, M5581, M5582, M5658, M5748, M5751, M5798, M5799, M5800, M5801, M5814, M5820, M5884, M5962, M5969, M5971, M5979, M5985, M5998, M6021, M6023, M6026, M6027, M6028, M6030, M6032, M6076, M6077, M6128, M6137, M6138, M6140, M6142, M6144, M6145, M6151, M6158, M6159, M6160, M6161, M6162, M6163, M6164, M6165, M6170, M6171, M6174, M6176, M6177, M6178, M6179, M6180, M6181, M6182, M6184, M6187, M6196, M6200, W 3112,

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
169	1:1HNO3	MP86978	08/28/2025	11/27/2025	Sagar Kanani	None	None	Sarabjit Jaswal
								08/28/2025

FROM 1250.00000ml of M6162 + 1250.00000ml of W3112 = Final Quantity: 2500.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
902	ICP AES CAL BLK (SO/ICB/CCB)	MP87031	09/02/2025	10/17/2025	Sarabjit Jaswal	None	None	Janvi Patel
								09/04/2025

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

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
907	ICP AES STD S (S5)	MP87032	09/02/2025	10/17/2025	Sarabjit Jaswal	None	None	Janvi Patel
								09/04/2025

FROM 5.00000ml of M5467 + 5.00000ml of M5820 + 5.00000ml of M5969 + 5.00000ml of M5971 + 5.00000ml of M5998 + 5.00000ml of M6077 + 5.00000ml of M6160 + 5.00000ml of M6174 + 5.00000ml of M6176 + 455.00000ml of MP87031 = Final Quantity: 500.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
910	ICP AES STD S4	MP87033	09/02/2025	10/17/2025	Sarabjit Jaswal	None	None	Janvi Patel
								09/04/2025

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

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
909	ICP AES STD S3	MP87034	09/02/2025	10/17/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel 09/04/2025

FROM 25.00000ml of MP87032 + 75.00000ml of MP87031 = Final Quantity: 100.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3913	ICP AES STD S2	MP87035	09/02/2025	10/17/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel 09/04/2025

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

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
2950	ICP AES S1/CRI STOCK STD	MP87036	09/02/2025	10/17/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel 09/04/2025

FROM 0.03000ml of M5798 + 0.03000ml of M6028 + 0.04000ml of M6137 + 0.05000ml of M5658 + 0.05000ml of M6030 + 0.05000ml of M6140 + 0.05000ml of M6159 + 0.06000ml of M6177 + 0.10000ml of M5751 + 0.10000ml of M5801 + 0.10000ml of M5820 + 0.10000ml of M5962 + 0.10000ml of M5971 + 0.10000ml of M6128 + 0.10000ml of M6176 + 0.15000ml of M5800 + 0.20000ml of M5799 + 0.20000ml of M6021 + 0.20000ml of M6023 + 0.20000ml of M6027 + 0.20000ml of M6145 + 0.25000ml of M5467 + 0.25000ml of M6160 + 0.50000ml of M5814 + 0.50000ml of M6032 + 1.00000ml of M5979 + 1.00000ml of M6138 + 1.00000ml of M6142 + 1.00000ml of M6144 + 1.00000ml of M6171 + 1.00000ml of M6178 + 2.00000ml of M5969 + 98.00000ml of MP87031 = Final Quantity: 100.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
2951	ICP AES S1/CRI WORK STD	MP87038	09/02/2025	10/17/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel 09/04/2025

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

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4163	NEW ICV-060925	MP87039	09/02/2025	10/17/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel 09/04/2025

FROM 0.40000ml of M6163 + 0.40000ml of M6164 + 0.40000ml of M6165 + 48.80000ml of MP87031 = Final Quantity: 50.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
904	ICP AES ICSA SOLN	MP87040	09/02/2025	10/17/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel 09/04/2025

FROM 25.00000ml of M6182 + 225.00000ml of MP87031 = Final Quantity: 250.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
911	ICP AES CCV SOLN	MP87042	09/02/2025	10/17/2025	Sarabjit Jaswal	None	None	Janvi Patel
								09/04/2025

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

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
919	ICP AES INTERNAL STD	MP87043	09/02/2025	10/17/2025	Sarabjit Jaswal	None	None	Janvi Patel
								09/04/2025

FROM 1.00000ml of M6179 + 10.00000ml of M5985 + 200.00000ml of M6187 + 9800.00000ml of W3112 = Final Quantity: 10000.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
903	ICP AES RINSE SOLN	MP87044	09/02/2025	10/17/2025	Sarabjit Jaswal	None	None	Janvi Patel
								09/04/2025

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

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4225	LR-1	MP87045	09/02/2025	10/17/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel
								09/04/2025

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

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4226	LR-2	MP87046	09/02/2025	10/17/2025	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Janvi Patel 09/04/2025

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

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3494	ICP AES ICSAB SOLN-1	MP87048	09/02/2025	10/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 09/04/2025

FROM 0.05000ml of M6076 + 5.00000ml of M6182 + 5.00000ml of M6184 + 39.95000ml of MP87031 = Final Quantity: 100.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4227	LR-3	MP87049	09/02/2025	10/17/2025	Sarabjit Jaswal	None	None	Janvi Patel
								09/04/2025

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

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

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

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
67	SODIUM CHLORIDE - HYDROXYL- CHLORIDE SOLUTION	MP87149	09/09/2025	02/03/2026	Mohan Bera	METALS_SCALE_2 (M SC-2)	None	Sarabjit Jaswal
FROM 2000.00000ml of W3112 + 240.00000gram of M5884 + 240.00000ml of M6196 = Final Quantity: 2000.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP87528	10/13/2025	10/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal
FROM 1.00000ml of M6187 + 2.50000ml of M5062 + 96.50000ml of W3112 = Final Quantity: 100.000 ml								

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1340	Hg 0.00 PPB STD	MP87529	10/13/2025	10/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 10/16/2025

FROM 2.50000ml of M6187 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1341	Hg 0.2 PPB STD	MP87530	10/13/2025	10/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 10/16/2025

FROM 2.50000ml of M6187 + 247.30000ml of W3112 + 0.20000ml of MP87528 = Final Quantity: 250.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1342	Hg 2.5 PPB STD	MP87531	10/13/2025	10/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 10/16/2025
FROM 2.50000ml of M6187 + 245.00000ml of W3112 + 2.50000ml of MP87528 = Final Quantity: 250.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1343	Hg 5.0 PPB STD	MP87533	10/13/2025	10/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 10/16/2025
FROM 2.50000ml of M6187 + 242.50000ml of W3112 + 5.00000ml of MP87528 = Final Quantity: 250.000 ml								

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1344	Hg 7.5 PPB STD	MP87534	10/13/2025	10/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 10/16/2025

FROM 2.50000ml of M6187 + 7.50000ml of MP87528 = Final Quantity: 250.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1345	Hg 10.0 PPB STD	MP87535	10/13/2025	10/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 10/16/2025

FROM 2.50000ml of M6187 + 237.50000ml of W3112 + 10.00000ml of MP87528 = Final Quantity: 250.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1346	Hg ICV SOLUTION	MP87536	10/13/2025	10/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 10/16/2025

FROM 2.50000ml of M6161 + 2.50000ml of M6187 + 245.00000ml of W3112 = Final Quantity: 250.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1351	ICB (Hg 0.00 PPB SOLUTION)	MP87537	10/13/2025	10/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 10/16/2025

FROM 2.50000ml of M6187 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1358	CCV (Hg 5.0 PPB SOLUTION)	MP87538	10/13/2025	10/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 10/16/2025
FROM 485.00000ml of W3112 + 5.00000ml of M6187 + 10.00000ml of MP87528 = Final Quantity: 500.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1352	CCB (Hg 0.00 PPB SOLUTION)	MP87539	10/13/2025	10/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 10/16/2025
FROM 495.00000ml of W3112 + 5.00000ml of M6187 = Final Quantity: 500.000 ml								

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1349	CRA/CRI (Hg 0.2 PPB SOLUTION)	MP87540	10/13/2025	10/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 10/16/2025

FROM 2.50000ml of M6187 + 247.30000ml of W3112 + 0.20000ml of MP87528 = Final Quantity: 250.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1350	CHK STD (Hg 7.0 PPB SOLUTION)	MP87541	10/13/2025	10/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 10/16/2025

FROM 2.50000ml of M6187 + 240.50000ml of W3112 + 7.00000ml of MP87528 = Final Quantity: 250.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
887	AQUA REGIA FOR HG ON 7471A	MP87542	10/13/2025	10/14/2025	Mohan Bera	None	None	Sarabjit Jaswal
FROM 150.00000ml of M6200 + 50.00000ml of M6187 = Final Quantity: 200.000 ml								

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3227-05 / Potassium Permanganate (2.5kg)	210800	03/31/2026	11/30/2022 / mohan	07/28/2021 / mohan	M4916

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	MSHG-10PPM / MERCURY HCl 125mL 10ug/mL	S2-HG709270	09/22/2026	05/28/2022 / mohan	01/27/2022 / mohan	M5062

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	26397-103 / PTFE BOILING STONES	W126678	03/20/2026	03/20/2025 / jaswal	06/12/2023 / jaswal	M5581

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	26397-103 / PTFE BOILING STONES	W126678	12/31/2025	06/17/2023 / Al-Terek	06/12/2023 / jaswal	M5582

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

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

CHEMICAL RECEIPT LOG BOOK

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.	57015 / P, 1000 PPM, 125 ml	091123	09/11/2026	05/01/2024 / jaswal	02/09/2024 / jaswal	M5820

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3624-05 / Sodium Chloride, Crystal (cs/4x2.5kg)	0000281938	07/06/2026	04/30/2024 / mohan	04/25/2024 / mohan	M5884

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57016 / S, 1000 PPM, 125 ml	122923	03/31/2026	03/31/2025 / kareem	06/11/2024 / Jaswal	M5969

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57003 / Li, 1000 PPM, 125 ml	061224	06/21/2027	06/06/2025 / Janvi	07/01/2024 / Jaswal	M5971

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	T2-TI719972	08/05/2026	08/06/2025 / Janvi	02/22/2024 / Jaswal	M5979

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-3 / CLP CAL SOLUTION #3, 125mL	T2-MEB727800	07/30/2026	07/30/2025 / Janvi	02/22/2024 / kareem	M5998

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57182 / Pb, 10000 PPM, 125 ml	110923	11/09/2026	12/05/2024 / janvi	08/05/2024 / Jaswal	M6026

CHEMICAL RECEIPT LOG BOOK

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

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

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	V2-MEB746762	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 #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	V2-MEB746762	09/06/2029	01/23/2025 / kareem	09/19/2024 / kareem	M6077

CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58126 / Fe, 10000 PPM, 500 ml	011025	01/10/2028	06/25/2025 / Janvi	01/13/2025 / Jaswal	M6140

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

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

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 #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	22G2862015	02/17/2026	02/18/2025 / Sagar	01/15/2025 / Sagar	M6151

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24D1062002	10/30/2025	03/10/2025 / Eman	02/02/2025 / Sagar	M6158

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Al, 10000 PPM, 500 ml	011325	03/18/2026	03/18/2025 / kareem	02/09/2025 / kareem	M6159

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57051 / Sb, 1000 PPM, 125 ml	071724	07/17/2027	03/24/2025 / kareem	10/18/2024 / kareem	M6160

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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24H0162012	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	06/08/2026	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	06/08/2026	06/09/2025 / jaswal	06/09/2025 / jaswal	M6164

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-2186-03 / Hydrogen Peroxide (cs/4x4L)	24D1961001	10/16/2025	06/25/2025 / Jaswal	05/20/2025 / Sagar	M6170

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58112 / Mg, 10000 PPM, 500 ml	011525	01/15/2028	07/15/2025 / Janvi	02/13/2025 / Janvi	M6171

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	V2-MEB742428	07/31/2026	07/31/2025 / Janvi	05/05/2025 / Janvi	M6174

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57038 / Sr, 1000 PPM, 125 ml	092724	09/27/2027	08/06/2025 / Janvi	08/06/2025 / Janvi	M6176

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57042 / Mo, 1000 PPM, 125 ml	080528	08/05/2028	08/06/2025 / Janvi	08/06/2025 / Janvi	M6178

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGY10-1 / YTTRIUM 125mL 10,000ug/mL	V2-Y740548	08/05/2026	08/06/2025 / Janvi	06/02/2024 / Janvi	M6179

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-1 / Laboratory Fortified Stock Solution 1, 125 ml	W2-MEB752149	02/05/2026	08/06/2025 / Janvi	07/22/2025 / Janvi	M6180

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART A / ICSA (ICP) STOCK SOLN	ICSA-1211	02/05/2026	08/06/2025 / Janvi	03/06/2024 / Janvi	M6182

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART B / ICSAB (ICP) STOCK SOLN	ICSB-0710	02/05/2026	08/06/2025 / Janvi	03/06/2024 / Janvi	M6184

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24H0162012	01/28/2026	08/29/2025 / Sagar	08/08/2025 / Sagar	M6187

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	24D1562005	02/10/2026	09/11/2025 / Sagar	08/25/2025 / Sagar	M6200

CHEMICAL RECEIPT LOG BOOK

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

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18



M6032

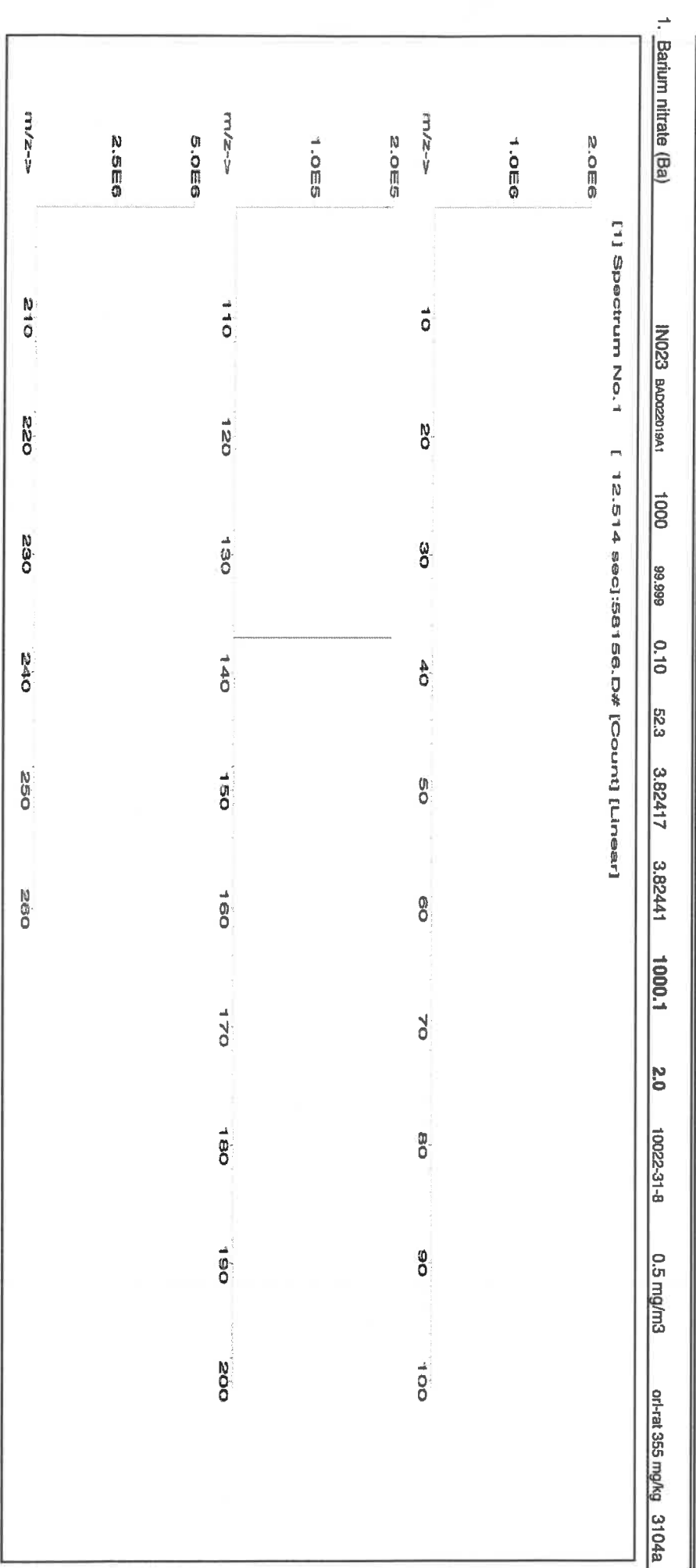


CERTIFIED WEIGHT REPORT:

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

Formulated By: Giovanni Esposito
Reviewed By: Pedro L. Renterias
010924

SDS Information									
Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)
1. Barium nitrate (Ba)	IN023	BA0022019A1	1000	99.999	0.10	52.3	3.82417	3.82441	1000.1





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 certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



M6028



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57048
070124
Cadmium (Cd)

Lot #
Solvent: 24002546 Nitric Acid

2% 40.0 (mL) Nitric Acid

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 Balance Uncertainty
Flask Uncertainty

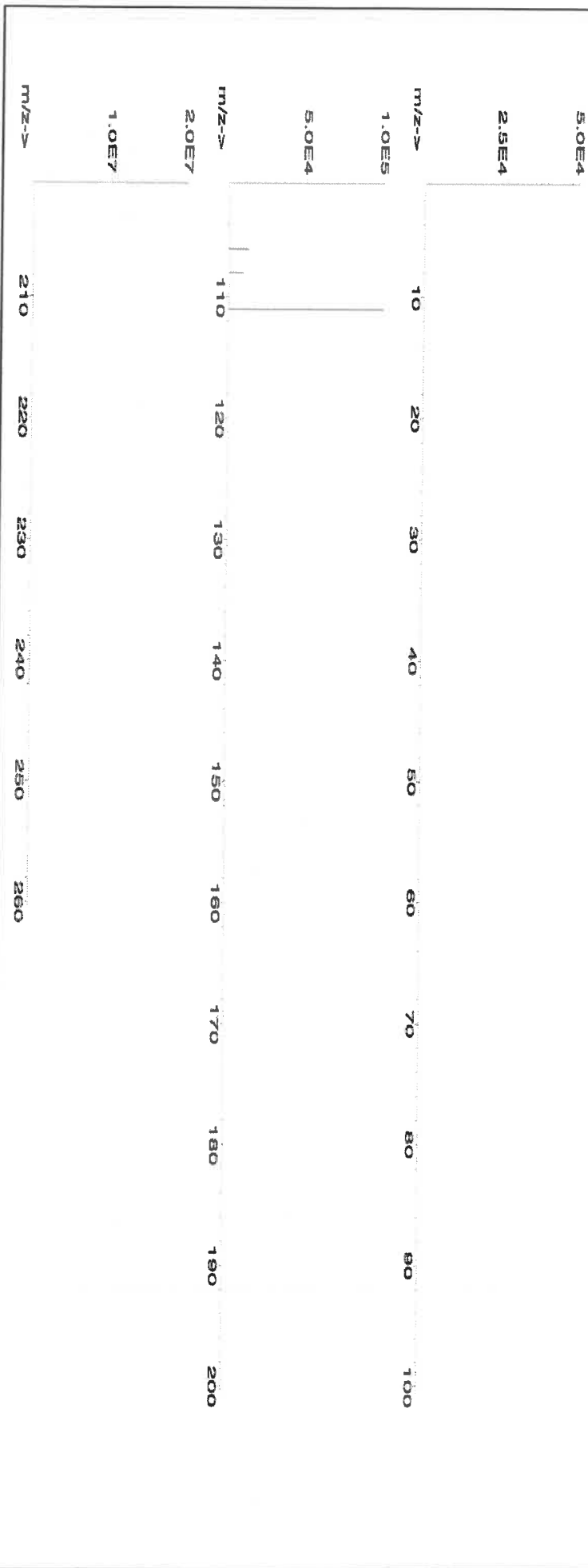
Aleah O'Brady	
Formulated By:	Aleah O'Brady
	070124
Reviewed By:	Pedro L. Rentas
	070124

Compound

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

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

[T1 Spectrum No.1 [12.514 sec]:\$8148.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



MC026



CERTIFIED WEIGHT REPORT:

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

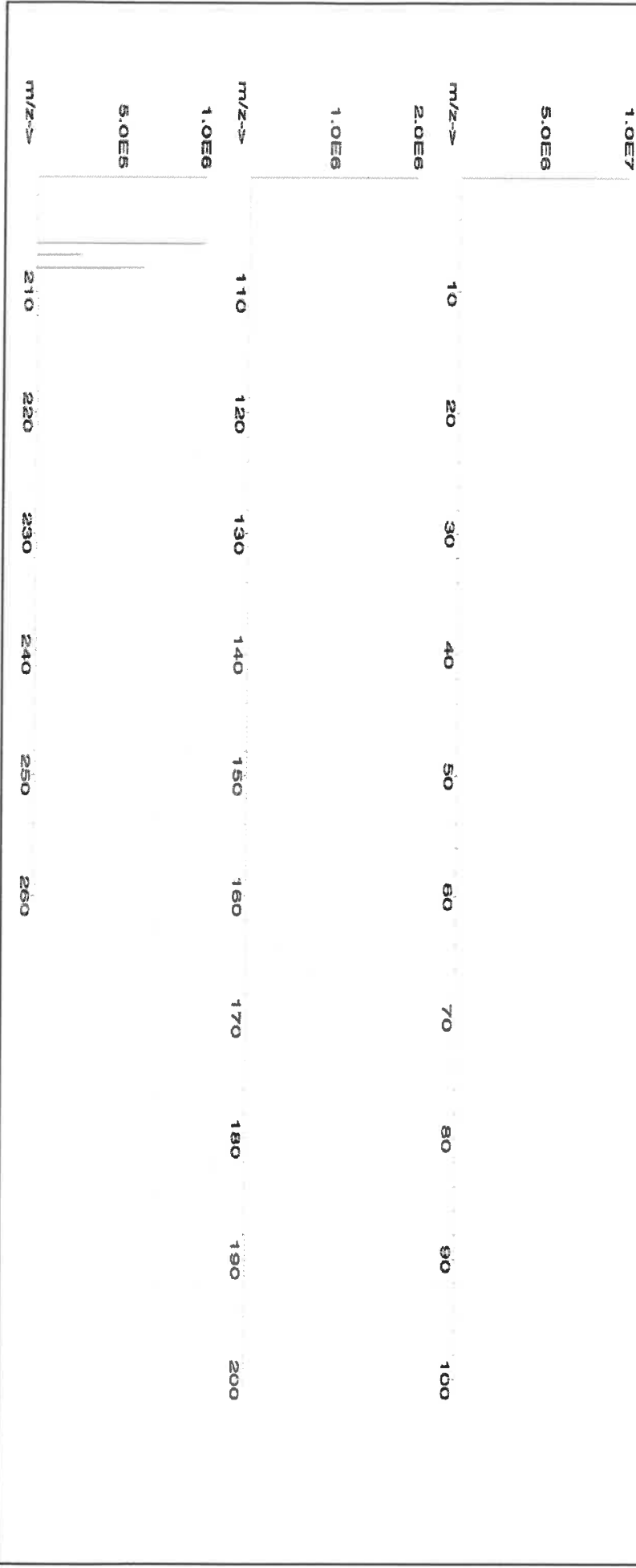
Solvent: 24002546 Nitric Acid
Lot #

Expiration Date: 110926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

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

SDS Information									
Compound	Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded
	Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	Uncertainty +/- (µg/mL)
1. Lead(II) nitrate (Pb)	IN029	PED12016A1	10000	99.999	0.10	62.5	32.0006	32.0040	10001.1
									20.0
									10099-74-8
									0.05 mg/m3
									intrinsic 83 mg/kg
									3128

[1] Spectrum No.1 [17.284 sec]:58182.D# [Count] [Linear]





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

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

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

Physical Characterization:

(T)= Target analyte

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

Certified by:

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

M4913-16

MS

Certificate of Analysis

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

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

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the final formulator and end user to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

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

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

Julian Burton

Julian Burton - Quality Control Manager – Fair Lawn

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

*Based on suggested storage condition.

MS062
MS063
MB

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

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

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.001 ± 0.053 µg/mL
Density: 1.020 g/mL (measured at 20 ± 4 °C)

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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

X_i = mean of Assay Method i with standard uncertainty $u_{char i}$
 w_i = the weighting factors for each method calculated using the inverse square of the variance.
 $w_i = (1/u_{char i}^2) / (\sum (1/u_{char i}^2))$

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

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

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

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 22, 2021

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

11.2 Lot Expiration Date

- **September 22, 2026**

- The date after which this CRM/RM should not be used.
- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Supervisor, Product Documentation



Certificate Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Certified Reference Material CRM



M5467 R: 03/01/23 (14)

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57058
020623
Cerium (Ce)

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

020626
Ambient (20 °C)
1000
6UTB

Weight shown below was diluted to (mL):

1000.12 **0.058** **Balance Uncertainty**
Flask Uncertainty

Lot #

Solvent: 21110221 Nitric Acid

2% **20.0** **Nitric Acid**
(mL)

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

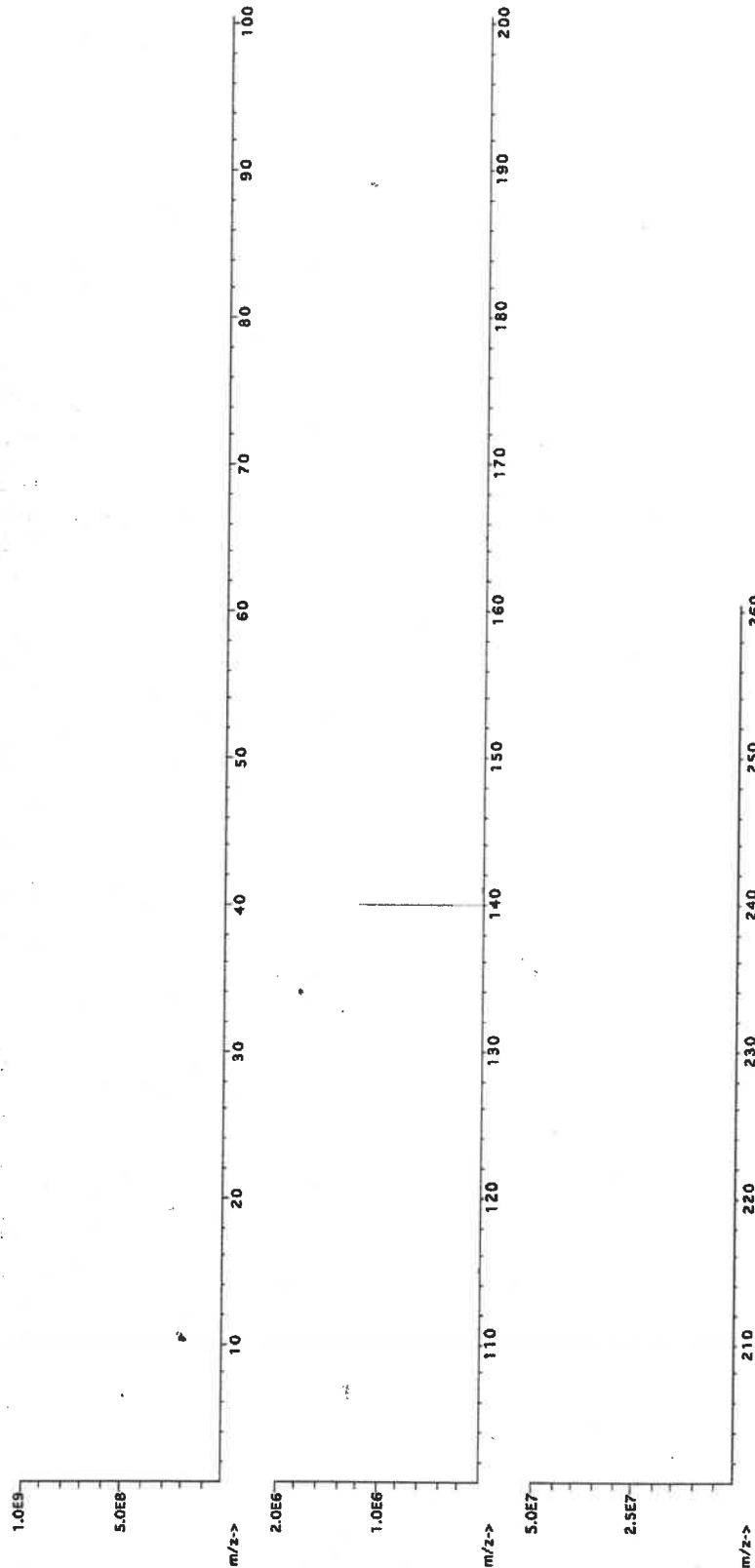
SDS Information

Expanded Uncertainty
Actual Concentration (µg/mL)
Actual Weight (g)
Target Weight (g)
Purity (%)
Nominal Concentration (µg/mL)
Lot Number

(Solvent Safety Info. On Attached pg.)
LD50
CAS#
OSHA PEL (TWA)
NA
NA
10294-41-4
2.0
1000.0
3.04921
3.04919
32.8
0.10
99.999
1000

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

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





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

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

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

Physical Characterization:

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

Certified by:

Ben. P. R.

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



MATERIAL CERTIFICATE OF COMPLIANCE

DATE: JUNE 12, 2023

CUSTOMER: PCI SCIENTIFIC SUPPLY, INC

PURCHASE ORDER NO. 6054931

CATALOG NO. BOI5021-450L

PRODUCT DESCRIPTION: BOILING STONES, TFE, 454GMS

QUANTITY: 10 EACH

LOT NO. W126678

SPECIFICATION (S): Made from Virgin PTFE Resin

We certify that we have complied with the terms and conditions of the above Purchase Order and the Part Specifications in the manufacturing of the above product.



Laura Valencia
Quality Assurance Inspector

F:\J:\ACF\PCISCI\COC-55118-BOI5021-061223



MATERIAL CERTIFICATE OF COMPLIANCE

DATE: JUNE 12, 2023

CUSTOMER: PCI SCIENTIFIC SUPPLY, INC

PURCHASE ORDER NO. 6054931

CATALOG NO. BOI5021-450L

PRODUCT DESCRIPTION: BOILING STONES, TFE, 454GMS

QUANTITY: 10 EACH

LOT NO. W126678

SPECIFICATION (S): Made from Virgin PTFE Resin

We certify that we have complied with the terms and conditions of the above Purchase Order and the Part Specifications in the manufacturing of the above product.



Laura Valencia
Quality Assurance Inspector

F:\J:\A\CF\PCISCI\COC-55118-BOI5021-061223



CERTIFIED WEIGHT REPORT:

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

Lot # 2110221
Solvent: Nitric Acid

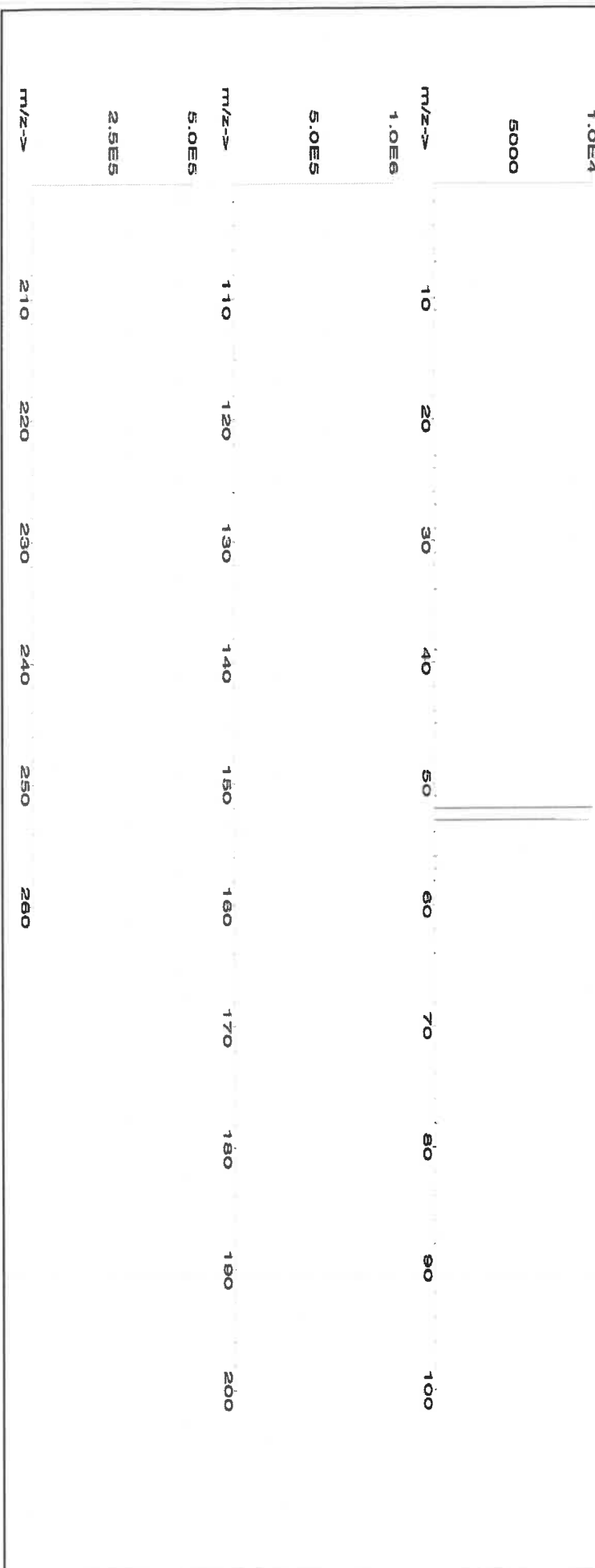
Formulated By:	Lawrence Barry
	060523
Reviewed By:	Pedro L. Ruelas
	060523

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

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

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

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





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

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

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

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

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

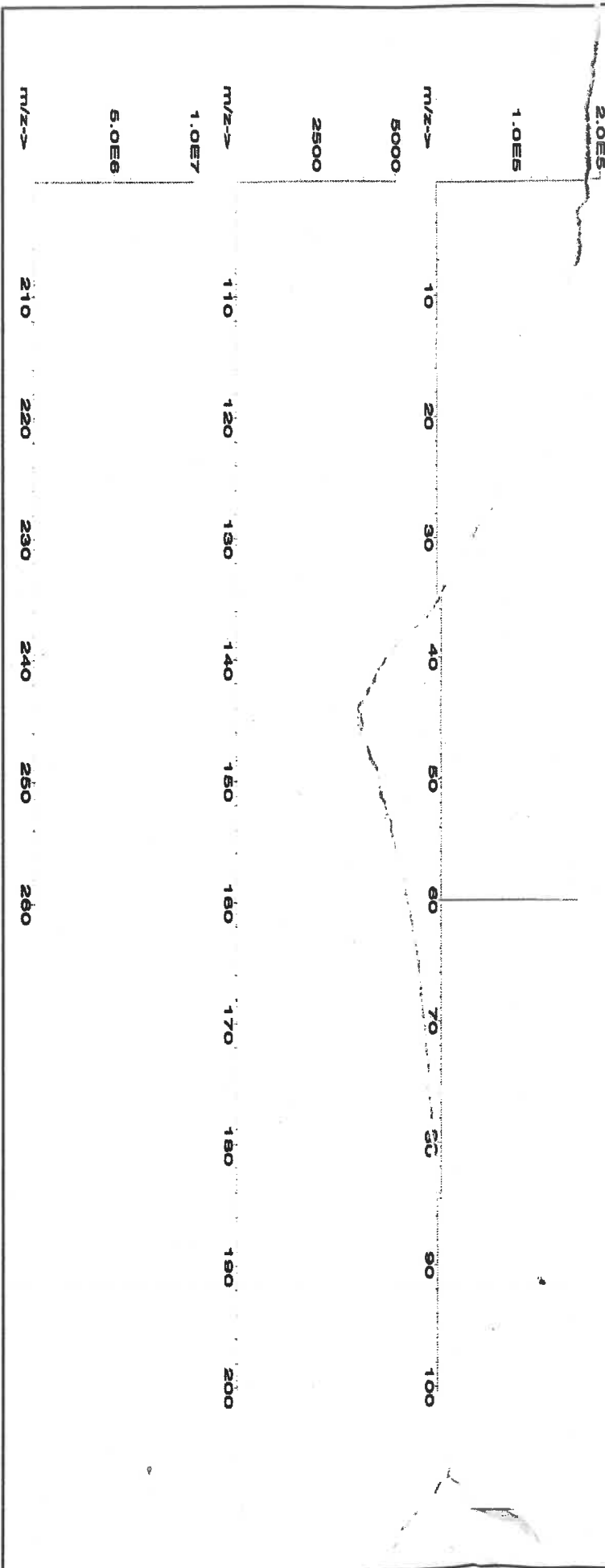
Volume shown below was diluted to (mL): **2000.02** **5E-05** **Balance Uncertainty**
0.056 **Flask Uncertainty**

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

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

1. Nickel(II) nitrate hexahydrate (NI) 58128 062023 0.1000 200.0 0.084 1000 10000.4 1000.0 2.2 13478-00-7 1 mg/m3 or-rel 1620 mg/kg 3136

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





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM

R: 8/25/23 M5751



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58029
071723
Copper (Cu)

Lot #
Solvent:

21110221 Nitric Acid

2.0% 40.0 (mL) Nitric Acid

Expiration Date:

071726

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

2000.02

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

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

Compound

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

1. 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 or rat 794 mg/kg 3114

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

1.0E6	10	20	30	40	50	60	70	80	90	100
5.0E5										
m/z-->	10	20	30	40	50	60	70	80	90	100
5.0E7										
m/z-->	110	120	130	140	150	160	170	180	190	200
2.0E7										
m/z-->	210	220	230	240	250	260				
1.0E7										

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	Bu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Ru	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Co	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Sr	<0.02	S	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Cu	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	Ta	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	T		Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02			Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: 57004
Lot Number: 102523
Description: Beryllium (Be)

Lot # 24002546
Solvent: Nitric Acid

Expiration Date:

102526

2.0%

40.0 (mL)

Nitric Acid

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL): 2000.02

5E-05 Balance Uncertainty

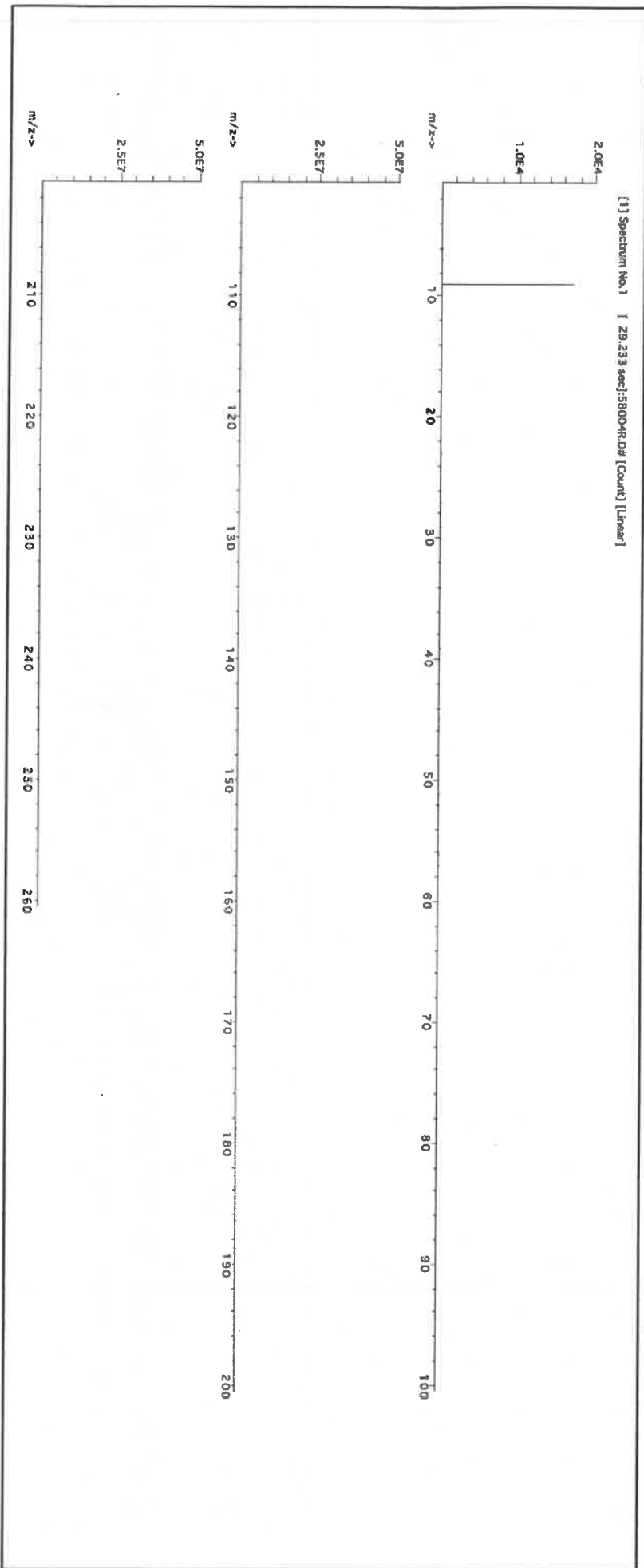
0.058 Flask Uncertainty

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

SDS Information

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

1. Beryllium nitrate (Be)	58104	091423	0.1000	200.0	0.084	1000	10001.5	1000.0	2.2	13597-99-4	0.2µg/m3	intrinsc-rat 3.16mg/kg	NA
---------------------------	-------	--------	--------	-------	-------	------	---------	--------	-----	------------	----------	------------------------	----





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

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

Solvents: 21110221 Nitric Acid
22D0562008 Hydrochloric acid

Lot # R-02509124 MS99

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

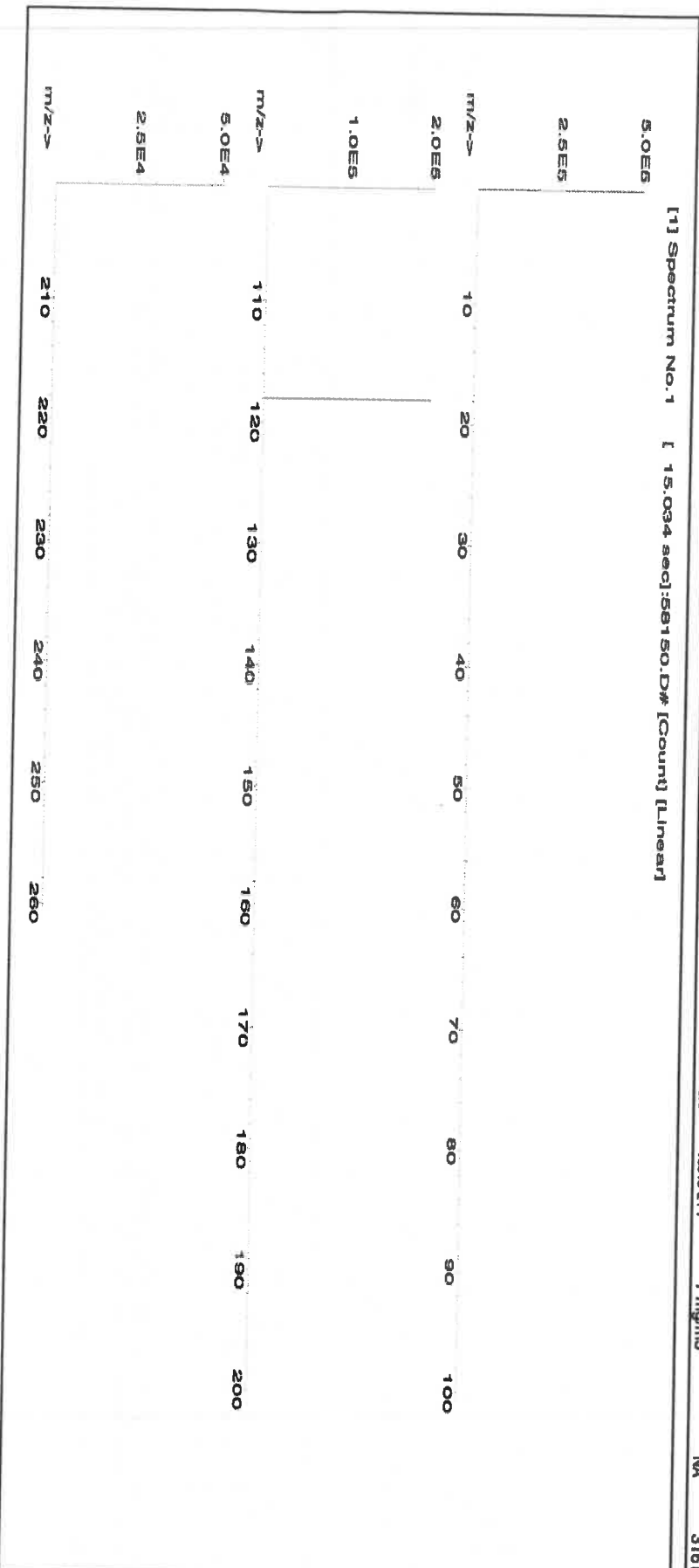
Weight shown below was diluted to (mL): 499.93

Formulated By: Benson Chan	
Reviewed By: Pedro L. Rientas	
071123	

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

1. Ammonium hexafluoroantimonate(V) (Sn) INO10 SMD042023A1 1000 99.99 0.10 44.2 1.13107 1.13286 1001.6 2.0 16919-24-7 7 mg/m3 NA 3161a

[1] Spectrum No. 1 [15.034 sec]:56150.D# [Count] [Linear]





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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<500	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Ta	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



R: 02/09/24 115800 (54)

CERTIFIED WEIGHT REPORT:

Part Number: 57027
Lot Number: 091923
Description: Cobalt (Co)

Expiration Date: 091926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 2000.02

Lot # 24002546
Solvent: Nitric Acid

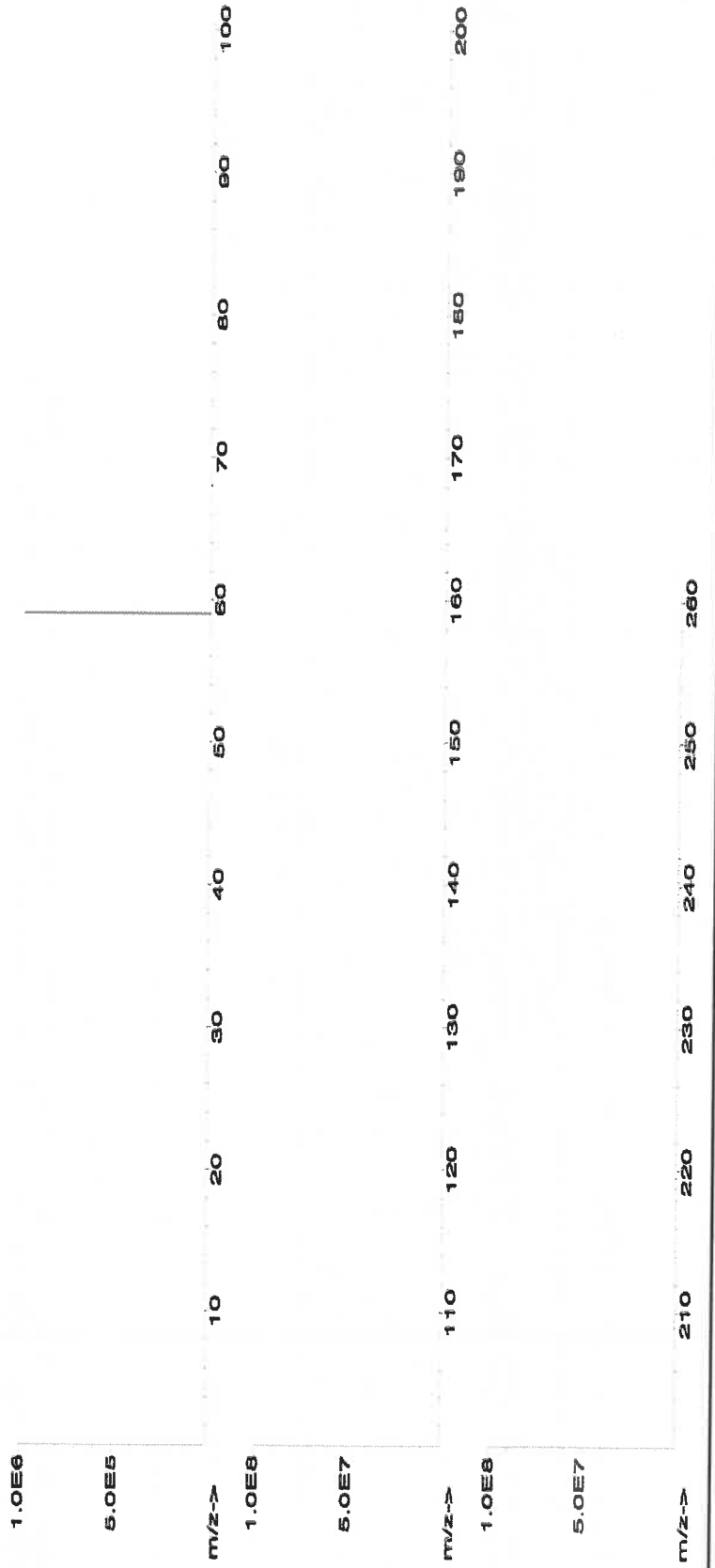
Formulated By:	Lawrence Barry	091923
Reviewed By:	Pedro L. Rentas	091923

SDS Information

Expanded Uncertainty +/- (µg/mL)
(Solvent Safety Info. On Attached pg.)
NIST SRM
CAS# OSHA PEL (TWA) LD50

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

[1] Spectrum No.1 [34.243 sec]:58027.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (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
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.02	Os	<0.01	Rh	<0.02	Ag	<0.02	Tl	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.2	Na	<0.02	Th	<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
Bi	<0.02	Co	T	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02
(T)= Target analyte																	

Physical Characterization:

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

Certified by:

[Signature]

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



Certified Reference Material CRM

CERTIFIED WEIGHT REPORT:

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

Lot # 24002546
Solvent: Nitric Acid

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

Balance Uncertainty: 5E-05
Flask Uncertainty: 0.06

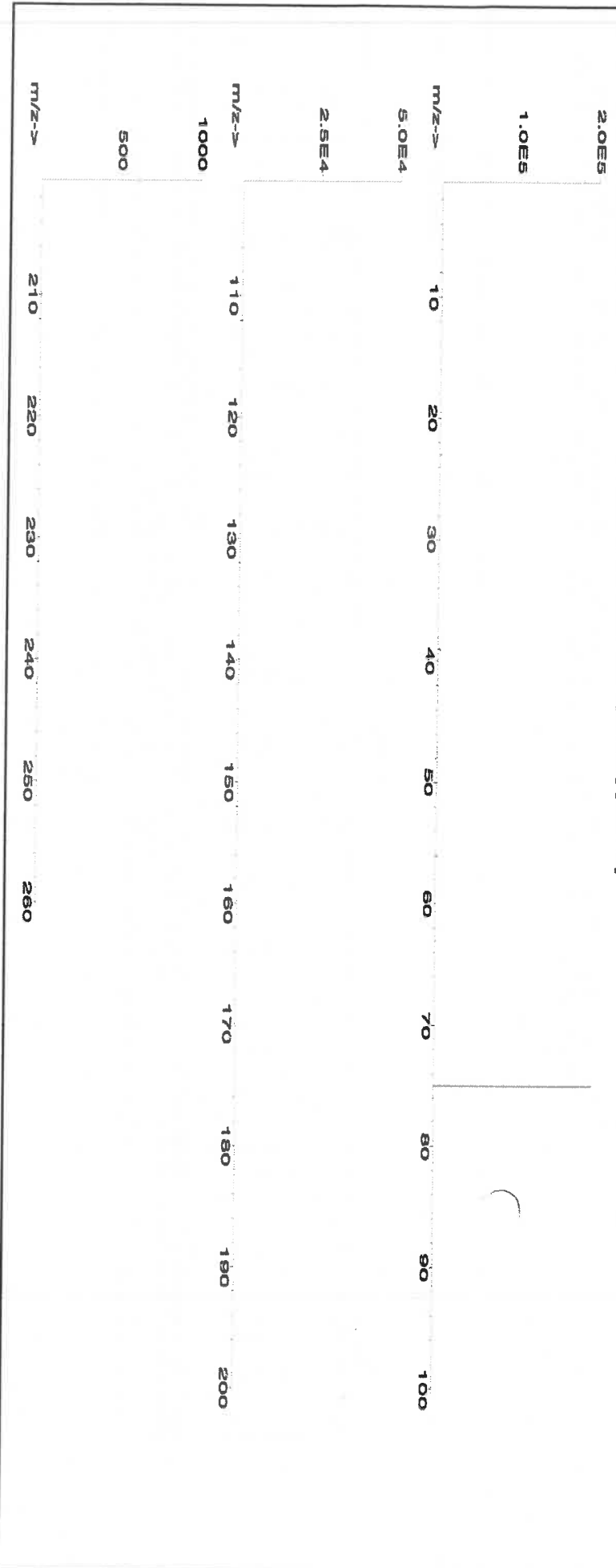
2.0% 80.0 (mL) Nitric Acid

Formulated By:	Lawrence Barry	111323
Reviewed By:	Pedro L. Rendas	111323

SDS Information									
Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)
1. Arsenic (As)	57033	020522	0.1000	400.0	0.084	1000	10001.0	1000.0	2.0

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

[1] Spectrum No. 1 [34.433 sec]:57033.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: **57005**
Lot Number: **071123**
Description: **Boron (B)**

Solvent: MKB0857V Ammonium hydroxide

Lot #

AI 021009124 M5814

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

2.0% 40.0 (mL) Ammonium hydroxide

Weight shown below was diluted to (mL): 1999.48 0.058 Balance Uncertainty Flask Uncertainty

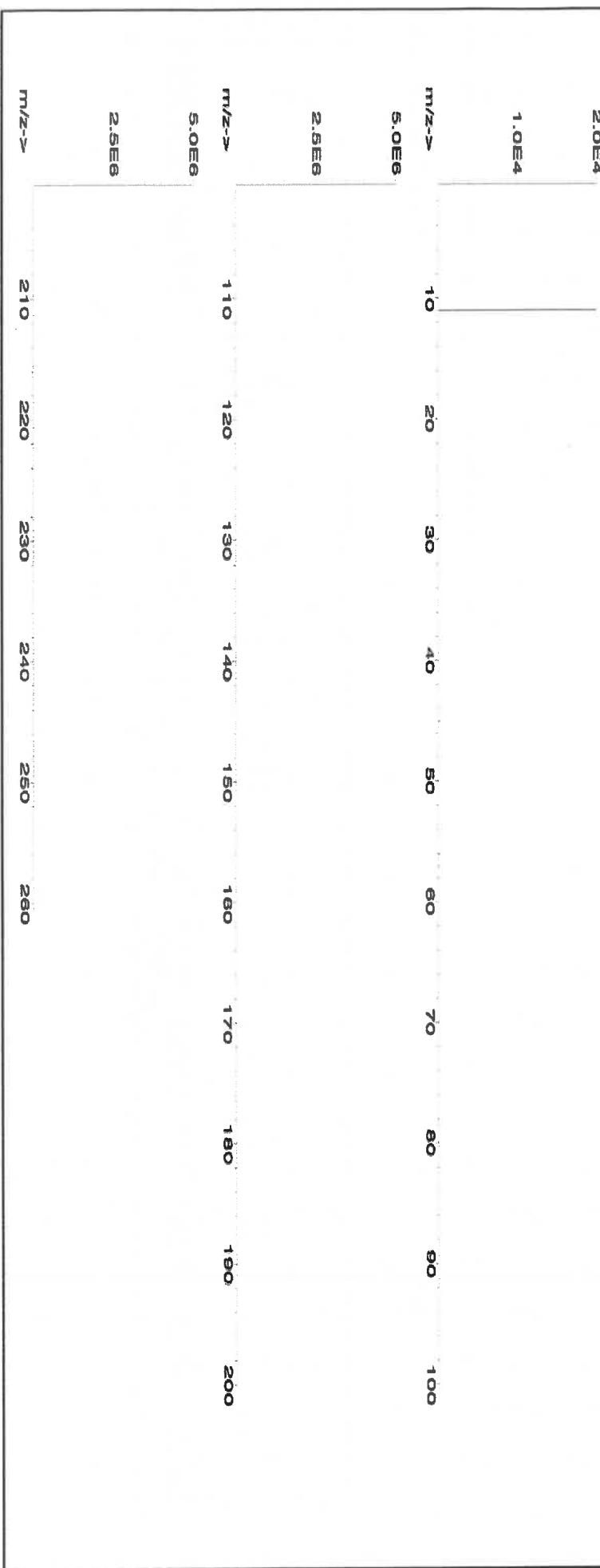
Formulated By:	Benson Chan
071123	
Reviewed By:	Pedro L. Rientas
071123	

SDS Information

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

1. Boric acid (B) IN018 BV082018A1 1000 99.999 0.10 17.3 11.55772 11.56201 1000.4 2.0 10043-35-3 2 mg/m3 or-nat 2660 mg/kg 3107

[1] Spectrum No. 1 [12.275 sec]:56105.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: 57015
Lot Number: 091123
Description: Phosphorous (P)

Solvent: 24002546 Nitric Acid

Lot #

Formulated By:	Lawrence Barry	091123
Reviewed By:	Pedro L. Rentas	091123

Expiration Date: 091126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6LUTB

2% 40.0 (mL) Nitric Acid

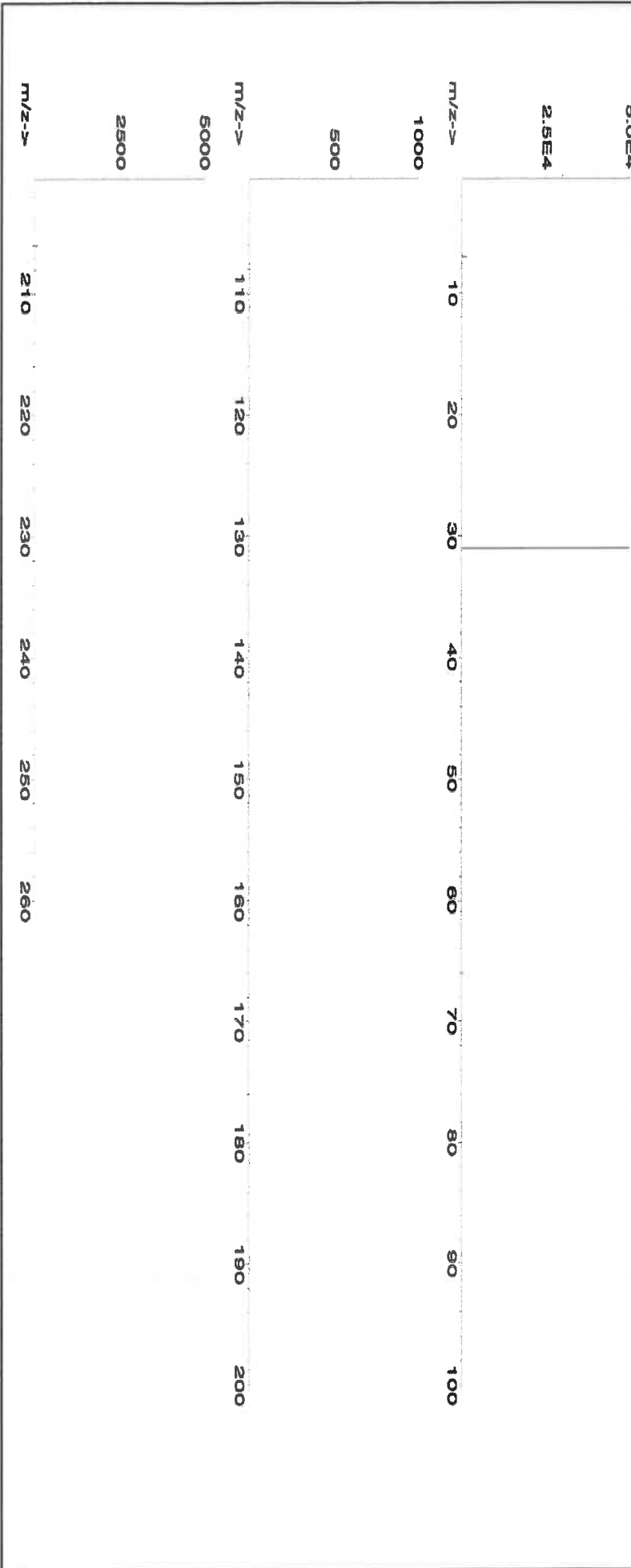
Weight shown below was diluted to (mL): 2000.02 0.058 Flask Uncertainty

SDS Information

Compound	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)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
----------	-----	------------	-----------------------	------------	------------------------	-----------	-------------------	-------------------	----------------------	----------------------------------	------	----------------	------	----------

1. Ammonium dihydrogen phosphate (P) IN008 PVO62019A1 1000 99.999 0.10 27.5 7.2729 7.2730 1000.0 2.0 7722-76-1 5 mg/m3 xH-rat >2000mg/kg 3186

[1] Spectrum No.1 [12.074 sec]:58115.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

Sodium Chloride, Crystal
BAKER ANALYZED® A.C.S. Reagent



MS824
MB

Material No.: 3624-01

Batch No.: 0000281938

Manufactured Date: 2021-06-07

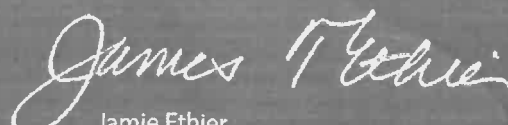
Retest Date: 2026-06-07

Revision No.: 1

Certificate of Analysis

Test	Specification	Result
Assay (NaCl) (by Ag titrn)	≥ 99.0 %	100.0 %
pH of 5% Solution at 25°C	5.0 - 9.0	6.3
Insoluble Matter	≤ 0.005 %	0.003 %
Iodide (I)	≤ 0.002 %	< 0.002 %
Bromide (Br)	≤ 0.01 %	< 0.01 %
Chlorate and Nitrate (as NO ₃)	≤ 0.003 %	< 0.001 %
ACS - Phosphate (PO ₄)	≤ 5 ppm	< 5 ppm
Sulfate (SO ₄)	≤ 0.004 %	< 0.004 %
Barium (Ba)	Passes Test	Passes Test
ACS - Heavy Metals (as Pb)	≤ 5 ppm	< 5 ppm
Iron (Fe)	≤ 2 ppm	< 1 ppm
Calcium (Ca)	≤ 0.002 %	< 0.001 %
Magnesium (Mg)	≤ 0.001 %	< 0.001 %
Potassium (K)	≤ 0.005 %	0.001 %

For Laboratory, Research, or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs
Country of Origin: USA
Packaging Site: Paris Mfg Ctr & DC


Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Avantor Performance Materials, LLC

100 Mansford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700

Absolute Standards, Inc.

800-368-1131
www.absolutestandards.com



Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT:

Part Number:

57034

Lot Number:

060624

Description:

Selenium (Se)

Lot #

24002546

Solvent:

Nitric Acid

2.0%

40.0 (mL)

Nitric Acid

(mL)

Expiration Date:

060627

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

2000.07

SE-05 Balance Uncertainty

0.100 Flask Uncertainty

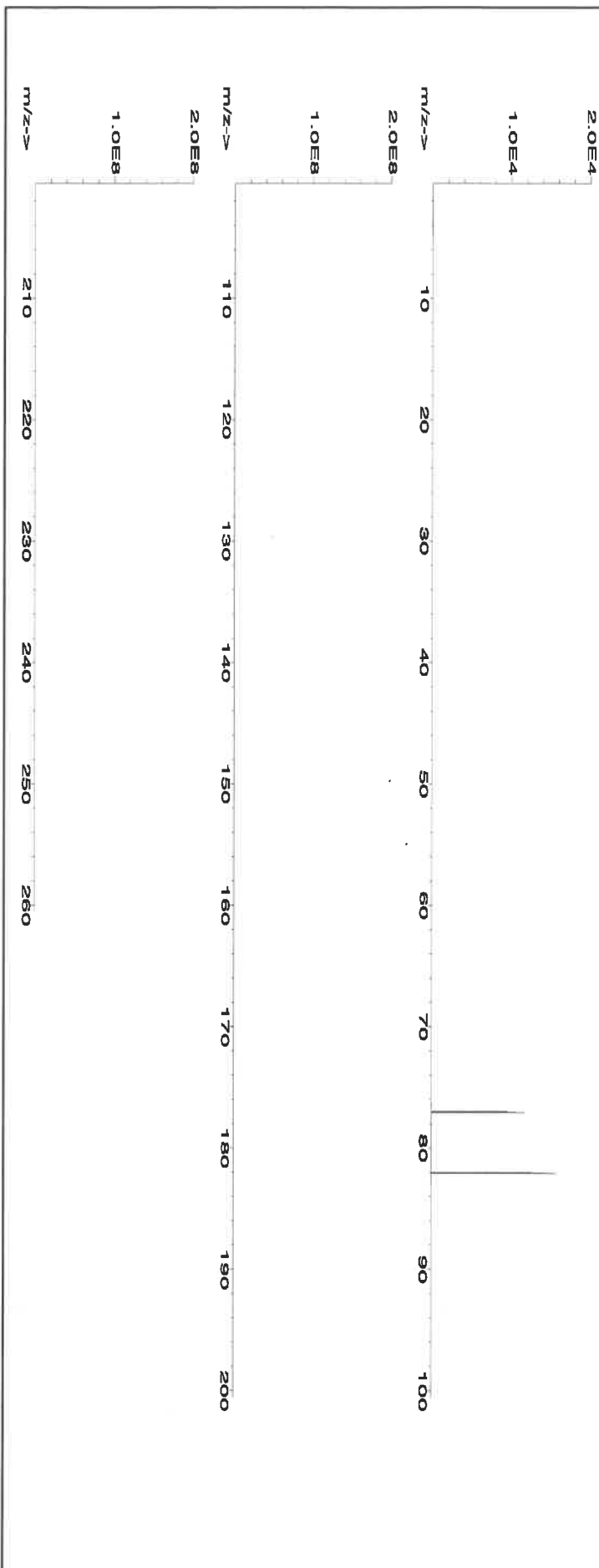
SDS Information

Compound

Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	(Solvent Safety Info. On Attached pg.)	CAS#	OSHA PEL (TWA)	LDSO	NIST SRM
-------------	------------	-----------------	-------------------	--------------	-----------------------	-----------------------	---------------------	----------------------------------	--	------	----------------	------	----------

1. Selenium (Se)	58134	071223	0.1000	200.0	0.084	1000	10002.5	1000.0	2.2	7782-49-2	0.2 mg/m3	or-tral 6700 mg/kg	3149
------------------	-------	--------	--------	-------	-------	------	---------	--------	-----	-----------	-----------	--------------------	------

[1] Spectrum No.1 [33.702 sec]:58034.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT:

Part Number: 57016
Lot Number: 122923
Description: Sulfur (S)

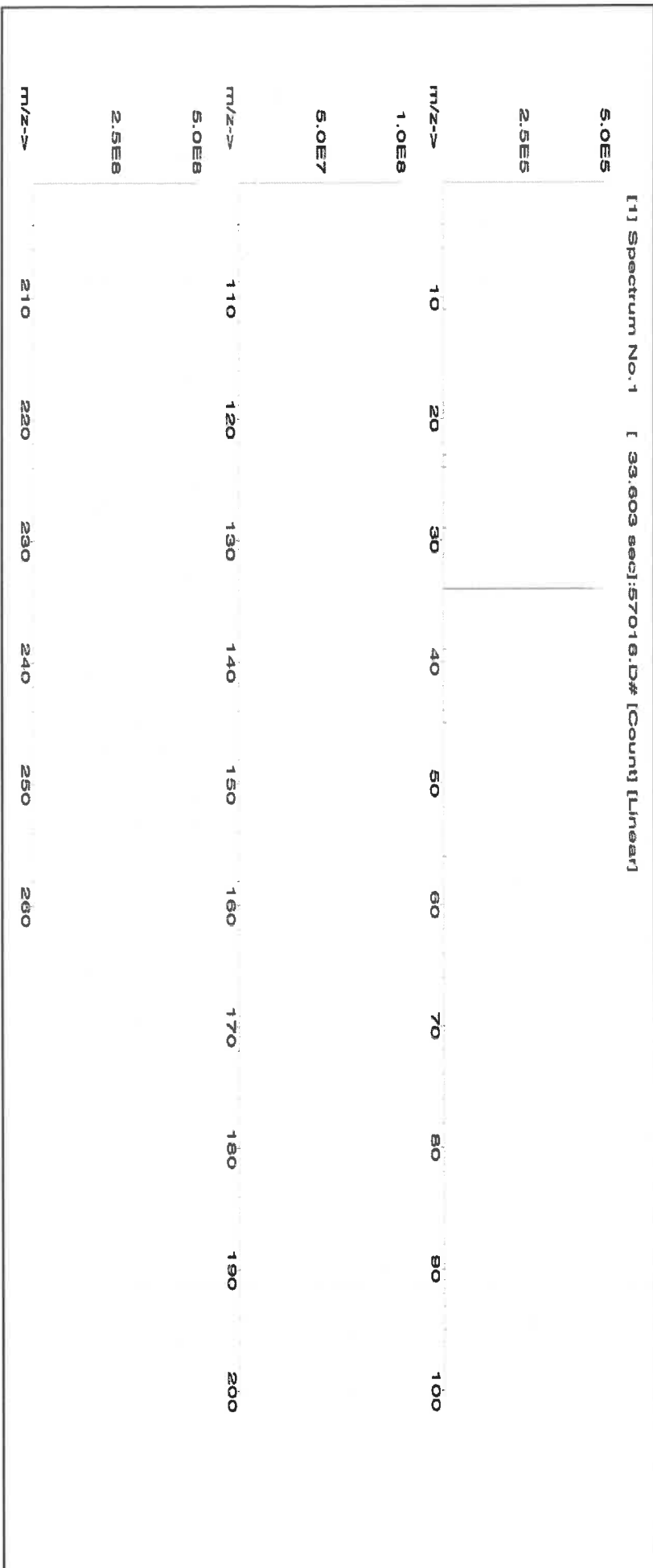
Lot #
Solvent: 122923 ASTM Type 1 Water

Formulated By:	Benson Chan
122923	
Reviewed By:	Pedro L. Rentas
122923	

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
5E-05 Balance Uncertainty
0.06 Flask Uncertainty

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

1. Ammonium sulfate (S) IN117 SLBR725V 1000 99.9 0.10 24.3 16.4979 16.4980 1000.0 2.0 7783-20-2 NA or-rel 4250mg/kg 3181



Absolute Standards, Inc.
800-368-1131
www.absolute-standards.com



Certified Reference Material CRM
M5970 M5971 R1 710124



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

CERTIFIED WEIGHT REPORT:

Part Number: 57003
Lot Number: 062124
Description: Lithium (Li)
Expiration Date: 06/21/27
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 250.11

SE-05 Balance Uncertainty
0.016 Flask Uncertainty

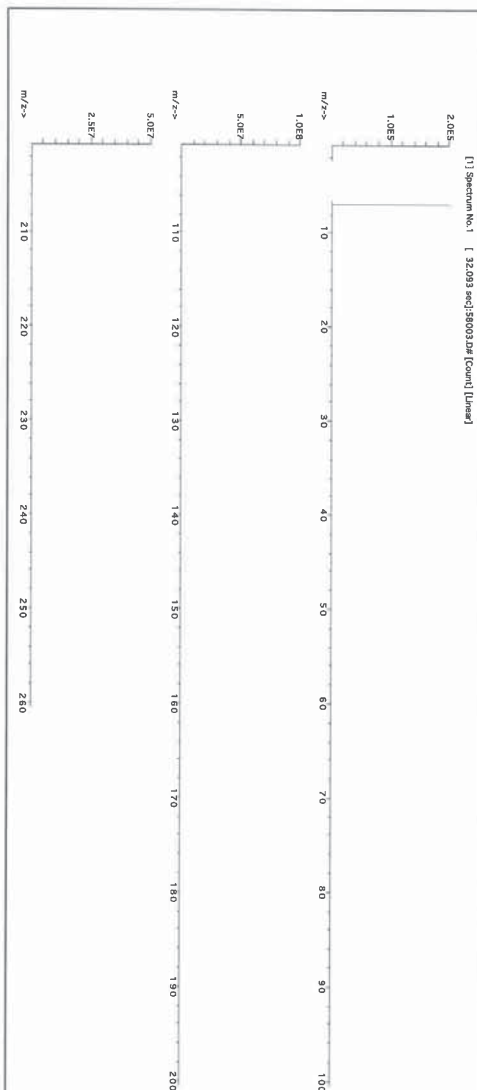
Lot # 24002546
Solvent: Nitric Acid

Concentration: 2.0%
Volume: 5.0 (mL)
Solute: Nitric Acid

Microvial Capable	
Formulated By:	062124
Reviewed By: <i>[Signature]</i>	
Petro L. Parias	

Compound		SDS Information												Expanded (Solvent Safety Info. On Attachment pg.)			CAS# OSHA PEL (TWA) LD50		NEST SM																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		Part	Lot	Dilution	Initial	Uncertainty	Nominal	Initial	Final	Uncertainty	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)								Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Number	Factor	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)</

1. Lithium nitrate (Li) 58103 070622 0.1000 25.0 0.004 1000 10000.4 1000.0 2.0 7790-68-4 5 mg/m3 or-hal 1428 mg/kg NA



Part # 57003 Lot # 062124

1 of 2

Printed: 6/24/2024, 11:20:08 PM

Absolute Standards, Inc.
800-368-1131
www.absolute-standards.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	Ca	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.02
Sb	<0.02	Ce	<0.2	Er	<0.02	In	<0.02	Mg	<0.02	Nb	<0.02	Rb	<0.02	Si	<0.2
As	<0.2	Ce	<0.02	Ba	<0.02	Ir	<0.02	Mn	<0.02	Os	<0.02	Rh	<0.02	Ag	<0.02
Ba	<0.02	Cr	<0.02	Gd	<0.02	La	<0.2	Hg	<0.2	Pd	<0.02	Ru	<0.02	Nd	<0.2
Be	<0.01	Co	<0.02	Ga	<0.02	Mo	<0.02	K	<0.2	Pt	<0.02	Sr	<0.02	S	<0.02
Bi	<0.02	Cu	<0.02	Ge	<0.02	Nd	<0.02	Sc	<0.02	Ta	<0.02	Tb	<0.02	Ta	<0.02
B	<0.02			Au	<0.02	Tb	<0.02								

(T) = Target analyte

Physical Characterization:

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

Certified by:

[Signature]

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

TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

5.0

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

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

M Ag	<	0.000536	M Eu	<	0.000268	O Na	<	0.032670	M Se	<	0.001204	O Zn	<	0.003267
M Al	<	0.000872	O Fe	<	0.003225	O Nb	<	0.043560	O Si	<	0.004735	O Zr	<	0.043560
M As	<	0.008586	M Ga	<	0.000268	M Nd	<	0.000268	M Sm	<	0.000268			
M Au	<	0.004577	M Gd	<	0.000268	O Ni	<	0.010890	M Sn	<	0.000986			
O B	<	0.008929	M Ge	<	0.002146	M Os	<	0.000269	O Sr	<	0.000986			
M Ba	<	0.002683	M Hf	<	0.002161	O P	<	0.054450	M Ta	<	0.010560			
M Be	<	0.005366	M Hg	<	0.003231	M Pb	<	0.001073	M Tb	<	0.000268			
M Bi	<	0.001609	M Ho	<	0.000268	M Pd	<	0.000268	M Te	<	0.001341			
O Ca	<	0.000676	M In	<	0.002683	M Pr	<	0.000268	M Th	<	0.053663			
M Cd	<	0.000268	M Ir	<	0.000269	M Pt	<	0.000536	S Ti	<				
M Co	<	0.000268	M K	<	0.001172	M Rb	<	0.000268	M Tl	<	0.000268			
M Cr	<	0.000752	O Li	<	0.000268	M Re	<	0.000268	M Tm	<	0.000268			
M Cs	<	0.000268	M Lu	<	0.000268	M Rh	<	0.000268	M U	<	0.000268			
O Cu	<	0.010890	O Mg	<	0.005445	I S	<	0.006976	M Y	<	0.002146			
M Dy	<	0.000268	M Mn	<	0.003267	M Sb	<	0.004900	M Yb	<	0.000536			
M Er	<	0.000268	M Mo	<	0.000774	O Sc	<	0.004900	M Yp	<	0.000536			

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: Soluble in concentrated HCl, HF, H3PO4, H2SO4 and HNO3. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements forming the hydrated oxide in all dilute acids except HF. Stable with most inorganic anions with a tendency to hydrolyze forming the hydrous 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 1% HNO3 / 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); K2S2O7 - no KF if silica not present); Organic Matrices (Dry ash at 450EC in P10 and dissolve by heating with 1:1:1 H2O / HF / H2SO4 or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystaline form).

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

Technique/Line	Estimated D.L.	Order
ICP-MS 48 amu	14 ppt	N/A
Interferences (underlined indicates severe)		
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	14N16O18O, 14N17N2, 36Ar12C, 48Ca, [96X=2 (where X = Zr, Mo, Ru)]
ICP-OES 334.941 nm	0.0038 / 0.00028 µg/mL	Ce, Ar, Ni
ICP-OES 336.121 nm	0.0053 / 0.00034 µg/mL	Nb, Ta, Cr, U
HF Note: This standard should not be prepared or stored in glass.		W, Mo, Co

HAZARDOUS INFORMATION

ICP-OES 323.452 nm 0.0054 / 0.00092 µg/mL

ICP-OES 334.941 nm 0.0038 / 0.00028 µg/mL

ICP-OES 336.121 nm 0.0053 / 0.00034 µg/mL

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

HOMOGENEITY

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

- 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"

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY
Inorganic Ventures, 300 Technology Drive, Chesapeake, VA 24073, USA; Telephone: 800.868.6786; 540.565.3030; Fax: 540.565.3012; info@inorganicventures.com
- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

11.1 Certification Issue Date

June 17, 2022

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

11.2 Lot Expiration Date

- June 17, 2027

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminum 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

Certifying Officer:

Thomas Kozlikowski
Manager, Quality Control

TD978L

Paul Gaines
Chairman / Senior Technical Director

Paul R. Gaines

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

M5985
R: 6/14/24

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGIN10
Lot Number: U2-IN729349
Matrix: 5% (v/v) HNO₃
Value / Analyte(s): 10 000 µg/mL ea:
Indium
Starting Material: Indium Metal
Starting Material Lot#: 2511
Starting Material Purity: 99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10022 ± 30 µg/mL
Density: 1.044 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	10021 ± 56 µg/mL ICP Assay NIST SRM 3124a Lot Number: 110516
Assay Method #2	10035 ± 25 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #3	10001 ± 33 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

M	Ag	<	0.000760	M	Eu	<	0.000760	O	Na	0.012771	M	Se	<	0.023000	M	Zn	<	0.006100
M	Al	0.003385	O	Fe	0.004462	M	Nb	<	0.000760	O	Si	0.024619	M	Zr	<	0.000760		
M	As	<	0.004600	M	Ga	<	0.000760	M	Nd	<	0.000760	M	Sm	<	0.000760			
M	Au	<	0.002300	M	Gd	<	0.000760	O	Ni	<	0.005100	M	Sn	<	0.000760			
O	B	0.003692	M	Ge	<	0.001600	M	Os	<	0.000760	O	Sr	<	0.000610				
M	Ba	<	0.001600	M	Hf	<	0.000760	n	P	<		M	Ta	<	0.000760			
O	Be	<	0.000130	M	Hg	<	0.003100	M	Pb	0.001400	M	Tb	<	0.000760				
M	Bi	<	0.000760	M	Ho	<	0.000760	M	Pd	<	0.001600	M	Te	<	0.000760			
O	Ca	0.004616	s	In	<			M	Pr	<	0.000760	M	Th	<	0.000760			
M	Cd	<	0.000760	M	Ir	<	0.000760	M	Pt	<	0.000760	O	Ti	<	0.001100			
M	Ce	<	0.000760	O	K	0.007078	M	Rb	<	0.000760	M	Tl	<	0.000760				
M	Co	<	0.000760	M	La	<	0.000760	M	Re	<	0.000760	M	Tm	<	0.000760			
O	Cr	<	0.001300	O	Li	<	0.000130	M	Rh	<	0.000760	M	U	<	0.000760			
M	Cs	<	0.000760	M	Lu	<	0.000760	M	Ru	<	0.000760	M	V	<	0.001600			
M	Cu	<	0.003800	O	Mg	0.000707	n	S	<		M	W	<	0.001600				
M	Dy	<	0.000760	O	Mn	0.000149	M	Sb	<	0.000760	M	Y	<	0.000760				
M	Er	<	0.000760	M	Mo	<	0.002300	M	Sc	<	0.000760	M	Yb	<	0.000760			

M - Checked by ICP-MS

O - Checked by ICP-OES

i - Spectral Interference

n - Not Checked For

s - Solution Standard Element

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form In Solution - 114.82 +3 6 In(H₂O)₆+3

Chemical Compatibility -Soluble in HCl, HNO₃, and H₂SO₄. Avoid neutral and basic media. Stable with most metals and inorganic anions. The oxalate, sulfide, carbonate, hydroxide and phosphate are insoluble in water.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO₃ / LDPE container.

In Containing Samples (Preparation and Solution) -Metal (Best dissolved in HCl / HNO₃); Oxide (Soluble in mineral acids); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Sulfuric/peroxide digestion or dry ash and dissolution in dilute HCl).

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

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 115 amu	1 ppt	n/a	115Sn, 99Ru16O
ICP-OES 158.583 nm	0.05 / 0.002 µg/mL	1	
ICP-OES 230.606 nm	0.1 / 0.03 µg/mL	1	Ni, Os
ICP-OES 325.609 nm	0.2 / 0.05 µg/mL	1	Mn, Mo, Th

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 21, 2023

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

11.2 Lot Expiration Date

- February 21, 2028

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

R: 2/22/24
MS997

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

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: 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, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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



300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

Certificate of Analysis

M6074
M6075
M6076
M6077

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).



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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 06, 2024

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

11.2 Lot Expiration Date

- September 06, 2029

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

Certificate of Analysis

M6074
M6075
M6076
M6077

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).



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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 06, 2024

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

11.2 Lot Expiration Date

- September 06, 2029

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58025
101124
Manganese (Mn)

Lot #
Solvent: Nitric Acid

24002546
2%
80.0 (mL)
Nitric Acid

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	<i>Pedro L. Renteria</i>
	101124

Expiration Date: 101127
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 4000.2
5E-05 Balance Uncertainty
0.10 Flask Uncertainty

Compound

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

1. Manganese(II) nitrate hydrate (Mn) IN031 MMN02020A1 1000 99.999 0.10 20.8 19.2322 19.2344 1000.1 2.0 15710-66-4 5 mg/m3 or-rel >300mg/kg 3132

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

5.0E6													
2.5E6													
m/z->	10	20	30	40	50	60	70	80	90	100			
1.0E6													
5.0E7													
m/z->	110	120	130	140	150	160	170	180	190	200			
1.0E6													
5.0E7													
m/z->	210	220	230	240	250	260							



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 certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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

M6137
 R-71013124

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
 Catalog Number: 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:

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

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, amorphous (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



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

(T) = Target analyte

Certified by:

Ben. P. D.

Printed: 1/10/2025, 4:48:14 PM



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58126
011025
Iron (Fe)

R-113125
M6140

Lot #
Solvent: 24012496 Nitric Acid

Expiration Date:

011028

2% 40.0 (mL)

Nitric Acid

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

10000

NIST Test Number:

6U7B

5E-05 Balance Uncertainty

Weight shown below was diluted to (mL):

2000.07

0.100 Flask Uncertainty

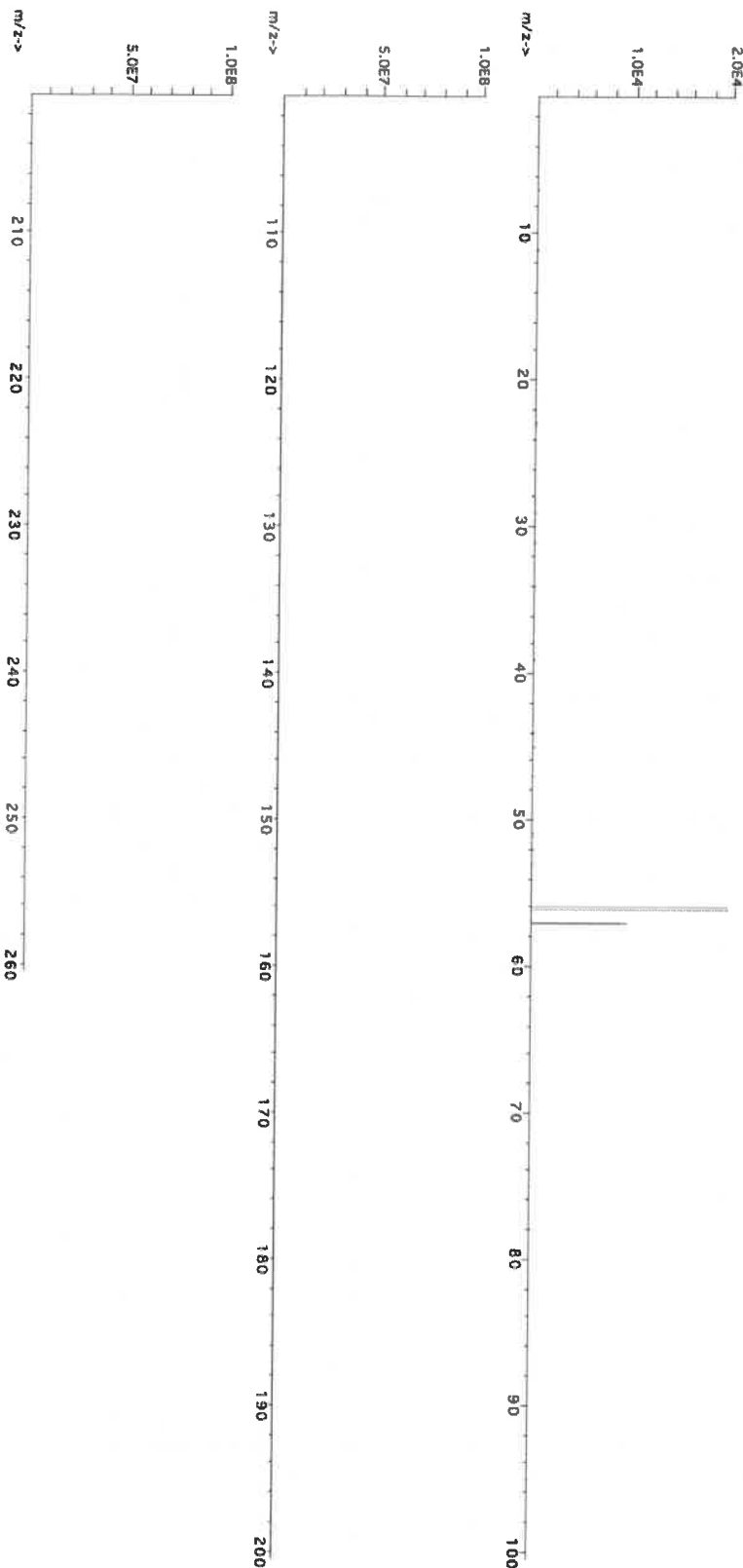
Formulated By:	Benson Chan	011025
Reviewed By:	Pedro L. Renteria	011025

Compound

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

1. Iron(III) nitrate nonahydrate (Fe) IN028 FED082023A1 10000 99.999 0.10 13.0 153.8534 ##### 10000.2 20.0 7782-61-8 1 mg/m³ or-rel 3250mg/kg 3126A

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





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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	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	Ru	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	T	Hg	<0.2	P	<0.02	Sr	<0.02		<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	Sr	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Se	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

Har P. D.

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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57119
103024
Potassium (K)

R-21113125

Solvent: 24002546 Nitric Acid
Lot #

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	Pedro L. Renteria
	103024

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

103027
Ambient (20 °C)
10000

M6141
M6142
M6143

2%
80.0
(mL)
Nitric Acid

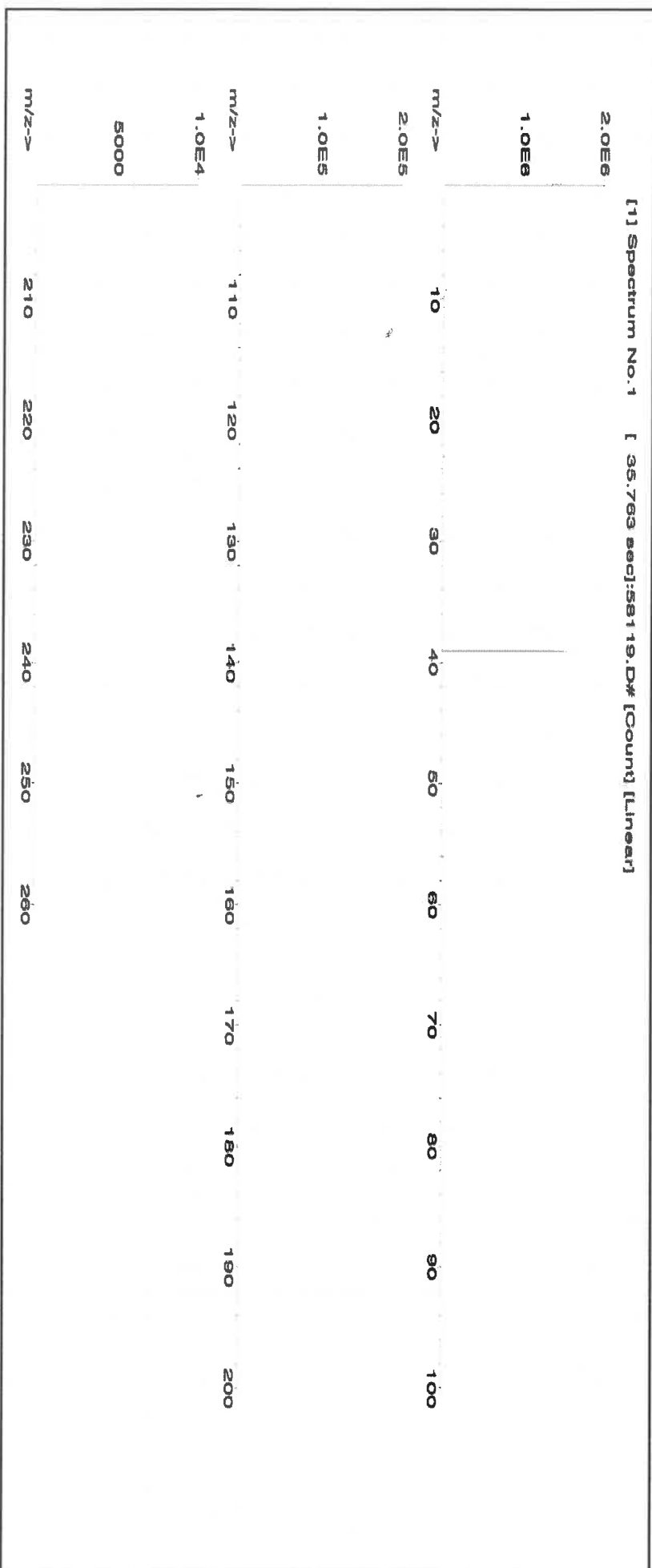
Weight shown below was diluted to (mL):

4000.1
0.15
Flask Uncertainty

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

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





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: **58111** Lot # **24002546** Nitric Acid
Lot Number: **072424**
Description: **Sodium (Na)**

Expiration Date: **072427** 2% 80.0 Nitric Acid (mL)

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

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

NIST Test Number: **6UTB** SE-05 Balance Uncertainty

Weight shown below was diluted to (mL): **4000.2** 0.10 Flask Uncertainty

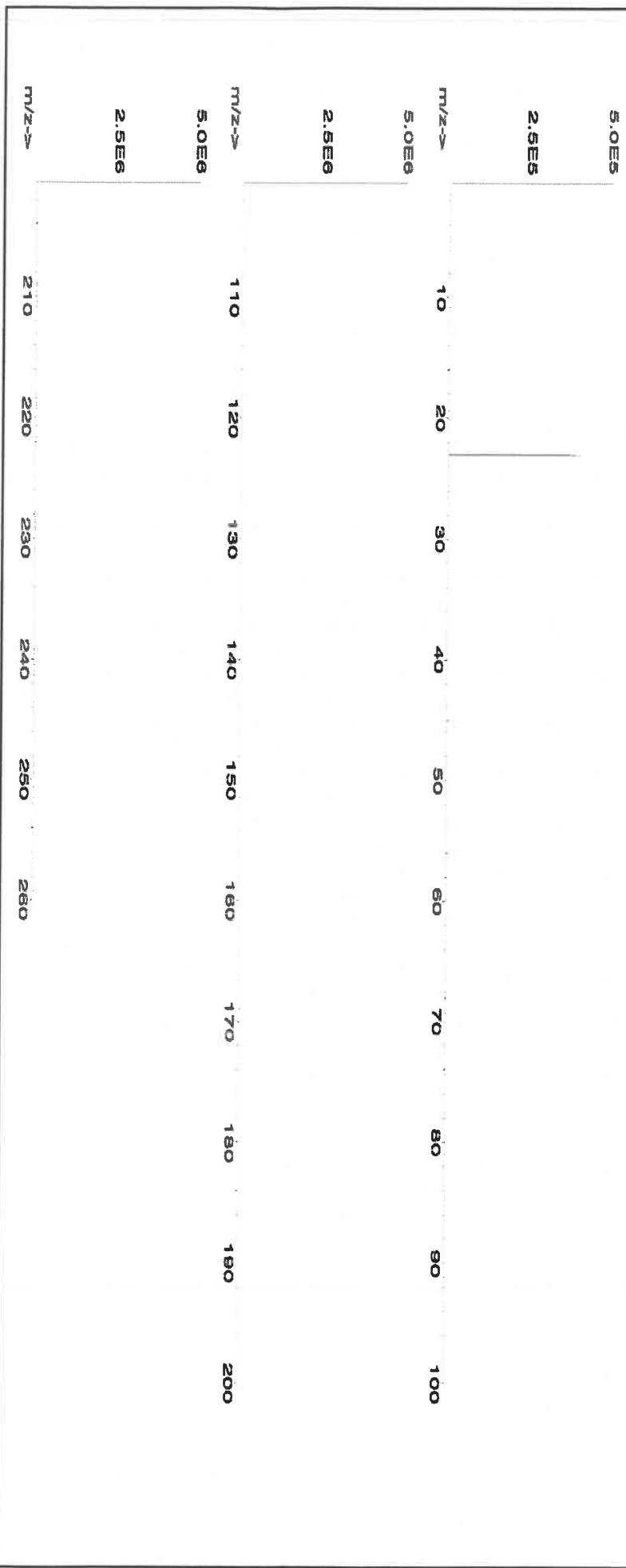
Formulated By:	Benson Chan	072424
Reviewed By:	Pedro L. Renteria	072424

SDS Information

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

1. Sodium nitrate (Na) IN036 NAV01201511 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

[1] Spectrum No. 1 [8.935 sec]: 58111.D# [Count] [Linear]





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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	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:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: 58030
Lot Number: 121724
Description: Zinc (Zn)

Lot #

Nitric Acid

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
Balance Uncertainty: 5E-05
Flask Uncertainty: 0.10

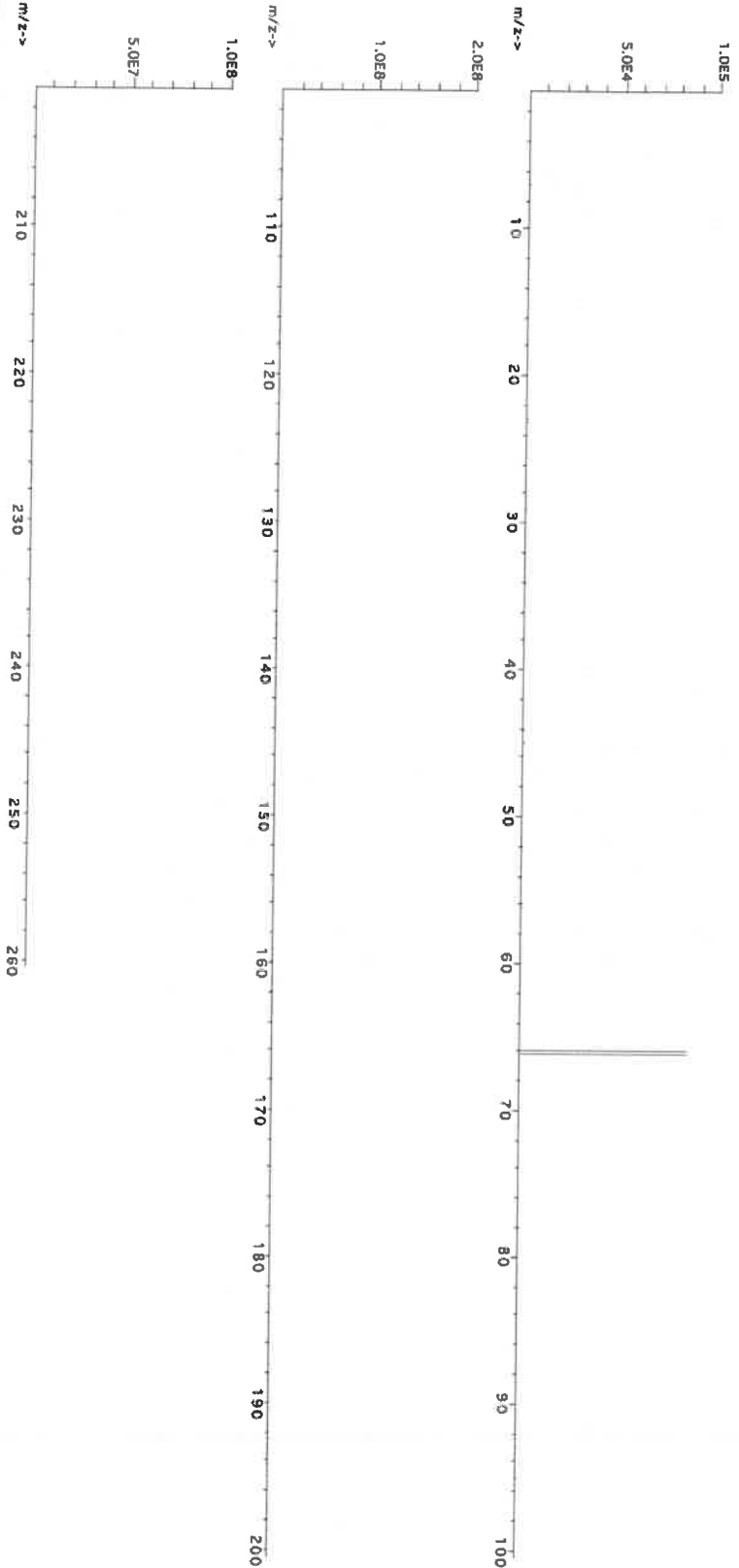
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
Reviewed By:	<i>Pedro L. Rentias</i>
	Pedro L. Rentias
	121724

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)	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 or-rat 1190mg/kg 3168

[1] Spectrum No.1 [31.103 sec; 58130.D# [Count] [Lines]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™



M6151

R → 11/15/25

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 >>>

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**™

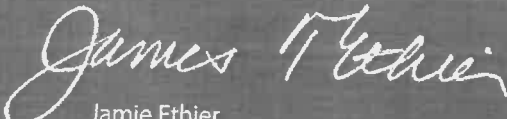


Material No.: 9530-33
Batch No.: 22G2862015

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


Jamie Ethier
Vice President Global Quality

Nitric Acid 69%
CMOS



R- 0210212025

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™



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

 **avantorsTM**



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 Division

Nitric Acid 69%
CMOS

avantor™



m-6162

Material No.: 9606-03
Batch No.: 24H0162012
Manufactured Date: 2024-06-28
Retest Date: 2029-06-27
Revision No.: 0

R. Date :- 04/27/2025

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 – 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	< 1 ppm
Chloride (Cl)	≤ 0.08 ppm	0.03 ppm
Phosphate (PO ₄)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities – Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	0.1 ppb
Trace Impurities – Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 30.0 ppb	0.1 ppb
Trace Impurities – Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Germanium (Ge)	≤ 20 ppb	< 1 ppb
Trace Impurities – Gold (Au)	≤ 20 ppb	< 1 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities – Lead (Pb)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Nickel (Ni)	≤ 20.0 ppb	< 1.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

avantor™



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 >>>



Test	Specification	Result
------	---------------	--------

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

Joak

Jamie Croak
Director Quality Operations, Bioscience Production

300 Technology Drive
 Christiansburg, VA 24073 USA
 inorganicventures.com

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

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution		
Catalog Number:	QCP-CICV-1		
Lot Number:	V2-MEB744107		
Matrix:	7% (v/v) HNO ₃		
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 °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
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, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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



300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

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

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: 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 °C)

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:

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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



300 Technology Drive
 Christiansburg, VA 24073 USA
 inorganicventures.com

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

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
 Catalog Number: 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 °C)

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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: _____

- 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



Hydrogen Peroxide, 30%

CMOS

(Stabilized)

M-6170

avantor™



R.Date . 8-05/20/2025

Material No.: 2190-03

Batch No.: 24D1961001

Test	Specification	Result
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Molybdenum (Mo)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Nickel (Ni)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Niobium (Nb)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 600.0 ppb	176.7 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities – Silver (Ag)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 100.0 ppb	< 5.0 ppb
Trace Impurities – Strontium (Sr)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Thallium (Tl)	≤ 50.0 ppb	< 5.0 ppb
Trace Impurities – Tin (Sn)	190.0 – 500.0 ppb	272.3 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)	≤ 50 ppb	< 1 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.2 µm and greater	≤ 1175 par/ml	202 par/ml
Particle Count – 0.5 µm and greater	≤ 100 par/ml	33 par/ml

>>> Continued on page 3 >>>

Hydrogen Peroxide, 30%
CMOS
(Stabilized)

avantor™



Material No.: 2190-03
Batch No.: 24D1961001

Test	Specification	Result
------	---------------	--------

For Microelectronic Use

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

Michelle Bales

Michelle Bales
Sr. Manager, Quality Assurance

Hydrogen Peroxide, 30%
CMOS
(Stabilized)

avantor™



Material No.: 2190-03
Batch No.: 24D1961001
Manufactured Date: 2024-04-17
Expiration Date: 2025-10-16
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (H ₂ O ₂)	30.0 – 32.0 %	31.6 %
Color (APHA)	≤ 10	< 5
Free Acid (μeq/g)	≤ 0.2	0.1
Residue after Evaporation	≤ 10 ppm	2 ppm
Ammonium (NH ₄)	≤ 3 ppm	< 3 ppm
Chloride (Cl)	≤ 0.2 ppm	< 0.2 ppm
Nitrate (NO ₃)	≤ 2 ppm	< 2 ppm
Phosphate (PO ₄)	≤ 1 ppm	1 ppm
Sulfate (SO ₄)	≤ 3 ppm	< 3 ppm
Trace Impurities – Aluminum (Al)	≤ 70.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Barium (Ba)	≤ 20.0 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)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Chromium (Cr)	≤ 20.0 ppb	1.5 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)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Germanium (Ge)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Gold (Au)	≤ 10.0 ppb	< 5.0 ppb
Heavy Metals (as Pb)	≤ 500.0 ppb	< 250.0 ppb
Trace Impurities – Iron (Fe)	≤ 50.0 ppb	4.6 ppb
Trace Impurities – Lead (Pb)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 10.0 ppb	< 1.0 ppb

>>> Continued on page 2 >>>



Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT:

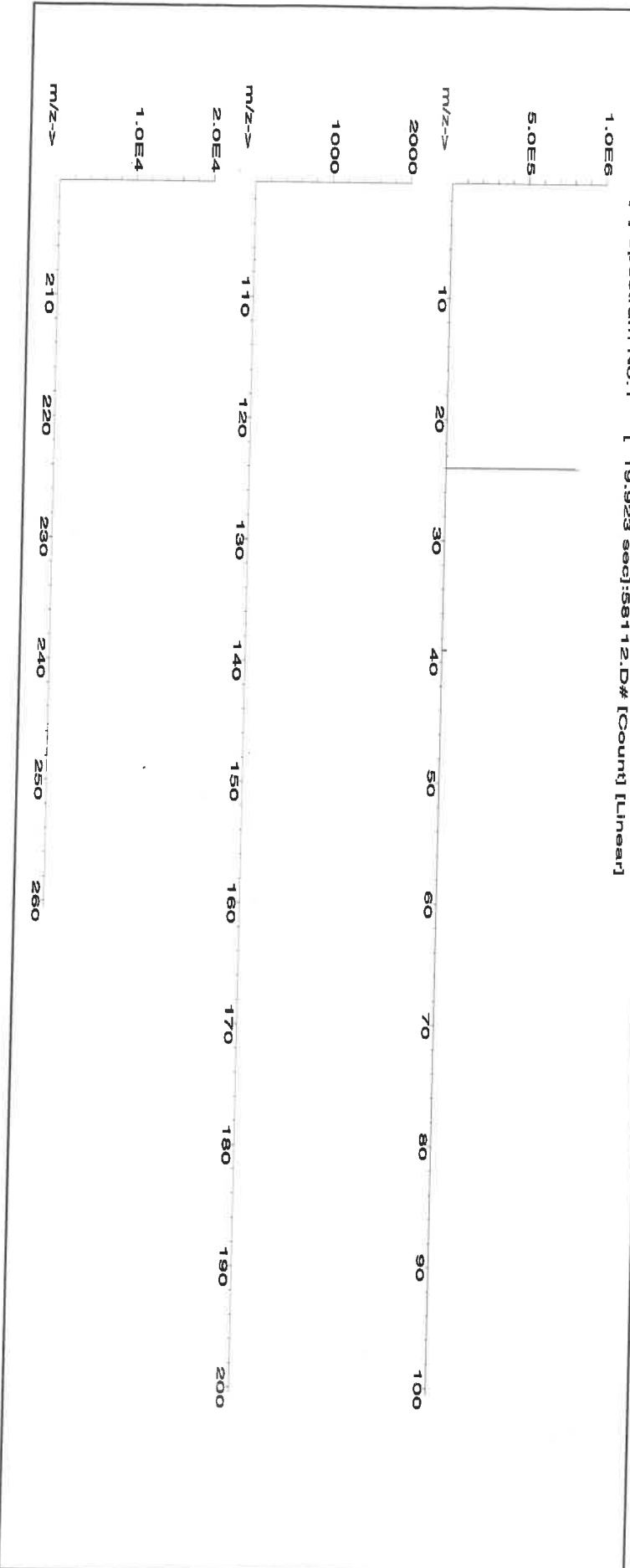
Part Number: 58112 **Lot #** M 6171
Lot Number: 011525 **Solvent:** 24012496 Nitric Acid
Description: Magnesium (Mg)
Expiration Date: 011528
Recommended Storage: Ambient (20 °C) 2% 40.0 Nitric Acid (mL)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB 5E-05 Balance Uncertainty
Weight shown below was diluted to (mL): 2000.07 0.100 Flask Uncertainty

Formulated By:	Benson Chan	011525
Reviewed By:	Pedro L. Rentas	011525

Compound

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

1. Magnesium nitrate hexahydrate (Mg) IN030 MGD05023A1 10000 99.999 0.10 8.51 234.9183 234.9195 10000.1 20.0 13446-18-9 NA off-ret 5440 mg/kg 3131a





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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Bu	<0.02	In	<0.02	Mg	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	Tl	<0.02	Yb	<0.02
Be	<0.01	Ct	<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:

John P. ...

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

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

M6174
R → S1S124

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution	
Catalog Number:	CLPP-CAL-1	
Lot Number:	V2-MEB742428	
Matrix:	5% (v/v) HNO ₃	
Value / Analyte(s):	5 000 µg/mL ea:	
	Calcium,	Potassium,
	Magnesium,	Sodium,
	2 000 µg/mL ea:	
	Aluminum,	Barium,
	1 000 µg/mL ea:	
	Iron,	
	500 µg/mL ea:	
	Nickel,	Vanadium,
	Zinc,	Cobalt,
	Manganese,	
	250 µg/mL ea:	
	Silver,	Copper,
	200 µg/mL ea:	
	Chromium,	
	50 µg/mL ea:	
	Beryllium	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	2 000 ± 7 µg/mL	Barium, Ba	2 000 ± 9 µg/mL
Beryllium, Be	50.03 ± 0.30 µg/mL	Calcium, Ca	5 000 ± 16 µg/mL
Chromium, Cr	200.0 ± 1.1 µg/mL	Cobalt, Co	500.0 ± 2.3 µg/mL
Copper, Cu	250.0 ± 1.1 µg/mL	Iron, Fe	1 000 ± 4 µg/mL
Magnesium, Mg	5 000 ± 22 µg/mL	Manganese, Mn	499.9 ± 2.2 µg/mL
Nickel, Ni	500.1 ± 2.3 µg/mL	Potassium, K	5 000 ± 22 µg/mL
Silver, Ag	250.0 ± 1.1 µg/mL	Sodium, Na	5 000 ± 22 µg/mL
Vanadium, V	500.0 ± 2.2 µg/mL	Zinc, Zn	500.0 ± 2.2 µg/mL

Density: 1.117 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	120618
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	200413
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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; info@inorganicventures.com;
www.inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 22, 2024

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

11.2 Lot Expiration Date

- **March 22, 2029**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor



Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





CERTIFIED WEIGHT REPORT:

Part Number: 57038
Lot Number: 092724
Description: Strontium (Sr)
Expiration Date: 092727
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 8UTB
Weight shown below was diluted to (mL): 2000.07
5E-05 Balance Uncertainty
0.100 Flask Uncertainty

R-5816125

M 6/7/26

Lot # 24002546
Solvent: Nitric Acid

2% 40.0 (mL)
Nitric Acid

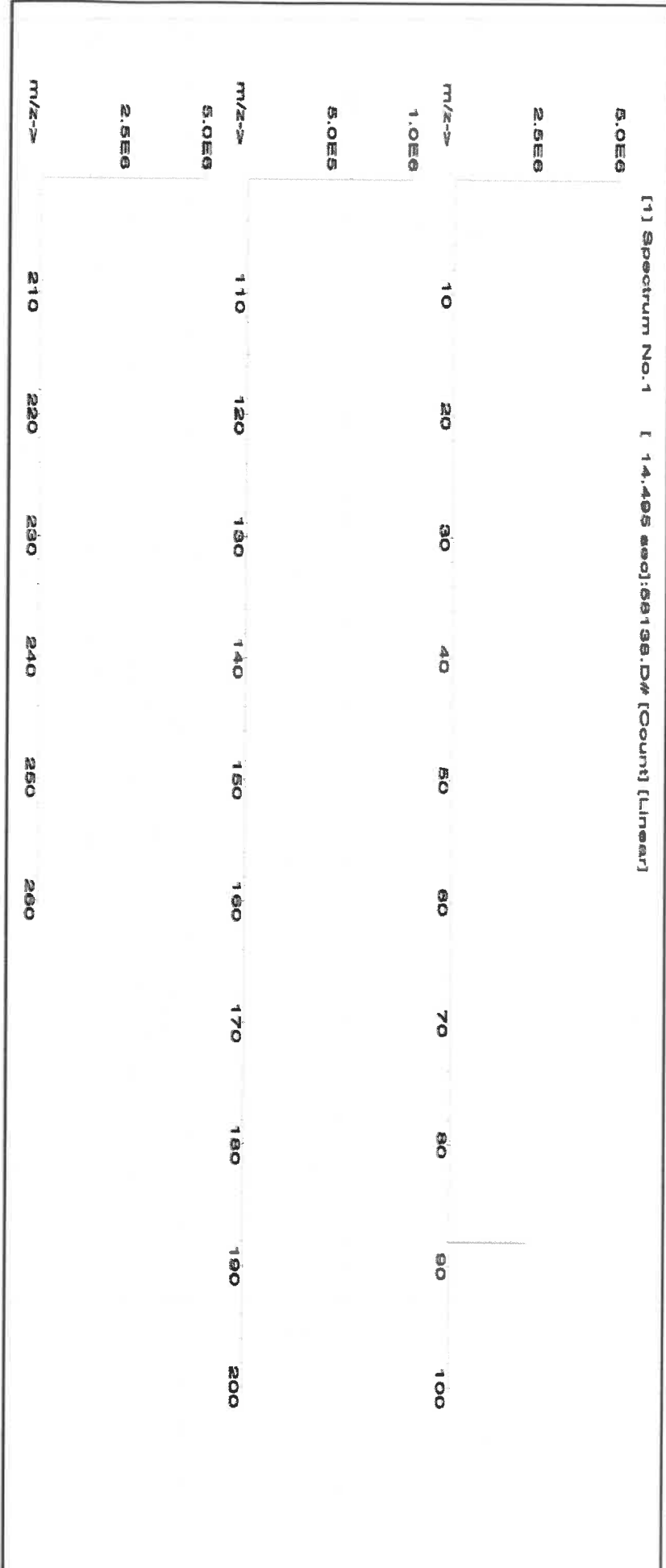
<i>[Signature]</i>	
Formulated By:	Benson Chan
092724	
<i>[Signature]</i>	
Reviewed By:	Pedro L. Rentas
092724	

SDS Information

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

1. Strontium nitrate (Sr) IN017 SR2022018A1 1000 99.997 0.10 41.2 4.85470 4.85481 1000.0 2.0 10042-76-9 NA or-rel >2000mg/kg 3153a

[1] Spectrum No. 1 [14.465 sec]:68138.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57042
080525
Molybdenum (Mo)

Solvent:
Ammonium hydroxide
ASTM Type 1 Water

Expiration Date:

080528

Recommended Storage:

Ambient (15 - 30 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

5E-05

Balance Uncertainty
0.058

Fork #

R → 8/6/25
M6177

10.0
Ammonium hydroxide

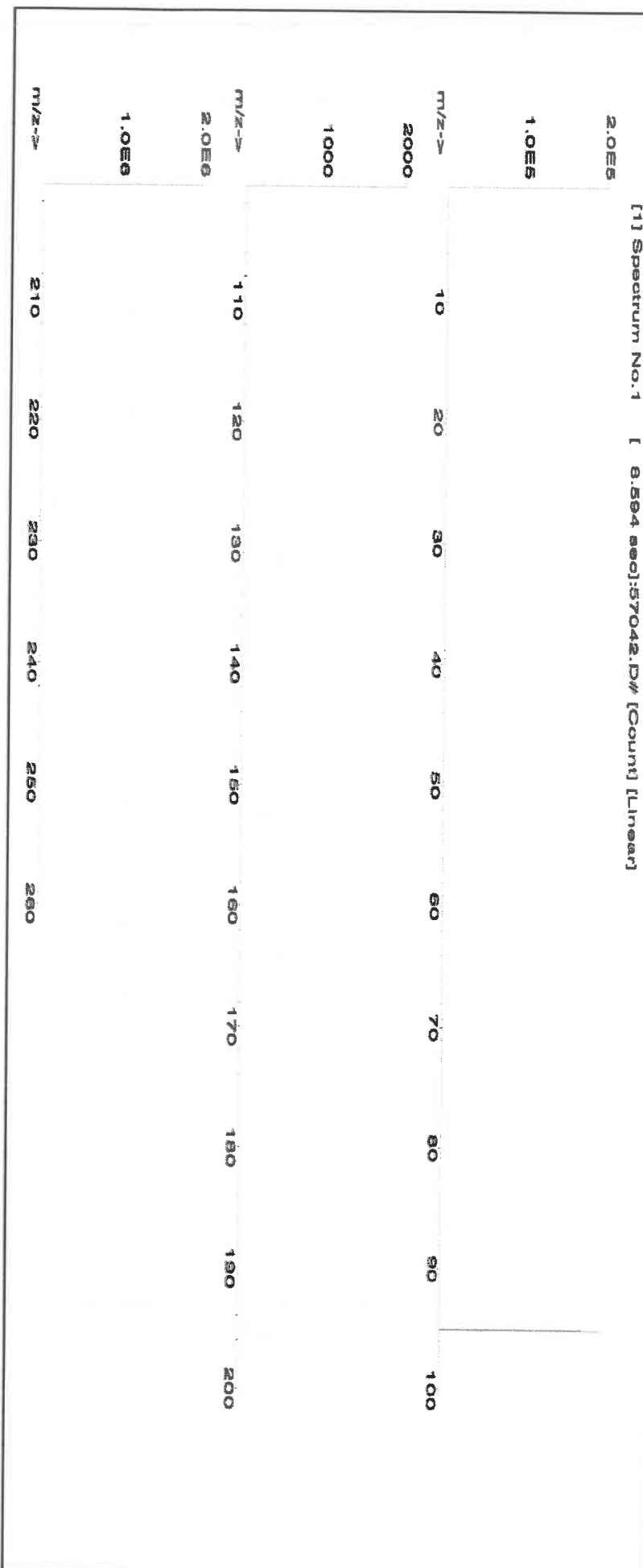
Formulated By:	Benson Chan	080525
Reviewed By:	Pedro L. Renteria	080525

SDS Information

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

1. Ammonium molybdate (Mo) 58142 112322 0.1000 200.0 0.084 1000 10001.4 1000.5 2.2 13106-76-8 5 mg(Mo)/mL 0.058 333 mg/kg 3134

[1] Spectrum No. 1 [8.594 sec]:57042.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (µg/mL)															
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<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
Ba	<0.02	Ce	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	T	Pt	<0.02	Sm	<0.02	S	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Te	<0.02
														Tb	<0.02
														Ti	<0.02
														Th	<0.02
														Tm	<0.02
														Sn	<0.02
														Tl	<0.02
														U	<0.02
														V	<0.02
														Yb	<0.02
														Y	<0.02
														Zn	<0.02
														Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

[Signature]

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware, and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated by an ISO17025 certified organization with weights traceable through NIST to the SI kilogram (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).
- Rev 1.0, 2/25/2025



Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57082
031525
Lead (Pb)

Lot #

Nitric Acid

Expiration Date:

031528

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Weight shown below was diluted to (mL):

2000.07

0.10 Flask Uncertainty

2%

40.0 (mL)

Nitric Acid

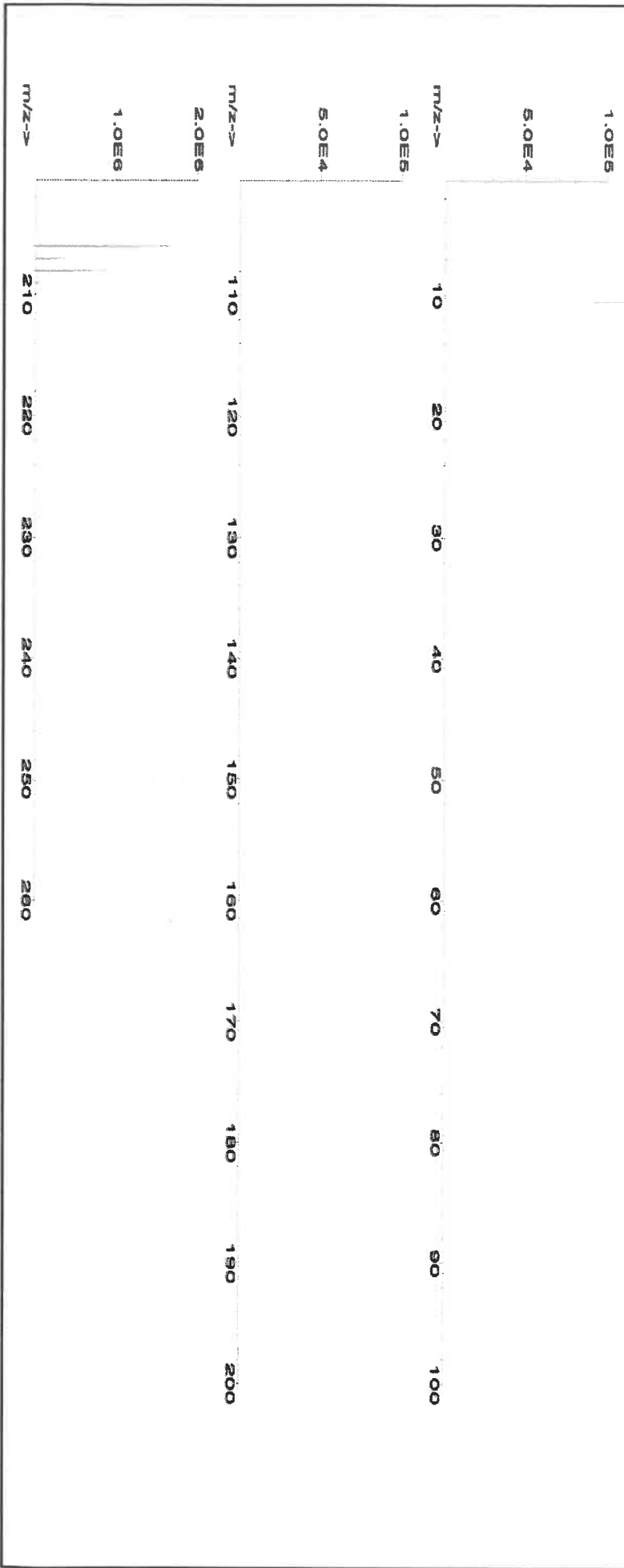
<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
	031525
Reviewed By:	<i>Pedro L. Renteria</i>
	Pedro L. Renteria
	031525

SDS Information

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

1. Lead(II) nitrate (Pb)	IN029 PBD122016A1	1000	99.999	0.10	62.5	3.20015	3.20067	1000.2	2.0	10089-74-8	0.05 mg/m3	Intrins-ral 83 mg/kg	3128
--------------------------	-------------------	------	--------	------	------	---------	---------	--------	-----	------------	------------	----------------------	------

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





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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Sc	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Bu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	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	Se	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

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

M6179
R → 612/24

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGY10
Lot Number: V2-Y740548
Matrix: 2% (v/v) HNO₃
Value / Analyte(s): 10 000 µg/mL ea:
Yttrium
Starting Material: Yttrium Oxide
Starting Material Lot#: 2661 and 06230520YL
Starting Material Purity: 99.9984%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10000 ± 30 µg/mL
Density: 1.032 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	10011 ± 25 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #2	9997 ± 50 µg/mL ICP Assay NIST SRM 3167a Lot Number: 190730
Assay Method #3	9984 ± 31 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

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). <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form In Solution - 88.91 +3 6 Y(OH)(H₂O)_{x+2}

Chemical Compatibility -Soluble in HCl, H₂SO₄ and HNO₃. Avoid HF, H₃PO₄ and neutral to basic media. Stable with most metals and inorganic anions forming an insoluble carbonate, oxide, oxalate, and fluoride. Avoid mixing with elements / solutions containing moderate amounts of fluoride.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO₃ / LDPE container.

Y Containing Samples (Preparation and Solution) - Metal (Soluble in acids); Oxide (Dissolve by heating in H₂O / HNO₃); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Dry ash and dissolve in 1:1 H₂O / HCl or HNO₃).

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

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 89 amu	0.8 ppt	N/A	73Ge16O, 178Hf+2
ICP-OES 360.073 nm	0.005 / 0.000036 µg/mL	1	Ce, Th
ICP-OES 371.030 nm	0.004 / 0.00007 µg/mL	1	Ce
ICP-OES 377.433 nm	0.005 / 0.0009 µg/mL	1	Ta, Th

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 20, 2024

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

11.2 Lot Expiration Date

- February 20, 2029

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor



Certificate Approved By:

Muzzammil Khan
Stock Laboratory Supervisor



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: WW-LFS-1
Lot Number: W2-MEB752149
Matrix: 5% (v/v) HNO₃

M6180
R-37/22/23

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,	Aluminum,
Cerium,	Selenium,
Thallium,	
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,	Boron,
Vanadium,	
20 µg/mL ea:	
Zinc,	Strontium,
Barium,	Beryllium,
Cadmium,	Cobalt,
Manganese,	Lithium,
7.5 µg/mL ea:	
Silver	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	200.2 ± 0.7 µg/mL	Arsenic, As	80.1 ± 0.5 µg/mL
Barium, Ba	20.02 ± 0.12 µg/mL	Beryllium, Be	20.02 ± 0.11 µg/mL
Boron, B	30.02 ± 0.15 µg/mL	Cadmium, Cd	20.04 ± 0.09 µg/mL
Calcium, Ca	100.1 ± 0.3 µg/mL	Cerium, Ce	200.2 ± 1.0 µg/mL
Chromium, Cr	40.02 ± 0.26 µg/mL	Cobalt, Co	20.03 ± 0.09 µg/mL
Copper, Cu	30.03 ± 0.13 µg/mL	Iron, Fe	300.3 ± 1.3 µg/mL
Lead, Pb	100.1 ± 0.5 µg/mL	Lithium, Li	20.03 ± 0.09 µg/mL
Magnesium, Mg	200.2 ± 0.9 µg/mL	Manganese, Mn	19.99 ± 0.09 µg/mL
Mercury, Hg	70.0 ± 0.3 µg/mL	Nickel, Ni	50.05 ± 0.22 µg/mL
Phosphorus, P	600.5 ± 2.9 µg/mL	Potassium, K	1 001 ± 4 µg/mL
Selenium, Se	200.2 ± 1.1 µg/mL	Silver, Ag	7.52 ± 0.03 µg/mL
Sodium, Na	300.3 ± 1.3 µg/mL	Strontium, Sr	20.02 ± 0.10 µg/mL
Thallium, Tl	200.2 ± 1.0 µg/mL	Vanadium, V	30.02 ± 0.13 µg/mL
Zinc, Zn	20.05 ± 0.09 µg/mL		

Density: 1.037 g/mL (measured at 20 ± 5 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
As	ICP Assay	3103a	100818
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Ce	ICP Assay	3110	160830
Ce	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	120618
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
Hg	ICP Assay	3133	160921
Hg	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Li	ICP Assay	3129a	100714
Li	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	200413
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
P	ICP Assay	3139a	060717
P	Acidimetric	84L	84L
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Sr	EDTA	928	928
Sr	ICP Assay	Traceable to 3153a	K2-SR650985
Tl	ICP Assay	3158	151215
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{TS} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{TS} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 25° C to minimize the effects of transpiration. Use at 20° ± 5° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information (<https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver>)

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

April 08, 2025

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

11.2 Lot Expiration Date

- April 08, 2029

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

Certificate of Analysis

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

M6181
R → 7/22/28

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: WW-LFS-2
Lot Number: V2-MEB743480
Matrix: 5% (v/v) HNO₃
tr. HF
Value / Analyte(s):
200 µg/mL ea:
Silica,
80 µg/mL ea:
Antimony,
70 µg/mL ea:
Tin,
40 µg/mL ea:
Molybdenum,
20 µg/mL ea:
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	80.1 ± 0.5 µg/mL	Molybdenum, Mo	40.05 ± 0.22 µg/mL
Silica, SiO ₂	200.3 ± 1.4 µg/mL	Tin, Sn	70.1 ± 0.4 µg/mL
Titanium, Ti	20.03 ± 0.12 µg/mL		

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

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Sb	ICP Assay	3102a	140911
SiO ₂	Calculated		See Sec. 4.2
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	traceable to 3162a	T2-TI725816

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 07, 2024

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

11.2 Lot Expiration Date

- May 07, 2029

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Thomas Kozikowski
Stock VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





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.



M6182

(A) **SAMPLE DESCRIPTION**

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

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

(B) **BREAKAGE OR MISSING ITEMS**

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

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

(C) **ANALYSIS OF SAMPLES**

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





Instructions for QATS Reference Material: ICP-AES ICS

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

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

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

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

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

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

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

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

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



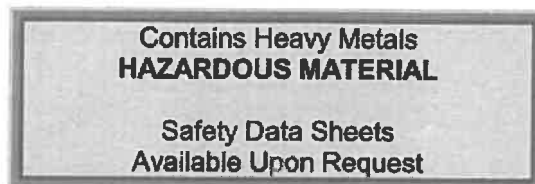
Instructions for QATS Reference Material: ICP-AES ICS

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.



M6184

(A) **SAMPLE DESCRIPTION**

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

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

(B) **BREAKAGE OR MISSING ITEMS**

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

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

(C) **ANALYSIS OF SAMPLES**

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





Instructions for QATS Reference Material: ICP-AES ICS

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

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

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

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

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

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

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

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

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

Nitric Acid 69%
CMOS



M6187

R.D :- 08/08/25

Material No.: 9606-03
Batch No.: 24H0162012
Manufactured Date: 2024-06-28
Retest Date: 2029-06-27
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 – 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	< 1 ppm
Chloride (Cl)	≤ 0.08 ppm	0.03 ppm
Phosphate (PO ₄)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities – Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	0.1 ppb
Trace Impurities – Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 30.0 ppb	0.1 ppb
Trace Impurities – Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Germanium (Ge)	≤ 20 ppb	< 1 ppb
Trace Impurities – Gold (Au)	≤ 20 ppb	< 1 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities – Lead (Pb)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Nickel (Ni)	≤ 20.0 ppb	< 1.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS



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 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis



M6200
R.O → 08/25/25

Material No.: 9530-33
Batch No.: 24D1562005
Manufactured Date: 2024-03-18
Retest Date: 2029-03-17
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid-base titrn)	36.5 – 38.0 %	37.6 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.192
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl ₂)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO ₄)	≤ 0.05 ppm	0.03 ppm
Sulfate (SO ₄)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO ₃)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH ₄)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	2.2 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	31.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.5 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	< 0.2 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	3 ppb

>>> Continued on page 2 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis



Material No.: 9530-33
Batch No.: 24D1562005

Test	Specification	Result
Trace Impurities – Lead (Pb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Lithium (Li)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Magnesium (Mg)	≤ 10.0 ppb	2.2 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Molybdenum (Mo)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Nickel (Ni)	≤ 4.0 ppb	0.2 ppb
Trace Impurities – Niobium (Nb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Potassium (K)	≤ 9.0 ppb	< 1.0 ppb
Trace Impurities – Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Sodium (Na)	≤ 100.0 ppb	2.0 ppb
Trace Impurities – Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Tantalum (Ta)	≤ 1.0 ppb	< 0.9 ppb
Trace Impurities – Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	< 0.4 ppb
Trace Impurities – Titanium (Ti)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities – Zirconium (Zr)	≤ 1.0 ppb	< 0.1 ppb

>>> Continued on page 3 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis



Material No.: 9530-33
Batch No.: 24D1562005

Test	Specification	Result
------	---------------	--------

For Laboratory, Research, or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications
Storage Condition: Store below 25 °C.

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

Jamie Croak
Director Quality Operations, Bioscience Production



Certified Reference Material CRM

M6027



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

CERTIFIED WEIGHT REPORT:

Part Number: **57028**
Lot Number: **062024**
Description: **Nickel (NI)**

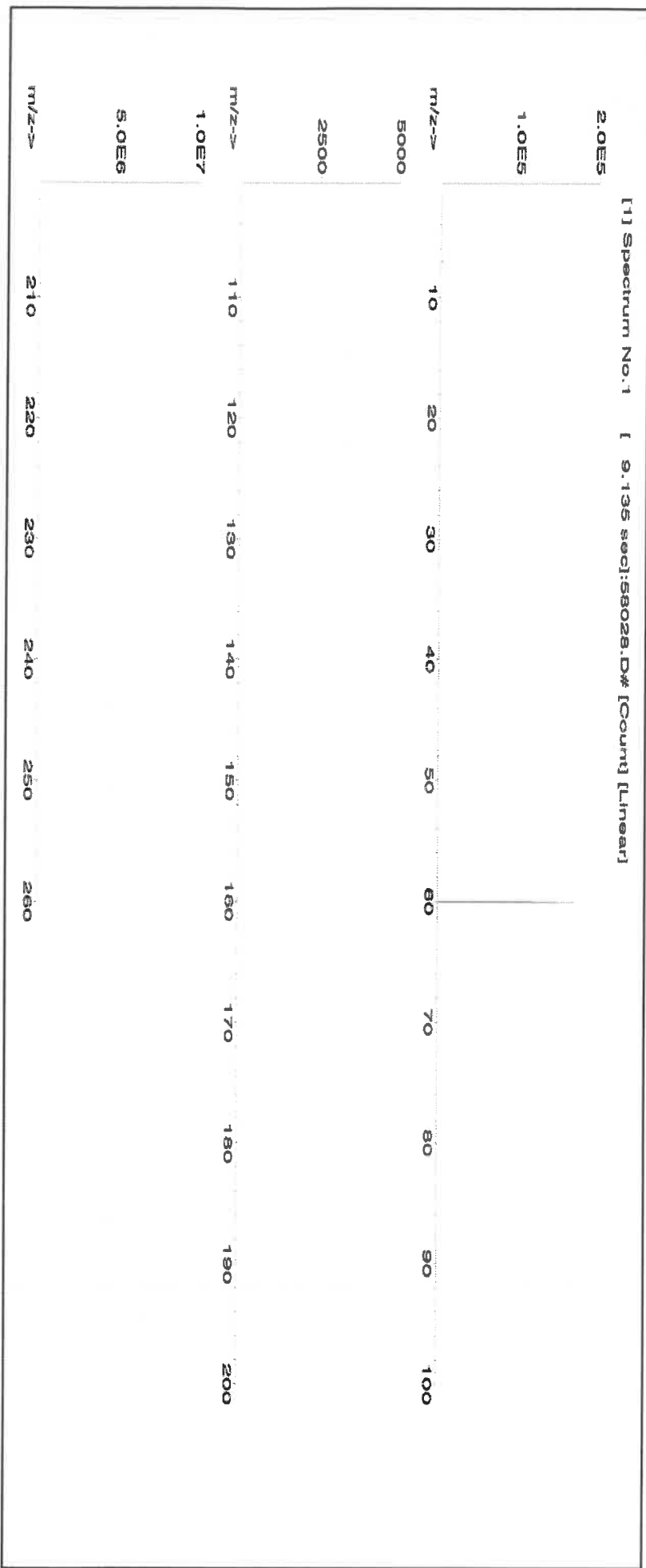
Lot # **24002546**
Solvent: **Nitric Acid**

Formulated By:	Benson Chan
062024	
Reviewed By:	Pedro L. Rentes
062024	

Expiration Date: **062027**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**
Volume shown below was diluted to (mL): **2000.07**
5E-05 Balance Uncertainty
0.100 Flask Uncertainty

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

1. 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





Certified Reference Material CRM



ANAB ISO 17034 Accredited
AF-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	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:

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

Certified by:

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



Certified Reference Material CRM

M6030



CERTIFIED WEIGHT REPORT:

Part Number: **57047**
Lot Number: **122823**
Description: **Silver (Ag)**

Lot #
Solvent: 24002546 Nitric Acid

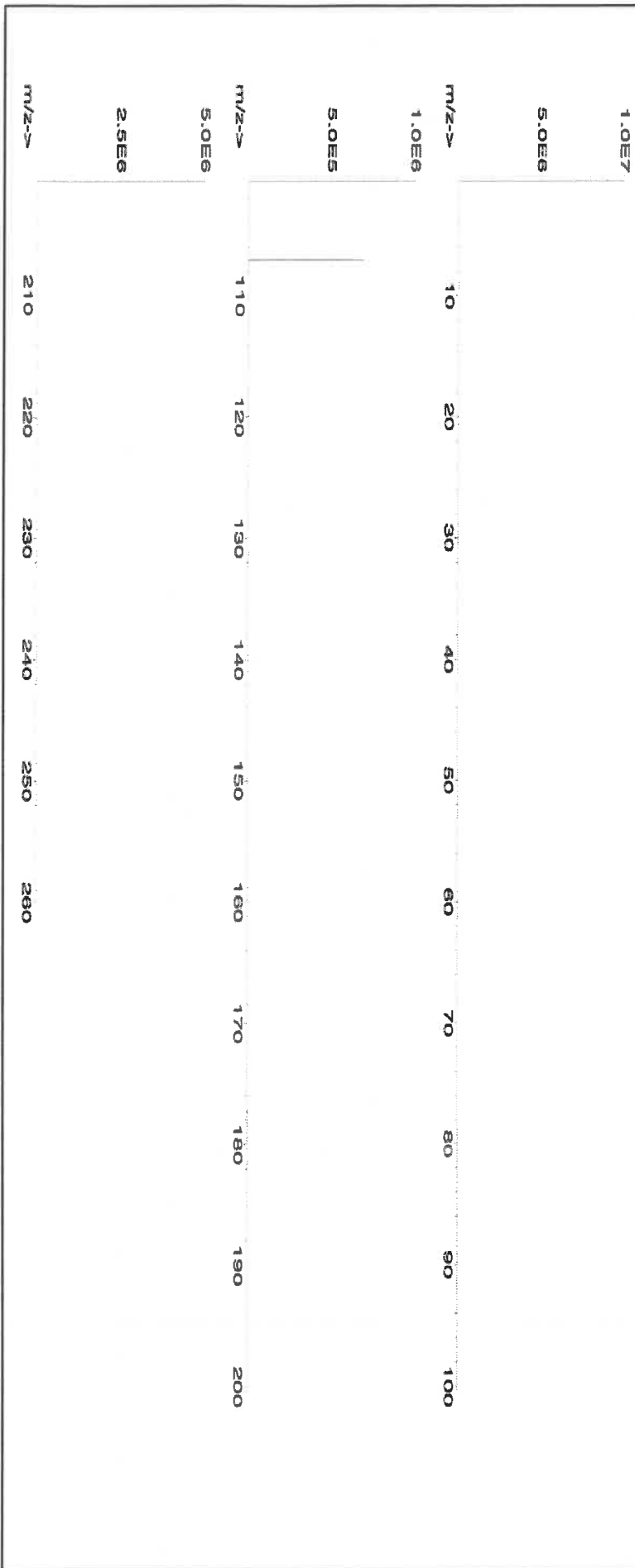
Formulated By:	Benson Chan
Reviewed By:	
Pedro L. Rentas	
122823	

Expiration Date: 122826
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 4000.30
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

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

1. Silver nitrate (Ag) IN035 J0612AGA1 1000.0 99.999 0.10 63.7 6.27992 6.27998 1000.0 2.0 7761-88-8 10 µg/m³ NA 3151

[1] Spectrum No. 1 [14.044 sec]:58147.D# [Count] [Linear]





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

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

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

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

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: 57051
Lot Number: 071724
Description: Antimony (Sb)

NG160

Lot # 24002546
Solvent: Nitric Acid

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

5E-05 Balance Uncertainty

0.058 Flask Uncertainty

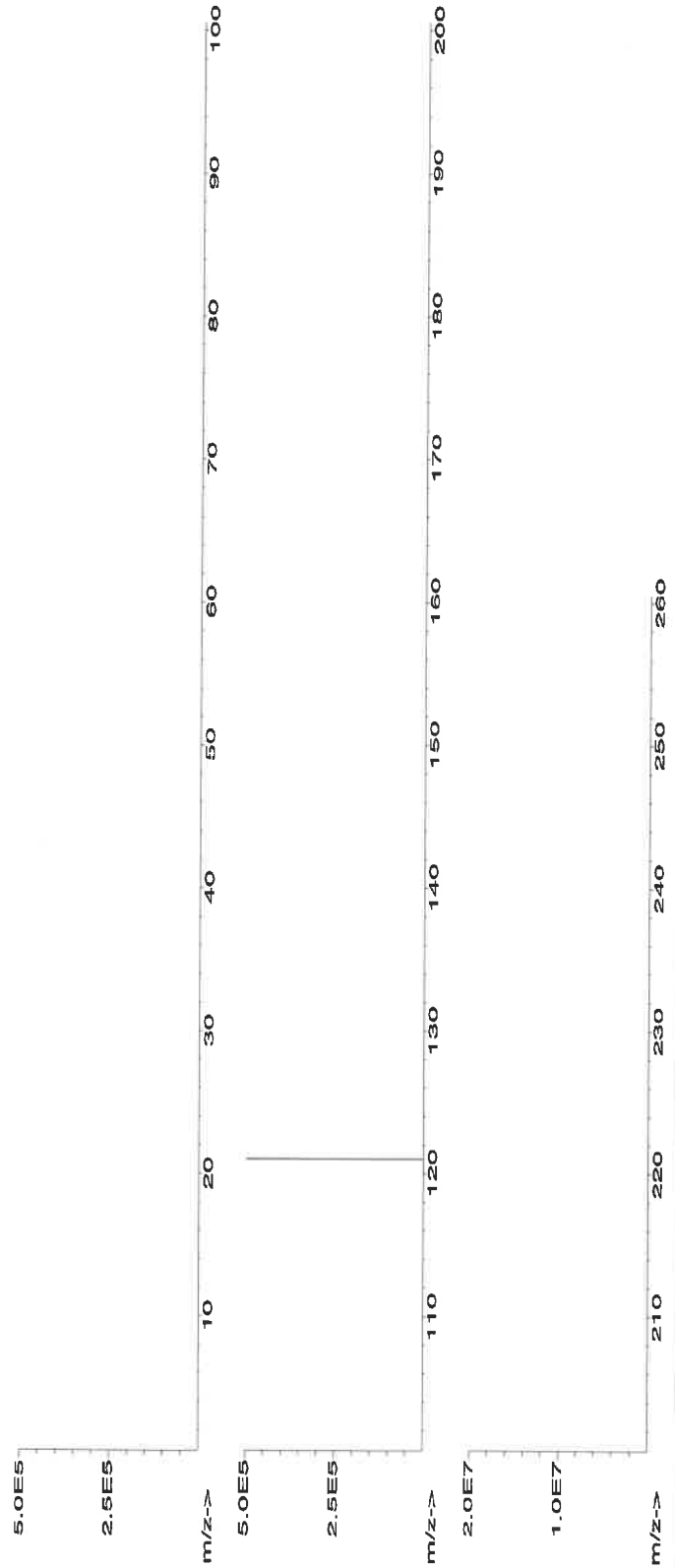
<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas
071724	

SDS Information

Expanded	Uncertainty	(Solvent Safety Info, On Attached pg.)	NIST
Conc. (µg/mL)	+/- (µg/mL)	CAS#	OSHA PEL (TWA)
Final	Initial		
Conc. (µg/mL)	Conc. (µg/mL)		
1000.0	10001.4		
2.2	7440-36-0	0.5 mg/m3	or-rat 7000 mg/kg
			3102a

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	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	or-rat 7000 mg/kg

[1] Spectrum No.1 [17.964 sec]:58051.D# [Count] [Linear]





Certified Reference Material CRM

M6023



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

CERTIFIED WEIGHT REPORT:

Part Number: 57081
Lot Number: 062724
Description: Thallium (TI)

Solvent: 24002546 Nitric Acid

Lot #

Aleah O'Brady
Formulated By: Aleah O'Brady 062724

Expiration Date: 062727

2% 40.0 (mL) Nitric Acid

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6U7B

5E-05 Balance Uncertainty

Weight shown below was diluted to (mL): 2000.1 0.10 Flask Uncertainty

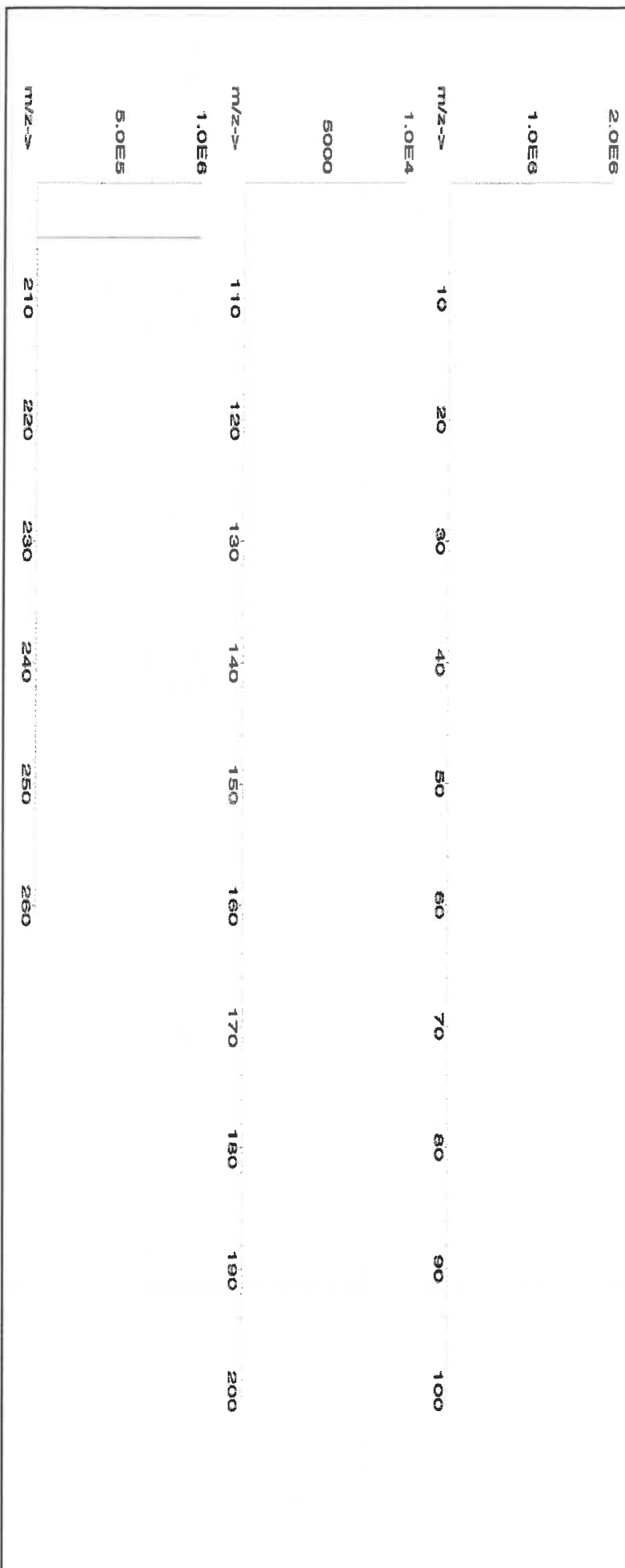
Pedro L. Renias
Reviewed By: Pedro L. Renias 062724

SDS Information

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

1. Thallium nitrate (TI) IN037 BCCF4399 1000 99.999 0.10 77.0 2.5975 2.5977 1000.1 2.0 10102-45-1 0.1 mg/m3 or-mus 15mg/kg 3158

[1] Spectrum No.1 [14.044 sec]:57081.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM

M6021



CERTIFIED WEIGHT REPORT:

Part Number: **57023**
Lot Number: **062424**
Description: **Vanadium (V)**

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

<i>Aleah O Brady</i>	
Formulated By:	Aleah O Brady
Reviewed By:	Pedro L. Rantas

062424

062424

062424

062424

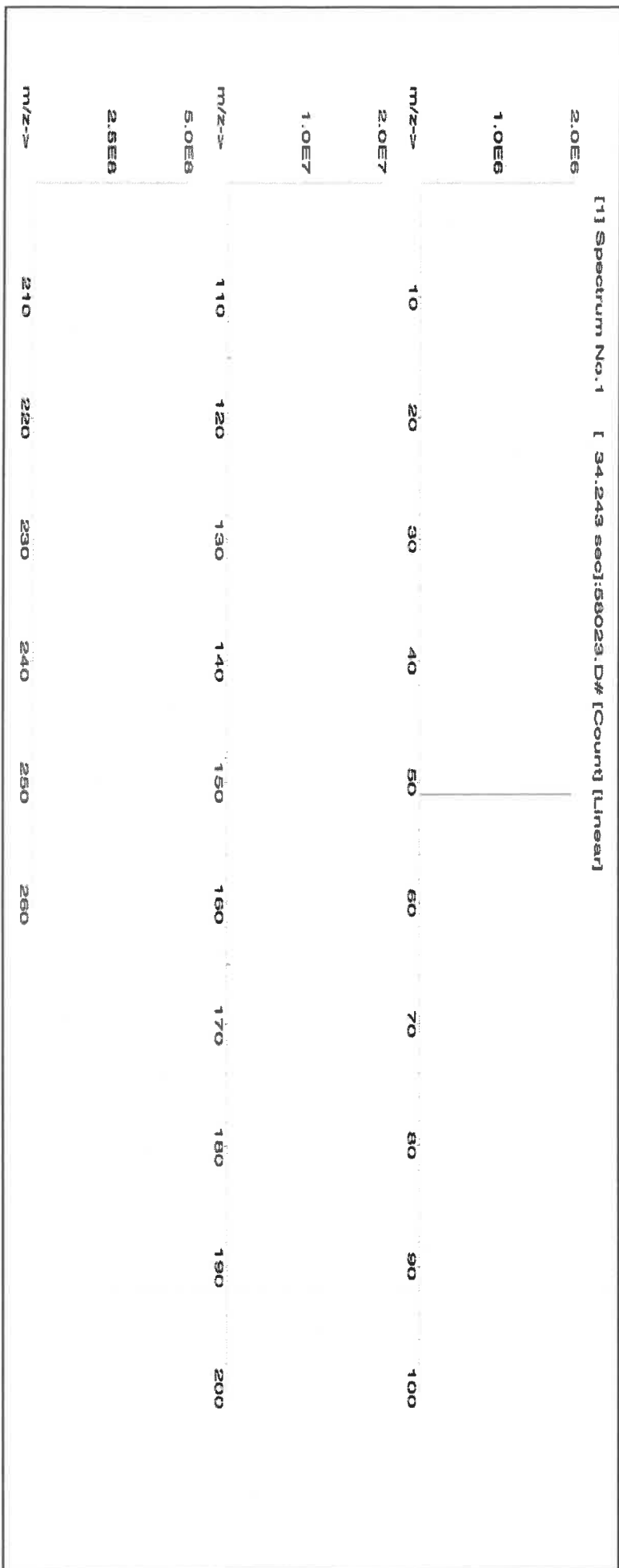
062424

Expiration Date: **062427**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**

Volume shown below was diluted to (mL): **2000.3**
5E-05 Balance Uncertainty
0.06 Flask Uncertainty

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.)	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	3165

[1] Spectrum No.1 [34.243 sec]:58023.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



SHIPPING DOCUMENTS

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

Q3321

USEPA

DateShipped: 10/8/2025

CarrierName: FedEx

AirbillNo: 8850 1194 6759

CHAIN OF CUSTODY RECORD

Case #: 918

Contact Name: Peter Lisichenko

Contact Phone: 347-276-6251

No: 2-100825-0004-0122-01

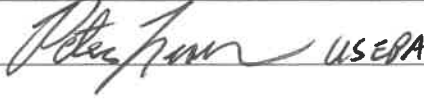
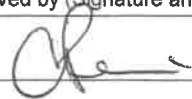
Cooler #: 1

Lab: Alliance Technical Group, LLC

Lab Phone: 805-526-7161

Lab #	Sample #	Location	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Preservative	Lab QC
	P001-DS-01	P001	TAL VOCs	Soil	10/8/2025	14:15	3	5-g Encore sampler	4 C	
	P001-DS-01	P001	TAL SVOCs	Soil	10/8/2025	14:15	1	8 oz glass jar w/Teflon cap	4 C	
	P001-DS-01	P001	TAL PCBs	Soil	10/8/2025	14:15	1	8 oz glass jar w/Teflon cap	4 C	
	P001-DS-01	P001	TAL Pesticides	Soil	10/8/2025	14:15	1	8 oz glass cl jar w/Teflon cap	4 C	
	P001-DS-01	P001	TAL Metals+Hg&CN	Soil	10/8/2025	14:15	1	8 oz glass jar w/Teflon cap	4 C	
	P001-DS-01	P001	TCLP VOCs	Soil	10/8/2025	14:15	1	8 oz glass jar w/Teflon cap	4 C	
	P001-DS-01	P001	TCLP Metals+Hg	Soil	10/8/2025	14:15	1	8 oz glass jar w/Teflon cap	4 C	
	P001-DS-01	P001	TAL Pesticides	Soil	10/8/2025	14:15	1	8 oz glass jar w/Teflon cap	4 C	
	P001-DS-01	P001	TCLP SVOCs	Soil	10/8/2025	14:15	1	8 oz glass jar w/Teflon cap	4 C	
	P001-DS-01	P001	TCLP Herbicides	Soil	10/8/2025	14:15	1	8 oz glass jar w/Teflon cap	4 C	

Special Instructions:	SAMPLES TRANSFERRED FROM
	CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
All Samples All Analyses	 USEPA	10/8/25 1600H		10/9/25 10:00	IR Gun #1 3.4

USEPA

DateShipped: 10/8/2025

CarrierName: FedEx

AirbillNo: 8850 1194 6759

CHAIN OF CUSTODY RECORD

Case #: 918

Contact Name: Peter Lisichenko

Contact Phone: 347-276-6251

No: 2-100825-0004-0122-01

Cooler #: 1

Lab: Alliance Technical Group, LLC

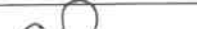
Lab Phone: 805-526-7161

[illegible]

SAMPLES TRANSFERRED FROM	
1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
25	26
27	28
29	30
31	32
33	34
35	36
37	38
39	40
41	42
43	44
45	46
47	48
49	50
51	52
53	54
55	56
57	58
59	60
61	62
63	64
65	66
67	68
69	70
71	72
73	74
75	76
77	78
79	80
81	82
83	84
85	86
87	88
89	90
91	92
93	94
95	96
97	98
99	100

CHAIN OF CUSTODY #

Special Instructions:

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
ALL SAMPLES FULL ANALYSIS	 USEPA	10/8/25 1600 hr		1000 10/9/25	IR Gun #1 3.4

Laboratory Certification

Certified By	License No.
Connecticut	PH-0830
DOD ELAP (ANAB)	L2219
Maine	2024021
Maryland	296
New Hampshire	255425
New Jersey	20012
New York	11376
Pennsylvania	68-00548
Soil Permit	525-24-234-08441
Texas	TX-C25-00189
Virginia	460312

LOGIN REPORT/SAMPLE TRANSFER

Order ID : Q3321	ROYF02	Order Date : 10/9/2025 10:30:00 AM	Project Mgr :
Client Name : Weston Solutions, Inc.		Project Name : RFP 905-918	Report Type : Level 4
Client Contact : Smita Sumbaly		Receive DateTime : 10/9/2025 12:00:00 AM	EDD Type : EXCEL NOCLEANUP
Invoice Name : Weston Solutions, Inc.		Purchase Order : 10:00	Hard Copy Date :
Invoice Contact : Smita Sumbaly			Date Signoff :

LAB ID	CLIENT ID	MATRIX	SAMPLE DATE	SAMPLE TIME	TEST	TEST GROUP	METHOD	FAX DATE	DUE DATES
Q3321-01	P001-DS-01	Solid	10/08/2025	14:15	VOC-TCLVOA-10		8260D		10 Bus. Days 5 Bus Days

Relinquished By :

Date / Time : 10/9/25 10:00

Received By :

Date / Time : 10/09/25

Storage Area : VOA Refridgerator Room