

DATA PACKAGE METALS

PROJECT NAME : RFP 905

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

**ORDER ID : Q1664
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	9
7) Chronicle	10
8) Hit Summary	12
9) Sample Data	17
9.1) P001-BBDGA-001-01	18
9.2) P001-BBDGA-001-02	19
9.3) P001-BBDGA-002-01	20
9.4) P001-BBDGA-003-01	21
9.5) P001-BBDGA-004-01	22
9.6) P001-BBDGA-005-01	23
9.7) P001-BBDGA-006-01	24
9.8) P001-BBDGA-007-01	25
9.9) P001-BBDGA-008-01	26
10) METALS CALIBRATION DATA	27
10.1) Initial and Continuing Calibration Verification	28
10.2) CRDL Standard For AA & ICP	35
10.3) Initial and Continuing Calibration Blank Summary	36
10.4) Preparation Blank Summary	42
10.5) Interference Check Sample	44
11) METALS QC DATA	46
11.1) Matrix Spike Summary	47
11.2) Post Digest Spike Summary	49
11.3) Duplicate Sample Summary	50
11.4) Laboratory Control Sample Summary	52
11.5) ICP Serial Dilutions	54
12) METALS PREPARATION & INSTRUMENT DATA	55
12.1) ICP Interelement Correction Factors	56
13) PREPARATION & ANALYTICAL SUMMARY	61
13.1) Sample Preparation Summary	62
13.2) Analysis Run Log	64

Table Of Contents for Q1664

14) METALS RAW DATA	66
14.1) METALS RAW DATA - ANALYTICAL	67
14.2) LB135245	67
14.3) LB135232	181
14.4) METALS RAW DATA - PREP	183
14.4.1) PB167370	183
14.4.2) PB167386	186
15) Percent Solid	189
16) Analytical Runlogs	191
17) Standard Prep Logs	197
18) Shipping Document	360
18.1) Chain Of Custody	361
18.2) Lab Certificate	370
18.3) Internal COC	371

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

Cover Page

Order ID : Q1664

Project ID : RFP 905

Client : Weston Solutions, Inc.

Lab Sample Number

Q1664-01
Q1664-02
Q1664-03
Q1664-04
Q1664-05
Q1664-06
Q1664-07
Q1664-08
Q1664-09
Q1664-10
Q1664-11
Q1664-12
Q1664-13
Q1664-14
Q1664-15
Q1664-16
Q1664-17
Q1664-18
Q1664-19
Q1664-20
Q1664-21
Q1664-22

Client Sample Number

P001-BBDGA-001-01
P001-BBDGA-001-01MS
P001-BBDGA-001-01MSD
P001-BBDGA-001-01
P001-BBDGA-001-01MS
P001-BBDGA-001-01MSD
P001-BBDGA-001-02
P001-BBDGA-001-02
P001-BBDGA-002-01
P001-BBDGA-002-01
P001-BBDGA-003-01
P001-BBDGA-003-01
P001-BBDGA-004-01
P001-BBDGA-004-01
P001-BBDGA-005-01
P001-BBDGA-005-01
P001-BBDGA-006-01
P001-BBDGA-006-01
P001-BBDGA-007-01
P001-BBDGA-007-01
P001-BBDGA-008-01
P001-BBDGA-008-01

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: 4/8/2025

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 905

Project # N/A

Chemtech Project # Q1664

Test Name: Metals ICP-TAL,Mercury

A. Number of Samples and Date of Receipt:

22 Solid samples were received on 03/27/2025.

B. Parameters:

According to the Chain of Custody document, the following analyses were requested: Cyanide, EPH, Mercury, Metals ICP-TAL, METALS TAL+CN, PCB, Pesticide-TCL, SPLP BNA, SPLP Cyanide, SPLP Extraction, SPLP ICP Metals, SPLP Mercury, SPLP PCB, SPLP Pesticide, SPLP VOA, SPLP ZHE Ext, SVOC-TCL BNA -20 and VOC-TCLVOA-10. This data package contains results for Metals ICP-TAL,Mercury.

C. Analytical Techniques:

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

D. QA/ QC Samples:

The Holding Times were met for all analysis.

The Blank Spike met requirements for all samples.

The Duplicate (P001-BBDGA-001-01DUP) analysis met criteria for all samples except for Copper due to matrix interference.

The Duplicate (P001-BBDGA-001-01MSD) analysis met criteria for all samples except for Copper due to matrix interference..

The Matrix Spike (P001-BBDGA-001-01MS) analysis met criteria for all samples except for Antimony, Barium due to matrix interference.

The Matrix Spike Duplicate (P001-BBDGA-001-01MSD) analysis met criteria for all samples except for Antimony, Zinc due to matrix interference.

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

The Calibration met the requirements.

The Serial Dilution (P001-BBDGA-001-01L) met criteria for all samples except for Chromium, Copper due to unknown interference.

E. Calculation:

Calculation for ICP-AES Soil Sample:

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

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

Where,

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

Vf = 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 $\mu\text{g/L}$ or ppb to mg/kg :

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

Where,

C = Instrument response in $\mu\text{g/L}$ from the calibration curve.

Vf = 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

F. Additional Comments:

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

Signature_____

DATA REPORTING QUALIFIERS- INORGANIC

For reporting results, the following “ Results Qualifiers” are used:

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

METALS CONFORMANCE/NON-CONFORMANCE SUMMARY

CHEMTECH PROJECT NUMBER: Q1664

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 (P001-BBDGA-001-01L) met criteria for all samples except for Chromium, Copper due to unknown interference.		✓	
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 (P001-BBDGA-001-01MS) analysis met criteria for all samples except for Antimony, Barium due to matrix interference. The Matrix Spike Duplicate (P001-BBDGA-001-01MSD) analysis met criteria for all samples except for Antimony, Zinc due to matrix interference.		✓	
7. Sample Duplicate Analysis Met QC Criteria If not met, list those compounds and their recoveries which fall outside the acceptable range. The Duplicate (P001-BBDGA-001-01DUP) analysis met criteria for all samples except for Copper due to matrix interference. The Duplicate (P001-BBDGA-001-01MSD) analysis met criteria for all samples except for Copper due to matrix interference..		✓	
8. Digestion Holding Time Met If not met, list number of days exceeded for each sample:			✓
9. Analysis Holding Time Met If not met, list those compounds and their recoveries which fall outside the acceptable range.			✓

ADDITIONAL COMMENTS:

QA REVIEW

Date

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: Q1664

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 Custody

✓

Were the samples received within hold time

✓

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

✓

ANALYTICAL:

Was method requirement followed?

✓

Was client requirement followed?

✓

Does the case narrative summarize all QC failure?

✓

All runlogs and manual integration are reviewed for requirements

✓

All manual calculations and /or hand notations verified

✓

QA Review Signature: SOHIL JODHANI

Date: 04/08/2025

LAB CHRONICLE

OrderID:	Q1664	OrderDate:	3/27/2025 10:47:00 AM
Client:	Weston Solutions, Inc.	Project:	RFP 905
Contact:	Smita Sumbaly	Location:	I31,VOA Ref. #2 Soil

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
Q1664-01	P001-BBDGA-001-01	SOIL	Mercury Metals ICP-TAL	7471B 6010D	03/26/25	03/31/25 03/28/25	03/31/25 03/31/25	03/27/25
Q1664-04	P001-BBDGA-001-01	Water	SPLP ICP Metals SPLP Mercury	6010D 7470A	03/26/25	03/31/25 04/01/25	04/01/25 04/01/25	03/27/25
Q1664-07	P001-BBDGA-001-02	SOIL	Mercury Metals ICP-TAL	7471B 6010D	03/26/25	03/31/25 03/28/25	03/31/25 03/31/25	03/27/25
Q1664-08	P001-BBDGA-001-02	Water	SPLP ICP Metals SPLP Mercury	6010D 7470A	03/26/25	03/31/25 04/01/25	04/01/25 04/01/25	03/27/25
Q1664-09	P001-BBDGA-002-01	SOIL	Mercury Metals ICP-TAL	7471B 6010D	03/26/25	03/31/25 03/28/25	03/31/25 03/31/25	03/27/25
Q1664-10	P001-BBDGA-002-01	Water	SPLP ICP Metals SPLP Mercury	6010D 7470A	03/26/25	03/31/25 04/01/25	04/01/25 04/01/25	03/27/25
Q1664-11	P001-BBDGA-003-01	SOIL	Mercury Metals ICP-TAL	7471B 6010D	03/26/25	03/31/25 03/28/25	03/31/25 03/31/25	03/27/25
Q1664-12	P001-BBDGA-003-01	Water	SPLP ICP Metals SPLP Mercury	6010D 7470A	03/26/25	03/31/25 04/01/25	04/01/25 04/01/25	03/27/25
Q1664-13	P001-BBDGA-004-01	SOIL			03/26/25			03/27/25

LAB CHRONICLE

Q1664-14	P001-BBDGA-004-01	Water	Mercury	7471B	03/31/25	03/31/25	03/26/25	03/27/25
			Metals ICP-TAL	6010D	03/28/25	03/31/25		
Q1664-15	P001-BBDGA-005-01	SOIL	SPLP ICP Metals	6010D	03/31/25	04/01/25	03/26/25	03/27/25
			SPLP Mercury	7470A	04/01/25	04/01/25		
Q1664-16	P001-BBDGA-005-01	Water	Mercury	7471B	03/31/25	03/31/25	03/26/25	03/27/25
			Metals ICP-TAL	6010D	03/28/25	03/31/25		
Q1664-17	P001-BBDGA-006-01	SOIL	SPLP ICP Metals	6010D	03/31/25	04/01/25	03/26/25	03/27/25
			SPLP Mercury	7470A	04/01/25	04/01/25		
Q1664-18	P001-BBDGA-006-01	Water	Mercury	7471B	03/31/25	03/31/25	03/26/25	03/27/25
			Metals ICP-TAL	6010D	03/28/25	03/31/25		
Q1664-19	P001-BBDGA-007-01	SOIL	SPLP ICP Metals	6010D	03/31/25	04/01/25	03/26/25	03/27/25
			SPLP Mercury	7470A	04/01/25	04/01/25		
Q1664-20	P001-BBDGA-007-01	Water	Mercury	7471B	03/31/25	03/31/25	03/26/25	03/27/25
			Metals ICP-TAL	6010D	03/28/25	03/31/25		
Q1664-21	P001-BBDGA-008-01	SOIL	SPLP ICP Metals	6010D	03/31/25	04/01/25	03/26/25	03/27/25
			SPLP Mercury	7470A	04/01/25	04/01/25		
Q1664-22	P001-BBDGA-008-01	Water	Mercury	7471B	03/31/25	03/31/25	03/26/25	03/27/25
			Metals ICP-TAL	6010D	03/28/25	03/31/25		
			SPLP ICP Metals	6010D	03/31/25	04/01/25		
			SPLP Mercury	7470A	04/01/25	04/01/25		

Hit Summary Sheet
SW-846

SDG No.: Q1664 **Order ID:** Q1664
Client: Weston Solutions, Inc. **Project ID:** RFP 905

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Client ID : P001-BBDGA-001-01								
Q1664-01	P001-BBDGA-001-01	SOIL	Aluminum	14900		2.25	4.68	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Arsenic	2.10		0.27	0.94	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Barium	12.3		0.60	4.68	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Beryllium	0.36		0.011	0.28	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Cadmium	0.29		0.015	0.28	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Calcium	19700		2.62	93.5	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Chromium	22.4		0.050	0.47	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Cobalt	30.9		0.054	1.40	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Copper	180		0.44	0.94	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Iron	33800		2.52	4.68	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Lead	2.91		0.14	0.56	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Magnesium	28800		3.21	93.5	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Manganese	444		0.066	0.94	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Mercury	0.0090	J	0.0080	0.015	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Nickel	39.4		0.084	1.87	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Potassium	77.7	J	26.8	93.5	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Silver	0.34	J	0.049	0.47	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Sodium	796		33.8	93.5	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Thallium	1.72	J	0.41	1.87	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Vanadium	48.9		0.25	1.87	mg/Kg
Q1664-01	P001-BBDGA-001-01	SOIL	Zinc	37.3		0.10	1.87	mg/Kg
Client ID : P001-BBDGA-001-02								
Q1664-07	P001-BBDGA-001-02	SOIL	Aluminum	14000		2.30	4.77	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Arsenic	1.58		0.28	0.95	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Barium	9.12		0.61	4.77	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Beryllium	0.31		0.011	0.29	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Cadmium	0.25	J	0.015	0.29	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Calcium	21100		2.67	95.3	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Chromium	25.1		0.051	0.48	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Cobalt	27.0		0.055	1.43	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Copper	140		0.45	0.95	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Iron	30200		2.56	4.77	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Lead	2.83		0.14	0.57	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Magnesium	25300		3.27	95.3	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Manganese	383		0.068	0.95	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Mercury	0.032		0.0080	0.015	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Nickel	36.8		0.086	1.91	mg/Kg

Hit Summary Sheet SW-846

SDG No.: Q1664 **Order ID:** Q1664
Client: Weston Solutions, Inc. **Project ID:** RFP 905

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Q1664-07	P001-BBDGA-001-02	SOIL	Potassium	72.6	J	27.4	95.3	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Silver	0.25	J	0.050	0.48	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Sodium	699		34.4	95.3	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Thallium	1.50	J	0.42	1.91	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Vanadium	47.3		0.26	1.91	mg/Kg
Q1664-07	P001-BBDGA-001-02	SOIL	Zinc	35.3		0.11	1.91	mg/Kg
Client ID : P001-BBDGA-002-01								
Q1664-09	P001-BBDGA-002-01	SOIL	Aluminum	8380		2.21	4.59	mg/Kg
Q1664-09	P001-BBDGA-002-01	SOIL	Arsenic	1.03		0.27	0.92	mg/Kg
Q1664-09	P001-BBDGA-002-01	SOIL	Barium	11.1		0.59	4.59	mg/Kg
Q1664-09	P001-BBDGA-002-01	SOIL	Beryllium	0.22	J	0.011	0.28	mg/Kg
Q1664-09	P001-BBDGA-002-01	SOIL	Calcium	13500		2.57	91.8	mg/Kg
Q1664-09	P001-BBDGA-002-01	SOIL	Chromium	20.4		0.050	0.46	mg/Kg
Q1664-09	P001-BBDGA-002-01	SOIL	Cobalt	13.8		0.053	1.38	mg/Kg
Q1664-09	P001-BBDGA-002-01	SOIL	Copper	145		0.43	0.92	mg/Kg
Q1664-09	P001-BBDGA-002-01	SOIL	Iron	17800		2.47	4.59	mg/Kg
Q1664-09	P001-BBDGA-002-01	SOIL	Lead	2.21		0.14	0.55	mg/Kg
Q1664-09	P001-BBDGA-002-01	SOIL	Magnesium	11100		3.15	91.8	mg/Kg
Q1664-09	P001-BBDGA-002-01	SOIL	Manganese	243		0.065	0.92	mg/Kg
Q1664-09	P001-BBDGA-002-01	SOIL	Nickel	23.2		0.083	1.84	mg/Kg
Q1664-09	P001-BBDGA-002-01	SOIL	Potassium	67.4	J	26.3	91.8	mg/Kg
Q1664-09	P001-BBDGA-002-01	SOIL	Silver	0.50		0.048	0.46	mg/Kg
Q1664-09	P001-BBDGA-002-01	SOIL	Sodium	929		33.1	91.8	mg/Kg
Q1664-09	P001-BBDGA-002-01	SOIL	Thallium	0.73	J	0.40	1.84	mg/Kg
Q1664-09	P001-BBDGA-002-01	SOIL	Vanadium	28.5		0.25	1.84	mg/Kg
Q1664-09	P001-BBDGA-002-01	SOIL	Zinc	26.9		0.10	1.84	mg/Kg
Client ID : P001-BBDGA-003-01								
Q1664-11	P001-BBDGA-003-01	SOIL	Aluminum	12700		2.44	5.06	mg/Kg
Q1664-11	P001-BBDGA-003-01	SOIL	Arsenic	1.49		0.29	1.01	mg/Kg
Q1664-11	P001-BBDGA-003-01	SOIL	Barium	22.4		0.65	5.06	mg/Kg
Q1664-11	P001-BBDGA-003-01	SOIL	Beryllium	0.29	J	0.012	0.30	mg/Kg
Q1664-11	P001-BBDGA-003-01	SOIL	Cadmium	0.030	J	0.016	0.30	mg/Kg
Q1664-11	P001-BBDGA-003-01	SOIL	Calcium	30800		2.83	101	mg/Kg
Q1664-11	P001-BBDGA-003-01	SOIL	Chromium	24.5		0.055	0.51	mg/Kg
Q1664-11	P001-BBDGA-003-01	SOIL	Cobalt	20.3		0.059	1.52	mg/Kg
Q1664-11	P001-BBDGA-003-01	SOIL	Copper	133		0.48	1.01	mg/Kg
Q1664-11	P001-BBDGA-003-01	SOIL	Iron	25500		2.72	5.06	mg/Kg
Q1664-11	P001-BBDGA-003-01	SOIL	Lead	3.01		0.15	0.61	mg/Kg
Q1664-11	P001-BBDGA-003-01	SOIL	Magnesium	15200		3.47	101	mg/Kg

Hit Summary Sheet SW-846

SDG No.: Q1664 **Order ID:** Q1664
Client: Weston Solutions, Inc. **Project ID:** RFP 905

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Q1664-11	P001-BBDGA-003-01	SOIL	Manganese	359		0.072	1.01	mg/Kg
Q1664-11	P001-BBDGA-003-01	SOIL	Nickel	33.5		0.091	2.02	mg/Kg
Q1664-11	P001-BBDGA-003-01	SOIL	Potassium	107		29.0	101	mg/Kg
Q1664-11	P001-BBDGA-003-01	SOIL	Silver	0.53		0.053	0.51	mg/Kg
Q1664-11	P001-BBDGA-003-01	SOIL	Sodium	1960		36.5	101	mg/Kg
Q1664-11	P001-BBDGA-003-01	SOIL	Thallium	0.97	J	0.45	2.02	mg/Kg
Q1664-11	P001-BBDGA-003-01	SOIL	Vanadium	42.2		0.27	2.02	mg/Kg
Q1664-11	P001-BBDGA-003-01	SOIL	Zinc	39.0		0.11	2.02	mg/Kg
Client ID : P001-BBDGA-004-01								
Q1664-13	P001-BBDGA-004-01	SOIL	Aluminum	6450		2.43	5.04	mg/Kg
Q1664-13	P001-BBDGA-004-01	SOIL	Arsenic	0.87	J	0.29	1.01	mg/Kg
Q1664-13	P001-BBDGA-004-01	SOIL	Barium	12.7		0.65	5.04	mg/Kg
Q1664-13	P001-BBDGA-004-01	SOIL	Beryllium	0.28	J	0.012	0.30	mg/Kg
Q1664-13	P001-BBDGA-004-01	SOIL	Calcium	7730		2.82	101	mg/Kg
Q1664-13	P001-BBDGA-004-01	SOIL	Chromium	18.4		0.054	0.50	mg/Kg
Q1664-13	P001-BBDGA-004-01	SOIL	Cobalt	11.1		0.058	1.51	mg/Kg
Q1664-13	P001-BBDGA-004-01	SOIL	Copper	69.9		0.47	1.01	mg/Kg
Q1664-13	P001-BBDGA-004-01	SOIL	Iron	14000		2.71	5.04	mg/Kg
Q1664-13	P001-BBDGA-004-01	SOIL	Lead	2.24		0.15	0.61	mg/Kg
Q1664-13	P001-BBDGA-004-01	SOIL	Magnesium	8020		3.46	101	mg/Kg
Q1664-13	P001-BBDGA-004-01	SOIL	Manganese	231		0.072	1.01	mg/Kg
Q1664-13	P001-BBDGA-004-01	SOIL	Nickel	19.6		0.091	2.02	mg/Kg
Q1664-13	P001-BBDGA-004-01	SOIL	Potassium	78.8	J	28.9	101	mg/Kg
Q1664-13	P001-BBDGA-004-01	SOIL	Silver	0.40	J	0.052	0.50	mg/Kg
Q1664-13	P001-BBDGA-004-01	SOIL	Sodium	586		36.4	101	mg/Kg
Q1664-13	P001-BBDGA-004-01	SOIL	Vanadium	25.7		0.27	2.02	mg/Kg
Q1664-13	P001-BBDGA-004-01	SOIL	Zinc	21.7		0.11	2.02	mg/Kg
Client ID : P001-BBDGA-005-01								
Q1664-15	P001-BBDGA-005-01	SOIL	Aluminum	11200		2.24	4.64	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Arsenic	1.46		0.27	0.93	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Barium	31.2		0.59	4.64	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Beryllium	0.26	J	0.011	0.28	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Cadmium	1.02		0.015	0.28	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Calcium	17500		2.60	92.8	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Chromium	25.3		0.050	0.46	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Cobalt	19.9		0.054	1.39	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Copper	160		0.44	0.93	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Iron	23200		2.50	4.64	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Lead	2.62		0.14	0.56	mg/Kg

Hit Summary Sheet SW-846

SDG No.: Q1664 **Order ID:** Q1664
Client: Weston Solutions, Inc. **Project ID:** RFP 905

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Q1664-15	P001-BBDGA-005-01	SOIL	Magnesium	15500		3.18	92.8	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Manganese	330		0.066	0.93	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Mercury	0.010	J	0.0080	0.014	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Nickel	32.0		0.084	1.86	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Potassium	107		26.6	92.8	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Silver	0.58		0.048	0.46	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Sodium	1240		33.5	92.8	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Thallium	0.86	J	0.41	1.86	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Vanadium	41.6		0.25	1.86	mg/Kg
Q1664-15	P001-BBDGA-005-01	SOIL	Zinc	30.5		0.10	1.86	mg/Kg
Client ID : P001-BBDGA-006-01								
Q1664-17	P001-BBDGA-006-01	SOIL	Aluminum	7060		2.43	5.05	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Arsenic	0.76	J	0.29	1.01	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Barium	8.11		0.65	5.05	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Beryllium	0.20	J	0.012	0.30	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Calcium	7970		2.83	101	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Chromium	12.0		0.055	0.51	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Cobalt	12.4		0.059	1.51	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Copper	56.1		0.47	1.01	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Iron	17500		2.72	5.05	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Lead	1.79		0.15	0.61	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Magnesium	9570		3.46	101	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Manganese	190		0.072	1.01	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Nickel	21.2		0.091	2.02	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Potassium	60.2	J	29.0	101	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Selenium	0.38	J	0.33	1.01	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Silver	0.41	J	0.052	0.51	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Sodium	824		36.4	101	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Thallium	0.83	J	0.44	2.02	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Vanadium	23.1		0.27	2.02	mg/Kg
Q1664-17	P001-BBDGA-006-01	SOIL	Zinc	59.7		0.11	2.02	mg/Kg
Client ID : P001-BBDGA-007-01								
Q1664-19	P001-BBDGA-007-01	SOIL	Aluminum	8260		2.30	4.77	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Arsenic	0.89	J	0.28	0.95	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Barium	9.10		0.61	4.77	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Beryllium	0.19	J	0.011	0.29	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Calcium	7870		2.67	95.4	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Chromium	20.4		0.051	0.48	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Cobalt	14.7		0.055	1.43	mg/Kg

Hit Summary Sheet SW-846

SDG No.: Q1664 **Order ID:** Q1664
Client: Weston Solutions, Inc. **Project ID:** RFP 905

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Q1664-19	P001-BBDGA-007-01	SOIL	Copper	68.9		0.45	0.95	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Iron	18900		2.57	4.77	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Lead	1.78		0.14	0.57	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Magnesium	13100		3.27	95.4	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Manganese	199		0.068	0.95	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Mercury	0.0080	J	0.0080	0.015	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Nickel	22.8		0.086	1.91	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Potassium	49.9	J	27.4	95.4	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Selenium	0.43	J	0.32	0.95	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Silver	0.38	J	0.050	0.48	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Sodium	567		34.4	95.4	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Thallium	0.80	J	0.42	1.91	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Vanadium	31.8		0.26	1.91	mg/Kg
Q1664-19	P001-BBDGA-007-01	SOIL	Zinc	17.6		0.11	1.91	mg/Kg
Client ID : P001-BBDGA-008-01								
Q1664-21	P001-BBDGA-008-01	SOIL	Aluminum	10900		2.43	5.04	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Arsenic	1.12		0.29	1.01	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Barium	13.8		0.65	5.04	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Beryllium	0.23	J	0.012	0.30	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Calcium	24800		2.82	101	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Chromium	23.3		0.054	0.50	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Cobalt	16.3		0.058	1.51	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Copper	194		0.47	1.01	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Iron	20700		2.71	5.04	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Lead	2.23		0.15	0.61	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Magnesium	12200		3.46	101	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Manganese	343		0.072	1.01	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Mercury	0.0070	J	0.0070	0.013	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Nickel	27.9		0.091	2.02	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Potassium	79.8	J	28.9	101	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Silver	0.73		0.052	0.50	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Sodium	1300		36.4	101	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Thallium	0.67	J	0.44	2.02	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Vanadium	33.1		0.27	2.02	mg/Kg
Q1664-21	P001-BBDGA-008-01	SOIL	Zinc	29.2		0.11	2.02	mg/Kg



SAMPLE DATA

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Report of Analysis

Client:	Weston Solutions, Inc.	Date Collected:	03/26/25
Project:	RFP 905	Date Received:	03/27/25
Client Sample ID:	P001-BBDGA-001-01	SDG No.:	Q1664
Lab Sample ID:	Q1664-01	Matrix:	SOIL
Level (low/med):	low	% Solid:	91.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.	Prep Met.
7429-90-5	Aluminum	14900		1	2.25	4.68	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7440-36-0	Antimony	0.14	UN	1	0.14	2.34	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7440-38-2	Arsenic	2.10		1	0.27	0.94	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7440-39-3	Barium	12.3	N	1	0.60	4.68	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7440-41-7	Beryllium	0.36		1	0.011	0.28	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7440-43-9	Cadmium	0.29		1	0.015	0.28	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7440-70-2	Calcium	19700		1	2.62	93.5	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7440-47-3	Chromium	22.4		1	0.050	0.47	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7440-48-4	Cobalt	30.9		1	0.054	1.40	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7440-50-8	Copper	180	*	1	0.44	0.94	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7439-89-6	Iron	33800		1	2.52	4.68	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7439-92-1	Lead	2.91		1	0.14	0.56	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7439-95-4	Magnesium	28800		1	3.21	93.5	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7439-96-5	Manganese	444		1	0.066	0.94	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7439-97-6	Mercury	0.0090	J	1	0.0080	0.015	mg/Kg	03/31/25 09:45	03/31/25 12:45	SW7471B	
7440-02-0	Nickel	39.4		1	0.084	1.87	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7440-09-7	Potassium	77.7	J	1	26.8	93.5	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7782-49-2	Selenium	0.31	U	1	0.31	0.94	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7440-22-4	Silver	0.34	J	1	0.049	0.47	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7440-23-5	Sodium	796		1	33.8	93.5	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7440-28-0	Thallium	1.72	J	1	0.41	1.87	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7440-62-2	Vanadium	48.9		1	0.25	1.87	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050
7440-66-6	Zinc	37.3	N	1	0.10	1.87	mg/Kg	03/28/25 10:05	03/31/25 13:46	SW6010	SW3050

Color Before:	Gray	Clarity Before:	Texture:	Medium
Color After:	Yellow	Clarity After:	Artifacts:	
Comments:	METALS TAL+CN			

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

Report of Analysis

Client:	Weston Solutions, Inc.	Date Collected:	03/26/25
Project:	RFP 905	Date Received:	03/27/25
Client Sample ID:	P001-BBDGA-001-02	SDG No.:	Q1664
Lab Sample ID:	Q1664-07	Matrix:	SOIL
Level (low/med):	low	% Solid:	92

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.	Prep Met.
7429-90-5	Aluminum	14000		1	2.30	4.77	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7440-36-0	Antimony	0.14	UN	1	0.14	2.38	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7440-38-2	Arsenic	1.58		1	0.28	0.95	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7440-39-3	Barium	9.12	N	1	0.61	4.77	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7440-41-7	Beryllium	0.31		1	0.011	0.29	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7440-43-9	Cadmium	0.25	J	1	0.015	0.29	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7440-70-2	Calcium	21100		1	2.67	95.3	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7440-47-3	Chromium	25.1		1	0.051	0.48	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7440-48-4	Cobalt	27.0		1	0.055	1.43	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7440-50-8	Copper	140	*	1	0.45	0.95	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7439-89-6	Iron	30200		1	2.56	4.77	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7439-92-1	Lead	2.83		1	0.14	0.57	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7439-95-4	Magnesium	25300		1	3.27	95.3	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7439-96-5	Manganese	383		1	0.068	0.95	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7439-97-6	Mercury	0.032		1	0.0080	0.015	mg/Kg	03/31/25 09:45	03/31/25 12:59	SW7471B	
7440-02-0	Nickel	36.8		1	0.086	1.91	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7440-09-7	Potassium	72.6	J	1	27.4	95.3	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7782-49-2	Selenium	0.32	U	1	0.32	0.95	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7440-22-4	Silver	0.25	J	1	0.050	0.48	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7440-23-5	Sodium	699		1	34.4	95.3	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7440-28-0	Thallium	1.50	J	1	0.42	1.91	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7440-62-2	Vanadium	47.3		1	0.26	1.91	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050
7440-66-6	Zinc	35.3	N	1	0.11	1.91	mg/Kg	03/28/25 10:05	03/31/25 14:19	SW6010	SW3050

Color Before:	Gray	Clarity Before:	Texture:	Medium
Color After:	Yellow	Clarity After:	Artifacts:	
Comments:	METALS TAL+CN			

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

Report of Analysis

Client:	Weston Solutions, Inc.	Date Collected:	03/26/25
Project:	RFP 905	Date Received:	03/27/25
Client Sample ID:	P001-BBDGA-002-01	SDG No.:	Q1664
Lab Sample ID:	Q1664-09	Matrix:	SOIL
Level (low/med):	low	% Solid:	93.5

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.	Prep Met.
7429-90-5	Aluminum	8380		1	2.21	4.59	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7440-36-0	Antimony	0.14	UN	1	0.14	2.30	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7440-38-2	Arsenic	1.03		1	0.27	0.92	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7440-39-3	Barium	11.1	N	1	0.59	4.59	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7440-41-7	Beryllium	0.22	J	1	0.011	0.28	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7440-43-9	Cadmium	0.015	U	1	0.015	0.28	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7440-70-2	Calcium	13500		1	2.57	91.8	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7440-47-3	Chromium	20.4		1	0.050	0.46	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7440-48-4	Cobalt	13.8		1	0.053	1.38	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7440-50-8	Copper	145	*	1	0.43	0.92	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7439-89-6	Iron	17800		1	2.47	4.59	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7439-92-1	Lead	2.21		1	0.14	0.55	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7439-95-4	Magnesium	11100		1	3.15	91.8	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7439-96-5	Manganese	243		1	0.065	0.92	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7439-97-6	Mercury	0.0080	U	1	0.0080	0.014	mg/Kg	03/31/25 09:45	03/31/25 13:01	SW7471B	
7440-02-0	Nickel	23.2		1	0.083	1.84	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7440-09-7	Potassium	67.4	J	1	26.3	91.8	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7782-49-2	Selenium	0.30	U	1	0.30	0.92	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7440-22-4	Silver	0.50		1	0.048	0.46	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7440-23-5	Sodium	929		1	33.1	91.8	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7440-28-0	Thallium	0.73	J	1	0.40	1.84	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7440-62-2	Vanadium	28.5		1	0.25	1.84	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050
7440-66-6	Zinc	26.9	N	1	0.10	1.84	mg/Kg	03/28/25 10:05	03/31/25 14:23	SW6010	SW3050

Color Before:	Gray	Clarity Before:	Texture:	Medium
Color After:	Yellow	Clarity After:	Artifacts:	
Comments:	METALS TAL+CN			

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

Report of Analysis

Client:	Weston Solutions, Inc.	Date Collected:	03/26/25
Project:	RFP 905	Date Received:	03/27/25
Client Sample ID:	P001-BBDGA-003-01	SDG No.:	Q1664
Lab Sample ID:	Q1664-11	Matrix:	SOIL
Level (low/med):	low	% Solid:	94.6

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.	Prep Met.
7429-90-5	Aluminum	12700		1	2.44	5.06	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7440-36-0	Antimony	0.15	UN	1	0.15	2.53	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7440-38-2	Arsenic	1.49		1	0.29	1.01	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7440-39-3	Barium	22.4	N	1	0.65	5.06	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7440-41-7	Beryllium	0.29	J	1	0.012	0.30	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7440-43-9	Cadmium	0.030	J	1	0.016	0.30	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7440-70-2	Calcium	30800		1	2.83	101	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7440-47-3	Chromium	24.5		1	0.055	0.51	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7440-48-4	Cobalt	20.3		1	0.059	1.52	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7440-50-8	Copper	133	*	1	0.48	1.01	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7439-89-6	Iron	25500		1	2.72	5.06	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7439-92-1	Lead	3.01		1	0.15	0.61	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7439-95-4	Magnesium	15200		1	3.47	101	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7439-96-5	Manganese	359		1	0.072	1.01	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7439-97-6	Mercury	0.0080	U	1	0.0080	0.015	mg/Kg	03/31/25 09:45	03/31/25 13:03	SW7471B	
7440-02-0	Nickel	33.5		1	0.091	2.02	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7440-09-7	Potassium	107		1	29.0	101	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7782-49-2	Selenium	0.33	U	1	0.33	1.01	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7440-22-4	Silver	0.53		1	0.053	0.51	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7440-23-5	Sodium	1960		1	36.5	101	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7440-28-0	Thallium	0.97	J	1	0.45	2.02	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7440-62-2	Vanadium	42.2		1	0.27	2.02	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050
7440-66-6	Zinc	39.0	N	1	0.11	2.02	mg/Kg	03/28/25 10:05	03/31/25 14:28	SW6010	SW3050

Color Before:	Gray	Clarity Before:	Texture:	Medium
Color After:	Yellow	Clarity After:	Artifacts:	
Comments:	METALS TAL+CN			

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

Report of Analysis

Client:	Weston Solutions, Inc.	Date Collected:	03/26/25
Project:	RFP 905	Date Received:	03/27/25
Client Sample ID:	P001-BBDGA-004-01	SDG No.:	Q1664
Lab Sample ID:	Q1664-13	Matrix:	SOIL
Level (low/med):	low	% Solid:	95.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.	Prep Met.
7429-90-5	Aluminum	6450		1	2.43	5.04	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7440-36-0	Antimony	0.15	UN	1	0.15	2.52	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7440-38-2	Arsenic	0.87	J	1	0.29	1.01	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7440-39-3	Barium	12.7	N	1	0.65	5.04	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7440-41-7	Beryllium	0.28	J	1	0.012	0.30	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7440-43-9	Cadmium	0.016	U	1	0.016	0.30	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7440-70-2	Calcium	7730		1	2.82	101	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7440-47-3	Chromium	18.4		1	0.054	0.50	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7440-48-4	Cobalt	11.1		1	0.058	1.51	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7440-50-8	Copper	69.9	*	1	0.47	1.01	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7439-89-6	Iron	14000		1	2.71	5.04	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7439-92-1	Lead	2.24		1	0.15	0.61	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7439-95-4	Magnesium	8020		1	3.46	101	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7439-96-5	Manganese	231		1	0.072	1.01	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7439-97-6	Mercury	0.0070	U	1	0.0070	0.013	mg/Kg	03/31/25 09:45	03/31/25 13:05	SW7471B	
7440-02-0	Nickel	19.6		1	0.091	2.02	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7440-09-7	Potassium	78.8	J	1	28.9	101	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7782-49-2	Selenium	0.33	U	1	0.33	1.01	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7440-22-4	Silver	0.40	J	1	0.052	0.50	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7440-23-5	Sodium	586		1	36.4	101	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7440-28-0	Thallium	0.44	U	1	0.44	2.02	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7440-62-2	Vanadium	25.7		1	0.27	2.02	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050
7440-66-6	Zinc	21.7	N	1	0.11	2.02	mg/Kg	03/28/25 10:05	03/31/25 14:32	SW6010	SW3050

Color Before:	Gray	Clarity Before:	Texture:	Medium
Color After:	Yellow	Clarity After:	Artifacts:	
Comments:	METALS TAL+CN			

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

Report of Analysis

Client:	Weston Solutions, Inc.	Date Collected:	03/26/25
Project:	RFP 905	Date Received:	03/27/25
Client Sample ID:	P001-BBDGA-005-01	SDG No.:	Q1664
Lab Sample ID:	Q1664-15	Matrix:	SOIL
Level (low/med):	low	% Solid:	91.7

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.	Prep Met.
7429-90-5	Aluminum	11200		1	2.24	4.64	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7440-36-0	Antimony	0.14	UN	1	0.14	2.32	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7440-38-2	Arsenic	1.46		1	0.27	0.93	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7440-39-3	Barium	31.2	N	1	0.59	4.64	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7440-41-7	Beryllium	0.26	J	1	0.011	0.28	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7440-43-9	Cadmium	1.02		1	0.015	0.28	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7440-70-2	Calcium	17500		1	2.60	92.8	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7440-47-3	Chromium	25.3		1	0.050	0.46	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7440-48-4	Cobalt	19.9		1	0.054	1.39	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7440-50-8	Copper	160	*	1	0.44	0.93	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7439-89-6	Iron	23200		1	2.50	4.64	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7439-92-1	Lead	2.62		1	0.14	0.56	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7439-95-4	Magnesium	15500		1	3.18	92.8	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7439-96-5	Manganese	330		1	0.066	0.93	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7439-97-6	Mercury	0.010	J	1	0.0080	0.014	mg/Kg	03/31/25 09:45	03/31/25 13:08	SW7471B	
7440-02-0	Nickel	32.0		1	0.084	1.86	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7440-09-7	Potassium	107		1	26.6	92.8	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7782-49-2	Selenium	0.31	U	1	0.31	0.93	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7440-22-4	Silver	0.58		1	0.048	0.46	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7440-23-5	Sodium	1240		1	33.5	92.8	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7440-28-0	Thallium	0.86	J	1	0.41	1.86	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7440-62-2	Vanadium	41.6		1	0.25	1.86	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050
7440-66-6	Zinc	30.5	N	1	0.10	1.86	mg/Kg	03/28/25 10:05	03/31/25 15:02	SW6010	SW3050

Color Before:	Gray	Clarity Before:	Texture:	Medium
Color After:	Yellow	Clarity After:	Artifacts:	
Comments:	METALS TAL+CN			

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

Report of Analysis

Client:	Weston Solutions, Inc.	Date Collected:	03/26/25
Project:	RFP 905	Date Received:	03/27/25
Client Sample ID:	P001-BBDGA-006-01	SDG No.:	Q1664
Lab Sample ID:	Q1664-17	Matrix:	SOIL
Level (low/med):	low	% Solid:	93.9

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.	Prep Met.
7429-90-5	Aluminum	7060		1	2.43	5.05	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7440-36-0	Antimony	0.15	UN	1	0.15	2.52	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7440-38-2	Arsenic	0.76	J	1	0.29	1.01	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7440-39-3	Barium	8.11	N	1	0.65	5.05	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7440-41-7	Beryllium	0.20	J	1	0.012	0.30	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7440-43-9	Cadmium	0.016	U	1	0.016	0.30	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7440-70-2	Calcium	7970		1	2.83	101	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7440-47-3	Chromium	12.0		1	0.055	0.51	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7440-48-4	Cobalt	12.4		1	0.059	1.51	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7440-50-8	Copper	56.1	*	1	0.47	1.01	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7439-89-6	Iron	17500		1	2.72	5.05	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7439-92-1	Lead	1.79		1	0.15	0.61	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7439-95-4	Magnesium	9570		1	3.46	101	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7439-96-5	Manganese	190		1	0.072	1.01	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7439-97-6	Mercury	0.0080	U	1	0.0080	0.015	mg/Kg	03/31/25 09:45	03/31/25 13:10	SW7471B	
7440-02-0	Nickel	21.2		1	0.091	2.02	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7440-09-7	Potassium	60.2	J	1	29.0	101	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7782-49-2	Selenium	0.38	J	1	0.33	1.01	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7440-22-4	Silver	0.41	J	1	0.052	0.51	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7440-23-5	Sodium	824		1	36.4	101	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7440-28-0	Thallium	0.83	J	1	0.44	2.02	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7440-62-2	Vanadium	23.1		1	0.27	2.02	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050
7440-66-6	Zinc	59.7	N	1	0.11	2.02	mg/Kg	03/28/25 10:05	03/31/25 15:06	SW6010	SW3050

Color Before:	Gray	Clarity Before:	Texture:	Medium
Color After:	Yellow	Clarity After:	Artifacts:	
Comments:	METALS TAL+CN			

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

Report of Analysis

Client:	Weston Solutions, Inc.	Date Collected:	03/26/25
Project:	RFP 905	Date Received:	03/27/25
Client Sample ID:	P001-BBDGA-007-01	SDG No.:	Q1664
Lab Sample ID:	Q1664-19	Matrix:	SOIL
Level (low/med):	low	% Solid:	92.8

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.	Prep Met.
7429-90-5	Aluminum	8260		1	2.30	4.77	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7440-36-0	Antimony	0.14	UN	1	0.14	2.38	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7440-38-2	Arsenic	0.89	J	1	0.28	0.95	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7440-39-3	Barium	9.10	N	1	0.61	4.77	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7440-41-7	Beryllium	0.19	J	1	0.011	0.29	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7440-43-9	Cadmium	0.015	U	1	0.015	0.29	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7440-70-2	Calcium	7870		1	2.67	95.4	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7440-47-3	Chromium	20.4		1	0.051	0.48	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7440-48-4	Cobalt	14.7		1	0.055	1.43	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7440-50-8	Copper	68.9	*	1	0.45	0.95	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7439-89-6	Iron	18900		1	2.57	4.77	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7439-92-1	Lead	1.78		1	0.14	0.57	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7439-95-4	Magnesium	13100		1	3.27	95.4	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7439-96-5	Manganese	199		1	0.068	0.95	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7439-97-6	Mercury	0.0080	J	1	0.0080	0.015	mg/Kg	03/31/25 09:45	03/31/25 13:12	SW7471B	
7440-02-0	Nickel	22.8		1	0.086	1.91	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7440-09-7	Potassium	49.9	J	1	27.4	95.4	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7782-49-2	Selenium	0.43	J	1	0.32	0.95	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7440-22-4	Silver	0.38	J	1	0.050	0.48	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7440-23-5	Sodium	567		1	34.4	95.4	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7440-28-0	Thallium	0.80	J	1	0.42	1.91	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7440-62-2	Vanadium	31.8		1	0.26	1.91	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050
7440-66-6	Zinc	17.6	N	1	0.11	1.91	mg/Kg	03/28/25 10:05	03/31/25 15:10	SW6010	SW3050

Color Before:	Gray	Clarity Before:	Texture:	Medium
Color After:	Yellow	Clarity After:	Artifacts:	
Comments:	METALS TAL+CN			

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

Report of Analysis

Client:	Weston Solutions, Inc.	Date Collected:	03/26/25
Project:	RFP 905	Date Received:	03/27/25
Client Sample ID:	P001-BBDGA-008-01	SDG No.:	Q1664
Lab Sample ID:	Q1664-21	Matrix:	SOIL
Level (low/med):	low	% Solid:	94

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units(Dry Weight)	Prep Date	Date Ana.	Ana Met.	Prep Met.
7429-90-5	Aluminum	10900		1	2.43	5.04	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7440-36-0	Antimony	0.15	UN	1	0.15	2.52	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7440-38-2	Arsenic	1.12		1	0.29	1.01	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7440-39-3	Barium	13.8	N	1	0.65	5.04	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7440-41-7	Beryllium	0.23	J	1	0.012	0.30	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7440-43-9	Cadmium	0.016	U	1	0.016	0.30	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7440-70-2	Calcium	24800		1	2.82	101	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7440-47-3	Chromium	23.3		1	0.054	0.50	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7440-48-4	Cobalt	16.3		1	0.058	1.51	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7440-50-8	Copper	194	*	1	0.47	1.01	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7439-89-6	Iron	20700		1	2.71	5.04	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7439-92-1	Lead	2.23		1	0.15	0.61	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7439-95-4	Magnesium	12200		1	3.46	101	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7439-96-5	Manganese	343		1	0.072	1.01	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7439-97-6	Mercury	0.0070	J	1	0.0070	0.013	mg/Kg	03/31/25 09:45	03/31/25 13:15	SW7471B	
7440-02-0	Nickel	27.9		1	0.091	2.02	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7440-09-7	Potassium	79.8	J	1	28.9	101	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7782-49-2	Selenium	0.33	U	1	0.33	1.01	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7440-22-4	Silver	0.73		1	0.052	0.50	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7440-23-5	Sodium	1300		1	36.4	101	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7440-28-0	Thallium	0.67	J	1	0.44	2.02	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7440-62-2	Vanadium	33.1		1	0.27	2.02	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050
7440-66-6	Zinc	29.2	N	1	0.11	2.02	mg/Kg	03/28/25 10:05	03/31/25 15:15	SW6010	SW3050

Color Before:	Gray	Clarity Before:	Texture:	Medium
Color After:	Yellow	Clarity After:	Artifacts:	
Comments:	METALS TAL+CN			

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

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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.:** Q1664
Contract: ROYF02 **Lab Code:** CHEM **Case No.:** Q1664 **SAS No.:** Q1664
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
ICV67	Mercury	4.22	4.0	106	90 - 110	CV	03/31/2025	12:15	LB135232

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions, Inc. **SDG No.:** Q1664

Contract: ROYF02 **Lab Code:** CHEM **Case No.:** Q1664 **SAS No.:** Q1664

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
CCV103	Mercury	4.96	5.0	99	90 - 110	CV	03/31/2025	12:19	LB135232
CCV104	Mercury	4.82	5.0	96	90 - 110	CV	03/31/2025	12:54	LB135232
CCV105	Mercury	4.96	5.0	99	90 - 110	CV	03/31/2025	13:21	LB135232
CCV106	Mercury	4.93	5.0	99	90 - 110	CV	03/31/2025	13:58	LB135232

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions, Inc. SDG No.: Q1664
Contract: ROYF02 Lab Code: CHEM Case No.: Q1664 SAS No.: Q1664
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	2500	2500	100	90 - 110	P	03/31/2025	13:12	LB135245
	Antimony	1030	1000	103	90 - 110	P	03/31/2025	13:12	LB135245
	Arsenic	1010	1000	101	90 - 110	P	03/31/2025	13:12	LB135245
	Barium	495	520	95	90 - 110	P	03/31/2025	13:12	LB135245
	Beryllium	499	510	98	90 - 110	P	03/31/2025	13:12	LB135245
	Cadmium	504	510	99	90 - 110	P	03/31/2025	13:12	LB135245
	Calcium	9830	10000	98	90 - 110	P	03/31/2025	13:12	LB135245
	Chromium	534	520	103	90 - 110	P	03/31/2025	13:12	LB135245
	Cobalt	512	520	98	90 - 110	P	03/31/2025	13:12	LB135245
	Copper	535	510	105	90 - 110	P	03/31/2025	13:12	LB135245
	Iron	9950	10000	100	90 - 110	P	03/31/2025	13:12	LB135245
	Lead	1000	1000	100	90 - 110	P	03/31/2025	13:12	LB135245
	Magnesium	5810	6000	97	90 - 110	P	03/31/2025	13:12	LB135245
	Manganese	505	520	97	90 - 110	P	03/31/2025	13:12	LB135245
	Nickel	516	530	97	90 - 110	P	03/31/2025	13:12	LB135245
	Potassium	9770	9900	99	90 - 110	P	03/31/2025	13:12	LB135245
	Selenium	1040	1000	104	90 - 110	P	03/31/2025	13:12	LB135245
	Silver	257	250	103	90 - 110	P	03/31/2025	13:12	LB135245
	Sodium	9350	10000	94	90 - 110	P	03/31/2025	13:12	LB135245
	Thallium	1060	1000	106	90 - 110	P	03/31/2025	13:12	LB135245
	Vanadium	490	500	98	90 - 110	P	03/31/2025	13:12	LB135245
	Zinc	1020	1000	102	90 - 110	P	03/31/2025	13:12	LB135245

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions, Inc. SDG No.: Q1664
Contract: ROYF02 Lab Code: CHEM Case No.: Q1664 SAS No.: Q1664
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	99.5	100	100	80 - 120	P	03/31/2025	13:16	LB135245
	Antimony	51.3	50.0	103	80 - 120	P	03/31/2025	13:16	LB135245
	Arsenic	23.4	20.0	117	80 - 120	P	03/31/2025	13:16	LB135245
	Barium	96.2	100	96	80 - 120	P	03/31/2025	13:16	LB135245
	Beryllium	6.02	6.0	100	80 - 120	P	03/31/2025	13:16	LB135245
	Cadmium	5.86	6.0	98	80 - 120	P	03/31/2025	13:16	LB135245
	Calcium	2020	2000	101	80 - 120	P	03/31/2025	13:16	LB135245
	Chromium	10.3	10.0	103	80 - 120	P	03/31/2025	13:16	LB135245
	Cobalt	29.7	30.0	99	80 - 120	P	03/31/2025	13:16	LB135245
	Copper	22.2	20.0	111	80 - 120	P	03/31/2025	13:16	LB135245
	Iron	87.2	100	87	80 - 120	P	03/31/2025	13:16	LB135245
	Lead	11.3	12.0	94	80 - 120	P	03/31/2025	13:16	LB135245
	Magnesium	2120	2000	106	80 - 120	P	03/31/2025	13:16	LB135245
	Manganese	19.7	20.0	99	80 - 120	P	03/31/2025	13:16	LB135245
	Nickel	39.8	40.0	100	80 - 120	P	03/31/2025	13:16	LB135245
	Potassium	2000	2000	100	80 - 120	P	03/31/2025	13:16	LB135245
	Selenium	20.0	20.0	100	80 - 120	P	03/31/2025	13:16	LB135245
	Silver	11.1	10.0	111	80 - 120	P	03/31/2025	13:16	LB135245
	Sodium	1870	2000	93	80 - 120	P	03/31/2025	13:16	LB135245
	Thallium	39.2	40.0	98	80 - 120	P	03/31/2025	13:16	LB135245
	Vanadium	39.5	40.0	99	80 - 120	P	03/31/2025	13:16	LB135245
	Zinc	42.5	40.0	106	80 - 120	P	03/31/2025	13:16	LB135245

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions, Inc. SDG No.: Q1664
 Contract: ROYF02 Lab Code: CHEM Case No.: Q1664 SAS No.: Q1664
 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	9880	10000	99	90 - 110	P	03/31/2025	13:37	LB135245
	Antimony	5160	5000	103	90 - 110	P	03/31/2025	13:37	LB135245
	Arsenic	5130	5000	103	90 - 110	P	03/31/2025	13:37	LB135245
	Barium	9650	10000	96	90 - 110	P	03/31/2025	13:37	LB135245
	Beryllium	240	250	96	90 - 110	P	03/31/2025	13:37	LB135245
	Cadmium	2480	2500	99	90 - 110	P	03/31/2025	13:37	LB135245
	Calcium	24000	25000	96	90 - 110	P	03/31/2025	13:37	LB135245
	Chromium	1040	1000	104	90 - 110	P	03/31/2025	13:37	LB135245
	Cobalt	2470	2500	99	90 - 110	P	03/31/2025	13:37	LB135245
	Copper	1280	1250	102	90 - 110	P	03/31/2025	13:37	LB135245
	Iron	4960	5000	99	90 - 110	P	03/31/2025	13:37	LB135245
	Lead	5040	5000	101	90 - 110	P	03/31/2025	13:37	LB135245
	Magnesium	23700	25000	95	90 - 110	P	03/31/2025	13:37	LB135245
	Manganese	2350	2500	94	90 - 110	P	03/31/2025	13:37	LB135245
	Nickel	2490	2500	100	90 - 110	P	03/31/2025	13:37	LB135245
	Potassium	25400	25000	102	90 - 110	P	03/31/2025	13:37	LB135245
	Selenium	5090	5000	102	90 - 110	P	03/31/2025	13:37	LB135245
	Silver	1250	1250	100	90 - 110	P	03/31/2025	13:37	LB135245
	Sodium	24700	25000	99	90 - 110	P	03/31/2025	13:37	LB135245
	Thallium	5060	5000	101	90 - 110	P	03/31/2025	13:37	LB135245
	Vanadium	2440	2500	98	90 - 110	P	03/31/2025	13:37	LB135245
	Zinc	2580	2500	103	90 - 110	P	03/31/2025	13:37	LB135245
CCV02	Aluminum	9780	10000	98	90 - 110	P	03/31/2025	14:45	LB135245
	Antimony	5260	5000	105	90 - 110	P	03/31/2025	14:45	LB135245
	Arsenic	5180	5000	104	90 - 110	P	03/31/2025	14:45	LB135245
	Barium	9490	10000	95	90 - 110	P	03/31/2025	14:45	LB135245
	Beryllium	230	250	92	90 - 110	P	03/31/2025	14:45	LB135245
	Cadmium	2430	2500	97	90 - 110	P	03/31/2025	14:45	LB135245
	Calcium	23400	25000	94	90 - 110	P	03/31/2025	14:45	LB135245
	Chromium	1020	1000	102	90 - 110	P	03/31/2025	14:45	LB135245
	Cobalt	2430	2500	97	90 - 110	P	03/31/2025	14:45	LB135245
	Copper	1280	1250	102	90 - 110	P	03/31/2025	14:45	LB135245
	Iron	4860	5000	97	90 - 110	P	03/31/2025	14:45	LB135245
	Lead	4980	5000	100	90 - 110	P	03/31/2025	14:45	LB135245

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions, Inc. SDG No.: Q1664
Contract: ROYF02 Lab Code: CHEM Case No.: Q1664 SAS No.: Q1664
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV02	Magnesium	22800	25000	91	90 - 110	P	03/31/2025	14:45	LB135245
	Manganese	2290	2500	92	90 - 110	P	03/31/2025	14:45	LB135245
	Nickel	2460	2500	99	90 - 110	P	03/31/2025	14:45	LB135245
	Potassium	25400	25000	102	90 - 110	P	03/31/2025	14:45	LB135245
	Selenium	5140	5000	103	90 - 110	P	03/31/2025	14:45	LB135245
	Silver	1220	1250	98	90 - 110	P	03/31/2025	14:45	LB135245
	Sodium	24800	25000	99	90 - 110	P	03/31/2025	14:45	LB135245
	Thallium	5010	5000	100	90 - 110	P	03/31/2025	14:45	LB135245
	Vanadium	2400	2500	96	90 - 110	P	03/31/2025	14:45	LB135245
	Zinc	2550	2500	102	90 - 110	P	03/31/2025	14:45	LB135245
CCV03	Aluminum	10000	10000	100	90 - 110	P	03/31/2025	15:40	LB135245
	Antimony	5360	5000	107	90 - 110	P	03/31/2025	15:40	LB135245
	Arsenic	5250	5000	105	90 - 110	P	03/31/2025	15:40	LB135245
	Barium	9720	10000	97	90 - 110	P	03/31/2025	15:40	LB135245
	Beryllium	234	250	94	90 - 110	P	03/31/2025	15:40	LB135245
	Cadmium	2440	2500	98	90 - 110	P	03/31/2025	15:40	LB135245
	Calcium	23800	25000	95	90 - 110	P	03/31/2025	15:40	LB135245
	Chromium	1040	1000	104	90 - 110	P	03/31/2025	15:40	LB135245
	Cobalt	2440	2500	98	90 - 110	P	03/31/2025	15:40	LB135245
	Copper	1290	1250	103	90 - 110	P	03/31/2025	15:40	LB135245
	Iron	4930	5000	98	90 - 110	P	03/31/2025	15:40	LB135245
	Lead	5000	5000	100	90 - 110	P	03/31/2025	15:40	LB135245
	Magnesium	23100	25000	92	90 - 110	P	03/31/2025	15:40	LB135245
	Manganese	2370	2500	95	90 - 110	P	03/31/2025	15:40	LB135245
	Nickel	2470	2500	99	90 - 110	P	03/31/2025	15:40	LB135245
	Potassium	26200	25000	105	90 - 110	P	03/31/2025	15:40	LB135245
	Selenium	5210	5000	104	90 - 110	P	03/31/2025	15:40	LB135245
	Silver	1250	1250	100	90 - 110	P	03/31/2025	15:40	LB135245
	Sodium	25200	25000	101	90 - 110	P	03/31/2025	15:40	LB135245
	Thallium	5100	5000	102	90 - 110	P	03/31/2025	15:40	LB135245
	Vanadium	2440	2500	98	90 - 110	P	03/31/2025	15:40	LB135245
CCV04	Zinc	2620	2500	105	90 - 110	P	03/31/2025	15:40	LB135245
	Aluminum	9980	10000	100	90 - 110	P	03/31/2025	15:57	LB135245
	Antimony	5390	5000	108	90 - 110	P	03/31/2025	15:57	LB135245

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions, Inc. SDG No.: Q1664
Contract: ROYF02 Lab Code: CHEM Case No.: Q1664 SAS No.: Q1664
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV04	Arsenic	5280	5000	106	90 - 110	P	03/31/2025	15:57	LB135245
	Barium	9580	10000	96	90 - 110	P	03/31/2025	15:57	LB135245
	Beryllium	233	250	93	90 - 110	P	03/31/2025	15:57	LB135245
	Cadmium	2460	2500	98	90 - 110	P	03/31/2025	15:57	LB135245
	Calcium	23600	25000	94	90 - 110	P	03/31/2025	15:57	LB135245
	Chromium	1030	1000	103	90 - 110	P	03/31/2025	15:57	LB135245
	Cobalt	2460	2500	98	90 - 110	P	03/31/2025	15:57	LB135245
	Copper	1310	1250	104	90 - 110	P	03/31/2025	15:57	LB135245
	Iron	4820	5000	96	90 - 110	P	03/31/2025	15:57	LB135245
	Lead	5040	5000	101	90 - 110	P	03/31/2025	15:57	LB135245
	Magnesium	23100	25000	92	90 - 110	P	03/31/2025	15:57	LB135245
	Manganese	2370	2500	95	90 - 110	P	03/31/2025	15:57	LB135245
	Nickel	2490	2500	100	90 - 110	P	03/31/2025	15:57	LB135245
	Potassium	25400	25000	102	90 - 110	P	03/31/2025	15:57	LB135245
	Selenium	5250	5000	105	90 - 110	P	03/31/2025	15:57	LB135245
	Silver	1230	1250	98	90 - 110	P	03/31/2025	15:57	LB135245
	Sodium	24300	25000	97	90 - 110	P	03/31/2025	15:57	LB135245
	Thallium	5120	5000	102	90 - 110	P	03/31/2025	15:57	LB135245
	Vanadium	2430	2500	97	90 - 110	P	03/31/2025	15:57	LB135245
	Zinc	2550	2500	102	90 - 110	P	03/31/2025	15:57	LB135245

Metals

- 2b -

CRDL STANDARD FOR AA & ICP

Client: Weston Solutions, Inc. **SDG No.:** Q1664
Contract: ROYF02 **Lab Code:** CHEM **Case No.:** Q1664 **SAS No.:** Q1664
Initial Calibration Source: _____
Continuing Calibration Source: _____

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRA	Mercury	0.21	0.2	104	40 - 160	CV	03/31/2025	12:24	LB135232
CRI01	Aluminum	101	100	101	40 - 160	P	03/31/2025	13:24	LB135245
	Antimony	53.7	50.0	107	40 - 160	P	03/31/2025	13:24	LB135245
	Arsenic	21.6	20.0	108	40 - 160	P	03/31/2025	13:24	LB135245
	Barium	93.6	100	94	40 - 160	P	03/31/2025	13:24	LB135245
	Beryllium	5.94	6.0	99	40 - 160	P	03/31/2025	13:24	LB135245
	Cadmium	6.06	6.0	101	40 - 160	P	03/31/2025	13:24	LB135245
	Calcium	2010	2000	100	40 - 160	P	03/31/2025	13:24	LB135245
	Chromium	10.7	10.0	107	40 - 160	P	03/31/2025	13:24	LB135245
	Cobalt	29.9	30.0	100	40 - 160	P	03/31/2025	13:24	LB135245
	Copper	22.9	20.0	114	40 - 160	P	03/31/2025	13:24	LB135245
	Iron	87.0	100	87	40 - 160	P	03/31/2025	13:24	LB135245
	Lead	12.7	12.0	106	40 - 160	P	03/31/2025	13:24	LB135245
	Magnesium	2090	2000	104	40 - 160	P	03/31/2025	13:24	LB135245
	Manganese	19.5	20.0	98	40 - 160	P	03/31/2025	13:24	LB135245
	Nickel	40.5	40.0	101	40 - 160	P	03/31/2025	13:24	LB135245
	Potassium	2030	2000	101	40 - 160	P	03/31/2025	13:24	LB135245
	Selenium	20.3	20.0	101	40 - 160	P	03/31/2025	13:24	LB135245
	Silver	11.2	10.0	112	40 - 160	P	03/31/2025	13:24	LB135245
	Sodium	1840	2000	92	40 - 160	P	03/31/2025	13:24	LB135245
	Thallium	40.6	40.0	102	40 - 160	P	03/31/2025	13:24	LB135245
	Vanadium	39.9	40.0	100	40 - 160	P	03/31/2025	13:24	LB135245
	Zinc	44.7	40.0	112	40 - 160	P	03/31/2025	13:24	LB135245



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

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client:	<u>Weston Solutions, Inc.</u>				SDG No.:	<u>Q1664</u>			
Contract:	<u>ROYF02</u>	Lab Code:	<u>CHEM</u>	Case No.:	<u>Q1664</u>	SAS No.:	<u>Q1664</u>		
Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB67	Mercury	0.20	+/-0.20	U	0.20	CV	03/31/2025	12:17	LB135232

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: <u>Weston Solutions, Inc.</u>		SDG No.: <u>Q1664</u>							
Contract: <u>ROYF02</u>	Lab Code: <u>CHEM</u>	Case No.: <u>Q1664</u>	SAS No.: <u>Q1664</u>						
Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB103	Mercury	0.20	+/-0.20	U	0.20	CV	03/31/2025	12:22	LB135232
CCB104	Mercury	0.20	+/-0.20	U	0.20	CV	03/31/2025	12:56	LB135232
CCB105	Mercury	0.20	+/-0.20	U	0.20	CV	03/31/2025	13:24	LB135232
CCB106	Mercury	0.20	+/-0.20	U	0.20	CV	03/31/2025	14:00	LB135232

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: <u>Weston Solutions, Inc.</u>		SDG No.: <u>Q1664</u>							
Contract: <u>ROYF02</u>	Lab Code: <u>CHEM</u>	Case No.: <u>Q1664</u>	SAS No.: <u>Q1664</u>						
Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Aluminum	100	+/-100	U	100	P	03/31/2025	13:20	LB135245
	Antimony	50.0	+/-50.0	U	50.0	P	03/31/2025	13:20	LB135245
	Arsenic	20.0	+/-20.0	U	20.0	P	03/31/2025	13:20	LB135245
	Barium	100	+/-100	U	100	P	03/31/2025	13:20	LB135245
	Beryllium	6.00	+/-6.00	U	6.00	P	03/31/2025	13:20	LB135245
	Cadmium	6.00	+/-6.00	U	6.00	P	03/31/2025	13:20	LB135245
	Calcium	2000	+/-2000	U	2000	P	03/31/2025	13:20	LB135245
	Chromium	10.0	+/-10.0	U	10.0	P	03/31/2025	13:20	LB135245
	Cobalt	30.0	+/-30.0	U	30.0	P	03/31/2025	13:20	LB135245
	Copper	20.0	+/-20.0	U	20.0	P	03/31/2025	13:20	LB135245
	Iron	100	+/-100	U	100	P	03/31/2025	13:20	LB135245
	Lead	12.0	+/-12.0	U	12.0	P	03/31/2025	13:20	LB135245
	Magnesium	2000	+/-2000	U	2000	P	03/31/2025	13:20	LB135245
	Manganese	6.19	+/-20.0	J	20.0	P	03/31/2025	13:20	LB135245
	Nickel	40.0	+/-40.0	U	40.0	P	03/31/2025	13:20	LB135245
	Potassium	2000	+/-2000	U	2000	P	03/31/2025	13:20	LB135245
	Selenium	20.0	+/-20.0	U	20.0	P	03/31/2025	13:20	LB135245
	Silver	10.0	+/-10.0	U	10.0	P	03/31/2025	13:20	LB135245
	Sodium	2000	+/-2000	U	2000	P	03/31/2025	13:20	LB135245
	Thallium	40.0	+/-40.0	U	40.0	P	03/31/2025	13:20	LB135245
	Vanadium	40.0	+/-40.0	U	40.0	P	03/31/2025	13:20	LB135245
	Zinc	40.0	+/-40.0	U	40.0	P	03/31/2025	13:20	LB135245

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: <u>Weston Solutions, Inc.</u>		SDG No.: <u>Q1664</u>							
Contract: <u>ROYF02</u>	Lab Code: <u>CHEM</u>	Case No.: <u>Q1664</u>	SAS No.: <u>Q1664</u>						
Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Aluminum	100	+/-100	U	100	P	03/31/2025	13:41	LB135245
	Antimony	50.0	+/-50.0	U	50.0	P	03/31/2025	13:41	LB135245
	Arsenic	20.0	+/-20.0	U	20.0	P	03/31/2025	13:41	LB135245
	Barium	100	+/-100	U	100	P	03/31/2025	13:41	LB135245
	Beryllium	6.00	+/-6.00	U	6.00	P	03/31/2025	13:41	LB135245
	Cadmium	6.00	+/-6.00	U	6.00	P	03/31/2025	13:41	LB135245
	Calcium	2000	+/-2000	U	2000	P	03/31/2025	13:41	LB135245
	Chromium	10.0	+/-10.0	U	10.0	P	03/31/2025	13:41	LB135245
	Cobalt	30.0	+/-30.0	U	30.0	P	03/31/2025	13:41	LB135245
	Copper	20.0	+/-20.0	U	20.0	P	03/31/2025	13:41	LB135245
	Iron	100	+/-100	U	100	P	03/31/2025	13:41	LB135245
	Lead	12.0	+/-12.0	U	12.0	P	03/31/2025	13:41	LB135245
	Magnesium	2000	+/-2000	U	2000	P	03/31/2025	13:41	LB135245
	Manganese	6.15	+/-20.0	J	20.0	P	03/31/2025	13:41	LB135245
	Nickel	40.0	+/-40.0	U	40.0	P	03/31/2025	13:41	LB135245
	Potassium	2000	+/-2000	U	2000	P	03/31/2025	13:41	LB135245
	Selenium	20.0	+/-20.0	U	20.0	P	03/31/2025	13:41	LB135245
	Silver	10.0	+/-10.0	U	10.0	P	03/31/2025	13:41	LB135245
	Sodium	2000	+/-2000	U	2000	P	03/31/2025	13:41	LB135245
	Thallium	40.0	+/-40.0	U	40.0	P	03/31/2025	13:41	LB135245
	Vanadium	40.0	+/-40.0	U	40.0	P	03/31/2025	13:41	LB135245
	Zinc	40.0	+/-40.0	U	40.0	P	03/31/2025	13:41	LB135245
CCB02	Aluminum	100	+/-100	U	100	P	03/31/2025	14:58	LB135245
	Antimony	50.0	+/-50.0	U	50.0	P	03/31/2025	14:58	LB135245
	Arsenic	20.0	+/-20.0	U	20.0	P	03/31/2025	14:58	LB135245
	Barium	100	+/-100	U	100	P	03/31/2025	14:58	LB135245
	Beryllium	6.00	+/-6.00	U	6.00	P	03/31/2025	14:58	LB135245
	Cadmium	6.00	+/-6.00	U	6.00	P	03/31/2025	14:58	LB135245
	Calcium	2000	+/-2000	U	2000	P	03/31/2025	14:58	LB135245
	Chromium	10.0	+/-10.0	U	10.0	P	03/31/2025	14:58	LB135245
	Cobalt	30.0	+/-30.0	U	30.0	P	03/31/2025	14:58	LB135245
	Copper	20.0	+/-20.0	U	20.0	P	03/31/2025	14:58	LB135245
	Iron	100	+/-100	U	100	P	03/31/2025	14:58	LB135245
	Lead	12.0	+/-12.0	U	12.0	P	03/31/2025	14:58	LB135245
	Magnesium	2000	+/-2000	U	2000	P	03/31/2025	14:58	LB135245
	Manganese	5.91	+/-20.0	J	20.0	P	03/31/2025	14:58	LB135245
	Nickel	40.0	+/-40.0	U	40.0	P	03/31/2025	14:58	LB135245
	Potassium	2000	+/-2000	U	2000	P	03/31/2025	14:58	LB135245
	Selenium	20.0	+/-20.0	U	20.0	P	03/31/2025	14:58	LB135245

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: <u>Weston Solutions, Inc.</u>		SDG No.: <u>Q1664</u>							
Contract: <u>ROYF02</u>	Lab Code: <u>CHEM</u>	Case No.: <u>Q1664</u>	SAS No.: <u>Q1664</u>						
Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB02	Silver	1.18	+/-10.0	J	10.0	P	03/31/2025	14:58	LB135245
	Sodium	2000	+/-2000	U	2000	P	03/31/2025	14:58	LB135245
	Thallium	40.0	+/-40.0	U	40.0	P	03/31/2025	14:58	LB135245
	Vanadium	40.0	+/-40.0	U	40.0	P	03/31/2025	14:58	LB135245
	Zinc	40.0	+/-40.0	U	40.0	P	03/31/2025	14:58	LB135245
CCB03	Aluminum	100	+/-100	U	100	P	03/31/2025	15:44	LB135245
	Antimony	50.0	+/-50.0	U	50.0	P	03/31/2025	15:44	LB135245
	Arsenic	20.0	+/-20.0	U	20.0	P	03/31/2025	15:44	LB135245
	Barium	100	+/-100	U	100	P	03/31/2025	15:44	LB135245
	Beryllium	6.00	+/-6.00	U	6.00	P	03/31/2025	15:44	LB135245
	Cadmium	6.00	+/-6.00	U	6.00	P	03/31/2025	15:44	LB135245
	Calcium	2000	+/-2000	U	2000	P	03/31/2025	15:44	LB135245
	Chromium	10.0	+/-10.0	U	10.0	P	03/31/2025	15:44	LB135245
	Cobalt	30.0	+/-30.0	U	30.0	P	03/31/2025	15:44	LB135245
	Copper	20.0	+/-20.0	U	20.0	P	03/31/2025	15:44	LB135245
	Iron	100	+/-100	U	100	P	03/31/2025	15:44	LB135245
	Lead	12.0	+/-12.0	U	12.0	P	03/31/2025	15:44	LB135245
	Magnesium	2000	+/-2000	U	2000	P	03/31/2025	15:44	LB135245
	Manganese	5.72	+/-20.0	J	20.0	P	03/31/2025	15:44	LB135245
	Nickel	40.0	+/-40.0	U	40.0	P	03/31/2025	15:44	LB135245
	Potassium	2000	+/-2000	U	2000	P	03/31/2025	15:44	LB135245
	Selenium	20.0	+/-20.0	U	20.0	P	03/31/2025	15:44	LB135245
	Silver	1.43	+/-10.0	J	10.0	P	03/31/2025	15:44	LB135245
	Sodium	2000	+/-2000	U	2000	P	03/31/2025	15:44	LB135245
	Thallium	40.0	+/-40.0	U	40.0	P	03/31/2025	15:44	LB135245
	Vanadium	40.0	+/-40.0	U	40.0	P	03/31/2025	15:44	LB135245
	Zinc	40.0	+/-40.0	U	40.0	P	03/31/2025	15:44	LB135245
CCB04	Aluminum	100	+/-100	U	100	P	03/31/2025	16:02	LB135245
	Antimony	50.0	+/-50.0	U	50.0	P	03/31/2025	16:02	LB135245
	Arsenic	20.0	+/-20.0	U	20.0	P	03/31/2025	16:02	LB135245
	Barium	100	+/-100	U	100	P	03/31/2025	16:02	LB135245
	Beryllium	6.00	+/-6.00	U	6.00	P	03/31/2025	16:02	LB135245
	Cadmium	6.00	+/-6.00	U	6.00	P	03/31/2025	16:02	LB135245
	Calcium	2000	+/-2000	U	2000	P	03/31/2025	16:02	LB135245
	Chromium	10.0	+/-10.0	U	10.0	P	03/31/2025	16:02	LB135245
	Cobalt	30.0	+/-30.0	U	30.0	P	03/31/2025	16:02	LB135245
	Copper	20.0	+/-20.0	U	20.0	P	03/31/2025	16:02	LB135245
	Iron	100	+/-100	U	100	P	03/31/2025	16:02	LB135245
	Lead	12.0	+/-12.0	U	12.0	P	03/31/2025	16:02	LB135245

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: <u>Weston Solutions, Inc.</u>		SDG No.: <u>Q1664</u>							
Contract: <u>ROYF02</u>	Lab Code: <u>CHEM</u>	Case No.: <u>Q1664</u>	SAS No.: <u>Q1664</u>						
Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB04	Magnesium	2000	+/-2000	U	2000	P	03/31/2025	16:02	LB135245
	Manganese	5.86	+/-20.0	J	20.0	P	03/31/2025	16:02	LB135245
	Nickel	40.0	+/-40.0	U	40.0	P	03/31/2025	16:02	LB135245
	Potassium	2000	+/-2000	U	2000	P	03/31/2025	16:02	LB135245
	Selenium	20.0	+/-20.0	U	20.0	P	03/31/2025	16:02	LB135245
	Silver	1.26	+/-10.0	J	10.0	P	03/31/2025	16:02	LB135245
	Sodium	2000	+/-2000	U	2000	P	03/31/2025	16:02	LB135245
	Thallium	40.0	+/-40.0	U	40.0	P	03/31/2025	16:02	LB135245
	Vanadium	40.0	+/-40.0	U	40.0	P	03/31/2025	16:02	LB135245
	Zinc	40.0	+/-40.0	U	40.0	P	03/31/2025	16:02	LB135245

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Weston Solutions, Inc.**SDG No.:** Q1664**Instrument:** CV1

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB167386BL		SOLID		Batch Number:	PB167386		Prep Date:	03/31/2025	
	Mercury	0.013	<0.013	U	0.013	CV	03/31/2025	12:31	LB135232

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Weston Solutions, Inc.

SDG No.: Q1664

Instrument: P4

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB167370BL	SOLID			Batch Number:	PB167370		Prep Date:	03/28/2025	
	Aluminum	4.55	<4.55	U	4.55	P	03/31/2025	15:35	LB135245
	Antimony	2.27	<2.27	U	2.27	P	03/31/2025	15:35	LB135245
	Arsenic	0.91	<0.91	U	0.91	P	03/31/2025	15:35	LB135245
	Barium	4.55	<4.55	U	4.55	P	03/31/2025	15:35	LB135245
	Beryllium	0.27	<0.27	U	0.27	P	03/31/2025	15:35	LB135245
	Cadmium	0.27	<0.27	U	0.27	P	03/31/2025	15:35	LB135245
	Calcium	90.9	<90.9	U	90.9	P	03/31/2025	15:35	LB135245
	Chromium	0.46	<0.46	U	0.46	P	03/31/2025	15:35	LB135245
	Cobalt	1.36	<1.36	U	1.36	P	03/31/2025	15:35	LB135245
	Copper	0.91	<0.91	U	0.91	P	03/31/2025	15:35	LB135245
	Iron	4.55	<4.55	U	4.55	P	03/31/2025	15:35	LB135245
	Lead	0.55	<0.55	U	0.55	P	03/31/2025	15:35	LB135245
	Magnesium	90.9	<90.9	U	90.9	P	03/31/2025	15:35	LB135245
	Manganese	0.26	<0.91	J	0.91	P	03/31/2025	15:35	LB135245
	Nickel	1.82	<1.82	U	1.82	P	03/31/2025	15:35	LB135245
	Potassium	90.9	<90.9	U	90.9	P	03/31/2025	15:35	LB135245
	Selenium	0.91	<0.91	U	0.91	P	03/31/2025	15:35	LB135245
	Silver	0.068	<0.46	J	0.46	P	03/31/2025	15:35	LB135245
	Sodium	90.9	<90.9	U	90.9	P	03/31/2025	15:35	LB135245
	Thallium	1.82	<1.82	U	1.82	P	03/31/2025	15:35	LB135245
	Vanadium	1.82	<1.82	U	1.82	P	03/31/2025	15:35	LB135245
	Zinc	1.82	<1.82	U	1.82	P	03/31/2025	15:35	LB135245

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: Weston Solutions, Inc. **SDG No.:** Q1664
Contract: ROYF02 **Lab Code:** CHEM **Case No.:** Q1664 **SAS No.:** Q1664
ICS Source: EPA **Instrument ID:** P4

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Low Limit (ug/L)	High Limit (ug/L)	Analysis Date	Analysis Time	Run Number
ICSA01	Aluminum	240000	255000	94	216000	294000	03/31/2025	13:29	LB135245
	Antimony	-3.34			-50	50	03/31/2025	13:29	LB135245
	Arsenic	9.47			-20	20	03/31/2025	13:29	LB135245
	Barium	2.01	6.0	34	-94	106	03/31/2025	13:29	LB135245
	Beryllium	1.11			-6	6	03/31/2025	13:29	LB135245
	Cadmium	-3.68	1.0	368	-5	7	03/31/2025	13:29	LB135245
	Calcium	225000	245000	92	208000	282000	03/31/2025	13:29	LB135245
	Chromium	57.5	52.0	111	42	62	03/31/2025	13:29	LB135245
	Cobalt	1.81			-30	30	03/31/2025	13:29	LB135245
	Copper	17.6	2.0	880	-18	22	03/31/2025	13:29	LB135245
	Iron	96600	101000	96	85600	116500	03/31/2025	13:29	LB135245
	Lead	2.86			-12	12	03/31/2025	13:29	LB135245
	Magnesium	239000	255000	94	216000	294000	03/31/2025	13:29	LB135245
	Manganese	15.3	7.0	219	-13	27	03/31/2025	13:29	LB135245
	Nickel	2.23	2.0	112	-38	42	03/31/2025	13:29	LB135245
	Potassium	51.7			0	0	03/31/2025	13:29	LB135245
	Selenium	-4.51			-20	20	03/31/2025	13:29	LB135245
	Silver	1.27			-10	10	03/31/2025	13:29	LB135245
	Sodium	34.0			0	0	03/31/2025	13:29	LB135245
	Thallium	8.75			-40	40	03/31/2025	13:29	LB135245
	Vanadium	3.96			-40	40	03/31/2025	13:29	LB135245
	Zinc	3.12			-40	40	03/31/2025	13:29	LB135245
ICSAB01	Aluminum	240000	247000	97	209000	285000	03/31/2025	13:33	LB135245
	Antimony	640	618	104	525	711	03/31/2025	13:33	LB135245
	Arsenic	115	104	111	88.4	120	03/31/2025	13:33	LB135245
	Barium	477	537	89	437	637	03/31/2025	13:33	LB135245
	Beryllium	477	495	96	420	570	03/31/2025	13:33	LB135245
	Cadmium	988	972	102	826	1120	03/31/2025	13:33	LB135245
	Calcium	225000	235000	96	199000	271000	03/31/2025	13:33	LB135245
	Chromium	571	542	105	460	624	03/31/2025	13:33	LB135245
	Cobalt	503	476	106	404	548	03/31/2025	13:33	LB135245
	Copper	514	511	101	434	588	03/31/2025	13:33	LB135245
	Iron	96100	99300	97	84400	114500	03/31/2025	13:33	LB135245
	Lead	54.0	49.0	110	37	61	03/31/2025	13:33	LB135245
	Magnesium	239000	248000	96	210000	286000	03/31/2025	13:33	LB135245
	Manganese	476	507	94	430	584	03/31/2025	13:33	LB135245
	Nickel	999	954	105	810	1100	03/31/2025	13:33	LB135245
	Potassium	34.5			0	0	03/31/2025	13:33	LB135245
	Selenium	54.1	46.0	118	26	66	03/31/2025	13:33	LB135245
	Silver	189	201	94	170	232	03/31/2025	13:33	LB135245
	Sodium	15.2			0	0	03/31/2025	13:33	LB135245
	Thallium	99.8	108	92	68	148	03/31/2025	13:33	LB135245

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: <u>Weston Solutions, Inc.</u>	SDG No.: <u>Q1664</u>
Contract: <u>ROYF02</u> Lab Code: <u>CHEM</u>	Case No.: <u>Q1664</u> SAS No.: <u>Q1664</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	471	491	96	417	565	03/31/2025	13:33	LB135245
	Zinc	1070	952	112	809	1095	03/31/2025	13:33	LB135245



METAL QC DATA

- 1
- 2
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- 18

metals
- 5a -
MATRIX SPIKE SUMMARY

client: <u>Weston Solutions, Inc.</u>	level: <u>low</u>	sdg no.: <u>Q1664</u>
contract: <u>ROYF02</u>	lab code: <u>CHEM</u>	case no.: <u>Q1664</u> sas no.: <u>Q1664</u>
matrix: <u>Solid</u>	sample id: <u>Q1664-01</u>	client id: <u>P001-BBDGA-001-01MS</u>
Percent Solids for Sample: 91.8	Spiked ID: Q1664-02	Percent Solids for Spike Sample: 91.8

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	75 - 125	16200		14900		100	1316		P
Antimony	mg/Kg	75 - 125	11.7		2.34	U	41.9	28	N	P
Arsenic	mg/Kg	75 - 125	39.1		2.10		41.9	88		P
Barium	mg/Kg	75 - 125	18.6		12.3		10.5	59	N	P
Beryllium	mg/Kg	75 - 125	8.28		0.36		10.5	75		P
Cadmium	mg/Kg	75 - 125	9.67		0.29		10.5	89		P
Calcium	mg/Kg	75 - 125	22300		19700		52.4	4951		P
Chromium	mg/Kg	75 - 125	48.3		22.4		20.9	124		P
Cobalt	mg/Kg	75 - 125	41.9		30.9		10.5	105		P
Copper	mg/Kg	75 - 125	175		180		15.7	-29		P
Iron	mg/Kg	75 - 125	36300		33800		160	1578		P
Lead	mg/Kg	75 - 125	53.6		2.91		52.4	97		P
Magnesium	mg/Kg	75 - 125	30400		28800		100	1674		P
Manganese	mg/Kg	75 - 125	535		444		10.5	871		P
Mercury	mg/Kg	80 - 120	0.30		0.0090	J	0.27	107		CV
Nickel	mg/Kg	75 - 125	67.8		39.4		26.2	108		P
Potassium	mg/Kg	75 - 125	603		77.7	J	520	101		P
Selenium	mg/Kg	75 - 125	86.8		0.94	U	100	87		P
Silver	mg/Kg	75 - 125	4.01		0.34	J	3.9	94		P
Sodium	mg/Kg	75 - 125	1050		796		160	156		P
Thallium	mg/Kg	75 - 125	92.3		1.72	J	100	91		P
Vanadium	mg/Kg	75 - 125	67.1		48.9		15.7	116		P
Zinc	mg/Kg	75 - 125	48.1		37.3		10.5	103		P

metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: Weston Solutions, Inc. **level:** low **sdg no.:** Q1664
contract: ROYF02 **lab code:** CHEM **case no.:** Q1664 **sas no.:** Q1664
matrix: Solid **sample id:** Q1664-01 **client id:** P001-BBDGA-001-01MSD
Percent Solids for Sample: 91.8 **Spiked ID:** Q1664-03 **Percent Solids for Spike Sample:** 91.8

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	75 - 125	16300		14900		100	1409		P
Antimony	mg/Kg	75 - 125	10.6		2.34	U	40.2	26	N	P
Arsenic	mg/Kg	75 - 125	36.7		2.10		40.2	86		P
Barium	mg/Kg	75 - 125	20.6		12.3		10.0	83		P
Beryllium	mg/Kg	75 - 125	7.94		0.36		10.0	76		P
Cadmium	mg/Kg	75 - 125	9.04		0.29		10.0	88		P
Calcium	mg/Kg	75 - 125	19800		19700		50.2	221		P
Chromium	mg/Kg	75 - 125	43.2		22.4		20.1	103		P
Cobalt	mg/Kg	75 - 125	40.1		30.9		10.0	92		P
Copper	mg/Kg	75 - 125	114		180		15.1	-433		P
Iron	mg/Kg	75 - 125	34900		33800		150	719		P
Lead	mg/Kg	75 - 125	46.6		2.91		50.2	87		P
Magnesium	mg/Kg	75 - 125	30400		28800		100	1630		P
Manganese	mg/Kg	75 - 125	447		444		10.0	26		P
Mercury	mg/Kg	80 - 120	0.32		0.0090	J	0.27	114		CV
Nickel	mg/Kg	75 - 125	63.7		39.4		25.1	97		P
Potassium	mg/Kg	75 - 125	575		77.7	J	500	100		P
Selenium	mg/Kg	75 - 125	81.8		0.94	U	100	82		P
Silver	mg/Kg	75 - 125	3.68		0.34	J	3.8	88		P
Sodium	mg/Kg	75 - 125	1050		796		150	168		P
Thallium	mg/Kg	75 - 125	85.9		1.72	J	100	84		P
Vanadium	mg/Kg	75 - 125	66.8		48.9		15.1	118		P
Zinc	mg/Kg	75 - 125	50.2		37.3		10.0	129	N	P

Metals
- 5b -
POST DIGEST SPIKE SUMMARY

Client: Weston Solutions, Inc. **SDG No.:** Q1664
Contract: ROYF02 **Lab Code:** CHEM **Case No.:** Q1664 **SAS No.:** Q1664
Matrix: Solid **Level:** LOW **Client ID:** P001-BBDGA-001-01A
Sample ID: Q1664-01 **Spiked ID:** Q1664-01A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Antimony	mg/Kg	75 - 125	32.1		2.34	U	37.4	86		P
Barium	mg/Kg	75 - 125	19.6		12.3		9.40	77		P
Zinc	mg/Kg	75 - 125	44.9		37.3		9.40	80		P

Metals

- 6 -

DUPLICATE SAMPLE SUMMARY

Client: Weston Solutions, Inc. **Level:** LOW **SDG No.:** Q1664
Contract: ROYF02 **Lab Code:** CHEM **Case No.:** Q1664 **SAS No.:** Q1664
Matrix: Solid **Sample ID:** Q1664-01 **Client ID:** P001-BBDGA-001-01DUP
Percent Solids for Sample: 91.8 **Duplicate ID** Q1664-01DUP **Percent Solids for Spike Sample:** 91.8

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	14900		15000		1		P
Antimony	mg/Kg	20	2.34	U	2.38	U			P
Arsenic	mg/Kg	20	2.10		1.61		26		P
Barium	mg/Kg	20	12.3		10.4		16		P
Beryllium	mg/Kg	20	0.36		0.36		1		P
Cadmium	mg/Kg	20	0.29		0.28	U	200.0		P
Calcium	mg/Kg	20	19700		18800		5		P
Chromium	mg/Kg	20	22.4		25.6		13		P
Cobalt	mg/Kg	20	30.9		30.1		3		P
Copper	mg/Kg	20	180		133		30	*	P
Iron	mg/Kg	20	33800		34800		3		P
Lead	mg/Kg	20	2.91		2.90		0		P
Magnesium	mg/Kg	20	28800		29400		2		P
Manganese	mg/Kg	20	444		390		13		P
Mercury	mg/Kg	20	0.0090	J	0.0090	J	0		CV
Nickel	mg/Kg	20	39.4		38.4		3		P
Potassium	mg/Kg	20	77.7	J	73.8	J	5		P
Selenium	mg/Kg	20	0.94	U	0.95	U			P
Silver	mg/Kg	20	0.34	J	0.39	J	15		P
Sodium	mg/Kg	20	796		766		4		P
Thallium	mg/Kg	20	1.72	J	1.95		13		P
Vanadium	mg/Kg	20	48.9		50.3		3		P
Zinc	mg/Kg	20	37.3		38.8		4		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>Q1664</u>		
Contract:	<u>ROYF02</u>	Lab Code:	<u>CHEM</u>	Case No.:	<u>Q1664</u>	SAS No.:	<u>Q1664</u>
Matrix:	<u>Solid</u>	Sample ID:	<u>Q1664-02</u>	Client ID:	<u>P001-BBDGA-001-01MSD</u>		
Percent Solids for Sample:	91.8	Duplicate ID	Q1664-03	Percent Solids for Spike Sample:	91.8		

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	16200		16300		1		P
Antimony	mg/Kg	20	11.7		10.6		10		P
Arsenic	mg/Kg	20	39.1		36.7		6		P
Barium	mg/Kg	20	18.6		20.6		10		P
Beryllium	mg/Kg	20	8.28		7.94		4		P
Cadmium	mg/Kg	20	9.67		9.04		7		P
Calcium	mg/Kg	20	22300		19800		12		P
Chromium	mg/Kg	20	48.3		43.2		11		P
Cobalt	mg/Kg	20	41.9		40.1		4		P
Copper	mg/Kg	20	175		114		42	*	P
Iron	mg/Kg	20	36300		34900		4		P
Lead	mg/Kg	20	53.6		46.6		14		P
Magnesium	mg/Kg	20	30400		30400		0		P
Manganese	mg/Kg	20	535		447		18		P
Mercury	mg/Kg	20	0.30		0.32		7		CV
Nickel	mg/Kg	20	67.8		63.7		6		P
Potassium	mg/Kg	20	603		575		5		P
Selenium	mg/Kg	20	86.8		81.8		6		P
Silver	mg/Kg	20	4.01		3.68		9		P
Sodium	mg/Kg	20	1050		1050		0		P
Thallium	mg/Kg	20	92.3		85.9		7		P
Vanadium	mg/Kg	20	67.1		66.8		0		P
Zinc	mg/Kg	20	48.1		50.2		4		P

“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: Weston Solutions, Inc. SDG No.: Q1664
 Contract: ROYF02 Lab Code: CHEM Case No.: Q1664 SAS No.: Q1664

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB167370BS							
Aluminum	mg/Kg	95.2	87.6		92	80 - 120	P
Antimony	mg/Kg	38.1	38.7		102	80 - 120	P
Arsenic	mg/Kg	38.1	36.9		97	80 - 120	P
Barium	mg/Kg	9.5	7.98		84	80 - 120	P
Beryllium	mg/Kg	9.5	8.29		87	80 - 120	P
Cadmium	mg/Kg	9.5	8.51		90	80 - 120	P
Calcium	mg/Kg	47.6	42.6	J	90	80 - 120	P
Chromium	mg/Kg	19.0	18.8		99	80 - 120	P
Cobalt	mg/Kg	9.5	8.68		91	80 - 120	P
Copper	mg/Kg	14.3	14.4		101	80 - 120	P
Iron	mg/Kg	140	131		94	80 - 120	P
Lead	mg/Kg	47.6	43.4		91	80 - 120	P
Magnesium	mg/Kg	95.2	80.5	J	85	80 - 120	P
Manganese	mg/Kg	9.5	8.75		92	80 - 120	P
Nickel	mg/Kg	23.8	22.1		93	80 - 120	P
Potassium	mg/Kg	480	448		93	80 - 120	P
Selenium	mg/Kg	95.2	92.4		97	80 - 120	P
Silver	mg/Kg	3.6	3.45		96	80 - 120	P
Sodium	mg/Kg	140	123		88	80 - 120	P
Thallium	mg/Kg	95.2	91.8		96	80 - 120	P
Vanadium	mg/Kg	14.3	12.8		90	80 - 120	P
Zinc	mg/Kg	9.5	9.53		100	80 - 120	P

Metals

- 7 -

LABORATORY CONTROL SAMPLE SUMMARY

Client: Weston Solutions, Inc. **SDG No.:** Q1664
Contract: ROYF02 **Lab Code:** CHEM **Case No.:** Q1664 **SAS No.:** Q1664

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB167386BS Mercury	mg/Kg	0.27	0.24		88	80 - 120	CV

Metals
-9 -
ICP SERIAL DILUTIONS

SAMPLE NO.

P001-BBDGA-001-01L

Lab Name: Chemtech Consulting Group

Contract: ROYF02

Lab Code: CHEM Lb No.: lb135245 Lab Sample ID : Q1664-01L SDG No.: Q1664

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

Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)		Serial Dilution Result (S)		% Difference	Q	M
Aluminum	14900		16800		13		P
Antimony	2.34	U	11.7	U			P
Arsenic	2.10		2.27	J	8		P
Barium	12.3		13.4	J	9		P
Beryllium	0.36		0.50	J	38		P
Cadmium	0.29		1.40	U	100.0		P
Calcium	19700		23500		19		P
Chromium	22.4		27.1		21		P
Cobalt	30.9		32.6		6		P
Copper	180		223		24		P
Iron	33800		40300		19		P
Lead	2.91		3.02		4		P
Magnesium	28800		33400		16		P
Manganese	444		525		18		P
Mercury	0.0090	J	0.073	U	100.0		CV
Nickel	39.4		42.7		8		P
Potassium	77.7	J	468	U	100.0		P
Selenium	0.94	U	4.68	U			P
Silver	0.34	J	0.90	J	167		P
Sodium	796		798		0		P
Thallium	1.72	J	2.76	J	60		P
Vanadium	48.9		57.7		18		P
Zinc	37.3		41.4		11		P



METAL PREPARATION & INSTRUMENT DATA

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Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Weston Solutions, Inc. **SDG No.:** Q1664
Contract: ROYF02 **Lab Code:** CHEM **Case No.:** Q1664 **SAS No.:** Q1664
Instrument ID: _____ **Date:** _____
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

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

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Weston Solutions, Inc. **SDG No.:** Q1664
Contract: ROYF02 **Lab Code:** CHEM **Case No.:** Q1664 **SAS No.:** Q1664
Instrument ID: _____ **Date:** _____
Interelement Correction Factors (apparent ppb analyte/ppm interferent)

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

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Weston Solutions, Inc. **SDG No.:** Q1664
Contract: ROYF02 **Lab Code:** CHEM **Case No.:** Q1664 **SAS No.:** Q1664
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.:** Q1664
Contract: ROYF02 **Lab Code:** CHEM **Case No.:** Q1664 **SAS No.:** Q1664
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.: Q1664

Contract: ROYF02

Lab Code: CHEM

Case No.: Q1664

SAS No.: Q1664

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
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17
18

Metals
- 13 -

SAMPLE PREPARATION SUMMARY

Client:	<u>Weston Solutions, Inc.</u>	SDG No.:	<u>Q1664</u>
Contract:	<u>ROYF02</u>	Lab Code:	<u>CHEM</u>
		Method:	<u></u>
		Case No.:	<u>Q1664</u>
		SAS No.:	<u>Q1664</u>

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB167370							
PB167370BL	PB167370BL	MB	SOLID	03/28/2025	2.20	100.0	100.00
PB167370BS	PB167370BS	LCS	SOLID	03/28/2025	2.10	100.0	100.00
Q1664-01	P001-BBDGA-001-01	SAM	SOLID	03/28/2025	2.33	100.0	91.80
Q1664-01DUP	P001-BBDGA-001-01DUP	DUP	SOLID	03/28/2025	2.29	100.0	91.80
Q1664-02	P001-BBDGA-001-01MS	MS	SOLID	03/28/2025	2.08	100.0	91.80
Q1664-03	P001-BBDGA-001-01MSD	MSD	SOLID	03/28/2025	2.17	100.0	91.80
Q1664-07	P001-BBDGA-001-02	SAM	SOLID	03/28/2025	2.28	100.0	92.00
Q1664-09	P001-BBDGA-002-01	SAM	SOLID	03/28/2025	2.33	100.0	93.50
Q1664-11	P001-BBDGA-003-01	SAM	SOLID	03/28/2025	2.09	100.0	94.60
Q1664-13	P001-BBDGA-004-01	SAM	SOLID	03/28/2025	2.08	100.0	95.40
Q1664-15	P001-BBDGA-005-01	SAM	SOLID	03/28/2025	2.35	100.0	91.70
Q1664-17	P001-BBDGA-006-01	SAM	SOLID	03/28/2025	2.11	100.0	93.90
Q1664-19	P001-BBDGA-007-01	SAM	SOLID	03/28/2025	2.26	100.0	92.80
Q1664-21	P001-BBDGA-008-01	SAM	SOLID	03/28/2025	2.11	100.0	94.00

Metals
- 13 -

SAMPLE PREPARATION SUMMARY

Client:	<u>Weston Solutions, Inc.</u>	SDG No.:	<u>Q1664</u>
Contract:	<u>ROYF02</u>	Lab Code:	<u>CHEM</u>
		Method:	<u></u>
		Case No.:	<u>Q1664</u>
		SAS No.:	<u>Q1664</u>

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(g)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB167386							
PB167386BL	PB167386BL	MB	SOLID	03/31/2025	0.54	35.0	100.00
PB167386BS	PB167386BS	LCS	SOLID	03/31/2025	0.52	35.0	100.00
Q1664-01	P001-BBDGA-001-01	SAM	SOLID	03/31/2025	0.52	35.0	91.80
Q1664-01DUP	P001-BBDGA-001-01DUP	DUP	SOLID	03/31/2025	0.51	35.0	91.80
Q1664-02	P001-BBDGA-001-01MS	MS	SOLID	03/31/2025	0.57	35.0	91.80
Q1664-03	P001-BBDGA-001-01MSD	MSD	SOLID	03/31/2025	0.56	35.0	91.80
Q1664-07	P001-BBDGA-001-02	SAM	SOLID	03/31/2025	0.52	35.0	92.00
Q1664-09	P001-BBDGA-002-01	SAM	SOLID	03/31/2025	0.55	35.0	93.50
Q1664-11	P001-BBDGA-003-01	SAM	SOLID	03/31/2025	0.50	35.0	94.60
Q1664-13	P001-BBDGA-004-01	SAM	SOLID	03/31/2025	0.55	35.0	95.40
Q1664-15	P001-BBDGA-005-01	SAM	SOLID	03/31/2025	0.55	35.0	91.70
Q1664-17	P001-BBDGA-006-01	SAM	SOLID	03/31/2025	0.50	35.0	93.90
Q1664-19	P001-BBDGA-007-01	SAM	SOLID	03/31/2025	0.52	35.0	92.80
Q1664-21	P001-BBDGA-008-01	SAM	SOLID	03/31/2025	0.56	35.0	94.00

metals
- 14 -
ANALYSIS RUN LOG

Client: Weston Solutions, Inc. **Contract:** ROYF02

Lab code: CHEM **Case no.:** Q1664 **Sas no.:** Q1664 **Sdg no.:** Q1664

Instrument id number: **Method:** **Run number:** LB135232

Start date: 03/31/2025 **End date:** 03/31/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1155	HG
S0.2	S0.2	1	1200	HG
S2.5	S2.5	1	1202	HG
S5	S5	1	1205	HG
S7.5	S7.5	1	1207	HG
S10	S10	1	1209	HG
ICV67	ICV67	1	1215	HG
ICB67	ICB67	1	1217	HG
CCV103	CCV103	1	1219	HG
CCB103	CCB103	1	1222	HG
CRA	CRA	1	1224	HG
PB167386BL	PB167386BL	1	1231	HG
PB167386BS	PB167386BS	1	1235	HG
Q1664-01	P001-BBDGA-001-01	1	1245	HG
Q1664-01DUP	P001-BBDGA-001-01DUP	1	1247	HG
Q1664-02	P001-BBDGA-001-01MS	1	1249	HG
Q1664-03	P001-BBDGA-001-01MSD	1	1252	HG
CCV104	CCV104	1	1254	HG
CCB104	CCB104	1	1256	HG
Q1664-07	P001-BBDGA-001-02	1	1259	HG
Q1664-09	P001-BBDGA-002-01	1	1301	HG
Q1664-11	P001-BBDGA-003-01	1	1303	HG
Q1664-13	P001-BBDGA-004-01	1	1305	HG
Q1664-15	P001-BBDGA-005-01	1	1308	HG
Q1664-17	P001-BBDGA-006-01	1	1310	HG
Q1664-19	P001-BBDGA-007-01	1	1312	HG
Q1664-21	P001-BBDGA-008-01	1	1315	HG
CCV105	CCV105	1	1321	HG
CCB105	CCB105	1	1324	HG
Q1664-01L	P001-BBDGA-001-01L	5	1353	HG
CCV106	CCV106	1	1358	HG
CCB106	CCB106	1	1400	HG

metals
- 14 -
ANALYSIS RUN LOG

Client: Weston Solutions, Inc. **Contract:** ROYF02

Lab code: CHEM **Case no.:** Q1664 **Sas no.:** Q1664 **Sdg no.:** Q1664

Instrument id number: **Method:** **Run number:** LB135245

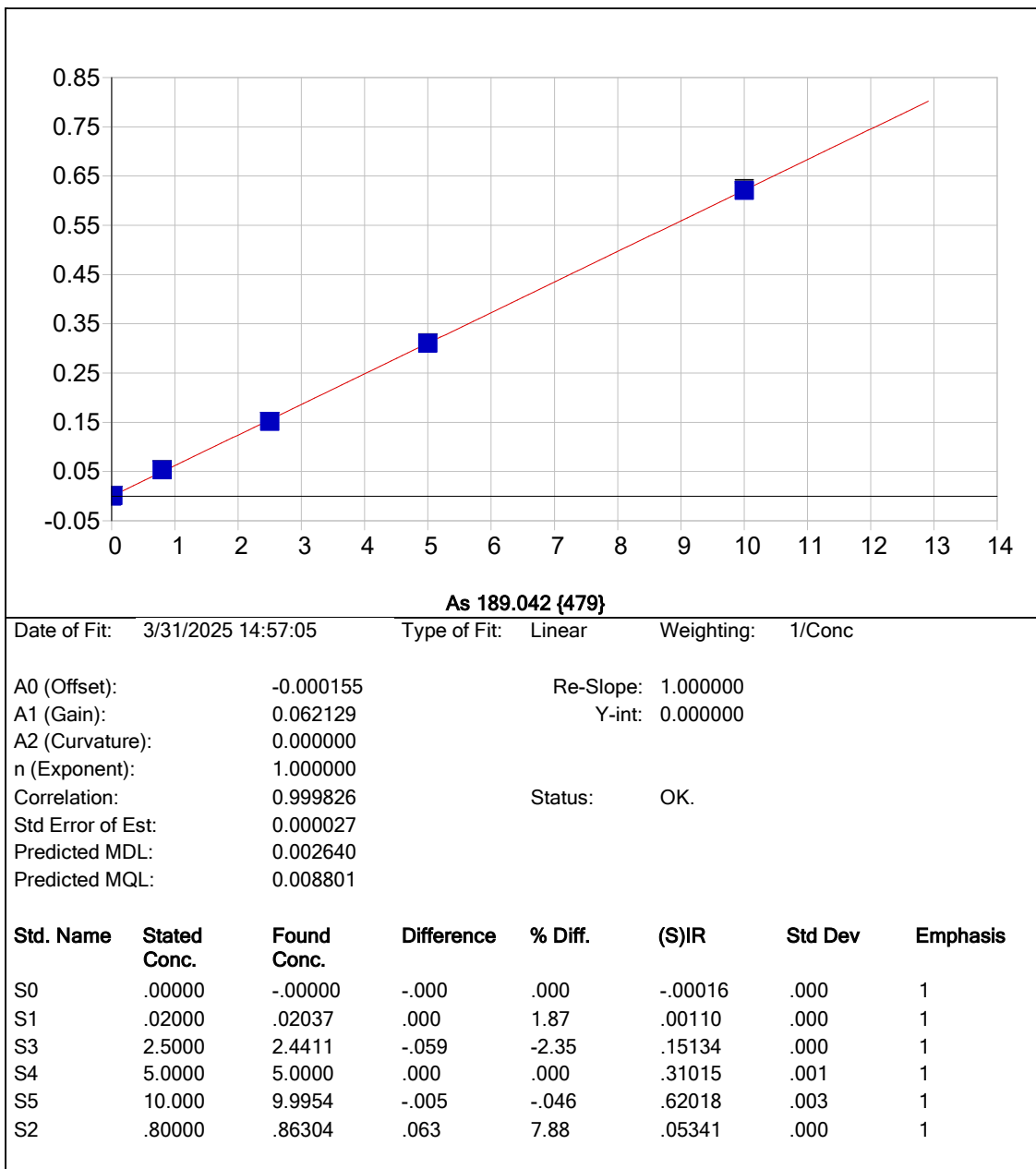
Start date: 03/31/2025 **End date:** 03/31/2025

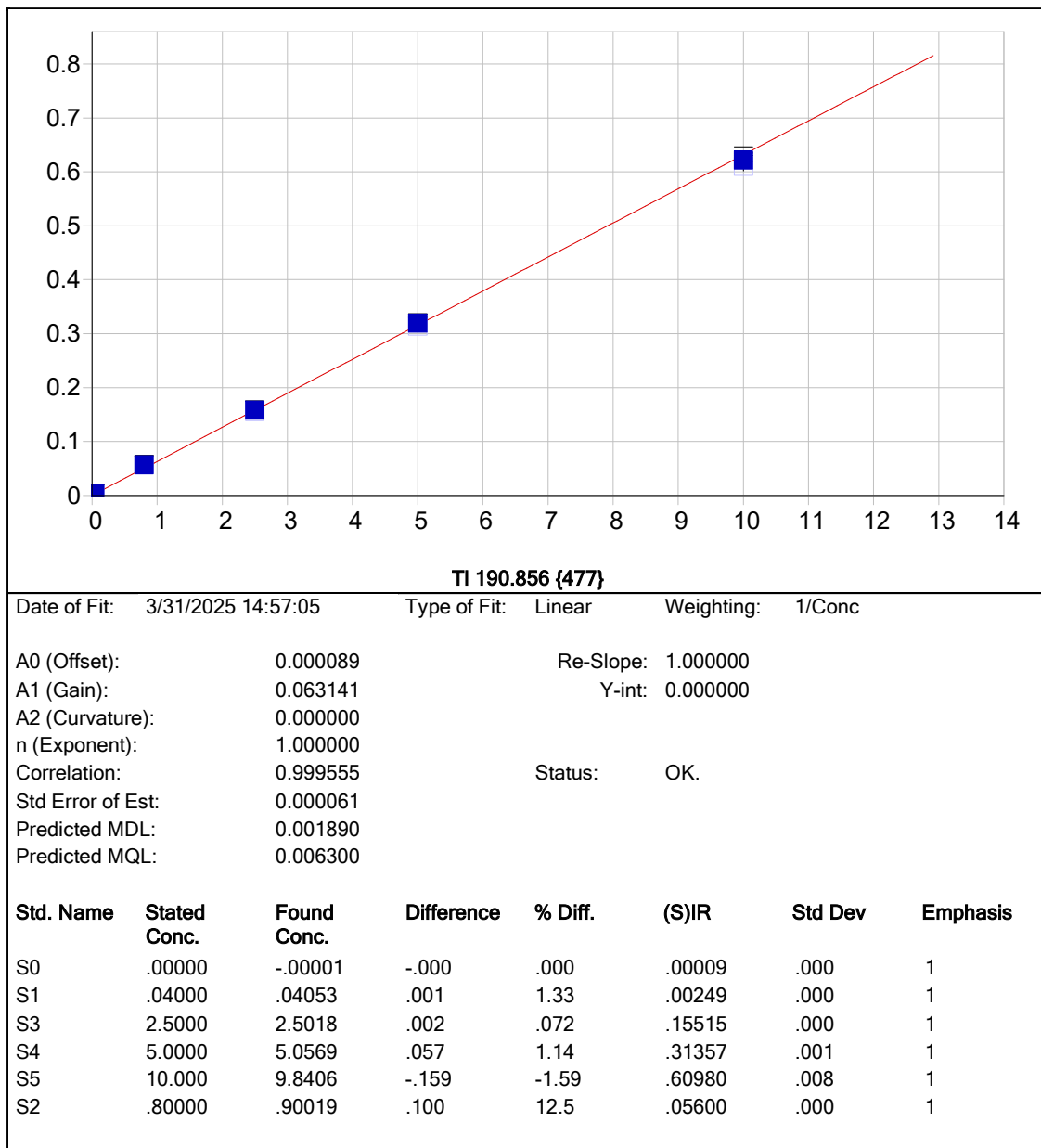
Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1246	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S1	S1	1	1250	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S2	S2	1	1254	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S3	S3	1	1259	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
S4	S4	1	1303	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	1307	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	1312	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	1316	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	1320	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	1324	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	1329	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	1333	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	1337	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	1341	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1664-01	P001-BBDGA-001-01	1	1346	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1664-01DUP	P001-BBDGA-001-01DUP	1	1350	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1664-01L	P001-BBDGA-001-01L	5	1355	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1664-02	P001-BBDGA-001-01MS	1	1359	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1664-03	P001-BBDGA-001-01MSD	1	1403	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1664-01A	P001-BBDGA-001-01A	1	1414	Ba,Sb,Zn
Q1664-07	P001-BBDGA-001-02	1	1419	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1664-09	P001-BBDGA-002-01	1	1423	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1664-11	P001-BBDGA-003-01	1	1428	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1664-13	P001-BBDGA-004-01	1	1432	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	1445	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	1458	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1664-15	P001-BBDGA-005-01	1	1502	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1664-17	P001-BBDGA-006-01	1	1506	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1664-19	P001-BBDGA-007-01	1	1510	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
Q1664-21	P001-BBDGA-008-01	1	1515	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
PB167370BS	PB167370BS	1	1528	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
PB167370BL	PB167370BL	1	1535	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	1540	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	1544	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn
CCV04	CCV04	1	1557	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	1602	Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn

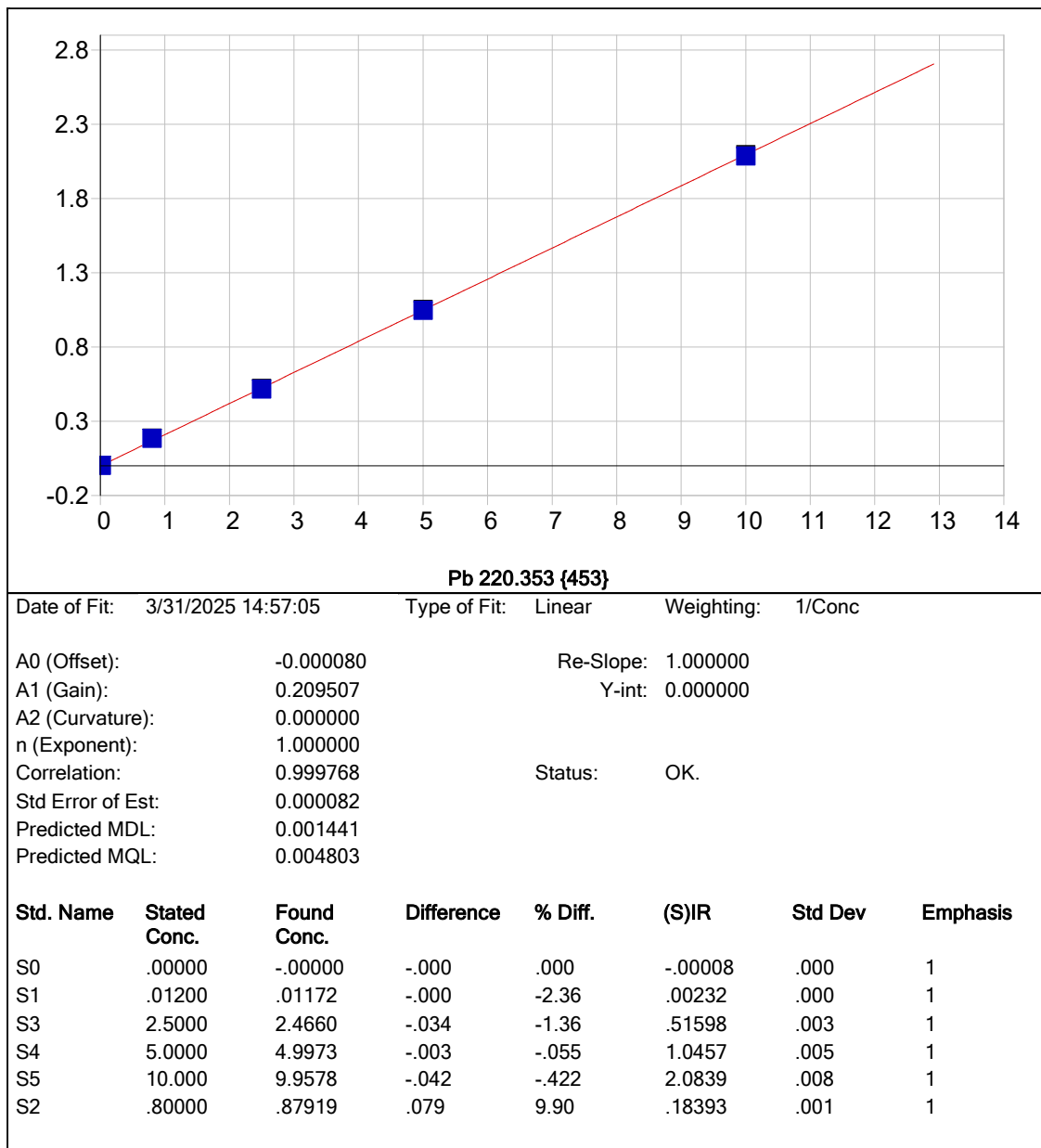


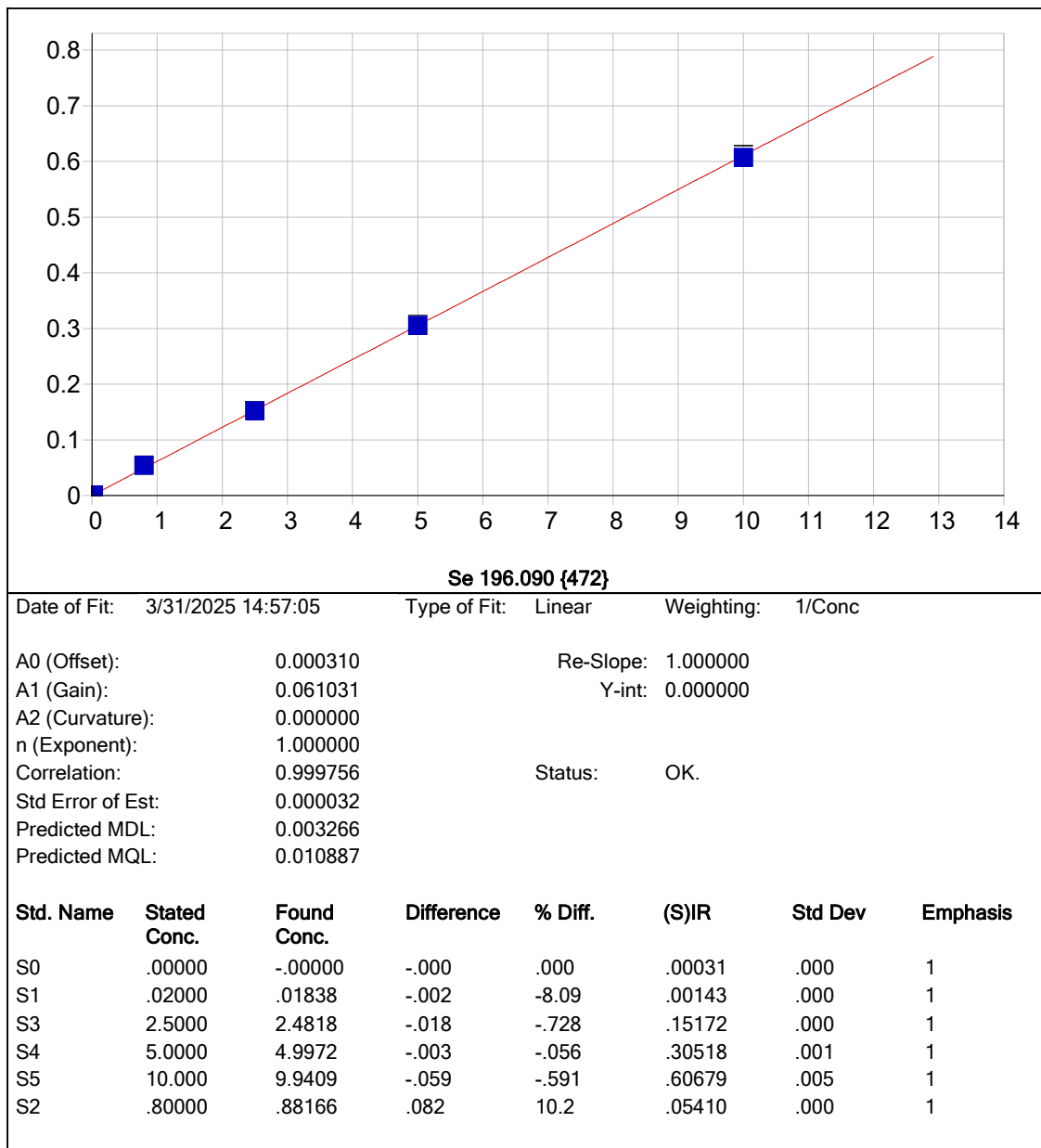
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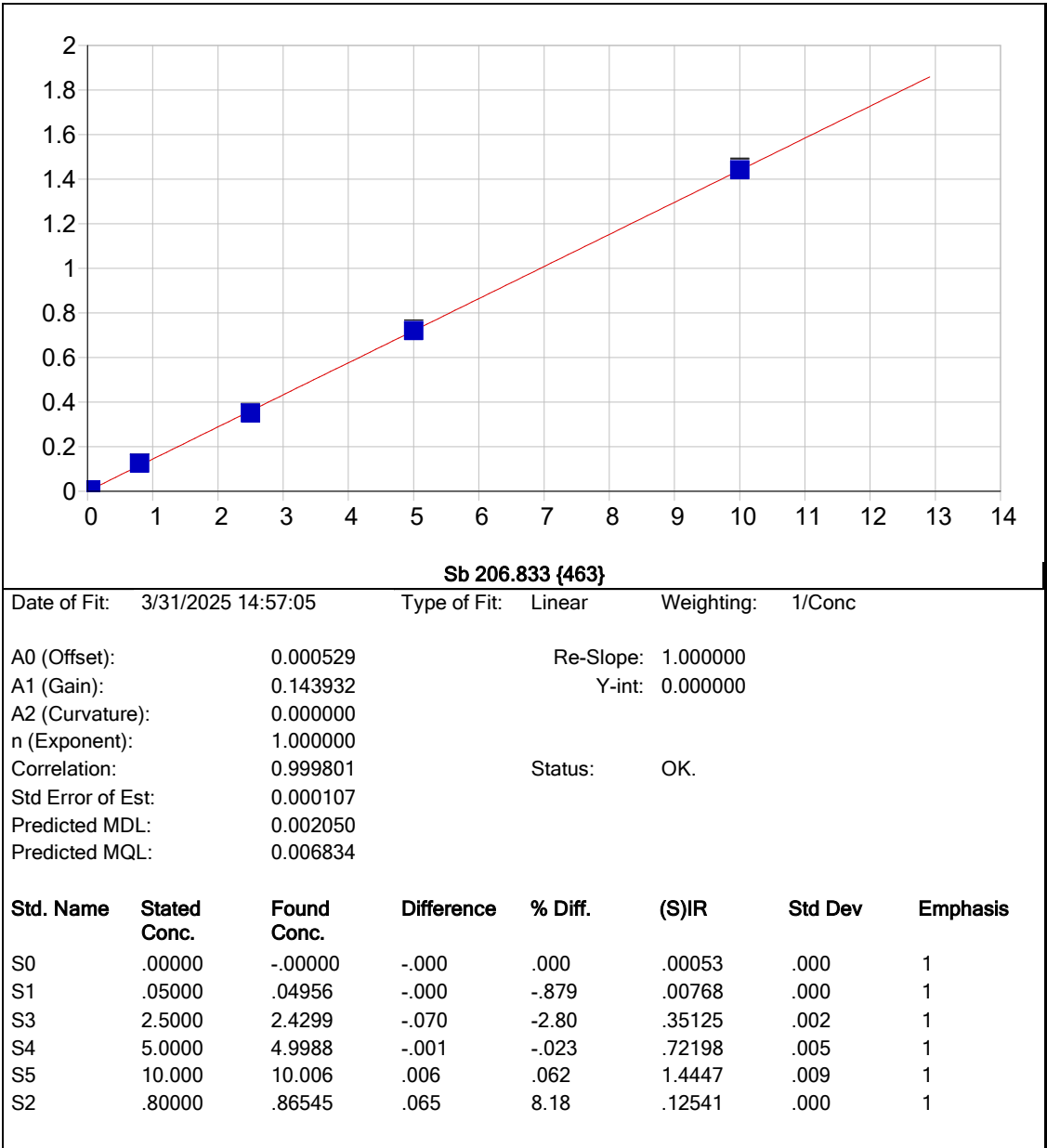
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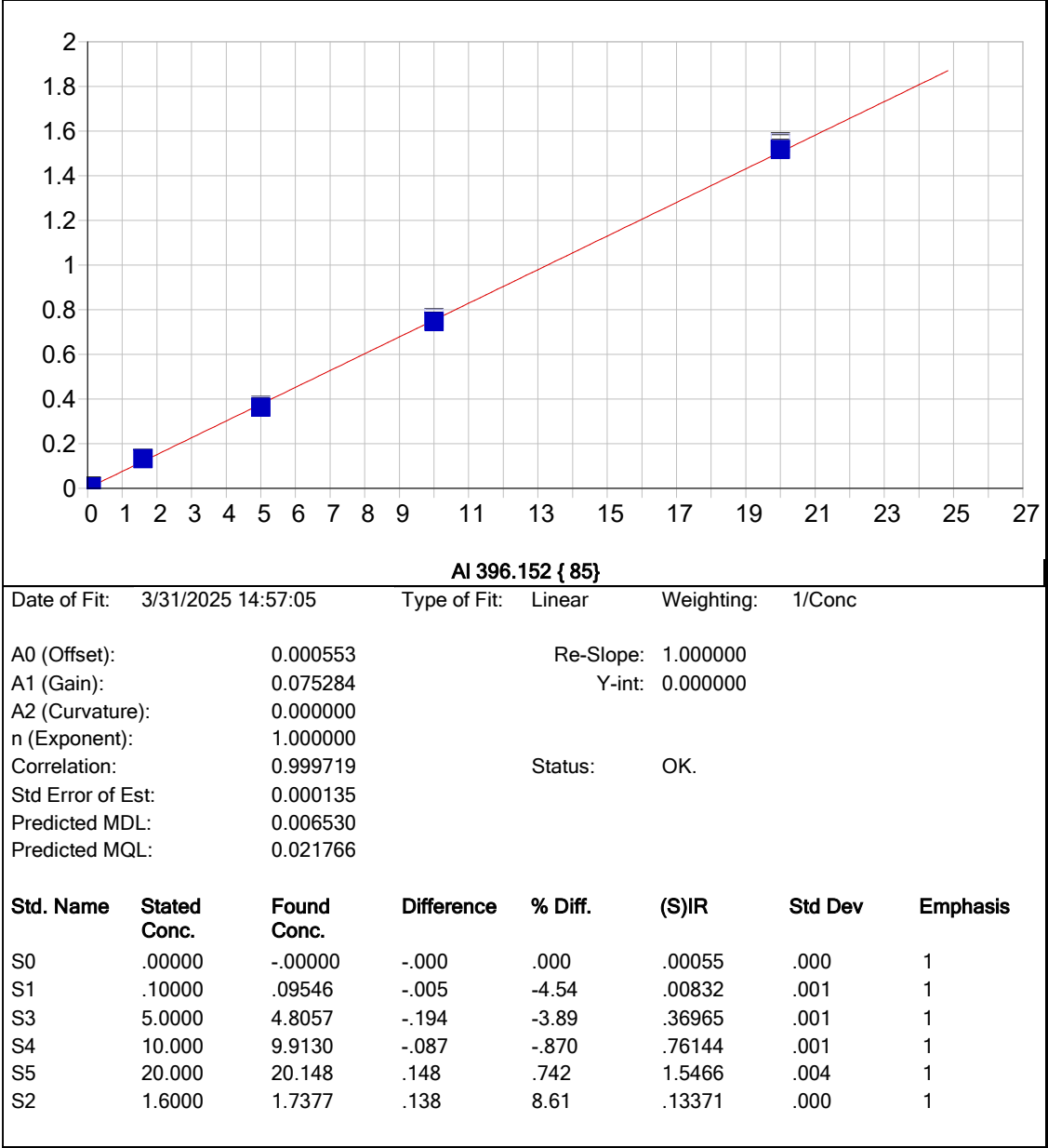


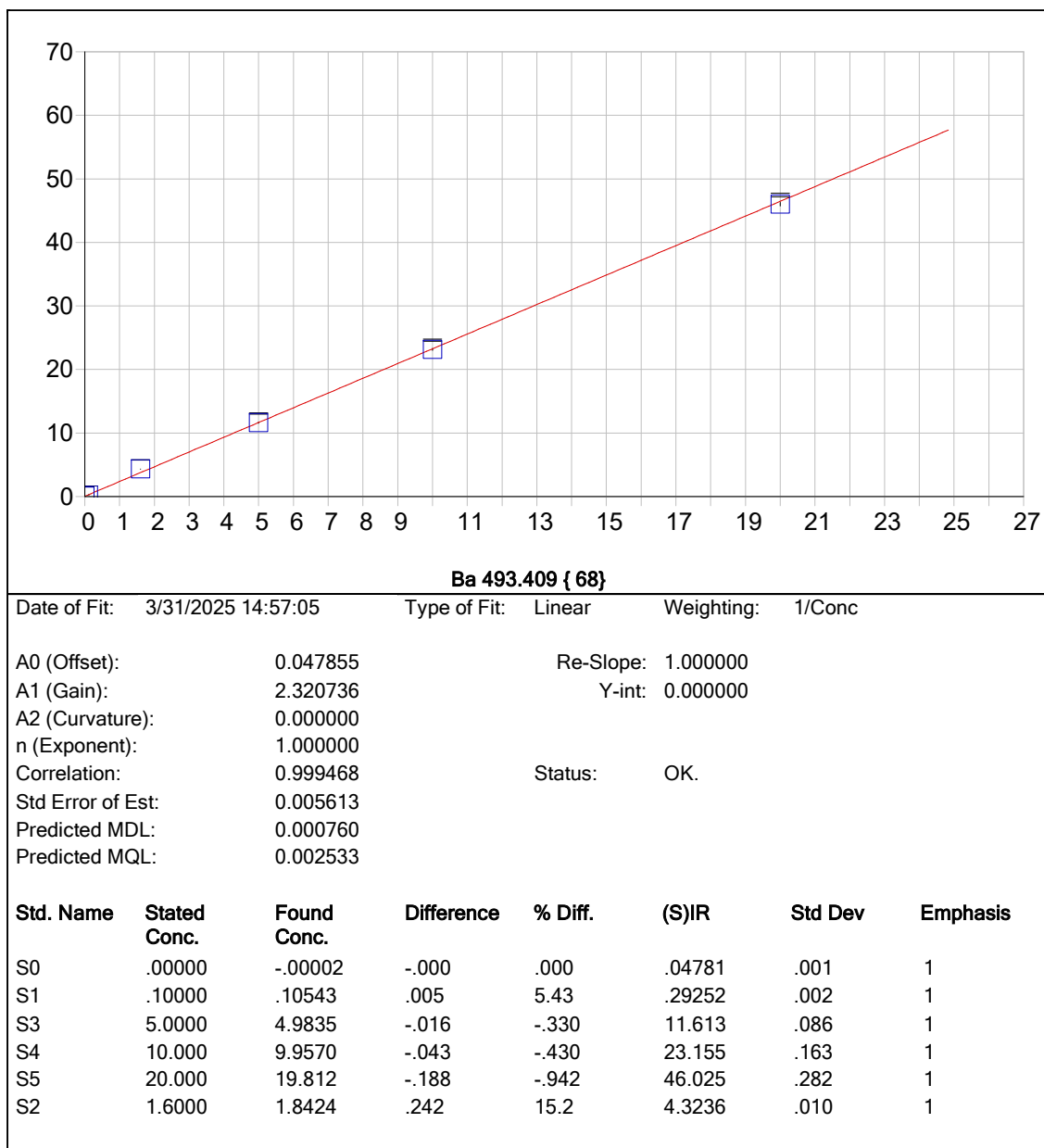


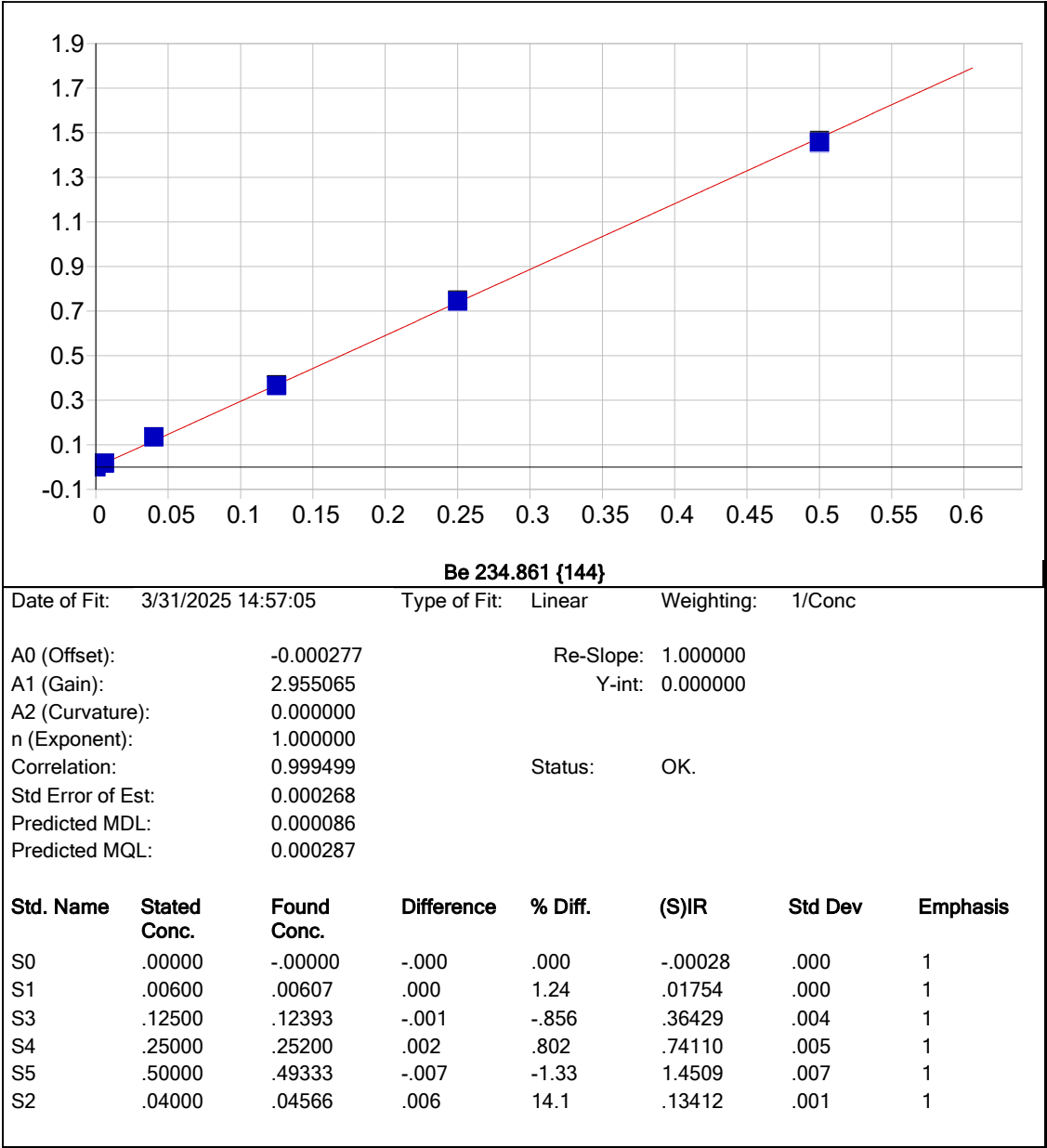


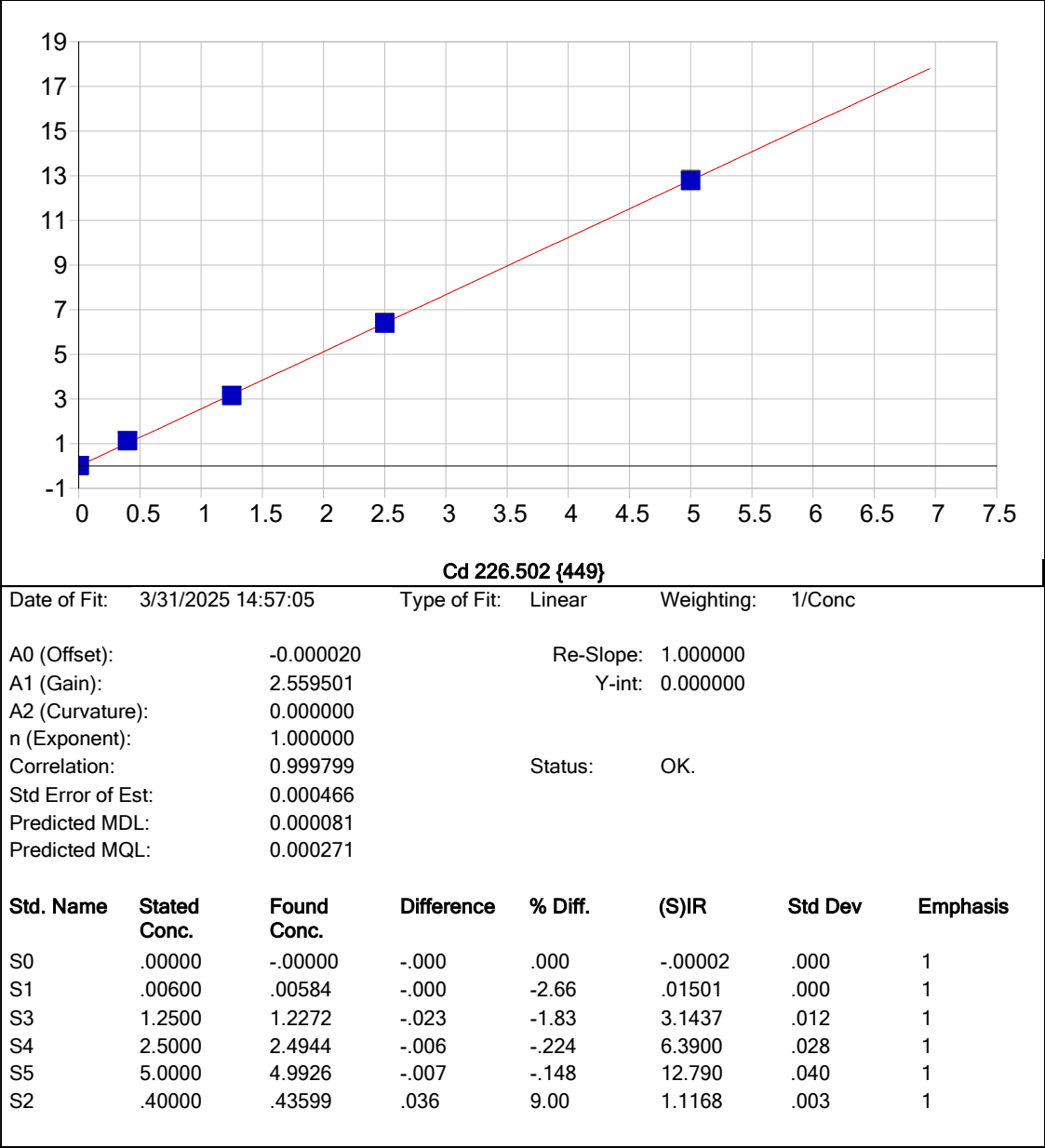


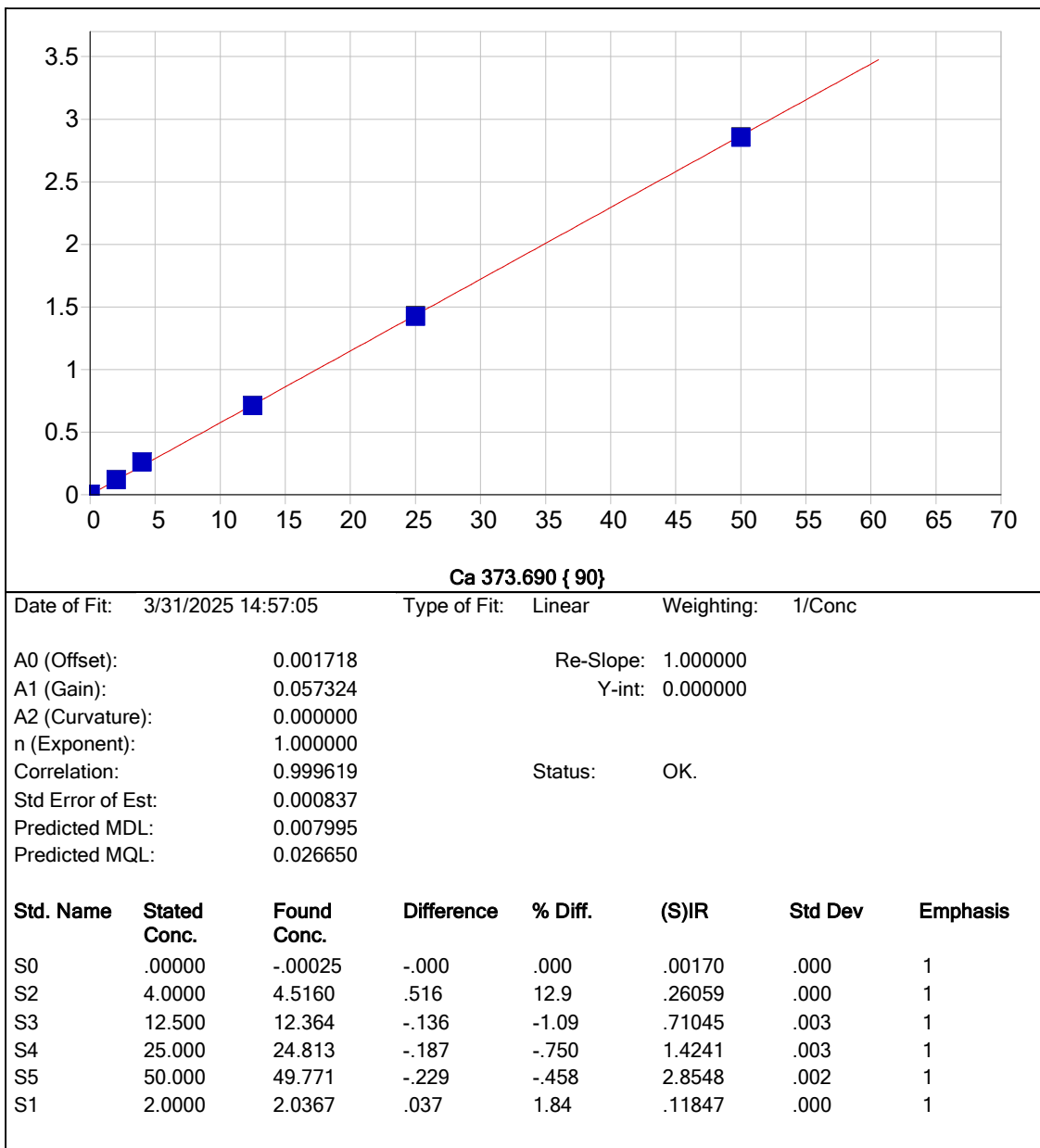


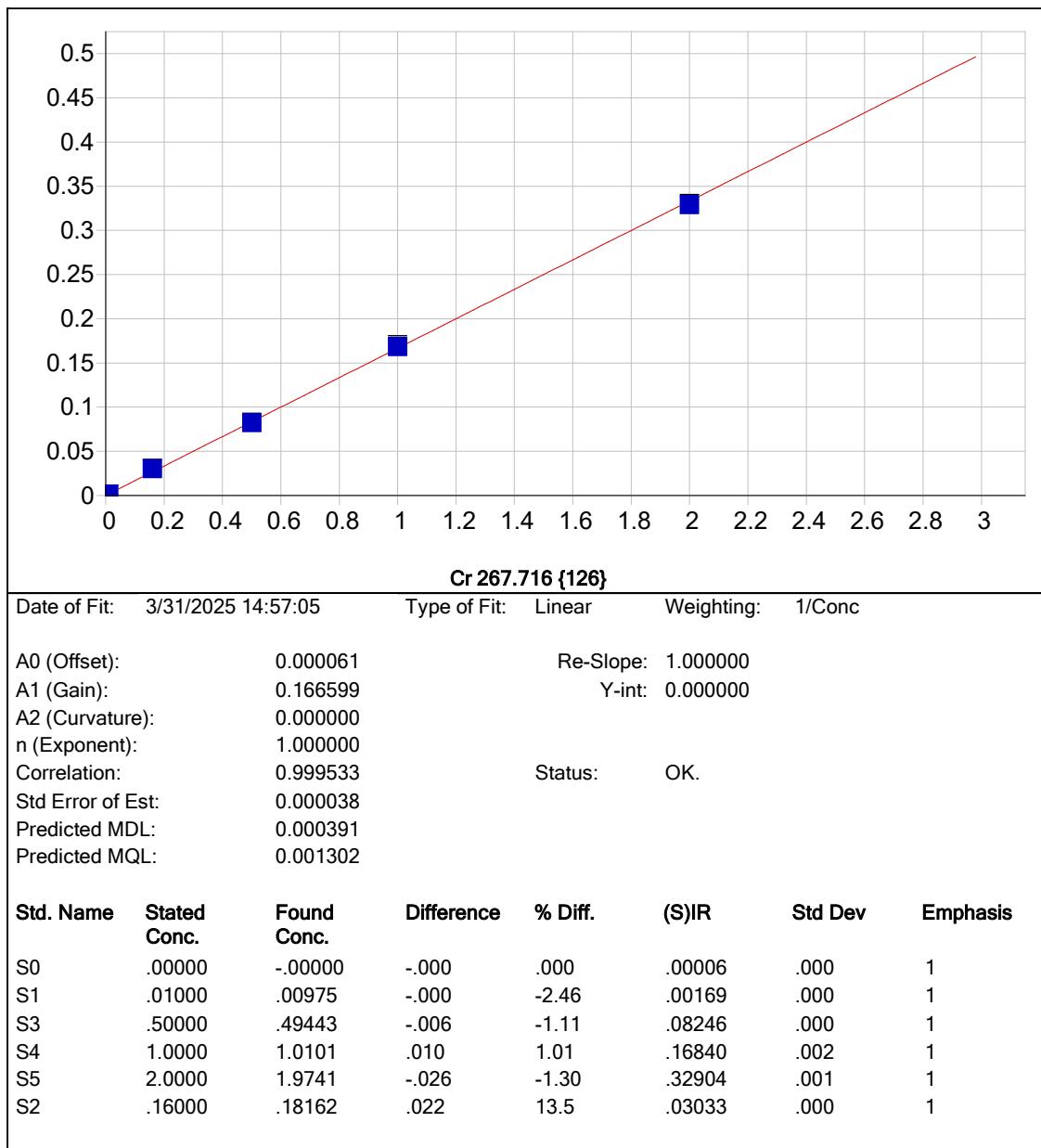


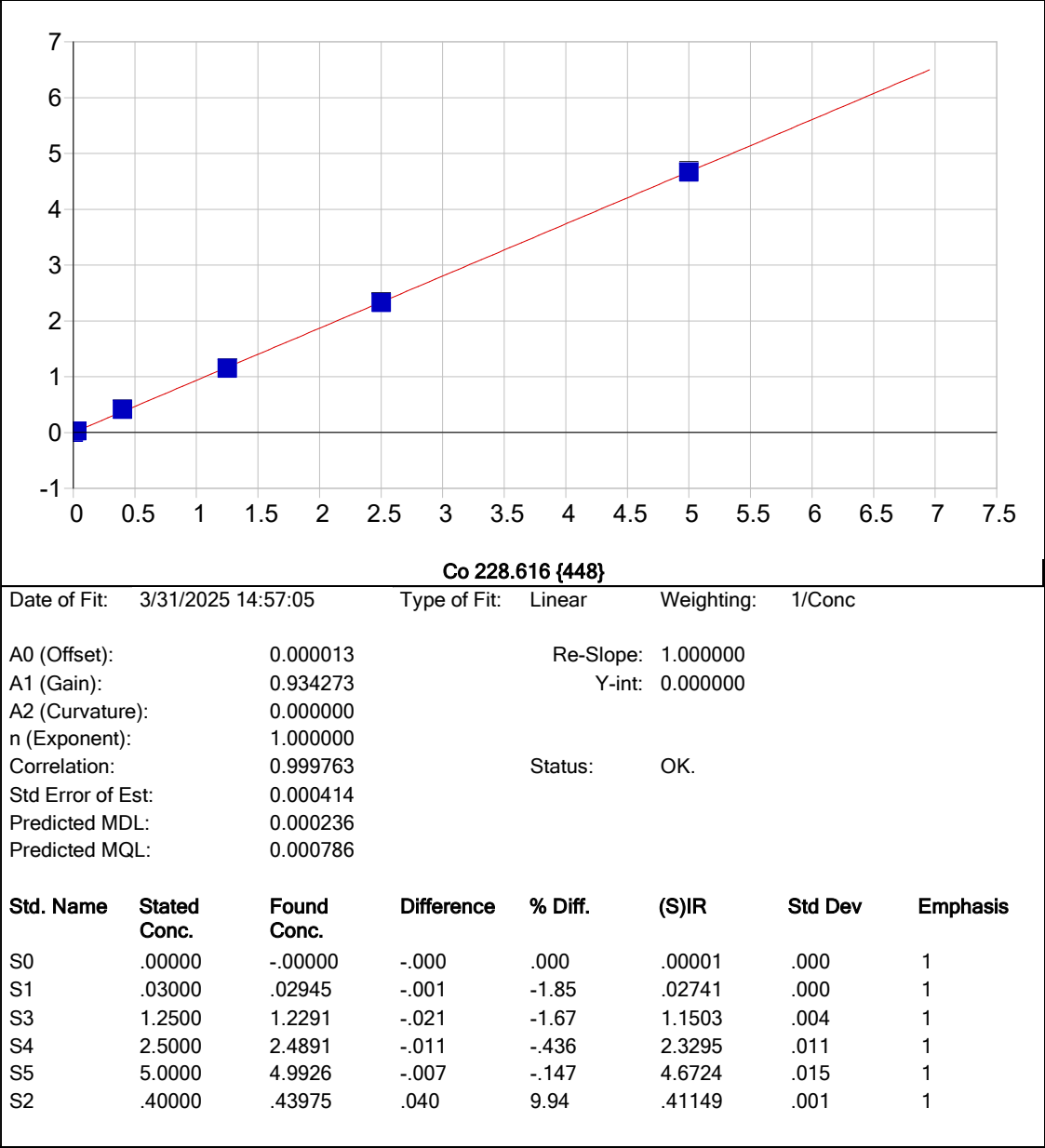


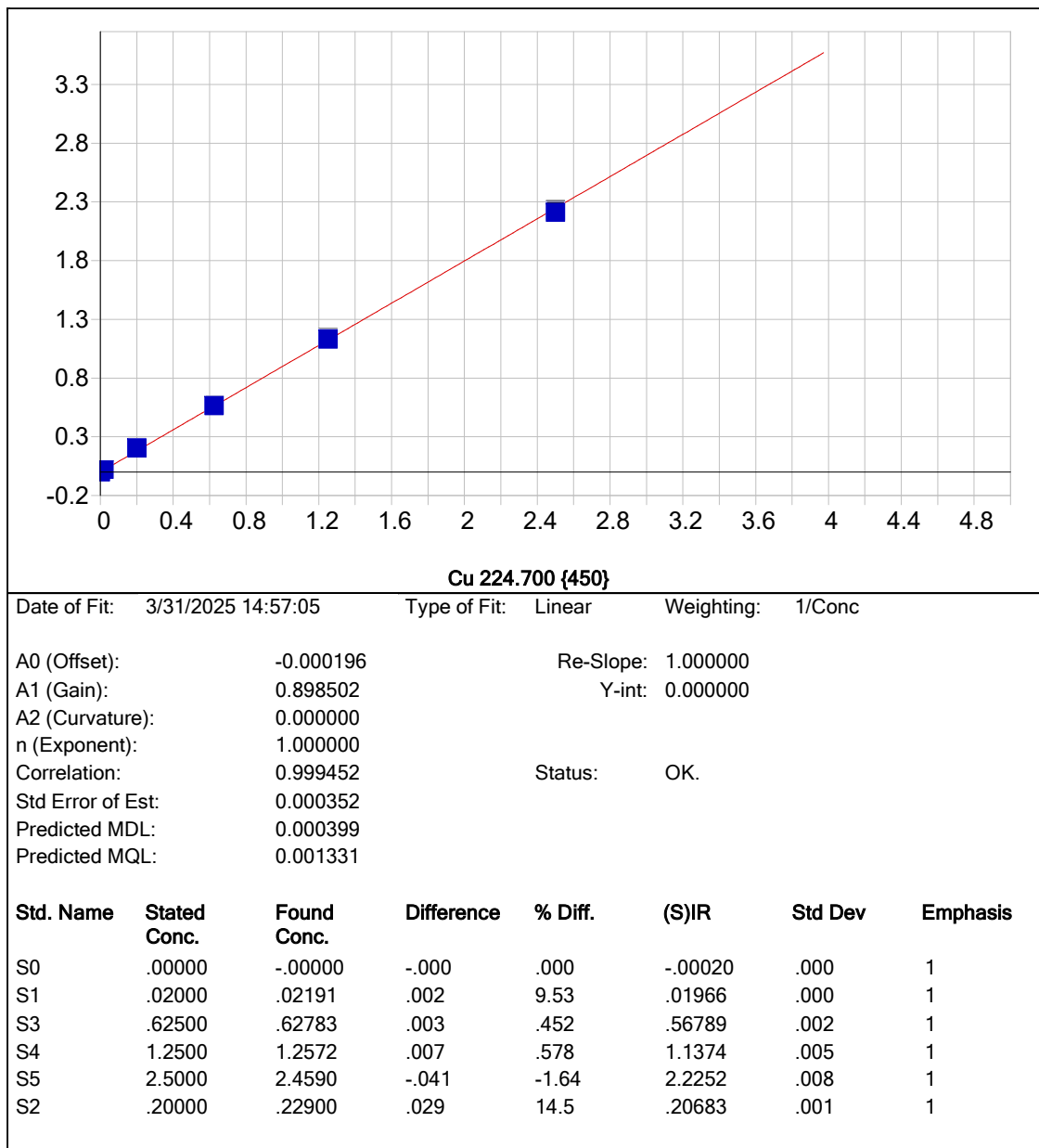


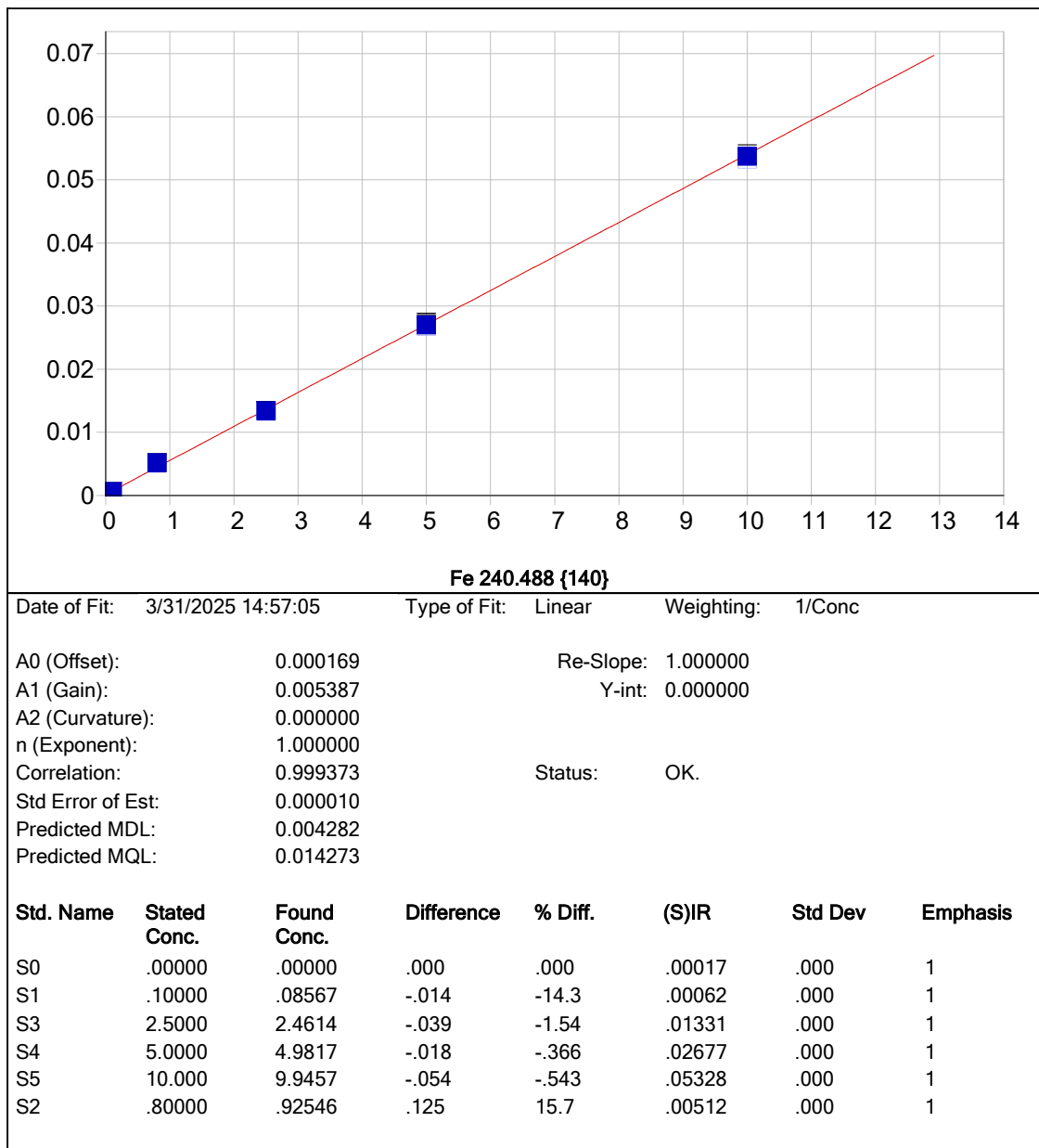


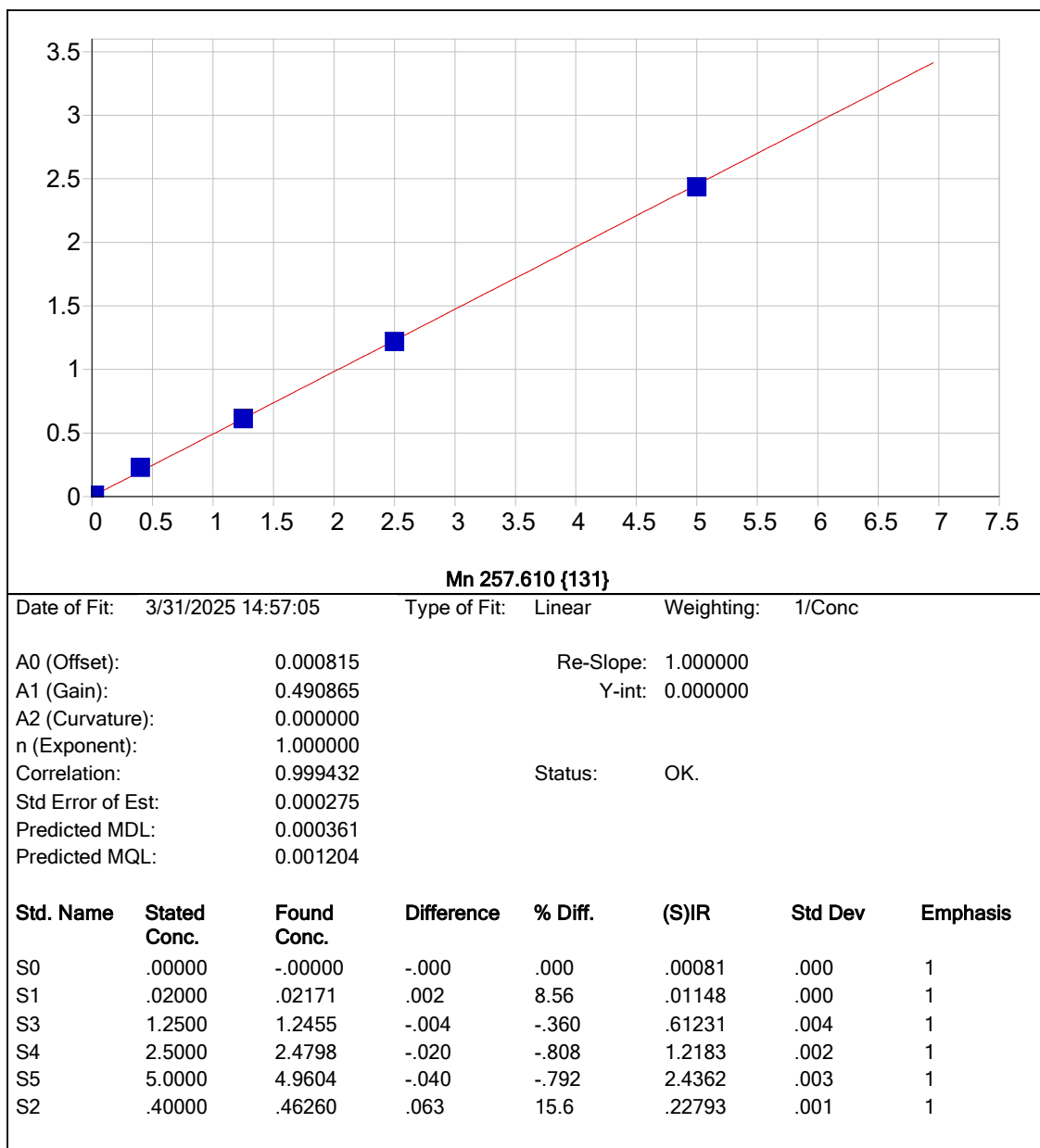


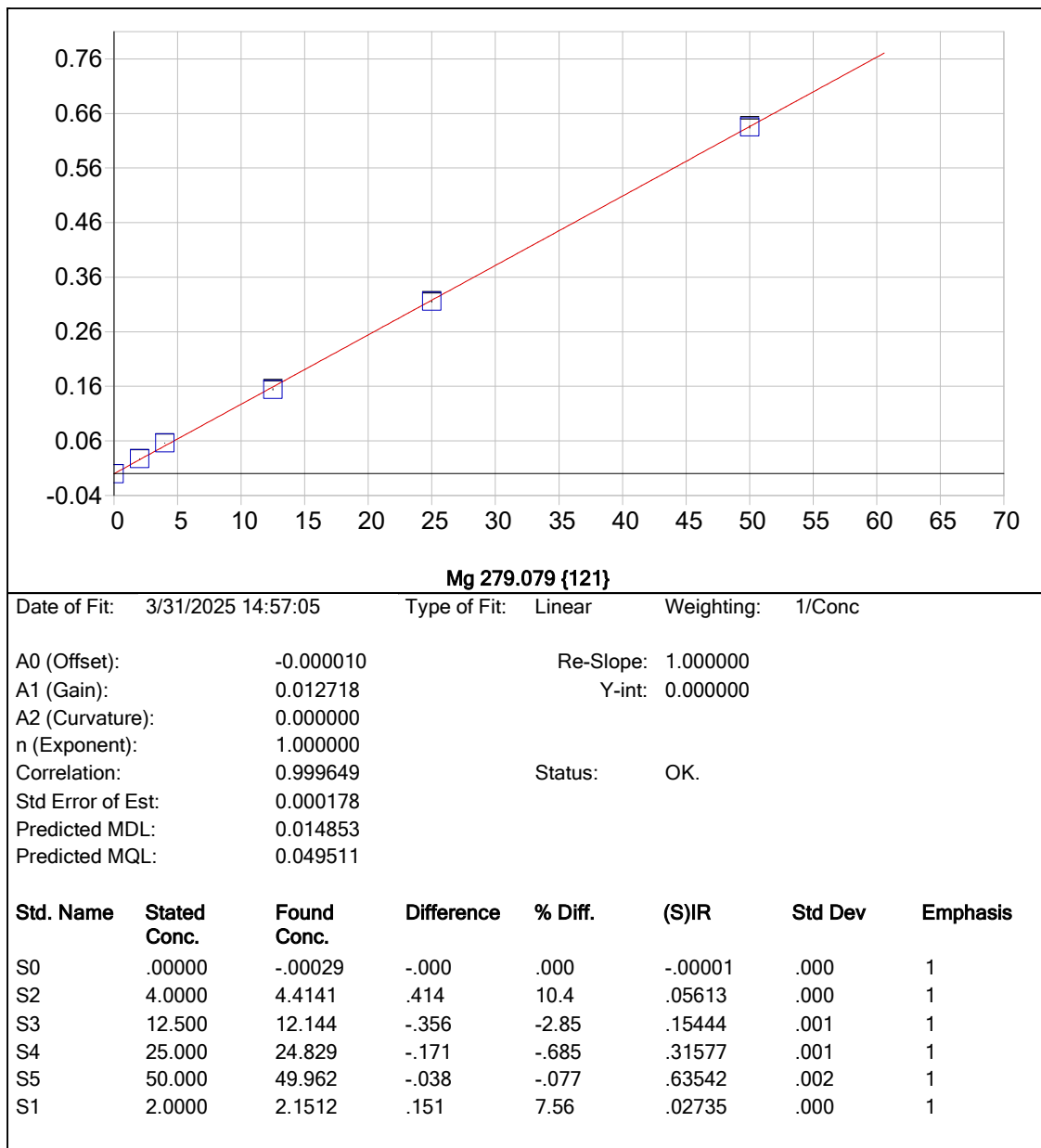


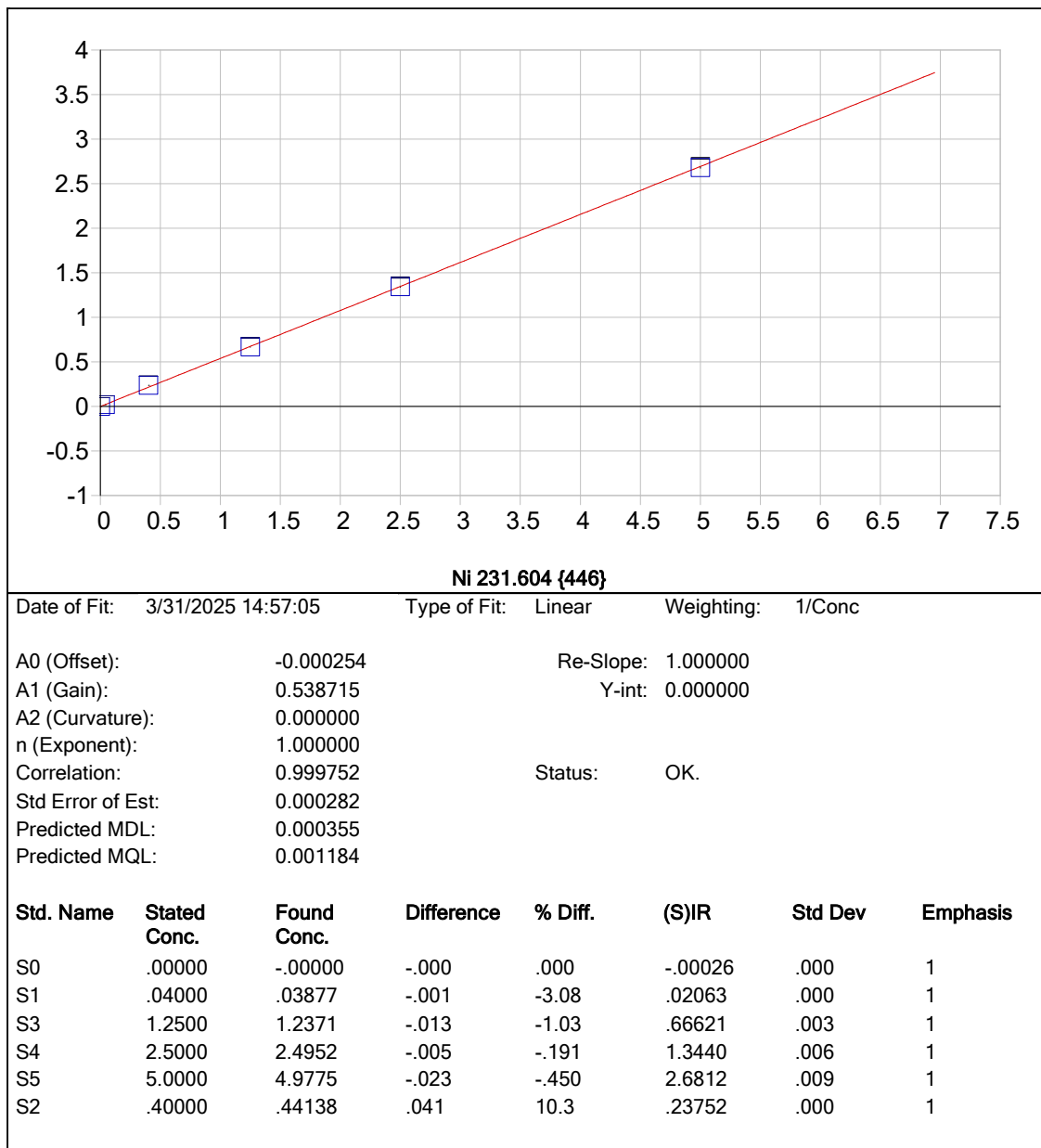


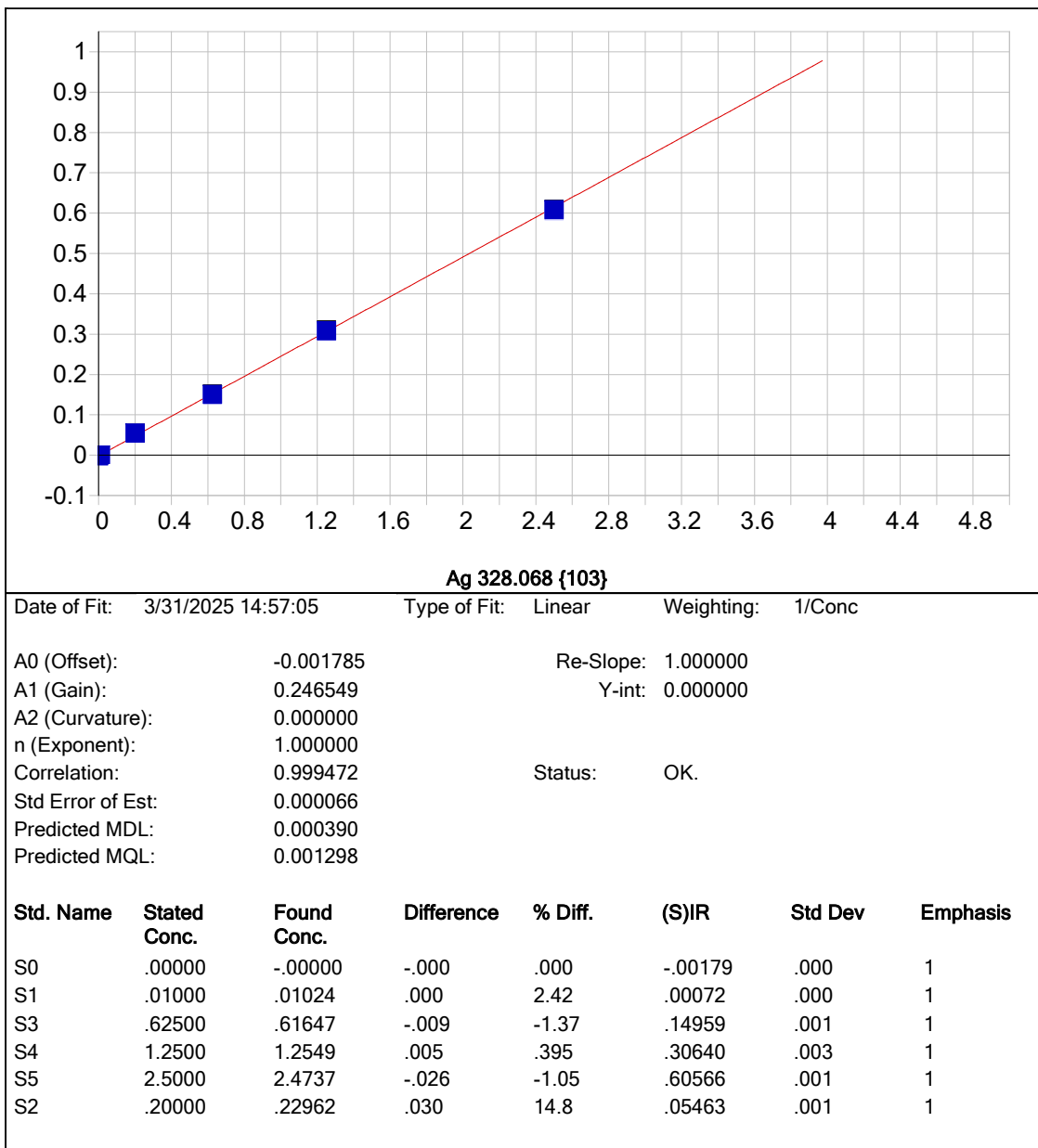


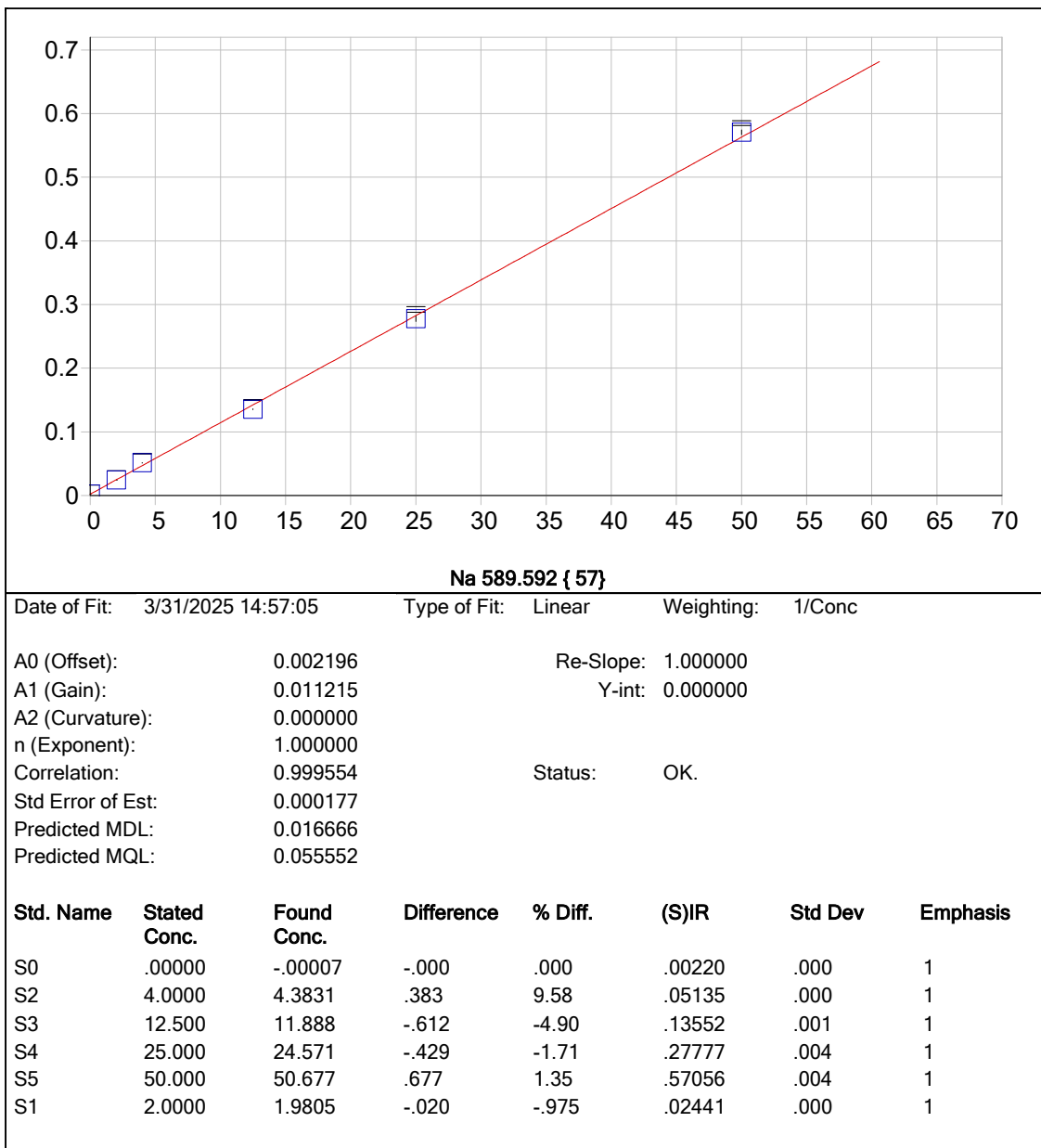


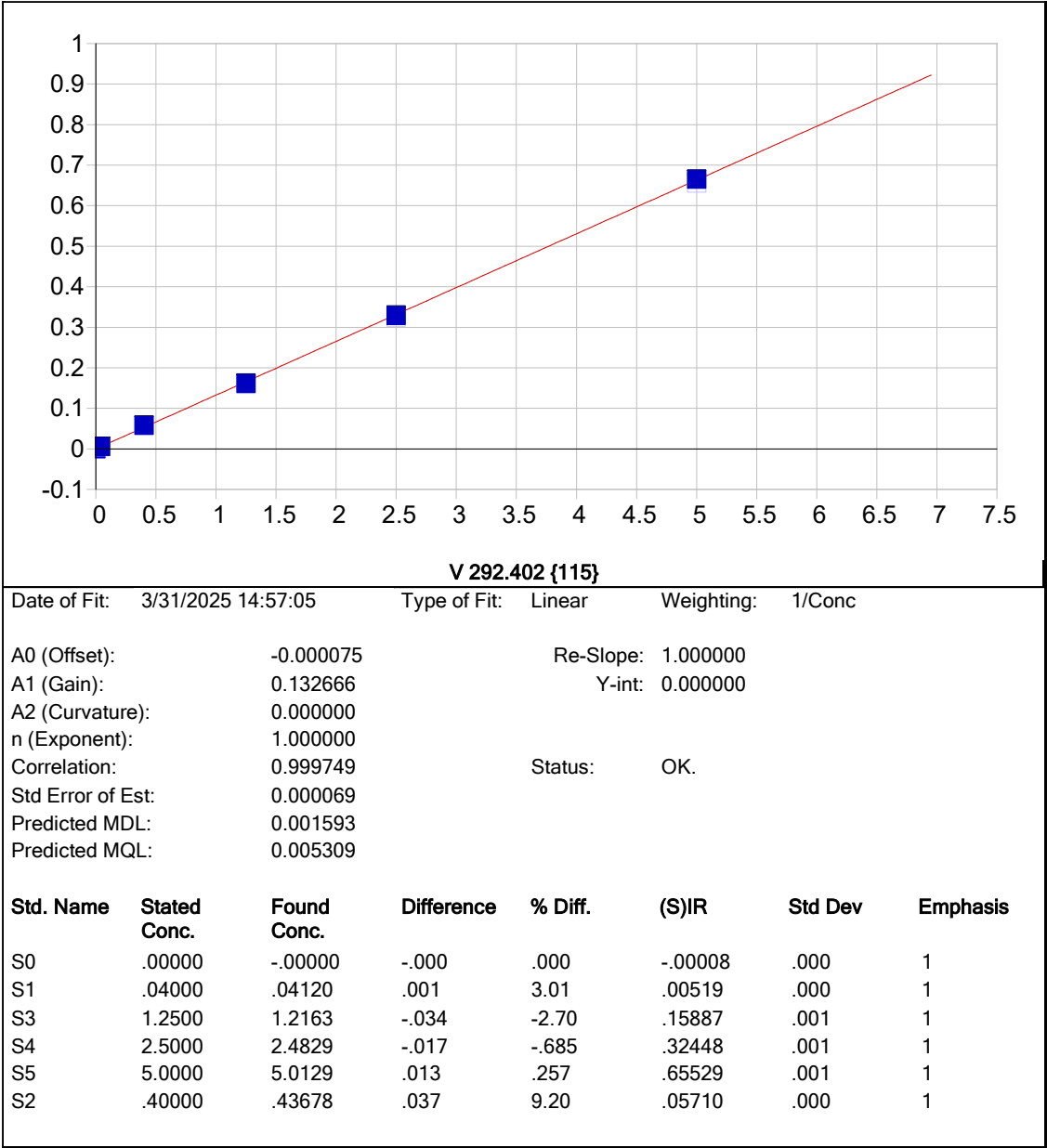


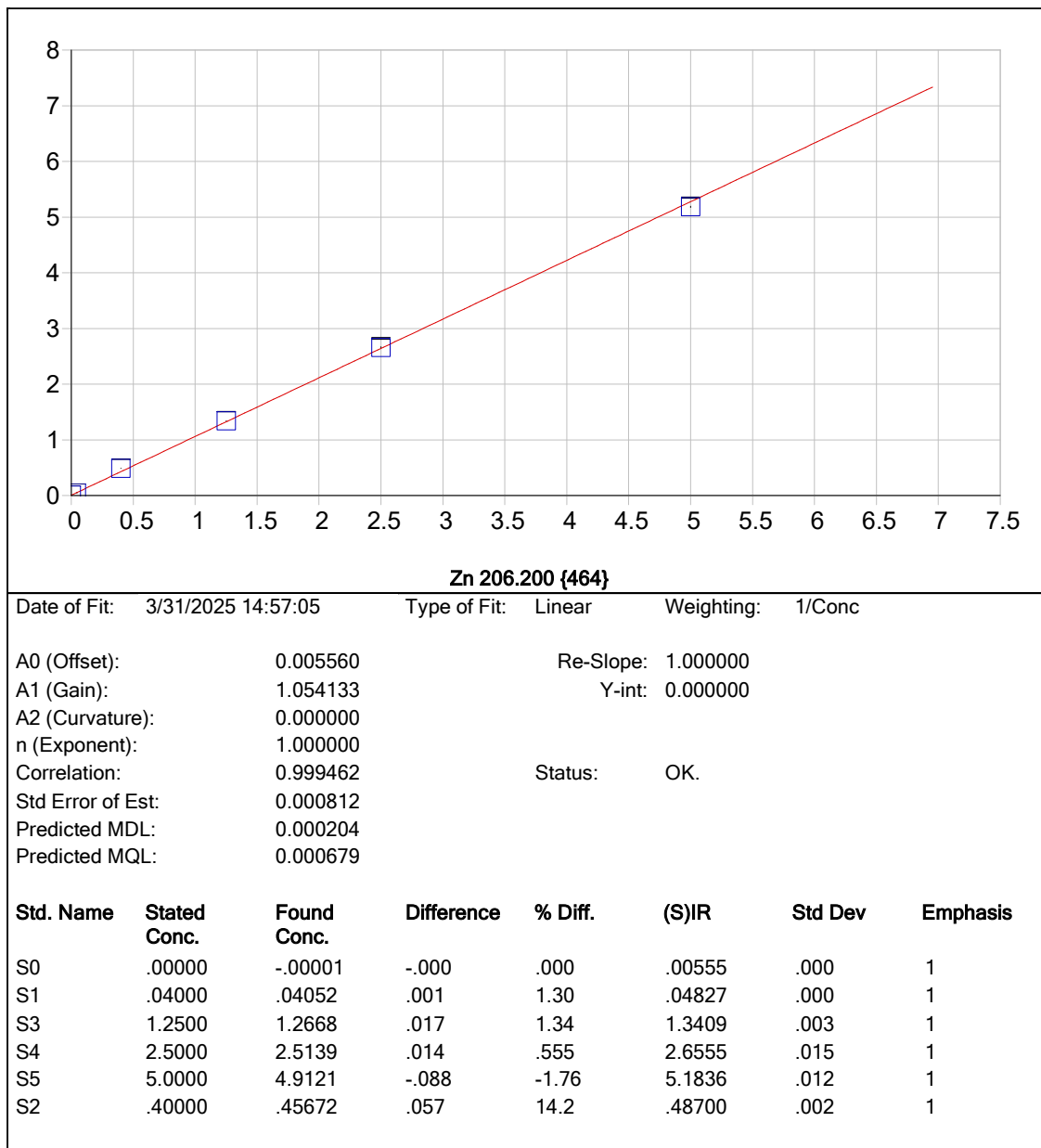


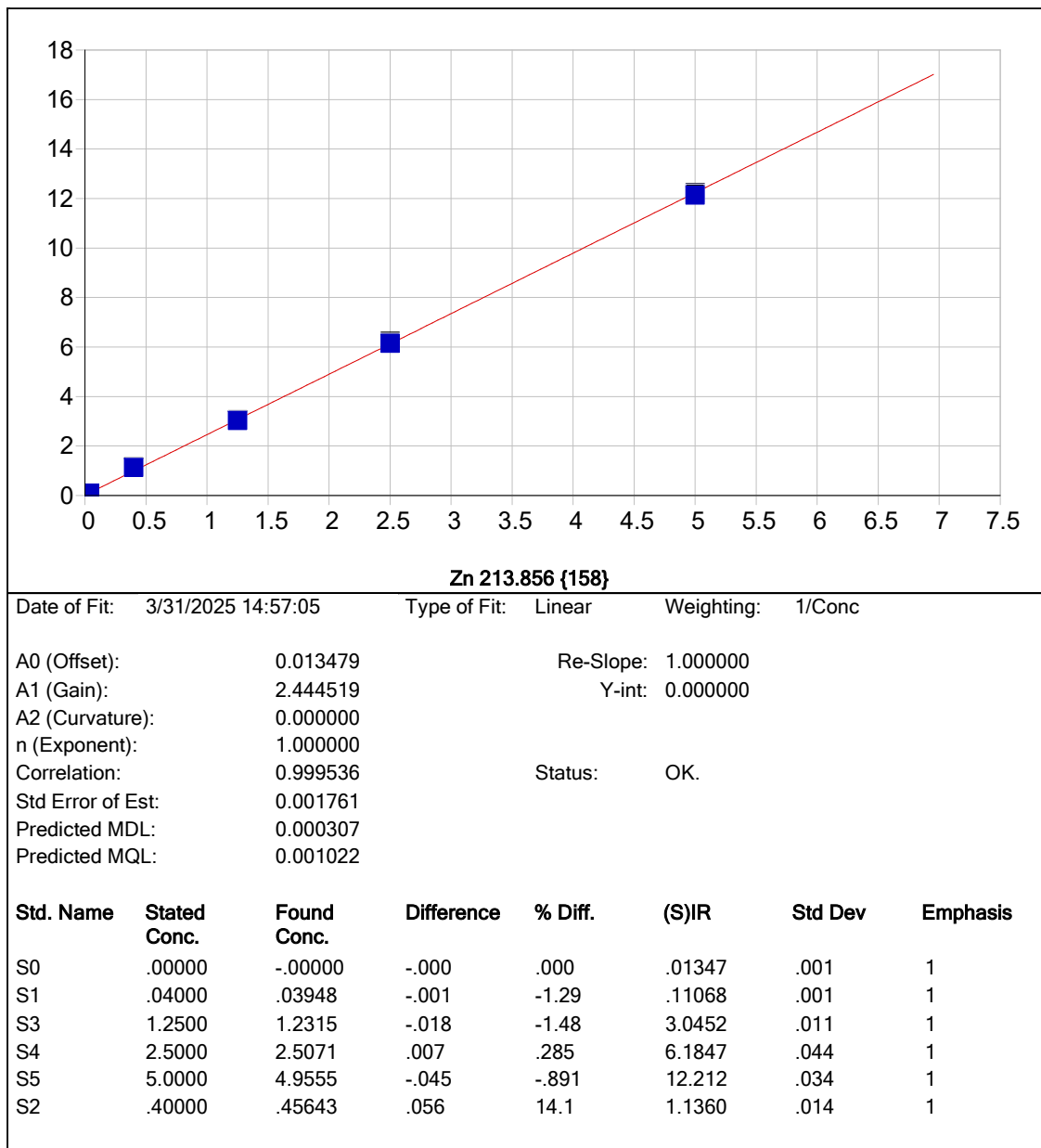


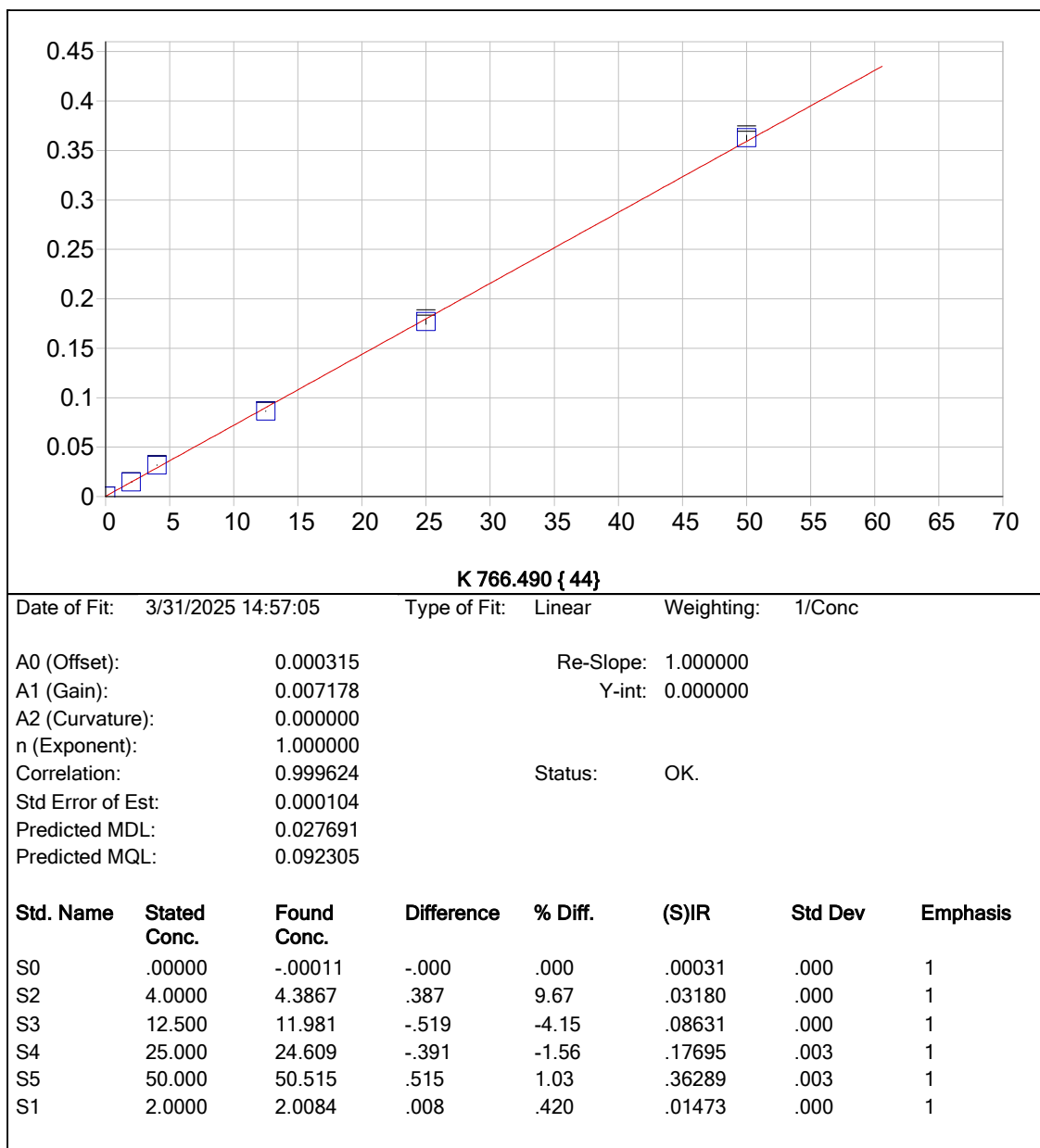


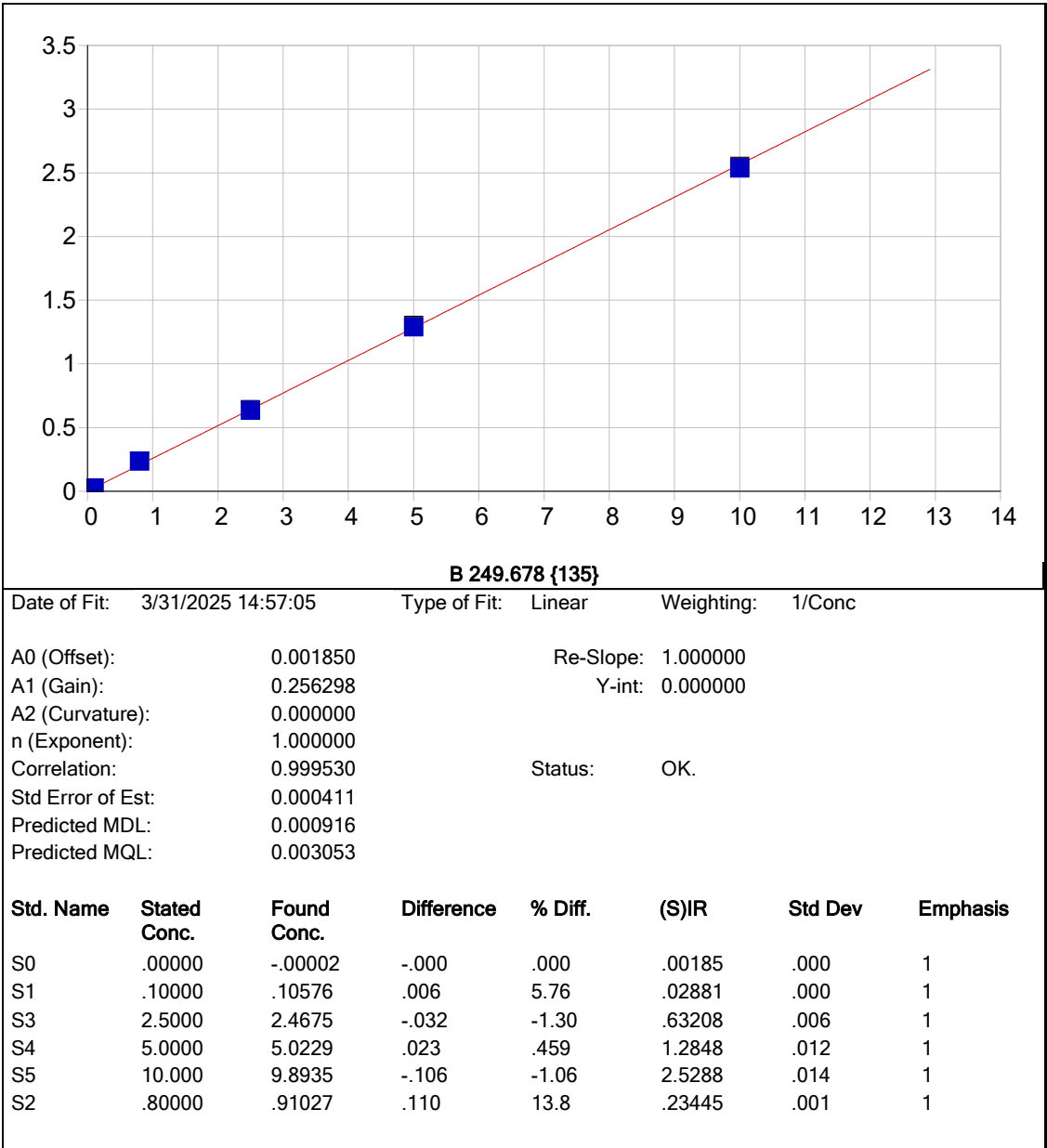


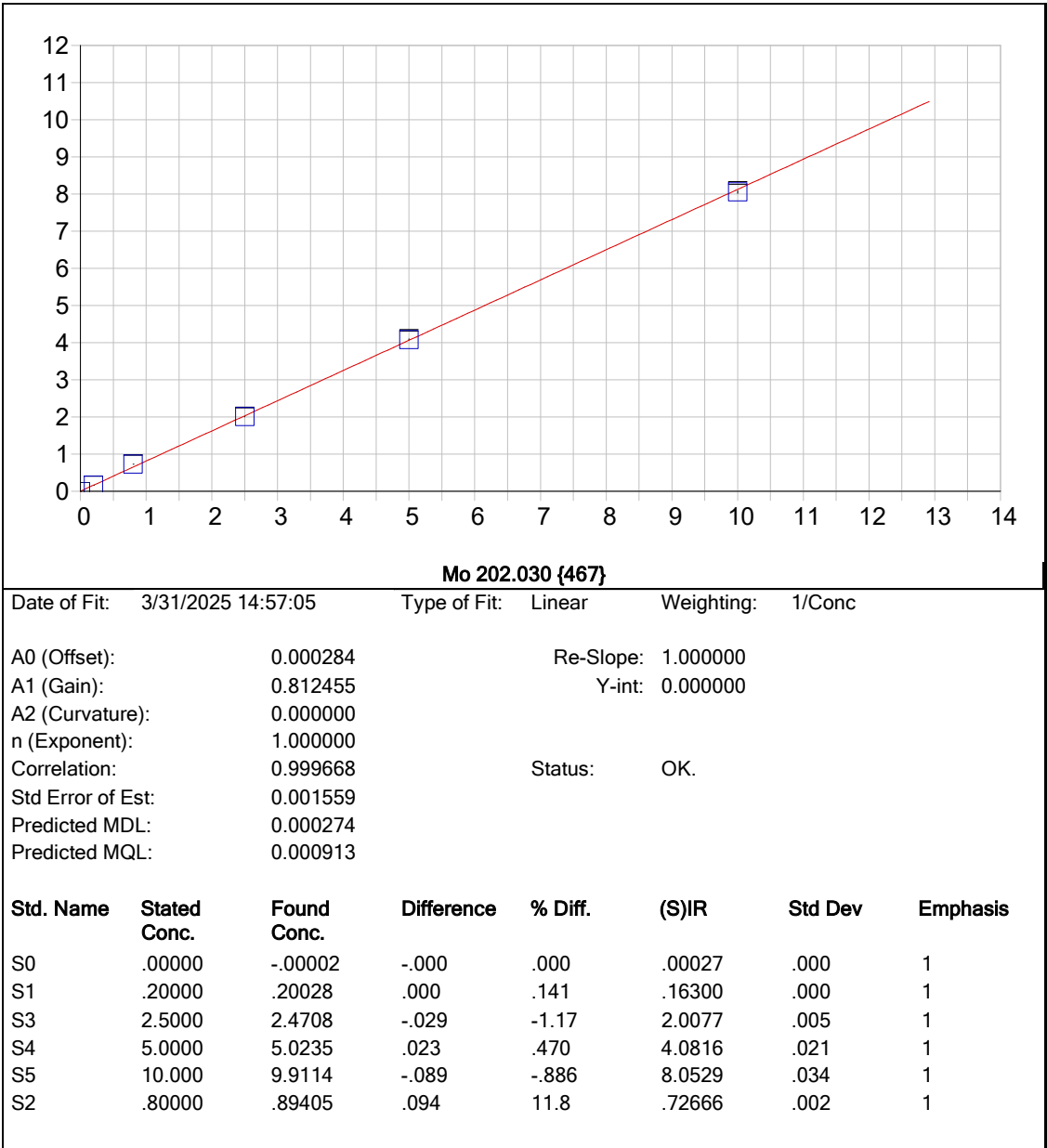


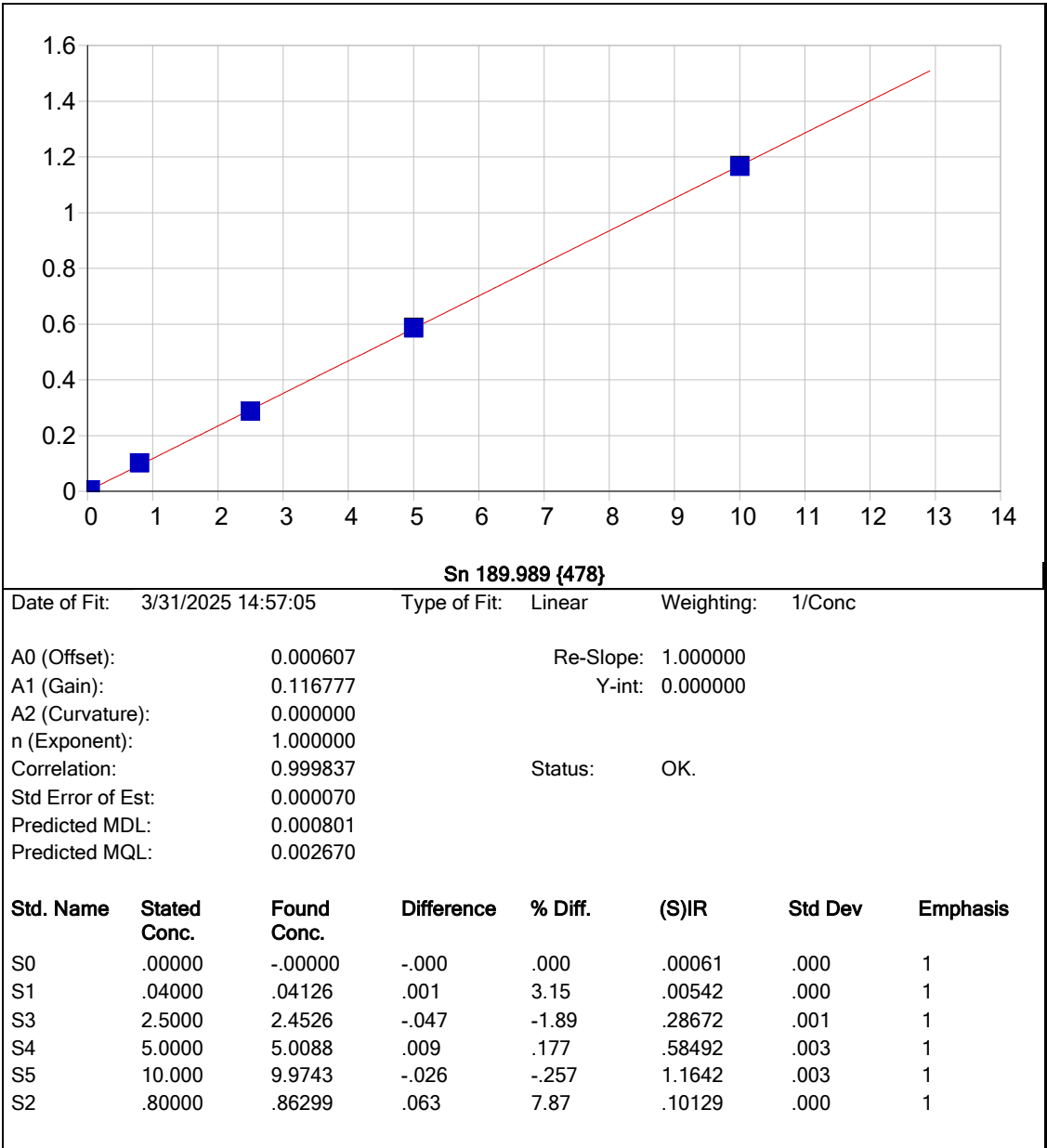


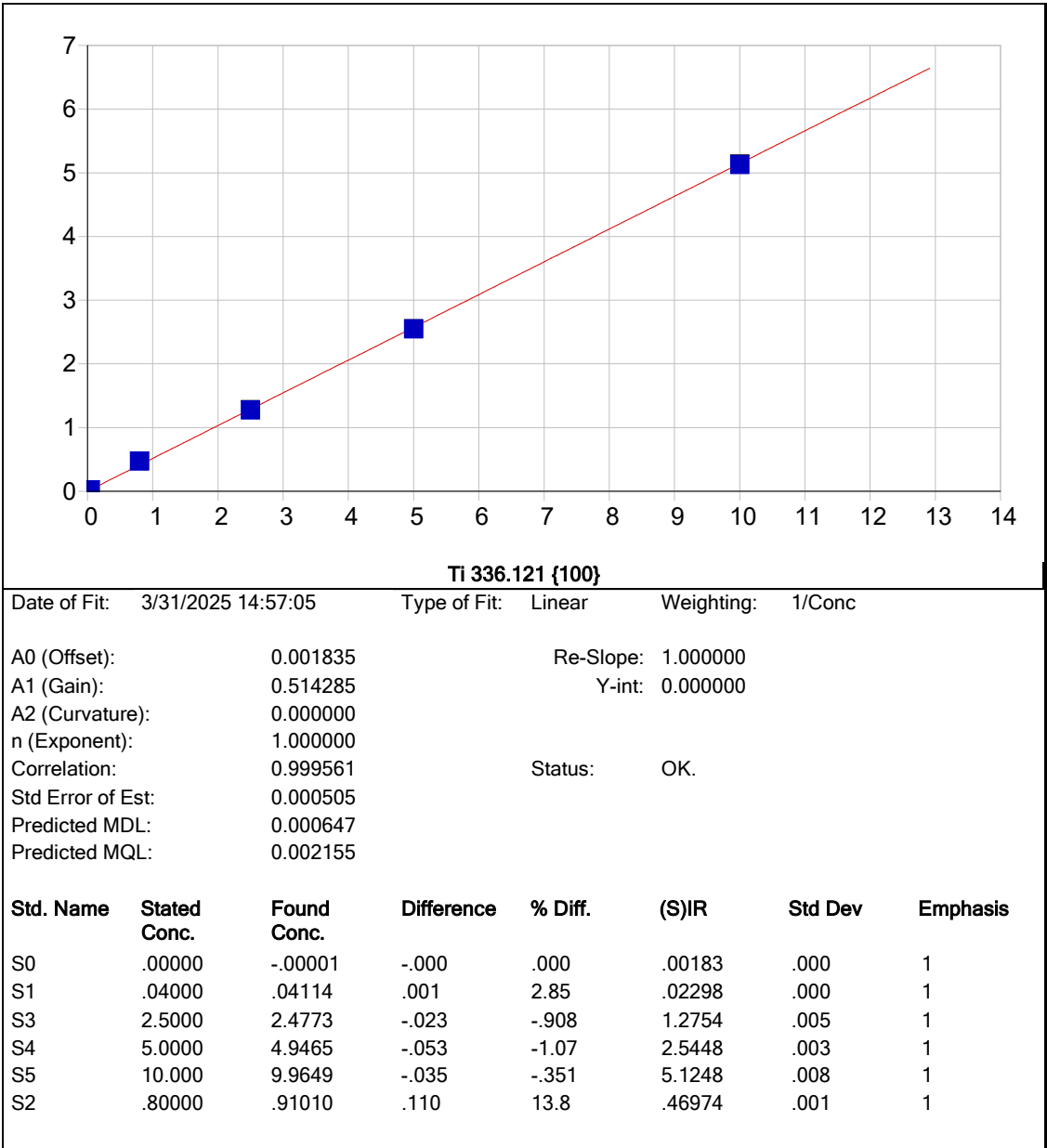


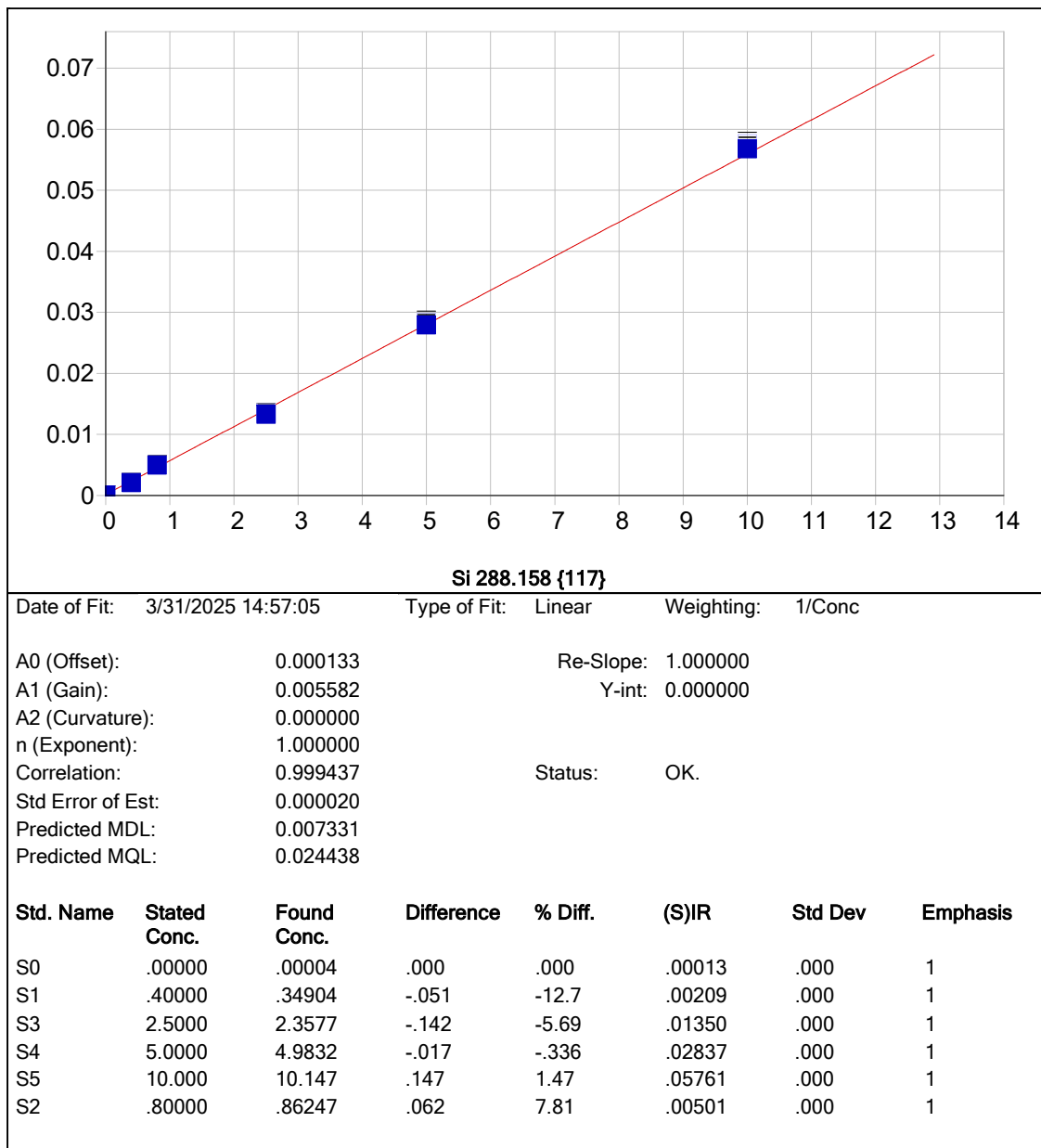


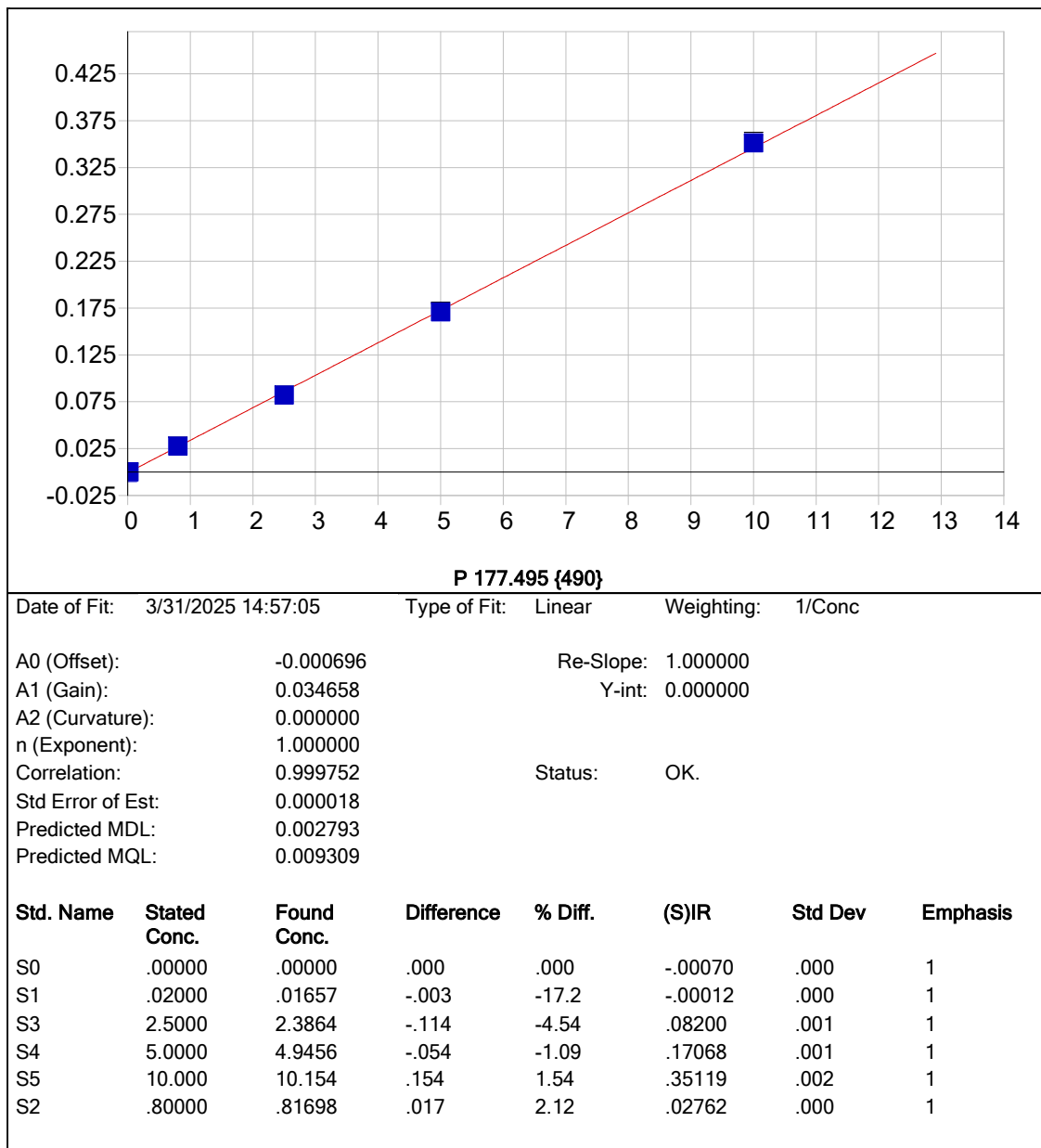


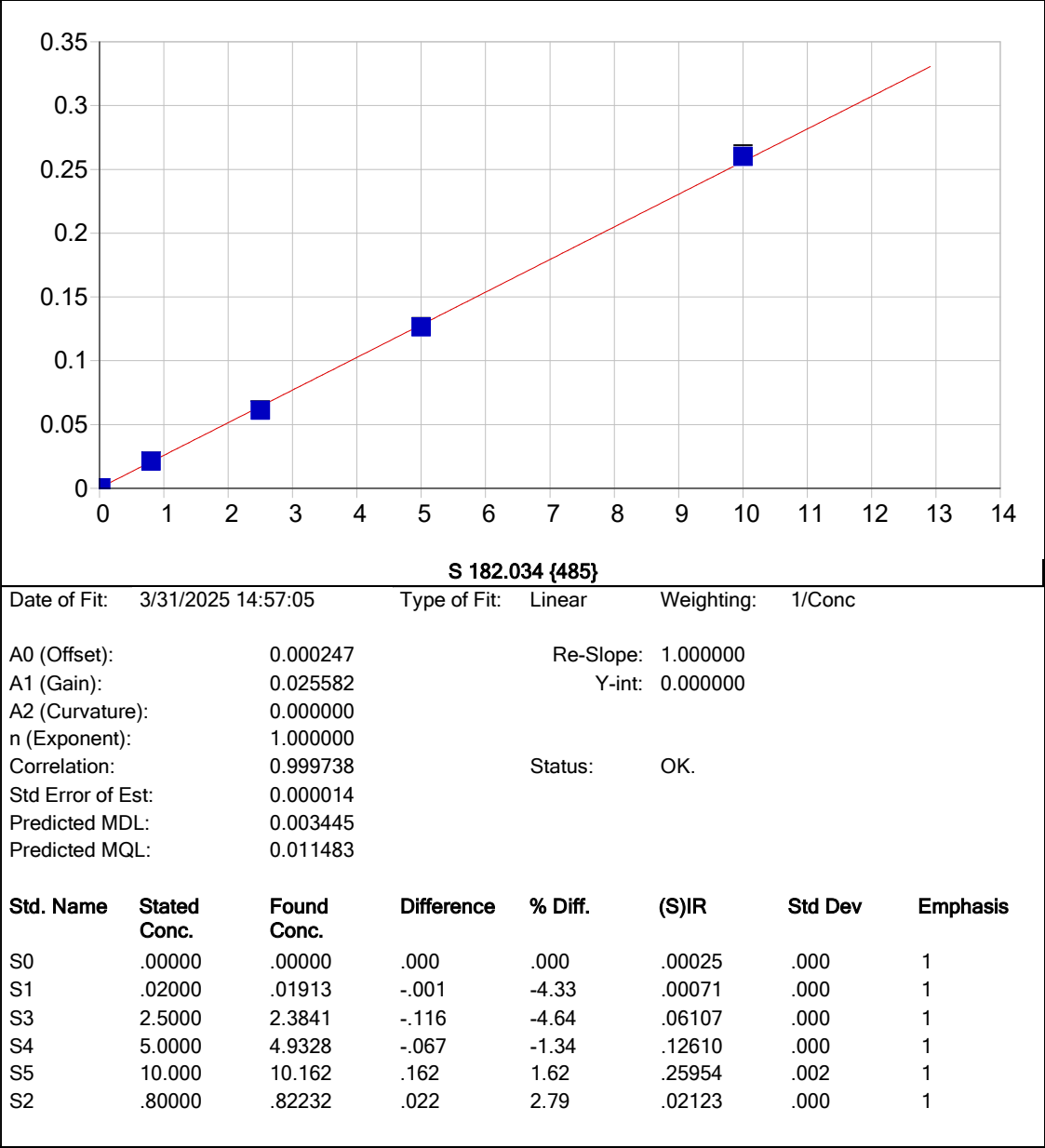


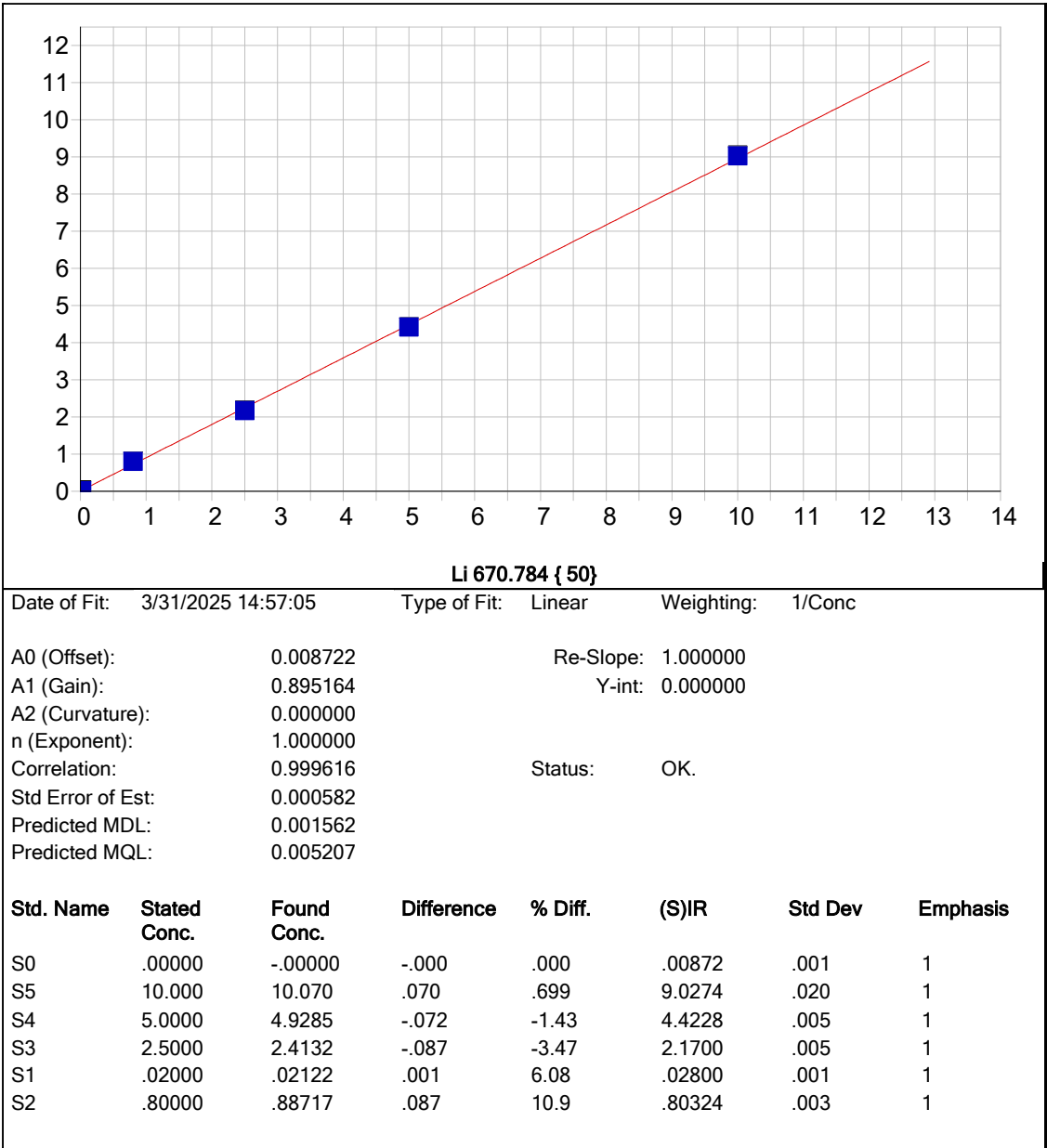


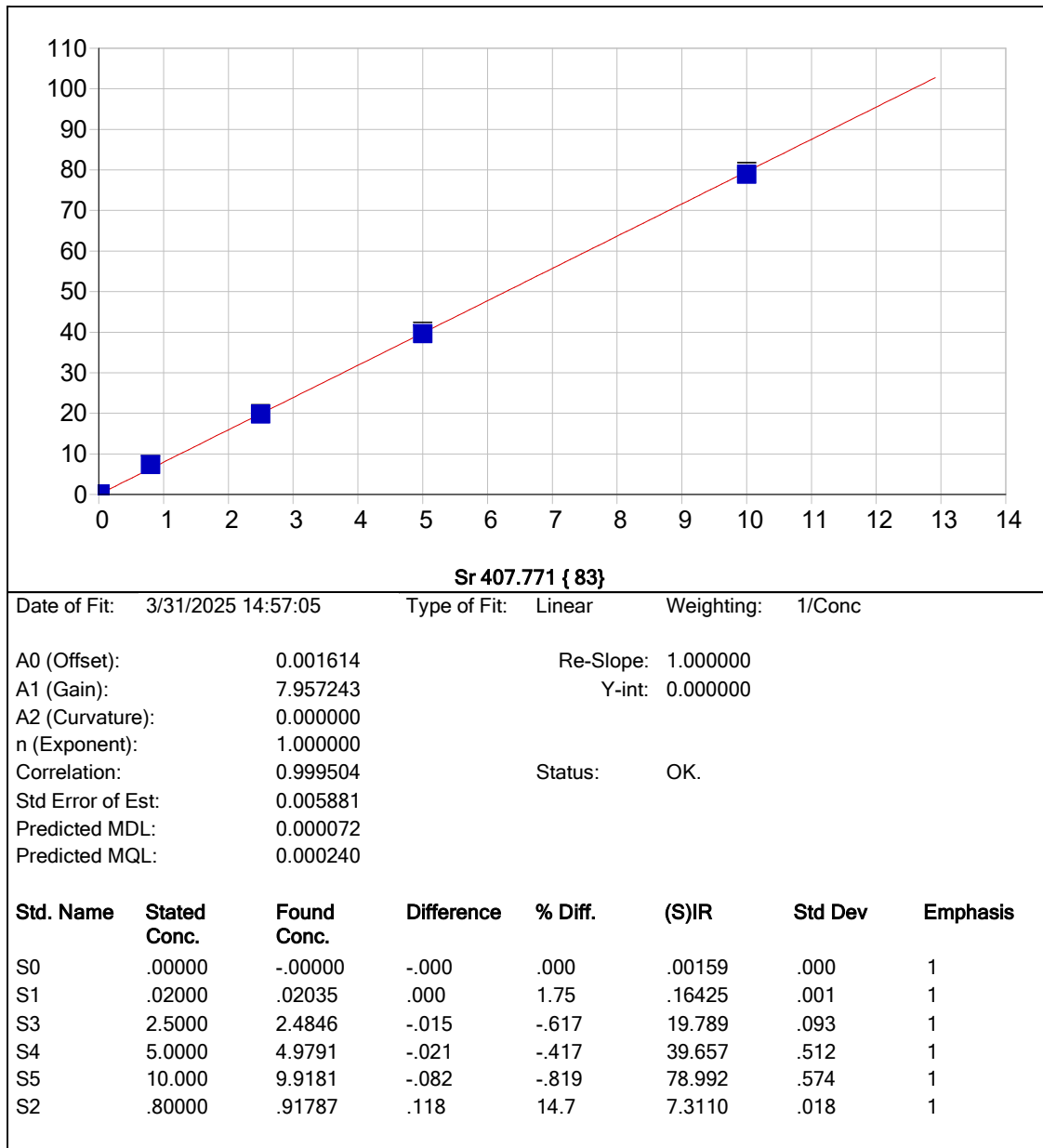


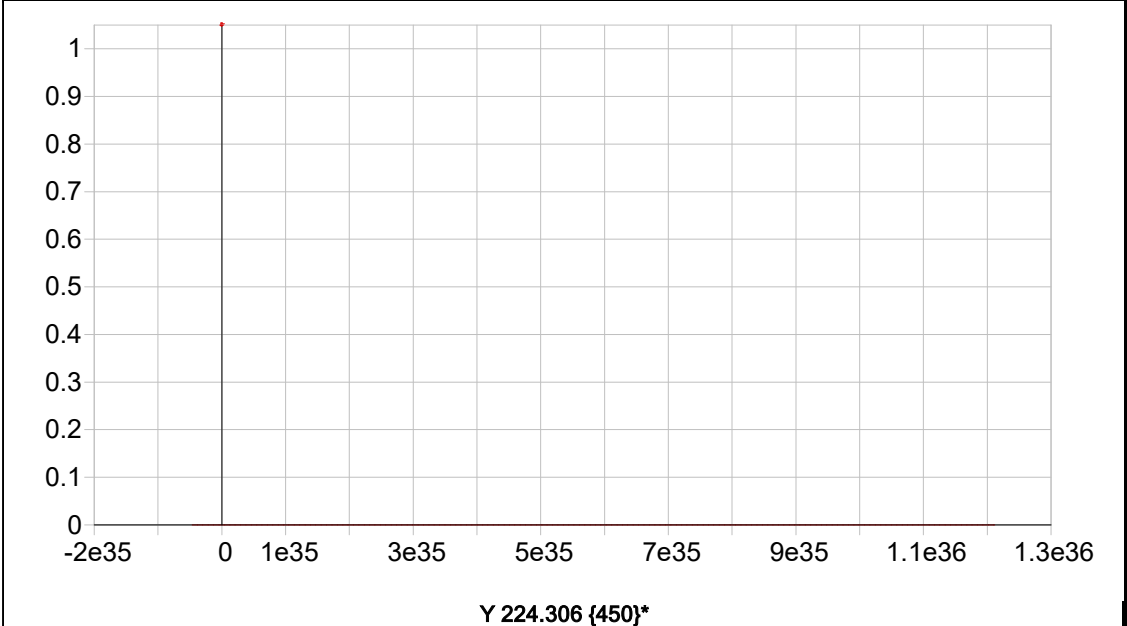


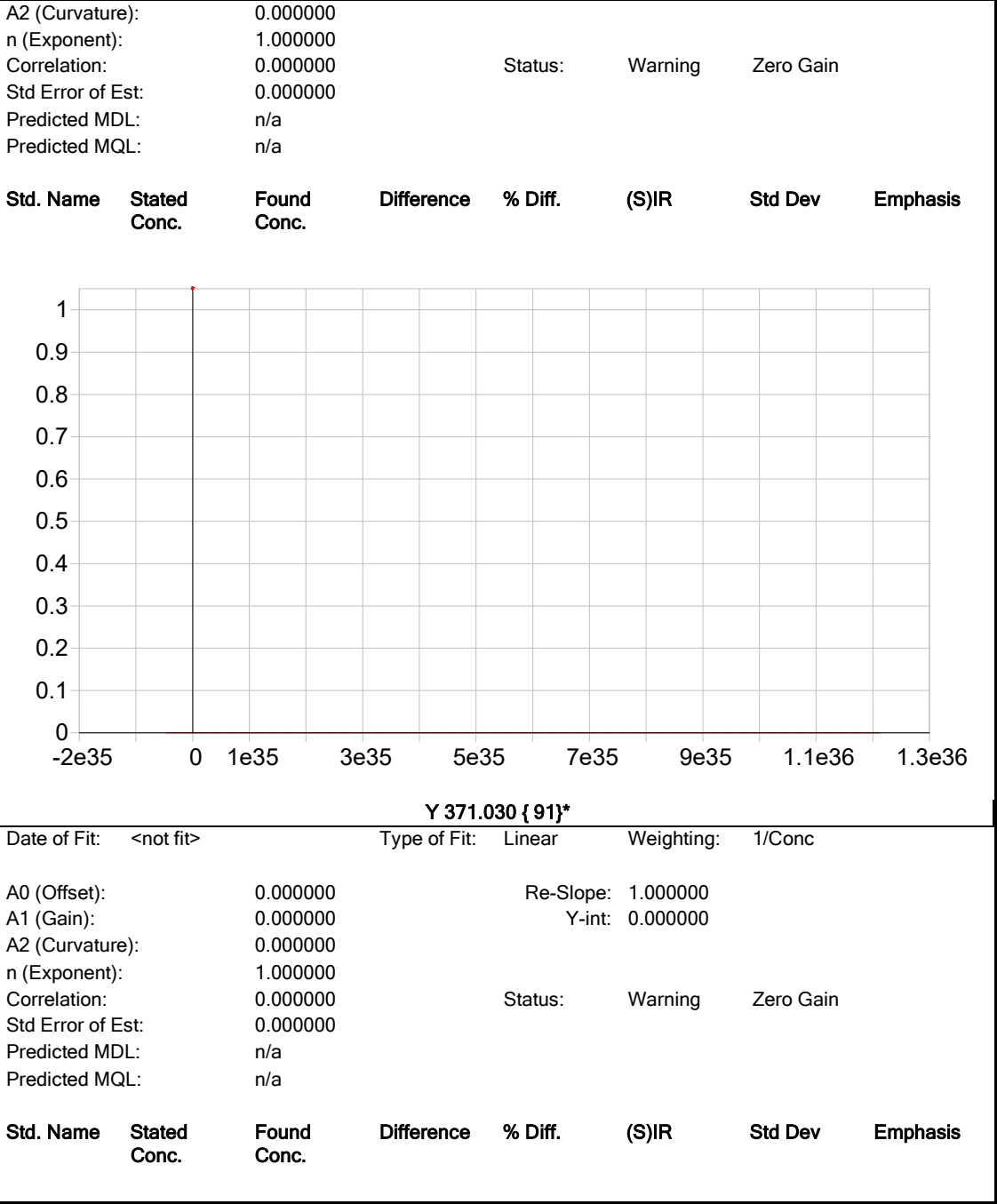


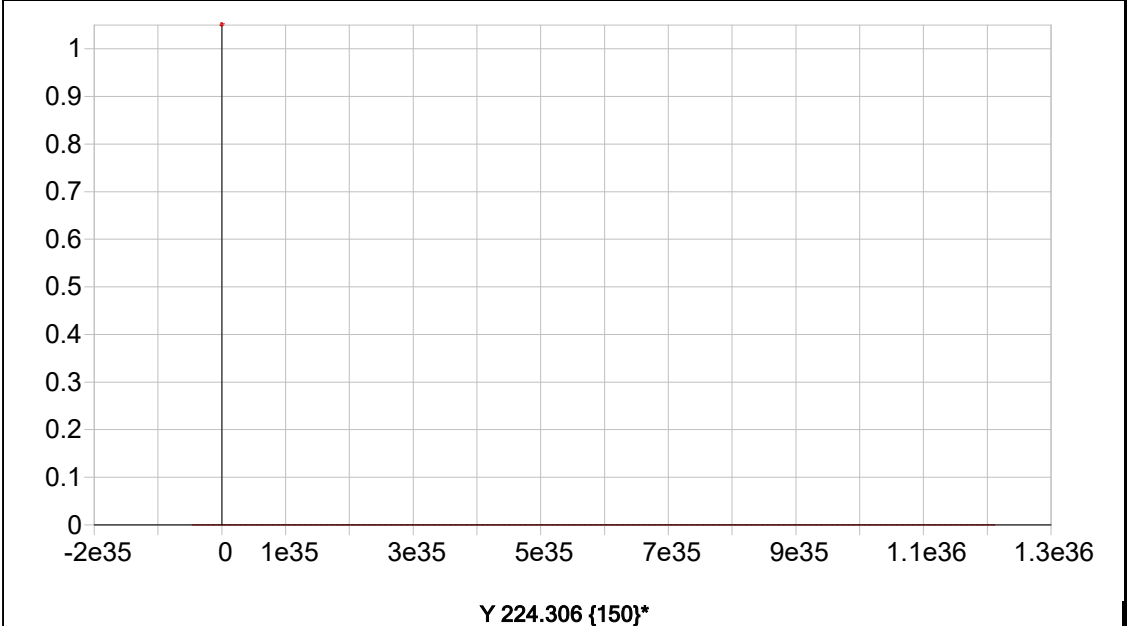






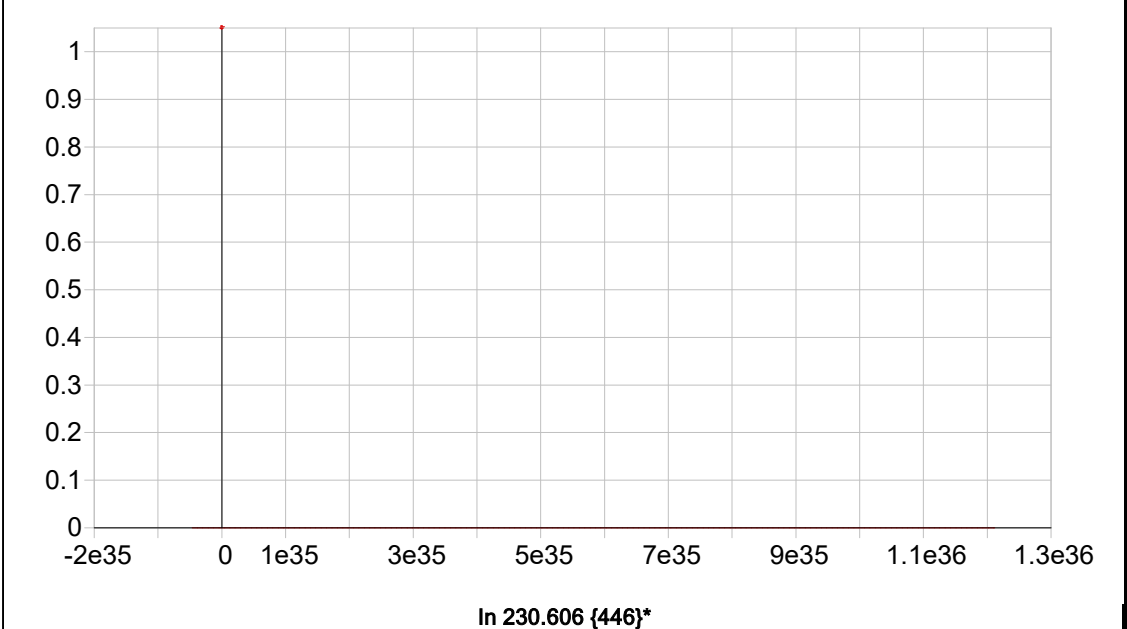






Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
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Date of Fit:	<not fit>		Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000			
A1 (Gain):	0.000000	Y-int:	0.000000			

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

- 1
- 2
- 3
- 4
- 5
- 6
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Sample Name: S0 Acquired: 3/31/2025 12:46:00 Type: Cal
Method: NON EPA-6010-200.7(v2859) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00016	.00009	-.00008	.00031	.00053	.00055	.04781	-.00028
Stddev	.00013	.00007	.00020	.00022	.00016	.00048	.00064	.00027
%RSD	85.458	82.687	248.19	70.686	30.748	87.416	1.3335	97.833
#1	-.00014	.00009	-.00025	.00056	.00037	.00111	.04821	.00002
#2	-.00003	.00001	-.00013	.00020	.00070	.00027	.04708	-.00035
#3	-.00030	.00016	.00014	.00016	.00052	.00028	.04815	-.00051
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	-.00002	.00170	.00006	.00001	-.00020	.00017	.00081	-.00001
Stddev	.00022	.00009	.00006	.00014	.00036	.00001	.00020	.00008
%RSD	1060.4	5.3588	92.381	1171.2	179.84	3.8633	24.167	601.25
#1	-.00008	.00165	-.00000	.00002	.00001	.00017	.00104	.00002
#2	-.00020	.00181	.00009	-.00013	.00001	.00016	.00074	-.00011
#3	.00022	.00165	.00009	.00014	-.00062	.00018	.00066	.00005
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	-.00026	-.00179	.00220	-.00008	.01347	.00031	.00185	.00027
Stddev	.00016	.00005	.00018	.00004	.00104	.00006	.00009	.00023
%RSD	63.746	3.0353	7.9761	57.658	7.6886	18.164	4.7035	84.631
#1	-.00015	-.00182	.00210	-.00009	.01432	.00026	.00175	.00005
#2	-.00044	-.00172	.00240	-.00003	.01232	.00037	.00188	.00050
#3	-.00017	-.00181	.00209	-.00011	.01377	.00031	.00191	.00025
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	.00061	.00183	.00013	-.00070	.00025	.00872	.00159	
Stddev	.00008	.00030	.00002	.00005	.00009	.00118	.00022	
%RSD	13.772	16.573	16.739	6.7960	34.751	13.567	13.621	
#1	.00070	.00207	.00015	-.00069	.00023	.00744	.00134	
#2	.00059	.00193	.00015	-.00075	.00034	.00894	.00173	
#3	.00053	.00149	.00011	-.00065	.00017	.00978	.00170	

Sample Name: S0 Acquired: 3/31/2025 12:46:00 Type: Cal
Method: NON EPA-6010-200.7(v2859) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2527.4	75083.	13808.	2450.6	4593.1
Stddev	5.2	62.	47.	15.7	4.0
%RSD	.20673	.08231	.34113	.64117	.08816
#1	2529.5	75017.	13849.	2432.4	4594.3
#2	2531.3	75090.	13819.	2459.1	4596.4
#3	2521.5	75140.	13756.	2460.1	4588.6

Sample Name: S1 Acquired: 3/31/2025 12:50:26 Type: Cal
Method: NON EPA-6010-200.7(v2859) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00110	.00249	.00232	.00143	.00768	.00832	.29252	.01754
Stddev	.00002	.00006	.00016	.00008	.00022	.00051	.00232	.00005
%RSD	1.8580	2.6127	6.7400	5.8845	2.9013	6.1636	.79209	.30714
#1	.00109	.00251	.00243	.00140	.00750	.00880	.29156	.01756
#2	.00113	.00241	.00214	.00153	.00793	.00839	.29516	.01748
#3	.00109	.00254	.00240	.00136	.00761	.00778	.29084	.01758
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	.01501	.11847	.00169	.02741	.01966	.00062	.01148	.02735
Stddev	.00010	.00043	.00001	.00023	.00007	.00000	.00020	.00016
%RSD	.66928	.36177	.48298	.85350	.35008	.54921	1.7513	.59231
#1	.01494	.11801	.00170	.02717	.01959	.00063	.01167	.02726
#2	.01496	.11854	.00169	.02741	.01973	.00063	.01127	.02725
#3	.01512	.11886	.00168	.02764	.01966	.00062	.01150	.02754
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	.02063	.00072	.02441	.00519	.11068	.01473	.02881	.16300
Stddev	.00019	.00007	.00006	.00007	.00127	.00006	.00015	.00022
%RSD	.90002	10.366	.25254	1.4289	1.1432	.43606	.53677	.13268
#1	.02042	.00076	.02443	.00527	.11213	.01466	.02890	.16286
#2	.02075	.00064	.02434	.00512	.10979	.01474	.02863	.16290
#3	.02072	.00077	.02446	.00519	.11012	.01479	.02890	.16325
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	.00542	.02298	.00209	-.00012	.00071	.02800	.16425	
Stddev	.00009	.00041	.00003	.00005	.00007	.00149	.00100	
%RSD	1.5735	1.7873	1.4703	42.293	9.3625	5.3042	.60699	
#1	.00551	.02345	.00205	-.00018	.00079	.02814	.16442	
#2	.00540	.02272	.00209	-.00010	.00068	.02941	.16515	
#3	.00534	.02276	.00212	-.00008	.00068	.02645	.16318	

Sample Name: S1 Acquired: 3/31/2025 12:50:26 Type: Cal
Method: NON EPA-6010-200.7(v2859) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2494.6	75316.	13818.	2430.1	4474.5
Stddev	4.2	263.	60.	7.8	5.5
%RSD	.16990	.34889	.43744	.32071	.12183
#1	2497.1	75613.	13754.	2432.1	4480.0
#2	2496.9	75114.	13825.	2421.6	4474.4
#3	2489.7	75222.	13874.	2436.8	4469.1

Sample Name: S2 Acquired: 3/31/2025 12:54:51 Type: Cal
Method: NON EPA-6010-200.7(v2859) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.05341	.05600	.18393	.05410	.12541	.13371	4.3236	.13412
Stddev	.00021	.00050	.00090	.00004	.00044	.00042	.0098	.00104
%RSD	.38541	.88578	.49095	.07169	.34836	.31549	.22540	.77789
#1	.05340	.05556	.18307	.05406	.12493	.13404	4.3130	.13308
#2	.05321	.05654	.18385	.05412	.12550	.13387	4.3258	.13411
#3	.05362	.05589	.18487	.05413	.12579	.13324	4.3321	.13517
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	1.1168	.26059	.03033	.41149	.20683	.00512	.22793	.05613
Stddev	.0026	.00012	.00035	.00078	.00064	.00003	.00097	.00025
%RSD	.22914	.04776	1.1694	.18896	.31018	.54276	.42343	.44830
#1	1.1141	.26070	.03004	.41077	.20656	.00509	.22689	.05593
#2	1.1172	.26062	.03022	.41138	.20638	.00511	.22809	.05605
#3	1.1192	.26046	.03072	.41232	.20757	.00515	.22880	.05641
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	.23752	.05463	.05135	.05710	1.1360	.03180	.23445	.72666
Stddev	.00039	.00052	.00036	.00036	.0137	.00019	.00067	.00239
%RSD	.16251	.95476	.70611	.62399	1.2051	.60113	.28622	.32871
#1	.23730	.05443	.05101	.05671	1.1290	.03172	.23385	.72548
#2	.23731	.05424	.05132	.05716	1.1273	.03166	.23432	.72509
#3	.23797	.05522	.05173	.05742	1.1518	.03202	.23518	.72941
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	.10129	.46974	.00501	.02762	.02123	.80324	7.3110	
Stddev	.00027	.00093	.00002	.00002	.00017	.00336	.0176	
%RSD	.26851	.19801	.44087	.05459	.81219	.41855	.24000	
#1	.10104	.46981	.00499	.02761	.02106	.79937	7.2931	
#2	.10125	.46878	.00502	.02763	.02123	.80543	7.3116	
#3	.10158	.47063	.00503	.02760	.02140	.80493	7.3282	

Sample Name: S2 Acquired: 3/31/2025 12:54:51 Type: Cal
Method: NON EPA-6010-200.7(v2859) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2449.3	72223.	13790.	2309.7	4326.1
Stddev	8.6	601.	46.	20.8	12.5
%RSD	.35212	.83282	.33353	.89973	.28915
#1	2450.2	72652.	13837.	2321.8	4330.2
#2	2457.4	72482.	13787.	2321.6	4336.0
#3	2440.2	71536.	13746.	2285.7	4312.1

Sample Name: S3 Acquired: 3/31/2025 12:59:02 Type: Cal
Method: NON EPA-6010-200.7(v2859) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.15134	.15515	.51598	.15172	.35125	.36965	11.613	.36429
Stddev	.00021	.00022	.00254	.00007	.00176	.00051	.086	.00386
%RSD	.14204	.14063	.49133	.04789	.50161	.13668	.73948	1.0596
#1	.15114	.15509	.51425	.15181	.35089	.36922	11.712	.36309
#2	.15157	.15496	.51481	.15168	.34969	.36952	11.558	.36117
#3	.15132	.15539	.51889	.15168	.35316	.37020	11.570	.36860
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	3.1437	.71045	.08246	1.1503	.56789	.01331	.61231	.15444
Stddev	.0116	.00325	.00020	.0044	.00177	.00000	.00375	.00121
%RSD	.36731	.45798	.23682	.38476	.31132	.03595	.61227	.78288
#1	3.1345	.70759	.08243	1.1469	.56803	.01332	.60965	.15334
#2	3.1400	.70976	.08228	1.1486	.56605	.01331	.61069	.15426
#3	3.1567	.71399	.08266	1.1553	.56958	.01331	.61660	.15573
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	.66621	.14959	.13552	.15887	3.0452	.08631	.63208	2.0077
Stddev	.00256	.00051	.00058	.00108	.0111	.00035	.00612	.0049
%RSD	.38395	.34157	.42746	.67899	.36593	.40299	.96862	.24288
#1	.66435	.14992	.13618	.15762	3.0559	.08665	.62841	2.0060
#2	.66515	.14900	.13527	.15941	3.0461	.08632	.62869	2.0038
#3	.66913	.14985	.13511	.15957	3.0336	.08596	.63915	2.0132
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	.28672	1.2754	.01350	.08200	.06107	2.1700	19.789	
Stddev	.00125	.0046	.00009	.00057	.00030	.0048	.093	
%RSD	.43724	.35975	.68940	.68976	.49859	.22063	.47194	
#1	.28634	1.2706	.01357	.08148	.06076	2.1673	19.684	
#2	.28569	1.2758	.01355	.08191	.06108	2.1673	19.863	
#3	.28812	1.2798	.01340	.08261	.06137	2.1756	19.820	

Sample Name: S3 Acquired: 3/31/2025 12:59:02 Type: Cal
Method: NON EPA-6010-200.7(v2859) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2369.0	72425.	13799.	2270.7	4092.2
Stddev	5.3	77.	122.	6.3	17.8
%RSD	.22536	.10671	.88586	.27713	.43470
#1	2369.6	72337.	13898.	2263.4	4101.6
#2	2374.1	72484.	13836.	2273.8	4103.4
#3	2363.5	72453.	13662.	2274.8	4071.7

Sample Name: S4 Acquired: 3/31/2025 13:03:22 Type: Cal
Method: NON EPA-6010-200.7(v2859) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.31015	.31357	1.0457	.30518	.72198	.76144	23.155	.74110
Stddev	.00081	.00060	.0050	.00137	.00467	.00069	.163	.00482
%RSD	.26009	.19018	.47629	.44740	.64703	.09107	.70561	.65000
#1	.30969	.31313	1.0418	.30477	.71912	.76123	22.972	.73839
#2	.30969	.31425	1.0441	.30407	.71945	.76222	23.285	.74667
#3	.31109	.31333	1.0513	.30671	.72737	.76088	23.210	.73826
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	6.3900	1.4241	.16840	2.3295	1.1374	.02677	1.2183	.31577
Stddev	.0284	.0031	.00206	.0109	.0053	.00041	.0022	.00135
%RSD	.44464	.21834	1.2213	.46951	.46130	1.5359	.18019	.42865
#1	6.3711	1.4223	.17071	2.3227	1.1348	.02719	1.2182	.31482
#2	6.3763	1.4277	.16676	2.3236	1.1339	.02637	1.2206	.31732
#3	6.4227	1.4223	.16774	2.3421	1.1434	.02675	1.2162	.31518
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	1.3440	.30640	.27777	.32448	6.1847	.17695	1.2848	4.0816
Stddev	.0060	.00283	.00441	.00113	.0436	.00275	.0124	.0211
%RSD	.44477	.92386	1.5892	.34967	.70464	1.5559	.96303	.51815
#1	1.3398	.30966	.28258	.32437	6.2346	.17987	1.2762	4.0707
#2	1.3412	.30471	.27390	.32567	6.1542	.17440	1.2990	4.0682
#3	1.3508	.30481	.27685	.32341	6.1652	.17657	1.2793	4.1060
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	.58492	2.5448	.02837	.17068	.12610	4.4228	39.657	
Stddev	.00254	.0035	.00033	.00091	.00034	.0051	.512	
%RSD	.43494	.13655	1.1771	.53248	.26869	.11453	1.2912	
#1	.58304	2.5419	.02870	.16969	.12611	4.4284	39.338	
#2	.58391	2.5487	.02803	.17089	.12576	4.4187	40.247	
#3	.58782	2.5439	.02838	.17147	.12644	4.4212	39.385	

Sample Name: S4 Acquired: 3/31/2025 13:03:22 Type: Cal
Method: NON EPA-6010-200.7(v2859) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2319.4	69695.	13518.	2146.1	3961.4
Stddev	9.6	865.	45.	21.1	10.9
%RSD	.41514	1.2407	.33001	.98501	.27446
#1	2324.2	68793.	13562.	2126.8	3968.9
#2	2325.6	70517.	13473.	2168.7	3966.3
#3	2308.3	69774.	13518.	2142.8	3948.9

Sample Name: S5 Acquired: 3/31/2025 13:07:40 Type: Cal
Method: NON EPA-6010-200.7(v2859) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.62018	.60980	2.0839	.60679	1.4447	1.5466	46.025	1.4509
Stddev	.00327	.00785	.0083	.00484	.0092	.0036	.282	.0071
%RSD	.52706	1.2869	.39715	.79689	.63752	.23351	.61276	.49142
#1	.61784	.60528	2.0753	.60416	1.4408	1.5458	45.810	1.4453
#2	.61879	.60527	2.0844	.60384	1.4380	1.5505	45.922	1.4485
#3	.62391	.61887	2.0919	.61237	1.4552	1.5434	46.345	1.4590
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	12.790	2.8548	.32904	4.6724	2.2252	.05328	2.4362	.63542
Stddev	.040	.0017	.00132	.0146	.0082	.00035	.0029	.00209
%RSD	.30991	.06008	.40094	.31175	.36678	.66434	.11908	.32905
#1	12.759	2.8530	.32812	4.6624	2.2184	.05309	2.4335	.63345
#2	12.776	2.8550	.33055	4.6658	2.2229	.05369	2.4393	.63762
#3	12.835	2.8564	.32844	4.6891	2.2342	.05307	2.4357	.63519
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	2.6812	.60566	.57056	.65529	12.212	.36289	2.5288	8.0529
Stddev	.0092	.00113	.00372	.00089	.034	.00274	.0137	.0344
%RSD	.34178	.18629	.65240	.13549	.27453	.75446	.53980	.42763
#1	2.6743	.60439	.57048	.65488	12.187	.36283	2.5220	8.0328
#2	2.6776	.60654	.57433	.65631	12.200	.36565	2.5199	8.0331
#3	2.6916	.60606	.56689	.65468	12.250	.36018	2.5445	8.0926
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	1.1642	5.1248	.05761	.35119	.25954	9.0274	78.992	
Stddev	.0032	.0082	.00040	.00166	.00189	.0197	.574	
%RSD	.27781	.16008	.69182	.47178	.72881	.21866	.72705	
#1	1.1619	5.1196	.05738	.34984	.25813	9.0262	78.605	
#2	1.1627	5.1343	.05807	.35068	.25879	9.0477	78.719	
#3	1.1679	5.1205	.05738	.35304	.26169	9.0083	79.652	

Sample Name: S5 Acquired: 3/31/2025 13:07:40 Type: Cal
Method: NON EPA-6010-200.7(v2859) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2233.8	67936.	13228.	2051.8	3739.2
Stddev	5.7	285.	58.	2.6	9.2
%RSD	.25630	.41983	.43829	.12809	.24712
#1	2234.8	68213.	13281.	2054.8	3742.5
#2	2238.9	67643.	13236.	2051.0	3746.4
#3	2227.6	67950.	13166.	2049.7	3728.8

Sample Name: ICV01 Acquired: 3/31/2025 13:12:05 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.013470	1.057683	1.003668	1.040586	1.027804	2.495913
Stddev	.003665	.002793	.003230	.004373	.003686	.004417
%RSD	.3616640	.2641075	.3218238	.4202679	.3585917	.1769823
#1	1.017213	1.060336	1.004005	1.044052	1.027990	2.490848
#2	1.009888	1.054768	1.000282	1.035672	1.024028	2.498972
#3	1.013308	1.057946	1.006716	1.042033	1.031393	2.497917
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4951231	.4988153	.5039813	9.828702	.5339681	.5117778
Stddev	.0018500	.0001166	.0014486	.018810	.0033330	.0014762
%RSD	.3736405	.0233755	.2874230	.1913825	.6241953	.2884488
#1	.4970674	.4989499	.5050293	9.837873	.5377271	.5131651
#2	.4949174	.4987463	.5023283	9.807065	.5313736	.5102264
#3	.4933846	.4987496	.5045863	9.841168	.5328035	.5119419
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5354411	9.948688	.5049448	5.808797	.5157382	.2566045
Stddev	.0009185	.055972	.0021038	.017313	.0022909	.0016546
%RSD	.1715508	.5626072	.4166310	.2980393	.4442087	.6448100
#1	.5355260	10.01285	.5073619	5.810644	.5174117	.2584469
#2	.5344830	9.92337	.5039457	5.790635	.5131272	.2552452
#3	.5363142	9.90985	.5035267	5.825112	.5166757	.2561215
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.349737	.4897673	1.024263	9.769949	2.330185	2.479789
Stddev	.070738	.0020365	.002118	.069827	.005584	.007604
%RSD	.7565819	.4158203	.2067828	.7147170	.2396204	.3066191
#1	9.430981	.4911566	1.025453	9.840916	2.324721	2.484965
#2	9.316429	.4874295	1.025519	9.701319	2.329953	2.471059
#3	9.301801	.4907158	1.021818	9.767612	2.335881	2.483343

Sample Name: ICV01 Acquired: 3/31/2025 13:12:05 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.384991	2.319755	F 2.041284	F .0014495	F -.005254	F .0021325
Stddev	.007235	.003364	.005690	.0013317	.002014	.0004605
%RSD	.3033458	.1450127	.2787261	91.86985	38.33224	21.59449
#1	2.389397	2.323624	2.047325	.0000215	-.005510	.0023730
#2	2.376641	2.317522	2.036027	.0026573	-.007128	.0024229
#3	2.388935	2.318117	2.040499	.0016698	-.003124	.0016015
Elem	Sr4077					
Units	ppm					
Avg	F -.006413					
Stddev	.000067					
%RSD	1.046632					
#1	-.006353					
#2	-.006401					
#3	-.006486					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	2350.031	71143.34	14169.15	2157.013	4189.734	
Stddev	2.308	469.04	54.36	22.016	4.873	
%RSD	.0982156	.6592823	.3836510	1.020687	.1162985	
#1	2350.543	70636.13	14122.58	2133.352	4187.324	
#2	2352.039	71232.49	14156.00	2160.793	4195.342	
#3	2347.509	71561.40	14228.88	2176.895	4186.535	

Sample Name: LLICV01 Acquired: 3/31/2025 13:16:08 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0233507	.0392415	.0113098	.0199536	.0513110	.0995079
Stddev	.0011530	.0008673	.0008774	.0014158	.0013912	.0045001
%RSD	4.937687	2.210223	7.757873	7.095299	2.711268	4.522358
#1	.0227654	.0392046	.0105269	.0214448	.0505756	.0951215
#2	.0246789	.0383932	.0111443	.0186278	.0529156	.0992887
#3	.0226077	.0401266	.0122581	.0197883	.0504419	.1041137
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0962384	.0060180	.0058581	2.024318	.0103135	.0297449
Stddev	.0005835	.0000726	.0000078	.001013	.0004551	.0002032
%RSD	.6062639	1.205664	.1325498	.0500201	4.412375	.6830357
#1	.0956954	.0060318	.0058498	2.025156	.0108383	.0297579
#2	.0968553	.0059395	.0058594	2.024606	.0100269	.0295355
#3	.0961644	.0060826	.0058652	2.023193	.0100755	.0299412
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0221776	.0871824	.0197140	2.122250	.0398088	.0110817
Stddev	.0002502	.0023909	.0001250	.006479	.0005386	.0003898
%RSD	1.128254	2.742434	.6342262	.3052784	1.353047	3.517874
#1	.0224440	.0877476	.0195710	2.128693	.0392112	.0115245
#2	.0221413	.0892401	.0197684	2.115736	.0402570	.0107901
#3	.0219475	.0845595	.0198026	2.122320	.0399583	.0109305
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.866630	.0395078	.0425498	1.995334	F .1214331	.2140461
Stddev	.011059	.0008846	.0005261	.008274	.0005874	.0004730
%RSD	.5924812	2.239173	1.236463	.4146542	.4837318	.2209851
#1	1.853913	.0399623	.0430370	2.003576	.1209383	.2139671
#2	1.871978	.0384883	.0419920	1.987028	.1220823	.2136176
#3	1.873999	.0400728	.0426204	1.995397	.1212788	.2145537

Sample Name: LLICV01 Acquired: 3/31/2025 13:16:08 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0365625	.0394842	.3838930	F .0154662	.0191507	.0178337
Stddev	.0002191	.0008075	.0050856	.0016996	.0028431	.0010189
%RSD	.5991952	2.045230	1.324730	10.98911	14.84599	5.713135
#1	.0366863	.0389369	.3847874	.0135731	.0207155	.0166767
#2	.0366917	.0391039	.3784195	.0168608	.0158689	.0182276
#3	.0363096	.0404116	.3884719	.0159647	.0208677	.0185968

Elem	Sr4077
Units	ppm
Avg	.0196793
Stddev	.0000661
%RSD	.3359216
#1	.0196038
#2	.0197079
#3	.0197264

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2386.558	72000.17	14215.38	2163.301	4380.550
Stddev	3.421	762.16	21.74	23.948	7.344
%RSD	.1433574	1.058554	.1529542	1.107020	.1676508
#1	2389.757	71133.12	14239.82	2135.667	4386.526
#2	2386.965	72564.28	14198.20	2177.998	4382.774
#3	2382.951	72303.11	14208.11	2176.239	4372.352

Sample Name: ICB01 Acquired: 3/31/2025 13:20:26 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0016946	-.001537	-.001075	.0001153	-.000920	-.004101	-.001406
Stddev	.0024059	.000500	.000946	.0020790	.001448	.003477	.001055
%RSD	141.9801	32.53850	88.02886	1802.576	157.3336	84.78185	75.05240
#1	.0028062	-.001672	-.000575	-.001643	-.002037	-.001741	-.002522
#2	-.001066	-.001956	-.002166	.002410	.000716	-.002468	-.001270
#3	.003344	-.000984	-.000484	-.000421	-.001439	-.008094	-.000425
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000019	-.000069	-.011912	.0000043	-.000010	-.000522	-.014183
Stddev	.000031	.000065	.001354	.0004790	.000116	.000080	.004284
%RSD	160.5351	94.51240	11.36257	11244.60	1212.667	15.39404	30.20710
#1	-.000045	.000005	-.013345	.0002214	-.000082	-.000559	-.011910
#2	.000015	-.000116	-.010655	-.000545	.000125	-.000578	-.011514
#3	-.000028	-.000094	-.011738	.000336	-.000072	-.000430	-.019125
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0061878	-.007849	-.000386	.0005204	-.059888	.0001285	-.000691
Stddev	.0002431	.012894	.000199	.0001470	.009450	.0013679	.000109
%RSD	3.928125	164.2728	51.58098	28.24357	15.77965	1064.684	15.78685
#1	.0062548	-.002593	-.000578	.0005972	-.066038	-.001449	-.000567
#2	.0059182	-.022541	-.000181	.0003509	-.049007	.000980	-.000736
#3	.0063903	.001587	-.000399	.0006131	-.064620	.000855	-.000771
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.023436	.0065629	.0000588	-.000167	.0000473	.0076633	-.004188
Stddev	.005520	.0005862	.0001983	.000075	.0003683	.0067577	.001393
%RSD	23.55310	8.932248	337.1912	44.72477	777.9437	88.18312	33.25663
#1	-.025791	.0061480	-.000014	-.000253	-.000375	-.000135	-.005233
#2	-.027389	.0072336	.000283	-.000122	.000218	.011313	-.002607
#3	-.017130	.0063072	-.000093	-.000125	.000299	.011811	-.004724

Sample Name: ICB01 Acquired: 3/31/2025 13:20:26 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.002291	-.001528	-.000153
Stddev	.001944	.001515	.000020
%RSD	84.86466	99.16910	13.37387
#1	-.002338	-.002725	-.000168
#2	-.004211	.000176	-.000130
#3	-.000324	-.002035	-.000162

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2365.926	70998.38	14200.66	2135.319	4418.322
Stddev	4.572	178.51	118.95	7.401	5.539
%RSD	.1932529	.2514342	.8376098	.3465776	.1253642
#1	2366.496	71185.21	14295.61	2143.505	4419.524
#2	2370.187	70829.55	14239.14	2129.103	4423.162
#3	2361.096	70980.38	14067.24	2133.348	4412.281

Sample Name: CRI01 Acquired: 3/31/2025 13:24:46 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0215509	.0405879	.0126577	.0202538	.0536846	.1010558	.0935580
Stddev	.0009289	.0013155	.0009907	.0024041	.0012757	.0026924	.0006379
%RSD	4.310407	3.241093	7.827105	11.87014	2.376229	2.664312	.6818468
#1	.0221434	.0400728	.0116398	.0211664	.0542608	.1017335	.0942374
#2	.0220290	.0420830	.0136188	.0175269	.0545705	.0980893	.0934650
#3	.0204803	.0396080	.0127143	.0220680	.0522225	.1033447	.0929718
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0059371	.0060641	2.006437	.0107076	.0299303	.0228756	.0870036
Stddev	.0000658	.0000620	.009343	.0001586	.0001921	.0003528	.0010191
%RSD	1.108370	1.022652	.4656578	1.480707	.6417228	1.542138	1.171314
#1	.0060130	.0059925	2.016607	.0108794	.0297094	.0225963	.0858288
#2	.0059007	.0060978	2.004473	.0106763	.0300238	.0227585	.0876494
#3	.0058974	.0061019	1.998233	.0105670	.0300577	.0232721	.0875326
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0195442	2.086058	.0404658	.0111704	1.836108	.0398665	.0447372
Stddev	.0000806	.011067	.0004003	.0002206	.005217	.0008971	.0003522
%RSD	.4122352	.5305232	.9891123	1.974886	.2841406	2.250208	.7871721
#1	.0194544	2.076288	.0401997	.0112107	1.837718	.0403400	.0448651
#2	.0195680	2.083810	.0402716	.0109324	1.830276	.0404277	.0443389
#3	.0196102	2.098077	.0409261	.0113681	1.840330	.0388319	.0450074
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.026632	.1026007	.2141299	.0384375	.0386759	.3892590	.0173481
Stddev	.049787	.0005996	.0009638	.0006484	.0000295	.0057507	.0011647
%RSD	2.456620	.5843760	.4500967	1.686925	.0763546	1.477337	6.713728
#1	1.970250	.1032693	.2130296	.0376894	.0386964	.3956876	.0160242
#2	2.045101	.1021110	.2145361	.0388387	.0386420	.3846041	.0178054
#3	2.064545	.1024217	.2148242	.0387844	.0386892	.3874853	.0182148

Sample Name: CRI01 Acquired: 3/31/2025 13:24:46 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0227551	.0169259	.0194514
Stddev	.0024627	.0005312	.0000957
%RSD	10.82258	3.138354	.4922024
#1	.0219122	.0169433	.0195620
#2	.0255285	.0174483	.0193974
#3	.0208245	.0163863	.0193949

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2327.600	70578.82	14240.38	2103.568	4278.875
Stddev	2.438	36.66	99.73	8.685	5.193
%RSD	.1047475	.0519364	.7003523	.4128730	.1213580
#1	2325.240	70616.87	14128.60	2097.874	4275.025
#2	2330.109	70543.73	14272.25	2099.267	4284.781
#3	2327.452	70575.85	14320.27	2113.565	4276.819

Sample Name: ICSA01 Acquired: 3/31/2025 13:29:03 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ISA01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0094672	.0087542	.0028556	-.004505	-.003339	239.9468	.0020058
Stddev	.0012316	.0003109	.0006197	.004105	.002740	1.8831	.0001414
%RSD	13.00917	3.550989	21.70199	91.12906	82.04429	.7848102	7.048928
#1	.0082153	.0090895	.0021834	-.007203	-.004117	242.1207	.0019296
#2	.0106775	.0084755	.0034042	-.006532	-.005605	238.9015	.0021689
#3	.0095089	.0086977	.0029791	.000220	-.000295	238.8182	.0019189
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0011065	-.003679	224.6193	.0574639	.0018135	.0176026	96.56051
Stddev	.0000725	.000223	.5038	.0006233	.0002096	.0000870	.31425
%RSD	6.548459	6.067517	.2242921	1.084708	11.55960	.4943152	.3254446
#1	.0011374	-.003656	225.1430	.0581258	.0016043	.0176871	96.85935
#2	.0011584	-.003913	224.1380	.0573778	.0018126	.0176076	96.58935
#3	.0010237	-.003468	224.5769	.0568881	.0020236	.0175133	96.23284
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0153482	239.0803	.0022272	.0012733	.0340368	.0039586	.0031187
Stddev	.0005451	.2583	.0001918	.0001368	.0102825	.0005477	.0006880
%RSD	3.551850	.1080335	8.612175	10.74405	30.20991	13.83611	22.05905
#1	.0159663	238.9604	.0020117	.0011365	.0392837	.0039066	.0028576
#2	.0149359	239.3768	.0022907	.0012733	.0221894	.0034388	.0025995
#3	.0151424	238.9038	.0023792	.0014100	.0406374	.0045305	.0038990
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0516679	-.087246	.0001906	-.004831	-.000853	.0261849	-.004209
Stddev	.0166540	.002633	.0005017	.001852	.000426	.0121743	.002186
%RSD	32.23283	3.018384	263.2873	38.33340	49.94441	46.49369	51.93001
#1	.0382506	-.089403	-.000325	-.006576	-.000622	.0313512	-.001843
#2	.0464458	-.084311	.000677	-.002888	-.000592	.0349242	-.004629
#3	.0703071	-.088023	.000219	-.005029	-.001345	.0122794	-.006154

Sample Name: ICSA01 Acquired: 3/31/2025 13:29:03 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ISA01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.014032	.0011389	.0070811
Stddev	.002144	.0003951	.0004838
%RSD	15.28034	34.68823	6.832271

#1	-.014881	.0015392	.0074563
#2	-.015622	.0007493	.0065350
#3	-.011593	.0011282	.0072519

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2088.279	62249.85	13758.70	1861.419	3465.132
Stddev	6.439	195.21	40.44	6.534	2.235
%RSD	.3083594	.3135862	.2939270	.3510381	.0644896

#1	2093.216	62197.44	13712.11	1863.151	3464.801
#2	2090.626	62086.20	13784.65	1854.193	3467.513
#3	2080.996	62465.91	13779.35	1866.912	3463.080

Sample Name: ICSAB01 Acquired: 3/31/2025 13:33:29 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1153028	.0998052	.0539779	.0540815	.6395227	240.0090
Stddev	.0019962	.0050849	.0015364	.0035839	.0038580	.2796
%RSD	1.731299	5.094857	2.846278	6.626814	.6032645	.1165084

#1	.1134581	.1001573	.0547241	.0531704	.6353686	239.8136
#2	.1174222	.0945533	.0522109	.0580330	.6429932	240.3293
#3	.1150282	.1047049	.0549986	.0510411	.6402064	239.8841

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4766566	.4771429	.9878796	224.7022	.5711829	.5028027
Stddev	.0004972	.0014791	.0032754	.5568	.0018345	.0012506
%RSD	.1043137	.3099978	.3315554	.2477995	.3211709	.2487257

#1	.4771401	.4759449	.9862345	224.7399	.5702575	.5019015
#2	.4766830	.4766877	.9857528	224.1276	.5699954	.5022762
#3	.4761467	.4787962	.9916514	225.2393	.5732958	.5042305

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5136605	96.14012	.4758987	238.9577	.9988075	.1894445
Stddev	.0019150	.32674	.0013713	.5696	.0038472	.0006822
%RSD	.3728132	.3398627	.2881563	.2383835	.3851745	.3600978

#1	.5116895	96.35311	.4768963	238.6994	.9964230	.1891782
#2	.5137779	95.76393	.4743349	238.5630	.9967537	.1889356
#3	.5155141	96.30334	.4764648	239.6107	1.003246	.1902196

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0152198	.4713368	1.066962	.0345344	F -.091346	F .0000350
Stddev	.0118224	.0024176	.004333	.0245618	.000387	.0002054
%RSD	77.67755	.5129205	.4061501	71.12279	.4239827	585.9849

#1	.0105960	.4726140	1.071813	.0611138	-.091511	.0000192
#2	.0064081	.4728479	1.065600	.0298142	-.090904	-.000162
#3	.0286552	.4685485	1.063473	.0126752	-.091624	.000248

Sample Name: ICSAB01 Acquired: 3/31/2025 13:33:29 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -.005987	F -.000919	F .0160386	F -.003129	F -.012857	F .0005654
Stddev	.000635	.000523	.0024381	.000505	.003926	.0003924
%RSD	10.60861	56.86309	15.20159	16.14204	30.53895	69.40042
#1	-.005444	-.001212	.0134343	-.003227	-.008327	.0001396
#2	-.005832	-.001230	.0164146	-.003578	-.014970	.0006442
#3	-.006686	-.000316	.0182669	-.002582	-.015275	.0009124

Elem	Sr4077
Units	ppm
Avg	F .0075867
Stddev	.0001926
%RSD	2.539185
#1	.0075301
#2	.0078013
#3	.0074287

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2077.611	63184.37	13840.67	1876.836	3468.793
Stddev	9.660	208.01	54.69	6.012	12.535
%RSD	.4649634	.3292189	.3951422	.3203273	.3613697
#1	2086.689	63200.83	13856.12	1872.092	3477.670
#2	2078.686	63383.66	13885.98	1883.597	3474.256
#3	2067.459	62968.61	13779.92	1874.819	3454.453

Sample Name: CCV01 Acquired: 3/31/2025 13:37:44 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.130603	5.055243	5.036343	5.088313	5.163850	9.876144	9.647029
Stddev	.024044	.083158	.017310	.036049	.027316	.103182	.083410
%RSD	.4686388	1.644983	.3436981	.7084710	.5289917	1.044762	.8646161
#1	5.113022	4.972105	5.036295	5.053428	5.139299	9.948672	9.660386
#2	5.120783	5.055203	5.019057	5.086088	5.158975	9.921741	9.722954
#3	5.158002	5.138420	5.053677	5.125424	5.193275	9.758018	9.557746
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2402810	2.478574	23.96602	1.035263	2.472656	1.276387	4.958652
Stddev	.0021169	.005469	.23636	.005372	.006597	.005196	.009963
%RSD	.8810137	.2206374	.9862414	.5188595	.2668149	.4070601	.2009308
#1	.2409319	2.479046	24.02330	1.029294	2.475309	1.273057	4.949321
#2	.2419961	2.472884	24.16847	1.036785	2.465145	1.273730	4.969146
#3	.2379151	2.483791	23.70628	1.039708	2.477513	1.282374	4.957489
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.349434	23.71451	2.492123	1.253418	24.67740	2.438046	2.581114
Stddev	.021921	.16171	.006668	.001716	.04825	.023126	.005553
%RSD	.9330399	.6818965	.2675457	.1368875	.1955363	.9485391	.2151530
#1	2.358701	23.78193	2.490169	1.251472	24.64934	2.451333	2.587024
#2	2.365200	23.83161	2.486652	1.254714	24.64976	2.451462	2.576004
#3	2.324402	23.53000	2.499550	1.254068	24.73312	2.411343	2.580313
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.41237	4.781778	5.180130	5.017013	4.733059	5.144589	5.093490
Stddev	.05406	.053358	.027473	.016645	.040122	.024880	.033952
%RSD	.2127444	1.115853	.5303505	.3317664	.8476867	.4836105	.6665707
#1	25.44262	4.805506	5.161642	5.009078	4.756149	5.123995	5.058511
#2	25.34995	4.819155	5.167049	5.005821	4.756297	5.137538	5.095645
#3	25.44454	4.720672	5.211699	5.036141	4.686730	5.172233	5.126312

Sample Name: CCV01 Acquired: 3/31/2025 13:37:44 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.928722	4.756517	4.854857
Stddev	.024465	.042657	.048290
%RSD	.4963798	.8968075	.9946743
#1	4.909106	4.781462	4.803938
#2	4.920924	4.780827	4.860634
#3	4.956136	4.707263	4.899998

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2243.521	67294.94	13968.69	1979.651	3910.628
Stddev	8.082	253.66	123.48	2.443	13.796
%RSD	.3602201	.3769381	.8840068	.1233943	.3527748
#1	2243.588	67560.93	13957.75	1978.249	3904.638
#2	2251.568	67268.17	13851.04	1982.472	3926.406
#3	2235.405	67055.73	14097.28	1978.233	3900.840

Sample Name: CCB01 Acquired: 3/31/2025 13:41:55 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0026790	-.002054	-.001036	-.001511	-.000588	-.004661	-.001635
Stddev	.0034187	.001180	.000468	.001437	.000707	.000939	.001180
%RSD	127.6085	57.42306	45.20405	95.08920	120.2355	20.13518	72.18494
#1	.0042706	-.002209	-.001216	.000098	-.001374	-.003996	-.000280
#2	-.001245	-.003149	-.000504	-.002665	-.000385	-.004253	-.002436
#3	.005012	-.000805	-.001388	-.001967	-.000004	-.005735	-.002191
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000914	.0000492	-.013213	.0003562	.0000886	-.000647	-.014494
Stddev	.0000115	.0000169	.002983	.0003185	.0000973	.000111	.002949
%RSD	12.59258	34.48629	22.57489	89.43737	109.7652	17.18693	20.34804
#1	.0000980	.0000391	-.012384	.0000900	-.000003	-.000588	-.017473
#2	.0000980	.0000687	-.010733	.0007091	.000191	-.000775	-.011576
#3	.0000781	.0000397	-.016523	.0002694	.000078	-.000578	-.014433
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0061467	-.010246	.0000511	.0008899	-.053235	.0017967	-.001100
Stddev	.0004554	.006666	.0002620	.0005610	.004572	.0004335	.000232
%RSD	7.408708	65.05756	512.8193	63.04263	8.587333	24.12856	21.12635
#1	.0062811	-.009409	-.000181	.0006235	-.054497	.0013249	-.000886
#2	.0065197	-.004038	.000335	.0015346	-.057044	.0018877	-.001347
#3	.0056392	-.017290	-.000002	.0005118	-.048166	.0021774	-.001068
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.053822	.0110335	.0004216	.0002158	.0007786	.0136335	-.004497
Stddev	.028618	.0010271	.0001133	.0012332	.0006915	.0032169	.002494
%RSD	53.17234	9.309102	26.86013	571.3301	88.80876	23.59572	55.44884
#1	-.086846	.0122047	.0003837	.0005649	.0015728	.0151074	-.006719
#2	-.038342	.0102858	.0003322	-.001154	.0004537	.0099438	-.001800
#3	-.036277	.0106101	.0005489	.001237	.0003095	.0158496	-.004974

Sample Name: CCB01 Acquired: 3/31/2025 13:41:55 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0001632	-.000325	.0006320
Stddev	.0023456	.000625	.0001560
%RSD	1437.448	192.2473	24.68106

#1	.0027630	.000372	.0007943
#2	-.001795	-.000511	.0006185
#3	-.000479	-.000837	.0004832

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2321.551	71356.46	14305.56	2073.351	4366.319
Stddev	5.260	225.60	65.64	10.412	10.639
%RSD	.2265594	.3161591	.4588444	.5021825	.2436629

#1	2325.037	71100.14	14292.31	2062.442	4372.121
#2	2324.116	71444.38	14247.55	2083.182	4372.797
#3	2315.501	71524.86	14376.81	2074.428	4354.041

Sample Name: Q1664-01 Acquired: 3/31/2025 13:46:16 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0448500	.0368500	.0623469	-.000943	-.027189	318.0434
Stddev	.0023177	.0013754	.0021396	.003752	.005346	1.1726
%RSD	5.167774	3.732286	3.431731	398.0393	19.66262	.3686971
#1	.0465470	.0382572	.0642903	.002480	-.030652	317.7629
#2	.0422093	.0367840	.0626963	-.004954	-.029884	319.3308
#3	.0457938	.0355089	.0600541	-.000354	-.021032	317.0365
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2640521	.0077424	.0061560	421.7755	.4797111	.6600148
Stddev	.0002681	.0000869	.0011784	2.8699	.0018432	.0028221
%RSD	.1015410	1.122075	19.14205	.6804407	.3842402	.4275792
#1	.2643397	.0076714	.0057581	418.4931	.4813899	.6579975
#2	.2638091	.0078393	.0052281	423.8114	.4800048	.6588072
#3	.2640075	.0077166	.0074819	423.0220	.4777387	.6632398
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.844716	723.1357	9.498182	615.4043	.8425171	.0072540
Stddev	.006414	2.7152	.002527	.7974	.0026463	.0003094
%RSD	.1668245	.3754816	.0266037	.1295676	.3140922	4.264536
#1	3.839308	725.1113	9.495333	615.1059	.8434898	.0073113
#2	3.843037	724.2562	9.500151	614.7992	.8395221	.0075306
#3	3.851802	720.0395	9.499061	616.3079	.8445393	.0069200
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	17.01967	1.046274	.7988247	1.662247	F 16.64300	-.005572
Stddev	.15430	.001039	.0002651	.036261	.08466	.000412
%RSD	.9066019	.0993509	.0331878	2.181474	.5087017	7.387338
#1	17.17735	1.045301	.7990427	1.697923	16.55225	-.005983
#2	17.01268	1.046152	.7985296	1.663392	16.65688	-.005573
#3	16.86899	1.047369	.7989020	1.625427	16.71987	-.005160

Sample Name: Q1664-01 Acquired: 3/31/2025 13:46:16 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.017626	9.793901	3.624918	6.027532	1.429487	.5847967
Stddev	.001502	.022787	.030016	.015515	.000289	.0019984
%RSD	8.520465	.2326653	.8280362	.2574029	.0202269	.3417305
#1	-.018830	9.818277	3.649160	6.018784	1.429290	.5868710
#2	-.018105	9.773134	3.634249	6.018367	1.429819	.5846352
#3	-.015943	9.790293	3.591345	6.045446	1.429352	.5828839
Elem	Sr4077					
Units	ppm					
Avg	.5441655					
Stddev	.0116753					
%RSD	2.145536					
#1	.5576125					
#2	.5366081					
#3	.5382759					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	2131.316	67220.29	15359.43	1909.175	3063.921	
Stddev	.723	301.87	48.34	8.997	5.432	
%RSD	.0339045	.4490781	.3147329	.4712760	.1773021	
#1	2131.607	67008.98	15413.37	1899.318	3067.004	
#2	2131.847	67085.87	15344.91	1911.263	3067.110	
#3	2130.493	67566.03	15320.02	1916.945	3057.648	

Sample Name: Q1664-01DUP Acquired: 3/31/2025 13:50:52 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0337996	.0409333	.0608769	-.000849	-.027373	314.4961
Stddev	.0036678	.0015931	.0030230	.002163	.003953	2.5927
%RSD	10.85175	3.892008	4.965768	254.6140	14.44229	.8243911
#1	.0331898	.0392153	.0607719	.000155	-.023215	313.8316
#2	.0377342	.0412227	.0579078	-.003332	-.031083	317.3564
#3	.0304749	.0423619	.0639511	.000629	-.027820	312.3004
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2193627	.0075694	-.000649	394.4224	.5390719	.6324989
Stddev	.0016507	.0000666	.000651	2.5110	.0008574	.0018608
%RSD	.7524827	.8804784	100.1667	.6366267	.1590473	.2941907
#1	.2212268	.0075836	-.000529	392.6092	.5397014	.6318932
#2	.2180864	.0074969	-.001352	397.2884	.5394190	.6310164
#3	.2187749	.0076279	-.000068	393.3695	.5380954	.6345870
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.803504	730.7925	8.204870	618.6450	.8073804	.0082727
Stddev	.010399	4.2346	.019497	.6732	.0026458	.0009941
%RSD	.3709365	.5794565	.2376314	.1088253	.3276964	12.01673
#1	2.798218	727.1561	8.226815	619.2979	.8066183	.0072523
#2	2.796810	735.4417	8.198251	618.6840	.8051993	.0092383
#3	2.815485	729.7798	8.189544	617.9531	.8103236	.0083275
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	16.11003	1.056951	.8155680	1.550569	F 15.13892	-.006389
Stddev	.06836	.002907	.0034043	.005264	.01045	.000263
%RSD	.4243512	.2749959	.4174126	.3395084	.0690382	4.121638
#1	16.18712	1.060291	.8140816	1.546321	15.13288	-.006088
#2	16.08618	1.055564	.8131596	1.556458	15.15099	-.006576
#3	16.05678	1.054997	.8194627	1.548927	15.13289	-.006504

Sample Name: Q1664-01DUP Acquired: 3/31/2025 13:50:52 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.015104	8.366977	3.506661	5.681803	.9665855	.5744598
Stddev	.000975	.027510	.011459	.021317	.0115454	.0014527
%RSD	6.453468	.3287984	.3267702	.3751756	1.194447	.2528820
#1	-.014991	8.397453	3.503817	5.673980	.9716917	.5751840
#2	-.016130	8.359502	3.519274	5.665502	.9533675	.5754080
#3	-.014190	8.343977	3.496892	5.705925	.9746973	.5727873
Elem	Sr4077					
Units	ppm					
Avg	.3053858					
Stddev	.0069715					
%RSD	2.282865					
#1	.3129083					
#2	.2991424					
#3	.3041066					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	2151.096	66545.80	15386.38	1891.442	3124.742	
Stddev	9.969	163.34	6.17	8.696	10.422	
%RSD	.4634190	.2454508	.0401109	.4597349	.3335227	
#1	2160.432	66639.10	15384.56	1899.071	3134.692	
#2	2152.258	66357.20	15381.32	1893.279	3125.629	
#3	2140.597	66641.10	15393.26	1881.974	3113.905	

Sample Name: Q1664-01LX5 Acquired: 3/31/2025 13:55:21 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0097100	.0118056	.0129080	.0019635	-.009932	72.05791	.0574431
Stddev	.0020150	.0011891	.0003527	.0024353	.000623	.08821	.0006794
%RSD	20.75121	10.07243	2.732465	124.0276	6.276185	.1224213	1.182738
#1	.0082958	.0106814	.0125010	.0017455	-.009250	72.15977	.0580509
#2	.0120171	.0116850	.0131235	-.000355	-.010473	72.00697	.0567096
#3	.0088171	.0130504	.0130996	.004500	-.010073	72.00698	.0575688
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0021413	-.006795	100.5766	.1158519	.1395774	.9550568	172.1939
Stddev	.0002121	.000137	.1078	.0003332	.0001331	.0016023	1.1745
%RSD	9.905034	2.015766	.1071968	.2876112	.0953676	.1677668	.6820753
#1	.0021621	-.006776	100.6413	.1155925	.1397178	.9549803	172.4120
#2	.0023423	-.006668	100.4521	.1157353	.1395615	.9534941	170.9256
#3	.0019196	-.006940	100.6363	.1162277	.1394530	.9566959	173.2440
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.244384	142.9893	.1826955	.0038670	3.413520	.2467771	.1772367
Stddev	.004175	.1625	.0002025	.0003482	.024136	.0011738	.0016869
%RSD	.1860079	.1136618	.1108314	9.003224	.7070796	.4756369	.9517579
#1	2.246223	143.0870	.1829288	.0039422	3.424193	.2474428	.1770888
#2	2.239605	142.8017	.1825653	.0034874	3.385887	.2454218	.1756287
#3	2.247323	143.0793	.1825924	.0041715	3.430480	.2474666	.1789927
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2727253	4.609964	-.001507	-.007519	2.417087	1.281836	1.303885
Stddev	.0092085	.014287	.000640	.001140	.006092	.003679	.002622
%RSD	3.376459	.3099224	42.45832	15.16074	.2520273	.2869793	.2010579
#1	.2649740	4.595208	-.002143	-.006478	2.422539	1.283791	1.306121
#2	.2702975	4.623731	-.000863	-.007343	2.410512	1.277592	1.304535
#3	.2829044	4.610952	-.001516	-.008737	2.418209	1.284124	1.301000

Sample Name: Q1664-01LX5 Acquired: 3/31/2025 13:55:21 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2587691	.1300335	.1189554
Stddev	.0005630	.0014889	.0009205
%RSD	.2175802	1.144985	.7738558
#1	.2586101	.1301894	.1190717
#2	.2593946	.1314383	.1198123
#3	.2583027	.1284729	.1179822

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2209.752	66480.74	14112.48	1941.016	3664.116
Stddev	5.039	334.28	8.37	9.884	5.290
%RSD	.2280401	.5028263	.0593001	.5092065	.1443705
#1	2209.926	66425.25	14122.14	1938.562	3662.762
#2	2214.701	66839.29	14107.84	1951.895	3669.951
#3	2204.628	66177.67	14107.46	1932.590	3659.634

Sample Name: Q1664-02MS Acquired: 3/31/2025 13:59:28 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7460275	1.762496	1.023728	1.657715	.2225796	309.0505
Stddev	.0022742	.011864	.000825	.004249	.0065092	3.2133
%RSD	.3048462	.6731560	.0806057	.2563042	2.924422	1.039737
#1	.7448526	1.755247	1.022886	1.656271	.2189630	312.5721
#2	.7445811	1.776188	1.023763	1.654377	.2300940	306.2776
#3	.7486489	1.756053	1.024535	1.662498	.2186818	308.3019
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3547896	.1581092	.1846170	426.0592	.9224420	.8006244
Stddev	.0008159	.0007373	.0006795	3.5443	.0029767	.0007962
%RSD	.2299623	.4663485	.3680409	.8318743	.3226922	.0994506
#1	.3557291	.1589605	.1851516	429.6280	.9226884	.7998059
#2	.3543804	.1576971	.1838524	422.5400	.9193499	.8006711
#3	.3542593	.1576700	.1848470	426.0097	.9252878	.8013963
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.345640	693.7617	10.22466	581.3384	1.294748	.0765484
Stddev	.003694	4.4042	.01528	.9202	.003740	.0006989
%RSD	.1104126	.6348221	.1494086	.1582930	.2888964	.9129682
#1	3.342809	690.0641	10.24218	581.2061	1.291182	.0757802
#2	3.344292	692.5870	10.21417	582.3176	1.294421	.0767184
#3	3.349819	698.6341	10.21762	580.4915	1.298641	.0771466
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	19.95463	1.281870	.9192713	11.52165	F 11.93144	.3382174
Stddev	.03959	.004618	.0017913	.03584	.01654	.0014019
%RSD	.1983860	.3602814	.1948655	.3110768	.1386308	.4145076
#1	19.93398	1.287200	.9172044	11.50107	11.95017	.3369270
#2	19.92963	1.279371	.9202352	11.50084	11.91885	.3380161
#3	20.00027	1.279040	.9203743	11.56303	11.92529	.3397091

Sample Name: Q1664-02MS Acquired: 3/31/2025 13:59:28 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6251519	9.116760	4.429148	F 11.81578	1.122295	.7354238
Stddev	.0018707	.024673	.022314	.03653	.003090	.0021990
%RSD	.2992430	.2706337	.5038021	.3092016	.2753483	.2990091
#1	.6245527	9.140345	4.405252	11.78320	1.119189	.7332493
#2	.6236541	9.118810	4.449442	11.80886	1.122327	.7376465
#3	.6272488	9.091127	4.432750	11.85528	1.125369	.7353755
Elem	Sr4077					
Units	ppm					
Avg	.4442594					
Stddev	.0055214					
%RSD	1.242826					
#1	.4499444					
#2	.4439161					
#3	.4389177					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	2140.767	67184.89	15513.90	1893.786	3071.554	
Stddev	1.713	170.80	31.50	3.996	2.973	
%RSD	.0799981	.2542302	.2030468	.2109935	.0967839	
#1	2142.743	67345.77	15479.32	1897.211	3073.670	
#2	2139.842	67203.26	15521.40	1894.752	3072.837	
#3	2139.716	67005.64	15540.97	1889.396	3068.155	

Sample Name: Q1664-03MSD Acquired: 3/31/2025 14:03:54 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7303510	1.710855	.9284446	1.629634	.2109895	324.2656
Stddev	.0057163	.012658	.0037104	.003880	.0041836	5.6264
%RSD	.7826791	.7398435	.3996408	.2380681	1.982869	1.735106
#1	.7243506	1.716160	.9322037	1.630334	.2147794	328.1992
#2	.7309696	1.719998	.9283452	1.633115	.2116889	317.8209
#3	.7357328	1.696408	.9247848	1.625452	.2065003	326.7766
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4113265	.1582179	.1800947	395.0215	.8605142	.7986118
Stddev	.0041416	.0013166	.0006749	4.6088	.0015385	.0009250
%RSD	1.006899	.8321333	.3747377	1.166712	.1787886	.1158199
#1	.4161068	.1597368	.1796505	400.3417	.8622483	.7995864
#2	.4088145	.1574018	.1808713	392.2511	.8593130	.7977461
#3	.4090582	.1575153	.1797623	392.4716	.8599813	.7985029
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.278083	694.9621	8.898360	605.6190	1.269805	.0733500
Stddev	.003602	.9034	.076391	6.9570	.000975	.0006634
%RSD	.1581057	.1299897	.8584812	1.148749	.0767701	.9044482
#1	2.275428	695.9907	8.986538	613.6496	1.270434	.0737275
#2	2.276639	694.2972	8.856283	601.7840	1.270298	.0737386
#3	2.282183	694.5986	8.852259	601.4234	1.268682	.0725840
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	20.88265	1.330202	1.000962	11.45921	F 15.21019	.3360949
Stddev	.04917	.011002	.006566	.04185	.13045	.0011481
%RSD	.2354449	.8270731	.6559890	.3652464	.8576232	.3416064
#1	20.82651	1.342904	.994060	11.50249	15.35352	.3352141
#2	20.91805	1.323665	1.007130	11.45619	15.09842	.3373934
#3	20.90338	1.324037	1.001695	11.41894	15.17863	.3356771

Sample Name: Q1664-03MSD Acquired: 3/31/2025 14:03:54 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6045214	9.117262	4.913987	F 11.68117	.9082154	.7521231
Stddev	.0009683	.096107	.028763	.04397	.0067189	.0074428
%RSD	.1601723	1.054125	.5853343	.3763843	.7397911	.9895780
#1	.6035201	9.227956	4.935345	11.71916	.9076462	.7606402
#2	.6054528	9.055078	4.925336	11.69135	.9152008	.7488596
#3	.6045914	9.068753	4.881281	11.63301	.9017992	.7468695
Elem	Sr4077					
Units	ppm					
Avg	.4476919					
Stddev	.0103276					
%RSD	2.306848					
#1	.4596117					
#2	.4420448					
#3	.4414192					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	2125.937	67479.67	15187.67	1890.452	3090.358	
Stddev	1.306	62.47	151.77	11.958	3.960	
%RSD	.0614365	.0925824	.9992960	.6325319	.1281311	
#1	2127.170	67507.71	15013.01	1899.312	3090.724	
#2	2124.568	67408.08	15287.41	1876.851	3086.228	
#3	2126.072	67523.21	15262.61	1895.194	3094.122	

Sample Name: Q1664-01A Acquired: 3/31/2025 14:14:49 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7298331	1.678829	.9103011	1.616151	.6871459	320.2841
Stddev	.0033654	.008749	.0038033	.006440	.0033052	.5091
%RSD	.4611230	.5211551	.4178044	.3984909	.4810040	.1589626
#1	.7333402	1.671369	.9062752	1.616051	.6852989	319.9883
#2	.7266299	1.676661	.9107944	1.622641	.6909618	319.9920
#3	.7295292	1.688459	.9138337	1.609762	.6851771	320.8720
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4187333	.1508109	.1834435	418.9736	.7815206	.8290741
Stddev	.0011061	.0006183	.0013355	1.7872	.0037353	.0025719
%RSD	.2641462	.4099944	.7279971	.4265686	.4779578	.3102201
#1	.4174727	.1515101	.1831983	416.9848	.7844030	.8300893
#2	.4191863	.1503363	.1822477	419.4906	.7773007	.8261494
#3	.4195410	.1505862	.1848846	420.4453	.7828582	.8309834
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.049305	711.3457	9.354436	604.3914	1.266974	.0734316
Stddev	.006329	.5295	.010798	1.2393	.005260	.0004140
%RSD	.1563092	.0744401	.1154323	.2050539	.4151455	.5637676
#1	4.052028	711.1590	9.350372	603.0797	1.266025	.0734138
#2	4.042070	711.9433	9.366676	605.5427	1.262253	.0738541
#3	4.053818	710.9348	9.346259	604.5520	1.272644	.0730268
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	20.04149	1.257356	.9600134	11.54414	F 16.65073	.3310899
Stddev	.02968	.001520	.0047317	.03381	.02517	.0005387
%RSD	.1480714	.1209148	.4928830	.2928351	.1511445	.1627174
#1	20.07322	1.256089	.9599324	11.53555	16.62895	.3312170
#2	20.01442	1.256938	.9553226	11.51546	16.67828	.3304989
#3	20.03682	1.259042	.9647851	11.58141	16.64496	.3315537

Sample Name: Q1664-01A Acquired: 3/31/2025 14:14:49 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6108229	F 10.11463	5.352453	F 12.06847	1.387304	.7464538
Stddev	.0022329	.00514	.012635	.05427	.011983	.0014571
%RSD	.3655510	.0508344	.2360569	.4496978	.8637337	.1951985
#1	.6133359	10.11011	5.363081	12.03030	1.375970	.7460871
#2	.6100656	10.11355	5.338483	12.04452	1.386099	.7480592
#3	.6090672	10.12023	5.355793	12.13060	1.399844	.7452151

Elem	Sr4077
Units	ppm
Avg	.7100083
Stddev	.0197253
%RSD	2.778180
#1	.6937917
#2	.7042653
#3	.7319677

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2126.522	67464.66	15511.42	1877.275	3061.791
Stddev	3.761	150.35	2.82	13.910	5.813
%RSD	.1768459	.2228554	.0181981	.7409444	.1898517
#1	2122.195	67379.50	15514.64	1883.270	3058.180
#2	2128.368	67638.26	15510.26	1887.182	3068.496
#3	2129.003	67376.23	15509.37	1861.373	3058.696

Sample Name: Q1664-07 Acquired: 3/31/2025 14:19:23 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0331200	.0314169	.0593822	.0000408	-.029989	293.2519
Stddev	.0041189	.0016299	.0041745	.0102995	.004853	.6597
%RSD	12.43629	5.187990	7.029859	25259.74	16.18233	.2249500
#1	.0356137	.0331353	.0547484	-.010720	-.025405	292.4915
#2	.0353804	.0312224	.0628490	.001035	-.035072	293.5926
#3	.0283658	.0298930	.0605492	.009807	-.029490	293.6715
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1913385	.0065200	.0051409	441.6670	.5257310	.5665820
Stddev	.0003780	.0001931	.0010013	3.3748	.0016779	.0010838
%RSD	.1975593	2.961571	19.47794	.7640994	.3191465	.1912831
#1	.1915695	.0063034	.0056748	438.8997	.5258295	.5655633
#2	.1909023	.0065823	.0057622	440.6745	.5240061	.5677208
#3	.1915437	.0066742	.0039858	445.4267	.5273575	.5664618
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.934706	634.2196	8.036134	530.7932	.7718219	.0052456
Stddev	.006155	5.2705	.020953	.8355	.0013293	.0005856
%RSD	.2097416	.8310210	.2607316	.1573967	.1722281	11.16388
#1	2.933848	630.1415	8.030875	530.2771	.7709702	.0046682
#2	2.929025	632.3466	8.018312	530.3455	.7733536	.0052295
#3	2.941245	640.1708	8.059216	531.7571	.7711419	.0058390
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.65651	.9911171	.7408382	1.522061	F 12.84067	-.005780
Stddev	.06299	.0005968	.0023926	.009657	.07054	.000516
%RSD	.4297832	.0602150	.3229567	.6344410	.5493392	8.932799
#1	14.72055	.9918060	.7381941	1.510995	12.78124	-.005211
#2	14.59462	.9907887	.7428539	1.526404	12.82216	-.005909
#3	14.65437	.9907565	.7414667	1.528783	12.91862	-.006219

Sample Name: Q1664-07 Acquired: 3/31/2025 14:19:23 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.016938	9.649153	3.688355	5.409547	.9622407	.5271364
Stddev	.001398	.019461	.008284	.006784	.0055723	.0028637
%RSD	8.254308	.2016907	.2246102	.1254071	.5790983	.5432475
#1	-.017610	9.663540	3.693905	5.402780	.9575752	.5271073
#2	-.015331	9.627009	3.692327	5.409513	.9684109	.5242874
#3	-.017873	9.656910	3.678832	5.416348	.9607362	.5300145
Elem	Sr4077					
Units	ppm					
Avg	.2503349					
Stddev	.0044278					
%RSD	1.768769					
#1	.2547757					
#2	.2503087					
#3	.2459202					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	2147.964	68324.48	15695.00	1893.390	3128.286	
Stddev	6.763	57.27	53.50	9.128	2.834	
%RSD	.3148519	.0838237	.3408654	.4820802	.0906059	
#1	2149.973	68258.71	15739.42	1895.173	3129.100	
#2	2153.494	68363.40	15709.97	1883.502	3130.625	
#3	2140.424	68351.31	15635.61	1901.495	3125.134	

Sample Name: Q1664-09 Acquired: 3/31/2025 14:23:53 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0223910	.0159411	.0480611	-.001564	-.016271	182.4830
Stddev	.0017567	.0043048	.0018875	.000718	.002992	.2993
%RSD	7.845489	27.00423	3.927338	45.88482	18.39136	.1639905
#1	.0204955	.0144659	.0473659	-.002347	-.015358	182.5753
#2	.0239642	.0207896	.0501977	-.001410	-.013842	182.7252
#3	.0227134	.0125680	.0466199	-.000936	-.019614	182.1484
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2417772	.0047253	-.001234	294.5334	.4453932	.3002739
Stddev	.0005975	.0002616	.000395	.9072	.0021070	.0006285
%RSD	.2471410	5.535807	32.01574	.3080214	.4730711	.2093272
#1	.2421928	.0047906	-.001298	294.1111	.4458012	.2997679
#2	.2420463	.0049481	-.001592	295.5748	.4472663	.3000763
#3	.2410924	.0044373	-.000810	293.9143	.4431120	.3009775
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.157681	387.9757	5.297430	242.5665	.5045656	.0108395
Stddev	.008399	.2805	.011308	.9427	.0004811	.0004703
%RSD	.2659858	.0722982	.2134698	.3886368	.0953487	4.338636
#1	3.156162	388.2438	5.305636	243.5928	.5050140	.0111933
#2	3.150144	387.6842	5.302125	242.3678	.5040574	.0103058
#3	3.166735	387.9991	5.284531	241.7391	.5046255	.0110194
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	20.24276	.6205136	.5868305	1.468073	9.645090	-.002089
Stddev	.05020	.0043382	.0019284	.012109	.046261	.000573
%RSD	.2479737	.6991281	.3286157	.8248161	.4796322	27.42951
#1	20.18687	.6220869	.5860945	1.459912	9.665469	-.002748
#2	20.28401	.6238456	.5890186	1.462320	9.677663	-.001714
#3	20.25739	.6156083	.5853785	1.481985	9.592139	-.001804

Sample Name: Q1664-09 Acquired: 3/31/2025 14:23:53 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.022944	F 10.21670	3.611859	5.371602	1.017564	.3658452
Stddev	.001519	.02165	.011688	.012678	.004908	.0003464
%RSD	6.619357	.2118722	.3236098	.2360179	.4823027	.0946778
#1	-.021954	10.23758	3.617887	5.359195	1.013345	.3662148
#2	-.024692	10.21818	3.598387	5.371077	1.016397	.3657926
#3	-.022185	10.19436	3.619303	5.384535	1.022950	.3655281

Elem	Sr4077
Units	ppm
Avg	.1603553
Stddev	.0007833
%RSD	.4885025
#1	.1602372
#2	.1611910
#3	.1596377

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2222.160	68959.43	15735.03	1956.348	3337.332
Stddev	4.761	90.34	60.90	5.841	6.351
%RSD	.2142303	.1310106	.3870457	.2985823	.1903026
#1	2221.578	68890.66	15687.92	1954.314	3336.003
#2	2227.185	68925.88	15713.37	1951.796	3344.242
#3	2217.717	69061.75	15803.80	1962.935	3331.750

Sample Name: Q1664-11 Acquired: 3/31/2025 14:28:06 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0294332	.0190996	.0594326	-.005829	-.017722	251.4651
Stddev	.0056042	.0005498	.0036464	.004331	.002491	2.0395
%RSD	19.04052	2.878688	6.135390	74.30357	14.05513	.8110500

#1	.0311240	.0185093	.0581374	-.001577	-.016794	249.9767
#2	.0231783	.0191925	.0566106	-.005675	-.015829	253.7898
#3	.0339974	.0195971	.0635498	-.010236	-.020544	250.6288

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4426544	.0056871	.0006027	609.5383	.4851045	.4007055
Stddev	.0007259	.0000949	.0004255	1.4246	.0033225	.0013572
%RSD	.1639805	1.668065	70.58996	.2337206	.6848999	.3386995

#1	.4433537	.0056771	.0008188	608.4648	.4812726	.3993415
#2	.4419046	.0057866	.0001126	611.1545	.4871828	.4007191
#3	.4427049	.0055976	.0008768	608.9956	.4868580	.4020558

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.631330	503.9649	7.093799	301.4434	.6616219	.0104914
Stddev	.006290	1.9701	.020086	.5039	.0031316	.0002667
%RSD	.2390613	.3909165	.2831505	.1671668	.4733244	2.541884

#1	2.624598	502.4418	7.106683	301.6979	.6580145	.0107694
#2	2.632333	506.1897	7.070655	300.8630	.6636430	.0104673
#3	2.637058	503.2631	7.104058	301.7693	.6632081	.0102376

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	38.69932	.8344065	.7716158	2.105806	F 14.92482	-.002908
Stddev	.24011	.0016563	.0040297	.033769	.05060	.000481
%RSD	.6204463	.1984939	.5222398	1.603617	.3390497	16.55752

#1	38.43245	.8344031	.7691257	2.066972	14.97702	-.003435
#2	38.76766	.8360645	.7694569	2.122168	14.92146	-.002796
#3	38.89784	.8327520	.7762650	2.128277	14.87598	-.002492

Sample Name: Q1664-11 Acquired: 3/31/2025 14:28:06 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.026766	F 13.35873	5.690566	5.616568	1.206393	.4438639
Stddev	.000675	.02075	.039652	.011010	.005019	.0006834
%RSD	2.520901	.1553632	.6967985	.1960233	.4160265	.1539719
#1	-.026674	13.37454	5.645483	5.606115	1.208698	.4430768
#2	-.027482	13.33523	5.720029	5.615530	1.200636	.4442089
#3	-.026142	13.36643	5.706185	5.628061	1.209846	.4443061
Elem	Sr4077					
Units	ppm					
Avg	.5157146					
Stddev	.0029721					
%RSD	.5762972					
#1	.5180564					
#2	.5123712					
#3	.5167163					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	2159.454	66880.41	15780.92	1896.946	3116.196	
Stddev	2.620	427.84	33.68	12.937	6.642	
%RSD	.1213181	.6397151	.2134079	.6820172	.2131549	
#1	2161.135	67361.39	15759.61	1911.103	3122.639	
#2	2160.790	66542.23	15763.42	1893.999	3116.578	
#3	2156.435	66737.61	15819.75	1885.736	3109.371	

Sample Name: Q1664-13 Acquired: 3/31/2025 14:32:35 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0172844	.0073419	.0443833	.0033763	-.013716	127.8895	.2510261
Stddev	.0042372	.0015180	.0020501	.0016962	.004049	2.3342	.0052592
%RSD	24.51443	20.67639	4.619040	50.23661	29.52287	1.825198	2.095074
#1	.0159586	.0066283	.0465668	.0026140	-.009621	129.2540	.2548235
#2	.0220259	.0063120	.0424996	.0053199	-.017718	129.2203	.2532315
#3	.0138686	.0090852	.0440835	.0021951	-.013811	125.1942	.2450232
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0054644	-.005900	153.4406	.3649309	.2203838	1.387241	277.3234
Stddev	.0001284	.000411	2.5751	.0005980	.0013130	.004048	1.0173
%RSD	2.349926	6.967174	1.678215	.1638776	.5957860	.2918078	.3668330
#1	.0053262	-.005995	154.7391	.3642443	.2201344	1.387314	277.2603
#2	.0054872	-.006256	155.1079	.3653380	.2192135	1.383156	278.3709
#3	.0055800	-.005450	150.4748	.3652105	.2218037	1.391252	276.3392
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.587187	159.0995	.3898559	.0078826	11.62965	.5098479	.4303801
Stddev	.080776	2.7988	.0009462	.0008597	.08289	.0107810	.0043721
%RSD	1.760908	1.759146	.2427142	10.90575	.7127286	2.114558	1.015871
#1	4.637101	160.1553	.3892987	.0087305	11.72075	.5142899	.4253394
#2	4.630467	161.2168	.3893205	.0079058	11.60953	.5176982	.4326579
#3	4.493994	155.9263	.3909484	.0070116	11.55868	.4975555	.4331430
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.562828	2.662804	-.001254	-.014159	6.765066	2.356032	4.284086
Stddev	.011467	.031076	.000366	.001049	.124195	.015573	.027454
%RSD	.7337613	1.167036	29.21649	7.409795	1.835829	.6610031	.6408395
#1	1.576068	2.665865	-.000831	-.012977	6.839014	2.360365	4.257305
#2	1.556100	2.692236	-.001456	-.014980	6.834503	2.368980	4.282786
#3	1.556315	2.630311	-.001476	-.014520	6.621682	2.338751	4.312167

Sample Name: Q1664-13 Acquired: 3/31/2025 14:32:35 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.6728898	.3095087	.0998161
Stddev	.0047763	.0048596	.0058317
%RSD	.7098209	1.570100	5.842447
#1	.6741160	.3137569	.1047981
#2	.6676200	.3105596	.1012485
#3	.6769335	.3042097	.0934017

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2254.509	69442.41	15767.73	1982.594	3530.062
Stddev	6.837	300.59	240.88	12.701	13.408
%RSD	.3032569	.4328616	1.527660	.6406407	.3798180
#1	2256.907	69704.51	15673.60	1994.723	3537.564
#2	2259.824	69114.30	15588.14	1969.389	3538.040
#3	2246.796	69508.42	16041.46	1983.670	3514.582

Sample Name: CCV02 Acquired: 3/31/2025 14:45:35 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.182032	5.007268	4.978917	5.136518	5.259207	9.781338	9.486434
Stddev	.024807	.069595	.017968	.027904	.032995	.046066	.043854
%RSD	.4787135	1.389876	.3608829	.5432408	.6273749	.4709614	.4622768
#1	5.182133	4.967468	4.964978	5.129161	5.248491	9.824318	9.461040
#2	5.157174	4.966708	4.972577	5.113030	5.232902	9.732707	9.461192
#3	5.206788	5.087628	4.999195	5.167363	5.296228	9.786991	9.537072
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2299851	2.434926	23.42899	1.016026	2.430638	1.280383	4.863766
Stddev	.0016836	.006296	.15250	.001605	.008302	.006691	.016055
%RSD	.7320461	.2585879	.6509030	.1579509	.3415606	.5225825	.3300978
#1	.2317377	2.431786	23.56112	1.014869	2.423288	1.278360	4.881764
#2	.2283803	2.430817	23.26212	1.015352	2.428981	1.274936	4.850916
#3	.2298373	2.442175	23.46375	1.017859	2.439643	1.287851	4.858619
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.291531	22.79921	2.464270	1.224798	24.76742	2.397016	2.547007
Stddev	.014596	.13256	.006802	.000859	.04770	.008597	.013190
%RSD	.6369333	.5814132	.2760411	.0701404	.1926016	.3586744	.5178601
#1	2.306082	22.88247	2.459864	1.223825	24.78261	2.403073	2.559563
#2	2.276891	22.64635	2.460840	1.225451	24.80568	2.387176	2.548195
#3	2.291619	22.86880	2.472104	1.225119	24.71397	2.400799	2.533264
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.42888	4.657257	5.209211	4.954670	4.627322	5.231518	5.111502
Stddev	.10224	.037629	.027883	.018253	.024621	.029496	.025649
%RSD	.4020600	.8079673	.5352605	.3683983	.5320881	.5638145	.5017886
#1	25.38081	4.692530	5.198511	4.946117	4.644566	5.197612	5.092831
#2	25.54630	4.617647	5.188264	4.942264	4.599125	5.251263	5.100927
#3	25.35954	4.661595	5.240860	4.975629	4.638277	5.245679	5.140748

Sample Name: CCV02 Acquired: 3/31/2025 14:45:35 Type: Unk
Method: NON EPA-6010-200.7(v2859) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.925827	4.705661	4.746886
Stddev	.043829	.020877	.055125
%RSD	.8897758	.4436486	1.161282
#1	4.907155	4.723656	4.809608
#2	4.894427	4.682772	4.724922
#3	4.975900	4.710555	4.706129

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2187.583	66889.23	14138.72	1938.725	3856.161
Stddev	5.544	89.58	114.40	10.807	6.836
%RSD	.2534113	.1339211	.8091231	.5574420	.1772792
#1	2189.951	66786.77	14028.40	1927.758	3862.045
#2	2191.550	66928.14	14256.81	1939.050	3857.776
#3	2181.249	66952.77	14130.96	1949.365	3848.662

Sample Name: CCB02 Acquired: 3/31/2025 14:58:03 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0025009	-.001815	.0002075	-.000048	-.001671	-.003189	-.005502
Stddev	.0018735	.001086	.0011051	.000564	.001502	.001475	.000247
%RSD	74.91304	59.86724	532.5308	1181.976	89.91289	46.24679	4.496641

#1	.0003977	-.002909	.0014473	.000250	-.002837	-.001593	-.005216
#2	.0031137	-.000736	-.000151	-.000698	-.002200	-.004501	-.005646
#3	.0039912	-.001799	-.000674	.000305	.000025	-.003473	-.005644

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001237	.0000304	-.014439	.0002161	.0001270	-.000492	-.017662
Stddev	.0000487	.0000692	.006407	.0002456	.0001189	.000228	.001377
%RSD	39.42263	227.1542	44.37409	113.6329	93.62294	46.21854	7.794370

#1	.0000831	-.000006	-.016409	-.000064	.0002525	-.000618	-.019032
#2	.0001777	.000110	-.019629	.000396	.0000159	-.000230	-.017675
#3	.0001102	-.000013	-.007278	.000316	.0001127	-.000629	-.016279

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0059134	-.006674	-.000039	.0011770	-.076893	.0008813	-.001240
Stddev	.0003278	.020571	.000067	.0001864	.002757	.0005940	.000143
%RSD	5.544046	308.2075	170.9533	15.84007	3.585209	67.39468	11.55242

#1	.0062887	-.028631	-.000061	.0010226	-.075127	.0013946	-.001076
#2	.0057688	.012152	.000036	.0011243	-.080069	.0002307	-.001342
#3	.0056828	-.003544	-.000093	.0013841	-.075482	.0010188	-.001302

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.123392	.0363299	.0004367	.0003321	.0007721	.0126480	-.006004
Stddev	.031544	.0014974	.0001874	.0003323	.0006674	.0037258	.003123
%RSD	25.56362	4.121580	42.91110	100.0618	86.44421	29.45729	52.01217

#1	-.154938	.0377277	.0006496	-.000051	.0015191	.0103570	-.003550
#2	-.123387	.0365123	.0003634	.000534	.0005630	.0169471	-.009519
#3	-.091851	.0347497	.0002970	.000513	.0002343	.0106400	-.004942

Sample Name: CCB02 Acquired: 3/31/2025 14:58:03 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.003379	-.002847	.0003967
Stddev	.000679	.000204	.0000422
%RSD	20.08646	7.148564	10.63581
#1	-.003528	-.002624	.0004454
#2	-.003971	-.003022	.0003714
#3	-.002638	-.002896	.0003733

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2313.021	71428.68	14270.17	2045.115	4403.865
Stddev	5.485	115.70	315.64	6.761	8.088
%RSD	.2371533	.1619811	2.211886	.3306124	.1836488
#1	2316.909	71330.50	13912.53	2050.106	4411.433
#2	2315.408	71399.29	14388.17	2047.820	4404.820
#3	2306.747	71556.24	14509.81	2037.420	4395.343

Sample Name: Q1664-15 Acquired: 3/31/2025 15:02:22 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0313620	.0184332	.0564499	.0019612	-.019798	240.3094
Stddev	.0048516	.0018866	.0010993	.0031835	.002953	3.1866
%RSD	15.46959	10.23463	1.947346	162.3228	14.91672	1.326044

#1	.0269394	.0163416	.0577126	-.001605	-.017024	243.9889
#2	.0305954	.0200063	.0559306	.004516	-.019466	238.4892
#3	.0365513	.0189516	.0557065	.002973	-.022902	238.4502

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6727424	.0056596	.0219517	377.2044	.5460139	.4298006
Stddev	.0053198	.0000872	.0005551	3.2051	.0004970	.0013042
%RSD	.7907696	1.541487	2.528681	.8496878	.0910158	.3034404

#1	.6785385	.0057566	.0214000	379.3770	.5462450	.4292401
#2	.6680823	.0055875	.0219449	373.5234	.5463531	.4288704
#3	.6716066	.0056346	.0225101	378.7128	.5454434	.4312913

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.443235	500.7165	7.112493	333.9493	.6891574	.0124538
Stddev	.007429	1.8413	.044008	.8160	.0022588	.0006927
%RSD	.2157438	.3677396	.6187391	.2443470	.3277590	5.561782

#1	3.435046	502.8001	7.158777	334.8550	.6885069	.0129145
#2	3.445116	500.0417	7.071185	333.2713	.6872953	.0127898
#3	3.449542	499.3078	7.107517	333.7217	.6916701	.0116573

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	26.69699	.8955616	.6574903	2.305223	F 11.46739	-.002419
Stddev	.12686	.0045771	.0004301	.016026	.02227	.000543
%RSD	.4751773	.5110854	.0654090	.6952071	.1941958	22.44043

#1	26.81871	.9008130	.6571643	2.318258	11.49294	-.002451
#2	26.56556	.8924194	.6573288	2.287330	11.45720	-.002946
#3	26.70670	.8934524	.6579777	2.310082	11.45205	-.001861

Sample Name: Q1664-15 Acquired: 3/31/2025 15:02:22 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.025471	F 12.94383	4.001707	6.917280	1.335914	.4403106
Stddev	.001190	.05312	.018879	.031691	.005239	.0015583
%RSD	4.672142	.4104129	.4717675	.4581497	.3921569	.3539194
#1	-.026730	13.00195	4.023368	6.912279	1.330486	.4417203
#2	-.025319	12.89777	3.993003	6.888387	1.340941	.4386372
#3	-.024365	12.93179	3.988751	6.951175	1.336315	.4405744

Elem	Sr4077
Units	ppm
Avg	.2536132
Stddev	.0033027
%RSD	1.302254
#1	.2561382
#2	.2498756
#3	.2548257

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2249.350	71038.06	16088.91	1975.437	3202.795
Stddev	4.593	18.67	50.28	4.567	7.071
%RSD	.2041847	.0262779	.3124934	.2311852	.2207705
#1	2252.940	71026.47	16045.40	1980.190	3204.085
#2	2250.935	71028.13	16143.95	1971.082	3209.132
#3	2244.174	71059.60	16077.39	1975.039	3195.168

Sample Name: Q1664-17 Acquired: 3/31/2025 15:06:51 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	1
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	2
Avg	.0150494	.0164229	.0354752	.0074706	-.017950	139.8019	.1606139	3
Stddev	.0053174	.0019308	.0027100	.0034047	.002281	.3468	.0009589	4
%RSD	35.33260	11.75693	7.639101	45.57491	12.70807	.2480857	.5970522	5
#1	.0210869	.0170146	.0323488	.0036010	-.018874	140.0303	.1615785	7
#2	.0129982	.0179886	.0371531	.0088039	-.019624	139.9725	.1606025	8
#3	.0110632	.0142654	.0369237	.0100068	-.015352	139.4028	.1596607	9
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	10
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	11
Avg	.0038651	-.007704	157.9968	.2379968	.2447644	1.111657	345.7354	12
Stddev	.0000321	.000419	.1007	.0016221	.0009964	.005087	.6745	13
%RSD	.8292439	5.437233	.0637077	.6815861	.4070792	.4575775	.1950968	14
#1	.0038522	-.007644	158.0073	.2377860	.2446568	1.108893	345.0636	15
#2	.0039017	-.008149	158.0918	.2364903	.2438262	1.108551	345.7301	16
#3	.0038416	-.007318	157.8913	.2397140	.2458102	1.117527	346.4126	17
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138	18
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
Avg	3.768203	189.5531	.4207505	.0081732	16.33189	.4581817	1.183407	
Stddev	.006719	.2505	.0016716	.0005071	.04305	.0015207	.004022	
%RSD	.1783130	.1321316	.3972920	6.203913	.2635825	.3318909	.3398734	
#1	3.772277	189.7815	.4202345	.0087067	16.28351	.4592331	1.179340	
#2	3.771885	189.5926	.4193978	.0081153	16.34619	.4588739	1.183498	
#3	3.760448	189.2852	.4226193	.0076976	16.36597	.4564381	1.187383	
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774	
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
Avg	1.193450	4.761311	-.002274	-.012671	6.852033	2.903270	3.850010	
Stddev	.010355	.023093	.000477	.001977	.014839	.013020	.029165	
%RSD	.8676738	.4850194	20.98608	15.60029	.2165570	.4484508	.7575336	
#1	1.203954	4.751969	-.002655	-.014770	6.862777	2.900895	3.827675	
#2	1.183251	4.744353	-.002428	-.012398	6.858220	2.917315	3.839349	
#3	1.193144	4.787612	-.001739	-.010845	6.835102	2.891602	3.883006	

Sample Name: Q1664-17 Acquired: 3/31/2025 15:06:51 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.5523151	.2934590	.0673040
Stddev	.0133217	.0015831	.0013840
%RSD	2.411975	.5394700	2.056298

#1	.5391258	.2936013	.0682949
#2	.5520543	.2949661	.0678943
#3	.5657653	.2918095	.0657227

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2213.233	68741.15	15485.96	1945.186	3479.983
Stddev	7.155	239.21	23.49	4.197	13.928
%RSD	.3233016	.3479906	.1516641	.2157412	.4002441

#1	2212.891	69001.04	15508.78	1948.956	3481.944
#2	2220.554	68692.23	15461.86	1940.664	3492.826
#3	2206.255	68530.18	15487.24	1945.937	3465.178

Sample Name: Q1664-19 Acquired: 3/31/2025 15:10:56 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0185604	.0167968	.0373024	.0089433	-.015649	173.2921
Stddev	.0014963	.0020358	.0007787	.0040939	.001210	.1969
%RSD	8.061836	12.12023	2.087494	45.77625	7.734023	.1136510
#1	.0168367	.0145773	.0368640	.0045741	-.014762	173.1949
#2	.0193197	.0172357	.0382015	.0095651	-.015158	173.5187
#3	.0195248	.0185773	.0368418	.0126908	-.017028	173.1626
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1909257	.0040229	-.007178	165.1555	.4283937	.3076608
Stddev	.0008445	.0000321	.000562	.2791	.0024516	.0014531
%RSD	.4423218	.7979290	7.833515	.1689905	.5722679	.4722982
#1	.1909694	.0040263	-.007145	164.8524	.4258742	.3070152
#2	.1900603	.0040531	-.007756	165.2121	.4285355	.3066423
#3	.1917476	.0039892	-.006633	165.4020	.4307712	.3093248
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.445245	396.0188	4.178761	275.6587	.4792047	.0079648
Stddev	.004674	1.7307	.005813	.8988	.0017280	.0002857
%RSD	.3234101	.4370279	.1391014	.3260375	.3606006	3.586612
#1	1.441780	395.5254	4.172616	274.6416	.4782551	.0079185
#2	1.443393	397.9426	4.179493	275.9886	.4781597	.0077051
#3	1.450561	394.5884	4.184172	276.3459	.4811993	.0082708
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.88634	.6678175	.3682436	1.046440	F 10.68614	-.002475
Stddev	.05372	.0022510	.0021487	.028477	.05079	.000274
%RSD	.4519642	.3370629	.5834940	2.721317	.4752585	11.08105
#1	11.90073	.6652571	.3673416	1.067572	10.65319	-.002558
#2	11.82689	.6687102	.3666930	1.014056	10.74462	-.002169
#3	11.93140	.6694852	.3706963	1.057693	10.66059	-.002699

Sample Name: Q1664-19 Acquired: 3/31/2025 15:10:56 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.016588	8.472103	2.746799	5.154513	.6725035	.3427801
Stddev	.001651	.002706	.012729	.006056	.0080325	.0012451
%RSD	9.950935	.0319343	.4634020	.1174918	1.194418	.3632394
#1	-.017534	8.470435	2.733451	5.152719	.6758609	.3425092
#2	-.014682	8.470649	2.758802	5.149556	.6633370	.3441383
#3	-.017548	8.475224	2.748143	5.161263	.6783127	.3416927
Elem	Sr4077					
Units	ppm					
Avg	.1836747					
Stddev	.0017622					
%RSD	.9594401					
#1	.1842767					
#2	.1816903					
#3	.1850570					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	2197.434	68091.49	15590.22	1915.411	3398.103	
Stddev	6.879	278.50	37.69	4.360	7.091	
%RSD	.3130468	.4090049	.2417700	.2276282	.2086888	
#1	2203.682	68348.03	15632.13	1917.282	3403.986	
#2	2198.558	68131.16	15559.10	1918.524	3400.095	
#3	2190.063	67795.29	15579.43	1910.428	3390.229	

Sample Name: Q1664-21 Acquired: 3/31/2025 15:15:07 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0222124	.0133118	.0442738	-.004703	-.016720	216.1871
Stddev	.0038418	.0010474	.0039136	.001131	.001563	3.0065
%RSD	17.29581	7.868457	8.839561	24.05866	9.349550	1.390690
#1	.0215357	.0144771	.0452849	-.005725	-.014931	212.7521
#2	.0187539	.0124488	.0399539	-.003487	-.017824	217.4693
#3	.0263476	.0130095	.0475827	-.004897	-.017404	218.3399
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2745094	.0046494	-.002913	490.9328	.4611542	.3238978
Stddev	.0019246	.0001901	.000083	5.1790	.0027233	.0010036
%RSD	.7011146	4.088872	2.840454	1.054930	.5905463	.3098641
#1	.2739564	.0044306	-.002924	485.0471	.4608012	.3234992
#2	.2729219	.0047432	-.002990	492.9586	.4640369	.3231547
#3	.2766500	.0047743	-.002825	494.7927	.4586247	.3250395
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.857217	410.9924	6.802862	242.5944	.5531538	.0144323
Stddev	.017790	1.6904	.056774	2.0708	.0017743	.0004082
%RSD	.4612072	.4112889	.8345621	.8536263	.3207585	2.828449
#1	3.850529	409.4699	6.765455	240.4720	.5530285	.0140208
#2	3.843740	412.8114	6.774941	242.7015	.5514456	.0148371
#3	3.877381	410.6960	6.868190	244.6096	.5549875	.0144389
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.83633	.6574401	.5784090	1.582780	8.177056	-.001300
Stddev	.10719	.0045727	.0004603	.015732	.051746	.000699
%RSD	.4148992	.6955285	.0795754	.9939286	.6328196	53.77959
#1	25.95743	.6556091	.5788210	1.570702	8.128689	-.000727
#2	25.75359	.6540668	.5784937	1.600570	8.170856	-.002079
#3	25.79799	.6626446	.5779122	1.577069	8.231622	-.001094

Sample Name: Q1664-21 Acquired: 3/31/2025 15:15:07 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.023695	F 10.69031	4.711451	4.937675	1.744142	.3843592
Stddev	.000372	.06769	.021786	.014363	.014033	.0015315
%RSD	1.570107	.6331899	.4624119	.2908819	.8045678	.3984647
#1	-.024065	10.64419	4.689454	4.926285	1.753496	.3851556
#2	-.023699	10.65873	4.733021	4.953810	1.728006	.3825935
#3	-.023321	10.76802	4.711878	4.932929	1.750923	.3853284
Elem	Sr4077					
Units	ppm					
Avg	.2222780					
Stddev	.0036324					
%RSD	1.634167					
#1	.2223332					
#2	.2186183					
#3	.2258824					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	2139.848	66842.52	15642.26	1891.992	3178.158	
Stddev	4.747	125.72	107.19	1.728	4.277	
%RSD	.2218569	.1880870	.6852851	.0913511	.1345688	
#1	2141.717	66841.29	15739.68	1891.405	3177.709	
#2	2143.377	66717.42	15659.66	1890.633	3182.641	
#3	2134.451	66968.85	15527.43	1893.937	3174.123	

Sample Name: Q1671-01 Acquired: 3/31/2025 15:19:37 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	1
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	2
Avg	.0625384	.0142489	2.185280	.0052193	-.013580	144.7627	1.833425	3
Stddev	.0019130	.0016179	.011101	.0017145	.001091	.1045	.004823	4
%RSD	3.058964	11.35468	.5079989	32.84877	8.033331	.0722161	.2630379	5
#1	.0603742	.0138462	2.180373	.0045475	-.014557	144.8768	1.834902	7
#2	.0632372	.0128704	2.197989	.0039424	-.012403	144.7398	1.828036	8
#3	.0640038	.0160301	2.177477	.0071679	-.013779	144.6716	1.837336	9
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	10
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	11
Avg	.0122937	.0047801	49.78868	.3326205	.2230400	.4824253	344.6368	12
Stddev	.0000675	.0008946	.07529	.0035172	.0009724	.0023610	4.0082	13
%RSD	.5489468	18.71386	.1512269	1.057414	.4359903	.4893980	1.163009	14
#1	.0122573	.0051790	49.78313	.3311003	.2221682	.4815743	341.0279	15
#2	.0123716	.0054058	49.71631	.3301192	.2240888	.4850938	343.9318	16
#3	.0122522	.0037555	49.86659	.3366421	.2228631	.4806079	348.9507	17
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138	18
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
Avg	8.462486	70.62239	.4598840	.0060854	5.979567	.4066117	1.373858	
Stddev	.026095	.16541	.0017722	.0004815	.070191	.0014355	.012891	
%RSD	.3083636	.2342171	.3853606	7.912704	1.173853	.3530440	.9383268	
#1	8.460119	70.44147	.4583862	.0055659	5.969518	.4053090	1.366802	
#2	8.437655	70.76586	.4618404	.0065168	5.914942	.4063755	1.366035	
#3	8.489684	70.65985	.4594253	.0061734	6.054242	.4081507	1.388737	
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774	
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
Avg	22.38668	-.262011	.0071836	.0684475	3.174850	6.830534	9.053460	
Stddev	.22998	.011689	.0003052	.0009721	.002827	.067273	.037431	
%RSD	1.027318	4.461190	4.249161	1.420288	.0890277	.9848814	.4134481	
#1	22.33925	-.271099	.0070311	.0675434	3.177194	6.821879	9.014580	
#2	22.18412	-.266110	.0075350	.0683235	3.171711	6.768008	9.089251	
#3	22.63669	-.248825	.0069847	.0694758	3.175644	6.901715	9.056550	

Sample Name: Q1671-01 Acquired: 3/31/2025 15:19:37 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.014138	.5003093	.0341945
Stddev	.005317	.0025292	.0035700
%RSD	.5242814	.5055255	10.44014

#1	1.012235	.4994487	.0378621
#2	1.020144	.4983228	.0339903
#3	1.010034	.5031565	.0307310

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2713.834	83639.91	18929.50	2362.107	3624.798
Stddev	12.095	780.36	20.98	23.210	17.464
%RSD	.4456732	.9329954	.1108267	.9826002	.4817963

#1	2721.312	83964.93	18947.81	2373.802	3634.320
#2	2699.880	84205.23	18906.61	2377.144	3604.642
#3	2720.311	82749.58	18934.08	2335.376	3635.431

Sample Name: PB167370BS Acquired: 3/31/2025 15:28:09 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7748426	1.928561	.9118998	1.940909	.8128041	1.840394
Stddev	.0041516	.007635	.0051681	.006102	.0030282	.034161
%RSD	.5358032	.3959021	.5667420	.3143940	.3725599	1.856163
#1	.7765353	1.921883	.9073811	1.943620	.8134917	1.863663
#2	.7701120	1.926917	.9107836	1.933921	.8094913	1.801176
#3	.7778805	1.936885	.9175349	1.945186	.8154294	1.856343
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1675553	.1741834	.1787134	.8944358	.3958421	.1822283
Stddev	.0028961	.0026488	.0006953	.0188576	.0010777	.0008243
%RSD	1.728459	1.520678	.3890509	2.108321	.2722525	.4523550
#1	.1702654	.1765361	.1789410	.9055409	.3948286	.1820208
#2	.1645035	.1713145	.1779329	.8726624	.3969742	.1815277
#3	.1678970	.1746996	.1792664	.9051041	.3957236	.1831366
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3020442	2.758024	.1837289	1.689575	.4633815	.0725163
Stddev	.0014331	.023238	.0032058	.023271	.0024218	.0004497
%RSD	.4744586	.8425522	1.744843	1.377355	.5226292	.6201760
#1	.3018609	2.736464	.1858541	1.712670	.4635169	.0721179
#2	.3007117	2.754970	.1800415	1.666131	.4608949	.0730040
#3	.3035601	2.782638	.1852911	1.689924	.4657327	.0724269
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.577805	.2687268	.2000509	9.399160	.2867431	.4061573
Stddev	.023096	.0020299	.0007413	.067540	.0060204	.0011798
%RSD	.8959443	.7553845	.3705340	.7185780	2.099565	.2904710
#1	2.562901	.2706916	.1999564	9.386733	.2923984	.4061611
#2	2.566105	.2666375	.1993615	9.338697	.2804143	.4049756
#3	2.604410	.2688513	.2008349	9.472051	.2874167	.4073351

Sample Name: PB167370BS Acquired: 3/31/2025 15:28:09 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6443269	.1695858	.7869632	5.397240	F -.010907	.1781134
Stddev	.0024009	.0033521	.0086322	.040241	.000725	.0044651
%RSD	.3726281	1.976649	1.096895	.7455819	6.644428	2.506885
#1	.6429179	.1714010	.7775720	5.384915	-.010070	.1814543
#2	.6429637	.1657175	.7887658	5.364603	-.011315	.1730421
#3	.6470992	.1716388	.7945517	5.442202	-.011334	.1798438
Elem	Sr4077					
Units	ppm					
Avg	.1731430					
Stddev	.0032523					
%RSD	1.878371					
#1	.1753514					
#2	.1694083					
#3	.1746692					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	2259.457	67850.11	14550.29	1941.355	4230.088	
Stddev	8.457	114.49	207.87	11.869	19.130	
%RSD	.3743140	.1687428	1.428601	.6113698	.4522436	
#1	2259.274	67955.22	14363.28	1954.530	4230.779	
#2	2268.004	67728.11	14774.10	1938.037	4248.863	
#3	2251.092	67867.01	14513.49	1931.499	4210.621	

Sample Name: PB167370BL Acquired: 3/31/2025 15:35:46 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0013451	-.003942	-.001232	-.001664	-.000779	-.002969	-.006087
Stddev	.0007246	.001324	.000627	.003811	.000497	.003667	.000154
%RSD	53.86766	33.57833	50.85958	229.0076	63.86270	123.5150	2.529026

#1	.0017232	-.004958	-.001833	-.002277	-.000222	-.002307	-.006005
#2	.0018023	-.004424	-.000583	-.005131	-.000934	.000322	-.006264
#3	.0005097	-.002445	-.001281	.002416	-.001180	-.006922	-.005991

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001249	.0000391	-.019708	.0001156	-.000074	-.000473	-.017445
Stddev	.0000489	.0000705	.010060	.0001262	.000281	.000356	.004035
%RSD	39.19932	180.4829	51.04580	109.1737	381.0828	75.22990	23.13076

#1	.0001131	.0001175	-.008592	.0001004	-.000213	-.000839	-.020883
#2	.0001786	-.000019	-.022347	.0002486	-.000258	-.000451	-.018450
#3	.0000829	.000019	-.028186	-.000002	.000249	-.000129	-.013002

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0056195	-.020630	-.000038	.0014973	-.082739	-.000313	-.001436
Stddev	.0000700	.003152	.000187	.0001373	.008481	.000603	.000116
%RSD	1.245164	15.28079	488.4960	9.171348	10.24984	192.7600	8.103684

#1	.0056682	-.018161	-.000253	.0013387	-.092207	-.000388	-.001358
#2	.0056508	-.024181	.000085	.0015791	-.075841	.000324	-.001380
#3	.0055393	-.019547	.000053	.0015740	-.080168	-.000874	-.001570

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.109587	.0219206	-.000101	.0005020	.0001314	.0128425	-.007351
Stddev	.012292	.0004013	.000180	.0003964	.0003729	.0135392	.002369
%RSD	11.21640	1.830727	178.6000	78.96743	283.7707	105.4249	32.23041

#1	-.123198	.0218712	-.000110	.0007213	-.000040	.0258573	-.005049
#2	-.099296	.0215462	-.000276	.0007403	-.000125	.0138364	-.009782
#3	-.106268	.0223443	.000084	.0000444	.000559	-.001166	-.007221

Sample Name: PB167370BL Acquired: 3/31/2025 15:35:46 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.003515	-.003736	-.000149
Stddev	.001815	.001259	.000028
%RSD	51.64179	33.70690	18.48801
#1	-.001432	-.002329	-.000128
#2	-.004759	-.004120	-.000138
#3	-.004353	-.004759	-.000180

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2263.663	69767.74	14538.45	1982.304	4323.283
Stddev	4.804	206.66	90.18	12.664	8.328
%RSD	.2122246	.2962063	.6202865	.6388394	.1926296
#1	2266.919	69873.89	14463.67	1987.607	4328.733
#2	2265.924	69529.58	14513.10	1967.851	4327.418
#3	2258.145	69899.74	14638.60	1991.454	4313.696

Sample Name: CCV03 Acquired: 3/31/2025 15:40:06 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.248922	5.096837	4.998492	5.213323	5.364291	10.03415	9.721846
Stddev	.034292	.037667	.021305	.040685	.031435	.18507	.070098
%RSD	.6533110	.7390297	.4262295	.7803973	.5860072	1.844443	.7210337

#1	5.253840	5.117781	4.993649	5.220182	5.364696	10.23863	9.789577
#2	5.212436	5.053352	4.980025	5.169644	5.332655	9.87813	9.726361
#3	5.280488	5.119377	5.021801	5.250141	5.395521	9.98568	9.649600

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2340138	2.437622	23.77529	1.040074	2.442862	1.292841	4.926407
Stddev	.0049026	.009922	.42472	.011034	.011082	.008749	.067375
%RSD	2.094989	.4070273	1.786412	1.060845	.4536381	.6767626	1.367629

#1	.2394411	2.435237	24.24731	1.052551	2.439669	1.291297	5.004204
#2	.2299060	2.429110	23.42401	1.031604	2.433728	1.284966	4.887914
#3	.2326942	2.448519	23.65455	1.036067	2.455190	1.302260	4.887104

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.371904	23.07208	2.471190	1.247992	25.16313	2.441814	2.622456
Stddev	.047550	.39930	.011722	.012883	.32775	.047511	.028664
%RSD	2.004703	1.730664	.4743325	1.032259	1.302482	1.945746	1.093022

#1	2.425676	23.52924	2.467898	1.262831	25.54116	2.494365	2.655337
#2	2.335404	22.79158	2.461467	1.241477	24.95870	2.401896	2.602736
#3	2.354634	22.89542	2.484206	1.239668	24.98953	2.429181	2.609294

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	26.21338	4.694877	5.319372	4.986052	4.657679	5.370983	5.040784
Stddev	.23793	.092121	.029158	.020957	.084363	.034936	.024858
%RSD	.9076578	1.962165	.5481473	.4203086	1.811264	.6504546	.4931443

#1	26.48373	4.798244	5.320568	4.981776	4.753405	5.398183	5.048361
#2	26.03587	4.621451	5.289634	4.967564	4.594178	5.331583	5.013019
#3	26.12053	4.664935	5.347913	5.008818	4.625456	5.383185	5.060973

Sample Name: CCV03 Acquired: 3/31/2025 15:40:06 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.903159	4.779346	4.851390
Stddev	.028354	.093738	.061312
%RSD	.5782874	1.961321	1.263812
#1	4.900792	4.883211	4.856774
#2	4.876062	4.701031	4.787564
#3	4.932622	4.753798	4.909833

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2182.594	65667.60	14029.61	1868.479	3881.269
Stddev	11.706	582.22	254.91	18.443	16.631
%RSD	.5363347	.8866104	1.816948	.9870658	.4284977
#1	2181.742	64997.02	13741.53	1848.341	3882.253
#2	2194.703	65961.45	14225.96	1872.547	3897.386
#3	2171.338	66044.33	14121.33	1884.548	3864.167

Sample Name: CCB03 Acquired: 3/31/2025 15:44:18 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004693	-.002704	.0000785	-.000511	-.000922	-.006441	-.004526
Stddev	.0028335	.001120	.0007826	.001415	.001038	.005672	.000617
%RSD	603.7434	41.42188	996.9922	277.0185	112.6037	88.07194	13.64282
#1	.0024889	-.003983	-.000292	-.002142	.000276	-.006838	-.004091
#2	.0016888	-.002235	-.000450	.000383	-.001560	-.011904	-.005233
#3	-.002770	-.001895	.000978	.000227	-.001481	-.000580	-.004255
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000963	.0000879	-.015219	.0000292	.0001804	-.000494	-.014735
Stddev	.0000425	.0000329	.003715	.0003715	.0002417	.000306	.002314
%RSD	44.07807	37.44698	24.41306	1269.832	133.9791	62.00578	15.70325
#1	.0001436	.0000748	-.019029	.0001850	.0002468	-.000497	-.012112
#2	.0000840	.0000635	-.015021	-.000395	-.000088	-.000186	-.016486
#3	.0000614	.0001253	-.011607	.000297	.000382	-.000798	-.015606
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0057205	.0001082	.0002529	.0014280	-.064044	.0006362	-.001135
Stddev	.0001471	.0048699	.0003192	.0003578	.007696	.0009422	.000363
%RSD	2.571398	4500.557	126.2232	25.05713	12.01655	148.0987	31.98832
#1	.0056008	-.005156	.0005086	.0013666	-.072072	.0002406	-.001084
#2	.0056759	.004453	-.000105	.0018125	-.063331	.0017116	-.000800
#3	.0058847	.001027	.000355	.0011048	-.056730	-.000044	-.001521
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.082669	.0253454	.0004204	.0003692	.0007532	.0126537	-.006932
Stddev	.017520	.0006660	.0001044	.0011943	.0005009	.0087978	.001687
%RSD	21.19327	2.627802	24.83107	323.4591	66.49691	69.52752	24.33105
#1	-.093205	.0260958	.0004198	.0017477	.0012552	.0170350	-.005002
#2	-.092358	.0248244	.0005251	-.000288	.0007511	.0025255	-.008125
#3	-.062444	.0251160	.0003163	-.000352	.0002534	.0184005	-.007668

Sample Name: CCB03 Acquired: 3/31/2025 15:44:18 Type: Unk
Method: NON EPA-6010-200.7(v2860) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.002808	-.003008	.0005933
Stddev	.002791	.000323	.0001974
%RSD	99.38063	10.74741	33.26416
#1	-.001885	-.003307	.0007907
#2	-.005943	-.002665	.0005933
#3	-.000596	-.003053	.0003960

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2249.336	69024.33	14546.88	1971.717	4291.103
Stddev	19.714	238.93	58.32	9.437	31.129
%RSD	.8764319	.3461549	.4008969	.4786203	.7254322
#1	2256.318	69224.07	14614.21	1982.478	4299.867
#2	2264.608	69089.28	14514.40	1967.822	4316.911
#3	2227.081	68759.64	14512.04	1964.851	4256.532

Sample Name: LR1 Acquired: 3/31/2025 15:48:43 Type: Unk
Method: NON EPA-6010-200.7(v2861) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	1
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	2
Avg	.0662081	.0902548	.0266947	.0406814	-.016845	1892.582	.0067976	3
Stddev	.0080658	.0070957	.0034935	.0176670	.000521	7.616	.0008311	4
%RSD	12.18257	7.861905	13.08702	43.42773	3.090907	.4023954	12.22668	5
#1	.0738949	.0975619	.0236028	.0356907	-.016543	1898.250	.0077502	7
#2	.0669190	.0898113	.0304845	.0603069	-.016546	1895.572	.0064225	8
#3	.0578103	.0833912	.0259968	.0260466	-.017446	1883.925	.0062202	9
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	10
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	11
Avg	.0054313	-.037595	1778.156	.0219083	.0276867	.0194381	1082.667	12
Stddev	.0000614	.001563	10.159	.0003663	.0007122	.0018913	5.643	13
%RSD	1.130610	4.158298	.5713320	1.671811	2.572372	9.729992	.5212568	14
#1	.0053606	-.036820	1789.553	.0219093	.0268684	.0190534	1081.903	15
#2	.0054708	-.039395	1770.051	.0222741	.0280245	.0177688	1088.654	16
#3	.0054627	-.036571	1774.863	.0215416	.0281671	.0214923	1077.445	17
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138	18
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
Avg	.0063778	1648.095	.0103702	.0351757	1858.287	.0175319	.0758712	
Stddev	.0004331	13.464	.0002664	.0010906	10.955	.0006250	.0036453	
%RSD	6.790469	.8169360	2.569039	3.100434	.5895012	3.564758	4.804591	
#1	.0066009	1663.609	.0106010	.0344211	1870.727	.0176495	.0800605	
#2	.0066539	1641.214	.0100786	.0364261	1854.047	.0168565	.0741309	
#3	.0058787	1639.463	.0104310	.0346797	1850.085	.0180897	.0734222	
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774	
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
Avg	1359.868	^ *****	-.008282	-.003269	-.029306	.1651662	.0678549	
Stddev	4.337	-----	.001453	.003487	.000612	.0101866	.0040483	
%RSD	.3189360	-----	17.54811	106.6784	2.086942	6.167468	5.966136	
#1	1364.004	^ -----	-.009935	-.006490	-.029800	.1564475	.0714870	
#2	1360.245	^ -----	-.007705	-.003752	-.028622	.1626879	.0634904	
#3	1355.354	^ -----	-.007206	.000435	-.029495	.1763633	.0685875	

Sample Name: LR1 Acquired: 3/31/2025 15:48:43 Type: Unk
Method: NON EPA-6010-200.7(v2861) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.245528	.1548294	-.941544
Stddev	.014806	.0042121	.004987
%RSD	6.030203	2.720489	.5296856
#1	-.242870	.1512422	-.940866
#2	-.261482	.1594675	-.946835
#3	-.232230	.1537784	-.936930

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1523.029	47407.82	12186.17	1316.750	2320.417
Stddev	2.870	71.63	52.75	4.397	2.655
%RSD	.1884684	.1510874	.4328668	.3338960	.1144158
#1	1526.133	47373.78	12127.21	1315.625	2323.464
#2	1520.471	47490.12	12202.39	1313.026	2319.188
#3	1522.484	47359.57	12228.90	1321.600	2318.599

Sample Name: LR2 Acquired: 3/31/2025 15:53:40 Type: Unk
Method: NON EPA-6010-200.7(v2861) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0087273	-.044443	258.2579	-.010733	-.002035	.3423452	^F *****
Stddev	.0016882	.001476	1.1664	.004291	.002693	.0497860	----
%RSD	19.34341	3.320172	.4516596	39.97318	132.3294	14.54262	----
#1	.0093419	-.043354	257.8169	-.011025	-.004633	.3929681	^ ----
#2	.0100219	-.046123	257.3763	-.006305	.000744	.3406267	^ ----
#3	.0068179	-.043853	259.5806	-.014871	-.002217	.2934407	^ ----
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001080	-.002175	.2579871	.0080665	.0056139	237.5090	.1359532
Stddev	.000062	.000079	.0521433	.0002488	.0002089	.7176	.0320057
%RSD	5.734180	3.632237	20.21157	3.083848	3.720667	.3021277	23.54171
#1	-.001042	-.002121	.3144082	.0083052	.0053728	238.2612	.1685605
#2	-.001047	-.002266	.2479816	.0078087	.0057330	236.8320	.1347139
#3	-.001152	-.002139	.2115717	.0080856	.0057360	237.4338	.1045851
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	47.88407	.0919618	49.83433	.0043962	.2604976	-.009808	31.51457
Stddev	.53764	.0427467	.20966	.0000690	.0537677	.000296	.18563
%RSD	1.122789	46.48314	.4207207	1.568755	20.64040	3.020199	.5890386
#1	48.44792	.1315244	49.76051	.0043479	.3127401	-.009565	31.70622
#2	47.82711	.0977418	49.67157	.0044752	.2634281	-.009721	31.50189
#3	47.37718	.0466192	50.07092	.0043656	.2053245	-.010137	31.33561
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2683704	.0106348	-.005656	-.006697	-.026424	.0012527	.3401098
Stddev	.0660784	.0009909	.000302	.000497	.000324	.0040544	.0074593
%RSD	24.62209	9.317219	5.331561	7.418187	1.224371	323.6516	2.193191
#1	.3370390	.0105921	-.005854	-.007248	-.026515	.0058750	.3360279
#2	.2628428	.0116463	-.005309	-.006284	-.026692	-.001702	.3355822
#3	.2052294	.0096659	-.005804	-.006558	-.026065	-.000415	.3487191

Sample Name: LR2 Acquired: 3/31/2025 15:53:40 Type: Unk
Method: NON EPA-6010-200.7(v2861) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	-.023752	-.002647	.0011773		
Stddev	.006234	.001190	.0000710		
%RSD	26.24585	44.97182	6.031942		
#1	-.021881	-.003531	.0011057		
#2	-.030707	-.003116	.0012477		
#3	-.018668	-.001293	.0011786		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2074.310	67248.07	14499.13	1843.643	4022.944
Stddev	9.384	165.69	44.68	4.505	18.110
%RSD	.4524077	.2463803	.3081449	.2443400	.4501795
#1	2082.840	67252.84	14456.63	1838.446	4033.825
#2	2075.833	67080.04	14495.05	1846.037	4032.969
#3	2064.257	67411.31	14545.71	1846.445	4002.037

Sample Name: CCV04 Acquired: 3/31/2025 15:57:51 Type: Unk
Method: NON EPA-6010-200.7(v2862) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.284055	5.115523	5.038115	5.247015	5.394526	9.975679	9.576071
Stddev	.020169	.017948	.017999	.027973	.027694	.006684	.120368
%RSD	.3816888	.3508513	.3572518	.5331151	.5133644	.0670022	1.256963
#1	5.269779	5.095394	5.040372	5.224006	5.374739	9.983387	9.437423
#2	5.275258	5.121317	5.019094	5.238887	5.382665	9.972159	9.653816
#3	5.307128	5.129859	5.054879	5.278151	5.426175	9.971491	9.636974
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2328777	2.455372	23.60730	1.029069	2.456185	1.306668	4.815808
Stddev	.0005179	.007696	.01012	.002527	.007300	.006269	.012904
%RSD	.2223931	.3134215	.0428799	.2455307	.2971918	.4797339	.2679448
#1	.2323745	2.456437	23.61395	1.026292	2.454663	1.303078	4.802161
#2	.2328494	2.447198	23.61231	1.031232	2.449766	1.303020	4.817450
#3	.2334092	2.462479	23.59565	1.029684	2.464125	1.313906	4.827811
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.371556	23.06321	2.491700	1.226652	24.31969	2.430428	2.547327
Stddev	.004890	.02232	.007936	.000774	.08793	.005608	.003379
%RSD	.2061735	.0967844	.3184820	.0631200	.3615481	.2307411	.1326417
#1	2.366445	23.03973	2.487012	1.227368	24.32749	2.425052	2.545492
#2	2.376189	23.08416	2.487226	1.225831	24.40346	2.436242	2.551226
#3	2.372032	23.06575	2.500863	1.226757	24.22813	2.429988	2.545263
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.41876	4.692438	5.347493	5.016783	4.621133	5.227173	5.104738
Stddev	.10917	.023021	.020016	.017245	.006363	.021832	.010275
%RSD	.4294853	.4905903	.3742984	.3437556	.1376862	.4176692	.2012742
#1	25.41857	4.679033	5.339591	5.014738	4.618124	5.246804	5.098185
#2	25.52802	4.679261	5.332634	5.000652	4.628442	5.203660	5.099449
#3	25.30968	4.719019	5.370253	5.034960	4.616833	5.231054	5.116580

Sample Name: CCV04 Acquired: 3/31/2025 15:57:51 Type: Unk
Method: NON EPA-6010-200.7(v2862) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	4.948963	4.734706	4.855659		
Stddev	.019511	.009430	.030227		
%RSD	.3942538	.1991614	.6225061		
#1	4.928547	4.731220	4.820801		
#2	4.950917	4.745383	4.871560		
#3	4.967423	4.727516	4.874616		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2160.487	66637.44	13876.38	1882.808	3838.494
Stddev	6.676	146.29	24.73	8.184	8.255
%RSD	.3090118	.2195378	.1782172	.4346936	.2150528
#1	2160.825	66552.23	13894.29	1874.498	3837.332
#2	2166.988	66553.73	13886.68	1890.861	3847.268
#3	2153.649	66806.37	13848.16	1883.065	3830.882

Sample Name: CCB04 Acquired: 3/31/2025 16:02:02 Type: Unk
Method: NON EPA-6010-200.7(v2862) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000275	-.001260	.0006280	-.000165	-.001558	-.003579	-.005755
Stddev	.001807	.001394	.0004525	.003152	.000577	.000177	.000248
%RSD	656.9018	110.6536	72.05365	1912.950	36.99768	4.955147	4.303333
#1	.000546	.000283	.0008347	-.003097	-.000928	-.003420	-.005955
#2	-.002347	-.001635	.0009402	.003168	-.002059	-.003546	-.005478
#3	.000976	-.002428	.0001091	-.000566	-.001687	-.003770	-.005831
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000592	-.000081	-.014670	.0001507	.0000460	.0000073	-.015619
Stddev	.0000066	.000043	.002495	.0003650	.0000096	.0001914	.004663
%RSD	11.11268	53.26006	17.00895	242.2034	20.88842	2639.159	29.85792
#1	.0000616	-.000127	-.012941	-.000188	.0000366	.0002212	-.018472
#2	.0000641	-.000040	-.013539	.000537	.0000558	-.000052	-.010237
#3	.0000517	-.000077	-.017531	.000103	.0000456	-.000148	-.018146
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0058571	-.015577	-.000126	.0012556	.0048876	.0002606	-.001224
Stddev	.0003082	.003501	.000269	.0003545	.0008411	.0005674	.000471
%RSD	5.261701	22.47723	214.4684	28.23184	17.20993	217.7386	38.45253
#1	.0057066	-.017831	-.000058	.0008656	.0049122	-.000391	-.000718
#2	.0056530	-.017356	.000103	.0015582	.0040344	.000644	-.001305
#3	.0062116	-.011543	-.000423	.0013430	.0057161	.000529	-.001649
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0096866	.0153571	.0003567	.0001905	.0002049	.0038208	-.007569
Stddev	.0092371	.0002713	.0001734	.0006639	.0005828	.0032625	.002580
%RSD	95.35962	1.766864	48.62904	348.5303	284.4919	85.38905	34.09175
#1	-.000770	.0150517	.0005565	.0009101	-.000095	.0072870	-.004962
#2	.013093	.0155703	.0002683	-.000398	-.000167	.0008098	-.010122
#3	.016736	.0154492	.0002452	.000060	.000877	.0033656	-.007622

Sample Name: CCB04 Acquired: 3/31/2025 16:02:02 Type: Unk
Method: NON EPA-6010-200.7(v2862) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.003516	-.001671	.0003246
Stddev	.002716	.000220	.0001640
%RSD	77.25845	13.17607	50.52823
#1	-.001280	-.001890	.0005087
#2	-.002728	-.001673	.0002714
#3	-.006539	-.001449	.0001939

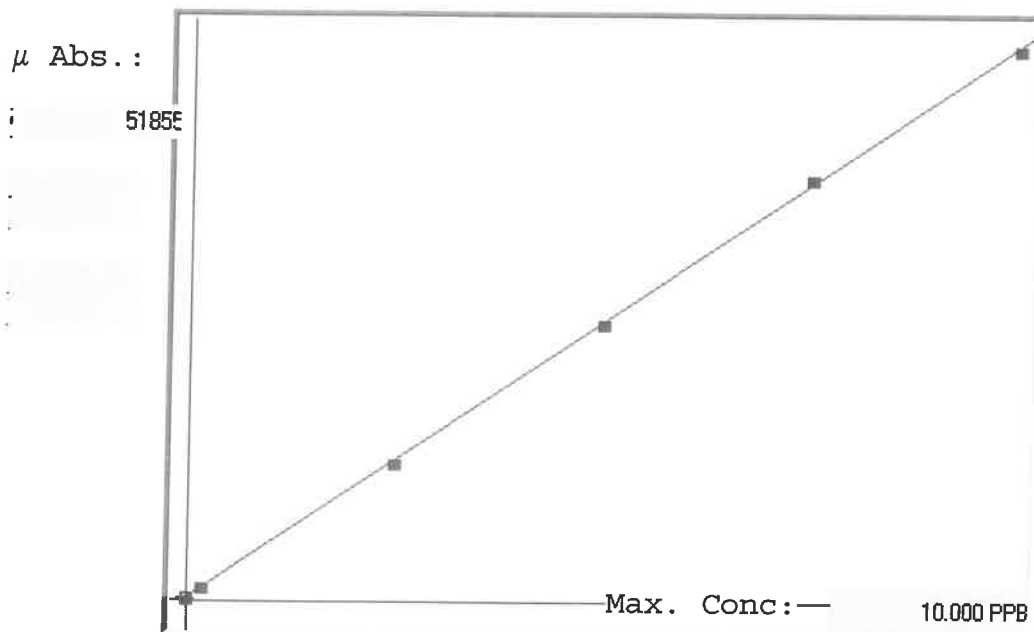
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2262.782	69740.79	14668.62	1983.571	4329.264
Stddev	7.188	86.23	215.01	2.264	20.674
%RSD	.3176615	.1236467	1.465783	.1141247	.4775464
#1	2257.090	69661.15	14902.38	1981.512	4316.602
#2	2260.396	69832.37	14479.30	1983.205	4318.069
#3	2270.860	69728.85	14624.20	1985.995	4353.122

LB135232

7471B

INSTRUMENT ID: CV1

Linear



A= 0.0000e+000

B= 1.9269e-004

C= -5.5560e-002

Rho= 0.9998880

Accept=Accepted

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	%D
0.0	0.000	0.003	0.003	304	0.000	304					
0.2	0.200	0.216	0.016	1407	0.0 %	1407					
2.5	2.500	2.451	-0.049	13008	0.0 %	13008					
5.0	5.000	4.987	-0.013	26171	0.0 %	26171					
7.5	7.500	7.607	0.107	39766	0.0 %	39766					
10.0	10.000	9.936	-0.064	51855	0.0 %	51855					

0.0
-8
-2
0
-1
-1

LB135232 INSTRUMENT ID : CV1

Method: 7471B

Operator: Admin

Date of Analysis: 31 Mar 2025 11:55:01

Sample ID	Extended ID	µ Abs.	Conc.	Std Conc	Method	Units	Date	Type	Type
0.0 - 1	50	304	-	0.0000	7471B	PPB	31 Mar 2025 11:55:24	S	Std
0.2 - 1	50-2	1407	-	0.2000	7471B	PPB	31 Mar 2025 12:00:33	S	Std
2.5 - 1	52.5	13008	-	2.5000	7471B	PPB	31 Mar 2025 12:02:50	S	Std
5.0 - 1	55	26171	-	5.0000	7471B	PPB	31 Mar 2025 12:05:07	S	Std
7.5 - 1	57.5	39766	-	7.5000	7471B	PPB	31 Mar 2025 12:07:26	S	Std
10.0 - 1	510	51855	-	10.0000	7471B	PPB	31 Mar 2025 12:09:45	S	Std
ICV67 - 1	ICV67	22188	4.2198	-	7471B	PPB	31 Mar 2025 12:15:12	U	SMPL
ICB67 - 1	ICB67	516	0.0439	-	7471B	PPB	31 Mar 2025 12:17:28	U	SMPL
CCV103 - 1	CCV103	26049	4.9638	-	7471B	PPB	31 Mar 2025 12:19:46	U	SMPL
CCB103 - 1	CCB103	571	0.0545	-	7471B	PPB	31 Mar 2025 12:22:02	U	SMPL
CRA - 1	CRA	1363	0.2071	-	7471B	PPB	31 Mar 2025 12:24:19	U	SMPL
HighStd - 1	HighStd	51462	9.8606	-	7471B	PPB	31 Mar 2025 12:26:35	U	SMPL
ChkStd - 1	ChkStd	35151	6.7176	-	7471B	PPB	31 Mar 2025 12:28:50	U	SMPL
PB167386BL - 1	PBS	418	0.0250	-	7471B	PPB	31 Mar 2025 12:31:15	U	SMPL
PB167386BS - 1	LCSS	18739	3.5552	-	7471B	PPB	31 Mar 2025 12:35:32	U	SMPL
Q1168-03 - 1	MDL-SOIL-03-QT1-2025	565	0.0533	-	7471B	PPB	31 Mar 2025 12:37:47	U	SMPL
Q1664-01 - 1	P001-BBDGA-001-01	942	0.1260	-	7471B	PPB	31 Mar 2025 12:45:16	U	SMPL
Q1664-01DUP - 1	P001-BBDGA-001-01DUP	908	0.1194	-	7471B	PPB	31 Mar 2025 12:47:33	U	SMPL
Q1664-02 - 1	Q1664-01MS	23351	4.4439	-	7471B	PPB	31 Mar 2025 12:49:49	U	SMPL
Q1664-03 - 1	Q1664-01MSD	24526	4.6703	-	7471B	PPB	31 Mar 2025 12:52:05	U	SMPL
CCV104 - 1	CCV104	25298	4.8191	-	7471B	PPB	31 Mar 2025 12:54:22	U	SMPL
CCB104 - 1	CCB104	464	0.0338	-	7471B	PPB	31 Mar 2025 12:56:46	U	SMPL
Q1664-07 - 1	P001-BBDGA-001-02	2551	0.4360	-	7471B	PPB	31 Mar 2025 12:59:05	U	SMPL
Q1664-09 - 1	P001-BBDGA-002-01	574	0.0550	-	7471B	PPB	31 Mar 2025 13:01:20	U	SMPL
Q1664-11 - 1	P001-BBDGA-003-01	740	0.0870	-	7471B	PPB	31 Mar 2025 13:03:38	U	SMPL
Q1664-13 - 1	P001-BBDGA-004-01	768	0.0924	-	7471B	PPB	31 Mar 2025 13:05:54	U	SMPL
Q1664-15 - 1	P001-BBDGA-005-01	1004	0.1379	-	7471B	PPB	31 Mar 2025 13:08:10	U	SMPL
Q1664-17 - 1	P001-BBDGA-006-01	655	0.0707	-	7471B	PPB	31 Mar 2025 13:10:26	U	SMPL
Q1664-19 - 1	P001-BBDGA-007-01	847	0.1076	-	7471B	PPB	31 Mar 2025 13:12:43	U	SMPL
Q1664-21 - 1	P001-BBDGA-008-01	800	0.0986	-	7471B	PPB	31 Mar 2025 13:15:00	U	SMPL
Q1671-01 - 1	WC-1	13869	2.6168	-	7471B	PPB	31 Mar 2025 13:17:17	U	SMPL
Q1672-01 - 1	TP-8	1508	0.2350	-	7471B	PPB	31 Mar 2025 13:19:33	U	SMPL
CCV105 - 1	CCV105	26049	4.9638	-	7471B	PPB	31 Mar 2025 13:21:51	U	SMPL
CCB105 - 1	CCB105	545	0.0495	-	7471B	PPB	31 Mar 2025 13:24:06	U	SMPL
Q1674-01 - 1	RT5358	2922	0.5075	-	7471B	PPB	31 Mar 2025 13:26:24	U	SMPL
Q1674-03 - 1	72-11991	2549	0.4356	-	7471B	PPB	31 Mar 2025 13:28:40	U	SMPL
Q1678-01 - 1	MOO-25-0082	-44	-0.0640	-	7471B	PPB	31 Mar 2025 13:30:56	U	SMPL
Q1678-02 - 1	MOO-25-0086-87-88	1755	0.2826	-	7471B	PPB	31 Mar 2025 13:33:12	U	SMPL
Q1168-01 - 1		513	0.0433	-	7471B	PPB	31 Mar 2025 13:35:28	U	SMPL
Q1168-01RE - 1		1206	0.1768	-	7471B	PPB	31 Mar 2025 13:37:44	U	SMPL
Q1664-01LX5 - 1		152	-0.0263	-	7471B	PPB	31 Mar 2025 13:39:59	U	SMPL
Q1664-01A - 1		23960	4.5613	-	7471B	PPB	31 Mar 2025 13:42:15	U	SMPL
CCV106 - 1	CCV106	25869	4.9291	-	7471B	PPB	31 Mar 2025 13:44:31	U	SMPL
CCB106 - 1	CCB106	461	0.0333	-	7471B	PPB	31 Mar 2025 13:46:47	U	SMPL
							31 Mar 2025 14:00:41	U	SMPL

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 #3 2. N/A

Start Digest Date: 03/28/2025 Time : 10:05 Temp : 96 °C

End Digest Date: 03/28/2025 Time : 12:10 Temp : 96 °C

Digestion tube ID: M6054

Block thermometer ID: MET-DIG. #3

Dig Technician Signature: *S/23*

Supervisor Signature: *[Signature]*

Temp : 1. 96°C 2. N/A

Standardized Name	MLS USED	STD REF. # FROM LOG
LFS-1	1.00	M6003
LFS-2	1.00	M6012
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
1:1 HNO3	10.00	MP84041
Conc. HNO3	5.00	M6158
30% H2O2	3.00	M6125
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 # 3 CELL 35 Temp :96 C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
03/28/25 13:10	<i>S/D. mcl. d'10</i>	<i>[Signature] (Mete-b 2025)</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
PB167370BL	PBS370	N/A	2.20	100	Colorless	Colorless	Fine	N/A	N/A	1
PB167370BS	LCS370	N/A	2.10	100	Colorless	Colorless	Fine	N/A	M6003,M6012	2
Q1664-01DUP	P001-BBDGA-001-01DUP	N/A	2.29	100	Gray	Yellow	Medium	N/A	N/A	4
Q1664-01	P001-BBDGA-001-01	N/A	2.33	100	Gray	Yellow	Medium	N/A	N/A	3
Q1664-02	Q1664-01MS	N/A	2.08	100	Gray	Yellow	Medium	N/A	M6003,M6012	5
Q1664-03	Q1664-01MSD	N/A	2.17	100	Gray	Yellow	Medium	N/A	M6003,M6012	6
Q1664-07	P001-BBDGA-001-02	N/A	2.28	100	Gray	Yellow	Medium	N/A	N/A	7
Q1664-09	P001-BBDGA-002-01	N/A	2.33	100	Gray	Yellow	Medium	N/A	N/A	8
Q1664-11	P001-BBDGA-003-01	N/A	2.09	100	Gray	Yellow	Medium	N/A	N/A	9
Q1664-13	P001-BBDGA-004-01	N/A	2.08	100	Gray	Yellow	Medium	N/A	N/A	10
Q1664-15	P001-BBDGA-005-01	N/A	2.35	100	Gray	Yellow	Medium	N/A	N/A	11
Q1664-17	P001-BBDGA-006-01	N/A	2.11	100	Gray	Yellow	Medium	N/A	N/A	12
Q1664-19	P001-BBDGA-007-01	N/A	2.26	100	Gray	Yellow	Medium	N/A	N/A	13
Q1664-21	P001-BBDGA-008-01	N/A	2.11	100	Gray	Yellow	Medium	N/A	N/A	14
Q1671-01	WC-1	N/A	2.44	100	Brown	Yellow	Medium	N/A	N/A	15

WORKLIST(Hardcopy Internal Chain)

WorkList Name : PB167370 WorkList ID : 188610 Department : Digestion Date : 03-28-2025 09:37:26

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q1664-01	P001-BBDGA-001-01	Solid	Metals ICP-TAL	Cool 4 deg C	ROYF02	I31	03/26/2025	6010D
Q1664-02	Q1664-01MS	Solid	Metals ICP-TAL	Cool 4 deg C	ROYF02	I31	03/26/2025	6010D
Q1664-03	Q1664-01MSD	Solid	Metals ICP-TAL	Cool 4 deg C	ROYF02	I31	03/26/2025	6010D
Q1664-07	P001-BBDGA-001-02	Solid	Metals ICP-TAL	Cool 4 deg C	ROYF02	I31	03/26/2025	6010D
Q1664-09	P001-BBDGA-002-01	Solid	Metals ICP-TAL	Cool 4 deg C	ROYF02	I31	03/26/2025	6010D
Q1664-11	P001-BBDGA-003-01	Solid	Metals ICP-TAL	Cool 4 deg C	ROYF02	I31	03/26/2025	6010D
Q1664-13	P001-BBDGA-004-01	Solid	Metals ICP-TAL	Cool 4 deg C	ROYF02	I31	03/26/2025	6010D
Q1664-15	P001-BBDGA-005-01	Solid	Metals ICP-TAL	Cool 4 deg C	ROYF02	I31	03/26/2025	6010D
Q1664-17	P001-BBDGA-006-01	Solid	Metals ICP-TAL	Cool 4 deg C	ROYF02	I31	03/26/2025	6010D
Q1664-19	P001-BBDGA-007-01	Solid	Metals ICP-TAL	Cool 4 deg C	ROYF02	I31	03/26/2025	6010D
Q1664-21	P001-BBDGA-008-01	Solid	Metals ICP-TAL	Cool 4 deg C	ROYF02	I31	03/26/2025	6010D
Q1671-01	WC-1	Solid	Metals ICP-TAL	Cool 4 deg C	PSEG03	I31	03/27/2025	6010D

Date/Time 03/28/25 9:50
Raw Sample Received by: SLB, mda
Raw Sample Relinquished by: Jui (SM)

Date/Time 03/28/25 10:50
Raw Sample Received by: Jui (SM)
Raw Sample Relinquished by: SLB, mda

SOP ID : M7471B-Mercury-18

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: 03/31/2025 Time : 09:45 Temp : 94 °C

End Digest Date: 03/31/2025 Time : 10:15 Temp : 95 °C

Digestion tube ID: M5595

Block thermometer ID: HG-DIG#3

Dig Technician Signature: *[Signature]*

Supervisor Signature: *[Signature]*

Temp : 1. 94°C 2. N/A

Standardized Name	MLS USED	STD REF. # FROM LOG
ICV	30mL	MP850580
CCV	30mL	MP985082
CRA	30mL	MP85084
Blank Spike	0.48mL	MP85072
Matrix Spike	0.48mL	MP85072

Chemical Used	ML/SAMPLE USED	Lot Number
AQUA REGIA	2.5mL	MP85086
KMnO ₄ (5%)	4.5mL	MP84564
Hydroxylamine HCL (12%)	2.0mL	MP84566
PTFE Boiling Stones	-----	M4583
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

LAB SAMPLE ID	CLIENT SAMPLE ID	Wt(g)/Vol(ml)	Comment
0.0 ppb	S0	30mL	MP85073
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	30mL	MP85075
2.5 ppb	S2.5	30mL	MP85076
5.0 ppb	S5.0	30mL	MP85077
7.5 ppb	S7.5	30mL	MP85078
10.0 ppb	S10.0	30mL	MP85079
ICV	ICV	30mL	MP85080
ICB	ICB	30mL	MP85081
CCV	CCV	30mL	MP85082
CCB	CCB	30mL	MP85083
CRI	CRI	30mL	MP85084
CHK STD	CHK STD	30mL	MP85085

Extraction Conformance/Non-Conformance Comments:

N/A		
Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
3/31/25 11:05	MSB Dig, Lab	MSB Dig, Lab
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	Initial Weight (g)	Final Vol (ml)	pH	Comment	Prep Pos
Q1168-03	MDL-SOIL-03-QT1-2025	0.50	35	NA	N/A	3-1
Q1664-01	P001-BBDGA-001-01	0.52	35	NA	MP85072	2
Q1664-01DUP	P001-BBDGA-001-01DUP	0.51	35	NA	N/A	3
Q1664-02	Q1664-01MS	0.57	35	NA	MP85072	4
Q1664-03	Q1664-01MSD	0.56	35	NA	MP85072	5
Q1664-07	P001-BBDGA-001-02	0.52	35	NA	N/A	6
Q1664-09	P001-BBDGA-002-01	0.55	35	NA	N/A	7
Q1664-11	P001-BBDGA-003-01	0.50	35	NA	N/A	8
Q1664-13	P001-BBDGA-004-01	0.55	35	NA	N/A	9
Q1664-15	P001-BBDGA-005-01	0.55	35	NA	N/A	10
Q1664-17	P001-BBDGA-006-01	0.50	35	NA	N/A	11
Q1664-19	P001-BBDGA-007-01	0.52	35	NA	N/A	12
Q1664-21	P001-BBDGA-008-01	0.56	35	NA	N/A	13
Q1671-01	WC-1	0.58	35	NA	N/A	14
Q1672-01	TP-8	0.54	35	NA	N/A	15
Q1674-01	RT5358	0.58	35	NA	N/A	16
Q1674-03	72-11991	0.50	35	NA	N/A	17
Q1678-01	MOO-25-0082	0.60	35	NA	N/A	18
Q1678-02	MOO-25-0082-87-88	0.54	35	NA	N/A	19

WORKLIST(Hardcopy Internal Chain)

WorkList Name : 033125_7471

WorkList ID : 188625

Department : Digestion

Date : 03-31-2025 08:08:15

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q1168-03	MDL-SOIL-03-QT1-2025	Solid	Mercury	Cool 4 deg C	CHEM02	QA 01	01/23/2025	7471B
Q1664-01	P001-BBDGA-001-01	Solid	Mercury	Cool 4 deg C	ROYF02	I31	03/26/2025	7471B
Q1664-02	Q1664-01MS	Solid	Mercury	Cool 4 deg C	ROYF02	I31	03/26/2025	7471B
Q1664-03	Q1664-01MSD	Solid	Mercury	Cool 4 deg C	ROYF02	I31	03/26/2025	7471B
Q1664-07	P001-BBDGA-001-02	Solid	Mercury	Cool 4 deg C	ROYF02	I31	03/26/2025	7471B
Q1664-09	P001-BBDGA-002-01	Solid	Mercury	Cool 4 deg C	ROYF02	I31	03/26/2025	7471B
Q1664-11	P001-BBDGA-003-01	Solid	Mercury	Cool 4 deg C	ROYF02	I31	03/26/2025	7471B
Q1664-13	P001-BBDGA-004-01	Solid	Mercury	Cool 4 deg C	ROYF02	I31	03/26/2025	7471B
Q1664-15	P001-BBDGA-005-01	Solid	Mercury	Cool 4 deg C	ROYF02	I31	03/26/2025	7471B
Q1664-17	P001-BBDGA-006-01	Solid	Mercury	Cool 4 deg C	ROYF02	I31	03/26/2025	7471B
Q1664-19	P001-BBDGA-007-01	Solid	Mercury	Cool 4 deg C	ROYF02	I31	03/26/2025	7471B
Q1664-21	P001-BBDGA-008-01	Solid	Mercury	Cool 4 deg C	ROYF02	I31	03/26/2025	7471B
Q1671-01	WC-1	Solid	Mercury	Cool 4 deg C	ROYF02	I31	03/26/2025	7471B
Q1672-01	TP-8	Solid	Mercury	Cool 4 deg C	PSEG03	I31	03/27/2025	7471B
Q1674-01	RT5358	Solid	Mercury	Cool 4 deg C	PSEG03	I31	03/27/2025	7471B
Q1674-03	72-11991	Solid	Mercury	Cool 4 deg C	PSEG03	I41	03/28/2025	7471B
Q1678-01	MOO-25-0082	Solid	Mercury	Cool 4 deg C	PSEG03	I41	03/28/2025	7471B
Q1678-02	MOO-25-0082-87-88	Solid	Mercury	Cool 4 deg C	PSEG03	I41	03/28/2025	7471B

Date/Time 3/31/25 @ 9:05
Raw Sample Received by: DOB-DIG-LUG
Raw Sample Relinquished by: DOB-DIG-LUG

Date/Time 3/31/25 @ 9:00
Raw Sample Received by: DOB-DIG-LUG
Raw Sample Relinquished by: DOB-DIG-LUG

PERCENT SOLID

Supervisor: Iwona
Analyst: jignesh
Date: 3/28/2025

OVENTEMP IN Celsius(°C): 107
Time IN: 17:00
In Date: 03/27/2025
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
OvenID: M OVEN#1

OVENTEMP OUT Celsius(°C): 103
Time OUT: 08:11
Out Date: 03/28/2025
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
BalanceID: M SC-4
Thermometer ID: % SOLID- OVEN

QC:LB135218

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
Q1664-01	P001-BBDGA-001-01	1	1.15	11.21	12.36	11.44	91.8	
Q1664-02	Q1664-01MS	2	1.15	11.21	12.36	11.44	91.8	
Q1664-03	Q1664-01MSD	3	1.15	11.21	12.36	11.44	91.8	
Q1664-07	P001-BBDGA-001-02	4	1.15	10.16	11.31	10.5	92.0	
Q1664-09	P001-BBDGA-002-01	5	1.16	10.35	11.51	10.84	93.5	
Q1664-11	P001-BBDGA-003-01	6	1.18	10.46	11.64	11.08	94.6	
Q1664-13	P001-BBDGA-004-01	7	1.13	10.13	11.26	10.79	95.4	
Q1664-15	P001-BBDGA-005-01	8	1.19	10.75	11.94	11.05	91.7	
Q1664-17	P001-BBDGA-006-01	9	1.19	10.99	12.18	11.51	93.9	
Q1664-19	P001-BBDGA-007-01	10	1.18	10.24	11.42	10.68	92.8	
Q1664-21	P001-BBDGA-008-01	11	1.14	11.34	12.48	11.8	94.0	
Q1671-01	WC-1	12	1.15	10.43	11.58	9.86	83.5	
Q1671-02	WC-1-EPH	13	1.16	10.32	11.48	10.02	85.9	
Q1671-03	WC-1-VOC	14	1.18	10.53	11.71	10.12	84.9	

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

WORKLIST(Hardcopy Internal Chain)

135218

WorkList Name : %1-032725

WorkList ID : 188585

Department : Wet-Chemistry

Date : 03-27-2025 08:23:19

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q1664-01	P001-BBDGA-001-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	I31	03/26/2025	Chemtech -SO
Q1664-02	Q1664-01MS	Solid	Percent Solids	Cool 4 deg C	ROYF02	I31	03/26/2025	Chemtech -SO
Q1664-03	Q1664-01MSD	Solid	Percent Solids	Cool 4 deg C	ROYF02	I31	03/26/2025	Chemtech -SO
Q1664-07	P001-BBDGA-001-02	Solid	Percent Solids	Cool 4 deg C	ROYF02	I31	03/26/2025	Chemtech -SO
Q1664-09	P001-BBDGA-002-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	I31	03/26/2025	Chemtech -SO
Q1664-11	P001-BBDGA-003-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	I31	03/26/2025	Chemtech -SO
Q1664-13	P001-BBDGA-004-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	I31	03/26/2025	Chemtech -SO
Q1664-15	P001-BBDGA-005-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	I31	03/26/2025	Chemtech -SO
Q1664-17	P001-BBDGA-006-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	I31	03/26/2025	Chemtech -SO
Q1664-19	P001-BBDGA-007-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	I31	03/26/2025	Chemtech -SO
Q1664-21	P001-BBDGA-008-01	Solid	Percent Solids	Cool 4 deg C	ROYF02	I31	03/26/2025	Chemtech -SO
Q1671-01	WC-1	Solid	Percent Solids	Cool 4 deg C	PSEG03	I31	03/27/2025	Chemtech -SO
Q1671-02	WC-1-EPH	Solid	Percent Solids	Cool 4 deg C	PSEG03	I31	03/27/2025	Chemtech -SO
Q1671-03	WC-1-VOC	Solid	Percent Solids	Cool 4 deg C	PSEG03	I31	03/27/2025	Chemtech -SO

Date/Time

Raw Sample Received by:

Raw Sample Relinquished by:

Date/Time

Raw Sample Received by:

Raw Sample Relinquished by:

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB135232

Review By	mohan	Review On	4/1/2025 9:29:17 AM
Supervise By	jaswal	Supervise On	4/1/2025 9:33:01 AM

STD. NAME	STD REF.#
ICAL Standard	MP85073,MP85075,MP85076,MP85077,MP85078,MP85079
ICV Standard	MP85080
CCV Standard	MP85082
ICSA Standard	
CRI Standard	MP85084
LCS Standard	
Chk Standard	MP85081,MP85083,MP85085,MP85087

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	03/31/25 11:55		Mohan	OK
2	S0.2	S0.2	CAL2	03/31/25 12:00		Mohan	OK
3	S2.5	S2.5	CAL3	03/31/25 12:02		Mohan	OK
4	S5	S5	CAL4	03/31/25 12:05		Mohan	OK
5	S7.5	S7.5	CAL5	03/31/25 12:07		Mohan	OK
6	S10	S10	CAL6	03/31/25 12:09		Mohan	OK
7	ICV67	ICV67	ICV	03/31/25 12:15		Mohan	OK
8	ICB67	ICB67	ICB	03/31/25 12:17		Mohan	OK
9	CCV103	CCV103	CCV	03/31/25 12:19		Mohan	OK
10	CCB103	CCB103	CCB	03/31/25 12:22		Mohan	OK
11	CRA	CRA	CRDL	03/31/25 12:24		Mohan	OK
12	HighStd	HighStd	HIGH STD	03/31/25 12:26		Mohan	OK
13	ChkStd	ChkStd	SAM	03/31/25 12:28		Mohan	OK
14	PB167386BL	PB167386BL	MB	03/31/25 12:31		Mohan	OK
15	PB167386BS	PB167386BS	LCS	03/31/25 12:35		Mohan	OK
16	Q1168-03	MDL-SOIL-03-QT1-20	SAM	03/31/25 12:37		Mohan	OK
17	Q1664-01	P001-BBDGA-001-01	SAM	03/31/25 12:45		Mohan	OK
18	Q1664-01DUP	P001-BBDGA-001-01	DUP	03/31/25 12:47		Mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB135232

Review By	mohan	Review On	4/1/2025 9:29:17 AM
Supervise By	jaswal	Supervise On	4/1/2025 9:33:01 AM

STD. NAME	STD REF.#
ICAL Standard	MP85073,MP85075,MP85076,MP85077,MP85078,MP85079
ICV Standard	MP85080
CCV Standard	MP85082
ICSA Standard	
CRI Standard	MP85084
LCS Standard	
Chk Standard	MP85081,MP85083,MP85085,MP85087

19	Q1664-02	P001-BBDGA-001-01	MS	03/31/25 12:49		Mohan	OK
20	Q1664-03	P001-BBDGA-001-01	MSD	03/31/25 12:52		Mohan	OK
21	CCV104	CCV104	CCV	03/31/25 12:54		Mohan	OK
22	CCB104	CCB104	CCB	03/31/25 12:56		Mohan	OK
23	Q1664-07	P001-BBDGA-001-02	SAM	03/31/25 12:59		Mohan	OK
24	Q1664-09	P001-BBDGA-002-01	SAM	03/31/25 13:01		Mohan	OK
25	Q1664-11	P001-BBDGA-003-01	SAM	03/31/25 13:03		Mohan	OK
26	Q1664-13	P001-BBDGA-004-01	SAM	03/31/25 13:05		Mohan	OK
27	Q1664-15	P001-BBDGA-005-01	SAM	03/31/25 13:08		Mohan	OK
28	Q1664-17	P001-BBDGA-006-01	SAM	03/31/25 13:10		Mohan	OK
29	Q1664-19	P001-BBDGA-007-01	SAM	03/31/25 13:12		Mohan	OK
30	Q1664-21	P001-BBDGA-008-01	SAM	03/31/25 13:15		Mohan	OK
31	Q1671-01	WC-1	SAM	03/31/25 13:17		Mohan	OK
32	Q1672-01	TP-8	SAM	03/31/25 13:19		Mohan	OK
33	CCV105	CCV105	CCV	03/31/25 13:21		Mohan	OK
34	CCB105	CCB105	CCB	03/31/25 13:24		Mohan	OK
35	Q1674-01	RT5358	SAM	03/31/25 13:26		Mohan	OK
36	Q1674-03	72-11991	SAM	03/31/25 13:28		Mohan	OK
37	Q1678-01	MOO-25-0082	SAM	03/31/25 13:30		Mohan	OK
38	Q1678-02	MOO-25-0086-87-88	SAM	03/31/25 13:33		Mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB135232

Review By	mohan	Review On	4/1/2025 9:29:17 AM
Supervise By	jaswal	Supervise On	4/1/2025 9:33:01 AM

STD. NAME	STD REF.#
ICAL Standard	MP85073,MP85075,MP85076,MP85077,MP85078,MP85079
ICV Standard	MP85080
CCV Standard	MP85082
ICSA Standard	
CRI Standard	MP85084
LCS Standard	
Chk Standard	MP85081,MP85083,MP85085,MP85087

39	Q1168-01	LOD-MDL-SOIL-01-Q	SAM	03/31/25 13:49		Mohan	OK
40	Q1168-01RE	LOD-MDL-SOIL-01-Q	SAM	03/31/25 13:51		Mohan	OK
41	Q1664-01L	P001-BBDGA-001-01	SD	03/31/25 13:53		Mohan	OK
42	Q1664-01A	P001-BBDGA-001-01	PS	03/31/25 13:56		Mohan	OK
43	CCV106	CCV106	CCV	03/31/25 13:58		Mohan	OK
44	CCB106	CCB106	CCB	03/31/25 14:00		Mohan	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB135245

Review By	kareem	Review On	4/2/2025 5:15:08 PM
Supervise By	jaswal	Supervise On	4/4/2025 2:09:59 AM
STD. NAME	STD REF.#		
ICAL Standard	MP85016,MP85017,MP85018,MP85019,MP85020,MP85022		
ICV Standard	MP85023		
CCV Standard	MP85026		
ICSA Standard	MP85024,MP85025		
CRI Standard	MP85022		
LCS Standard			
Chk Standard	MP85030,MP85031		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	03/31/25 12:46		Kareem	OK
2	S1	S1	CAL2	03/31/25 12:50		Kareem	OK
3	S2	S2	CAL3	03/31/25 12:54		Kareem	OK
4	S3	S3	CAL4	03/31/25 12:59		Kareem	OK
5	S4	S4	CAL5	03/31/25 13:03		Kareem	OK
6	S5	S5	CAL6	03/31/25 13:07		Kareem	OK
7	ICV01	ICV01	ICV	03/31/25 13:12		Kareem	OK
8	LLICV01	LLICV01	LLICV	03/31/25 13:16		Kareem	OK
9	ICB01	ICB01	ICB	03/31/25 13:20		Kareem	OK
10	CRI01	CRI01	CRDL	03/31/25 13:24		Kareem	OK
11	ICSA01	ICSA01	ICSA	03/31/25 13:29		Kareem	OK
12	ICSAB01	ICSAB01	ICSAB	03/31/25 13:33		Kareem	OK
13	CCV01	CCV01	CCV	03/31/25 13:37		Kareem	OK
14	CCB01	CCB01	CCB	03/31/25 13:41		Kareem	OK
15	Q1664-01	P001-BBDGA-001-01	SAM	03/31/25 13:46		Kareem	OK
16	Q1664-01DUP	P001-BBDGA-001-01	DUP	03/31/25 13:50		Kareem	OK
17	Q1664-01L	P001-BBDGA-001-01	SD	03/31/25 13:55		Kareem	OK
18	Q1664-02	P001-BBDGA-001-01	MS	03/31/25 13:59	0.1 ML OF M6004 AND M6013 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB135245

Review By	kareem	Review On	4/2/2025 5:15:08 PM
Supervise By	jaswal	Supervise On	4/4/2025 2:09:59 AM

STD. NAME	STD REF.#
ICAL Standard	MP85016,MP85017,MP85018,MP85019,MP85020,MP85022
ICV Standard	MP85023
CCV Standard	MP85026
ICSA Standard	MP85024,MP85025
CRI Standard	MP85022
LCS Standard	
Chk Standard	MP85030,MP85031

19	Q1664-03	P001-BBDGA-001-01	MSD	03/31/25 14:03	0.1 ML OF M6004 AND M6013 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
20	Q1664-01A	P001-BBDGA-001-01	PS	03/31/25 14:14	0.1 ML OF M6004 AND M6013 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
21	Q1664-07	P001-BBDGA-001-02	SAM	03/31/25 14:19		Kareem	OK
22	Q1664-09	P001-BBDGA-002-01	SAM	03/31/25 14:23		Kareem	OK
23	Q1664-11	P001-BBDGA-003-01	SAM	03/31/25 14:28		Kareem	OK
24	Q1664-13	P001-BBDGA-004-01	SAM	03/31/25 14:32		Kareem	OK
25	CCV02	CCV02	CCV	03/31/25 14:45		Kareem	OK
26	CCB02	CCB02	CCB	03/31/25 14:58		Kareem	OK
27	Q1664-15	P001-BBDGA-005-01	SAM	03/31/25 15:02		Kareem	OK
28	Q1664-17	P001-BBDGA-006-01	SAM	03/31/25 15:06		Kareem	OK
29	Q1664-19	P001-BBDGA-007-01	SAM	03/31/25 15:10		Kareem	OK
30	Q1664-21	P001-BBDGA-008-01	SAM	03/31/25 15:15		Kareem	OK
31	Q1671-01	WC-1	SAM	03/31/25 15:19		Kareem	OK
32	PB167370BS	PB167370BS	LCS	03/31/25 15:28	0.1 ML OF M6004 AND M6013 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
33	PB167370BL	PB167370BL	MB	03/31/25 15:35		Kareem	OK
34	CCV03	CCV03	CCV	03/31/25 15:40		Kareem	OK
35	CCB03	CCB03	CCB	03/31/25 15:44		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB135245

Review By	kareem	Review On	4/2/2025 5:15:08 PM
Supervise By	jaswal	Supervise On	4/4/2025 2:09:59 AM

STD. NAME	STD REF.#
ICAL Standard	MP85016,MP85017,MP85018,MP85019,MP85020,MP85022
ICV Standard	MP85023
CCV Standard	MP85026
ICSA Standard	MP85024,MP85025
CRI Standard	MP85022
LCS Standard	
Chk Standard	MP85030,MP85031

36	LR1	LR1	HIGH STD	03/31/25 15:48		Kareem	OK
37	LR2	LR2	HIGH STD	03/31/25 15:53		Kareem	OK
38	CCV04	CCV04	CCV	03/31/25 15:57		Kareem	OK
39	CCB04	CCB04	CCB	03/31/25 16:02		Kareem	OK

Prep Standard - Chemical Standard Summary

Order ID : Q1664
Test : Mercury, Metals ICP-TAL
Prepbatch ID : PB167370, PB167386,
Sequence ID/Qc Batch ID: LB135232, LB135245,

Standard ID :
MP84041, MP84564, MP84566, MP85016, MP85017, MP85018, MP85019, MP85020, MP85021, MP85022, MP85023, MP85024, MP85025, MP85026, MP85030, MP85031, MP850580, MP85072, MP85073, MP85075, MP85076, MP85077, MP85078, MP85079, MP85080, MP85081, MP85082, MP85083, MP85084, MP85085, MP85086, MP85087, MP985082,

Chemical ID :
M4371, M4583, M4883, M4891, M4916, M5020, M5062, M5288, M5387, M5395, M5429, M5466, M5472, M5496, M5497, M5516, M5521, M5532, M5581, M5658, M5747, M5748, M5768, M5789, M5798, M5799, M5800, M5801, M5811, M5814, M5816, M5817, M5820, M5875, M5882, M5884, M5959, M5970, M5978, M5985, M6003, M6012, M6021, M6023, M6028, M6030, M6058, M6076, M6125, M6126, M6128, M6137, M6150, M6151, M6152, M6155, M6156, M6158, M6160, W3112,

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	MP84041	01/14/2025	07/14/2025	Eman Mughal	None	None	Sarabjit Jaswal
								01/16/2025

FROM 1250.00000ml of M6126 + 1250.00000ml of W3112 = Final Quantity: 2500.000 ml

<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 %	MP84564	02/18/2025	08/18/2025	Mohan Bera	None	None	Janvi Patel
								02/19/2025

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

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	MP84566	02/18/2025	06/25/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Janvi Patel
FROM 2000.00000ml of W3112 + 240.00000gram of M4371 + 240.00000gram of M5884 = 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>
902	ICP AES CAL BLK (SO/ICB/CCB)	MP85016	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
FROM 125.00000ml of M6151 + 2350.00000ml of W3112 + 25.00000ml of M5789 = 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)	MP85017	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								04/07/2025

FROM 5.00000ml of M5395 + 5.00000ml of M5466 + 5.00000ml of M5472 + 5.00000ml of M5816 + 5.00000ml of M5820 + 5.00000ml of M5875 + 5.00000ml of M5970 + 5.00000ml of M6076 + 5.00000ml of M6160 + 455.00000ml of MP85016 = Final Quantity: 500.000 ml

<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	MP85018	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								04/07/2025

FROM 50.00000ml of MP85016 + 50.00000ml of MP85017 = Final Quantity: 100.000 ml

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	MP85019	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
04/07/2025								

FROM 25.00000ml of MP85017 + 75.00000ml of MP85016 = Final Quantity: 100.000 ml

<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	MP85020	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
04/07/2025								

FROM 16.00000ml of MP85017 + 184.00000ml of MP85016 = Final Quantity: 200.000 ml

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	MP85021	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								04/07/2025

FROM 0.03000ml of M5798 + 0.03000ml of M6028 + 0.04000ml of M6137 + 0.05000ml of M5496 + 0.05000ml of M5658 + 0.05000ml of M5811 + 0.05000ml of M6030 + 0.06000ml of M5747 + 0.10000ml of M4883 + 0.10000ml of M5472 + 0.10000ml of M5521 + 0.10000ml of M5801 + 0.10000ml of M5820 + 0.10000ml of M5970 + 0.10000ml of M6128 + 0.15000ml of M5800 + 0.20000ml of M4891 + 0.20000ml of M5748 + 0.20000ml of M5799 + 0.20000ml of M6021 + 0.20000ml of M6023 + 0.25000ml of M5466 + 0.25000ml of M6160 + 0.50000ml of M5387 + 0.50000ml of M5814 + 1.00000ml of M5288 + 1.00000ml of M5497 + 1.00000ml of M5516 + 1.00000ml of M5768 + 1.00000ml of M5978 + 1.00000ml of M6156 + 2.00000ml of M5816 + 77.68000ml of MP85016 = Final Quantity: 100.000 ml

<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	MP85022	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								04/07/2025

FROM 2.00000ml of MP85021 + 98.00000ml of MP85016 = Final Quantity: 100.000 ml

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>
912	ICP AES ICV SOLN	MP85023	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								04/07/2025

FROM 0.02500ml of M5020 + 0.02500ml of M5429 + 0.02500ml of M5817 + 0.10000ml of M5466 + 0.25000ml of M5472 + 0.25000ml of M6058 + 10.00000ml of M6150 + 89.77500ml of MP85016 = Final Quantity: 100.000 ml

<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	MP85024	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								04/07/2025

FROM 25.00000ml of M6152 + 225.00000ml of MP85016 = Final Quantity: 250.000 ml

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>
3494	ICP AES ICSAB SOLN-1	MP85025	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								04/07/2025

FROM 0.01000ml of M5020 + 0.01000ml of M5817 + 0.10000ml of M5472 + 0.10000ml of M5970 + 0.10000ml of M6076 + 10.00000ml of M6152 + 10.00000ml of M6155 + 79.50000ml of MP85016 = Final Quantity: 100.000 ml

<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	MP85026	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								04/07/2025

FROM 50.00000ml of MP85016 + 50.00000ml of MP85017 = Final Quantity: 100.000 ml

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>
919	ICP AES INTERNAL STD	MP85030	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								04/07/2025

FROM 1.00000ml of M5959 + 10.00000ml of M5985 + 1969.00000ml of W3112 + 20.00000ml of M5789 = Final Quantity: 2000.000 ml

<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>
513	RINSE SOLN	MP85031	03/26/2025	04/26/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								04/07/2025

FROM 200.00000ml of M5789 + 9800.00000ml of W3112 = Final Quantity: 10000.000 ml

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>
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP85072	03/31/2025	04/01/2025	Mohan Bera	None	METALS_PIP ETTE_5 (HG A)	Sarabjit Jaswal 04/07/2025

FROM 1.00000ml of M6158 + 2.50000ml of M5062 + 96.50000ml of W3112 = 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>
1340	Hg 0.00 PPB STD	MP85073	03/31/2025	04/01/2025	Mohan Bera	None	METALS_PIP ETTE_5 (HG A)	Sarabjit Jaswal 04/07/2025

FROM 2.50000ml of M6158 + 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>
1341	Hg 0.2 PPB STD	MP85075	03/31/2025	04/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025

FROM 2.50000ml of M6158 + 247.30000ml of W3112 + 0.20000ml of MP85072 = 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>
1342	Hg 2.5 PPB STD	MP85076	03/31/2025	04/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025

FROM 2.50000ml of M6158 + 245.00000ml of W3112 + 2.50000ml of MP85072 = 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>
1343	Hg 5.0 PPB STD	MP85077	03/31/2025	04/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025
FROM 2.50000ml of M6158 + 242.50000ml of W3112 + 5.00000ml of MP85072 = 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>
1344	Hg 7.5 PPB STD	MP85078	03/31/2025	04/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025
FROM 2.50000ml of M6158 + 240.00000ml of W3112 + 7.50000ml of MP85072 = 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>
1345	Hg 10.0 PPB STD	MP85079	03/31/2025	04/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 04/07/2025

FROM 2.50000ml of M6158 + 237.50000ml of W3112 + 10.00000ml of MP85072 = 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>
1346	Hg ICV SOLUTION	MP85080	03/31/2025	03/31/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 04/07/2025

FROM 2.50000ml of M5532 + 2.50000ml of M6158 + 245.00000ml 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>
1351	ICB (Hg 0.00 PPB SOLUTION)	MP85081	03/31/2025	04/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025

FROM 2.50000ml of M6158 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

<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)	MP85082	03/31/2025	04/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025

FROM 485.00000ml of W3112 + 5.00000ml of M6158 + 10.00000ml of MP85072 = 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>
1352	CCB (Hg 0.00 PPB SOLUTION)	MP85083	03/31/2025	04/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025

FROM 495.00000ml of W3112 + 5.00000ml of M6158 = Final Quantity: 500.000 ml

<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)	MP85084	03/31/2025	04/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 04/07/2025

FROM 2.50000ml of M6158 + 247.30000ml of W3112 + 0.20000ml of MP85072 = 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>
1350	CHK STD (Hg 7.0 PPB SOLUTION)	MP85085	03/31/2025	04/01/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 04/07/2025

FROM 2.50000ml of M6158 + 240.50000ml of W3112 + 7.00000ml of MP85072 = 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>
887	AQUA REGIA FOR HG ON 7471A	MP85086	03/31/2025	04/01/2025	Mohan Bera	None	None	Sarabjit Jaswal 04/07/2025

FROM 150.00000ml of M6151 + 50.00000ml of M6158 = 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>
68	STANNOUS CHLORIDE SOLUTION	MP85087	03/31/2025	04/01/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal
FROM 450.00000ml of W3112 + 50.00000gram of M5882 + 50.00000ml of M6151 = Final Quantity: 500.000 ml								

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-2196-01 / Hydroxylamine Hydrochloride, Crystal (cs/4x500g)	0000215387	06/25/2025	07/01/2019 / RICHARD	06/07/2019 / RICHARD	M4371

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Labpure	0919120 / Boiling Stones	26275770	07/07/2025	07/03/2020 / mohan	05/07/2020 / mohan	M4583

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57034 / Se, 1000 PPM, 125 ml	070221	09/07/2025	08/06/2021 / jaswal	08/05/2021 / jaswal	M4883

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58030 / Zinc, Zn, 500 ml, 1000 PPM	031921	05/19/2025	08/25/2021 / bin	08/05/2021 / jaswal	M4891

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57115 / P, 10000 PPM, 125 ml	032921	05/17/2025	12/13/2021 / bin	12/09/2021 / bin	M5020

CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58119 / K, 10000 PPM, 500 ml	071122	07/11/2025	09/01/2022 / jaswal	07/21/2022 / jaswal	M5288

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57056 / Ba, 1000 PPM, 125 ml	072122	07/21/2025	11/01/2022 / jaswal	09/18/2022 / jaswal	M5387

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-3 / CLP CAL SOLUTION #3, 125mL	T2-MEB714159	01/13/2027	01/30/2024 / bin	09/19/2022 / bin	M5395

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57103 / Li, 10000 PPM, 125 ml	070622	07/06/2025	01/30/2023 / bin	01/26/2023 / bin	M5429

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57058 / Cerium, 1000PPM, 100ML	061322	06/13/2025	03/06/2023 / bin	03/01/2023 / bin	M5466

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57038 / Sr, 1000 PPM, 125 ml	082922	08/29/2025	01/14/2025 / Jaswal	03/16/2023 / jaswal	M5472

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Al, 10000 PPM, 500 ml	011623	01/16/2026	08/15/2023 / jaswal	03/17/2023 / bin	M5496

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58120 / Ca, 10000 PPM, 500 ml	031523	03/15/2026	03/18/2023 / bin	03/17/2023 / bin	M5497

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58111 / Na, 10000 PPM, 500 ml	022123	11/06/2025	11/06/2024 / kareem	03/17/2023 / bin	M5516

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58029 / Cu, 1000 PPM, 500 ml	102622	10/26/2025	11/21/2022 / bin	11/20/2022 / bin	M5521

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-5 / ICV (HG) STOCK SOLN	ICV5-0415	04/30/2025	01/02/2025 / jaswal	03/30/2023 / mohan	M5532

CHEMICAL RECEIPT LOG BOOK

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 #
Absolute Standards, Inc.	58024 / Chromium, Cr, 500 ml, 1000 PPM	060523	06/05/2026	08/28/2023 / jaswal	08/25/2023 / jaswal	M5658

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	/ Lead (Pb) 1000PPM	100923	10/09/2026	05/20/2024 / Jaswal	12/20/2023 / jaswal	M5747

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	/ Nickel (Ni) 1000PPM	091223	09/12/2026	01/02/2024 / bin	12/20/2023 / jaswal	M5748

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58112 / Mg, 10000 PPM, 500 ml	091823	09/18/2026	01/08/2024 / bin	01/03/2024 / bin	M5768

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	23G1262003	07/30/2025	02/08/2024 / Al-Terek	06/26/2023 / Al-Terek	M5789

CHEMICAL RECEIPT LOG BOOK

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

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

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58126 / Fe, 10000 PPM, 500 ml	051523	05/15/2026	02/06/2025 / kareem	01/03/2024 / jaswal	M5811

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57005 / B, 1000 PPM, 125 ml	071123	07/11/2026	03/26/2024 / Sohil	01/03/2024 / jaswal	M5814

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57016 / S, 1000 PPM, 125 ml	122923	12/29/2026	05/20/2024 / Jaswal	02/09/2024 / jaswal	M5816

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57116 / S, 10000 PPM, 125 ml	071123	07/11/2026	03/01/2024 / jaswal	02/09/2024 / jaswal	M5817

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57015 / P, 1000 PPM, 125 ml	091123	09/11/2026	05/01/2024 / jaswal	02/09/2024 / jaswal	M5820

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	T2-MEB714417	01/27/2027	04/19/2024 / jaswal	02/22/2024 / jaswal	M5875

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3980-01 / Stannous Chloride (cs/4x500g)	232820	08/31/2028	04/30/2024 / mohan	04/25/2024 / mohan	M5882

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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGY10-1 / YTTRIUM 125mL 10,000ug/mL	V2-Y740548	02/20/2029	07/01/2024 / Jaswal	06/14/2024 / Jaswal	M5959

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57003 / Li, 1000 PPM, 125 ml	061224	06/21/2027	07/01/2024 / Jaswal	07/01/2024 / Jaswal	M5970

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGT11-1 / TITANIUM 125mL 1000ug/mL	T2-T1719972	06/17/2027	08/07/2024 / jaswal	02/22/2024 / Jaswal	M5978

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-1 / Laboratory Fortified Stock Solution 1, 125 ml	T2-MEB723367	08/26/2025	02/26/2025 / Eman	05/14/2024 / Jaswal	M6003

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-2 / Laboratory Fortified Stock Solution 2, 125 ml	U2-MEB731108	09/17/2025	03/17/2025 / Eman	05/14/2024 / Jaswal	M6012

CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	V2-MEB746762	01/01/2026	01/01/2025 / kareem	09/19/2024 / kareem	M6076

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	1403 / Hydrogen Peroxide, 30% 1 gal	820803	05/25/2025	11/26/2024 / Eman	11/22/2024 / Eman	M6125

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24D1062002	06/03/2025	12/03/2024 / Janvi	11/12/2024 / Janvi	M6126

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSI1-1 / SILICON 125mL 1000ug/mL	V2-SI744713	07/10/2029	01/14/2025 / Jaswal	10/03/2024 / Jaswal	M6137

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-1 / ICV (ICP/ICPMS) STOCK SOLN	ICV1-1014	07/07/2025	02/07/2025 / JANVI	04/20/2021 / JANVI	M6150

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	22G2862015	08/18/2025	02/18/2025 / Sagar	01/15/2025 / Sagar	M6151

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART A / ICSA (ICP) STOCK SOLN	ICSA-1211	08/24/2025	02/24/2025 / kareem	04/20/2021 / kareem	M6152

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART B / ICSAB (ICP) STOCK SOLN	ICSB-0710	06/20/2025	02/10/2025 / kareem	02/09/2024 / kareem	M6155

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57042 / Mo, 1000 PPM, 125 ml	032123	03/21/2026	11/06/2024 / JANVI	06/12/2024 / JANVI	M6156

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24D1062002	03/25/2029	03/10/2025 / Eman	02/02/2025 / Sagar	M6158

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57051 / Sb, 1000 PPM, 125 ml	071724	03/24/2026	03/24/2025 / kareem	10/18/2024 / kareem	M6160

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

M5882
 M3

Certificate of Analysis

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

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System
 Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120633

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

Catalog Number	T142	Quality Test / Release Date	08/17/2023
Lot Number	232820		
Description	STANNOUS CHLORIDE, DIHYDRATE CERTIFIED ACS (Suitable for Mercury Determination)		
Country of Origin	United States	Suggested Retest Date	Aug/2028
Chemical Origin	Inorganic-non animal		
BSE/TSE Comment	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Clear crystals
ASSAY	%	Inclusive Between 98 - 103	100.65
CALCIUM	%	<= 0.005	0.0017
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
IRON (Fe)	%	<= 0.003	0.0011
LEAD (Pb)	%	<= 0.01	0.0006
MERCURY (Hg)	ppm	<= 0.05	<0.05
POTASSIUM (K)	%	<= 0.005	0.0001
SODIUM (Na)	%	<= 0.01	<0.01
SOLUBILITY IN HCL	PASS/FAIL	= PASS TEST	PASS TEST
SULFATE (SO4)	PASS/FAIL	= P.T. (ABOUT 0.003%)	P.T. (ABOUT 0.003%)



Harout Sahagian - Quality Control Supervisor - Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.

If there are any questions with this certificate, please call at (800) 227-6701.

*Based on suggested storage condition.



M6028



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57048
070124
Cadmium (Cd)

Solvent: 24002546 Nitric Acid

Lot #

R: 815/24

2% 40.0 (mL) Nitric Acid

Expiration Date: 070127

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6UTB

5E-05 Balance Uncertainty

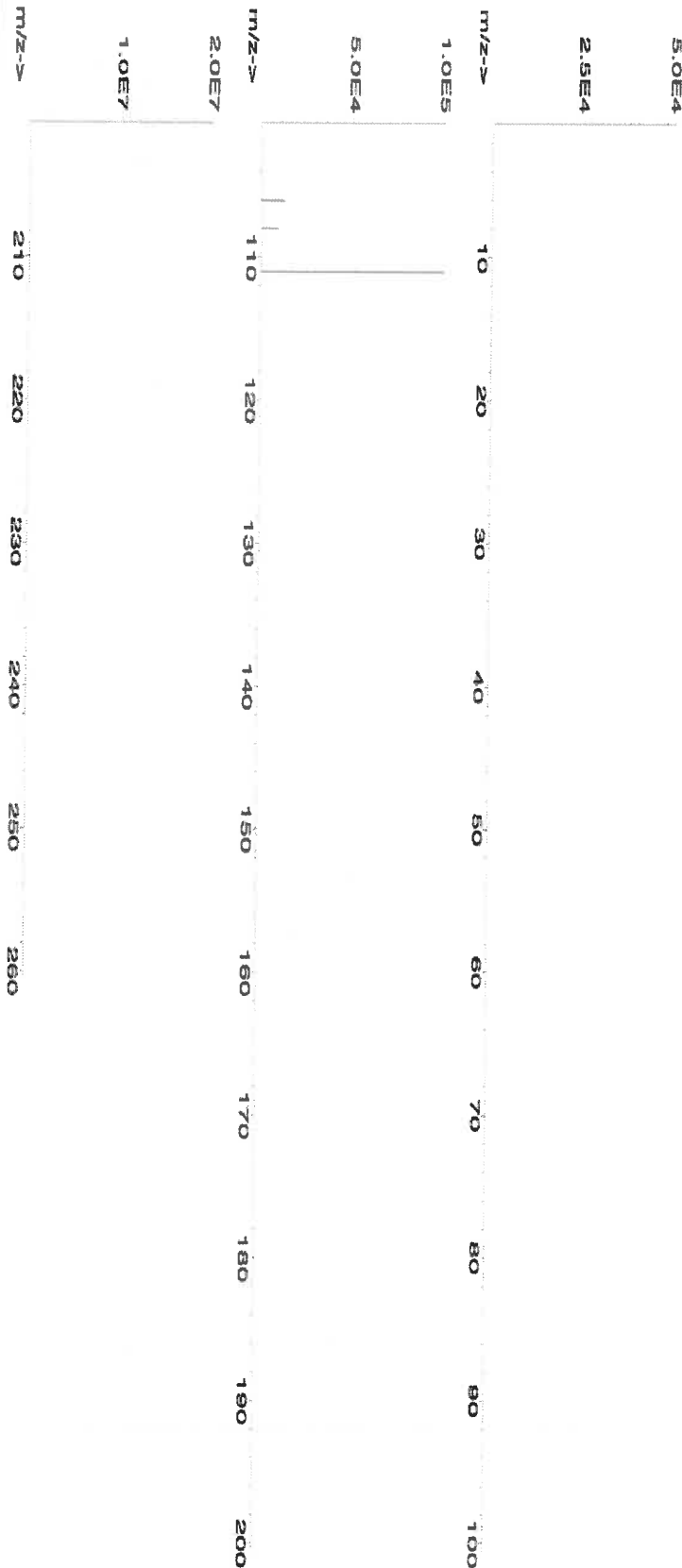
Weight shown below was diluted to (mL): 2000.07 0.100 Flask Uncertainty

<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
	070124
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas
	070124

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. 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

[1] 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).

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:	CLPP-CAL-1	
Lot Number:	T2-MEB714417	
Matrix:	5% (v/v) HNO ₃	
Value / Analyte(s):	5 000 µg/mL ea:	Potassium, Sodium,
	Calcium, Magnesium,	
	2 000 µg/mL ea:	Barium,
	Aluminum,	
	1 000 µg/mL ea:	
	Iron,	
	500 µg/mL ea:	Vanadium, Cobalt,
	Nickel, Zinc, Manganese,	
	250 µg/mL ea:	Copper,
	Silver,	
	200 µg/mL ea:	
	Chromium,	
	50 µg/mL ea:	
	Beryllium	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	2 000 ± 7 µg/mL	Barium, Ba	2 000 ± 9 µg/mL
Beryllium, Be	50.00 ± 0.26 µg/mL	Calcium, Ca	5 000 ± 22 µg/mL
Chromium, Cr	200.0 ± 1.0 µg/mL	Cobalt, Co	500.0 ± 2.4 µg/mL
Copper, Cu	250.0 ± 1.0 µg/mL	Iron, Fe	1 000 ± 4 µg/mL
Magnesium, Mg	5 000 ± 20 µg/mL	Manganese, Mn	500.0 ± 2.0 µg/mL
Nickel, Ni	500.0 ± 2.2 µg/mL	Potassium, K	5 000 ± 19 µg/mL
Silver, Ag	250.0 ± 1.1 µg/mL	Sodium, Na	5 000 ± 18 µg/mL
Vanadium, V	499.7 ± 2.2 µg/mL	Zinc, Zn	500.0 ± 2.2 µg/mL

Density: 1.118 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Be	Calculated		See Sec. 4.2
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cr	Calculated		See Sec. 4.2
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	120715
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	IC Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, 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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information.

<https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver>

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 27, 2022

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

11.2 Lot Expiration Date

- January 27, 2027

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Refine your results. Redefine your industry.

Certificate of Analysis

300 Technology Drive
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inorganicventures.com

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

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CLPP-CAL-3
Lot Number: T2-MEB714159
Matrix: 7% (v/v) HNO₃
Value / Analyte(s):
1 000 µg/mL ea:
Arsenic, Lead,
Selenium, Thallium,
500 µg/mL ea:
Cadmium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	1 000 ± 8 µg/mL	Cadmium, Cd	500.0 ± 2.1 µg/mL
Lead, Pb	1 000 ± 5 µg/mL	Selenium, Se	1 000 ± 8 µg/mL
Thallium, Tl	1 000 ± 7 µg/mL		

Density: 1.043 g/mL (measured at 20 ± 4 °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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 13, 2022

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

11.2 Lot Expiration Date

- January 13, 2027

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: 58126
Lot Number: 051523
Description: Iron (Fe)

Solvent: 21110221 Nitric Acid

Lot #

Expiration Date: 051526

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 10000

NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 5000.1

5E-05 Balance Uncertainty

0.12 Flask Uncertainty

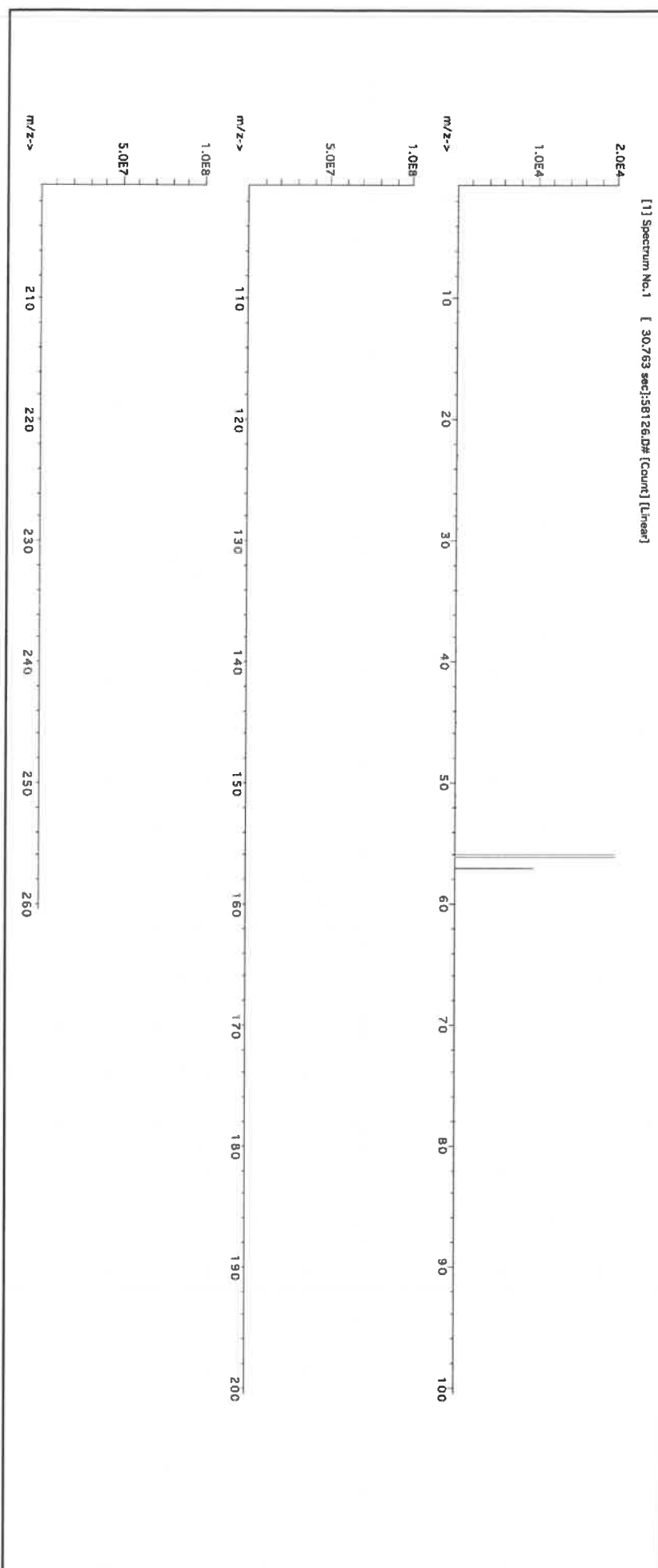
5.0% 250.0 (mL) Nitric Acid

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
	051523
<i>Pedro L. Renias</i>	
Reviewed By:	Pedro L. Renias
	051523

SDS Information

Compound	Lot	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
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1. Iron (Fe) IN346 2302010-500 10000 99.995 0.10 100.0 50.0034 50.0111 10001.5 20.0 7439-89-6 5 mg/m3 or-rel 7500mg/kg 3126a





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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.10	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ce	<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	Rb	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.10	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.05	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.10	Ge	<0.10	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.10
B	<0.02	Cu	<0.10	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	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).



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RD:05/14/2024

Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

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2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	WW-LFS-1
Lot Number:	T2-MEB723367
Matrix:	5% (v/v) HNO ₃

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

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

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, 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:

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

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

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

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

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Low Silver Note: This solution contains "LOW" levels of Silver. Please store this entire bottle inside a sealed glass jar.

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 30, 2022

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

11.2 Lot Expiration Date

- August 30, 2026

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Refine your results. Redefine your industry.

RD:05/14/2024

Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

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2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: WW-LFS-2
Lot Number: U2-MEB731108
Matrix: 5% (v/v) HNO₃
tr. HF
Value / Analyte(s):
200 µg/mL ea:
Silica,
80 µg/mL ea:
Antimony,
70 µg/mL ea:
Tin,
40 µg/mL ea:
Molybdenum,
20 µg/mL ea:
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	80.1 ± 0.6 µg/mL	Molybdenum, Mo	40.03 ± 0.18 µg/mL
Silica, SiO ₂	200.2 ± 1.3 µg/mL	Tin, Sn	70.0 ± 0.4 µg/mL
Titanium, Ti	20.01 ± 0.13 µg/mL		

Density: 1.025 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Mo	Calculated		See Sec. 4.2
Sb	ICP Assay	3102a	140911
SiO ₂	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925
Ti	Calculated		See Sec. 4.2

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

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, 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). <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; info@inorganicventures.com;

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 17, 2023

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

11.2 Lot Expiration Date

- **March 17, 2028**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



M4371

Hydroxylamine Hydrochloride, Crystal
BAKER ANALYZED® A.C.S. Reagent
Suitable for Mercury Determination
(hydroxylammonium chloride)

Rec - 06.07.19



Material No.: 2196-01
Batch No.: 0000215387
Manufactured Date: 2018/06/27
Retest Date: 2025/06/25
Revision No: 1

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay (NH ₂ OH · HCl) (by KMnO ₄ titrn)	>= 96.0 %	99.1
Clarity of Alcohol Solution	Passes Test	PT
Residue after Ignition	<= 0.050 %	0.017
Titrate Free Acid (meq/g)	<= 0.25	0.19
Ammonium (NH ₄)	Passes Test	PT
Sulfur Compounds (as SO ₄)	<= 0.005 %	< 0.003
Trace Impurities - ACS - Heavy Metals (as Pb)	<= 5 ppm	4
Trace Impurities - Iron (Fe)	<= 5 ppm	< 3
Trace Impurities - Mercury (Hg)	<= 0.050 ppm	< 0.005

For Laboratory, Research or Manufacturing Use

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



Phillipsburg, NJ 9001:2015, FSSC22000
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Gliwice, Poland 9001:2015, 13485:2012
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2015, 17025:2005
Panoli, India 9001:2015

James Ethier

Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Avantor Performance Materials, LLC

100 Matsonford Rd, Suite 200, Radnor, PA 19087, U.S.A. Phone: 610.386.1700



Manufacturer:
Saint-Gobain Performance Plastics
11 Sicho Drive
Poestenkill, NY 12140

Certificate of Conformance

Part Number/	D1069103	Customer	1069103
Revision:	0	Part Number/	
		Revision:	N/A
Description:	*PTFE BOILING STONES-450 GRAMS		
Lot Number:	26275770	Lot Quantity:	10 EA
Date of		Expiration	
Manufacture	03/23/20	Date:	N/A
(MM/DD/YY)		(MM/DD/YY)	
Post Processing Run Number:			
(Refer to the attached Certificate for Additional			
Detail)		N/A	

We certify the material listed above confirms in full with the following specifications:

All items have been manufactured, inspected, tested, and accepted in accordance with our Quality Management system, ISO 9001-2015. Documentation substantiating this certification is kept on record per the Company's retention policy and is available for review.
All materials and processes used in manufacturing conform to the materials and/or manufacturing specifications and notes indicated on the purchase order, drawing, specifications, quality assurance requirements, or other applicable documents effective on the date of manufacture.
Saint-Gobain does not warrant the product for any particular application and it is the responsibility of the user to conduct tests that are deemed necessary to determine the suitability of the product for any particular use. Saint-Gobain's sole responsibility shall be for failure to manufacture the product in accordance with specifications and requirements of the buyer, and from defects in material and workmanship. This warranty is expressly made in lieu of any and all other warranties and Saint-Gobain's sole liability shall be to replace any product not in conformance with the specification and requirements of the buyer.

Quality Approval:		Date:	05/13/20
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Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57034
070221
Selenium (Se)

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

070224
Ambient (20 °C)
1000

NIST Test Number:

6UTB
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Volume shown below was diluted to (mL):

2000.02

Lot # **Solvent:**
20370011 **Nitric Acid**

2.0% **Nitric Acid**
40.0 **(mL)**

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas
070221	

Expanded

SDS Information

Uncertainty

(Solvent Safety Info. On Attached pg.)

NIST

+/- (µg/mL)

CAS#

LD50

SRM

Conc. (µg/mL)

Conc. (µg/mL)

Conc. (µg/mL)

Conc. (µg/mL)

Conc. (µg/mL)

Conc. (µg/mL)

Conc. (µg/mL)

Conc. (µg/mL)

Conc. (µg/mL)

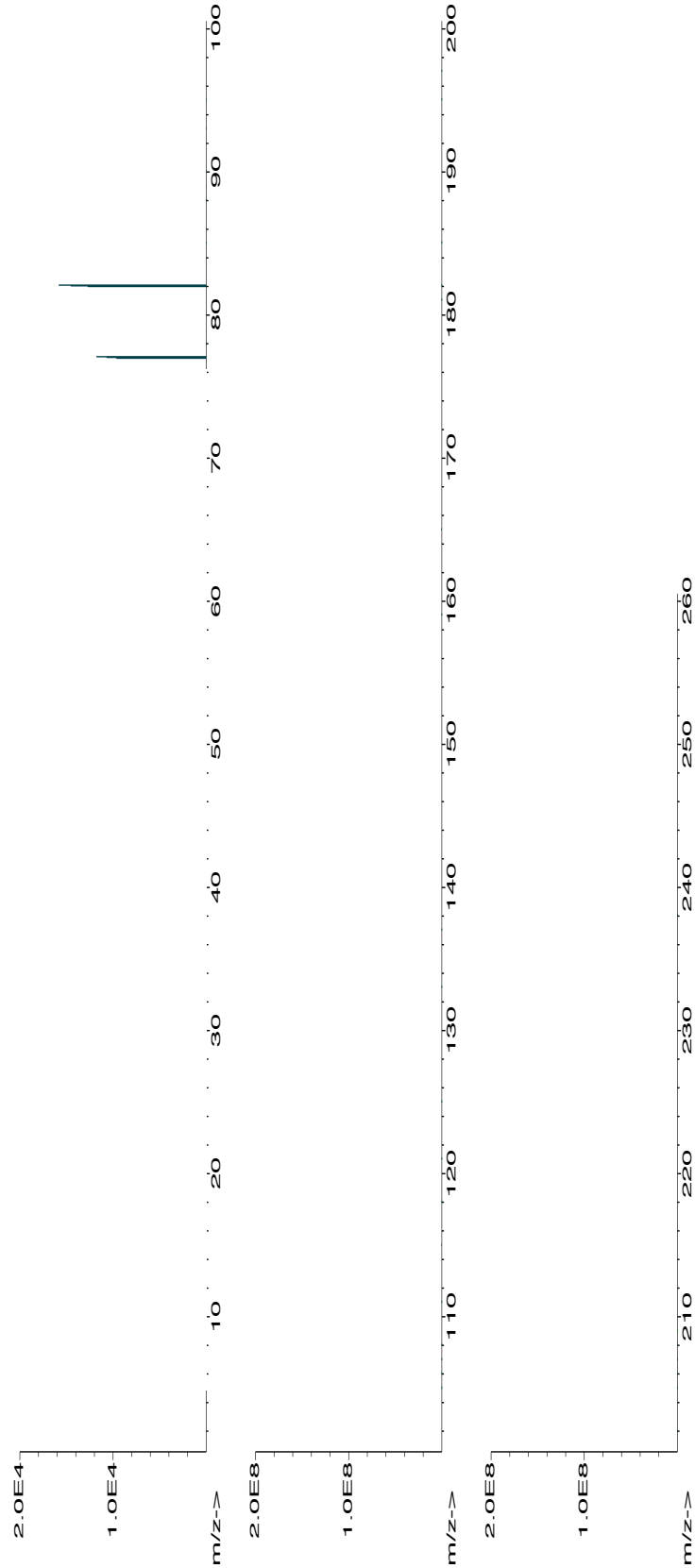
Conc. (µg/mL)

Conc. (µg/mL)

Conc. (µg/mL)

1. Selenium(IV) oxide (Se) 58134 021621 0.1000 200.0 200.0 0.084 1000 10000.2 1000.0 2.2 7446-08-4 0.2 mg/m3 orl-rat 68 mg/kg 3149

[1] Spectrum No.1 [33.702 sec]:58034.D# [Count] [Linear]



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

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

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

Bar 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).



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: **58030**
Lot Number: **031921**
Description: **Zinc (Zn)**

Expiration Date: 031924
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): **1000**
NIST Test Number: 6UTB

Volume shown below was diluted to (mL):

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Lot # Solvent:
20370011 Nitric Acid

2.0% Nitric Acid
40.0 (mL)

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas

SDS Information

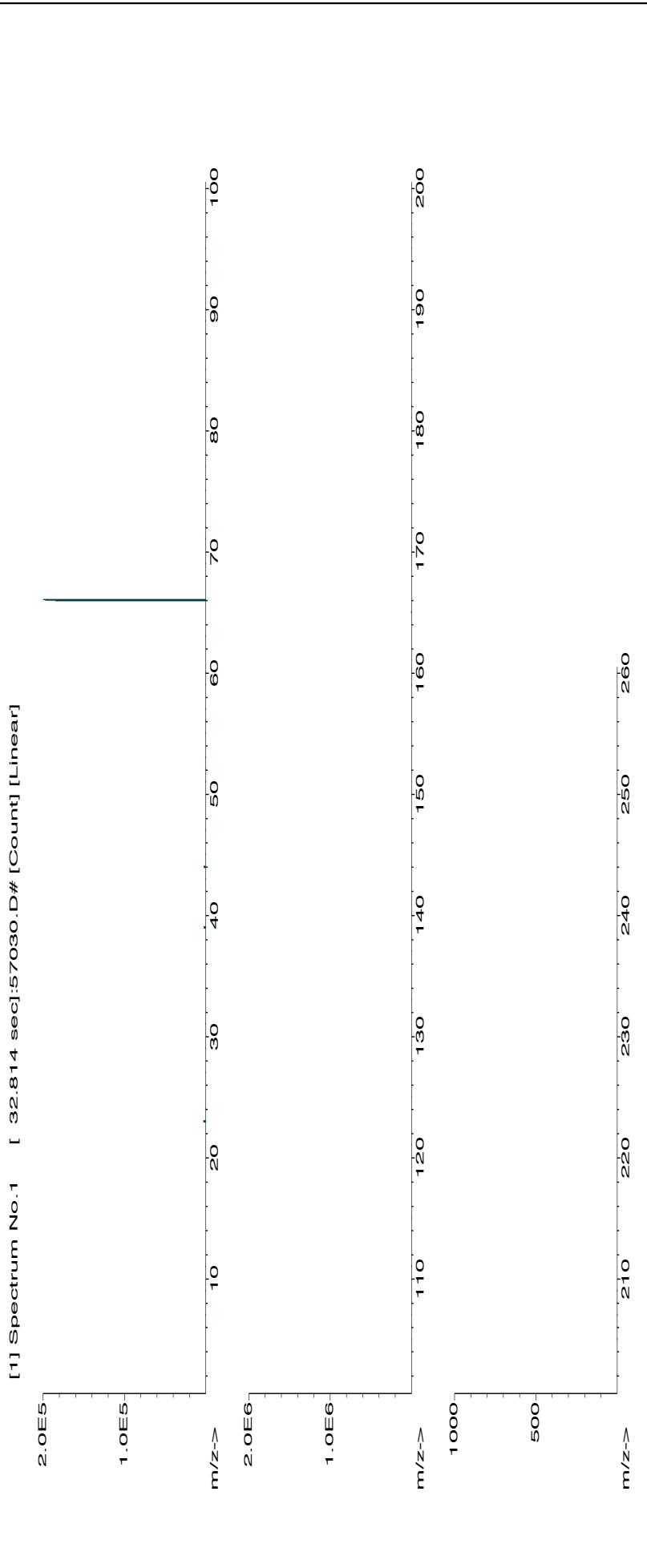
Expanded
Uncertainty
+/- (µg/mL)

Final
(Solvent Safety Info. On Attached pg.)
CAS# OSHA PEL (TWA) LD50 SRM

Compound

58130	082020	0.1000	200.0	0.084	1000	10000.3	1000.0	2.2	10196-18-6	1 mg/m3	orl-rat 1190mg/kg	3168
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1. Zinc nitrate hexahydrate (Zn)



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	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	<0.2	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	T
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tt	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

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.



Certified Reference Material CRM

MSD



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 57115
Lot Number: 032921
Description: Phosphorous (P)

Lot #
Solvent: 20370011 Nitric Acid

Expiration Date: 032924

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 10000

NIST Test Number: 6UTB

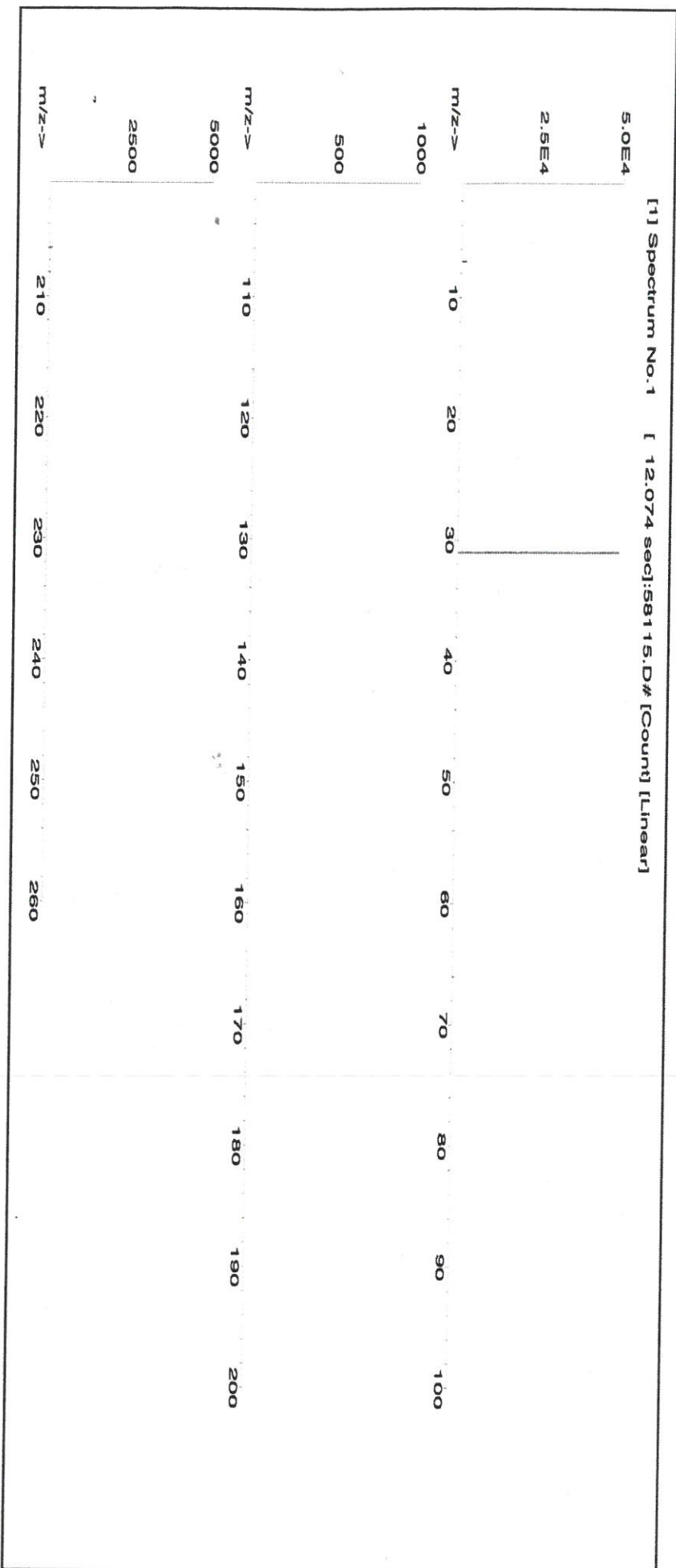
Weight shown below was diluted to (mL): 3000.41

2% 60.0 mL Nitric Acid

Formulated By: Lawrence Barry		032921
Reviewed By: Pedro L. Rentas		032921

Compound	Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded	SDS Information	NIST
	Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	+/- (µg/mL)	(Solvent Safety Info. On Attached pg.)	SRM

1. Ammonium dihydrogen phosphate (P)	IN008	PV65201841	10000	99.999	0.10	27.3	109.9063	109.9093	10000.3	20.0	7722-76-1	5 mg/m3	NA	3186
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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	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	<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	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).
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- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
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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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:58119
071122
Potassium (K)Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:071125
Ambient (20 °C)
10000
6UTB

Lot

Solvent: 20510011 Nitric Acid

2% 40.0
(mL) Nitric Acid5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Weight shown below was diluted to (mL): 2000.02

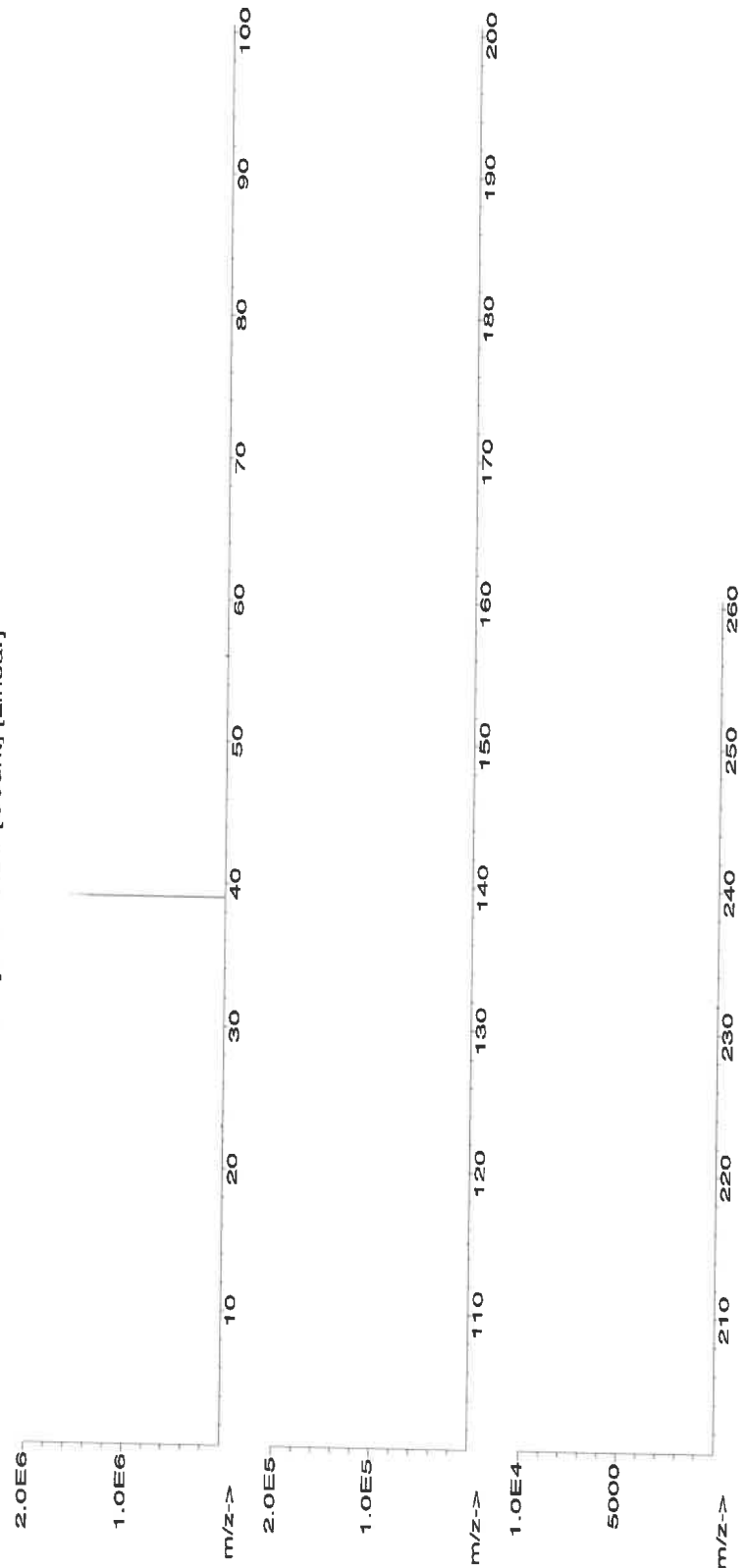
SDS Information

Expanded
Uncertainty
+/- (µg/mL) 20.0 7757-79-1 5 mg/m3 orl-rat 3015 mg/kg 3141a
(Solvent Safety Info. On Attached pg.)
LD50
CAS# OSHA PEL (TWA)NIST
SRM

Compound

1. Potassium nitrate (K) IN034 KD022021A1 10000 99.999 0.10 37.6 53.1925 53.1934 10000.2 20.0 7757-79-1 5 mg/m3 orl-rat 3015 mg/kg 3141a

[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 ($\mu\text{g/mL}$)

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	<0.02	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	T	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:

Bar. 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).



Ridgely 11/12
M5387

Certified Reference Material CRM

CERTIFIED WEIGHT REPORT:

Part Number: 57056
Lot Number: 072122
Description: Barium (Ba)

Solvent: 20510011 Nitric Acid

Lot #

Expiration Date: 072125
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

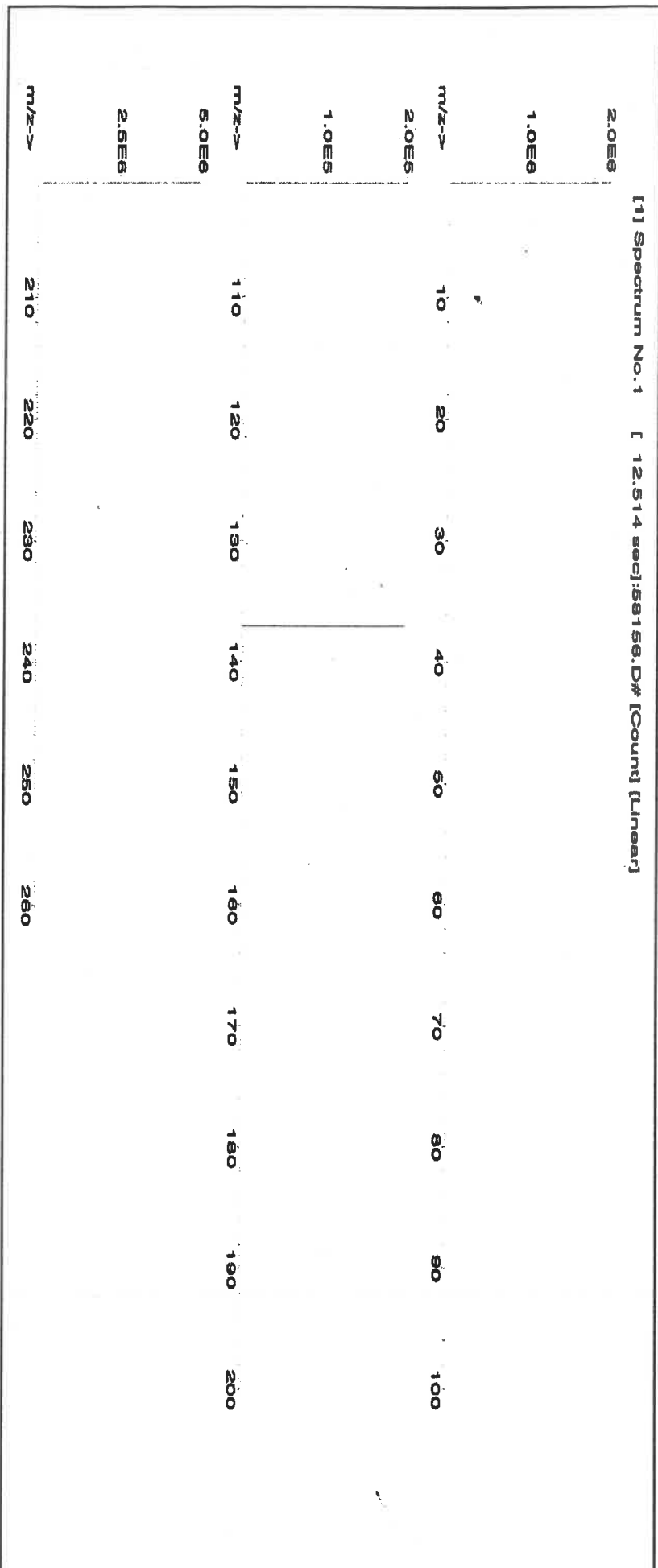
2% 40.0 (mL) Nitric Acid

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	<i>Pedro L. Renteria</i>
	072122

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)
1. Barium nitrate (Ba)	IN023 BA002019A1	1000	99.999	0.10	52.3	3.82417	3.82426	1000.0	2.0

1. Barium nitrate (Ba) IN023 BA002019A1 1000 99.999 0.10 52.3 3.82417 3.82426 1000.0 2.0 10022-31-8 0.5 mg/m3 or-ral 355 mg/kg 31046

[1] Spectrum No. 1 [12.514 sec]:58156.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	Pr	<0.02	Se	<0.02	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	<0.02	Os	<0.01	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	<0.02	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.02	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

M549 R10/26/23 BT

CERTIFIED WEIGHT REPORT:

Part Number:

Lot Number: 070622

Description:

Expiration Date:

Recommended Storage: Ambient (20 °C)

Nominal Concentration ($\mu\text{g/mL}$):

NIST Test Number:

Weight shown below was diluted to (mL):

Solvent: 20510011 Nitric Acid

2%	20.0	Nitric Acid
	(mL)	

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

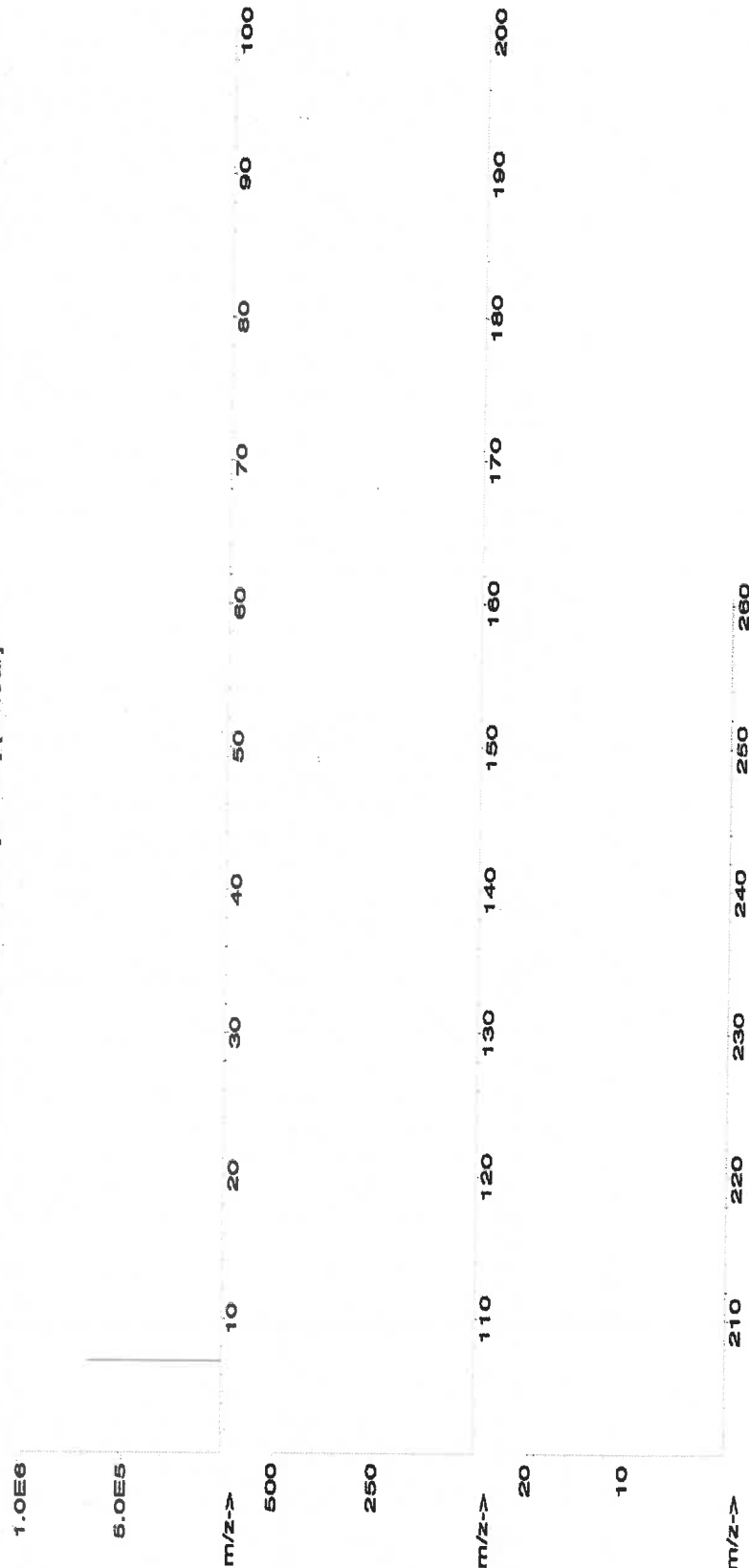
SDS Information

Expanded Uncertainty ± (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM

Uncertainty	(Solvent Safety Info: On Attached pg.)	NIST
+/- (µg/mL)	CAS#	SRM
	OSHA PEL (TWA)	LD50

[illegible]

[1] Spectrum No.1 [9.619 sec]:58103.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	La	<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	<0.01	Mg	<0.02	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).



AN 5466

Certified Reference Material CRM



ANAB ISO 17034 Accredited
AFR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 57058
Lot Number: 061322
Description: Cerium (Ce)

Solvent: 2051001 Nitric Acid

Lot #

Expiration Date: 061325
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6LUTB

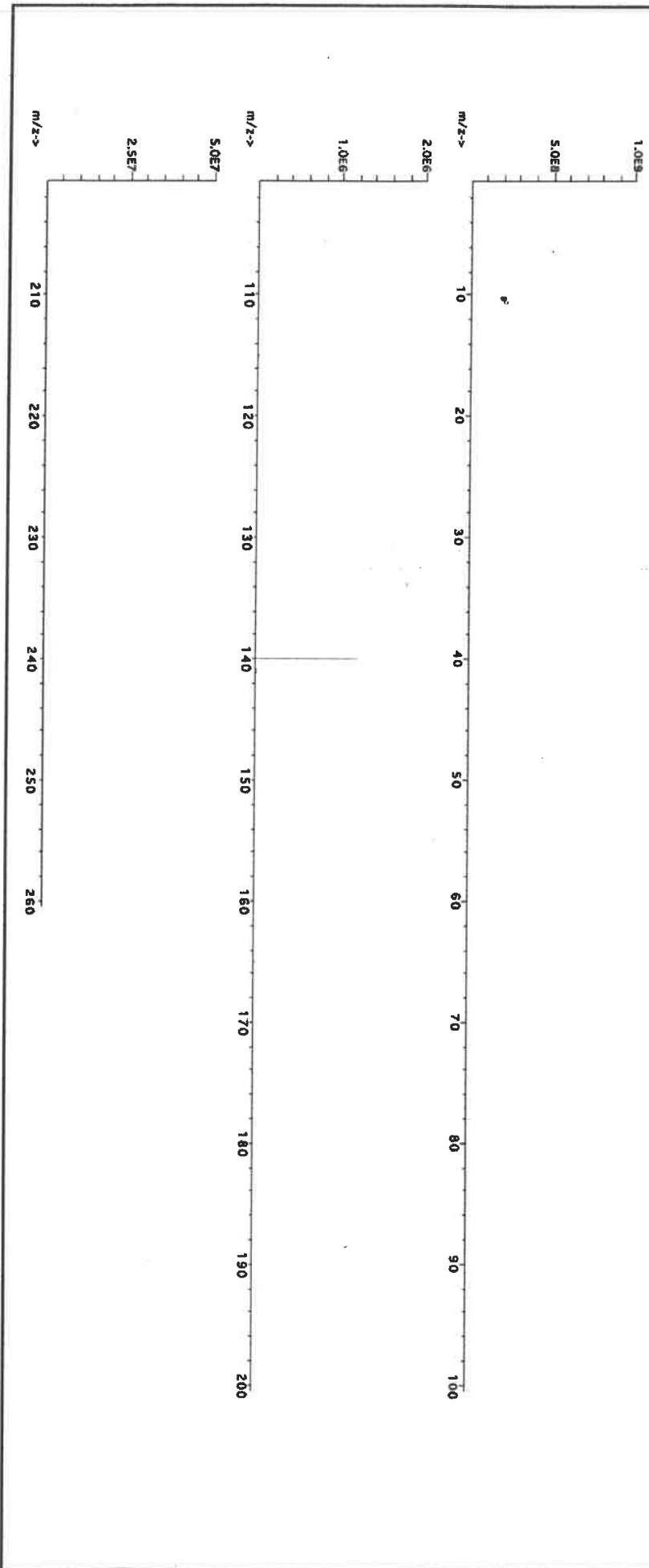
2% 20.0 (mL) Nitric Acid

Weight shown below was diluted to (mL): 1000.12 0.058 Flask Uncertainty

Formulated By:	Lawrence Barry
	061322
Reviewed By:	Pedro L. Renteria
	061322

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)
1. Cerium nitrate hexahydrate (Ce)	IN146 Z512CEB1	1000	99.999	0.10	32.8	3.04919	3.04923	1000.0	2.0
									10294-41-4
									NA
									NA
									NA

[1] Spectrum No.1 [43.472 sec:158158.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	Rc	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	T	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	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

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).



CERTIFIED WEIGHT REPORT:

Part Number: **58113**

Lot Number: **011623**

Description: **Aluminum (Al)**

Solvent: **20510011 Nitric Acid**

Lot #

MS496

R 17/20/23

Expiration Date: **011626**

Recommended Storage: **Ambient (20 °C)**

Nominal Concentration (µg/mL): **10000**

NIST Test Number: **6UTB**

Weight shown below was diluted to (mL): **2000.02** **5E-05 Balance Uncertainty** **0.058 Flask Uncertainty**

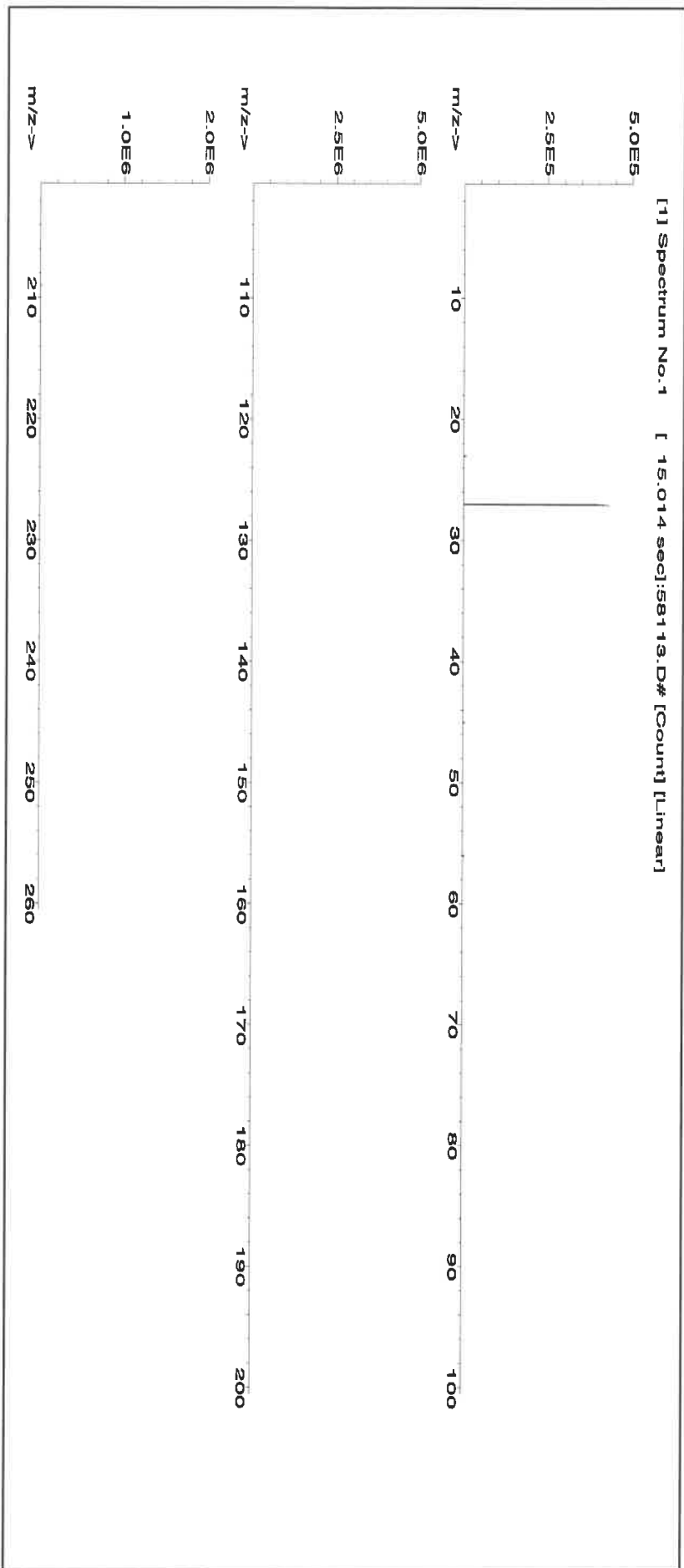
Giovanni Esposito
Formulated By: **Giovanni Esposito** **011623**

Pedro L. Rentas
Reviewed By: **Pedro L. Rentas** **011623**

SDS Information

Compound	Lot	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. Aluminum nitrate nonahydrate (Al)	IN022 ALM112021A1	10000	99.999	0.10	7.30	273.9779	274.0078	10001.1	20.0	7784-27-2	2 mg/m3	or-hat 3671 mg/kg	3101a

[1] Spectrum No. 1 [15.014 sec]:58113.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	Pr	<0.02	Sc	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.02	Er	T	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	<0.02	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	<0.2	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:

Ben R. 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).



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	<0.02	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	<0.02	Os	<0.01	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	<0.02	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	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

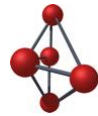
(T) = Target analyte

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

A CERTIFIED WEIGHT REPORT:

Part Number:

Lot Number:

Description:

Expiration Date:

Recommended Storage: Ambient (20 °C)

Nominal Concentration ($\mu\text{g/mL}$):

NIST Test Number:

Volume shown below was diluted to (mL):

Flask Uncertainty

Lot #	Solvent:
20510011	Nitric Acid

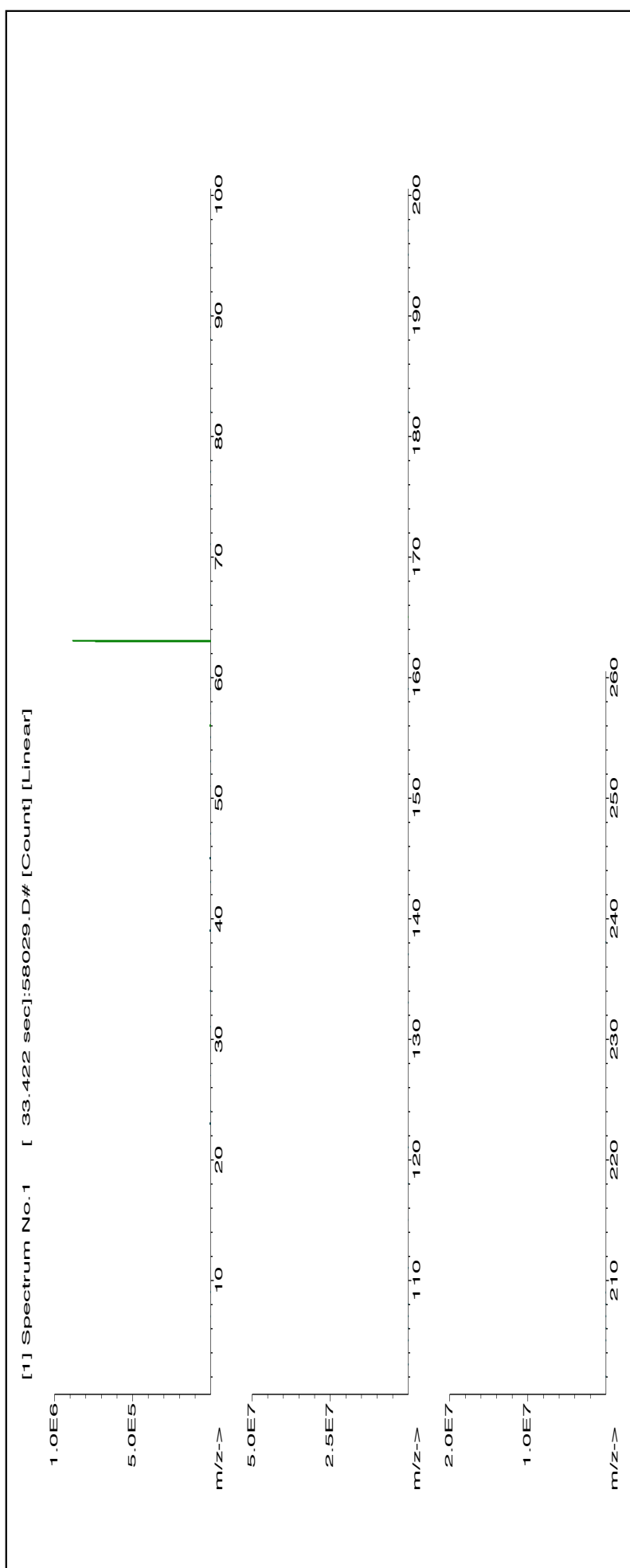
40.0
(mL)

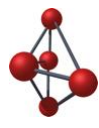
5E-05	Balance Uncertainty
0.058	Flask Uncertainty

2000.02

Compound	Part	Lot	Dilution	Initial	Uncertainty	Nominal	Initial	Final	Uncertainty	(Solvent Safety Info. On Attached pg.)	NIST
	Number	Factor	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	Conc. (µg/mL)	+/- (µg/mL)	CAS#	SRM
										OSHA PEL (TWA)	LD50

1. Copper(II) nitrate trihydrate (Cu)	58129	021422	0.1000	200.0	0.084	1000	10000.8	1000.0	2.2	10031-43-3	1 mg/m3	orl-rat 794 mg/kg	3114
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Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02
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	<0.01	Os	<0.02	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	<0.02	Na	<0.2	Th	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<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
B	<0.02	Cu	T	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02
																W	<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.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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- * 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).



QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
"An ISO 9001:2015 Certified Program"

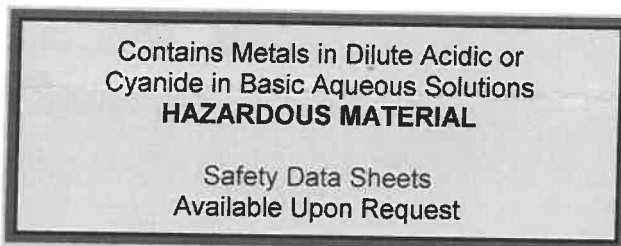
Instructions for QATS Reference Material: *Inorganic ICV Solutions*

QATS LABORATORY INORGANIC REFERENCE MATERIAL
INITIAL CALIBRATION VERIFICATION SOLUTIONS
(ICV1, ICV5, AND ICV6)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.



(A) **SAMPLE DESCRIPTION**

Enclosed is a set of one (1) or more Aqueous Inorganic Reference Materials containing various analyte concentrations. ICV1 and ICV5 are in a matrix of dilute nitric acid. ICV6 is in a matrix of dilute basic solution. **For the reference material source in reporting ICVs use "USEPA". For the reference material lot number for the ICV1, ICV5, and ICV6 solutions use "ICV1-1014", "ICV5-0415", and "ICV6-0400", respectively.**

(B) **BREAKAGE OR MISSING ITEMS**

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) **ANALYSIS OF SAMPLES**

The Initial Calibration Verification Solutions (ICVs) are to be used to evaluate the accuracy of the initial calibrations of ICP, AA, and Cyanide colorimetric instruments, and are to be used with the CLP SOWs and revisions. The values for each element in the ICVs are listed below in $\mu\text{g/L}$ (ppb) for the resulting solution(s) after the dilution of the concentrate(s) according to the following instructions. Use Class 'A' glassware to prepare the solution(s).

ICV1-1014 For ICP-AES analysis, use a 10-fold dilution by pipetting 10 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid.





QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
"An ISO 9001:2015 Certified Program"

Instructions for QATS Reference Material: *Inorganic ICV Solutions*

ICV1-1014 For ICP-MS analysis, use a 50-fold dilution by pipetting 2 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.

ICV5-0415 For the cold vapor analysis of mercury by AA, use a 100-fold dilution by pipetting 1 mL of the ICV5 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v) K₂Cr₂O₇ and 5% (v/v) nitric acid.

ICV6-0400 For the analysis of cyanide, use a 100-fold dilution by pipetting 1 mL of the ICV6 concentrate into a 100 mL volumetric flask and dilute to volume with Type II water. Distill this solution along with the samples before analysis. The cyanide concentrate is prepared from K₃Fe(CN)₆, Type II water, and 0.1 % sodium hydroxide, and will decompose rapidly if exposed to light.

NOTE: USE TYPE II WATER AND HIGH-PURITY ACIDS FOR ALL DILUTIONS.

(D) CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS

ICV1-1014		
Element	Concentration (µg/L) (after 10-fold dilution)	Concentration (µg/L) (after 50-fold dilution)
Al	2500	500
Sb	1000	200
As	1000	200
Ba	520	100
Be	510	100
Cd	510	100
Ca	10000	2000
Cr	520	100
Co	520	100
Cu	510	100
Fe	10000	2000
Pb	1000	200
Mg	6000	1200
Mn	520	100
Ni	530	110
K	9900	2000
Se	1000	200
Ag	250	50
Na	10000	2000
Tl	1000	210
V	500	100
Zn	1000	200

ICV5-0415		ICV6-0400	
Element	Concentration (µg/L) (after 100-fold dilution)	Analyte	Concentration (µg/L) (after 100-fold dilution)
Hg	4.0	CN ⁻	99



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 # 21110221
Solvent: Nitric Acid

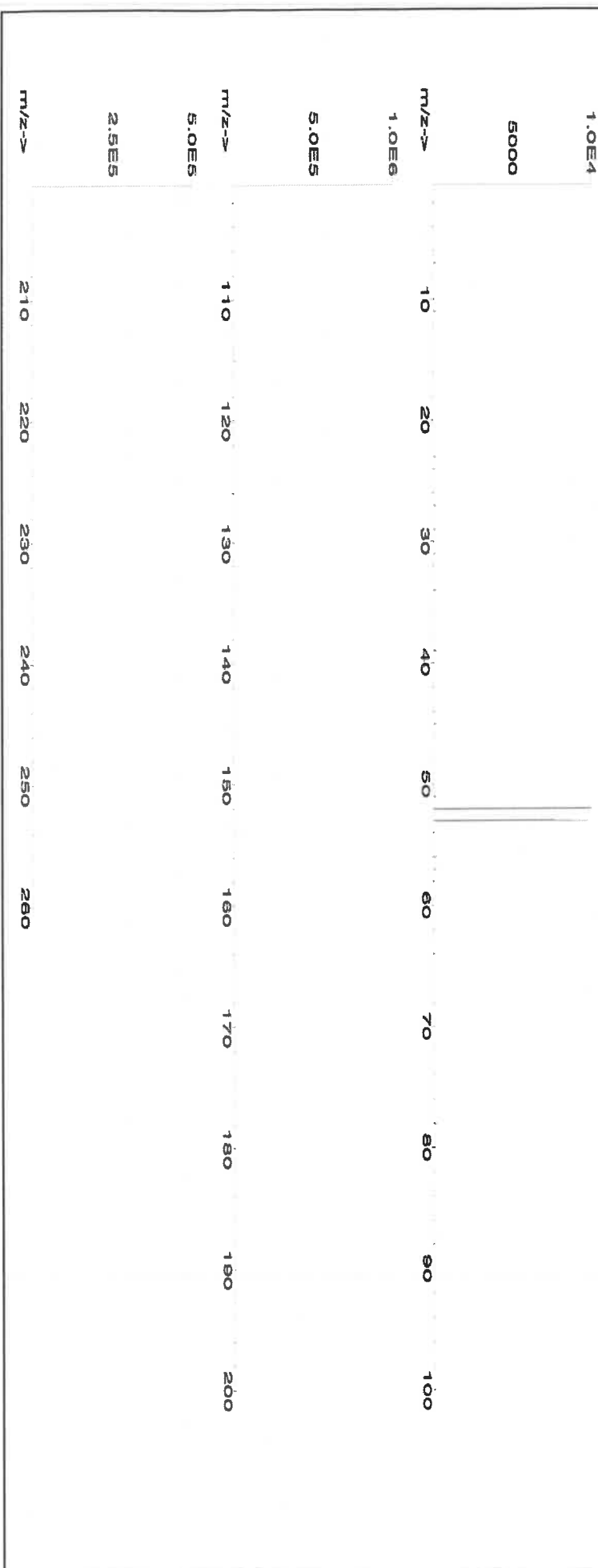
Formulated By:	Lawrence Barry
	060523
Reviewed By:	Pedro L. Ruelas
	060523

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
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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.
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- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 57082
Lot Number: 100923
Description: Lead (Pb)

Solvent: 24002546 Nitric Acid

Lot #

R: 12/20/23 MS747

Formulated By:	Lawrence Barry
	100923
Reviewed By:	Pedro L. Rentes
	100923

Expiration Date: 100926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

2% 60.0 Nitric Acid (mL)

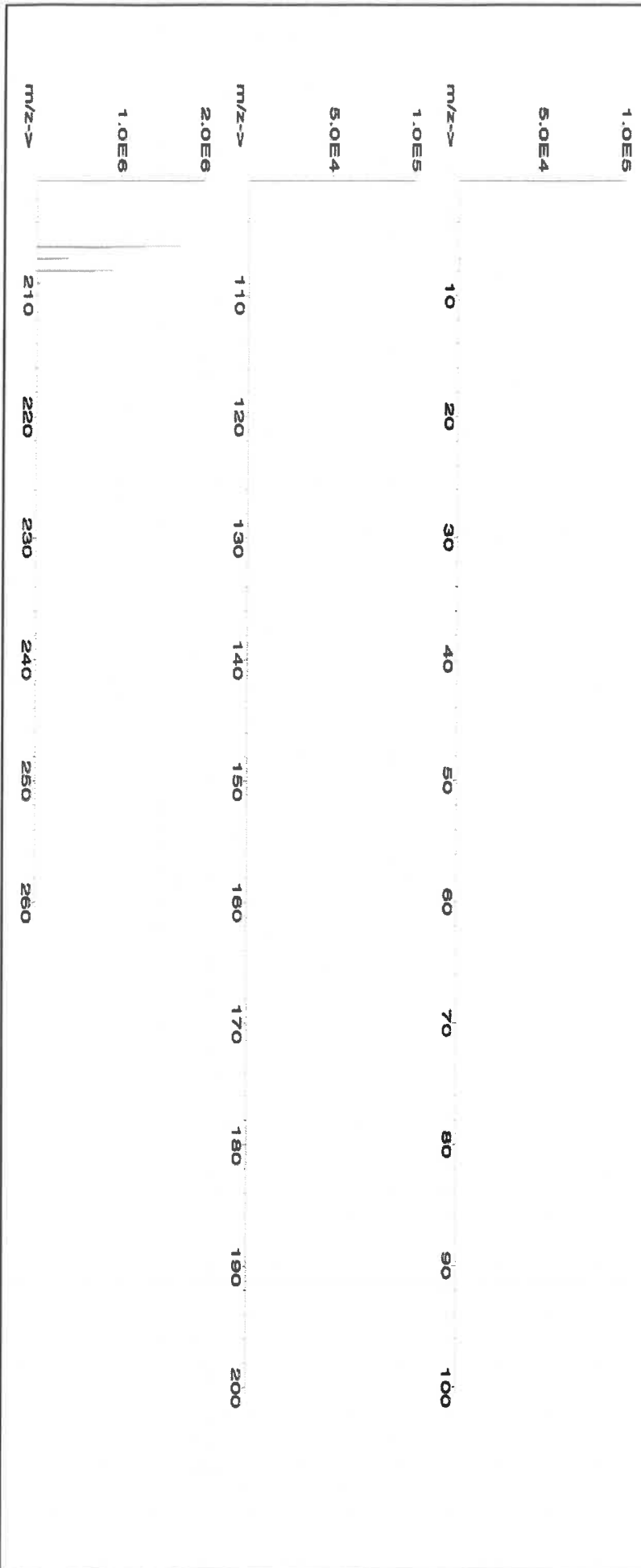
Weight shown below was diluted to (mL): 3000.41 0.06 Flask Uncertainty

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
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1. Lead(II) nitrate (Pb) IN029 PB0122016A1 1000 99.999 0.10 62.5 4.80071 4.80077 1000.0 2.0 10099-74-8 0.05 mg/m3 Intvms-ret 89 mg/kg 3128

[1] Spectrum No. 1 [14.144 sec]:58082.D# [Count] [Linear]



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	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	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	T	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

Physical Characterization:

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

(T) = Target analyte

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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- * 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**

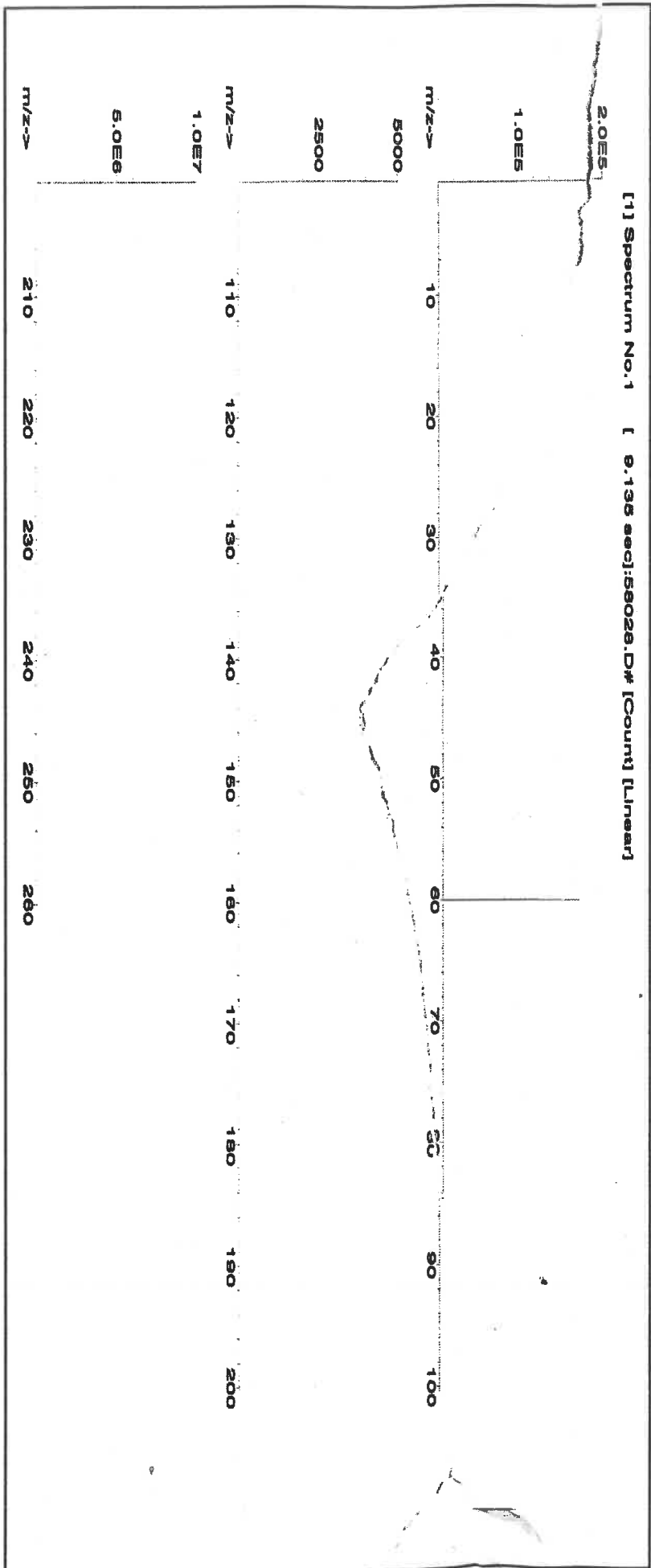
Expiration Date: **091226**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6U7B**

2.0% 40.0 (mL) Nitric Acid

Volume shown below was diluted to (mL): **2000.02** Balance Uncertainty: **5E-05** Flask Uncertainty: **0.056**

Formulated By:	<i>Lawrence Barry</i>	091223
Reviewed By:	<i>Pedro L. Renteria</i>	091223

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. 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





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).



M5768 M5769
Certified Reference Material CRM
R: 1/13/24



CERTIFIED WEIGHT REPORT:

Part Number: **58112**
Lot Number: **091823**
Description: **Magnesium (Mg)**

Solvent: **24002546 Nitric Acid**

Lot #

Expiration Date: **091826**

Recommended Storage: **Ambient (20 °C)**

Nominal Concentration (µg/mL): **10000**

NIST Test Number: **6UTB**

Weight shown below was diluted to (mL): **2000.02**

2% 40.0 (mL) Nitric Acid

M5768 M5769
BP R: 1/13/24

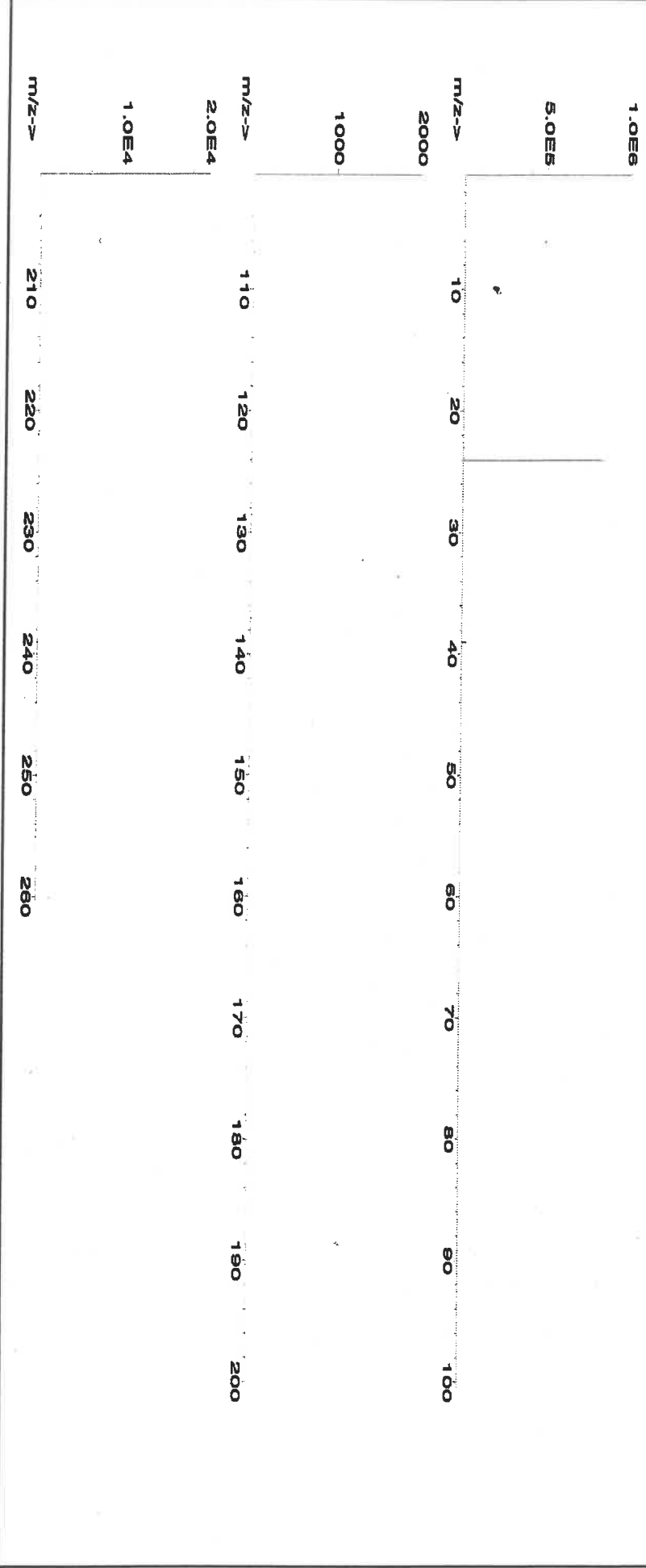
Formulated By: <i>Lawrence Barry</i>		091823
Reviewed By: <i>Pedro L. Rentas</i>		091823

Compound

Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded	SDS Information	NIST
Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	+/- (µg/mL)	(Solvent Safety Info. On Attached pg.)	SRM

1. Magnesium nitrate hexahydrate (Mg) IN030 M500222A1 10000 99.999 0.10 8.51 234.9118 234.9126 10000.0 20.0 13446-18-9 NA or-rat 5440 mg/kg 3131a

[1] Spectrum No. 1 [19.923 sec]:58112.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	T	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are 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

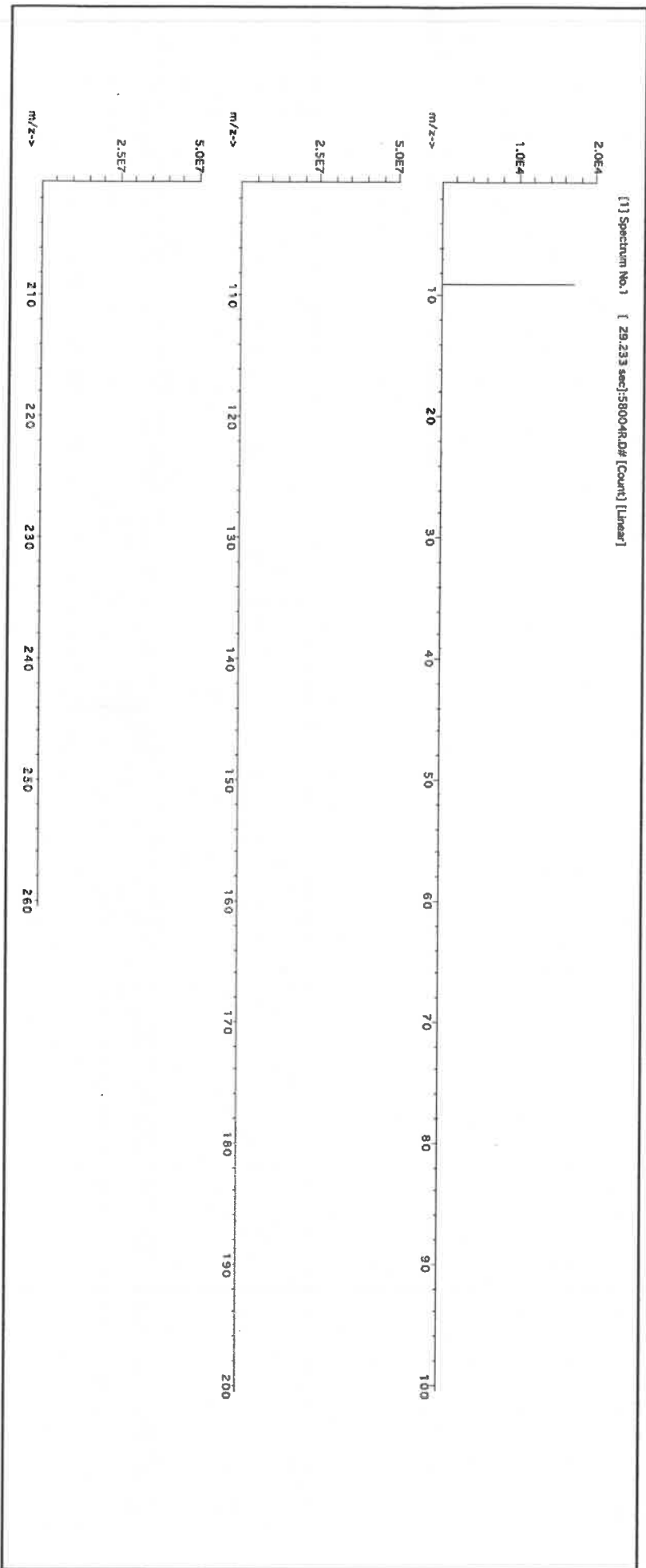
0.058 Flask Uncertainty

Formulated By:	Benson Chan	102523
Reviewed By:	Pedro L. Rentas	102523

SDS Information

Compound	Part Number	Lot	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
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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 Injvme-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

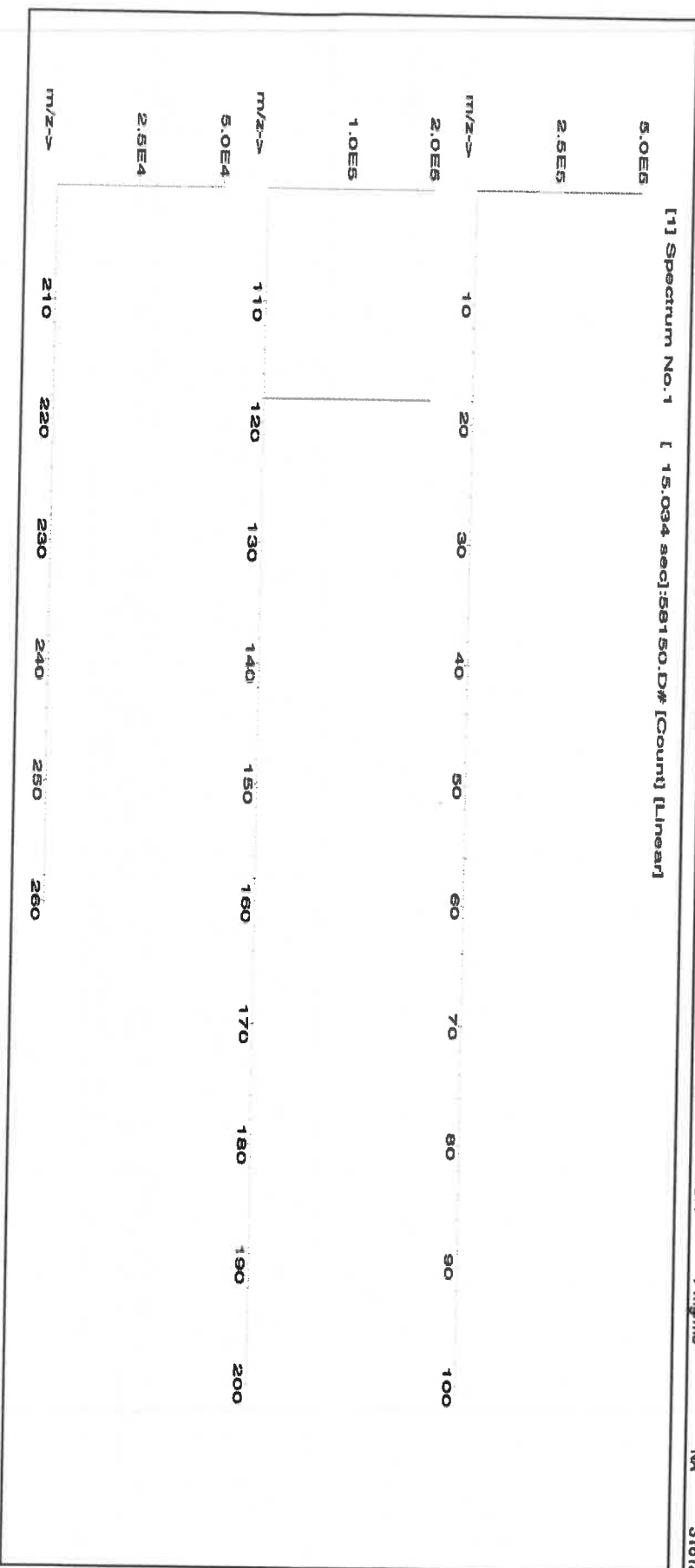
Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 499.93
5E-05 Balance Uncertainty
0.0058 Flask Uncertainty

<i>[Signature]</i>	
Formulated By:	Benson Chan
	071123
Reviewed By:	Pedro L. Rentas
	071123

SDS Information																	
SOLVENT SAFETY INFO. (ON ATTACHED PG.)																	
Compound		Lot		Nominal		Purity		Uncertainty		Assay		Target		Actual		Expanded	
RM#	Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Actual Weight (g)	Conc. (µg/mL)	+/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	SRM				

1. Ammonium hexafluoroantimonate(V) (Sn) IN010 SMD042023A1 1000 99.999 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	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<500	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	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

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Lot # 24002546
Solvent: Nitric Acid

2.0% Nitric Acid
40.0 (mL)

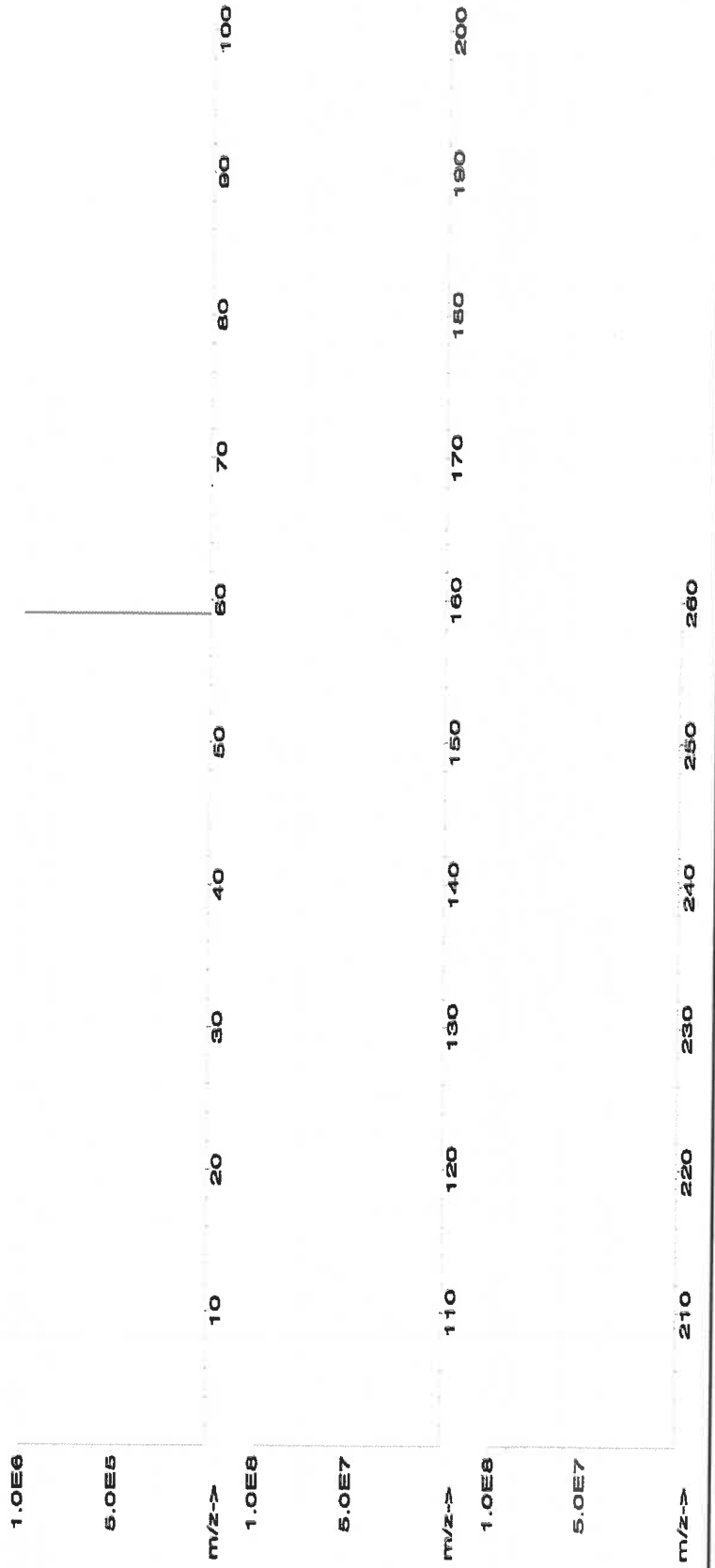
Formulated By:	Lawrence Barry
Reviewed By:	Pedro L. Rentas

SDS Information

Expanded Uncertainty
(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	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	<0.02	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	<0.2	Na	<0.02	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	T	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	<0.2	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

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

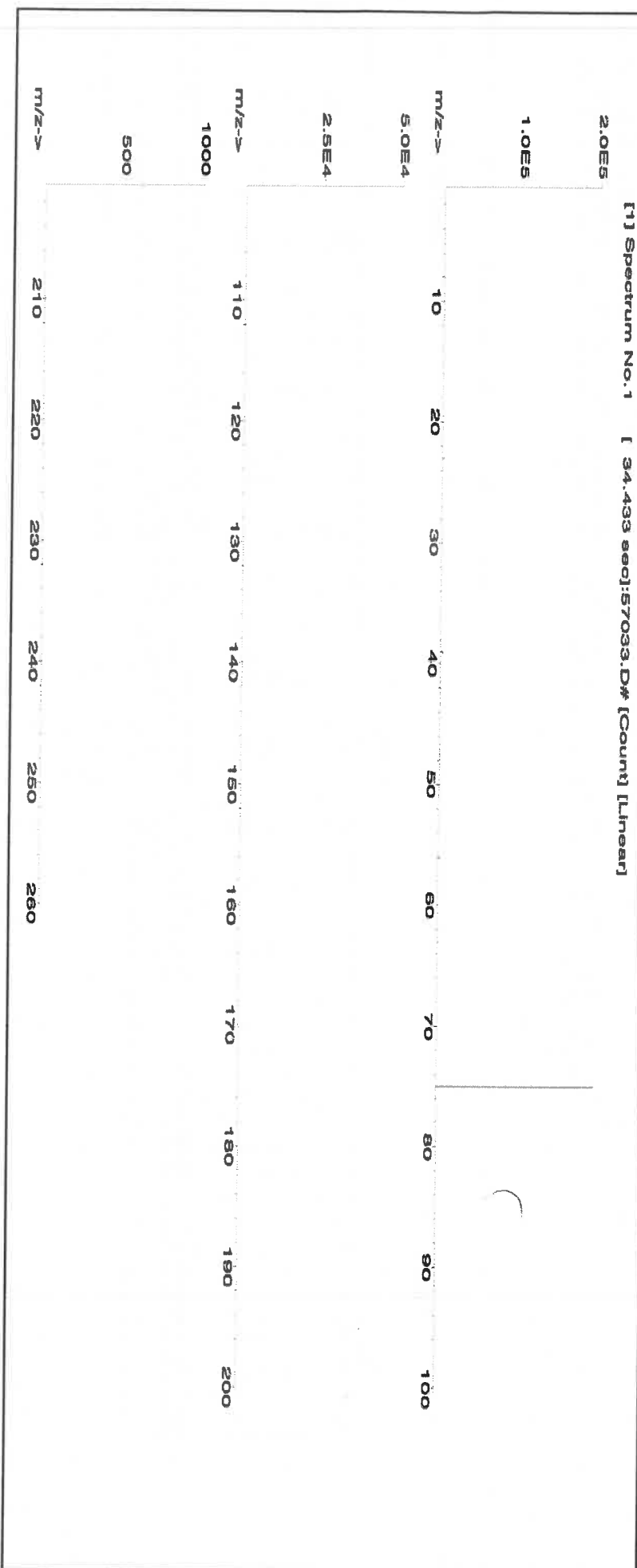
Balance Uncertainty: 5E-05
Flask Uncertainty: 0.06

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
0.5 mg/m3 or rat 500 mg/kg 3103a

[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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	T	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Tl _h	<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	Pt	<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	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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- * 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: **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

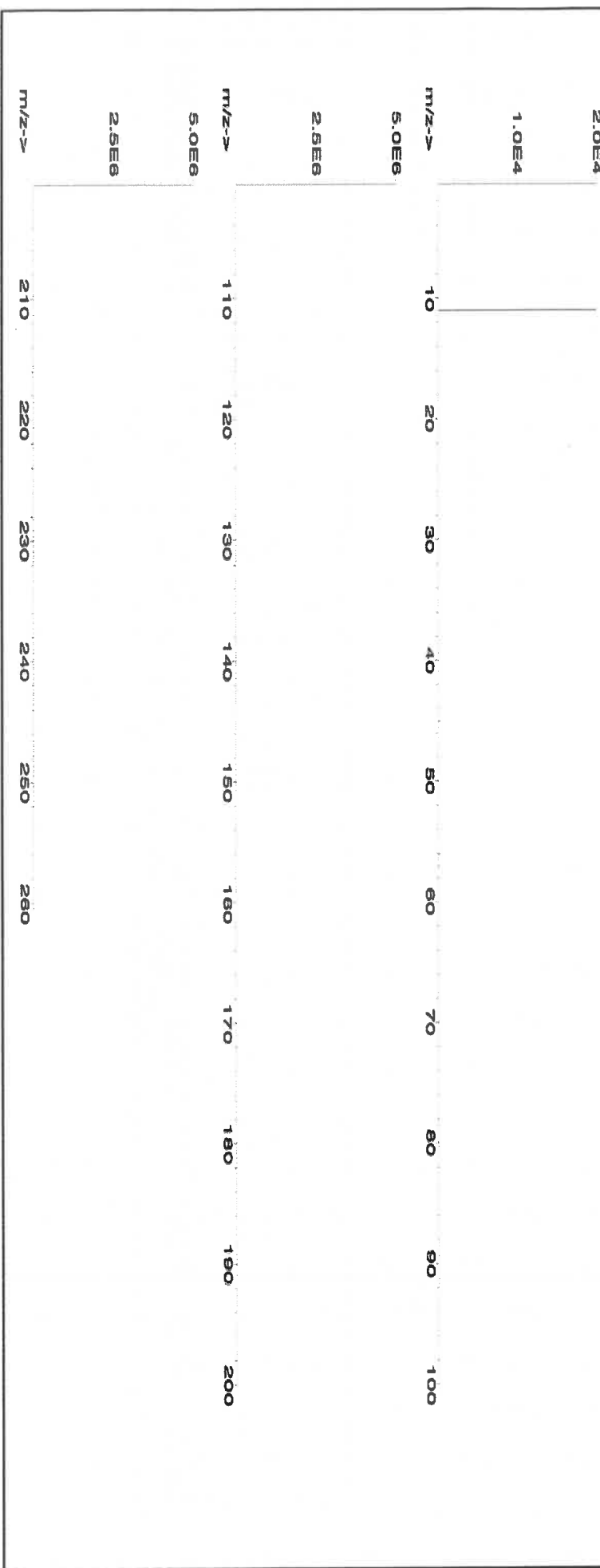
2.0% 40.0 (mL) Ammonium hydroxide

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	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)
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
									ort-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:

Certified by:

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

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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- * Standards are 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:

57016
122923
Sulfur (S)

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: 6L7B

Weight shown below was diluted to (mL): 4000.0

5E-05 Balance Uncertainty
0.06 Flask Uncertainty

Compound

RM#	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
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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 3181

[1] Spectrum No. 1 [33.603 sec]:57016.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	La	<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	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	Ti	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Certified by:

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

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are 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:

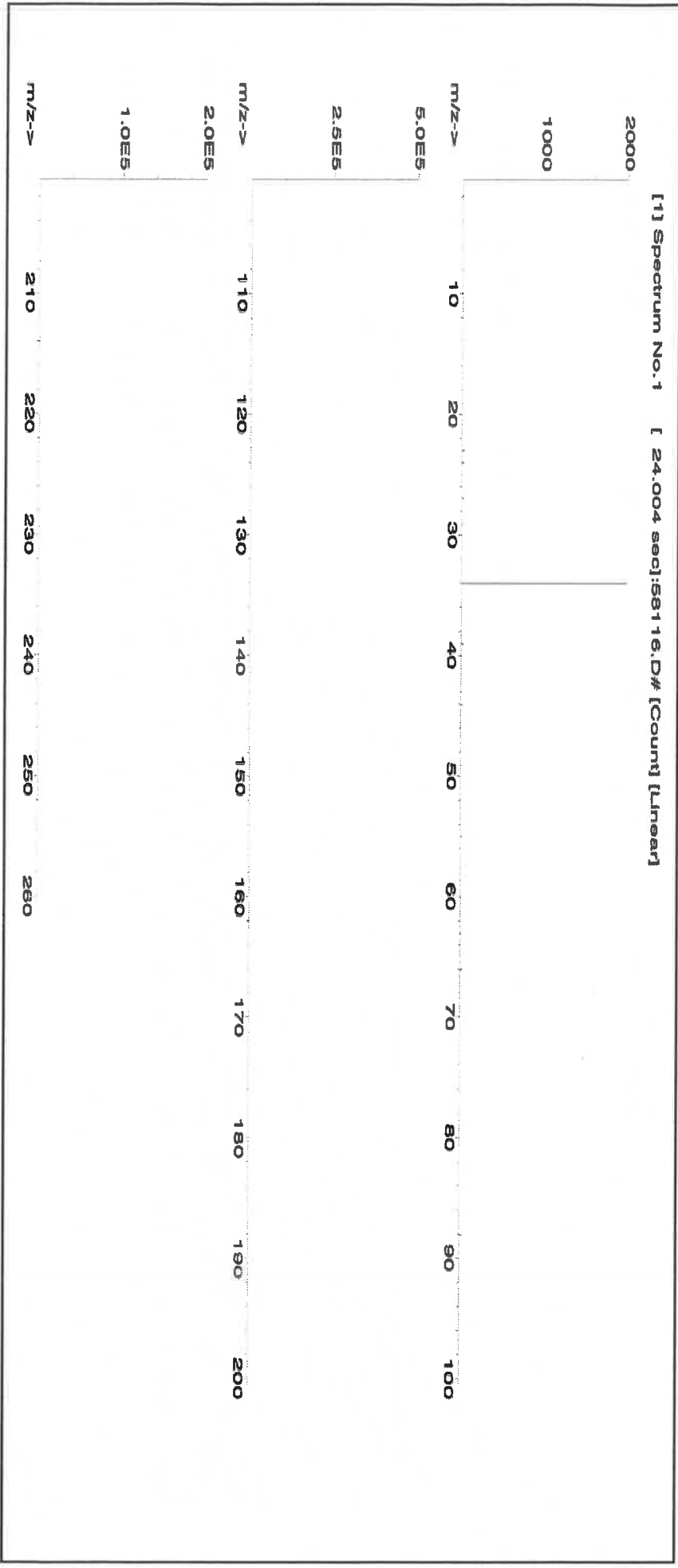
Part Number: 57116
Lot Number: 071123
Description: Sulfur (S)

Solvent: 071123
ASTM Type 1 Water

Formulated By:	Lawrence Barry
Reviewed By:	Pedro L. Rentas
Lot #	071123

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 1999.48
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

SDS Information									
Compound	Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded
	Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	+/- (µg/mL)
Ammonium sulfate (S)	IN117	SLBR725V	10000	99.9	0.10	24.3	82.4675	82.4692	10000.1
							20.0	7763-20-2	NA
									oral 4250mg/kg
									3181





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	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	T	Ti	<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			Zr	<0.02

Physical Characterization:

(T)= Target analyte

Certified by:

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

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
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- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: 57015
Lot Number: 091123
Description: Phosphorous (P)

Solvent: 24002546 Nitric Acid

Lot #

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

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

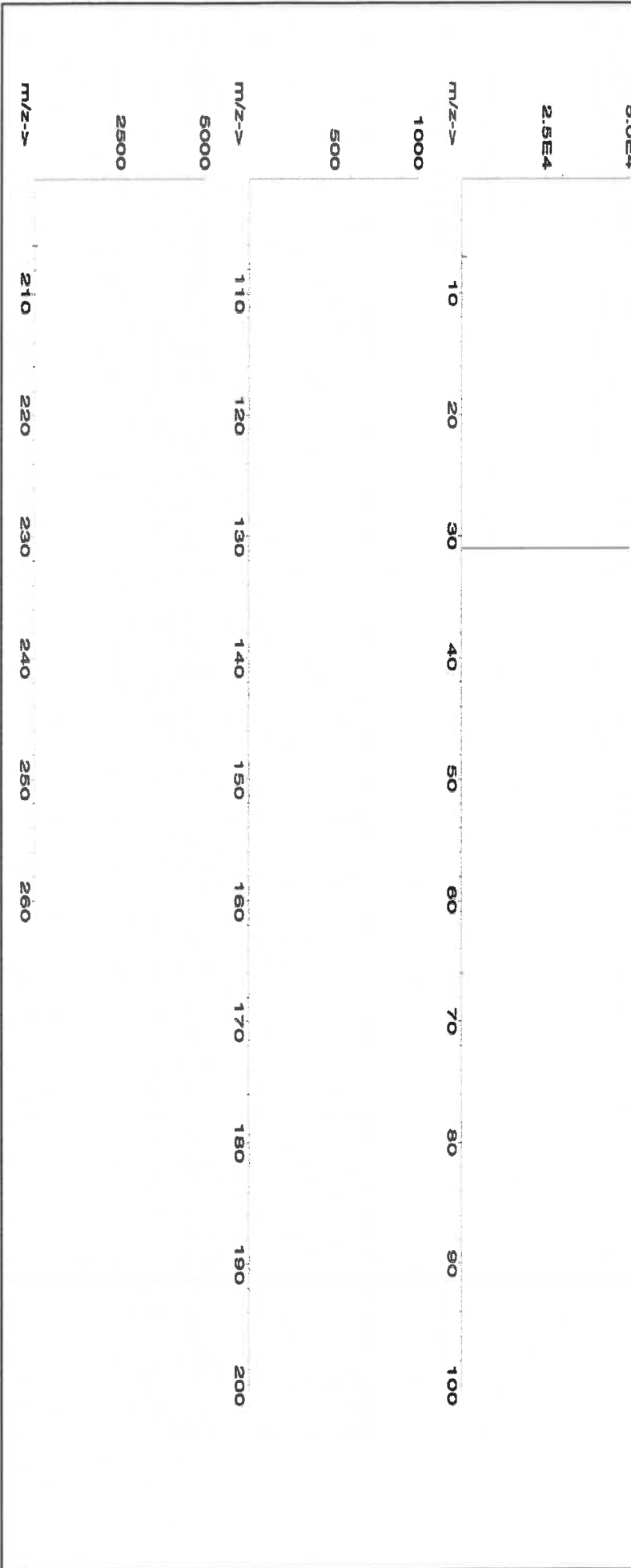
Compound

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
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SDS Information

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.
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- * 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



M5824
M3

Material No.: 3624-01

Batch No.: 0000281938

Manufactured Date: 2021-06-07

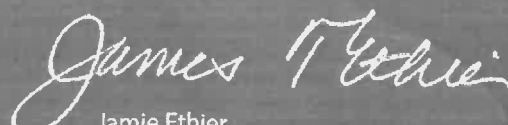
Retest Date: 2026-06-07

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

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>. 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



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:

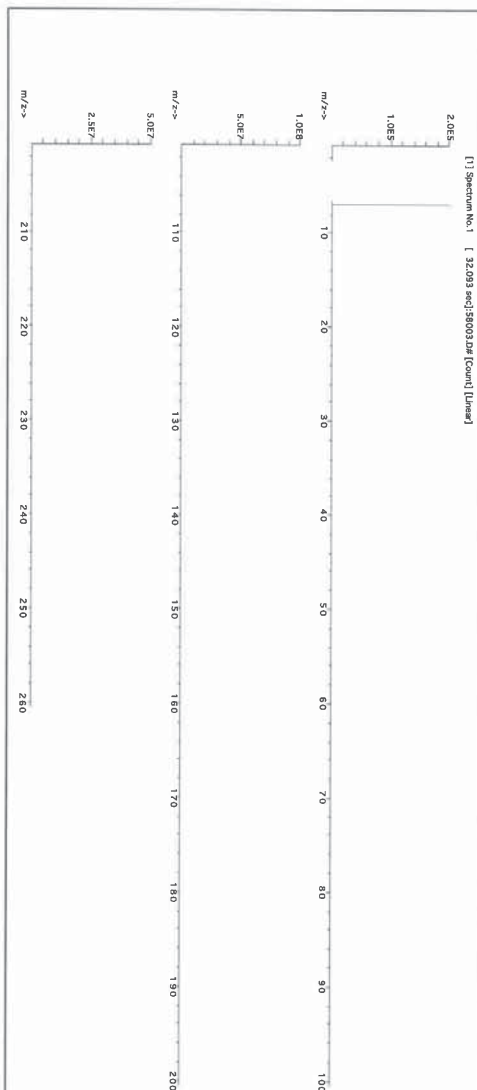
Part Number: 57003
Lot Number: 062124
Description: Lithium (Li)
Expiration Date: 06/21/27
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 250.11

Lot # 24002546
Solvent: Nitric Acid
Conc. (µg/mL) 2.0%
Initial 5.0 (mL)
Final Nitric Acid
SE-05 Balance Uncertainty 0.016
Flask Uncertainty

Microvite Capable	
Formulated By:	062124
Reviewed By: <i>[Signature]</i>	
Petro L. Parias	

Compound		SDS Information												Expanded Uncertainty ± (µg/mL)		CAS# OSHA PEL (TWA) LD50		NEST SM	
		Part		Lot		Dilution		Initial		Nominal		Final							
Number	Factor	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	SM		

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.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	Ca	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	In	<0.02	Mg	<0.02	Nb	<0.02	Rb	<0.02	Si	<0.02
As	<0.2	Ca	<0.02	Ba	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rh	<0.02	Ag	<0.02
Ba	<0.02	Cr	<0.02	Ga	<0.02	Te	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Nd	<0.02
Be	<0.01	Co	<0.02	Ge	<0.02	Ta	<0.02	K	<0.02	Sc	<0.02	Sr	<0.02	S	<0.02
Bi	<0.02	Co	<0.02	Au	<0.02	Tb	<0.02	Nd	<0.02	Se	<0.02	Sn	<0.02	Ta	<0.02
B	<0.02	Ca	<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).

Certificate of Analysis



Redefine your results. Redefine your industry.

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inorganicventures.com

R: 2/22/24

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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).

1.0 ACCREDITATION / REGISTRATION

2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution

Catalog Number: CGT1

Lot Number: T2-T1719972

Matrix: 2% (v/v) HNO₃

Value / Analyte(s): tr. HF

Starting Material: 1 000 µg/mL ea.

Starting Material: Titanium

Starting Material: Ti Metal

Starting Material Lot#: 2094

Starting Material Purity: 99.9975%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 5 µg/mL

Density: 1.012 g/mL (measured at 20 ± 4 °C)

Assay Method #1

1002 ± 4 µg/mL

ICP Assay NIST SRM 3162a Lot Number: 130925

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

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

Characterization of CRM/RM by Two or More Methods

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

$X_{CRM/RM} = (\sum x_i) / n$

x_i = mean of Assay Method A with

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

$k = 2$ coverage factor

$U_{CRM/RM} = \sqrt{U_{char A}^2 + U_{lab}^2}$

$U_{lab} = \sqrt{U_{lab1}^2 + U_{lab2}^2 + \dots + U_{labn}^2}$ where U_{lab1} are the errors from each characterization method

$U_{lab} = \sqrt{U_{lab1}^2 + U_{lab2}^2 + \dots + U_{labn}^2}$ where U_{lab1} are the errors from each characterization method

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$U_{lab} = \sqrt{U_{lab1}^2 + U_{lab2}^2 + \dots + U_{labn}^2}$ where U_{lab1} are the errors from each characterization method

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-MS and ICP-OES. 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	Td	<	0.001341				
O	Ca	<	0.00676	M	In	<	0.002683	M	Pr	<	0.000268	M	Th	<	0.053663				
M	Cd	<	0.000268	M	Ir	<	0.000269	M	Pt	<	0.000536	s	Ti	<	<				
M	Ce	<	0.000268	M	K	<	0.001172	M	Rb	<	0.000268	M	Tl	<	0.000268				
M	Co	<	0.004293	M	La	<	0.000268	M	Rc	<	0.000268	M	Tm	<	0.000268				
M	Cr	<	0.000752	O	Li	<	0.027225	M	Rh	<	0.000268	M	U	<	0.000268				
M	Cs	<	0.000268	M	Lu	<	0.000268	M	Ru	<	0.000269	M	V	<	0.019855				
O	Cu	<	0.010890	O	Mg	<	0.005445	I	S	<	0.006976	M	W	<	0.000473				
M	Dy	<	0.000268	O	Mn	<	0.003267	M	Sb	<	0.006976	M	Y	<	0.002146				
M	Er	<	0.000268	M	Mo	<	0.000774	O	Sc	<	0.004900	M	Yb	<	0.000536				

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

- 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 hydrated oxide in all dilute acids except HF.

Stability: - 2-100 ppb levels stable (Alone or mixed with all other metals) as the Ti(F)6-2 for months in 1% HNO3 / LDPE container. - 1-10,000 ppm single element solutions as the Ti(F)6-2 chemically stable for years in 2-5% HNO3 / trace HF in an LDPE container.

Ti Containing Samples (Preparation and Solution) - Metal (Soluble in H2O / HF caution - powder reacts violently): Oxide - low temperature history anatase or rutile (Dissolved by heating in 1:1:1 H2O / HF / H2SO4); 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	Interferences (underlined indicates severe)
ICP-MS 48 amu	14 ppt	N/A	32S16O, 32S14N,
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1	14N17N2, 36Ar12C,
ICP-OES 334.941 nm	0.0038 / 0.00028 µg/mL	1	48Ca, 196X=2
ICP-OES 336.121 nm	0.0053 / 0.00034 µg/mL	1	W, Mo, Co
			Nb, Ta, Cr, U
			Ce, Ar, Ni
			Ru]]
			(where X = Zr, Mo,

8.0 HAZARDOUS INFORMATION

HF Note: This standard should not be prepared or stored in glass.

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

- 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.

10.1 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 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.

Certificate Approved By:

Thomas Kozlikowski
Manager, Quality Control

TD978L

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Paul R. Gaines

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
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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

R: 08/22/24 M6058, M6059

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-MEB746172
Matrix: 3% (v/v) HNO₃
3% (v/v) HF
Value / Analyte(s): 1 000 µg/mL ea:
Boron, Molybdenum,
Silicon, Tin,
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 5 µg/mL	Molybdenum, Mo	1 000 ± 5 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 5 µg/mL
Titanium, Ti	1 000 ± 6 µg/mL		

Density: 1.032 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
Mo	ICP Assay	traceable to 3134	U2-MO739068
Si	ICP Assay	Traceable to 3150	S2-SI702546
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	traceable to 3162a	T2-TI725816

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

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, 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

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 12, 2024

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

11.2 Lot Expiration Date

- **August 12, 2029**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 06, 2024

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

11.2 Lot Expiration Date

- September 06, 2029

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



M612 S

Receive → 11/22/24

CORCO CHEMICAL CORPORATION

Manufacturers of ACS Reagents and Semiconductor Grade Chemicals

Office and Plant
299 Cedar Lane
Fairless Hills, PA 19030

Phone: 215-295-5006
Fax: 215-295-0781

Hydrogen Peroxide 30%, ACS Reagent Grade

SPECIFICATION

MAXIMUM LIMITS

Appearance	Colorless and free from suspended matter or sediment
Assay	29-32%
Color (APHA)	10
Residue after Evaporation	0.002%
Titrateable Acid	0.0006 meq/g
Chloride (Cl)	3 ppm
Nitrate (NO ₃)	2 ppm
Phosphate	2 ppm
Sulfate (SO ₄)	5 ppm
Ammonium (NH ₄)	5 ppm
Heavy Metals (as Pb)	1 ppm
Iron (Fe)	0.5 ppm

- 1
- 2
- 3
- 4
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- 8
- 9
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- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

Nitric Acid 69%
CMOS



R → 11/12/24

M6126

Material No.: 9606-03
Batch No.: 24D1062002
Manufactured Date: 2024-03-26
Retest Date: 2029-03-25
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 – 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	1 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.03 ppm
Phosphate (PO ₄)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities – Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	2.3 ppb
Trace Impurities – Chromium (Cr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Germanium (Ge)	≤ 20 ppb	< 10 ppb
Trace Impurities – Gold (Au)	≤ 20 ppb	< 5 ppb
Heavy Metals (as Pb)	≤ 100 ppb	100 ppb
Trace Impurities – Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities – Lead (Pb)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Nickel (Ni)	≤ 20.0 ppb	< 5.0 ppb

>>> Continued on page 2 >>>





Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: **58025**
Lot Number: **101124**
Description: **Manganese (Mn)**

R-71113128

Lot #: **24002546**
Solvent: **Nitric Acid**

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**

0.10 Flask Uncertainty

2% **80.0** Nitric Acid (mL)

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	<i>Pedro L. Renteria</i>
	Pedro L. Renteria
	101124

Compound

RM#	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
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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





QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
"An ISO 9001:2015 Certified Program"

R: 4/20/21

Instructions for QATS Reference Material: *Inorganic ICV Solutions*

QATS LABORATORY INORGANIC REFERENCE MATERIAL
INITIAL CALIBRATION VERIFICATION SOLUTIONS
(ICV1, ICV5, AND ICV6)

MG150

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

Contains Metals in Dilute Acidic or
Cyanide in Basic Aqueous Solutions
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

(A) SAMPLE DESCRIPTION

Enclosed is a set of one (1) or more Aqueous Inorganic Reference Materials containing various analyte concentrations. ICV1 and ICV5 are in a matrix of dilute nitric acid. ICV6 is in a matrix of dilute basic solution. For the reference material source in reporting ICVs use "USEPA". For the reference material lot number for the ICV1, ICV5, and ICV6 solutions use "ICV1-1014", "ICV5-0415", and "ICV6-0400", respectively.

(B) BREAKAGE OR MISSING ITEMS

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) ANALYSIS OF SAMPLES

The Initial Calibration Verification Solutions (ICVs) are to be used to evaluate the accuracy of the initial calibrations of ICP, AA, and Cyanide colorimetric instruments, and are to be used with the CLP SOWs and revisions. The values for each element in the ICVs are listed below in µg/L (ppb) for the resulting solution(s) after the dilution of the concentrate(s) according to the following instructions. Use Class 'A' glassware to prepare the solution(s).

ICV1-1014 For ICP-AES analysis, use a 10-fold dilution by pipetting 10 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid.





QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
"An ISO 9001:2015 Certified Program"

Instructions for QATS Reference Material: *Inorganic ICV Solutions*

ICV1-1014 For ICP-MS analysis, use a 50-fold dilution by pipetting 2 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.

ICV5-0415 For the cold vapor analysis of mercury by AA, use a 100-fold dilution by pipetting 1 mL of the ICV5 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v) K₂Cr₂O₇ and 5% (v/v) nitric acid.

ICV6-0400 For the analysis of cyanide, use a 100-fold dilution by pipetting 1 mL of the ICV6 concentrate into a 100 mL volumetric flask and dilute to volume with Type II water. Distill this solution along with the samples before analysis. The cyanide concentrate is prepared from K₃Fe(CN)₆, Type II water, and 0.1 % sodium hydroxide, and will decompose rapidly if exposed to light.

NOTE: USE TYPE II WATER AND HIGH-PURITY ACIDS FOR ALL DILUTIONS.

(D) CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS

ICV1-1014		
Element	Concentration (µg/L) (after 10-fold dilution)	Concentration (µg/L) (after 50-fold dilution)
Al	2500	500
Sb	1000	200
As	1000	200
Ba	520	100
Be	510	100
Cd	510	100
Ca	10000	2000
Cr	520	100
Co	520	100
Cu	510	100
Fe	10000	2000
Pb	1000	200
Mg	6000	1200
Mn	520	100
Ni	530	110
K	9900	2000
Se	1000	200
Ag	250	50
Na	10000	2000
Tl	1000	210
V	500	100
Zn	1000	200

ICV5-0415		ICV6-0400	
Element	Concentration (µg/L) (after 100-fold dilution)	Analyte	Concentration (µg/L) (after 100-fold dilution)
Hg	4.0	CN ⁻	99

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™



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 >>>

Material No.: 9530-33
Batch No.: 22G2862015

Test	Specification	Result
Trace Impurities – Lead (Pb)	≤ 1.0 ppb	< 0.5 ppb
Trace Impurities – Lithium (Li)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Magnesium (Mg)	≤ 10.0 ppb	2.9 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	0.1 ppb
Trace Impurities – Molybdenum (Mo)	≤ 10.0 ppb	< 3.0 ppb
Trace Impurities – Nickel (Ni)	≤ 4.0 ppb	< 0.3 ppb
Trace Impurities – Niobium (Nb)	≤ 1.0 ppb	0.8 ppb
Trace Impurities – Potassium (K)	≤ 9.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	0.5 ppb
Trace Impurities – Sodium (Na)	≤ 100.0 ppb	2.3 ppb
Trace Impurities – Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Tantalum (Ta)	≤ 1.0 ppb	1.6 ppb
Trace Impurities – Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	4.0 ppb
Trace Impurities – Titanium (Ti)	≤ 1.0 ppb	1.5 ppb
Trace Impurities – Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	0.8 ppb
Trace Impurities – Zirconium (Zr)	≤ 1.0 ppb	0.3 ppb

>>> Continued on page 3 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA–ANALYZED® Reagent
For Trace Metal Analysis

 **avantor**™

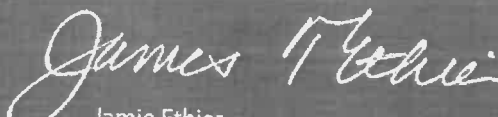


Material No.: 9530-33
Batch No.: 22G2862015

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



M6156

Certified Reference Material CRM



R → 6/12/24

CERTIFIED WEIGHT REPORT:

Part Number:

Lot Number:

Description:

57042

032123

Molybdenum (Mo)

Expiration Date:

032126

Ambient (20 °C)

Recommended Storage:

1000

Nominal Concentration (µg/mL):

6UTB

NIST Test Number:

5E-05

Balance Uncertainty

0.058

Flask Uncertainty

3000.41

Volume shown below was diluted to (mL):

Lot #

MKBQ859V Ammonium hydroxide

Solvent:

0.5%

15.0

(mL)

Ammonium hydroxide

Formulated By:

Lawrence Barry

032123

Reviewed By:

Pedro L. Rentas

032123

SDS Information

Expanded

Uncertainty

(Solvent Safety Info. On Attached pg.)

NIST

OSHA PEL (TWA)

LD50

CAS#

13106-76-8

5 mg(Mo)/m3

orl-rat 333 mg/kg

2.1

1000.0

10001.4

1000

300.0

0.084

0.1000

112322

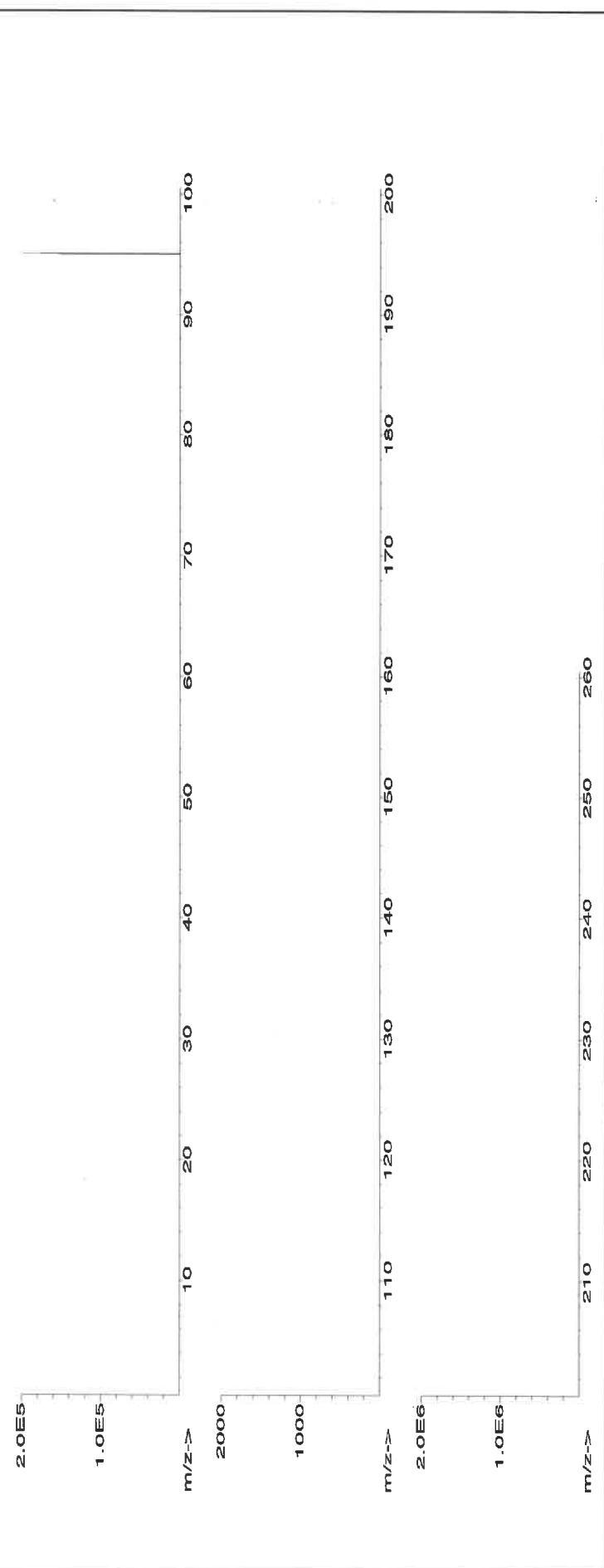
58142

Ammonium molybdate (Mo)

Compound

1. Ammonium molybdate (Mo) 58142 112322 0.1000 300.0 0.084 1000 10001.4 1000.0 2.1 13106-76-8 5 mg(Mo)/m3 orl-rat 333 mg/kg 3134

[1] Spectrum No.1 [8.594 sec]:57042.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	<0.02	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	<0.02	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	<0.02	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	T	<0.2	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:

[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).

Nitric Acid 69%
CMOS

avantor™



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



Certified Reference Material CRM

M6030



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
<https://absolutestandards.com>

CERTIFIED WEIGHT REPORT:

Part Number: **57047**
Lot Number: **122823**
Description: **Silver (Ag)**

Lot #
Solvent: 24002546 Nitric Acid

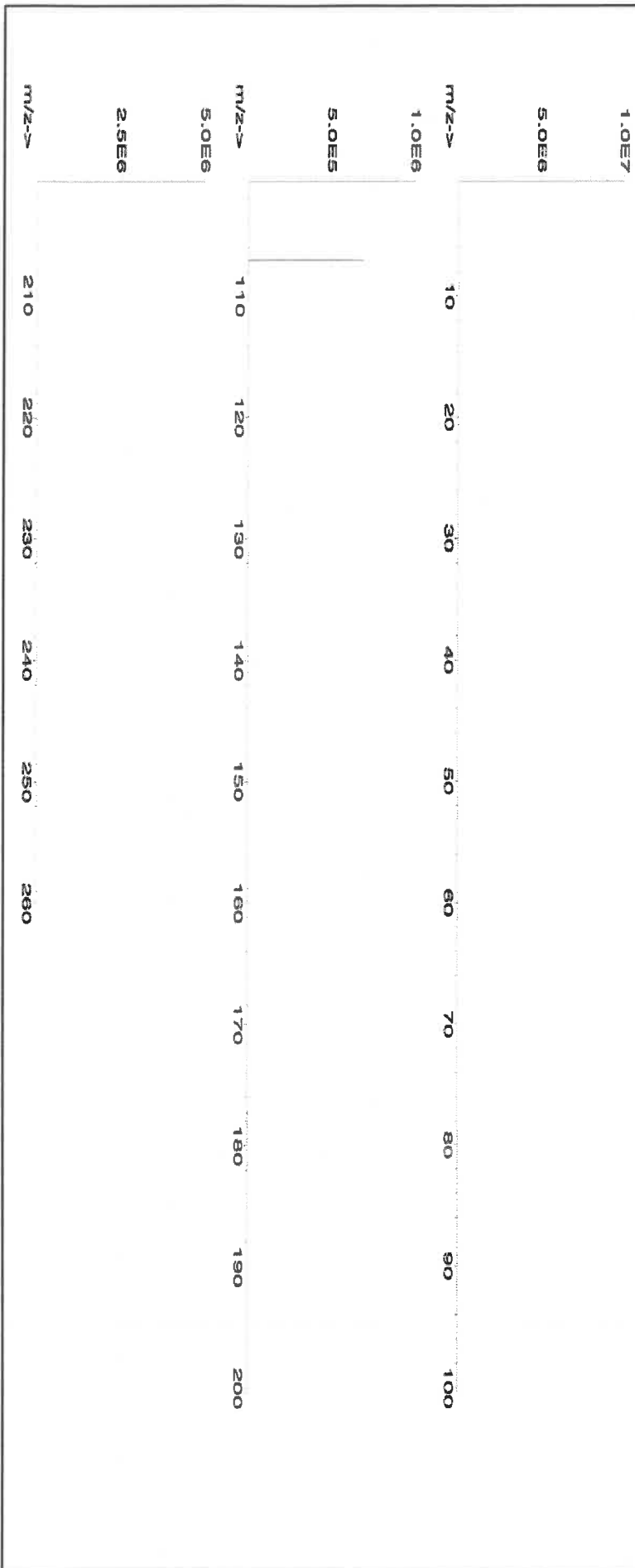
Formulated By:	Benson Chan
Reviewed By:	Pedro L. Rentas
	122823

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.)	LD50	

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/mL3 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).

R : 04/20/21

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
"An ISO 9001:2015 Certified Program"



Instructions for QATS Reference Material: ICP-AES ICS

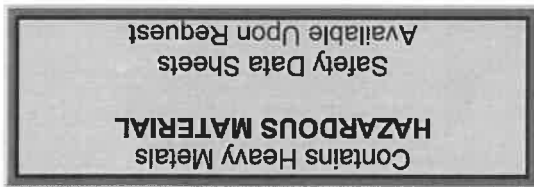
QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

M6152



(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) interfering 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, Ti, 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
Ti	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 $\pm$ 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value $\pm$ 15 percent of the listed certified value.



QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
"An ISO 9001:2015 Certified Program"

R: 04/20/21

Instructions for QATS Reference Material: ICP-AES ICS

QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.



M6155

(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,





APTIM

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.



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: 57051
Lot Number: 071724
Description: Antimony (Sb)

MG60

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

Nitric Acid

40.0

(mL)

071724

071724

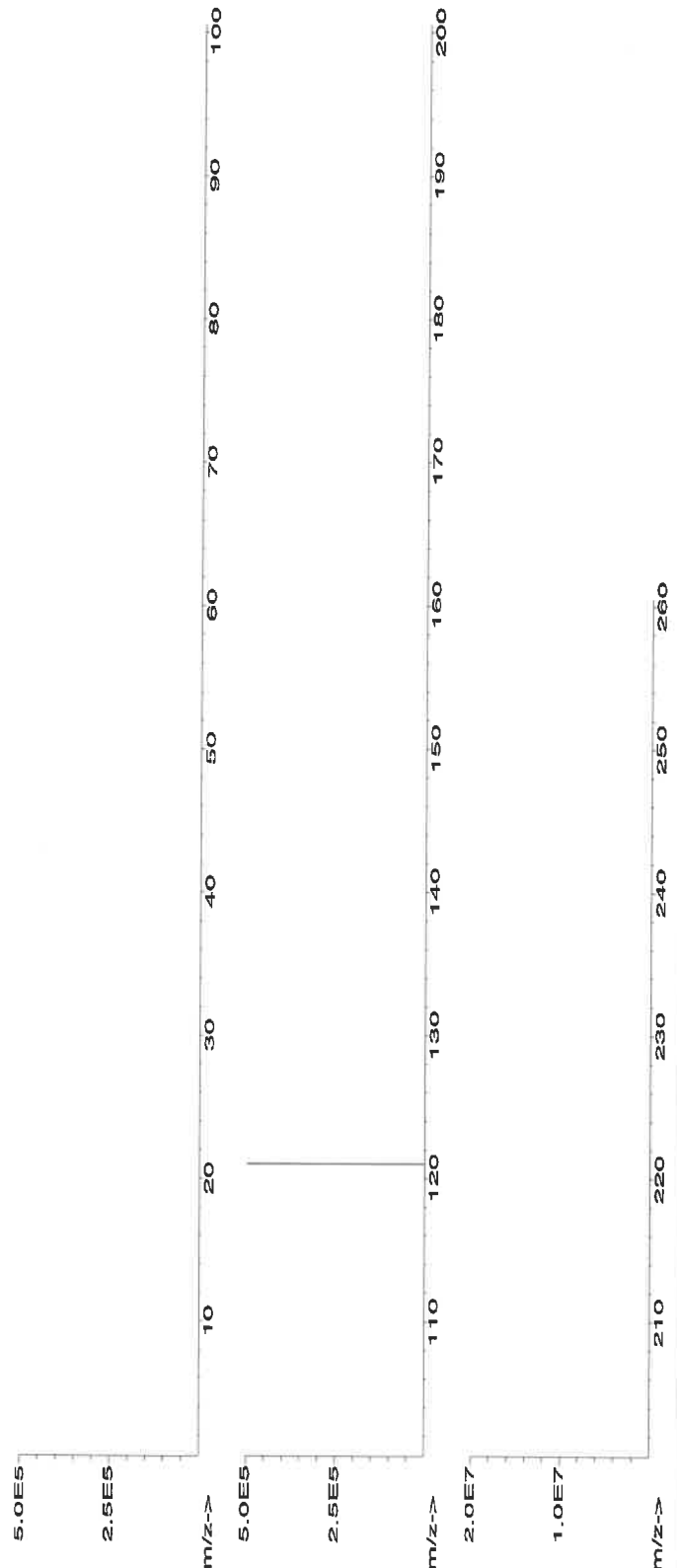
SDS Information

Expanded

Uncertainty (Solvent Safety Info. On Attached pg.) NIST
+/- (µg/mL) CAS# OSHA PEL (TWA) LD50 SRM

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume (mL)	Uncertainty Pipette (mL)	Nominal Concentration (µg/mL)	Initial Concentration (µg/mL)	Final Concentration (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Antimony (Sb)	58151	060324	0.1000	200.0	0.084	1000	10001.4	1000.0	2.2	7440-36-0	0.5 mg/m3	or-rat 7000 mg/kg	3102a

[1] Spectrum No.1 [17.964 sec]:58051.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
Sb	T	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	U
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	V
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.02	Th	Yb
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	Y
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
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

(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: 8/5/24

M6019

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: Single Analyte Custom Grade Solution
Catalog Number: CGSR1
Lot Number: U2-SR730227
Matrix: 0.1% (v/v) HNO₃
Value / Analyte(s): 1 000 µg/mL ea:
Strontium
Starting Material: SrCO₃
Starting Material Lot#: M2-2192
Starting Material Purity: 99.9993%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1001 ± 3 µg/mL
Density: 1.000 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	998 ± 4 µg/mL ICP Assay NIST SRM Traceable to 3153a Lot Number: K2-SR650985
Assay Method #2	1001 ± 3 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #3	1001 ± 2 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

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

Characterization of CRM/RM by Two or More Methods

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

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

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:

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

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

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_{ts} = 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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{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)

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

M	Ag	<	0.001980	M	Eu	<	0.000495	O	Na	0.000200	M	Se	<	0.013862	O	Zn	0.000143	
O	Al	0.000370	O	Fe	0.000410	M	Nb	<	0.000495	i	Si	<			M	Zr	<	0.000495
M	As	<	0.000495	M	Ga	<	0.000495	M	Nd	<	0.000495	M	Sm	<	0.000495			
M	Au	<	0.000989	M	Gd	<	0.000495	O	Ni	<	0.007631	M	Sn	<	0.000990			
M	B	<	0.039606	M	Ge	<	0.000495	M	Os	<	0.000494	s	Sr	<				
M	Ba	0.006486	M	Hf	<	0.000495	i	P	<			M	Ta	<	0.000495			
M	Be	<	0.000990	M	Hg	<	0.000989	M	Pb	<	0.002970	M	Tb	<	0.000495			
M	Bi	<	0.000495	M	Ho	<	0.000495	M	Pd	<	0.003957	M	Te	<	0.027724			
O	Ca	0.004255	M	In	<	0.000495	M	Pr	<	0.000495	M	Th	<	0.000990				
M	Cd	0.001339	M	Ir	<	0.000494	M	Pt	<	0.002970	M	Ti	<	0.005940				
M	Ce	<	0.004950	O	K	<	0.008184	M	Rb	<	0.002970	M	Tl	<	0.000495			
M	Co	<	0.000495	M	La	<	0.000495	M	Re	<	0.000495	M	Tm	<	0.000495			
O	Cr	<	0.003207	O	Li	<	0.000884	O	Rh	<	0.012829	M	U	<	0.001485			
M	Cs	<	0.000990	M	Lu	<	0.002970	M	Ru	<	0.000989	M	V	<	0.001980			
M	Cu	0.000099	O	Mg	0.000064	i	S	<				M	W	<	0.003960			
M	Dy	<	0.000495	O	Mn	0.000066	M	Sb	<	0.014852	O	Y	<	0.000995				
M	Er	<	0.000495	M	Mo	<	0.001980	M	Sc	<	0.001980	M	Yb	<	0.000495			

M - Checked by ICP-MS

O - Checked by ICP-OES

i - Spectral Interference

n - Not Checked For

s - Solution Standard Element

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 87.62 +2 6 Sr(H₂O)₆+2

Chemical Compatibility - Soluble in HCl, and HNO₃. Avoid H₂SO₄, HF and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicate, carbonate, hydroxide, oxide, fluoride, sulfate, oxalate, chromate, arsenate and tungstate in neutral aqueous media.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1 - 3.5% HNO₃ / LDPE container.

Sr Containing Samples (Preparation and Solution) -Metal (Best dissolved in diluted HNO₃); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Dry ash and dissolution in dilute HCl).

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

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 88 amu	1200 ppt	N/A	72Ge16O, 176Yb+2, 176Lu+2 , 176Hf+2
ICP-OES 407.771 nm	0.0004 / 0.00006 µg/mL	1	U, Ce
ICP-OES 421.552 nm	0.0008 / 0.00004 µg/mL	1	Rb
ICP-OES 460.733 nm	0.07 / 0.003 µg/mL	1	Ce

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 03, 2023

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

11.2 Lot Expiration Date

- March 03, 2028

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





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: 6UJB

5E-05 Balance Uncertainty

Weight shown below was diluted to (mL): 2000.1 0.10 Flask Uncertainty

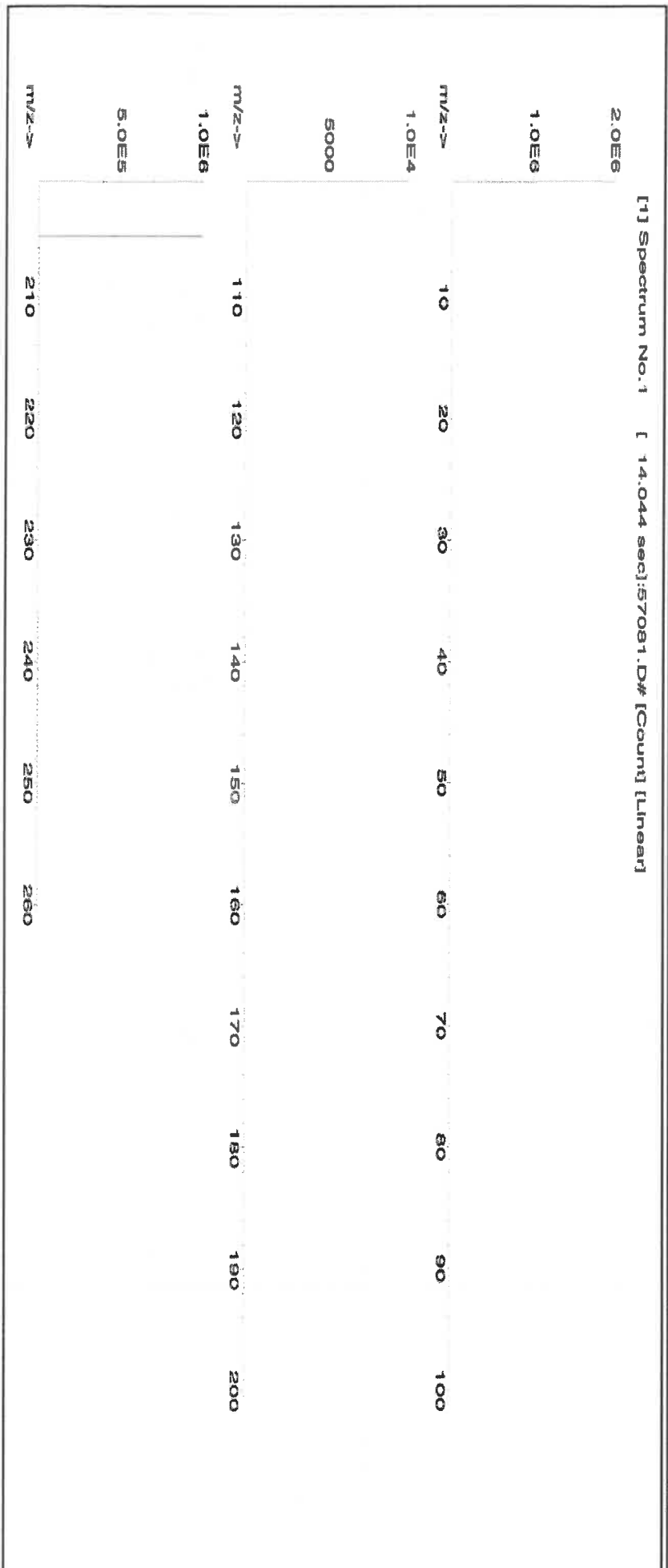
Pedro L. Renteria
Reviewed By: Pedro L. Renterias 062724

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 orl-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



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
<https://absolutestandards.com>

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

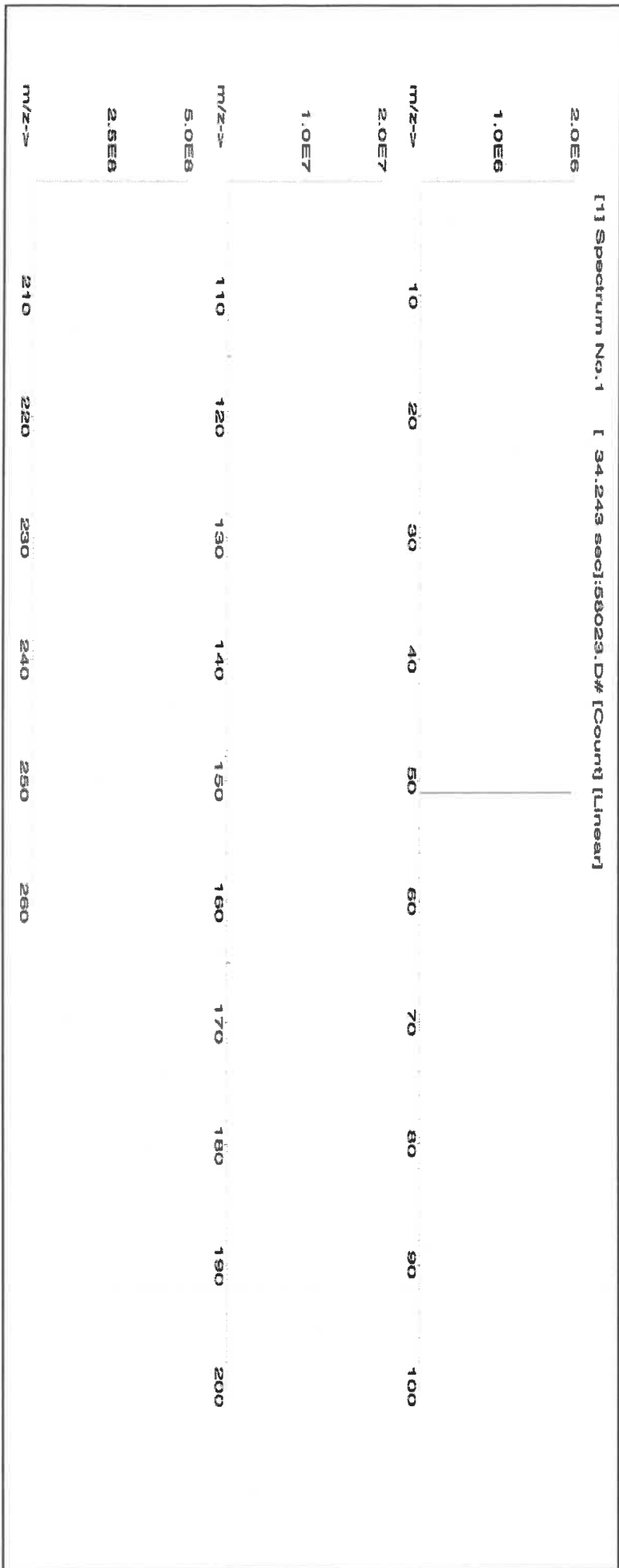
Expiration Date: **062427**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**

2.0%
40.0 (mL)
Nitric Acid

Volume shown below was diluted to (mL): **2000.3**
0.06 Balance Uncertainty
Flask Uncertainty

SDS Information									
Expanded Uncertainty (Solvent Safety Info. On Attached pg.)									
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. 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	or -rat 58.1mg/kg
									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
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- 18

Q1664

USEPA

DateShipped: 3/26/2025

CarrierName: Hand Deliver

AirbillNo: N/a

CHAIN OF CUSTODY RECORD

Site #: 02FP

Contact Name Josh Frizzell

(470) 277-4600

No: 2-032625-0004-0037-01

RFP# 905A

Lab: Alliance Technical Group, LLC - Non
CLP

Lab Phone: 908-728-3144

Lab #	Sample #	Location	CLP Sample #	Tag	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Preservati ve	Lab QC
	P001-BBDGA-001-01	P001-BBDGA-001		A	TAL VOCs (TAT 3 Days)	Stone	3/26/2025	09:30	9	5-g Encore	4 C	Y
	P001-BBDGA-001-01	P001-BBDGA-001		B	TAL SVOC+Pest+PCB (TAT 3 Days)	Stone	3/26/2025	09:30	6	8 oz glass	4 C	Y
	P001-BBDGA-001-01	P001-BBDGA-001		C	Percent Moisture (TAT 3 Days)	Stone	3/26/2025	09:30	3	4 oz glass w/septum	4 C	Y
	P001-BBDGA-001-01	P001-BBDGA-001		D	TAL Metals+Hg+CN (TAT 3 Days)	Stone	3/26/2025	09:30	6	8 oz glass	4 C	Y
	P001-BBDGA-001-01	P001-BBDGA-001		E	EPH (TAT 3 Days)	Stone	3/26/2025	09:30	3	8 oz glass	4 C	Y
	P001-BBDGA-001-01	P001-BBDGA-001		F	SPLP EPH	Stone	3/26/2025	09:30	3	8 oz glass	4 C	Y
	P001-BBDGA-001-01	P001-BBDGA-001		G	SPLP VOCs	Stone	3/26/2025	09:30	9	5-g Encore	4 C	Y
	P001-BBDGA-001-01	P001-BBDGA-001		H	SPLP SVOCs + Pest+PCBs (TAT 7 Days)	Stone	3/26/2025	09:30	6	8 oz glass	4 C	Y
	P001-BBDGA-001-01	P001-BBDGA-001		I	Percent Moisture (SPLP) (TAT 7 Days)	Stone	3/26/2025	09:30	3	4 oz glass w/septum	4 C	Y
	P001-BBDGA-001-01	P001-BBDGA-001		J	SPLP Metals+Hg+CN (TAT 7 Days)	Stone	3/26/2025	09:30	6	8 oz glass	4 C	Y

Special Instructions: Please email results to S.Sumbaly@WestonSolutions.com and Josh.Frizzell@WestonSolutions.com. TAT for TAL analyses is 3 days. TAT for SPLP analyses is 7 days.

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	<i>mc</i> WESTON	8:35 3-27-25	<i>AR</i>	8:35 3-27-25	IF Gen #1 2.14 no Custody Seal Temp Blank present

Q1664

USEPA

DateShipped: 3/26/2025

CarrierName: Hand Deliver

AirbillNo: N/a

CHAIN OF CUSTODY RECORD

Site #: 02FP

Contact Name Josh Frizzell

(470) 277-4600

No: 2-032625-0004-0037-01

RFP# 905A

Lab: Alliance Technical Group, LLC - Non
CLP

Lab Phone: 908-728-3144

Lab #	Sample #	Location	CLP Sample #	Tag	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Preservati ve	Lab QC
	P001-BBDGA-001-02	P001-BBDGA-001		A	TAL VOCs (TAT 3 Days)	Stone	3/26/2025	09:30	3	5-g Encore	4 C	N
	P001-BBDGA-001-02	P001-BBDGA-001		B	TAL SVOC+Pest+PCB (TAT 3 Days)	Stone	3/26/2025	09:30	2	8 oz glass	4 C	N
	P001-BBDGA-001-02	P001-BBDGA-001		C	Percent Moisture (TAT 3 Days)	Stone	3/26/2025	09:30	1	4 oz glass w/septum	4 C	N
	P001-BBDGA-001-02	P001-BBDGA-001		D	TAL Metals+Hg+CN (TAT 3 Days)	Stone	3/26/2025	09:30	2	8 oz glass	4 C	N
	P001-BBDGA-001-02	P001-BBDGA-001		E	EPH (TAT 3 Days)	Stone	3/26/2025	09:30	1	8 oz glass	4 C	N
	P001-BBDGA-001-02	P001-BBDGA-001		F	SPLP EPH	Stone	3/26/2025	09:30	1	8 oz glass	4 C	N
	P001-BBDGA-001-02	P001-BBDGA-001		G	SPLP VOCs	Stone	3/26/2025	09:30	3	5-g Encore	4 C	N
	P001-BBDGA-001-02	P001-BBDGA-001		H	SPLP SVOCs + Pest+PCBs (TAT 7 Days)	Stone	3/26/2025	09:30	2	8 oz glass	4 C	N
	P001-BBDGA-001-02	P001-BBDGA-001		I	Percent Moisture (SPLP) (TAT 7 Days)	Stone	3/26/2025	09:30	1	4 oz glass w/septum	4 C	N
	P001-BBDGA-001-02	P001-BBDGA-001		J	SPLP Metals+Hg+CN (TAT 7 Days)	Stone	3/26/2025	09:30	2	8 oz glass	4 C	N

Special Instructions: Please email results to S.Sumbaly@WestonSolutions.com and Josh.Frizzell@WestonSolutions.com. TAT for TAL analyses is 3 days. TAT for SPLP analyses is 7 days.

**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	<i>WJ</i> WESTON	0835 3/27/25	<i>CF</i>	0835 3-27-25	IR-Bin #1 2-1-C No Custody Seal Temp Blank present

Q1664

USEPA

DateShipped: 3/26/2025

CarrierName: Hand Deliver

AirbillNo: N/a

CHAIN OF CUSTODY RECORD

Site #: 02FP

Contact Name Josh Frizzell

(470) 277-4600

No: 2-032625-0004-0037-01

RFP# 905A

Lab: Alliance Technical Group, LLC - Non CLP

Lab Phone: 908-728-3144

Lab #	Sample #	Location	CLP Sample #	Tag	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Preservative	Lab QC
	P001-BBDGA-002-01	P001-BBDGA-002		A	TAL VOCs (TAT 3 Days)	Stone	3/26/2025	09:35	3	5-g Encore	4 C	N
	P001-BBDGA-002-01	P001-BBDGA-002		B	TAL SVOC+Pest+PCB (TAT 3 Days)	Stone	3/26/2025	09:35	2	8 oz glass	4 C	N
	P001-BBDGA-002-01	P001-BBDGA-002		C	Percent Moisture (TAT 3 Days)	Stone	3/26/2025	09:35	1	4 oz glass w/septum	4 C	N
	P001-BBDGA-002-01	P001-BBDGA-002		D	TAL Metals+Hg+CN (TAT 3 Days)	Stone	3/26/2025	09:35	2	8 oz glass	4 C	N
	P001-BBDGA-002-01	P001-BBDGA-002		E	EPH (TAT 3 Days)	Stone	3/26/2025	09:35	1	8 oz glass	4 C	N
	P001-BBDGA-002-01	P001-BBDGA-002		F	SPLP EPH	Stone	3/26/2025	09:35	1	8 oz glass	4 C	N
	P001-BBDGA-002-01	P001-BBDGA-002		G	SPLP VOCs	Stone	3/26/2025	09:35	3	5-g Encore	4 C	N
	P001-BBDGA-002-01	P001-BBDGA-002		H	SPLP SVOCs + Pest+PCBs (TAT 7 Days)	Stone	3/26/2025	09:35	2	8 oz glass	4 C	N
	P001-BBDGA-002-01	P001-BBDGA-002		I	Percent Moisture (SPLP) (TAT 7 Days)	Stone	3/26/2025	09:35	1	4 oz glass w/septum	4 C	N
	P001-BBDGA-002-01	P001-BBDGA-002		J	SPLP Metals+Hg+CN (TAT 7 Days)	Stone	3/26/2025	09:35	2	8 oz glass	4 C	N

Special Instructions: Please email results to S.Sumbaly@WestonSolutions.com and Josh.Frizzell@WestonSolutions.com. TAT for TAL analyses is 3 days. TAT for SPLP analyses is 7 days.

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	<i>Wm</i> WESTON	0835 3/27/25	<i>CF</i>	0835 3-27-25	If Cont#1 2-1°C No Custody Seal No Tata Temp Blank

USEPA

DateShipped: 3/26/2025

CarrierName: Hand Deliver

AirbillNo: N/a

CHAIN OF CUSTODY RECORD

Site #: 02FP

Contact Name Josh Frizzell

(470) 277-4600

No: 2-032625-0004-0037-01

RFP# 905A

Lab: Alliance Technical Group, LLC - Non
CLP

Lab Phone: 908-728-3144

Lab #	Sample #	Location	CLP Sample #	Tag	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Preservative	Lab QC
	P001-BBDGA-003-01	P001-BBDGA-003		A	TAL VOCs (TAT 3 Days)	Stone	3/26/2025	09:40	3	5-g Encore	4 C	N
	P001-BBDGA-003-01	P001-BBDGA-003		B	TAL SVOC+Pest+PCB (TAT 3 Days)	Stone	3/26/2025	09:40	2	8 oz glass	4 C	N
	P001-BBDGA-003-01	P001-BBDGA-003		C	Percent Moisture (TAT 3 Days)	Stone	3/26/2025	09:40	1	4 oz glass w/septum	4 C	N
	P001-BBDGA-003-01	P001-BBDGA-003		D	TAL Metals+Hg+CN (TAT 3 Days)	Stone	3/26/2025	09:40	2	8 oz glass	4 C	N
	P001-BBDGA-003-01	P001-BBDGA-003		E	EPH (TAT 3 Days)	Stone	3/26/2025	09:40	1	8 oz glass	4 C	N
	P001-BBDGA-003-01	P001-BBDGA-003		F	SPLP EPH	Stone	3/26/2025	09:40	1	8 oz glass	4 C	N
	P001-BBDGA-003-01	P001-BBDGA-003		G	SPLP VOCs	Stone	3/26/2025	09:40	3	5-g Encore	4 C	N
	P001-BBDGA-003-01	P001-BBDGA-003		H	SPLP SVOCs + Pest+PCBs (TAT 7 Days)	Stone	3/26/2025	09:40	2	8 oz glass	4 C	N
	P001-BBDGA-003-01	P001-BBDGA-003		I	Percent Moisture (SPLP) (TAT 7 Days)	Stone	3/26/2025	09:40	1	4 oz glass w/septum	4 C	N
	P001-BBDGA-003-01	P001-BBDGA-003		J	SPLP Metals+Hg+CN (TAT 7 Days)	Stone	3/26/2025	09:40	2	8 oz glass	4 C	N

Special Instructions: Please email results to S.Sumbaly@WestonSolutions.com and Josh.Frizzell@WestonSolutions.com. TAT for TAL analyses is 3 days. TAT for SPLP analyses is 7 days.

**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	<i>[Signature]</i> WESTON	0835 3/27/25	<i>[Signature]</i>	8:35 3-27-25	IR Cont #1 2.1"
					No Custody Seal
					Temp Blank present

USEPA

DateShipped: 3/26/2025

CarrierName: Hand Deliver

AirbillNo: N/a

CHAIN OF CUSTODY RECORD

Site #: 02FP

Contact Name Josh Frizzell

(470) 277-4600

No: 2-032625-0004-0037-01

RFP# 905A

Lab: Alliance Technical Group, LLC - Non
CLP

Lab Phone: 908-728-3144

Lab #	Sample #	Location	CLP Sample #	Tag	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Preservative	Lab QC
	P001-BBDGA-004-01	P001-BBDGA-004		A	TAL VOCs (TAT 3 Days)	Stone	3/26/2025	09:45	3	5-g Encore	4 C	N
	P001-BBDGA-004-01	P001-BBDGA-004		B	TAL SVOC+Pest+PCB (TAT 3 Days)	Stone	3/26/2025	09:45	2	8 oz glass	4 C	N
	P001-BBDGA-004-01	P001-BBDGA-004		C	Percent Moisture (TAT 3 Days)	Stone	3/26/2025	09:45	1	4 oz glass w/septum	4 C	N
	P001-BBDGA-004-01	P001-BBDGA-004		D	TAL Metals+Hg+CN (TAT 3 Days)	Stone	3/26/2025	09:45	2	8 oz glass	4 C	N
	P001-BBDGA-004-01	P001-BBDGA-004		E	EPH (TAT 3 Days)	Stone	3/26/2025	09:45	1	8 oz glass	4 C	N
	P001-BBDGA-004-01	P001-BBDGA-004		F	SPLP EPH	Stone	3/26/2025	09:45	1	8 oz glass	4 C	N
	P001-BBDGA-004-01	P001-BBDGA-004		G	SPLP VOCs	Stone	3/26/2025	09:45	3	5-g Encore	4 C	N
	P001-BBDGA-004-01	P001-BBDGA-004		H	SPLP SVOCs + Pest+PCBs (TAT 7 Days)	Stone	3/26/2025	09:45	2	8 oz glass	4 C	N
	P001-BBDGA-004-01	P001-BBDGA-004		I	Percent Moisture (SPLP) (TAT 7 Days)	Stone	3/26/2025	09:45	1	4 oz glass w/septum	4 C	N
	P001-BBDGA-004-01	P001-BBDGA-004		J	SPLP Metals+Hg+CN (TAT 7 Days)	Stone	3/26/2025	09:45	2	8 oz glass	4 C	N

Special Instructions: Please email results to S.Sumbaly@WestonSolutions.com and Josh.Frizzell@WestonSolutions.com. TAT for TAL analyses is 3 days. TAT for SPLP analyses is 7 days.

**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	<i>[Signature]</i> WESTON	0835 3/27/25	<i>[Signature]</i>	0835 3-27-25	If C-#1 2-1 No Custody Seal Temp BLK present

USEPA

DateShipped: 3/26/2025

CarrierName: Hand Deliver

AirbillNo: N/a

CHAIN OF CUSTODY RECORD

Site #: 02FP

Contact Name Josh Frizzell

(470) 277-4600

No: 2-032625-0004-0037-01

RFP# 905A

Lab: Alliance Technical Group, LLC - Non
CLP

Lab Phone: 908-728-3144

Lab #	Sample #	Location	CLP Sample #	Tag	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Preservative	Lab QC
	P001-BBDGA-005-01	P001-BBDGA-005		A	TAL VOCs (TAT 3 Days)	Stone	3/26/2025	09:50	3	5-g Encore	4 C	N
	P001-BBDGA-005-01	P001-BBDGA-005		B	TAL SVOC+Pest+PCB (TAT 3 Days)	Stone	3/26/2025	09:50	2	8 oz glass	4 C	N
	P001-BBDGA-005-01	P001-BBDGA-005		C	Percent Moisture (TAT 3 Days)	Stone	3/26/2025	09:50	1	4 oz glass w/septum	4 C	N
	P001-BBDGA-005-01	P001-BBDGA-005		D	TAL Metals+Hg+CN (TAT 3 Days)	Stone	3/26/2025	09:50	2	8 oz glass	4 C	N
	P001-BBDGA-005-01	P001-BBDGA-005		E	EPH (TAT 3 Days)	Stone	3/26/2025	09:50	1	8 oz glass	4 C	N
	P001-BBDGA-005-01	P001-BBDGA-005		F	SPLP EPH	Stone	3/26/2025	09:50	1	8 oz glass	4 C	N
	P001-BBDGA-005-01	P001-BBDGA-005		G	SPLP VOCs	Stone	3/26/2025	09:50	3	5-g Encore	4 C	N
	P001-BBDGA-005-01	P001-BBDGA-005		H	SPLP SVOCs + Pest+PCBs (TAT 7 Days)	Stone	3/26/2025	09:50	2	8 oz glass	4 C	N
	P001-BBDGA-005-01	P001-BBDGA-005		I	Percent Moisture (SPLP) (TAT 7 Days)	Stone	3/26/2025	09:50	1	4 oz glass w/septum	4 C	N
	P001-BBDGA-005-01	P001-BBDGA-005		J	SPLP Metals+Hg+CN (TAT 7 Days)	Stone	3/26/2025	09:50	2	8 oz glass	4 C	N

Special Instructions: Please email results to S.Sumbaly@WestonSolutions.com and Josh.Frizzell@WestonSolutions.com. TAT for TAL analyses is 3 days. TAT for SPLP analyses is 7 days.

**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	<i>W. Weston</i> WESTON	0135 3/27/25	<i>CF</i>	0135 3-27-25	IR Out 1 2.1 no custody seal Imp Blank print

USEPA

DateShipped: 3/26/2025

CarrierName: Hand Deliver

AirbillNo: N/a

CHAIN OF CUSTODY RECORD

Site #: 02FP

Contact Name Josh Frizzell

(470) 277-4600

No: 2-032625-0004-0037-01

RFP# 905A

Lab: Alliance Technical Group, LLC - Non
CLP

Lab Phone: 908-728-3144

Lab #	Sample #	Location	CLP Sample #	Tag	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Preservative	Lab QC
	P001-BBDGA-006-01	P001-BBDGA-006		A	TAL VOCs (TAT 3 Days)	Stone	3/26/2025	09:55	3	5-g Encore	4 C	N
	P001-BBDGA-006-01	P001-BBDGA-006		B	TAL SVOC+Pest+PCB (TAT 3 Days)	Stone	3/26/2025	09:55	2	8 oz glass	4 C	N
	P001-BBDGA-006-01	P001-BBDGA-006		C	Percent Moisture (TAT 3 Days)	Stone	3/26/2025	09:55	1	4 oz glass w/septum	4 C	N
	P001-BBDGA-006-01	P001-BBDGA-006		D	TAL Metals+Hg+CN (TAT 3 Days)	Stone	3/26/2025	09:55	2	8 oz glass	4 C	N
	P001-BBDGA-006-01	P001-BBDGA-006		E	EPH (TAT 3 Days)	Stone	3/26/2025	09:55	1	8 oz glass	4 C	N
	P001-BBDGA-006-01	P001-BBDGA-006		F	SPLP EPH	Stone	3/26/2025	09:55	1	8 oz glass	4 C	N
	P001-BBDGA-006-01	P001-BBDGA-006		G	SPLP VOCs	Stone	3/26/2025	09:55	3	5-g Encore	4 C	N
	P001-BBDGA-006-01	P001-BBDGA-006		H	SPLP SVOCs + Pest+PCBs (TAT 7 Days)	Stone	3/26/2025	09:55	2	8 oz glass	4 C	N
	P001-BBDGA-006-01	P001-BBDGA-006		I	Percent Moisture (SPLP) (TAT 7 Days)	Stone	3/26/2025	09:55	1	4 oz glass w/septum	4 C	N
	P001-BBDGA-006-01	P001-BBDGA-006		J	SPLP Metals+Hg+CN (TAT 7 Days)	Stone	3/26/2025	09:55	2	8 oz glass	4 C	N

Special Instructions: Please email results to S.Sumbaly@WestonSolutions.com and Josh.Frizzell@WestonSolutions.com. TAT for TAL analyses is 3 days. TAT for SPLP analyses is 7 days.

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	<i>[Signature]</i> WESTON	3/27/25 0835	<i>[Signature]</i>	8:35 3-27-25	IF Cont #1 2-1 st no Custody Seal Intact Twp Blank print

Q1664

USEPA

CHAIN OF CUSTODY RECORD

No: 2-032625-0004-0037-01

DateShipped: 3/26/2025

Site #: 02FP

RFP# 905A

CarrierName: Hand Deliver

Contact Name Josh Frizzell

Lab: Alliance Technical Group, LLC - Non
CLP

AirbillNo: N/a

(470) 277-4600

Lab Phone: 908-728-3144

Lab #	Sample #	Location	CLP Sample #	Tag	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Preservative	Lab QC
	P001-BBDGA-007-01	P001-BBDGA-007		A	TAL VOCs (TAT 3 Days)	Stone	3/26/2025	10:00	3	5-g Encore	4 C	N
	P001-BBDGA-007-01	P001-BBDGA-007		B	TAL SVOC+Pest+PCB (TAT 3 Days)	Stone	3/26/2025	10:00	2	8 oz glass	4 C	N
	P001-BBDGA-007-01	P001-BBDGA-007		C	Percent Moisture (TAT 3 Days)	Stone	3/26/2025	10:00	1	4 oz glass w/septum	4 C	N
	P001-BBDGA-007-01	P001-BBDGA-007		D	TAL Metals+Hg+CN (TAT 3 Days)	Stone	3/26/2025	10:00	2	8 oz glass	4 C	N
	P001-BBDGA-007-01	P001-BBDGA-007		E	EPH (TAT 3 Days)	Stone	3/26/2025	10:00	1	8 oz glass	4 C	N
	P001-BBDGA-007-01	P001-BBDGA-007		F	SPLP EPH	Stone	3/26/2025	10:00	1	8 oz glass	4 C	N
	P001-BBDGA-007-01	P001-BBDGA-007		G	SPLP VOCs	Stone	3/26/2025	10:00	3	5-g Encore	4 C	N
	P001-BBDGA-007-01	P001-BBDGA-007		H	SPLP SVOCs + Pest+PCBs (TAT 7 Days)	Stone	3/26/2025	10:00	2	8 oz glass	4 C	N
	P001-BBDGA-007-01	P001-BBDGA-007		I	Percent Moisture (SPLP) (TAT 7 Days)	Stone	3/26/2025	10:00	1	4 oz glass w/septum	4 C	N
	P001-BBDGA-007-01	P001-BBDGA-007		J	SPLP Metals+Hg+CN (TAT 7 Days)	Stone	3/26/2025	10:00	2	8 oz glass	4 C	N

Special Instructions: Please email results to S.Sumbaly@WestonSolutions.com and Josh.Frizzell@WestonSolutions.com. TAT for TAL analyses is 3 days. TAT for SPLP analyses is 7 days.

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	<i>Wu</i> WESTON	3/27/25 0835	<i>OR</i>	8:35 3-27-25	IR Cont #1 2-1 No Custody Seal Temp back print

USEPA

DateShipped: 3/26/2025

CarrierName: Hand Deliver

AirbillNo: N/a

CHAIN OF CUSTODY RECORD

Site #: 02FP

Contact Name Josh Frizzell

(470) 277-4600

No: 2-032625-0004-0037-01

RFP# 905A

Lab: Alliance Technical Group, LLC - Non
CLP

Lab Phone: 908-728-3144

Lab #	Sample #	Location	CLP Sample #	Tag	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Preservative	Lab QC
	P001-BBDGA-008-01	P001-BBDGA-008		A	TAL VOCs (TAT 3 Days)	Stone	3/26/2025	10:05	3	5-g Encore	4 C	N
	P001-BBDGA-008-01	P001-BBDGA-008		B	TAL SVOC+Pest+PCB (TAT 3 Days)	Stone	3/26/2025	10:05	2	8 oz glass	4 C	N
	P001-BBDGA-008-01	P001-BBDGA-008		C	Percent Moisture (TAT 3 Days)	Stone	3/26/2025	10:05	1	4 oz glass w/septum	4 C	N
	P001-BBDGA-008-01	P001-BBDGA-008		D	TAL Metals+Hg+CN (TAT 3 Days)	Stone	3/26/2025	10:05	2	8 oz glass	4 C	N
	P001-BBDGA-008-01	P001-BBDGA-008		E	EPH (TAT 3 Days)	Stone	3/26/2025	10:05	1	8 oz glass	4 C	N
	P001-BBDGA-008-01	P001-BBDGA-008		F	SPLP EPH	Stone	3/26/2025	10:05	1	8 oz glass	4 C	N
	P001-BBDGA-008-01	P001-BBDGA-008		G	SPLP VOCs	Stone	3/26/2025	10:05	3	5-g Encore	4 C	N
	P001-BBDGA-008-01	P001-BBDGA-008		H	SPLP SVOCs + Pest+PCBs (TAT 7 Days)	Stone	3/26/2025	10:05	2	8 oz glass	4 C	N
	P001-BBDGA-008-01	P001-BBDGA-008		I	Percent Moisture (SPLP) (TAT 7 Days)	Stone	3/26/2025	10:05	1	4 oz glass w/septum	4 C	N
	P001-BBDGA-008-01	P001-BBDGA-008		J	SPLP Metals+Hg+CN (TAT 7 Days)	Stone	3/26/2025	10:05	2	8 oz glass	4 C	N

Special Instructions: Please email results to S.Sumbaly@WestonSolutions.com and Josh.Frizzell@WestonSolutions.com. TAT for TAL analyses is 3 days. TAT for SPLP analyses is 7 days.

**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	 WESTON	0835 3/27/25		8:35 3/27/25	IF Cont #1 21°C no Custody Seal Temp Blank present

Laboratory Certification

Certified By	License No.
CAS EPA CLP Contract	68HERH20D0011
Connecticut	PH-0830
DOD ELAP (ANAB)	L2219
Maine	2024021
Maryland	296
New Hampshire	255424 Rev 1
New Jersey	20012
New York	11376
Pennsylvania	68-00548
Soil Permit	525-24-234-08441
Texas	T104704488

LOGIN REPORT/SAMPLE TRANSFER

Order ID : Q1664 ROYF02

Order Date : 3/27/2025 10:47:00 AM

Project Mgr :

Client Name : Weston Solutions, Inc.

Project Name : RFP 905

Report Type : Level 4

Client Contact : Smita Sumbaly

Receive DateTime : 3/27/2025 8:35:00 AM

EDD Type : EXCEL NOCLEANUP

Invoice Name : Weston Solutions, Inc.

Purchase Order :

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
Q1664-01	P001-BBDGA-001-01	Solid	03/26/2025	09:30	VOC-TCLVOA-10		8260D	10 Bus. Days	3 Days
Q1664-02	Q1664-01MS	Solid	03/26/2025	09:30	VOC-TCLVOA-10		8260D	10 Bus. Days	
Q1664-03	Q1664-01MSD	Solid	03/26/2025	09:30	VOC-TCLVOA-10		8260D	10 Bus. Days	
Q1664-07	P001-BBDGA-001-02	Solid	03/26/2025	09:30	VOC-TCLVOA-10		8260D	10 Bus. Days	
Q1664-09	P001-BBDGA-002-01	Solid	03/26/2025	09:35	VOC-TCLVOA-10		8260D	10 Bus. Days	
Q1664-11	P001-BBDGA-003-01	Solid	03/26/2025	09:40	VOC-TCLVOA-10		8260D	10 Bus. Days	
Q1664-13	P001-BBDGA-004-01	Solid	03/26/2025	09:45	VOC-TCLVOA-10		8260D	10 Bus. Days	
Q1664-15	P001-BBDGA-005-01	Solid	03/26/2025	09:50					

LOGIN REPORT/SAMPLE TRANSFER

Order ID : Q1664	ROYF02	Order Date : 3/27/2025 10:47:00 AM	Project Mgr :
Client Name : Weston Solutions, Inc.		Project Name : RFP 905	Report Type : Level 4
Client Contact : Smita Sumbaly		Receive DateTime : 3/27/2025 8:35:00 AM	EDD Type : EXCEL NOCLEANUP
Invoice Name : Weston Solutions, Inc.		Purchase Order :	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
Q1664-17	P001-BBDGA-006-01	Solid	03/26/2025	09:55	VOC-TCLVOA-10		8260D	10 Bus. Days	3 days
Q1664-19	P001-BBDGA-007-01	Solid	03/26/2025	10:00	VOC-TCLVOA-10		8260D	10 Bus. Days	
Q1664-21	P001-BBDGA-008-01	Solid	03/26/2025	10:05	VOC-TCLVOA-10		8260D	10 Bus. Days	
					VOC-TCLVOA-10		8260D	10 Bus. Days	

Relinquished By :

Date / Time : 3/27/25 1200

Received By :

Date / Time :

Storage Area : VOA Refridgerator Room