

DATA PACKAGE

METALS

PROJECT NAME : NWIRP BETHPAGE 112G08005-WE13

TETRA TECH NUS, INC.

661 Andersen Drive

Suite 200

Pittsburgh, PA - 15220-2745

Phone No: 412-921-7090

ORDER ID : Q3527

ATTENTION : Ernie Wu



Laboratory Certification ID # 20012



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Cover Page

Order ID : Q3527

Project ID : NWIRP Bethpage 112G08005-WE13

Client : Tetra Tech NUS, Inc.

Lab Sample Number

Q3527-01
Q3527-02

Client Sample Number

RW8-SP100-20251030
RW8-SP303-20251030

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

Signature : _____

Date: 11/10/2025

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012



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

CASE NARRATIVE

Tetra Tech NUS, Inc.

Project Name: NWIRP Bethpage 112G08005-WE13

Project Manager : Ernie Wu

Order ID # Q3527

Test Name: Metals Group4

A. Number of Samples and Date of Receipt:

2 Water samples were received on 11/03/2025.

B. Parameters:

According to the Chain of Custody document, the following analyses were requested: Metals Group4. This data package contains results for Metals Group4.

C. Analytical Techniques:

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

D. QA/ QC Samples:

The Holding Times were met for all analysis.

The Blank Spike met requirements for all compounds.

The Duplicate analysis met criteria for all compounds.

The Matrix Spike analysis met criteria for all compounds.

The Matrix Spike Duplicate analysis met criteria for all compounds.

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

The Calibration met the requirements.

The Serial Dilution met the acceptable requirements.

E. Additional Comments:

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

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

Signature_____

DATA REPORTING QUALIFIERS- INORGANIC

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

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

METALS CONFORMANCE/NON-CONFORMANCE SUMMARY

ORDER ID: Q3527

MATRIX: Water

METHOD: 6010D

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

ADDITIONAL COMMENTS:

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

QA REVIEW_____
Date

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: Q3527

Completed

For thorough review, the report must have the following:

GENERAL:

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

✓

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

✓

Is the chain of custody signed and complete

✓

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

✓

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

✓

COVER PAGE:

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

✓

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

✓

CHAIN OF CUSTODY:

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

✓

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

✓

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

✓

Were the samples received within hold time

✓

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

✓

ANALYTICAL:

Was method requirement followed?

✓

Was client requirement followed?

✓

Does the case narrative summarize all QC failure?

✓

All runlogs and manual integration are reviewed for requirements

✓

All manual calculations and /or hand notations verified

✓

QA Review Signature: SOHIL JODHANI

Date: 11/10/2025

LAB CHRONICLE

OrderID:	Q3527	OrderDate:	11/3/2025 9:29:00 AM
Client:	Tetra Tech NUS, Inc.	Project:	NWIRP Bethpage 112G08005-WE13
Contact:	Ernie Wu	Location:	J32

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
Q3527-01	RW8-SP100-2025103 0	Water			10/30/25			11/03/25
			Metals Group4	6010D		11/03/25	11/04/25	
Q3527-02	RW8-SP303-2025103 0	Water			10/30/25			11/03/25
			Metals Group4	6010D		11/03/25	11/04/25	

Hit Summary Sheet
SW-846

SDG No.:	Q3527	Order ID:	Q3527
Client:	Tetra Tech NUS, Inc.	Project ID:	NWIRP Bethpage 112G08005-WE13

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	LOD	RDL	Units
Client ID : RW8-SP100-20251030									
Q3527-01	RW8-SP100-20251030	Water	Iron	668		11.7	40.0	50.0	ug/L
Client ID : RW8-SP303-20251030									
Q3527-02	RW8-SP303-20251030	Water	Iron	40.2	J	11.7	40.0	50.0	ug/L



SAMPLE DATA

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/30/25
Project:	NWIRP Bethpage 112G08005-WE13	Date Received:	11/03/25
Client Sample ID:	RW8-SP100-20251030	SDG No.:	Q3527
Lab Sample ID:	Q3527-01	Matrix:	Water
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7439-89-6	Iron	668		1	11.7	40.0	50.0	ug/L	11/03/25 11:55	11/04/25 16:18	6010D	SW3010

U = Not Detected

LOQ = Limit of Quantitation

MDL = Method Detection Limit

LOD = Limit of Detection

D = Dilution

Q = indicates LCS control criteria did not meet requirements

J = Estimated Value

B = Analyte Found in Associated Method Blank

* = indicates the duplicate analysis is not within control limits.

E = Indicates the reported value is estimated because of the presence of interference.

OR = Over Range

N =Spiked sample recovery not within control limits

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/30/25
Project:	NWIRP Bethpage 112G08005-WE13	Date Received:	11/03/25
Client Sample ID:	RW8-SP303-20251030	SDG No.:	Q3527
Lab Sample ID:	Q3527-02	Matrix:	Water
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7439-89-6	Iron	40.2	J	1	11.7	40.0	50.0	ug/L	11/03/25 11:55	11/04/25 16:23	6010D	SW3010

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

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



METAL CALIBRATION DATA

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc.

SDG No.: Q3527

Contract: TETR06

Lab Code: ACE

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Iron	4030	4000	101	90 - 110	P	11/04/2025	11:58	LB137761

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc.

SDG No.: Q3527

Contract: TETR06

Lab Code: ACE

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
LLICV01	Iron	101	100	101	80 - 120	P	11/04/2025	12:16	LB137761

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc.

SDG No.: Q3527

Contract: TETR06

Lab Code: ACE

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV01	Iron	5010	5000	100	90 - 110	P	11/04/2025	12:56	LB137761
CCV02	Iron	5090	5000	102	90 - 110	P	11/04/2025	13:55	LB137761
CCV03	Iron	5000	5000	100	90 - 110	P	11/04/2025	15:06	LB137761
CCV04	Iron	5000	5000	100	90 - 110	P	11/04/2025	16:10	LB137761
CCV05	Iron	5030	5000	101	90 - 110	P	11/04/2025	16:55	LB137761



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

Metals

- 2b -

CRDL STANDARD FOR AA & ICP

Client: Tetra Tech NUS, Inc.

SDG No.: Q3527

Contract: TETR06

Lab Code: ACE

Initial Calibration Source: _____

Continuing Calibration Source: _____

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Iron	103	100	103	65 - 135	P	11/04/2025	12:24	LB137761



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

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** Q3527
Contract: TETR06 **Lab Code:** ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Iron	23.4	+/-50	U	80.0	100	P	11/04/2025	12:20	LB137761

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc.

SDG No.: Q3527

Contract: TETR06

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Iron	31.4	+/-50	J	80.0	100	P	11/04/2025	13:00	LB137761
CCB02	Iron	23.4	+/-50	U	80.0	100	P	11/04/2025	14:03	LB137761
CCB03	Iron	23.4	+/-50	U	80.0	100	P	11/04/2025	15:10	LB137761
CCB04	Iron	23.4	+/-50	U	80.0	100	P	11/04/2025	16:14	LB137761
CCB05	Iron	23.4	+/-50	U	80.0	100	P	11/04/2025	16:59	LB137761

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc.

SDG No.: Q3527

Instrument: P4

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	LOD ug/L	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB170382BL		WATER		Batch Number:		PB170382		Prep Date:	11/03/2025	
	Iron	11.7	<25	U	40.0	50.0	P	11/04/2025	16:02	LB137761

Metals
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INTERFERENCE CHECK SAMPLE

Client: <u>Tetra Tech NUS, Inc.</u>	SDG No.: <u>Q3527</u>
Contract: <u>TETR06</u>	Lab Code: <u>ACE</u>
ICS Source: <u>EPA</u>	Instrument ID: <u>P4</u>

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Low Limit (ug/L)	High Limit (ug/L)	Analysis Date	Analysis Time	Run Number
ICSA01	Iron	99300	101000	98	85600	116500	11/04/2025	12:34	LB137761
ICSAB01	Iron	99600	99300	100	84400	114500	11/04/2025	12:38	LB137761



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metals
- 5a -
MATRIX SPIKE SUMMARY

client: <u>Tetra Tech NUS, Inc.</u>	level: <u>low</u>	sdg no.: <u>Q3527</u>
contract: <u>TETR06</u>		lab code: <u>ACE</u>
matrix: <u>Water</u>	sample id: <u>Q3527-02</u>	client id: <u>RW8-SP303-20251030MS</u>
Percent Solids for Sample: <u>NA</u>	Spiked ID: <u>Q3527-02MS</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
Iron	ug/L	87 - 115	1460		40.2	J	1500	95		P

metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: <u>Tetra Tech NUS, Inc.</u>	level: <u>low</u>	sdg no.: <u>Q3527</u>
contract: <u>TETR06</u>		lab code: <u>ACE</u>
matrix: <u>Water</u>	sample id: <u>Q3527-02</u>	client id: <u>RW8-SP303-20251030MSD</u>
Percent Solids for Sample: <u>NA</u>	Spiked ID: <u>Q3527-02MSD</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
Iron	ug/L	87 - 115	1500		40.2	J	1500	98		P



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Sample ID: _____ **Spiked ID:** _____

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

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DUPLICATE SAMPLE SUMMARY

Client:	<u>Tetra Tech NUS, Inc.</u>	Level:	<u>LOW</u>	SDG No.:	<u>Q3527</u>
Contract:	<u>TETR06</u>			Lab Code:	<u>ACE</u>
Matrix:	<u>Water</u>	Sample ID:	<u>Q3527-02</u>	Client ID:	<u>RW8-SP303-20251030DUP</u>
Percent Solids for Sample:	NA	Duplicate ID	Q3527-02DUP	Percent Solids for Spike Sample:	NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Iron	ug/L	20	40.2	J	44.1	J	9		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:	<u>Tetra Tech NUS, Inc.</u>	Level:	<u>LOW</u>	SDG No.:	<u>Q3527</u>
Contract:	<u>TETR06</u>			Lab Code:	<u>ACE</u>
Matrix:	<u>Water</u>	Sample ID:	<u>Q3527-02MS</u>	Client ID:	<u>RW8-SP303-20251030MSD</u>
Percent Solids for Sample:	NA	Duplicate ID	Q3527-02MSD	Percent Solids for Spike Sample:	NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Iron	ug/L	20	1460		1500		3		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: Tetra Tech NUS, Inc.

SDG No.: Q3527

Contract: TETR06

Lab Code: ACE

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB170382BS Iron	ug/L	1500	1470		98	87 - 115	P

Metals
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ICP SERIAL DILUTIONS

SAMPLE NO.

RW8-SP303-20251030L

Lab Name: Alliance **Contract:** TETR06
Lab Code: ACE **Lb No.:** lb137761 **Lab Sample ID :** Q3527-02L **SDG No.:** Q3527
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
Iron	40.2 J	250 U	100.0		P



METAL PREPARATION & INSTRUMENT DATA

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ICP INTERELEMENT CORRECTION FACTORS

Client: Tetra Tech NUS, Inc.

SDG No.: Q3527

Contract: TETR06

Lab Code: ACE

Instrument ID:

Date:

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interement Correction Factors For:				
		Al	Ca	Fe	Mg	Ag
Iron	240.488	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Tetra Tech NUS, Inc.

SDG No.: Q3527

Contract: TETR06

Lab Code: ACE

Instrument ID:

Date:

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interement Correction Factors For:				
		As	Ba	Be	Cd	Co
Iron	240.488	0.0000000	0.0000000	0.0000000	0.0000000	-0.0039600

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Tetra Tech NUS, Inc.

SDG No.: Q3527

Contract: TETR06

Lab Code: ACE

Instrument ID:

Date:

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Cr	Cu	K	Mn	Mo
Iron	240.488	0.0000000	0.0000000	0.0000730	0.0000000	-0.0015250

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Tetra Tech NUS, Inc.

SDG No.: Q3527

Contract: TETR06

Lab Code: ACE

Instrument ID:

Date:

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Na	Ni	Pb	Sb	Se
Iron	240.488	0.0000000	-0.0017000	0.0000000	0.0000000	0.0000000

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Tetra Tech NUS, Inc.

SDG No.: Q3527

Contract: TETR06

Lab Code: ACE

Instrument ID:

Date:

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Sn	Ti	Tl	V	Zn
Iron	240.488	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000



METAL PREPARATION & ANALYICAL SUMMARY

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SAMPLE PREPARATION SUMMARY

Client: Tetra Tech NUS, Inc.

SDG No.: Q3527

Contract: TETR06

Lab Code: ACE

Method: _____

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB170382							
PB170382BL	PB170382BL	MB	WATER	11/03/2025	50.0	25.0	
PB170382BS	PB170382BS	LCS	WATER	11/03/2025	50.0	25.0	
Q3527-01	RW8-SP100-20251030	SAM	WATER	11/03/2025	50.0	25.0	
Q3527-02	RW8-SP303-20251030	SAM	WATER	11/03/2025	50.0	25.0	
Q3527-02DUP	RW8-SP303-20251030DUP	DUP	WATER	11/03/2025	50.0	25.0	
Q3527-02MS	RW8-SP303-20251030MS	MS	WATER	11/03/2025	50.0	25.0	
Q3527-02MSD	RW8-SP303-20251030MSD	MSD	WATER	11/03/2025	50.0	25.0	

metals
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ANALYSIS RUN LOG

Client: Tetra Tech NUS, Inc.

Contract: TETR06

Lab code: ACE

Sdg no.: Q3527

Instrument id number: _____

Method: _____

Run number: LB137761

Start date: 11/04/2025

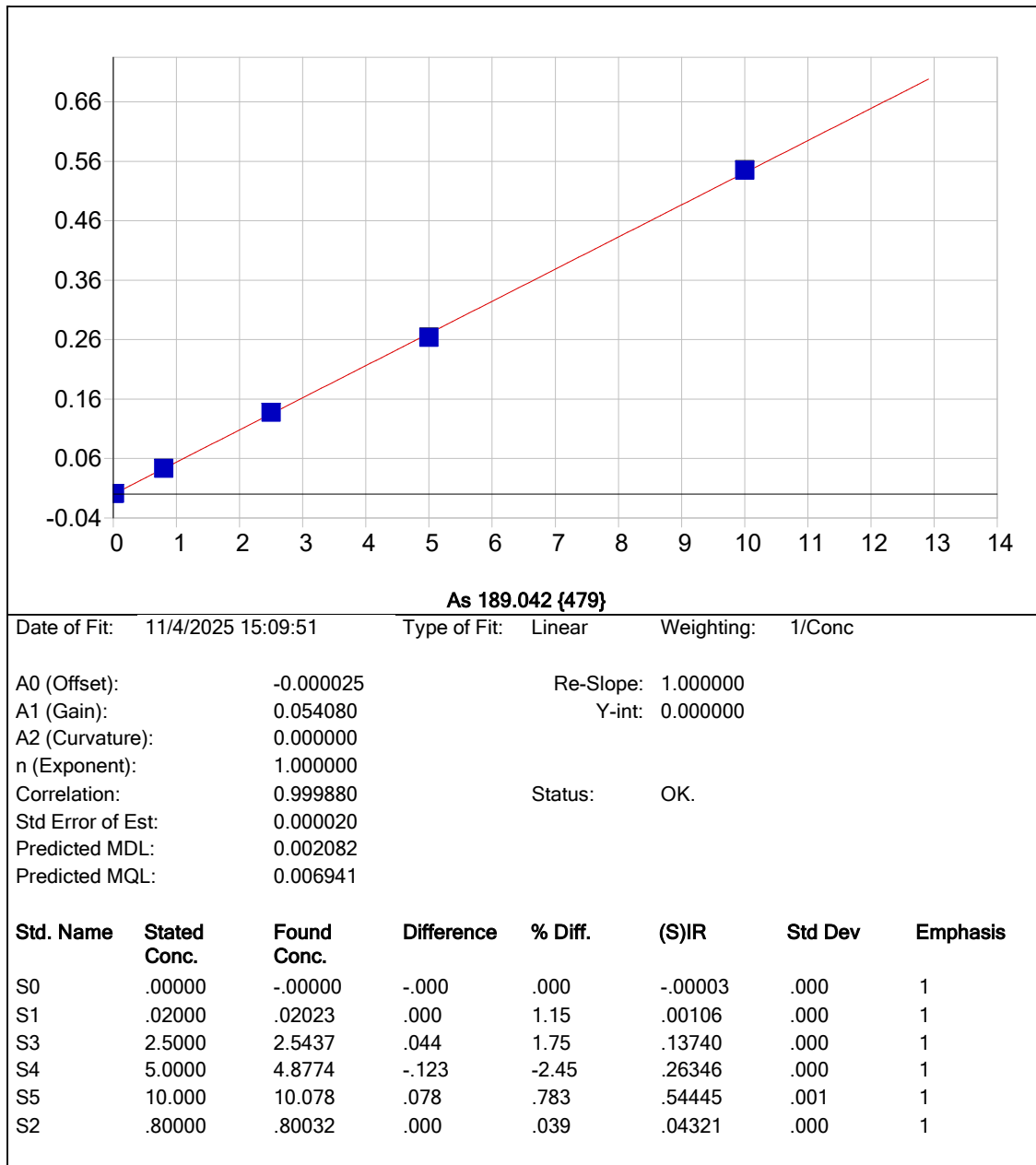
End date: 11/04/2025

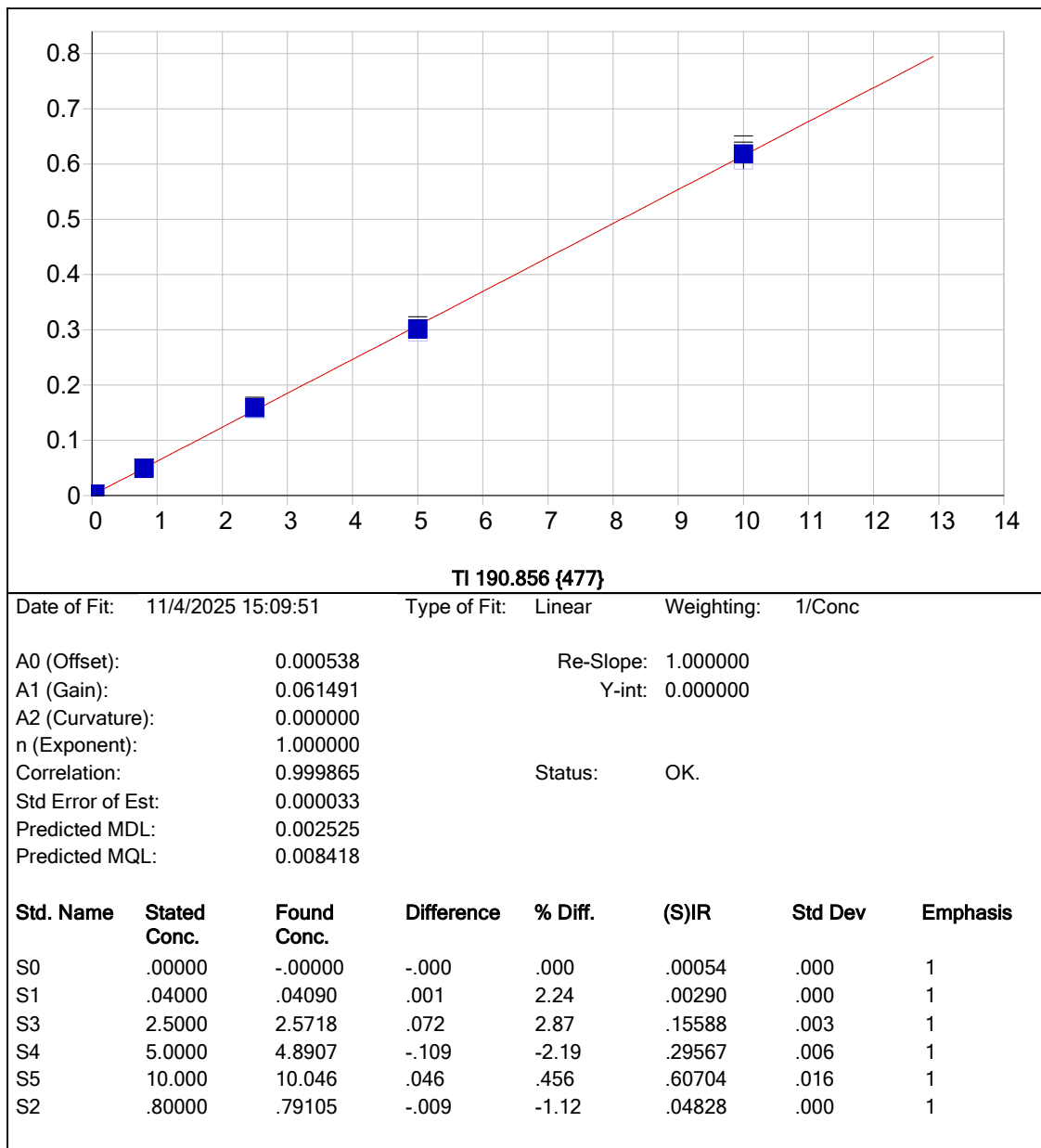
Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1133	Fe
S1	S1	1	1137	Fe
S2	S2	1	1142	Fe
S3	S3	1	1146	Fe
S4	S4	1	1150	Fe
S5	S5	1	1154	Fe
ICV01	ICV01	1	1158	Fe
LLICV01	LLICV01	1	1216	Fe
ICB01	ICB01	1	1220	Fe
CRI01	CRI01	1	1224	Fe
ICSA01	ICSA01	1	1234	Fe
ICSAB01	ICSAB01	1	1238	Fe
CCV01	CCV01	1	1256	Fe
CCB01	CCB01	1	1300	Fe
CCV02	CCV02	1	1355	Fe
CCB02	CCB02	1	1403	Fe
CCV03	CCV03	1	1506	Fe
CCB03	CCB03	1	1510	Fe
PB170382BL	PB170382BL	1	1602	Fe
PB170382BS	PB170382BS	1	1606	Fe
CCV04	CCV04	1	1610	Fe
CCB04	CCB04	1	1614	Fe
Q3527-01	RW8-SP100-20251030	1	1618	Fe
Q3527-02	RW8-SP303-20251030	1	1623	Fe
Q3527-02DUP	RW8-SP303-20251030DUP	1	1627	Fe
Q3527-02L	RW8-SP303-20251030L	5	1631	Fe
Q3527-02MS	RW8-SP303-20251030MS	1	1635	Fe
Q3527-02MSD	RW8-SP303-20251030MSD	1	1639	Fe
CCV05	CCV05	1	1655	Fe
CCB05	CCB05	1	1659	Fe



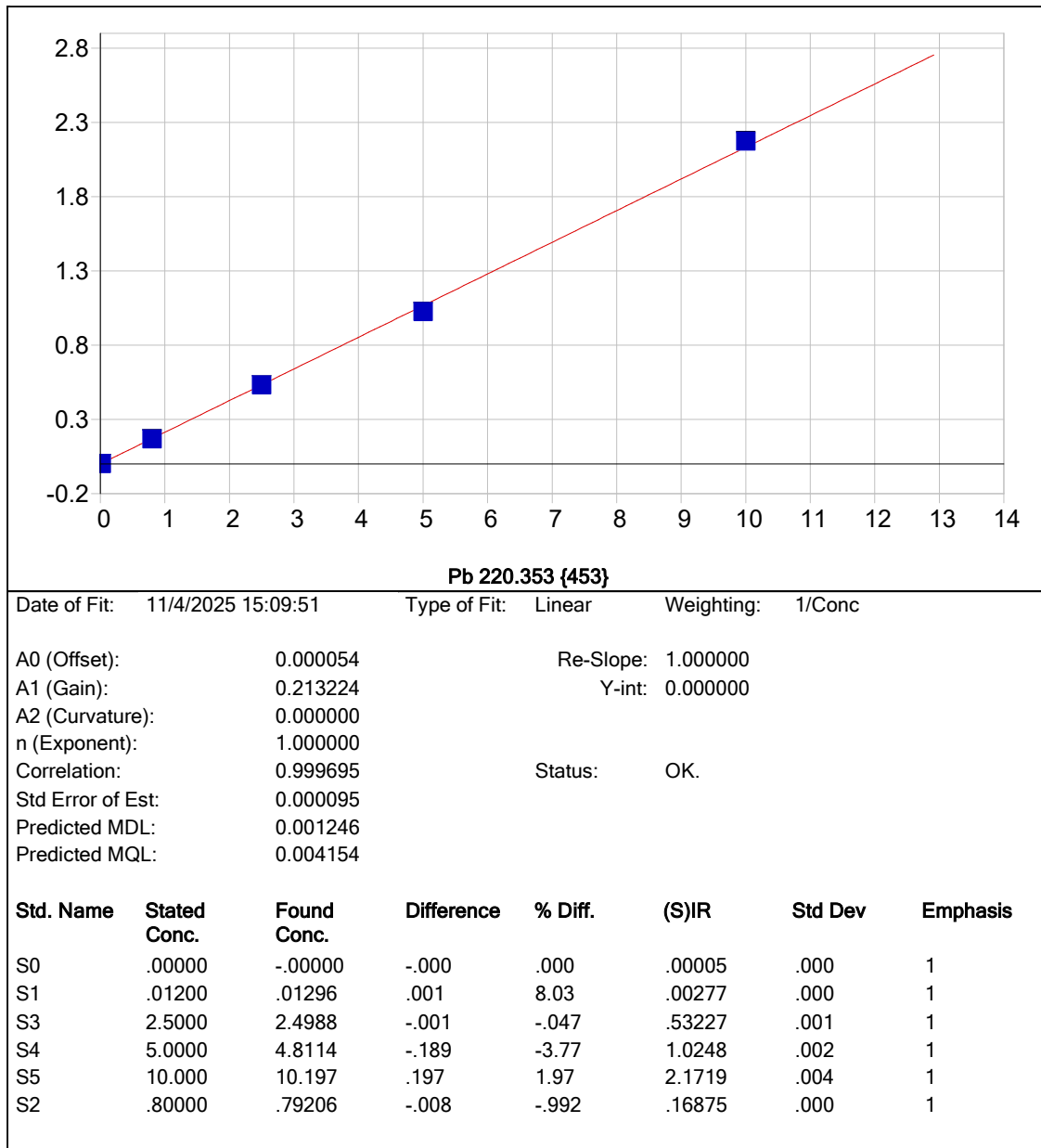
METAL RAW DATA

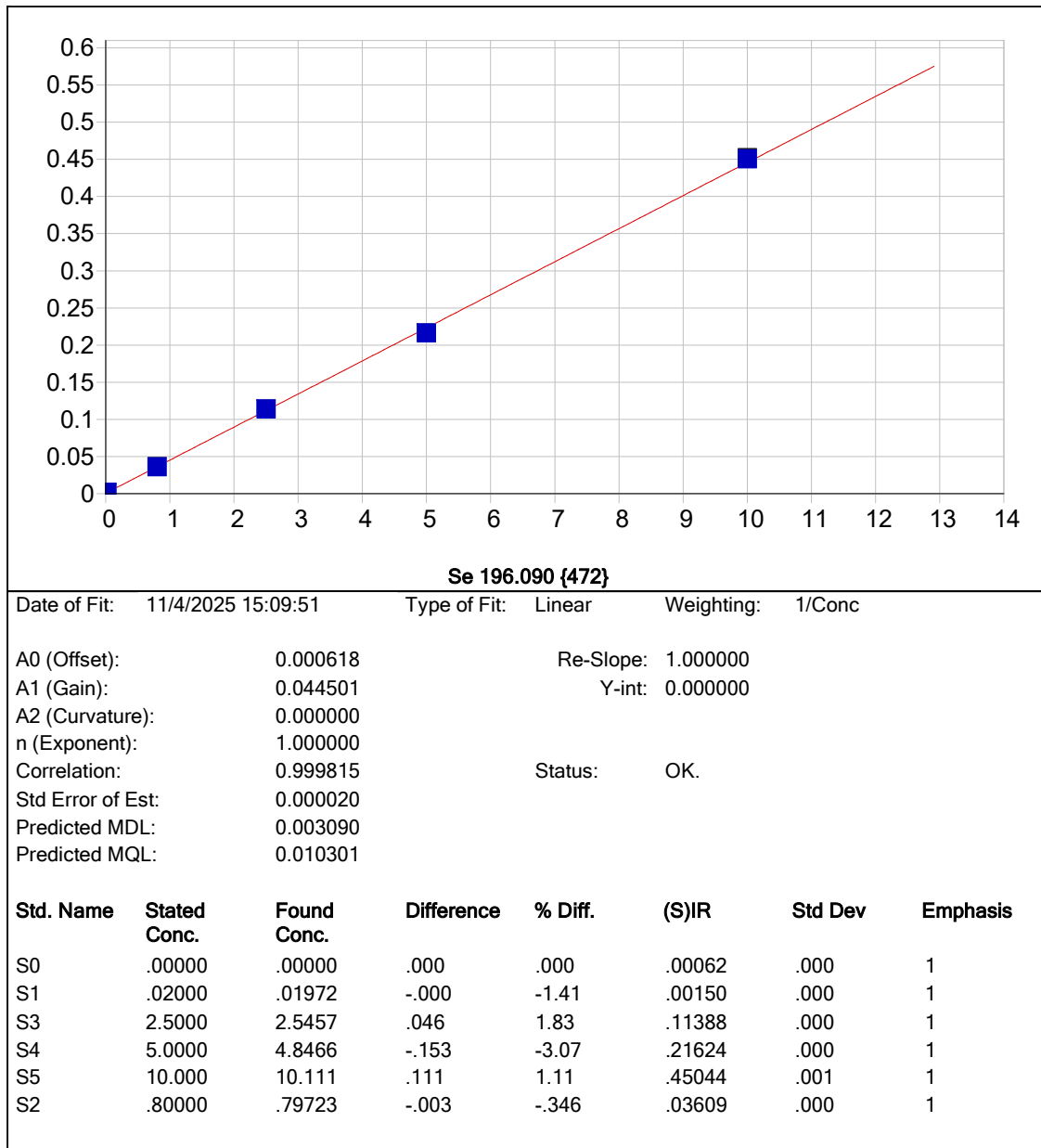
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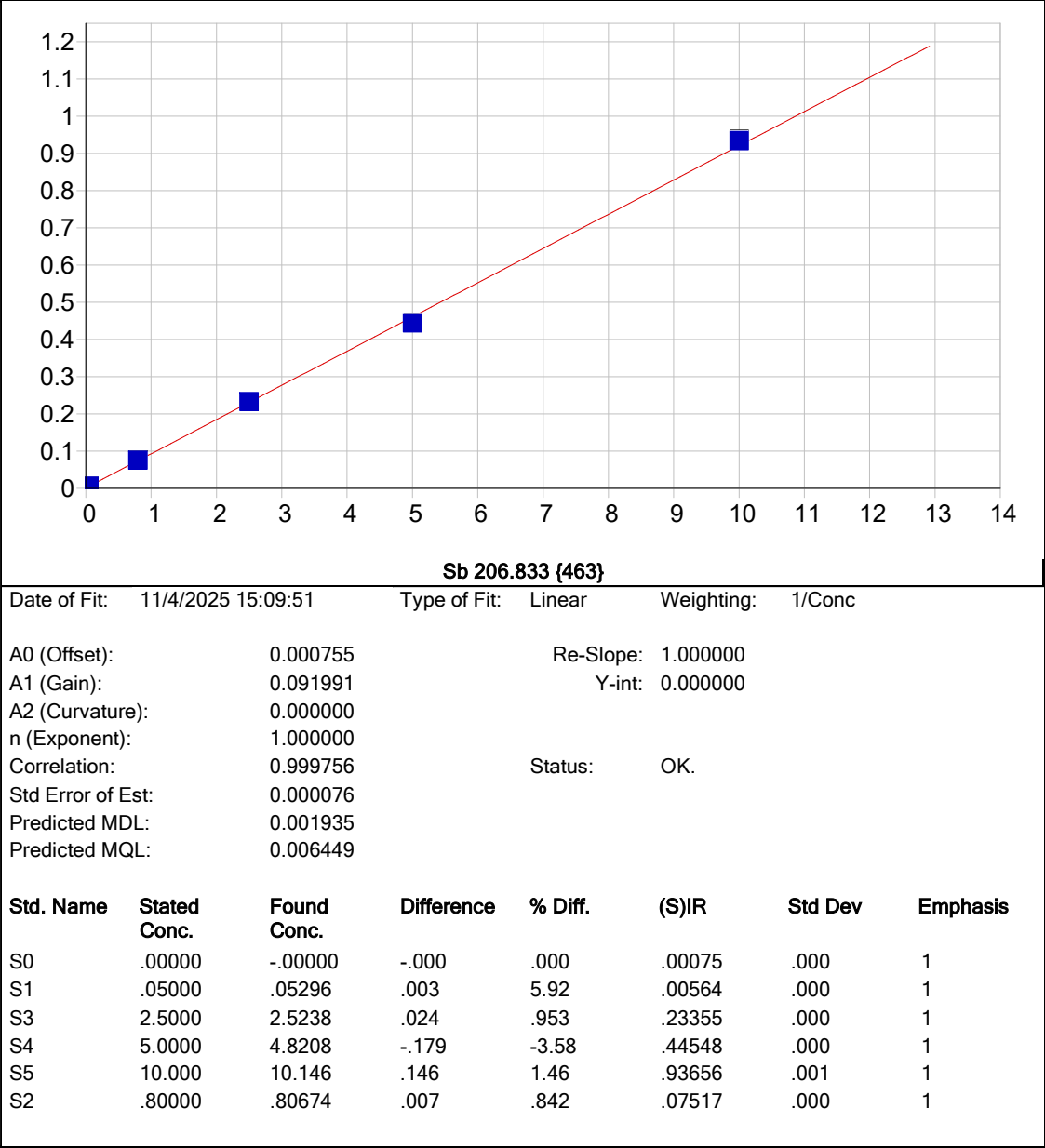


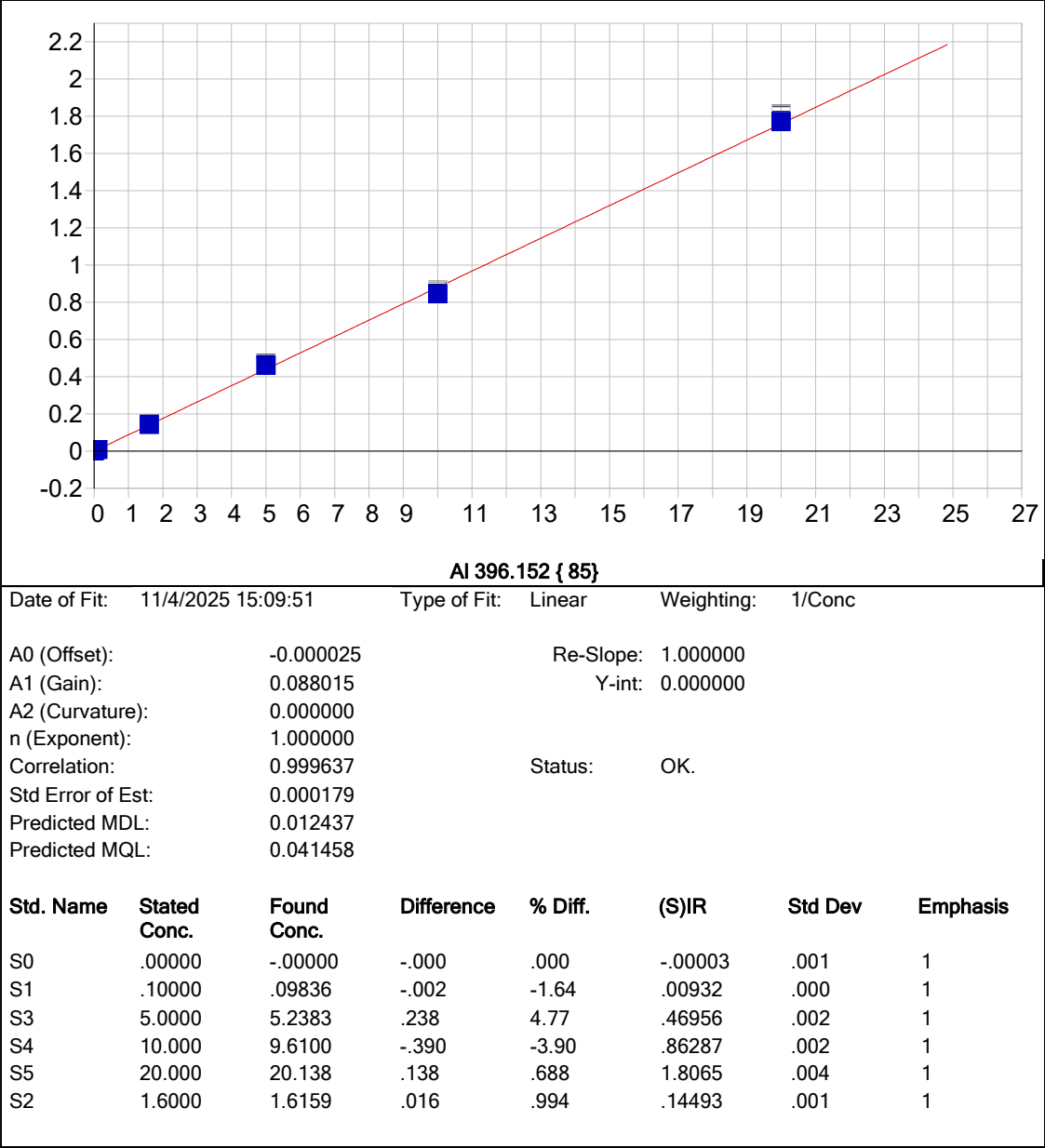


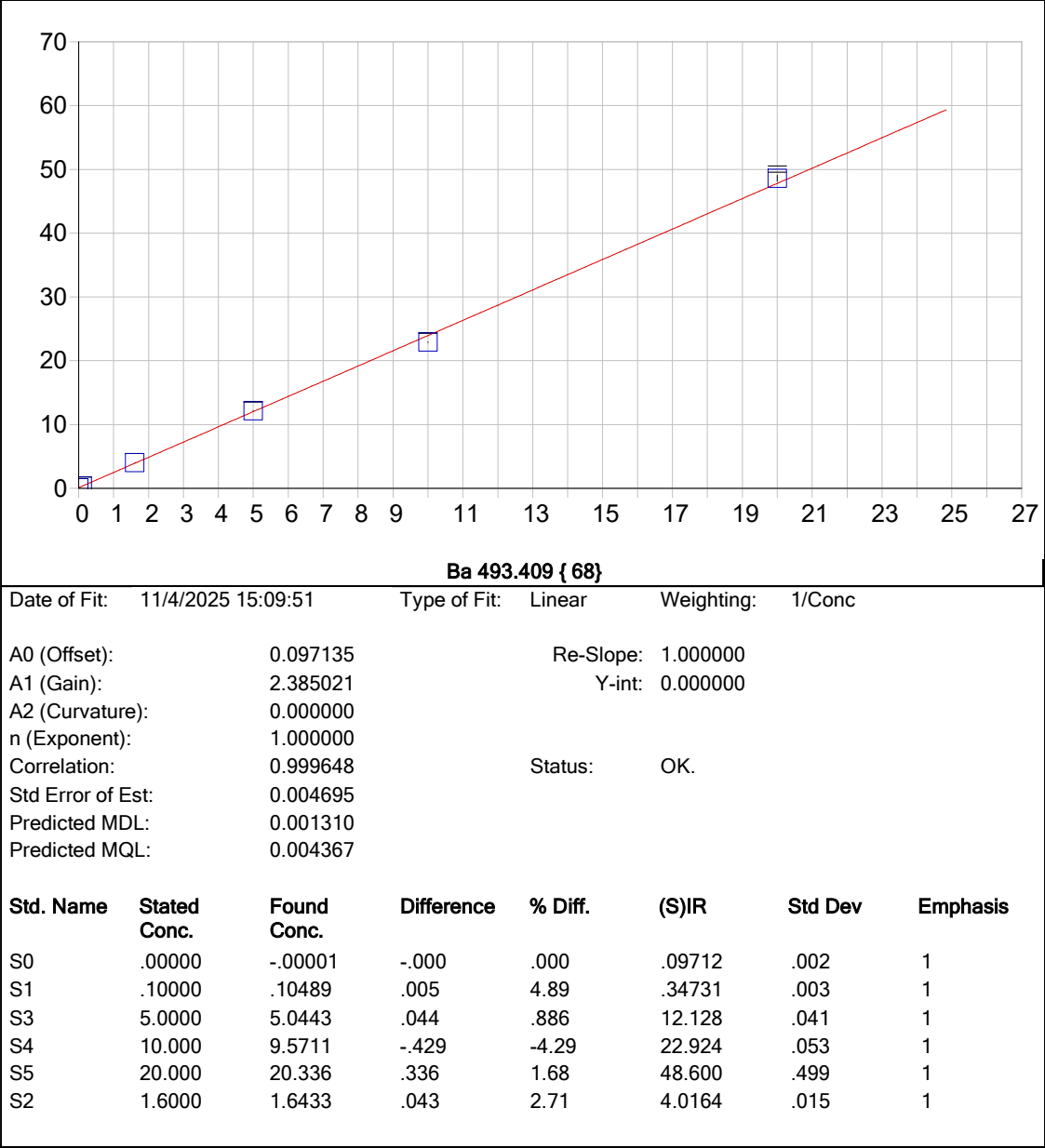
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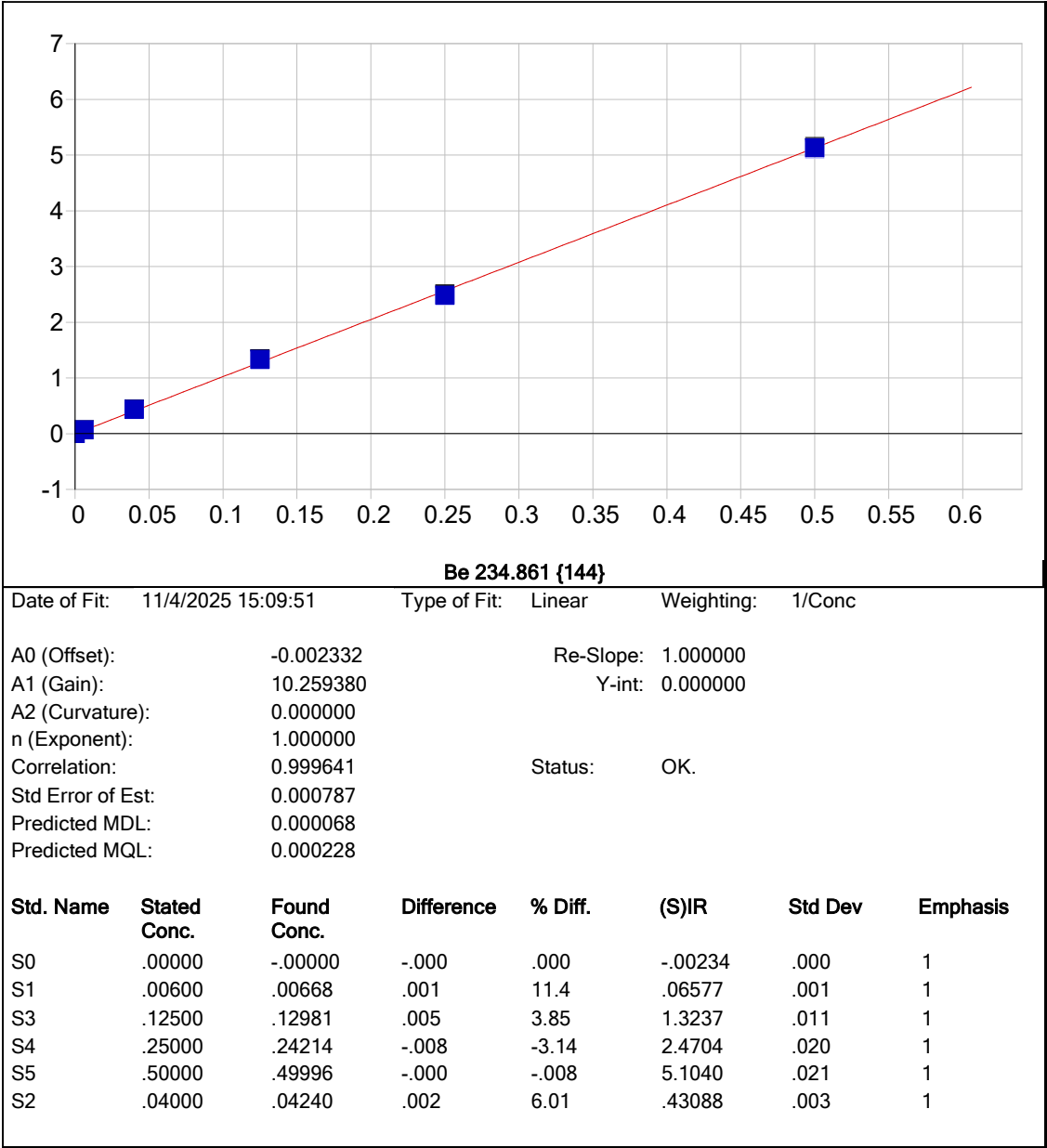


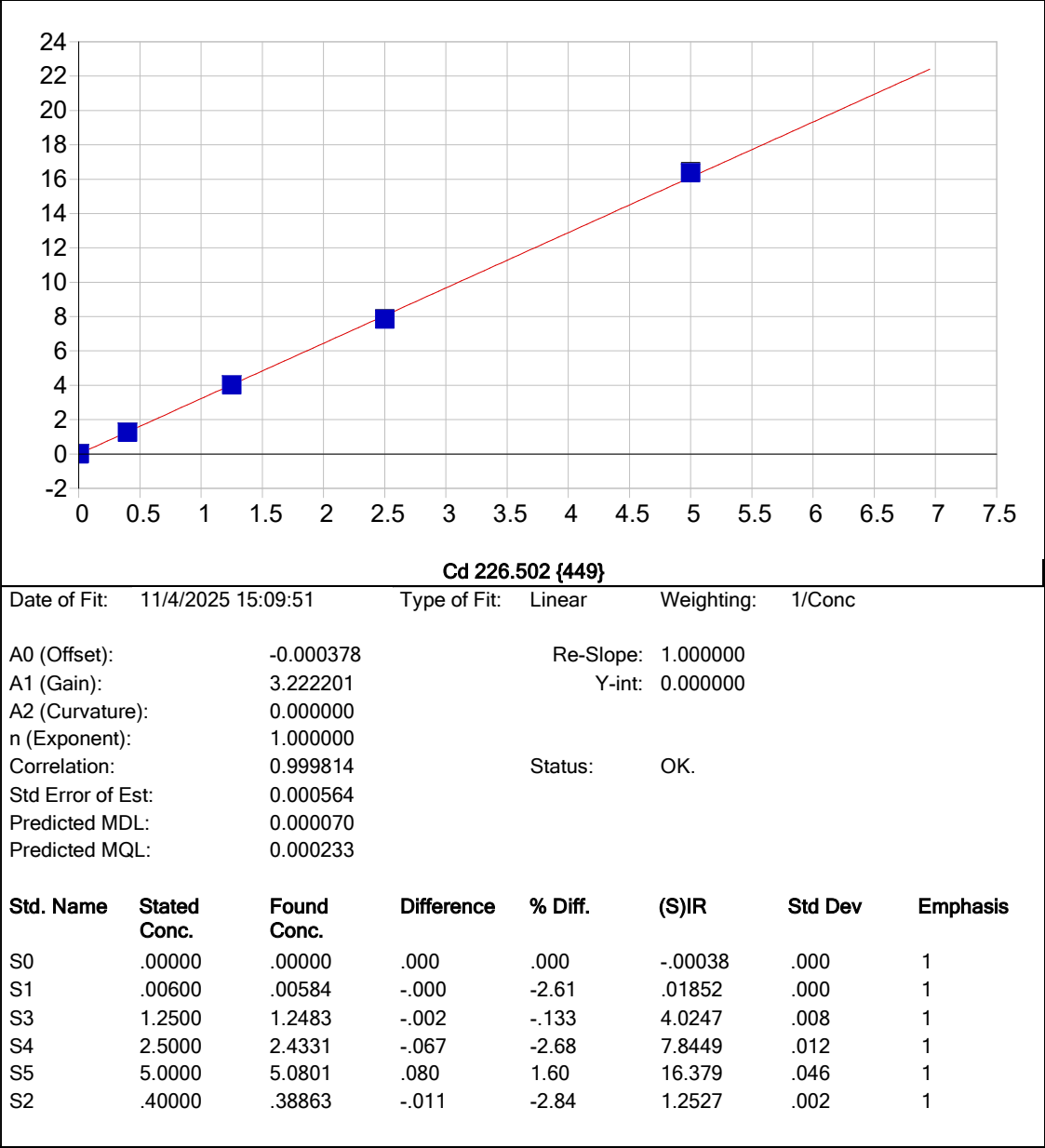


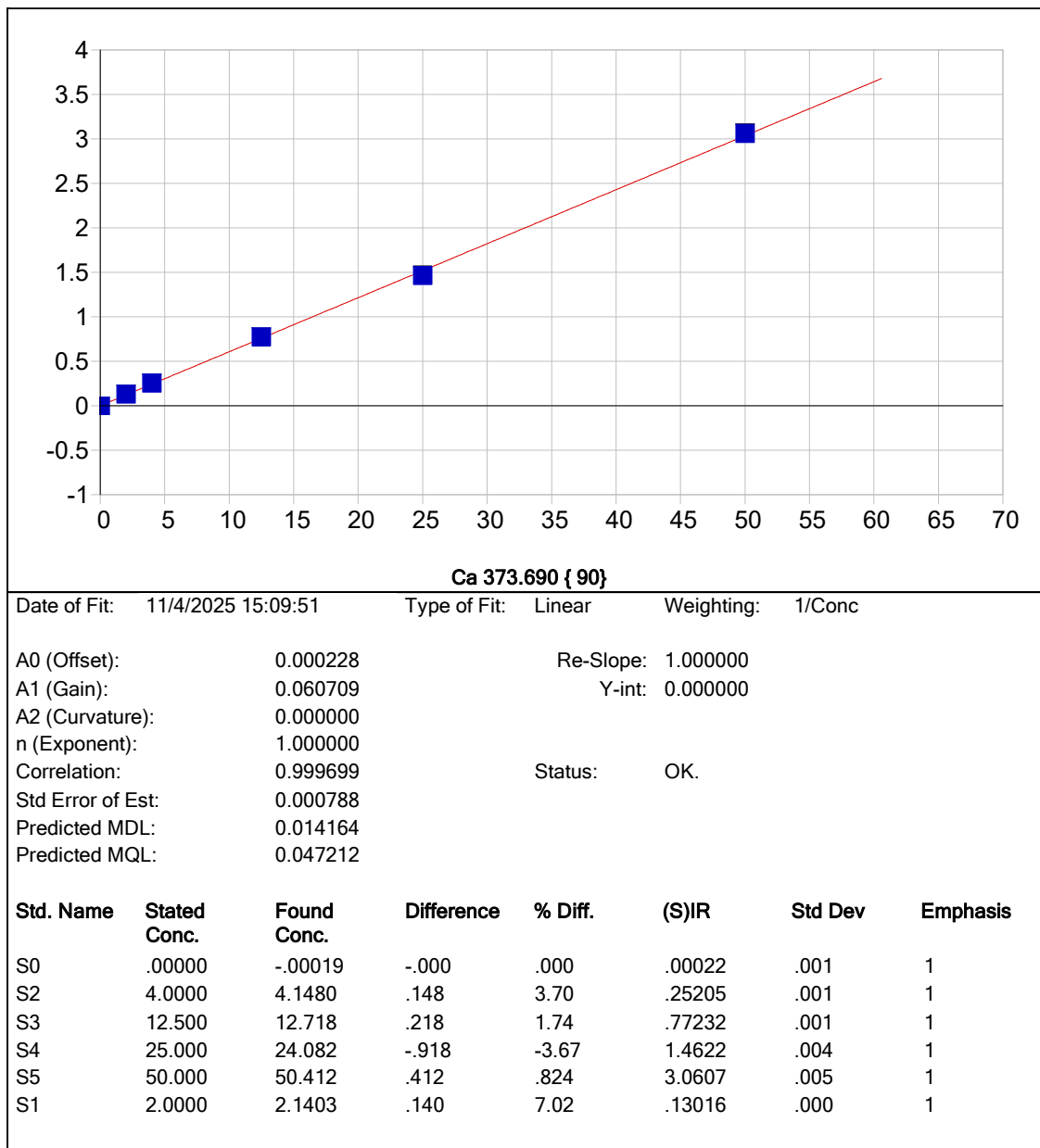


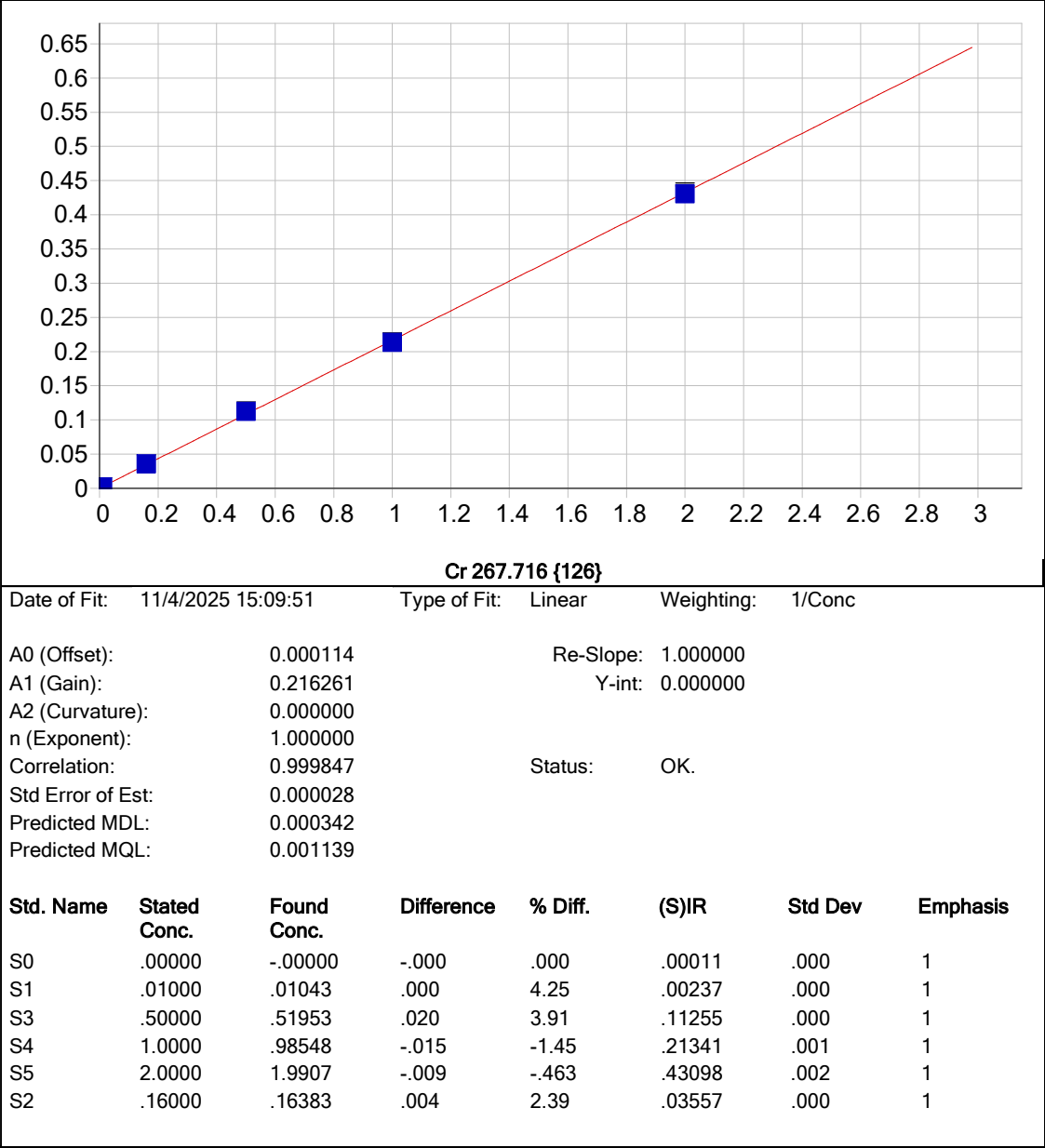


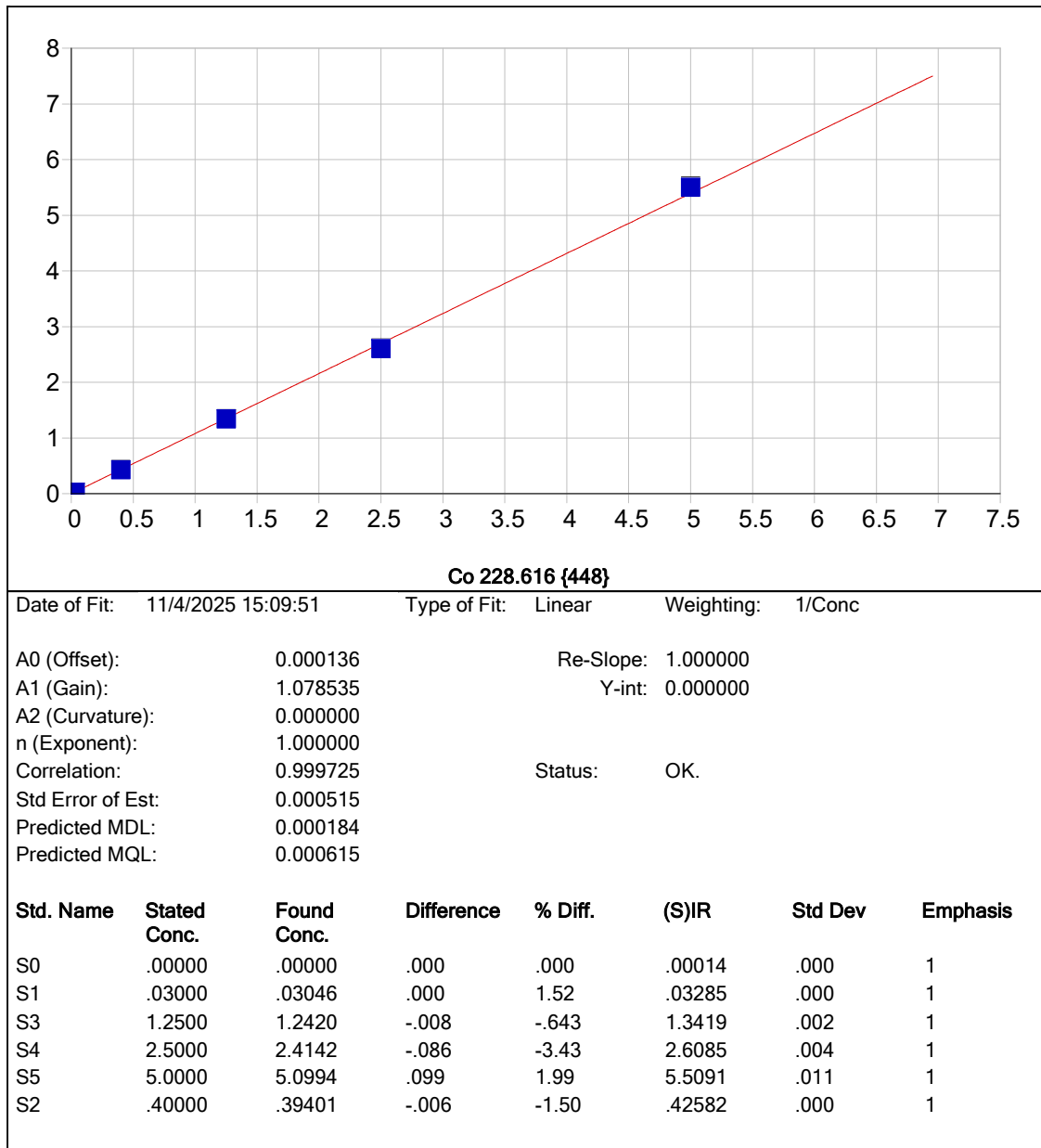


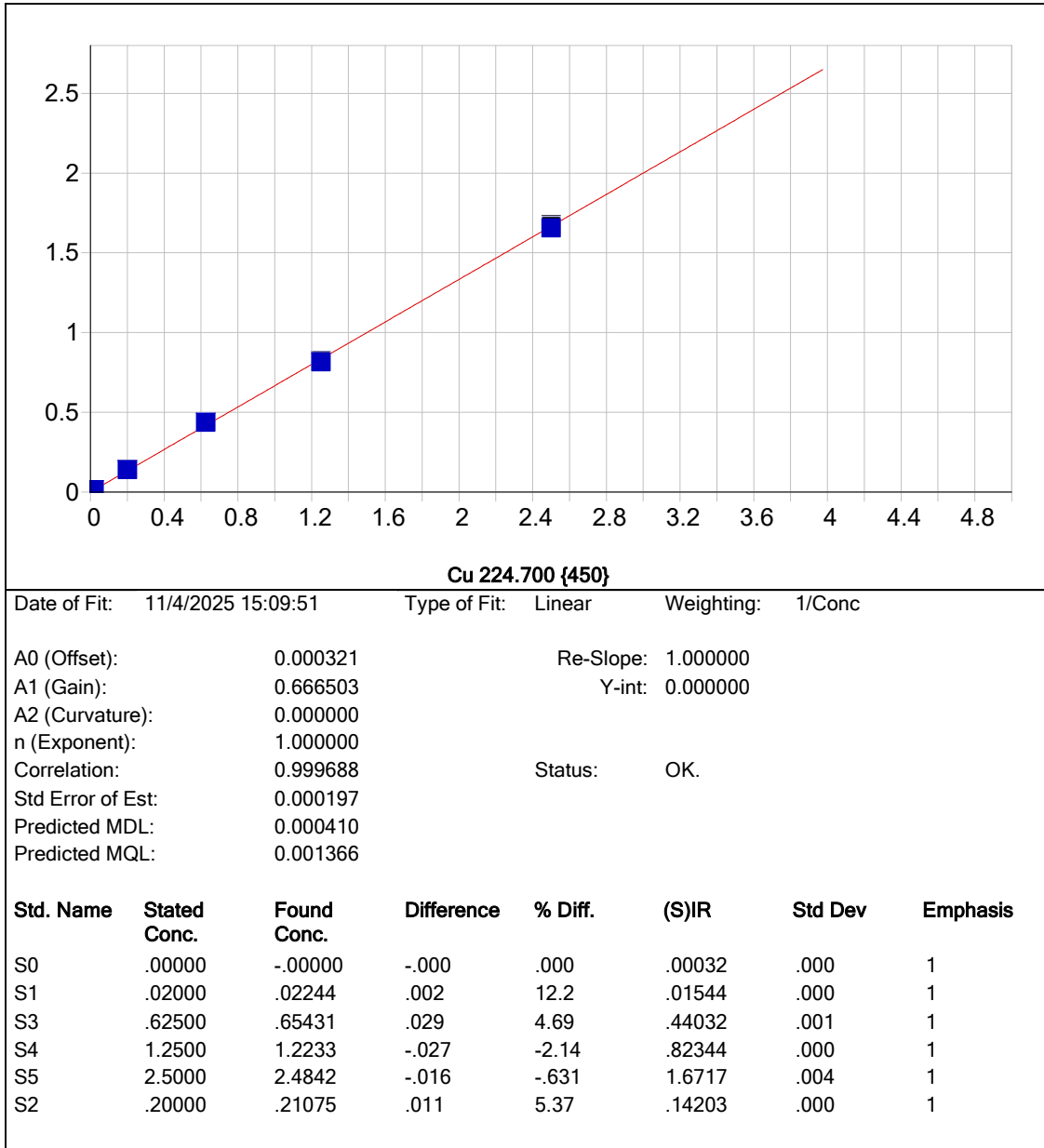


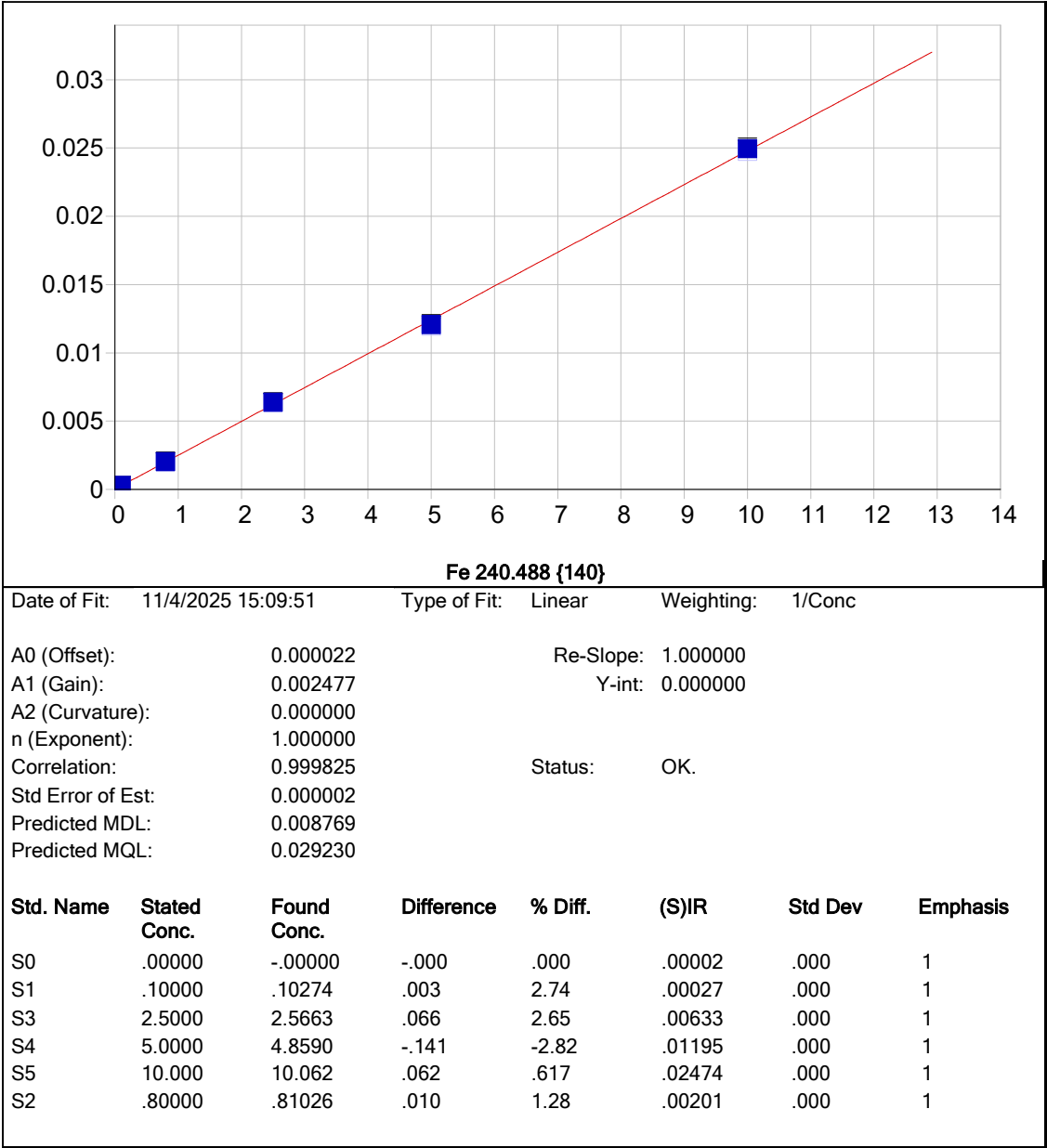


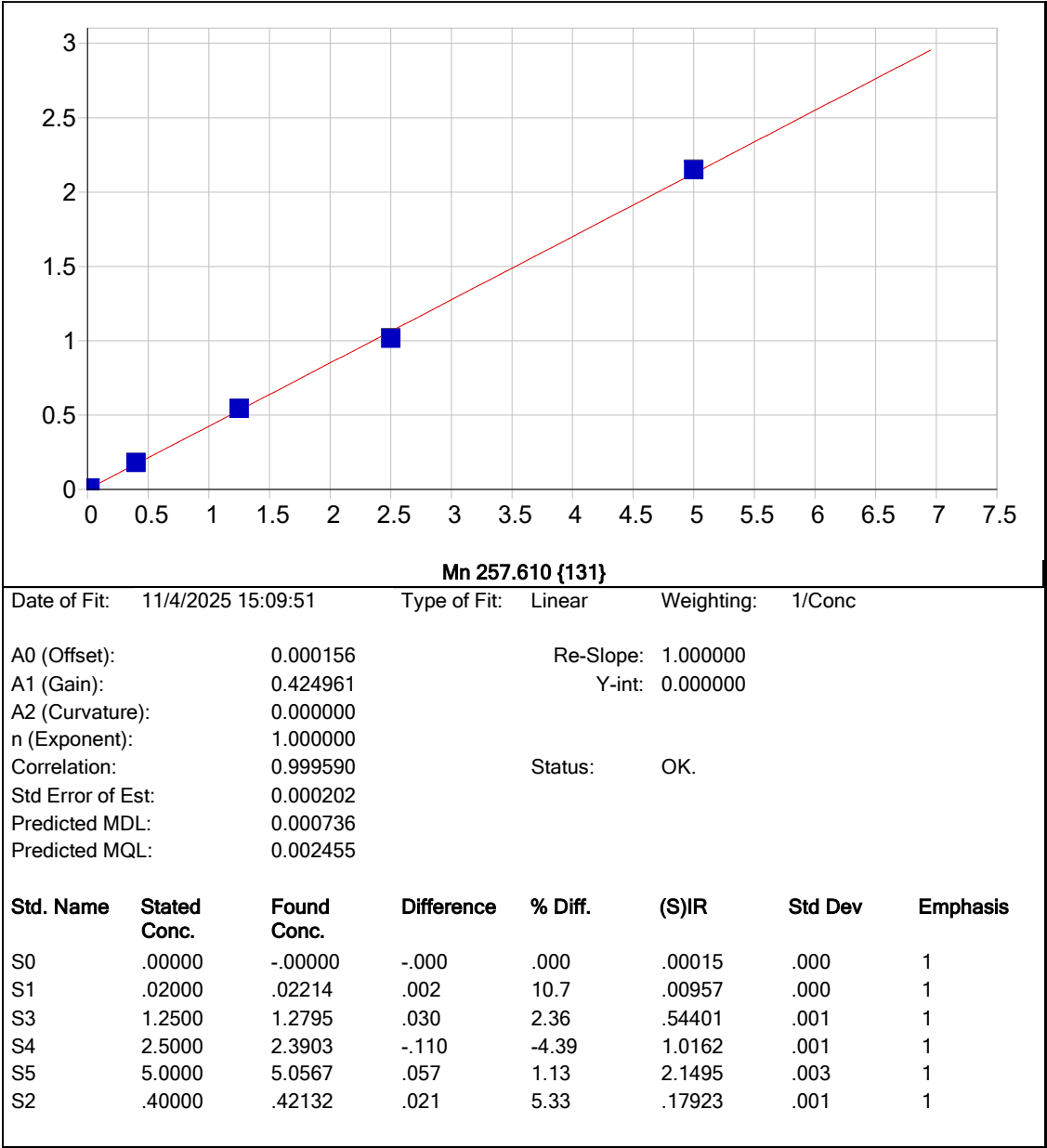


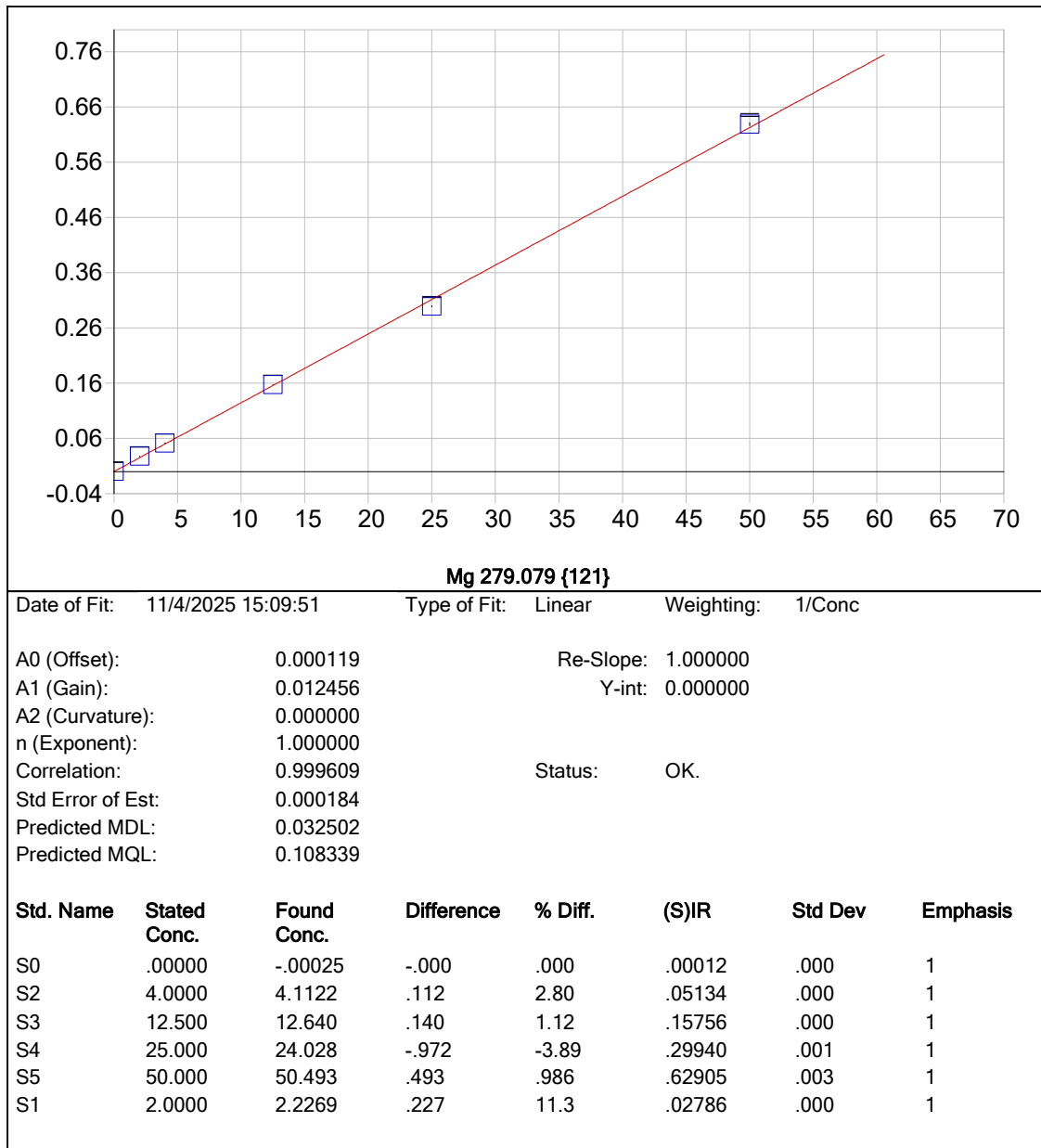


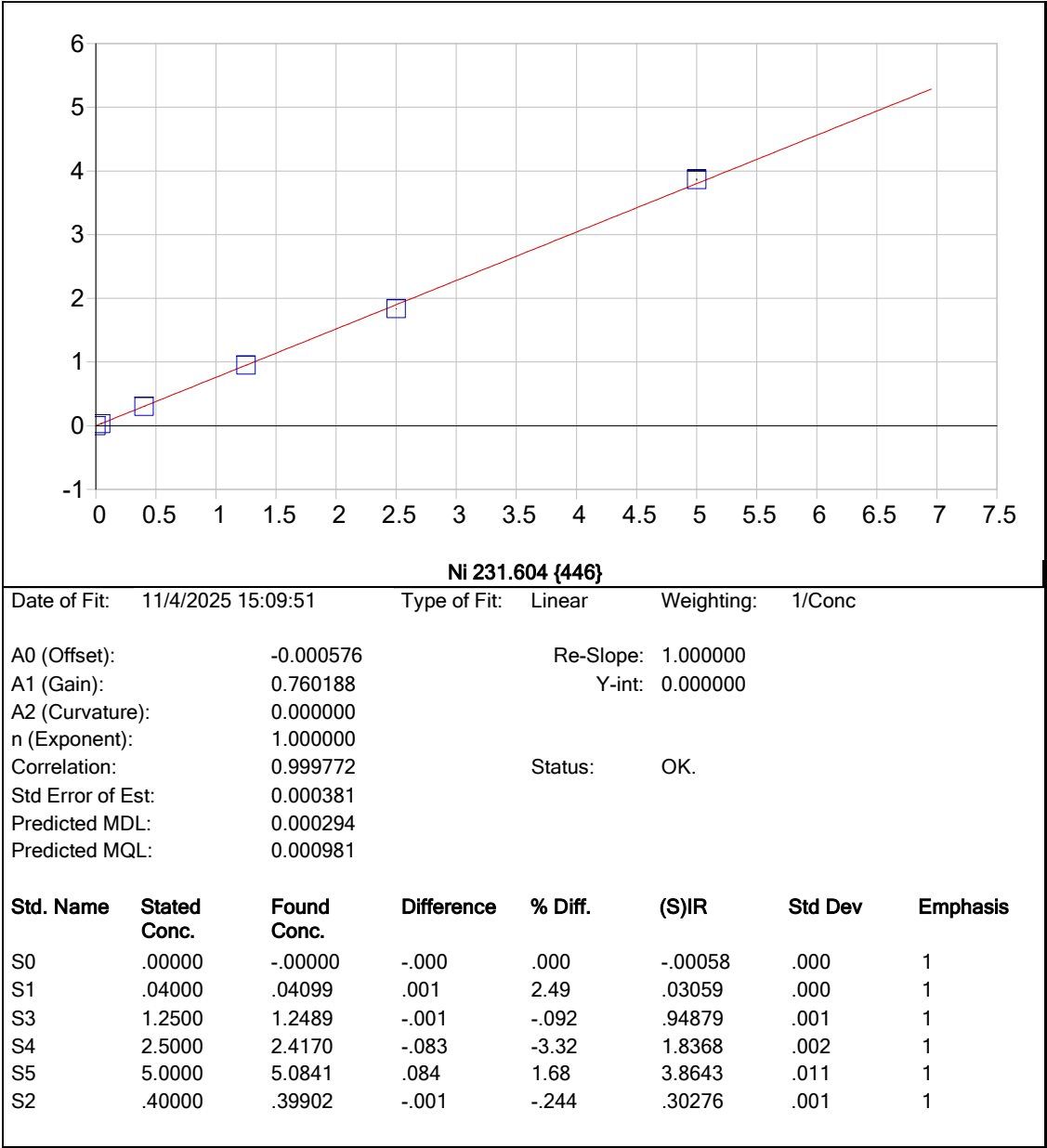


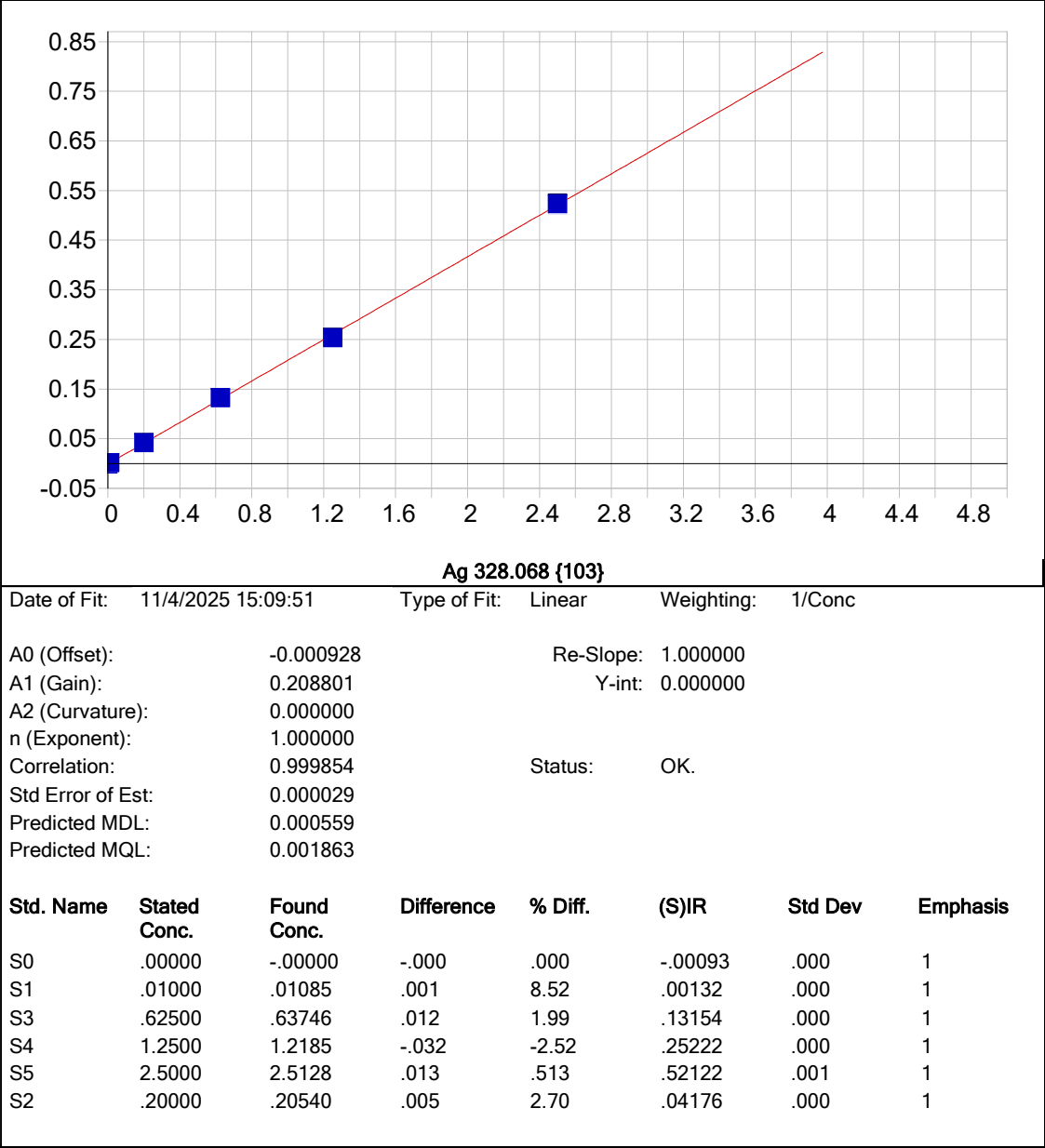


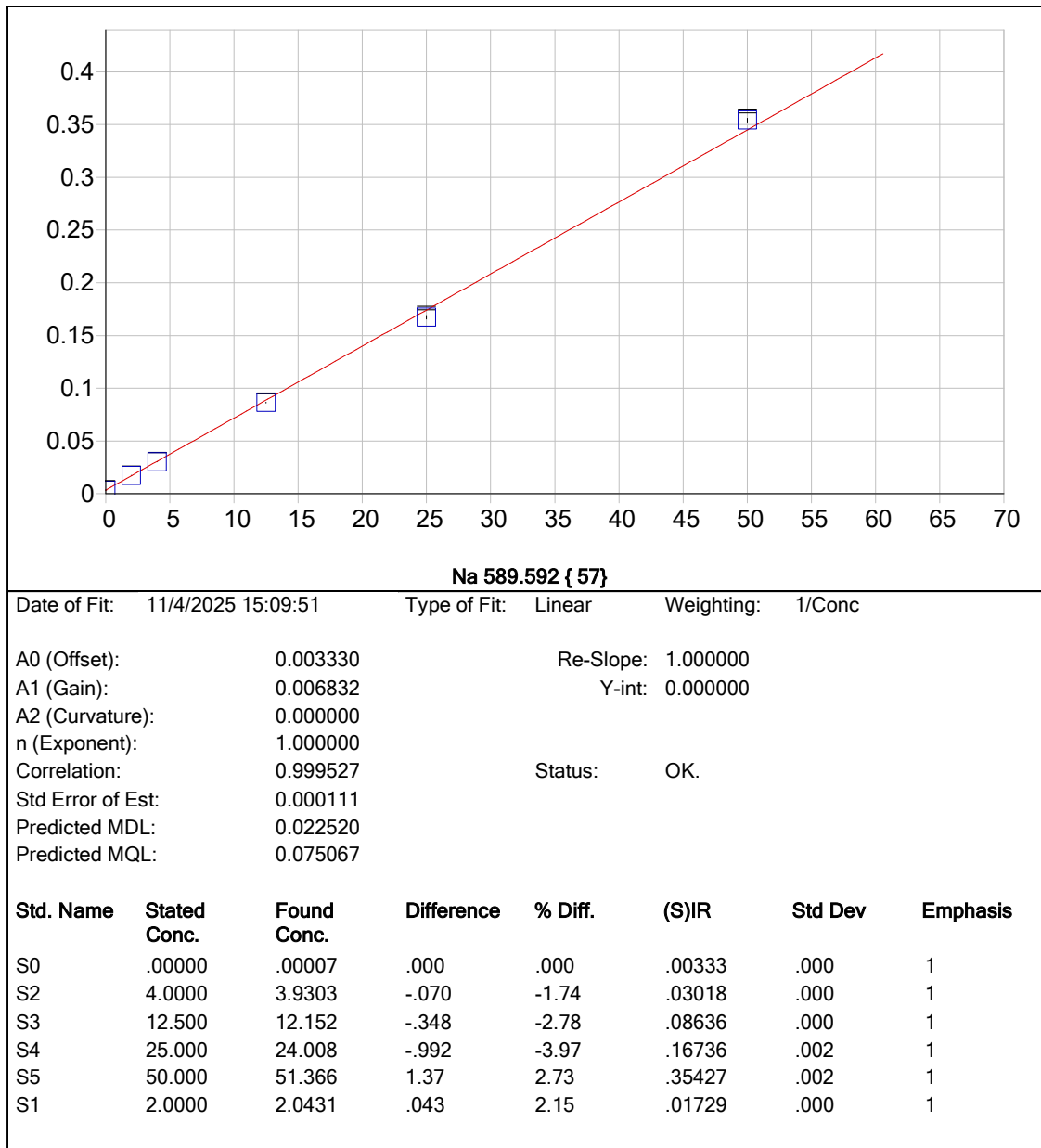


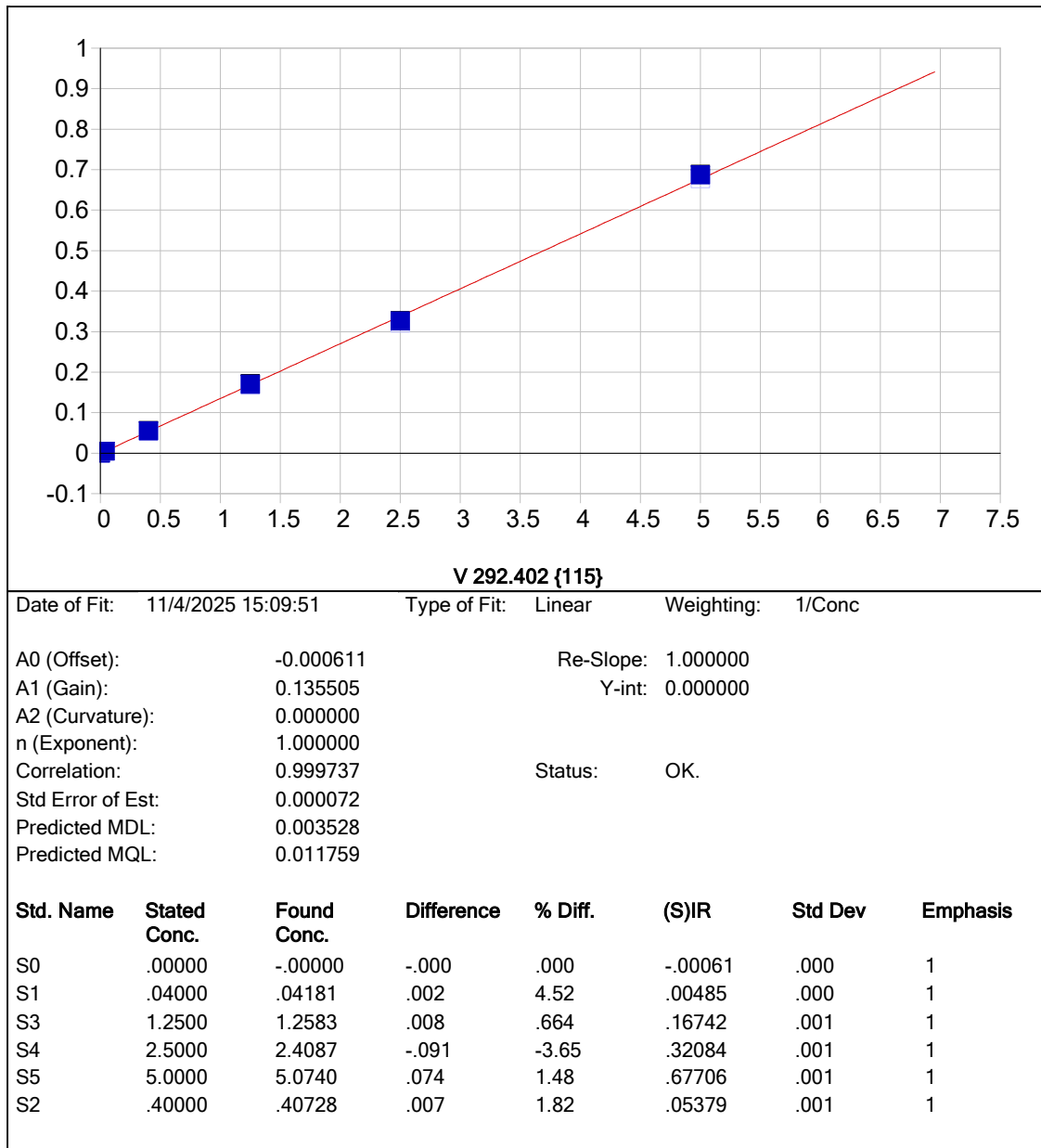


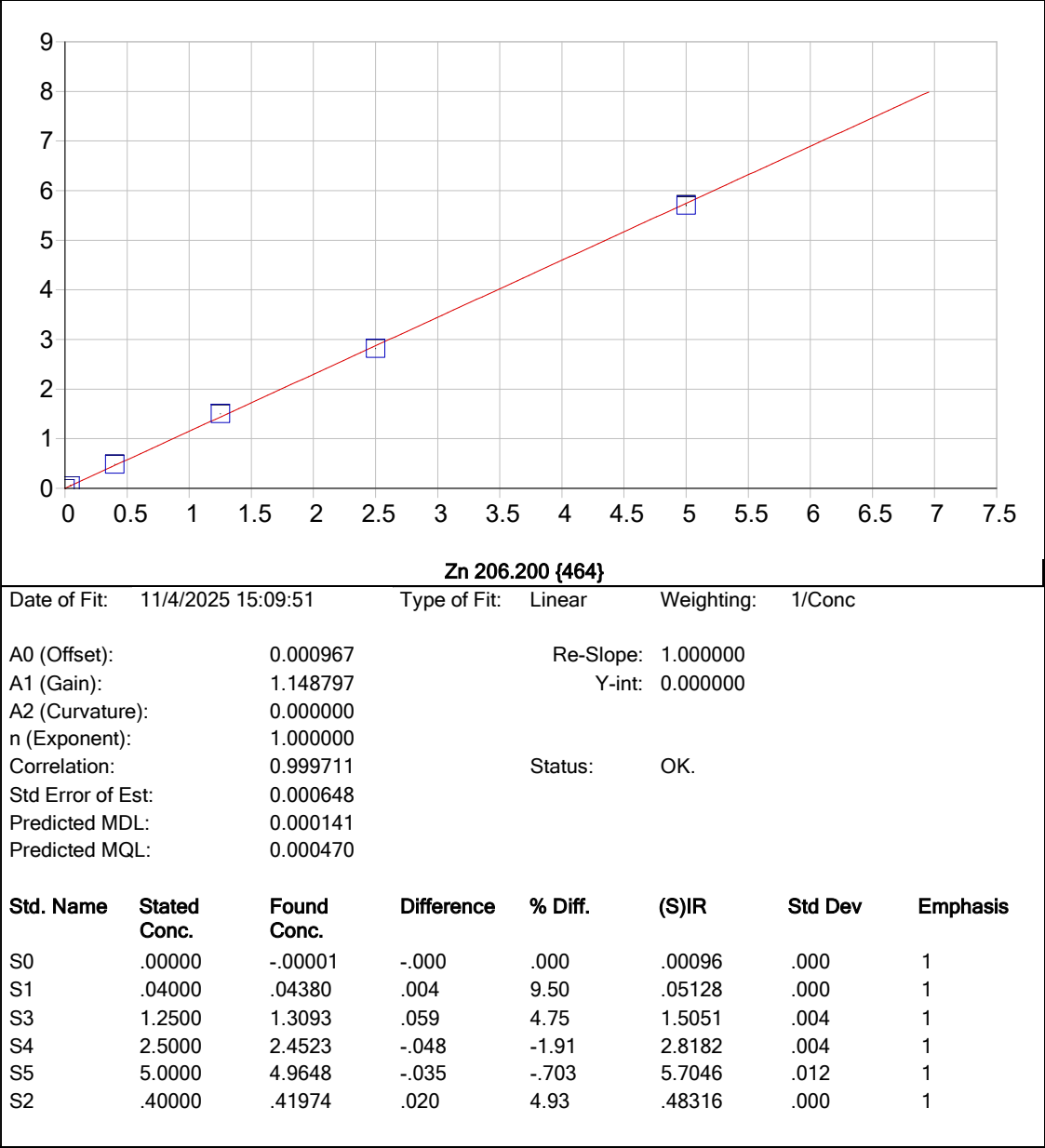


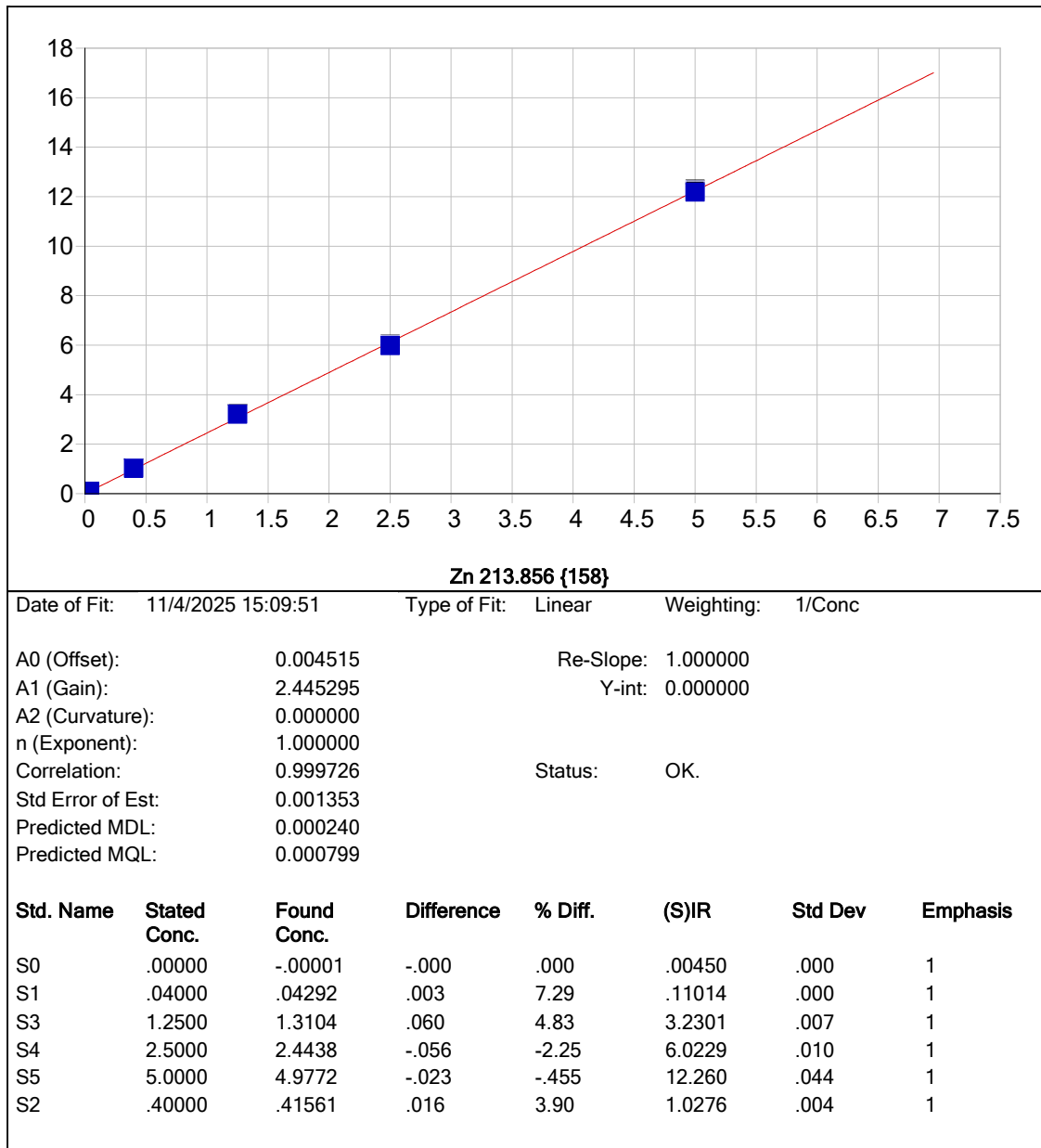


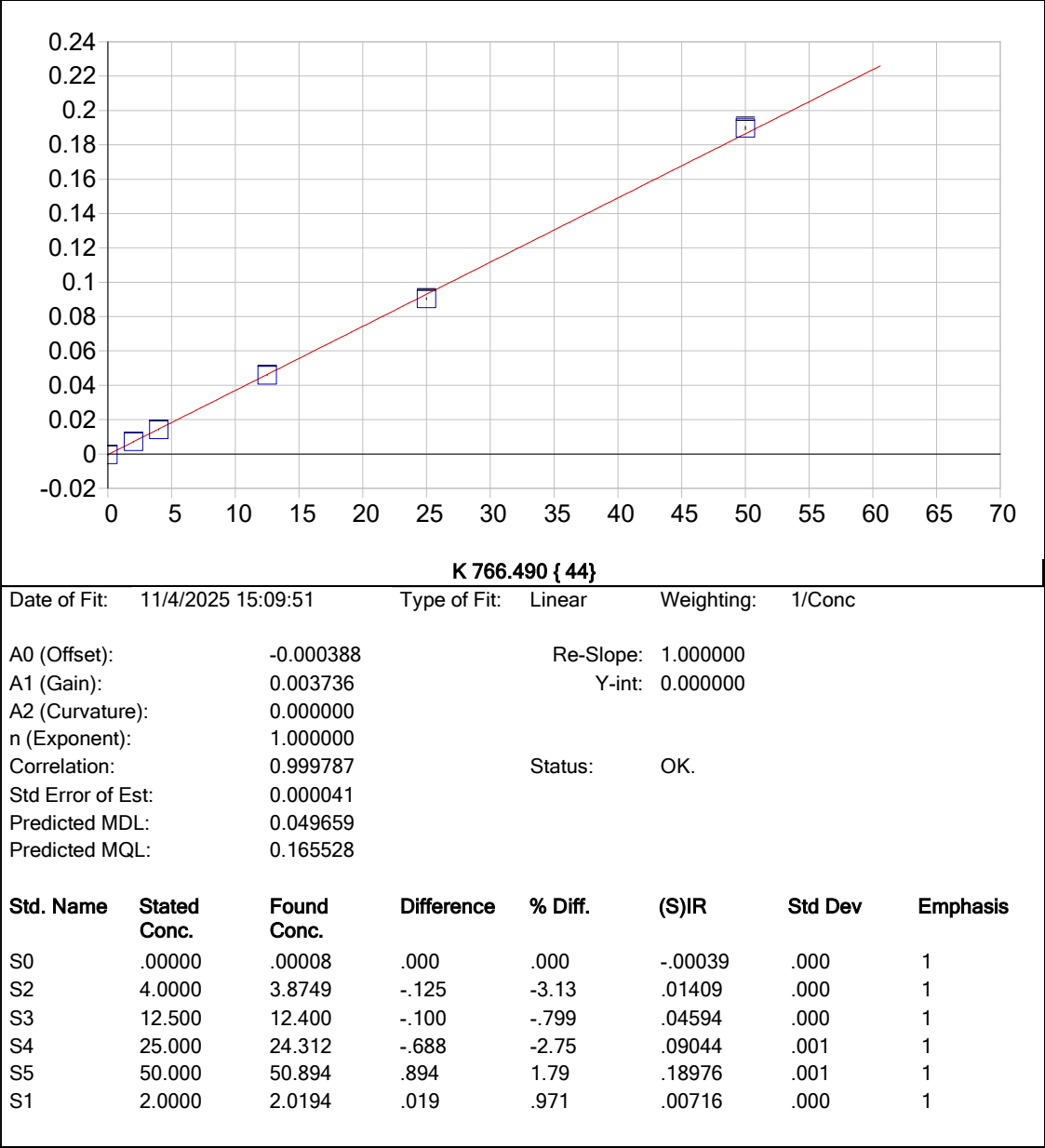


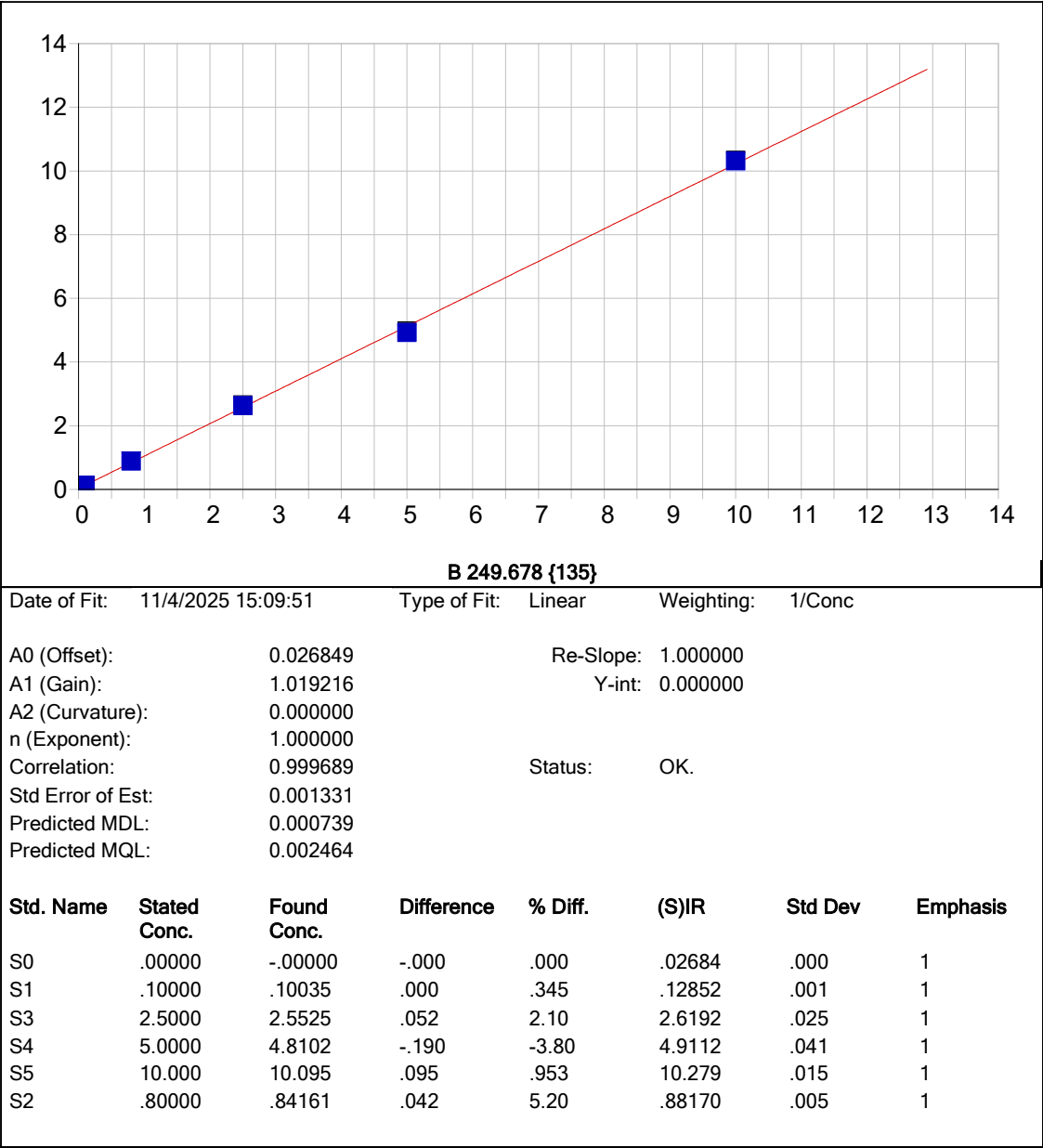


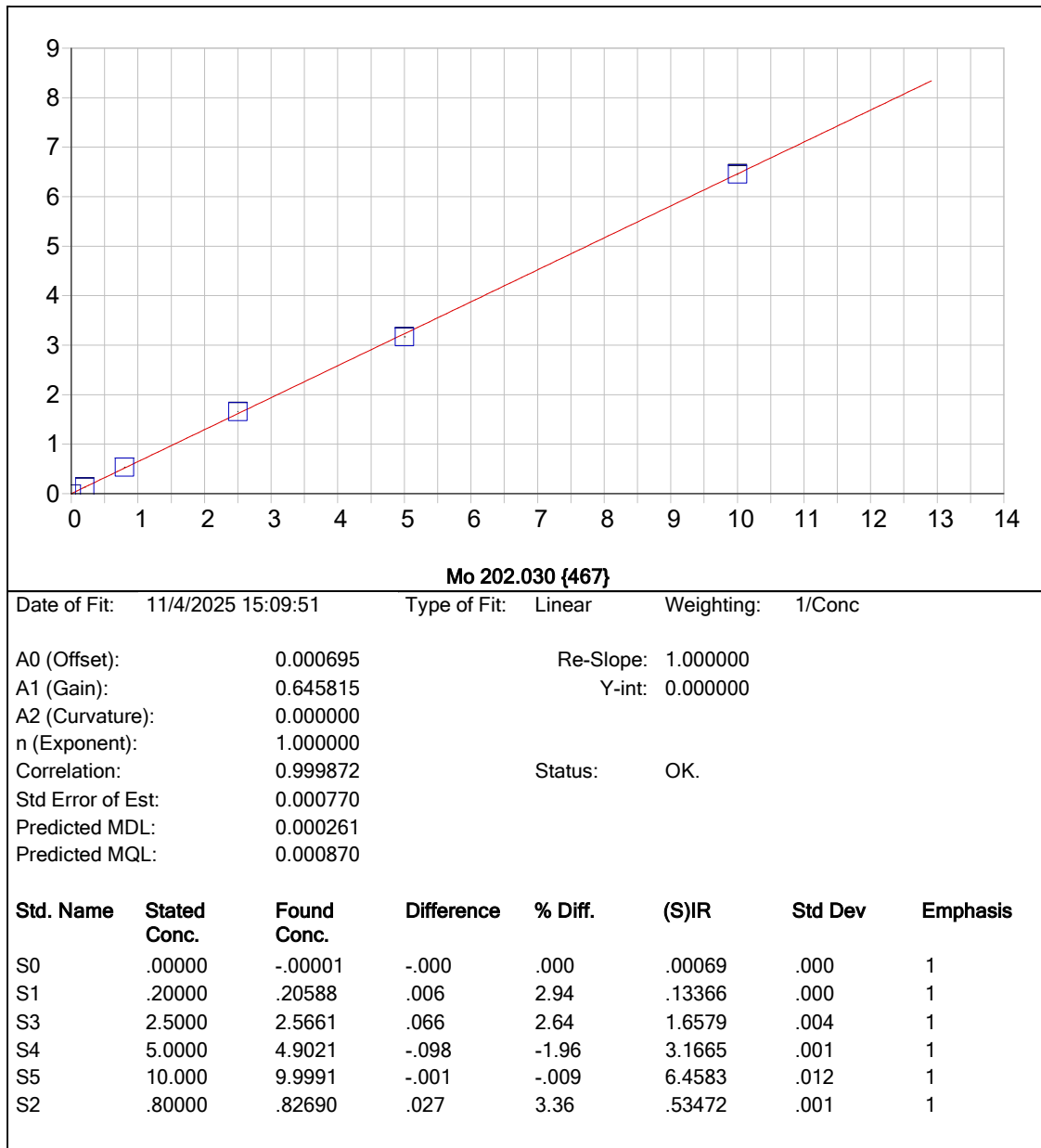


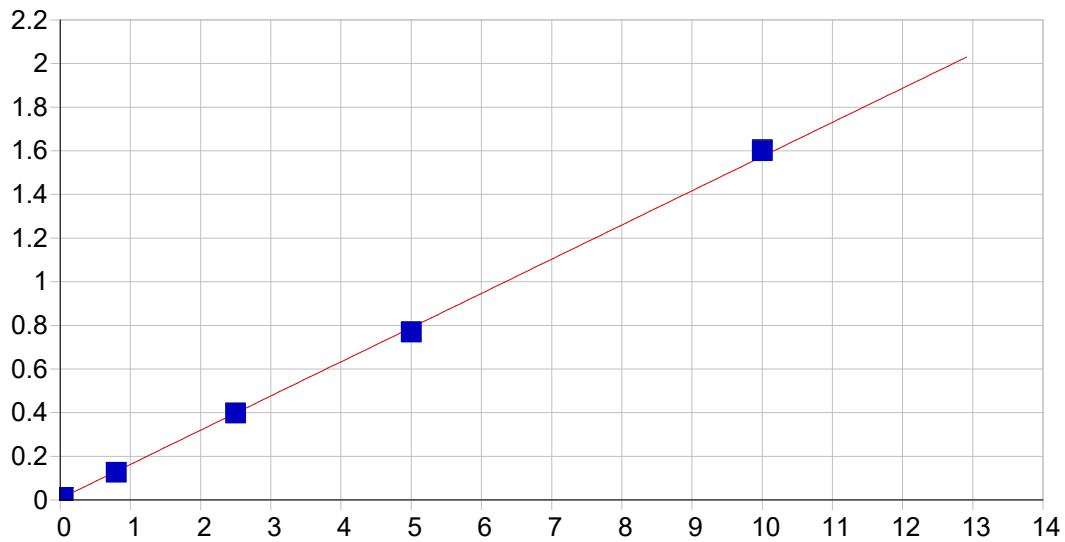










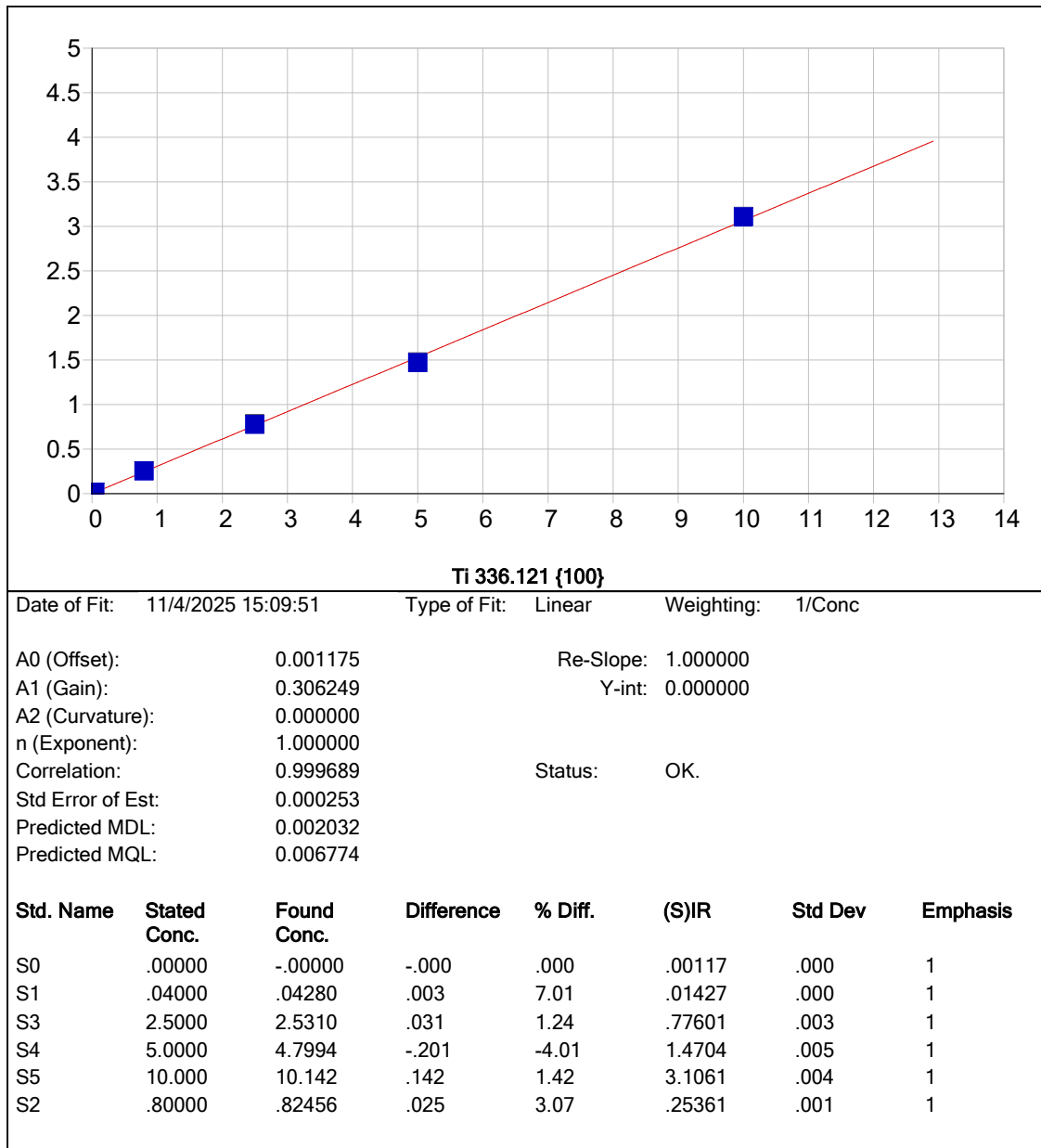


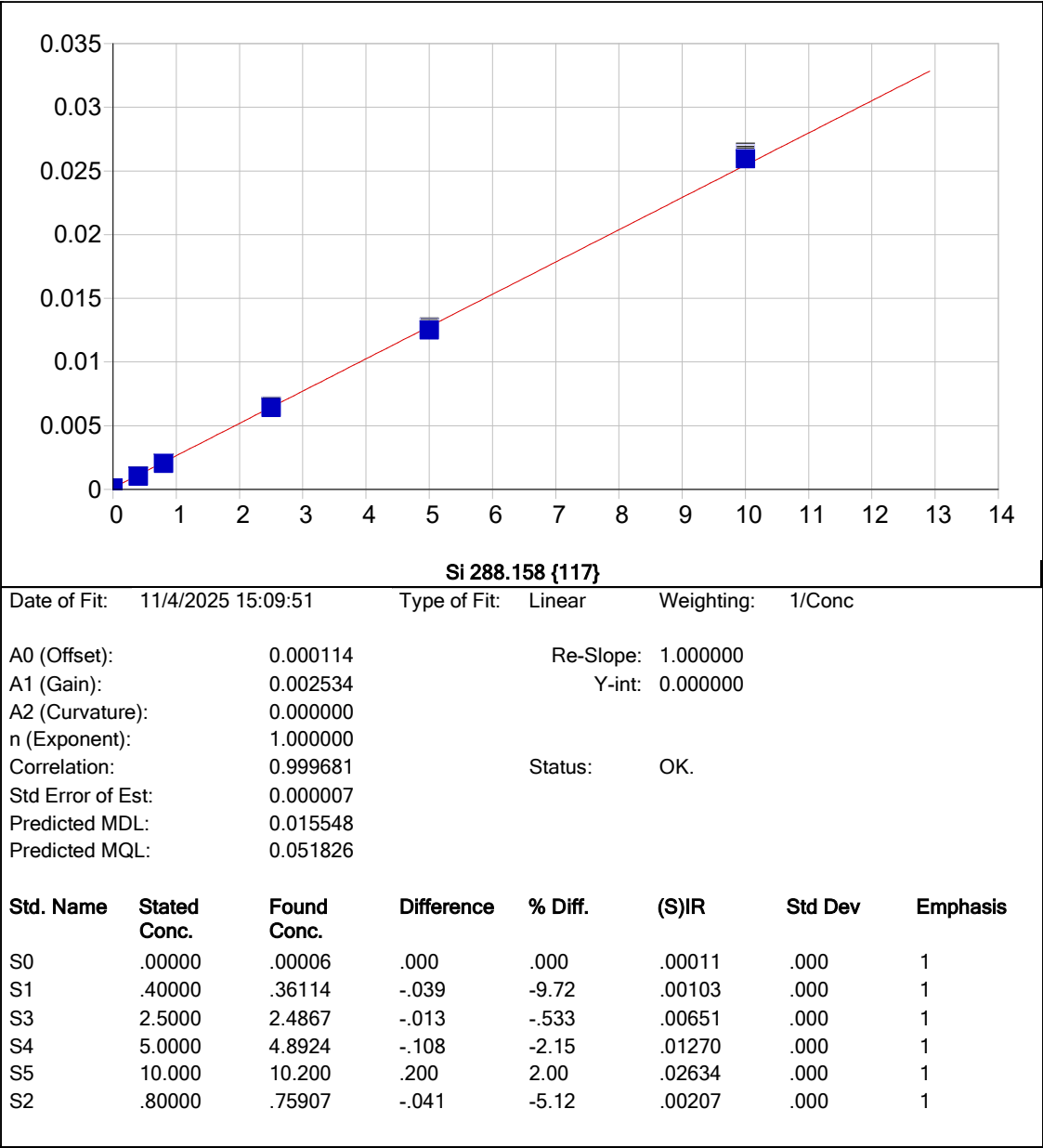
Sn 189.989 {478}

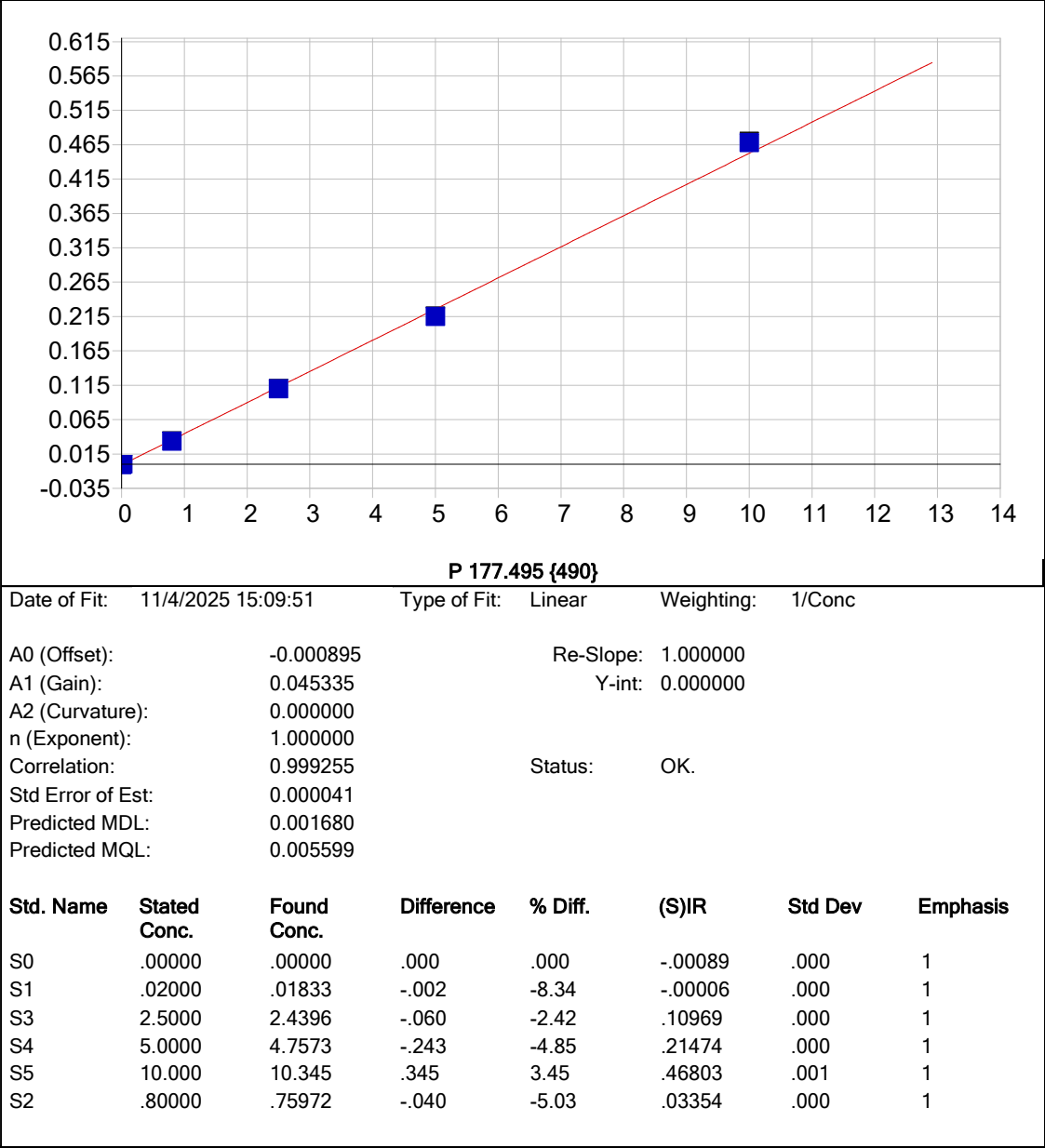
Date of Fit: 11/4/2025 15:09:51 Type of Fit: Linear Weighting: 1/Conc

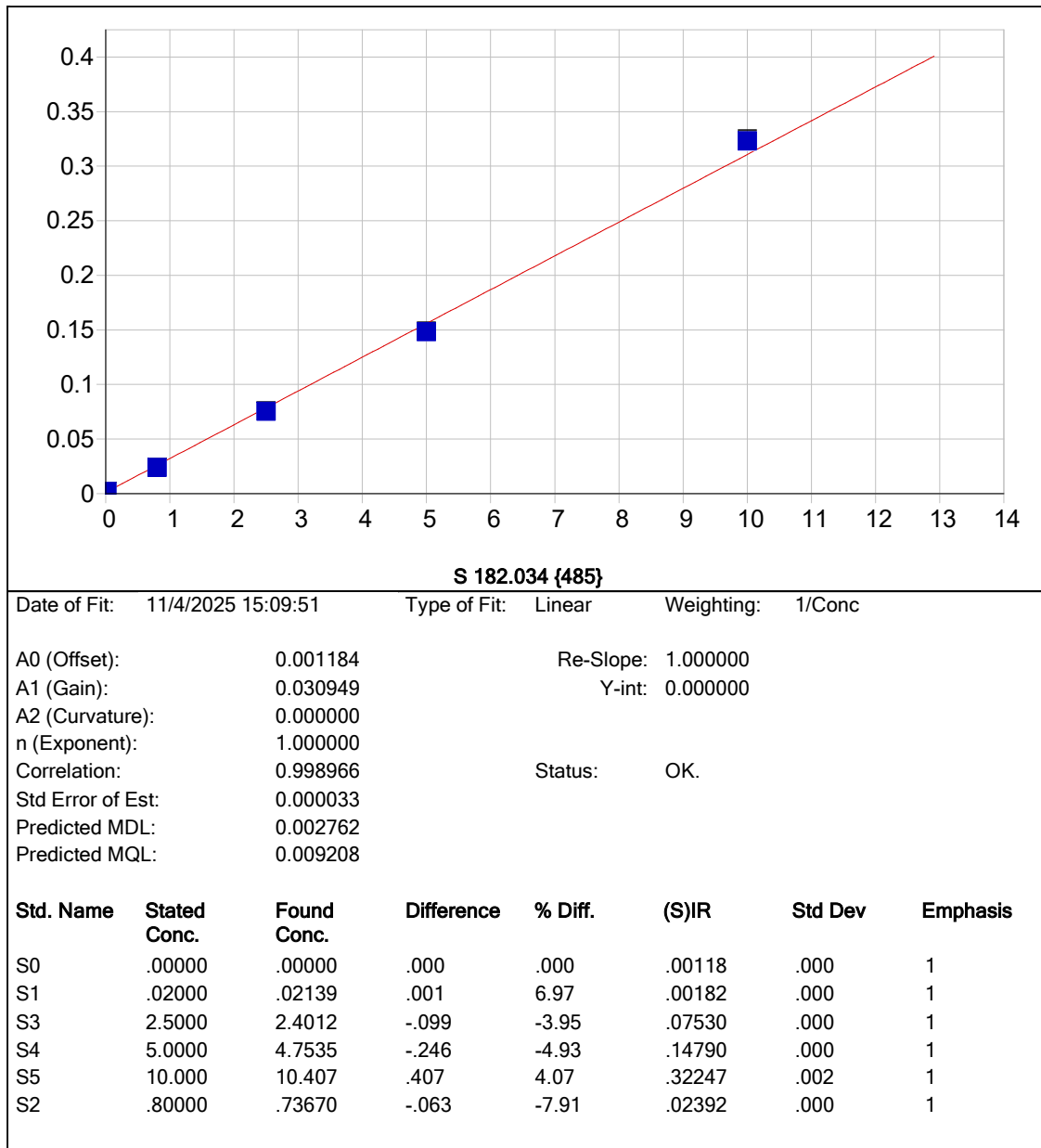
A0 (Offset): 0.005988 Re-Slope: 1.000000
A1 (Gain): 0.156742 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999781 Status: OK.
Std Error of Est: 0.000109
Predicted MDL: 0.000603
Predicted MQL: 0.002011

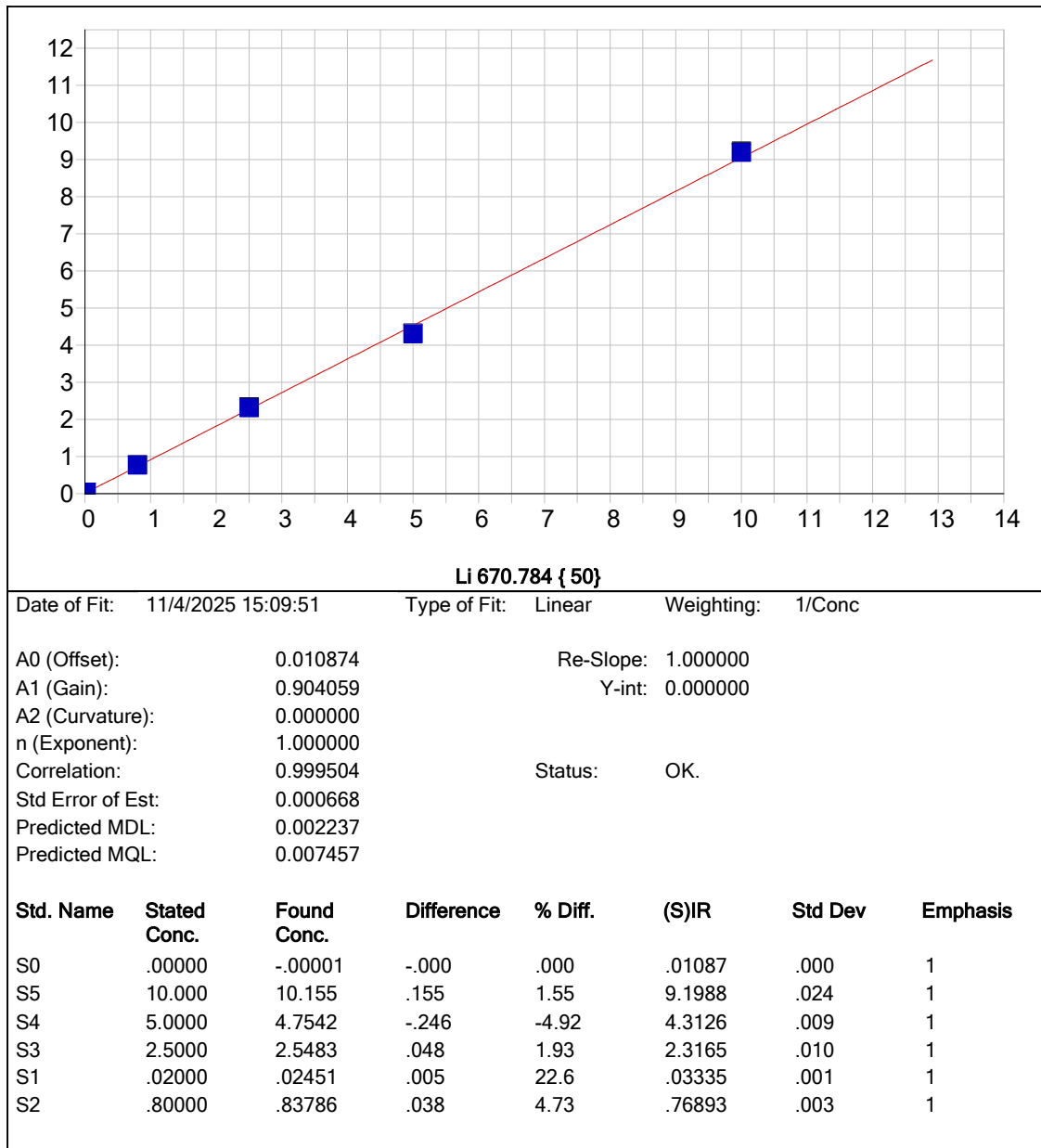
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00599	.000	1
S1	.04000	.03894	-.001	-2.66	.01208	.000	1
S3	2.5000	2.4942	-.006	-.230	.39654	.001	1
S4	5.0000	4.8686	-.131	-2.63	.76830	.001	1
S5	10.000	10.173	.173	1.73	1.5990	.004	1
S2	.80000	.76502	-.035	-4.37	.12577	.000	1

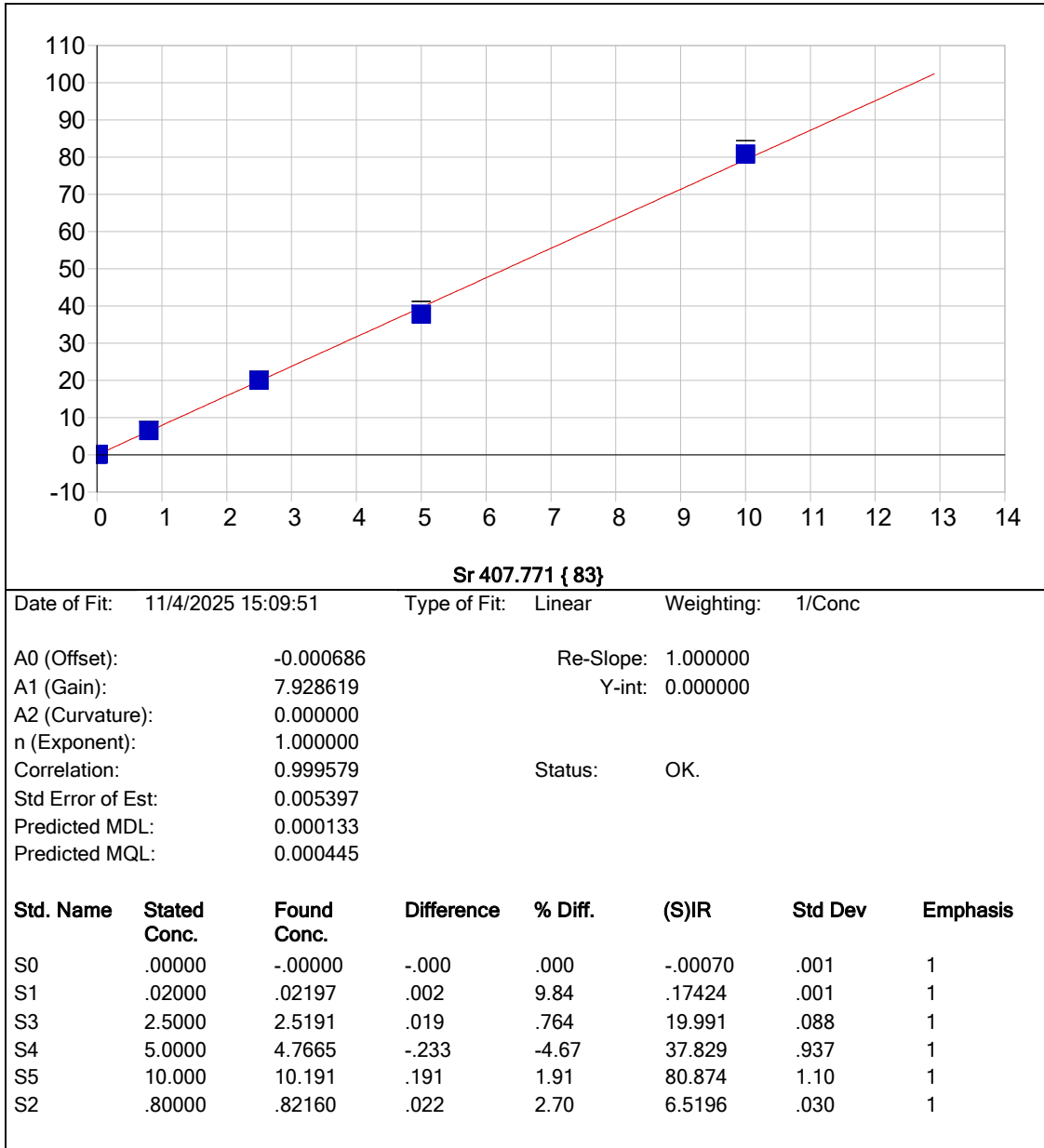


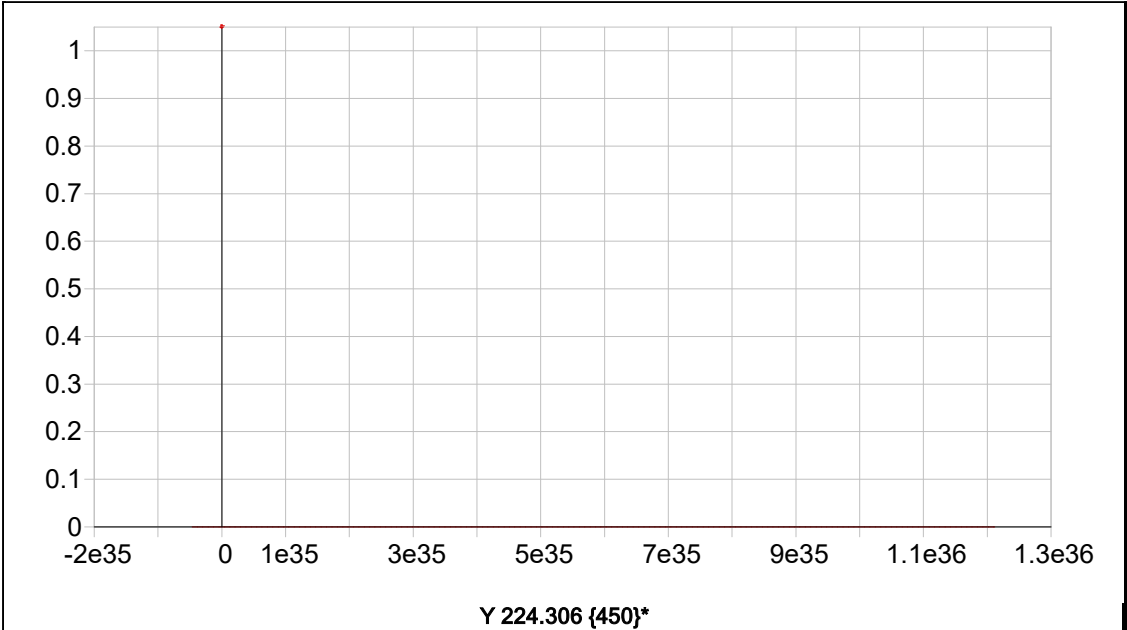




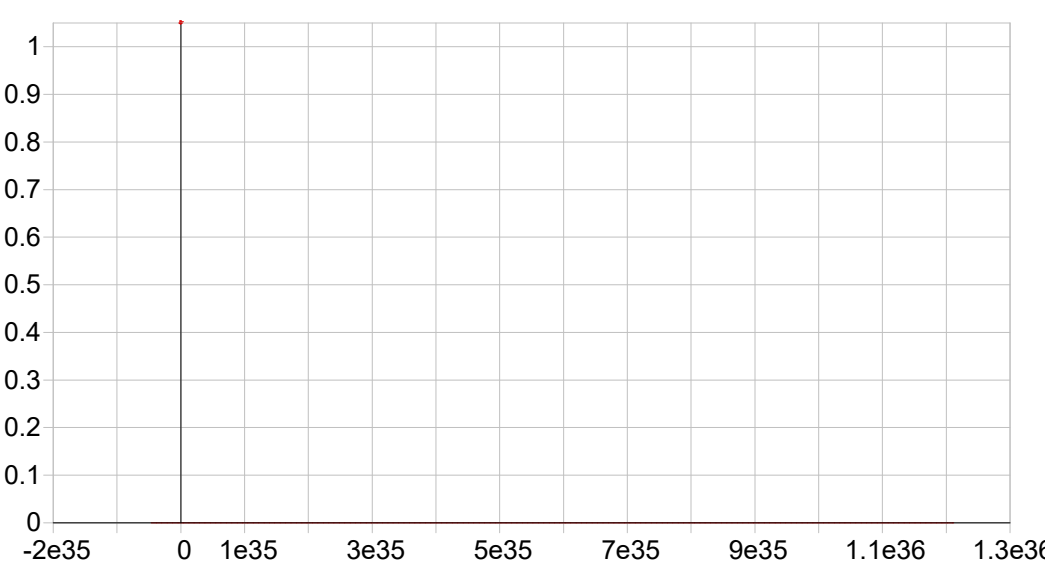








Date of Fit:	11/4/2025 15:09:51	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000		
A1 (Gain):	0.000000	Y-int:	0.000000		
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000	Status:	Warning	Zero Gain	
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

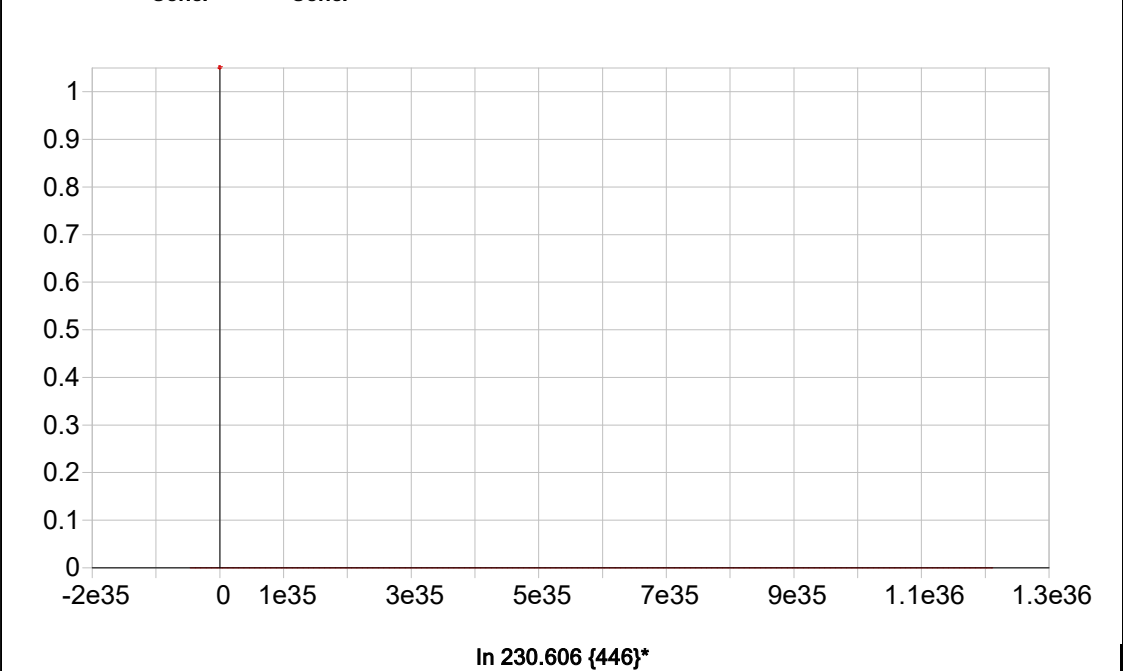
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
							
Y 360.073 { 94}*							

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000		
A1 (Gain):	0.000000	Y-int:	0.000000		





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

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Sample Name: S0 Acquired: 11/4/2025 11:33:29 Type: Cal
Method: 6010-200.7 NEW(v334) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00003	.00054	.00005	.00062	.00075	-.00003	.09712	-.00234
Stddev	.00012	.00007	.00022	.00007	.00012	.00067	.00247	.00048
%RSD	485.65	12.372	419.85	11.585	15.644	2691.7	2.5466	20.652
#1	.00007	.00047	-.00018	.00068	.00065	.00062	.09994	-.00287
#2	-.00016	.00061	.00007	.00064	.00088	-.00073	.09532	-.00224
#3	.00002	.00053	.00027	.00054	.00073	.00004	.09610	-.00192
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	-.00038	.00022	.00011	.00014	.00032	.00002	.00015	.00012
Stddev	.00005	.00058	.00006	.00014	.00016	.00001	.00013	.00050
%RSD	13.078	269.83	52.318	99.995	49.246	52.800	81.041	428.62
#1	-.00035	.00072	.00017	.00026	.00014	.00004	.00011	.00052
#2	-.00043	.00035	.00005	-.00001	.00039	.00002	.00030	.00026
#3	-.00035	-.00042	.00013	.00015	.00043	.00001	.00006	-.00044
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	-.00058	-.00093	.00333	-.00061	.00450	-.00039	.02684	.00069
Stddev	.00021	.00005	.00033	.00014	.00044	.00016	.00039	.00001
%RSD	35.965	4.8759	10.044	22.488	9.7105	41.795	1.4492	1.8615
#1	-.00038	-.00098	.00308	-.00068	.00493	-.00044	.02716	.00068
#2	-.00056	-.00091	.00320	-.00070	.00453	-.00052	.02696	.00070
#3	-.00079	-.00089	.00371	-.00045	.00405	-.00021	.02641	.00067
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	.00599	.00117	.00011	-.00089	.00118	.01087	-.00070	
Stddev	.00007	.00024	.00002	.00006	.00005	.00034	.00059	
%RSD	1.2413	20.297	15.874	6.8739	4.4327	3.1509	83.650	
#1	.00593	.00124	.00013	-.00097	.00117	.01109	-.00083	
#2	.00596	.00091	.00009	-.00085	.00114	.01047	-.00006	
#3	.00607	.00137	.00012	-.00087	.00124	.01104	-.00122	

Sample Name: S0 Acquired: 11/4/2025 11:33:29 Type: Cal
Method: 6010-200.7 NEW(v334) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6115.8	95351.	7147.8	4738.7	7612.7
Stddev	6.2	72.	41.5	11.0	11.1
%RSD	.10186	.07591	.58069	.23240	.14604
#1	6109.0	95420.	7104.1	4750.5	7600.8
#2	6117.1	95276.	7186.7	4728.8	7622.9
#3	6121.3	95358.	7152.5	4736.6	7614.4

Sample Name: S1 Acquired: 11/4/2025 11:37:53 Type: Cal
Method: 6010-200.7 NEW(v334) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00106	.00290	.00277	.00150	.00564	.00932	.34731	.06577
Stddev	.00010	.00004	.00005	.00019	.00014	.00048	.00328	.00111
%RSD	9.7075	1.4104	1.7732	12.385	2.4245	5.1551	.94467	1.6907
#1	.00118	.00287	.00274	.00157	.00578	.00944	.34968	.06673
#2	.00099	.00288	.00273	.00164	.00550	.00972	.34356	.06456
#3	.00102	.00294	.00282	.00129	.00563	.00878	.34868	.06603
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	.01852	.13016	.00237	.03285	.01544	.00027	.00957	.02786
Stddev	.00031	.00040	.00004	.00006	.00034	.00002	.00025	.00036
%RSD	1.6656	.30989	1.8120	.17727	2.1893	6.3030	2.6331	1.3023
#1	.01854	.13027	.00236	.03286	.01583	.00025	.00977	.02778
#2	.01881	.12972	.00242	.03290	.01525	.00028	.00929	.02825
#3	.01820	.13051	.00233	.03278	.01525	.00029	.00965	.02754
Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.03059	.00132	.01729	.00485	.11014	.00716	.12852	.13366
Stddev	.00007	.00011	.00007	.00016	.00031	.00016	.00142	.00012
%RSD	.21472	8.1844	.39213	3.3513	.27978	2.1683	1.1074	.08729
#1	.03059	.00144	.01721	.00498	.10983	.00711	.13005	.13363
#2	.03052	.00127	.01734	.00490	.11045	.00703	.12723	.13379
#3	.03065	.00125	.01731	.00467	.11016	.00733	.12828	.13356
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	.01208	.01427	.00103	-.00006	.00182	.03335	.17424	
Stddev	.00007	.00018	.00002	.00006	.00004	.00122	.00123	
%RSD	.57909	1.2956	1.7062	88.488	2.4549	3.6614	.70664	
#1	.01208	.01425	.00101	-.00012	.00187	.03196	.17562	
#2	.01216	.01447	.00104	-.00002	.00180	.03424	.17324	
#3	.01202	.01410	.00104	-.00005	.00179	.03385	.17388	

Sample Name: S1 Acquired: 11/4/2025 11:37:53 Type: Cal
Method: 6010-200.7 NEW(v334) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6056.1	94454.	7007.4	4769.0	7449.5
Stddev	5.7	327.	48.3	23.7	4.9
%RSD	.09477	.34668	.68926	.49626	.06633
#1	6054.7	94814.	6954.8	4796.1	7452.6
#2	6062.4	94175.	7049.7	4752.8	7452.1
#3	6051.1	94373.	7017.8	4757.9	7443.8

Sample Name: S2 Acquired: 11/4/2025 11:42:13 Type: Cal
Method: 6010-200.7 NEW(v334) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.04321	.04828	.16875	.03609	.07517	.14493	4.0164	.43088
Stddev	.00015	.00043	.00028	.00005	.00034	.00067	.0147	.00264
%RSD	.34652	.89406	.16567	.13444	.44767	.46219	.36735	.61263
#1	.04338	.04875	.16898	.03612	.07529	.14446	4.0207	.43182
#2	.04314	.04820	.16883	.03603	.07542	.14570	4.0286	.43292
#3	.04311	.04790	.16844	.03611	.07479	.14463	4.0000	.42790
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.2527	.25205	.03557	.42582	.14203	.00201	.17923	.05134
Stddev	.0017	.00105	.00013	.00044	.00019	.00002	.00066	.00008
%RSD	.13788	.41710	.36577	.10236	.13462	.86614	.36878	.15555
#1	1.2508	.25298	.03565	.42555	.14226	.00203	.17925	.05134
#2	1.2542	.25091	.03564	.42632	.14193	.00200	.17988	.05142
#3	1.2531	.25226	.03542	.42559	.14191	.00201	.17856	.05126
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	.30276	.04176	.03018	.05379	1.0276	.01409	.88170	.53472
Stddev	.00055	.00002	.00014	.00054	.0042	.00018	.00529	.00089
%RSD	.18092	.05865	.47403	1.0038	.41143	1.2772	.60036	.16601
#1	.30334	.04174	.03028	.05440	1.0262	.01389	.88282	.53510
#2	.30268	.04178	.03024	.05359	1.0324	.01412	.88634	.53371
#3	.30226	.04175	.03002	.05337	1.0243	.01425	.87593	.53536
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	.12577	.25361	.00207	.03354	.02392	.76893	6.5196	
Stddev	.00020	.00122	.00001	.00012	.00010	.00324	.0297	
%RSD	.16125	.48060	.45534	.34701	.41301	.42177	.45637	
#1	.12600	.25431	.00206	.03356	.02403	.77036	6.5323	
#2	.12569	.25431	.00207	.03342	.02387	.77121	6.5409	
#3	.12562	.25220	.00208	.03365	.02386	.76522	6.4856	

Sample Name: S2 Acquired: 11/4/2025 11:42:13 Type: Cal
Method: 6010-200.7 NEW(v334) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6029.0	93823.	6965.6	4691.2	7268.9
Stddev	5.5	277.	49.9	12.9	7.3
%RSD	.09054	.29511	.71662	.27399	.10072
#1	6033.6	93730.	6949.5	4698.0	7277.3
#2	6030.3	93604.	6925.7	4676.4	7263.6
#3	6023.0	94134.	7021.5	4699.3	7265.9

Sample Name: S3 Acquired: 11/4/2025 11:46:23 Type: Cal
Method: 6010-200.7 NEW(v334) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.13740	.15588	.53227	.11388	.23355	.46956	12.128	1.3237
Stddev	.00020	.00278	.00062	.00026	.00036	.00153	.041	.0109
%RSD	.14685	1.7818	.11627	.22703	.15355	.32689	.33437	.82459

#1	.13734	.15390	.53203	.11368	.23381	.46986	12.166	1.3359
#2	.13762	.15905	.53181	.11417	.23314	.46790	12.086	1.3203
#3	.13723	.15469	.53297	.11379	.23370	.47093	12.132	1.3149

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	4.0247	.77232	.11255	1.3419	.44032	.00633	.54401	.15756
Stddev	.0076	.00147	.00043	.0016	.00079	.00002	.00145	.00038
%RSD	.19002	.19091	.37807	.12118	.17893	.31942	.26618	.23840

#1	4.0169	.77401	.11217	1.3406	.43943	.00633	.54489	.15722
#2	4.0249	.77159	.11248	1.3415	.44090	.00631	.54234	.15797
#3	4.0322	.77134	.11301	1.3437	.44065	.00635	.54480	.15749

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	.94879	.13154	.08636	.16742	3.2301	.04594	2.6192	1.6579
Stddev	.00104	.00021	.00032	.00116	.0073	.00022	.0246	.0038
%RSD	.10920	.16218	.37416	.69577	.22494	.47465	.94087	.23026

#1	.94916	.13162	.08627	.16876	3.2385	.04580	2.6438	1.6555
#2	.94762	.13171	.08608	.16664	3.2261	.04583	2.6192	1.6623
#3	.94959	.13130	.08671	.16687	3.2256	.04619	2.5945	1.6559

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	.39654	.77601	.00651	.10969	.07530	2.3165	19.991	
Stddev	.00097	.00340	.00003	.00024	.00026	.0103	.088	
%RSD	.24406	.43767	.40930	.21708	.34773	.44230	.44072	

#1	.39578	.77904	.00648	.10996	.07539	2.3271	20.089	
#2	.39763	.77234	.00652	.10959	.07550	2.3067	19.917	
#3	.39621	.77665	.00653	.10951	.07500	2.3158	19.969	

Sample Name: S3 Acquired: 11/4/2025 11:46:23 Type: Cal
Method: 6010-200.7 NEW(v334) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6020.3	92714.	7129.5	4602.4	7043.1
Stddev	11.1	161.	41.2	22.5	8.7
%RSD	.18417	.17314	.57799	.48789	.12391
#1	6032.4	92803.	7082.9	4625.3	7053.2
#2	6010.7	92810.	7144.6	4601.3	7038.3
#3	6017.9	92528.	7161.0	4580.5	7037.8

Sample Name: S4 Acquired: 11/4/2025 11:50:26 Type: Cal
Method: 6010-200.7 NEW(v334) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.26346	.29567	1.0248	.21624	.44548	.86287	22.924	2.4704
Stddev	.00017	.00593	.0015	.00011	.00033	.00179	.053	.0199
%RSD	.06344	2.0052	.15077	.04899	.07505	.20745	.23068	.80632
#1	.26363	.30184	1.0245	.21636	.44530	.86206	22.985	2.4604
#2	.26330	.29001	1.0234	.21615	.44586	.86492	22.886	2.4933
#3	.26347	.29515	1.0264	.21621	.44527	.86163	22.903	2.4575
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7.8449	1.4622	.21341	2.6085	.82344	.01195	1.0162	.29940
Stddev	.0123	.0042	.00080	.0035	.00025	.00007	.0008	.00098
%RSD	.15613	.28556	.37713	.13553	.03053	.62016	.08089	.32817
#1	7.8456	1.4667	.21254	2.6072	.82346	.01198	1.0170	.29866
#2	7.8323	1.4614	.21357	2.6059	.82318	.01187	1.0153	.30052
#3	7.8567	1.4585	.21412	2.6125	.82368	.01201	1.0162	.29904
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	1.8368	.25222	.16736	.32084	6.0229	.09044	4.9112	3.1665
Stddev	.0024	.00025	.00159	.00076	.0098	.00052	.0406	.0007
%RSD	.12965	.09881	.95151	.23698	.16197	.57284	.82602	.02320
#1	1.8355	.25215	.16804	.32008	6.0324	.09089	4.8889	3.1671
#2	1.8354	.25250	.16554	.32160	6.0129	.08988	4.9580	3.1657
#3	1.8396	.25202	.16850	.32084	6.0235	.09056	4.8866	3.1667
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	.76830	1.4704	.01270	.21474	.14790	4.3126	37.829	
Stddev	.00128	.0046	.00003	.00050	.00049	.0092	.937	
%RSD	.16631	.31013	.24651	.23199	.33161	.21456	2.4762	
#1	.76888	1.4756	.01273	.21518	.14817	4.3231	37.348	
#2	.76683	1.4687	.01266	.21484	.14733	4.3089	38.909	
#3	.76918	1.4670	.01271	.21420	.14820	4.3057	37.232	

Sample Name: S4 Acquired: 11/4/2025 11:50:26 Type: Cal
Method: 6010-200.7 NEW(v334) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6130.2	94700.	7485.7	4635.5	6995.4
Stddev	5.2	295.	43.6	21.1	10.6
%RSD	.08429	.31178	.58299	.45617	.15217
#1	6124.8	94978.	7516.0	4627.0	6986.6
#2	6130.8	94732.	7435.7	4659.6	7007.2
#3	6135.1	94390.	7505.4	4620.0	6992.4

Sample Name: S5 Acquired: 11/4/2025 11:54:39 Type: Cal
Method: 6010-200.7 NEW(v334) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.54445	.60704	2.1719	.45044	.93656	1.8065	48.600	5.1040
Stddev	.00088	.01634	.0042	.00136	.00107	.0040	.499	.0210
%RSD	.16145	2.6914	.19257	.30278	.11442	.22121	1.0263	.41199

#1	.54441	.60044	2.1758	.45046	.93641	1.8111	48.578	5.1277
#2	.54359	.59503	2.1675	.44908	.93558	1.8036	49.109	5.0965
#3	.54535	.62565	2.1724	.45180	.93770	1.8048	48.113	5.0877

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	16.379	3.0607	.43098	5.5091	1.6717	.02474	2.1495	.62905
Stddev	.046	.0046	.00222	.0113	.0043	.00010	.0035	.00267
%RSD	.27931	.15126	.51483	.20578	.25731	.38556	.16136	.42405

#1	16.420	3.0660	.43303	5.5189	1.6765	.02472	2.1460	.63175
#2	16.330	3.0589	.43127	5.4967	1.6683	.02484	2.1529	.62642
#3	16.387	3.0573	.42862	5.5117	1.6702	.02465	2.1495	.62897

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	3.8643	.52122	.35427	.67706	12.260	.18976	10.279	6.4583
Stddev	.0110	.00084	.00192	.00128	.044	.00094	.015	.0123
%RSD	.28437	.16124	.54138	.18846	.36049	.49573	.14762	.19107

#1	3.8744	.52153	.35236	.67850	12.311	.18867	10.290	6.4659
#2	3.8526	.52187	.35619	.67661	12.229	.19035	10.286	6.4440
#3	3.8659	.52027	.35427	.67606	12.241	.19025	10.262	6.4648

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	1.5990	3.1061	.02634	.46803	.32247	9.1988	80.874	
Stddev	.0043	.0044	.00012	.00148	.00163	.0241	1.103	
%RSD	.26854	.14049	.47364	.31603	.50472	.26232	1.3637	

#1	1.5993	3.1029	.02627	.46737	.32144	9.1724	79.934	
#2	1.5945	3.1044	.02648	.46700	.32163	9.2044	82.088	
#3	1.6031	3.1111	.02626	.46973	.32435	9.2197	80.600	

Sample Name: S5 Acquired: 11/4/2025 11:54:39 Type: Cal
Method: 6010-200.7 NEW(v334) Mode: IR Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5782.7	91629.	7091.3	4485.7	6379.3
Stddev	15.2	511.	41.6	33.4	14.8
%RSD	.26263	.55807	.58708	.74478	.23135
#1	5765.2	91161.	7044.9	4447.2	6362.3
#2	5790.2	91551.	7103.8	4502.8	6388.4
#3	5792.5	92175.	7125.3	4507.0	6387.2

Sample Name: ICV01 Acquired: 11/4/2025 11:58:57 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.856560	3.846396	3.798941	3.890061	4.004239	7.722054
Stddev	.008480	.103346	.007241	.010977	.004027	.041743
%RSD	.2198873	2.686830	.1906005	.2821860	.1005785	.5405636

#1	3.855129	3.946805	3.792038	3.897603	4.000175	7.680433
#2	3.865664	3.852039	3.798308	3.895113	4.008229	7.763917
#3	3.848886	3.740344	3.806478	3.877468	4.004312	7.721810

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.060683	1.1965607	1.929062	19.58599	1.7951451	1.964415
Stddev	.008958	.0029083	.002294	.07446	.0019360	.004522
%RSD	.1111308	1.479607	.1188971	.3801709	.2434834	.2301786

#1	8.061243	1.1932822	1.926461	19.59369	1.7931174	1.959197
#2	8.069348	1.1975701	1.929931	19.65630	1.7969742	1.967194
#3	8.051458	1.1988299	1.930794	19.50798	1.7953437	1.966853

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.004754	4.033850	2.003787	19.43896	1.967843	1.038372
Stddev	.001326	.033006	.008907	.10797	.003174	.002156
%RSD	.1319804	.8182378	.4445324	.5554415	.1612752	.2075892

#1	1.003378	4.069444	1.994913	19.31835	1.964199	1.036728
#2	1.006023	4.027852	2.012728	19.52662	1.969330	1.037575
#3	1.004862	4.004254	2.003719	19.47190	1.970001	1.040812

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	19.68824	1.958553	1.973566	19.72056	3.912290	4.013468
Stddev	.16644	.007540	.005315	.14273	.049129	.002755
%RSD	.8453781	.3849553	.2693141	.7237662	1.255758	.0686384

#1	19.86439	1.966967	1.968825	19.88513	3.855979	4.012801
#2	19.66671	1.952410	1.979312	19.64589	3.934490	4.016495
#3	19.53360	1.956282	1.972561	19.63065	3.946400	4.011108

Sample Name: ICV01 Acquired: 11/4/2025 11:58:57 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.966459	4.008454	3.741944	F .0040846	F .0260483	F -.001144
Stddev	.003738	.009580	.053536	.0001078	.0022938	.001691
%RSD	.0942374	.2389969	1.430702	2.640162	8.805834	147.7294
#1	3.965517	4.000533	3.801361	.0040821	.0285474	-.002005
#2	3.970578	4.019102	3.727009	.0039781	.0240390	.000803
#3	3.963283	4.005726	3.697461	.0041937	.0255585	-.002231
Elem	Sr4077					
Units	ppm					
Avg	F -.002916					
Stddev	.000070					
%RSD	2.413383					
#1	-.002867					
#2	-.002884					
#3	-.002996					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	6101.247	94535.47	7394.241	4799.379	7016.251	
Stddev	9.928	329.36	106.067	18.502	14.175	
%RSD	.1627171	.3483967	1.434453	.3855089	.2020358	
#1	6112.711	94848.63	7516.713	4814.308	7032.422	
#2	6095.523	94192.01	7333.865	4778.679	7010.356	
#3	6095.508	94565.79	7332.146	4805.149	7005.974	

Sample Name: LLICV01 Acquired: 11/4/2025 12:16:13 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0216158	.0400916	.0123297	.0185126	.0506892	.1009199	.1005441
Stddev	.0002775	.0035575	.0009671	.0019492	.0016011	.0151009	.0004149
%RSD	1.283989	8.873332	7.843929	10.52877	3.158740	14.96320	.4127067

#1	.0215141	.0395904	.0122220	.0207324	.0503194	.1050199	.1008645
#2	.0214034	.0438731	.0133461	.0177240	.0493053	.1135475	.1000754
#3	.0219298	.0368114	.0114209	.0170813	.0524428	.0841925	.1006926

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0064858	.0057871	2.092869	.0101826	.0300511	.0226322	.1005613
Stddev	.0000266	.0000459	.026623	.0002367	.0001589	.0001677	.0068369
%RSD	.4092811	.7934708	1.272101	2.324357	.5286240	.7410322	6.798739

#1	.0065076	.0058179	2.062381	.0102959	.0302200	.0227040	.0933817
#2	.0064935	.0057343	2.104696	.0103414	.0299047	.0224406	.1069942
#3	.0064562	.0058091	2.111529	.0099106	.0300286	.0227521	.1013082

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0216891	2.167752	.0405701	.0108526	1.758368	.0422577	.0425538
Stddev	.0006283	.010681	.0001178	.0002072	.014543	.0029075	.0001441
%RSD	2.897055	.4927257	.2902665	1.908981	.8271023	6.880416	.3385331

#1	.0214962	2.161530	.0405629	.0110526	1.742739	.0401114	.0424566
#2	.0211798	2.180086	.0406913	.0108663	1.760862	.0455667	.0424854
#3	.0223913	2.161642	.0404561	.0106389	1.771503	.0410952	.0427193

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.836682	.0929843	.2051862	.0385843	.0420644	.3714883	.0177525
Stddev	.020703	.0003290	.0006492	.0002825	.0008950	.0046550	.0011228
%RSD	1.127174	.3537902	.3163970	.7320990	2.127732	1.253061	6.324597

#1	1.843763	.0931911	.2052515	.0386130	.0415620	.3763588	.0190482
#2	1.852914	.0926049	.2058004	.0388513	.0415334	.3670839	.0171432
#3	1.813368	.0931568	.2045069	.0382885	.0430977	.3710221	.0170661

Sample Name: LLICV01 Acquired: 11/4/2025 12:16:13 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0184704	.0195316	.0210368
Stddev	.0022529	.0006418	.0000846
%RSD	12.19749	3.286107	.4023482

#1	.0159086	.0192986	.0209497
#2	.0193592	.0190388	.0211188
#3	.0201433	.0202574	.0210418

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6089.874	95310.08	7244.194	4704.056	7536.624
Stddev	8.139	28.35	22.612	31.069	6.548
%RSD	.1336460	.0297414	.3121349	.6604641	.0868862

#1	6095.113	95296.65	7220.498	4678.280	7542.973
#2	6080.498	95290.94	7246.546	4695.335	7529.893
#3	6094.011	95342.65	7265.538	4738.553	7537.005

Sample Name: ICB01 Acquired: 11/4/2025 12:20:28 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000585	-.001980	.0009842	-.003242	-.000289	.0086813	-.002719
Stddev	.002739	.000619	.0008943	.001581	.001192	.0110222	.001384
%RSD	468.3362	31.26133	90.86412	48.76291	412.4881	126.9643	50.91094

#1	.002279	-.001665	.0010770	-.001610	.000763	.0205617	-.004210
#2	-.000853	-.002694	.0018286	-.003350	-.000047	.0066945	-.002471
#3	-.003180	-.001583	.0000472	-.004766	-.001583	-.001212	-.001475

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000156	-.000097	.0009995	-.000045	-.000178	.0001236	.0060254
Stddev	.0000062	.000064	.0132295	.000085	.000168	.0002794	.0027893
%RSD	39.54972	65.69295	1323.651	188.6652	94.30820	226.0300	46.29171

#1	.0000107	-.000129	.0000479	-.000085	.000012	-.000190	.0092452
#2	.0000225	-.000024	.0146790	-.000102	-.000238	.000215	.0043494
#3	.0000135	-.000138	-.011729	.000052	-.000308	.000346	.0044815

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001031	-.044200	-.000106	.0000643	-.212311	.0013720	.0003934
Stddev	.0008413	.020046	.000248	.0001316	.019024	.0037814	.0000933
%RSD	816.3131	45.35360	233.5211	204.6988	8.960600	275.6138	23.70337

#1	.0008414	-.059123	-.000069	.0001925	-.233175	-.002988	.0004723
#2	.0002806	-.052062	-.000371	-.000071	-.207832	.003346	.0004176
#3	-.000813	-.021414	.000121	.000071	-.195926	.003758	.0002905

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.152929	-.013003	-.000471	-.002560	.0013150	-.003432	-.001827
Stddev	.016135	.000466	.000113	.000812	.0015445	.008042	.000379
%RSD	10.55070	3.582354	23.99587	31.71644	117.4501	234.2891	20.72306

#1	-.137511	-.012643	-.000394	-.003468	.0027971	-.011580	-.001409
#2	-.151581	-.012837	-.000418	-.002305	-.000285	.004499	-.002147
#3	-.169696	-.013529	-.000601	-.001906	.001433	-.003216	-.001924

Sample Name: ICB01 Acquired: 11/4/2025 12:20:28 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0021648	-.002992	.0000001
Stddev	.0032682	.000986	.0001823
%RSD	150.9722	32.96096	141420.9

#1	-.001568	-.002579	-.000111
#2	.003552	-.004118	-.000099
#3	.004510	-.002280	.000211

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6029.176	94382.72	7189.269	4747.777	7430.335
Stddev	10.610	372.39	80.149	32.165	15.328
%RSD	.1759728	.3945492	1.114838	.6774671	.2062856

#1	6040.574	94663.54	7206.584	4758.335	7442.429
#2	6019.587	93960.31	7259.345	4711.661	7413.097
#3	6027.366	94524.32	7101.878	4773.336	7435.479

Sample Name: CRI01 Acquired: 11/4/2025 12:24:48 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0192575	.0408869	.0127381	.0179982	.0506613	.0986182	.1042058
Stddev	.0006413	.0015925	.0006611	.0030843	.0014507	.0048872	.0009786
%RSD	3.329890	3.894840	5.189843	17.13654	2.863467	4.955681	.9390842

#1	.0187390	.0426520	.0133029	.0151382	.0491166	.0930248	.1032853
#2	.0190590	.0404506	.0120110	.0212662	.0508723	.1007668	.1052336
#3	.0199745	.0395580	.0129003	.0175903	.0519949	.1020630	.1040985

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0065496	.0058182	2.117663	.0100793	.0301065	.0226337	.1033426
Stddev	.0000311	.0000753	.007410	.0002304	.0001601	.0003440	.0068336
%RSD	.4754142	1.294193	.3499179	2.286205	.5316877	1.519696	6.612536

#1	.0065242	.0057491	2.109588	.0098156	.0299286	.0225849	.0955728
#2	.0065403	.0058070	2.124152	.0102420	.0302389	.0229994	.1060356
#3	.0065844	.0058984	2.119247	.0101803	.0301520	.0223167	.1084194

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0214656	2.162973	.0409199	.0109944	1.835180	.0455493	.0428734
Stddev	.0006880	.041544	.0002455	.0007560	.007628	.0004568	.0002538
%RSD	3.205050	1.920675	.5998600	6.876668	.4156371	1.002954	.5919557

#1	.0209576	2.131626	.0406366	.0105433	1.842672	.0457106	.0430481
#2	.0222486	2.210093	.0410695	.0118673	1.835445	.0459037	.0429898
#3	.0211908	2.147200	.0410535	.0105727	1.827424	.0450337	.0425823

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.853315	.0904888	.2050962	.0383020	.0410768	.3765356	.0180268
Stddev	.024953	.0008638	.0006711	.0002968	.0007146	.0079390	.0004661
%RSD	1.346414	.9545665	.3272086	.7748236	1.739649	2.108420	2.585557

#1	1.825774	.0898474	.2045705	.0379831	.0418136	.3679978	.0183412
#2	1.859752	.0901481	.2048661	.0383527	.0403867	.3779137	.0174913
#3	1.874420	.0914710	.2058521	.0385701	.0410300	.3836953	.0182479

Sample Name: CRI01 Acquired: 11/4/2025 12:24:48 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0190335	.0187708	.0214899
Stddev	.0010325	.0018242	.0001026
%RSD	5.424562	9.718236	.4776020

#1	.0197363	.0166659	.0215814
#2	.0178481	.0198910	.0213790
#3	.0195160	.0197556	.0215094

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6039.197	94111.00	7065.651	4702.318	7434.068
Stddev	7.628	203.04	31.397	8.979	8.166
%RSD	.1263126	.2157421	.4443643	.1909441	.1098514

#1	6046.708	94254.33	7101.894	4710.421	7443.250
#2	6039.426	93878.66	7046.755	4692.665	7431.338
#3	6031.457	94200.01	7048.303	4703.868	7427.617

Sample Name: ICSA01 Acquired: 11/4/2025 12:34:07 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0067649	.0055809	.0019019	.0031713	-.002146	241.5089
Stddev	.0027051	.0002229	.0014468	.0037806	.002100	.3234
%RSD	39.98681	3.993143	76.07269	119.2114	97.88203	.1339198

#1	.0036637	.0058304	.0024021	.0026351	-.003649	241.1857
#2	.0079925	.0055107	.0002714	-.000313	-.003042	241.8326
#3	.0086386	.0054016	.0030323	.007191	.000254	241.5083

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000330	.0016167	.0007705	230.2667	.0504455	.0018928
Stddev	.0002575	.0000498	.0001014	.2080	.0002574	.0004018
%RSD	779.8938	3.080160	13.15637	.0903400	.5101669	21.22742

#1	.0000763	.0016394	.0006549	230.4754	.0506980	.0019366
#2	-.000243	.0015596	.0008439	230.2652	.0504548	.0014709
#3	.000266	.0016511	.0008129	230.0594	.0501836	.0022710

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.014622	99.25693	.0075709	244.4785	.0053697	.0017898
Stddev	.000857	.82254	.0002686	.4550	.0000357	.0001769
%RSD	5.857689	.8286988	3.547929	.1861265	.6650545	9.883590

#1	-.015461	100.2031	.0075853	244.0600	.0053807	.0019912
#2	-.013749	98.7124	.0078319	244.4126	.0053298	.0017185
#3	-.014657	98.8553	.0072953	244.9629	.0053986	.0016597

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0459891	.0050421	.0031276	-.008197	.0569562	.0004659
Stddev	.0095941	.0001611	.0001764	.011377	.0029995	.0000795
%RSD	20.86165	3.194599	5.638411	138.7833	5.266251	17.06885

#1	.0439821	.0050032	.0033156	-.014950	.0603731	.0004122
#2	.0375572	.0052191	.0031013	-.014580	.0547575	.0004282
#3	.0564279	.0049041	.0029659	.004937	.0557380	.0005572

Sample Name: ICSA01 Acquired: 11/4/2025 12:34:07 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.004792	-.003236	.0194784	.0044943	.0000549	F -.029353
Stddev	.001105	.000401	.0097775	.0015126	.0055440	.001772
%RSD	23.05526	12.38905	50.19647	33.65580	10099.27	6.038364
#1	-.004935	-.002887	.0090133	.0062079	.0021797	-.029687
#2	-.005818	-.003674	.0283797	.0039300	.0042222	-.030934
#3	-.003622	-.003148	.0210421	.0033450	-.006237	-.027437
Elem	Sr4077					
Units	ppm					
Avg	.0002480					
Stddev	.0002748					
%RSD	110.8293					
#1	.0001496					
#2	.0005585					
#3	.0000359					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	5760.846	87129.46	7398.651	4325.961	6274.216	
Stddev	4.428	320.47	8.870	34.657	3.499	
%RSD	.0768693	.3678058	.1198839	.8011508	.0557645	
#1	5765.704	86802.02	7399.651	4286.690	6278.185	
#2	5757.036	87442.46	7406.978	4352.265	6272.888	
#3	5759.797	87143.92	7389.323	4338.927	6271.576	

Sample Name: ICSAB01 Acquired: 11/4/2025 12:38:20 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1062405	.1228485	.0511949	.0516894	.5962768	249.8316
Stddev	.0044067	.0052181	.0018609	.0055628	.0028727	.3108
%RSD	4.147820	4.247579	3.634982	10.76203	.4817820	.1243990

#1	.1017116	.1212482	.0533121	.0502658	.5956692	249.7993
#2	.1064963	.1186180	.0504539	.0578256	.5937564	250.1573
#3	.1105137	.1286793	.0498186	.0469766	.5994047	249.5382

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5003191	.5158321	.9967414	238.0449	.5489569	.5031335
Stddev	.0009487	.0019902	.0018892	.1998	.0008644	.0010419
%RSD	.1896247	.3858272	.1895336	.0839256	.1574591	.2070843

#1	.5009666	.5159773	.9947848	238.2754	.5498892	.5033704
#2	.5007606	.5177457	.9968844	237.9383	.5487994	.5019935
#3	.4992301	.5137732	.9985550	237.9210	.5481821	.5040365

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4668199	99.62436	.5050430	251.9507	1.002822	.2073525
Stddev	.0008243	.48176	.0018755	.1107	.000918	.0006814
%RSD	.1765662	.4835812	.3713527	.0439490	.0915866	.3286343

#1	.4659470	99.98391	.5072062	252.0568	1.002868	.2077063
#2	.4669280	99.07697	.5038730	251.9594	1.001881	.2065670
#3	.4675848	99.81221	.5040497	251.8359	1.003716	.2077843

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0807757	.4921308	1.035785	-.024595	1.025351	1.013653
Stddev	.0268266	.0050864	.004325	.003573	.003445	.001576
%RSD	33.21117	1.033540	.4175229	14.52763	.3360178	.1554482

#1	.0645930	.4979968	1.034659	-.022081	1.027600	1.011958
#2	.0659923	.4889460	1.032135	-.023018	1.027068	1.015074
#3	.1117418	.4894496	1.040561	-.028685	1.021384	1.013926

Sample Name: ICSAB01 Acquired: 11/4/2025 12:38:20 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.022744	1.010835	1.012570	F .0047228	F .0039602	F -.029933
Stddev	.003696	.001510	.014260	.0017119	.0007540	.002513
%RSD	.3613381	.1493833	1.408287	36.24680	19.03935	8.396683
#1	1.018491	1.010371	1.002385	.0035258	.0035857	-.028889
#2	1.024571	1.009611	1.006457	.0039591	.0034668	-.028109
#3	1.025171	1.012522	1.028867	.0066837	.0048281	-.032799

Elem	Sr4077
Units	ppm
Avg	F .0039141
Stddev	.0001796
%RSD	4.589297
#1	.0037710
#2	.0041157
#3	.0038557

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5624.067	86521.09	7051.276	4302.284	6085.985
Stddev	7.043	206.44	22.474	8.520	10.275
%RSD	.1252305	.2386057	.3187217	.1980251	.1688330
#1	5631.623	86315.72	7038.993	4292.556	6092.664
#2	5622.894	86728.59	7037.620	4305.882	6091.139
#3	5617.685	86518.95	7077.214	4308.415	6074.154

Sample Name: ICSA01DLX20 Acquired: 11/4/2025 12:48:07 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSA01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000870	-.002385	.0012705	-.002139	-.001449	12.61974	-.003369
Stddev	.0011356	.002227	.0010444	.001388	.001780	.08157	.001004
%RSD	1305.768	93.40563	82.20959	64.91346	122.8349	.6463818	29.78574
#1	.0009189	-.000095	.0022306	-.001259	-.003309	12.56796	-.004520
#2	-.001207	-.002515	.0001584	-.001417	-.001277	12.57748	-.002912
#3	.000549	-.004544	.0014225	-.003739	.000239	12.71377	-.002675
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001253	-.000134	12.60151	.0024848	.0000676	-.000603	5.118904
Stddev	.0000461	.000073	.02025	.0002817	.0001481	.000370	.057461
%RSD	36.79815	54.11556	.1606853	11.33817	218.9541	61.34911	1.122526
#1	.0000723	-.000061	12.58704	.0027456	.0000770	-.000182	5.127656
#2	.0001477	-.000207	12.59285	.0021860	.0002108	-.000749	5.171488
#3	.0001560	-.000135	12.62466	.0025227	-.000085	-.000877	5.057570
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004941	13.03613	.0003006	-.000199	-.173342	.0023786	-.000196
Stddev	.0002985	.07566	.0001400	.000792	.031821	.0054079	.000393
%RSD	60.41152	.5803795	46.57334	398.6520	18.35742	227.3548	200.2693
#1	.0001748	12.98414	.0002379	-.001099	-.210070	.0020335	-.000004
#2	.0005412	13.00131	.0004610	.000391	-.154033	-.002848	.000063
#3	.0007662	13.12292	.0002029	.000112	-.155924	.007951	-.000649
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.242218	-.015918	-.000321	-.000849	.0015353	.0071140	-.001770
Stddev	.070713	.000934	.000055	.000171	.0018017	.0050994	.000393
%RSD	29.19384	5.865585	17.30203	20.09092	117.3522	71.68172	22.21251
#1	-.311462	-.016131	-.000334	-.001043	.0009879	.0095078	-.002086
#2	-.245071	-.014896	-.000260	-.000721	.0035472	.0105760	-.001330
#3	-.170122	-.016727	-.000368	-.000784	.0000708	.0012581	-.001894

Sample Name: ICSA01DLX20 Acquired: 11/4/2025 12:48:07 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSA01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000502	-.004273	.0002370
Stddev	.002433	.001707	.0001070
%RSD	484.8002	39.95811	45.12687
#1	-.002760	-.004891	.0001490
#2	.002074	-.002342	.0002059
#3	-.000819	-.005585	.0003561

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6051.621	93075.84	7148.350	4700.795	7269.528
Stddev	7.989	423.80	41.463	34.843	14.126
%RSD	.1320070	.4553288	.5800336	.7412060	.1943140
#1	6056.062	92893.35	7162.910	4663.892	7279.358
#2	6042.399	92773.86	7180.570	4705.368	7253.341
#3	6056.402	93560.32	7101.571	4733.125	7275.886

Sample Name: ICSAB01DLX20 Acquired: 11/4/2025 12:52:38 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSAB01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0056305	.0047359	.0027855	-.000584	.0285797	12.40599	.0238136
Stddev	.0002753	.0017254	.0007847	.001449	.0011951	.00112	.0008135
%RSD	4.888770	36.43367	28.17079	247.9772	4.181498	.0090006	3.416125

#1	.0059481	.0042166	.0019524	-.002217	.0299594	12.40523	.0229976
#2	.0054596	.0033297	.0035106	-.000085	.0278687	12.40727	.0238187
#3	.0054839	.0066613	.0028933	.000549	.0279109	12.40548	.0246246

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0263555	.0483027	12.38027	.0281304	.0245003	.0255137	4.929417
Stddev	.0001068	.0000981	.01079	.0001415	.0001972	.0003340	.009517
%RSD	.4052831	.2030757	.0871197	.5030632	.8049079	1.309061	.1930631

#1	.0264162	.0481902	12.39259	.0279995	.0246634	.0258172	4.931795
#2	.0262321	.0483470	12.37569	.0281112	.0245564	.0255679	4.918936
#3	.0264181	.0483707	12.37253	.0282805	.0242811	.0251559	4.937519

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0260406	12.90489	.0496789	.0096883	-.204014	.0260069	.0515754
Stddev	.0002559	.08038	.0004218	.0003596	.006485	.0018331	.0002757
%RSD	.9827134	.6229029	.8490933	3.712237	3.178645	7.048506	.5345871

#1	.0262202	12.93648	.0491953	.0100762	-.197138	.0265437	.0516981
#2	.0257476	12.96469	.0499711	.0096228	-.210021	.0239654	.0512596
#3	.0261540	12.81351	.0498702	.0093659	-.204881	.0275117	.0517685

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.236777	.0344243	.0524234	.0490867	.0530062	.0242399	-.001524
Stddev	.020938	.0003599	.0002077	.0001975	.0014668	.0054313	.001639
%RSD	8.842893	1.045517	.3961340	.4023906	2.767236	22.40651	107.5510

#1	-.247565	.0348175	.0522642	.0488756	.0513206	.0179862	-.001796
#2	-.250121	.0341111	.0523478	.0492670	.0537053	.0269575	.000234
#3	-.212645	.0343443	.0526583	.0491175	.0539927	.0277760	-.003010

Sample Name: ICSAB01DLX20 Acquired: 11/4/2025 12:52:38 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: ICSAB01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000383	-.004279	.0003555
Stddev	.002136	.000953	.0001782
%RSD	557.3939	22.26777	50.14037
#1	-.002652	-.005204	.0003019
#2	.001590	-.003300	.0002102
#3	-.000088	-.004331	.0005544

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6037.741	94102.24	7187.315	4641.600	7295.736
Stddev	6.654	351.77	38.785	11.016	10.785
%RSD	.1102021	.3738151	.5396275	.2373244	.1478254
#1	6030.098	93706.41	7143.760	4629.774	7283.406
#2	6040.883	94379.07	7200.065	4651.570	7300.385
#3	6042.242	94221.24	7218.119	4643.456	7303.416

Sample Name: CCV01 Acquired: 11/4/2025 12:56:50 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.050296	5.100193	4.973595	5.023462	4.990150	9.848550	9.730482
Stddev	.011469	.169116	.008908	.006664	.018040	.026693	.033905
%RSD	.2271023	3.315878	.1791112	.1326551	.3615121	.2710361	.3484399

#1	5.040731	5.205405	4.967691	5.018169	4.975206	9.847286	9.691337
#2	5.047146	5.190058	4.969252	5.030946	4.985053	9.822511	9.750573
#3	5.063011	4.905116	4.983842	5.021272	5.010190	9.875853	9.749538

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.493787	2.517816	24.67198	1.021678	2.501236	1.269442	5.008259
Stddev	.0009348	.002929	.03793	.001235	.004079	.002630	.022762
%RSD	.3748522	.1163352	.1537512	.1209043	.1630730	.2071729	.4544856

#1	2.504486	2.516296	24.66882	1.023101	2.498562	1.267005	4.982509
#2	2.487203	2.515958	24.63573	1.021052	2.499215	1.269090	5.016568
#3	2.489671	2.521192	24.71140	1.020882	2.505930	1.272230	5.025698

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.440226	24.71891	2.503431	1.256826	24.15329	2.468177	2.530266
Stddev	.006689	.07751	.005088	.000355	.14475	.009306	.003536
%RSD	.2741308	.3135473	.2032301	.0282635	.5993147	.3770429	.1397312

#1	2.433467	24.79880	2.500969	1.256783	23.98931	2.458097	2.532360
#2	2.440365	24.64403	2.500042	1.257200	24.26334	2.469994	2.526184
#3	2.446844	24.71391	2.509281	1.256493	24.20722	2.476441	2.532255

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.62805	4.919520	5.097280	5.048846	4.904484	4.996949	5.029400
Stddev	.13298	.010197	.009058	.005799	.009567	.010261	.014254
%RSD	.5399540	.2072842	.1776975	.1148540	.1950740	.2053397	.2834103

#1	24.47590	4.931245	5.088730	5.048608	4.894500	5.003554	5.036862
#2	24.68617	4.914589	5.096339	5.043170	4.905380	4.985128	5.012965
#3	24.72208	4.912725	5.106772	5.054760	4.913572	5.002165	5.038374

Sample Name: CCV01 Acquired: 11/4/2025 12:56:50 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.925695	4.771976	4.896280
Stddev	.019936	.012144	.078511
%RSD	.4047435	.2544949	1.603489

#1	4.948518	4.758185	4.962424
#2	4.916892	4.776669	4.809517
#3	4.911676	4.781073	4.916898

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5877.095	91179.11	7241.590	4460.907	6715.760
Stddev	3.482	267.38	44.700	13.260	6.946
%RSD	.0592463	.2932517	.6172682	.2972488	.1034251

#1	5879.722	90870.41	7190.017	4445.739	6708.676
#2	5878.417	91338.35	7265.566	4470.303	6722.559
#3	5873.145	91328.57	7269.187	4466.679	6716.045

Sample Name: CCB01 Acquired: 11/4/2025 13:00:52 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000311	-.002408	.0011355	-.001555	.0001660	.0027726	-.000019
Stddev	.000862	.001557	.0004567	.002555	.0005819	.0022452	.000513
%RSD	277.0462	64.67695	40.21925	164.2759	350.6472	80.97843	2690.660
#1	.000684	-.000827	.0016627	.001343	-.000472	.0017197	.000571
#2	-.000841	-.003941	.0008623	-.002528	.000668	.0012474	-.000356
#3	-.000777	-.002455	.0008814	-.003482	.000302	.0053508	-.000273
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000286	.0000917	.0339137	.0002750	.0000576	.0001600	.0314078
Stddev	.0000519	.0000621	.0170613	.0005959	.0000240	.0002848	.0039061
%RSD	181.1938	67.65780	50.30800	216.6917	41.74384	177.9729	12.43679
#1	.0000769	.0001556	.0441627	-.000047	.0000506	.0001188	.0269987
#2	-.000026	.0000317	.0433600	-.000091	.0000378	-.000102	.0344358
#3	.000035	.0000879	.0142185	.000963	.0000843	.000463	.0327888
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002103	-.021733	.0003965	.0008099	-.263383	.0031874	.0046445
Stddev	.0005927	.024490	.0001742	.0006010	.015291	.0024554	.0003520
%RSD	281.8298	112.6866	43.93694	74.21089	5.805527	77.03629	7.578896
#1	-.000382	-.032418	.0005975	.0002780	-.276216	.0007962	.0042512
#2	.000210	-.039066	.0002914	.0014618	-.267470	.0057024	.0047520
#3	.000803	.006284	.0003005	.0006898	-.246465	.0030636	.0049302
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.235215	-.012482	.0003495	-.006516	.0013729	.0084645	.0005281
Stddev	.045400	.001008	.0001875	.000827	.0013110	.0087429	.0012238
%RSD	19.30158	8.074990	53.64636	12.69194	95.49045	103.2890	231.7259
#1	-.243385	-.011532	.0005093	-.006917	-.000128	.0185367	.0013744
#2	-.186284	-.012374	.0003962	-.007065	.002293	.0040209	-.000875
#3	-.275975	-.013539	.0001431	-.005565	.001954	.0028359	.001085

Sample Name: CCB01 Acquired: 11/4/2025 13:00:52 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0039780	-.004056	.0002001
Stddev	.0011060	.001419	.0000947
%RSD	27.80193	34.98521	47.32188

#1	.0040875	-.002418	.0002743
#2	.0028214	-.004854	.0000934
#3	.0050252	-.004897	.0002326

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6050.432	94690.75	7341.245	4575.152	7625.239
Stddev	6.245	161.93	17.205	6.458	9.258
%RSD	.1032239	.1710064	.2343602	.1411626	.1214076

#1	6046.246	94876.94	7360.907	4568.090	7622.205
#2	6057.611	94582.79	7333.881	4580.758	7635.632
#3	6047.439	94612.53	7328.948	4576.609	7617.878

Sample Name: LR-1 Acquired: 11/4/2025 13:05:11 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0082113	.0127971	.0331339	-.011995	.0277473	.5719921	.0167112
Stddev	.0020064	.0052106	.0019496	.002431	.0040033	.0148986	.0009592
%RSD	24.43422	40.71717	5.884049	20.26790	14.42766	2.604681	5.739861

#1	.0060374	.0118417	.0312974	-.013907	.0319139	.5819800	.0170762
#2	.0086048	.0081303	.0329245	-.012820	.0273977	.5548677	.0156230
#3	.0099918	.0184193	.0351798	-.009259	.0239303	.5791287	.0174342

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0012387	.0021241	2254.593	.1174546	.0088539	.0155509	1.299459
Stddev	.0000419	.0001205	22.791	.0004095	.0000862	.0004710	.015003
%RSD	3.385322	5.671133	1.010858	.3486032	.9730797	3.029090	1.154535

#1	.0012016	.0020625	2243.060	.1177916	.0088365	.0158835	1.308001
#2	.0012301	.0022629	2280.845	.1169989	.0087778	.0150119	1.282136
#3	.0012842	.0020468	2239.873	.1175733	.0089474	.0157573	1.308241

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0392215	2320.254	.0820126	.0083506	2523.902	.0136716	.0981205
Stddev	.0002929	5.361	.0004646	.0004221	53.241	.0030776	.0001077
%RSD	.7468935	.2310394	.5665193	5.055319	2.109460	22.51069	.1097676

#1	.0393490	2318.970	.0817847	.0078903	2583.698	.0133963	.0980055
#2	.0394291	2326.140	.0825472	.0087196	2481.636	.0107409	.0982190
#3	.0388864	2315.651	.0817060	.0084420	2506.374	.0168776	.0981371

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.175459	-.002578	.0224562	-.020004	-.096577	-.002557	.0198186
Stddev	.515700	.000386	.0001961	.000648	.003243	.001854	.0037060
%RSD	12.35074	14.97115	.8731778	3.239437	3.358365	72.52428	18.69945

#1	3.653778	-.002858	.0226212	-.019309	-.095735	-.000886	.0233466
#2	4.187637	-.002137	.0222394	-.020591	-.093838	-.002232	.0159572
#3	4.684962	-.002737	.0225081	-.020111	-.100159	-.004552	.0201521

Sample Name: LR-1 Acquired: 11/4/2025 13:05:11 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2527329	-.348350	.0618698
Stddev	.0030244	.005102	.0002517
%RSD	1.196666	1.464741	.4067798
#1	.2558635	-.345555	.0615824
#2	.2525080	-.354239	.0620507
#3	.2498273	-.345256	.0619762

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3975.246	64332.75	6414.541	3090.515	4194.384
Stddev	9.345	215.85	27.145	14.076	5.642
%RSD	.2350720	.3355134	.4231770	.4554487	.1345108
#1	3965.302	64086.02	6445.635	3075.733	4188.461
#2	3983.845	64486.68	6395.573	3092.053	4194.997
#3	3976.591	64425.54	6402.415	3103.758	4199.694

Sample Name: LR-2 Acquired: 11/4/2025 13:09:37 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1091052	-.126879	.1275102	.0048651	-.163847	1861.715	.0202304
Stddev	.0059751	.005219	.0041325	.0036661	.001770	22.447	.0001578
%RSD	5.476446	4.113111	3.240947	75.35572	1.080263	1.205742	.7801405

#1	.1153284	-.124299	.1285029	.0020108	-.164794	1877.521	.0201511
#2	.1085735	-.132885	.1310560	.0089997	-.161805	1871.604	.0204122
#3	.1034137	-.123452	.1229718	.0035848	-.164942	1836.021	.0201280

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0432877	-.007164	10.44607	-.266016	.0630304	-.521873	2781.307
Stddev	.0000851	.001062	.10982	.001999	.0006624	.019642	16.074
%RSD	.1965949	14.82905	1.051269	.7514731	1.050963	3.763834	.5779259

#1	.0433853	-.008390	10.32496	-.268324	.0637008	-.544514	2799.846
#2	.0432489	-.006590	10.47407	-.264913	.0623763	-.511719	2771.256
#3	.0432290	-.006511	10.53917	-.264811	.0630142	-.509385	2772.820

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.215500	1.374885	.0366520	^ *****	4.879316	.0541136	.0577020
Stddev	.002173	.021974	.0003952	-----	.042106	.0025270	.0030622
%RSD	1.008319	1.598212	1.078179	-----	.8629394	4.669853	5.306892

#1	-.213013	1.358004	.0369531	^ -----	4.832890	.0562415	.0553630
#2	-.216457	1.399730	.0367985	^ -----	4.890025	.0547787	.0611680
#3	-.217031	1.366920	.0362045	^ -----	4.915033	.0513205	.0565751

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1941.950	^ *****	-.013412	.0020061	.0055059	.5097035	.0825956
Stddev	24.516	-----	.001248	.0042750	.0006773	.0095903	.0042276
%RSD	1.262421	-----	9.308730	213.0966	12.30134	1.881541	5.118481

#1	1948.843	^ -----	-.011970	-.001036	.0062072	.5187345	.0814303
#2	1914.726	^ -----	-.014116	.006894	.0048555	.5107381	.0872837
#3	1962.281	^ -----	-.014150	.000161	.0054551	.4996378	.0790728

Sample Name: LR-2 Acquired: 11/4/2025 13:09:37 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.515978	.2782267	-2.66630
Stddev	.007204	.0021734	.01546
%RSD	1.396167	.7811605	.5796899
#1	-.521381	.2805911	-2.68412
#2	-.507799	.2763158	-2.65655
#3	-.518755	.2777733	-2.65822

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5093.335	75526.86	6971.166	3895.438	5171.152
Stddev	11.825	196.83	12.662	22.393	7.997
%RSD	.2321661	.2606145	.1816319	.5748635	.1546548
#1	5106.557	75628.87	6956.712	3877.814	5179.847
#2	5089.677	75651.75	6980.299	3887.863	5169.497
#3	5083.771	75299.96	6976.487	3920.636	5164.111

Sample Name: LR-3 Acquired: 11/4/2025 13:14:05 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0937598	.0313735	217.9058	-.000591	.1544327	.1303004	-.003857
Stddev	.0008529	.0031287	1.2316	.001527	.0029169	.0067853	.001188
%RSD	.9096830	9.972279	.5651797	258.5793	1.888766	5.207463	30.79131

#1	.0947430	.0326162	216.5355	.001170	.1527825	.1328973	-.005196
#2	.0932196	.0336900	218.9202	-.001389	.1527151	.1354038	-.002932
#3	.0933166	.0278145	218.2616	-.001553	.1578006	.1226002	-.003442

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.005116	-.001342	.2242163	23.42510	.0061604	50.96626	.2998787
Stddev	.000052	.000038	.0060970	.03902	.0002787	.15967	.0052449
%RSD	1.007448	2.826431	2.719250	.1665660	4.524003	.3132805	1.749007

#1	-.005079	-.001340	.2294552	23.46626	.0064077	50.93578	.3055054
#2	-.005175	-.001305	.2256697	23.38865	.0058584	50.82402	.2951251
#3	-.005094	-.001381	.2175239	23.42039	.0062153	51.13896	.2990056

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	50.57319	-.179275	23.24986	.0042417	.3451169	-.029767	29.92832
Stddev	.35624	.003121	.03628	.0003190	.0207259	.001968	.27104
%RSD	.7043995	1.740954	.1560612	7.521295	6.005473	6.612250	.9056338

#1	50.19857	-.182366	23.24507	.0044047	.3231185	-.027677	30.09028
#2	50.61338	-.176125	23.21620	.0044464	.3479543	-.030037	29.61541
#3	50.90764	-.179333	23.28830	.0038741	.3642780	-.031586	30.07927

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6193243	-.017489	-.015512	-.011981	-.041495	-.123542	.1612205
Stddev	.0482759	.000247	.000516	.000383	.000832	.014981	.0016225
%RSD	7.794927	1.409713	3.324608	3.199725	2.004252	12.12597	1.006391

#1	.6366528	-.017234	-.014977	-.012407	-.040816	-.139049	.1613342
#2	.6565442	-.017726	-.015553	-.011665	-.042423	-.122427	.1627831
#3	.5647760	-.017509	-.016005	-.011869	-.041246	-.109150	.1595441

Sample Name: LR-3 Acquired: 11/4/2025 13:14:05 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0697532	.0012851	.0004617
Stddev	.0059171	.0029039	.0000916
%RSD	8.482915	225.9586	19.84719
#1	.0760901	-.001349	.0004696
#2	.0687972	.004399	.0005492
#3	.0643724	.000806	.0003664

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5735.820	96390.04	7479.405	4520.584	7397.808
Stddev	15.675	274.96	24.751	3.479	8.122
%RSD	.2732769	.2852613	.3309198	.0769541	.1097907
#1	5737.357	96126.02	7497.520	4520.514	7399.452
#2	5750.669	96674.78	7489.490	4524.098	7404.983
#3	5719.433	96369.33	7451.203	4517.141	7388.990

Sample Name: Q3475-01DLX5 Acquired: 11/4/2025 13:18:58 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0306768	-.091131	.0613609	-.024043	-.080580	.6234352	.9935515
Stddev	.0035972	.001632	.0032867	.003525	.000652	.0063031	.0089391
%RSD	11.72608	1.790985	5.356309	14.65972	.8094214	1.011021	.8997113
#1	.0346768	-.092337	.0643471	-.022948	-.081271	.6175407	1.002870
#2	.0296462	-.091782	.0618961	-.027986	-.079976	.6226852	.992736
#3	.0277074	-.089274	.0578394	-.021196	-.080493	.6300797	.985048
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0177757	-.013688	10.61884	.0902610	.0227841	.0217824	1045.673
Stddev	.0004296	.000992	.05426	.0023402	.0003586	.0109023	10.333
%RSD	2.416667	7.245468	.5109999	2.592685	1.573679	50.05117	.9881485
#1	.0173489	-.014289	10.68005	.0894425	.0231549	.0180184	1050.535
#2	.0177701	-.014232	10.57667	.0884401	.0224392	.0132608	1052.677
#3	.0182080	-.012543	10.59978	.0929005	.0227582	.0340680	1033.806
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.623132	19.65761	.0424949	^ *****	37.20518	.0221248	.1954197
Stddev	.016734	.06516	.0005197	-----	.25178	.0021601	.0009116
%RSD	.4618546	.3314681	1.223046	-----	.6767434	9.763001	.4664887
#1	3.640280	19.73124	.0429947	^ -----	37.48034	.0196325	.1956638
#2	3.622269	19.63419	.0419573	^ -----	37.14893	.0234557	.1944110
#3	3.606847	19.60740	.0425328	^ -----	36.98629	.0232862	.1961845
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.992491	^ *****	-.007038	-.001286	.0396606	2.404403	.2047836
Stddev	.026302	-----	.000126	.000754	.0015391	.007989	.0022720
%RSD	.8789353	-----	1.787073	58.62406	3.880689	.3322584	1.109480
#1	2.966054	^ -----	-.006917	-.002134	.0409976	2.413522	.2024609
#2	3.018656	^ -----	-.007168	-.001035	.0400059	2.398636	.2070013
#3	2.992763	^ -----	-.007029	-.000690	.0379781	2.401053	.2048886

Sample Name: Q3475-01DLX5 Acquired: 11/4/2025 13:18:58 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.4252069	.1159728	-.947626
Stddev	.0033870	.0014310	.009727
%RSD	.7965579	1.233909	1.026411

#1	.4216317	.1172050	-.952004
#2	.4283676	.1163101	-.954394
#3	.4256214	.1144033	-.936480

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5566.510	87123.36	7196.328	4195.404	6663.855
Stddev	7.261	200.25	15.955	6.282	11.060
%RSD	.1304345	.2298438	.2217103	.1497436	.1659693

#1	5558.588	87099.95	7185.504	4195.676	6662.215
#2	5572.847	87334.29	7214.651	4188.989	6653.708
#3	5568.094	86935.85	7188.829	4201.545	6675.644

Sample Name: Q3503-04DLX5 Acquired: 11/4/2025 13:29:23 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001260	-.001301	.0039418	-.005430	-.002238	.0219779
Stddev	.001644	.000275	.0005063	.003637	.000158	.0044074
%RSD	130.4443	21.10747	12.84354	66.98819	7.051238	20.05363

#1	-.000584	-.001382	.0035125	-.001256	-.002290	.0253882
#2	-.000062	-.000995	.0038129	-.007113	-.002364	.0170013
#3	-.003135	-.001526	.0045001	-.007921	-.002061	.0235441

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0488576	-.000002	F 6.210630	14.23370	.0011744	.0048786
Stddev	.0007484	.000036	.036988	.10282	.0002215	.0001683
%RSD	1.531714	2031.939	.5955578	.7223640	18.86573	3.450396

#1	.0488713	.000038	6.252541	14.32446	.0014290	.0049733
#2	.0495990	-.000011	6.196797	14.25461	.0010686	.0049782
#3	.0481025	-.000032	6.182552	14.12204	.0010256	.0046842

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000666	1.980558	.2625989	1.231262	.0096562	-.000119
Stddev	.0002047	.017498	.0020318	.028839	.0005260	.000310
%RSD	307.4414	.8834680	.7737119	2.342265	5.447403	261.2660

#1	-.000098	1.995710	.2641702	1.235646	.0102382	.000056
#2	.000002	1.984556	.2633220	1.257659	.0092146	.000064
#3	.000296	1.961407	.2603045	1.200482	.0095159	-.000476

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	73.51600	.0005904	.5456212	2.210372	.0207072	-.000480
Stddev	.72915	.0031494	.0015817	.023799	.0009097	.000144
%RSD	.9918248	533.4512	.2898868	1.076688	4.392950	30.10897

#1	73.80555	.0042062	.5473717	2.183794	.0213215	-.000409
#2	74.05590	-.001554	.5451969	2.217610	.0211380	-.000646
#3	72.68655	-.000881	.5442949	2.229711	.0196622	-.000385

Sample Name: Q3503-04DLX5 Acquired: 11/4/2025 13:29:23 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.007192	.0027070	1.281955	.0018860	.8418553	.0007392
Stddev	.000974	.0002429	.024345	.0011151	.0052213	.0019225
%RSD	13.53999	8.973188	1.899025	59.12176	.6202097	260.0750
#1	-.007569	.0025561	1.260506	.0012400	.8477772	-.000197
#2	-.006086	.0029872	1.308415	.0012445	.8398743	.002950
#3	-.007920	.0025777	1.276944	.0031736	.8379145	-.000536
Elem	Sr4077					
Units	ppm					
Avg	.0886926					
Stddev	.0006683					
%RSD	.7534407					
#1	.0889307					
#2	.0892092					
#3	.0879379					
Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	5867.921	90861.66	7150.968	4538.123	6914.639	
Stddev	23.311	105.13	27.307	18.297	24.174	
%RSD	.3972555	.1157083	.3818576	.4031808	.3496121	
#1	5853.546	90842.61	7131.296	4533.806	6894.304	
#2	5894.817	90767.35	7182.144	4522.371	6941.367	
#3	5855.401	90975.02	7139.464	4558.193	6908.246	

Sample Name: Q3519-01 Acquired: 11/4/2025 13:33:36 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0411980	-.006118	.4544466	-.004847	-.007494	145.9209	1.113160
Stddev	.0024702	.003127	.0018213	.000038	.000636	.1491	.007145
%RSD	5.995900	51.10269	.4007632	.7935137	8.483413	.1021486	.6418254

#1	.0421160	-.002510	.4548131	-.004858	-.008224	146.0085	1.110684
#2	.0384002	-.008029	.4524700	-.004879	-.007194	146.0054	1.121213
#3	.0430777	-.007816	.4560567	-.004804	-.007063	145.7488	1.107582

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0094387	.0049252	85.39024	.2656189	.1614343	.5268018	282.0261
Stddev	.0000238	.0000737	.09036	.0007169	.0005277	.0005001	.8722
%RSD	.2522372	1.495297	.1058164	.2699110	.3269090	.0949219	.3092448

#1	.0094365	.0049860	85.40301	.2650579	.1617566	.5273316	281.5182
#2	.0094161	.0049464	85.47354	.2664266	.1617210	.5267357	283.0332
#3	.0094635	.0048433	85.29418	.2653721	.1608253	.5263381	281.5270

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12.70557	61.66221	.3092474	.0089896	7.026275	.4154890	.9031200
Stddev	.03356	.20709	.0005648	.0004878	.064915	.0037428	.0001627
%RSD	.2641585	.3358459	.1826380	5.425730	.9238926	.9008289	.0180201

#1	12.68091	61.71346	.3094634	.0090337	6.976981	.4159233	.9032753
#2	12.74379	61.43430	.3096723	.0094538	7.099826	.4115480	.9029507
#3	12.69201	61.83886	.3086064	.0084813	7.002020	.4189958	.9031340

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.40783	.5131770	.0052652	.0722087	6.765966	4.194343	5.454849
Stddev	.07502	.0031582	.0002199	.0017539	.016371	.009558	.015671
%RSD	.4868922	.6154243	4.176127	2.428963	.2419679	.2278882	.2872873

#1	15.37497	.5097044	.0054189	.0707412	6.764752	4.183843	5.447839
#2	15.49367	.5158777	.0053633	.0741512	6.782911	4.196650	5.472801
#3	15.35485	.5139488	.0050133	.0717337	6.750235	4.202537	5.443906

Sample Name: Q3519-01 Acquired: 11/4/2025 13:33:36 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	3.129418	.2179501	.3040904
Stddev	.029085	.0021916	.0011099
%RSD	.9294043	1.005566	.3649860
#1	3.131960	.2168711	.3042683
#2	3.157149	.2204720	.3051007
#3	3.099146	.2165071	.3029024

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6708.120	104141.3	8430.147	5209.918	6450.750
Stddev	7.566	156.6	9.969	29.237	2.282
%RSD	.1127909	.1504179	.1182508	.5611742	.0353715
#1	6708.771	104307.8	8434.302	5242.987	6449.377
#2	6715.339	103996.8	8437.367	5199.271	6453.384
#3	6700.249	104119.2	8418.773	5187.497	6449.489

Sample Name: Q3475-01DL2X25 Acquired: 11/4/2025 13:39:05 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0061034	-.015064	.0119671	-.005490	-.019090	.1165734	.2034668
Stddev	.0019295	.000413	.0005160	.005782	.000584	.0014123	.0024281
%RSD	31.61312	2.744735	4.311597	105.3197	3.061571	1.211548	1.193359

#1	.0077402	-.014905	.0118204	-.002278	-.018804	.1151684	.2043963
#2	.0039760	-.015533	.0125405	-.012165	-.019762	.1165588	.2052928
#3	.0065939	-.014754	.0115403	-.002027	-.018703	.1179929	.2007113

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0038294	-.001423	2.096884	.0177747	.0045403	.0079668	211.9533
Stddev	.0001107	.000116	.025836	.0000385	.0000574	.0008158	.3480
%RSD	2.889636	8.115599	1.232110	.216620	1.265130	10.23968	.1641854

#1	.0039242	-.001367	2.113247	.0177476	.0045287	.0087889	211.5698
#2	.0037078	-.001347	2.110304	.0178188	.0046026	.0071575	212.2488
#3	.0038563	-.001556	2.067099	.0177576	.0044895	.0079541	212.0413

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7670580	4.087325	.0091721	.0031237	6.982162	.0059611	.0384965
Stddev	.0039941	.039197	.0000615	.0006989	.011941	.0026471	.0002835
%RSD	.5206987	.9589855	.6707497	22.37514	.1710221	44.40560	.7363374

#1	.7638613	4.046961	.0092218	.0023268	6.971635	.0071631	.0381914
#2	.7715353	4.125239	.0091033	.0036328	6.979714	.0077940	.0387516
#3	.7657775	4.089776	.0091911	.0034115	6.995137	.0029263	.0385467

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4478711	.0846182	-.002284	-.001070	.0093970	.4563043	.0413065
Stddev	.0442328	.0042767	.000227	.000090	.0008202	.0043773	.0021773
%RSD	9.876243	5.054078	9.955706	8.427375	8.728769	.9592934	5.271048

#1	.3987507	.0849720	-.002022	-.000983	.0103074	.4526121	.0403135
#2	.4603099	.0801757	-.002394	-.001064	.0087157	.4611398	.0438033
#3	.4845528	.0887070	-.002435	-.001163	.0091679	.4551610	.0398028

Sample Name: Q3475-01DL2X25 Acquired: 11/4/2025 13:39:05 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0860202	.0209659	-.192014
Stddev	.0023510	.0019915	.000226
%RSD	2.733028	9.498788	.1176019

#1	.0859459	.0215973	-.191808
#2	.0884074	.0225651	-.191979
#3	.0837073	.0187352	-.192255

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5883.649	91281.57	7065.357	4507.847	7104.481
Stddev	11.970	327.69	34.793	16.497	12.156
%RSD	.2034533	.3589845	.4924514	.3659573	.1710974

#1	5874.680	90925.82	7040.528	4497.916	7092.691
#2	5897.242	91571.07	7050.418	4526.890	7116.972
#3	5879.026	91347.82	7105.125	4498.735	7103.779

Sample Name: Q3503-04DL2X10 Acquired: 11/4/2025 13:43:16 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000533	-.001231	.0081572	-.000979	-.001211	.0348518	.0214647
Stddev	.000882	.000627	.0093547	.001896	.000328	.0066436	.0010666
%RSD	165.3500	50.93647	114.6800	193.7109	27.06310	19.06254	4.968844
#1	-.000264	-.001122	.0024013	.000230	-.001542	.0287162	.0226898
#2	-.001519	-.000665	.0031193	-.003164	-.001204	.0419076	.0209611
#3	.000182	-.001905	.0189512	-.000002	-.000887	.0339317	.0207432
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000233	3.026310	6.726143	.0007305	.0024711	.0004400	.9594392
Stddev	.0000179	.001788	.022982	.0001334	.0001182	.0005049	.0126078
%RSD	76.92060	.0590679	.3416788	18.25613	4.783365	114.7509	1.314076
#1	.0000117	3.024299	6.701639	.0005861	.0023554	.0000829	.9479744
#2	.0000440	3.027719	6.747217	.0008490	.0024662	.0002195	.9574014
#3	.0000143	3.026913	6.729573	.0007566	.0025917	.0010176	.9729417
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1219495	.6233656	.0047413	.0006052	33.02293	.0037049	.2674739
Stddev	.0020002	.0380388	.0000921	.0003231	.42571	.0034044	.0005362
%RSD	1.640162	6.102161	1.942908	53.38836	1.289127	91.88974	.2004599
#1	.1210969	.5866181	.0047742	.0009650	32.57708	.0054357	.2679273
#2	.1242347	.6209026	.0046372	.0005107	33.06660	.0058963	.2676124
#3	.1205169	.6625760	.0048124	.0003398	33.42513	-.000217	.2668821
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9582913	-.001378	-.000275	-.003075	.0031956	.6042113	.0004216
Stddev	.0384645	.000915	.000309	.000022	.0003741	.0036591	.0017089
%RSD	4.013859	66.37355	112.2150	.7056818	11.70681	.6056070	405.2877
#1	.9156868	-.000512	-.000479	-.003053	.0035208	.6001769	-.001407
#2	.9904635	-.002335	-.000427	-.003096	.0032793	.6073158	.000693
#3	.9687236	-.001288	.000080	-.003075	.0027868	.6051412	.001979

Sample Name: Q3503-04DL2X10 Acquired: 11/4/2025 13:43:16 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.4848868	-.002443	.0417016
Stddev	.1411860	.002382	.0003297
%RSD	29.11731	97.52188	.7906231

#1	.4008461	.000035	.0413603
#2	.4059263	-.004717	.0420184
#3	.6478879	-.002646	.0417260

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6011.061	93539.36	7403.502	4551.608	7241.621
Stddev	14.347	255.49	56.789	7.011	15.361
%RSD	.2386720	.2731312	.7670552	.1540407	.2121155

#1	6003.025	93763.18	7386.623	4554.834	7237.690
#2	6027.625	93593.89	7357.066	4543.564	7258.564
#3	6002.534	93261.02	7466.817	4556.425	7228.607

Sample Name: Q3495-01 Acquired: 11/4/2025 13:47:29 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0959539	-.014556	.1424655	-.000615	-.015549	71.20844
Stddev	.0020282	.002386	.0002924	.002129	.001202	.10793
%RSD	2.113741	16.39272	.2052136	346.0285	7.728159	.1515704

#1	.0943161	-.012375	.1421324	-.003010	-.016480	71.19854
#2	.0953231	-.017104	.1426796	.001063	-.015974	71.32098
#3	.0982226	-.014188	.1425845	.000101	-.014192	71.10580

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1609288	.0066881	.0209180	9.794174	.2876529	.0476037
Stddev	.0010779	.0000253	.0001552	.051918	.0006597	.0001607
%RSD	.6697856	.3788928	.7417512	.5300912	.2293284	.3374701

#1	.1620264	.0066757	.0208122	9.815131	.2870307	.0476396
#2	.1608881	.0066714	.0208457	9.832339	.2875834	.0474282
#3	.1598718	.0067173	.0210961	9.735054	.2883445	.0477434

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0575634	237.0398	.4112412	12.36785	.1206661	.0098151
Stddev	.0008860	.9403	.0031238	.06100	.0005271	.0005081
%RSD	1.539198	.3966661	.7595922	.4931959	.4368538	5.176863

#1	.0574746	237.0099	.4146273	12.42466	.1211583	.0093319
#2	.0567251	237.9947	.4106246	12.37549	.1201099	.0103449
#3	.0584904	236.1149	.4084717	12.30339	.1207300	.0097686

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7224521	.2741342	.4995637	10.62005	.1622236	.0485999
Stddev	.0071862	.0020277	.0019870	.05448	.0062591	.0002347
%RSD	.9946961	.7396743	.3977481	.5130253	3.858312	.4828836

#1	.7235991	.2764587	.5017423	10.63883	.1581126	.0488249
#2	.7289959	.2727292	.4978511	10.66265	.1694270	.0483566
#3	.7147614	.2732146	.4990977	10.55866	.1591311	.0486182

Sample Name: Q3495-01 Acquired: 11/4/2025 13:47:29 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0486023	2.536598	3.317968	2.012276	F 50.28269	.0838296
Stddev	.0003613	.014827	.023266	.001766	.22934	.0030387
%RSD	.7434017	.5845388	.7011972	.0877736	.4561063	3.624830

#1	.0482148	2.543944	3.294572	2.012919	50.49259	.0843798
#2	.0486622	2.546318	3.341101	2.013630	50.31757	.0865555
#3	.0489299	2.519532	3.318232	2.010278	50.03790	.0805534

Elem	Sr4077
Units	ppm
Avg	-.105430
Stddev	.000766
%RSD	.7261417

#1	-.104689
#2	-.106218
#3	-.105384

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6490.738	100941.5	8078.033	4971.071	7119.314
Stddev	21.071	165.2	26.736	1.561	21.805
%RSD	.3246263	.1636388	.3309776	.0314061	.3062841

#1	6489.824	101125.6	8051.759	4972.679	7121.130
#2	6512.251	100892.8	8105.209	4969.561	7140.154
#3	6470.139	100806.2	8077.132	4970.974	7096.657

Sample Name: Q3495-01DUP Acquired: 11/4/2025 13:51:32 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0736445	-.015949	.1338558	-.003891	-.014479	61.36117
Stddev	.0012400	.003784	.0009255	.001142	.002066	.03218
%RSD	1.683698	23.72547	.6914225	29.34081	14.27146	.0524451

#1	.0724094	-.012529	.1331966	-.003093	-.016346	61.32413
#2	.0748893	-.020014	.1349138	-.005199	-.014833	61.37713
#3	.0736347	-.015303	.1334569	-.003381	-.012259	61.38225

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1745778	.0060012	.0070129	7.734500	.2387560	.0272344
Stddev	.0010072	.0001458	.0002127	.008672	.0008276	.0000877
%RSD	.5769328	2.429558	3.032809	.1121235	.3466380	.3220851

#1	.1754705	.0060998	.0072395	7.728080	.2378282	.0272074
#2	.1734859	.0058337	.0069815	7.744365	.2390214	.0271634
#3	.1747771	.0060701	.0068176	7.731054	.2394184	.0273325

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0450454	209.5500	.4210545	12.24120	.0713858	.0081345
Stddev	.0015931	2.1362	.0014915	.02619	.0005938	.0008984
%RSD	3.536608	1.019405	.3542271	.2139362	.8317687	11.04431

#1	.0465534	207.3564	.4225107	12.21917	.0720548	.0072019
#2	.0452038	209.6700	.4211228	12.27015	.0709214	.0082074
#3	.0433790	211.6236	.4195300	12.23426	.0711812	.0089943

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7571546	.2523674	.2710335	9.868806	.1366865	.0335294
Stddev	.0349980	.0029233	.0008297	.140533	.0085827	.0001422
%RSD	4.622304	1.158355	.3061231	1.424010	6.279137	.4240757

#1	.7286920	.2497748	.2713357	9.718610	.1281362	.0333780
#2	.7465411	.2517917	.2716696	9.890705	.1366219	.0336602
#3	.7962308	.2555357	.2700950	9.997104	.1453013	.0335501

Sample Name: Q3495-01DUP Acquired: 11/4/2025 13:51:32 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0332893	2.695440	3.699326	2.183521	F 21.08634	.0785185
Stddev	.0006197	.004949	.057260	.001392	.09561	.0015573
%RSD	1.861724	.1836143	1.547860	.0637585	.4534031	1.983313
#1	.0335478	2.695041	3.634628	2.183437	21.04703	.0774367
#2	.0325821	2.700577	3.719866	2.184953	21.19533	.0778155
#3	.0337379	2.690703	3.743482	2.182172	21.01665	.0803034

Elem	Sr4077
Units	ppm
Avg	-.085534
Stddev	.002400
%RSD	2.806092
#1	-.083032
#2	-.085752
#3	-.087817

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6361.290	99428.93	7783.864	4940.112	7061.924
Stddev	5.469	347.65	69.720	20.528	6.939
%RSD	.0859745	.3496503	.8956928	.4155309	.0982584
#1	6360.740	99771.98	7703.890	4960.856	7059.763
#2	6367.013	99437.96	7815.862	4939.672	7069.686
#3	6356.117	99076.85	7831.842	4919.807	7056.322

Sample Name: CCV02 Acquired: 11/4/2025 13:55:36 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.954430	5.430293	4.912891	4.955252	4.957893	9.898312	10.18557
Stddev	.007140	.062453	.004521	.008952	.005966	.009757	.09898
%RSD	.1441107	1.150084	.0920283	.1806607	.1203359	.0985686	.9717314

#1	4.952508	5.409371	4.916100	4.944916	4.951226	9.909552	10.27540
#2	4.948448	5.380987	4.907720	4.960300	4.962730	9.892030	10.20185
#3	4.962334	5.500521	4.914852	4.960540	4.959722	9.893354	10.07946

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2512116	2.482131	25.00707	.9975264	2.481829	1.256168	5.092549
Stddev	.0018239	.001543	.10961	.0063197	.001536	.001092	.016899
%RSD	.7260239	.0621696	.4383044	.6335346	.0618901	.0869411	.3318326

#1	.2516148	2.482739	25.07698	.9923232	2.482430	1.257390	5.100067
#2	.2528001	2.480376	25.06349	1.004559	2.480083	1.255289	5.104384
#3	.2492199	2.483277	24.88075	.995697	2.482972	1.255824	5.073196

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.554692	24.73972	2.486228	1.250251	25.12210	2.499298	2.498321
Stddev	.019459	.19429	.002402	.002037	.13663	.005887	.008739
%RSD	.7616823	.7853468	.0965995	.1629079	.5438465	.2355513	.3497906

#1	2.572623	24.69819	2.488194	1.247990	25.27041	2.506060	2.491588
#2	2.557452	24.95142	2.483551	1.251942	25.09452	2.495314	2.508196
#3	2.534000	24.56956	2.486939	1.250821	25.00136	2.496520	2.495178

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.77472	4.997408	5.048909	4.995249	5.040126	4.914392	5.099881
Stddev	.03192	.030467	.003947	.005062	.026829	.038007	.011580
%RSD	.1288267	.6096465	.0781799	.1013418	.5323035	.7733764	.2270557

#1	24.79754	5.010701	5.045870	4.990481	5.053905	4.872373	5.087542
#2	24.78837	5.018968	5.047487	4.994703	5.057265	4.924434	5.101589
#3	24.73825	4.962553	5.053370	5.000562	5.009207	4.946370	5.110511

Sample Name: CCV02 Acquired: 11/4/2025 13:55:36 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.955673	4.929353	5.034575
Stddev	.018769	.033037	.067477
%RSD	.3787333	.6702137	1.340266

#1	4.951600	4.957570	5.112328
#2	4.939275	4.937478	4.991352
#3	4.976144	4.893012	5.000043

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5895.422	91267.59	7071.499	4588.311	6712.377
Stddev	3.751	500.23	74.747	23.231	6.197
%RSD	.0636261	.5480944	1.057021	.5063143	.0923207

#1	5892.758	91232.06	7032.924	4591.594	6706.919
#2	5899.712	90786.07	7023.920	4563.612	6719.113
#3	5893.797	91784.64	7157.653	4609.725	6711.098

Sample Name: CCB02 Acquired: 11/4/2025 14:03:59 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000606	-.002314	-.000165	-.002095	-.000951	-.008038
Stddev	.002484	.003074	.000961	.002345	.001284	.004084
%RSD	410.1532	132.8062	583.6852	111.9329	134.9380	50.81667

#1	.002239	-.005251	-.001018	-.004749	-.001499	-.012753
#2	-.002350	.000880	-.000351	-.000303	-.001870	-.005629
#3	-.001706	-.002573	.000876	-.001233	.000515	-.005731

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001240	.0000110	-.000054	.1064681	-.000085	-.000091
Stddev	.000372	.0000717	.000018	.0008996	.000125	.000053
%RSD	30.01934	649.4814	32.82921	.8449571	146.7672	58.84162

#1	-.001205	.0000403	-.000068	.1063544	.000054	-.000073
#2	-.000886	.0000634	-.000034	.1056308	-.000189	-.000049
#3	-.001628	-.000071	-.000060	.1074192	-.000122	-.000151

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000975	.0072564	.0004997	.0196660	.0001559	.0003478
Stddev	.0001722	.0026322	.0002939	.0204853	.0002262	.0003733
%RSD	176.6165	36.27372	58.80933	104.1659	145.1171	107.3360

#1	-.000093	.0058170	.0005691	.0429792	.0002593	.0007312
#2	.000144	.0056578	.0007527	.0045426	.0003118	.0003268
#3	.000242	.0102943	.0001774	.0114763	-.000104	-.000015

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.231094	.0035692	.0133283	-.135113	-.017155	-.000025
Stddev	.018527	.0034365	.0001796	.028020	.000658	.000098
%RSD	8.017256	96.28173	1.347310	20.73848	3.833123	390.8180

#1	-.234813	.0059235	.0131234	-.167359	-.017871	-.000060
#2	-.247480	.0051583	.0134580	-.121289	-.017016	.000086
#3	-.210989	-.000374	.0134036	-.116691	-.016578	-.000101

Sample Name: CCB02 Acquired: 11/4/2025 14:03:59 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.005190	.0008275	-.000939	-.000959	F .0111555	-.003442
Stddev	.000498	.0000789	.000835	.000165	.0017646	.001986
%RSD	9.593258	9.530706	88.91189	17.22214	15.81831	57.70391

#1	-.005590	.0007366	-.000905	-.000975	.0118400	-.003739
#2	-.005347	.0008674	-.001791	-.001115	.0124753	-.005264
#3	-.004632	.0008784	-.000122	-.000786	.0091512	-.001324

Elem	Sr4077
Units	ppm
Avg	.0001296
Stddev	.0000607
%RSD	46.80222

#1	.0001992
#2	.0000881
#3	.0001016

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6078.220	94172.34	7245.827	4609.441	7702.591
Stddev	1.093	121.41	29.655	13.094	3.808
%RSD	.0179820	.1289184	.4092755	.2840626	.0494416

#1	6079.338	94152.50	7278.024	4597.863	7705.340
#2	6078.167	94302.44	7239.826	4623.650	7704.190
#3	6077.154	94062.07	7219.631	4606.809	7698.244

Sample Name: Q3495-01LX5 Acquired: 11/4/2025 14:08:18 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0197636	-.003329	.0316205	-.002647	-.004410	15.93137
Stddev	.0007298	.001856	.0008379	.001994	.000817	.09894
%RSD	3.692528	55.73776	2.649735	75.33202	18.51756	.6210472
#1	.0205097	-.005082	.0306572	-.003255	-.003858	15.92877
#2	.0190514	-.001386	.0320247	-.004266	-.005348	15.83376
#3	.0197297	-.003520	.0321797	-.000420	-.004024	16.03159
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0321205	.0015662	.0044065	2.256474	.0649120	.0108138
Stddev	.0009691	.0000814	.0000944	.003382	.0002203	.0001158
%RSD	3.016981	5.195520	2.142884	.1498608	.3393411	1.070942
#1	.0321759	.0014729	.0045140	2.259369	.0648026	.0107654
#2	.0330607	.0016036	.0043688	2.252757	.0647679	.0107301
#3	.0311249	.0016222	.0043367	2.257295	.0651656	.0109460
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0164179	51.54671	.0889737	2.692077	.0281098	.0019225
Stddev	.0005223	.37643	.0010316	.029068	.0004465	.0006220
%RSD	3.181002	.7302622	1.159461	1.079752	1.588521	32.35637
#1	.0166797	51.16634	.0893875	2.681282	.0285334	.0012886
#2	.0158165	51.55473	.0877994	2.669952	.0281524	.0025320
#3	.0167575	51.91906	.0897341	2.724998	.0276434	.0019469
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.047063	.0628572	.1221703	2.092361	.0163522	.0109808
Stddev	.010905	.0010363	.0005323	.033265	.0018508	.0003830
%RSD	23.17055	1.648601	.4356940	1.589833	11.31802	3.487642
#1	-.034605	.0630913	.1215730	2.056091	.0142168	.0105862
#2	-.054880	.0617240	.1225943	2.099545	.0174926	.0110051
#3	-.051703	.0637565	.1223437	2.121447	.0173473	.0113510

Sample Name: Q3495-01LX5 Acquired: 11/4/2025 14:08:18 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0110065	.5330047	.6541110	.3985539	F 12.05776	.0151090
Stddev	.0001368	.0024088	.0066776	.0009347	.02296	.0024247
%RSD	1.243173	.4519294	1.020868	.2345165	.1904360	16.04775
#1	.0111606	.5302660	.6522866	.3995895	12.07219	.0158088
#2	.0109597	.5347950	.6485353	.3982992	12.03128	.0171068
#3	.0108992	.5339530	.6615112	.3977730	12.06981	.0124114

Elem	Sr4077
Units	ppm
Avg	-.022706
Stddev	.000371
%RSD	1.632590
#1	-.022344
#2	-.022690
#3	-.023085

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6185.389	95673.81	7382.404	4774.458	7324.126
Stddev	10.173	329.64	34.871	14.393	16.049
%RSD	.1644756	.3445411	.4723592	.3014632	.2191222
#1	6195.049	95789.54	7344.265	4762.233	7339.344
#2	6186.347	95929.98	7412.658	4770.821	7325.675
#3	6174.770	95301.92	7390.288	4790.322	7307.358

Sample Name: Q3495-01MS Acquired: 11/4/2025 14:12:25 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7163464	2.003988	1.007034	1.648864	.4757125	38.81294	.3428617
Stddev	.0011303	.062524	.001413	.002138	.0016399	.06543	.0027420
%RSD	.1577809	3.119988	.1402867	.1296638	.3447258	.1685745	.7997497
#1	.7167142	1.946272	1.006662	1.646457	.4770641	38.88814	.3458885
#2	.7172469	1.995285	1.008596	1.650540	.4738882	38.78161	.3421533
#3	.7150780	2.070408	1.005845	1.649597	.4761854	38.76907	.3405434
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1885719	.1863803	4.259069	.5036588	.2016979	.2998114	93.58130
Stddev	.0009198	.0004372	.032516	.0013343	.0001683	.0006660	.03401
%RSD	.4877851	.2345895	.7634610	.2649284	.0834466	.2221285	.0363409
#1	.1893319	.1862618	4.293735	.5051828	.2018069	.2990443	93.59392
#2	.1888346	.1860145	4.254229	.5027008	.2015040	.3001487	93.60720
#3	.1875494	.1868645	4.229245	.5030927	.2017827	.3002412	93.54279
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4083682	5.960924	.5023148	.0746597	3.186669	.4161194	.2724677
Stddev	.0023950	.031724	.0007407	.0000818	.020962	.0070706	.0009515
%RSD	.5864876	.5321979	.1474483	.1095049	.6577912	1.699167	.3492253
#1	.4106586	5.938355	.5022912	.0746727	3.207349	.4239062	.2714071
#2	.4085653	5.997196	.5015863	.0745722	3.187222	.4101006	.2727497
#3	.4058808	5.947221	.5030670	.0747342	3.165436	.4143514	.2732464
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.40389	.2977843	.3955656	.6581649	2.110483	4.846480	6.683925
Stddev	.04095	.0018977	.0005846	.0007434	.010183	.016871	.021102
%RSD	.2843286	.6372836	.1477778	.1129464	.4824818	.3481021	.3157154
#1	14.42783	.2999367	.3953330	.6574062	2.119817	4.828221	6.681637
#2	14.35660	.2963519	.3962306	.6588919	2.112007	4.861491	6.706078
#3	14.42723	.2970643	.3951331	.6581966	2.099623	4.849727	6.664060

Sample Name: Q3495-01MS Acquired: 11/4/2025 14:12:25 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	6.923509	.2185529	.2082078
Stddev	.022029	.0016803	.0018695
%RSD	.3181782	.7688171	.8979129
#1	6.898293	.2204929	.2096597
#2	6.939013	.2176056	.2088653
#3	6.933222	.2175601	.2060983

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6588.746	102666.8	7916.670	5127.875	7408.643
Stddev	3.480	80.9	50.135	10.856	4.387
%RSD	.0528123	.0787593	.6332877	.2117051	.0592090
#1	6586.204	102573.6	7869.286	5124.658	7403.584
#2	6587.322	102709.4	7911.560	5118.991	7410.947
#3	6592.712	102717.5	7969.165	5139.976	7411.397

Sample Name: Q3495-01MSD Acquired: 11/4/2025 14:16:22 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7679818	2.030710	1.081434	1.700146	.3679984	90.97637
Stddev	.0043297	.030933	.001412	.001679	.0022352	.13798
%RSD	.5637739	1.523236	.1305632	.0987429	.6073861	.1516676
#1	.7666885	2.013339	1.082333	1.701218	.3664268	90.89426
#2	.7644460	2.012369	1.082162	1.698211	.3670112	91.13567
#3	.7728107	2.066424	1.079806	1.701008	.3705572	90.89917
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3806217	.1862506	.2126459	11.30464	.7392605	.2463375
Stddev	.0023032	.0013053	.0001365	.01374	.0020567	.0001752
%RSD	.6051245	.7008268	.0641777	.1215316	.2782091	.0711084
#1	.3812358	.1872470	.2125095	11.28971	.7389812	.2464125
#2	.3825556	.1867318	.2127825	11.31674	.7373577	.2464627
#3	.3780736	.1847731	.2126456	11.30748	.7414426	.2461373
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3551968	137.9225	.6100132	17.74504	.6303088	.0765834
Stddev	.0003417	.8076	.0033116	.03909	.0002237	.0002187
%RSD	.0962145	.5855248	.5428809	.2202850	.0354903	.2855381
#1	.3551020	137.9121	.6137628	17.76192	.6300692	.0763309
#2	.3549125	137.1202	.6087883	17.70034	.6303450	.0767088
#3	.3555759	138.7353	.6074884	17.77285	.6305122	.0767105
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.483808	.5901241	.9139704	21.03407	.3379635	.4027768
Stddev	.025033	.0045951	.0032236	.06603	.0017640	.0003986
%RSD	.7185417	.7786699	.3526998	.3139145	.5219377	.0989738
#1	3.476084	.5867815	.9135770	21.02725	.3382654	.4029209
#2	3.463547	.5953641	.9173726	20.97172	.3360681	.4023262
#3	3.511792	.5882267	.9109616	21.10325	.3395571	.4030834

Sample Name: Q3495-01MSD Acquired: 11/4/2025 14:16:22 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6776759	2.822473	3.365440	7.968496	F 53.22917	.2908353
Stddev	.0017162	.014720	.014421	.016540	.17756	.0012377
%RSD	.2532534	.5215310	.4284933	.2075697	.3335756	.4255742
#1	.6757509	2.839461	3.359324	7.949455	53.10229	.2921831
#2	.6782307	2.814459	3.355085	7.976736	53.15313	.2905732
#3	.6790462	2.813498	3.381911	7.979298	53.43208	.2897496

Elem	Sr4077
Units	ppm
Avg	.1971879
Stddev	.0021809
%RSD	1.105982
#1	.1989172
#2	.1979086
#3	.1947379

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6507.412	101787.7	7983.761	5005.930	6963.777
Stddev	.575	304.0	40.361	13.022	4.809
%RSD	.0088341	.2986565	.5055340	.2601354	.0690626
#1	6506.754	101892.6	7947.861	5005.817	6962.891
#2	6507.660	102025.5	7975.974	4992.965	6959.472
#3	6507.821	101445.2	8027.447	5019.008	6968.967

Sample Name: Q3495-01A Acquired: 11/4/2025 14:20:19 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8201532	1.754045	1.060105	1.787991	.7304163	75.20788
Stddev	.0026599	.068593	.000719	.002698	.0036389	.15722
%RSD	.3243218	3.910551	.0678341	.1509115	.4981991	.2090533

#1	.8174111	1.764110	1.060932	1.788933	.7339665	75.38515
#2	.8203261	1.817050	1.059627	1.790092	.7305877	75.15314
#3	.8227225	1.680976	1.059755	1.784948	.7266947	75.08534

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3440344	.1903636	.2108783	11.22451	.6677521	.2464980
Stddev	.0020370	.0009521	.0002393	.01531	.0011050	.0000870
%RSD	.5920809	.5001271	.1134749	.1364285	.1654813	.0353023

#1	.3457412	.1914615	.2110719	11.22770	.6668221	.2464189
#2	.3445826	.1898642	.2106108	11.23797	.6689736	.2464838
#3	.3417794	.1897652	.2109523	11.20785	.6674604	.2465912

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3346686	242.8795	.5974833	14.20150	.6128489	.0813734
Stddev	.0008053	.9354	.0022832	.03327	.0008507	.0000510
%RSD	.2406192	.3851330	.3821425	.2342863	.1388128	.0626224

#1	.3339771	242.2441	.5993304	14.20570	.6129741	.0813550
#2	.3344759	243.9537	.5981890	14.23247	.6119425	.0813342
#3	.3355527	242.4408	.5949305	14.16633	.6136300	.0814310

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.530480	.5559950	.7430731	19.98200	.4223796	.4357017
Stddev	.009975	.0020748	.0007044	.07327	.0023153	.0003990
%RSD	.2825363	.3731756	.0947950	.3666585	.5481440	.0915736

#1	3.540474	.5541638	.7437518	19.96275	.4218168	.4361050
#2	3.520525	.5582485	.7431220	20.06297	.4249244	.4356929
#3	3.530441	.5555728	.7423455	19.92029	.4203977	.4353072

Sample Name: Q3495-01A Acquired: 11/4/2025 14:20:19 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7308809	2.689487	4.591195	7.760113	F 57.51183	.2768087
Stddev	.0014325	.012099	.026746	.017885	.35821	.0010926
%RSD	.1959983	.4498675	.5825594	.2304795	.6228375	.3946981

#1	.7313337	2.701525	4.560765	7.779215	57.58209	.2774601
#2	.7320324	2.689608	4.610979	7.757358	57.82970	.2774187
#3	.7292768	2.677327	4.601841	7.743764	57.12370	.2755474

Elem	Sr4077
Units	ppm
Avg	.0727270
Stddev	.0020768
%RSD	2.855626

#1	.0751122
#2	.0717494
#3	.0713194

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6440.144	99903.19	7875.477	4951.885	6997.649
Stddev	9.110	269.36	38.558	20.239	7.087
%RSD	.1414584	.2696187	.4895929	.4087107	.1012773

#1	6446.843	100098.4	7834.135	4973.130	7002.967
#2	6443.819	99595.9	7881.836	4932.830	7000.376
#3	6429.771	100015.3	7910.459	4949.694	6989.603

Sample Name: PB170374BL Acquired: 11/4/2025 14:24:14 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000751	.0004316	.0017145	-.001024	.0009520	.0172081
Stddev	.000412	.0015400	.0006904	.002320	.0012597	.0067519
%RSD	54.82383	356.7950	40.27002	226.4788	132.3202	39.23667

#1	-.001092	-.001340	.0025054	-.003558	-.000475	.0095208
#2	-.000868	.001188	.0014063	.000995	.001909	.0199261
#3	-.000294	.001448	.0012318	-.000510	.001422	.0221775

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000526	-.000034	-.000115	.0121406	.0002505	-.000059
Stddev	.000456	.000066	.000109	.0062638	.0003631	.000077
%RSD	86.63762	196.3748	94.67892	51.59396	144.9816	129.6994

#1	-.000389	-.000006	-.000203	.0193024	.0002438	-.000020
#2	-.001035	-.000109	-.000149	.0094348	-.000109	-.000147
#3	-.000155	.000014	.000007	.0076845	.000617	-.000010

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005037	.0111090	-.000344	-.017647	.0002465	.0003586
Stddev	.0001121	.0031304	.000787	.018257	.0001547	.0002387
%RSD	22.25145	28.17867	228.7026	103.4569	62.75287	66.57002

#1	.0005135	.0145957	.000458	-.023769	.0002584	.0006241
#2	.0003871	.0101908	-.001115	-.032057	.0000862	.0001617
#3	.0006106	.0085404	-.000375	.002884	.0003949	.0002900

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.243908	.0009463	.0011378	-.128903	-.020061	-.000399
Stddev	.007359	.0024890	.0001081	.043867	.000717	.000225
%RSD	3.016950	263.0410	9.499391	34.03088	3.573588	56.49844

#1	-.251097	-.001922	.0010759	-.179539	-.019743	-.000618
#2	-.244237	.002220	.0010750	-.104706	-.019558	-.000168
#3	-.236391	.002541	.0012627	-.102463	-.020882	-.000411

Sample Name: PB170374BL Acquired: 11/4/2025 14:24:14 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -.025459	.0021173	.0008125	-.003143	F .0170728	-.006164
Stddev	.000480	.0006393	.0150302	.000714	.0040699	.001576
%RSD	1.886717	30.19574	1849.941	22.71647	23.83868	25.56903
#1	-.025726	.0025939	.0044218	-.003769	.0211942	-.006619
#2	-.025746	.0013907	.0137093	-.002366	.0130564	-.004410
#3	-.024904	.0023672	-.015694	-.003294	.0169679	-.007462

Elem	Sr4077
Units	ppm
Avg	.0001256
Stddev	.0000337
%RSD	26.87020
#1	.0001284
#2	.0000905
#3	.0001578

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6007.609	93718.74	7162.937	4572.374	7516.694
Stddev	6.193	332.96	99.962	29.792	7.514
%RSD	.1030903	.3552718	1.395551	.6515582	.0999667
#1	6009.534	93529.37	7049.650	4560.479	7522.543
#2	6012.612	93523.67	7200.420	4550.367	7519.319
#3	6000.682	94103.19	7238.741	4606.275	7508.219

Sample Name: PB170374BS Acquired: 11/4/2025 14:28:33 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7794212	1.784699	.9483192	1.941558	.7937603	1.973359
Stddev	.0006383	.029780	.0010638	.004270	.0007981	.008958
%RSD	.0819004	1.668603	.1121821	.2199085	.1005492	.4539223

#1	.7801094	1.813916	.9475923	1.946263	.7932146	1.968909
#2	.7793057	1.785794	.9495403	1.940482	.7946763	1.983670
#3	.7788484	1.754387	.9478250	1.937929	.7933900	1.967497

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1973650	.2055039	.1907966	1.042370	.4075466	.1949872
Stddev	.0007510	.0004105	.0000623	.004235	.0002468	.0002870
%RSD	.3804926	.1997553	.0326588	.4062633	.0605677	.1471910

#1	.1981139	.2059438	.1908090	1.038549	.4075038	.1953170
#2	.1966120	.2051311	.1907291	1.041639	.4073239	.1948499
#3	.1973689	.2054369	.1908518	1.046923	.4078120	.1947946

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3113009	3.025173	.2055749	2.055028	.4891798	.0771455
Stddev	.0002428	.006484	.0015203	.000230	.0011137	.0001890
%RSD	.0779938	.2143334	.7395434	.0111774	.2276599	.2449417

#1	.3110290	3.031643	.2054076	2.054764	.4903166	.0770194
#2	.3113773	3.025199	.2071719	2.055178	.4880908	.0770542
#3	.3114962	3.018675	.2041452	2.055142	.4891321	.0773627

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.651254	.3008578	.2082952	9.542174	.2856239	.4072711
Stddev	.025718	.0020822	.0005007	.037111	.0007112	.0005401
%RSD	.9700241	.6921005	.2403706	.3889186	.2489828	.1326034

#1	2.661931	.2986906	.2079842	9.506049	.2863732	.4076736
#2	2.621917	.3010397	.2080286	9.580199	.2855401	.4074824
#3	2.669913	.3028431	.2088728	9.540274	.2849583	.4066574

Sample Name: PB170374BS Acquired: 11/4/2025 14:28:33 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6700038	.1995043	.8879162	5.774799	F .0090567	.1993821
Stddev	.0009453	.0019854	.0057825	.015040	.0011579	.0008821
%RSD	.1410943	.9951447	.6512430	.2604447	12.78526	.4424293

#1	.6710881	.2012257	.8859761	5.774347	.0085900	.1998147
#2	.6693524	.1999548	.8944192	5.759989	.0082050	.1999644
#3	.6695709	.1973324	.8833531	5.790059	.0103752	.1983672

Elem	Sr4077
Units	ppm
Avg	.1933868
Stddev	.0007281
%RSD	.3764766

#1	.1940852
#2	.1934427
#3	.1926324

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6212.811	96401.25	7357.774	4778.964	7513.209
Stddev	12.769	98.39	17.498	26.352	18.073
%RSD	.2055337	.1020654	.2378119	.5514169	.2405485

#1	6227.252	96288.60	7337.712	4778.853	7529.253
#2	6208.169	96444.80	7365.723	4805.371	7516.746
#3	6203.011	96470.36	7369.885	4752.667	7493.630

Sample Name: Q3515-01 Acquired: 11/4/2025 14:32:34 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0429636	-.005492	.1413755	-.003138	-.005992	43.31151	.1761012
Stddev	.0009724	.004189	.0022275	.004072	.001557	.14800	.0007424
%RSD	2.263336	76.27319	1.575564	129.7622	25.98786	.3417068	.4215763

#1	.0432693	-.009825	.1439456	-.002005	-.007783	43.15397	.1752783
#2	.0437463	-.005189	.1401769	.000248	-.004956	43.33292	.1763047
#3	.0418750	-.001463	.1400040	-.007656	-.005237	43.44764	.1767207

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0031848	.0005268	47.36171	.1113313	.0656171	.1391825	109.8619
Stddev	.0001118	.0000337	.13213	.0006131	.0001245	.0009060	.6063
%RSD	3.508774	6.390880	.2789741	.5507263	.1897080	.6509519	.5518896

#1	.0030588	.0004991	47.21673	.1119667	.0657608	.1392334	110.1859
#2	.0032235	.0005170	47.47534	.1112840	.0655428	.1382521	110.2373
#3	.0032720	.0005643	47.39308	.1107432	.0655476	.1400620	109.1624

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.333118	21.08517	.0805221	.0033855	3.437485	.2157109	.2016063
Stddev	.008570	.15735	.0003337	.0004355	.015950	.0018077	.0004064
%RSD	.6428855	.7462768	.4144551	12.86233	.4639957	.8380111	.2015976

#1	1.323905	20.90352	.0802123	.0037139	3.447786	.2136735	.2011541
#2	1.334594	21.17952	.0804785	.0035511	3.445557	.2171224	.2017236
#3	1.340854	21.17247	.0808754	.0028916	3.419113	.2163370	.2019412

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.177528	.1028311	.0073033	.0236702	3.389854	3.508296	1.918020
Stddev	.052522	.0033189	.0001639	.0000553	.016609	.051356	.005103
%RSD	1.652905	3.227530	2.243455	.2336620	.4899679	1.463847	.2660330

#1	3.192487	.1051658	.0071740	.0236091	3.375413	3.550792	1.919923
#2	3.220948	.1042956	.0072484	.0237169	3.386147	3.522868	1.921898
#3	3.119150	.0990318	.0074875	.0236846	3.408004	3.451229	1.912239

Sample Name: Q3515-01 Acquired: 11/4/2025 14:32:34 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.580068	.0308996	.0786755
Stddev	.007938	.0016151	.0012471
%RSD	.3076775	5.226854	1.585089
#1	2.581632	.0297132	.0778259
#2	2.587108	.0302466	.0780934
#3	2.571465	.0327389	.0801072

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6685.899	105258.1	8400.300	5218.988	7365.330
Stddev	11.220	567.8	79.323	10.103	9.768
%RSD	.1678133	.5394074	.9442853	.1935824	.1326232
#1	6674.603	105193.1	8490.445	5218.493	7354.771
#2	6686.053	104725.6	8369.282	5209.141	7367.173
#3	6697.041	105855.6	8341.173	5229.329	7374.045

Sample Name: Q3516-01 Acquired: 11/4/2025 14:36:39 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0603118	-.005508	.2738631	.0010200	-.018431	239.7261	.7562142
Stddev	.0020017	.002017	.0023321	.0036854	.002703	1.2757	.0017100
%RSD	3.318926	36.62069	.8515497	361.3139	14.66469	.5321519	.2261206

#1	.0586809	-.003323	.2723584	.0037346	-.016005	239.1628	.7543140
#2	.0625457	-.005903	.2726813	.0025009	-.017945	241.1865	.7576288
#3	.0597089	-.007299	.2765495	-.003175	-.021345	238.8290	.7566999

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0175857	.0178021	30.08180	.3808635	.2655634	.2987677	351.3889
Stddev	.0003121	.0001073	.08428	.0039119	.0005680	.0016306	2.0605
%RSD	1.774607	.6029632	.2801670	1.027110	.2138725	.5457787	.5863877

#1	.0176655	.0179162	30.00862	.3838468	.2649117	.2991173	350.0355
#2	.0178501	.0177869	30.17394	.3823092	.2658257	.3001951	350.3711
#3	.0172414	.0177031	30.06283	.3764346	.2659529	.2969906	353.7603

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.013837	50.12649	.3970529	.0092109	12.90814	.7098928	.7356799
Stddev	.012792	.17311	.0005241	.0013052	.07602	.0035847	.0019983
%RSD	.3187062	.3453401	.1319981	14.17055	.5889463	.5049569	.2716198

#1	4.001825	50.10112	.3966005	.0086581	12.87012	.7057696	.7372633
#2	4.027288	50.31089	.3969310	.0082730	12.85864	.7116391	.7363416
#3	4.012397	49.96747	.3976272	.0107016	12.99568	.7122696	.7334347

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.69237	.3029654	.0266326	.0374396	8.665657	3.121654	6.250924
Stddev	.04276	.0171850	.0002274	.0007704	.014168	.009685	.015521
%RSD	.3999270	5.672268	.8539239	2.057629	.1634944	.3102362	.2482928

#1	10.65512	.3020354	.0265339	.0380077	8.649473	3.114674	6.252185
#2	10.68292	.2862643	.0268928	.0365628	8.675818	3.117578	6.234811
#3	10.73906	.3205966	.0264713	.0377483	8.671679	3.132711	6.265775

Sample Name: Q3516-01 Acquired: 11/4/2025 14:36:39 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.476602	.1873553	-.185554
Stddev	.004711	.0009587	.001887
%RSD	.1902253	.5116858	1.016984

#1	2.474499	.1868073	-.184552
#2	2.473308	.1884622	-.184379
#3	2.481998	.1867962	-.187730

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	9340.681	142796.7	11822.40	7231.526	6518.546
Stddev	10.763	308.1	64.28	79.435	7.928
%RSD	.1152235	.2157733	.5436738	1.098459	.1216214

#1	9339.727	142781.9	11802.40	7273.924	6527.257
#2	9330.427	143111.9	11770.51	7280.766	6511.753
#3	9351.889	142496.2	11894.30	7139.887	6516.629

Sample Name: Q3520-01 Acquired: 11/4/2025 14:40:45 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0280917	-.014008	.1537153	-.008758	-.016823	61.79645	.3099096
Stddev	.0006833	.001586	.0007387	.000643	.001085	.07205	.0008203
%RSD	2.432313	11.32145	.4805894	7.341274	6.451822	.1165997	.2647072

#1	.0286483	-.012643	.1545243	-.009286	-.016015	61.87699	.3091915
#2	.0273291	-.015748	.1535451	-.008042	-.016399	61.73811	.3108037
#3	.0282978	-.013632	.1530766	-.008947	-.018057	61.77424	.3097338

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0079566	.0097082	32.26015	.0988691	.1130296	.1646302	193.8700
Stddev	.0001819	.0001854	.09857	.0001344	.0000814	.0022714	1.9522
%RSD	2.286168	1.909496	.3055418	.1359172	.0720022	1.379689	1.006980

#1	.0081570	.0098756	32.36710	.0987522	.1130340	.1662758	192.0391
#2	.0079107	.0095090	32.24038	.0988393	.1129461	.1620388	195.9243
#3	.0078020	.0097399	32.17296	.0990159	.1131087	.1655761	193.6465

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.930881	24.14586	.1510240	.0032553	3.633103	.2406008	.2594538
Stddev	.003581	.09981	.0002558	.0005357	.058899	.0016206	.0005727
%RSD	.1854535	.4133814	.1693821	16.45655	1.621168	.6735768	.2207198

#1	1.931228	24.26089	.1508052	.0028200	3.587195	.2413425	.2596150
#2	1.934275	24.08207	.1509616	.0038536	3.699513	.2417179	.2588178
#3	1.927139	24.09462	.1513053	.0030924	3.612602	.2387421	.2599286

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.45926	.0931572	.0029442	.0801304	3.258111	3.286795	9.718074
Stddev	.11737	.0082322	.0001074	.0005915	.008755	.022834	.046868
%RSD	1.122116	8.836883	3.647209	.7382128	.2687133	.6947104	.4822721

#1	10.33369	.0853325	.0028239	.0798457	3.255330	3.296383	9.712398
#2	10.56620	.1017439	.0029788	.0808105	3.267919	3.303272	9.767522
#3	10.47789	.0923953	.0030301	.0797351	3.251085	3.260731	9.674304

Sample Name: Q3520-01 Acquired: 11/4/2025 14:40:45 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	3.717423	.0806942	-.100445
Stddev	.019463	.0011738	.001691
%RSD	.5235598	1.454566	1.683170

#1	3.698257	.0804604	-.098892
#2	3.737170	.0819673	-.102246
#3	3.716843	.0796549	-.100198

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	9400.210	147269.1	11586.69	7252.276	6769.380
Stddev	10.591	505.7	83.88	8.013	1.391
%RSD	.1126628	.3433649	.7239321	.1104830	.0205413

#1	9406.289	147774.9	11496.16	7254.818	6770.499
#2	9406.360	146763.5	11661.78	7258.710	6767.823
#3	9387.981	147268.7	11602.13	7243.301	6769.818

Sample Name: Q3520-01DUP Acquired: 11/4/2025 14:44:48 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0309002	-.016554	.1769262	-.010833	-.018363	68.05044	.3335892
Stddev	.0009588	.002128	.0021350	.001540	.001068	.03298	.0010672
%RSD	3.102922	12.85719	1.206722	14.21775	5.814189	.0484577	.3199015

#1	.0298168	-.018180	.1774465	-.012611	-.019514	68.01384	.3326639
#2	.0312444	-.017337	.1745792	-.009997	-.018167	68.07784	.3347566
#3	.0316394	-.014145	.1787530	-.009892	-.017406	68.05964	.3333469

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0090087	.0123745	35.51202	.1265094	.1228368	.1706528	224.9836
Stddev	.0001149	.0000987	.06443	.0008302	.0002102	.0014355	.5966
%RSD	1.274956	.7979621	.1814293	.6562008	.1711004	.8411521	.2651865

#1	.0089325	.0123435	35.43990	.1257424	.1229875	.1695370	225.3182
#2	.0091408	.0122950	35.56391	.1273908	.1225967	.1701493	225.3379
#3	.0089527	.0124851	35.53224	.1263950	.1229263	.1722722	224.2948

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.242241	26.89244	.1609567	.0015062	4.319645	.3206491	.2764356
Stddev	.004294	.14180	.0010586	.0001823	.014606	.0020865	.0017133
%RSD	.1915161	.5272709	.6576992	12.09937	.3381201	.6507166	.6197730

#1	2.241801	26.72882	.1603730	.0017167	4.326426	.3218554	.2763540
#2	2.246738	26.97945	.1603185	.0013997	4.329627	.3182398	.2781883
#3	2.238183	26.96905	.1621787	.0014024	4.302881	.3218522	.2747646

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.764840	.0689183	.0032747	.0399893	3.844168	2.574532	9.907930
Stddev	.052943	.0040542	.0000964	.0006132	.006737	.012437	.049312
%RSD	.5421796	5.882621	2.944239	1.533300	.1752441	.4830723	.4977047

#1	9.799740	.0735988	.0033818	.0401798	3.847482	2.586462	9.899096
#2	9.790858	.0664979	.0032479	.0404847	3.848606	2.561644	9.863632
#3	9.703922	.0666582	.0031946	.0393035	3.836416	2.575489	9.961063

Sample Name: Q3520-01DUP Acquired: 11/4/2025 14:44:48 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	3.885351	.0856324	-.124175
Stddev	.028586	.0011670	.000409
%RSD	.7357297	1.362793	.3297777
#1	3.866375	.0859366	-.124338
#2	3.871449	.0866173	-.124478
#3	3.918229	.0843435	-.123709

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	9309.735	145930.5	11438.71	7038.875	6798.169
Stddev	7.772	741.1	70.51	16.668	3.693
%RSD	.0834845	.5078664	.6163787	.2367977	.0543305
#1	9306.936	146255.4	11505.18	7037.814	6794.267
#2	9303.749	145082.4	11364.77	7022.764	6798.629
#3	9318.519	146453.7	11446.17	7056.048	6801.611

Sample Name: CCV03 Acquired: 11/4/2025 15:06:02 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.949460	4.843736	4.917229	4.918104	4.930247	9.834813	9.947811
Stddev	.011968	.096133	.004002	.012467	.007089	.028680	.015357
%RSD	.2417967	1.984677	.0813809	.2535013	.1437930	.2916173	.1543735

#1	4.936038	4.927049	4.914046	4.906430	4.924974	9.801697	9.935498
#2	4.953322	4.738552	4.915920	4.916646	4.927461	9.851168	9.942918
#3	4.959019	4.865606	4.921722	4.931236	4.938306	9.851574	9.965018

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2519566	2.483787	24.77536	1.002671	2.477062	1.253525	4.999970
Stddev	.0012163	.005530	.05914	.001214	.005795	.001984	.023968
%RSD	.4827381	.2226283	.2387168	.1210410	.2339441	.1582906	.4793705

#1	.2519179	2.478993	24.72593	1.002246	2.471529	1.251870	4.993055
#2	.2531918	2.482532	24.84088	1.004040	2.476568	1.252979	4.980220
#3	.2507601	2.489837	24.75928	1.001728	2.483087	1.255725	5.026636

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.495581	24.73720	2.482983	1.245591	24.37874	2.472314	2.492792
Stddev	.003732	.08246	.006008	.000719	.09480	.005098	.002095
%RSD	.1495476	.3333459	.2419866	.0577555	.3888726	.2061967	.0840360

#1	2.491321	24.64824	2.476905	1.246252	24.35974	2.476121	2.494876
#2	2.497146	24.75227	2.483125	1.244824	24.29488	2.474300	2.492812
#3	2.498275	24.81108	2.488919	1.245696	24.48161	2.466523	2.490686

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.29590	4.998980	5.023734	4.981397	4.968102	4.891799	5.023851
Stddev	.10255	.015462	.008507	.009471	.012083	.027500	.010935
%RSD	.4220703	.3093059	.1693457	.1901333	.2432213	.5621557	.2176685

#1	24.19448	4.998557	5.017911	4.973124	4.955518	4.874413	5.033014
#2	24.29370	5.014649	5.019793	4.979339	4.979614	4.877481	5.026794
#3	24.39953	4.983734	5.033497	4.991728	4.969172	4.923504	5.011746

Sample Name: CCV03 Acquired: 11/4/2025 15:06:02 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.849747	4.803720	4.983596
Stddev	.007481	.013960	.035708
%RSD	.1542551	.2906115	.7165208

#1	4.849854	4.791335	4.942369
#2	4.842212	4.800976	5.004779
#3	4.857173	4.818848	5.003640

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5945.076	91844.14	7102.664	4572.693	6774.028
Stddev	10.128	160.05	22.261	10.824	11.116
%RSD	.1703580	.1742631	.3134242	.2367056	.1640990

#1	5956.768	91703.54	7089.284	4560.252	6786.840
#2	5939.408	92018.32	7090.346	4577.876	6766.952
#3	5939.050	91810.57	7128.362	4579.951	6768.291

Sample Name: CCB03 Acquired: 11/4/2025 15:10:04 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001140	-.001306	.0010549	-.002332	-.001458	.0168749	-.000976
Stddev	.001665	.001910	.0003908	.001145	.000158	.0043532	.001734
%RSD	146.0102	146.2669	37.04543	49.10180	10.84660	25.79671	177.7005
#1	.000556	-.002240	.0006041	-.002836	-.001393	.0169804	-.001945
#2	-.002773	.000892	.0012625	-.003138	-.001638	.0124699	.001026
#3	-.001204	-.002570	.0012982	-.001021	-.001342	.0211743	-.002009
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000013	-.000020	.0197101	.0000315	-.000074	.0003713	.0064202
Stddev	.000124	.000026	.0087975	.0002538	.000092	.0002036	.0076377
%RSD	950.4092	131.7954	44.63435	806.6801	124.3785	54.83811	118.9631
#1	-.000003	-.000047	.0153889	.0003213	.000030	.0005416	.0042475
#2	-.000141	.000004	.0298325	-.000076	-.000145	.0004266	.0001043
#3	.000105	-.000016	.0139088	-.000151	-.000106	.0001458	.0149088
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002450	-.006295	-.000095	-.000138	-.270420	-.000289	.0052257
Stddev	.0002623	.005870	.000118	.000304	.015662	.002073	.0002726
%RSD	107.0316	93.25205	125.1863	219.6644	5.791907	716.5076	5.216273
#1	.0003004	-.004296	.000028	-.000252	-.264818	-.000598	.0050220
#2	.0004752	-.001685	-.000104	-.000368	-.288113	.001921	.0051198
#3	-.000040	-.012904	-.000208	.000206	-.258328	-.002190	.0055353
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.178906	-.013016	-.000072	-.001578	.0015926	-.020572	-.001432
Stddev	.023293	.000355	.000157	.000182	.0014295	.015223	.001246
%RSD	13.01973	2.728384	219.4554	11.51545	89.76425	73.99739	87.01613
#1	-.205678	-.013304	-.000241	-.001719	.0019344	-.015062	-.000030
#2	-.163278	-.013123	.000070	-.001642	.0000231	-.037783	-.001852
#3	-.167763	-.012619	-.000044	-.001373	.0028201	-.008872	-.002415

Sample Name: CCB03 Acquired: 11/4/2025 15:10:04 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0097969	-.004590	.0002872
Stddev	.0008160	.001264	.0001906
%RSD	8.328940	27.53031	66.37034
#1	.0107114	-.003397	.0004946
#2	.0095362	-.004460	.0002472
#3	.0091431	-.005914	.0001198

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6011.588	94099.70	7174.561	4607.544	7518.966
Stddev	11.389	249.42	66.611	29.489	13.613
%RSD	.1894429	.2650595	.9284339	.6400172	.1810529
#1	6008.713	94345.01	7230.684	4641.594	7518.541
#2	6001.913	94107.71	7100.951	4590.379	7505.570
#3	6024.139	93846.37	7192.050	4590.658	7532.787

Sample Name: Q3520-01LX5 Acquired: 11/4/2025 15:46:06 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0070023	-.009844	.0328222	-.002792	-.003163	19.10031	.0930241
Stddev	.0013774	.001937	.0004653	.003373	.000584	.07320	.0006233
%RSD	19.67044	19.67940	1.417551	120.7972	18.46988	.3832646	.6700342
#1	.0058853	-.007792	.0326053	-.004008	-.003299	19.16782	.0935319
#2	.0065804	-.010100	.0333563	-.005389	-.002522	19.11059	.0923285
#3	.0085414	-.011641	.0325049	.001020	-.003667	19.02250	.0932118
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0023971	.0002057	9.692616	.0310229	.0221851	.0542646	56.40394
Stddev	.0000818	.0000781	.013238	.0001029	.0000282	.0003794	.20169
%RSD	3.411523	37.97008	.1365739	.3316500	.1270154	.6991620	.3575834
#1	.0023330	.0001155	9.704834	.0311285	.0221555	.0540553	56.59476
#2	.0024892	.0002498	9.678552	.0309230	.0221882	.0540359	56.42417
#3	.0023691	.0002517	9.694460	.0310171	.0222116	.0547025	56.19290
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5710703	7.267415	.0313368	.0005960	.7786072	.0743573	.0763738
Stddev	.0018503	.022274	.0002432	.0004129	.0113350	.0017409	.0003483
%RSD	.3240107	.3064912	.7761071	69.27321	1.455798	2.341276	.4560830
#1	.5731975	7.292376	.0311154	.0002790	.7739340	.0761517	.0763428
#2	.5698335	7.249565	.0315971	.0004462	.7915316	.0726754	.0760419
#3	.5701799	7.260302	.0312980	.0010630	.7703559	.0742447	.0767365
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.910577	.0143605	.0014285	-.012281	1.001557	3.736884	1.868448
Stddev	.028238	.0009116	.0002249	.000328	.012756	.107230	.003063
%RSD	.9701897	6.348279	15.74256	2.670336	1.273665	2.869493	.1639540
#1	2.900515	.0146917	.0011757	-.012296	1.003545	3.742545	1.870821
#2	2.942468	.0133295	.0016063	-.012601	1.013202	3.841171	1.864990
#3	2.888748	.0150603	.0015036	-.011945	.987923	3.626936	1.869534

Sample Name: Q3520-01LX5 Acquired: 11/4/2025 15:46:06 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.7272744	.0168253	-.028728
Stddev	.0079717	.0012003	.000084
%RSD	1.096108	7.133701	.2937077

#1	.7252176	.0155167	-.028761
#2	.7205326	.0178750	-.028792
#3	.7360729	.0170842	-.028633

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6894.068	106277.5	8152.008	5231.587	7417.122
Stddev	11.878	89.6	9.381	13.200	12.373
%RSD	.1722873	.0843334	.1150699	.2523126	.1668123

#1	6882.501	106329.3	8148.916	5239.164	7403.639
#2	6893.470	106174.0	8144.565	5239.252	7419.771
#3	6906.233	106329.2	8162.545	5216.345	7427.955

Sample Name: Q3520-01MS Acquired: 11/4/2025 15:50:14 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5459572	1.844098	1.133453	1.238629	.2458570	71.50347
Stddev	.0006781	.142542	.002286	.005492	.0011242	.12873
%RSD	.1242083	7.729660	.2017035	.4433780	.4572670	.1800315
#1	.5451752	2.008158	1.134860	1.244523	.2452376	71.35708
#2	.5463833	1.750600	1.130815	1.237709	.2451787	71.59902
#3	.5463132	1.773536	1.134683	1.233655	.2471547	71.55430
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4791088	.1365672	.2089772	35.76032	.3660502	.3306739
Stddev	.0006078	.0004017	.0008315	.04922	.0001937	.0004859
%RSD	.1268557	.2941623	.3978854	.1376359	.0529287	.1469347
#1	.4788730	.1366448	.2095075	35.70697	.3661347	.3301427
#2	.4786542	.1361323	.2080189	35.77002	.3661873	.3307831
#3	.4797991	.1369244	.2094052	35.80396	.3658285	.3310959
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3908847	226.8440	2.481793	29.58061	.6639091	.0533812
Stddev	.0017044	.4519	.011290	.08187	.0005008	.0000794
%RSD	.4360352	.1992188	.4549258	.2767540	.0754358	.1487479
#1	.3920982	226.6617	2.484405	29.58060	.6634251	.0534049
#2	.3889361	227.3586	2.469425	29.49875	.6638771	.0534461
#3	.3916197	226.5118	2.491548	29.66248	.6644252	.0532926
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.012359	.4619851	.4272362	18.82839	.3090246	.2659052
Stddev	.038673	.0003243	.0004918	.06861	.0030687	.0012646
%RSD	.6432266	.0702051	.1151116	.3643951	.9930294	.4755709
#1	6.008048	.4616626	.4267157	18.80921	.3094355	.2673202
#2	6.053006	.4623112	.4272996	18.90455	.3118671	.2648856
#3	5.976021	.4619814	.4276931	18.77142	.3057711	.2655098

Sample Name: Q3520-01MS Acquired: 11/4/2025 15:50:14 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7120364	3.613056	5.207935	F 14.97444	5.888943	.2218460
Stddev	.0043086	.008154	.086968	.05348	.067491	.0007887
%RSD	.6051082	.2256804	1.669909	.3571195	1.146065	.3555142
#1	.7165816	3.620026	5.249448	15.03465	5.964009	.2215472
#2	.7080117	3.604089	5.266367	14.93246	5.833275	.2212505
#3	.7115160	3.615052	5.107990	14.95622	5.869546	.2227405

Elem	Sr4077
Units	ppm
Avg	.0001749
Stddev	.0007436
%RSD	425.1351
#1	.0008218
#2	-.000638
#3	.000340

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	9253.559	143415.1	11674.87	6943.793	6662.616
Stddev	10.873	478.7	69.49	20.488	13.415
%RSD	.1174965	.3337833	.5951960	.2950576	.2013500
#1	9264.122	142894.9	11615.70	6920.343	6670.589
#2	9254.153	143513.1	11751.39	6958.229	6670.131
#3	9242.401	143837.1	11657.52	6952.807	6647.127

Sample Name: Q3520-01MSD Acquired: 11/4/2025 15:54:10 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5262858	1.706560	1.099919	1.183676	.2457212	67.18080
Stddev	.0008113	.079507	.001676	.004870	.0015349	.01421
%RSD	.1541539	4.658897	.1524023	.4114513	.6246464	.0211542
#1	.5264700	1.684888	1.101579	1.188882	.2442828	67.19574
#2	.5269891	1.794656	1.099950	1.182916	.2473371	67.17921
#3	.5253982	1.640137	1.098227	1.179231	.2455437	67.16746
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4244061	.1322892	.2053841	33.70717	.3495960	.3229779
Stddev	.0015742	.0004170	.0002974	.00827	.0011240	.0003898
%RSD	.3709108	.3151964	.1448264	.0245456	.3215011	.1206962
#1	.4255903	.1327442	.2050429	33.71012	.3496161	.3226754
#2	.4250083	.1319254	.2055204	33.71357	.3507098	.3228406
#3	.4226198	.1321981	.2055889	33.69783	.3484622	.3234178
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3885725	211.5558	2.183013	27.37659	.6560156	.0498204
Stddev	.0002811	1.0295	.004373	.05243	.0021560	.0006000
%RSD	.0723341	.4866405	.2003181	.1915313	.3286467	1.204370
#1	.3886019	210.8392	2.180334	27.31613	.6535273	.0497703
#2	.3882779	212.7355	2.188059	27.40396	.6573264	.0504439
#3	.3888377	211.0926	2.180646	27.40968	.6571930	.0492470
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.555968	.4393827	.4046241	17.84612	.2911839	.2578063
Stddev	.045442	.0008900	.0009979	.06809	.0020566	.0000342
%RSD	.8178986	.2025537	.2466268	.3815469	.7062919	.0132557
#1	5.543476	.4391438	.4044942	17.80514	.2888682	.2577729
#2	5.606350	.4386365	.4056805	17.92472	.2918858	.2578412
#3	5.518079	.4403677	.4036974	17.80850	.2927976	.2578048

Sample Name: Q3520-01MSD Acquired: 11/4/2025 15:54:10 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7003632	3.355929	6.485737	F 15.31849	5.860309	.2126291
Stddev	.0005894	.027550	.057057	.01088	.048655	.0011032
%RSD	.0841597	.8209356	.8797328	.0710306	.8302459	.5188131
#1	.6998397	3.345172	6.511223	15.31177	5.869661	.2115205
#2	.7010016	3.387234	6.525609	15.33105	5.903610	.2137267
#3	.7002482	3.335379	6.420378	15.31265	5.807657	.2126400

Elem	Sr4077
Units	ppm
Avg	.0057384
Stddev	.0005990
%RSD	10.43900
#1	.0063668
#2	.0051738
#3	.0056747

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	9452.910	147639.3	11914.73	7115.380	6700.180
Stddev	16.705	602.7	38.54	19.442	16.260
%RSD	.1767166	.4082453	.3234439	.2732350	.2426746
#1	9470.296	147784.6	11891.64	7120.358	6718.920
#2	9451.451	146977.1	11893.34	7093.933	6691.796
#3	9436.982	148156.0	11959.22	7131.848	6689.824

Sample Name: Q3520-01A Acquired: 11/4/2025 15:58:06 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5226732	1.758999	1.062292	1.203370	.4747145	62.52444
Stddev	.0015714	.039773	.003596	.000915	.0015088	.10960
%RSD	.3006371	2.261126	.3385200	.0760275	.3178427	.1752876

#1	.5226241	1.803752	1.066381	1.204403	.4750529	62.62250
#2	.5211269	1.727690	1.060877	1.203043	.4760255	62.40613
#3	.5242685	1.745555	1.059619	1.202663	.4730652	62.54469

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4093478	.1341159	.1969028	31.81658	.3496845	.3023088
Stddev	.0016323	.0008252	.0003435	.10494	.0012353	.0004661
%RSD	.3987464	.6153141	.1744721	.3298142	.3532723	.1541808

#1	.4110890	.1341540	.1972993	31.93227	.3482719	.3026760
#2	.4078523	.1332722	.1966925	31.72755	.3502192	.3024660
#3	.4091021	.1349214	.1967168	31.78991	.3505625	.3017844

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3620579	186.7085	1.960616	24.84743	.6270743	.0493390
Stddev	.0006772	.8378	.005084	.08849	.0008759	.0001287
%RSD	.1870503	.4487324	.2593103	.3561494	.1396782	.2608466

#1	.3615915	186.9165	1.965809	24.82014	.6269844	.0494039
#2	.3617475	187.4228	1.960388	24.77580	.6279917	.0494223
#3	.3628347	185.7863	1.955649	24.94636	.6262469	.0491908

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.252978	.4241273	.3775624	16.10000	.2789031	.2585204
Stddev	.054121	.0022745	.0011941	.11574	.0018781	.0003613
%RSD	1.030294	.5362778	.3162774	.7188912	.6733712	.1397588

#1	5.263755	.4267006	.3775828	16.10476	.2793032	.2583846
#2	5.300899	.4232959	.3763582	16.21330	.2805489	.2582466
#3	5.194279	.4223855	.3787463	15.98196	.2768572	.2589299

Sample Name: Q3520-01A Acquired: 11/4/2025 15:58:06 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7455767	3.243600	4.017110	F 14.51178	3.549433	.2088242
Stddev	.0011697	.010571	.052033	.03745	.004756	.0014553
%RSD	.1568907	.3258943	1.295279	.2580884	.1339844	.6968953

#1	.7455996	3.254567	4.039199	14.52911	3.553496	.2103502
#2	.7467349	3.242755	4.054454	14.46880	3.544202	.2086707
#3	.7443958	3.233477	3.957677	14.53744	3.550602	.2074517

Elem	Sr4077
Units	ppm
Avg	.0215407
Stddev	.0008882
%RSD	4.123509

#1	.0221469
#2	.0205211
#3	.0219540

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	9430.854	147115.3	11539.42	7171.839	6903.823
Stddev	5.283	264.3	71.13	45.291	4.799
%RSD	.0560199	.1796320	.6164203	.6315071	.0695091

#1	9433.587	147419.7	11547.41	7221.351	6900.803
#2	9434.211	146980.8	11606.22	7161.667	6901.310
#3	9424.764	146945.3	11464.63	7132.500	6909.357

Sample Name: PB170382BL Acquired: 11/4/2025 16:02:02 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000326	-.001043	.0007760	-.001089	-.001059	.0129557
Stddev	.001068	.001079	.0006754	.002267	.002290	.0088761
%RSD	327.6749	103.4988	87.04270	208.1146	216.1351	68.51092

#1	-.001528	.000074	.0002383	-.000626	.000623	.0060108
#2	.000513	-.002081	.0015340	.000910	-.000135	.0229558
#3	.000038	-.001122	.0005556	-.003552	-.003667	.0099005

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001194	.0000238	-.000001	.0153189	.0001716	.0000691
Stddev	.001107	.0000452	.000045	.0039249	.0001354	.0001780
%RSD	92.71339	189.8130	4352.511	25.62136	78.92124	257.5732

#1	-.001207	.0000391	.000051	.0147651	.0000224	.0001073
#2	-.000081	-.000027	-.000023	.0194912	.0002867	.0002249
#3	-.002295	.000059	-.000031	.0117003	.0002057	-.000125

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004971	.0199751	.0002466	-.010909	.0000866	.0001110
Stddev	.0003790	.0029679	.0005148	.027294	.0001714	.0002242
%RSD	76.24454	14.85789	208.7687	250.2001	197.9714	201.9686

#1	.0000762	.0211694	-.000049	.018730	.0002709	.0000111
#2	.0006037	.0221597	.000841	-.035009	.0000569	-.000046
#3	.0008114	.0165961	-.000052	-.016448	-.000068	.000368

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.267369	.0036507	-.000242	-.214322	-.021452	-.000584
Stddev	.003411	.0010784	.000262	.036865	.000711	.000119
%RSD	1.275580	29.53896	108.2268	17.20101	3.316698	20.37540

#1	-.270761	.0024090	-.000089	-.219349	-.021912	-.000669
#2	-.267407	.0043524	-.000093	-.248415	-.020632	-.000448
#3	-.263940	.0041907	-.000544	-.175200	-.021810	-.000636

Sample Name: PB170382BL Acquired: 11/4/2025 16:02:02 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002943	.0019604	-.018043	-.000358	F .0119665	-.002105
Stddev	.0003944	.0013107	.007577	.000850	.0017439	.001282
%RSD	134.0195	66.85710	41.99259	237.6355	14.57289	60.88533
#1	.0006277	.0022722	-.015334	.000125	.0100941	-.000650
#2	.0003961	.0030870	-.012193	-.001340	.0135443	-.002598
#3	-.000141	.0005219	-.026602	.000141	.0122610	-.003068

Elem	Sr4077
Units	ppm
Avg	.0000167
Stddev	.0001028
%RSD	615.9451
#1	.0000491
#2	-.000098
#3	.000099

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6064.851	93795.66	7246.659	4589.789	7528.356
Stddev	6.141	122.14	16.518	7.596	10.995
%RSD	.1012538	.1302172	.2279369	.1655044	.1460499
#1	6058.043	93803.62	7231.765	4589.441	7522.956
#2	6066.538	93913.63	7243.788	4582.373	7521.106
#3	6069.973	93669.74	7264.424	4597.554	7541.007

Sample Name: PB170382BS Acquired: 11/4/2025 16:06:20 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7793995	1.949282	.9455218	1.945092	.7978826	1.949772
Stddev	.0037814	.087513	.0019658	.009926	.0010490	.004792
%RSD	.4851619	4.489509	.2079033	.5103011	.1314755	.2457679

#1	.7750341	1.880146	.9441808	1.937944	.7968189	1.954091
#2	.7816641	1.920023	.9446062	1.940906	.7989163	1.950608
#3	.7815001	2.047675	.9477783	1.956425	.7979126	1.944617

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1914424	.2059492	.1908912	1.014193	.4064294	.1947652
Stddev	.0002665	.0010606	.0004427	.014830	.0009159	.0002932
%RSD	.1392157	.5149905	.2318886	1.462208	.2253556	.1505194

#1	.1913588	.2065831	.1908105	1.023531	.4074657	.1948122
#2	.1917407	.2065397	.1904945	1.021955	.4057283	.1944514
#3	.1912277	.2047247	.1913687	.997094	.4060943	.1950321

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3105986	2.936351	.2008512	1.984822	.4910473	.0757208
Stddev	.0007206	.016279	.0010977	.036324	.0004435	.0004606
%RSD	.2320074	.5543988	.5465292	1.830097	.0903082	.6083348

#1	.3097993	2.921918	.1999034	1.973270	.4909529	.0757422
#2	.3107980	2.933137	.2005962	1.955678	.4906587	.0761704
#3	.3111985	2.953997	.2020540	2.025517	.4915304	.0752498

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 2.536361	.2987091	.2048317	9.163700	.2833159	.4108954
Stddev	.013427	.0047164	.0011216	.073076	.0015093	.0010421
%RSD	.5293965	1.578934	.5475718	.7974555	.5327424	.2536208

#1	2.551857	.2941221	.2058645	9.160152	.2843843	.4104001
#2	2.528180	.2984601	.2049921	9.092462	.2839742	.4101934
#3	2.529044	.3035451	.2036386	9.238486	.2815892	.4120928

Sample Name: PB170382BS Acquired: 11/4/2025 16:06:20 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6882761	.1956176	.8686170	5.645425	F .0088384	.1949132
Stddev	.0036424	.0014061	.0116335	.019123	.0017804	.0013313
%RSD	.5292115	.7187724	1.339316	.3387387	20.14387	.6830295

#1	.6864717	.1950918	.8610262	5.624461	.0069402	.1933765
#2	.6858881	.1972108	.8628143	5.649899	.0104712	.1957166
#3	.6924685	.1945503	.8820105	5.661914	.0091037	.1956466

Elem	Sr4077
Units	ppm
Avg	.1889905
Stddev	.0003701
%RSD	.1958410

#1	.1891713
#2	.1885647
#3	.1892354

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6024.692	93628.34	7103.599	4609.303	7283.637
Stddev	12.758	298.98	40.159	23.184	16.410
%RSD	.2117644	.3193260	.5653343	.5029916	.2252971

#1	6019.401	93284.32	7064.095	4582.986	7272.822
#2	6039.244	93825.42	7102.321	4618.209	7302.519
#3	6015.430	93775.28	7144.383	4626.714	7275.570

Sample Name: CCV04 Acquired: 11/4/2025 16:10:22 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.046445	5.092961	4.972292	5.019519	4.988756	9.912768	9.822620
Stddev	.004981	.102451	.008466	.005703	.006521	.020230	.021298
%RSD	.0986962	2.011612	.1702663	.1136174	.1307099	.2040779	.2168273
#1	5.050826	5.205394	4.962746	5.022415	4.982053	9.930277	9.798228
#2	5.041028	5.068607	4.978891	5.012949	4.989137	9.890623	9.832097
#3	5.047482	5.004881	4.975240	5.023193	4.995078	9.917405	9.837534
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2539502	2.519889	24.87023	1.024297	2.504273	1.269437	4.997284
Stddev	.0012070	.002059	.02743	.004856	.003848	.002947	.037499
%RSD	.4752752	.0817259	.1102899	.4740708	.1536692	.2321861	.7503802
#1	.2525608	2.518069	24.83865	1.023450	2.499833	1.266217	5.006508
#2	.2545503	2.522124	24.88391	1.019920	2.506335	1.272002	4.956034
#3	.2547395	2.519474	24.88812	1.029520	2.506651	1.270092	5.029310
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.482691	24.99543	2.512563	1.259570	24.14328	2.494430	2.538206
Stddev	.005814	.05383	.002716	.001348	.16545	.004961	.006586
%RSD	.2341679	.2153423	.1081091	.1070023	.6852747	.1988976	.2594694
#1	2.475983	24.95795	2.509433	1.258170	24.18255	2.491025	2.532891
#2	2.486284	24.97123	2.514303	1.259683	23.96173	2.492142	2.545574
#3	2.485804	25.05711	2.513952	1.260858	24.28556	2.500122	2.536154
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.32713	5.005144	5.098302	5.053548	4.958271	4.972561	5.035451
Stddev	.10222	.036061	.004395	.008158	.015700	.010698	.010108
%RSD	.4201905	.7204846	.0861956	.1614398	.3166434	.2151386	.2007439
#1	24.38194	4.969328	5.099172	5.061329	4.945032	4.978440	5.046852
#2	24.20920	5.041445	5.102197	5.054256	4.954165	4.960213	5.031916
#3	24.39026	5.004659	5.093538	5.045058	4.975616	4.979030	5.027584

Sample Name: CCV04 Acquired: 11/4/2025 16:10:22 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.934251	4.756926	4.871224
Stddev	.016684	.014302	.056546
%RSD	.3381226	.3006598	1.160823
#1	4.953311	4.743602	4.819070
#2	4.922298	4.755137	4.863280
#3	4.927143	4.772038	4.931322

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5915.177	91169.70	7123.581	4472.222	6761.214
Stddev	12.436	295.44	31.030	14.038	8.302
%RSD	.2102400	.3240571	.4355999	.3138851	.1227872
#1	5921.020	91217.57	7158.865	4473.033	6765.047
#2	5900.896	91438.28	7111.335	4485.836	6751.688
#3	5923.617	90853.24	7100.542	4457.796	6766.907

Sample Name: CCB04 Acquired: 11/4/2025 16:14:32 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002201	.0017227	.0012883	-.003572	.0004571	-.010224	.0002962
Stddev	.0020260	.0009485	.0001070	.001265	.0022283	.003369	.0003161
%RSD	920.6800	55.05956	8.303643	35.42553	487.4947	32.95228	106.7271

#1	-.002118	.0028147	.0013724	-.004609	-.000531	-.006821	-.000001
#2	.001318	.0011035	.0013246	-.002162	.003009	-.013558	.000262
#3	.001460	.0012499	.0011679	-.003945	-.001106	-.010292	.000628

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000639	-.000030	.0174352	.0000644	-.000016	.0002613	.0192417
Stddev	.0000845	.000060	.0209175	.0001586	.000101	.0001040	.0061912
%RSD	132.2423	199.1597	119.9722	246.2829	624.1840	39.78496	32.17595

#1	-.000026	-.000098	-.002602	.0002259	.000098	.0001425	.0220584
#2	.000076	.000010	.039134	.0000583	-.000096	.0003356	.0235238
#3	.000142	-.000002	.015774	-.000091	-.000051	.0003060	.0121430

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000657	-.028442	.0002274	-.000172	-.254401	.0038943	.0001106
Stddev	.000942	.017953	.0002170	.000094	.028494	.0018586	.0002410
%RSD	143.3920	63.12092	95.41541	54.66609	11.20054	47.72589	217.8854

#1	-.000053	-.012033	.0003306	-.000067	-.287298	.0059852	-.000074
#2	-.000175	-.047619	-.000022	-.000249	-.238471	.0032675	.000383
#3	-.001743	-.025676	.000374	-.000200	-.237435	.0024301	.000022

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.135137	-.013932	-.000161	-.009533	.0028498	-.006961	-.000291
Stddev	.040637	.000877	.000155	.000263	.0023232	.006106	.000617
%RSD	30.07065	6.295247	96.31629	2.755189	81.51991	87.71787	211.9616

#1	-.180756	-.012920	-.000014	-.009610	.0055251	-.003109	-.000447
#2	-.102813	-.014414	-.000146	-.009749	.0016844	-.003773	-.000815
#3	-.121842	-.014463	-.000323	-.009241	.0013401	-.014002	.000389

Sample Name: CCB04 Acquired: 11/4/2025 16:14:32 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0097653	.0002053	.0003127
Stddev	.0014473	.0014628	.0000741
%RSD	14.82109	712.3692	23.70003

#1	.0096931	-.001348	.0003374
#2	.0083554	.000408	.0002294
#3	.0112473	.001556	.0003713

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6161.495	96037.02	7343.763	4609.998	7734.028
Stddev	14.541	168.17	23.703	20.986	11.201
%RSD	.2359934	.1751125	.3227679	.4552222	.1448300

#1	6154.970	96103.68	7324.064	4625.685	7726.008
#2	6151.359	96161.64	7370.069	4618.150	7729.251
#3	6178.155	95845.73	7337.156	4586.159	7746.826

Sample Name: Q3527-01 Acquired: 11/4/2025 16:18:51 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002518	-.003344	.0070643	-.000003	.0010254	.0667189	.0028926
Stddev	.000871	.001412	.0007159	.002062	.0011584	.0112582	.0013482
%RSD	34.60047	42.23878	10.13367	69853.16	112.9668	16.87403	46.60705

#1	-.003243	-.003055	.0072618	-.001405	.0005071	.0582384	.0032005
#2	-.001552	-.004878	.0076607	.002364	.0002167	.0624264	.0014171
#3	-.002758	-.002098	.0062704	-.000969	.0023525	.0794919	.0040602

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000054	-.000081	4.573831	.0051250	.0076958	.1118181	1.335068
Stddev	.000064	.000035	.006634	.0002453	.0001922	.0002828	.012028
%RSD	118.8110	42.68148	.1450429	4.785982	2.497081	.2529005	.9009023

#1	.000019	-.000078	4.580509	.0053846	.0079164	.1115310	1.347991
#2	-.000099	-.000118	4.573743	.0048970	.0075645	.1118268	1.324200
#3	-.000082	-.000049	4.567241	.0050935	.0076066	.1120964	1.333014

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0176614	1.834980	.0144566	.0001368	13.95288	.0038266	.2121009
Stddev	.0003663	.014159	.0004614	.0005334	.07731	.0030105	.0004321
%RSD	2.074046	.7716210	3.191348	389.9330	.5541126	78.67323	.2037417

#1	.0176022	1.822169	.0139982	-.000441	14.04216	.0041263	.2120042
#2	.0173284	1.832589	.0144508	.000242	13.90817	.0006774	.2125732
#3	.0180538	1.850183	.0149208	.000610	13.90832	.0066759	.2117253

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7671123	-.009447	.0000633	-.035184	.0008005	6.224349	.0075014
Stddev	.0352435	.000499	.0001787	.000194	.0011217	.044227	.0003386
%RSD	4.594301	5.285346	282.5536	.5515878	140.1184	.7105430	4.513606

#1	.7469289	-.009342	.0001492	-.034977	.0018443	6.256249	.0071629
#2	.8078075	-.009009	-.000142	-.035362	.0009428	6.173862	.0075014
#3	.7466006	-.009991	.000183	-.035212	-.000385	6.242937	.0078401

Sample Name: Q3527-01 Acquired: 11/4/2025 16:18:51 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.891948	-.008790	.0230295
Stddev	.021463	.000310	.0000787
%RSD	.3642820	3.525720	.3417128
#1	5.907039	-.009041	.0231082
#2	5.901430	-.008886	.0230297
#3	5.867377	-.008444	.0229508

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6195.458	96856.54	7356.140	4689.184	7682.385
Stddev	14.368	290.46	13.367	10.947	11.426
%RSD	.2319095	.2998871	.1817156	.2334529	.1487326
#1	6182.576	96543.50	7362.114	4677.555	7676.552
#2	6210.953	96908.78	7340.827	4699.289	7695.550
#3	6192.844	97117.33	7365.479	4690.710	7675.053

Sample Name: Q3527-02 Acquired: 11/4/2025 16:23:03 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002881	-.002253	.0192891	-.001101	.0015258	.0594466	.0046670
Stddev	.002004	.002369	.0005990	.001690	.0008563	.0043840	.0002127
%RSD	69.58197	105.1604	3.105552	153.4847	56.12124	7.374711	4.557556
#1	-.002649	-.000906	.0186239	-.002542	.0021449	.0548258	.0048764
#2	-.004991	-.004988	.0197858	-.001521	.0018840	.0635475	.0046735
#3	-.001002	-.000864	.0194577	.000759	.0005486	.0599666	.0044511
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000086	-.000122	4.504360	.0024442	.0074092	.0614302	.0803709
Stddev	.000058	.000055	.010660	.0002430	.0001321	.0004252	.0024494
%RSD	67.59409	45.24977	.2366506	9.943196	1.782441	.6922324	3.047612
#1	-.000126	-.000180	4.516602	.0025130	.0074487	.0610463	.0812043
#2	-.000114	-.000069	4.499349	.0026454	.0075169	.0613570	.0822949
#3	-.000019	-.000119	4.497129	.0021742	.0072618	.0618873	.0776136
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0187340	1.801993	.0104575	.0001672	13.59966	.0039217	.0655753
Stddev	.0004958	.048148	.0001903	.0002650	.08303	.0012911	.0003708
%RSD	2.646641	2.671944	1.819438	158.4685	.6105493	32.92245	.5654481
#1	.0192819	1.786122	.0104668	-.000054	13.50389	.0032736	.0651698
#2	.0186042	1.763783	.0102628	.000095	13.65149	.0054084	.0658970
#3	.0183161	1.856073	.0106430	.000461	13.64360	.0030829	.0656592
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6628621	-.011801	.0000859	-.030279	.0014931	5.990812	.0157512
Stddev	.0406661	.001005	.0000556	.000128	.0008095	.059620	.0009775
%RSD	6.134931	8.516471	64.74400	.4218973	54.21447	.9951871	6.205723
#1	.6254914	-.010775	.0000688	-.030187	.0024272	5.930095	.0156051
#2	.6569241	-.011844	.0001481	-.030225	.0010547	5.993071	.0167935
#3	.7061708	-.012784	.0000409	-.030425	.0009974	6.049270	.0148550

Sample Name: Q3527-02 Acquired: 11/4/2025 16:23:03 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.794368	-.007018	.0239754
Stddev	.030516	.000695	.0001937
%RSD	.5266559	9.903448	.8079502
#1	5.759710	-.007326	.0241083
#2	5.817206	-.007505	.0240648
#3	5.806189	-.006222	.0237532

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6076.037	95522.60	7119.708	4617.262	7528.438
Stddev	6.966	235.85	59.520	20.828	1.627
%RSD	.1146514	.2469008	.8359902	.4510808	.0216128
#1	6068.142	95791.20	7052.710	4623.306	7527.737
#2	6081.320	95349.41	7139.938	4594.081	7530.298
#3	6078.648	95427.18	7166.476	4634.399	7527.279

Sample Name: Q3527-02DUP Acquired: 11/4/2025 16:27:16 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001020	-.003326	.0191140	-.001786	.0028741	.0633362	.0013261
Stddev	.002113	.001476	.0004556	.004057	.0015451	.0036241	.0019443
%RSD	207.1329	44.37518	2.383781	227.1499	53.75975	5.722039	146.6146
#1	-.003383	-.004248	.0186908	.002896	.0011035	.0675119	.0013587
#2	.000687	-.001624	.0195963	-.004002	.0039493	.0614872	.0032540
#3	-.000365	-.004107	.0190549	-.004251	.0035694	.0610096	-.000634
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000129	-.000044	4.456950	.0021824	.0073198	.0617322	.0882479
Stddev	.000065	.000101	.021513	.0001307	.0001529	.0002238	.0034952
%RSD	50.42773	226.3458	.4826891	5.989470	2.088401	.3625175	3.960629
#1	-.000082	.000057	4.437186	.0022399	.0072079	.0618774	.0914129
#2	-.000203	-.000144	4.453799	.0022746	.0072574	.0614744	.0888341
#3	-.000102	-.000047	4.479865	.0020328	.0074940	.0618446	.0844967
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0195112	1.808002	.0106158	.0006404	13.57284	.0017746	.0658431
Stddev	.0001970	.035258	.0001020	.0000920	.18290	.0026282	.0002979
%RSD	1.009853	1.950088	.9603556	14.36555	1.347551	148.0974	.4524802
#1	.0197191	1.829186	.0105313	.0007187	13.64245	.0023229	.0657438
#2	.0193273	1.827519	.0105871	.0006635	13.36536	-.001084	.0661779
#3	.0194871	1.767301	.0107291	.0005391	13.71072	.004085	.0656074
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6872956	-.012836	.0002666	-.031169	.0022594	6.042201	.0148007
Stddev	.0448978	.000556	.0001893	.000612	.0016026	.025165	.0016599
%RSD	6.532527	4.333529	71.00049	1.962053	70.93148	.4164877	11.21482
#1	.7325434	-.012265	.0002812	-.030630	.0024507	6.043208	.0139176
#2	.6427562	-.013377	.0000705	-.031043	.0005697	6.016548	.0167154
#3	.6865871	-.012866	.0004482	-.031834	.0037577	6.066848	.0137691

Sample Name: Q3527-02DUP Acquired: 11/4/2025 16:27:16 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.854184	-.010557	.0238799
Stddev	.025329	.000171	.0000944
%RSD	.4326593	1.619023	.3954035
#1	5.839689	-.010687	.0238538
#2	5.839433	-.010364	.0238012
#3	5.883431	-.010620	.0239846

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6094.790	95578.72	7277.512	4666.972	7502.716
Stddev	5.112	98.16	52.301	17.742	9.616
%RSD	.0838743	.1026959	.7186659	.3801690	.1281647
#1	6099.743	95535.75	7316.237	4673.444	7499.248
#2	6095.093	95509.39	7218.016	4680.570	7513.585
#3	6089.533	95691.04	7298.282	4646.902	7495.316

Sample Name: Q3527-02LX5 Acquired: 11/4/2025 16:31:28 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000616	.0003238	.0044506	-.003185	-.000236	.0005447	.0005876
Stddev	.001371	.0014071	.0002480	.002018	.001520	.0145785	.0015292
%RSD	222.4240	434.4740	5.573238	63.36491	644.1642	2676.355	260.2563
#1	-.000154	-.001228	.0047264	-.005042	-.000620	.0145473	.0016073
#2	.000464	.000683	.0043795	-.003476	-.001526	-.014548	.0013261
#3	-.002159	.001517	.0042459	-.001037	.001439	.001635	-.001171
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000384	-.000120	.9218651	.0007410	.0013766	.0128225	.0138367
Stddev	.0000722	.000003	.0071436	.0003409	.0001482	.0003809	.0055195
%RSD	188.2951	2.737435	.7749017	46.00918	10.76421	2.970157	39.89029
#1	.0001065	-.000123	.9190927	.0010336	.0015442	.0125514	.0092373
#2	-.000037	-.000120	.9299793	.0003666	.0012630	.0132579	.0123155
#3	.000046	-.000116	.9165234	.0008227	.0013225	.0126582	.0199573
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0035851	.3387999	.0019613	.0006291	2.521906	.0014757	.0130567
Stddev	.0005187	.0367359	.0001740	.0002379	.028061	.0002688	.0002143
%RSD	14.46778	10.84296	8.870010	37.82105	1.112692	18.21577	1.641483
#1	.0030134	.2990288	.0021416	.0007129	2.514542	.0016767	.0128102
#2	.0037163	.3714614	.0017945	.0008138	2.498261	.0015802	.0131600
#3	.0040256	.3459094	.0019479	.0003606	2.552915	.0011704	.0131997
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.007289	-.018917	-.000263	-.006043	.0022195	1.225141	.0030805
Stddev	.054610	.000552	.000222	.000064	.0019297	.008583	.0005236
%RSD	749.1667	2.920235	84.32477	1.066346	86.94296	.7005728	16.99722
#1	-.069152	-.019051	-.000519	-.006115	.0035319	1.234026	.0035363
#2	.013059	-.018310	-.000150	-.005991	.0000038	1.216896	.0025086
#3	.034225	-.019390	-.000121	-.006024	.0031227	1.224501	.0031967

Sample Name: Q3527-02LX5 Acquired: 11/4/2025 16:31:28 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.224158	-.004302	.0049334
Stddev	.000156	.001672	.0000588
%RSD	.0127411	38.85634	1.192408
#1	1.224255	-.005893	.0048659
#2	1.224241	-.004452	.0049737
#3	1.223978	-.002560	.0049606

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6086.076	94141.37	7166.513	4583.480	7535.386
Stddev	6.681	361.83	43.152	14.785	2.325
%RSD	.1097780	.3843523	.6021331	.3225659	.0308512
#1	6091.388	94347.23	7207.155	4586.760	7534.332
#2	6078.575	94353.30	7171.158	4596.349	7533.775
#3	6088.265	93723.57	7121.227	4567.331	7538.051

Sample Name: Q3527-02MS Acquired: 11/4/2025 16:35:47 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7512325	1.697824	.8944538	1.846791	.7567207	1.942090	.1840743
Stddev	.0024375	.026275	.0004867	.002574	.0016688	.007471	.0011263
%RSD	.3244624	1.547569	.0544103	.1393784	.2205342	.3846739	.6118888

#1	.7529850	1.701294	.8945844	1.846730	.7586475	1.940733	.1829027
#2	.7484490	1.722192	.8939151	1.844247	.7557343	1.935391	.1841712
#3	.7522636	1.669987	.8948618	1.849394	.7557803	1.950146	.1851491

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1886767	.1782964	5.289407	.4084848	.1923046	.3508885	2.920478
Stddev	.0015631	.0001961	.012783	.0013913	.0002077	.0006191	.010379
%RSD	.8284657	.1099991	.2416700	.3406075	.1080045	.1764280	.3554034

#1	.1881109	.1781425	5.279794	.4095998	.1920732	.3511605	2.932145
#2	.1874753	.1782295	5.284512	.4069256	.1923657	.3501800	2.917020
#3	.1904440	.1785172	5.303914	.4089290	.1924750	.3513251	2.912268

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2051917	3.649540	.4734293	.0593902	15.74632	.2860864	.2583578
Stddev	.0007837	.034723	.0010532	.0005459	.09064	.0011410	.0007451
%RSD	.3819185	.9514337	.2224564	.9192043	.5756141	.3988294	.2883872

#1	.2059952	3.620131	.4722369	.0588936	15.83893	.2858708	.2578181
#2	.2044295	3.687846	.4742326	.0599748	15.74225	.2873199	.2592079
#3	.2051505	3.640644	.4738183	.0593022	15.65779	.2850687	.2580474

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.617570	.2468096	.4173561	.6271198	.1861115	6.809144	5.124769
Stddev	.105193	.0030535	.0008471	.0003609	.0027892	.019699	.008795
%RSD	1.093758	1.237187	.2029784	.0575415	1.498651	.2892957	.1716231

#1	9.607124	.2444790	.4167343	.6270977	.1838931	6.821766	5.116048
#2	9.727596	.2456836	.4170130	.6267705	.1851986	6.819222	5.124621
#3	9.517989	.2502662	.4183209	.6274912	.1892427	6.786446	5.133637

Sample Name: Q3527-02MS Acquired: 11/4/2025 16:35:47 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.718368	.1727487	.1988588
Stddev	.003573	.0020539	.0001670
%RSD	.0624768	1.188959	.0839659
#1	5.714388	.1750715	.1988306
#2	5.719421	.1711726	.1987077
#3	5.721297	.1720021	.1990381

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6066.194	94098.39	7263.626	4561.003	7391.045
Stddev	12.832	191.95	37.871	23.356	14.814
%RSD	.2115402	.2039899	.5213819	.5120880	.2004291
#1	6074.261	93933.60	7273.257	4547.281	7401.037
#2	6072.924	94052.41	7295.752	4547.758	7398.072
#3	6051.396	94309.15	7221.869	4587.971	7374.025

Sample Name: Q3527-02MSD Acquired: 11/4/2025 16:39:45 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7771767	1.722528	.9258241	1.911116	.7876302	2.013976	.1936507
Stddev	.0019418	.017910	.0012347	.008169	.0038691	.014844	.0024916
%RSD	.2498538	1.039763	.1333626	.4274428	.4912385	.7370577	1.286651
#1	.7752197	1.734661	.9261145	1.901684	.7841833	2.000191	.1911180
#2	.7791030	1.730967	.9268877	1.915836	.7868921	2.029691	.1960991
#3	.7772073	1.701958	.9244700	1.915829	.7918153	2.012046	.1937350
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1954196	.1835410	5.644134	.4166378	.1988867	.3641047	3.007643
Stddev	.0011256	.0003052	.018026	.0003773	.0002793	.0007286	.014175
%RSD	.5759997	.1663080	.3193738	.0905665	.1404539	.2001166	.4712838
#1	.1946910	.1832235	5.623329	.4170045	.1985650	.3632861	2.999924
#2	.1948518	.1838323	5.653978	.4162506	.1990272	.3643458	3.024001
#3	.1967160	.1835672	5.655093	.4166582	.1990679	.3646822	2.999003
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2167308	3.820650	.4890560	.0687273	16.97808	.2993666	.2655070
Stddev	.0021698	.006991	.0012634	.0003290	.11601	.0022137	.0004932
%RSD	1.001152	.1829721	.2583299	.4787137	.6832719	.7394474	.1857592
#1	.2142960	3.827729	.4876051	.0684774	16.90299	.2968272	.2656764
#2	.2184597	3.820469	.4896499	.0686044	17.11169	.3003836	.2658931
#3	.2174369	3.813751	.4899131	.0691000	16.91955	.3008890	.2649514
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.06425	.2575717	.4326078	.6464347	.1959388	7.181064	5.308167
Stddev	.03312	.0020047	.0012488	.0021442	.0007509	.033963	.034001
%RSD	.3291228	.7783113	.2886633	.3316901	.3832338	.4729590	.6405327
#1	10.02709	.2573599	.4316506	.6446728	.1956259	7.163112	5.272490
#2	10.07501	.2556813	.4321525	.6488220	.1953949	7.220237	5.340197
#3	10.09066	.2596739	.4340204	.6458093	.1967955	7.159845	5.311814

Sample Name: Q3527-02MSD Acquired: 11/4/2025 16:39:45 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	6.017822	.1855365	.2102895
Stddev	.030202	.0027188	.0004393
%RSD	.5018784	1.465389	.2089155
#1	6.002652	.1824106	.2099210
#2	6.052602	.1868467	.2107757
#3	5.998212	.1873520	.2101719

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6044.984	94764.24	7222.679	4606.656	7392.073
Stddev	8.290	320.94	34.184	4.014	4.255
%RSD	.1371464	.3386701	.4732866	.0871325	.0575647
#1	6049.626	94396.20	7206.706	4603.123	7396.266
#2	6049.913	94985.85	7261.926	4611.020	7387.758
#3	6035.412	94910.65	7199.405	4605.825	7392.195

Sample Name: Q3527-02A Acquired: 11/4/2025 16:43:43 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7959654	1.955632	.9504418	1.968336	.8110036	2.061321	.1991159
Stddev	.0030636	.068753	.0005592	.002907	.0024158	.017284	.0009188
%RSD	.3848934	3.515631	.0588370	.1476677	.2978766	.8385024	.4614394

#1	.7980869	1.959719	.9504020	1.970594	.8136965	2.042582	.1981930
#2	.7973561	1.884927	.9510199	1.965056	.8102877	2.076639	.2000305
#3	.7924530	2.022251	.9499036	1.969357	.8090267	2.064744	.1991243

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2011493	.1886476	5.437997	.4200183	.2037827	.3682798	3.078738
Stddev	.0012972	.0002568	.009050	.0026763	.0000450	.0003619	.034872
%RSD	.6449033	.1361188	.1664239	.6371896	.0220776	.0982754	1.132688

#1	.2018877	.1887187	5.438036	.4197476	.2037836	.3683107	3.061046
#2	.2019087	.1883628	5.447028	.4174876	.2038273	.3679035	3.056257
#3	.1996514	.1888613	5.428928	.4228197	.2037373	.3686253	3.118910

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2237367	3.815733	.5000879	.0364821	16.37562	.3088479	.2717354
Stddev	.0004135	.045083	.0002886	.0020197	.17495	.0033082	.0011358
%RSD	.1848297	1.181506	.0577044	5.536032	1.068382	1.071154	.4179798

#1	.2242142	3.788521	.5004089	.0387629	16.23283	.3105221	.2709682
#2	.2234972	3.867773	.4998499	.0357628	16.32326	.3109844	.2711979
#3	.2234986	3.790906	.5000049	.0349205	16.57078	.3050372	.2730402

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.23294	.2686224	.4448413	.6704870	.2009689	6.842111	5.542626
Stddev	.11657	.0020057	.0002571	.0008245	.0011434	.041217	.016494
%RSD	1.139192	.7466556	.0577882	.1229646	.5689473	.6023975	.2975779

#1	10.10898	.2691090	.4446479	.6707152	.2002044	6.822658	5.548783
#2	10.24948	.2703400	.4447429	.6695725	.2004188	6.814220	5.523940
#3	10.34036	.2664182	.4451330	.6711733	.2022834	6.889454	5.555156

Sample Name: Q3527-02A Acquired: 11/4/2025 16:43:43 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.844257	.1909031	.2148268
Stddev	.033600	.0016704	.0006497
%RSD	.5749151	.8750041	.3024367
#1	5.841556	.1922727	.2143187
#2	5.812089	.1913945	.2155589
#3	5.879125	.1890421	.2146029

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6043.994	94738.80	7161.927	4613.735	7364.297
Stddev	11.730	695.54	18.762	32.350	13.036
%RSD	.1940846	.7341623	.2619667	.7011624	.1770208
#1	6035.045	95016.40	7158.829	4625.449	7353.291
#2	6039.662	95252.67	7144.907	4638.596	7360.907
#3	6057.274	93947.33	7182.045	4577.160	7378.694

Sample Name: Q3495-02 Acquired: 11/4/2025 16:47:43 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0329963	-.005515	.0977790	.0022435	-.004894	47.83679	.1408147
Stddev	.0014689	.001894	.0010213	.0003092	.001075	.15460	.0017111
%RSD	4.451671	34.34721	1.044527	13.78195	21.96785	.3231894	1.215141

#1	.0334452	-.005929	.0966026	.0022280	-.005534	47.67955	.1389946
#2	.0341884	-.007167	.0984391	.0025602	-.003653	47.98861	.1423906
#3	.0313554	-.003448	.0982953	.0019424	-.005495	47.84220	.1410590

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0041815	.0035952	6.731987	.2144440	.0158955	.0376751	85.81952
Stddev	.0000382	.0001036	.037125	.0011228	.0000771	.0010067	.84603
%RSD	.9138734	2.880164	.5514726	.5235979	.4850791	2.672030	.9858288

#1	.0042104	.0036582	6.711151	.2137764	.0159379	.0388294	84.84374
#2	.0041382	.0034757	6.774850	.2138152	.0158065	.0369793	86.34821
#3	.0041959	.0036517	6.709961	.2157403	.0159421	.0372166	86.26660

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3853139	11.88140	.0577582	.0034620	.6316152	.2016162	.1886416
Stddev	.0014525	.05928	.0003869	.0001001	.0252324	.0019198	.0008864
%RSD	.3769700	.4989726	.6698079	2.890962	3.994892	.9522258	.4698585

#1	.3844710	11.86139	.0579648	.0033800	.6069672	.2036536	.1888613
#2	.3869911	11.94811	.0579979	.0034324	.6573938	.2013542	.1893974
#3	.3844795	11.83472	.0573119	.0035735	.6304847	.1998408	.1876661

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.877856	.0807661	.0171904	.0626458	2.994056	2.928861	1.755001
Stddev	.096410	.0021707	.0003227	.0011576	.020351	.031422	.002349
%RSD	1.085965	2.687569	1.877028	1.847887	.6797227	1.072847	.1338217

#1	8.770353	.0786974	.0169820	.0619583	2.971070	2.893104	1.757652
#2	8.906559	.0805750	.0170270	.0619967	3.009780	2.952074	1.753180
#3	8.956655	.0830260	.0175620	.0639823	3.001319	2.941405	1.754170

Sample Name: Q3495-02 Acquired: 11/4/2025 16:47:43 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	9.268078	.0624958	.0176477
Stddev	.023019	.0024847	.0003157
%RSD	.2483673	3.975721	1.788717

#1	9.251193	.0631863	.0179019
#2	9.258743	.0645623	.0177468
#3	9.294298	.0597390	.0172943

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6492.086	99747.81	7845.115	4921.730	7270.894
Stddev	2.387	353.27	28.748	14.486	5.571
%RSD	.0367739	.3541655	.3664432	.2943273	.0766238

#1	6489.463	100097.1	7825.365	4912.373	7264.632
#2	6494.133	99390.7	7831.884	4938.416	7275.301
#3	6492.662	99755.7	7878.096	4914.401	7272.749

Sample Name: Q3512-01 Acquired: 11/4/2025 16:51:46 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1501932	.0078674	.5068992	-.020829	.0138658	107.9702
Stddev	.0024278	.0075657	.0036937	.004191	.0020745	.9700
%RSD	1.616424	96.16582	.7286906	20.11863	14.96155	.8983511

#1	.1502811	.0011006	.5093537	-.018076	.0115005	106.8503
#2	.1525758	.0160360	.5086927	-.025652	.0147204	108.5122
#3	.1477226	.0064655	.5026512	-.018759	.0153765	108.5480

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.084420	.0136749	.0086645	F 3053.659	.7335809	.0676281
Stddev	.012412	.0000517	.0001991	22.887	.0025618	.0004884
%RSD	1.144549	.3777977	2.298340	.7494888	.3492213	.7221632

#1	1.073696	.0136238	.0088171	3078.052	.7339101	.0679072
#2	1.098016	.0137271	.0084392	3050.269	.7359622	.0679128
#3	1.081547	.0136736	.0087372	3032.656	.7308704	.0670641

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4109698	171.0110	3.714854	1397.406	.4146442	-.002113
Stddev	.0023703	2.3295	.035940	11.491	.0002003	.000758
%RSD	.5767537	1.362220	.9674772	.8222938	.0483123	35.88043

#1	.4121905	169.4769	3.680886	1384.171	.4148207	-.002243
#2	.4082380	173.6916	3.752486	1403.212	.4146853	-.001299
#3	.4124810	169.8646	3.711191	1404.836	.4144265	-.002798

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.368758	.6384373	1.533976	3.978676	.4446669	.0558528
Stddev	.113301	.0046109	.001702	.085811	.0076825	.0007561
%RSD	2.593447	.7222165	.1109836	2.156775	1.727702	1.353677

#1	4.240139	.6342213	1.535853	3.885570	.4393984	.0566097
#2	4.453805	.6377292	1.533543	3.995870	.4534820	.0550976
#3	4.412331	.6433612	1.532532	4.054589	.4411201	.0558512

Sample Name: Q3512-01 Acquired: 11/4/2025 16:51:46 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0566153	5.679086	2.450829	2.782525	F 37.40340	-.370671
Stddev	.0017611	.051712	.021638	.014816	.15252	.006314
%RSD	3.110693	.9105728	.8828820	.5324743	.4077785	1.703444

#1	.0557691	5.621913	2.443535	2.789250	37.54041	-.377759
#2	.0586398	5.722591	2.475171	2.792786	37.43074	-.368604
#3	.0554369	5.692754	2.433780	2.765539	37.23906	-.365649

Elem	Sr4077
Units	ppm
Avg	2.050592
Stddev	.019320
%RSD	.9421863

#1	2.030929
#2	2.069551
#3	2.051296

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5167.180	81838.99	7604.355	3896.665	4743.894
Stddev	8.533	289.33	29.497	21.444	9.302
%RSD	.1651367	.3535399	.3878931	.5503195	.1960766

#1	5174.872	82027.85	7625.292	3910.351	4754.620
#2	5168.666	81505.89	7617.152	3871.951	4738.044
#3	5158.002	81983.24	7570.620	3907.692	4739.018

Sample Name: CCV05 Acquired: 11/4/2025 16:55:54 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.054513	4.816321	5.005991	5.018461	5.022531	10.10479	9.738863
Stddev	.012083	.096099	.005045	.015714	.007327	.01931	.083369
%RSD	.2390527	1.995288	.1007778	.3131318	.1458859	.1911085	.8560428

#1	5.068071	4.914488	5.010150	5.035240	5.030492	10.10284	9.827206
#2	5.050585	4.722432	5.007443	5.004088	5.016070	10.08652	9.661571
#3	5.044882	4.812043	5.000379	5.016054	5.021032	10.12500	9.727813

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2529430	2.521333	25.07369	1.029106	2.514716	1.269106	5.030102
Stddev	.0005484	.005424	.10000	.001815	.005140	.002232	.040438
%RSD	.2167936	.2151413	.3988121	.1763547	.2043898	.1758529	.8039173

#1	.2526158	2.527419	25.18804	1.027500	2.519232	1.271429	5.076733
#2	.2526371	2.519571	25.00264	1.031075	2.515793	1.268911	5.008883
#3	.2535761	2.517008	25.03040	1.028744	2.509123	1.266978	5.004690

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.470155	25.14773	2.523202	1.266121	23.83307	2.500287	2.554735
Stddev	.023498	.02745	.004375	.001489	.17222	.000653	.008212
%RSD	.9512915	.1091454	.1733712	.1176253	.7225884	.0261214	.3214551

#1	2.492448	25.17284	2.527994	1.264408	24.00793	2.500444	2.545443
#2	2.445613	25.11843	2.522189	1.266850	23.66363	2.499570	2.561018
#3	2.472403	25.15193	2.519423	1.267106	23.82766	2.500847	2.557744

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.26901	4.976564	5.103742	5.064796	4.950608	5.036915	5.102259
Stddev	.14190	.011296	.010501	.021772	.020100	.015914	.004859
%RSD	.5846894	.2269932	.2057418	.4298786	.4060170	.3159396	.0952336

#1	24.43281	4.981595	5.115802	5.089653	4.969473	5.021543	5.107057
#2	24.19039	4.963626	5.096624	5.055628	4.929466	5.053320	5.097341
#3	24.18381	4.984471	5.098801	5.049107	4.952885	5.035884	5.102377

Sample Name: CCV05 Acquired: 11/4/2025 16:55:54 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV05 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.907557	4.667168	4.833550
Stddev	.024151	.031279	.047320
%RSD	.4921094	.6701836	.9789921

#1	4.933894	4.699949	4.809552
#2	4.886451	4.637647	4.803036
#3	4.902324	4.663907	4.888061

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5886.562	90870.78	7165.861	4398.082	6721.568
Stddev	7.131	41.91	17.678	30.267	4.264
%RSD	.1211467	.0461165	.2466998	.6881967	.0634382

#1	5881.938	90834.90	7151.965	4431.664	6716.872
#2	5894.775	90916.84	7185.759	4372.906	6725.199
#3	5882.973	90860.61	7159.860	4389.676	6722.634

Sample Name: CCB05 Acquired: 11/4/2025 16:59:57 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001039	.0005744	.0010699	-.002567	.0005253	.0248049
Stddev	.000281	.0023949	.0008138	.002975	.0016338	.0074718
%RSD	27.10242	416.9525	76.06596	115.9137	311.0120	30.12227

#1	-.000753	-.001718	.0006040	.000841	.0023127	.0332709
#2	-.001047	.000381	.0020096	-.003897	-.000891	.0220115
#3	-.001316	.003060	.0005961	-.004645	.000154	.0191322

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0010124	.0000374	-.000057	.1005354	-.000006	-.000070
Stddev	.0003341	.0000654	.000050	.0088423	.000182	.000026
%RSD	33.00178	174.9410	87.44471	8.795221	2989.043	36.97635

#1	.0013501	-.000033	-.000058	.0996144	.000001	-.000048
#2	.0006821	.000096	-.000006	.1098022	-.000192	-.000063
#3	.0010049	.000049	-.000106	.0921896	.000173	-.000099

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003996	.0056288	-.000074	.0154141	.0002121	.0002962
Stddev	.0006737	.0030116	.000336	.0250951	.0001354	.0003456
%RSD	168.5849	53.50451	456.5578	162.8063	63.84526	116.6739

#1	.0011769	.0086877	-.000384	-.012758	.0000587	-.000099
#2	-.000017	.0026667	-.000121	.023624	.0002625	.000542
#3	.000039	.0055319	.000284	.035376	.0003150	.000446

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.232354	.0039441	.0136799	-.233349	-.012437	-.000189
Stddev	.015648	.0018152	.0000966	.025570	.000250	.000079
%RSD	6.734765	46.02222	.7058479	10.95779	2.008097	41.55523

#1	-.239494	.0018891	.0137891	-.261995	-.012499	-.000107
#2	-.243158	.0046145	.0136447	-.225221	-.012162	-.000197
#3	-.214409	.0053287	.0136059	-.212831	-.012650	-.000264

Sample Name: CCB05 Acquired: 11/4/2025 16:59:57 Type: Unk
Method: 6010-200.7 NEW(v334) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.008024	.0014407	.0063734	-.002024	F .0204536	-.004243
Stddev	.000164	.0006140	.0093171	.001787	.0018296	.002065
%RSD	2.038380	42.61547	146.1874	88.28075	8.944936	48.68253
#1	-.008006	.0019453	.0004557	.000001	.0222371	-.006332
#2	-.007870	.0016196	.0015512	-.003377	.0205424	-.004195
#3	-.008196	.0007571	.0171132	-.002695	.0185812	-.002202

Elem	Sr4077
Units	ppm
Avg	.0002159
Stddev	.0001450
%RSD	67.18432
#1	.0003831
#2	.0001248
#3	.0001397

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5953.690	91574.77	6907.574	4507.445	7421.616
Stddev	10.658	648.66	39.503	39.409	19.085
%RSD	.1790159	.7083407	.5718787	.8743111	.2571603
#1	5941.386	90829.27	6919.008	4462.959	7406.764
#2	5959.637	92010.21	6940.099	4537.985	7414.941
#3	5960.048	91884.84	6863.615	4521.391	7443.142

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: 11/03/2025 Time : 11:55 Temp : 96 °C

End Digest Date: 11/03/2025 Time : 14:56 Temp : 96 °C

Digestion tube ID: M5595

Block thermometer ID: MET-DIG. #1

Dig Technician Signature: *Sia*

Supervisor Signature: *jepp*

Temp : 1. 96°C 2. N/A

Standard Name	MLS USED	STD REF. # FROM LOG
LFS-1	0.25	M6209
LFS-2	0.25	M6201
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	M6187
1:1 HCL	5.00	MP87148
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

HOT BLOCK#1 CELL#50 96C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
11/03/25 15:56	<i>Sia met dig</i>	<i>jepp / Met lab</i>
	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
PB170382BL	PBW382	<2	50	25	Colorless	Colorless	Clear	Clear	N/A	21
PB170382BS	LCS382	<2	50	25	Colorless	Colorless	Clear	Clear	M6209,M6201	22
Q3527-01	RW8-SP100-20251030	<2	50	25	Colorless	Colorless	Clear	Clear	N/A	23
Q3527-02	RW8-SP303-20251030	<2	50	25	Colorless	Colorless	Clear	Clear	N/A	24
Q3527-02MS	RW8-SP303-20251030MS	<2	50	25	Colorless	Colorless	Clear	Clear	M6209,M6201	26
Q3527-02MSD	RW8-SP303-20251030MSD	<2	50	25	Colorless	Colorless	Clear	Clear	M6209,M6201	27
Q3527-02DUP	RW8-SP303-20251030DUP	<2	50	25	Colorless	Colorless	Clear	Clear	N/A	25

WORKLIST(Hardcopy Internal Chain)

Worklist Name : PB170382

Worklist ID : 192856

Department : Digestion

Date : 11-03-2025 11:19:19

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q3527-01	RW8-SP100-20251030	Water	Metals Group4	1:1 HNO3 to pH < 2	TETR06	J32	10/30/2025	6010D
Q3527-02	RW8-SP303-20251030	Water	Metals Group4	1:1 HNO3 to pH < 2	TETR06	J32	10/30/2025	6010D

Date/Time 11/03/2025 11:30

Raw Sample Received by: SAsmet d19

Raw Sample Relinquished by: CPCsm

Date/Time 11/03/2025 12:30

Raw Sample Received by: CPCsm

Raw Sample Relinquished by: SAsmet d19

WORKLIST(Hardcopy Internal Chain)

WorkList Name : PB170382

WorkList ID : 192856

Department : Digestion

Date : 11-03-2025 11:19:19

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q3527-01	RW8-SP100-20251030	Water	Metals Group4	1:1 HNO3 to pH < 2	TETR06	J32	10/30/2025	6010D
Q3527-02	RW8-SP303-20251030	Water	Metals Group4	1:1 HNO3 to pH < 2	TETR06	J32	10/30/2025	6010D

Date/Time 11/03/2025 11:30

Raw Sample Received by: SK Smith

Raw Sample Relinquished by: PCS

Date/Time 11/03/2025 12:30

Raw Sample Received by: PCS

Raw Sample Relinquished by: Smith

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137761

Review By	Janvi	Review On	11/5/2025 10:46:17 AM
Supervise By	mohan	Supervise On	11/10/2025 8:16:34 AM
STD. NAME	STD REF.#		
ICAL Standard	MP87637,MP87643,MP87641,MP87640,MP87639,MP87638		
ICV Standard	MP87644,MP87643		
CCV Standard	MP87647		
ICSA Standard	MP87645,MP87646		
CRI Standard	MP87643		
LCS Standard			
Chk Standard	MP87668,MP87648,MP87651,MP87649,MP87650		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	11/04/25 11:33		Jaswal	OK
2	S1	S1	CAL2	11/04/25 11:37		Jaswal	OK
3	S2	S2	CAL3	11/04/25 11:42		Jaswal	OK
4	S3	S3	CAL4	11/04/25 11:46		Jaswal	OK
5	S4	S4	CAL5	11/04/25 11:50		Jaswal	OK
6	S5	S5	CAL6	11/04/25 11:54		Jaswal	OK
7	ICV01	ICV01	ICV	11/04/25 11:58		Jaswal	OK
8	LLICV01	LLICV01	LLICV	11/04/25 12:16		Jaswal	OK
9	ICB01	ICB01	ICB	11/04/25 12:20		Jaswal	OK
10	CRI01	CRI01	CRDL	11/04/25 12:24		Jaswal	OK
11	ICSA01	ICSA01	ICSA	11/04/25 12:34		Jaswal	OK
12	ICSAB01	ICSAB01	ICSAB	11/04/25 12:38		Jaswal	OK
13	ICSADL	ICSADL	ICSA	11/04/25 12:48		Jaswal	OK
14	ICSABDL	ICSABDL	ICSAB	11/04/25 12:52		Jaswal	OK
15	CCV01	CCV01	CCV	11/04/25 12:56		Jaswal	OK
16	CCB01	CCB01	CCB	11/04/25 13:00		Jaswal	OK
17	LR-1	LR-1	HIGH STD	11/04/25 13:05		Jaswal	OK
18	LR-2	LR-2	HIGH STD	11/04/25 13:09		Jaswal	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137761

Review By	Janvi	Review On	11/5/2025 10:46:17 AM
Supervise By	mohan	Supervise On	11/10/2025 8:16:34 AM
STD. NAME	STD REF.#		
ICAL Standard	MP87637,MP87643,MP87641,MP87640,MP87639,MP87638		
ICV Standard	MP87644,MP87643		
CCV Standard	MP87647		
ICSA Standard	MP87645,MP87646		
CRI Standard	MP87643		
LCS Standard			
Chk Standard	MP87668,MP87648,MP87651,MP87649,MP87650		

19	LR-3	LR-3	HIGH STD	11/04/25 13:14		Jaswal	OK
20	Q3475-01DL	GW-DRUMDL	SAM	11/04/25 13:18	5x for Fe, Still Ag oversaturated	Jaswal	Dilution
21	Q3503-04DL	323DL	SAM	11/04/25 13:29	NOT USE	Jaswal	Not Ok
22	Q3519-01	PL-01-103125	SAM	11/04/25 13:33		Jaswal	OK
23	Q3475-01DL2	GW-DRUMDL2	SAM	11/04/25 13:39	25x for Ag	Jaswal	Confirms
24	Q3503-04DL2	323DL2	SAM	11/04/25 13:43	10X for Cd	Jaswal	Confirms
25	Q3495-01	SB-1025-1	SAM	11/04/25 13:47	NOT USE	Jaswal	Not Ok
26	Q3495-01DUP	SB-1025-1DUP	DUP	11/04/25 13:51	NOT USE	Jaswal	Not Ok
27	CCV02	CCV02	CCV	11/04/25 13:55		Jaswal	OK
28	CCB02	CCB02	CCB	11/04/25 14:03		Jaswal	OK
29	Q3495-01L	SB-1025-1L	SD	11/04/25 14:08	NOT USE	Jaswal	Not Ok
30	Q3495-01MS	SB-1025-1MS	MS	11/04/25 14:12	NOT USE	Jaswal	Not Ok
31	Q3495-01MSD	SB-1025-1MSD	MSD	11/04/25 14:16	NOT USE	Jaswal	Not Ok
32	Q3495-01A	SB-1025-1A	PS	11/04/25 14:20	NOT USE	Jaswal	Not Ok
33	PB170374BL	PB170374BL	MB	11/04/25 14:24		Jaswal	OK
34	PB170374BS	PB170374BS	LCS	11/04/25 14:28		Jaswal	OK
35	Q3515-01	SU-04-103125	SAM	11/04/25 14:32		Jaswal	OK
36	Q3516-01	HD-01-103125	SAM	11/04/25 14:36		Jaswal	OK
37	Q3520-01	EO-02-103125	SAM	11/04/25 14:40		Jaswal	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137761

Review By	Janvi	Review On	11/5/2025 10:46:17 AM
Supervise By	mohan	Supervise On	11/10/2025 8:16:34 AM
STD. NAME	STD REF.#		
ICAL Standard	MP87637,MP87643,MP87641,MP87640,MP87639,MP87638		
ICV Standard	MP87644,MP87643		
CCV Standard	MP87647		
ICSA Standard	MP87645,MP87646		
CRI Standard	MP87643		
LCS Standard			
Chk Standard	MP87668,MP87648,MP87651,MP87649,MP87650		

38	Q3520-01DUP	EO-02-103125DUP	DUP	11/04/25 14:44		Jaswal	OK
39	CCV03	CCV03	CCV	11/04/25 15:06		Jaswal	OK
40	CCB03	CCB03	CCB	11/04/25 15:10		Jaswal	OK
41	Q3520-01L	EO-02-103125L	SD	11/04/25 15:46		Jaswal	OK
42	Q3520-01MS	EO-02-103125MS	MS	11/04/25 15:50		Jaswal	OK
43	Q3520-01MSD	EO-02-103125MSD	MSD	11/04/25 15:54		Jaswal	OK
44	Q3520-01A	EO-02-103125A	PS	11/04/25 15:58	0.1 ML OF EACH M6008 AND M6017 IN 10ML SAMPLE.	Jaswal	OK
45	PB170382BL	PB170382BL	MB	11/04/25 16:02		Jaswal	OK
46	PB170382BS	PB170382BS	LCS	11/04/25 16:06		Jaswal	OK
47	CCV04	CCV04	CCV	11/04/25 16:10		Jaswal	OK
48	CCB04	CCB04	CCB	11/04/25 16:14		Jaswal	OK
49	Q3527-01	RW8-SP100-2025103	SAM	11/04/25 16:18		Jaswal	OK
50	Q3527-02	RW8-SP303-2025103	SAM	11/04/25 16:23		Jaswal	OK
51	Q3527-02DUP	RW8-SP303-2025103	DUP	11/04/25 16:27		Jaswal	OK
52	Q3527-02L	RW8-SP303-2025103	SD	11/04/25 16:31		Jaswal	OK
53	Q3527-02MS	RW8-SP303-2025103	MS	11/04/25 16:35		Jaswal	OK
54	Q3527-02MSD	RW8-SP303-2025103	MSD	11/04/25 16:39		Jaswal	OK
55	Q3527-02A	RW8-SP303-2025103	PS	11/04/25 16:43	0.1 ML OF EACH M6008 AND M6017 IN 10ML SAMPLE.	Jaswal	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137761

Review By	Janvi	Review On	11/5/2025 10:46:17 AM
Supervise By	mohan	Supervise On	11/10/2025 8:16:34 AM

STD. NAME	STD REF.#
ICAL Standard	MP87637,MP87643,MP87641,MP87640,MP87639,MP87638
ICV Standard	MP87644,MP87643
CCV Standard	MP87647
ICSA Standard	MP87645,MP87646
CRI Standard	MP87643
LCS Standard	
Chk Standard	MP87668,MP87648,MP87651,MP87649,MP87650

56	Q3495-02	SB-1025-2	SAM	11/04/25 16:47		Jaswal	OK
57	Q3512-01	10200	SAM	11/04/25 16:51		Jaswal	OK
58	CCV05	CCV05	CCV	11/04/25 16:55		Jaswal	OK
59	CCB05	CCB05	CCB	11/04/25 16:59		Jaswal	OK

Prep Standard - Chemical Standard Summary

Order ID : Q3527
Test : Metals Group4
Prepbatch ID : PB170382,
Sequence ID/Qc Batch ID: LB137761,

Standard ID :
MP87148,MP87637,MP87638,MP87639,MP87640,MP87641,MP87642,MP87643,MP87644,MP87645,MP87646,MP87647,MP87648,MP87649,MP87650,MP87651,MP87668,

Chemical ID :
M5467,M5658,M5697,M5748,M5798,M5799,M5800,M5801,M5814,M5820,M5962,M5969,M5971,M5979,M5985,M5998,M6021,M6023,M6026,M6027,M6028,M6030,M6032,M6058,M6077,M6086,M6128,M6137,M6140,M6142,M6144,M6145,M6151,M6159,M6160,M6163,M6164,M6165,M6171,M6174,M6176,M6177,M6178,M6179,M6182,M6184,M6187,M6200,M6201,M6209,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>
170	1:1HCL	MP87148	09/09/2025	02/17/2026	Sagar Kanani	None	None	Sarabjit Jaswal
								09/10/2025

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

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
902	ICP AES CAL BLK (SO/ICB/CCB)	MP87637	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal
								10/28/2025

FROM 125.00000ml of M6200 + 2350.00000ml of W3112 + 25.00000ml of M6187 = Final Quantity: 2500.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
907	ICP AES STD S (S5)	MP87638	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 10/28/2025
FROM 5.00000ml of M5467 + 5.00000ml of M5820 + 5.00000ml of M5969 + 5.00000ml of M5971 + 5.00000ml of M5998 + 5.00000ml of M6077 + 5.00000ml of M6160 + 5.00000ml of M6174 + 5.00000ml of M6176 + 455.00000ml of MP87637 = 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	MP87639	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 10/28/2025
FROM 50.00000ml of MP87637 + 50.00000ml of MP87638 = 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	MP87640	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP	Sarabjit Jaswal

FROM 25.00000ml of MP87638 + 75.00000ml of MP87637 = 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	MP87641	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP	Sarabjit Jaswal

FROM 16.00000ml of MP87638 + 184.00000ml of MP87637 = 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	MP87642	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 10/28/2025
FROM 0.03000ml of M5798 + 0.03000ml of M6028 + 0.05000ml of M5658 + 0.05000ml of M6030 + 0.05000ml of M6140 + 0.05000ml of M6159 + 0.06000ml of M6177 + 0.10000ml of M5697 + 0.10000ml of M5801 + 0.10000ml of M5820 + 0.10000ml of M5962 + 0.10000ml of M5969 + 0.10000ml of M5971 + 0.10000ml of M6128 + 0.10000ml of M6176 + 0.15000ml of M5800 + 0.20000ml of M5799 + 0.20000ml of M5979 + 0.20000ml of M6021 + 0.20000ml of M6023 + 0.20000ml of M6027 + 0.20000ml of M6145 + 0.25000ml of M5467 + 0.25000ml of M6160 + 0.50000ml of M5814 + 0.50000ml of M6032 + 1.00000ml of M6086 + 1.00000ml of M6142 + 1.00000ml of M6144 + 1.00000ml of M6171 + 1.00000ml of M6178 + 2.00000ml of M6137 + 89.03000ml of MP87637 = 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	MP87643	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 10/28/2025
FROM 2.00000ml of MP87642 + 98.00000ml of MP87637 = Final Quantity: 100.000 ml								

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4163	NEW ICV-060925	MP87644	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 10/28/2025
FROM 0.20000ml of M6058 + 0.40000ml of M6163 + 0.40000ml of M6164 + 0.40000ml of M6165 + 48.60000ml of MP87637 = Final Quantity: 50.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
904	ICP AES ICSA SOLN	MP87645	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 10/28/2025
FROM 25.00000ml of M6182 + 225.00000ml of MP87637 = 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	MP87646	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 10/28/2025
FROM 0.10000ml of M6077 + 10.00000ml of M6182 + 10.00000ml of M6184 + 79.90000ml of MP87637 = 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	MP87647	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 10/28/2025
FROM 50.00000ml of MP87637 + 50.00000ml of MP87638 = 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>
903	ICP AES RINSE SOLN	MP87648	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 10/28/2025

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

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4226	LR-2	MP87649	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 10/28/2025

FROM 13.50000ml of M6140 + 9.00000ml of M6142 + 9.50000ml of M6159 + 18.00000ml of MP87637 = Final Quantity: 50.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4227	LR-3	MP87650	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 10/28/2025
FROM 1.15000ml of M6026 + 1.25000ml of M5658 + 1.25000ml of M5748 + 1.50000ml of M6145 + 2.50000ml of M5697 + 2.50000ml of M6128 + 39.85000ml of MP87637 = Final Quantity: 50.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
4225	LR-1	MP87651	10/17/2025	11/17/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 10/28/2025
FROM 11.50000ml of M6086 + 11.50000ml of M6144 + 11.50000ml of M6171 + 15.50000ml of MP87637 = Final Quantity: 50.000 ml								

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
919	ICP AES INTERNAL STD	MP87668	10/17/2025	11/11/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal
FROM 1.00000ml of M6179 + 10.00000ml of M5985 + 1969.00000ml of W3112 + 20.00000ml of M6187 = Final Quantity: 2000.000 ml								

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CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58024 / Chromium, Cr, 500 ml, 1000 PPM	060523	06/05/2026	08/28/2023 / jaswal	08/25/2023 / jaswal	M5658

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	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.	/ 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.	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

CHEMICAL RECEIPT LOG BOOK

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.	57005 / B, 1000 PPM, 125 ml	071123	07/11/2026	03/26/2024 / Sohil	01/03/2024 / jaswal	M5814

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

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

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

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	06/06/2025 / Janvi	07/01/2024 / Jaswal	M5971

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGT11-1 / TITANIUM 125mL 1000ug/mL	T2-TI719972	08/05/2026	08/06/2025 / Janvi	02/22/2024 / Jaswal	M5979

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

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

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

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

CHEMICAL RECEIPT LOG BOOK

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

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

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

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CHEM-QC-4 / CHEM-QC-4, Second Source, 1000 ug/ml, B, Mo, Si, Sn, Ti	V2-MEB746173	01/29/2026	01/29/2025 / JANVI	08/22/2024 / Jaswal	M6058

CHEMICAL RECEIPT LOG BOOK

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 #
Absolute Standards, Inc.	58120 / Calcium, 500 ml, 10000 PPM	082324	08/23/2027	03/06/2025 / JANVI	10/14/2024 / jaswal	M6086

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

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

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

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

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

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	QCP-CICV-1-125ML / EPA CLP ICP Verification Standard1	V2-MEB744107	06/08/2026	06/09/2025 / jaswal	06/06/2025 / jaswal	M6163

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	QCP-CICV-2-125ML / EPA CLP ICP Verification Standard2	U2-MEB733713	06/08/2026	06/09/2025 / jaswal	06/09/2025 / jaswal	M6164

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

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

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

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

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

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	080528	08/05/2028	08/06/2025 / Janvi	08/06/2025 / Janvi	M6178

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

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

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

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

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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-2 / Laboratory Fortified Stock Solution 2, 125 ml	V2-MEB743480	10/15/2026	10/15/2025 / Jaswal	07/20/2025 / Janvi	M6201

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	V2-MEB752149	10/15/2026	10/15/2025 / Janvi	07/20/2025 / Janvi	M6209

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



M6032



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57056
010924
Barium (Ba)

Lot #
Solvent: 24002546 Nitric Acid

Expiration Date:

010927

2% 40.0 (mL) Nitric Acid

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

5E-05 Balance Uncertainty

Weight shown below was diluted to (mL):

2000.02

0.058 Flask Uncertainty

<i>Giovanni Caporaso</i>	
Formulated By:	Giovanni Esposito
	010924
Reviewed By:	Pedro L. Renteria
	010924

Compound

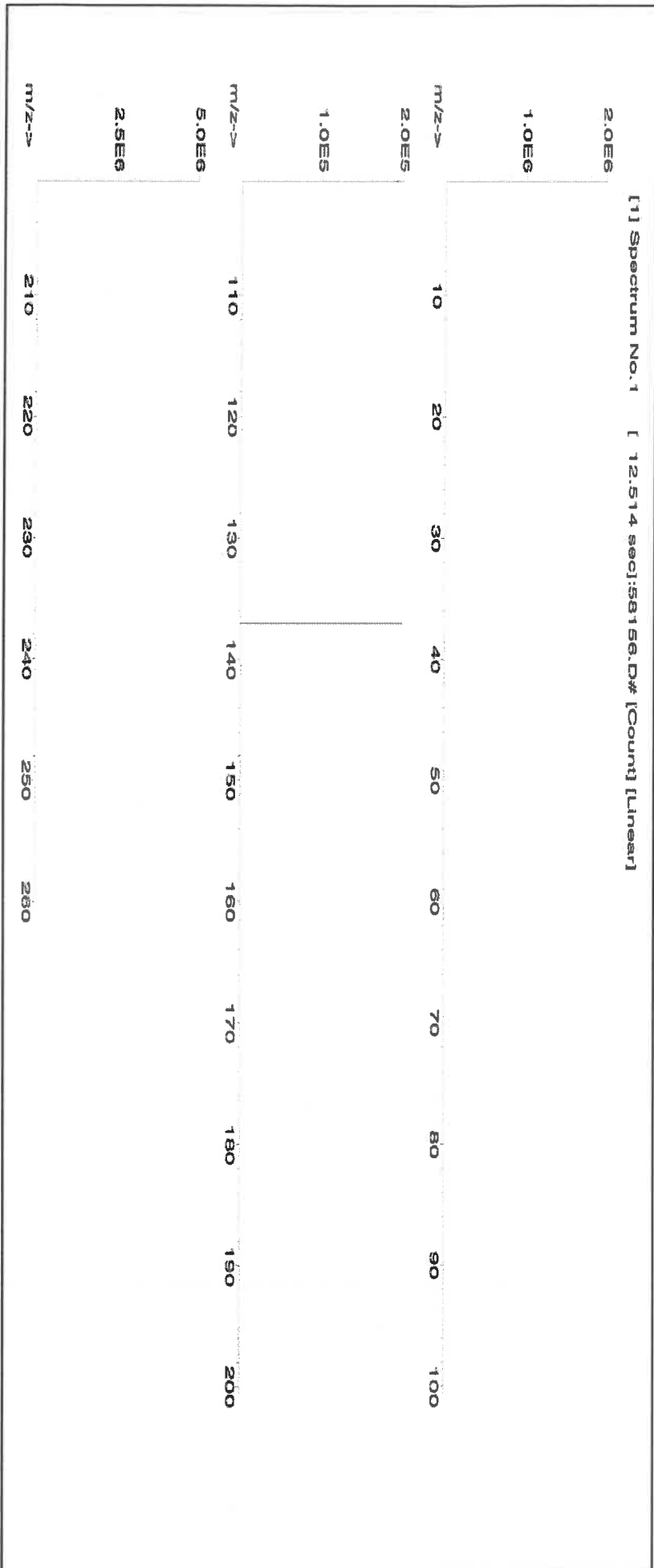
RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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SDS Information

(Solvent Safety Info. On Attached pg.)

1. Barium nitrate (Ba) IN023 BA0022019A1 1000 99.999 0.10 52.3 3.82417 3.82441 1000.1 2.0 10022-31-8 0.5 mg/m3 or-hat 355 mg/kg 3104a

[1] Spectrum No.1 [12.514 sec]:58156.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (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 Reference Material CRM



Rev'd 2/10/14/2021 M6085 / M6086 / M6087

CERTIFIED WEIGHT REPORT:

Part Number: 58120
Lot Number: 082324
Description: Calcium (Ca)

Solvent: 24002546 Nitric Acid

Lot #

2% 80.0 Nitric Acid (mL)

Expiration Date: 082327

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 10000

NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 4000.1 0.15 Balance Uncertainty Flask Uncertainty

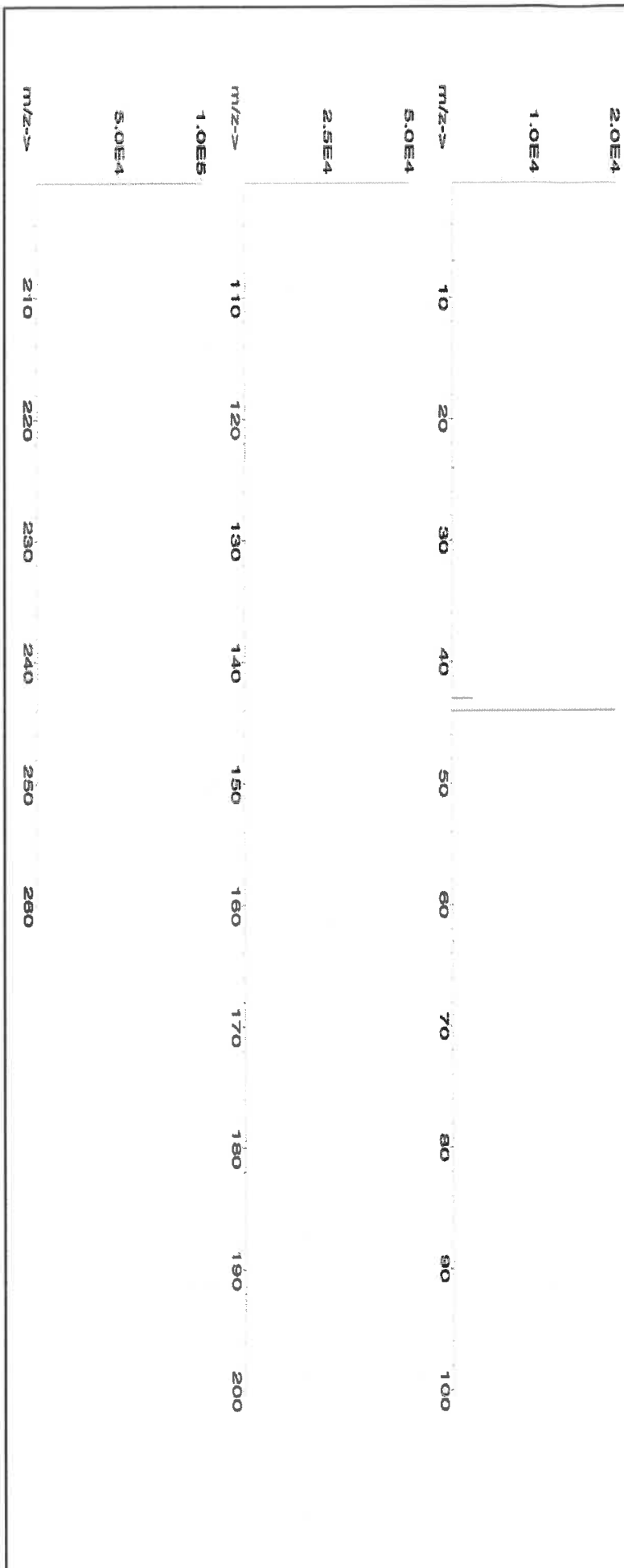
<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	Pedro L. Rentas
	082324

SDS Information

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Calcium carbonate (Ca) IN014 CAD03202383 10000 99.999 0.10 39.9 100.2537 100.2656 10001.2 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 (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	T	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	30	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	Su	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



M6028



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57048
070124
Cadmium (Cd)

Lot #
Solvent: 24002546 Nitric Acid

Expiration Date:

070127

2% 40.0 Nitric Acid
(mL)

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Weight shown below was diluted to (mL):

2000.07

SE-05 Balance Uncertainty
0.100 Flask Uncertainty

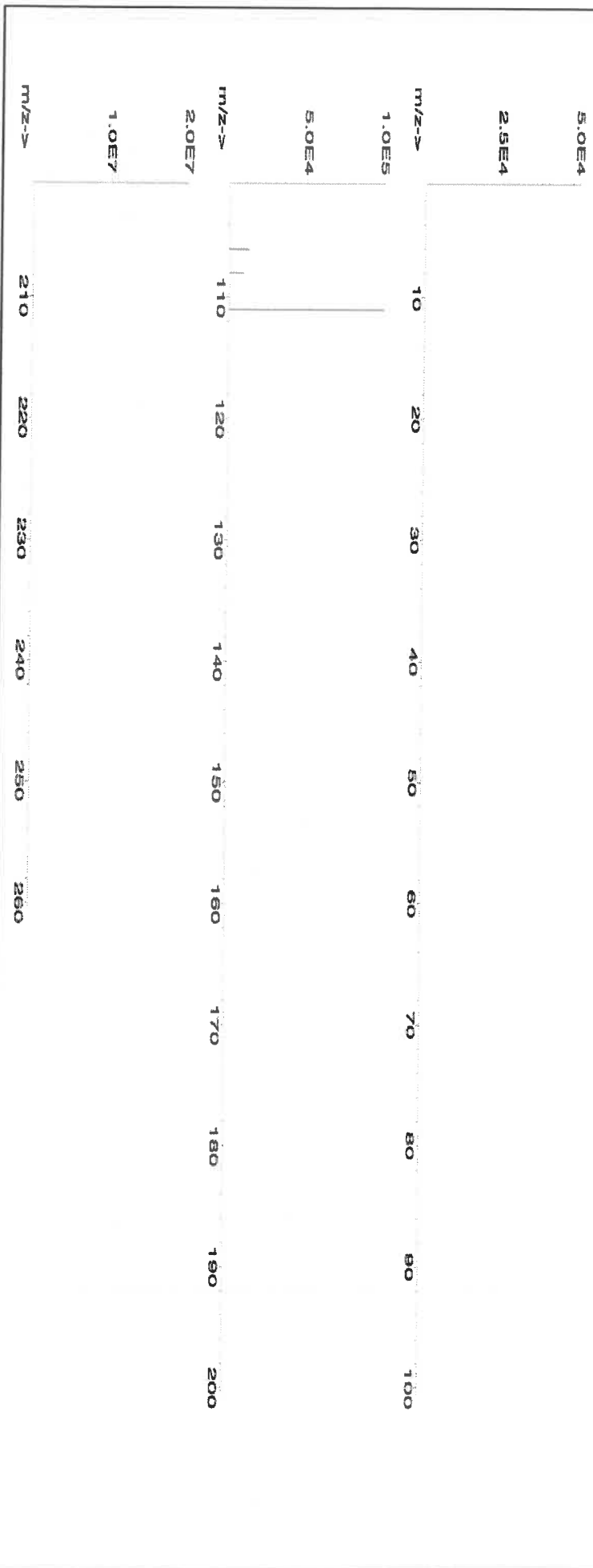
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
	070124
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas
	070124

Compound

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

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





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



MC026



CERTIFIED WEIGHT REPORT:

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

Lot #
Solvent: **24002546 Nitric Acid**

Expiration Date: **110926**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **10000**
NIST Test Number: **6UTB**

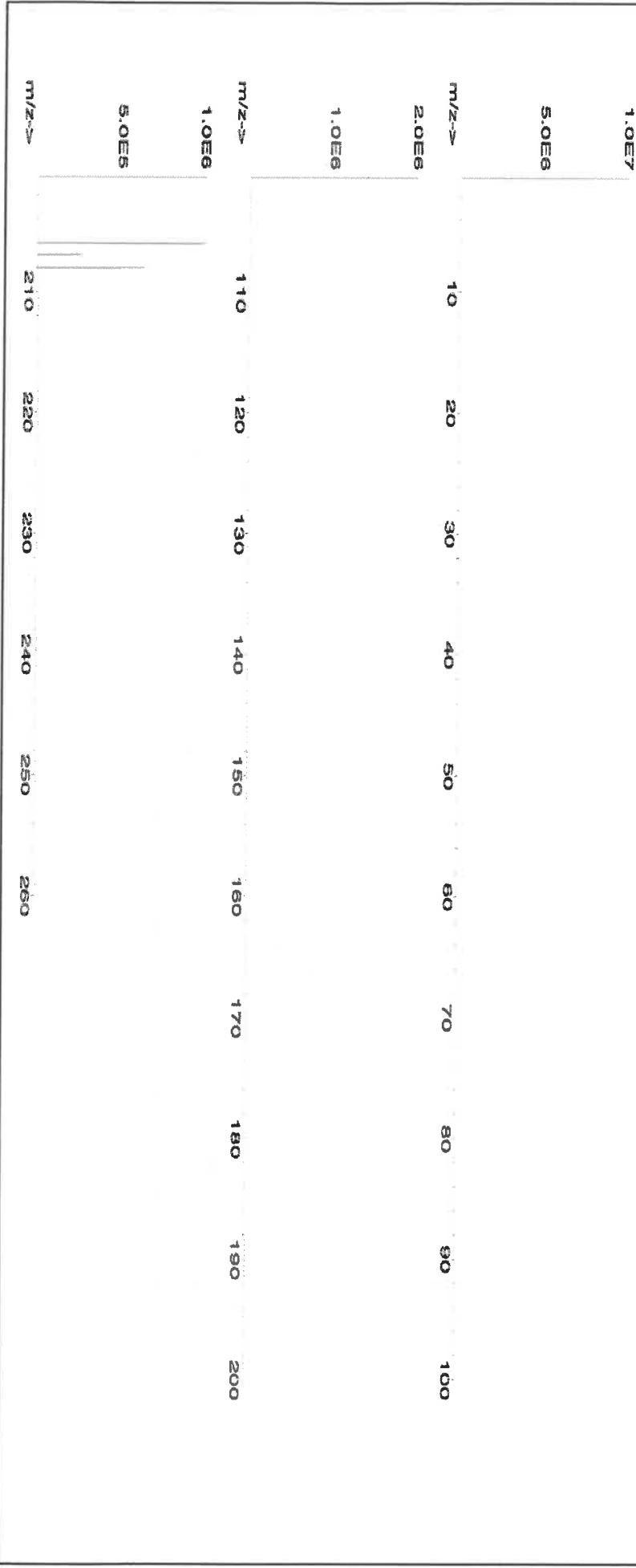
2%
40.0 (mL)
Nitric Acid

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	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	T	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

Physical Characterization:

(T)= Target analyte

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

Certified by:

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



Certified Reference Material CRM



MS467 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

5E-05 Balance Uncertainty

0.058 Flask Uncertainty

Lot #

Solvent: 21110221 Nitric Acid

2% 20.0 Nitric Acid (mL)

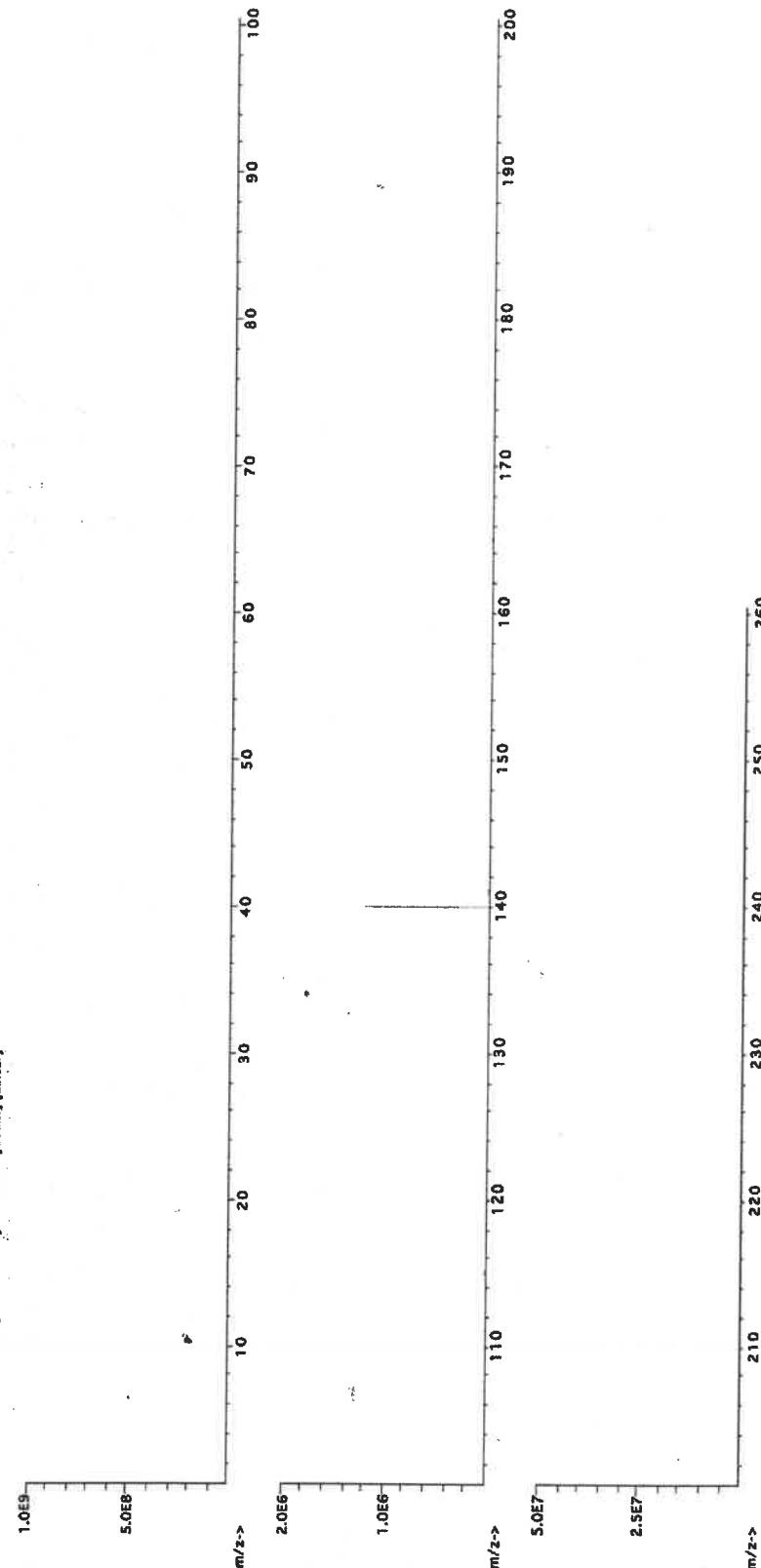
Formulated By:	Lawrence Barry 020623
Reviewed By:	Pedro L. Rentas 020623

SDS Information

Expanded Uncertainty +/- (µg/mL) CAS# OSHA PEL (TWA) LD50 SRM

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	SRM
1. Cerium nitrate hexahydrate (Ce)	IN146	Z512CEB1	1000	99.999	0.10	32.8	3.04919	3.04921	1000.0	2.0	10294-41-4	NA	NA

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





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

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

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

(T)= Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

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

Lot # 2110221
Solvent: Nitric Acid

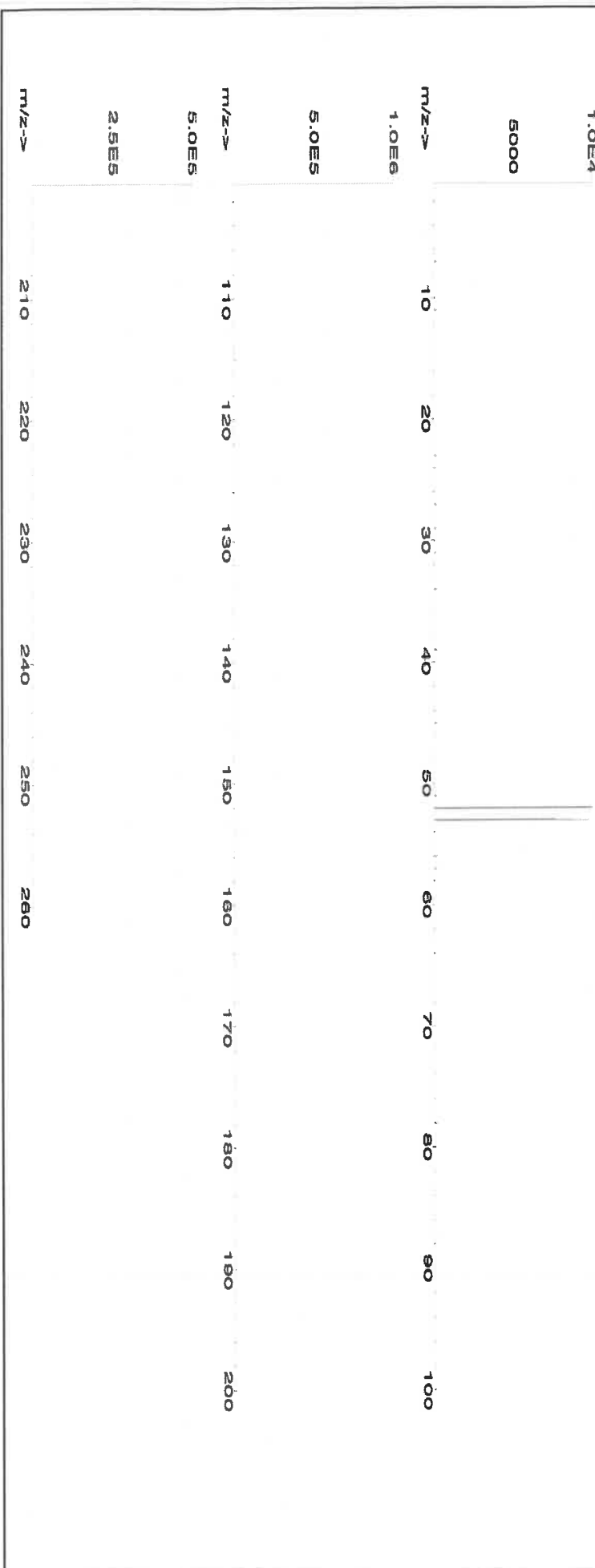
Formulated By:	Lawrence Barry
	060523
Reviewed By:	Pedro L. Ruelas
	060523

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

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

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

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





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 Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: **58029**
Lot Number: **102523**
Description: **Copper (Cu)**

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**

5E-05 Balance Uncertainty

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

0.058 Flask Uncertainty

Formulated By: *[Signature]* Benson Chan 102523

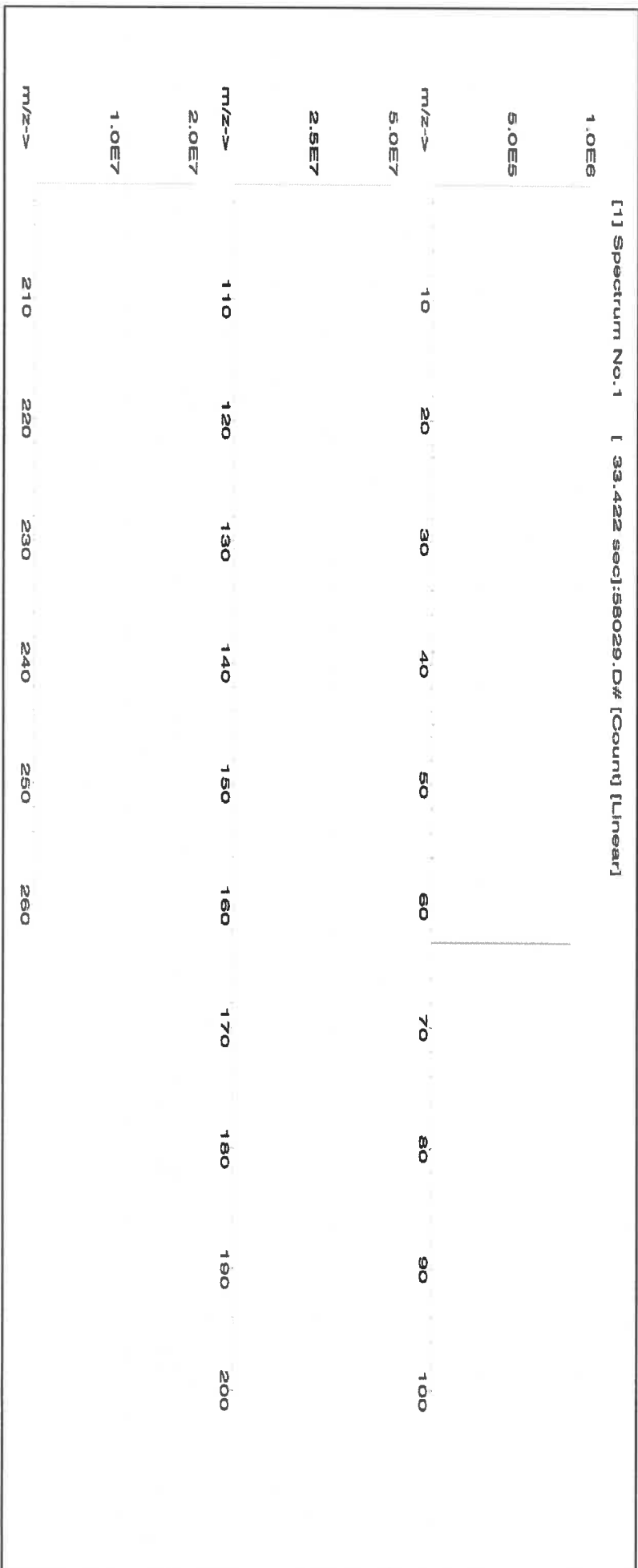
Reviewed By: *[Signature]* Pedro L. Rentas 102523

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]





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	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 WEIGHT REPORT:

Part Number: **57028**
Lot Number: **091223**
Description: **Nickel (NI)**

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

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

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

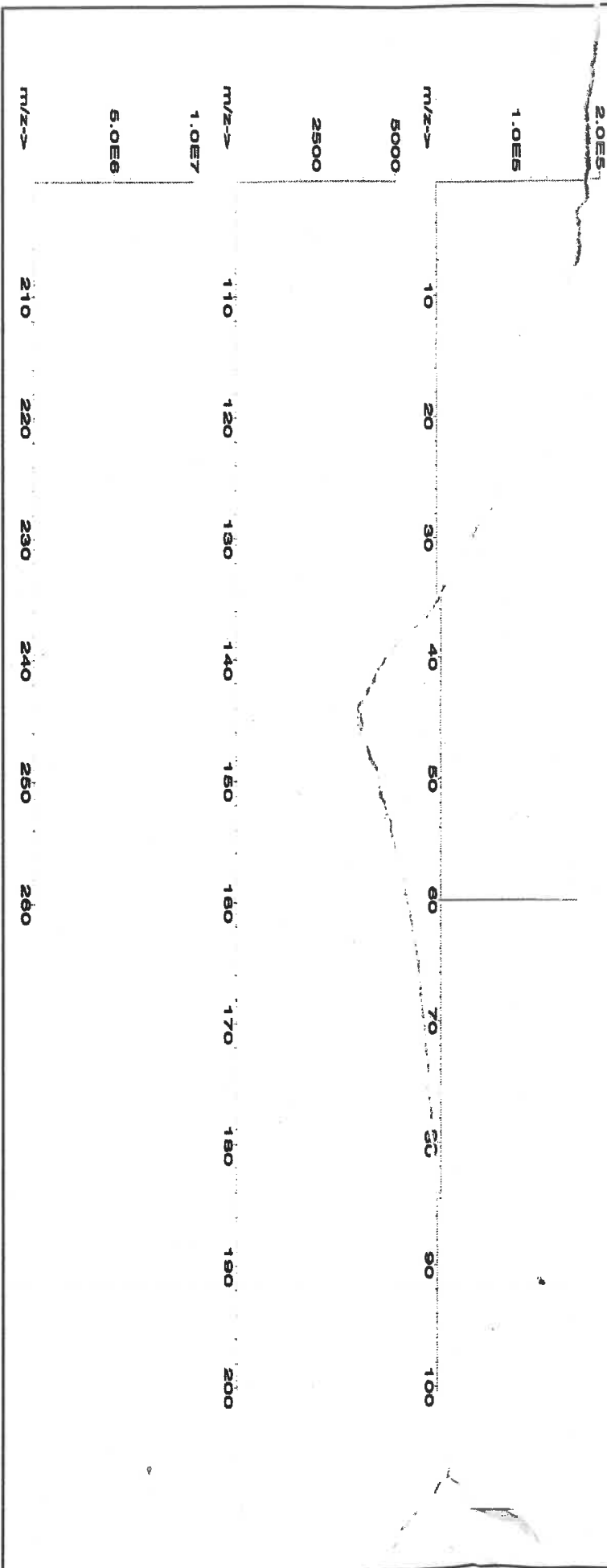
Volume shown below was diluted to (mL): **2000.02** **5E-05** **Balance Uncertainty**
0.056 **Flask Uncertainty**

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

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



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

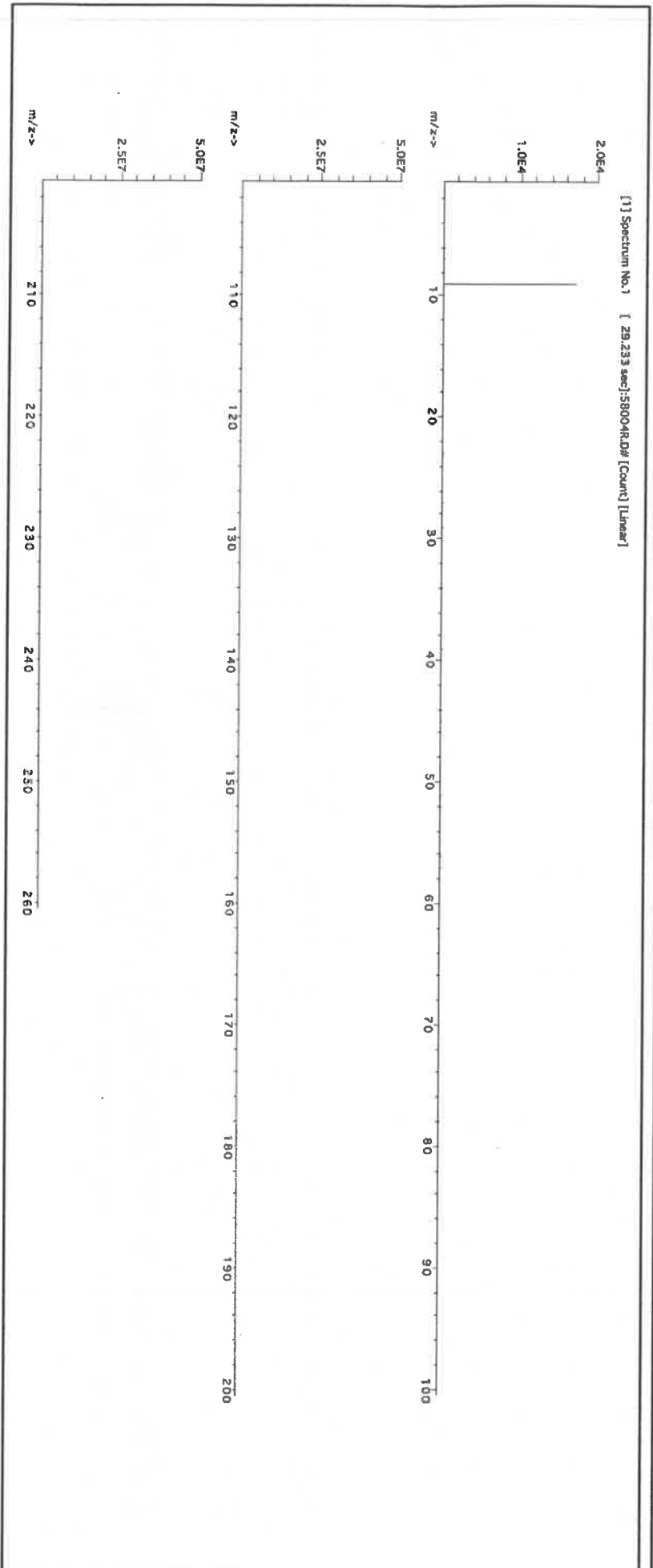
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

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	<0.2	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	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

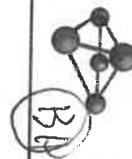
CERTIFIED WEIGHT REPORT:

Part Number: 57050
Lot Number: 071123
Description: Tin (Sn)

Solvents: 21110221 Nitric Acid
22D0562008 Hydrochloric acid

Lot #

15.02509124
M599



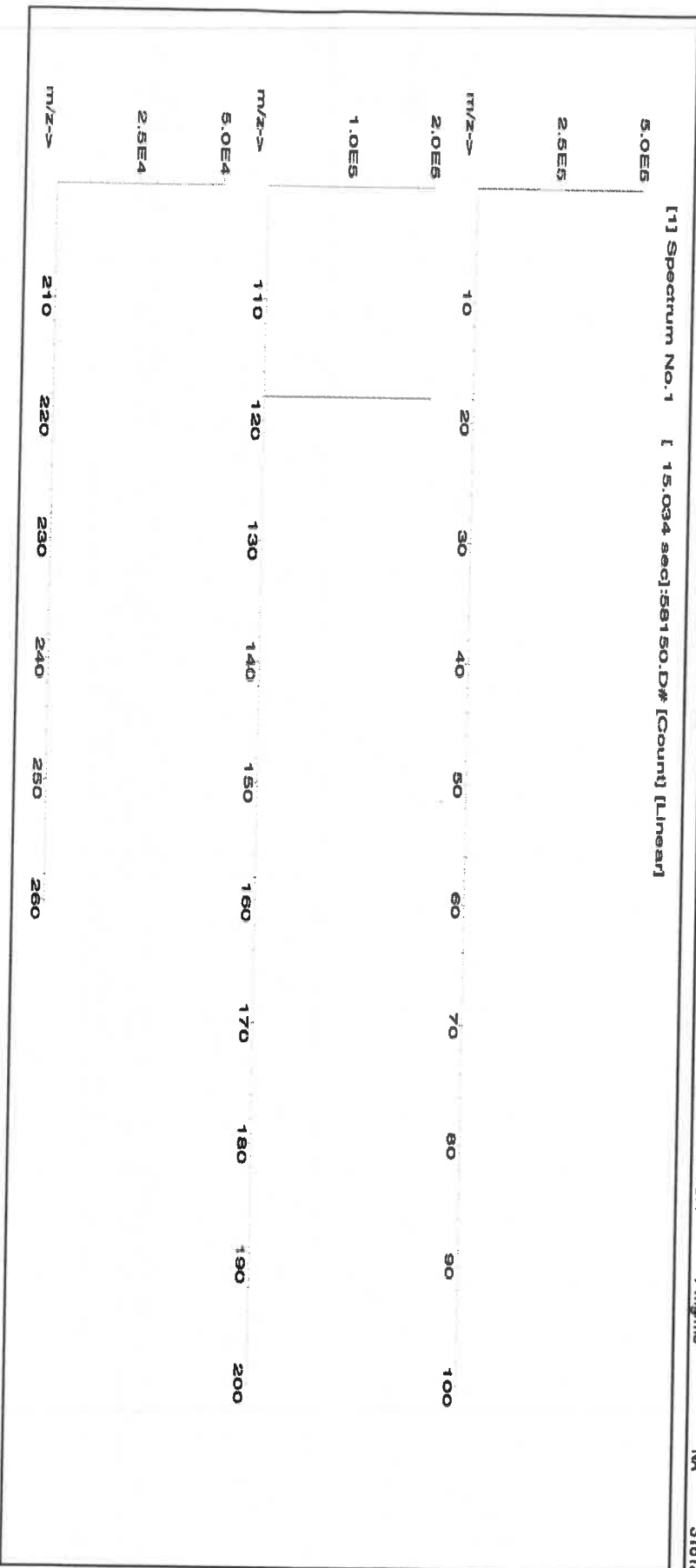
Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 499.93
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By: Benson Chan	
071123	
Reviewed By: Pedro L. Rientas	
071123	

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

1. Ammonium hexafluoroantimonate(V) (Sn) IN010 SMD042023A1 1000 99.999 0.10 44.2 1.13107 1.13286 1001.6 2.0 16919-24-7 7 mg/m3 NA 3161a

[1] Spectrum No. 1 [15.034 sec] :56150.D# [Count] [Linear]





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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	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.
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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).



R: 02/09/24 115800 (54)

CERTIFIED WEIGHT REPORT:

Part Number: 57027
Lot Number: 091923
Description: Cobalt (Co)

Expiration Date: 091926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Volume shown below was diluted to (mL): 2000.02

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Lot # 24002546
Solvent: Nitric Acid

2.0% Nitric Acid
40.0 (mL)

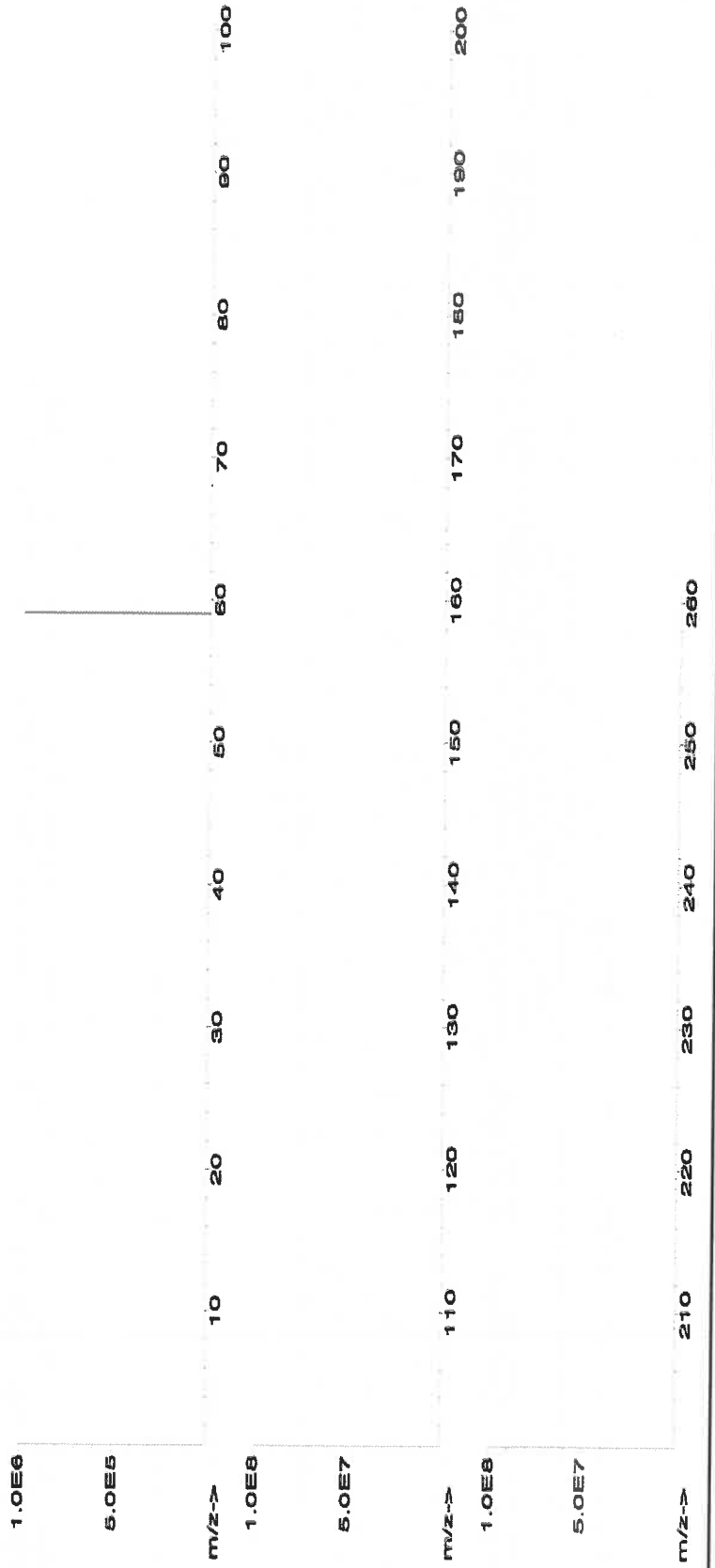
Formulated By:	Lawrence Barry
Reviewed By:	Pedro L. Rentas

SDS Information

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

1. Cobalt(II) nitrate hexahydrate (Co) 58127 050923 0.1000 200.0 0.084 1000 10000.0 1000.0 2.2 10026-22-9 0.02 mg/m3 orl-rat 691 mg/kg 3113

[1] Spectrum No.1 [34.243 sec]:58027.D# [Count] [Linear]





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

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

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

CERTIFIED WEIGHT REPORT:

Part Number: 57033
Lot Number: 111323
Description: Arsenic (As)

Lot # 24002546
Solvent: Nitric Acid

Expiration Date: 111326
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6LUTB
Volume shown below was diluted to (mL): 4000.0

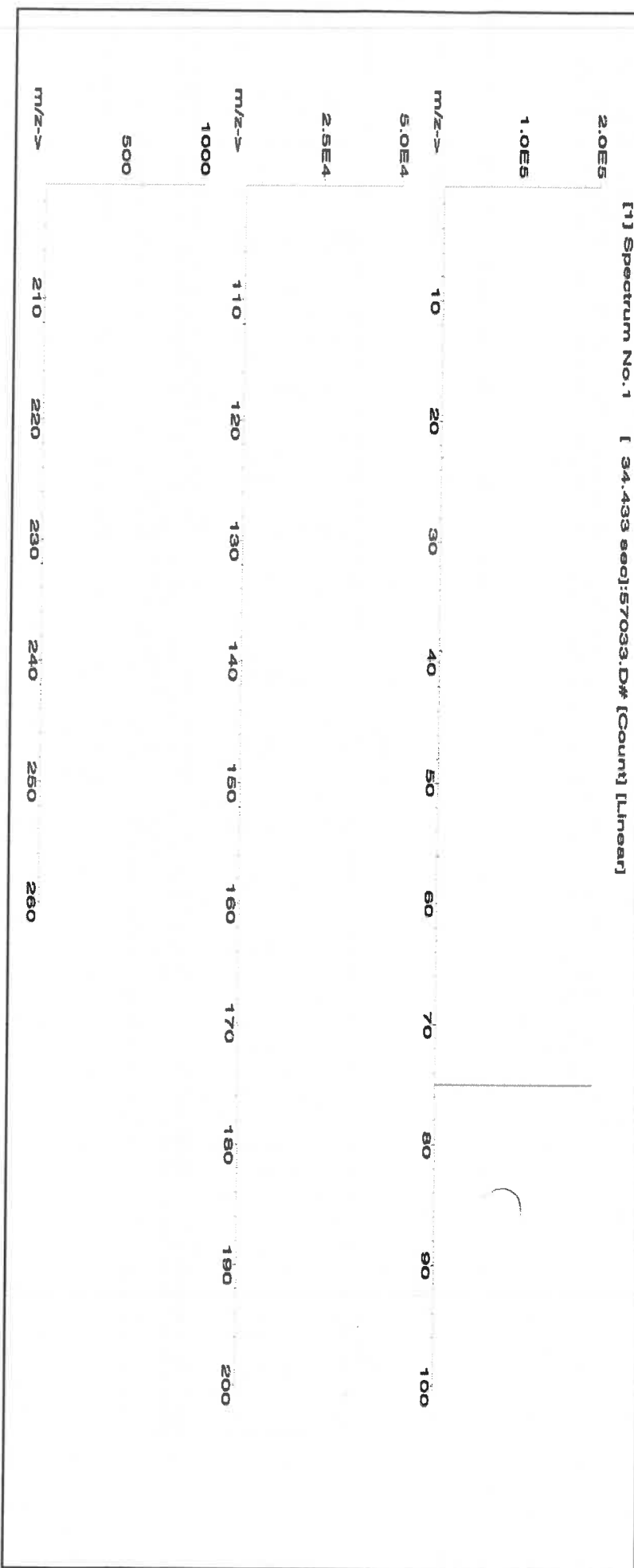
Balance Uncertainty: 5E-05
Flask Uncertainty: 0.06

Formulated By:	Lawrence Barry	111323
Reviewed By:	Pedro L. Rendas	111323

SDS Information									
Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)
1. Arsenic (As)	57033	020522	0.1000	400.0	0.084	1000	10001.0	1000.0	2.0

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

[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	Pt	<0.02	Sm	<0.02	S	<0.02	Sa	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: **57005**
Lot Number: **071123**
Description: **Boron (B)**

Solvent: MKB0857V Ammonium hydroxide

Lot #

AI: 021009124 M5814

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

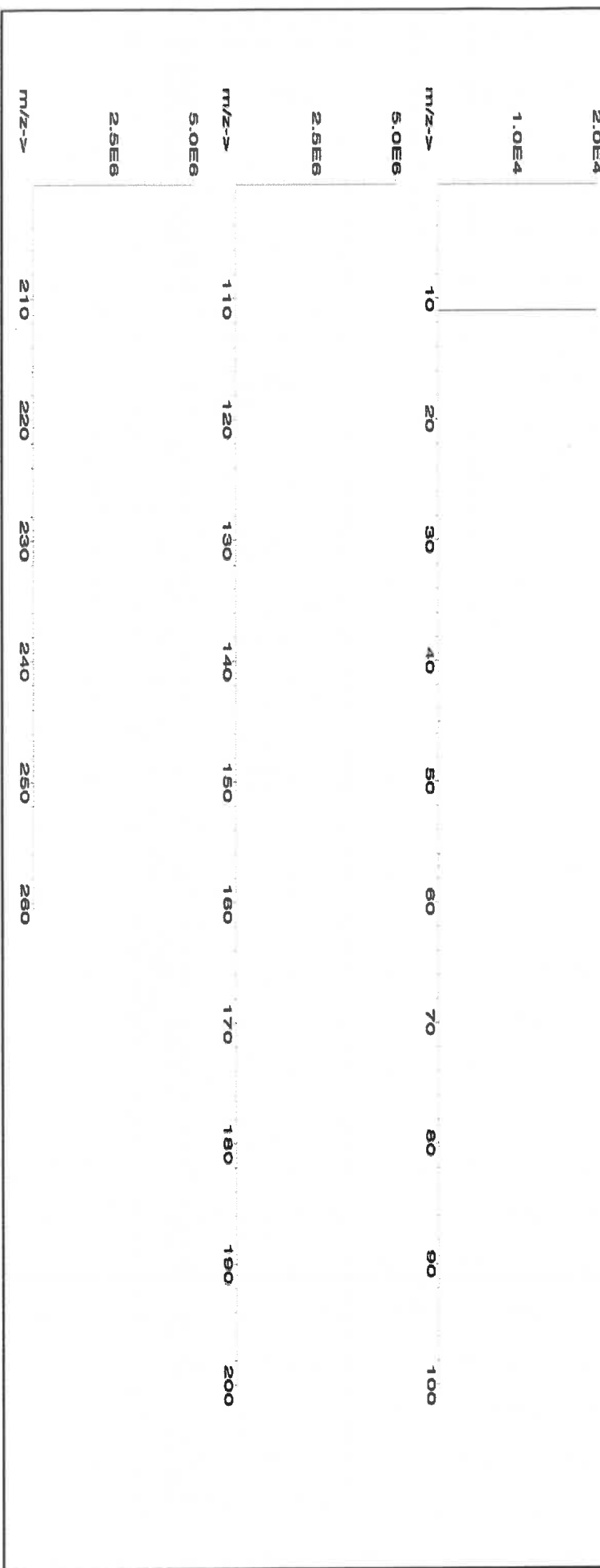
2.0% 40.0 (mL) Ammonium hydroxide

Weight shown below was diluted to (mL): 1999.48 0.058 Balance Uncertainty Flask Uncertainty

Formulated By:	Benson Chan
	071123
Reviewed By:	Pedro L. Rientas
	071123

SDS Information									
Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)
1. Boric acid (B)	IN018	BV082018A1	1000	99.999	0.10	17.3	11.55772	11.56201	1000.4
							2.0	10043-35-3	2 mg/m3
									ort-nat 2660 mg/kg 3107

[1] Spectrum No. 1 [12.275 sec]:56105.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

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

Solvent: 24002546 Nitric Acid

Lot #

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

Expiration Date: 091126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6LUTB

2% 40.0 (mL) Nitric Acid

Weight shown below was diluted to (mL): 2000.02 0.058 Balance Uncertainty
0.058 Flask Uncertainty

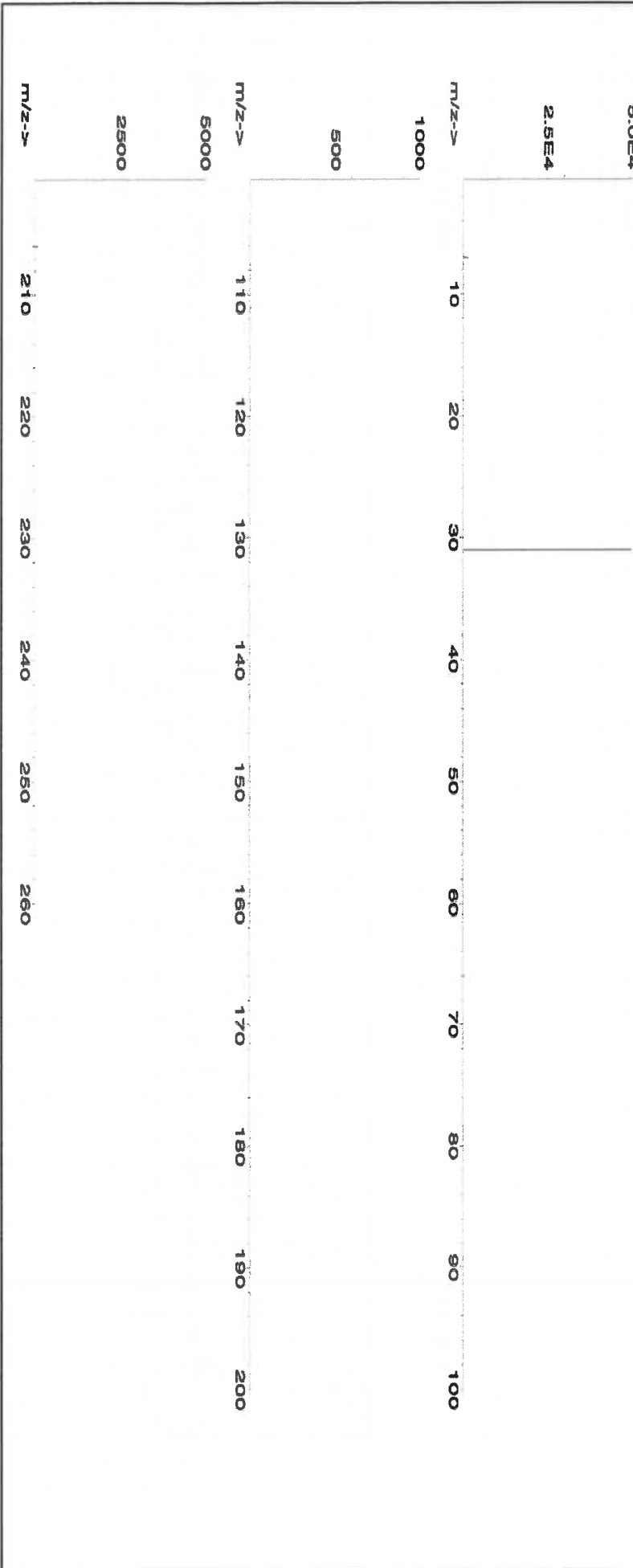
Compound

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

1. Ammonium dihydrogen phosphate (P) IN008 PY062019A1 1000 99.999 0.10 27.5 7.2729 7.2730 1000.0 2.0 7722-76-1 5 mg/m3 xH-rat >2000mg/kg 3186

[1] Spectrum No.1 [12.074 sec]:58115.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

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CERTIFIED WEIGHT REPORT:

Part Number:

57034

Lot Number:

060624

Description:

Selenium (Se)

Lot # Solvent:

24002546

Nitric Acid

2.0%

40.0 (mL)

Nitric Acid

(mL)

Expiration Date:

060627

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

2000.07

SE-05 Balance Uncertainty

0.100 Flask Uncertainty

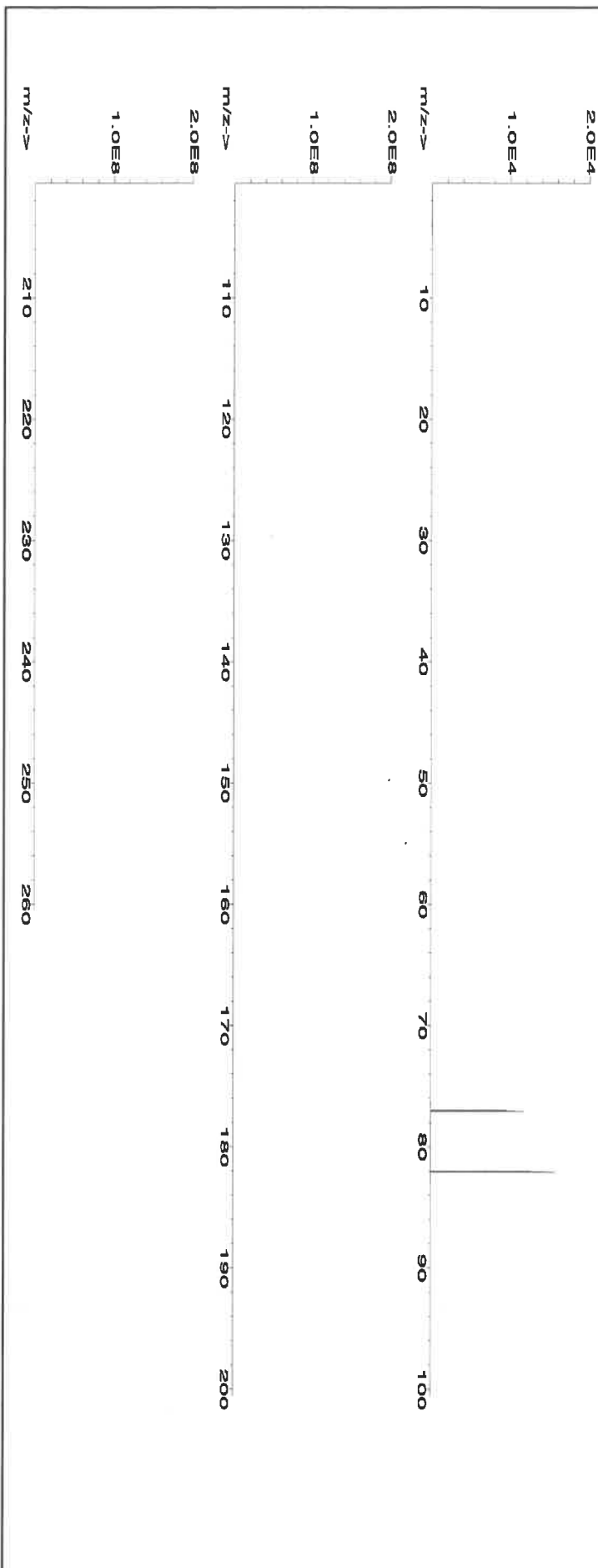
SDS Information

Compound

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





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.
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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: **57016**
Lot Number: **122923**
Description: **Sulfur (S)**

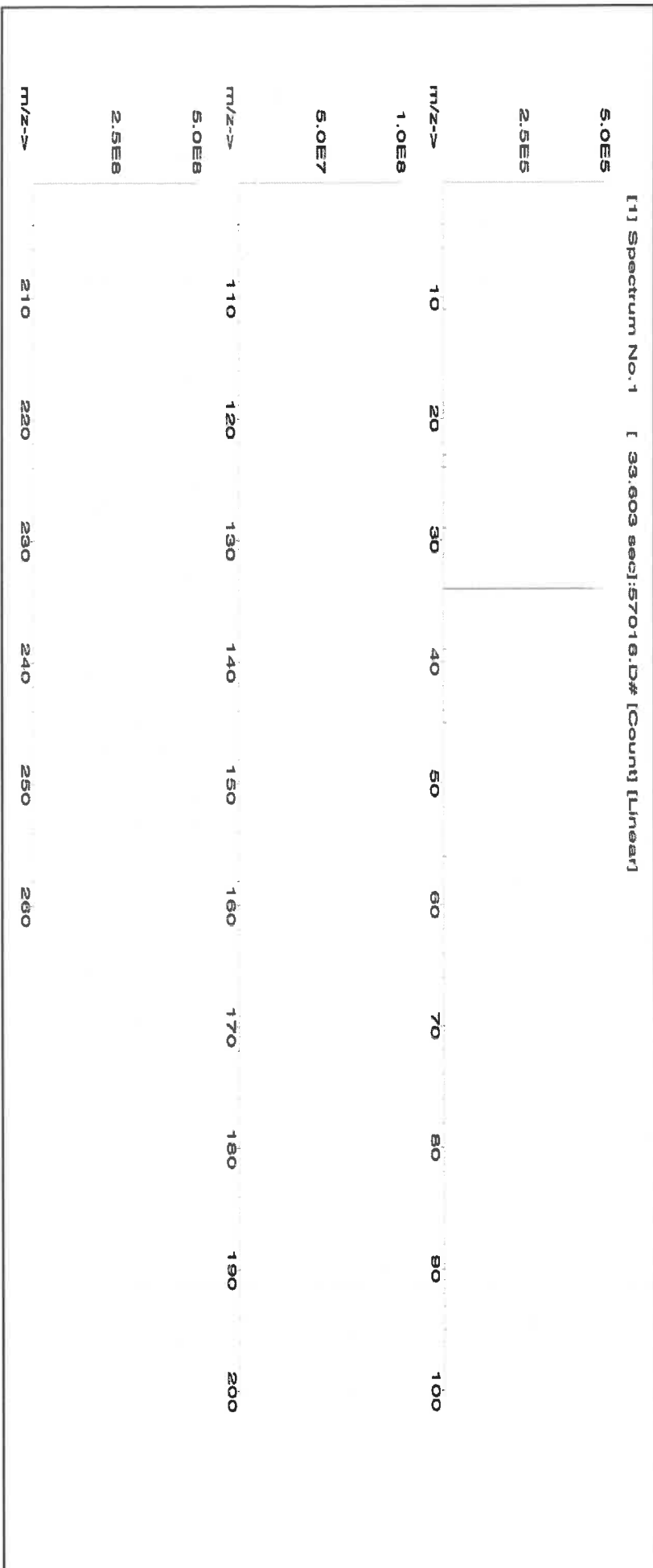
Lot #
Solvent: **122923** ASTM Type 1 Water

Formulated By:	Benson Chan
122923	
Reviewed By:	Pedro L. Rentas
122923	

Expiration Date: **122926**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**
Weight shown below was diluted to (mL): **4000.0** **5E-05** Balance Uncertainty
0.06 Flask Uncertainty

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

1. Ammonium sulfate (S) IN117 SLBR725V 1000 98.9 0.10 24.3 16.4979 16.4980 1000.0 2.0 7783-20-2 NA or-rel 4250mg/kg 3181



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M5970 M5971 R1 710124



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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 Flask Uncertainty

Lot # 24002546
Solvent: Nitric Acid

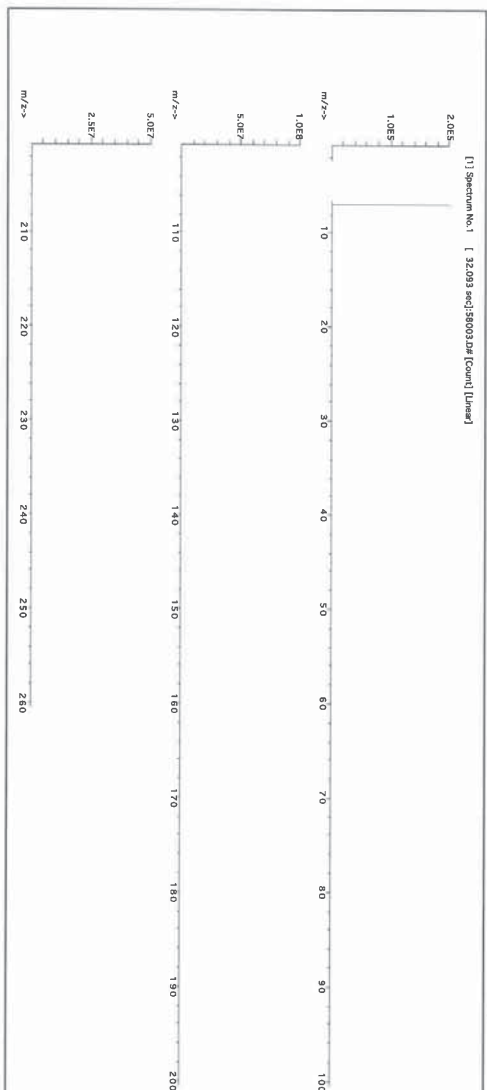
2.0% 5.0 (mL) Nitric Acid

Microvite Capable	
Formulated By:	062124
Giovanni Esposito	
Reviewed By: <i>[Signature]</i>	
Pietro 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 [Lines]



Part # 57003 Lot # 062124

1 of 2

Printed: 6/24/2024, 11:20:08 PM



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1.0 ACCREDITATION / REGISTRATION

2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution

Catalog Number: CGT1

Lot Number: T2-T1719972

Matrix: 2% (v/v) HNO₃

Value / Analyte(s): tr. HF

Starting Material: 1 000 µg/mL ea.

Starting Material: Titanium

Starting Material: Ti Metal

Starting Material Lot#: 2094

Starting Material Purity: 99.9975%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 5 µg/mL

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

Assay Information:

Assay Method #1 1002 ± 4 µg/mL

ICP Assay NIST SRM 3162a Lot Number: 130925

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

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

Characterization of CRM/RM by Two or More Methods

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

$X_{CRM/RM} = (k_p) / (k_p + 1)$

k_p = mean of Assay Method A with

$U_{CRM/RM}$ = the standard uncertainty of characterization Method A

$U_{CRM/RM} = (k_p) / (k_p + 1)$

$U_{CRM/RM} = (k_p) / (k_p + 1)$

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$U_{CRM/RM} = (k_p) / (k_p + 1)$

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	<	0.000676	M In	<	0.002683	M Pr	<	0.000268	M Th	<	0.053663		
M Cd	<	0.000268	M Ir	<	0.000269	M Pt	<	0.000536	S Ti	<	0.000268		
M Co	<	0.000268	M K	<	0.001172	M Rb	<	0.000268	M Tl	<	0.000268		
M Cr	<	0.000752	O Li	<	0.000268	M Re	<	0.000268	M Tm	<	0.000268		
M Cs	<	0.000268	M Lu	<	0.000268	M Rh	<	0.000268	M U	<	0.000268		
O Cu	<	0.010890	O Mg	<	0.005445	I S	<	0.006976	M Y	<	0.002146		
M Dy	<	0.000268	O Mn	<	0.003267	M Sb	<	0.004900	M Yb	<	0.000536		
M Er	<	0.000268	M Mo	<	0.000774	O Sc	<	0.004900	M Yb	<	0.000536		

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

Atomic Weight; Valence: Soluble in concentrated HCl, HF, H3PO4 H2SO4 and HNO3. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements forming the hydrated oxide in all dilute acids except HF. Stable with most inorganic anions with a tendency to hydrolyze forming the hydride acids except HF.

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

Ti Containing Samples (Preparation and Solution) - Metal (Soluble in H2O / HF caution - powder reacts violently): Oxide - low temperature history anatase or rutile (Dissolved by heating in 1:1:1 H2O / HF / H2SO4); K2S2O7 - no KF if silica not present); Organic Matrices (Dry ash at 450EC in P10 and dissolve by heating with 1:1:1 H2O / HF / H2SO4 or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystaline form).

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

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 48 amu	14 ppt	N/A	32S16O, 32S14N,
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1	14N17N2, 36Ar12C,
ICP-OES 334.941 nm	0.0038 / 0.00028 µg/mL	1	48Ca, 196X=2
ICP-OES 336.121 nm	0.0053 / 0.00034 µg/mL	1	W, Mo, Co
			Nb, Ta, Cr, U
			Ce, Ar, Ni
			Ru]]
			(where X = Zr, Mo,

HAZARDOUS INFORMATION

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

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Nb, Ta, Cr, U
Ce, Ar, Ni
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(where X = Zr, Mo,

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ICP-OES 336.121 nm	0.005		

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: 800.868.6786; 540.565.3030; Fax: 540.565.3012; info@inorganicventures.com

11.0

CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 17, 2022

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

11.2 Lot Expiration Date

- June 17, 2027

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0

NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas 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



Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

R: 2/22/24
MS997

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CLPP-CAL-3
Lot Number: T2-MEB727800
Matrix: 7% (v/v) HNO₃
Value / Analyte(s):
1 000 µg/mL ea:
Arsenic, Lead,
Selenium, Thallium,
500 µg/mL ea:
Cadmium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	1 000 ± 7 µg/mL	Cadmium, Cd	500.0 ± 2.2 µg/mL
Lead, Pb	1 000 ± 4 µg/mL	Selenium, Se	1 000 ± 6 µg/mL
Thallium, Tl	1 000 ± 7 µg/mL		

Density: 1.042 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
As	ICP Assay	3103a	100818
As	Calculated		See Sec. 4.2
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Tl	ICP Assay	3158	151215

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

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

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale. <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

December 21, 2022

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

11.2 Lot Expiration Date

- **December 21, 2027**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Certificate of Analysis

R: 08/22/24 M6058, M6059

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CHEM-CLP-4
Lot Number: V2-MEB746172
Matrix: 3% (v/v) HNO₃
3% (v/v) HF
Value / Analyte(s): 1 000 µg/mL ea:
Boron, Molybdenum,
Silicon, Tin,
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

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

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

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{TS} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{TS} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™)

see the Limited License to Use PCRM™ in the Inorganic Ventures [Terms and Conditions of Sale](https://www.inorganicventures.com/terms-and-conditions-sale).

<https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 12, 2024

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

11.2 Lot Expiration Date

- **August 12, 2029**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

Certificate of Analysis

M6074
M6075
M6076
M6077

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EXP: 9/6/2029

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CHEM-CLP-4
Lot Number: V2-MEB746762
Matrix: 3% (v/v) HNO₃
3% (v/v) HF
Value / Analyte(s): 1 000 µg/mL ea:
Boron, Molybdenum,
Silicon, Tin,
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

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

Density: 1.033 g/mL (measured at 20 ± 4 °C)

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale. <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 06, 2024

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

11.2 Lot Expiration Date

- September 06, 2029

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58025
101124
Manganese (Mn)

Lot #
Solvent: Nitric Acid

24002546
2%
80.0 (mL)
Nitric Acid

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

Expiration Date: 101127
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 4000.2
5E-05 Balance Uncertainty
0.10 Flask Uncertainty

Compound

RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	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. Manganese(II) nitrate hydrate (Mn) IN031 MNM02020A1 1000 99.999 0.10 20.8 19.2322 19.2344 1000.1 2.0 15710-66-4 5 mg/m3 or-rel >300mg/kg 3132

[1] Spectrum No.1 [34.243 sec]:57025.D# [Count] [Linear]

5.0E6													
2.5E6													
m/z->	10	20	30	40	50	60	70	80	90	100			
1.0E6													
5.0E7													
m/z->	110	120	130	140	150	160	170	180	190	200			
1.0E6													
5.0E7													
m/z->	210	220	230	240	250	260							



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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

M6137
R-71013124

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGSI1
Lot Number: V2-SI744713
Matrix: tr. HNO₃
tr. HF
Value / Analyte(s): 1 000 µg/mL ea:
Silicon
Starting Material: Silica
Starting Material Lot#: 1771
Starting Material Purity: 99.9981%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 999 ± 6 µg/mL
Density: 1.003 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	999 ± 5 µg/mL ICP Assay NIST SRM Traceable to 3150 Lot Number: S2-SI702546
Assay Method #2	1000 ± 7 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

M	Ag	<	0.000310	M	Eu	<	0.000310	O	Na		0.001656	M	Se	<	0.022000	M	Zn	<	0.002500
M	Al		0.010787	M	Fe	<	0.027000	M	Nb	<	0.001300	s	Si	<		O	Zr	<	0.001900
M	As	<	0.001900	M	Ga	<	0.001300	M	Nd	<	0.000310	M	Sm	<	0.000310				
M	Au	<	0.000910	M	Gd	<	0.000310	M	Ni	<	0.005500	M	Sn		0.000096				
M	B		0.016180	M	Ge	<	0.001900	M	Os	<	0.000610	O	Sr		0.000092				
M	Ba		0.000096	M	Hf		0.000423	i	P	<		M	Ta		0.002542				
O	Be	<	0.000570	M	Hg	<	0.000610	M	Pb	<	0.000310	M	Tb	<	0.000310				
M	Bi	<	0.000310	M	Ho	<	0.000610	M	Pd	<	0.000610	M	Te	<	0.000910				
O	Ca		0.011557	M	In	<	0.000310	M	Pr	<	0.000310	M	Th	<	0.001900				
M	Cd	<	0.000310	M	Ir	<	0.000310	M	Pt	<	0.000310	M	Ti		0.001078				
M	Ce	<	0.000610	O	K		0.000577	M	Rb	<	0.009100	M	Tl	<	0.000310				
M	Co	<	0.001600	M	La	<	0.000310	M	Re	<	0.000310	M	Tm	<	0.000310				
M	Cr	<	0.010000	O	Li	<	0.000460	M	Rh	<	0.000310	M	U	<	0.000310				
M	Cs	<	0.000310	M	Lu	<	0.000310	M	Ru	<	0.000310	O	V	<	0.001300				
M	Cu	<	0.002500	O	Mg		0.001348	O	S	<	0.570000	M	W	<	0.001900				
M	Dy	<	0.000310	M	Mn	<	0.002500	M	Sb	<	0.000310	M	Y	<	0.000310				
M	Er	<	0.000310	M	Mo	<	0.000310	O	Sc	<	0.000590	M	Yb	<	0.000310				

M - Checked by ICP-MS

O - Checked by ICP-OES

i - Spectral Interference

n - Not Checked For

s - Solution Standard Element

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form In Solution - 28.09 +4 6 Si(OH)x(F)y2-

Chemical Compatibility -Soluble in HCl, HF, H3PO4 H2SO4 and HNO3 as the Si(OH)x(F)y2-. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths, or high levels of transition elements unless they are fluorinated. Stable with most inorganic anions with a tendency to hydrolyze forming silicic acid (silicic acid is soluble up to ∼100 ppm in water) in all dilute acids except HF.

Stability - 2-100 ppb levels - stability unknown - (alone or mixed with all other metals) as the Si(OH)x(F)y2-. 1-10,000 ppm single element solutions as the Si(OH)x(F)y2- chemically stable for years in 2-5 % HNO3 / trace HF in a LDPE container.

Si Containing Samples (Preparation and Solution) -Metal (Soluble in 1:1:1 H2O / HF / HNO3); Oxide - SiO2, amorphous (dissolve by heating in 1:1:1 H2O / HF / HNO3); Oxide - quartz (fuse in Pt0 with Na2CO3); Geological Samples(fuse in Pt0with Na2CO3 followed by HCl solution of the fuseate); Organic Matrices containing silicates and non volatile silicon compounds (dry ash at 4500C in Pt0 and dissolve by gently warming with 1:1:1 H2O / HF / H2SO4 or fuse / ash with Na2CO3 and dissolve fuseate with HCl / H2O); Silicone Oils - dimethyl silicones depolymerize to form volatile monomer units when heated (Measure directly in alcoholic KOH / xylene mixture where sample is treated first with the KOH at 60-1000C to "unzip" the Si- O-Si polymeric structure or digest with conc. H2SO4 / H2O2 followed by cooling and dissolution of the dehydrated silica with HF.) Note that the direct analysis of silicone oils in an organic solvent will result in false high results due to high vapor pressure of volatile monomer units like hexamethylcyclotrisiloxane. The KOH forms the K2+Si(CH3)2O= salt which is not volatile at room temperature.

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

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 28 amu	4000 - 8000 ppt	N/A	N2, 12C16O
ICP-OES 212.412 nm	0.02/0.01 µg/mL	1	Hf, Os, Mo, Ta
ICP-OES 251.611 nm	0.012/0.003 µg/mL	1	Ta, U, Zn, Th
ICP-OES 288.158 nm	0.03/0.004 µg/mL	1	Ta, Ce, Cr, Cd, Th

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

July 10, 2024

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

11.2 Lot Expiration Date

- July 10, 2029

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor



Certificate Approved By:

Muzzammil Khan
Stock Laboratory Supervisor



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58126
011025
Iron (Fe)
M6140

Lot #
Solvent: 24012496 Nitric Acid

Expiration Date:

011028

2%

40.0 (mL)
Nitric Acid

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

10000

NIST Test Number:

6U7B

5E-05 Balance Uncertainty

Weight shown below was diluted to (mL):

2000.07

0.100 Flask Uncertainty

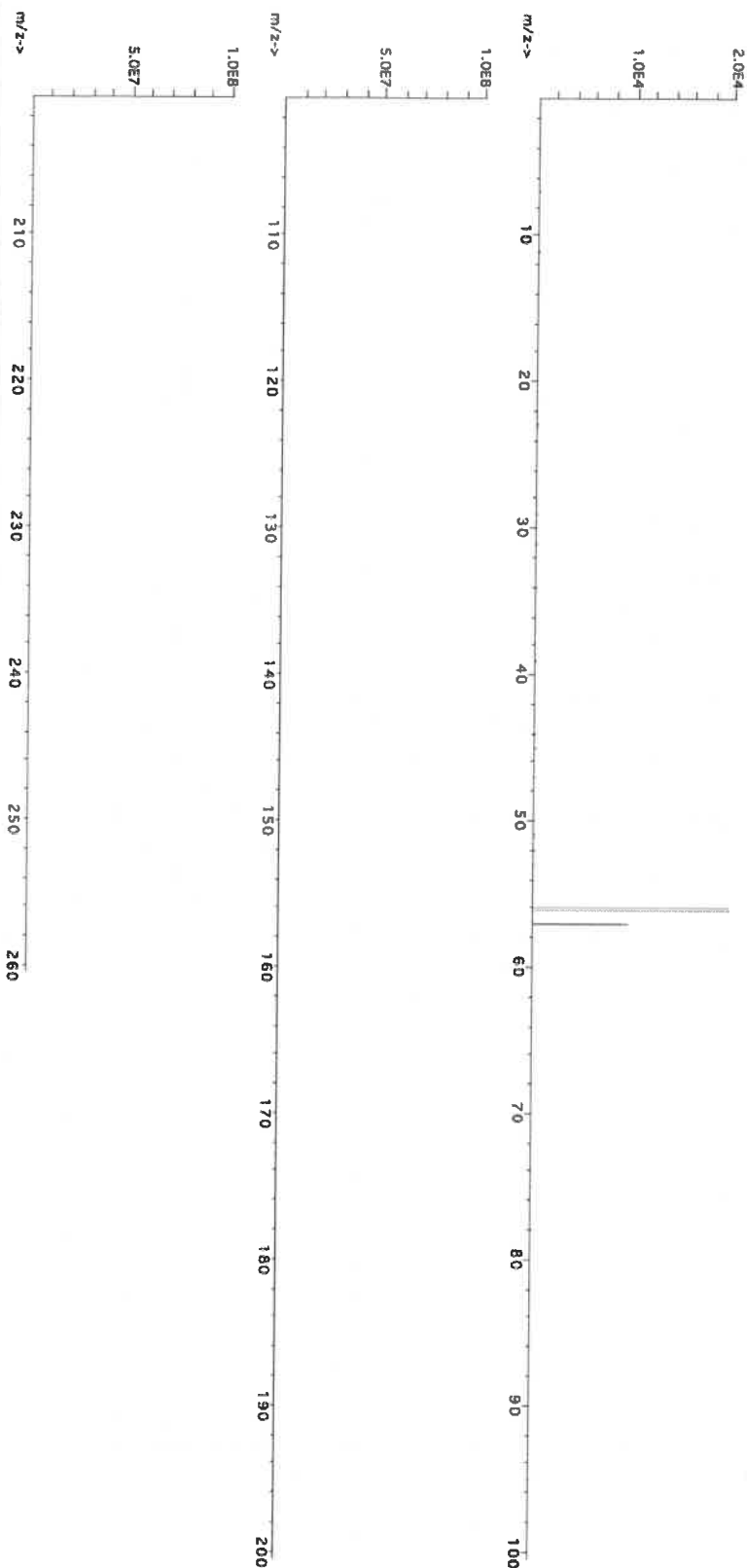
Formulated By:	Benson Chan	011025
Reviewed By:	Pedro L. Renteria	011025

Compound

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.)	SFM

1. Iron(III) nitrate nonahydrate (Fe) IN028 FED082023A1 10000 99.999 0.10 13.0 153.8534 ##### 10000.2 20.0 7782-61-8 1 mg/m³ or-rel 3250mg/kg 3126A

[1] Spectrum No.1 [30.763 sec]58126.D# [Count] [Linear]





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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Bu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	T	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.

[Signature]

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:

57119
103024
Potassium (K)

R-2113125

Lot #
Solvent: 24002546
Nitric Acid

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

103027
Ambient (20 °C)
10000

M6141
M6142
M6143

2%
80.0 (mL)
Nitric Acid

Weight shown below was diluted to (mL):

4000.1
0.15
Flask Uncertainty

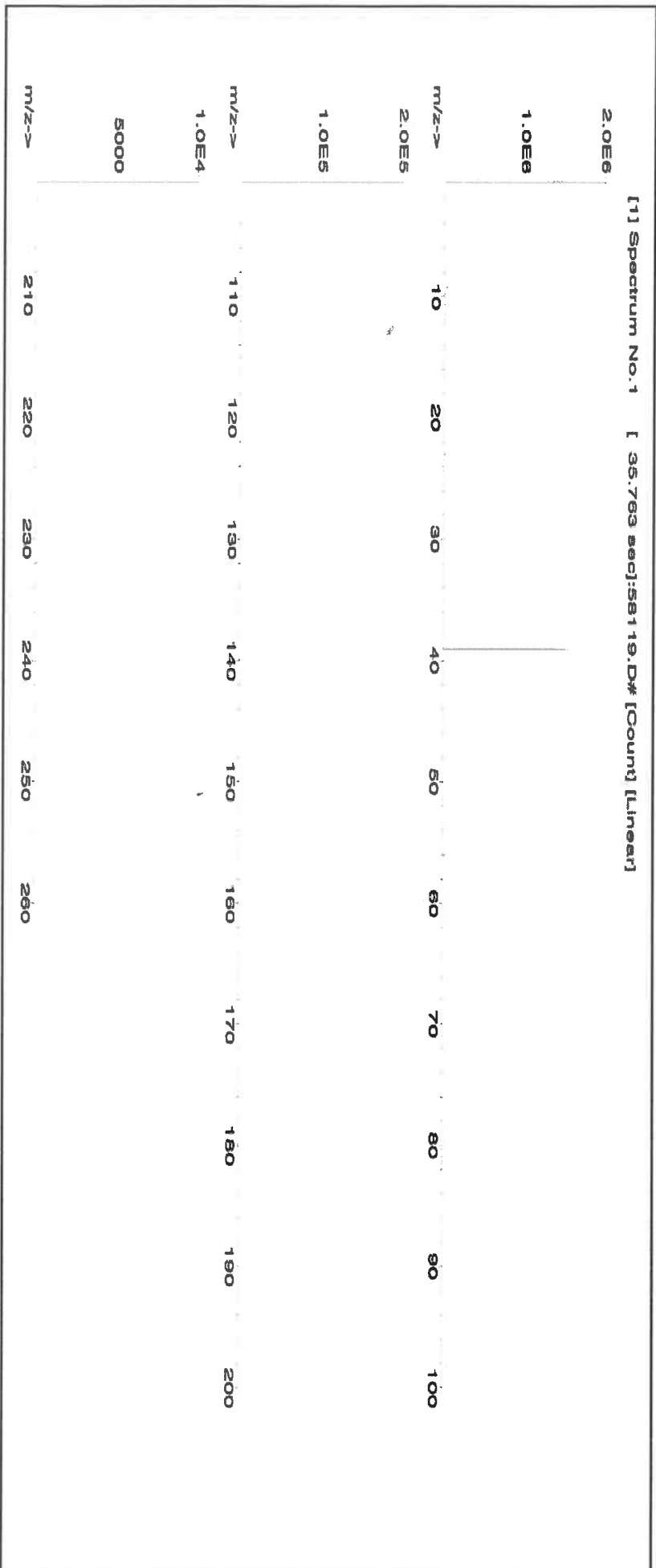
<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	Pedro L. Renteria
	103024

Compound

RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Potassium nitrate (K) IN034 KD062022A1 10000 99.999 0.10 37.7 106.1040 ##### 10001.1 20.0 7757-79-1 5 mg/m3 orl-rat 3750 mg/kg 3141a

[1] Spectrum No. 1 [35.763 sec]:58119.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



CERTIFIED WEIGHT REPORT:

Part Number: 58111 **Lot #** R-1113125
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**

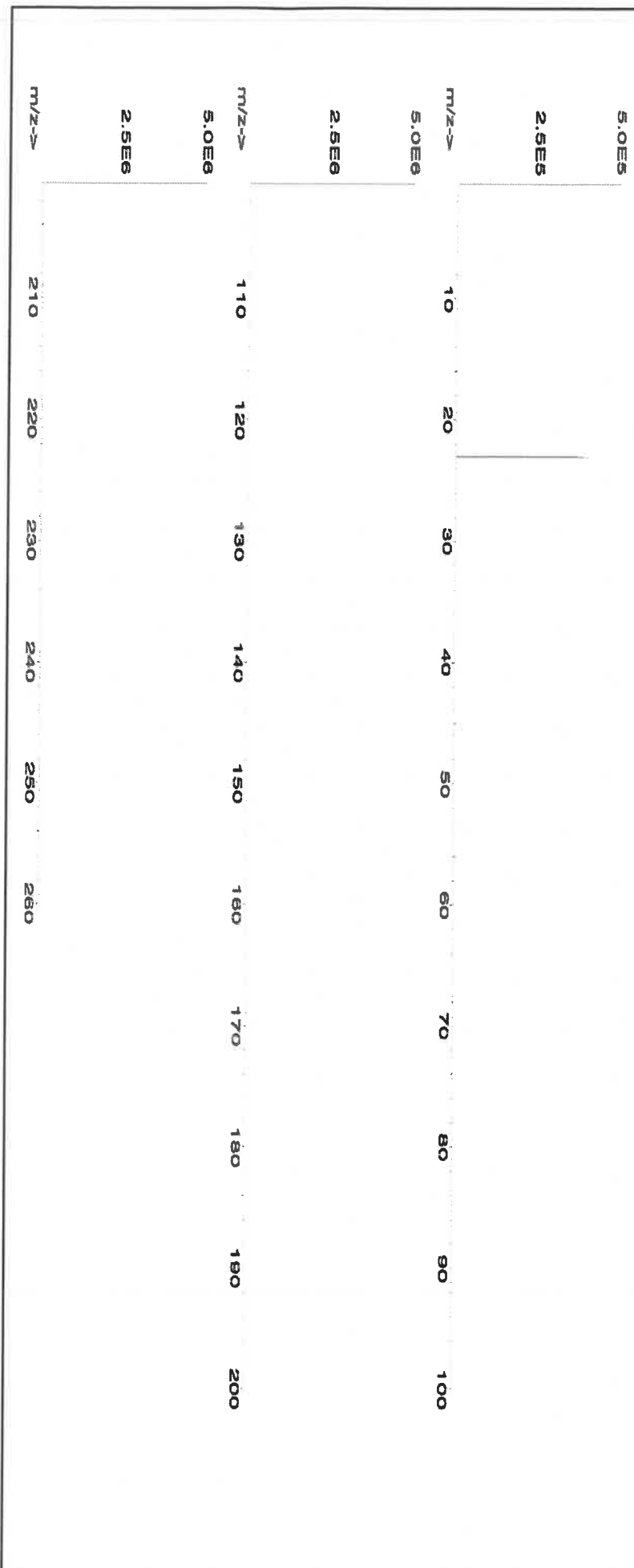
Formulated By:	Benson Chan	072424
Reviewed By:	Pedro L. Renteria	072424

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
----------	------------	-----------------------	------------	------------------------	-----------	-------------------	-------------------	----------------------	----------------------------------	------	----------------	------	----------

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	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	Rb	<0.02	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	<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:

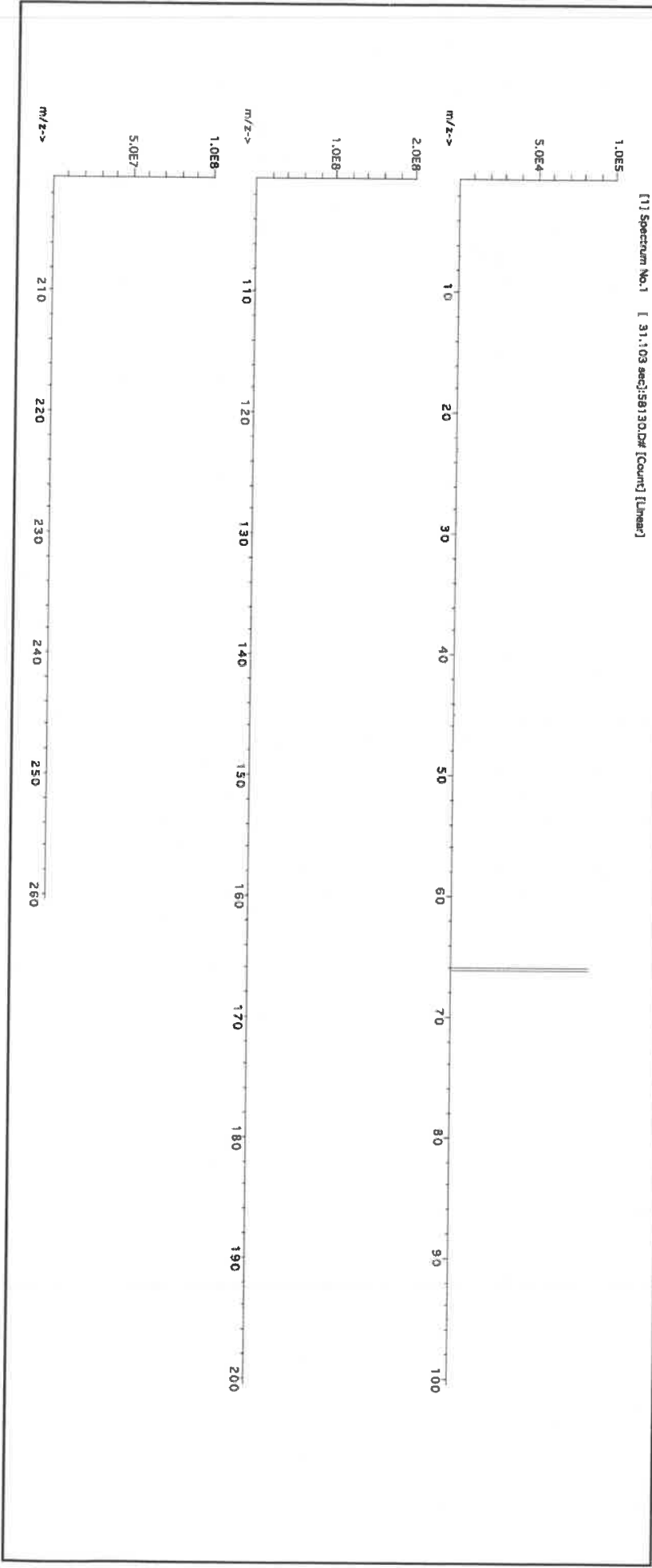
Part Number: 58030
Lot Number: 121724
Description: Zinc (Zn)
Expiration Date: 121727
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.1
Balance Uncertainty: 5E-05
Flask Uncertainty: 0.10

Lot # 24012496
Nitric Acid
2%
40.0 (mL)
Nitric Acid

Aleah O'Brady
Formulated By: Aleah O'Brady
Reviewed By: Pedro L. Rentias
121724

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)	Uncertainty +/- (µg/mL)	(Solvent Safety Info. On Attached pg.)	SRM

1. Zinc nitrate hexahydrate (Zn) IN016 ZNE032021A1 1000 99.999 0.10 24.3 8.2308 8.2311 1000.0 2.0 10196-18-6 1 mg/m3 or-rat 1190mg/kg 3168





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™



M6151

R → 11/15/25

Material No.: 9530-33
Batch No.: 22G2862015
Manufactured Date: 2022-06-15
Retest Date: 2027-06-14
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid–base titrn)	36.5 – 38.0 %	37.9 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.191
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl ₂)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO ₄)	≤ 0.05 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO ₃)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH ₄)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	1.3 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	< 5.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	163.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.7 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	0.6 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	6 ppb

>>> Continued on page 2 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™



Material No.: 9530-33
Batch No.: 22G2862015

Test	Specification	Result
Trace Impurities – Lead (Pb)	≤ 1.0 ppb	< 0.5 ppb
Trace Impurities – Lithium (Li)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Magnesium (Mg)	≤ 10.0 ppb	2.9 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	0.1 ppb
Trace Impurities – Molybdenum (Mo)	≤ 10.0 ppb	< 3.0 ppb
Trace Impurities – Nickel (Ni)	≤ 4.0 ppb	< 0.3 ppb
Trace Impurities – Niobium (Nb)	≤ 1.0 ppb	0.8 ppb
Trace Impurities – Potassium (K)	≤ 9.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	0.5 ppb
Trace Impurities – Sodium (Na)	≤ 100.0 ppb	2.3 ppb
Trace Impurities – Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Tantalum (Ta)	≤ 1.0 ppb	1.6 ppb
Trace Impurities – Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	4.0 ppb
Trace Impurities – Titanium (Ti)	≤ 1.0 ppb	1.5 ppb
Trace Impurities – Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	0.8 ppb
Trace Impurities – Zirconium (Zr)	≤ 1.0 ppb	0.3 ppb

>>> Continued on page 3 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA–ANALYZED® Reagent
For Trace Metal Analysis

 **avantor**™

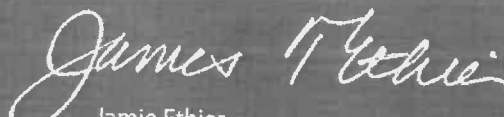


Material No.: 9530-33
Batch No.: 22G2862015

Test	Specification	Result
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For Laboratory, Research, or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications
Storage Condition: Store below 25 °C.

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC


Jamie Ethier
Vice President Global Quality

300 Technology Drive
 Christiansburg, VA 24073 USA
 inorganicventures.com

P: 800-669-6799/540-585-3030
 F: 540-585-3012
 info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution		
Catalog Number:	QCP-CICV-1		
Lot Number:	V2-MEB744107		
Matrix:	7% (v/v) HNO ₃		
Value / Analyte(s):	2 500 µg/mL ea:		
	Calcium,	Potassium,	
	Magnesium,	Sodium,	
	1 000 µg/mL ea:		
	Aluminum,	Barium,	
	500 µg/mL ea:		
	Iron,		
	250 µg/mL ea:		
	Nickel,	Vanadium,	
	Zinc,	Cobalt,	
	Manganese,		
	125 µg/mL ea:		
	Silver,	Copper,	
	100 µg/mL ea:		
	Chromium,		
	25 µg/mL ea:		
	Beryllium		

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	1 000 ± 4 µg/mL	Barium, Ba	1 000 ± 6 µg/mL
Beryllium, Be	24.98 ± 0.12 µg/mL	Calcium, Ca	2 500 ± 8 µg/mL
Chromium, Cr	99.9 ± 0.6 µg/mL	Cobalt, Co	250.2 ± 1.2 µg/mL
Copper, Cu	125.0 ± 0.5 µg/mL	Iron, Fe	500.0 ± 2.2 µg/mL
Magnesium, Mg	2 500 ± 11 µg/mL	Manganese, Mn	249.9 ± 1.1 µg/mL
Nickel, Ni	250.0 ± 1.2 µg/mL	Potassium, K	2 500 ± 11 µg/mL
Silver, Ag	125.0 ± 0.6 µg/mL	Sodium, Na	2 500 ± 11 µg/mL
Vanadium, V	250.0 ± 1.1 µg/mL	Zinc, Zn	249.9 ± 1.1 µg/mL

Density: 1.081 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Be	Calculated		See Sec. 4.2
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	120618
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	200413
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures [Terms and Conditions of Sale](https://www.inorganicventures.com/terms-and-conditions-sale), <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information (<https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver>)

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 22, 2024

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

11.2 Lot Expiration Date

- **May 22, 2029**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



300 Technology Drive
Christiansburg, VA 24073 USA
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P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: QCP-CICV-2
Lot Number: U2-MEB733713
Matrix: 3% (w/v) Tartaric acid
1% (v/v) HNO₃
Value / Analyte(s): 500 µg/mL ea:
Antimony

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	500.0 ± 2.8 µg/mL		

Density: 1.017 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Sb	ICP Assay	3102a	140911

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures [Terms and Conditions of Sale](https://www.inorganicventures.com/terms-and-conditions-sale). <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 01, 2023

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

11.2 Lot Expiration Date

- June 01, 2028

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



300 Technology Drive
 Christiansburg, VA 24073 USA
 inorganicventures.com

P: 800-669-6799/540-585-3030
 F: 540-585-3012
 info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
 Catalog Number: QCP-CICV-3
 Lot Number: V2-MEB749572
 Matrix: 7% (v/v) HNO₃
 Value / Analyte(s):
 500 µg/mL ea:
 Arsenic, Lead,
 Selenium, Thallium,
 250 µg/mL ea:
 Cadmium

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	500.0 ± 3.1 µg/mL	Cadmium, Cd	250.1 ± 1.1 µg/mL
Lead, Pb	500.0 ± 2.3 µg/mL	Selenium, Se	500.0 ± 3.2 µg/mL
Thallium, Tl	500.0 ± 3.0 µg/mL		

Density: 1.040 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
As	ICP Assay	3103a	100818
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Tl	ICP Assay	3158	151215

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

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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

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4.0 TRACEABILITY TO NIST

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

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

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.

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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 02, 2025

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

11.2 Lot Expiration Date

- **January 02, 2030**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT:

Part Number: 58112 **Lot #** M 6171
Lot Number: 011525 **Solvent:** 24012496 Nitric Acid
Description: Magnesium (Mg)
Expiration Date: 011528 2% 40.0 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): 2000.07 0.100 Flask Uncertainty

Formulated By:	Benson Chan	011525
Reviewed By:	Pedro L. Rentas	011525

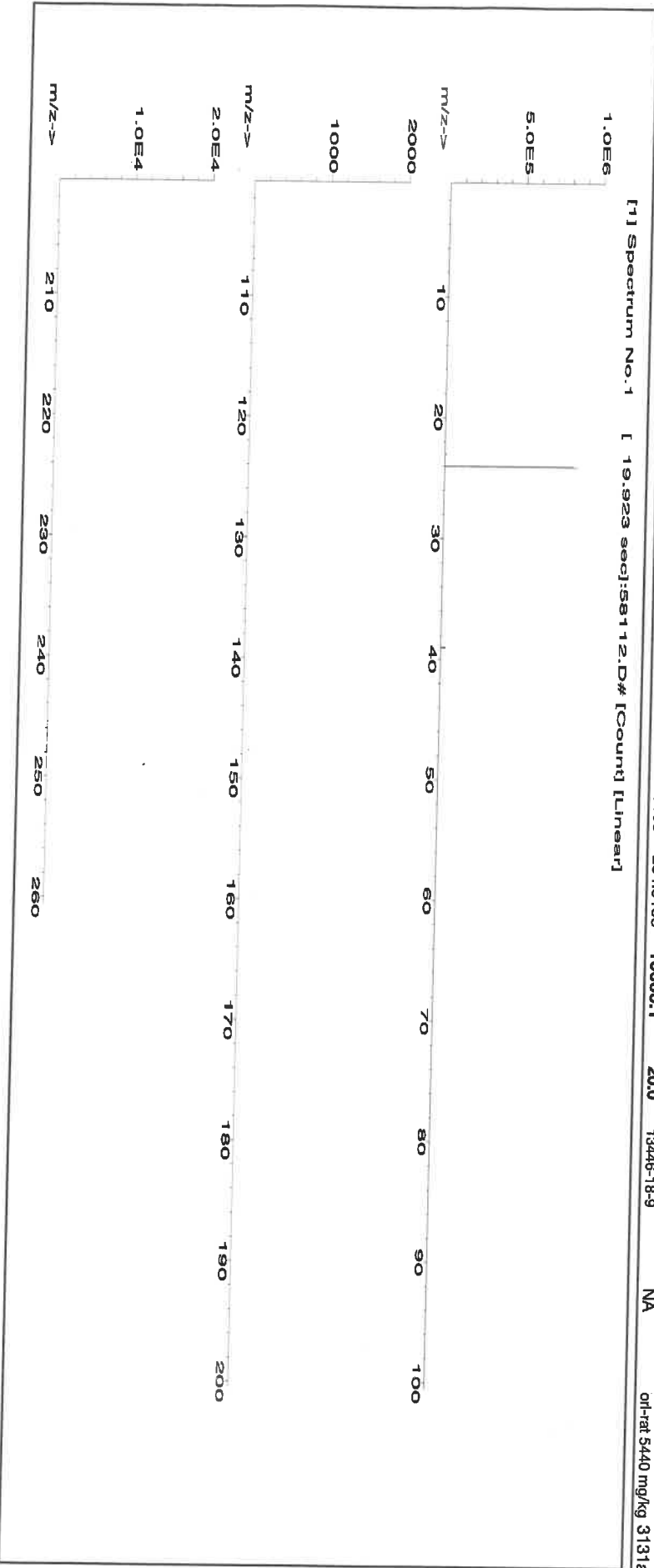
Compound

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LDSO	NIST SRM
1. Magnesium nitrate hexahydrate (Mg) IN030 MGD05023A1	10000	99.999	0.10	8.51	234.9183	234.9195	10000.1	20.0	13446-18-9	NA		011525	

SDS Information

(Solvent Safety Info. On Attached pg.)

[1] Spectrum No. 1 [19.923 sec]:58112.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
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info@inorganicventures.com

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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:	V2-MEB742428	
Matrix:	5% (v/v) HNO ₃	
Value / Analyte(s):	5 000 µg/mL ea:	
	Calcium,	Potassium,
	Magnesium,	Sodium,
	2 000 µg/mL ea:	
	Aluminum,	Barium,
	1 000 µg/mL ea:	
	Iron,	
	500 µg/mL ea:	
	Nickel,	Vanadium,
	Zinc,	Cobalt,
	Manganese,	
	250 µg/mL ea:	
	Silver,	Copper,
	200 µg/mL ea:	
	Chromium,	
	50 µg/mL ea:	
	Beryllium	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	2 000 ± 7 µg/mL	Barium, Ba	2 000 ± 9 µg/mL
Beryllium, Be	50.03 ± 0.30 µg/mL	Calcium, Ca	5 000 ± 16 µg/mL
Chromium, Cr	200.0 ± 1.1 µg/mL	Cobalt, Co	500.0 ± 2.3 µg/mL
Copper, Cu	250.0 ± 1.1 µg/mL	Iron, Fe	1 000 ± 4 µg/mL
Magnesium, Mg	5 000 ± 22 µg/mL	Manganese, Mn	499.9 ± 2.2 µg/mL
Nickel, Ni	500.1 ± 2.3 µg/mL	Potassium, K	5 000 ± 22 µg/mL
Silver, Ag	250.0 ± 1.1 µg/mL	Sodium, Na	5 000 ± 22 µg/mL
Vanadium, V	500.0 ± 2.2 µg/mL	Zinc, Zn	500.0 ± 2.2 µg/mL

Density: 1.117 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	120618
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	200413
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

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X_a = mean of Assay Method A with

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4.0 TRACEABILITY TO NIST

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

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

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

N/A

6.0 INTENDED USE

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.

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7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information (<https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver>)

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 22, 2024

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

11.2 Lot Expiration Date

- **March 22, 2029**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor



Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





CERTIFIED WEIGHT REPORT:

Part Number: 57038 **Lot #** 24002546 **Solvent:** Nitric Acid
Lot Number: 092724
Description: Strontium (Sr)
Expiration Date: 092727
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 8UTB
Weight shown below was diluted to (mL): 2000.07
5E-05 Balance Uncertainty
0.100 Flask Uncertainty

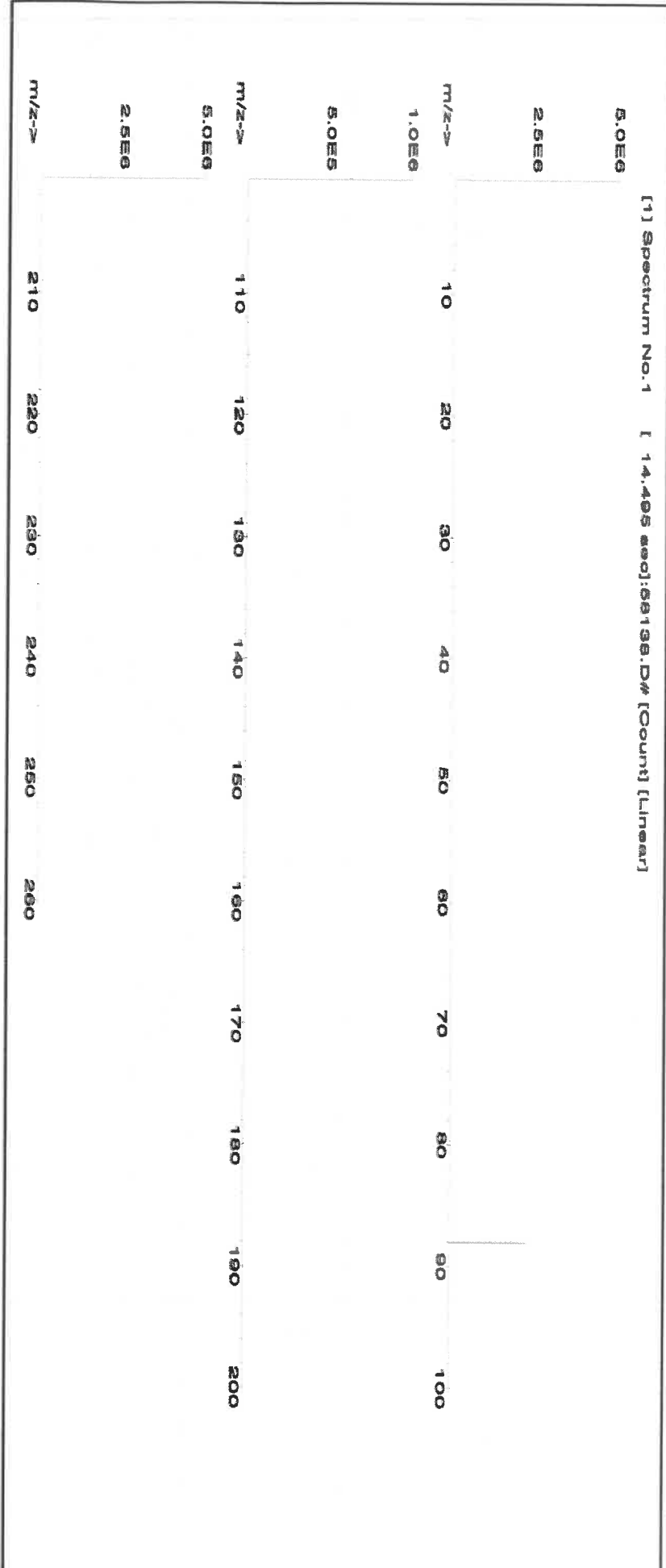
Handwritten: R-5816125
Handwritten: M6176

<i>Signature</i>	
Formulated By:	Benson Chan
Reviewed By:	Pedro L. Rentas
	092724

SDS Information

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

1. Strontium nitrate (Sr) IN017 SR202018A1 1000 99.997 0.10 41.2 4.85470 4.85481 1000.0 2.0 10042-76-9 NA or-rel >2000mg/kg 3153a





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57042
080525
Molybdenum (Mo)

Solvent

Ammonium hydroxide
ASTM Type 1 Water

Expiration Date:

080528

Recommended Storage:

Ambient (15 - 30 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

1999.41

5E-05

Balance Uncertainty

0.058

Fork Uncertainty

R → 8/6/25
M6177

0.5%

10.0

Ammonium hydroxide

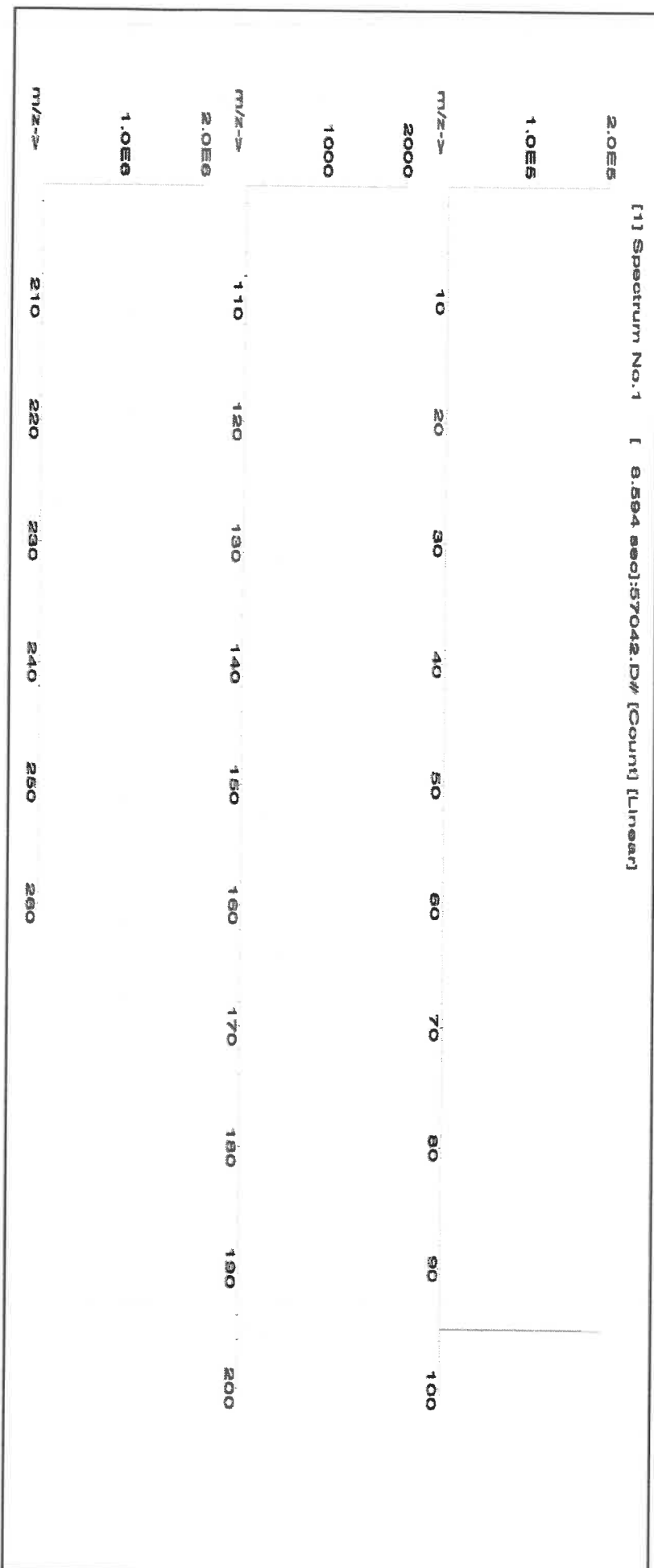
Formulated By: Benson Chan 080525

Reviewed By: Pedro L. Rentes 080525

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

1. Ammonium molybdate (Mo) 58142 112322 0.1000 200.0 0.084 1000 10001.4 1000.5 2.2 13106-76-8 5 mg(Mo)/mL 0.01-0.333 mg/kg 3134

[1] Spectrum No. 1 [8.594 sec]:57042.D# [Count] [Linear]





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

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

(T) = Target analyte

Physical Characterization:

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

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 by an ISO17025 certified organization with weights traceable through NIST to the SI kilogram (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).
- Rev 1.0, 2/25/2025



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57082
031525
Lead (Pb)

Lot #

24014457 Nitric Acid

Expiration Date:

031528

2%

40.0

Nitric Acid

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Weight shown below was diluted to (mL):

2000.07

0.10 Flask Uncertainty

SDS Information

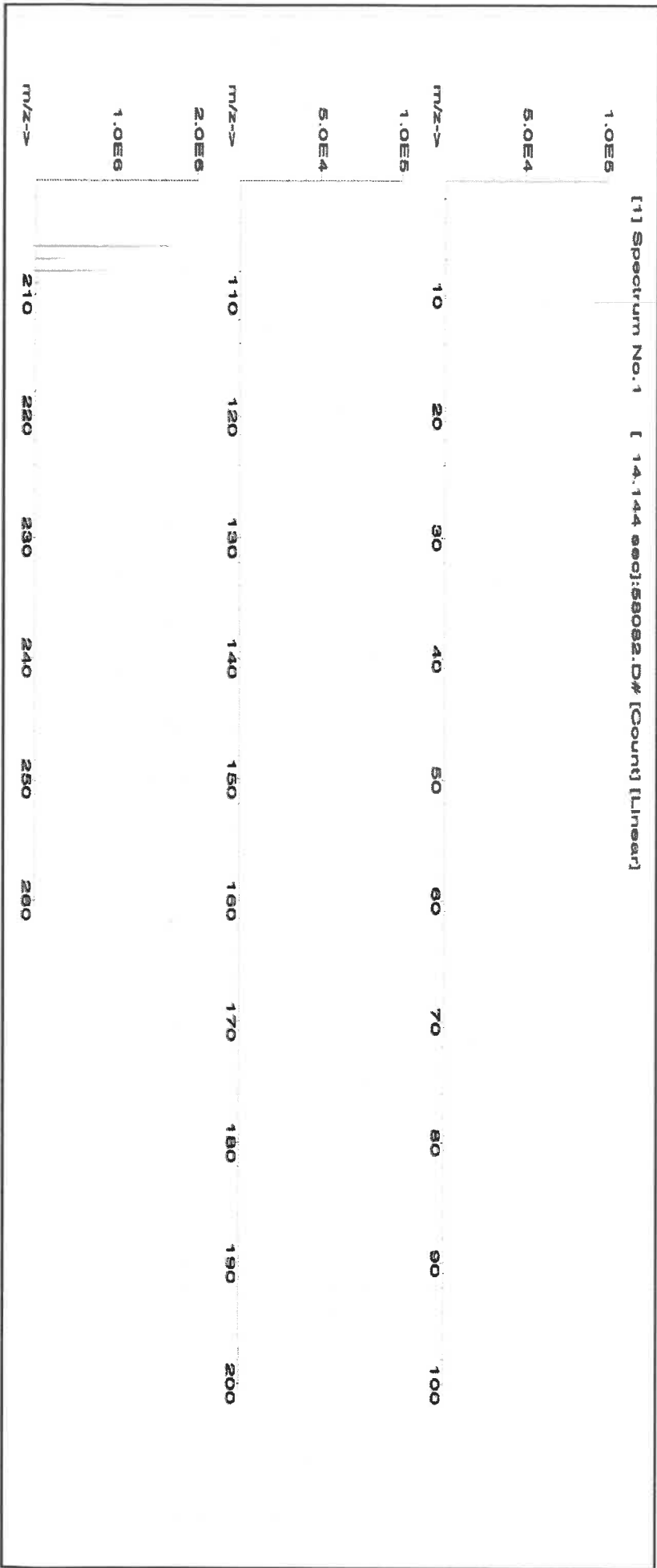
Compound

Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Uncertainty	(Solvent Safety Info. On Attached pg.)		
RM#	Number	Conc. (µg/mL)	(%)	Purity (%)	Weight (g)	Weight (g)	Conc. (µg/mL)	+/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50
											SRM

1. Lead(II) nitrate (Pb)

IN029	PBD122016A1	1000	99.999	0.10	62.5	3.20015	3.20067	1000.2	2.0	10099-74-8	0.05 mg/m3	Intrins-ral 93 mg/kg 3128
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[1] Spectrum No. 1 [14.144 sec]:58082.D# [Count] [Linear]





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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

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Christiansburg, VA 24073 USA
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F: 540-585-3012
info@inorganicventures.com

M6179
R → 612/24

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGY10
Lot Number: V2-Y740548
Matrix: 2% (v/v) HNO₃
Value / Analyte(s): 10 000 µg/mL ea:
Yttrium
Starting Material: Yttrium Oxide
Starting Material Lot#: 2661 and 06230520YL
Starting Material Purity: 99.9984%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10000 ± 30 µg/mL
Density: 1.032 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	10011 ± 25 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #2	9997 ± 50 µg/mL ICP Assay NIST SRM 3167a Lot Number: 190730
Assay Method #3	9984 ± 31 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

M	Ag	<	0.004600	M	Eu	0.009037	M	Na	0.086360	M	Se	<	0.005200	M	Zn	0.030125	
M	Al		0.014862	O	Fe	0.002410	M	Nb	<	0.000570	O	Si	0.024100	O	Zr	<	0.002600
M	As	<	0.003500	M	Ga	<	0.000570	M	Nd	0.000923	M	Sm	0.000461				
M	Au	<	0.001700	M	Gd	<	0.003500	M	Ni	<	0.005700	M	Sn	<	0.002300		
O	B		0.002209	M	Ge	<	0.005200	M	Os	<	0.001200	M	Sr	<	0.004600		
O	Ba	<	0.002500	M	Hf	<	0.000570	n	P	<		M	Ta	<	0.000570		
O	Be	<	0.001400	M	Hg	<	0.000570	M	Pb	0.005020	M	Tb	0.001044				
M	Bi	<	0.003500	M	Ho	0.009037	M	Pd	<	0.005100	M	Te	<	0.002300			
O	Ca		0.009841	M	In	<	0.002300	M	Pr	<	0.002300	M	Th	<	0.000570		
M	Cd	<	0.000570	M	Ir	<	0.000570	M	Pt	<	0.000570	M	Ti	<	0.003500		
M	Ce	<	0.002300	O	K	0.018677	M	Rb	<	0.000570	M	Tl	<	0.000570			
M	Co	<	0.000570	M	La	0.000461	M	Re	<	0.000570	M	Tm	<	0.003500			
M	Cr	<	0.004000	O	Li	<	0.009300	M	Rh	<	0.008000	M	U	<	0.000570		
M	Cs	<	0.000570	M	Lu	0.000582	M	Ru	<	0.000570	M	V	0.001265				
M	Cu		0.002610	O	Mg	0.001486	n	S	<		M	W	<	0.002300			
M	Dy		0.003815	M	Mn	0.000582	M	Sb	0.005422	s	Y	<					
M	Er		0.003615	M	Mo	<	0.005700	M	Sc	<	0.001200	M	Yb	0.001827			

M - Checked by ICP-MS

O - Checked by ICP-OES

i - Spectral Interference

n - Not Checked For

s - Solution Standard Element

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures [Terms and Conditions of Sale](https://www.inorganicventures.com/terms-and-conditions-sale). <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form In Solution - 88.91 +3 6 Y(OH)(H₂O)_{x+2}
Chemical Compatibility -Soluble in HCl, H₂SO₄ and HNO₃. Avoid HF, H₃PO₄ and neutral to basic media. Stable with most metals and inorganic anions forming an insoluble carbonate, oxide, oxalate, and fluoride. Avoid mixing with elements / solutions containing moderate amounts of fluoride.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO₃ / LDPE container.

Y Containing Samples (Preparation and Solution) - Metal (Soluble in acids); Oxide (Dissolve by heating in H₂O / HNO₃); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Dry ash and dissolve in 1:1 H₂O / HCl or HNO₃).

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

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 89 amu	0.8 ppt	N/A	73Ge16O, 178Hf+2
ICP-OES 360.073 nm	0.005 / 0.000036 µg/mL	1	Ce, Th
ICP-OES 371.030 nm	0.004 / 0.00007 µg/mL	1	Ce
ICP-OES 377.433 nm	0.005 / 0.0009 µg/mL	1	Ta, Th

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 20, 2024

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

11.2 Lot Expiration Date

- February 20, 2029

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor



Certificate Approved By:

Muzzammil Khan
Stock Laboratory Supervisor



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





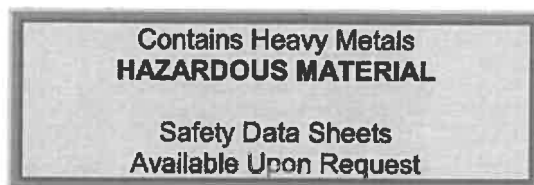
Instructions for QATS Reference Material: ICP-AES ICS

QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)

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

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

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



M6182

(A) **SAMPLE DESCRIPTION**

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) **BREAKAGE OR MISSING ITEMS**

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

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

(C) **ANALYSIS OF SAMPLES**

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,





Instructions for QATS Reference Material: ICP-AES ICS

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSAB solution by ICP-AES.

(D) "CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 15 percent of the listed certified value.



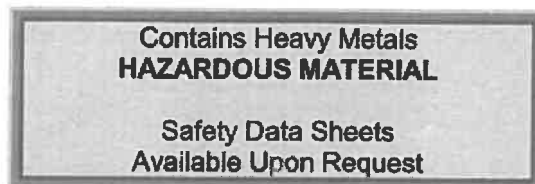
Instructions for QATS Reference Material: ICP-AES ICS

QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)

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

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

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



M6184

(A) **SAMPLE DESCRIPTION**

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) **BREAKAGE OR MISSING ITEMS**

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

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(C) **ANALYSIS OF SAMPLES**

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,





Instructions for QATS Reference Material: ICP-AES ICS

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSAB solution by ICP-AES.

(D) "CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 15 percent of the listed certified value.

Nitric Acid 69%
CMOS

avantor™



M6187

R.D :- 08/08/25

Material No.: 9606-03
Batch No.: 24H0162012
Manufactured Date: 2024-06-28
Retest Date: 2029-06-27
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 – 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	< 1 ppm
Chloride (Cl)	≤ 0.08 ppm	0.03 ppm
Phosphate (PO ₄)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities – Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	0.1 ppb
Trace Impurities – Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 30.0 ppb	0.1 ppb
Trace Impurities – Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Germanium (Ge)	≤ 20 ppb	< 1 ppb
Trace Impurities – Gold (Au)	≤ 20 ppb	< 1 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities – Lead (Pb)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Nickel (Ni)	≤ 20.0 ppb	< 1.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS



Material No.: 9606-03
Batch No.: 24H0162012

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	< 1 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	1 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 1.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	13 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	5 par/ml

>>> Continued on page 3 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™



M6200
R.O → 08/25/25

Material No.: 9530-33
Batch No.: 24D1562005
Manufactured Date: 2024-03-18
Retest Date: 2029-03-17
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid-base titrn)	36.5 – 38.0 %	37.6 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.192
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl ₂)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO ₄)	≤ 0.05 ppm	0.03 ppm
Sulfate (SO ₄)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO ₃)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH ₄)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	2.2 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	31.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.5 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	< 0.2 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	3 ppb

>>> Continued on page 2 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis



Material No.: 9530-33
Batch No.: 24D1562005

Test	Specification	Result
Trace Impurities – Lead (Pb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Lithium (Li)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Magnesium (Mg)	≤ 10.0 ppb	2.2 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Molybdenum (Mo)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Nickel (Ni)	≤ 4.0 ppb	0.2 ppb
Trace Impurities – Niobium (Nb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Potassium (K)	≤ 9.0 ppb	< 1.0 ppb
Trace Impurities – Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Sodium (Na)	≤ 100.0 ppb	2.0 ppb
Trace Impurities – Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Tantalum (Ta)	≤ 1.0 ppb	< 0.9 ppb
Trace Impurities – Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	< 0.4 ppb
Trace Impurities – Titanium (Ti)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities – Zirconium (Zr)	≤ 1.0 ppb	< 0.1 ppb

>>> Continued on page 3 >>>

300 Technology Drive
Christiansburg, VA 24073 USA
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F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution

Catalog Number: WW-LFS-2

Lot Number: V2-MEB743480

Matrix: 5% (v/v) HNO₃
tr. HF

Value / Analyte(s): 200 µg/mL ea:
Silica,

80 µg/mL ea:
Antimony,

70 µg/mL ea:
Tin,

40 µg/mL ea:
Molybdenum,

20 µg/mL ea:
Titanium

R-7/20/28

M6201

M6202

M6203

M6204

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	80.1 ± 0.5 µg/mL	Molybdenum, Mo	40.05 ± 0.22 µg/mL
Silica, SiO ₂	200.3 ± 1.4 µg/mL	Tin, Sn	70.1 ± 0.4 µg/mL
Titanium, Ti	20.03 ± 0.12 µg/mL		

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

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Sb	ICP Assay	3102a	140911
SiO ₂	Calculated		See Sec. 4.2
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	traceable to 3162a	T2-TI725816

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

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

May 07, 2024

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

11.2 Lot Expiration Date

- May 07, 2029

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Thomas Kozikowski
Stock VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: WW-LFS-1
Lot Number: W2-MEB752149
Matrix: 5% (v/v) HNO₃

R → 7/20/28

M6209
M6210
M6211
M6212

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

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	200.2 ± 0.7 µg/mL	Arsenic, As	80.1 ± 0.5 µg/mL
Barium, Ba	20.02 ± 0.12 µg/mL	Beryllium, Be	20.02 ± 0.11 µg/mL
Boron, B	30.02 ± 0.15 µg/mL	Cadmium, Cd	20.04 ± 0.09 µg/mL
Calcium, Ca	100.1 ± 0.3 µg/mL	Cerium, Ce	200.2 ± 1.0 µg/mL
Chromium, Cr	40.02 ± 0.26 µg/mL	Cobalt, Co	20.03 ± 0.09 µg/mL
Copper, Cu	30.03 ± 0.13 µg/mL	Iron, Fe	300.3 ± 1.3 µg/mL
Lead, Pb	100.1 ± 0.5 µg/mL	Lithium, Li	20.03 ± 0.09 µg/mL
Magnesium, Mg	200.2 ± 0.9 µg/mL	Manganese, Mn	19.99 ± 0.09 µg/mL
Mercury, Hg	70.0 ± 0.3 µg/mL	Nickel, Ni	50.05 ± 0.22 µg/mL
Phosphorus, P	600.5 ± 2.9 µg/mL	Potassium, K	1 001 ± 4 µg/mL
Selenium, Se	200.2 ± 1.1 µg/mL	Silver, Ag	7.52 ± 0.03 µg/mL
Sodium, Na	300.3 ± 1.3 µg/mL	Strontium, Sr	20.02 ± 0.10 µg/mL
Thallium, Tl	200.2 ± 1.0 µg/mL	Vanadium, V	30.02 ± 0.13 µg/mL
Zinc, Zn	20.05 ± 0.09 µg/mL		

Density: 1.037 g/mL (measured at 20 ± 5 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
As	ICP Assay	3103a	100818
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Ce	ICP Assay	3110	160830
Ce	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	120618
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
Hg	ICP Assay	3133	160921
Hg	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Li	ICP Assay	3129a	100714
Li	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	14Q110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	200413
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
P	ICP Assay	3139a	060717
P	Acidimetric	84L	84L
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Sr	EDTA	928	928
Sr	ICP Assay	Traceable to 3153a	K2-SR650985
Tl	ICP Assay	3158	151215
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures [Terms and Conditions of Sale](https://www.inorganicventures.com/terms-and-conditions-sale). <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 25° C to minimize the effects of transpiration. Use at 20° ± 5° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information (<https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver>)

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

April 08, 2025

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

11.2 Lot Expiration Date

- April 08, 2029

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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Certified Reference Material CRM

M6027



CERTIFIED WEIGHT REPORT:

Part Number: **57028**
Lot Number: **062024**
Description: **Nickel (NI)**

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

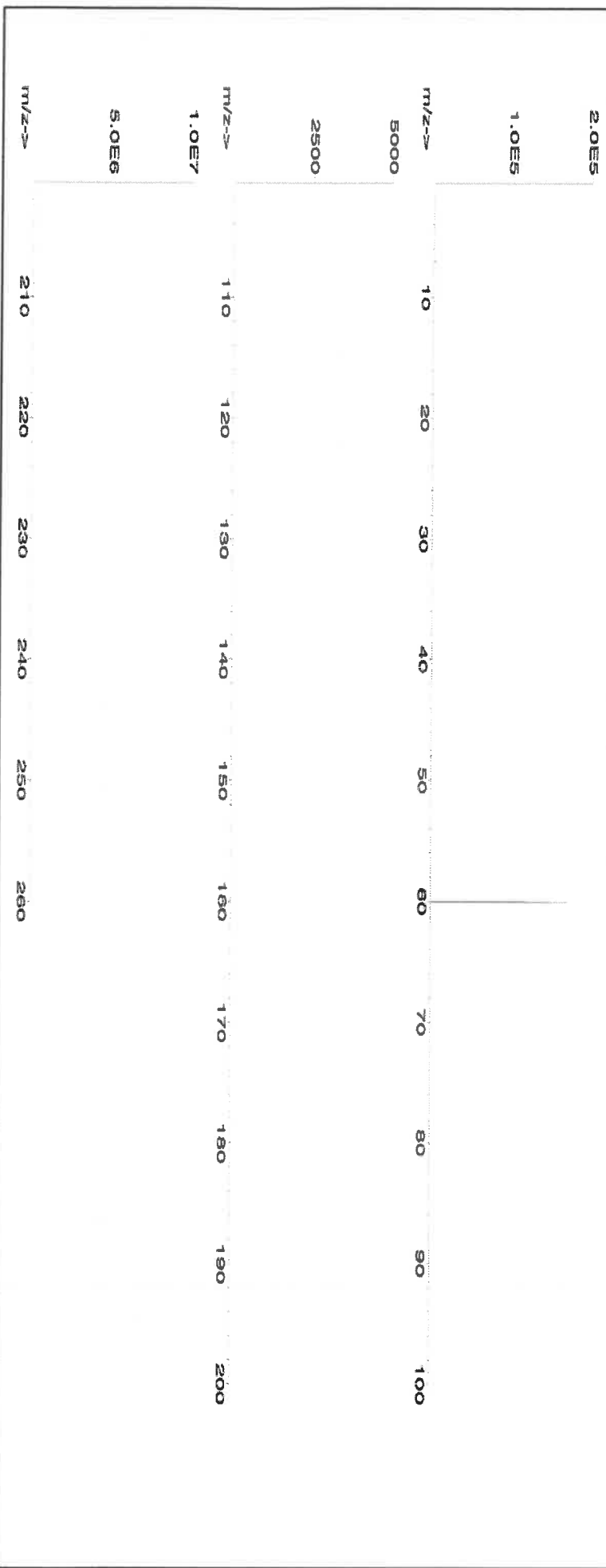
Formulated By:	Benson Chan
062024	
Reviewed By:	Pedro L. Rentes
062024	

Expiration Date: **062027**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**
Volume shown below was diluted to (mL): **2000.07**
5E-05 Balance Uncertainty
0.100 Flask Uncertainty

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

1. Nickel(II) nitrate hexahydrate (NI) 58128 062023 0.1000 200.0 0.084 1000 10000.4 1000.0 2.2 13478-00-7 1 mg/m3 orl-rat 1620 mg/kg 3136

[T1 Spectrum No.1 [9.136 sec]:58028.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	T	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM

M6030



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
<https://absolutestandards.com>

CERTIFIED WEIGHT REPORT:

Part Number: **57047**
Lot Number: **122823**
Description: **Silver (Ag)**

Lot #
Solvent: 24002546 Nitric Acid

Formulated By:	Benson Chan
Reviewed By:	Pedro L. Rentas
	122823

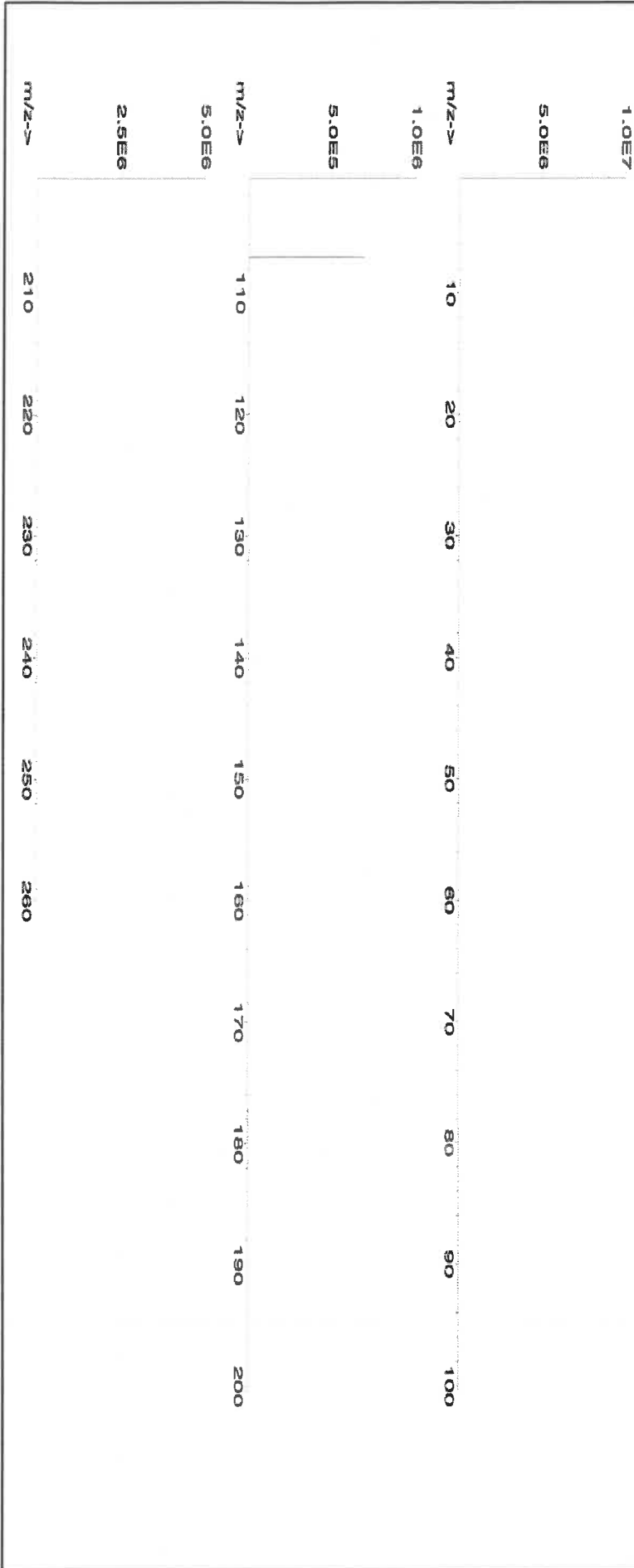
2% 80.0 (mL) Nitric Acid

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 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



CERTIFIED WEIGHT REPORT:

Part Number: 57051
Lot Number: 071724
Description: Antimony (Sb)

126160

Lot # 24002546
Solvent: Nitric Acid

Expiration Date: 071727
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

2.0% Nitric Acid
40.0 (mL)

Volume shown below was diluted to (mL): 2000.26
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

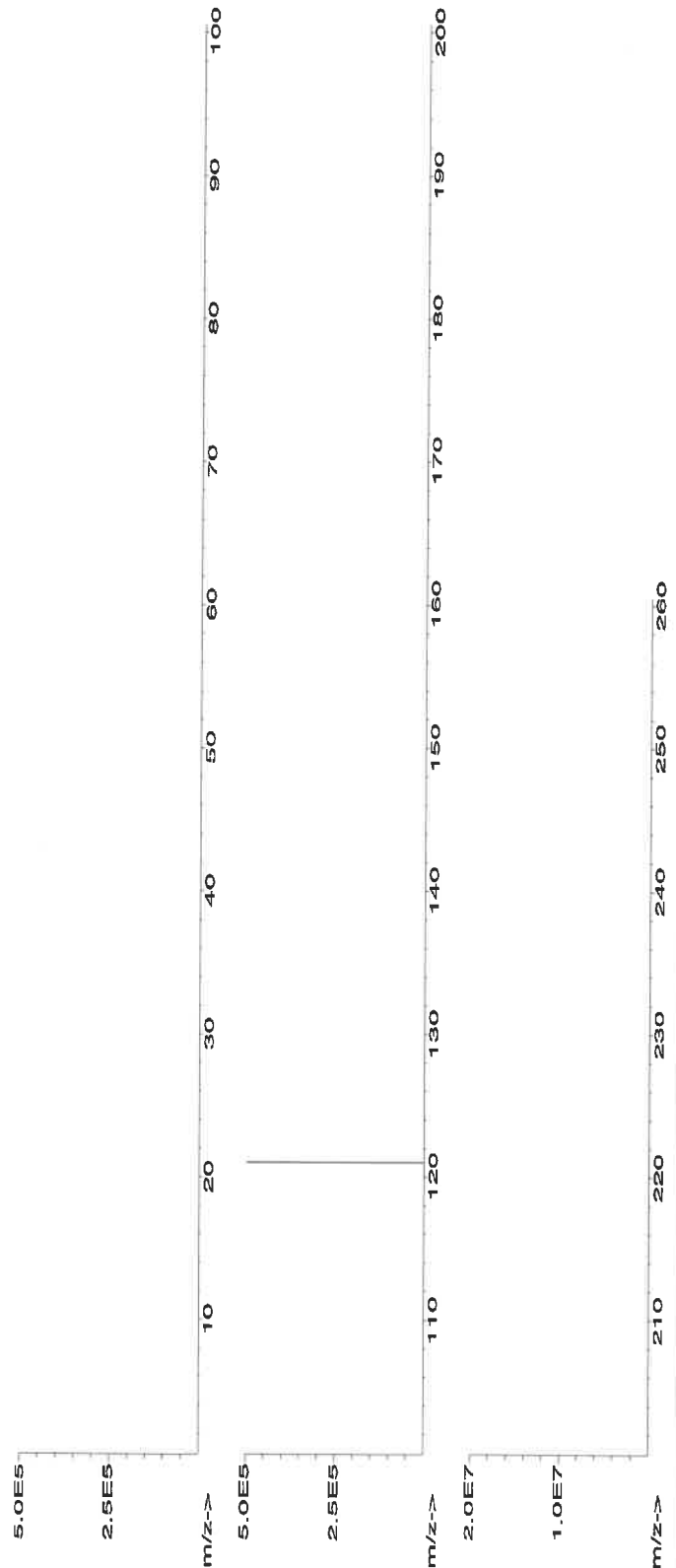
<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito 071724
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas 071724

SDS Information

Expanded Uncertainty
(Solvent Safety Info. On Attached pg.)
CAS# OSHA PEL (TWA) LD50

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	060324	0.1000	200.0	0.084	1000	10001.4	1000.0	2.2	7440-36-0	0.5 mg/m3	or-rat 7000 mg/kg	3102a

[1] Spectrum No.1 [17.964 sec]:58051.D# [Count] [Linear]





Certified Reference Material CRM

M6023



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

CERTIFIED WEIGHT REPORT:

Part Number: 57081
Lot Number: 062724
Description: Thallium (TI)

Solvent: 24002546 Nitric Acid

Lot #

Aleah O'Brady
Formulated By: Aleah O'Brady 062724

Pedro L. Renteria
Reviewed By: Pedro L. Renterias 062724

Expiration Date: 062727

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6U7B

5E-05 Balance Uncertainty

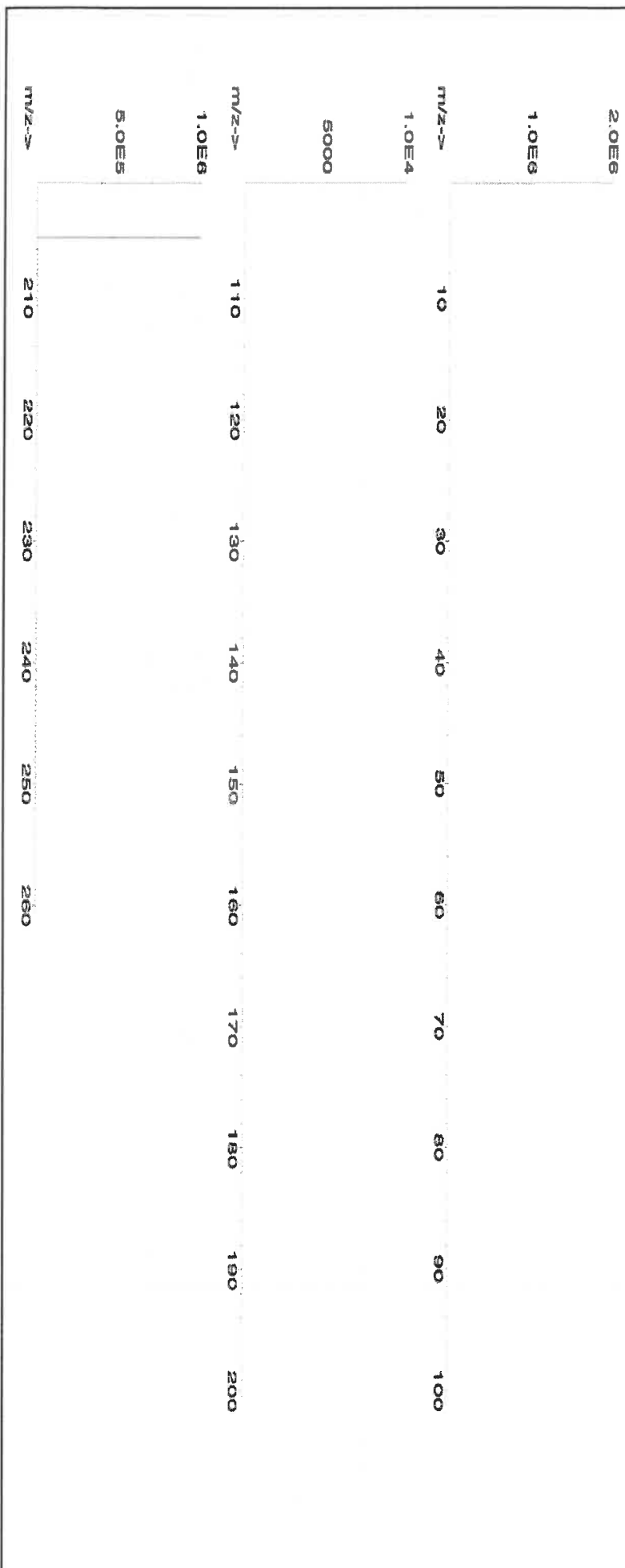
Weight shown below was diluted to (mL): 2000.1 0.10 Flask Uncertainty

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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



Certified Reference Material CRM

M6021



CERTIFIED WEIGHT REPORT:

Part Number: 57023
Lot Number: 062424
Description: Vanadium (V)

Lot # 24002546
Solvent: Nitric Acid

Aleah O'Brady	
Formulated By:	Aleah O'Brady
Reviewed By:	Pedro L. Rantas
	062424

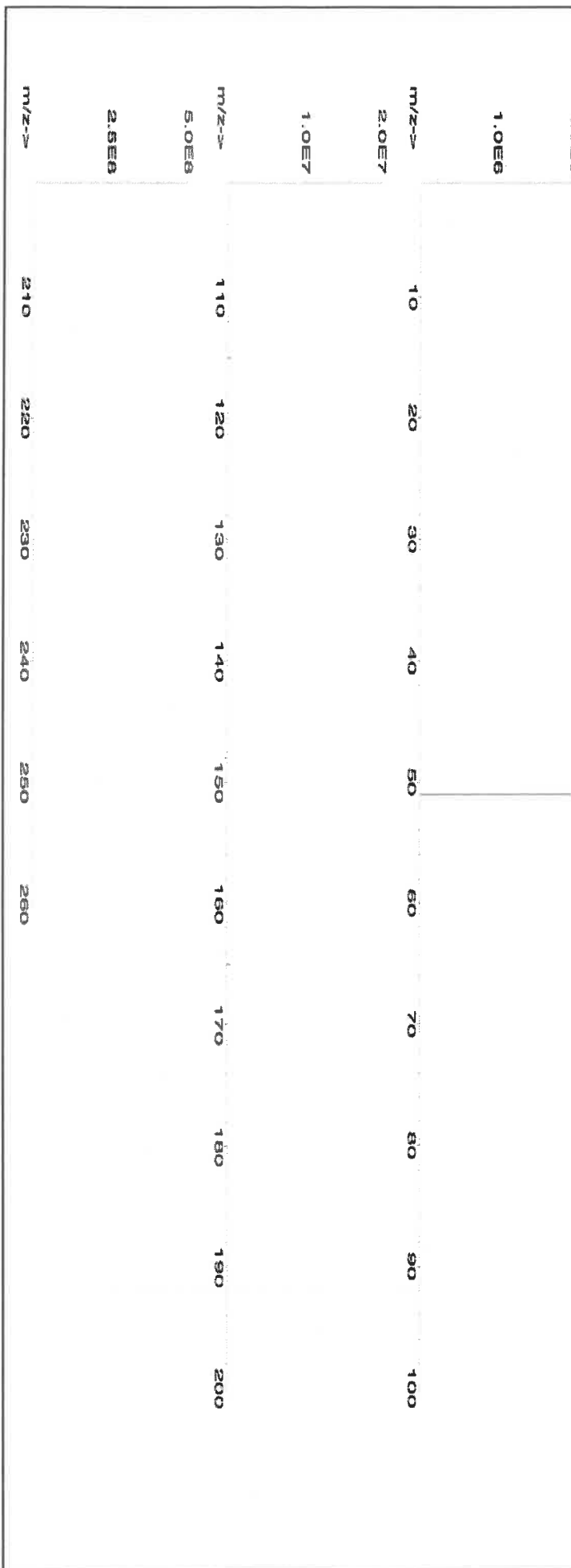
Expiration Date: 062427
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

2.0% 40.0 (mL) Nitric Acid

Volume shown below was diluted to (mL): 2000.3 0.06 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-rat 58.1mg/kg	3165

[1] Spectrum No.1 [34.243 sec]:58023.D# [Count] [Linear]





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

Trace Metals Verification by ICP-MS (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	Ru	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Sr	<0.02	S	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	Ta	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02			Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

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SHIPPING DOCUMENTS

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CHEMTECH CHAIN OF CUSTODY RECORD		284 Sheffield Street, Mountainside, NJ 07092 (908) 789-8900 Fax: (908) 78-8922 www.chemtech.net		Chemtech Project Number: Q3527	
COC Number:					
CLIENT INFORMATION		PROJECT INFORMATION		BILLING INFORMATION	
COMPANY: Tetra Tech		PROJECT NAME: NWIRP Bethpage		BILL TO: PO#	
ADDRESS: 4433 Corporation Ln, Suite 300		PROJECT #: 112G08005-WE13 LOCATION: RW8		ADDRESS:	
CITY: Virginia Beach STATE: VA ZIP: 23462		PROJECT MANAGER: Ernie Wu		CITY: STATE: ZIP:	
ATTENTION: Ernie Wu		E-MAIL: ernie.wu@tetratech.com		ATTENTION: PHONE:	
PHONE: 757-466-4901 FAX: 757-461-4148		PHONE: 757-466-4901 FAX: 757-461-4148			
DATA TURNAROUND INFORMATION		DATA DELIVERABLE INFORMATION		ANALYSIS	
FAX: 10 DAYS* HARD COPY: 10 DAYS* EDD 10 DAYS* * TO BE APPROVED BY CHEMTECH STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS		☐ RESEULTS ONLY ☐ USEPA CLP ☐ RESULTS + QC ☐ New York State ASP "B" ☐ New Jersey REDUCED ☐ New York State ASP "A" ☐ New Jersey CLP ☐ Other _____ ☐ EDD Format _____		1,4-Dioxane SW646 8270 SIM Iron, Total TSS TDS 1 2 3 4 5 6 7 8 9	
				PRESERVATIVES	
				COMMENTS	
CHEMTECH SAMPLE ID		PROJECT SAMPLE IDENTIFICATION		SAMPLE MATRIX	
				SAMPLE TYPE	
				DATE	
				TIME	
				# of Bottles	
				1 2 3 4 5 6 7 8 9	
				B	
				1 2 3 4 5 6 7 8 9	
				A-HCl B-HNO3 C-H2SO4 D-NaOH E-ICE F-Other	
1. RW8-SP100-20251030		GW		X X X X	
2. RW8-SP303-20251030		GW		X X X X	
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE PROSESSION INCLUDING COURIER DELIVERY					
RELINQUISHED BY SAMPLER		DATE/TIME		RECEIVED BY	
1. <i>[Signature]</i>		10/31/05 / Ru		1. <i>[Signature]</i> 11-3-25 0700	
RELINQUISHED BY		DATE/TIME		RECEIVED BY	
2.				2.	
RELINQUISHED BY		DATE/TIME		RECEIVED FOR LAB BY	
3.				3.	
				SHIPPED VIA: CLIENT: ☐ Hand Delivered ☐ Overnight CHEMTECH: ☐ Picked Up ☐ Overnight	
				Shipment Complete ☐ YES ☐ NO	
WHITE - CHEMTECH COPYFOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY					

Laboratory Certification

Certified By	License No.
Connecticut	PH-0830
DOD ELAP (ANAB)	L2219
Maine	2024021
Maryland	296
New Hampshire	255425
New Jersey	20012
New York	11376
Pennsylvania	68-00548
Soil Permit	525-24-234-08441
Texas	TX-C25-00189
Virginia	460312