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Cover Page

Order ID : Q1956

Project ID : Bergen Point Fueling System

Client : CDM Smith

Lab Sample Number	Client Sample Number
Q1956-01	SB1-3-4
Q1956-02	SB2-4-5
Q1956-03	Q1956-02MS
Q1956-04	Q1956-02MSD
Q1956-05	COMP1
Q1956-06	SB91-3-4
Q1956-07	FB-05022025
Q1956-09	TB

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: 5/10/2025

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

Alliance TECHNICAL GROUP

284 Sheffield Street, Mountainside NJ 07092
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 #: Q1956

	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: PRADIP PRAJAPATI **Date:** 05/10/2025

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LAB CHRONICLE

OrderID:	Q1956	**OrderDate:**	5/2/2025 3:14:35 PM
Client:	CDM Smith	**Project:**	Bergen Point Fueling System
Contact:	Marcie Ann Encinas	**Location:**	L31,VOA Ref. #2 Soil,VOA Ref. #3 Water

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
Q1956-01	**SB1-3-4**	**SOIL**			**05/01/25**			**05/02/25**
			Mercury	7471B		05/05/25	05/05/25	
			Metals ICP-TAL	6010D		05/06/25	05/07/25	
Q1956-02	**SB2-4-5**	**SOIL**			**05/02/25**			**05/02/25**
			Mercury	7471B		05/05/25	05/05/25	
			Metals ICP-TAL	6010D		05/06/25	05/07/25	
Q1956-05	**COMP1**	**TCLP**			**05/02/25**			**05/02/25**
			TCLP ICP Metals	6010D		05/06/25	05/07/25	
			TCLP Mercury	7470A		05/06/25	05/07/25	
Q1956-06	**SB91-3-4**	**SOIL**			**05/01/25**			**05/02/25**
			Mercury	7471B		05/05/25	05/05/25	
			Metals ICP-TAL	6010D		05/06/25	05/07/25	
Q1956-07	**FB-05022025**	**Water**			**05/02/25**			**05/02/25**
			Mercury	7470A		05/05/25	05/05/25	
			Metals ICP-TAL	6010D		05/05/25	05/05/25	

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Hit Summary Sheet
SW-846

SDG No.: Q1956 **Order ID:** Q1956

Client: CDM Smith **Project ID:** Bergen Point Fueling System

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Client ID : COMP1								
Q1956-05	COMP1	TCLP	Barium	813		72.8	500	ug/L
Q1956-05	COMP1	TCLP	Lead	11.6	J	11.5	60.0	ug/L

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SAMPLE DATA

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Report of Analysis

Client:	CDM Smith	Date Collected:	05/02/25
Project:	Bergen Point Fueling System	Date Received:	05/02/25
Client Sample ID:	COMP1	SDG No.:	Q1956
Lab Sample ID:	Q1956-05	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	100	U	1	25.6	100	ug/L	05/06/25 12:30	05/07/25 14:53	SW6010	SW3050
7440-39-3	Barium	813		1	72.8	500	ug/L	05/06/25 12:30	05/07/25 14:53	SW6010	SW3050
7440-43-9	Cadmium	30.0	U	1	2.50	30.0	ug/L	05/06/25 12:30	05/07/25 14:53	SW6010	SW3050
7440-47-3	Chromium	50.0	U	1	10.6	50.0	ug/L	05/06/25 12:30	05/07/25 14:53	SW6010	SW3050
7439-92-1	Lead	11.6	J	1	11.5	60.0	ug/L	05/06/25 12:30	05/07/25 14:53	SW6010	SW3050
7439-97-6	Mercury	2.00	U	1	0.76	2.00	ug/L	05/06/25 13:30	05/07/25 09:55	SW7470A	
7782-49-2	Selenium	100	U	1	48.2	100	ug/L	05/06/25 12:30	05/07/25 14:53	SW6010	SW3050
7440-22-4	Silver	50.0	U	1	8.10	50.0	ug/L	05/06/25 12:30	05/07/25 14:53	SW6010	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: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

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
ICV01	Mercury	3.68	4.0	92	90 - 110	CV	05/07/2025	09:22	LB135690

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

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
CCV86	Mercury	5.03	5.0	101	90 - 110	CV	05/07/2025	09:27	LB135690
CCV87	Mercury	5.01	5.0	100	90 - 110	CV	05/07/2025	10:00	LB135690
CCV88	Mercury	5.01	5.0	100	90 - 110	CV	05/07/2025	10:22	LB135690

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

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	968	1000	97	90 - 110	P	05/07/2025	12:59	LB135699
	Barium	534	520	103	90 - 110	P	05/07/2025	12:59	LB135699
	Cadmium	501	510	98	90 - 110	P	05/07/2025	12:59	LB135699
	Chromium	503	520	97	90 - 110	P	05/07/2025	12:59	LB135699
	Lead	980	1000	98	90 - 110	P	05/07/2025	12:59	LB135699
	Selenium	996	1000	100	90 - 110	P	05/07/2025	12:59	LB135699
	Silver	231	250	93	90 - 110	P	05/07/2025	12:59	LB135699

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Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
LLICV01	Arsenic	19.8	20.0	99	80 - 120	P	05/07/2025	13:05	LB135699
	Barium	86.9	100	87	80 - 120	P	05/07/2025	13:05	LB135699
	Cadmium	6.10	6.0	102	80 - 120	P	05/07/2025	13:05	LB135699
	Chromium	9.59	10.0	96	80 - 120	P	05/07/2025	13:05	LB135699
	Lead	12.8	12.0	106	80 - 120	P	05/07/2025	13:05	LB135699
	Selenium	18.3	20.0	91	80 - 120	P	05/07/2025	13:05	LB135699
	Silver	10.3	10.0	103	80 - 120	P	05/07/2025	13:05	LB135699

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Metals

- 2a -
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

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	5080	5000	102	90 - 110	P	05/07/2025	13:39	LB135699
	Barium	9770	10000	98	90 - 110	P	05/07/2025	13:39	LB135699
	Cadmium	2570	2500	103	90 - 110	P	05/07/2025	13:39	LB135699
	Chromium	1050	1000	104	90 - 110	P	05/07/2025	13:39	LB135699
	Lead	5150	5000	103	90 - 110	P	05/07/2025	13:39	LB135699
	Selenium	5050	5000	101	90 - 110	P	05/07/2025	13:39	LB135699
	Silver	1280	1250	102	90 - 110	P	05/07/2025	13:39	LB135699
CCV02	Arsenic	5050	5000	101	90 - 110	P	05/07/2025	14:35	LB135699
	Barium	10000	10000	100	90 - 110	P	05/07/2025	14:35	LB135699
	Cadmium	2490	2500	100	90 - 110	P	05/07/2025	14:35	LB135699
	Chromium	1020	1000	102	90 - 110	P	05/07/2025	14:35	LB135699
	Lead	5030	5000	101	90 - 110	P	05/07/2025	14:35	LB135699
	Selenium	5040	5000	101	90 - 110	P	05/07/2025	14:35	LB135699
	Silver	1270	1250	101	90 - 110	P	05/07/2025	14:35	LB135699
CCV03	Arsenic	4880	5000	98	90 - 110	P	05/07/2025	15:23	LB135699
	Barium	9500	10000	95	90 - 110	P	05/07/2025	15:23	LB135699
	Cadmium	2420	2500	97	90 - 110	P	05/07/2025	15:23	LB135699
	Chromium	993	1000	99	90 - 110	P	05/07/2025	15:23	LB135699
	Lead	4870	5000	97	90 - 110	P	05/07/2025	15:23	LB135699
	Selenium	4900	5000	98	90 - 110	P	05/07/2025	15:23	LB135699
	Silver	1230	1250	98	90 - 110	P	05/07/2025	15:23	LB135699
CCV04	Arsenic	4850	5000	97	90 - 110	P	05/07/2025	16:05	LB135699
	Barium	9490	10000	95	90 - 110	P	05/07/2025	16:05	LB135699
	Cadmium	2400	2500	96	90 - 110	P	05/07/2025	16:05	LB135699
	Chromium	968	1000	97	90 - 110	P	05/07/2025	16:05	LB135699
	Lead	4840	5000	97	90 - 110	P	05/07/2025	16:05	LB135699
	Selenium	4860	5000	97	90 - 110	P	05/07/2025	16:05	LB135699
	Silver	1180	1250	95	90 - 110	P	05/07/2025	16:05	LB135699
CCV05	Arsenic	5140	5000	103	90 - 110	P	05/07/2025	16:47	LB135699
	Barium	9560	10000	96	90 - 110	P	05/07/2025	16:47	LB135699
	Cadmium	2360	2500	95	90 - 110	P	05/07/2025	16:47	LB135699
	Chromium	965	1000	96	90 - 110	P	05/07/2025	16:47	LB135699
	Lead	4800	5000	96	90 - 110	P	05/07/2025	16:47	LB135699
	Selenium	5200	5000	104	90 - 110	P	05/07/2025	16:47	LB135699

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

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	1220	1250	98	90 - 110	P	05/07/2025	16:47	LB135699

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Metals

- 2b -
CRDL STANDARD FOR AA & ICP

Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

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	0.20	0.2	100	40 - 160	CV	05/07/2025	09:31	LB135690
CRI01	Arsenic	19.7	20.0	98	40 - 160	P	05/07/2025	13:16	LB135699
	Barium	88.3	100	88	40 - 160	P	05/07/2025	13:16	LB135699
	Cadmium	6.09	6.0	102	40 - 160	P	05/07/2025	13:16	LB135699
	Chromium	9.49	10.0	95	40 - 160	P	05/07/2025	13:16	LB135699
	Lead	13.4	12.0	112	40 - 160	P	05/07/2025	13:16	LB135699
	Selenium	16.5	20.0	82	40 - 160	P	05/07/2025	13:16	LB135699
	Silver	10.2	10.0	102	40 - 160	P	05/07/2025	13:16	LB135699

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Mercury	0.20	+/-0.20	U	0.20	CV	05/07/2025	09:25	LB135690

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB86	Mercury	0.20	+/-0.20	U	0.20	CV	05/07/2025	09:29	LB135690
CCB87	Mercury	0.20	+/-0.20	U	0.20	CV	05/07/2025	10:02	LB135690
CCB88	Mercury	0.20	+/-0.20	U	0.20	CV	05/07/2025	10:25	LB135690

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Arsenic	20.0	+/-20.0	U	20.0	P	05/07/2025	13:09	LB135699
	Barium	100	+/-100	U	100	P	05/07/2025	13:09	LB135699
	Cadmium	6.00	+/-6.00	U	6.00	P	05/07/2025	13:09	LB135699
	Chromium	10.0	+/-10.0	U	10.0	P	05/07/2025	13:09	LB135699
	Lead	12.0	+/-12.0	U	12.0	P	05/07/2025	13:09	LB135699
	Selenium	20.0	+/-20.0	U	20.0	P	05/07/2025	13:09	LB135699
	Silver	10.0	+/-10.0	U	10.0	P	05/07/2025	13:09	LB135699

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Arsenic	20.0	+/-20.0	U	20.0	P	05/07/2025	13:43	LB135699
	Barium	100	+/-100	U	100	P	05/07/2025	13:43	LB135699
	Cadmium	6.00	+/-6.00	U	6.00	P	05/07/2025	13:43	LB135699
	Chromium	10.0	+/-10.0	U	10.0	P	05/07/2025	13:43	LB135699
	Lead	12.0	+/-12.0	U	12.0	P	05/07/2025	13:43	LB135699
	Selenium	20.0	+/-20.0	U	20.0	P	05/07/2025	13:43	LB135699
	Silver	10.0	+/-10.0	U	10.0	P	05/07/2025	13:43	LB135699
CCB02	Arsenic	20.0	+/-20.0	U	20.0	P	05/07/2025	14:39	LB135699
	Barium	100	+/-100	U	100	P	05/07/2025	14:39	LB135699
	Cadmium	6.00	+/-6.00	U	6.00	P	05/07/2025	14:39	LB135699
	Chromium	10.0	+/-10.0	U	10.0	P	05/07/2025	14:39	LB135699
	Lead	12.0	+/-12.0	U	12.0	P	05/07/2025	14:39	LB135699
	Selenium	20.0	+/-20.0	U	20.0	P	05/07/2025	14:39	LB135699
	Silver	10.0	+/-10.0	U	10.0	P	05/07/2025	14:39	LB135699
CCB03	Arsenic	20.0	+/-20.0	U	20.0	P	05/07/2025	15:27	LB135699
	Barium	100	+/-100	U	100	P	05/07/2025	15:27	LB135699
	Cadmium	6.00	+/-6.00	U	6.00	P	05/07/2025	15:27	LB135699
	Chromium	10.0	+/-10.0	U	10.0	P	05/07/2025	15:27	LB135699
	Lead	12.0	+/-12.0	U	12.0	P	05/07/2025	15:27	LB135699
	Selenium	20.0	+/-20.0	U	20.0	P	05/07/2025	15:27	LB135699
	Silver	10.0	+/-10.0	U	10.0	P	05/07/2025	15:27	LB135699
CCB04	Arsenic	20.0	+/-20.0	U	20.0	P	05/07/2025	16:09	LB135699
	Barium	100	+/-100	U	100	P	05/07/2025	16:09	LB135699
	Cadmium	6.00	+/-6.00	U	6.00	P	05/07/2025	16:09	LB135699
	Chromium	10.0	+/-10.0	U	10.0	P	05/07/2025	16:09	LB135699
	Lead	12.0	+/-12.0	U	12.0	P	05/07/2025	16:09	LB135699
	Selenium	20.0	+/-20.0	U	20.0	P	05/07/2025	16:09	LB135699
	Silver	10.0	+/-10.0	U	10.0	P	05/07/2025	16:09	LB135699
CCB05	Arsenic	20.0	+/-20.0	U	20.0	P	05/07/2025	16:52	LB135699
	Barium	100	+/-100	U	100	P	05/07/2025	16:52	LB135699
	Cadmium	6.00	+/-6.00	U	6.00	P	05/07/2025	16:52	LB135699
	Chromium	10.0	+/-10.0	U	10.0	P	05/07/2025	16:52	LB135699
	Lead	12.0	+/-12.0	U	12.0	P	05/07/2025	16:52	LB135699
	Selenium	20.0	+/-20.0	U	20.0	P	05/07/2025	16:52	LB135699
	Silver	10.0	+/-10.0	U	10.0	P	05/07/2025	16:52	LB135699

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Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: CDM Smith **SDG No.:** Q1956

Instrument: CV1

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB167851TB		**WATER**		**Batch Number:**	**PB167883**		**Prep Date:**	**05/06/2025**	
	Mercury	2.00	<2.00	U	2.00	CV	05/07/2025	10:13	LB135690

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB167883BL		**WATER**		**Batch Number:**	**PB167883**		**Prep Date:**	**05/06/2025**	
	Mercury	0.20	<0.20	U	0.20	CV	05/07/2025	10:16	LB135690

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Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: CDM Smith **SDG No.:** Q1956

Instrument: P4

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB167851TB		**WATER**		**Batch Number:**	**PB167882**		**Prep Date:**	**05/06/2025**	
	Arsenic	100	<100	U	100	P	05/07/2025	14:26	LB135699
	Barium	500	<500	U	500	P	05/07/2025	14:26	LB135699
	Cadmium	30.0	<30.0	U	30.0	P	05/07/2025	14:26	LB135699
	Chromium	50.0	<50.0	U	50.0	P	05/07/2025	14:26	LB135699
	Lead	60.0	<60.0	U	60.0	P	05/07/2025	14:26	LB135699
	Selenium	100	<100	U	100	P	05/07/2025	14:26	LB135699
	Silver	50.0	<50.0	U	50.0	P	05/07/2025	14:26	LB135699

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB167882BL		**WATER**		**Batch Number:**	**PB167882**		**Prep Date:**	**05/06/2025**	
	Arsenic	100	<100	U	100	P	05/07/2025	13:47	LB135699
	Barium	500	<500	U	500	P	05/07/2025	13:47	LB135699
	Cadmium	30.0	<30.0	U	30.0	P	05/07/2025	13:47	LB135699
	Chromium	50.0	<50.0	U	50.0	P	05/07/2025	13:47	LB135699
	Lead	60.0	<60.0	U	60.0	P	05/07/2025	13:47	LB135699
	Selenium	100	<100	U	100	P	05/07/2025	13:47	LB135699
	Silver	50.0	<50.0	U	50.0	P	05/07/2025	13:47	LB135699

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Metals
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INTERFERENCE CHECK SAMPLE

Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

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	-1.60			-20	20	05/07/2025	13:21	LB135699
	Barium	-1.29	6.0	22	-94	106	05/07/2025	13:21	LB135699
	Cadmium	-2.63	1.0	263	-5	7	05/07/2025	13:21	LB135699
	Chromium	54.1	52.0	104	42	62	05/07/2025	13:21	LB135699
	Lead	-2.88			-12	12	05/07/2025	13:21	LB135699
	Selenium	-9.82			-20	20	05/07/2025	13:21	LB135699
	Silver	1.08			-10	10	05/07/2025	13:21	LB135699
ICSAB01	Arsenic	117	104	112	88.4	120	05/07/2025	13:25	LB135699
	Barium	502	537	94	437	637	05/07/2025	13:25	LB135699
	Cadmium	1070	972	110	826	1120	05/07/2025	13:25	LB135699
	Chromium	586	542	108	460	624	05/07/2025	13:25	LB135699
	Lead	55.5	49.0	113	37	61	05/07/2025	13:25	LB135699
	Selenium	41.2	46.0	90	26	66	05/07/2025	13:25	LB135699
	Silver	197	201	98	170	232	05/07/2025	13:25	LB135699

METAL QC DATA

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metals
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MATRIX SPIKE SUMMARY

client: CDM Smith **level:** low **sdg no.:** Q1956

contract: CAMP02 **lab code:** CHEM **case no.:** Q1956 **sas no.:** Q1956

matrix: Water **sample id:** Q1960-03 **client id:** 72-11933MS

Percent Solids for Sample: NA **Spiked ID:** Q1960-03MS **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	3970		100	U	4000	99		P
Barium	ug/L	75 - 125	2160		1320		1000	84		P
Cadmium	ug/L	75 - 125	998		5.41	J	1000	99		P
Chromium	ug/L	75 - 125	1950		50.0	U	2000	98		P
Lead	ug/L	75 - 125	5290		601		5000	94		P
Mercury	ug/L	75 - 125	41.3		2.00	U	40.0	103		CV
Selenium	ug/L	75 - 125	9840		100	U	10000	98		P
Silver	ug/L	75 - 125	364		50.0	U	380	96		P

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metals
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MATRIX SPIKE DUPLICATE SUMMARY

client: CDM Smith **level:** low **sdg no.:** Q1956

contract: CAMP02 **lab code:** CHEM **case no.:** Q1956 **sas no.:** Q1956

matrix: Water **sample id:** Q1960-03 **client id:** 72-11933MSD

Percent Solids for Sample: NA **Spiked ID:** Q1960-03MSD **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	3820		100	U	4000	96		P
Barium	ug/L	75 - 125	2150		1320		1000	83		P
Cadmium	ug/L	75 - 125	957		5.41	J	1000	95		P
Chromium	ug/L	75 - 125	1910		50.0	U	2000	96		P
Lead	ug/L	75 - 125	5090		601		5000	90		P
Mercury	ug/L	75 - 125	38.1		2.00	U	40.0	95		CV
Selenium	ug/L	75 - 125	9430		100	U	10000	94		P
Silver	ug/L	75 - 125	358		50.0	U	380	94		P

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Metals
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Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

Matrix: **Level:** LOW **Client ID:**

Sample ID: **Spiked ID:**

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

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Metals

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DUPLICATE SAMPLE SUMMARY

Client: CDM Smith **Level:** LOW **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

Matrix: Water **Sample ID:** Q1960-03 **Client ID:** 72-11933DUP

Percent Solids for Sample: NA **Duplicate ID** Q1960-03DUP **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	1320		1140		15		P
Cadmium	ug/L	20	5.41	J	4.13	J	27		P
Chromium	ug/L	20	50.0	U	50.0	U			P
Lead	ug/L	20	601		535		12		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: CDM Smith **Level:** LOW **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

Matrix: Water **Sample ID:** Q1960-03MS **Client ID:** 72-11933MSD

Percent Solids for Sample: NA **Duplicate ID** Q1960-03MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Arsenic	ug/L	20	3970		3820		4		P
Barium	ug/L	20	2160		2150		0		P
Cadmium	ug/L	20	998		957		4		P
Chromium	ug/L	20	1950		1910		2		P
Lead	ug/L	20	5290		5090		4		P
Mercury	ug/L	20	41.3		38.1		8		CV
Selenium	ug/L	20	9840		9430		4		P
Silver	ug/L	20	364		358		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: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB167882BS							
Arsenic	ug/L	4000	3680		92	80 - 120	P
Barium	ug/L	1000	828		83	80 - 120	P
Cadmium	ug/L	1000	940		94	80 - 120	P
Chromium	ug/L	2000	1900		95	80 - 120	P
Lead	ug/L	5000	4630		93	80 - 120	P
Selenium	ug/L	10000	9090		91	80 - 120	P
Silver	ug/L	380	349		92	80 - 120	P

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LABORATORY CONTROL SAMPLE SUMMARY

Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB167883BS							
Mercury	ug/L	4.0	4.14		104	80 - 120	CV

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Metals

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ICP SERIAL DILUTIONS

SAMPLE NO.

72-11933L

Lab Name: Chemtech Consulting Group **Contract:** CAMP02

Lab Code: CHEM **Lb No.:** lb135699 **Lab Sample ID :** Q1960-03L **SDG No.:** Q1956

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	1320		1160	J	12		P
Cadmium	5.41	J	150	U	100.0		P
Chromium	50.0	U	250	U			P
Lead	601		614		2		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
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ICP INTERELEMENT CORRECTION FACTORS

Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

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
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ICP INTERELEMENT CORRECTION FACTORS

Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

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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ICP INTERELEMENT CORRECTION FACTORS

Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

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
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ICP INTERELEMENT CORRECTION FACTORS

Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

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
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ICP INTERELEMENT CORRECTION FACTORS

Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Case No.:** Q1956 **SAS No.:** Q1956

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: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Method:**

Case No.: Q1956 **SAS No.:** Q1956

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB167882**						
PB167851TB	PB167851TB	MB	WATER	05/06/2025	5.0	25.0	
PB167882BL	PB167882BL	MB	WATER	05/06/2025	5.0	25.0	
PB167882BS	PB167882BS	LCS	WATER	05/06/2025	5.0	25.0	
Q1956-05	COMP1	SAM	WATER	05/06/2025	5.0	25.0	
Q1960-03DUP	72-11933DUP	DUP	WATER	05/06/2025	5.0	25.0	
Q1960-03MS	72-11933MS	MS	WATER	05/06/2025	5.0	25.0	
Q1960-03MSD	72-11933MSD	MSD	WATER	05/06/2025	5.0	25.0	

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SAMPLE PREPARATION SUMMARY

Client: CDM Smith **SDG No.:** Q1956

Contract: CAMP02 **Lab Code:** CHEM **Method:**

Case No.: Q1956 **SAS No.:** Q1956

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB167883**						
PB167851TB	PB167851TB	MB	WATER	05/06/2025	3.0	30.0	
PB167883BL	PB167883BL	MB	WATER	05/06/2025	30.0	30.0	
PB167883BS	PB167883BS	LCS	WATER	05/06/2025	30.0	30.0	
Q1956-05	COMP1	SAM	WATER	05/06/2025	3.0	30.0	
Q1960-03DUP	72-11933DUP	DUP	WATER	05/06/2025	3.0	30.0	
Q1960-03MS	72-11933MS	MS	WATER	05/06/2025	3.0	30.0	
Q1960-03MSD	72-11933MSD	MSD	WATER	05/06/2025	3.0	30.0	

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ANALYSIS RUN LOG

Client: CDM Smith **Contract:** CAMP02

Lab code: CHEM **Case no.:** Q1956 **Sas no.:** Q1956 **Sdg no.:** Q1956

Instrument id number: **Method:** **Run number:** LB135690

Start date: 05/07/2025 **End date:** 05/07/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	0905	HG
S0.2	S0.2	1	0907	HG
S2.5	S2.5	1	0910	HG
S5	S5	1	0915	HG
S7.5	S7.5	1	0917	HG
S10	S10	1	0919	HG
ICV01	ICV01	1	0922	HG
ICB01	ICB01	1	0925	HG
CCV86	CCV86	1	0927	HG
CCB86	CCB86	1	0929	HG
CRA	CRA	1	0931	HG
PB167883BS	PB167883BS	1	0946	HG
Q1956-05	COMP1	1	0955	HG
CCV87	CCV87	1	1000	HG
CCB87	CCB87	1	1002	HG
Q1960-03DUP	72-11933DUP	1	1006	HG
Q1960-03MS	72-11933MS	1	1009	HG
Q1960-03MSD	72-11933MSD	1	1011	HG
PB167851TB	PB167851TB	1	1013	HG
PB167883BL	PB167883BL	1	1016	HG
Q1960-03L	72-11933L	5	1018	HG
CCV88	CCV88	1	1022	HG
CCB88	CCB88	1	1025	HG

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ANALYSIS RUN LOG

Client: CDM Smith **Contract:** CAMP02

Lab code: CHEM **Case no.:** Q1956 **Sas no.:** Q1956 **Sdg no.:** Q1956

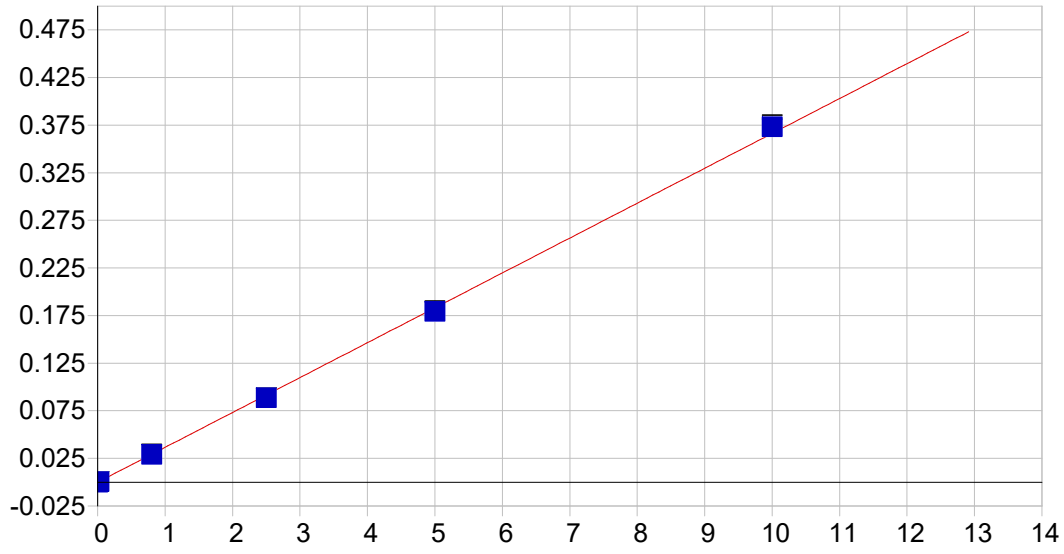
Instrument id number: **Method:** **Run number:** LB135699

Start date: 05/07/2025 **End date:** 05/07/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1234	Ag,As,Ba,Cd,Cr,Pb,Se
S1	S1	1	1238	Ag,As,Ba,Cd,Cr,Pb,Se
S2	S2	1	1243	Ag,As,Ba,Cd,Cr,Pb,Se
S3	S3	1	1247	Ag,As,Ba,Cd,Cr,Pb,Se
S4	S4	1	1251	Ag,As,Ba,Cd,Cr,Pb,Se
S5	S5	1	1255	Ag,As,Ba,Cd,Cr,Pb,Se
ICV01	ICV01	1	1259	Ag,As,Ba,Cd,Cr,Pb,Se
LLICV01	LLICV01	1	1305	Ag,As,Ba,Cd,Cr,Pb,Se
ICB01	ICB01	1	1309	Ag,As,Ba,Cd,Cr,Pb,Se
CRI01	CRI01	1	1316	Ag,As,Ba,Cd,Cr,Pb,Se
ICSA01	ICSA01	1	1321	Ag,As,Ba,Cd,Cr,Pb,Se
ICSAB01	ICSAB01	1	1325	Ag,As,Ba,Cd,Cr,Pb,Se
CCV01	CCV01	1	1339	Ag,As,Ba,Cd,Cr,Pb,Se
CCB01	CCB01	1	1343	Ag,As,Ba,Cd,Cr,Pb,Se
PB167882BL	PB167882BL	1	1347	Ag,As,Ba,Cd,Cr,Pb,Se
PB167882BS	PB167882BS	1	1358	Ag,As,Ba,Cd,Cr,Pb,Se
PB167851TB	PB167851TB	1	1426	Ag,As,Ba,Cd,Cr,Pb,Se
CCV02	CCV02	1	1435	Ag,As,Ba,Cd,Cr,Pb,Se
CCB02	CCB02	1	1439	Ag,As,Ba,Cd,Cr,Pb,Se
Q1956-05	COMP1	1	1453	Ag,As,Ba,Cd,Cr,Pb,Se
Q1960-03DUP	72-11933DUP	1	1506	Ag,As,Ba,Cd,Cr,Pb,Se
Q1960-03L	72-11933L	5	1510	Ag,As,Ba,Cd,Cr,Pb,Se
Q1960-03MS	72-11933MS	1	1515	Ag,As,Ba,Cd,Cr,Pb,Se
Q1960-03MSD	72-11933MSD	1	1519	Ag,As,Ba,Cd,Cr,Pb,Se
CCV03	CCV03	1	1523	Ag,As,Ba,Cd,Cr,Pb,Se
CCB03	CCB03	1	1527	Ag,As,Ba,Cd,Cr,Pb,Se
CCV04	CCV04	1	1605	Ag,As,Ba,Cd,Cr,Pb,Se
CCB04	CCB04	1	1609	Ag,As,Ba,Cd,Cr,Pb,Se
CCV05	CCV05	1	1647	Ag,As,Ba,Cd,Cr,Pb,Se
CCB05	CCB05	1	1652	Ag,As,Ba,Cd,Cr,Pb,Se

METAL
RAW DATA

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



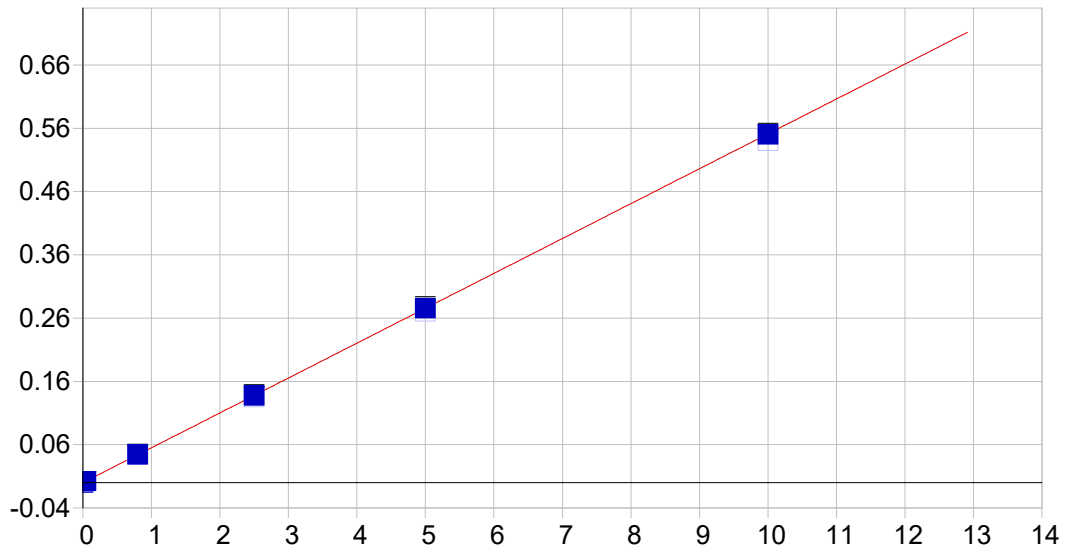
As 189.042 {479}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000061	Re-Slope:	1.000000
A1 (Gain):	0.036639	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999768	Status:	OK.
Std Error of Est:	0.000018		
Predicted MDL:	0.003705		
Predicted MQL:	0.012350		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00006	.000	1
S1	.02000	.01996	-.000	-.220	.00067	.000	1
S3	2.5000	2.4187	-.081	-3.25	.08846	.000	1
S4	5.0000	4.8953	-.105	-2.09	.17910	.001	1
S5	10.000	10.190	.190	1.90	.37290	.002	1
S2	.80000	.79585	-.004	-.518	.02907	.000	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



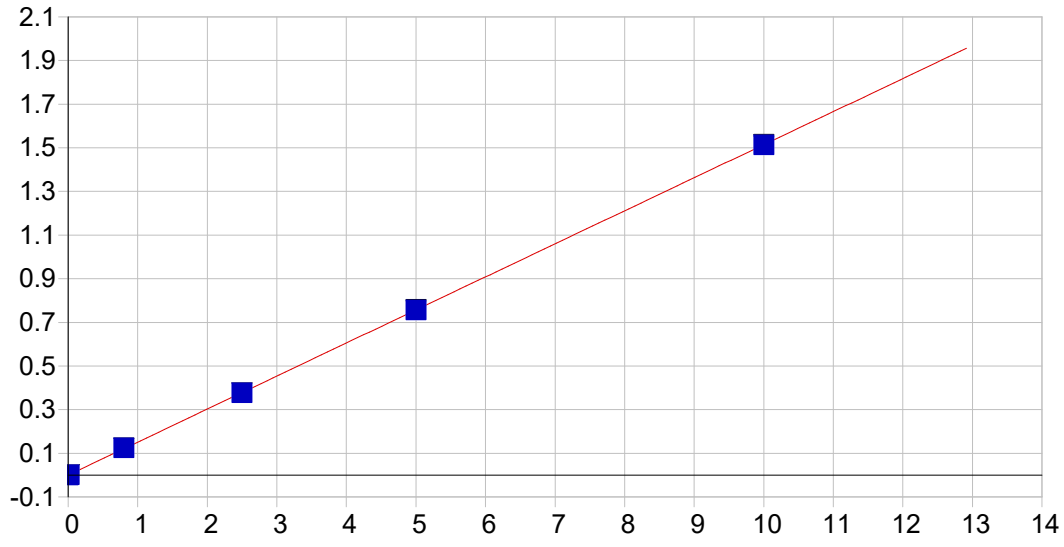
Tl 190.856 {477}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000123	Re-Slope:	1.000000
A1 (Gain):	0.055129	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999987	Status:	OK.
Std Error of Est:	0.000009		
Predicted MDL:	0.002313		
Predicted MQL:	0.007711		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00012	.000	1
S1	.04000	.04362	.004	9.04	.00214	.000	1
S3	2.5000	2.5011	.001	.046	.13522	.001	1
S4	5.0000	4.9981	-.002	-.039	.27034	.003	1
S5	10.000	9.9874	-.013	-.126	.54032	.002	1
S2	.80000	.80992	.010	1.24	.04372	.001	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



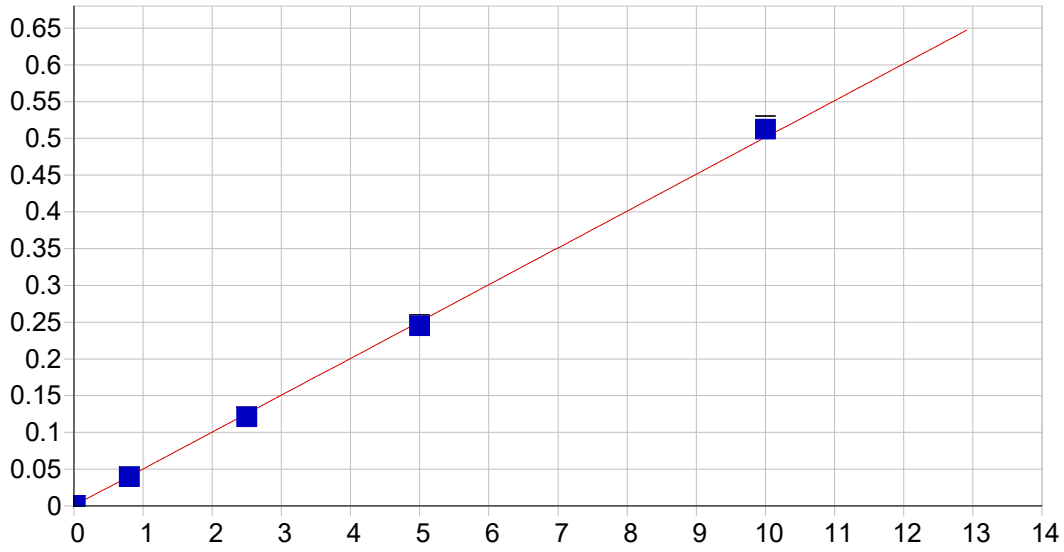
Pb 220.353 {453}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000293	Re-Slope:	1.000000
A1 (Gain):	0.151460	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999972	Status:	OK.
Std Error of Est:	0.000021		
Predicted MDL:	0.001925		
Predicted MQL:	0.006417		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00029	.000	1
S1	.01200	.01426	.002	18.8	.00183	.000	1
S3	2.5000	2.4913	-.009	-.347	.37665	.000	1
S4	5.0000	4.9936	-.006	-.129	.75525	.003	1
S5	10.000	9.9916	-.008	-.084	1.5115	.004	1
S2	.80000	.82127	.021	2.66	.12397	.001	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



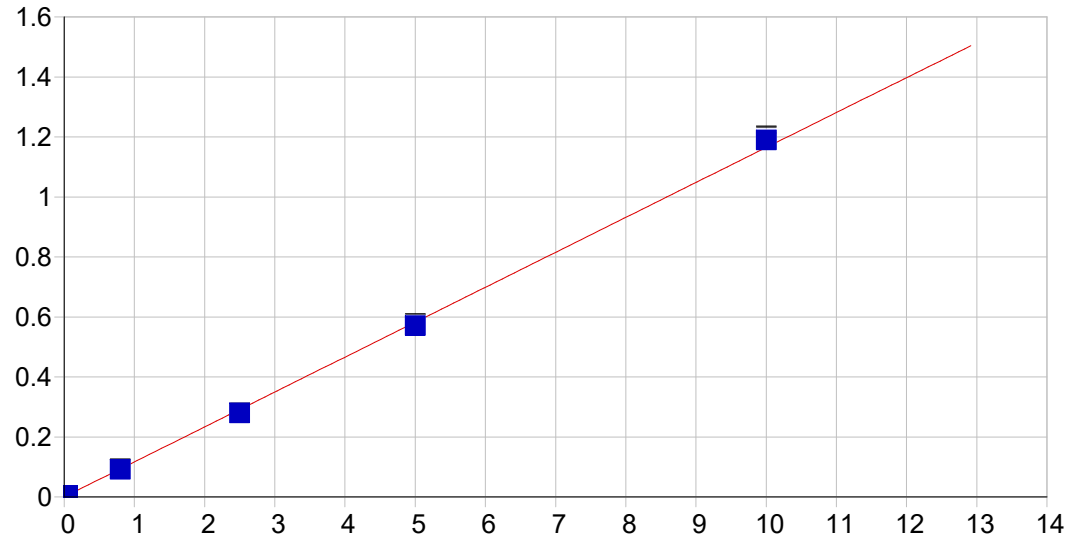
Se 196.090 {472}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000276	Re-Slope:	1.000000
A1 (Gain):	0.050099	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999684	Status:	OK.
Std Error of Est:	0.000030		
Predicted MDL:	0.003909		
Predicted MQL:	0.013029		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00028	.000	1
S1	.02000	.01748	-.003	-12.6	.00115	.000	1
S3	2.5000	2.4087	-.091	-3.65	.12091	.001	1
S4	5.0000	4.8840	-.116	-2.32	.24487	.002	1
S5	10.000	10.224	.224	2.24	.51229	.005	1
S2	.80000	.78619	-.014	-1.73	.03965	.001	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



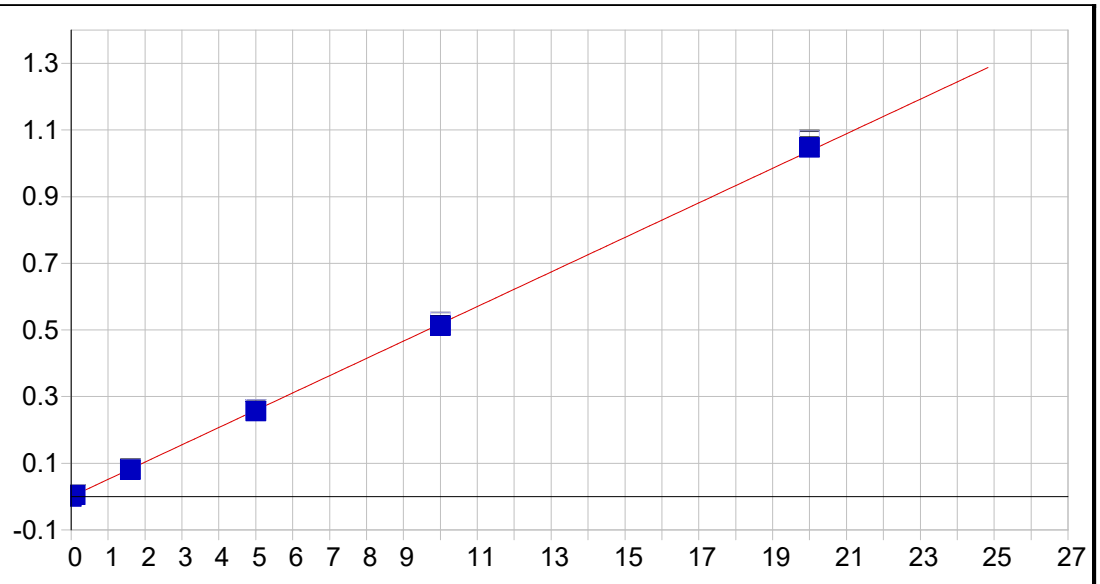
Sb 206.833 {463}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000220	Re-Slope:	1.000000
A1 (Gain):	0.116435	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999710	Status:	OK.
Std Error of Est:	0.000104		
Predicted MDL:	0.002291		
Predicted MQL:	0.007635		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00022	.000	1
S1	.05000	.05104	.001	2.08	.00618	.000	1
S3	2.5000	2.4022	-.098	-3.91	.28071	.001	1
S4	5.0000	4.9009	-.099	-1.98	.57244	.005	1
S5	10.000	10.213	.213	2.13	1.1925	.011	1
S2	.80000	.78296	-.017	-2.13	.09164	.001	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



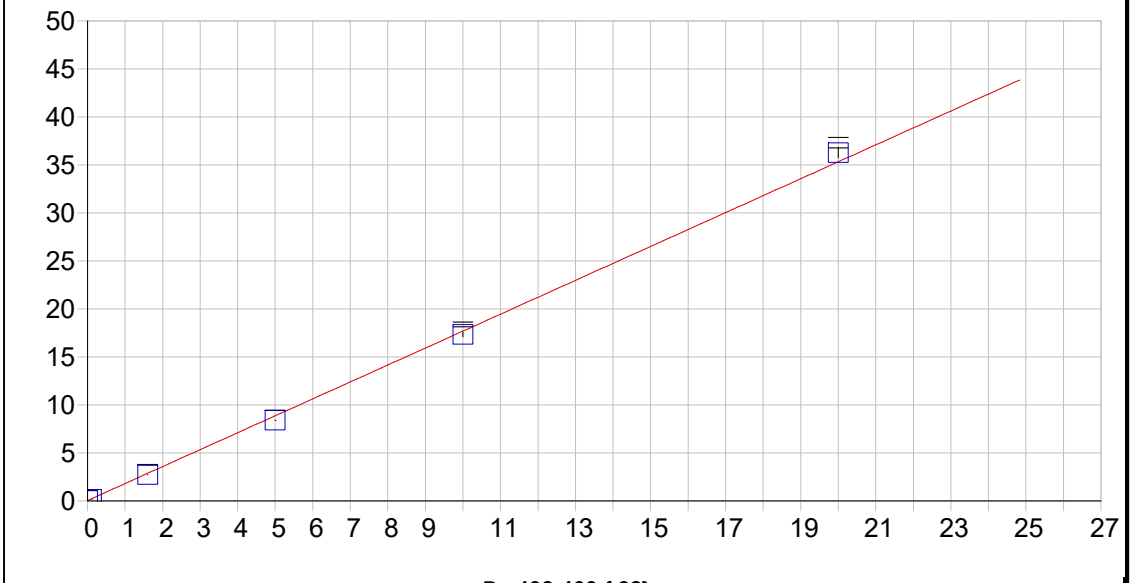
Al 396.152 { 85}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000070	Re-Slope:	1.000000
A1 (Gain):	0.051843	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999927	Status:	OK.
Std Error of Est:	0.000047		
Predicted MDL:	0.009046		
Predicted MQL:	0.030154		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	-.00007	.000	1
S1	.10000	.09857	-.001	-1.43	.00544	.000	1
S3	5.0000	4.9394	-.061	-1.21	.26103	.000	1
S4	10.000	9.8938	-.106	-1.06	.52291	.001	1
S5	20.000	20.215	.215	1.08	1.0681	.002	1
S2	1.6000	1.5530	-.047	-2.94	.08205	.001	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



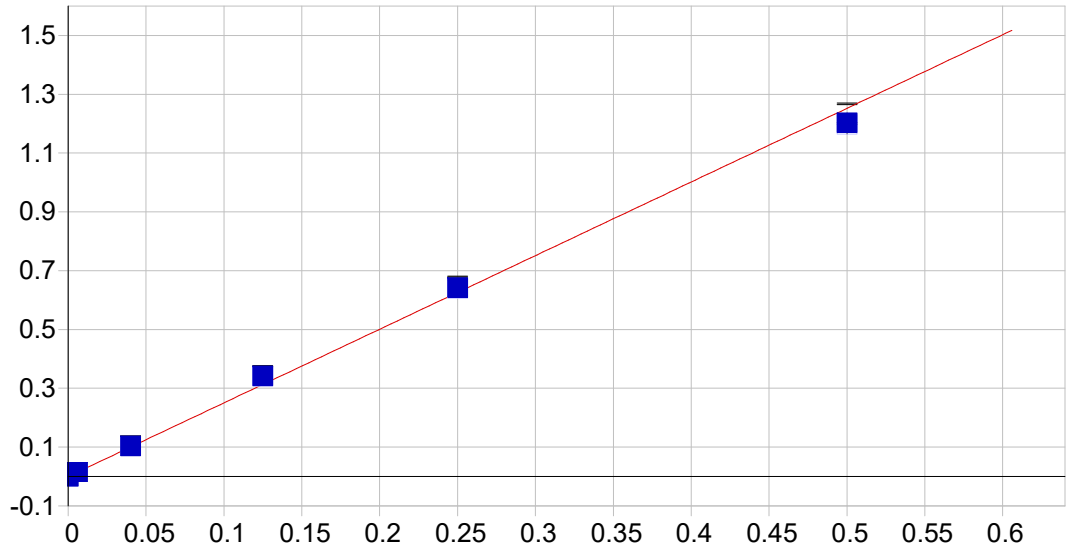
Ba 493.409 { 68}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.046662	Re-Slope:	1.000000
A1 (Gain):	1.763832	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999507	Status:	OK.
Std Error of Est:	0.004110		
Predicted MDL:	0.001095		
Predicted MQL:	0.003651		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.04669	.003	1
S1	.10000	.09529	-.005	-4.71	.21473	.000	1
S3	5.0000	4.7366	-.263	-5.27	8.4012	.014	1
S4	10.000	9.8091	-.191	-1.91	17.348	.239	1
S5	20.000	20.539	.539	2.69	36.274	.556	1
S2	1.6000	1.5202	-.080	-4.99	2.7280	.024	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



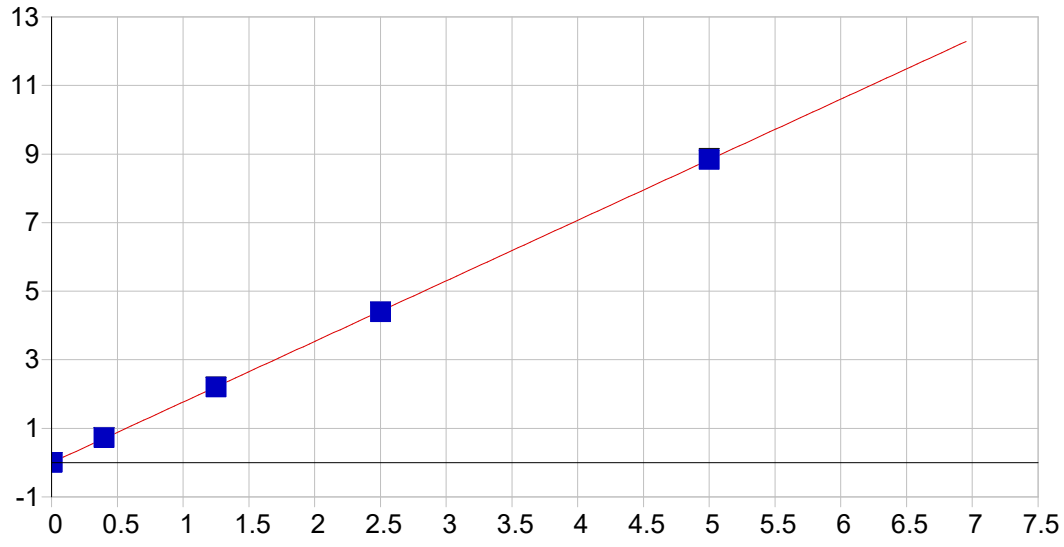
Be 234.861 {144}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000034	Re-Slope:	1.000000
A1 (Gain):	2.504215	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998890	Status:	OK.
Std Error of Est:	0.000338		
Predicted MDL:	0.000072		
Predicted MQL:	0.000239		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00003	.000	1
S1	.00600	.00622	.000	3.66	.01550	.000	1
S3	.12500	.13634	.011	9.07	.34006	.001	1
S4	.25000	.25649	.006	2.60	.63953	.005	1
S5	.50000	.48043	-.020	-3.91	1.1975	.033	1
S2	.04000	.04152	.002	3.79	.10355	.001	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



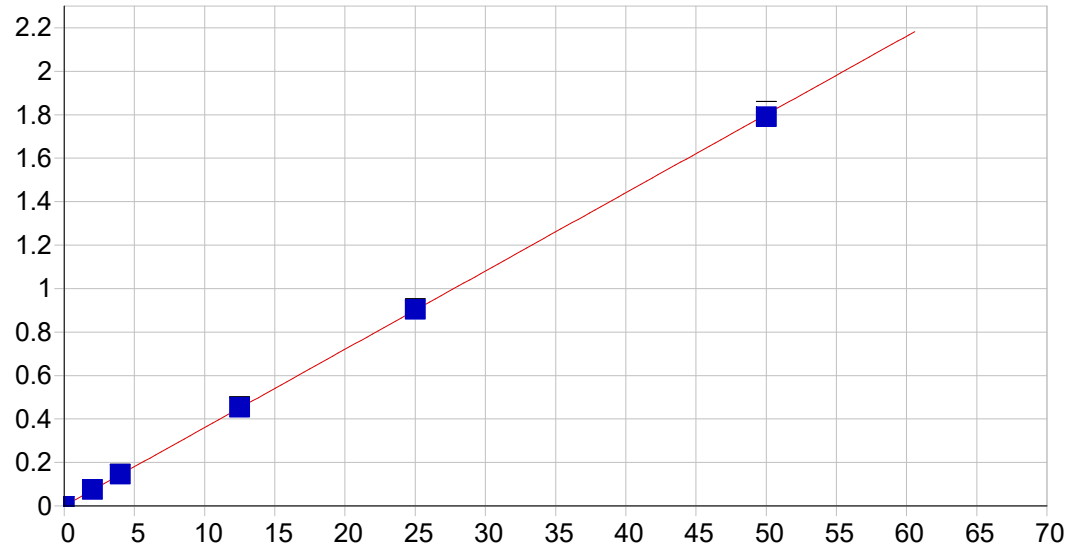
Cd 226.502 {449}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000058	Re-Slope:	1.000000
A1 (Gain):	1.766881	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999969	Status:	OK.
Std Error of Est:	0.000126		
Predicted MDL:	0.000113		
Predicted MQL:	0.000376		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00006	.000	1
S1	.00600	.00651	.001	8.56	.01151	.000	1
S3	1.2500	1.2437	-.006	-.500	2.1994	.001	1
S4	2.5000	2.4885	-.012	-.460	4.4007	.005	1
S5	5.0000	5.0040	.004	.080	8.8492	.027	1
S2	.40000	.41323	.013	3.31	.73070	.007	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



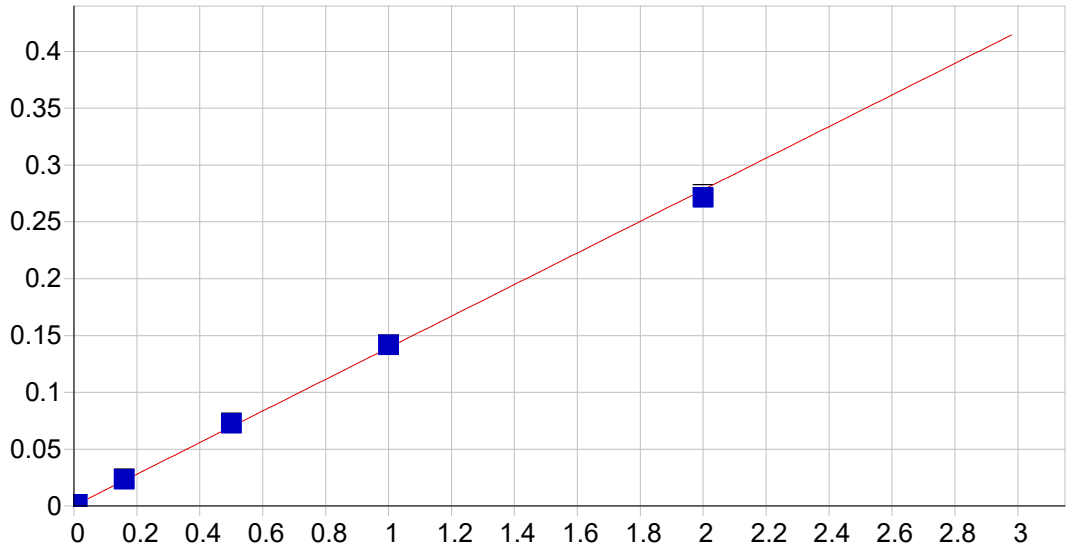
Ca 373.690 { 90}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000360	Re-Slope:	1.000000
A1 (Gain):	0.036017	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999973	Status:	OK.
Std Error of Est:	0.000139		
Predicted MDL:	0.012193		
Predicted MQL:	0.040644		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00009	-.000	.000	.00036	.000	1
S2	4.0000	4.0171	.017	.427	.14504	.001	1
S3	12.500	12.600	.100	.803	.45419	.002	1
S4	25.000	25.104	.104	.415	.90452	.003	1
S5	50.000	49.715	-.285	-.570	1.7909	.024	1
S1	2.0000	2.0635	.064	3.18	.07468	.000	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



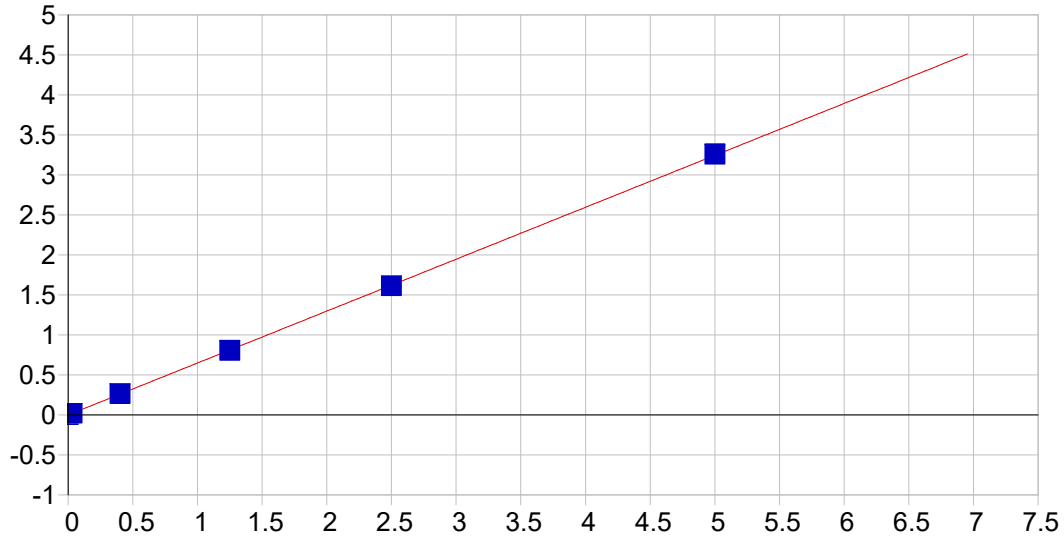
Cr 267.716 {126}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000125	Re-Slope:	1.000000
A1 (Gain):	0.139081	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999609	Status:	OK.
Std Error of Est:	0.000029		
Predicted MDL:	0.000492		
Predicted MQL:	0.001640		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00012	.000	1
S1	.01000	.01026	.000	2.62	.00155	.000	1
S3	.50000	.52225	.022	4.45	.07278	.000	1
S4	1.0000	1.0177	.018	1.77	.14171	.000	1
S5	2.0000	1.9518	-.048	-2.41	.27166	.002	1
S2	.16000	.16798	.008	4.99	.02349	.000	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



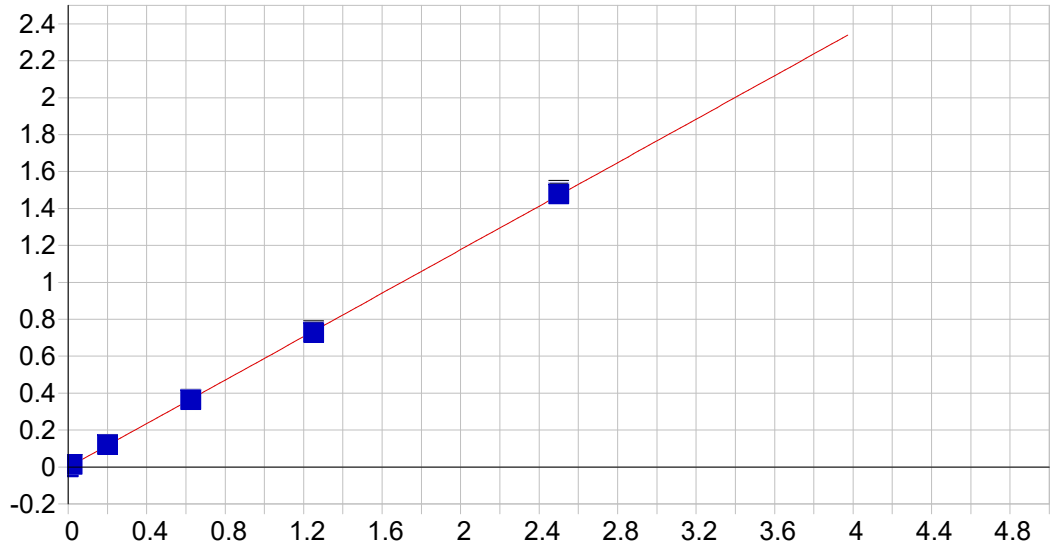
Co 228.616 {448}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000040	Re-Slope:	1.000000
A1 (Gain):	0.648836	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999980	Status:	OK.
Std Error of Est:	0.000084		
Predicted MDL:	0.000322		
Predicted MQL:	0.001074		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00004	.000	1
S1	.03000	.03065	.001	2.17	.01985	.000	1
S3	1.2500	1.2396	-.010	-.835	.80568	.001	1
S4	2.5000	2.4848	-.015	-.607	1.6150	.003	1
S5	5.0000	5.0184	.018	.368	3.2616	.002	1
S2	.40000	.40658	.007	1.65	.26429	.002	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



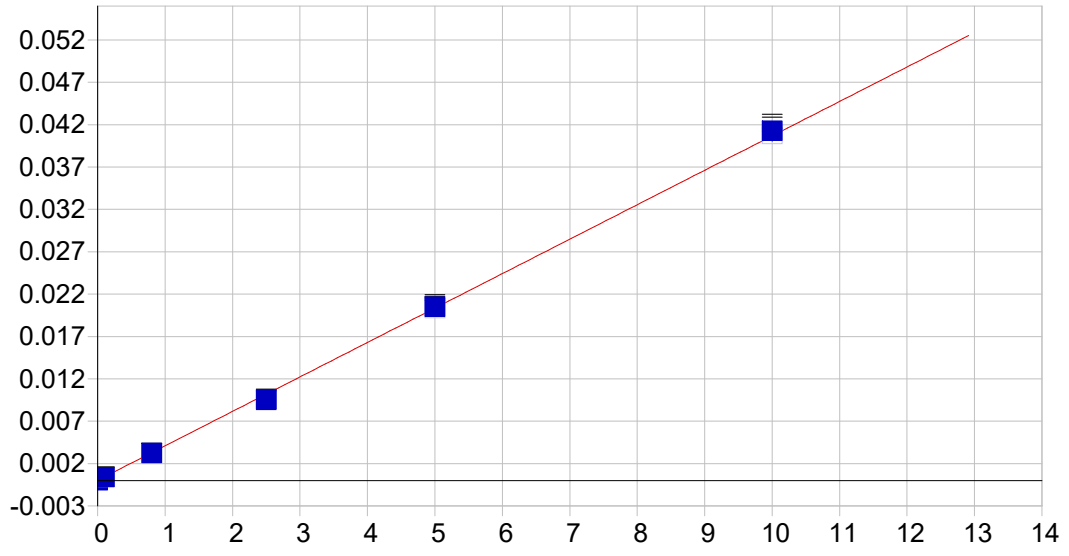
Cu 224.700 {450}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000742	Re-Slope:	1.000000
A1 (Gain):	0.588815	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999928	Status:	OK.
Std Error of Est:	0.000083		
Predicted MDL:	0.000501		
Predicted MQL:	0.001669		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00074	.000	1
S1	.02000	.02246	.002	12.3	.01260	.000	1
S3	.62500	.61891	-.006	-.974	.36637	.001	1
S4	1.2500	1.2373	-.013	-1.01	.73319	.005	1
S5	2.5000	2.5112	.011	.449	1.4886	.009	1
S2	.20000	.20505	.005	2.53	.12085	.001	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



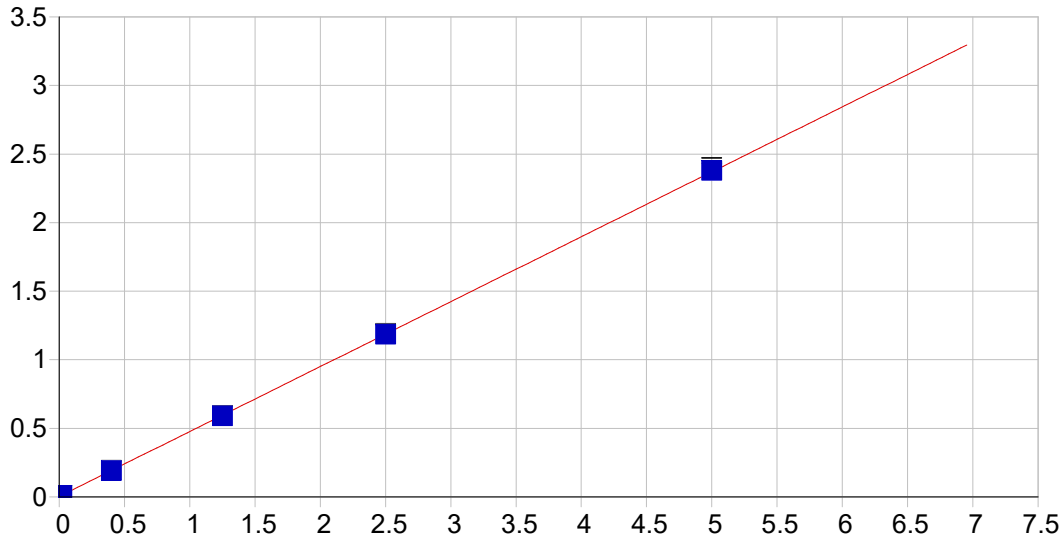
Fe 240.488 {140}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000027	Re-Slope:	1.000000
A1 (Gain):	0.004065	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999655	Status:	OK.
Std Error of Est:	0.000006		
Predicted MDL:	0.006249		
Predicted MQL:	0.020831		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00003	.000	1
S1	.10000	.09490	-.005	-5.10	.00041	.000	1
S3	2.5000	2.3443	-.156	-6.23	.00947	.000	1
S4	5.0000	5.0356	.036	.713	.02032	.000	1
S5	10.000	10.141	.141	1.41	.04090	.001	1
S2	.80000	.78447	-.016	-1.94	.00319	.000	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



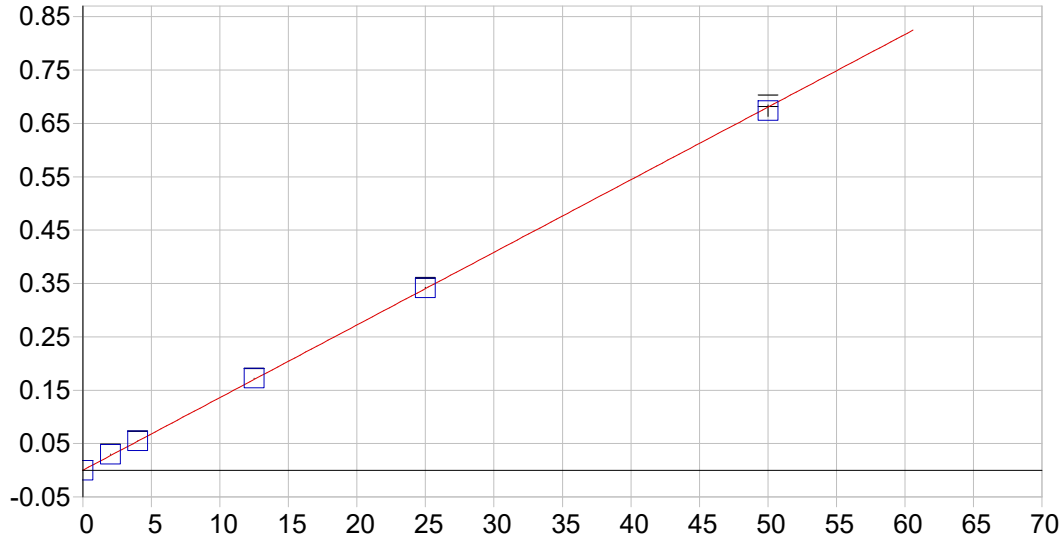
Mn 257.610 {131}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.003531	Re-Slope:	1.000000
A1 (Gain):	0.473336	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999919	Status:	OK.
Std Error of Est:	0.000100		
Predicted MDL:	0.000377		
Predicted MQL:	0.001256		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00353	.000	1
S1	.02000	.01492	-.005	-25.4	.01060	.000	1
S3	1.2500	1.2397	-.010	-.826	.59043	.002	1
S4	2.5000	2.4988	-.001	-.049	1.1865	.007	1
S5	5.0000	5.0202	.020	.404	2.3802	.020	1
S2	.40000	.39645	-.004	-.889	.19122	.002	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



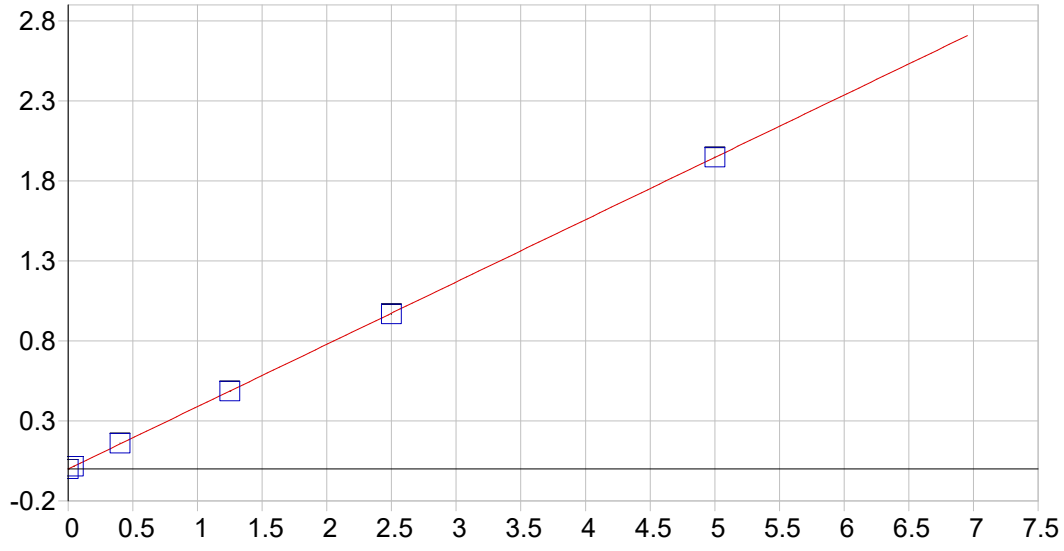
Mg 279.079 {121}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000039	Re-Slope:	1.000000
A1 (Gain):	0.013611	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999853	Status:	OK.
Std Error of Est:	0.000123		
Predicted MDL:	0.015529		
Predicted MQL:	0.051764		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00023	-.000	.000	.00004	.000	1
S2	4.0000	4.0273	.027	.683	.05486	.000	1
S3	12.500	12.664	.164	1.31	.17242	.000	1
S4	25.000	25.118	.118	.471	.34192	.001	1
S5	50.000	49.494	-.506	-1.01	.67371	.011	1
S1	2.0000	2.1968	.197	9.84	.02994	.000	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



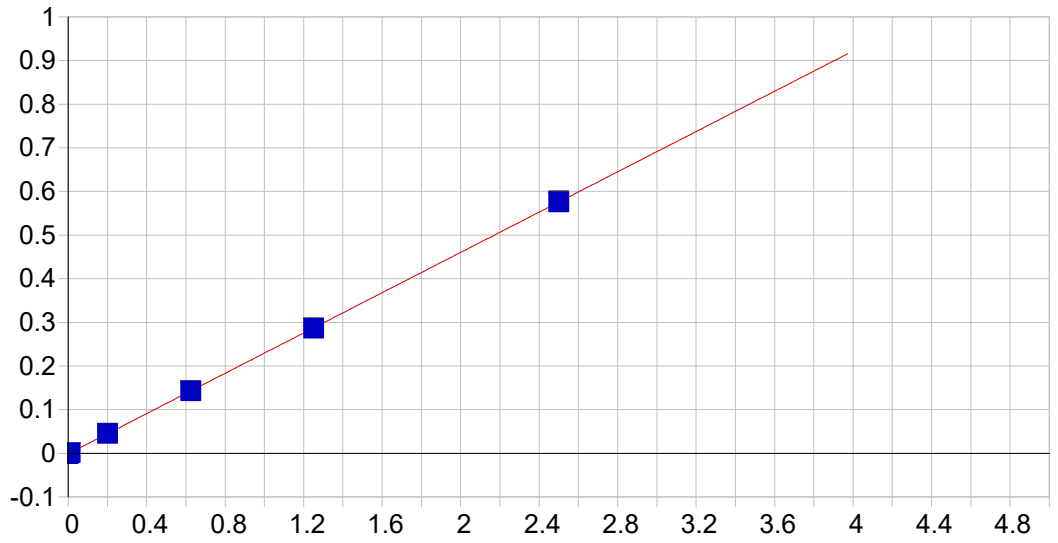
Ni 231.604 {446}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000260	Re-Slope:	1.000000
A1 (Gain):	0.389454	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999970	Status:	OK.
Std Error of Est:	0.000071		
Predicted MDL:	0.000464		
Predicted MQL:	0.001545		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00026	.000	1
S1	.04000	.04120	.001	3.01	.01579	.000	1
S3	1.2500	1.2486	-.001	-.110	.48602	.001	1
S4	2.5000	2.4845	-.016	-.621	.96733	.002	1
S5	5.0000	5.0027	.003	.054	1.9481	.003	1
S2	.40000	.41301	.013	3.25	.16059	.001	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



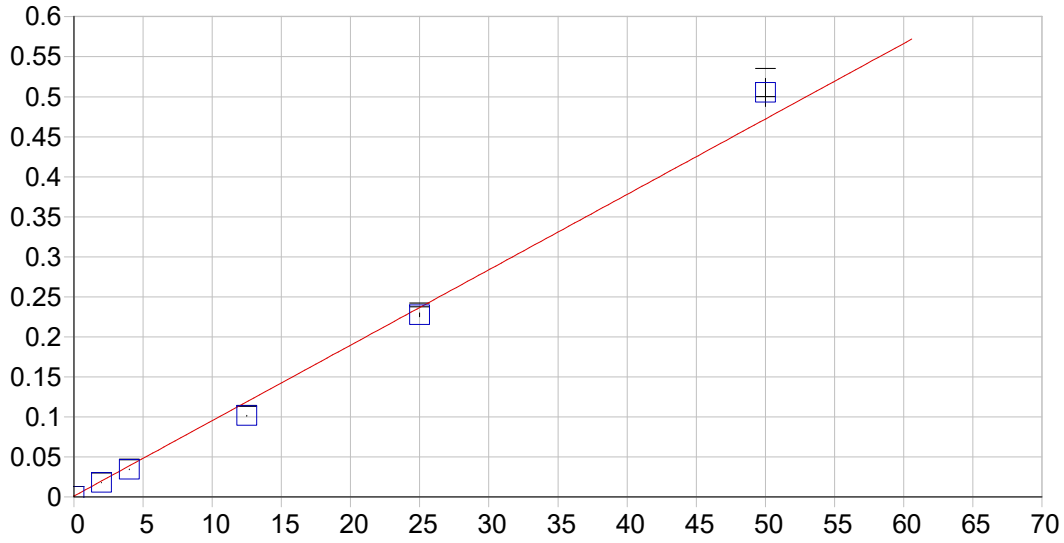
Ag 328.068 {103}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001326	Re-Slope:	1.000000
A1 (Gain):	0.230827	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999997	Status:	OK.
Std Error of Est:	0.000005		
Predicted MDL:	0.000423		
Predicted MQL:	0.001409		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00133	.000	1
S1	.01000	.01039	.000	3.88	.00106	.000	1
S3	.62500	.62536	.000	.057	.14245	.000	1
S4	1.2500	1.2471	-.003	-.234	.28539	.001	1
S5	2.5000	2.5010	.001	.040	.57368	.002	1
S2	.20000	.20119	.001	.597	.04493	.001	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



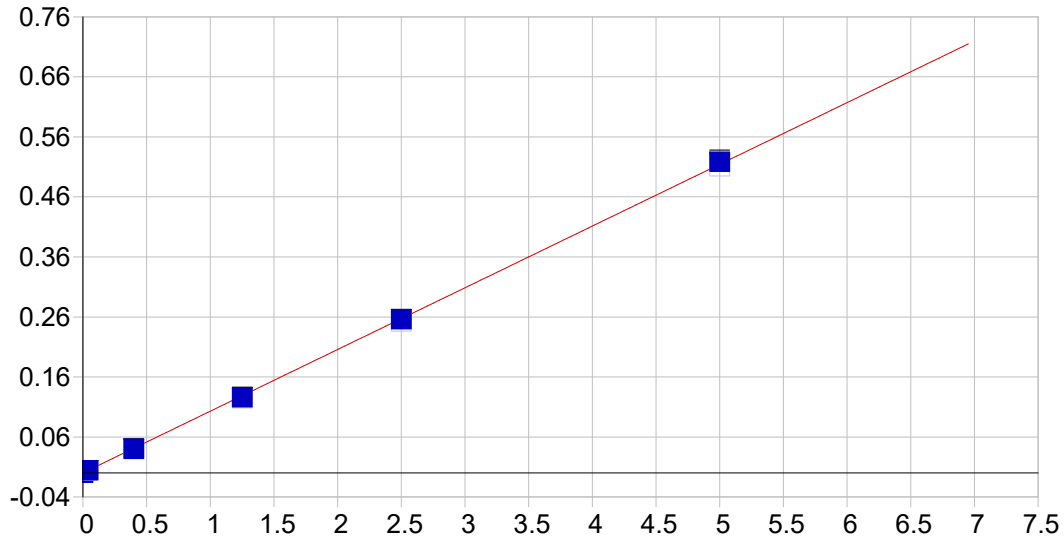
Na 589.592 { 57}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001097	Re-Slope:	1.000000
A1 (Gain):	0.009422	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.996579	Status:	OK.
Std Error of Est:	0.000413		
Predicted MDL:	0.022557		
Predicted MQL:	0.075188		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00070	.001	.000	.00110	.000	1
S2	4.0000	3.5182	-.482	-12.0	.03425	.000	1
S3	12.500	10.651	-1.85	-14.8	.10145	.001	1
S4	25.000	24.030	-.970	-3.88	.22751	.003	1
S5	50.000	53.524	3.52	7.05	.50541	.018	1
S1	2.0000	1.7771	-.223	-11.1	.01784	.000	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



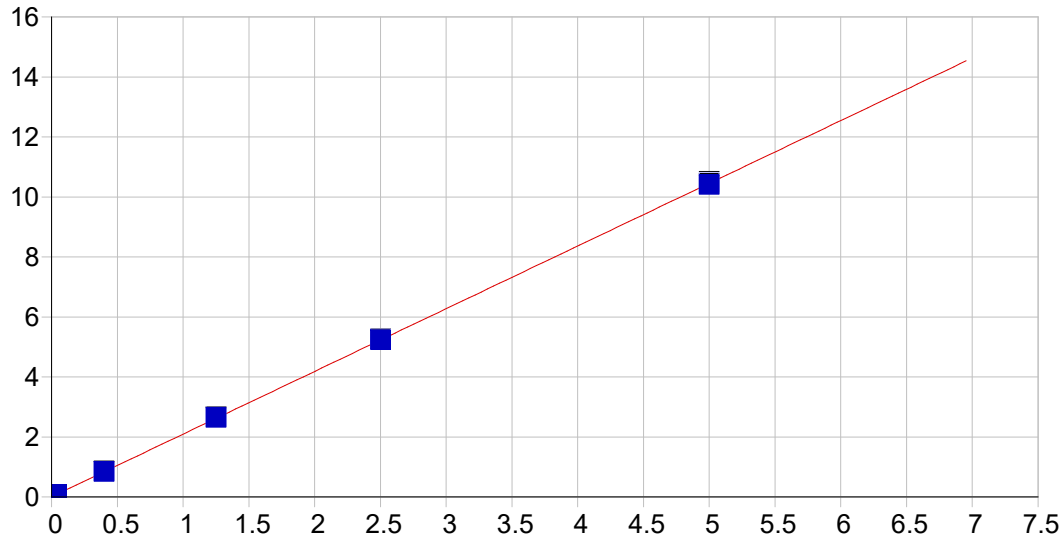
V 292.402 {115}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000137	Re-Slope:	1.000000
A1 (Gain):	0.102875	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999939	Status:	OK.
Std Error of Est:	0.000026		
Predicted MDL:	0.001920		
Predicted MQL:	0.006401		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00014	.000	1
S1	.04000	.04123	.001	3.09	.00395	.000	1
S3	1.2500	1.2269	-.023	-1.85	.12420	.001	1
S4	2.5000	2.4884	-.012	-.465	.25210	.000	1
S5	5.0000	5.0427	.043	.855	.51114	.003	1
S2	.40000	.39081	-.009	-2.30	.03947	.001	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



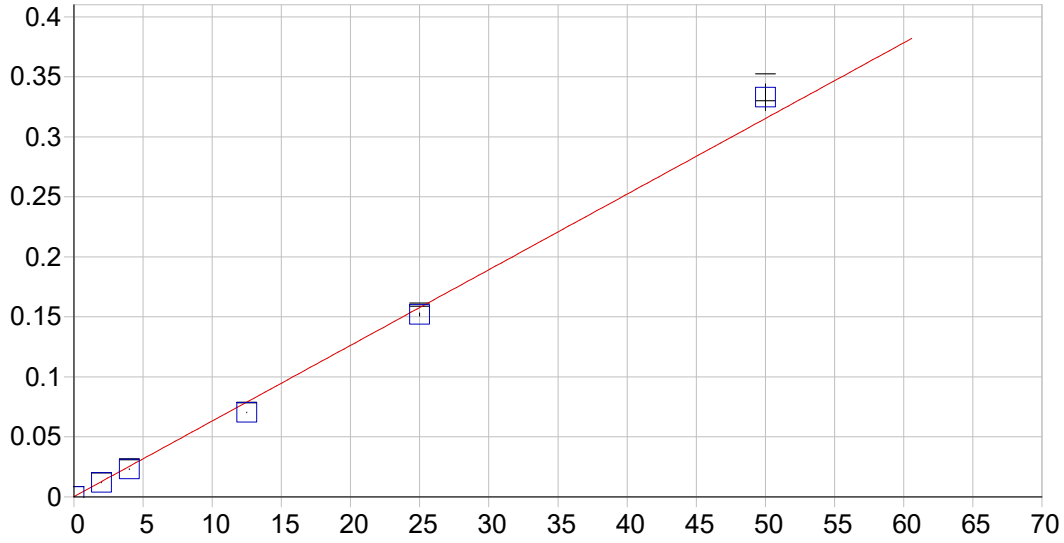
Zn 213.856 {158}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.003385	Re-Slope:	1.000000
A1 (Gain):	2.090002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999982	Status:	OK.
Std Error of Est:	0.000298		
Predicted MDL:	0.000409		
Predicted MQL:	0.001364		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00338	.001	1
S1	.04000	.04150	.002	3.75	.09071	.002	1
S3	1.2500	1.2644	.014	1.15	2.6642	.011	1
S4	2.5000	2.5020	.002	.078	5.2688	.005	1
S5	5.0000	4.9789	-.021	-.422	10.482	.031	1
S2	.40000	.40326	.003	.815	.85201	.009	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



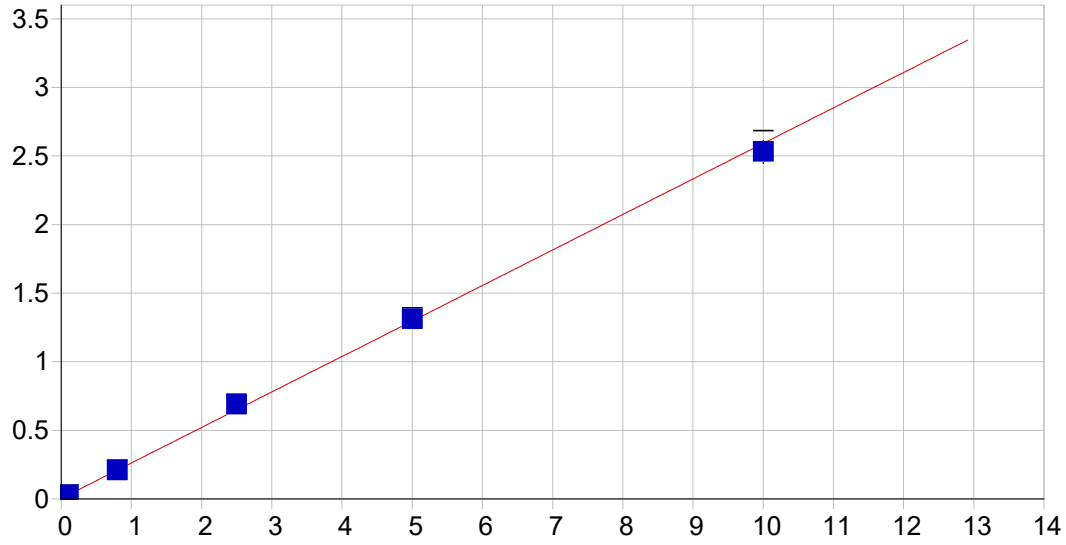
K 766.490 { 44}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000240	Re-Slope:	1.000000
A1 (Gain):	0.006300	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.997934	Status:	OK.
Std Error of Est:	0.000215		
Predicted MDL:	0.036185		
Predicted MQL:	0.120616		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00052	.001	.000	.00024	.000	1
S2	4.0000	3.6290	-.371	-9.27	.02310	.000	1
S3	12.500	11.129	-1.37	-11.0	.07035	.000	1
S4	25.000	24.089	-.911	-3.64	.15199	.001	1
S5	50.000	52.806	2.81	5.61	.33290	.011	1
S1	2.0000	1.8468	-.153	-7.66	.01187	.000	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



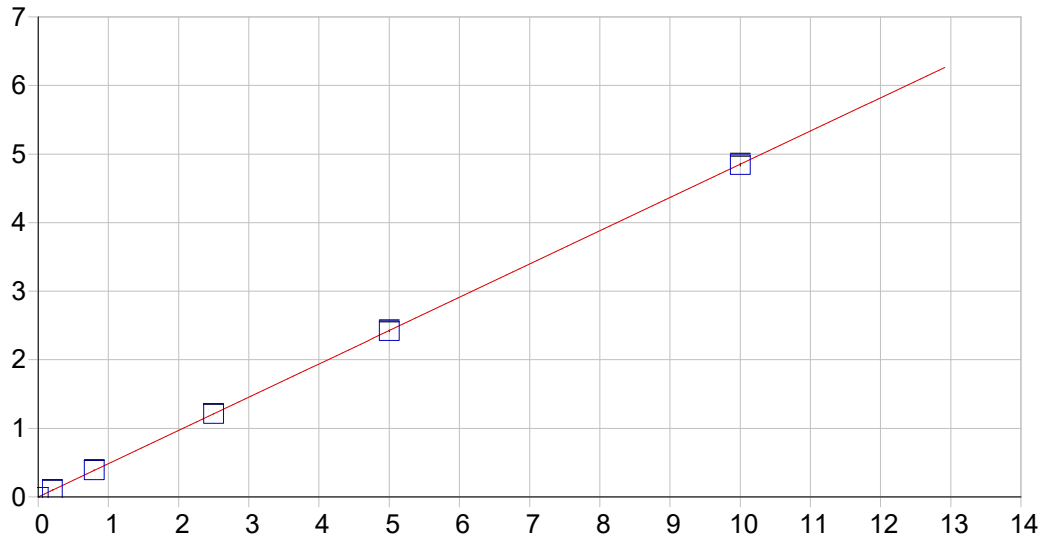
B 249.678 {135}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.003102	Re-Slope:	1.000000
A1 (Gain):	0.258841	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999569	Status:	OK.
Std Error of Est:	0.000399		
Predicted MDL:	0.000882		
Predicted MQL:	0.002939		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00310	.000	1
S1	.10000	.10545	.005	5.45	.03029	.000	1
S3	2.5000	2.6543	.154	6.17	.68903	.000	1
S4	5.0000	5.0660	.066	1.32	1.3122	.008	1
S5	10.000	9.7735	-.226	-2.26	2.5285	.083	1
S2	.80000	.80073	.001	.091	.21001	.001	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



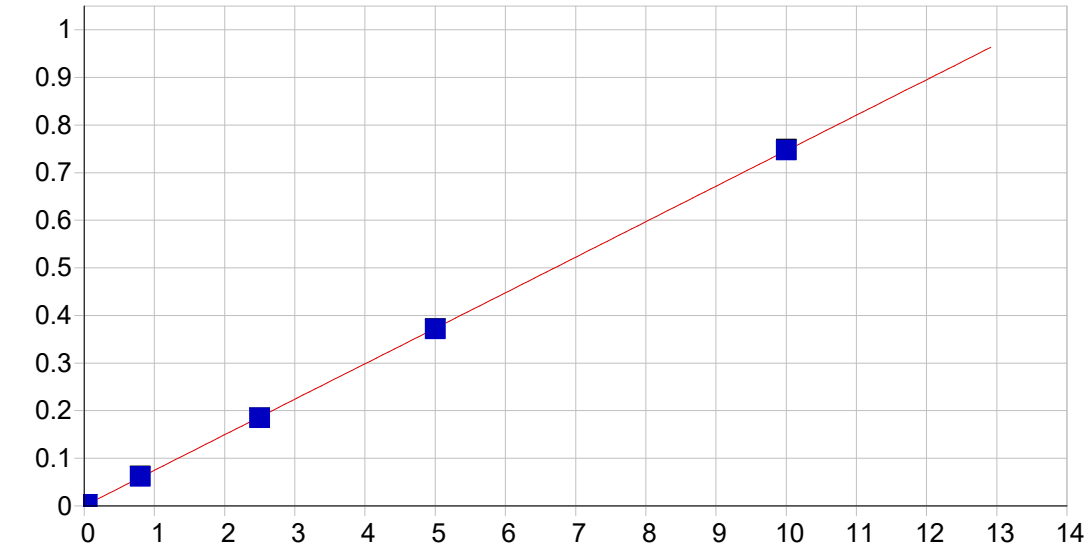
Mo 202.030 {467}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000213	Re-Slope:	1.000000
A1 (Gain):	0.485064	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999977	Status:	OK.
Std Error of Est:	0.000247		
Predicted MDL:	0.000379		
Predicted MQL:	0.001263		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00021	.000	1
S1	.20000	.21152	.012	5.76	.10282	.000	1
S3	2.5000	2.4965	-.004	-.140	1.2112	.002	1
S4	5.0000	4.9917	-.008	-.165	2.4215	.014	1
S5	10.000	9.9886	-.011	-.114	4.8453	.022	1
S2	.80000	.81167	.012	1.46	.39392	.005	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



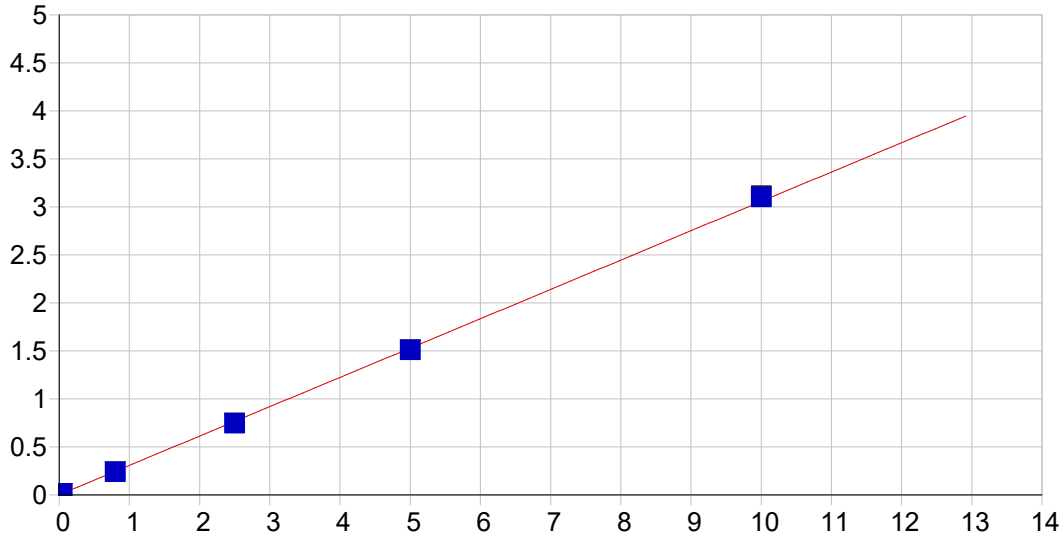
Sn 189.989 {478}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000237	Re-Slope:	1.000000
A1 (Gain):	0.074588	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999962	Status:	OK.
Std Error of Est:	0.000021		
Predicted MDL:	0.001211		
Predicted MQL:	0.004035		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00024	.000	1
S1	.04000	.04264	.003	6.60	.00341	.000	1
S3	2.5000	2.4774	-.023	-.904	.18483	.000	1
S4	5.0000	4.9773	-.023	-.454	.37110	.001	1
S5	10.000	10.016	.016	.163	.74656	.002	1
S2	.80000	.82637	.026	3.30	.06181	.001	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



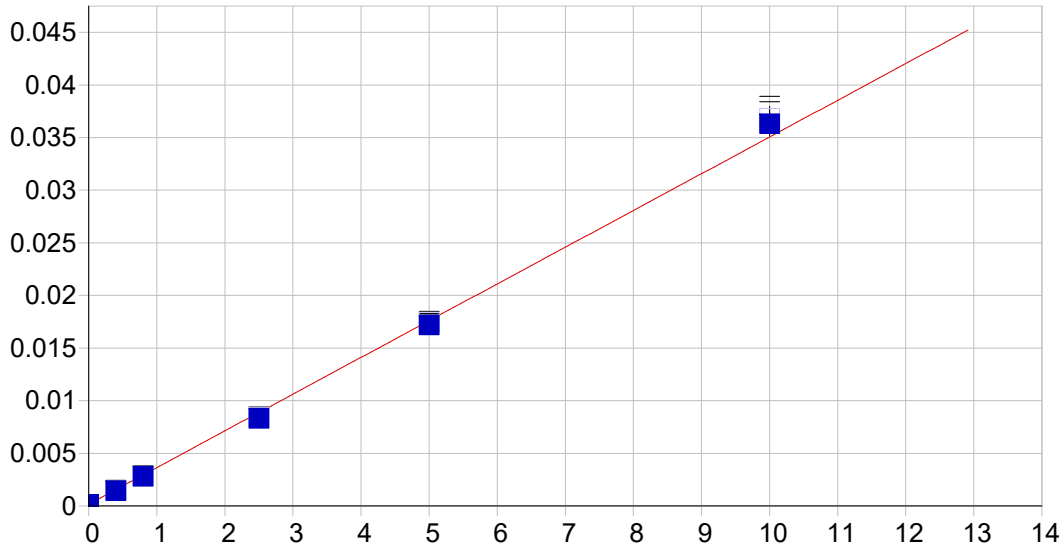
Ti 336.121 {100}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002080	Re-Slope:	1.000000
A1 (Gain):	0.305492	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999852	Status:	OK.
Std Error of Est:	0.000174		
Predicted MDL:	0.000938		
Predicted MQL:	0.003128		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00208	.000	1
S1	.04000	.04129	.001	3.21	.01468	.000	1
S3	2.5000	2.4323	-.068	-2.71	.74486	.002	1
S4	5.0000	4.9367	-.063	-1.27	1.5096	.003	1
S5	10.000	10.150	.150	1.50	3.1016	.011	1
S2	.80000	.78008	-.020	-2.49	.24030	.002	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



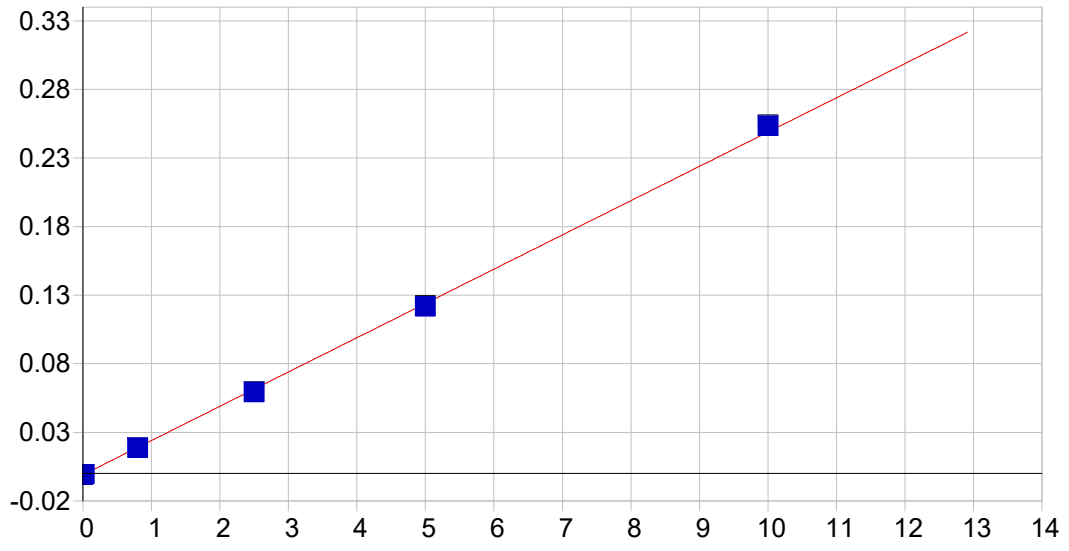
Si 288.158 {117}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000149	Re-Slope:	1.000000
A1 (Gain):	0.003491	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999177	Status:	OK.
Std Error of Est:	0.000015		
Predicted MDL:	0.011817		
Predicted MQL:	0.039390		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00007	.000	.000	.00015	.000	1
S1	.40000	.36886	-.031	-7.79	.00144	.000	1
S3	2.5000	2.3334	-.167	-6.67	.00842	.000	1
S4	5.0000	4.8809	-.119	-2.38	.01745	.000	1
S5	10.000	10.360	.360	3.60	.03684	.001	1
S2	.80000	.75641	-.044	-5.45	.00283	.000	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



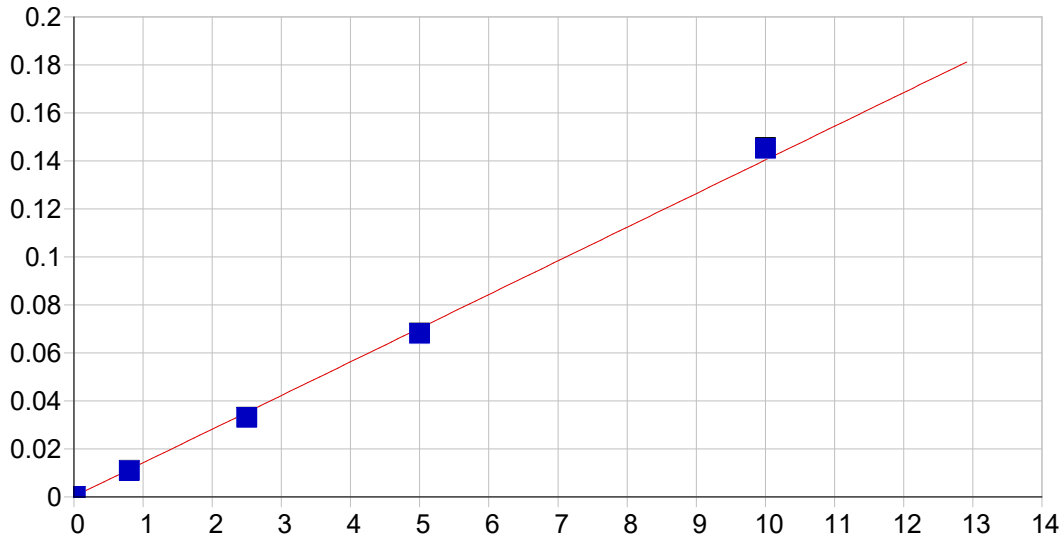
P 177.495 {490}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000978	Re-Slope:	1.000000
A1 (Gain):	0.024988	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999758	Status:	OK.
Std Error of Est:	0.000013		
Predicted MDL:	0.003964		
Predicted MQL:	0.013213		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00098	.000	1
S1	.02000	.02326	.003	16.3	-.00040	.000	1
S3	2.5000	2.4107	-.089	-3.57	.05925	.000	1
S4	5.0000	4.9112	-.089	-1.78	.12172	.000	1
S5	10.000	10.185	.185	1.85	.25349	.001	1
S2	.80000	.78964	-.010	-1.30	.01875	.000	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



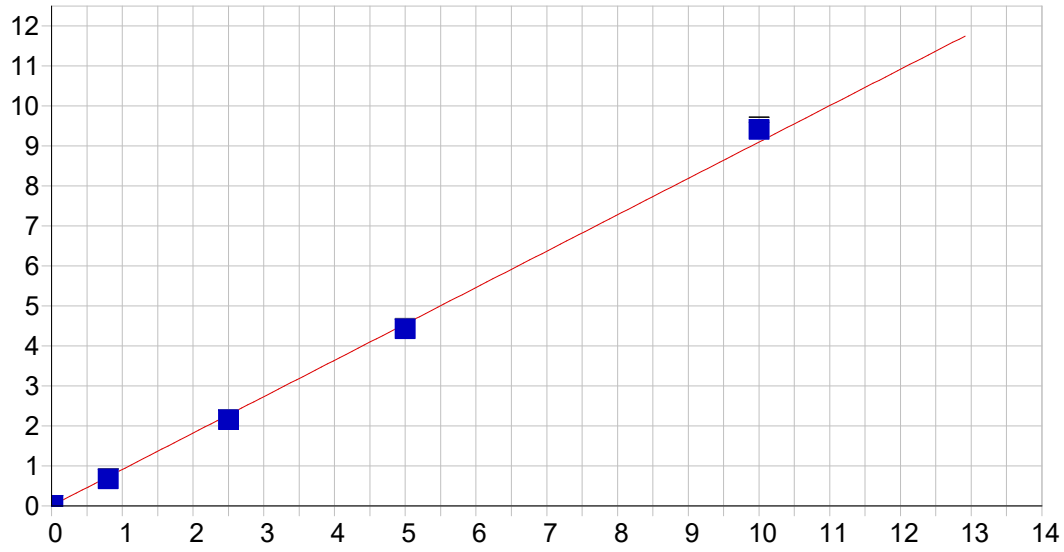
S 182.034 {485}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000185	Re-Slope:	1.000000
A1 (Gain):	0.014023	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999223	Status:	OK.
Std Error of Est:	0.000013		
Predicted MDL:	0.005668		
Predicted MQL:	0.018894		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00019	.000	1
S1	.02000	.01542	-.005	-22.9	.00039	.000	1
S3	2.5000	2.3490	-.151	-6.04	.03303	.000	1
S4	5.0000	4.8415	-.158	-3.17	.06789	.000	1
S5	10.000	10.345	.345	3.45	.14489	.000	1
S2	.80000	.76841	-.032	-3.95	.01093	.000	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



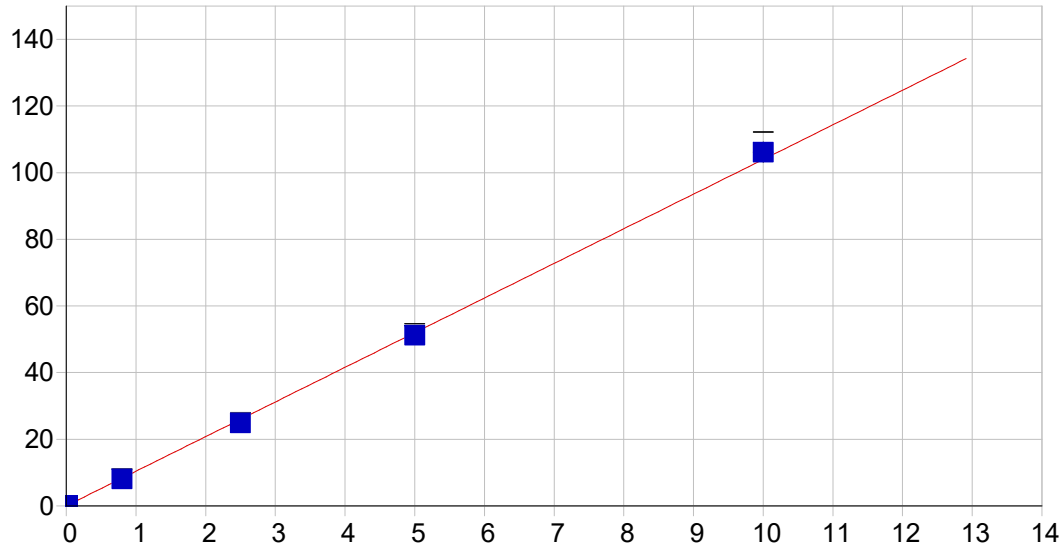
Li 670.784 { 50}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001993	Re-Slope:	1.000000
A1 (Gain):	0.909779	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999237	Status:	OK.
Std Error of Est:	0.000833		
Predicted MDL:	0.001198		
Predicted MQL:	0.003992		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00200	.000	1
S5	10.000	10.340	.340	3.40	9.4132	.064	1
S4	5.0000	4.8637	-.136	-2.73	4.4291	.010	1
S3	2.5000	2.3612	-.139	-5.55	2.1513	.002	1
S1	.02000	.01815	-.002	-9.24	.01880	.001	1
S2	.80000	.73754	-.062	-7.81	.67335	.005	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699



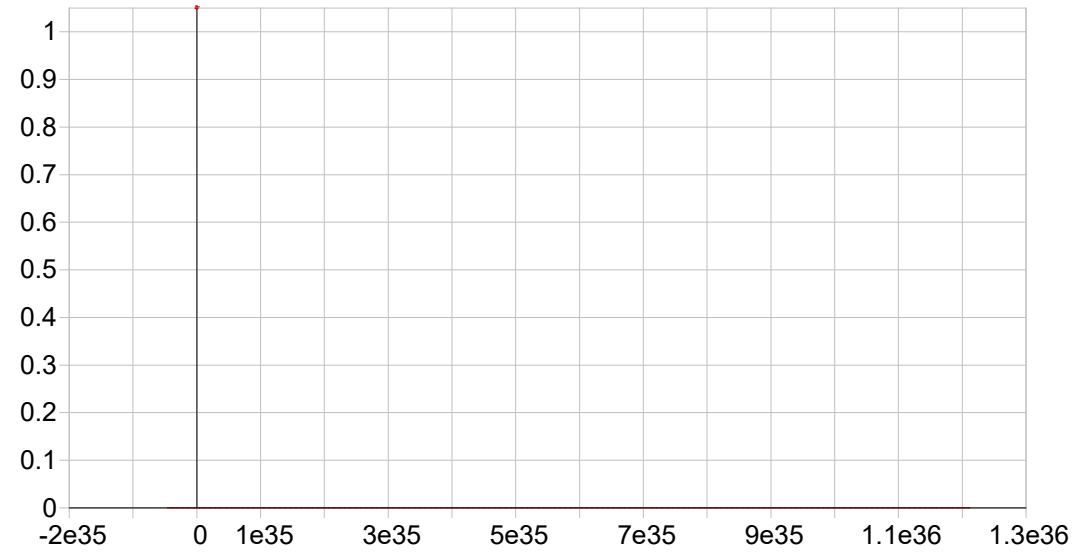
Sr 407.771 { 83}

Date of Fit:	5/8/2025 12:28:02	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001380	Re-Slope:	1.000000
A1 (Gain):	10.395459	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999692	Status:	OK.
Std Error of Est:	0.006051		
Predicted MDL:	0.000063		
Predicted MQL:	0.000211		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00140	.000	1
S1	.02000	.01979	-.000	-1.03	.20814	.001	1
S3	2.5000	2.3886	-.111	-4.46	24.857	.196	1
S4	5.0000	4.9263	-.074	-1.47	51.262	.411	1
S5	10.000	10.211	.211	2.11	106.25	3.03	1
S2	.80000	.77456	-.025	-3.18	8.0613	.065	1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

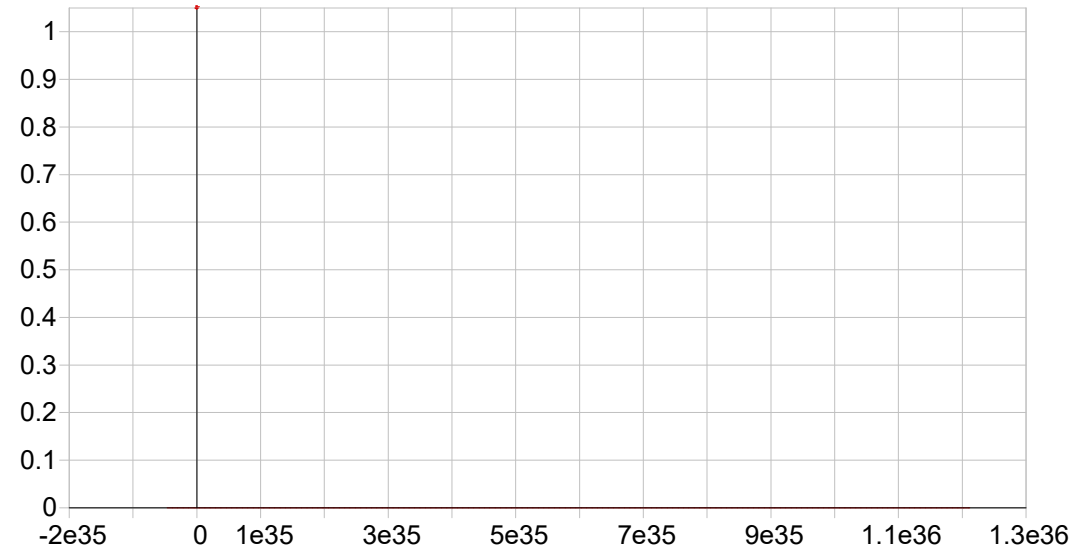


Y 224.306 {450}*

Date of Fit:	5/8/2025 12:28:02	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}*

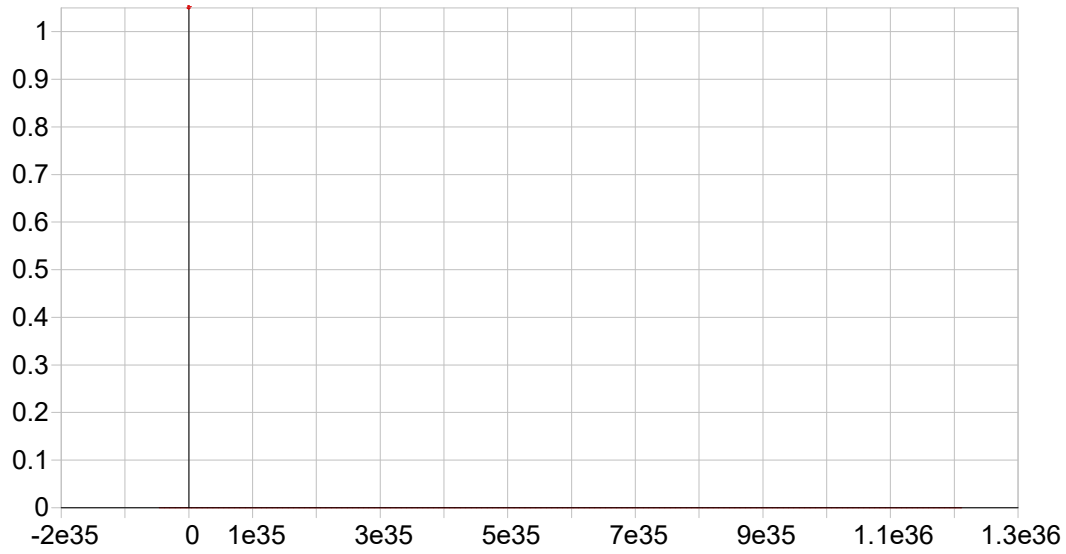
Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc

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

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

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



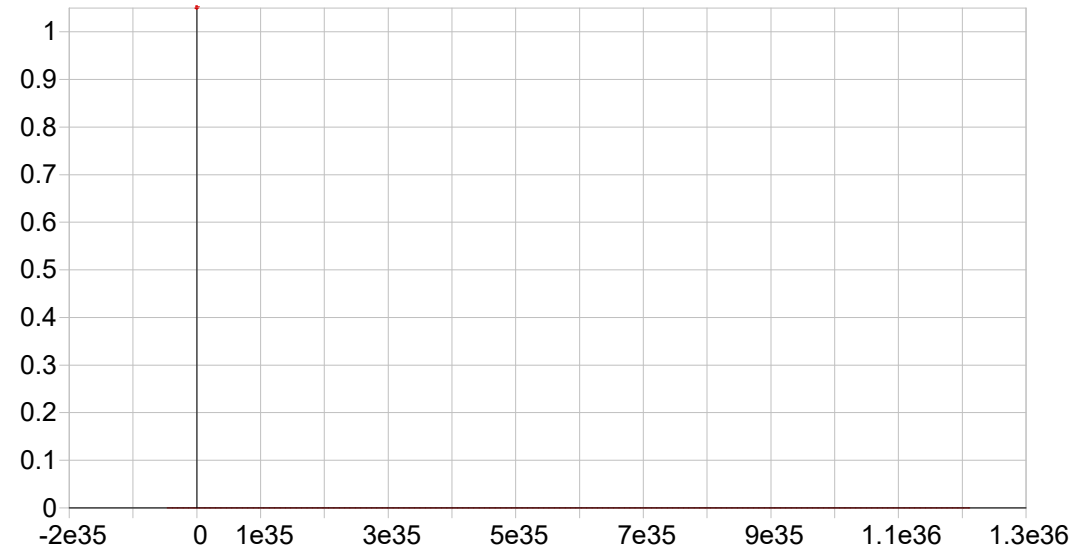
Y 371.030 { 91}*

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:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

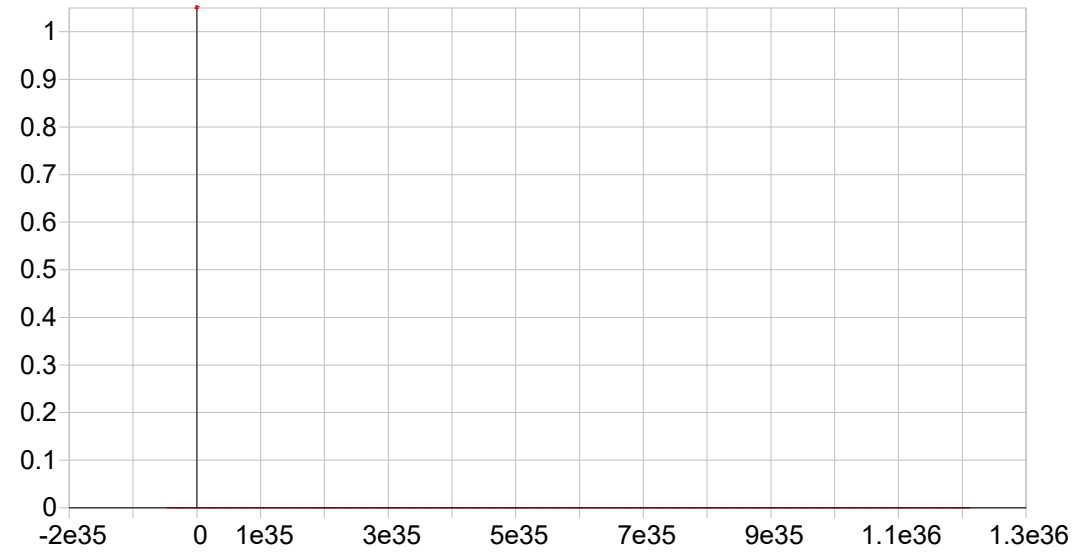


Y 224.306 {150}*

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:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

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:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: S0 Acquired: 5/7/2025 12:34:20 Type: Cal
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00006**	**-.00012**	**-.00029**	**.00028**	**.00022**	**-.00007**	**.04669**	**.00003**
Stddev	.00011	.00006	.00007	.00016	.00003	.00047	.00270	.00018
%RSD	180.29	46.294	24.012	57.921	14.665	676.25	5.7780	587.04
#1	.00004	-.00018	-.00029	.00011	.00025	.00034	.04701	-.00015
#2	-.00018	-.00011	-.00023	.00030	.00022	-.00058	.04384	.00002
#3	-.00004	-.00007	-.00037	.00042	.00019	.00003	.04921	.00022

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	**-.00006**	**.00036**	**.00012**	**.00004**	**-.00074**	**.00003**	**.00353**	**.00004**
Stddev	.00007	.00029	.00001	.00010	.00012	.00005	.00002	.00016
%RSD	119.58	81.596	11.164	256.38	15.549	183.37	.69452	428.56
#1	-.00003	.00063	.00012	.00013	-.00081	.00000	.00354	-.00008
#2	-.00001	.00005	.00014	.00005	-.00061	.00008	.00351	.00021
#3	-.00014	.00039	.00011	-.00007	-.00081	-.00001	.00356	-.00003

Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.00026**	**-.00133**	**.00110**	**-.00014**	**.00338**	**.00024**	**.00310**	**.00021**
Stddev	.00003	.00002	.00015	.00002	.00055	.00009	.00005	.00011
%RSD	11.463	1.4367	13.979	16.023	16.366	35.881	1.6541	51.922
#1	-.00028	-.00131	.00104	-.00015	.00356	.00016	.00311	.00029
#2	-.00028	-.00132	.00128	-.00011	.00382	.00024	.00304	.00008
#3	-.00023	-.00135	.00099	-.00015	.00276	.00033	.00314	.00025

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00024**	**.00208**	**.00015**	**-.00098**	**.00019**	**.00200**	**.00140**
Stddev	.00006	.00023	.00005	.00002	.00002	.00018	.00015
%RSD	23.856	11.081	30.721	2.4323	12.756	8.9935	10.737
#1	.00029	.00235	.00013	-.00100	.00020	.00185	.00148
#2	.00023	.00194	.00020	-.00096	.00020	.00195	.00122
#3	.00018	.00196	.00012	-.00098	.00016	.00220	.00149

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: S0 Acquired: 5/7/2025 12:34:20 Type: Cal
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2968.3	68862.	14026.	1973.1	4596.1
Stddev	2.8	62.	50.	10.6	5.3
%RSD	.09328	.08981	.35722	.53801	.11639
#1	2965.1	68791.	14082.	1961.8	4590.0
#2	2969.8	68907.	14011.	1982.8	4600.0
#3	2969.9	68886.	13985.	1974.8	4598.4

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: S1 Acquired: 5/7/2025 12:38:44 Type: Cal
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00067**	**.00214**	**.00183**	**.00115**	**.00618**	**.00544**	**.21473**	**.01550**
Stddev	.00005	.00007	.00016	.00012	.00010	.00026	.00043	.00020
%RSD	6.9477	3.3462	8.8868	10.244	1.6039	4.8582	.20202	1.3122
#1	.00068	.00220	.00188	.00122	.00609	.00575	.21521	.01544
#2	.00070	.00206	.00196	.00122	.00628	.00531	.21463	.01533
#3	.00061	.00216	.00165	.00102	.00615	.00527	.21436	.01572

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	**.01151**	**.07468**	**.00155**	**.01985**	**.01260**	**.00041**	**.01060**	**.02994**
Stddev	.00028	.00034	.00007	.00014	.00030	.00001	.00014	.00019
%RSD	2.4563	.45297	4.7670	.68988	2.3917	2.1301	1.3571	.64022
#1	.01128	.07431	.00164	.01998	.01235	.00042	.01068	.02980
#2	.01182	.07477	.00151	.01970	.01293	.00040	.01068	.02987
#3	.01142	.07497	.00151	.01986	.01251	.00041	.01043	.03016

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	**.01579**	**.00106**	**.01784**	**.00395**	**.09071**	**.01187**	**.03029**	**.10282**
Stddev	.00007	.00003	.00013	.00025	.00177	.00012	.00006	.00022
%RSD	.47176	3.1683	.73156	6.2937	1.9474	1.0139	.18792	.20966
#1	.01570	.00109	.01778	.00382	.09180	.01177	.03030	.10270
#2	.01583	.00105	.01775	.00424	.09165	.01185	.03035	.10268
#3	.01583	.00103	.01799	.00380	.08867	.01200	.03024	.10306

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	**.00341**	**.01468**	**.00144**	**-.00040**	**.00039**	**.01880**	**.20814**
Stddev	.00007	.00018	.00004	.00001	.00002	.00073	.00056
%RSD	1.9229	1.1967	2.6421	3.2987	5.3411	3.8972	.26896
#1	.00335	.01475	.00147	-.00039	.00037	.01827	.20842
#2	.00341	.01448	.00140	-.00041	.00041	.01850	.20851
#3	.00348	.01482	.00144	-.00039	.00038	.01963	.20750

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: S1 Acquired: 5/7/2025 12:38:44 Type: Cal
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2945.9	69055.	13807.	1972.8	4544.8
Stddev	4.2	85.	14.	5.5	3.9
%RSD	.14407	.12279	.10127	.28128	.08472
#1	2949.2	69048.	13823.	1966.4	4545.6
#2	2941.1	69142.	13802.	1975.6	4548.2
#3	2947.4	68973.	13797.	1976.3	4540.6

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: S2 Acquired: 5/7/2025 12:43:04 Type: Cal
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.02907**	**.04372**	**.12397**	**.03965**	**.09164**	**.08205**	**2.7280**	**.10355**
Stddev	.00034	.00056	.00088	.00055	.00094	.00094	.0244	.00070
%RSD	1.1831	1.2794	.71028	1.3836	1.0213	1.1487	.89542	.67206
#1	.02874	.04316	.12344	.03917	.09105	.08313	2.7495	.10432
#2	.02904	.04371	.12349	.03953	.09114	.08138	2.7014	.10297
#3	.02942	.04428	.12499	.04025	.09272	.08164	2.7331	.10336

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	**.73070**	**.14504**	**.02349**	**.26429**	**.12085**	**.00319**	**.19122**	**.05486**
Stddev	.00682	.00109	.00029	.00245	.00139	.00001	.00198	.00029
%RSD	.93320	.75405	1.2200	.92803	1.1496	.35228	1.0352	.52427
#1	.72675	.14553	.02362	.26330	.12000	.00319	.19263	.05509
#2	.72677	.14379	.02370	.26248	.12011	.00320	.18896	.05453
#3	.73857	.14581	.02317	.26708	.12246	.00318	.19208	.05494

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	**.16059**	**.04493**	**.03425**	**.03947**	**.85201**	**.02310**	**.21001**	**.39392**
Stddev	.00149	.00055	.00043	.00067	.00861	.00035	.00090	.00477
%RSD	.92706	1.2328	1.2465	1.6922	1.0107	1.5001	.42942	1.2110
#1	.15979	.04510	.03427	.04022	.85926	.02275	.21104	.39102
#2	.15967	.04538	.03466	.03896	.85429	.02344	.20963	.39133
#3	.16231	.04431	.03381	.03922	.84249	.02311	.20935	.39943

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	**.06181**	**.24030**	**.00283**	**.01875**	**.01093**	**.67335**	**8.0613**
Stddev	.00054	.00188	.00003	.00028	.00008	.00547	.0655
%RSD	.87729	.78160	.95384	1.5188	.74132	.81270	.81224
#1	.06136	.24159	.00282	.01850	.01087	.67812	8.1165
#2	.06167	.23815	.00286	.01869	.01090	.66738	7.9889
#3	.06241	.24117	.00281	.01906	.01102	.67456	8.0784

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: S2 Acquired: 5/7/2025 12:43:04 Type: Cal
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2857.3**	**68392.**	**13723.**	**1940.7**	**4375.8**
Stddev	27.7	565.	48.	11.1	34.4
%RSD	.96833	.82608	.35336	.57395	.78624
#1	2869.3	68225.	13682.	1937.9	4393.3
#2	2876.9	67930.	13776.	1931.2	4398.0
#3	2825.6	69022.	13710.	1953.0	4336.2

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: S3 Acquired: 5/7/2025 12:47:10 Type: Cal
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.08846**	**.13522**	**.37665**	**.12091**	**.28071**	**.26103**	**8.4012**	**.34006**
Stddev	.00010	.00148	.00047	.00060	.00058	.00027	.0136	.00139
%RSD	.11129	1.0982	.12462	.49379	.20513	.10363	.16171	.40911
#1	.08838	.13396	.37640	.12055	.28089	.26103	8.4169	.34130
#2	.08844	.13485	.37636	.12057	.28006	.26130	8.3932	.34034
#3	.08857	.13686	.37719	.12160	.28117	.26076	8.3936	.33856

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2.1994**	**.45419**	**.07278**	**.80568**	**.36637**	**.00947**	**.59043**	**.17242**
Stddev	.0013	.00177	.00005	.00115	.00095	.00008	.00249	.00029
%RSD	.06072	.38931	.06984	.14226	.25939	.80005	.42175	.16580
#1	2.2009	.45607	.07276	.80678	.36684	.00953	.59329	.17247
#2	2.1992	.45392	.07274	.80449	.36527	.00938	.58930	.17267
#3	2.1983	.45257	.07284	.80578	.36698	.00950	.58871	.17211

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	**.48602**	**.14245**	**.10145**	**.12420**	**2.6642**	**.07035**	**.68903**	**1.2112**
Stddev	.00070	.00020	.00071	.00054	.0114	.00029	.00045	.0018
%RSD	.14314	.14043	.69524	.43142	.42798	.40733	.06490	.14564
#1	.48683	.14236	.10187	.12445	2.6521	.07047	.68851	1.2108
#2	.48561	.14231	.10064	.12359	2.6656	.07002	.68933	1.2096
#3	.48563	.14268	.10185	.12457	2.6748	.07055	.68924	1.2131

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	**.18483**	**.74486**	**.00842**	**.05925**	**.03303**	**2.1513**	**24.857**
Stddev	.00033	.00170	.00001	.00029	.00008	.0022	.196
%RSD	.17633	.22765	.17427	.48838	.24504	.10479	.78792
#1	.18485	.74673	.00844	.05918	.03305	2.1518	24.632
#2	.18450	.74443	.00841	.05900	.03294	2.1532	24.993
#3	.18515	.74342	.00843	.05957	.03310	2.1488	24.945

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: S3 Acquired: 5/7/2025 12:47:10 Type: Cal
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2919.4**	**67876.**	**12999.**	**1907.2**	**4460.2**
Stddev	3.8	66.	61.	9.3	10.2
%RSD	.13072	.09774	.46911	.48566	.22802
#1	2915.0	67915.	12992.	1915.2	4450.4
#2	2920.9	67800.	12942.	1897.1	4459.5
#3	2922.2	67914.	13063.	1909.3	4470.7

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: S4 Acquired: 5/7/2025 12:51:19 Type: Cal
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.17910**	**.27034**	**.75525**	**.24487**	**.57244**	**.52291**	**17.348**	**.63953**
Stddev	.00070	.00281	.00316	.00165	.00480	.00063	.239	.00503
%RSD	.39179	1.0397	.41793	.67244	.83798	.11986	1.3803	.78589
#1	.17829	.27123	.75162	.24297	.56696	.52251	17.619	.63383
#2	.17954	.27259	.75737	.24594	.57444	.52258	17.262	.64143
#3	.17947	.26719	.75676	.24569	.57591	.52363	17.164	.64333

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**4.4007**	**.90452**	**.14171**	**1.6150**	**.73319**	**.02032**	**1.1865**	**.34192**
Stddev	.0052	.00303	.00019	.0027	.00515	.00024	.0068	.00063
%RSD	.11912	.33505	.13701	.16881	.70290	1.1946	.57042	.18527
#1	4.3947	.90744	.14190	1.6120	.72724	.02059	1.1917	.34249
#2	4.4045	.90139	.14174	1.6172	.73621	.02012	1.1789	.34202
#3	4.4029	.90474	.14151	1.6159	.73612	.02026	1.1890	.34124

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	**.96733**	**.28539**	**.22751**	**.25210**	**5.2688**	**.15199**	**1.3122**	**2.4215**
Stddev	.00215	.00054	.00251	.00025	.0052	.00138	.0084	.0141
%RSD	.22247	.18877	1.1040	.10107	.09894	.91056	.64023	.58403
#1	.96484	.28586	.23010	.25240	5.2736	.15344	1.3025	2.4053
#2	.96863	.28480	.22509	.25192	5.2695	.15068	1.3172	2.4312
#3	.96851	.28550	.22735	.25200	5.2633	.15186	1.3169	2.4281

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	**.37110**	**1.5096**	**.01745**	**.12172**	**.06789**	**4.4291**	**51.262**
Stddev	.00076	.0027	.00011	.00047	.00023	.0102	.411
%RSD	.20584	.17688	.60365	.38825	.33669	.22960	.80134
#1	.37066	1.5120	.01755	.12144	.06765	4.4309	51.187
#2	.37198	1.5068	.01734	.12227	.06811	4.4182	51.705
#3	.37066	1.5101	.01746	.12146	.06792	4.4383	50.894

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: S4 Acquired: 5/7/2025 12:51:19 Type: Cal
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2902.3	68570.	13852.	1902.6	4387.3
Stddev	14.1	484.	5.	13.6	9.7
%RSD	.48414	.70630	.03363	.71712	.22141
#1	2918.3	68013.	13847.	1887.5	4397.5
#2	2897.1	68895.	13854.	1906.1	4386.2
#3	2891.6	68801.	13856.	1914.1	4378.1

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: S5 Acquired: 5/7/2025 12:55:32 Type: Cal
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.37290	.54032	1.5115	.51229	1.1925	1.0681	36.274	1.1975
Stddev	.00215	.00197	.0040	.00458	.0108	.0020	.556	.0333
%RSD	.57626	.36416	.26107	.89361	.90468	.18552	1.5328	2.7848
#1	.37197	.53884	1.5118	.51100	1.1903	1.0703	35.651	1.2309
#2	.37137	.54255	1.5152	.50849	1.1830	1.0666	36.719	1.1974
#3	.37536	.53955	1.5074	.51737	1.2042	1.0672	36.452	1.1642

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	8.8492	1.7909	.27166	3.2616	1.4886	.04090	2.3802	.67371
Stddev	.0274	.0242	.00248	.0019	.0091	.00083	.0198	.01081
%RSD	.30974	1.3523	.91225	.05676	.60845	2.0219	.83069	1.6049
#1	8.8533	1.8182	.26941	3.2609	1.4863	.04014	2.4021	.68614
#2	8.8744	1.7828	.27126	3.2638	1.4810	.04078	2.3749	.66845
#3	8.8200	1.7719	.27432	3.2603	1.4987	.04179	2.3637	.66653

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	1.9481	.57368	.50541	.51114	10.482	.33290	2.5285	4.8453
Stddev	.0028	.00202	.01757	.00303	.031	.01121	.0830	.0222
%RSD	.14262	.35266	3.4772	.59253	.29234	3.3673	3.2822	.45731
#1	1.9484	.57141	.48786	.51457	10.492	.32185	2.6102	4.8395
#2	1.9507	.57432	.50538	.50999	10.506	.33258	2.5310	4.8267
#3	1.9451	.57530	.52301	.50885	10.447	.34426	2.4442	4.8698

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	.74656	3.1016	.03684	.25349	.14489	9.4132	106.25
Stddev	.00219	.0106	.00115	.00050	.00030	.0636	3.03
%RSD	.29369	.34114	3.1202	.19726	.20615	.67596	2.8563
#1	.74669	3.1130	.03570	.25317	.14459	9.3398	104.29
#2	.74869	3.0997	.03681	.25406	.14489	9.4468	109.74
#3	.74431	3.0921	.03800	.25323	.14519	9.4530	104.70

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: S5 Acquired: 5/7/2025 12:55:32 Type: Cal
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2798.2**	**70448.**	**14798.**	**1876.7**	**4184.2**
Stddev	7.9	773.	362.	3.8	12.4
%RSD	.28327	1.0971	2.4433	.20461	.29650
#1	2804.0	70992.	14406.	1875.3	4189.6
#2	2801.4	70788.	14868.	1881.0	4170.0
#3	2789.2	69563.	15119.	1873.7	4193.0

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: ICV01 Acquired: 5/7/2025 12:59:53 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.9676585**	**1.023524**	**.9799268**	**.9958730**	**.9647134**	**2.306094**
Stddev	.0014103	.015130	.0016276	.0039535	.0048555	.003177
%RSD	.1457441	1.478274	.1660892	.3969879	.5033087	.1377659
#1	.9691793	1.037080	.9798705	.9913520	.9593934	2.309726
#2	.9663937	1.026289	.9815818	.9986815	.9689062	2.304720
#3	.9674025	1.007201	.9783282	.9975856	.9658405	2.303834

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5338326**	**.5147060**	**.5005371**	**9.397889**	**.5031874**	**.4880083**
Stddev	.0012211	.0017356	.0019556	.026522	.0013756	.0023304
%RSD	.2287345	.3371936	.3906934	.2822152	.2733778	.4775304
#1	.5347021	.5161438	.4982815	9.428458	.5026487	.4854348
#2	.5324366	.5151961	.5015732	9.384213	.5021627	.4899758
#3	.5343590	.5127781	.5017566	9.380996	.5047509	.4886143

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4946727**	**10.98919**	**.4879687**	**5.442909**	**.4924159**	**.2314088**
Stddev	.0019843	.03193	.0014022	.028997	.0011405	.0004786
%RSD	.4011349	.2905403	.2873615	.5327405	.2316057	.2068007
#1	.4924530	10.97227	.4895201	5.453464	.4910996	.2318989
#2	.4952905	10.96929	.4875947	5.465149	.4931079	.2309427
#3	.4962746	11.02602	.4867915	5.410113	.4930403	.2313847

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.07114**	**.4656421**	**.9699852**	**10.58275**	F **2.221177**	**2.431227**
Stddev	.05994	.0020392	.0024268	.00659	.006145	.005133
%RSD	.5951223	.4379320	.2501862	.0622331	.2766433	.2111145
#1	10.09224	.4678563	.9712933	10.57955	2.226073	2.426016
#2	10.00351	.4638412	.9671850	10.57838	2.223178	2.431389
#3	10.11768	.4652289	.9714772	10.59032	2.214282	2.436277

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: ICV01 Acquired: 5/7/2025 12:59:53 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.387854**	**2.353060**	F **2.181271**	F **.0094044**	F **-.008364**	F **.0018076**
Stddev	.008564	.003347	.016362	.0016532	.000515	.0005859
%RSD	.3586595	.1422523	.7501102	17.57861	6.153945	32.41492
#1	2.379203	2.356778	2.200076	.0101500	-.008263	.0024472
#2	2.396329	2.350287	2.170295	.0075097	-.008921	.0012967
#3	2.388031	2.352115	2.173441	.0105534	-.007906	.0016790

Elem	Sr4077
Units	ppm
Avg	F **-.008973**
Stddev	.000070
%RSD	.7754498
#1	-.008962
#2	-.008910
#3	-.009047

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2926.293**	**70401.42**	**15332.12**	**1961.654**	**4503.586**
Stddev	4.733	172.76	61.11	2.410	10.822
%RSD	.1617396	.2453867	.3985489	.1228437	.2403033
#1	2931.748	70201.94	15282.77	1960.385	4513.747
#2	2923.846	70500.20	15313.14	1964.433	4492.206
#3	2923.284	70502.11	15400.47	1960.144	4504.804

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: LLICV01 Acquired: 5/7/2025 13:05:35 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0198464**	**.0432407**	**.0127738**	**.0182644**	**.0508602**	**.1006468**
Stddev	.0028700	.0021924	.0005126	.0018021	.0011931	.0061728
%RSD	14.46110	5.070340	4.012759	9.866696	2.345852	6.133159
#1	.0174236	.0436894	.0130897	.0201136	.0517666	.0943801
#2	.0190997	.0451741	.0130493	.0165134	.0495085	.1067213
#3	.0230160	.0408587	.0121824	.0181663	.0513055	.1008390

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0868902**	**.0056878**	**.0061013**	**1.946910**	**.0095938**	**.0287252**
Stddev	.0005423	.0000191	.0000222	.013646	.0006963	.0001254
%RSD	.6241546	.3364003	.3643782	.7008958	7.257337	.4365802
#1	.0864081	.0056973	.0061259	1.939738	.0102261	.0286516
#2	.0874774	.0056657	.0060955	1.962646	.0097076	.0286539
#3	.0867851	.0057003	.0060826	1.938346	.0088476	.0288700

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0215226**	**.0969792**	**.0225329**	**2.044674**	**.0388618**	**.0102820**
Stddev	.0000212	.0016969	.0002706	.015758	.0004666	.0003644
%RSD	.0985699	1.749722	1.201021	.7706856	1.200700	3.544304
#1	.0215260	.0977593	.0222228	2.026731	.0385117	.0099092
#2	.0215419	.0950325	.0227212	2.051029	.0393915	.0102993
#3	.0214999	.0981456	.0226547	2.056262	.0386823	.0106375

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.788445**	**.0407952**	**.0409965**	**1.877240**	**.1086577**	**.2052561**
Stddev	.000314	.0007696	.0001204	.005603	.0011984	.0003109
%RSD	.0175371	1.886550	.2936727	.2984859	1.102914	.1514574
#1	1.788203	.0402679	.0411274	1.874947	.1072776	.2051621
#2	1.788332	.0404392	.0408906	1.883627	.1094345	.2056031
#3	1.788799	.0416783	.0409716	1.873148	.1092612	.2050030

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: LLICV01 Acquired: 5/7/2025 13:05:35 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0389680	.0397378	.3887947	F .0254627	.0172409	.0175382
Stddev	.0007832	.0003702	.0046831	.0025644	.0003892	.0008908
%RSD	2.009795	.9317319	1.204524	10.07107	2.257492	5.079358
#1	.0386899	.0400767	.3849366	.0281800	.0168711	.0165178
#2	.0383618	.0393427	.3874421	.0230851	.0176470	.0181610
#3	.0398523	.0397942	.3940052	.0251229	.0172045	.0179357

Elem	Sr4077
Units	ppm
Avg	.0192554
Stddev	.0000709
%RSD	.3681489
#1	.0193282
#2	.0191866
#3	.0192514

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2978.079	70341.65	14581.86	1962.520	4685.566
Stddev	5.672	123.20	67.33	8.620	6.833
%RSD	.1904540	.1751461	.4617076	.4392377	.1458269
#1	2984.287	70208.80	14649.19	1953.526	4693.322
#2	2973.168	70364.01	14581.86	1970.710	4682.938
#3	2976.781	70452.14	14514.54	1963.324	4680.437

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: ICB01 Acquired: 5/7/2025 13:09:53 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0005910**	**-.000157**	**.0007759**	**-.001976**	**.0009844**	**.0004279**	**-.006249**
Stddev	.0031023	.000363	.0006498	.002577	.0009500	.0022156	.000453
%RSD	524.9494	231.2407	83.74397	130.4301	96.50198	517.8488	7.253856
#1	.0016351	.000109	.0000273	-.003852	.0016023	-.002007	-.006380
#2	.0030365	-.000009	.0011934	.000963	-.000109	.000966	-.006622
#3	-.002899	-.000570	.0011071	-.003038	.001460	.002325	-.005744

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000554**	**.0000706**	**.0029863**	**.0001344**	**-.000127**	**.0000816**	**-.004428**
Stddev	.0000362	.0000318	.0073295	.0002988	.000197	.0002181	.005528
%RSD	65.29989	45.00450	245.4396	222.3716	155.1013	267.3451	124.8485
#1	.0000920	.0000475	-.001922	.0003474	-.000202	.0003092	-.008892
#2	.0000197	.0001068	.011411	-.000207	.000097	.0000609	.001755
#3	.0000546	.0000574	-.000531	.000263	-.000276	-.000125	-.006146

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.006282**	**-.006723**	**.0000002**	**.0005247**	**-.011585**	**.0007851**	**-.000306**
Stddev	.000085	.011224	.0000968	.0000468	.022764	.0015742	.000437
%RSD	1.353749	166.9571	41516.64	8.911235	196.4948	200.5224	142.8947
#1	-.006300	-.016558	.0001110	.0004708	.013418	.0017613	-.000382
#2	-.006357	-.009115	-.000042	.0005496	-.017064	-.001031	-.000699
#3	-.006190	.005504	-.000068	.0005539	-.031109	.001625	.000164

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.007545**	**.0030516**	**-.000248**	**.0009319**	**.0004397**	**-.011877**	**.0012514**
Stddev	.013194	.0002571	.000240	.0010570	.0001131	.009596	.0025219
%RSD	174.8571	8.424696	97.02807	113.4240	25.71184	80.79501	201.5323
#1	.006786	.0027576	-.000050	-.000193	.0003282	-.003621	.0041360
#2	-.010235	.0032341	-.000178	.001085	.0005542	-.009605	-.000536
#3	-.019187	.0031632	-.000515	.001904	.0004366	-.022404	.000154

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: ICB01 Acquired: 5/7/2025 13:09:53 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**-.003433**	**-.001648**	**-.000058**
Stddev	.000836	.000365	.000073
%RSD	24.34350	22.14994	126.5941
#1	-.003087	-.001283	.000011
#2	-.002825	-.002013	-.000049
#3	-.004385	-.001649	-.000134

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2911.253**	**71804.71**	**14705.79**	**1986.424**	**4523.395**
Stddev	4.296	125.95	48.28	4.250	2.761
%RSD	.1475804	.1754059	.3283306	.2139486	.0610440
#1	2909.121	71902.59	14731.10	1991.035	4525.725
#2	2916.198	71662.62	14736.17	1982.664	4524.115
#3	2908.438	71848.92	14650.12	1985.571	4520.345

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CRI01 Acquired: 5/7/2025 13:16:34 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0196814	.0430400	.0134222	.0164524	.0517200	.0958834	.0883184
Stddev	.0032563	.0012008	.0001690	.0027636	.0010786	.0020722	.0009898
%RSD	16.54523	2.789862	1.259037	16.79751	2.085384	2.161164	1.120686
#1	.0200121	.0429748	.0132917	.0193478	.0517119	.0976680	.0874504
#2	.0162723	.0442720	.0136131	.0161665	.0506456	.0963716	.0893963
#3	.0227597	.0418731	.0133618	.0138429	.0528027	.0936108	.0881085

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0055525	.0060883	1.953304	.0094927	.0291374	.0215100	.0963624
Stddev	.0000461	.0000123	.008274	.0002417	.0001757	.0002126	.0035514
%RSD	.8297379	.2022416	.4236052	2.546404	.6030562	.9884835	3.685421
#1	.0055166	.0060889	1.947556	.0096081	.0289827	.0213133	.0932975
#2	.0055365	.0060757	1.962788	.0096551	.0291012	.0214810	.1002543
#3	.0056045	.0061003	1.949569	.0092149	.0293284	.0217356	.0955354

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0223233	2.009219	.0391890	.0102488	1.793823	.0402281	.0403421
Stddev	.0002781	.005226	.0006473	.0001608	.012912	.0011100	.0005846
%RSD	1.245749	.2601046	1.651846	1.568712	.7198060	2.759363	1.449083
#1	.0222583	2.004646	.0387966	.0103862	1.784591	.0414403	.0402374
#2	.0226281	2.014916	.0388343	.0102883	1.808578	.0399825	.0398170
#3	.0220834	2.008096	.0399362	.0100720	1.788299	.0392614	.0409720

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.853203	.0966039	.2045753	.0393008	.0395087	.3869230	.0235967
Stddev	.042557	.0008161	.0002699	.0002876	.0008100	.0089879	.0023806
%RSD	2.296424	.8447539	.1319293	.7317995	2.050238	2.322916	10.08874
#1	1.875040	.0975441	.2048748	.0389730	.0400918	.3945989	.0225826
#2	1.804160	.0960799	.2043509	.0395106	.0385838	.3770359	.0218910
#3	1.880410	.0961875	.2045002	.0394189	.0398504	.3891344	.0263164

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CRI01 Acquired: 5/7/2025 13:16:34 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0199402	.0162027	.0191568
Stddev	.0022704	.0003814	.0000452
%RSD	11.38617	2.353834	.2361184
#1	.0191108	.0158929	.0191253
#2	.0225088	.0160867	.0191365
#3	.0182012	.0166287	.0192087

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2977.296	70801.51	15057.73	1975.382	4663.363
Stddev	3.224	290.53	39.89	8.474	11.217
%RSD	.1082961	.4103436	.2649081	.4290004	.2405444
#1	2977.159	70485.61	15025.17	1965.797	4676.185
#2	2974.142	71057.25	15045.78	1981.879	4658.545
#3	2980.586	70861.66	15102.22	1978.471	4655.360

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: ICSA01 Acquired: 5/7/2025 13:21:07 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001604**	**.0077467**	**-.002876**	**-.009818**	**-.001024**	**233.1058**
Stddev	.004760	.0013421	.002827	.002502	.003708	.0475
%RSD	296.6796	17.32483	98.28173	25.48797	362.3141	.0203736
#1	-.004341	.0091469	.000028	-.006944	-.004742	233.1308
#2	-.004363	.0076217	-.003039	-.010994	-.001003	233.1356
#3	.003892	.0064715	-.005618	-.011516	.002675	233.0510

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001293**	**.0012563**	**-.002633**	**224.6509**	**.0541416**	**.0011207**
Stddev	.000676	.0000568	.000041	.1630	.0002627	.0002462
%RSD	52.28405	4.525242	1.568603	.0725570	.4851993	21.96508
#1	-.000681	.0012093	-.002588	224.4849	.0539031	.0010545
#2	-.001179	.0012400	-.002669	224.8107	.0544231	.0009145
#3	-.002019	.0013195	-.002642	224.6572	.0540985	.0013933

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.002320**	**94.66937**	**.0078713**	**239.1873**	**.0020393**	**.0010805**
Stddev	.000413	.25476	.0000613	.3383	.0004043	.0003260
%RSD	17.81147	.2691053	.7782145	.1414411	19.82346	30.17513
#1	-.001858	94.44961	.0079315	238.8091	.0022991	.0013401
#2	-.002654	94.94861	.0078734	239.4611	.0015735	.0011869
#3	-.002448	94.60989	.0078090	239.2916	.0022453	.0007145

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0358511**	**.0024025**	**.0031048**	**.0003831**	F **-.252901**	**.0001011**
Stddev	.0053792	.0005742	.0004514	.0220996	.001083	.0006339
%RSD	15.00429	23.90185	14.54012	5768.159	.4283875	627.0046
#1	.0356759	.0018409	.0035294	.0210916	-.254073	-.000596
#2	.0413158	.0029886	.0026307	-.022885	-.251936	.000643
#3	.0305617	.0023780	.0031544	.002942	-.252693	.000256

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: ICSA01 Acquired: 5/7/2025 13:21:07 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.006692	-.000813	.0119387	.0030349	-.018918	.0024406
Stddev	.001046	.000708	.0068594	.0031524	.004384	.0014432
%RSD	15.63556	87.13811	57.45477	103.8723	23.17467	59.13230
#1	-.005495	.000004	.0188725	-.000389	-.014792	.0009658
#2	-.007431	-.001188	.0051563	.005816	-.018441	.0025060
#3	-.007150	-.001254	.0117873	.003678	-.023522	.0038499

Elem	Sr4077
Units	ppm
Avg	.0033409
Stddev	.0001790
%RSD	5.356569
#1	.0035274
#2	.0031706
#3	.0033247

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2657.034	64170.63	14327.01	1796.206	3889.347
Stddev	14.006	103.57	25.71	.767	14.152
%RSD	.5271395	.1613993	.1794490	.0427152	.3638647
#1	2646.352	64061.51	14299.70	1796.589	3877.370
#2	2672.892	64182.82	14350.74	1795.323	3904.963
#3	2651.860	64267.57	14330.61	1796.707	3885.708

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: ICSAB01 Acquired: 5/7/2025 13:25:23 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1174356**	**.1146601**	**.0554907**	**.0412293**	**.6416877**	**230.6390**
Stddev	.0014965	.0033814	.0002785	.0007701	.0059192	.2111
%RSD	1.274348	2.949073	.5018702	1.867808	.9224471	.0915365
#1	.1184977	.1177958	.0552140	.0412604	.6462976	230.5073
#2	.1157241	.1151069	.0554870	.0419833	.6350125	230.5272
#3	.1180852	.1110775	.0557710	.0404441	.6437531	230.8825

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5019208**	**.5281809**	**1.066469**	**221.2117**	**.5856942**	**.5230738**
Stddev	.0005869	.0020657	.000745	.1586	.0011980	.0016497
%RSD	.1169364	.3911036	.0698599	.0716873	.2045392	.3153879
#1	.5024926	.5303473	1.067312	221.0787	.5859924	.5239846
#2	.5013198	.5262333	1.065900	221.3872	.5867148	.5211695
#3	.5019500	.5279622	1.066194	221.1691	.5843752	.5240674

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5091874**	**90.84985**	**.5117779**	**234.8748**	**1.038691**	**.1969105**
Stddev	.0024792	.52928	.0001785	.2505	.002424	.0003090
%RSD	.4868900	.5825852	.0348696	.1066724	.2334035	.1569276
#1	.5080731	90.27597	.5118830	234.5905	1.041093	.1968631
#2	.5074608	91.31881	.5118788	234.9706	1.036245	.1966280
#3	.5120282	90.95477	.5115719	235.0634	1.038735	.1972405

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.003214**	**.5007170**	**1.081851**	**-.013887**	F **.6668129**	**.9731401**
Stddev	.005669	.0019054	.003912	.032049	.0030834	.0054849
%RSD	176.3870	.3805380	.3616354	230.7796	.4624109	.5636248
#1	-.004863	.5029065	1.080514	.019233	.6700065	.9710050
#2	-.007876	.4994351	1.078783	-.044745	.6638530	.9690439
#3	.003097	.4998093	1.086257	-.016150	.6665790	.9793715

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: ICSAB01 Acquired: 5/7/2025 13:25:23 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9668837	.9301419	.8845349	F .0041221	F -.010563	F -.000306
Stddev	.0031432	.0034799	.0026776	.0072953	.003221	.000596
%RSD	.3250888	.3741300	.3027093	176.9808	30.49484	194.9463
#1	.9678124	.9341577	.8868348	.0003700	-.014238	-.000892
#2	.9633808	.9280106	.8815955	-.000534	-.008230	.000299
#3	.9694580	.9282575	.8851744	.012530	-.009221	-.000324

Elem	Sr4077
Units	ppm
Avg	F .0046630
Stddev	.0006324
%RSD	13.56172
#1	.0053509
#2	.0041069
#3	.0045312

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2667.911	64070.82	13920.04	1788.008	3930.565
Stddev	7.860	309.20	24.85	7.413	3.270
%RSD	.2946218	.4825925	.1784991	.4145950	.0831949
#1	2672.410	64391.28	13892.76	1796.549	3928.630
#2	2672.488	63774.27	13941.37	1784.230	3934.341
#3	2658.835	64046.90	13925.98	1783.245	3928.725

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: ICSADLX20 Acquired: 5/7/2025 13:30:42 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem 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	**-.002136**	**-.000004**	**.0010260**	**.0012164**	**.0010133**	**11.48761**	**-.004483**
Stddev	.002915	.000851	.0015876	.0029048	.0038082	.04282	.001034
%RSD	136.4908	19581.28	154.7449	238.8051	375.8202	.3727814	23.05592
#1	.001190	.000905	.0027359	.0016551	-.003059	11.44904	-.004680
#2	-.004251	-.000782	-.000401	-.001883	.004486	11.48010	-.003366
#3	-.003346	-.000136	.000743	.003877	.001613	11.53369	-.005405

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000600**	**-.000206**	**11.49931**	**.0026086**	**.0001155**	**-.000103**	**4.537575**
Stddev	.0000434	.000049	.01463	.0002205	.0002411	.000256	.016721
%RSD	72.20694	23.70977	.1272668	8.451731	208.7615	248.7047	.3685012
#1	.0000956	-.000233	11.49567	.0028575	.0002085	-.000271	4.518269
#2	.0000728	-.000235	11.48684	.0024380	-.000158	-.000229	4.546980
#3	.0000117	-.000150	11.51542	.0025302	.000296	.000191	4.547476

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.005427**	**11.68116**	**.0001359**	**.0006765**	**-.059163**	**.0003766**	**-.000411**
Stddev	.000229	.09840	.0001227	.0004044	.005365	.0012186	.000222
%RSD	4.219664	.8423651	90.27110	59.77549	9.067927	323.6036	54.03774
#1	-.005386	11.57601	.0000161	.0007519	-.064841	.0016316	-.000155
#2	-.005674	11.77101	.0002613	.0002397	-.054179	-.000802	-.000525
#3	-.005221	11.69647	.0001303	.0010379	-.058471	.000300	-.000553

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.042679**	**-.018569**	**.0000289**	**.0000222**	**.0004895**	**-.006068**	**.0008201**
Stddev	.031486	.000736	.0001927	.0003038	.0002313	.004385	.0024529
%RSD	73.77421	3.964826	665.7624	1371.068	47.26189	72.26632	299.0940
#1	-.040875	-.017733	.0002159	-.000326	.0003799	-.010947	-.001367
#2	-.012133	-.018852	-.000169	.000155	.0003333	-.002455	.003472
#3	-.075028	-.019121	.000040	.000237	.0007552	-.004803	.000355

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: ICSADLX20 Acquired: 5/7/2025 13:30:42 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.004375	-.001995	.0002375
Stddev	.005128	.000526	.0000212
%RSD	117.2152	26.35892	8.939036
#1	-.003603	-.001390	.0002508
#2	-.009845	-.002344	.0002130
#3	.000323	-.002252	.0002487

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2938.361	70092.61	14283.20	1950.172	4573.417
Stddev	4.929	129.70	36.11	6.988	7.727
%RSD	.1677520	.1850390	.2528180	.3583164	.1689586
#1	2937.237	70201.96	14250.23	1958.210	4575.363
#2	2943.755	70126.56	14321.80	1946.757	4579.985
#3	2934.091	69949.32	14277.58	1945.548	4564.903

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: ICSABDLX20 Acquired: 5/7/2025 13:34:58 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem 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	.0079318	.0057345	.0028541	-.001209	.0288518	11.06766	.0192930
Stddev	.0022820	.0014731	.0016742	.001522	.0017401	.03058	.0009920
%RSD	28.76999	25.68748	58.65852	125.8165	6.031270	.2763274	5.141781
#1	.0060052	.0069280	.0047824	.000537	.0308504	11.10036	.0204320
#2	.0073384	.0040882	.0017707	-.001916	.0276729	11.03976	.0188294
#3	.0104519	.0061873	.0020093	-.002249	.0280322	11.06286	.0186177

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0263391	.0533906	11.13374	.0294608	.0258477	.0262593	4.463874
Stddev	.0001172	.0002271	.06989	.0001572	.0001171	.0004313	.016417
%RSD	.4450494	.4254210	.6277280	.5334776	.4529927	1.642476	.3677794
#1	.0264595	.0534595	11.18851	.0296167	.0258607	.0265544	4.448703
#2	.0262253	.0531370	11.05503	.0294634	.0257247	.0257643	4.461616
#3	.0263326	.0535753	11.15768	.0293024	.0259578	.0264592	4.481304

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0194673	11.31504	.0520352	.0096467	-.059292	.0248661	.0526302
Stddev	.0002805	.10005	.0001152	.0001243	.017410	.0006522	.0004382
%RSD	1.440737	.8841988	.2213054	1.288034	29.36381	2.622853	.8325767
#1	.0191743	11.39003	.0519491	.0095077	-.050477	.0255651	.0521810
#2	.0194944	11.20144	.0519905	.0096852	-.079347	.0242738	.0530565
#3	.0197333	11.35366	.0521660	.0097471	-.048052	.0247595	.0526530

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.018715	.0281647	.0483386	.0482664	.0455866	.0364324	-.002383
Stddev	.014946	.0004172	.0006909	.0006767	.0002685	.0115396	.001505
%RSD	79.86053	1.481353	1.429353	1.401927	.5890409	31.67400	63.14638
#1	-.006001	.0277928	.0487868	.0487631	.0458899	.0471864	-.000646
#2	-.014965	.0280854	.0475429	.0485404	.0453790	.0378691	-.003270
#3	-.035179	.0286159	.0486861	.0474957	.0454910	.0242417	-.003234

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: ICSABDLX20 Acquired: 5/7/2025 13:34:58 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB01DLX20 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**-.005630**	**-.001491**	**.0001070**
Stddev	.005249	.000462	.0000328
%RSD	93.23984	31.01000	30.65655
#1	.000430	-.001401	.0001429
#2	-.008542	-.001991	.0000787
#3	-.008778	-.001080	.0000993

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2906.859**	**69258.86**	**14365.96**	**1949.257**	**4495.162**
Stddev	10.964	349.49	84.10	13.016	12.533
%RSD	.3771817	.5046186	.5854144	.6677455	.2788134
#1	2903.422	69227.50	14274.60	1954.427	4489.643
#2	2919.130	68926.11	14383.14	1934.450	4509.508
#3	2898.025	69622.98	14440.15	1958.893	4486.336

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCV01 Acquired: 5/7/2025 13:39:13 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.083107**	**5.094317**	**5.153215**	**5.049681**	**5.023577**	**10.14481**	**9.767175**
Stddev	.028946	.064505	.015989	.055029	.043434	.01886	.126924
%RSD	.5694560	1.266218	.3102740	1.089760	.8646082	.1858778	1.299497
#1	5.053071	5.020894	5.148498	5.003477	4.990106	10.16097	9.902785
#2	5.085425	5.120182	5.140115	5.035006	5.007966	10.14937	9.747508
#3	5.110824	5.141876	5.171032	5.110560	5.072659	10.12409	9.651233

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2665465**	**2.566111**	**25.56318**	**1.045123**	**2.550203**	**1.278590**	**4.957875**
Stddev	.0017222	.003531	.11214	.001610	.005576	.008785	.011340
%RSD	.6461049	.1376018	.4386767	.1540940	.2186668	.6870898	.2287211
#1	.2685347	2.564593	25.68923	1.044310	2.547895	1.271824	4.944836
#2	.2655176	2.563593	25.52582	1.044081	2.546150	1.275427	4.965438
#3	.2655872	2.570147	25.47449	1.046978	2.556562	1.288518	4.963350

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.524938**	**25.61948**	**2.565506**	**1.275049**	**23.93900**	**2.527226**	**2.536998**
Stddev	.010201	.09100	.004051	.001684	.10449	.004626	.006779
%RSD	.4040229	.3552060	.1578934	.1321044	.4364653	.1830472	.2671978
#1	2.535416	25.68113	2.564515	1.273168	23.82592	2.531684	2.534999
#2	2.524359	25.66235	2.562044	1.275560	24.03197	2.527547	2.531444
#3	2.515038	25.51496	2.569961	1.276419	23.95910	2.522448	2.544552

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**24.15041**	**5.233734**	**5.094487**	**5.138162**	**5.018840**	**4.902970**	**5.234419**
Stddev	.13407	.041730	.029883	.016523	.012100	.061137	.018044
%RSD	.5551544	.7973267	.5865700	.3215811	.2410859	1.246938	.3447114
#1	23.99583	5.281700	5.072774	5.142314	5.029928	4.832425	5.219355
#2	24.23503	5.205773	5.082120	5.119959	5.020659	4.935948	5.229485
#3	24.22037	5.213729	5.128569	5.152213	5.005934	4.940538	5.254416

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCV01 Acquired: 5/7/2025 13:39:13 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**5.088046**	**4.997122**	**4.951755**
Stddev	.033072	.017017	.068770
%RSD	.6500027	.3405428	1.388811
#1	5.061295	5.009536	4.974084
#2	5.077819	5.004106	5.006586
#3	5.125024	4.977724	4.874595

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2865.719**	**69000.57**	**13693.32**	**1920.424**	**4322.764**
Stddev	9.193	288.59	70.63	14.154	4.218
%RSD	.3207789	.4182438	.5157859	.7370415	.0975689
#1	2869.576	69333.44	13613.87	1936.655	4320.899
#2	2872.355	68820.64	13717.12	1913.967	4327.593
#3	2855.226	68847.63	13748.97	1910.649	4319.801

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCB01 Acquired: 5/7/2025 13:43:26 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0001562**	**.0007503**	**.0007378**	**-.003650**	**-.000086**	**.0039442**	**-.005643**
Stddev	.0025744	.0015771	.0004295	.003650	.001462	.0067673	.000795
%RSD	1647.670	210.1903	58.21053	99.99952	1704.114	171.5786	14.08157
#1	-.001087	.0024897	.0012289	-.007314	.001572	-.003096	-.005833
#2	-.001561	-.000586	.0004325	-.000014	-.001189	.004528	-.004770
#3	.003116	.000348	.0005520	-.003621	-.000641	.010401	-.006325

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000090**	**.0000523**	**.0089163**	**.0000340**	**.0001789**	**.0001806**	**.0067431**
Stddev	.000022	.0001051	.0021938	.0003265	.0001049	.0001792	.0019500
%RSD	24.10147	200.9902	24.60494	961.5174	58.63763	99.22074	28.91876
#1	-.000110	.0001665	.0083795	.0003724	.0003000	-.000026	.0051100
#2	-.000093	-.000041	.0113288	.0000087	.0001195	.000297	.0089022
#3	-.000067	.000031	.0070407	-.000279	.0001171	.000271	.0062172

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001172**	**-.002012**	**-.000034**	**.0006701**	**-.050958**	**.0017533**	**.0006055**
Stddev	.000239	.012009	.000197	.0001015	.012867	.0003803	.0006364
%RSD	20.35826	596.8094	581.6191	15.15255	25.25044	21.68930	105.1120
#1	-.001264	.006141	.000141	.0006757	-.050649	.0015299	.0000169
#2	-.001350	-.015803	-.000248	.0007688	-.038248	.0021924	.0005187
#3	-.000901	.003625	.000005	.0005659	-.063977	.0015376	.0012809

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.043943**	**.0018214**	**.0002252**	**.0000615**	**.0012363**	**-.007655**	**-.000117**
Stddev	.010504	.0004568	.0000773	.0001209	.0008971	.005112	.002957
%RSD	23.90368	25.07704	34.34553	196.7051	72.56729	66.78905	2537.999
#1	-.044745	.0021435	.0002782	-.000060	.0002115	-.011230	.003297
#2	-.054023	.0020220	.0002609	.000062	.0018798	-.001799	-.001744
#3	-.033061	.0012987	.0001364	.000182	.0016176	-.009935	-.001903

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCB01 Acquired: 5/7/2025 13:43:26 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**-.003070**	**-.000833**	**-.000003**
Stddev	.005804	.001040	.000048
%RSD	189.0835	124.8432	1657.384
#1	-.007465	-.000910	.000052
#2	.003510	.000244	-.000025
#3	-.005254	-.001832	-.000036

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2995.497**	**71628.32**	**14246.03**	**1984.959**	**4710.488**
Stddev	25.997	248.75	105.82	4.015	35.587
%RSD	.8678683	.3472806	.7428010	.2022549	.7554779
#1	3015.216	71604.79	14190.28	1989.455	4736.355
#2	3005.240	71392.18	14179.75	1981.733	4725.207
#3	2966.036	71888.01	14368.07	1983.689	4669.903

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: PB167882BL Acquired: 5/7/2025 13:47:45 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001081**	**.0012805**	**.0013066**	**-.002851**	**.0015981**	**.0057156**	**-.005305**
Stddev	.002388	.0015234	.0009480	.002313	.0018796	.0020728	.000703
%RSD	220.9582	118.9723	72.55528	81.12938	117.6098	36.26527	13.24871
#1	-.003782	.0022875	.0005041	-.000211	.0007450	.0038815	-.005834
#2	-.000205	.0020261	.0023526	-.003820	.0002964	.0053009	-.004507
#3	.000746	-.000472	.0010631	-.004522	.0037530	.0079643	-.005573

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000011**	**.0000989**	**-.000482**	**.0000499**	**.0001202**	**-.000122**	**.0004494**
Stddev	.000028	.0001163	.008838	.0003602	.0001644	.000506	.0043493
%RSD	258.4523	117.5660	1832.327	721.7312	136.7123	415.4108	967.7966
#1	-.000042	-.000013	.008305	-.000091	.0000215	.000282	.0054319
#2	-.000006	.000220	-.000381	-.000219	.0003100	.000041	-.001496
#3	.000014	.000090	-.009371	.000459	.0000292	-.000689	-.002587

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.004421**	**-.015145**	**-.000119**	**.0008021**	**-.040789**	**.0007379**	**.0002056**
Stddev	.000241	.007515	.000226	.0000799	.007845	.0006883	.0005129
%RSD	5.460365	49.62026	190.2660	9.965241	19.23233	93.28472	249.5363
#1	-.004698	-.019625	.000111	.0007099	-.038864	.0014420	.0007243
#2	-.004263	-.019342	-.000340	.0008454	-.034087	.0000665	-.000301
#3	-.004300	-.006469	-.000127	.0008512	-.049418	.0007052	.000194

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.034642**	**-.001097**	**-.000010**	**.0089270**	**.0010808**	**-.011350**	**.0016244**
Stddev	.007892	.001128	.000021	.0011914	.0005202	.002649	.0035569
%RSD	22.78294	102.7803	217.7377	13.34578	48.13424	23.33864	218.9633
#1	-.040815	-.002178	-.000010	.0102689	.0004873	-.010828	.0012487
#2	-.025749	.000072	-.000031	.0085184	.0012968	-.014221	.0053543
#3	-.037361	-.001185	.000012	.0079937	.0014581	-.009001	-.001730

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: PB167882BL Acquired: 5/7/2025 13:47:45 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**-.000705**	**-.001982**	**-.000023**
Stddev	.004606	.000224	.000034
%RSD	653.5023	11.30379	151.5178
#1	.001750	-.001879	-.000051
#2	-.006018	-.002239	.000016
#3	.002154	-.001828	-.000033

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**3004.241**	**73470.33**	**14356.01**	**2017.250**	**4733.255**
Stddev	11.331	120.13	108.46	3.538	19.619
%RSD	.3771692	.1635033	.7555343	.1754037	.4144923
#1	3007.863	73475.30	14466.10	2020.588	4742.046
#2	3013.318	73587.90	14249.25	2017.622	4746.942
#3	2991.542	73347.80	14352.67	2013.541	4710.778

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: PB167882BS Acquired: 5/7/2025 13:58:44 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7355472**	**1.887873**	**.9260515**	**1.817912**	**.7175840**	**1.804918**
Stddev	.0006788	.008083	.0040192	.007499	.0037587	.010571
%RSD	.0922845	.4281438	.4340121	.4125034	.5237943	.5856583
#1	.7356671	1.880158	.9217521	1.809676	.7134581	1.794526
#2	.7348164	1.887184	.9297145	1.819715	.7184807	1.804567
#3	.7361580	1.896279	.9266878	1.824345	.7208133	1.815659

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1656425**	**.1984165**	**.1880808**	**.9439973**	**.3806740**	**.1820979**
Stddev	.0028138	.0002577	.0002614	.0042475	.0009941	.0004490
%RSD	1.698726	.1298544	.1389776	.4499485	.2611360	.2465579
#1	.1688916	.1981407	.1880583	.9391117	.3795621	.1819074
#2	.1640296	.1986510	.1883527	.9460664	.3814768	.1826107
#3	.1640064	.1984577	.1878314	.9468138	.3809831	.1817755

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2809435**	**2.579789**	**.1772458**	**1.810071**	**.4608215**	**.0697345**
Stddev	.0003836	.018025	.0002920	.025722	.0003975	.0001713
%RSD	.1365452	.6987051	.1647479	1.421056	.0862703	.2455895
#1	.2813049	2.596082	.1775482	1.799119	.4603714	.0695413
#2	.2809847	2.582858	.1769655	1.791637	.4609683	.0698676
#3	.2805410	2.560426	.1772238	1.839456	.4611247	.0697946

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.616223**	**.2708696**	**.1883832**	**8.150167**	**.2842034**	**.3728402**
Stddev	.014772	.0021284	.0016918	.031228	.0005727	.0014686
%RSD	.5646442	.7857473	.8980610	.3831620	.2015002	.3939088
#1	2.614660	.2719149	.1899035	8.117069	.2836435	.3711529
#2	2.602294	.2684207	.1865606	8.154324	.2841787	.3738316
#3	2.631714	.2722731	.1886855	8.179109	.2847880	.3735360

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: PB167882BS Acquired: 5/7/2025 13:58:44 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6420527**	**.1784157**	F **.7160963**	**5.589534**	F **-.020423**	**.1866361**
Stddev	.0007925	.0001248	.0083820	.021245	.001667	.0020641
%RSD	.1234293	.0699714	1.170519	.3800809	8.163857	1.105973
#1	.6414193	.1784248	.7092280	5.566707	-.021083	.1884504
#2	.6429413	.1785357	.7254363	5.593167	-.018527	.1843903
#3	.6417973	.1782865	.7136246	5.608729	-.021660	.1870675

Elem	Sr4077
Units	ppm
Avg	**.1758003**
Stddev	.0004193
%RSD	.2385010
#1	.1760055
#2	.1760775
#3	.1753180

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2957.576**	**69640.88**	**13509.53**	**1953.761**	**4618.050**
Stddev	3.590	124.88	10.32	8.180	4.972
%RSD	.1213849	.1793167	.0763835	.4186633	.1076615
#1	2954.508	69631.16	13500.62	1944.400	4613.552
#2	2961.524	69521.14	13507.13	1959.528	4623.388
#3	2956.695	69770.33	13520.83	1957.356	4617.210

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: PB167880BL Acquired: 5/7/2025 14:04:02 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.002392**	**.0003170**	**-.000080**	**-.002598**	**-.000313**	**.0023697**	**-.004685**
Stddev	.001946	.0013389	.000783	.000137	.000857	.0026985	.000775
%RSD	81.37458	422.2997	979.0011	5.264021	273.6950	113.8766	16.55167
#1	-.002671	.0017041	-.000983	-.002735	-.001246	.0034655	-.003879
#2	-.000321	.0002148	.000411	-.002461	-.000131	-.000704	-.004750
#3	-.004183	-.000968	.000332	-.002598	.000438	.004348	-.005425

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000044**	**-.000007**	**-.000652**	**.0000006**	**.0000299**	**.0010866**	**-.005863**
Stddev	.000045	.000060	.000970	.0002064	.0002374	.0002894	.002573
%RSD	102.8951	837.0826	148.6787	33810.43	794.4726	26.63378	43.89233
#1	.000007	-.000002	.000126	.0000507	-.000091	.0007537	-.007718
#2	-.000078	-.000070	-.001739	.0001774	-.000123	.0012784	-.006945
#3	-.000060	.000050	-.000344	-.000226	.000303	.0012276	-.002925

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001070**	**-.001599**	**-.000041**	**.0008149**	**-.050432**	**.0011240**	**.0001768**
Stddev	.000315	.009711	.000300	.0000956	.025726	.0018505	.0002045
%RSD	29.42289	607.2383	730.8075	11.72814	51.01091	164.6376	115.6707
#1	-.001019	-.012448	-.000371	.0009176	-.075567	.0001611	.0002648
#2	-.001408	.006281	.000214	.0007286	-.024154	.0032574	-.000057
#3	-.000784	.001369	.000034	.0007985	-.051575	-.000047	.000322

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.056262**	**-.006032**	**.0000469**	**.0008391**	**.0005418**	**-.003350**	**.0009026**
Stddev	.013600	.000789	.0002055	.0004175	.0003502	.007135	.0019974
%RSD	24.17169	13.08111	437.7914	49.76103	64.63620	212.9919	221.2821
#1	-.040961	-.005186	-.000022	.0003668	.0009411	-.010541	.0031475
#2	-.066971	-.006747	.000278	.0011593	.0002866	-.003237	-.000678
#3	-.060855	-.006163	-.000115	.0009911	.0003979	.003728	.000238

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: PB167880BL Acquired: 5/7/2025 14:04:02 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**-.002600**	**-.002028**	**-.000088**
Stddev	.002341	.000546	.000038
%RSD	90.00259	26.91112	43.25978
#1	-.004417	-.002461	-.000060
#2	.000041	-.001415	-.000131
#3	-.003425	-.002209	-.000072

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2951.743**	**70155.70**	**14595.95**	**1966.392**	**4622.841**
Stddev	8.518	537.75	37.77	12.274	14.266
%RSD	.2885913	.7665114	.2587975	.6241957	.3085936
#1	2942.811	70444.89	14553.14	1975.797	4608.622
#2	2959.777	69535.23	14610.13	1952.507	4637.153
#3	2952.642	70486.98	14624.58	1970.872	4622.748

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: PB167880BS Acquired: 5/7/2025 14:08:21 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7098747**	**1.878141**	**.9078793**	**1.776111**	**.7244926**	**1.797086**
Stddev	.0044905	.015477	.0038821	.003621	.0019047	.004780
%RSD	.6325703	.8240625	.4275970	.2038947	.2629009	.2659649
#1	.7087573	1.867598	.9086537	1.772518	.7242746	1.791682
#2	.7148183	1.895910	.9036684	1.779760	.7227062	1.800758
#3	.7060484	1.870915	.9113159	1.776055	.7264969	1.798819

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1681370**	**.1888199**	**.1833928**	**.9460790**	**.3793564**	**.1786180**
Stddev	.0005560	.0008606	.0004829	.0085171	.0005687	.0002019
%RSD	.3306754	.4557565	.2632976	.9002567	.1499178	.1130437
#1	.1680545	.1897534	.1837921	.9532967	.3798502	.1786396
#2	.1676269	.1886481	.1835301	.9366848	.3787346	.1788083
#3	.1687297	.1880582	.1828561	.9482554	.3794843	.1784062

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2757338**	**2.689399**	**.1768206**	**1.765570**	**.4500984**	**.0696169**
Stddev	.0000575	.022953	.0004135	.011358	.0014587	.0001177
%RSD	.0208619	.8534666	.2338752	.6432772	.3240900	.1691120
#1	.2757327	2.684491	.1768957	1.771675	.4517710	.0695129
#2	.2756768	2.669296	.1763746	1.772570	.4490901	.0697447
#3	.2757919	2.714408	.1771914	1.752466	.4494340	.0695932

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.867237**	**.2699470**	**.1869797**	**8.481605**	**.2699253**	**.3802764**
Stddev	.024771	.0023099	.0007504	.011019	.0016826	.0002938
%RSD	.8639440	.8556975	.4013050	.1299207	.6233629	.0772640
#1	2.838801	.2725360	.1862071	8.479539	.2701370	.3804832
#2	2.884132	.2680970	.1877057	8.493512	.2714920	.3799400
#3	2.878778	.2692080	.1870262	8.471765	.2681468	.3804058

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: PB167880BS Acquired: 5/7/2025 14:08:21 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6457519**	**.1841796**	**.7601026**	**5.380746**	F **-.014742**	**.1849293**
Stddev	.0020650	.0014798	.0141489	.010970	.004505	.0004619
%RSD	.3197848	.8034730	1.861443	.2038817	30.55666	.2497912
#1	.6433679	.1851132	.7575188	5.374003	-.012776	.1847814
#2	.6469843	.1824733	.7474238	5.393404	-.019896	.1845595
#3	.6469036	.1849521	.7753654	5.374830	-.011555	.1854471

Elem	Sr4077
Units	ppm
Avg	**.1768859**
Stddev	.0004368
%RSD	.2469134
#1	.1765943
#2	.1766753
#3	.1773880

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**3037.243**	**70118.72**	**14210.24**	**1974.643**	**4800.333**
Stddev	6.352	227.25	105.71	6.475	13.682
%RSD	.2091326	.3240955	.7439139	.3278894	.2850321
#1	3031.440	69861.32	14101.19	1981.353	4785.512
#2	3036.260	70203.23	14217.28	1968.433	4803.004
#3	3044.030	70291.60	14312.26	1974.143	4812.483

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: PB167859BL Acquired: 5/7/2025 14:12:27 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0002277**	**-.000304**	**.0000742**	**-.000856**	**.0008140**	**.0113524**	**-.006020**
Stddev	.0010807	.002127	.0011235	.000543	.0016452	.0062998	.001309
%RSD	474.5609	700.7201	1513.546	63.42633	202.1090	55.49306	21.73852
#1	.0004306	.001700	-.001179	-.000729	.0023929	.0186203	-.005927
#2	-.000940	-.002535	.000992	-.001451	-.000890	.0079853	-.007372
#3	.001193	-.000075	.000409	-.000388	.000940	.0074517	-.004760

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000261**	**.0000711**	**.0049507**	**.0000548**	**.0001104**	**.0000008**	**.0024297**
Stddev	.0000177	.0000217	.0064532	.0003659	.0000438	.0000739	.0031291
%RSD	67.99447	30.46777	130.3507	668.1298	39.66106	9295.833	128.7847
#1	.0000447	.0000857	-.000635	.0004771	.0000699	.0000672	.0014636
#2	.0000241	.0000814	.003473	-.000146	.0001568	.0000139	.0059279
#3	.0000094	.0000462	.012015	-.000166	.0001043	-.000079	-.000102

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.004536**	**-.013744**	**-.000248**	**.0005564**	**-.038893**	**.0002291**	**.0007549**
Stddev	.000289	.009885	.000103	.0001666	.007693	.0009818	.0003872
%RSD	6.375393	71.92050	41.70158	29.94448	19.77949	428.5148	51.28212
#1	-.004723	-.020233	-.000139	.0005641	-.045055	-.000804	.0011762
#2	-.004203	-.018631	-.000260	.0003861	-.041352	.000341	.0004147
#3	-.004682	-.002368	-.000344	.0007190	-.030271	.001150	.0006739

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.022772**	**-.006185**	**.0000271**	**.0096854**	**.0013680**	**-.007870**	**.0018000**
Stddev	.023541	.000252	.0005135	.0005600	.0002040	.004847	.0035295
%RSD	103.3767	4.077613	1897.248	5.781571	14.91147	61.59288	196.0830
#1	-.004446	-.006458	-.000342	.0101757	.0014973	-.012439	.0050586
#2	-.014548	-.005960	-.000190	.0090752	.0011328	-.002785	-.001949
#3	-.049322	-.006138	.000613	.0098055	.0014738	-.008385	.002291

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: PB167859BL Acquired: 5/7/2025 14:12:27 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.002105	-.002266	.0000457
Stddev	.000555	.001316	.0000196
%RSD	26.34481	58.08795	42.90334
#1	-.001741	-.003647	.0000257
#2	-.002744	-.002123	.0000649
#3	-.001831	-.001027	.0000465

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3011.730	70496.77	14074.47	1976.743	4744.263
Stddev	.297	365.59	9.12	1.648	12.384
%RSD	.0098474	.5185853	.0647793	.0833872	.2610266
#1	3011.403	70423.69	14065.01	1975.206	4736.188
#2	3011.982	70173.25	14075.18	1976.539	4738.080
#3	3011.804	70893.38	14083.20	1978.484	4758.521

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: PB167859BS Acquired: 5/7/2025 14:17:02 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7316381	1.906890	.9224863	1.806945	.7395498	1.760727
Stddev	.0017270	.026764	.0039634	.005728	.0032744	.008159
%RSD	.2360438	1.403558	.4296405	.3170238	.4427546	.4633929
#1	.7323168	1.875993	.9181573	1.813531	.7357870	1.769203
#2	.7329226	1.921756	.9259365	1.804189	.7417513	1.752927
#3	.7296748	1.922922	.9233651	1.803116	.7411112	1.760049

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1706321	.1773921	.1866067	.9395109	.3755781	.1808681
Stddev	.0009505	.0011207	.0003350	.0020655	.0031922	.0007424
%RSD	.5570587	.6317440	.1794980	.2198513	.8499478	.4104716
#1	.1717287	.1786603	.1862903	.9396936	.3756156	.1801774
#2	.1700439	.1769810	.1865723	.9373601	.3723673	.1807736
#3	.1701236	.1765351	.1869575	.9414790	.3787514	.1816532

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2791160	2.762763	.1756385	1.750891	.4580598	.0687325
Stddev	.0006284	.034923	.0005557	.014404	.0018756	.0004096
%RSD	.2251467	1.264064	.3163870	.8226567	.4094573	.5959916
#1	.2790184	2.769274	.1755322	1.763436	.4567537	.0687268
#2	.2785420	2.725042	.1751437	1.735162	.4572168	.0691449
#3	.2797875	2.793972	.1762397	1.754075	.4602090	.0683257

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.939452	.2708450	.1836969	8.726710	.2513594	.3838941
Stddev	.024191	.0015471	.0011135	.059625	.0020119	.0011102
%RSD	.8229741	.5712035	.6061748	.6832456	.8003929	.2891858
#1	2.927665	.2722538	.1849511	8.731247	.2534627	.3827051
#2	2.923414	.2710918	.1828247	8.664946	.2511621	.3849035
#3	2.967277	.2691893	.1833148	8.783936	.2494535	.3840737

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: PB167859BS Acquired: 5/7/2025 14:17:02 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6607077**	**.1838462**	**.7910682**	**5.601834**	F **-.012469**	**.1802280**
Stddev	.0012704	.0006464	.0097319	.005896	.003156	.0003692
%RSD	.1922742	.3516010	1.230226	.1052579	25.30916	.2048411
#1	.6592687	.1845248	.7913496	5.598698	-.014883	.1804557
#2	.6611805	.1837762	.7811986	5.598169	-.013626	.1798020
#3	.6616738	.1832377	.8006564	5.608636	-.008898	.1804262

Elem	Sr4077
Units	ppm
Avg	**.1791792**
Stddev	.0004466
%RSD	.2492591
#1	.1794633
#2	.1794100
#3	.1786644

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2966.677**	**71336.04**	**15014.79**	**1992.946**	**4644.699**
Stddev	3.936	580.93	63.18	7.371	8.485
%RSD	.1326846	.8143554	.4207677	.3698660	.1826819
#1	2963.808	71129.39	14941.89	1993.139	4643.777
#2	2971.165	71992.05	15053.57	2000.218	4653.607
#3	2965.059	70886.70	15048.91	1985.480	4636.712

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1939-05DLX5 Acquired: 5/7/2025 14:22:40 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.174387**	**.0129948**	**16.02095**	**-.014983**	**.1694681**	**14.20024**	**.3465252**
Stddev	.012159	.0021592	.01538	.002221	.0028953	.02281	.0012651
%RSD	.2349810	16.61606	.0960256	14.82619	1.708469	.1606254	.3650846
#1	5.168892	.0111706	16.03860	-.017281	.1675926	14.21122	.3466507
#2	5.165945	.0124349	16.01383	-.012847	.1680091	14.17402	.3452021
#3	5.188323	.0153788	16.01040	-.014822	.1728027	14.21548	.3477229

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0027176**	**.0129553**	**15.64659**	**.2578723**	**.0257327**	**.5942587**	**141.6289**
Stddev	.0001196	.0003548	.02976	.0029685	.0001467	.0016476	1.5240
%RSD	4.402365	2.738657	.1901834	1.151140	.5701473	.2772501	1.076057
#1	.0027926	.0127948	15.64368	.2608445	.0259005	.5923819	143.2404
#2	.0027806	.0127091	15.61839	.2578649	.0256288	.5954670	141.4352
#3	.0025796	.0133620	15.67769	.2549075	.0256688	.5949270	140.2109

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7951807**	**4.615474**	**.0641602**	**.0062383**	**.1378867**	**.0596229**	**5.089292**
Stddev	.0019341	.023829	.0002903	.0001387	.0158794	.0013354	.029467
%RSD	.2432218	.5162925	.4525468	2.222658	11.51627	2.239809	.5790037
#1	.7966715	4.611389	.0644374	.0063856	.1541255	.0587933	5.112274
#2	.7958753	4.593952	.0641849	.0061103	.1371415	.0611634	5.099531
#3	.7929953	4.641082	.0638582	.0062191	.1223930	.0589120	5.056071

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.829215**	**-.386881**	**.0527490**	**10.39736**	**.4108960**	**2.023806**	**1.885006**
Stddev	.014764	.003651	.0002302	.01128	.0007996	.019010	.008310
%RSD	.8070997	.9438015	.4363775	.1085308	.1946109	.9392970	.4408285
#1	1.834172	-.382747	.0527100	10.39965	.4118189	2.044524	1.889821
#2	1.812611	-.389666	.0529963	10.40733	.4104595	2.019726	1.889787
#3	1.840863	-.388230	.0525409	10.38511	.4104096	2.007168	1.875411

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1939-05DLX5 Acquired: 5/7/2025 14:22:40 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.304032	.0806361	.0085004
Stddev	.005398	.0005293	.0011834
%RSD	.4139792	.6563870	13.92152
#1	1.308372	.0810873	.0074096
#2	1.305737	.0800535	.0083331
#3	1.297987	.0807676	.0097586

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3007.193	70274.62	15148.71	1973.485	4607.439
Stddev	1.451	664.92	44.58	10.806	1.370
%RSD	.0482517	.9461710	.2942967	.5475785	.0297289
#1	3008.523	69688.54	15179.16	1966.520	4607.574
#2	3007.409	70138.12	15097.54	1968.001	4606.006
#3	3005.646	70997.19	15169.45	1985.934	4608.736

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: PB167851TB Acquired: 5/7/2025 14:26:47 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.004444**	**-.006049**	**-.000493**	**.0004183**	**.0006341**	**.0052932**	**-.010375**
Stddev	.002590	.002033	.000589	.0021115	.0008267	.0022560	.001192
%RSD	58.29370	33.61001	119.3967	504.8104	130.3631	42.61999	11.48600
#1	-.005354	-.004111	-.001153	.0001623	.0008573	.0062852	-.009035
#2	-.006456	-.005871	-.000020	-.001554	-.000281	.0027113	-.010776
#3	-.001521	-.008166	-.000307	.002646	.001326	.0068832	-.011315

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000260**	**-.000029**	**.0091018**	**-.000714**	**-.000362**	**-.000047**	**.0024993**
Stddev	.000024	.000009	.0038641	.000104	.000073	.000177	.0009029
%RSD	9.364902	30.74812	42.45386	14.51477	20.21568	376.5303	36.12573
#1	-.000285	-.000022	.0134223	-.000758	-.000330	.000020	.0031232
#2	-.000258	-.000039	.0059767	-.000788	-.000446	.000086	.0029106
#3	-.000236	-.000026	.0079064	-.000596	-.000310	-.000247	.0014640

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0018922**	**-.010685**	**.0003203**	**.0004939**	**380.4519**	**.0011764**	**.0008661**
Stddev	.0002538	.001729	.0001317	.0003957	10.2580	.0006791	.0005482
%RSD	13.41199	16.18195	41.10877	80.12170	2.696261	57.72586	63.29475
#1	.0018276	-.011227	.0002640	.0007205	380.3266	.0011867	.0003470
#2	.0021721	-.012079	.0002262	.0000370	390.7720	.0004923	.0014393
#3	.0016770	-.008750	.0004708	.0007243	370.2572	.0018504	.0008120

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0463737**	**-.007026**	**.0000447**	**-.000872**	**.0006764**	**.0022280**	**.0099830**
Stddev	.0325080	.000419	.0003036	.000069	.0008919	.0086101	.0010606
%RSD	70.10001	5.965046	678.4350	7.886331	131.8582	386.4465	10.62417
#1	.0089389	-.007405	-.000008	-.000895	.0003565	-.007654	.0100855
#2	.0626944	-.006576	-.000229	-.000794	.0016841	.008115	.0088749
#3	.0674878	-.007098	.000371	-.000926	-.000011	.006223	.0109887

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: PB167851TB Acquired: 5/7/2025 14:26:47 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0582473	-.004294	-.000109
Stddev	.0038665	.000765	.000046
%RSD	6.638129	17.80952	42.33371
#1	.0622073	-.003411	-.000146
#2	.0580532	-.004750	-.000124
#3	.0544815	-.004722	-.000057

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2805.506	67881.74	14917.09	1848.125	4291.376
Stddev	7.929	2889.54	167.11	76.708	4.001
%RSD	.2826148	4.256720	1.120270	4.150594	.0932445
#1	2809.541	68388.90	14726.43	1859.112	4292.007
#2	2810.606	64772.19	14986.68	1766.516	4295.025
#3	2796.371	70484.11	15038.16	1918.748	4287.097

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1947-04 Acquired: 5/7/2025 14:31:15 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.002614**	**-.003784**	**.0046404**	**-.002082**	**-.000279**	**.2025040**	**.3208027**
Stddev	.002328	.001581	.0018428	.000542	.002239	.0071953	.0010842
%RSD	89.06056	41.78990	39.71285	26.01906	802.4271	3.553186	.3379782
#1	-.005211	-.002955	.0034729	-.001473	.001353	.1977776	.3203814
#2	-.000715	-.002789	.0036835	-.002264	.000642	.1989494	.3199923
#3	-.001915	-.005607	.0067648	-.002510	-.002831	.2107848	.3220344

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000011**	**.0000590**	**8.612198**	**-.000966**	**.0006469**	**.0283921**	**.0824058**
Stddev	.000036	.0000463	.028098	.000127	.0001395	.0001412	.0045482
%RSD	329.2690	78.35821	.3262635	13.10803	21.56667	.4973412	5.519226
#1	.000020	.0001122	8.642469	-.000824	.0004936	.0285534	.0780105
#2	-.000002	.0000372	8.607177	-.001067	.0006807	.0283322	.0870928
#3	-.000051	.0000277	8.586949	-.001007	.0007665	.0282908	.0821142

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6125814**	**1.711402**	**.0007117**	**.0003177**	**319.7125**	**.0009046**	**.1075134**
Stddev	.0016301	.018504	.0004042	.0001041	2.9646	.0003153	.0012051
%RSD	.2661082	1.081214	56.79798	32.76274	.9272803	34.85114	1.120843
#1	.6138205	1.725566	.0003601	.0003174	318.8899	.0005732	.1086149
#2	.6107348	1.690466	.0006216	.0002138	317.2461	.0012007	.1062263
#3	.6131890	1.718174	.0011534	.0004219	323.0016	.0009398	.1076990

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7993619**	**.0498017**	**-.000170**	**-.002601**	**.0045791**	**.7708230**	**.0275846**
Stddev	.0098267	.0005928	.000197	.001238	.0002596	.0122976	.0033784
%RSD	1.229321	1.190260	115.7665	47.61675	5.669209	1.595383	12.24722
#1	.8088412	.0502326	-.000395	-.003714	.0046905	.7824614	.0314818
#2	.8000234	.0491257	-.000034	-.001267	.0042823	.7720494	.0257841
#3	.7892212	.0500467	-.000081	-.002821	.0047643	.7579582	.0254879

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1947-04 Acquired: 5/7/2025 14:31:15 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.3762028	-.004705	.0447017
Stddev	.0065782	.000487	.0001007
%RSD	1.748580	10.35370	.2253105
#1	.3712574	-.004143	.0446041
#2	.3836685	-.004977	.0446958
#3	.3736826	-.004996	.0448053

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2870.258	69932.32	15672.58	1880.264	4416.413
Stddev	22.378	374.60	91.12	10.004	25.724
%RSD	.7796475	.5356601	.5813957	.5320641	.5824574
#1	2863.204	69499.93	15571.63	1877.438	4411.204
#2	2852.257	70158.63	15697.39	1891.377	4393.693
#3	2895.312	70138.40	15748.74	1871.976	4444.343

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCV02 Acquired: 5/7/2025 14:35:41 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**5.051789**	**5.121744**	**5.030230**	**5.044976**	**5.043570**	**10.14710**	**9.995294**
Stddev	.021869	.043730	.004717	.025908	.030001	.02922	.057258
%RSD	.4328907	.8538064	.0937710	.5135310	.5948280	.2879847	.5728516
#1	5.057581	5.083602	5.025684	5.034400	5.034233	10.12232	10.02756
#2	5.027607	5.112159	5.029907	5.026029	5.019348	10.17932	9.92918
#3	5.070179	5.169472	5.035101	5.074498	5.077129	10.13964	10.02914

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2603994**	**2.492908**	**24.93550**	**1.019592**	**2.494661**	**1.265942**	**4.867388**
Stddev	.0008713	.006867	.04261	.006780	.003612	.003928	.018545
%RSD	.3346132	.2754743	.1708609	.6649539	.1447900	.3102580	.3810047
#1	.2594480	2.489580	24.95856	1.015105	2.493313	1.264733	4.849211
#2	.2611585	2.500805	24.96161	1.016279	2.498753	1.262761	4.866674
#3	.2605918	2.488338	24.88634	1.027391	2.491917	1.270332	4.886280

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.468937**	**24.77595**	**2.503181**	**1.265273**	**24.05936**	**2.494041**	**2.536623**
Stddev	.002459	.08449	.004002	.008033	.06939	.001316	.019960
%RSD	.0995971	.3409981	.1598888	.6348547	.2884234	.0527844	.7868853
#1	2.468351	24.72214	2.499599	1.262658	24.06205	2.492962	2.523967
#2	2.471636	24.87332	2.507501	1.258873	23.98867	2.495508	2.526269
#3	2.466823	24.73238	2.502443	1.274287	24.12737	2.493654	2.559633

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**24.23399**	**5.194577**	**5.101848**	**5.015350**	**4.977266**	**4.859284**	**5.056344**
Stddev	.09729	.011918	.013851	.008709	.016815	.034619	.019851
%RSD	.4014726	.2294303	.2714962	.1736403	.3378457	.7124209	.3925912
#1	24.21335	5.200900	5.096814	5.005698	4.986508	4.829073	5.033431
#2	24.14868	5.180830	5.091218	5.022619	4.987433	4.851720	5.067241
#3	24.33995	5.202001	5.117512	5.017733	4.957857	4.897059	5.068359

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCV02 Acquired: 5/7/2025 14:35:41 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**4.969226**	**5.082197**	**4.968139**
Stddev	.006151	.019490	.061675
%RSD	.1237900	.3835017	1.241404
#1	4.962408	5.086306	5.026446
#2	4.974360	5.099305	4.974397
#3	4.970911	5.060980	4.903574

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2946.804**	**71423.21**	**14243.08**	**1942.881**	**4507.486**
Stddev	2.694	441.69	23.24	14.629	7.389
%RSD	.0914046	.6184095	.1631734	.7529359	.1639308
#1	2943.694	71717.12	14267.08	1947.690	4504.440
#2	2948.366	71637.21	14220.68	1954.499	4502.106
#3	2948.352	70915.28	14241.48	1926.453	4515.911

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCB02 Acquired: 5/7/2025 14:39:54 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000882**	**.0006153**	**.0011732**	**-.001308**	**.0009744**	**.0098233**	**-.011347**
Stddev	.001474	.0006725	.0010838	.002541	.0007888	.0009030	.000654
%RSD	167.0497	109.3012	92.38248	194.2782	80.95985	9.192729	5.765711
#1	-.000755	.0011962	.0010751	-.000803	.0011722	.0107483	-.010978
#2	.000524	.0007710	.0023027	.000943	.0016454	.0097779	-.012102
#3	-.002415	-.000121	.0001418	-.004063	.0001054	.0089439	-.010961

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000035**	**.0003023**	**.0107563**	**.0002530**	**.0002331**	**.0004846**	**.0044128**
Stddev	.000008	.0000710	.0065082	.0004381	.0000815	.0002869	.0013210
%RSD	21.61735	23.47270	60.50585	173.1271	34.93434	59.21347	29.93627
#1	-.000044	.0003488	.0132843	.0002322	.0003261	.0004087	.0036004
#2	-.000031	.0003374	.0156213	.0007012	.0001745	.0002432	.0059371
#3	-.000031	.0002206	.0033634	-.000174	.0001988	.0008018	.0037009

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.004791**	**.0049152**	**.0006787**	**.0006999**	**-.002770**	**.0014836**	**.0011157**
Stddev	.000186	.0001587	.0000751	.0001290	.004322	.0010583	.0005068
%RSD	3.889291	3.229461	11.05991	18.42966	156.0112	71.33085	45.42085
#1	-.004993	.0050801	.0006326	.0006157	-.007093	.0016516	.0005383
#2	-.004753	.0047635	.0007653	.0008484	.001551	.0024478	.0014866
#3	-.004626	.0049021	.0006382	.0006356	-.002769	.0003514	.0013222

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.002641**	**-.001512**	**.0009062**	**.0030889**	**.0013209**	**-.006739**	**.0036221**
Stddev	.007243	.000305	.0003415	.0006173	.0001384	.006321	.0017136
%RSD	274.2828	20.18398	37.69204	19.98492	10.47452	93.79421	47.30771
#1	.003441	-.001169	.0008653	.0037665	.0014503	-.006774	.0027252
#2	-.010653	-.001613	.0012663	.0025585	.0013373	-.013043	.0025432
#3	-.000709	-.001753	.0005869	.0029416	.0011751	-.000401	.0055980

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCB02 Acquired: 5/7/2025 14:39:54 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**-.002294**	**-.000141**	**.0005893**
Stddev	.001591	.000234	.0000406
%RSD	69.34943	165.8266	6.893139
#1	-.000742	-.000145	.0005595
#2	-.002220	-.000374	.0006356
#3	-.003922	.000095	.0005728

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**3012.942**	**73669.43**	**15349.33**	**2004.156**	**4808.061**
Stddev	23.505	201.08	39.36	5.053	50.356
%RSD	.7801271	.2729554	.2563996	.2521226	1.047328
#1	3014.005	73691.11	15390.19	2004.285	4816.397
#2	2988.923	73858.80	15346.12	2009.143	4754.056
#3	3035.897	73458.39	15311.68	1999.039	4853.728

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1947-08 Acquired: 5/7/2025 14:44:14 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001877**	**-.004769**	**.0025734**	**-.000072**	**.0002508**	**.0846294**	**.2799174**
Stddev	.001245	.000517	.0004664	.001004	.0009140	.0012664	.0003313
%RSD	66.31074	10.83851	18.12269	1387.731	364.4291	1.496408	.1183516
#1	-.001156	-.005364	.0024502	-.001221	-.000530	.0832133	.2801366
#2	-.001161	-.004517	.0021810	.000638	.000027	.0856534	.2795363
#3	-.003315	-.004427	.0030890	.000366	.001256	.0850214	.2800792

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000389**	**-.000010**	**9.561134**	**-.000734**	**.0002518**	**.0080824**	**.0440763**
Stddev	.0000377	.000145	.011432	.000199	.0001685	.0000251	.0022781
%RSD	96.84582	1381.949	.1195696	27.13646	66.91855	.3103931	5.168432
#1	-.000003	-.000094	9.574264	-.000597	.0003663	.0080549	.0463035
#2	.000051	.000156	9.555751	-.000963	.0003306	.0081041	.0441750
#3	.000069	-.000094	9.553387	-.000643	.0000583	.0080883	.0417505

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.3103083**	**2.714402**	**.0040428**	**.0008915**	**358.0750**	**.0008477**	**.0801690**
Stddev	.0003401	.018093	.0000861	.0001032	6.1349	.0018676	.0010081
%RSD	.1095900	.6665488	2.130697	11.57361	1.713294	220.2998	1.257518
#1	.3099313	2.732264	.0040197	.0007987	356.7598	-.001095	.0812746
#2	.3104018	2.696087	.0039705	.0008732	352.7045	.001009	.0793007
#3	.3105919	2.714855	.0041381	.0010026	364.7609	.002630	.0799318

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6245660**	**.0273391**	**.0000099**	**-.002059**	**.0009966**	**.8825955**	**.0324723**
Stddev	.0053181	.0008817	.0001379	.001000	.0003368	.0050204	.0032361
%RSD	.8514841	3.225177	1396.970	48.55934	33.79107	.5688176	9.965821
#1	.6272038	.0278610	-.000084	-.003152	.0013814	.8796136	.0316255
#2	.6184446	.0278351	-.000055	-.001190	.0007557	.8797812	.0297437
#3	.6280495	.0263210	.000168	-.001835	.0008527	.8883917	.0360476

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1947-08 Acquired: 5/7/2025 14:44:14 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.4679315	-.002677	.0323033
Stddev	.0016462	.000835	.0001053
%RSD	.3518141	31.18974	.3258404
#1	.4675586	-.003121	.0321988
#2	.4665037	-.001714	.0323019
#3	.4697322	-.003196	.0324093

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2808.961	70921.37	16019.77	1871.139	4293.956
Stddev	12.318	398.11	105.12	18.715	16.441
%RSD	.4385292	.5613449	.6562110	1.000203	.3828847
#1	2816.355	70554.31	15922.17	1863.648	4306.053
#2	2815.787	71344.58	16006.07	1892.439	4300.579
#3	2794.741	70865.23	16131.07	1857.330	4275.237

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1951-04 Acquired: 5/7/2025 14:48:39 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0019550**	**-.003927**	**.0090583**	**-.001173**	**.0000719**	**.1282126**	**.3262935**
Stddev	.0012394	.001798	.0010870	.001301	.0026683	.0054520	.0020750
%RSD	63.39696	45.78196	12.00034	110.8899	3709.706	4.252321	.6359432
#1	.0006290	-.005307	.0078054	-.001523	.0012108	.1281034	.3241550
#2	.0030843	-.004581	.0097501	-.002263	-.002977	.1228159	.3264270
#3	.0021517	-.001894	.0096193	.000267	.001982	.1337183	.3282987

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000043**	**-.000474**	**12.81362**	**-.000172**	**.0077058**	**.0059255**	**11.49338**
Stddev	.0000192	.000058	.03917	.000039	.0003164	.0000704	.08203
%RSD	451.2002	12.25980	.3057192	22.42182	4.105525	1.187529	.7137308
#1	.0000050	-.000424	12.78397	-.000164	.0074951	.0059983	11.41289
#2	-.000015	-.000461	12.79885	-.000138	.0075527	.0058578	11.49040
#3	.000023	-.000538	12.85803	-.000214	.0080696	.0059203	11.57687

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.166679**	**2.080167**	**.0059190**	**.0008059**	**366.9764**	**.0029224**	**.0941612**
Stddev	.009157	.018814	.0005227	.0001188	2.1981	.0010034	.0000386
%RSD	.4226512	.9044612	8.831584	14.73545	.5989631	34.33333	.0410360
#1	2.158177	2.068523	.0053198	.0008461	369.0614	.0023176	.0941342
#2	2.165485	2.070104	.0062813	.0008994	364.6805	.0023690	.0941439
#3	2.176374	2.101872	.0061560	.0006723	367.1873	.0040806	.0942055

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.765322**	**-.002728**	**-.000135**	**-.002556**	**.0002193**	**1.112318**	**.0170096**
Stddev	.013012	.000610	.000385	.000699	.0004031	.006374	.0025773
%RSD	.7370723	22.35155	285.4030	27.33505	183.7725	.5730454	15.15214
#1	1.761783	-.003426	-.000556	-.003347	.0004012	1.107957	.0199810
#2	1.754445	-.002299	-.000049	-.002296	-.000243	1.109363	.0153802
#3	1.779736	-.002460	.000200	-.002024	.000499	1.119633	.0156675

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1951-04 Acquired: 5/7/2025 14:48:39 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.4847899	-.001286	.0792090
Stddev	.0078492	.000611	.0002921
%RSD	1.619092	47.53850	.3688244
#1	.4769605	-.000745	.0789375
#2	.4847506	-.001949	.0791715
#3	.4926587	-.001164	.0795181

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2779.736	71512.99	15588.09	1884.895	4290.813
Stddev	13.282	199.06	26.92	6.476	31.470
%RSD	.4778237	.2783504	.1726738	.3435706	.7334336
#1	2786.503	71703.70	15557.16	1892.228	4298.268
#2	2788.272	71528.75	15606.13	1882.495	4317.886
#3	2764.433	71306.52	15601.00	1879.962	4256.284

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1956-05 Acquired: 5/7/2025 14:53:05 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.004799**	**-.004252**	**.0023298**	**.0008573**	**.0000544**	**.1139626**	**.1625884**
Stddev	.001148	.000948	.0012275	.0022221	.0015013	.0047242	.0011814
%RSD	23.91646	22.30045	52.68806	259.2039	2761.186	4.145382	.7265985
#1	-.003509	-.005343	.0034874	.0033469	-.001655	.1179582	.1626797
#2	-.005706	-.003779	.0024593	.0001499	.001161	.1151811	.1613641
#3	-.005182	-.003633	.0010427	-.000925	.000657	.1087485	.1637215

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000147**	**.0000517**	**2.596816**	**-.000522**	**.0000746**	**.0124990**	**.0571440**
Stddev	.000053	.0000958	.012899	.000201	.0002286	.0004414	.0081540
%RSD	35.73927	185.3122	.4967199	38.59659	306.4775	3.531072	14.26920
#1	-.000121	.0000420	2.600940	-.000392	.0001162	.0125288	.0522322
#2	-.000113	-.000039	2.582359	-.000419	.0002795	.0120435	.0526433
#3	-.000207	.000152	2.607149	-.000754	-.000172	.0129247	.0665564

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0180307**	**.5194756**	**.0002857**	**.0006487**	**323.2425**	**.0022338**	**.0779723**
Stddev	.0003403	.0129415	.0002466	.0001454	4.2085	.0003520	.0002165
%RSD	1.887237	2.491253	86.32477	22.40682	1.301965	15.75750	.2776176
#1	.0177141	.5047518	.0003071	.0005963	320.6807	.0020542	.0777504
#2	.0183905	.5246271	.0000291	.0008130	328.0996	.0026393	.0781829
#3	.0179874	.5290481	.0005208	.0005369	320.9471	.0020078	.0779837

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4294362**	**.0260146**	**.0003809**	**-.001150**	**.0033428**	**.3230607**	**.0296941**
Stddev	.0141085	.0006625	.0001775	.001005	.0000684	.0117843	.0042920
%RSD	3.285347	2.546561	46.60804	87.43300	2.047823	3.647689	14.45401
#1	.4215636	.0253230	.0003255	-.002177	.0034148	.3193099	.0346054
#2	.4210207	.0260773	.0005795	-.001103	.0032786	.3362639	.0266637
#3	.4457242	.0266435	.0002377	-.000168	.0033350	.3136085	.0278133

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1956-05 Acquired: 5/7/2025 14:53:05 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.6824502	-.002046	.0271419
Stddev	.0047075	.000661	.0001391
%RSD	.6897872	32.29090	.5124604
#1	.6835035	-.001768	.0270174
#2	.6773053	-.001570	.0271161
#3	.6865418	-.002800	.0272920

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2844.271	69418.82	14492.69	1877.508	4358.392
Stddev	6.489	656.84	44.00	12.535	13.313
%RSD	.2281489	.9461994	.3036147	.6676447	.3054639
#1	2846.948	69439.77	14513.15	1878.530	4354.713
#2	2848.993	68751.75	14522.74	1864.493	4373.158
#3	2836.871	70064.93	14442.19	1889.500	4347.305

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1959-01 Acquired: 5/7/2025 14:57:31 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.005504**	**-.002276**	**.0033607**	**-.001913**	**.0014982**	**.2468423**
Stddev	.001697	.001610	.0003489	.000582	.0027203	.0040211
%RSD	30.82566	70.75759	10.38038	30.44556	181.5694	1.629008
#1	-.005826	-.001258	.0037336	-.002392	-.001614	.2492457
#2	-.007016	-.001437	.0033059	-.001265	.003425	.2422002
#3	-.003669	-.004132	.0030424	-.002083	.002683	.2490811

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0439739**	**-.000030**	**.0006225**	**67.76085**	**-.000669**	**.0070253**
Stddev	.0007904	.000065	.0000217	.11638	.000347	.0002160
%RSD	1.797331	218.7054	3.493092	.1717505	51.96538	3.074639
#1	.0439607	-.000101	.0006469	67.64563	-.000666	.0067918
#2	.0447707	.000026	.0006154	67.87835	-.000323	.0072180
#3	.0431902	-.000014	.0006052	67.75857	-.001018	.0070662

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0115853**	**.0576675**	**.7613560**	**1.998549**	**.0050367**	**.0005090**
Stddev	.0006813	.0035967	.0012502	.007094	.0003286	.0001401
%RSD	5.880603	6.237016	.1642040	.3549801	6.523430	27.52091
#1	.0114314	.0603317	.7618716	1.991214	.0047511	.0005226
#2	.0109941	.0590946	.7622659	2.005376	.0053958	.0003626
#3	.0123304	.0535762	.7599305	1.999056	.0049632	.0006417

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**293.9156**	**.0023534**	**.0594274**	**.7910630**	**.0095199**	**.0001785**
Stddev	1.2769	.0011835	.0005653	.0149934	.0001737	.0000654
%RSD	.4344435	50.28720	.9512615	1.895354	1.824803	36.66438
#1	293.2599	.0033771	.0599738	.8033903	.0095564	.0001113
#2	293.0997	.0010576	.0588449	.7954271	.0093308	.0001820
#3	295.3871	.0026256	.0594635	.7743717	.0096725	.0002420

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1959-01 Acquired: 5/7/2025 14:57:31 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.005493**	**-.000205**	**1.306318**	**.0426038**	F **26.69445**	**-.013474**
Stddev	.000444	.000509	.012612	.0007564	.16930	.000383
%RSD	8.075610	248.2895	.9654674	1.775323	.6342257	2.843550
#1	-.005635	-.000655	1.291756	.0429980	26.64094	-.013122
#2	-.004996	-.000309	1.313423	.0417317	26.55837	-.013882
#3	-.005848	.000348	1.313774	.0430815	26.88404	-.013418

Elem	Sr4077
Units	ppm
Avg	**.1511385**
Stddev	.0004220
%RSD	.2792151
#1	.1510453
#2	.1515993
#3	.1507709

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2813.179**	**69242.91**	**15212.16**	**1883.649**	**4258.606**
Stddev	15.293	155.68	27.13	2.188	27.128
%RSD	.5436299	.2248246	.1783670	.1161430	.6370205
#1	2822.396	69118.98	15207.66	1881.125	4281.351
#2	2821.615	69192.12	15241.26	1884.816	4265.887
#3	2795.526	69417.64	15187.55	1885.005	4228.580

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1960-03 Acquired: 5/7/2025 15:01:55 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.005550**	**-.003995**	**.1201504**	**-.002397**	**-.000578**	**.1081888**	**.2635780**
Stddev	.000771	.000997	.0005842	.002528	.000514	.0046341	.0012621
%RSD	13.88441	24.96374	.4862452	105.4574	88.94452	4.283333	.4788462
#1	-.006401	-.003091	.1199666	.000433	-.000981	.1131826	.2637235
#2	-.005350	-.003829	.1196803	-.004432	-.000754	.1073567	.2622494
#3	-.004899	-.005065	.1208045	-.003193	.000001	.1040272	.2647611

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000051**	**.0010819**	**4.903140**	**-.000691**	**.0284911**	**.0415034**	**.0609969**
Stddev	.000068	.0000827	.027412	.000338	.0004453	.0004251	.0034685
%RSD	132.2476	7.641957	.5590677	48.92831	1.562902	1.024174	5.686370
#1	-.000099	.0011425	4.901784	-.000630	.0286586	.0415586	.0645867
#2	.000026	.0009877	4.876431	-.000387	.0288283	.0418981	.0607401
#3	-.000080	.0011155	4.931205	-.001055	.0279863	.0410534	.0576639

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2749244**	**.6633883**	**.0018292**	**.0005447**	**343.4478**	**.0008285**	**.2308025**
Stddev	.0012711	.0129142	.0001067	.0000984	4.2847	.0017272	.0027363
%RSD	.4623467	1.946697	5.835286	18.06401	1.247561	208.4645	1.185544
#1	.2749432	.6522483	.0018849	.0005966	338.8267	.0027286	.2286259
#2	.2736441	.6603734	.0018967	.0006062	347.2890	.0004036	.2299075
#3	.2761861	.6775432	.0017062	.0004312	344.2277	-.000647	.2338742

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.448598**	**.0060267**	**.0000523**	**-.002136**	**.0026045**	**.6437907**	**.0185939**
Stddev	.040934	.0004391	.0001669	.000154	.0009767	.0147325	.0022301
%RSD	1.671751	7.285731	318.9322	7.229189	37.50093	2.288398	11.99355
#1	2.485993	.0055421	.0000659	-.002236	.0028542	.6586211	.0170427
#2	2.404864	.0061397	-.000121	-.002213	.0034321	.6291581	.0175895
#3	2.454938	.0063982	.000212	-.001958	.0015272	.6435930	.0211496

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1960-03 Acquired: 5/7/2025 15:01:55 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.3287519	-.003694	.0350418
Stddev	.0022618	.001377	.0000467
%RSD	.6879846	37.26284	.1333011
#1	.3276620	-.005228	.0350193
#2	.3272414	-.003290	.0350105
#3	.3313522	-.002565	.0350955

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2806.734	69577.91	15444.19	1886.283	4237.581
Stddev	5.772	412.37	134.89	13.643	10.020
%RSD	.2056594	.5926721	.8734200	.7232709	.2364608
#1	2800.551	69635.49	15454.12	1894.091	4227.969
#2	2811.982	69958.46	15573.84	1894.228	4247.965
#3	2807.670	69139.78	15304.61	1870.529	4236.810

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1960-03DUP Acquired: 5/7/2025 15:06:19 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.003204**	**-.003117**	**.1069261**	**.0009430**	**.0016196**	**.0937890**	**.2282134**
Stddev	.003437	.001369	.0026580	.0013922	.0018068	.0067444	.0012254
%RSD	107.2485	43.91634	2.485824	147.6262	111.5643	7.191015	.5369615
#1	-.005911	-.002497	.1049156	.0024497	-.000395	.0888312	.2295645
#2	.000662	-.004686	.1059231	.0006752	.003098	.1014690	.2271738
#3	-.004364	-.002167	.1099397	-.000296	.002155	.0910668	.2279019

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000067**	**.0008264**	**4.328276**	**-.000613**	**.0250110**	**.0368165**	**.0481707**
Stddev	.000019	.0000325	.018807	.000228	.0001424	.0004957	.0049078
%RSD	27.91155	3.933961	.4345066	37.26333	.5691812	1.346492	10.18836
#1	-.000068	.0008570	4.337873	-.000873	.0250209	.0370840	.0535441
#2	-.000048	.0008298	4.340348	-.000517	.0248640	.0362444	.0470433
#3	-.000086	.0007923	4.306607	-.000447	.0251482	.0371209	.0439247

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2462151**	**.5803689**	**.0015806**	**.0003846**	**293.9808**	**.0006216**	**.2039550**
Stddev	.0013832	.0027810	.0002530	.0001036	2.0041	.0006733	.0024126
%RSD	.5617729	.4791794	16.00528	26.94457	.6817074	108.3139	1.182895
#1	.2477782	.5812531	.0013457	.0003016	294.7388	.0009002	.2064752
#2	.2451493	.5826003	.0015475	.0005007	291.7083	-.000146	.2037230
#3	.2457178	.5772533	.0018484	.0003515	295.4954	.001111	.2016668

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.096426**	**.0052077**	**-.000069**	**-.002914**	**.0027501**	**.5559744**	**.0196209**
Stddev	.034307	.0001368	.000116	.001096	.0003444	.0088489	.0026867
%RSD	1.636463	2.627895	168.0574	37.59840	12.52179	1.591607	13.69332
#1	2.136039	.0053615	.000006	-.001711	.0026521	.5660846	.0201366
#2	2.076954	.0051625	-.000203	-.003854	.0024654	.5496381	.0220124
#3	2.076285	.0050992	-.000010	-.003178	.0031329	.5522005	.0167137

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1960-03DUP Acquired: 5/7/2025 15:06:19 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.3047413	-.002992	.0308642
Stddev	.0024418	.000417	.0000456
%RSD	.8012764	13.94015	.1478725
#1	.3024487	-.002948	.0308893
#2	.3073091	-.003429	.0308116
#3	.3044661	-.002599	.0308919

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2838.212	69919.31	14968.96	1891.839	4317.485
Stddev	3.659	548.73	84.42	18.664	12.519
%RSD	.1289049	.7848089	.5639423	.9865694	.2899687
#1	2837.126	69302.52	14888.05	1870.872	4319.219
#2	2842.291	70353.35	14962.35	1898.005	4329.046
#3	2835.220	70102.06	15056.49	1906.641	4304.188

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1960-03LX5 Acquired: 5/7/2025 15:10:44 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.001855**	**.0004059**	**.0245651**	**-.001518**	**.0001248**	**.0211874**	**.0464443**
Stddev	.003876	.0001059	.0005098	.003098	.0023749	.0067057	.0019495
%RSD	208.8807	26.08876	2.075253	204.0966	1903.220	31.64955	4.197477
#1	-.001962	.0003838	.0246325	-.003839	.0025687	.0134577	.0485975
#2	.002072	.0003128	.0250378	.002000	-.000020	.0246585	.0447991
#3	-.005677	.0005211	.0240249	-.002714	-.002174	.0254460	.0459364

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000050**	**.0002016**	**.9803177**	**-.000171**	**.0056140**	**.0082248**	**.0100111**
Stddev	.000034	.0000372	.0306769	.000236	.0003780	.0002650	.0047243
%RSD	68.23547	18.46322	3.129281	138.4671	6.733773	3.221784	47.19091
#1	-.000089	.0001985	1.014249	-.000019	.0051836	.0081263	.0046216
#2	-.000025	.0001661	.954546	-.000443	.0058922	.0085249	.0119749
#3	-.000036	.0002403	.972158	-.000050	.0057662	.0080232	.0134368

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0492794**	**.1318215**	**.0002781**	**.0003848**	**63.66817**	**.0011156**	**.0452733**
Stddev	.0015415	.0080932	.0004019	.0002510	2.49774	.0007532	.0020592
%RSD	3.128121	6.139491	144.5234	65.23677	3.923063	67.51307	4.548260
#1	.0510100	.1245680	.0007358	.0002201	66.52219	.0015000	.0476479
#2	.0480535	.1303454	.0001151	.0002606	62.60120	.0015991	.0439797
#3	.0487747	.1405511	-.000017	.0006737	61.88112	.0002478	.0441925

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5259127**	**-.005683**	**-.000359**	**.0000944**	**.0011061**	**.1145466**	**.0049168**
Stddev	.0228522	.000101	.000251	.0003357	.0005241	.0039767	.0022647
%RSD	4.345237	1.775217	70.00241	355.4543	47.37755	3.471706	46.06179
#1	.5514608	-.005783	-.000069	.0001714	.0006473	.1191149	.0023567
#2	.5188562	-.005581	-.000495	-.000273	.0016772	.1126656	.0057344
#3	.5074210	-.005686	-.000513	.000385	.0009939	.1118594	.0066592

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1960-03LX5 Acquired: 5/7/2025 15:10:44 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0572705	.0071776	.0066751
Stddev	.0037420	.0007775	.0001928
%RSD	6.533881	10.83217	2.888847
#1	.0578629	.0078451	.0068857
#2	.0606810	.0063239	.0065072
#3	.0532677	.0073637	.0066324

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2967.595	69069.12	14653.53	1924.459	4572.432
Stddev	10.470	2437.02	442.13	66.568	15.260
%RSD	.3528031	3.528377	3.017224	3.459038	.3337409
#1	2955.605	66327.73	14169.42	1848.223	4555.226
#2	2974.928	69889.67	15035.96	1954.074	4577.741
#3	2972.252	70989.95	14755.20	1971.081	4584.328

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1960-03MS Acquired: 5/7/2025 15:15:03 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7933941	1.948643	1.057354	1.968354	.7972486	1.961137	.4312011
Stddev	.0066211	.010125	.007327	.004779	.0038139	.008753	.0032585
%RSD	.8345317	.5195999	.6930024	.2427786	.4783873	.4463301	.7556724
#1	.7962163	1.943838	1.052312	1.971048	.7936574	1.970948	.4337167
#2	.7858295	1.941815	1.053990	1.962837	.7968365	1.954128	.4275202
#3	.7981365	1.960276	1.065759	1.971177	.8012518	1.958335	.4323665

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1774346	.1996246	5.517087	.3901982	.2206383	.3211970	3.047533
Stddev	.0014136	.0010019	.011410	.0064233	.0009472	.0016892	.029929
%RSD	.7967051	.5018812	.2068186	1.646150	.4292885	.5259052	.9820865
#1	.1759429	.1988631	5.521441	.3827816	.2204854	.3224147	3.013942
#2	.1776065	.1992511	5.504140	.3939654	.2197768	.3192685	3.057292
#3	.1787545	.2007596	5.525678	.3938476	.2216526	.3219076	3.071365

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4438572	2.392491	.4855793	.0728452	316.5709	.2868772	.4038653
Stddev	.0016615	.020071	.0022025	.0014753	5.2789	.0013523	.0064692
%RSD	.3743268	.8389211	.4535903	2.025222	1.667520	.4713789	1.601828
#1	.4455498	2.369618	.4841267	.0712748	310.6096	.2882802	.3964528
#2	.4422287	2.407162	.4844977	.0742021	318.4500	.2855821	.4083731
#3	.4437931	2.400694	.4881135	.0730587	320.6532	.2867693	.4067699

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12.87963	.2540734	.4188587	.7031039	.1968147	1.468724	6.085981
Stddev	.15602	.0020490	.0026042	.0028513	.0013177	.028720	.020003
%RSD	1.211368	.8064596	.6217484	.4055284	.6694890	1.955443	.3286739
#1	12.69994	.2521346	.4192327	.7034197	.1977274	1.435641	6.084867
#2	12.98076	.2538685	.4160877	.7001078	.1953041	1.483271	6.066558
#3	12.95818	.2562172	.4212557	.7057841	.1974125	1.487261	6.106518

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1960-03MS Acquired: 5/7/2025 15:15:03 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2877582	.1975305	.2215312
Stddev	.0060541	.0016621	.0007899
%RSD	2.103881	.8414349	.3565718
#1	.2840647	.1987797	.2222973
#2	.2844648	.1956441	.2207195
#3	.2947450	.1981676	.2215769

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2822.562	69262.33	15357.57	1907.476	4255.204
Stddev	17.023	980.00	60.45	17.027	22.953
%RSD	.6031063	1.414909	.3936250	.8926508	.5394098
#1	2815.091	70393.92	15348.24	1927.096	4252.897
#2	2842.043	68701.68	15422.14	1896.566	4279.224
#3	2810.551	68691.39	15302.33	1898.766	4233.492

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1960-03MSD Acquired: 5/7/2025 15:19:16 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7631424**	**1.862092**	**1.018266**	**1.886565**	**.7683630**	**1.908064**	**.4303760**
Stddev	.0099820	.020879	.005429	.012511	.0051492	.013465	.0043152
%RSD	1.308020	1.121252	.5331964	.6631885	.6701539	.7057151	1.002667
#1	.7536050	1.849385	1.020284	1.883259	.7663842	1.894753	.4260169
#2	.7623058	1.850703	1.012117	1.876039	.7644967	1.921679	.4346460
#3	.7735164	1.886189	1.022398	1.900398	.7742081	1.907758	.4304650

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1713610**	**.1913544**	**5.557103**	**.3829190**	**.2129099**	**.3097430**	**3.038156**
Stddev	.0006942	.0012701	.015183	.0008539	.0008705	.0013085	.040073
%RSD	.4051193	.6637275	.2732188	.2230009	.4088478	.4224368	1.318997
#1	.1721493	.1924381	5.544516	.3824548	.2135813	.3097286	3.004292
#2	.1710927	.1899568	5.573965	.3823978	.2119264	.3084418	3.082397
#3	.1708409	.1916684	5.552826	.3839045	.2132220	.3110586	3.027779

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4419643**	**2.345009**	**.4658616**	**.0715224**	**331.1161**	**.2807748**	**.4070136**
Stddev	.0019482	.015065	.0023789	.0002063	3.1375	.0010372	.0009451
%RSD	.4407977	.6424358	.5106354	.2884604	.9475537	.3693981	.2322033
#1	.4402521	2.341136	.4679654	.0714780	327.9401	.2798506	.4079785
#2	.4440840	2.361633	.4632801	.0713419	331.1944	.2805771	.4069725
#3	.4415568	2.332259	.4663392	.0717473	334.2137	.2818966	.4060897

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**12.87408**	**.2433213**	**.4055586**	**.6723393**	**.1919232**	**1.487061**	**5.825985**
Stddev	.18463	.0025950	.0014426	.0053265	.0011389	.027128	.023647
%RSD	1.434137	1.066474	.3557174	.7922377	.5934049	1.824300	.4058811
#1	12.66381	.2450035	.4055709	.6770568	.1911129	1.457450	5.845419
#2	13.00968	.2446276	.4041098	.6665628	.1932253	1.510717	5.799658
#3	12.94876	.2403328	.4069950	.6733982	.1914313	1.493017	5.832879

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1960-03MSD Acquired: 5/7/2025 15:19:16 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2755716	.1914003	.2172611
Stddev	.0016032	.0022476	.0015330
%RSD	.5817734	1.174294	.7055881
#1	.2754820	.1889560	.2158253
#2	.2772177	.1933779	.2188756
#3	.2740150	.1918670	.2170825

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2853.102	68194.98	15429.69	1867.370	4316.983
Stddev	5.540	402.47	36.49	8.359	15.422
%RSD	.1941796	.5901778	.2364938	.4476280	.3572366
#1	2856.391	68651.26	15412.47	1867.629	4306.728
#2	2856.210	67890.43	15404.98	1858.885	4334.718
#3	2846.706	68043.24	15471.60	1875.597	4309.502

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCV03 Acquired: 5/7/2025 15:23:29 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.877645**	**5.079721**	**4.871283**	**4.899110**	**4.866236**	**9.793084**	**9.495753**
Stddev	.013229	.055287	.013243	.007823	.015557	.072760	.184980
%RSD	.2712245	1.088395	.2718668	.1596819	.3196836	.7429756	1.948031
#1	4.876163	5.016033	4.860467	4.899928	4.855166	9.736320	9.382107
#2	4.865219	5.107750	4.867329	4.890910	4.859520	9.875108	9.709200
#3	4.891552	5.115381	4.886053	4.906492	4.884022	9.767823	9.395952

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2562902**	**2.423877**	**24.47945**	**.9929156**	**2.424349**	**1.223685**	**4.818814**
Stddev	.0023372	.003200	.20338	.0071518	.003248	.004121	.064312
%RSD	.9119147	.1320163	.8308227	.7202813	.1339840	.3367502	1.334609
#1	.2542992	2.424711	24.38587	.9998608	2.425156	1.223306	4.889717
#2	.2588634	2.420342	24.71278	.9933123	2.420774	1.219768	4.802484
#3	.2557080	2.426576	24.33971	.9855737	2.427118	1.227983	4.764241

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.426918**	**24.50294**	**2.432386**	**1.227870**	**23.08405**	**2.430567**	**2.449489**
Stddev	.014139	.19127	.004969	.005783	.29761	.012017	.017720
%RSD	.5826088	.7805881	.2042976	.4709569	1.289236	.4943989	.7234099
#1	2.423166	24.39453	2.431020	1.232809	23.38491	2.419657	2.458354
#2	2.442555	24.72378	2.428242	1.229291	23.07745	2.443447	2.461027
#3	2.415033	24.39051	2.437895	1.221509	22.78980	2.428597	2.429086

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**23.38796**	**5.066370**	**4.931418**	**4.884173**	**4.832983**	**4.698271**	**4.916003**
Stddev	.30636	.057933	.009182	.009429	.035514	.031492	.021429
%RSD	1.309885	1.143475	.1861980	.1930450	.7348282	.6702879	.4359039
#1	23.68866	5.008156	4.925517	4.874141	4.815678	4.733409	4.897739
#2	23.39899	5.124017	4.926739	4.885527	4.873832	4.688809	4.910676
#3	23.07624	5.066937	4.941997	4.892852	4.809438	4.672595	4.939592

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCV03 Acquired: 5/7/2025 15:23:29 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**4.844778**	**4.829444**	**4.823158**
Stddev	.024152	.038716	.048520
%RSD	.4985096	.8016662	1.005983
#1	4.837833	4.809083	4.767139
#2	4.824859	4.874091	4.850422
#3	4.871641	4.805156	4.851914

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2921.051**	**69838.19**	**13864.75**	**1937.248**	**4448.276**
Stddev	3.730	678.82	119.08	13.455	5.959
%RSD	.1276829	.9719924	.8588940	.6945261	.1339616
#1	2921.868	69205.70	13942.30	1926.597	4450.792
#2	2924.305	69753.47	13727.64	1932.777	4452.565
#3	2916.981	70555.39	13924.32	1952.369	4441.472

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCB03 Acquired: 5/7/2025 15:27:42 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0006752**	**.0015016**	**.0010069**	**-.000796**	**.0027974**	**.0051593**	**-.006655**
Stddev	.0022226	.0006763	.0005257	.001788	.0004718	.0065375	.000156
%RSD	329.1887	45.03828	52.21008	224.6583	16.86422	126.7131	2.344244
#1	.0018977	.0012072	.0014190	.001101	.0025831	.0013195	-.006480
#2	.0020181	.0022751	.0011868	-.001039	.0024708	.0127078	-.006779
#3	-.001890	.0010224	.0004148	-.002450	.0033383	.0014506	-.006706

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000161**	**.0004442**	**.0142408**	**.0001293**	**.0005619**	**-.000165**	**.0063595**
Stddev	.0000198	.0000679	.0093466	.0001752	.0002068	.000145	.0012549
%RSD	123.4910	15.27985	65.63252	135.4684	36.80942	87.80153	19.73325
#1	.0000243	.0003687	.0152474	.0002085	.0007604	-.000123	.0049605
#2	-.000007	.0005002	.0044317	.0002509	.0003477	-.000046	.0067321
#3	.000030	.0004636	.0230435	-.000071	.0005775	-.000326	.0073860

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.004652**	**-.006865**	**.0005052**	**.0006659**	**.0447673**	**.0010407**	**.0008163**
Stddev	.000517	.008578	.0002655	.0001491	.0129673	.0008213	.0001429
%RSD	11.10397	124.9476	52.54768	22.39645	28.96606	78.91778	17.50183
#1	-.004108	-.003998	.0006681	.0004938	.0298566	.0014654	.0009098
#2	-.004712	-.016509	.0006485	.0007463	.0534075	.0015629	.0008873
#3	-.005135	-.000088	.0001989	.0007576	.0510379	.0000940	.0006518

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0714546**	**-.001347**	**.0008758**	**.0040391**	**.0010594**	**-.008225**	**.0053499**
Stddev	.0353387	.000664	.0001794	.0008921	.0008468	.007956	.0007462
%RSD	49.45619	49.25143	20.48029	22.08722	79.92983	96.73568	13.94697
#1	.0584671	-.000581	.0008158	.0031562	.0002480	-.014356	.0053230
#2	.0444473	-.001737	.0010775	.0049402	.0019377	.000766	.0061091
#3	.1114494	-.001724	.0007342	.0040209	.0009927	-.011085	.0046176

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCB03 Acquired: 5/7/2025 15:27:42 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**-.001873**	**.0027543**	**.0006769**
Stddev	.004673	.0009962	.0000204
%RSD	249.5124	36.17076	3.009207
#1	.000788	.0037373	.0006986
#2	-.007268	.0027801	.0006582
#3	.000862	.0017453	.0006739

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**3023.435**	**73456.20**	**14993.41**	**2014.151**	**4790.243**
Stddev	5.560	166.47	125.53	8.974	12.439
%RSD	.1838874	.2266251	.8372368	.4455492	.2596788
#1	3026.641	73271.23	14851.09	2007.700	4800.637
#2	3026.648	73593.98	15088.35	2024.399	4793.630
#3	3017.015	73503.38	15040.80	2010.353	4776.461

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1960-03A Acquired: 5/7/2025 15:32:01 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7411405	1.799354	.9666679	1.843115	.7438386	1.851106	.4044533
Stddev	.0016890	.000447	.0030636	.010937	.0052145	.003360	.0007707
%RSD	.2278851	.0248350	.3169252	.5933808	.7010240	.1815258	.1905616
#1	.7391996	1.799797	.9636931	1.833136	.7417709	1.852974	.4052758
#2	.7419458	1.799360	.9664974	1.854807	.7399750	1.847227	.4037477
#3	.7422761	1.798904	.9698132	1.841401	.7497698	1.853117	.4043365

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1723281	.1802982	5.385875	.3553308	.2023905	.3005819	2.616160
Stddev	.0007485	.0003903	.007572	.0013969	.0002542	.0009798	.006604
%RSD	.4343622	.2164742	.1405839	.3931230	.1256255	.3259537	.2524146
#1	.1730950	.1798493	5.392966	.3557107	.2020994	.3002973	2.609016
#2	.1715994	.1805571	5.377900	.3537833	.2025690	.2997759	2.617421
#3	.1722900	.1804883	5.386758	.3564985	.2025032	.3016724	2.622041

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4254251	2.244428	.4406767	.0670924	295.9777	.2635778	.3923592
Stddev	.0027703	.013022	.0008729	.0001990	3.9011	.0002760	.0025252
%RSD	.6511726	.5801930	.1980814	.2966507	1.318031	.1047076	.6435844
#1	.4277805	2.232419	.4396914	.0670474	291.4832	.2635685	.3951964
#2	.4223730	2.242596	.4413533	.0669198	298.4856	.2633065	.3903584
#3	.4261218	2.258269	.4409854	.0673101	297.9642	.2638583	.3915227

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.46409	.2527502	.3863392	.6278996	.1803081	1.347221	5.546583
Stddev	.04954	.0012872	.0012225	.0016978	.0002720	.008304	.015037
%RSD	.4320929	.5092947	.3164217	.2703865	.1508733	.6163555	.2710973
#1	11.41024	.2534776	.3851590	.6274787	.1803100	1.346698	5.534211
#2	11.50772	.2512639	.3862586	.6264518	.1800351	1.339191	5.563319
#3	11.47430	.2535091	.3875999	.6297682	.1805792	1.355774	5.542219

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1960-03A Acquired: 5/7/2025 15:32:01 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2996396	.1894743	.2040996
Stddev	.0044544	.0005654	.0002217
%RSD	1.486573	.2983782	.1086388
#1	.3012178	.1890499	.2041790
#2	.2946110	.1892569	.2038492
#3	.3030900	.1901161	.2042708

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2836.927	70865.91	14711.11	1885.702	4342.546
Stddev	7.546	54.35	49.26	5.317	3.730
%RSD	.2659980	.0766981	.3348220	.2819822	.0858911
#1	2839.858	70836.09	14660.13	1879.946	4343.359
#2	2842.567	70928.65	14758.45	1886.728	4345.802
#3	2828.354	70833.00	14714.75	1890.431	4338.476

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1956-01 Acquired: 5/7/2025 15:36:13 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0241869**	**-.000980**	**.0607720**	**-.001825**	**.0000355**	**18.94370**	**.0681653**
Stddev	.0005226	.000523	.0008383	.000858	.0008032	.03806	.0004473
%RSD	2.160537	53.41413	1.379468	47.00532	2263.666	.2009355	.6561421
#1	.0247011	-.000449	.0602713	-.000842	-.000880	18.90691	.0680974
#2	.0242032	-.001495	.0603049	-.002423	.000620	18.94126	.0677559
#3	.0236564	-.000997	.0617398	-.002211	.000366	18.98293	.0686427

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0015169**	**-.000666**	**7.139107**	**.0435873**	**.0130161**	**.0336288**	**34.53691**
Stddev	.0000197	.000081	.003805	.0002595	.0002663	.0007118	.09911
%RSD	1.300750	12.18700	.0533029	.5953365	2.046113	2.116555	.2869664
#1	.0015280	-.000718	7.134824	.0435820	.0128876	.0335116	34.45799
#2	.0015285	-.000708	7.142100	.0438494	.0128384	.0329829	34.64815
#3	.0014941	-.000573	7.140397	.0433305	.0133223	.0343919	34.50460

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2438583**	**4.144605**	**.0289420**	**.0012579**	**33.82426**	**.0523442**	**.1366767**
Stddev	.0007596	.027921	.0002623	.0003584	.17365	.0020248	.0010351
%RSD	.3114802	.6736829	.9061121	28.49345	.5133822	3.868334	.7573138
#1	.2445142	4.137213	.0286695	.0009996	33.81331	.0541810	.1365926
#2	.2440347	4.121123	.0291926	.0016670	34.00313	.0526786	.1377513
#3	.2430261	4.175478	.0289640	.0011070	33.65636	.0501729	.1356863

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.053153**	**-.086692**	**.0075332**	**.0007172**	**.7146046**	**2.541542**	**1.435711**
Stddev	.003305	.000761	.0001169	.0003776	.0033685	.011433	.022294
%RSD	.1609957	.8776985	1.551753	52.65148	.4713751	.4498645	1.552810
#1	2.056140	-.086684	.0075718	.0010285	.7107227	2.528891	1.418752
#2	2.053717	-.087457	.0074019	.0008258	.7163335	2.544600	1.427417
#3	2.049601	-.085935	.0076259	.0002971	.7167576	2.551136	1.460963

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1956-01 Acquired: 5/7/2025 15:36:13 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.899371	.0381707	.0118682
Stddev	.039499	.0007293	.0001786
%RSD	1.362331	1.910737	1.505087
#1	2.870906	.0382621	.0120726
#2	2.882742	.0374000	.0117422
#3	2.944466	.0388500	.0117899

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2991.050	72928.30	15844.91	2007.021	4557.847
Stddev	37.011	133.08	25.28	5.299	54.599
%RSD	1.237390	.1824808	.1595503	.2640442	1.197920
#1	3024.877	73028.96	15828.03	2012.427	4606.650
#2	2996.756	72777.42	15873.98	2001.835	4568.012
#3	2951.518	72978.53	15832.72	2006.801	4498.880

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1956-02 Acquired: 5/7/2025 15:40:29 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0188496**	**.0017705**	**.0302203**	**-.005351**	**-.000397**	**16.93060**	**.0403511**
Stddev	.0011545	.0004863	.0005125	.002506	.000859	.03020	.0002970
%RSD	6.124987	27.46684	1.695954	46.83464	216.4778	.1783838	.7360316
#1	.0197357	.0022296	.0296289	-.003168	-.001305	16.93693	.0403621
#2	.0175440	.0012609	.0304951	-.004797	-.000287	16.95713	.0400488
#3	.0192693	.0018211	.0305367	-.008088	.000402	16.89774	.0406425

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0013506**	**-.001294**	**7.363592**	**.0537739**	**.0104880**	**.0325524**	**34.95575**
Stddev	.0000290	.000057	.009764	.0002425	.0001779	.0004094	.17012
%RSD	2.144338	4.401457	.1325953	.4510308	1.696687	1.257598	.4866682
#1	.0013765	-.001253	7.372704	.0537048	.0103877	.0328666	35.06532
#2	.0013193	-.001270	7.353286	.0535734	.0106935	.0327011	34.75977
#3	.0013559	-.001359	7.364786	.0540435	.0103829	.0320894	35.04215

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2180450**	**3.935456**	**.0271545**	**.0011688**	**10.03574**	**.0449017**	**.0664353**
Stddev	.0002498	.003388	.0002266	.0003334	.02932	.0002771	.0001469
%RSD	.1145604	.0860809	.8344301	28.52085	.2921718	.6171748	.2210958
#1	.2179712	3.939134	.0270626	.0011661	10.06353	.0447415	.0664381
#2	.2178405	3.934771	.0274126	.0008368	10.00509	.0452217	.0662870
#3	.2183234	3.932463	.0269883	.0015035	10.03859	.0447419	.0665808

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.360725**	**-.096183**	**.0274124**	**-.001408**	**.7391570**	**1.756739**	**.9071010**
Stddev	.014981	.001149	.0000786	.000069	.0029492	.002852	.0046212
%RSD	.6346010	1.194914	.2866872	4.900822	.3989939	.1623346	.5094488
#1	2.368346	-.095708	.0273996	-.001419	.7375741	1.759568	.9017841
#2	2.343465	-.097494	.0273409	-.001334	.7373371	1.753865	.9101510
#3	2.370364	-.095347	.0274966	-.001471	.7425596	1.756784	.9093679

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1956-02 Acquired: 5/7/2025 15:40:29 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	13.63879	.0396274	.0144764
Stddev	.05110	.0003498	.0001222
%RSD	.3746344	.8826059	.8443644
#1	13.59348	.0394132	.0144156
#2	13.62873	.0394381	.0146171
#3	13.69417	.0400310	.0143964

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3028.050	72448.71	15354.17	2010.735	4690.439
Stddev	4.067	158.48	83.79	3.797	10.604
%RSD	.1342989	.2187509	.5457253	.1888497	.2260738
#1	3032.480	72631.55	15438.65	2009.818	4699.738
#2	3027.186	72350.79	15271.08	2014.907	4678.891
#3	3024.485	72363.77	15352.79	2007.480	4692.688

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1956-02DUP Acquired: 5/7/2025 15:44:42 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0213158	.0012555	.0362986	-.004143	-.000223	18.85512	.0438828
Stddev	.0014748	.0017178	.0009686	.001205	.000690	.10326	.0005806
%RSD	6.918852	136.8280	2.668323	29.09091	309.2716	.5476391	1.322973
#1	.0204736	.0007081	.0351834	-.003272	.000573	18.74165	.0433068
#2	.0230187	.0031803	.0367833	-.003639	-.000608	18.88017	.0438737
#3	.0204550	-.000122	.0369291	-.005518	-.000634	18.94355	.0444679

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0015073	-.001177	7.592893	.0539711	.0122810	.0382411	40.49644
Stddev	.0000905	.000135	.035475	.0004668	.0001398	.0003706	.25804
%RSD	6.005764	11.46299	.4672174	.8648822	1.138461	.9690555	.6371915
#1	.0015165	-.001210	7.555613	.0535561	.0124352	.0386372	40.42465
#2	.0014125	-.001292	7.596832	.0544765	.0122454	.0381832	40.78278
#3	.0015929	-.001028	7.626235	.0538807	.0121625	.0379029	40.28190

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2559407	4.633835	.0304380	.0013814	12.08534	.0530412	.0919049
Stddev	.0026474	.036674	.0004093	.0001872	.09210	.0007577	.0005137
%RSD	1.034366	.7914388	1.344546	13.55339	.7620958	1.428495	.5588937
#1	.2533782	4.619292	.0302234	.0011669	12.00529	.0532949	.0913611
#2	.2557783	4.606664	.0309100	.0015121	12.18600	.0521892	.0923819
#3	.2586655	4.675551	.0301807	.0014653	12.06472	.0536394	.0919718

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.501092	-.108581	.0293492	.0006894	.8819402	2.612414	1.057135
Stddev	.035888	.001965	.0001882	.0017307	.0069011	.007971	.006549
%RSD	1.025049	1.810090	.6411156	251.0282	.7824894	.3051321	.6195326
#1	3.485359	-.107948	.0293655	-.000976	.8739759	2.613751	1.064598
#2	3.542159	-.107010	.0291534	.002479	.8861490	2.619632	1.052345
#3	3.475758	-.110785	.0295286	.000565	.8856959	2.603859	1.054462

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1956-02DUP Acquired: 5/7/2025 15:44:42 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	19.16850	.0460479	.0106427
Stddev	.01295	.0001957	.0002823
%RSD	.0675796	.4249120	2.652559
#1	19.18026	.0458405	.0105421
#2	19.17061	.0462292	.0104244
#3	19.15462	.0460739	.0109615

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3026.758	72499.27	15238.88	1995.523	4684.191
Stddev	2.249	210.01	78.80	6.319	5.645
%RSD	.0742959	.2896711	.5170669	.3166370	.1205017
#1	3025.152	72409.66	15285.62	1992.457	4679.079
#2	3025.795	72348.92	15283.12	1991.323	4683.246
#3	3029.328	72739.21	15147.91	2002.790	4690.249

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1956-02LX5 Acquired: 5/7/2025 15:48:57 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0016594**	**-.001941**	**.0068073**	**-.001853**	**-.000458**	**3.417470**	**.0008731**
Stddev	.0031095	.001502	.0006128	.000910	.000862	.004932	.0005917
%RSD	187.3834	77.34999	9.002849	49.11245	188.0449	.1443266	67.77576
#1	.0025522	-.000330	.0074414	-.000837	-.001224	3.418646	.0002211
#2	-.001799	-.003302	.0062182	-.002594	-.000625	3.421708	.0013760
#3	.004225	-.002192	.0067623	-.002129	.000475	3.412056	.0010221

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0002332**	**-.000250**	**1.449557**	**.0103270**	**.0020045**	**.0067099**	**6.659720**
Stddev	.0000674	.000105	.012197	.0002395	.0001500	.0000695	.019671
%RSD	28.89663	41.82686	.8414519	2.319271	7.482646	1.036310	.2953682
#1	.0001843	-.000357	1.460145	.0100848	.0019442	.0066601	6.641288
#2	.0002052	-.000148	1.436220	.0103325	.0021753	.0067893	6.657440
#3	.0003101	-.000245	1.452305	.0105637	.0018941	.0066802	6.680431

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0382069**	**.7738870**	**.0052755**	**.0005560**	**1.858468**	**.0099632**	**.0123834**
Stddev	.0003154	.0079853	.0001002	.0000900	.009596	.0001292	.0002450
%RSD	.8254156	1.031843	1.899668	16.18749	.5163606	1.296671	1.978659
#1	.0379964	.7825445	.0053488	.0004885	1.864631	.0101052	.0123112
#2	.0380549	.7668105	.0053163	.0006582	1.847411	.0098525	.0126564
#3	.0385695	.7723059	.0051613	.0005213	1.863361	.0099319	.0121826

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4848333**	**-.026754**	**.0050752**	**.0001443**	**.1513888**	**.6532329**	**.1758227**
Stddev	.0094539	.000924	.0003461	.0010924	.0007666	.0112706	.0011188
%RSD	1.949933	3.453581	6.818987	757.1989	.5063647	1.725358	.6363434
#1	.4742411	-.027665	.0052135	.0013428	.1509398	.6496268	.1763858
#2	.4878425	-.026781	.0046814	-.000114	.1509528	.6658653	.1745342
#3	.4924164	-.025817	.0053308	-.000796	.1522740	.6442067	.1765481

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1956-02LX5 Acquired: 5/7/2025 15:48:57 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.624233	.0076182	.0030942
Stddev	.008440	.0011272	.0000307
%RSD	.3216137	14.79653	.9915898
#1	2.628950	.0086501	.0030705
#2	2.614489	.0064152	.0030832
#3	2.629259	.0077893	.0031289

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3038.331	73495.74	14920.50	2022.669	4781.846
Stddev	1.910	190.46	18.40	13.793	6.350
%RSD	.0628511	.2591459	.1232891	.6819212	.1327841
#1	3036.856	73715.51	14939.71	2038.387	4779.981
#2	3040.488	73392.89	14903.05	2012.583	4776.637
#3	3037.649	73378.81	14918.74	2017.036	4788.919

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1956-03 Acquired: 5/7/2025 15:53:14 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7552598**	**1.913860**	**.9545673**	**1.769416**	**.5035453**	**24.61255**	**.2215972**
Stddev	.0065093	.022247	.0030153	.007508	.0022603	.05624	.0007274
%RSD	.8618620	1.162405	.3158778	.4243094	.4488668	.2284956	.3282664
#1	.7484080	1.924365	.9540859	1.760822	.5053287	24.60791	.2219803
#2	.7560097	1.928908	.9518217	1.774699	.5010033	24.67096	.2207583
#3	.7613616	1.888306	.9577943	1.772727	.5043040	24.55877	.2220530

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1863515**	**.1864485**	**8.408204**	**.4403688**	**.1958112**	**.3096027**	**40.81282**
Stddev	.0005901	.0002172	.006260	.0029349	.0007409	.0000917	.18064
%RSD	.3166600	.1164713	.0744538	.6664534	.3783678	.0296020	.4426120
#1	.1859714	.1862842	8.412568	.4420294	.1956193	.3095091	41.02017
#2	.1870313	.1866947	8.401031	.4420968	.1966292	.3096923	40.72877
#3	.1860517	.1863667	8.411012	.4369801	.1951851	.3096066	40.68952

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4277585**	**6.833849**	**.4957435**	**.0701717**	**22.32241**	**.3258283**	**.2655253**
Stddev	.0011750	.016520	.0003623	.0005116	.06463	.0029064	.0009671
%RSD	.2746829	.2417332	.0730802	.7290257	.2895234	.8919947	.3642268
#1	.4270882	6.849775	.4961317	.0707573	22.30644	.3230446	.2665720
#2	.4291152	6.834978	.4954144	.0699460	22.39353	.3288435	.2653392
#3	.4270721	6.816793	.4956845	.0698118	22.26726	.3255968	.2646648

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**14.17480**	**.1550445**	**.4154475**	**.6644550**	**1.074704**	**3.367662**	**6.588129**
Stddev	.05616	.0015980	.0006910	.0022960	.004265	.020552	.018811
%RSD	.3962220	1.030706	.1663181	.3455455	.3968277	.6102843	.2855319
#1	14.23930	.1564325	.4152832	.6670619	1.073792	3.391383	6.591211
#2	14.13670	.1554036	.4162058	.6627338	1.079350	3.355188	6.605209
#3	14.14842	.1532975	.4148534	.6635692	1.070968	3.356414	6.567967

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1956-03 Acquired: 5/7/2025 15:53:14 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**16.72716**	**.2448019**	**.1934166**
Stddev	.05499	.0006867	.0006986
%RSD	.3287186	.2805276	.3611855
#1	16.72974	.2440098	.1926836
#2	16.78081	.2452300	.1940747
#3	16.67093	.2451658	.1934914

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2987.302**	**71952.56**	**14736.11**	**1975.325**	**4580.239**
Stddev	1.071	365.75	9.67	8.719	1.617
%RSD	.0358557	.5083258	.0656477	.4413967	.0353140
#1	2988.536	71532.37	14735.58	1965.950	4579.005
#2	2986.611	72199.47	14726.72	1976.834	4579.642
#3	2986.760	72125.84	14746.04	1983.191	4582.070

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1956-04 Acquired: 5/7/2025 15:57:16 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.7411047**	**1.955760**	**.9424067**	**1.743200**	**.5089287**	**23.82027**	**.2230867**
Stddev	.0053990	.005220	.0038363	.010486	.0020988	.09026	.0012537
%RSD	.7285055	.2669054	.4070724	.6015361	.4124031	.3789114	.5619625
#1	.7349158	1.949872	.9421210	1.731156	.5065053	23.87489	.2242572
#2	.7435493	1.959820	.9387212	1.750301	.5101669	23.71609	.2217638
#3	.7448490	1.957588	.9463778	1.748143	.5101138	23.86984	.2232392

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1715799**	**.1823772**	**9.127047**	**.4340527**	**.1930680**	**.3054633**	**43.66372**
Stddev	.0010681	.0002469	.010230	.0017040	.0001261	.0014919	.08344
%RSD	.6225386	.1353812	.1120832	.3925785	.0652855	.4884195	.1910881
#1	.1726984	.1821312	9.138774	.4360198	.1929229	.3037411	43.57218
#2	.1705704	.1826250	9.119955	.4330305	.1931499	.3062866	43.73550
#3	.1714710	.1823756	9.122412	.4331079	.1931313	.3063622	43.68348

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4335241**	**6.705906**	**.4886363**	**.0692927**	**12.59836**	**.3203876**	**.2587982**
Stddev	.0027636	.003547	.0010989	.0001617	.03728	.0022451	.0001535
%RSD	.6374637	.0528930	.2248887	.2333113	.2958836	.7007378	.0593291
#1	.4355933	6.709968	.4873686	.0693370	12.55599	.3193924	.2589550
#2	.4303857	6.703421	.4892220	.0694277	12.62608	.3188122	.2587915
#3	.4345934	6.704330	.4893182	.0691135	12.61303	.3229583	.2586482

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**11.80884**	**.1277336**	**.4145173**	**.6523591**	**1.074555**	**3.476169**	**6.706126**
Stddev	.02853	.0018106	.0021759	.0017662	.002250	.005202	.025317
%RSD	.2416244	1.417451	.5249367	.2707358	.2094089	.1496359	.3775161
#1	11.81303	.1298216	.4121165	.6530319	1.076135	3.474107	6.678194
#2	11.77844	.1267799	.4150760	.6503554	1.071979	3.472315	6.727562
#3	11.83505	.1265992	.4163595	.6536899	1.075551	3.482086	6.712622

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1956-04 Acquired: 5/7/2025 15:57:16 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	16.26079	.2343981	.1902846
Stddev	.04930	.0007228	.0013498
%RSD	.3031654	.3083475	.7093691
#1	16.20421	.2345404	.1911962
#2	16.28368	.2336147	.1887339
#3	16.29448	.2350391	.1909237

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3017.232	73095.02	15778.34	1990.907	4672.365
Stddev	7.212	90.75	75.25	2.939	4.881
%RSD	.2390165	.1241531	.4769215	.1476383	.1044656
#1	3025.071	73074.11	15700.94	1993.351	4675.779
#2	3015.744	73016.55	15851.24	1987.645	4674.542
#3	3010.880	73194.40	15782.83	1991.724	4666.774

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1956-02A Acquired: 5/7/2025 16:01:17 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6738420**	**1.734272**	**.8414043**	**1.596624**	**.7229952**	**19.16546**	**.1977709**
Stddev	.0055049	.013373	.0017960	.004447	.0019516	.05399	.0007655
%RSD	.8169414	.7710906	.2134539	.2785328	.2699339	.2816826	.3870614
#1	.6685258	1.733268	.8394977	1.593081	.7216650	19.10419	.1970018
#2	.6795179	1.748119	.8416511	1.601615	.7220849	19.20607	.1985327
#3	.6734824	1.721429	.8430642	1.595176	.7252356	19.18610	.1977782

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1550573**	**.1628646**	**8.161964**	**.3884171**	**.1729416**	**.2786893**	**40.09070**
Stddev	.0002272	.0002220	.024527	.0008181	.0005152	.0012071	.14761
%RSD	.1465255	.1362930	.3004976	.2106237	.2978806	.4331311	.3681785
#1	.1551354	.1626850	8.138837	.3875269	.1729494	.2774540	39.98196
#2	.1548013	.1627960	8.159371	.3885883	.1724225	.2787480	40.03140
#3	.1552351	.1631128	8.187684	.3891360	.1734528	.2798660	40.25873

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.3889603**	**5.685310**	**.4355991**	**.0627454**	**13.47651**	**.2852772**	**.2407995**
Stddev	.0015602	.013423	.0007860	.0003088	.07619	.0018558	.0005721
%RSD	.4011189	.2360937	.1804389	.4921496	.5653383	.6505130	.2375658
#1	.3872040	5.674551	.4350776	.0628003	13.39093	.2842928	.2410448
#2	.3894911	5.700352	.4365031	.0624128	13.53695	.2874178	.2412080
#3	.3901859	5.681028	.4352166	.0630230	13.50166	.2841211	.2401457

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**11.15283**	**.1250641**	**.4069090**	**.6422638**	**.9829367**	**4.483291**	**5.801675**
Stddev	.07722	.0011063	.0007798	.0012439	.0012748	.014291	.014943
%RSD	.6923686	.8845616	.1916424	.1936715	.1296929	.3187662	.2575613
#1	11.06804	.1261331	.4066839	.6414036	.9816197	4.467174	5.798285
#2	11.21912	.1239240	.4062665	.6436901	.9841646	4.494420	5.818022
#3	11.17133	.1251353	.4077766	.6416978	.9830260	4.488278	5.788718

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1956-02A Acquired: 5/7/2025 16:01:17 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**15.46229**	**.2061582**	**.1716784**
Stddev	.04699	.0014535	.0001625
%RSD	.3039043	.7050173	.0946517
#1	15.44428	.2044956	.1715080
#2	15.51562	.2071877	.1716955
#3	15.42697	.2067913	.1718317

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**3029.809**	**72836.39**	**15837.80**	**2003.452**	**4702.129**
Stddev	6.763	136.49	35.12	8.361	10.043
%RSD	.2232283	.1873912	.2217456	.4173285	.2135933
#1	3030.882	72967.42	15797.64	2012.954	4700.118
#2	3022.572	72846.72	15862.77	1997.219	4693.243
#3	3035.971	72695.03	15852.99	2000.184	4713.025

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCV04 Acquired: 5/7/2025 16:05:18 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.849467**	**5.118170**	**4.841588**	**4.862858**	**4.858018**	**9.598308**	**9.488262**
Stddev	.010335	.034528	.009612	.043409	.024256	.018319	.125074
%RSD	.2131085	.6746236	.1985259	.8926554	.4992893	.1908516	1.318199
#1	4.853068	5.084002	4.830721	4.850261	4.853517	9.615939	9.618970
#2	4.837814	5.117460	4.848974	4.827141	4.836329	9.579372	9.369709
#3	4.857520	5.153048	4.845069	4.911172	4.884209	9.599612	9.476108

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2362202**	**2.399067**	**24.12596**	**.9678240**	**2.401962**	**1.215742**	**4.800425**
Stddev	.0013587	.006953	.08058	.0018010	.007670	.004501	.032910
%RSD	.5752029	.2898305	.3340035	.1860842	.3193376	.3702144	.6855682
#1	.2377048	2.391904	24.21819	.9682223	2.397134	1.214098	4.762445
#2	.2359174	2.399508	24.09054	.9658572	2.397945	1.212294	4.820531
#3	.2350384	2.405789	24.06916	.9693924	2.410807	1.220833	4.818297

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.375875**	**23.72556**	**2.412603**	**1.184776**	**23.04426**	**2.407846**	**2.393060**
Stddev	.010339	.04501	.007244	.000400	.02266	.007206	.007974
%RSD	.4351467	.1897233	.3002460	.0337408	.0983452	.2992539	.3332134
#1	2.387236	23.77563	2.406244	1.184676	23.03086	2.414314	2.402160
#2	2.373370	23.71262	2.411077	1.184436	23.03150	2.400080	2.389725
#3	2.367019	23.68843	2.420488	1.185217	23.07043	2.409145	2.387295

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**23.29604**	**4.724559**	**4.933543**	**4.851374**	**4.791898**	**4.670348**	**4.860221**
Stddev	.10699	.035043	.017365	.013868	.009688	.018151	.019445
%RSD	.4592595	.7417126	.3519815	.2858514	.2021837	.3886535	.4000776
#1	23.23052	4.762076	4.928853	4.835807	4.801979	4.651800	4.838812
#2	23.23809	4.718928	4.919004	4.855908	4.782656	4.671168	4.865065
#3	23.41950	4.692673	4.952771	4.862407	4.791060	4.688075	4.876785

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCV04 Acquired: 5/7/2025 16:05:18 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**4.779917**	**4.720513**	**4.783597**
Stddev	.026124	.017240	.048397
%RSD	.5465264	.3652237	1.011738
#1	4.761075	4.740321	4.836920
#2	4.768937	4.708887	4.742452
#3	4.809738	4.712331	4.771417

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2933.564**	**73799.17**	**14889.12**	**1967.790**	**4492.820**
Stddev	1.697	97.36	111.02	7.544	8.569
%RSD	.0578419	.1319318	.7456119	.3833561	.1907330
#1	2935.519	73723.84	14762.62	1962.996	4501.416
#2	2932.695	73909.11	14934.42	1976.485	4484.278
#3	2932.477	73764.56	14970.33	1963.889	4492.767

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCB04 Acquired: 5/7/2025 16:09:30 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0010182**	**.0010323**	**.0005221**	**.0000612**	**.0005872**	**.0071194**	**-.008163**
Stddev	.0027741	.0012314	.0006251	.0009515	.0021926	.0077990	.000365
%RSD	272.4423	119.2786	119.7269	1553.355	373.4365	109.5457	4.472781
#1	.0042171	.0024324	.0012067	.0008045	.0025830	.0042198	-.008425
#2	-.000727	.0001175	-.000018	.0003903	.0009383	.0011856	-.007746
#3	-.000436	.0005472	.000378	-.001011	-.001760	.0159529	-.008319

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000843**	**.0003288**	**.0067289**	**.0003193**	**.0004221**	**.0001752**	**.0122531**
Stddev	.0000219	.0001191	.0032753	.0001831	.0001085	.0002747	.0024447
%RSD	25.98644	36.21550	48.67585	57.34872	25.71039	156.8667	19.95133
#1	.0000703	.0002815	.0035862	.0001203	.0003670	.0001017	.0148110
#2	.0000731	.0004643	.0101224	.0004807	.0003522	.0004792	.0099401
#3	.0001096	.0002407	.0064781	.0003569	.0005471	-.000055	.0120082

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.003609**	**-.011421**	**.0006564**	**.0010131**	**-.036762**	**.0013430**	**.0009889**
Stddev	.000301	.011857	.0001773	.0002156	.012194	.0003833	.0002113
%RSD	8.342115	103.8173	27.01567	21.27922	33.17027	28.53690	21.36107
#1	-.003804	.001904	.0004572	.0008274	-.034232	.0009842	.0009141
#2	-.003262	-.015360	.0007970	.0009624	-.026032	.0012982	.0008253
#3	-.003760	-.020807	.0007149	.0012495	-.050023	.0017468	.0012274

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0187843**	**-.000646**	**.0009446**	**.0006134**	**.0010162**	**-.006928**	**.0011118**
Stddev	.0281385	.000372	.0002506	.0009174	.0007199	.002911	.0010364
%RSD	149.7980	57.56264	26.53070	149.5675	70.84511	42.01695	93.21696
#1	.0036787	-.000294	.0006642	-.000063	.0004836	-.008977	.0007642
#2	.0014244	-.000609	.0010229	.001658	.0018353	-.003596	.0002939
#3	.0512497	-.001035	.0011467	.000246	.0007298	-.008212	.0022774

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCB04 Acquired: 5/7/2025 16:09:30 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**-.000376**	**-.000319**	**.0005802**
Stddev	.001535	.000604	.0000280
%RSD	407.8589	189.7324	4.824224
#1	-.001506	.000330	.0005568
#2	-.000995	-.000419	.0005725
#3	.001371	-.000866	.0006112

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**3007.777**	**73537.08**	**15293.31**	**2006.377**	**4771.073**
Stddev	12.640	216.14	34.59	4.636	17.018
%RSD	.4202484	.2939191	.2261726	.2310575	.3566929
#1	3018.172	73303.56	15276.20	2003.551	4781.830
#2	3011.451	73577.56	15270.60	2011.727	4779.937
#3	2993.706	73730.12	15333.12	2003.853	4751.453

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1956-06 Acquired: 5/7/2025 16:13:50 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0105598	-.000443	.0323224	-.003026	.0003024	12.30661	.0360465
Stddev	.0020971	.000206	.0007894	.000723	.0017824	.00172	.0008199
%RSD	19.85892	46.55429	2.442223	23.87371	589.3649	.0139903	2.274583
#1	.0086431	-.000444	.0331633	-.002203	-.000132	12.30726	.0355349
#2	.0127998	-.000236	.0322064	-.003323	.002262	12.30791	.0356124
#3	.0102366	-.000649	.0315974	-.003554	-.001223	12.30465	.0369921

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007548	-.000454	3.728847	.0378956	.0084715	.0171613	21.94521
Stddev	.0000314	.000121	.005473	.0004710	.0002025	.0004165	.14176
%RSD	4.162538	26.59150	.1467677	1.242842	2.390071	2.427151	.6459777
#1	.0007604	-.000363	3.725142	.0373542	.0086993	.0167473	21.90950
#2	.0007210	-.000590	3.726267	.0381217	.0084029	.0175803	22.10142
#3	.0007831	-.000408	3.735133	.0382109	.0083121	.0171564	21.82472

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1636245	3.595825	.0189780	.0008213	32.58664	.0356385	.0625733
Stddev	.0007304	.014007	.0002903	.0002148	.23861	.0005534	.0002507
%RSD	.4463657	.3895230	1.529554	26.15778	.7322241	1.552705	.4006402
#1	.1627912	3.580006	.0192450	.0006659	32.64380	.0362415	.0627609
#2	.1639281	3.600821	.0190200	.0007315	32.79148	.0351539	.0626705
#3	.1641540	3.606649	.0186690	.0010665	32.32465	.0355202	.0622886

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.285995	-.057361	.0070780	-.001739	.7328854	2.497786	.8340999
Stddev	.040609	.001296	.0001051	.000273	.0000982	.029147	.0063857
%RSD	1.776407	2.259411	1.485351	15.70026	.0134052	1.166897	.7655760
#1	2.320687	-.058133	.0071540	-.001627	.7329877	2.489321	.8414489
#2	2.295970	-.055865	.0071221	-.002051	.7328769	2.530227	.8299051
#3	2.241329	-.058086	.0069580	-.001541	.7327917	2.473808	.8309457

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1956-06 Acquired: 5/7/2025 16:13:50 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**2.026544**	**.0275547**	**.0103746**
Stddev	.002285	.0008803	.0000907
%RSD	.1127432	3.194748	.8740036
#1	2.029031	.0266340	.0103986
#2	2.026062	.0283881	.0102744
#3	2.024539	.0276421	.0104509

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**3006.683**	**72236.60**	**15161.34**	**1998.248**	**4634.373**
Stddev	6.663	285.99	47.31	9.388	1.335
%RSD	.2216103	.3959135	.3120482	.4698184	.0288051
#1	3009.857	72417.90	15200.26	2004.954	4632.840
#2	2999.026	71906.91	15175.06	1987.519	4635.272
#3	3011.165	72385.00	15108.68	2002.271	4635.009

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1960-02 Acquired: 5/7/2025 16:18:06 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0688160	.0132726	5.515090	-.027134	.0042939	139.9232	1.044569
Stddev	.0012348	.0026051	.028912	.001855	.0015792	1.0523	.008011
%RSD	1.794385	19.62774	.5242367	6.835167	36.77743	.7520585	.7669668
#1	.0682144	.0116782	5.495761	-.027539	.0036662	140.0759	1.048059
#2	.0702363	.0118607	5.501182	-.028753	.0060904	138.8029	1.035404
#3	.0679973	.0162789	5.548328	-.025111	.0031251	140.8909	1.050243

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0104983	.0003092	14.27772	.2247000	.1845455	1.336936	255.3320
Stddev	.0000548	.0002461	.10555	.0010609	.0013656	.006269	.4283
%RSD	.5218591	79.58333	.7392562	.4721288	.7399746	.4689394	.1677387
#1	.0105605	.0002146	14.28822	.2236056	.1834054	1.332512	254.8383
#2	.0104573	.0001245	14.16732	.2257239	.1841721	1.334185	255.5537
#3	.0104770	.0005886	14.37763	.2247706	.1860589	1.344110	255.6041

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.592299	23.43807	.2223969	.0032540	8.557362	.3417813	2.193457
Stddev	.029125	.24853	.0011129	.0003237	.031336	.0041208	.016512
%RSD	.8107481	1.060387	.5004128	9.948383	.3661903	1.205683	.7527853
#1	3.593631	23.41373	.2217006	.0033819	8.591653	.3403949	2.180172
#2	3.562531	23.20260	.2218097	.0028858	8.530214	.3385326	2.211944
#3	3.620735	23.69788	.2236804	.0034942	8.550219	.3464166	2.188256

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.244177	-.835102	.0073344	.3668476	2.633808	5.059836	8.850665
Stddev	.031500	.002301	.0004954	.0016891	.019891	.006248	.072249
%RSD	.5044651	.2755046	6.755013	.4604221	.7552205	.1234783	.8163113
#1	6.228774	-.834794	.0072197	.3660636	2.635559	5.065080	8.792985
#2	6.280415	-.832971	.0069063	.3656931	2.613100	5.061504	8.827307
#3	6.223343	-.837541	.0078771	.3687862	2.652766	5.052923	8.931704

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1960-02 Acquired: 5/7/2025 16:18:06 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.473580	.2179105	-.159080
Stddev	.006788	.0015500	.001054
%RSD	.4606585	.7112800	.6628103
#1	1.469172	.2168800	-.158177
#2	1.470171	.2171585	-.160239
#3	1.481397	.2196930	-.158824

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3186.668	76695.11	15672.18	2134.918	4337.550
Stddev	8.207	347.28	73.46	12.808	12.500
%RSD	.2575524	.4528076	.4687337	.5999419	.2881918
#1	3191.216	77008.34	15708.71	2148.538	4342.940
#2	3191.593	76321.65	15720.22	2123.116	4346.451
#3	3177.193	76755.32	15587.62	2133.100	4323.259

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1962-01 Acquired: 5/7/2025 16:22:10 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0306974**	**-.029165**	**.0757997**	**-.033289**	**-.004982**	**157.3681**	**.8333290**
Stddev	.0039569	.000599	.0011757	.003703	.000559	.5454	.0010437
%RSD	12.88993	2.054316	1.550992	11.12445	11.21859	.3465912	.1252413
#1	.0316711	-.028562	.0763214	-.030006	-.005601	157.6898	.8337922
#2	.0340765	-.029174	.0766242	-.037304	-.004515	156.7383	.8321339
#3	.0263445	-.029760	.0744535	-.032558	-.004830	157.6760	.8340609

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0163910**	**.0294539**	**23.93786**	**.2602418**	**.2931229**	**.2792147**	**314.2733**
Stddev	.0001167	.0000881	.03117	.0011494	.0004719	.0003927	1.5475
%RSD	.7122060	.2989860	.1301953	.4416717	.1610030	.1406416	.4924098
#1	.0162621	.0293859	23.97161	.2611119	.2925843	.2792531	312.4984
#2	.0164213	.0294224	23.91016	.2606748	.2933208	.2788043	315.3399
#3	.0164896	.0295534	23.93182	.2589388	.2934638	.2795869	314.9817

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.156119**	**42.54917**	**.3222184**	**.0059957**	**12.02716**	**.5192030**	**.4858870**
Stddev	.003246	.04371	.0002672	.0005543	.02492	.0015056	.0006680
%RSD	.0781113	.1027311	.0829292	9.244886	.2071674	.2899894	.1374758
#1	4.157137	42.59277	.3220013	.0053653	12.04207	.5185697	.4851170
#2	4.158735	42.50534	.3221371	.0062149	12.04101	.5181175	.4862332
#3	4.152486	42.54940	.3225169	.0064069	11.99839	.5209219	.4863108

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**12.98979**	**-.795930**	**.0019102**	**-.008912**	**10.10171**	**3.746760**	**9.718286**
Stddev	.01134	.005058	.0001557	.001644	.00463	.005788	.037011
%RSD	.0872972	.6355350	8.150095	18.45137	.0458019	.1544679	.3808341
#1	12.99796	-.797274	.0017305	-.010760	10.10702	3.746518	9.690531
#2	12.99457	-.790335	.0019949	-.007609	10.09852	3.752665	9.704022
#3	12.97685	-.800181	.0020051	-.008367	10.09960	3.741098	9.760307

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1962-01 Acquired: 5/7/2025 16:22:10 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.561569	.1948256	-.212111
Stddev	.004958	.0011936	.001534
%RSD	.1935450	.6126461	.7230490
#1	2.556551	.1936465	-.210350
#2	2.566464	.1947972	-.213153
#3	2.561692	.1960332	-.212830

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4838.473	117693.9	27080.79	3236.651	4146.301
Stddev	2.505	170.4	75.81	4.503	1.135
%RSD	.0517686	.1447592	.2799414	.1391128	.0273808
#1	4841.184	117515.5	27016.31	3234.319	4146.779
#2	4837.991	117711.4	27164.31	3233.793	4145.004
#3	4836.244	117854.9	27061.76	3241.842	4147.118

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1964-01 Acquired: 5/7/2025 16:26:31 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0684629	.0094401	.4559301	-.014753	-.002102	153.7935	1.286288
Stddev	.0037518	.0051470	.0178791	.004204	.002029	3.9376	.030396
%RSD	5.480074	54.52306	3.921450	28.49816	96.53007	2.560287	2.363085
#1	.0641308	.0150364	.4460712	-.015781	-.004444	151.4186	1.270461
#2	.0706561	.0083746	.4451508	-.010130	-.000946	158.3386	1.321332
#3	.0706019	.0049092	.4765682	-.018349	-.000914	151.6231	1.267071

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0123087	-.000370	7.854359	.1698003	.0991362	.1734160	197.0282
Stddev	.0001346	.001684	.212489	.0006301	.0041031	.0076593	1.9575
%RSD	1.093579	454.9663	2.705362	.3710617	4.138822	4.416700	.9935048
#1	.0122346	-.000815	7.721769	.1695904	.0968404	.1700303	196.1812
#2	.0124641	-.001787	8.099446	.1705085	.0966949	.1680331	199.2665
#3	.0122274	.001492	7.741863	.1693020	.1038733	.1821847	195.6368

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.135646	27.55726	.1923676	.0043935	1.863045	.2646919	.5764350
Stddev	.095462	.68225	.0078177	.0001398	.026336	.0084199	.0007601
%RSD	2.308283	2.475758	4.063958	3.181455	1.413611	3.181012	.1318693
#1	4.076497	27.16518	.1869691	.0045548	1.841528	.2596822	.5771064
#2	4.245775	28.34505	.1888012	.0043080	1.892414	.2744128	.5765889
#3	4.084665	27.16155	.2013326	.0043178	1.855194	.2599806	.5756097

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.289273	-.560159	.0039967	.0264251	1.687515	7.128220	11.85334
Stddev	.055928	.008137	.0005196	.0026628	.040854	.081970	.45320
%RSD	.8892580	1.452595	13.00137	10.07659	2.420958	1.149943	3.823382
#1	6.244121	-.555596	.0042781	.0246418	1.664300	7.101529	11.57014
#2	6.351835	-.569553	.0033971	.0251477	1.734688	7.220210	11.61383
#3	6.271863	-.555327	.0043149	.0294859	1.663559	7.062923	12.37604

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1964-01 Acquired: 5/7/2025 16:26:31 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	3.446302	.2391046	-.122947
Stddev	.121955	.0051933	.000489
%RSD	3.538729	2.171984	.3974663
#1	3.358356	.2361131	-.123173
#2	3.395026	.2451013	-.123282
#3	3.585523	.2360994	-.122386

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3484.929	83694.74	17755.15	2317.085	4435.936
Stddev	85.897	550.96	340.09	8.648	142.313
%RSD	2.464804	.6583028	1.915426	.3732102	3.208173
#1	3534.226	83819.50	17957.21	2312.142	4521.783
#2	3534.818	83092.09	17362.51	2312.042	4514.362
#3	3385.745	84172.63	17945.73	2327.070	4271.664

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1936-01 Acquired: 5/7/2025 16:30:37 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0290288	.0084294	.1116758	-.037448	-.006235	73.73903	.5155150
Stddev	.0022260	.0047221	.0047759	.001355	.000232	.10841	.0025659
%RSD	7.668187	56.01992	4.276572	3.617735	3.717467	.1470162	.4977341
#1	.0307291	.0134231	.1163279	-.037413	-.006300	73.78050	.5151393
#2	.0265093	.0078288	.1067851	-.036111	-.005977	73.61601	.5131577
#3	.0298481	.0040363	.1119146	-.038820	-.006427	73.82057	.5182481

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0212045	.0979150	22.07277	.0072526	.3369587	1.038788	226.7853
Stddev	.0001104	.0002023	.03846	.0000622	.0005630	.001559	1.0638
%RSD	.5205799	.2065593	.1742517	.8571982	.1670722	.1500472	.4690966
#1	.0210777	.0977382	22.05441	.0071809	.3372099	1.037247	225.8751
#2	.0212784	.0978713	22.04693	.0072917	.3363139	1.038754	227.9548
#3	.0212576	.0981355	22.11697	.0072852	.3373524	1.040364	226.5259

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.90733	13.63555	.1717612	-.002222	.4352731	.0680214	.9089306
Stddev	.04649	.03421	.0016452	.000084	.0041392	.0003256	.0007982
%RSD	.4261976	.2509136	.9578168	3.763173	.9509440	.4787052	.0878128
#1	10.88106	13.64459	.1711444	-.002313	.4397795	.0679722	.9085924
#2	10.87992	13.66433	.1736256	-.002204	.4316406	.0677232	.9083571
#3	10.96100	13.59772	.1705136	-.002149	.4343992	.0683688	.9098421

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.025627	^ *****	.0044056	.0168363	2.499051	1.690678	8.963379
Stddev	.004445	-----	.0001689	.0017546	.004577	.007807	.034314
%RSD	.1469273	-----	3.833994	10.42176	.1831559	.4617386	.3828265
#1	3.022147	^ -----	.0042241	.0167161	2.499015	1.698714	8.949835
#2	3.024098	^ -----	.0045582	.0151448	2.494492	1.690196	8.937904
#3	3.030635	^ -----	.0044345	.0186479	2.503646	1.683123	9.002399

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1936-01 Acquired: 5/7/2025 16:30:37 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.4379661	.1113295	-.068903
Stddev	.0077863	.0005045	.001196
%RSD	1.777822	.4531945	1.735599
#1	.4469315	.1110044	-.068130
#2	.4328983	.1119107	-.070281
#3	.4340684	.1110733	-.068299

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	9278.056	227617.1	46673.79	6167.134	4150.210
Stddev	5.198	607.0	19.94	7.589	2.537
%RSD	.0560244	.2666624	.0427308	.1230609	.0611409
#1	9283.611	227730.0	46684.19	6175.275	4149.657
#2	9277.248	226961.6	46686.39	6160.254	4152.978
#3	9273.310	228159.7	46650.80	6165.873	4147.994

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1936-03 Acquired: 5/7/2025 16:35:09 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0262195	-.010807	.1036903	-.030332	-.005472	68.79098	.3663867
Stddev	.0016790	.001427	.0012025	.001490	.000774	.22337	.0018253
%RSD	6.403671	13.20787	1.159729	4.913399	14.13759	.3247125	.4981840
#1	.0281061	-.009773	.1049079	-.030504	-.005791	68.53477	.3643509
#2	.0248893	-.012435	.1025035	-.028763	-.006035	68.94479	.3678770
#3	.0256630	-.010212	.1036594	-.031729	-.004590	68.89339	.3669323

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0176930	.0632267	16.45035	.0123988	.2790541	.7916635	225.3285
Stddev	.0001518	.0005586	.05423	.0003101	.0003756	.0013095	.9494
%RSD	.8582074	.8834572	.3296478	2.501322	.1345996	.1654163	.4213423
#1	.0177877	.0631616	16.39175	.0121105	.2794525	.7904452	225.1302
#2	.0177735	.0627036	16.49877	.0123591	.2790034	.7914969	226.3614
#3	.0175179	.0638150	16.46052	.0127270	.2787064	.7930484	224.4939

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.288189	8.742072	.0974078	.0012825	.5448659	.0705701	.3714789
Stddev	.012707	.017168	.0006139	.0001198	.0035780	.0007162	.0006195
%RSD	.2402952	.1963800	.6302314	9.344039	.6566723	1.014881	.1667565
#1	5.275271	8.726780	.0980830	.0012609	.5423159	.0699010	.3713933
#2	5.300675	8.760642	.0968833	.0014117	.5433257	.0713256	.3721368
#3	5.288622	8.738793	.0972571	.0011750	.5489560	.0704839	.3709067

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.085460	^ *****	.0074245	.0063426	4.105591	3.466187	9.935445
Stddev	.017357	-----	.0000514	.0008082	.010855	.024668	.022266
%RSD	.5625510	-----	.6924111	12.74277	.2643952	.7116701	.2241078
#1	3.065480	^ -----	.0074655	.0065379	4.093788	3.438584	9.934852
#2	3.094078	^ -----	.0073668	.0054546	4.115147	3.473903	9.913482
#3	3.096821	^ -----	.0074412	.0070353	4.107838	3.486075	9.958002

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1936-03 Acquired: 5/7/2025 16:35:09 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	3.052421	.1163319	-.105863
Stddev	.009864	.0001398	.000928
%RSD	.3231452	.1202120	.8767001
#1	3.058266	.1161728	-.106038
#2	3.041032	.1164355	-.106691
#3	3.057964	.1163873	-.104860

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	7867.639	193766.2	41890.73	5244.690	4304.591
Stddev	9.593	527.7	209.04	8.982	5.725
%RSD	.1219256	.2723445	.4990158	.1712681	.1329978
#1	7864.914	193500.0	41814.48	5237.197	4298.540
#2	7878.300	193424.6	41730.52	5242.227	4309.922
#3	7859.704	194374.0	42127.20	5254.648	4305.310

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1936-05 Acquired: 5/7/2025 16:39:32 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0277306**	**.0075510**	**.0615702**	**-.029772**	**-.005180**	**98.37520**	**.5742024**
Stddev	.0012009	.0013442	.0012471	.002365	.000632	.54389	.0040787
%RSD	4.330621	17.80191	2.025488	7.942273	12.20085	.5528732	.7103331
#1	.0264966	.0065572	.0624344	-.027179	-.005325	99.00221	.5788888
#2	.0288954	.0070154	.0621356	-.030326	-.005727	98.03080	.5714539
#3	.0277997	.0090805	.0601405	-.031810	-.004488	98.09258	.5722645

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0166112**	**.0187382**	**16.71130**	**.0423535**	**.1415341**	**.4835578**	**286.3732**
Stddev	.0000642	.0002034	.08831	.0002988	.0005645	.0013813	.4187
%RSD	.3864921	1.085548	.5284623	.7053660	.3988435	.2856641	.1462208
#1	.0166802	.0185045	16.81144	.0424784	.1412790	.4848342	286.8517
#2	.0165532	.0188750	16.67790	.0425696	.1411421	.4837479	286.0737
#3	.0166001	.0188352	16.64456	.0420126	.1421811	.4820912	286.1941

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**6.052440**	**15.99616**	**.0935310**	**.0049933**	**1.132202**	**.1480828**	**.5219333**
Stddev	.034832	.08265	.0008489	.0000620	.023010	.0007185	.0010601
%RSD	.5755024	.5166593	.9076112	1.242197	2.032350	.4852256	.2031080
#1	6.092561	16.08212	.0944767	.0049453	1.137115	.1488462	.5209211
#2	6.029931	15.91729	.0928348	.0049712	1.107133	.1474196	.5218432
#3	6.034827	15.98907	.0932815	.0050634	1.152360	.1479826	.5230355

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**6.121911**	**-.777484**	**.0035126**	**.0007499**	**4.343087**	**3.944304**	**9.512502**
Stddev	.019990	.002941	.0003033	.0020221	.027200	.014994	.040742
%RSD	.3265245	.3783095	8.635573	269.6551	.6262860	.3801375	.4283015
#1	6.143079	-.780035	.0037399	.0015120	4.374494	3.939193	9.489333
#2	6.103358	-.778150	.0036297	-.001543	4.327585	3.961186	9.488628
#3	6.119295	-.774266	.0031681	.002280	4.327182	3.932535	9.559545

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1936-05 Acquired: 5/7/2025 16:39:32 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.559153	.1626299	-.151732
Stddev	.003839	.0004437	.000447
%RSD	.2462326	.2728096	.2944625
#1	1.562890	.1631358	-.151216
#2	1.555219	.1623072	-.151971
#3	1.559350	.1624467	-.152008

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	4651.346	114721.2	25821.77	3104.693	4353.124
Stddev	10.068	197.2	161.53	1.887	10.543
%RSD	.2164431	.1719203	.6255422	.0607950	.2421950
#1	4661.691	114500.1	25637.17	3104.177	4365.142
#2	4641.582	114879.1	25891.00	3106.784	4345.434
#3	4650.766	114784.3	25937.14	3103.117	4348.794

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1936-07 Acquired: 5/7/2025 16:43:37 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0315801**	**.0249058**	**.0771387**	**-.049376**	**-.007187**	**92.68502**	**.7421473**
Stddev	.0024279	.0023106	.0031356	.000731	.000241	.21017	.0021857
%RSD	7.687990	9.277207	4.064828	1.479572	3.357607	.2267600	.2945160
#1	.0343441	.0234810	.0781248	-.048774	-.006921	92.44637	.7396586
#2	.0306038	.0236646	.0796626	-.050188	-.007249	92.76622	.7430275
#3	.0297923	.0275717	.0736286	-.049165	-.007392	92.84249	.7437556

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0201534**	**.0700228**	**23.47046**	**.0104390**	**.1878214**	**.9408471**	**383.2808**
Stddev	.0000364	.0008329	.00515	.0001914	.0009855	.0039646	2.9033
%RSD	.1804412	1.189394	.0219519	1.833471	.5246817	.4213900	.7574976
#1	.0201854	.0696476	23.47567	.0106314	.1884948	.9391685	386.6111
#2	.0201139	.0694435	23.46536	.0102486	.1866903	.9379979	381.2819
#3	.0201610	.0709772	23.47033	.0104369	.1882790	.9453749	381.9495

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**11.43873**	**10.16701**	**.0633352**	**.0036934**	**.6671762**	**.1195165**	**.6778094**
Stddev	.00873	.03155	.0017164	.0005257	.0039506	.0010106	.0050507
%RSD	.0762973	.3103499	2.710053	14.23488	.5921393	.8455670	.7451555
#1	11.43015	10.15286	.0614213	.0042997	.6629809	.1188090	.6727115
#2	11.44760	10.20317	.0647381	.0033640	.6677226	.1190666	.6828116
#3	11.43845	10.14501	.0638463	.0034165	.6708252	.1206739	.6779053

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**3.416507**	**^ *****	**.0068367**	**.0137206**	**3.524932**	**3.071352**	**7.287227**
Stddev	.026619	-----	.0002622	.0002856	.006904	.014917	.040051
%RSD	.7791252	-----	3.834601	2.081702	.1958753	.4856682	.5496122
#1	3.398356	^ -----	.0068992	.0134497	3.516961	3.070977	7.301675
#2	3.404101	^ -----	.0070621	.0140189	3.528757	3.056626	7.241956
#3	3.447064	^ -----	.0065490	.0136931	3.529077	3.086452	7.318049

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: Q1936-07 Acquired: 5/7/2025 16:43:37 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.8754000	.1686661	-.215489
Stddev	.0084248	.0012359	.003027
%RSD	.9623916	.7327753	1.404626
#1	.8850220	.1700879	-.218978
#2	.8693483	.1678480	-.213561
#3	.8718298	.1680625	-.213929

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6265.543	153867.8	34231.72	4171.879	4232.859
Stddev	18.946	176.3	121.23	14.876	21.042
%RSD	.3023770	.1145584	.3541527	.3565860	.4971070
#1	6255.711	153990.2	34244.64	4187.419	4226.031
#2	6287.384	153665.7	34104.55	4157.769	4256.467
#3	6253.536	153947.3	34345.98	4170.450	4216.079

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCV05 Acquired: 5/7/2025 16:47:52 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem 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	**5.139580**	**5.062520**	**4.800930**	**5.204642**	**5.167419**	**9.816214**	**9.562438**
Stddev	.040778	.020557	.021006	.045548	.037030	.014004	.060774
%RSD	.7934091	.4060562	.4375501	.8751406	.7166036	.1426633	.6355497
#1	5.092588	5.084538	4.824919	5.154827	5.125142	9.803138	9.497592
#2	5.160490	5.043831	4.785827	5.214937	5.183015	9.830991	9.571629
#3	5.165661	5.059193	4.792043	5.244161	5.194100	9.814513	9.618094

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2328290**	**2.364233**	**23.47288**	**.9652673**	**2.385288**	**1.275292**	**4.958418**
Stddev	.0016594	.015508	.05519	.0025864	.012903	.006526	.021873
%RSD	.7127272	.6559274	.2351074	.2679506	.5409606	.5117403	.4411276
#1	.2347435	2.382133	23.53639	.9674533	2.400188	1.268037	4.935951
#2	.2318032	2.355719	23.44566	.9659368	2.377792	1.277154	4.979644
#3	.2319402	2.354849	23.43659	.9624120	2.377885	1.280685	4.959659

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.330272**	**22.76885**	**2.410223**	**1.223892**	**24.88836**	**2.401172**	**2.477385**
Stddev	.003509	.01456	.012492	.001354	.23910	.000449	.004702
%RSD	.1506041	.0639380	.5182832	.1106004	.9606720	.0186939	.1898136
#1	2.327644	22.77674	2.424571	1.224061	24.64179	2.401544	2.478524
#2	2.334257	22.75205	2.401760	1.225152	25.11921	2.401298	2.481412
#3	2.328915	22.77776	2.404340	1.222461	24.90408	2.400674	2.472217

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**25.03338**	**4.715879**	**5.094926**	**4.763144**	**4.827141**	**4.972723**	**4.822608**
Stddev	.21447	.018880	.017834	.029545	.010490	.042970	.028356
%RSD	.8567286	.4003552	.3500354	.6202746	.2173163	.8641095	.5879771
#1	24.79984	4.734530	5.076102	4.797242	4.817786	4.923274	4.851076
#2	25.22150	4.696777	5.097108	4.745157	4.838482	4.993908	4.822380
#3	25.07880	4.716330	5.111569	4.747033	4.825155	5.000986	4.794366

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCV05 Acquired: 5/7/2025 16:47:52 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV05 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	**4.920723**	**4.966922**	**4.789198**
Stddev	.018700	.028744	.092558
%RSD	.3800292	.5787144	1.932643
#1	4.940611	4.936724	4.782735
#2	4.903496	4.993950	4.700041
#3	4.918061	4.970092	4.884819

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2873.445**	**73341.13**	**15650.59**	**1923.999**	**4528.648**
Stddev	8.783	121.36	105.60	1.509	12.243
%RSD	.3056575	.1654769	.6747310	.0784421	.2703366
#1	2883.445	73206.21	15529.98	1923.212	4514.522
#2	2869.911	73375.80	15726.43	1923.047	4535.248
#3	2866.980	73441.39	15695.36	1925.740	4536.175

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCB05 Acquired: 5/7/2025 16:52:03 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000076**	**-.001492**	**.0006699**	**-.002059**	**.0011350**	**.0050681**	**-.019604**
Stddev	.002947	.001230	.0004621	.000651	.0007986	.0037998	.000760
%RSD	3876.848	82.41784	68.98339	31.62333	70.35883	74.97525	3.876905
#1	-.000430	-.001434	.0001459	-.002541	.0020429	.0011849	-.019934
#2	.003032	-.000292	.0008445	-.001318	.0008214	.0052408	-.018735
#3	-.002830	-.002750	.0010192	-.002317	.0005408	.0087786	-.020143

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.000074**	**.0001179**	**.0076611**	**-.000170**	**.0001244**	**.0003953**	**.0081765**
Stddev	.000015	.0001139	.0031096	.000168	.0000430	.0005958	.0048186
%RSD	19.76944	96.59501	40.58991	99.10104	34.59639	150.7106	58.93262
#1	-.000088	.0000962	.0061392	.000020	.0001222	-.000147	.0086645
#2	-.000059	.0000164	.0056055	-.000300	.0000825	.001033	.0031325
#3	-.000076	.0002410	.0112386	-.000229	.0001684	.000300	.0127326

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0009380**	**-.004703**	**.0001735**	**.0013721**	**-.043714**	**.0020162**	**-.000101**
Stddev	.0001544	.019921	.0002609	.0001428	.021464	.0002181	.000133
%RSD	16.45607	423.6093	150.4154	10.41055	49.10138	10.81688	131.3192
#1	.0007600	.000025	-.000042	.0012875	-.059122	.0022457	-.000252
#2	.0010189	.012429	.000464	.0012918	-.019198	.0019912	-.000045
#3	.0010352	-.026563	.000099	.0015370	-.052822	.0018116	-.000006

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0197378**	**-.002665**	**.0003657**	**.0009277**	**.0005473**	**.0100791**	**.0025891**
Stddev	.0138091	.000306	.0001479	.0009442	.0005556	.0039761	.0023304
%RSD	69.96260	11.49942	40.45894	101.7786	101.5287	39.44900	90.00954
#1	.0064175	-.002693	.0004945	.0014748	.0009058	.0071651	.0014703
#2	.0188073	-.002345	.0003984	-.000163	.0008288	.0084636	.0010290
#3	.0339886	-.002956	.0002041	.001471	-.000093	.0146087	.0052679

Reviewed By:jaswal
On:5/8/2025 4:11:40 PM
Inst Id :P4
LB :LB135699

Sample Name: CCB05 Acquired: 5/7/2025 16:52:03 Type: Unk
Method: NON EPA-6010-200.7 NEW LR(v36) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB05 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.005962	-.001232	.0000842
Stddev	.003361	.000208	.0000044
%RSD	56.37325	16.89526	5.262197
#1	-.004269	-.001338	.0000833
#2	-.009833	-.001367	.0000891
#3	-.003785	-.000993	.0000804

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2977.711	76292.35	16473.07	1991.992	4815.632
Stddev	8.058	176.84	130.95	2.343	7.395
%RSD	.2705966	.2317885	.7949203	.1176315	.1535627
#1	2975.974	76105.14	16331.54	1994.693	4816.387
#2	2970.663	76315.32	16497.74	1990.772	4807.888
#3	2986.495	76456.57	16589.93	1990.511	4822.620

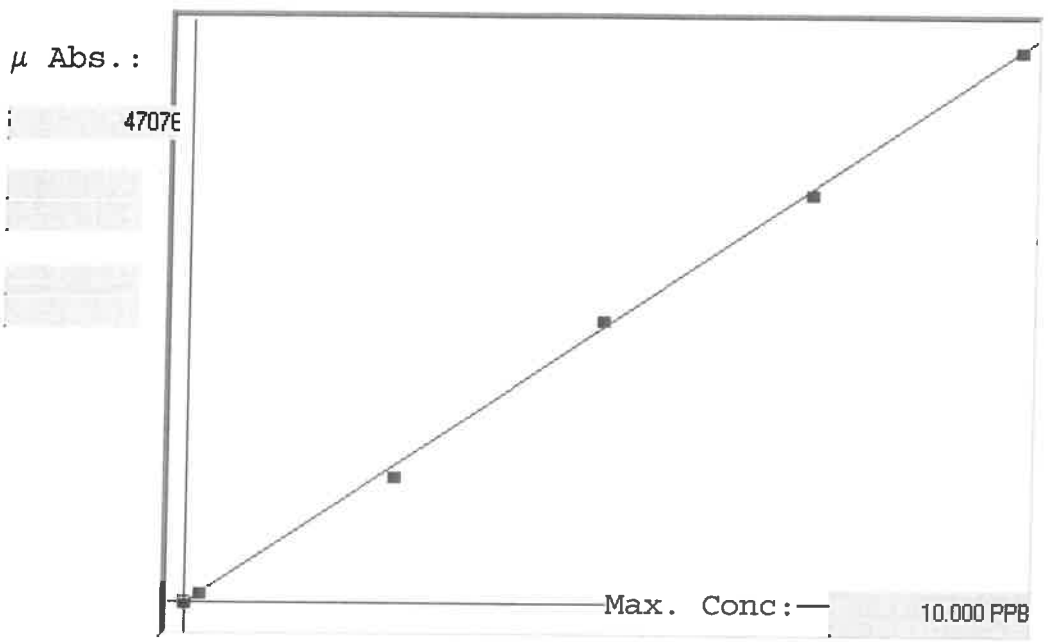
Reviewed By:jaswal
On:5/8/2025 4:12:24 PM
Inst Id :CV1
LB :LB135690

LB135690

7470A

INSTRUMENT ID: CV2

Linear



A= 0.0000e+000

B= 2.1182e-004

C= 3.6054e-002

Rho= 0.9996849

Accept= Accepted

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	%dp
0.0	0.000	0.039	0.039	15	0.000	15	0				-
0.2	0.200	0.226	0.026	898	0.0 %	898					13
2.5	2.500	2.345	-0.155	10898	0.0 %	10898					-6
5.0	5.000	5.145	0.145	24119	0.0 %	24119					3
7.5	7.500	7.437	-0.063	34939	0.0 %	34939					-1
10.0	10.000	10.008	0.008	47076	0.0 %	47076					0

Reviewed By:jaswal
On:5/8/2025 4:12:24 PM
Inst Id :CV1
LB :LB135690

LB135690 INSTUMENT ID : CV1

Method: 7470A Operator: Admin Date of Analysis: 07 May 2025 08:24:03

Sample ID	Extended ID	µ Abs.	Conc.	Stnd Conc	Method	Units	Date	Type	Type
0.0 - 1	S0	15	-	0.00000	7470A	PPB	07 May 2025 09:05:42	S	Std
0.2 - 1	S0.2	898	-	0.20000	7470A	PPB	07 May 2025 09:07:59	S	Std
2.5 - 1	S2.5	10898	-	2.50000	7470A	PPB	07 May 2025 09:10:16	S	Std
5.0 - 1	S5	24119	-	5.00000	7470A	PPB	07 May 2025 09:15:15	S	Std
7.5 - 1	S7.5	34939	-	7.50000	7470A	PPB	07 May 2025 09:17:31	S	Std
10.0 - 1	S10	47076	-	10.00000	7470A	PPB	07 May 2025 09:19:49	S	Std
ICV01 - 1	ICV01	17190	3.6773		-7470A	PPB	07 May 2025 09:22:52	U	SMPL
ICB01 - 1	ICB01	-288	-0.0250		-7470A	PPB	07 May 2025 09:25:06	U	SMPL
CCV86 - 1	CCV86	23582	5.0313		-7470A	PPB	07 May 2025 09:27:23	U	SMPL
CCB86 - 1	CCB86	-330	-0.0338		-7470A	PPB	07 May 2025 09:29:38	U	SMPL
CRA - 1	CRA	771	0.1994		-7470A	PPB	07 May 2025 09:31:55	U	SMPL
HighStd - 1	HighStd	47700	10.1401		-7470A	PPB	07 May 2025 09:34:10	U	SMPL
ChkStd - 1	ChkStd	28617	6.0978		-7470A	PPB	07 May 2025 09:41:51	U	SMPL
PB167883BS - 1	LCSW	19357	4.1363		-7470A	PPB	07 May 2025 09:46:25	U	SMPL
Q1947-04 - 1	MH-P	-235	-0.0137		-7470A	PPB	07 May 2025 09:48:42	U	SMPL
Q1947-08 - 1	MH-O	-21	0.0316		-7470A	PPB	07 May 2025 09:51:00	U	SMPL
Q1951-04 - 1	MH-KK	-11	0.0337		-7470A	PPB	07 May 2025 09:53:17	U	SMPL
Q1956-05 - 1	COMP1	-2	0.0356		-7470A	PPB	07 May 2025 09:55:34	U	SMPL
Q1959-01 - 1	SOIL-PILE	-57	0.0240		-7470A	PPB	07 May 2025 09:57:49	U	SMPL
CCV87 - 1	CCV87	23476	5.0089		-7470A	PPB	07 May 2025 10:00:05	U	SMPL
CCB87 - 1	CCB87	-317	-0.0311		-7470A	PPB	07 May 2025 10:02:21	U	SMPL
Q1960-03 - 1	72-11933	-19	0.0320		-7470A	PPB	07 May 2025 10:04:39	U	SMPL
Q1960-03DUP - 1	72-11933DUP	-19	0.0320		-7470A	PPB	07 May 2025 10:06:54	U	SMPL
Q1960-03MS - 1	72-11933MS	19331	4.1308		-7470A	PPB	07 May 2025 10:09:10	U	SMPL
Q1960-03MSD - 1	72-11933MSD	17835	3.8139		-7470A	PPB	07 May 2025 10:11:25	U	SMPL
PB167851TB - 1	PB167851TB	-207	-0.0078		-7470A	PPB	07 May 2025 10:13:43	U	SMPL
PB167883BL - 1	PBW	2	0.0365		-7470A	PPB	07 May 2025 10:16:01	U	SMPL
Q1960-03LX5 - 1		-58	0.0238		-7470A	PPB	07 May 2025 10:18:17	U	SMPL
Q1960-03A - 1		18496	3.9540		-7470A	PPB	07 May 2025 10:20:34	U	SMPL
CCV88 - 1	CCV88	23493	5.0125		-7470A	PPB	07 May 2025 10:22:51	U	SMPL
CCB88 - 1	CCB88	-291	-0.0256		-7470A	PPB	07 May 2025 10:25:08	U	SMPL

Alliance TECHNICAL GROUP

Water Metals Preparation Sheet

PB167882

SOP ID : M3010A-Digestion-17

SDG No : N/A

Matrix : WATER

Pippete ID: ICP A

Balance ID : N/A

Filter paper ID : N/A

pH Strip ID : M6069

Hood ID : #3

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

Start Digest Date: 05/06/2025 **Time :** 12:30 **Temp :** 96 °C

End Digest Date: 05/06/2025 **Time :** 15:32 **Temp :** 96 °C

Digestion tube ID: M5595

Block thermometer ID: MET-DIG. #1

Dig Technician Signature: SLD.

Supervisor Signature:

Temp : 1. 96°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
LFS-1	0.25	M6005
LFS-2	0.25	M6016
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 96 C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
05/06/25 16:32	Stag. mrt. dio	metals lab
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

Water Metals Preparation Sheet

PB167882

Lab Sample ID	Client Sample ID	pH	Initial Vol (ml)	Final Vol (ml)	Color Before	Color After	Clarity Before	Clarity After	Comment	Prep Pos
PB167851TB	PB167851TB	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	1
PB167882BL	PBW882	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	2
PB167882BS	LCS882	<2	5	25	Colorless	Colorless	Clear	Clear	M6005,M6016	3
Q1947-04	MH-P	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	4
Q1947-08	MH-O	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	5
Q1951-04	MH-KK	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	6
Q1956-05	COMP1	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	7
Q1959-01	SOIL-PILE	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	8
Q1960-03	72-11933	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	9
Q1960-03MS	72-11933MS	<2	5	25	Colorless	Colorless	Clear	Clear	M6005,M6016	11
Q1960-03MSD	72-11933MSD	<2	5	25	Colorless	Colorless	Clear	Clear	M6005,M6016	12
Q1960-03DUP	72-11933DUP	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	10

Alliance TECHNICAL GROUP

TCLP EXTRACTION LOGPAGE

PB167851

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
PB167851TB	LEB851	07	N/A	2000	N/A	N/A	N/A	4.93	1.0	T-1
Q1947-04	MH-P	01	100.02	2000	N/A	N/A	N/A	3.0	1.5	T-1
Q1947-08	MH-O	02	100.03	2000	N/A	N/A	N/A	3.5	1.0	T-1
Q1951-04	MH-KK	03	100.04	2000	N/A	N/A	N/A	3.5	1.5	T-1
Q1956-05	COMP1	04	100.02	2000	N/A	N/A	N/A	5.6	1.5	T-1
Q1959-01	SOIL-PILE	05	100.03	2000	N/A	N/A	N/A	5.5	1.0	T-1
Q1960-03	72-11933	06	100.02	2000	N/A	N/A	N/A	5.6	1.5	T-1

Alliance TECHNICAL GROUP

Water Mercury Preparation Sheet

PB167883

SOP ID : M7470A-Mercury-19

SDG No : NA

Matrix : WATER

Pippete ID: HG A

Balance ID : N/A

Filter paper ID : NA

pH Strip ID : M6069

Hood ID : #1

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

Start Digest Date: 05/06/2025 **Time :** 13:30 **Temp :** 96 °C

End Digest Date: 05/06/2025 **Time :** 15:30 **Temp :** 95 °C

Digestion tube ID: M5595

Block thermometer ID: HG-DIG#3

Dig Technician Signature: MB

Supervisor Signature: JC

Temp : 1. 94°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
ICV	30mL	MP85566
CCV	30mL	MP85569
CRA	30mL	MP85571
Blank Spike	0.48mL	MP85559
Matrix Spike	0.48mL	MP85559

Chemical Used	ML/SAMPLE USED	Lot Number
HNO3/H2SO4(1:2)	2.25mL	MP85240
KMnO4 (5%)	4.5mL	MP85241
K2S2O8 (5%)	2.4mL	MP85242
Hydroxylamine HCL (12%)	1.8mL	MP85243
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	MP85560
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	30mL	MP85561
2.5 ppb	S2.5	30mL	MP85562
5.0 ppb	S5.0	30mL	MP85563
7.5 ppb	S7.5	30mL	MP85564
10.0 ppb	S10.0	30mL	MP85565
ICV	ICV	30mL	MP85566
ICB	ICB	30mL	MP85567
CCV	CCV	30mL	MP85569
CCB	CCB	30mL	MP85570
CRI	CRI	30mL	MP85571
CHK STD	CHK STD	30mL	MP85572

Extraction Conformance/Non-Conformance Comments:

N/A

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
5/6/25 @ 16:00	MB - Dig. Lab	MB - Dig. Lab
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

Water Mercury Preparation Sheet

PB167883

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Comment	Prep Pos
PB167851TB	PB167851TB	3	30	<2	N/A	3-1
PB167883BL	PBW883	30	30	<2	N/A	2
PB167883BS	LCS883	30	30	<2	MP85559	3
Q1947-04	MH-P	3	30	<2	N/A	4
Q1947-08	MH-O	3	30	<2	N/A	5
Q1951-04	MH-KK	3	30	<2	N/A	6
Q1956-05	COMP1	3	30	<2	N/A	7
Q1959-01	SOIL-PILE	3	30	<2	N/A	8
Q1960-03	72-11933	3	30	<2	N/A	9
Q1960-03DUP	72-11933DUP	3	30	<2	N/A	10
Q1960-03MS	72-11933MS	3	30	<2	MP85559	11
Q1960-03MSD	72-11933MSD	3	30	<2	MP85559	12

Alliance TECHNICAL GROUP

TCLP EXTRACTION LOGPAGE

PB167851

SOP ID : M1311-TCLP-15

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

TCLP Filter ID : 115525

Start Prep Date : 05/05/2025 **Time :** 15:00

End Prep Date : 05/06/2025 **Time :** 08:35

Combination Ratio : 20

ZHE Cleaning Batch : ~~N/A~~ 10

Initial Room Temperature: 23 °C

Final Room Temperature: 22 °C

TCLP Technician Signature : JP

Supervisor By : A

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	WP112795
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 sikes are are added after fiftation and tumbling. TUMBLER T-1 checked,30 rpm. Particle size reduction is not required. Q1960-03 IS USED FOR MS-MSD.

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
05/06/25 11:00	JP Lab Room	SLB. RS TEXT
	Preparation Group	Analysis Group Inst Mig

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 # LB135690

Review By	mohan	Review On	5/8/2025 12:57:23 PM
Supervise By	jaswal	Supervise On	5/8/2025 4:12:24 PM

STD. NAME	STD REF.#
ICAL Standard	MP85560,MP85561,MP85562,MP85563,MP85564,MP85565
ICV Standard	MP85566
CCV Standard	MP85569
ICSA Standard	
CRI Standard	MP85571
LCS Standard	
Chk Standard	MP85567,MP85570,MP85572,MP85576

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	05/07/25 09:05		mohan	OK
2	S0.2	S0.2	CAL2	05/07/25 09:07		mohan	OK
3	S2.5	S2.5	CAL3	05/07/25 09:10		mohan	OK
4	S5	S5	CAL4	05/07/25 09:15		mohan	OK
5	S7.5	S7.5	CAL5	05/07/25 09:17		mohan	OK
6	S10	S10	CAL6	05/07/25 09:19		mohan	OK
7	ICV01	ICV01	ICV	05/07/25 09:22		mohan	OK
8	ICB01	ICB01	ICB	05/07/25 09:25		mohan	OK
9	CCV86	CCV86	CCV	05/07/25 09:27		mohan	OK
10	CCB86	CCB86	CCB	05/07/25 09:29		mohan	OK
11	CRA	CRA	CRDL	05/07/25 09:31		mohan	OK
12	HighStd	HighStd	HIGH STD	05/07/25 09:34		mohan	OK
13	ChkStd	ChkStd	SAM	05/07/25 09:41		mohan	OK
14	PB167883BS	PB167883BS	LCS	05/07/25 09:46		mohan	OK
15	Q1947-04	MH-P	SAM	05/07/25 09:48		mohan	OK
16	Q1947-08	MH-O	SAM	05/07/25 09:51		mohan	OK
17	Q1951-04	MH-KK	SAM	05/07/25 09:53		mohan	OK
18	Q1956-05	COMP1	SAM	05/07/25 09:55		mohan	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 # LB135690

Review By	mohan	Review On	5/8/2025 12:57:23 PM
Supervise By	jaswal	Supervise On	5/8/2025 4:12:24 PM

STD. NAME	STD REF.#
ICAL Standard	MP85560,MP85561,MP85562,MP85563,MP85564,MP85565
ICV Standard	MP85566
CCV Standard	MP85569
ICSA Standard	
CRI Standard	MP85571
LCS Standard	
Chk Standard	MP85567,MP85570,MP85572,MP85576

19	Q1959-01	SOIL-PILE	SAM	05/07/25 09:57		mohan	OK
20	CCV87	CCV87	CCV	05/07/25 10:00		mohan	OK
21	CCB87	CCB87	CCB	05/07/25 10:02		mohan	OK
22	Q1960-03	72-11933	SAM	05/07/25 10:04		mohan	OK
23	Q1960-03DUP	72-11933DUP	DUP	05/07/25 10:06		mohan	OK
24	Q1960-03MS	72-11933MS	MS	05/07/25 10:09		mohan	OK
25	Q1960-03MSD	72-11933MSD	MSD	05/07/25 10:11		mohan	OK
26	PB167851TB	PB167851TB	MB	05/07/25 10:13		mohan	OK
27	PB167883BL	PB167883BL	MB	05/07/25 10:16		mohan	OK
28	Q1960-03L	72-11933L	SD	05/07/25 10:18		mohan	OK
29	Q1960-03A	72-11933A	PS	05/07/25 10:20		mohan	OK
30	CCV88	CCV88	CCV	05/07/25 10:22		mohan	OK
31	CCB88	CCB88	CCB	05/07/25 10:25		mohan	OK

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Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB135699

Review By	Janvi	Review On	5/8/2025 12:56:21 PM
Supervise By	jaswal	Supervise On	5/8/2025 4:11:40 PM

STD. NAME	STD REF.#
ICAL Standard	MP85545,MP85552,MP85549,MP85548,MP85547,MP85546
ICV Standard	MP85553
CCV Standard	MP85556
ICSA Standard	MP85554,MP85555
CRI Standard	MP85552
LCS Standard	
Chk Standard	MP85557,MP85558

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	05/07/25 12:34		Kareem	OK
2	S1	S1	CAL2	05/07/25 12:38		Kareem	OK
3	S2	S2	CAL3	05/07/25 12:43		Kareem	OK
4	S3	S3	CAL4	05/07/25 12:47		Kareem	OK
5	S4	S4	CAL5	05/07/25 12:51		Kareem	OK
6	S5	S5	CAL6	05/07/25 12:55		Kareem	OK
7	ICV01	ICV01	ICV	05/07/25 12:59		Kareem	OK
8	LLICV01	LLICV01	LLICV	05/07/25 13:05		Kareem	OK
9	ICB01	ICB01	ICB	05/07/25 13:09		Kareem	OK
10	CRI01	CRI01	CRDL	05/07/25 13:16		Kareem	OK
11	ICSA01	ICSA01	ICSA	05/07/25 13:21		Kareem	OK
12	ICSAB01	ICSAB01	ICSAB	05/07/25 13:25		Kareem	OK
13	ICSADL	ICSADL	ICSA	05/07/25 13:30		Kareem	OK
14	ICSABDL	ICSABDL	ICSAB	05/07/25 13:34		Kareem	OK
15	CCV01	CCV01	CCV	05/07/25 13:39		Kareem	OK
16	CCB01	CCB01	CCB	05/07/25 13:43		Kareem	OK
17	PB167882BL	PB167882BL	MB	05/07/25 13:47		Kareem	OK
18	PB167882BS	PB167882BS	LCS	05/07/25 13:58		Kareem	OK

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Fax : 908 789 8922

Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB135699

Review By	Janvi	Review On	5/8/2025 12:56:21 PM
Supervise By	jaswal	Supervise On	5/8/2025 4:11:40 PM

STD. NAME	STD REF.#
ICAL Standard	MP85545,MP85552,MP85549,MP85548,MP85547,MP85546
ICV Standard	MP85553
CCV Standard	MP85556
ICSA Standard	MP85554,MP85555
CRI Standard	MP85552
LCS Standard	
Chk Standard	MP85557,MP85558

19	PB167880BL	PB167880BL	MB	05/07/25 14:04		Kareem	OK
20	PB167880BS	PB167880BS	LCS	05/07/25 14:08		Kareem	OK
21	PB167859BL	PB167859BL	MB	05/07/25 14:12		Kareem	OK
22	PB167859BS	PB167859BS	LCS	05/07/25 14:17		Kareem	OK
23	Q1939-05DL	GB3DL	SAM	05/07/25 14:22	5X for Zn	Kareem	Confirms
24	PB167851TB	PB167851TB	MB	05/07/25 14:26		Kareem	OK
25	Q1947-04	MH-P	SAM	05/07/25 14:31		Kareem	OK
26	CCV02	CCV02	CCV	05/07/25 14:35		Kareem	OK
27	CCB02	CCB02	CCB	05/07/25 14:39		Kareem	OK
28	Q1947-08	MH-O	SAM	05/07/25 14:44		Kareem	OK
29	Q1951-04	MH-KK	SAM	05/07/25 14:48		Kareem	OK
30	Q1956-05	COMP1	SAM	05/07/25 14:53		Kareem	OK
31	Q1959-01	SOIL-PILE	SAM	05/07/25 14:57		Kareem	OK
32	Q1960-03	72-11933	SAM	05/07/25 15:01		Kareem	OK
33	Q1960-03DUP	72-11933DUP	DUP	05/07/25 15:06		Kareem	OK
34	Q1960-03L	72-11933L	SD	05/07/25 15:10		Kareem	OK
35	Q1960-03MS	72-11933MS	MS	05/07/25 15:15		Kareem	OK
36	Q1960-03MSD	72-11933MSD	MSD	05/07/25 15:19		Kareem	OK
37	CCV03	CCV03	CCV	05/07/25 15:23		Kareem	OK
38	CCB03	CCB03	CCB	05/07/25 15:27		Kareem	OK

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Fax : 908 789 8922

Instrument ID: P4

Daily Analysis Runlog For Sequence/QCBatch ID # LB135699

Review By	Janvi	Review On	5/8/2025 12:56:21 PM
Supervise By	jaswal	Supervise On	5/8/2025 4:11:40 PM

STD. NAME	STD REF.#
ICAL Standard	MP85545,MP85552,MP85549,MP85548,MP85547,MP85546
ICV Standard	MP85553
CCV Standard	MP85556
ICSA Standard	MP85554,MP85555
CRI Standard	MP85552
LCS Standard	
Chk Standard	MP85557,MP85558

39	Q1960-03A	72-11933A	PS	05/07/25 15:32		Kareem	OK
40	Q1956-01	SB1-3-4	SAM	05/07/25 15:36		Kareem	OK
41	Q1956-02	SB2-4-5	SAM	05/07/25 15:40		Kareem	OK
42	Q1956-02DUP	SB2-4-5DUP	DUP	05/07/25 15:44		Kareem	OK
43	Q1956-02L	SB2-4-5L	SD	05/07/25 15:48		Kareem	OK
44	Q1956-03	SB2-4-5MS	MS	05/07/25 15:53		Kareem	OK
45	Q1956-04	SB2-4-5MSD	MSD	05/07/25 15:57		Kareem	OK
46	Q1956-02A	SB2-4-5A	PS	05/07/25 16:01		Kareem	OK
47	CCV04	CCV04	CCV	05/07/25 16:05		Kareem	OK
48	CCB04	CCB04	CCB	05/07/25 16:09		Kareem	OK
49	Q1956-06	SB91-3-4	SAM	05/07/25 16:13		Kareem	OK
50	Q1960-02	72-11933	SAM	05/07/25 16:18		Kareem	OK
51	Q1962-01	HD-01-050525	SAM	05/07/25 16:22		Kareem	OK
52	Q1964-01	MH-LL	SAM	05/07/25 16:26		Kareem	OK
53	Q1936-01	SMALL-PILE-A	SAM	05/07/25 16:30		Kareem	OK
54	Q1936-03	SMALL-PILE-B	SAM	05/07/25 16:35		Kareem	OK
55	Q1936-05	SMALL-PILE-C	SAM	05/07/25 16:39		Kareem	OK
56	Q1936-07	SMALL-PILE-D	SAM	05/07/25 16:43		Kareem	OK
57	CCV05	CCV05	CCV	05/07/25 16:47		Kareem	OK
58	CCB05	CCB05	CCB	05/07/25 16:52		Kareem	OK

Alliance TECHNICAL GROUP

TCLP EXTRACTION LOGPAGE

PB167851

SOP ID : M1311-TCLP-15

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

TCLP Filter ID : 115525

Start Prep Date : 05/05/2025 **Time :** 15:00

End Prep Date : 05/06/2025 **Time :** 08:35

Combination Ratio : 20

ZHE Cleaning Batch : ~~N/A~~ JP

Initial Room Temperature: 23 °C

Final Room Temperature: 22 °C

TCLP Technician Signature : JP

Supervisor By : AR

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	WP112795
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 sikes are are added after fiftation and tumbling. TUMBLER T-1 checked,30 rpm. Particle size reduction is not required. Q1960-03 IS USED FOR MS-MSD.

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
05/06/25 11:00	JP / LCP Room	SIG. RS TEXT
	Preparation Group	Analysis Group INST MIG

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TCLP EXTRACTION LOGPAGE

PB167851

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
PB167851TB	LEB851	07	N/A	2000	N/A	N/A	N/A	4.93	1.0	T-1
Q1947-04	MH-P	01	100.02	2000	N/A	N/A	N/A	3.0	1.5	T-1
Q1947-08	MH-O	02	100.03	2000	N/A	N/A	N/A	3.5	1.0	T-1
Q1951-04	MH-KK	03	100.04	2000	N/A	N/A	N/A	3.5	1.5	T-1
Q1956-05	COMP1	04	100.02	2000	N/A	N/A	N/A	5.6	1.5	T-1
Q1959-01	SOIL-PILE	05	100.03	2000	N/A	N/A	N/A	5.5	1.0	T-1
Q1960-03	72-11933	06	100.02	2000	N/A	N/A	N/A	5.6	1.5	T-1

SampleID	ClientID	Sample Weight (g)	Filter Weight (g)	Filtrate (mL)	Filter + Solid (After 100°C)	% solids	% Dry Solids
PB167851TB	LEB851	N/A	N/A	N/A	N/A	N/A	N/A
Q1947-04	MH-P	N/A	N/A	N/A	N/A	100	N/A
Q1947-08	MH-O	N/A	N/A	N/A	N/A	100	N/A
Q1951-04	MH-KK	N/A	N/A	N/A	N/A	100	N/A
Q1956-05	COMP1	N/A	N/A	N/A	N/A	100	N/A
Q1959-01	SOIL-PILE	N/A	N/A	N/A	N/A	100	N/A
Q1960-03	72-11933	N/A	N/A	N/A	N/A	100	N/A

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TCLP Fluid Determination

PB167851

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

Thermometer ID : N/A

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
PB167851TB	LEB851	N/A	N/A	N/A	N/A	#1	4.93
Q1947-04	MH-P	5.02	96.5	5.6	1.5	#1	4.93
Q1947-08	MH-O	5.01	96.5	6.2	2.0	#1	4.93
Q1951-04	MH-KK	5.02	96.5	6.0	2.0	#1	4.93
Q1956-05	COMP1	5.02	96.5	7.6	3.0	#1	4.93
Q1959-01	SOIL-PILE	5.01	96.5	7.2	3.0	#1	4.93
Q1960-03	72-11933	5.02	96.5	7.0	3.0	#1	4.93

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Prep Standard - Chemical Standard Summary

Order ID : Q1956

Test : TCLP ICP Metals,TCLP Mercury

Prepbatch ID : PB167882,PB167883,

Sequence ID/Qc Batch ID: LB135690,LB135699,LB135699,

Standard ID :
MP85156,MP85240,MP85241,MP85242,MP85243,MP85545,MP85546,MP85547,MP85548,MP85549,MP85551,MP855
52,MP85553,MP85554,MP85555,MP85556,MP85557,MP85558,MP85559,MP85560,MP85561,MP85562,MP85563,MP
85564,MP85565,MP85566,MP85567,MP85569,MP85570,MP85571,MP85572,MP85576,

Chemical ID :
M4251,M4465,M4916,M5062,M5429,M5466,M5467,M5470,M5471,M5658,M5747,M5748,M5751,M5798,M5799,M5800
,M5801,M5811,M5814,M5815,M5816,M5817,M5820,M5875,M5882,M5884,M5942,M5959,M5962,M5970,M5985,M5997
,M6005,M6016,M6021,M6023,M6028,M6030,M6032,M6041,M6058,M6076,M6077,M6127,M6128,M6137,M6138,M614
2,M6144,M6145,M6146,M6150,M6151,M6152,M6155,M6158,M6159,M6161,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	08/18/2025	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	MP85240	04/16/2025	10/16/2025	Mohan Bera	None	None	Sarabjit Jaswal 04/29/2025

FROM 1600.00000ml of M6041 + 800.00000ml of M6158 = 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 %	MP85241	04/16/2025	10/16/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 04/29/2025

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 %	MP85242	04/16/2025	08/06/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 04/29/2025

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	MP85243	04/16/2025	06/25/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 04/29/2025

FROM 2000.00000ml of W3112 + 240.00000gram of M4251 + 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)	MP85545	05/02/2025	06/02/2025	Janvi Patel	METALS_SCALE_3 (M SC-3)	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 05/07/2025

FROM 125.00000ml of M6151 + 2350.00000ml of W3112 + 25.00000ml of M6158 = Final Quantity: 2500.000 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)	MP85546	05/02/2025	06/02/2025	Janvi Patel	METALS_SCALE_3 (M SC-3)	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 05/07/2025

FROM 5.00000ml of M5466 + 5.00000ml of M5471 + 5.00000ml of M5816 + 5.00000ml of M5820 + 5.00000ml of M5875 + 5.00000ml of M5970 + 5.00000ml of M5997 + 5.00000ml of M6076 + 5.00000ml of M6146 + 455.00000ml of MP85545 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
910	ICP AES STD S4	MP85547	05/02/2025	06/02/2025	Janvi Patel	METALS_SCALE_3 (M SC-3)	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 05/07/2025

FROM 50.00000ml of MP85545 + 50.00000ml of MP85546 = 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	MP85548	05/02/2025	06/02/2025	Janvi Patel	METALS_SCALE_3 (M SC-3)	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 05/07/2025

FROM 25.00000ml of MP85546 + 75.00000ml of MP85545 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3913	ICP AES STD S2	MP85549	05/02/2025	06/02/2025	Janvi Patel	METALS_SCALE_3 (M SC-3)	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 05/07/2025

FROM 16.00000ml of MP85546 + 184.00000ml of MP85545 = Final Quantity: 200.000 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	MP85551	05/02/2025	06/02/2025	Janvi Patel	METALS_SCALE_2 (M SC-2)	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 05/07/2025

FROM 0.03000ml of M5798 + 0.03000ml of M6028 + 0.04000ml of M6137 + 0.05000ml of M5658 + 0.05000ml of M5811 + 0.05000ml of M6030 + 0.05000ml of M6159 + 0.06000ml of M5747 + 0.10000ml of M5471 + 0.10000ml of M5751 + 0.10000ml of M5801 + 0.10000ml of M5820 + 0.10000ml of M5962 + 0.10000ml of M5970 + 0.10000ml of M6128 + 0.15000ml of M5800 + 0.20000ml of M5748 + 0.20000ml of M5799 + 0.20000ml of M6021 + 0.20000ml of M6023 + 0.20000ml of M6145 + 0.25000ml of M5466 + 0.25000ml of M6146 + 0.50000ml of M5814 + 0.50000ml of M6032 + 1.00000ml of M5942 + 1.00000ml of M6127 + 1.00000ml of M6138 + 1.00000ml of M6142 + 1.00000ml of M6144 + 2.00000ml of M5816 + 89.29000ml of MP85545 = 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	MP85552	05/02/2025	06/02/2025	Janvi Patel	METALS_SCALE_3 (M SC-3)	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 05/07/2025

FROM 2.00000ml of MP85551 + 98.00000ml of MP85545 = 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
912	ICP AES ICV SOLN	MP85553	05/02/2025	06/02/2025	Janvi Patel	METALS_SCALE_3 (M SC-3)	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 05/07/2025

FROM 0.02500ml of M5429 + 0.02500ml of M5815 + 0.02500ml of M5817 + 0.10000ml of M5467 + 0.25000ml of M5470 + 0.25000ml of M6058 + 10.00000ml of M6150 + 89.32500ml of MP85545 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
904	ICP AES ICSA SOLN	MP85554	05/02/2025	06/02/2025	Janvi Patel	METALS_SCALE_3 (M SC-3)	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 05/07/2025

FROM 25.00000ml of M6152 + 225.00000ml of MP85545 = 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
3494	ICP AES ICSAB SOLN-1	MP85555	05/02/2025	06/02/2025	Janvi Patel	METALS_SCALE_3 (M SC-3)	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 05/07/2025

FROM 0.01000ml of M5815 + 0.01000ml of M5817 + 0.10000ml of M5470 + 0.10000ml of M5970 + 0.10000ml of M6077 + 10.00000ml of M6152 + 10.00000ml of M6155 + 79.68000ml of MP85545 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
911	ICP AES CCV SOLN	MP85556	05/02/2025	06/02/2025	Janvi Patel	METALS_SCALE_3 (M SC-3)	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 05/07/2025

FROM 50.00000ml of MP85545 + 50.00000ml of MP85546 = 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	MP85557	05/02/2025	06/02/2025	Janvi Patel	METALS_SCALE_3 (M SC-3)	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 05/07/2025

FROM 1.00000ml of M5959 + 10.00000ml of M5985 + 1969.00000ml of W3112 + 20.00000ml of M6158 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
903	ICP AES RINSE SOLN	MP85558	05/02/2025	06/02/2025	Janvi Patel	METALS_SCALE_3 (M SC-3)	METALS_PIPETTE_1 (ICP A)	Sarabjit Jaswal 05/07/2025

FROM 200.00000ml of M6158 + 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
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP85559	05/06/2025	05/07/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Janvi Patel 05/07/2025

FROM 1.00000ml of M6158 + 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	MP85560	05/06/2025	05/07/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Janvi Patel 05/07/2025

FROM 2.50000ml of M6158 + 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	MP85561	05/06/2025	05/07/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Janvi Patel 05/07/2025

FROM 2.50000ml of M6158 + 247.30000ml of W3112 + 0.20000ml of MP85559 = 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	MP85562	05/06/2025	05/07/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Janvi Patel 05/07/2025

FROM 2.50000ml of M6158 + 245.00000ml of W3112 + 2.50000ml of MP85559 = 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	MP85563	05/06/2025	05/07/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Janvi Patel 05/07/2025

FROM 242.50000ml of W3112 + 5.00000ml of MP85559 = 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	MP85564	05/06/2025	05/07/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Janvi Patel 05/07/2025

FROM 2.50000ml of M6158 + 240.00000ml of W3112 + 7.50000ml of MP85559 = 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	MP85565	05/06/2025	05/07/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Janvi Patel 05/07/2025

FROM 2.50000ml of M6158 + 237.50000ml of W3112 + 10.00000ml of MP85559 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1346	Hg ICV SOLUTION	MP85566	05/06/2025	05/07/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Janvi Patel 05/07/2025

FROM 2.50000ml of M6158 + 2.50000ml of M6161 + 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)	MP85567	05/06/2025	05/07/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Janvi Patel 05/07/2025

FROM 2.50000ml of M6158 + 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)	MP85569	05/06/2025	05/07/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Janvi Patel 05/07/2025

FROM 485.00000ml of W3112 + 5.00000ml of M6158 + 10.00000ml of MP85559 = 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)	MP85570	05/06/2025	05/07/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Janvi Patel 05/07/2025

FROM 495.00000ml of W3112 + 5.00000ml of M6158 = 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)	MP85571	05/06/2025	05/07/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Janvi Patel 05/07/2025

FROM 2.50000ml of M6158 + 247.30000ml of W3112 + 0.20000ml of MP85559 = 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)	MP85572	05/06/2025	05/07/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Janvi Patel 05/07/2025

FROM 2.50000ml of M6158 + 240.50000ml of W3112 + 7.00000ml of MP85559 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
68	STANNOUS CHLORIDE SOLUTION	MP85576	05/07/2025	05/08/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Janvi Patel 05/07/2025

FROM 450.00000ml of W3112 + 50.00000gram of M5882 + 50.00000ml of M6151 = Final Quantity: 500.000 ml

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-2196-01 / Hydroxylamine Hydrochloride, Crystal (cs/4x500g)	0000215387	06/25/2025	12/19/2018 / mohan	12/05/2018 / mohan	M4251

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.	57103 / Li, 10000 PPM, 125 ml	070622	07/06/2025	01/30/2023 / bin	01/26/2023 / bin	M5429

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57038 / Sr, 1000 PPM, 125 ml	082922	08/29/2025	04/14/2025 / jaswal	03/16/2023 / jaswal	M5470

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57038 / Sr, 1000 PPM, 125 ml	082922	08/29/2025	04/14/2025 / jaswal	03/16/2023 / jaswal	M5471

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

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

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

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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	071723	07/17/2026	10/01/2024 / Jaswal	08/25/2023 / jaswal	M5751

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

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

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

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

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57115 / P, 10000 PPM, 125 ml	041723	04/17/2026	05/21/2024 / Jaswal	02/09/2024 / jaswal	M5815

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

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

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

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

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	T2-TI719972	06/17/2027	06/18/2024 / Jaswal	02/22/2024 / Jaswal	M5942

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

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

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

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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	12/21/2027	02/03/2025 / JANVI	02/22/2024 / kareem	M5997

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-1 / Laboratory Fortified Stock Solution 1, 125 ml	T2-MEB723367	08/30/2026	04/15/2025 / JANVI	05/14/2024 / Jaswal	M6005

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-2 / Laboratory Fortified Stock Solution 2, 125 ml	U2-MEB731108	10/30/2025	04/30/2025 / mohan	05/14/2024 / Jaswal	M6016

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

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

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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

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

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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.	58112 / Mg, 10000 PPM, 500 ml	112124	11/21/2027	01/13/2025 / kareem	01/13/2025 / kareem	M6127

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58120 / Ca, 10000 PPM, 500 ml	121824	12/18/2027	04/17/2025 / Janvi	01/13/2025 / Jaswal	M6138

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

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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 #
EPA	ICV-1 / ICV (ICP/ICPMS) STOCK SOLN	ICV1-1014	07/07/2025	02/07/2025 / JANVI	04/20/2021 / JANVI	M6150

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

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

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	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 #
EPA	ICV-5 / ICV (HG) STOCK SOLN	ICV 5 0415	07/31/2025	05/01/2025 / mohan	03/30/2024 / mohan	M6161

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

Certificate of Analysis

ThermoFisher SCIENTIFIC

M5882 M3

Certificate of Analysis

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Fair Lawn, NJ 07410
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201.796.1329 fax

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

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

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

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

Harout Sahagian - Quality Control Supervisor - Fair Lawn

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

Absolute Standards, Inc.
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Certified Reference Material CRM

M6032

R: 8/5/24

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AR-1539 Certificate Number
https://Absolutestandards.com

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		

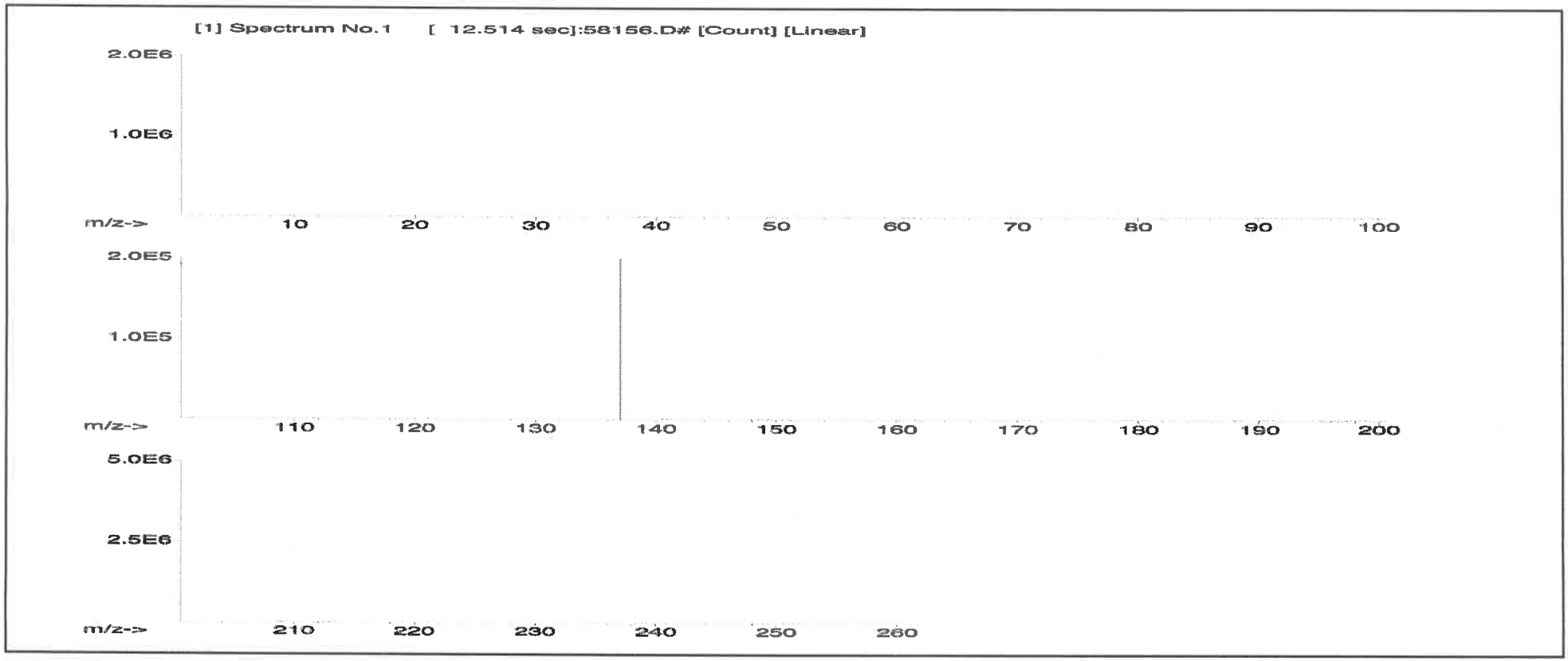
Giovanni Esposito

Formulated By:	Giovanni Esposito	010924

Pedro Rentas

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.
800-368-1131
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Certified Reference Material CRM

M6028

R 8/5/24

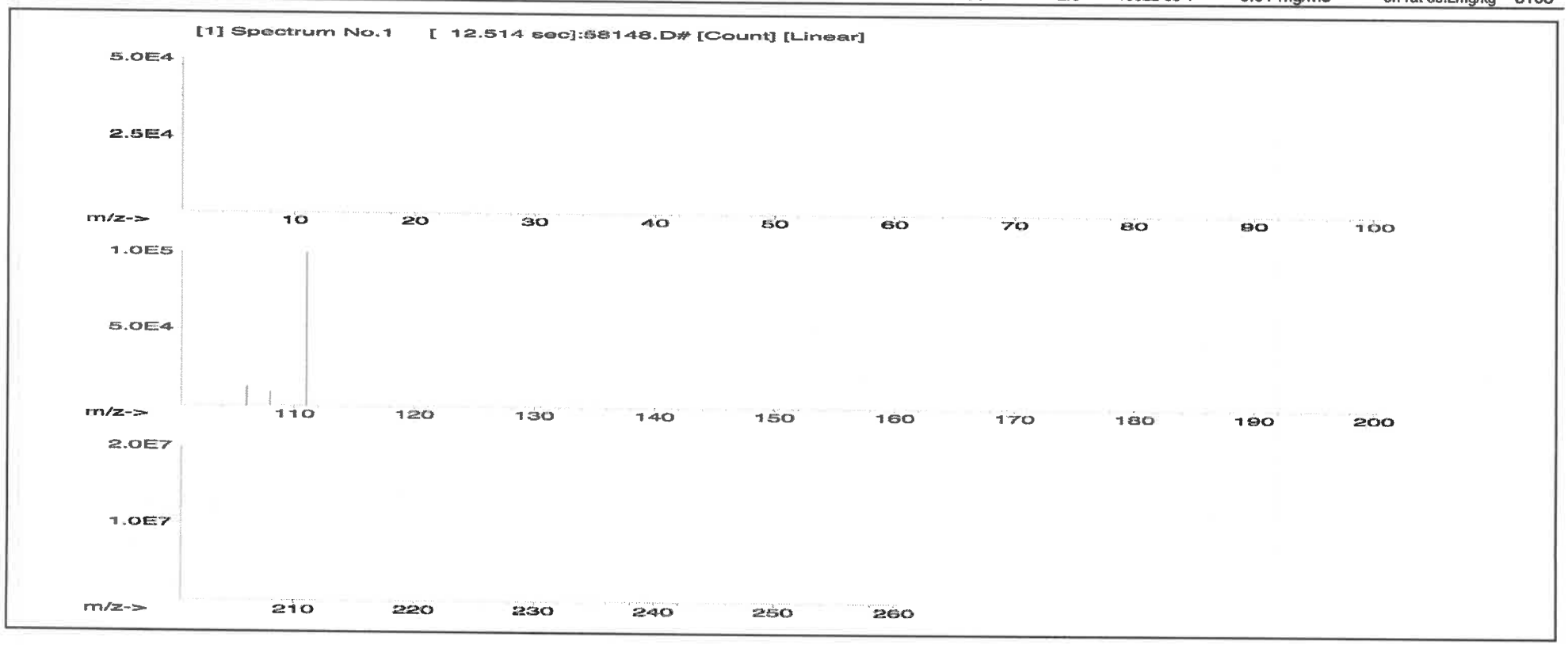
ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

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
Pedro Rentas		
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.

* 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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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:	T2-MEB714417
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	**50.00 ± 0.26 µg/mL**	**Calcium, Ca**	**5 000 ± 22 µg/mL**
Chromium, Cr	**200.0 ± 1.0 µg/mL**	**Cobalt, Co**	**500.0 ± 2.4 µg/mL**
Copper, Cu	**250.0 ± 1.0 µg/mL**	**Iron, Fe**	**1 000 ± 4 µg/mL**
Magnesium, Mg	**5 000 ± 20 µg/mL**	**Manganese, Mn**	**500.0 ± 2.0 µg/mL**
Nickel, Ni	**500.0 ± 2.2 µg/mL**	**Potassium, K**	**5 000 ± 19 µg/mL**
Silver, Ag	**250.0 ± 1.1 µg/mL**	**Sodium, Na**	**5 000 ± 18 µg/mL**
Vanadium, V	**499.7 ± 2.2 µg/mL**	**Zinc, Zn**	**500.0 ± 2.2 µg/mL**

Density: 1.118 g/mL (measured at 20 ± 4 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
Cr	Calculated		See Sec. 4.2
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	120715
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	IC Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

Characterization of CRM/RM by Two or More Methods

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 27, 2022

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

11.2 Lot Expiration Date

- **January 27, 2027**

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

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

11.3 Period of Validity

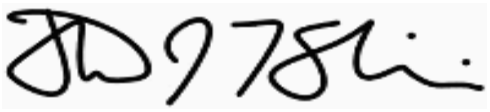
- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

R : 01/03/24. M5810, M5811

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

CERTIFIED WEIGHT REPORT:

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

Expiration Date: 051526
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 5000.1

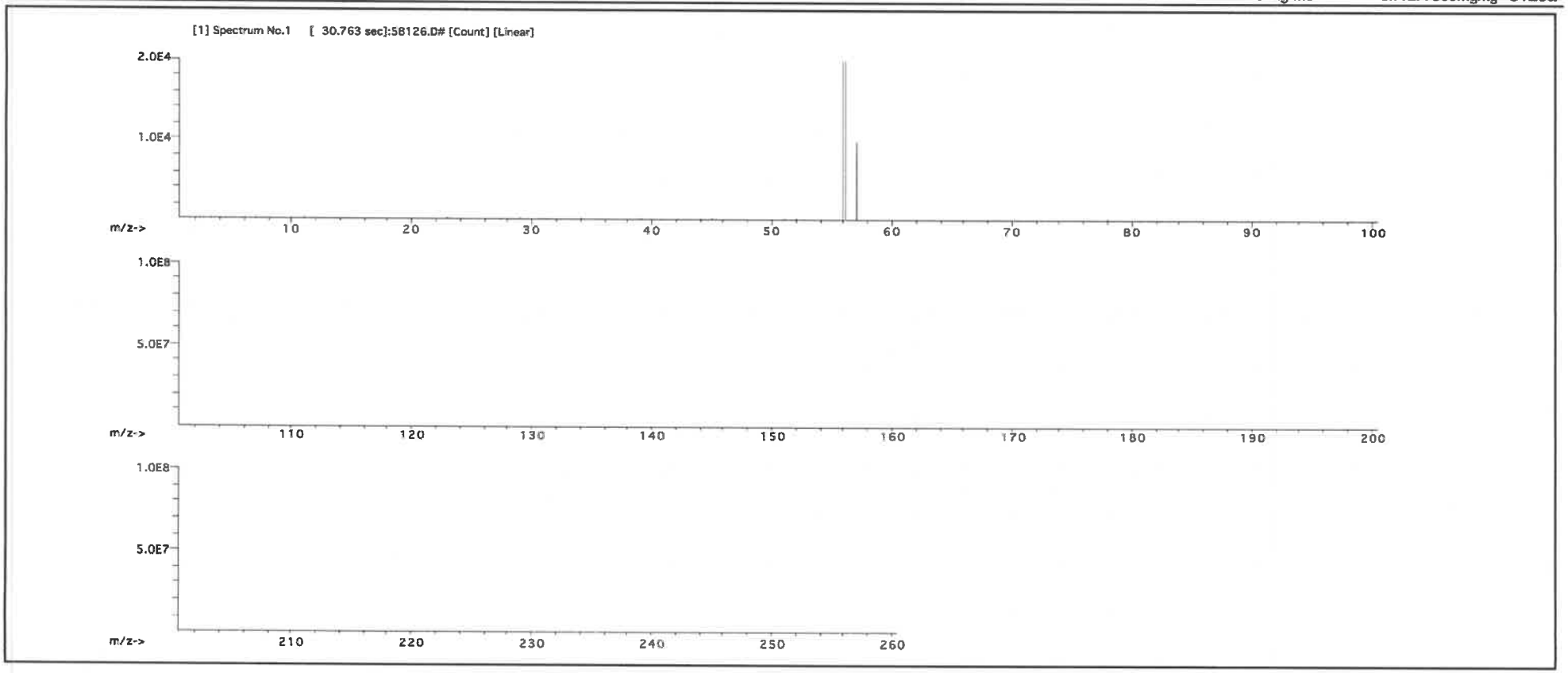
	Lot #		
Solvent:	21110221	Nitric Acid	
5.0%	250.0 (mL)	Nitric Acid	
5E-05	Balance Uncertainty		
0.12	Flask Uncertainty		

Giovanni Esposito

Formulated By: Giovanni Esposito 051523

Reviewed By: Pedro L. Rentas 051523

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 (Fe)	IN346	2302010-500	10000	99.995	0.10	100.0	50.0034	50.0111	**10001.5**	**20.0**	7439-89-6	5 mg/m3	orl-rat 7500mg/kg	3126a



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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.10	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	<0.10	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.05	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.10	Ge	<0.10	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.10
B	<0.02	Cu	<0.10	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	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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RD:05/14/2024

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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-1
Lot Number:	T2-MEB723367
Matrix:	5% (v/v) HNO3

Value / Analyte(s):	1 000 µg/mL ea: Potassium,	
	600 µg/mL ea: Phosphorus,	
	300 µg/mL ea: Sodium,	Iron,
	200 µg/mL ea: Magnesium, Cerium, Thallium,	Aluminum, Selenium,
	100 µg/mL ea: Lead,	Calcium,
	80 µg/mL ea: Arsenic,	
	70 µg/mL ea: Mercury,	
	50 µg/mL ea: Nickel,	
	40 µg/mL ea: Chromium,	
	30 µg/mL ea: Copper, Vanadium,	Boron,
	20 µg/mL ea: Zinc, Barium, Cadmium, Manganese,	Strontium, Beryllium, Cobalt, Lithium,
	7.5 µg/mL ea: Silver	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

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

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

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 30, 2022

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

11.2 Lot Expiration Date

- **August 30, 2026**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

INORGANIC VENTURES

Refine your results. Redefine your industry.

Certificate of Analysis

RD:05/14/2024

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 863.01 ACCREDITED Reference Material Producer Certificate 863.02

2.0 PRODUCT DESCRIPTION

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

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	80.1 ± 0.6 µg/mL	Molybdenum, Mo	40.03 ± 0.18 µg/mL
Silica, SiO2	200.2 ± 1.3 µg/mL	Tin, Sn	70.0 ± 0.4 µg/mL
Titanium, Ti	20.01 ± 0.13 µg/mL		

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

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Mo	Calculated		See Sec. 4.2
Sb	ICP Assay	3102a	140911
SiO2	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925
Ti	Calculated		See Sec. 4.2

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

Characterization of CRM/RM by Two or More Methods

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

March 17, 2023

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

11.2 Lot Expiration Date

- March 17, 2028

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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

M4251
NB

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

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Christiansburg, VA 24073 USA
inorganicventures.com

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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

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M5429 R1 01/26/23 BH

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

CERTIFIED WEIGHT REPORT:

Part Number: 57103
Lot Number: 070622
Description: Lithium (Li)

Expiration Date: 070625
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 1000.12 | 0.058 Flask Uncertainty

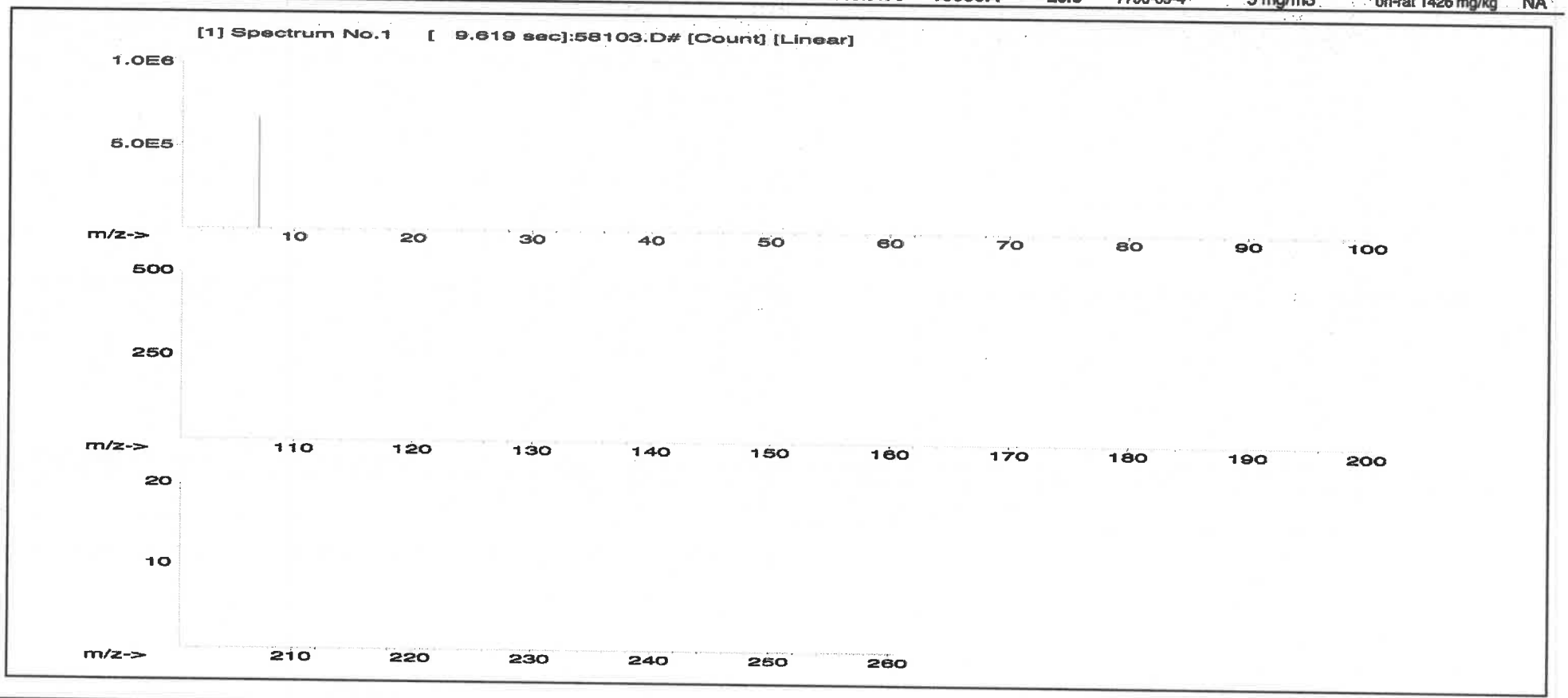
	Lot #		
Solvent:	20510011	Nitric Acid	
2%	20.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

Formulated By: Lawrence Barry 070622

Reviewed By: Pedro L. Rentas 070622

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. Lithium nitrate (Li)	IN019	LIZ042018A1	10000	99.999	0.10	10.0	100.0134	100.0173	**10000.4**	**20.0**	7790-69-4	5 mg/m3	orl-rat 1426 mg/kg	NA



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

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

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	T	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.

* 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:

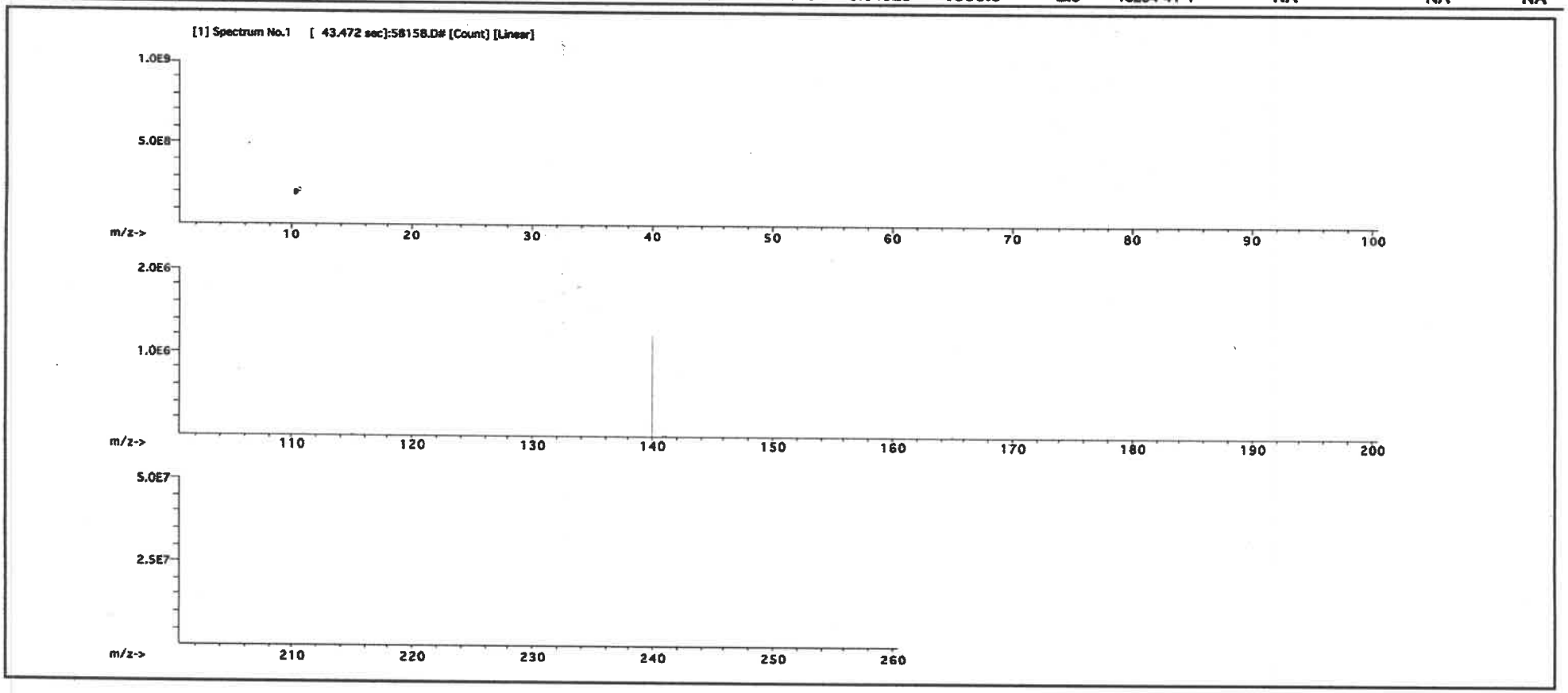
Part Number: 57058
Lot Number: 061322
Description: Cerium (Ce)

Expiration Date: 061325
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): 1000.12 0.058 Flask Uncertainty

	Lot #	
Solvent:	20510011	Nitric Acid
2%	20.0 (mL)	Nitric Acid

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

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	3.04923	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.

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M5467 R: 03/01/23 (LA)

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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

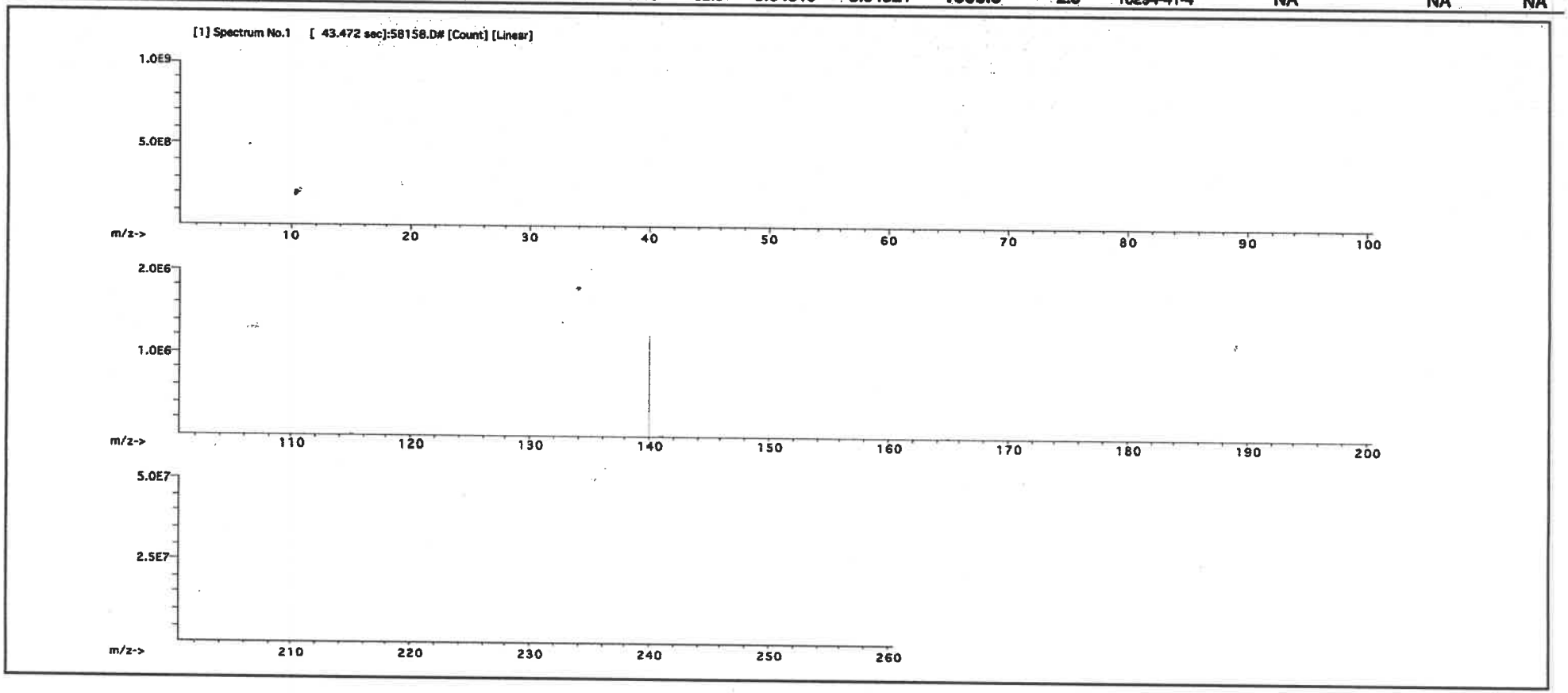
Weight shown below was diluted to (mL): 1000.12 0.058 Flask Uncertainty

		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.

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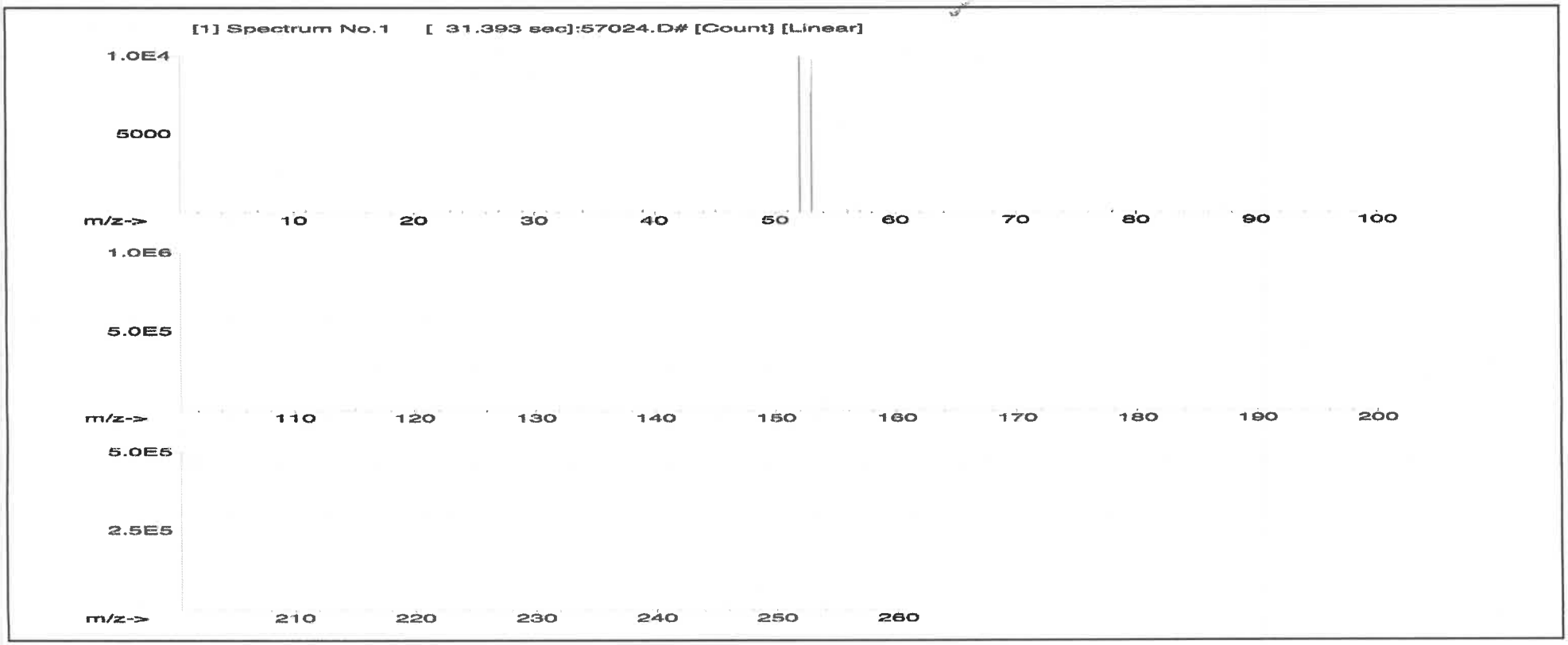
CERTIFIED WEIGHT REPORT:

		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.

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CERTIFIED WEIGHT REPORT:

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

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

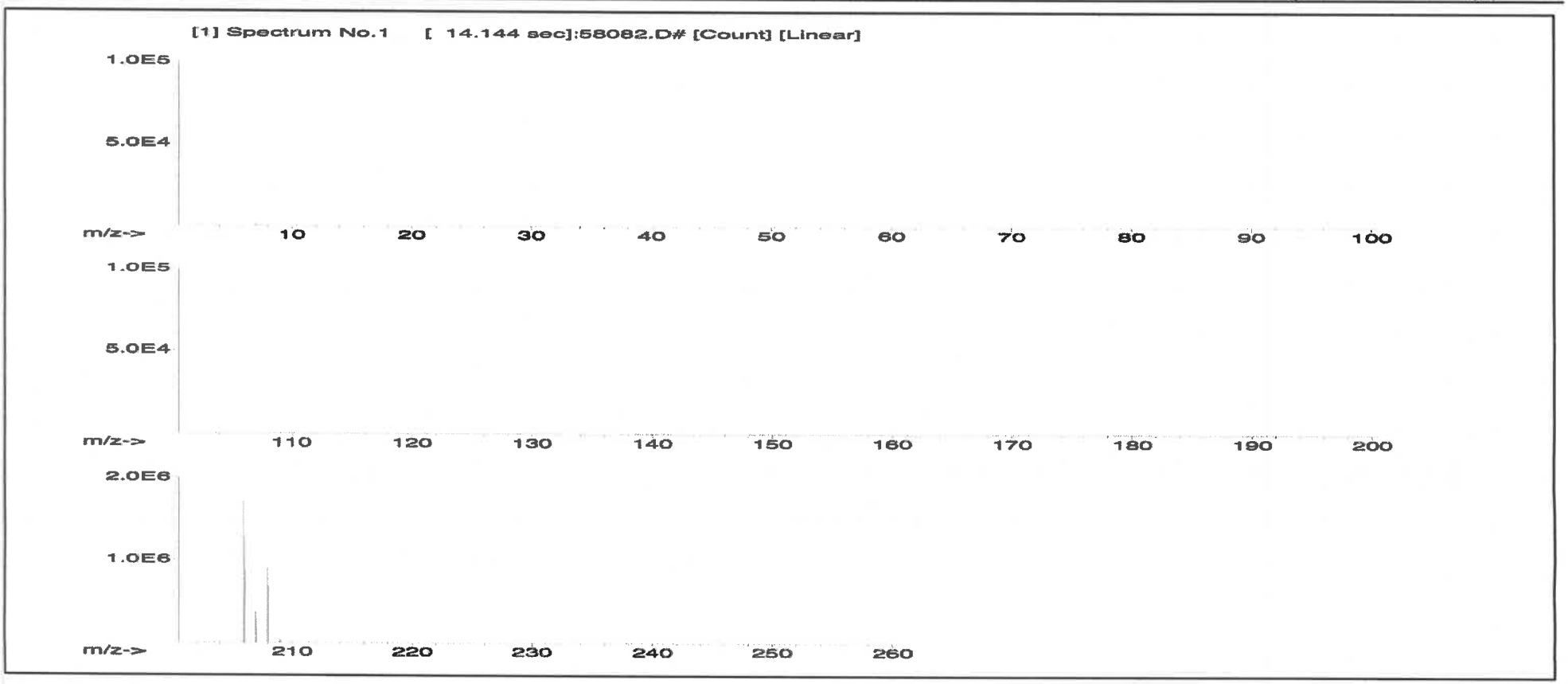
Weight shown below was diluted to (mL): 3000.41 ± 0.06 Flask Uncertainty

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

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

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	4.80071	4.80077	**1000.0**	**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	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	T	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

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

Certified by:

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R: 12/20/23 M5748

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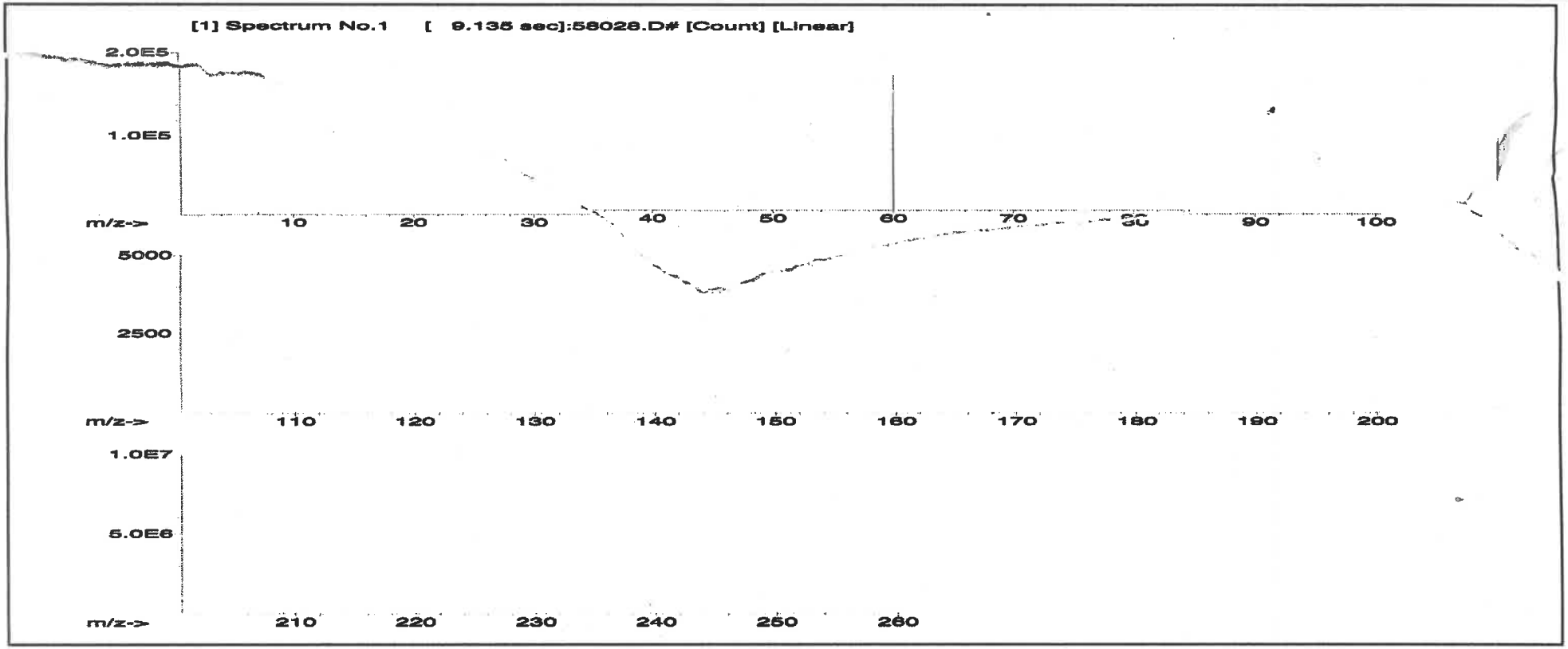
CERTIFIED WEIGHT REPORT:

		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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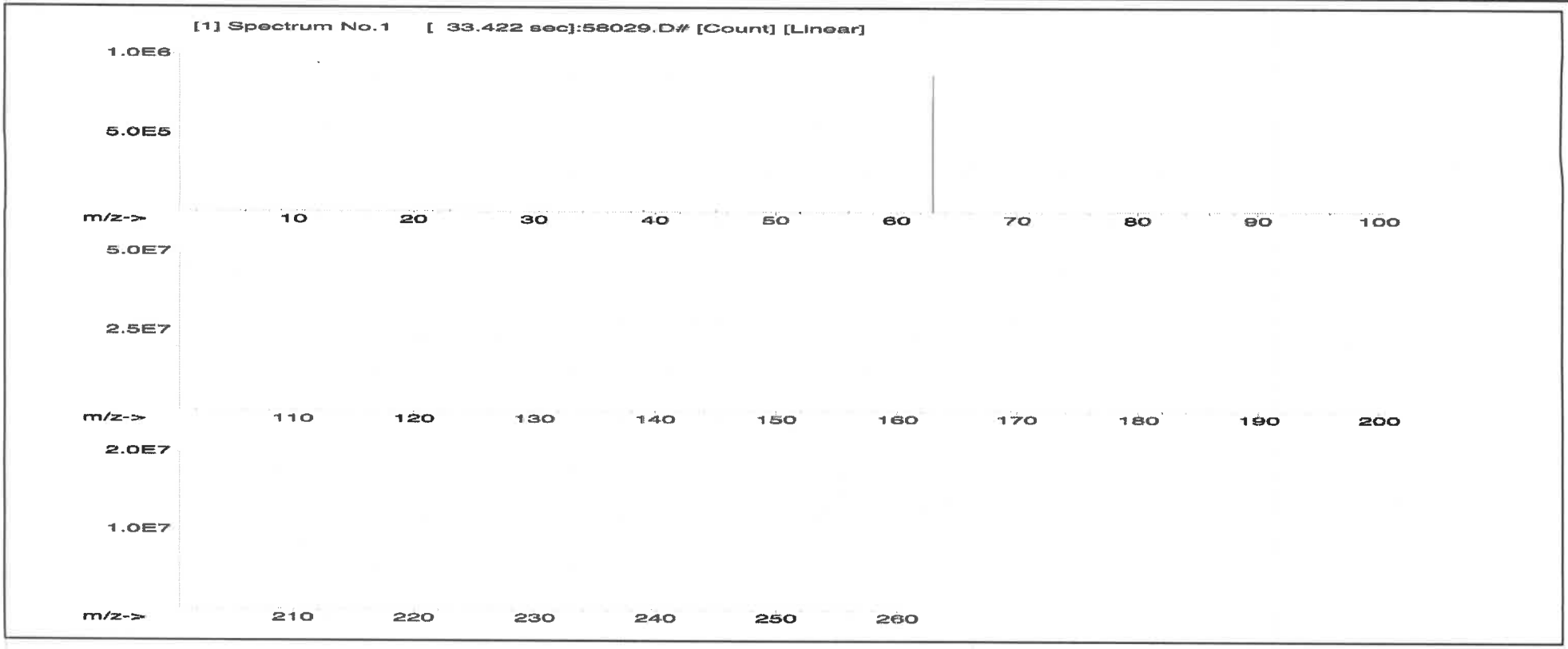
CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**58029**	21110221	Nitric Acid	
Lot Number:	**071723**			
Description:	**Copper (Cu)**	2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	071726			
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	071723
Reviewed By:	Pedro L. Rentas	071723

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	022723	0.1000	200.0	0.084	1000	10000.5	**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:

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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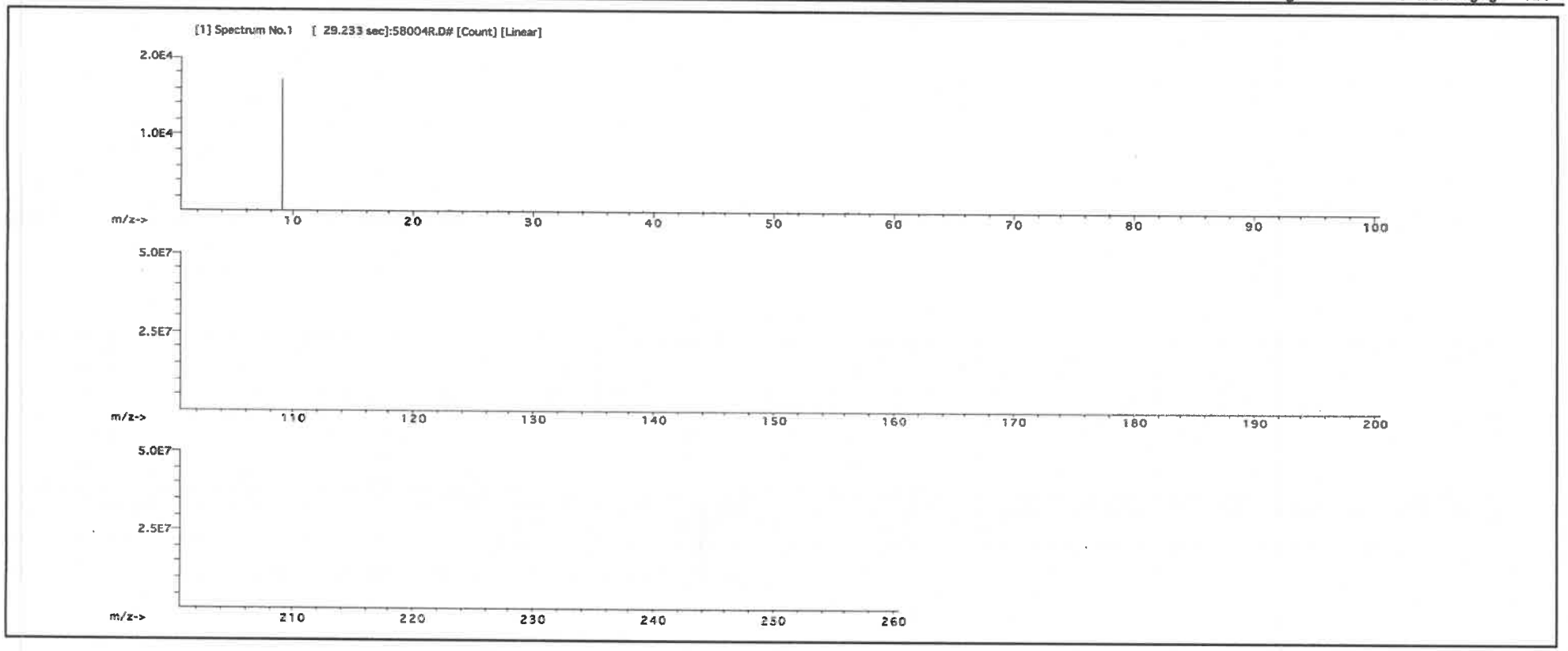
CERTIFIED WEIGHT REPORT:

		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.

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
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CERTIFIED WEIGHT REPORT:

Part Number: 57050
Lot Number: 071123
Description: Tin (Sn)

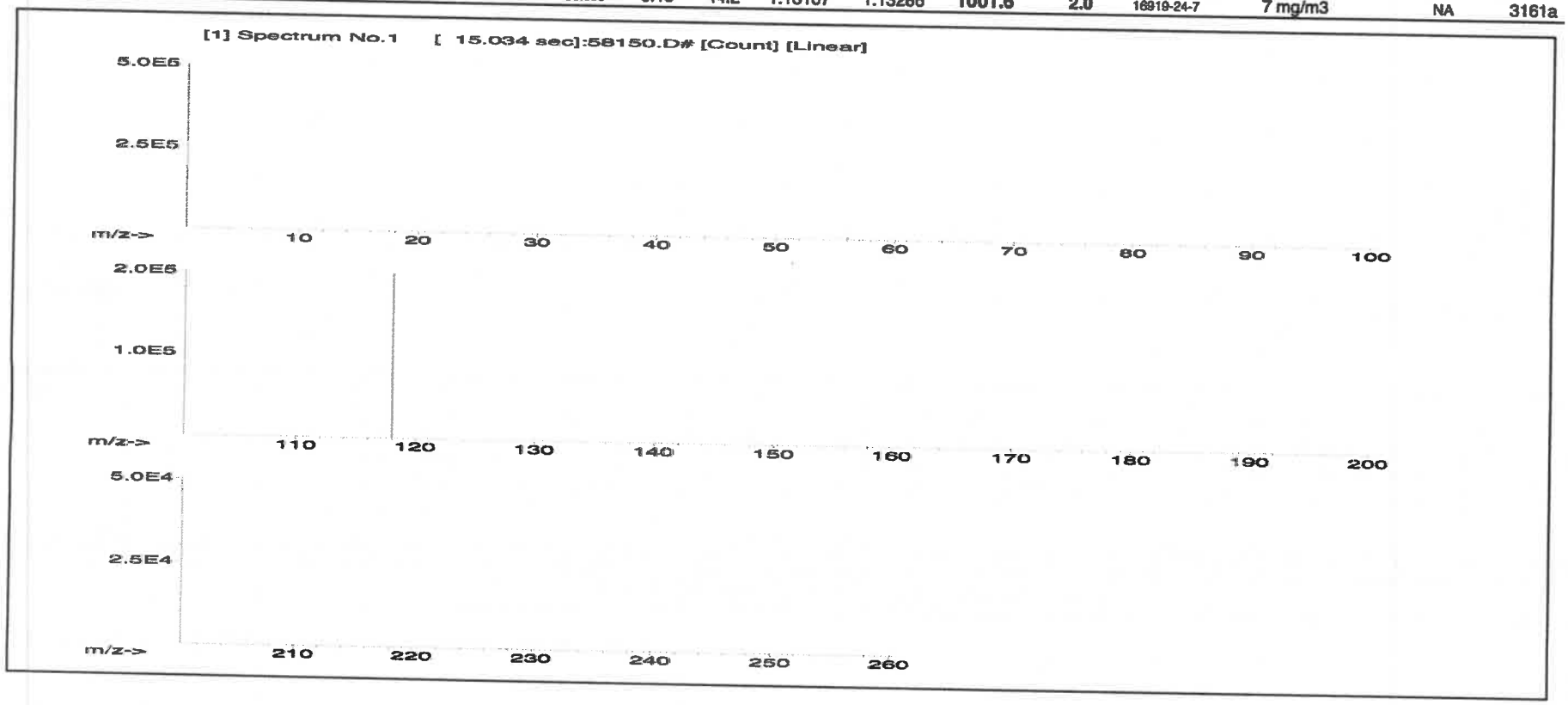
Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 499.93

	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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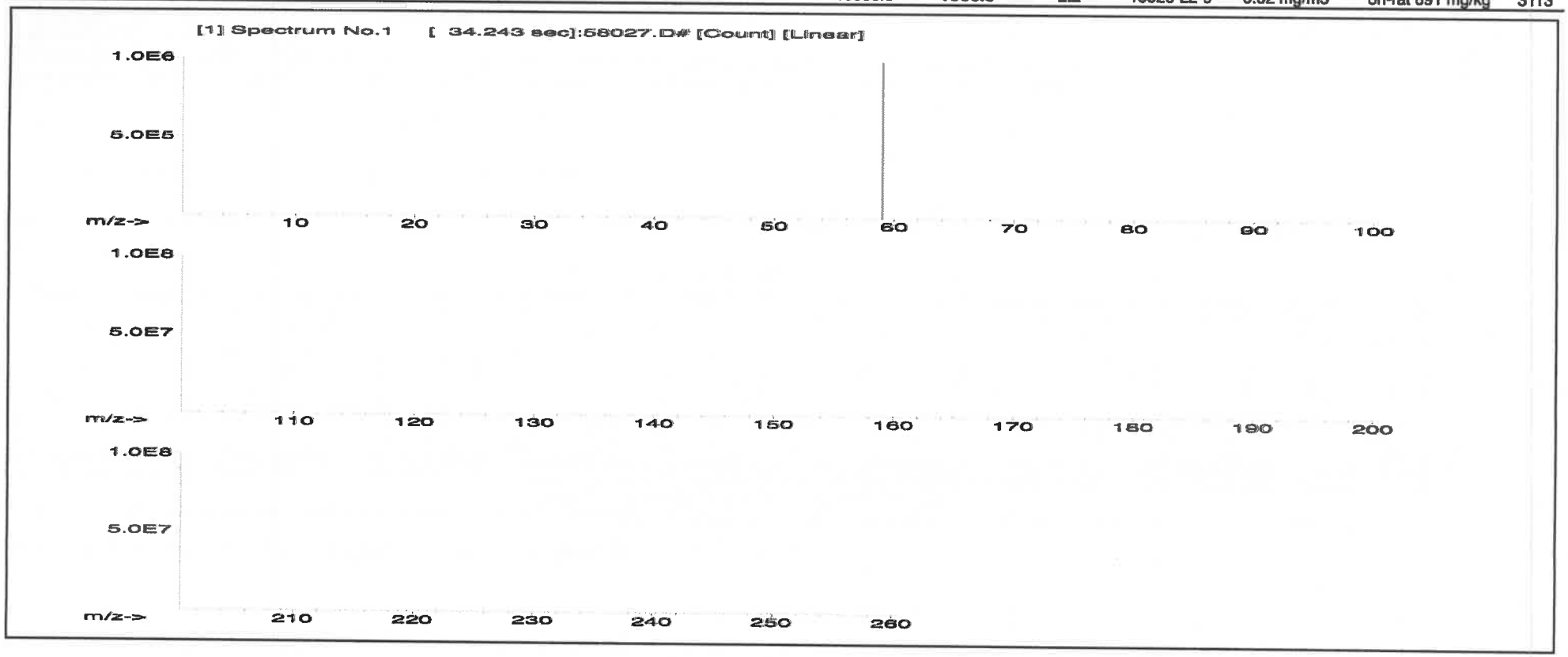
CERTIFIED WEIGHT REPORT:

		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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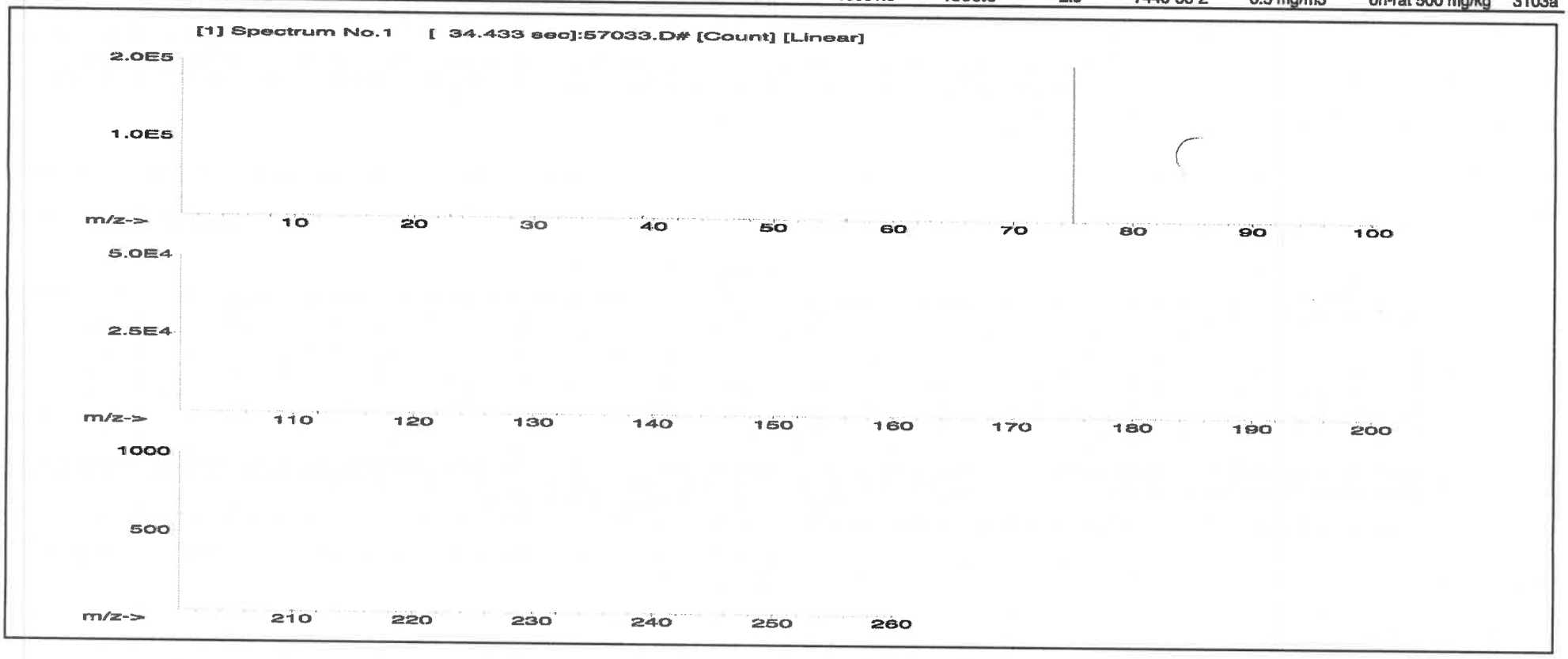
CERTIFIED **WEIGHT** REPORT:

		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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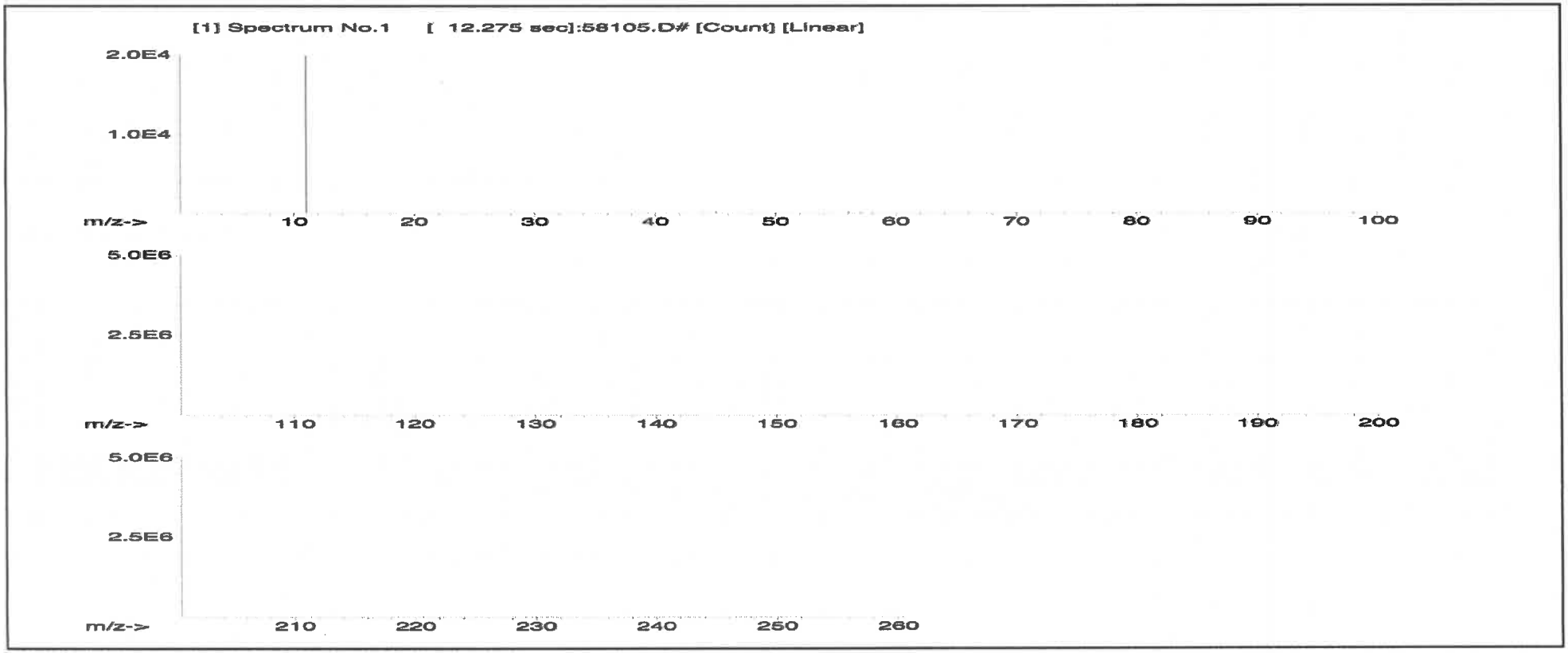
CERTIFIED WEIGHT REPORT:

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.
* 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

R1 02/09/24. M58165

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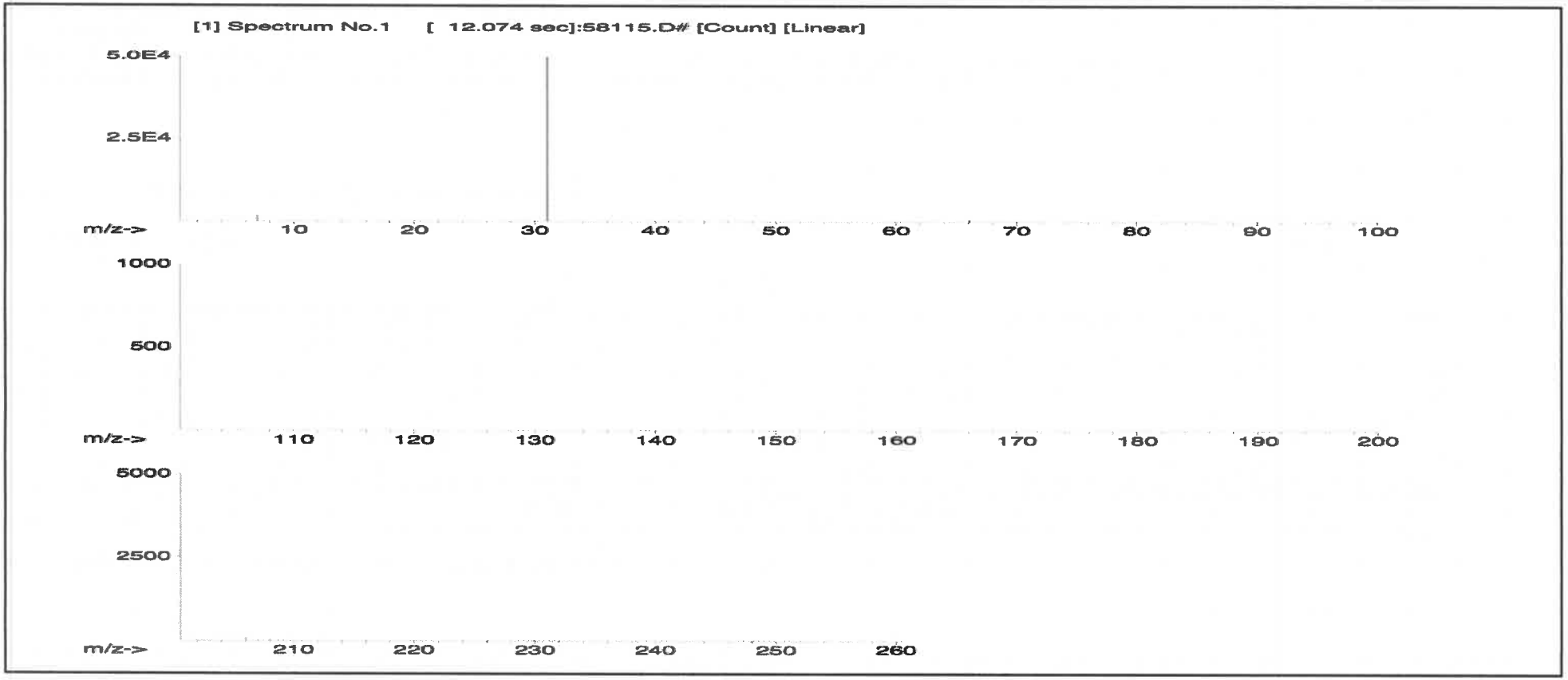
CERTIFIED WEIGHT REPORT:

			Lot #	
Part Number:	**57115**	**Solvent:**	21110221	Nitric Acid
Lot Number:	**041723**			
Description:	**Phosphorous (P)**	2%	40.0 (mL)	Nitric Acid
Expiration Date:	041726			
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):	2000.02	0.058	Flask Uncertainty	

Formulated By:	Lawrence Barry	041723
Reviewed By:	Pedro L. Rentas	041723

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	10000	99.999	0.10	27.5	72.7287	72.7289	**10000.0**	**20.0**	7722-76-1	5 mg/m3	orl-rat >2000mg/kg	3186



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	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.

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

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Certified Reference Material CRM

R: 02/09/24 M5816

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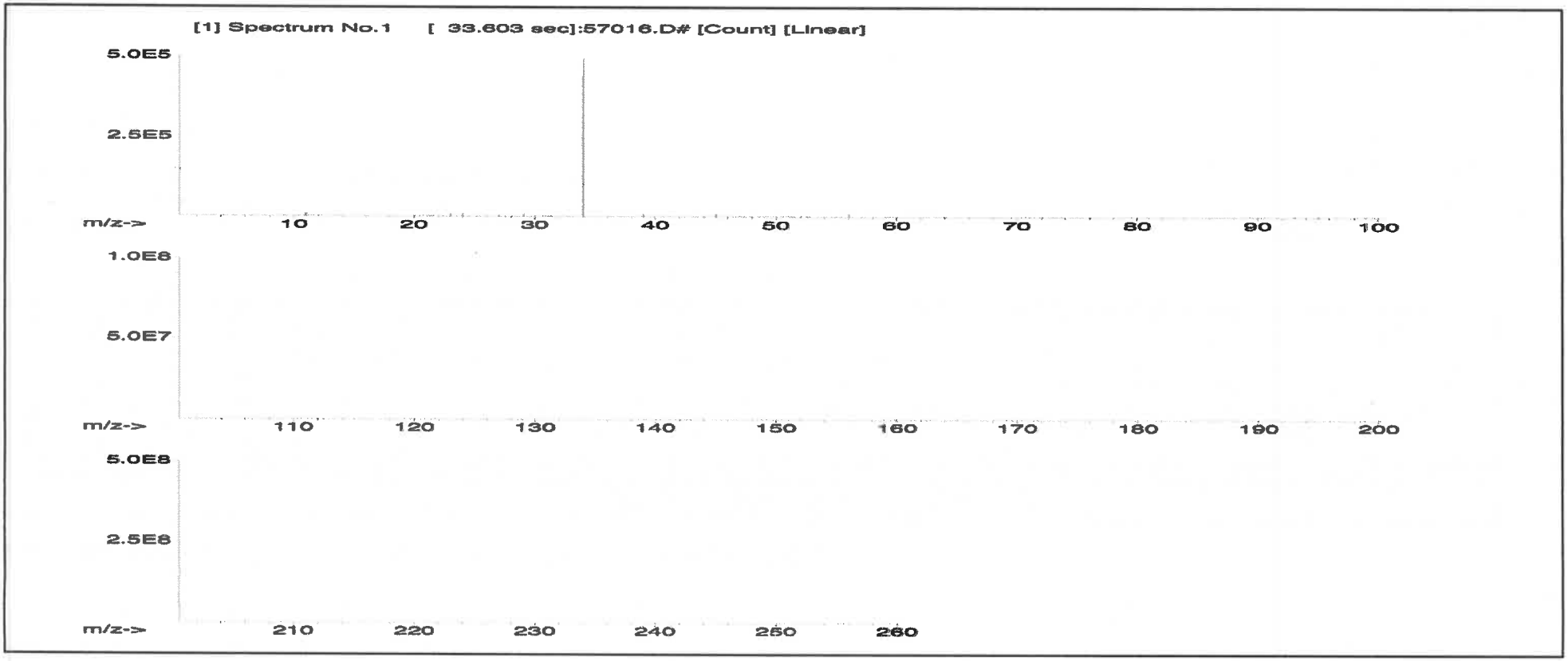
CERTIFIED WEIGHT REPORT:

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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Certified Reference Material CRM

R: 02/09/24 M5817

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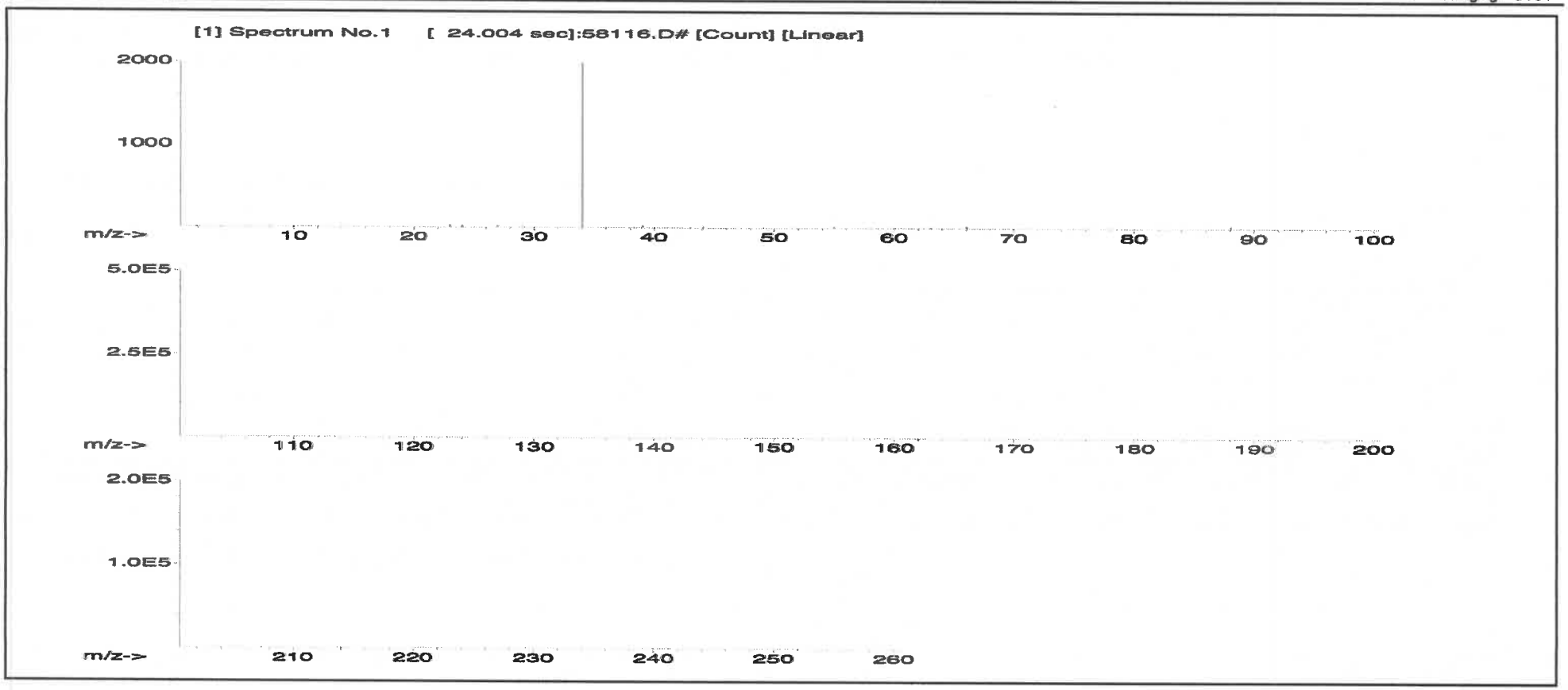
CERTIFIED WEIGHT REPORT:

Part Number:	**57116**			
Lot Number:	**071123**	**Solvent:**	071123	ASTM Type 1 Water
Description:	**Sulfur (S)**			
Expiration Date:	071126			
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):	1999.48	0.058	Flask Uncertainty	

Lot #

Formulated By:	Lawrence Barry	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 sulfate (S)	IN117	SLBR7225V	10000	99.9	0.10	24.3	82.4675	82.4682	**10000.1**	**20.0**	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:

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Certified Reference Material CRM

R: 02/09/24 M5820

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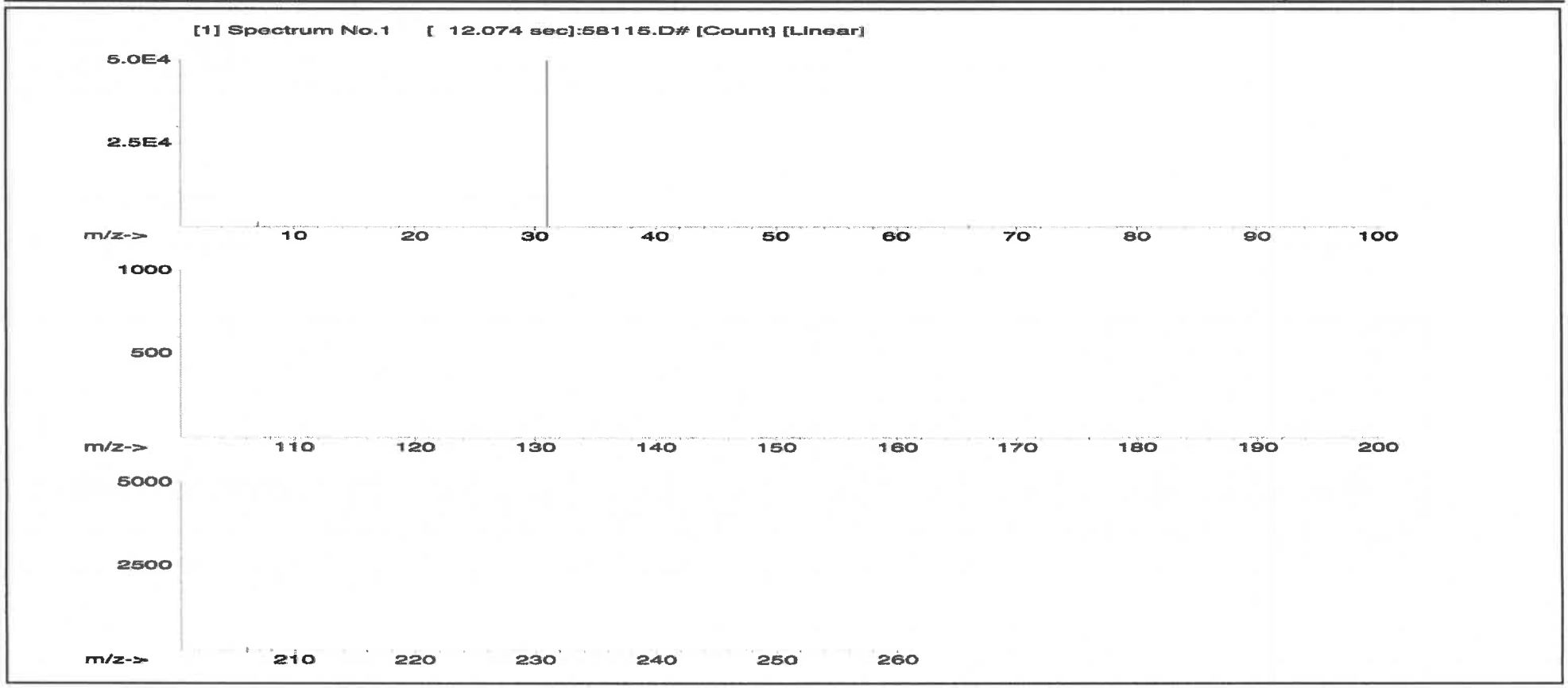
CERTIFIED WEIGHT REPORT:

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
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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:

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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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R: 02/22/24 M5942

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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:	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

INORGANIC VENTURES
Refine your results. Redefine your industry.

Certificate of Analysis

M5959 R: 6/14/24.

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 863.01
ACCREDITED Reference Material Producer Certificate 863.02

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

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M5962 R! 06/14/24.

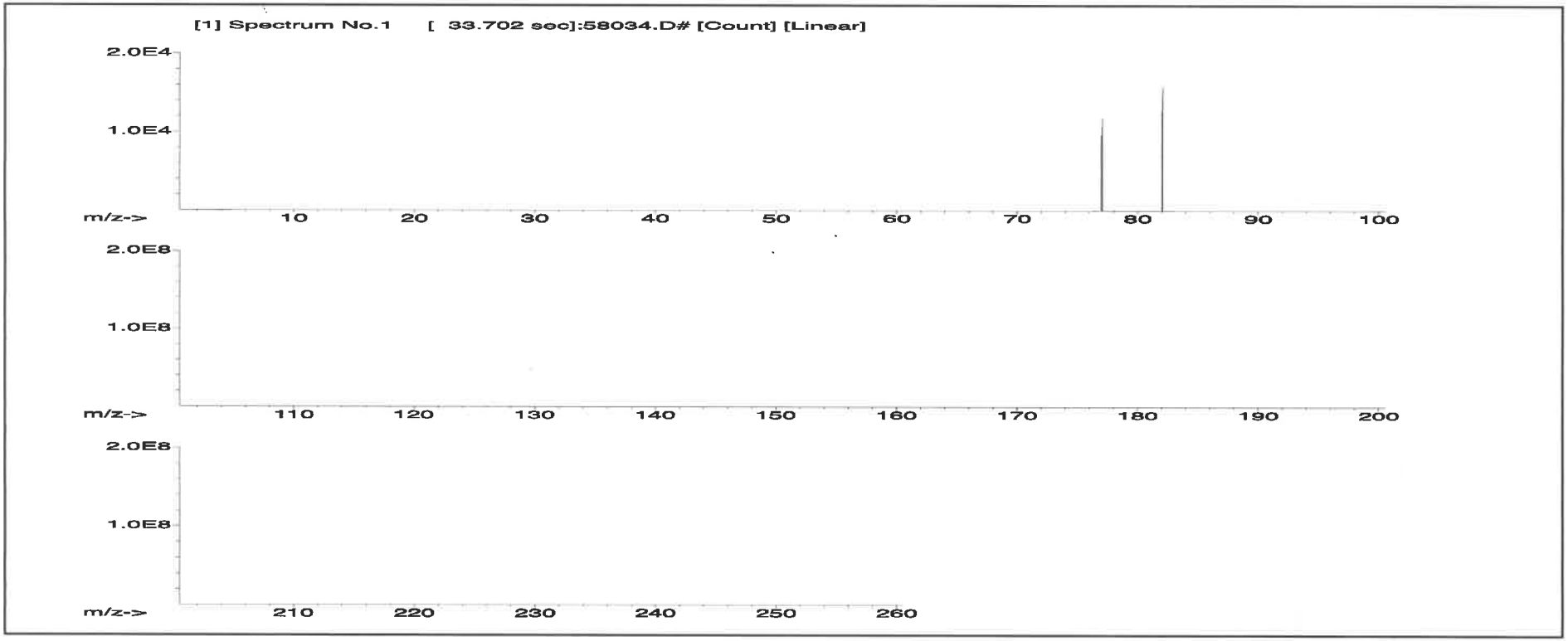
ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

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.
* 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

M5970, M5971 R: 7/01/24

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

CERTIFIED WEIGHT REPORT:

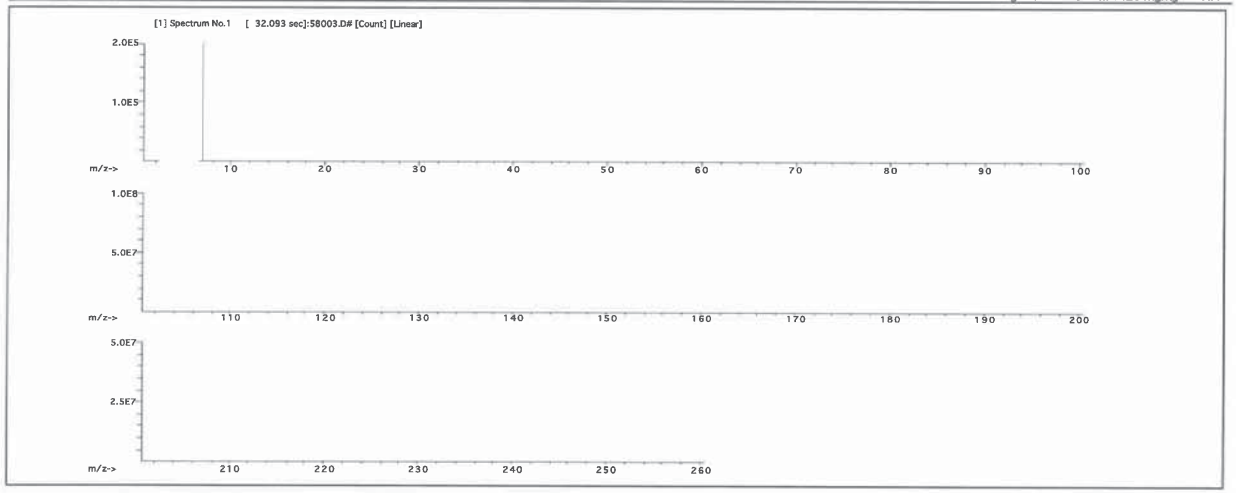
		Lot #	Solvent:
Part Number:	**57003**	24002546	Nitric Acid
Lot Number:	**062124**		
Description:	**Lithium (Li)**		
		2.0%	5.0 (mL) Nitric Acid
Expiration Date:	062127		
Recommended Storage:	Ambient (20 °C)		
Nominal Concentration (µg/mL):	**1000**		
NIST Test Number:	6UTB	5E-05 Balance Uncertainty	
Volume shown below was diluted to (mL):	250.11	0.016 Flask Uncertainty	

Giovanni Esposito

Formulated By: Giovanni Esposito 062124

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
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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Refine your results. Redefine your industry.

Certificate of Analysis

300 Technology Drive
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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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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:	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

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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.

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7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

December 21, 2022

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

11.2 Lot Expiration Date

- December 21, 2027

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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

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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:	CHEM-CLP-4
Lot Number:	V2-MEB746172
Matrix:	3% (v/v) HNO3 3% (v/v) HF
Value / Analyte(s):	1 000 µg/mL ea: Boron, Molybdenum, Silicon, Tin, Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

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

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

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, 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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Certificate of Analysis

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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 (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

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

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u_{bb} = bottle to bottle homogeneity standard uncertainty

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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.

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7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

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- 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

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- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

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.

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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.

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Certificate Approved By:

Joseph Burns
Custom VS Manager

Certifying Officer:

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ACCREDITED Testing Laboratory Certificate 883.01
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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
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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#
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B	Calculated		See Sec. 4.2
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5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

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

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9.0 HOMOGENEITY

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10.0 QUALITY STANDARD DOCUMENTATION

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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: _____

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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 → 1/13/25

M 6127

			Lot #	
Part Number:	**58112**	**Solvent:**	24012496	Nitric Acid
Lot Number:	**112124**			
Description:	**Magnesium (Mg)**	2%	40.0 (mL)	Nitric Acid
Expiration Date:	112127			
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):	2000.07	0.100	Flask Uncertainty	

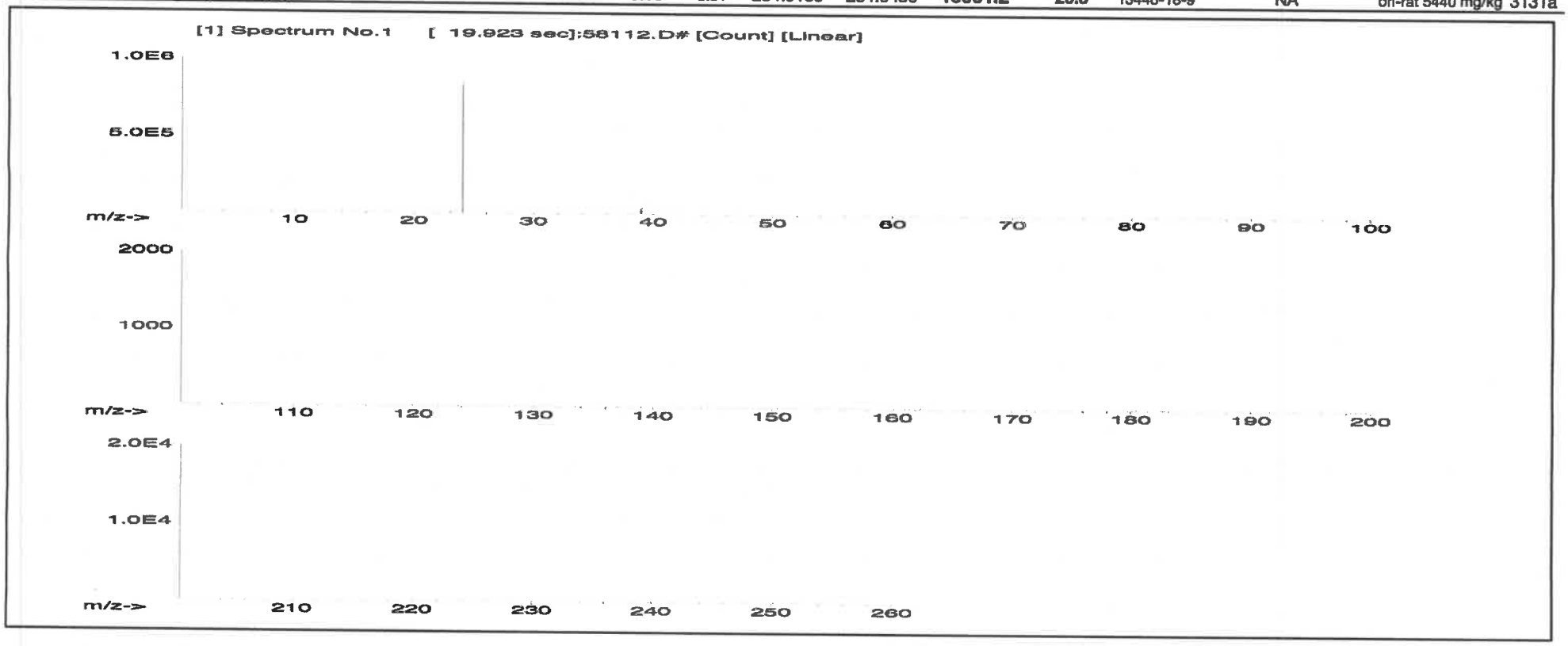
Giovanni Esposito

Formulated By:	Giovanni Esposito	112124

Pedro Rentas

Reviewed By:	Pedro L. Rentas	112124

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	234.9459	**10001.2**	**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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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	

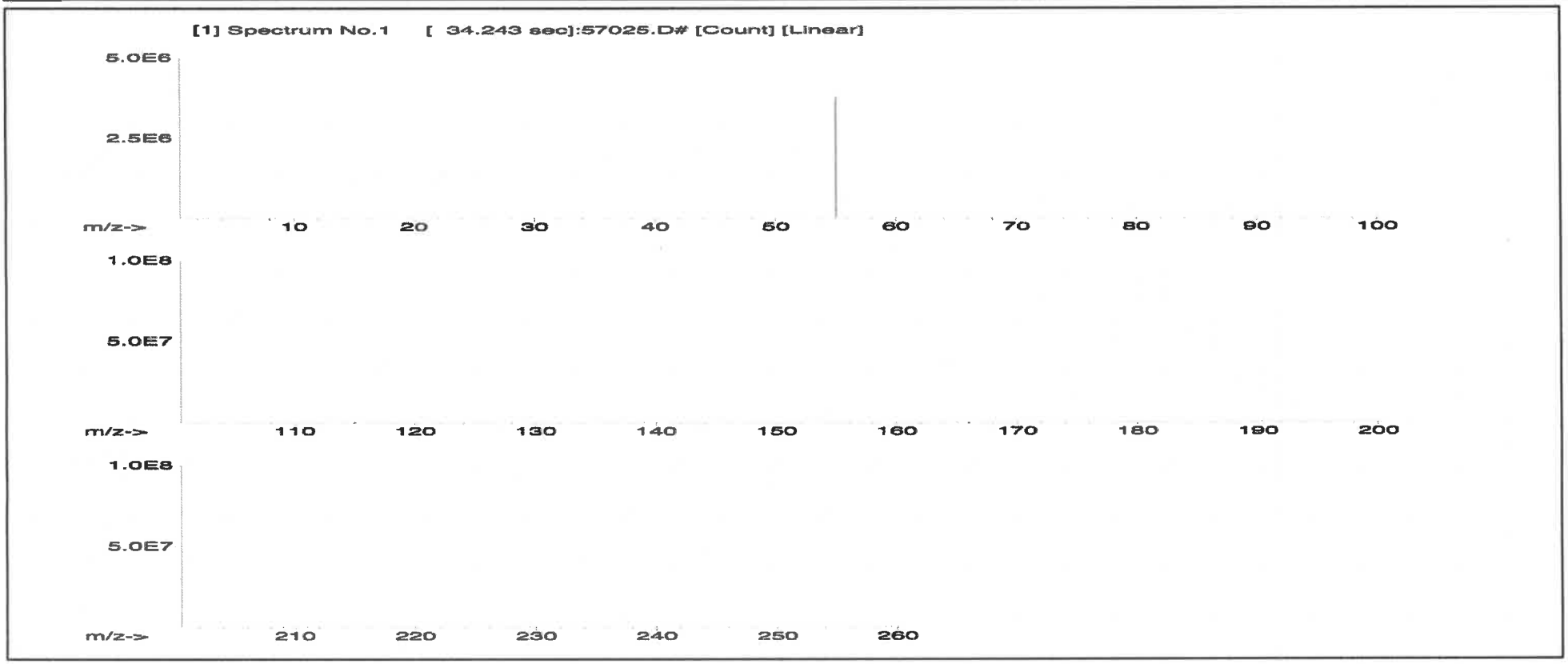
Giovanni Esposito

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).

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Certificate of Analysis

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Christiansburg, VA 24073 USA
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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

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

July 10, 2024

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

11.2 Lot Expiration Date

- **July 10, 2029**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor

Certificate Approved By:

Muzzammil Khan
Stock Laboratory Supervisor

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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www.absolutestandards.com

Certified Reference Material CRM

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M6138
R->1/13/25

CERTIFIED WEIGHT REPORT:

Part Number: 58120
Lot Number: 121824
Description: Calcium (Ca)

Expiration Date: 121827
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

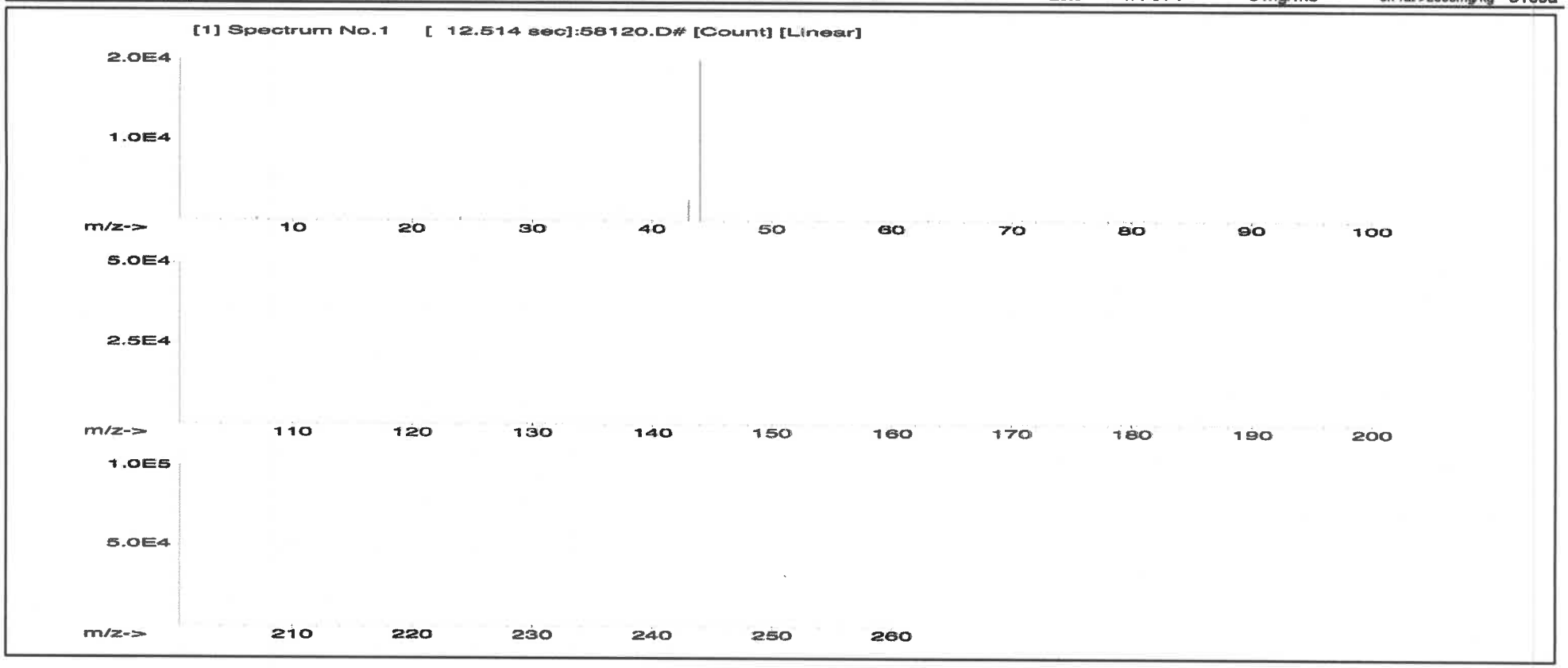
Weight shown below was diluted to (mL): 4000.1 0.15 Flask Uncertainty

	Lot #		
Solvent:	24012496	Nitric Acid	
2%	80.0 (mL)	Nitric Acid	
	5E-05	Balance Uncertainty	

Giovanni Esposito
Formulated By: Giovanni Esposito 121824

Pedro Rentas
Reviewed By: Pedro L. Rentas 121824

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	100.2677	**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.
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Certified Reference Material CRM

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CERTIFIED WEIGHT REPORT:

R-> 1/13/25

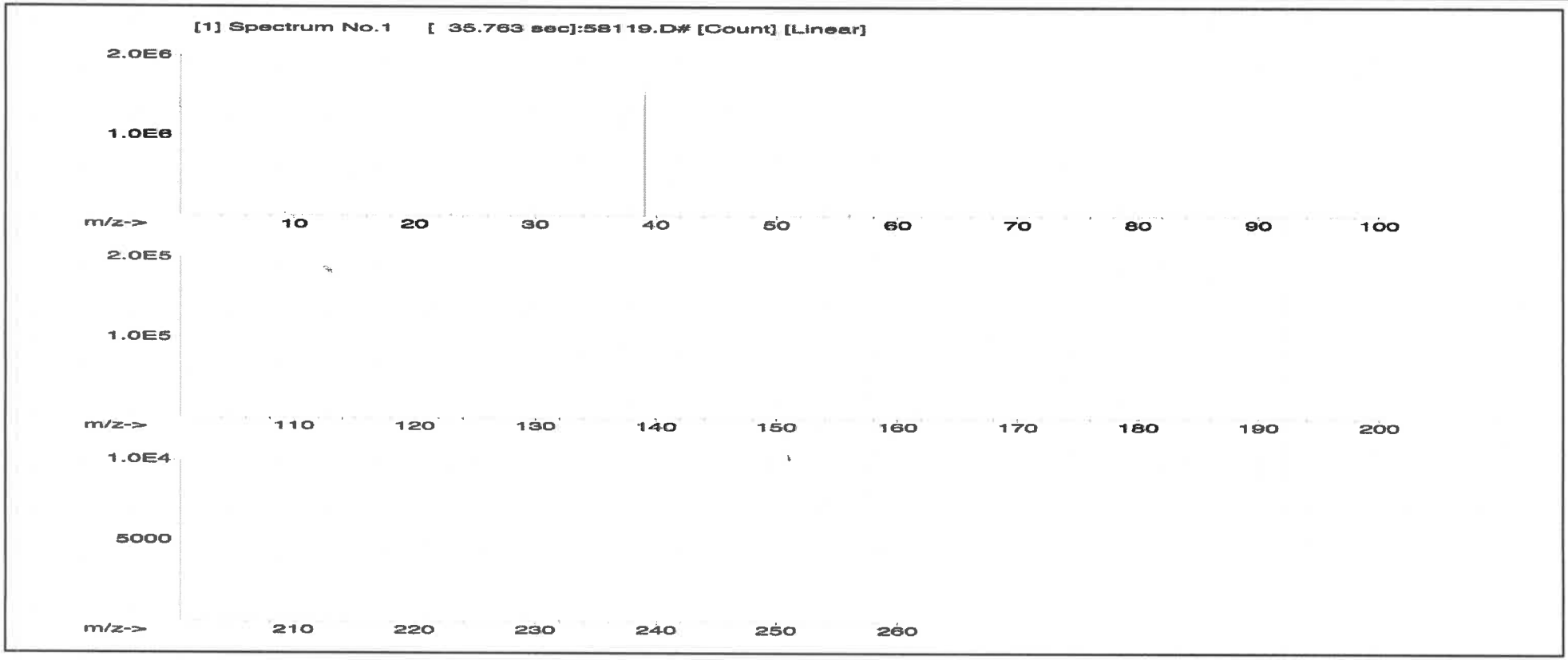
Part Number:	**57119**		**Lot #**		
Lot Number:	**103024**	**Solvent:**	24002546	Nitric Acid	
Description:	**Potassium (K)**	2%	80.0 (mL)	Nitric Acid	
Expiration Date:	103027				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**10000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	4000.1	0.15	Flask Uncertainty		

M6141
M6142
M6143

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)

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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.

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* 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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CERTIFIED WEIGHT REPORT:

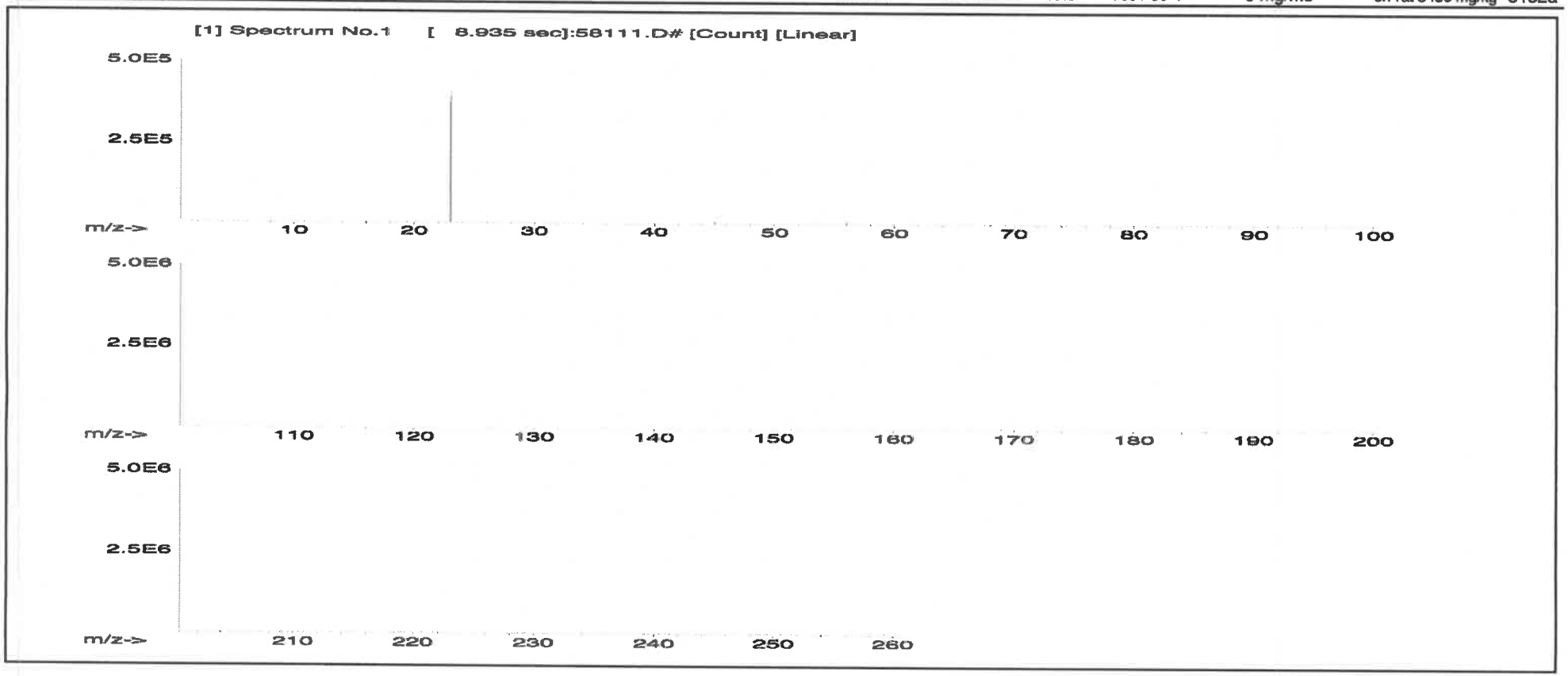
R->1/13/25

M6144

			Lot #	
Part Number:	**58111**	**Solvent:**	24002546	Nitric Acid
Lot Number:	**072424**			
Description:	**Sodium (Na)**	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 Reference Material CRM

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

CERTIFIED WEIGHT REPORT:

Part Number: 58030
Lot Number: 121724
Description: Zinc (Zn)

R → 1/13/25

M6145

Expiration Date: 121727
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

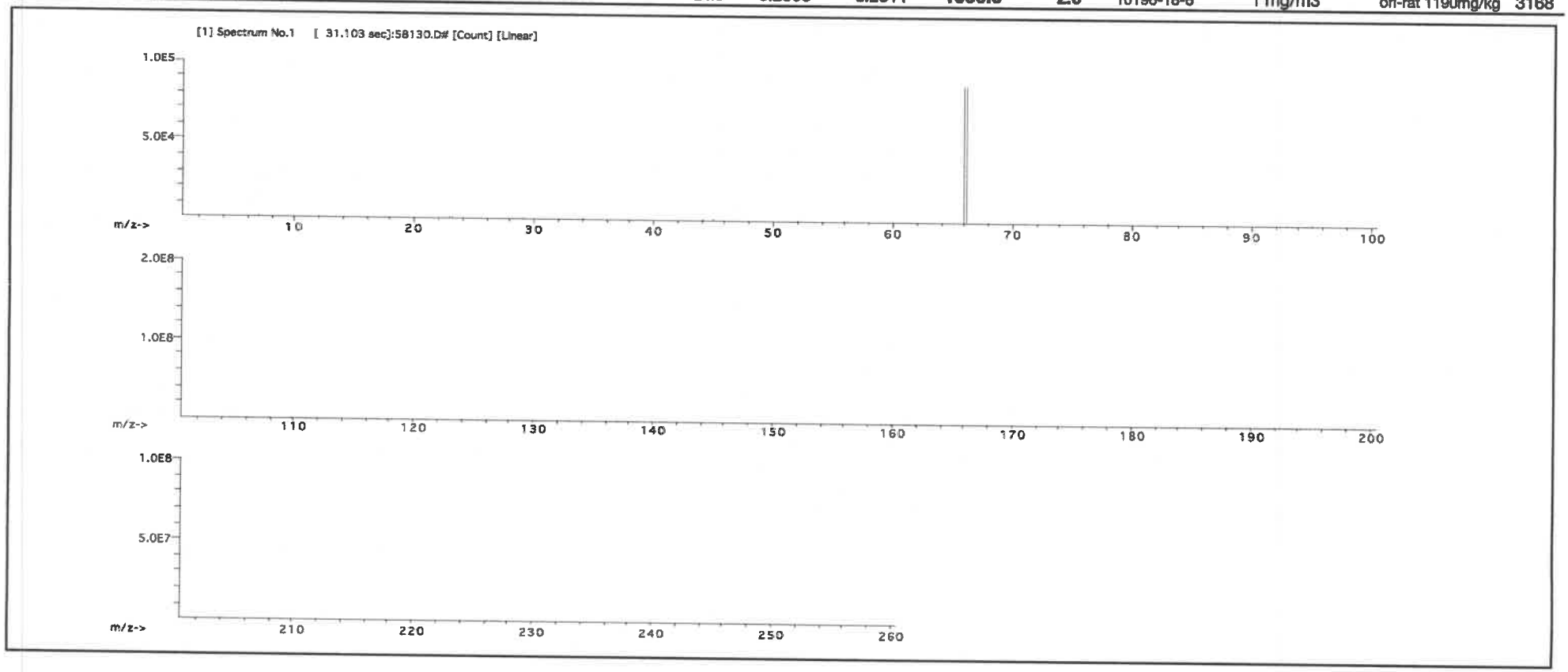
		Lot #	
Solvent:	24012496	Nitric Acid	
	2%	40.0 (mL)	Nitric Acid

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	ori-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.
* 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).

R : 4/20/21

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

M6150

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

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

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

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

Safety Data Sheets Available Upon Request

(A) *SAMPLE DESCRIPTION*

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

(B) *BREAKAGE OR MISSING ITEMS*

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

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

(C) *ANALYSIS OF SAMPLES*

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

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

The Quality Assurance Technical Support (QATS) contract is operated by APTIM Federal Services, LLC.

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

ICV5-0415 For the cold vapor analysis of mercury by AA, use a 100-fold dilution by pipetting 1 mL of the ICV5 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v) $K_2Cr_2O_7$ and 5% (v/v) nitric acid.

ICV6-0400 For the analysis of cyanide, use a 100-fold dilution by pipetting 1 mL of the ICV6 concentrate into a 100 mL volumetric flask and dilute to volume with Type II water. Distill this solution along with the samples before analysis. The cyanide concentrate is prepared from $K_3Fe(CN)_6$, Type II water, and 0.1 % sodium hydroxide, and will decompose rapidly if exposed to light.

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

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

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

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

Hydrochloric Acid, 36.5–38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

avantor™ | 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

avantor™ | J.T.Baker®

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

avantor™ | J.T.Baker®

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

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www.absolutestandards.com

Certified Reference Material CRM

M6030

R: 8/5/24

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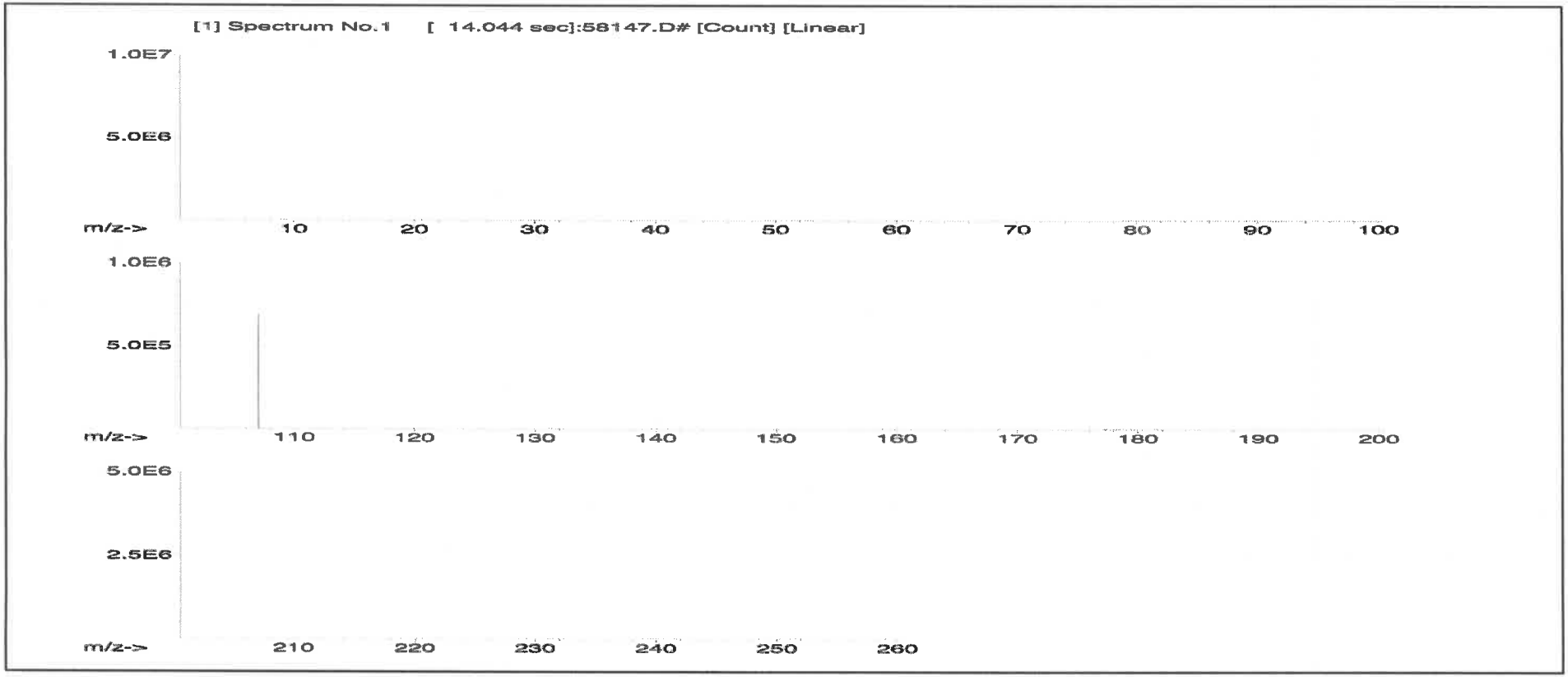
CERTIFIED WEIGHT REPORT:

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).

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

R: 10/18/24

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

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		

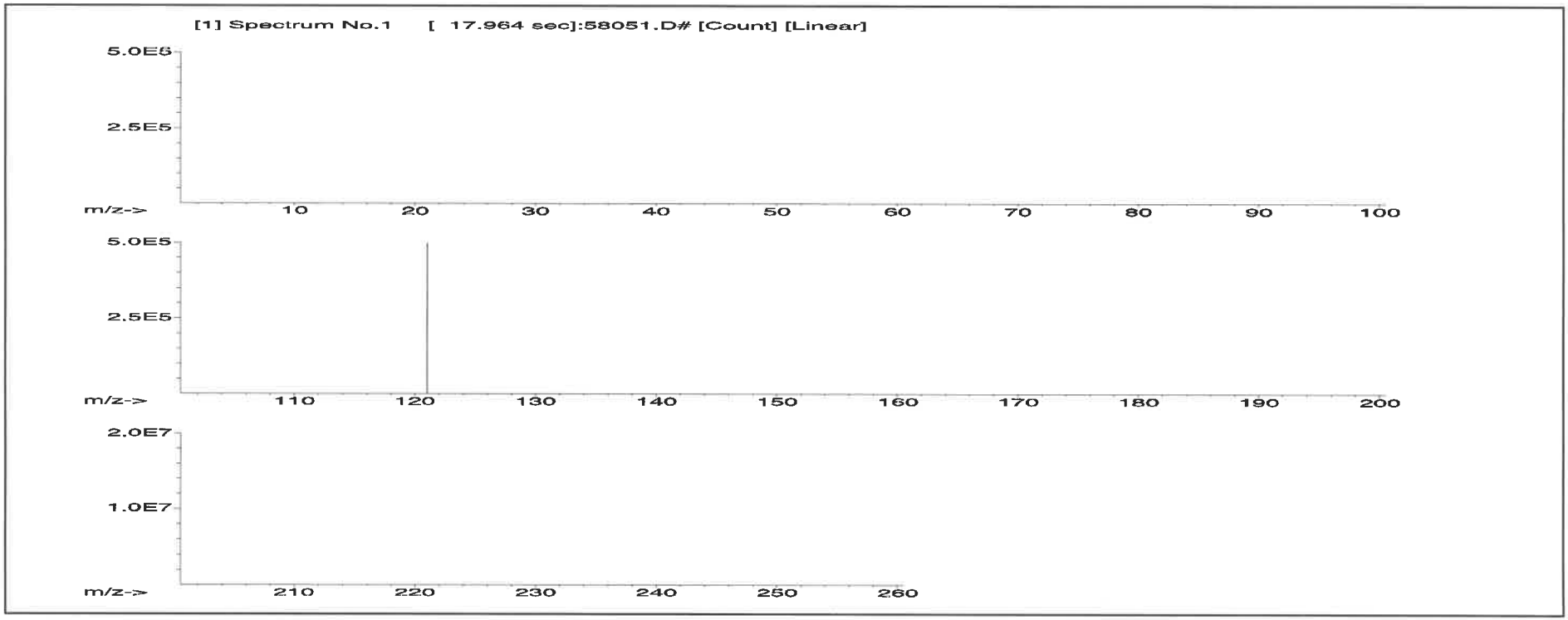
Giovanni Esposito

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).

APTIM

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

Instructions for QATS Reference Material: *ICP-AES ICS*

QATS LABORATORY INORGANIC REFERENCE MATERIAL INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)

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

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

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

M6152

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.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
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Instructions for QATS Reference Material: *ICP-AES ICS*

QATS LABORATORY INORGANIC REFERENCE MATERIAL INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)

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

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

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

M6155

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.

INORGANIC VENTURES™

Refine your results. Redefine your industry.

Certificate of Analysis

R: 8/5/24 M6019

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 888.01 ACCREDITED Reference Material Producer Certificate 888.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGSR1
Lot Number:	U2-SR730227
Matrix:	0.1% (v/v) HNO3
Value / Analyte(s):	1 000 µg/mL ea: Strontium
Starting Material:	SrCO3
Starting Material Lot#:	M2-2192
Starting Material Purity:	99.9993%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1001 ± 3 µg/mL

Density: 1.000 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 **998 ± 4 µg/mL**
ICP Assay NIST SRM Traceable to 3153a Lot Number: K2-SR650985

Assay Method #2 **1001 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

Assay Method #3 **1001 ± 2 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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	<	0.001980	M	Eu	<	0.000495	O	Na		0.000200	M	Se	<	0.013862	O	Zn		0.000143
O	Al		0.000370	O	Fe		0.000410	M	Nb	<	0.000495	i	Si	<		M	Zr	<	0.000495
M	As	<	0.000495	M	Ga	<	0.000495	M	Nd	<	0.000495	M	Sm	<	0.000495				
M	Au	<	0.000989	M	Gd	<	0.000495	O	Ni	<	0.007631	M	Sn	<	0.000990				
M	B	<	0.039606	M	Ge	<	0.000495	M	Os	<	0.000494	s	Sr	<					
M	Ba		0.006486	M	Hf	<	0.000495	i	P	<		M	Ta	<	0.000495				
M	Be	<	0.000990	M	Hg	<	0.000989	M	Pb	<	0.002970	M	Tb	<	0.000495				
M	Bi	<	0.000495	M	Ho	<	0.000495	M	Pd	<	0.003957	M	Te	<	0.027724				
O	Ca		0.004255	M	In	<	0.000495	M	Pr	<	0.000495	M	Th	<	0.000990				
M	Cd		0.001339	M	Ir	<	0.000494	M	Pt	<	0.002970	M	Ti	<	0.005940				
M	Ce	<	0.004950	O	K	<	0.008184	M	Rb	<	0.002970	M	Tl	<	0.000495				
M	Co	<	0.000495	M	La	<	0.000495	M	Re	<	0.000495	M	Tm	<	0.000495				
O	Cr	<	0.003207	O	Li	<	0.000884	O	Rh	<	0.012829	M	U	<	0.001485				
M	Cs	<	0.000990	M	Lu	<	0.002970	M	Ru	<	0.000989	M	V	<	0.001980				
M	Cu		0.000099	O	Mg		0.000064	i	S	<		M	W	<	0.003960				
M	Dy	<	0.000495	O	Mn		0.000066	M	Sb	<	0.014852	O	Y	<	0.000995				
M	Er	<	0.000495	M	Mo	<	0.001980	M	Sc	<	0.001980	M	Yb	<	0.000495				

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

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 87.62 +2 6 $Sr(H_2O)_6^{+2}$

Chemical Compatibility - Soluble in HCl, and HNO_3. Avoid H_2SO_4, HF and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicate, carbonate, hydroxide, oxide, fluoride, sulfate, oxalate, chromate, arsenate and tungstate in neutral aqueous media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1 - 3.5% HNO_3 / LDPE container.

Sr Containing Samples (Preparation and Solution) -Metal (Best dissolved in diluted HNO_3); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Dry ash and dissolution in dilute HCl).

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

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 88 amu	1200 ppt	N/A	72Ge16O, 176Yb+2, 176Lu+2 , 176Hf+2
ICP-OES 407.771 nm	0.0004 / 0.00006 µg/mL	1	U, Ce
ICP-OES 421.552 nm	0.0008 / 0.00004 µg/mL	1	Rb
ICP-OES 460.733 nm	0.07 / 0.003 µg/mL	1	Ce

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 03, 2023

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

11.2 Lot Expiration Date

- **March 03, 2028**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

INORGANIC VENTURES™

Refine your results. Redefine your industry.

Certificate of Analysis

R: 8/5/24 M6019

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
F: 540-585-3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 888.01 ACCREDITED Reference Material Producer Certificate 888.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGSR1
Lot Number:	U2-SR730227
Matrix:	0.1% (v/v) HNO3
Value / Analyte(s):	1 000 µg/mL ea: Strontium
Starting Material:	SrCO3
Starting Material Lot#:	M2-2192
Starting Material Purity:	99.9993%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1001 ± 3 µg/mL

Density: 1.000 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1 **998 ± 4 µg/mL**
ICP Assay NIST SRM Traceable to 3153a Lot Number: K2-SR650985

Assay Method #2 **1001 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

Assay Method #3 **1001 ± 2 µg/mL**
Calculated NIST SRM Lot Number: See Sec. 4.2

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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	<	0.001980	M	Eu	<	0.000495	O	Na		0.000200	M	Se	<	0.013862	O	Zn		0.000143
O	Al		0.000370	O	Fe		0.000410	M	Nb	<	0.000495	i	Si	<		M	Zr	<	0.000495
M	As	<	0.000495	M	Ga	<	0.000495	M	Nd	<	0.000495	M	Sm	<	0.000495				
M	Au	<	0.000989	M	Gd	<	0.000495	O	Ni	<	0.007631	M	Sn	<	0.000990				
M	B	<	0.039606	M	Ge	<	0.000495	M	Os	<	0.000494	s	Sr	<					
M	Ba		0.006486	M	Hf	<	0.000495	i	P	<		M	Ta	<	0.000495				
M	Be	<	0.000990	M	Hg	<	0.000989	M	Pb	<	0.002970	M	Tb	<	0.000495				
M	Bi	<	0.000495	M	Ho	<	0.000495	M	Pd	<	0.003957	M	Te	<	0.027724				
O	Ca		0.004255	M	In	<	0.000495	M	Pr	<	0.000495	M	Th	<	0.000990				
M	Cd		0.001339	M	Ir	<	0.000494	M	Pt	<	0.002970	M	Ti	<	0.005940				
M	Ce	<	0.004950	O	K	<	0.008184	M	Rb	<	0.002970	M	Tl	<	0.000495				
M	Co	<	0.000495	M	La	<	0.000495	M	Re	<	0.000495	M	Tm	<	0.000495				
O	Cr	<	0.003207	O	Li	<	0.000884	O	Rh	<	0.012829	M	U	<	0.001485				
M	Cs	<	0.000990	M	Lu	<	0.002970	M	Ru	<	0.000989	M	V	<	0.001980				
M	Cu		0.000099	O	Mg		0.000064	i	S	<		M	W	<	0.003960				
M	Dy	<	0.000495	O	Mn		0.000066	M	Sb	<	0.014852	O	Y	<	0.000995				
M	Er	<	0.000495	M	Mo	<	0.001980	M	Sc	<	0.001980	M	Yb	<	0.000495				

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

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 87.62 +2 6 $Sr(H_2O)_6^{+2}$

Chemical Compatibility - Soluble in HCl, and HNO_3. Avoid H_2SO_4, HF and neutral to basic media. Stable with most metals and inorganic anions forming insoluble silicate, carbonate, hydroxide, oxide, fluoride, sulfate, oxalate, chromate, arsenate and tungstate in neutral aqueous media.

Stability - 2-100 ppb levels stable for months in 1% HNO_3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 1 - 3.5% HNO_3 / LDPE container.

Sr Containing Samples (Preparation and Solution) -Metal (Best dissolved in diluted HNO_3); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Dry ash and dissolution in dilute HCl).

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

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 88 amu	1200 ppt	N/A	72Ge16O, 176Yb+2, 176Lu+2 , 176Hf+2
ICP-OES 407.771 nm	0.0004 / 0.00006 µg/mL	1	U, Ce
ICP-OES 421.552 nm	0.0008 / 0.00004 µg/mL	1	Rb
ICP-OES 460.733 nm	0.07 / 0.003 µg/mL	1	Ce

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 03, 2023

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

11.2 Lot Expiration Date

- **March 03, 2028**

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

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M6023

R ! 8/5/24

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

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		

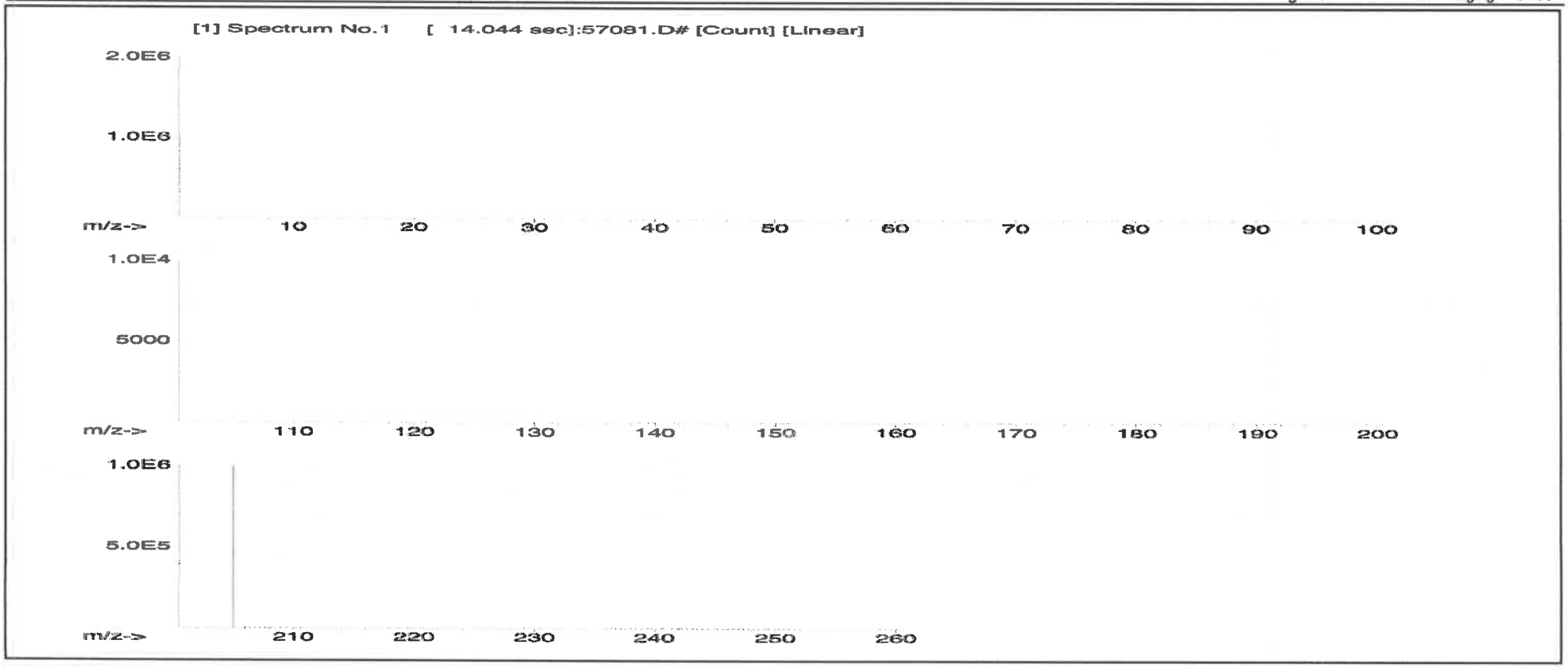
Aleah O'Brady

Formulated By:	Aleah O'Brady	062724

Pedro Rentas

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.
* 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

M6021

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

Rc. 8/5/24

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57023**			
Lot Number:	**062424**			
Description:	**Vanadium (V)**	24002546	Nitric Acid	
		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	

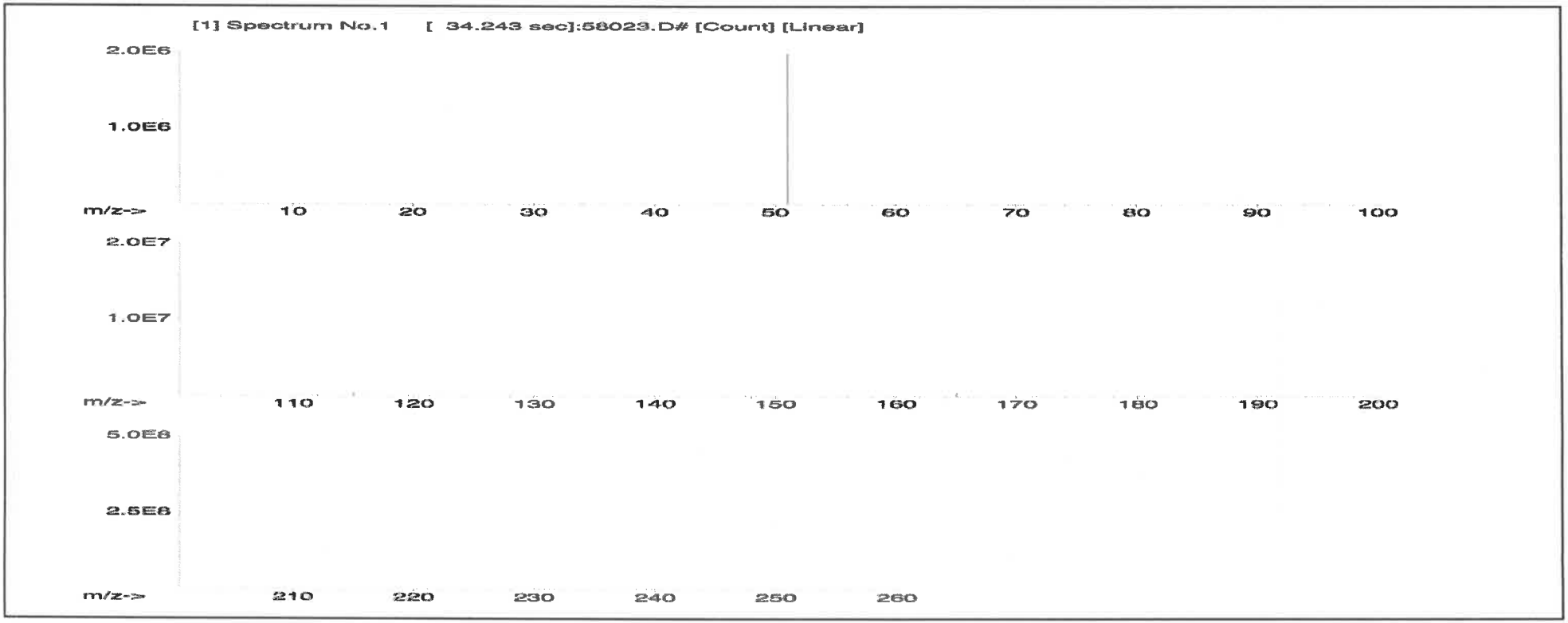
Aleah O'Brady

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

(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).

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. Q19560
COC Number 2046701

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: CDM Smith
ADDRESS: 110 Fieldcrest Avenue #8 6th Floor
CITY Edison STATE: NJ ZIP: 08837
ATTENTION: Marcie Encinas
PHONE: 732-590-4679 FAX: 732-225-7851

CLIENT PROJECT INFORMATION

PROJECT NAME: Bergen Point Project
PROJECT NO.: 99939 LOCATION: W. Babylon, NY
PROJECT MANAGER: Marcie Encinas
e-mail: ENcinasMA@CDMSmith.com
PHONE: 732-590-4679 FAX: 732-225-7851

CLIENT BILLING INFORMATION

BILL TO: CDM Smith PO#:
ADDRESS: 110 Fieldcrest Avenue, #8 Floor 6th
CITY Edison STATE: NJ ZIP: 08837
ATTENTION: Marcie Encinas PHONE: 732-590-4690

DATA TURNAROUND INFORMATION

FAX (RUSH) _____ DAYS*
HARDCOPY (DATA PACKAGE): _____ DAYS*
EDD: _____ 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 _____

ANALYSIS

1: TCL VOC
2: TCL SVOC
3: TAL METALS
4: PCBs
5: PESTICIDES
6: HERBICIDES
7: PRO/GRO
8: FULL TCLP
9: RCRA CHARAC

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.	SB1 - 3-4'	Soil		X	5/1/25	9:00am	13	X	X	X	X	X	X	X			E
2.	SB2-4-5'	Soil		X	5/2/25	12:00pm	13	X	X	X	X	X	X	X			E
3.	COMP1	Soil	X		5/2/25	1:30pm	3								X	X	E
4.	SB91 - 3-4'	Soil		X	5/1/25	9:20am	13	X	X	X	X	X	X	X	X		E
5.	SB2 - MS	Soil		X	5/2/25	12:30pm	13	X	X	X	X	X	X	X			E
6.	SB2 - MSD	Soil		X	5/2/25	12:40pm	13	X	X	X	X	X	X	X			E
7.	FB-05022025	Aqueous		X	5/2/25	11:00am	9	X	X	X	X	X	X	X			E, A, B
8.																	
9.																	
10.																	

← 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.	5.2.2025 1404	1.
2.		2.
3.	5.2.2025 1826	3.

Conditions of bottles or coolers at receipt: ☐ COMPLIANT ☐ NON COMPLIANT ☒ COOLER TEMP 2.3 °C
Comments: IR Gun #1 (Adjusted Factor + 1)

Page _____ of

CLIENT: ☐ Hand Delivered ☐ Other _____

Shipment Complete ☐ YES ☐ NO

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WHITE - ALLIANCE COPY FOR RETURN TO CLIENT YELLOW - ALLIANCE COPY PINK - SAMPLER COPY

284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

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

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

LOGIN REPORT/SAMPLE TRANSFER

Order ID : Q1956 CAMP02
Client Name : CDM Smith
Client Contact : Marcie Ann Encinas
Invoice Name : CDM Smith
Invoice Contact : Marcie Ann Encinas

Order Date : 5/2/2025 3:14:35 PM
Project Name : Bergen Point Fueling Syste
Receive DateTime : 5/2/2025 ~~12:00:00~~ AM 18:26
Purchase Order :

Project Mgr :
Report Type : NYS ASP A
EDD Type : EQUIS
Hard Copy Date :
Date Signoff :

LAB ID	CLIENT ID	MATRIX	SAMPLE DATE	SAMPLE TIME	TEST	TEST GROUP	METHOD	FAX DATE	DUE DATES
Q1956-01	SB1-3-4	Solid	05/01/2025	09:00					
					VOC-TCLVOA-10		8260D		10 Bus. Days
Q1956-02	SB2-4-5	Solid	05/02/2025	12:00					
					VOC-TCLVOA-10		8260D		10 Bus. Days
Q1956-03	Q1956-02MS	Solid	05/02/2025	12:30					
					VOC-TCLVOA-10		8260D		10 Bus. Days
Q1956-04	Q1956-02MSD	Solid	05/02/2025	12:40					
					VOC-TCLVOA-10		8260D		10 Bus. Days
Q1956-06	~~SB19~~-3-4 SB91	Solid	05/01/2025	09:30					
					VOC-TCLVOA-10		8260D		10 Bus. Days
Q1956-07	FB-05022025	Water	05/02/2025	11:00					
					VOC-TCLVOA-10		8260-Low		10 Bus. Days

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

LOGIN REPORT/SAMPLE TRANSFER

Order ID : Q1956 CAMP02
Client Name : CDM Smith
Client Contact : Marcie Ann Encinas
Invoice Name : CDM Smith
Invoice Contact : Marcie Ann Encinas

Order Date : 5/2/2025 3:14:35 PM
Project Name : Bergen Point Fueling Syste
Receive DateTime : 5/2/2025 ~~12:00:00~~ 15:26 AM
Purchase Order :

Project Mgr :
Report Type : NYS ASP A
EDD Type : EQUIS
Hard Copy Date :
Date Signoff :

LAB ID	CLIENT ID	MATRIX	SAMPLE DATE	SAMPLE TIME	TEST	TEST GROUP	METHOD	FAX DATE	DUE DATES
Q1956-09 TB		water	5/2/25	12:00	VOC-TCLVOA-10		8260-LOW		10 Bus Days.

Relinguished By : [signature]
Date / Time : 5/5/25 0835

Received By : [signature]
Date / Time : 5/5/25 08:35
Storage Area : VOA Refridgerator Room

Rep # 6
FZ-2