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Cover Page

Order ID : Q2832

Project ID : Amtrak Sawtooth Bridges 2025

Client : Portal Partners Tri-Venture

Lab Sample Number	Client Sample Number
Q2832-01	TG-S01
Q2832-02	TG-S01
Q2832-03	TG-S02
Q2832-04	TG-S02
Q2832-05	TG-S03
Q2832-06	TG-S03
Q2832-07	TG-S04
Q2832-08	TG-S04
Q2832-09	TG-S05
Q2832-10	TG-S05

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: 8/22/2025

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

Alliance TECHNICAL GROUP

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Tel. 908-789-8900 Fax: 908-789-8922

DATA REPORTING QUALIFIERS- INORGANIC

For reporting results, the following " Results Qualifiers" are used:

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

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APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: **Q2832**

	Completed
For thorough review, the report must have the following:	
GENERAL:	
Are all original paperwork present (chain of custody, record of communication,airbill, sample management lab chronicle, login page)	✓
Check chain-of-custody for proper relinquish/return of samples	✓
Is the chain of custody signed and complete	✓
Check internal chain-of-custody for proper relinquish/return of samples /sample extracts	✓
Collect information for each project id from server. Were all requirements followed	✓
COVER PAGE:	
Do numbers of samples correspond to the number of samples in the Chain of Custody on login page	✓
Do lab numbers and client Ids on cover page agree with the Chain of Custody	✓
CHAIN OF CUSTODY:	
Do requested analyses on Chain of Custody agree with form I results	✓
Do requested analyses on Chain of Custody agree with the log-in page	✓
Were the correct method log-in for analysis according to the Analytical Request and Chain of Castody	✓
Were the samples received within hold time	✓
Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle	✓
ANALYTICAL:	
Was method requirement followed?	✓
Was client requirement followed?	✓
Does the case narrative summarize all QC failure?	✓
All runlogs and manual integration are reviewed for requirements	✓
All manual calculations and /or hand notations verified	✓

QA Review Signature: **KETAN PATEL** **Date:** **08/22/2025**

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LAB CHRONICLE

OrderID:	Q2832	**OrderDate:**	8/12/2025 9:37:00 AM
Client:	Portal Partners Tri-Venture	**Project:**	Amtrak Sawtooth Bridges 2025
Contact:	Joseph Krupansky	**Location:**	J21,VOA Lab

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
Q2832-01	**TG-S01**	**SOIL**			**08/11/25**			**08/12/25**
			Mercury	7471B		08/13/25	08/13/25	
			Metals ICP-TAL	6010D		08/12/25	08/14/25	
Q2832-02	**TG-S01**	**TCLP**			**08/11/25**			**08/12/25**
			TCLP ICP Metals	6010D		08/13/25	08/14/25	
			TCLP Mercury	7470A		08/13/25	08/14/25	
Q2832-03	**TG-S02**	**SOIL**			**08/11/25**			**08/12/25**
			Mercury	7471B		08/13/25	08/13/25	
			Metals ICP-TAL	6010D		08/12/25	08/13/25	
Q2832-04	**TG-S02**	**TCLP**			**08/11/25**			**08/12/25**
			TCLP ICP Metals	6010D		08/13/25	08/14/25	
			TCLP Mercury	7470A		08/13/25	08/14/25	
Q2832-05	**TG-S03**	**SOIL**			**08/11/25**			**08/12/25**
			Mercury	7471B		08/13/25	08/13/25	
			Metals ICP-TAL	6010D		08/12/25	08/13/25	
Q2832-06	**TG-S03**	**TCLP**			**08/11/25**			**08/12/25**
			TCLP ICP Metals	6010D		08/13/25	08/14/25	
			TCLP Mercury	7470A		08/13/25	08/14/25	
Q2832-07	**TG-S04**	**SOIL**			**08/11/25**			**08/12/25**
			Mercury	7471B		08/13/25	08/13/25	
			Metals ICP-TAL	6010D		08/12/25	08/13/25	
Q2832-08	**TG-S04**	**TCLP**			**08/11/25**			**08/12/25**
			TCLP ICP Metals	6010D		08/13/25	08/14/25	
			TCLP Mercury	7470A		08/13/25	08/14/25	
Q2832-09	**TG-S05**	**SOIL**			**08/12/25**			**08/12/25**

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LAB CHRONICLE

			Mercury	7471B		08/13/25	08/13/25
			Metals ICP-TAL	6010D		08/12/25	08/13/25
Q2832-10	**TG-S05**	**TCLP**			**08/12/25**		**08/12/25**
			TCLP ICP Metals	6010D		08/13/25	08/14/25
			TCLP Mercury	7470A		08/13/25	08/14/25

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Hit Summary Sheet
SW-846

SDG No.: Q2832 **Order ID:** Q2832

Client: Portal Partners Tri-Venture **Project ID:** Amtrak Sawtooth Bridges 2025

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Client ID : TG-S01								
Q2832-02	TG-S01	TCLP	Barium	755		72.8	500	ug/L
Q2832-02	TG-S01	TCLP	Cadmium	2.63	J	2.50	30.0	ug/L
Q2832-02	TG-S01	TCLP	Lead	78.2		11.5	60.0	ug/L
Client ID : TG-S02								
Q2832-04	TG-S02	TCLP	Barium	775		72.8	500	ug/L
Q2832-04	TG-S02	TCLP	Cadmium	5.96	J	2.50	30.0	ug/L
Q2832-04	TG-S02	TCLP	Lead	61.7		11.5	60.0	ug/L
Client ID : TG-S03								
Q2832-06	TG-S03	TCLP	Barium	537		72.8	500	ug/L
Q2832-06	TG-S03	TCLP	Cadmium	5.09	J	2.50	30.0	ug/L
Q2832-06	TG-S03	TCLP	Lead	78.1		11.5	60.0	ug/L
Client ID : TG-S04								
Q2832-08	TG-S04	TCLP	Barium	825		72.8	500	ug/L
Q2832-08	TG-S04	TCLP	Cadmium	5.67	J	2.50	30.0	ug/L
Q2832-08	TG-S04	TCLP	Chromium	14.4	J	10.6	50.0	ug/L
Q2832-08	TG-S04	TCLP	Lead	38.2	J	11.5	60.0	ug/L
Client ID : TG-S05								
Q2832-10	TG-S05	TCLP	Barium	408	J	72.8	500	ug/L
Q2832-10	TG-S05	TCLP	Lead	141		11.5	60.0	ug/L



SAMPLE DATA

Alliance TECHNICAL GROUP
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Report of Analysis

Client:	Portal Partners Tri-Venture	Date Collected:	08/11/25
Project:	Amtrak Sawtooth Bridges 2025	Date Received:	08/12/25
Client Sample ID:	TG-S01	SDG No.:	Q2832
Lab Sample ID:	Q2832-02	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7440-38-2	Arsenic	25.6	U	1	25.6	100	ug/L	08/13/25 12:30	08/14/25 13:28	6010D	SW3050
7440-39-3	Barium	755	N*	1	72.8	500	ug/L	08/13/25 12:30	08/14/25 13:28	6010D	SW3050
7440-43-9	Cadmium	2.63	J	1	2.50	30.0	ug/L	08/13/25 12:30	08/14/25 13:28	6010D	SW3050
7440-47-3	Chromium	10.6	U	1	10.6	50.0	ug/L	08/13/25 12:30	08/14/25 13:28	6010D	SW3050
7439-92-1	Lead	78.2		1	11.5	60.0	ug/L	08/13/25 12:30	08/14/25 13:28	6010D	SW3050
7439-97-6	Mercury	0.76	U	1	0.76	2.00	ug/L	08/13/25 12:30	08/14/25 11:24	7470A	
7782-49-2	Selenium	48.2	U	1	48.2	100	ug/L	08/13/25 12:30	08/14/25 13:28	6010D	SW3050
7440-22-4	Silver	8.10	U	1	8.10	50.0	ug/L	08/13/25 12:30	08/14/25 13:28	6010D	SW3050

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	TCLP-FULL				

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

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

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Report of Analysis

Client:	Portal Partners Tri-Venture	Date Collected:	08/11/25
Project:	Amtrak Sawtooth Bridges 2025	Date Received:	08/12/25
Client Sample ID:	TG-S02	SDG No.:	Q2832
Lab Sample ID:	Q2832-04	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7440-38-2	Arsenic	25.6	U	1	25.6	100	ug/L	08/13/25 12:30	08/14/25 13:33	6010D	SW3050
7440-39-3	Barium	775	N*	1	72.8	500	ug/L	08/13/25 12:30	08/14/25 13:33	6010D	SW3050
7440-43-9	Cadmium	5.96	J	1	2.50	30.0	ug/L	08/13/25 12:30	08/14/25 13:33	6010D	SW3050
7440-47-3	Chromium	10.6	U	1	10.6	50.0	ug/L	08/13/25 12:30	08/14/25 13:33	6010D	SW3050
7439-92-1	Lead	61.7		1	11.5	60.0	ug/L	08/13/25 12:30	08/14/25 13:33	6010D	SW3050
7439-97-6	Mercury	0.76	U	1	0.76	2.00	ug/L	08/13/25 12:30	08/14/25 11:27	7470A	
7782-49-2	Selenium	48.2	U	1	48.2	100	ug/L	08/13/25 12:30	08/14/25 13:33	6010D	SW3050
7440-22-4	Silver	8.10	U	1	8.10	50.0	ug/L	08/13/25 12:30	08/14/25 13:33	6010D	SW3050

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	TCLP-FULL				

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

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

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Report of Analysis

Client:	Portal Partners Tri-Venture	Date Collected:	08/11/25
Project:	Amtrak Sawtooth Bridges 2025	Date Received:	08/12/25
Client Sample ID:	TG-S03	SDG No.:	Q2832
Lab Sample ID:	Q2832-06	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7440-38-2	Arsenic	25.6	U	1	25.6	100	ug/L	08/13/25 12:30	08/14/25 13:37	6010D	SW3050
7440-39-3	Barium	537	N*	1	72.8	500	ug/L	08/13/25 12:30	08/14/25 13:37	6010D	SW3050
7440-43-9	Cadmium	5.09	J	1	2.50	30.0	ug/L	08/13/25 12:30	08/14/25 13:37	6010D	SW3050
7440-47-3	Chromium	10.6	U	1	10.6	50.0	ug/L	08/13/25 12:30	08/14/25 13:37	6010D	SW3050
7439-92-1	Lead	78.1		1	11.5	60.0	ug/L	08/13/25 12:30	08/14/25 13:37	6010D	SW3050
7439-97-6	Mercury	0.76	U	1	0.76	2.00	ug/L	08/13/25 12:30	08/14/25 11:29	7470A	
7782-49-2	Selenium	48.2	U	1	48.2	100	ug/L	08/13/25 12:30	08/14/25 13:37	6010D	SW3050
7440-22-4	Silver	8.10	U	1	8.10	50.0	ug/L	08/13/25 12:30	08/14/25 13:37	6010D	SW3050

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	TCLP-FULL				

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

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

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Report of Analysis

Client:	Portal Partners Tri-Venture	Date Collected:	08/11/25
Project:	Amtrak Sawtooth Bridges 2025	Date Received:	08/12/25
Client Sample ID:	TG-S04	SDG No.:	Q2832
Lab Sample ID:	Q2832-08	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7440-38-2	Arsenic	25.6	U	1	25.6	100	ug/L	08/13/25 12:30	08/14/25 13:50	6010D	SW3050
7440-39-3	Barium	825	N*	1	72.8	500	ug/L	08/13/25 12:30	08/14/25 13:50	6010D	SW3050
7440-43-9	Cadmium	5.67	J	1	2.50	30.0	ug/L	08/13/25 12:30	08/14/25 13:50	6010D	SW3050
7440-47-3	Chromium	14.4	J	1	10.6	50.0	ug/L	08/13/25 12:30	08/14/25 13:50	6010D	SW3050
7439-92-1	Lead	38.2	J	1	11.5	60.0	ug/L	08/13/25 12:30	08/14/25 13:50	6010D	SW3050
7439-97-6	Mercury	0.76	U	1	0.76	2.00	ug/L	08/13/25 12:30	08/14/25 11:59	7470A	
7782-49-2	Selenium	48.2	U	1	48.2	100	ug/L	08/13/25 12:30	08/14/25 13:50	6010D	SW3050
7440-22-4	Silver	8.10	U	1	8.10	50.0	ug/L	08/13/25 12:30	08/14/25 13:50	6010D	SW3050

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	TCLP-FULL				

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

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

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Report of Analysis

Client:	Portal Partners Tri-Venture	Date Collected:	08/12/25
Project:	Amtrak Sawtooth Bridges 2025	Date Received:	08/12/25
Client Sample ID:	TG-S05	SDG No.:	Q2832
Lab Sample ID:	Q2832-10	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7440-38-2	Arsenic	25.6	U	1	25.6	100	ug/L	08/13/25 12:30	08/14/25 13:54	6010D	SW3050
7440-39-3	Barium	408	JN*	1	72.8	500	ug/L	08/13/25 12:30	08/14/25 13:54	6010D	SW3050
7440-43-9	Cadmium	2.50	U	1	2.50	30.0	ug/L	08/13/25 12:30	08/14/25 13:54	6010D	SW3050
7440-47-3	Chromium	10.6	U	1	10.6	50.0	ug/L	08/13/25 12:30	08/14/25 13:54	6010D	SW3050
7439-92-1	Lead	141		1	11.5	60.0	ug/L	08/13/25 12:30	08/14/25 13:54	6010D	SW3050
7439-97-6	Mercury	0.76	U	1	0.76	2.00	ug/L	08/13/25 12:30	08/14/25 11:32	7470A	
7782-49-2	Selenium	48.2	U	1	48.2	100	ug/L	08/13/25 12:30	08/14/25 13:54	6010D	SW3050
7440-22-4	Silver	8.10	U	1	8.10	50.0	ug/L	08/13/25 12:30	08/14/25 13:54	6010D	SW3050

Color Before:	Colorless	Clarity Before:	Clear	Texture:	
Color After:	Colorless	Clarity After:	Clear	Artifacts:	
Comments:	TCLP-FULL				

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: **Portal Partners Tri-Venture** **SDG No.:** Q2832

Contract: PORT06 **Lab Code:** ACE

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV14	Mercury	3.96	4.0	99	90 - 110	CV	08/14/2025	10:58	LB136819

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **Lab Code:** ACE

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV41	Mercury	5.13	5.0	102	90 - 110	CV	08/14/2025	11:03	LB136819
CCV42	Mercury	5.09	5.0	102	90 - 110	CV	08/14/2025	11:34	LB136819
CCV43	Mercury	5.03	5.0	100	90 - 110	CV	08/14/2025	12:01	LB136819
CCV44	Mercury	4.98	5.0	100	90 - 110	CV	08/14/2025	12:13	LB136819

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: **Portal Partners Tri-Venture** **SDG No.:** Q2832

Contract: PORT06 **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	Arsenic	3980	4000	100	90 - 110	P	08/14/2025	12:05	LB136837
	Barium	8040	8000	100	90 - 110	P	08/14/2025	12:05	LB136837
	Cadmium	1980	2000	99	90 - 110	P	08/14/2025	12:05	LB136837
	Chromium	820	800	102	90 - 110	P	08/14/2025	12:05	LB136837
	Lead	3890	4000	97	90 - 110	P	08/14/2025	12:05	LB136837
	Selenium	3970	4000	99	90 - 110	P	08/14/2025	12:05	LB136837
	Silver	1070	1000	107	90 - 110	P	08/14/2025	12:05	LB136837

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: **Portal Partners Tri-Venture** **SDG No.:** Q2832

Contract: PORT06 **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	Arsenic	21.4	20.0	107	80 - 120	P	08/14/2025	12:09	LB136837
	Barium	97.9	100	98	80 - 120	P	08/14/2025	12:09	LB136837
	Cadmium	5.85	6.0	97	80 - 120	P	08/14/2025	12:09	LB136837
	Chromium	10.7	10.0	107	80 - 120	P	08/14/2025	12:09	LB136837
	Lead	12.2	12.0	101	80 - 120	P	08/14/2025	12:09	LB136837
	Selenium	19.6	20.0	98	80 - 120	P	08/14/2025	12:09	LB136837
	Silver	10.5	10.0	105	80 - 120	P	08/14/2025	12:09	LB136837

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **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	Arsenic	5070	5000	102	90 - 110	P	08/14/2025	12:50	LB136837
	Barium	9910	10000	99	90 - 110	P	08/14/2025	12:50	LB136837
	Cadmium	2490	2500	100	90 - 110	P	08/14/2025	12:50	LB136837
	Chromium	1020	1000	102	90 - 110	P	08/14/2025	12:50	LB136837
	Lead	4960	5000	99	90 - 110	P	08/14/2025	12:50	LB136837
	Selenium	5140	5000	103	90 - 110	P	08/14/2025	12:50	LB136837
	Silver	1270	1250	102	90 - 110	P	08/14/2025	12:50	LB136837
CCV02	Arsenic	5090	5000	102	90 - 110	P	08/14/2025	13:42	LB136837
	Barium	9920	10000	99	90 - 110	P	08/14/2025	13:42	LB136837
	Cadmium	2460	2500	98	90 - 110	P	08/14/2025	13:42	LB136837
	Chromium	1020	1000	102	90 - 110	P	08/14/2025	13:42	LB136837
	Lead	4890	5000	98	90 - 110	P	08/14/2025	13:42	LB136837
	Selenium	5140	5000	103	90 - 110	P	08/14/2025	13:42	LB136837
	Silver	1260	1250	101	90 - 110	P	08/14/2025	13:42	LB136837
CCV03	Arsenic	4980	5000	100	90 - 110	P	08/14/2025	14:41	LB136837
	Barium	9880	10000	99	90 - 110	P	08/14/2025	14:41	LB136837
	Cadmium	2400	2500	96	90 - 110	P	08/14/2025	14:41	LB136837
	Chromium	984	1000	98	90 - 110	P	08/14/2025	14:41	LB136837
	Lead	4790	5000	96	90 - 110	P	08/14/2025	14:41	LB136837
	Selenium	5000	5000	100	90 - 110	P	08/14/2025	14:41	LB136837
	Silver	1240	1250	99	90 - 110	P	08/14/2025	14:41	LB136837
CCV04	Arsenic	5090	5000	102	90 - 110	P	08/14/2025	15:58	LB136837
	Barium	9790	10000	98	90 - 110	P	08/14/2025	15:58	LB136837
	Cadmium	2410	2500	96	90 - 110	P	08/14/2025	15:58	LB136837
	Chromium	1000	1000	100	90 - 110	P	08/14/2025	15:58	LB136837
	Lead	4810	5000	96	90 - 110	P	08/14/2025	15:58	LB136837
	Selenium	5210	5000	104	90 - 110	P	08/14/2025	15:58	LB136837
	Silver	1260	1250	101	90 - 110	P	08/14/2025	15:58	LB136837
CCV05	Arsenic	5110	5000	102	90 - 110	P	08/14/2025	16:50	LB136837
	Barium	9710	10000	97	90 - 110	P	08/14/2025	16:50	LB136837
	Cadmium	2390	2500	96	90 - 110	P	08/14/2025	16:50	LB136837
	Chromium	985	1000	98	90 - 110	P	08/14/2025	16:50	LB136837
	Lead	4770	5000	96	90 - 110	P	08/14/2025	16:50	LB136837
	Selenium	5230	5000	104	90 - 110	P	08/14/2025	16:50	LB136837

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **Lab Code:** ACE

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV05	Silver	1250	1250	100	90 - 110	P	08/14/2025	16:50	LB136837
CCV06	Arsenic	5150	5000	103	90 - 110	P	08/14/2025	17:54	LB136837
	Barium	9970	10000	100	90 - 110	P	08/14/2025	17:54	LB136837
	Cadmium	2380	2500	95	90 - 110	P	08/14/2025	17:54	LB136837
	Chromium	984	1000	98	90 - 110	P	08/14/2025	17:54	LB136837
	Lead	4750	5000	95	90 - 110	P	08/14/2025	17:54	LB136837
	Selenium	5260	5000	105	90 - 110	P	08/14/2025	17:54	LB136837
	Silver	1250	1250	100	90 - 110	P	08/14/2025	17:54	LB136837

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Metals

- 2b -
CRDL STANDARD FOR AA & ICP

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **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
CRA	Mercury	0.21	0.2	107	70 - 130	CV	08/14/2025	11:07	LB136819
CRI01	Arsenic	21.1	20.0	105	65 - 135	P	08/14/2025	12:23	LB136837
	Barium	96.4	100	96	65 - 135	P	08/14/2025	12:23	LB136837
	Cadmium	5.92	6.0	99	65 - 135	P	08/14/2025	12:23	LB136837
	Chromium	10.4	10.0	104	65 - 135	P	08/14/2025	12:23	LB136837
	Lead	12.4	12.0	103	65 - 135	P	08/14/2025	12:23	LB136837
	Selenium	17.9	20.0	89	65 - 135	P	08/14/2025	12:23	LB136837
	Silver	11.0	10.0	110	65 - 135	P	08/14/2025	12:23	LB136837

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **Lab Code:** ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB14	Mercury	0.076	+/-0.2	U	0.20	CV	08/14/2025	11:00	LB136819

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **Lab Code:** ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB41	Mercury	0.076	+/-0.2	U	0.20	CV	08/14/2025	11:05	LB136819
CCB42	Mercury	0.076	+/-0.2	U	0.20	CV	08/14/2025	11:36	LB136819
CCB43	Mercury	0.076	+/-0.2	U	0.20	CV	08/14/2025	12:04	LB136819
CCB44	Mercury	0.076	+/-0.2	U	0.20	CV	08/14/2025	12:15	LB136819

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **Lab Code:** ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Arsenic	5.12	+/-10	U	20.0	P	08/14/2025	12:13	LB136837
	Barium	14.6	+/-50	U	100	P	08/14/2025	12:13	LB136837
	Cadmium	0.50	+/-3	U	6.00	P	08/14/2025	12:13	LB136837
	Chromium	2.12	+/-5	U	10.0	P	08/14/2025	12:13	LB136837
	Lead	2.30	+/-6	U	12.0	P	08/14/2025	12:13	LB136837
	Selenium	9.64	+/-10	U	20.0	P	08/14/2025	12:13	LB136837
	Silver	1.62	+/-5	U	10.0	P	08/14/2025	12:13	LB136837

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **Lab Code:** ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Arsenic	5.12	+/-10	U	20.0	P	08/14/2025	12:54	LB136837
	Barium	14.6	+/-50	U	100	P	08/14/2025	12:54	LB136837
	Cadmium	0.50	+/-3	U	6.00	P	08/14/2025	12:54	LB136837
	Chromium	2.12	+/-5	U	10.0	P	08/14/2025	12:54	LB136837
	Lead	2.30	+/-6	U	12.0	P	08/14/2025	12:54	LB136837
	Selenium	9.64	+/-10	U	20.0	P	08/14/2025	12:54	LB136837
	Silver	1.62	+/-5	U	10.0	P	08/14/2025	12:54	LB136837
CCB02	Arsenic	5.12	+/-10	U	20.0	P	08/14/2025	13:46	LB136837
	Barium	14.6	+/-50	U	100	P	08/14/2025	13:46	LB136837
	Cadmium	0.50	+/-3	U	6.00	P	08/14/2025	13:46	LB136837
	Chromium	2.12	+/-5	U	10.0	P	08/14/2025	13:46	LB136837
	Lead	2.30	+/-6	U	12.0	P	08/14/2025	13:46	LB136837
	Selenium	9.64	+/-10	U	20.0	P	08/14/2025	13:46	LB136837
	Silver	1.62	+/-5	U	10.0	P	08/14/2025	13:46	LB136837
CCB03	Arsenic	5.12	+/-10	U	20.0	P	08/14/2025	14:45	LB136837
	Barium	14.6	+/-50	U	100	P	08/14/2025	14:45	LB136837
	Cadmium	0.50	+/-3	U	6.00	P	08/14/2025	14:45	LB136837
	Chromium	2.12	+/-5	U	10.0	P	08/14/2025	14:45	LB136837
	Lead	2.30	+/-6	U	12.0	P	08/14/2025	14:45	LB136837
	Selenium	9.64	+/-10	U	20.0	P	08/14/2025	14:45	LB136837
	Silver	1.62	+/-5	U	10.0	P	08/14/2025	14:45	LB136837
CCB04	Arsenic	5.12	+/-10	U	20.0	P	08/14/2025	16:02	LB136837
	Barium	14.6	+/-50	U	100	P	08/14/2025	16:02	LB136837
	Cadmium	0.50	+/-3	U	6.00	P	08/14/2025	16:02	LB136837
	Chromium	2.12	+/-5	U	10.0	P	08/14/2025	16:02	LB136837
	Lead	2.30	+/-6	U	12.0	P	08/14/2025	16:02	LB136837
	Selenium	9.64	+/-10	U	20.0	P	08/14/2025	16:02	LB136837
	Silver	1.62	+/-5	U	10.0	P	08/14/2025	16:02	LB136837
CCB05	Arsenic	5.12	+/-10	U	20.0	P	08/14/2025	17:00	LB136837
	Barium	14.6	+/-50	U	100	P	08/14/2025	17:00	LB136837
	Cadmium	0.50	+/-3	U	6.00	P	08/14/2025	17:00	LB136837
	Chromium	2.12	+/-5	U	10.0	P	08/14/2025	17:00	LB136837
	Lead	2.30	+/-6	U	12.0	P	08/14/2025	17:00	LB136837
	Selenium	9.64	+/-10	U	20.0	P	08/14/2025	17:00	LB136837
	Silver	1.62	+/-5	U	10.0	P	08/14/2025	17:00	LB136837
CCB06	Arsenic	5.12	+/-10	U	20.0	P	08/14/2025	18:05	LB136837
	Barium	14.6	+/-50	U	100	P	08/14/2025	18:05	LB136837
	Cadmium	0.50	+/-3	U	6.00	P	08/14/2025	18:05	LB136837
	Chromium	2.12	+/-5	U	10.0	P	08/14/2025	18:05	LB136837

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **Lab Code:** ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB06	Lead	2.30	+/-6	U	12.0	P	08/14/2025	18:05	LB136837
	Selenium	9.64	+/-10	U	20.0	P	08/14/2025	18:05	LB136837
	Silver	1.62	+/-5	U	10.0	P	08/14/2025	18:05	LB136837

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Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Instrument: CV1

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB169212TB		**WATER**		**Batch Number:**	**PB169234**		**Prep Date:**	**08/13/2025**	
	Mercury	0.76	<2	U	2.00	CV	08/14/2025	12:11	LB136819

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB169234BL		**WATER**		**Batch Number:**	**PB169234**		**Prep Date:**	**08/13/2025**	
	Mercury	0.076	<0.2	U	0.20	CV	08/14/2025	11:17	LB136819

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Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Instrument: P4

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB169212TB		**WATER**		**Batch Number:**	**PB169236**		**Prep Date:**	**08/13/2025**	
	Arsenic	25.6	<50	U	100	P	08/14/2025	13:19	LB136837
	Barium	72.8	<250	U	500	P	08/14/2025	13:19	LB136837
	Cadmium	2.50	<15	U	30.0	P	08/14/2025	13:19	LB136837
	Chromium	10.6	<25	U	50.0	P	08/14/2025	13:19	LB136837
	Lead	11.5	<30	U	60.0	P	08/14/2025	13:19	LB136837
	Selenium	48.2	<50	U	100	P	08/14/2025	13:19	LB136837
	Silver	8.10	<25	U	50.0	P	08/14/2025	13:19	LB136837

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB169236BL		**WATER**		**Batch Number:**	**PB169236**		**Prep Date:**	**08/13/2025**	
	Arsenic	25.6	<50	U	100	P	08/14/2025	13:03	LB136837
	Barium	72.8	<250	U	500	P	08/14/2025	13:03	LB136837
	Cadmium	2.50	<15	U	30.0	P	08/14/2025	13:03	LB136837
	Chromium	10.6	<25	U	50.0	P	08/14/2025	13:03	LB136837
	Lead	11.5	<30	U	60.0	P	08/14/2025	13:03	LB136837
	Selenium	48.2	<50	U	100	P	08/14/2025	13:03	LB136837
	Silver	8.10	<25	U	50.0	P	08/14/2025	13:03	LB136837

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Metals
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INTERFERENCE CHECK SAMPLE

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **Lab Code:** ACE

ICS Source: EPA **Instrument ID:** P4

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Low Limit (ug/L)	High Limit (ug/L)	Analysis Date	Analysis Time	Run Number
ICSA01	Arsenic	7.57			-20	20	08/14/2025	12:27	LB136837
	Barium	0.097	6.0	2	-94	106	08/14/2025	12:27	LB136837
	Cadmium	2.91	1.0	291	-5	7	08/14/2025	12:27	LB136837
	Chromium	60.3	52.0	116	42	62	08/14/2025	12:27	LB136837
	Lead	-5.21			-12	12	08/14/2025	12:27	LB136837
	Selenium	-3.06			-20	20	08/14/2025	12:27	LB136837
	Silver	1.48			-10	10	08/14/2025	12:27	LB136837
ICSAB01	Arsenic	110	104	106	88.4	120	08/14/2025	12:38	LB136837
	Barium	485	537	90	437	637	08/14/2025	12:38	LB136837
	Cadmium	989	972	102	826	1120	08/14/2025	12:38	LB136837
	Chromium	566	542	104	460	624	08/14/2025	12:38	LB136837
	Lead	42.6	49.0	87	37	61	08/14/2025	12:38	LB136837
	Selenium	46.6	46.0	101	26	66	08/14/2025	12:38	LB136837
	Silver	216	201	108	170	232	08/14/2025	12:38	LB136837

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metals
- 5a -
MATRIX SPIKE SUMMARY

client: Portal Partners Tri-Venture **level:** low **sdg no.:** Q2832

contract: PORT06 **lab code:** ACE

matrix: Water **sample id:** Q2838-08 **client id:** TP-10MS

Percent Solids for Sample: NA **Spiked ID:** Q2838-08MS **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Arsenic	ug/L	75 - 125	4060		100	U	4000	102		P
Barium	ug/L	75 - 125	2660		1070		1000	159	N	P
Cadmium	ug/L	75 - 125	962		30.0	U	1000	96		P
Chromium	ug/L	75 - 125	1970		50.0	U	2000	98		P
Lead	ug/L	75 - 125	4520		13.3	J	5000	90		P
Mercury	ug/L	75 - 125	39.4		2.00	U	40.0	98		CV
Selenium	ug/L	75 - 125	9990		100	U	10000	100		P
Silver	ug/L	75 - 125	380		50.0	U	380	100		P

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metals
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MATRIX SPIKE DUPLICATE SUMMARY

client: Portal Partners Tri-Venture **level:** low **sdg no.:** Q2832

contract: PORT06 **lab code:** ACE

matrix: Water **sample id:** Q2838-08 **client id:** TP-10MSD

Percent Solids for Sample: NA **Spiked ID:** Q2838-08MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Arsenic	ug/L	75 - 125	4030		100	U	4000	101		P
Barium	ug/L	75 - 125	2490		1070		1000	141	N	P
Cadmium	ug/L	75 - 125	949		30.0	U	1000	95		P
Chromium	ug/L	75 - 125	1960		50.0	U	2000	98		P
Lead	ug/L	75 - 125	4460		13.3	J	5000	89		P
Mercury	ug/L	75 - 125	35.8		2.00	U	40.0	90		CV
Selenium	ug/L	75 - 125	9980		100	U	10000	100		P
Silver	ug/L	75 - 125	371		50.0	U	380	98		P

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Metals
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POST DIGEST SPIKE SUMMARY

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **Lab Code:** ACE

Matrix: Water **Level:** LOW **Client ID:** TP-10A

Sample ID: Q2838-08 **Spiked ID:** Q2838-08A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Barium	ug/L	75 - 125	2220		1070		1000	115		P

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Metals

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DUPLICATE SAMPLE SUMMARY

Client: Portal Partners Tri-Venture **Level:** LOW **SDG No.:** Q2832

Contract: PORT06 **Lab Code:** ACE

Matrix: Water **Sample ID:** Q2838-08 **Client ID:** TP-10DUP

Percent Solids for Sample: NA **Duplicate ID** Q2838-08DUP **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Arsenic	ug/L	20	100	U	100	U			P
Barium	ug/L	20	1070		1550		37	*	P
Cadmium	ug/L	20	30.0	U	30.0	U			P
Chromium	ug/L	20	50.0	U	50.0	U			P
Lead	ug/L	20	13.3	J	23.1	J	54		P
Mercury	ug/L	20	2.00	U	2.00	U			CV
Selenium	ug/L	20	100	U	100	U			P
Silver	ug/L	20	50.0	U	50.0	U			P

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

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Metals

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DUPLICATE SAMPLE SUMMARY

Client: Portal Partners Tri-Venture **Level:** LOW **SDG No.:** Q2832

Contract: PORT06 **Lab Code:** ACE

Matrix: Water **Sample ID:** Q2838-08MS **Client ID:** TP-10MSD

Percent Solids for Sample: NA **Duplicate ID** Q2838-08MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Arsenic	ug/L	20	4060		4030		1		P
Barium	ug/L	20	2660		2490		7		P
Cadmium	ug/L	20	962		949		1		P
Chromium	ug/L	20	1970		1960		1		P
Lead	ug/L	20	4520		4460		1		P
Mercury	ug/L	20	39.4		35.8		10		CV
Selenium	ug/L	20	9990		9980		0		P
Silver	ug/L	20	380		371		2		P

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

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LABORATORY CONTROL SAMPLE SUMMARY

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **Lab Code:** ACE

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB169234BS							
Mercury	ug/L	4.0	3.94		98	80 - 120	CV

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LABORATORY CONTROL SAMPLE SUMMARY

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **Lab Code:** ACE

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB169236BS							
Arsenic	ug/L	4000	4010		100	80 - 120	P
Barium	ug/L	1000	982		98	80 - 120	P
Cadmium	ug/L	1000	972		97	80 - 120	P
Chromium	ug/L	2000	2110		106	80 - 120	P
Lead	ug/L	5000	4900		98	80 - 120	P
Selenium	ug/L	10000	10200		102	80 - 120	P
Silver	ug/L	380	390		103	80 - 120	P

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Metals

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ICP SERIAL DILUTIONS

SAMPLE NO.

TP-10L

Lab Name: Alliance **Contract:** PORT06

Lab Code: ACE **Lb No.:** lb136837 **Lab Sample ID :** Q2838-08L **SDG No.:** Q2832

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

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Arsenic	100	U	500	U			P
Barium	1070		973	J	9		P
Cadmium	30.0	U	150	U			P
Chromium	50.0	U	250	U			P
Lead	13.3	J	300	U	100.0		P
Mercury	2.00	U	10.0	U			CV
Selenium	100	U	500	U			P
Silver	50.0	U	250	U			P

METAL PREPARATION & INSTRUMENT DATA

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Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **Lab Code:** ACE

Instrument ID: **Date:**

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave-Length (nm)	ICP Interelement Correction Factors For: Al	Ca	Fe	Mg	Ag
Arsenic	193.759	0.0000000	0.0000000	-0.0000440	0.0000000	0.0000000
Barium	493.409	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000000	0.0000930	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	-0.0000920	0.0000000	0.0000380	0.0000000	0.0000000
Selenium	196.090	0.0000000	0.0000000	-0.0001440	0.0000000	0.0000000
Silver	328.068	0.0000000	0.0000000	-0.0001490	0.0000000	0.0000000

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Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **Lab Code:** ACE

Instrument ID: **Date:**

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave-Length (nm)	ICP Interelement Correction Factors For: As	Ba	Be	Cd	Co
Arsenic	193.759	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium	493.409	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0002870
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	0.0000000	0.0003170	0.0000000	0.0000000	0.0000000
Selenium	196.090	0.0000000	0.0000000	0.0000000	0.0000000	-0.0003570
Silver	328.068	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

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Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **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
Arsenic	193.759	-0.0029000	0.0000000	0.0000000	0.0000000	0.0004900
Barium	493.409	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000070	0.0002200	0.0000000
Lead	220.353	0.0000000	0.0000000	0.0000000	0.0001400	-0.0008600
Selenium	196.090	0.0000000	0.0000000	0.0000000	0.0007460	0.0000000
Silver	328.068	0.0000000	0.0000000	0.0000000	0.0000000	-0.0000120

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Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **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
Arsenic	193.759	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium	493.409	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	0.0000000	0.0006580	0.0000000	0.0000000	0.0001290
Selenium	196.090	0.0000000	0.0000000	0.0003330	0.0000000	0.0000000
Silver	328.068	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

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Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **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
Arsenic	193.759	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium	493.409	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000630	0.0001280	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0001110	0.0000000
Lead	220.353	0.0000000	-0.0003610	0.0000000	0.0000000	0.0000000
Selenium	196.090	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.068	0.0000000	-0.0007420	0.0000000	0.0000000	0.0000000

METAL PREPARATION & ANALYICAL SUMMARY

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Metals
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SAMPLE PREPARATION SUMMARY

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **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:	**PB169234**						
PB169212TB	PB169212TB	MB	WATER	08/13/2025	3.0	30.0	
PB169234BL	PB169234BL	MB	WATER	08/13/2025	30.0	30.0	
PB169234BS	PB169234BS	LCS	WATER	08/13/2025	30.0	30.0	
Q2832-02	TG-S01	SAM	WATER	08/13/2025	3.0	30.0	
Q2832-04	TG-S02	SAM	WATER	08/13/2025	3.0	30.0	
Q2832-06	TG-S03	SAM	WATER	08/13/2025	3.0	30.0	
Q2832-08	TG-S04	SAM	WATER	08/13/2025	3.0	30.0	
Q2832-10	TG-S05	SAM	WATER	08/13/2025	3.0	30.0	
Q2838-08DUP	TP-10DUP	DUP	WATER	08/13/2025	3.0	30.0	
Q2838-08MS	TP-10MS	MS	WATER	08/13/2025	3.0	30.0	
Q2838-08MSD	TP-10MSD	MSD	WATER	08/13/2025	3.0	30.0	

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Metals
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SAMPLE PREPARATION SUMMARY

Client: Portal Partners Tri-Venture **SDG No.:** Q2832

Contract: PORT06 **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:	**PB169236**						
PB169212TB	PB169212TB	MB	WATER	08/13/2025	5.0	25.0	
PB169236BL	PB169236BL	MB	WATER	08/13/2025	5.0	25.0	
PB169236BS	PB169236BS	LCS	WATER	08/13/2025	5.0	25.0	
Q2832-02	TG-S01	SAM	WATER	08/13/2025	5.0	25.0	
Q2832-04	TG-S02	SAM	WATER	08/13/2025	5.0	25.0	
Q2832-06	TG-S03	SAM	WATER	08/13/2025	5.0	25.0	
Q2832-08	TG-S04	SAM	WATER	08/13/2025	5.0	25.0	
Q2832-10	TG-S05	SAM	WATER	08/13/2025	5.0	25.0	
Q2838-08DUP	TP-10DUP	DUP	WATER	08/13/2025	5.0	25.0	
Q2838-08MS	TP-10MS	MS	WATER	08/13/2025	5.0	25.0	
Q2838-08MSD	TP-10MSD	MSD	WATER	08/13/2025	5.0	25.0	

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metals
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ANALYSIS RUN LOG

Client: Portal Partners Tri-Venture **Contract:** PORT06

Lab code: ACE **Sdg no.:** Q2832

Instrument id number: **Method:** **Run number:** LB136819

Start date: 08/14/2025 **End date:** 08/14/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1040	HG
S0.2	S0.2	1	1042	HG
S2.5	S2.5	1	1048	HG
S5	S5	1	1050	HG
S7.5	S7.5	1	1052	HG
S10	S10	1	1054	HG
ICV14	ICV14	1	1058	HG
ICB14	ICB14	1	1100	HG
CCV41	CCV41	1	1103	HG
CCB41	CCB41	1	1105	HG
CRA	CRA	1	1107	HG
PB169234BL	PB169234BL	1	1117	HG
PB169234BS	PB169234BS	1	1119	HG
Q2832-02	TG-S01	1	1124	HG
Q2832-04	TG-S02	1	1127	HG
Q2832-06	TG-S03	1	1129	HG
Q2832-10	TG-S05	1	1132	HG
CCV42	CCV42	1	1134	HG
CCB42	CCB42	1	1136	HG
Q2838-08DUP	TP-10DUP	1	1152	HG
Q2838-08MS	TP-10MS	1	1155	HG
Q2838-08MSD	TP-10MSD	1	1157	HG
Q2832-08	TG-S04	1	1159	HG
CCV43	CCV43	1	1201	HG
CCB43	CCB43	1	1204	HG
Q2838-08L	TP-10L	5	1206	HG
PB169212TB	PB169212TB	1	1211	HG
CCV44	CCV44	1	1213	HG
CCB44	CCB44	1	1215	HG

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metals
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ANALYSIS RUN LOG

Client: Portal Partners Tri-Venture **Contract:** PORT06

Lab code: ACE **Sdg no.:** Q2832

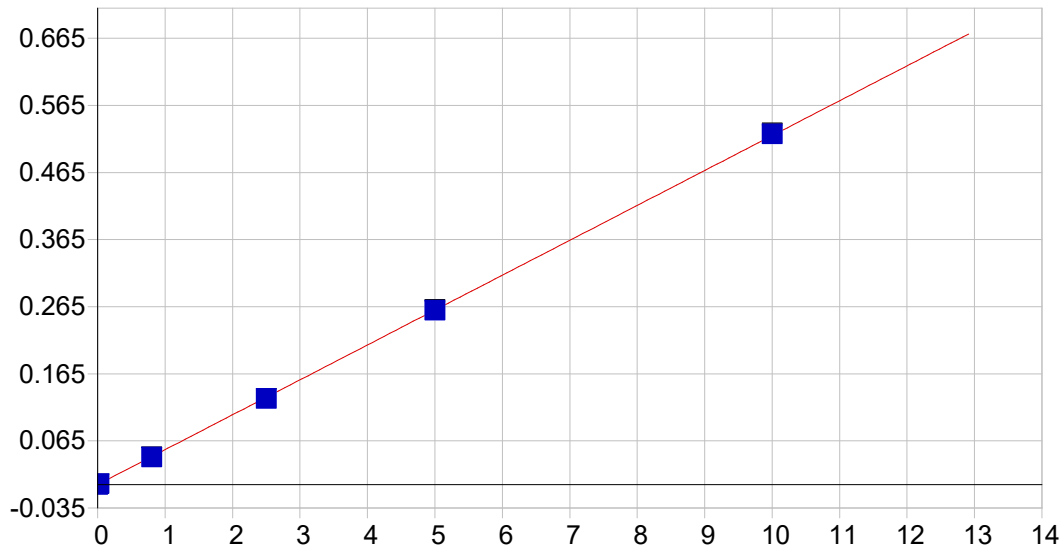
Instrument id number: **Method:** **Run number:** LB136837

Start date: 08/14/2025 **End date:** 08/14/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1139	Ag,As,Ba,Cd,Cr,Pb,Se
S1	S1	1	1144	Ag,As,Ba,Cd,Cr,Pb,Se
S2	S2	1	1148	Ag,As,Ba,Cd,Cr,Pb,Se
S3	S3	1	1152	Ag,As,Ba,Cd,Cr,Pb,Se
S4	S4	1	1156	Ag,As,Ba,Cd,Cr,Pb,Se
S5	S5	1	1200	Ag,As,Ba,Cd,Cr,Pb,Se
ICV01	ICV01	1	1205	Ag,As,Ba,Cd,Cr,Pb,Se
LLICV01	LLICV01	1	1209	Ag,As,Ba,Cd,Cr,Pb,Se
ICB01	ICB01	1	1213	Ag,As,Ba,Cd,Cr,Pb,Se
CRI01	CRI01	1	1223	Ag,As,Ba,Cd,Cr,Pb,Se
ICSA01	ICSA01	1	1227	Ag,As,Ba,Cd,Cr,Pb,Se
ICSAB01	ICSAB01	1	1238	Ag,As,Ba,Cd,Cr,Pb,Se
CCV01	CCV01	1	1250	Ag,As,Ba,Cd,Cr,Pb,Se
CCB01	CCB01	1	1254	Ag,As,Ba,Cd,Cr,Pb,Se
PB169236BL	PB169236BL	1	1303	Ag,As,Ba,Cd,Cr,Pb,Se
PB169236BS	PB169236BS	1	1307	Ag,As,Ba,Cd,Cr,Pb,Se
PB169212TB	PB169212TB	1	1319	Ag,As,Ba,Cd,Cr,Pb,Se
Q2832-02	TG-S01	1	1328	Ag,As,Ba,Cd,Cr,Pb,Se
Q2832-04	TG-S02	1	1333	Ag,As,Ba,Cd,Cr,Pb,Se
Q2832-06	TG-S03	1	1337	Ag,As,Ba,Cd,Cr,Pb,Se
CCV02	CCV02	1	1342	Ag,As,Ba,Cd,Cr,Pb,Se
CCB02	CCB02	1	1346	Ag,As,Ba,Cd,Cr,Pb,Se
Q2832-08	TG-S04	1	1350	Ag,As,Ba,Cd,Cr,Pb,Se
Q2832-10	TG-S05	1	1354	Ag,As,Ba,Cd,Cr,Pb,Se
Q2838-08DUP	TP-10DUP	1	1425	Ag,As,Ba,Cd,Cr,Pb,Se
Q2838-08L	TP-10L	5	1430	Ag,As,Ba,Cd,Cr,Pb,Se
CCV03	CCV03	1	1441	Ag,As,Ba,Cd,Cr,Pb,Se
CCB03	CCB03	1	1445	Ag,As,Ba,Cd,Cr,Pb,Se
Q2838-08MS	TP-10MS	1	1450	Ag,As,Ba,Cd,Cr,Pb,Se
Q2838-08MSD	TP-10MSD	1	1454	Ag,As,Ba,Cd,Cr,Pb,Se
Q2838-08A	TP-10A	1	1458	Ba
CCV04	CCV04	1	1558	Ag,As,Ba,Cd,Cr,Pb,Se
CCB04	CCB04	1	1602	Ag,As,Ba,Cd,Cr,Pb,Se
CCV05	CCV05	1	1650	Ag,As,Ba,Cd,Cr,Pb,Se
CCB05	CCB05	1	1700	Ag,As,Ba,Cd,Cr,Pb,Se
CCV06	CCV06	1	1754	Ag,As,Ba,Cd,Cr,Pb,Se
CCB06	CCB06	1	1805	Ag,As,Ba,Cd,Cr,Pb,Se

METAL
RAW DATA

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



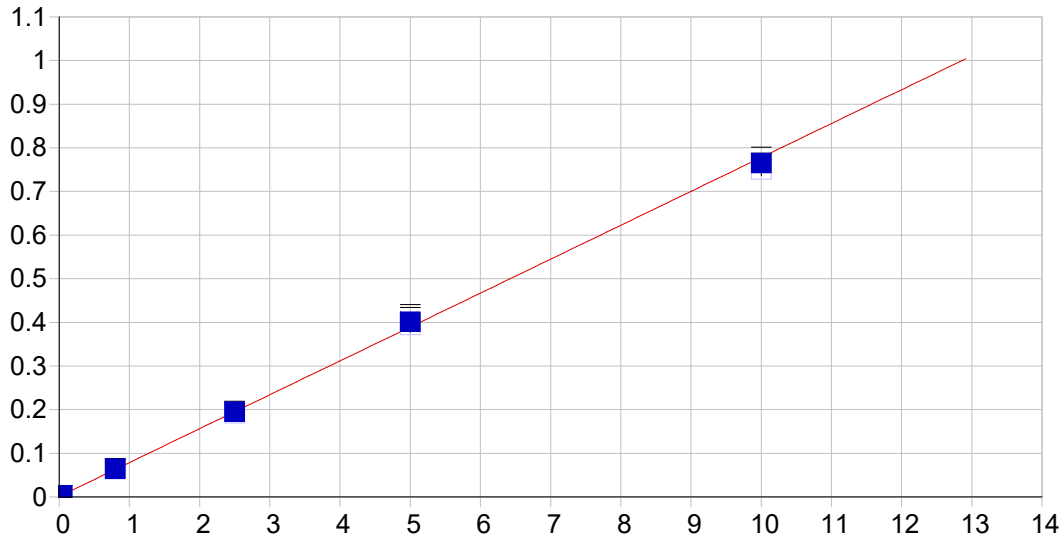
As 189.042 {479}

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A0 (Offset):	-0.000098	Re-Slope:	1.000000
A1 (Gain):	0.052011	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999965	Status:	OK.
Std Error of Est:	0.000010		
Predicted MDL:	0.002142		
Predicted MQL:	0.007141		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00010	.000	1
S1	.02000	.02235	.002	11.8	.00106	.000	1
S3	2.5000	2.4617	-.038	-1.53	.12780	.000	1
S4	5.0000	4.9945	-.005	-.109	.25939	.001	1
S5	10.000	10.052	.052	.518	.52214	.001	1
S2	.80000	.78961	-.010	-1.30	.04093	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



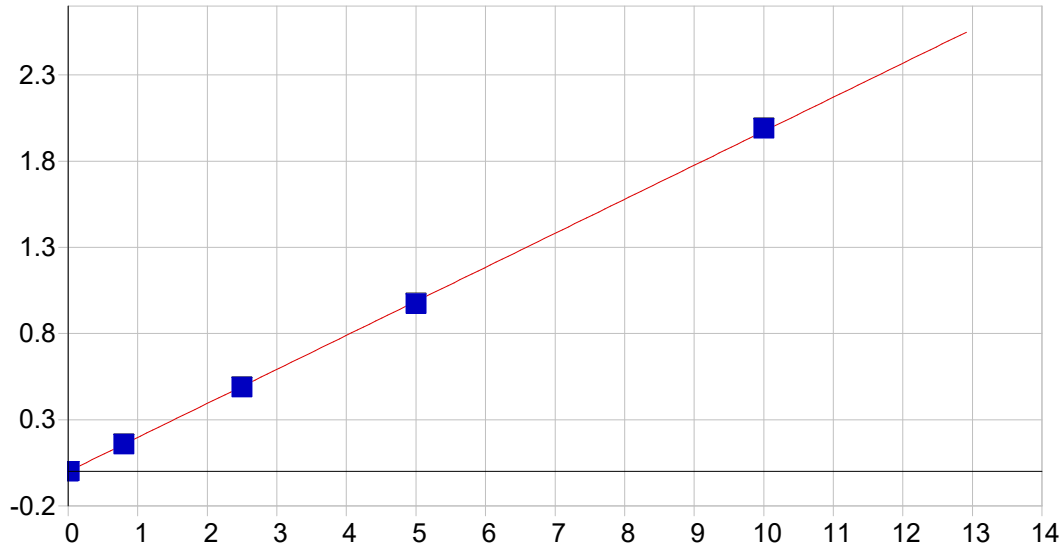
Tl 190.856 {477}

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A0 (Offset):	0.000925	Re-Slope:	1.000000
A1 (Gain):	0.077690	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999778	Status:	OK.
Std Error of Est:	0.000053		
Predicted MDL:	0.001540		
Predicted MQL:	0.005133		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00092	.000	1
S1	.04000	.04304	.003	7.60	.00407	.000	1
S3	2.5000	2.5002	.000	.008	.19162	.001	1
S4	5.0000	5.1491	.149	2.98	.39387	.017	1
S5	10.000	9.8313	-.169	-1.69	.75055	.014	1
S2	.80000	.81652	.017	2.07	.06323	.001	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



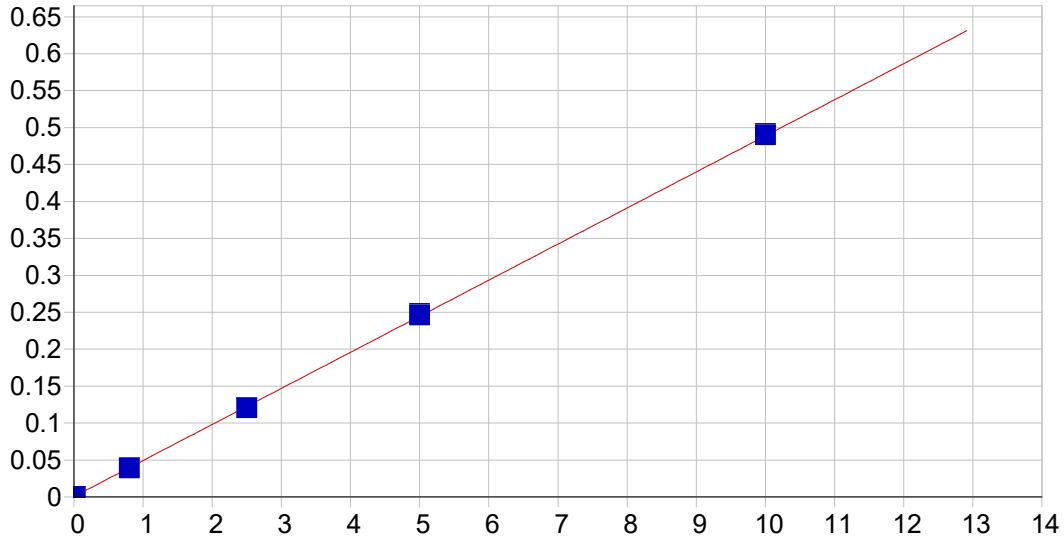
Pb 220.353 {453}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000064	Re-Slope:	1.000000
A1 (Gain):	0.197351	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999950	Status:	OK.
Std Error of Est:	0.000036		
Predicted MDL:	0.001273		
Predicted MQL:	0.004245		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00006	.000	1
S1	.01200	.01288	.001	7.36	.00256	.000	1
S3	2.5000	2.4785	-.022	-.862	.48868	.000	1
S4	5.0000	4.9357	-.064	-1.29	.97312	.002	1
S5	10.000	10.087	.087	.869	1.9887	.002	1
S2	.80000	.79800	-.002	-.249	.15739	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



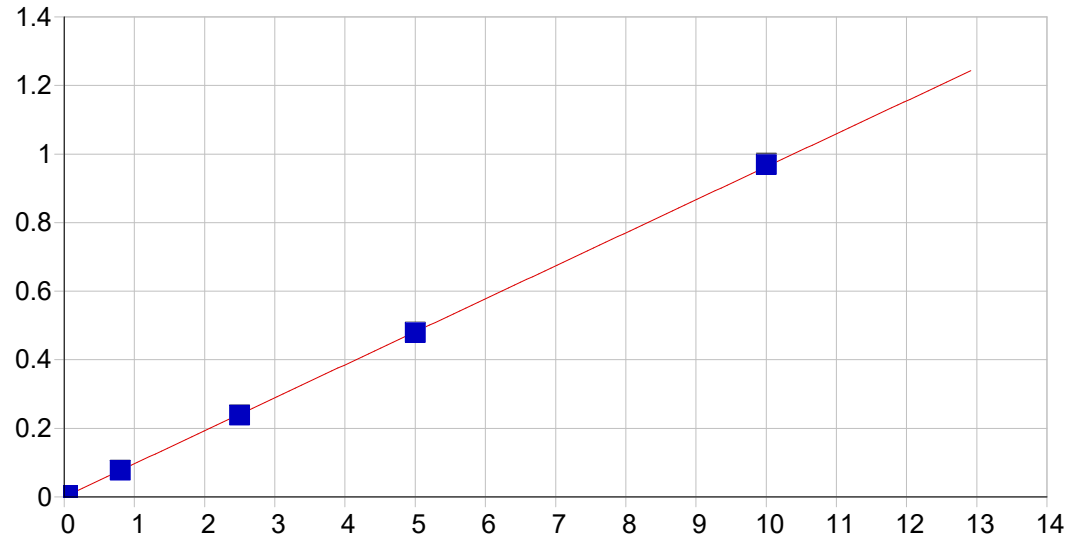
Se 196.090 {472}

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A0 (Offset):	0.000440	Re-Slope:	1.000000
A1 (Gain):	0.048834	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999957	Status:	OK.
Std Error of Est:	0.000011		
Predicted MDL:	0.002861		
Predicted MQL:	0.009537		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00044	.000	1
S1	.02000	.01717	-.003	-14.2	.00128	.000	1
S3	2.5000	2.4569	-.043	-1.72	.12039	.000	1
S4	5.0000	5.0295	.029	.589	.24598	.002	1
S5	10.000	10.028	.028	.280	.49001	.001	1
S2	.80000	.78845	-.012	-1.44	.03893	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



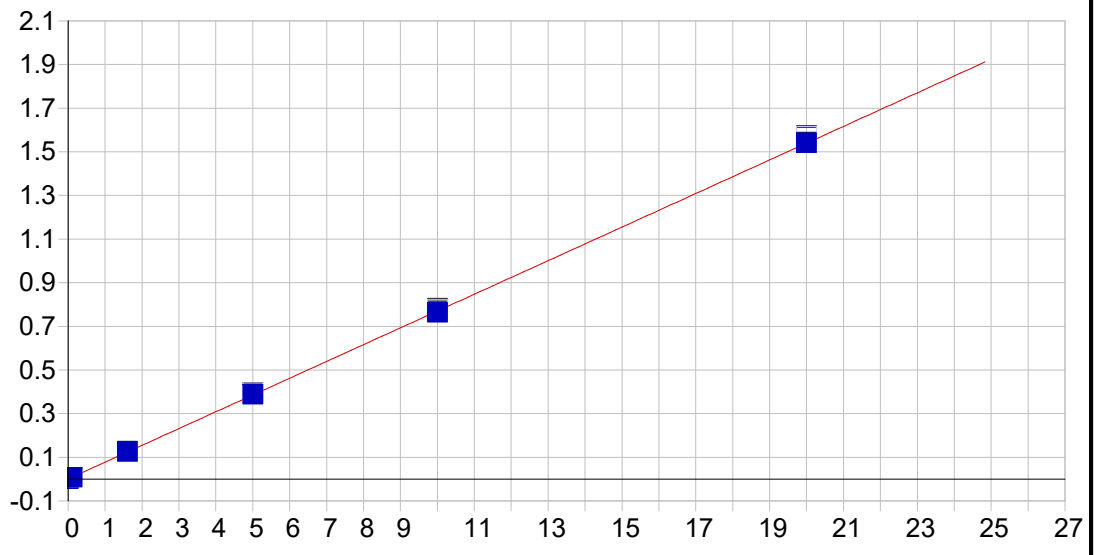
Sb 206.833 {463}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000407	Re-Slope:	1.000000
A1 (Gain):	0.096227	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999972	Status:	OK.
Std Error of Est:	0.000027		
Predicted MDL:	0.001839		
Predicted MQL:	0.006130		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00041	.000	1
S1	.05000	.05263	.003	5.25	.00548	.000	1
S3	2.5000	2.4689	-.031	-1.24	.23863	.000	1
S4	5.0000	4.9718	-.028	-.563	.48014	.001	1
S5	10.000	10.059	.059	.595	.97101	.002	1
S2	.80000	.79719	-.003	-.352	.07733	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



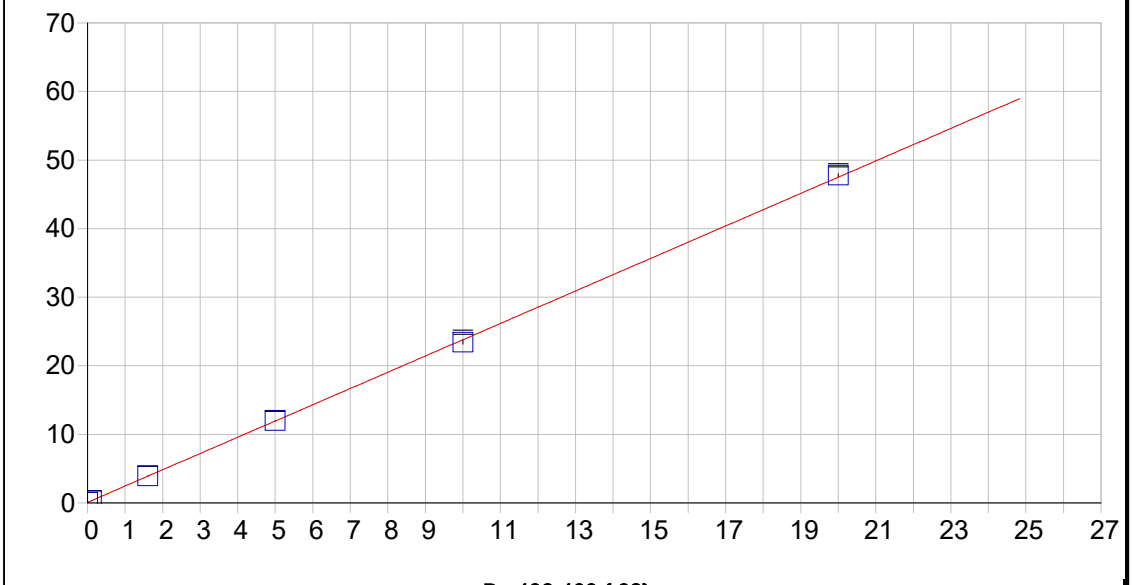
Al 396.152 { 85}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000669	Re-Slope:	1.000000
A1 (Gain):	0.076953	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999982	Status:	OK.
Std Error of Est:	0.000034		
Predicted MDL:	0.010545		
Predicted MQL:	0.035152		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00067	.001	1
S1	.10000	.10317	.003	3.17	.00921	.000	1
S3	5.0000	5.0448	.045	.896	.39635	.001	1
S4	10.000	9.9226	-.077	-.774	.77917	.003	1
S5	20.000	20.010	.010	.050	1.5704	.003	1
S2	1.6000	1.6194	.019	1.21	.12767	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



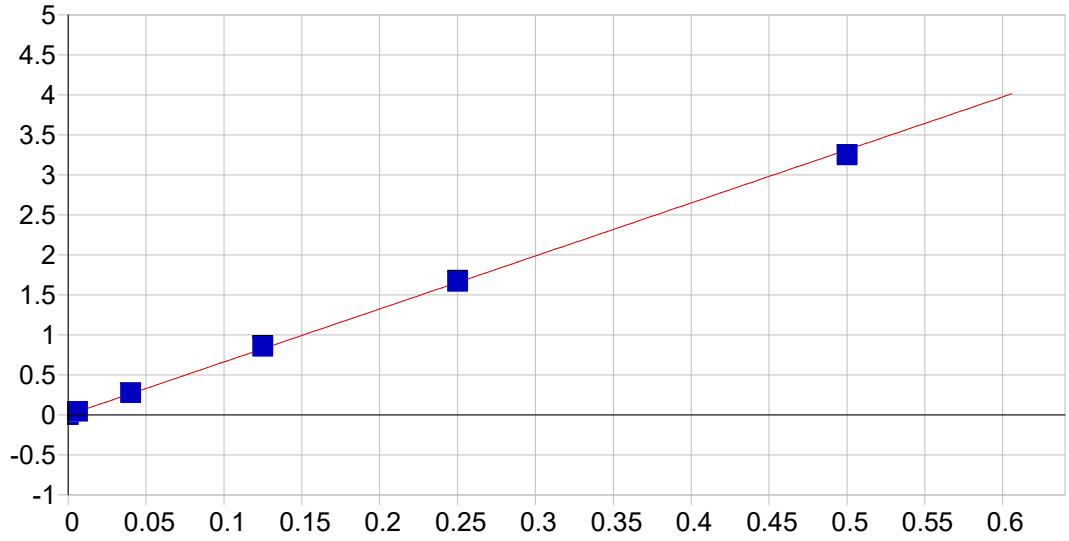
Ba 493.409 { 68}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.092174	Re-Slope:	1.000000
A1 (Gain):	2.370512	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999954	Status:	OK.
Std Error of Est:	0.001690		
Predicted MDL:	0.001007		
Predicted MQL:	0.003355		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.09217	.002	1
S1	.10000	.10276	.003	2.76	.33576	.001	1
S3	5.0000	5.0161	.016	.323	11.983	.069	1
S4	10.000	9.8449	-.155	-1.55	23.430	.304	1
S5	20.000	20.127	.127	.637	47.804	.239	1
S2	1.6000	1.6088	.009	.551	3.9059	.007	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



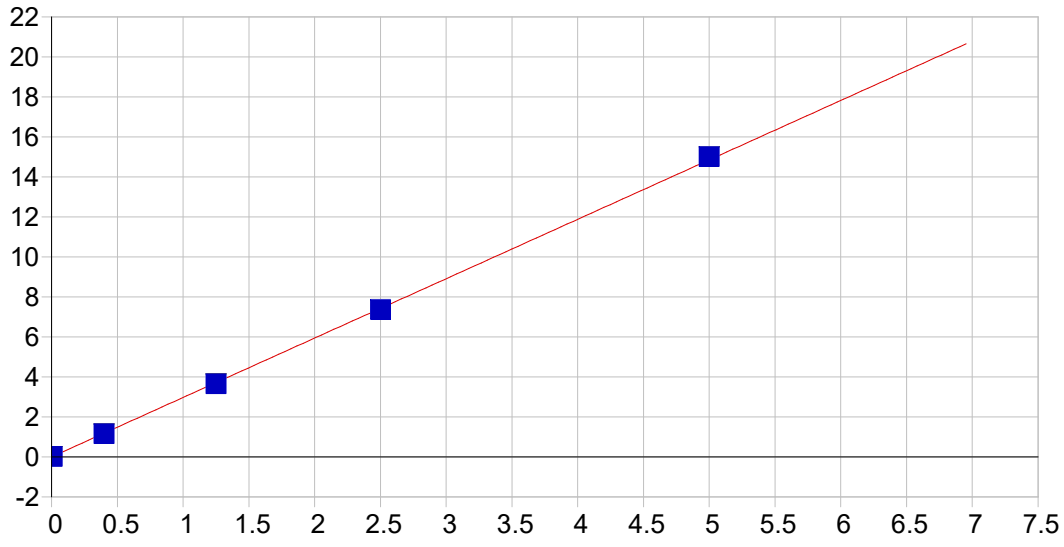
Be 234.861 {144}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000681	Re-Slope:	1.000000
A1 (Gain):	6.626094	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999701	Status:	OK.
Std Error of Est:	0.000464		
Predicted MDL:	0.000069		
Predicted MQL:	0.000231		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00069	.000	1
S1	.00600	.00674	.001	12.3	.04366	.001	1
S3	.12500	.12958	.005	3.66	.85421	.010	1
S4	.25000	.25194	.002	.776	1.6613	.013	1
S5	.50000	.49074	-.009	-1.85	3.2362	.002	1
S2	.04000	.04200	.002	5.01	.27646	.001	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



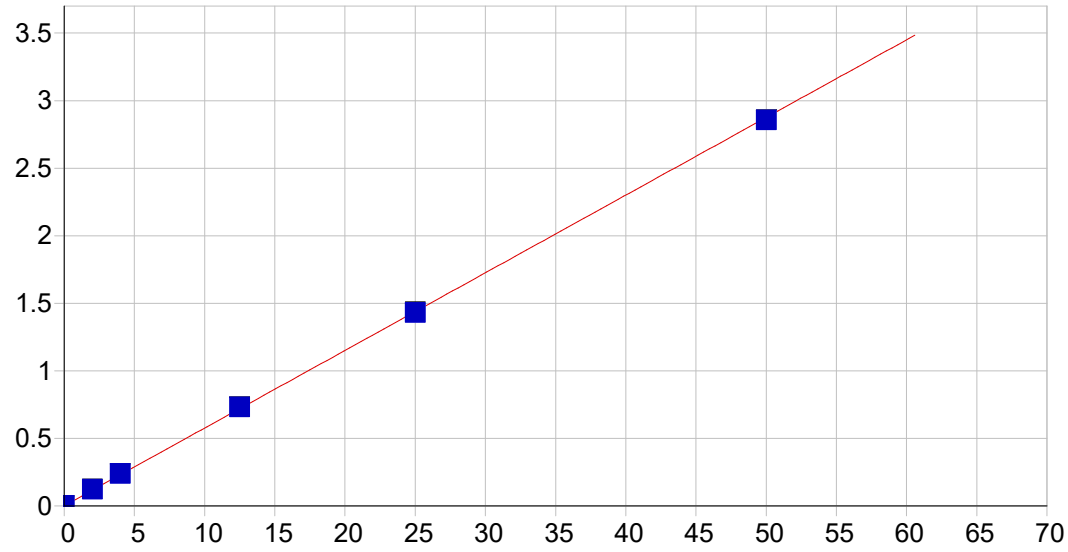
Cd 226.502 {449}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000432	Re-Slope:	1.000000
A1 (Gain):	2.970490	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999931	Status:	OK.
Std Error of Est:	0.000317		
Predicted MDL:	0.000072		
Predicted MQL:	0.000241		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00043	.000	1
S1	.00600	.00582	-.000	-3.00	.01692	.000	1
S3	1.2500	1.2296	-.020	-1.63	3.6546	.008	1
S4	2.5000	2.4802	-.020	-.793	7.3718	.011	1
S5	5.0000	5.0506	.051	1.01	15.012	.010	1
S2	.40000	.38977	-.010	-2.56	1.1582	.002	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



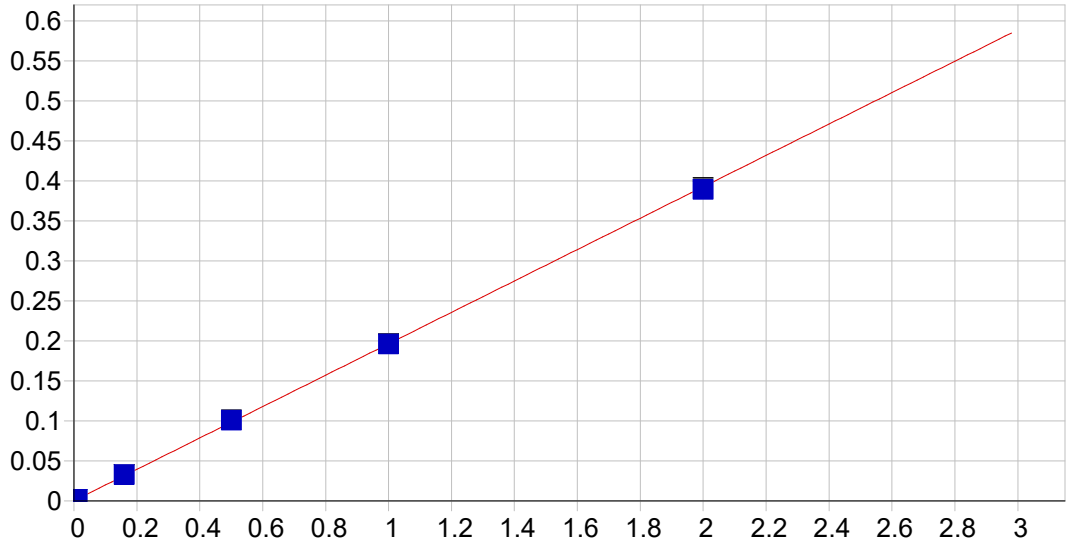
Ca 373.690 { 90}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001331	Re-Slope:	1.000000
A1 (Gain):	0.057478	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999905	Status:	OK.
Std Error of Est:	0.000418		
Predicted MDL:	0.011076		
Predicted MQL:	0.036920		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00019	-.000	.000	.00132	.000	1
S2	4.0000	4.1265	.127	3.16	.23852	.001	1
S3	12.500	12.709	.209	1.67	.73183	.002	1
S4	25.000	24.858	-.142	-.566	1.4301	.006	1
S5	50.000	49.684	-.316	-.631	2.8571	.002	1
S1	2.0000	2.1215	.121	6.07	.12327	.001	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



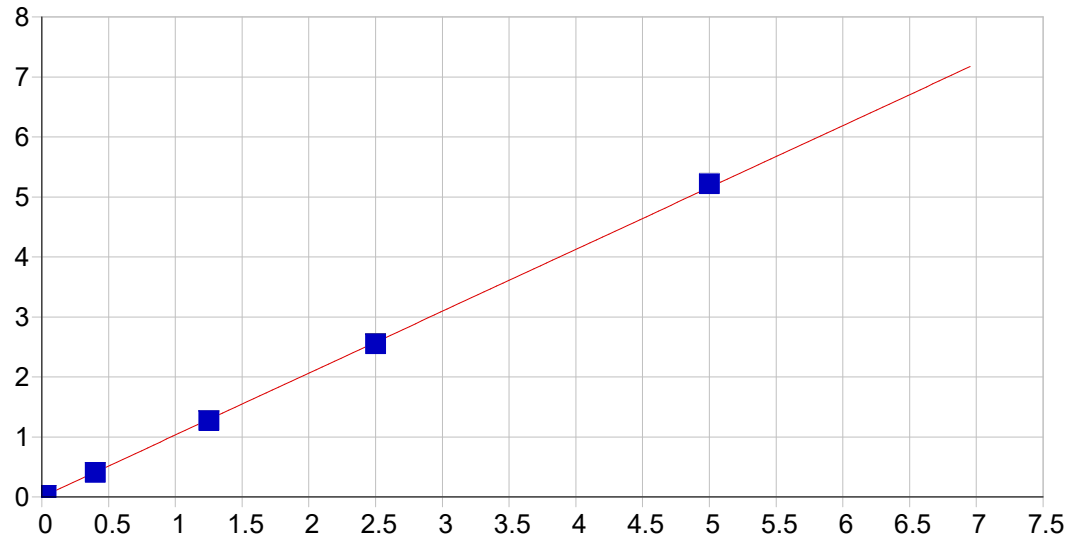
Cr 267.716 {126}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000191	Re-Slope:	1.000000
A1 (Gain):	0.196225	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999899	Status:	OK.
Std Error of Est:	0.000021		
Predicted MDL:	0.000333		
Predicted MQL:	0.001111		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00019	.000	1
S1	.01000	.01028	.000	2.84	.00221	.000	1
S3	.50000	.51318	.013	2.64	.10093	.000	1
S4	1.0000	.99745	-.003	-.255	.19599	.001	1
S5	2.0000	1.9830	-.017	-.851	.38946	.002	1
S2	.16000	.16611	.006	3.82	.03280	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



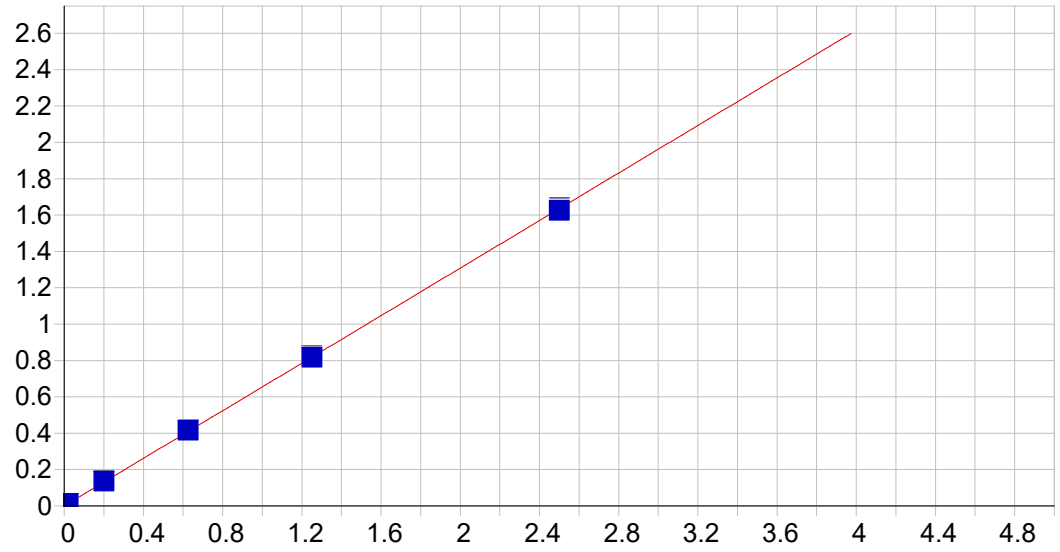
Co 228.616 {448}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000207	Re-Slope:	1.000000
A1 (Gain):	1.031345	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999918	Status:	OK.
Std Error of Est:	0.000269		
Predicted MDL:	0.000185		
Predicted MQL:	0.000616		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00021	.000	1
S1	.03000	.03008	.000	.260	.03110	.000	1
S3	1.2500	1.2290	-.021	-1.68	1.2700	.001	1
S4	2.5000	2.4694	-.031	-1.23	2.5513	.003	1
S5	5.0000	5.0582	.058	1.16	5.2257	.002	1
S2	.40000	.39332	-.007	-1.67	.40655	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



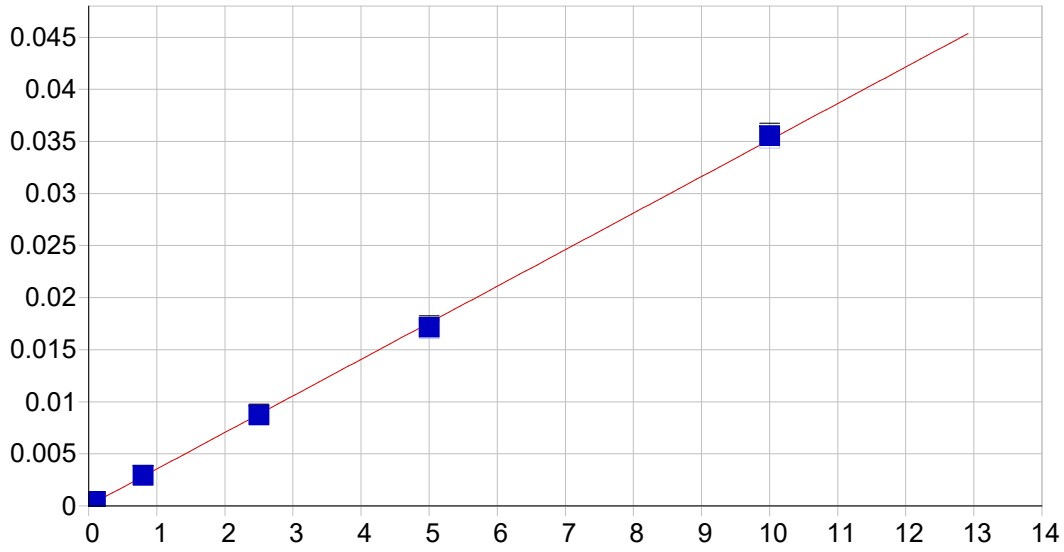
Cu 224.700 {450}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000464	Re-Slope:	1.000000
A1 (Gain):	0.654030	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999939	Status:	OK.
Std Error of Est:	0.000085		
Predicted MDL:	0.000408		
Predicted MQL:	0.001360		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00046	.000	1
S1	.02000	.02161	.002	8.03	.01474	.000	1
S3	.62500	.63340	.008	1.34	.41813	.000	1
S4	1.2500	1.2485	-.002	-.123	.82381	.002	1
S5	2.5000	2.4848	-.015	-.610	1.6392	.001	1
S2	.20000	.20676	.007	3.38	.13678	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



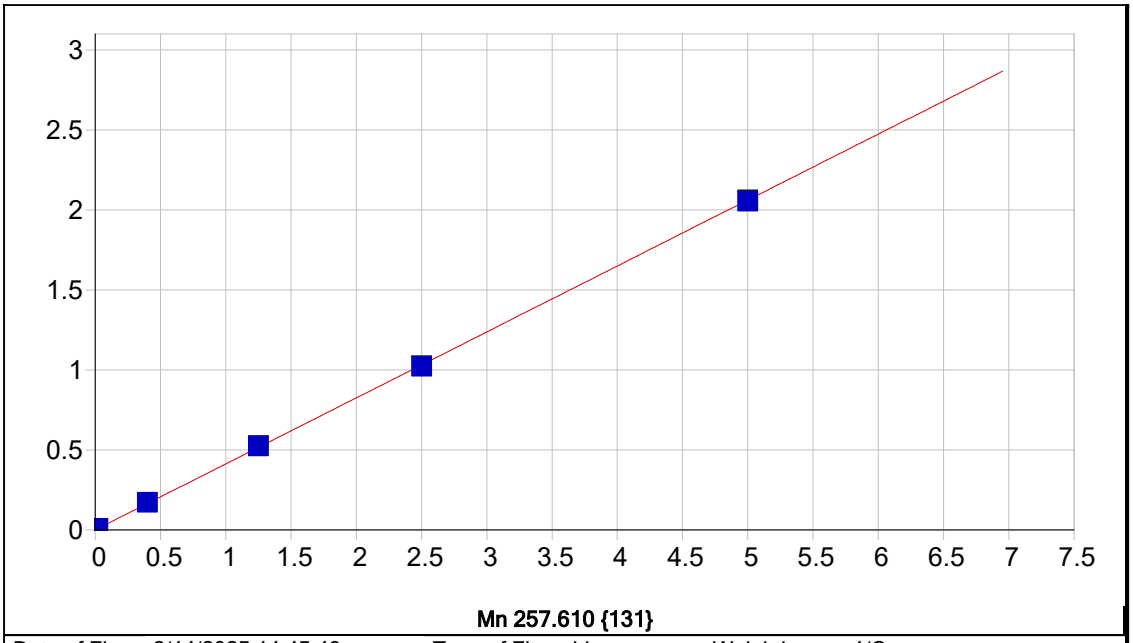
Fe 240.488 {140}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000029	Re-Slope:	1.000000
A1 (Gain):	0.003510	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999843	Status:	OK.
Std Error of Est:	0.000003		
Predicted MDL:	0.006149		
Predicted MQL:	0.020497		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00003	.000	1
S1	.10000	.10135	.001	1.35	.00038	.000	1
S3	2.5000	2.4798	-.020	-.806	.00866	.000	1
S4	5.0000	4.8722	-.128	-2.56	.01698	.000	1
S5	10.000	10.122	.122	1.22	.03526	.000	1
S2	.80000	.82443	.024	3.05	.00290	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



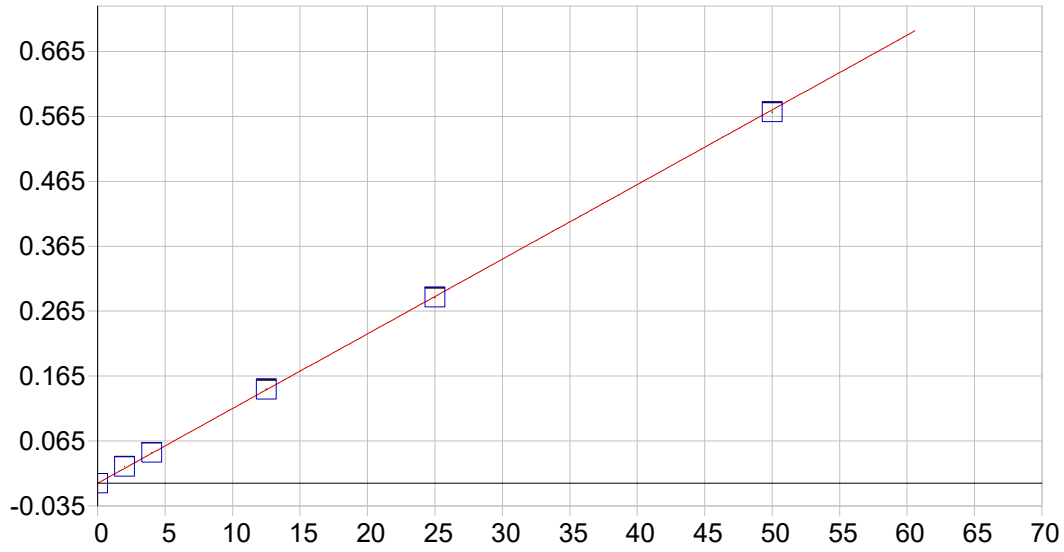
Mn 257.610 {131}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000311	Re-Slope:	1.000000
A1 (Gain):	0.412280	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999924	Status:	OK.
Std Error of Est:	0.000084		
Predicted MDL:	0.000559		
Predicted MQL:	0.001864		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00031	.000	1
S1	.02000	.02224	.002	11.2	.00948	.000	1
S3	1.2500	1.2691	.019	1.53	.52365	.005	1
S4	2.5000	2.4805	-.020	-.781	1.0232	.002	1
S5	5.0000	4.9823	-.018	-.353	2.0548	.006	1
S2	.40000	.41583	.016	3.96	.17178	.001	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



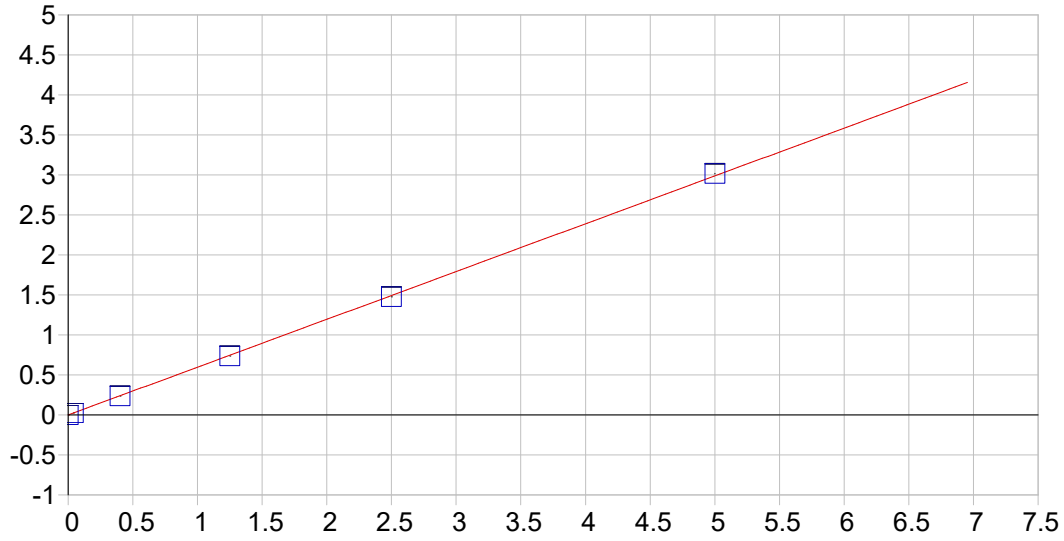
Mg 279.079 {121}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000036	Re-Slope:	1.000000
A1 (Gain):	0.011502	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999814	Status:	OK.
Std Error of Est:	0.000117		
Predicted MDL:	0.026016		
Predicted MQL:	0.086722		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00028	-.000	.000	-.00004	.000	1
S2	4.0000	4.0966	.097	2.42	.04708	.000	1
S3	12.500	12.569	.069	.554	.14454	.001	1
S4	25.000	24.891	-.109	-.437	.28627	.001	1
S5	50.000	49.700	-.300	-.601	.57163	.001	1
S1	2.0000	2.2438	.244	12.2	.02577	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



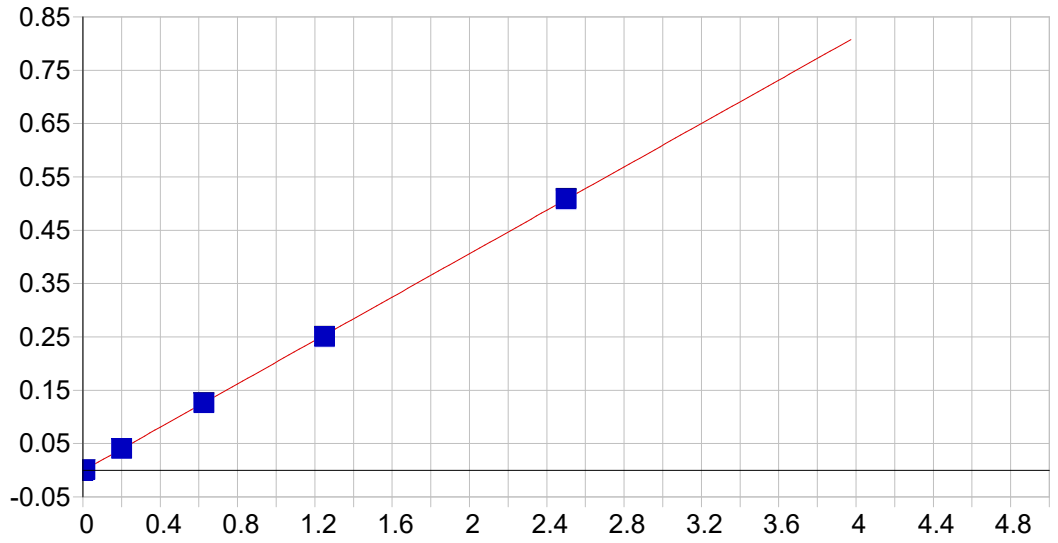
Ni 231.604 {446}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000502	Re-Slope:	1.000000
A1 (Gain):	0.597490	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999946	Status:	OK.
Std Error of Est:	0.000146		
Predicted MDL:	0.000339		
Predicted MQL:	0.001131		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00050	.000	1
S1	.04000	.04015	.000	.375	.02349	.000	1
S3	1.2500	1.2333	-.017	-1.34	.73638	.001	1
S4	2.5000	2.4734	-.027	-1.06	1.4774	.000	1
S5	5.0000	5.0472	.047	.944	3.0151	.004	1
S2	.40000	.39591	-.004	-1.02	.23605	.001	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



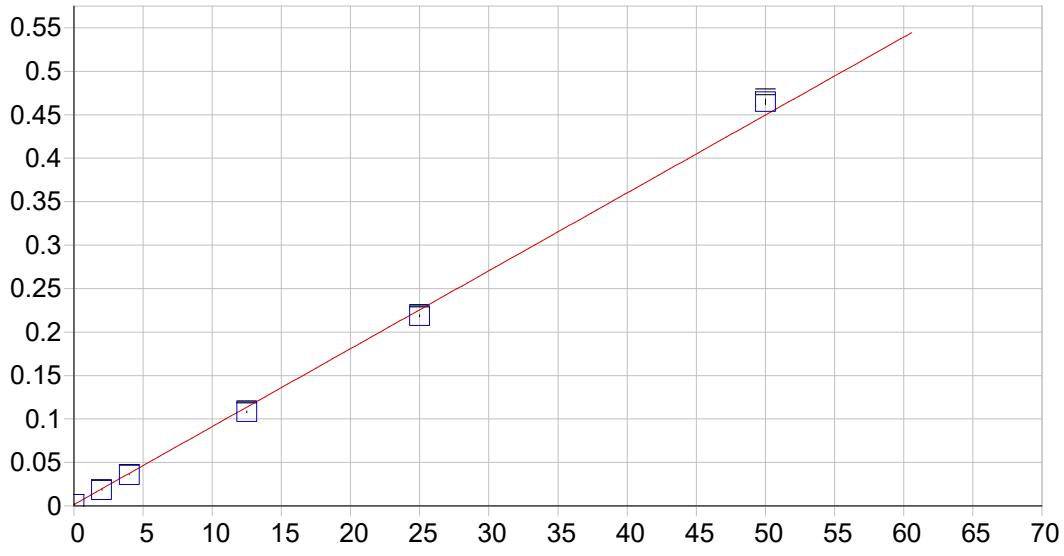
Ag 328.068 {103}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000803	Re-Slope:	1.000000
A1 (Gain):	0.203404	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999976	Status:	OK.
Std Error of Est:	0.000012		
Predicted MDL:	0.000506		
Predicted MQL:	0.001687		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00080	.000	1
S1	.01000	.01027	.000	2.68	.00127	.000	1
S3	.62500	.62622	.001	.195	.12596	.000	1
S4	1.2500	1.2373	-.013	-1.02	.24963	.000	1
S5	2.5000	2.5079	.008	.315	.50684	.001	1
S2	.20000	.20338	.003	1.69	.04037	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



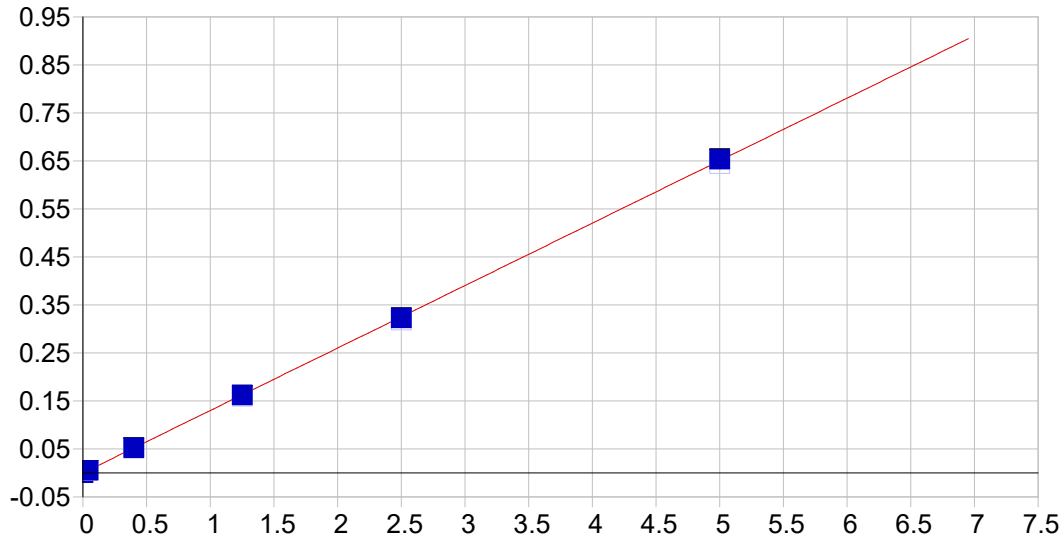
Na 589.592 { 57}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001660	Re-Slope:	1.000000
A1 (Gain):	0.008960	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999308	Status:	OK.
Std Error of Est:	0.000176		
Predicted MDL:	0.017023		
Predicted MQL:	0.056743		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00032	.000	.000	.00166	.000	1
S2	4.0000	3.8074	-.193	-4.81	.03577	.000	1
S3	12.500	11.893	-.607	-4.86	.10822	.001	1
S4	25.000	24.228	-.772	-3.09	.21874	.001	1
S5	50.000	51.704	1.70	3.41	.46492	.003	1
S1	2.0000	1.8681	-.132	-6.59	.01840	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



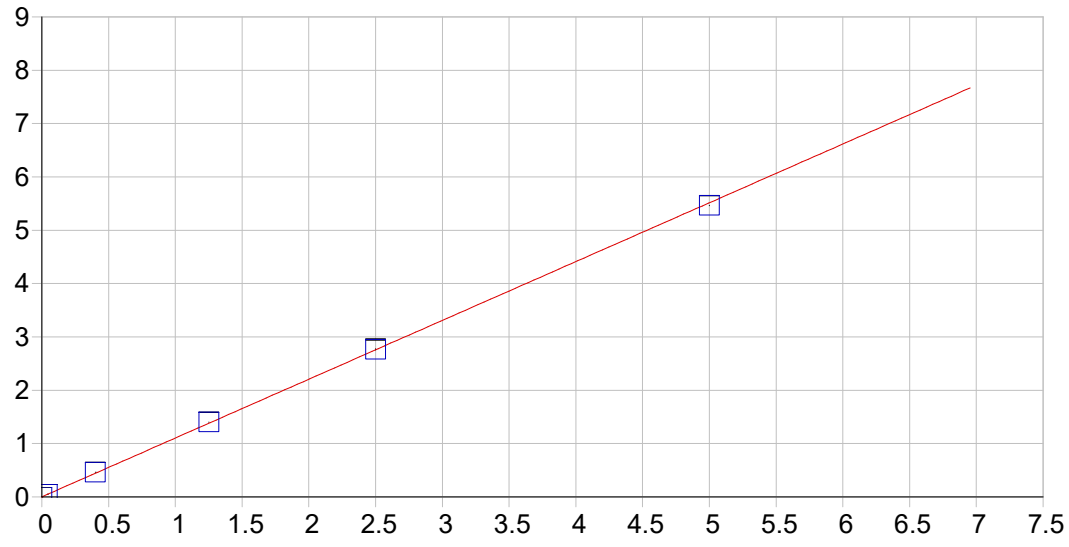
V 292.402 {115}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000056	Re-Slope:	1.000000
A1 (Gain):	0.130168	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999982	Status:	OK.
Std Error of Est:	0.000018		
Predicted MDL:	0.002687		
Predicted MQL:	0.008958		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00006	.000	1
S1	.04000	.04005	.000	.117	.00496	.000	1
S3	1.2500	1.2436	-.006	-.514	.15945	.000	1
S4	2.5000	2.4804	-.020	-.786	.31806	.001	1
S5	5.0000	5.0236	.024	.472	.64436	.001	1
S2	.40000	.40244	.002	.609	.05157	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



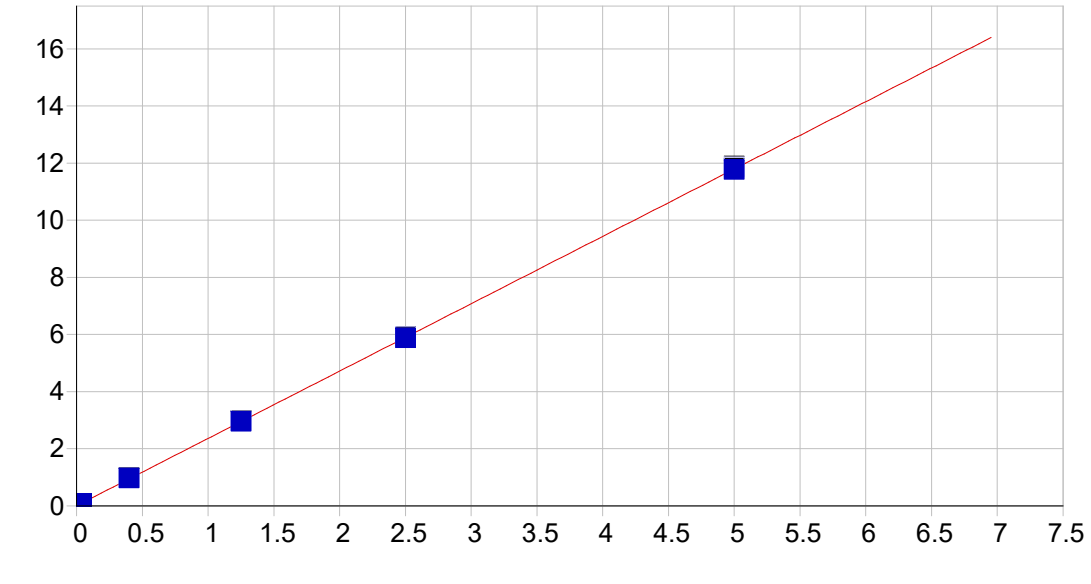
Zn 206.200 {464}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001601	Re-Slope:	1.000000
A1 (Gain):	1.102627	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999908	Status:	OK.
Std Error of Est:	0.000351		
Predicted MDL:	0.000146		
Predicted MQL:	0.000487		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00160	.000	1
S1	.04000	.04264	.003	6.61	.04862	.000	1
S3	1.2500	1.2696	.020	1.57	1.4015	.003	1
S4	2.5000	2.5071	.007	.285	2.7660	.012	1
S5	5.0000	4.9533	-.047	-.934	5.4633	.004	1
S2	.40000	.41731	.017	4.33	.46173	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



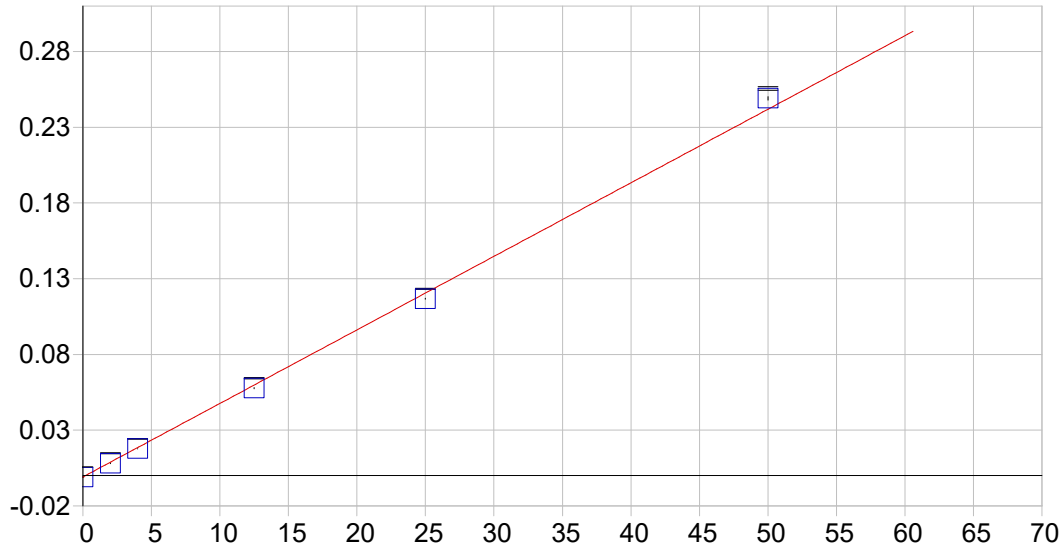
Zn 213.856 {158}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.004582	Re-Slope:	1.000000
A1 (Gain):	2.358031	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999982	Status:	OK.
Std Error of Est:	0.000334		
Predicted MDL:	0.000239		
Predicted MQL:	0.000797		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00458	.000	1
S1	.04000	.04198	.002	4.95	.10423	.000	1
S3	1.2500	1.2520	.002	.158	2.9773	.012	1
S4	2.5000	2.4938	-.006	-.248	5.9260	.005	1
S5	5.0000	4.9931	-.007	-.138	11.860	.040	1
S2	.40000	.40914	.009	2.29	.97591	.002	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



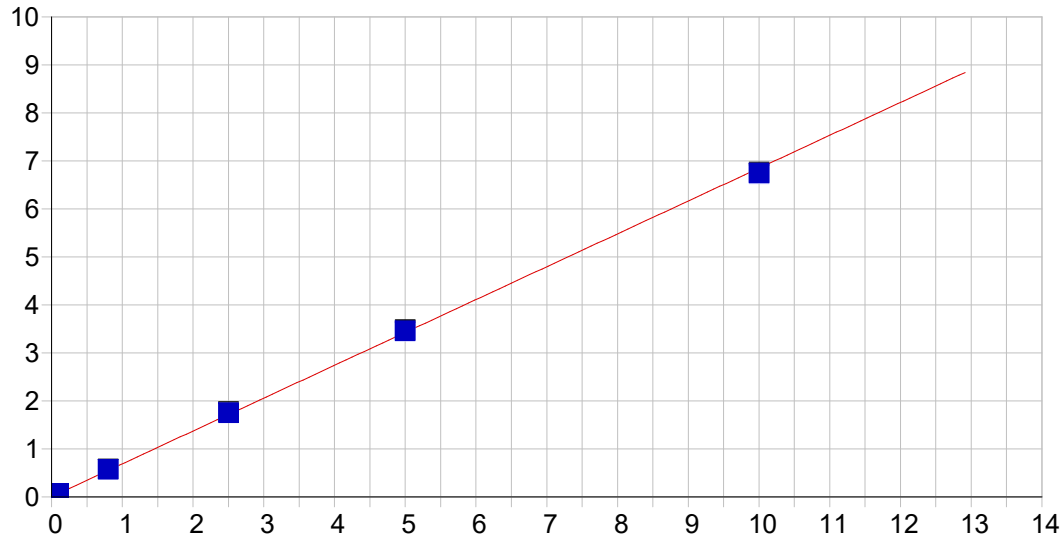
K 766.490 { 44}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000883	Re-Slope:	1.000000
A1 (Gain):	0.004855	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999474	Status:	OK.
Std Error of Est:	0.000083		
Predicted MDL:	0.037550		
Predicted MQL:	0.125166		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00029	.000	.000	-.00088	.000	1
S2	4.0000	3.8305	-.170	-4.24	.01771	.000	1
S3	12.500	12.074	-.426	-3.40	.05774	.000	1
S4	25.000	24.239	-.761	-3.05	.11679	.000	1
S5	50.000	51.491	1.49	2.98	.24910	.001	1
S1	2.0000	1.8658	-.134	-6.71	.00818	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



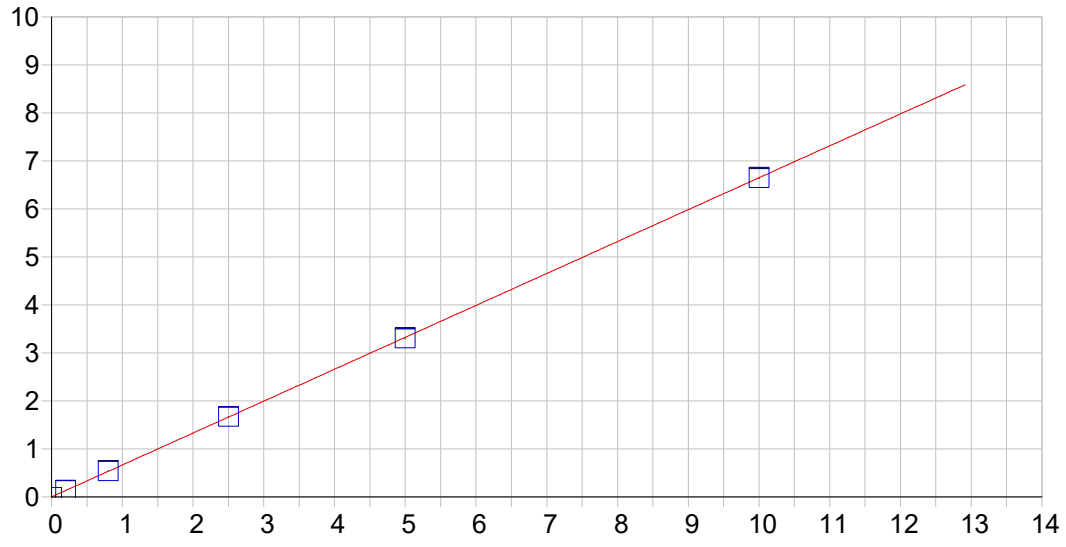
B 249.678 {135}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.004322	Re-Slope:	1.000000
A1 (Gain):	0.684450	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999842	Status:	OK.
Std Error of Est:	0.000637		
Predicted MDL:	0.000728		
Predicted MQL:	0.002427		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00431	.000	1
S1	.10000	.10735	.007	7.35	.07739	.000	1
S3	2.5000	2.5574	.057	2.29	1.7485	.020	1
S4	5.0000	5.0492	.049	.985	3.4479	.023	1
S5	10.000	9.8537	-.146	-1.46	6.7240	.019	1
S2	.80000	.83234	.032	4.04	.57204	.003	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



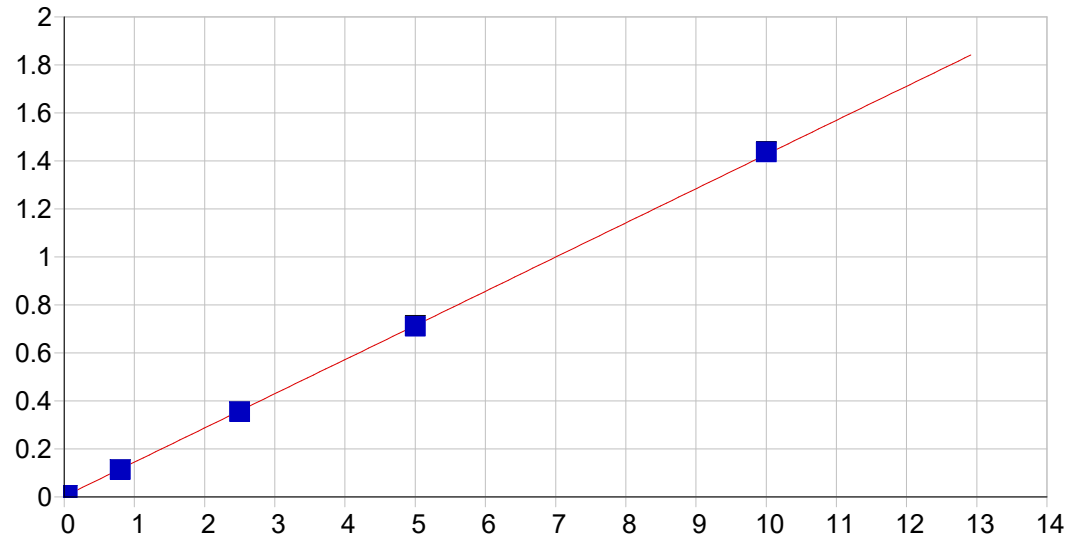
Mo 202.030 {467}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000387	Re-Slope:	1.000000
A1 (Gain):	0.664891	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999983	Status:	OK.
Std Error of Est:	0.000290		
Predicted MDL:	0.000254		
Predicted MQL:	0.000848		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00038	.000	1
S1	.20000	.20442	.004	2.21	.13630	.000	1
S3	2.5000	2.5129	.013	.517	1.6712	.003	1
S4	5.0000	4.9698	-.030	-.604	3.3048	.013	1
S5	10.000	9.9977	-.002	-.023	6.6477	.013	1
S2	.80000	.81517	.015	1.90	.54239	.001	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



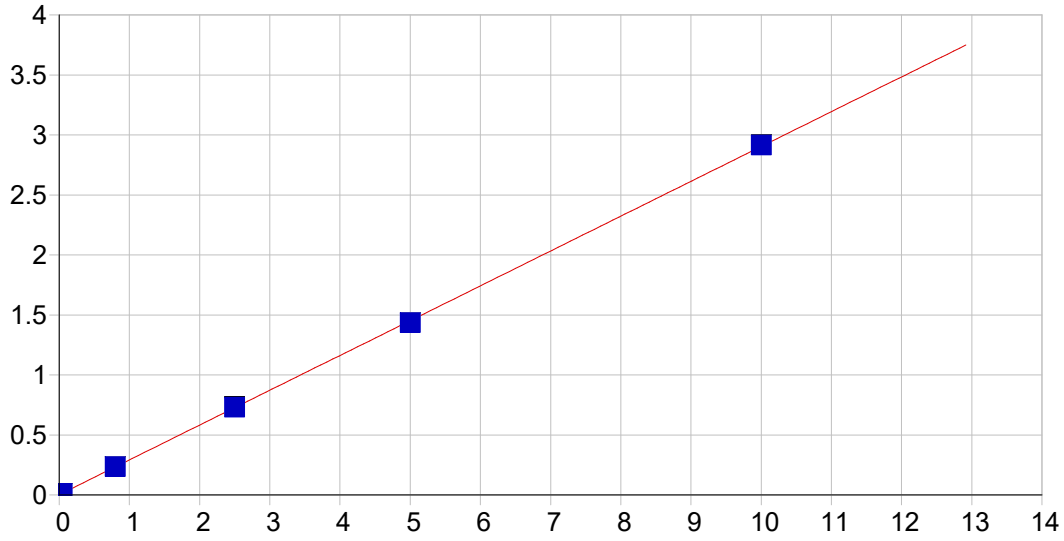
Sn 189.989 {478}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002432	Re-Slope:	1.000000
A1 (Gain):	0.142395	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999958	Status:	OK.
Std Error of Est:	0.000043		
Predicted MDL:	0.000636		
Predicted MQL:	0.002121		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00243	.000	1
S1	.04000	.03983	-.000	-.425	.00810	.000	1
S3	2.5000	2.4738	-.026	-1.05	.35432	.001	1
S4	5.0000	4.9753	-.025	-.494	.71016	.003	1
S5	10.000	10.073	.073	.730	1.4353	.002	1
S2	.80000	.77810	-.022	-2.74	.11311	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



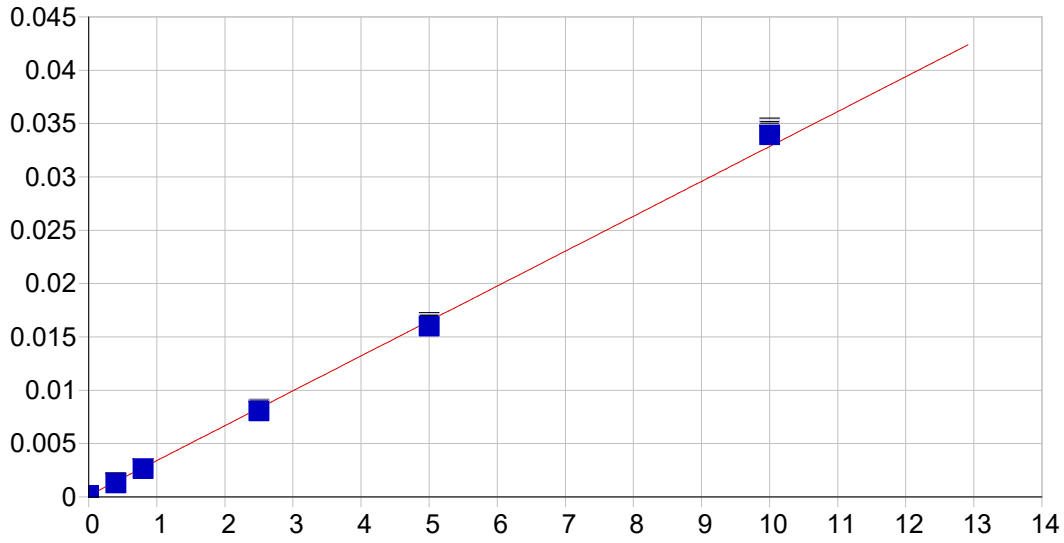
Ti 336.121 {100}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001294	Re-Slope:	1.000000
A1 (Gain):	0.290182	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999973	Status:	OK.
Std Error of Est:	0.000070		
Predicted MDL:	0.001570		
Predicted MQL:	0.005233		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00129	.000	1
S1	.04000	.04053	.001	1.33	.01305	.000	1
S3	2.5000	2.5094	.009	.376	.72922	.006	1
S4	5.0000	4.9413	-.059	-1.17	1.4346	.003	1
S5	10.000	10.041	.041	.410	2.9140	.005	1
S2	.80000	.80782	.008	.978	.23563	.001	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



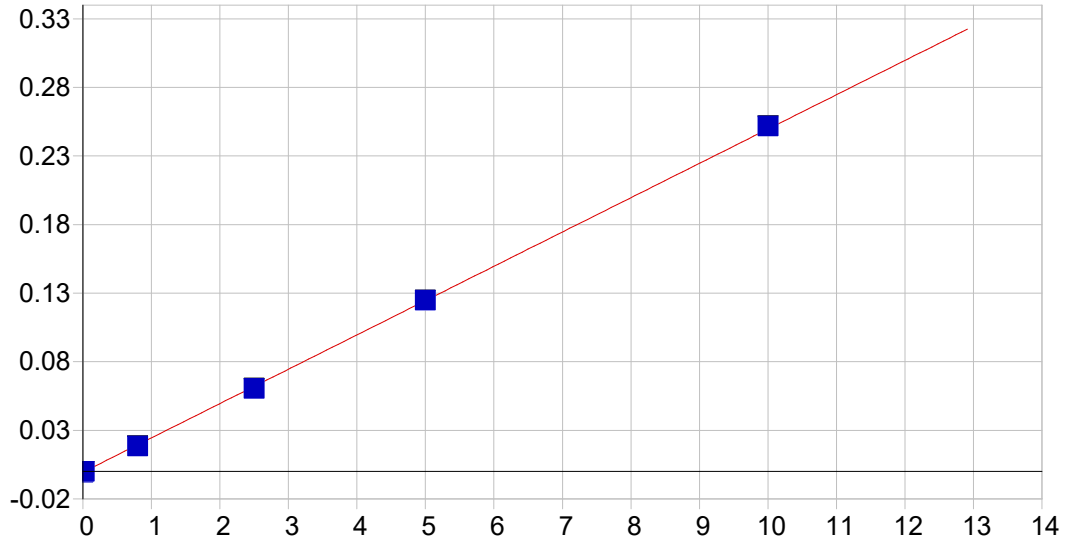
Si 288.158 {117}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000131	Re-Slope:	1.000000
A1 (Gain):	0.003272	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999312	Status:	OK.
Std Error of Est:	0.000013		
Predicted MDL:	0.011804		
Predicted MQL:	0.039348		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00008	.000	.000	.00013	.000	1
S1	.40000	.35060	-.049	-12.4	.00128	.000	1
S3	2.5000	2.4137	-.086	-3.45	.00815	.000	1
S4	5.0000	4.8429	-.157	-3.14	.01622	.000	1
S5	10.000	10.329	.329	3.29	.03442	.000	1
S2	.80000	.76336	-.037	-4.58	.00267	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



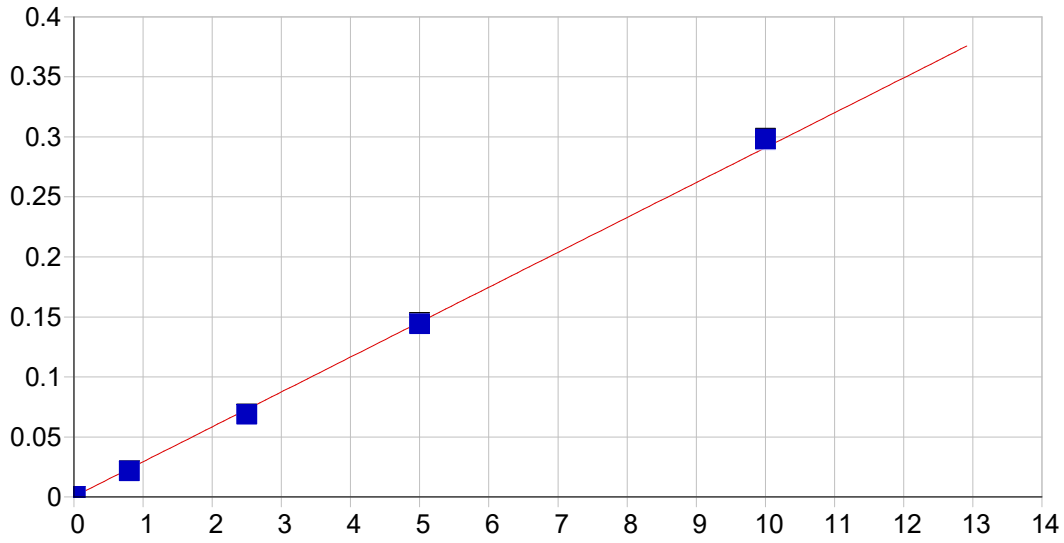
P 177.495 {490}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000528	Re-Slope:	1.000000
A1 (Gain):	0.025020	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999897	Status:	OK.
Std Error of Est:	0.000008		
Predicted MDL:	0.002641		
Predicted MQL:	0.008804		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00053	.000	1
S1	.02000	.01961	-.000	-1.96	-.00004	.000	1
S3	2.5000	2.4403	-.060	-2.39	.06052	.000	1
S4	5.0000	5.0083	.008	.165	.12476	.000	1
S5	10.000	10.087	.087	.874	.25182	.000	1
S2	.80000	.76450	-.035	-4.44	.01860	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



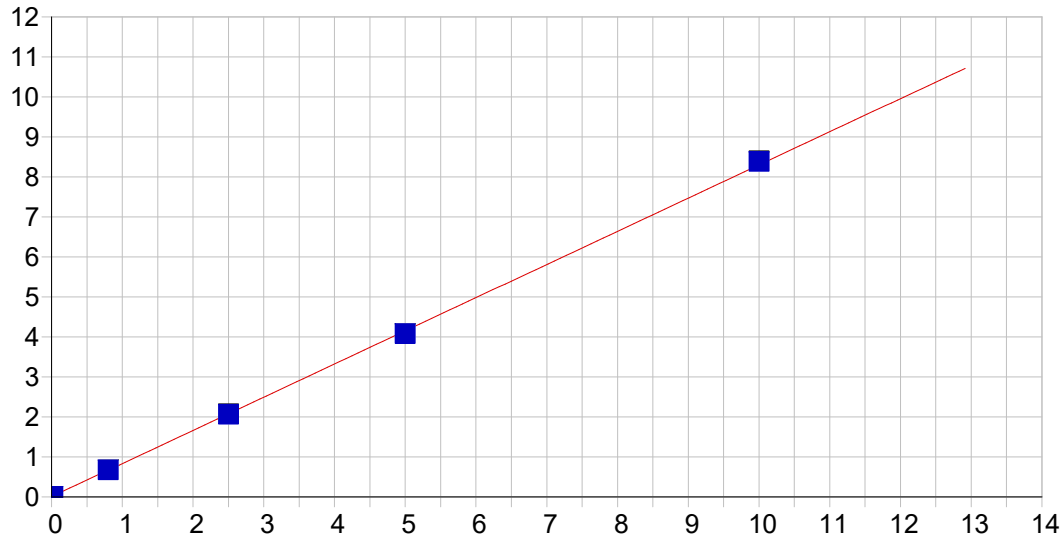
S 182.034 {485}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000215	Re-Slope:	1.000000
A1 (Gain):	0.029079	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999484	Status:	OK.
Std Error of Est:	0.000022		
Predicted MDL:	0.002820		
Predicted MQL:	0.009399		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00022	.000	1
S1	.02000	.02134	.001	6.69	.00081	.000	1
S3	2.5000	2.3615	-.138	-5.54	.06870	.000	1
S4	5.0000	4.9542	-.046	-.916	.14390	.001	1
S5	10.000	10.244	.244	2.44	.29735	.001	1
S2	.80000	.73885	-.061	-7.64	.02164	.000	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



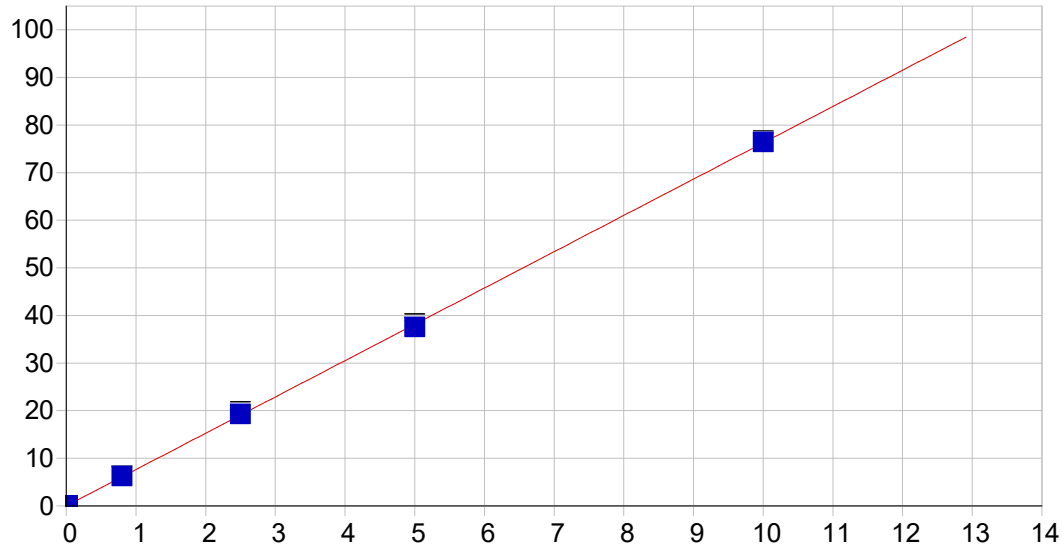
Li 670.784 { 50}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.005393	Re-Slope:	1.000000
A1 (Gain):	0.829297	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999922	Status:	OK.
Std Error of Est:	0.000243		
Predicted MDL:	0.001826		
Predicted MQL:	0.006086		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00539	.000	1
S5	10.000	10.100	.100	.997	8.3876	.011	1
S4	5.0000	4.9088	-.091	-1.82	4.0795	.003	1
S3	2.5000	2.4829	-.017	-.685	2.0661	.009	1
S1	.02000	.02022	.000	1.12	.02246	.001	1
S2	.80000	.80847	.008	1.06	.67639	.002	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837



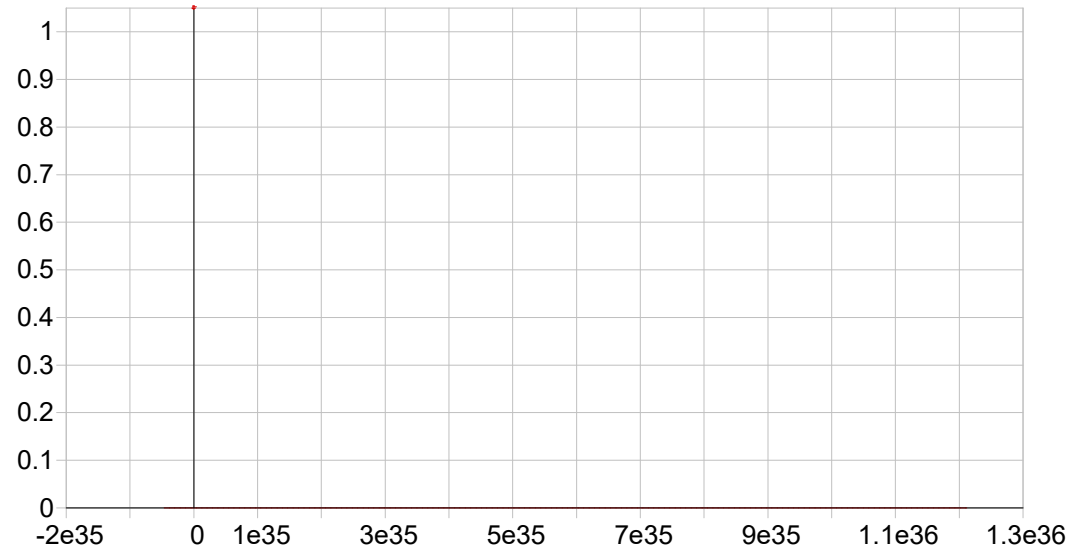
Sr 407.771 { 83}

Date of Fit:	8/14/2025 14:45:49	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001208	Re-Slope:	1.000000
A1 (Gain):	7.627087	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999937	Status:	OK.
Std Error of Est:	0.002006		
Predicted MDL:	0.000102		
Predicted MQL:	0.000341		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00120	.000	1
S1	.02000	.02067	.001	3.33	.15957	.001	1
S3	2.5000	2.5325	.033	1.30	19.335	.476	1
S4	5.0000	4.9243	-.076	-1.51	37.596	.665	1
S5	10.000	10.019	.019	.192	76.492	.193	1
S2	.80000	.82333	.023	2.92	6.2867	.013	1

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

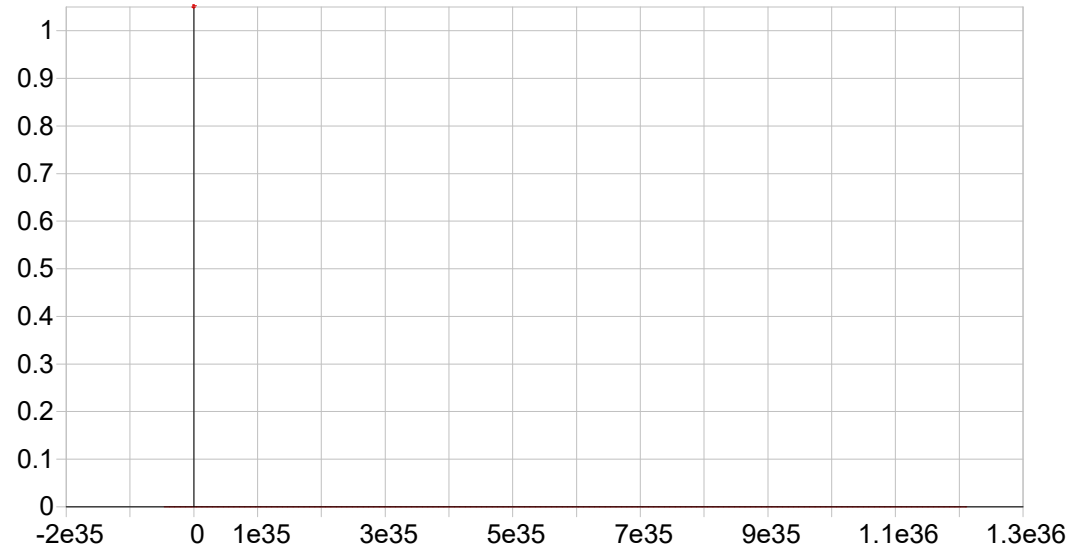


Y 224.306 {450}*

Date of Fit:	8/14/2025 14:45:49	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}*

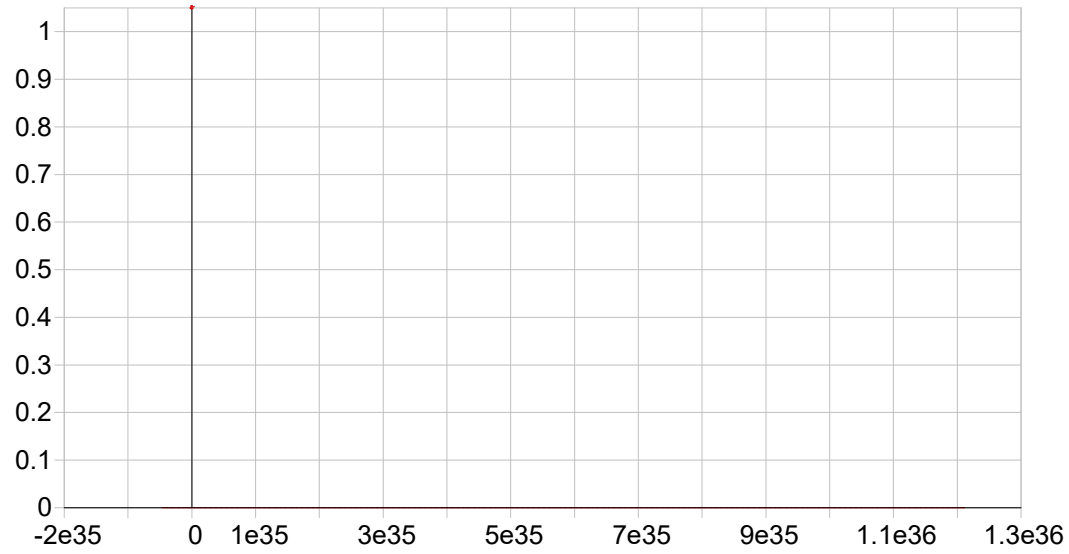
Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

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

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



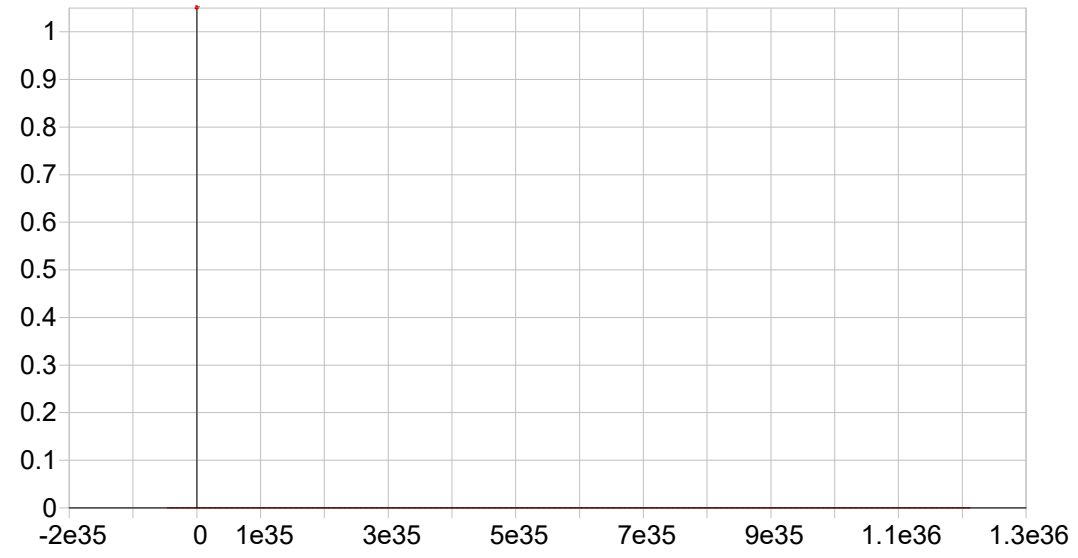
Y 371.030 { 91}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.000000	Status:	Warning Zero Gain
Std Error of Est:	0.000000		
Predicted MDL:	n/a		
Predicted MQL:	n/a		

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

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

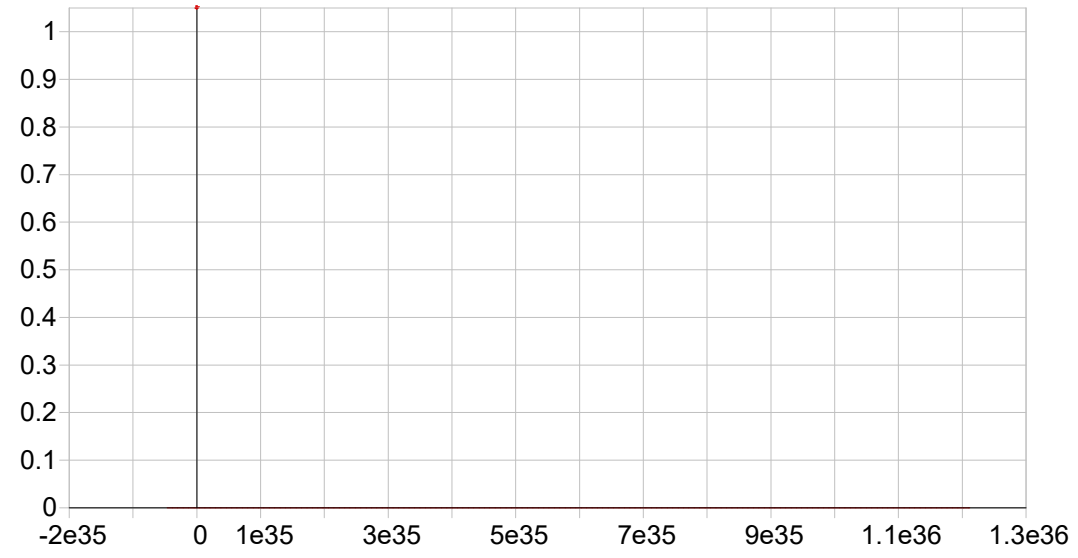


Y 224.306 {150}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.000000	Status:	Warning Zero Gain
Std Error of Est:	0.000000		
Predicted MDL:	n/a		
Predicted MQL:	n/a		

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



In 230.606 {446}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

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**

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: S0 Acquired: 8/14/2025 11:39:38 Type: Cal
Method: 6010-200.7 NEW(v98) 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	**-.00010**	**.00092**	**.00006**	**.00044**	**.00041**	**.00067**	**.09217**	**-.00069**
Stddev	.00008	.00006	.00025	.00010	.00001	.00071	.00217	.00034
%RSD	82.743	6.0141	392.83	23.561	2.5983	105.73	2.3551	49.222
#1	-.00016	.00086	.00032	.00034	.00040	-.00002	.09020	-.00081
#2	-.00012	.00097	.00004	.00043	.00041	.00062	.09181	-.00095
#3	-.00001	.00094	-.00018	.00055	.00042	.00140	.09449	-.00031

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	**-.00043**	**.00132**	**.00019**	**.00021**	**.00046**	**.00003**	**.00031**	**-.00004**
Stddev	.00015	.00044	.00004	.00012	.00029	.00001	.00014	.00007
%RSD	35.161	33.043	19.229	58.755	62.292	17.887	46.311	185.71
#1	-.00030	.00085	.00018	.00032	.00023	.00003	.00047	-.00012
#2	-.00039	.00138	.00016	.00008	.00079	.00002	.00019	-.00002
#3	-.00060	.00172	.00023	.00023	.00037	.00003	.00027	.00002

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	**-.00050**	**-.00080**	**.00166**	**-.00006**	**.00458**	**-.00088**	**.00431**	**.00038**
Stddev	.00020	.00004	.00001	.00016	.00041	.00007	.00022	.00010
%RSD	40.314	5.3714	.35490	293.44	8.9721	8.1041	5.0453	25.341
#1	-.00037	-.00085	.00167	.00012	.00495	-.00086	.00406	.00039
#2	-.00073	-.00077	.00166	-.00010	.00464	-.00096	.00441	.00048
#3	-.00041	-.00078	.00167	-.00019	.00414	-.00082	.00447	.00028

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	**.00243**	**.00129**	**.00013**	**-.00053**	**.00022**	**.00539**	**.00120**
Stddev	.00005	.00027	.00004	.00001	.00008	.00039	.00042
%RSD	2.0118	20.966	30.954	1.0589	36.349	7.2658	35.121
#1	.00238	.00152	.00017	-.00053	.00020	.00499	.00126
#2	.00246	.00137	.00014	-.00052	.00030	.00541	.00159
#3	.00246	.00099	.00009	-.00053	.00014	.00578	.00075

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: S0 Acquired: 8/14/2025 11:39:38 Type: Cal
Method: 6010-200.7 NEW(v98) 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	5873.8	102370.	10448.	4601.8	7553.2
Stddev	14.7	125.	9.	.9	12.9
%RSD	.25033	.12241	.08768	.01941	.17094
#1	5856.9	102510.	10454.	4601.2	7539.8
#2	5881.1	102260.	10452.	4602.8	7554.2
#3	5883.5	102340.	10437.	4601.5	7565.6

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: S1 Acquired: 8/14/2025 11:44:04 Type: Cal
Method: 6010-200.7 NEW(v98) 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**	**.00407**	**.00256**	**.00128**	**.00548**	**.00921**	**.33576**	**.04366**
Stddev	.00010	.00004	.00031	.00006	.00011	.00006	.00149	.00065
%RSD	9.1189	.98222	11.998	4.7054	2.0405	.59984	.44371	1.4824
#1	.00114	.00403	.00242	.00132	.00535	.00927	.33733	.04436
#2	.00108	.00406	.00235	.00121	.00557	.00916	.33436	.04308
#3	.00095	.00411	.00291	.00130	.00552	.00919	.33560	.04354

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	**.01692**	**.12327**	**.00221**	**.03110**	**.01474**	**.00038**	**.00948**	**.02577**
Stddev	.00013	.00080	.00002	.00006	.00003	.00000	.00017	.00021
%RSD	.76453	.65252	.87164	.18291	.22380	1.1418	1.7428	.83200
#1	.01706	.12342	.00222	.03104	.01472	.00038	.00942	.02583
#2	.01688	.12240	.00223	.03110	.01473	.00038	.00936	.02553
#3	.01681	.12399	.00219	.03115	.01478	.00038	.00967	.02595

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	**.02349**	**.00127**	**.01840**	**.00496**	**.10423**	**.00818**	**.07739**	**.13630**
Stddev	.00005	.00002	.00015	.00039	.00014	.00036	.00040	.00042
%RSD	.22053	1.2817	.82123	7.9099	.13532	4.4397	.51548	.30848
#1	.02353	.00128	.01827	.00461	.10414	.00829	.07746	.13618
#2	.02343	.00125	.01857	.00489	.10415	.00847	.07696	.13595
#3	.02350	.00126	.01836	.00539	.10439	.00777	.07775	.13677

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	**.00810**	**.01305**	**.00128**	**-.00004**	**.00081**	**.02246**	**.15957**
Stddev	.00007	.00015	.00004	.00002	.00002	.00117	.00067
%RSD	.86407	1.1282	3.2698	49.817	2.9972	5.2296	.41884
#1	.00815	.01288	.00133	-.00003	.00081	.02119	.16015
#2	.00802	.01316	.00124	-.00002	.00079	.02350	.15972
#3	.00813	.01310	.00128	-.00006	.00084	.02268	.15884

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: S1 Acquired: 8/14/2025 11:44:04 Type: Cal
Method: 6010-200.7 NEW(v98) 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	5777.7	101130.	10306.	4553.0	7295.6
Stddev	2.7	195.	66.	12.1	5.1
%RSD	.04615	.19315	.64205	.26678	.06930
#1	5777.4	101020.	10271.	4539.4	7295.7
#2	5775.3	101360.	10382.	4562.8	7290.4
#3	5780.6	101020.	10265.	4556.8	7300.5

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: S2 Acquired: 8/14/2025 11:48:27 Type: Cal
Method: 6010-200.7 NEW(v98) 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	.04093	.06323	.15739	.03893	.07733	.12767	3.9059	.27646
Stddev	.00009	.00073	.00048	.00007	.00021	.00009	.0070	.00116
%RSD	.23064	1.1617	.30196	.17668	.26737	.07238	.17838	.41967
#1	.04086	.06246	.15763	.03886	.07709	.12766	3.9067	.27753
#2	.04103	.06393	.15684	.03895	.07748	.12777	3.9124	.27662
#3	.04089	.06329	.15770	.03899	.07741	.12759	3.8986	.27523

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	1.1582	.23852	.03280	.40655	.13678	.00290	.17178	.04708
Stddev	.0016	.00099	.00009	.00033	.00016	.00003	.00069	.00015
%RSD	.14088	.41706	.26689	.08092	.11862	.99109	.40448	.32700
#1	1.1597	.23824	.03271	.40691	.13669	.00287	.17254	.04713
#2	1.1564	.23769	.03280	.40627	.13668	.00292	.17164	.04721
#3	1.1583	.23962	.03288	.40647	.13697	.00291	.17117	.04691

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	.23605	.04037	.03577	.05157	.97591	.01771	.57204	.54239
Stddev	.00053	.00002	.00017	.00039	.00212	.00007	.00334	.00103
%RSD	.22533	.04726	.47056	.75032	.21680	.41237	.58439	.18967
#1	.23665	.04035	.03559	.05181	.97725	.01763	.57493	.54131
#2	.23566	.04039	.03581	.05178	.97702	.01776	.57281	.54337
#3	.23584	.04036	.03592	.05112	.97347	.01775	.56838	.54248

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	.11311	.23563	.00267	.01860	.02164	.67639	6.2867
Stddev	.00027	.00075	.00001	.00009	.00009	.00248	.0127
%RSD	.24007	.31702	.46475	.50101	.40475	.36626	.20266
#1	.11316	.23576	.00268	.01867	.02167	.67473	6.2845
#2	.11282	.23629	.00266	.01849	.02154	.67924	6.3004
#3	.11335	.23482	.00267	.01863	.02171	.67519	6.2752

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: S2 Acquired: 8/14/2025 11:48:27 Type: Cal
Method: 6010-200.7 NEW(v98) 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	**5646.3**	**97642.**	**10343.**	**4387.6**	**7009.7**
Stddev	11.7	140.	70.	12.1	9.7
%RSD	.20799	.14348	.67809	.27504	.13906
#1	5649.8	97564.	10287.	4380.8	7002.4
#2	5633.2	97557.	10321.	4380.5	7006.0
#3	5655.8	97803.	10422.	4401.5	7020.8

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: S3 Acquired: 8/14/2025 11:52:33 Type: Cal
Method: 6010-200.7 NEW(v98) 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	.12780	.19162	.48868	.12039	.23863	.39635	11.983	.85421
Stddev	.00006	.00142	.00032	.00025	.00031	.00073	.069	.00974
%RSD	.04306	.74181	.06465	.20976	.12885	.18356	.57499	1.1399
#1	.12782	.19189	.48892	.12050	.23840	.39677	11.974	.84297
#2	.12784	.19009	.48833	.12010	.23852	.39551	11.919	.86007
#3	.12774	.19289	.48880	.12057	.23898	.39676	12.056	.85958

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.6546	.73183	.10093	1.2700	.41813	.00866	.52365	.14454
Stddev	.0078	.00222	.00010	.0012	.00032	.00008	.00465	.00103
%RSD	.21275	.30336	.09624	.09789	.07616	.86616	.88746	.71154
#1	3.6623	.73020	.10104	1.2713	.41815	.00873	.51929	.14340
#2	3.6468	.73093	.10088	1.2688	.41781	.00858	.52313	.14482
#3	3.6547	.73436	.10087	1.2698	.41844	.00866	.52854	.14540

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	.73638	.12596	.10822	.15945	2.9773	.05774	1.7485	1.6712
Stddev	.00100	.00020	.00110	.00039	.0124	.00049	.0202	.0034
%RSD	.13623	.15841	1.0204	.24639	.41516	.84374	1.1563	.20256
#1	.73662	.12581	.10924	.15910	2.9633	.05824	1.7252	1.6715
#2	.73528	.12618	.10704	.15936	2.9817	.05727	1.7607	1.6677
#3	.73725	.12588	.10836	.15987	2.9869	.05770	1.7597	1.6744

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	.35432	.72922	.00815	.06052	.06870	2.0661	19.335
Stddev	.00065	.00552	.00006	.00016	.00020	.0086	.476
%RSD	.18409	.75756	.77932	.27172	.29039	.41468	2.4605
#1	.35506	.72599	.00822	.06039	.06852	2.0593	18.786
#2	.35411	.72606	.00810	.06045	.06866	2.0633	19.612
#3	.35380	.73560	.00813	.06070	.06891	2.0757	19.607

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: S3 Acquired: 8/14/2025 11:52:33 Type: Cal
Method: 6010-200.7 NEW(v98) 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	5564.8	96063.	10386.	4315.7	6749.8
Stddev	8.2	84.	114.	19.4	17.4
%RSD	.14736	.08786	1.0991	.45043	.25709
#1	5558.3	96091.	10516.	4336.6	6732.8
#2	5562.0	95968.	10303.	4312.5	6749.2
#3	5574.0	96130.	10339.	4298.2	6767.5

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: S4 Acquired: 8/14/2025 11:56:38 Type: Cal
Method: 6010-200.7 NEW(v98) 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	.25939	.39387	.97312	.24598	.48014	.77917	23.430	1.6613
Stddev	.00099	.01726	.00214	.00170	.00086	.00311	.304	.0133
%RSD	.38239	4.3829	.22029	.69311	.17977	.39852	1.2963	.80113
#1	.25826	.37486	.97065	.24404	.47917	.77918	23.544	1.6612
#2	.26009	.39820	.97418	.24666	.48082	.78227	23.660	1.6746
#3	.25983	.40856	.97453	.24725	.48043	.77606	23.085	1.6480

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	7.3718	1.4301	.19599	2.5513	.82381	.01698	1.0232	.28627
Stddev	.0111	.0059	.00073	.0025	.00222	.00017	.0019	.00084
%RSD	.15011	.41264	.37258	.09823	.26887	1.0089	.18661	.29242
#1	7.3590	1.4315	.19632	2.5485	.82129	.01705	1.0252	.28649
#2	7.3777	1.4352	.19651	2.5531	.82546	.01679	1.0215	.28697
#3	7.3786	1.4237	.19516	2.5524	.82467	.01711	1.0228	.28534

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	1.4774	.24963	.21874	.31806	5.9260	.11679	3.4479	3.3048
Stddev	.0005	.00028	.00122	.00088	.0045	.00039	.0227	.0132
%RSD	.03255	.11051	.55741	.27586	.07662	.33689	.65848	.40055
#1	1.4768	.24987	.21896	.31907	5.9214	.11702	3.4474	3.2907
#2	1.4778	.24933	.21742	.31746	5.9305	.11634	3.4709	3.3067
#3	1.4774	.24969	.21983	.31766	5.9262	.11702	3.4255	3.3169

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	.71016	1.4346	.01622	.12476	.14390	4.0795	37.596
Stddev	.00330	.0025	.00013	.00008	.00117	.0035	.665
%RSD	.46461	.17566	.78059	.06156	.81427	.08571	1.7683
#1	.70635	1.4375	.01636	.12473	.14256	4.0807	37.196
#2	.71213	1.4328	.01611	.12470	.14469	4.0823	38.363
#3	.71199	1.4336	.01621	.12484	.14446	4.0756	37.228

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: S4 Acquired: 8/14/2025 11:56:38 Type: Cal
Method: 6010-200.7 NEW(v98) 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	**5480.8**	**96876.**	**10538.**	**4265.9**	**6516.4**
Stddev	15.2	235.	90.	5.0	15.4
%RSD	.27733	.24260	.85745	.11664	.23645
#1	5489.9	96811.	10533.	4260.9	6519.2
#2	5489.2	96680.	10451.	4270.8	6530.3
#3	5463.2	97137.	10631.	4265.9	6499.8

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: S5 Acquired: 8/14/2025 12:00:49 Type: Cal
Method: 6010-200.7 NEW(v98) 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	.52214	.75055	1.9887	.49001	.97101	1.5704	47.804	3.2362
Stddev	.00132	.01405	.0017	.00140	.00235	.0034	.239	.0019
%RSD	.25354	1.8716	.08687	.28502	.24250	.21977	.49959	.05742
#1	.52239	.75494	1.9872	.49014	.96946	1.5675	47.729	3.2382
#2	.52071	.73483	1.9906	.48856	.96986	1.5742	48.072	3.2346
#3	.52332	.76187	1.9883	.49134	.97372	1.5694	47.612	3.2357

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	15.012	2.8571	.38946	5.2257	1.6392	.03526	2.0548	.57163
Stddev	.010	.0015	.00205	.0024	.0008	.00024	.0064	.00079
%RSD	.06610	.05408	.52737	.04678	.05214	.66742	.30989	.13849
#1	15.004	2.8584	.39109	5.2233	1.6388	.03547	2.0615	.57137
#2	15.023	2.8575	.39013	5.2282	1.6386	.03531	2.0541	.57100
#3	15.009	2.8554	.38715	5.2256	1.6402	.03501	2.0488	.57252

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	3.0151	.50684	.46492	.64436	11.860	.24910	6.7240	6.6477
Stddev	.0042	.00054	.00334	.00101	.040	.00112	.0188	.0128
%RSD	.14040	.10744	.71935	.15665	.33913	.44979	.27939	.19220
#1	3.0111	.50745	.46761	.64322	11.898	.25013	6.7181	6.6475
#2	3.0195	.50669	.46597	.64473	11.865	.24927	6.7089	6.6351
#3	3.0149	.50639	.46117	.64514	11.818	.24791	6.7451	6.6607

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	1.4353	2.9140	.03442	.25182	.29735	8.3876	76.492
Stddev	.0015	.0053	.00017	.00044	.00095	.0115	.193
%RSD	.10494	.18051	.48667	.17560	.31965	.13657	.25187
#1	1.4336	2.9194	.03427	.25163	.29687	8.4001	76.714
#2	1.4361	2.9135	.03460	.25232	.29674	8.3854	76.378
#3	1.4362	2.9089	.03439	.25149	.29845	8.3775	76.383

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: S5 Acquired: 8/14/2025 12:00:49 Type: Cal
Method: 6010-200.7 NEW(v98) 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	5419.0	95852.	10776.	4174.5	6287.6
Stddev	10.4	471.	20.	35.0	10.7
%RSD	.19211	.49106	.18317	.83884	.17087
#1	5429.8	95531.	10755.	4149.9	6299.6
#2	5418.3	95633.	10781.	4159.1	6278.9
#3	5409.0	96393.	10794.	4214.6	6284.3

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: ICV01 Acquired: 8/14/2025 12:05:00 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**3.983115**	**3.831936**	**3.889633**	**3.973990**	**4.099898**	**8.031750**
Stddev	.008305	.078506	.003423	.010526	.002386	.017868
%RSD	.2084992	2.048737	.0880110	.2648745	.0581933	.2224623
#1	3.985177	3.863460	3.890532	3.972193	4.102547	8.017479
#2	3.973973	3.742568	3.885849	3.964478	4.097919	8.025983
#3	3.990194	3.889781	3.892516	3.985299	4.099227	8.051789

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**8.039274**	**.2024571**	**1.975279**	**20.09242**	**.8202612**	**2.012214**
Stddev	.066125	.0008682	.002011	.05043	.0028819	.001880
%RSD	.8225304	.4288514	.1018318	.2509945	.3513335	.0934154
#1	7.970977	.2014557	1.975581	20.03584	.8233503	2.014179
#2	8.102990	.2029162	1.973133	20.13262	.8176451	2.010433
#3	8.043855	.2029994	1.977122	20.10881	.8197884	2.012031

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.025120**	**4.049689**	**2.015337**	**20.07467**	**2.006392**	**1.072744**
Stddev	.000149	.008283	.005588	.11584	.002603	.000733
%RSD	.0145115	.2045378	.2772597	.5770688	.1297477	.0683257
#1	1.025104	4.050945	2.010583	19.98325	2.005540	1.073322
#2	1.025276	4.057272	2.021492	20.03581	2.004322	1.072991
#3	1.024980	4.040850	2.013937	20.20494	2.009315	1.071919

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**19.65383**	**2.018386**	**2.004004**	**19.84979**	**3.963730**	**4.091221**
Stddev	.05700	.002018	.008143	.04590	.017439	.004505
%RSD	.2900000	.0999879	.4063407	.2312326	.4399621	.1101216
#1	19.65307	2.016996	2.012098	19.85721	3.943829	4.094664
#2	19.71120	2.020700	1.995813	19.89153	3.971025	4.086122
#3	19.59721	2.017461	2.004100	19.80064	3.976338	4.092878

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: ICV01 Acquired: 8/14/2025 12:05:00 Type: Unk
Method: 6010-200.7 NEW(v98) 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	3.977435	4.028995	3.862312	F .0036382	F .0316200	F .0036675
Stddev	.010595	.006326	.014334	.0034519	.0021320	.0015016
%RSD	.2663762	.1570066	.3711203	94.88108	6.742691	40.94357
#1	3.979647	4.021962	3.875033	.0001522	.0293724	.0022505
#2	3.965908	4.034219	3.865122	.0037073	.0318740	.0035106
#3	3.986748	4.030806	3.846782	.0070550	.0336137	.0052415

Elem	Sr4077
Units	ppm
Avg	F -.003413
Stddev	.000037
%RSD	1.097482
#1	-.003428
#2	-.003370
#3	-.003441

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5531.259	97090.78	10825.54	4246.931	6667.203
Stddev	12.144	309.61	43.46	17.920	7.714
%RSD	.2195540	.3188877	.4014562	.4219617	.1156933
#1	5527.738	96887.24	10860.39	4228.270	6663.765
#2	5521.264	97447.08	10839.39	4264.005	6661.807
#3	5544.774	96938.02	10776.85	4248.518	6676.038

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: LLICV01 Acquired: 8/14/2025 12:09:05 Type: Unk
Method: 6010-200.7 NEW(v98) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0213823**	**.0417178**	**.0121627**	**.0195805**	**.0531848**	**.0902064**
Stddev	.0009559	.0009872	.0009880	.0018248	.0007901	.0030218
%RSD	4.470651	2.366357	8.123563	9.319634	1.485474	3.349888
#1	.0207778	.0406249	.0129021	.0181910	.0538751	.0889016
#2	.0224844	.0419835	.0125453	.0189035	.0523231	.0880563
#3	.0208849	.0425449	.0110405	.0216471	.0533563	.0936614

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0978587**	**.0062208**	**.0058459**	**2.091367**	**.0107134**	**.0298686**
Stddev	.0008121	.0000360	.0000284	.002960	.0001968	.0000713
%RSD	.8298370	.5793897	.4864702	.1415261	1.836751	.2386857
#1	.0977667	.0062343	.0058376	2.087972	.0105317	.0298625
#2	.0970965	.0062482	.0058226	2.092727	.0106862	.0298006
#3	.0987128	.0061800	.0058776	2.093402	.0109224	.0299428

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0215755**	**.1121069**	**.0215660**	**2.198578**	**.0402091**	**.0104762**
Stddev	.0005207	.0007384	.0003913	.038518	.0003417	.0003583
%RSD	2.413151	.6586426	1.814491	1.751940	.8497810	3.420063
#1	.0209786	.1112680	.0218595	2.155669	.0402190	.0107686
#2	.0219361	.1126581	.0217168	2.209895	.0398626	.0105833
#3	.0218117	.1123947	.0211217	2.230169	.0405457	.0100765

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.917047**	**.0394358**	**.0428785**	**2.025081**	F **.1226145**	**.2101118**
Stddev	.017376	.0024628	.0002496	.012520	.0010521	.0001475
%RSD	.9064074	6.245087	.5822018	.6182589	.8580269	.0702122
#1	1.915372	.0420531	.0431567	2.036886	.1220081	.2102661
#2	1.935200	.0371640	.0426740	2.026406	.1238294	.2100970
#3	1.900568	.0390903	.0428050	2.011951	.1220062	.2099722

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: LLICV01 Acquired: 8/14/2025 12:09:05 Type: Unk
Method: 6010-200.7 NEW(v98) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0247853	.0403823	.3934222	.0165115	.0208180	F .0240415
Stddev	.0005211	.0009143	.0126056	.0022866	.0016048	.0012545
%RSD	2.102346	2.264021	3.204095	13.84849	7.708655	5.218282
#1	.0248003	.0407973	.3961154	.0147891	.0191474	.0254868
#2	.0242569	.0393342	.3796876	.0191058	.0223477	.0234035
#3	.0252988	.0410156	.4044636	.0156396	.0209588	.0232341

Elem	Sr4077
Units	ppm
Avg	.0201339
Stddev	.0000982
%RSD	.4875072
#1	.0202003
#2	.0201802
#3	.0200212

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5701.620	100508.9	10894.33	4336.273	7268.006
Stddev	14.008	97.0	60.80	9.371	15.336
%RSD	.2456774	.0965509	.5580570	.2161087	.2110062
#1	5685.677	100620.6	10964.48	4337.092	7250.526
#2	5711.953	100461.2	10856.99	4345.207	7279.204
#3	5707.230	100445.0	10861.52	4326.519	7274.286

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: ICB01 Acquired: 8/14/2025 12:13:21 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0002298	.0005026	.0004058	.0006011	.0022911	-.004473	-.001179
Stddev	.0009218	.0012439	.0007915	.0020429	.0010671	.008816	.000719
%RSD	401.1543	247.5144	195.0551	339.8793	46.57637	197.1131	61.02428
#1	-.000113	.0018840	-.000373	.0008550	.0035123	-.007412	-.001742
#2	-.000472	-.000529	.001209	.0025051	.0015381	.005438	-.001426
#3	.001274	.000152	.000382	-.001557	.0018229	-.011443	-.000368

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000010	.0001187	.0216559	.0005406	.0001733	.0001837	.0231846
Stddev	.000036	.0000400	.0031372	.0002058	.0000390	.0006504	.0013093
%RSD	356.8307	33.73577	14.48634	38.07890	22.53313	354.0824	5.647170
#1	-.000005	.0001626	.0251127	.0003333	.0001481	-.000534	.0246733
#2	-.000048	.0000841	.0189897	.0005435	.0001535	.000351	.0226688
#3	.000023	.0001094	.0208652	.0007449	.0002182	.000734	.0222118

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008928	.0019572	.0010869	.0005929	.0138255	.0008757	.0032484
Stddev	.0005819	.0208712	.0000973	.0004128	.0118668	.0007327	.0000452
%RSD	65.18051	1066.392	8.951284	69.62126	85.83296	83.67391	1.390545
#1	.0004154	-.015581	.0009949	.0010453	.0066060	.0017186	.0032971
#2	.0007220	-.003589	.0011887	.0004971	.0073491	.0003908	.0032403
#3	.0015411	.025041	.0010770	.0002365	.0275214	.0005177	.0032079

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0487387	.0129003	.0008296	-.013039	.0000832	.0059875	.0017213
Stddev	.0200701	.0006508	.0001699	.000272	.0005810	.0040532	.0010652
%RSD	41.17899	5.044592	20.47887	2.088748	698.3645	67.69503	61.87944
#1	.0567178	.0136449	.0009170	-.012725	.0007438	.0100363	.0027054
#2	.0259061	.0126152	.0009381	-.013181	-.000146	.0019299	.0005904
#3	.0635921	.0124406	.0006338	-.013212	-.000348	.0059961	.0018683

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: ICB01 Acquired: 8/14/2025 12:13:21 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0044082	.0009302	.0002286
Stddev	.0019912	.0011768	.0000429
%RSD	45.16973	126.5009	18.74714
#1	.0044665	.0020707	.0002150
#2	.0063696	.0009998	.0001942
#3	.0023886	-.000280	.0002766

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5670.487	100939.3	10862.56	4318.704	7325.825
Stddev	5.395	115.5	48.56	14.353	6.874
%RSD	.0951460	.1143978	.4470516	.3323393	.0938274
#1	5670.528	101004.8	10868.33	4302.481	7328.969
#2	5675.862	101007.1	10907.98	4329.750	7317.942
#3	5665.072	100806.0	10811.37	4323.880	7330.565

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CRI01 Acquired: 8/14/2025 12:23:01 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0210861	.0412680	.0123628	.0178605	.0527549	.1053792	.0964454
Stddev	.0008967	.0006478	.0010791	.0018821	.0019546	.0041325	.0007619
%RSD	4.252468	1.569614	8.728210	10.53755	3.705026	3.921587	.7899380
#1	.0201121	.0420157	.0135174	.0192618	.0507190	.1032425	.0956782
#2	.0212692	.0409092	.0121911	.0157213	.0546165	.1101427	.0972018
#3	.0218772	.0408789	.0113799	.0185984	.0529291	.1027525	.0964561

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0062698	.0059237	2.069657	.0103718	.0298727	.0214296	.1061838
Stddev	.0000211	.0000456	.010009	.0000577	.0000726	.0002092	.0004287
%RSD	.3373891	.7705565	.4836190	.5562377	.2429351	.9761585	.4036983
#1	.0062818	.0059700	2.062611	.0103754	.0297893	.0214155	.1065922
#2	.0062822	.0059224	2.081114	.0103123	.0299067	.0216455	.1057374
#3	.0062454	.0058788	2.065245	.0104275	.0299220	.0212278	.1062219

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0207229	2.181947	.0402143	.0110308	1.834180	.0367466	.0430272
Stddev	.0003053	.019185	.0001315	.0003101	.007997	.0011098	.0001918
%RSD	1.473025	.8792714	.3271021	2.811667	.4360097	3.020202	.4457806
#1	.0209542	2.194871	.0400666	.0107255	1.840396	.0366604	.0431666
#2	.0203769	2.159903	.0402571	.0113456	1.825158	.0378970	.0428085
#3	.0208377	2.191067	.0403190	.0110213	1.836986	.0356824	.0431066

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.928746	.1058214	.2105935	.0336065	.0392938	.3742952	.0181968
Stddev	.022942	.0007276	.0004305	.0002983	.0007069	.0081726	.0020823
%RSD	1.189481	.6876127	.2044318	.8875180	1.798934	2.183451	11.44326
#1	1.947335	.1049941	.2102959	.0338008	.0386869	.3713029	.0170968
#2	1.903106	.1061075	.2110872	.0332631	.0400699	.3680405	.0168952
#3	1.935797	.1063624	.2103975	.0337555	.0391246	.3835421	.0205984

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CRI01 Acquired: 8/14/2025 12:23:01 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0205776	.0205029	.0200453
Stddev	.0020253	.0023570	.0001262
%RSD	9.841978	11.49581	.6296726
#1	.0182487	.0225656	.0199354
#2	.0215588	.0179339	.0201832
#3	.0219254	.0210092	.0200173

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5763.608	101503.7	11014.31	4361.004	7378.116
Stddev	8.529	242.2	38.21	15.591	16.080
%RSD	.1479726	.2385992	.3469469	.3575135	.2179444
#1	5753.943	101511.9	11048.28	4343.007	7359.981
#2	5766.804	101257.5	10972.94	4369.616	7383.728
#3	5770.076	101741.7	11021.70	4370.390	7390.637

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: ICSA01 Acquired: 8/14/2025 12:27:17 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**.0075727**	**-.003357**	**-.005206**	**-.003058**	**-.001095**	**250.5428**
Stddev	.0034473	.001740	.001174	.001247	.001496	.4618
%RSD	45.52275	51.82516	22.55075	40.79227	136.6599	.1843156
#1	.0037531	-.004266	-.006551	-.002840	-.001466	250.0878
#2	.0104529	-.004454	-.004390	-.004399	-.002370	250.5296
#3	.0085121	-.001351	-.004677	-.001933	.000552	251.0111

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000965**	**.0013551**	**.0029093**	**236.6456**	**.0603355**	**.0018407**
Stddev	.0004241	.0000592	.0000286	.4593	.0007318	.0001227
%RSD	439.5010	4.372077	.9818466	.1940958	1.212856	6.664332
#1	.0005044	.0012882	.0028904	236.7561	.0600622	.0019757
#2	-.000342	.0014011	.0029422	236.1411	.0597796	.0017362
#3	.000127	.0013759	.0028953	237.0395	.0611646	.0018100

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0072050**	**99.78717**	**.0079467**	**251.4685**	**.0054012**	**.0014842**
Stddev	.0004738	.33812	.0002954	.6477	.0004339	.0006806
%RSD	6.575834	.3388378	3.717397	.2575749	8.033482	45.85823
#1	.0072758	99.68795	.0082821	251.8906	.0056928	.0011617
#2	.0076394	99.50976	.0078329	250.7228	.0056081	.0022662
#3	.0066998	100.1638	.0077252	251.7922	.0049025	.0010248

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1113047**	**.0021639**	**.0033253**	**.1302653**	**.0451729**	**.0010129**
Stddev	.0092092	.0009880	.0005992	.0205773	.0019586	.0004228
%RSD	8.273872	45.65865	18.02090	15.79649	4.335866	41.74117
#1	.1218443	.0030264	.0026721	.1274340	.0435161	.0005298
#2	.1072584	.0010860	.0038496	.1112501	.0446681	.0013155
#3	.1048114	.0023794	.0034542	.1521116	.0473345	.0011935

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: ICSA01 Acquired: 8/14/2025 12:27:17 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.017093**	**-.004564**	**.0259288**	**.0015885**	**-.008743**	F **-.026673**
Stddev	.000544	.000171	.0061664	.0029764	.006692	.000514
%RSD	3.181835	3.750525	23.78194	187.3786	76.54074	1.925892
#1	-.016469	-.004487	.0252165	-.001818	-.001766	-.027220
#2	-.017470	-.004445	.0324205	.003685	-.015108	-.026200
#3	-.017339	-.004761	.0201496	.002898	-.009357	-.026598

Elem	Sr4077
Units	ppm
Avg	**.0028082**
Stddev	.0003299
%RSD	11.74692
#1	.0030898
#2	.0028895
#3	.0024452

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5005.005**	**88151.07**	**10554.21**	**3830.210**	**5782.522**
Stddev	7.281	153.56	57.07	9.395	6.285
%RSD	.1454652	.1742002	.5407174	.2452904	.1086967
#1	4996.795	87990.46	10492.92	3832.753	5775.374
#2	5007.545	88296.44	10563.90	3838.071	5787.186
#3	5010.676	88166.30	10605.82	3819.805	5785.007

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: ICSAB01 Acquired: 8/14/2025 12:38:15 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.1101404	.1089983	.0425643	.0466071	.5928043	248.9878
Stddev	.0053416	.0027981	.0003732	.0046662	.0043643	.3835
%RSD	4.849794	2.567076	.8767128	10.01181	.7362201	.1540337
#1	.1085369	.1105754	.0429598	.0412425	.5929422	249.1322
#2	.1057842	.1057676	.0422185	.0488550	.5970980	248.5530
#3	.1161000	.1106517	.0425147	.0497239	.5883726	249.2782

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4853229	.4963325	.9886766	235.5356	.5661622	.4944547
Stddev	.0023793	.0022460	.0004385	.6697	.0016814	.0005784
%RSD	.4902504	.4525296	.0443504	.2843407	.2969734	.1169674
#1	.4880659	.4944216	.9882224	235.8099	.5664830	.4949519
#2	.4840862	.4957694	.9887099	234.7723	.5676600	.4945921
#3	.4838166	.4988065	.9890975	236.0247	.5643435	.4938200

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4903239	98.61986	.4865518	252.0626	.9866669	.2160691
Stddev	.0001074	.67082	.0015308	.7698	.0007218	.0004531
%RSD	.0218982	.6802094	.3146245	.3053883	.0731513	.2096954
#1	.4903876	99.31400	.4877821	252.2033	.9859722	.2161437
#2	.4903842	98.57047	.4848375	251.2321	.9866154	.2164803
#3	.4902000	97.97509	.4870358	252.7522	.9874130	.2155834

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.006452	.4790916	1.044322	-.000278	.9672500	1.005912
Stddev	.011076	.0024162	.001152	.028008	.0041877	.000209
%RSD	171.6611	.5043282	.1103497	10089.61	.4329533	.0207286
#1	-.019207	.4793599	1.043487	.031811	.9676307	1.005845
#2	-.000892	.4765525	1.045637	-.012827	.9628849	1.006146
#3	.000742	.4813625	1.043843	-.019817	.9712344	1.005746

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: ICSAB01 Acquired: 8/14/2025 12:38:15 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.9824429	.9702644	1.005418	F .0062988	F .0008193	F -.032510
Stddev	.0027704	.0055856	.008784	.0042038	.0046006	.001009
%RSD	.2819896	.5756804	.8736808	66.73965	561.5008	3.103004
#1	.9793576	.9743642	.998022	.0023329	-.003188	-.033557
#2	.9847174	.9639026	1.015127	.0058578	-.000197	-.032428
#3	.9832538	.9725265	1.003105	.0107057	.005843	-.031545

Elem	Sr4077
Units	ppm
Avg	F .0025228
Stddev	.0004640
%RSD	18.39175
#1	.0021875
#2	.0023284
#3	.0030523

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5192.975	90543.49	10782.36	3947.009	6004.227
Stddev	8.861	299.13	58.87	9.318	8.600
%RSD	.1706386	.3303769	.5459618	.2360883	.1432334
#1	5187.286	90771.55	10839.12	3952.267	5998.025
#2	5203.185	90204.80	10786.38	3936.250	6014.044
#3	5188.455	90654.13	10721.59	3952.510	6000.611

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: ICSA01DLX20 Acquired: 8/14/2025 12:42:16 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0010744	.0007808	-.000452	-.001411	.0016594	12.09840	-.001222
Stddev	.0013452	.0008230	.000748	.002158	.0019796	.02381	.000774
%RSD	125.2093	105.4140	165.6095	152.9982	119.2954	.1968039	63.33586
#1	-.000379	.0017282	-.001142	.001037	.0036305	12.08503	-.000624
#2	.001327	.0002428	-.000557	-.002230	.0016761	12.08428	-.002096
#3	.002275	.0003713	.000343	-.003040	-.000329	12.12589	-.000946

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000936	.0001225	11.97091	.0031140	.0001084	.0003743	4.724494
Stddev	.0000865	.0000282	.04897	.0004883	.0001366	.0000935	.038559
%RSD	92.49452	23.03877	.4090605	15.68124	126.0651	24.98083	.8161560
#1	.0000050	.0000984	12.02593	.0029816	-.000011	.0002715	4.769004
#2	.0000977	.0001157	11.93211	.0036549	.000079	.0004542	4.703199
#3	.0001780	.0001535	11.95470	.0027056	.000257	.0003971	4.701278

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0033705	12.56556	.0005497	.0005971	-.015384	-.000618	.0001347
Stddev	.0002668	.01802	.0002229	.0002129	.013663	.001397	.0003393
%RSD	7.915770	.1433878	40.55481	35.65948	88.81337	225.9650	251.9335
#1	.0031065	12.57692	.0004889	.0005734	-.022341	.000859	.0004678
#2	.0033648	12.57497	.0003635	.0008209	-.024169	-.000796	-.000210
#3	.0036400	12.54478	.0007968	.0003970	.000357	-.001918	.000147

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001895	.0006398	.0004395	-.015085	.0002478	.0205204	-.000252
Stddev	.016853	.0005575	.0001271	.000353	.0012907	.0059256	.001704
%RSD	889.2343	87.13644	28.92616	2.340934	520.7823	28.87666	676.0330
#1	-.002133	-.000002	.0005521	-.014683	.0017302	.0273495	.001713
#2	-.018628	.000912	.0003016	-.015342	-.000627	.0174730	-.001326
#3	.015075	.001009	.0004648	-.015232	-.000359	.0167386	-.001143

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: ICSA01DLX20 Acquired: 8/14/2025 12:42:16 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0000190	-.004506	.0002203
Stddev	.0021982	.000854	.0000417
%RSD	11585.57	18.95512	18.91821
#1	-.000794	-.003832	.0001764
#2	.002508	-.004220	.0002594
#3	-.001657	-.005467	.0002251

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5662.440	98670.18	10898.76	4236.293	7129.531
Stddev	18.326	420.54	14.27	16.118	25.654
%RSD	.3236424	.4262127	.1309411	.3804830	.3598209
#1	5648.225	98283.27	10910.72	4229.562	7108.245
#2	5655.972	98609.48	10882.96	4224.631	7122.333
#3	5683.123	99117.77	10902.60	4254.686	7158.015

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: ICSAB01DLX20 Acquired: 8/14/2025 12:46:33 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0048372	.0055963	.0040051	.0019855	.0315576	12.76710	.0233895
Stddev	.0007520	.0025436	.0013490	.0005297	.0004807	.01604	.0002968
%RSD	15.54492	45.45172	33.68197	26.67841	1.523298	.1256493	1.269128
#1	.0044907	.0034836	.0044907	.0023567	.0318409	12.75109	.0230474
#2	.0043210	.0048856	.0050441	.0013789	.0310026	12.78318	.0235432
#3	.0057000	.0084196	.0024805	.0022209	.0318295	12.76702	.0235780

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0256799	.0487169	12.61825	.0294966	.0244817	.0266158	4.988984
Stddev	.0001207	.0000598	.03024	.0001985	.0000281	.0001228	.027332
%RSD	.4698462	.1226699	.2396808	.6728473	.1145615	.4612585	.5478390
#1	.0255414	.0487704	12.61232	.0293048	.0245045	.0265677	4.989086
#2	.0257622	.0486524	12.65102	.0297011	.0244504	.0267553	5.016265
#3	.0257362	.0487279	12.59141	.0294839	.0244902	.0265244	4.961602

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0261608	13.15380	.0499155	.0109946	-.003454	.0237732	.0521969
Stddev	.0005609	.07329	.0001980	.0008295	.017123	.0019223	.0002983
%RSD	2.144196	.5571538	.3966377	7.544405	495.7248	8.086107	.5714240
#1	.0268084	13.08523	.0501368	.0105996	-.003139	.0237492	.0521912
#2	.0258298	13.23103	.0498545	.0119477	.013509	.0218630	.0519015
#3	.0258441	13.14512	.0497552	.0104364	-.020733	.0257074	.0524980

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.014747	.0513761	.0545615	.0351141	.0515348	.0684289	-.001124
Stddev	.018204	.0007264	.0001483	.0006957	.0001633	.0109772	.001227
%RSD	123.4409	1.413889	.2717157	1.981210	.3169600	16.04173	109.2166
#1	-.027077	.0505403	.0545261	.0350264	.0517228	.0597377	-.000177
#2	-.023325	.0517327	.0544342	.0344664	.0514279	.0647842	-.002510
#3	.006161	.0518553	.0547243	.0358494	.0514536	.0807649	-.000683

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: ICSAB01DLX20 Acquired: 8/14/2025 12:46:33 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.001592**	**-.003843**	**.0001801**
Stddev	.001007	.000939	.0000552
%RSD	63.25944	24.43630	30.63516
#1	-.001781	-.003166	.0001563
#2	-.000504	-.003447	.0001409
#3	-.002491	-.004915	.0002433

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5566.274**	**97840.60**	**10849.98**	**4224.092**	**7033.477**
Stddev	8.015	219.34	30.21	11.940	9.229
%RSD	.1439980	.2241766	.2784520	.2826556	.1312137
#1	5557.491	97929.14	10853.22	4236.773	7024.237
#2	5568.138	97590.84	10818.27	4222.438	7033.498
#3	5573.194	98001.83	10878.43	4213.066	7042.695

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCV01 Acquired: 8/14/2025 12:50:45 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**5.074211**	**5.279395**	**4.962132**	**5.136518**	**5.102735**	**10.08323**	**9.908862**
Stddev	.002136	.093187	.007171	.015562	.013369	.02114	.018850
%RSD	.0420911	1.765105	.1445090	.3029662	.2619942	.2096453	.1902362
#1	5.072552	5.190169	4.970401	5.118680	5.096017	10.09302	9.928591
#2	5.073459	5.376093	4.957625	5.143553	5.094058	10.05897	9.906961
#3	5.076620	5.271924	4.958370	5.147319	5.118131	10.09770	9.891034

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2495920**	**2.490153**	**25.01199**	**1.022039**	**2.492499**	**1.266680**	**5.009785**
Stddev	.0011262	.003017	.07011	.003066	.003044	.000422	.012648
%RSD	.4512065	.1211662	.2803019	.2999458	.1221394	.0332885	.2524579
#1	.2506142	2.492413	25.06699	1.024907	2.494707	1.266891	4.995500
#2	.2497771	2.486727	25.03592	1.022401	2.489026	1.266194	5.019558
#3	.2483848	2.491320	24.93305	1.018808	2.493765	1.266954	5.014296

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.473673**	**24.92503**	**2.492797**	**1.269200**	**24.88896**	**2.513847**	**2.548355**
Stddev	.010181	.06460	.002383	.000283	.03386	.004820	.007382
%RSD	.4115772	.2591822	.0955990	.0223307	.1360332	.1917414	.2896750
#1	2.484741	24.91509	2.494061	1.269515	24.92803	2.519350	2.552962
#2	2.471571	24.99402	2.490048	1.269116	24.87070	2.511820	2.552262
#3	2.464707	24.86597	2.494283	1.268967	24.86816	2.510372	2.539841

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**25.09230**	**4.980957**	**5.135268**	**4.992681**	**5.003937**	**5.069945**	**4.939930**
Stddev	.00426	.018017	.003625	.002290	.016529	.022356	.007886
%RSD	.0169679	.3617099	.0705829	.0458728	.3303104	.4409544	.1596444
#1	25.09525	4.998847	5.133488	4.994548	5.020609	5.050058	4.944776
#2	25.09423	4.981207	5.132878	4.993370	5.003646	5.065634	4.930830
#3	25.08742	4.962816	5.139438	4.990125	4.987556	5.094142	4.944183

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCV01 Acquired: 8/14/2025 12:50:45 Type: Unk
Method: 6010-200.7 NEW(v98) 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	4.956511	4.929372	5.079991
Stddev	.013324	.022735	.018368
%RSD	.2688148	.4612141	.3615681
#1	4.946840	4.954332	5.094219
#2	4.950983	4.923938	5.059256
#3	4.971709	4.909846	5.086499

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5481.655	96915.21	10942.63	4152.549	6579.175
Stddev	6.687	123.77	53.59	13.914	9.623
%RSD	.1219973	.1277114	.4897008	.3350621	.1462643
#1	5473.958	96880.79	10895.66	4162.661	6568.542
#2	5486.043	96812.29	10931.22	4136.681	6587.286
#3	5484.963	97052.55	11001.00	4158.305	6581.696

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCB01 Acquired: 8/14/2025 12:54:56 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.000165**	**-.000959**	**.0002645**	**-.000817**	**.0010256**	**-.013473**	**-.002807**
Stddev	.001951	.000617	.0004780	.000520	.0013679	.006106	.000893
%RSD	1182.610	64.35497	180.7352	63.65689	133.3720	45.32330	31.82256
#1	.000333	-.001557	.0001635	-.000659	.0014513	-.017936	-.003359
#2	.001489	-.000324	.0007849	-.000394	-.000504	-.006514	-.003286
#3	-.002317	-.000997	-.000155	-.001398	.002130	-.015968	-.001776

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000354**	**.0000612**	**.0126438**	**.0003876**	**-.000081**	**.0001444**	**.0001769**
Stddev	.0000059	.0000327	.0029067	.0001092	.000134	.0005746	.0033815
%RSD	16.77645	53.34030	22.98918	28.16120	164.5226	397.8375	1911.749
#1	.0000292	.0000556	.0154798	.0002897	.000033	.0007913	-.003142
#2	.0000410	.0000963	.0096712	.0003679	-.000229	-.000051	.003617
#3	.0000361	.0000318	.0127803	.0005053	-.000049	-.000307	.000056

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000930**	**.0219449**	**.0001860**	**.0007198**	**-.006220**	**-.001147**	**.0008043**
Stddev	.0003772	.0181410	.0000906	.0003053	.008694	.000554	.0001519
%RSD	405.4888	82.66611	48.69862	42.41174	139.7634	48.31889	18.88932
#1	-.000129	.0420857	.0000960	.0005948	-.014712	-.000614	.0008800
#2	-.000121	.0068889	.0001848	.0004968	.002662	-.001720	.0009036
#3	.000529	.0168601	.0002772	.0010677	-.006611	-.001108	.0006294

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.003249**	**.0074898**	**.0007262**	**-.014487**	**.0001290**	**.0237067**	**-.001848**
Stddev	.014680	.0002579	.0002442	.000420	.0012859	.0016135	.000519
%RSD	451.7650	3.442761	33.62055	2.897985	996.8694	6.805928	28.05405
#1	-.018882	.0076888	.0004609	-.014918	.0012858	.0223723	-.001507
#2	.010242	.0075821	.0009415	-.014463	-.001256	.0254999	-.001593
#3	-.001108	.0071985	.0007762	-.014080	.000357	.0232480	-.002445

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCB01 Acquired: 8/14/2025 12:54:56 Type: Unk
Method: 6010-200.7 NEW(v98) 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	-.000127	-.001895	-.000015
Stddev	.001386	.000987	.000071
%RSD	1088.678	52.05329	482.4352
#1	.000645	-.001575	.000014
#2	.000700	-.003003	.000037
#3	-.001727	-.001109	-.000095

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5676.254	101102.3	11071.46	4279.285	7396.664
Stddev	9.898	473.8	33.78	24.023	18.787
%RSD	.1743761	.4686708	.3050975	.5613776	.2539984
#1	5686.812	101095.7	11032.52	4272.258	7412.229
#2	5667.185	100631.7	11088.92	4259.560	7375.795
#3	5674.765	101579.3	11092.92	4306.038	7401.968

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2832-01 Acquired: 8/14/2025 12:59:16 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0849478	-.032143	3.523241	.0059061	.0698530	85.45999	.9848550
Stddev	.0026202	.000187	.005837	.0006242	.0004410	.19262	.0063235
%RSD	3.084447	.5823578	.1656665	10.56881	.6312582	.2253958	.6420713
#1	.0819224	-.032355	3.526547	.0053158	.0693740	85.34143	.9884808
#2	.0864812	-.032073	3.526674	.0058431	.0702420	85.68224	.9885308
#3	.0864398	-.032001	3.516501	.0065594	.0699431	85.35629	.9775533

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0076076	.0133278	70.47171	.2973433	.1227520	.8306538	258.6725
Stddev	.0001126	.0001854	.27303	.0004095	.0001876	.0012302	1.6062
%RSD	1.479519	1.390850	.3874383	.1377114	.1527931	.1480986	.6209220
#1	.0075107	.0131153	70.45046	.2977999	.1228570	.8303060	260.4023
#2	.0077311	.0134561	70.75474	.2970088	.1228635	.8320204	257.2283
#3	.0075812	.0134120	70.20991	.2972210	.1225354	.8296349	258.3870

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.679245	41.21518	.3032896	.0109548	2.751245	.3006464	1.524582
Stddev	.020172	.13377	.0003015	.0006795	.021812	.0006171	.004923
%RSD	.5482641	.3245699	.0994056	6.202613	.7928171	.2052551	.3228776
#1	3.687187	41.12035	.3029449	.0116502	2.775691	.3002989	1.529946
#2	3.694238	41.36819	.3035039	.0102924	2.733771	.3013588	1.523528
#3	3.656311	41.15700	.3034201	.0109219	2.744273	.3002813	1.520271

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.26699	.1698241	.0106148	.1256281	4.236538	12.41740	5.783223
Stddev	.05788	.0085317	.0002579	.0007223	.018811	.06844	.004539
%RSD	.5637665	5.023816	2.429395	.5749885	.4440299	.5511320	.0784910
#1	10.33176	.1785096	.0103469	.1264461	4.238402	12.46728	5.780699
#2	10.22032	.1614551	.0108613	.1253603	4.254348	12.33938	5.780506
#3	10.24889	.1695075	.0106362	.1250778	4.216864	12.44554	5.788463

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2832-01 Acquired: 8/14/2025 12:59:16 Type: Unk
Method: 6010-200.7 NEW(v98) 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	3.341203	.1415867	.1399467
Stddev	.008628	.0003778	.0026098
%RSD	.2582354	.2668313	1.864819
#1	3.339055	.1420226	.1402645
#2	3.350702	.1413543	.1423829
#3	3.333851	.1413831	.1371925

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5898.345	105581.2	12640.65	4462.697	6388.471
Stddev	9.511	254.1	88.18	34.773	9.353
%RSD	.1612513	.2406654	.6976174	.7792031	.1464084
#1	5887.695	105288.0	12674.85	4427.291	6380.469
#2	5901.344	105737.3	12540.49	4463.999	6386.191
#3	5905.995	105718.3	12706.61	4496.801	6398.754

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: PB169236BL Acquired: 8/14/2025 13:03:19 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.000184**	**-.000343**	**-.000630**	**-.000683**	**.0010537**	**-.013537**	**-.001923**
Stddev	.001144	.001119	.000421	.000422	.0005938	.001093	.000310
%RSD	622.0139	326.3726	66.79209	61.73340	56.35601	8.074946	16.14259
#1	.000803	-.000809	-.000147	-.000646	.0005777	-.012275	-.001927
#2	-.001438	.000934	-.000918	-.001123	.0017192	-.014176	-.002232
#3	.000083	-.001154	-.000825	-.000281	.0008643	-.014160	-.001611

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000001**	**.0000264**	**.0126318**	**.0003141**	**-.000006**	**-.000076**	**.0038262**
Stddev	.000025	.0000304	.0092322	.0001257	.000026	.000235	.0030381
%RSD	3787.396	115.1308	73.08706	40.04142	414.4529	307.9972	79.40327
#1	.000011	.0000572	.0229320	.0004575	-.000036	-.000254	.0022586
#2	-.000030	-.000004	.0051022	.0002226	.000010	.000190	.0073280
#3	.000017	.000025	.0098610	.0002621	.000008	-.000165	.0018921

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000004**	**.0092342**	**-.000006**	**.0008173**	**-.014275**	**-.001051**	**.0013281**
Stddev	.000431	.0101750	.000150	.0001589	.018283	.001624	.0001558
%RSD	9805.271	110.1882	2561.568	19.44642	128.0744	154.5788	11.73461
#1	.000403	.0209633	.000164	.0009904	-.034884	-.002840	.0014986
#2	-.000456	.0027769	-.000062	.0007835	-.007935	.000332	.0012925
#3	.000040	.0039623	-.000120	.0006779	-.000007	-.000645	.0011931

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0007943**	**.0009282**	**.0002560**	**-.014674**	**-.000443**	**.0270201**	**-.001330**
Stddev	.0138255	.0007414	.0001209	.000460	.000894	.0043256	.001543
%RSD	1740.660	79.87092	47.24800	3.136404	201.9503	16.00891	116.0029
#1	-.015055	.0001890	.0003955	-.015204	.000292	.0312689	-.002957
#2	.010376	.0009238	.0001901	-.014372	-.000182	.0271697	.000111
#3	.007061	.0016718	.0001823	-.014447	-.001439	.0226216	-.001143

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: PB169236BL Acquired: 8/14/2025 13:03:19 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.000467**	**-.002062**	**-.000145**
Stddev	.000936	.001458	.000012
%RSD	200.3144	70.69185	8.539297
#1	.000286	-.003737	-.000131
#2	-.000173	-.001075	-.000150
#3	-.001515	-.001375	-.000155

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5752.469**	**99853.72**	**11008.01**	**4272.118**	**7500.170**
Stddev	10.083	171.58	71.72	16.260	12.947
%RSD	.1752770	.1718264	.6515137	.3806148	.1726223
#1	5743.732	100051.8	11090.47	4290.823	7486.899
#2	5763.502	99751.5	10973.31	4264.167	7512.766
#3	5750.172	99757.8	10960.23	4261.362	7500.847

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: PB169236BS Acquired: 8/14/2025 13:07:38 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**.8026698**	**2.164346**	**.9798474**	**2.036521**	**.8164822**	**2.039176**
Stddev	.0009291	.014011	.0052886	.009788	.0047584	.007136
%RSD	.1157567	.6473577	.5397399	.4806236	.5827928	.3499452
#1	.8025269	2.180524	.9848266	2.044150	.8198742	2.036153
#2	.8036621	2.156305	.9804198	2.039929	.8185296	2.047326
#3	.8018204	2.156207	.9742959	2.025485	.8110428	2.034050

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1963100**	**.2047273**	**.1944304**	**1.056541**	**.4220973**	**.2000031**
Stddev	.0007919	.0008238	.0010270	.011891	.0004899	.0012484
%RSD	.4033992	.4023663	.5281999	1.125466	.1160704	.6241661
#1	.1967376	.2045812	.1947092	1.058225	.4225913	.2007335
#2	.1967962	.2056144	.1952891	1.067500	.4216115	.2007141
#3	.1953962	.2039864	.1932928	1.043898	.4220891	.1985617

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.3157385**	**3.044881**	**.2049977**	**2.066221**	**.5020989**	**.0779516**
Stddev	.0018878	.014438	.0012511	.023705	.0020570	.0002890
%RSD	.5978965	.4741779	.6102873	1.147284	.4096827	.3707458
#1	.3167082	3.036529	.2036781	2.044819	.5030243	.0777203
#2	.3169444	3.036561	.2051483	2.062143	.5035306	.0782755
#3	.3135630	3.061553	.2061666	2.091701	.4997417	.0778590

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.831934**	**.3074018**	**.2125918**	**9.864105**	**.3009030**	**.4170913**
Stddev	.019825	.0003479	.0003682	.042548	.0011912	.0013774
%RSD	.7000490	.1131699	.1732008	.4313412	.3958707	.3302399
#1	2.811605	.3070937	.2123863	9.835452	.3008475	.4183974
#2	2.832984	.3073324	.2123722	9.843869	.3021210	.4172243
#3	2.851213	.3077791	.2130169	9.912994	.2997405	.4156523

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: PB169236BS Acquired: 8/14/2025 13:07:38 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.6660585	.1966644	.9102837	5.659030	F .0013079	.2066199
Stddev	.0036752	.0011828	.0032457	.016854	.0021480	.0014179
%RSD	.5517861	.6014231	.3565596	.2978279	164.2357	.6862545
#1	.6691373	.1954869	.9087794	5.657030	-.001143	.2051556
#2	.6670485	.1978524	.9080631	5.676795	.002861	.2067177
#3	.6619896	.1966539	.9140086	5.643265	.002206	.2079864

Elem	Sr4077
Units	ppm
Avg	.1989483
Stddev	.0004839
%RSD	.2432503
#1	.1984144
#2	.1990722
#3	.1993582

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5656.513	100223.7	11102.72	4265.256	7164.316
Stddev	22.231	302.9	41.78	18.930	28.838
%RSD	.3930093	.3022238	.3762620	.4438260	.4025266
#1	5639.986	99953.7	11073.37	4258.412	7156.137
#2	5647.767	100551.3	11084.24	4286.657	7140.450
#3	5681.787	100166.1	11150.55	4250.700	7196.360

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: PB169232BL Acquired: 8/14/2025 13:11:38 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.000191**	**-.000224**	**.0004159**	**-.003748**	**.0012251**	**-.014184**	**-.003052**
Stddev	.001194	.001259	.0003879	.001709	.0020130	.005839	.001281
%RSD	625.0031	561.7904	93.27086	45.60719	164.3105	41.16625	41.98386
#1	.000797	-.000202	.0008512	-.005464	.0033278	-.010280	-.004312
#2	-.001517	.001023	.0001067	-.003733	.0010321	-.020897	-.001750
#3	.000148	-.001494	.0002899	-.002046	-.000684	-.011376	-.003094

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000026**	**.0000152**	**.0093632**	**.0004780**	**-.000117**	**-.000440**	**.0011853**
Stddev	.000023	.0000108	.0139384	.0004767	.000102	.000213	.0042438
%RSD	88.16308	71.08071	148.8637	99.73258	86.88219	48.53491	358.0328
#1	-.000005	.0000046	-.005414	.0009700	-.000000	-.000341	.0031714
#2	-.000050	.0000262	.022275	.0000182	-.000167	-.000685	.0040718
#3	-.000022	.0000149	.011229	.0004458	-.000184	-.000294	-.003687

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0001157**	**.0132592**	**.0002501**	**.0006978**	**-.019177**	**-.001103**	**.0002765**
Stddev	.0004498	.0285702	.0000446	.0001509	.003880	.001592	.0001989
%RSD	388.8221	215.4751	17.83180	21.62042	20.23406	144.3447	71.92573
#1	.0006184	.0227635	.0002000	.0005286	-.015175	-.001329	.0000622
#2	-.000249	-.018852	.0002854	.0007462	-.019434	-.002569	.0004552
#3	-.000023	.035866	.0002649	.0008184	-.022922	.000590	.0003121

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0113781**	**-.000373**	**.0003052**	**-.014746**	**.0000560**	**.0135048**	**-.001305**
Stddev	.0124744	.000640	.0001366	.000812	.0009865	.0082466	.001445
%RSD	109.6353	171.6747	44.77348	5.506013	1760.303	61.06425	110.7682
#1	.0216732	-.000810	.0002118	-.014742	-.000688	.0169123	-.002179
#2	.0149551	.000361	.0002418	-.015560	.001175	.0195015	-.002099
#3	-.002494	-.000669	.0004620	-.013936	-.000319	.0041005	.000363

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: PB169232BL Acquired: 8/14/2025 13:11:38 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.003117**	**-.003463**	**-.000068**
Stddev	.000240	.001185	.000038
%RSD	7.690640	34.21055	55.56813
#1	-.003092	-.002379	-.000088
#2	-.003367	-.003281	-.000092
#3	-.002890	-.004728	-.000025

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5746.506**	**99638.27**	**11044.59**	**4274.536**	**7482.413**
Stddev	1.721	338.32	39.87	7.479	6.213
%RSD	.0299440	.3395516	.3609561	.1749711	.0830329
#1	5744.783	99287.97	11089.56	4278.782	7489.109
#2	5748.225	99963.19	11030.66	4265.900	7476.836
#3	5746.510	99663.64	11013.57	4278.925	7481.294

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: PB169232BS Acquired: 8/14/2025 13:15:57 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**.7993041**	**2.146844**	**.9768165**	**2.024524**	**.8281554**	**2.041400**
Stddev	.0034986	.065055	.0038261	.004525	.0030911	.012885
%RSD	.4377029	3.030273	.3916910	.2235128	.3732456	.6311733
#1	.8013505	2.179342	.9805795	2.028117	.8305336	2.030402
#2	.7952644	2.189248	.9769397	2.026014	.8246614	2.055577
#3	.8012974	2.071943	.9729303	2.019442	.8292713	2.038222

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1949101**	**.2047974**	**.1940002**	**1.059667**	**.4200512**	**.1998247**
Stddev	.0019800	.0005373	.0003567	.004843	.0012170	.0001243
%RSD	1.015856	.2623757	.1838781	.4570130	.2897262	.0622241
#1	.1963896	.2046912	.1943562	1.059982	.4213479	.1999595
#2	.1956799	.2043212	.1940017	1.064345	.4189338	.1997145
#3	.1926608	.2053800	.1936428	1.054675	.4198719	.1998001

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.3157200**	**3.037934**	**.2061098**	**2.054344**	**.5012919**	**.0776901**
Stddev	.0005854	.009151	.0008006	.005582	.0002140	.0002805
%RSD	.1854056	.3012267	.3884419	.2716999	.0426937	.3610976
#1	.3162360	3.048435	.2064437	2.052784	.5014727	.0777296
#2	.3150839	3.031663	.2051963	2.060539	.5013473	.0779487
#3	.3158400	3.033703	.2066895	2.049708	.5010556	.0773919

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.807027**	**.3083148**	**.2118264**	**9.810849**	**.3004155**	**.4262257**
Stddev	.040451	.0029559	.0005247	.056314	.0007495	.0003765
%RSD	1.441049	.9587416	.2477238	.5740006	.2494726	.0883418
#1	2.846066	.3081497	.2114382	9.874980	.3000287	.4260426
#2	2.765299	.3113498	.2116176	9.769470	.2999385	.4266587
#3	2.809716	.3054449	.2124234	9.788096	.3012793	.4259757

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: PB169232BS Acquired: 8/14/2025 13:15:57 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.6822921	.2001597	.9298091	5.628213	F -.000220	.2047625
Stddev	.0009031	.0019768	.0060502	.007872	.003477	.0011218
%RSD	.1323641	.9876245	.6506946	.1398708	1582.131	.5478591
#1	.6824698	.2024286	.9287541	5.636348	-.004075	.2046900
#2	.6830932	.1988084	.9363174	5.627656	.000736	.2059188
#3	.6813134	.1992423	.9243557	5.620633	.002679	.2036787

Elem	Sr4077
Units	ppm
Avg	.1985551
Stddev	.0014115
%RSD	.7108913
#1	.2001842
#2	.1976956
#3	.1977856

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5667.323	99853.24	10999.42	4246.639	7177.427
Stddev	7.953	124.69	22.46	9.804	19.217
%RSD	.1403267	.1248767	.2042235	.2308669	.2677426
#1	5658.141	99797.01	11002.70	4246.263	7160.298
#2	5671.793	99996.15	11020.07	4256.625	7173.774
#3	5672.034	99766.56	10975.51	4237.028	7198.208

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: PB169212TB Acquired: 8/14/2025 13:19:58 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.002215**	**.0007873**	**-.000910**	**.0025764**	**.0031924**	**-.016453**	**-.005356**
Stddev	.001324	.0005362	.001627	.0017803	.0003497	.008070	.000666
%RSD	59.76340	68.10912	178.8387	69.10083	10.95286	49.04723	12.42947
#1	-.003626	.0013803	-.000758	.0042705	.0034888	-.019131	-.004784
#2	-.001000	.0006452	-.002607	.0027376	.0032817	-.022844	-.006087
#3	-.002019	.0003365	.000636	.0007209	.0028067	-.007385	-.005199

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000140**	**-.000003**	**.0514656**	**.0005169**	**-.000329**	**.0000087**	**.0113251**
Stddev	.000015	.000042	.0057310	.0002133	.000125	.0000776	.0035908
%RSD	10.43381	1596.592	11.13564	41.27664	38.08529	890.2378	31.70674
#1	-.000145	.000000	.0569141	.0005111	-.000275	.0000260	.0073425
#2	-.000124	.000038	.0519939	.0003065	-.000239	.0000762	.0123172
#3	-.000152	-.000046	.0454887	.0007330	-.000472	-.000076	.0143155

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0030696**	**-.004258**	**.0012771**	**.0005945**	**505.1217**	**-.000122**	**.0026746**
Stddev	.0000361	.019915	.0002069	.0003021	7.2947	.001382	.0001316
%RSD	1.177718	467.6891	16.19615	50.81880	1.444144	1136.049	4.920818
#1	.0030858	-.000283	.0011369	.0006050	512.4382	-.000046	.0028020
#2	.0030948	.013369	.0015147	.0008911	505.0780	-.001541	.0025392
#3	.0030282	-.025861	.0011799	.0002872	497.8490	.001221	.0026827

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1468571**	**-.001434**	**.0005378**	**-.015085**	**-.000035**	**.0147731**	**.0085399**
Stddev	.0395992	.000818	.0002217	.000614	.000699	.0041131	.0014288
%RSD	26.96443	57.05767	41.21986	4.068268	2013.953	27.84199	16.73062
#1	.1632247	-.002279	.0003279	-.015125	-.000841	.0123020	.0084188
#2	.1756486	-.001376	.0005158	-.014452	.000394	.0195212	.0071756
#3	.1016980	-.000646	.0007696	-.015677	.000343	.0124961	.0100254

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: PB169212TB Acquired: 8/14/2025 13:19:58 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0751545	-.007809	.0000969
Stddev	.0012677	.000410	.0000741
%RSD	1.686792	5.251508	76.45738
#1	.0750926	-.007675	.0001824
#2	.0739189	-.008269	.0000564
#3	.0764520	-.007482	.0000519

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5302.125	92786.67	11300.96	4012.004	6283.353
Stddev	4.181	168.89	3.47	12.388	9.835
%RSD	.0788644	.1820246	.0307480	.3087791	.1565277
#1	5301.362	92630.28	11301.45	4000.849	6278.974
#2	5306.635	92763.96	11297.26	4025.336	6294.618
#3	5298.377	92965.77	11304.16	4009.826	6276.468

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2732-03 Acquired: 8/14/2025 13:24:25 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.002525**	**.0030264**	**-.000327**	**-.001844**	**.0011824**	**.1990329**	**.0446824**
Stddev	.001641	.0005735	.001242	.002884	.0009512	.0063635	.0012880
%RSD	65.01145	18.94866	380.1969	156.3696	80.45074	3.197220	2.882521
#1	-.002670	.0036774	-.000255	.000855	.0005466	.1930363	.0459961
#2	-.000815	.0025961	.000878	-.004883	.0022759	.2057088	.0434218
#3	-.004088	.0028056	-.001603	-.001504	.0007246	.1983537	.0446293

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000011**	**-.000018**	**187.9807**	**.0040528**	**.0001959**	**.0023594**	**.1527361**
Stddev	.000044	.000072	.1111	.0003225	.0002699	.0002334	.0038122
%RSD	385.6459	399.9069	.0591103	7.956437	137.7144	9.889959	2.495947
#1	-.000045	-.000032	188.0132	.0041736	-.000112	.0026103	.1500516
#2	-.000027	-.000082	188.0719	.0036874	.000309	.0023191	.1510571
#3	.000038	.000060	187.8569	.0042975	.000391	.0021489	.1570997

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0140389**	**8.458787**	**.0012779**	**.0005754**	**477.8157**	**.0030552**	**.0092256**
Stddev	.0000378	.040804	.0004633	.0000956	4.9821	.0005232	.0001746
%RSD	.2689662	.4823863	36.25488	16.61499	1.042690	17.12419	1.892562
#1	.0140429	8.495978	.0008505	.0004650	476.8922	.0024998	.0093847
#2	.0139993	8.415139	.0017702	.0006280	473.3599	.0031273	.0090388
#3	.0140745	8.465244	.0012129	.0006331	483.1949	.0035387	.0092533

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**9.579443**	**.0461575**	**.0067540**	**-.017163**	**-.000388**	**4.658472**	**.0159002**
Stddev	.111322	.0006907	.0001339	.000813	.001282	.044878	.0020021
%RSD	1.162093	1.496505	1.981838	4.737997	330.1812	.9633715	12.59192
#1	9.454936	.0469550	.0066004	-.016239	.000080	4.625900	.0157413
#2	9.669375	.0457527	.0068454	-.017772	.000593	4.709663	.0139823
#3	9.614018	.0457646	.0068163	-.017477	-.001838	4.639852	.0179771

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2732-03 Acquired: 8/14/2025 13:24:25 Type: Unk
Method: 6010-200.7 NEW(v98) 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	13.92828	-.023665	.9919014
Stddev	.01852	.001624	.0031766
%RSD	.1329655	6.862872	.3202545
#1	13.91534	-.024601	.9887443
#2	13.92001	-.021790	.9950972
#3	13.94949	-.024605	.9918625

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5190.585	92352.91	11666.15	3940.610	6078.374
Stddev	6.688	198.48	97.91	16.798	10.569
%RSD	.1288444	.2149131	.8393042	.4262781	.1738773
#1	5192.143	92130.57	11557.71	3955.026	6090.457
#2	5196.356	92415.94	11748.09	3922.164	6070.846
#3	5183.256	92512.21	11692.65	3944.640	6073.820

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2832-02 Acquired: 8/14/2025 13:28:50 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.001778**	**.0014870**	**.0156331**	**.0004477**	**.0024468**	**.0925434**	**.1509231**
Stddev	.001158	.0003270	.0007161	.0017476	.0015496	.0097667	.0013942
%RSD	65.11151	21.98894	4.580555	390.3396	63.33342	10.55367	.9237595
#1	-.002706	.0016745	.0156049	.0004702	.0020697	.1012899	.1515071
#2	-.000481	.0011094	.0163628	-.001311	.0041502	.0943358	.1493319
#3	-.002148	.0016770	.0149315	.002184	.0011205	.0820047	.1519303

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000052**	**.0005255**	**53.96986**	**.0006473**	**.0006563**	**.0087101**	**.0813422**
Stddev	.000067	.0000442	.10523	.0000572	.0001435	.0002104	.0065046
%RSD	127.9392	8.401646	.1949815	8.833881	21.87003	2.415203	7.996544
#1	-.000042	.0005320	54.04419	.0006087	.0006964	.0089530	.0793595
#2	.000009	.0004785	53.84945	.0007129	.0004970	.0085879	.0760597
#3	-.000123	.0005661	54.01595	.0006201	.0007755	.0085894	.0886073

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2084312**	**1.161739**	**.0032185**	**.0006603**	**366.7155**	**.0016561**	**.1034500**
Stddev	.0007563	.011412	.0001823	.0000777	5.9461	.0011196	.0004446
%RSD	.3628542	.9822828	5.664487	11.77072	1.621443	67.60814	.4297578
#1	.2086941	1.170330	.0033316	.0006237	373.5786	.0029210	.1032042
#2	.2075786	1.148791	.0030082	.0006077	363.1111	.0007921	.1039632
#3	.2090211	1.166096	.0033158	.0007496	363.4569	.0012551	.1031826

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.463691**	**.0106612**	**.0005722**	**-.016764**	**-.001067**	**.9855768**	**.1474628**
Stddev	.017734	.0003697	.0001703	.000871	.000669	.0075400	.0018149
%RSD	.7198071	3.467405	29.77290	5.197670	62.69316	.7650321	1.230740
#1	2.475552	.0106179	.0006237	-.017296	-.000783	.9926711	.1489854
#2	2.443304	.0110506	.0003820	-.015758	-.001830	.9864005	.1479485
#3	2.472217	.0103151	.0007108	-.017237	-.000586	.9776588	.1454545

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2832-02 Acquired: 8/14/2025 13:28:50 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.9937301	-.014365	.2413699
Stddev	.0006766	.001209	.0007795
%RSD	.0680899	8.417627	.3229413
#1	.9929645	-.014932	.2414964
#2	.9939777	-.012977	.2405349
#3	.9942480	-.015187	.2420784

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5396.306	93451.97	11792.99	3988.351	6423.447
Stddev	5.857	78.15	71.33	14.136	.716
%RSD	.1085366	.0836227	.6048712	.3544239	.0111396
#1	5400.691	93476.06	11725.50	4000.130	6424.011
#2	5398.574	93364.62	11785.85	3992.247	6422.642
#3	5389.654	93515.24	11867.63	3972.676	6423.687

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2832-04 Acquired: 8/14/2025 13:33:14 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.002570**	**.0015171**	**.0123383**	**-.000934**	**.0016139**	**.1274299**	**.1549693**
Stddev	.002257	.0017488	.0012869	.002172	.0011098	.0088936	.0008927
%RSD	87.80459	115.2748	10.43012	232.4530	68.76448	6.979236	.5760601
#1	-.000332	.0034799	.0114913	-.002728	.0028697	.1374241	.1555922
#2	-.002534	.0001248	.0138191	.001480	.0007651	.1244781	.1539466
#3	-.004846	.0009465	.0117044	-.001555	.0012069	.1203874	.1553691

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000055**	**.0011923**	**30.40896**	**.0008662**	**.0013515**	**.0249227**	**.1711052**
Stddev	.000015	.0000459	.06866	.0002087	.0002169	.0003279	.0036261
%RSD	28.14843	3.846886	.2257742	24.09000	16.05084	1.315559	2.119207
#1	-.000072	.0011977	30.45782	.0007808	.0011011	.0246445	.1677127
#2	-.000052	.0011439	30.33046	.0007139	.0014841	.0252842	.1706760
#3	-.000041	.0012351	30.43859	.0011041	.0014691	.0248395	.1749267

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2168605**	**2.314825**	**.0102058**	**.0006051**	**469.6403**	**.0009723**	**.2771602**
Stddev	.0011182	.008675	.0001018	.0000911	9.4183	.0014463	.0006505
%RSD	.5156493	.3747767	.9971528	15.05167	2.005437	148.7367	.2347109
#1	.2180655	2.314120	.0102959	.0005022	479.3737	.0002679	.2775469
#2	.2158562	2.323832	.0102261	.0006380	460.5723	.0000133	.2764092
#3	.2166598	2.306524	.0100954	.0006752	468.9749	.0026358	.2775247

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.507390**	**.0067499**	**.0005235**	**-.017016**	**.0008923**	**1.258656**	**.0324497**
Stddev	.023825	.0004663	.0003260	.000282	.0002768	.012898	.0045707
%RSD	1.580514	6.907726	62.28673	1.654900	31.02509	1.024783	14.08548
#1	1.532819	.0070561	.0001473	-.017258	.0010356	1.270829	.0303102
#2	1.485586	.0062133	.0006979	-.016707	.0005732	1.260003	.0376977
#3	1.503766	.0069804	.0007252	-.017083	.0010682	1.245137	.0293411

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2832-04 Acquired: 8/14/2025 13:33:14 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.3007068	-.010447	.1638651
Stddev	.0013065	.000500	.0007058
%RSD	.4344911	4.788779	.4306926
#1	.2992066	-.010067	.1646580
#2	.3013187	-.010259	.1633054
#3	.3015951	-.011014	.1636321

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5295.073	93140.63	11695.54	3966.536	6268.119
Stddev	6.506	390.73	57.05	21.918	8.675
%RSD	.1228714	.4195021	.4877937	.5525846	.1384042
#1	5287.703	92800.74	11641.46	3957.697	6259.215
#2	5297.498	93567.53	11755.16	3991.493	6276.546
#3	5300.018	93053.64	11689.99	3950.416	6268.596

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2832-06 Acquired: 8/14/2025 13:37:37 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.002157**	**-.000351**	**.0156132**	**.0009000**	**.0028024**	**.1585958**	**.1074507**
Stddev	.001164	.000283	.0005143	.0031063	.0016424	.0081251	.0008275
%RSD	53.95305	80.66765	3.294125	345.1395	58.60600	5.123143	.7701610
#1	-.002834	-.000199	.0161692	-.001452	.0013032	.1515293	.1071219
#2	-.002824	-.000177	.0151544	.004421	.0025462	.1674737	.1083921
#3	-.000813	-.000677	.0155161	-.000269	.0045579	.1567844	.1068381

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000043**	**.0010177**	**20.63971**	**.0007778**	**.0003594**	**.0165424**	**.2175752**
Stddev	.0000314	.0000470	.02860	.0001631	.0000590	.0001830	.0046561
%RSD	723.8885	4.616241	.1385575	20.96791	16.42095	1.105941	2.139977
#1	.0000180	.0010702	20.65029	.0009058	.0003185	.0163642	.2202550
#2	-.000032	.0010032	20.60733	.0008335	.0004271	.0167297	.2121988
#3	.000027	.0009797	20.66152	.0005942	.0003327	.0165333	.2202717

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0642835**	**2.187123**	**.0060615**	**.0007286**	**371.0600**	**.0003435**	**.2354985**
Stddev	.0007339	.018767	.0000474	.0002171	5.5116	.0005049	.0002992
%RSD	1.141725	.8580483	.7815382	29.80324	1.485355	146.9782	.1270410
#1	.0640467	2.206999	.0060344	.0006450	366.2831	-.000190	.2355684
#2	.0651066	2.169709	.0061162	.0009752	377.0903	.000814	.2357565
#3	.0636971	2.184661	.0060339	.0005657	369.8066	.000406	.2351705

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.779906**	**.0076524**	**.0005119**	**-.015108**	**.0038745**	**1.174138**	**.0470076**
Stddev	.015893	.0004716	.0001438	.000478	.0009746	.004961	.0019320
%RSD	.8929228	6.162230	28.09012	3.162978	25.15370	.4225572	4.109986
#1	1.768807	.0078338	.0006263	-.015494	.0028019	1.177289	.0489330
#2	1.772798	.0080062	.0003505	-.014573	.0041157	1.168419	.0470206
#3	1.798112	.0071170	.0005589	-.015256	.0047057	1.176707	.0450690

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2832-06 Acquired: 8/14/2025 13:37:37 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.2658859	-.009142	.1221407
Stddev	.0024769	.001094	.0002536
%RSD	.9315806	11.96781	.2076483
#1	.2687404	-.007987	.1218946
#2	.2646144	-.010163	.1224012
#3	.2643030	-.009276	.1221262

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5384.414	94856.64	11907.35	3981.883	6439.593
Stddev	7.359	282.57	16.50	9.978	18.479
%RSD	.1366640	.2978935	.1385661	.2505748	.2869560
#1	5384.751	95129.01	11900.66	3989.003	6431.911
#2	5391.598	94564.86	11895.25	3970.478	6460.674
#3	5376.892	94876.03	11926.15	3986.167	6426.195

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCV02 Acquired: 8/14/2025 13:42:02 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**5.086368**	**5.037551**	**4.894037**	**5.142287**	**5.139685**	**9.981818**	**9.915609**
Stddev	.022503	.089432	.008144	.013002	.008663	.016892	.085802
%RSD	.4424256	1.775304	.1664024	.2528476	.1685491	.1692308	.8653256
#1	5.097390	4.981901	4.886996	5.143653	5.135322	9.995577	10.00982
#2	5.060478	4.990042	4.892158	5.128655	5.134072	9.962965	9.84194
#3	5.101236	5.140711	4.902956	5.154552	5.149662	9.986913	9.89507

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2326132**	**2.462555**	**24.63772**	**1.019246**	**2.475016**	**1.264058**	**5.259000**
Stddev	.0005989	.003577	.05845	.001702	.002895	.002972	.025651
%RSD	.2574812	.1452482	.2372567	.1669955	.1169732	.2351014	.4877558
#1	.2330891	2.459285	24.60826	1.020106	2.473752	1.265075	5.240414
#2	.2319406	2.462004	24.70504	1.017285	2.472968	1.260711	5.288265
#3	.2328097	2.466375	24.59985	1.020346	2.478328	1.266388	5.248320

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.430986**	**24.38542**	**2.478882**	**1.257142**	**24.98253**	**2.501527**	**2.575512**
Stddev	.008396	.09652	.002193	.000782	.08616	.006678	.003322
%RSD	.3453662	.3958009	.0884818	.0621795	.3448779	.2669645	.1289796
#1	2.423080	24.41652	2.477239	1.256470	24.88307	2.494432	2.571738
#2	2.430080	24.46256	2.478035	1.256956	25.03033	2.507690	2.576807
#3	2.439798	24.27719	2.481373	1.258000	25.03419	2.502459	2.577992

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**26.72777**	**4.617364**	**5.178719**	**4.926183**	**4.971954**	**5.295730**	**4.689323**
Stddev	.10760	.012181	.014301	.011763	.012344	.033610	.013022
%RSD	.4025922	.2638121	.2761460	.2387883	.2482685	.6346596	.2777006
#1	26.61490	4.624496	5.176463	4.925514	4.957813	5.256926	4.677816
#2	26.82920	4.603299	5.165680	4.914768	4.977474	5.315646	4.703459
#3	26.73922	4.624297	5.194014	4.938266	4.980574	5.314619	4.686693

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCV02 Acquired: 8/14/2025 13:42:02 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**4.852704**	**4.887713**	**5.037084**
Stddev	.020029	.015006	.087066
%RSD	.4127350	.3070207	1.728508
#1	4.839508	4.870585	5.101292
#2	4.842852	4.894003	5.071976
#3	4.875750	4.898551	4.937983

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5507.948**	**97701.68**	**11756.51**	**4109.109**	**6667.151**
Stddev	15.668	49.07	28.44	6.555	9.313
%RSD	.2844530	.0502218	.2419259	.1595157	.1396917
#1	5503.981	97672.65	11724.35	4108.964	6664.929
#2	5525.218	97674.06	11778.38	4102.628	6677.374
#3	5494.645	97758.33	11766.79	4115.735	6659.150

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCB02 Acquired: 8/14/2025 13:46:13 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**.0000990**	**-.000706**	**.0004601**	**-.001342**	**.0018922**	**-.016098**
Stddev	.0009153	.000372	.0005815	.001084	.0004800	.002429
%RSD	924.0457	52.62780	126.3751	80.79991	25.36733	15.08872
#1	.0010144	-.000624	.0009033	-.000243	.0024021	-.017765
#2	-.000816	-.001113	.0006754	-.001371	.0014491	-.017217
#3	.000099	-.000383	-.000198	-.002411	.0018254	-.013311

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.005193**	**-.000011**	**.0000319**	**.0116653**	**.0005872**	**.0000443**
Stddev	.000606	.000047	.0000438	.0051223	.0002236	.0001606
%RSD	11.66270	434.0609	137.1184	43.90997	38.08140	362.1087
#1	-.004807	-.000054	.0000438	.0122976	.0008366	.0000247
#2	-.004882	.000039	.0000685	.0164421	.0005203	-.000105
#3	-.005892	-.000017	-.000017	.0062563	.0004047	.000214

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000648**	**.0019735**	**.0003334**	**.0077073**	**.0003337**	**.0005772**
Stddev	.0002030	.0006013	.0002067	.0007598	.0001938	.0002537
%RSD	313.4915	30.46584	61.97903	9.857684	58.07599	43.95510
#1	.0002959	.0015743	.0005676	.0081375	.0001875	.0006588
#2	-.000017	.0026650	.0001766	.0081543	.0002601	.0002927
#3	-.000085	.0016812	.0002561	.0068300	.0005535	.0007800

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5853130**	**-.000640**	**.0009600**	**.4405304**	**.0058278**	**.0005575**
Stddev	.0114065	.002330	.0002126	.0074998	.0007876	.0002426
%RSD	1.948783	364.3190	22.14898	1.702436	13.51495	43.52257
#1	.5872642	.002025	.0007377	.4417908	.0054769	.0007239
#2	.5956180	-.001648	.0011615	.4473201	.0067299	.0006696
#3	.5730568	-.002295	.0009809	.4324803	.0052766	.0002791

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCB02 Acquired: 8/14/2025 13:46:13 Type: Unk
Method: 6010-200.7 NEW(v98) 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	-.014547	.0005928	.0208950	-.001898	.0006684	F .0133973
Stddev	.000397	.0010367	.0098217	.003027	.0014532	.0016911
%RSD	2.726554	174.8757	47.00493	159.5406	217.4237	12.62252
#1	-.014093	.0014122	.0202600	-.003012	-.000555	.0149349
#2	-.014823	.0009390	.0114062	-.004210	.002275	.0136708
#3	-.014726	-.000573	.0310188	.001529	.000285	.0115861

Elem	Sr4077
Units	ppm
Avg	-.000034
Stddev	.000004
%RSD	10.67865
#1	-.000030
#2	-.000035
#3	-.000036

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5676.905	101452.1	11306.23	4222.441	7429.634
Stddev	12.631	430.9	43.87	30.623	21.199
%RSD	.2224934	.4247195	.3879945	.7252363	.2853312
#1	5662.430	101756.0	11353.76	4239.474	7405.410
#2	5685.692	100959.0	11297.62	4187.089	7438.696
#3	5682.592	101641.3	11267.31	4240.761	7444.796

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2832-08 Acquired: 8/14/2025 13:50:32 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.002079**	**.0020433**	**.0076410**	**.0009020**	**.0009460**	**.0941768**	**.1650888**
Stddev	.002206	.0007381	.0002131	.0004129	.0010649	.0086471	.0008676
%RSD	106.0984	36.12457	2.788261	45.77835	112.5644	9.181799	.5255055
#1	-.000088	.0016309	.0076573	.0010817	.0021680	.0933532	.1658641
#2	-.004451	.0016035	.0078455	.0004297	.0004535	.0859709	.1652504
#3	-.001698	.0028955	.0074203	.0011946	.0002166	.1032062	.1641518

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000037**	**.0011332**	**35.87144**	**.0028769**	**.0024427**	**.0147477**	**.0851282**
Stddev	.000043	.0000053	.06381	.0002148	.0001282	.0002310	.0049214
%RSD	117.1747	.4660960	.1778911	7.466279	5.248147	1.566445	5.781164
#1	-.000056	.0011377	35.91398	.0026316	.0025187	.0146995	.0808915
#2	-.000067	.0011346	35.90227	.0029676	.0022947	.0145446	.0905265
#3	.000013	.0011274	35.79807	.0030314	.0025148	.0149991	.0839667

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1104402**	**4.899326**	**.0203182**	**.0006350**	**381.8625**	**.0002139**	**.1337667**
Stddev	.0005377	.032354	.0001185	.0004233	.7119	.0002346	.0006461
%RSD	.4868379	.6603783	.5834145	66.66557	.1864333	109.6746	.4829693
#1	.1109942	4.936657	.0204182	.0004870	381.1731	.0001548	.1330219
#2	.1099205	4.881930	.0203492	.0011124	382.5949	.0004724	.1341751
#3	.1104059	4.879391	.0201873	.0003055	381.8195	.0000145	.1341032

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.302540**	**.0164972**	**.0007884**	**-.016571**	**.0010461**	**1.193944**	**.0627657**
Stddev	.059398	.0003471	.0003981	.000468	.0011861	.021405	.0024710
%RSD	2.579668	2.104062	50.48764	2.825567	113.3788	1.792835	3.936777
#1	2.293133	.0166509	.0011957	-.016612	-.000320	1.196009	.0622789
#2	2.248407	.0167410	.0007693	-.017017	.001647	1.171581	.0605745
#3	2.366080	.0160998	.0004003	-.016083	.001812	1.214242	.0654439

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2832-08 Acquired: 8/14/2025 13:50:32 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.3667730	-.011612	.1630525
Stddev	.0065838	.002275	.0005624
%RSD	1.795048	19.58929	.3449027
#1	.3614882	-.012765	.1636644
#2	.3646827	-.013080	.1629349
#3	.3741482	-.008992	.1625583

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5374.143	93559.42	11638.51	3980.098	6399.883
Stddev	1.693	149.94	70.55	2.988	5.635
%RSD	.0315087	.1602566	.6061879	.0750655	.0880439
#1	5375.389	93442.13	11559.52	3978.728	6403.642
#2	5374.824	93728.35	11660.73	3983.525	6402.603
#3	5372.215	93507.78	11695.28	3978.042	6393.405

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2832-10 Acquired: 8/14/2025 13:54:58 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.001374**	**-.000110**	**.0282103**	**-.000295**	**.0010231**	**.0270327**	**.0815509**
Stddev	.001293	.001396	.0004739	.000061	.0001974	.0060421	.0007444
%RSD	94.08022	1268.674	1.679703	20.62061	19.29564	22.35123	.9127718
#1	-.002237	-.001712	.0280121	-.000254	.0012277	.0220294	.0815729
#2	.000112	.000540	.0278678	-.000265	.0010076	.0253233	.0822841
#3	-.001999	.000842	.0287511	-.000365	.0008338	.0337454	.0807959

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000060**	**.0001518**	**11.04886**	**.0007135**	**.0005378**	**.0099425**	**.1145575**
Stddev	.000025	.0000790	.03453	.0000530	.0001606	.0001426	.0020144
%RSD	42.66212	52.07733	.3124899	7.431267	29.85558	1.433956	1.758456
#1	-.000074	.0000855	11.07432	.0007565	.0005934	.0099844	.1151175
#2	-.000030	.0002393	11.06269	.0006542	.0003568	.0097836	.1123223
#3	-.000074	.0001306	11.00956	.0007297	.0006632	.0100594	.1162326

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0319724**	**1.665520**	**.0030832**	**.0006419**	**324.8458**	**.0009041**	**.0588031**
Stddev	.0004829	.027327	.0003668	.0001420	4.5889	.0005002	.0003128
%RSD	1.510314	1.640739	11.89684	22.11627	1.412651	55.33225	.5319812
#1	.0320126	1.659159	.0028413	.0007329	324.8913	.0010344	.0591537
#2	.0324339	1.695466	.0035053	.0004783	329.4118	.0003516	.0587031
#3	.0314706	1.641935	.0029032	.0007143	320.2343	.0013262	.0585525

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.435021**	**.0049988**	**.0005318**	**-.015353**	**.0000003**	**.5202709**	**.0814415**
Stddev	.048974	.0004964	.0000820	.000366	.0005793	.0036084	.0023970
%RSD	3.412741	9.930145	15.41858	2.381915	180433.4	.6935697	2.943163
#1	1.379382	.0046762	.0004637	-.015164	.0002779	.5173425	.0796684
#2	1.454089	.0047499	.0005088	-.015774	.0003886	.5191682	.0841686
#3	1.471593	.0055704	.0006228	-.015120	-.000666	.5243020	.0804875

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2832-10 Acquired: 8/14/2025 13:54:58 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.3605884	-.008737	.0549373
Stddev	.0018770	.001594	.0002385
%RSD	.5205246	18.24323	.4341391
#1	.3599884	-.008412	.0551295
#2	.3590848	-.010469	.0550120
#3	.3626919	-.007331	.0546704

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5389.772	95094.26	11807.20	4030.420	6467.959
Stddev	5.122	178.60	97.98	3.571	7.430
%RSD	.0950297	.1878098	.8298098	.0886081	.1148695
#1	5393.349	95041.15	11716.82	4026.379	6467.908
#2	5392.064	94948.25	11793.45	4031.728	6475.415
#3	5383.905	95293.39	11911.32	4033.153	6460.556

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2836-03 Acquired: 8/14/2025 13:59:25 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.002093**	**.0028443**	**-.000963**	**-.002383**	**.0029646**	**.4264055**	**.0505324**
Stddev	.003540	.0010692	.000421	.002263	.0019180	.0093762	.0009842
%RSD	169.1437	37.59143	43.69338	94.95157	64.69729	2.198904	1.947658
#1	-.003393	.0040674	-.000533	-.001364	.0011169	.4176561	.0498503
#2	-.004800	.0020865	-.000983	-.000809	.0049459	.4363029	.0516607
#3	.001913	.0023791	-.001374	-.004976	.0028309	.4252574	.0500862

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000086**	**.0000545**	**201.0068**	**.0012925**	**.0006820**	**.0087375**	**.0237474**
Stddev	.000085	.0000489	.4606	.0005026	.0001600	.0005464	.0018181
%RSD	98.58218	89.59327	.2291519	38.88087	23.46312	6.254100	7.656121
#1	-.000032	.0000872	201.3457	.0009487	.0006828	.0088856	.0256504
#2	-.000184	.0000780	201.1923	.0018693	.0005216	.0091946	.0220281
#3	-.000042	-.000002	200.4823	.0010596	.0008416	.0081322	.0235638

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0015588**	**.0711297**	**.0048231**	**.0004651**	**460.7655**	**.0041815**	**.0069912**
Stddev	.0006590	.0032762	.0003694	.0005052	2.9129	.0006421	.0001753
%RSD	42.27691	4.606000	7.659008	108.6187	.6321930	15.35493	2.507115
#1	.0019815	.0732077	.0047877	-.000090	463.2075	.0039908	.0068185
#2	.0007995	.0728283	.0052090	.000899	457.5414	.0036565	.0069860
#3	.0018955	.0673529	.0044727	.000586	461.5478	.0048974	.0071690

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**13.07354**	**.0244348**	**.0089270**	**-.017238**	**-.007756**	**2.133091**	**.0115248**
Stddev	.04058	.0002884	.0002496	.000656	.000233	.028919	.0032893
%RSD	.3103684	1.180184	2.795432	3.806020	3.002752	1.355722	28.54150
#1	13.10211	.0247643	.0089228	-.017947	-.007847	2.153845	.0150510
#2	13.02710	.0243118	.0086795	-.017113	-.007929	2.100059	.0085393
#3	13.09142	.0242284	.0091786	-.016652	-.007491	2.145370	.0109841

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2836-03 Acquired: 8/14/2025 13:59:25 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**17.15570**	**-.024222**	**1.473688**
Stddev	.01002	.000930	.007038
%RSD	.0584308	3.841454	.4775965
#1	17.16679	-.023486	1.481111
#2	17.15305	-.025268	1.467111
#3	17.14727	-.023912	1.472842

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5110.792**	**91653.29**	**11665.55**	**3803.072**	**6015.042**
Stddev	5.598	134.49	67.17	6.066	2.977
%RSD	.1095405	.1467412	.5757569	.1595018	.0494937
#1	5111.952	91519.83	11661.64	3803.442	6013.601
#2	5104.705	91651.24	11600.43	3808.945	6013.059
#3	5115.720	91788.79	11734.59	3796.830	6018.465

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2836-07 Acquired: 8/14/2025 14:03:49 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.004771**	**.0023114**	**-.000894**	**-.001770**	**.0039004**	**.3810834**	**.0582268**
Stddev	.000681	.0004979	.000567	.002146	.0019043	.0143138	.0015341
%RSD	14.26986	21.53981	63.43501	121.2704	48.82300	3.756094	2.634667
#1	-.004812	.0027996	-.000822	-.003514	.0032471	.3688285	.0568413
#2	-.004070	.0018044	-.001494	-.002422	.0060454	.3968155	.0598754
#3	-.005430	.0023303	-.000366	.000627	.0024088	.3776063	.0579639

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000107**	**.0000409**	**197.5814**	**.0067520**	**.0007535**	**.0066831**	**.0132266**
Stddev	.000038	.0000731	.4190	.0002929	.0002419	.0005631	.0021211
%RSD	35.62582	178.7434	.2120535	4.338116	32.11060	8.425809	16.03668
#1	-.000063	-.000026	197.6050	.0068115	.0010313	.0063541	.0156758
#2	-.000131	.000119	197.9881	.0070106	.0006403	.0073333	.0120142
#3	-.000128	.000029	197.1512	.0064339	.0005889	.0063619	.0119899

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0014128**	**.1143775**	**.0014219**	**.0004478**	**462.9374**	**.0012087**	**.0067200**
Stddev	.0000158	.0178273	.0002247	.0001765	4.1339	.0006286	.0002505
%RSD	1.119263	15.58640	15.80017	39.41351	.8929728	52.00445	3.727411
#1	.0014297	.1343082	.0016749	.0006502	467.6226	.0019321	.0068909
#2	.0013983	.0999523	.0013452	.0003260	461.3859	.0008985	.0064325
#3	.0014105	.1088722	.0012457	.0003672	459.8038	.0007955	.0068366

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**11.76538**	**.0180830**	**.0075889**	**-.017782**	**-.006746**	**2.203518**	**.0085359**
Stddev	.06622	.0000576	.0002732	.001219	.000747	.013073	.0022064
%RSD	.5628652	.3184341	3.599562	6.857060	11.06711	.5932926	25.84887
#1	11.82832	.0180892	.0073000	-.016655	-.007070	2.200131	.0090667
#2	11.69630	.0181373	.0076238	-.019076	-.005892	2.217951	.0061125
#3	11.77152	.0180226	.0078430	-.017615	-.007275	2.192471	.0104286

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2836-07 Acquired: 8/14/2025 14:03:49 Type: Unk
Method: 6010-200.7 NEW(v98) 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	10.16781	-.025329	1.265160
Stddev	.04639	.000442	.002915
%RSD	.4562271	1.745518	.2304320
#1	10.11745	-.025742	1.268282
#2	10.17721	-.025381	1.264688
#3	10.20878	-.024863	1.262509

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5121.336	91843.38	11724.54	3838.178	6026.420
Stddev	3.193	190.42	52.18	24.756	9.785
%RSD	.0623517	.2073360	.4450774	.6449890	.1623626
#1	5123.780	91757.85	11727.39	3827.607	6036.127
#2	5117.723	91710.72	11670.99	3820.463	6016.559
#3	5122.505	92061.57	11775.24	3866.465	6026.575

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2836-11 Acquired: 8/14/2025 14:08:14 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.002730**	**.0021895**	**-.000031**	**.0001470**	**.0028251**	**.1853727**	**.0415676**
Stddev	.001129	.0008185	.000710	.0018822	.0001904	.0092089	.0005068
%RSD	41.36014	37.38392	2322.963	1280.546	6.738712	4.967777	1.219250
#1	-.001477	.0016568	-.000654	.0012640	.0028868	.1903623	.0417191
#2	-.003669	.0017797	-.000180	.0012030	.0026116	.1910101	.0410022
#3	-.003045	.0031320	.000742	-.002026	.0029770	.1747458	.0419813

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000103**	**-.000007**	**167.7665**	**.0089681**	**.0009461**	**.0047326**	**.0554754**
Stddev	.000007	.000043	.0983	.0003753	.0000414	.0001111	.0046670
%RSD	6.885616	620.3479	.0586168	4.185232	4.379182	2.346691	8.412664
#1	-.000109	.000035	167.8459	.0092966	.0009768	.0046057	.0518012
#2	-.000104	-.000006	167.6565	.0090487	.0009626	.0047796	.0538984
#3	-.000095	-.000050	167.7970	.0085590	.0008990	.0048124	.0607265

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0195659**	**.2855004**	**.0038217**	**.0005246**	**401.4399**	**.0005285**	**.0082979**
Stddev	.0002065	.0035449	.0001886	.0001889	1.3593	.0006462	.0004714
%RSD	1.055490	1.241637	4.935299	36.00196	.3386078	122.2774	5.680547
#1	.0194630	.2877989	.0036696	.0007419	401.0397	.0007481	.0078834
#2	.0194310	.2872844	.0040328	.0004325	400.3257	.0010363	.0081997
#3	.0198036	.2814179	.0037627	.0003995	402.9544	-.000199	.0088107

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**7.481905**	**.0214394**	**.0058277**	**-.017635**	**-.005180**	**2.554311**	**.0099085**
Stddev	.064654	.0001537	.0001084	.000145	.001821	.013714	.0065855
%RSD	.8641366	.7169650	1.859354	.8216119	35.16319	.5369040	66.46309
#1	7.409122	.0212620	.0059442	-.017789	-.003528	2.543947	.0027167
#2	7.532687	.0215300	.0057299	-.017501	-.004879	2.569862	.0113649
#3	7.503905	.0215264	.0058090	-.017616	-.007133	2.549123	.0156439

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2836-11 Acquired: 8/14/2025 14:08:14 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**9.107042**	**-.024046**	**.9614542**
Stddev	.021634	.001204	.0043548
%RSD	.2375509	5.005564	.4529373
#1	9.088686	-.022864	.9570631
#2	9.130894	-.024004	.9615279
#3	9.101547	-.025270	.9657717

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5226.463**	**93311.55**	**11799.04**	**3938.668**	**6178.421**
Stddev	3.877	131.32	49.11	11.528	6.182
%RSD	.0741783	.1407288	.4161947	.2926986	.1000499
#1	5226.522	93462.18	11754.98	3942.519	6178.872
#2	5222.557	93251.27	11851.98	3925.707	6172.026
#3	5230.310	93221.20	11790.16	3947.777	6184.364

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2836-15 Acquired: 8/14/2025 14:12:38 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.000069**	**.0040010**	**.0000719**	**.0039628**	**.0027676**	**.3578465**
Stddev	.002556	.0008076	.0017287	.0047302	.0004900	.0069430
%RSD	3711.678	20.18443	2403.290	119.3671	17.70558	1.940228
#1	-.002204	.0047340	.0013590	.0090569	.0031386	.3559303
#2	.002764	.0031353	.0007498	.0031221	.0022121	.3655464
#3	-.000767	.0041338	-.001893	-.000291	.0029520	.3520628

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0383768**	**-.000149**	**-.000023**	**205.5660**	**.0020942**	**.0013322**
Stddev	.0006629	.000052	.000118	.3491	.0001249	.0001366
%RSD	1.727428	34.65627	521.2330	.1698399	5.965780	10.25302
#1	.0391210	-.000185	-.000155	205.6974	.0022173	.0011927
#2	.0378493	-.000090	.000017	205.1702	.0019675	.0013383
#3	.0381600	-.000173	.000070	205.8303	.0020979	.0014657

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0174093**	**.0931407**	**.0040105**	**.3227582**	**.0059773**	**.0009250**
Stddev	.0002911	.0084904	.0003695	.0131838	.0000811	.0002509
%RSD	1.671856	9.115642	9.213222	4.084729	1.356634	27.11915
#1	.0175077	.0880568	.0036214	.3351858	.0060436	.0009997
#2	.0176383	.1029422	.0043566	.3089300	.0060014	.0006453
#3	.0170817	.0884229	.0040536	.3241587	.0058869	.0011301

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**438.3814**	**.0084746**	**.0048178**	**8.727406**	**.0322765**	**.0144357**
Stddev	3.4753	.0024276	.0000624	.049364	.0004354	.0000416
%RSD	.7927586	28.64485	1.294779	.5656165	1.348994	.2880314
#1	438.7427	.0057237	.0048021	8.670540	.0326673	.0143963
#2	434.7396	.0093840	.0048865	8.759234	.0318072	.0144315
#3	441.6620	.0103162	.0047647	8.752442	.0323550	.0144791

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2836-15 Acquired: 8/14/2025 14:12:38 Type: Unk
Method: 6010-200.7 NEW(v98) 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	-.017288	-.005900	1.758119	.0194588	F 29.13966	-.025624
Stddev	.000143	.001232	.003987	.0036031	.17283	.000853
%RSD	.8287416	20.88884	.2267692	18.51678	.5931128	3.330305
#1	-.017131	-.004516	1.754928	.0202034	29.16252	-.025109
#2	-.017411	-.006880	1.756841	.0226314	28.95654	-.025154
#3	-.017323	-.006302	1.762589	.0155415	29.29993	-.026609

Elem	Sr4077
Units	ppm
Avg	1.096439
Stddev	.003808
%RSD	.3473441
#1	1.092678
#2	1.096346
#3	1.100293

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5173.574	92941.11	11675.12	3904.145	6106.298
Stddev	12.600	204.54	62.08	16.514	4.675
%RSD	.2435409	.2200793	.5317081	.4229948	.0765679
#1	5161.045	93164.96	11660.80	3922.948	6103.752
#2	5186.244	92894.45	11743.10	3891.991	6111.693
#3	5173.434	92763.93	11621.45	3897.497	6103.447

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2838-04 Acquired: 8/14/2025 14:17:03 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**.0005077**	**.0012381**	**.0020876**	**-.000252**	**.0004237**	**.0679346**	**.4074958**
Stddev	.0010381	.0008699	.0009220	.003020	.0003661	.0036521	.0006005
%RSD	204.4599	70.25624	44.16700	1197.527	86.41686	5.375935	.1473597
#1	-.000690	.0004955	.0029049	-.003211	.0001666	.0721051	.4081773
#2	.001074	.0010237	.0022697	-.000370	.0008428	.0653081	.4070442
#3	.001139	.0021951	.0010881	.002825	.0002616	.0663906	.4072661

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000643**	**.0002492**	**54.29060**	**.0010747**	**.0028286**	**.0028602**	**2.552456**
Stddev	.0000265	.0000584	.11663	.0001415	.0000796	.0004100	.022739
%RSD	41.26506	23.42143	.2148225	13.17024	2.815773	14.33291	.8908592
#1	.0000437	.0002062	54.19852	.0009659	.0028456	.0026817	2.543336
#2	.0000943	.0002256	54.25155	.0010235	.0028984	.0025698	2.578340
#3	.0000550	.0003156	54.42175	.0012347	.0027418	.0033292	2.535694

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.635883**	**3.407083**	**.0028188**	**.0014858**	**342.0834**	**.0010582**	**.0386387**
Stddev	.009562	.019724	.0002119	.0002232	2.1202	.0006210	.0000552
%RSD	.3627575	.5789231	7.517027	15.01897	.6197935	58.68538	.1427882
#1	2.641848	3.388236	.0030453	.0016231	342.0134	.0012896	.0386138
#2	2.624854	3.405433	.0027858	.0012283	344.2377	.0015302	.0386003
#3	2.640946	3.427581	.0026254	.0016059	339.9990	.0003547	.0387019

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.160258**	**.0112260**	**.0006353**	**-.017300**	**-.002169**	**.3655400**	**.0232843**
Stddev	.029686	.0002336	.0000864	.000453	.001583	.0046513	.0019437
%RSD	2.558574	2.081139	13.60207	2.618707	72.96126	1.272458	8.347690
#1	1.139657	.0114943	.0005893	-.017813	-.000910	.3708168	.0236952
#2	1.194285	.0111165	.0005817	-.017133	-.003946	.3637689	.0211680
#3	1.146832	.0110673	.0007350	-.016954	-.001651	.3620345	.0249897

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2838-04 Acquired: 8/14/2025 14:17:03 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.2955721	-.013120	.1128952
Stddev	.0039362	.000415	.0003993
%RSD	1.331710	3.159310	.3537159
#1	.2956855	-.013554	.1133562
#2	.2915805	-.012728	.1126736
#3	.2994504	-.013079	.1126559

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5402.107	93037.42	11681.45	4016.211	6400.538
Stddev	5.523	363.10	46.39	13.304	6.309
%RSD	.1022432	.3902759	.3971656	.3312601	.0985692
#1	5405.073	93114.88	11699.81	4006.632	6407.766
#2	5405.513	92641.84	11715.84	4010.599	6397.711
#3	5395.734	93355.54	11628.68	4031.401	6396.138

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2838-08 Acquired: 8/14/2025 14:21:29 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0026871	-.000152	.0026549	.0012626	.0007988	.0919355	.2143035
Stddev	.0035308	.000561	.0019698	.0011612	.0020249	.0058619	.0001282
%RSD	131.3998	369.6667	74.19245	91.97036	253.5103	6.376055	.0598014
#1	.0067635	-.000349	.0005106	.0008636	.0026478	.0985885	.2144514
#2	.0005886	-.000587	.0043837	.0003535	-.001365	.0896877	.2142324
#3	.0007091	.000481	.0030705	.0025706	.001114	.0875301	.2142266

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001464	.0000660	13.82287	.0002178	.0043335	.0035273	3.802805
Stddev	.0000300	.0000176	.03768	.0001608	.0000707	.0003425	.024410
%RSD	20.46984	26.61278	.2726109	73.82841	1.632723	9.708619	.6419000
#1	.0001139	.0000487	13.84514	.0001601	.0043864	.0039223	3.774624
#2	.0001729	.0000839	13.77936	.0000938	.0042531	.0033146	3.816403
#3	.0001524	.0000654	13.84410	.0003995	.0043609	.0033450	3.817388

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.289702	1.783053	.0046425	.0012139	275.4455	.0013781	.0687497
Stddev	.000480	.032419	.0002469	.0002578	3.0448	.0020736	.0002227
%RSD	.0372147	1.818164	5.317910	21.23419	1.105412	150.4760	.3238859
#1	1.289735	1.785639	.0043924	.0009163	278.1698	.0004600	.0688967
#2	1.290164	1.749419	.0048861	.0013594	272.1586	.0037523	.0684936
#3	1.289206	1.814102	.0046490	.0013660	276.0080	-.000078	.0688590

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8028602	.0218319	.0005271	-.016468	.0014514	.3289996	.0297147
Stddev	.0118936	.0005119	.0002675	.000437	.0010241	.0056262	.0015737
%RSD	1.481400	2.344930	50.75666	2.652888	70.55808	1.710092	5.295907
#1	.7911927	.0221166	.0007704	-.015990	.0017546	.3297302	.0290497
#2	.8024203	.0212409	.0002406	-.016847	.0022897	.3342248	.0315117
#3	.8149676	.0221382	.0005703	-.016566	.0003100	.3230438	.0285827

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2838-08 Acquired: 8/14/2025 14:21:29 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.3629052	-.005894	.0506206
Stddev	.0019739	.000766	.0000792
%RSD	.5439182	12.99655	.1564664
#1	.3643919	-.006502	.0506921
#2	.3606657	-.005034	.0505355
#3	.3636581	-.006147	.0506343

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5452.413	96220.14	11799.05	4082.217	6566.040
Stddev	7.382	162.78	75.75	1.523	9.221
%RSD	.1353945	.1691705	.6420028	.0372981	.1404325
#1	5460.820	96220.78	11730.43	4082.804	6573.724
#2	5446.987	96382.60	11880.34	4080.489	6555.815
#3	5449.433	96057.05	11786.39	4083.359	6568.582

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2838-08DUP Acquired: 8/14/2025 14:25:55 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0048324	.0012757	.0046130	.0010004	.0018461	.1215624	.3090755
Stddev	.0017303	.0012416	.0007839	.0018906	.0017845	.0011243	.0010818
%RSD	35.80659	97.33086	16.99330	188.9867	96.66576	.9248490	.3499995
#1	.0051319	.0016093	.0049985	.0013902	.0037959	.1206859	.3079613
#2	.0029719	.0023164	.0037110	.0026657	.0002940	.1228299	.3101216
#3	.0063935	-.000099	.0051295	-.001055	.0014484	.1211712	.3091438

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001758	.0001839	19.54462	.0008808	.0064430	.0055284	5.569689
Stddev	.0000087	.0000508	.01173	.0003175	.0001811	.0002682	.012618
%RSD	4.941904	27.62606	.0600406	36.05170	2.810528	4.851565	.2265437
#1	.0001837	.0001255	19.53374	.0012452	.0064568	.0053066	5.581502
#2	.0001665	.0002179	19.54306	.0006633	.0062554	.0054522	5.571167
#3	.0001772	.0002082	19.55705	.0007339	.0066168	.0058265	5.556397

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.836175	2.518351	.0065714	.0013430	405.8896	.0022843	.0978212
Stddev	.003172	.021901	.0002222	.0003725	2.6016	.0007573	.0005127
%RSD	.1727456	.8696450	3.380933	27.73616	.6409595	33.14984	.5240934
#1	1.832577	2.493171	.0063166	.0009865	406.1190	.0031587	.0983994
#2	1.837382	2.528918	.0066726	.0017297	408.3689	.0018380	.0974223
#3	1.838566	2.532965	.0067248	.0013127	403.1809	.0018564	.0976418

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.213862	.0333408	.0005138	-.016179	.0023218	.4999064	.0385562
Stddev	.038862	.0001912	.0001300	.000435	.0012947	.0101888	.0023695
%RSD	3.201543	.5733832	25.30869	2.690889	55.76198	2.038132	6.145496
#1	1.235759	.0332592	.0005670	-.016016	.0038140	.5116661	.0381085
#2	1.168992	.0332041	.0003656	-.015849	.0016549	.4943316	.0364425
#3	1.236835	.0335593	.0006089	-.016673	.0014965	.4937215	.0411176

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2838-08DUP Acquired: 8/14/2025 14:25:55 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.5454948	-.006545	.0719701
Stddev	.0023307	.000947	.0000529
%RSD	.4272668	14.47130	.0735002
#1	.5428203	-.006386	.0719354
#2	.5470914	-.007561	.0719439
#3	.5465728	-.005686	.0720310

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5369.617	95388.91	12065.55	4085.078	6355.207
Stddev	4.550	112.05	42.01	23.521	9.038
%RSD	.0847364	.1174704	.3482043	.5757739	.1422218
#1	5368.064	95366.36	12111.81	4093.658	6346.532
#2	5374.740	95289.85	12029.78	4103.104	6364.570
#3	5366.047	95510.53	12055.05	4058.471	6354.518

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2838-08LX5 Acquired: 8/14/2025 14:30:18 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.000607**	**-.000574**	**.0002339**	**-.002283**	**-.000609**	**.0228317**	**.0389034**
Stddev	.000991	.000912	.0016101	.000643	.001217	.0045494	.0001914
%RSD	163.1803	158.9668	688.3904	28.17248	199.9756	19.92564	.4918837
#1	.000386	-.000632	-.000487	-.002841	.000477	.0210180	.0386824
#2	-.000611	.000366	-.000890	-.002427	-.001924	.0280081	.0390106
#3	-.001596	-.001455	.002079	-.001580	-.000379	.0194689	.0390170

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000157**	**-.000009**	**2.937336**	**.0000620**	**.0007187**	**.0008579**	**.7667228**
Stddev	.0000354	.000032	.008951	.0002308	.0000306	.0001821	.0067356
%RSD	225.3833	363.9182	.3047394	372.4582	4.257594	21.22025	.8784955
#1	.0000493	-.000012	2.937808	.0002609	.0006961	.0010668	.7744715
#2	.0000189	-.000039	2.928158	-.000191	.0007535	.0007741	.7622674
#3	-.000021	.000025	2.946042	.000116	.0007063	.0007329	.7634297

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2746413**	**.3917089**	**.0011445**	**.0013154**	**53.46443**	**-.002665**	**.0141206**
Stddev	.0009728	.0295244	.0001463	.0003770	.38711	.001459	.0000956
%RSD	.3541937	7.537333	12.78445	28.66004	.7240509	54.73949	.6771775
#1	.2751202	.3602663	.0010353	.0009256	53.88072	-.004288	.0140251
#2	.2735219	.3960191	.0013107	.0016781	53.39729	-.002245	.0142163
#3	.2752817	.4188413	.0010874	.0013424	53.11529	-.001462	.0141203

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.8864862**	**.0016975**	**.0000713**	**-.002797**	**-.000010**	**.0669539**	**.0032562**
Stddev	.0168063	.0004483	.0000844	.000536	.001158	.0027464	.0019140
%RSD	1.895837	26.40944	118.3965	19.15756	11038.54	4.101983	58.77853
#1	.9055268	.0021868	.0000158	-.002577	.001163	.0697515	.0010856
#2	.8802132	.0015994	.0001684	-.002406	-.000043	.0642617	.0039818
#3	.8737186	.0013064	.0000297	-.003408	-.001152	.0668485	.0047013

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2838-08LX5 Acquired: 8/14/2025 14:30:18 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0802746	.0178016	.0107015
Stddev	.0024057	.0006013	.0001008
%RSD	2.996850	3.377641	.9421292
#1	.0830433	.0171094	.0105860
#2	.0786957	.0181938	.0107469
#3	.0790846	.0181017	.0107717

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5667.704	101042.2	11892.62	4269.981	7085.208
Stddev	11.223	197.4	20.18	8.988	24.480
%RSD	.1980096	.1953245	.1697192	.2105021	.3455062
#1	5660.107	100818.0	11884.84	4261.480	7067.636
#2	5662.411	101189.4	11915.54	4269.075	7074.818
#3	5680.594	101119.3	11877.49	4279.388	7113.169

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCV03 Acquired: 8/14/2025 14:41:31 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**4.983598**	**4.710307**	**4.786569**	**4.999673**	**5.054010**	**9.773894**	**9.880753**
Stddev	.005107	.062259	.014330	.011044	.001471	.016195	.056356
%RSD	.1024832	1.321760	.2993789	.2208962	.0291116	.1656969	.5703596
#1	4.978067	4.644783	4.803095	4.989238	5.053366	9.755195	9.842397
#2	4.988136	4.717455	4.777589	4.998543	5.052971	9.783047	9.854405
#3	4.984591	4.768683	4.779023	5.011239	5.055693	9.783439	9.945457

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2367600**	**2.401909**	**24.19743**	**.9837924**	**2.407175**	**1.240562**	**5.005928**
Stddev	.0007150	.007411	.08002	.0017775	.005427	.000352	.005647
%RSD	.3019818	.3085339	.3306820	.1806755	.2254578	.0283346	.1128094
#1	.2360597	2.410462	24.11028	.9843193	2.413437	1.240167	5.011342
#2	.2374888	2.397400	24.26757	.9852469	2.403837	1.240840	5.006367
#3	.2367314	2.397865	24.21446	.9818111	2.404252	1.240679	5.000074

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.407169**	**23.97210**	**2.424498**	**1.242343**	**24.33863**	**2.455185**	**2.521072**
Stddev	.013479	.19882	.004281	.001795	.03653	.003939	.008169
%RSD	.5599525	.8293714	.1765629	.1444681	.1500722	.1604255	.3240126
#1	2.394223	23.75257	2.429394	1.244322	24.37466	2.452645	2.529358
#2	2.421124	24.14003	2.421462	1.241885	24.33959	2.459723	2.520831
#3	2.406158	24.02370	2.422638	1.240821	24.30163	2.453189	2.513026

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**25.36833**	**4.757166**	**5.028692**	**4.795300**	**4.902074**	**5.034422**	**4.725071**
Stddev	.04803	.022450	.003861	.009861	.015045	.022032	.019564
%RSD	.1893129	.4719206	.0767851	.2056395	.3069046	.4376215	.4140419
#1	25.41889	4.731560	5.024537	4.805415	4.884703	5.016365	4.747662
#2	25.32331	4.773469	5.029370	4.785714	4.910862	5.058970	4.713754
#3	25.36280	4.766468	5.032169	4.794772	4.910659	5.027930	4.713798

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCV03 Acquired: 8/14/2025 14:41:31 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**4.672754**	**4.842041**	**5.026769**
Stddev	.015661	.016682	.057159
%RSD	.3351654	.3445320	1.137095
#1	4.668327	4.823392	5.004005
#2	4.659782	4.847189	5.091803
#3	4.690152	4.855543	4.984499

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5582.970**	**99081.13**	**11499.90**	**4190.178**	**6782.298**
Stddev	9.167	101.66	57.03	6.846	18.949
%RSD	.1642012	.1026025	.4958777	.1633918	.2793937
#1	5579.181	99162.17	11565.43	4195.470	6764.210
#2	5576.303	98967.06	11461.56	4182.445	6780.679
#3	5593.424	99114.17	11472.71	4192.618	6802.004

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCB03 Acquired: 8/14/2025 14:45:41 Type: Unk
Method: 6010-200.7 NEW(v98) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000591**	**-.000997**	**.0001690**	**-.001445**	**.0018348**	**-.000383**
Stddev	.002640	.000537	.0006476	.002806	.0006165	.001420
%RSD	446.3609	53.80556	383.2514	194.1669	33.59896	370.2249
#1	-.001266	-.000881	.0001279	.000169	.0021344	.001254
#2	-.002828	-.000529	.0008362	.000181	.0022442	-.001147
#3	.002320	-.001583	-.000457	-.004686	.0011258	-.001257

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.007215**	**.0000157**	**.0000365**	**.0121288**	**.0004531**	**-.000015**
Stddev	.000403	.0000462	.0000476	.0033977	.0001971	.000197
%RSD	5.591962	294.5666	130.3382	28.01355	43.49482	1321.874
#1	-.007428	.0000374	.0000025	.0087659	.0006529	.000210
#2	-.007467	-.000037	.0000910	.0120602	.0002588	-.000153
#3	-.006750	.000047	.0000161	.0155603	.0004476	-.000102

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000257**	**.0031004**	**.0002506**	**-.000783**	**.0001743**	**.0014550**
Stddev	.000303	.0008466	.0001271	.014116	.0002323	.0001648
%RSD	117.7964	27.30731	50.71854	1802.534	133.3007	11.32972
#1	-.000054	.0022378	.0001362	-.015964	.0002126	.0014132
#2	-.000605	.0031333	.0003874	.011948	.0003850	.0016367
#3	-.000112	.0039300	.0002282	.001667	-.000075	.0013150

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7876665**	**-.000443**	**.0003390**	**.5284278**	**.0072099**	**.0005366**
Stddev	.0151689	.001550	.0000393	.0300654	.0003280	.0002553
%RSD	1.925807	350.1546	11.58165	5.689585	4.549597	47.57389
#1	.7748390	-.001347	.0003036	.5322801	.0074350	.0004038
#2	.7837514	.001347	.0003321	.5563814	.0068336	.0008308
#3	.8044093	-.001329	.0003812	.4966220	.0073613	.0003750

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCB03 Acquired: 8/14/2025 14:45:41 Type: Unk
Method: 6010-200.7 NEW(v98) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.013932	.0004189	.0256237	-.000987	.0016668	F .0129305
Stddev	.000400	.0005079	.0071365	.000678	.0018830	.0010588
%RSD	2.872162	121.2468	27.85133	68.73635	112.9757	8.188196
#1	-.014378	.0002424	.0305407	-.000294	.0028709	.0117152
#2	-.013604	.0009916	.0288920	-.001649	.0026326	.0136531
#3	-.013813	.0000228	.0174382	-.001018	-.000503	.0134234

Elem	Sr4077
Units	ppm
Avg	-.000111
Stddev	.000019
%RSD	17.38948
#1	-.000098
#2	-.000133
#3	-.000103

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5733.276	101778.5	11559.18	4307.635	7527.980
Stddev	5.470	482.5	33.87	8.811	4.929
%RSD	.0954122	.4741039	.2930469	.2045499	.0654704
#1	5728.195	101632.3	11557.11	4301.052	7523.747
#2	5739.067	101386.0	11594.04	4304.208	7526.801
#3	5732.567	102317.3	11526.39	4317.645	7533.391

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2838-08MS Acquired: 8/14/2025 14:50:01 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.8126531	1.813072	.9034199	1.998481	.8137177	2.084444	.5313340
Stddev	.0029549	.012926	.0021632	.007887	.0012511	.007029	.0024203
%RSD	.3636070	.7129277	.2394411	.3946326	.1537528	.3372334	.4555081
#1	.8104548	1.819233	.9013104	1.997951	.8123922	2.076687	.5326691
#2	.8114924	1.798218	.9056330	1.990872	.8138829	2.086251	.5285402
#3	.8160121	1.821765	.9033164	2.006619	.8148781	2.090393	.5327926

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1742733	.1924257	22.41689	.3948765	.2000961	.2920906	9.242732
Stddev	.0005369	.0005414	.03548	.0011041	.0001621	.0010599	.049738
%RSD	.3081009	.2813788	.1582660	.2795954	.0810156	.3628508	.5381259
#1	.1748055	.1929282	22.44918	.3942861	.2002075	.2923963	9.233371
#2	.1742827	.1918523	22.37891	.3941931	.1999102	.2909115	9.198340
#3	.1737318	.1924966	22.42258	.3961502	.2001707	.2929640	9.296485

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.185735	4.602651	.4915920	.0759903	438.5393	.2936093	.3131220
Stddev	.008025	.009992	.0003852	.0006135	3.1443	.0021941	.0001800
%RSD	.3671491	.2170869	.0783487	.8073691	.7169878	.7472966	.0574841
#1	2.194994	4.606219	.4920309	.0765041	435.9919	.2954732	.3129348
#2	2.181406	4.610368	.4913101	.0753110	437.5725	.2911912	.3132939
#3	2.180803	4.591365	.4914350	.0761558	442.0534	.2941635	.3131374

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12.65707	.2779893	.4218242	.6657914	.1956670	1.476316	5.595892
Stddev	.15508	.0009692	.0016732	.0022107	.0021583	.012982	.016707
%RSD	1.225230	.3486344	.3966549	.3320345	1.103075	.8793258	.2985644
#1	12.57316	.2786039	.4218228	.6639969	.1981273	1.488323	5.583368
#2	12.56204	.2768721	.4201518	.6682609	.1947811	1.462541	5.589445
#3	12.83603	.2784919	.4234981	.6651164	.1940924	1.478085	5.614862

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2838-08MS Acquired: 8/14/2025 14:50:01 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.5616974	.1913190	.2639709
Stddev	.0024766	.0004601	.0002786
%RSD	.4409130	.2404874	.1055453
#1	.5631392	.1907942	.2637988
#2	.5588377	.1916529	.2638215
#3	.5631153	.1915099	.2642923

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5345.955	94719.73	11889.29	4024.959	6309.462
Stddev	10.811	337.85	26.32	11.323	8.429
%RSD	.2022297	.3566822	.2213769	.2813266	.1335927
#1	5343.670	94905.61	11859.17	4026.024	6309.361
#2	5357.726	94923.82	11907.91	4035.712	6317.941
#3	5336.470	94329.76	11900.77	4013.141	6301.084

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2838-08MSD Acquired: 8/14/2025 14:54:09 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.8064475	1.854823	.8923168	1.995953	.7915381	2.016034	.4970318
Stddev	.0015856	.011460	.0012871	.005069	.0040137	.005205	.0041612
%RSD	.1966137	.6178663	.1442419	.2539823	.5070724	.2581872	.8372133
#1	.8047881	1.865330	.8919762	1.995136	.7953122	2.021979	.4991747
#2	.8079472	1.856539	.8937400	1.991342	.7873215	2.013825	.4922359
#3	.8066071	1.842602	.8912343	2.001381	.7919806	2.012297	.4996849

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1752261	.1898470	20.43895	.3924775	.1974589	.2890936	8.532840
Stddev	.0008586	.0002411	.06146	.0023372	.0002715	.0004328	.001044
%RSD	.4899915	.1270016	.3007177	.5955089	.1375037	.1496992	.0122299
#1	.1759103	.1895758	20.46649	.3929500	.1971889	.2891297	8.532094
#2	.1742627	.1899281	20.36854	.3945424	.1974559	.2886440	8.532395
#3	.1755054	.1900371	20.48184	.3899401	.1977319	.2895072	8.534033

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.013089	4.361839	.4849360	.0742387	394.8594	.2922756	.3019869
Stddev	.009865	.030327	.0002856	.0008590	5.3788	.0016826	.0002661
%RSD	.4900594	.6952768	.0588853	1.157088	1.362206	.5756756	.0881117
#1	2.018933	4.371918	.4846504	.0751658	388.6530	.2931289	.3016932
#2	2.001698	4.327756	.4849360	.0734699	398.1671	.2903373	.3020558
#3	2.018635	4.385843	.4852215	.0740802	397.7583	.2933604	.3022118

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12.17305	.2747896	.4142240	.6492783	.1910233	1.371030	5.551040
Stddev	.02675	.0018710	.0015776	.0014794	.0008992	.009267	.012661
%RSD	.2197574	.6808890	.3808443	.2278531	.4707010	.6759502	.2280899
#1	12.19082	.2762078	.4145729	.6495034	.1911946	1.376902	5.540385
#2	12.14229	.2726690	.4125012	.6506323	.1900508	1.375842	5.547699
#3	12.18606	.2754919	.4155979	.6476993	.1918244	1.360347	5.565037

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2838-08MSD Acquired: 8/14/2025 14:54:09 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.6497779	.1884034	.2556237
Stddev	.0031018	.0004722	.0009007
%RSD	.4773642	.2506208	.3523692
#1	.6533196	.1886417	.2561762
#2	.6484696	.1878596	.2545843
#3	.6475447	.1887090	.2561106

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5360.436	94938.38	11690.65	4029.742	6357.668
Stddev	13.346	64.49	76.81	16.230	6.890
%RSD	.2489652	.0679302	.6570448	.4027512	.1083721
#1	5352.967	94906.53	11656.51	4046.129	6358.182
#2	5375.844	95012.60	11778.61	4013.674	6364.287
#3	5352.498	94896.00	11636.83	4029.425	6350.536

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2838-08A Acquired: 8/14/2025 14:58:16 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.8296309	1.889837	.9279724	2.073422	.8242431	2.044137	.4439018
Stddev	.0023768	.013905	.0031409	.008789	.0027105	.012689	.0005862
%RSD	.2864890	.7357738	.3384690	.4239045	.3288533	.6207733	.1320529
#1	.8320429	1.877673	.9300991	2.069619	.8273696	2.058068	.4435359
#2	.8272910	1.886841	.9294533	2.067174	.8225552	2.041104	.4445779
#3	.8295588	1.904995	.9243649	2.083472	.8228044	2.033239	.4435916

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1799751	.1948049	17.30144	.4018767	.2022938	.2993321	7.769142
Stddev	.0005363	.0002306	.02251	.0021716	.0005362	.0006879	.014585
%RSD	.2979661	.1183683	.1300887	.5403526	.2650531	.2298106	.1877290
#1	.1795689	.1950497	17.31272	.4028087	.2028612	.2999672	7.785976
#2	.1805830	.1947730	17.31607	.3993948	.2022247	.2986014	7.761137
#3	.1797735	.1945918	17.27552	.4034267	.2017955	.2994277	7.760312

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.709929	4.015705	.5002499	.0767112	328.4046	.2987203	.2956337
Stddev	.003817	.009979	.0005155	.0002359	4.5278	.0023074	.0010525
%RSD	.2232199	.2485086	.1030514	.3074795	1.378724	.7724389	.3560151
#1	1.705907	4.004401	.5008442	.0764738	325.8400	.3011901	.2947744
#2	1.713501	4.019422	.4999817	.0769455	325.7413	.2983512	.2968076
#3	1.710379	4.023293	.4999238	.0767141	333.6326	.2966197	.2953190

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12.23463	.2800426	.4214561	.6641000	.1907361	1.390083	5.648525
Stddev	.06477	.0010864	.0010897	.0010705	.0010945	.009924	.039750
%RSD	.5294023	.3879306	.2585623	.1611957	.5738042	.7139050	.7037281
#1	12.25724	.2791599	.4209326	.6633804	.1901658	1.388858	5.689904
#2	12.16158	.2812559	.4207269	.6653302	.1919979	1.380829	5.645036
#3	12.28506	.2797121	.4227088	.6635895	.1900446	1.400563	5.610634

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2838-08A Acquired: 8/14/2025 14:58:16 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.4482838	.1913180	.2473294
Stddev	.0021722	.0006302	.0002546
%RSD	.4845558	.3294261	.1029369
#1	.4480568	.1909141	.2471243
#2	.4462340	.1920442	.2476143
#3	.4505606	.1909957	.2472496

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5420.712	96346.79	12004.58	4079.936	6454.675
Stddev	10.191	156.33	31.91	6.944	12.520
%RSD	.1880039	.1622567	.2658515	.1702059	.1939688
#1	5432.268	96347.57	12038.14	4087.240	6461.647
#2	5416.863	96502.73	11974.62	4073.418	6440.221
#3	5413.007	96190.08	12001.00	4079.150	6462.158

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2814-01 Acquired: 8/14/2025 15:02:24 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**.0031528**	**.0008100**	**.0076498**	**.0026090**	**.0037440**	**.9218908**	**.0625422**
Stddev	.0006992	.0011359	.0009363	.0015606	.0007589	.0104140	.0007976
%RSD	22.17658	140.2396	12.24012	59.81656	20.26962	1.129640	1.275296
#1	.0024291	.0021148	.0082443	.0021938	.0030705	.9286494	.0619654
#2	.0038246	.0000417	.0081345	.0043353	.0045662	.9271251	.0634524
#3	.0032047	.0002735	.0065704	.0012980	.0035953	.9098980	.0622088

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000682**	**.0001880**	**40.90931**	**.0037406**	**.0000103**	**.0067203**	**2.072176**
Stddev	.0000590	.0000692	.10399	.0001249	.0000733	.0003695	.016581
%RSD	86.54772	36.80168	.2542040	3.338076	715.0774	5.498450	.8001668
#1	.0000982	.0001147	40.80966	.0036008	.0000844	.0063189	2.090622
#2	.0000002	.0002522	41.01716	.0037800	.0000085	.0067956	2.058510
#3	.0001061	.0001971	40.90110	.0038410	-.000062	.0070463	2.067395

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0388256**	**23.06362**	**.0021459**	**.0005062**	**131.1322**	**.0038627**	**.0328102**
Stddev	.0003464	.07932	.0001610	.0003403	1.1572	.0027551	.0004474
%RSD	.8923011	.3439149	7.502894	67.21706	.8824414	71.32599	1.363600
#1	.0386133	22.98542	.0022917	.0001138	132.3872	.0068475	.0331316
#2	.0392253	23.06144	.0021728	.0006861	130.9019	.0014169	.0329997
#3	.0386381	23.14401	.0019731	.0007187	130.1075	.0033238	.0322992

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**27.14861**	**.1568181**	**.0032940**	**-.016396**	**.0303878**	**12.77306**	**.9423697**
Stddev	.17594	.0015862	.0000622	.000556	.0003194	.11557	.0070594
%RSD	.6480721	1.011514	1.887584	3.390555	1.051165	.9047960	.7491121
#1	27.34680	.1549944	.0033512	-.016886	.0302384	12.87871	.9481164
#2	27.08823	.1575826	.0033028	-.015792	.0307545	12.79084	.9344897
#3	27.01081	.1578772	.0032278	-.016510	.0301703	12.64963	.9445032

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2814-01 Acquired: 8/14/2025 15:02:24 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**4.392043**	**-.009609**	**.3486520**
Stddev	.006059	.000471	.0002538
%RSD	.1379583	4.905357	.0727896
#1	4.388269	-.009078	.3485874
#2	4.399032	-.009771	.3489318
#3	4.388828	-.009979	.3484367

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5432.346**	**98492.76**	**11853.97**	**4104.224**	**6660.619**
Stddev	1.297	235.87	106.35	20.471	9.936
%RSD	.0238785	.2394833	.8971985	.4987729	.1491785
#1	5431.002	98377.69	11976.76	4101.086	6661.921
#2	5432.444	98336.49	11790.67	4085.504	6669.840
#3	5433.591	98764.08	11794.49	4126.083	6650.096

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2814-03 Acquired: 8/14/2025 15:06:38 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0125364	.0009098	.0418210	.0015616	.0036855	5.509489	.0371319
Stddev	.0022494	.0024562	.0013403	.0014140	.0001416	.005280	.0009153
%RSD	17.94284	269.9731	3.204911	90.55283	3.841015	.0958289	2.464875
#1	.0100433	-.000024	.0427577	.0029748	.0038458	5.503415	.0373611
#2	.0131522	-.000943	.0402857	.0015630	.0035775	5.512078	.0361238
#3	.0144137	.003696	.0424195	.0001468	.0036332	5.512975	.0379107

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004435	.0004899	36.79843	.0084620	.0015818	.0143946	3.539530
Stddev	.0000439	.0000828	.04814	.0001077	.0002192	.0003517	.006552
%RSD	9.900318	16.90216	.1308211	1.273192	13.85905	2.443322	.1851051
#1	.0004098	.0005180	36.78599	.0084996	.0018271	.0147141	3.547052
#2	.0004275	.0003967	36.75773	.0085458	.0015133	.0140178	3.536474
#3	.0004931	.0005551	36.85157	.0083405	.0014050	.0144521	3.535066

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2048574	13.61443	.0034810	.0010999	86.78552	.0160416	.0795470
Stddev	.0014284	.03370	.0004254	.0001400	.16532	.0008425	.0003136
%RSD	.6972474	.2475552	12.22145	12.73191	.1904976	5.251629	.3942722
#1	.2054940	13.57552	.0029934	.0009492	86.94126	.0154712	.0791974
#2	.2032215	13.63452	.0036728	.0012261	86.80327	.0170092	.0798038
#3	.2058569	13.63325	.0037767	.0011245	86.61204	.0156444	.0796396

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.978182	.1494501	.0010005	-.017241	.0526035	11.85758	2.251366
Stddev	.041214	.0007689	.0001685	.000657	.0006931	.02149	.004603
%RSD	.4130456	.5145065	16.83744	3.812294	1.317538	.1812643	.2044378
#1	10.02326	.1491353	.0011035	-.017462	.0525002	11.83554	2.255281
#2	9.96886	.1488884	.0008061	-.016502	.0533424	11.85872	2.252520
#3	9.94242	.1503264	.0010919	-.017760	.0519678	11.87848	2.246296

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2814-03 Acquired: 8/14/2025 15:06:38 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**4.302705**	**-.009898**	**.1660236**
Stddev	.015564	.000817	.0003532
%RSD	.3617200	8.255867	.2127490
#1	4.304799	-.010636	.1663133
#2	4.317115	-.010037	.1661273
#3	4.286200	-.009020	.1656301

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5598.329**	**100262.7**	**12117.03**	**4209.108**	**6876.355**
Stddev	4.927	146.0	32.44	2.849	12.238
%RSD	.0880010	.1456042	.2676976	.0676875	.1779716
#1	5592.675	100339.1	12151.75	4212.279	6862.723
#2	5600.616	100094.4	12087.50	4206.762	6886.396
#3	5601.696	100354.7	12111.83	4208.284	6879.946

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2814-16 Acquired: 8/14/2025 15:10:49 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.003544**	**-.001204**	**-.000852**	**.0011431**	**.0022467**	**-.007780**	**-.008093**
Stddev	.000512	.001097	.000289	.0008424	.0006486	.003749	.000816
%RSD	14.45343	91.12950	33.88205	73.69290	28.86680	48.17909	10.08810
#1	-.004059	.000057	-.001150	.0010856	.0015864	-.009697	-.007893
#2	-.003034	-.001941	-.000830	.0003309	.0022710	-.010183	-.008990
#3	-.003540	-.001726	-.000574	.0020128	.0028828	-.003461	-.007394

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000182**	**.0000960**	**.0221497**	**.0000100**	**-.000380**	**.0002196**	**.0034072**
Stddev	.000036	.0000782	.0052713	.0001438	.000149	.0005010	.0038367
%RSD	19.84380	81.46324	23.79840	1438.808	39.30095	228.1032	112.6056
#1	-.000223	.0001826	.0161422	-.000117	-.000551	-.000212	.0052798
#2	-.000156	.0000744	.0243057	.000166	-.000316	.000103	.0059481
#3	-.000166	.0000308	.0260013	-.000019	-.000274	.000769	-.001006

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0033701**	**.0182736**	**-.000117**	**.0010062**	**-.046919**	**-.000956**	**.0024567**
Stddev	.0002603	.0152469	.000186	.0002393	.010427	.002322	.0000322
%RSD	7.724296	83.43695	159.1818	23.78196	22.22452	242.8573	1.310444
#1	.0034331	.0358497	-.000274	.0007539	-.034889	.000818	.0024923
#2	.0030840	.0086021	.000088	.0012299	-.052499	-.003585	.0024485
#3	.0035931	.0103691	-.000165	.0010348	-.053369	-.000102	.0024295

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0371972**	**-.002072**	**.0004505**	**-.015491**	**.0006007**	**.0064268**	**.0047204**
Stddev	.0313024	.000376	.0001415	.000144	.0006909	.0045212	.0007846
%RSD	84.15252	18.14395	31.40252	.9285216	115.0237	70.34904	16.62126
#1	.0079075	-.002503	.0005574	-.015340	.0008086	.0014119	.0048504
#2	.0335001	-.001901	.0002901	-.015626	-.000170	.0101908	.0038789
#3	.0701839	-.001812	.0005041	-.015507	.001164	.0076776	.0054319

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2814-16 Acquired: 8/14/2025 15:10:49 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0148881	-.007257	-.000054
Stddev	.0014115	.001533	.000073
%RSD	9.481065	21.11993	133.6965
#1	.0155164	-.008174	-.000138
#2	.0132715	-.008109	-.000024
#3	.0158764	-.005487	-.000002

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5867.375	105925.6	11980.48	4381.382	7852.568
Stddev	10.710	108.0	77.59	18.414	10.204
%RSD	.1825411	.1019563	.6476626	.4202730	.1299477
#1	5862.079	105949.6	11900.96	4362.271	7848.440
#2	5879.701	105807.6	11984.50	4382.866	7864.189
#3	5860.344	106019.6	12055.99	4399.009	7845.074

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2814-17DLX5 Acquired: 8/14/2025 15:15:10 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**.1215035**	**-.011428**	**.3567469**	**.0070570**	**-.001650**	**93.31502**
Stddev	.0040755	.001263	.0053161	.0024024	.000215	.05559
%RSD	3.354195	11.04760	1.490161	34.04229	13.04071	.0595716
#1	.1250769	-.010221	.3615055	.0081390	-.001453	93.27280
#2	.1223686	-.011324	.3577259	.0087280	-.001879	93.37800
#3	.1170649	-.012739	.3510094	.0043039	-.001617	93.29426

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.3561054**	**.0063462**	**.0173023**	**20.37743**	**.1904158**	**.0607219**
Stddev	.0009834	.0000272	.0002523	.00258	.0006953	.0010406
%RSD	.2761566	.4292780	1.458002	.0126799	.3651389	1.713709
#1	.3561721	.0063622	.0175087	20.37969	.1909581	.0615716
#2	.3550904	.0063617	.0173770	20.37800	.1906573	.0610330
#3	.3570538	.0063148	.0170211	20.37461	.1896320	.0595613

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5198336**	**135.5291**	**.4753863**	**22.69980**	**.1150995**	**.0092354**
Stddev	.0078562	.2990	.0009146	.07068	.0012954	.0002127
%RSD	1.511292	.2205982	.1923842	.3113682	1.125427	2.303549
#1	.5270476	135.3056	.4750234	22.67207	.1164177	.0093064
#2	.5209898	135.4129	.4764266	22.78014	.1150525	.0089963
#3	.5114633	135.8687	.4747088	22.64720	.1138283	.0094036

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**149.0942**	**.2206338**	**1.567869**	**18.45318**	**.5222688**	**.0293904**
Stddev	.4624	.0019383	.011568	.04930	.0016948	.0005152
%RSD	.3101220	.8785160	.7378093	.2671837	.3245148	1.752863
#1	149.5796	.2228712	1.579795	18.40478	.5203123	.0299770
#2	148.6590	.2194646	1.567115	18.45141	.5232104	.0290115
#3	149.0439	.2195657	1.556696	18.50334	.5232839	.0291827

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2814-17DLX5 Acquired: 8/14/2025 15:15:10 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0012722	2.385776	F 34.20847	5.997792	F 66.17811	.1274272
Stddev	.0003202	.000991	.11135	.063757	.87604	.0011546
%RSD	25.17289	.0415320	.3255085	1.063000	1.323768	.9060749
#1	.0015515	2.384683	34.11281	6.055066	66.79320	.1261409
#2	.0009227	2.386615	34.18191	6.009214	66.56605	.1277672
#3	.0013423	2.386030	34.33071	5.929097	65.17508	.1283737

Elem	Sr4077
Units	ppm
Avg	.1007231
Stddev	.0002897
%RSD	.2876195
#1	.1010555
#2	.1005887
#3	.1005250

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5741.516	102255.4	12780.42	4314.548	6432.194
Stddev	7.609	315.1	47.28	10.705	18.192
%RSD	.1325220	.3081688	.3699351	.2481072	.2828262
#1	5748.688	102603.9	12827.06	4305.608	6447.239
#2	5733.535	102172.0	12732.53	4311.625	6411.976
#3	5742.326	101990.5	12781.67	4326.410	6437.368

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2814-22 Acquired: 8/14/2025 15:19:13 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0020481	.0000819	.0075584	.0002256	.0012201	.8188757	.0680922
Stddev	.0020697	.0010287	.0008578	.0019886	.0008977	.0094843	.0021812
%RSD	101.0569	1256.341	11.34891	881.3550	73.57390	1.158208	3.203257
#1	-.000216	-.000647	.0070678	.0022657	.0006001	.8271429	.0706107
#2	.003842	.001259	.0085489	.0001184	.0008107	.8085218	.0668572
#3	.002519	-.000366	.0070586	-.001707	.0022495	.8209623	.0668088

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000154	.0002394	43.66693	.0036210	.0001351	.0056971	1.652325
Stddev	.0000364	.0000678	.43991	.0005560	.0001521	.0003989	.009960
%RSD	236.8137	28.33122	1.007429	15.35436	112.5366	7.001905	.6028156
#1	-.000018	.0002402	44.17349	.0032831	.0000871	.0053179	1.648781
#2	.000054	.0001712	43.44635	.0042626	.0000129	.0056602	1.663572
#3	.000010	.0003068	43.38094	.0033172	.0003054	.0061132	1.644620

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0404055	24.52734	.0015877	.0008233	143.4595	.0045219	.0312375
Stddev	.0004047	.30899	.0003110	.0001183	.4047	.0021529	.0001584
%RSD	1.001472	1.259774	19.58791	14.36502	.2821186	47.61155	.5069360
#1	.0408691	24.84666	.0016507	.0008014	142.9947	.0067774	.0311823
#2	.0402244	24.50551	.0018623	.0009509	143.7340	.0042992	.0314160
#3	.0401231	24.22984	.0012500	.0007175	143.6498	.0024889	.0311141

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	29.08499	.1614927	.0030528	-.016043	.0249332	13.47646	.9724078
Stddev	.03920	.0023920	.0002259	.000419	.0010919	.02961	.0020895
%RSD	.1347759	1.481176	7.400265	2.611274	4.379475	.2197119	.2148797
#1	29.04243	.1642520	.0030046	-.015575	.0240994	13.48742	.9734071
#2	29.11962	.1600060	.0032990	-.016169	.0245310	13.44293	.9700063
#3	29.09293	.1602202	.0028549	-.016384	.0261692	13.49902	.9738100

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2814-22 Acquired: 8/14/2025 15:19:13 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**4.448379**	**-.009655**	**.3732710**
Stddev	.000685	.001452	.0027976
%RSD	.0154097	15.03711	.7494864
#1	4.447816	-.011110	.3764934
#2	4.448179	-.009648	.3718562
#3	4.449143	-.008206	.3714633

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5400.996**	**96455.00**	**11732.74**	**4014.763**	**6629.153**
Stddev	4.140	421.17	166.52	23.635	17.761
%RSD	.0766570	.4366504	1.419246	.5886953	.2679273
#1	5396.893	95970.46	11540.51	3990.837	6608.690
#2	5405.172	96733.34	11825.07	4015.358	6640.567
#3	5400.921	96661.21	11832.65	4038.095	6638.204

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2814-23 Acquired: 8/14/2025 15:23:28 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0240815	.0003590	.0560720	.0023988	.0036556	20.46146
Stddev	.0013525	.0025753	.0010114	.0012287	.0020486	.02442
%RSD	5.616417	717.4103	1.803804	51.21973	56.04128	.1193249
#1	.0226116	.0011298	.0568949	.0029662	.0059403	20.43643
#2	.0243592	.0024608	.0563781	.0032412	.0019822	20.46273
#3	.0252735	-.002514	.0549428	.0009890	.0030443	20.48521

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0621581	.0008793	.0011536	37.74388	.0298778	.0047034
Stddev	.0004237	.0000154	.0000686	.05052	.0002735	.0001629
%RSD	.6817046	1.755204	5.945304	.1338555	.9153383	3.462661
#1	.0617562	.0008877	.0012207	37.68690	.0297910	.0046778
#2	.0621175	.0008615	.0010836	37.78321	.0301842	.0048776
#3	.0626007	.0008887	.0011565	37.76153	.0296583	.0045549

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0426491	18.08672	.2693819	15.12997	.0134930	.0020671
Stddev	.0002297	.07400	.0008690	.06158	.0003669	.0001917
%RSD	.5386197	.4091273	.3225829	.4069959	2.719030	9.271920
#1	.0424075	18.04876	.2703450	15.05961	.0131152	.0022877
#2	.0428648	18.17199	.2691441	15.15627	.0135158	.0019712
#3	.0426751	18.03941	.2686566	15.17404	.0138479	.0019423

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	89.80201	.0386744	.1869602	11.51882	.1633341	.0031957
Stddev	.32108	.0021004	.0012006	.05802	.0008396	.0001401
%RSD	.3575381	5.431013	.6421680	.5036799	.5140288	4.384983
#1	89.85365	.0379814	.1855744	11.57739	.1624139	.0033530
#2	90.09414	.0410337	.1876838	11.51770	.1640585	.0030841
#3	89.45825	.0370080	.1876225	11.46137	.1635298	.0031501

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2814-23 Acquired: 8/14/2025 15:23:28 Type: Unk
Method: 6010-200.7 NEW(v98) 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	-.014670	.5759426	F 27.61583	2.782714	5.945609	.0036300
Stddev	.000426	.0016995	.05752	.004539	.016859	.0019933
%RSD	2.906353	.2950791	.2082754	.1631178	.2835584	54.91155
#1	-.015089	.5740002	27.68210	2.777991	5.936826	.0033269
#2	-.014236	.5766719	27.58660	2.783106	5.934954	.0018056
#3	-.014685	.5771558	27.57880	2.787044	5.965046	.0057575

Elem	Sr4077
Units	ppm
Avg	.1617317
Stddev	.0002857
%RSD	.1766332
#1	.1615986
#2	.1620596
#3	.1615368

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5560.527	99159.46	12149.22	4171.997	6791.157
Stddev	3.673	111.89	34.53	10.055	3.549
%RSD	.0660557	.1128427	.2841944	.2410012	.0522644
#1	5563.995	99047.36	12177.95	4179.607	6787.081
#2	5556.679	99271.14	12158.79	4175.784	6792.826
#3	5560.908	99159.90	12110.92	4160.598	6793.565

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2815-01 Acquired: 8/14/2025 15:27:37 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0565352	-.001053	.3532355	.0088579	.0014412	107.3299
Stddev	.0023970	.002342	.0004842	.0014777	.0022497	.3846
%RSD	4.239799	222.4517	.1370741	16.68183	156.0925	.3582987
#1	.0579269	.001609	.3528589	.0071967	.0006825	107.0309
#2	.0537675	-.001968	.3530659	.0093512	.0039722	107.1950
#3	.0579114	-.002800	.3537816	.0100258	-.000331	107.7637

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2008060	.0043480	.0050632	57.28931	.1794203	.0365315
Stddev	.0007060	.0000319	.0000856	.18300	.0002625	.0001106
%RSD	.3515787	.7347721	1.691288	.3194310	.1463066	.3026219
#1	.2016038	.0043604	.0049962	57.14335	.1793798	.0366569
#2	.2005523	.0043117	.0050336	57.22997	.1797007	.0364895
#3	.2002619	.0043718	.0051597	57.49462	.1791803	.0364481

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1453335	116.9640	.5104626	55.85419	.0884110	.0079761
Stddev	.0001288	.4530	.0003782	.26624	.0006827	.0002635
%RSD	.0886009	.3873241	.0740808	.4766627	.7722111	3.303065
#1	.1452056	117.3949	.5101906	55.66663	.0891965	.0082788
#2	.1454631	117.0053	.5103028	55.73703	.0879600	.0077987
#3	.1453318	116.4917	.5108944	56.15892	.0880765	.0078508

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	703.7469	.2293501	.6735897	67.84187	.7383080	.0205925
Stddev	6.0099	.0004461	.0011587	.23562	.0010495	.0003487
%RSD	.8539887	.1945298	.1720226	.3473059	.1421520	1.693337
#1	710.6070	.2289207	.6730446	67.96888	.7387019	.0206845
#2	699.4096	.2293183	.6728040	67.98674	.7371185	.0202070
#3	701.2239	.2298113	.6749204	67.57000	.7391036	.0208860

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2815-01 Acquired: 8/14/2025 15:27:37 Type: Unk
Method: 6010-200.7 NEW(v98) 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	-.011405	3.109903	F 116.9198	5.943075	F 74.48156	.1359419
Stddev	.000286	.011923	.0911	.009799	.27582	.0011447
%RSD	2.504547	.3833867	.0779062	.1648871	.3703176	.8420691
#1	-.011191	3.096136	116.9623	5.953338	74.16991	.1372246
#2	-.011295	3.116949	116.9820	5.933816	74.58053	.1355769
#3	-.011729	3.116622	116.8153	5.942071	74.69423	.1350242

Elem	Sr4077
Units	ppm
Avg	.4122308
Stddev	.0004741
%RSD	.1150059
#1	.4116927
#2	.4125869
#3	.4124129

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5326.859	94519.94	12765.43	3984.551	5736.340
Stddev	9.733	90.12	57.92	11.283	8.409
%RSD	.1827247	.0953430	.4537209	.2831575	.1465950
#1	5328.743	94433.95	12802.58	3996.473	5742.243
#2	5335.513	94613.68	12795.02	3983.139	5740.065
#3	5316.322	94512.18	12698.69	3974.040	5726.712

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCV04 Acquired: 8/14/2025 15:58:09 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**5.091239**	**5.205269**	**4.810086**	**5.211242**	**5.182375**	**9.866869**	**9.791639**
Stddev	.008802	.138034	.001888	.028938	.011414	.023901	.084824
%RSD	.1728854	2.651819	.0392532	.5553069	.2202489	.2422357	.8662925
#1	5.081255	5.098068	4.809673	5.186353	5.170829	9.855954	9.755149
#2	5.094588	5.156719	4.808439	5.204379	5.182643	9.850374	9.731167
#3	5.097876	5.361018	4.812147	5.242995	5.193653	9.894279	9.888602

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2315329**	**2.413055**	**24.23797**	**1.001789**	**2.426567**	**1.255007**	**5.209976**
Stddev	.0012500	.000638	.05866	.001869	.000097	.001968	.048177
%RSD	.5398844	.0264316	.2420039	.1865195	.0039787	.1568446	.9247037
#1	.2309713	2.412319	24.19548	.999651	2.426582	1.252908	5.173154
#2	.2306623	2.413449	24.21355	1.003109	2.426655	1.256811	5.264500
#3	.2329653	2.413396	24.30490	1.002608	2.426464	1.255303	5.192274

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.407048**	**24.00627**	**2.438274**	**1.257796**	**25.09967**	**2.473524**	**2.580288**
Stddev	.005488	.12529	.001938	.001225	.16353	.008099	.007750
%RSD	.2279798	.5219249	.0794658	.0974056	.6515324	.3274098	.3003427
#1	2.400821	23.92343	2.438837	1.256382	25.10743	2.471136	2.574638
#2	2.409151	23.94496	2.439869	1.258494	25.25918	2.466888	2.589123
#3	2.411174	24.15041	2.436118	1.258513	24.93240	2.482548	2.577104

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**26.48879**	**4.615020**	**5.148940**	**4.865328**	**4.931188**	**5.279719**	**4.653831**
Stddev	.19783	.037780	.014139	.008511	.015143	.023656	.004056
%RSD	.7468305	.8186340	.2746052	.1749378	.3070861	.4480476	.0871486
#1	26.37815	4.595789	5.133156	4.862980	4.915181	5.275826	4.649800
#2	26.71719	4.590725	5.153218	4.858236	4.933100	5.305079	4.653782
#3	26.37104	4.658547	5.160446	4.874766	4.945285	5.258251	4.657911

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCV04 Acquired: 8/14/2025 15:58:09 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**4.858388**	**4.805736**	**4.928534**
Stddev	.024092	.010999	.068073
%RSD	.4958766	.2288670	1.381208
#1	4.842569	4.793642	4.850024
#2	4.846479	4.815140	4.964455
#3	4.886114	4.808425	4.971123

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5528.587**	**98071.32**	**11889.89**	**4119.864**	**6748.720**
Stddev	23.286	184.81	98.23	12.410	15.568
%RSD	.4211996	.1884475	.8261850	.3012188	.2306782
#1	5551.541	98283.63	11929.07	4130.826	6763.560
#2	5504.981	97983.90	11962.48	4106.391	6732.514
#3	5529.239	97946.44	11778.11	4122.375	6750.085

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCB04 Acquired: 8/14/2025 16:02:18 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.000387**	**-.001271**	**.0000375**	**-.002513**	**.0006442**	**-.006006**	**-.009450**
Stddev	.002271	.001425	.0005098	.001114	.0015734	.006387	.000816
%RSD	587.2929	112.0995	1361.432	44.32010	244.2493	106.3546	8.639516
#1	.001655	-.000664	.0006253	-.003705	.0023653	-.005537	-.009757
#2	-.002832	-.002900	-.000283	-.002335	-.000720	.000134	-.010069
#3	.000017	-.000250	-.000230	-.001499	.000287	-.012614	-.008525

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000034**	**.0000243**	**.0141263**	**.0004936**	**-.000169**	**-.000110**	**.0023195**
Stddev	.000050	.0000202	.0069767	.0001021	.000117	.000388	.0013213
%RSD	148.1989	82.86081	49.38837	20.68110	69.65402	352.2736	56.96315
#1	-.000076	.0000054	.0070500	.0004718	-.000159	-.000552	.0014295
#2	.000021	.0000220	.0209990	.0004041	-.000056	.000180	.0038377
#3	-.000047	.0000456	.0143299	.0006048	-.000291	.000041	.0016913

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000916**	**.0075759**	**.0002725**	**.0008765**	**.5051759**	**.0005797**	**.0007897**
Stddev	.0003187	.0115526	.0002303	.0003211	.0201361	.0013902	.0001076
%RSD	348.0783	152.4915	84.53669	36.63511	3.985958	239.8074	13.62168
#1	.0001397	-.000178	.0003332	.0006782	.4821103	-.000747	.0008889
#2	.0003835	.020853	.0004663	.0007044	.5141703	.000461	.0008050
#3	-.000248	.002052	.0000179	.0012470	.5192473	.002025	.0006754

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4003878**	**.0095149**	**.0004594**	**-.013944**	**.0007333**	**.0169905**	**-.000994**
Stddev	.0199747	.0005624	.0000839	.000614	.0013177	.0092490	.001699
%RSD	4.988844	5.910420	18.25921	4.399664	179.7070	54.43594	171.0291
#1	.4226763	.0099201	.0005343	-.013259	.0021653	.0197187	-.002381
#2	.3841047	.0097518	.0003688	-.014442	-.000428	.0245685	.000902
#3	.3943825	.0088729	.0004750	-.014132	.000463	.0066844	-.001502

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCB04 Acquired: 8/14/2025 16:02:18 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0035333	.0068665	-.000027
Stddev	.0016847	.0008056	.000029
%RSD	47.68129	11.73167	106.7305
#1	.0054379	.0066381	-.000060
#2	.0029243	.0061998	-.000007
#3	.0022378	.0077616	-.000014

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5693.353	101084.1	11633.61	4221.058	7505.411
Stddev	14.734	202.2	38.13	11.422	21.178
%RSD	.2587859	.2000611	.3277659	.2706043	.2821644
#1	5687.366	101003.8	11672.82	4227.669	7493.856
#2	5710.138	100934.3	11631.37	4207.868	7529.852
#3	5682.556	101314.1	11596.65	4227.636	7492.524

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2815-11 Acquired: 8/14/2025 16:06:36 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0748352	-.001173	.1992513	.0045185	.0011063	56.42529
Stddev	.0008615	.001450	.0018940	.0009036	.0012886	.03761
%RSD	1.151198	123.6198	.9505359	19.99748	116.4718	.0666482
#1	.0738573	-.000849	.1988027	.0041381	.0013433	56.44853
#2	.0754822	.000088	.1976220	.0055501	.0022600	56.38191
#3	.0751662	-.002758	.2013293	.0038673	-.000284	56.44545

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2268818	.0061979	.0026146	38.50730	.1095624	.0147473
Stddev	.0006689	.0000568	.0000811	.07951	.0004820	.0001881
%RSD	.2947996	.9162501	3.101722	.2064886	.4399175	1.275233
#1	.2276021	.0062530	.0026688	38.58651	.1091290	.0149495
#2	.2262803	.0062013	.0025213	38.50788	.1100815	.0147148
#3	.2267631	.0061395	.0026535	38.42749	.1094769	.0145776

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2386430	62.20659	.4958017	27.11319	.0448741	.0040097
Stddev	.0005087	.28610	.0014998	.03673	.0003612	.0004762
%RSD	.2131427	.4599112	.3025016	.1354726	.8049865	11.87702
#1	.2381818	62.37073	.4965992	27.11808	.0448187	.0044170
#2	.2385588	62.37280	.4967344	27.14723	.0452599	.0041259
#3	.2391886	61.87624	.4940717	27.07426	.0445438	.0034861

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	117.7961	.1207738	.6570086	24.40206	.2650387	.0074790
Stddev	.4372	.0016398	.0018485	.08315	.0016561	.0002869
%RSD	.3711534	1.357759	.2813445	.3407408	.6248426	3.836370
#1	118.0489	.1218198	.6549902	24.48365	.2659657	.0077822
#2	118.0481	.1188839	.6574166	24.40509	.2660238	.0072117
#3	117.2913	.1216176	.6586189	24.31744	.2631268	.0074431

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2815-11 Acquired: 8/14/2025 16:06:36 Type: Unk
Method: 6010-200.7 NEW(v98) 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	-.014952	1.581533	F 70.02855	4.641695	15.27565	.0576091
Stddev	.000688	.002616	.19597	.018379	.06155	.0008394
%RSD	4.600948	.1654056	.2798496	.3959641	.4029049	1.457021
#1	-.015196	1.584323	70.04156	4.661175	15.32513	.0574614
#2	-.015485	1.579136	70.21769	4.624661	15.20673	.0568533
#3	-.014175	1.581139	69.82639	4.639250	15.29509	.0585125

Elem	Sr4077
Units	ppm
Avg	.2533606
Stddev	.0003617
%RSD	.1427544
#1	.2536372
#2	.2529513
#3	.2534932

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5588.640	99146.67	12377.69	4177.904	6561.999
Stddev	6.647	105.16	21.88	6.471	7.511
%RSD	.1189309	.1060694	.1767667	.1548887	.1144646
#1	5588.130	99040.63	12368.87	4179.401	6569.131
#2	5595.527	99148.45	12402.60	4183.496	6562.706
#3	5582.263	99250.93	12361.60	4170.816	6554.159

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2815-20 Acquired: 8/14/2025 16:10:40 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0219923	.0014259	.0833571	.0020685	.0012171	24.98818
Stddev	.0023822	.0002449	.0004467	.0031513	.0024634	.03471
%RSD	10.83215	17.17539	.5359298	152.3441	202.3900	.1389211
#1	.0219954	.0017015	.0829071	-.000736	.0040099	25.02366
#2	.0243730	.0013428	.0838005	.001463	.0002884	24.98658
#3	.0196085	.0012333	.0833637	.005479	-.000647	24.95429

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1080696	.0054056	.0025182	76.10581	.0800970	.0083801
Stddev	.0006302	.0000126	.0000665	.17101	.0003407	.0000943
%RSD	.5831742	.2340888	2.641739	.2247008	.4253705	1.125144
#1	.1074838	.0054066	.0025465	76.12733	.0802203	.0084784
#2	.1079888	.0054177	.0024423	75.92507	.0803588	.0082904
#3	.1087364	.0053925	.0025660	76.26505	.0797117	.0083714

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0539224	28.96528	.2676475	11.86574	.0336417	.0024172
Stddev	.0002666	.08441	.0008707	.07393	.0003765	.0001116
%RSD	.4944538	.2914054	.3253294	.6230872	1.119074	4.617545
#1	.0536200	28.89266	.2671935	11.91306	.0332783	.0022885
#2	.0540237	28.94529	.2686514	11.78054	.0336167	.0024878
#3	.0541235	29.05788	.2670975	11.90361	.0340301	.0024753

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	29.25300	.0637814	.3395026	10.99310	.1021016	.0070533
Stddev	.08741	.0023202	.0002605	.03324	.0009951	.0001913
%RSD	.2988143	3.637693	.0767246	.3023617	.9746257	2.711603
#1	29.35119	.0656818	.3392166	11.02781	.1011785	.0070840
#2	29.18366	.0644667	.3397263	10.98993	.1019706	.0072273
#3	29.22416	.0611958	.3395649	10.96156	.1031558	.0068485

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2815-20 Acquired: 8/14/2025 16:10:40 Type: Unk
Method: 6010-200.7 NEW(v98) 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	-.016495	.6621279	F 45.55595	2.012158	11.65105	.0197793
Stddev	.000082	.0013825	.06694	.003056	.02486	.0012173
%RSD	.4969474	.2088005	.1469338	.1518994	.2133430	6.154244
#1	-.016587	.6630101	45.48894	2.015176	11.67933	.0211678
#2	-.016428	.6628390	45.62282	2.012232	11.63269	.0188958
#3	-.016472	.6605345	45.55608	2.009065	11.64111	.0192744

Elem	Sr4077
Units	ppm
Avg	.3996071
Stddev	.0006872
%RSD	.1719582
#1	.4003997
#2	.3992427
#3	.3991789

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5580.543	99864.09	12307.10	4163.881	6821.111
Stddev	8.895	129.83	47.92	14.739	3.584
%RSD	.1593964	.1300021	.3893608	.3539703	.0525405
#1	5589.407	99988.91	12328.49	4151.213	6824.956
#2	5580.605	99873.57	12340.61	4160.372	6817.863
#3	5571.617	99729.78	12252.22	4180.057	6820.513

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2815-25 Acquired: 8/14/2025 16:14:48 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0235998	-.000436	.0852755	.0007801	.0033237	26.27676
Stddev	.0009303	.001538	.0018048	.0010877	.0017776	.04422
%RSD	3.941815	352.6395	2.116403	139.4290	53.48208	.1682917
#1	.0227738	-.001959	.0867815	.0008651	.0022373	26.22664
#2	.0246075	.001116	.0857700	.0018228	.0023588	26.29335
#3	.0234180	-.000466	.0832750	-.000348	.0053751	26.31028

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1131779	.0055665	.0026027	77.66342	.0837912	.0088290
Stddev	.0002655	.0000584	.0000774	.27947	.0002111	.0000773
%RSD	.2345632	1.049594	2.972328	.3598495	.2519509	.8750528
#1	.1129833	.0056156	.0026662	77.34593	.0840339	.0088352
#2	.1130701	.0055019	.0026253	77.77214	.0836891	.0087488
#3	.1134804	.0055820	.0025166	77.87219	.0836505	.0089029

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0562180	30.32269	.2764289	12.13920	.0350844	.0022891
Stddev	.0001273	.21346	.0016264	.02728	.0001712	.0000922
%RSD	.2265091	.7039561	.5883544	.2247486	.4878186	4.029014
#1	.0560709	30.08266	.2750418	12.10959	.0349660	.0022592
#2	.0562903	30.39421	.2760261	12.14470	.0350065	.0022156
#3	.0562927	30.49121	.2782188	12.16331	.0352806	.0023926

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	30.16892	.0666047	.3492542	11.34592	.1050855	.0069142
Stddev	.17654	.0013275	.0012815	.03612	.0006458	.0000544
%RSD	.5851552	1.993138	.3669339	.3183636	.6145657	.7874119
#1	29.98375	.0652933	.3477749	11.30503	.1044204	.0068526
#2	30.18769	.0665729	.3499592	11.37349	.1051258	.0069560
#3	30.33532	.0679478	.3500284	11.35925	.1057102	.0069340

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2815-25 Acquired: 8/14/2025 16:14:48 Type: Unk
Method: 6010-200.7 NEW(v98) 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	-.016016	.6983031	F 47.46522	2.058551	11.96989	.0222929
Stddev	.000496	.0021769	.27764	.004477	.06305	.0002781
%RSD	3.099872	.3117471	.5849396	.2174682	.5267177	1.247544
#1	-.016481	.6966154	47.14522	2.053934	12.04264	.0220252
#2	-.016074	.6975337	47.64211	2.058846	11.93116	.0225804
#3	-.015493	.7007603	47.60833	2.062873	11.93587	.0222731

Elem	Sr4077
Units	ppm
Avg	.4081616
Stddev	.0014091
%RSD	.3452375
#1	.4075640
#2	.4071498
#3	.4097711

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5592.162	99742.94	12273.98	4185.762	6828.796
Stddev	7.276	206.35	43.60	5.338	16.425
%RSD	.1301065	.2068833	.3552396	.1275282	.2405259
#1	5586.136	99929.32	12253.28	4187.192	6814.037
#2	5590.106	99778.30	12324.08	4190.240	6825.861
#3	5600.245	99521.19	12244.59	4179.855	6846.491

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2815-26 Acquired: 8/14/2025 16:18:55 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.003043**	**-.001228**	**-.000043**	**.0016271**	**.0018905**	**-.007404**	**-.007518**
Stddev	.001410	.001198	.001206	.0011522	.0007671	.001836	.001303
%RSD	46.32076	97.51453	2801.843	70.81020	40.57607	24.80109	17.33405
#1	-.002292	-.002103	-.001435	.0022909	.0027484	-.005432	-.006360
#2	-.002168	-.001718	.000657	.0022937	.0016523	-.009064	-.008929
#3	-.004669	.000137	.000649	.0002967	.0012708	-.007716	-.007265

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000186**	**.0000028**	**.0476487**	**.0000685**	**-.000401**	**-.000438**	**.0020554**
Stddev	.000021	.0000195	.0121060	.0002840	.000141	.000237	.0057517
%RSD	11.03842	689.6641	25.40671	414.4919	35.28994	54.00946	279.8308
#1	-.000198	.0000227	.0376334	.0000592	-.000288	-.000308	.0010114
#2	-.000163	.0000019	.0442111	-.000211	-.000354	-.000712	-.003103
#3	-.000198	-.000016	.0611018	.000357	-.000560	-.000296	.008258

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0004661**	**.0039589**	**-.000203**	**.0008989**	**-.097692**	**-.000321**	**.0030520**
Stddev	.0000959	.0168327	.000076	.0001276	.001500	.002044	.0000962
%RSD	20.57970	425.1897	37.33998	14.19074	1.535435	637.1902	3.153275
#1	.0003917	.0203514	-.000224	.0008089	-.095969	-.001605	.0029576
#2	.0004321	-.013282	-.000266	.0008430	-.098709	.002036	.0030483
#3	.0005743	.004807	-.000119	.0010449	-.098397	-.001393	.0031500

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0074510**	**.0004919**	**.0004233**	**-.015673**	**.0012875**	**.0074626**	**.0035620**
Stddev	.0367598	.0001478	.0000642	.000617	.0009199	.0080483	.0011652
%RSD	493.3511	30.04523	15.15390	3.935997	71.44920	107.8490	32.71177
#1	-.030638	.0005150	.0004709	-.015619	.0006412	.0011539	.0048770
#2	.010271	.0006269	.0004487	-.016315	.0023407	.0047071	.0026581
#3	.042719	.0003340	.0003503	-.015084	.0008806	.0165267	.0031509

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2815-26 Acquired: 8/14/2025 16:18:55 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0100569	-.006460	-.000032
Stddev	.0021309	.001534	.000040
%RSD	21.18834	23.75020	123.4513
#1	.0125143	-.004712	.000012
#2	.0087201	-.007088	-.000065
#3	.0089363	-.007581	-.000044

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5804.358	105671.7	11967.79	4311.526	7746.384
Stddev	6.673	272.7	25.16	20.909	6.961
%RSD	.1149632	.2581085	.2102601	.4849468	.0898659
#1	5801.352	105382.2	11990.35	4325.051	7746.120
#2	5812.005	105708.9	11972.37	4287.443	7753.474
#3	5799.716	105923.9	11940.65	4322.082	7739.559

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2821-05 Acquired: 8/14/2025 16:23:16 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0243442	.0044831	.0104582	.0028700	.0069288	.7977559
Stddev	.0007826	.0009441	.0016845	.0017995	.0012298	.0114700
%RSD	3.214895	21.05979	16.10651	62.70104	17.74893	1.437780
#1	.0252375	.0053573	.0085187	.0008063	.0079047	.7881874
#2	.0237789	.0034819	.0113013	.0041119	.0055475	.8104707
#3	.0240162	.0046100	.0115546	.0036919	.0073342	.7946098

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9506210	-.000068	.0000924	138.1940	.0021169	.0010942
Stddev	.0035190	.000064	.0000452	.3605	.0001682	.0000515
%RSD	.3701779	94.99761	48.94886	.2608357	7.945452	4.706943
#1	.9545601	-.000002	.0000726	138.4965	.0022976	.0010476
#2	.9495151	-.000131	.0000604	137.7952	.0019650	.0011495
#3	.9477878	-.000070	.0001441	138.2905	.0020879	.0010854

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0050414	1.925624	.6023131	21.45769	.0048908	.0012790
Stddev	.0002938	.009269	.0020837	.05812	.0000938	.0002992
%RSD	5.826866	.4813349	.3459540	.2708513	1.918455	23.39570
#1	.0047249	1.922444	.6046900	21.50101	.0048054	.0010817
#2	.0053052	1.918364	.6008013	21.39164	.0049912	.0011320
#3	.0050942	1.936065	.6014479	21.48041	.0048757	.0016233

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	665.9786	.0245319	.0125254	18.39186	.5843123	.0502821
Stddev	5.1593	.0018524	.0001284	.11062	.0049388	.0001291
%RSD	.7746883	7.550833	1.024813	.6014725	.8452277	.2567222
#1	670.7859	.0244599	.0124571	18.28093	.5899933	.0504222
#2	660.5278	.0264192	.0124457	18.39249	.5819038	.0501679
#3	666.6221	.0227166	.0126735	18.50217	.5810399	.0502563

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2821-05 Acquired: 8/14/2025 16:23:16 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.013079**	**.0134203**	F **20.04536**	**.1812955**	**7.748968**	**-.014363**
Stddev	.000397	.0004328	.11512	.0045378	.030190	.001119
%RSD	3.036759	3.224833	.5743073	2.503007	.3896034	7.792680
#1	-.013458	.0136037	19.94970	.1760627	7.716658	-.015652
#2	-.012666	.0137312	20.01325	.1841465	7.753787	-.013796
#3	-.013114	.0129260	20.17313	.1836773	7.776459	-.013641

Elem	Sr4077
Units	ppm
Avg	**1.143160**
Stddev	.002720
%RSD	.2379445
#1	1.145870
#2	1.143182
#3	1.140429

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**4994.031**	**89741.39**	**11784.70**	**3731.419**	**5820.068**
Stddev	8.042	190.58	64.09	8.355	4.339
%RSD	.1610263	.2123713	.5438231	.2239145	.0745554
#1	4985.722	89680.87	11710.71	3737.639	5819.071
#2	5001.775	89954.89	11822.93	3734.696	5824.819
#3	4994.597	89588.42	11820.46	3721.922	5816.314

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2821-08 Acquired: 8/14/2025 16:27:38 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.000703**	**.0028602**	**-.001164**	**.0015668**	**.0038354**	**.2807029**
Stddev	.002376	.0003845	.000545	.0030863	.0012513	.0180291
%RSD	337.8576	13.44425	46.87402	196.9850	32.62373	6.422844
#1	.001565	.0033023	-.001368	.0050925	.0052562	.2601021
#2	-.000501	.0026034	-.001577	.0002528	.0028976	.2884041
#3	-.003174	.0026749	-.000545	-.000645	.0033526	.2936024

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5392230**	**-.000368**	**.0003404**	**163.4147**	**.0012763**	**.0007468**
Stddev	.0028557	.000047	.0000139	.5227	.0001506	.0001401
%RSD	.5295984	12.74836	4.086765	.3198349	11.80240	18.75563
#1	.5361871	-.000399	.0003540	163.3138	.0013925	.0005887
#2	.5396264	-.000391	.0003409	162.9499	.0011061	.0008555
#3	.5418556	-.000314	.0003262	163.9805	.0013304	.0007962

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0065069**	**3.712539**	**4.294986**	**26.18069**	**.0022604**	**.0007856**
Stddev	.0003532	.009871	.021503	.18720	.0003560	.0001853
%RSD	5.428292	.2658813	.5006623	.7150443	15.74891	23.58247
#1	.0064295	3.707679	4.275358	26.16346	.0026710	.0006527
#2	.0061989	3.723898	4.291630	26.00269	.0020713	.0009972
#3	.0068924	3.706041	4.317970	26.37591	.0020389	.0007068

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1160.186**	**-.001417**	**1.303350**	**21.86823**	**3.071963**	**.0124817**
Stddev	15.520	.003672	.000477	.10861	.020184	.0001820
%RSD	1.337674	259.1064	.0365854	.4966392	.6570269	1.458337
#1	1169.336	-.000258	1.303255	21.80382	3.071082	.0125829
#2	1168.955	.001535	1.303867	21.99362	3.052235	.0122716
#3	1142.267	-.005529	1.302928	21.80724	3.092573	.0125907

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2821-08 Acquired: 8/14/2025 16:27:38 Type: Unk
Method: 6010-200.7 NEW(v98) 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	-.015267	.0020616	F 18.22625	.0977861	F 123.3071	-.026425
Stddev	.000694	.0005393	.04713	.0011681	.1262	.000408
%RSD	4.545298	26.16156	.2585801	1.194562	.1023549	1.543614
#1	-.015880	.0015717	18.24123	.0989597	123.4243	-.026024
#2	-.014514	.0019734	18.26407	.0977752	123.1735	-.026413
#3	-.015408	.0026396	18.17345	.0966235	123.3236	-.026839

Elem	Sr4077
Units	ppm
Avg	.8618744
Stddev	.0029316
%RSD	.3401365
#1	.8584900
#2	.8636243
#3	.8635089

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4729.398	84208.75	11393.83	3519.626	5450.331
Stddev	2.264	273.18	45.15	12.812	.853
%RSD	.0478686	.3244103	.3963049	.3640173	.0156477
#1	4731.998	83909.96	11383.10	3530.357	5450.949
#2	4727.865	84270.55	11443.38	3505.441	5450.687
#3	4728.331	84445.74	11355.00	3523.079	5449.358

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2837-01 Acquired: 8/14/2025 16:31:57 Type: Unk
Method: 6010-200.7 NEW(v98) 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	-.000612	.0027725	.0035835	.0008435	.0040073	.9354059
Stddev	.003815	.0015669	.0011886	.0013559	.0013358	.0058046
%RSD	623.4193	56.51741	33.16792	160.7416	33.33418	.6205447
#1	-.000994	.0019194	.0031537	.0007612	.0029802	.9341763
#2	-.004222	.0045809	.0049272	-.000469	.0035243	.9417269
#3	.003379	.0018172	.0026696	.002239	.0055175	.9303147

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4770064	-.000042	.0000143	529.6286	.0569228	.0039740
Stddev	.0019255	.000030	.0000618	6.4519	.0003914	.0002748
%RSD	.4036556	72.55607	433.1711	1.218186	.6876568	6.915845
#1	.4763813	-.000018	.0000668	532.8301	.0565926	.0036658
#2	.4754712	-.000031	-.000054	533.8536	.0573552	.0040625
#3	.4791668	-.000076	.000030	522.2021	.0568207	.0041937

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0274179	5.683863	.0069396	.5030078	.0477313	.0004164
Stddev	.0003889	.021156	.0004907	.0207137	.0002208	.0000599
%RSD	1.418568	.3722193	7.071690	4.117964	.4626385	14.37353
#1	.0272986	5.666988	.0063821	.5135920	.0479821	.0004839
#2	.0271025	5.677001	.0073061	.4791405	.0476456	.0003959
#3	.0278525	5.707598	.0071306	.5162909	.0475662	.0003695

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	237.1370	.0066658	.0145496	455.1391	.0709828	.2323806
Stddev	2.4359	.0015852	.0002506	2.2217	.0007282	.0006646
%RSD	1.027205	23.78078	1.722750	.4881289	1.025855	.2859828
#1	235.0074	.0080234	.0142612	456.2024	.0702074	.2323298
#2	239.7931	.0070502	.0146734	456.6293	.0710887	.2330691
#3	236.6106	.0049238	.0147143	452.5856	.0716522	.2317429

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2837-01 Acquired: 8/14/2025 16:31:57 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0028271	-.012560	8.670086	.0401811	F 262.3472	.1228581
Stddev	.0007653	.000709	.043152	.0064082	1.1781	.0025091
%RSD	27.07064	5.643222	.4977060	15.94823	.4490565	2.042233
#1	.0019473	-.011777	8.628985	.0331149	263.0555	.1235790
#2	.0031950	-.012745	8.666243	.0456158	262.9989	.1200676
#3	.0033390	-.013157	8.715031	.0418126	260.9873	.1249278

Elem	Sr4077
Units	ppm
Avg	7.441351
Stddev	.029731
%RSD	.3995356
#1	7.467018
#2	7.448262
#3	7.408773

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4845.993	87579.95	11433.55	3582.493	5717.060
Stddev	6.875	408.93	46.20	19.961	11.948
%RSD	.1418680	.4669239	.4041066	.5571872	.2089840
#1	4838.057	88045.86	11483.94	3600.996	5704.079
#2	4850.115	87280.50	11393.18	3561.339	5719.505
#3	4849.808	87413.50	11423.54	3585.145	5727.596

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2837-01DUP Acquired: 8/14/2025 16:36:44 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**.0005176**	**.0039287**	**.0036109**	**-.003236**	**.0058951**	**.9016336**
Stddev	.0005388	.0016881	.0006875	.002249	.0010699	.0029352
%RSD	104.0850	42.96787	19.03877	69.49494	18.14849	.3255419
#1	.0010532	.0019828	.0037079	-.005751	.0053728	.8983618
#2	-.000024	.0048038	.0042446	-.001418	.0071259	.9040355
#3	.000524	.0049996	.0028800	-.002538	.0051868	.9025037

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4526456**	**-.000025**	**-.000004**	**506.9390**	**.0540100**	**.0037747**
Stddev	.0030484	.000007	.000074	3.1256	.0001048	.0002179
%RSD	.6734564	29.21229	2010.426	.6165670	.1940797	5.771888
#1	.4557387	-.000033	.000016	509.0251	.0540293	.0040090
#2	.4496441	-.000019	.000059	508.4466	.0541038	.0037371
#3	.4525540	-.000022	-.000086	503.3453	.0538969	.0035781

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0258257**	**5.490307**	**.0065079**	**.4736849**	**.0452744**	**.0002167**
Stddev	.0001512	.034745	.0002912	.0280418	.0004413	.0003791
%RSD	.5853445	.6328452	4.474160	5.919931	.9746248	174.9773
#1	.0258165	5.451358	.0061850	.4877683	.0449722	.0004956
#2	.0259813	5.501446	.0067504	.4918936	.0450703	.0003694
#3	.0256794	5.518116	.0065883	.4413927	.0457808	-.000215

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**224.4899**	**.0067677**	**.0107447**	**433.3540**	**.0643067**	**.2222410**
Stddev	.5103	.0010086	.0001438	2.9742	.0007599	.0006835
%RSD	.2273078	14.90326	1.338509	.6863300	1.181625	.3075547
#1	224.0089	.0070548	.0108720	432.3638	.0650320	.2226537
#2	225.0252	.0056467	.0107734	436.6971	.0643718	.2214521
#3	224.4357	.0076016	.0105887	431.0012	.0635165	.2226173

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2837-01DUP Acquired: 8/14/2025 16:36:44 Type: Unk
Method: 6010-200.7 NEW(v98) 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	-.016748	-.012942	8.275377	.0384730	F 247.4088	.1148681
Stddev	.000353	.000758	.064865	.0011703	.2486	.0005681
%RSD	2.109798	5.859759	.7838317	3.041846	.1004797	.4945459
#1	-.016439	-.012131	8.202784	.0385906	247.6751	.1152484
#2	-.016673	-.013062	8.327648	.0372483	247.3685	.1142151
#3	-.017133	-.013633	8.295700	.0395800	247.1829	.1151409

Elem	Sr4077
Units	ppm
Avg	7.037833
Stddev	.064138
%RSD	.9113307
#1	7.111870
#2	6.999210
#3	7.002420

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4882.262	88342.12	11702.63	3612.105	5795.182
Stddev	2.232	111.73	129.68	10.862	2.701
%RSD	.0457157	.1264797	1.108163	.3007150	.0466142
#1	4880.537	88248.46	11553.57	3599.626	5796.611
#2	4884.783	88312.10	11789.59	3617.257	5796.869
#3	4881.467	88465.79	11764.72	3619.433	5792.067

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2837-01LX5 Acquired: 8/14/2025 16:41:26 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.000610**	**.0013588**	**-.000389**	**-.002969**	**-.002322**	**.2047498**
Stddev	.000860	.0007370	.001047	.003201	.001724	.0070503
%RSD	140.9382	54.23891	268.8634	107.8401	74.27727	3.443383
#1	-.000904	.0008005	-.001515	-.002704	-.000340	.2106723
#2	.000358	.0021942	-.000207	.000092	-.003480	.1969512
#3	-.001284	.0010818	.000555	-.006294	-.003145	.2066257

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0870861**	**-.000039**	**.0000297**	**108.8640**	**.0112163**	**.0006254**
Stddev	.0009044	.000032	.0000486	.1794	.0002528	.0000582
%RSD	1.038489	83.36613	163.4089	.1647790	2.254344	9.305829
#1	.0881123	-.000068	-.000008	109.0326	.0114031	.0006095
#2	.0864053	-.000043	.000085	108.6755	.0109286	.0005768
#3	.0867408	-.000004	.000012	108.8840	.0113172	.0006899

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0055706**	**1.093411**	**.0010734**	**.1110932**	**.0098233**	**.0010677**
Stddev	.0004425	.011540	.0001868	.0111245	.0001174	.0001272
%RSD	7.944171	1.055409	17.40660	10.01368	1.195348	11.91022
#1	.0050767	1.080796	.0009310	.0993921	.0097916	.0010133
#2	.0059311	1.103435	.0010042	.1215338	.0097249	.0012130
#3	.0057040	1.096001	.0012849	.1123537	.0099533	.0009768

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**41.47351**	**.0014352**	**.0029166**	**84.32401**	**.0141205**	**.0452301**
Stddev	.25532	.0022117	.0000499	.34984	.0002011	.0001393
%RSD	.6156329	154.1023	1.711313	.4148739	1.424345	.3080040
#1	41.36717	.0014092	.0029502	84.03363	.0141543	.0450726
#2	41.28853	.0036598	.0029403	84.22601	.0143026	.0452804
#3	41.76481	-.000763	.0028592	84.71240	.0139046	.0453372

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2837-01LX5 Acquired: 8/14/2025 16:41:26 Type: Unk
Method: 6010-200.7 NEW(v98) 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	-.000513	-.003035	1.607270	.0062285	F 52.45920	.0379220
Stddev	.000154	.000524	.006490	.0020371	.23823	.0005607
%RSD	29.93932	17.27402	.4037794	32.70640	.4541253	1.478465
#1	-.000397	-.003379	1.608516	.0085542	52.72243	.0385543
#2	-.000687	-.003294	1.613047	.0047606	52.39676	.0374855
#3	-.000455	-.002431	1.600248	.0053706	52.25841	.0377261

Elem	Sr4077
Units	ppm
Avg	1.518608
Stddev	.006720
%RSD	.4424922
#1	1.515731
#2	1.513805
#3	1.526287

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5391.345	97464.24	11968.65	4016.554	6633.411
Stddev	10.584	190.97	28.37	2.621	5.614
%RSD	.1963190	.1959436	.2370259	.0652613	.0846258
#1	5403.068	97676.96	11952.73	4018.467	6637.147
#2	5388.475	97307.54	11951.82	4017.630	6636.131
#3	5382.492	97408.21	12001.40	4013.566	6626.956

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2837-01MS Acquired: 8/14/2025 16:45:43 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.8600862	1.718191	.8882354	2.159626	.8729981	2.816105
Stddev	.0011176	.036341	.0028626	.006278	.0042557	.015045
%RSD	.1299457	2.115076	.3222830	.2906808	.4874847	.5342623
#1	.8610334	1.704342	.8852131	2.154125	.8723088	2.812748
#2	.8603716	1.759420	.8909058	2.158288	.8691292	2.832546
#3	.8588535	1.690810	.8885873	2.166464	.8775565	2.803022

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6390089	.1705970	.1897602	497.8931	.4435380	.1970176
Stddev	.0046707	.0011586	.0006880	2.9909	.0009498	.0005020
%RSD	.7309247	.6791583	.3625516	.6007182	.2141447	.2547796
#1	.6383743	.1715613	.1889669	500.7833	.4427164	.1966435
#2	.6439644	.1709181	.1901200	494.8107	.4433195	.1968213
#3	.6346879	.1693117	.1901937	498.0853	.4445779	.1975881

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3162861	8.685270	.2022725	2.206802	.5272807	.0680437
Stddev	.0002419	.027520	.0015677	.036197	.0011059	.0003603
%RSD	.0764678	.3168570	.7750342	1.640236	.2097420	.5295131
#1	.3160219	8.659356	.2018534	2.218359	.5260044	.0683071
#2	.3163400	8.714155	.2040071	2.235810	.5279542	.0681910
#3	.3164965	8.682299	.2009569	2.166239	.5278836	.0676331

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	229.5584	.2970745	.2349967	442.9647	.2954125	.6465524
Stddev	.6110	.0049263	.0002384	3.8332	.0036418	.0005656
%RSD	.2661675	1.658272	.1014435	.8653549	1.232769	.0874749
#1	228.9785	.2986405	.2352117	443.1275	.2982298	.6463773
#2	230.1964	.3010275	.2347403	439.0526	.2967075	.6460951
#3	229.5002	.2915556	.2350380	446.7139	.2913002	.6471849

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2837-01MS Acquired: 8/14/2025 16:45:43 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.6507833	.1810180	9.157723	5.801823	F 242.7781	.3217640
Stddev	.0023636	.0007653	.024745	.023480	.7784	.0012815
%RSD	.3631933	.4227713	.2702134	.4046938	.3206254	.3982732
#1	.6483902	.1801672	9.135006	5.779323	242.1658	.3212712
#2	.6508432	.1816500	9.154070	5.799972	243.6541	.3232188
#3	.6531163	.1812369	9.184091	5.826173	242.5142	.3208021

Elem	Sr4077
Units	ppm
Avg	7.278394
Stddev	.064433
%RSD	.8852572
#1	7.292693
#2	7.334476
#3	7.208013

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4866.851	88971.90	11831.14	3634.720	5775.513
Stddev	4.349	13.15	77.86	17.308	11.624
%RSD	.0893696	.0147852	.6580920	.4761858	.2012574
#1	4868.126	88967.37	11757.65	3652.497	5788.858
#2	4870.420	88986.72	11823.04	3633.742	5767.599
#3	4862.006	88961.61	11912.73	3617.922	5770.081

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCV05 Acquired: 8/14/2025 16:50:15 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**5.114708**	**4.710340**	**4.773488**	**5.225192**	**5.232513**	**9.711862**	**9.705590**
Stddev	.010041	.181250	.020237	.021441	.006194	.036775	.044734
%RSD	.1963064	3.847912	.4239372	.4103406	.1183827	.3786639	.4609070
#1	5.108402	4.559202	4.765103	5.203817	5.239619	9.738548	9.748060
#2	5.109435	4.660533	4.758791	5.225061	5.229667	9.727126	9.709819
#3	5.126286	4.911287	4.796569	5.246698	5.228254	9.669913	9.658893

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2283110**	**2.389477**	**23.77220**	**.9845878**	**2.412141**	**1.255871**	**5.155964**
Stddev	.0005825	.009302	.03364	.0017722	.006791	.002367	.030665
%RSD	.2551481	.3892978	.1415112	.1799957	.2815514	.1885045	.5947402
#1	.2283110	2.383846	23.78398	.9864979	2.409587	1.255283	5.185966
#2	.2288935	2.384371	23.79837	.9842688	2.406997	1.253853	5.124677
#3	.2277284	2.400214	23.73426	.9829968	2.419840	1.258477	5.157248

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.361207**	**23.49209**	**2.428214**	**1.254954**	**23.34016**	**2.449468**	**2.588129**
Stddev	.006207	.13764	.007289	.002017	.13439	.007149	.002971
%RSD	.2628753	.5859093	.3001728	.1607123	.5757819	.2918648	.1148012
#1	2.368359	23.54443	2.423096	1.257188	23.49052	2.456348	2.589525
#2	2.358041	23.59589	2.424987	1.254406	23.23175	2.449979	2.590145
#3	2.357222	23.33596	2.436560	1.253268	23.29821	2.442077	2.584717

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**26.50163**	**4.607680**	**5.140996**	**4.798819**	**4.853985**	**5.170420**	**4.605430**
Stddev	.09923	.009483	.009979	.023892	.011980	.036363	.020036
%RSD	.3744181	.2058091	.1941051	.4978670	.2468077	.7032810	.4350545
#1	26.61267	4.603262	5.133516	4.777713	4.867668	5.201721	4.628190
#2	26.42166	4.618566	5.137145	4.793986	4.848900	5.130533	4.597647
#3	26.47055	4.601213	5.152327	4.824758	4.845386	5.179007	4.590453

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCV05 Acquired: 8/14/2025 16:50:15 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**4.885101**	**4.692917**	**4.899423**
Stddev	.028042	.006610	.013246
%RSD	.5740388	.1408493	.2703683
#1	4.859013	4.700234	4.884562
#2	4.881534	4.691138	4.909989
#3	4.914756	4.687379	4.903719

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5508.273**	**100320.4**	**12161.45**	**4095.658**	**6755.987**
Stddev	6.647	346.4	26.00	13.211	7.035
%RSD	.1206708	.3453247	.2138310	.3225701	.1041360
#1	5500.624	99937.5	12147.83	4080.881	6756.147
#2	5512.653	100612.1	12145.08	4106.327	6762.941
#3	5511.540	100411.5	12191.44	4099.767	6748.873

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCB05 Acquired: 8/14/2025 17:00:15 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**-.000658**	**-.001408**	**-.000067**	**-.001777**	**-.000562**	**.0016345**
Stddev	.001119	.000579	.000957	.001747	.000576	.0099087
%RSD	169.9612	41.08190	1430.778	98.34131	102.5266	606.2334
#1	.000232	-.001136	-.001171	-.000034	-.001210	-.003889
#2	-.000293	-.002073	.000530	-.003529	-.000371	.013074
#3	-.001914	-.001016	.000440	-.001768	-.000105	-.004281

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.009753**	**.0000447**	**.0000147**	**.0054078**	**-.000129**	**-.000107**
Stddev	.000945	.0000087	.0000632	.0085716	.000130	.000113
%RSD	9.688176	19.45259	430.0954	158.5044	100.3331	105.8633
#1	-.010363	.0000379	.0000497	.0082938	.000020	.000024
#2	-.010232	.0000416	-.000058	-.004234	-.000210	-.000175
#3	-.008665	.0000545	.000053	.012164	-.000199	-.000169

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000283**	**.0024441**	**-.000378**	**.0046958**	**.0000494**	**.0013196**
Stddev	.000461	.0053989	.000092	.0146409	.0003482	.0002193
%RSD	163.0476	220.8954	24.36641	311.7877	705.0684	16.62097
#1	.000246	-.003695	-.000305	.0083537	-.000210	.0011439
#2	-.000602	.004574	-.000348	.0171609	-.000087	.0015654
#3	-.000493	.006453	-.000482	-.011427	.000445	.0012494

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4493008**	**-.002584**	**-.000061**	**.4421860**	**-.000433**	**.0001426**
Stddev	.0309146	.002102	.000325	.0529697	.000246	.0001808
%RSD	6.880602	81.33630	530.8672	11.97905	56.80984	126.7244
#1	.4141281	-.005004	.000136	.3811360	-.000458	-.000007
#2	.4616075	-.001521	.000117	.4694776	-.000175	.000091
#3	.4721668	-.001226	-.000437	.4759445	-.000665	.000344

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCB05 Acquired: 8/14/2025 17:00:15 Type: Unk
Method: 6010-200.7 NEW(v98) 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	-.000287	.0008311	.0042590	.0013334	F .0270164	.0011641
Stddev	.000427	.0002928	.0095369	.0013133	.0013954	.0007469
%RSD	148.8644	35.23710	223.9230	98.49551	5.165069	64.16588
#1	-.000365	.0005153	.0138699	.0015739	.0282076	.0003016
#2	-.000670	.0008842	-.005202	-.000084	.0273605	.0015867
#3	.000174	.0010937	.004109	.002510	.0254811	.0016039

Elem	Sr4077
Units	ppm
Avg	-.000063
Stddev	.000063
%RSD	99.07940
#1	-.000044
#2	-.000012
#3	-.000133

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5789.619	104207.0	12088.27	4328.957	7695.130
Stddev	6.899	219.4	50.78	9.333	14.213
%RSD	.1191657	.2105421	.4201084	.2156059	.1847069
#1	5788.420	103993.7	12135.44	4329.264	7690.978
#2	5783.398	104195.2	12094.87	4319.474	7683.455
#3	5797.039	104432.0	12034.51	4338.133	7710.957

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2837-01MSD Acquired: 8/14/2025 17:04:34 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**.8958620**	**1.772004**	**.9020326**	**2.264545**	**.9143061**	**2.899208**
Stddev	.0051446	.017213	.0022376	.002643	.0010806	.006739
%RSD	.5742571	.9713640	.2480615	.1167066	.1181911	.2324343
#1	.8922155	1.752865	.8994549	2.261510	.9132688	2.906920
#2	.8936241	1.776931	.9034745	2.266339	.9142241	2.896249
#3	.9017465	1.786216	.9031683	2.265785	.9154254	2.894454

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6724473**	**.1723068**	**.1933040**	**515.9136**	**.4513684**	**.2019243**
Stddev	.0020911	.0029025	.0003086	10.7060	.0003217	.0002319
%RSD	.3109730	1.684522	.1596727	2.075162	.0712704	.1148666
#1	.6705427	.1719592	.1929691	517.0006	.4517391	.2016806
#2	.6746850	.1753675	.1935770	526.0346	.4511617	.2021424
#3	.6721142	.1695937	.1933658	504.7055	.4512046	.2019498

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.3277882**	**9.139796**	**.1993660**	**2.259079**	**.5403237**	**.0704419**
Stddev	.0007436	.104090	.0022789	.022664	.0005798	.0008402
%RSD	.2268638	1.138862	1.143059	1.003230	.1073093	1.192715
#1	.3280245	9.121959	.1980633	2.234540	.5396543	.0713711
#2	.3269552	9.045778	.2019974	2.263471	.5406627	.0697358
#3	.3283850	9.251652	.1980374	2.279225	.5406543	.0702188

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**241.7269**	**.3055677**	**.2392248**	**464.0576**	**.3008991**	**.6723390**
Stddev	2.9487	.0005667	.0014740	4.9147	.0053202	.0017143
%RSD	1.219861	.1854720	.6161735	1.059062	1.768096	.2549756
#1	241.9562	.3055285	.2380913	460.7965	.3013531	.6713714
#2	244.5543	.3061530	.2408912	461.6659	.3059778	.6713273
#3	238.6702	.3050216	.2386919	469.7103	.2953665	.6743183

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2837-01MSD Acquired: 8/14/2025 17:04:34 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.6580772	.1847748	9.644965	5.902406	F 256.6118	.3406898
Stddev	.0027214	.0014268	.135178	.010278	.7429	.0022154
%RSD	.4135442	.7721923	1.401544	.1741296	.2895219	.6502702
#1	.6552795	.1856130	9.601168	5.912991	255.7971	.3409546
#2	.6607153	.1855841	9.537115	5.901761	256.7868	.3383539
#3	.6582368	.1831274	9.796611	5.892466	257.2517	.3427609

Elem	Sr4077
Units	ppm
Avg	7.505237
Stddev	.071261
%RSD	.9494869
#1	7.461315
#2	7.587459
#3	7.466938

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4772.103	89389.98	12048.37	3593.432	5696.337
Stddev	11.794	115.35	189.80	13.791	11.117
%RSD	.2471528	.1290452	1.575342	.3837942	.1951675
#1	4782.979	89338.19	12033.75	3609.163	5709.148
#2	4773.765	89522.15	11866.30	3587.709	5690.634
#3	4759.566	89309.58	12245.06	3583.422	5689.228

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2837-01A Acquired: 8/14/2025 17:09:05 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**.8586769**	**1.670175**	**.8613869**	**2.177982**	**.8964786**	**2.761432**
Stddev	.0035067	.038036	.0046050	.009105	.0027746	.009724
%RSD	.4083865	2.277361	.5346032	.4180256	.3094938	.3521184
#1	.8596176	1.641733	.8563777	2.184617	.8993992	2.751963
#2	.8616172	1.655411	.8623464	2.167602	.8938778	2.771392
#3	.8547957	1.713379	.8654365	2.181726	.8961587	2.760941

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6383446**	**.1629080**	**.1847726**	**496.1586**	**.4309728**	**.1924329**
Stddev	.0007150	.0004026	.0004826	3.3333	.0011753	.0004226
%RSD	.1119999	.2471214	.2611867	.6718309	.2727192	.2196223
#1	.6385569	.1625371	.1842511	498.9639	.4302249	.1919486
#2	.6375475	.1628506	.1848632	497.0382	.4303659	.1926229
#3	.6389293	.1633362	.1852034	492.4737	.4323275	.1927271

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.3123297**	**8.784790**	**.1881634**	**2.163687**	**.5182393**	**.0753241**
Stddev	.0003775	.021532	.0000257	.005537	.0017363	.0012330
%RSD	.1208824	.2451018	.0136706	.2558946	.3350403	1.636924
#1	.3122778	8.761575	.1881898	2.161258	.5164106	.0755872
#2	.3127306	8.804105	.1881621	2.159780	.5184420	.0764043
#3	.3119808	8.788691	.1881384	2.170023	.5198654	.0739808

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**234.8103**	**.2922705**	**.2318932**	**445.1963**	**.2849944**	**.6532755**
Stddev	2.8504	.0007539	.0011990	2.0389	.0010093	.0009606
%RSD	1.213934	.2579612	.5170367	.4579690	.3541382	.1470470
#1	238.0761	.2914824	.2305089	444.1158	.2852505	.6543805
#2	232.8225	.2929848	.2326047	443.9250	.2838818	.6526394
#3	233.5324	.2923442	.2325660	447.5480	.2858510	.6528067

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2837-01A Acquired: 8/14/2025 17:09:05 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.6520497	.1792648	9.486592	5.552983	F 241.6708	.3243025
Stddev	.0011763	.0018609	.014467	.039507	1.3319	.0006782
%RSD	.1804061	1.038077	.1524944	.7114578	.5511214	.2091274
#1	.6509177	.1772720	9.471159	5.508316	240.3958	.3242321
#2	.6519655	.1795653	9.499845	5.583345	241.5634	.3236622
#3	.6532659	.1809572	9.488772	5.567288	243.0531	.3250131

Elem	Sr4077
Units	ppm
Avg	7.179132
Stddev	.016781
%RSD	.2337431
#1	7.176181
#2	7.197193
#3	7.164023

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4910.565	91667.12	12509.62	3675.669	5878.101
Stddev	4.821	112.63	26.17	12.794	10.665
%RSD	.0981779	.1228663	.2091660	.3480608	.1814438
#1	4905.925	91538.99	12499.45	3661.079	5886.405
#2	4915.549	91711.89	12539.35	3684.969	5881.825
#3	4910.222	91750.47	12490.07	3680.959	5866.073

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2858-01 Acquired: 8/14/2025 17:13:36 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0572673	-.025466	1.384830	-.000232	-.007972	101.8079	.5109856
Stddev	.0015215	.001653	.000813	.001678	.000777	.1255	.0026807
%RSD	2.656889	6.490916	.0586960	722.3051	9.742734	.1232913	.5246097
#1	.0566789	-.023925	1.383918	.000705	-.007355	101.9128	.5108346
#2	.0589951	-.027212	1.385097	-.002170	-.007716	101.8422	.5137385
#3	.0561277	-.025261	1.385476	.000768	-.008844	101.6689	.5083835

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0061287	.0105638	92.45795	.1875823	.0890305	.2792764	229.9780
Stddev	.0000561	.0001105	.28926	.0008524	.0001808	.0009147	.8450
%RSD	.9145552	1.046270	.3128523	.4543993	.2030993	.3275164	.3674060
#1	.0060740	.0105415	92.47392	.1885335	.0890106	.2788391	230.3633
#2	.0061259	.0104662	92.73889	.1873258	.0888605	.2786625	230.5616
#3	.0061860	.0106838	92.16104	.1868877	.0892205	.2803277	229.0091

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.890201	25.69322	.1693561	.0125017	5.702301	.3512860	1.028328
Stddev	.014516	.06582	.0003346	.0002532	.016181	.0024641	.002534
%RSD	.3731302	.2561911	.1975992	2.025068	.2837685	.7014605	.2464262
#1	3.890918	25.70214	.1690313	.0126011	5.717696	.3518069	1.027098
#2	3.904345	25.75413	.1693370	.0126901	5.703772	.3534481	1.031242
#3	3.875340	25.62339	.1696998	.0122139	5.685434	.3486031	1.026643

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.638765	.1530277	.0052772	.0065242	4.118063	11.12196	4.025009
Stddev	.077149	.0028228	.0001750	.0002364	.006184	.12992	.009432
%RSD	.8004060	1.844638	3.315182	3.623027	.1501577	1.168104	.2343423
#1	9.669984	.1559691	.0050847	.0065066	4.116473	11.26750	4.032173
#2	9.695411	.1527733	.0054265	.0062971	4.124886	11.01770	4.014322
#3	9.550898	.1503408	.0053204	.0067689	4.112829	11.08068	4.028532

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2858-01 Acquired: 8/14/2025 17:13:36 Type: Unk
Method: 6010-200.7 NEW(v98) 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	2.962992	.1001873	.2081702
Stddev	.010047	.0009241	.0004289
%RSD	.3390670	.9223468	.2060185
#1	2.965073	.1009682	.2076752
#2	2.952068	.1004267	.2084292
#3	2.971835	.0991671	.2084062

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6084.976	111450.5	14732.17	4512.093	6675.461
Stddev	11.950	194.0	17.11	8.716	8.981
%RSD	.1963862	.1740249	.1161543	.1931701	.1345375
#1	6082.715	111257.2	14724.68	4516.653	6670.034
#2	6097.895	111449.4	14720.09	4502.043	6685.828
#3	6074.317	111645.1	14751.75	4517.583	6670.522

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2858-01DUP Acquired: 8/14/2025 17:17:40 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0606134	-.026574	1.408849	-.001385	-.007143	105.4439	.5215077
Stddev	.0011122	.002079	.002476	.001390	.001078	.0828	.0004167
%RSD	1.834926	7.824551	.1757643	100.3599	15.08782	.0784951	.0799031
#1	.0617569	-.028606	1.408800	-.000123	-.005904	105.3642	.5214736
#2	.0595353	-.026667	1.406397	-.002876	-.007662	105.5294	.5211091
#3	.0605480	-.024450	1.411349	-.001158	-.007864	105.4381	.5219404

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0064002	.0116699	82.63264	.2061302	.0966712	.2870158	229.2773
Stddev	.0001343	.0000201	.09245	.0002329	.0003842	.0004812	.6724
%RSD	2.098420	.1723581	.1118854	.1129704	.3974673	.1676681	.2932605
#1	.0062616	.0116468	82.63511	.2061043	.0971135	.2871402	229.9213
#2	.0065297	.0116791	82.72382	.2059113	.0964204	.2864847	229.3307
#3	.0064092	.0116838	82.53897	.2063749	.0964796	.2874227	228.5798

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.123274	28.17365	.1793015	.0099079	5.486426	.3421529	1.156859
Stddev	.007545	.11231	.0004424	.0001246	.010795	.0013725	.000075
%RSD	.1472607	.3986301	.2467653	1.258038	.1967639	.4011468	.0064664
#1	5.128752	28.14270	.1797092	.0100515	5.493309	.3431581	1.156914
#2	5.126400	28.29819	.1788310	.0098442	5.491985	.3405891	1.156774
#3	5.114668	28.08006	.1793643	.0098280	5.473984	.3427114	1.156888

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.90735	.1316237	.0060489	.0099033	3.713799	12.54578	4.123067
Stddev	.02061	.0021646	.0001881	.0009400	.015857	.16404	.010091
%RSD	.1889883	1.644502	3.110418	9.492195	.4269646	1.307570	.2447557
#1	10.89970	.1337705	.0061125	.0104221	3.701665	12.70634	4.121694
#2	10.93070	.1316590	.0058372	.0104696	3.731740	12.55255	4.113733
#3	10.89166	.1294418	.0061970	.0088181	3.707990	12.37846	4.133775

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2858-01DUP Acquired: 8/14/2025 17:17:40 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**2.974418**	**.1117740**	**.1745882**
Stddev	.008784	.0003858	.0011118
%RSD	.2953268	.3451385	.6368404
#1	2.982331	.1119351	.1733045
#2	2.975957	.1113338	.1752134
#3	2.964966	.1120531	.1752467

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6111.250**	**111949.3**	**14454.72**	**4550.291**	**6686.929**
Stddev	3.354	97.9	24.76	5.879	1.528
%RSD	.0548838	.0874660	.1712659	.1292091	.0228487
#1	6115.016	112034.7	14482.74	4544.877	6685.166
#2	6108.583	111842.4	14435.81	4549.452	6687.872
#3	6110.152	111970.6	14445.62	4556.545	6687.749

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2858-01LX5 Acquired: 8/14/2025 17:21:43 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.0134344	-.006576	.3012615	-.001273	-.001375	23.72329	.1066000
Stddev	.0012814	.002026	.0043120	.000898	.001357	.02245	.0006689
%RSD	9.537920	30.80959	1.431309	70.50517	98.72969	.0946300	.6274926
#1	.0143781	-.007361	.3049080	-.001148	.000192	23.70269	.1072278
#2	.0119757	-.008092	.3023743	-.000444	-.002140	23.74722	.1066758
#3	.0139494	-.004275	.2965022	-.002226	-.002176	23.71998	.1058964

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0015277	.0017943	21.91431	.0445173	.0184459	.0687060	52.00371
Stddev	.0000436	.0001163	.04073	.0003730	.0001106	.0007010	.15226
%RSD	2.851082	6.479860	.1858754	.8377926	.5993446	1.020304	.2927905
#1	.0014878	.0018664	21.91808	.0445383	.0183786	.0685838	51.95335
#2	.0015211	.0018564	21.87183	.0441343	.0185735	.0694601	52.17477
#3	.0015741	.0016602	21.95303	.0448793	.0183857	.0680742	51.88301

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9510984	6.166296	.0356523	.0034705	1.630119	.0822357	.2571195
Stddev	.0011138	.015207	.0005096	.0001892	.016788	.0017175	.0015089
%RSD	.1171097	.2466172	1.429442	5.452930	1.029852	2.088556	.5868352
#1	.9510250	6.177505	.0362407	.0032704	1.613742	.0821241	.2587033
#2	.9500232	6.172399	.0353570	.0034944	1.629324	.0840063	.2556988
#3	.9522472	6.148986	.0353590	.0036466	1.647290	.0805766	.2569565

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.615458	.0217507	.0013304	.0000958	.9666221	2.859320	.8248415
Stddev	.018941	.0014301	.0002554	.0008907	.0034454	.025972	.0125775
%RSD	.7242013	6.575105	19.19680	929.7116	.3564377	.9083433	1.524832
#1	2.593627	.0202936	.0013228	.0010440	.9668328	2.830006	.8309876
#2	2.625222	.0231522	.0015895	-.000723	.9630762	2.879462	.8331641
#3	2.627524	.0218061	.0010789	-.000033	.9699574	2.868493	.8103727

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2858-01LX5 Acquired: 8/14/2025 17:21:43 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.6821402	.0232474	.0490129
Stddev	.0076183	.0013627	.0003732
%RSD	1.116816	5.861540	.7614733
#1	.6873452	.0239572	.0493724
#2	.6856792	.0241086	.0486273
#3	.6733961	.0216763	.0490392

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5813.359	106896.5	13324.12	4345.838	7313.607
Stddev	4.392	118.4	43.29	6.111	6.228
%RSD	.0755445	.1107521	.3249223	.1406238	.0851589
#1	5815.988	106987.4	13327.91	4343.835	7306.416
#2	5808.289	106762.6	13365.40	4352.700	7317.115
#3	5815.799	106939.4	13279.06	4340.980	7317.290

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2858-01MS Acquired: 8/14/2025 17:25:53 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.7556269	1.664506	2.206179	1.695790	.3254792	119.6307
Stddev	.0031263	.023765	.005039	.008022	.0006452	.1735
%RSD	.4137333	1.427752	.2284215	.4730312	.1982471	.1450456
#1	.7590487	1.681298	2.211428	1.686843	.3262229	119.6630
#2	.7529200	1.637313	2.201379	1.698188	.3251479	119.7858
#3	.7549119	1.674905	2.205728	1.702340	.3250670	119.4433

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6981396	.1488239	.1897487	94.79876	.5507114	.2814447
Stddev	.0019571	.0007795	.0004388	.18349	.0041207	.0004300
%RSD	.2803355	.5237656	.2312347	.1935523	.7482522	.1527865
#1	.6958863	.1488559	.1896484	94.78148	.5543004	.2813952
#2	.6994164	.1495869	.1893688	94.99027	.5516225	.2810416
#3	.6991160	.1480289	.1902290	94.62452	.5462114	.2818973

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5340245	251.1046	4.701313	29.29738	.6471347	.0786857
Stddev	.0008027	1.0500	.009286	.07171	.0013945	.0000514
%RSD	.1503150	.4181339	.1975201	.2447814	.2154865	.0652584
#1	.5336197	252.1527	4.691232	29.33261	.6462197	.0787443
#2	.5335047	251.1082	4.709518	29.34467	.6464448	.0786638
#3	.5349490	250.0529	4.703188	29.21487	.6487397	.0786488

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.281295	.5897101	1.319329	20.28678	.3747947	.3558079
Stddev	.022258	.0025143	.012533	.06237	.0036688	.0007474
%RSD	.2687726	.4263606	.9499892	.3074300	.9788794	.2100693
#1	8.299494	.5899201	1.324905	20.34907	.3790167	.3563136
#2	8.287913	.5921128	1.328107	20.28692	.3723821	.3549493
#3	8.256479	.5870974	1.304975	20.22434	.3729852	.3561607

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2858-01MS Acquired: 8/14/2025 17:25:53 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.6009222	4.172984	F 16.55255	9.371012	3.754173	.2820730
Stddev	.0013794	.007180	.24936	.012827	.011329	.0010864
%RSD	.2295514	.1720536	1.506500	.1368790	.3017769	.3851573
#1	.6006644	4.178362	16.84045	9.385393	3.760492	.2809796
#2	.5996899	4.164830	16.41279	9.360752	3.741094	.2820872
#3	.6024124	4.175759	16.40441	9.366891	3.760935	.2831523

Elem	Sr4077
Units	ppm
Avg	.3899516
Stddev	.0024026
%RSD	.6161387
#1	.3871845
#2	.3915081
#3	.3911623

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6108.744	112745.8	14986.15	4567.899	6595.786
Stddev	9.462	660.6	46.96	38.109	12.545
%RSD	.1548948	.5859284	.3133377	.8342718	.1901966
#1	6112.038	112180.8	15000.89	4556.539	6593.780
#2	6116.118	112584.4	14933.60	4536.762	6609.213
#3	6098.075	113472.1	15023.98	4610.396	6584.364

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2858-01MSD Acquired: 8/14/2025 17:29:48 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**.7534426**	**1.679801**	**2.417061**	**1.684420**	**.3060983**	**127.8085**
Stddev	.0038816	.029520	.005451	.003789	.0020697	.0348
%RSD	.5151756	1.757341	.2255107	.2249173	.6761699	.0271990
#1	.7544535	1.661423	2.421483	1.688670	.3084237	127.7928
#2	.7491556	1.664128	2.410971	1.681398	.3054132	127.7844
#3	.7567187	1.713852	2.418729	1.683193	.3044579	127.8484

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7474403**	**.1482530**	**.1906274**	**69.48679**	**.5440577**	**.2886343**
Stddev	.0020743	.0001799	.0006262	.12753	.0020309	.0004717
%RSD	.2775251	.1213413	.3284991	.1835289	.3732843	.1634387
#1	.7493475	.1482998	.1911243	69.62351	.5463508	.2890828
#2	.7452317	.1484048	.1899240	69.37106	.5424859	.2881423
#3	.7477416	.1480543	.1908340	69.46580	.5433366	.2886778

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5577476**	**259.1127**	**4.868481**	**31.40618**	**.6627894**	**.0789635**
Stddev	.0012133	1.5779	.017633	.04065	.0006256	.0007662
%RSD	.2175378	.6089441	.3621773	.1294335	.0943959	.9702682
#1	.5566315	260.7599	4.885665	31.43371	.6626072	.0795858
#2	.5575722	257.6148	4.850432	31.35949	.6622751	.0781078
#3	.5590391	258.9633	4.869347	31.42534	.6634859	.0791969

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**8.472979**	**.6004427**	**1.427478**	**19.98263**	**.3460646**	**.3503622**
Stddev	.047980	.0040285	.005481	.08874	.0068242	.0006842
%RSD	.5662735	.6709283	.3839959	.4440999	1.971946	.1952963
#1	8.528069	.6040055	1.433330	20.08483	.3522296	.3507875
#2	8.450531	.6012515	1.426642	19.92515	.3387319	.3495729
#3	8.440339	.5960711	1.422463	19.93790	.3472322	.3507262

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2858-01MSD Acquired: 8/14/2025 17:29:48 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.5994116	4.171916	F 15.83624	9.365435	2.839599	.2980917
Stddev	.0018321	.012608	.03729	.012796	.005342	.0014521
%RSD	.3056469	.3022005	.2354446	.1366273	.1881324	.4871346
#1	.5988023	4.186449	15.87737	9.379603	2.835682	.2982059
#2	.5979617	4.163911	15.80466	9.354721	2.837430	.2994834
#3	.6014707	4.165387	15.82670	9.361980	2.845684	.2965859

Elem	Sr4077
Units	ppm
Avg	.2926608
Stddev	.0001732
%RSD	.0591918
#1	.2927345
#2	.2927850
#3	.2924629

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6111.569	112717.6	15012.36	4542.080	6578.795
Stddev	6.086	148.6	36.10	13.339	9.247
%RSD	.0995890	.1318236	.2404448	.2936727	.1405573
#1	6107.076	112575.1	15053.96	4531.923	6569.306
#2	6118.496	112871.6	14989.28	4557.186	6587.780
#3	6109.136	112706.2	14993.85	4537.131	6579.299

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2858-01A Acquired: 8/14/2025 17:33:44 Type: Unk
Method: 6010-200.7 NEW(v98) 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	**.8306090**	**1.854410**	**2.292205**	**1.928257**	**.8083428**	**102.2124**
Stddev	.0455433	.082066	.051513	.106636	.0429324	.0594
%RSD	5.483121	4.425456	2.247323	5.530169	5.311163	.0581558
#1	.7838324	1.787525	2.236072	1.822001	.7646813	102.1946
#2	.8331851	1.829717	2.303228	1.927501	.8098401	102.1639
#3	.8748096	1.945987	2.337314	2.035269	.8505070	102.2787

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6451984**	**.1402317**	**.2048385**	**90.60228**	**.4998504**	**.2893090**
Stddev	.0043495	.0059786	.0100990	.20966	.0124726	.0100679
%RSD	.6741382	4.263365	4.930226	.2314110	2.495267	3.479992
#1	.6403286	.1346138	.1942090	90.37726	.4870820	.2787365
#2	.6465689	.1395660	.2060000	90.79214	.5004647	.2904082
#3	.6486975	.1465152	.2143065	90.63744	.5120045	.2987821

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5505642**	**230.5231**	**4.094939**	**26.72454**	**.6709877**	**.0729780**
Stddev	.0153321	1.8986	.008344	.10874	.0266490	.0021208
%RSD	2.784789	.8236125	.2037695	.4068923	3.971605	2.906096
#1	.5351441	230.2834	4.094135	26.60023	.6428112	.0705308
#2	.5507420	232.5301	4.103657	26.80202	.6743649	.0741228
#3	.5658066	228.7557	4.087027	26.77137	.6957872	.0742805

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**7.508279**	**.5475397**	**1.181167**	**17.14534**	**.3484493**	**.4052057**
Stddev	.046676	.0082232	.002779	.26118	.0074945	.0217902
%RSD	.6216667	1.501841	.2352682	1.523308	2.150826	5.377556
#1	7.457267	.5392505	1.178050	16.85592	.3398561	.3826581
#2	7.548851	.5476733	1.182064	17.21662	.3536320	.4068093
#3	7.518720	.5556952	1.183386	17.36347	.3518598	.4261498

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: Q2858-01A Acquired: 8/14/2025 17:33:44 Type: Unk
Method: 6010-200.7 NEW(v98) 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	.6955269	4.173397	F 13.59954	9.237124	2.841748	.2339152
Stddev	.0362599	.007752	.17359	.273065	.012470	.0057256
%RSD	5.213307	.1857539	1.276414	2.956168	.4388155	2.447728
#1	.6569388	4.164599	13.66595	8.949962	2.855640	.2277246
#2	.7007495	4.176368	13.73011	9.267933	2.831523	.2350007
#3	.7288923	4.179225	13.40255	9.493478	2.838081	.2390205

Elem	Sr4077
Units	ppm
Avg	.3357606
Stddev	.0053165
%RSD	1.583406
#1	.3314242
#2	.3341657
#3	.3416920

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6020.651	110565.5	14721.01	4492.515	6611.799
Stddev	17.080	405.1	45.08	20.489	14.615
%RSD	.2836918	.3664129	.3062486	.4560662	.2210407
#1	6036.788	110466.8	14718.68	4498.135	6626.858
#2	6022.403	110218.8	14767.22	4469.803	6610.864
#3	6002.762	111010.8	14677.14	4509.608	6597.673

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCV06 Acquired: 8/14/2025 17:54:46 Type: Unk
Method: 6010-200.7 NEW(v98) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV06 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.147495**	**4.999600**	**4.751030**	**5.255591**	**5.260674**	**9.734911**
Stddev	.015191	.099565	.006624	.022497	.020105	.025187
%RSD	.2951152	1.991459	.1394304	.4280503	.3821663	.2587273
#1	5.130577	4.908454	4.750209	5.230045	5.237723	9.742626
#2	5.151943	5.105856	4.744853	5.272447	5.275172	9.706770
#3	5.159966	4.984489	4.758026	5.264279	5.269126	9.755339

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**9.969442**	**.2425316**	**2.382054**	**24.00823**	**.9842582**	**2.409881**
Stddev	.050538	.0004587	.004397	.05314	.0014397	.005892
%RSD	.5069251	.1891344	.1845684	.2213458	.1462701	.2445107
#1	9.973389	.2430518	2.382722	24.00856	.9826510	2.408781
#2	9.917046	.2423575	2.377361	23.95492	.9854298	2.404616
#3	10.01789	.2421854	2.386077	24.06121	.9846938	2.416246

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.255099**	**5.312148**	**2.397394**	**23.41586**	**2.428692**	**1.253767**
Stddev	.001056	.024378	.007826	.08950	.002713	.001779
%RSD	.0841104	.4589171	.3264538	.3822044	.1116937	.1418599
#1	1.254253	5.288752	2.395763	23.41742	2.427751	1.252972
#2	1.254762	5.310289	2.390511	23.32560	2.426575	1.252523
#3	1.256282	5.337402	2.405907	23.50457	2.431750	1.255804

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**25.04809**	**2.474562**	**2.572157**	**26.94976**	**4.502417**	**5.201319**
Stddev	.09674	.004415	.001729	.09096	.008400	.013412
%RSD	.3862371	.1784027	.0672077	.3375195	.1865627	.2578616
#1	24.96957	2.474680	2.570219	26.87457	4.511602	5.186033
#2	25.01853	2.470089	2.573539	26.92385	4.495125	5.211115
#3	25.15616	2.478916	2.572712	27.05087	4.500525	5.206810

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCV06 Acquired: 8/14/2025 17:54:46 Type: Unk
Method: 6010-200.7 NEW(v98) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCV06 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.797266**	**4.935201**	**5.388417**	F **4.411828**	**4.785661**	**4.762817**
Stddev	.007663	.014011	.023182	.002845	.005754	.012100
%RSD	.1597307	.2838976	.4302205	.0644779	.1202280	.2540542
#1	4.796259	4.931426	5.368851	4.415072	4.781486	4.763223
#2	4.790157	4.923464	5.382380	4.410649	4.792224	4.750520
#3	4.805383	4.950713	5.414020	4.409762	4.783272	4.774710

Elem	Sr4077
Units	ppm
Avg	**5.043267**
Stddev	.024828
%RSD	.4923048
#1	5.019117
#2	5.041962
#3	5.068721

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5549.096**	**100637.8**	**12475.61**	**4140.234**	**6820.090**
Stddev	14.272	222.1	11.79	15.761	11.202
%RSD	.2571983	.2207097	.0945042	.3806698	.1642457
#1	5565.512	100878.5	12465.38	4158.300	6830.290
#2	5542.149	100594.2	12488.50	4129.303	6821.878
#3	5539.628	100440.8	12472.95	4133.098	6808.102

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCB06 Acquired: 8/14/2025 18:05:45 Type: Unk
Method: 6010-200.7 NEW(v98) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB06 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000102**	**-.001876**	**.0000201**	**-.001761**	**-.000204**	**-.015220**
Stddev	.001588	.000902	.0002232	.002373	.002072	.005063
%RSD	1559.755	48.10584	1108.701	134.7118	1015.861	33.26677
#1	-.001907	-.002596	-.000130	-.003257	-.000126	-.020608
#2	.001080	-.002167	-.000087	.000974	.001827	-.014493
#3	.000522	-.000864	.000277	-.003001	-.002313	-.010560

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.014347**	**-.000005**	**.0000123**	**.0202246**	**.0004056**	**-.000227**
Stddev	.000814	.000041	.0000388	.0040049	.0001708	.000077
%RSD	5.670367	821.0430	316.2779	19.80196	42.11782	33.86251
#1	-.014192	-.000048	.0000003	.0211239	.0006025	-.000231
#2	-.015228	.000034	.0000556	.0237033	.0002967	-.000301
#3	-.013623	-.000001	-.000019	.0158465	.0003176	-.000148

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000395**	**.0076668**	**-.000326**	**-.003407**	**.0002365**	**.0014844**
Stddev	.000135	.0033631	.000125	.007987	.0001322	.0003185
%RSD	34.06172	43.86546	38.48021	234.4409	55.91155	21.45560
#1	-.000399	.0109076	-.000214	.002998	.0003662	.0013722
#2	-.000258	.0041935	-.000462	-.012355	.0001019	.0018439
#3	-.000527	.0078992	-.000303	-.000863	.0002413	.0012373

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4055122**	**-.001236**	**.0003172**	**.5199273**	**.0018751**	**.0002963**
Stddev	.0199763	.000367	.0000315	.0040250	.0002921	.0000675
%RSD	4.926184	29.69414	9.916939	.7741421	15.57748	22.77358
#1	.3838788	-.001583	.0003490	.5245476	.0015575	.0002254
#2	.4093971	-.000851	.0002861	.5171809	.0021322	.0003037
#3	.4232607	-.001275	.0003166	.5180534	.0019356	.0003598

Reviewed By:jaswal
On:8/19/2025 4:32:19 PM
Inst Id :P4
LB :LB136837

Sample Name: CCB06 Acquired: 8/14/2025 18:05:45 Type: Unk
Method: 6010-200.7 NEW(v98) Mode: CONC Corr. Factor: 1.000000
User: Jaswal Custom ID1: CCB06 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.013915	-.000174	.0194123	-.001219	F .0101961	.0035866
Stddev	.000372	.000455	.0005403	.000710	.0005331	.0005852
%RSD	2.673263	261.1370	2.783297	58.29687	5.228649	16.31595
#1	-.014106	.000301	.0189112	-.001938	.0098765	.0029491
#2	-.013487	-.000607	.0199847	-.000518	.0108115	.0037112
#3	-.014154	-.000217	.0193409	-.001199	.0099001	.0040993

Elem	Sr4077
Units	ppm
Avg	-.000095
Stddev	.000033
%RSD	34.46160
#1	-.000057
#2	-.000116
#3	-.000111

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5763.393	105381.3	12420.50	4317.490	7671.868
Stddev	9.482	102.9	50.78	12.501	9.454
%RSD	.1645135	.0976004	.4088658	.2895346	.1232326
#1	5771.780	105295.0	12464.00	4303.402	7680.502
#2	5765.295	105495.1	12432.81	4321.811	7673.337
#3	5753.105	105353.8	12364.70	4327.258	7661.766

Reviewed By:jaswal
On:8/17/2025 10:52:58 PM
Inst Id :CV1
LB :LB136819

LB136819 INSTRUMENT ID:CV1

Method: 7470A Operator: Admin Date of Analysis: 14 Aug 2025 10:27:03

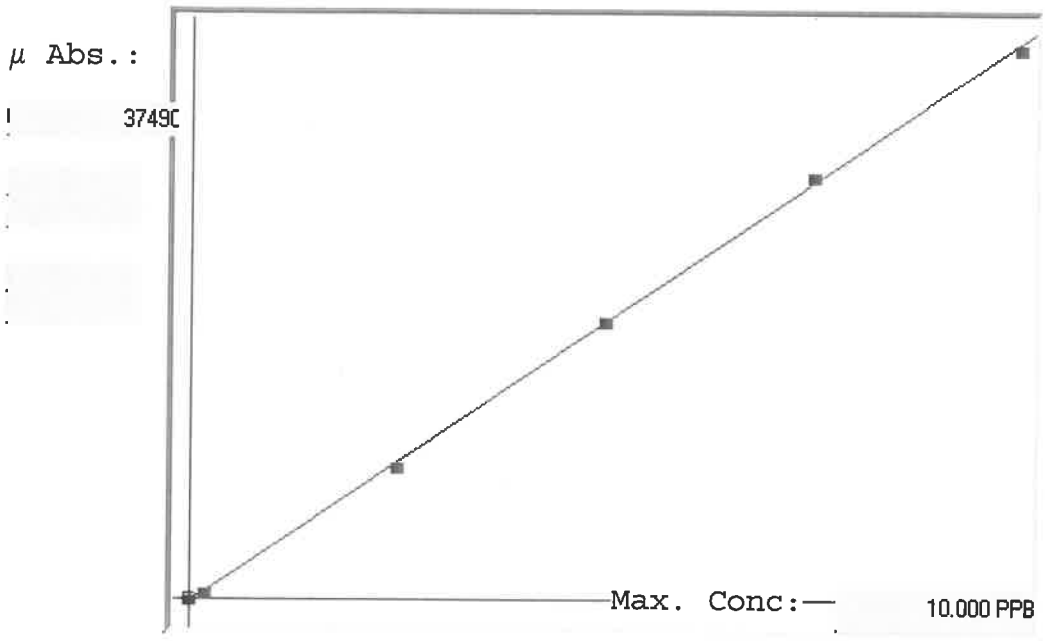
Type	Sample ID	Extended ID	Conc.	µ Abs.	Units	Type	Stnd Conc	Method	Date
S	0.0 - 1	S0.0	-	-73	PPB	Std	0.00000	7470A	14 Aug 2025 10:40:26
S	0.2 - 1	S0.2	-	460	PPB	Std	0.20000	7470A	14 Aug 2025 10:42:46
S	2.5 - 1	S2.5	-	9017	PPB	Std	2.50000	7470A	14 Aug 2025 10:48:03
S	5.0 - 1	S5.0	-	18875	PPB	Std	5.00000	7470A	14 Aug 2025 10:50:22
S	7.5 - 1	S7.5	-	28739	PPB	Std	7.50000	7470A	14 Aug 2025 10:52:38
S	10.0 - 1	S10.0	-	37490	PPB	Std	10.00000	7470A	14 Aug 2025 10:54:56
U	ICV14 - 1	ICV14	3.9561	14824	PPB	SMPL		7470A	14 Aug 2025 10:58:01
U	ICB14 - 1	ICB14	0.0063	-193	PPB	SMPL		7470A	14 Aug 2025 11:00:59
U	CCV41 - 1	CCV41	5.1271	19276	PPB	SMPL		7470A	14 Aug 2025 11:03:15
U	CCB41 - 1	CCB41	-0.0502	-408	PPB	SMPL		7470A	14 Aug 2025 11:05:31
U	CRA - 1	CRA	0.2146	599	PPB	SMPL		7470A	14 Aug 2025 11:07:48
U	HighStd - 1	HighStd	10.1189	38255	PPB	SMPL		7470A	14 Aug 2025 11:10:05
U	ChkStd - 1	ChkStd	7.4969	28286	PPB	SMPL		7470A	14 Aug 2025 11:12:23
U	PB169234BL - 1	PBW	-0.1378	-741	PPB	SMPL		7470A	14 Aug 2025 11:17:21
U	PB169234BS - 1	LCSW	3.9351	14744	PPB	SMPL		7470A	14 Aug 2025 11:19:39
U	Q2732-03 - 1	WC-A7-01-C	-0.0844	-538	PPB	SMPL		7470A	14 Aug 2025 11:21:58
U	Q2832-02 - 1	TG-S01	-0.0155	-276	PPB	SMPL		7470A	14 Aug 2025 11:24:43
U	Q2832-04 - 1	TG-S02	-0.0247	-311	PPB	SMPL		7470A	14 Aug 2025 11:27:00
U	Q2832-06 - 1	TG-S03	-0.1073	-625	PPB	SMPL		7470A	14 Aug 2025 11:29:52
U	Q2832-10 - 1	TG-S05	-0.0934	-572	PPB	SMPL		7470A	14 Aug 2025 11:32:08
U	CCV42 - 1	CCV42	5.0887	19130	PPB	SMPL		7470A	14 Aug 2025 11:34:25
U	CCB42 - 1	CCB42	-0.0323	-340	PPB	SMPL		7470A	14 Aug 2025 11:36:40
U	Q2836-03 - 1	WC-A2-15-C	-0.1220	-681	PPB	SMPL		7470A	14 Aug 2025 11:38:57
U	Q2836-07 - 1	WC-A2-16-C	-0.0970	-586	PPB	SMPL		7470A	14 Aug 2025 11:41:13
U	Q2836-11 - 1	WC-A2-17-C	-0.1433	-762	PPB	SMPL		7470A	14 Aug 2025 11:43:28
U	Q2836-15 - 1	WC-A5-02-C	-0.1252	-693	PPB	SMPL		7470A	14 Aug 2025 11:45:46
U	Q2838-04 - 1	TP-11	-0.1446	-767	PPB	SMPL		7470A	14 Aug 2025 11:48:07
U	Q2838-08 - 1	TP-10	-0.1465	-774	PPB	SMPL		7470A	14 Aug 2025 11:50:24
U	Q2838-08DUP - 1	TP-10DUP	-0.1383	-743	PPB	SMPL		7470A	14 Aug 2025 11:52:41
U	Q2838-08MS - 1	TP-10MS	3.9385	14757	PPB	SMPL		7470A	14 Aug 2025 11:55:00
U	Q2838-08MSD - 1	TP-10MSD	3.5752	13376	PPB	SMPL		7470A	14 Aug 2025 11:57:17
U	Q2832-08 - 1	TG-S04	-0.1499	-787	PPB	SMPL		7470A	14 Aug 2025 11:59:34
U	CCV43 - 1	CCV43	5.0266	18894	PPB	SMPL		7470A	14 Aug 2025 12:01:52
U	CCB43 - 1	CCB43	-0.0360	-354	PPB	SMPL		7470A	14 Aug 2025 12:04:08
U	Q2838-08LX5 - 1		-0.1552	-807	PPB	SMPL		7470A	14 Aug 2025 12:06:31
U	Q2838-08A - 1		3.9479	14793	PPB	SMPL		7470A	14 Aug 2025 12:08:47
U	PB169212TB - 1	PB169212TB	-0.1057	-619	PPB	SMPL		7470A	14 Aug 2025 12:11:07
U	CCV44 - 1	CCV44	4.9816	18723	PPB	SMPL		7470A	14 Aug 2025 12:13:28
U	CCB44 - 1	CCB44	-0.0468	-395	PPB	SMPL		7470A	14 Aug 2025 12:15:46

Reviewed By:jaswal
On:8/17/2025 10:52:58 PM
Inst Id :CV1
LB :LB136819

7470A

LB136819
INSTRUMENT ID: CV1

Linear



A= 0.0000e+000
B= 2.6302e-004
C= 5.7097e-002
Rho= 0.9998305
Accept=Accepted

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	%D
0.0	0.000	0.038	0.038	-73	0.000	-73	0				-0
0.2	0.200	0.178	-0.022	460	0.0 %	460					-0
2.5	2.500	2.429	-0.071	9017	0.0 %	9017	0				-0
5.0	5.000	5.022	0.022	18875	0.0 %	18875					0
7.5	7.500	7.616	0.116	28739	0.0 %	28739					0
10.0	10.000	9.918	-0.082	37490	0.0 %	37490					-0

Alliance TECHNICAL GROUP

Water Metals Preparation Sheet

PB169236

SOP ID : M3010A-Digestion-17

SDG No : N/A

Start Digest Date: 08/13/2025 **Time :** 12:30 **Temp :** 97 °C

Matrix : WATER

End Digest Date: 08/13/2025 **Time :** 15:32 **Temp :** 97 °C

Pippete ID: ICP A

Digestion tube ID: M5595

Balance ID : N/A

Block thermometer ID: MET-DIG. #1

Filter paper ID : N/A

Dig Technician Signature: S/C.

pH Strip ID : M6069

Supervisor Signature:

Hood ID : #3

Temp : **1.** 96°C **2.** N/A

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

Standared Name	MLS USED	STD REF. # FROM LOG
LFS-1	0.25	M6180
LFS-2	0.25	M6181
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
Conc. HNO3	3.00	M6158
1:1 HCL	5.00	MP85156
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

HOT BLOCK#1 CELL#50 97C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
08/13/25 16:32	S/C met dig	(HCl Rb lab)
	Preparation Group	**Analysis Group**

Alliance TECHNICAL GROUP

Water Metals Preparation Sheet

PB169236

Lab Sample ID	Client Sample ID	pH	Initial Vol (ml)	Final Vol (ml)	Color Before	Color After	Clarity Before	Clarity After	Comment	Prep Pos
PB169212TB	PB169212TB	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	1
PB169236BL	PBW236	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	2
PB169236BS	LCS236	<2	5	25	Colorless	Colorless	Clear	Clear	M6180,M6181	3
Q2732-03	WC-A7-01-C	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	4
Q2832-02	TG-S01	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	5
Q2832-04	TG-S02	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	6
Q2832-06	TG-S03	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	7
Q2832-08	TG-S04	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	8
Q2832-10	TG-S05	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	9
Q2836-03	WC-A2-15-C	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	10
Q2836-07	WC-A2-16-C	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	11
Q2836-11	WC-A2-17-C	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	12
Q2836-15	WC-A5-02-C	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	13
Q2838-04	TP-11	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	14
Q2838-08	TP-10	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	15
Q2838-08MS	TP-10MS	<2	5	25	Colorless	Colorless	Clear	Clear	M6180,M6181	17
Q2838-08MSD	TP-10MSD	<2	5	25	Colorless	Colorless	Clear	Clear	M6180,M6181	18
Q2838-08DUP	TP-10DUP	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	16

Alliance TECHNICAL GROUP

TCLP EXTRACTION LOGPAGE

PB169212

Sample ID	ClientID	TCLP Vessel ID	Sample Wt (g)	Volume Extraction Fluid #1 (mL)	Multi phasic	Phase Miscible	Phases Combined	Final Leachate PH	Metals Leachate Adj. PH	Prep Pos
PB169212TB	LEB212	13	N/A	2000	N/A	N/A	N/A	4.93	1.5	T-2
Q2732-03	WC-A7-01-C	01	100.02	2000	N/A	N/A	N/A	11.0	1.0	T-1
Q2832-02	TG-S01	02	100.02	2000	N/A	N/A	N/A	6.0	1.5	T-1
Q2832-04	TG-S02	03	100.03	2000	N/A	N/A	N/A	6.2	1.0	T-1
Q2832-06	TG-S03	04	100.02	2000	N/A	N/A	N/A	5.8	1.5	T-1
Q2832-08	TG-S04	05	100.01	2000	N/A	N/A	N/A	5.6	1.0	T-1
Q2832-10	TG-S05	06	100.02	2000	N/A	N/A	N/A	5.0	1.0	T-1
Q2836-03	WC-A2-15-C	07	100.03	2000	N/A	N/A	N/A	11.5	1.5	T-1
Q2836-07	WC-A2-16-C	08	100.02	2000	N/A	N/A	N/A	11.5	1.0	T-1
Q2836-11	WC-A2-17-C	09	100.03	2000	N/A	N/A	N/A	11.5	1.5	T-1
Q2836-15	WC-A5-02-C	10	100.02	2000	N/A	N/A	N/A	11.0	1.5	T-1
Q2838-04	TP-11	11	100.01	2000	N/A	N/A	N/A	5.6	1.0	T-2
Q2838-08	TP-10	12	100.02	2000	N/A	N/A	N/A	5.6	1.5	T-2

Alliance TECHNICAL GROUP

Water Mercury Preparation Sheet

PB169234

SOP ID : M7470A-Mercury-20

SDG No : N/A

Matrix : WATER

Pippete ID: HG A

Balance ID : N/A

Filter paper ID : N/A

pH Strip ID : M6069

Hood ID : #1

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

Start Digest Date: 08/13/2025 **Time :** 12:30 **Temp :** 95 °C

End Digest Date: 08/13/2025 **Time :** 14:35 **Temp :** 95 °C

Digestion tube ID: M5595

Block thermometer ID: HG-DIG#3

Dig Technician Signature: SPS.

Supervisor Signature: CRS.

Temp : 1. 95°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
ICV	30mL	MP86761
CCV	30mL	MP86763
CRA	30mL	MP86765
Blank Spike	0.48mL	MP86754
Matrix Spike	0.48mL	MP86754

Chemical Used	ML/SAMPLE USED	Lot Number
HNO3/H2SO4(1:2)	2.25mL	MP85892
KMnO4 (5%)	4.5mL	MP85893
K2S2O8 (5%)	2.4mL	MP85894
Hydroxylamine HCL (12%)	2.0mL	MP85895
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

LAB SAMPLE ID	CLIENT SAMPLE ID	Wt(g)/Vol(ml)	Comment
0.0 ppb	S0	30mL	MP86755
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	30mL	MP86756
2.5 ppb	S2.5	30mL	MP86757
5.0 ppb	S5.0	30mL	MP86758
7.5 ppb	S7.5	30mL	MP86759
10.0 ppb	S10.0	30mL	MP86760
ICV	ICV	30mL	MP86761
ICB	ICB	30mL	MP86762
CCV	CCV	30mL	MP86763
CCB	CCB	30mL	MP86764
CRI	CRI	30mL	MP86765
CHK STD	CHK STD	30mL	MP86766

Extraction Conformance/Non-Conformance Comments:

N/A

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
08/13/25 15:32	SPS. metals	CRS. metals
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

Water Mercury Preparation Sheet

PB169234

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Comment	Prep Pos
PB169212TB	PB169212TB	3	30	<2	N/A	1-1
PB169234BL	PBW234	30	30	<2	N/A	2
PB169234BS	LCS234	30	30	<2	MP86754	3
Q2732-03	WC-A7-01-C	3	30	<2	N/A	4
Q2832-02	TG-S01	3	30	<2	N/A	5
Q2832-04	TG-S02	3	30	<2	N/A	6
Q2832-06	TG-S03	3	30	<2	N/A	7
Q2832-08	TG-S04	3	30	<2	N/A	8
Q2832-10	TG-S05	3	30	<2	N/A	9
Q2836-03	WC-A2-15-C	3	30	<2	N/A	10
Q2836-07	WC-A2-16-C	3	30	<2	N/A	11
Q2836-11	WC-A2-17-C	3	30	<2	N/A	12
Q2836-15	WC-A5-02-C	3	30	<2	N/A	13
Q2838-04	TP-11	3	30	<2	N/A	14
Q2838-08	TP-10	3	30	<2	N/A	15
Q2838-08MS	TP-10MS	3	30	<2	MP86754	17
Q2838-08MSD	TP-10MSD	3	30	<2	MP86754	18
Q2838-08DUP	TP-10DUP	3	30	<2	N/A	16

Alliance TECHNICAL GROUP

TCLP EXTRACTION LOGPAGE

PB169212

Sample ID	ClientID	TCLP Vessel ID	Sample Wt (g)	Volume Extraction Fluid #1 (mL)	Multi phasic	Phase Miscible	Phases Combined	Final Leachate PH	Metals Leachate Adj. PH	Prep Pos
PB169212TB	LEB212	13	N/A	2000	N/A	N/A	N/A	4.93	1.5	T-2
Q2732-03	WC-A7-01-C	01	100.02	2000	N/A	N/A	N/A	11.0	1.0	T-1
Q2832-02	TG-S01	02	100.02	2000	N/A	N/A	N/A	6.0	1.5	T-1
Q2832-04	TG-S02	03	100.03	2000	N/A	N/A	N/A	6.2	1.0	T-1
Q2832-06	TG-S03	04	100.02	2000	N/A	N/A	N/A	5.8	1.5	T-1
Q2832-08	TG-S04	05	100.01	2000	N/A	N/A	N/A	5.6	1.0	T-1
Q2832-10	TG-S05	06	100.02	2000	N/A	N/A	N/A	5.0	1.0	T-1
Q2836-03	WC-A2-15-C	07	100.03	2000	N/A	N/A	N/A	11.5	1.5	T-1
Q2836-07	WC-A2-16-C	08	100.02	2000	N/A	N/A	N/A	11.5	1.0	T-1
Q2836-11	WC-A2-17-C	09	100.03	2000	N/A	N/A	N/A	11.5	1.5	T-1
Q2836-15	WC-A5-02-C	10	100.02	2000	N/A	N/A	N/A	11.0	1.5	T-1
Q2838-04	TP-11	11	100.01	2000	N/A	N/A	N/A	5.6	1.0	T-2
Q2838-08	TP-10	12	100.02	2000	N/A	N/A	N/A	5.6	1.5	T-2

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

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QCBatch ID # LB136819

Review By	sagar	Review On	8/14/2025 12:47:52 PM
Supervise By	jaswal	Supervise On	8/17/2025 10:52:58 PM

STD. NAME	STD REF.#
ICAL Standard	MP86755,MP86756,MP86757,MP86758,MP86759,MP86760
ICV Standard	MP86761
CCV Standard	MP86763
ICSA Standard	
CRI Standard	MP86765
LCS Standard	
Chk Standard	MP86762,MP86764,MP86766,MP86769

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	08/14/25 10:40		sagar	OK
2	S0.2	S0.2	CAL2	08/14/25 10:42		sagar	OK
3	S2.5	S2.5	CAL3	08/14/25 10:48		sagar	OK
4	S5	S5	CAL4	08/14/25 10:50		sagar	OK
5	S7.5	S7.5	CAL5	08/14/25 10:52		sagar	OK
6	S10	S10	CAL6	08/14/25 10:54		sagar	OK
7	ICV14	ICV14	ICV	08/14/25 10:58		sagar	OK
8	ICB14	ICB14	ICB	08/14/25 11:00		sagar	OK
9	CCV41	CCV41	CCV	08/14/25 11:03		sagar	OK
10	CCB41	CCB41	CCB	08/14/25 11:05		sagar	OK
11	CRA	CRA	CRDL	08/14/25 11:07		sagar	OK
12	HighStd	HighStd	HIGH STD	08/14/25 11:10		sagar	OK
13	ChkStd	ChkStd	SAM	08/14/25 11:12		sagar	OK
14	PB169234BL	PB169234BL	MB	08/14/25 11:17		sagar	OK
15	PB169234BS	PB169234BS	LCS	08/14/25 11:19		sagar	OK
16	Q2732-03	WC-A7-01-C	SAM	08/14/25 11:21		sagar	OK
17	Q2832-02	TG-S01	SAM	08/14/25 11:24		sagar	OK
18	Q2832-04	TG-S02	SAM	08/14/25 11:27		sagar	OK

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

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QCBatch ID # LB136819

Review By	sagar	Review On	8/14/2025 12:47:52 PM
Supervise By	jaswal	Supervise On	8/17/2025 10:52:58 PM

STD. NAME	STD REF.#
ICAL Standard	MP86755,MP86756,MP86757,MP86758,MP86759,MP86760
ICV Standard	MP86761
CCV Standard	MP86763
ICSA Standard	
CRI Standard	MP86765
LCS Standard	
Chk Standard	MP86762,MP86764,MP86766,MP86769

19	Q2832-06	TG-S03	SAM	08/14/25 11:29		sagar	OK
20	Q2832-10	TG-S05	SAM	08/14/25 11:32		sagar	OK
21	CCV42	CCV42	CCV	08/14/25 11:34		sagar	OK
22	CCB42	CCB42	CCB	08/14/25 11:36		sagar	OK
23	Q2836-03	WC-A2-15-C	SAM	08/14/25 11:38		sagar	OK
24	Q2836-07	WC-A2-16-C	SAM	08/14/25 11:41		sagar	OK
25	Q2836-11	WC-A2-17-C	SAM	08/14/25 11:43		sagar	OK
26	Q2836-15	WC-A5-02-C	SAM	08/14/25 11:45		sagar	OK
27	Q2838-04	TP-11	SAM	08/14/25 11:48		sagar	OK
28	Q2838-08	TP-10	SAM	08/14/25 11:50		sagar	OK
29	Q2838-08DUP	TP-10DUP	DUP	08/14/25 11:52		sagar	OK
30	Q2838-08MS	TP-10MS	MS	08/14/25 11:55		sagar	OK
31	Q2838-08MSD	TP-10MSD	MSD	08/14/25 11:57		sagar	OK
32	Q2832-08	TG-S04	SAM	08/14/25 11:59		sagar	OK
33	CCV43	CCV43	CCV	08/14/25 12:01		sagar	OK
34	CCB43	CCB43	CCB	08/14/25 12:04		sagar	OK
35	Q2838-08L	TP-10L	SD	08/14/25 12:06		sagar	OK
36	Q2838-08A	TP-10A	PS	08/14/25 12:08		sagar	OK
37	PB169212TB	PB169212TB	MB	08/14/25 12:11		sagar	OK
38	CCV44	CCV44	CCV	08/14/25 12:13		sagar	OK

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Instrument ID: CV1

Daily Analysis Runlog For Sequence/QCBatch ID # LB136819

Review By	sagar	Review On	8/14/2025 12:47:52 PM
Supervise By	jaswal	Supervise On	8/17/2025 10:52:58 PM

STD. NAME	STD REF.#
ICAL Standard	MP86755,MP86756,MP86757,MP86758,MP86759,MP86760
ICV Standard	MP86761
CCV Standard	MP86763
ICSA Standard	
CRI Standard	MP86765
LCS Standard	
Chk Standard	MP86762,MP86764,MP86766,MP86769

39	CCB44	CCB44	CCB	08/14/25 12:15		sagar	OK

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Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB136837

Review By	Janvi	Review On	8/18/2025 9:13:21 AM
Supervise By	jaswal	Supervise On	8/19/2025 4:32:19 PM

STD. NAME	STD REF.#
ICAL Standard	MP86640,MP86656,MP86653,MP86643,MP86642,MP86641
ICV Standard	MP86752,MP86656
CCV Standard	MP86646
ICSA Standard	MP86651,MP86753
CRI Standard	MP86656
LCS Standard	
Chk Standard	MP86647,MP86648

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	08/14/25 11:39		Jaswal	OK
2	S1	S1	CAL2	08/14/25 11:44		Jaswal	OK
3	S2	S2	CAL3	08/14/25 11:48		Jaswal	OK
4	S3	S3	CAL4	08/14/25 11:52		Jaswal	OK
5	S4	S4	CAL5	08/14/25 11:56		Jaswal	OK
6	S5	S5	CAL6	08/14/25 12:00		Jaswal	OK
7	ICV01	ICV01	ICV	08/14/25 12:05		Jaswal	OK
8	LLICV01	LLICV01	LLICV	08/14/25 12:09		Jaswal	OK
9	ICB01	ICB01	ICB	08/14/25 12:13		Jaswal	OK
10	CRI01	CRI01	CRDL	08/14/25 12:23		Jaswal	OK
11	ICSA01	ICSA01	ICSA	08/14/25 12:27		Jaswal	OK
12	ICSAB01	ICSAB01	ICSAB	08/14/25 12:38		Jaswal	OK
13	ICSADL	ICSADL	ICSA	08/14/25 12:42		Jaswal	OK
14	ICSABDL	ICSABDL	ICSAB	08/14/25 12:46		Jaswal	OK
15	CCV01	CCV01	CCV	08/14/25 12:50		Jaswal	OK
16	CCB01	CCB01	CCB	08/14/25 12:54		Jaswal	OK
17	Q2832-01	TG-S01	SAM	08/14/25 12:59		Jaswal	OK
18	PB169236BL	PB169236BL	MB	08/14/25 13:03		Jaswal	OK

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Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB136837

Review By	Janvi	Review On	8/18/2025 9:13:21 AM
Supervise By	jaswal	Supervise On	8/19/2025 4:32:19 PM

STD. NAME	STD REF.#
ICAL Standard	MP86640,MP86656,MP86653,MP86643,MP86642,MP86641
ICV Standard	MP86752,MP86656
CCV Standard	MP86646
ICSA Standard	MP86651,MP86753
CRI Standard	MP86656
LCS Standard	
Chk Standard	MP86647,MP86648

19	PB169236BS	PB169236BS	LCS	08/14/25 13:07		Jaswal	OK
20	PB169232BL	PB169232BL	MB	08/14/25 13:11		Jaswal	OK
21	PB169232BS	PB169232BS	LCS	08/14/25 13:15		Jaswal	OK
22	PB169212TB	PB169212TB	MB	08/14/25 13:19		Jaswal	OK
23	Q2732-03	WC-A7-01-C	SAM	08/14/25 13:24		Jaswal	OK
24	Q2832-02	TG-S01	SAM	08/14/25 13:28		Jaswal	OK
25	Q2832-04	TG-S02	SAM	08/14/25 13:33		Jaswal	OK
26	Q2832-06	TG-S03	SAM	08/14/25 13:37		Jaswal	OK
27	CCV02	CCV02	CCV	08/14/25 13:42		Jaswal	OK
28	CCB02	CCB02	CCB	08/14/25 13:46		Jaswal	OK
29	Q2832-08	TG-S04	SAM	08/14/25 13:50		Jaswal	OK
30	Q2832-10	TG-S05	SAM	08/14/25 13:54		Jaswal	OK
31	Q2836-03	WC-A2-15-C	SAM	08/14/25 13:59		Jaswal	OK
32	Q2836-07	WC-A2-16-C	SAM	08/14/25 14:03		Jaswal	OK
33	Q2836-11	WC-A2-17-C	SAM	08/14/25 14:08		Jaswal	OK
34	Q2836-15	WC-A5-02-C	SAM	08/14/25 14:12		Jaswal	OK
35	Q2838-04	TP-11	SAM	08/14/25 14:17		Jaswal	OK
36	Q2838-08	TP-10	SAM	08/14/25 14:21		Jaswal	OK
37	Q2838-08DUP	TP-10DUP	DUP	08/14/25 14:25		Jaswal	OK
38	Q2838-08L	TP-10L	SD	08/14/25 14:30		Jaswal	OK

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Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB136837

Review By	Janvi	Review On	8/18/2025 9:13:21 AM
Supervise By	jaswal	Supervise On	8/19/2025 4:32:19 PM

STD. NAME	STD REF.#
ICAL Standard	MP86640,MP86656,MP86653,MP86643,MP86642,MP86641
ICV Standard	MP86752,MP86656
CCV Standard	MP86646
ICSA Standard	MP86651,MP86753
CRI Standard	MP86656
LCS Standard	
Chk Standard	MP86647,MP86648

39	CCV03	CCV03	CCV	08/14/25 14:41		Jaswal	OK
40	CCB03	CCB03	CCB	08/14/25 14:45		Jaswal	OK
41	Q2838-08MS	TP-10MS	MS	08/14/25 14:50		Jaswal	OK
42	Q2838-08MSD	TP-10MSD	MSD	08/14/25 14:54		Jaswal	OK
43	Q2838-08A	TP-10A	PS	08/14/25 14:58	0.1ml of M6004 and M6017 of each in 10ml sample.	Jaswal	OK
44	Q2814-01	TW-84SB-E	SAM	08/14/25 15:02		Jaswal	OK
45	Q2814-03	TW-17M-W	SAM	08/14/25 15:06		Jaswal	OK
46	Q2814-16	FB	SAM	08/14/25 15:10		Jaswal	OK
47	Q2814-17DL	TW-518R-SDL	SAM	08/14/25 15:15	Straight 5x for all elemenst	Jaswal	OK
48	Q2814-22	TW-84SB-E	SAM	08/14/25 15:19	Not used	Jaswal	Not Ok
49	Q2814-23	TW-17M-W	SAM	08/14/25 15:23	Not used	Jaswal	Not Ok
50	Q2815-01	TW-705R-S	SAM	08/14/25 15:27		Jaswal	OK
51	CCV04	CCV04	CCV	08/14/25 15:58		Jaswal	OK
52	CCB04	CCB04	CCB	08/14/25 16:02		Jaswal	OK
53	Q2815-11	TW-22M-W	SAM	08/14/25 16:06		Jaswal	OK
54	Q2815-20	TW-11M-W	SAM	08/14/25 16:10		Jaswal	OK
55	Q2815-25	TW-11M-W	SAM	08/14/25 16:14	Not used	Jaswal	Not Ok
56	Q2815-26	FB	SAM	08/14/25 16:18		Jaswal	OK
57	Q2821-05	GW-COMP	SAM	08/14/25 16:23		Jaswal	OK

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Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB136837

Review By	Janvi	Review On	8/18/2025 9:13:21 AM
Supervise By	jaswal	Supervise On	8/19/2025 4:32:19 PM

STD. NAME	STD REF.#
ICAL Standard	MP86640,MP86656,MP86653,MP86643,MP86642,MP86641
ICV Standard	MP86752,MP86656
CCV Standard	MP86646
ICSA Standard	MP86651,MP86753
CRI Standard	MP86656
LCS Standard	
Chk Standard	MP86647,MP86648

58	Q2821-08	DM-COMP	SAM	08/14/25 16:27		Jaswal	OK
59	Q2837-01	TW-WTS-13	SAM	08/14/25 16:31		Jaswal	OK
60	Q2837-01DUP	TW-WTS-13DUP	DUP	08/14/25 16:36		Jaswal	OK
61	Q2837-01L	TW-WTS-13L	SD	08/14/25 16:41		Jaswal	OK
62	Q2837-01MS	TW-WTS-13MS	MS	08/14/25 16:45		Jaswal	OK
63	CCV05	CCV05	CCV	08/14/25 16:50		Jaswal	OK
64	CCB05	CCB05	CCB	08/14/25 17:00		Jaswal	OK
65	Q2837-01MSD	TW-WTS-13MSD	MSD	08/14/25 17:04		Jaswal	OK
66	Q2837-01A	TW-WTS-13A	PS	08/14/25 17:09	0.1ml of M6004 and M6017 of each in 10ml sample.	Jaswal	OK
67	Q2858-01	VNJ 216	SAM	08/14/25 17:13		Jaswal	OK
68	Q2858-01DUP	VNJ 216DUP	DUP	08/14/25 17:17		Jaswal	OK
69	Q2858-01L	VNJ 216L	SD	08/14/25 17:21		Jaswal	OK
70	Q2858-01MS	VNJ 216MS	MS	08/14/25 17:25		Jaswal	OK
71	Q2858-01MSD	VNJ 216MSD	MSD	08/14/25 17:29		Jaswal	OK
72	Q2858-01A	VNJ 216A	PS	08/14/25 17:33	0.1ml of M6004 and M6017 of each in 10ml sample.	Jaswal	OK
73	CCV06	CCV06	CCV	08/14/25 17:54		Jaswal	OK
74	CCB06	CCB06	CCB	08/14/25 18:05		Jaswal	OK

Alliance TECHNICAL GROUP

TCLP EXTRACTION LOGPAGE

PB169212

SOP ID : M1311-TCLP-16

SDG No : N/A

Weigh By : JP

Balance ID : WC SC-7

pH Meter ID : WC PH METER-1

Extraction By : JP

Filter By : JP

Pippete ID : WC

Tumbler ID : T-1 / T-2

TCLP Filter ID : 115525

Start Prep Date : 08/12/2025 **Time :** 17:00

End Prep Date : 08/13/2025 **Time :** 10:35

Combination Ratio : 20

ZHE Cleaning Batch : ~~N/A~~ 10

Initial Room Temperature: 24 °C

Final Room Temperature: 22 °C

TCLP Technician Signature : JP

Supervisor By : RM

Standared Name	MLS USED	STD REF. # FROM LOG
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE U	Lot Number
TCLP-FLUID-1	N/A	WP112804
HCL-TCLP,1N	N/A	WP112797
HNO3-TCLP,1N	N/A	WP112799
pH Strips	N/A	W1931,W1934,W3171,W3172
pH Strips	W1940,W1941,W1942	W3166,W1938,W1939,
1 Liter Amber	N/A	90924-08
120ml Plastic bottle	N/A	2738
1:1 HNO3	N/A	MP84041

Extraction Conformance/Non-Conformance Comments:

Matrix spikes are added after fiftration and before preservation. TUMBLER T-1 / T-2 checked,30 rpm. Particle size reduction is not required. Q2838-08 IS USED for MS-MSD.

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
08/13/25 11:50	JP ICP Room	8/13. RJ IC+
	Preparation Group	Analysis Group / MH DIG

Alliance TECHNICAL GROUP

TCLP EXTRACTION LOGPAGE

PB169212

Sample ID	ClientID	TCLP Vessel ID	Sample Wt (g)	Volume Extraction Fluid #1 (mL)	Multi phasic	Phase Miscible	Phases Combined	Final Leachate PH	Metals Leachate Adj. PH	Prep Pos
PB169212TB	LEB212	13	N/A	2000	N/A	N/A	N/A	4.93	1.5	T-2
Q2732-03	WC-A7-01-C	01	100.02	2000	N/A	N/A	N/A	11.0	1.0	T-1
Q2832-02	TG-S01	02	100.02	2000	N/A	N/A	N/A	6.0	1.5	T-1
Q2832-04	TG-S02	03	100.03	2000	N/A	N/A	N/A	6.2	1.0	T-1
Q2832-06	TG-S03	04	100.02	2000	N/A	N/A	N/A	5.8	1.5	T-1
Q2832-08	TG-S04	05	100.01	2000	N/A	N/A	N/A	5.6	1.0	T-1
Q2832-10	TG-S05	06	100.02	2000	N/A	N/A	N/A	5.0	1.0	T-1
Q2836-03	WC-A2-15-C	07	100.03	2000	N/A	N/A	N/A	11.5	1.5	T-1
Q2836-07	WC-A2-16-C	08	100.02	2000	N/A	N/A	N/A	11.5	1.0	T-1
Q2836-11	WC-A2-17-C	09	100.03	2000	N/A	N/A	N/A	11.5	1.5	T-1
Q2836-15	WC-A5-02-C	10	100.02	2000	N/A	N/A	N/A	11.0	1.5	T-1
Q2838-04	TP-11	11	100.01	2000	N/A	N/A	N/A	5.6	1.0	T-2
Q2838-08	TP-10	12	100.02	2000	N/A	N/A	N/A	5.6	1.5	T-2

SampleID	ClientID	Sample Weight (g)	Filter Weight (g)	Filtrate (mL)	Filter + Solid (After 100°C)	% solids	% Dry Solids
PB169212TB	LEB212	N/A	N/A	N/A	N/A	N/A	N/A
Q2732-03	WC-A7-01-C	N/A	N/A	N/A	N/A	100	N/A
Q2832-02	TG-S01	N/A	N/A	N/A	N/A	100	N/A
Q2832-04	TG-S02	N/A	N/A	N/A	N/A	100	N/A
Q2832-06	TG-S03	N/A	N/A	N/A	N/A	100	N/A
Q2832-08	TG-S04	N/A	N/A	N/A	N/A	100	N/A
Q2832-10	TG-S05	N/A	N/A	N/A	N/A	100	N/A
Q2836-03	WC-A2-15-C	N/A	N/A	N/A	N/A	100	N/A
Q2836-07	WC-A2-16-C	N/A	N/A	N/A	N/A	100	N/A
Q2836-11	WC-A2-17-C	N/A	N/A	N/A	N/A	100	N/A
Q2836-15	WC-A5-02-C	N/A	N/A	N/A	N/A	100	N/A
Q2838-04	TP-11	N/A	N/A	N/A	N/A	100	N/A
Q2838-08	TP-10	N/A	N/A	N/A	N/A	100	N/A

Alliance TECHNICAL GROUP

TCLP Fluid Determination

PB169212

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

Thermometer ID : FLASHPOINT

SampleID	ClientID	Sample Weight (g)	Volume DI Water (mL)	PH after 5 min stir	PH after 10 min stir	Extraction Fluid 1 or 2	pH Extraction Fluid
PB169212TB	LEB212	N/A	N/A	N/A	N/A	#1	4.93
Q2732-03	WC-A7-01-C	5.02	96.5	11.5	4.5	#1	4.93
Q2832-02	TG-S01	5.02	96.5	8.4	3.5	#1	4.93
Q2832-04	TG-S02	5.01	96.5	8.4	3.5	#1	4.93
Q2832-06	TG-S03	5.02	96.5	8.2	3.0	#1	4.93
Q2832-08	TG-S04	5.03	96.5	8.0	3.0	#1	4.93
Q2832-10	TG-S05	5.04	96.5	7.0	2.5	#1	4.93
Q2836-03	WC-A2-15-C	5.03	96.5	12.0	4.5	#1	4.93
Q2836-07	WC-A2-16-C	5.02	96.5	12.0	4.5	#1	4.93
Q2836-11	WC-A2-17-C	5.03	96.5	12.5	4.5	#1	4.93
Q2836-15	WC-A5-02-C	5.02	96.5	11.5	4.5	#1	4.93
Q2838-04	TP-11	5.03	96.5	7.6	3.0	#1	4.93
Q2838-08	TP-10	5.02	96.5	7.2	2.5	#1	4.93

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Prep Standard - Chemical Standard Summary

Order ID : Q2832

Test : TCLP ICP Metals,TCLP Mercury

Prepbatch ID : PB169234,PB169236,

Sequence ID/Qc Batch ID: LB136819,LB136837,LB136837,LB136837,

Standard ID :
MP85156,MP85892,MP85893,MP85894,MP85895,MP86640,MP86641,MP86642,MP86643,MP86646,MP86647,MP866
48,MP86651,MP86653,MP86655,MP86656,MP86752,MP86753,MP86754,MP86755,MP86756,MP86757,MP86758,MP
86759,MP86760,MP86761,MP86762,MP86763,MP86764,MP86765,MP86766,MP86769,

Chemical ID :
M4371,M4465,M4916,M5062,M5467,M5658,M5697,M5748,M5798,M5799,M5800,M5801,M5805,M5814,M5816,M5820
,M5884,M5962,M5969,M5970,M5979,M5985,M5998,M6021,M6023,M6027,M6028,M6030,M6032,M6041,M6058,M607
6,M6077,M6086,M6128,M6137,M6140,M6142,M6144,M6145,M6146,M6151,M6158,M6159,M6162,M6163,M6164,M61
65,M6171,M6174,M6176,M6177,M6178,M6179,M6180,M6181,M6182,M6184,W3112,

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
170	1:1HCL	MP85156	04/07/2025	09/06/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 04/07/2025

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

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3965	2:1 H2SO4 : HNO3	MP85892	06/05/2025	11/27/2025	Mohan Bera	None	None	Sarabjit Jaswal 06/14/2025

FROM 1600.00000ml of M6041 + 800.00000ml of M6162 = Final Quantity: 3200.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
65	POTASSIUM PERMANGANATE SOLUTION 5 %	MP85893	06/05/2025	12/05/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 06/14/2025

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

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
66	POTASSIUM PERSULFATE SOLUTION 5 %	MP85894	06/05/2025	08/31/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 06/14/2025

FROM 100.00000ml of M4465 + 2000.00000ml of W3112 = Final Quantity: 2000.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
67	SODIUM CHLORIDE - HYDROXYL- CHLORIDE SOLUTION	MP85895	06/05/2025	08/31/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 06/14/2025

FROM 2000.00000ml of W3112 + 240.00000gram of M4371 + 240.00000gram of M5884 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP86640	08/06/2025	08/27/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 08/07/2025

FROM 125.00000ml of M6151 + 2350.00000ml of W3112 + 25.00000ml of M6162 = Final Quantity: 500.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
907	ICP AES STD S (S5)	MP86641	08/06/2025	08/27/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 08/07/2025

FROM 5.00000ml of M5467 + 5.00000ml of M5820 + 5.00000ml of M5969 + 5.00000ml of M5970 + 5.00000ml of M5998 + 5.00000ml of M6077 + 5.00000ml of M6146 + 5.00000ml of M6174 + 5.00000ml of M6176 + 455.00000ml of MP86640 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
910	ICP AES STD S4	MP86642	08/06/2025	08/27/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 08/07/2025

FROM 50.00000ml of MP86640 + 50.00000ml of MP86641 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
909	ICP AES STD S3	MP86643	08/06/2025	08/27/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 08/07/2025

FROM 25.00000ml of MP86641 + 75.00000ml of MP86640 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
911	ICP AES CCV SOLN	MP86646	08/06/2025	08/27/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 08/07/2025

FROM 50.00000ml of MP86640 + 50.00000ml of MP86641 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
919	ICP AES INTERNAL STD	MP86647	08/06/2025	08/27/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 08/07/2025

FROM 1.00000ml of M6179 + 10.00000ml of M5985 + 1969.00000ml of W3112 + 20.00000ml of M6162 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
903	ICP AES RINSE SOLN	MP86648	08/06/2025	08/27/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 08/07/2025

FROM 200.00000ml of M6162 + 9800.00000ml of W3112 = Final Quantity: 10000.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
904	ICP AES ICSA SOLN	MP86651	08/06/2025	08/27/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 08/07/2025

FROM 5.00000ml of M6182 + 45.00000ml of MP86640 = Final Quantity: 50.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3913	ICP AES STD S2	MP86653	08/06/2025	08/27/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 08/07/2025

FROM 4.00000ml of MP86641 + 46.00000ml of MP86640 = Final Quantity: 50.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2950	ICP AES S1/CRI STOCK STD	MP86655	08/06/2025	08/27/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 08/07/2025

FROM 0.00000ml of M5748 + 0.00000ml of M5805 + 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 M5816 + 0.10000ml of M5820 + 0.10000ml of M5962 + 0.10000ml of M5970 + 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 M6146 + 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 MP86640 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2951	ICP AES S1/CRI WORK STD	MP86656	08/06/2025	08/27/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 08/07/2025

FROM 1.00000ml of MP86655 + 49.00000ml of MP86640 = Final Quantity: 50.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
4163	NEW ICV-060925	MP86752	08/06/2025	08/27/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 08/14/2025

FROM 0.20000ml of M6058 + 0.40000ml of M6163 + 0.40000ml of M6164 + 0.40000ml of M6165 + 48.60000ml of MP86640 = Final Quantity: 50.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3494	ICP AES ICSAB SOLN-1	MP86753	08/06/2025	08/27/2025	Janvi Patel	None	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 08/14/2025

FROM 0.05000ml of M6076 + 5.00000ml of M6182 + 5.00000ml of M6184 + 39.95000ml of MP86640 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP86754	08/13/2025	08/14/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 08/14/2025

FROM 1.00000ml of M6162 + 2.50000ml of M5062 + 96.50000ml of W3112 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1340	Hg 0.00 PPB STD	MP86755	08/13/2025	08/14/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 08/14/2025

FROM 2.50000ml of M6162 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1341	Hg 0.2 PPB STD	MP86756	08/13/2025	08/14/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 08/14/2025

FROM 2.50000ml of M6162 + 247.30000ml of W3112 + 0.20000ml of MP86754 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1342	Hg 2.5 PPB STD	MP86757	08/13/2025	08/14/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 08/14/2025

FROM 2.50000ml of M6162 + 245.00000ml of W3112 + 2.50000ml of MP86754 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1343	Hg 5.0 PPB STD	MP86758	08/13/2025	08/14/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 08/14/2025

FROM 2.50000ml of M6162 + 242.50000ml of W3112 + 5.00000ml of MP86754 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1344	Hg 7.5 PPB STD	MP86759	08/13/2025	08/14/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 08/14/2025

FROM 2.50000ml of M6162 + 240.00000ml of W3112 + 7.50000ml of MP86754 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1345	Hg 10.0 PPB STD	MP86760	08/13/2025	08/14/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 08/14/2025

FROM 2.50000ml of M6162 + 237.50000ml of W3112 + 10.00000ml of MP86754 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1346	Hg ICV SOLUTION	MP86761	08/13/2025	08/14/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 08/14/2025

FROM 2.50000ml of M6162 + 245.00000ml of W3112 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1351	ICB (Hg 0.00 PPB SOLUTION)	MP86762	08/13/2025	08/14/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 08/14/2025

FROM 2.50000ml of M6162 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1358	CCV (Hg 5.0 PPB SOLUTION)	MP86763	08/13/2025	08/14/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 08/14/2025

FROM 485.00000ml of W3112 + 5.00000ml of M6162 + 10.00000ml of MP86754 = Final Quantity: 500.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1352	CCB (Hg 0.00 PPB SOLUTION)	MP86764	08/13/2025	08/14/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 08/14/2025

FROM 495.00000ml of W3112 + 5.00000ml of M6162 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1349	CRA/CRI (Hg 0.2 PPB SOLUTION)	MP86765	08/13/2025	08/14/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 08/14/2025

FROM 2.50000ml of M6162 + 247.30000ml of W3112 + 0.20000ml of MP86754 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1350	CHK STD (Hg 7.0 PPB SOLUTION)	MP86766	08/13/2025	08/14/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 08/14/2025

FROM 2.50000ml of M6162 + 240.50000ml of W3112 + 7.00000ml of MP86754 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
104	5% RINSING HCL	MP86769	08/13/2025	08/17/2025	Sagar Kanani	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 08/14/2025

FROM 100.00000ml of M6151 + 1900.00000ml of W3112 = Final Quantity: 2000.000 ml

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3238-05 / Potassium Persulfate (2.5kg)	0000234156	08/06/2025	07/23/2019 /	07/25/2019 / manojkumar	M4465

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

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

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

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

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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

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

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

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Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58120 / Ca, 10000 PPM, 500 ml	122223	12/22/2026	04/17/2025 / Janvi	01/03/2024 / jaswal	M5805

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

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

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

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

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

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

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

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

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

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

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	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 #
Seidler Chemical	BA-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	23D2462010	03/20/2028	08/16/2024 / mohan	08/16/2024 / mohan	M6041

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

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

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

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

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

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

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 /	01/13/2025 / Jaswal	M6145

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	22G2862015	02/17/2026	02/18/2025 / Sagar	01/15/2025 / Sagar	M6151

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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24D1062002	09/09/2025	03/10/2025 / Eman	02/02/2025 / Sagar	M6158

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

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

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

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

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

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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.	58112 / Mg, 10000 PPM, 500 ml	011525	01/15/2028	07/15/2025 /	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

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

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CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-2 / Laboratory Fortified Stock Solution 2, 125 ml	V2-MEB7433480	02/05/2026	08/06/2025 / Janvi	07/22/2025 / Janvi	M6181

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

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

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

Absolute Standards, Inc.
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Certified Reference Material CRM

M6032

R: 8/5/24

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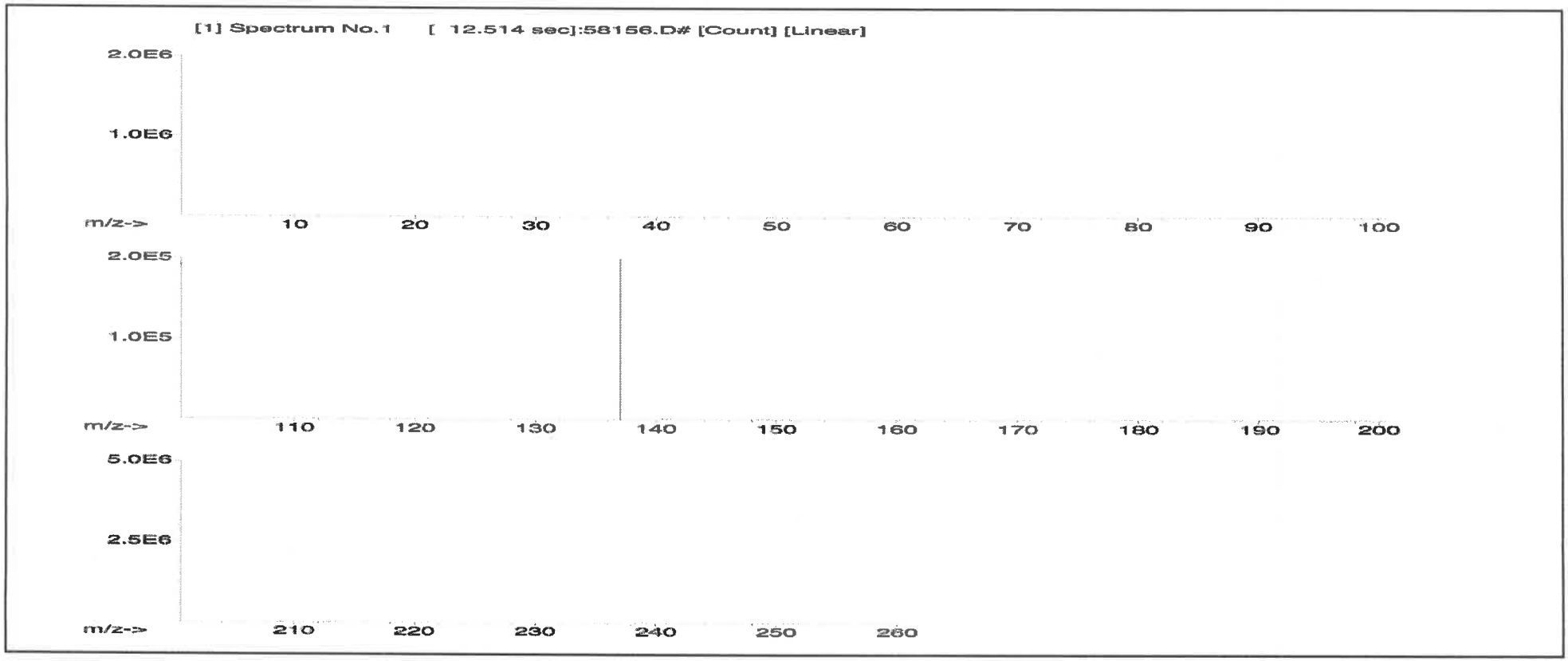
CERTIFIED WEIGHT REPORT:

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

Giovanni Esposito

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

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



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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:



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

Absolute Standards, Inc.
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Certified Reference Material CRM

R: 01/03/24 M5804, M5805

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CERTIFIED WEIGHT REPORT:

Part Number: 58120
Lot Number: 122223
Description: Calcium (Ca)

Expiration Date: 122226
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 4000.0 0.06 Flask Uncertainty

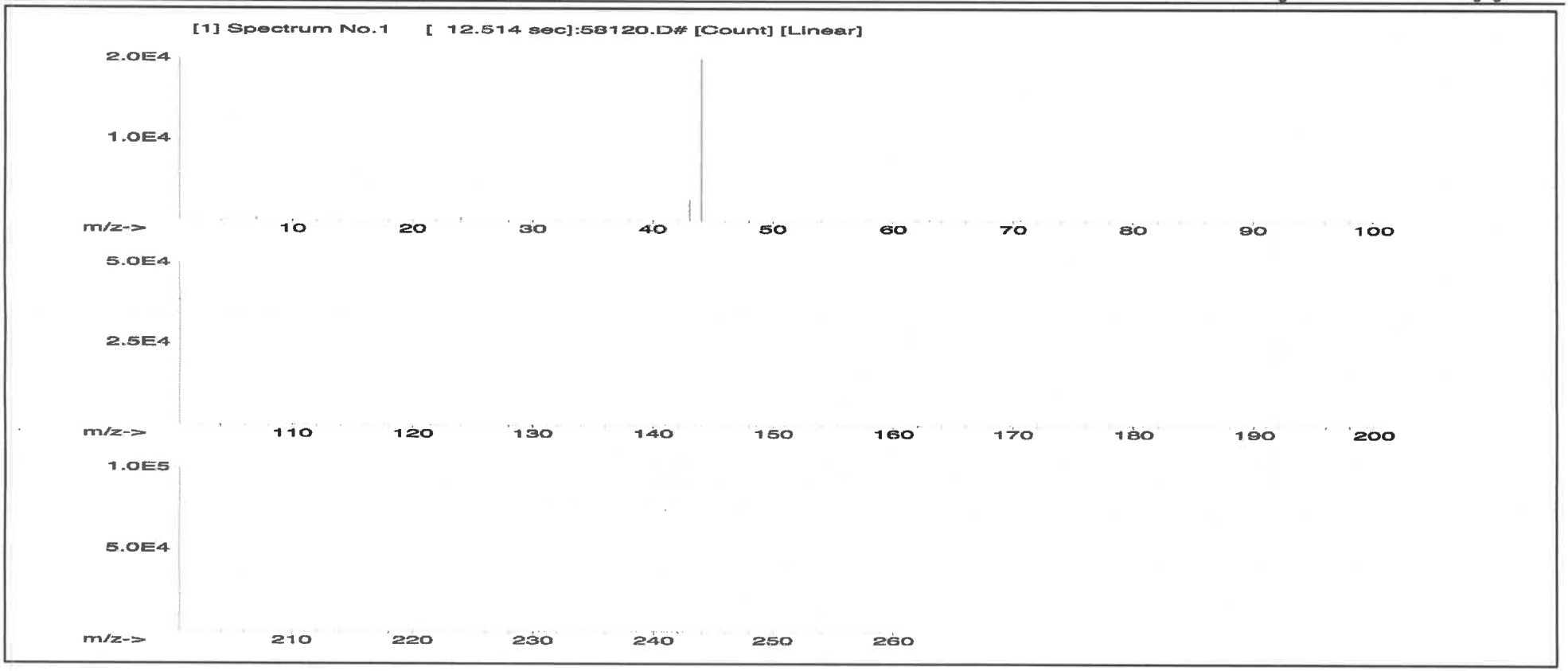
		Lot #	
Solvent:	24002546	Nitric Acid	
2%	80.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

Giovanni Esposito

Formulated By:	Giovanni Esposito	122223
Reviewed By:	Pedro L. Rentas	122223

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Calcium carbonate (Ca)	IN014	CAD03202383	10000	99.999	0.10	39.9	100.2525	100.2670	**10001.4**	**20.0**	471-34-1	5 mg/m3	orl-rat >2000mg/kg	3109a



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	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	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Certified by:

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

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

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Revd 10/14/2024 M6085/M6086/M6087

CERTIFIED WEIGHT REPORT:

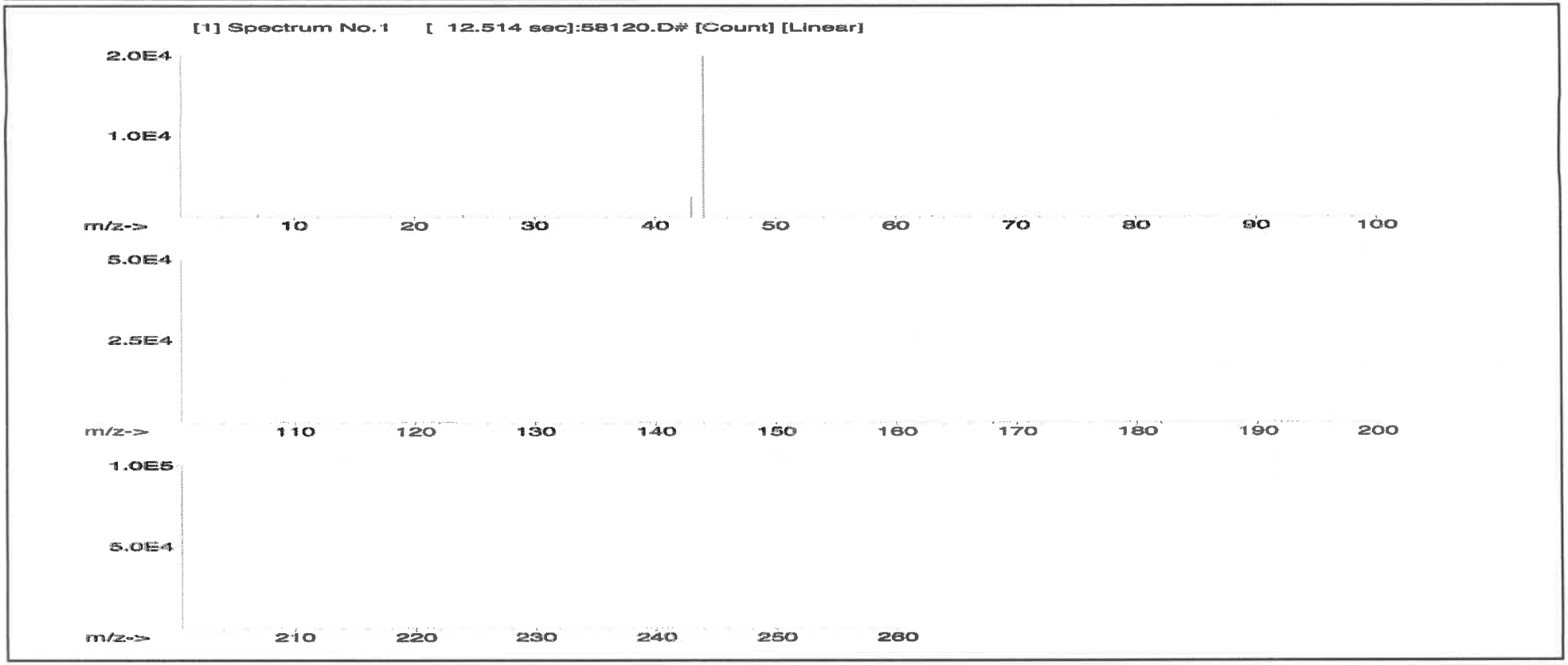
Part Number:	**58120**		**Solvent:**	24002546	Nitric Acid
Lot Number:	**082324**				
Description:	**Calcium (Ca)**		2%	80.0	Nitric Acid
Expiration Date:	082327			(mL)	
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**10000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	4000.1	0.15	Flask Uncertainty		

Lot #

Giovanni Esposito

Formulated By:	Giovanni Esposito	082324
Reviewed By:	Pedro L. Rentas	082324

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Calcium carbonate (Ca)	IN014	CAD03203B3	10000	99.999	0.10	39.9	100.2537	100.2656	**10001.2**	**20.0**	471-34-1	5 mg/m3	ori-rat >2000mg/kg	3109a



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	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	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Certified by:

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

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
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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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M6028

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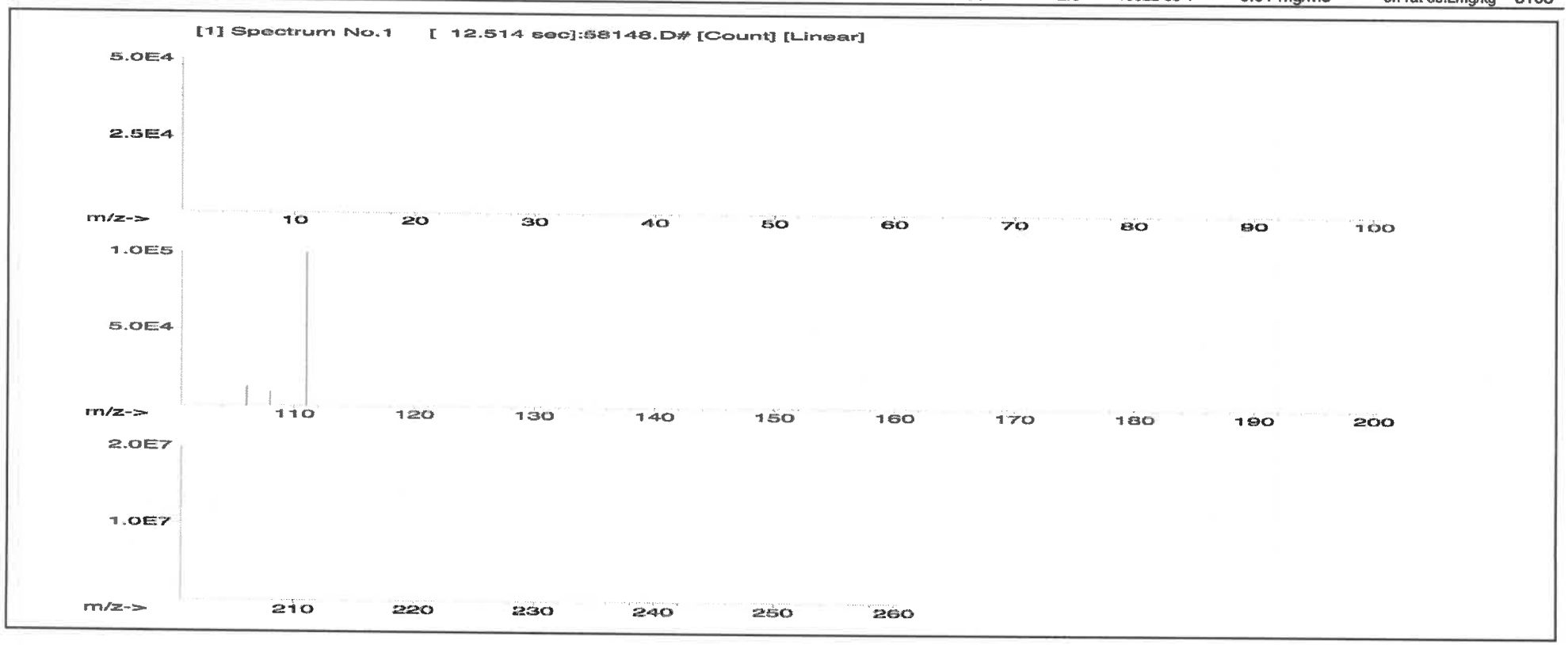
CERTIFIED WEIGHT REPORT:

Part Number:	**57048**		**Lot #**		
Lot Number:	**070124**	**Solvent:**	24002546	Nitric Acid	
Description:	**Cadmium (Cd)**	2%	40.0 (mL)	Nitric Acid	
Expiration Date:	070127				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty		

Aleah O'Brady

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

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



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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

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

M4371

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

Rec – 06.07.19

J.T.Baker® | avantor™

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

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay ($NH_2OH \cdot HCl$) (by $KMnO_4$ titrn)	>= 96.0 %	99.1
Clarity of Alcohol Solution	Passes Test	PT
Residue after Ignition	<= 0.050 %	0.017
Titrable Free Acid (meq/g)	<= 0.25	0.19
Ammonium (NH_4)	Passes Test	PT
Sulfur Compounds (as SO_4)	<= 0.005 %	< 0.003
Trace Impurities - ACS - Heavy Metals (as Pb)	<= 5 ppm	4
Trace Impurities - Iron (Fe)	<= 5 ppm	< 3
Trace Impurities - Mercury (Hg)	<= 0.050 ppm	< 0.005

For Laboratory, Research or Manufacturing Use

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

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

James Ethier
Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

ThermoFisher SCIENTIFIC

M4913-16

MB

Certificate of Analysis

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

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

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

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

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

Julian Burton

Julian Burton - Quality Control Manager – Fair Lawn

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

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Refine your results. Redefine your industry.

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

M5062
M5063
M3

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

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

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.001 ± 0.053 µg/mL

Density: 1.020 g/mL (measured at 20 ± 4 °C)

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

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

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

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

Chemical Compatibility - Stable in HNO_3. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.

Stability - 2-100 ppb levels not stable in 1% HNO_3 / LDPE container, stable in 10% HNO_3 packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO_3 packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO_3 / LDPE container.

Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO_3); Oxide (Soluble in HNO_3); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.).

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 22, 2021

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

11.2 Lot Expiration Date

- September 22, 2026

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Supervisor, Product Documentation



Certificate Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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Certified Reference Material CRM

M5467 R: 03/01/23 (LA)

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

CERTIFIED WEIGHT REPORT:

Part Number: 57058
Lot Number: 020623
Description: Cerium (Ce)

Expiration Date: 020626
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

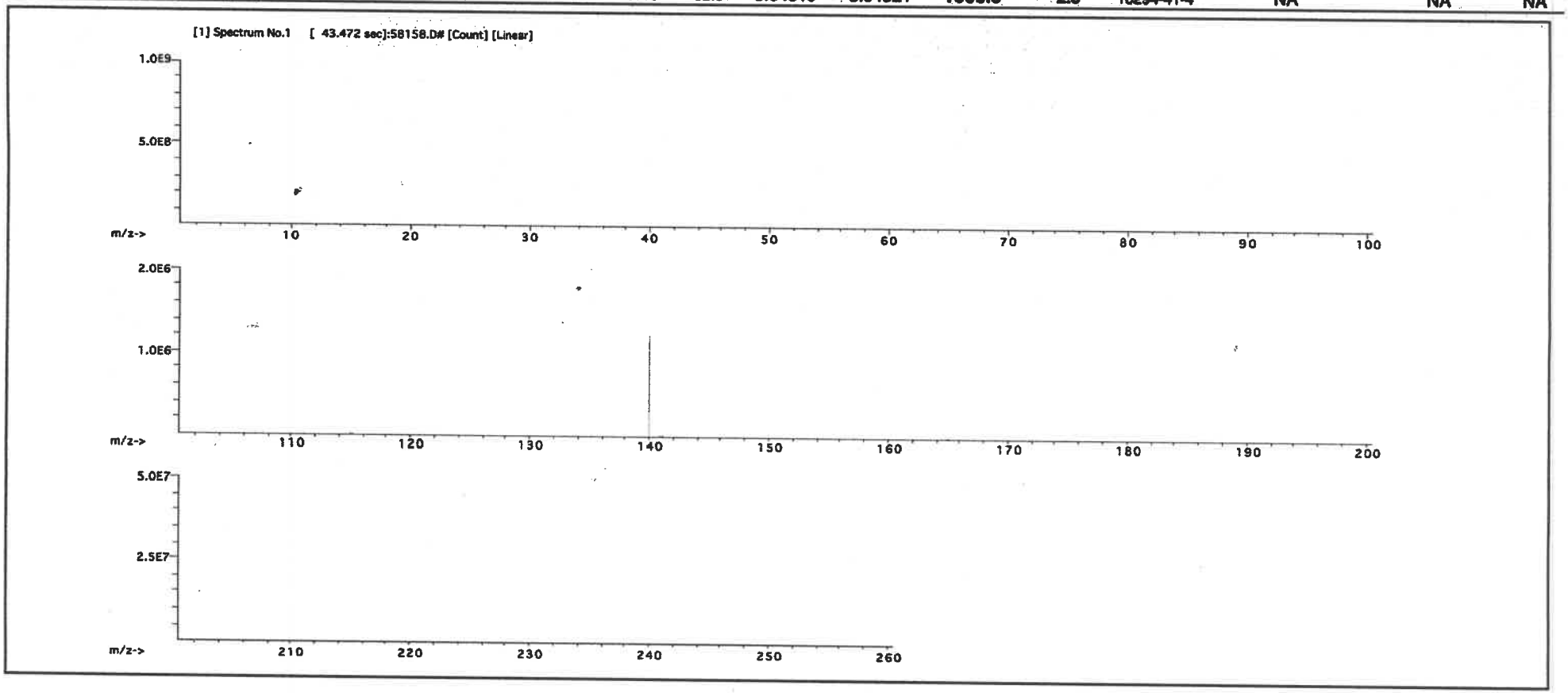
Weight shown below was diluted to (mL): 1000.12 0.058 Flask Uncertainty

		Lot #	
Solvent:	21110221	Nitric Acid	
2%	20.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

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

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Cerium nitrate hexahydrate (Ce)	IN146	Z512CEB1	1000	99.999	0.10	32.8	3.04919	3.04921	**1000.0**	**2.0**	10294-41-4	NA	NA	NA



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

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

(T)= Target analyte

Physical Characterization:

Certified by:

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

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

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Certified Reference Material CRM

M5658 R ! 8/25/23

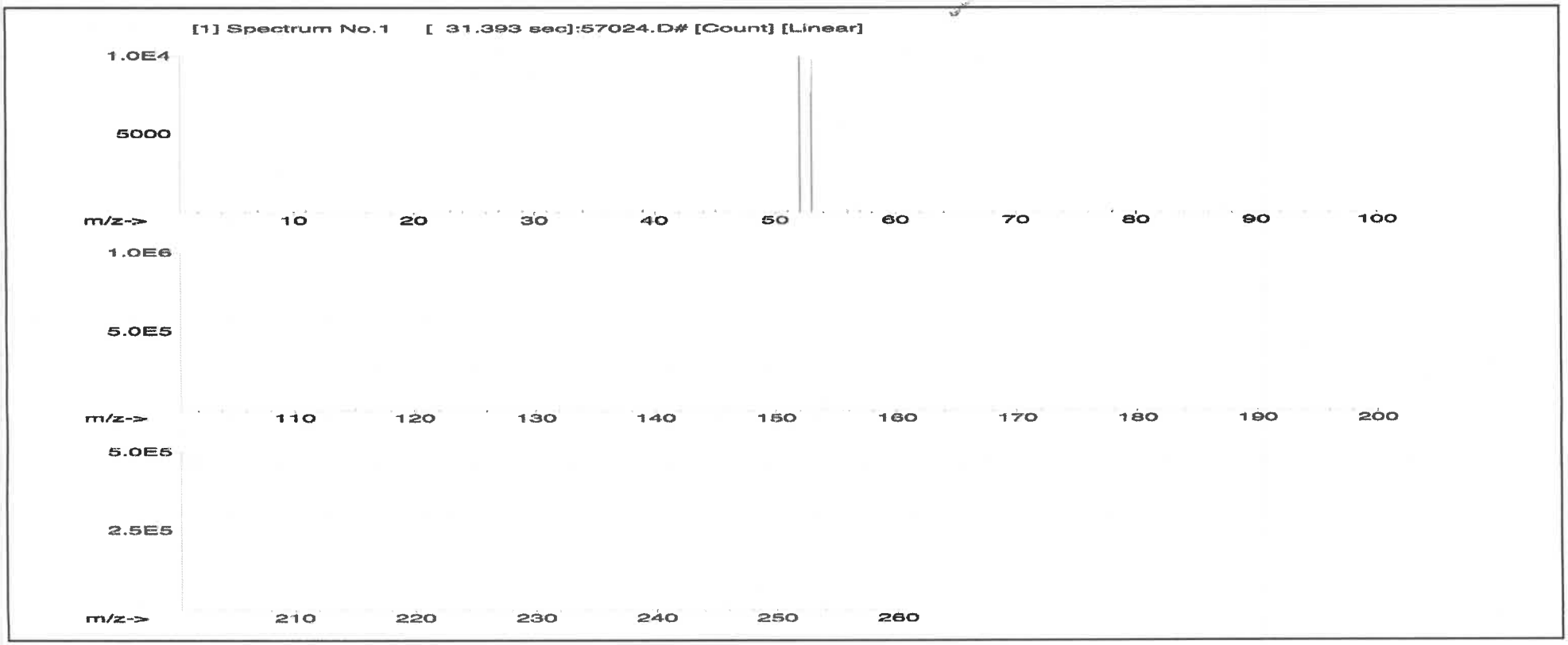
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AR-1539 Certificate Number
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CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**58024**	21110221	Nitric Acid	
Lot Number:	**060523**			
Description:	**Chromium (Cr)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	060526			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

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

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Chromium(III) nitrate nonahydrate (Cr)	58124	071122	0.1000	200.0	0.084	1000	10000.1	**1000.0**	**2.2**	7789-02-8	0.5 mg(Cr)/m3	orl-rat 3250 mg/kg	3112a



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

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

(T)= Target analyte

Physical Characterization:

Certified by:

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

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

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Certified Reference Material CRM

M5697 R: 10/27/23

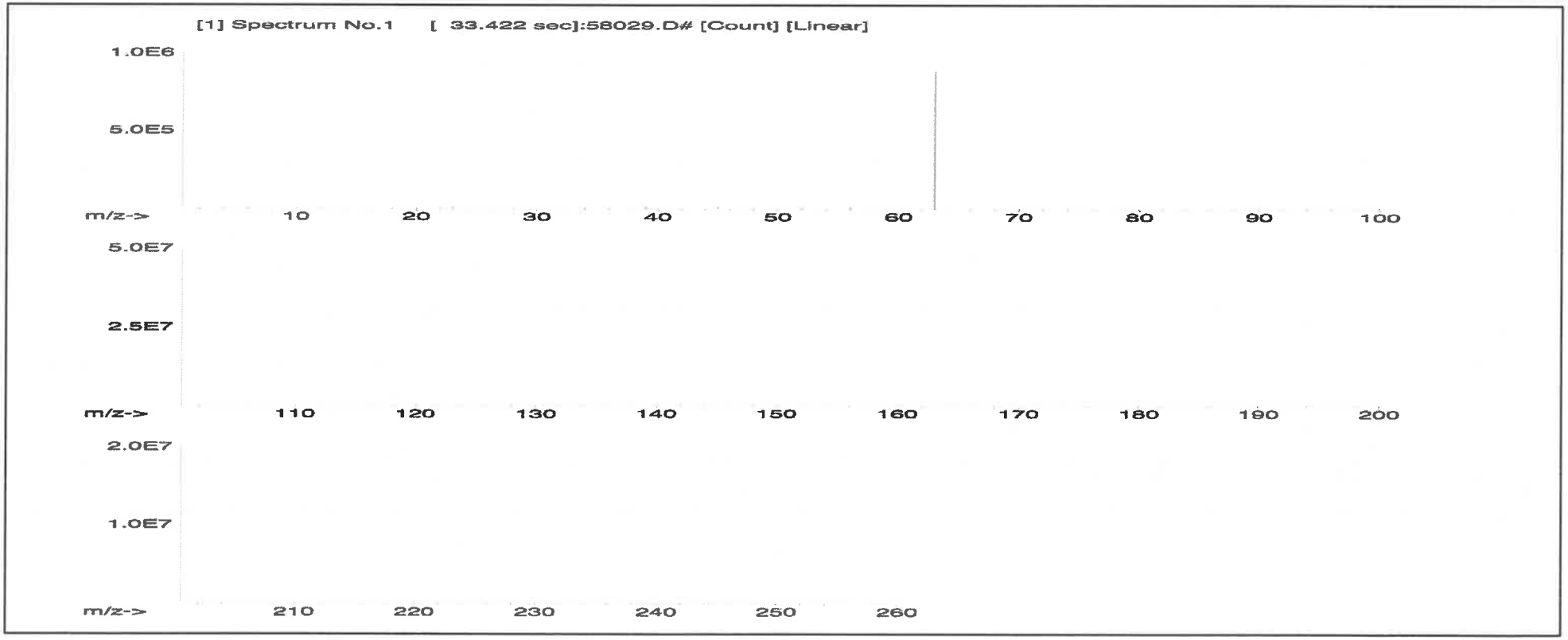
ANAB ISO 17034 Accredited
AR-1539 Certificate Number
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CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**58029**	24002546	Nitric Acid	
Lot Number:	**102523**			
Description:	**Copper (Cu)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	102526			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

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

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. 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	orl-rat 794 mg/kg	3114



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

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

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

(T) = Target analyte

Physical Characterization:

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 certifed (+/-) 0.5% of the stated value, unless otherwise stated.
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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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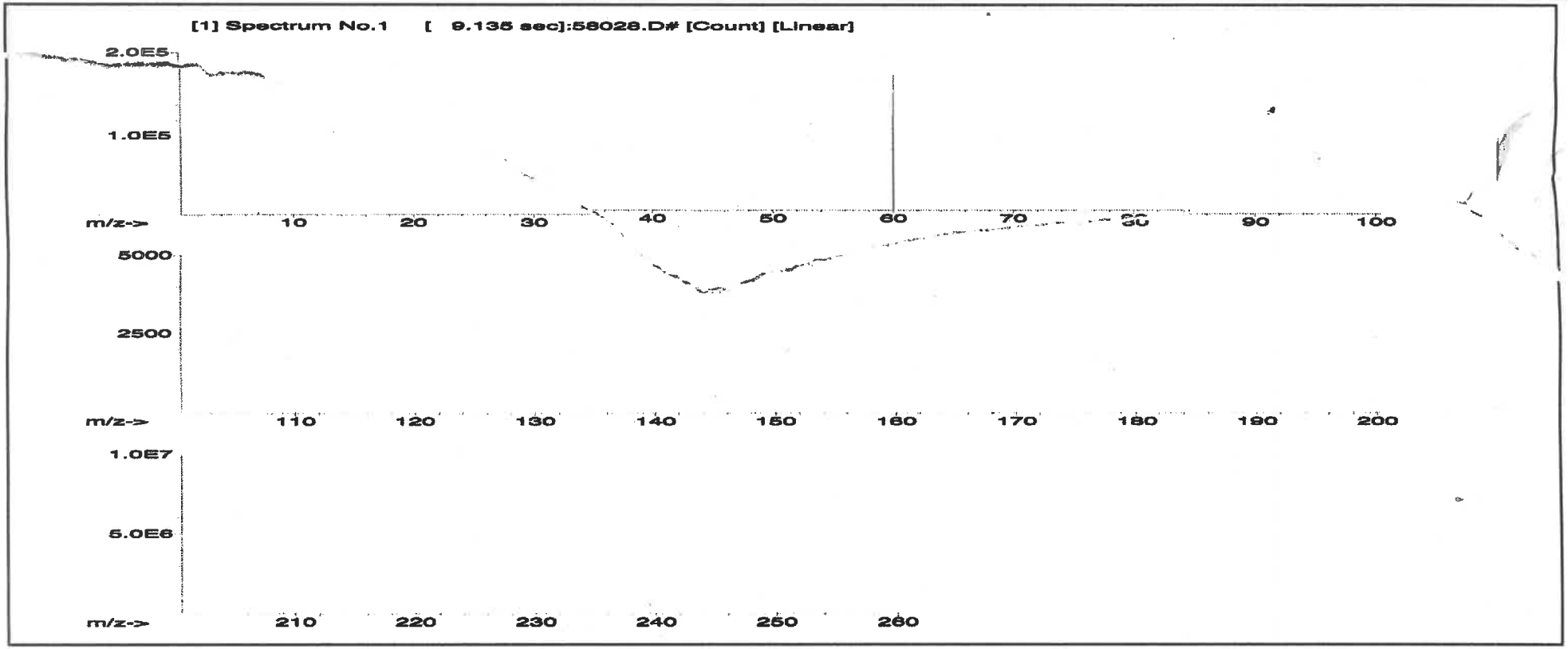
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CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57028**	24002546	Nitric Acid	
Lot Number:	**091223**			
Description:	**Nickel (Ni)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	091226			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

Formulated By:	Lawrence Barry	091223
Reviewed By:	Pedro L. Rentas	091223

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Nickel(II) nitrate hexahydrate (Ni)	58128	062023	0.1000	200.0	0.084	1000	10000.4	**1000.0**	**2.2**	13478-00-7	1 mg/m3	orl-rat 1620 mg/kg	3136



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

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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

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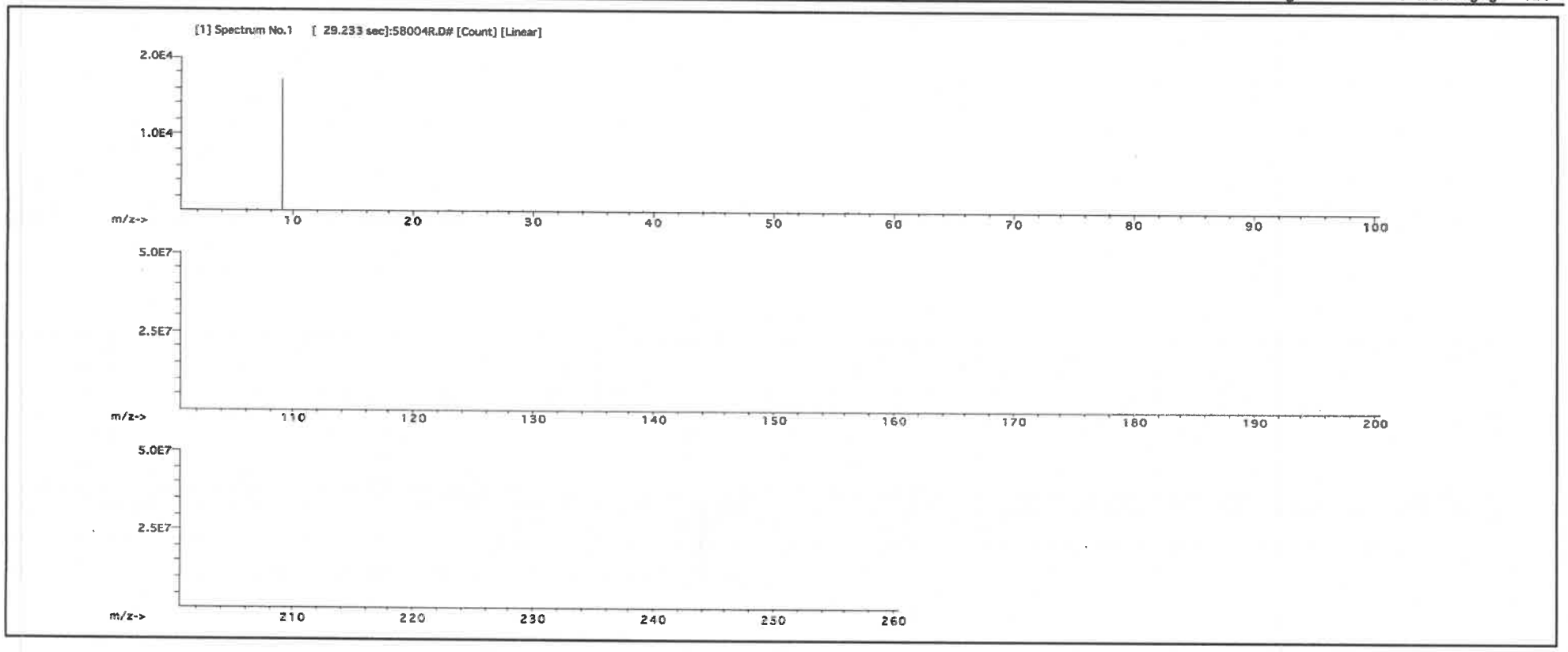
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CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57004**	24002546	Nitric Acid	
Lot Number:	**102523**			
Description:	**Beryllium (Be)**	2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	102526			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

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

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Beryllium nitrate (Be)	58104	091423	0.1000	200.0	0.084	1000	10001.5	**1000.0**	**2.2**	13597-99-4	0.2ug/m3	intrvns-rat 3.16mg/kg	NA



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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

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* 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: 57050
Lot Number: 071123
Description: Tin (Sn)

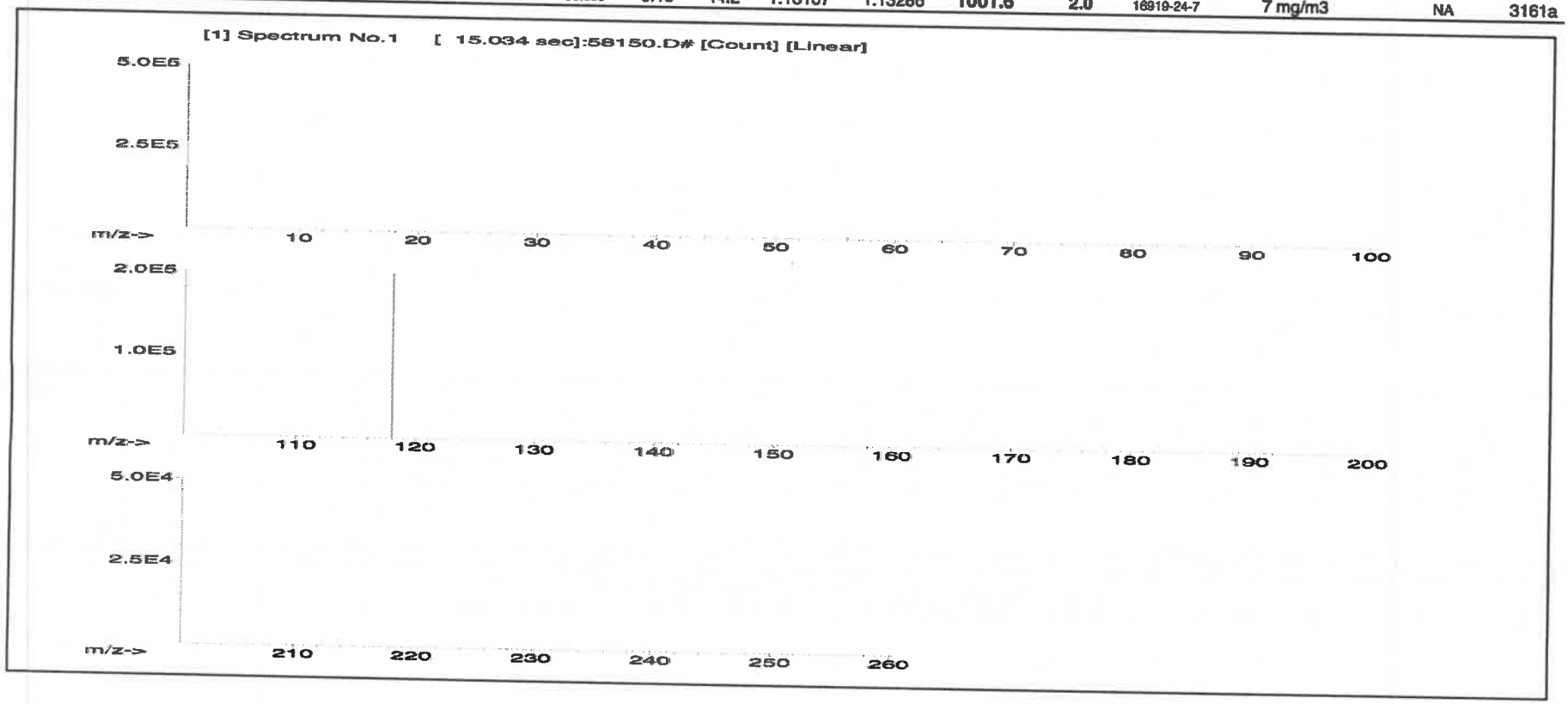
Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 499.93

	Lot #	
Solvents:	21110221	Nitric Acid
	22D0562008	Hydrochloric acid
2%	10.0	Nitric Acid
6%	30.0	Hydrochloric acid
	(mL)	

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Benson Chan	071123
Reviewed By:	Pedro L. Rentas	071123

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium hexafluorostannate(IV) (Sn)	IN010	SND042023A1	1000	99.999	0.10	44.2	1.13107	1.13286	**1001.6**	**2.0**	16919-24-7	7 mg/m3	NA	3161a



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

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<500	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	T	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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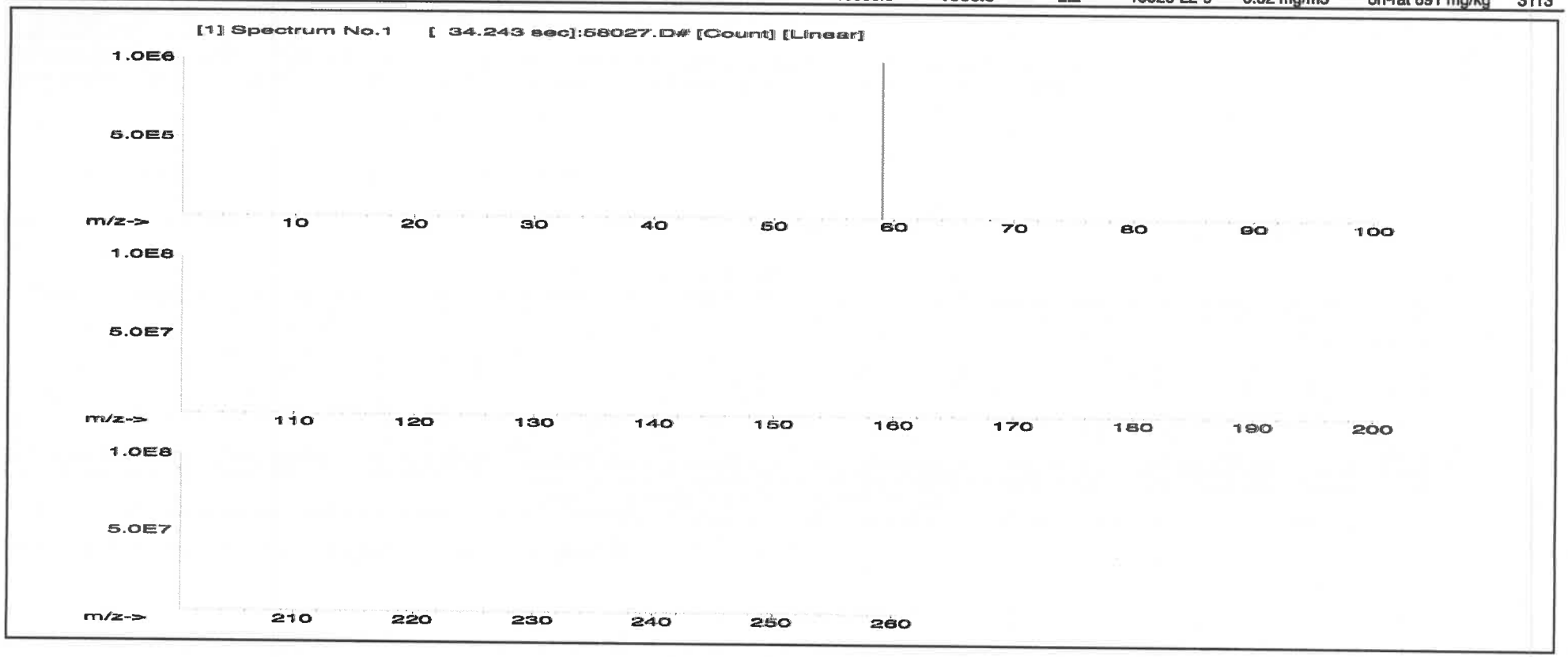
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CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:		
Part Number:	**57027**	24002546	Nitric Acid		
Lot Number:	**091923**				
Description:	**Cobalt (Co)**	2.0%	40.0 (mL)	Nitric Acid	
Expiration Date:	091926				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty		

Formulated By:	Lawrence Barry	091923
Reviewed By:	Pedro L. Rentas	091923

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Cobalt(II) nitrate hexahydrate (Co)	58127	050923	0.1000	200.0	0.084	1000	10000.0	**1000.0**	**2.2**	10026-22-9	0.02 mg/m3	orl-rat 691 mg/kg	3113



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

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

(T)= Target analyte

Physical Characterization:

Certified by:

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

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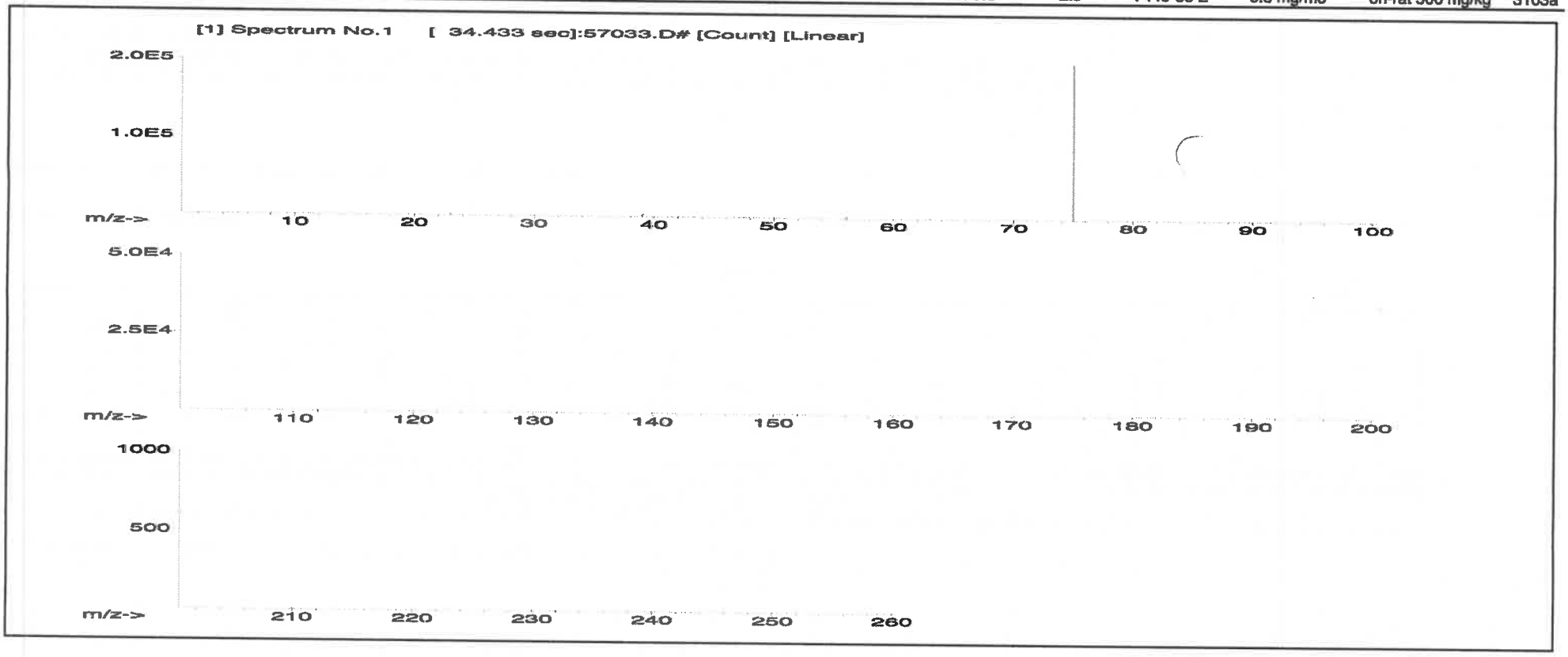
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CERTIFIED **WEIGHT** REPORT:

		Lot #	Solvent:		
Part Number:	**57033**	24002546	Nitric Acid		
Lot Number:	**111323**				
Description:	**Arsenic (As)**	2.0%	80.0 (mL)	Nitric Acid	
Expiration Date:	111326				
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):	4000.0	0.06	Flask Uncertainty		

Formulated By:	Lawrence Barry	111323
Reviewed By:	Pedro L. Rentas	111323

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Arsenic (As)	58133	020522	0.1000	400.0	0.084	1000	10001.0	**1000.0**	**2.0**	7440-38-2	0.5 mg/m3	orl-rat 500 mg/kg	3103a



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

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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

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A: 02/09/24 M.5814

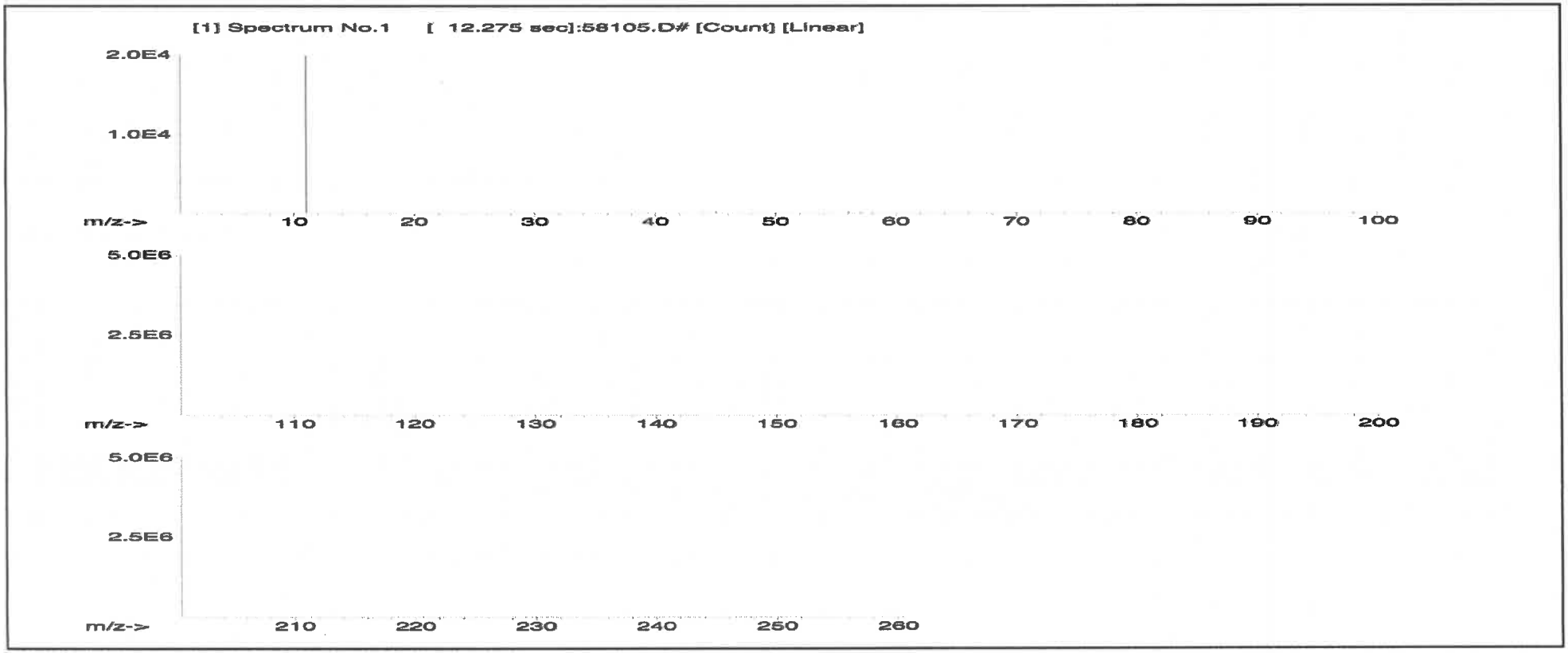
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CERTIFIED WEIGHT REPORT:

Part Number:	**57005**		**Solvent:**	MKBQ8597V	Ammonium hydroxide
Lot Number:	**071123**				
Description:	**Boron (B)**		2.0%	40.0 (mL)	Ammonium hydroxide
Expiration Date:	071126				
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):	1999.48	0.058	Flask Uncertainty		

Formulated By:	Benson Chan	071123
Reviewed By:	Pedro L. Rentas	071123

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Boric acid (B)	IN018	BV092016A1	1000	99.9999	0.10	17.3	11.55772	11.56201	**1000.4**	**2.0**	10043-35-3	2 mg/m3	orl-rat 2660 mg/kg	3107



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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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R: 02/09/24 M5816

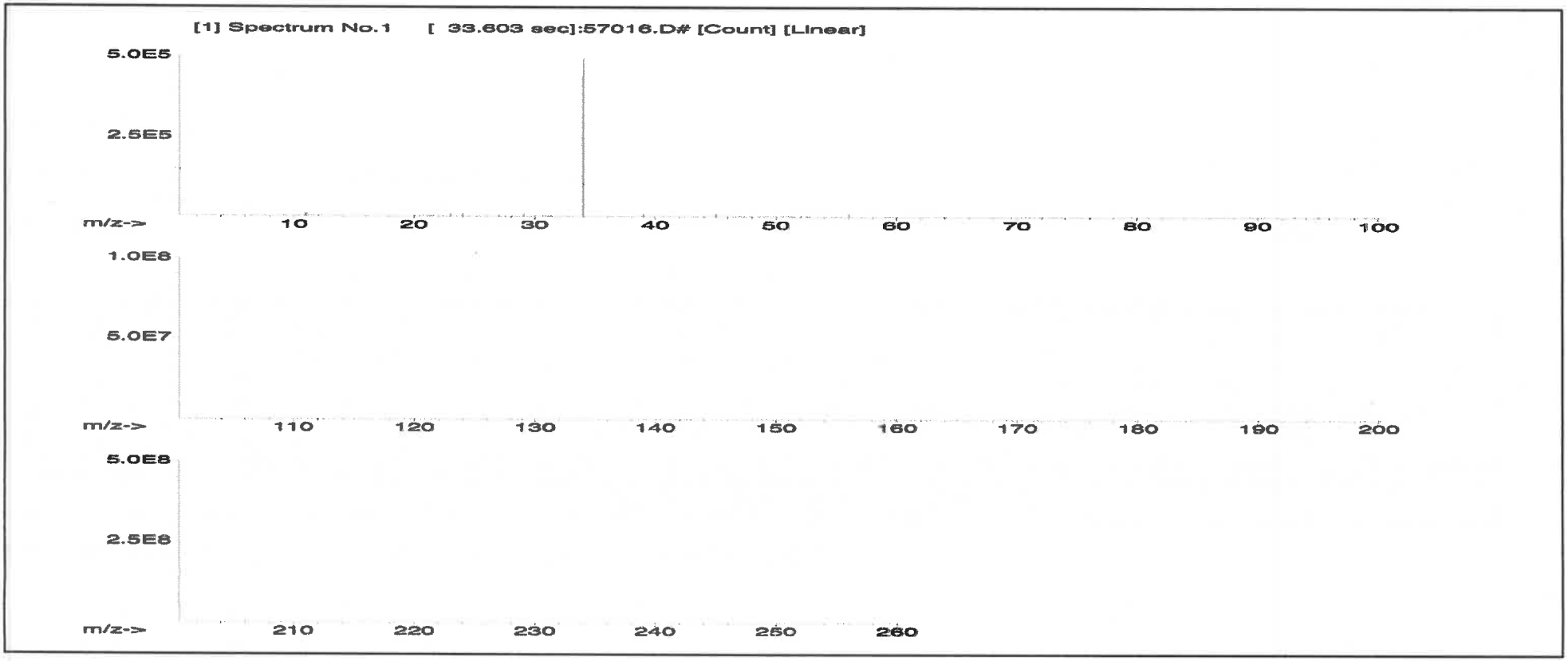
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CERTIFIED WEIGHT REPORT:

Part Number:	**57016**	**Solvent:**	**Lot #** 122923	ASTM Type 1 Water
Lot Number:	**122923**			
Description:	**Sulfur (S)**			
Expiration Date:	122926			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Weight shown below was diluted to (mL):	4000.0	0.06	Flask Uncertainty	

Formulated By:	Benson Chan	122923
Reviewed By:	Pedro L. Rentas	122923

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium sulfate (S)	IN117	SLBR7225V	1000	99.9	0.10	24.3	16.4979	16.4980	**1000.0**	**2.0**	7783-20-2	NA	orl-rat 4250mg/kg	3181



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

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

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

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R: 02/09/24 M5820

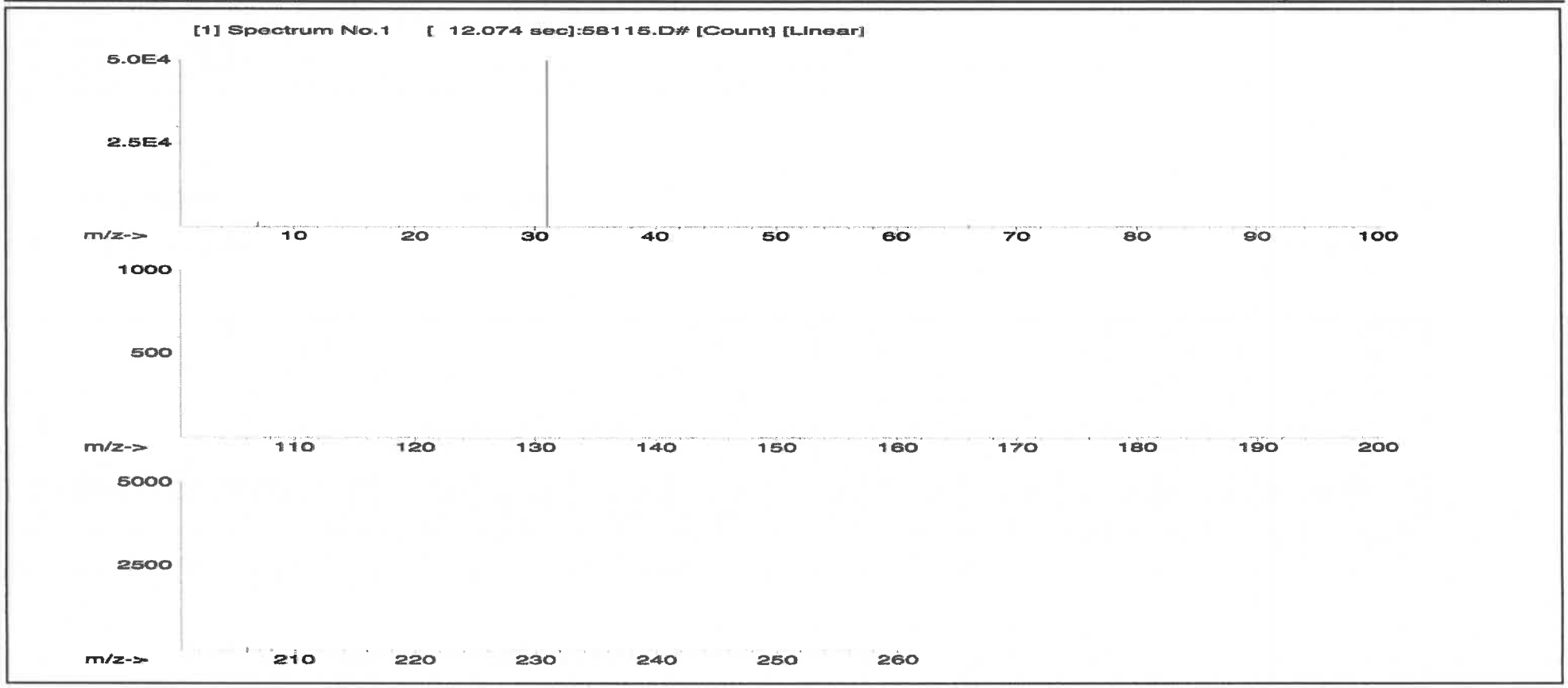
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CERTIFIED WEIGHT REPORT:

Part Number:	**57015**		**Lot #**		
Lot Number:	**091123**	**Solvent:**	24002546	Nitric Acid	
Description:	**Phosphorous (P)**				
		2%	40.0 (mL)	Nitric Acid	
Expiration Date:	091126				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty		

Formulated By:	Lawrence Barry	091123
Reviewed By:	Pedro L. Rentas	091123

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium dihydrogen phosphate (P)	IN008	PV082019A1	1000	99.999	0.10	27.5	7.2729	7.2730	**1000.0**	**2.0**	7722-76-1	5 mg/m3	orl-rat >2000mg/k	3186



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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

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

Sodium Chloride, Crystal
BAKER ANALYZED® A.C.S. Reagent

MT884
MB

avantor™ | J.T.Baker®

Material No.: 3624-01
Batch No.: 0000281938
Manufactured Date: 2021-06-07
Retest Date: 2026-06-07
Revision No.: 1

Certificate of Analysis

Test	Specification	Result
Assay (NaCl) (by Ag titrn)	≥ 99.0 %	100.0 %
pH of 5% Solution at 25°C	5.0 - 9.0	6.3
Insoluble Matter	≤ 0.005 %	0.003 %
Iodide (I)	≤ 0.002 %	< 0.002 %
Bromide (Br)	≤ 0.01 %	< 0.01 %
Chlorate and Nitrate (as NO_3)	≤ 0.003 %	< 0.001 %
ACS - Phosphate (PO_4)	≤ 5 ppm	< 5 ppm
Sulfate (SO_4)	≤ 0.004 %	< 0.004 %
Barium (Ba)	Passes Test	Passes Test
ACS - Heavy Metals (as Pb)	≤ 5 ppm	< 5 ppm
Iron (Fe)	≤ 2 ppm	< 1 ppm
Calcium (Ca)	≤ 0.002 %	< 0.001 %
Magnesium (Mg)	≤ 0.001 %	< 0.001 %
Potassium (K)	≤ 0.005 %	0.001 %

For Laboratory,Research,or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs
Country of Origin: USA
Packaging Site: Paris Mfg Ctr & DC

James T Ethier

Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Mansford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700

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M5962 R! 06/14/24.

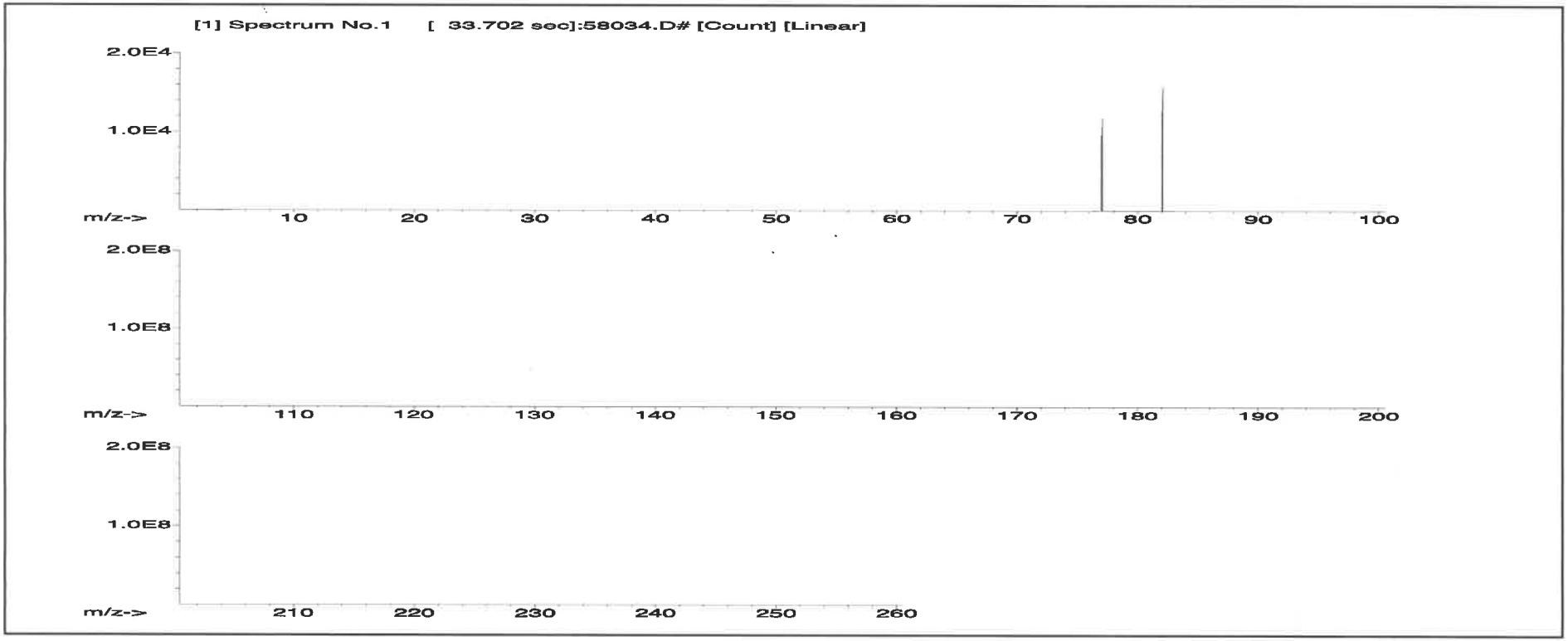
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CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57034**	24002546	Nitric Acid	
Lot Number:	**060624**			
Description:	**Selenium (Se)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	060627			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty	

Formulated By:	Benson Chan	060624
Reviewed By:	Pedro L. Rentas	060624

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Selenium (Se)	58134	071223	0.1000	200.0	0.084	1000	10002.5	**1000.0**	**2.2**	7782-49-2	0.2 mg/m3	orl-rat 6700 mg/kg	3149



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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:



* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
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M5969 R: 06/11/24

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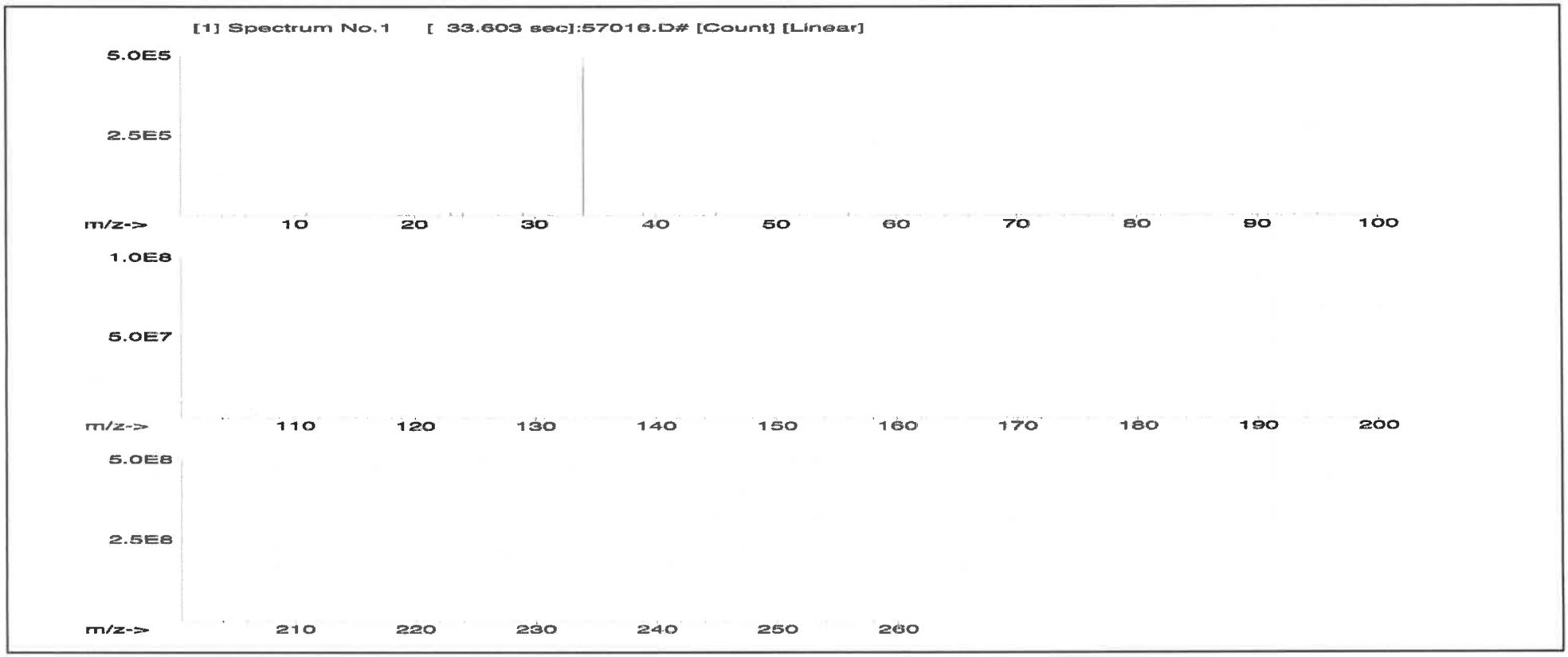
CERTIFIED WEIGHT REPORT:

Part Number:	**57016**	**Solvent:**	122923	ASTM Type 1 Water
Lot Number:	**122923**			
Description:	**Sulfur (S)**			
Expiration Date:	122926			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Weight shown below was diluted to (mL):	4000.0	0.06	Flask Uncertainty	

Lot #

Formulated By:	Benson Chan	122923
Reviewed By:	Pedro L. Rentas	122923

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium sulfate (S)	IN117	SLBR7225V	1000	99.9	0.10	24.3	16.4979	16.4980	**1000.0**	**2.0**	7783-20-2	NA	orl-rat 4250mg/kg	3181



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M5970, M5971 R: 7/01/24

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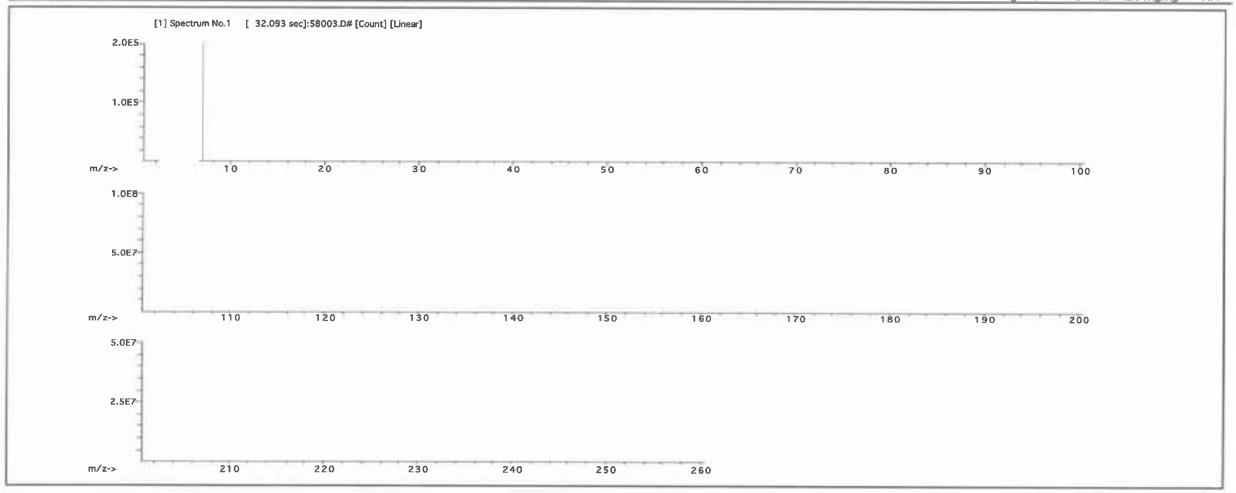
CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:
Part Number:	**57003**	24002546	Nitric Acid
Lot Number:	**062124**		
Description:	**Lithium (Li)**		
		2.0%	5.0 (mL) Nitric Acid
Expiration Date:	062127		
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):	250.11	0.016 Flask Uncertainty	

Giovanni Esposito
Formulated By: Giovanni Esposito 062124

Pedro Rentas
Reviewed By: Pedro L. Rentas 062124

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lithium nitrate (Li)	58103	070622	0.1000	25.0	0.004	1000	10000.4	**1000.0**	**2.0**	7790-69-4	5 mg/m3	orl-rat 1426 mg/kg	NA



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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	T	Ni	<0.02	Pr	<0.02	Sc	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
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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:

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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).

M5978, M5979

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1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGTI1
Lot Number:	T2-TI719972
Matrix:	2% (v/v) HNO_3 tr. HF
Value / Analyte(s):	1 000 µg/mL ea: Titanium
Starting Material:	Ti Metal
Starting Material Lot#:	2094
Starting Material Purity:	99.9975%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 5 µg/mL

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

Assay Information:

Assay Method #1 **1002 ± 4 µg/mL**
ICP Assay NIST SRM 3162a Lot Number: 130925

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

M	Ag	<	0.000536	M	Eu	<	0.000268	O	Na	<	0.032670	M	Se		0.001204	O	Zn	<	0.003267
O	Al		0.000872	O	Fe		0.003225	O	Nb	<	0.043560	O	Si		0.004735	O	Zr	<	0.043560
M	As	<	0.008586	M	Ga	<	0.000268	M	Nd	<	0.000268	M	Sm	<	0.000268				
M	Au	<	0.004577	M	Gd	<	0.000268	O	Ni	<	0.010890	M	Sn		0.000096				
O	B	<	0.008929	M	Ge	<	0.002146	M	Os	<	0.000269	O	Sr		0.000096				
M	Ba	<	0.002683	M	Hf		0.002161	O	P	<	0.054450	M	Ta		0.010560				
M	Be	<	0.005366	M	Hg	<	0.003231	M	Pb	<	0.001073	M	Tb	<	0.000268				
M	Bi	<	0.001609	M	Ho	<	0.000268	M	Pd	<	0.000268	M	Te	<	0.001341				
O	Ca		0.000676	M	In	<	0.002683	M	Pr	<	0.000268	M	Th	<	0.053663				
M	Cd	<	0.000268	M	Ir	<	0.000269	M	Pt	<	0.000536	s	Ti	<					
M	Ce	<	0.000268	M	K		0.001172	M	Rb	<	0.000268	M	Tl	<	0.000268				
M	Co	<	0.004293	M	La	<	0.000268	M	Re	<	0.000268	M	Tm	<	0.000268				
M	Cr		0.000752	O	Li	<	0.027225	M	Rh	<	0.000268	M	U	<	0.000268				
M	Cs	<	0.000268	M	Lu	<	0.000268	M	Ru	<	0.000269	M	V	<	0.019855				
O	Cu	<	0.010890	O	Mg	<	0.005445	i	S	<		M	W		0.000473				
M	Dy	<	0.000268	O	Mn	<	0.003267	M	Sb	<	0.006976	M	Y	<	0.002146				
M	Er	<	0.000268	M	Mo		0.000774	O	Sc	<	0.004900	M	Yb	<	0.000536				

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

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 47.87 +4 6 Ti(F)6-2

Chemical Compatibility - Soluble in concentrated HCl, HF, H3PO4 H2SO4 and HNO3. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements unless they are fluorinated). Stable with most inorganic anions with a tendency to hydrolyze forming the hydrated oxide in all dilute acids except HF.

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

Ti Containing Samples (Preparation and Solution) - Metal (Soluble in H2O / HF caution -powder reacts violently); Oxide - low temperature history anatase or rutile (Dissolved by heating in 1:1:1 H2O / HF / H2SO4); Oxide - high temperature history (~800EC) brookite (fuse in Pt0 with K2S2O7); Ores (fuse in Pt0 with KF + K2S2O7 - no KF if silica not present); Organic Matrices (Dry ash at 450EC in Pt0 and dissolve by heating with 1:1:1 H2O / HF / H2SO4 or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystalline form).

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

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 48 amu	14 ppt	N/A	32S16O, 32S14N, 14N16O18O, 14N17N2, 36Ar12C, 48Ca, [96X=2 (where X = Zr, Mo, Ru)]
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1	Ce, Ar, Ni
ICP-OES 334.941 nm	0.0038 / 0.000028 µg/mL	1	Nb, Ta, Cr, U
ICP-OES 336.121 nm	0.0053 / 0.000034 µg/mL	1	W, Mo, Co

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 17, 2022

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

11.2 Lot Expiration Date

- June 17, 2027

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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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

MS985
R: 6/14/24

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 863.01
ACCREDITED Reference Material Producer Certificate 863.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGIN10
Lot Number:	U2-IN729349
Matrix:	5% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Indium
Starting Material:	Indium Metal
Starting Material Lot#:	2511
Starting Material Purity:	99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10022 ± 30 µg/mL

Density: 1.044 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	**10021 ± 56 µg/mL** ICP Assay NIST SRM 3124a Lot Number: 110516
Assay Method #2	**10035 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928
Assay Method #3	**10001 ± 33 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

M	Ag	<	0.000760	M	Eu	<	0.000760	O	Na		0.012771	M	Se	<	0.023000	M	Zn	<	0.006100
M	Al		0.003385	O	Fe		0.004462	M	Nb	<	0.000760	O	Si		0.024619	M	Zr	<	0.000760
M	As	<	0.004600	M	Ga	<	0.000760	M	Nd	<	0.000760	M	Sm	<	0.000760				
M	Au	<	0.002300	M	Gd	<	0.000760	O	Ni	<	0.005100	M	Sn	<	0.000760				
O	B		0.003692	M	Ge	<	0.001600	M	Os	<	0.000760	O	Sr	<	0.000610				
M	Ba	<	0.001600	M	Hf	<	0.000760	n	P	<		M	Ta	<	0.000760				
O	Be	<	0.000130	M	Hg	<	0.003100	M	Pb		0.001400	M	Tb	<	0.000760				
M	Bi	<	0.000760	M	Ho	<	0.000760	M	Pd	<	0.001600	M	Te	<	0.000760				
O	Ca		0.004616	s	In	<		M	Pr	<	0.000760	M	Th	<	0.000760				
M	Cd	<	0.000760	M	Ir	<	0.000760	M	Pt	<	0.000760	O	Ti	<	0.001100				
M	Ce	<	0.000760	O	K		0.007078	M	Rb	<	0.000760	M	Tl	<	0.000760				
M	Co	<	0.000760	M	La	<	0.000760	M	Re	<	0.000760	M	Tm	<	0.000760				
O	Cr	<	0.001300	O	Li	<	0.000130	M	Rh	<	0.000760	M	U	<	0.000760				
M	Cs	<	0.000760	M	Lu	<	0.000760	M	Ru	<	0.000760	M	V	<	0.001600				
M	Cu	<	0.003800	O	Mg		0.000707	n	S	<		M	W	<	0.001600				
M	Dy	<	0.000760	O	Mn		0.000149	M	Sb	<	0.000760	M	Y	<	0.000760				
M	Er	<	0.000760	M	Mo	<	0.002300	M	Sc	<	0.000760	M	Yb	<	0.000760				

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

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 114.82 +3 6 In(H2O)6+3

Chemical Compatibility -Soluble in HCl, HNO3, and H2SO4. Avoid neutral and basic media. Stable with most metals and inorganic anions. The oxalate, sulfide, carbonate, hydroxide and phosphate are insoluble in water.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO3 / LDPE container.

In Containing Samples (Preparation and Solution) -Metal (Best dissolved in HCl / HNO3); Oxide (Soluble in mineral acids); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Sulfuric/peroxide digestion or dry ash and dissolution in dilute HCl).

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

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 115 amu	1 ppt	n/a	115Sn, 99Ru16O
ICP-OES 158.583 nm	0.05 / 0.002 µg/mL	1	
ICP-OES 230.606 nm	0.1 / 0.03 µg/mL	1	Ni, Os
ICP-OES 325.609 nm	0.2 / 0.05 µg/mL	1	Mn, Mo, Th

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 21, 2023

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

11.2 Lot Expiration Date

- February 21, 2028

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

R: 2/22/24
MS-997

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CLPP-CAL-3
Lot Number:	T2-MEB727800
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	1 000 µg/mL ea: Arsenic, Lead, Selenium, Thallium, 500 µg/mL ea: Cadmium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	**1 000 ± 7 µg/mL**	**Cadmium, Cd**	**500.0 ± 2.2 µg/mL**
Lead, Pb	**1 000 ± 4 µg/mL**	**Selenium, Se**	**1 000 ± 6 µg/mL**
Thallium, Tl	**1 000 ± 7 µg/mL**		

Density: 1.042 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
As	ICP Assay	3103a	100818
As	Calculated		See Sec. 4.2
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Tl	ICP Assay	3158	151215

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

December 21, 2022

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

11.2 Lot Expiration Date

- December 21, 2027

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

M 6041-46
MS

avantor™ | J.T.Baker®

Material No.: 9673-33
Batch No.: 23D2462010
Manufactured Date: 2023-03-22
Retest Date: 2028-03-20
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (H_2SO_4)	95.0 – 98.0 %	96.1 %
Appearance	Passes Test	Passes Test
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Substances Reducing Permanganate (as SO2)	≤ 2 ppm	< 2 ppm
Ammonium (NH_4)	≤ 1 ppm	1 ppm
Chloride (Cl)	≤ 0.1 ppm	< 0.1 ppm
Nitrate (NO_3)	≤ 0.2 ppm	< 0.1 ppm
Phosphate (PO_4)	≤ 0.5 ppm	< 0.1 ppm
Trace Impurities – Aluminum (Al)	≤ 30.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 4.0 ppb	< 2.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	8.5 ppb
Trace Impurities – Cadmium (Cd)	≤ 2.0 ppb	< 0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 6.0 ppb	< 0.4 ppb
Trace Impurities – Cobalt (Co)	≤ 0.5 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gold (Au)	≤ 10.0 ppb	0.5 ppb
Heavy Metals (as Pb)	≤ 500.0 ppb	< 100.0 ppb
Trace Impurities – Iron (Fe)	≤ 50.0 ppb	1.3 ppb
Trace Impurities – Lead (Pb)	≤ 0.5 ppb	< 0.5 ppb
Trace Impurities – Magnesium (Mg)	≤ 7.0 ppb	0.8 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Nickel (Ni)	≤ 2.0 ppb	0.3 ppb
Trace Impurities – Potassium (K)	≤ 500.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se)	≤ 50.0 ppb	< 0.1 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	31.5 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb

>>> Continued on page 2 >>>

Sulfuric Acid
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis
Low Selenium

avantor™ | J.T.Baker®

Material No.: 9673-33
Batch No.: 23D2462010

Test	Specification	Result
Trace Impurities - Sodium (Na)	≤ 500.0 ppb	5.4 ppb
Trace Impurities - Strontium (Sr)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities - Tin (Sn)	≤ 5.0 ppb	< 0.8 ppb
Trace Impurities - Zinc (Zn)	≤ 5.0 ppb	0.4 ppb

For Laboratory,Research,or Manufacturing Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

James T Ethier

Jamie Ethier
Vice President Global Quality

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Refine your results. Redefine your industry.

Certificate of Analysis

R! 08/22/24 M6058, M6059

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CHEM-CLP-4
Lot Number:	V2-MEB746172
Matrix:	3% (v/v) HNO_3 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, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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



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300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

EXP.: 9/6/2029

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CHEM-CLP-4
Lot Number:	V2-MEB746762
Matrix:	3% (v/v) HNO3 3% (v/v) HF
Value / Analyte(s):	1 000 µg/mL ea: Boron, Molybdenum, Silicon, Tin, Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

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

Density: 1.033 g/mL (measured at 20 ± 4 °C)

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 06, 2024

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

11.2 Lot Expiration Date

- September 06, 2029

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Joseph Burns
Custom VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

EXP.: 9/6/2029

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CHEM-CLP-4
Lot Number:	V2-MEB746762
Matrix:	3% (v/v) HNO3 3% (v/v) HF
Value / Analyte(s):	1 000 µg/mL ea: Boron, Molybdenum, Silicon, Tin, Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

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

Density: 1.033 g/mL (measured at 20 ± 4 °C)

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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



Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT:

R->1/13/28

M6128

Part Number:	**58025**	**Solvent:**	**Lot #** 24002546	Nitric Acid
Lot Number:	**101124**			
Description:	**Manganese (Mn)**	2%	80.0 (mL)	Nitric Acid
Expiration Date:	101127			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Weight shown below was diluted to (mL):	4000.2	0.10	Flask Uncertainty	

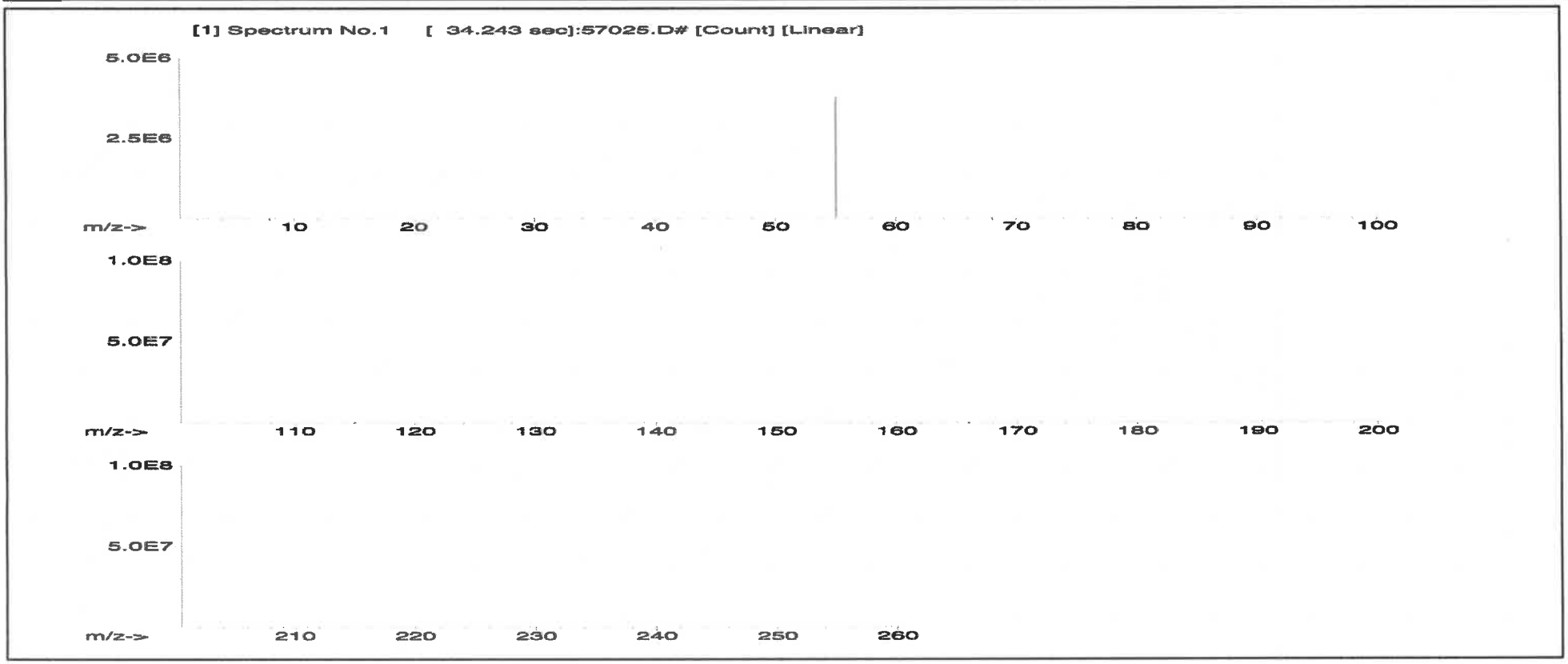
Giovanni Esposito

Formulated By:	Giovanni Esposito	101124

Pedro Rentas

Reviewed By:	Pedro L. Rentas	101124

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	**Actual Conc. (µg/mL)**	Expanded Uncertainty +/- (µg/mL)	**SDS Information** (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Manganese(II) nitrate hydrate (Mn)	IN031	MNM092020A1	1000	99.999	0.10	20.8	19.2322	19.2344	**1000.1**	**2.0**	15710-66-4	5 mg/m3	orl-rat >300mg/kg	3132



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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:



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

INORGANIC VENTURES™
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Certificate of Analysis

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Christiansburg, VA 24073 USA
inorganicventures.com

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

M6137 R→10/3/24

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGSI1
Lot Number:	V2-SI744713
Matrix:	tr. HNO3 tr. HF
Value / Analyte(s):	1 000 µg/mL ea: Silicon
Starting Material:	Silica
Starting Material Lot#:	1771
Starting Material Purity:	99.9981%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 999 ± 6 µg/mL

Density: 1.003 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	**999 ± 5 µg/mL** ICP Assay NIST SRM Traceable to 3150 Lot Number: S2-SI702546
Assay Method #2	**1000 ± 7 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

M	Ag	<	0.000310	M	Eu	<	0.000310	O	Na		0.001656	M	Se	<	0.022000	M	Zn	<	0.002500
M	Al		0.010787	M	Fe	<	0.027000	M	Nb	<	0.001300	s	Si	<		O	Zr	<	0.001900
M	As	<	0.001900	M	Ga	<	0.001300	M	Nd	<	0.000310	M	Sm	<	0.000310				
M	Au	<	0.000910	M	Gd	<	0.000310	M	Ni	<	0.005500	M	Sn		0.000096				
M	B		0.016180	M	Ge	<	0.001900	M	Os	<	0.000610	O	Sr		0.000092				
M	Ba		0.000096	M	Hf		0.000423	i	P	<		M	Ta		0.002542				
O	Be	<	0.000570	M	Hg	<	0.000610	M	Pb	<	0.000310	M	Tb	<	0.000310				
M	Bi	<	0.000310	M	Ho	<	0.000610	M	Pd	<	0.000610	M	Te	<	0.000910				
O	Ca		0.011557	M	In	<	0.000310	M	Pr	<	0.000310	M	Th	<	0.001900				
M	Cd	<	0.000310	M	Ir	<	0.000310	M	Pt	<	0.000310	M	Ti		0.001078				
M	Ce	<	0.000610	O	K		0.000577	M	Rb	<	0.009100	M	Tl	<	0.000310				
M	Co	<	0.001600	M	La	<	0.000310	M	Re	<	0.000310	M	Tm	<	0.000310				
M	Cr	<	0.010000	O	Li	<	0.000460	M	Rh	<	0.000310	M	U	<	0.000310				
M	Cs	<	0.000310	M	Lu	<	0.000310	M	Ru	<	0.000310	O	V	<	0.001300				
M	Cu	<	0.002500	O	Mg		0.001348	O	S	<	0.570000	M	W	<	0.001900				
M	Dy	<	0.000310	M	Mn	<	0.002500	M	Sb	<	0.000310	M	Y	<	0.000310				
M	Er	<	0.000310	M	Mo	<	0.000310	O	Sc	<	0.000590	M	Yb	<	0.000310				

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

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 28.09 +4 6 Si(OH)x(F)y2-

Chemical Compatibility -Soluble in HCl, HF, H3PO4 H2SO4 and HNO3 as the Si(OH)x(F)y2-. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths, or high levels of transition elements unless they are fluorinated. Stable with most inorganic anions with a tendency to hydrolyze forming silicic acid (silicic acid is soluble up to ∼100 ppm in water) in all dilute acids except HF.

Stability - 2-100 ppb levels - stability unknown - (alone or mixed with all other metals) as the Si(OH)x(F)y2-. 1-10,000 ppm single element solutions as the Si(OH)x(F)y2- chemically stable for years in 2-5 % HNO3 / trace HF in a LDPE container.

Si Containing Samples (Preparation and Solution) -Metal (Soluble in 1:1:1 H2O / HF / HNO3); Oxide - SiO2, amorphic (dissolve by heating in 1:1:1 H2O / HF / HNO3); Oxide - quartz (fuse in Pt0 with Na2CO3); Geological Samples(fuse in Pt0with Na2CO3 followed by HCl solution of the fuseate); Organic Matrices containing silicates and non volatile silicon compounds (dry ash at 4500C in Pt0 and dissolve by gently warming with 1:1:1 H2O / HF / H2SO4 or fuse / ash with Na2CO3 and dissolve fuseate with HCl / H2O); Silicone Oils - dimethyl silicones depolymerize to form volatile monomer units when heated (Measure directly in alcoholic KOH / xylene mixture where sample is treated first with the KOH at 60-1000C to "unzip" the Si- O-Si polymeric structure or digest with conc. H2SO4 / H2O2 followed by cooling and dissolution of the dehydrated silica with HF.) Note that the direct analysis of silicone oils in an organic solvent will result in false high results due to high vapor pressure of volatile monomer units like hexamethylcyclotrisiloxane. The KOH forms the K2+Si(CH3)2O= salt which is not volatile at room temperature.

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

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 28 amu	4000 - 8000 ppt	N/A	N2, 12C16O
ICP-OES 212.412 nm	0.02/0.01 µg/mL	1	Hf, Os, Mo, Ta
ICP-OES 251.611 nm	0.012/0.003 µg/mL	1	Ta, U, Zn, Th
ICP-OES 288.158 nm	0.03/0.004 µg/mL	1	Ta, Ce, Cr, Cd, Th

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

July 10, 2024

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

11.2 Lot Expiration Date

- **July 10, 2029**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor



Certificate Approved By:

Muzzammil Khan
Stock Laboratory Supervisor



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT:

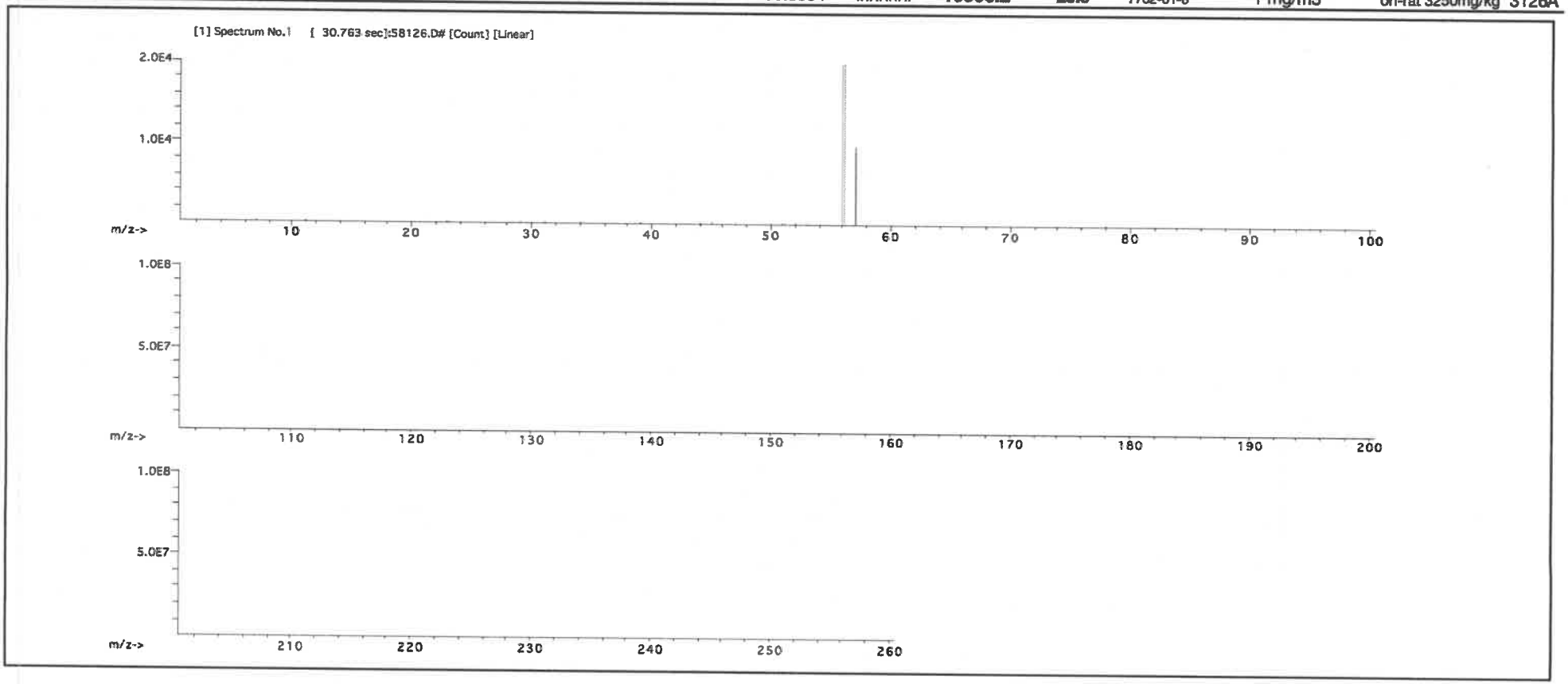
Part Number: 58126 R->1|B|2S
Lot Number: 011025
Description: Iron (Fe) M6140
Expiration Date: 011028
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.07 ± 0.100 Flask Uncertainty

		Lot #	
Solvent:	24012496	Nitric Acid	
	2%	40.0 (mL)	Nitric Acid

5E-05 Balance Uncertainty

Formulated By:	Benson Chan	011025
Reviewed By:	Pedro L. Rentas	011025

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Iron(III) nitrate nonahydrate (Fe)	IN028	FED082023A1	10000	99.999	0.10	13.0	153.8534	######	**10000.2**	**20.0**	7782-61-8	1 mg/m3	orl-rat 3250mg/kg	3126A



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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	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:

Certified by:

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

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

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT:

R-> 1/13/25

Part Number: 57119
Lot Number: 103024
Description: Potassium (K)

M6141
M6142
M6143

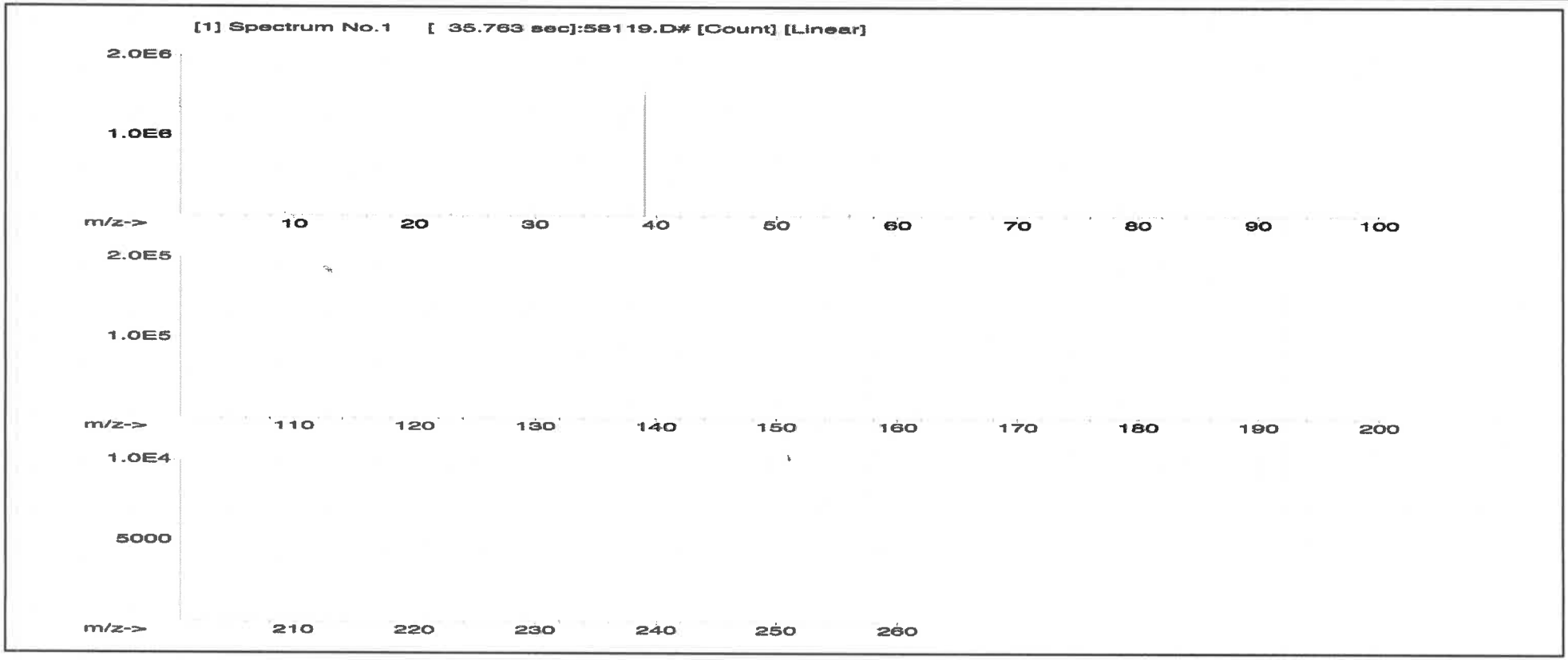
Expiration Date: 103027
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

	Lot #		
Solvent:	24002546	Nitric Acid	
	2%	80.0 (mL)	Nitric Acid
	5E-05	Balance Uncertainty	
Weight shown below was diluted to (mL):	4000.1	0.15	Flask Uncertainty

Giovanni Esposito

Formulated By:	Giovanni Esposito	103024
Reviewed By:	Pedro L. Rentas	103024

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Potassium nitrate (K)	IN034	KD062022A1	10000	99.999	0.10	37.7	106.1040	######	**10001.1**	**20.0**	7757-79-1	5 mg/m3	orl-rat 3750 mg/kg	3141a



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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

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

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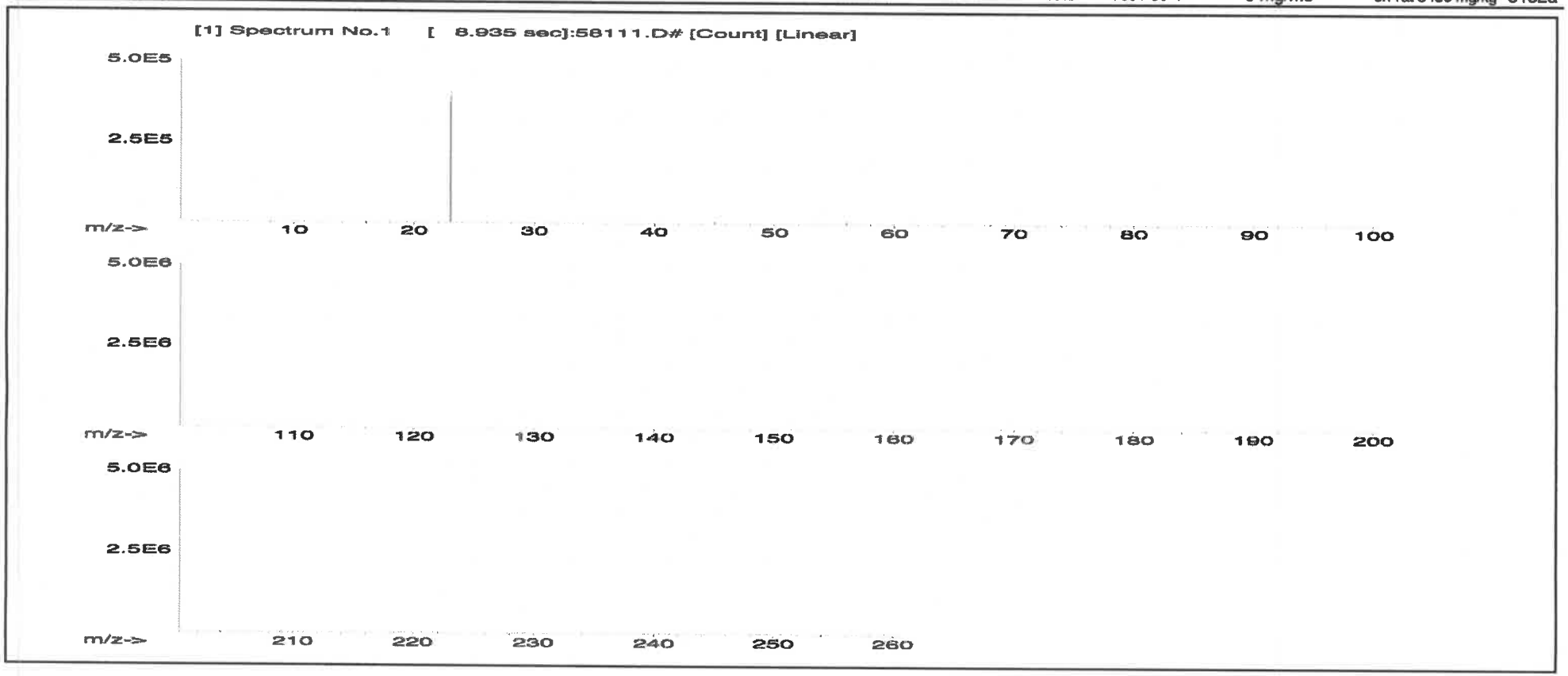
CERTIFIED WEIGHT REPORT:

R->1/13/25

Part Number:	**58111**		**Lot #**		
Lot Number:	**072424**	**Solvent:**	24002546	Nitric Acid	
Description:	**Sodium (Na)**				
		MG144 2%	80.0 (mL)	Nitric Acid	
Expiration Date:	072427				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**10000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	4000.2	0.10	Flask Uncertainty		

Formulated By:	Benson Chan 072424
Reviewed By:	Pedro L. Rentas 072424

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Sodium nitrate (Na)	IN036	NAV012015I1	10000	99.999	0.10	26.9	148.7096	######	**10000.0**	**20.0**	7631-99-4	5 mg/m3	orl-rat 3430 mg/kg	3152a



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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

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

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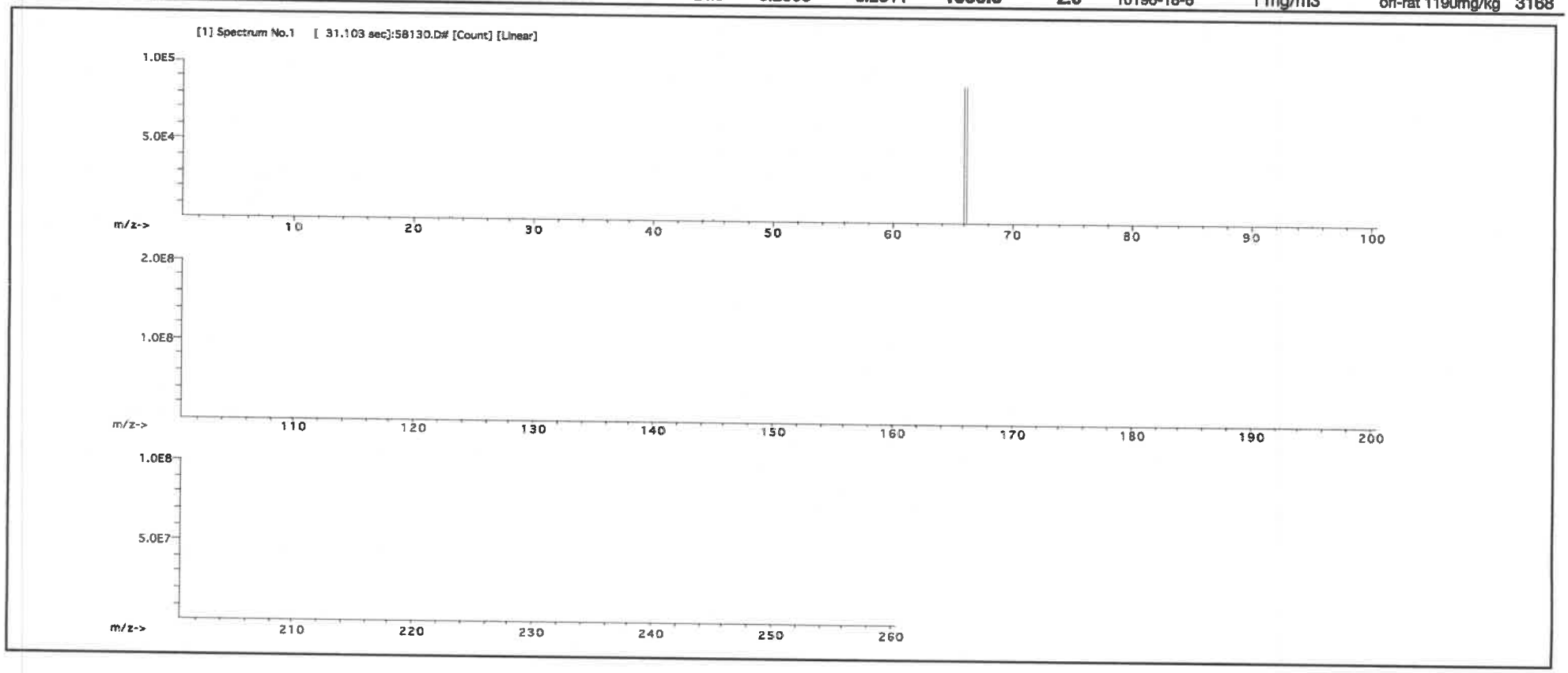
CERTIFIED WEIGHT REPORT:

Part Number:	**58030**	R → 1/13/25	**Solvent:**	**Lot #** 24012496	Nitric Acid
Lot Number:	**121724**				
Description:	**Zinc (Zn)**	M6145	2%	40.0 (mL)	Nitric Acid
Expiration Date:	121727				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05 Balance Uncertainty			
Weight shown below was diluted to (mL):	2000.1	0.10 Flask Uncertainty			

Aleah O'Brady

Formulated By:	Aleah O'Brady	121724
Reviewed By:	Pedro L. Rentas	121724

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Zinc nitrate hexahydrate (Zn)	IN016	ZNE032021A1	1000	99.999	0.10	24.3	8.2308	8.2311	**1000.0**	**2.0**	10196-18-6	1 mg/m3	orl-rat 1190mg/kg	3168



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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™ | J.T.Baker®

M6151

R-> 1/15/25

Material No.: 9530-33
Batch No.: 22G2862015
Manufactured Date: 2022-06-15
Retest Date: 2027-06-14
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid-base titrn)	36.5 – 38.0 %	37.9 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.191
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl_2)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO_4)	≤ 0.05 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO_3)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH_4)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	1.3 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	< 5.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	163.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.7 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	0.6 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	6 ppb

>>> Continued on page 2 >>>

Hydrochloric Acid, 36.5-38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 22G2862015

Test	Specification	Result
Trace Impurities - Lead (Pb)	≤ 1.0 ppb	< 0.5 ppb
Trace Impurities - Lithium (Li)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Magnesium (Mg)	≤ 10.0 ppb	2.9 ppb
Trace Impurities - Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities - Mercury (Hg)	≤ 0.5 ppb	0.1 ppb
Trace Impurities - Molybdenum (Mo)	≤ 10.0 ppb	< 3.0 ppb
Trace Impurities - Nickel (Ni)	≤ 4.0 ppb	< 0.3 ppb
Trace Impurities - Niobium (Nb)	≤ 1.0 ppb	0.8 ppb
Trace Impurities - Potassium (K)	≤ 9.0 ppb	< 2.0 ppb
Trace Impurities - Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities - Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities - Silver (Ag)	≤ 1.0 ppb	0.5 ppb
Trace Impurities - Sodium (Na)	≤ 100.0 ppb	2.3 ppb
Trace Impurities - Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Tantalum (Ta)	≤ 1.0 ppb	1.6 ppb
Trace Impurities - Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Tin (Sn)	≤ 5.0 ppb	4.0 ppb
Trace Impurities - Titanium (Ti)	≤ 1.0 ppb	1.5 ppb
Trace Impurities - Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Zinc (Zn)	≤ 5.0 ppb	0.8 ppb
Trace Impurities - Zirconium (Zr)	≤ 1.0 ppb	0.3 ppb

>>> Continued on page 3 >>>

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™ | J.T.Baker®

Material No.: 9530-33
Batch No.: 22G2862015

Test	Specification	Result

For Laboratory,Research,or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications
Storage Condition: Store below 25 °C.

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

James T Ethier

Jamie Ethier
Vice President Global Quality

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

R-02102/2025

M-6158

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

Certificate of Analysis

Test	Specification	Result
Assay (HNO_3)	69.0 - 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	1 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.03 ppm
Phosphate (PO_4)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities - Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities - Calcium (Ca)	≤ 50.0 ppb	2.3 ppb
Trace Impurities - Chromium (Cr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities - Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Germanium (Ge)	≤ 20 ppb	< 10 ppb
Trace Impurities - Gold (Au)	≤ 20 ppb	< 5 ppb
Heavy Metals (as Pb)	≤ 100 ppb	100 ppb
Trace Impurities - Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities - Lead (Pb)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities - Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Nickel (Ni)	≤ 20.0 ppb	< 5.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

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Material No.: 9606-03
Batch No.: 24D1062002

Test	Specification	Result
Trace Impurities - Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities - Potassium (K)	≤ 50 ppb	16 ppb
Trace Impurities - Silicon (Si)	≤ 50 ppb	< 10 ppb
Trace Impurities - Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Sodium (Na)	≤ 150.0 ppb	< 5.0 ppb
Trace Impurities - Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities - Tantalum (Ta)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Thallium (Tl)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Tin (Sn)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count - 0.5 µm and greater	≤ 60 par/ml	10 par/ml
Particle Count - 1.0 µm and greater	≤ 10 par/ml	3 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

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Material No.: 9606-03
Batch No.: 24D1062002

Test	Specification	Result

For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

Jamie Croak
Director Quality Operations, Bioscience Production

Nitric Acid 69%
CMOS

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m-5162

R. Date :- 04/27/2025

Material No.: 9606-03
Batch No.: 24H0162012
Manufactured Date: 2024-06-28
Retest Date: 2029-06-27
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO_3)	69.0 – 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	< 1 ppm
Chloride (Cl)	≤ 0.08 ppm	0.03 ppm
Phosphate (PO_4)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities – Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	0.1 ppb
Trace Impurities – Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 30.0 ppb	0.1 ppb
Trace Impurities – Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Germanium (Ge)	≤ 20 ppb	< 1 ppb
Trace Impurities – Gold (Au)	≤ 20 ppb	< 1 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities – Lead (Pb)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Nickel (Ni)	≤ 20.0 ppb	< 1.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

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Material No.: 9606-03
Batch No.: 24H0162012

Test	Specification	Result
Trace Impurities - Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities - Potassium (K)	≤ 50 ppb	< 1 ppb
Trace Impurities - Silicon (Si)	≤ 50 ppb	1 ppb
Trace Impurities - Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Sodium (Na)	≤ 150.0 ppb	< 1.0 ppb
Trace Impurities - Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities - Tantalum (Ta)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Thallium (Tl)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Tin (Sn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count - 0.5 µm and greater	≤ 60 par/ml	13 par/ml
Particle Count - 1.0 µm and greater	≤ 10 par/ml	5 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

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Material No.: 9606-03
Batch No.: 24H0162012

Test	Specification	Result

For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

Jamie Croak
Director Quality Operations, Bioscience Production

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Refine your results. Redefine your industry.

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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ACCREDITED
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Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	QCP-CICV-1
Lot Number:	V2-MEB744107
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	2 500 µg/mL ea: Calcium, Potassium, Magnesium, Sodium, 1 000 µg/mL ea: Aluminum, Barium, 500 µg/mL ea: Iron, 250 µg/mL ea: Nickel, Vanadium, Zinc, Cobalt, Manganese, 125 µg/mL ea: Silver, Copper, 100 µg/mL ea: Chromium, 25 µg/mL ea: Beryllium

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	**1 000 ± 4 µg/mL**	**Barium, Ba**	**1 000 ± 6 µg/mL**
Beryllium, Be	**24.98 ± 0.12 µg/mL**	**Calcium, Ca**	**2 500 ± 8 µg/mL**
Chromium, Cr	**99.9 ± 0.6 µg/mL**	**Cobalt, Co**	**250.2 ± 1.2 µg/mL**
Copper, Cu	**125.0 ± 0.5 µg/mL**	**Iron, Fe**	**500.0 ± 2.2 µg/mL**
Magnesium, Mg	**2 500 ± 11 µg/mL**	**Manganese, Mn**	**249.9 ± 1.1 µg/mL**
Nickel, Ni	**250.0 ± 1.2 µg/mL**	**Potassium, K**	**2 500 ± 11 µg/mL**
Silver, Ag	**125.0 ± 0.6 µg/mL**	**Sodium, Na**	**2 500 ± 11 µg/mL**
Vanadium, V	**250.0 ± 1.1 µg/mL**	**Zinc, Zn**	**249.9 ± 1.1 µg/mL**

Density: 1.081 g/mL (measured at 20 ± 4 ºC)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Be	Calculated		See Sec. 4.2
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	120618
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	200413
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information (https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver)

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 22, 2024

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

11.2 Lot Expiration Date

- **May 22, 2029**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

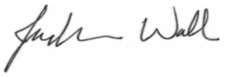
Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	QCP-CICV-2
Lot Number:	U2-MEB733713
Matrix:	3% (w/v) Tartaric acid 1% (v/v) HNO3
Value / Analyte(s):	500 µg/mL ea: Antimony

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	**500.0 ± 2.8 µg/mL**		

Density: 1.017 g/mL (measured at 20 ± 4 ºC)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Sb	ICP Assay	3102a	140911

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

k = coverage factor = 2
$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method
u_{bb} = bottle to bottle homogeneity standard uncertainty
u_{lts} = long term stability standard uncertainty (storage)
u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with
$u_{char\ a}$ = the standard uncertainty of characterization Method A

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

k = coverage factor = 2
$u_{char\ a}$ = the errors from characterization
u_{bb} = bottle to bottle homogeneity standard uncertainty
u_{lts} = long term stability standard uncertainty (storage)
u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 01, 2023

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

11.2 Lot Expiration Date

- **June 01, 2028**

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

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

11.3 Period of Validity

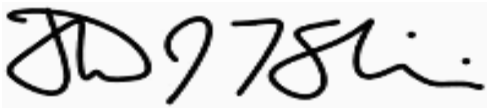
- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED
Testing Laboratory
Certificate 883.01

ACCREDITED
Reference Material Producer
Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	QCP-CICV-3
Lot Number:	V2-MEB749572
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	500 µg/mL ea: Arsenic, Lead, Selenium, Thallium, 250 µg/mL ea: Cadmium

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	**500.0 ± 3.1 µg/mL**	**Cadmium, Cd**	**250.1 ± 1.1 µg/mL**
Lead, Pb	**500.0 ± 2.3 µg/mL**	**Selenium, Se**	**500.0 ± 3.2 µg/mL**
Thallium, Tl	**500.0 ± 3.0 µg/mL**		

Density: 1.040 g/mL (measured at 20 ± 4 ºC)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
As	ICP Assay	3103a	100818
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Tl	ICP Assay	3158	151215

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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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

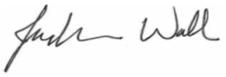
Certificate Prepared By:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



R -> 2/13/25

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

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

CERTIFIED WEIGHT REPORT:

Part Number: 58112
Lot Number: 011525
Description: Magnesium (Mg)

M 6171

	Lot #	
Solvent:	24012496	Nitric Acid
2%	40.0 (mL)	Nitric Acid

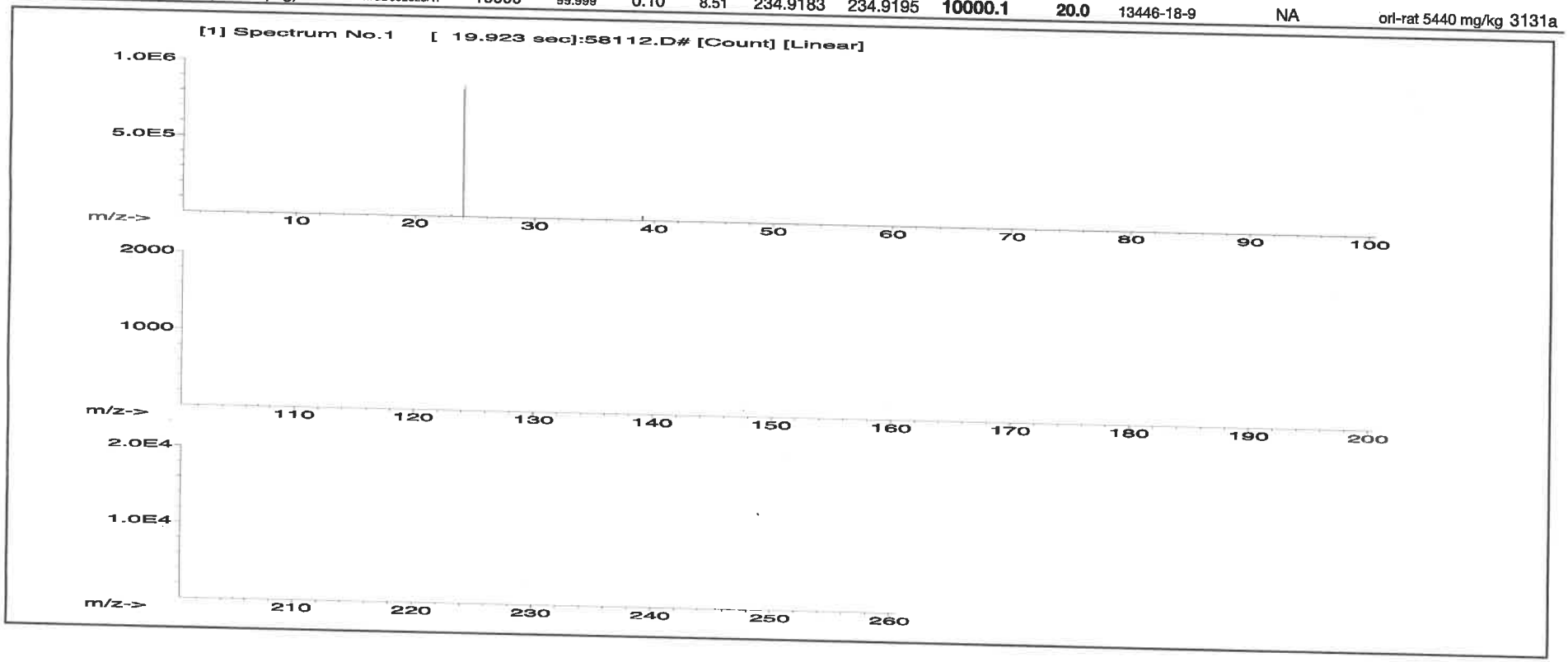
Expiration Date: 011528
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

5E-05	Balance Uncertainty	
0.100	Flask Uncertainty	

Weight shown below was diluted to (mL): 2000.07

Formulated By:	Benson Chan	011525
Reviewed By:	Pedro L. Rentas	011525

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Magnesium nitrate hexahydrate (Mg)	IN030	MGD052023A1	10000	99.999	0.10	8.51	234.9183	234.9195	**10000.1**	**20.0**	13446-18-9	NA	orl-rat 5440 mg/kg	3131a



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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:



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

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300 Technology Drive
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inorganicventures.com

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

M6174
R-> 5/5/24

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CLPP-CAL-1
Lot Number:	V2-MEB742428
Matrix:	5% (v/v) HNO3
Value / Analyte(s):	5 000 µg/mL ea:
	Calcium, Potassium,
	Magnesium, Sodium,
	2 000 µg/mL ea:
	Aluminum, Barium,
	1 000 µg/mL ea:
	Iron,
	500 µg/mL ea:
	Nickel, Vanadium,
	Zinc, Cobalt,
	Manganese,
	250 µg/mL ea:
	Silver, Copper,
	200 µg/mL ea:
	Chromium,
	50 µg/mL ea:
	Beryllium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	2 000 ± 7 µg/mL	Barium, Ba	2 000 ± 9 µg/mL
Beryllium, Be	50.03 ± 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, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information (https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver)

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

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



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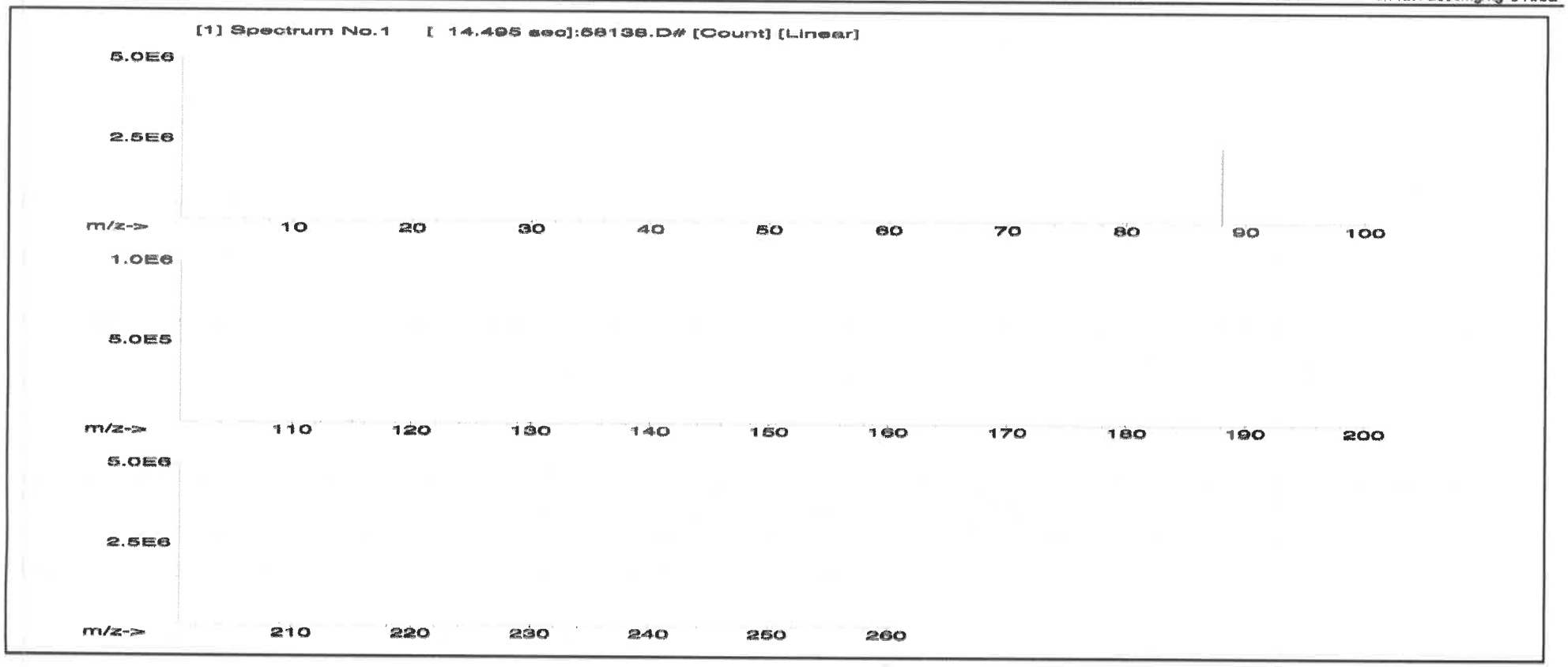
CERTIFIED WEIGHT REPORT:

R->8/6/29

Part Number:	57038		**Lot #**		
Lot Number:	092724	**Solvent:**	24002546	Nitric Acid	
Description:	Strontium (Sr)				
		M6176 2%	40.0 (mL)	Nitric Acid	
Expiration Date:	092727				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	1000				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty		

Formulated By:	Benson Chan	092724
Reviewed By:	Pedro L. Rentas	092724

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Strontium nitrate (Sr)	IN017	SRZ022018A1	1000	99.997	0.10	41.2	4.85470	4.85481	**1000.0**	**2.0**	10042-76-9	NA	orl-rat >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	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	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:

Certified by:

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

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

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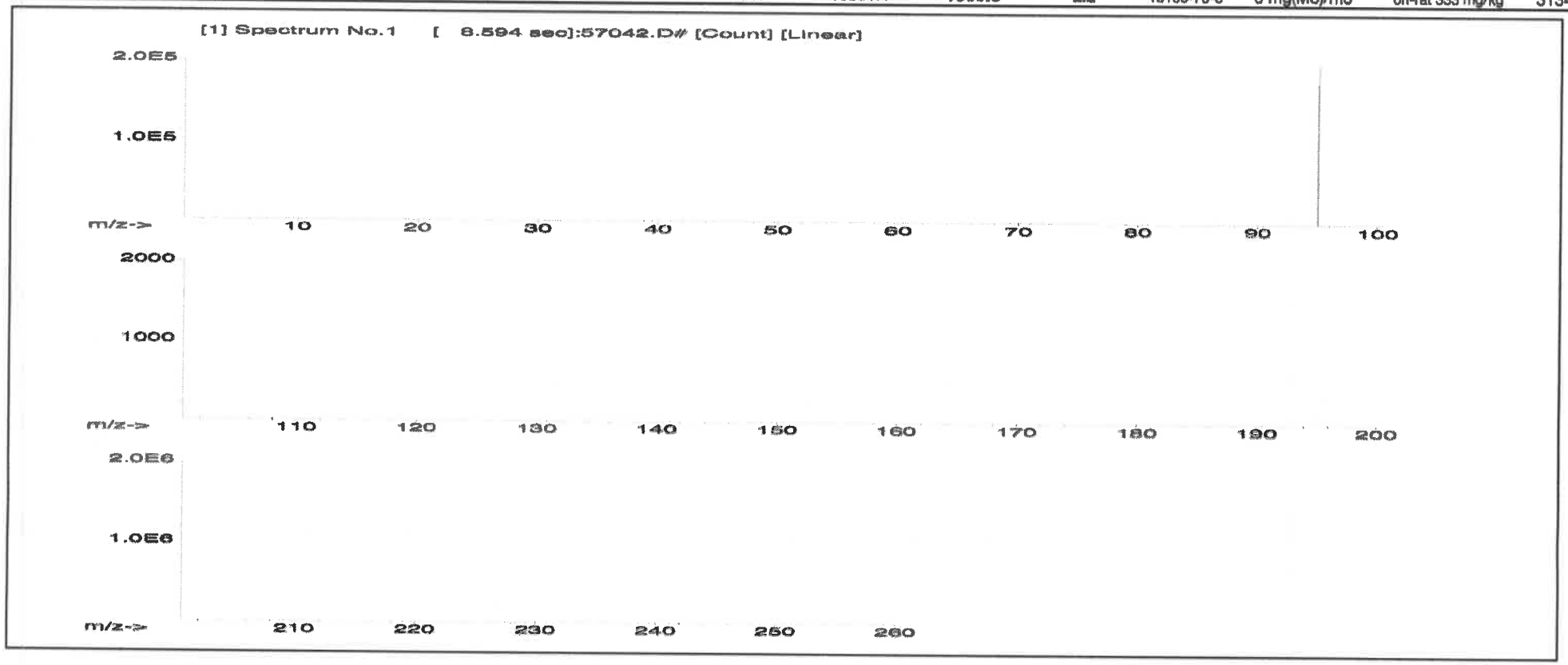
CERTIFIED WEIGHT REPORT:

R→ 8/6/25
M6177

		Lot #	Solvent:		
Part Number:	57042	MKBQ8597V	Ammonium hydroxide		
Lot Number:	080525	080525	ASTM Type 1 Water		
Description:	Molybdenum (Mo)	0.5%	10.0 (mL)	Ammonium hydroxide	
Expiration Date:	080528				
Recommended Storage:	Ambient (15 - 30 °C)				
Nominal Concentration (µg/mL):	1000				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	1999.41	0.058	Flask Uncertainty		

Formulated By:	Benson Chan	080525
Reviewed By:	Pedro L. Rentas	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)	SDS Information (Solvent Safety Info. On Attached pg.) 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)/m3	orl-rat 333 mg/kg	3134



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

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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:



* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware, and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated by an ISO17025 certified organization with weights traceable through NIST to the SI kilogram (see above).
* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).
Rev 1.0, 2/25/2025

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CERTIFIED WEIGHT REPORT:

R>8/6/28
M6178

Part Number:	**57082**		**Lot #**		
Lot Number:	**031525**	**Solvent:**	24014457	Nitric Acid	
Description:	**Lead (Pb)**		2%	40.0 (mL)	Nitric Acid
Expiration Date:	031528				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.07	0.10	Flask Uncertainty		

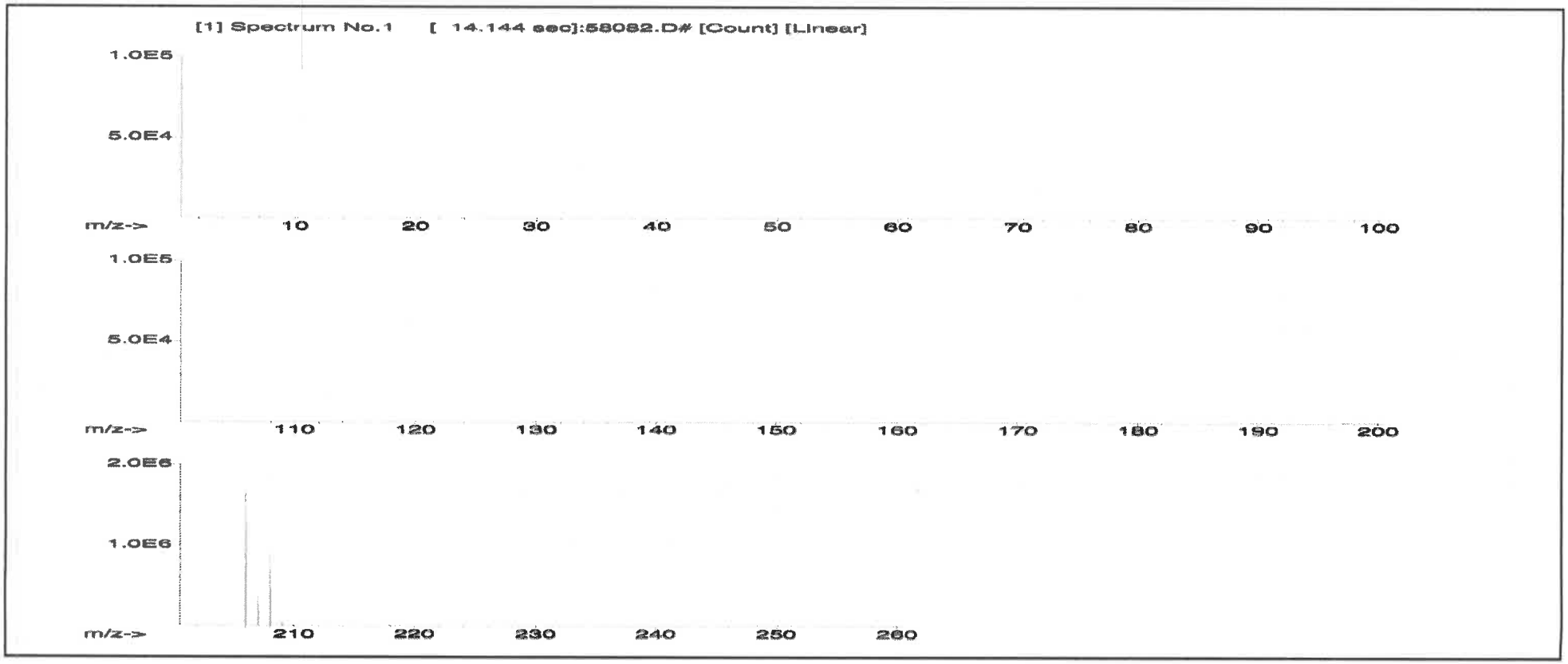
Giovanni Esposito

Formulated By:	Giovanni Esposito	031525

Pedro Rentas

Reviewed By:	Pedro L. Rentas	031525

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lead(II) nitrate (Pb)	IN029	PBD122016A1	1000	99.999	0.10	62.5	3.20015	3.20067	**1000.2**	**2.0**	10099-74-8	0.05 mg/m3	intrvns-rat 93 mg/kg	3128



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

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

(T) = Target analyte

Physical Characterization:

Certified by:

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



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

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Certificate of Analysis

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inorganicventures.com

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F: 540-585-3012
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1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGY10
Lot Number:	V2-Y740548
Matrix:	2% (v/v) HNO3
Value / Analyte(s):	10 000 µg/mL ea: Yttrium
Starting Material:	Yttrium Oxide
Starting Material Lot#:	2661 and 06230520YL
Starting Material Purity:	99.9984%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10000 ± 30 µg/mL

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

Assay Information:

Assay Method #1	**10011 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928
Assay Method #2	**9997 ± 50 µg/mL** ICP Assay NIST SRM 3167a Lot Number: 190730
Assay Method #3	**9984 ± 31 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

M	Ag	<	0.004600	M	Eu		0.009037	M	Na		0.086360	M	Se	<	0.005200	M	Zn		0.030125
M	Al		0.014862	O	Fe		0.002410	M	Nb	<	0.000570	O	Si		0.024100	O	Zr	<	0.002600
M	As	<	0.003500	M	Ga	<	0.000570	M	Nd		0.000923	M	Sm		0.000461				
M	Au	<	0.001700	M	Gd	<	0.003500	M	Ni	<	0.005700	M	Sn	<	0.002300				
O	B		0.002209	M	Ge	<	0.005200	M	Os	<	0.001200	M	Sr	<	0.004600				
O	Ba	<	0.002500	M	Hf	<	0.000570	n	P	<		M	Ta	<	0.000570				
O	Be	<	0.001400	M	Hg	<	0.000570	M	Pb		0.005020	M	Tb		0.001044				
M	Bi	<	0.003500	M	Ho		0.009037	M	Pd	<	0.005100	M	Te	<	0.002300				
O	Ca		0.009841	M	In	<	0.002300	M	Pr	<	0.002300	M	Th	<	0.000570				
M	Cd	<	0.000570	M	Ir	<	0.000570	M	Pt	<	0.000570	M	Ti	<	0.003500				
M	Ce	<	0.002300	O	K		0.018677	M	Rb	<	0.000570	M	Tl	<	0.000570				
M	Co	<	0.000570	M	La		0.000461	M	Re	<	0.000570	M	Tm	<	0.003500				
M	Cr	<	0.004000	O	Li	<	0.009300	M	Rh	<	0.008000	M	U	<	0.000570				
M	Cs	<	0.000570	M	Lu		0.000582	M	Ru	<	0.000570	M	V		0.001265				
M	Cu		0.002610	O	Mg		0.001486	n	S	<		M	W	<	0.002300				
M	Dy		0.003815	M	Mn		0.000582	M	Sb		0.005422	s	Y	<					
M	Er		0.003615	M	Mo	<	0.005700	M	Sc	<	0.001200	M	Yb		0.001827				

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

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 88.91 +3 6 Y(OH)(H2O)x+2

Chemical Compatibility -Soluble in HCl, H2SO4 and HNO3. Avoid HF, H3PO4 and neutral to basic media. Stable with most metals and inorganic anions forming an insoluble carbonate, oxide, oxalate, and fluoride. Avoid mixing with elements / solutions containing moderate amounts of fluoride.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO3 / LDPE container.

Y Containing Samples (Preparation and Solution) - Metal (Soluble in acids); Oxide (Dissolve by heating in H2O/ HNO3); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Dry ash and dissolve in 1:1 H2O / HCl or HNO3).

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

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 89 amu	0.8 ppt	N/A	73Ge16O, 178Hf+2
ICP-OES 360.073 nm	0.005 / 0.000036 µg/mL	1	Ce, Th
ICP-OES 371.030 nm	0.004 / 0.00007 µg/mL	1	Ce
ICP-OES 377.433 nm	0.005 / 0.0009 µg/mL	1	Ta, Th

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 20, 2024

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

11.2 Lot Expiration Date

- February 20, 2029

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor



Certificate Approved By:

Muzzammil Khan
Stock Laboratory Supervisor



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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Christiansburg, VA 24073 USA
inorganicventures.com

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F: 540-585-3012
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1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	WW-LFS-1
Lot Number:	W2-MEB752149
Matrix:	5% (v/v) HNO3

M6180
R-7/22/23

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

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	200.2 ± 0.7 µg/mL	Arsenic, As	80.1 ± 0.5 µg/mL
Barium, Ba	20.02 ± 0.12 µg/mL	Beryllium, Be	20.02 ± 0.11 µg/mL
Boron, B	30.02 ± 0.15 µg/mL	Cadmium, Cd	20.04 ± 0.09 µg/mL
Calcium, Ca	100.1 ± 0.3 µg/mL	Cerium, Ce	200.2 ± 1.0 µg/mL
Chromium, Cr	40.02 ± 0.26 µg/mL	Cobalt, Co	20.03 ± 0.09 µg/mL
Copper, Cu	30.03 ± 0.13 µg/mL	Iron, Fe	300.3 ± 1.3 µg/mL
Lead, Pb	100.1 ± 0.5 µg/mL	Lithium, Li	20.03 ± 0.09 µg/mL
Magnesium, Mg	200.2 ± 0.9 µg/mL	Manganese, Mn	19.99 ± 0.09 µg/mL
Mercury, Hg	70.0 ± 0.3 µg/mL	Nickel, Ni	50.05 ± 0.22 µg/mL
Phosphorus, P	600.5 ± 2.9 µg/mL	Potassium, K	1 001 ± 4 µg/mL
Selenium, Se	200.2 ± 1.1 µg/mL	Silver, Ag	7.52 ± 0.03 µg/mL
Sodium, Na	300.3 ± 1.3 µg/mL	Strontium, Sr	20.02 ± 0.10 µg/mL
Thallium, Tl	200.2 ± 1.0 µg/mL	Vanadium, V	30.02 ± 0.13 µg/mL
Zinc, Zn	20.05 ± 0.09 µg/mL		

Density: 1.037 g/mL (measured at 20 ± 5 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
As	ICP Assay	3103a	100818
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Ce	ICP Assay	3110	160830
Ce	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	120618
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
Hg	ICP Assay	3133	160921
Hg	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Li	ICP Assay	3129a	100714
Li	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	200413
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
P	ICP Assay	3139a	060717
P	Acidimetric	84L	84L
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Sr	EDTA	928	928
Sr	ICP Assay	Traceable to 3153a	K2-SR650985
Tl	ICP Assay	3158	151215
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 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

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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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Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

M6181
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1.0 ACCREDITATION / REGISTRATION

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ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	WW-LFS-2
Lot Number:	V2-MEB743480
Matrix:	5% (v/v) HNO3 tr. HF
Value / Analyte(s):	200 µg/mL ea: Silica, 80 µg/mL ea: Antimony, 70 µg/mL ea: Tin, 40 µg/mL ea: Molybdenum, 20 µg/mL ea: Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	80.1 ± 0.5 µg/mL	Molybdenum, Mo	40.05 ± 0.22 µg/mL
Silica, SiO2	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
SiO2	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, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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



R→03/06/24

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

Contains Heavy Metals
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

(A) *SAMPLE DESCRIPTION*

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) *BREAKAGE OR MISSING ITEMS*

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

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

(C) *ANALYSIS OF SAMPLES*

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,

The Quality Assurance Technical Support (QATS) contract is operated by APTIM Federal Services, LLC.

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSAB solution by ICP-AES.

(D) *"CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)*

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 15 percent of the listed certified value.

R→03/06/24

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.

Contains Heavy Metals
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

M6184

(A) *SAMPLE DESCRIPTION*

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) *BREAKAGE OR MISSING ITEMS*

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

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

(C) *ANALYSIS OF SAMPLES*

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,

The Quality Assurance Technical Support (QATS) contract is operated by APTIM Federal Services, LLC.

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSAB solution by ICP-AES.

(D) *"CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)*

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 15 percent of the listed certified value.

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Certified Reference Material CRM

R 8/05/24

M6027

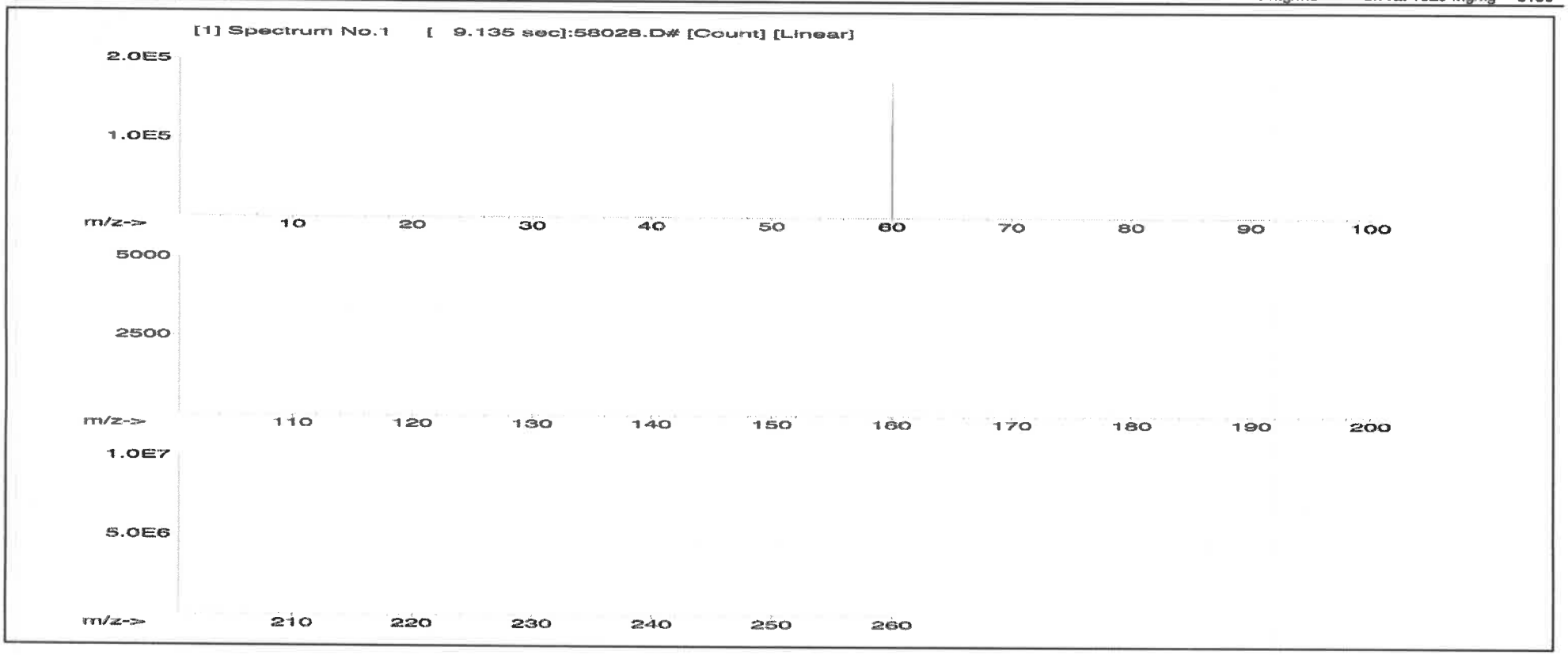
ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57028**			
Lot Number:	**062024**	24002546	Nitric Acid	
Description:	**Nickel (Ni)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	062027			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty	

Formulated **By:**	Benson Chan	062024
Reviewed By:	Pedro L. Rentas	062024

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Nickel(II) nitrate hexahydrate (Ni)	58128	062023	0.1000	200.0	0.084	1000	10000.4	**1000.0**	2.2	13478-00-7	1 mg/m3	orl-rat 1620 mg/kg	3136



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:

Certified by:

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

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

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Certified Reference Material CRM

M6030

R: 8/5/24

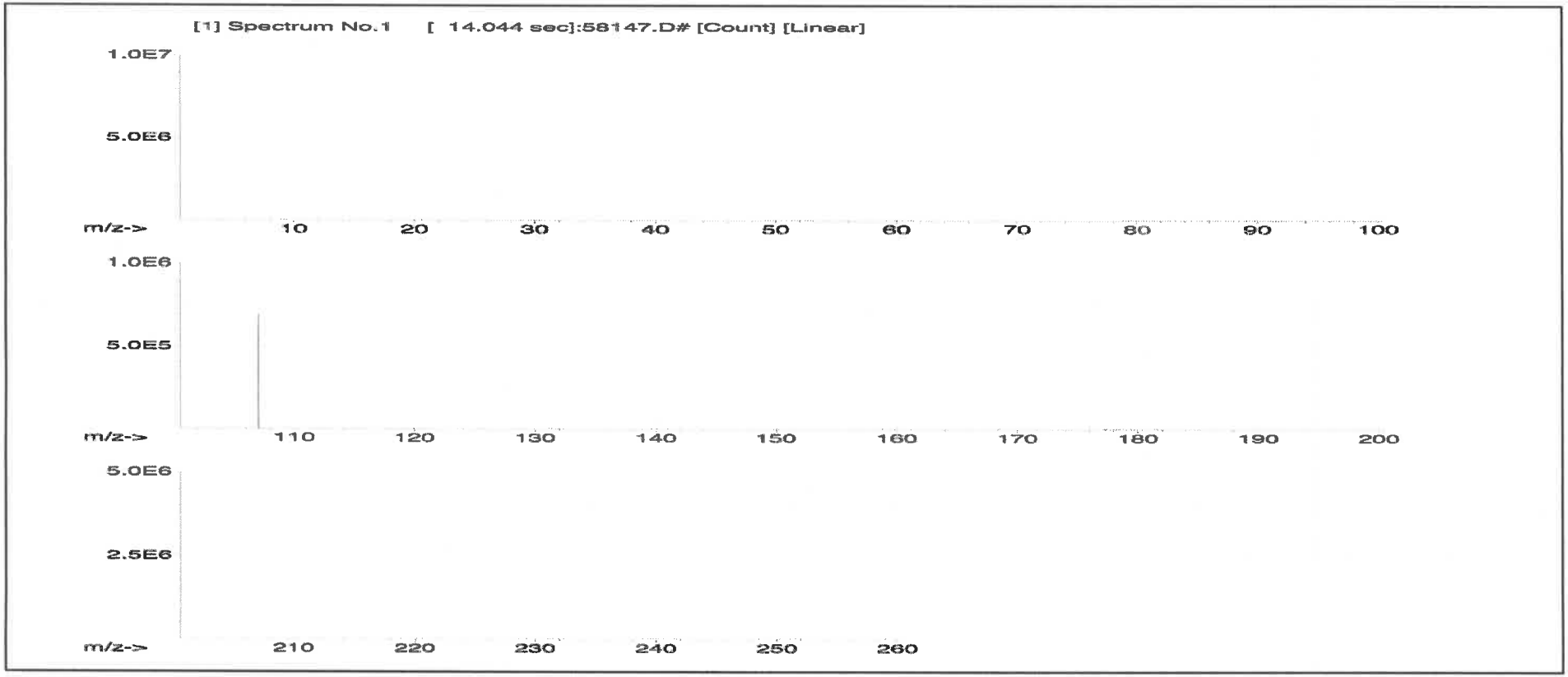
ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT:

Part Number:	**57047**		**Lot #**		
Lot Number:	**122823**	**Solvent:**	24002546	Nitric Acid	
Description:	**Silver (Ag)**	2%	80.0 (mL)	Nitric Acid	
Expiration Date:	122826				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	4000.30	0.058	Flask Uncertainty		

Formulated By:	Benson Chan	122823
Reviewed By:	Pedro L. Rentas	122823

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Silver nitrate (Ag)	IN035	J0612AGA1	1000.0	99.9999	0.10	63.7	6.27992	6.27998	**1000.0**	**2.0**	7761-88-8	10 ug/m3	NA	3151



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

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

(T)= Target analyte

Physical Characterization:

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

Certified by:

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

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Certified Reference Material CRM

R: 10/18/24

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AR-1539 Certificate Number
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CERTIFIED WEIGHT REPORT:

MG146

		Lot #	Solvent:	
Part Number:	**57051**	24002546	Nitric Acid	
Lot Number:	**071724**			
Description:	**Antimony (Sb)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	071727			
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):	2000.26	0.058	Flask Uncertainty	

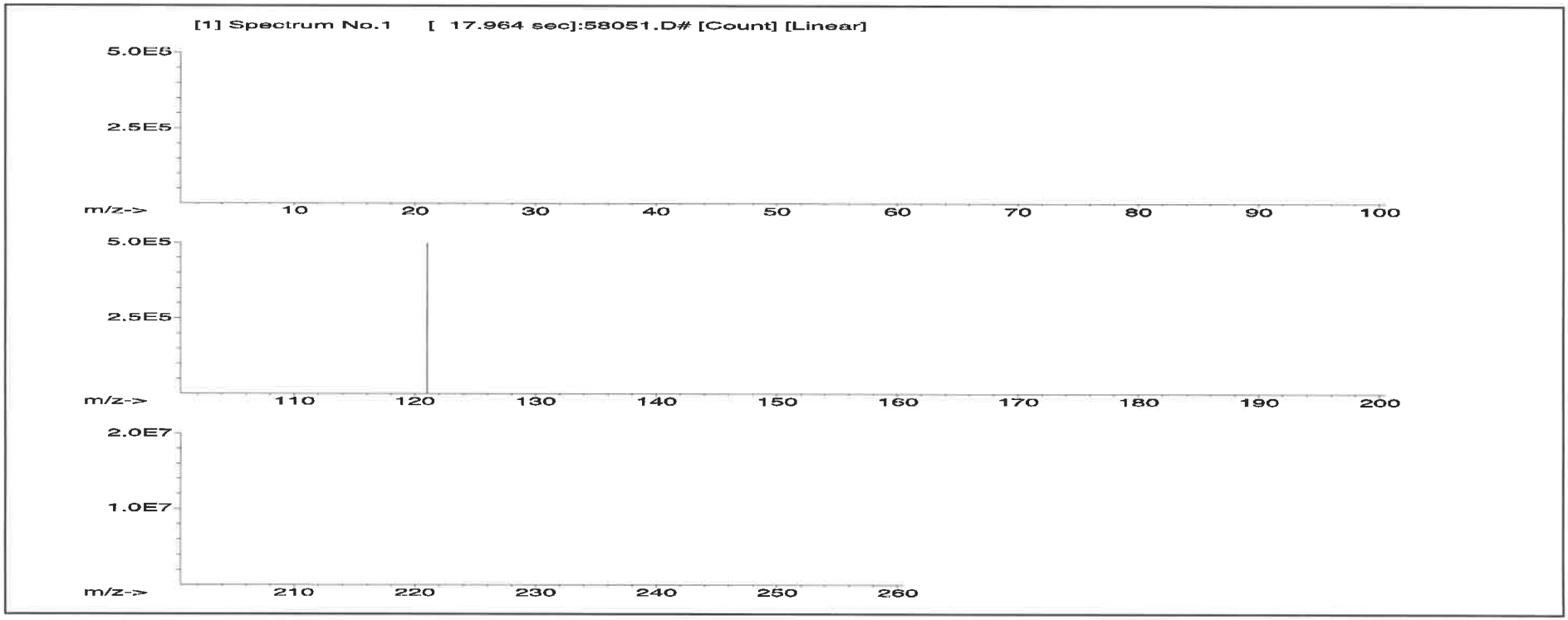
Giovanni Esposito

Formulated By:	Giovanni Esposito	071724

Pedro Rentas

Reviewed By:	Pedro L. Rentas	071724

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	**Final Conc. (µg/mL)**	Expanded Uncertainty +/- (µg/mL)	**SDS Information** (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Antimony (Sb)	58151	060324	0.1000	200.0	0.084	1000	10001.4	**1000.0**	**2.2**	7440-36-0	0.5 mg/m3	orl-rat 7000 mg/kg	3102a



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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

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

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M6023

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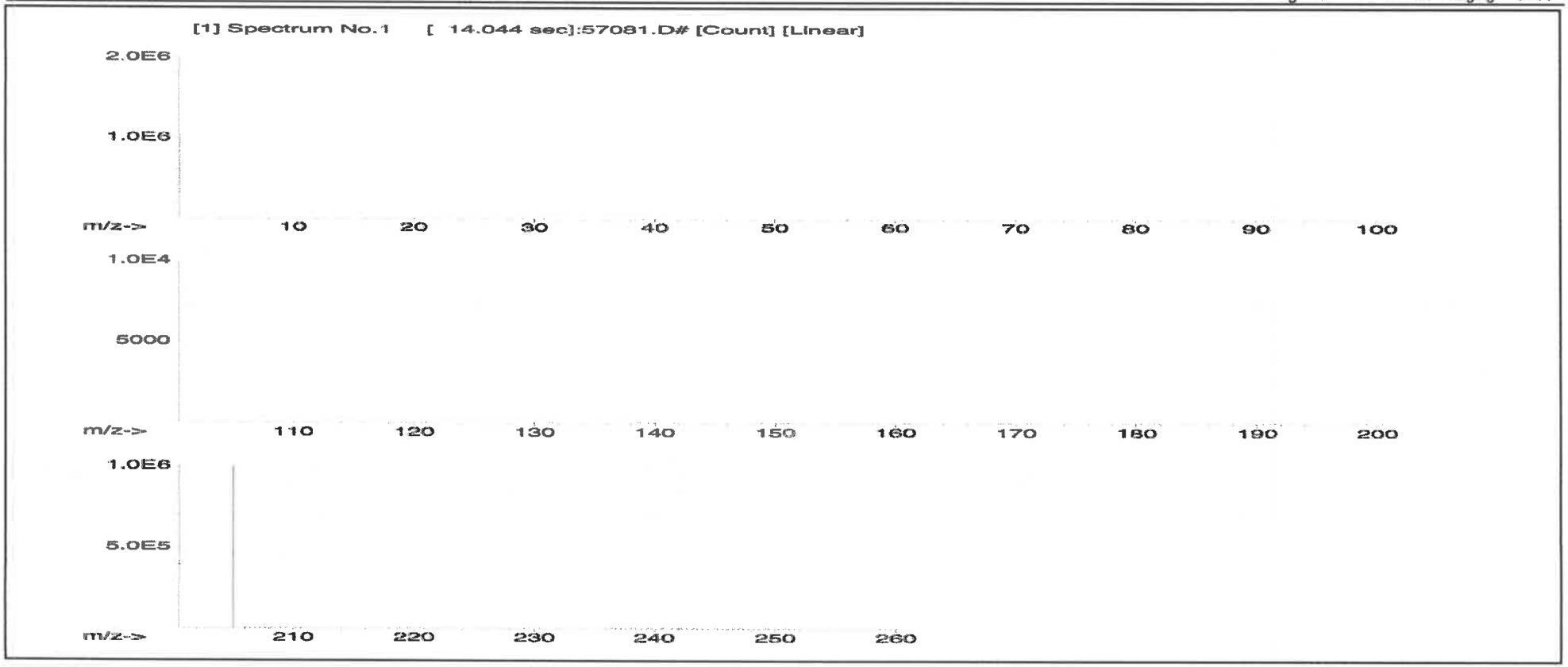
CERTIFIED WEIGHT REPORT:

Part Number:	**57081**		**Lot #**		
Lot Number:	**062724**	**Solvent:**	24002546	Nitric Acid	
Description:	**Thallium (Tl)**				
		2%	40.0 (mL)	Nitric Acid	
Expiration Date:	062727				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.1	0.10	Flask Uncertainty		

Aleah O'Brady

Formulated By:	Aleah O'Brady	062724
Reviewed By:	Pedro L. Rentas	062724

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Thallium nitrate (Tl)	IN037	BCCF4399	1000	99.999	0.10	77.0	2.5975	2.5977	**1000.1**	**2.0**	10102-45-1	0.1 mg/m3	orl-mus 15mg/kg	3158



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

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

(T) = Target analyte

Physical Characterization:

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

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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Bc. 8/5/24

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57023**			
Lot Number:	**062424**	24002546	Nitric Acid	
Description:	**Vanadium (V)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	062427			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.3	0.06	Flask Uncertainty	

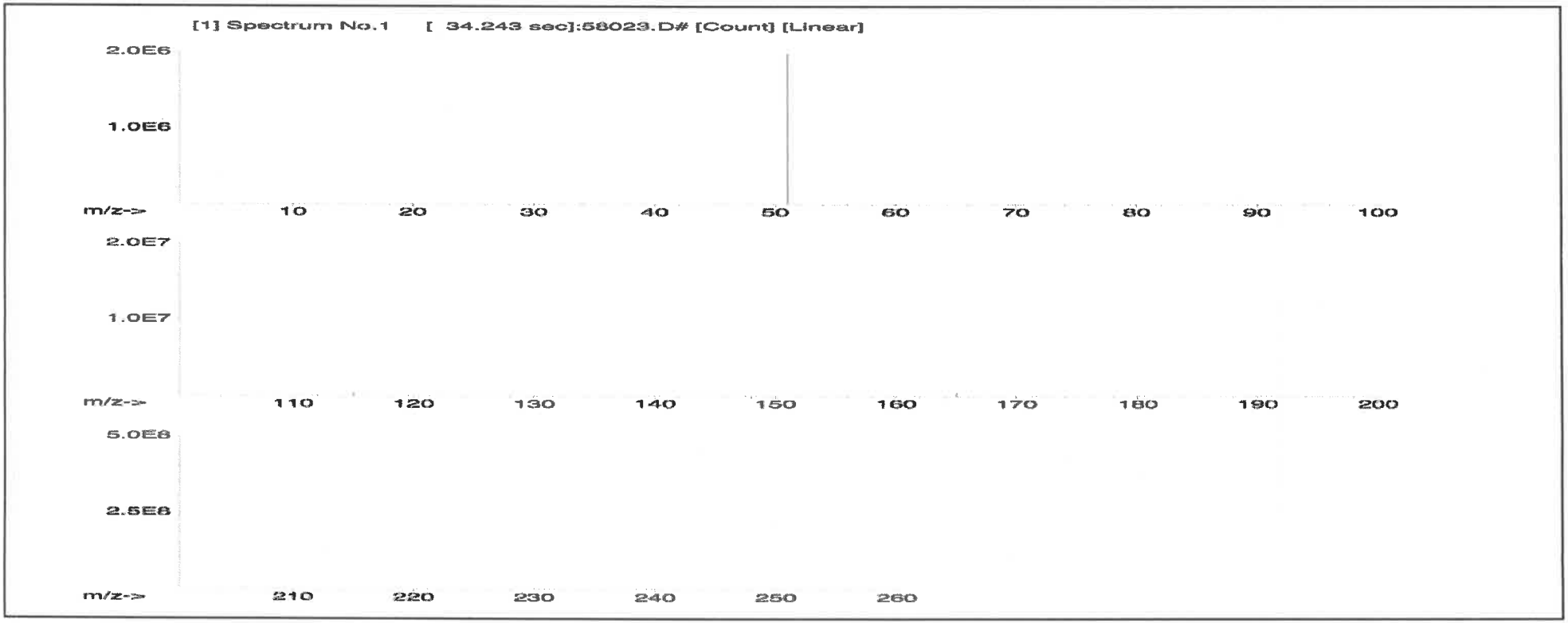
Aleah O'Brady

Formulated By:	Aleah O'Brady	062424

Pedro Rentas

Reviewed By:	Pedro L. Rentas	062424

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium metavanadate (V)	58123	021224	0.1000	200.0	0.084	1000	10000.3	**1000.0**	**2.2**	7803-55-6	0.05 mg/m3	orl-rat 58.1mg/kg	3165



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

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SHIPPING DOCUMENTS

Alliance TECHNICAL GROUP

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 · Fax (908) 789-8922
www.chemtech.net

ALLIANCE PROJECT NO.
QUOTE NO. Q 2832
COC Number 2045382

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: Gannet Fleming
ADDRESS: 1010 Abrams Ave
CITY Audubon STATE: PA ZIP: 19403
ATTENTION: Joe Krupinsky
PHONE: 610-301-8342 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: Amtrak Replacement of Sarkum Bridges
PROJECT NO.: LOCATION: Kearny, NJ
PROJECT MANAGER: Joe Krupinsky
e-mail: GJGC@bemsys.com
PHONE: 610-301-8342 FAX:

CLIENT BILLING INFORMATION

BILL TO: Alliance PO#:
ADDRESS: 284 Sheffield St
CITY Mountainside STATE: NJ ZIP: 07092
ATTENTION: Kazmen Gursoz PHONE: 908-728-3978

DATA TURNAROUND INFORMATION

FAX (RUSH) _____ DAYS*
HARDCOPY (DATA PACKAGE): 10 DAYS*
EDD: 10 DAYS*
*TO BE APPROVED BY CHEMTECH
STANDARD HARDCOPY TURNAROUND TIME IS 10 BUSINESS

DATA DELIVERABLE INFORMATION

☐ Level 1 (Results Only) ☐ Level 4 (QC + Full Raw Data)
☐ Level 2 (Results + QC) ☒ NJ Reduced ☐ US EPA CLP
☐ Level 3 (Results + QC + Raw Data) ☐ NYS ASP A ☐ NYS ASP B
☐ Other
☒ EDD FORMAT BEM EDD

ANALYSIS

1: TCL-SVOCs+TICs
2: TCL-VOCs+10
3: PCBs
4: ERH
5: TAL Metals
6: TCLP Full Suite
7: RCRA (PDC)
8: CT(NJ) (CCME)
9:

ALLIANCE SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	TG-501	S		X	8/11/25	0815	9	X	X	X	X	X	X	X	X		
2.	TG-502					0915	9										
3.	TG-503					1110	9										
4.	TG-504					1345	9										
5.	TG-505				8/12/25	0725	9										
6.																	
7.																	
8.																	
9.																	
10.																	

PRESERVATIVES: ← Specify Preservatives
A-HCl D-NaOH
B-HN03 E-ICE
C-H2SO4 F-OTHER

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1.	8/12/25 0910	1.
2.		2.
3.		3.

Conditions of bottles or coolers at receipt: ☐ COMPLIANT ☐ NON COMPLIANT ☐ COOLER TEMP 1.9 °C
Comments:

Page ____ of

CLIENT: ☐ Hand Delivered ☐ Other

Shipment Complete ☐ YES ☐ NO

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Laboratory Certification

Certified By	License No.
CAS EPA CLP Contract	68HERH20D0011
Connecticut	PH-0830
DOD ELAP (ANAB)	L2219
Maine	2024021
Maryland	296
New Hampshire	255424 Rev 1
New Jersey	20012
New York	11376
Pennsylvania	68-00548
Soil Permit	525-24-234-08441
Texas	T104704488

QA Control Code: A2070148

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

LOGIN REPORT/SAMPLE TRANSFER

Order ID : Q2832 PORT06
Client Name : Portal Partners Tri-Venture
Client Contact : Joseph Krupansky
Invoice Name : Portal Partners Tri-Venture
Invoice Contact : Joseph Krupansky

Order Date : 8/12/2025 9:37:00 AM
Project Name : Amtrak Sawtooth Bridges 2
Receive DateTime : 8/12/2025 9:10:00 AM
Purchase Order :

Project Mgr :
Report Type : NJ Reduced
EDD Type : EXCEL NJCLEANUP
Hard Copy Date :
Date Signoff :

LAB ID	CLIENT ID	MATRIX	SAMPLE DATE	SAMPLE TIME	TEST	TEST GROUP	METHOD	FAX DATE	DUE DATES
Q2832-01	TG-S01	Solid	08/11/2025	08:15					
					VOC-TCLVOA-10		8260D		10 Bus. Days
Q2832-03	TG-S02	Solid	08/11/2025	09:15					
					VOC-TCLVOA-10		8260D		10 Bus. Days
Q2832-05	TG-S03	Solid	08/11/2025	11:10					
					VOC-TCLVOA-10		8260D		10 Bus. Days
Q2832-07	TG-S04	Solid	08/11/2025	13:45					
					VOC-TCLVOA-10		8260D		10 Bus. Days
Q2832-09	TG-S05	Solid	08/12/2025	07:25					
					VOC-TCLVOA-10		8260D		10 Bus. Days

Relinguished By : [signature]
Date / Time : 8/12/25 1015

Received By : [signature]
Date / Time : 08/12/25 10:15

Storage Area : **VOA Refridgerator Room**