

DATA PACKAGE

METALS

PROJECT NAME : FORT MEADE MD TIPTON AIRFIELD PARCEL RI - 0111169

WESTON SOLUTIONS

1400 Weston Way

PO Box 2653

West Chester, PA - 19380

Phone No: 610-701-7400

ORDER ID : Q1352

ATTENTION : Nathan Fretz



Laboratory Certification ID # 20012



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Cover Page

Order ID : Q1352

Project ID : Fort Meade MD Tipton Airfield Parcel RI - 0111169

Client : Weston Solutions

Lab Sample Number

Q1352-01
Q1352-02

Client Sample Number

TAP-IDW-SOIL-021025
TAP-IDW-SOIL-021025

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

Signature :

APPROVED

By Nimisha Pandya, QA/QC Supervisor at 10:23 am, Feb 28, 2025

Date: 2/28/2025

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

Project Name: Fort Meade MD Tipton Airfield Parcel RI - 0111169

Project # N/A

Chemtech Project # Q1352

Test Name: TCLP Mercury, TCLP ICP Metals

A. Number of Samples and Date of Receipt:

2 Solid samples were received on 02/11/2025.

B. Parameters:

According to the Chain of Custody document, the following analyses were requested: Anions Group1, Cyanide, Ignitability, PCB, pH, Sulfide, TCLP BNA, TCLP Extraction, TCLP Herbicide, TCLP ICP Metals, TCLP Mercury, TCLP METALS, TCLP Pesticide, TCLP VOA and TCLP ZHE Extraction. This data package contains results for TCLP Mercury, TCLP ICP Metals.

C. Analytical Techniques:

The analysis of TCLP ICP Metals was based on method 6010D, digestion based on method 3010 (waters). The analysis and digestion of TCLP Mercury was based on method 7470A and TCLP extraction method was 1311.

D. QA/ QC Samples:

The Holding Times were met for all analysis.

The Blank Spike met requirements for all samples.

The Duplicate analysis met criteria for all samples.

The Matrix Spike (SOIL-PILEMS) analysis met criteria for all samples except for Mercury due to matrix interference.

The Matrix Spike Duplicate analysis met criteria for all samples.

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

The Calibration met the requirements.

The Serial Dilution met the acceptable requirements.

E. Calculations:

Calculation for TCLP Metals:

$$\text{Concentration or Result } (\mu\text{g/L}) = C \times \frac{V_f}{V_i} \times DF \times 1000$$

Where,

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

Vf = Final digestion volume (mL)

Vi = Initial aliquot amount (mL) (Sample amount taken in prep)

DF = Dilution Factor



Calculation for TCLP Hg:

Concentration or Result ($\mu\text{g/L}$) = $C \times \text{DF}$

Where,

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

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 _____

APPROVED

By Nimisha Pandya, QA/QC Supervisor at 10:23 am, Feb 28, 2025

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: Q1352

MATRIX: TCLP

METHOD: 6010D,7470A,1311

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

ADDITIONAL COMMENTS:

QA REVIEW

REVIEWED

By Sohil Jodhani, QA/QC Director at 10:06 am, Feb 28, 2025

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: Q1352

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: PRADIP PRAJAPATI

Date: 02/28/2025

LAB CHRONICLE

OrderID:	Q1352	OrderDate:	2/11/2025 11:32:00 AM
Client:	Weston Solutions	Project:	Fort Meade MD Tipton Airfield Parcel RI - 0111169
Contact:	Nathan Fretz	Location:	N51

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
Q1352-02	TAP-IDW-SOIL-02102 5	TCLP			02/10/25			02/11/25
			TCLP ICP Metals	6010D		02/13/25	02/17/25	
			TCLP Mercury	7470A		02/13/25	02/14/25	

Hit Summary Sheet
SW-846

SDG No.:	Q1352	Order ID:	Q1352
Client:	Weston Solutions	Project ID:	Fort Meade MD Tipton Airfield Parcel RI -

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	LOD	RDL	Units
Client ID : TAP-IDW-SOIL-021025									
Q1352-02	TAP-IDW-SOIL-021025	TCLP	Barium	812		62.8	125	500	ug/L
Q1352-02	TAP-IDW-SOIL-021025	TCLP	Chromium	24.9	J	6.60	25.0	50.0	ug/L



SAMPLE DATA

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Report of Analysis

Client:	Weston Solutions	Date Collected:	02/10/25
Project:	Fort Meade MD Tipton Airfield Parcel RI - 0111169	Date Received:	02/11/25
Client Sample ID:	TAP-IDW-SOIL-021025	SDG No.:	Q1352
Lab Sample ID:	Q1352-02	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7440-38-2	Arsenic	80.0	U	1	34.8	80.0	100	ug/L	02/13/25 12:05	02/17/25 13:15	SW6010	SW3050
7440-39-3	Barium	812		1	62.8	125	500	ug/L	02/13/25 12:05	02/17/25 13:15	SW6010	SW3050
7440-43-9	Cadmium	7.50	U	1	0.94	7.50	30.0	ug/L	02/13/25 12:05	02/17/25 13:15	SW6010	SW3050
7440-47-3	Chromium	24.9	J	1	6.60	25.0	50.0	ug/L	02/13/25 12:05	02/17/25 13:15	SW6010	SW3050
7439-92-1	Lead	48.0	U	1	35.1	48.0	60.0	ug/L	02/13/25 12:05	02/17/25 13:15	SW6010	SW3050
7439-97-6	Mercury	1.60	UN	1	0.81	1.60	2.00	ug/L	02/13/25 11:25	02/14/25 11:24	SW7470A	
7782-49-2	Selenium	80.0	U	1	58.8	80.0	100	ug/L	02/13/25 12:05	02/17/25 13:15	SW6010	SW3050
7440-22-4	Silver	25.0	U	1	5.80	25.0	50.0	ug/L	02/13/25 12:05	02/17/25 13:15	SW6010	SW3050

Color Before:	Colorless	Clarity Before:	Clear	Texture:
Color After:	Colorless	Clarity After:	Clear	Artifacts:
Comments:	TCLP METALS			

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N = Spiked sample recovery not within control limits



METAL CALIBRATION DATA

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Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352
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
ICV05	Mercury	3.63	4.0	91	90 - 110	CV	02/14/2025	11:01	LB134719

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352
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
CCV72	Mercury	5.02	5.0	100	90 - 110	CV	02/14/2025	11:06	LB134719
CCV73	Mercury	4.81	5.0	96	90 - 110	CV	02/14/2025	11:36	LB134719
CCV74	Mercury	4.74	5.0	95	90 - 110	CV	02/14/2025	12:06	LB134719
CCV75	Mercury	4.83	5.0	97	90 - 110	CV	02/14/2025	12:36	LB134719

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352
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	Arsenic	1010	1000	101	90 - 110	P	02/17/2025	11:46	LB134738
	Barium	538	520	104	90 - 110	P	02/17/2025	11:46	LB134738
	Cadmium	484	510	95	90 - 110	P	02/17/2025	11:46	LB134738
	Chromium	519	520	100	90 - 110	P	02/17/2025	11:46	LB134738
	Lead	968	1000	97	90 - 110	P	02/17/2025	11:46	LB134738
	Selenium	1010	1000	101	90 - 110	P	02/17/2025	11:46	LB134738
	Silver	248	250	99	90 - 110	P	02/17/2025	11:46	LB134738

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352
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	Arsenic	19.0	20.0	95	80 - 120	P	02/17/2025	11:50	LB134738
	Barium	108	100	108	80 - 120	P	02/17/2025	11:50	LB134738
	Cadmium	5.94	6.0	99	80 - 120	P	02/17/2025	11:50	LB134738
	Chromium	10.0	10.0	100	80 - 120	P	02/17/2025	11:50	LB134738
	Lead	12.9	12.0	107	80 - 120	P	02/17/2025	11:50	LB134738
	Selenium	20.1	20.0	101	80 - 120	P	02/17/2025	11:50	LB134738
	Silver	10.7	10.0	107	80 - 120	P	02/17/2025	11:50	LB134738

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions SDG No.: Q1352
 Contract: WEST04 Lab Code: CHEM Case No.: Q1352 SAS No.: Q1352
 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	Arsenic	5040	5000	101	90 - 110	P	02/17/2025	12:13	LB134738
	Barium	9090	10000	91	90 - 110	P	02/17/2025	12:13	LB134738
	Cadmium	2440	2500	98	90 - 110	P	02/17/2025	12:13	LB134738
	Chromium	1020	1000	102	90 - 110	P	02/17/2025	12:13	LB134738
	Lead	4890	5000	98	90 - 110	P	02/17/2025	12:13	LB134738
	Selenium	5090	5000	102	90 - 110	P	02/17/2025	12:13	LB134738
	Silver	1240	1250	100	90 - 110	P	02/17/2025	12:13	LB134738
CCV02	Arsenic	4820	5000	96	90 - 110	P	02/17/2025	13:06	LB134738
	Barium	9270	10000	93	90 - 110	P	02/17/2025	13:06	LB134738
	Cadmium	2360	2500	94	90 - 110	P	02/17/2025	13:06	LB134738
	Chromium	997	1000	100	90 - 110	P	02/17/2025	13:06	LB134738
	Lead	4730	5000	95	90 - 110	P	02/17/2025	13:06	LB134738
	Selenium	4850	5000	97	90 - 110	P	02/17/2025	13:06	LB134738
	Silver	1230	1250	99	90 - 110	P	02/17/2025	13:06	LB134738
CCV03	Arsenic	5030	5000	101	90 - 110	P	02/17/2025	13:57	LB134738
	Barium	9050	10000	90	90 - 110	P	02/17/2025	13:57	LB134738
	Cadmium	2420	2500	97	90 - 110	P	02/17/2025	13:57	LB134738
	Chromium	1010	1000	101	90 - 110	P	02/17/2025	13:57	LB134738
	Lead	4850	5000	97	90 - 110	P	02/17/2025	13:57	LB134738
	Selenium	5120	5000	102	90 - 110	P	02/17/2025	13:57	LB134738
	Silver	1230	1250	98	90 - 110	P	02/17/2025	13:57	LB134738
CCV04	Arsenic	4850	5000	97	90 - 110	P	02/17/2025	14:53	LB134738
	Barium	10700	10000	107	90 - 110	P	02/17/2025	14:53	LB134738
	Cadmium	2360	2500	95	90 - 110	P	02/17/2025	14:53	LB134738
	Chromium	985	1000	98	90 - 110	P	02/17/2025	14:53	LB134738
	Lead	4740	5000	95	90 - 110	P	02/17/2025	14:53	LB134738
	Selenium	4900	5000	98	90 - 110	P	02/17/2025	14:53	LB134738
	Silver	1190	1250	95	90 - 110	P	02/17/2025	14:53	LB134738
CCV05	Arsenic	4870	5000	98	90 - 110	P	02/17/2025	15:12	LB134738
	Barium	10800	10000	108	90 - 110	P	02/17/2025	15:12	LB134738
	Cadmium	2360	2500	94	90 - 110	P	02/17/2025	15:12	LB134738
	Chromium	980	1000	98	90 - 110	P	02/17/2025	15:12	LB134738
	Lead	4730	5000	95	90 - 110	P	02/17/2025	15:12	LB134738
	Selenium	4950	5000	99	90 - 110	P	02/17/2025	15:12	LB134738

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV05	Silver	1200	1250	96	90 - 110	P	02/17/2025	15:12	LB134738

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352
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	Arsenic	1060	1000	106	90 - 110	P	02/25/2025	15:57	lb134801
	Barium	479	520	92	90 - 110	P	02/25/2025	15:57	lb134801
	Cadmium	512	510	100	90 - 110	P	02/25/2025	15:57	lb134801
	Chromium	540	520	104	90 - 110	P	02/25/2025	15:57	lb134801
	Lead	1020	1000	102	90 - 110	P	02/25/2025	15:57	lb134801
	Selenium	1050	1000	105	90 - 110	P	02/25/2025	15:57	lb134801
	Silver	263	250	105	90 - 110	P	02/25/2025	15:57	lb134801

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352
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	Arsenic	20.0	20.0	100	80 - 120	P	02/25/2025	16:02	lb134801
	Barium	91.8	100	92	80 - 120	P	02/25/2025	16:02	lb134801
	Cadmium	6.05	6.0	101	80 - 120	P	02/25/2025	16:02	lb134801
	Chromium	10.2	10.0	102	80 - 120	P	02/25/2025	16:02	lb134801
	Lead	11.7	12.0	98	80 - 120	P	02/25/2025	16:02	lb134801
	Selenium	20.9	20.0	104	80 - 120	P	02/25/2025	16:02	lb134801
	Silver	10.8	10.0	108	80 - 120	P	02/25/2025	16:02	lb134801

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Weston Solutions SDG No.: Q1352
Contract: WEST04 Lab Code: CHEM Case No.: Q1352 SAS No.: Q1352
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	Arsenic	4900	5000	98	90 - 110	P	02/25/2025	16:23	lb134801
	Barium	9100	10000	91	90 - 110	P	02/25/2025	16:23	lb134801
	Cadmium	2420	2500	97	90 - 110	P	02/25/2025	16:23	lb134801
	Chromium	1020	1000	102	90 - 110	P	02/25/2025	16:23	lb134801
	Lead	4870	5000	98	90 - 110	P	02/25/2025	16:23	lb134801
	Selenium	4850	5000	97	90 - 110	P	02/25/2025	16:23	lb134801
	Silver	1260	1250	101	90 - 110	P	02/25/2025	16:23	lb134801
CCV02	Arsenic	4890	5000	98	90 - 110	P	02/25/2025	16:54	lb134801
	Barium	9060	10000	91	90 - 110	P	02/25/2025	16:54	lb134801
	Cadmium	2380	2500	95	90 - 110	P	02/25/2025	16:54	lb134801
	Chromium	1010	1000	100	90 - 110	P	02/25/2025	16:54	lb134801
	Lead	4840	5000	97	90 - 110	P	02/25/2025	16:54	lb134801
	Selenium	4820	5000	96	90 - 110	P	02/25/2025	16:54	lb134801
	Silver	1250	1250	100	90 - 110	P	02/25/2025	16:54	lb134801

Metals

- 2b -

CRDL STANDARD FOR AA & ICP

Client: Weston Solutions **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352
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	105	40 - 160	CV	02/14/2025	11:10	LB134719
CRI01	Arsenic	20.3	20.0	101	40 - 160	P	02/17/2025	12:00	LB134738
	Barium	82.5	100	82	40 - 160	P	02/17/2025	12:00	LB134738
	Cadmium	5.89	6.0	98	40 - 160	P	02/17/2025	12:00	LB134738
	Chromium	9.87	10.0	99	40 - 160	P	02/17/2025	12:00	LB134738
	Lead	11.6	12.0	97	40 - 160	P	02/17/2025	12:00	LB134738
	Selenium	18.9	20.0	94	40 - 160	P	02/17/2025	12:00	LB134738
	Silver	10.3	10.0	103	40 - 160	P	02/17/2025	12:00	LB134738
CRI01	Arsenic	21.5	20.0	107	40 - 160	P	02/25/2025	16:10	lb134801
	Barium	88.7	100	89	40 - 160	P	02/25/2025	16:10	lb134801
	Cadmium	5.96	6.0	99	40 - 160	P	02/25/2025	16:10	lb134801
	Chromium	10.3	10.0	103	40 - 160	P	02/25/2025	16:10	lb134801
	Lead	11.3	12.0	94	40 - 160	P	02/25/2025	16:10	lb134801
	Selenium	18.7	20.0	94	40 - 160	P	02/25/2025	16:10	lb134801
	Silver	10.5	10.0	105	40 - 160	P	02/25/2025	16:10	lb134801



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

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client:	Weston Solutions				SDG No.:	Q1352				
Contract:	WEST04		Lab Code:	CHEM		Case No.:	Q1352		SAS No.:	Q1352
Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB05	Mercury	0.20	+/-0.20	U	0.16	0.20	CV	02/14/2025	11:03	LB134719

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Weston Solutions **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB72	Mercury	0.20	+/-0.20	U	0.16	0.20	CV	02/14/2025	11:08	LB134719
CCB73	Mercury	0.20	+/-0.20	U	0.16	0.20	CV	02/14/2025	11:38	LB134719
CCB74	Mercury	0.20	+/-0.20	U	0.16	0.20	CV	02/14/2025	12:08	LB134719
CCB75	Mercury	0.20	+/-0.20	U	0.16	0.20	CV	02/14/2025	12:38	LB134719

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: <u>Weston Solutions</u>		SDG No.: <u>Q1352</u>								
Contract: <u>WEST04</u>	Lab Code: <u>CHEM</u>	Case No.: <u>Q1352</u>			SAS No.: <u>Q1352</u>					
Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Arsenic	20.0	+/-20.0	U	16.0	20.0	P	02/17/2025	11:56	LB134738
	Barium	100	+/-100	U	25.0	100	P	02/17/2025	11:56	LB134738
	Cadmium	6.00	+/-6.00	U	1.50	6.00	P	02/17/2025	11:56	LB134738
	Chromium	10.0	+/-10.0	U	5.00	10.0	P	02/17/2025	11:56	LB134738
	Lead	12.0	+/-12.0	U	9.60	12.0	P	02/17/2025	11:56	LB134738
	Selenium	20.0	+/-20.0	U	16.0	20.0	P	02/17/2025	11:56	LB134738
	Silver	10.0	+/-10.0	U	5.00	10.0	P	02/17/2025	11:56	LB134738

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: <u>Weston Solutions</u>		SDG No.: <u>Q1352</u>								
Contract: <u>WEST04</u>	Lab Code: <u>CHEM</u>	Case No.: <u>Q1352</u>			SAS No.: <u>Q1352</u>					
Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Arsenic	20.0	+/-20.0	U	16.0	20.0	P	02/17/2025	12:17	LB134738
	Barium	100	+/-100	U	25.0	100	P	02/17/2025	12:17	LB134738
	Cadmium	6.00	+/-6.00	U	1.50	6.00	P	02/17/2025	12:17	LB134738
	Chromium	10.0	+/-10.0	U	5.00	10.0	P	02/17/2025	12:17	LB134738
	Lead	12.0	+/-12.0	U	9.60	12.0	P	02/17/2025	12:17	LB134738
	Selenium	20.0	+/-20.0	U	16.0	20.0	P	02/17/2025	12:17	LB134738
	Silver	10.0	+/-10.0	U	5.00	10.0	P	02/17/2025	12:17	LB134738
CCB02	Arsenic	20.0	+/-20.0	U	16.0	20.0	P	02/17/2025	13:10	LB134738
	Barium	100	+/-100	U	25.0	100	P	02/17/2025	13:10	LB134738
	Cadmium	6.00	+/-6.00	U	1.50	6.00	P	02/17/2025	13:10	LB134738
	Chromium	10.0	+/-10.0	U	5.00	10.0	P	02/17/2025	13:10	LB134738
	Lead	12.0	+/-12.0	U	9.60	12.0	P	02/17/2025	13:10	LB134738
	Selenium	20.0	+/-20.0	U	16.0	20.0	P	02/17/2025	13:10	LB134738
	Silver	10.0	+/-10.0	U	5.00	10.0	P	02/17/2025	13:10	LB134738
CCB03	Arsenic	20.0	+/-20.0	U	16.0	20.0	P	02/17/2025	14:06	LB134738
	Barium	100	+/-100	U	25.0	100	P	02/17/2025	14:06	LB134738
	Cadmium	6.00	+/-6.00	U	1.50	6.00	P	02/17/2025	14:06	LB134738
	Chromium	10.0	+/-10.0	U	5.00	10.0	P	02/17/2025	14:06	LB134738
	Lead	12.0	+/-12.0	U	9.60	12.0	P	02/17/2025	14:06	LB134738
	Selenium	20.0	+/-20.0	U	16.0	20.0	P	02/17/2025	14:06	LB134738
	Silver	10.0	+/-10.0	U	5.00	10.0	P	02/17/2025	14:06	LB134738
CCB04	Arsenic	20.0	+/-20.0	U	16.0	20.0	P	02/17/2025	14:58	LB134738
	Barium	100	+/-100	U	25.0	100	P	02/17/2025	14:58	LB134738
	Cadmium	6.00	+/-6.00	U	1.50	6.00	P	02/17/2025	14:58	LB134738
	Chromium	10.0	+/-10.0	U	5.00	10.0	P	02/17/2025	14:58	LB134738
	Lead	12.0	+/-12.0	U	9.60	12.0	P	02/17/2025	14:58	LB134738
	Selenium	20.0	+/-20.0	U	16.0	20.0	P	02/17/2025	14:58	LB134738
	Silver	10.0	+/-10.0	U	5.00	10.0	P	02/17/2025	14:58	LB134738
CCB05	Arsenic	20.0	+/-20.0	U	16.0	20.0	P	02/17/2025	15:15	LB134738
	Barium	100	+/-100	U	25.0	100	P	02/17/2025	15:15	LB134738
	Cadmium	6.00	+/-6.00	U	1.50	6.00	P	02/17/2025	15:15	LB134738
	Chromium	10.0	+/-10.0	U	5.00	10.0	P	02/17/2025	15:15	LB134738
	Lead	12.0	+/-12.0	U	9.60	12.0	P	02/17/2025	15:15	LB134738
	Selenium	20.0	+/-20.0	U	16.0	20.0	P	02/17/2025	15:15	LB134738
	Silver	10.0	+/-10.0	U	5.00	10.0	P	02/17/2025	15:15	LB134738

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Weston Solutions **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Arsenic	20.0	+/-20.0	U	16.0	20.0	P	02/25/2025	16:06	lb134801
	Barium	100	+/-100	U	25.0	100	P	02/25/2025	16:06	lb134801
	Cadmium	6.00	+/-6.00	U	1.50	6.00	P	02/25/2025	16:06	lb134801
	Chromium	10.0	+/-10.0	U	5.00	10.0	P	02/25/2025	16:06	lb134801
	Lead	12.0	+/-12.0	U	9.60	12.0	P	02/25/2025	16:06	lb134801
	Selenium	20.0	+/-20.0	U	16.0	20.0	P	02/25/2025	16:06	lb134801
	Silver	10.0	+/-10.0	U	5.00	10.0	P	02/25/2025	16:06	lb134801

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Weston Solutions **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Arsenic	20.0	+/-20.0	U	16.0	20.0	P	02/25/2025	16:27	lb134801
	Barium	100	+/-100	U	25.0	100	P	02/25/2025	16:27	lb134801
	Cadmium	6.00	+/-6.00	U	1.50	6.00	P	02/25/2025	16:27	lb134801
	Chromium	10.0	+/-10.0	U	5.00	10.0	P	02/25/2025	16:27	lb134801
	Lead	12.0	+/-12.0	U	9.60	12.0	P	02/25/2025	16:27	lb134801
	Selenium	20.0	+/-20.0	U	16.0	20.0	P	02/25/2025	16:27	lb134801
	Silver	10.0	+/-10.0	U	5.00	10.0	P	02/25/2025	16:27	lb134801
CCB02	Arsenic	20.0	+/-20.0	U	16.0	20.0	P	02/25/2025	16:58	lb134801
	Barium	100	+/-100	U	25.0	100	P	02/25/2025	16:58	lb134801
	Cadmium	6.00	+/-6.00	U	1.50	6.00	P	02/25/2025	16:58	lb134801
	Chromium	10.0	+/-10.0	U	5.00	10.0	P	02/25/2025	16:58	lb134801
	Lead	12.0	+/-12.0	U	9.60	12.0	P	02/25/2025	16:58	lb134801
	Selenium	20.0	+/-20.0	U	16.0	20.0	P	02/25/2025	16:58	lb134801
	Silver	10.0	+/-10.0	U	5.00	10.0	P	02/25/2025	16:58	lb134801

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Weston Solutions

SDG No.: Q1352

Instrument: CV1

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	LOD ug/L	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB166700TB		WATER		Batch Number:		PB166720		Prep Date:	02/13/2025	
	Mercury	2.00	<2.00	U	1.60	2.00	CV	02/14/2025	12:17	LB134719
Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	LOD ug/L	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB166720BL		WATER		Batch Number:		PB166720		Prep Date:	02/13/2025	
	Mercury	0.20	<0.20	U	0.16	0.20	CV	02/14/2025	11:17	LB134719

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Weston Solutions

SDG No.: Q1352

Instrument: P4

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	LOD ug/L	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB166700TB		WATER		Batch Number:		PB166715		Prep Date:	02/13/2025	
	Arsenic	100	<100	U	80.0	100	P	02/17/2025	12:57	LB134738
	Barium	500	<500	U	125	500	P	02/17/2025	12:57	LB134738
	Cadmium	30.0	<30.0	U	7.50	30.0	P	02/17/2025	12:57	LB134738
	Chromium	10.6	<50.0	J	25.0	50.0	P	02/17/2025	12:57	LB134738
	Lead	60.0	<60.0	U	48.0	60.0	P	02/17/2025	12:57	LB134738
	Selenium	100	<100	U	80.0	100	P	02/17/2025	12:57	LB134738
	Silver	50.0	<50.0	U	25.0	50.0	P	02/17/2025	12:57	LB134738
Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	LOD ug/L	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB166715BL		WATER		Batch Number:		PB166715		Prep Date:	02/13/2025	
	Arsenic	100	<100	U	80.0	100	P	02/25/2025	16:32	lb134801
	Barium	500	<500	U	125	500	P	02/25/2025	16:32	lb134801
	Cadmium	30.0	<30.0	U	7.50	30.0	P	02/25/2025	16:32	lb134801
	Chromium	50.0	<50.0	U	25.0	50.0	P	02/25/2025	16:32	lb134801
	Lead	60.0	<60.0	U	48.0	60.0	P	02/25/2025	16:32	lb134801
	Selenium	100	<100	U	80.0	100	P	02/25/2025	16:32	lb134801
	Silver	50.0	<50.0	U	25.0	50.0	P	02/25/2025	16:32	lb134801

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: Weston Solutions **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352
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	Arsenic	0.22			-20	20	02/17/2025	12:05	LB134738
	Barium	3.54	6.0	59	-94	106	02/17/2025	12:05	LB134738
	Cadmium	5.28	1.0	528	-5	7	02/17/2025	12:05	LB134738
	Chromium	58.1	52.0	112	42	62	02/17/2025	12:05	LB134738
	Lead	6.05			-12	12	02/17/2025	12:05	LB134738
	Selenium	-14.1			-20	20	02/17/2025	12:05	LB134738
	Silver	-4.35			-10	10	02/17/2025	12:05	LB134738
ICSAB01	Arsenic	114	104	110	88.4	120	02/17/2025	12:09	LB134738
	Barium	450	537	84	437	637	02/17/2025	12:09	LB134738
	Cadmium	1010	972	104	826	1120	02/17/2025	12:09	LB134738
	Chromium	583	542	108	460	624	02/17/2025	12:09	LB134738
	Lead	56.7	49.0	116	37	61	02/17/2025	12:09	LB134738
	Selenium	39.2	46.0	85	26	66	02/17/2025	12:09	LB134738
	Silver	217	201	108	170	232	02/17/2025	12:09	LB134738
ICSA01	Arsenic	5.14			-20	20	02/25/2025	16:15	lb134801
	Barium	5.02	6.0	84	-94	106	02/25/2025	16:15	lb134801
	Cadmium	-1.53	1.0	153	-5	7	02/25/2025	16:15	lb134801
	Chromium	58.9	52.0	113	42	62	02/25/2025	16:15	lb134801
	Lead	7.11			-12	12	02/25/2025	16:15	lb134801
	Selenium	-8.52			-20	20	02/25/2025	16:15	lb134801
	Silver	-3.59			-10	10	02/25/2025	16:15	lb134801
ICSAB01	Arsenic	110	104	106	88.4	120	02/25/2025	16:19	lb134801
	Barium	445	537	83	437	637	02/25/2025	16:19	lb134801
	Cadmium	968	972	100	826	1120	02/25/2025	16:19	lb134801
	Chromium	574	542	106	460	624	02/25/2025	16:19	lb134801
	Lead	55.6	49.0	114	37	61	02/25/2025	16:19	lb134801
	Selenium	42.0	46.0	91	26	66	02/25/2025	16:19	lb134801
	Silver	217	201	108	170	232	02/25/2025	16:19	lb134801



METAL QC DATA

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metals
- 5a -
MATRIX SPIKE SUMMARY

client: <u>Weston Solutions</u>	level: <u>low</u>	sdg no.: <u>Q1352</u>
contract: <u>WEST04</u>	lab code: <u>CHEM</u>	case no.: <u>Q1352</u> sas no.: <u>Q1352</u>
matrix: <u>Water</u>	sample id: <u>Q1356-03</u>	client id: <u>SOIL-PILEMS</u>
Percent Solids for Sample: <u>NA</u>	Spiked ID: <u>Q1356-03MS</u>	Percent Solids for Spike Sample: <u>NA</u>

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	ug/L	82 - 119	32.1		2.00	U	40.0	80	N	CV

metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: <u>Weston Solutions</u>	level: <u>low</u>	sdg no.: <u>Q1352</u>
contract: <u>WEST04</u>	lab code: <u>CHEM</u>	case no.: <u>Q1352</u> sas no.: <u>Q1352</u>
matrix: <u>Water</u>	sample id: <u>Q1356-03</u>	client id: <u>SOIL-PILEMSD</u>
Percent Solids for Sample: <u>NA</u>	Spiked ID: <u>Q1356-03MSD</u>	Percent Solids for Spike Sample: <u>NA</u>

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	ug/L	82 - 119	33.1		2.00	U	40.0	83		CV

metals
- 5a -
MATRIX SPIKE SUMMARY

client: <u>Weston Solutions</u>	level: <u>low</u>	sdg no.: <u>Q1352</u>
contract: <u>WEST04</u>	lab code: <u>CHEM</u>	case no.: <u>Q1352</u> sas no.: <u>Q1352</u>
matrix: <u>Water</u>	sample id: <u>Q1356-04</u>	client id: <u>CARBON-WATERMS</u>
Percent Solids for Sample: <u>NA</u>	Spiked ID: <u>Q1356-04MS</u>	Percent Solids for Spike Sample: <u>NA</u>

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Arsenic	ug/L	87 - 113	4090		100	U	4000	102		P
Barium	ug/L	88 - 113	1000		75.7	J	1000	93		P
Cadmium	ug/L	88 - 113	960		30.0	U	1000	96		P
Chromium	ug/L	90 - 113	2090		50.0	U	2000	104		P
Lead	ug/L	86 - 113	4820		60.0	U	5000	96		P
Selenium	ug/L	83 - 114	9620		100	U	10000	96		P
Silver	ug/L	84 - 115	373		50.0	U	380	98		P

metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: <u>Weston Solutions</u>	level: <u>low</u>	sdg no.: <u>Q1352</u>
contract: <u>WEST04</u>	lab code: <u>CHEM</u>	case no.: <u>Q1352</u> sas no.: <u>Q1352</u>
matrix: <u>Water</u>	sample id: <u>Q1356-04</u>	client id: <u>CARBON-WATERMSD</u>
Percent Solids for Sample: <u>NA</u>	Spiked ID: <u>Q1356-04MSD</u>	Percent Solids for Spike Sample: <u>NA</u>

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Arsenic	ug/L	87 - 113	4150		100	U	4000	104		P
Barium	ug/L	88 - 113	1010		75.7	J	1000	93		P
Cadmium	ug/L	88 - 113	966		30.0	U	1000	97		P
Chromium	ug/L	90 - 113	2100		50.0	U	2000	105		P
Lead	ug/L	86 - 113	4850		60.0	U	5000	97		P
Selenium	ug/L	83 - 114	9780		100	U	10000	98		P
Silver	ug/L	84 - 115	376		50.0	U	380	99		P

Metals
- 5b -
POST DIGEST SPIKE SUMMARY

Client: <u>Weston Solutions</u>	SDG No.: <u>Q1352</u>	
Contract: <u>WEST04</u>	Lab Code: <u>CHEM</u>	Case No.: <u>Q1352</u> SAS No.: <u>Q1352</u>
Matrix: <u>Water</u>	Level: <u>LOW</u>	Client ID: <u>SOIL-PILEA</u>
Sample ID: <u>Q1356-03</u>	Spiked ID: <u>Q1356-03A</u>	

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	ug/L	82 - 119	31.1		2.00	U	40.0	78		CV

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Weston Solutions **Level:** LOW **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352
Matrix: Water **Sample ID:** Q1356-03 **Client ID:** SOIL-PILEDUP
Percent Solids for Sample: NA **Duplicate ID** Q1356-03DUP **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Mercury	ug/L	20	2.00	U	2.00	U			CV

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

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Weston Solutions **Level:** LOW **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352
Matrix: Water **Sample ID:** Q1356-03MS **Client ID:** SOIL-PILEMSD
Percent Solids for Sample: NA **Duplicate ID** Q1356-03MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Mercury	ug/L	20	32.1		33.1		3		CV

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

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Weston Solutions **Level:** LOW **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352
Matrix: Water **Sample ID:** Q1356-04 **Client ID:** CARBON-WATERDUP
Percent Solids for Sample: NA **Duplicate ID** Q1356-04DUP **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Arsenic	ug/L	20	100	U	100	U			P
Barium	ug/L	20	75.7	J	75.5	J	0		P
Cadmium	ug/L	20	30.0	U	30.0	U			P
Chromium	ug/L	20	50.0	U	50.0	U			P
Lead	ug/L	20	60.0	U	60.0	U			P
Selenium	ug/L	20	100	U	100	U			P
Silver	ug/L	20	50.0	U	50.0	U			P

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

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Weston Solutions **Level:** LOW **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352
Matrix: Water **Sample ID:** Q1356-04MS **Client ID:** CARBON-WATERMSD
Percent Solids for Sample: NA **Duplicate ID** Q1356-04MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Arsenic	ug/L	20	4090		4150		1		P
Barium	ug/L	20	1000		1010		1		P
Cadmium	ug/L	20	960		966		1		P
Chromium	ug/L	20	2090		2100		0		P
Lead	ug/L	20	4820		4850		1		P
Selenium	ug/L	20	9620		9780		2		P
Silver	ug/L	20	373		376		1		P

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

Metals

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LABORATORY CONTROL SAMPLE SUMMARY

Client: Weston Solutions **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB166715BS							
Arsenic	ug/L	4000	3980		100	87 - 113	P
Barium	ug/L	1000	1010		101	88 - 113	P
Cadmium	ug/L	1000	953		95	88 - 113	P
Chromium	ug/L	2000	2030		102	90 - 113	P
Lead	ug/L	5000	4820		96	86 - 113	P
Selenium	ug/L	10000	9580		96	83 - 114	P
Silver	ug/L	380	379		100	84 - 115	P

Metals

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LABORATORY CONTROL SAMPLE SUMMARY

Client: Weston Solutions **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB166720BS Mercury	ug/L	4.0	3.60		90	82 - 119	CV

Metals
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ICP SERIAL DILUTIONS

SAMPLE NO.

SOIL-PILEL

Lab Name: Chemtech Consulting Group **Contract:** WEST04
Lab Code: CHEM **Lb No.:** lb134719 **Lab Sample ID :** Q1356-03L **SDG No.:** Q1352
Matrix (soil/water): Water **Level (low/med):** LOW
Concentration Units: ug/L

Analyte	Initial Sample Result (I) C	Serial Dilution Result (S) C	% Differ- ence	Q	M
Mercury	2.00 U	10.0 U			CV

Metals
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ICP SERIAL DILUTIONS

SAMPLE NO.

CARBON-WATERL

Lab Name: Chemtech Consulting Group **Contract:** WEST04
Lab Code: CHEM **Lb No.:** lb134738 **Lab Sample ID :** Q1356-04L **SDG No.:** Q1352
Matrix (soil/water): Water **Level (low/med):** LOW
Concentration Units: ug/L

Analyte	Initial Sample Result (I)		Serial Dilution Result (S)		% Differ- ence	Q	M
		C		C			
Arsenic	100	U	500	U			P
Barium	75.7	J	2500	U	100.0		P
Cadmium	30.0	U	150	U			P
Chromium	50.0	U	250	U			P
Lead	60.0	U	300	U			P
Selenium	100	U	500	U			P
Silver	50.0	U	250	U			P



METAL PREPARATION & INSTRUMENT DATA

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Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Weston Solutions

SDG No.: Q1352

Contract: WEST04

Lab Code: CHEM

Case No.: Q1352

SAS No.: Q1352

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
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
Cadmium	226.502	0.0000000	0.0000000	0.0000930	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	-0.0000920	0.0000000	0.0000380	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

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Weston Solutions

SDG No.: Q1352

Contract: WEST04

Lab Code: CHEM

Case No.: Q1352

SAS No.: Q1352

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
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
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0002870
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	0.0000000	0.0003170	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

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Weston Solutions **SDG No.:** Q1352
Contract: WEST04 **Lab Code:** CHEM **Case No.:** Q1352 **SAS No.:** Q1352
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
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
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000070	0.0002200	0.0000000
Lead	220.353	0.0000000	0.0000000	0.0000000	0.0001400	-0.0008600
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

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Weston Solutions

SDG No.: Q1352

Contract: WEST04

Lab Code: CHEM

Case No.: Q1352

SAS No.: Q1352

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
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
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	0.0000000	0.0006580	0.0000000	0.0000000	0.0001290
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

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Weston Solutions

SDG No.: Q1352

Contract: WEST04

Lab Code: CHEM

Case No.: Q1352

SAS No.: Q1352

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
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
Cadmium	226.502	0.0000000	0.0000630	0.0001280	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0001110	0.0000000
Lead	220.353	0.0000000	-0.0003610	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

METAL PREPARATION & ANALYICAL SUMMARY

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Metals
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SAMPLE PREPARATION SUMMARY

Client:	<u>Weston Solutions</u>	SDG No.:	<u>Q1352</u>
Contract:	<u>WEST04</u>	Lab Code:	<u>CHEM</u>
		Method:	<u></u>
		Case No.:	<u>Q1352</u>
		SAS No.:	<u>Q1352</u>

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB166715							
PB166700TB	PB166700TB	MB	WATER	02/13/2025	5.0	25.0	
PB166702TB	PB166702TB	MB	WATER	02/13/2025	5.0	25.0	
PB166715BL	PB166715BL	MB	WATER	02/13/2025	5.0	25.0	
PB166715BS	PB166715BS	LCS	WATER	02/13/2025	5.0	25.0	
Q1352-02	TAP-IDW-SOIL-021025	SAM	WATER	02/13/2025	5.0	25.0	
Q1356-04DUP	CARBON-WATERDUP	DUP	WATER	02/13/2025	5.0	25.0	
Q1356-04MS	CARBON-WATERMS	MS	WATER	02/13/2025	5.0	25.0	
Q1356-04MSD	CARBON-WATERMSD	MSD	WATER	02/13/2025	5.0	25.0	

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SAMPLE PREPARATION SUMMARY

Client:	<u>Weston Solutions</u>	SDG No.:	<u>Q1352</u>
Contract:	<u>WEST04</u>	Lab Code:	<u>CHEM</u>
		Method:	<u></u>
		Case No.:	<u>Q1352</u>
		SAS No.:	<u>Q1352</u>

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB166720							
PB166700TB	PB166700TB	MB	WATER	02/13/2025	3.0	30.0	
PB166720BL	PB166720BL	MB	WATER	02/13/2025	30.0	30.0	
PB166720BS	PB166720BS	LCS	WATER	02/13/2025	30.0	30.0	
Q1352-02	TAP-IDW-SOIL-021025	SAM	WATER	02/13/2025	3.0	30.0	
Q1356-03DUP	SOIL-PILEDUP	DUP	WATER	02/13/2025	3.0	30.0	
Q1356-03MS	SOIL-PILEMS	MS	WATER	02/13/2025	3.0	30.0	
Q1356-03MSD	SOIL-PILEMSD	MSD	WATER	02/13/2025	3.0	30.0	

metals
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ANALYSIS RUN LOG

Client: Weston Solutions **Contract:** WEST04

Lab code: CHEM **Case no.:** Q1352 **Sas no.:** Q1352 **Sdg no.:** Q1352

Instrument id number: **Method:** **Run number:** LB134719

Start date: 02/14/2025 **End date:** 02/14/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1045	HG
S0.2	S0.2	1	1047	HG
S2.5	S2.5	1	1049	HG
S5	S5	1	1052	HG
S7.5	S7.5	1	1054	HG
S10	S10	1	1056	HG
ICV05	ICV05	1	1101	HG
ICB05	ICB05	1	1103	HG
CCV72	CCV72	1	1106	HG
CCB72	CCB72	1	1108	HG
CRA	CRA	1	1110	HG
PB166720BL	PB166720BL	1	1117	HG
PB166720BS	PB166720BS	1	1122	HG
Q1352-02	TAP-IDW-SOIL-021025	1	1124	HG
Q1356-03DUP	SOIL-PILEDUP	1	1133	HG
CCV73	CCV73	1	1136	HG
CCB73	CCB73	1	1138	HG
Q1356-03MS	SOIL-PILEMS	1	1140	HG
Q1356-03MSD	SOIL-PILEMSD	1	1145	HG
CCV74	CCV74	1	1206	HG
CCB74	CCB74	1	1208	HG
PB166700TB	PB166700TB	1	1217	HG
Q1356-03L	SOIL-PILEL	5	1222	HG
Q1356-03A	SOIL-PILEA	1	1224	HG
CCV75	CCV75	1	1236	HG
CCB75	CCB75	1	1238	HG

metals
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ANALYSIS RUN LOG

Client: Weston Solutions **Contract:** WEST04

Lab code: CHEM **Case no.:** Q1352 **Sas no.:** Q1352 **Sdg no.:** Q1352

Instrument id number: **Method:** **Run number:** LB134738

Start date: 02/17/2025 **End date:** 02/17/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1053	Ag,As,Ba,Cd,Cr,Pb,Se
S1	S1	1	1057	Ag,As,Ba,Cd,Cr,Pb,Se
S2	S2	1	1102	Ag,As,Ba,Cd,Cr,Pb,Se
S3	S3	1	1106	Ag,As,Ba,Cd,Cr,Pb,Se
S4	S4	1	1110	Ag,As,Ba,Cd,Cr,Pb,Se
S5	S5	1	1114	Ag,As,Ba,Cd,Cr,Pb,Se
ICV01	ICV01	1	1146	Ag,As,Ba,Cd,Cr,Pb,Se
LLICV01	LLICV01	1	1150	Ag,As,Ba,Cd,Cr,Pb,Se
ICB01	ICB01	1	1156	Ag,As,Ba,Cd,Cr,Pb,Se
CRI01	CRI01	1	1200	Ag,As,Ba,Cd,Cr,Pb,Se
ICSA01	ICSA01	1	1205	Ag,As,Ba,Cd,Cr,Pb,Se
ICSAB01	ICSAB01	1	1209	Ag,As,Ba,Cd,Cr,Pb,Se
CCV01	CCV01	1	1213	Ag,As,Ba,Cd,Cr,Pb,Se
CCB01	CCB01	1	1217	Ag,As,Ba,Cd,Cr,Pb,Se
PB166700TB	PB166700TB	1	1257	Ag,As,Ba,Cd,Cr,Pb,Se
CCV02	CCV02	1	1306	Ag,As,Ba,Cd,Cr,Pb,Se
CCB02	CCB02	1	1310	Ag,As,Ba,Cd,Cr,Pb,Se
Q1352-02	TAP-IDW-SOIL-021025	1	1315	Ag,As,Ba,Cd,Cr,Pb,Se
PB166702TB	PB166702TB	1	1328	Ag,As,Ba,Cd,Cr,Pb,Se
Q1356-04DUP	CARBON-WATERDUP	1	1337	Ag,As,Ba,Cd,Cr,Pb,Se
Q1356-04L	CARBON-WATERL	5	1341	Ag,As,Ba,Cd,Cr,Pb,Se
Q1356-04MS	CARBON-WATERMS	1	1345	Ag,As,Ba,Cd,Cr,Pb,Se
Q1356-04MSD	CARBON-WATERMSD	1	1349	Ag,As,Ba,Cd,Cr,Pb,Se
CCV03	CCV03	1	1357	Ag,As,Ba,Cd,Cr,Pb,Se
CCB03	CCB03	1	1406	Ag,As,Ba,Cd,Cr,Pb,Se
CCV04	CCV04	1	1453	Ag,As,Ba,Cd,Cr,Pb,Se
CCB04	CCB04	1	1458	Ag,As,Ba,Cd,Cr,Pb,Se
CCV05	CCV05	1	1512	Ag,As,Ba,Cd,Cr,Pb,Se
CCB05	CCB05	1	1515	Ag,As,Ba,Cd,Cr,Pb,Se

metals
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ANALYSIS RUN LOG

Client: Weston Solutions **Contract:** WEST04

Lab code: CHEM **Case no.:** Q1352 **Sas no.:** Q1352 **Sdg no.:** Q1352

Instrument id number: **Method:** **Run number:** lb134801

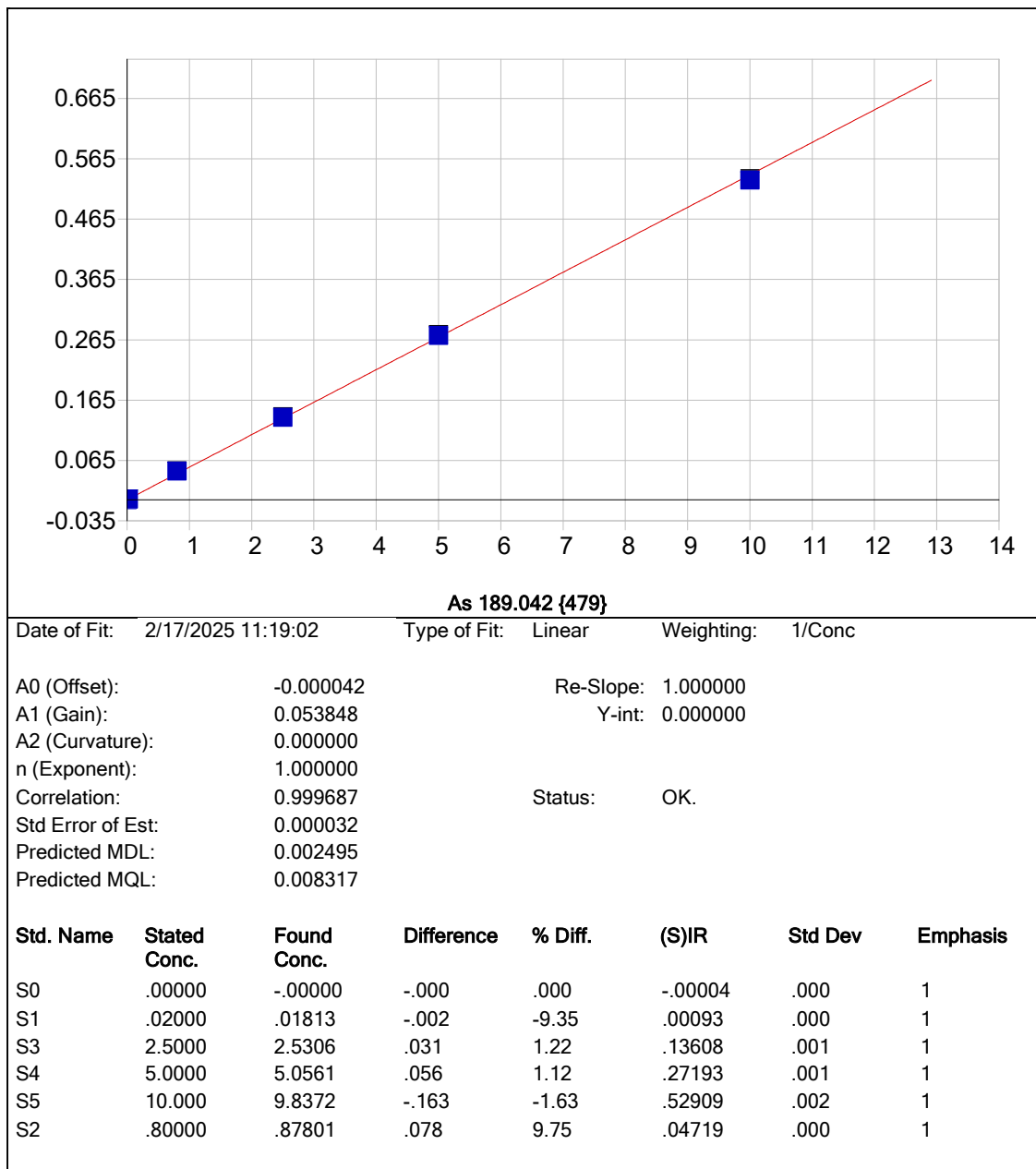
Start date: 02/25/2025 **End date:** 02/25/2025

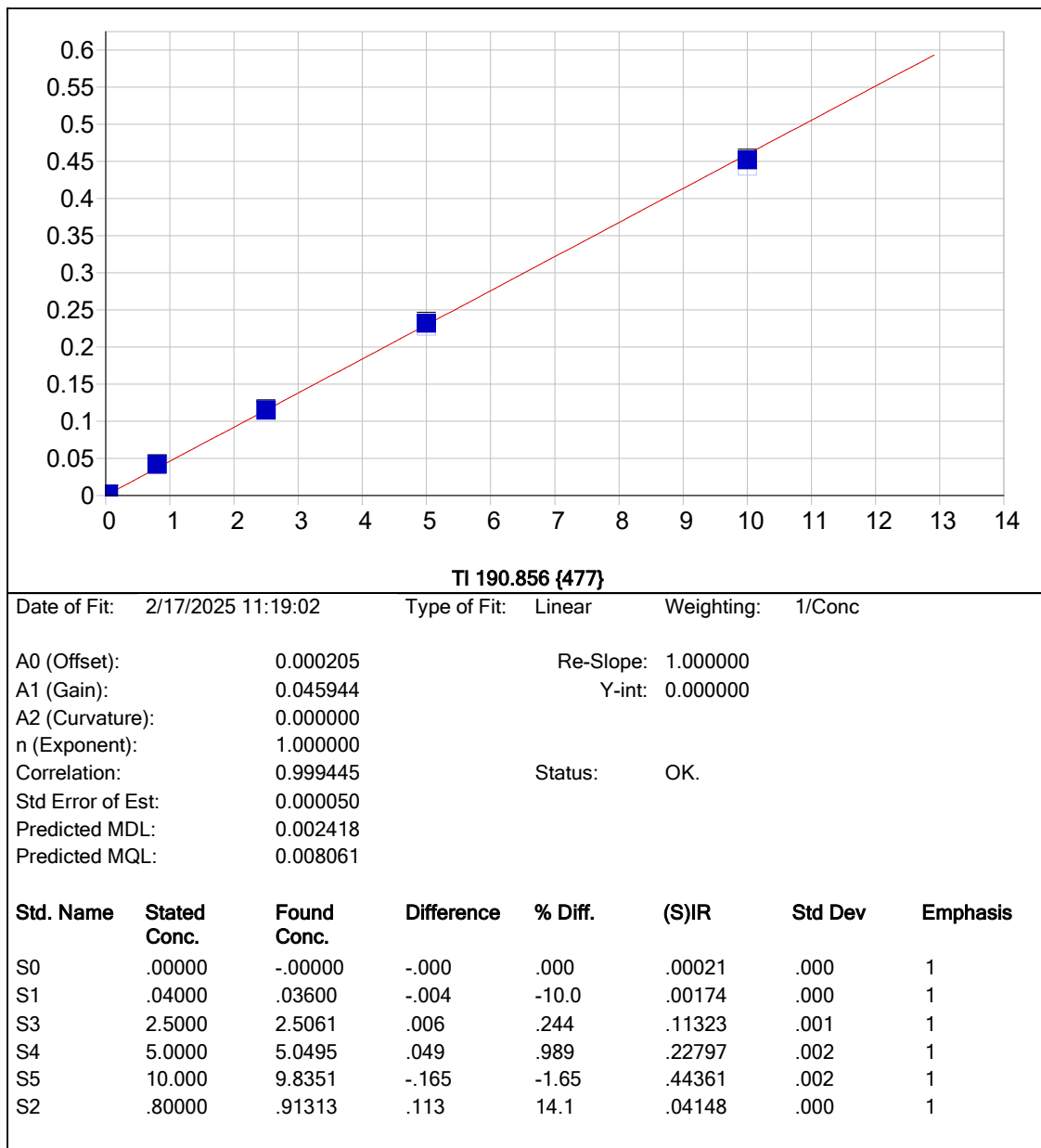
Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1531	Ag,As,Ba,Cd,Cr,Pb,Se
S1	S1	1	1536	Ag,As,Ba,Cd,Cr,Pb,Se
S2	S2	1	1540	Ag,As,Ba,Cd,Cr,Pb,Se
S3	S3	1	1544	Ag,As,Ba,Cd,Cr,Pb,Se
S4	S4	1	1549	Ag,As,Ba,Cd,Cr,Pb,Se
S5	S5	1	1553	Ag,As,Ba,Cd,Cr,Pb,Se
ICV01	ICV01	1	1557	Ag,As,Ba,Cd,Cr,Pb,Se
LLICV01	LLICV01	1	1602	Ag,As,Ba,Cd,Cr,Pb,Se
ICB01	ICB01	1	1606	Ag,As,Ba,Cd,Cr,Pb,Se
CRI01	CRI01	1	1610	Ag,As,Ba,Cd,Cr,Pb,Se
ICSA01	ICSA01	1	1615	Ag,As,Ba,Cd,Cr,Pb,Se
ICSAB01	ICSAB01	1	1619	Ag,As,Ba,Cd,Cr,Pb,Se
CCV01	CCV01	1	1623	Ag,As,Ba,Cd,Cr,Pb,Se
CCB01	CCB01	1	1627	Ag,As,Ba,Cd,Cr,Pb,Se
PB166715BL	PB166715BL	1	1632	Ag,As,Ba,Cd,Cr,Pb,Se
PB166715BS	PB166715BS	1	1648	Ag,As,Ba,Cd,Cr,Pb,Se
CCV02	CCV02	1	1654	Ag,As,Ba,Cd,Cr,Pb,Se
CCB02	CCB02	1	1658	Ag,As,Ba,Cd,Cr,Pb,Se

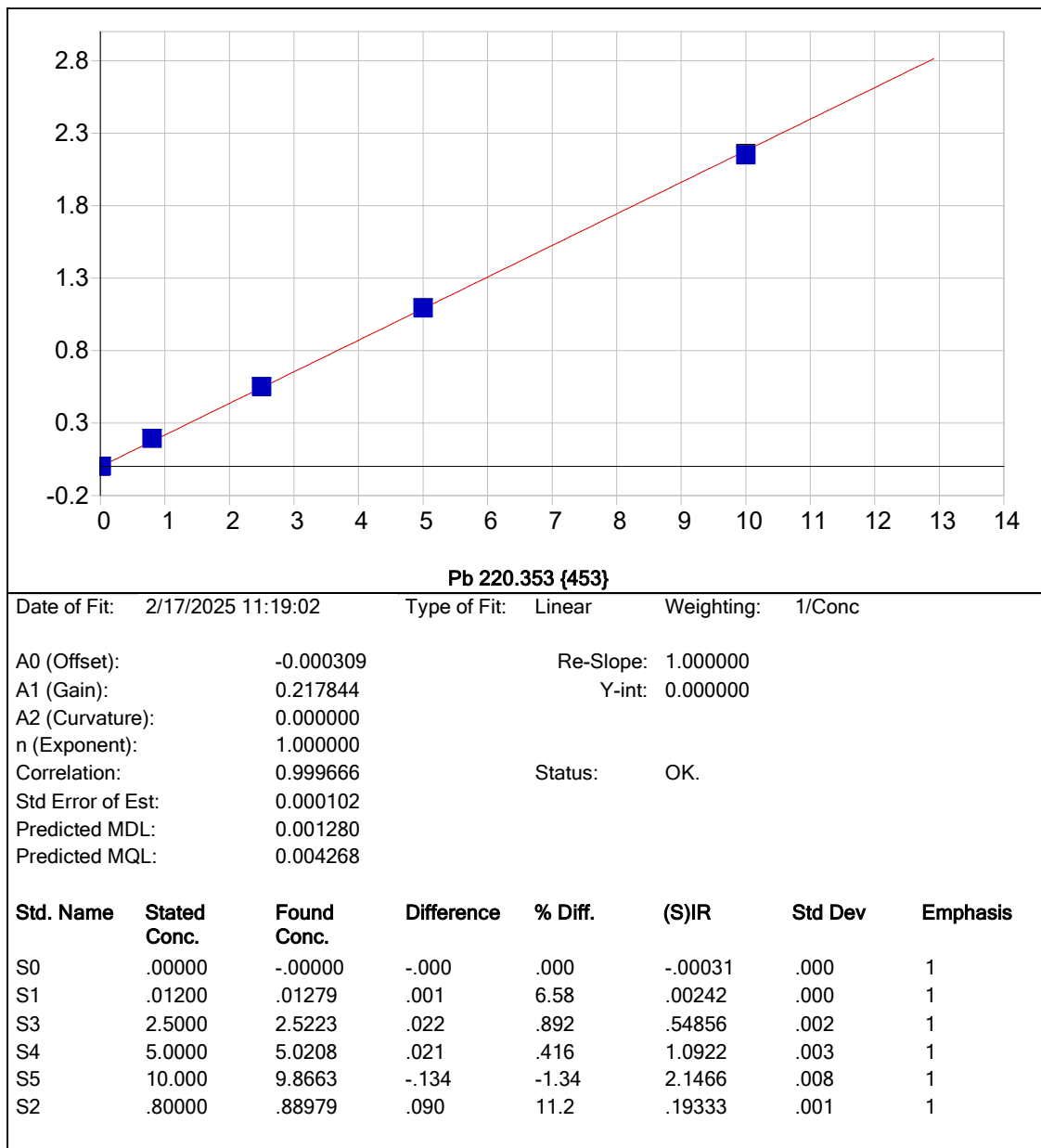


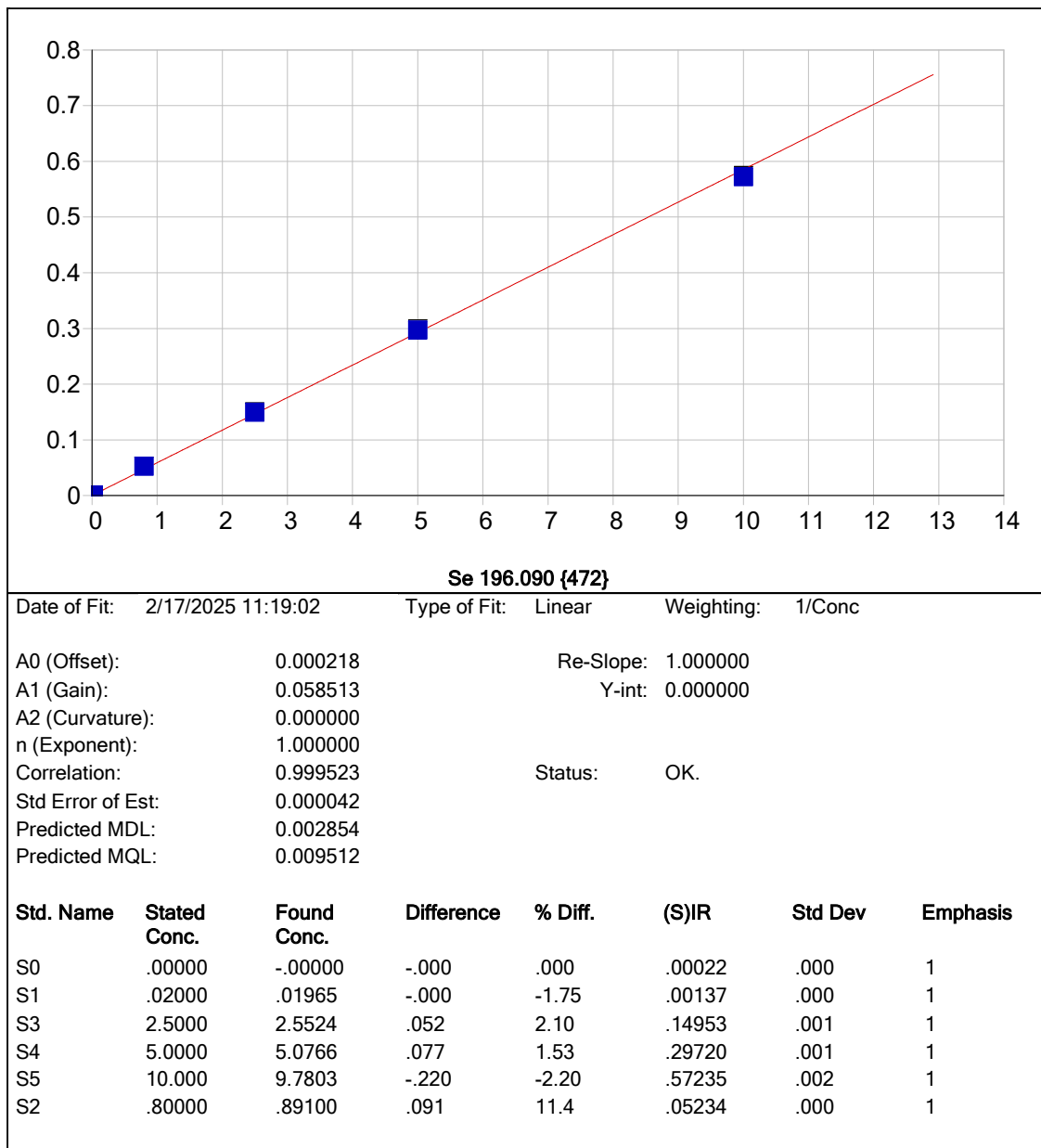
METAL RAW DATA

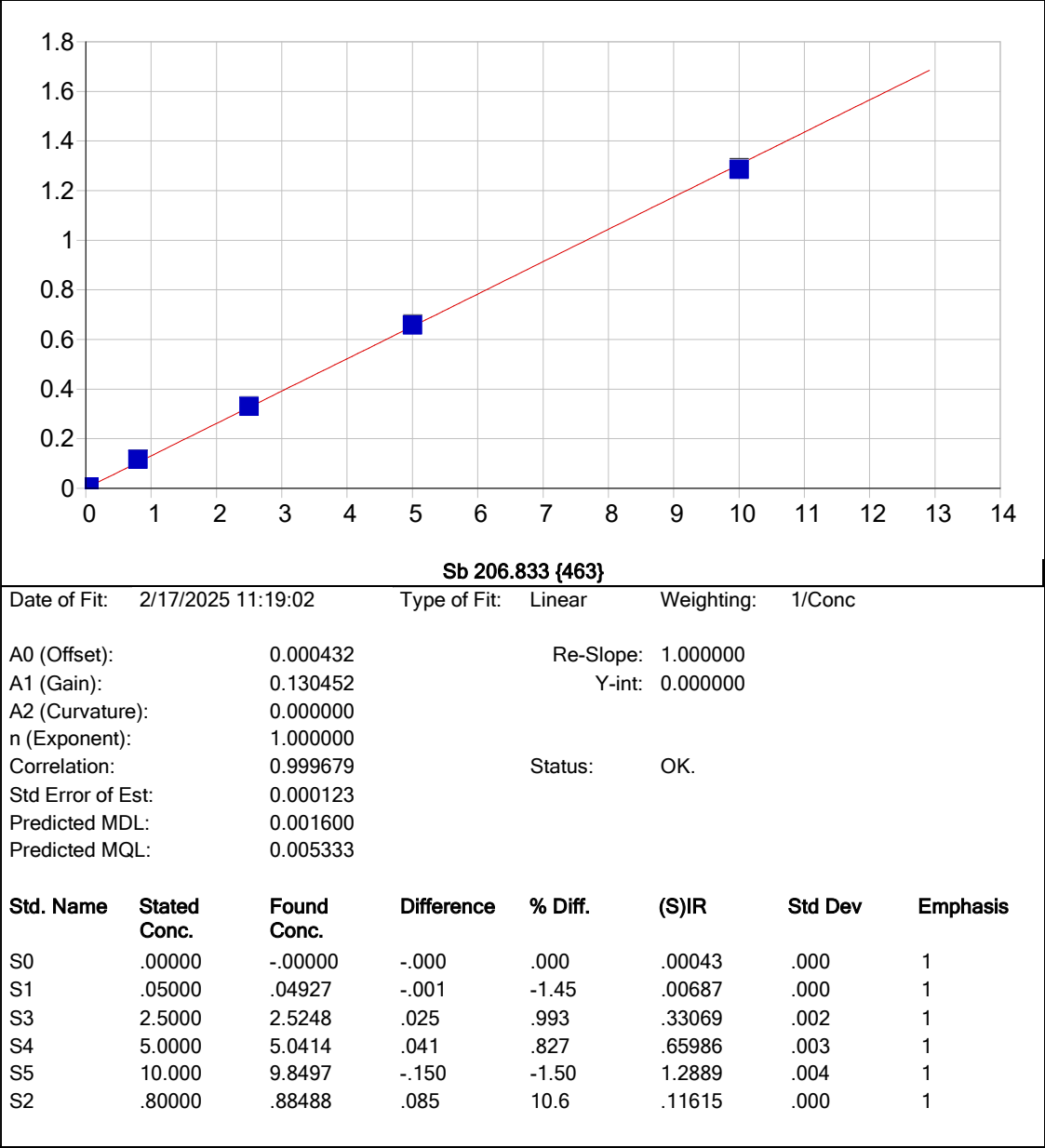
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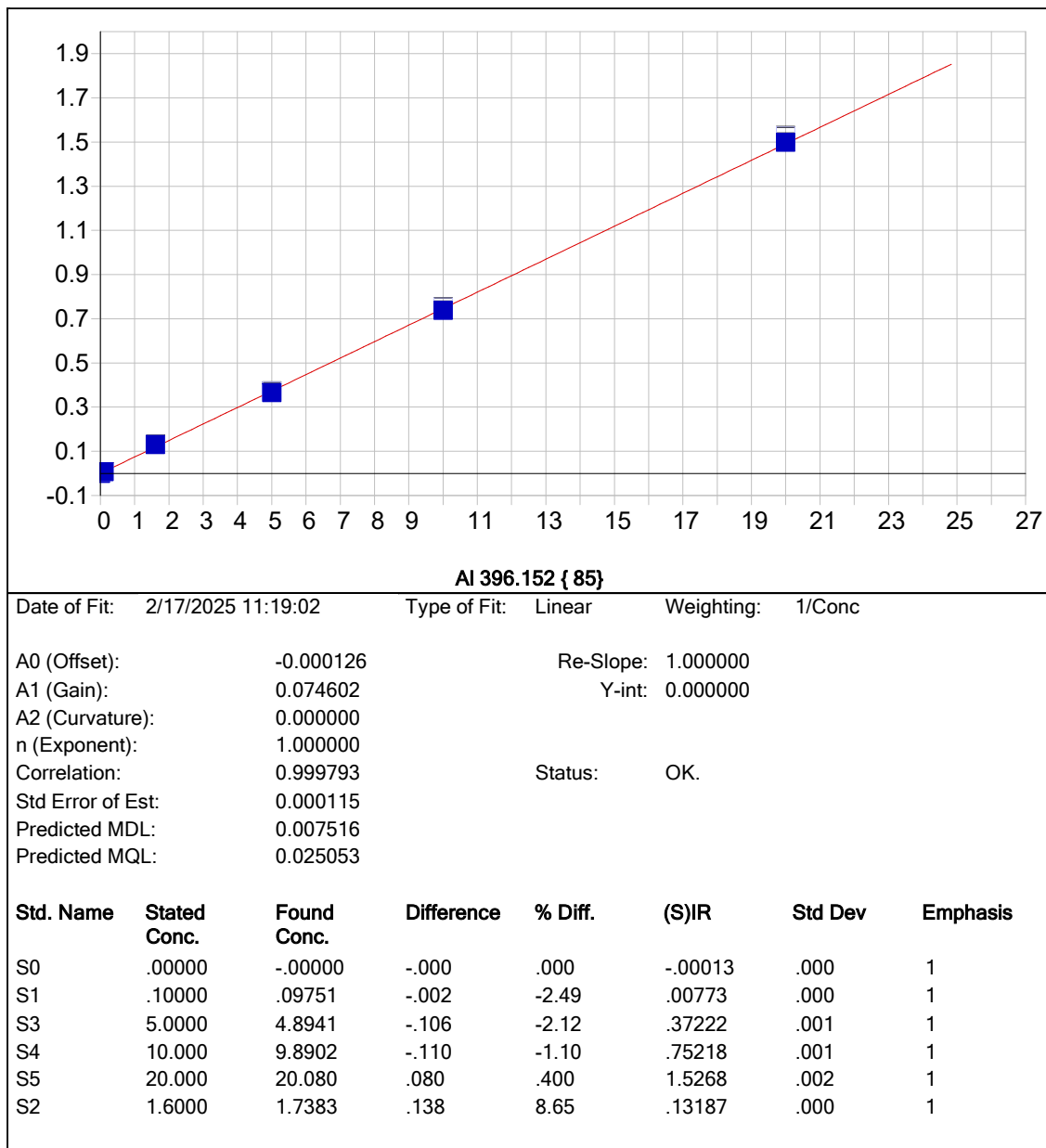


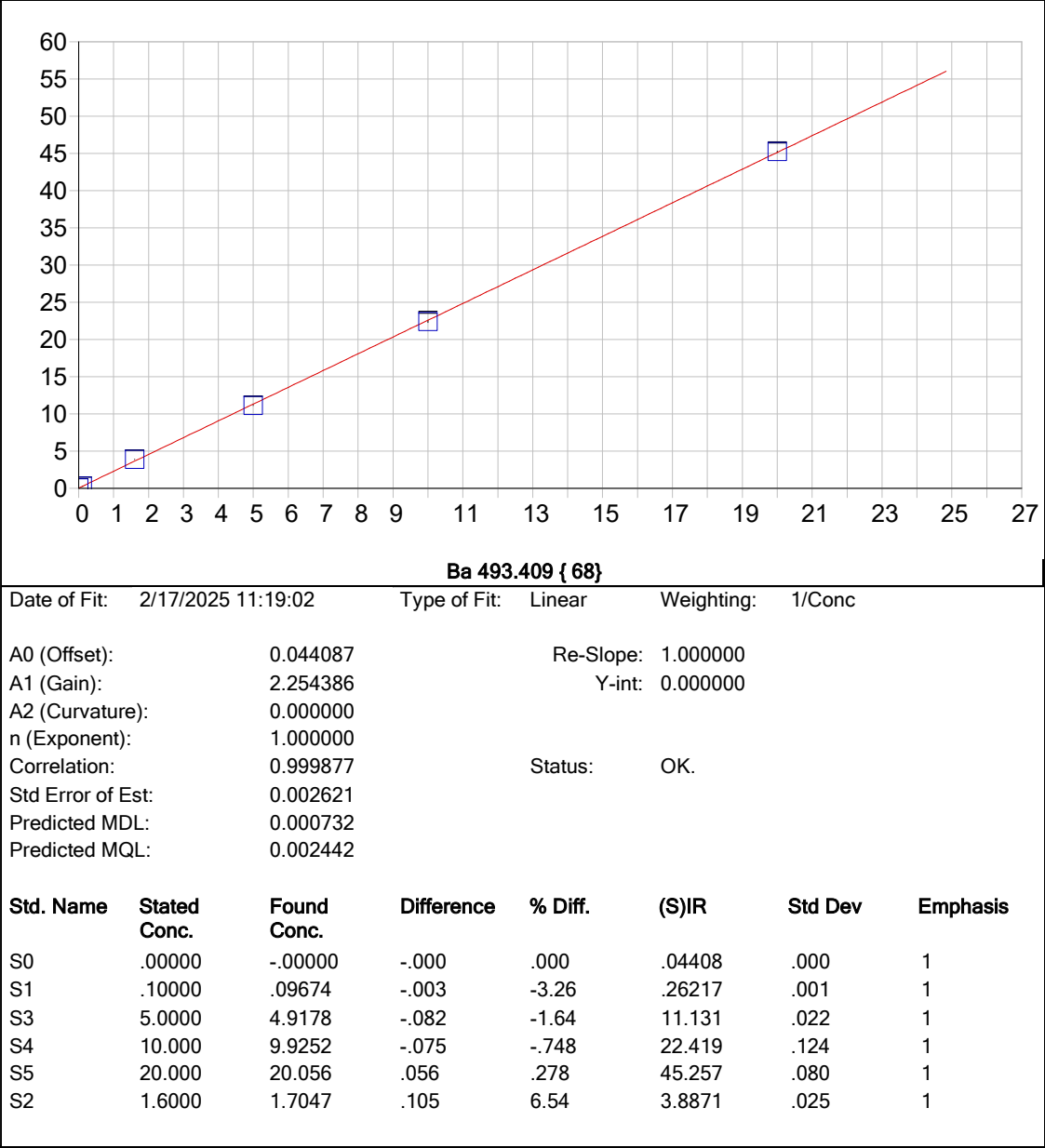


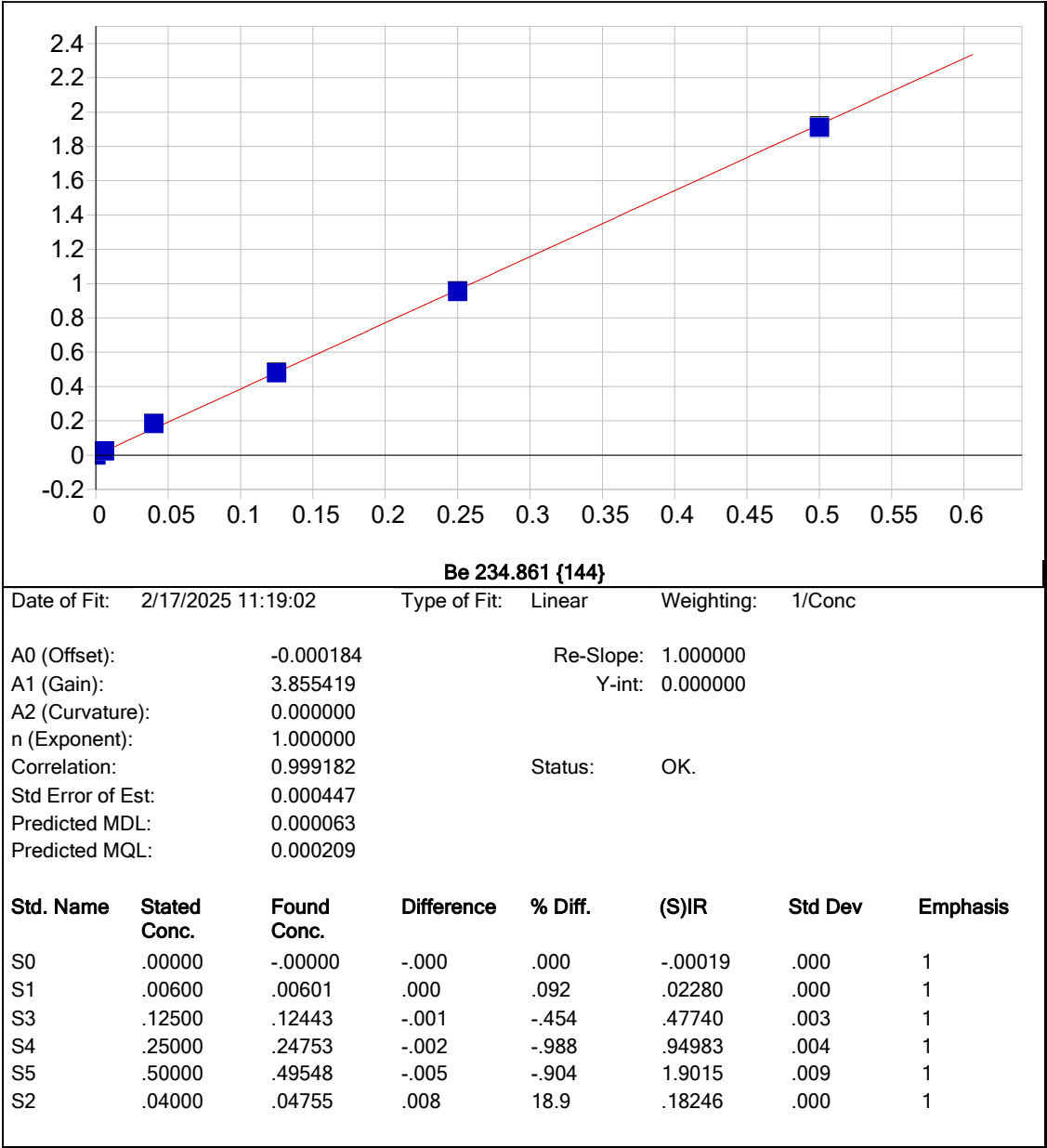


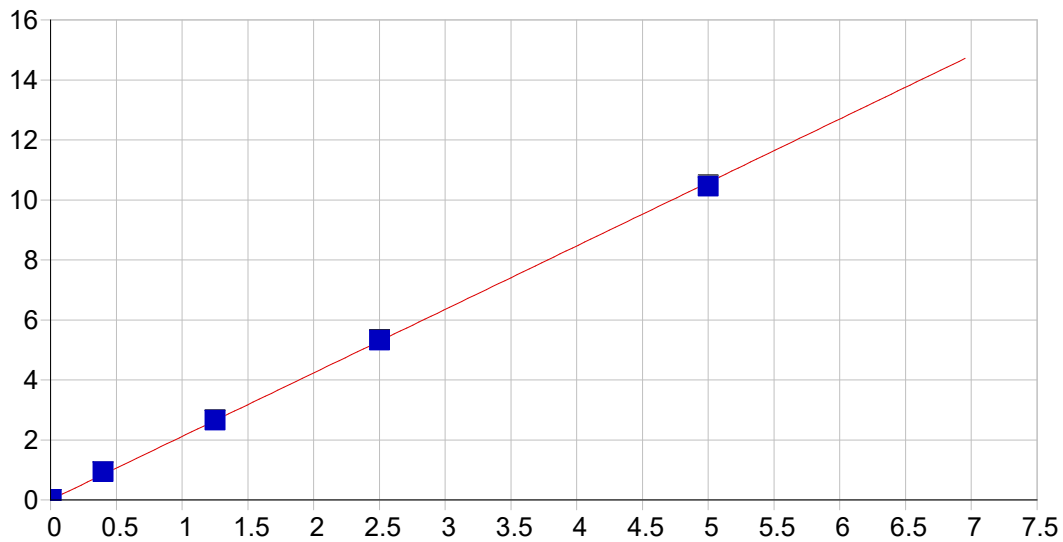










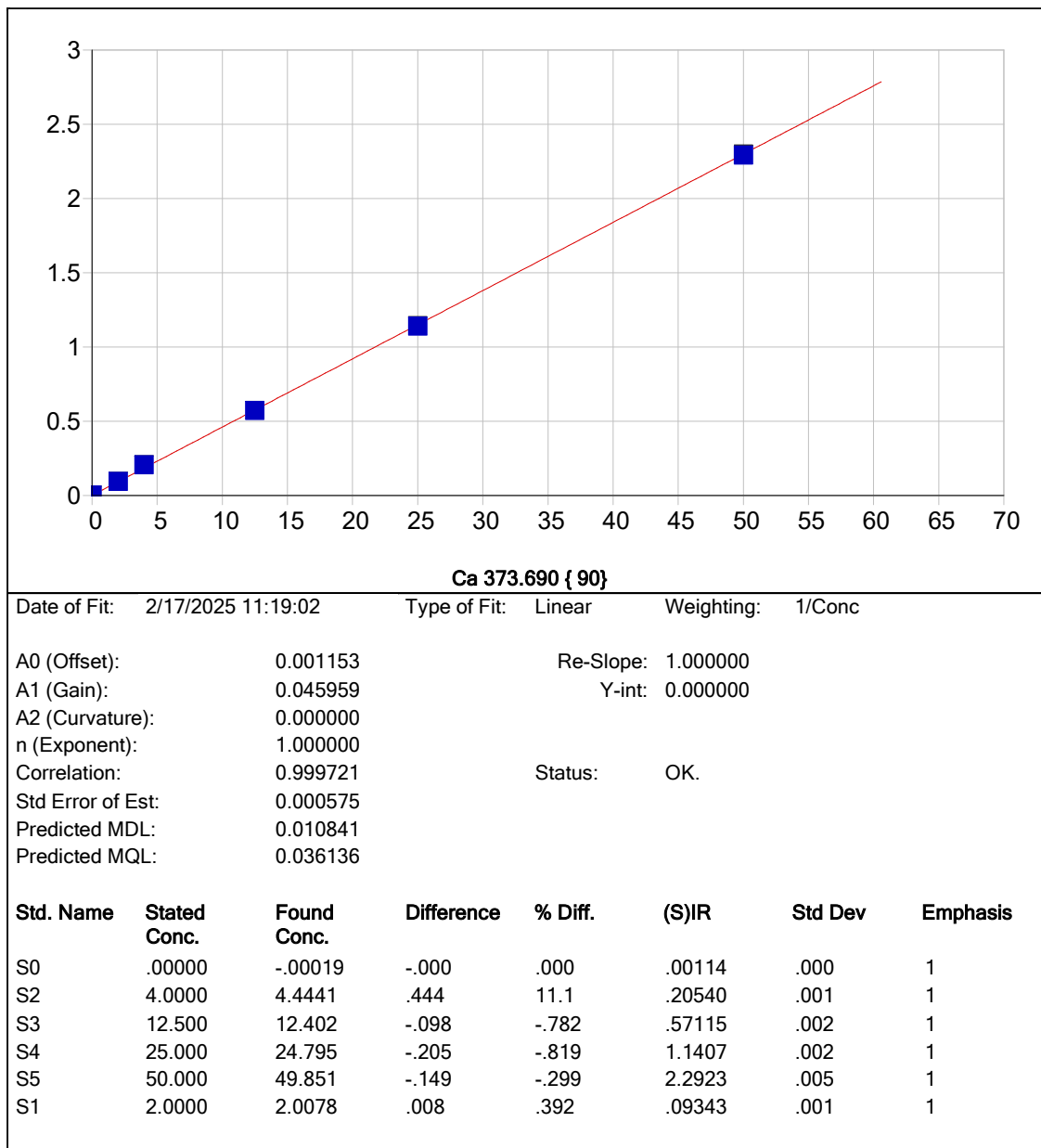


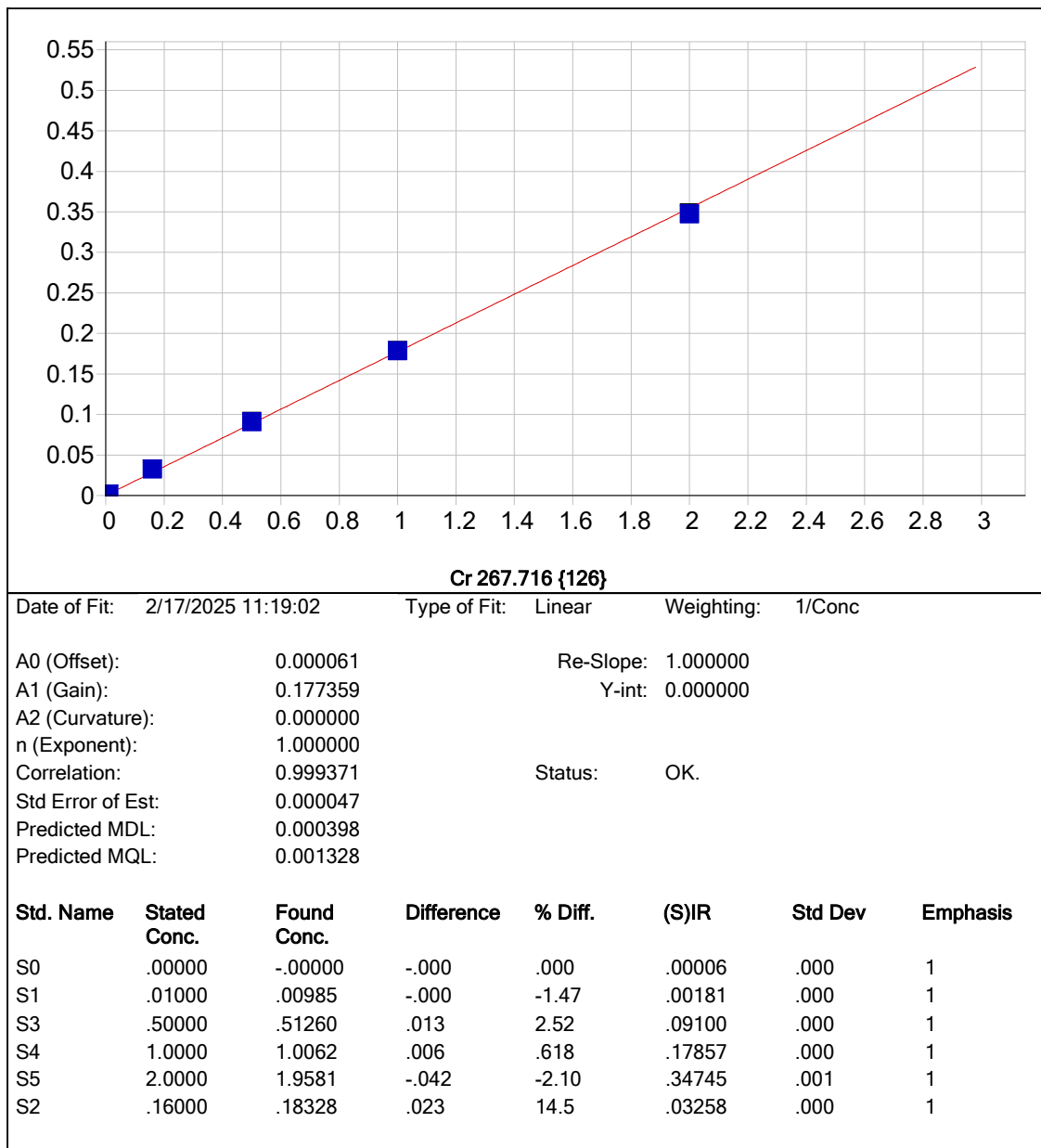
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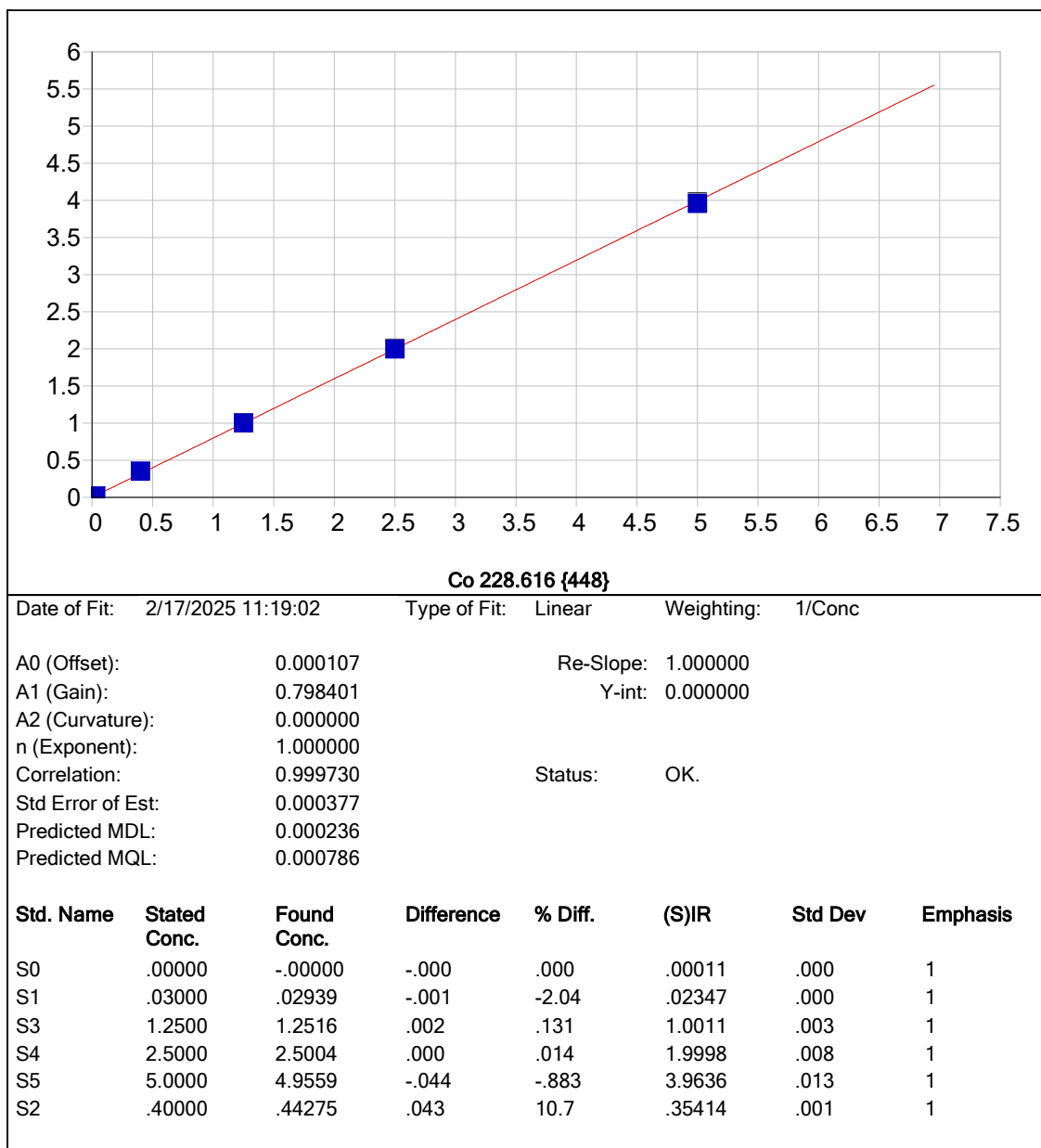
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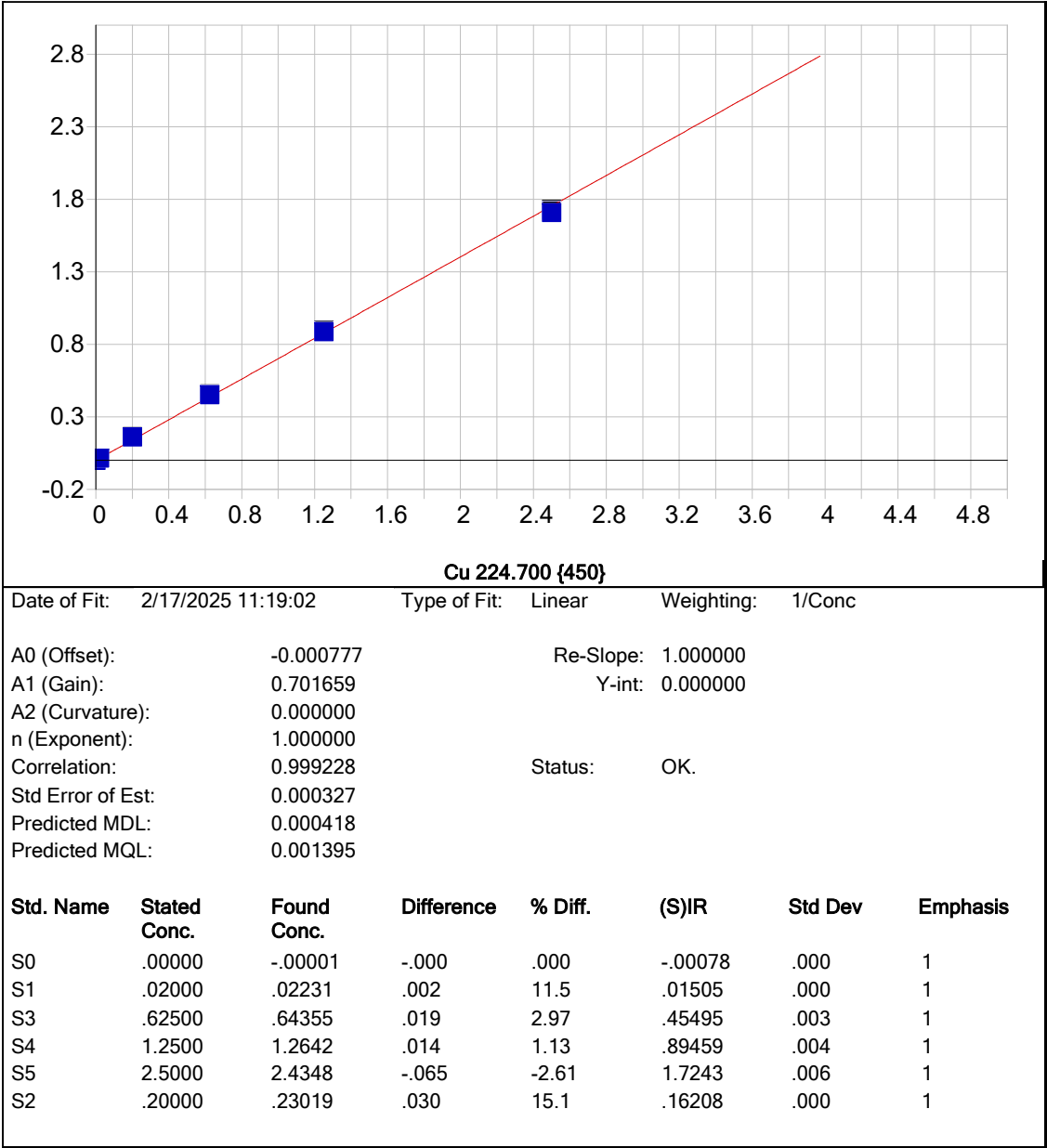
A0 (Offset): 0.000123 Re-Slope: 1.000000
A1 (Gain): 2.116337 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999721 Status: OK.
Std Error of Est: 0.000454
Predicted MDL: 0.000100
Predicted MQL: 0.000334

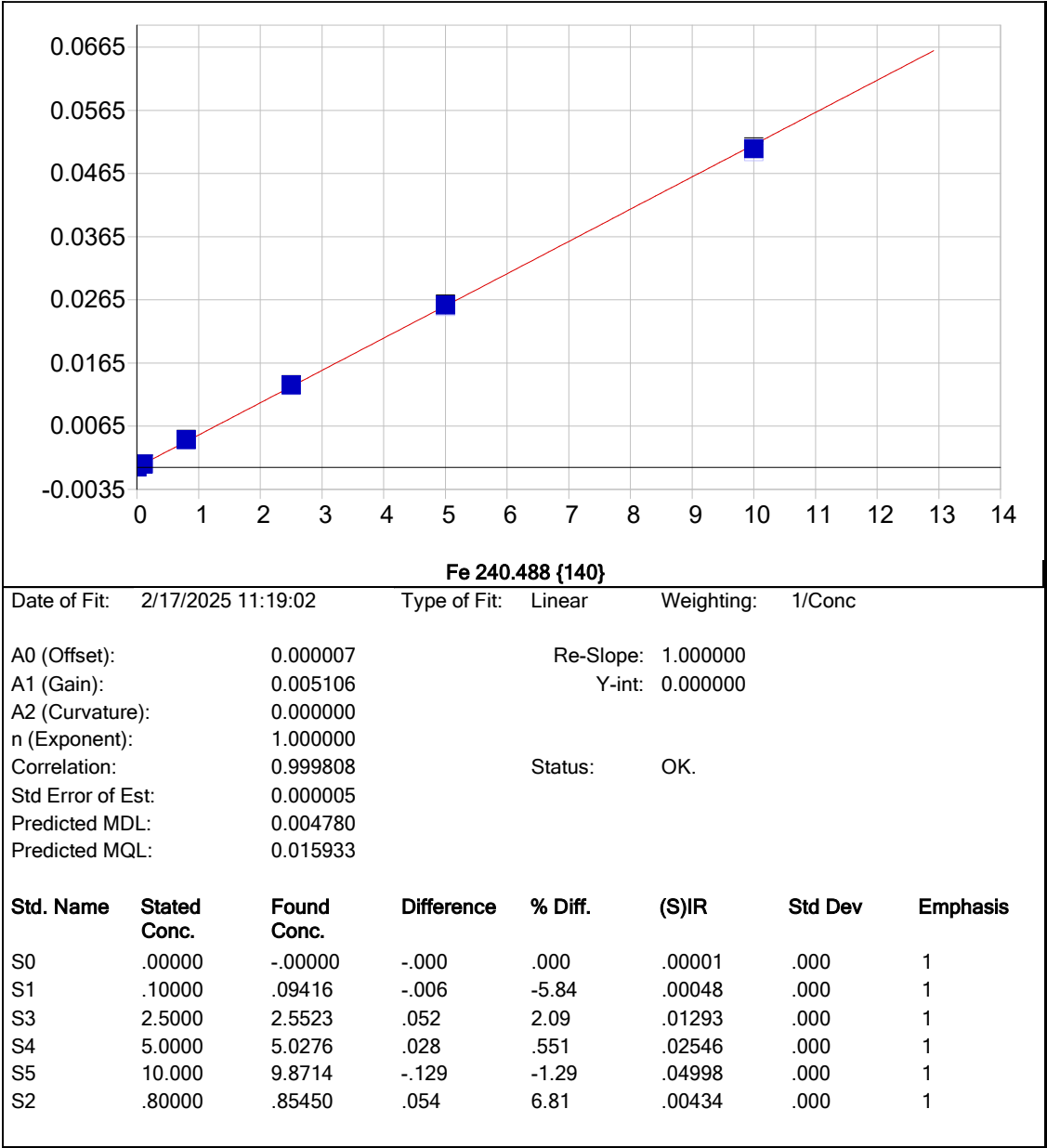
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00012	.000	1
S1	.00600	.00604	.000	.592	.01294	.000	1
S3	1.2500	1.2556	.006	.452	2.6593	.010	1
S4	2.5000	2.5137	.014	.548	5.3236	.019	1
S5	5.0000	4.9393	-.061	-1.21	10.460	.040	1
S2	.40000	.44136	.041	10.3	.93477	.004	1

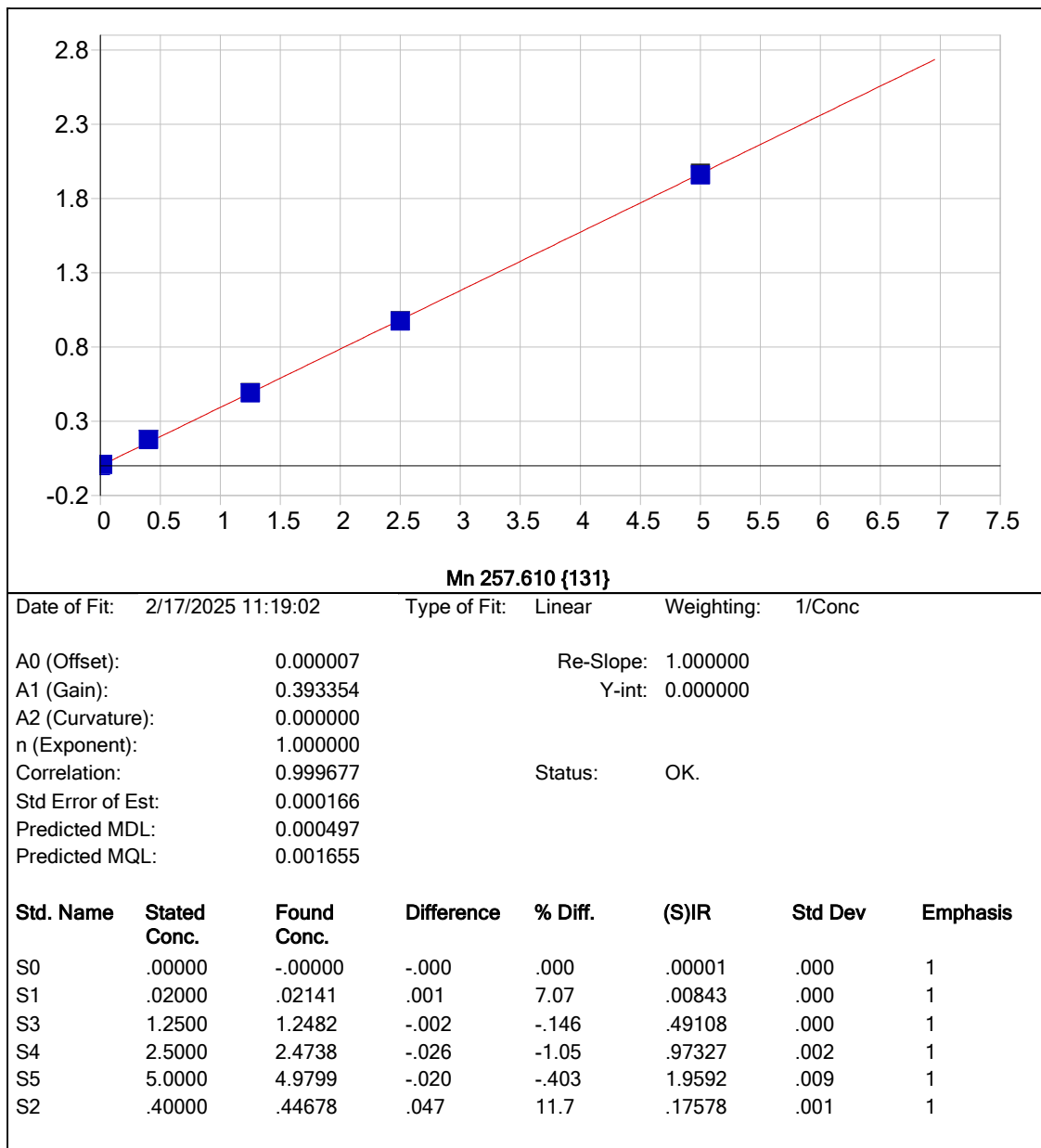


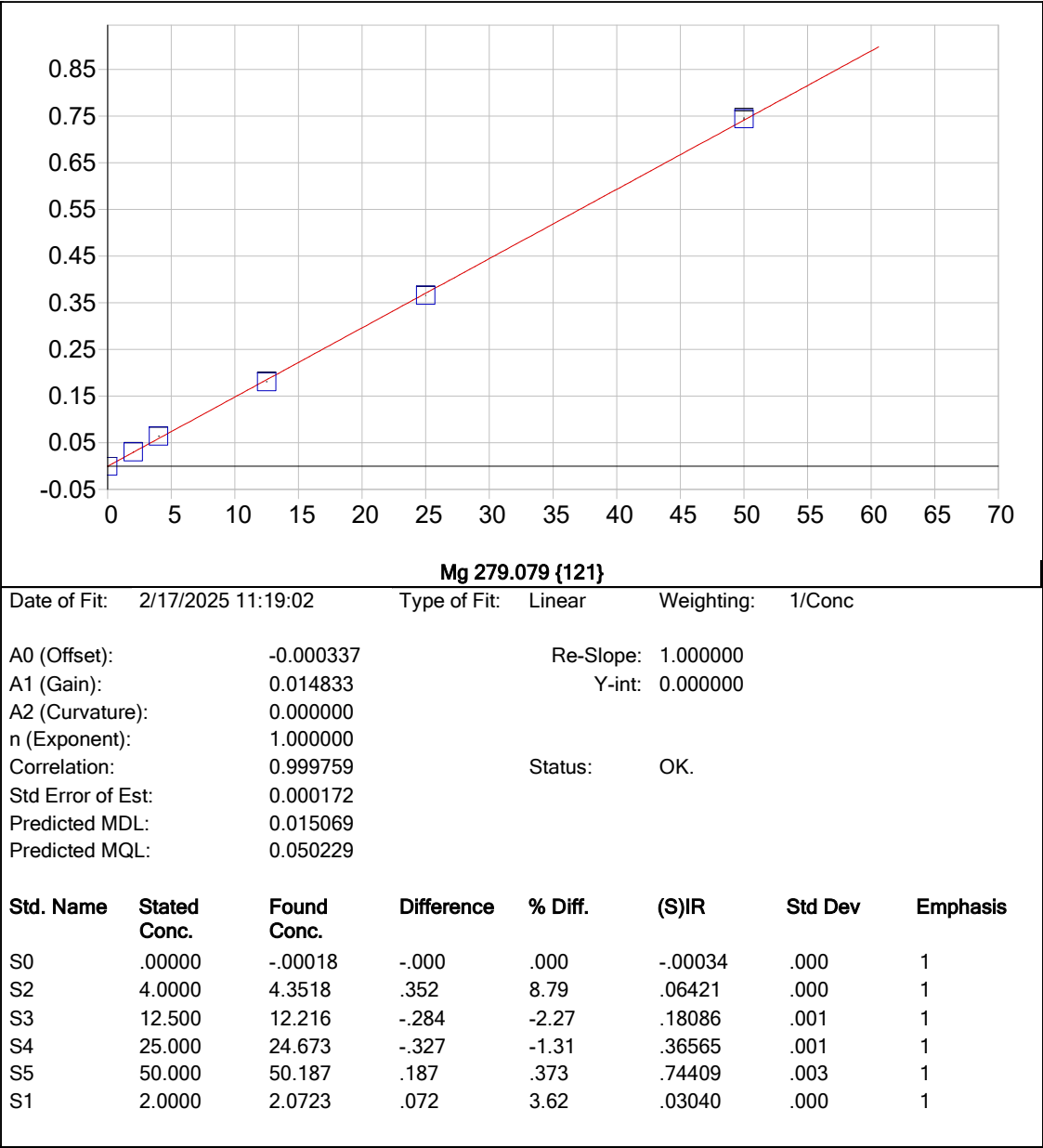


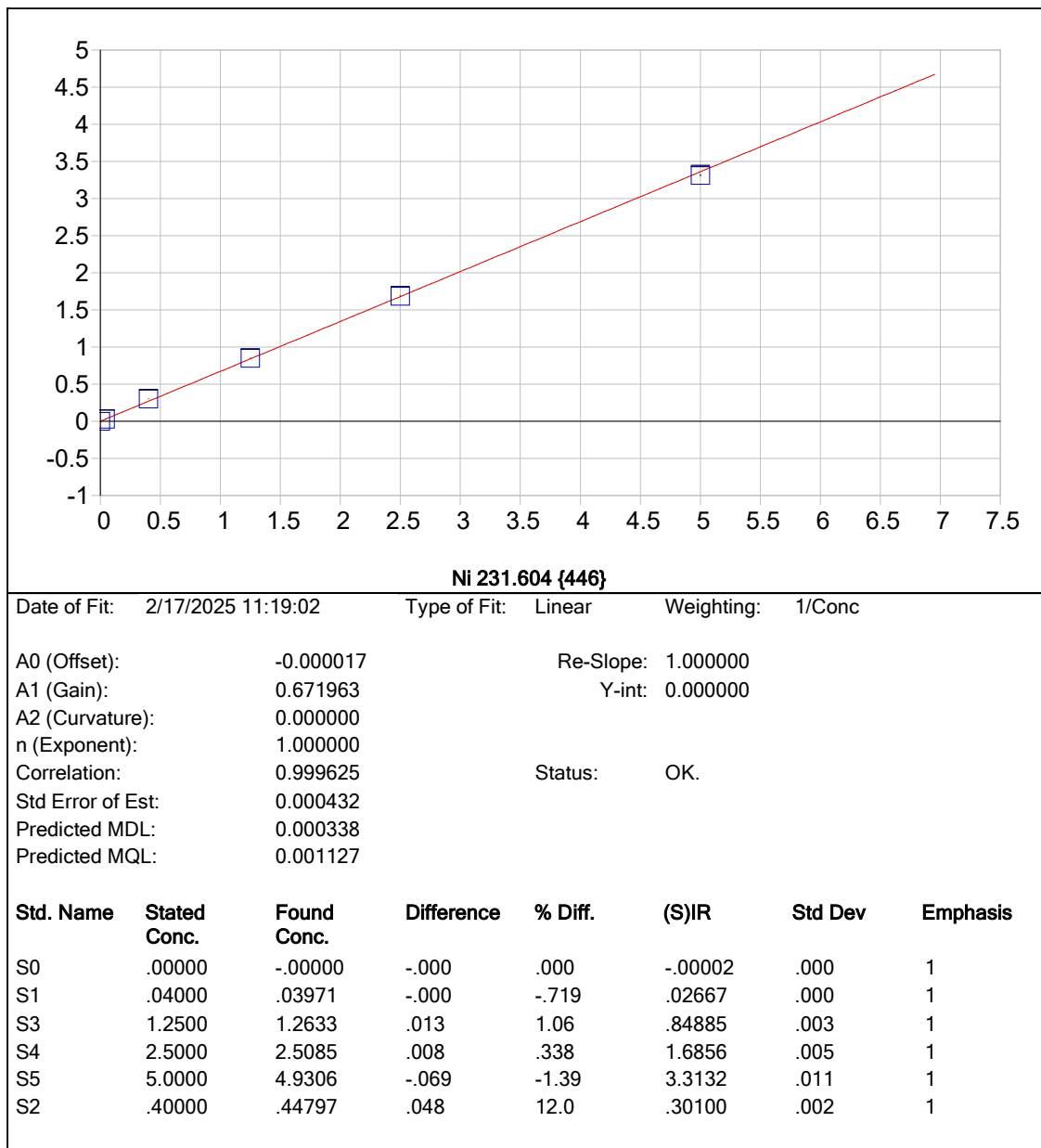


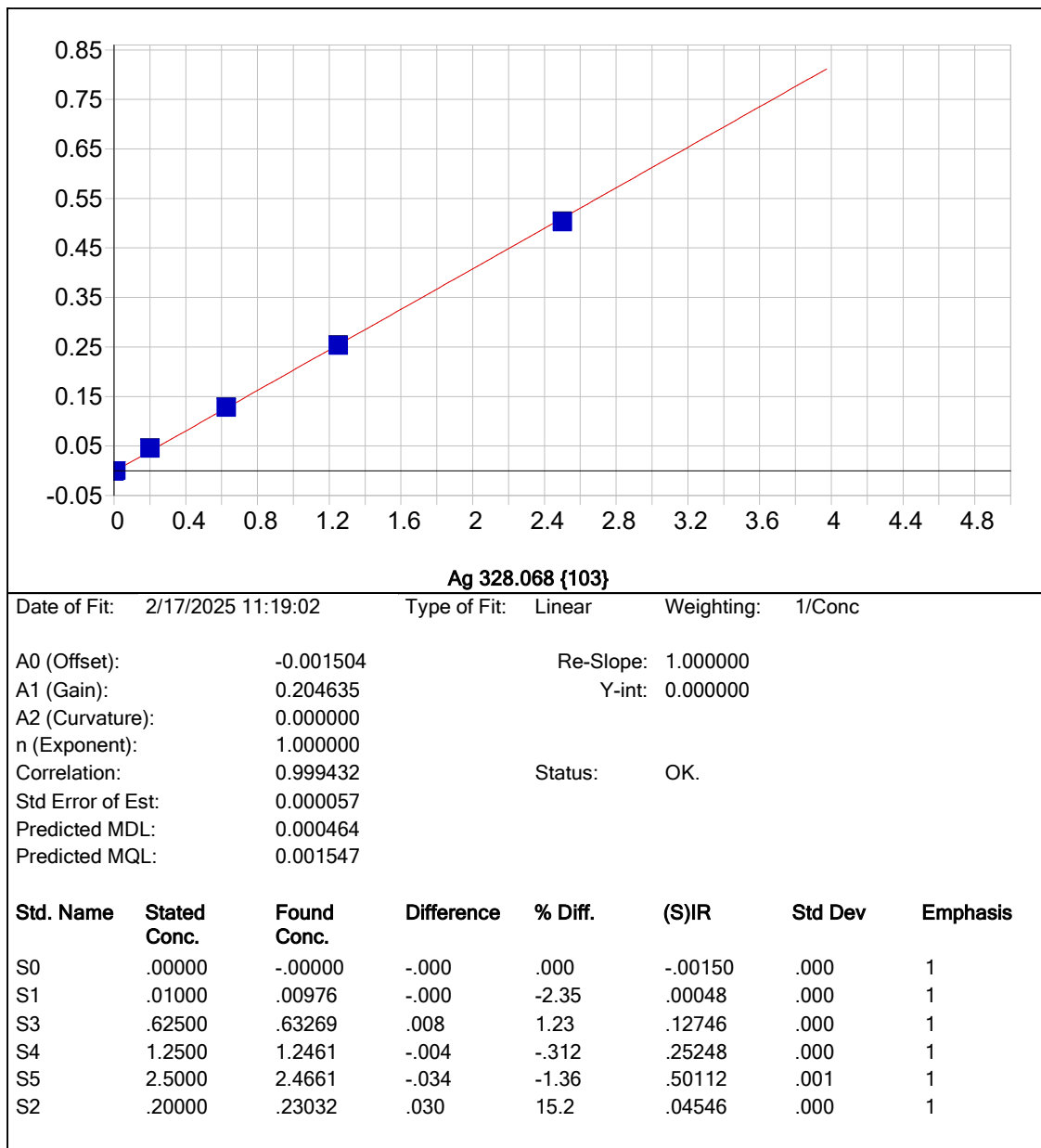


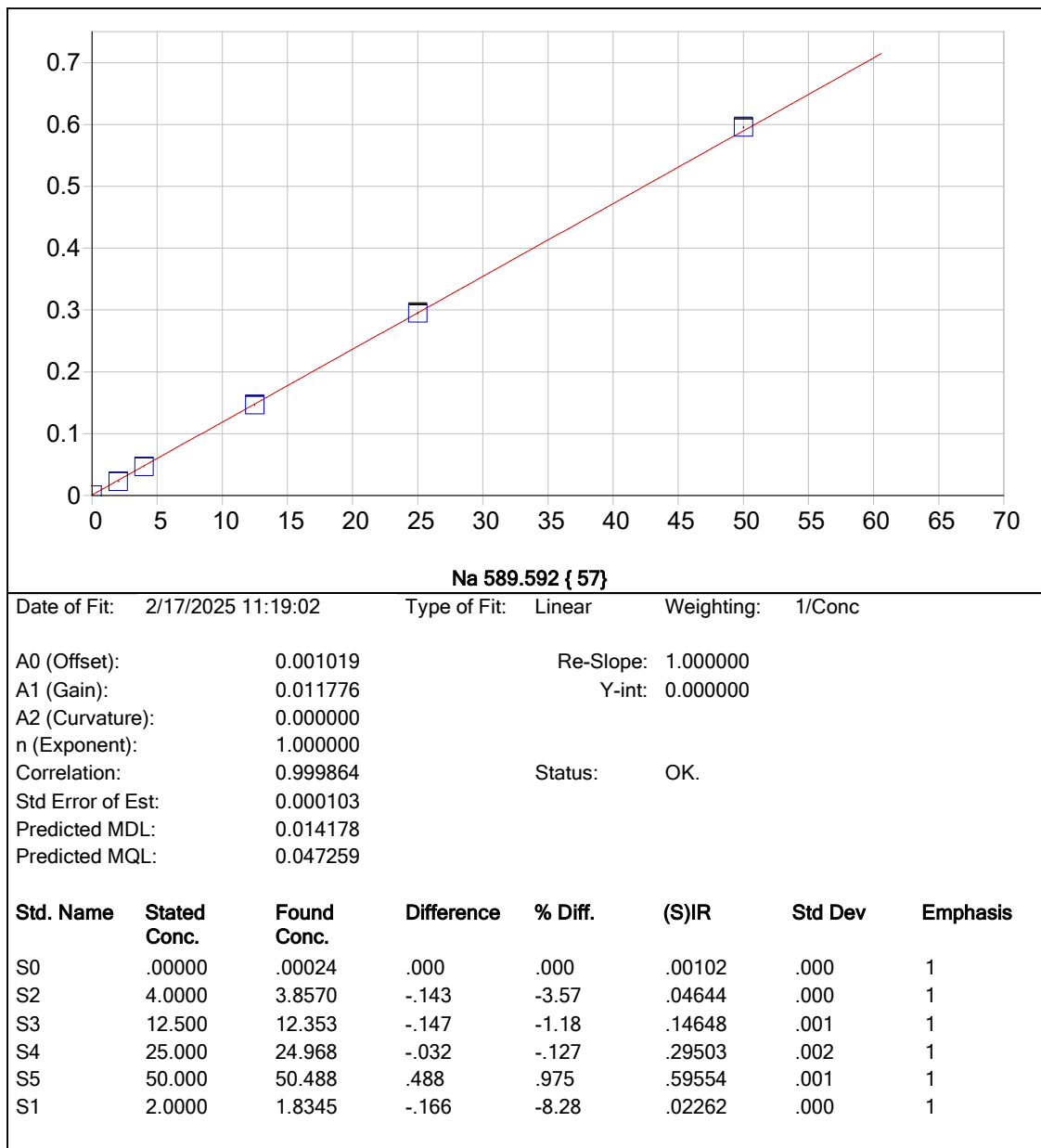


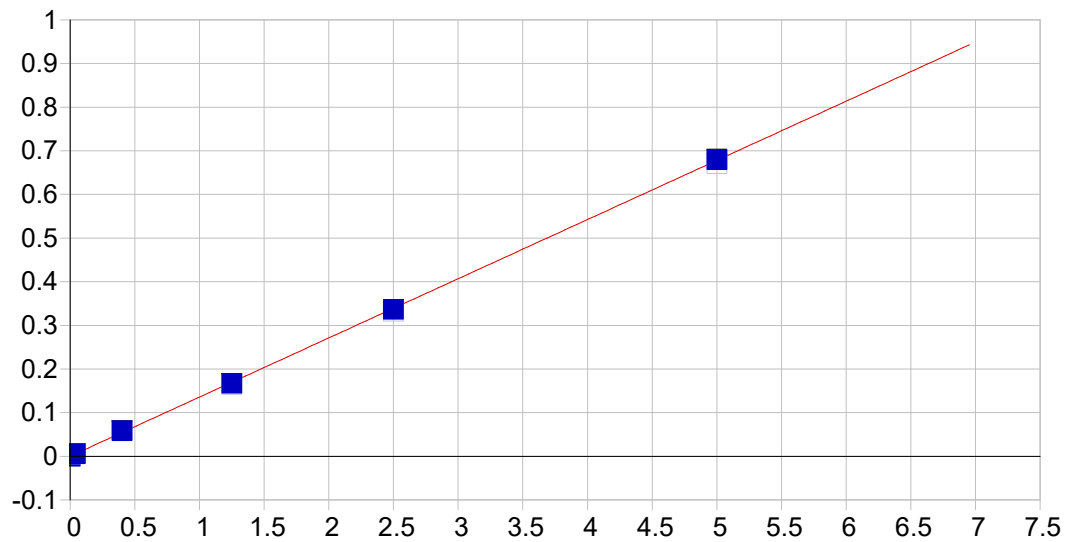










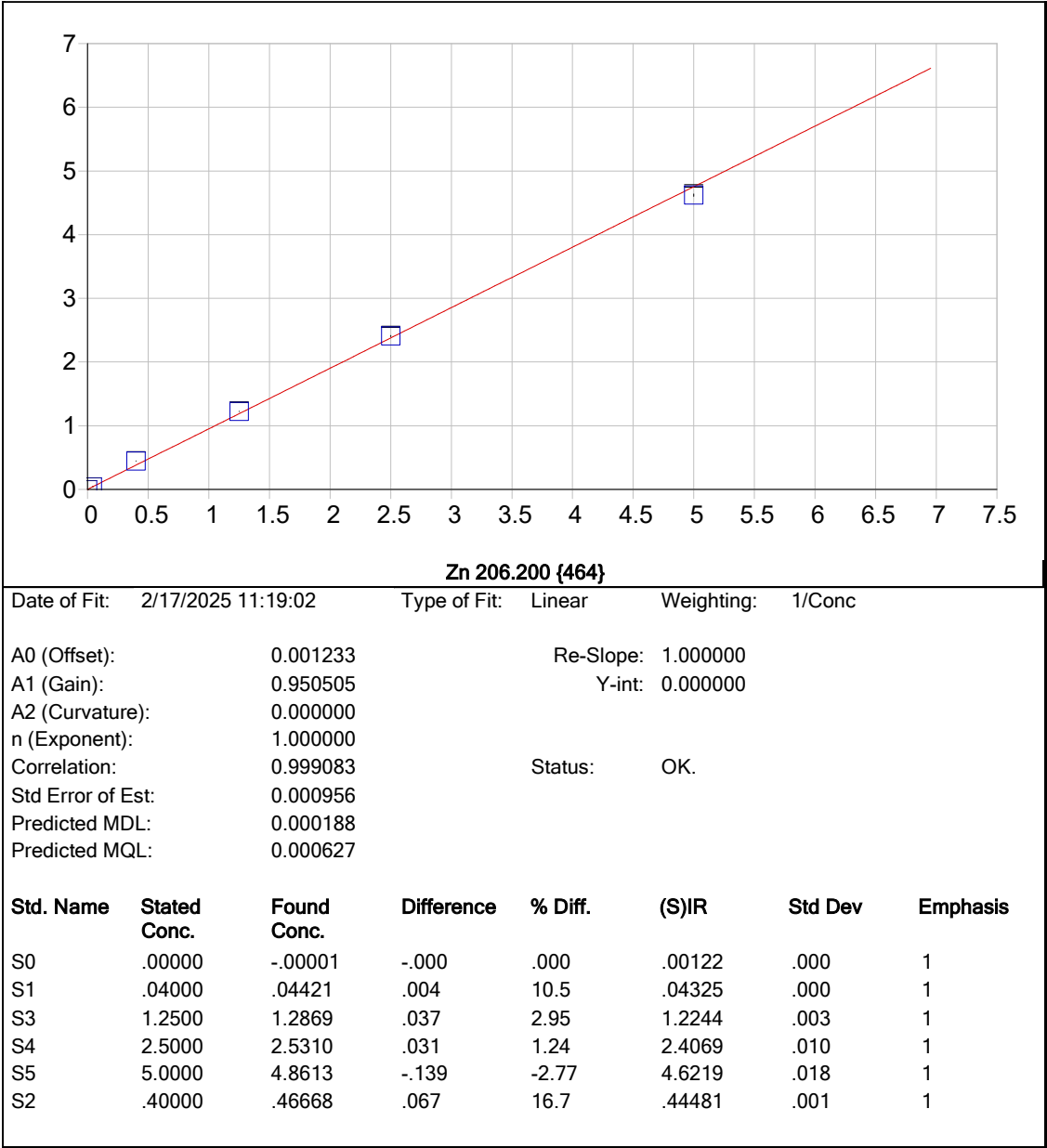


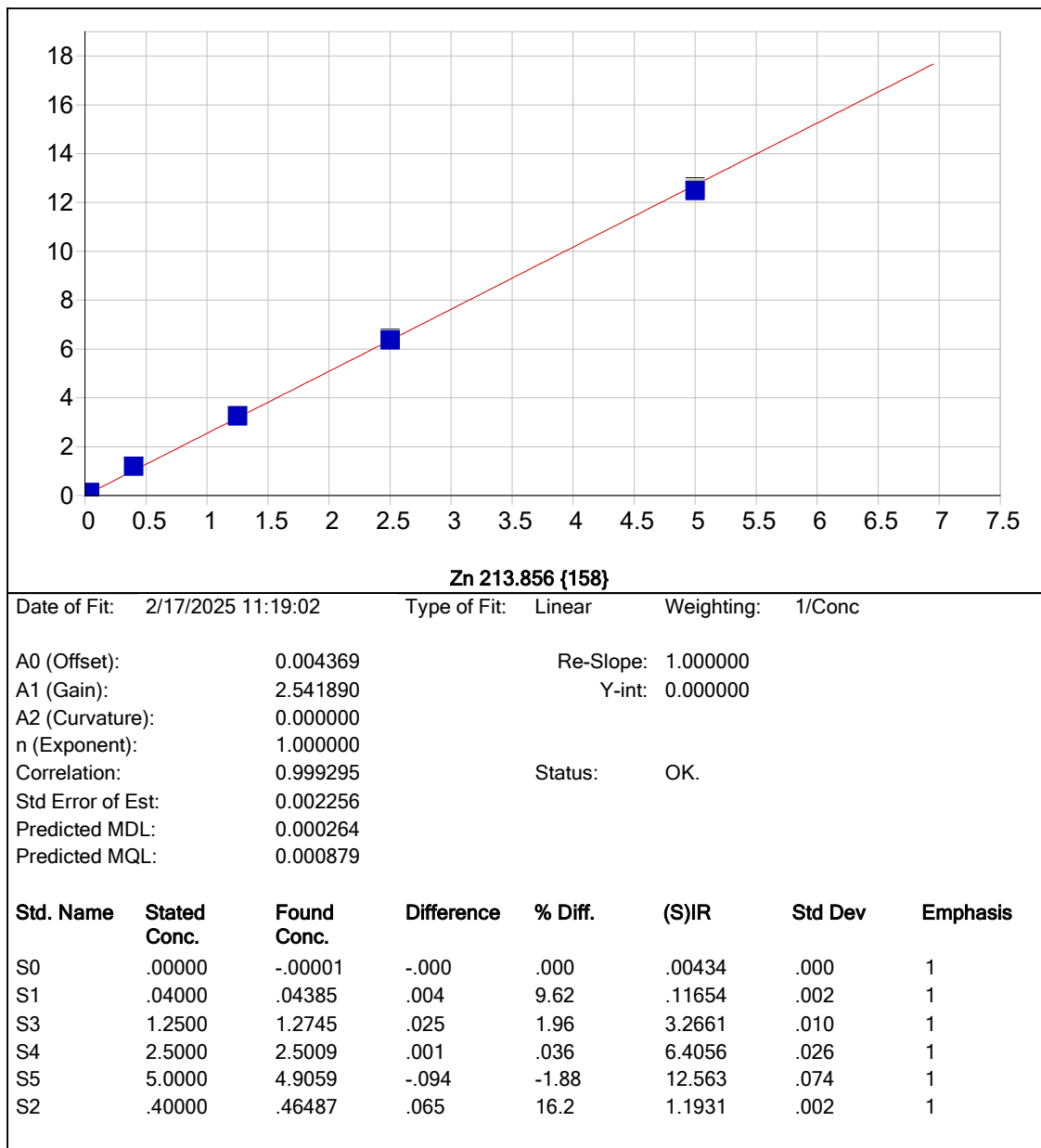
V 292.402 {115}

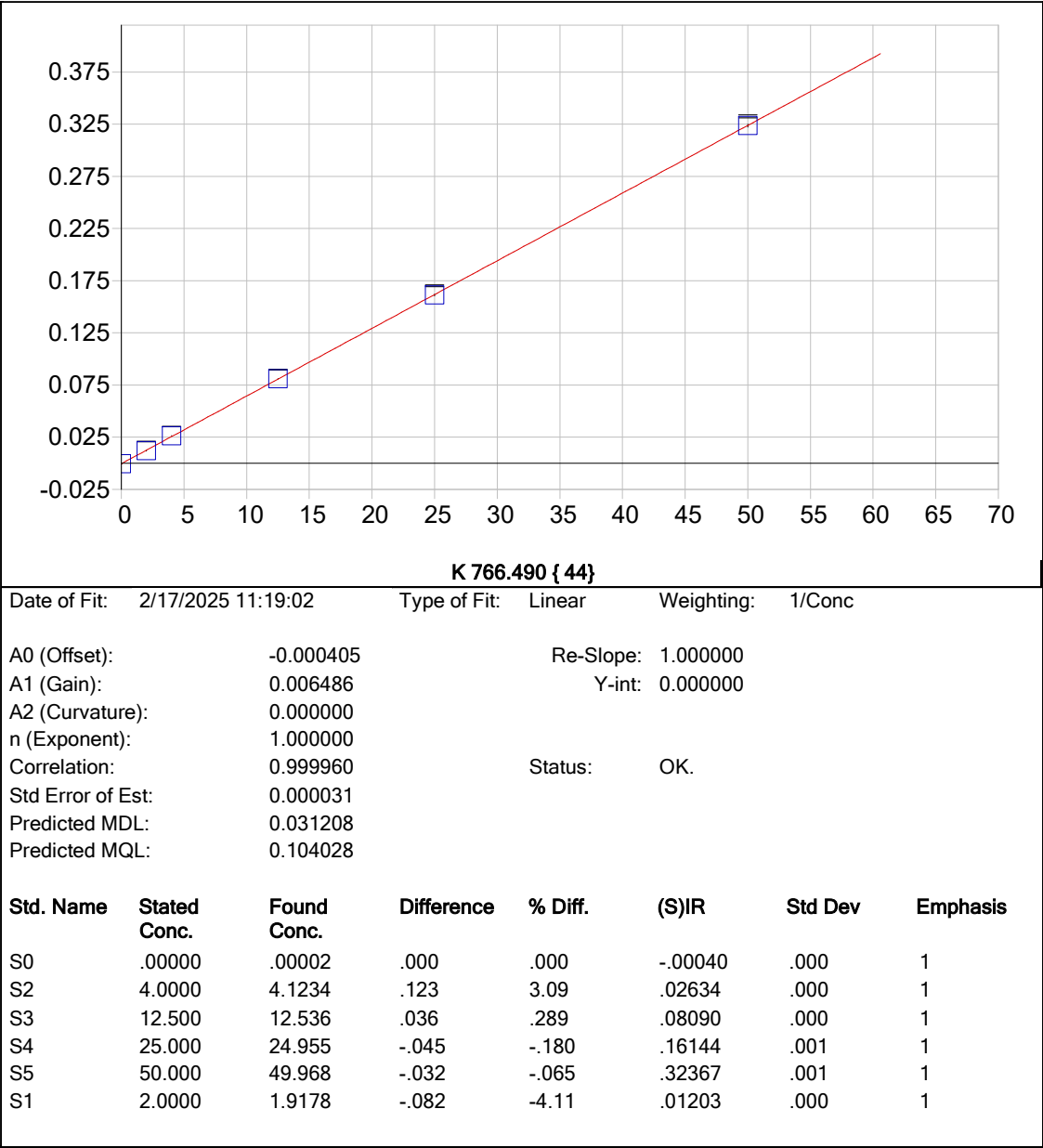
Date of Fit: 2/17/2025 11:19:02 Type of Fit: Linear Weighting: 1/Conc

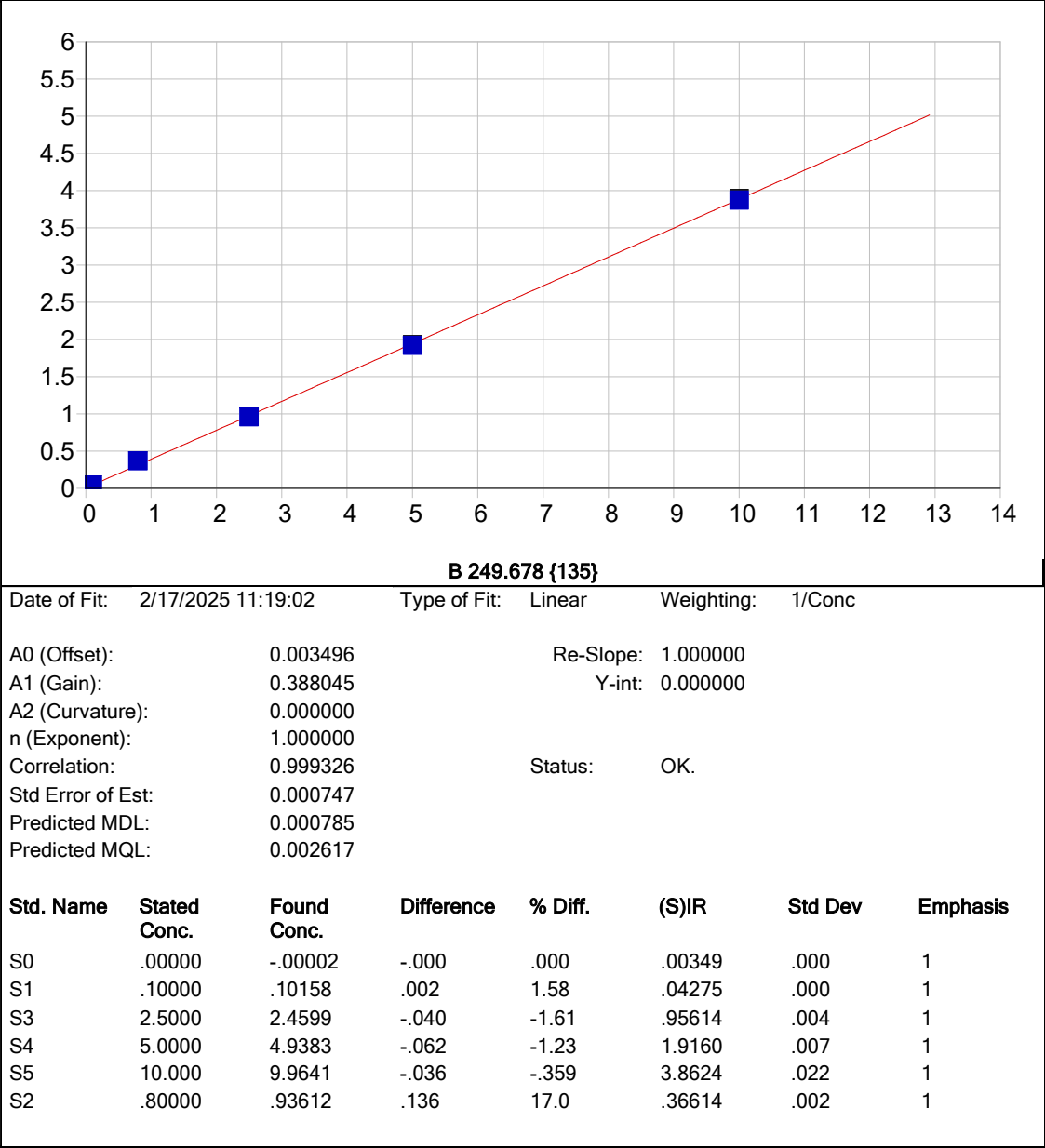
A0 (Offset):	0.000094	Re-Slope:	1.000000
A1 (Gain):	0.135590	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999848	Status:	OK.
Std Error of Est:	0.000055		
Predicted MDL:	0.001819		
Predicted MQL:	0.006062		

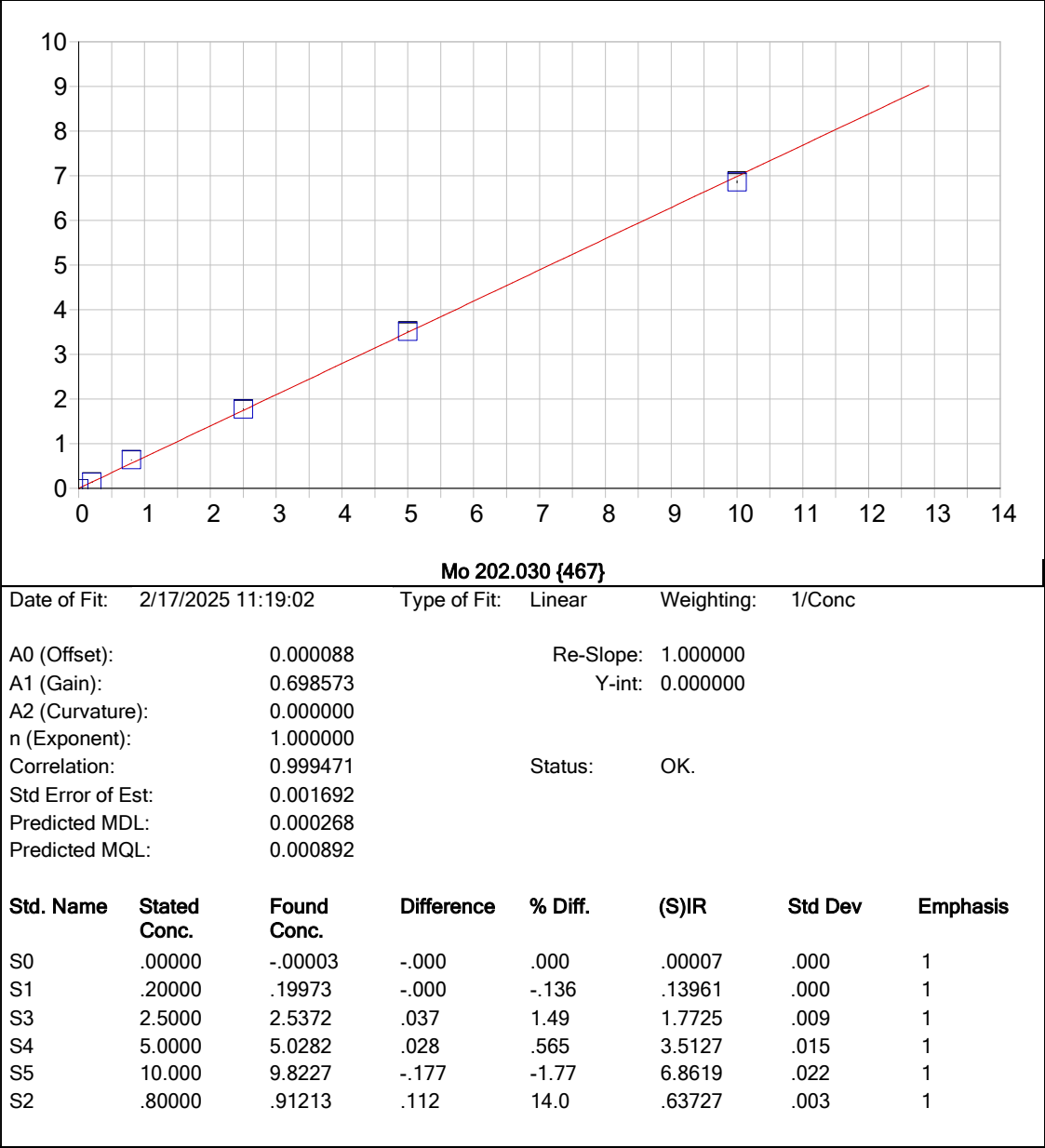
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00009	.000	1
S1	.04000	.03804	-.002	-4.90	.00505	.000	1
S3	1.2500	1.2286	-.021	-1.71	.16421	.000	1
S4	2.5000	2.4812	-.019	-.752	.33158	.000	1
S5	5.0000	5.0134	.013	.268	.66997	.001	1
S2	.40000	.42874	.029	7.19	.05744	.000	1

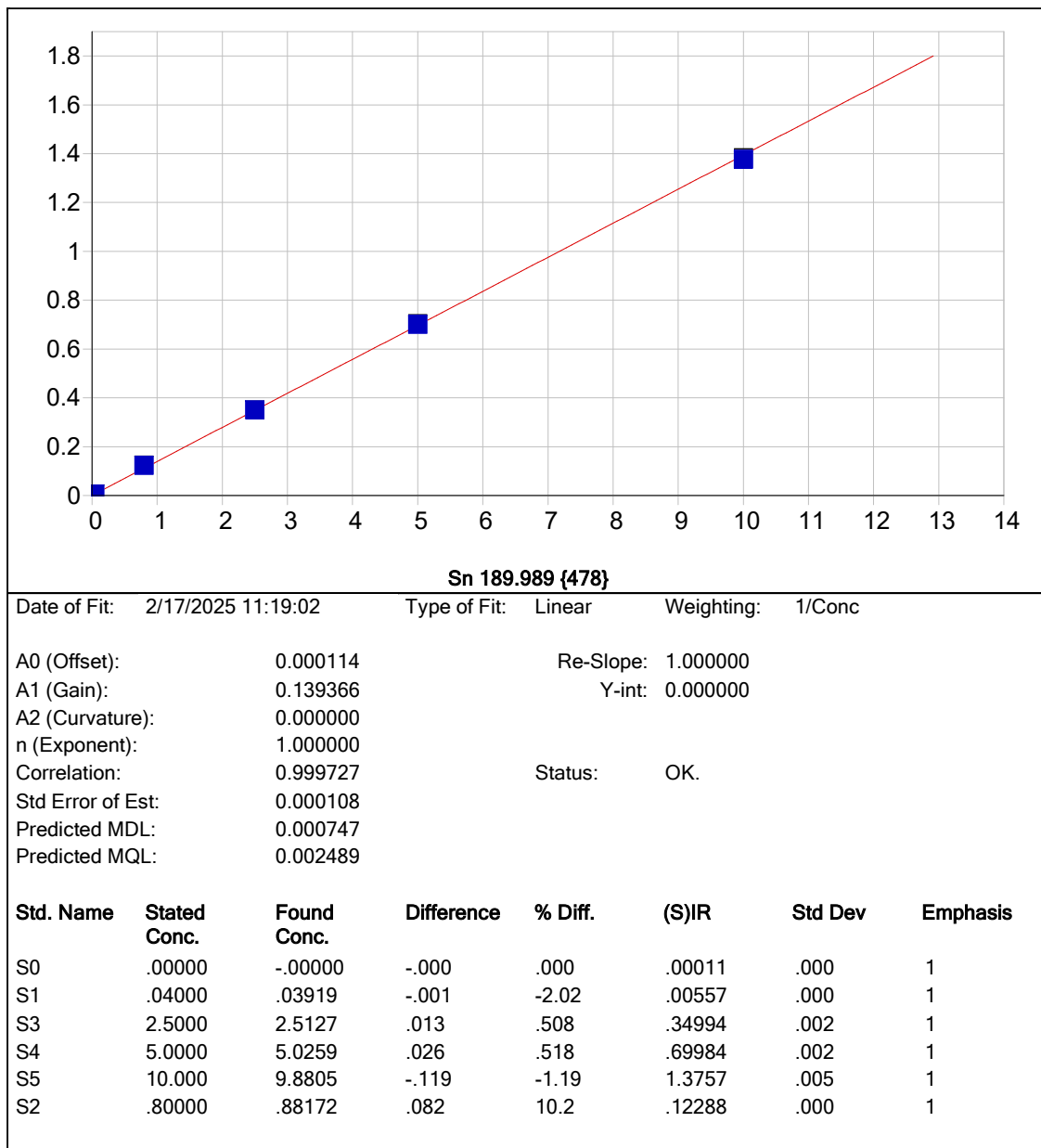


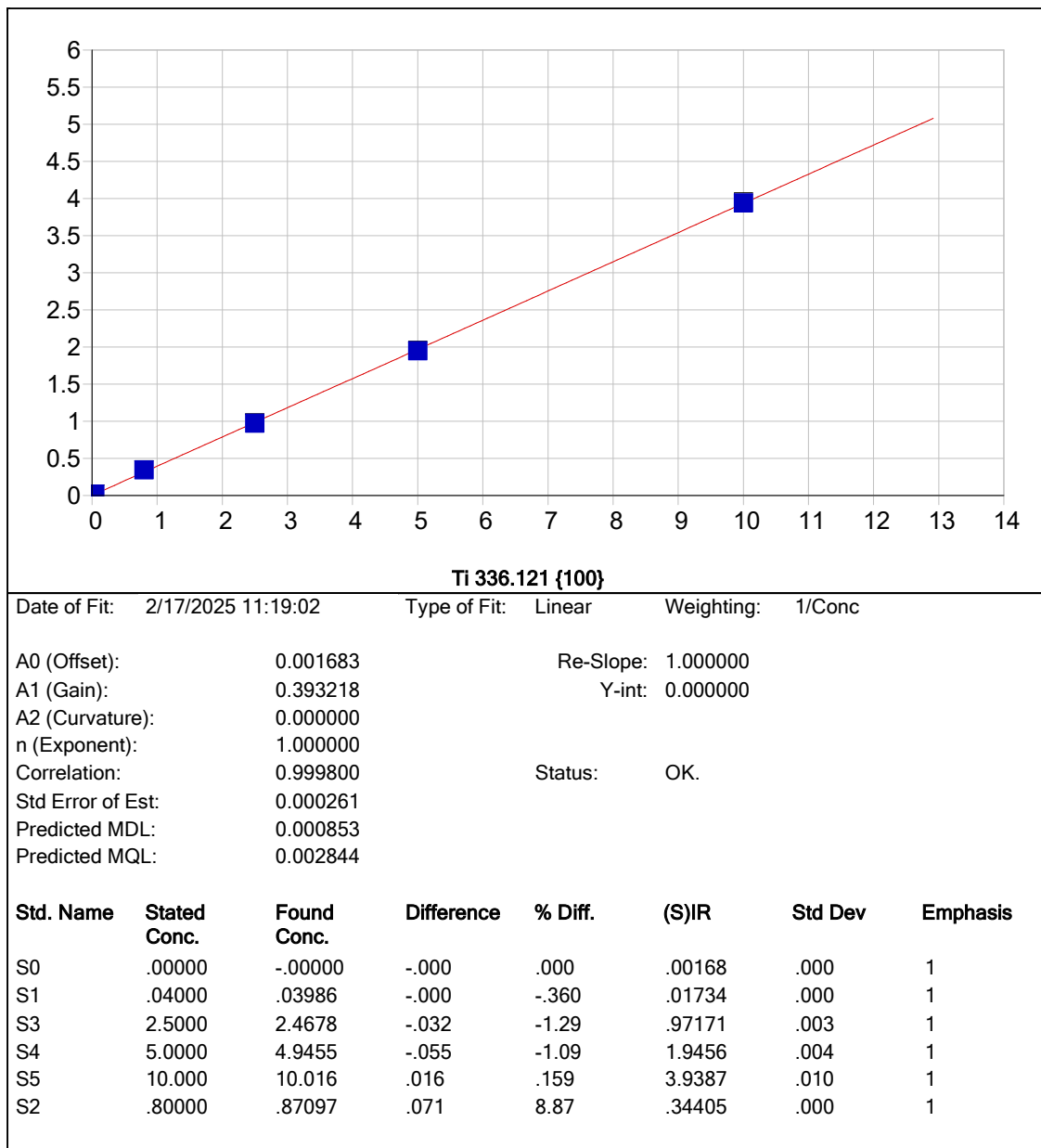


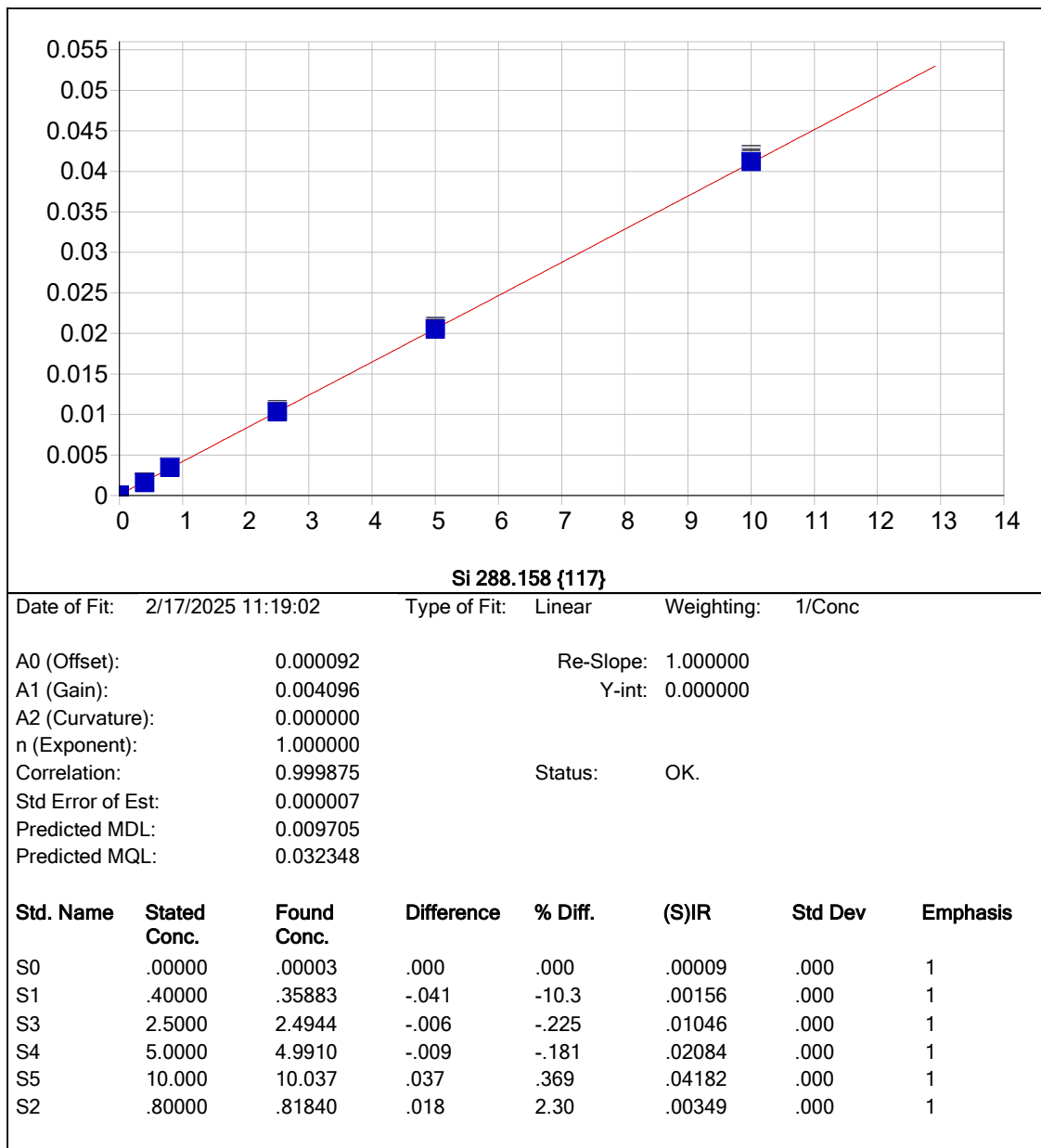


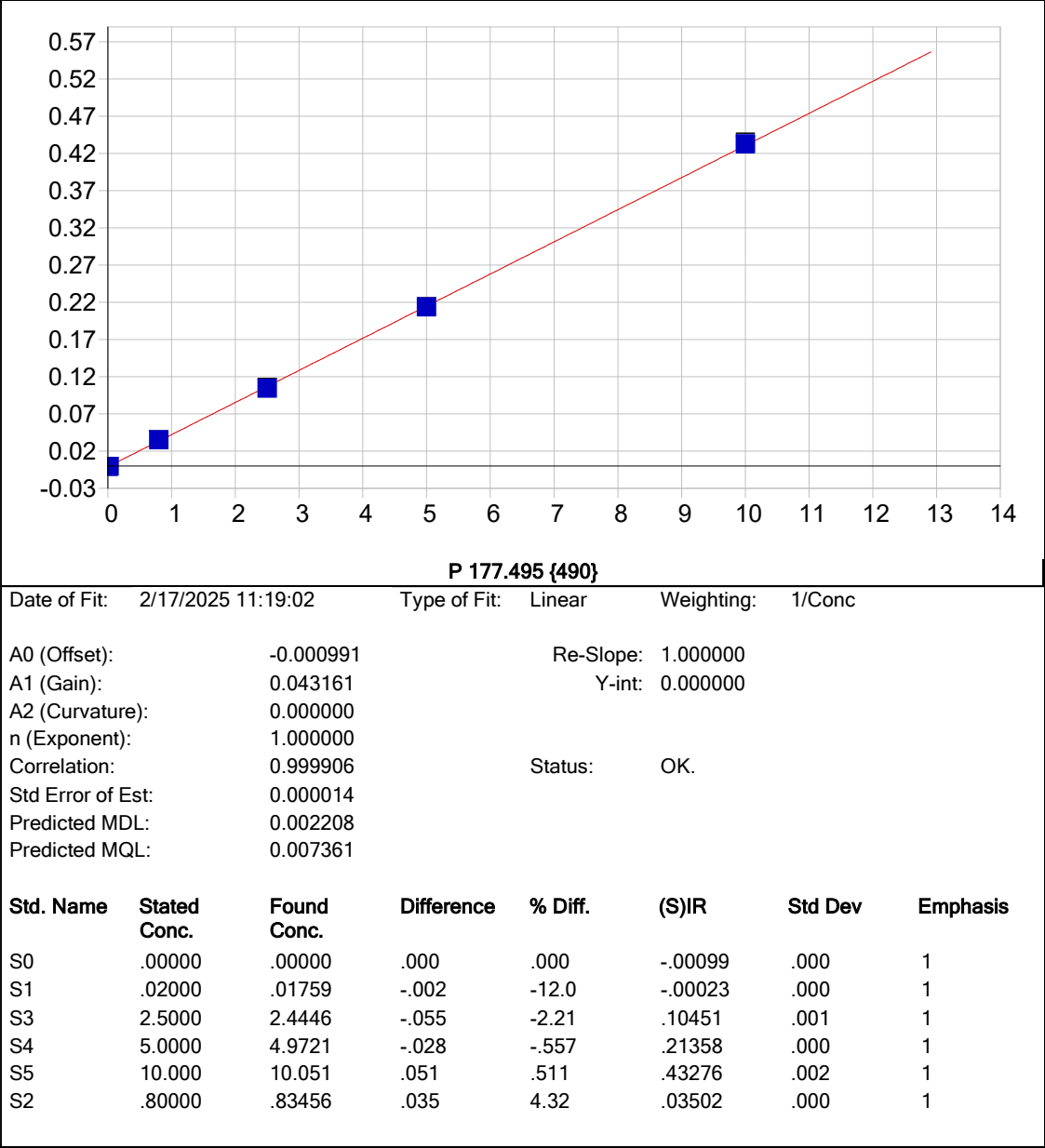


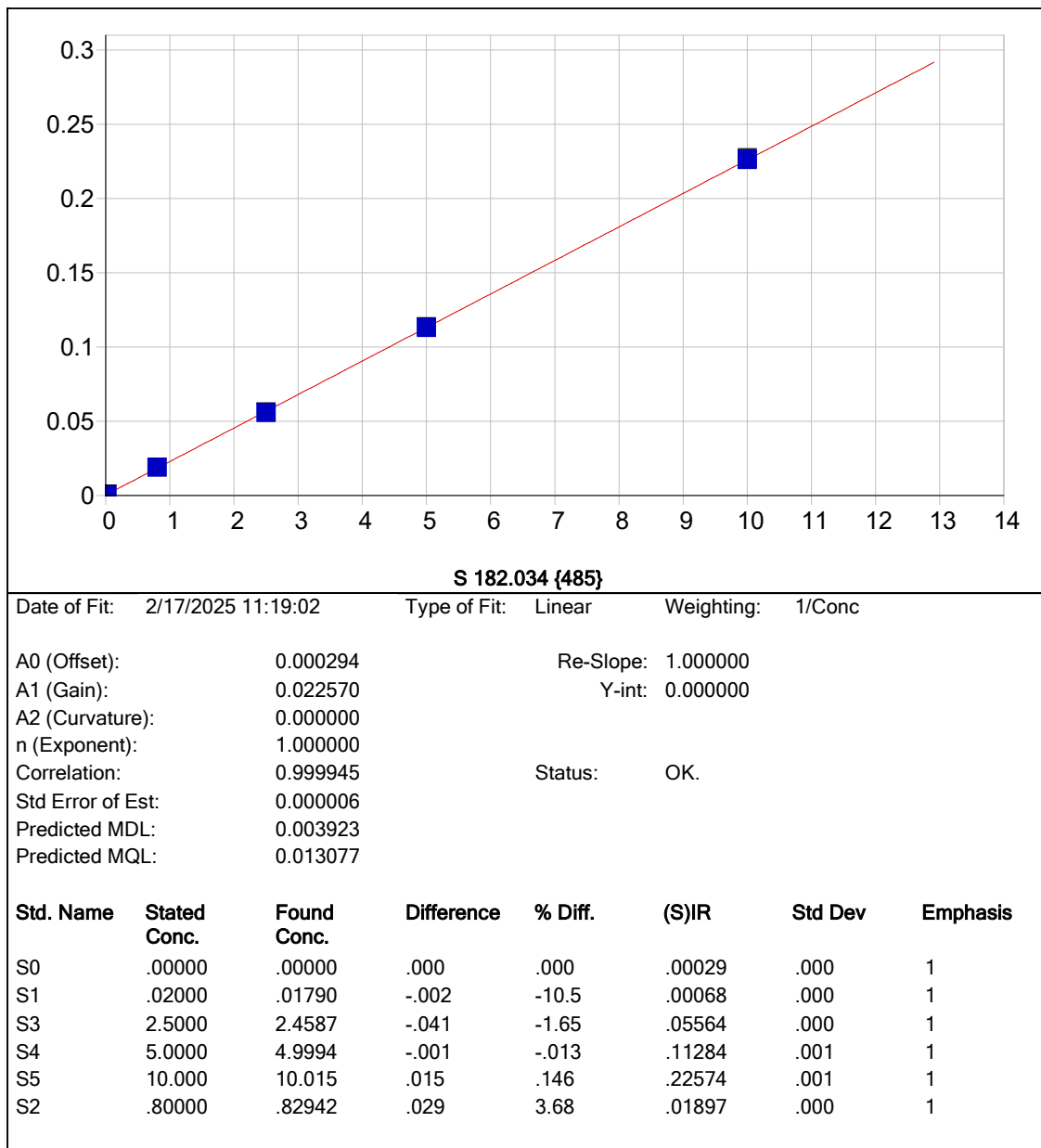


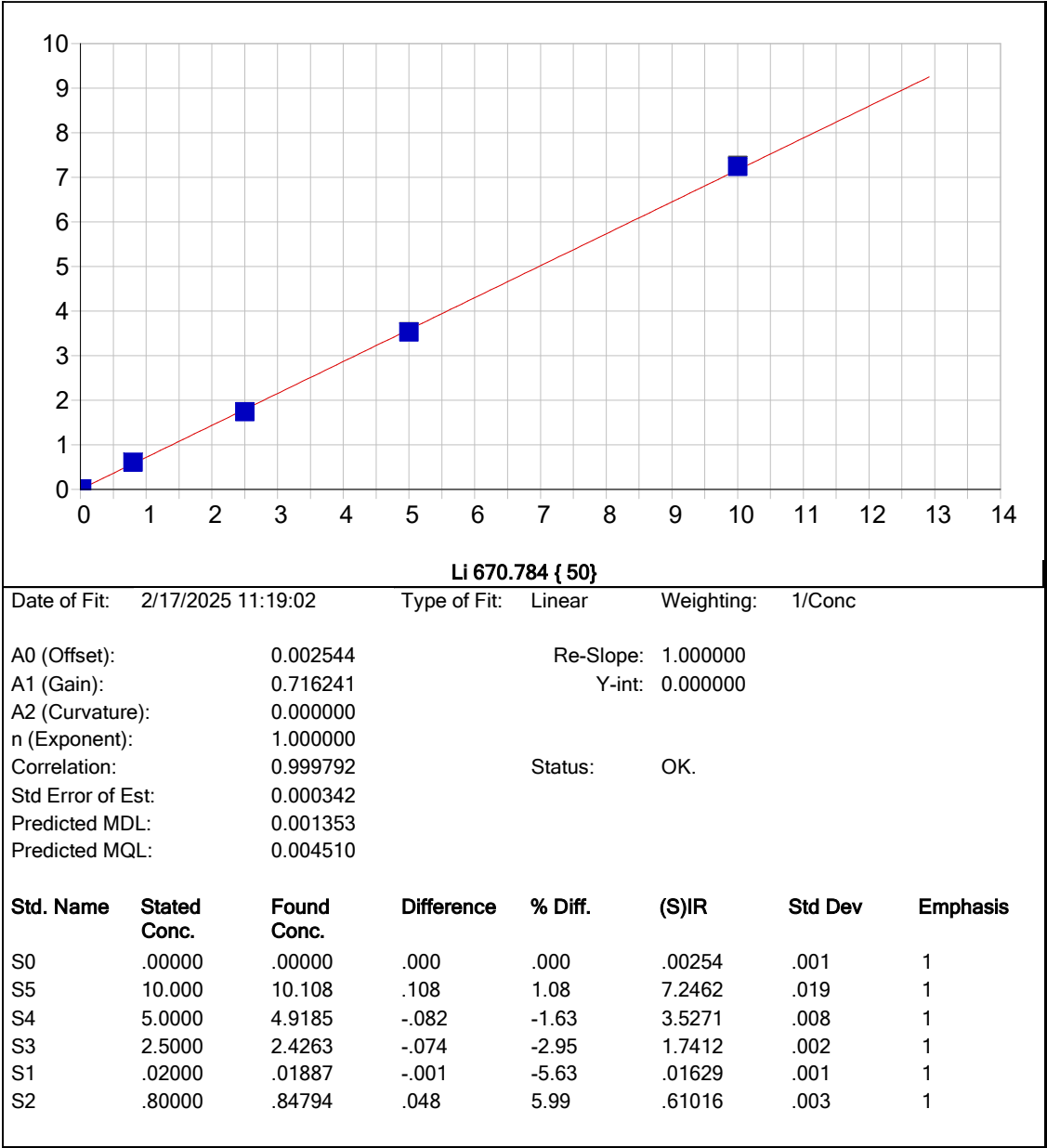


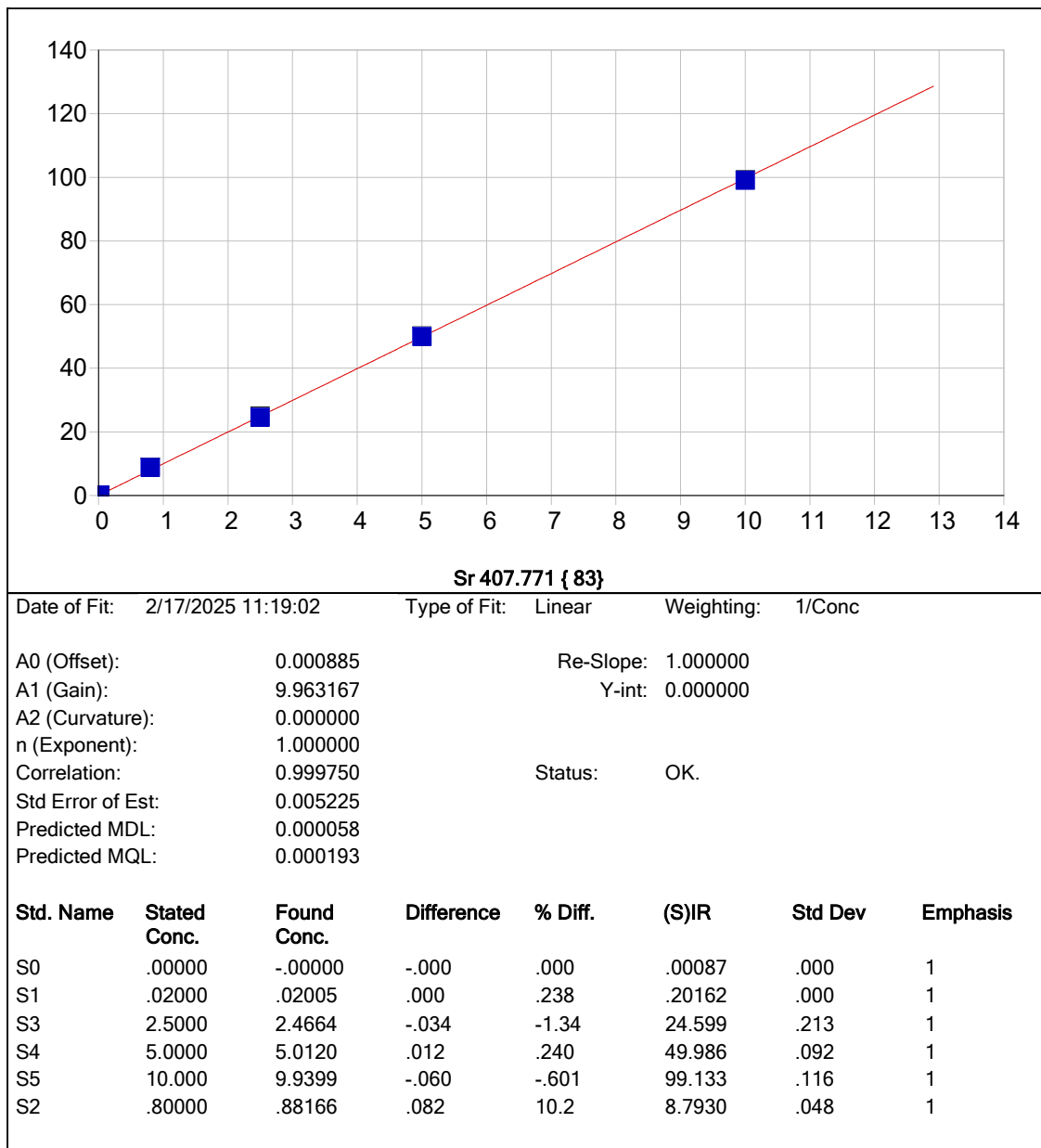


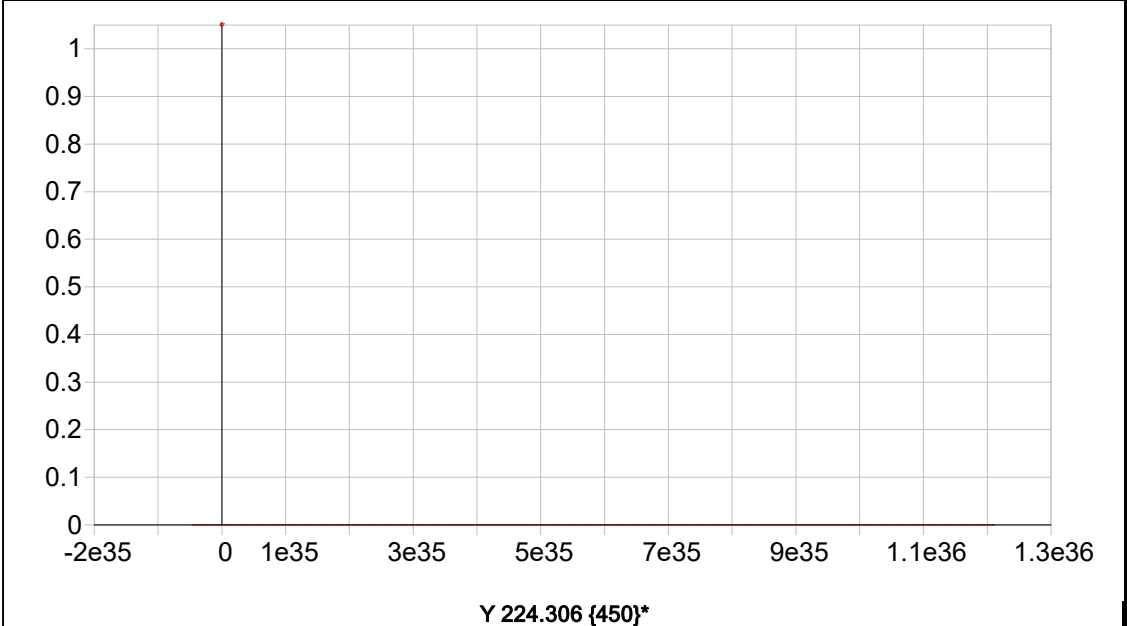






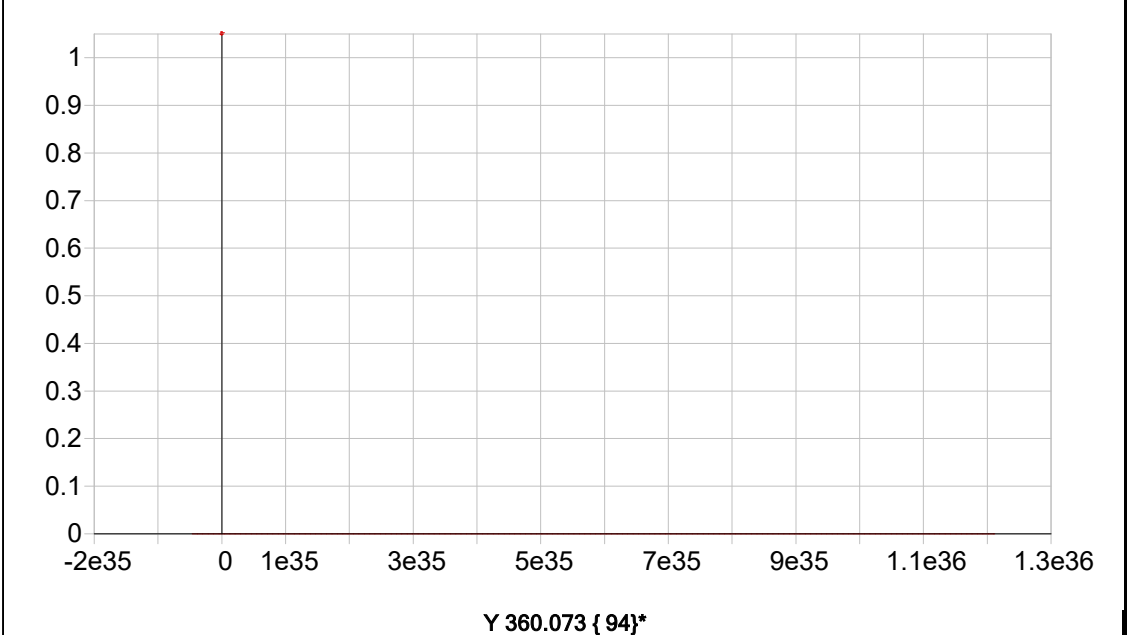




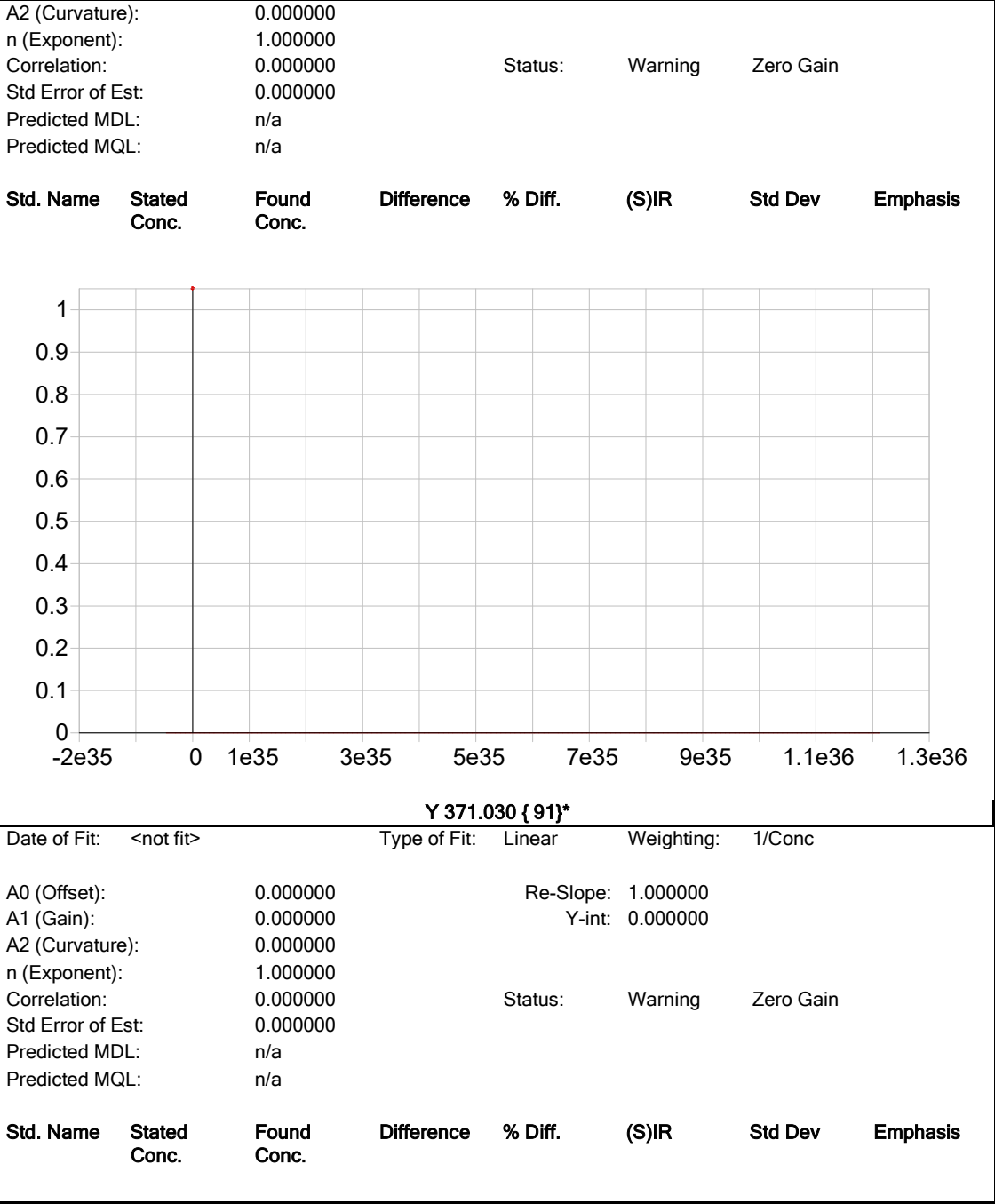


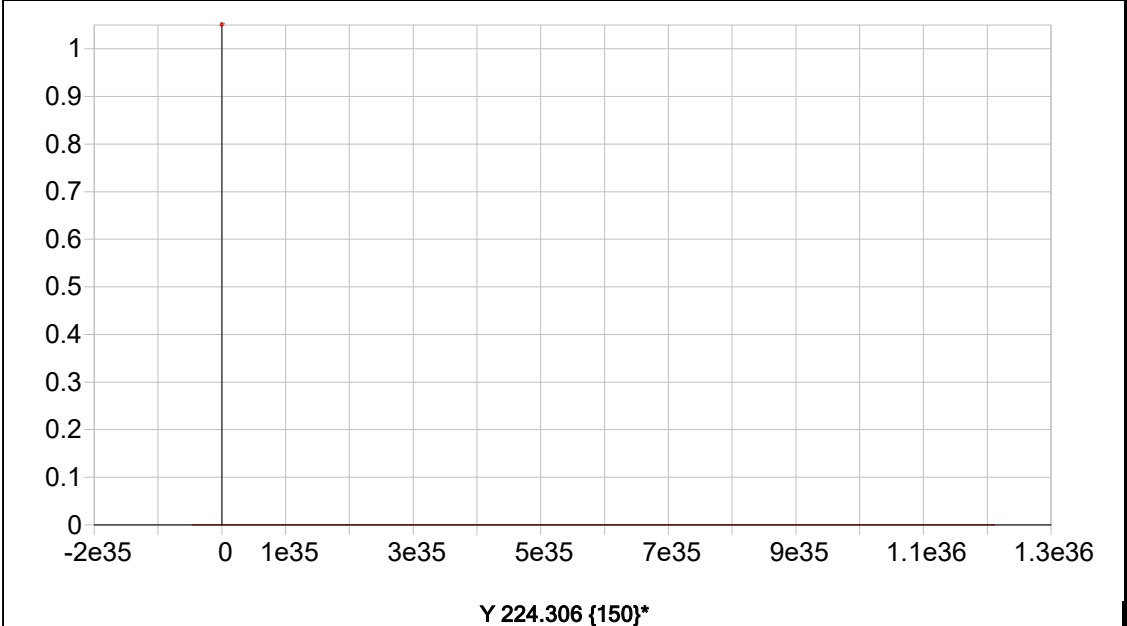
Date of Fit:	2/17/2025 10:52:41	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000		
A1 (Gain):	0.000000	Y-int:	0.000000		
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000	Status:	Warning	Zero Gain	
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

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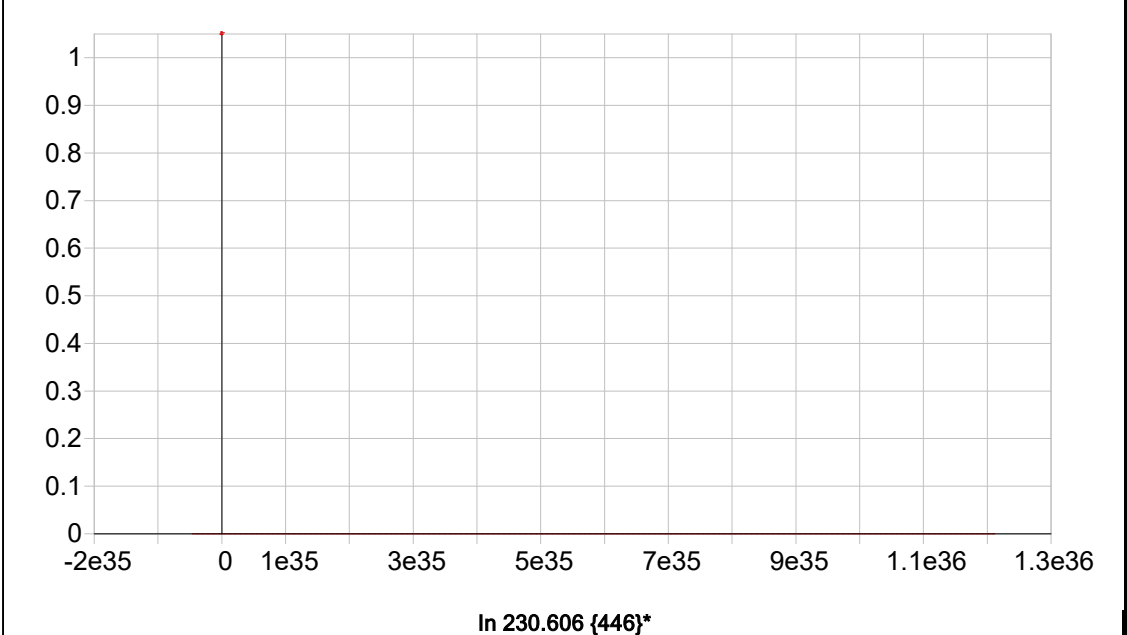
Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000		
A1 (Gain):	0.000000	Y-int:	0.000000		





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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- 16
- 17
- 18

Sample Name: S0 Acquired: 2/17/2025 10:53:28 Type: Cal
Method: NON EPA-6010-200.7(v2699) 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	-.00004	.00021	-.00031	.00022	.00043	-.00013	.04408	-.00019
Stddev	.00012	.00002	.00014	.00010	.00006	.00022	.00002	.00017
%RSD	283.20	10.834	45.042	48.036	14.614	178.21	.04170	89.525
#1	-.00002	.00023	-.00027	.00032	.00047	-.00031	.04408	.00001
#2	.00006	.00021	-.00047	.00011	.00036	.00013	.04410	-.00028
#3	-.00017	.00018	-.00020	.00023	.00046	-.00020	.04407	-.00029
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	.00012	.00114	.00006	.00011	-.00078	.00001	.00001	-.00034
Stddev	.00010	.00030	.00003	.00005	.00009	.00003	.00010	.00011
%RSD	78.926	25.783	53.374	47.486	11.111	412.88	1864.9	31.843
#1	.00003	.00129	.00009	.00006	-.00086	-.00001	-.00004	-.00022
#2	.00012	.00133	.00007	.00016	-.00080	-.00000	-.00006	-.00040
#3	.00022	.00080	.00003	.00009	-.00069	.00004	.00012	-.00040
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	-.00002	-.00150	.00102	.00009	.00434	-.00040	.00349	.00007
Stddev	.00003	.00008	.00025	.00024	.00010	.00007	.00002	.00004
%RSD	134.18	5.4916	24.444	258.96	2.3820	17.255	.53873	58.499
#1	-.00004	-.00143	.00088	.00020	.00425	-.00046	.00349	.00011
#2	-.00003	-.00159	.00087	.00026	.00432	-.00033	.00347	.00006
#3	.00001	-.00148	.00131	-.00019	.00446	-.00043	.00351	.00003
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	.00011	.00168	.00009	-.00099	.00029	.00254	.00087	
Stddev	.00009	.00019	.00000	.00004	.00009	.00059	.00023	
%RSD	80.386	11.422	5.3334	4.0003	29.594	23.381	26.479	
#1	.00017	.00186	.00010	-.00095	.00030	.00256	.00089	
#2	.00016	.00170	.00009	-.00100	.00021	.00313	.00108	
#3	.00001	.00148	.00009	-.00103	.00038	.00194	.00063	

Sample Name: S0 Acquired: 2/17/2025 10:53:28 Type: Cal
Method: NON EPA-6010-200.7(v2699) 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	3379.5	72316.	11868.	2623.2	4493.8
Stddev	7.3	240.	102.	7.8	7.7
%RSD	.21522	.33223	.85882	.29624	.17039
#1	3373.4	72562.	11818.	2616.0	4492.2
#2	3387.5	72303.	11801.	2631.4	4502.1
#3	3377.4	72082.	11985.	2622.3	4487.0

Sample Name: S1 Acquired: 2/17/2025 10:57:55 Type: Cal
Method: NON EPA-6010-200.7(v2699) 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	.00093	.00174	.00242	.00137	.00687	.00773	.26217	.02280
Stddev	.00010	.00015	.00028	.00015	.00008	.00046	.00115	.00021
%RSD	10.807	8.6848	11.727	10.625	1.1077	5.9284	.43698	.92046
#1	.00085	.00157	.00269	.00122	.00687	.00824	.26337	.02288
#2	.00089	.00179	.00247	.00137	.00680	.00758	.26208	.02296
#3	.00104	.00186	.00212	.00151	.00695	.00736	.26108	.02256
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	.01294	.09343	.00181	.02347	.01505	.00048	.00843	.03040
Stddev	.00022	.00062	.00003	.00014	.00017	.00002	.00003	.00029
%RSD	1.7235	.66519	1.7645	.59324	1.0983	3.3796	.40819	.95547
#1	.01310	.09366	.00177	.02332	.01524	.00047	.00847	.03065
#2	.01269	.09273	.00184	.02350	.01498	.00050	.00840	.03008
#3	.01303	.09390	.00182	.02360	.01493	.00048	.00843	.03047
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	.02667	.00048	.02262	.00505	.11654	.01203	.04275	.13961
Stddev	.00008	.00006	.00014	.00007	.00180	.00016	.00042	.00032
%RSD	.28583	11.996	.60177	1.4386	1.5419	1.3327	.97171	.23144
#1	.02670	.00049	.02273	.00497	.11446	.01218	.04266	.13925
#2	.02672	.00053	.02247	.00510	.11753	.01186	.04320	.13971
#3	.02658	.00042	.02267	.00508	.11762	.01206	.04238	.13988
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	.00557	.01734	.00156	-.00023	.00068	.01629	.20162	
Stddev	.00011	.00040	.00004	.00004	.00008	.00099	.00039	
%RSD	2.0110	2.2893	2.3268	19.368	11.259	6.0588	.19336	
#1	.00547	.01704	.00158	-.00027	.00061	.01740	.20199	
#2	.00555	.01719	.00152	-.00024	.00066	.01598	.20121	
#3	.00569	.01779	.00159	-.00018	.00076	.01550	.20166	

Sample Name: S1 Acquired: 2/17/2025 10:57:55 Type: Cal
Method: NON EPA-6010-200.7(v2699) 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	3338.3	71311.	12082.	2527.4	4447.2
Stddev	4.3	105.	45.	5.7	5.1
%RSD	.12917	.14765	.36920	.22439	.11392
#1	3342.1	71281.	12058.	2529.7	4452.0
#2	3339.3	71428.	12055.	2531.5	4447.9
#3	3333.6	71224.	12134.	2520.9	4441.9

Sample Name: S2 Acquired: 2/17/2025 11:02:18 Type: Cal
Method: NON EPA-6010-200.7(v2699) 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	.04719	.04148	.19333	.05234	.11615	.13187	3.8871	.18246
Stddev	.00016	.00014	.00064	.00005	.00036	.00026	.0247	.00048
%RSD	.32886	.34530	.33150	.09918	.30930	.19758	.63462	.26394
#1	.04709	.04162	.19340	.05228	.11583	.13214	3.9112	.18256
#2	.04712	.04150	.19266	.05236	.11609	.13185	3.8881	.18289
#3	.04737	.04133	.19394	.05238	.11654	.13162	3.8619	.18194
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	.93477	.20540	.03258	.35414	.16208	.00434	.17578	.06421
Stddev	.00416	.00051	.00009	.00141	.00032	.00001	.00058	.00008
%RSD	.44550	.24956	.28206	.39773	.19944	.31612	.32781	.12919
#1	.93382	.20514	.03265	.35371	.16225	.00435	.17574	.06421
#2	.93116	.20599	.03247	.35299	.16170	.00433	.17637	.06430
#3	.93932	.20507	.03260	.35571	.16227	.00432	.17522	.06413
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	.30100	.04546	.04644	.05744	1.1931	.02634	.36614	.63727
Stddev	.00155	.00017	.00019	.00011	.0025	.00020	.00158	.00290
%RSD	.51410	.36652	.40759	.19023	.20631	.75913	.43199	.45469
#1	.30091	.04563	.04665	.05751	1.1952	.02619	.36757	.63458
#2	.29951	.04547	.04630	.05749	1.1904	.02656	.36642	.63691
#3	.30260	.04530	.04635	.05731	1.1937	.02626	.36444	.64034
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	.12288	.34405	.00349	.03502	.01897	.61016	8.7930	
Stddev	.00049	.00048	.00003	.00007	.00003	.00307	.0475	
%RSD	.39526	.13827	.90191	.20195	.15190	.50284	.54068	
#1	.12287	.34448	.00346	.03510	.01899	.61299	8.8363	
#2	.12240	.34413	.00350	.03496	.01893	.61058	8.8005	
#3	.12337	.34354	.00352	.03501	.01898	.60690	8.7422	

Sample Name: S2 Acquired: 2/17/2025 11:02:18 Type: Cal
Method: NON EPA-6010-200.7(v2699) 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	3339.1	70308.	11856.	2425.0	4439.3
Stddev	10.3	217.	21.	3.4	14.3
%RSD	.30904	.30845	.17968	.14085	.32314
#1	3347.2	70430.	11864.	2421.1	4442.2
#2	3342.7	70437.	11831.	2426.5	4452.0
#3	3327.5	70058.	11871.	2427.4	4423.8

Sample Name: S3 Acquired: 2/17/2025 11:06:27 Type: Cal
Method: NON EPA-6010-200.7(v2699) 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	.13608	.11323	.54856	.14953	.33069	.37222	11.131	.47740
Stddev	.00095	.00113	.00156	.00055	.00177	.00091	.022	.00270
%RSD	.69809	1.0008	.28391	.37056	.53561	.24339	.20092	.56644
#1	.13555	.11279	.54794	.14956	.32984	.37293	11.129	.48051
#2	.13551	.11238	.54740	.14897	.32950	.37120	11.154	.47570
#3	.13718	.11452	.55033	.15007	.33272	.37254	11.109	.47597
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.6593	.57115	.09100	1.0011	.45495	.01293	.49108	.18086
Stddev	.0103	.00151	.00024	.0031	.00265	.00002	.00048	.00081
%RSD	.38863	.26401	.26178	.31252	.58312	.15863	.09806	.44677
#1	2.6560	.57262	.09122	.99980	.45341	.01295	.49104	.18145
#2	2.6510	.57124	.09075	.99885	.45343	.01292	.49158	.17994
#3	2.6709	.56961	.09104	1.0047	.45802	.01292	.49062	.18120
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	.84885	.12746	.14648	.16421	3.2661	.08090	.95614	1.7725
Stddev	.00343	.00014	.00091	.00011	.0104	.00026	.00401	.0091
%RSD	.40411	.11018	.62249	.06715	.31868	.32096	.41963	.51369
#1	.84716	.12749	.14559	.16410	3.2546	.08060	.96075	1.7684
#2	.84659	.12758	.14741	.16432	3.2689	.08100	.95348	1.7662
#3	.85280	.12731	.14643	.16419	3.2749	.08109	.95419	1.7830
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	.34994	.97171	.01046	.10451	.05564	1.7412	24.599	
Stddev	.00152	.00348	.00007	.00052	.00035	.0017	.213	
%RSD	.43359	.35822	.71501	.49760	.63241	.09569	.86400	
#1	.34976	.97528	.01038	.10409	.05533	1.7428	24.802	
#2	.34853	.97154	.01052	.10435	.05556	1.7414	24.617	
#3	.35154	.96832	.01049	.10509	.05602	1.7395	24.378	

Sample Name: S3 Acquired: 2/17/2025 11:06:27 Type: Cal
Method: NON EPA-6010-200.7(v2699) 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	3207.5	69253.	12548.	2359.9	4183.8
Stddev	5.6	96.	57.	6.8	6.3
%RSD	.17446	.13827	.45258	.28918	.15075
#1	3208.5	69354.	12483.	2367.5	4179.3
#2	3212.6	69164.	12575.	2357.9	4191.0
#3	3201.5	69239.	12587.	2354.3	4181.1

Sample Name: S4 Acquired: 2/17/2025 11:10:36 Type: Cal
Method: NON EPA-6010-200.7(v2699) 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	.27193	.22797	1.0922	.29720	.65986	.75218	22.419	.94983
Stddev	.00124	.00216	.0030	.00128	.00275	.00090	.124	.00404
%RSD	.45571	.94960	.27101	.43196	.41744	.11998	.55339	.42495

#1	.27210	.22713	1.0917	.29657	.65912	.75128	22.276	.94902
#2	.27061	.22635	1.0896	.29634	.65755	.75217	22.487	.94626
#3	.27307	.23043	1.0955	.29867	.66291	.75308	22.495	.95421

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5.3236	1.1407	.17857	1.9998	.89459	.02546	.97327	.36565
Stddev	.0195	.0017	.00044	.0076	.00362	.00015	.00240	.00050
%RSD	.36585	.14687	.24628	.37789	.40518	.60555	.24649	.13794

#1	5.3276	1.1426	.17907	2.0000	.89262	.02563	.97597	.36507
#2	5.3024	1.1395	.17839	1.9921	.89238	.02543	.97139	.36601
#3	5.3407	1.1400	.17825	2.0072	.89878	.02532	.97246	.36587

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	1.6856	.25248	.29503	.33158	6.4056	.16144	1.9160	3.5127
Stddev	.0052	.00024	.00166	.00007	.0256	.00086	.0070	.0153
%RSD	.31090	.09700	.56357	.02136	.39952	.53539	.36393	.43449

#1	1.6868	.25264	.29645	.33155	6.4160	.16189	1.9091	3.5092
#2	1.6798	.25260	.29545	.33166	6.4243	.16199	1.9157	3.4994
#3	1.6901	.25219	.29320	.33153	6.3764	.16045	1.9231	3.5294

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	.69984	1.9456	.02084	.21358	.11284	3.5271	49.986
Stddev	.00222	.0044	.00006	.00047	.00053	.0081	.092
%RSD	.31783	.22496	.28727	.21858	.47008	.23008	.18377

#1	.69943	1.9495	.02088	.21361	.11277	3.5324	50.088
#2	.69785	1.9464	.02077	.21310	.11235	3.5312	49.909
#3	.70224	1.9409	.02087	.21403	.11340	3.5178	49.962

Sample Name: S4 Acquired: 2/17/2025 11:10:36 Type: Cal
Method: NON EPA-6010-200.7(v2699) 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	3137.4	68393.	12199.	2293.4	4033.7
Stddev	9.1	28.	54.	2.9	10.6
%RSD	.29059	.04148	.43862	.12526	.26200
#1	3139.6	68420.	12246.	2291.0	4033.9
#2	3145.2	68364.	12208.	2292.6	4044.3
#3	3127.4	68394.	12141.	2296.6	4023.1

Sample Name: S5 Acquired: 2/17/2025 11:14:49 Type: Cal
Method: NON EPA-6010-200.7(v2699) 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	.52909	.44361	2.1466	.57235	1.2889	1.5268	45.257	1.9015
Stddev	.00196	.00199	.0084	.00207	.0037	.0022	.080	.0090
%RSD	.36952	.44819	.38977	.36154	.28354	.14070	.17764	.47473

#1	.53116	.44528	2.1562	.57458	1.2929	1.5286	45.277	1.9080
#2	.52728	.44141	2.1425	.57049	1.2858	1.5245	45.169	1.8912
#3	.52883	.44413	2.1411	.57196	1.2880	1.5274	45.326	1.9053

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	10.460	2.2923	.34745	3.9636	1.7243	.04998	1.9592	.74409
Stddev	.040	.0048	.00126	.0134	.0062	.00032	.0087	.00257
%RSD	.38256	.20773	.36141	.33686	.35758	.63262	.44363	.34555

#1	10.506	2.2964	.34605	3.9790	1.7314	.04967	1.9648	.74568
#2	10.441	2.2871	.34783	3.9545	1.7201	.05030	1.9492	.74113
#3	10.434	2.2932	.34847	3.9575	1.7214	.04997	1.9637	.74547

Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.3132	.50112	.59554	.66997	12.563	.32367	3.8624	6.8619
Stddev	.0109	.00127	.00141	.00140	.074	.00134	.0223	.0222
%RSD	.32755	.25381	.23739	.20895	.59048	.41476	.57795	.32377

#1	3.3257	.49967	.59448	.67014	12.519	.32233	3.8748	6.8876
#2	3.3072	.50166	.59714	.66849	12.521	.32502	3.8367	6.8495
#3	3.3066	.50203	.59499	.67128	12.649	.32365	3.8759	6.8487

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	1.3757	3.9387	.04182	.43276	.22574	7.2462	99.133	
Stddev	.0053	.0104	.00023	.00196	.00099	.0188	.116	
%RSD	.38801	.26527	.55375	.45327	.43948	.25907	.11727	

#1	1.3818	3.9504	.04155	.43502	.22671	7.2669	99.063	
#2	1.3720	3.9304	.04195	.43154	.22473	7.2302	99.267	
#3	1.3732	3.9353	.04195	.43172	.22578	7.2416	99.070	

Sample Name: S5 Acquired: 2/17/2025 11:14:49 Type: Cal
Method: NON EPA-6010-200.7(v2699) 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	3097.1	66848.	11679.	2237.8	3904.1
Stddev	8.5	306.	55.	17.8	10.5
%RSD	.27331	.45810	.47117	.79715	.26847
#1	3087.6	67198.	11667.	2253.5	3892.6
#2	3104.0	66714.	11739.	2241.5	3913.2
#3	3099.6	66631.	11631.	2218.4	3906.6

Sample Name: ICV01 Acquired: 2/17/2025 11:46:51 Type: Unk
Method: NON EPA-6010-200.7(v2700) 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	1.006294	1.052004	.9678554	1.012969	1.019942	2.371238
Stddev	.001063	.004534	.0026436	.001237	.002656	.011146
%RSD	.1056245	.4310260	.2731423	.1220932	.2603877	.4700695

#1	1.005909	1.047004	.9708908	1.011612	1.023008	2.369568
#2	1.007496	1.055849	.9666183	1.014032	1.018438	2.383126
#3	1.005478	1.053159	.9660572	1.013264	1.018379	2.361021

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5379416	.4735450	.4839453	9.176154	.5190373	.4851912
Stddev	.0018349	.0040324	.0005160	.035716	.0006659	.0010830
%RSD	.3410972	.8515415	.1066310	.3892304	.1282919	.2232134

#1	.5364556	.4759566	.4844138	9.190890	.5183520	.4864289
#2	.5373766	.4757887	.4833922	9.202145	.5196819	.4844178
#3	.5399926	.4688898	.4840299	9.135427	.5190780	.4847268

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5033140	9.357191	.5436488	5.511829	.4839010	.2478660
Stddev	.0005959	.063282	.0009192	.012254	.0012215	.0004980
%RSD	.1184001	.6762929	.1690809	.2223221	.2524192	.2009030

#1	.5039484	9.329379	.5447075	5.507998	.4848743	.2477871
#2	.5032275	9.312578	.5430539	5.525541	.4825303	.2483987
#3	.5027660	9.429616	.5431850	5.501949	.4842983	.2474121

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.732504	.4651008	.9928101	9.328467	F -.026299	F -.000240
Stddev	.093452	.0039703	.0005217	.040161	.000389	.000257
%RSD	.9602070	.8536493	.0525524	.4305176	1.477771	106.9463

#1	9.660083	.4661091	.9933998	9.292756	-.026545	-.000382
#2	9.699435	.4684697	.9924083	9.320702	-.025851	-.000396
#3	9.837994	.4607235	.9926222	9.371944	-.026501	.000056

Sample Name: ICV01 Acquired: 2/17/2025 11:46:51 Type: Unk
Method: NON EPA-6010-200.7(v2700) 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	F -.000756	F .0003112	F -.006912	F -.002710	F -.003327	F .0017937
Stddev	.000314	.0004229	.005287	.001759	.001660	.0006709
%RSD	41.54658	135.8729	76.48913	64.89930	49.90298	37.40427

#1	-.000398	.0007472	-.001430	-.004160	-.001508	.0022018
#2	-.000882	.0002837	-.011980	-.000754	-.004761	.0010194
#3	-.000987	-.000097	-.007327	-.003215	-.003712	.0021599

Elem	Sr4077
Units	ppm
Avg	F -.008397
Stddev	.000025
%RSD	.2988337

#1	-.008383
#2	-.008381
#3	-.008426

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3234.146	68749.56	12831.41	2226.074	4385.296
Stddev	8.734	156.05	64.71	8.277	10.401
%RSD	.2700557	.2269766	.5043037	.3718189	.2371693

#1	3224.173	68925.13	12810.48	2232.623	4373.813
#2	3240.430	68626.67	12779.75	2228.828	4394.083
#3	3237.836	68696.89	12903.99	2216.771	4387.991

Sample Name: LLICV01 Acquired: 2/17/2025 11:50:59 Type: Unk
Method: NON EPA-6010-200.7(v2700) 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	.0190268	.0374070	.0128924	.0201131	.0513951	.0957038
Stddev	.0014983	.0006421	.0008413	.0001615	.0017806	.0034711
%RSD	7.874445	1.716544	6.525252	.8029864	3.464527	3.626920

#1	.0198779	.0379943	.0131808	.0202491	.0501910	.0929399
#2	.0172968	.0375054	.0135516	.0199346	.0534404	.0995996
#3	.0199057	.0367215	.0119449	.0201556	.0505538	.0945721

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1084819	.0056178	.0059357	1.877558	.0100332	.0286494
Stddev	.0014658	.0000565	.0000696	.007072	.0002546	.0001687
%RSD	1.351202	1.005988	1.173469	.3766856	2.537919	.5889244

#1	.1097989	.0056467	.0059298	1.884253	.0102579	.0286122
#2	.1069027	.0055527	.0060081	1.870160	.0097566	.0285024
#3	.1087443	.0056540	.0058691	1.878261	.0100852	.0288337

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0223097	.0908917	.0219551	1.996031	.0379286	.0107330
Stddev	.0002820	.0024485	.0006450	.015423	.0001441	.0002466
%RSD	1.264180	2.693913	2.937923	.7726792	.3800175	2.297561

#1	.0226354	.0907404	.0225874	1.992057	.0377908	.0109122
#2	.0221473	.0885223	.0212981	1.982983	.0380783	.0108350
#3	.0221465	.0934124	.0219798	2.013051	.0379166	.0104518

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.026007	.0356005	.0439417	1.980865	.0869480	.2028140
Stddev	.028455	.0003733	.0005254	.004504	.0006405	.0009300
%RSD	1.404498	1.048528	1.195769	.2273769	.7366977	.4585476

#1	2.021504	.0359370	.0433578	1.986045	.0864981	.2021455
#2	2.056445	.0351990	.0443764	1.978679	.0866645	.2024204
#3	2.000072	.0356654	.0440909	1.977872	.0876813	.2038761

Sample Name: LLICV01 Acquired: 2/17/2025 11:50:59 Type: Unk
Method: NON EPA-6010-200.7(v2700) 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	.0385245	.0373826	.3829095	F .0138061	F .0159932	.0166740
Stddev	.0008906	.0004421	.0138394	.0018413	.0025789	.0005478
%RSD	2.311865	1.182753	3.614263	13.33660	16.12467	3.285566

#1	.0385209	.0377790	.3678144	.0138726	.0133260	.0169692
#2	.0394169	.0374630	.3949992	.0119325	.0184735	.0170110
#3	.0376357	.0369058	.3859150	.0156133	.0161801	.0160419

Elem	Sr4077
Units	ppm
Avg	.0181839
Stddev	.0000801
%RSD	.4403162

#1	.0182744
#2	.0181548
#3	.0181224

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3227.063	68809.97	12974.09	2230.917	4418.921
Stddev	7.886	252.48	90.82	6.402	10.880
%RSD	.2443835	.3669203	.7000101	.2869711	.2462245

#1	3234.587	68789.27	12908.72	2225.847	4430.410
#2	3227.744	69072.16	13077.79	2228.791	4417.580
#3	3218.858	68568.48	12935.76	2238.111	4408.773

Sample Name: ICB01 Acquired: 2/17/2025 11:56:19 Type: Unk
Method: NON EPA-6010-200.7(v2701) 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	-.001508	-.000295	.0005339	.0016764	-.000489	.0003898	-.002299
Stddev	.001923	.002592	.0007986	.0031269	.000945	.0025482	.000490
%RSD	127.4744	879.4315	149.5816	186.5270	193.5166	653.6877	21.31742
#1	.000057	-.002958	.0005780	.0034339	-.000480	-.000234	-.002225
#2	-.003654	.002219	.0013095	.0035291	-.001438	-.001789	-.001850
#3	-.000928	-.000144	-.000286	-.001934	.000452	.003192	-.002822
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000580	.0000251	-.013520	-.000023	-.000015	.0000578	-.004656
Stddev	.0000599	.0000694	.005492	.000165	.000114	.0003716	.001880
%RSD	103.3069	276.1719	40.61664	709.5898	737.2501	642.5829	40.38413
#1	.0000281	.0001012	-.008185	-.000104	-.000147	-.000370	-.002631
#2	.0001270	.0000089	-.019156	.000167	.000043	.000243	-.004992
#3	.0000190	-.000035	-.013220	-.000132	.000058	.000300	-.006346
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000192	.0018446	-.000169	.0003486	-.003165	-.000459	-.000526
Stddev	.000090	.0085969	.000624	.0005671	.011386	.000334	.000013
%RSD	47.19015	466.0652	369.6354	162.6964	359.7513	72.76564	2.547880
#1	-.000242	.0109931	-.000789	-.000194	.002129	-.000085	-.000516
#2	-.000087	-.006067	-.000175	.000302	.004610	-.000562	-.000521
#3	-.000245	.000607	.000458	.000938	-.016234	-.000729	-.000541
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0663185	-.006330	.0000481	.0001622	.0013763	.0004923	-.004186
Stddev	.0064105	.000472	.0001284	.0004060	.0003288	.0085631	.000430
%RSD	9.666283	7.463115	266.8328	250.3305	23.88766	1739.268	10.26174
#1	.0614008	-.006184	.0000627	.0004525	.0013675	.0052239	-.003855
#2	.0735687	-.005948	.0001687	-.000302	.0010521	-.009393	-.004671
#3	.0639858	-.006858	-.000087	.000336	.0017094	.005646	-.004030

Sample Name: ICB01 Acquired: 2/17/2025 11:56:19 Type: Unk
Method: NON EPA-6010-200.7(v2701) 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	-.001845	-.000977	-.000131
Stddev	.000748	.000967	.000010
%RSD	40.56065	99.00916	7.577215

#1	-.002553	-.002085	-.000120
#2	-.001062	-.000537	-.000133
#3	-.001920	-.000308	-.000140

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3191.282	68468.68	12448.05	2228.641	4367.958
Stddev	6.269	261.33	66.00	13.945	10.561
%RSD	.1964374	.3816783	.5302083	.6257212	.2417724

#1	3186.010	68176.28	12523.22	2214.994	4362.027
#2	3189.623	68550.28	12421.33	2228.062	4361.698
#3	3198.214	68679.47	12399.59	2242.866	4380.151

Sample Name: CRI01 Acquired: 2/17/2025 12:00:41 Type: Unk
Method: NON EPA-6010-200.7(v2701) 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	.0202888	.0347860	.0115932	.0188962	.0495008	.0980575	.0824554
Stddev	.0009944	.0026547	.0005878	.0001342	.0008898	.0056097	.0006780
%RSD	4.901248	7.631386	5.070109	.7099761	1.797495	5.720866	.8222507

#1	.0196447	.0331398	.0113165	.0188804	.0485869	.0981974	.0816784
#2	.0214340	.0333698	.0111948	.0190375	.0503644	.0923792	.0827606
#3	.0197876	.0378485	.0122683	.0187706	.0495512	.1035960	.0829271

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0059422	.0058939	1.864540	.0098714	.0283723	.0217648	.0865193
Stddev	.0000305	.0000513	.008733	.0002518	.0000665	.0000892	.0040939
%RSD	.5134264	.8697060	.4683557	2.550970	.2345421	.4100229	4.731756

#1	.0059134	.0058375	1.855542	.0097089	.0283274	.0218005	.0912393
#2	.0059742	.0059063	1.872980	.0097439	.0284487	.0216633	.0843854
#3	.0059391	.0059378	1.865096	.0101615	.0283408	.0218307	.0839332

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0219893	2.012319	.0373210	.0102987	1.574384	.0370417	.0435080
Stddev	.0006668	.028350	.0002989	.0007261	.007771	.0008280	.0003886
%RSD	3.032418	1.408830	.8010360	7.050220	.4935916	2.235195	.8931998

#1	.0218520	1.979601	.0371171	.0096373	1.582730	.0362570	.0431506
#2	.0214019	2.027752	.0371818	.0110756	1.567357	.0379070	.0439217
#3	.0227141	2.029605	.0376642	.0101832	1.573065	.0369611	.0434517

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.823503	.0928136	.2016747	.0375332	.0366863	.3573938	.0159780
Stddev	.015549	.0011517	.0007277	.0008215	.0006323	.0051703	.0015790
%RSD	.8526780	1.240864	.3608549	2.188835	1.723385	1.446668	9.882337

#1	1.841419	.0914844	.2008600	.0382209	.0359676	.3552714	.0149643
#2	1.813542	.0934441	.2022606	.0377553	.0369344	.3536224	.0151723
#3	1.815547	.0935124	.2019033	.0366235	.0371568	.3632876	.0177973

Sample Name: CRI01 Acquired: 2/17/2025 12:00:41 Type: Unk
Method: NON EPA-6010-200.7(v2701) 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	.0146601	.0169333	.0179896
Stddev	.0027229	.0010495	.0000882
%RSD	18.57337	6.197743	.4905165

#1	.0117215	.0181043	.0180914
#2	.0151614	.0166179	.0179356
#3	.0170976	.0160777	.0179417

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3291.400	69141.23	12182.23	2257.488	4530.472
Stddev	2.272	180.90	49.93	7.527	9.480
%RSD	.0690192	.2616412	.4098395	.3334104	.2092440

#1	3292.065	68932.40	12239.77	2248.982	4529.628
#2	3293.265	69241.36	12150.28	2260.196	4540.346
#3	3288.870	69249.93	12156.65	2263.286	4521.443

Sample Name: ICSA01 Acquired: 2/17/2025 12:05:00 Type: Unk
Method: NON EPA-6010-200.7(v2701) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002184	-.005749	.0060521	-.014135	-.002593	240.5043
Stddev	.0023032	.004627	.0011050	.001025	.001476	.3956
%RSD	1054.591	80.49716	18.25827	7.250775	56.93527	.1645048

#1	.0018335	-.010951	.0072975	-.015261	-.004297	240.6657
#2	-.002419	-.002091	.0056700	-.013256	-.001768	240.7938
#3	.001241	-.004205	.0051889	-.013888	-.001713	240.0535

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0035364	.0013718	.0052802	221.5732	.0581393	.0014585
Stddev	.0005485	.0000594	.0001578	.2085	.0001439	.0001815
%RSD	15.50888	4.332571	2.987542	.0940882	.2475526	12.44228

#1	.0041473	.0013748	.0052350	221.7822	.0581146	.0016051
#2	.0030864	.0013110	.0051500	221.5721	.0582941	.0012555
#3	.0033756	.0014297	.0054556	221.3653	.0580094	.0015148

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0199681	95.57576	.0050987	240.5542	.0021776	-.004347
Stddev	.0001524	.17831	.0005953	.3709	.0005617	.000214
%RSD	.7632757	.1865652	11.67518	.1541689	25.79533	4.924588

#1	.0199392	95.66256	.0045278	240.9555	.0027249	-.004473
#2	.0198323	95.37067	.0050527	240.4828	.0022054	-.004468
#3	.0201330	95.69406	.0057157	240.2242	.0016025	-.004100

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0487237	.0016138	.0027894	.1133267	F -.200928	.0004421
Stddev	.0090259	.0010700	.0006546	.0283659	.003391	.0002042
%RSD	18.52474	66.30222	23.46624	25.03020	1.687531	46.19351

#1	.0562006	.0027047	.0026969	.0808704	-.201636	.0006300
#2	.0512733	.0005660	.0034853	.1333714	-.203908	.0002247
#3	.0386972	.0015708	.0021861	.1257384	-.197239	.0004716

Sample Name: ICSA01 Acquired: 2/17/2025 12:05:00 Type: Unk
Method: NON EPA-6010-200.7(v2701) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003347	-.000155	.0164951	.0005853	F -.020197	.0014189
Stddev	.000534	.000255	.0104051	.0008339	.004757	.0015111
%RSD	15.94522	164.7108	63.07986	142.4865	23.55286	106.4952

#1	-.003240	.000061	.0064500	.0015480	-.015071	.0028339
#2	-.002874	-.000437	.0272263	.0001191	-.021052	-.000173
#3	-.003926	-.000089	.0158091	.0000887	-.024469	.001596

Elem	Sr4077
Units	ppm
Avg	-.006003
Stddev	.000248
%RSD	4.134778

#1	-.006154
#2	-.005716
#3	-.006138

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2910.260	61015.08	12252.26	1985.145	3707.608
Stddev	4.538	221.77	64.57	10.872	1.619
%RSD	.1559200	.3634640	.5269870	.5476517	.0436718

#1	2914.848	60854.20	12214.65	1981.652	3707.959
#2	2910.158	60922.98	12215.31	1976.449	3705.842
#3	2905.775	61268.06	12326.81	1997.333	3709.022

Sample Name: ICSAB01 Acquired: 2/17/2025 12:09:17 Type: Unk
Method: NON EPA-6010-200.7(v2701) 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	.1137808	.0976582	.0566603	.0391603	.6583301	245.9933
Stddev	.0027371	.0034499	.0025583	.0028035	.0031224	.1951
%RSD	2.405545	3.532669	4.515067	7.159012	.4742917	.0792980

#1	.1107808	.0936751	.0555128	.0372006	.6558441	245.7712
#2	.1161418	.0997075	.0595914	.0423716	.6618346	246.0720
#3	.1144197	.0995919	.0548766	.0379087	.6573117	246.1368

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4496569	.4723280	1.010983	225.8506	.5830049	.5057451
Stddev	.0011719	.0031146	.002971	.3923	.0017870	.0010661
%RSD	.2606191	.6594213	.2938836	.1736962	.3065212	.2108047

#1	.4493135	.4722379	1.007740	225.8090	.5849495	.5045267
#2	.4509622	.4692594	1.011633	225.4808	.5826303	.5062015
#3	.4486951	.4754867	1.013574	226.2620	.5814348	.5065070

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5266982	100.0642	.5279003	245.7921	.9935846	.2172935
Stddev	.0009425	.5143	.0021318	.8889	.0027464	.0001196
%RSD	.1789367	.5139268	.4038236	.3616533	.2764161	.0550559

#1	.5277764	100.0796	.5271324	245.3689	.9910882	.2172707
#2	.5262862	100.5706	.5262589	245.1939	.9931391	.2171869
#3	.5260318	99.5425	.5303097	246.8135	.9965266	.2174229

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0708454	.4642386	1.063975	.1537226	F -.193445	F .0003917
Stddev	.0129933	.0013606	.001860	.0168428	.003905	.0000953
%RSD	18.34030	.2930704	.1748009	10.95660	2.018908	24.32955

#1	.0677167	.4626781	1.066071	.1418631	-.194959	.0003376
#2	.0851174	.4651756	1.062524	.1463035	-.189009	.0003357
#3	.0597022	.4648622	1.063328	.1730013	-.196366	.0005017

Sample Name: ICSAB01 Acquired: 2/17/2025 12:09:17 Type: Unk
Method: NON EPA-6010-200.7(v2701) 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 -.004008	F -.001349	F .0106325	F .0023740	F -.021525	F .0023957
Stddev	.000790	.000566	.0102449	.0031007	.005120	.0009264
%RSD	19.71198	41.92877	96.35467	130.6093	23.78800	38.66809

#1	-.004395	-.001434	.0122916	-.001205	-.026856	.0020578
#2	-.003099	-.000746	.0199465	.004236	-.016645	.0034436
#3	-.004529	-.001867	-.000341	.004091	-.021074	.0016857

Elem	Sr4077
Units	ppm
Avg	F -.008426
Stddev	.000353
%RSD	4.184597

#1	-.008327
#2	-.008817
#3	-.008133

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2811.704	60440.79	12559.56	1943.135	3599.200
Stddev	2.795	183.70	59.04	2.528	8.353
%RSD	.0994131	.3039370	.4700640	.1301097	.2320688

#1	2813.787	60265.61	12546.70	1943.845	3608.164
#2	2808.528	60424.77	12623.97	1940.328	3597.800
#3	2812.798	60631.97	12508.01	1945.232	3591.636

Sample Name: CCV01 Acquired: 2/17/2025 12:13:29 Type: Unk
Method: NON EPA-6010-200.7(v2701) 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	5.039280	5.142299	4.888744	5.086911	5.140657	9.704861	9.086485
Stddev	.017004	.019692	.021649	.015726	.021928	.031617	.152127
%RSD	.3374238	.3829465	.4428289	.3091519	.4265695	.3257887	1.674211
#1	5.030308	5.135423	4.878140	5.080447	5.121014	9.680129	9.260611
#2	5.028642	5.126966	4.874442	5.075447	5.136640	9.740484	8.979356
#3	5.058891	5.164507	4.913650	5.104839	5.164316	9.693970	9.019487
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2326913	2.439167	23.40047	1.020326	2.432759	1.246189	4.910228
Stddev	.0009954	.010194	.06579	.001023	.012026	.006093	.021433
%RSD	.4277630	.4179370	.2811385	.1002394	.4943377	.4888925	.4365008
#1	.2338023	2.434466	23.45977	1.021475	2.427285	1.241492	4.903422
#2	.2318810	2.432171	23.41195	1.019514	2.424444	1.244001	4.934238
#3	.2323905	2.450864	23.32970	1.019990	2.446548	1.253073	4.893024
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.669375	23.70147	2.415230	1.243535	24.35755	2.376189	2.504002
Stddev	.003330	.05500	.011215	.001299	.12709	.007213	.004958
%RSD	.1247314	.2320635	.4643292	.1044418	.5217844	.3035577	.1980167
#1	2.671975	23.72115	2.412927	1.244131	24.25293	2.379018	2.509715
#2	2.670527	23.74393	2.405346	1.244429	24.49899	2.381558	2.501484
#3	2.665622	23.63934	2.427418	1.242046	24.32073	2.367990	2.500809
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.09648	4.541756	5.069237	4.911226	4.640571	5.164408	4.843818
Stddev	.12699	.023545	.017248	.021820	.005744	.044028	.025589
%RSD	.5060103	.5184058	.3402415	.4442782	.1237709	.8525200	.5282801
#1	24.95852	4.565288	5.053124	4.896674	4.641207	5.123897	4.822842
#2	25.20850	4.518199	5.067157	4.900691	4.645970	5.211263	4.836283
#3	25.12241	4.541781	5.087430	4.936314	4.634536	5.158063	4.872328

Sample Name: CCV01 Acquired: 2/17/2025 12:13:29 Type: Unk
Method: NON EPA-6010-200.7(v2701) 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	4.831280	4.648319	4.658638		
Stddev	.025345	.018658	.022306		
%RSD	.5246011	.4013985	.4788037		
#1	4.816014	4.639302	4.677365		
#2	4.817290	4.669774	4.633961		
#3	4.860537	4.635883	4.664589		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3091.424	65744.84	12646.21	2109.289	4057.080
Stddev	9.565	91.29	63.01	7.974	15.375
%RSD	.3093955	.1388522	.4982320	.3780210	.3789738
#1	3099.402	65679.02	12573.48	2100.154	4063.955
#2	3094.049	65706.44	12684.07	2112.856	4067.819
#3	3080.821	65849.05	12681.09	2114.856	4039.467

Sample Name: CCB01 Acquired: 2/17/2025 12:17:41 Type: Unk
Method: NON EPA-6010-200.7(v2701) 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	-.001563	-.001172	.0001279	.0007679	-.000484	-.002033	-.000856
Stddev	.002221	.001224	.0009678	.0028238	.000443	.002323	.000591
%RSD	142.1502	104.3959	756.5729	367.7455	91.61195	114.2894	68.96516

#1	-.003251	-.002378	.0009461	-.002281	-.000686	-.001137	-.001527
#2	-.002391	.000069	.0003780	.001291	.000024	-.000290	-.000413
#3	.000954	-.001208	-.000940	.003294	-.000791	-.004670	-.000629

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000638	.0000134	-.010914	-.000097	-.000142	.0003701	-.001710
Stddev	.0000266	.0000560	.006252	.000157	.000062	.0001764	.004564
%RSD	41.66937	419.1264	57.28648	162.1351	43.63622	47.65056	266.9044

#1	.0000441	-.000015	-.017822	-.000205	-.000141	.0003664	-.001154
#2	.0000534	.000078	-.009274	.000083	-.000204	.0001956	.002550
#3	.0000941	-.000023	-.005645	-.000169	-.000080	.0005483	-.006526

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000478	.0109648	-.000223	.0007192	.0114586	-.001024	-.000564
Stddev	.0001262	.0125769	.000091	.0002189	.0079425	.000366	.000395
%RSD	264.1083	114.7023	40.96949	30.43078	69.31418	35.79265	70.13534

#1	-.000017	.0197162	-.000323	.0004944	.0121726	-.001421	-.000494
#2	-.000033	.0166259	-.000146	.0007316	.0031833	-.000951	-.000208
#3	.000193	-.003448	-.000199	.0009316	.0190200	-.000699	-.000989

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0782580	.0073524	-.000015	.0003850	.0006402	.0090310	-.002838
Stddev	.0110676	.0001485	.000239	.0007117	.0005789	.0032359	.001179
%RSD	14.14239	2.019142	1643.476	184.8745	90.42218	35.83071	41.54338

#1	.0753653	.0075169	-.000284	.0007405	.0012665	.0090214	-.002311
#2	.0904846	.0073122	.000169	-.000434	.0005292	.0058000	-.004188
#3	.0689240	.0072283	.000071	.000849	.0001249	.0122718	-.002014

Sample Name: CCB01 Acquired: 2/17/2025 12:17:41 Type: Unk
Method: NON EPA-6010-200.7(v2701) 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	-.004386	-.001764	-.000022
Stddev	.001859	.000255	.000004
%RSD	42.37495	14.47895	18.97626

#1	-.002617	-.001839	-.000025
#2	-.006323	-.001974	-.000024
#3	-.004218	-.001480	-.000017

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3232.916	68835.58	12720.20	2218.066	4471.882
Stddev	8.204	140.34	21.61	5.694	8.060
%RSD	.2537669	.2038782	.1698919	.2567162	.1802394

#1	3227.842	68985.77	12745.06	2224.178	4472.855
#2	3242.382	68707.79	12705.94	2212.911	4479.411
#3	3228.526	68813.18	12709.58	2217.110	4463.379

Sample Name: Q1366-01 Acquired: 2/17/2025 12:23:52 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.0954777	-.098354	.1263690	-.083372	-.006535	193.1173	.5618873
Stddev	.0024565	.004547	.0022140	.001302	.000834	5.4989	.0130704
%RSD	2.572810	4.623596	1.751998	1.562218	12.76893	2.847428	2.326160

#1	.0949185	-.093110	.1263886	-.084505	-.007462	187.5563	.5469117
#2	.0933491	-.100737	.1285730	-.081949	-.006299	193.2438	.5677524
#3	.0981656	-.101214	.1241452	-.083662	-.005844	198.5519	.5709978

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0126334	.0483968	36.66879	.1905494	.2539202	.2206360	313.7344
Stddev	.0002385	.0001650	.85825	.0007885	.0006301	.0032763	4.2832
%RSD	1.887637	.3409721	2.340543	.4138311	.2481387	1.484937	1.365224

#1	.0123994	.0485216	35.69022	.1913346	.2533169	.2242182	309.4746
#2	.0126244	.0484590	37.02246	.1905560	.2545740	.2198983	313.6880
#3	.0128761	.0482097	37.29369	.1897576	.2538697	.2177913	318.0406

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.658027	31.49199	.2276344	-.017907	3.703415	.5051727	.3731788
Stddev	.084248	.80334	.0004299	.001043	.010651	.0132847	.0001455
%RSD	2.303089	2.550937	.1888710	5.824544	.2875859	2.629725	.0389800

#1	3.562374	30.58316	.2278355	-.019067	3.693277	.4905399	.3732453
#2	3.690505	31.78557	.2271407	-.017609	3.714513	.5085023	.3732791
#3	3.721201	32.10725	.2279269	-.017046	3.702453	.5164758	.3730120

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.924895	-.176684	.0040159	-.013269	9.691099	4.955419	8.298959
Stddev	.030244	.010803	.0002019	.001604	.221033	.034787	.028296
%RSD	.3047268	6.114329	5.026965	12.09210	2.280782	.7019998	.3409547

#1	9.890517	-.164269	.0037847	-.012505	9.440478	4.916665	8.268732
#2	9.947403	-.183942	.0041571	-.015113	9.774609	4.983949	8.303333
#3	9.936765	-.181841	.0041061	-.012189	9.858210	4.965641	8.324814

Sample Name: Q1366-01 Acquired: 2/17/2025 12:23:52 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	3.709828	.2094512	-.186135
Stddev	.002003	.0033674	.001931
%RSD	.0539876	1.607706	1.037367

#1	3.708712	.2056583	-.185111
#2	3.708633	.2106061	-.184931
#3	3.712141	.2120891	-.188362

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4830.664	102741.0	20289.08	3358.459	3828.517
Stddev	7.937	260.7	341.70	8.422	6.388
%RSD	.1643107	.2537747	1.684146	.2507573	.1668603

#1	4839.311	102472.2	20676.38	3353.620	3835.051
#2	4828.972	102758.0	20160.68	3353.573	3828.213
#3	4823.709	102992.8	20030.19	3368.183	3822.286

Sample Name: Q1366-01DUP Acquired: 2/17/2025 12:28:08 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.0963040	-.101538	.1290081	-.084664	-.005133	199.2897	.5772562
Stddev	.0025958	.003221	.0023464	.002585	.001123	.8004	.0010356
%RSD	2.695440	3.172097	1.818761	3.053091	21.88312	.4016054	.1794091

#1	.0961410	-.099297	.1304330	-.085875	-.006401	200.0117	.5777168
#2	.0989774	-.105229	.1302912	-.086422	-.004734	199.4283	.5779816
#3	.0937935	-.100089	.1263000	-.081696	-.004264	198.4290	.5760701

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0120544	.0474888	37.22231	.1891338	.2527673	.2127067	323.8080
Stddev	.0000484	.0004143	.02686	.0003854	.0003702	.0022695	1.6190
%RSD	.4012986	.8724227	.0721584	.2037874	.1464528	1.066981	.4999871

#1	.0120293	.0470110	37.23445	.1895718	.2523905	.2121987	324.4509
#2	.0120238	.0477486	37.19152	.1888467	.2527810	.2107342	325.0068
#3	.0121102	.0477067	37.24095	.1889828	.2531305	.2151872	321.9663

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.692029	32.17116	.2265472	-.014527	3.982910	.5176632	.3685716
Stddev	.008018	.08973	.0005239	.000424	.031387	.0026106	.0016297
%RSD	.2171739	.2789176	.2312618	2.917003	.7880395	.5043136	.4421657

#1	3.699259	32.20557	.2259780	-.014789	3.984333	.5162039	.3675235
#2	3.693423	32.06932	.2266543	-.014038	4.013561	.5206772	.3704492
#3	3.683406	32.23860	.2270092	-.014753	3.950836	.5161086	.3677421

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.46043	-.162133	.0039089	-.012496	9.872992	5.238644	8.377248
Stddev	.03225	.006229	.0001843	.000521	.006737	.016961	.017728
%RSD	.3083179	3.842111	4.713633	4.166697	.0682361	.3237670	.2116239

#1	10.48025	-.159325	.0041211	-.011900	9.875689	5.251447	8.356827
#2	10.47782	-.157801	.0038158	-.012863	9.877963	5.245078	8.386228
#3	10.42321	-.169272	.0037897	-.012724	9.865324	5.219408	8.388690

Sample Name: Q1366-01DUP Acquired: 2/17/2025 12:28:08 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	3.774439	.2159133	-.193085
Stddev	.014882	.0005253	.001258
%RSD	.3942782	.2432793	.6516080

#1	3.757303	.2158625	-.193642
#2	3.784110	.2164621	-.193969
#3	3.781906	.2154152	-.191645

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4769.699	103503.3	21077.15	3326.440	3803.594
Stddev	4.665	62.1	95.47	15.636	5.759
%RSD	.0977993	.0600339	.4529725	.4700584	.1514048

#1	4774.321	103448.7	21090.66	3338.269	3810.142
#2	4764.992	103570.9	21165.15	3308.712	3801.324
#3	4769.786	103490.3	20975.65	3332.339	3799.316

Sample Name: Q1366-01LX5 Acquired: 2/17/2025 12:32:27 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.0266146	-.014776	.0273305	-.022234	-.004612	57.46890	.1660617
Stddev	.0013683	.001076	.0009003	.000975	.000742	.07010	.0006990
%RSD	5.141100	7.281934	3.294325	4.384604	16.08573	.1219727	.4209350

#1	.0256307	-.015974	.0282400	-.023258	-.004393	57.52839	.1653699
#2	.0260360	-.013891	.0264396	-.022126	-.005438	57.48668	.1667677
#3	.0281771	-.014462	.0273118	-.021318	-.004004	57.39162	.1660476

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0037405	.0054968	11.21990	.0562437	.0499698	.0667792	96.89847
Stddev	.0000457	.0001073	.01670	.0003620	.0001647	.0005065	.48000
%RSD	1.221733	1.952239	.1488464	.6436809	.3297010	.7585131	.4953675

#1	.0037575	.0056011	11.22126	.0565917	.0501582	.0669285	96.47280
#2	.0036887	.0053867	11.23587	.0558691	.0498528	.0662148	96.80388
#3	.0037752	.0055026	11.20256	.0562705	.0498982	.0671943	97.41872

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.112788	9.603836	.0471932	-.003494	1.093916	.1534548	.1078260
Stddev	.004049	.045752	.0004870	.000308	.022625	.0011797	.0003724
%RSD	.3638890	.4763939	1.032024	8.813146	2.068275	.7687747	.3454167

#1	1.110087	9.628146	.0477075	-.003610	1.079221	.1532544	.1073983
#2	1.117444	9.632302	.0467389	-.003728	1.082557	.1547218	.1080002
#3	1.110832	9.551061	.0471331	-.003145	1.119970	.1523881	.1080793

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.913005	-.041474	.0011218	-.002460	2.912645	1.482874	1.673015
Stddev	.006568	.001557	.0002298	.000558	.004907	.016467	.009123
%RSD	.2254797	3.755100	20.48573	22.69036	.1684797	1.110459	.5452764

#1	2.910776	-.041195	.0009110	-.002589	2.907482	1.465171	1.677599
#2	2.907842	-.043152	.0013668	-.001849	2.917248	1.485716	1.662509
#3	2.920398	-.040075	.0010875	-.002943	2.913206	1.497734	1.678936

Sample Name: Q1366-01LX5 Acquired: 2/17/2025 12:32:27 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.7362223	.0614007	-.058582
Stddev	.0047431	.0017285	.000447
%RSD	.6442548	2.815068	.7625799

#1	.7412141	.0596037	-.058145
#2	.7356779	.0615471	-.058563
#3	.7317748	.0630514	-.059038

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3520.645	75516.38	14712.98	2442.940	4162.802
Stddev	11.658	76.71	73.31	8.650	11.261
%RSD	.3311439	.1015841	.4982939	.3540626	.2705070

#1	3524.325	75514.31	14672.54	2452.678	4163.730
#2	3530.020	75594.11	14668.79	2439.994	4173.570
#3	3507.591	75440.73	14797.61	2436.148	4151.106

Sample Name: Q1366-01MS Acquired: 2/17/2025 12:36:40 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.5694170	1.779324	1.031258	1.021619	.1827178	197.0136
Stddev	.0009046	.002801	.005775	.005969	.0014237	.7609
%RSD	.1588617	.1574210	.5599597	.5842271	.7791794	.3862359

#1	.5701625	1.782315	1.032771	1.027178	.1816009	196.1875
#2	.5684106	1.778894	1.036125	1.015311	.1843209	197.6859
#3	.5696778	1.776763	1.024877	1.022369	.1822315	197.1674

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6729388	.1123646	.2308458	37.98149	.4145844	.4256515
Stddev	.0029515	.0007263	.0013402	.14900	.0016066	.0014619
%RSD	.4385905	.6463682	.5805494	.3922914	.3875150	.3434453

#1	.6745307	.1119543	.2315023	37.98906	.4162702	.4259589
#2	.6695332	.1119362	.2317311	37.82886	.4130709	.4269351
#3	.6747525	.1132032	.2293039	38.12656	.4144120	.4240603

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4193776	305.6978	3.467783	33.26860	.6888086	.0307633
Stddev	.0012673	1.4050	.022423	.13001	.0023844	.0001182
%RSD	.3021827	.4595928	.6466066	.3907831	.3461565	.3842351

#1	.4189450	305.4837	3.465961	33.24024	.6896692	.0308983
#2	.4208046	304.4122	3.446327	33.15512	.6906431	.0306784
#3	.4183832	307.1975	3.491062	33.41045	.6861134	.0307133

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.942479	.6537881	.4863351	16.19811	.1000519	.2278751
Stddev	.024704	.0028389	.0021697	.11198	.0033407	.0004334
%RSD	.4998274	.4342296	.4461418	.6912961	3.338953	.1902135

#1	4.965834	.6535068	.4867129	16.31985	.1014356	.2273746
#2	4.916618	.6511003	.4882912	16.09952	.0962417	.2281293
#3	4.944984	.6567573	.4840013	16.17496	.1024785	.2281214

Sample Name: Q1366-01MS Acquired: 2/17/2025 12:36:40 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.6242298	9.537005	5.359955	F 15.52015	2.828213	.3126469
Stddev	.0025664	.029762	.020979	.05381	.014551	.0010666
%RSD	.4111262	.3120726	.3914109	.3467156	.5145090	.3411452
#1	.6261296	9.546198	5.382013	15.51666	2.838002	.3127984
#2	.6252495	9.503730	5.340253	15.57562	2.835145	.3115128
#3	.6213103	9.561086	5.357598	15.46817	2.811492	.3136297

Elem	Sr4077
Units	ppm
Avg	-.078566
Stddev	.000929
%RSD	1.182845
#1	-.077726
#2	-.078408
#3	-.079564

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4941.279	106737.8	21829.90	3448.211	3784.027
Stddev	6.956	98.0	96.50	10.417	10.151
%RSD	.1407643	.0918282	.4420705	.3021095	.2682492
#1	4946.161	106632.1	21919.74	3447.892	3780.892
#2	4944.362	106825.7	21842.07	3437.956	3775.815
#3	4933.315	106755.6	21727.89	3458.784	3795.376

Sample Name: Q1366-01MSD Acquired: 2/17/2025 12:40:54 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.5616380	1.766684	1.030798	1.001135	.1806612	196.9146
Stddev	.0042945	.015406	.004609	.004096	.0024752	1.2082
%RSD	.7646371	.8720161	.4471772	.4091133	1.370068	.6135572

#1	.5643300	1.774038	1.027282	1.005827	.1834638	198.2121
#2	.5566854	1.777034	1.036017	.998279	.1797452	195.8220
#3	.5638985	1.748979	1.029095	.999298	.1787745	196.7096

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6590849	.1189949	.2327051	37.85018	.4114383	.4273159
Stddev	.0007571	.0005411	.0002679	.01126	.0003135	.0003530
%RSD	.1148652	.4547470	.1151209	.0297556	.0761960	.0826017

#1	.6582474	.1184214	.2324660	37.84365	.4111574	.4270267
#2	.6597207	.1194965	.2326549	37.84369	.4117765	.4277092
#3	.6592866	.1190667	.2329946	37.86318	.4113810	.4272116

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4390248	285.5436	3.459933	33.00354	.6922105	.0270538
Stddev	.0022160	.1161	.007178	.01544	.0013066	.0002143
%RSD	.5047616	.0406663	.2074703	.0467716	.1887561	.7922272

#1	.4365997	285.6530	3.452616	33.01713	.6907389	.0268156
#2	.4395303	285.5561	3.460219	33.00672	.6932343	.0272310
#3	.4409445	285.4217	3.466964	32.98676	.6926582	.0271148

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.344705	.6488189	.4830735	14.77565	.0575831	.2279057
Stddev	.004798	.0021391	.0003187	.02398	.0039166	.0009949
%RSD	.1104222	.3296994	.0659628	.1623183	6.801559	.4365306

#1	4.347023	.6488428	.4832549	14.75528	.0619731	.2290316
#2	4.339188	.6509460	.4827056	14.76958	.0544473	.2271452
#3	4.347903	.6466679	.4832601	14.80208	.0563288	.2275402

Sample Name: Q1366-01MSD Acquired: 2/17/2025 12:40:54 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.6227066	9.459398	4.902814	F 15.62026	2.823427	.3015580
Stddev	.0007056	.001014	.011148	.02308	.003358	.0003264
%RSD	.1133177	.0107223	.2273880	.1477261	.1189189	.1082443
#1	.6219411	9.459295	4.907841	15.64016	2.826607	.3019259
#2	.6233311	9.460460	4.890037	15.62566	2.819916	.3013030
#3	.6228476	9.458439	4.910564	15.59496	2.823758	.3014451

Elem	Sr4077
Units	ppm
Avg	-.061210
Stddev	.000447
%RSD	.7298194
#1	-.061654
#2	-.061216
#3	-.060761

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4969.566	108901.0	20639.58	3518.923	3790.949
Stddev	2.655	109.7	37.29	9.263	2.302
%RSD	.0534163	.1007090	.1806789	.2632221	.0607319
#1	4967.325	108952.8	20661.03	3508.506	3793.555
#2	4968.875	108975.2	20596.52	3526.232	3789.191
#3	4972.497	108775.0	20661.20	3522.032	3790.101

Sample Name: Q1366-01A Acquired: 2/17/2025 12:45:09 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.5657102	1.771910	1.025980	1.012468	.1814944	197.7978
Stddev	.0023864	.005135	.000971	.000532	.0005584	2.0738
%RSD	.4218432	.2897877	.0946894	.0525168	.3076630	1.048448

#1	.5682508	1.770806	1.024869	1.011963	.1811972	200.1445
#2	.5653643	1.767417	1.026672	1.012419	.1811475	197.0375
#3	.5635157	1.777507	1.026398	1.013023	.1821385	196.2115

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6903772	.1130601	.2291594	38.49993	.4146769	.4243663
Stddev	.0040761	.0007983	.0011118	.10222	.0015595	.0016731
%RSD	.5904185	.7060891	.4851856	.2655039	.3760829	.3942551

#1	.6948035	.1138813	.2288986	38.61778	.4135533	.4236883
#2	.6895499	.1122869	.2282010	38.43528	.4164575	.4231386
#3	.6867783	.1130122	.2303784	38.44674	.4140200	.4262720

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4134420	311.6015	3.560687	33.65559	.6855747	.0320885
Stddev	.0033463	3.0666	.014441	.13232	.0014996	.0003973
%RSD	.8093657	.9841572	.4055668	.3931453	.2187323	1.238162

#1	.4145361	311.8433	3.577328	33.80607	.6861086	.0321827
#2	.4096856	314.5401	3.551454	33.55746	.6838813	.0324303
#3	.4161042	308.4211	3.553277	33.60325	.6867343	.0316526

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.181904	.6652646	.4871443	16.47149	.1103940	.2274123
Stddev	.022148	.0010093	.0008368	.04702	.0045330	.0003234
%RSD	.4274110	.1517093	.1717823	.2854530	4.106226	.1422042

#1	5.200614	.6661110	.4861877	16.46178	.1066086	.2270745
#2	5.187648	.6655352	.4877405	16.52260	.1154175	.2274432
#3	5.157450	.6641476	.4875047	16.43008	.1091561	.2277190

Sample Name: Q1366-01A Acquired: 2/17/2025 12:45:09 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.6216507	9.755635	5.797640	F 15.55396	2.826708	.3212677
Stddev	.0008119	.027309	.005231	.06418	.007927	.0012578
%RSD	.1305978	.2799310	.0902238	.4125989	.2804348	.3915255

#1	.6216508	9.786923	5.792856	15.56395	2.818179	.3218696
#2	.6208388	9.743390	5.803225	15.48537	2.828097	.3221115
#3	.6224625	9.736591	5.796838	15.61255	2.833850	.3198220

Elem	Sr4077
Units	ppm
Avg	-.079773
Stddev	.002813
%RSD	3.526027

#1	-.078794
#2	-.082945
#3	-.077581

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4946.718	106609.2	21733.48	3457.539	3795.739
Stddev	7.160	298.9	78.73	21.278	8.757
%RSD	.1447337	.2804068	.3622508	.6154090	.2307058

#1	4948.730	106790.9	21645.17	3475.802	3798.078
#2	4952.656	106264.2	21796.33	3434.174	3803.089
#3	4938.768	106772.4	21758.93	3462.640	3786.050

Sample Name: PB166700TB Acquired: 2/17/2025 12:57:47 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	-.004616	-.002765	.0016348	.0023828	-.000142	.0106213
Stddev	.001271	.002441	.0006869	.0026511	.001273	.0035091
%RSD	27.54366	88.27430	42.01555	111.2608	895.2380	33.03877

#1	-.004282	-.004843	.0009580	.0024465	-.000005	.0084880
#2	-.003544	-.000077	.0016153	-.000300	-.001479	.0087045
#3	-.006021	-.003375	.0023313	.005001	.001057	.0146713

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002212	-.000076	-.000102	.0263770	.0021250	-.000283
Stddev	.000278	.000043	.000097	.0030285	.0005501	.000101
%RSD	12.56915	56.74286	94.64256	11.48153	25.88941	35.59861

#1	-.001898	-.000122	-.000174	.0298731	.0027493	-.000399
#2	-.002426	-.000038	.000008	.0245595	.0017114	-.000226
#3	-.002313	-.000067	-.000140	.0246984	.0019142	-.000223

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003242	.0313364	F .0357199	.0069843	.0010315	.0006190
Stddev	.0001916	.0011023	.0005826	.0099456	.0002014	.0003081
%RSD	59.07732	3.517728	1.630935	142.3994	19.52755	49.77006

#1	.0002791	.0303348	.0352869	.0002657	.0012536	.0009195
#2	.0001593	.0311568	.0363822	.0022776	.0009802	.0006336
#3	.0005343	.0325175	.0354906	.0184097	.0008606	.0003039

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 299.0193	-.000207	.0068794	.1868201	-.005470	.0003041
Stddev	2.3419	.001065	.0002919	.0150832	.000129	.0002963
%RSD	.7831959	513.1696	4.242463	8.073626	2.361108	97.42832

#1	297.1917	-.000719	.0067110	.1845289	-.005456	.0006047
#2	301.6592	-.000920	.0067107	.2029178	-.005606	.0000123
#3	298.2069	.001016	.0072164	.1730136	-.005349	.0002954

Sample Name: PB166700TB Acquired: 2/17/2025 12:57:47 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.0020039	.0015335	.0280030	.0018547	F .2018723	-.004414
Stddev	.0004593	.0005928	.0024939	.0008810	.0006134	.000652
%RSD	22.91833	38.65456	8.905795	47.50070	.3038672	14.77157

#1	.0014742	.0012590	.0252999	.0009694	.2011652	-.004733
#2	.0022908	.0011278	.0302145	.0027313	.2022608	-.004844
#3	.0022467	.0022138	.0284946	.0018635	.2021911	-.003663

Elem	Sr4077
Units	ppm
Avg	-.000055
Stddev	.000020
%RSD	36.54416

#1	-.000079
#2	-.000043
#3	-.000045

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3020.789	64432.38	12794.21	2060.461	3944.925
Stddev	6.967	193.33	59.19	15.235	6.817
%RSD	.2306362	.3000480	.4626054	.7393977	.1727983

#1	3014.186	64618.87	12844.92	2074.709	3937.123
#2	3028.071	64232.88	12808.54	2044.401	3949.729
#3	3020.111	64445.40	12729.18	2062.273	3947.923

Sample Name: Q1288-08 Acquired: 2/17/2025 13:02:16 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	-.001693	-.003876	.0334069	.0014127	.0007836	-.059244	.1725397
Stddev	.001628	.002241	.0005289	.0008835	.0000389	.005945	.0012254
%RSD	96.14420	57.82382	1.583153	62.54219	4.962567	10.03453	.7102130

#1	-.003552	-.004439	.0328186	.0007835	.0007449	-.064287	.1711955
#2	-.001011	-.001407	.0338430	.0024228	.0008226	-.052689	.1728293
#3	-.000517	-.005782	.0335591	.0010318	.0007833	-.060757	.1735944

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000035	.0008550	97.66312	.0009660	.0037961	.0042199	.0150895
Stddev	.000048	.0000743	.66385	.0003453	.0001292	.0004780	.0013020
%RSD	135.8334	8.692338	.6797328	35.75034	3.403209	11.32702	8.628773

#1	.000004	.0008313	96.91094	.0006051	.0038465	.0047621	.0136620
#2	-.000021	.0009383	97.91132	.0012934	.0036493	.0038595	.0162118
#3	-.000089	.0007955	98.16711	.0009994	.0038925	.0040380	.0153947

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2549346	1.958446	.0027142	.0004285	233.4570	.0017573	.1994044
Stddev	.0029412	.024303	.0000768	.0001430	.3292	.0006022	.0014997
%RSD	1.153725	1.240947	2.828485	33.37976	.1410313	34.27001	.7520691

#1	.2515596	1.938281	.0026979	.0002877	233.7633	.0023192	.2010396
#2	.2562942	1.951627	.0027978	.0005736	233.4990	.0018313	.1980933
#3	.2569501	1.985431	.0026469	.0004242	233.1088	.0011215	.1990804

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.981037	.0668440	.0007801	-.001532	-.001257	1.242114	.0603825
Stddev	.010597	.0009066	.0001171	.000720	.000641	.007936	.0017156
%RSD	.5349021	1.356340	15.00860	47.01762	50.99732	.6389342	2.841217

#1	1.968878	.0670547	.0009120	-.001610	-.000727	1.247747	.0593453
#2	1.985928	.0658505	.0006882	-.002210	-.001969	1.245557	.0623628
#3	1.988305	.0676267	.0007401	-.000776	-.001073	1.233038	.0594394

Sample Name: Q1288-08 Acquired: 2/17/2025 13:02:16 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	3.271449	-.016997	.4201831
Stddev	.004561	.000481	.0028404
%RSD	.1394043	2.832485	.6759926

#1	3.268062	-.017117	.4170688
#2	3.276635	-.017407	.4208495
#3	3.269650	-.016467	.4226311

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3044.173	64438.81	12371.89	2068.315	3972.623
Stddev	7.624	158.11	81.62	10.155	3.409
%RSD	.2504535	.2453663	.6597118	.4909955	.0858073

#1	3045.705	64257.32	12463.52	2058.695	3973.253
#2	3035.899	64512.36	12345.18	2067.318	3968.943
#3	3050.915	64546.75	12306.97	2078.932	3975.673

Sample Name: CCV02 Acquired: 2/17/2025 13:06:41 Type: Unk
Method: NON EPA-6010-200.7(v2702) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.817941	5.093269	4.734281	4.852155	4.959169	9.653975	9.269761
Stddev	.008974	.020463	.012841	.007526	.001657	.029092	.069812
%RSD	.1862550	.4017675	.2712413	.1551079	.0334157	.3013514	.7531167

#1	4.818916	5.085139	4.737758	4.853528	4.959386	9.657033	9.206319
#2	4.808520	5.116547	4.745026	4.858901	4.957414	9.681418	9.258410
#3	4.826388	5.078119	4.720059	4.844038	4.960707	9.623475	9.344552

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2354269	2.357169	23.43163	.9971855	2.370182	1.212667	4.850201
Stddev	.0012121	.005434	.06319	.0025201	.004923	.002275	.014345
%RSD	.5148448	.2305295	.2696704	.2527202	.2076858	.1875818	.2957664

#1	.2357527	2.357903	23.39764	.9976348	2.373334	1.214921	4.846309
#2	.2364429	2.362200	23.50454	.9994507	2.372702	1.210372	4.838203
#3	.2340853	2.351406	23.39271	.9944709	2.364510	1.212707	4.866090

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.733470	23.56190	2.358458	1.233582	24.30618	2.388037	2.471102
Stddev	.009041	.09476	.007481	.001582	.08519	.007277	.009932
%RSD	.3307596	.4021812	.3172027	.1282441	.3504682	.3047362	.4019215

#1	2.743631	23.59768	2.362528	1.233534	24.36117	2.393458	2.482106
#2	2.726313	23.63357	2.363022	1.235188	24.20805	2.390886	2.468395
#3	2.730468	23.45446	2.349824	1.232025	24.34930	2.379766	2.462804

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.71566	4.611869	5.021936	4.769101	4.683456	5.020918	4.813355
Stddev	.05074	.022357	.003686	.009446	.009620	.027039	.016493
%RSD	.2052826	.4847792	.0734020	.1980750	.2054066	.5385286	.3426489

#1	24.67027	4.629771	5.022614	4.776145	4.693004	4.991696	4.823621
#2	24.70627	4.619027	5.025237	4.772792	4.683598	5.026007	4.822113
#3	24.77043	4.586809	5.017958	4.758367	4.673766	5.045051	4.794330

Sample Name: CCV02 Acquired: 2/17/2025 13:06:41 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	4.607388	4.692494	4.706936
Stddev	.001028	.017032	.029662
%RSD	.0223135	.3629599	.6301726

#1	4.608202	4.710009	4.728072
#2	4.607730	4.691481	4.719709
#3	4.606233	4.675991	4.673028

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3201.851	66627.91	12461.57	2178.210	4219.352
Stddev	8.500	90.33	72.96	8.811	14.561
%RSD	.2654817	.1355809	.5854627	.4044966	.3451047

#1	3193.399	66540.41	12398.65	2168.108	4208.670
#2	3201.756	66622.48	12444.52	2184.310	4213.447
#3	3210.399	66720.84	12541.55	2182.212	4235.938

Sample Name: CCB02 Acquired: 2/17/2025 13:10:52 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	-.002403	-.000357	-.000005	.0017625	-.001550	-.004111	-.002753
Stddev	.002429	.001845	.000258	.0028780	.001740	.005302	.000444
%RSD	101.1052	516.4318	5445.073	163.2918	112.2725	128.9588	16.11749

#1	-.002670	.000315	-.000285	.0041859	-.002854	-.008457	-.002579
#2	-.004688	.001058	.000223	-.001419	-.002221	.001796	-.002422
#3	.000149	-.002445	.000048	.002520	.000426	-.005674	-.003257

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000425	.0000318	-.009294	-.000388	-.000122	.0002411	-.003750
Stddev	.0000310	.0000497	.005853	.000499	.000065	.0002070	.002202
%RSD	72.91995	156.5435	62.97929	128.7035	53.39966	85.85553	58.71462

#1	.0000550	-.000026	-.009189	-.000826	-.000197	.0001144	-.001270
#2	.0000653	.000061	-.015198	-.000493	-.000079	.0001289	-.005476
#3	.0000072	.000060	-.003494	.000156	-.000089	.0004799	-.004502

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001260	.0102362	-.000076	.0008722	.0253603	.0004991	-.000544
Stddev	.0004153	.0080282	.000170	.0003594	.0124731	.0008268	.000474
%RSD	329.6309	78.42927	222.4459	41.20505	49.18355	165.6516	87.25789

#1	-.000333	.0110683	-.000268	.0006872	.0243223	.0013564	-.000555
#2	.000236	.0178159	.000057	.0006430	.0134387	-.000293	-.000064
#3	.000475	.0018244	-.000019	.0012865	.0383200	.000434	-.001012

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0514608	.0034735	.0000845	.0006137	.0008484	.0088333	-.002619
Stddev	.0137742	.0005444	.0000645	.0005720	.0004937	.0021457	.001478
%RSD	26.76635	15.67302	76.27161	93.21224	58.19820	24.29139	56.43627

#1	.0422234	.0037011	.0001511	.0004557	.0009110	.0095859	-.000962
#2	.0672925	.0028522	.0000801	.0012481	.0003263	.0105013	-.003094
#3	.0448665	.0038671	.0000224	.0001373	.0013078	.0064126	-.003800

Sample Name: CCB02 Acquired: 2/17/2025 13:10:52 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	-.004388	-.000416	-.000043		
Stddev	.001565	.001077	.000022		
%RSD	35.66671	259.1796	51.95079		
#1	-.006195	.000610	-.000034		
#2	-.003537	-.000318	-.000026		
#3	-.003433	-.001538	-.000068		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3198.443	70376.65	12484.31	2235.295	4405.728
Stddev	7.953	346.71	30.45	13.710	11.985
%RSD	.2486429	.4926553	.2439149	.6133431	.2720335
#1	3203.234	69980.59	12459.87	2222.659	4415.368
#2	3202.832	70524.04	12518.42	2233.353	4409.506
#3	3189.263	70625.32	12474.64	2249.872	4392.309

Sample Name: Q1352-02 Acquired: 2/17/2025 13:15:11 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	-.002640	-.003832	.0046426	.0025900	.0024445	.1781294	.1624096
Stddev	.001545	.000599	.0010436	.0018991	.0036684	.0008323	.0008072
%RSD	58.49976	15.63494	22.47745	73.32530	150.0662	.4672635	.4970183

#1	-.004243	-.004492	.0035402	.0016267	.0000806	.1773583	.1624049
#2	-.001162	-.003682	.0047726	.0013655	.0066705	.1780183	.1632192
#3	-.002516	-.003322	.0056151	.0047777	.0005825	.1790117	.1616048

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001362	.0000395	15.82413	.0049877	.0019820	.0268860	1.214184
Stddev	.0000698	.0000833	.11501	.0002237	.0001574	.0001506	.004653
%RSD	51.29191	210.9588	.7268155	4.484658	7.940649	.5600743	.3832165

#1	.0002101	.0000514	15.74627	.0050232	.0018027	.0270332	1.219091
#2	.0000713	-.000049	15.95623	.0047484	.0020461	.0268923	1.209836
#3	.0001271	.000116	15.76988	.0051915	.0020972	.0267323	1.213624

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1836402	.7833050	.0039908	.0006422	286.1978	.0006906	.0957813
Stddev	.0002984	.0054257	.0004957	.0005173	.8109	.0009928	.0004207
%RSD	.1625040	.6926699	12.42000	80.54374	.2833280	143.7538	.4392526

#1	.1835209	.7774961	.0034212	.0008345	287.0848	.0018312	.0953029
#2	.1834199	.7882420	.0043241	.0000563	285.4946	.0000210	.0960935
#3	.1839799	.7841768	.0042272	.0010358	286.0140	.0002196	.0959475

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6357096	.0225414	.0005519	-.000062	.0012993	1.751832	.0072375
Stddev	.0279399	.0016955	.0002578	.000365	.0001550	.009394	.0030007
%RSD	4.395067	7.521703	46.70969	585.4055	11.92908	.5362529	41.46009

#1	.6146640	.0214251	.0008496	-.000442	.0011215	1.762665	.0080170
#2	.6674090	.0244924	.0004041	.000287	.0013710	1.746900	.0039240
#3	.6250558	.0217066	.0004021	-.000032	.0014055	1.745930	.0097714

Sample Name: Q1352-02 Acquired: 2/17/2025 13:15:11 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.6981917	-.002970	.0333357
Stddev	.0053495	.000540	.0000564
%RSD	.7661929	18.18008	.1691836

#1	.6977659	-.002427	.0332734
#2	.6930679	-.002977	.0333504
#3	.7037414	-.003506	.0333833

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3040.712	65224.88	13128.80	2088.836	3983.317
Stddev	7.063	110.00	145.29	6.175	10.154
%RSD	.2322774	.1686528	1.106683	.2956145	.2549171

#1	3039.622	65128.51	13263.25	2093.553	3978.733
#2	3048.256	65344.72	12974.67	2091.109	3994.955
#3	3034.257	65201.41	13148.50	2081.847	3976.263

Sample Name: Q1356-01 Acquired: 2/17/2025 13:19:38 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	-.004479	-.004026	.0009174	.0010425	-.000024	.0158574	.2104880
Stddev	.001484	.002788	.0006657	.0016050	.000244	.0047771	.0009400
%RSD	33.12782	69.26127	72.56006	153.9658	1033.030	30.12543	.4465761
#1	-.005271	-.007218	.0002493	.0012781	.000237	.0131321	.2094109
#2	-.005398	-.002062	.0009222	.0025166	-.000246	.0213735	.2111428
#3	-.002767	-.002798	.0015806	-.000667	-.000062	.0130668	.2109103
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000046	.0007289	21.08586	.0045162	-.000329	.0075618	.0181139
Stddev	.000033	.0000395	.04088	.0003518	.000099	.0001169	.0035514
%RSD	71.46289	5.413486	.1938782	7.789596	29.94228	1.545956	19.60564
#1	-.000080	.0007188	21.04428	.0042958	-.000435	.0076948	.0144682
#2	-.000015	.0007724	21.12601	.0043308	-.000241	.0074751	.0215627
#3	-.000042	.0006954	21.08727	.0049219	-.000311	.0075155	.0183109
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5895663	2.180961	.0871110	.0006508	274.3447	-.000674	.4789427
Stddev	.0033918	.017554	.0004239	.0004745	3.2943	.000577	.0025404
%RSD	.5753012	.8048837	.4866811	72.92050	1.200781	85.62448	.5304249
#1	.5866929	2.165947	.0867635	.0009095	275.1631	-.000495	.4818711
#2	.5933078	2.176674	.0869860	.0009397	270.7184	-.001320	.4773293
#3	.5886982	2.200261	.0875834	.0001031	277.1526	-.000207	.4776278
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6799644	.1242568	.0000197	-.001002	-.000436	2.133351	.0161431
Stddev	.0204928	.0013325	.0001577	.000348	.000222	.015672	.0011638
%RSD	3.013798	1.072366	799.2803	34.76529	50.97230	.7346399	7.209341
#1	.6936633	.1228695	.0001787	-.001366	-.000386	2.150695	.0168366
#2	.6898246	.1243741	.0000172	-.000969	-.000678	2.129154	.0167932
#3	.6564054	.1255268	-.000137	-.000671	-.000242	2.120205	.0147995

Sample Name: Q1356-01 Acquired: 2/17/2025 13:19:38 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.2200255	-.004415	.2466530
Stddev	.0050449	.001089	.0009109
%RSD	2.292850	24.66898	.3692897

#1	.2154976	-.003506	.2460858
#2	.2191154	-.005622	.2477037
#3	.2254635	-.004117	.2461695

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3031.231	65593.25	13247.43	2111.940	3950.272
Stddev	3.393	88.93	70.07	19.192	5.680
%RSD	.1119431	.1355788	.5289069	.9087314	.1437784

#1	3031.804	65490.94	13328.15	2089.782	3953.239
#2	3034.301	65652.08	13202.29	2122.703	3953.854
#3	3027.588	65636.72	13211.86	2123.335	3943.724

Sample Name: Q1356-03 Acquired: 2/17/2025 13:24:03 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	-.003577	-.003348	.0014285	.0024828	-.000346	.1470730	.4707313
Stddev	.003166	.002236	.0005058	.0020490	.001831	.0027126	.0015879
%RSD	88.51703	66.79667	35.40972	82.53117	529.6609	1.844354	.3373265

#1	-.003263	-.005018	.0008497	.0042946	-.001948	.1487624	.4703489
#2	-.000580	-.000807	.0017858	.0028946	-.000740	.1485123	.4693696
#3	-.006889	-.004218	.0016499	.0002590	.001651	.1439441	.4724755

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000653	.0012419	48.00421	.0127647	.0121296	.0237751	.1270991
Stddev	.0000186	.0000245	.20044	.0004272	.0001381	.0004132	.0031654
%RSD	28.49559	1.974028	.4175539	3.347022	1.138629	1.738175	2.490517

#1	.0000687	.0012676	47.86507	.0132029	.0120577	.0236106	.1280157
#2	.0000452	.0012187	47.91360	.0127419	.0120422	.0234695	.1235765
#3	.0000820	.0012395	48.23396	.0123493	.0122888	.0242453	.1297051

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6303178	4.636200	.0318296	.0004164	291.5119	.0015335	.1843652
Stddev	.0050991	.024779	.0000395	.0001414	.5217	.0008257	.0009542
%RSD	.8089779	.5344739	.1242267	33.96079	.1789655	53.84809	.5175787

#1	.6281697	4.623188	.0318384	.0002592	290.9960	.0024249	.1840228
#2	.6266442	4.620638	.0318639	.0005332	291.5005	.0007948	.1854434
#3	.6361395	4.664775	.0317863	.0004568	292.0392	.0013807	.1836294

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.002426	.0127251	.0005232	-.000698	.0000760	2.002908	.0059837
Stddev	.021964	.0002419	.0001897	.000486	.0002923	.006373	.0010611
%RSD	2.191101	1.901078	36.26607	69.58320	384.7378	.3182026	17.73241

#1	.984594	.0124480	.0007238	-.000796	.0002445	2.006400	.0071469
#2	1.026960	.0128943	.0003465	-.001129	.0002450	2.006773	.0057353
#3	.995723	.0128329	.0004993	-.000171	-.000262	1.995552	.0050689

Sample Name: Q1356-03 Acquired: 2/17/2025 13:24:03 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.6576406	-.009769	.1698088
Stddev	.0044779	.000426	.0009847
%RSD	.6809034	4.363415	.5798648

#1	.6624059	-.009948	.1691767
#2	.6535200	-.009282	.1693063
#3	.6569959	-.010076	.1709433

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3001.759	64557.10	12715.10	2099.030	3870.811
Stddev	13.270	310.10	27.32	18.252	14.795
%RSD	.4420581	.4803559	.2148285	.8695365	.3822115

#1	3012.210	64351.39	12738.28	2089.917	3876.645
#2	3006.238	64406.14	12722.04	2087.128	3881.800
#3	2986.830	64913.78	12684.98	2120.043	3853.989

Sample Name: PB166702TB Acquired: 2/17/2025 13:28:27 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	-.002337	-.002890	.0013973	.0022529	.0006513	.0102728
Stddev	.002244	.001776	.0015304	.0018808	.0009903	.0079945
%RSD	96.03896	61.46802	109.5251	83.48433	152.0479	77.82161

#1	-.004874	-.001135	.0021415	.0011200	.0015914	.0112105
#2	-.000612	-.004687	.0024134	.0044240	-.000382	.0177571
#3	-.001524	-.002848	-.000363	.0012147	.000745	.0018509

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000349	-.000046	-.000090	.0284041	.0020464	-.000296
Stddev	.001230	.000027	.000102	.0006342	.0004960	.000054
%RSD	352.1123	59.75489	113.3452	2.232724	24.23667	18.25737

#1	-.001619	-.000022	-.000147	.0291335	.0024821	-.000318
#2	-.000265	-.000040	.000028	.0279833	.0015066	-.000335
#3	.000836	-.000076	-.000150	.0280956	.0021504	-.000234

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000157	.0322833	F .0367867	.0165463	.0011270	.0004914
Stddev	.0001399	.0009361	.0003967	.0054626	.0001770	.0003027
%RSD	893.3814	2.899649	1.078431	33.01383	15.70914	61.59301

#1	-.000119	.0332466	.0370598	.0219550	.0012467	.0001473
#2	.000006	.0322262	.0369686	.0110314	.0012107	.0007164
#3	.000160	.0313770	.0363316	.0166524	.0009237	.0006105

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 313.4090	-.000203	.0069921	.1153842	-.005971	.0001218
Stddev	2.7793	.000779	.0003057	.0036020	.000778	.0001287
%RSD	.8868065	382.8993	4.372753	3.121699	13.03165	105.6291

#1	310.2115	-.000619	.0073443	.1124058	-.005233	-.000010
#2	314.7700	-.000687	.0067957	.1143592	-.006784	.000247
#3	315.2455	.000695	.0068361	.1193875	-.005897	.000129

Sample Name: PB166702TB Acquired: 2/17/2025 13:28:27 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.0011857	.0015736	.0308712	.0032817	F .1990094	-.002185
Stddev	.0003595	.0001162	.0134113	.0022624	.0045937	.000783
%RSD	30.32176	7.384097	43.44264	68.93909	2.308302	35.81521

#1	.0007791	.0016870	.0392024	.0056765	.2017216	-.001895
#2	.0014614	.0015790	.0380108	.0011805	.2016011	-.003072
#3	.0013168	.0014548	.0154005	.0029880	.1937054	-.001589

Elem	Sr4077
Units	ppm
Avg	-.000076
Stddev	.000042
%RSD	55.51576

#1	-.000111
#2	-.000089
#3	-.000029

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3028.113	66445.53	12711.72	2138.546	3950.306
Stddev	8.485	187.74	79.81	9.908	8.497
%RSD	.2802200	.2825458	.6278343	.4633108	.2150908

#1	3036.455	66568.09	12769.72	2147.666	3958.889
#2	3019.491	66229.39	12744.74	2128.004	3941.898
#3	3028.393	66539.10	12620.70	2139.968	3950.132

Sample Name: Q1356-04 Acquired: 2/17/2025 13:32:56 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	-.003517	-.004359	-.000327	.0027145	.0001992	-.005329	.0151409
Stddev	.001950	.000475	.001127	.0025271	.0011783	.011342	.0002872
%RSD	55.43755	10.88770	345.2245	93.09591	591.3836	212.8151	1.896722
#1	-.001888	-.004094	.000975	.0032596	-.000100	-.001959	.0149636
#2	-.005678	-.004076	-.000987	.0049245	-.000801	-.017974	.0149868
#3	-.002986	-.004906	-.000967	-.000041	.001498	.003945	.0154722
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000065	-.000038	7.866236	.0006497	-.000035	.0005149	.0136987
Stddev	.000021	.000054	.021656	.0002202	.000184	.0002372	.0018777
%RSD	32.72609	143.5553	.2752974	33.88548	523.2582	46.06044	13.70704
#1	-.000085	-.000063	7.882917	.0007346	-.000060	.0003287	.0140632
#2	-.000043	-.000075	7.874029	.0008147	.000160	.0007819	.0116655
#3	-.000066	.000024	7.841763	.0003997	-.000205	.0004341	.0153675
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2358557	1.564742	.0032909	.0006596	12.54374	-.001193	.0050848
Stddev	.0004247	.005456	.0003206	.0002318	.03693	.000757	.0001444
%RSD	.1800640	.3487051	9.741451	35.13522	.2944181	63.51825	2.840421
#1	.2362017	1.568732	.0029964	.0006936	12.55261	-.000613	.0051807
#2	.2359837	1.566970	.0032441	.0004127	12.57543	-.000916	.0051552
#3	.2353817	1.558524	.0036324	.0008725	12.50318	-.002050	.0049187
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.309985	.0223010	.0013616	.0003408	.0010335	.6233797	.0011470
Stddev	.023844	.0006183	.0000475	.0003556	.0006953	.0107826	.0012792
%RSD	1.820167	2.772419	3.487369	104.3287	67.28174	1.729697	111.5286
#1	1.337396	.0219761	.0014089	-.000065	.0002306	.6341193	.0022234
#2	1.298522	.0230141	.0013621	.000491	.0014311	.6125546	.0014848
#3	1.294038	.0219130	.0013139	.000597	.0014387	.6234652	-.000267

Sample Name: Q1356-04 Acquired: 2/17/2025 13:32:56 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	2.046801	-.004561	.0732539
Stddev	.013655	.001437	.0002286
%RSD	.6671531	31.50892	.3120337

#1	2.041355	-.005986	.0734311
#2	2.036709	-.004584	.0733348
#3	2.062339	-.003112	.0729959

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3198.209	68149.42	12626.02	2181.897	4452.114
Stddev	12.739	52.20	22.67	13.052	13.558
%RSD	.3983059	.0766027	.1795860	.5981740	.3045329

#1	3202.192	68142.44	12600.02	2166.966	4454.361
#2	3208.480	68204.76	12641.67	2191.135	4464.408
#3	3183.955	68101.05	12636.37	2187.589	4437.572

Sample Name: Q1356-04DUP Acquired: 2/17/2025 13:37:14 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	-.002774	-.002949	.0000582	.0015655	-.000905	.0047076	.0151037
Stddev	.000906	.001690	.0011886	.0025556	.000955	.0035953	.0003230
%RSD	32.64873	57.29578	2043.480	163.2464	105.5173	76.37281	2.138275

#1	-.002421	-.002825	.0013990	.0027114	-.001888	.0057183	.0150332
#2	-.002099	-.001325	-.000866	-.001363	.000020	.0076894	.0154561
#3	-.003804	-.004697	-.000358	.003348	-.000847	.0007151	.0148218

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000030	.0000258	7.862700	.0003462	.0002166	.0007397	.0129578
Stddev	.000050	.0000302	.004853	.0004884	.0002047	.0001574	.0035608
%RSD	165.0413	117.0973	.0617186	141.0640	94.48898	21.28288	27.48035

#1	-.000028	.0000156	7.862454	.0000641	.0003025	.0006322	.0099773
#2	.000019	.0000020	7.857975	.0009102	.0003643	.0006665	.0119950
#3	-.000081	.0000597	7.867671	.0000644	-.000017	.0009204	.0169010

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2353237	1.555974	.0031561	.0007816	13.03668	-.001475	.0048570
Stddev	.0013341	.008529	.0002090	.0000850	.06482	.001088	.0001009
%RSD	.5669289	.5481657	6.622912	10.86920	.4972298	73.76297	2.077127

#1	.2358990	1.563560	.0029903	.0007851	13.07883	-.001766	.0049378
#2	.2337984	1.546741	.0033909	.0006949	13.06918	-.000271	.0048894
#3	.2362736	1.557620	.0030870	.0008647	12.96204	-.002388	.0047439

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.344759	.0206407	.0012668	-.000044	.0012285	.6574390	.0031976
Stddev	.041809	.0004776	.0001079	.000390	.0002189	.0005453	.0013684
%RSD	3.109034	2.314069	8.519535	883.8925	17.81993	.0829476	42.79517

#1	1.391912	.0211781	.0013824	-.000362	.0012707	.6576510	.0034370
#2	1.312214	.0202643	.0012494	.000392	.0014233	.6578464	.0017253
#3	1.330150	.0204799	.0011686	-.000162	.0009916	.6568195	.0044305

Sample Name: Q1356-04DUP Acquired: 2/17/2025 13:37:14 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	2.099123	-.003341	.0736272
Stddev	.002855	.000889	.0000958
%RSD	.1360050	26.61138	.1300929

#1	2.096615	-.002482	.0736045
#2	2.102230	-.004258	.0737323
#3	2.098523	-.003284	.0735449

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3163.811	68635.53	13027.04	2184.468	4373.560
Stddev	1.860	69.65	37.03	5.615	3.904
%RSD	.0588050	.1014829	.2842597	.2570283	.0892637

#1	3163.965	68607.94	13050.33	2178.761	4373.928
#2	3161.878	68583.89	13046.45	2189.986	4369.485
#3	3165.589	68714.75	12984.34	2184.657	4377.267

Sample Name: Q1356-04LX5 Acquired: 2/17/2025 13:41:32 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	-.000718	-.001132	-.000197	.0016494	-.000394	-.003600	-.000143
Stddev	.001987	.000754	.001572	.0007072	.000721	.004187	.000849
%RSD	276.5855	66.63242	797.5844	42.87624	182.8729	116.3014	594.4985

#1	.001474	-.000899	.001617	.0022111	-.001106	-.002301	-.000654
#2	-.001230	-.000521	-.001132	.0008552	.000335	-.000217	.000837
#3	-.002400	-.001975	-.001076	.0018820	-.000412	-.008282	-.000612

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000603	-.000069	1.577426	-.000213	-.000105	-.000133	.0019931
Stddev	.0000270	.000060	.011162	.000156	.000028	.000025	.0046608
%RSD	44.80850	86.67034	.7076114	73.41057	26.54359	18.75532	233.8498

#1	.0000621	.000000	1.590157	-.000048	-.000086	-.000109	-.003147
#2	.0000863	-.000105	1.572805	-.000359	-.000137	-.000131	.003180
#3	.0000324	-.000103	1.569317	-.000231	-.000092	-.000159	.005945

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0478954	.3142677	.0007540	.0007945	2.410251	-.000899	.0004453
Stddev	.0001397	.0051355	.0000515	.0001025	.009085	.000278	.0001818
%RSD	.2917260	1.634112	6.827642	12.90312	.3769399	30.98303	40.82154

#1	.0477392	.3140187	.0006968	.0006765	2.402635	-.000652	.0006116
#2	.0479385	.3092613	.0007965	.0008612	2.407812	-.001200	.0002512
#3	.0480085	.3195232	.0007688	.0008460	2.420307	-.000844	.0004731

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2937400	.0003349	.0004237	.0001136	.0001818	.1299890	-.001698
Stddev	.0100663	.0008252	.0000409	.0003352	.0001367	.0083747	.001625
%RSD	3.426956	246.3918	9.642969	295.1828	75.19499	6.442604	95.69321

#1	.3004622	-.000597	.0004696	.0004498	.0001814	.1384581	-.000610
#2	.2821667	.000630	.0003913	-.000221	.0000453	.1217121	-.003566
#3	.2985910	.000972	.0004103	.000112	.0003188	.1297968	-.000918

Sample Name: Q1356-04LX5 Acquired: 2/17/2025 13:41:32 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.4292822	-.002231	.0147967
Stddev	.0024206	.000209	.0000427
%RSD	.5638684	9.362676	.2887342

#1	.4307368	-.002439	.0148244
#2	.4264879	-.002233	.0147475
#3	.4306218	-.002021	.0148183

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3195.901	68379.26	12226.63	2212.826	4407.784
Stddev	11.895	132.48	12.36	6.681	12.418
%RSD	.3721823	.1937493	.1010870	.3019043	.2817356

#1	3191.860	68277.79	12221.65	2206.909	4403.749
#2	3209.290	68529.15	12240.70	2220.071	4421.718
#3	3186.555	68330.86	12217.54	2211.497	4397.885

Sample Name: Q1356-04MS Acquired: 2/17/2025 13:45:51 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.8175829	2.057899	.9647287	1.923889	.8226787	1.942952	.2007192
Stddev	.0021632	.001315	.0017347	.007134	.0040057	.006855	.0009902
%RSD	.2645811	.0638936	.1798088	.3708129	.4869027	.3527953	.4933242

#1	.8153642	2.058548	.9641426	1.925096	.8225059	1.949611	.1999594
#2	.8176986	2.058763	.9633630	1.916228	.8187623	1.943328	.2003593
#3	.8196859	2.056385	.9666805	1.930342	.8267680	1.935917	.2018391

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1908773	.1919136	10.54809	.4173262	.1961941	.3058793	2.932560
Stddev	.0007469	.0002955	.05058	.0022600	.0004634	.0002376	.011975
%RSD	.3912793	.1539828	.4795189	.5415324	.2361977	.0776707	.4083478

#1	.1901530	.1915967	10.48980	.4194792	.1956661	.3061379	2.943874
#2	.1916449	.1919626	10.58044	.4149726	.1965334	.3058291	2.920018
#3	.1908341	.1921816	10.57402	.4175269	.1963828	.3056708	2.933788

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5088222	3.762540	.4872449	.0746614	18.52331	.2905495	.2097594
Stddev	.0035851	.014161	.0012334	.0004670	.06656	.0019109	.0010117
%RSD	.7045944	.3763747	.2531460	.6254441	.3593323	.6576952	.4822949

#1	.5046890	3.746368	.4869454	.0749984	18.57438	.2921217	.2109268
#2	.5106868	3.772719	.4861887	.0741283	18.44804	.2884226	.2091398
#3	.5110907	3.768533	.4886005	.0748573	18.54752	.2911043	.2092116

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.18069	.2841245	.4259302	.6764677	.1875420	1.563380	5.774123
Stddev	.03882	.0026580	.0007805	.0020732	.0012517	.004645	.008743
%RSD	.3472165	.9355163	.1832346	.3064695	.6674311	.2970974	.1514246

#1	11.22047	.2811258	.4265878	.6783882	.1869286	1.562613	5.775923
#2	11.14290	.2861903	.4250678	.6742698	.1867154	1.559166	5.764620
#3	11.17869	.2850574	.4261350	.6767452	.1889821	1.568360	5.781827

Sample Name: Q1356-04MS Acquired: 2/17/2025 13:45:51 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	2.606059	.1897735	.2770355
Stddev	.012661	.0005872	.0010175
%RSD	.4858443	.3094233	.3672739

#1	2.601344	.1891597	.2759265
#2	2.596432	.1903298	.2772538
#3	2.620401	.1898311	.2779260

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3138.656	68304.00	12517.73	2226.948	4279.398
Stddev	6.961	307.90	30.87	10.990	8.741
%RSD	.2217740	.4507851	.2466272	.4935043	.2042547

#1	3137.456	67965.08	12540.49	2214.274	4278.784
#2	3146.138	68566.49	12482.59	2232.728	4288.430
#3	3132.372	68380.43	12530.10	2233.842	4270.980

Sample Name: Q1356-04MSD Acquired: 2/17/2025 13:49:54 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.8294274	2.099731	.9695864	1.956584	.8323865	1.949067	.2012699
Stddev	.0015746	.009226	.0001145	.008136	.0021456	.008135	.0004698
%RSD	.1898431	.4393789	.0118092	.4158165	.2577590	.4173703	.2334106

#1	.8279211	2.089534	.9695040	1.959780	.8347804	1.942886	.2009578
#2	.8310624	2.107501	.9695380	1.947335	.8306370	1.946033	.2010417
#3	.8292986	2.102157	.9697172	1.962636	.8317420	1.958283	.2018102

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1881133	.1931645	10.54346	.4204598	.1969340	.3089093	2.977692
Stddev	.0007256	.0003606	.02736	.0025065	.0003325	.0001360	.005609
%RSD	.3857097	.1866852	.2595158	.5961342	.1688551	.0440374	.1883823

#1	.1872941	.1928846	10.57389	.4175809	.1970208	.3089211	2.977551
#2	.1886753	.1930375	10.52087	.4216411	.1965667	.3087678	2.972154
#3	.1883704	.1935715	10.53563	.4221573	.1972145	.3090391	2.983370

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5083346	3.773446	.4882616	.0751010	19.14600	.2901983	.2125521
Stddev	.0008733	.033430	.0011284	.0005268	.06273	.0023144	.0009105
%RSD	.1717916	.8859337	.2311072	.7015068	.3276254	.7975353	.4283641

#1	.5083894	3.740661	.4872908	.0750370	19.21426	.2889949	.2116181
#2	.5074352	3.772192	.4879943	.0746091	19.09090	.2887336	.2134371
#3	.5091792	3.807486	.4894997	.0756569	19.13283	.2928665	.2126010

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.49687	.2804158	.4289250	.6813240	.1878796	1.606177	5.803213
Stddev	.06000	.0009624	.0007950	.0024188	.0003859	.023761	.002049
%RSD	.5219188	.3432086	.1853368	.3550163	.2053811	1.479330	.0353127

#1	11.56118	.2794330	.4292968	.6834257	.1882693	1.592622	5.804231
#2	11.44237	.2813564	.4280122	.6786801	.1878719	1.592297	5.800854
#3	11.48707	.2804579	.4294659	.6818663	.1874976	1.633613	5.804554

Sample Name: Q1356-04MSD Acquired: 2/17/2025 13:49:54 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	2.626216	.1906636	.2778410
Stddev	.007337	.0004426	.0006904
%RSD	.2793664	.2321227	.2484862

#1	2.626504	.1911630	.2786260
#2	2.618739	.1903201	.2775689
#3	2.633404	.1905076	.2773282

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3116.577	67896.78	12729.87	2194.729	4262.459
Stddev	4.445	330.09	35.34	2.712	6.432
%RSD	.1426325	.4861581	.2775893	.1235466	.1508945

#1	3118.807	68150.75	12761.61	2197.620	4269.633
#2	3119.467	68015.92	12736.21	2194.323	4260.539
#3	3111.459	67523.66	12691.79	2192.243	4257.207

Sample Name: Q1356-04A Acquired: 2/17/2025 13:53:55 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	.8391001	2.107753	.9725957	1.984457	.8389767	1.998056	.2066629
Stddev	.0028685	.023299	.0016618	.003360	.0017730	.008126	.0010145
%RSD	.3418493	1.105391	.1708620	.1693175	.2113286	.4066762	.4908794

#1	.8385448	2.082588	.9732576	1.980790	.8386164	1.999691	.2055498
#2	.8422056	2.112096	.9738245	1.987388	.8409021	2.005240	.2069035
#3	.8365499	2.128574	.9707049	1.985194	.8374114	1.989237	.2075355

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1858344	.1939629	10.66731	.4202695	.1977040	.3087571	3.037109
Stddev	.0008709	.0004009	.01158	.0020219	.0005042	.0011970	.015685
%RSD	.4686207	.2066949	.1085480	.4810974	.2550077	.3876947	.5164548

#1	.1862103	.1941217	10.67095	.4191921	.1982180	.3077969	3.022677
#2	.1848388	.1942601	10.65434	.4190144	.1976839	.3100983	3.034849
#3	.1864542	.1935069	10.67662	.4226019	.1972103	.3083761	3.053802

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5157268	3.844755	.4891433	.0752400	20.20778	.2952676	.2125964
Stddev	.0016976	.021174	.0015853	.0005177	.17715	.0012453	.0010980
%RSD	.3291580	.5507155	.3241020	.6880628	.8766285	.4217612	.5164959

#1	.5142139	3.820584	.4904803	.0756118	20.00740	.2946704	.2118885
#2	.5154039	3.860028	.4895576	.0746487	20.34358	.2944334	.2120394
#3	.5175626	3.853652	.4873920	.0754594	20.27235	.2966990	.2138613

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.79648	.2768915	.4315568	.6837144	.1909113	1.659828	5.770233
Stddev	.06673	.0009828	.0009367	.0045305	.0007580	.022600	.013764
%RSD	.5657189	.3549246	.2170582	.6626291	.3970338	1.361562	.2385278

#1	11.72472	.2771983	.4310313	.6854677	.1912298	1.636566	5.755782
#2	11.85668	.2757920	.4326383	.6871063	.1914581	1.661216	5.783186
#3	11.80803	.2776843	.4310008	.6785693	.1900460	1.681702	5.771732

Sample Name: Q1356-04A Acquired: 2/17/2025 13:53:55 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	2.632598	.1972718	.2820850
Stddev	.007256	.0007464	.0009991
%RSD	.2756168	.3783428	.3541817

#1	2.624328	.1965425	.2809458
#2	2.635566	.1980341	.2828122
#3	2.637898	.1972388	.2824970

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3100.973	67798.55	12855.40	2161.116	4249.786
Stddev	4.527	343.41	57.68	15.026	11.758
%RSD	.1459925	.5065174	.4486860	.6953117	.2766723

#1	3100.553	68093.11	12833.27	2171.997	4246.484
#2	3096.670	67881.18	12920.87	2167.381	4240.033
#3	3105.695	67421.36	12812.06	2143.971	4262.842

Sample Name: CCV03 Acquired: 2/17/2025 13:57:55 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	5.030019	5.212778	4.854750	5.117774	5.152969	9.627872	9.050297
Stddev	.028206	.033791	.023345	.022346	.032569	.040597	.155855
%RSD	.5607573	.6482282	.4808669	.4366261	.6320439	.4216635	1.722099

#1	5.001257	5.214630	4.829481	5.099274	5.130170	9.660080	9.188767
#2	5.031165	5.178100	4.859254	5.111447	5.138466	9.641264	9.080613
#3	5.057635	5.245605	4.875514	5.142600	5.190270	9.582270	8.881512

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2326271	2.421982	23.33103	1.006829	2.420432	1.241084	4.804731
Stddev	.0016915	.012279	.08872	.005500	.014258	.007248	.020028
%RSD	.7271294	.5069970	.3802532	.5462706	.5890632	.5840409	.4168456

#1	.2345636	2.409794	23.42302	1.010375	2.406858	1.234293	4.805882
#2	.2318795	2.421801	23.32406	1.009618	2.419149	1.240241	4.824159
#3	.2314382	2.434351	23.24600	1.000493	2.435287	1.248717	4.784152

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.649252	23.62888	2.383778	1.227443	23.70695	2.366172	2.471932
Stddev	.012678	.12689	.013893	.004339	.12326	.011908	.006589
%RSD	.4785563	.5370194	.5828082	.3534881	.5199281	.5032609	.2665430

#1	2.662272	23.75307	2.368947	1.228493	23.70233	2.379575	2.473793
#2	2.648539	23.63412	2.385900	1.231161	23.83245	2.362132	2.477390
#3	2.636946	23.49945	2.396488	1.222676	23.58606	2.356810	2.464613

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.62323	4.536091	5.066009	4.869920	4.632689	5.078158	4.924803
Stddev	.08404	.030146	.027882	.027278	.022927	.020768	.018706
%RSD	.3412861	.6645737	.5503700	.5601230	.4948965	.4089696	.3798269

#1	24.61847	4.570900	5.039455	4.840399	4.657144	5.077002	4.907948
#2	24.70955	4.518868	5.063521	4.875171	4.629243	5.099481	4.921533
#3	24.54168	4.518506	5.095051	4.894190	4.611681	5.057993	4.944929

Sample Name: CCV03 Acquired: 2/17/2025 13:57:55 Type: Unk
Method: NON EPA-6010-200.7(v2702) 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	4.834166	4.625727	4.619186
Stddev	.021126	.022430	.033407
%RSD	.4370073	.4848929	.7232312

#1	4.810553	4.651083	4.655241
#2	4.840670	4.617623	4.613038
#3	4.851275	4.608476	4.589280

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3048.335	65566.42	12400.62	2093.354	4012.495
Stddev	10.622	367.08	106.58	11.523	13.812
%RSD	.3484419	.5598652	.8594856	.5504586	.3442253

#1	3059.913	65314.44	12280.63	2085.455	4027.800
#2	3046.051	65397.23	12436.90	2088.032	4008.726
#3	3039.041	65987.59	12484.32	2106.577	4000.958

Sample Name: CCB03 Acquired: 2/17/2025 14:06:42 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	-.000926	-.001154	.0005485	.0018784	.0012144	.0033802	-.004814
Stddev	.001038	.000798	.0007826	.0014962	.0004679	.0064053	.000300
%RSD	112.0911	69.09790	142.6890	79.65172	38.53072	189.4963	6.237708
#1	-.000418	-.000436	.0014464	.0001572	.0017529	.0032972	-.004839
#2	-.000240	-.001013	.0001880	.0028684	.0009078	.0098266	-.005101
#3	-.002119	-.002013	.0000110	.0026097	.0009823	-.002983	-.004502
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000601	.0000059	-.005762	-.000164	-.000031	-.000033	-.001746
Stddev	.0000580	.0001068	.006767	.000465	.000061	.000396	.002408
%RSD	96.50009	1812.062	117.4422	282.7056	196.7284	1185.543	137.8585
#1	-.000005	-.000012	-.008691	.000004	.000034	-.000128	.000706
#2	.000079	.000121	.001976	.000193	-.000040	-.000374	-.001838
#3	.000106	-.000091	-.010572	-.000690	-.000086	.000402	-.004107
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000154	.0049968	-.000350	.0005976	.0030536	.0003671	-.000492
Stddev	.000144	.0074087	.000045	.0003760	.0061843	.0012486	.000302
%RSD	93.59488	148.2708	12.95630	62.91628	202.5220	340.1742	61.31985
#1	-.000082	.0131007	-.000363	.0008224	.0008262	.0002413	-.000488
#2	-.000321	.0033183	-.000388	.0008070	-.001708	.0016738	-.000192
#3	-.000060	-.001429	-.000300	.0001635	.010043	-.000814	-.000795
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0432447	.0022690	.0001608	.0002759	.0010730	.0037329	-.003866
Stddev	.0335097	.0002924	.0000425	.0002156	.0003244	.0038105	.001235
%RSD	77.48850	12.88719	26.42044	78.13700	30.23526	102.0798	31.94064
#1	.0050811	.0026067	.0002032	.0004490	.0014028	-.000665	-.004738
#2	.0678541	.0020987	.0001182	.0003442	.0007543	.005805	-.004407
#3	.0567990	.0021017	.0001610	.0000344	.0010620	.006058	-.002453

Sample Name: CCB03 Acquired: 2/17/2025 14:06:42 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	-.002608	.0007745	-.000015
Stddev	.001181	.0006374	.000055
%RSD	45.28855	82.30508	376.0383

#1	-.003141	.0001337	.000041
#2	-.003430	.0014085	-.000068
#3	-.001255	.0007812	-.000016

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3160.587	68405.33	11438.06	2248.118	4322.340
Stddev	2.957	118.59	9.37	2.686	4.934
%RSD	.0935654	.1733613	.0819451	.1194821	.1141475

#1	3162.124	68391.16	11429.84	2251.161	4322.379
#2	3162.458	68530.37	11436.07	2246.077	4327.254
#3	3157.178	68294.46	11448.27	2247.116	4317.386

Sample Name: Q1356-05 Acquired: 2/17/2025 14:10:59 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	-.003131	-.001903	.0000740	.0029400	.0001864	.0140632	.0321705
Stddev	.000813	.000273	.0004623	.0033522	.0014711	.0041962	.0005917
%RSD	25.97234	14.35484	624.8966	114.0215	789.3937	29.83777	1.839397

#1	-.003256	-.001587	.0005618	.0020992	.0018471	.0092304	.0326122
#2	-.002263	-.002050	.0000178	.0000882	-.000335	.0161786	.0314982
#3	-.003875	-.002070	-.000358	.0066326	-.000953	.0167806	.0324012

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000065	-.000043	.1139188	.0007778	-.000217	.0005070	.0171204
Stddev	.000053	.000032	.0064462	.0001034	.000098	.0004483	.0019522
%RSD	81.29374	74.98055	5.658581	13.29218	45.15992	88.42509	11.40269

#1	-.000103	-.000010	.1180019	.0008879	-.000263	.0003030	.0165473
#2	-.000005	-.000074	.1064875	.0007629	-.000282	.0010211	.0192950
#3	-.000087	-.000045	.1172671	.0006827	-.000104	.0001970	.0155189

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0054041	.0286834	-.000009	.0007131	.4856322	-.000152	.0025053
Stddev	.0007133	.0024838	.000201	.0003063	.0050832	.001968	.0001817
%RSD	13.19939	8.659379	2213.151	42.94753	1.046712	1296.076	7.253579

#1	.0055171	.0276375	-.000057	.0010121	.4887869	-.001989	.0025078
#2	.0046410	.0315191	-.000182	.0007272	.4797683	-.000392	.0026857
#3	.0060542	.0268935	.000212	.0004000	.4883413	.001926	.0023223

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0030349	-.000092	.0000345	.0008890	.0003489	.0288813	.0028396
Stddev	.0183355	.000103	.0000145	.0003527	.0000875	.0069111	.0016658
%RSD	604.1619	111.9441	41.87678	39.67170	25.06578	23.92946	58.66358

#1	-.014875	.000027	.0000433	.0012789	.0002659	.0285769	.0012682
#2	.002212	-.000146	.0000178	.0007961	.0003406	.0359397	.0026646
#3	.021768	-.000156	.0000425	.0005921	.0004402	.0221274	.0045861

Sample Name: Q1356-05 Acquired: 2/17/2025 14:10:59 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	.1666163	-.002702	.0011398
Stddev	.0027802	.000150	.0000730
%RSD	1.668621	5.541796	6.405389

#1	.1668667	-.002770	.0010893
#2	.1692627	-.002530	.0011066
#3	.1637193	-.002806	.0012235

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3272.546	71171.94	13042.33	2271.061	4580.140
Stddev	6.811	95.48	47.31	1.830	13.040
%RSD	.2081207	.1341583	.3627145	.0805646	.2847168

#1	3276.979	71108.26	13031.82	2272.672	4588.635
#2	3275.955	71125.83	13094.01	2271.440	4586.661
#3	3264.704	71281.73	13001.16	2269.072	4565.126

Sample Name: Q1356-06 Acquired: 2/17/2025 14:15:19 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	-.002804	-.004899	.0004229	.0031476	-.000159	-.000893	.0315626
Stddev	.001432	.001315	.0004557	.0021424	.000751	.004544	.0009677
%RSD	51.08329	26.85096	107.7728	68.06500	473.2958	508.6297	3.066128

#1	-.001386	-.004963	.0007837	.0010813	-.000058	-.006127	.0326690
#2	-.004251	-.003553	.0005743	.0030028	.000537	.002055	.0311451
#3	-.002774	-.006181	-.000089	.0053588	-.000956	.001392	.0308736

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000075	-.000041	9.480940	.0004113	.0068930	-.000025	.6578624
Stddev	.000036	.000057	.060146	.0003725	.0002202	.000235	.0028099
%RSD	48.11656	139.3752	.6343896	90.55046	3.194352	928.7406	.4271258

#1	-.000085	.000005	9.527181	.0001726	.0069539	-.000200	.6562086
#2	-.000035	-.000104	9.502696	.0008405	.0070763	.000242	.6562718
#3	-.000104	-.000023	9.412943	.0002209	.0066487	-.000118	.6611068

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9078892	1.782171	.0256738	.0008647	12.22524	-.000293	.0130739
Stddev	.0022632	.018960	.0003246	.0000745	.08386	.000750	.0000962
%RSD	.2492803	1.063846	1.264221	8.617142	.6859377	255.6172	.7360776

#1	.9074508	1.798352	.0260483	.0008345	12.14083	-.001138	.0129642
#2	.9103396	1.786851	.0254994	.0008100	12.30853	.000293	.0131438
#3	.9058774	1.761310	.0254737	.0009495	12.22635	-.000034	.0131138

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.298375	.0878977	.0031105	.0001371	.0009339	.8823564	-.002458
Stddev	.016996	.0011377	.0001706	.0006056	.0003317	.0022591	.000957
%RSD	1.308987	1.294313	5.483664	441.6950	35.52124	.2560340	38.92981

#1	1.317580	.0890264	.0029135	.0007853	.0006090	.8849062	-.002037
#2	1.292268	.0879155	.0032088	.0000400	.0009205	.8815586	-.001784
#3	1.285277	.0867513	.0032091	-.000414	.0012721	.8806045	-.003553

Sample Name: Q1356-06 Acquired: 2/17/2025 14:15:19 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	2.220448	-.004239	.0871917
Stddev	.015690	.000396	.0005225
%RSD	.7066337	9.353745	.5992254

#1	2.229378	-.004595	.0873993
#2	2.229635	-.003811	.0875785
#3	2.202331	-.004310	.0865974

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3157.461	68175.48	12872.25	2182.055	4385.416
Stddev	10.986	206.34	100.83	10.392	19.427
%RSD	.3479441	.3026542	.7832856	.4762428	.4429848

#1	3153.036	68216.24	12755.97	2188.243	4375.560
#2	3149.378	68358.39	12925.34	2187.864	4372.893
#3	3169.970	67951.80	12935.43	2170.057	4407.795

Sample Name: Q1356-07 Acquired: 2/17/2025 14:19:36 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	-.001402	-.003227	.0001725	.0030392	.0003428	.0040992	.0306507
Stddev	.002434	.001198	.0007789	.0022595	.0005507	.0055103	.0009324
%RSD	173.6021	37.13687	451.5325	74.34798	160.6481	134.4209	3.041876

#1	.001233	-.003360	-.000727	.0053533	.0002774	.0101408	.0317272
#2	-.003567	-.001968	.000621	.0029257	.0009233	-.000650	.0301170
#3	-.001872	-.004353	.000623	.0008385	-.000172	.002807	.0301078

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000119	.0000239	10.14788	.0005118	.0003756	.0005315	.0063556
Stddev	.000084	.0000369	.02852	.0005627	.0001557	.0001298	.0025523
%RSD	70.78791	154.0143	.2810282	109.9394	41.47290	24.42282	40.15822

#1	-.000210	.0000412	10.16568	.0000369	.0005551	.0005292	.0089551
#2	-.000044	.0000490	10.16297	.0003653	.0002944	.0004029	.0062583
#3	-.000102	-.000018	10.11498	.0011332	.0002772	.0006625	.0038533

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3567003	1.971300	.0083463	.0007923	17.10822	-.000453	.0044819
Stddev	.0039861	.006195	.0001533	.0002149	.08808	.001063	.0001457
%RSD	1.117503	.3142708	1.836620	27.11815	.5148339	234.7903	3.249945

#1	.3601202	1.973052	.0084009	.0009759	17.11671	-.000660	.0043520
#2	.3576582	1.964418	.0084648	.0005560	17.19175	.000699	.0046394
#3	.3523225	1.976431	.0081732	.0008452	17.01620	-.001397	.0044541

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.680194	.0287682	.0017626	.0244544	.0010234	.7306197	.0027904
Stddev	.014915	.0005166	.0001148	.0005685	.0003598	.0049155	.0014668
%RSD	.8876843	1.795815	6.513260	2.324678	35.15483	.6727890	52.56376

#1	1.662993	.0290006	.0016879	.0240291	.0010075	.7250052	.0012757
#2	1.688069	.0281762	.0017052	.0242340	.0013909	.7327059	.0028917
#3	1.689522	.0291278	.0018948	.0251001	.0006719	.7341482	.0042039

Sample Name: Q1356-07 Acquired: 2/17/2025 14:19:36 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	2.656538	-.004311	.0954317
Stddev	.004165	.002075	.0007972
%RSD	.1567690	48.13458	.8353204

#1	2.659774	-.002017	.0961515
#2	2.658000	-.006057	.0955687
#3	2.651839	-.004858	.0945749

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3196.856	69118.34	13084.87	2217.183	4416.474
Stddev	8.137	208.59	55.33	10.099	15.975
%RSD	.2545381	.3017914	.4228807	.4555032	.3617238

#1	3191.434	69358.47	13022.79	2209.106	4404.863
#2	3192.920	69014.51	13102.79	2228.507	4409.866
#3	3206.213	68982.04	13129.02	2213.937	4434.693

Sample Name: Q1356-08 Acquired: 2/17/2025 14:23:55 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	-.002557	-.003550	.0000243	.0013705	.0002019	.0092321	.0222467
Stddev	.001107	.001557	.0011067	.0032238	.0015744	.0016331	.0006146
%RSD	43.27685	43.86549	4545.024	235.2388	779.8476	17.68959	2.762814

#1	-.003358	-.005290	-.000905	.0028520	-.001046	.0106768	.0227777
#2	-.001294	-.003076	.001249	-.002328	-.000319	.0074601	.0215734
#3	-.003018	-.002286	-.000270	.003587	.001971	.0095593	.0223890

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000050	-.000092	.0899805	.0007655	-.000377	.0000611	.0081521
Stddev	.000022	.000044	.0103797	.0003776	.000024	.0002628	.0008738
%RSD	43.45070	48.00502	11.53545	49.32506	6.413558	430.2949	10.71825

#1	-.000065	-.000138	.0992231	.0005021	-.000371	.0003526	.0071808
#2	-.000025	-.000088	.0787510	.0005963	-.000356	-.000158	.0084013
#3	-.000060	-.000050	.0919674	.0011981	-.000403	-.000012	.0088742

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0033373	.0311884	.0000433	.0007256	.4272280	-.001199	.0024571
Stddev	.0002005	.0133792	.0002586	.0002374	.0029088	.000868	.0003270
%RSD	6.008190	42.89800	597.1417	32.72069	.6808593	72.39269	13.30710

#1	.0031121	.0210964	.0003232	.0005829	.4257040	-.002186	.0023456
#2	.0034033	.0463644	-.000007	.0009996	.4253979	-.000551	.0022004
#3	.0034965	.0261045	-.000187	.0005942	.4305822	-.000861	.0028252

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0137952	-.002417	.0002983	.0001057	.0009328	.0175642	.0012623
Stddev	.0178363	.000296	.0001620	.0003059	.0004351	.0049159	.0017446
%RSD	129.2932	12.24280	54.29407	289.3890	46.64861	27.98835	138.2090

#1	.0011324	-.002354	.0003531	.0000431	.0013999	.0188257	-.000241
#2	.0341934	-.002158	.0004257	-.000164	.0005390	.0217265	.003175
#3	.0060599	-.002739	.0001160	.000438	.0008594	.0121405	.000853

Sample Name: Q1356-08 Acquired: 2/17/2025 14:23:55 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	.1247139	-.003662	.0007155
Stddev	.0008687	.000448	.0000095
%RSD	.6965911	12.22612	1.323279

#1	.1250976	-.003777	.0007075
#2	.1253247	-.003168	.0007130
#3	.1237194	-.004041	.0007259

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3215.592	70509.46	13045.07	2277.116	4450.513
Stddev	4.501	105.38	53.07	7.503	4.254
%RSD	.1399589	.1494487	.4068516	.3294923	.0955814

#1	3217.809	70395.55	13061.61	2271.633	4453.431
#2	3218.554	70603.46	13087.90	2285.667	4452.477
#3	3210.413	70529.38	12985.69	2274.050	4445.633

Sample Name: Q1356-09 Acquired: 2/17/2025 14:28:15 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	-.003364	-.003318	.0002286	.0010162	-.000121	.0037451	.0175550
Stddev	.001733	.000911	.0008039	.0016366	.001543	.0026796	.0008170
%RSD	51.52205	27.45945	351.7148	161.0463	1273.639	71.55008	4.653848
#1	-.005350	-.003889	-.000198	.0000460	.001557	.0028719	.0167587
#2	-.002158	-.003797	-.000272	.0000969	-.001480	.0016110	.0183912
#3	-.002584	-.002267	.001156	.0029057	-.000441	.0067524	.0175152
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000066	-.000123	.0813770	.0006248	-.000365	-.000105	.0058914
Stddev	.000043	.000039	.0091082	.0001564	.000291	.000217	.0028710
%RSD	65.07582	31.38150	11.19260	25.03039	79.62430	206.2466	48.73279
#1	-.000080	-.000128	.0916431	.0007955	-.000324	-.000354	.0026804
#2	-.000101	-.000083	.0742654	.0004883	-.000097	.000043	.0067825
#3	-.000018	-.000160	.0782224	.0005907	-.000674	-.000004	.0082112
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0056947	.0312776	.0000200	.0007566	.2860263	-.001552	.0054173
Stddev	.0001029	.0081370	.0002702	.0002117	.0109877	.000638	.0001996
%RSD	1.807678	26.01531	1353.558	27.98576	3.841491	41.11182	3.684520
#1	.0058134	.0346607	-.000168	.0005983	.2811800	-.001088	.0053156
#2	.0056302	.0371772	-.000101	.0006743	.2782950	-.001288	.0052891
#3	.0056405	.0219948	.000330	.0009970	.2986040	-.002280	.0056473
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0115355	-.003498	.0000375	.0008433	.0006012	.0247704	.0023156
Stddev	.0232192	.000313	.0001993	.0008726	.0003665	.0040004	.0007785
%RSD	201.2845	8.951210	531.6679	103.4725	60.95583	16.14979	33.61986
#1	.0044762	-.003521	.0001159	.0017001	.0003604	.0287971	.0030153
#2	.0374651	-.003174	-.000189	-.000044	.0004203	.0247173	.0024546
#3	-.007335	-.003798	.000186	.000874	.0010230	.0207969	.0014770

Sample Name: Q1356-09 Acquired: 2/17/2025 14:28:15 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	.0958947	-.003736	.0006327
Stddev	.0026263	.000182	.0000411
%RSD	2.738705	4.874006	6.498408

#1	.0938164	-.003762	.0006067
#2	.0988464	-.003543	.0006800
#3	.0950214	-.003905	.0006112

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3233.909	70436.96	12651.31	2278.759	4471.767
Stddev	7.248	201.45	41.04	11.261	8.523
%RSD	.2241318	.2860038	.3244238	.4941791	.1905961

#1	3232.410	70327.69	12675.18	2285.072	4468.615
#2	3241.790	70669.44	12674.84	2285.448	4481.417
#3	3227.528	70313.76	12603.92	2265.758	4465.269

Sample Name: PB166715BL Acquired: 2/17/2025 14:32:35 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	-.001401	-.000604	.0025606	.0050523	.0019022	.0119047
Stddev	.001426	.001618	.0003530	.0006627	.0003520	.0113929
%RSD	101.7981	267.6438	13.78774	13.11764	18.50680	95.70089

#1	-.002985	.000237	.0021965	.0056650	.0019598	.0229520
#2	-.001001	-.002469	.0029015	.0051430	.0015249	.0125670
#3	-.000218	.000420	.0025837	.0043488	.0022219	.0001951

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002800	.0003792	.0003785	.0142327	.0012485	.0001049
Stddev	.000452	.0000315	.0000662	.0056857	.0003419	.0001243
%RSD	16.15528	8.296527	17.49235	39.94790	27.38373	118.5735

#1	-.002951	.0004154	.0003689	.0077820	.0013751	.0000835
#2	-.003158	.0003584	.0003176	.0185156	.0015090	-.000007
#3	-.002292	.0003638	.0004489	.0164005	.0008614	.000238

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006521	.0137433	.0020551	.0110119	.0010676	.0009367
Stddev	.0001526	.0050915	.0001178	.0068932	.0001682	.0001631
%RSD	23.40592	37.04730	5.729571	62.59736	15.75131	17.40908

#1	.0007131	.0174367	.0019420	.0037191	.0012386	.0010952
#2	.0007649	.0079352	.0021770	.0118967	.0010617	.0007694
#3	.0004784	.0158581	.0020463	.0174201	.0009025	.0009457

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.028321	-.000349	.0021159	.0082449	-.006807	.0012290
Stddev	.009808	.000059	.0004055	.0197334	.000169	.0002977
%RSD	34.63117	16.90399	19.16624	239.3406	2.481275	24.22050

#1	-.017105	-.000417	.0020114	-.013442	-.006992	.0010464
#2	-.032566	-.000315	.0017728	.025145	-.006662	.0010681
#3	-.035290	-.000315	.0025634	.013032	-.006767	.0015725

Sample Name: PB166715BL Acquired: 2/17/2025 14:32:35 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	.0016513	.0010198	-.003508	F .0101529	.0073966	-.002998
Stddev	.0005982	.0005691	.002861	.0006300	.0029993	.000191
%RSD	36.22389	55.80541	81.55839	6.204888	40.54954	6.357249
#1	.0011378	.0014059	-.000221	.0095770	.0043441	-.002780
#2	.0023082	.0012874	-.004868	.0108257	.0075061	-.003133
#3	.0015080	.0003662	-.005437	.0100560	.0103397	-.003081

Elem	Sr4077
Units	ppm
Avg	.0003229
Stddev	.0000290
%RSD	8.970759
#1	.0002995
#2	.0003139
#3	.0003553

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3202.796	69895.60	12596.41	2239.543	4435.767
Stddev	6.550	283.68	46.45	12.966	12.200
%RSD	.2044948	.4058648	.3687829	.5789719	.2750273
#1	3199.838	69595.21	12550.60	2233.074	4426.586
#2	3210.303	70158.94	12643.48	2254.471	4449.610
#3	3198.247	69932.64	12595.15	2231.085	4431.106

Sample Name: PB166715BS Acquired: 2/17/2025 14:36:56 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	.7961640	2.015830	.9343960	1.887376	.8095202	1.879925
Stddev	.0024773	.011213	.0007324	.002077	.0034067	.000831
%RSD	.3111586	.5562539	.0783818	.1100358	.4208341	.0441872

#1	.7943491	2.028352	.9348621	1.889719	.8109764	1.878984
#2	.7951567	2.012424	.9335519	1.886648	.8056274	1.880235
#3	.7989864	2.006715	.9347741	1.885761	.8119569	1.880556

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1734788	.1771273	.1846278	.9575122	.4011993	.1881440
Stddev	.0003270	.0012949	.0000168	.0034436	.0007626	.0002362
%RSD	.1884980	.7310627	.0090974	.3596378	.1900872	.1255307

#1	.1733274	.1785055	.1846465	.9614598	.4019819	.1879498
#2	.1732550	.1769403	.1846227	.9559508	.4004584	.1880752
#3	.1738541	.1759360	.1846141	.9551259	.4011574	.1884069

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2974866	2.787141	.1885545	1.858167	.4633828	.0711475
Stddev	.0003230	.016200	.0008284	.016335	.0006211	.0000758
%RSD	.1085858	.5812488	.4393175	.8791190	.1340244	.1065522

#1	.2974117	2.778304	.1894684	1.855808	.4628561	.0711940
#2	.2978405	2.777281	.1883418	1.843138	.4640676	.0710600
#3	.2972076	2.805838	.1878532	1.875553	.4632246	.0711885

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.554665	.2768759	.1927383	9.235401	F .2310119	.4141729
Stddev	.008807	.0017156	.0006808	.047818	.0027030	.0006080
%RSD	.3447317	.6196374	.3532521	.5177694	1.170049	.1468102

#1	2.552157	.2788231	.1928005	9.196064	.2328516	.4145228
#2	2.564453	.2755866	.1920285	9.221512	.2322754	.4134708
#3	2.547384	.2762181	.1933860	9.288626	.2279086	.4145251

Sample Name: PB166715BS Acquired: 2/17/2025 14:36:56 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	.6569453	.1816112	.7959916	5.282508	F -.007494	.1823520
Stddev	.0022213	.0004012	.0071805	.011654	.001464	.0005137
%RSD	.3381324	.2208919	.9020794	.2206137	19.52876	.2817109

#1	.6592841	.1811717	.7901478	5.292976	-.006515	.1827810
#2	.6566880	.1817044	.7938198	5.284598	-.009177	.1817827
#3	.6548638	.1819576	.8040073	5.269951	-.006791	.1824924

Elem	Sr4077
Units	ppm
Avg	.1779960
Stddev	.0002161
%RSD	.1214003

#1	.1780652
#2	.1777537
#3	.1781689

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3155.730	70617.61	12914.39	2221.704	4361.738
Stddev	1.910	11.42	77.66	5.431	7.024
%RSD	.0605186	.0161693	.6013355	.2444348	.1610442

#1	3157.162	70607.83	12846.85	2225.640	4366.233
#2	3153.561	70630.15	12897.07	2223.963	4353.643
#3	3156.466	70614.83	12999.24	2215.508	4365.337

Sample Name: PB166731BL Acquired: 2/17/2025 14:40:58 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	-.001689	-.002304	.0003726	.0019492	.0002383	.0056454	-.000597
Stddev	.001364	.001922	.0003818	.0017861	.0016581	.0044768	.000174
%RSD	80.72428	83.41563	102.4623	91.63208	695.6270	79.29917	29.15688
#1	-.003263	-.003505	.0007306	.0007465	.0007463	.0095035	-.000735
#2	-.000925	-.000087	-.000029	.0040015	-.001614	.0066960	-.000654
#3	-.000879	-.003319	.000417	.0010996	.001583	.0007368	-.000401
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000495	.0000009	-.013723	-.000178	.0000064	.0000403	.0037517
Stddev	.0000268	.0000566	.004059	.000169	.0002282	.0003281	.0027771
%RSD	54.15416	6367.865	29.57964	94.94788	3541.968	815.1056	74.02159
#1	.0000552	.0000523	-.017195	.000015	-.000151	.0001475	.0021670
#2	.0000731	-.000060	-.009260	-.000297	-.000098	-.000328	.0021298
#3	.0000203	.000010	-.014714	-.000252	.000268	.000301	.0069583
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000288	.0050802	-.000039	.0010971	.0033569	-.000752	.0009611
Stddev	.000284	.0008703	.000271	.0001064	.0103642	.000746	.0003576
%RSD	98.48401	17.13164	690.4240	9.697964	308.7416	99.27106	37.20672
#1	-.000264	.0044798	-.000275	.0010501	-.008470	-.000620	.0006818
#2	-.000583	.0046826	-.000099	.0010223	.007688	-.001555	.0008373
#3	-.000017	.0060784	.000257	.0012189	.010853	-.000080	.0013641
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0263270	-.006229	.0000940	-.000058	.0008877	.0039505	-.003285
Stddev	.0170556	.000217	.0000627	.001070	.0004530	.0056109	.001067
%RSD	64.78353	3.482089	66.74640	1841.062	51.02943	142.0285	32.47230
#1	.0082963	-.006406	.0001037	.001023	.0006964	-.000966	-.002938
#2	.0284822	-.005987	.0001514	-.001116	.0014050	.010063	-.002435
#3	.0422026	-.006294	.0000270	-.000081	.0005617	.002754	-.004482

Sample Name: PB166731BL Acquired: 2/17/2025 14:40:58 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	-.005334	-.000376	-.000115
Stddev	.001822	.001448	.000037
%RSD	34.15533	385.3575	32.50767

#1	-.006006	-.002027	-.000095
#2	-.006723	.000229	-.000092
#3	-.003271	.000671	-.000159

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3184.762	68426.65	13006.97	2191.338	4395.256
Stddev	6.328	187.56	39.53	2.192	5.075
%RSD	.1986845	.2741066	.3039267	.1000406	.1154725

#1	3188.341	68599.68	12967.43	2193.728	4400.773
#2	3177.456	68452.92	13046.50	2189.420	4390.786
#3	3188.489	68227.33	13006.98	2190.867	4394.210

Sample Name: PB166731BS Acquired: 2/17/2025 14:49:38 Type: Unk
Method: NON EPA-6010-200.7(v2703) 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	.8083211	2.063803	.9657610	1.989254	.8035482	1.901718
Stddev	.0059456	.007977	.0038405	.009808	.0023170	.007196
%RSD	.7355425	.3864955	.3976626	.4930553	.2883452	.3783881

#1	.8093230	2.061812	.9674742	1.985696	.8031541	1.906220
#2	.8019383	2.057011	.9613621	1.981721	.8014536	1.893419
#3	.8137021	2.072586	.9684467	2.000345	.8060370	1.905514

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2174841	.1915769	.1928316	.9477121	.4037080	.1930093
Stddev	.0007011	.0009960	.0005514	.0141371	.0022430	.0004394
%RSD	.3223887	.5198773	.2859717	1.491708	.5555938	.2276831

#1	.2169309	.1927162	.1929220	.9575996	.4036016	.1929511
#2	.2182726	.1908716	.1922406	.9315195	.4060023	.1926018
#3	.2172487	.1911430	.1933323	.9540171	.4015201	.1934749

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3045468	2.836575	.2203869	1.863623	.4800211	.0743973
Stddev	.0010499	.020810	.0005039	.018019	.0013320	.0002875
%RSD	.3447295	.7336352	.2286230	.9668801	.2774965	.3863977

#1	.3050307	2.831107	.2200781	1.844693	.4812523	.0740704
#2	.3033422	2.859573	.2201142	1.865609	.4786071	.0745108
#3	.3052674	2.819045	.2209683	1.880567	.4802038	.0746106

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.644565	.2801726	.1999388	9.340963	.2638275	.4003223
Stddev	.012934	.0012153	.0006130	.053898	.0005221	.0009398
%RSD	.4890731	.4337732	.3065809	.5770077	.1979123	.2347511

#1	2.629706	.2793629	.1995736	9.317538	.2644290	.4007524
#2	2.650699	.2795850	.1995963	9.402610	.2635626	.3992445
#3	2.653291	.2815701	.2006465	9.302742	.2634908	.4009701

Sample Name: PB166731BS Acquired: 2/17/2025 14:49:38 Type: Unk
Method: NON EPA-6010-200.7(v2703) 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	.6644108	.1800277	.7926602	5.731640	F -.013580	.1894728
Stddev	.0016098	.0009390	.0070313	.007273	.001909	.0010941
%RSD	.2422827	.5215830	.8870507	.1268974	14.05951	.5774569

#1	.6652837	.1799294	.7852525	5.735570	-.011667	.1900566
#2	.6625531	.1810121	.7992422	5.723247	-.015486	.1901512
#3	.6653955	.1791418	.7934859	5.736103	-.013586	.1882106

Elem	Sr4077
Units	ppm
Avg	.1803253
Stddev	.0005066
%RSD	.2809482

#1	.1800383
#2	.1809102
#3	.1800273

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3177.115	68731.30	12534.09	2250.512	4308.052
Stddev	7.590	448.70	92.37	6.112	8.134
%RSD	.2388879	.6528333	.7369848	.2715640	.1888098

#1	3172.318	68465.28	12438.37	2247.064	4299.344
#2	3185.865	68479.27	12541.20	2246.903	4315.454
#3	3173.161	69249.35	12622.70	2257.568	4309.357

Sample Name: CCV04 Acquired: 2/17/2025 14:53:40 Type: Unk
Method: NON EPA-6010-200.7(v2703) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.851456	5.103446	4.737654	4.903364	4.995268	9.612273
Stddev	.016785	.052190	.005542	.021722	.007013	.058550
%RSD	.3459801	1.022647	.1169876	.4430116	.1403882	.6091192

#1	4.838217	5.044898	4.732722	4.890321	4.990898	9.652447
#2	4.845817	5.120356	4.736586	4.891332	4.991550	9.639277
#3	4.870335	5.145085	4.743652	4.928441	5.003357	9.545094

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.70144	.2303166	2.364008	23.26435	.9850798	2.361648
Stddev	.09330	.0023324	.004377	.14672	.0026564	.002770
%RSD	.8718469	1.012701	.1851440	.6306569	.2696642	.1173009

#1	10.64706	.2311800	2.359771	23.29009	.9820777	2.358486
#2	10.80917	.2320943	2.363741	23.39649	.9871260	2.362808
#3	10.64809	.2276756	2.368512	23.10646	.9860356	2.363649

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.206739	4.677170	2.638388	23.61315	2.334755	1.188823
Stddev	.001358	.025087	.013072	.19705	.004830	.000996
%RSD	.1125554	.5363661	.4954590	.8344959	.2068551	.0837513

#1	1.207103	4.651540	2.645382	23.63740	2.329607	1.188946
#2	1.205236	4.678295	2.646475	23.79696	2.335471	1.187772
#3	1.207879	4.701675	2.623306	23.40510	2.339186	1.189752

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	23.10752	2.352594	2.395655	23.73845	F 4.476974	4.987947
Stddev	.07599	.013071	.003070	.11104	.046625	.010473
%RSD	.3288565	.5555846	.1281481	.4677483	1.041440	.2099602

#1	23.11455	2.362038	2.396464	23.73166	4.496278	4.981025
#2	23.02826	2.358068	2.398239	23.63097	4.510847	4.982820
#3	23.17975	2.337677	2.392261	23.85273	4.423797	4.999995

Sample Name: CCV04 Acquired: 2/17/2025 14:53:40 Type: Unk
Method: NON EPA-6010-200.7(v2703) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.769438	4.608513	4.904365	4.782926	4.624651	4.619713
Stddev	.013951	.026755	.056223	.016034	.013316	.027273
%RSD	.2925069	.5805535	1.146387	.3352296	.2879379	.5903678

#1	4.754464	4.625488	4.860200	4.764440	4.610054	4.643858
#2	4.771779	4.622380	4.885240	4.791287	4.636134	4.625151
#3	4.782070	4.577671	4.967656	4.793051	4.627765	4.590131

Elem	Sr4077
Units	ppm
Avg	4.604121
Stddev	.073540
%RSD	1.597275

#1	4.638416
#2	4.654249
#3	4.519697

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3134.929	67727.88	12432.45	2147.178	4131.996
Stddev	2.443	286.48	111.90	9.931	1.741
%RSD	.0779341	.4229856	.9000502	.4624919	.0421408

#1	3132.474	68054.28	12414.99	2158.286	4134.001
#2	3137.360	67611.20	12330.31	2144.086	4131.116
#3	3134.952	67518.15	12552.05	2139.160	4130.869

Sample Name: CCB04 Acquired: 2/17/2025 14:58:22 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	-.002236	.0000547	.0008649	.0023020	.0001846	.0002210	.0012883
Stddev	.002213	.0009633	.0009161	.0015174	.0020245	.0029235	.0002004
%RSD	98.95229	1761.876	105.9242	65.91612	1096.635	1322.798	15.55469

#1	.000084	-.000422	.0011041	.0039296	.0012031	.0006263	.0015170
#2	-.002468	-.000578	-.000147	.0020501	.0014977	.0029207	.0011431
#3	-.004323	.001163	.001638	.0009263	-.002147	-.002884	.0012050

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000922	-.000085	-.011720	.0001471	-.000097	.0003514	.0003603
Stddev	.0000069	.000059	.005214	.0002881	.000151	.0005797	.0013080
%RSD	7.497574	69.59700	44.48588	195.8021	154.7666	164.9660	363.0305

#1	.0000972	-.000112	-.016022	-.000114	-.000271	.0001501	.0018652
#2	.0000843	-.000125	-.005922	.000456	-.000000	.0010050	-.000281
#3	.0000951	-.000017	-.013216	.000099	-.000021	-.000101	-.000503

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000751	.0087021	.0000642	.0009604	.0210601	-.000262	-.000642
Stddev	.0001109	.0088575	.0000429	.0003963	.0163551	.001205	.000099
%RSD	147.7222	101.7855	66.81533	41.26025	77.65928	460.3913	15.47585

#1	.0000394	-.000848	.0001014	.0014164	.0196998	-.000035	-.000564
#2	.0001995	.010306	.0000738	.0007649	.0054276	-.001563	-.000609
#3	-.000014	.016648	.0000173	.0006999	.0380528	.000814	-.000754

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0448938	.0036704	.0001914	.0003567	.0009754	.0138075	-.003479
Stddev	.0078764	.0006345	.0002605	.0003102	.0007282	.0048981	.000873
%RSD	17.54458	17.28743	136.1309	86.96863	74.65832	35.47406	25.08815

#1	.0359578	.0043119	.0001070	.0006146	.0005107	.0093656	-.004429
#2	.0478960	.0030431	.0004836	.0000124	.0006008	.0129964	-.003296
#3	.0508277	.0036560	-.000016	.0004431	.0018147	.0190604	-.002712

Sample Name: CCB04 Acquired: 2/17/2025 14:58:22 Type: Unk
Method: NON EPA-6010-200.7(v2699) 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	-.005392	-.000948	-.000020
Stddev	.001714	.000469	.000027
%RSD	31.78045	49.46262	131.6054

#1	-.007332	-.000486	-.000011
#2	-.004087	-.000935	-.000051
#3	-.004756	-.001423	.000001

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3187.960	68037.78	12814.99	2187.272	4390.919
Stddev	8.199	198.78	36.06	6.901	9.827
%RSD	.2571877	.2921563	.2814084	.3155055	.2237955

#1	3187.786	68093.77	12808.99	2189.509	4391.642
#2	3196.244	67817.01	12782.31	2179.530	4400.364
#3	3179.849	68202.55	12853.68	2192.776	4380.751

Sample Name: LR1 Acquired: 2/17/2025 15:02:17 Type: Unk
Method: NON EPA-6010-200.7(v2704) 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	.0527827	-.025504	.0368413	-.208374	-.007970	2004.186	.0220535
Stddev	.0023023	.001378	.0052219	.012591	.007724	11.858	.0002974
%RSD	4.361939	5.403117	14.17404	6.042493	96.91787	.5916693	1.348753
#1	.0512773	-.025395	.0344245	-.208637	.000533	1990.687	.0220358
#2	.0516378	-.026933	.0428337	-.220831	-.009889	2008.947	.0217653
#3	.0554331	-.024183	.0332656	-.195654	-.014553	2012.924	.0223594
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0093451	.0466669	1863.798	.0054636	.0243049	-.699699	1093.119
Stddev	.0001577	.0002169	12.566	.0007875	.0004032	.005641	7.916
%RSD	1.687372	.4647003	.6741884	14.41398	1.658899	.8062109	.7242072
#1	.0094267	.0465050	1856.637	.0052165	.0247222	-.696904	1091.593
#2	.0091633	.0469133	1856.449	.0063451	.0242750	-.696001	1086.076
#3	.0094452	.0465823	1878.307	.0048294	.0239174	-.706192	1101.687
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.111558	1656.234	.0196294	-.004495	1843.256	.0152975	.0276424
Stddev	.000547	5.182	.0012582	.000903	21.730	.0026429	.0013328
%RSD	.4901622	.3128902	6.409539	20.09899	1.178912	17.27667	4.821678
#1	-.110933	1650.753	.0208204	-.003766	1818.443	.0178429	.0262809
#2	-.111949	1661.053	.0183134	-.005506	1858.895	.0154828	.0289445
#3	-.111793	1656.897	.0197543	-.004214	1852.428	.0125669	.0277020
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1237.708	^ *****	.0096606	-.000962	-.035892	.1621527	.0560510
Stddev	2.063	-----	.0007758	.002076	.000469	.0129921	.0046676
%RSD	.1666560	-----	8.030645	215.7290	1.306708	8.012246	8.327316
#1	1235.347	^ -----	.0088306	.001418	-.035932	.1578014	.0514559
#2	1239.161	^ -----	.0097837	-.002402	-.036340	.1518948	.0559095
#3	1238.615	^ -----	.0103675	-.001903	-.035404	.1767619	.0607877

Sample Name: LR1 Acquired: 2/17/2025 15:02:17 Type: Unk
Method: NON EPA-6010-200.7(v2704) 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	-.253219	.1422213	-1.08244
Stddev	.016961	.0014976	.00789
%RSD	6.698059	1.052986	.7292046

#1	-.272040	.1439436	-1.08098
#2	-.248496	.1414939	-1.07537
#3	-.239120	.1412264	-1.09096

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2189.817	47709.27	10866.65	1500.007	2554.293
Stddev	9.789	193.98	17.14	7.778	11.079
%RSD	.4470068	.4065896	.1576922	.5185041	.4337385

#1	2197.225	47882.41	10885.09	1507.563	2564.496
#2	2193.507	47745.75	10863.65	1500.434	2555.876
#3	2178.720	47499.63	10851.21	1492.026	2542.508

Sample Name: LR2 Acquired: 2/17/2025 15:07:15 Type: Unk
Method: NON EPA-6010-200.7(v2704) 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	.0094552	.0025699	260.2811	.0060987	.0008290	.1620844	95.65749
Stddev	.0004562	.0018862	.1113	.0038471	.0018784	.0039847	1.04901
%RSD	4.824649	73.39308	.0427722	63.08131	226.5854	2.458423	1.096635
#1	.0095104	.0020863	260.1650	.0017554	.0008087	.1665830	96.81092
#2	.0098812	.0046508	260.3869	.0090781	-.001039	.1589986	95.40116
#3	.0089739	.0009727	260.2915	.0074625	.002717	.1606716	94.76041
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.003250	-.004306	.1968481	.0097461	-.006398	244.1950	.0177240
Stddev	.000032	.000096	.0017848	.0004149	.000202	1.0256	.0087543
%RSD	.9966761	2.229731	.9067071	4.257629	3.150950	.4199920	49.39260
#1	-.003238	-.004303	.1977294	.0092715	-.006222	244.0222	.0255283
#2	-.003286	-.004403	.1947941	.0100405	-.006618	245.2959	.0082579
#3	-.003225	-.004211	.1980209	.0099263	-.006355	243.2667	.0193858
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	48.82154	-.063903	48.81515	.0034322	.1509522	-.010516	32.10413
Stddev	.45244	.007414	.03549	.0001777	.0129522	.000947	.14261
%RSD	.9267224	11.60199	.0727055	5.175945	8.580348	9.009569	.4442014
#1	48.73135	-.072149	48.84848	.0033944	.1632413	-.009515	31.96088
#2	48.42099	-.057787	48.77784	.0036257	.1374256	-.011399	32.10543
#3	49.31229	-.061774	48.81914	.0032765	.1521896	-.010633	32.24608
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2886917	-.004612	-.007194	-.003066	-.032914	-.003104	.2304847
Stddev	.0330283	.000362	.000401	.000174	.000881	.000624	.0016203
%RSD	11.44070	7.857931	5.571367	5.664756	2.675858	20.11953	.7029861
#1	.3265713	-.004318	-.007219	-.002984	-.033499	-.002653	.2287136
#2	.2735886	-.005016	-.007581	-.002948	-.033341	-.003816	.2308478
#3	.2659150	-.004501	-.006781	-.003265	-.031901	-.002842	.2318926

Sample Name: LR2 Acquired: 2/17/2025 15:07:15 Type: Unk
Method: NON EPA-6010-200.7(v2704) 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	-.027763	-.002529	.0012598
Stddev	.003938	.001473	.0000270
%RSD	14.18475	58.23654	2.140851

#1	-.023998	-.004028	.0012459
#2	-.027439	-.002476	.0012427
#3	-.031854	-.001084	.0012909

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2865.666	66918.24	12380.02	2081.308	4255.938
Stddev	7.107	262.44	64.55	14.224	9.976
%RSD	.2479883	.3921818	.5213659	.6833995	.2344002

#1	2858.641	67057.39	12454.55	2096.666	4249.256
#2	2865.507	66615.53	12343.36	2068.588	4251.153
#3	2872.851	67081.82	12342.15	2078.671	4267.405

Sample Name: CCV05 Acquired: 2/17/2025 15:12:03 Type: Unk
Method: NON EPA-6010-200.7(v2705) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.873196	5.002113	4.733510	4.947725	4.994588	9.359863
Stddev	.015239	.011679	.005655	.015470	.021023	.002986
%RSD	.3127003	.2334785	.1194760	.3126618	.4209167	.0319047

#1	4.864690	4.988854	4.727758	4.938248	4.990168	9.359638
#2	4.864110	5.006608	4.733710	4.939350	4.976126	9.362955
#3	4.890789	5.010876	4.739063	4.965576	5.017469	9.356996

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.77072	.2452451	2.359783	22.54875	.9796123	2.364218
Stddev	.20409	.0006826	.002442	.12076	.0012628	.003199
%RSD	1.894877	.2783228	.1034895	.5355358	.1289120	.1352918

#1	10.75290	.2447414	2.357811	22.59390	.9781543	2.362532
#2	10.57612	.2449720	2.359024	22.41192	.9803217	2.362215
#3	10.98313	.2460220	2.362515	22.64042	.9803609	2.367907

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.218359	4.865861	2.554642	22.65327	2.350152	1.202171
Stddev	.004637	.009849	.011022	.09237	.004193	.001901
%RSD	.3806046	.2024068	.4314432	.4077668	.1784175	.1581000

#1	1.216335	4.855069	2.552261	22.69516	2.347524	1.200199
#2	1.215078	4.868151	2.545005	22.54737	2.347944	1.203991
#3	1.223664	4.874364	2.566660	22.71728	2.354987	1.202323

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	22.61045	2.284659	2.380547	26.61287	4.778260	4.956997
Stddev	.07332	.004916	.008216	.02747	.003419	.015003
%RSD	.3242744	.2151829	.3451165	.1032237	.0715616	.3026579

#1	22.59621	2.290163	2.389152	26.63530	4.774433	4.948122
#2	22.54529	2.280703	2.379703	26.58223	4.779335	4.948550
#3	22.68984	2.283111	2.372785	26.62107	4.781013	4.974319

Sample Name: CCV05 Acquired: 2/17/2025 15:12:03 Type: Unk
Method: NON EPA-6010-200.7(v2705) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV05 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.765929	F 4.464151	4.524668	4.834211	4.726704	F 4.358129
Stddev	.000803	.018858	.015208	.006747	.011045	.016961
%RSD	.0168534	.4224418	.3361203	.1395733	.2336756	.3891715
#1	4.765701	4.463280	4.511364	4.831557	4.720918	4.352096
#2	4.765265	4.445743	4.521392	4.829194	4.719755	4.345010
#3	4.766822	4.483430	4.541247	4.841881	4.739440	4.377282

Elem	Sr4077
Units	ppm
Avg	F 4.426462
Stddev	.042631
%RSD	.9630864

#1	4.412107
#2	4.392862
#3	4.474418

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3150.456	67742.80	11914.96	2195.494	4126.926
Stddev	10.924	117.74	51.79	5.304	8.754
%RSD	.3467333	.1737982	.4346853	.2416064	.2121194

#1	3155.605	67807.78	11946.62	2189.625	4131.846
#2	3157.853	67813.73	11943.07	2196.912	4132.113
#3	3137.909	67606.90	11855.19	2199.946	4116.819

Sample Name: CCB05 Acquired: 2/17/2025 15:15:59 Type: Unk
Method: NON EPA-6010-200.7(v2699) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002008	-.001275	.0002032	.0015206	.0001067	-.001880	-.000805
Stddev	.000338	.000614	.0015265	.0027348	.0015958	.005219	.000276
%RSD	16.82873	48.12181	751.1072	179.8504	1495.510	277.5675	34.35905

#1	-.001671	-.000764	.0017290	.0029022	-.001689	.001617	-.000485
#2	-.002006	-.001955	-.001324	-.001629	.000646	-.007880	-.000965
#3	-.002347	-.001105	.000205	.003289	.001363	.000622	-.000963

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000229	.0000005	-.011150	-.000215	-.000134	.0006275	.0010067
Stddev	.0000116	.0000714	.000969	.000578	.000208	.0002158	.0016274
%RSD	50.71463	13469.62	8.688714	268.8662	154.8610	34.38310	161.6557

#1	.0000219	.0000780	-.010223	-.000864	-.000303	.0008378	.0028789
#2	.0000118	-.000062	-.011072	.000242	.000098	.0006381	.0002110
#3	.0000350	-.000014	-.012156	-.000022	-.000199	.0004067	-.000070

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001395	-.002185	-.000082	.0003847	.1085305	-.000608	-.000419
Stddev	.0003524	.004853	.000148	.0003282	.0058090	.000943	.000106
%RSD	252.5591	222.1404	180.2624	85.31766	5.352453	154.9745	25.30802

#1	-.000258	-.006461	.000076	.0000178	.1066278	.000167	-.000540
#2	.000413	-.003183	-.000104	.0004860	.1039114	-.001658	-.000380
#3	.000264	.003090	-.000217	.0006502	.1150522	-.000335	-.000339

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0939942	.0014905	.0001326	.0004770	.0005028	.0121237	-.002550
Stddev	.0294581	.0005331	.0001999	.0002714	.0002151	.0015958	.000300
%RSD	31.34035	35.76923	150.7765	56.89411	42.78749	13.16295	11.74839

#1	.0697193	.0018553	.0003623	.0005247	.0007446	.0133566	-.002238
#2	.1267672	.0017375	.0000376	.0007213	.0004311	.0103212	-.002575
#3	.0854961	.0008787	-.000002	.0001849	.0003326	.0126933	-.002836

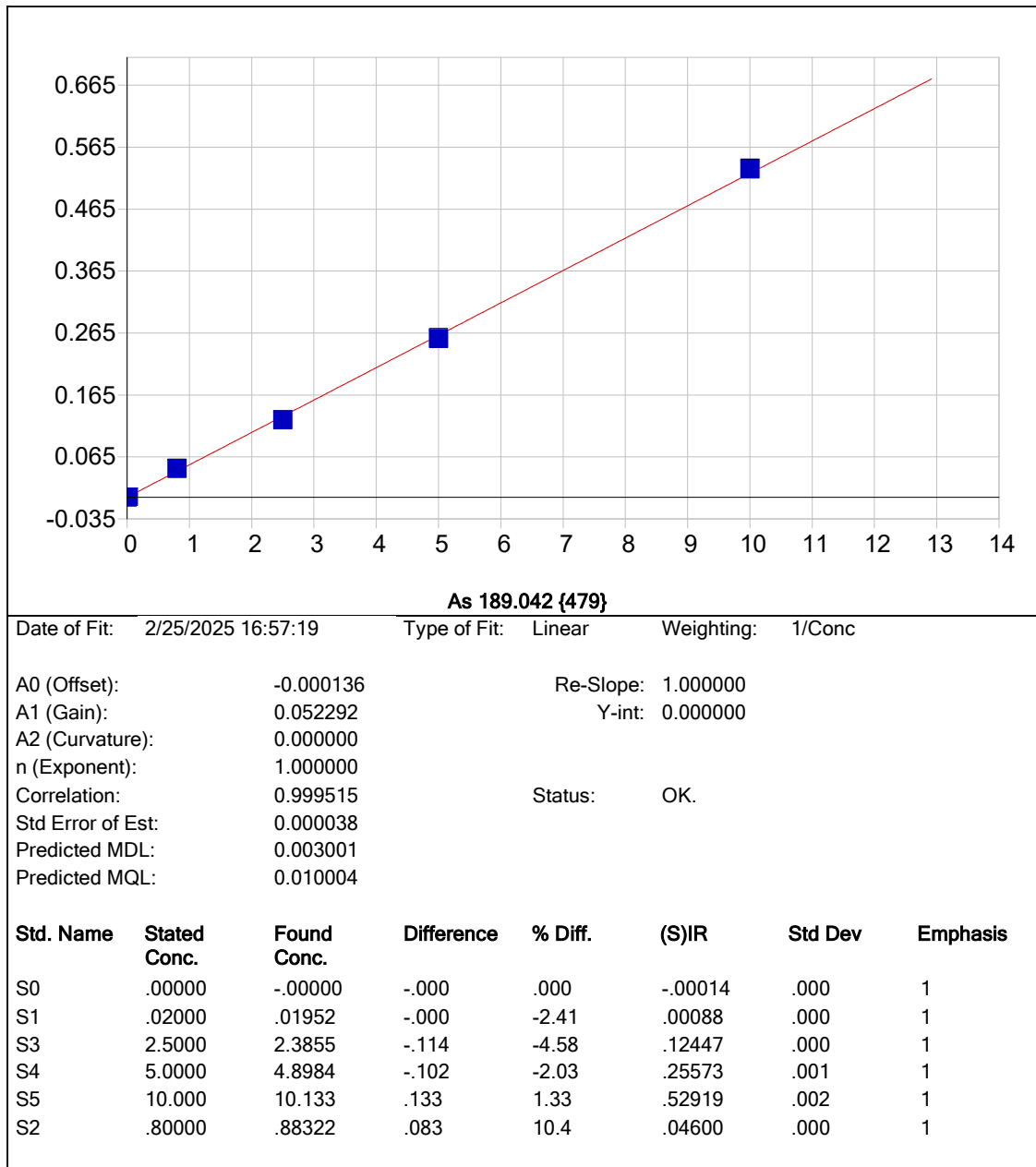
Sample Name: CCB05 Acquired: 2/17/2025 15:15:59 Type: Unk
Method: NON EPA-6010-200.7(v2699) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

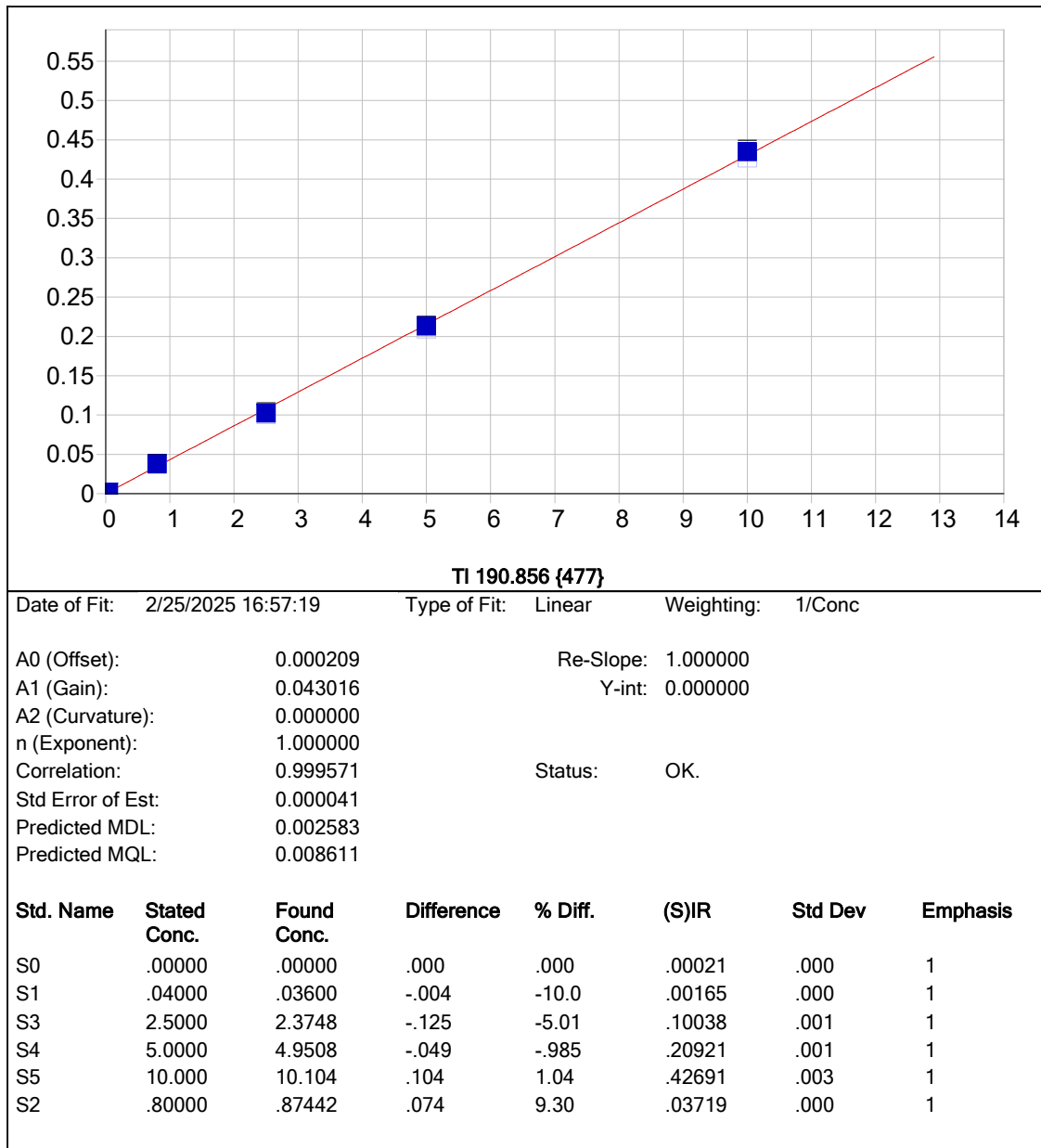
Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.005036	.0016371	.0000411
Stddev	.003757	.0003930	.0000285
%RSD	74.60133	24.00599	69.34788

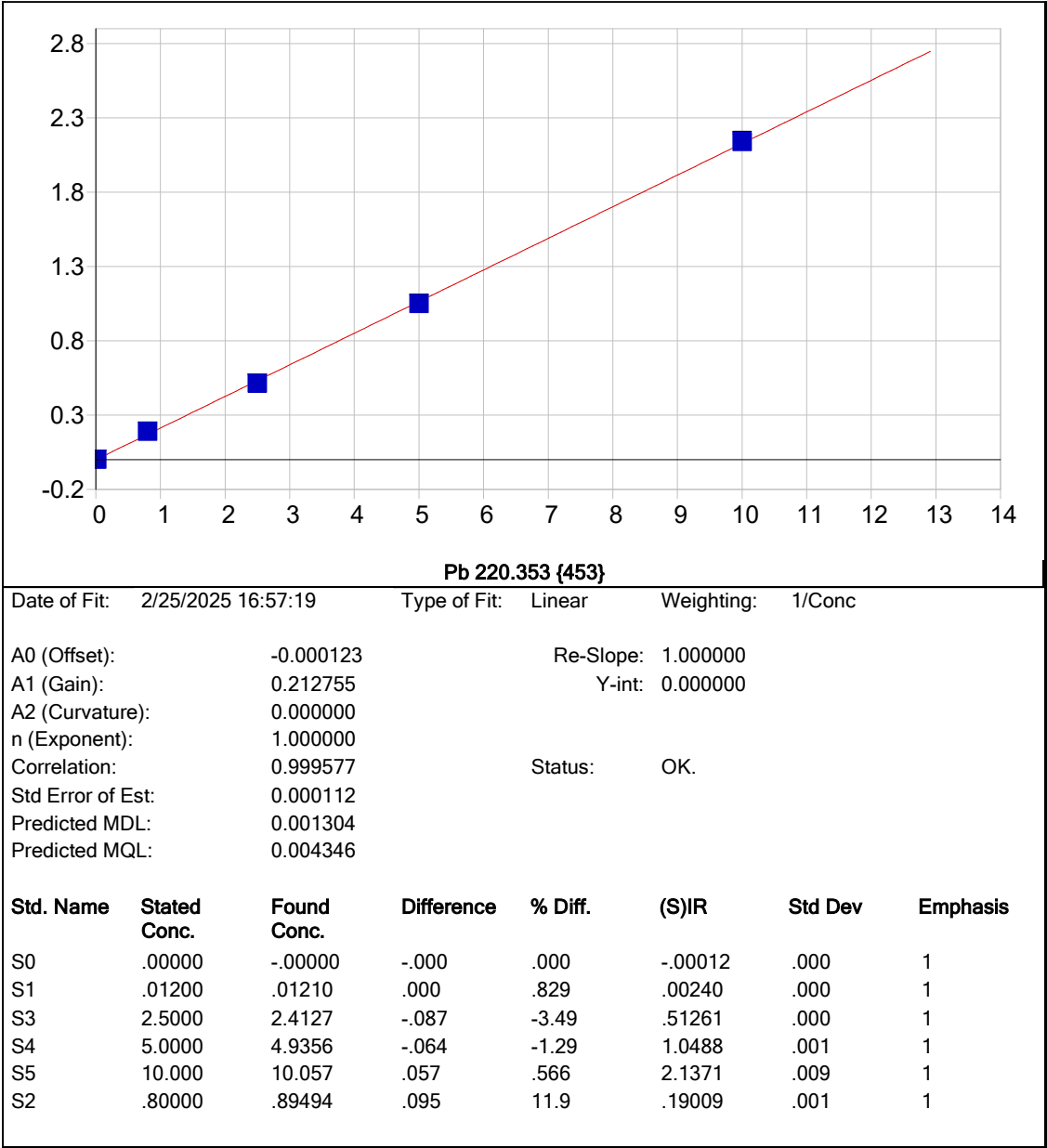
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#2	-.009366	.0012389	.0000711
#3	-.003102	.0020247	.0000375

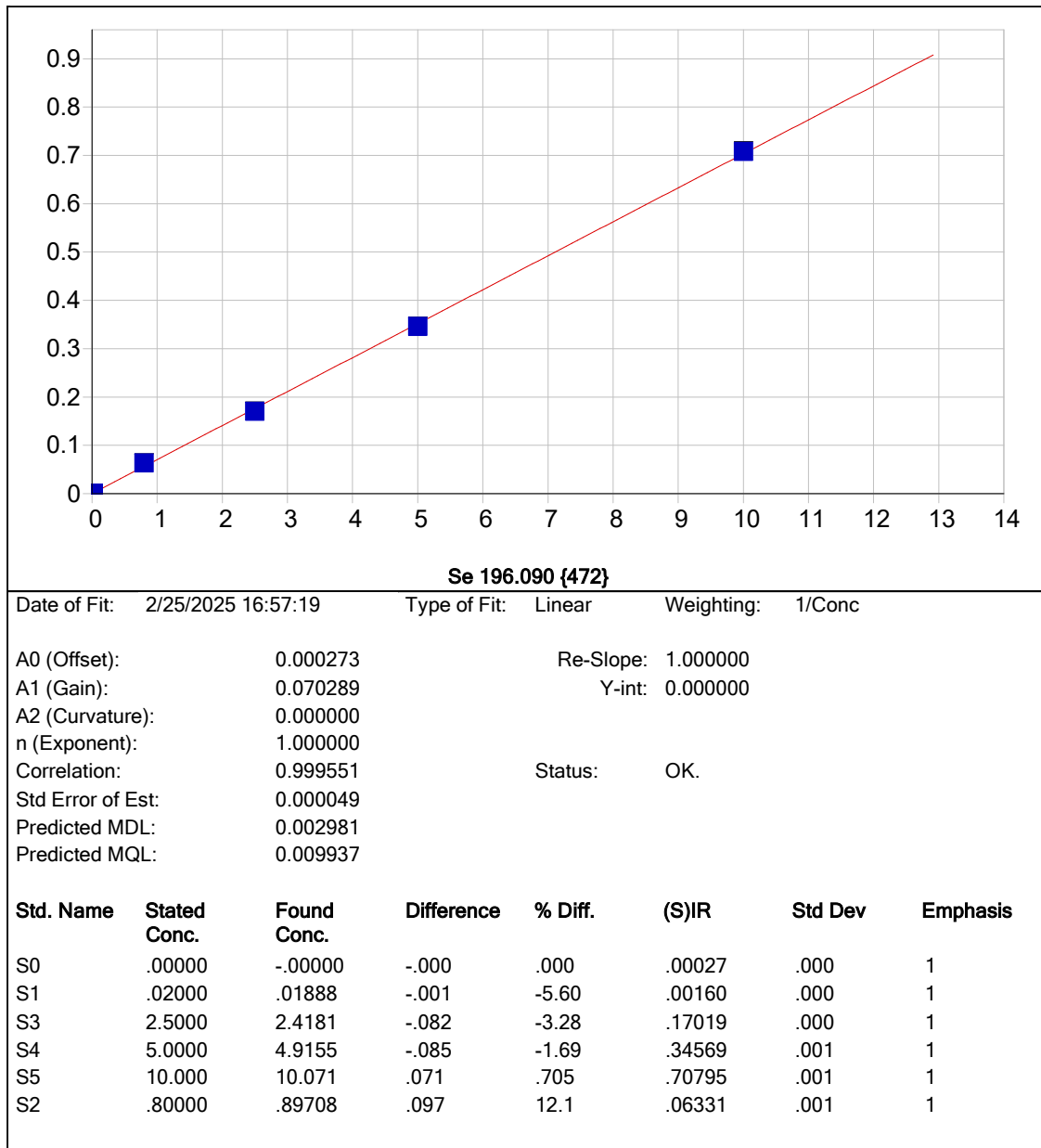
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3283.414	70221.81	13274.77	2260.923	4563.152
Stddev	8.565	292.10	46.59	9.497	7.308
%RSD	.2608475	.4159708	.3509741	.4200322	.1601437

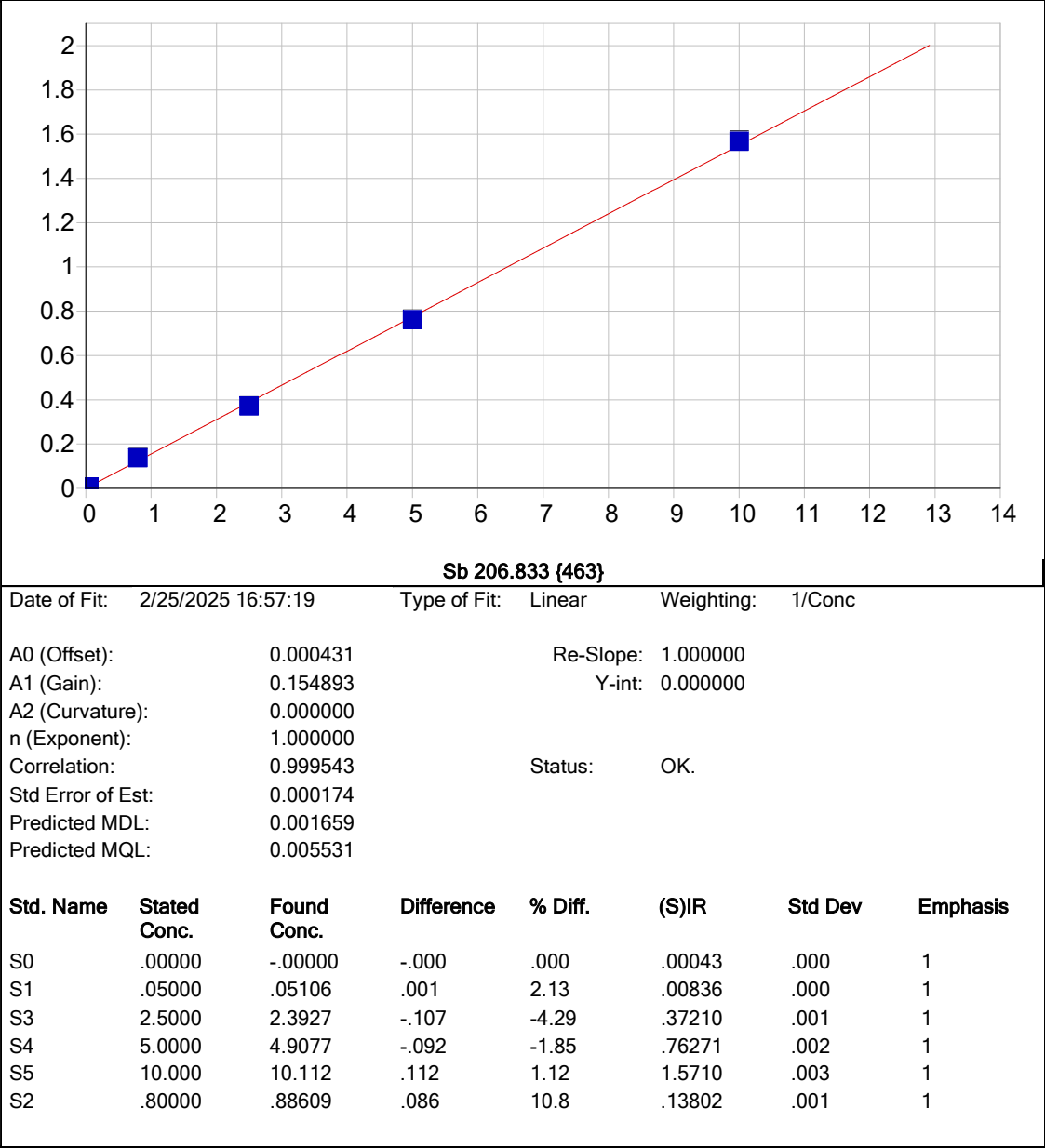
#1	3288.097	69887.08	13253.37	2251.217	4566.457
#2	3288.616	70425.10	13328.21	2270.195	4568.224
#3	3273.529	70353.24	13242.71	2261.358	4554.776

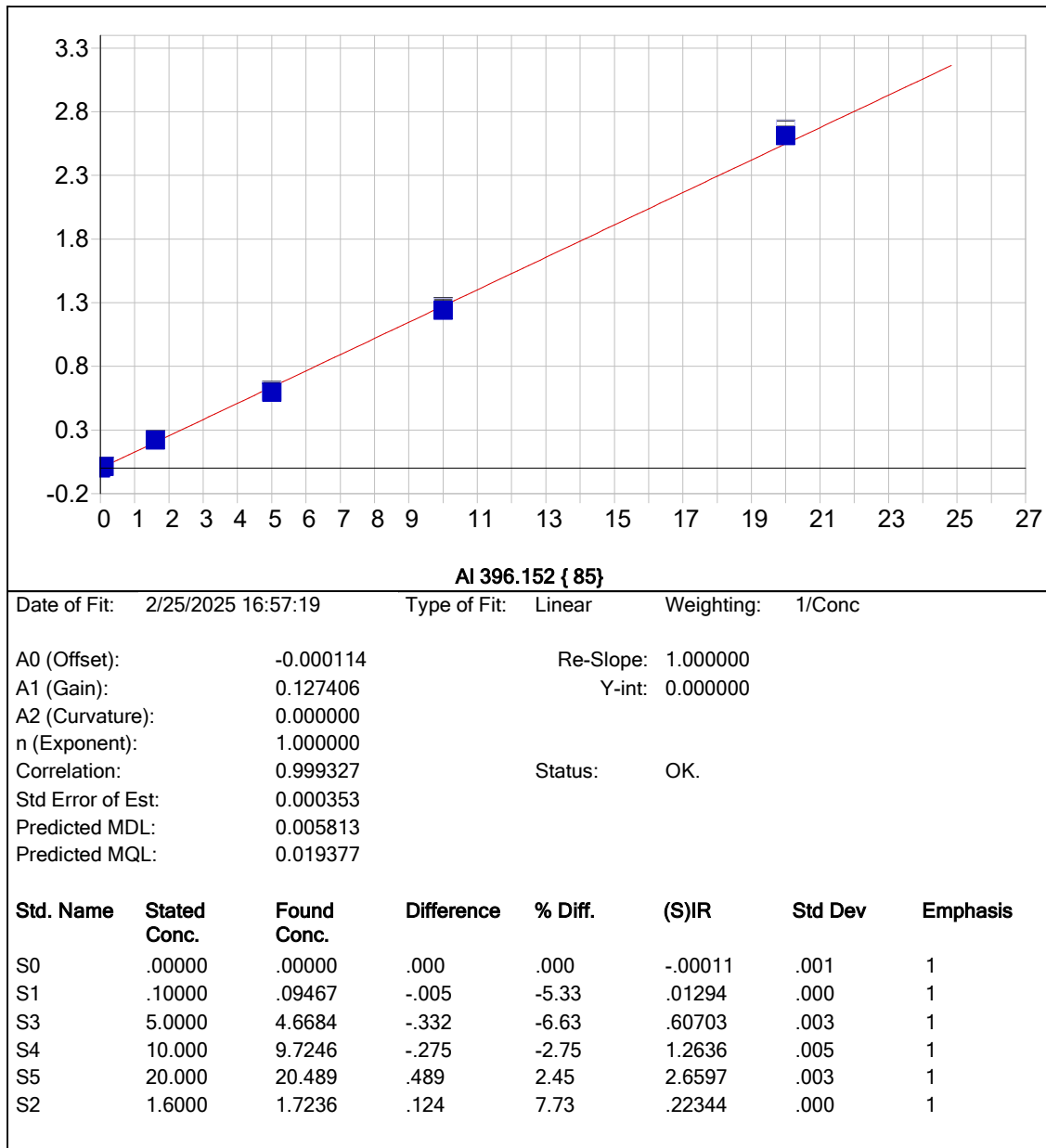


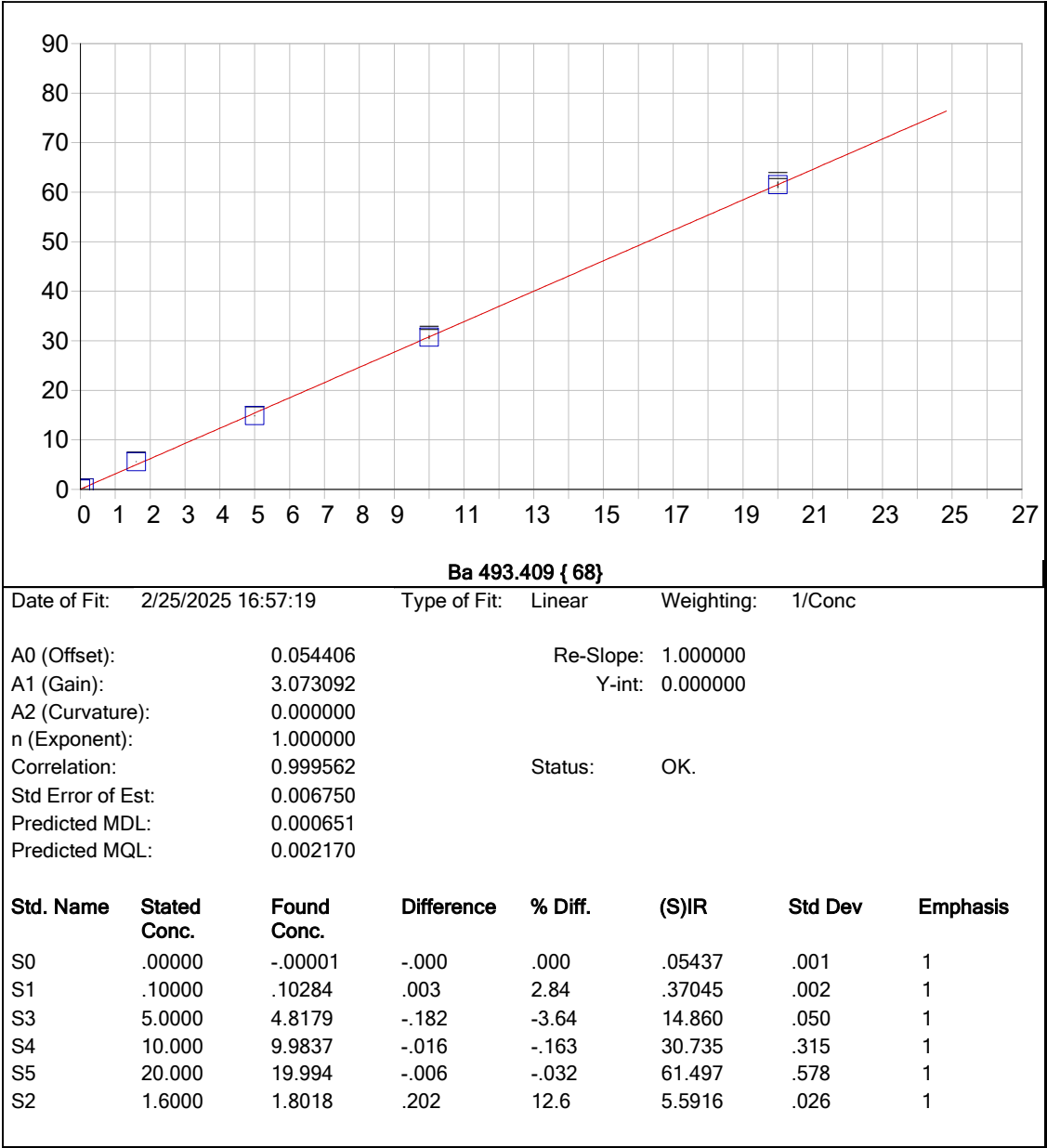


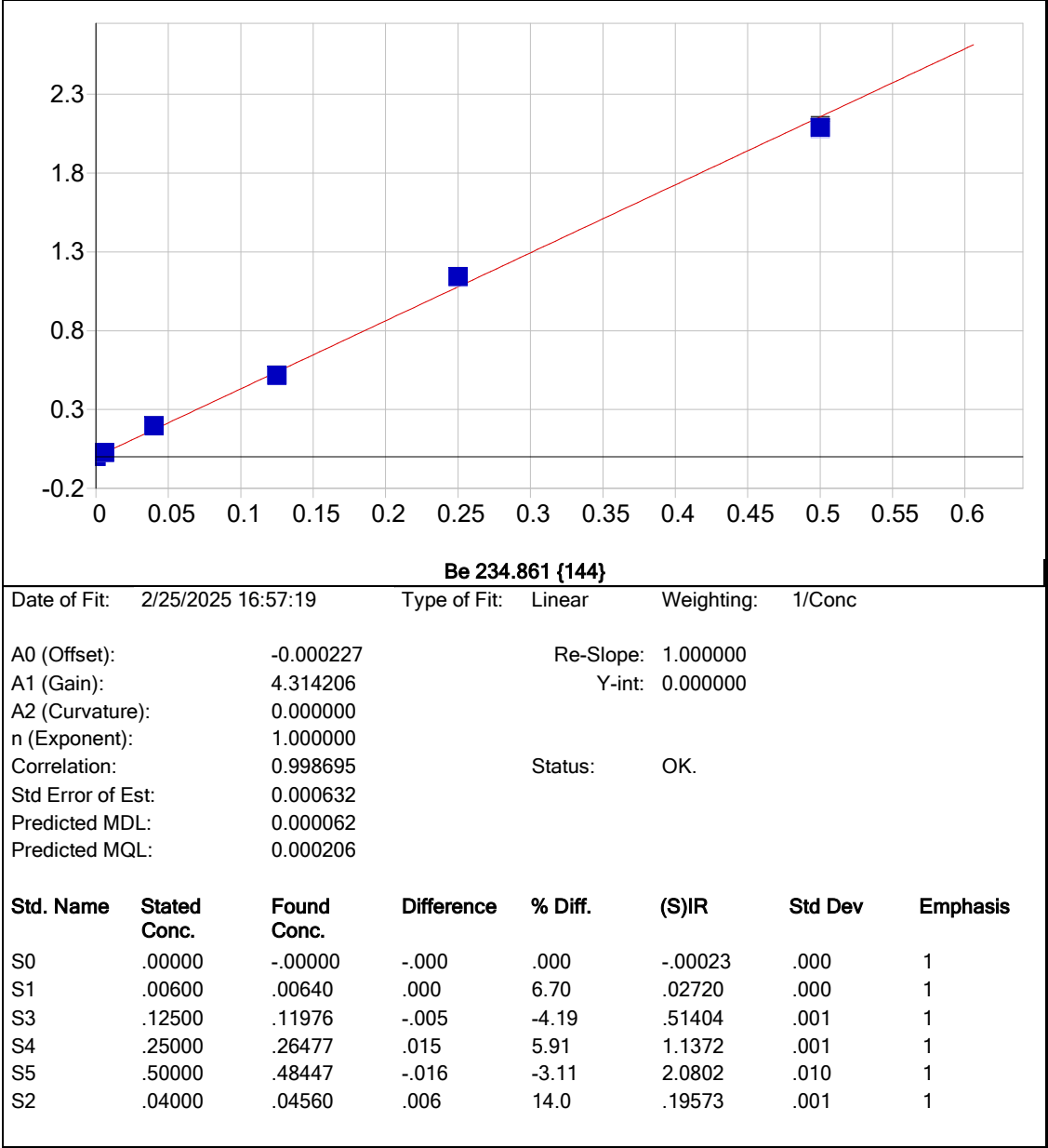


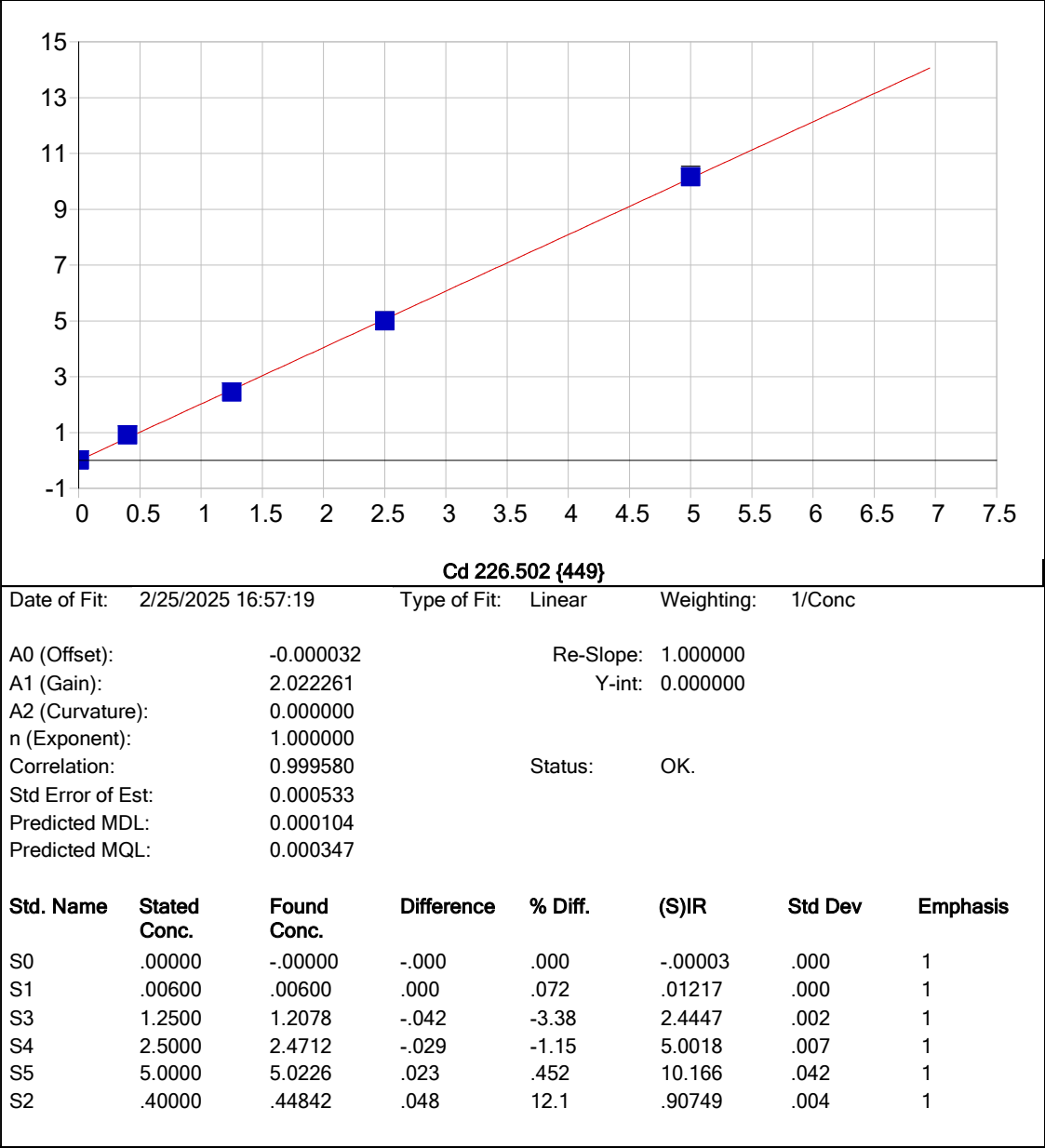


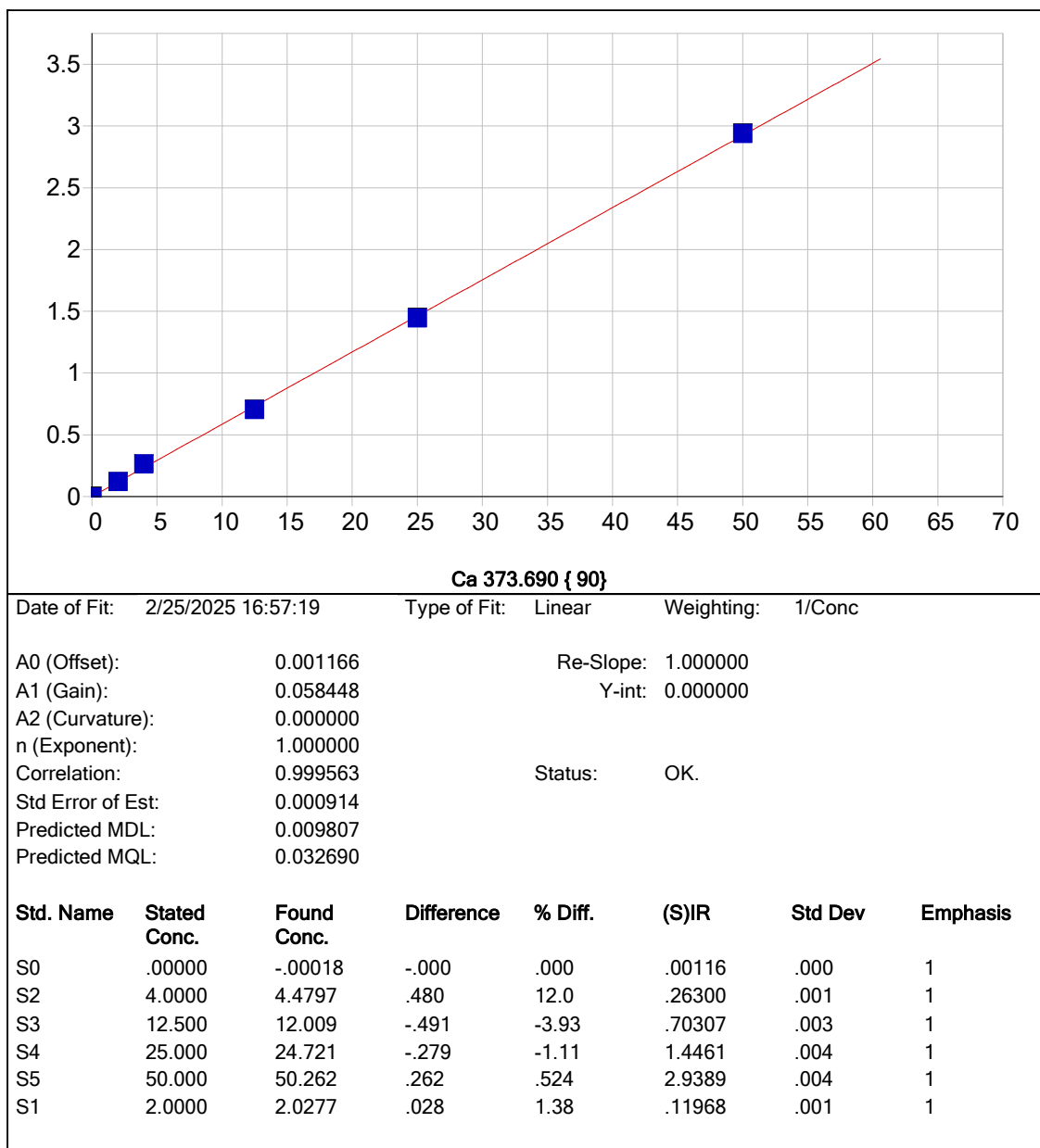


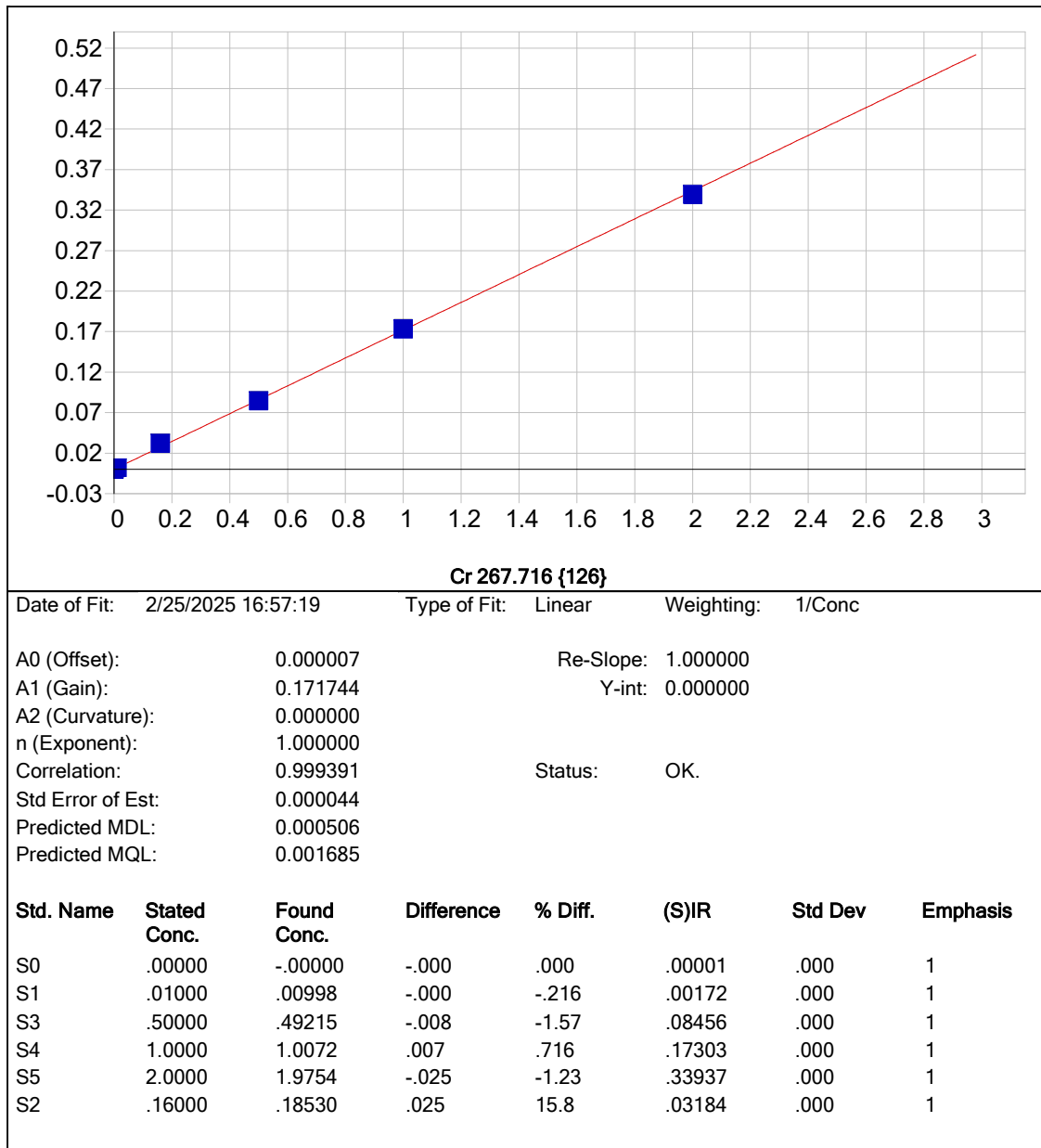


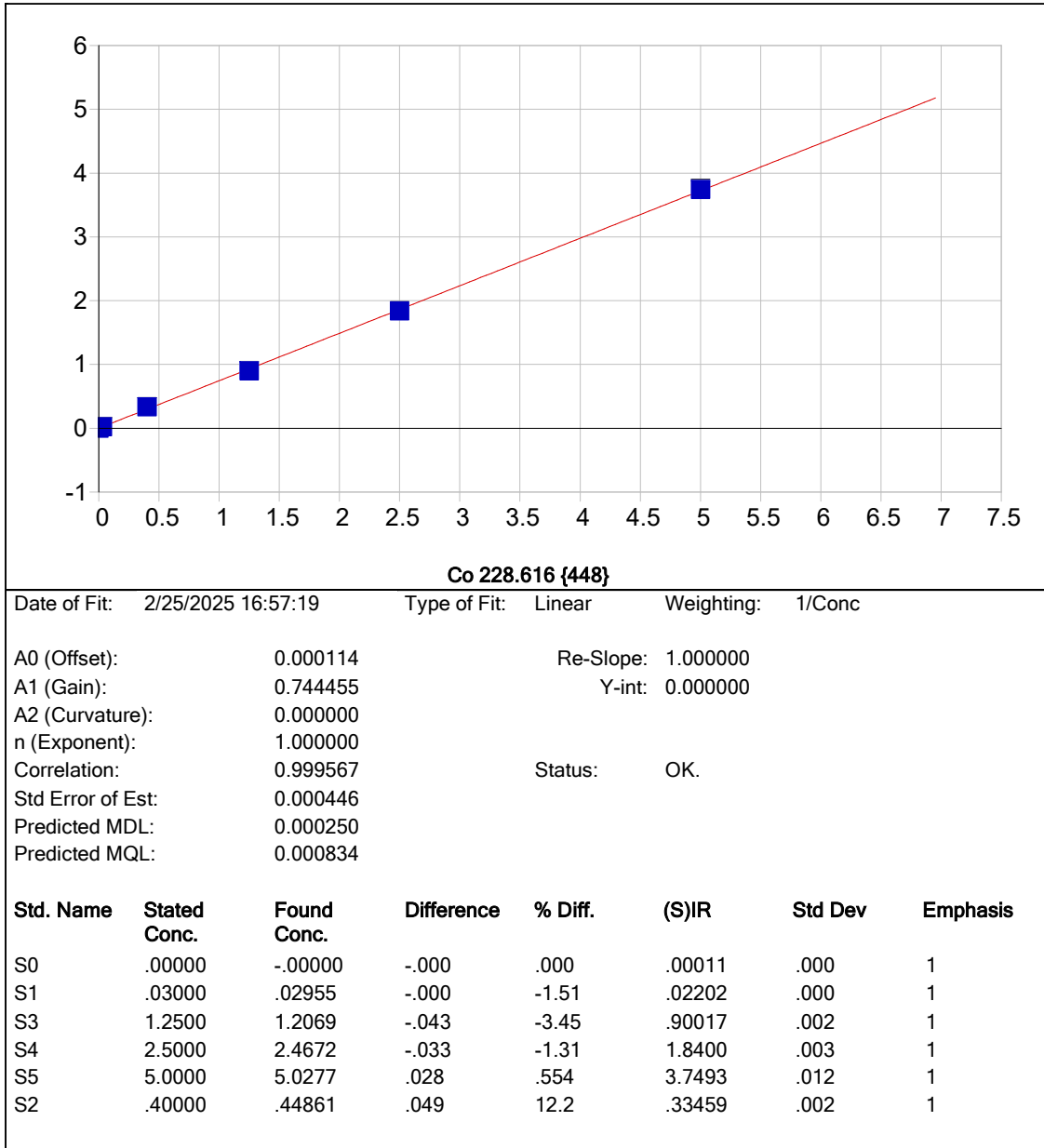


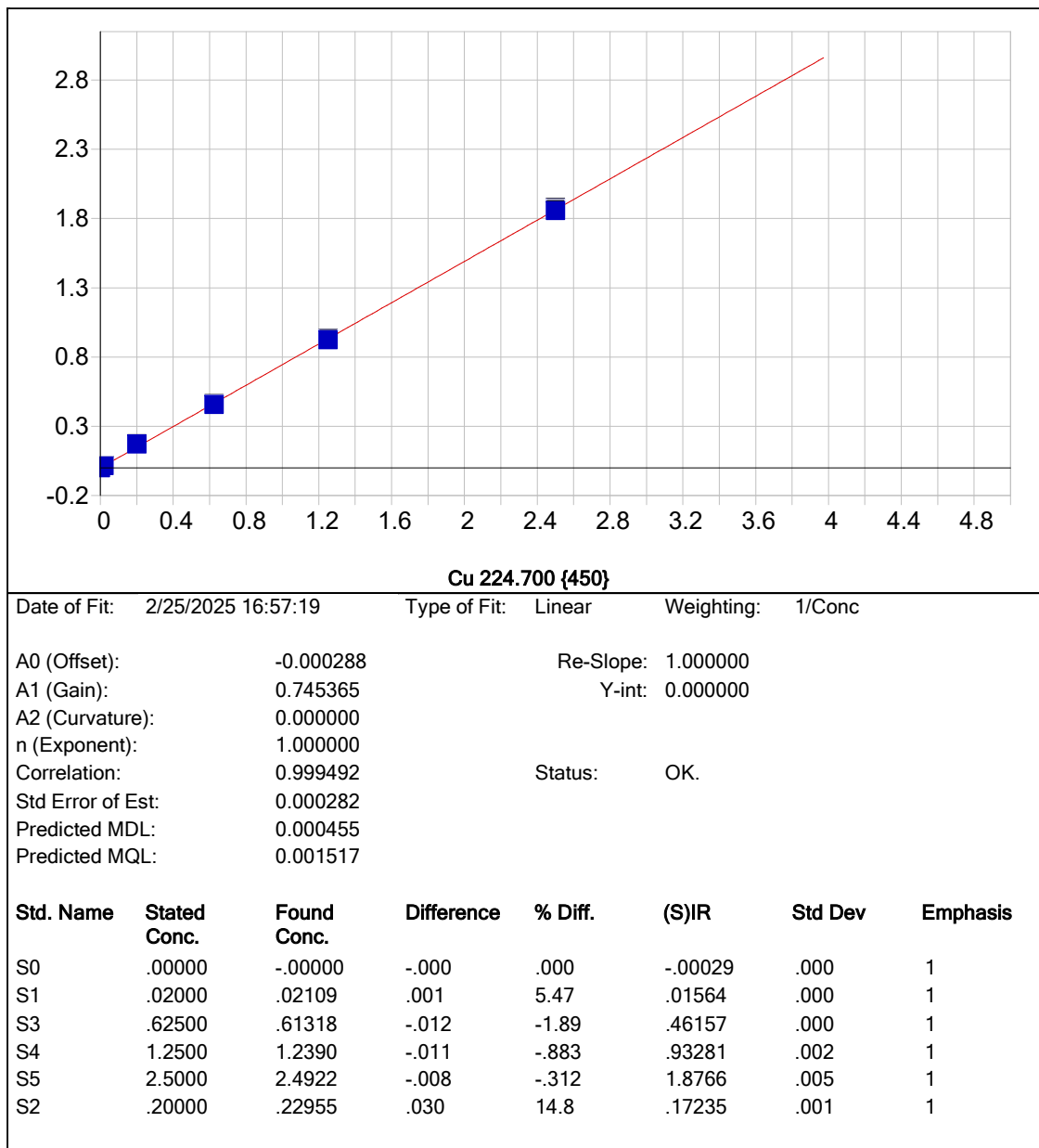


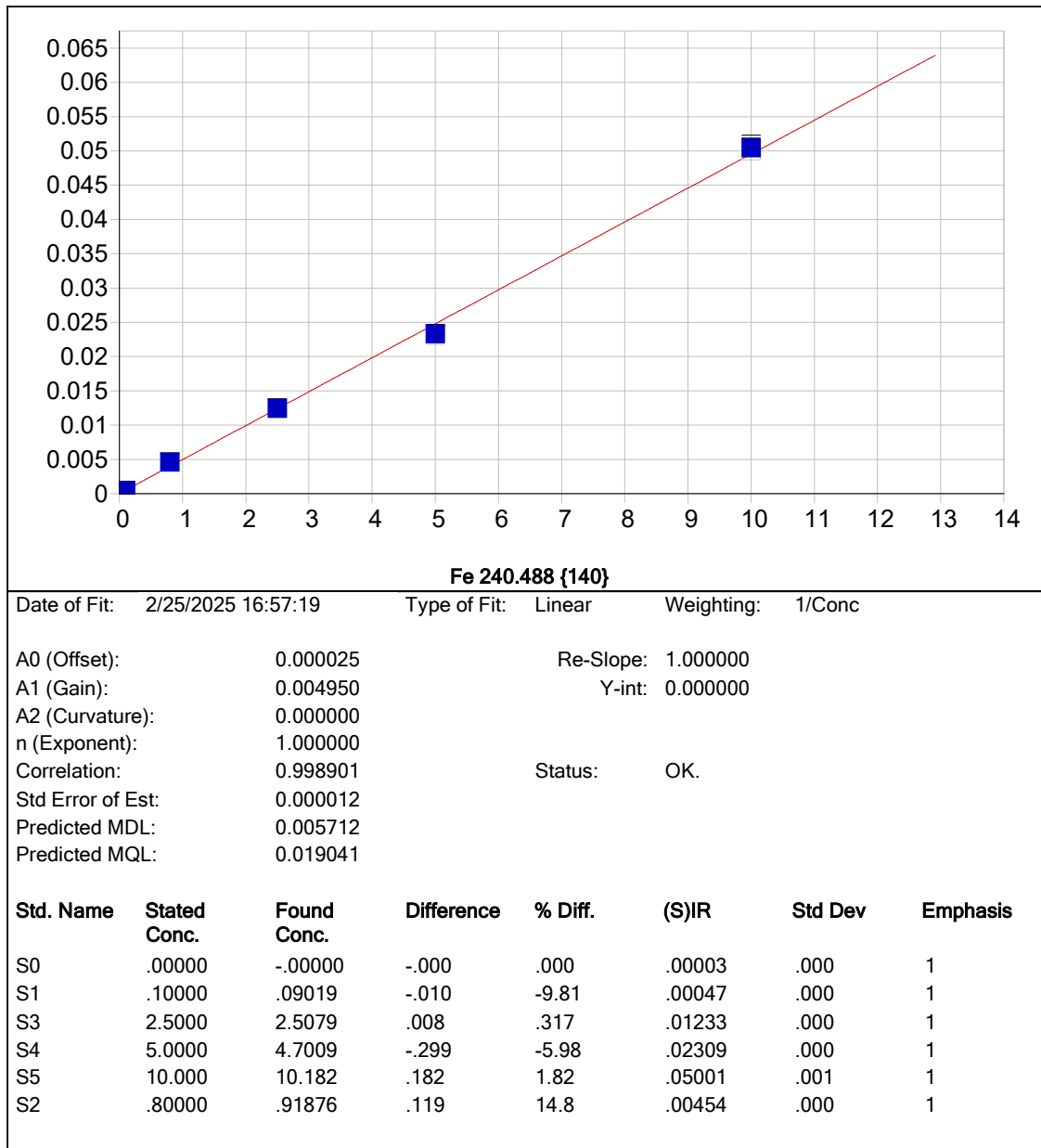


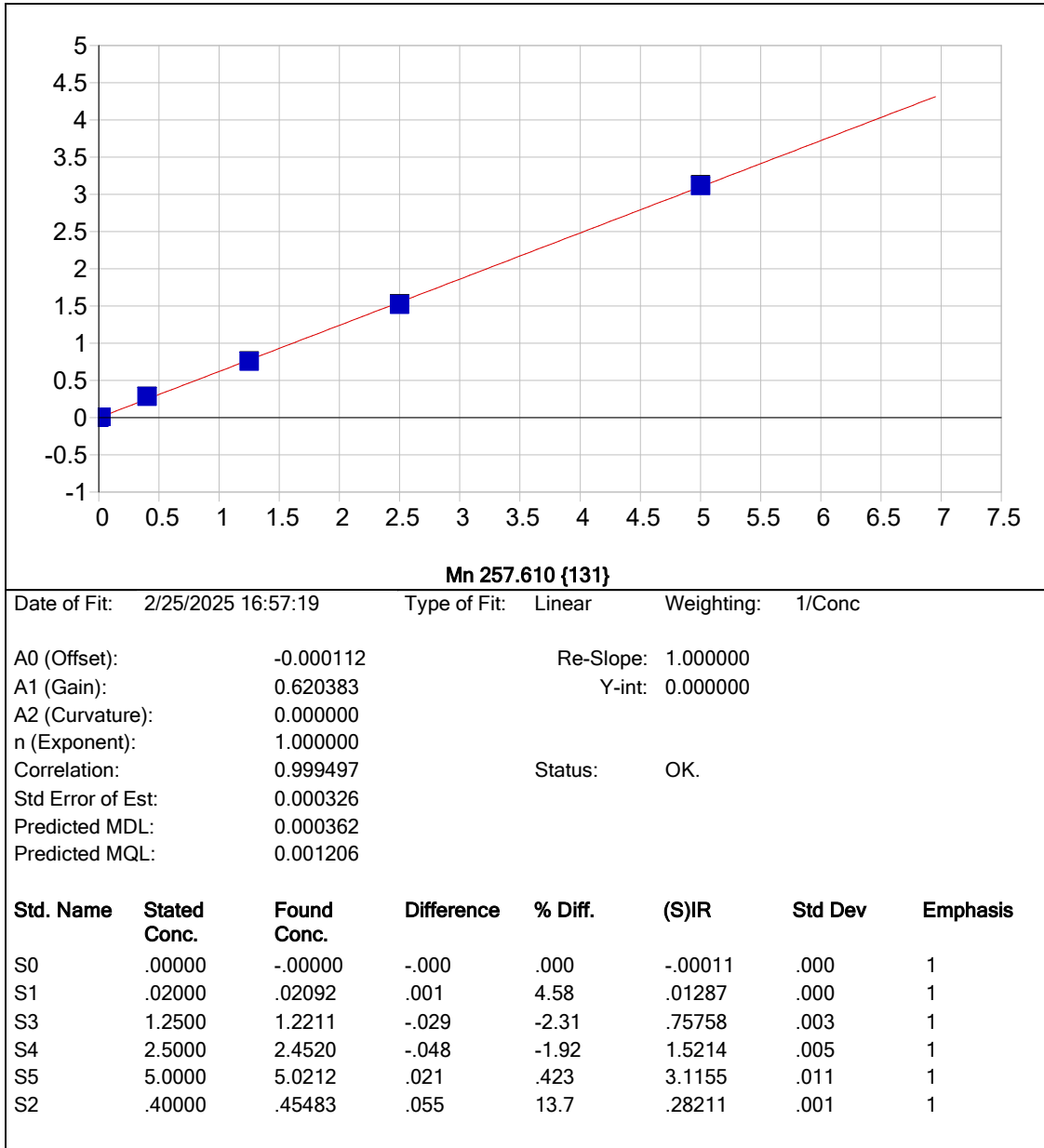


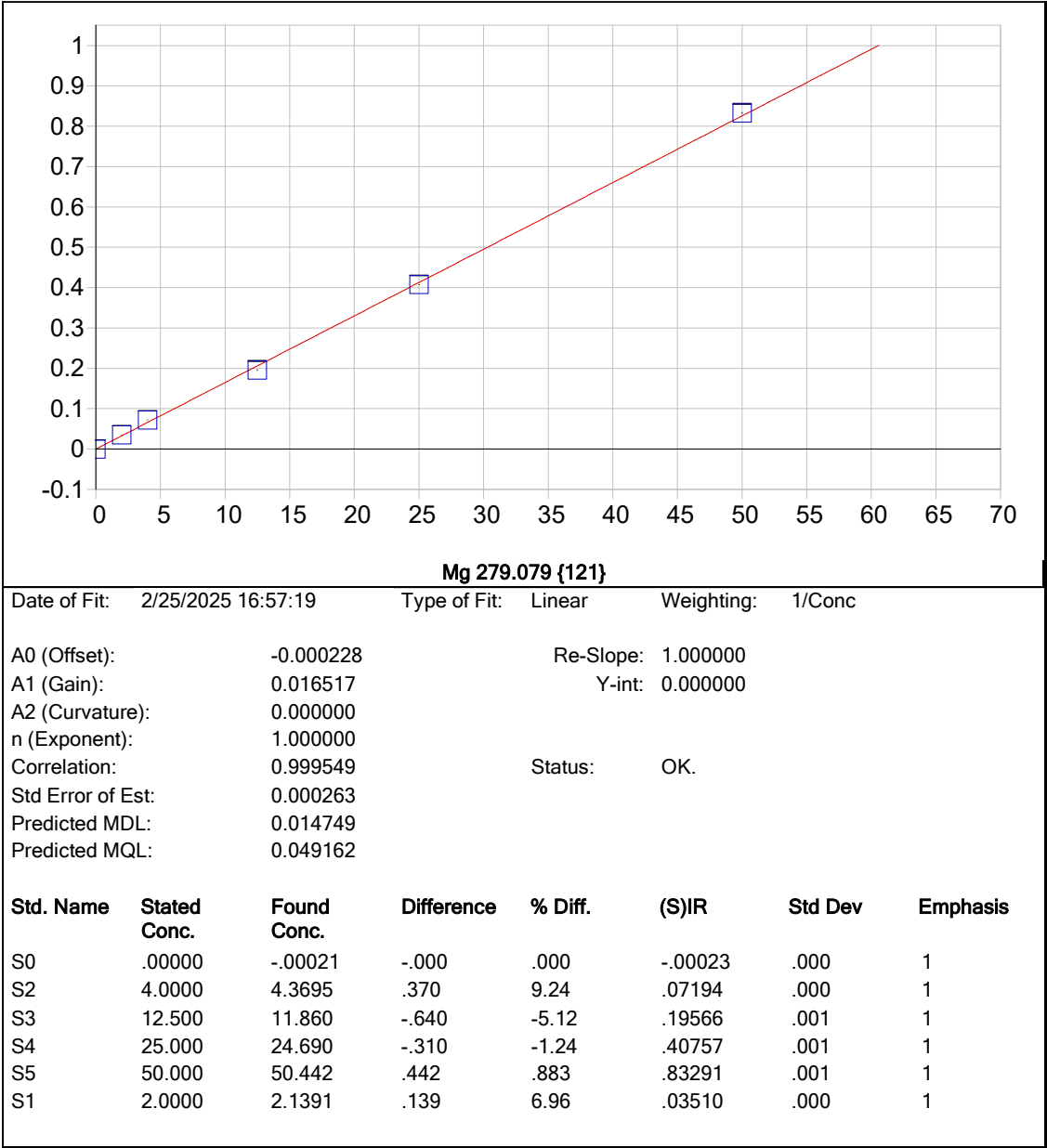


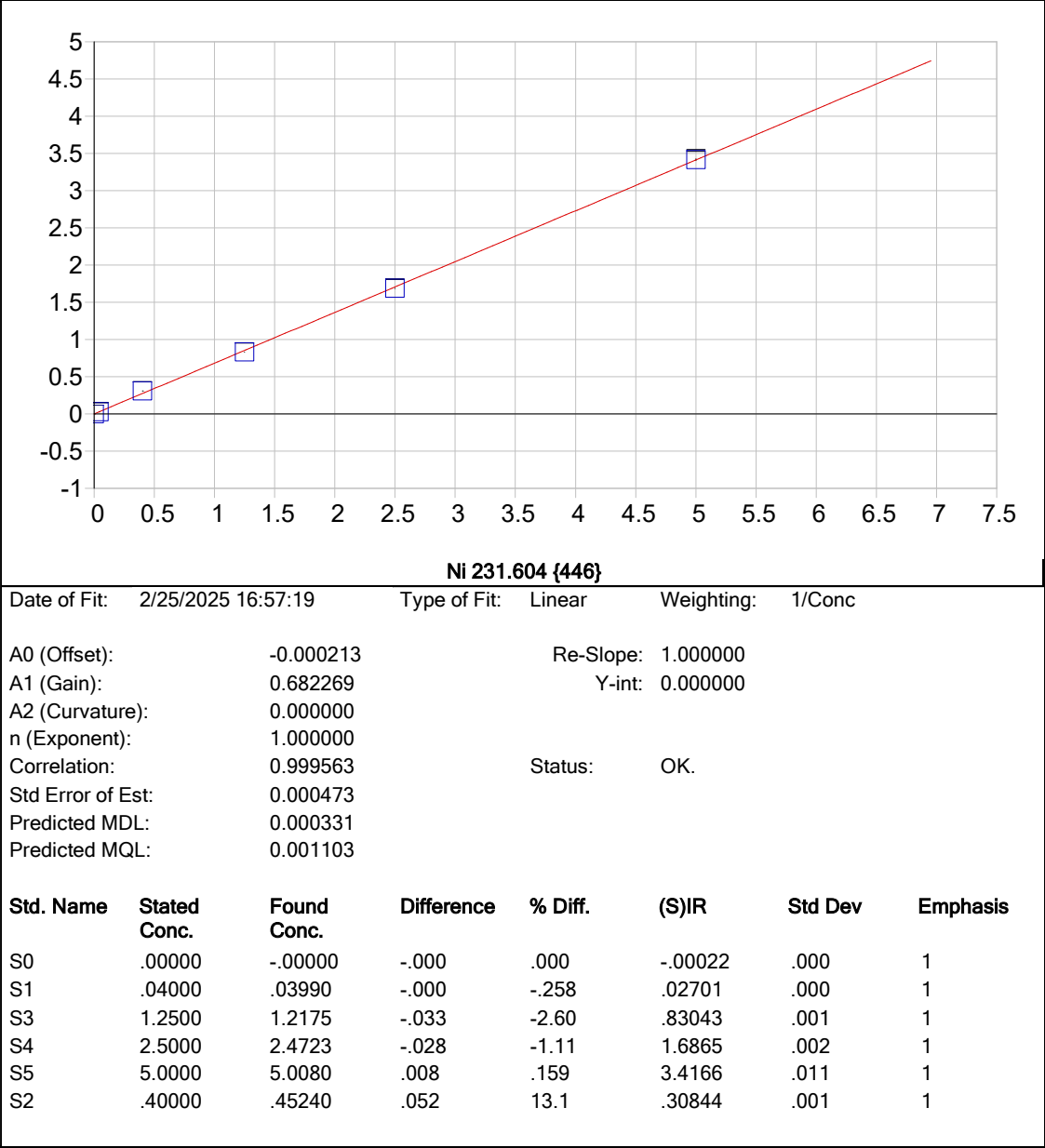


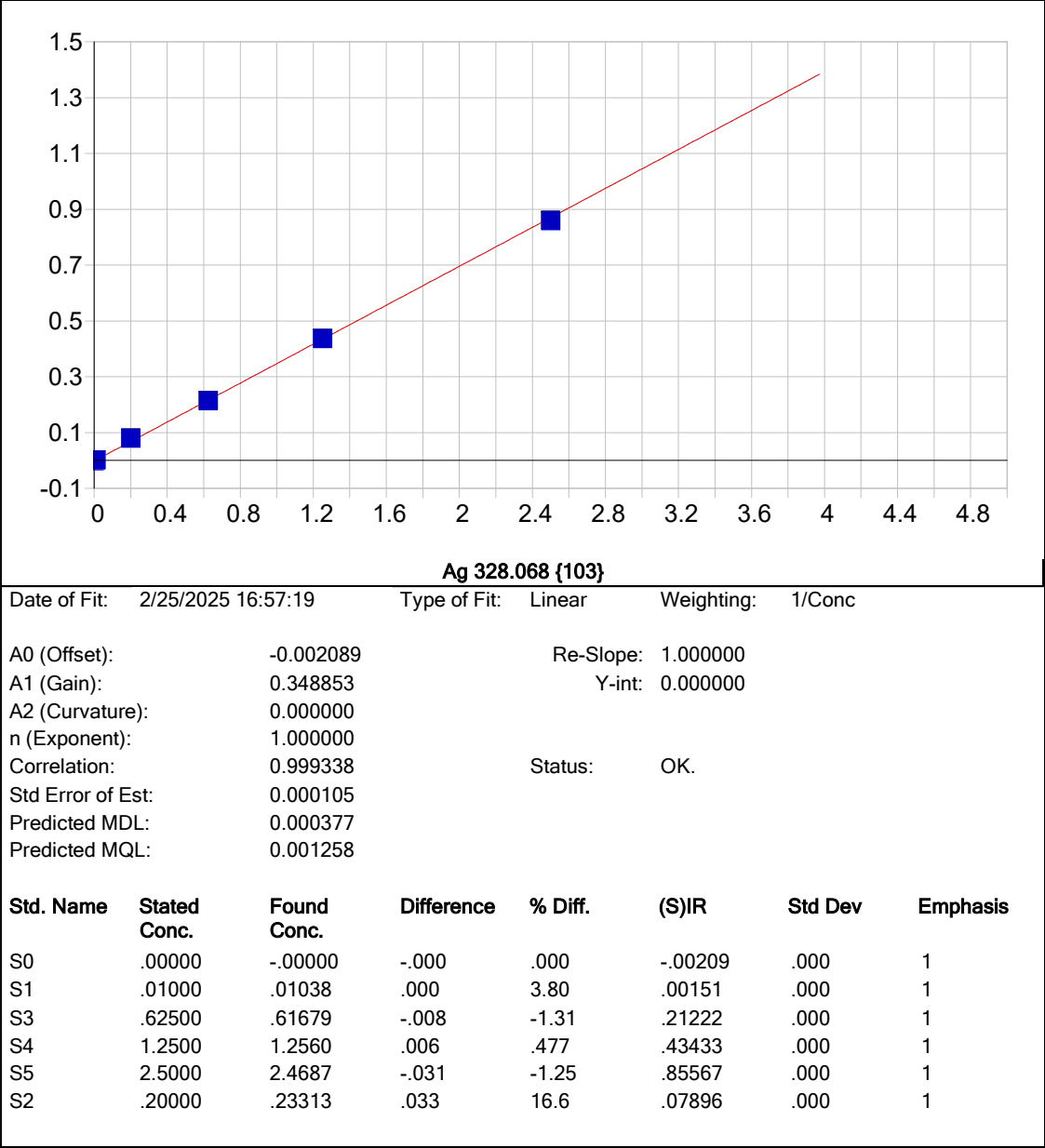


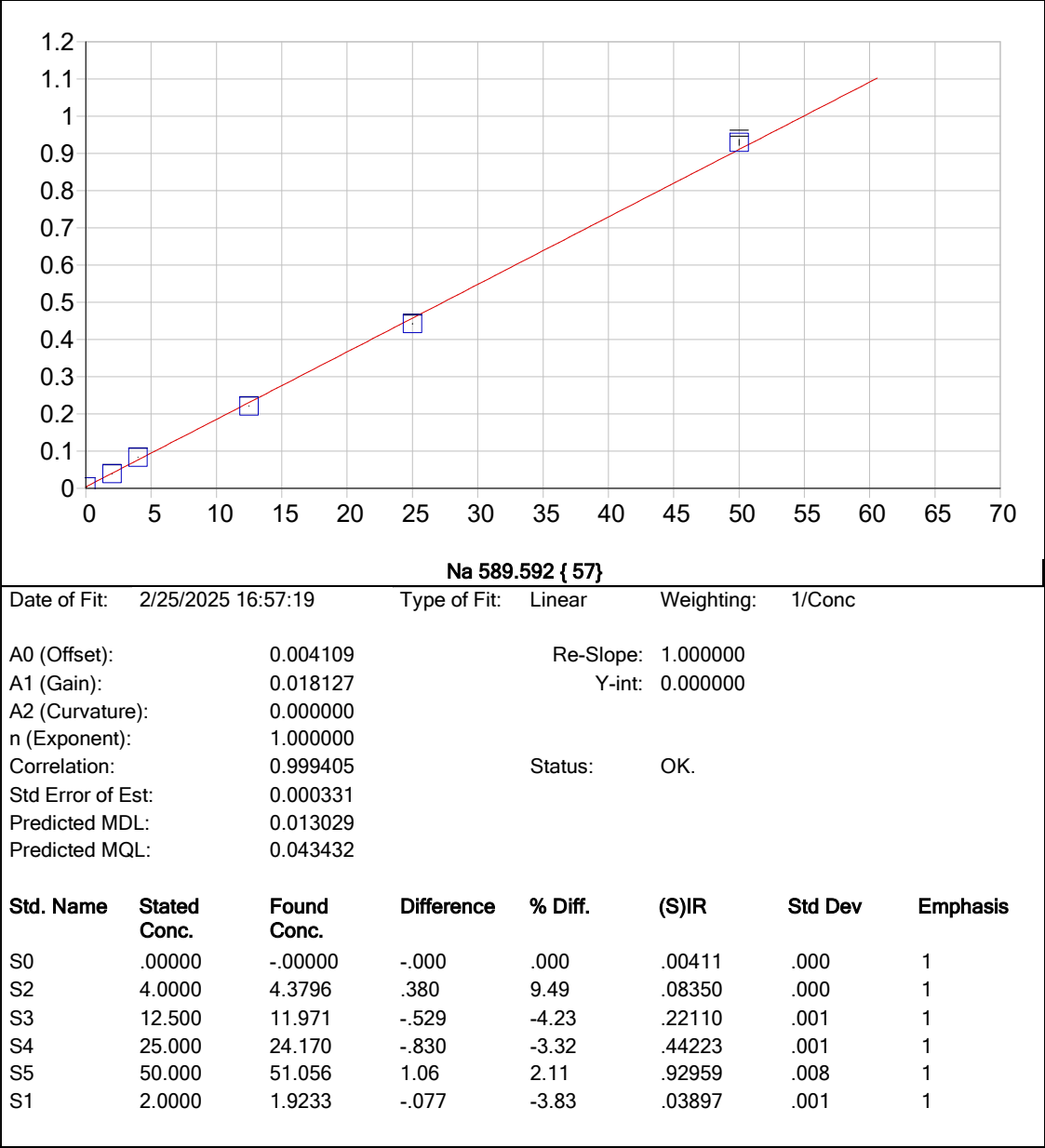


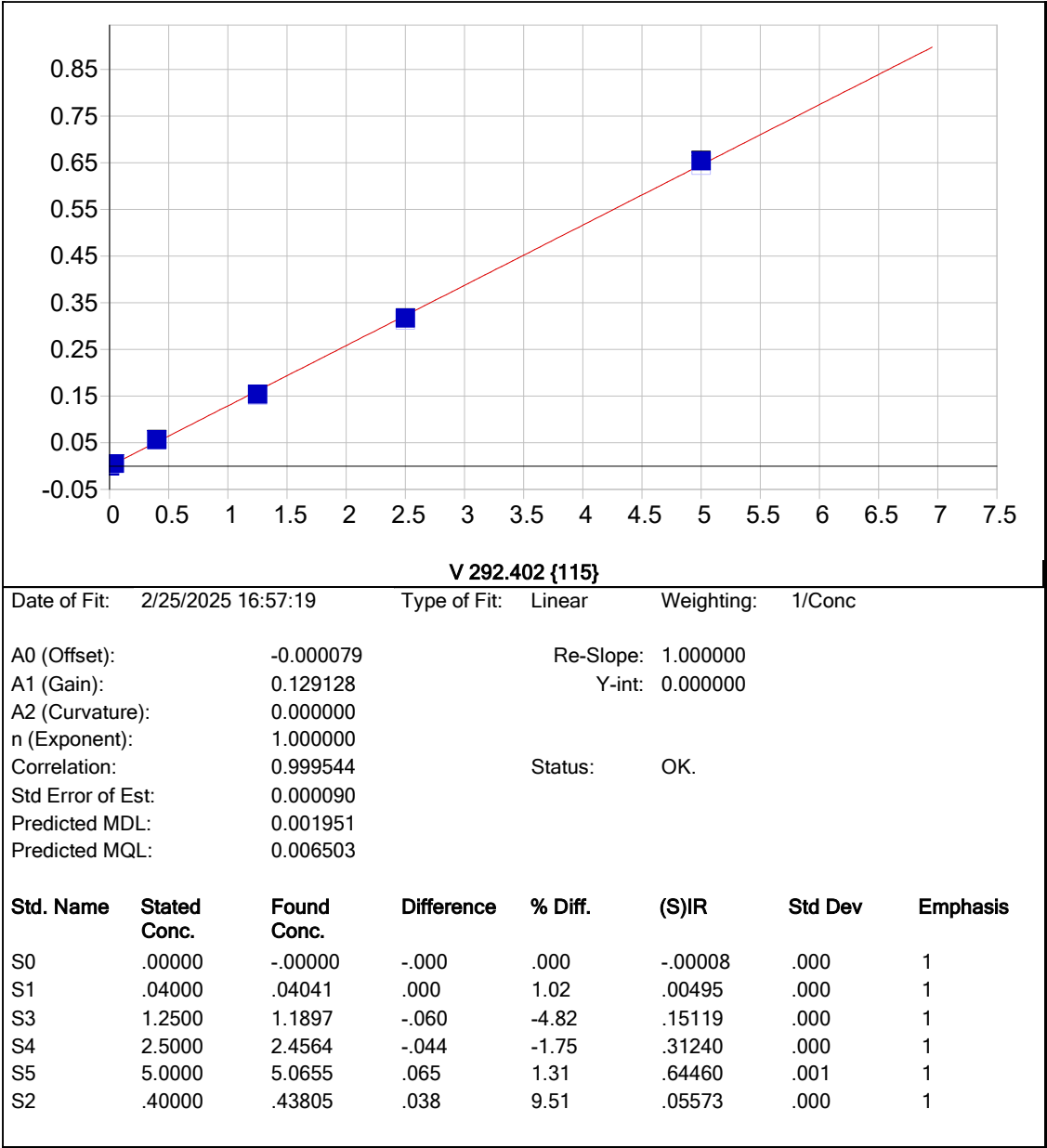


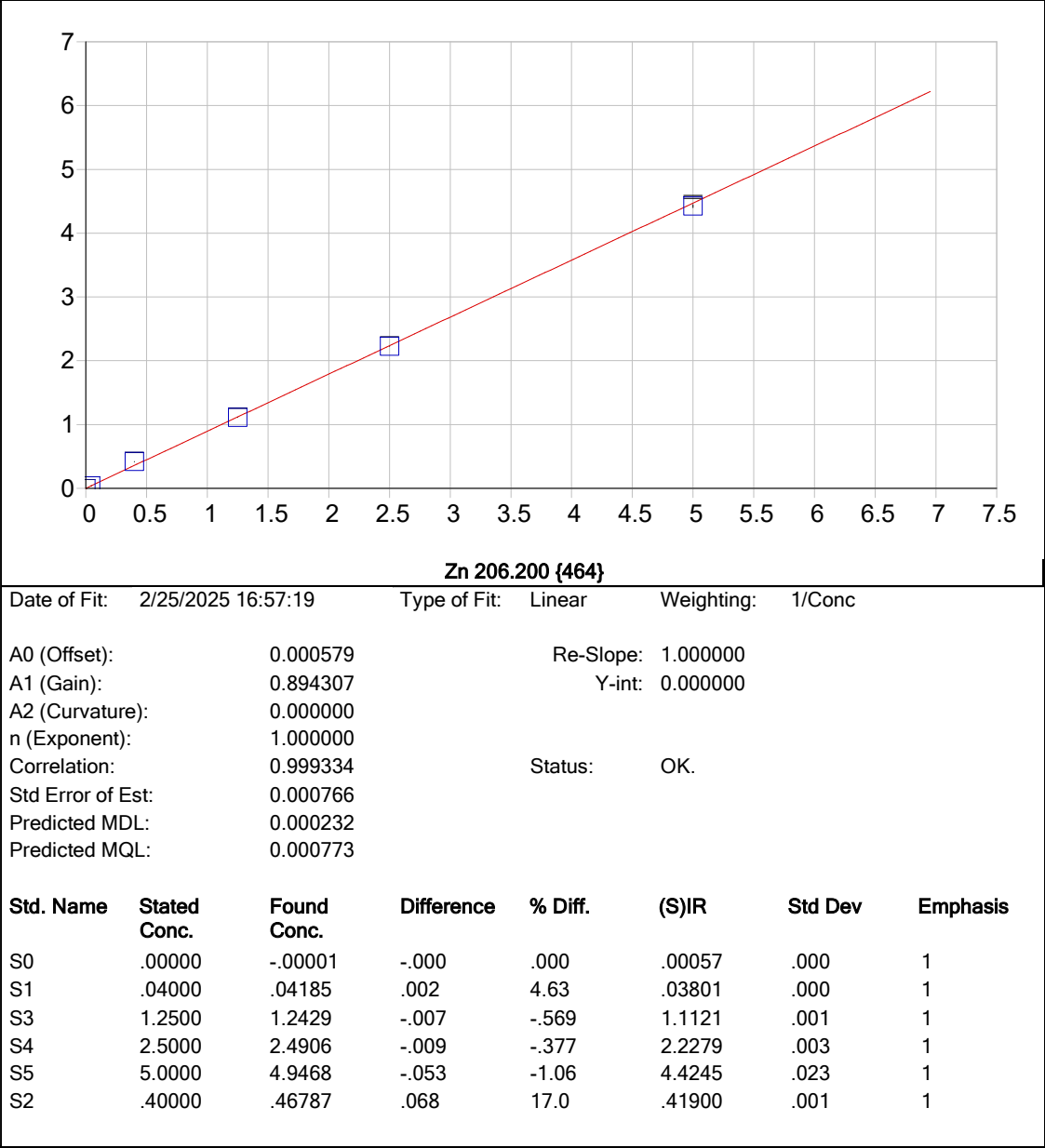


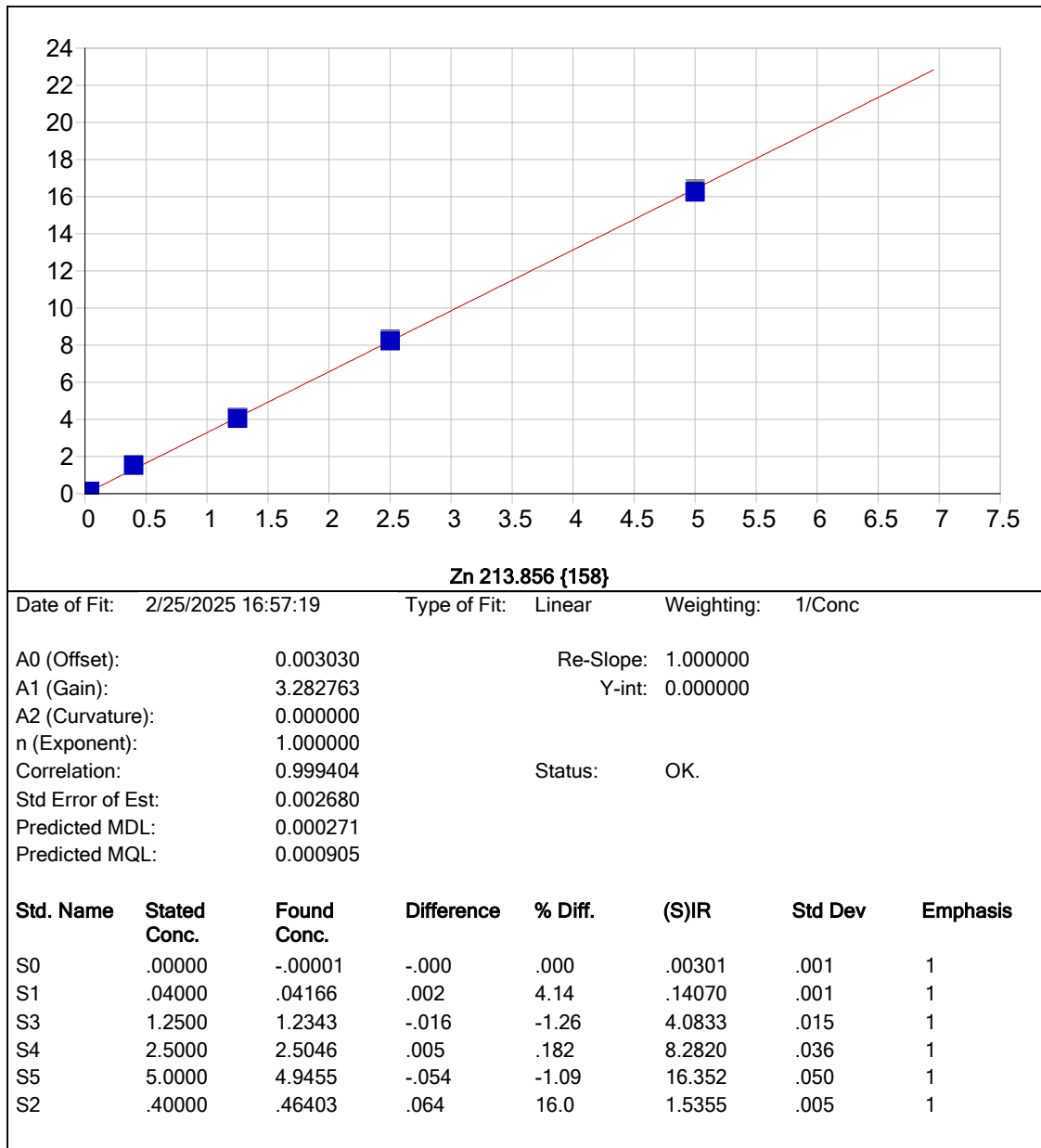


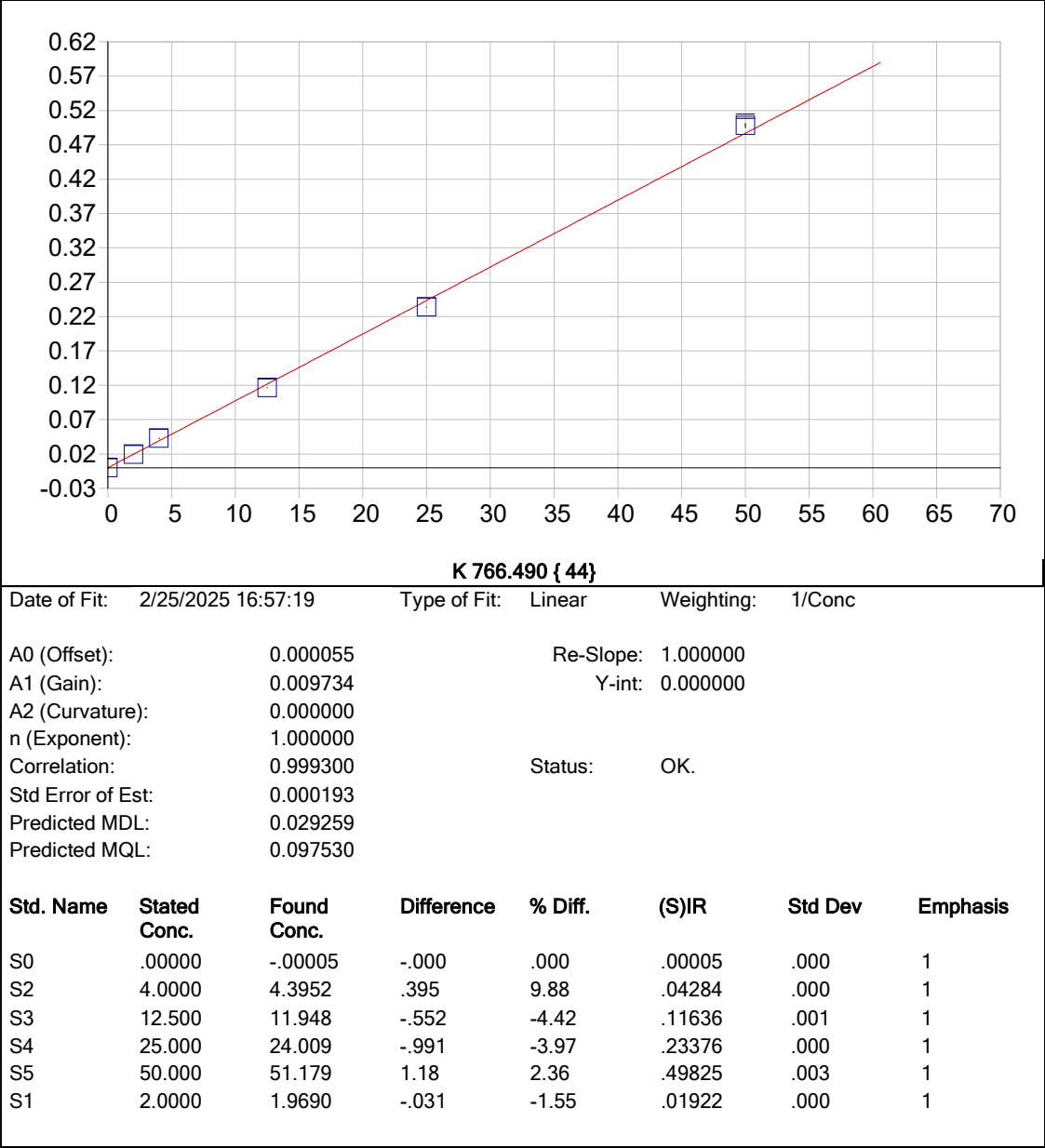


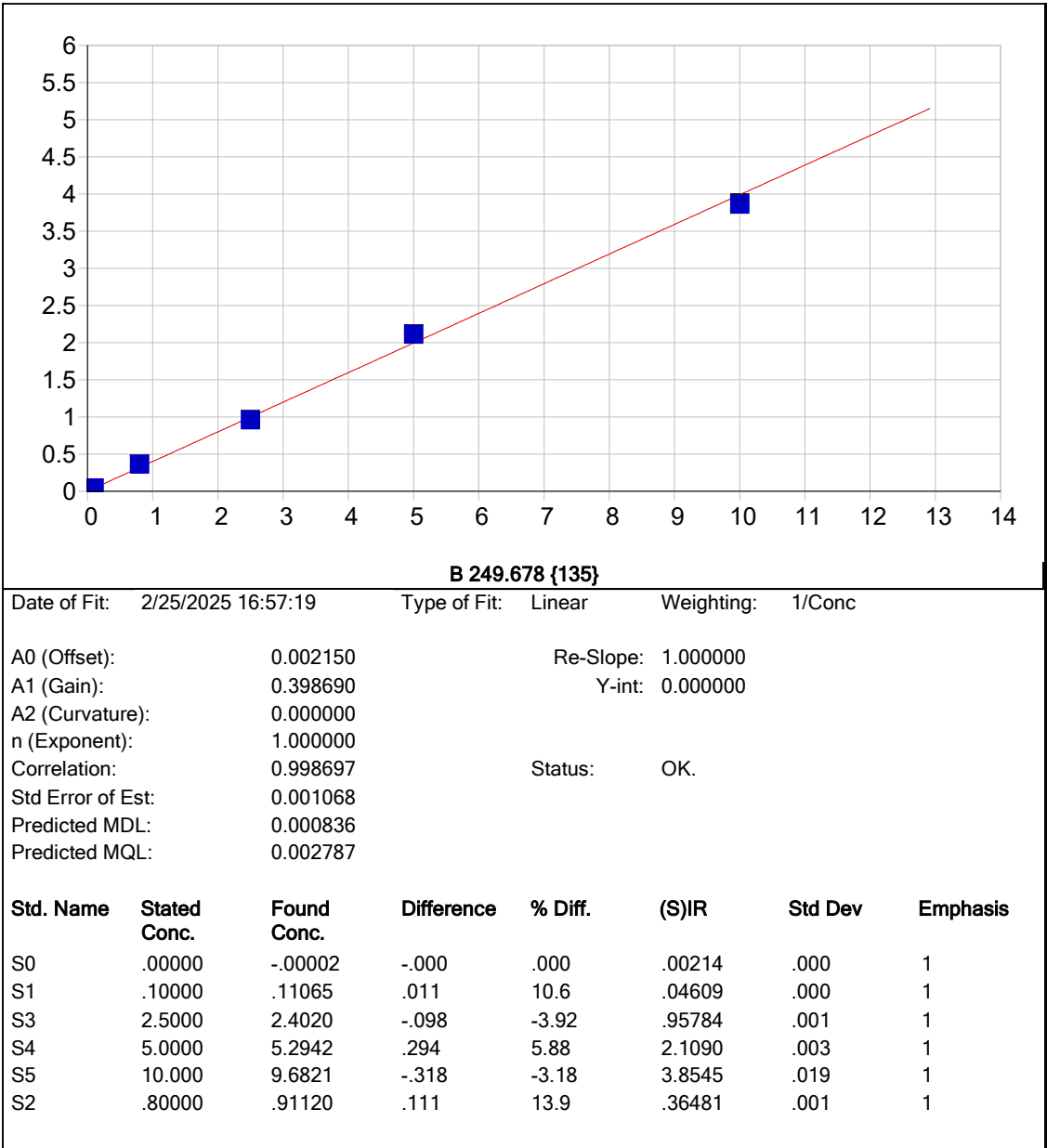


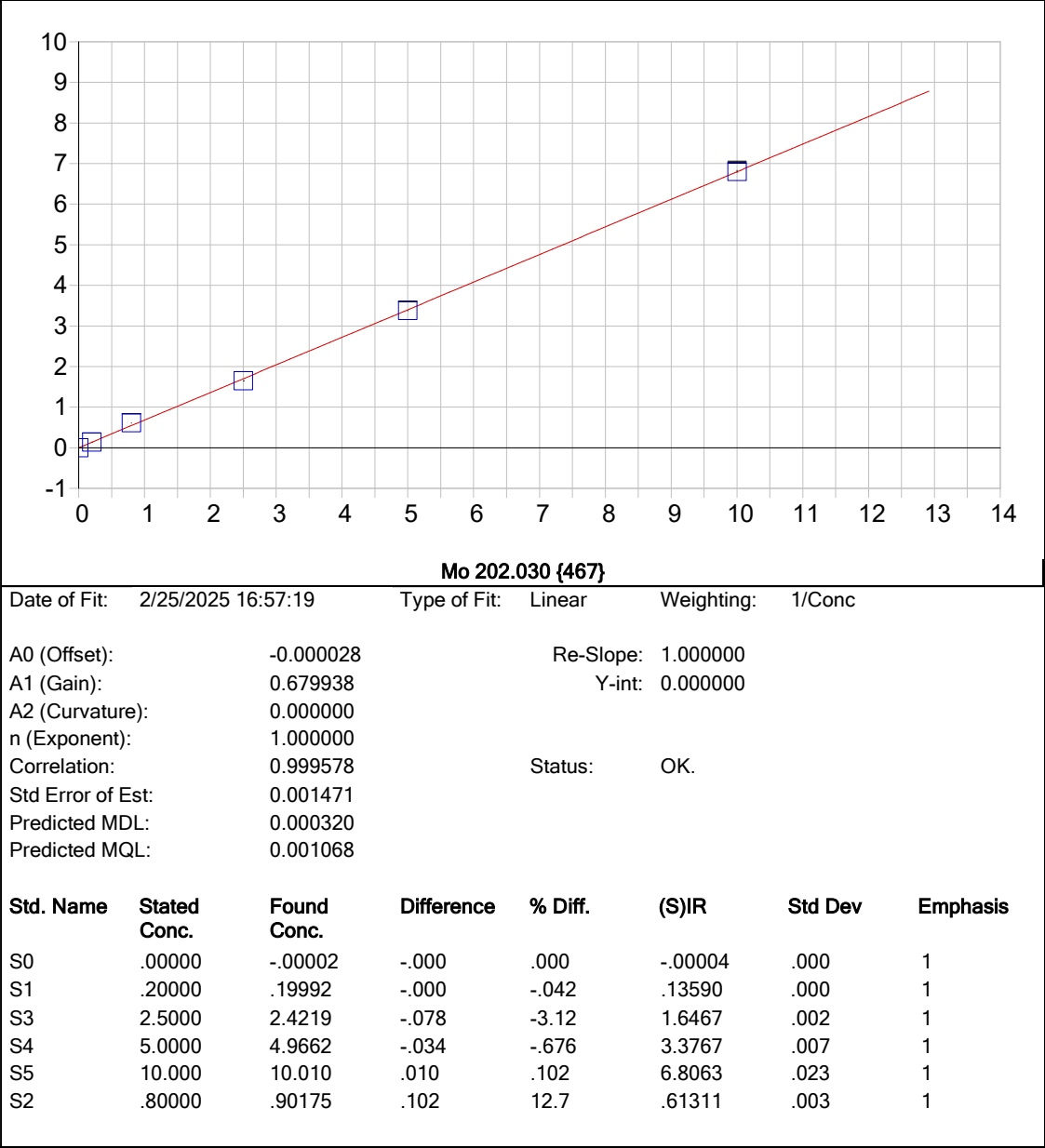


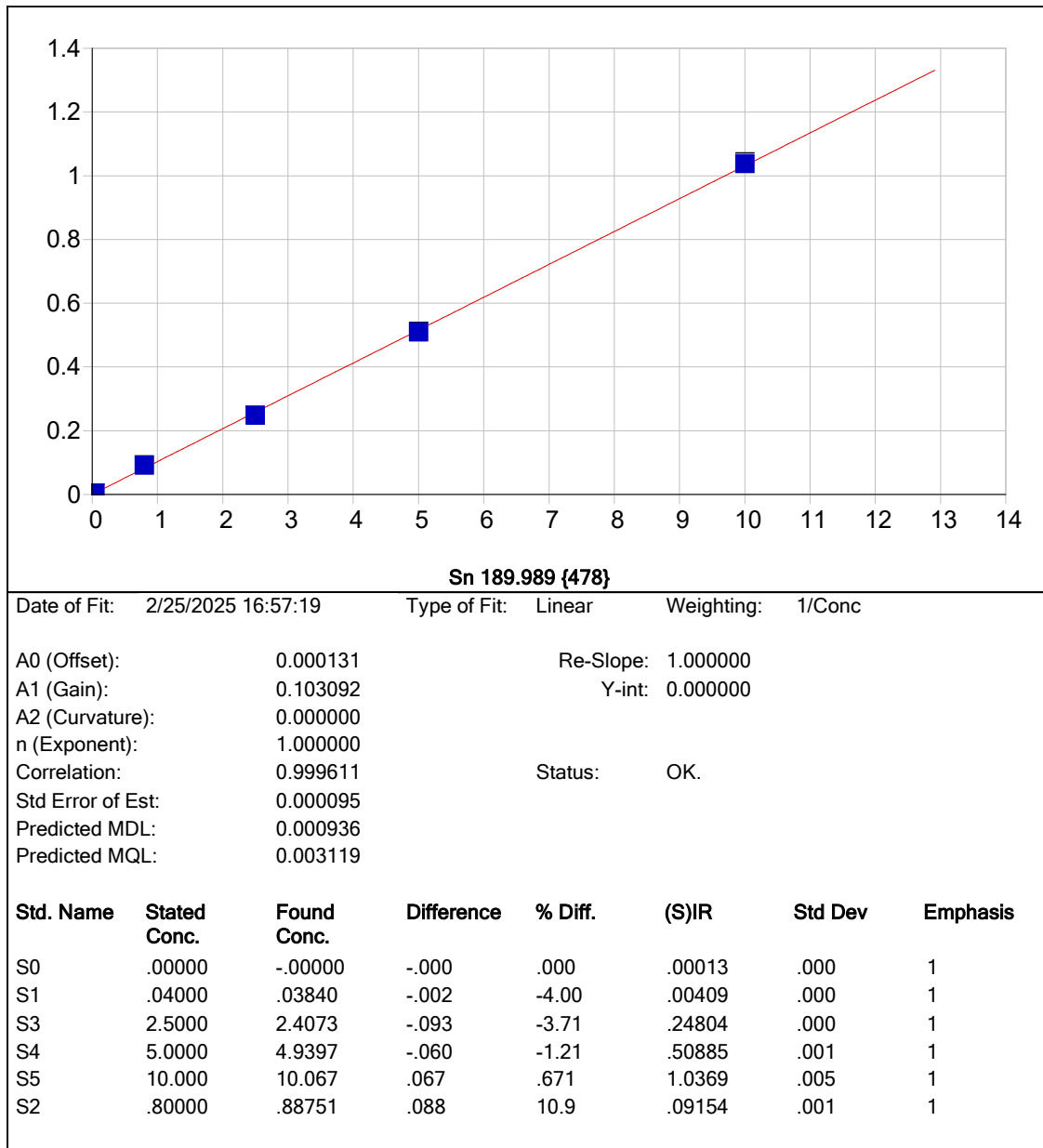


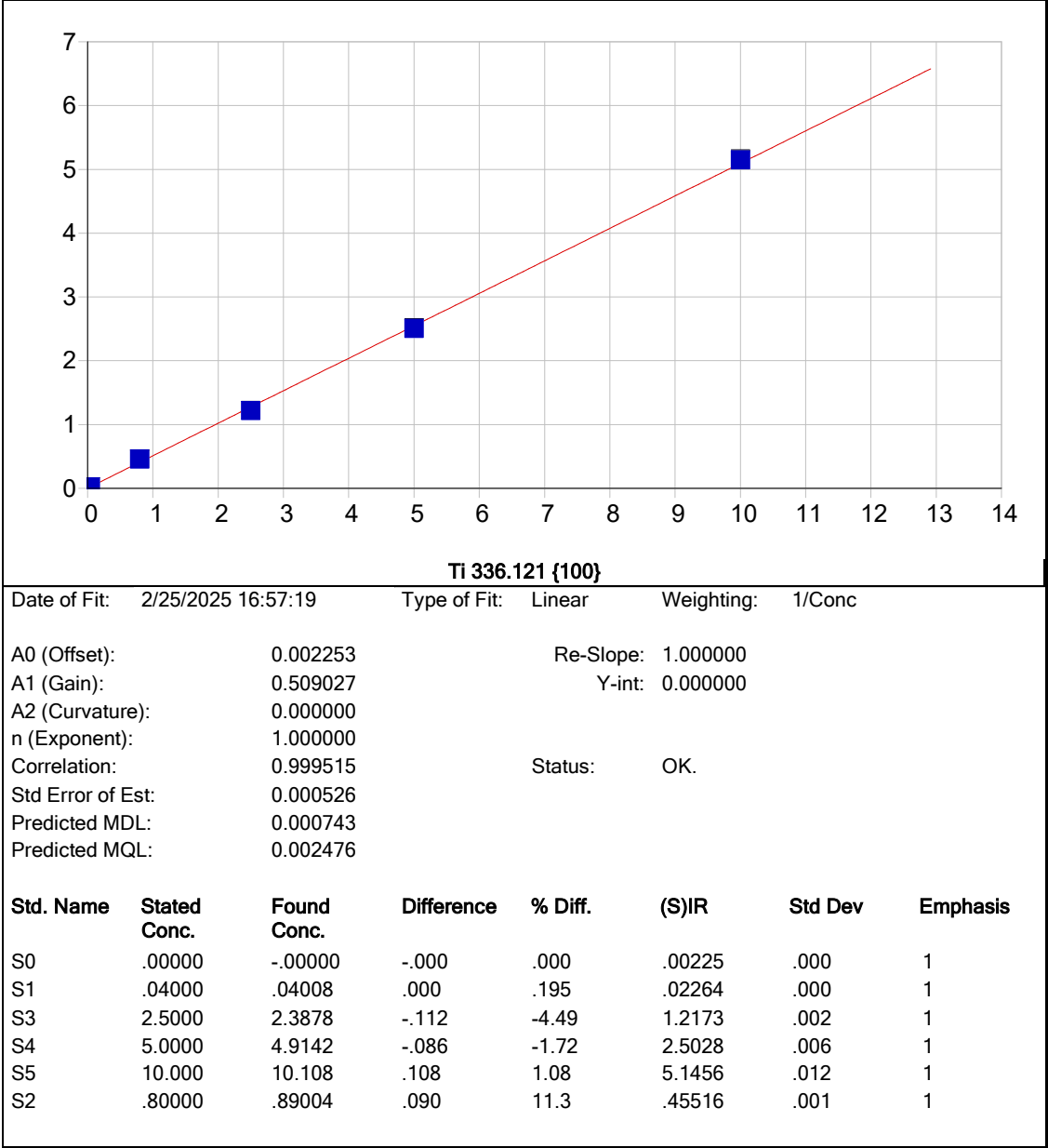


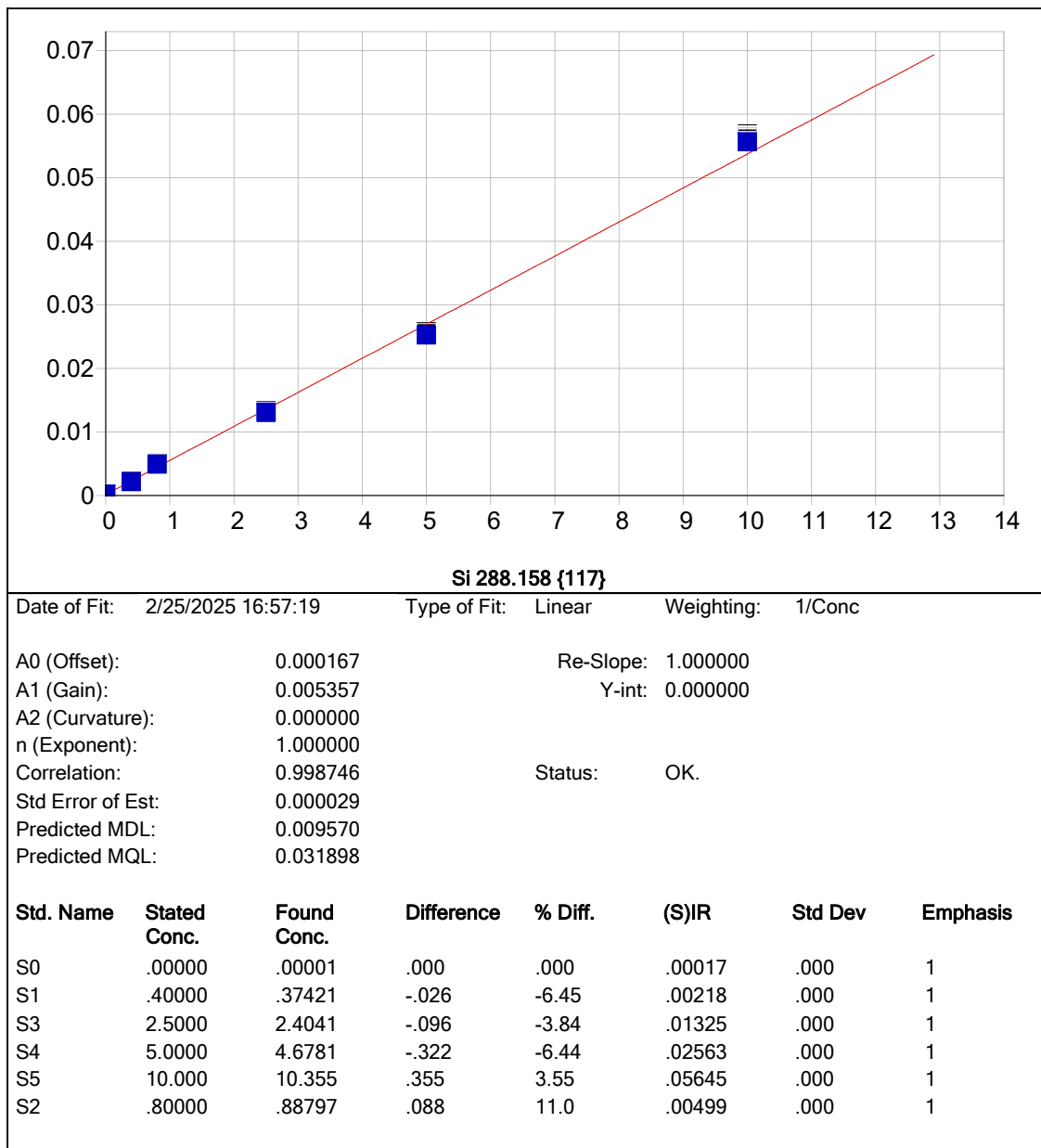


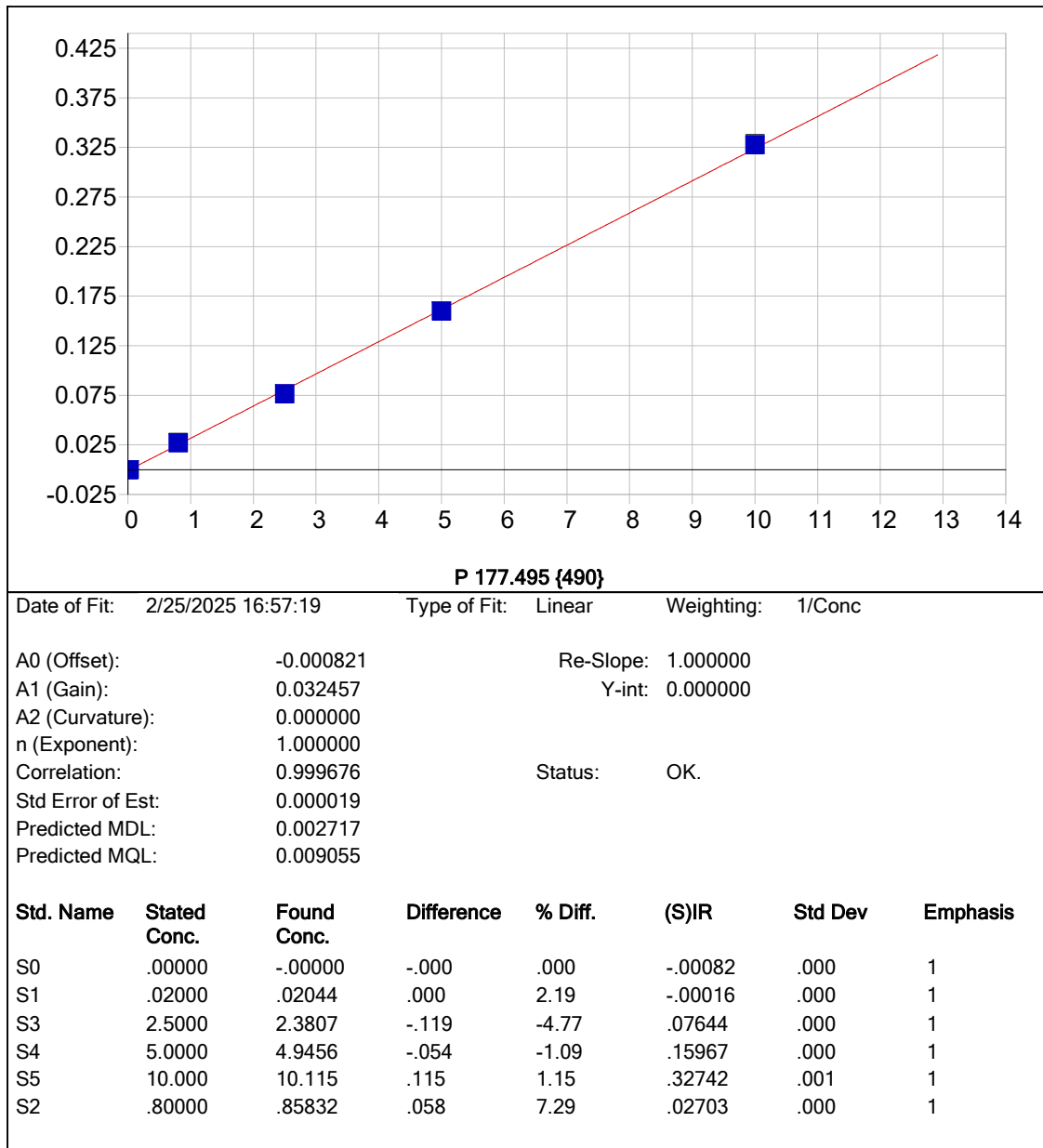


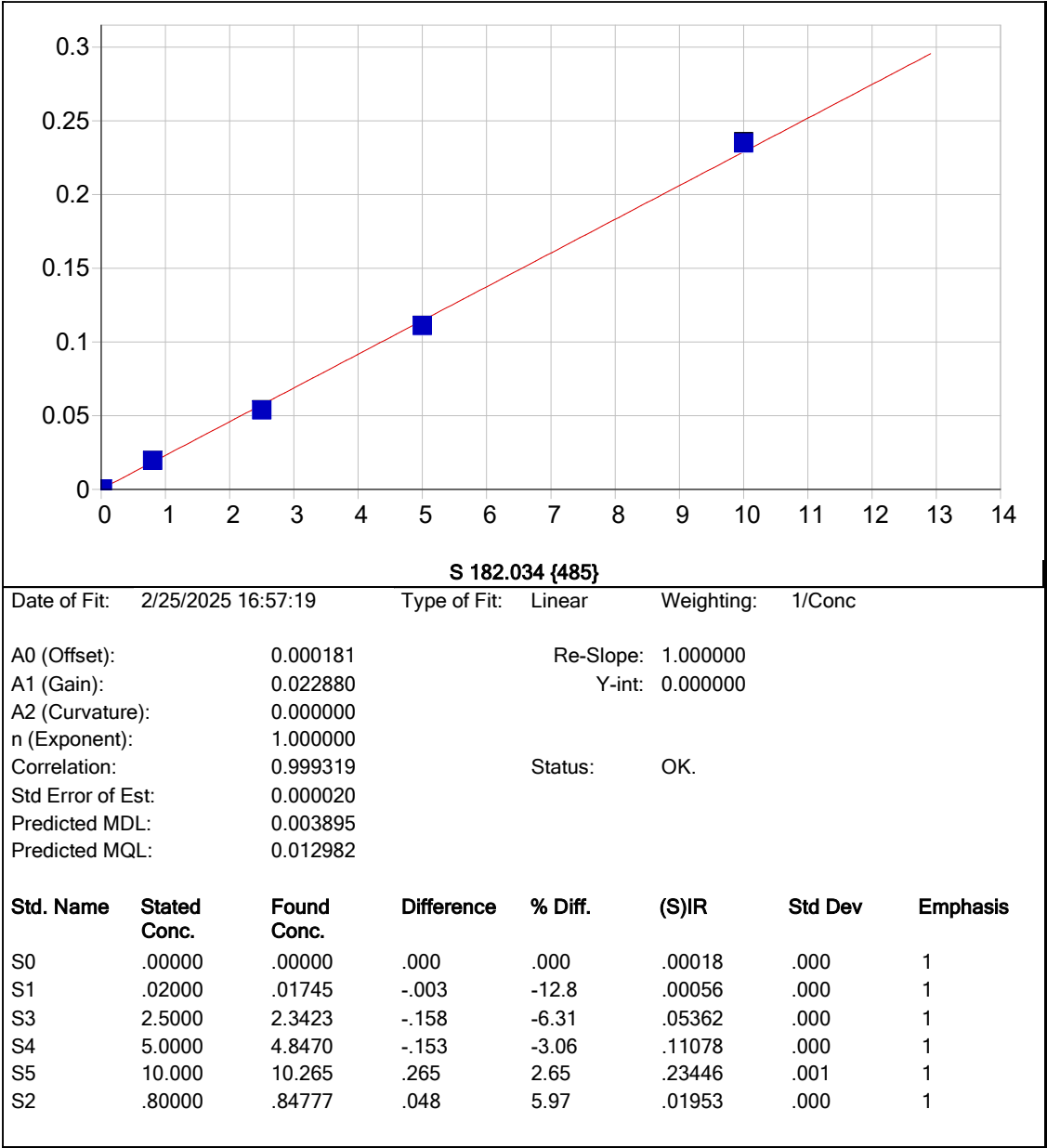


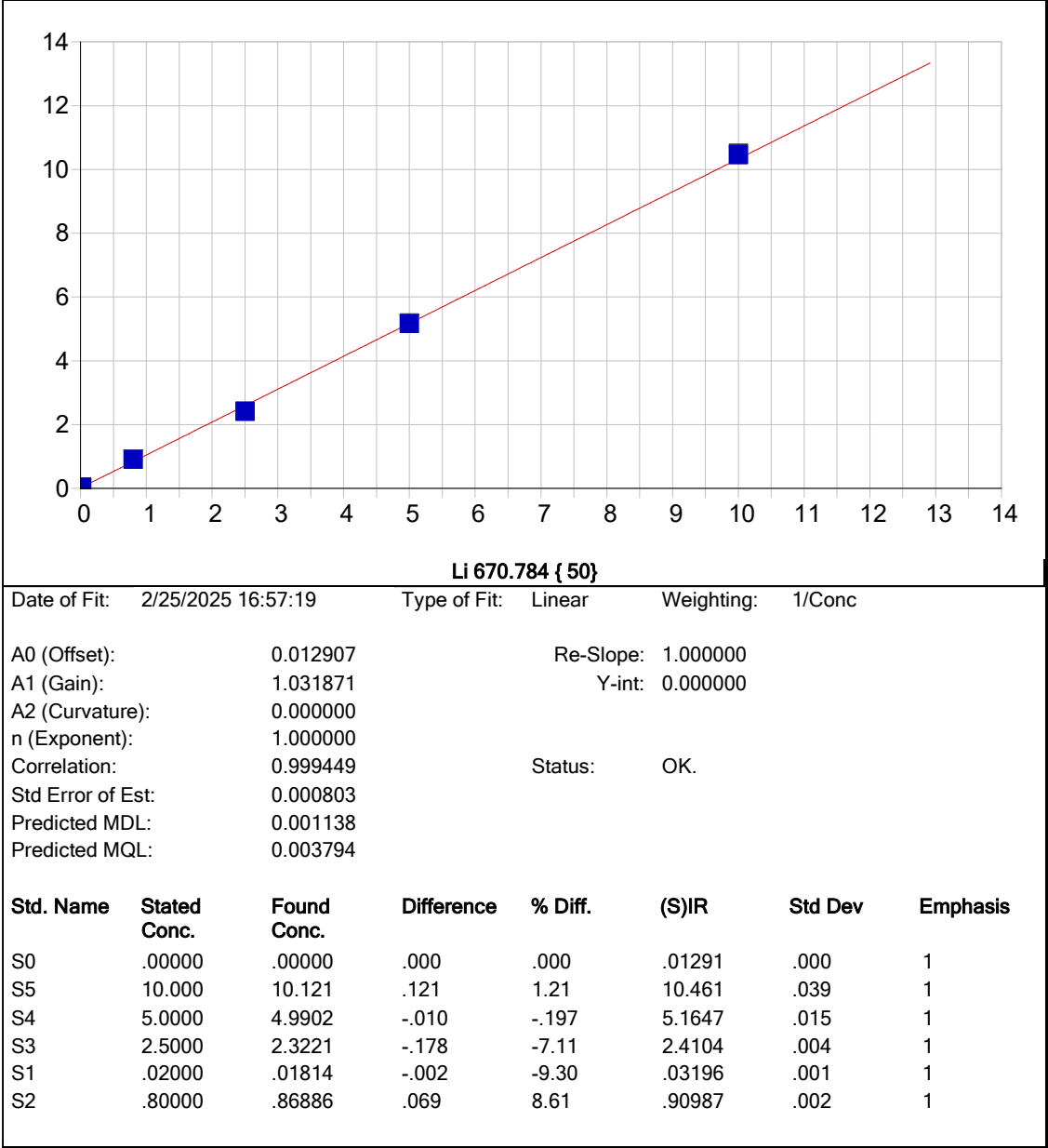


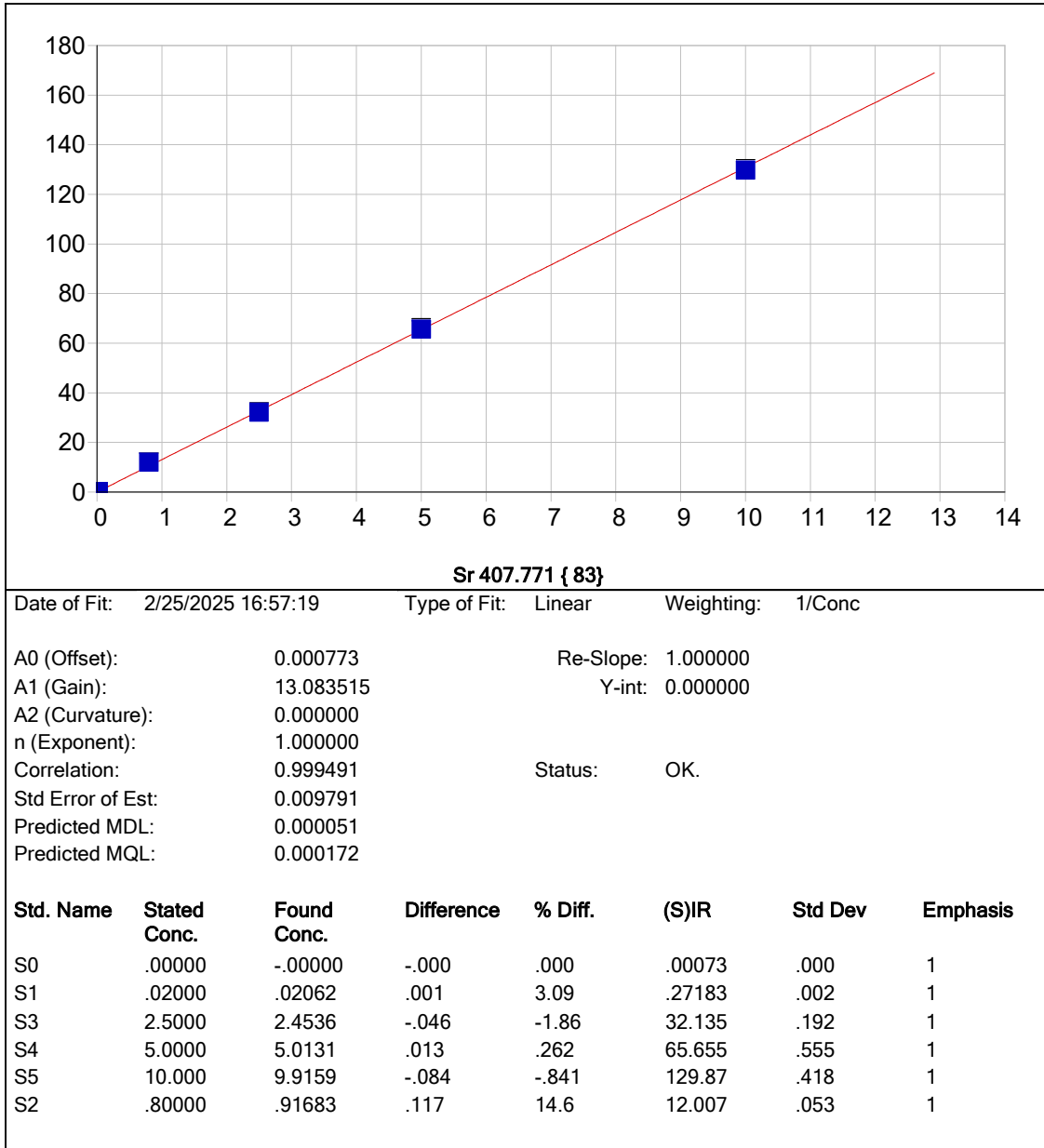


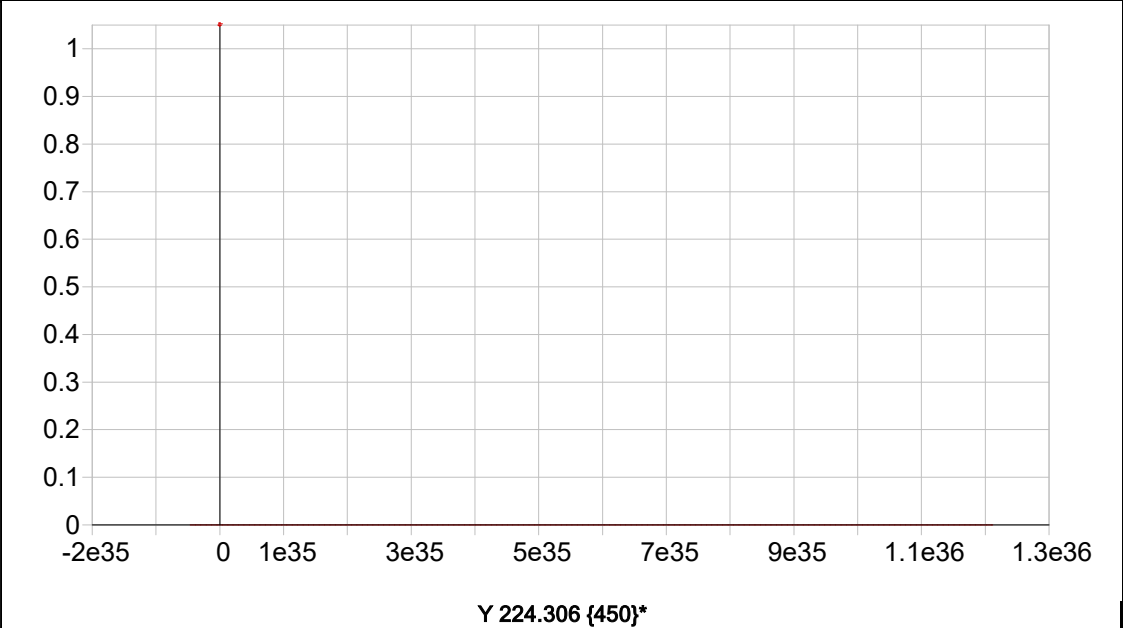


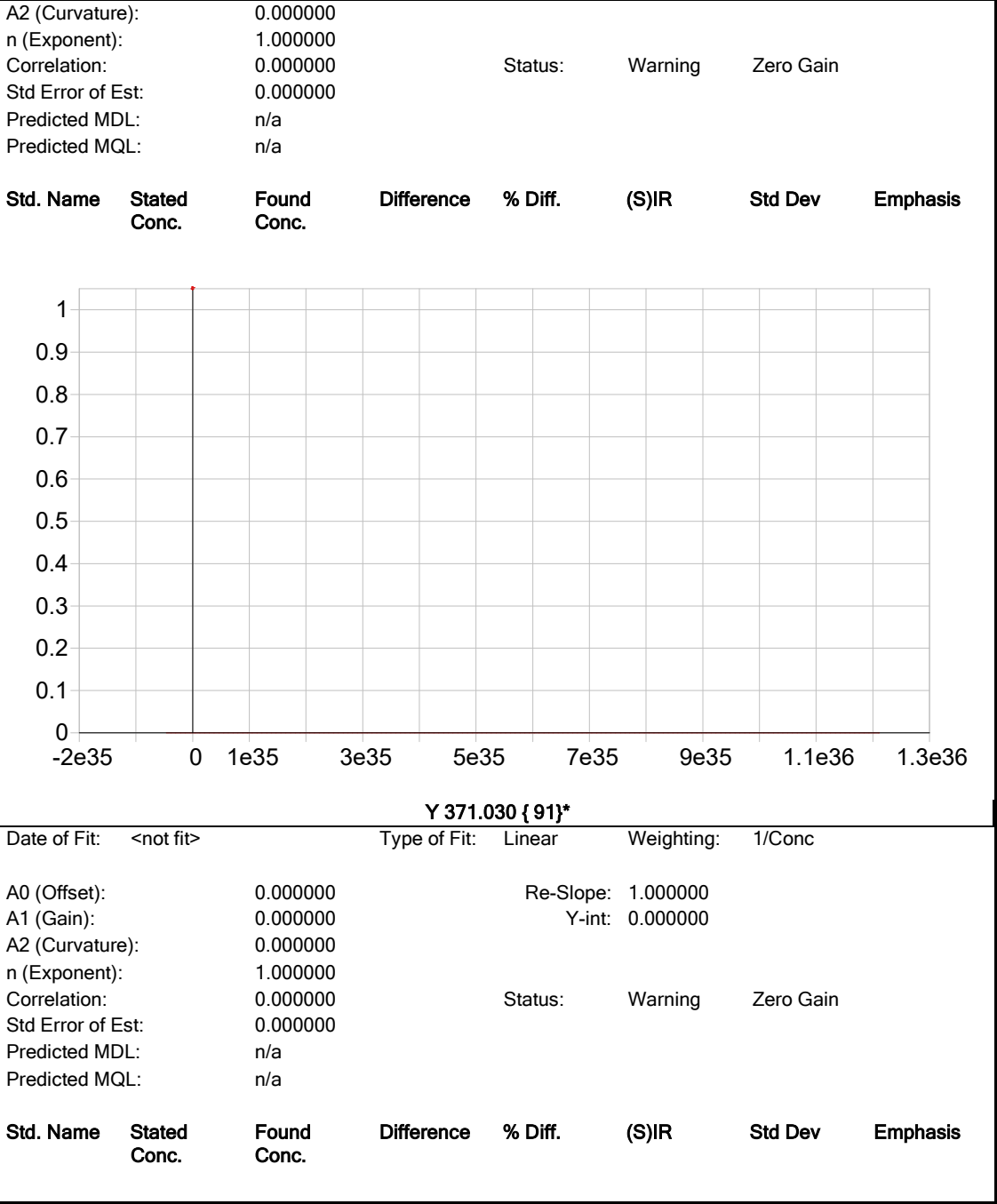


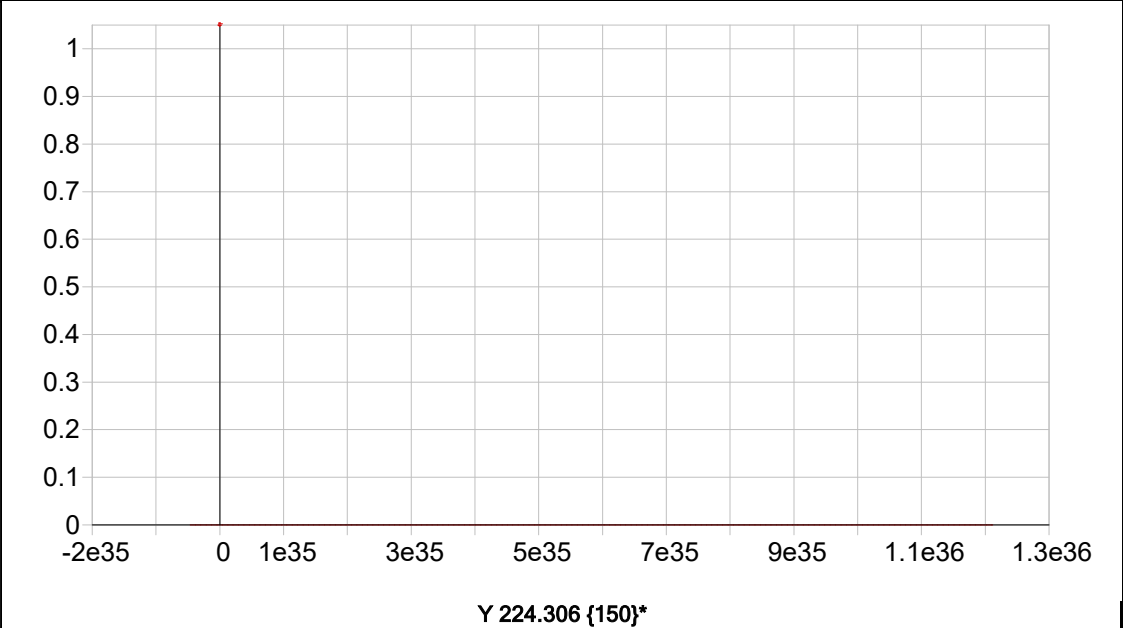












A2 (Curvature):		0.000000					
n (Exponent):		1.000000					
Correlation:		0.000000		Status:	Warning	Zero Gain	
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

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

Sample Name: S0 Acquired: 2/25/2025 15:31:55 Type: Cal
Method: NON EPA-6010-200.7(v2725) 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	-.00014	.00021	-.00012	.00027	.00043	-.00011	.05437	-.00023
Stddev	.00008	.00006	.00019	.00002	.00015	.00052	.00097	.00015
%RSD	59.399	27.636	154.88	7.5928	34.704	455.59	1.7801	66.756
#1	-.00012	.00014	-.00034	.00030	.00037	-.00028	.05410	-.00006
#2	-.00022	.00024	.00002	.00027	.00032	.00046	.05544	-.00029
#3	-.00007	.00024	-.00005	.00025	.00060	-.00052	.05357	-.00035
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00003	.00116	.00001	.00011	-.00029	.00003	-.00011	-.00023
Stddev	.00004	.00031	.00007	.00012	.00006	.00001	.00020	.00020
%RSD	114.69	27.117	1031.1	105.66	19.849	45.247	171.58	86.405
#1	-.00007	.00122	.00001	.00008	-.00035	.00003	-.00007	-.00039
#2	-.00004	.00143	-.00006	.00001	-.00028	.00001	.00006	-.00030
#3	.00001	.00082	.00007	.00024	-.00024	.00003	-.00033	-.00001
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	-.00022	-.00209	.00411	-.00008	.00301	.00005	.00214	-.00004
Stddev	.00010	.00005	.00007	.00012	.00111	.00008	.00016	.00003
%RSD	45.235	2.5379	1.7295	146.60	36.896	155.51	7.2479	67.596
#1	-.00019	-.00203	.00419	.00005	.00321	.00015	.00210	-.00007
#2	-.00032	-.00213	.00405	-.00014	.00181	.00000	.00201	-.00003
#3	-.00013	-.00211	.00409	-.00015	.00400	.00001	.00231	-.00002
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	.00013	.00225	.00017	-.00082	.00018	.01291	.00073	
Stddev	.00007	.00016	.00001	.00001	.00004	.00047	.00026	
%RSD	57.298	7.2665	4.8603	1.5388	23.849	3.6119	35.636	
#1	.00014	.00233	.00017	-.00083	.00020	.01270	.00073	
#2	.00020	.00236	.00016	-.00081	.00021	.01259	.00100	
#3	.00005	.00206	.00018	-.00083	.00013	.01344	.00048	

Sample Name: S0 Acquired: 2/25/2025 15:31:55 Type: Cal
Method: NON EPA-6010-200.7(v2725) 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	2593.4	54126.	10354.	1923.6	4396.6
Stddev	1.2	123.	40.	6.8	2.4
%RSD	.04789	.22710	.38178	.35233	.05362
#1	2592.5	54177.	10332.	1926.7	4398.5
#2	2594.8	54214.	10400.	1928.4	4397.2
#3	2592.9	53985.	10331.	1915.9	4393.9

Sample Name: S1 Acquired: 2/25/2025 15:36:22 Type: Cal
Method: NON EPA-6010-200.7(v2725) 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	.00088	.00165	.00240	.00160	.00836	.01294	.37045	.02720
Stddev	.00010	.00002	.00020	.00020	.00029	.00022	.00153	.00015
%RSD	11.157	.99428	8.5254	12.695	3.4460	1.6627	.41345	.54721
#1	.00094	.00164	.00217	.00160	.00827	.01286	.36886	.02704
#2	.00093	.00163	.00246	.00140	.00868	.01318	.37191	.02723
#3	.00077	.00166	.00257	.00181	.00813	.01277	.37059	.02733
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	.01217	.11968	.00172	.02202	.01564	.00047	.01287	.03510
Stddev	.00013	.00069	.00014	.00020	.00007	.00003	.00009	.00032
%RSD	1.0481	.57753	8.3947	.91959	.43669	5.6438	.68612	.91881
#1	.01232	.11999	.00171	.02220	.01557	.00045	.01295	.03547
#2	.01208	.11889	.00187	.02204	.01571	.00050	.01278	.03489
#3	.01213	.12017	.00159	.02180	.01564	.00045	.01287	.03495
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	.02701	.00151	.03897	.00495	.14070	.01922	.04609	.13590
Stddev	.00029	.00001	.00060	.00023	.00051	.00041	.00017	.00036
%RSD	1.0777	.92788	1.5348	4.6739	.36601	2.1287	.37084	.26389
#1	.02699	.00152	.03828	.00501	.14106	.01883	.04590	.13616
#2	.02731	.00151	.03937	.00513	.14011	.01918	.04617	.13605
#3	.02673	.00150	.03926	.00469	.14093	.01965	.04622	.13549
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	.00409	.02264	.00218	-.00016	.00056	.03196	.27183	
Stddev	.00005	.00025	.00004	.00005	.00002	.00090	.00155	
%RSD	1.2585	1.1152	2.0473	33.035	3.4649	2.8214	.56859	
#1	.00414	.02291	.00222	-.00010	.00056	.03293	.27005	
#2	.00408	.02241	.00218	-.00018	.00058	.03115	.27261	
#3	.00403	.02260	.00213	-.00019	.00054	.03178	.27283	

Sample Name: S1 Acquired: 2/25/2025 15:36:22 Type: Cal
Method: NON EPA-6010-200.7(v2725) 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	2582.3	53600.	9767.4	1863.6	4380.6
Stddev	12.1	115.	33.7	8.1	20.5
%RSD	.46705	.21532	.34519	.43529	.46881
#1	2571.0	53646.	9729.4	1859.3	4363.3
#2	2580.8	53684.	9793.7	1873.0	4375.2
#3	2595.0	53468.	9779.1	1858.5	4403.3

Sample Name: S2 Acquired: 2/25/2025 15:40:46 Type: Cal
Method: NON EPA-6010-200.7(v2725) 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	.04600	.03719	.19009	.06331	.13802	.22344	5.5916	.19573
Stddev	.00043	.00049	.00078	.00069	.00099	.00041	.0262	.00098
%RSD	.93616	1.3285	.41230	1.0931	.71408	.18174	.46944	.50192
#1	.04551	.03672	.18939	.06252	.13704	.22375	5.6050	.19654
#2	.04629	.03714	.18995	.06371	.13800	.22360	5.6085	.19464
#3	.04622	.03770	.19094	.06371	.13901	.22298	5.5614	.19600
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	.90749	.26300	.03184	.33459	.17235	.00454	.28211	.07194
Stddev	.00390	.00090	.00005	.00162	.00074	.00001	.00083	.00009
%RSD	.42944	.34116	.15929	.48511	.42747	.25587	.29340	.11886
#1	.90340	.26398	.03178	.33272	.17150	.00454	.28306	.07185
#2	.90791	.26281	.03186	.33543	.17269	.00453	.28162	.07195
#3	.91117	.26221	.03187	.33562	.17285	.00455	.28164	.07203
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	.30844	.07896	.08350	.05573	1.5355	.04284	.36481	.61311
Stddev	.00146	.00004	.00033	.00036	.0049	.00002	.00132	.00346
%RSD	.47292	.05213	.39135	.64419	.31896	.04103	.36184	.56364
#1	.30679	.07897	.08313	.05547	1.5317	.04284	.36538	.60920
#2	.30899	.07891	.08377	.05614	1.5337	.04286	.36330	.61439
#3	.30955	.07899	.08358	.05559	1.5410	.04282	.36575	.61574
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	.09154	.45516	.00499	.02703	.01953	.90987	12.007	
Stddev	.00071	.00140	.00004	.00028	.00011	.00212	.053	
%RSD	.77018	.30720	.77321	1.0534	.55925	.23312	.44557	
#1	.09080	.45507	.00495	.02672	.01947	.91201	12.040	
#2	.09163	.45660	.00503	.02709	.01946	.90985	12.035	
#3	.09220	.45381	.00499	.02729	.01966	.90776	11.945	

Sample Name: S2 Acquired: 2/25/2025 15:40:46 Type: Cal
Method: NON EPA-6010-200.7(v2725) 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	2563.4	53656.	10320.	1854.7	4293.1
Stddev	7.6	121.	42.	6.2	16.5
%RSD	.29528	.22614	.40240	.33515	.38476
#1	2571.8	53734.	10286.	1860.4	4309.3
#2	2561.1	53717.	10366.	1855.6	4293.8
#3	2557.2	53516.	10309.	1848.1	4276.3

Sample Name: S3 Acquired: 2/25/2025 15:44:54 Type: Cal
Method: NON EPA-6010-200.7(v2725) 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	.12447	.10038	.51261	.17019	.37210	.60703	14.860	.51404
Stddev	.00019	.00133	.00012	.00021	.00063	.00269	.050	.00076
%RSD	.15260	1.3288	.02386	.12438	.16837	.44253	.33345	.14709
#1	.12460	.09929	.51275	.17032	.37245	.60523	14.830	.51350
#2	.12425	.09998	.51259	.16995	.37138	.61011	14.918	.51491
#3	.12455	.10187	.51251	.17031	.37247	.60573	14.833	.51372
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.4447	.70307	.08456	.90017	.46157	.01233	.75758	.19566
Stddev	.0023	.00291	.00013	.00172	.00049	.00002	.00305	.00106
%RSD	.09578	.41410	.14920	.19090	.10529	.18389	.40201	.54194
#1	2.4465	.69971	.08454	.90215	.46213	.01236	.75407	.19445
#2	2.4456	.70465	.08444	.89918	.46128	.01231	.75912	.19615
#3	2.4420	.70486	.08469	.89918	.46129	.01234	.75954	.19639
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	.83043	.21222	.22110	.15119	4.0833	.11636	.95784	1.6467
Stddev	.00110	.00011	.00059	.00041	.0151	.00051	.00139	.0019
%RSD	.13205	.05053	.26650	.27367	.37031	.43525	.14463	.11351
#1	.83116	.21234	.22124	.15078	4.0721	.11596	.95627	1.6452
#2	.83097	.21217	.22046	.15119	4.1005	.11619	.95890	1.6462
#3	.82917	.21214	.22162	.15161	4.0773	.11693	.95834	1.6488
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	.24804	1.2173	.01325	.07644	.05362	2.4104	32.135	
Stddev	.00036	.0016	.00008	.00021	.00021	.0040	.192	
%RSD	.14323	.12853	.61445	.27930	.38894	.16643	.59679	
#1	.24830	1.2162	.01326	.07619	.05345	2.4071	32.223	
#2	.24764	1.2191	.01316	.07652	.05356	2.4091	32.266	
#3	.24818	1.2165	.01333	.07660	.05385	2.4148	31.915	

Sample Name: S3 Acquired: 2/25/2025 15:44:54 Type: Cal
Method: NON EPA-6010-200.7(v2725) 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	2525.2	54124.	10496.	1838.4	4189.4
Stddev	.7	53.	17.	6.1	4.1
%RSD	.02836	.09875	.16265	.33076	.09671
#1	2524.4	54141.	10513.	1842.0	4184.7
#2	2525.7	54167.	10479.	1831.4	4191.1
#3	2525.6	54064.	10497.	1841.8	4192.2

Sample Name: S4 Acquired: 2/25/2025 15:49:06 Type: Cal
Method: NON EPA-6010-200.7(v2725) 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	.25573	.20921	1.0488	.34569	.76271	1.2636	30.735	1.1372
Stddev	.00135	.00068	.0009	.00098	.00156	.0049	.315	.0010
%RSD	.52620	.32329	.08918	.28207	.20442	.38850	1.0244	.08391
#1	.25479	.20965	1.0496	.34531	.76218	1.2678	31.027	1.1380
#2	.25513	.20843	1.0478	.34496	.76148	1.2582	30.777	1.1361
#3	.25727	.20954	1.0490	.34680	.76446	1.2647	30.401	1.1375
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5.0018	1.4461	.17303	1.8400	.93281	.02309	1.5214	.40757
Stddev	.0069	.0036	.00043	.0028	.00199	.00004	.0054	.00065
%RSD	.13902	.24798	.24846	.15200	.21384	.17046	.35604	.16013
#1	4.9972	1.4464	.17353	1.8375	.93086	.02304	1.5223	.40727
#2	4.9984	1.4424	.17283	1.8395	.93274	.02311	1.5156	.40712
#3	5.0098	1.4495	.17274	1.8430	.93485	.02311	1.5263	.40832
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	1.6865	.43433	.44223	.31240	8.2820	.23376	2.1090	3.3767
Stddev	.0024	.00026	.00129	.00042	.0364	.00013	.0029	.0067
%RSD	.14229	.06062	.29274	.13348	.43964	.05606	.13597	.19991
#1	1.6843	.43460	.44270	.31280	8.2513	.23391	2.1063	3.3746
#2	1.6862	.43430	.44076	.31197	8.3222	.23372	2.1120	3.3712
#3	1.6891	.43408	.44321	.31244	8.2724	.23366	2.1087	3.3842
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	.50885	2.5028	.02563	.15967	.11078	5.1647	65.655	
Stddev	.00126	.0057	.00012	.00035	.00025	.0148	.555	
%RSD	.24797	.22981	.45774	.21942	.22576	.28686	.84477	
#1	.50773	2.5047	.02550	.15943	.11057	5.1670	65.937	
#2	.50859	2.4963	.02573	.15950	.11072	5.1489	65.016	
#3	.51022	2.5074	.02567	.16007	.11106	5.1782	66.013	

Sample Name: S4 Acquired: 2/25/2025 15:49:06 Type: Cal
Method: NON EPA-6010-200.7(v2725) 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	2493.6	52779.	9563.8	1763.2	4095.3
Stddev	5.5	66.	11.9	3.2	6.9
%RSD	.21870	.12508	.12466	.17879	.16831
#1	2494.2	52705.	9555.1	1759.8	4097.2
#2	2498.8	52831.	9577.4	1763.8	4101.0
#3	2487.9	52802.	9559.0	1766.0	4087.7

Sample Name: S5 Acquired: 2/25/2025 15:53:17 Type: Cal
Method: NON EPA-6010-200.7(v2725) 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	.52919	.42691	2.1371	.70795	1.5710	2.6597	61.497	2.0802
Stddev	.00158	.00310	.0090	.00108	.0029	.0033	.578	.0096
%RSD	.29834	.72634	.42050	.15252	.18391	.12439	.93918	.46283
#1	.52799	.42480	2.1304	.70722	1.5687	2.6634	60.917	2.0795
#2	.52860	.42546	2.1336	.70743	1.5701	2.6569	62.072	2.0902
#3	.53097	.43047	2.1473	.70919	1.5742	2.6589	61.501	2.0709
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	10.166	2.9389	.33937	3.7493	1.8766	.05001	3.1155	.83291
Stddev	.042	.0042	.00009	.0125	.0045	.00051	.0109	.00126
%RSD	.41115	.14217	.02704	.33257	.24053	1.0123	.35004	.15135
#1	10.126	2.9437	.33948	3.7379	1.8742	.05030	3.1275	.83220
#2	10.162	2.9371	.33931	3.7475	1.8737	.04942	3.1062	.83437
#3	10.209	2.9359	.33934	3.7626	1.8818	.05030	3.1129	.83218
Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.4166	.85567	.92959	.64460	16.352	.49825	3.8545	6.8063
Stddev	.0110	.00044	.00767	.00114	.050	.00313	.0194	.0228
%RSD	.32071	.05097	.82510	.17759	.30278	.62841	.50395	.33513
#1	3.4062	.85613	.93532	.64591	16.351	.49975	3.8566	6.7917
#2	3.4155	.85564	.92088	.64379	16.402	.49465	3.8728	6.7946
#3	3.4280	.85526	.93257	.64410	16.303	.50034	3.8341	6.8326
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	1.0369	5.1456	.05645	.32742	.23446	10.461	129.87	
Stddev	.0052	.0120	.00045	.00104	.00082	.039	.42	
%RSD	.50254	.23360	.79366	.31733	.35062	.37288	.32156	
#1	1.0321	5.1586	.05615	.32725	.23376	10.504	130.33	
#2	1.0363	5.1349	.05624	.32649	.23424	10.427	129.53	
#3	1.0424	5.1432	.05697	.32854	.23537	10.453	129.73	

Sample Name: S5 Acquired: 2/25/2025 15:53:17 Type: Cal
Method: NON EPA-6010-200.7(v2725) 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	2357.8	52140.	9951.4	1653.7	3811.4
Stddev	10.3	128.	42.7	4.6	18.7
%RSD	.43504	.24470	.42950	.27753	.48961
#1	2363.9	52027.	9917.1	1648.5	3826.3
#2	2363.5	52278.	9937.9	1657.2	3817.4
#3	2345.9	52115.	9999.3	1655.3	3790.5

Sample Name: ICV01 Acquired: 2/25/2025 15:57:35 Type: Unk
Method: NON EPA-6010-200.7(v2725) 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	1.056320	1.021568	1.019903	1.047411	1.023083	2.455715
Stddev	.005795	.006316	.003685	.004936	.000905	.005227
%RSD	.5485672	.6183051	.3613019	.4712136	.0884793	.2128473
#1	1.054549	1.016519	1.023900	1.047729	1.024093	2.460184
#2	1.051617	1.028650	1.016641	1.052180	1.022813	2.449968
#3	1.062793	1.019534	1.019169	1.042325	1.022344	2.456993
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4787499	.5047911	.5115635	9.582450	.5402739	.5098170
Stddev	.0012594	.0024508	.0005184	.014985	.0028862	.0005599
%RSD	.2630545	.4855028	.1013424	.1563780	.5342151	.1098268
#1	.4782745	.5073100	.5119354	9.599662	.5435753	.5101941
#2	.4777974	.5024146	.5117837	9.572310	.5390179	.5091737
#3	.4801778	.5046487	.5109713	9.575379	.5382284	.5100833
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5215360	9.731093	.4809005	5.588621	.5134364	.2626786
Stddev	.0005903	.021519	.0003713	.037613	.0005273	.0000491
%RSD	.1131778	.2211359	.0772181	.6730314	.1027085	.0186766
#1	.5220413	9.707820	.4811572	5.589542	.5139349	.2626517
#2	.5216794	9.735191	.4810696	5.550555	.5134900	.2627352
#3	.5208873	9.750269	.4804747	5.625765	.5128843	.2626488
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.312582	.4683614	1.039249	9.814912	2.304156	2.432789
Stddev	.037702	.0017446	.001979	.039894	.016996	.001063
%RSD	.4048469	.3724953	.1904149	.4064658	.7376251	.0437088
#1	9.269170	.4667434	1.037294	9.771828	2.320826	2.431931
#2	9.331467	.4681311	1.041250	9.850575	2.286852	2.433978
#3	9.337110	.4702097	1.039201	9.822332	2.304788	2.432457

Sample Name: ICV01 Acquired: 2/25/2025 15:57:35 Type: Unk
Method: NON EPA-6010-200.7(v2725) 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	2.368239	2.261651	F 2.100947	F .0005086	F -.007232	F -.002039
Stddev	.006158	.004749	.000693	.0013168	.002293	.001153
%RSD	.2600124	.2099609	.0329672	258.8944	31.70201	56.57243
#1	2.365246	2.256521	2.100765	-.000076	-.005596	-.003260
#2	2.375321	2.262538	2.100364	.002016	-.006247	-.001889
#3	2.364151	2.265893	2.101713	-.000415	-.009852	-.000968

Elem	Sr4077
Units	ppm
Avg	F -.008356
Stddev	.000057
%RSD	.6765342
#1	-.008391
#2	-.008387
#3	-.008291

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2497.756	52394.53	10464.43	1727.902	4216.351
Stddev	2.724	146.85	30.58	5.703	2.212
%RSD	.1090701	.2802690	.2922205	.3300469	.0524613
#1	2499.920	52432.30	10429.12	1728.312	4215.243
#2	2498.652	52232.48	10482.05	1722.005	4218.898
#3	2494.697	52518.79	10482.11	1733.388	4214.913

Sample Name: LLICV01 Acquired: 2/25/2025 16:02:16 Type: Unk
Method: NON EPA-6010-200.7(v2725) 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	.0199536	.0395130	.0117078	.0208547	.0501753	.1131069
Stddev	.0020704	.0039226	.0009682	.0029316	.0024152	.0038860
%RSD	10.37598	9.927466	8.269459	14.05716	4.813610	3.435645
#1	.0223268	.0425303	.0105909	.0186117	.0474022	.1144959
#2	.0185172	.0409300	.0123090	.0241718	.0518180	.1087174
#3	.0190168	.0350788	.0122234	.0197805	.0513059	.1161075
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0917966	.0059657	.0060545	1.976215	.0101702	.0292280
Stddev	.0004097	.0000503	.0000687	.013132	.0004496	.0000592
%RSD	.4462683	.8430581	1.134748	.6645196	4.421040	.2025393
#1	.0922123	.0060232	.0061222	1.971247	.0102730	.0292847
#2	.0917840	.0059297	.0059848	1.991107	.0105596	.0291666
#3	.0913933	.0059443	.0060565	1.966292	.0096781	.0292327
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0215692	.0956886	.0194681	2.035338	.0392735	.0107981
Stddev	.0004088	.0039935	.0002622	.015790	.0003263	.0002976
%RSD	1.895106	4.173469	1.346704	.7757780	.8308718	2.755728
#1	.0218794	.1002305	.0196410	2.037744	.0395084	.0105347
#2	.0211060	.0927273	.0191664	2.049786	.0389009	.0111209
#3	.0217221	.0941080	.0195969	2.018483	.0394112	.0107387
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.736622	.0390440	.0472584	1.918311	.1153082	.2028035
Stddev	.010542	.0022269	.0004288	.006852	.0005458	.0002986
%RSD	.6070384	5.703645	.9074317	.3571757	.4733068	.1472452
#1	1.733860	.0387010	.0475278	1.911030	.1149369	.2028347
#2	1.727736	.0414225	.0474836	1.924633	.1159348	.2030853
#3	1.748270	.0370085	.0467639	1.919270	.1150529	.2024905

Sample Name: LLICV01 Acquired: 2/25/2025 16:02:16 Type: Unk
Method: NON EPA-6010-200.7(v2725) 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	.0400474	.0386458	.3716171	.0167048	.0234885	F .0142783
Stddev	.0006921	.0002588	.0120273	.0023186	.0007934	.0007201
%RSD	1.728065	.6696248	3.236482	13.87987	3.377666	5.043049
#1	.0393871	.0386242	.3848970	.0193790	.0226485	.0135052
#2	.0399879	.0383985	.3614571	.0152566	.0235917	.0149298
#3	.0407673	.0389147	.3684972	.0154788	.0242252	.0144000

Elem	Sr4077
Units	ppm
Avg	.0194541
Stddev	.0000627
%RSD	.3221049
#1	.0195256
#2	.0194087
#3	.0194281

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2555.865	53054.96	10418.99	1765.215	4360.550
Stddev	1.610	222.96	52.73	10.338	5.734
%RSD	.0630003	.4202509	.5060873	.5856548	.1315017
#1	2557.715	52799.50	10381.90	1753.281	4353.932
#2	2554.780	53155.01	10395.73	1771.452	4364.034
#3	2555.101	53210.38	10479.35	1770.911	4363.685

Sample Name: ICB01 Acquired: 2/25/2025 16:06:34 Type: Unk
Method: NON EPA-6010-200.7(v2725) 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	.0006870	-.000693	-.001494	.0025251	-.000783	-.000518	-.000203
Stddev	.0002028	.002568	.000969	.0008794	.000913	.002569	.000397
%RSD	29.51561	370.6267	64.83811	34.82570	116.7306	495.9427	195.7142
#1	.0007063	-.001113	-.002613	.0022119	.000262	-.002936	.000154
#2	.0004753	-.003025	-.000941	.0035182	-.001178	-.000797	-.000132
#3	.0008795	.002060	-.000929	.0018452	-.001431	.002179	-.000631
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000439	.0000058	-.005449	.0001334	-.000243	-.000030	-.010569
Stddev	.0000087	.0000786	.004094	.0003219	.000184	.000597	.002318
%RSD	19.73176	1352.306	75.13164	241.3781	75.91184	2013.624	21.93076
#1	.0000494	.0000932	-.003308	.0004982	-.000455	-.000642	-.013244
#2	.0000339	-.000059	-.010169	-.000111	-.000135	.000002	-.009291
#3	.0000484	-.000016	-.002869	.000013	-.000138	.000551	-.009171
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000031	.0002899	.0001392	.0002842	-.121232	.0024660	-.000492
Stddev	.000246	.0119151	.0003408	.0000615	.007207	.0018035	.000168
%RSD	793.3924	4110.269	244.7760	21.62931	5.944576	73.13382	34.22674
#1	.000234	.0139865	-.000056	.0002138	-.129483	.0015944	-.000368
#2	-.000253	-.005431	-.000059	.0003276	-.118037	.0045397	-.000424
#3	-.000074	-.007686	.000533	.0003110	-.116174	.0012639	-.000683
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.064796	.0106120	.0003062	-.000321	.0004707	-.000004	-.002308
Stddev	.011654	.0010262	.0002750	.000446	.0003260	.007572	.001276
%RSD	17.98574	9.669841	89.83104	139.0501	69.26632	183186.9	55.28139
#1	-.078195	.0094647	-.000009	.000194	.0000943	.008732	-.001012
#2	-.059178	.0114420	.000431	-.000600	.0006644	-.004674	-.003562
#3	-.057016	.0109293	.000497	-.000555	.0006533	-.004070	-.002348

Sample Name: ICB01 Acquired: 2/25/2025 16:06:34 Type: Unk
Method: NON EPA-6010-200.7(v2725) 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	-.000218	-.006012	.0000077		
Stddev	.002584	.000467	.0000253		
%RSD	1185.286	7.773014	329.7018		
#1	-.003153	-.005891	.0000352		
#2	.000785	-.006528	.0000024		
#3	.001714	-.005617	-.000015		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2559.940	53406.58	10781.56	1777.093	4384.030
Stddev	2.732	49.69	12.66	5.656	6.099
%RSD	.1067031	.0930495	.1173916	.3182654	.1391168
#1	2562.120	53412.73	10772.41	1770.616	4391.051
#2	2560.824	53354.10	10776.26	1779.603	4380.039
#3	2556.876	53452.92	10796.00	1781.059	4381.002

Sample Name: CRI01 Acquired: 2/25/2025 16:10:54 Type: Unk
Method: NON EPA-6010-200.7(v2725) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0214656	.0370187	.0113143	.0187178	.0516315	.1085572
Stddev	.0012591	.0034548	.0004570	.0019216	.0008933	.0065447
%RSD	5.865755	9.332588	4.039368	10.26627	1.730144	6.028769
#1	.0228612	.0359592	.0113910	.0201939	.0526543	.1142253
#2	.0204149	.0408792	.0108237	.0165450	.0512358	.1013945
#3	.0211206	.0342177	.0117281	.0194145	.0510043	.1100519
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0887356	.0056031	.0059633	1.942519	.0102590	.0289403
Stddev	.0014939	.0000130	.0000729	.010620	.0001175	.0004536
%RSD	1.683574	.2327507	1.222370	.5467208	1.144884	1.567226
#1	.0901158	.0056178	.0060110	1.951166	.0101520	.0290220
#2	.0889417	.0055984	.0059995	1.945726	.0103847	.0293474
#3	.0871493	.0055930	.0058794	1.930665	.0102404	.0284514
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0219828	.0986870	.0193463	2.008634	.0388373	.0104753
Stddev	.0006277	.0026454	.0003966	.004517	.0003588	.0003808
%RSD	2.855507	2.680638	2.050102	.2248728	.9237869	3.634997
#1	.0221869	.0958015	.0189058	2.007153	.0390307	.0100461
#2	.0224831	.1009979	.0196752	2.013706	.0390579	.0106071
#3	.0212785	.0992615	.0194580	2.005044	.0384234	.0107726
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.743505	.0401644	.0470715	1.925696	.1002253	.2024411
Stddev	.029785	.0010936	.0004495	.017588	.0009411	.0007107
%RSD	1.708314	2.722889	.9549507	.9133205	.9389828	.3510859
#1	1.738188	.0408089	.0472492	1.916977	.1004023	.2026630
#2	1.775590	.0407826	.0474049	1.945940	.0992082	.2030144
#3	1.716737	.0389016	.0465603	1.914171	.1010653	.2016459

Sample Name: CRI01 Acquired: 2/25/2025 16:10:54 Type: Unk
Method: NON EPA-6010-200.7(v2725) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0390064	.0385022	.3855776	.0171967	.0213385	F .0118785
Stddev	.0001313	.0010926	.0140746	.0013942	.0018587	.0007790
%RSD	.3367132	2.837737	3.650263	8.107419	8.710669	6.557976
#1	.0388553	.0397236	.3846920	.0178183	.0234435	.0124605
#2	.0390715	.0376179	.4000742	.0155998	.0199232	.0121815
#3	.0390926	.0381651	.3719668	.0181720	.0206488	.0109936

Elem	Sr4077
Units	ppm
Avg	.0188867
Stddev	.0002871
%RSD	1.519999
#1	.0192179
#2	.0187091
#3	.0187331

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2540.517	52795.49	10984.55	1750.418	4344.021
Stddev	13.911	250.24	46.61	7.933	19.795
%RSD	.5475731	.4739773	.4243664	.4532141	.4556837
#1	2530.398	52758.70	10933.53	1746.187	4331.570
#2	2534.774	52565.69	11024.91	1745.498	4333.648
#3	2556.381	53062.09	10995.20	1759.570	4366.847

Sample Name: ICSA01 Acquired: 2/25/2025 16:15:13 Type: Unk
Method: NON EPA-6010-200.7(v2725) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0051375	-.002028	.0071087	-.008515	-.000726	240.5842
Stddev	.0017231	.002808	.0022543	.002275	.001666	.2922
%RSD	33.54061	138.4271	31.71189	26.71468	229.4804	.1214632
#1	.0047650	-.005038	.0071888	-.007001	-.001994	240.4251
#2	.0036310	-.001568	.0093218	-.011131	-.001345	240.4061
#3	.0070163	.000521	.0048154	-.007414	.001161	240.9215
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0050210	.0013858	-.001532	221.4097	.0589299	.0014693
Stddev	.0005208	.0000812	.000137	.3563	.0003471	.0001860
%RSD	10.37311	5.858094	8.953097	.1609179	.5890516	12.65938
#1	.0044369	.0014774	-.001514	221.8164	.0587755	.0013921
#2	.0051890	.0013576	-.001677	221.2604	.0593274	.0013343
#3	.0054371	.0013226	-.001404	221.1524	.0586867	.0016815
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0216648	91.35297	.0103401	236.4351	.0021327	-.003586
Stddev	.0007163	.73644	.0006216	.8802	.0001689	.000124
%RSD	3.306427	.8061485	6.011363	.3722816	7.919697	3.446490
#1	.0224635	90.54471	.0099061	237.3933	.0020308	-.003445
#2	.0210793	91.98596	.0100619	235.6624	.0023277	-.003641
#3	.0214514	91.52825	.0110521	236.2496	.0020396	-.003673
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.062695	.0023137	.0135384	-.031269	F -.174741	-.000411
Stddev	.002365	.0020845	.0001998	.007006	.004285	.000322
%RSD	3.772672	90.09447	1.475482	22.40678	2.451932	78.38924
#1	-.064279	.0043760	.0136012	-.035993	-.179566	-.000094
#2	-.059976	.0023575	.0136993	-.034594	-.173279	-.000738
#3	-.063829	.0002076	.0133148	-.023219	-.171380	-.000400

Sample Name: ICSA01 Acquired: 2/25/2025 16:15:13 Type: Unk
Method: NON EPA-6010-200.7(v2725) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004350	-.000362	.0108619	.0150072	F .0444887	-.005372
Stddev	.000845	.000060	.0080246	.0019928	.0045781	.000673
%RSD	19.42127	16.43668	73.87829	13.27901	10.29060	12.52902
#1	-.004303	-.000370	.0019723	.0165465	.0497710	-.005919
#2	-.003529	-.000418	.0130427	.0127563	.0416681	-.004620
#3	-.005217	-.000299	.0175708	.0157187	.0420269	-.005577

Elem	Sr4077
Units	ppm
Avg	.0019003
Stddev	.0007681
%RSD	40.42008
#1	.0027796
#2	.0015608
#3	.0013604

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2285.174	47652.58	9940.065	1545.947	3686.600
Stddev	6.993	249.75	48.106	9.831	8.008
%RSD	.3060159	.5241117	.4839574	.6358932	.2172165
#1	2291.706	47940.53	9885.772	1557.132	3693.862
#2	2286.019	47494.84	9977.379	1538.674	3687.927
#3	2277.796	47522.37	9957.042	1542.036	3678.012

Sample Name: ICSAB01 Acquired: 2/25/2025 16:19:31 Type: Unk
Method: NON EPA-6010-200.7(v2725) 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	.1098649	.0891269	.0556257	.0419915	.6069862	242.3587
Stddev	.0017953	.0019893	.0015934	.0015971	.0029484	1.0286
%RSD	1.634107	2.231978	2.864602	3.803366	.4857512	.4244250
#1	.1078516	.0875054	.0564847	.0433961	.6103152	241.3377
#2	.1112994	.0885285	.0566054	.0402543	.6059395	242.3436
#3	.1104436	.0913467	.0537871	.0423240	.6047040	243.3948
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4446198	.4798415	.9676569	219.9821	.5738528	.4879181
Stddev	.0010132	.0008748	.0016276	.6268	.0017571	.0003724
%RSD	.2278714	.1823078	.1682023	.2849440	.3061889	.0763313
#1	.4452359	.4795230	.9689792	220.6388	.5743957	.4881284
#2	.4451731	.4791705	.9658391	219.9174	.5718884	.4874881
#3	.4434505	.4808309	.9681523	219.3901	.5752744	.4881378
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4970914	92.92000	.4386863	234.3906	.9612949	.2170346
Stddev	.0016315	.56776	.0025948	.4532	.0008495	.0003929
%RSD	.3282097	.6110214	.5915001	.1933656	.0883732	.1810128
#1	.4989645	93.30842	.4403636	234.8998	.9622751	.2174565
#2	.4963288	93.18317	.4399979	234.2407	.9607706	.2169680
#3	.4959808	92.26840	.4356975	234.0313	.9608391	.2166793
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.074005	.4431779	1.052603	-.058769	F .7864494	1.085377
Stddev	.005359	.0016350	.001377	.003287	.0021356	.004257
%RSD	7.240830	.3689148	.1308113	5.593886	.2715479	.3921981
#1	-.074920	.4450128	1.052204	-.056055	.7868667	1.089201
#2	-.068248	.4418757	1.054135	-.062424	.7841359	1.080790
#3	-.078847	.4426453	1.051469	-.057827	.7883455	1.086141

Sample Name: ICSAB01 Acquired: 2/25/2025 16:19:31 Type: Unk
Method: NON EPA-6010-200.7(v2725) 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	1.052205	.9599970	.9804734	F .0035683	F -.017653	F -.005230
Stddev	.003937	.0039475	.0082039	.0057535	.002213	.000242
%RSD	.3741560	.4112031	.8367288	161.2404	12.53600	4.631445
#1	1.055409	.9613139	.9711291	.0038917	-.017676	-.005377
#2	1.047811	.9631178	.9864934	-.002340	-.019855	-.005362
#3	1.053397	.9555594	.9837978	.009153	-.015429	-.004950

Elem	Sr4077
Units	ppm
Avg	F -.000356
Stddev	.000380
%RSD	106.8178
#1	-.000704
#2	-.000414
#3	.000050

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2252.535	46467.38	10027.90	1486.174	3654.859
Stddev	3.821	40.81	10.55	4.246	1.717
%RSD	.1696495	.0878246	.1052263	.2856993	.0469657
#1	2248.631	46426.17	10034.32	1487.003	3653.914
#2	2252.706	46468.20	10033.65	1481.575	3653.822
#3	2256.268	46507.78	10015.72	1489.945	3656.840

Sample Name: CCV01 Acquired: 2/25/2025 16:23:39 Type: Unk
Method: NON EPA-6010-200.7(v2725) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.897939	5.030188	4.873251	4.850749	4.919933	9.817764	9.096900
Stddev	.012020	.082674	.011159	.002236	.005974	.008465	.026682
%RSD	.2454094	1.643562	.2289776	.0461021	.1214167	.0862181	.2933042
#1	4.909400	4.940783	4.872478	4.853079	4.925920	9.811378	9.100798
#2	4.898988	5.045906	4.884775	4.848620	4.919908	9.827365	9.121419
#3	4.885428	5.103875	4.862498	4.850548	4.913972	9.814548	9.068484
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2314512	2.417873	23.57649	1.021762	2.408805	1.230486	5.111295
Stddev	.0009930	.002693	.04325	.004603	.005459	.001676	.007531
%RSD	.4290441	.1113669	.1834374	.4504941	.2266182	.1362091	.1473438
#1	.2320042	2.416111	23.52674	1.026695	2.406678	1.232002	5.107481
#2	.2320447	2.420973	23.60519	1.021011	2.415007	1.230769	5.119970
#3	.2303048	2.416536	23.59753	1.017582	2.404730	1.228686	5.106433
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.314925	23.56967	2.407670	1.260888	24.16403	2.386517	2.530903
Stddev	.003037	.09399	.003741	.004814	.04027	.010446	.007321
%RSD	.1311781	.3987831	.1553757	.3817847	.1666646	.4376926	.2892481
#1	2.311628	23.46119	2.406350	1.265551	24.17925	2.375704	2.531985
#2	2.317608	23.62093	2.411892	1.261177	24.11837	2.387296	2.537622
#3	2.315538	23.62690	2.404767	1.255937	24.19447	2.396552	2.523102
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	25.11882	4.502718	4.986321	4.868781	4.687713	5.262607	4.787330
Stddev	.05326	.015587	.006921	.005115	.002335	.019803	.010035
%RSD	.2120213	.3461651	.1388002	.1050565	.0498136	.3762913	.2096062
#1	25.17997	4.510737	4.984460	4.866767	4.690409	5.241504	4.777184
#2	25.09391	4.512664	4.993983	4.874597	4.686335	5.265536	4.797249
#3	25.08258	4.484755	4.980521	4.864980	4.686394	5.280783	4.787557

Sample Name: CCV01 Acquired: 2/25/2025 16:23:39 Type: Unk
Method: NON EPA-6010-200.7(v2725) 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	4.735753	4.587102	4.729856		
Stddev	.019064	.008266	.021190		
%RSD	.4025480	.1802110	.4479956		
#1	4.713962	4.580553	4.753110		
#2	4.743948	4.584362	4.711639		
#3	4.749349	4.596391	4.724819		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2467.274	51159.89	10669.05	1627.395	4102.889
Stddev	11.390	215.01	37.60	3.534	14.910
%RSD	.4616275	.4202737	.3524184	.2171371	.3633928
#1	2459.358	51004.16	10650.22	1624.228	4097.812
#2	2462.136	51070.30	10644.59	1626.752	4091.181
#3	2480.327	51405.21	10712.34	1631.206	4119.674

Sample Name: CCB01 Acquired: 2/25/2025 16:27:50 Type: Unk
Method: NON EPA-6010-200.7(v2725) 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	-.000390	-.000732	-.000373	-.001652	-.001161	.0016299	-.000702
Stddev	.001009	.002842	.000451	.002546	.001364	.0045229	.000282
%RSD	258.5467	388.0522	120.8976	154.0977	117.4790	277.4875	40.15179
#1	-.001539	-.003736	.000129	-.004298	.000283	-.001761	-.000436
#2	.000353	-.000375	-.000505	.000781	-.002427	.006765	-.000997
#3	.000015	.001914	-.000742	-.001440	-.001339	-.000115	-.000673
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000431	.0000020	-.010562	.0000154	-.000107	-.000109	-.005522
Stddev	.0000129	.0001243	.011236	.0002304	.000026	.000228	.004813
%RSD	29.90812	6163.011	106.3794	1492.064	24.39172	208.4849	87.16484
#1	.0000466	-.000131	-.012709	-.000090	-.000131	-.000357	-.000755
#2	.0000288	.000115	.001592	.000280	-.000110	.000092	-.005430
#3	.0000538	.000022	-.020569	-.000144	-.000079	-.000064	-.010381
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000110	-.009945	-.000116	.0005597	-.125971	.0000677	-.000521
Stddev	.000133	.004624	.000169	.0001154	.006109	.0013743	.000398
%RSD	121.5013	46.49195	145.9455	20.61396	4.849308	2028.789	76.41872
#1	-.000204	-.005460	-.000244	.0006762	-.132067	-.000244	-.000133
#2	-.000167	-.009679	.000076	.0004455	-.119850	.001571	-.000928
#3	.000043	-.014695	-.000180	.0005575	-.125995	-.001124	-.000501
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.068184	.0106735	.0003728	.0004398	.0003425	.0029890	-.002950
Stddev	.013716	.0003102	.0002123	.0004915	.0001811	.0064434	.002682
%RSD	20.11691	2.906099	56.93190	111.7555	52.88324	215.5733	90.91253
#1	-.076169	.0108222	.0005756	.0007555	.0005511	.0072758	-.005850
#2	-.076037	.0108813	.0001522	-.000126	.0002264	.0061119	-.002440
#3	-.052345	.0103169	.0003906	.000690	.0002499	-.004421	-.000560

Sample Name: CCB01 Acquired: 2/25/2025 16:27:50 Type: Unk
Method: NON EPA-6010-200.7(v2725) 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	-.001448	-.006854	.0000535		
Stddev	.001118	.000744	.0000201		
%RSD	77.21102	10.85640	37.62650		
#1	-.001564	-.007406	.0000758		
#2	-.000277	-.007150	.0000366		
#3	-.002503	-.006008	.0000481		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2541.786	54083.14	10438.52	1744.948	4371.868
Stddev	5.808	139.70	33.92	7.048	3.895
%RSD	.2285099	.2583018	.3249647	.4039343	.0890839
#1	2535.148	54233.66	10402.89	1740.401	4367.371
#2	2544.274	53957.65	10442.26	1741.375	4374.189
#3	2545.935	54058.10	10470.42	1753.067	4374.043

Sample Name: PB166715BL Acquired: 2/25/2025 16:32:11 Type: Unk
Method: NON EPA-6010-200.7(v2725) 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	-.001124	-.000480	-.000248	-.001391	-.000324	.0022390	-.000798
Stddev	.001018	.000660	.000744	.002548	.000408	.0065041	.000634
%RSD	90.54606	137.3340	299.5451	183.0954	126.1189	290.4901	79.47375
#1	-.000362	.000184	-.000536	.001549	-.000686	-.001818	-.000221
#2	-.000730	-.001136	.000597	-.002942	.000119	-.001206	-.001476
#3	-.002281	-.000489	-.000806	-.002781	-.000404	.009741	-.000696
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000257	-.000044	-.007535	.0000697	-.000285	-.000036	-.005839
Stddev	.0000229	.000026	.006458	.0004728	.000076	.000076	.001641
%RSD	89.08481	58.80450	85.71163	678.1542	26.54164	212.4354	28.10654
#1	.0000255	-.000014	-.007671	.0006107	-.000260	-.000023	-.007364
#2	.0000487	-.000060	-.013923	-.000137	-.000225	-.000117	-.006049
#3	.0000029	-.000057	-.001009	-.000264	-.000370	.000033	-.004102
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000041	.0052715	.0000576	.0000543	-.136765	.0007924	-.000299
Stddev	.000232	.0067088	.0004256	.0002655	.010664	.0006111	.000203
%RSD	558.2484	127.2642	739.2519	488.7791	7.797488	77.11449	67.85561
#1	.000112	-.002353	.0003037	.0002632	-.148606	.0001466	-.000373
#2	-.000308	.007899	.0003028	-.000244	-.127919	.0013615	-.000069
#3	.000071	.010269	-.000434	.000144	-.133768	.0008691	-.000454
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.092008	.0049844	.0001613	-.000034	.0005201	-.000857	-.002270
Stddev	.014808	.0007546	.0001348	.000764	.0002113	.002267	.001493
%RSD	16.09404	15.13859	83.57740	2271.191	40.62884	264.5284	65.78290
#1	-.084836	.0042893	.0001005	-.000343	.0004056	-.001626	-.003001
#2	-.109037	.0048769	.0000676	.000837	.0007640	.001695	-.003256
#3	-.082152	.0057869	.0003158	-.000594	.0003908	-.002640	-.000552

Sample Name: PB166715BL Acquired: 2/25/2025 16:32:11 Type: Unk
Method: NON EPA-6010-200.7(v2725) 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	-.001795	-.006712	-.000020		
Stddev	.004003	.001019	.000050		
%RSD	222.9395	15.17758	242.2746		
#1	-.002354	-.006926	-.000070		
#2	.002457	-.005603	-.000020		
#3	-.005489	-.007606	.000029		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2534.394	52762.50	10460.58	1717.798	4363.551
Stddev	6.864	181.55	9.77	4.179	9.845
%RSD	.2708287	.3440911	.0933869	.2432542	.2256188
#1	2532.821	52939.34	10471.54	1721.972	4359.048
#2	2541.908	52576.58	10452.80	1713.615	4374.842
#3	2528.454	52771.59	10457.39	1717.809	4356.763

Sample Name: PB166715BS Acquired: 2/25/2025 16:48:04 Type: Unk
Method: NON EPA-6010-200.7(v2726) 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	.7969263	2.022440	.9644803	1.916180	.7934466	1.888876
Stddev	.0002789	.011685	.0042090	.003663	.0004653	.010612
%RSD	.0349985	.5777807	.4363987	.1911560	.0586478	.5617909
#1	.7971415	2.022876	.9632428	1.911961	.7933886	1.885051
#2	.7966112	2.033902	.9610287	1.918546	.7930130	1.880708
#3	.7970260	2.010543	.9691692	1.918034	.7939382	1.900870
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2012253	.1811257	.1906548	.9343497	.4068153	.1897427
Stddev	.0010212	.0005342	.0002576	.0106658	.0010958	.0001496
%RSD	.5074878	.2949301	.1350859	1.141523	.2693686	.0788302
#1	.2002121	.1816395	.1907349	.9266675	.4068723	.1898000
#2	.2012096	.1811644	.1903668	.9465273	.4078814	.1895730
#3	.2022543	.1805732	.1908629	.9298543	.4056920	.1898552
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3016128	2.963711	.2164533	1.779845	.4752142	.0758750
Stddev	.0010310	.010176	.0002897	.010604	.0006365	.0001221
%RSD	.3418291	.3433610	.1338313	.5957855	.1339337	.1609740
#1	.3020192	2.952297	.2163930	1.775106	.4755157	.0759506
#2	.3004405	2.971837	.2161985	1.791992	.4744830	.0757341
#3	.3023787	2.966997	.2167684	1.772436	.4756439	.0759404
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.013380	.2740673	.2053519	9.458384	.2540420	.3980120
Stddev	.030003	.0020988	.0013304	.048078	.0006782	.0003622
%RSD	.9956495	.7658118	.6478657	.5083058	.2669494	.0910062
#1	2.995887	.2724265	.2048573	9.403778	.2547922	.3984160
#2	2.996229	.2764323	.2068588	9.494351	.2538612	.3979038
#3	3.048024	.2733429	.2043396	9.477023	.2534725	.3977163

Sample Name: PB166715BS Acquired: 2/25/2025 16:48:04 Type: Unk
Method: NON EPA-6010-200.7(v2726) 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	.6645672	.1805059	.8338733	5.562094	F -.008126	.1749619
Stddev	.0020374	.0010308	.0039911	.006782	.000672	.0009176
%RSD	.3065725	.5710635	.4786197	.1219332	8.268963	.5244621
#1	.6664698	.1805433	.8299357	5.569869	-.008608	.1739032
#2	.6624176	.1794569	.8337685	5.559020	-.007358	.1754532
#3	.6648144	.1815175	.8379158	5.557395	-.008411	.1755291

Elem	Sr4077
Units	ppm
Avg	.1796819
Stddev	.0008603
%RSD	.4787754
#1	.1787597
#2	.1798232
#3	.1804628

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2498.832	52176.48	10984.51	1681.197	4285.824
Stddev	3.908	61.07	28.59	10.020	7.421
%RSD	.1564130	.1170422	.2603191	.5959895	.1731487
#1	2494.467	52144.22	10951.70	1690.800	4278.361
#2	2502.007	52138.30	10997.75	1670.807	4293.202
#3	2500.023	52246.91	11004.09	1681.985	4285.909

Sample Name: CCV02 Acquired: 2/25/2025 16:54:05 Type: Unk
Method: NON EPA-6010-200.7(v2727) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV07 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.891325	5.061355	4.837733	4.820566	4.944982	9.742768	9.059400
Stddev	.015901	.060807	.009154	.007174	.006724	.017927	.083415
%RSD	.3250938	1.201406	.1892108	.1488309	.1359824	.1839986	.9207591
#1	4.880104	4.996749	4.829335	4.812776	4.938610	9.747861	9.094106
#2	4.909522	5.069845	4.847490	4.822017	4.952010	9.722846	8.964235
#3	4.884348	5.117471	4.836374	4.826903	4.944327	9.757598	9.119859
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2349621	2.380443	23.08522	1.005183	2.373651	1.230132	4.695451
Stddev	.0010428	.003841	.01558	.003068	.003532	.001905	.041331
%RSD	.4438161	.1613569	.0674939	.3051985	.1487999	.1548874	.8802301
#1	.2340876	2.379133	23.07059	1.007045	2.372063	1.228682	4.691911
#2	.2346824	2.384767	23.08345	1.006862	2.377699	1.232290	4.738439
#3	.2361162	2.377427	23.10160	1.001642	2.371193	1.229424	4.656005
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.689633	22.85636	2.368122	1.246554	23.21389	2.324516	2.499467
Stddev	.008652	.07195	.002717	.003232	.17112	.005909	.006416
%RSD	.3216941	.3148026	.1147383	.2592468	.7371282	.2542238	.2566830
#1	2.681027	22.80312	2.366699	1.249722	23.28359	2.331163	2.501659
#2	2.698332	22.82774	2.371255	1.246677	23.33916	2.319855	2.492243
#3	2.689539	22.93822	2.366412	1.243262	23.01893	2.322531	2.504499
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.34639	4.528130	4.955555	4.810574	4.602578	4.964025	4.807399
Stddev	.06738	.017432	.005879	.003971	.000087	.030430	.013381
%RSD	.2767385	.3849648	.1186258	.0825406	.0018793	.6130120	.2783344
#1	24.35494	4.518207	4.950116	4.807805	4.602675	4.957319	4.792044
#2	24.40908	4.517925	4.961792	4.815123	4.602511	4.997249	4.813590
#3	24.27515	4.548258	4.954759	4.808793	4.602547	4.937508	4.816562

Sample Name: CCV02 Acquired: 2/25/2025 16:54:05 Type: Unk
Method: NON EPA-6010-200.7(v2727) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV07 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.736326	4.606285	4.690000
Stddev	.012655	.004504	.027962
%RSD	.2671807	.0977769	.5962080
#1	4.721751	4.603009	4.657728
#2	4.742715	4.611421	4.705260
#3	4.744512	4.604426	4.707011

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2442.559	51221.77	10330.93	1618.596	4066.743
Stddev	5.980	188.02	23.81	8.183	8.995
%RSD	.2448222	.3670724	.2304356	.5055738	.2211912
#1	2443.271	51031.16	10328.30	1609.504	4070.103
#2	2436.255	51227.06	10355.95	1625.370	4056.551
#3	2448.151	51407.09	10308.56	1620.914	4073.574

Sample Name: CCB02 Acquired: 2/25/2025 16:58:14 Type: Unk
Method: NON EPA-6010-200.7(v2727) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB07 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000470	-.002613	-.000808	.0006377	-.000495	.0012253	-.003069
Stddev	.001485	.001177	.000808	.0027049	.000655	.0059714	.000764
%RSD	315.9728	45.05157	99.96916	424.1399	132.3642	487.3603	24.88346
#1	.001168	-.002923	-.001196	-.002406	-.000573	.0018438	-.002216
#2	-.000851	-.001312	-.001348	.001554	.000196	-.005031	-.003689
#3	-.001727	-.003604	.000121	.002766	-.001107	.006863	-.003302
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000593	-.000009	-.013226	.0004348	-.000163	-.000017	-.009545
Stddev	.0000618	.000086	.009086	.0002092	.000004	.000191	.004432
%RSD	104.1692	988.9623	68.69613	48.10579	2.369792	1151.131	46.43239
#1	.0000326	.000067	-.013678	.0004737	-.000160	.000054	-.004688
#2	.0001300	-.000102	-.022078	.0002089	-.000161	.000129	-.013369
#3	.0000154	.000009	-.003923	.0006218	-.000167	-.000233	-.010577
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000023	-.000065	.0000546	.0008087	-.151052	.0004360	-.000502
Stddev	.000112	.015401	.0000534	.0003312	.001516	.0003185	.000166
%RSD	488.3205	23802.52	97.79102	40.95143	1.003797	73.06287	32.98511
#1	-.000132	-.004464	.0000226	.0010706	-.151880	.0002116	-.000380
#2	-.000029	.017057	.0000249	.0004364	-.151974	.0002958	-.000436
#3	.000092	-.012787	.0001162	.0009192	-.149302	.0008005	-.000690
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.096897	.0076637	.0002579	-.000081	.0006023	.0075506	-.001724
Stddev	.004121	.0005030	.0003680	.000786	.0005891	.0082543	.000562
%RSD	4.252634	6.563355	142.7118	968.8895	97.79915	109.3198	32.59412
#1	-.099254	.0078971	.0005318	-.000656	.0005811	-.001980	-.002366
#2	-.092139	.0070864	-.000160	-.000403	.0012017	.012261	-.001318
#3	-.099298	.0080077	.000402	.000815	.0000241	.012372	-.001490

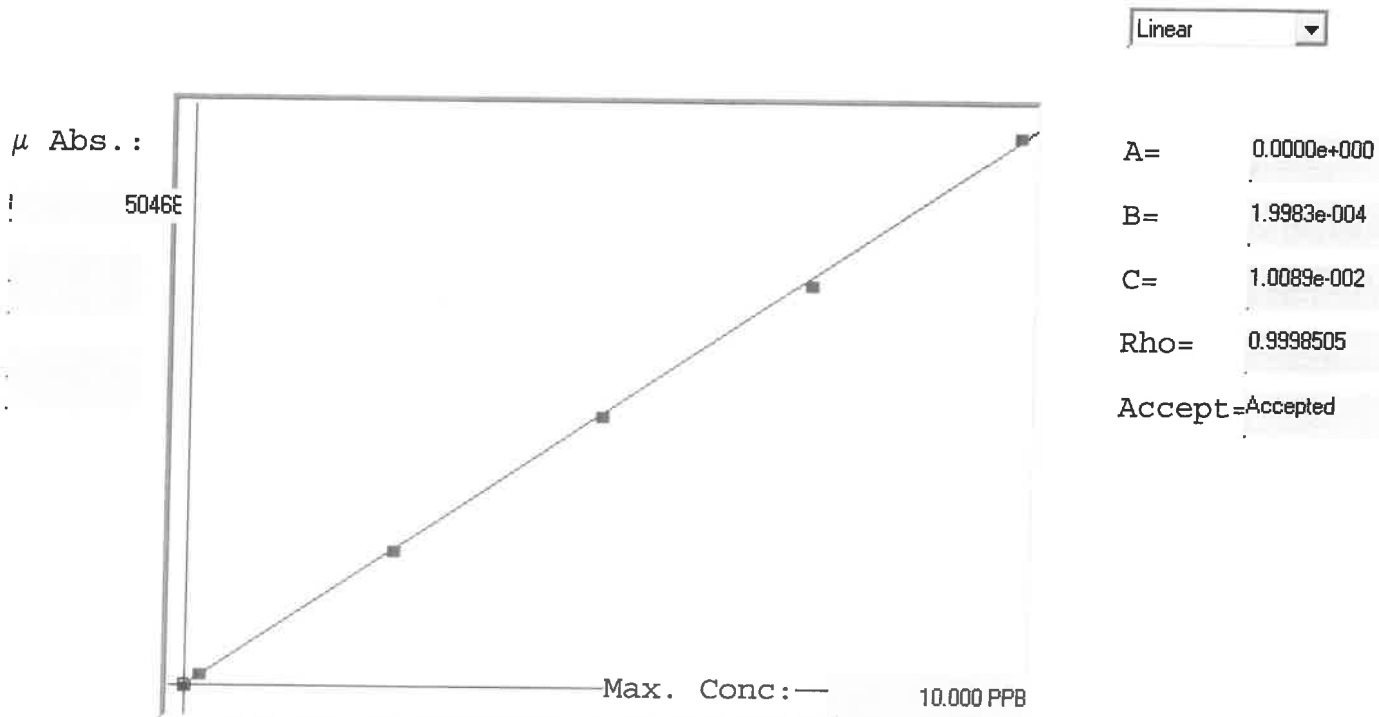
Sample Name: CCB02 Acquired: 2/25/2025 16:58:14 Type: Unk
Method: NON EPA-6010-200.7(v2727) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB07 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077		
Units	ppm	ppm	ppm		
Avg	-.001147	-.007169	.0000995		
Stddev	.004732	.000886	.0000152		
%RSD	412.4833	12.35562	15.26195		
#1	.003758	-.007415	.0001046		
#2	-.001515	-.006186	.0001116		
#3	-.005684	-.007905	.0000825		
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2510.064	52544.57	10678.16	1674.934	4356.350
Stddev	3.108	199.80	30.87	7.103	5.527
%RSD	.1238129	.3802447	.2890685	.4240574	.1268663
#1	2513.459	52318.52	10650.92	1673.609	4361.615
#2	2509.374	52617.67	10671.88	1668.587	4356.841
#3	2507.359	52697.53	10711.69	1682.605	4350.594

LB134719

7470A

INSTRUMENT ID: CV1



Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	%D
0.0	0.000	0.027	0.027	83	0.000	83	0				-
0.2	0.200	0.221	0.021	1056	0.0 %	1056					11
2.5	2.500	2.488	-0.012	12400	0.0 %	12400					0
5.0	5.000	4.987	-0.013	24907	0.0 %	24907					0
7.5	7.500	7.382	-0.118	36891	0.0 %	36891					0
10.0	10.000	10.095	0.095	50468	0.0 %	50468					-2

LB134719 INSTRUMENT ID : CV1

Method: 7470A

Operator: Admin

Date of Analysis: 14 Feb 2025 10:34:11

Sample ID	Extended ID	μ Abs.	Conc.	Std Conc	Method	Units	Date	Type	Type
0.0 - 1	20	83	-	0.0000	7470A	PPB	14 Feb 2025 10:45:22	S	Std
0.2 - 1	50-2	1056	-	0.2000	7470A	PPB	14 Feb 2025 10:47:39	S	Std
2.5 - 1	52-5	12400	-	2.5000	7470A	PPB	14 Feb 2025 10:49:56	S	Std
5.0 - 1	55	24907	-	5.0000	7470A	PPB	14 Feb 2025 10:52:13	S	Std
7.5 - 1	57-5	36891	-	7.5000	7470A	PPB	14 Feb 2025 10:54:30	S	Std
10.0 - 1	510	50468	-	10.0000	7470A	PPB	14 Feb 2025 10:56:49	S	Std
ICV05 - 1	ICV05	18102	3.6274	-	7470A	PPB	14 Feb 2025 11:01:31	U	SMPL
ICB05 - 1	ICB05	-164	-0.0227	-	7470A	PPB	14 Feb 2025 11:03:45	U	SMPL
CCV72 - 1	CCV72	25057	5.0172	-	7470A	PPB	14 Feb 2025 11:06:02	U	SMPL
CCB72 - 1	CCB72	-251	-0.0401	-	7470A	PPB	14 Feb 2025 11:08:17	U	SMPL
CRA - 1	CRA	998	0.2095	-	7470A	PPB	14 Feb 2025 11:10:34	U	SMPL
HighStd - 1	HighStd	50283	10.0581	-	7470A	PPB	14 Feb 2025 11:12:49	U	SMPL
ChkStd - 1	ChkStd	32716	6.5477	-	7470A	PPB	14 Feb 2025 11:15:05	U	SMPL
PB166720BL - 1	PBW	-426	-0.0750	-	7470A	PPB	14 Feb 2025 11:17:24	U	SMPL
PB166720BS - 1	LCSW	17970	3.6010	-	7470A	PPB	14 Feb 2025 11:22:21	U	SMPL
Q1352-02 - 1	TAP-IDW-SOIL-021025	-237	-0.0373	-	7470A	PPB	14 Feb 2025 11:24:37	U	SMPL
Q1353-02 - 1	346	-18	0.0065	-	7470A	PPB	14 Feb 2025 11:26:55	U	SMPL
Q1356-01 - 1	CARBON-SOLID	52	0.0205	-	7470A	PPB	14 Feb 2025 11:29:12	U	SMPL
Q1356-03 - 1	SOIL-PILE	78	0.0257	-	7470A	PPB	14 Feb 2025 11:31:30	U	SMPL
Q1356-03DUP - 1	SOIL-PILEDUP	77	0.0255	-	7470A	PPB	14 Feb 2025 11:33:45	U	SMPL
CCV73 - 1	CCV73	24015	4.8090	-	7470A	PPB	14 Feb 2025 11:36:00	U	SMPL
CCB73 - 1	CCB73	-317	-0.0533	-	7470A	PPB	14 Feb 2025 11:38:16	U	SMPL
Q1356-03MS - 1	SOIL-PILEMS	16008	3.2089	-	7470A	PPB	14 Feb 2025 11:40:33	U	SMPL
Q1356-03MSD - 1	SOIL-PILEMSD	16495	3.3063	-	7470A	PPB	14 Feb 2025 11:45:48	U	SMPL
PB166721BL - 1	PBW	-166	-0.0231	-	7470A	PPB	14 Feb 2025 11:48:04	U	SMPL
PB166721BS - 1	LCSW	17840	3.5750	-	7470A	PPB	14 Feb 2025 11:50:21	U	SMPL
Q1356-04 - 1	CARBON-WATER	-204	-0.0307	-	7470A	PPB	14 Feb 2025 11:52:38	U	SMPL
Q1356-04DUP - 1	CARBON-WATERDUP	167	0.0435	-	7470A	PPB	14 Feb 2025 11:54:57	U	SMPL
Q1356-04MS - 1	CARBON-WATERMS	14650	2.9376	-	7470A	PPB	14 Feb 2025 11:57:14	U	SMPL
Q1356-04MSD - 1	CARBON-WATERMSD	14684	2.9444	-	7470A	PPB	14 Feb 2025 11:59:33	U	SMPL
Q1356-05 - 1	CARBON-FB	-23	0.0055	-	7470A	PPB	14 Feb 2025 12:01:52	U	SMPL
Q1356-06 - 1	WATER-A	341	0.0782	-	7470A	PPB	14 Feb 2025 12:04:10	U	SMPL
CCV74 - 1	CCV74	23694	4.7448	-	7470A	PPB	14 Feb 2025 12:06:25	U	SMPL
CCB74 - 1	CCB74	-262	-0.0423	-	7470A	PPB	14 Feb 2025 12:08:41	U	SMPL
Q1356-07 - 1	WATER-B	387	0.0874	-	7470A	PPB	14 Feb 2025 12:10:59	U	SMPL
Q1356-08 - 1	WATER-FB	417	0.0934	-	7470A	PPB	14 Feb 2025 12:13:14	U	SMPL
Q1356-09 - 1	SOIL-FB	58	0.0217	-	7470A	PPB	14 Feb 2025 12:15:29	U	SMPL
PB166700TB - 1		110	0.0321	-	7470A	PPB	14 Feb 2025 12:17:45	U	SMPL
PB166702TB - 1		61	0.0223	-	7470A	PPB	14 Feb 2025 12:20:01	U	SMPL
Q1356-03LX5 - 1		59	0.0219	-	7470A	PPB	14 Feb 2025 12:22:17	U	SMPL
Q1356-03A - 1		15516	3.1106	-	7470A	PPB	14 Feb 2025 12:24:33	U	SMPL
Q1356-04LX5 - 1		-148	-0.0195	-	7470A	PPB	14 Feb 2025 12:29:32	U	SMPL
Q1356-04A - 1		15958	3.1990	-	7470A	PPB	14 Feb 2025 12:31:50	U	SMPL
CCV75 - 1	CCV75	24142	4.8344	-	7470A	PPB	14 Feb 2025 12:36:41	U	SMPL
CCB75 - 1	CCB75	-345	-0.0589	-	7470A	PPB	14 Feb 2025 12:38:59	U	SMPL

SOP ID : M3010A-Digestion-17

SDG No : N/A

Matrix : WATER

Pipette ID: ICP A

Balance ID : N/A

Filter paper ID : N/A

pH Strip ID : M6069

Hood ID : #3

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

Start Digest Date: 02/13/2025 **Time :** 12:05 **Temp :** 96 °C

End Digest Date: 02/13/2025 **Time :** 15:10 **Temp :** 96 °C

Digestion tube ID: M5595

Block thermometer ID: MET-DIG. #1

Dig Technician Signature: SLD

Supervisor Signature: MB

Temp : 1. 96°C 2. N/A

Standardized Name	MLS USED	STD REF. # FROM LOG
LFS-1	0.25	M6002
LFS-1	0.25	M6011
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
Conc. HNO3	3.00	M6126
1:1 HCL	5.00	MP84297
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

HOT BLOCK # 1 CELL 55 Temp :96 C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
02/13/25 16:10	SLD. met. dig.	MB. metal lab
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	pH	Initial Vol (ml)	Final Vol (ml)	Color Before	Color After	Clarity Before	Clarity After	Comment	Prep Pos
PB166700TB	PB166700TB	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	1
PB166702TB	PB166702TB	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	2
PB166715BL	PBW715	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	3
PB166715BS	LCS715	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	4
Q1288-08	HR-04-020425	<2	5	25	Colorless	Colorless	Clear	Clear	M6002,M6011	5
Q1352-02	TAP-IDW-SOIL-021025	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	6
Q1353-02	346	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	7
Q1356-01	CARBON-SOLID	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	8
Q1356-03	SOIL-PILE	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	9
Q1356-04	CARBON-WATER	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	10
Q1356-04DUP	CARBON-WATERDUP	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	11
Q1356-04MS	CARBON-WATERMS	<2	5	25	Colorless	Colorless	Clear	Clear	M6002,M6011	12
Q1356-04MSD	CARBON-WATERMSD	<2	5	25	Colorless	Colorless	Clear	Clear	M6002,M6011	13
Q1356-05	CARBON-FB	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	14
Q1356-06	WATER-A	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	15
Q1356-07	WATER-B	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	16
Q1356-08	WATER-FB	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	17
Q1356-09	SOIL-FB	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	18

TCLP EXTRACTION LOGPAGE

PB166700

Sample ID	ClientID	TCLP Vessel ID	Sample Wt (g)	Volume Extraction Fluid #1 (mL)	Multi phasic	Phase Miscible	Phases Combined	Final Leachate PH	Metals Leachate Adj. PH	P
PB166700TB	LEB700	06	N/A	2000	N/A	N/A	N/A	4.94	1.5	T-1
Q1288-08	HR-04-020425	01	100.02	2000	N/A	N/A	N/A	6.2	1.0	T-1
Q1352-02	TAP-IDW-SOIL-021025	02	100.03	2000	N/A	N/A	N/A	8.2	1.5	T-1
Q1353-02	346	03	100.02	2000	N/A	N/A	N/A	3.0	1.0	T-1
Q1356-01	CARBON-SOLID	04	100.03	2000	N/A	N/A	N/A	5.6	1.5	T-1
Q1356-03	SOIL-PILE	05	100.04	2000	N/A	N/A	N/A	6.0	1.0	T-1

Sample ID	ClientID	TCLP Vessel ID	Sample Wt (g)	Volume Extraction Fluid #1 (mL)	Multi phasic	Phase Miscible	Phases Combined	Final Leachate PH	Metals Leachate Adj. PH	Pre-Pos
PB166702TB	LEB702	N/A	N/A	N/A	N/A	N/A	N/A	4.94	1.0	N/A
Q1356-04	CARBON-WATER	N/A	N/A	N/A	N/A	N/A	N/A	7.0	1.0	N/A
Q1356-05	CARBON-FB	N/A	N/A	N/A	N/A	N/A	N/A	6.0	1.5	N/A
Q1356-06	WATER-A	N/A	N/A	N/A	N/A	N/A	N/A	6.6	1.0	N/A
Q1356-07	WATER-B	N/A	N/A	N/A	N/A	N/A	N/A	7.6	1.5	N/A
Q1356-08	WATER-FB	N/A	N/A	N/A	N/A	N/A	N/A	6.6	1.0	N/A
Q1356-09	SOIL-FB	N/A	N/A	N/A	N/A	N/A	N/A	6.2	1.5	N/A

SOP ID : M7470A-Mercury-19

SDG No : NA

Matrix : WATER

Pipette ID: HG A

Balance ID : N/A

Filter paper ID : NA

pH Strip ID : M6069

Hood ID : #1

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

Start Digest Date: 02/13/2025 Time : 11:25 Temp : 94 °C

End Digest Date: 02/13/2025 Time : 13:25 Temp : 95 °C

Digestion tube ID: M5595

Block thermometer ID: HG-DIG#3

Dig Technician Signature: *MB*

Supervisor Signature: *12*

Temp : 1. 94°C 2. N/A

Standard Name	MLS USED	STD REF. # FROM LOG
ICV	30mL	MP845
CCV	30mL	MP84504
CRA	30mL	MP84506
Blank Spike	N/A	MP84494
Matrix Spike	0.48mL	MP84494

Chemical Used	ML/SAMPLE USED	Lot Number
HNO3/H2SO4(1:2)	2.5mL	MP83691
KMnO4 (5%)	4.5mL	MP83692
K2S2O8 (5%)	2.5mL	MP83693
Hydroxylamine HCL (12%)	2.0mL	MP83694
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	MP84495
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	30mL	MP84497
2.5 ppb	S2.5	30mL	MP84498
5.0 ppb	S5.0	30mL	MP84499
7.5 ppb	S7.5	30mL	MP84500
10.0 ppb	S10.0	30mL	MP84501
ICV	ICV	30mL	MP84502
ICB	ICB	30mL	MP84503
CCV	CCV	30mL	MP84504
CCB	CCB	30mL	MP84505
CRI	CRI	30mL	MP84506
CHK STD	CHK STD	30mL	MP84507

Extraction Conformance/Non-Conformance Comments:

N/A		
Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
2/13/2025 13:50	<i>MB - DIG. Lab</i>	<i>MB - ANAL. Lab</i>
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Comment	Prep Pos
PB166700TB	PB166700TB	3	30	<2	N/A	3-1
PB166720BL	PBW720	30	30	<2	N/A	2
PB166720BS	LCS720	30	30	<2	MP84494	3
Q1352-02	TAP-IDW-SOIL-021025	3	30	<2	N/A	4
Q1353-02	346	3	30	<2	N/A	5
Q1356-01	CARBON-SOLID	3	30	<2	N/A	6
Q1356-03	SOIL-PILE	3	30	<2	N/A	7
Q1356-03DUP	SOIL-PILEDUP	3	30	<2	N/A	8
Q1356-03MS	SOIL-PILEMS	3	30	<2	MP84494	9
Q1356-03MSD	SOIL-PILEMSD	3	30	<2	MP84494	10

SOP ID : M1311-TCLP-15

SDG No : N/A

Welgh By : JP

Balance ID : WC SC-7

pH Meter ID : WC PH METER-1

Extraction By : JP

Filter By : JP

Pippete ID : WC

Tumbler ID : T-1

TCLP Filter ID : 115525

Start Prep Date : 02/12/2025 Time : 14:00

End Prep Date : 02/13/2025 Time : 07:15

Combination Ratio : 20

ZHE Cleaning Batch : 18 N/A

Initial Room Temperature: 23 °C

Final Room Temperature: 22 °C

TCLP Technician Signature : *so*

Supervisor By : *12*

Standard Name	MLS USED	STD REF. # FROM LOG
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

Chemical Used	ML/SAMPLE U	Lot Number
TCLP-FLUID-1	N/A	WP110801
HCL-TCLP,1N	N/A	WP110803
HNO3-TCLP,1N	N/A	WP110804
pH Strips	N/A	W1931,W1934,W3171,W3172
pH Strips	W1941,W1942	W3166,W1938,W1939,W1940,
1 Liter Amber	N/A	90424-08
120ml Plastic bottle	N/A	405130101
1:1 HNO3	N/A	MP84041

Extraction Conformance/Non-Conformance Comments:

Matrix spikes are added after filtration and before preservation. TUMBLER T-1 checked,30 rpm. Partial size reduction in not required. p1356-03 is used for MS-MSD.

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
02/13/25 08:30	<i>so</i> / TCLP Room	<i>so</i> / Ext
	Preparation Group	Analysis Group <i>met dig</i>

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB134719

Review By	Mohan	Review On	2/18/2025 11:32:33 AM
Supervise By	kareem	Supervise On	2/18/2025 11:54:38 AM

STD. NAME	STD REF.#
ICAL Standard	MP84495,MP84497,MP84498,MP84499,MP84500,MP84501
ICV Standard	MP84502
CCV Standard	MP84504
ICSA Standard	
CRI Standard	MP84506
LCS Standard	
Chk Standard	MP84503,MP84505,MP84507,MP84529

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	02/14/25 10:45		Mohan	OK
2	S0.2	S0.2	CAL2	02/14/25 10:47		Mohan	OK
3	S2.5	S2.5	CAL3	02/14/25 10:49		Mohan	OK
4	S5	S5	CAL4	02/14/25 10:52		Mohan	OK
5	S7.5	S7.5	CAL5	02/14/25 10:54		Mohan	OK
6	S10	S10	CAL6	02/14/25 10:56		Mohan	OK
7	ICV05	ICV05	ICV	02/14/25 11:01		Mohan	OK
8	ICB05	ICB05	ICB	02/14/25 11:03		Mohan	OK
9	CCV72	CCV72	CCV	02/14/25 11:06		Mohan	OK
10	CCB72	CCB72	CCB	02/14/25 11:08		Mohan	OK
11	CRA	CRA	CRDL	02/14/25 11:10		Mohan	OK
12	HighStd	HighStd	HIGH STD	02/14/25 11:12		Mohan	OK
13	ChkStd	ChkStd	SAM	02/14/25 11:15		Mohan	OK
14	PB166720BL	PB166720BL	MB	02/14/25 11:17		Mohan	OK
15	PB166720BS	PB166720BS	LCS	02/14/25 11:22		Mohan	OK
16	Q1352-02	TAP-IDW-SOIL-02102	SAM	02/14/25 11:24		Mohan	OK
17	Q1353-02	346	SAM	02/14/25 11:26		Mohan	OK
18	Q1356-01	CARBON-SOLID	SAM	02/14/25 11:29		Mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB134719

Review By	Mohan	Review On	2/18/2025 11:32:33 AM
Supervise By	kareem	Supervise On	2/18/2025 11:54:38 AM

STD. NAME	STD REF.#
ICAL Standard	MP84495,MP84497,MP84498,MP84499,MP84500,MP84501
ICV Standard	MP84502
CCV Standard	MP84504
ICSA Standard	
CRI Standard	MP84506
LCS Standard	
Chk Standard	MP84503,MP84505,MP84507,MP84529

19	Q1356-03	SOIL-PILE	SAM	02/14/25 11:31		Mohan	OK
20	Q1356-03DUP	SOIL-PILEDUP	DUP	02/14/25 11:33		Mohan	OK
21	CCV73	CCV73	CCV	02/14/25 11:36		Mohan	OK
22	CCB73	CCB73	CCB	02/14/25 11:38		Mohan	OK
23	Q1356-03MS	SOIL-PILEMS	MS	02/14/25 11:40		Mohan	OK
24	Q1356-03MSD	SOIL-PILEMSD	MSD	02/14/25 11:45		Mohan	OK
25	PB166721BL	PB166721BL	MB	02/14/25 11:48		Mohan	OK
26	PB166721BS	PB166721BS	LCS	02/14/25 11:50		Mohan	OK
27	Q1356-04	CARBON-WATER	SAM	02/14/25 11:52		Mohan	OK
28	Q1356-04DUP	CARBON-WATERDUP	DUP	02/14/25 11:54		Mohan	OK
29	Q1356-04MS	CARBON-WATERMS	MS	02/14/25 11:57		Mohan	OK
30	Q1356-04MSD	CARBON-WATERMSD	MSD	02/14/25 11:59		Mohan	OK
31	Q1356-05	CARBON-FB	SAM	02/14/25 12:01		Mohan	OK
32	Q1356-06	WATER-A	SAM	02/14/25 12:04		Mohan	OK
33	CCV74	CCV74	CCV	02/14/25 12:06		Mohan	OK
34	CCB74	CCB74	CCB	02/14/25 12:08		Mohan	OK
35	Q1356-07	WATER-B	SAM	02/14/25 12:10		Mohan	OK
36	Q1356-08	WATER-FB	SAM	02/14/25 12:13		Mohan	OK
37	Q1356-09	SOIL-FB	SAM	02/14/25 12:15		Mohan	OK
38	PB166700TB	PB166700TB	MB	02/14/25 12:17		Mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB134719

Review By	Mohan	Review On	2/18/2025 11:32:33 AM
Supervise By	kareem	Supervise On	2/18/2025 11:54:38 AM

STD. NAME	STD REF.#
ICAL Standard	MP84495,MP84497,MP84498,MP84499,MP84500,MP84501
ICV Standard	MP84502
CCV Standard	MP84504
ICSA Standard	
CRI Standard	MP84506
LCS Standard	
Chk Standard	MP84503,MP84505,MP84507,MP84529

39	PB166702TB	PB166702TB	MB	02/14/25 12:20		Mohan	OK
40	Q1356-03L	SOIL-PILEL	SD	02/14/25 12:22		Mohan	OK
41	Q1356-03A	SOIL-PILEA	PS	02/14/25 12:24		Mohan	OK
42	Q1356-04L	CARBON-WATERL	SD	02/14/25 12:29		Mohan	OK
43	Q1356-04A	CARBON-WATERA	PS	02/14/25 12:31		Mohan	OK
44	CCV75	CCV75	CCV	02/14/25 12:36		Mohan	OK
45	CCB75	CCB75	CCB	02/14/25 12:38		Mohan	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134738

Review By	kareem	Review On	2/18/2025 2:00:41 PM
Supervise By	Janvi	Supervise On	2/21/2025 4:44:46 PM
STD. NAME	STD REF.#		
ICAL Standard	MP84204,MP84223,MP84224,MP84225,MP84226,MP84228		
ICV Standard	MP84446		
CCV Standard	MP84232		
ICSA Standard	MP84230,MP84231		
CRI Standard	MP84228		
LCS Standard	MP84387		
Chk Standard	MP84218,MP84219		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	02/17/25 10:53		Kareem	OK
2	S1	S1	CAL2	02/17/25 10:57		Kareem	OK
3	S2	S2	CAL3	02/17/25 11:02		Kareem	OK
4	S3	S3	CAL4	02/17/25 11:06		Kareem	OK
5	S4	S4	CAL5	02/17/25 11:10		Kareem	OK
6	S5	S5	CAL6	02/17/25 11:14		Kareem	OK
7	ICV01	ICV01	ICV	02/17/25 11:46		Kareem	OK
8	LLICV01	LLICV01	LLICV	02/17/25 11:50		Kareem	OK
9	ICB01	ICB01	ICB	02/17/25 11:56		Kareem	OK
10	CRI01	CRI01	CRDL	02/17/25 12:00		Kareem	OK
11	ICSA01	ICSA01	ICSA	02/17/25 12:05		Kareem	OK
12	ICSAB01	ICSAB01	ICSAB	02/17/25 12:09		Kareem	OK
13	CCV01	CCV01	CCV	02/17/25 12:13		Kareem	OK
14	CCB01	CCB01	CCB	02/17/25 12:17		Kareem	OK
15	Q1366-01	HD-01-2132025	SAM	02/17/25 12:23	MS/MSD fail for more than 50% parameters	Kareem	Not Ok
16	Q1366-01DUP	HD-01-2132025DUP	DUP	02/17/25 12:28	MS/MSD fail for more than 50% parameters	Kareem	Not Ok
17	Q1366-01L	HD-01-2132025L	SD	02/17/25 12:32	MS/MSD fail for more than 50% parameters	Kareem	Not Ok

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134738

Review By	kareem	Review On	2/18/2025 2:00:41 PM
Supervise By	Janvi	Supervise On	2/21/2025 4:44:46 PM

STD. NAME	STD REF.#
ICAL Standard	MP84204,MP84223,MP84224,MP84225,MP84226,MP84228
ICV Standard	MP84446
CCV Standard	MP84232
ICSA Standard	MP84230,MP84231
CRI Standard	MP84228
LCS Standard	MP84387
Chk Standard	MP84218,MP84219

18	Q1366-01MS	HD-01-2132025MS	MS	02/17/25 12:36	MS/MSD fail for more than 50% parameters	Kareem	Not Ok
19	Q1366-01MSD	HD-01-2132025MSD	MSD	02/17/25 12:40	MS/MSD fail for more than 50% parameters	Kareem	Not Ok
20	Q1366-01A	HD-01-2132025A	PS	02/17/25 12:45	MS/MSD fail for more than 50% parameters	Kareem	Not Ok
21	PB166700TB	PB166700TB	MB	02/17/25 12:57		Kareem	OK
22	Q1288-08	HR-04-020425	SAM	02/17/25 13:02		Kareem	OK
23	CCV02	CCV02	CCV	02/17/25 13:06		Kareem	OK
24	CCB02	CCB02	CCB	02/17/25 13:10		Kareem	OK
25	Q1352-02	TAP-IDW-SOIL-02102	SAM	02/17/25 13:15		Kareem	OK
26	Q1356-01	CARBON-SOLID	SAM	02/17/25 13:19		Kareem	OK
27	Q1356-03	SOIL-PILE	SAM	02/17/25 13:24		Kareem	OK
28	PB166702TB	PB166702TB	MB	02/17/25 13:28		Kareem	OK
29	Q1356-04	CARBON-WATER	SAM	02/17/25 13:32		Kareem	OK
30	Q1356-04DUP	CARBON-WATERDUP	DUP	02/17/25 13:37		Kareem	OK
31	Q1356-04L	CARBON-WATERL	SD	02/17/25 13:41		Kareem	OK
32	Q1356-04MS	CARBON-WATERMS	MS	02/17/25 13:45	0.1 ML M6010 AND M6001 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
33	Q1356-04MSD	CARBON-WATERMS	MSD	02/17/25 13:49	0.1 ML M6010 AND M6001 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
34	Q1356-04A	CARBON-WATERA	PS	02/17/25 13:53	0.1 ML M6010 AND M6001 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134738

Review By	kareem	Review On	2/18/2025 2:00:41 PM
Supervise By	Janvi	Supervise On	2/21/2025 4:44:46 PM
STD. NAME	STD REF.#		
ICAL Standard	MP84204,MP84223,MP84224,MP84225,MP84226,MP84228		
ICV Standard	MP84446		
CCV Standard	MP84232		
ICSA Standard	MP84230,MP84231		
CRI Standard	MP84228		
LCS Standard	MP84387		
Chk Standard	MP84218,MP84219		

35	CCV03	CCV03	CCV	02/17/25 13:57		Kareem	OK
36	CCB03	CCB03	CCB	02/17/25 14:06		Kareem	OK
37	Q1356-05	CARBON-FB	SAM	02/17/25 14:10		Kareem	OK
38	Q1356-06	WATER-A	SAM	02/17/25 14:15		Kareem	OK
39	Q1356-07	WATER-B	SAM	02/17/25 14:19		Kareem	OK
40	Q1356-08	WATER-FB	SAM	02/17/25 14:23		Kareem	OK
41	Q1356-09	SOIL-FB	SAM	02/17/25 14:28		Kareem	OK
42	PB166715BL	PB166715BL	MB	02/17/25 14:32	Not Use	Kareem	Not Ok
43	PB166715BS	PB166715BS	LCS	02/17/25 14:36	Not Use	Kareem	Not Ok
44	PB166731BL	PB166731BL	MB	02/17/25 14:40		Kareem	OK
45	PB166731BS	PB166731BS	LCS	02/17/25 14:49	0.1 ML M6010 AND M6001 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
46	CCV04	CCV04	CCV	02/17/25 14:53		Kareem	OK
47	CCB04	CCB04	CCB	02/17/25 14:58		Kareem	OK
48	LR1	LR1	HIGH STD	02/17/25 15:02		Kareem	OK
49	LR2	LR2	HIGH STD	02/17/25 15:07		Kareem	OK
50	CCV05	CCV05	CCV	02/17/25 15:12		Kareem	OK
51	CCB05	CCB05	CCB	02/17/25 15:15		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134801

Review By	kareem	Review On	2/26/2025 7:18:21 PM
Supervise By	JANVI	Supervise On	2/27/2025 11:54:25 AM
STD. NAME	STD REF.#		
ICAL Standard	MP84636,MP84637,MP84638,MP84639,MP84640,MP84642		
ICV Standard	MP84643		
CCV Standard	MP84646		
ICSA Standard	MP84644,MP84645		
CRI Standard	MP84642		
LCS Standard			
Chk Standard	MP84649,MP84650		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	02/25/25 15:31		Kareem	OK
2	S1	S1	CAL2	02/25/25 15:36		Kareem	OK
3	S2	S2	CAL3	02/25/25 15:40		Kareem	OK
4	S3	S3	CAL4	02/25/25 15:44		Kareem	OK
5	S4	S4	CAL5	02/25/25 15:49		Kareem	OK
6	S5	S5	CAL6	02/25/25 15:53		Kareem	OK
7	ICV01	ICV01	ICV	02/25/25 15:57		Kareem	OK
8	LLICV01	LLICV01	LLICV	02/25/25 16:02		Kareem	OK
9	ICB01	ICB01	ICB	02/25/25 16:06		Kareem	OK
10	CRI01	CRI01	CRDL	02/25/25 16:10		Kareem	OK
11	ICSA01	ICSA01	ICSA	02/25/25 16:15		Kareem	OK
12	ICSAB01	ICSAB01	ICSAB	02/25/25 16:19		Kareem	OK
13	CCV01	CCV01	CCV	02/25/25 16:23		Kareem	OK
14	CCB01	CCB01	CCB	02/25/25 16:27		Kareem	OK
15	PB166715BL	PB166715BL	MB	02/25/25 16:32		Kareem	OK
16	PB166715BS	PB166715BS	LCS	02/25/25 16:48	0.1 ML OF M6010 AND M6001 WERE ADDED TO 10 ML OF SAMPLE	Kareem	OK
17	CCV02	CCV02	CCV	02/25/25 16:54		Kareem	OK
18	CCB02	CCB02	CCB	02/25/25 16:58		Kareem	OK

SOP ID :	M1311-TCLP-15	
SDG No :	N/A	Start Prep Date : 02/12/2025 Time : 14:00
Weigh By :	JP	End Prep Date : 02/13/2025 Time : 07:15
Balance ID :	WC SC-7	Combination Ratio : 20
pH Meter ID :	WC PH METER-1	ZHE Cleaning Batch : ⁷⁰ N/A
Extraction By :	JP	Initial Room Temperature: 23 °C
Filter By :	JP	Final Room Temperature: 22 °C
Pipette ID :	WC	TCLP Technician Signature : <i>JP</i>
Tumbler ID :	T-1	Supervisor By : <i>12</i>
TCLP Filter ID :	115525	

Standardized Name	MLS USED	STD REF. # FROM LOG
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

Chemical Used	ML/SAMPLE U	Lot Number
TCLP-FLUID-1	N/A	WP110801
HCL-TCLP,1N	N/A	WP110803
HNO3-TCLP,1N	N/A	WP110804
pH Strips	N/A	W1931,W1934,W3171,W3172
pH Strips	W1941,W1942	W3166,W1938,W1939,W1940,
1 Liter Amber	N/A	90424-08
120ml Plastic bottle	N/A	405130101
1:1 HNO3	N/A	MP84041

Extraction Conformance/Non-Conformance Comments:

Matrix spikes are added after filtration and before preservation. TUMBLER T-1 checked,30 rpm. Partial size reduction in not required. p1356-03 is used for MS-MSD.

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
02/13/25 0830	<i>JP</i> <i>12CLP Room</i>	<i>SPS.</i> <i>Ext</i>
	Preparation Group	Analysis Group <i>met dig</i>

Sample ID	ClientID	TCLP Vessel ID	Sample Wt (g)	Volume Extraction Fluid #1 (mL)	Multi phasic	Phase Miscible	Phases Combined	Final Leachate PH	Metals Leachate Adj. PH	Prep Pos
PB166700TB	LEB700	06	N/A	2000	N/A	N/A	N/A	4.94	1.5	T-1
Q1288-08	HR-04-020425	01	100.02	2000	N/A	N/A	N/A	6.2	1.0	T-1
Q1352-02	TAP-IDW-SOIL-021025	02	100.03	2000	N/A	N/A	N/A	8.2	1.5	T-1
Q1353-02	346	03	100.02	2000	N/A	N/A	N/A	3.0	1.0	T-1
Q1356-01	CARBON-SOLID	04	100.03	2000	N/A	N/A	N/A	5.6	1.5	T-1
Q1356-03	SOIL-PILE	05	100.04	2000	N/A	N/A	N/A	6.0	1.0	T-1

SampleID	ClientID	Sample Weight (g)	Filter Weight (g)	Filtrate (mL)	Filter + Solid (After 100°C)	% solids	% Dry Solids
PB166700TB	LEB700	N/A	N/A	N/A	N/A	N/A	N/A
Q1288-08	HR-04-020425	N/A	N/A	N/A	N/A	100	N/A
Q1352-02	TAP-IDW-SOIL-021025	N/A	N/A	N/A	N/A	100	N/A
Q1353-02	346	N/A	N/A	N/A	N/A	100	N/A
Q1356-01	CARBON-SOLID	N/A	N/A	N/A	N/A	100	N/A
Q1356-03	SOIL-PILE	N/A	N/A	N/A	N/A	100	N/A

Hot Block ID : WC S-1 /WC S-2

Thermometer ID : FLASHPOINT

SampleID	ClientID	Sample Weight (g)	Volume DI Water (mL)	PH after 5 min stir	PH after 10 min stir	Extraction Fluid 1 or 2	pH Extraction Fluid
PB166700TB	LEB700	N/A	N/A	N/A	N/A	#1	4.94
Q1288-08	HR-04-020425	5.02	96.5	8.6	3.0	#1	4.94
Q1352-02	TAP-IDW-SOIL-021025	5.03	96.5	10.0	4.5	#1	4.94
Q1353-02	346	5.03	96.5	5.8	1.5	#1	4.94
Q1356-01	CARBON-SOLID	5.02	96.5	7.2	2.0	#1	4.94
Q1356-03	SOIL-PILE	5.02	96.5	8.6	3.0	#1	4.94

Prep Standard - Chemical Standard Summary

Order ID : Q1352
Test : TCLP ICP Metals,TCLP Mercury
Prepbatch ID : PB166715,PB166720,
Sequence ID/Qc Batch ID: LB134719,LB134738,LB134738,LB134801,

Standard ID :
MP83691,MP83692,MP83693,MP83694,MP84204,MP84218,MP84219,MP84223,MP84224,MP84225,MP84226,MP84227,MP84228,MP84230,MP84231,MP84232,MP84297,MP84387,MP84446,MP84494,MP84495,MP84497,MP84498,MP84499,MP845,MP84500,MP84501,MP84502,MP84503,MP84504,MP84505,MP84506,MP84507,MP84529,MP84636,MP84637,MP84638,MP84639,MP84640,MP84641,MP84642,MP84643,MP84644,MP84645,MP84646,MP84649,MP84650,

Chemical ID :
M4371,M4465,M4884,M4916,M5062,M5130,M5192,M5218,M5223,M5288,M5296,M5298,M5393,M5395,M5429,M5467,M5472,M5476,M5496,M5497,M5498,M5519,M5532,M5658,M5697,M5747,M5748,M5751,M5789,M5792,M5798,M5799,M5800,M5801,M5802,M5811,M5814,M5815,M5816,M5817,M5819,M5820,M5875,M5882,M5884,M5959,M5961,M5962,M5970,M5977,M5978,M5985,M6002,M6011,M6021,M6023,M6025,M6028,M6030,M6032,M6041,M6077,M6121,M6126,M6127,M6128,M6144,M6145,M6146,M6150,M6152,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>
3965	2:1 H2SO4 : HNO3	MP83691	12/18/2024	06/03/2025	Mohan Bera	None	None	Sarabjit Jaswal
								12/18/2024

FROM 1600.00000ml of M6041 + 800.00000ml of M6126 = Final Quantity: 3200.000 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 %	MP83692	12/18/2024	06/18/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal
								12/18/2024

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>
66	POTASSIUM PERSULFATE SOLUTION 5 %	MP83693	12/18/2024	06/18/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal
								12/18/2024

FROM 100.00000ml of M4465 + 2000.00000ml of W3112 = 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>
67	SODIUM CHLORIDE - HYDROXYL- CHLORIDE SOLUTION	MP83694	12/18/2024	06/18/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal
								12/18/2024

FROM 2000.00000ml of W3112 + 240.00000gram of M4371 + 240.00000gram of M5884 = 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>
902	ICP AES CAL BLK (SO/ICB/CCB)	MP84204	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/27/2025

FROM 125.00000ml of M6121 + 2350.00000ml of W3112 + 25.00000ml of M6126 = 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>
919	ICP AES INTERNAL STD	MP84218	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/27/2025

FROM 1.00000ml of M5959 + 10.00000ml of M5985 + 1969.00000ml of W3112 + 20.00000ml of M6126 = 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>
903	ICP AES RINSE SOLN	MP84219	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/27/2025

FROM 200.00000ml of M6126 + 9800.00000ml of W3112 = Final Quantity: 10000.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
907	ICP AES STD S (S5)	MP84223	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/28/2025

FROM 5.00000ml of M5393 + 5.00000ml of M5467 + 5.00000ml of M5472 + 5.00000ml of M5802 + 5.00000ml of M5816 + 5.00000ml of M5820 + 5.00000ml of M5875 + 5.00000ml of M5970 + 5.00000ml of M6077 + 455.00000ml of MP84204 = Final Quantity: 500.000 ml

Metals STANDARD PREPARATION LOG

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910	ICP AES STD S4	MP84224	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
01/28/2025								

FROM 50.00000ml of MP84204 + 50.00000ml of MP84223 = 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>
909	ICP AES STD S3	MP84225	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
01/28/2025								

FROM 25.00000ml of MP84223 + 75.00000ml of MP84204 = 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>
3913	ICP AES STD S2	MP84226	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
01/28/2025								

FROM 16.00000ml of MP84223 + 184.00000ml of MP84204 = Final Quantity: 200.000 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>
2950	ICP AES S1/CRI STOCK STD	MP84227	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
01/28/2025								

FROM 0.00200ml of M5816 + 0.00400ml of M5978 + 0.03000ml of M5798 + 0.03000ml of M6028 + 0.05000ml of M5298 + 0.05000ml of M5496 + 0.05000ml of M5658 + 0.05000ml of M6030 + 0.06000ml of M5747 + 0.10000ml of M5472 + 0.10000ml of M5697 + 0.10000ml of M5801 + 0.10000ml of M5962 + 0.10000ml of M5970 + 0.10000ml of M6128 + 0.15000ml of M5800 + 0.20000ml of M5748 + 0.20000ml of M5799 + 0.20000ml of M5819 + 0.20000ml of M6021 + 0.20000ml of M6023 + 0.25000ml of M5467 + 0.25000ml of M5802 + 0.50000ml of M5814 + 0.50000ml of M6032 + 1.00000ml of M5192 + 1.00000ml of M5288 + 1.00000ml of M5497 + 1.00000ml of M6127 + 1.00000ml of M6144 + 2.00000ml of M4884 + 77.68000ml of MP84204 = 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>
2951	ICP AES S1/CRI WORK STD	MP84228	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/28/2025

FROM 2.00000ml of MP84227 + 98.00000ml of MP84204 = 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	MP84230	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/28/2025

FROM 25.00000ml of M5130 + 225.00000ml of MP84204 = 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	MP84231	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/28/2025

FROM 0.01000ml of M5815 + 0.01000ml of M5817 + 0.10000ml of M5472 + 0.10000ml of M5970 + 0.10000ml of M6077 + 10.00000ml of M5130 + 10.00000ml of M5223 + 79.50000ml of MP84204 = 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	MP84232	01/24/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								01/28/2025

FROM 50.00000ml of MP84204 + 50.00000ml of MP84223 = 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>
170	1:1HCL	MP84297	01/31/2025	02/28/2025	Eman Mughal	None	None	Sarabjit Jaswal
								01/31/2025

FROM 1250.00000ml of M6121 + 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>
994	ICPAES ISM01.2 S1 (CONC.)	MP84387	01/27/2025	02/24/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								02/10/2025

FROM 0.02000ml of M5815 + 0.03000ml of M5429 + 0.10000ml of M5798 + 0.10000ml of M6028 + 0.14000ml of M5799 + 0.20000ml of M5476 + 0.20000ml of M5658 + 0.20000ml of M5801 + 0.20000ml of M5811 + 0.20000ml of M5817 + 0.20000ml of M5977 + 0.20000ml of M6025 + 0.20000ml of M6030 + 0.30000ml of M6128 + 0.40000ml of M5496 + 0.50000ml of M5697 + 0.50000ml of M6023 + 0.70000ml of M5962 + 0.80000ml of M5961 + 1.00000ml of M5800 + 1.00000ml of M6021 + 1.20000ml of M6145 + 1.20000ml of M6146 + 10.00000ml of M4884 + 10.00000ml of M5498 + 10.00000ml of M5519 + 10.00000ml of M6127 + 10.00000ml of M6144 + 2.00000ml of M5978 + 4.00000ml of M6032 + 34.24000ml of MP84204 = 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	MP84446	01/27/2025	02/24/2025	Kareem Khairalla	None	None	Janvi Patel
								02/12/2025

FROM 0.02500ml of M5429 + 0.02500ml of M5815 + 0.02500ml of M5817 + 0.10000ml of M5467 + 0.25000ml of M5218 + 0.25000ml of M5472 + 10.00000ml of M6150 + 87.77500ml of MP84204 = 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>
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP84494	02/13/2025	02/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Iwona Zarych
								02/18/2025

FROM 1.00000ml of M6126 + 2.50000ml of M5062 + 96.50000ml of W3112 = Final Quantity: 100.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1340	Hg 0.00 PPB STD	MP84495	02/13/2025	02/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Iwona Zarych 02/18/2025

FROM 2.50000ml of M6126 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1341	Hg 0.2 PPB STD	MP84497	02/13/2025	02/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Iwona Zarych 02/18/2025

FROM 2.50000ml of M6126 + 247.30000ml of W3112 + 0.20000ml of MP84494 = Final Quantity: 250.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1342	Hg 2.5 PPB STD	MP84498	02/13/2025	02/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Iwona Zarych 02/18/2025
FROM 2.50000ml of M6126 + 245.00000ml of W3112 + 2.50000ml of MP84494 = Final Quantity: 250.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1343	Hg 5.0 PPB STD	MP84499	02/13/2025	02/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Iwona Zarych 02/18/2025
FROM 2.50000ml of M6126 + 242.50000ml of W3112 + 5.00000ml of MP84494 = Final Quantity: 250.000 ml								

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1344	Hg 7.5 PPB STD	MP84500	02/13/2025	02/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Iwona Zarych 02/18/2025

FROM 2.50000ml of M6126 + 240.00000ml of W3112 + 7.50000ml of MP84494 = Final Quantity: 250.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1345	Hg 10.0 PPB STD	MP84501	02/13/2025	02/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Iwona Zarych 02/18/2025

FROM 2.50000ml of M6126 + 237.50000ml of W3112 + 10.00000ml of MP84494 = Final Quantity: 250.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1346	Hg ICV SOLUTION	MP84502	02/13/2025	02/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Iwona Zarych 02/18/2025

FROM 2.50000ml of M5532 + 2.50000ml of M6126 + 245.00000ml of W3112 = Final Quantity: 250.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1351	ICB (Hg 0.00 PPB SOLUTION)	MP84503	02/13/2025	02/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Iwona Zarych 02/18/2025

FROM 2.50000ml of M6126 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1358	CCV (Hg 5.0 PPB SOLUTION)	MP84504	02/13/2025	02/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Iwona Zarych 02/18/2025
FROM 485.00000ml of W3112 + 5.00000ml of M6126 + 10.00000ml of MP84494 = Final Quantity: 500.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1352	CCB (Hg 0.00 PPB SOLUTION)	MP84505	02/13/2025	02/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Iwona Zarych 02/18/2025
FROM 495.00000ml of W3112 + 5.00000ml of M6126 = Final Quantity: 500.000 ml								

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1349	CRA/CRI (Hg 0.2 PPB SOLUTION)	MP84506	02/13/2025	02/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Iwona Zarych 02/18/2025
FROM 2.50000ml of M6126 + 247.30000ml of W3112 + 0.20000ml of MP84494 = Final Quantity: 250.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1350	CHK STD (Hg 7.0 PPB SOLUTION)	MP84507	02/13/2025	02/14/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Iwona Zarych 02/18/2025
FROM 2.50000ml of M6126 + 240.50000ml of W3112 + 7.00000ml of MP84494 = 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>
68	STANNOUS CHLORIDE SOLUTION	MP84529	02/14/2025	02/15/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Iwona Zarych 02/18/2025

FROM 450.00000ml of W3112 + 50.00000gram of M5882 + 50.00000ml of M6121 = 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>
902	ICP AES CAL BLK (SO/ICB/CCB)	MP84636	02/25/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 02/28/2025

FROM 125.00000ml of M5792 + 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)	MP84637	02/25/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								02/28/2025

FROM 5.00000ml of M5395 + 5.00000ml of M5467 + 5.00000ml of M5472 + 5.00000ml of M5816 + 5.00000ml of M5820 + 5.00000ml of M5875 + 5.00000ml of M5970 + 5.00000ml of M6077 + 5.00000ml of M6146 + 455.00000ml of MP84636 = 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	MP84638	02/25/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								02/28/2025

FROM 50.00000ml of MP84636 + 50.00000ml of MP84637 = 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	MP84639	02/25/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
02/28/2025								

FROM 25.00000ml of MP84637 + 75.00000ml of MP84636 = 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	MP84640	02/25/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
02/28/2025								

FROM 16.00000ml of MP84637 + 184.00000ml of MP84636 = 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	MP84641	02/25/2025	03/09/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								02/28/2025

FROM 0.00200ml of M5816 + 0.00400ml of M5978 + 0.03000ml of M6028 + 0.04000ml of M4884 + 0.05000ml of M5496 + 0.05000ml of M5658 + 0.05000ml of M5811 + 0.05000ml of M6030 + 0.06000ml of M5747 + 0.10000ml of M5472 + 0.10000ml of M5751 + 0.10000ml of M5801 + 0.10000ml of M5820 + 0.10000ml of M5962 + 0.10000ml of M5970 + 0.10000ml of M6128 + 0.15000ml of M5800 + 0.20000ml of M5748 + 0.20000ml of M5799 + 0.20000ml of M6021 + 0.20000ml of M6023 + 0.20000ml of M6145 + 0.25000ml of M5467 + 0.25000ml of M6146 + 0.50000ml of M5798 + 0.50000ml of M5814 + 0.50000ml of M6032 + 1.00000ml of M5192 + 1.00000ml of M5288 + 1.00000ml of M5497 + 1.00000ml of M6127 + 1.00000ml of M6144 + 77.68000ml of MP84636 = 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	MP84642	02/25/2025	03/09/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								02/28/2025

FROM 2.00000ml of MP84641 + 98.00000ml of MP84636 = 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	MP84643	02/25/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
02/28/2025								

FROM 0.02500ml of M5429 + 0.02500ml of M5815 + 0.02500ml of M5817 + 0.10000ml of M5467 + 0.25000ml of M5218 + 0.25000ml of M5472 + 10.00000ml of M6150 + 89.77500ml of MP84636 = 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	MP84644	02/24/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
02/28/2025								

FROM 25.00000ml of M6152 + 225.00000ml of MP84636 = 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	MP84645	02/25/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
02/28/2025								

FROM 0.01000ml of M5815 + 0.01000ml of M5817 + 0.10000ml of M5296 + 0.10000ml of M5472 + 0.10000ml of M5970 + 10.00000ml of M6152 + 79.50000ml of MP84636 = 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	MP84646	02/25/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
02/28/2025								

FROM 50.00000ml of MP84636 + 50.00000ml of MP84637 = 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	MP84649	02/25/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								02/28/2025

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	MP84650	02/25/2025	03/25/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								02/28/2025

FROM 200.00000ml of M5789 + 9800.00000ml of W3112 = Final Quantity: 10000.000 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 #
Seidler Chemical	BA-3238-05 / Potassium Persulfate (2.5kg)	0000234156	08/06/2025	07/23/2019 /mohan	07/25/2019 / manojkumar	M4465

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57014 / Si, 1000 PPM, 125 ml	030921	03/09/2025	08/06/2021 / jaswal	08/05/2021 / jaswal	M4884

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART A / ICSA (ICP) STOCK SOLN	ICSA-1211	01/31/2025	05/20/2024 /bin	04/20/2021 / bin	M5130

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57042 / Mo, 1000 PPM, 125 ml	051722	05/17/2025	07/01/2022 / bin	06/17/2022 / jaswal	M5192

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	S2-MEB711674	11/02/2026	07/01/2022 / bin	09/10/2021 / bin	M5218

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	01/31/2025	05/20/2024 /bin	04/20/2021 / bin	M5223

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 #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	S2-MEB711673	11/02/2026	09/19/2022 / jaswal	08/20/2022 / jaswal	M5296

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	020422	02/04/2025	05/02/2023 / jaswal	06/15/2022 / jaswal	M5298

CHEMICAL RECEIPT LOG BOOK

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	10/12/2022 / bin	09/19/2022 / bin	M5393

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	020623	02/06/2026	03/06/2023 / bin	03/01/2023 / bin	M5467

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57038 / Sr, 1000 PPM, 125 ml	082922	08/29/2025	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.	57138 / Sr, 10000 PPM, 125 ml	082922	08/29/2025	07/29/2024 /jaswal	03/16/2023 / jaswal	M5476

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Al, 10000 PPM, 500 ml	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.	58120 / Ca, 10000 PPM, 500 ml	031523	03/15/2026	08/15/2023 / jaswal	03/17/2023 / bin	M5498

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57119 / Potassium (K) 10,000PPM	120822	12/08/2025	01/08/2024 / bin	03/17/2023 / bin	M5519

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	02/28/2025	01/02/2025 /mohan	03/30/2023 / mohan	M5532

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58024 / Chromium, Cr, 500 ml, 1000 PPM	060523	06/05/2026	08/28/2023 / jaswal	08/25/2023 / jaswal	M5658

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58029 / Cu, 1000 PPM, 500 ml	102523	10/25/2026	04/03/2024 / jaswal	10/27/2023 / jaswal	M5697

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	22D1462006	08/05/2025	02/05/2024 / Al-Terek	02/24/2022 / Al-Terek	M5792

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.	57051 / Sb, 1000 PPM, 125 ml	120523	12/05/2026	08/07/2024 / jaswal	01/03/2024 / jaswal	M5802

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

CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57115 / P, 10000 PPM, 125 ml	041723	04/17/2026	05/21/2024 / Jaswal	02/09/2024 / jaswal	M5815

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.	58030 / Zinc, Zn, 500 ml, 1000 PPM	111623	11/16/2026	03/20/2024 / jaswal	02/09/2024 / jaswal	M5819

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

CHEMICAL RECEIPT LOG BOOK

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

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

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57028 / Ni, 1000 PPM, 125 ml	041124	04/11/2027	07/02/2024 / Jaswal	06/11/2024 / Jaswal	M5961

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

CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGMO1-1 / MOLYBDENUM 125mL 1000ug/mL	T2-MO720876	07/17/2027	01/16/2025 / JANVI	02/22/2024 / Jaswal	M5977

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	T2-TI719972	06/17/2027	08/07/2024 / jaswal	02/22/2024 / Jaswal	M5978

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-1 / Laboratory Fortified Stock Solution 1, 125 ml	T2-MEB723367	07/14/2025	01/14/2025 / Eman	05/14/2024 / Jaswal	M6002

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	07/14/2025	01/14/2025 / Eman	05/14/2024 / Jaswal	M6011

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.	57082 / Pb, 1000 PPM, 125 ml	061224	11/09/2026	08/05/2024 / Jaswal	08/05/2024 / Jaswal	M6025

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

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

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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	23D2462010	03/20/2028	08/16/2024 / mohan	08/16/2024 / mohan	M6041

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	0000275677	05/13/2025	11/13/2024 / Eman	10/13/2024 / Eman	M6121

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.	58112 / Mg, 10000 PPM, 500 ml	112124	11/21/2027	01/13/2025 / kareem	01/13/2025 / kareem	M6127

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

CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58030 / Zinc, Zn, 500 ml, 1000 PPM	121724	12/17/2027	02/04/2025 /jaswal	01/13/2025 / Jaswal	M6145

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
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 #
EPA	PART A / ICSA (ICP) STOCK SOLN		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 #
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.



M6032

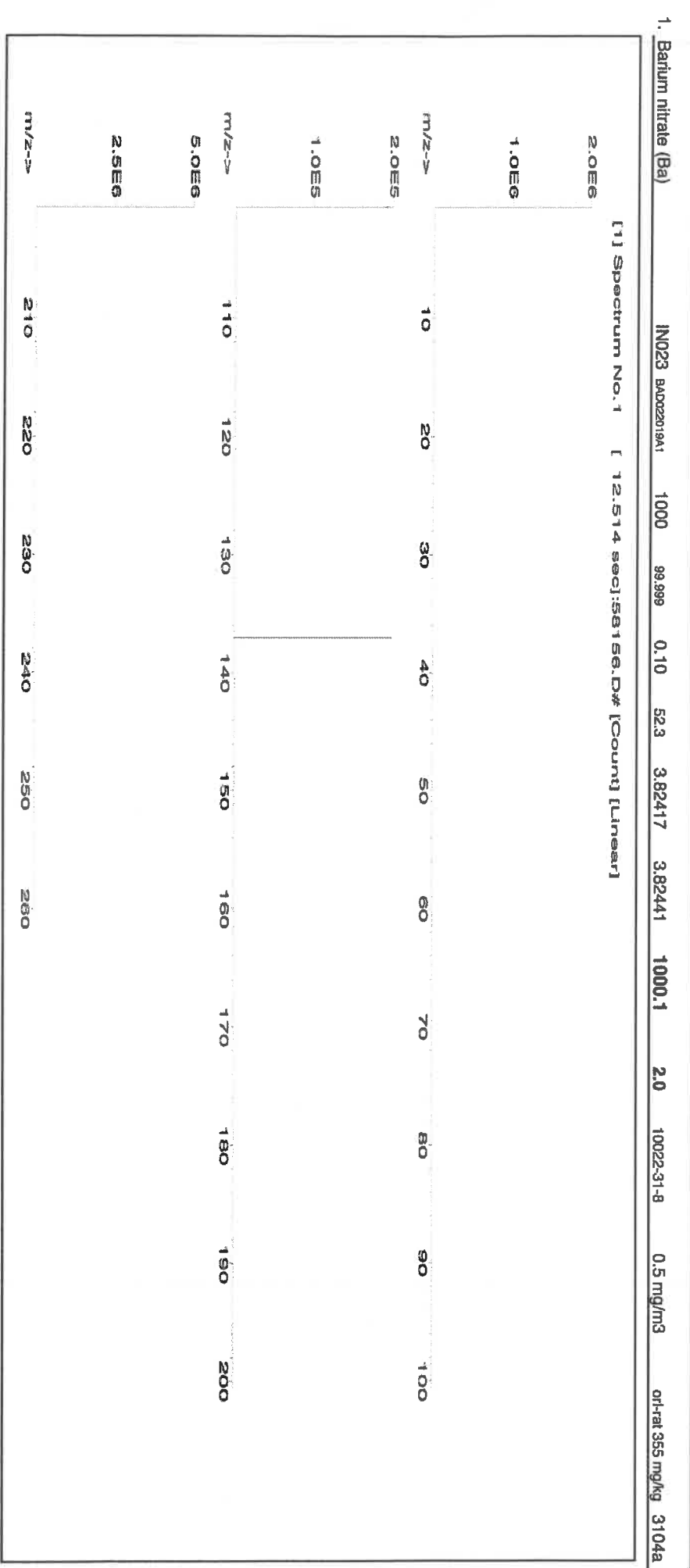


CERTIFIED WEIGHT REPORT:

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

<i>Giovanni Caporaso</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	Pedro L. Renteria
	010924

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





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57048
070124
Cadmium (Cd)

Lot #
Solvent: 24002546 Nitric Acid

2% 40.0 Nitric Acid
(mL)

Expiration Date:

070127

Recommended Storage:
Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

SE-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

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

SDS Information

(Solvent Safety Info. On Attached pg.)

1. Cadmium nitrate tetrahydrate (Cd)

INO24 CDM09221A1

1000

99.999

0.10

36.5

5.4797

5.4804

1000.1

2.0

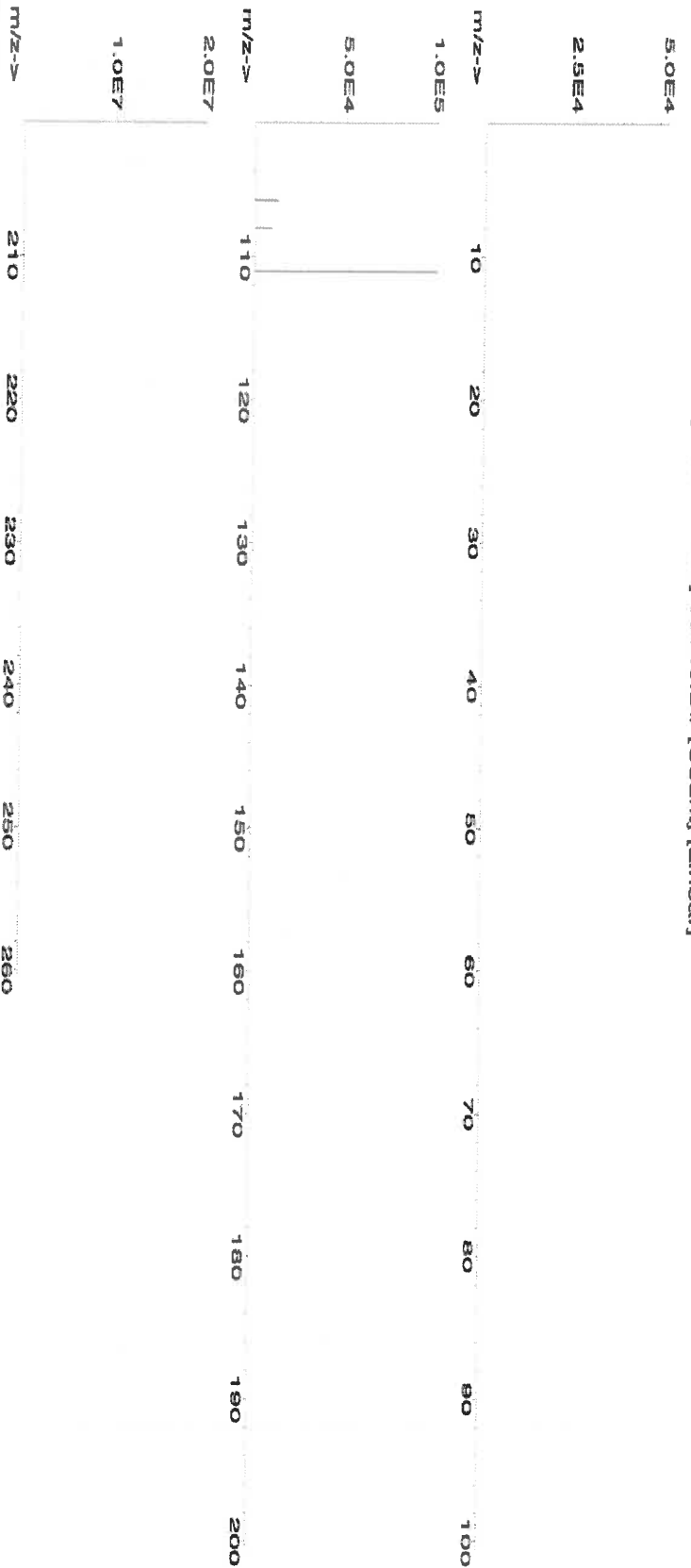
10022-68-1

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).



Refine your results. Redefine your industry.

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CHEM-CLP-4
Lot Number: S2-MEB711673
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 ± 6 µg/mL	Molybdenum, Mo	1 000 ± 6 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 6 µg/mL
Titanium, Ti	1 000 ± 7 µg/mL		

Density: 1.030 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	110830
Mo	ICP Assay	3134	130418
Si	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925

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

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

November 02, 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

- **November 02, 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:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Refine your results. Redefine your industry.

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
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1.0 ACCREDITATION / REGISTRATION

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



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

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 27, 2022

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

11.2 Lot Expiration Date

- January 27, 2027

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





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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"

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- 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





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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 WEIGHT REPORT:

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

Solvent: 21110221 Nitric Acid

Lot #

Expiration Date: 051526

5.0% 250.0 (mL) Nitric Acid

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 10000

NIST Test Number: 6UTB

5E-05 Balance Uncertainty

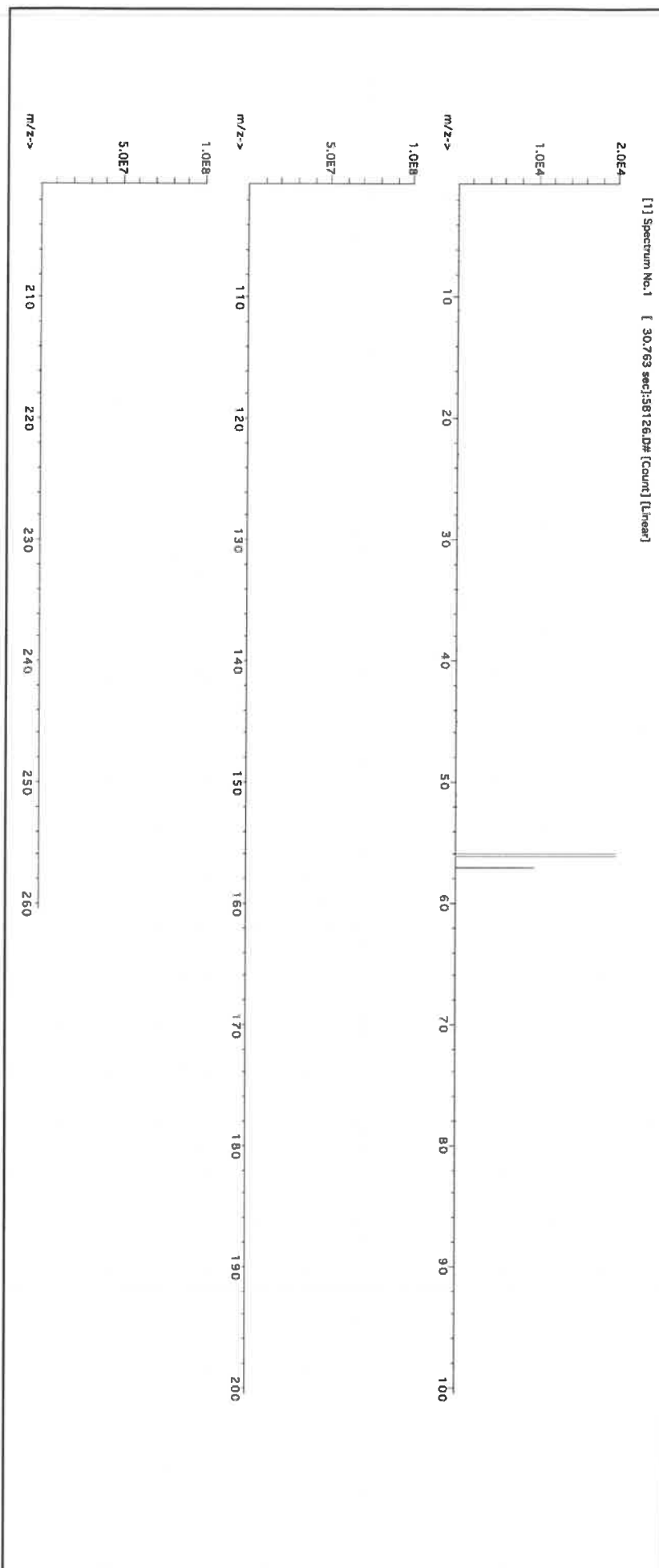
Weight shown below was diluted to (mL): 5000.1 **0.12 Flask Uncertainty**

<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
----------	-----	-----------------------	------------	-----------------	-----------	-------------------	-------------------	----------------------	----------------------------------	------	----------------	------	----------

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-tral 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	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	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).



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

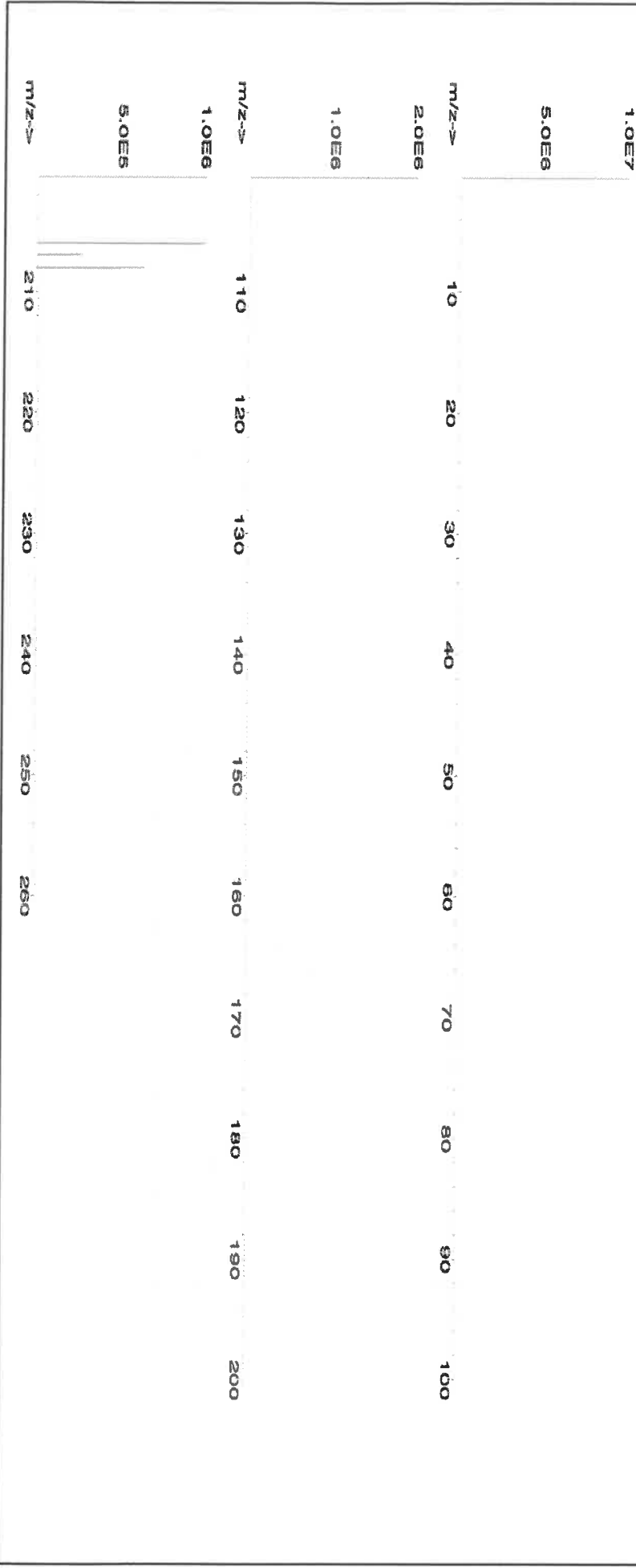
Part Number: **57182**
Lot Number: **110923**
Description: **Lead (Pb)**
Solvent: **24002546 Nitric Acid**
Lot #: **M6025**

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

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

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

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





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

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

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

Physical Characterization:

(T)= Target analyte

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

Certified by:

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



Refine your results. Redefine your industry.

RD:05/14/2024

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030

F: 540-585-3012

info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	WW-LFS-1
Lot Number:	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, Cerium, Thallium,	Aluminum, Selenium,
	100 µg/mL ea: Lead,	Calcium,
	80 µg/mL ea: Arsenic,	
	70 µg/mL ea: Mercury,	
	50 µg/mL ea: Nickel,	
	40 µg/mL ea: Chromium,	
	30 µg/mL ea: Copper, Vanadium,	Boron,
	20 µg/mL ea: Zinc, Barium, Cadmium, Manganese,	Strontium, Beryllium, Cobalt, Lithium,
	7.5 µg/mL ea: Silver	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

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

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

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 30, 2022

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

11.2 Lot Expiration Date

- August 30, 2026

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Refine your results. Redefine your industry.

RD:05/14/2024

Certificate of Analysis

300 Technology Drive
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1.0 ACCREDITATION / REGISTRATION

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



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



avantortm

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

ISO

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

James Ethier

Jamie Ethier
Vice President Global Quality

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

Avantor Performance Materials, LLC

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



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: 57014
Lot Number: 030921
Description: Silicon (Si)

Lot # 19410105
Solvent: Nitric Acid

Expiration Date: 030924

2.0% 60.0 (mL) Nitric Acid

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

5E-05 Balance Uncertainty

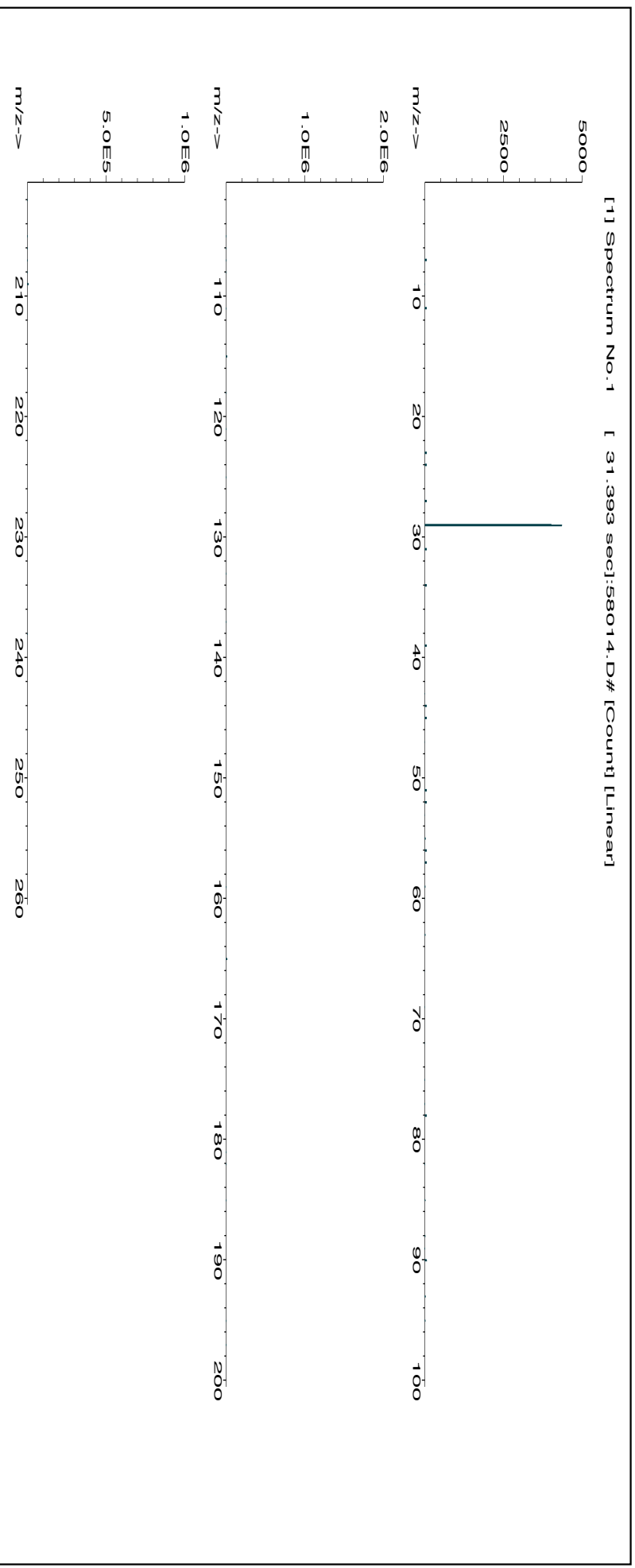
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 3000.41
0.058 Flask Uncertainty

Formulated By:	Lawrence Barry
	030921
Reviewed By:	Pedro L. Rentas
	030921

SDS Information

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

1. Ammonium hexafluorosilicate (Si)	58114	070120	0.1000	300.0	0.084	1000	10000.0	1000.0	2.1	16919-19-0	2.50 mg/m3	ori-rat 70 mg/kg	NA
-------------------------------------	-------	--------	--------	-------	-------	------	---------	--------	-----	------------	------------	------------------	----





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

M4913-16

MS

Certificate of Analysis

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

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

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

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

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

Julian Burton

Julian Burton - Quality Control Manager – Fair Lawn

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

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

*Based on suggested storage condition.

MS062
MS063
MB

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

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

3.0 CERTIFIED VALUES AND UNCERTAINTIES

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

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

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

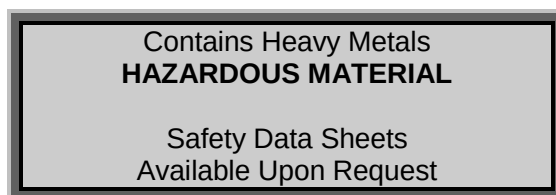


**QATS LABORATORY INORGANIC REFERENCE MATERIAL
 INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)**

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.



(A) SAMPLE DESCRIPTION

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) BREAKAGE OR MISSING ITEMS

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

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

(C) ANALYSIS OF SAMPLES

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,

Instructions for QATS Reference Material: ICP-AES ICS

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSAB solution by ICP-AES.

(D) "CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 15 percent of the listed certified value.

ICSA
M5126
M5127
M5128
M5129
M5130

ICSB
M5219
M5220
M5221
M5222
M5223



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57042
051722
Molybdenum (Mo)

Lot # **Solvent:**
MKBO8597V Ammonium hydroxide

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

051725
Ambient (20 °C)
1000

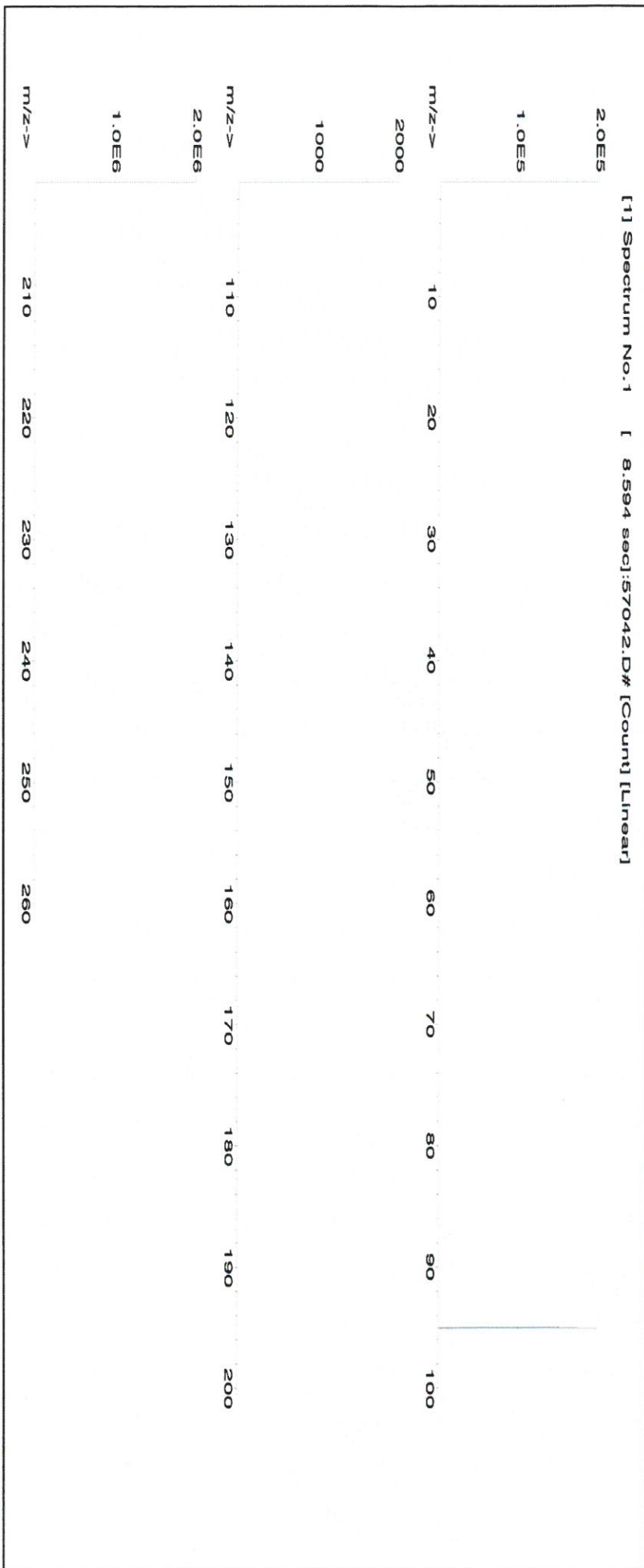
0.5% 15.0 (mL) Ammonium hydroxide

NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 3000.41
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Lawrence Barry	051722
Reviewed By:	Pedro L. Ruelas	051722

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.)	NIST SRM
----------	-------------	------------	-----------------	-------------------	--------------------------	-----------------------	-----------------------	---------------------	----------------------------------	--	----------

1. Ammonium molybdate (Mo) 58142 022222 0.1000 300.0 0.084 1000 10001.0 1000.0 2.1 13106-76-8 5 mg(Mo)/m3 or-rat 333 mg/kg 3134





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	T	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are 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: CHEM-QC-4
 Lot Number: S2-MEB711674
 Matrix: 3% (v/v) HNO₃
 3% (v/v) HF
 Value / Analyte(s): 1 000 µg/mL ea:
 Boron, Molybdenum,
 Silicon, Tin,
 Titanium

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 7 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	1 001 ± 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	110830
Mo	ICP Assay	3134	130418
Si	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925

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

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

November 02, 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

- **November 02, 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:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

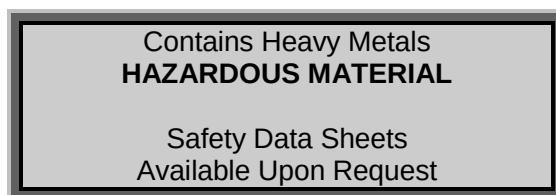


**QATS LABORATORY INORGANIC REFERENCE MATERIAL
 INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)**

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

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

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



(A) SAMPLE DESCRIPTION

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) BREAKAGE OR MISSING ITEMS

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

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

(C) ANALYSIS OF SAMPLES

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,

Instructions for QATS Reference Material: ICP-AES ICS

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSAB solution by ICP-AES.

(D) "CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 15 percent of the listed certified value.

ICSA
M5126
M5127
M5128
M5129
M5130

ICSB
M5219
M5220
M5221
M5222
M5223



Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT:

Part Number: 58119
Lot Number: 071122

Solvent: 20510011 Nitric Acid

Lot #

Description: Potassium (K)

Expiration Date: 071125

2% 40.0 (mL) Nitric Acid

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

<i>Lawrence Barry</i>	
Formulated By:	Lawrence Barry
	071122
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas
	071122

Compound

Lot
RM# **Number**

Nominal
Conc. (µg/mL)

Purity **Uncertainty**
(%) **(%)**

Assay **Target**
(%) **Weight (g)**

Actual **Actual**
Weight (g) **Conc. (µg/mL)**

Expanded **Uncertainty**
+/- (µg/mL) **CAS#** **OSHA PEL (TWA)**

NIST
SRM

1. Potassium nitrate (K)

IN034 KD022021A1

10000

99.999 0.10 37.6

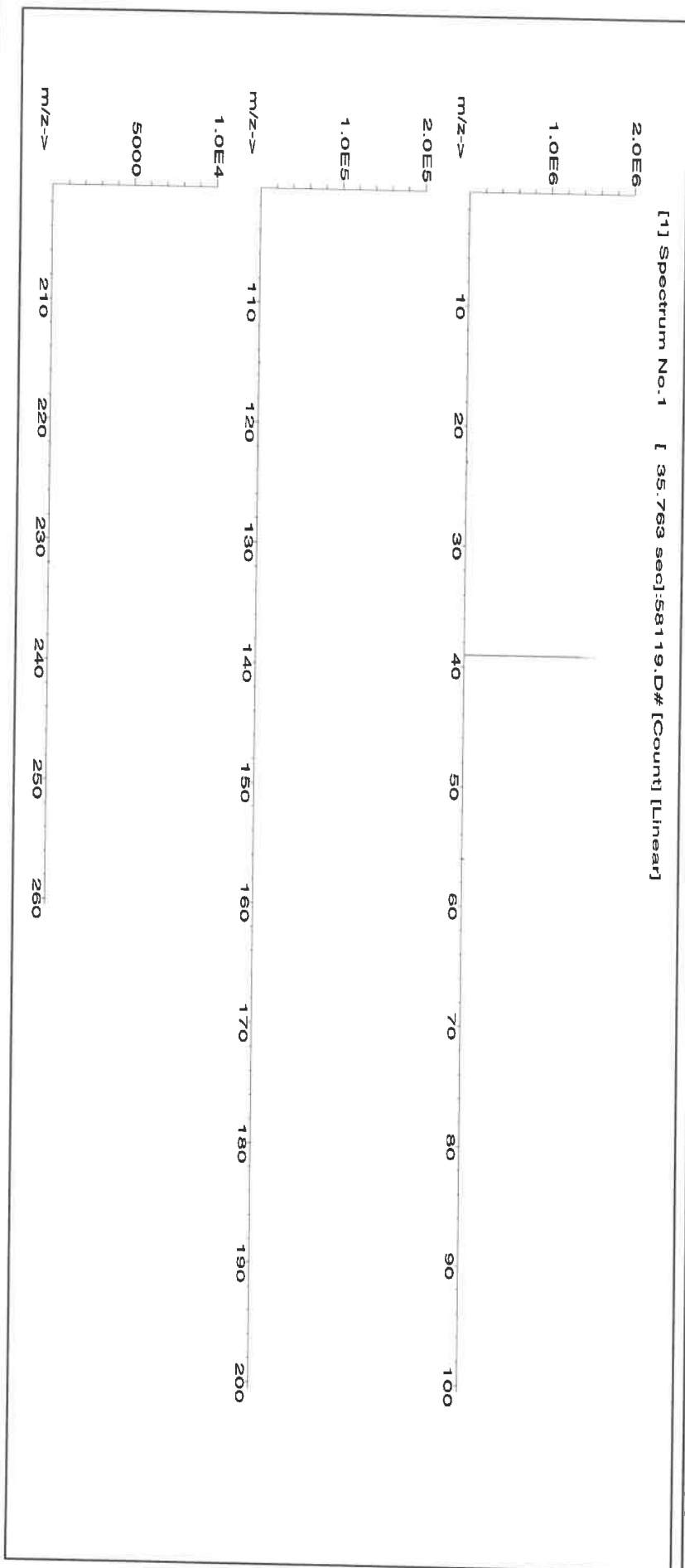
53.1925 53.1934

10000.2 20.0

7757-79-1 5 mg/m3

or-1a1 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 (µg/mL)

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

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).

57 6/15/22

Absolute Standards, Inc.

800-368-1131
www.absolutestandards.com



Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58126
020422
Iron (Fe)

Lot #

Solvent: Nitric Acid

M15298

Expiration Date:

020425

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

10000

NIST Test Number:

6UTB

5E-05 Balance Uncertainty

0.058

Flask Uncertainty

Weight shown below was diluted to (mL):

3000.41

0.10

100.0

Assay

(%)

Purity

(%)

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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	<0.10	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.01	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	<0.10	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.5	Ga	<0.2	Fe	<0.2	Hg	<0.02	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.10	Ge	<0.02	La	<0.10	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.10	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

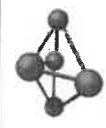
(T)= Target analyte

Physical Characterization:

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

Certified by:

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



M5429 R1 0126/23 (B)

CERTIFIED WEIGHT REPORT:

Part Number: 57103
Lot Number: 070622
Description: Lithium (Li)

Expiration Date: 070625
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 1000.12

Solvent: 20510011 Nitric Acid

2% 20.0 (mL)

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

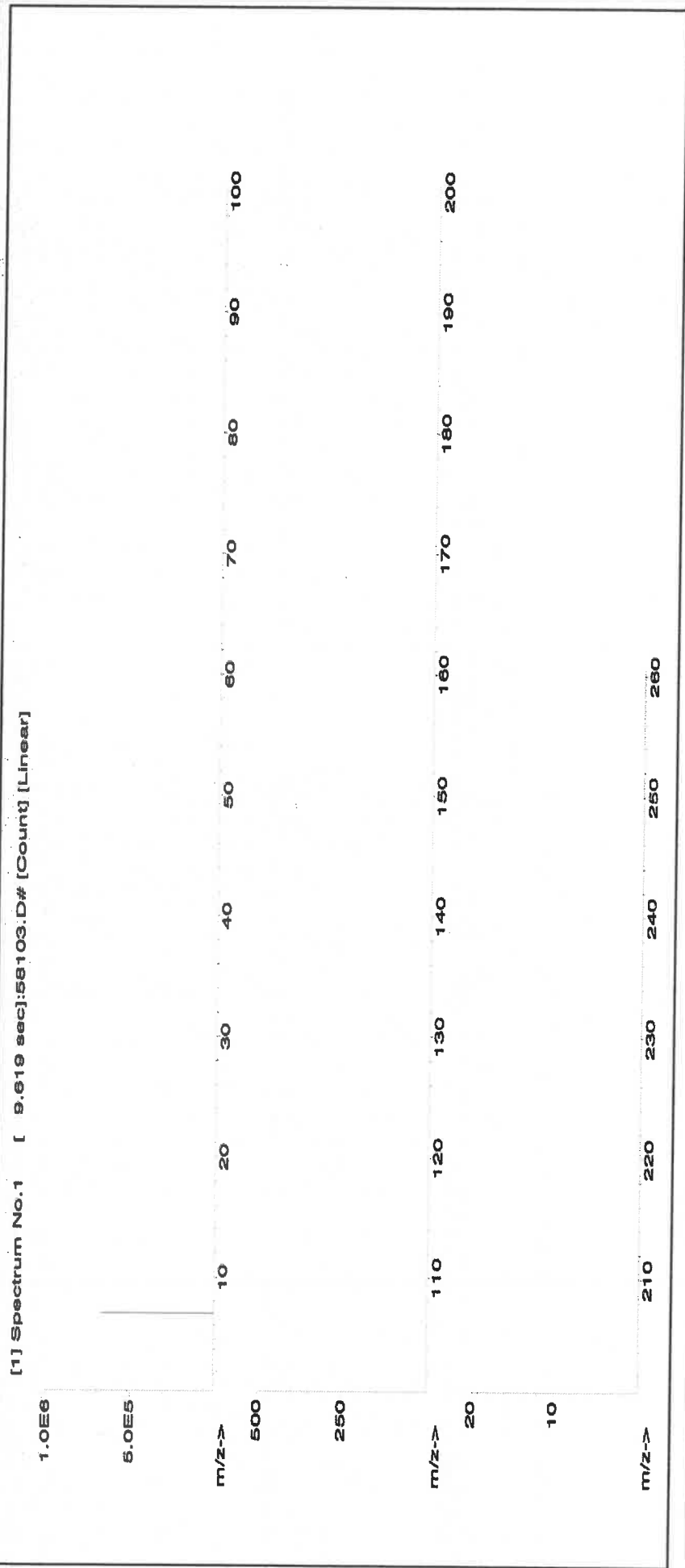
Lawrence Barry
Formulated By: Lawrence Barry 070622
Pedro L. Rentas
Reviewed By: Pedro L. Rentas 070622

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty			NIST SRM
										+/- (µg/mL)	CAS#	LD50	
1. Lithium nitrate (Li)	IN019	L2042019A1	10000	99.999	0.10	10.0	100.0134	100.0173	10000.4	20.0	7790-69-4	5 mg/m3	of-rat 1426 mg/kg NA

SDS Information

(Solvent Safety Info. On Attached pg.)
NIST SRM

[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	<0.02	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	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM



M5467 R: 03/01/23 (14)

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57058
020623
Cerium (Ce)

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

020626
Ambient (20 °C)
1000
6UTB

Weight shown below was diluted to (mL):

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

Lot #

Solvent: 21110221 Nitric Acid

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

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

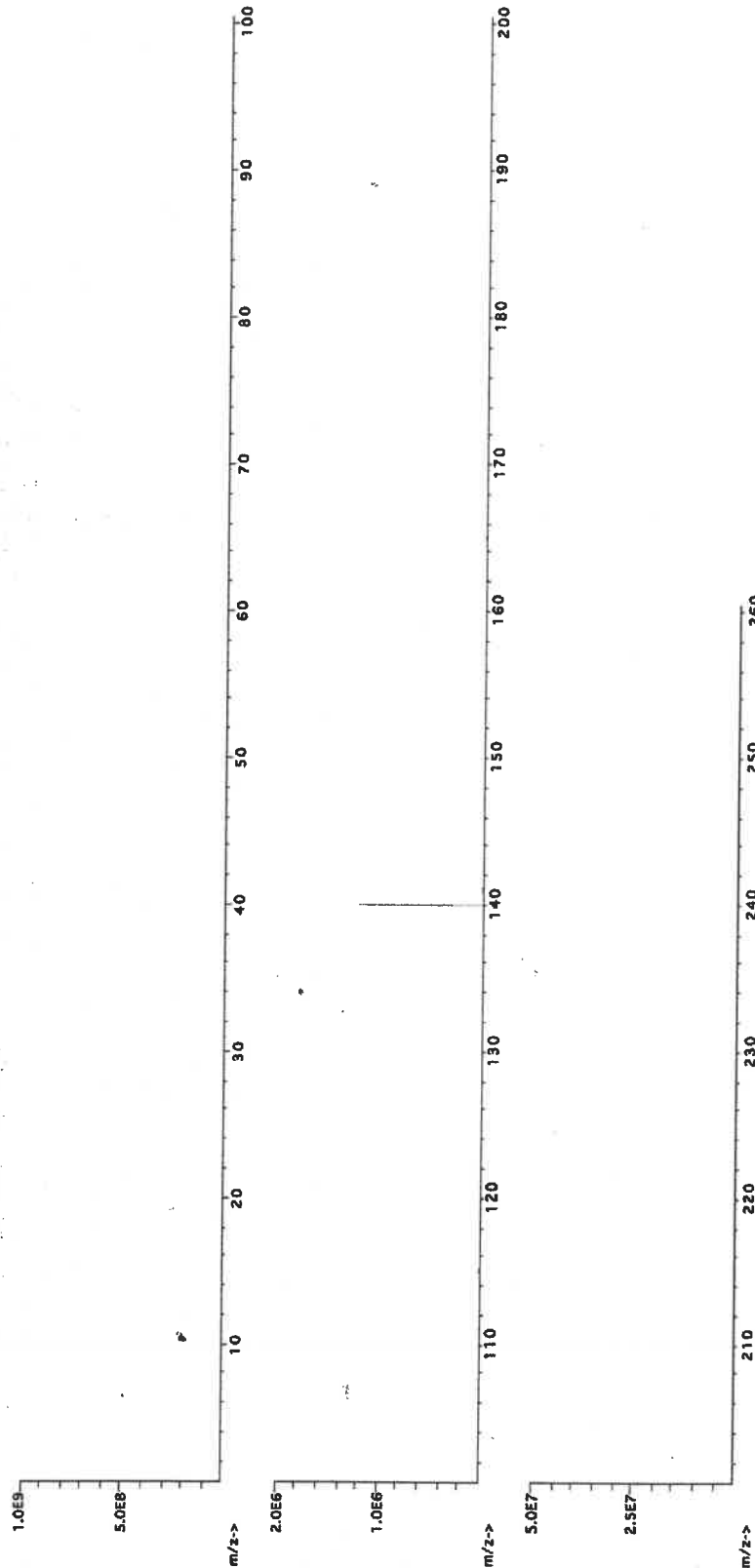
SDS Information

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

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

1. Cerium nitrate hexahydrate (Ce) IN146 Z512CEB1 1000 99.999 0.10 32.8 3.04919 3.04921 1000.0 2.0 10294-41-4 NA NA NA

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





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

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

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	<0.2	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	T	Eu	T	In	<0.02	Mg	<0.01	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	<0.02	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	<0.2	Ta	<0.02	Ti	<0.02	Zr	<0.02

Physical Characterization:

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

Certified by:

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 that are immediately cleaned prior to use.

* 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 #

R 17/20/23

Part Number: **58113**
Lot Number: **011623**
Description: **Aluminum (Al)**

Expiration Date: **011626**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **10000**
NIST Test Number: **6UTB**

2% **40.0** **Nitric Acid**
(mL)

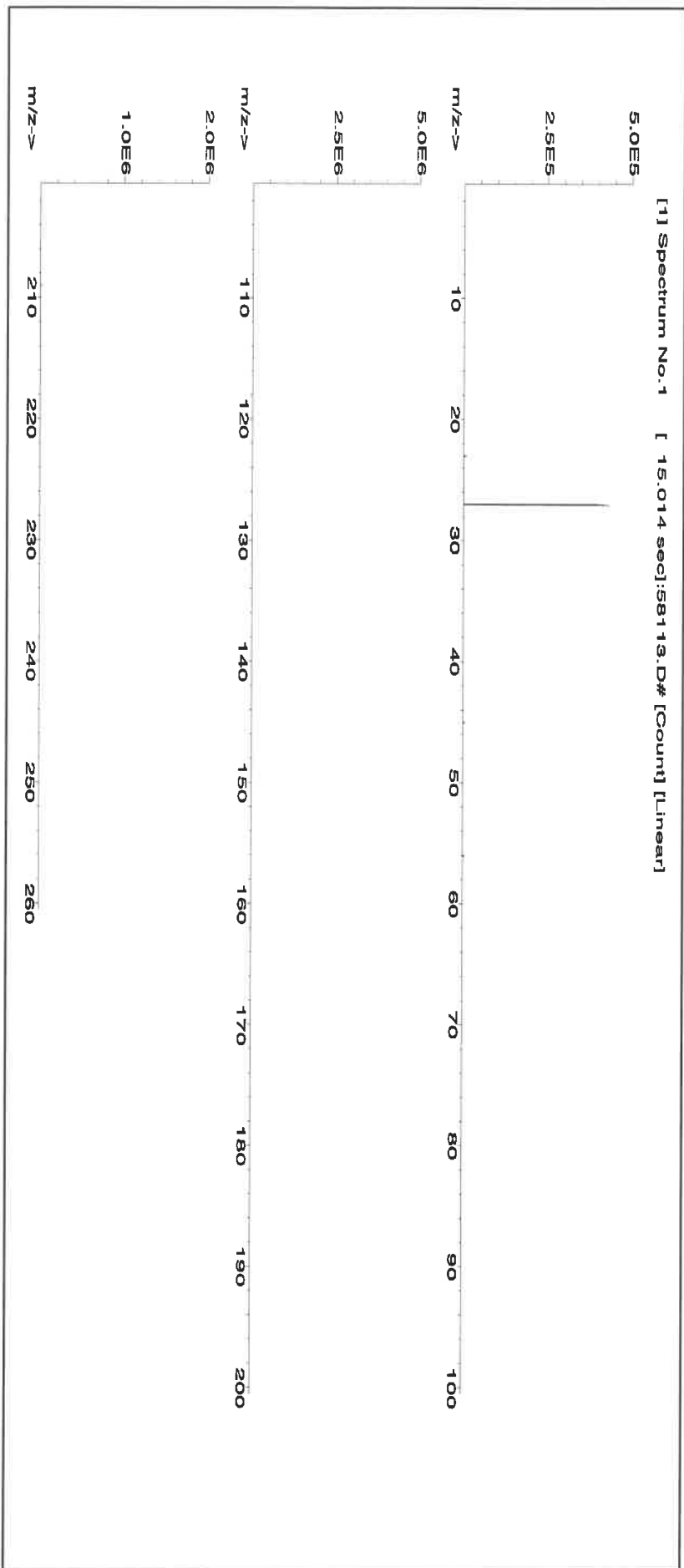
Weight shown below was diluted to (mL): **2000.02** **0.058** **Flask Uncertainty**

5E-05 **Balance Uncertainty**
5E-05 **Flask Uncertainty**

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	Pedro L. Rentas
	011623

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)	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]





CERTIFIED WEIGHT REPORT:

Part Number:

58120

Lot Number:

031523

Description:

Calcium (Ca)

Expiration Date:

031526

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

10000

NIST Test Number:

6UTB

Weight shown below was diluted to (mL):

3000.41

5E-05 Balance Uncertainty

0.058 Flask Uncertainty

Lot #

Solvent: 21110221 Nitric Acid

2% Nitric Acid

60.0

(mL)

Compound

NIST
SRMExpanded
Uncertainty

(Solvent Safety Info. On Attached pg.)

LD50

Actual

Conc. (µg/mL)

Actual

Weight (g)

Target

Assay

Purity (%)

Purity (%)

Nominal

Lot

RM#

Number

Conc. (µg/mL)

Purity (%)

Purity (%)

Purity (%)

1. Calcium carbonate (Ca)

IN014 CAD072022A1

10000

99.999

0.10

39.9

75.1990

75.2093

10001.4

20.0

471-34-1

5 mg/m3

or-rat >2000mg/kg 3109a

[1] Spectrum No.1 [12.514 sec]:58120.D# [Count] [Linear]

2.0E4

1.0E4

m/z-->

5.0E4

2.5E4

m/z-->

1.0E5

5.0E4

m/z-->

210

220

230

240

250

260

170

180

190

200



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
Sb	<0.02	Ca	T	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<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
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	<0.2	Fe	<0.02	Hg	<0.2	P	<0.2	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	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<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.
- * 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).



15497-15498 R: 03/17/23 (2)

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58120
031523
Calcium (Ca)

Solvent: 21110221 Nitric Acid

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

031526
Ambient (20 °C)
10000
6UTB

2% 60.0 Nitric Acid
(mL)

Weight shown below was diluted to (mL): 3000.41
5E-05 Balance Uncertainty
0.058 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)	SDS Information		
											(Solvent Safety Info. On Attached pg.)	LD50	NIST SRM

1. Calcium carbonate (Ca) IN014 CAD072022A1 10000 99.999 0.10 39.9 75.1990 75.2093 10001.4 20.0 471-34-1 5 mg/m3 or-rat >2000mg/kg 3109a

[1] Spectrum No.1 [12.514 sec]:58120.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	<0.02	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	<0.02	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	<0.2	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:

Ben. P. Davis

- * 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: **58119**
Lot Number: **120822**
Description: **Potassium (K)**

Solvent: 20510011 Nitric Acid

Lot #

Expiration Date: 120825

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 10000

NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 3000.4

2% 60.0 (mL) Nitric Acid

5E-05 Balance Uncertainty
0.06 Flask Uncertainty

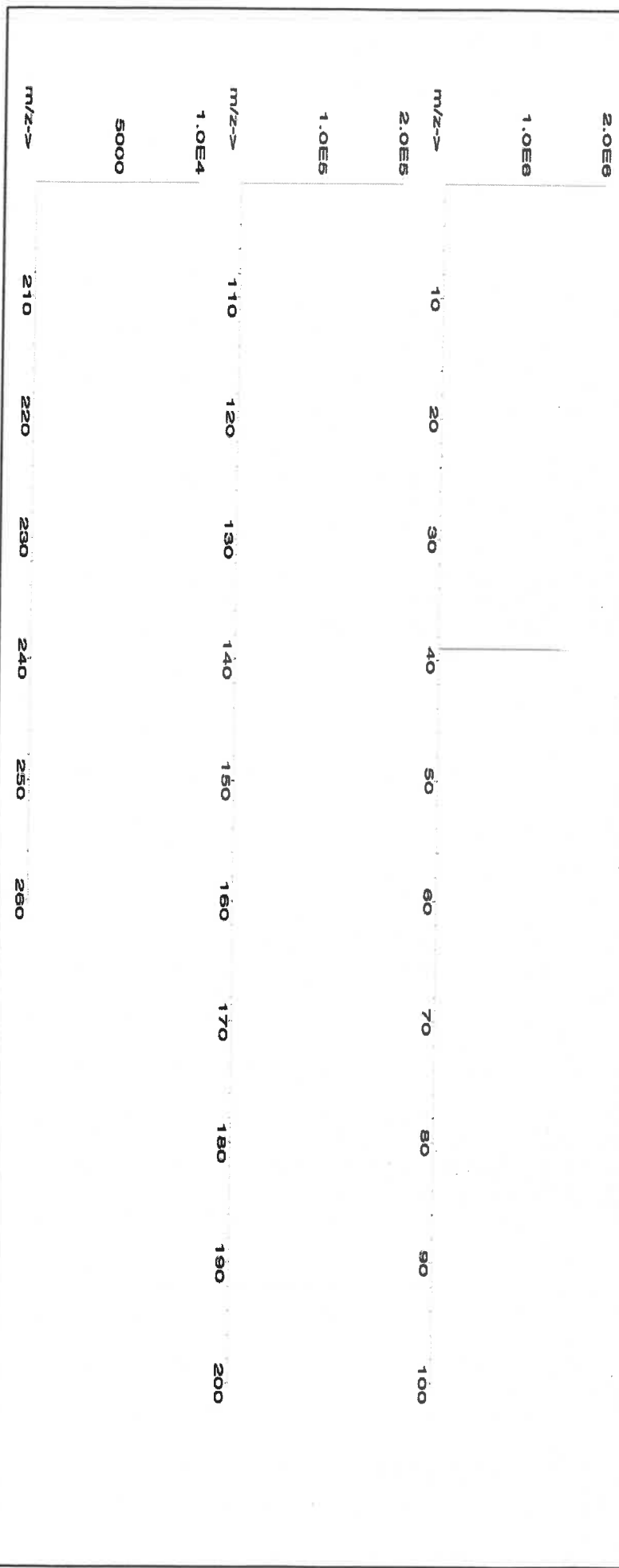
<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	Pedro L. Rentas
	120822

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. Potassium nitrate (K) IN034 KD022021A1 10000 99.989 0.10 37.6 79.7990 79.8075 10001.1 20.0 7757-79-1 5 mg/m3 crtat 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 (µg/mL)

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



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

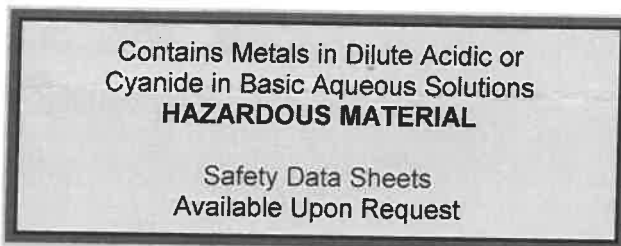
Instructions for QATS Reference Material: *Inorganic ICV Solutions*

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



CERTIFIED WEIGHT REPORT:

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

Lot # 2110221 **Solvent:** Nitric Acid

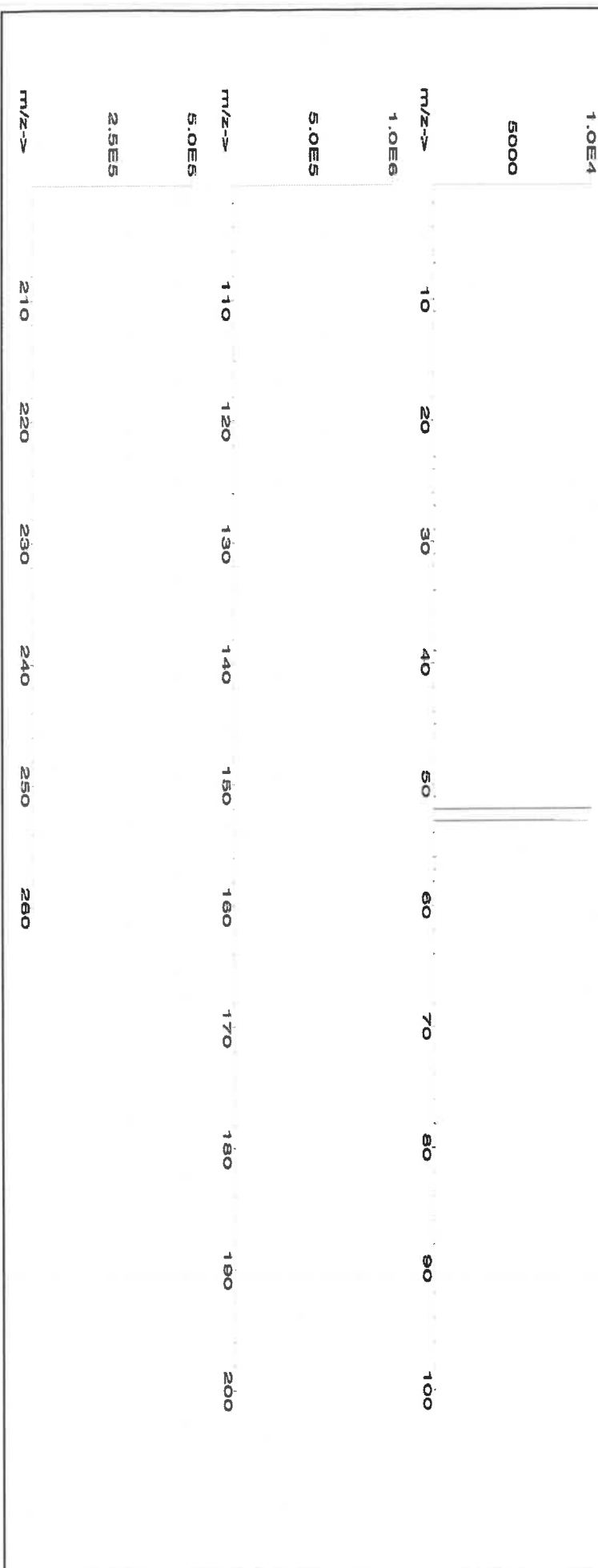
Formulated By:	Lawrence Barry
	060523
Reviewed By:	Pedro L. Ruelas
	060523

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





Certified Reference Material CRM



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

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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58029
102523
Copper (Cu)

Lot #
Solvent:

24002546
Nitric Acid

Expiration Date:

102526

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

2000.02

0.058

Balance Uncertainty
Flask Uncertainty

2.0%
40.0
(mL)

Nitric Acid

Formulated By: Benson Chan

102523

Reviewed By:

Pedro L. Rentas

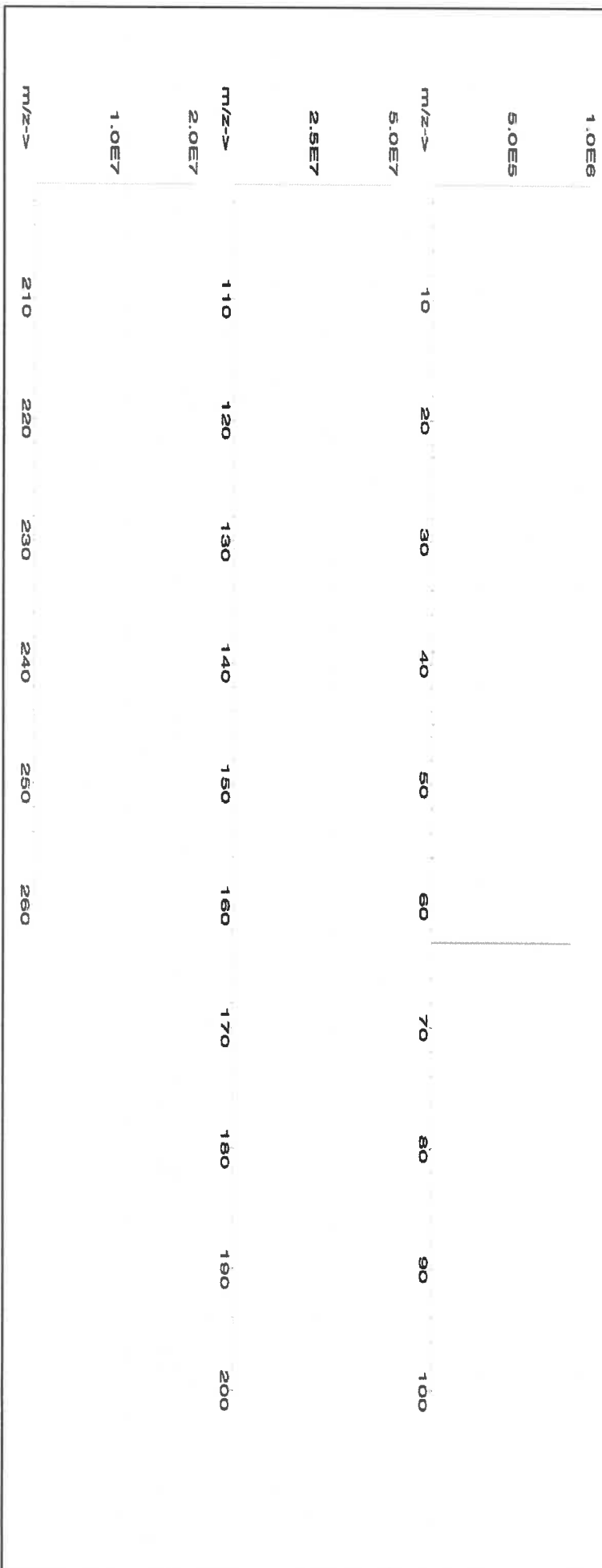
102523

SDS Information

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

1. Copper(II) nitrate trihydrate (Cu) 58129 100223 0.1000 200.0 0.084 1000 10000.1 1000.0 2.2 10031-43-3 1 mg/m3 or-rat 794 mg/kg 3114

[1] Spectrum No.1 [33.422 sec]:58029.D# [Count] [Linear]





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

(T) = Target analyte

Physical Characterization:

Certified by:

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

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



Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT:

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

Solvent: 24002546 Nitric Acid

Lot #

R: 12/20/23 MS747

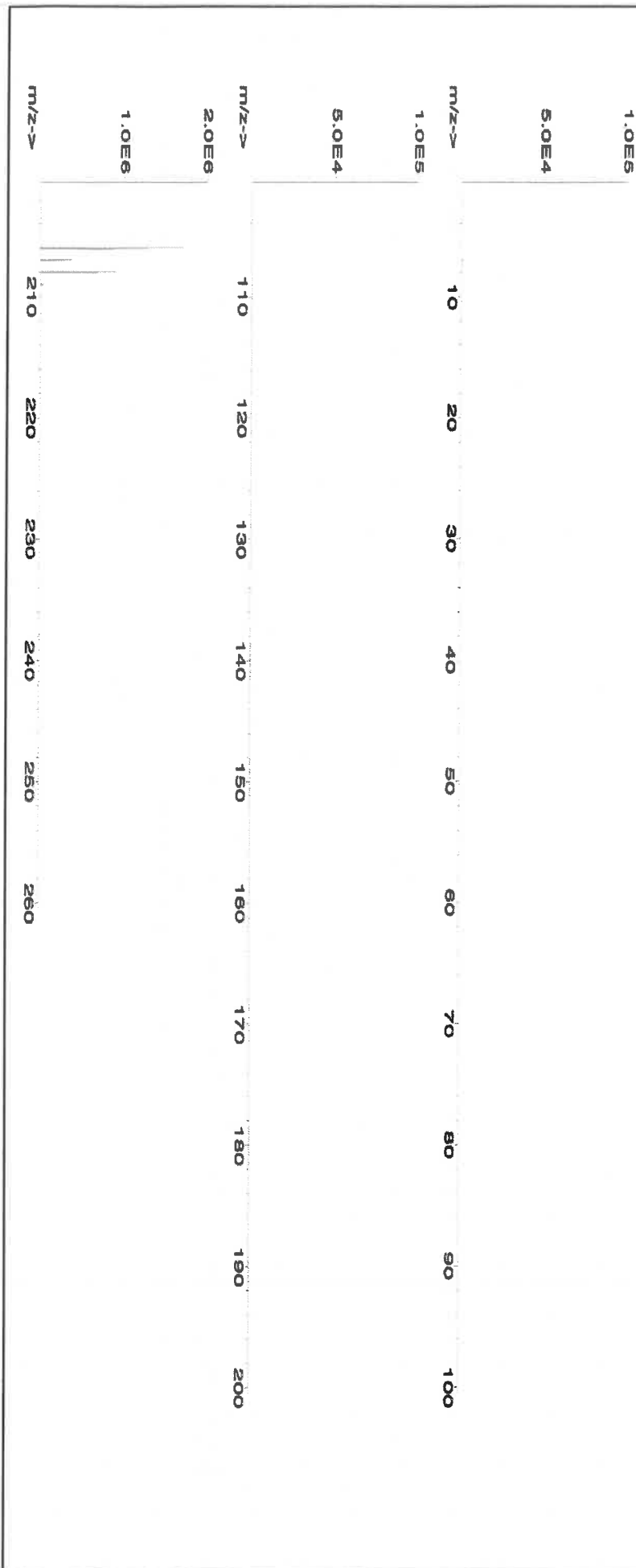
Formulated By:	Lawrence Barry	100923
Reviewed By:	Pedro L. Rentes	100923

Expiration Date: 100926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 3000.41
Balance Uncertainty: 5E-05
Flask Uncertainty: 0.06

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]





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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: **57028**
Lot Number: **091223**
Description: **Nickel (NI)**

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

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

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

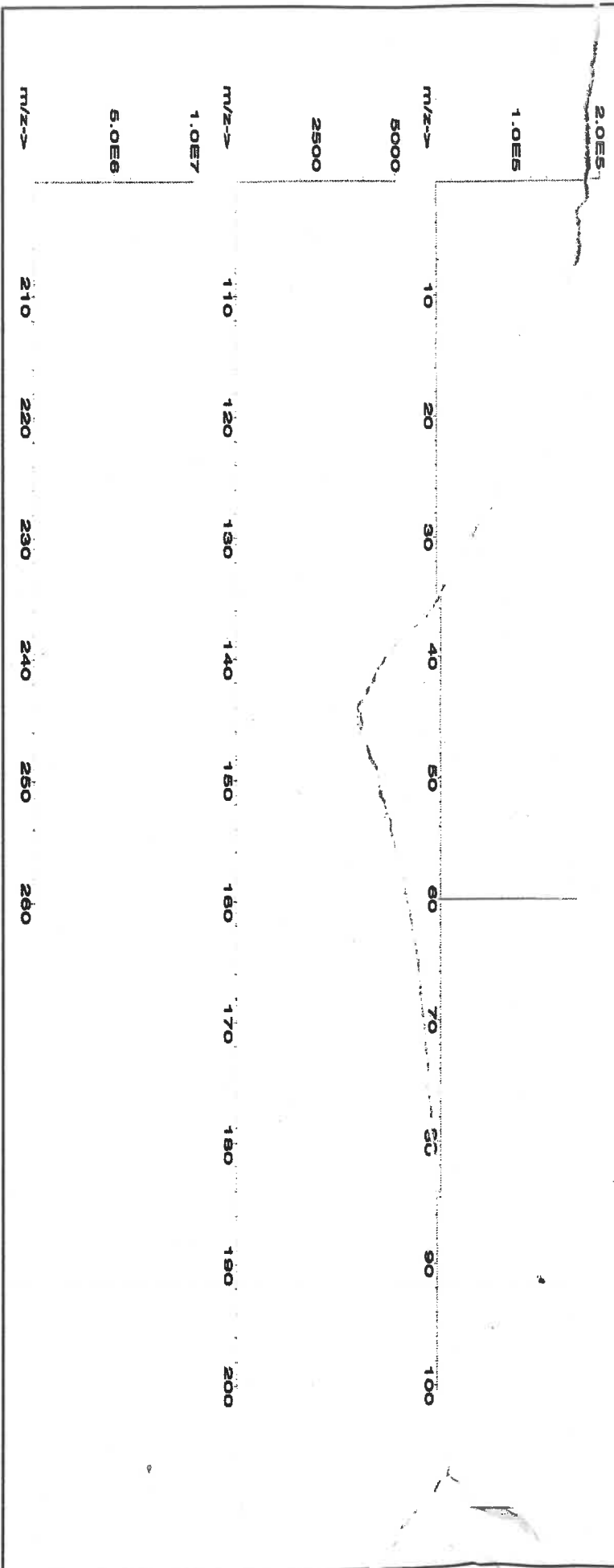
Volume shown below was diluted to (mL): **2000.02** **5E-05** **Balance Uncertainty**
0.056 **Flask Uncertainty**

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

Compound	Part Number	Lot Number	Dilution Factor	Initial Vd. (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. Nickel(II) nitrate hexahydrate (NI) 58128 062023 0.1000 200.0 0.084 1000 10000.4 1000.0 2.2 13478-00-7 1 mg/m3 or-rel 1620 mg/kg 3136

[1] Spectrum No.1 [9.135 sec]:56028.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM

R: 8/25/23 M5751



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58029
071723
Copper (Cu)

Lot #
Solvent:

21110221 Nitric Acid

2.0% 40.0 (mL) Nitric Acid

Expiration Date:

071726

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

2000.02

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

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

Compound

Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Copper(II) nitrate trihydrate (Cu) 58129 022723 0.1000 200.0 0.084 1000 10000.5 1000.0 2.2 10031-43-3 1 mg/m3 or rat 794 mg/kg 3114

[1] Spectrum No. 1 [33.422 sec]: 58029.D# [Count] [Linear]

1.0E6	10	20	30	40	50	60	70	80	90	100
5.0E5										
m/z ->	10	20	30	40	50	60	70	80	90	100
5.0E7										
m/z ->	110	120	130	140	150	160	170	180	190	200
2.0E7										
m/z ->	210	220	230	240	250	260				
1.0E7										

Absolute Standards, Inc.

800-368-1131
www.absolutestandards.com



Certified Reference Material CRM



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

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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: 57004
Lot Number: 102523
Description: Beryllium (Be)

Lot # 24002546
Solvent: Nitric Acid

Expiration Date:

102526

2.0%

40.0 (mL)

Nitric Acid

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL): 2000.02

5E-05 Balance Uncertainty

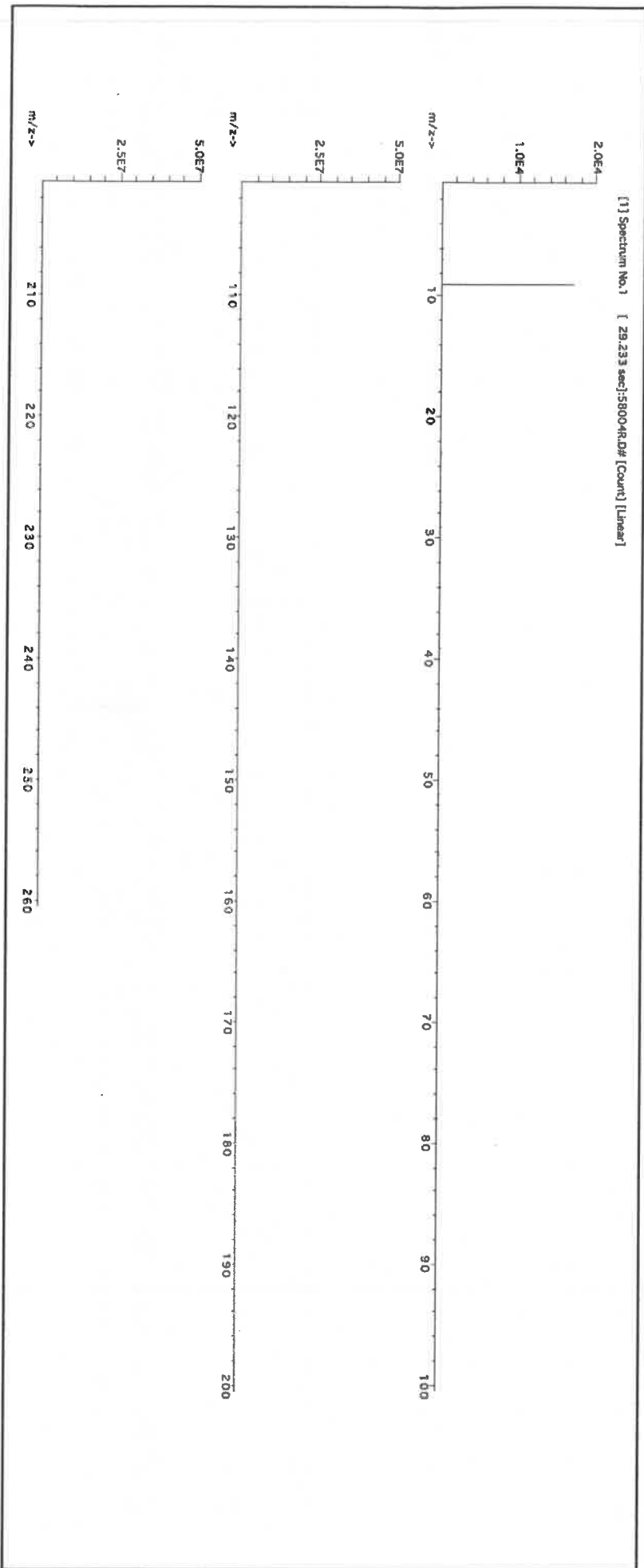
0.058 Flask Uncertainty

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

SDS Information

Compound	Part Number	Lot	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	intrinsc-rat 3.16mg/kg	NA
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Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

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

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	Tc	<0.02	U	<0.02
As	<0.02	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	T	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Ta	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM

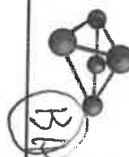
CERTIFIED WEIGHT REPORT:

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

Solvents: 21110221 Nitric Acid
22D0562008 Hydrochloric acid

Lot #

1599



Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

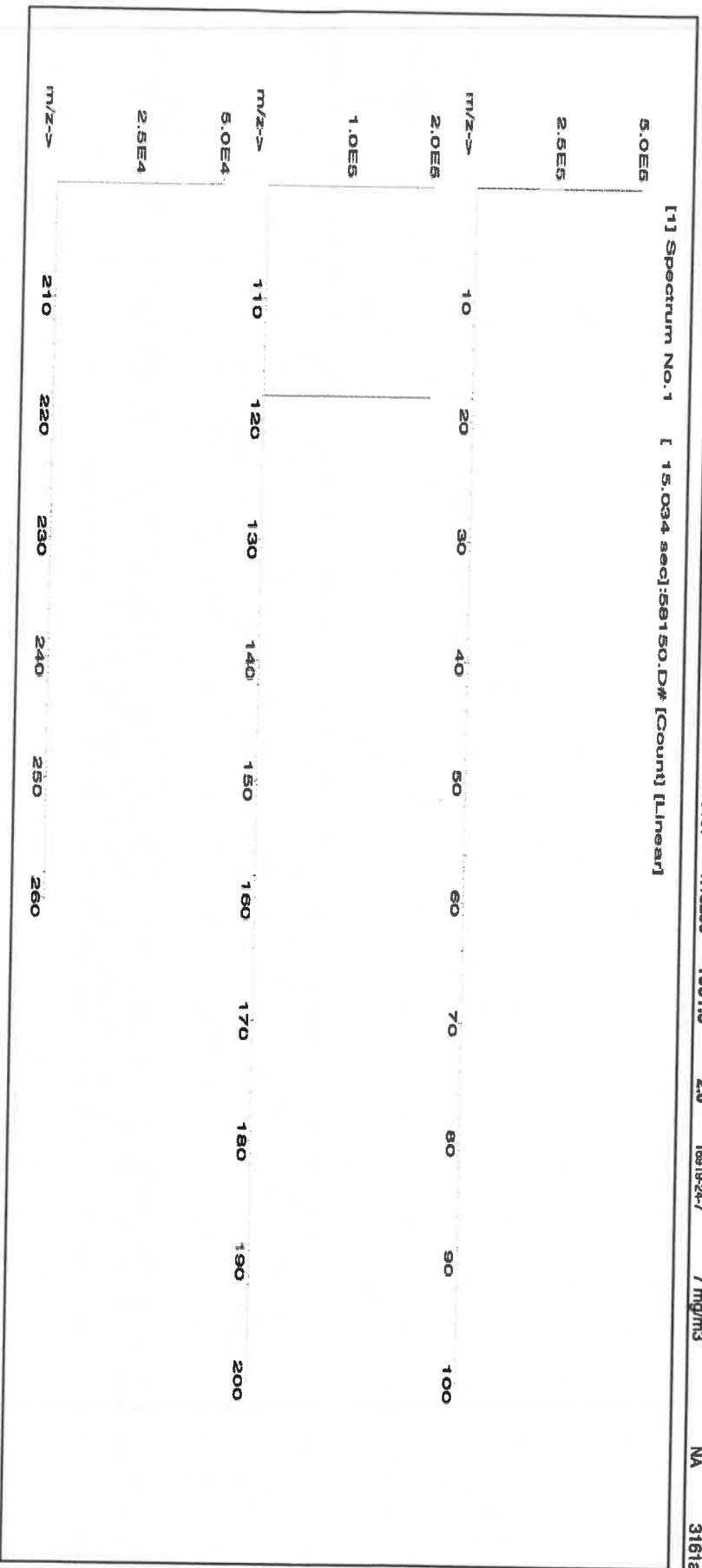
Weight shown below was diluted to (mL): 499.93

Formulated By:	Benson Chan	071123
Reviewed By:	Pedro L. Rientas	071123

SDS Information									
Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)

1. Ammonium hexafluoroantimonate(V) (Sn)	IN010 SMD042023A1	1000	99.999	0.10	44.2	1.13107	1.13286	1001.6	2.0
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[1] Spectrum No. 1 [15.034 sec] :56150.D# [Count] [Linear]





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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<500	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Ta	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



R: 02/09/24 115800 (54)

CERTIFIED WEIGHT REPORT:

Part Number: 57027
Lot Number: 091923
Description: Cobalt (Co)

Expiration Date: 091926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 2000.02

Lot # 24002546
Solvent: Nitric Acid

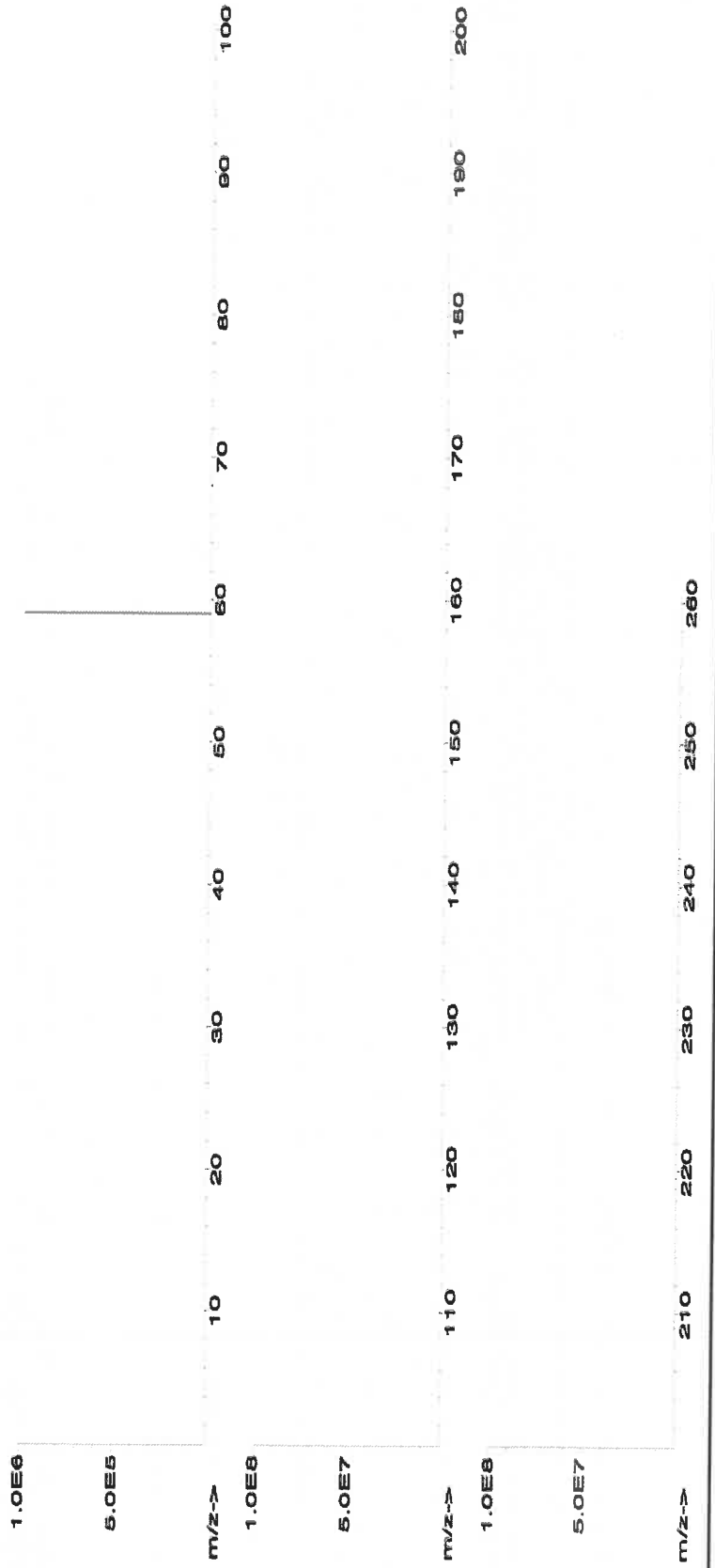
Formulated By: Lawrence Barry 091923
Reviewed By: Pedro L. Rentas 091923

SDS Information

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

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	<0.02	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

AR: 02/09/24

M5801

BA



CERTIFIED WEIGHT REPORT:

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

Lot # 24002546
Solvent: Nitric Acid

Expiration Date:

111326

2.0%

80.0 (mL)

Nitric Acid

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6LUTB

Volume shown below was diluted to (mL):

4000.0

5E-05

Balance Uncertainty
Flask Uncertainty

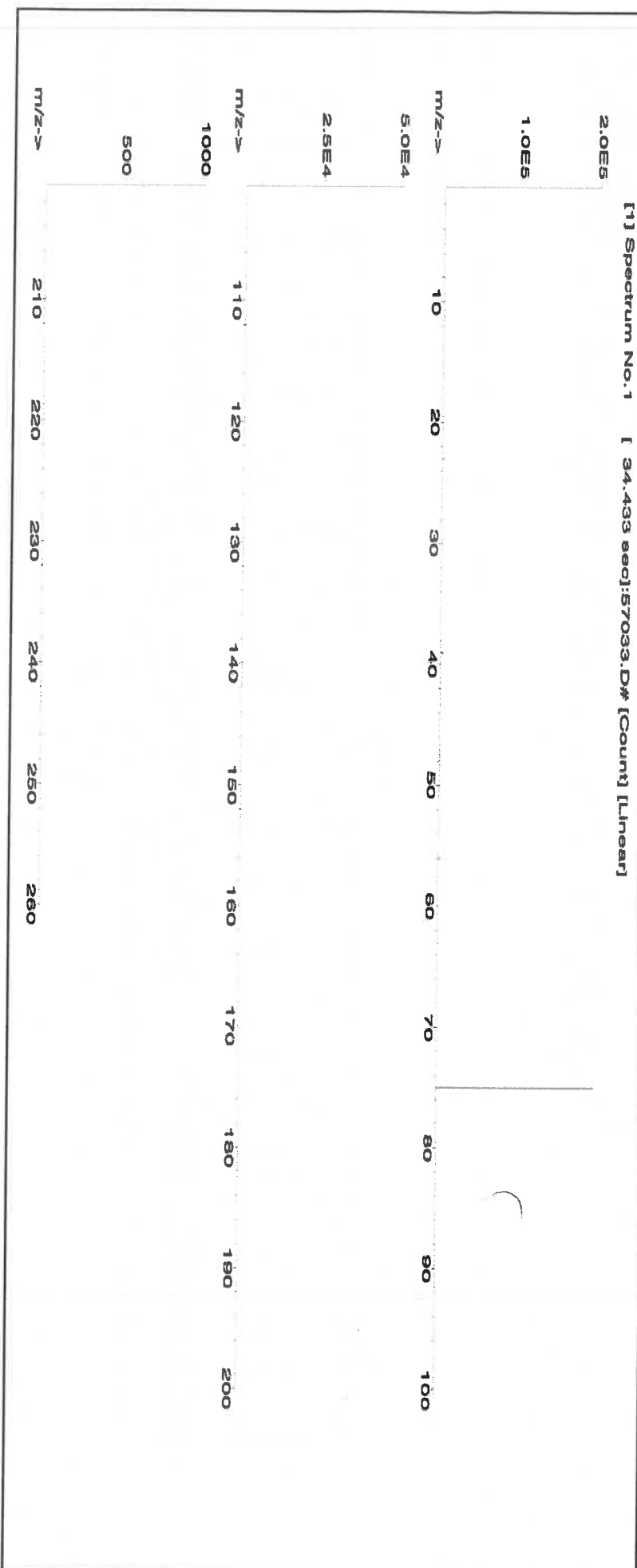
Formulated By:	Lawrence Barry	111323
Reviewed By:	Pedro L. Rendas	111323

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)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Arsenic (As) 58133 020522 0.1000 400.0 0.084 1000 10001.0 1000.0 2.0 7440-38-2 0.5 mg/m3 or-lat 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	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<0.02	U	<0.02
As	T	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Bc	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge*	<0.02	La	<0.02	Mo	<0.02	Pr	<0.02	Sm	<0.02	S	<0.02	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).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: **57005**
Lot Number: **071123**
Description: **Boron (B)**

Solvent: MKB8697V Ammonium hydroxide

Lot #

AI: 021009124 M5814

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

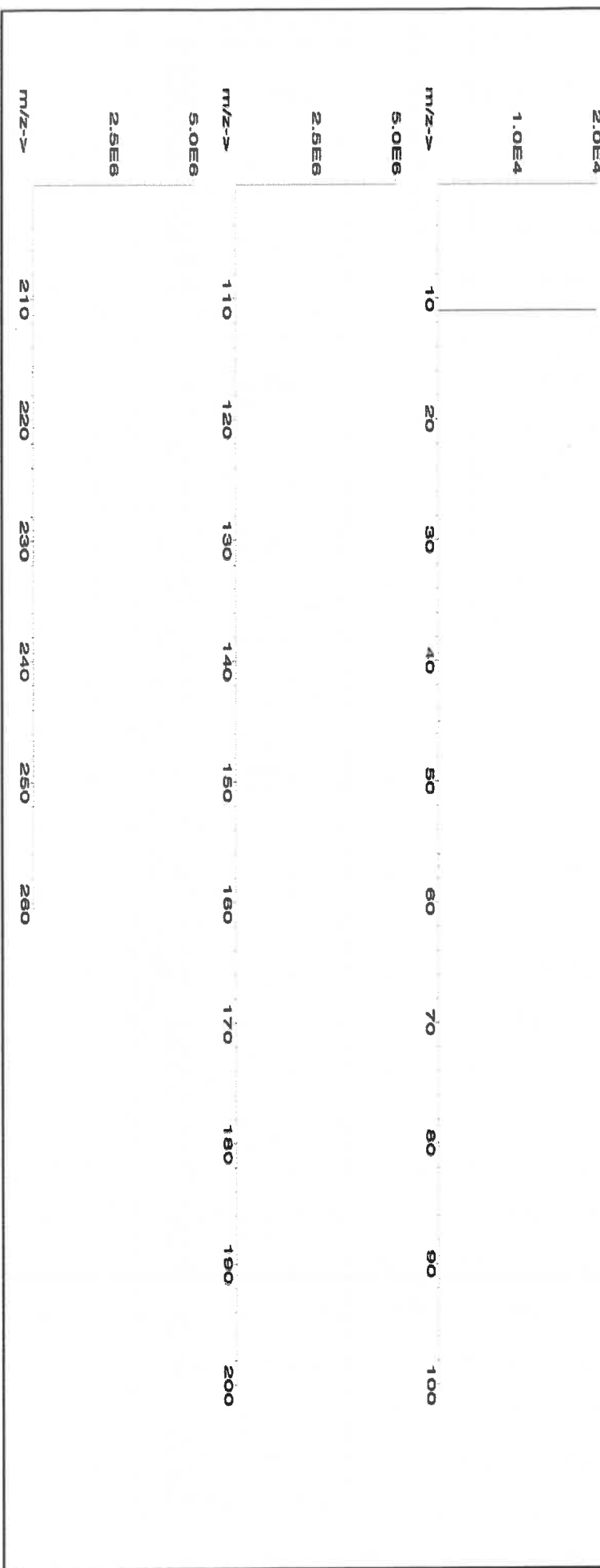
2.0% 40.0 Ammonium hydroxide (mL)

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
T		Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57115
041723
Phosphorous (P)

Solvent: 21110221 Nitric Acid

Lot #

R102109124 M5815

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

041726
Ambient (20 °C)
10000
6UTB

2% 40.0 (mL) Nitric Acid

Weight shown below was diluted to (mL): 2000.02 0.058 Balance Uncertainty
Flask Uncertainty

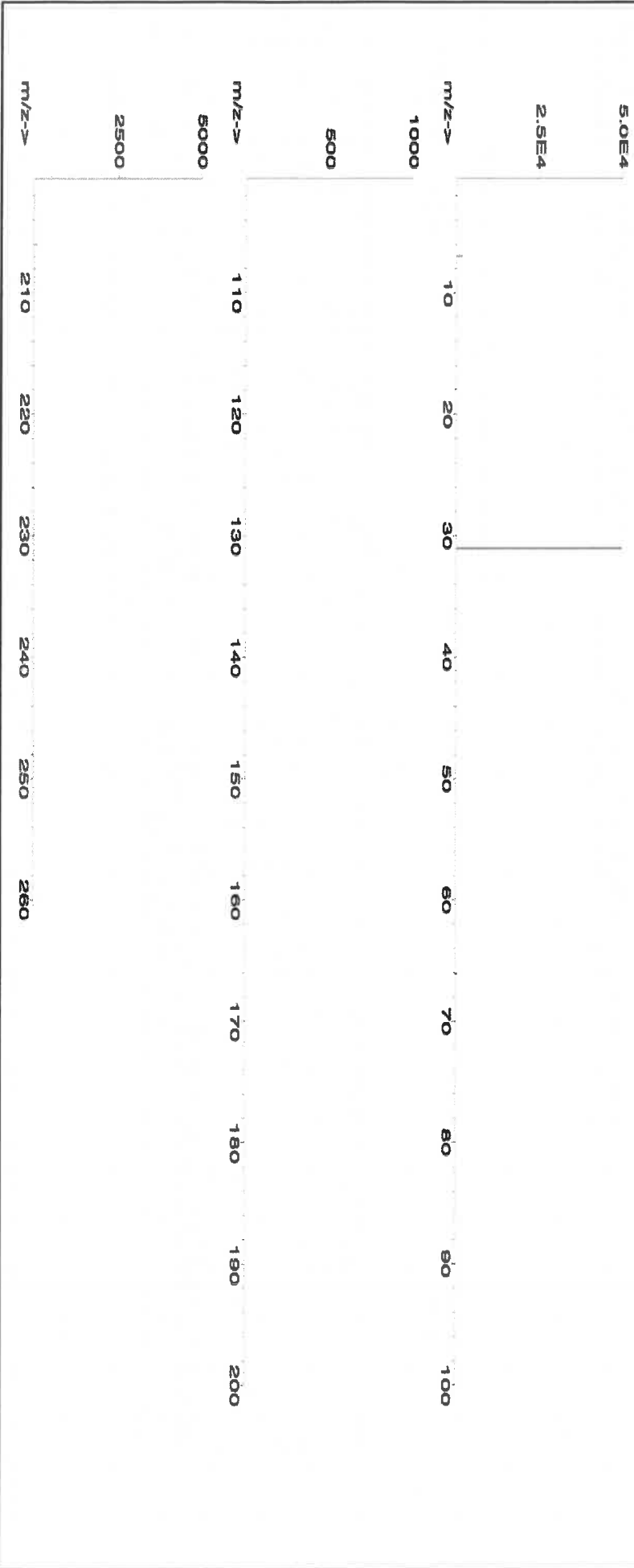
Formulated By:	Lawrence Barry
	041723
Reviewed By:	Pedro L. Rentas
	041723

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 dihydrogen phosphate (P) IN008 PVR2019A1 10000 99.999 0.10 27.5 72.7287 72.7289 10000.0 20.0 7722-76-1 5 mg/m3 or-hal->2000mg/kg 3186

[1] Spectrum No.1 [12.074 sec]:58115.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	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 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: 57016
Lot Number: 122923
Description: Sulfur (S)

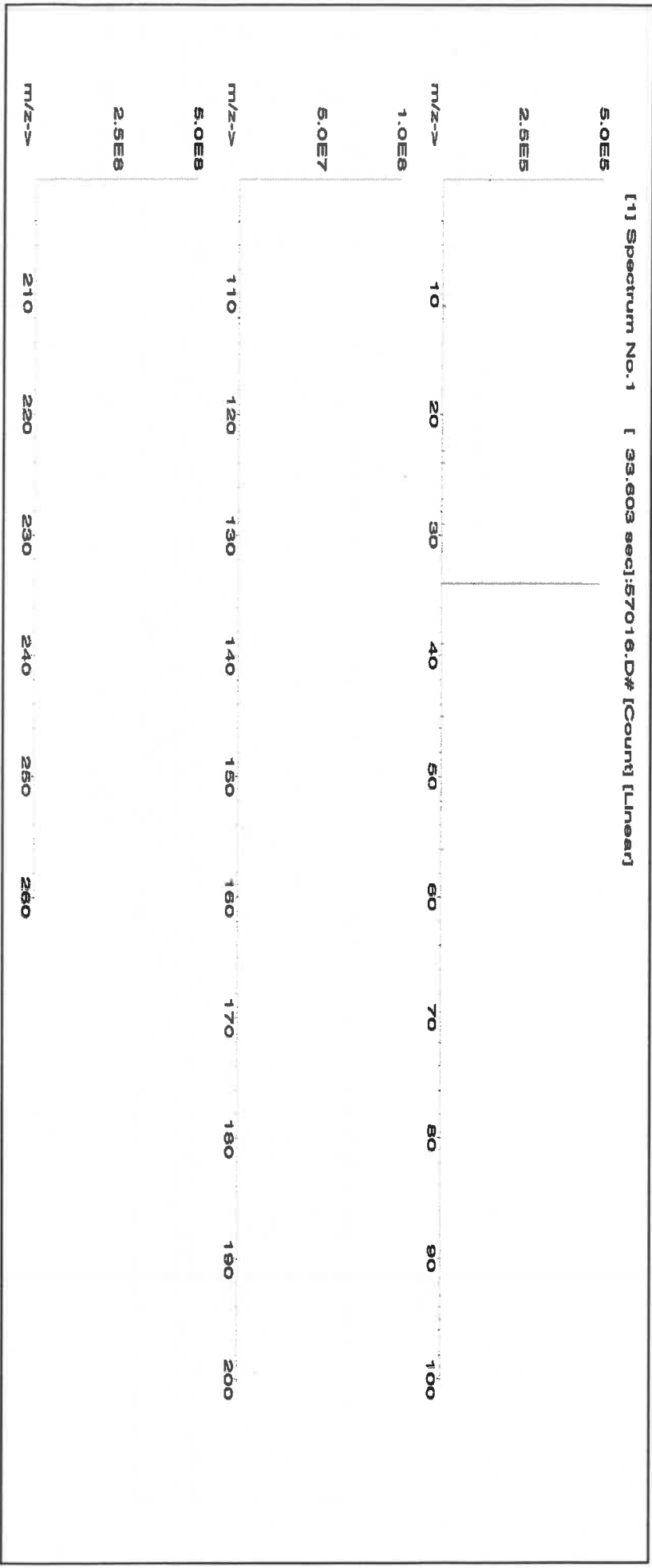
Solvent: 122923
ASTM Type 1 Water

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

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
SE-05 Balance Uncertainty
0.06 Flask Uncertainty

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

1. Ammonium sulfate (S) IN117 SLBR725V 1000 99.9 0.10 24.3 16.4979 16.4980 1000.0 2.0 7783-20-2 NA or-rel 4250mg/kg 3181





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:

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

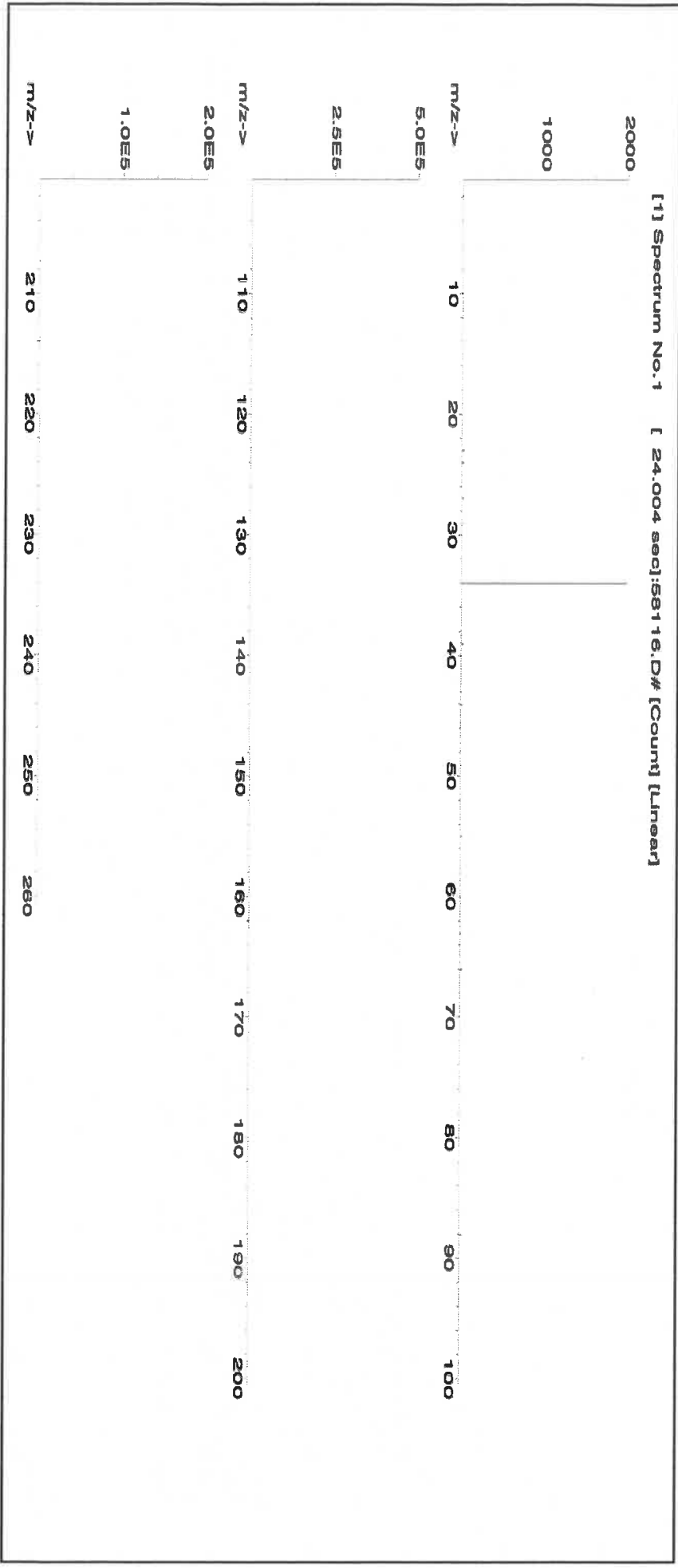
Solvent: **071123** Lot #
ASTM Type 1 Water

Formulated By:	Lawrence Barry
Reviewed By:	Pedro L. Rentas
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)
									CAS# OSHA PEL (TWA) LD50 SRM

1. Ammonium sulfate (S)	IN117	SLBR725V	10000	99.9	0.10	24.3	82.4675	82.4692	10000.1	20.0	7783-20-2	NA	oral 4250mg/kg	3181
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Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	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	Ti	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	T	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

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



CERTIFIED WEIGHT REPORT:

Part Number: 58030
Lot Number: 111623
Description: Zinc (Zn)

Solvent: 24002546 Nitric Acid

Lot # R: 02109124 MS819

Expiration Date: 111626

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 3000.4

5E-05 Balance Uncertainty

0.06 Flask Uncertainty

2% 60.0 (mL) Nitric Acid

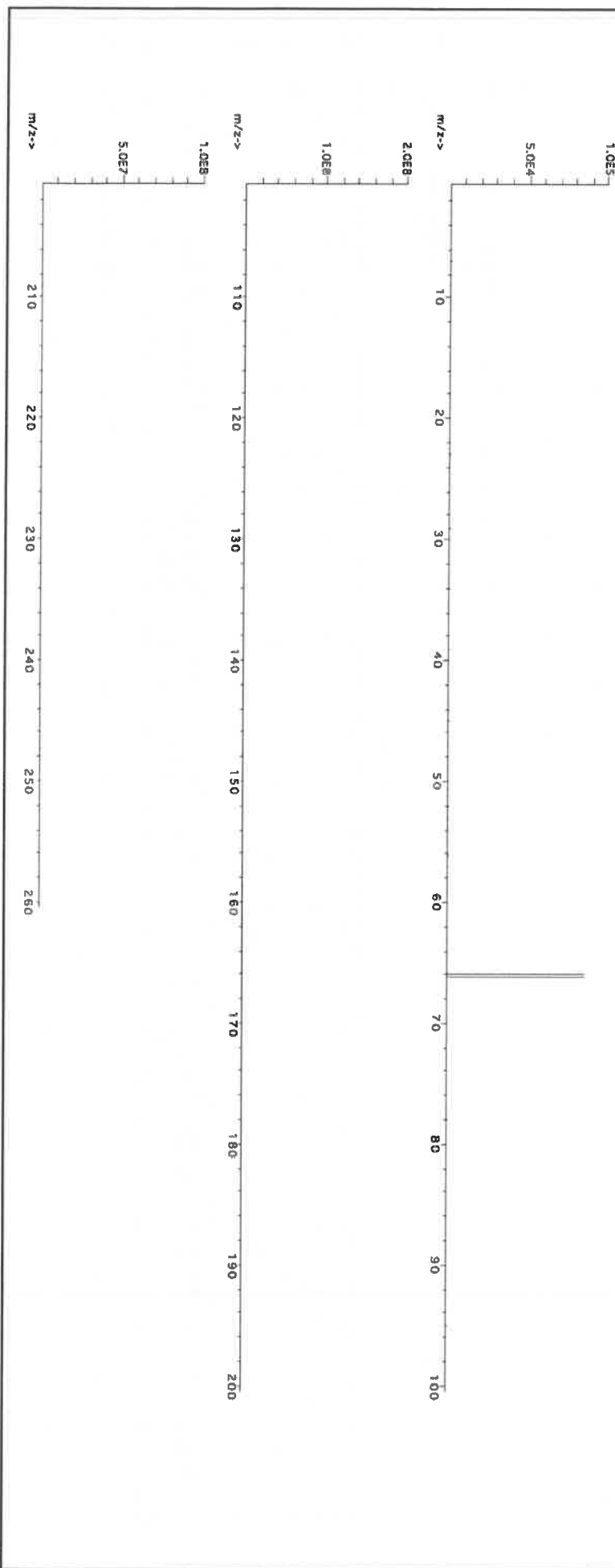
Formulated By:	Benson Chan	111623
Reviewed By:	Pedro L. Reintias	111623

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)	LDSO	NIST SRM
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1. Zinc nitrate hexahydrate (Zn) IN016 ZNE03021A1 1000 99.999 0.10 24.3 12.3475 12.3502 1000.2 2.0 10196-18-6 1 mg/mL 3168 on-rat 1190mg/kg

[1] Spectrum No.1 [31.103 sec]58130.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	Bu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.2	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.
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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: 57015
Lot Number: 091123
Description: Phosphorous (P)

Solvent: 24002546 Nitric Acid

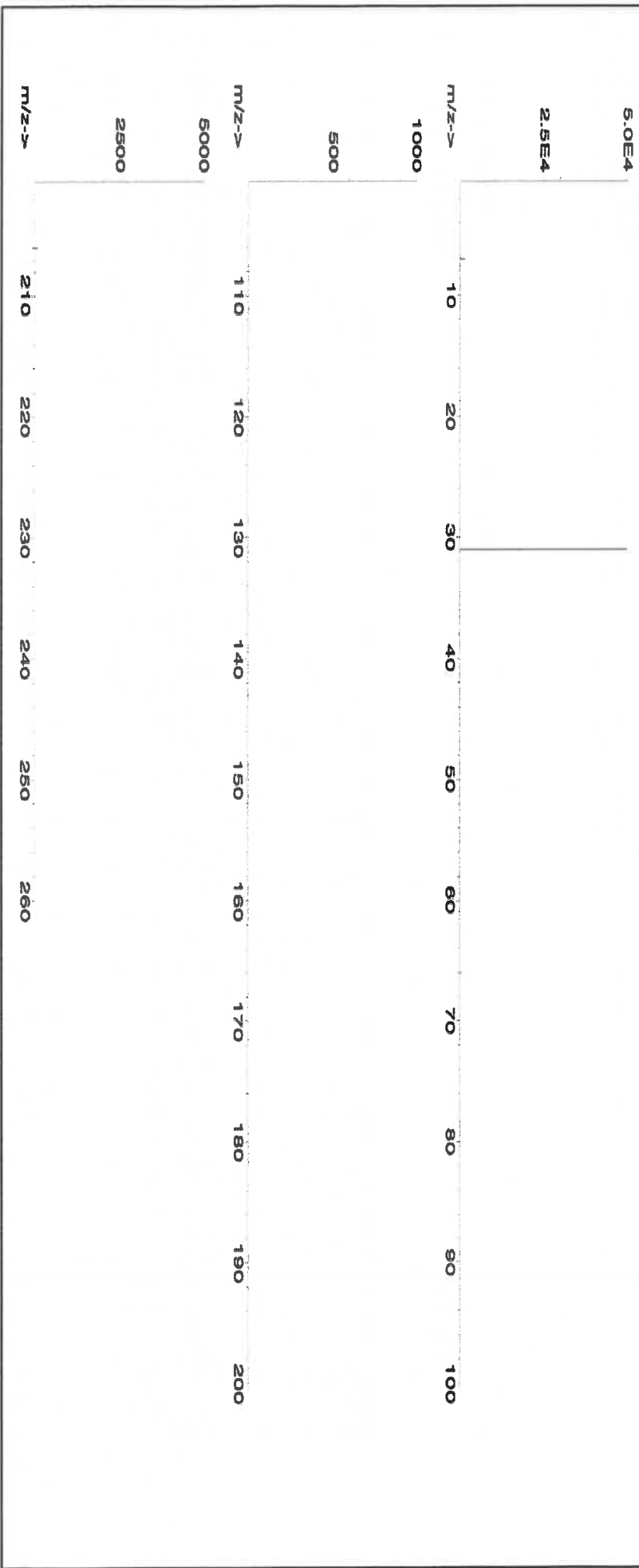
Lot #

Formulated By:	Lawrence Barry
	091123
Reviewed By:	Pedro L. Rentas
	091123

Expiration Date: 091126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6LUTB
Weight shown below was diluted to (mL): 2000.02
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

SDS Information									
Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)
Ammonium dihydrogen phosphate (P)	IN008	PV082019A1	1000	99.999	0.10	27.5	7.2729	7.2730	1000.0
							2.0	7722-76-1	5 mg/m3
									rl-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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- * 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

avantor™



MS824
MB

Material No.: 3624-01

Batch No.: 0000281938

Manufactured Date: 2021-06-07

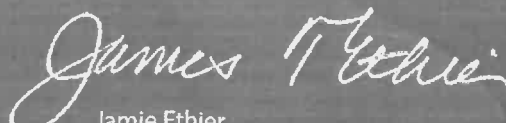
Retest Date: 2026-06-07

Revision No.: 1

Certificate of Analysis

Test	Specification	Result
Assay (NaCl) (by Ag titrn)	≥ 99.0 %	100.0 %
pH of 5% Solution at 25°C	5.0 - 9.0	6.3
Insoluble Matter	≤ 0.005 %	0.003 %
Iodide (I)	≤ 0.002 %	< 0.002 %
Bromide (Br)	≤ 0.01 %	< 0.01 %
Chlorate and Nitrate (as NO ₃)	≤ 0.003 %	< 0.001 %
ACS - Phosphate (PO ₄)	≤ 5 ppm	< 5 ppm
Sulfate (SO ₄)	≤ 0.004 %	< 0.004 %
Barium (Ba)	Passes Test	Passes Test
ACS - Heavy Metals (as Pb)	≤ 5 ppm	< 5 ppm
Iron (Fe)	≤ 2 ppm	< 1 ppm
Calcium (Ca)	≤ 0.002 %	< 0.001 %
Magnesium (Mg)	≤ 0.001 %	< 0.001 %
Potassium (K)	≤ 0.005 %	0.001 %

For Laboratory, Research, or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs
Country of Origin: USA
Packaging Site: Paris Mfg Ctr & DC


Jamie Ethier
Vice President Global Quality

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

Avantor Performance Materials, LLC

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

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:

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

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

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

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

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.absolutestandards.com



Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT:

Lot #

MS961 R-611124

Part Number:

Solvent: 24002546 Nitric Acid

Lot Number:

041124

Description:

Nickel (NI)

Expiration Date:

041127

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Weight shown below was diluted to (mL):

249.85

5E-05 Balance Uncertainty
0.002 Flask Uncertainty

2% 5.0 (mL) Nitric Acid

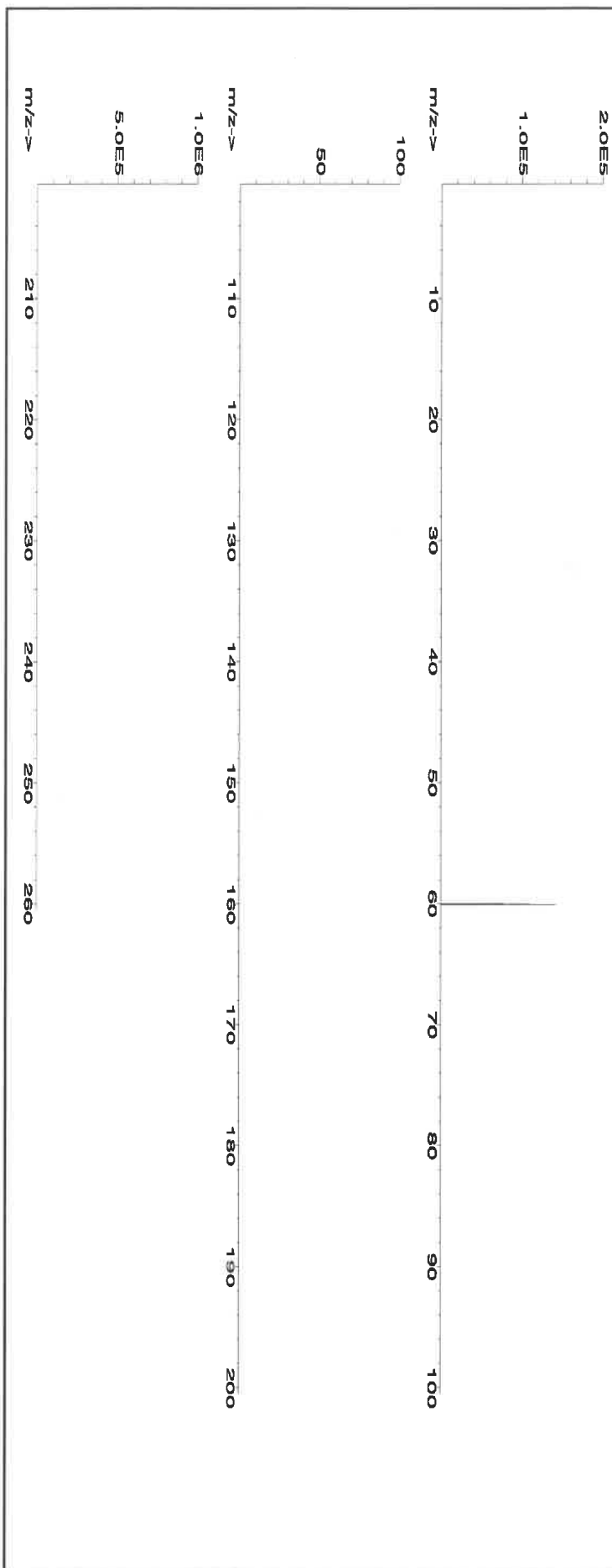
Formulated By:	Brian Geddes	041124
Reviewed By:	Pedro L. Rentas	041124

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. Nickel(II) nitrate hexahydrate (NI) IN033 NIM052023A1 1000 99.999 0.10 20.2 1.2369 1.2369 1000.0 2.0 13478-00-7 1 mg/m3 or-rat 1620 mg/kg 3136

[1] Spectrum No.1 [12.374 sec]:58128.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	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	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Ba	<0.02	Eu	<0.02	Mg	<0.01	Os	<0.02	Rh	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	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Bc	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	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	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	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).

Absolute Standards, Inc.

800-368-1131
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Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT:

Part Number:

57034

Lot Number:

060624

Description:

Selenium (Se)

Lot # Solvent:

24002546 Nitric Acid

2.0% 40.0 (mL)

Nitric Acid

Expiration Date:

060627

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

2000.07

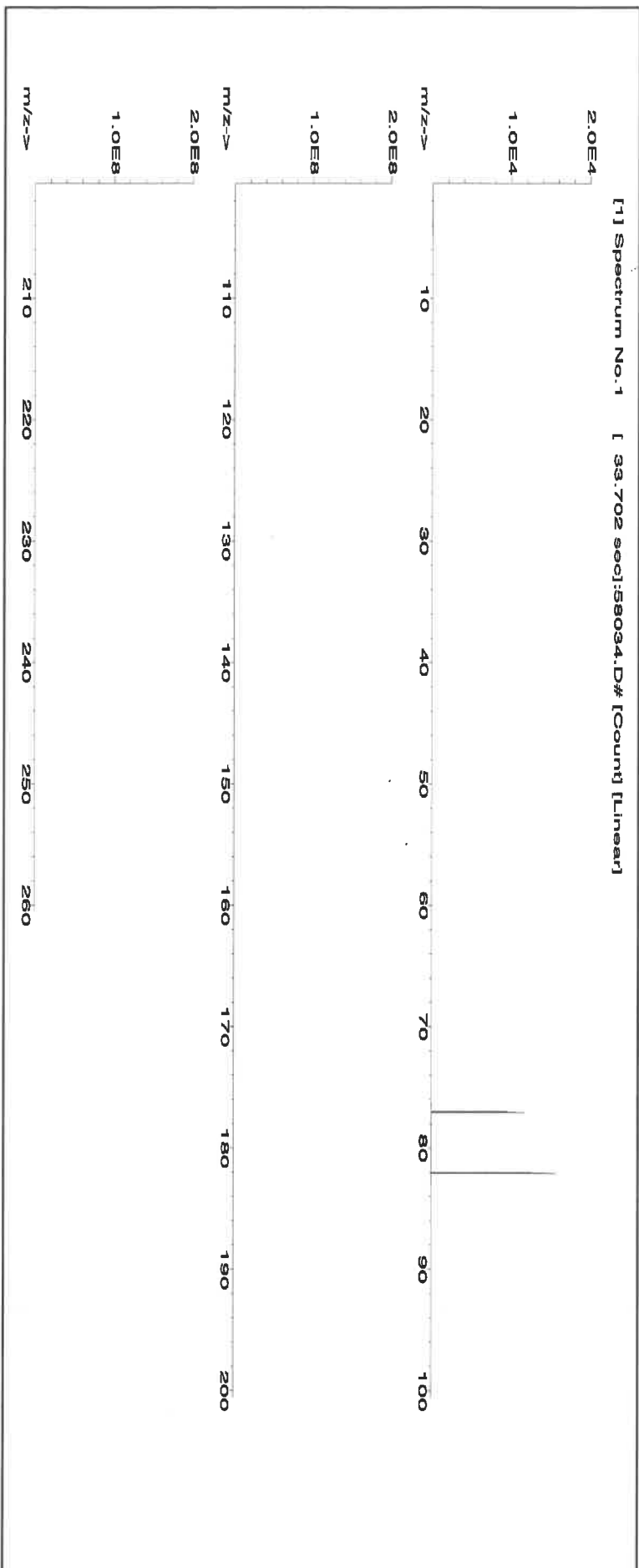
SE-05 Balance Uncertainty
0.100 Flask Uncertainty

Compound

Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.)	NIST SRM
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1. Selenium (Se)	58134	071223	0.1000	200.0	0.084	1000	10002.5	1000.0	2.2	7782-49-2	0.2 mg/m3	or-tral 6700 mg/kg	3149
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[1] Spectrum No. 1 [33.702 sec]:58034.D# [Count] [Linear]



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Certified Reference Material CRM



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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

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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: 06/27
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 250.11
SE-05 Balance Uncertainty: 0.016
Fisk Uncertainty:

Lot # 24002546
Solvent: Nitric Acid

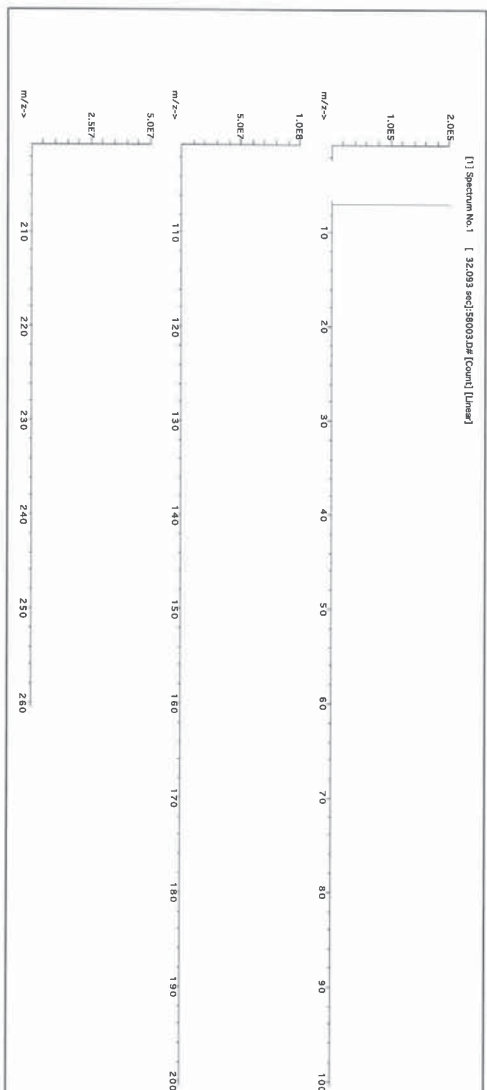
2.0% **5.0 (mL)** **Nitric Acid**

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

Compound	SDS Information																NIST
	Part Number	Lot Number	Dilution Factor	(Solvent Safety Info. On Attached pg.)												SM	
				Initial Vol. (mL)	Uncertainty	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty ± (µg/mL)	CAS#	OSHA PEL (TWA)	LD50					

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

[1] Spectrum No. 1 [32.093 sec; 15000.0Hz [Count [Time]]



Part # 57003 Lot # 062124

1 of 2

Printed: 6/24/2024, 11:20:08 PM

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: CGMO1
Lot Number: T2-MO720876
Matrix: H2O
tr. NH4OH
Value / Analyte(s): 1 000 µg/mL ea:
Molybdenum
Starting Material: Ammonium Molybdate
Starting Material Lot#: 2361
Starting Material Purity: 99.9893%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 998 ± 7 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 3134 Lot Number: 130418

- 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	<	0.000590	M	Eu	<	0.000300	M	Na		0.000879	M	Se	<	0.008000	M	Zn		0.000598
M	Al		0.000563	M	Fe	<	0.006500	M	Nb	<	0.029000	i	Si	<		M	Zr	<	0.001800
M	As	<	0.002100	M	Ga	<	0.000300	i	Nd	<		M	Sm	<	0.000300				
M	Au	<	0.000300	M	Gd	<	0.000300	M	Ni	<	0.008000	M	Sn	<	0.008900				
M	B	<	0.003300	M	Ge	<	0.000300	M	Os	<	0.000590	M	Sr		0.000175				
M	Ba		0.001689	M	Hf	<	0.001800	i	P	<		M	Ta	<	0.004200				
M	Be	<	0.000890	M	Hg	<	0.003300	M	Pb	<	0.000300	M	Tb	<	0.000300				
M	Bi	<	0.000890	M	Ho	<	0.000300	M	Pd	<	0.001800	M	Te	<	0.021000				
O	Ca		0.006334	M	In	<	0.032000	M	Pr	<	0.013000	M	Th	<	0.000300				
O	Cd	<	0.026000	M	Ir	<	0.000300	M	Pt	<	0.000300	O	Tl	<	0.032000				
M	Ce	<	0.008300	M	K		0.130213	M	Rb		0.004575	M	Tl		0.001266				
M	Co		0.000598	M	La	<	0.000300	M	Re	<	0.000300	M	Tm	<	0.000300				
M	Cr		0.000527	O	Li		0.000059	M	Rh	<	0.000300	M	U	<	0.005300				
M	Cs		0.000527	M	Lu	<	0.000300	M	Ru	<	0.079000	M	V	<	0.000890				
M	Cu		0.002252	M	Mg		0.000563	i	S	<		M	W		0.087982				
M	Dy	<	0.000300	M	Mn	<	0.005900	M	Sb		0.001513	M	Y	<	0.000300				
M	Er	<	0.000300	s	Mo	<		M	Sc	<	0.001200	M	Yb	<	0.000300				

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 - 95.94 +6 6,7,8,9

[MoO₄]-2(chemical form as received)

Chemical Compatibility -Mo is received in a NH₄OH matrix giving the operator the option of using HCl or HF to stabilize acidic solutions. The [MoO₄]-2 is soluble in concentrated HCl [MoOCl₅]-2, dilute HF / HNO₃ [MoOF₅]-2 and basic media [MoO₄]-2. Stable at ppm levels with some metals provided it is fluorinated. Do not mix with Alkaline or Rare Earths when HF is present. Stable with most inorganic anions provided it is in the [MoO₄]-2 chemical form.

Stability - 2-100 ppb levels stable (alone or mixed with all other metals that are at comparable levels) as the [MoOF₅]-2 for months in 1% HNO₃ / LDPE container. 1-10,000 ppm single element solutions as the [MoO₄]-2 chemically stable for years in 1% NH₄OH in a LDPE container.

Mo Containing Samples (Preparation and Solution) -Metal (Soluble in HF / HNO₃ or hot dilute HCl); Oxide (soluble in HF or NH₄OH) ; Organic Matrices (Dry ash at 450EC in Pt0 and dissolve oxide with HF or 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 95 amu	3 ppt	n/a	40Ar39K16O,79Br16O,190Os2+,190Pt2+
ICP-OES 202.030 nm	0.008 / 0.0002 µg/mL	1	Os, Hf
ICP-OES 203.844 nm	0.012 / 0.002 µg/mL	1	
ICP-OES 204.598 nm	0.012 / 0.001 µg/mL	1	Ir, Ta

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: 800.669.6798; 540.585.3030, Fax: 540.585.3012; info@inorganicventures.com; inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

July 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

- July 17, 2027

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Supervisor, Product Documentation



Certificate Approved By:

Michael Booth
Director, Technical



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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Certificate of Analysis

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

R: 2/22/24



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 Lot#: T1 Metal

Starting Material Purity: 2094

Certified Value: 99.9975%

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

Assay Method #1: 1002 ± 4 µg/mL

Assay Information: ICP Assay NIST SRM 3162a Lot Number: 130925

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

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

Characterization of CRM/RM by Two or More Methods

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

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

X_i = mean of Assay Method i with standard uncertainty $u_{CRM/RM,i}$

$w_i = 1 / u_{CRM/RM,i}^2$

$u_{CRM/RM} = \sqrt{\sum (w_i^2 \cdot u_{CRM/RM,i}^2)}$

$u_{CRM/RM} = \sqrt{u_{CRM}^2 + u_{RM}^2 + u_{RM}^2 + u_{RM}^2}$

$u_{CRM} = \sqrt{u_{CRM}^2 + u_{RM}^2 + u_{RM}^2 + u_{RM}^2}$

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$u_{CRM} = \sqrt{u_{CRM}^2 + u_{RM}^2 + u_{RM}^2 + u_{RM}^2}$

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 UHPA-filtered Clean Room. An UHPA-filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	<	0.000536	M	Eu	<	0.000268	O	Na	<	0.032670	M	Se	<	0.001204	O	Zn	<	0.003267
M	Al	<	0.000872	O	Fe	<	0.003225	O	Nb	<	0.043560	O	Si	<	0.004735	O	Zr	<	0.043560
M	As	<	0.008586	M	Ga	<	0.000268	M	Nd	<	0.000268	M	Sm	<	0.000268				
M	Au	<	0.004577	M	Gd	<	0.000268	O	Ni	<	0.010890	M	Sn	<	0.000986				
O	B	<	0.008929	M	Ge	<	0.002146	M	Os	<	0.000269	O	Sr	<	0.000986				
M	Ba	<	0.002683	M	Hf	<	0.002161	O	P	<	0.054450	M	Ta	<	0.010560				
M	Be	<	0.005366	M	Hg	<	0.003231	M	Pb	<	0.001073	M	Tb	<	0.000268				
M	Bi	<	0.001609	M	Ho	<	0.000268	M	Pd	<	0.000268	M	Te	<	0.001341				
O	Ca	<	0.00676	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

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

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

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

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

Atomic Weight; Valence: Soluble in concentrated HCl, HF, H3PO4, H2SO4 and HNO3. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements unless they are fluorinated). Stable with most inorganic anions with a tendency to hydrolyze forming the hydrated oxide in all dilute acids except HF.

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

Ti Containing Samples (Preparation and Solution) - Metal (Soluble in H2O / HF caution - powder reacts violently): Oxide - low temperature history anatase or rutile (Dissolved by heating in 1:1:1 H2O / HF / H2SO4); 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.	14 ppt
ICP-MS 48 amu		

HAZARDOUS INFORMATION

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

ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1
ICP-OES 334.941 nm	0.0038 / 0.00028 µg/mL	1
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,
48Ca, [96X=2
14N17N2, 36Ar12C,
14N16O18O,
32S16O, 32S14N,
N/A

9.0 HOMOGENEITY

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

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY
Inorganic Ventures, 300 Technology Drive, Chesapeake, VA 24073, USA; Telephone: 800.868.6786; 540.565.3030; Fax: 540.565.3012; info@inorganicventures.com
- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

11.1 Certification Issue Date

June 17, 2022

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

11.2 Lot Expiration Date

- June 17, 2027

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date:

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the 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
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

M5985
R: 6/14/24

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGIN10
Lot Number: U2-IN729349
Matrix: 5% (v/v) HNO₃
Value / Analyte(s): 10 000 µg/mL ea:
Indium
Starting Material: Indium Metal
Starting Material Lot#: 2511
Starting Material Purity: 99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10022 ± 30 µg/mL
Density: 1.044 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	10021 ± 56 µg/mL ICP Assay NIST SRM 3124a Lot Number: 110516
Assay Method #2	10035 ± 25 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #3	10001 ± 33 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

M	Ag	<	0.000760	M	Eu	<	0.000760	O	Na	0.012771	M	Se	<	0.023000	M	Zn	<	0.006100
M	Al	0.003385	O	Fe	0.004462	M	Nb	<	0.000760	O	Si	0.024619	M	Zr	<	0.000760		
M	As	<	0.004600	M	Ga	<	0.000760	M	Nd	<	0.000760	M	Sm	<	0.000760			
M	Au	<	0.002300	M	Gd	<	0.000760	O	Ni	<	0.005100	M	Sn	<	0.000760			
O	B	0.003692	M	Ge	<	0.001600	M	Os	<	0.000760	O	Sr	<	0.000610				
M	Ba	<	0.001600	M	Hf	<	0.000760	n	P	<		M	Ta	<	0.000760			
O	Be	<	0.000130	M	Hg	<	0.003100	M	Pb	0.001400	M	Tb	<	0.000760				
M	Bi	<	0.000760	M	Ho	<	0.000760	M	Pd	<	0.001600	M	Te	<	0.000760			
O	Ca	0.004616	s	In	<			M	Pr	<	0.000760	M	Th	<	0.000760			
M	Cd	<	0.000760	M	Ir	<	0.000760	M	Pt	<	0.000760	O	Ti	<	0.001100			
M	Ce	<	0.000760	O	K	0.007078	M	Rb	<	0.000760	M	Tl	<	0.000760				
M	Co	<	0.000760	M	La	<	0.000760	M	Re	<	0.000760	M	Tm	<	0.000760			
O	Cr	<	0.001300	O	Li	<	0.000130	M	Rh	<	0.000760	M	U	<	0.000760			
M	Cs	<	0.000760	M	Lu	<	0.000760	M	Ru	<	0.000760	M	V	<	0.001600			
M	Cu	<	0.003800	O	Mg	0.000707	n	S	<		M	W	<	0.001600				
M	Dy	<	0.000760	O	Mn	0.000149	M	Sb	<	0.000760	M	Y	<	0.000760				
M	Er	<	0.000760	M	Mo	<	0.002300	M	Sc	<	0.000760	M	Yb	<	0.000760			

M - Checked by ICP-MS

O - Checked by ICP-OES

i - Spectral Interference

n - Not Checked For

s - Solution Standard Element

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale. <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form In Solution - 114.82 +3 6 In(H₂O)₆+3

Chemical Compatibility -Soluble in HCl, HNO₃, and H₂SO₄. Avoid neutral and basic media. Stable with most metals and inorganic anions. The oxalate, sulfide, carbonate, hydroxide and phosphate are insoluble in water.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO₃ / LDPE container.

In Containing Samples (Preparation and Solution) -Metal (Best dissolved in HCl / HNO₃); Oxide (Soluble in mineral acids); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Sulfuric/peroxide digestion or dry ash and dissolution in dilute HCl).

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

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 115 amu	1 ppt	n/a	115Sn, 99Ru16O
ICP-OES 158.583 nm	0.05 / 0.002 µg/mL	1	
ICP-OES 230.606 nm	0.1 / 0.03 µg/mL	1	Ni, Os
ICP-OES 325.609 nm	0.2 / 0.05 µg/mL	1	Mn, Mo, Th

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 21, 2023

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

11.2 Lot Expiration Date

- February 21, 2028

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

avantor™



M 6041-4b
MS

Material No.: 9673-33
Batch No.: 23D2462010
Manufactured Date: 2023-03-22
Retest Date: 2028-03-20
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (H ₂ SO ₄)	95.0 – 98.0 %	96.1 %
Appearance	Passes Test	Passes Test
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Substances Reducing Permanganate (as SO ₂)	≤ 2 ppm	< 2 ppm
Ammonium (NH ₄)	≤ 1 ppm	1 ppm
Chloride (Cl)	≤ 0.1 ppm	< 0.1 ppm
Nitrate (NO ₃)	≤ 0.2 ppm	< 0.1 ppm
Phosphate (PO ₄)	≤ 0.5 ppm	< 0.1 ppm
Trace Impurities – Aluminum (Al)	≤ 30.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 4.0 ppb	< 2.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	8.5 ppb
Trace Impurities – Cadmium (Cd)	≤ 2.0 ppb	< 0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 6.0 ppb	< 0.4 ppb
Trace Impurities – Cobalt (Co)	≤ 0.5 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gold (Au)	≤ 10.0 ppb	0.5 ppb
Heavy Metals (as Pb)	≤ 500.0 ppb	< 100.0 ppb
Trace Impurities – Iron (Fe)	≤ 50.0 ppb	1.3 ppb
Trace Impurities – Lead (Pb)	≤ 0.5 ppb	< 0.5 ppb
Trace Impurities – Magnesium (Mg)	≤ 7.0 ppb	0.8 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Nickel (Ni)	≤ 2.0 ppb	0.3 ppb
Trace Impurities – Potassium (K)	≤ 500.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se)	≤ 50.0 ppb	< 0.1 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	31.5 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb

>>> Continued on page 2 >>>

Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

 **avantor™**

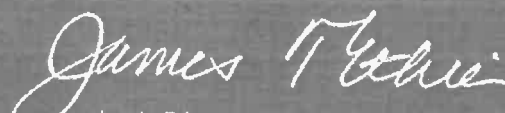


Material No.: 9673-33
Batch No.: 23D2462010

Test	Specification	Result
Trace Impurities – Sodium (Na)	≤ 500.0 ppb	5.4 ppb
Trace Impurities – Strontium (Sr)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	< 0.8 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	0.4 ppb

For Laboratory, Research, or Manufacturing Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC


Jamie Ethier
Vice President Global Quality

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

Certificate of Analysis

M6074
M6075
M6076
M6077

P: 800-669-6799/540-585-3030

F: 540-585-3012

info@inorganicventures.com

EXP: 9/6/2029

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CHEM-CLP-4
Lot Number: V2-MEB746762
Matrix: 3% (v/v) HNO₃
3% (v/v) HF
Value / Analyte(s): 1 000 µg/mL ea:
Boron, Molybdenum,
Silicon, Tin,
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

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

Density: 1.033 g/mL (measured at 20 ± 4 °C)

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale. <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 06, 2024

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

11.2 Lot Expiration Date

- September 06, 2029

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Hydrochloric Acid, 36.5-38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis



R → 16/13/24
Met dig

M 6121

Material No.: 9530-33
Batch No.: 0000275677
Manufactured Date: 2020/12/16
Retest Date: 2025/12/15
Revision No: 1

Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCl) (by acid-base titrn)	36.5 - 38.0 %	37.6
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	1
ACS - Specific Gravity at 60°/60°F	1.185 - 1.192	1.190
ACS - Bromide (Br)	<= 0.005 %	< 0.005
ACS - Extractable Organic Substances	<= 5 ppm	1
ACS - Free Chlorine (as Cl ₂)	<= 0.5 ppm	< 0.5
Phosphate (PO ₄)	<= 0.05 ppm	< 0.03
Sulfate (SO ₄)	<= 0.5 ppm	< 0.3
Sulfite (SO ₃)	<= 0.8 ppm	0.3
Ammonium (NH ₄)	<= 3 ppm	< 1
Trace Impurities - Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities - Aluminum (Al)	<= 10.0 ppb	< 0.2
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	29.7
Trace Impurities - Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 1.0 ppb	< 0.2

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

Test	Specification	Result
Trace Impurities – Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities – Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities – Iron (Fe)	<= 15.0 ppb	< 1
Trace Impurities – Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities – Lithium (Li)	<= 1.0 ppb	0.2
Trace Impurities – Magnesium (Mg)	<= 10.0 ppb	0.4
Trace Impurities – Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities – Mercury (Hg)	<= 0.5 ppb	0.1
Trace Impurities – Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities – Nickel (Ni)	<= 4.0 ppb	< 0.3
Trace Impurities – Niobium (Nb)	<= 1.0 ppb	< 0.2
Trace Impurities – Potassium (K)	<= 9.0 ppb	< 2.0
Trace Impurities – Selenium (Se), For Information Only	ppb	1.0
Trace Impurities – Silicon (Si)	<= 100.0 ppb	< 10.0
Trace Impurities – Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities – Sodium (Na)	<= 100.0 ppb	< 5.0
Trace Impurities – Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities – Tantalum (Ta)	<= 1.0 ppb	< 0.9
Trace Impurities – Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities – Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities – Titanium (Ti)	<= 1.0 ppb	0.2
Trace Impurities – Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities – Zinc (Zn)	<= 5.0 ppb	0.3
Trace Impurities – Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications

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

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

Nitric Acid 69%
CMOS

avantor™



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 WEIGHT REPORT:

Part Number: 58112
Lot # 112124
Description: Magnesium (Mg)
Solvent: Nitric Acid

Expiration Date: 11/21/27
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6LUB

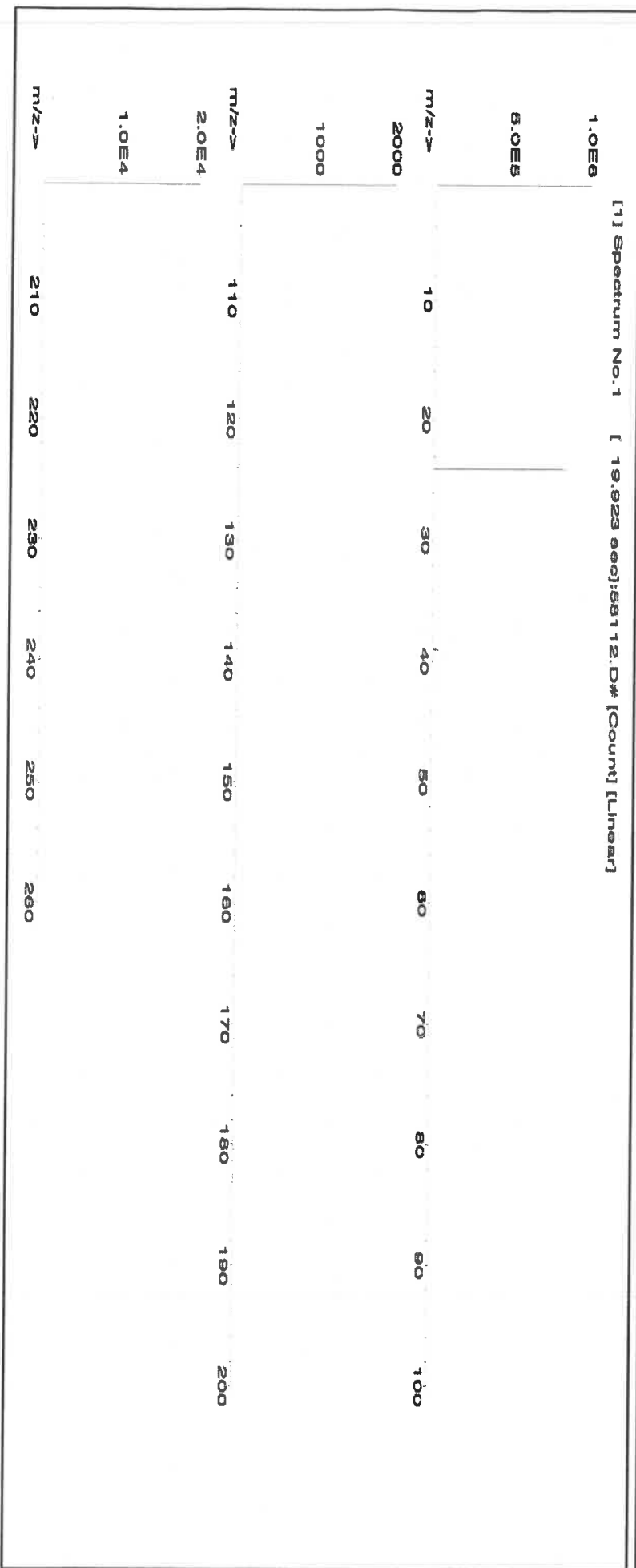
Weight shown below was diluted to (mL): 2000.07
5E-05 Balance Uncertainty
0.100 Flask Uncertainty

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	Pedro L. Rentas
	112124

Compound	Lot	Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Magnesium nitrate hexahydrate (Mg) IN030 MG000023A1 10000 99.999 0.10 8.51 234.9183 234.9459 10001.2 20.0 13446-18-9 NA off-rat 5440 mg/kg 3131a

[1] Spectrum No. 1 [19.823 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	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	<0.02	Eu	<0.02	In	<0.02	Mg	T	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	<0.02	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	Sm	<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	Sc	<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			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).

Q1352-METALS



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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	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).



CERTIFIED WEIGHT REPORT:

Part Number: 58111 **Lot #** R-1113/25
Lot Number: 072424 **Solvent:** Nitric Acid
Description: Sodium (Na)

Expiration Date: 072427 **2%** **80.0** **Nitric Acid**
Recommended Storage: Ambient (20 °C) (mL)

Nominal Concentration (µg/mL): 10000

NIST Test Number: 6UTB **5E-05** **Balance Uncertainty**

Weight shown below was diluted to (mL): 4000.2 **0.10** **Flask Uncertainty**

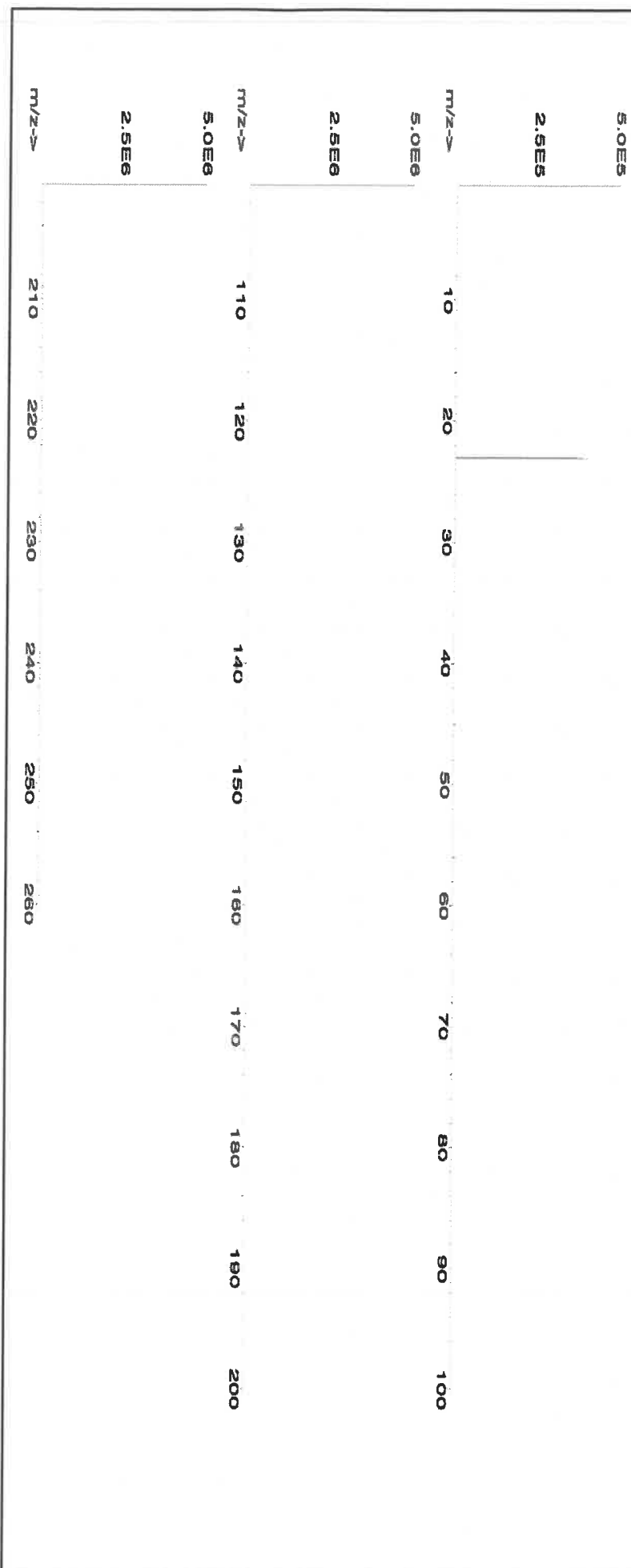
Formulated By:	Benson Chan	072424
Reviewed By:	Pedro L. Renteria	072424

SDS Information

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Sodium nitrate (Na) IN036 NAV01201511 10000 99.999 0.10 26.9 148.7096 ##### 10000.0 20.0 7631-99-4 5 mg/m3 orl-rat 3430 mg/kg 3152a

[1] Spectrum No. 1 [8.935 sec]:58111.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: 58030
Lot Number: 121724
Description: Zinc (Zn)

Lot #

R → 11/13/25 Solvent: 24012496 Nitric Acid

Expiration Date: 121727
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

M6145

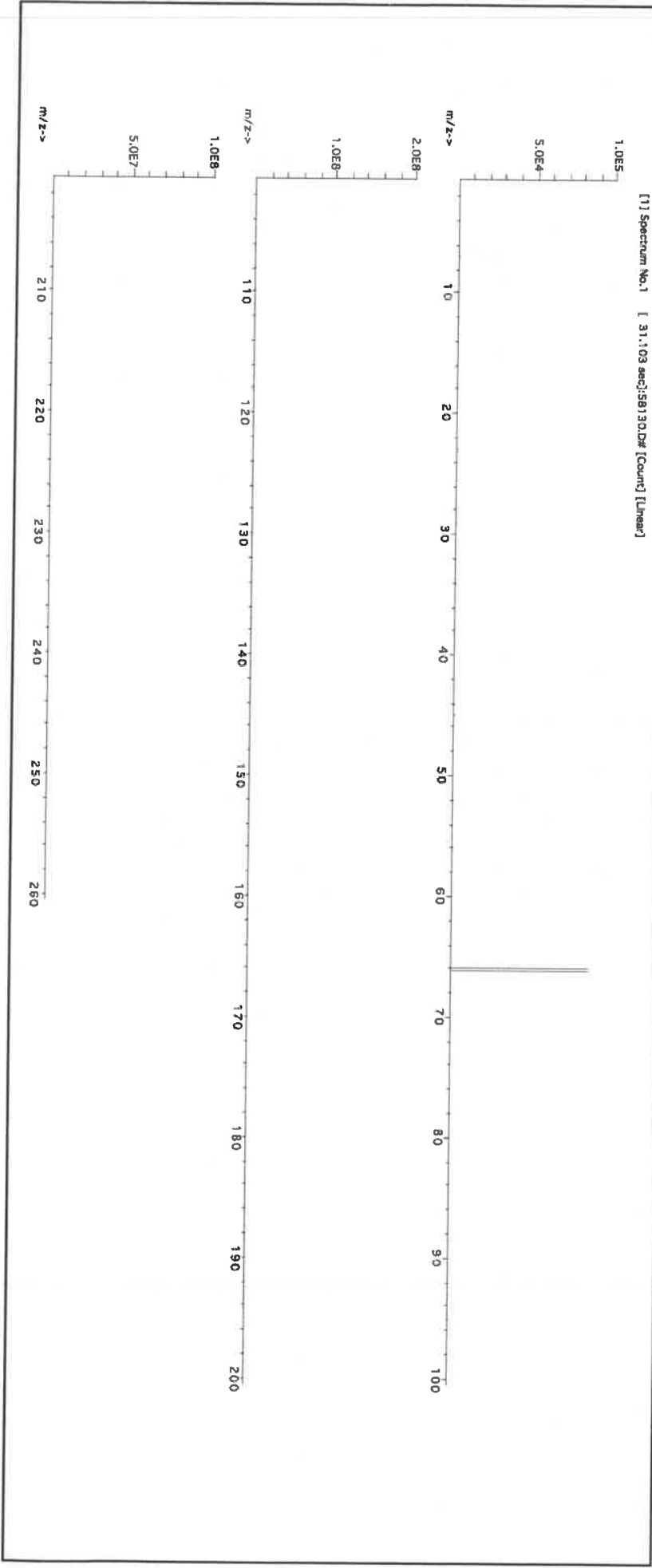
2% 40.0 (mL) Nitric Acid

Weight shown below was diluted to (mL): 2000.1 0.10 Balance Uncertainty
5E-05 Flask Uncertainty

<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
Reviewed By:	<i>Pedro L. Rentias</i>
	Pedro L. Rentias
	121724

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Zinc nitrate hexahydrate (Zn) IN016 ZNE032021A1 1000 99.999 0.10 24.3 8.2308 8.2311 1000.0 2.0 10196-18-6 1 mg/m3 or-rat 1190mg/kg 3168





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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Bu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	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).



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



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57051
120523
Antimony (Sb)

Lot #
Solvent:

24002546
Nitric Acid

2.0%
60.0
Nitric Acid
(mL)

Expiration Date:

120526

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6U7B

Volume shown below was diluted to (mL):

3000.41

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:

Lawrence Barry

120523

Reviewed By:

Pedro L. Renteria

120523

SDS Information

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

1. Antimony (Sb) 58151 100923 0.1000 300.0 0.084 1000 10001.4 1000.0 2.1 7440-36-0 0.5 mg/m3 or-rel 7000 mg/kg 3102a

[1] Spectrum No.1 [17.964 sec]:58051.D# [Count] [Linear]





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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM

M6030



CERTIFIED WEIGHT REPORT:

Part Number: **57047**
Lot Number: **122823**
Description: **Silver (Ag)**

Solvent: **24002546 Nitric Acid**

Lot #

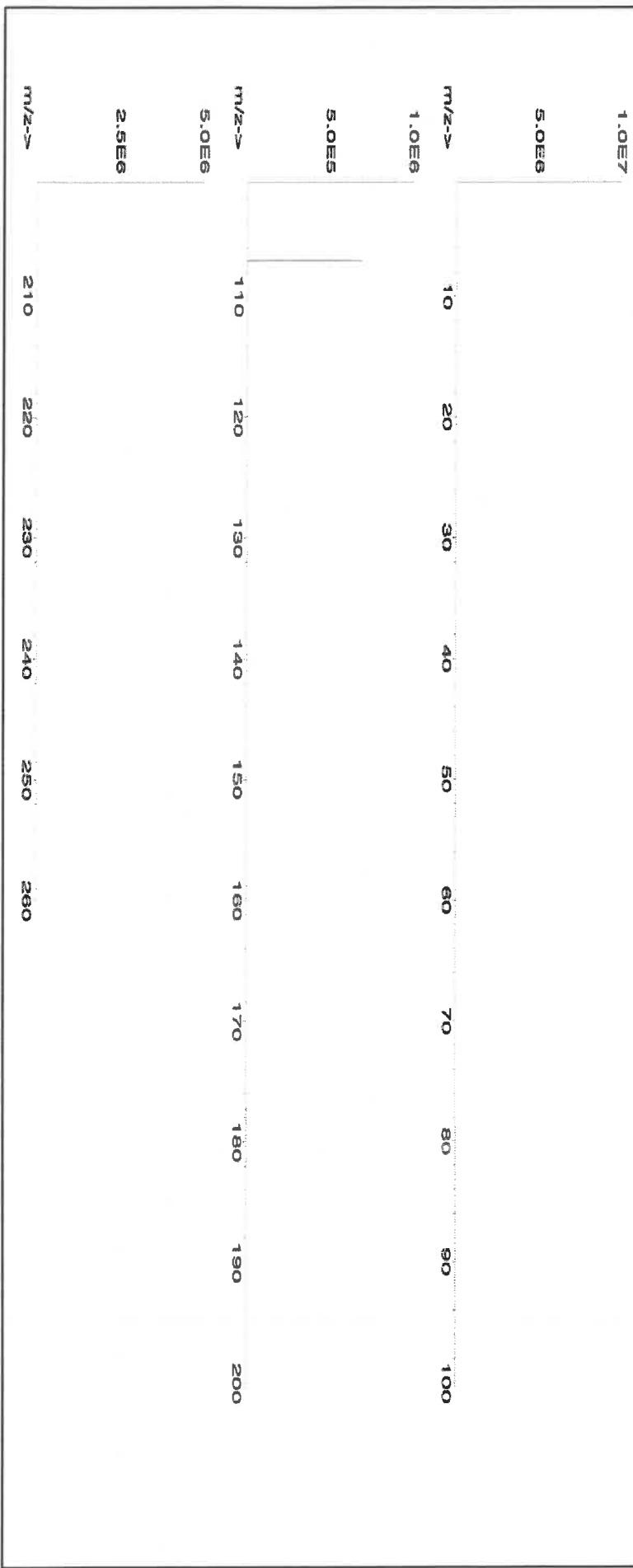
Formulated By:	Benson Chan
Reviewed By:	Pedro L. Rentas
122823	

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

1. Silver nitrate (Ag) IN035 J0612AGA1 1000.0 99.999 0.10 63.7 6.27992 6.27998 1000.0 2.0 7761-88-8 10 µg/m3 NA 3151

[1] Spectrum No. 1 [14.044 sec]:58147.D# [Count] [Linear]





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

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

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

(T)= Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 meqohm 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: 10/18/24
Certified Reference Material CRM



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AR-1539 Certificate Number
<https://AbsoluteStandards.com>

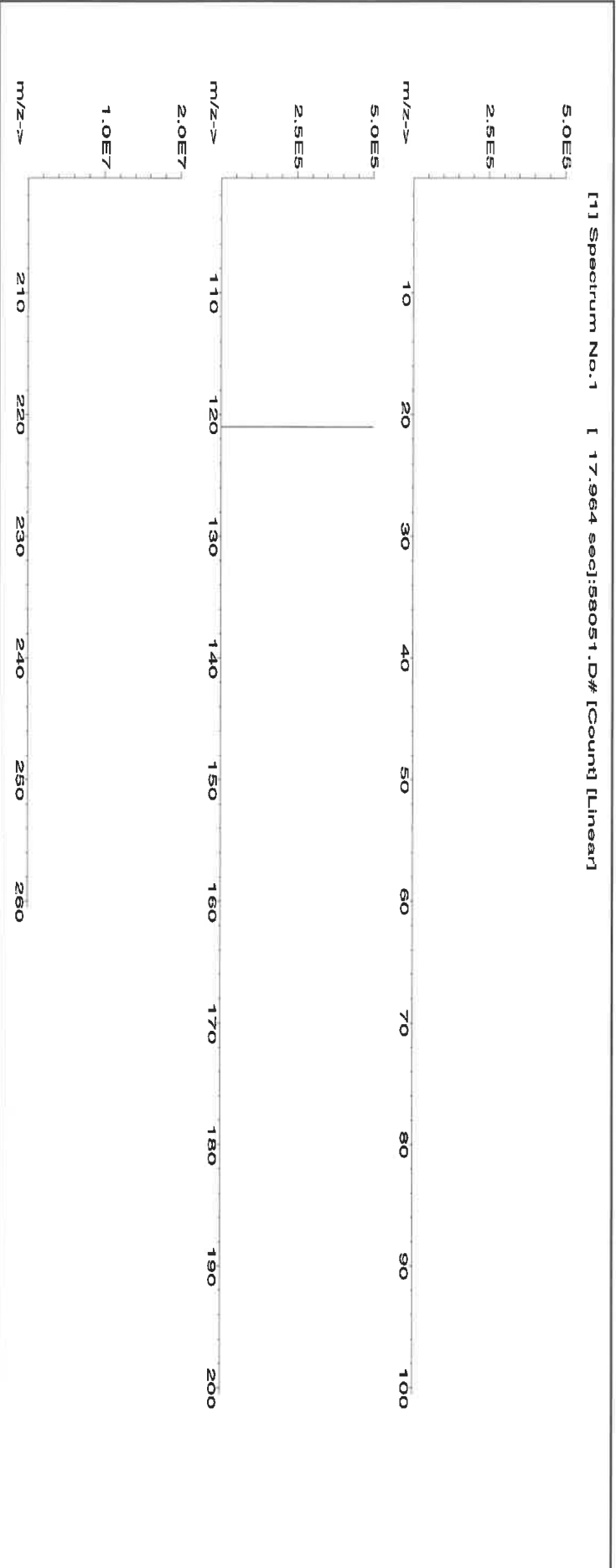
CERTIFIED WEIGHT REPORT:

Part Number: 57051
Lot Number: 071724
Description: Antimony (Sb)
Expiration Date: 071727
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6LJB
Volume shown below was diluted to (mL): 2000.26
Balance Uncertainty: 5E-05
Flask Uncertainty: 0.058

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

Giovanni Esposito	
Formulated By:	Giovanni Esposito
	071724
Pedro L. Rentas	
Reviewed By:	Pedro L. Rentas
	071724

Compound		Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information	NIST SRM
1. Antimony (Sb)		58151	060324	0.1000	200.0	0.084	1000	10001.4	1000.0	2.2	7440-36-0 0.5 mg/m3 orl-rat 7000 mg/kg 3102a	





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
Sb	T	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02
As	<0.2	Ce	<0.02	Bu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02
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	<0.2	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	<0.02	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.
- * 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
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Instructions for QATS Reference Material: ICP-AES ICS

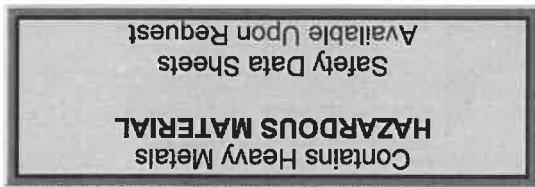
QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)

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

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

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

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) interelement elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,





Instructions for QATS Reference Material: ICP-AES ICS
Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSAB solution by ICP-AES.

(D) "CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value $\pm$ 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.

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

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

CERTIFIED WEIGHT REPORT:

Part Number: **56138**
Lot Number: **082922**
Description: **Strontium (Sr)**
Expiration Date: **082925**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **10000**
NIST Test Number: **6UTB**
Weight shown below was diluted to (mL): **1000.12**

Solvent: **20510011 Nitric Acid**

Lot #

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

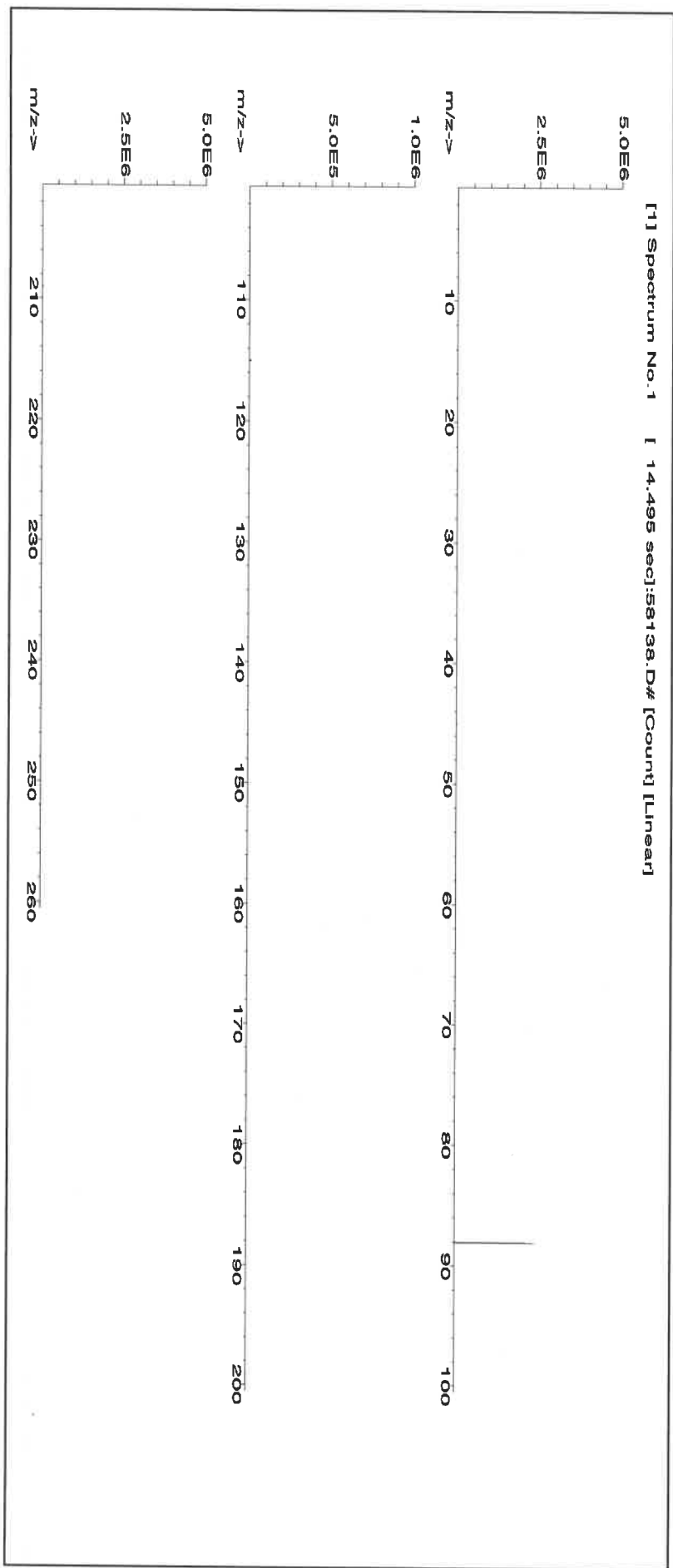
SE-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Lawrence Barry	082922
Reviewed By:	Pedro L. Renteria	082922

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. Strontium nitrate (Sr)	IN017	Sr2022018A1	10000	99.997	0.10	41.2	24.2756	24.2758	10000.1	20.0	10042-78-9	NA	or-rat >2000mg/kg 3153a

[1] Spectrum No. 1 [14.495 sec]:56138.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 Spectroscopy (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	<0.01	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	T	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	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	Ti	<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: 57081
Lot Number: 062724
Description: Thallium (TI)

Solvent: 24002546 Nitric Acid

Lot #

2% 40.0 Nitric Acid (mL)

Expiration Date: 062727

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6UTB

5E-05 Balance Uncertainty

Weight shown below was diluted to (mL): 2000.1 0.10 Flask Uncertainty

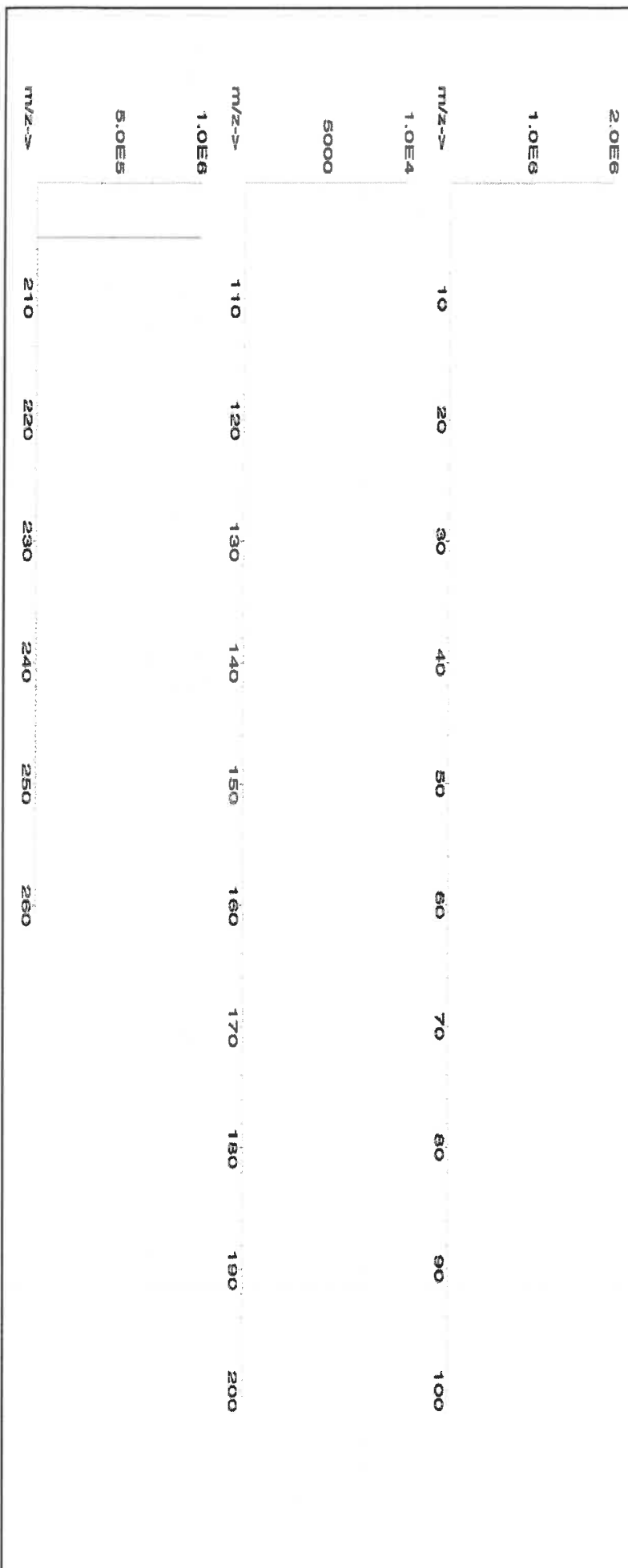
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
	062724
Reviewed By:	<i>Pedro L. Renteria</i>
	Pedro L. Renteria
	062724

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
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1. Thallium nitrate (TI) IN037 BCCF4399 1000 99.999 0.10 77.0 2.5975 2.5977 1000.1 2.0 10102-45-1 0.1 mg/m3 or-mus 15mg/kg 3158

[1] Spectrum No.1 [14.044 sec]:57081.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM

M6021



CERTIFIED WEIGHT REPORT:

Part Number: **57023**
Lot Number: **062424**
Description: **Vanadium (V)**

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

<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
Reviewed By:	Pedro L. Rantas
	062424

Expiration Date: **062427**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**

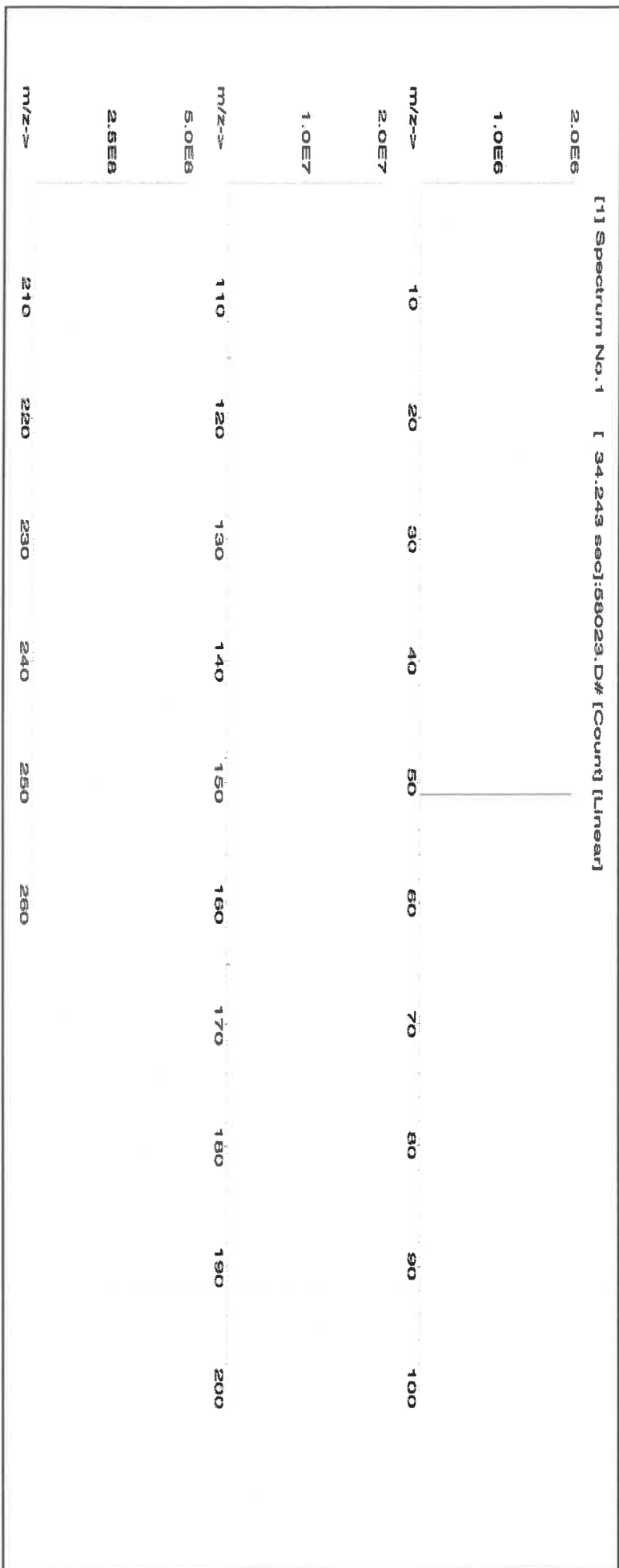
Volume shown below was diluted to (mL): **2000.3**
5E-05 Balance Uncertainty
0.06 Flask Uncertainty

Volume shown below was diluted to (mL): **2000.3**

5E-05 Balance Uncertainty
0.06 Flask Uncertainty

Compound		Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium metavanadate (V)		58123	021224	0.1000	200.0	0.084	1000	10000.3	1000.0	2.2	7803-55-6	0.05 mg/m3	or-at 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	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).



SHIPPING DOCUMENTS

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Weston COC ID
Weston_20250210_1440

Chain of Custody Record/Lab Work Request

Page	1	of	1
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Client:	Weston Solutions, Inc.		
Project Manager:	David Sembrot		
Street Address:	1400 Weston Way	City:	West Chester
Phone:	610-314-5456	ST, ZIP:	PA, 19038
e-mail:	david.sembrot@westonsolutions.com		
Sampled By:	Cheyenne Hamington		

Project Name:	Fort Meade RI	Project POC:	Nathan Fretz
PO Number	0111169	Phone:	484-524-5665
W.O. #:		POC e-mail:	nathan.fretz@westonsolutions.com
Lab:	CHEMTECH	Lab POC:	Jordan Hedvat
TAT (days):	21	Lab Phone:	908-728-3144
Lab Address:	284 Sheffield Street Mountainside, NJ 07092		

Matrix Codes
SS - Soil
SE - Sediment
SO - Solid
SL - Sludge
GW - Groundwater
W - Water
SB - Soil Boring
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab Use Only		
Temperature of cooler when received (°C)		
COC Tape was present and unbroken on outer package?	Y	N
Samples received in good condition?	Y	N
Labels indicate properly preserved?	Y	N
Received within holding times?	Y	N
Discrepancies between sample labels and COC record?	Y	N

Analyses Requested:	TCLP VOCs by EPA 8260D (1311)	TCLP SVOCs by EPA 8270E (1311)	TCLP Metals by EPA 6010D/7470A	TCLP Pesticides by EPA 8061B	TCLP Herbicides by EPA 8151A	Total Sulfide by EPA 9034	Total Cyanide by EPA 9012B	PCB by EPA 8082A	Ignitability by EPA 1030	pH by EPA 9045D		
Container Type:	Encore	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass		
Container Size:	25g	8 oz	8 oz	8 oz	8 oz	8 oz	8 oz	8 oz	8 oz	8 oz		
Preservative:	Ice to 0-6	Ice to 0-6	Ice to 0-6	Ice to 0-6	Ice to 0-6	Ice to 0-6	Ice to 0-6	Ice to 0-6	Ice to 0-6	Ice to 0-6		

#	Sample ID	G/C	Matrix	# Cont	MS/MSD	Date Collected	Time Collected											Special Instructions/Comments
1	TAP-IDW-SOIL-021025 TAP-IDW-SOIL-021025	c	DS	16	no	2/10/2025	13:40	X	X	X	X	X	X	X	X	X		
2	CA			7712														
3				10 Feb 2025														
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

FedEx Shipping Airbill Number:	7719 9675 4644				Cooler Number:	1	of	1
Relinquished By	Date	Time	Received By	Date	Time	Additional Comments		
1) <i>[Signature]</i>	10 Feb 25	1800	y9 3.1	2/11/2025	9:10	QSM 6.0 Compliant		
2)						Deliverable Requirements: DoD Level IV report, EnviroData EDD, and ERIS-compatible EDD		
3)								

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